



13936 - Hubble Heritage imaging of Mars during the Comet Siding Spring encounter

Cycle: 21, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

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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> |
|--------------|-----------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 22 | (1) MARS-WFC3 (3) MARS-ACS-SBC | ACS/SBC WFC3/UVIS | 1 | 08-Oct-2014 21:12:20.0 | yes |

1 Total Orbits Used

ABSTRACT

On Oct 19 2014, circa 18:30 UT, dynamically new Oort Cloud comet C/2013 A1 (Siding Spring) will fly within 138,000 km of the planet Mars. This distance is so small (1/3 the mean Earth-Moon distance, and 10 times closer than any comet has approached the Earth in the modern spaceflight era)

Proposal 13936 (STScI Edit Number: 10, Created: Wednesday, October 8, 2014 8:12:22 PM EST) - Overview

that Mars will be moving through the comet's outer atmosphere, or coma, carrying Mars, and its orbiting and ground based roving spacecraft fleet with it. In this way the Mars fleet will be participating in a close comet flyby. This program to image Mars will work in concert with several other HST programs imaging the comet during this encounter.

OBSERVING DESCRIPTION

This one-orbit visit could fill any otherwise unscheduled holes in the sequence of Comet Siding Spring observations during the Mars encounter on 19-20 Oct 2014. We will obtain a series of moving-target subarray images of Mars. With WFC3 we mostly alternate between the F410M and F673N filters, with some hedging on exposure times. But we also get a small sweep of other filters. Then to complement John Clarke's related program 13795 we obtain ACS/SBC exposures at the end of the orbit, when the sky is not too bright from direct sunlight. We understand the guide star acquisition required to go from WFC3 to ACS in the middle of the orbit is an overhead hit, but this gives us all the optical imaging we want with WFC3, and also complements the rest of the 22-orbit Mars / Comet Siding Spring HST observing campaign best.

Proposal 13936 - WFC3 and ACS (22) - Hubble Heritage imaging of Mars during the Comet Siding Spring encounter

| | | | | | | |
|---|--|--------------|----------------|----------------|---|---------------|
| Visit | Proposal 13936, WFC3 and ACS (22), implementation Thu Oct 09 01:12:22 GMT 2014 Diagnostic Status: Warning Scientific Instruments: ACS/SBC, WFC3/UVIS Special Requirements: ORIENT 93D TO 95 D; BETWEEN 19-OCT-2014:02:00:00 AND 19-OCT-2014:04:00:00 | | | | | |
| | (WFC3 and ACS (22)) Warning (Orbit Planner): ILLEGAL GS ACQ SCENARIO USED WITH ACS/SBC (Exposure 15 (WFC3 and ACS (22))) Warning (Form): Sensitive exposures should have an ETC run number provided. | | | | | |
| Diagnostics | | | | | | |
| | | | | | | |
| Solar System Targets | # | Name | Level 1 | Level 2 | Level 3 | Window |
| | (1) | MARS-WFC3 | STD=MARS | | | EARTH |
| | (3) | MARS-ACS-SBC | STD=MARS | | TYPE=POS_ANGLE,RAD=13,ANG=320,REF=NORTH | EARTH |
| <i>Comments: Offset Mars disc to corner of ACS/SBC field of view to image extended H Lyman alpha coronal emission</i> | | | | | | |

Proposal 13936 - WFC3 and ACS (22) - Hubble Heritage imaging of Mars during the Comet Siding Spring encounter

| Exposures | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|-----------|----------------------|----------------------|-------------------------|-----------------------------------|---------------|----------------------------|---|---|---------------------------------|-------|
| | 1 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F673N | | POS TARG 1,-1; GS ACQ SCENARI O BASE1B3 | | 0.5 Secs (0.5 Secs) [==>] | [1] |
| | 2 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F410M | | POS TARG 1,-1 | | 1.5 Secs (1.5 Secs) [==>] | [1] |
| | 3 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F673N | | POS TARG 1,-1 | | 0.7 Secs (0.7 Secs) [==>] | [1] |
| | 4 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F410M | | POS TARG 1,-1 | | 2.0 Secs (2 Secs) [==>] | [1] |
| | 5 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F673N | | POS TARG -1,-1 | | 0.8 Secs (0.8 Secs) [==>] | [1] |
| | 6 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F410M | | POS TARG -1,-1 | | 2.5 Secs (2.5 Secs) [==>] | [1] |
| | 7 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F673N | | POS TARG -1,-1 | | 0.9 Secs (0.9 Secs) [==>] | [1] |
| | 8 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F410M | | POS TARG -1,-1 | | 3.0 Secs (3 Secs) [==>] | [1] |
| | 9 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F467M | | POS TARG 1,1 | | 1.2 Secs (1.2 Secs) [==>] | [1] |
| | 10 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F502N | | POS TARG 1,1 | | 5.0 Secs (5 Secs) [==>] | [1] |
| | 11 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F631N | | POS TARG 1,1 | | 0.7 Secs (0.7 Secs) [==>] | [1] |
| | 12 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F953N | | POS TARG 1,1 | | 3.5 Secs (3.5 Secs) [==>] | [1] |
| | 13 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F410M | | POS TARG -1,1 | | 2.0 Secs (2 Secs) [==>] | [1] |
| | 14 | (1) MARS-WFC3 | (1) MARS-WFC3 | WFC3/UVIS, ACCUM, UVIS2-C512C-SUB | F673N | | POS TARG -1,1 | | 0.7 Secs (0.7 Secs) [==>] | [1] |
| 15 | (3) MARS-ACS-SB C | (3) MARS-ACS-SB C | ACS/SBC, ACCUM, SBC-FIX | F115LP | | GS ACQ SCENARI O SINGLE | | 98 Secs X 7 (686 Secs) [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)] [==>(Copy 7)] | [1] | |

