



# 17467 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

Cycle: 31, Proposal Category: GO

(Availability Mode: SUPPORTED)

## INVESTIGATORS

| <i>Name</i>                              | <i>Institution</i>                             |
|------------------------------------------|------------------------------------------------|
| <b>Dr. Tom Megeath (PI) (Contact)</b>    | <b>University of Toledo</b>                    |
| Dr. Dan Watson (CoI)                     | University of Rochester                        |
| Adam E Rubinstein (CoI)                  | University of Rochester                        |
| Guillem Anglada (CoI) (ESA Member)       | Instituto de Astrofisica de Andalucia (IAA)    |
| Mrs. Prabhani Atnagulov (CoI)            | University of Toledo                           |
| Dr. Tyler L Bourke (CoI) (ESA Member)    | SKA Observatory                                |
| Dr. Neal J. Evans II (CoI)               | University of Texas at Austin                  |
| Dr. Sam Federman (CoI) (ESA Member)      | INAF - Osservatorio Astronomico di Capodimonte |
| Dr. William J. Fischer (CoI)             | Space Telescope Science Institute              |
| Dr. Elise Furlan (CoI)                   | California Institute of Technology             |
| Dr. Joel David Green (CoI)               | Space Telescope Science Institute              |
| Dr. Robert Gutermuth (CoI)               | University of Massachusetts - Amherst          |
| Dr. Nolan Habel (CoI)                    | Jet Propulsion Laboratory                      |
| Dr. Lee W. Hartmann (CoI)                | University of Michigan                         |
| Dr. Nicole Karnath (CoI)                 | Space Science Institute                        |
| Prof. Pamela Klaassen (CoI) (ESA Member) | United Kingdom Astronomy Technology Centre     |
| Dr. Hendrik Linz (CoI) (ESA Member)      | Max Planck Institute for Astronomy             |
| Dr. Leslie Looney (CoI)                  | University of Illinois at Urbana - Champaign   |
| Prof. Manoj Puravankara (CoI)            | Tata Institute of Fundamental Research, Bombay |
| Dr. Mayank Narang (CoI)                  | Jet Propulsion Laboratory                      |

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| <i>Name</i>                          | <i>Institution</i>                                |
|--------------------------------------|---------------------------------------------------|
| Dr. Mayra Osorio (CoI) (ESA Member)  | Instituto de Astrofísica de Andalucía (IAA)       |
| Dr. Riway Pokhrel (CoI)              | University of Toledo                              |
| Dr. Thomas Stanke (CoI) (ESA Member) | Max Planck Institute for Extraterrestrial Physics |
| Dr. Amelia Marie Stutz (CoI)         | Universidad de Concepcion                         |
| Himanshu Tyagi (CoI)                 | Tata Institute of Fundamental Research, Bombay    |
| Dr. John Tobin (CoI)                 | Associated Universities, Inc.                     |
| Dr. Scott J. Wolk (CoI)              | Smithsonian Institution Astrophysical Observatory |

**VISITS**

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01           | (2) HOPS-153-OUTFLOW-EAST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:15.0        | yes                           |
| 02           | (2) HOPS-153-OUTFLOW-EAST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:16.0        | yes                           |
| 03           | (2) HOPS-153-OUTFLOW-EAST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:16.0        | yes                           |
| 04           | (2) HOPS-153-OUTFLOW-EAST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:16.0        | yes                           |
| 05           | (2) HOPS-153-OUTFLOW-EAST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:17.0        | yes                           |
| 06           | (3) HOPS-153-OUTFLOW-WEST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:17.0        | yes                           |
| 07           | (3) HOPS-153-OUTFLOW-WEST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:17.0        | yes                           |
| 08           | (3) HOPS-153-OUTFLOW-WEST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:18.0        | yes                           |
| 09           | (3) HOPS-153-OUTFLOW-WEST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:18.0        | yes                           |
| 10           | (3) HOPS-153-OUTFLOW-WEST    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:18.0        | yes                           |
| 11           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:19.0        | yes                           |
| 16           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:19.0        | yes                           |
| 12           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:19.0        | yes                           |
| 17           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:20.0        | yes                           |
| 13           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:20.0        | yes                           |
| 18           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:20.0        | yes                           |
| 14           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:21.0        | yes                           |

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 15           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:21.0        | yes                           |
| 19           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:22.0        | yes                           |
| 20           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:22.0        | yes                           |
| 21           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:22.0        | yes                           |
| 22           | (4) HOPS370-OUTFLOW-NORTH    | WFC3/IR                             | 1                  | 03-Mar-2026 22:00:23.0        | yes                           |

22 Total Orbits Used

### **ABSTRACT**

Leveraging existing JWST IFU and HST WFC3/IR data, we propose to observe the jets of two young protostars in Orion: the low mass protostar HOPS153 and the intermediate mass protostar HOPS 370. Collimated jets from low to intermediate mass protostars shape the IMF and lower the star formation efficiency by carving cavities in the infalling envelopes of gas feeding the protostars. The jets then propagate into the surrounding cloud, stirring up gas, and likely regulating or lowering the rate of star formation in molecular clouds. JWST NIRSpec and MIRI MRS > 3 micron IFU observations of HOPS 153 and 370 shows jets traced by [FeII] in the inner 1200 au of the protostars, with spatial resolutions down to 80 au. At distances of 30,000 to 100,000 au from the protostar, where the extinction no longer hides the jets from 1-2 micron observations, the proposed HST WFC3/IR observations will trace shocks in jets launched by these protostars using narrow band filters covering the [FeII] 1.66 and 1.26 micron lines, and the Paschen Beta HI line. By comparing the [FeII] 1.64 um maps to F160W observations from 2010 and 2019, we will measure the proper motion of the shocks. By comparing the [FeII] 1.66 um to Paschen Beta line ratio to models, we will measure the velocity of the pre-shock (jet) gas relative to the shocks. We will also determine the propagation timescale between shocks in the jet, and thereby the interval being accretion events thought to drive the shocks. This program will trace the flow of mass, momentum and energy in jets of representative young protostars from 100 to 100,000 au, providing new constraints on the role of jets in shaping the IMF and regulating SF.

### **OBSERVING DESCRIPTION**

We observe three fields with WFC3/IR, in five narrowband filters necessary to produce continuum subtracted images of [Fe II] 1.26 micron, H I PaBeta 1.28 micron, and [Fe II] 1.64 micron: F126N, F128N, F130N, F164N and F167N. The three fields cover key parts of the HOPS 153 and HOPS 370 outflows and correspond to fields in which there are first-epoch images taken in 2010 using WFC3+F160W.

Our baseline observations call for 2400 second exposures for each field and filter. Assuming the crude extinction estimates above, and referring to

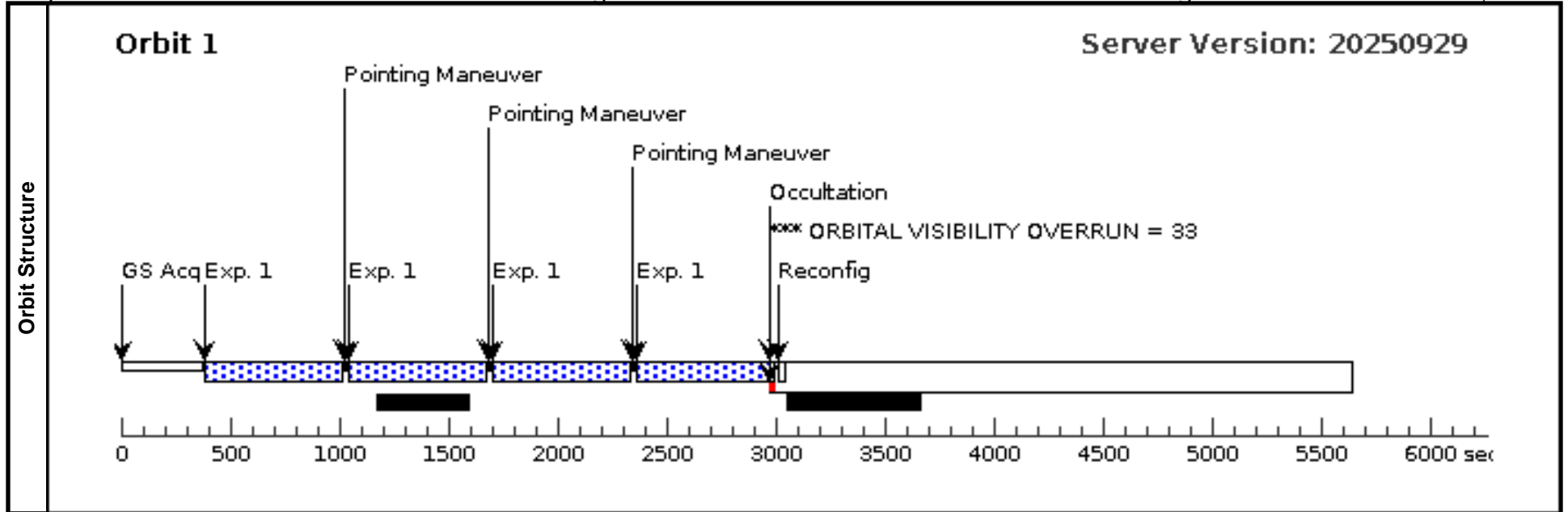
## Proposal 17467 (STScI Edit Number: 1, Created: Tuesday, March 3, 2026, 10:00:23PM Eastern Standard Time) - Overview

our model grid, the first-epoch image leads to good estimates of signal-to-noise ratio. Using this information in ETC estimates that S/N should be typically 100-300 for continuum-subtracted compact structures in [Fe II] 1.64 micron in all three fields. Since we will use this wavelength for proper motion measurements, we need S/N to be particularly large ( $> 100$ ). For the other two lines, S/N is smaller, but is large enough that accurate extinction and shock-speed measurements will result. In HOPS 153 we estimate typical S/N of 100-220 and 50-70 respectively for [Fe II] 1.26 micron and H I PaBeta 1.28 micron. In HOPS 370 we estimate the corresponding S/N ranges to be 50-200 and 30-100. Given that we can observe about 2400 s per orbit, we ask for a program length of 15 orbits.

The observations are set so that the orientation of the five filters in for each source is the same as the F164N filter.

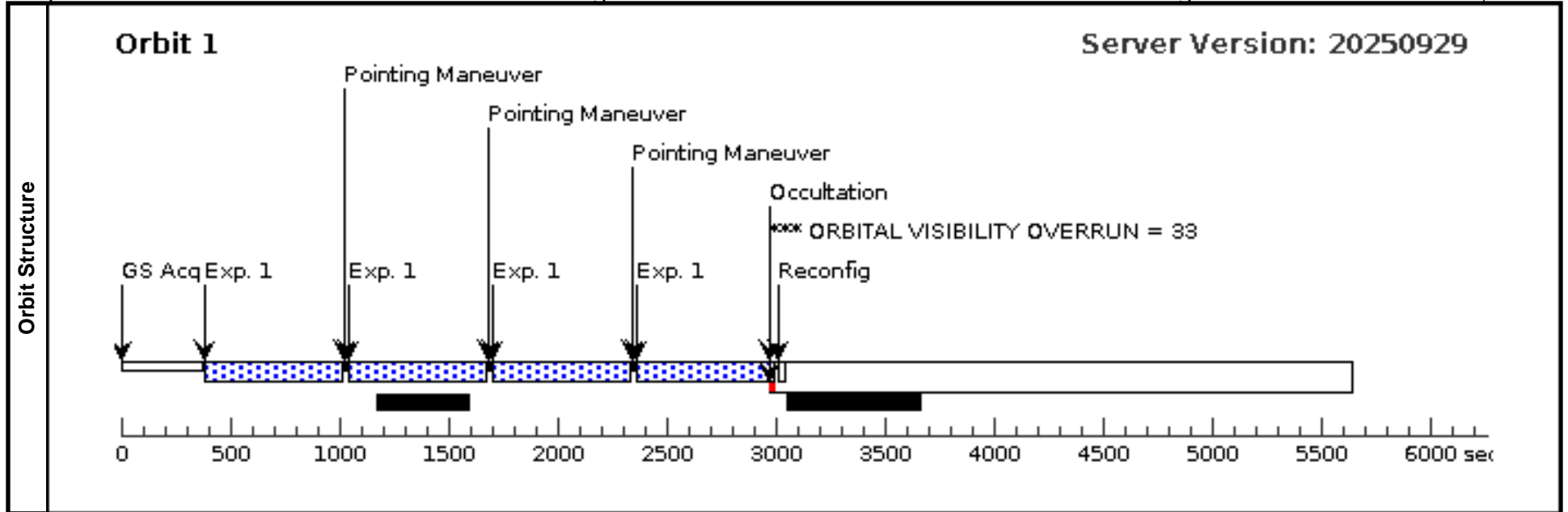
Proposal 17467 - Visit 01 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

|                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------|---------------|-------------------------------|---------------|--------|-----------------------------------------------------------------------------------------------------------------|-------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 01, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br>Diagnostic Status: Warning<br>Scientific Instruments: WFC3/IR<br>Special Requirements: (none) |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
|                                                                                                                                                                                                    | (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                       |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
|                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
| <b>Patterns</b>                                                                                                                                                                                    | #                                                                                                                                                                                                    | Primary Pattern                                                                                                  |                                                                                                         | Secondary Pattern         |               | Exposures                     |               |        |                                                                                                                 |       |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                  | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                           |               | (1)                           |               |        |                                                                                                                 |       |
| <b>Fixed Targets</b>                                                                                                                                                                               | #                                                                                                                                                                                                    | Name                                                                                                             | Target Coordinates                                                                                      | Targ. Coord. Corrections  | Fluxes        | Miscellaneous                 |               |        |                                                                                                                 |       |
|                                                                                                                                                                                                    | (2)                                                                                                                                                                                                  | HOPS-153-OUTFLOW-EAST                                                                                            | RA: 05 38 10.1969 (84.5424871d)<br>Dec: -07 09 18.67 (-7.15519d)<br>Equinox: J2000                      | Epoch of Position: 2015.5 | V=35          | Reference Frame: SIMBAD       |               |        |                                                                                                                 |       |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
| <b>Exposures</b>                                                                                                                                                                                   | #                                                                                                                                                                                                    | Label                                                                                                            | Target                                                                                                  | Config,Mode,Aperture      | Spectral Els. | Opt. Params.                  | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.]                                                                                 | Orbit |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                    |                                                                                                                  | (2) HOPS-153-OUTFLOW-EAST                                                                               | WFC3/IR, MULTIACCUM, IR   | F164N         | NSAMP=12;<br>SAMP-SEQ=STEP100 |               |        | Pattern 1, Exps 1-1 in Visit 01 (1)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]   |



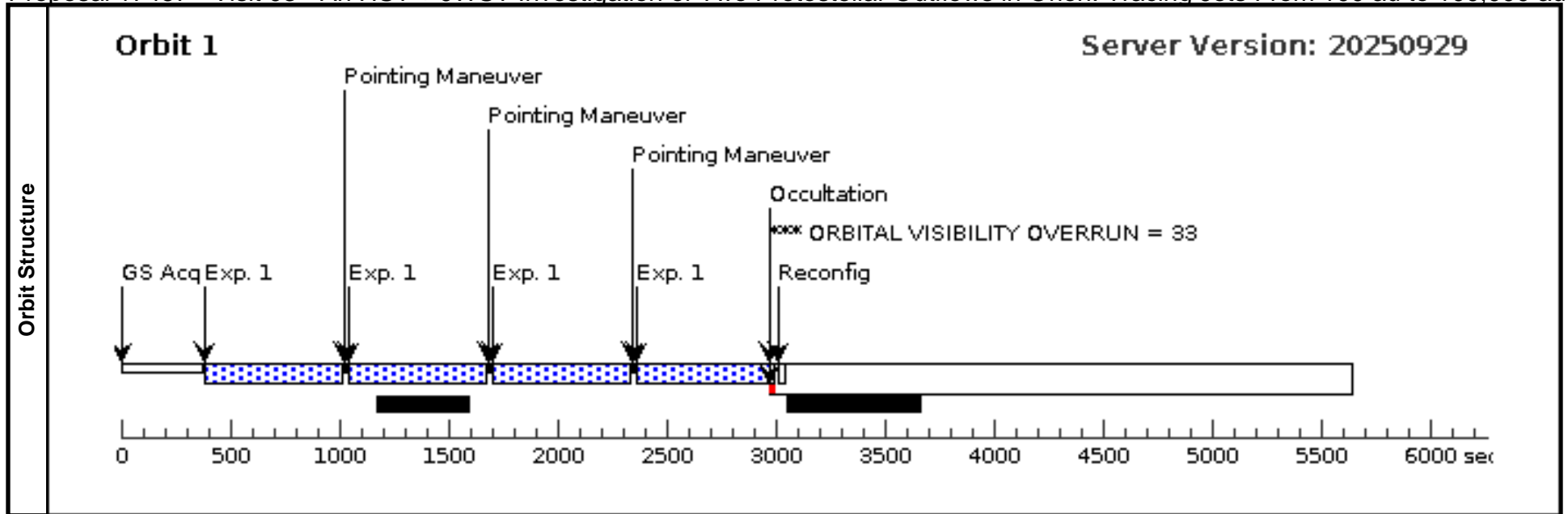
Proposal 17467 - Visit 02 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

|                                                                                                                                                                                                    |                                                                                                                                                                                                                 |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------|---------------|-------------------------------|---------------|--------|-----------------------------------------------------------------------------------------------------------------|-------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 02, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br>Diagnostic Status: Warning<br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 01 |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
|                                                                                                                                                                                                    | Diagnostics<br>(Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                   |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
| <b>Patterns</b>                                                                                                                                                                                    | #                                                                                                                                                                                                               | Primary Pattern                                                                                                  |                                                                                                         | Secondary Pattern         |               | Exposures                     |               |        |                                                                                                                 |       |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                             | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                           |               | (1)                           |               |        |                                                                                                                 |       |
| <b>Fixed Targets</b>                                                                                                                                                                               | #                                                                                                                                                                                                               | Name                                                                                                             | Target Coordinates                                                                                      | Targ. Coord. Corrections  | Fluxes        | Miscellaneous                 |               |        |                                                                                                                 |       |
|                                                                                                                                                                                                    | (2)                                                                                                                                                                                                             | HOPS-153-OUTFLOW-EAST                                                                                            | RA: 05 38 10.1969 (84.5424871d)<br>Dec: -07 09 18.67 (-7.15519d)<br>Equinox: J2000                      | Epoch of Position: 2015.5 | V=35          | Reference Frame: SIMBAD       |               |        |                                                                                                                 |       |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                 |                                                                                                                  |                                                                                                         |                           |               |                               |               |        |                                                                                                                 |       |
| <b>Exposures</b>                                                                                                                                                                                   | #                                                                                                                                                                                                               | Label                                                                                                            | Target                                                                                                  | Config,Mode,Aperture      | Spectral Els. | Opt. Params.                  | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.]                                                                                 | Orbit |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                               |                                                                                                                  | (2) HOPS-153-OUTFLOW-EAST                                                                               | WFC3/IR, MULTIACCUM, IR   | F167N         | NSAMP=12;<br>SAMP-SEQ=STEP100 |               |        | Pattern 1, Exps 1-1 in Visit 02 (1)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]   |



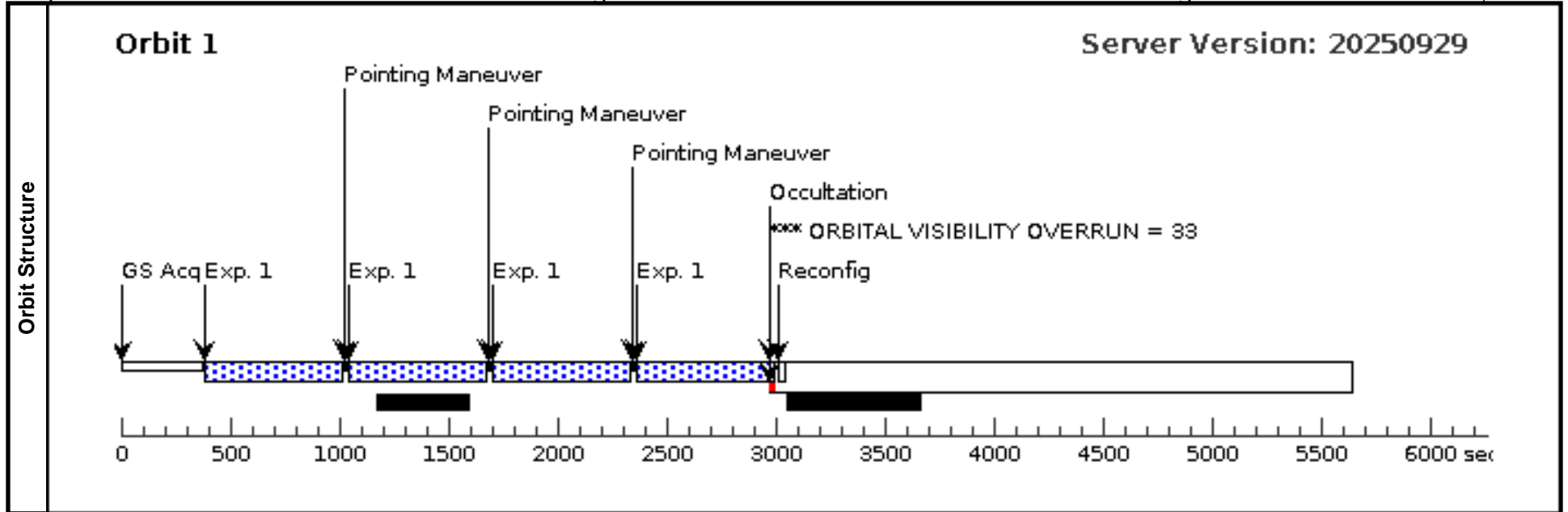
Proposal 17467 - Visit 03 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-------------------------------|----------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 03, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 01 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | <b>Diagnostics</b><br>(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                   |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | #                                                                                                                                                                                                                      | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | #                                                                                                                                                                                                                      | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (2)                                                                                                                                                                                                                    | HOPS-153-OUTFLOW-EAST                                                                                            | RA: 05 38 10.1969 (84.5424871d)<br>Dec: -07 09 18.67 (-7.15519d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | #                                                                                                                                                                                                                      | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                  | (2) HOPS-153-OUTFLOW-EAST                                                                               | WFC3/IR, MULTIACCUM, IR         | F126N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 03 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



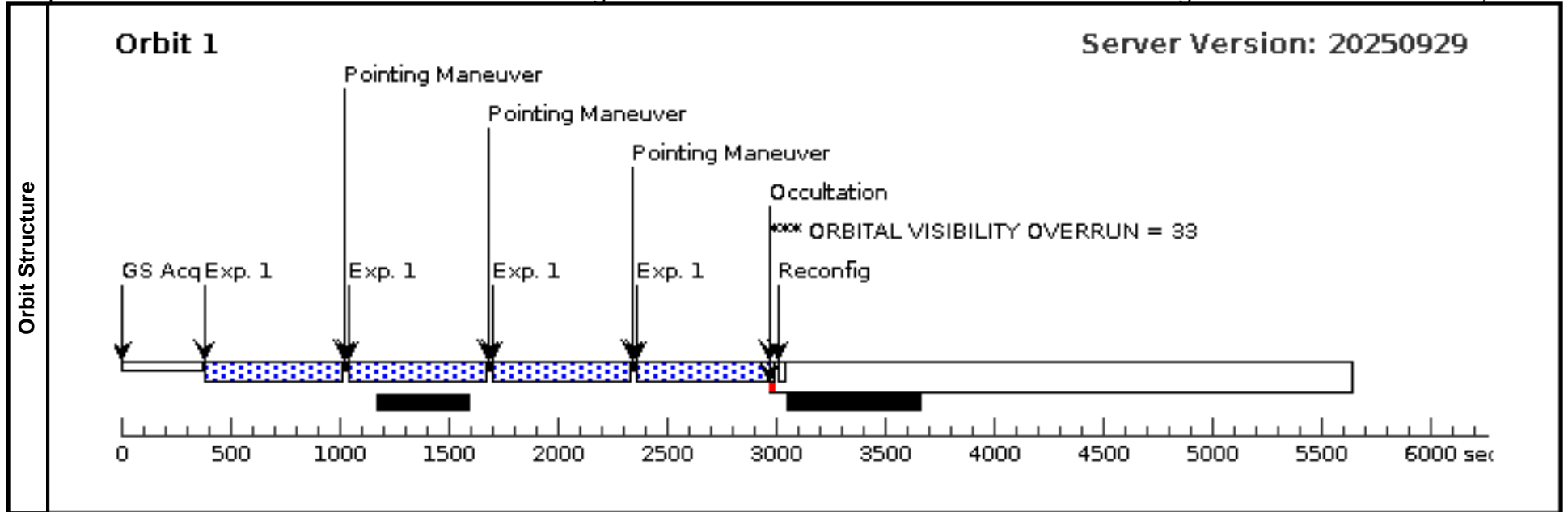
Proposal 17467 - Visit 04 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

|                                                                                                                                                                                                    |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-------------------------------|----------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 04, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 01 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | <b>Diagnostics</b><br>(Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                   |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | #                                                                                                                                                                                                                      | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | #                                                                                                                                                                                                                      | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (2)                                                                                                                                                                                                                    | HOPS-153-OUTFLOW-EAST                                                                                            | RA: 05 38 10.1969 (84.5424871d)<br>Dec: -07 09 18.67 (-7.15519d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | #                                                                                                                                                                                                                      | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                  | (2) HOPS-153-OUTFLOW-EAST                                                                               | WFC3/IR, MULTIACCUM, IR         | F128N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 04 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



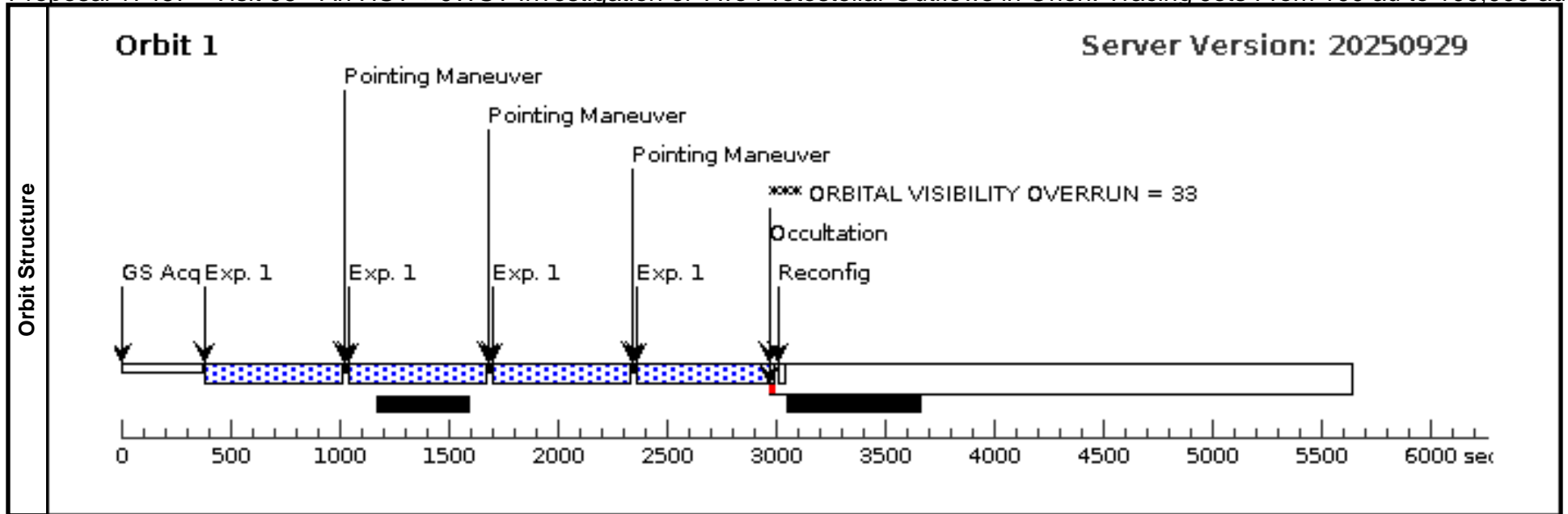
Proposal 17467 - Visit 05 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

|                                                                                                                                                                                                    |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 05, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 01 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | <b>Diagnosics</b><br>(Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                    |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | #                                                                                                                                                                                                                      | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | #                                                                                                                                                                                                                      | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (2)                                                                                                                                                                                                                    | HOPS-153-OUTFLOW-EAST                                                                                            | RA: 05 38 10.1969 (84.5424871d)<br>Dec: -07 09 18.67 (-7.15519d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | #                                                                                                                                                                                                                      | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                  | (2) HOPS-153-OUTFLOW-EAST                                                                               | WFC3/IR, MULTIACCUM, IR         | F130N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 05 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



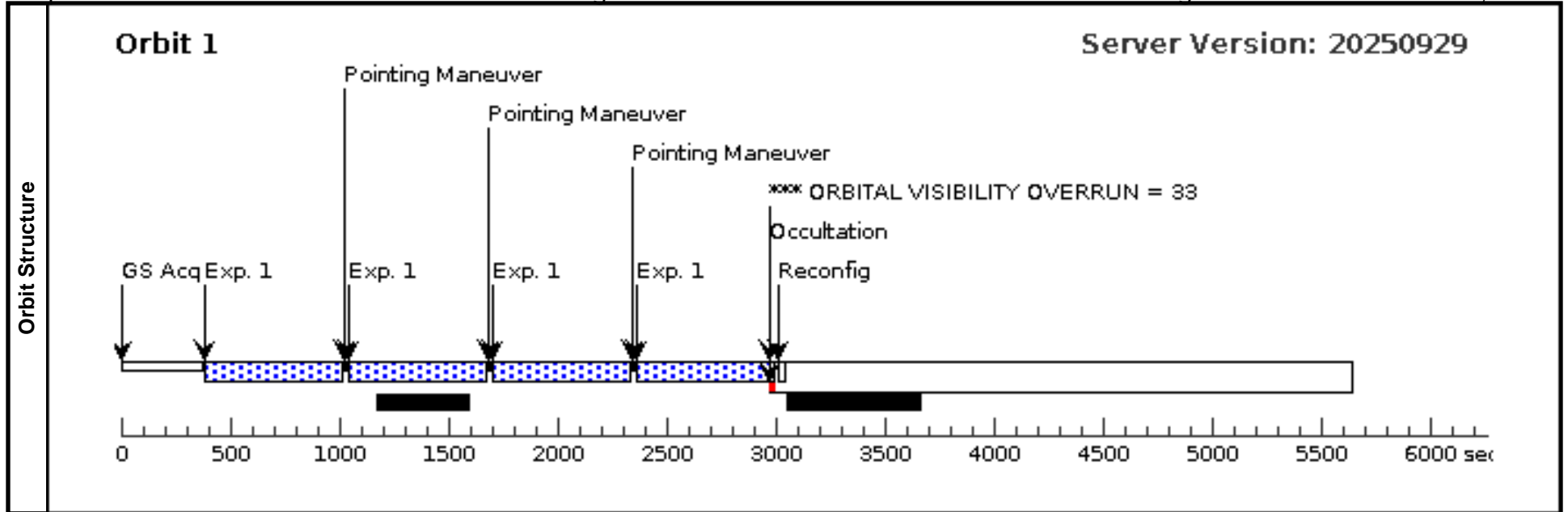
Proposal 17467 - Visit 06 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 06, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: (none) |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                              |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                             |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                             |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                    | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                         | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                    | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (3)                                                                                                                                                                                                         | HOPS-153-OUTFLOW-WEST                                                                                            | RA: 05 38 2.8418 (84.5118408d)<br>Dec: -07 07 55.49 (-7.13208d)<br>Equinox: J2000                       | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                             |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                    | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                           |                                                                                                                  | (3) HOPS-153-OUTFLOW-WEST                                                                               | WFC3/IR, MULTIACCUM, IR         | F164N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 06 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



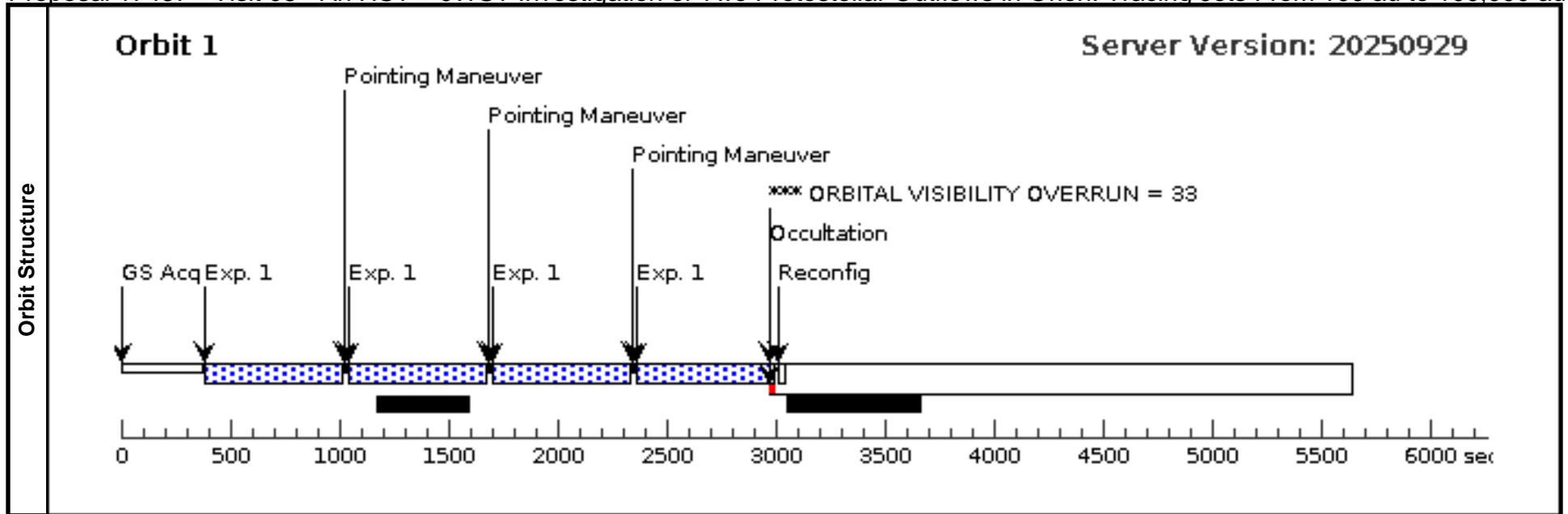
Proposal 17467 - Visit 07 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 07, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 06 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | <b>Diagnostics</b><br>(Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                   |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | #                                                                                                                                                                                                                      | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | #                                                                                                                                                                                                                      | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (3)                                                                                                                                                                                                                    | HOPS-153-OUTFLOW-WEST                                                                                            | RA: 05 38 2.8418 (84.5118408d)<br>Dec: -07 07 55.49 (-7.13208d)<br>Equinox: J2000                       | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | #                                                                                                                                                                                                                      | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                  | (3) HOPS-153-OUTFLOW-WEST                                                                               | WFC3/IR, MULTIACCUM, IR         | F167N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 07 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



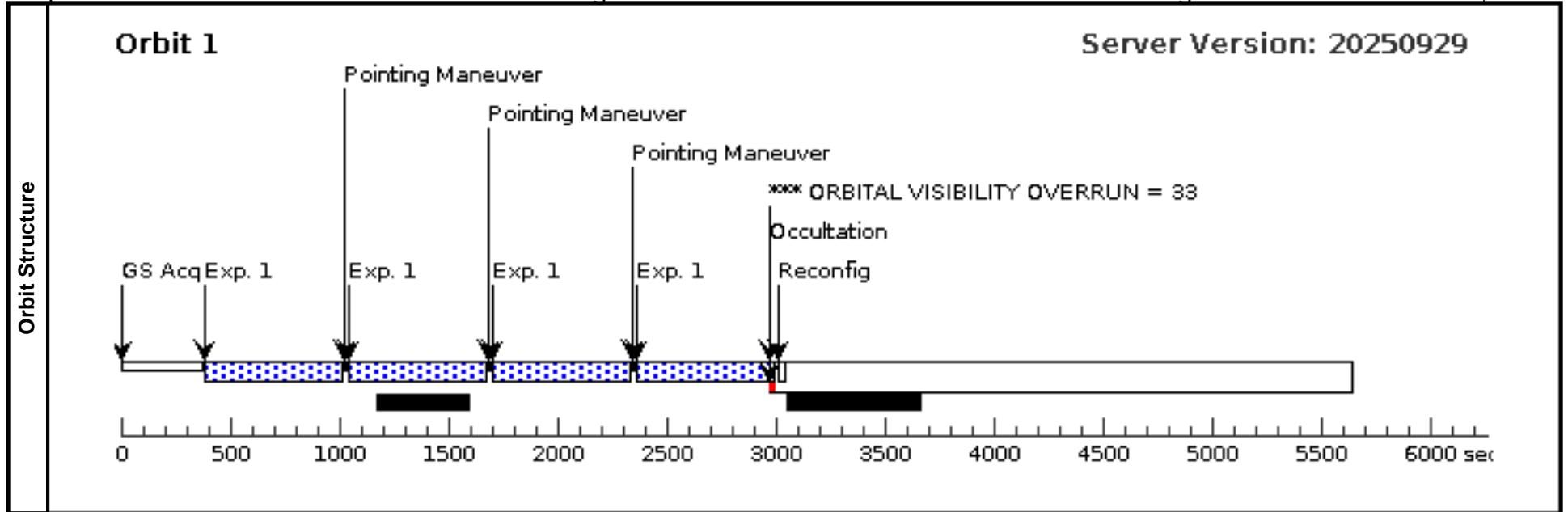
Proposal 17467 - Visit 08 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 08, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 06 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                         |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                               | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                               | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (3)                                                                                                                                                                                                                    | HOPS-153-OUTFLOW-WEST                                                                                            | RA: 05 38 2.8418 (84.5118408d)<br>Dec: -07 07 55.49 (-7.13208d)<br>Equinox: J2000                       | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                               | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                  | (3) HOPS-153-OUTFLOW-WEST                                                                               | WFC3/IR, MULTIACCUM, IR         | F126N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 08 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



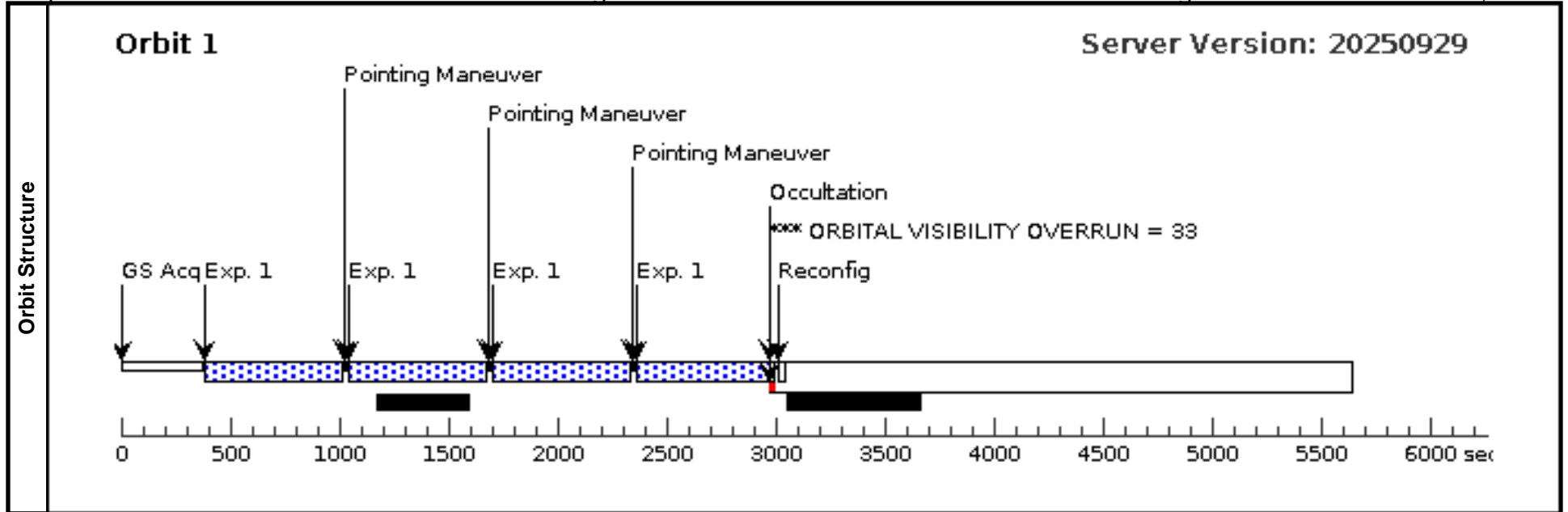
Proposal 17467 - Visit 09 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 09, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 06 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | <b>Diagnostics</b><br>(Visit 09) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                   |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | #                                                                                                                                                                                                                      | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | #                                                                                                                                                                                                                      | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (3)                                                                                                                                                                                                                    | HOPS-153-OUTFLOW-WEST                                                                                            | RA: 05 38 2.8418 (84.5118408d)<br>Dec: -07 07 55.49 (-7.13208d)<br>Equinox: J2000                       | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | #                                                                                                                                                                                                                      | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                  | (3) HOPS-153-OUTFLOW-WEST                                                                               | WFC3/IR, MULTIACCUM, IR         | F128N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 09 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



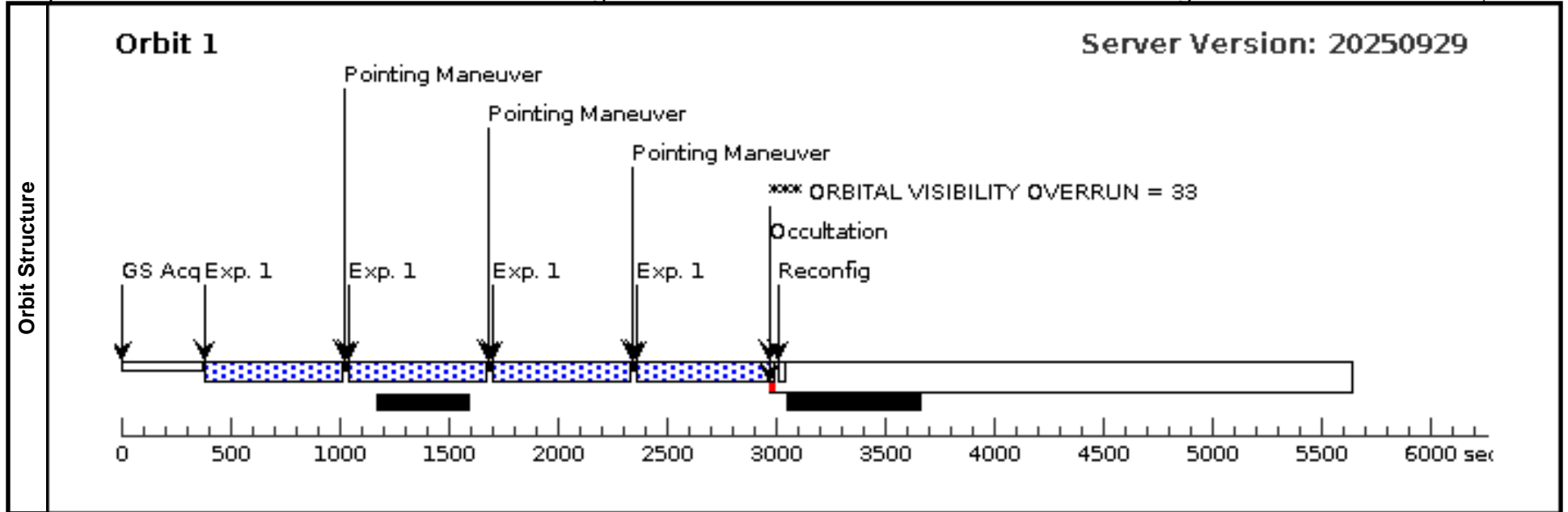
Proposal 17467 - Visit 10 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 10, completed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 06 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                         |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                               | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                               | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (3)                                                                                                                                                                                                                    | HOPS-153-OUTFLOW-WEST                                                                                            | RA: 05 38 2.8418 (84.5118408d)<br>Dec: -07 07 55.49 (-7.13208d)<br>Equinox: J2000                       | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                               | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                  | (3) HOPS-153-OUTFLOW-WEST                                                                               | WFC3/IR, MULTIACCUM, IR         | F130N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 10 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



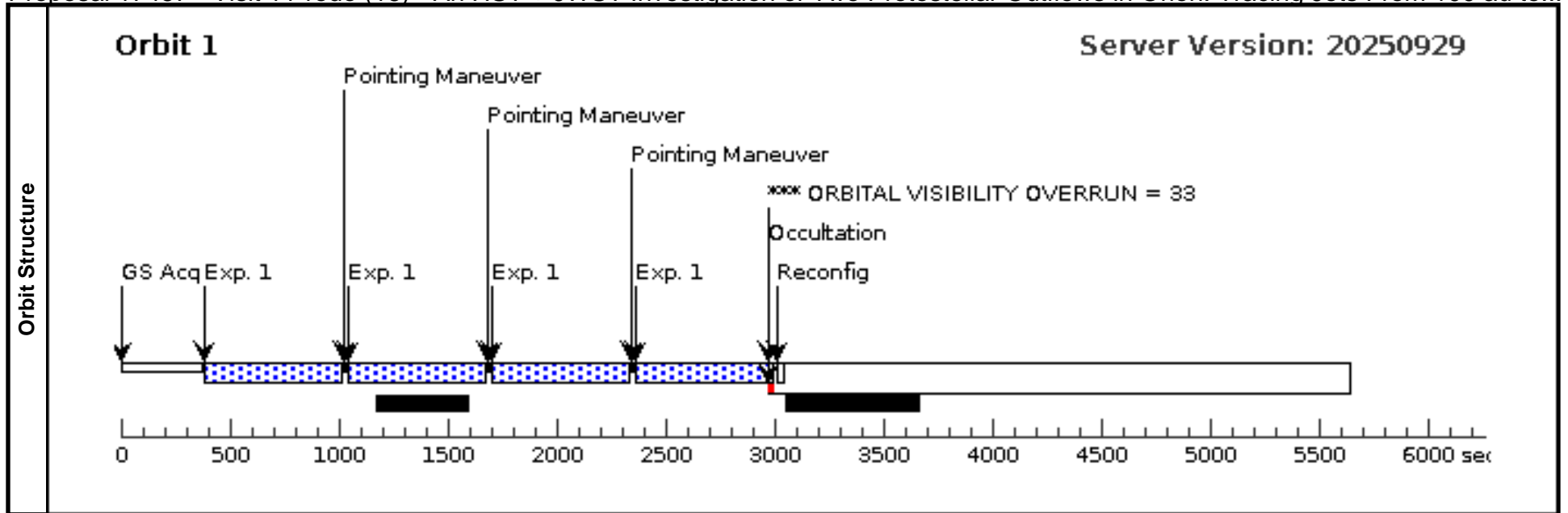
Proposal 17467 - Visit 11 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

|                                                                                                                                                                                                    |                                                                                                                                                                                                          |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 11, failed <span style="float: right;">Wed Mar 04 03:00:23 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: (none) |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 11) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                           |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                          |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                          |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                 | <b>Primary Pattern</b>                                                                                               | <b>Secondary Pattern</b>                                                                                |                                 |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                      | Pattern Type=WFC3-IR-DITHER-<br>LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      |                               | (1)                  |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                 | <b>Name</b>                                                                                                          | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                                                                      | HOPS370-OUTFLOW-NORTH                                                                                                | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                          |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                 | <b>Label</b>                                                                                                         | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                        |                                                                                                                      | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F164N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 11 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



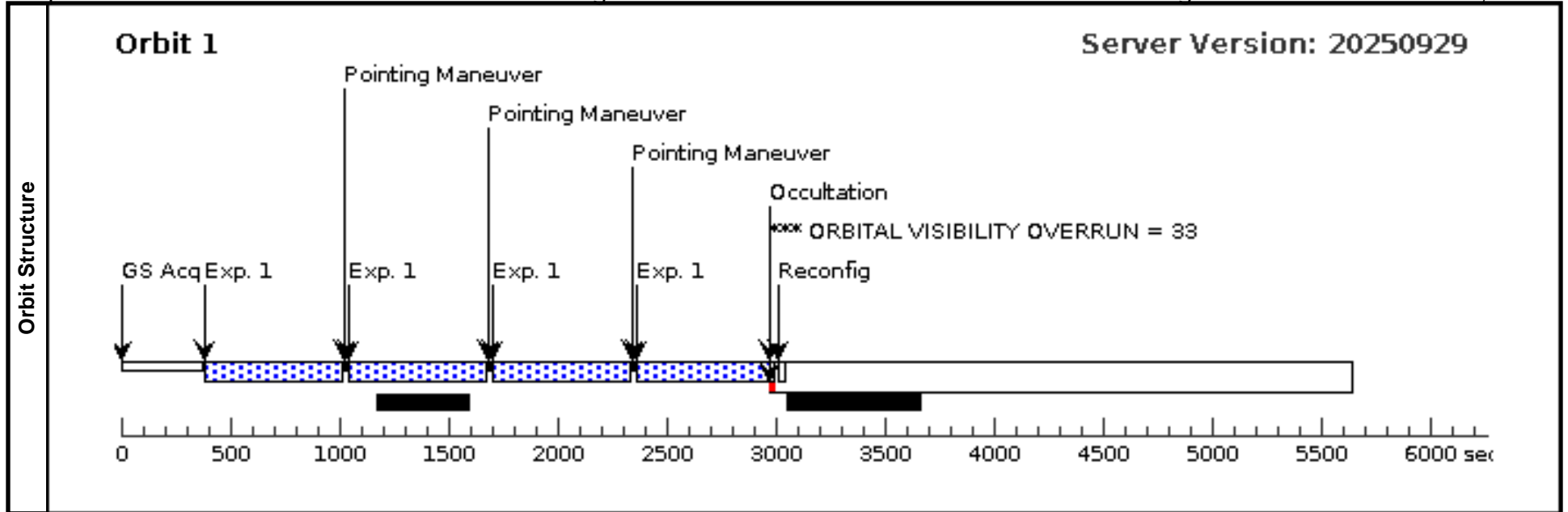
Proposal 17467 - Visit 11-redo (16) - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to...

|                                                                                                                                                                                                    |                                                                                                                                                                                                                           |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-----------------------------------|----------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | <b>Proposal 17467, Visit 11-redo (16), failed</b> <span style="float: right;">Wed Mar 04 03:00:24 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: (none) |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | <b>Diagnosics</b><br>(Visit 11-redo (16)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                             |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                                  | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>                  |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                       | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                               |                      |                                               |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                                  | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>              |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                                                                                       | HOPS370-OUTFLOW-NORTH                                                                                            | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD           |                      |                                               |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                           |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                                  | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>               | <b>Special Reqs.</b> | <b>Groups</b>                                 | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                         |                                                                                                                  | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F164N                | NSAMP=12;<br>SAMP-SEQ=STEP1<br>00 |                      | Pattern 1, Exps 1-1 in Visit 11-redo (16) (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



Proposal 17467 - Visit 12 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

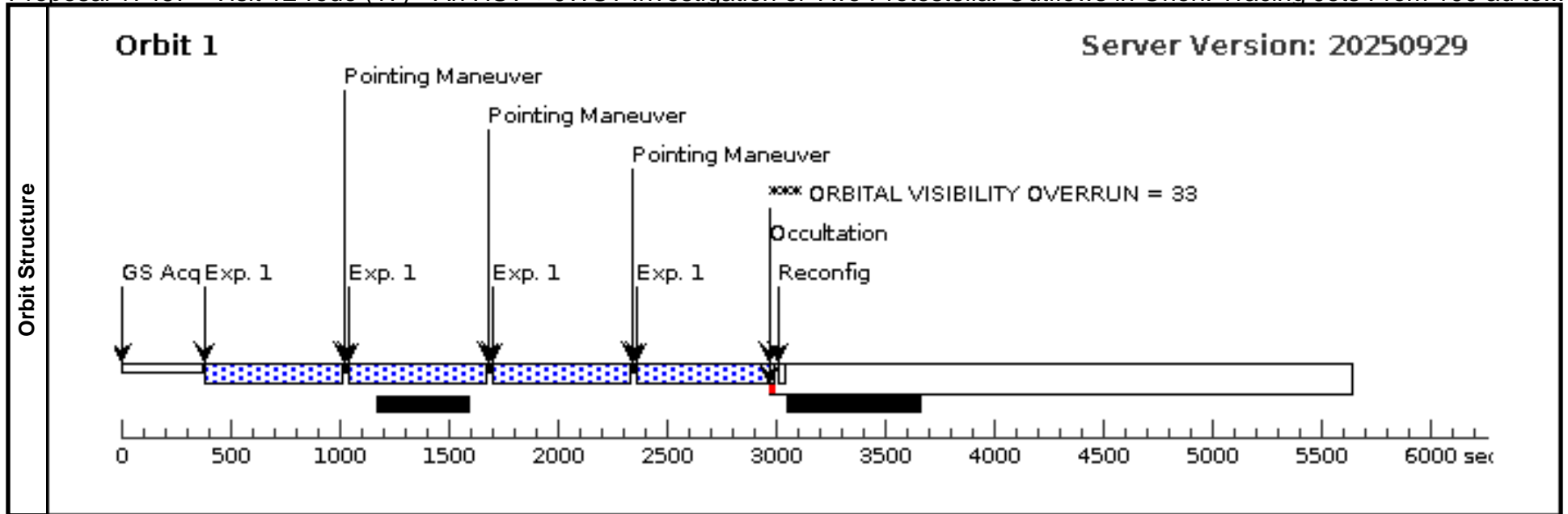
|                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-------------------------------|----------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 12, failed <span style="float: right;">Wed Mar 04 03:00:24 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 11 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 12) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                      |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                            | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                            | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                                                                                 | HOPS370-OUTFLOW-NORTH                                                                                            | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                            | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                   |                                                                                                                  | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F167N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 12 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



Proposal 17467 - Visit 12-redo (17) - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to...

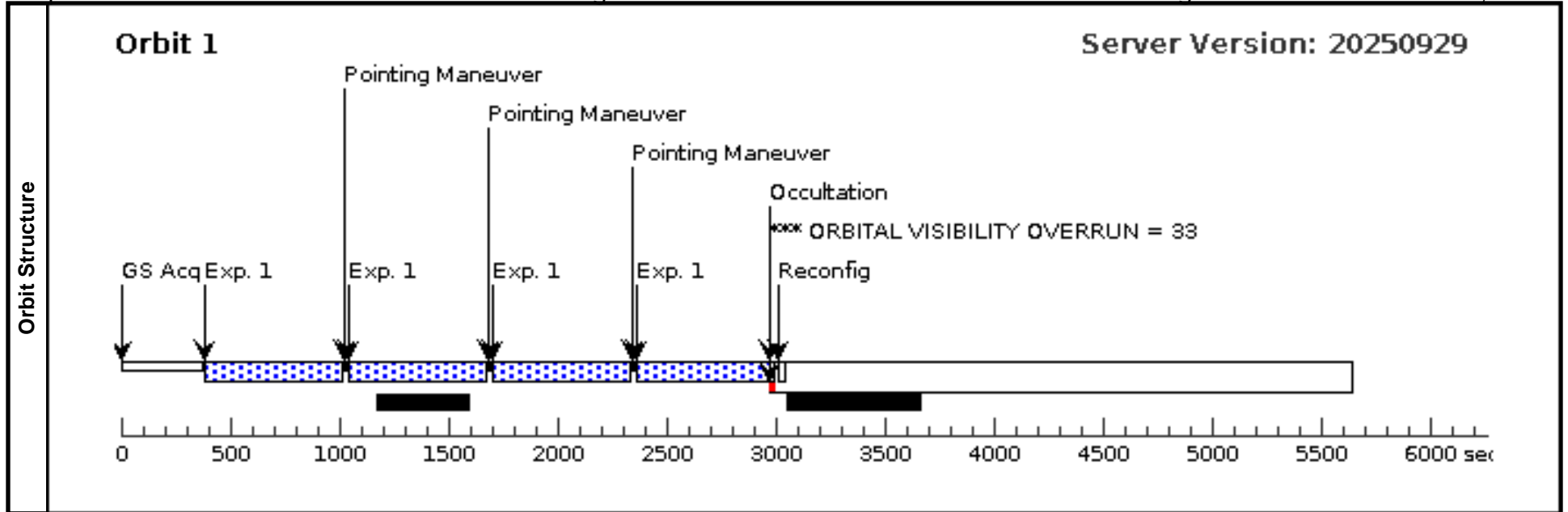
Wed Mar 04 03:00:24 GMT 2026

|                                                                                                                                                                                                    |                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-----------------------------------|----------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | <b>Proposal 17467, Visit 12-redo (17), failed</b><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 16 |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 12-redo (17)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                             |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                             | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>                  |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                  | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                               |                      |                                               |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                             | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>              |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                                  | HOPS370-OUTFLOW-NORTH                                                                                            | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD           |                      |                                               |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                      |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                             | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>               | <b>Special Reqs.</b> | <b>Groups</b>                                 | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                    |                                                                                                                  | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F167N                | NSAMP=12;<br>SAMP-SEQ=STEP1<br>00 |                      | Pattern 1, Exps 1-1 in Visit 12-redo (17) (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



Proposal 17467 - Visit 13 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

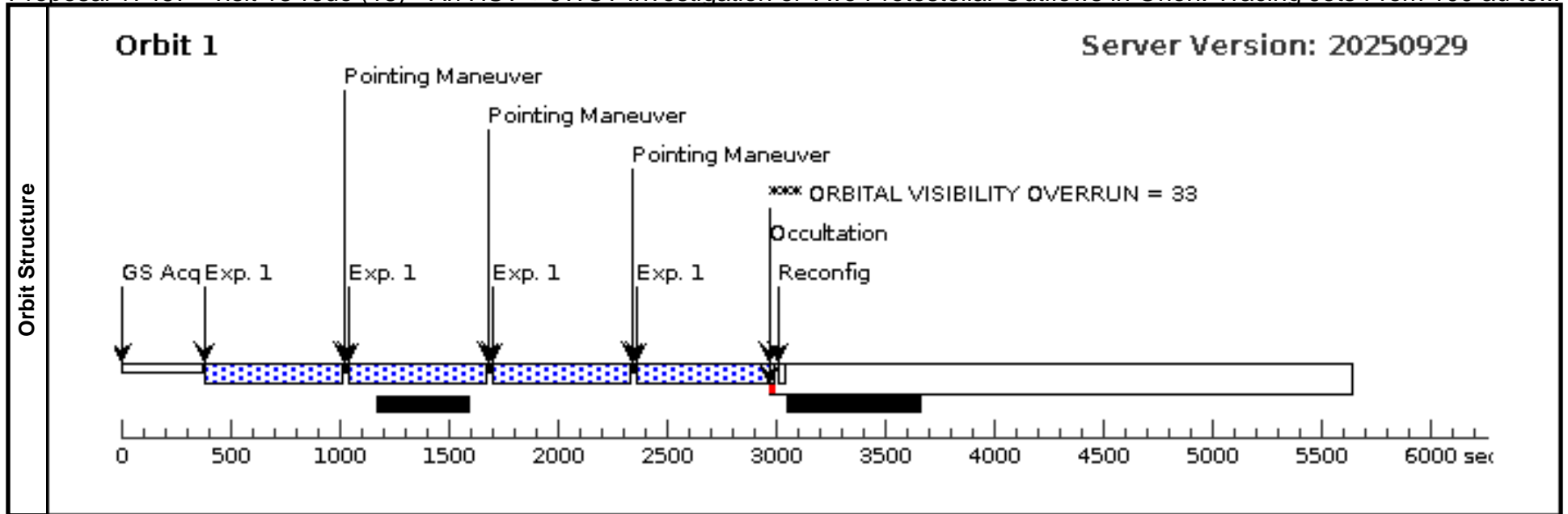
|                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                                                                                                                                                                                                             |                                                                                    |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------|----------------------|-------------------------------|----------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 13, failed <span style="float: right;">Wed Mar 04 03:00:24 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 11 |                                                                                                                                                                                                                             |                                                                                    |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 13) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                      |                                                                                                                                                                                                                             |                                                                                    |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                                     |                                                                                                                                                                                                                             |                                                                                    |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                                                                                                                                                                                                             |                                                                                    |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                            | <b>Primary Pattern</b>                                                                                                                                                                                                      | <b>Secondary Pattern</b>                                                           |                                 |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing=<br>Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                                                                    |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                            | <b>Name</b>                                                                                                                                                                                                                 | <b>Target Coordinates</b>                                                          | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                                                                                 | HOPS370-OUTFLOW-NORTH                                                                                                                                                                                                       | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000 | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                     |                                                                                                                                                                                                                             |                                                                                    |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                            | <b>Label</b>                                                                                                                                                                                                                | <b>Target</b>                                                                      | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                   |                                                                                                                                                                                                                             | (4) HOPS370-OUTFLOW-NORTH                                                          | WFC3/IR, MULTIACCUM, IR         | F126N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 13 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



Proposal 17467 - visit 13-redo (18) - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to...

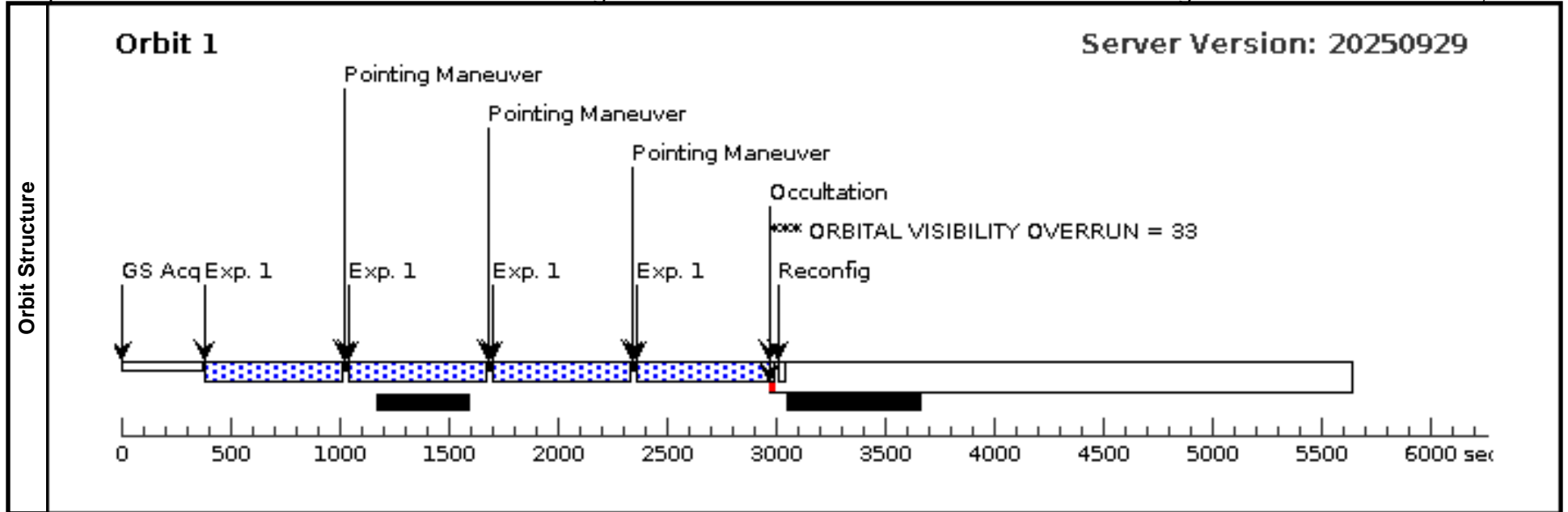
Wed Mar 04 03:00:24 GMT 2026

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| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, visit 13-redo (18), failed<br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 16 |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (visit 13-redo (18)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                      |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                               |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                               |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                      | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>                  |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                           | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                               |                      |                                               |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                      | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>              |                      |                                               |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                           | HOPS370-OUTFLOW-NORTH                                                                                            | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD           |                      |                                               |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                               |                                                                                                                  |                                                                                                         |                                 |                      |                                   |                      |                                               |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                      | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>               | <b>Special Reqs.</b> | <b>Groups</b>                                 | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                             |                                                                                                                  | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F126N                | NSAMP=12;<br>SAMP-SEQ=STEP1<br>00 |                      | Pattern 1, Exps 1-1 in visit 13-redo (18) (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



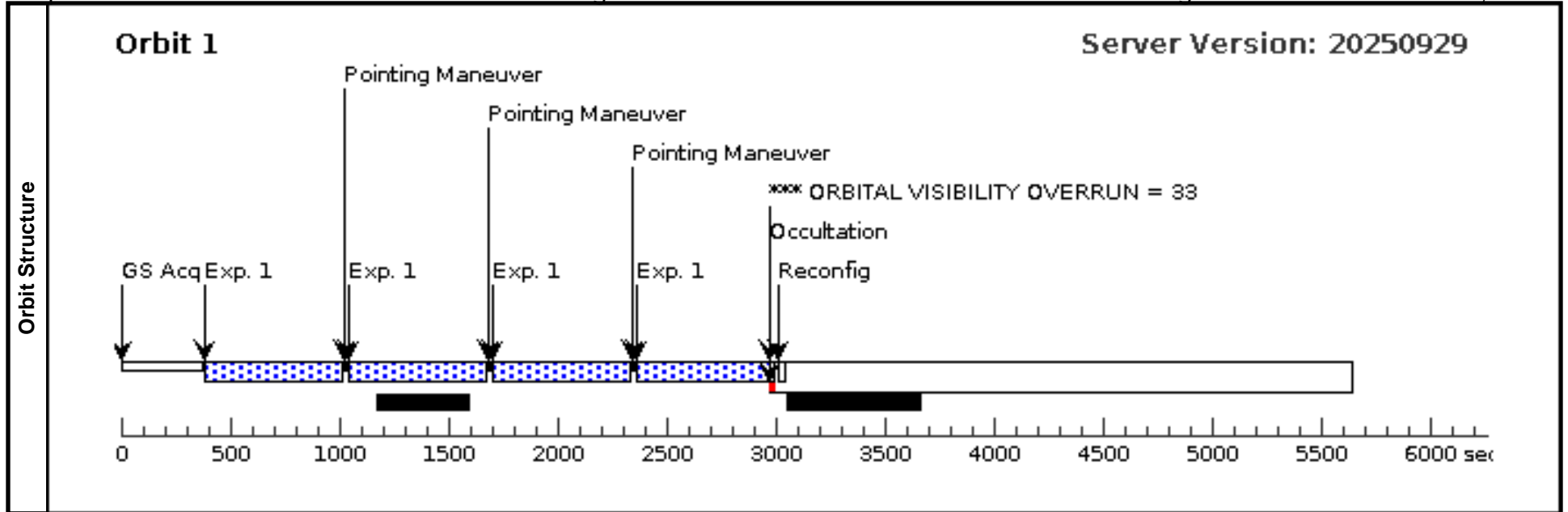
Proposal 17467 - Visit 14 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

|                                                                                                                                                                                                    |                                                                                                                                                                                                                        |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-------------------------------|----------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 14, completed <span style="float: right;">Wed Mar 04 03:00:24 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 16 |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 14) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                         |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                                        |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                                        |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                               | <b>Primary Pattern</b>                                                                                               | <b>Secondary Pattern</b>                                                                                |                                 |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-<br>LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      |                               | (1)                  |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                               | <b>Name</b>                                                                                                          | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                                                                                    | HOPS370-OUTFLOW-NORTH                                                                                                | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                        |                                                                                                                      |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                               | <b>Label</b>                                                                                                         | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                      |                                                                                                                      | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F128N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 14 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



Proposal 17467 - Visit 15 - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to 100,000 au

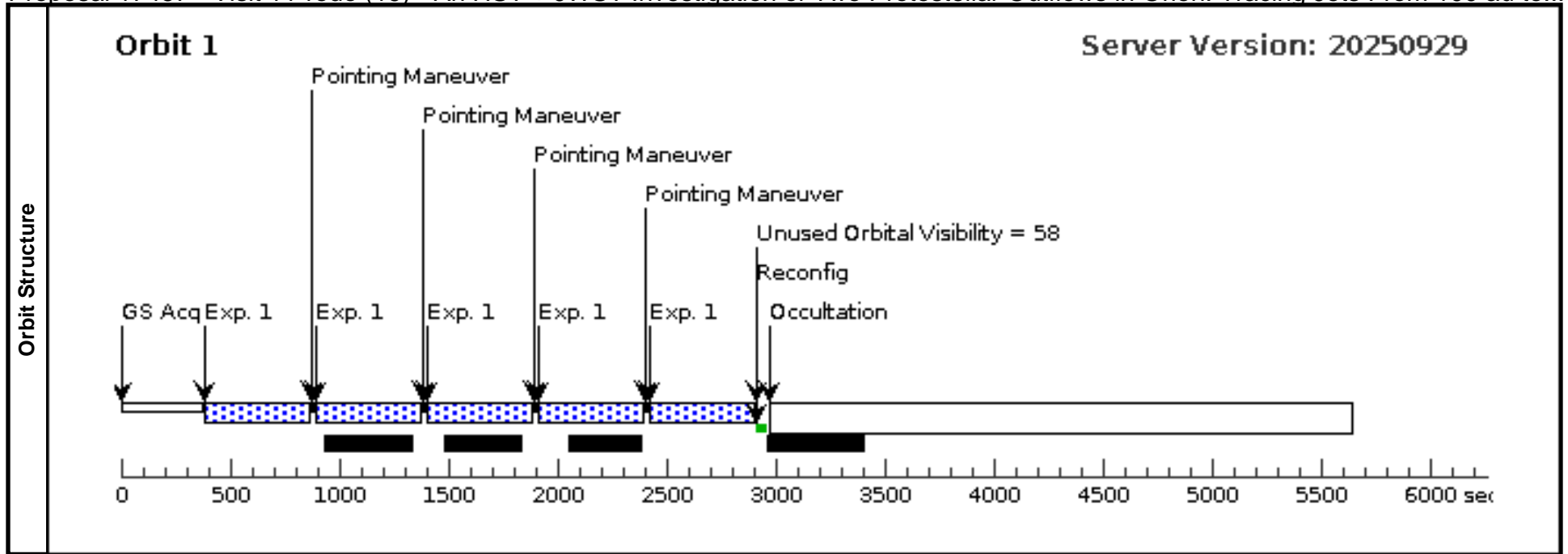
|                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-------------------------------|----------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|
| <b>Visit</b>                                                                                                                                                                                       | Proposal 17467, Visit 15, failed <span style="float: right;">Wed Mar 04 03:00:24 GMT 2026</span><br><b>Diagnostic Status: Warning</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 16 |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (Visit 15) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN                                                                                                                                                      |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Diagnosics</b>                                                                                                                                                                                  |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                                                                                                                            | <b>Primary Pattern</b>                                                                                           |                                                                                                         | <b>Secondary Pattern</b>        |                      | <b>Exposures</b>              |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (1)                                                                                                                                                                                                                 | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=4<br>Point Spacing=1.858<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      | (1)                           |                      |                                     |                                                                                                             |              |
| <b>Fixed Targets</b>                                                                                                                                                                               | <b>#</b>                                                                                                                                                                                                            | <b>Name</b>                                                                                                      | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> | <b>Fluxes</b>        | <b>Miscellaneous</b>          |                      |                                     |                                                                                                             |              |
|                                                                                                                                                                                                    | (4)                                                                                                                                                                                                                 | HOPS370-OUTFLOW-NORTH                                                                                            | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       | V=35                 | Reference Frame: SIMBAD       |                      |                                     |                                                                                                             |              |
| Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                                                                                                                     |                                                                                                                  |                                                                                                         |                                 |                      |                               |                      |                                     |                                                                                                             |              |
| <b>Exposures</b>                                                                                                                                                                                   | <b>#</b>                                                                                                                                                                                                            | <b>Label</b>                                                                                                     | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>           | <b>Special Reqs.</b> | <b>Groups</b>                       | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                      | <b>Orbit</b> |
|                                                                                                                                                                                                    | 1                                                                                                                                                                                                                   |                                                                                                                  | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F130N                | NSAMP=12;<br>SAMP-SEQ=STEP100 |                      | Pattern 1, Exps 1-1 in Visit 15 (1) | 599.232292 Secs (2396.929 Secs)<br>[=>(Pattern 1)]<br>[=>(Pattern 2)]<br>[=>(Pattern 3)]<br>[=>(Pattern 4)] | [1]          |



Proposal 17467 - Visit 11-redo (19) - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to...

Wed Mar 04 03:00:24 GMT 2026

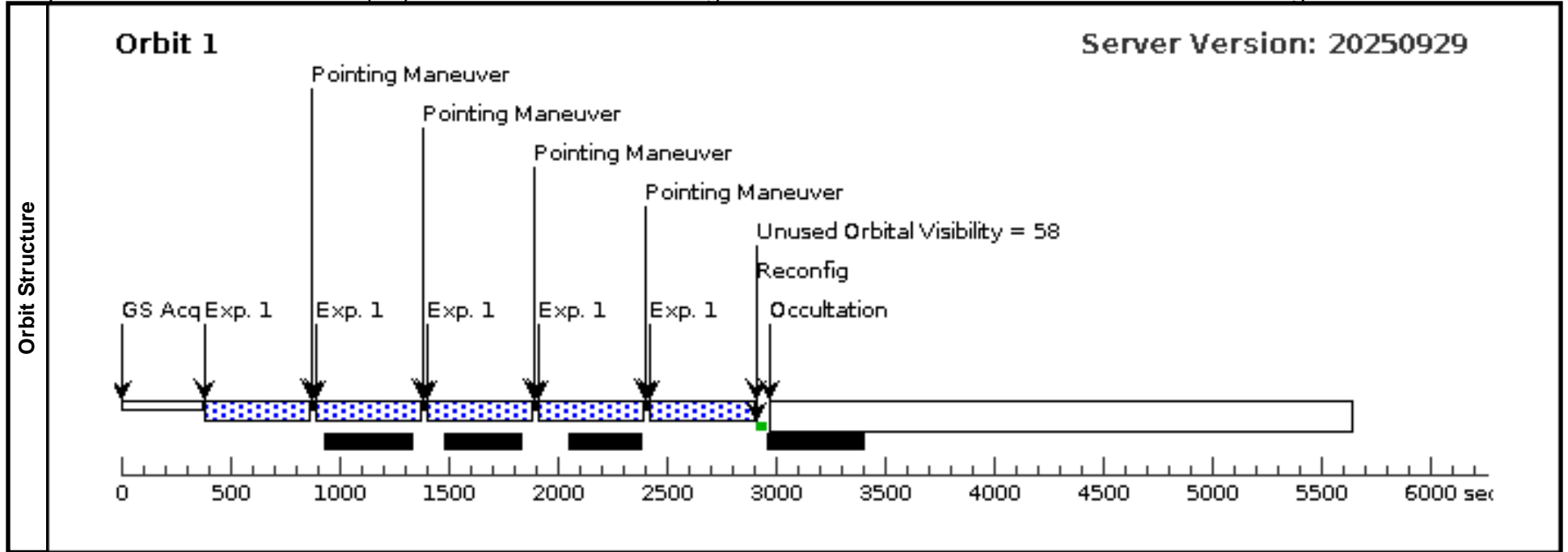
|                      |                                                                                                                                                                                                    |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|----------------------------------|--------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|
| <b>Visit</b>         | <b>Proposal 17467, Visit 11-redo (19)</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: (none)                                           |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
|                      | <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                           | <b>Primary Pattern</b>                                                                                  |                                 |                      |                                  | <b>Secondary Pattern</b> |                                               |                                                                                                                                     | <b>Exposures</b> |              |
| (2)                  |                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=5<br>Point Spacing=1.48655<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      |                                  |                          |                                               | (1)                                                                                                                                 |                  |              |
| <b>Fixed Targets</b> | <b>#</b>                                                                                                                                                                                           | <b>Name</b>                                                                                                        | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> |                      | <b>Fluxes</b>                    | <b>Miscellaneous</b>     |                                               |                                                                                                                                     |                  |              |
|                      | (4)                                                                                                                                                                                                | HOPS370-OUTFLOW-NORTH                                                                                              | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       |                      | V=35                             | Reference Frame: SIMBAD  |                                               |                                                                                                                                     |                  |              |
|                      | Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
| <b>Exposures</b>     | <b>#</b>                                                                                                                                                                                           | <b>Label</b>                                                                                                       | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>              | <b>Special Reqs.</b>     | <b>Groups</b>                                 | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                                              |                  | <b>Orbit</b> |
|                      | 1                                                                                                                                                                                                  | (4) HOPS370-OUTFLOW-NORTH                                                                                          |                                                                                                         | WFC3/IR, MULTIACCUM, IR         | F164N                | NSAMP=14;<br>SAMP-SEQ=STEP5<br>0 |                          | Pattern 2, Exps 1-1 in Visit 11-redo (19) (2) | 449.233834 Secs (2246.169 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]<br>[==>(Pattern 5)] |                  | [1]          |



Proposal 17467 - Visit 12-redo (20) - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to...

Wed Mar 04 03:00:24 GMT 2026

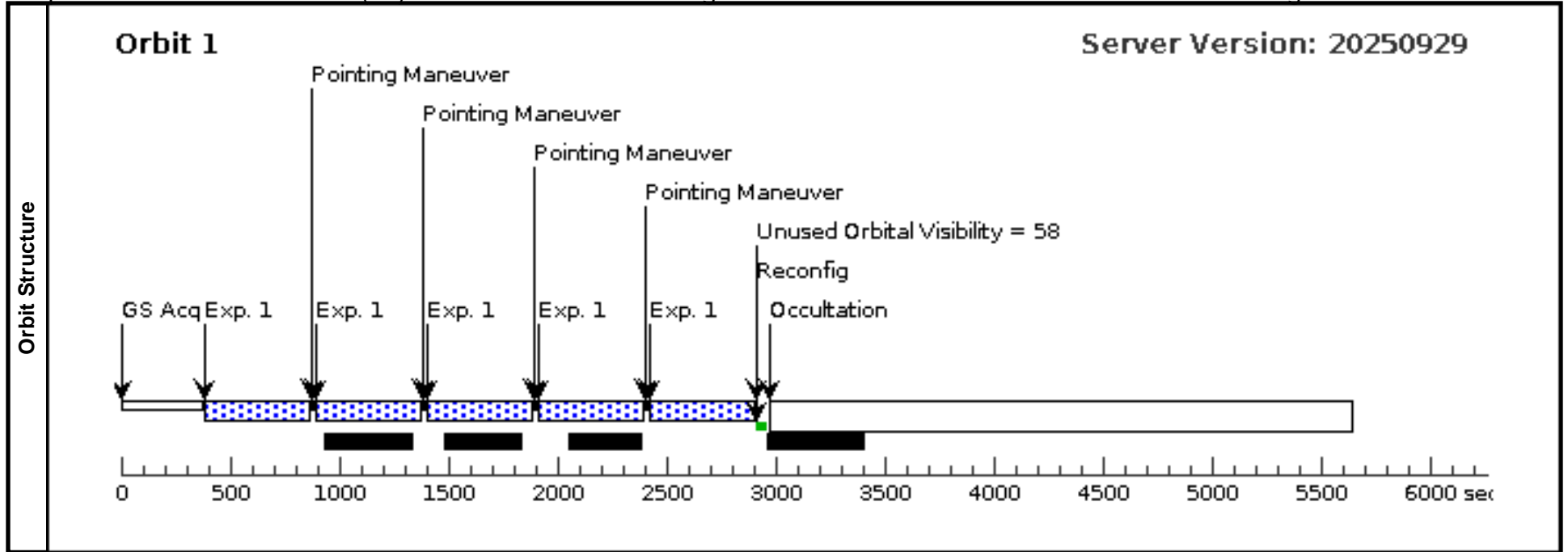
|                      |                                                                                                                                                                                                    |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|----------------------------------|--------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|
| <b>Visit</b>         | <b>Proposal 17467, Visit 12-redo (20)</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 16                                |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
|                      | <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                           | <b>Primary Pattern</b>                                                                                  |                                 |                      |                                  | <b>Secondary Pattern</b> |                                               |                                                                                                                                     | <b>Exposures</b> |              |
| (2)                  |                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=5<br>Point Spacing=1.48655<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      |                                  |                          |                                               | (1)                                                                                                                                 |                  |              |
| <b>Fixed Targets</b> | <b>#</b>                                                                                                                                                                                           | <b>Name</b>                                                                                                        | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> |                      | <b>Fluxes</b>                    | <b>Miscellaneous</b>     |                                               |                                                                                                                                     |                  |              |
|                      | (4)                                                                                                                                                                                                | HOPS370-OUTFLOW-NORTH                                                                                              | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       |                      | V=35                             | Reference Frame: SIMBAD  |                                               |                                                                                                                                     |                  |              |
|                      | Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
| <b>Exposures</b>     | <b>#</b>                                                                                                                                                                                           | <b>Label</b>                                                                                                       | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>              | <b>Special Reqs.</b>     | <b>Groups</b>                                 | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                                              |                  | <b>Orbit</b> |
|                      | 1                                                                                                                                                                                                  | (4) HOPS370-OUTFLOW-NORTH                                                                                          |                                                                                                         | WFC3/IR, MULTIACCUM, IR         | F167N                | NSAMP=14;<br>SAMP-SEQ=STEP5<br>0 |                          | Pattern 2, Exps 1-1 in Visit 12-redo (20) (2) | 449.233834 Secs (2246.169 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]<br>[==>(Pattern 5)] |                  | [1]          |



Proposal 17467 - visit 13-redo (21) - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to...

Wed Mar 04 03:00:24 GMT 2026

|                      |                                                                                                                                                                                                    |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
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| <b>Visit</b>         | <b>Proposal 17467, visit 13-redo (21)</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 16                                |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
|                      | <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                           | <b>Primary Pattern</b>                                                                                  |                                 |                      |                                  | <b>Secondary Pattern</b> |                                               |                                                                                                                                     | <b>Exposures</b> |              |
| (2)                  |                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=5<br>Point Spacing=1.48655<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      |                                  |                          |                                               | (1)                                                                                                                                 |                  |              |
| <b>Fixed Targets</b> | <b>#</b>                                                                                                                                                                                           | <b>Name</b>                                                                                                        | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> |                      | <b>Fluxes</b>                    | <b>Miscellaneous</b>     |                                               |                                                                                                                                     |                  |              |
|                      | (4)                                                                                                                                                                                                | HOPS370-OUTFLOW-NORTH                                                                                              | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       |                      | V=35                             | Reference Frame: SIMBAD  |                                               |                                                                                                                                     |                  |              |
|                      | Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
| <b>Exposures</b>     | <b>#</b>                                                                                                                                                                                           | <b>Label</b>                                                                                                       | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>              | <b>Special Reqs.</b>     | <b>Groups</b>                                 | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                                              |                  | <b>Orbit</b> |
|                      | 1                                                                                                                                                                                                  |                                                                                                                    | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F126N                | NSAMP=14;<br>SAMP-SEQ=STEP5<br>0 |                          | Pattern 2, Exps 1-1 in visit 13-redo (21) (2) | 449.233834 Secs (2246.169 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]<br>[==>(Pattern 5)] |                  | [1]          |



Proposal 17467 - visit 15-redo (22) - An HST + JWST Investigation of Two Protostellar Outflows in Orion: Tracing Jets From 100 au to...

Wed Mar 04 03:00:24 GMT 2026

|                      |                                                                                                                                                                                                    |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|----------------------------------|--------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|
| <b>Visit</b>         | <b>Proposal 17467, visit 15-redo (22)</b><br><b>Diagnostic Status: No Diagnostics</b><br>Scientific Instruments: WFC3/IR<br>Special Requirements: SAME ORIENT AS 16                                |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
|                      | <b>Patterns</b>                                                                                                                                                                                    | <b>#</b>                                                                                                           | <b>Primary Pattern</b>                                                                                  |                                 |                      |                                  | <b>Secondary Pattern</b> |                                               |                                                                                                                                     | <b>Exposures</b> |              |
| (2)                  |                                                                                                                                                                                                    | Pattern Type=WFC3-IR-DITHER-LINE<br>Purpose=DITHER<br>Number Of Points=5<br>Point Spacing=1.48655<br>Line Spacing= | Coordinate Frame=POS-TARG<br>Pattern Orientation=41.788<br>Angle Between Sides=<br>Center Pattern=false |                                 |                      |                                  |                          |                                               | (1)                                                                                                                                 |                  |              |
| <b>Fixed Targets</b> | <b>#</b>                                                                                                                                                                                           | <b>Name</b>                                                                                                        | <b>Target Coordinates</b>                                                                               | <b>Targ. Coord. Corrections</b> |                      | <b>Fluxes</b>                    | <b>Miscellaneous</b>     |                                               |                                                                                                                                     |                  |              |
|                      | (4)                                                                                                                                                                                                | HOPS370-OUTFLOW-NORTH                                                                                              | RA: 05 35 28.2818 (83.8678408d)<br>Dec: -05 08 55.10 (-5.14864d)<br>Equinox: J2000                      | Epoch of Position: 2015.5       |                      | V=35                             | Reference Frame: SIMBAD  |                                               |                                                                                                                                     |                  |              |
|                      | Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.<br>Category=ISM<br>Description=[HERBIG-HARO OBJECT, JET, KNOT, SHOCK FRONT, STAR FORMING REGION] |                                                                                                                    |                                                                                                         |                                 |                      |                                  |                          |                                               |                                                                                                                                     |                  |              |
| <b>Exposures</b>     | <b>#</b>                                                                                                                                                                                           | <b>Label</b>                                                                                                       | <b>Target</b>                                                                                           | <b>Config,Mode,Aperture</b>     | <b>Spectral Els.</b> | <b>Opt. Params.</b>              | <b>Special Reqs.</b>     | <b>Groups</b>                                 | <b>Exp. Time (Total)/[Actual Dur.]</b>                                                                                              |                  | <b>Orbit</b> |
|                      | 1                                                                                                                                                                                                  |                                                                                                                    | (4) HOPS370-OUTFLOW-NORTH                                                                               | WFC3/IR, MULTIACCUM, IR         | F130N                | NSAMP=14;<br>SAMP-SEQ=STEP5<br>0 |                          | Pattern 2, Exps 1-1 in visit 15-redo (22) (2) | 449.233834 Secs (2246.169 Secs)<br>[==>(Pattern 1)]<br>[==>(Pattern 2)]<br>[==>(Pattern 3)]<br>[==>(Pattern 4)]<br>[==>(Pattern 5)] |                  | [1]          |

