15114 - Star cluster formation in extreme environments: an isolated pair of closely interacting dwarf galaxies

Cycle: 25, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) UGC-05205	WFC3/UVIS	2	21-Jul-2017 15:00:31.0	yes
02	(1) UGC-05205	WFC3/UVIS	3	21-Jul-2017 15:00:33.0	yes

5 Total Orbits Used

ABSTRACT

We have identified a nearby pair of closely interacting dwarf galaxies that host a population of candidate young massive clusters (YMCs). The strong interaction has triggered nearly coeval galaxy-scale starbursts, with a delay time of only ~100 Myr from one galaxy to the other. It has also altered their stellar structure and content, as indicated by the presence of prominent tidal features, some of which host YMCs. Here we propose to carry out a UV-to-optical imaging survey of the system with WFC3/UVIS. We will take advantage of HST's unrivalled resolution and sensitivity to detect and characterize the star cluster population in each of the two interacting dwarf galaxies. The proposed multiband photometry will be instrumental to determine ages, masses and sizes of the YMCs, as well as to provide a robust characterization of the underlying host galaxy--thus allowing for an investigation of the cluster formation efficiency in a gas-rich, high-density, metal-poor environment very reminiscent of the existing conditions at high redshift.

OBSERVING DESCRIPTION

This is a relatively simple imaging proposal of a pair of interacting dwarf galaxies hosting young star cluster candidates.

We will observe the pair of galaxies with WFC3/UVIS in six filters: F275W, F336W, F438W, F606W, F657N, F814W.

The two objects fit within a single WFC3 pointing provided the orientation is limited to a narrow range of angles (55-63deg), which we have specified.

To improve the scheduling of the observations are split in two visits using blue and (mostly) red filters. We also ask for the second visit to be observed at exactly the same orient angle as the first one.

Because in addition to the clusters we're looking for extended emission we use a gap-line dithering pattern for most filters (or individual offset exposures).

Visit

Proposal 15114, Red filters (01) Fri Jul 21 19:00:34 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 55D TO 63 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(4)	Pattern Type=WFC3-UVIS-GAP-LINE	Coordinate Frame=POS-TARG		(5-6)
	Purpose=MOSAIC	Pattern Orientation=85.759		
	Number Of Points=2	Angle Between Sides=		
	Point Spacing=2.414	Center Pattern=true		
	Line Spacing=			

Fixed Targets

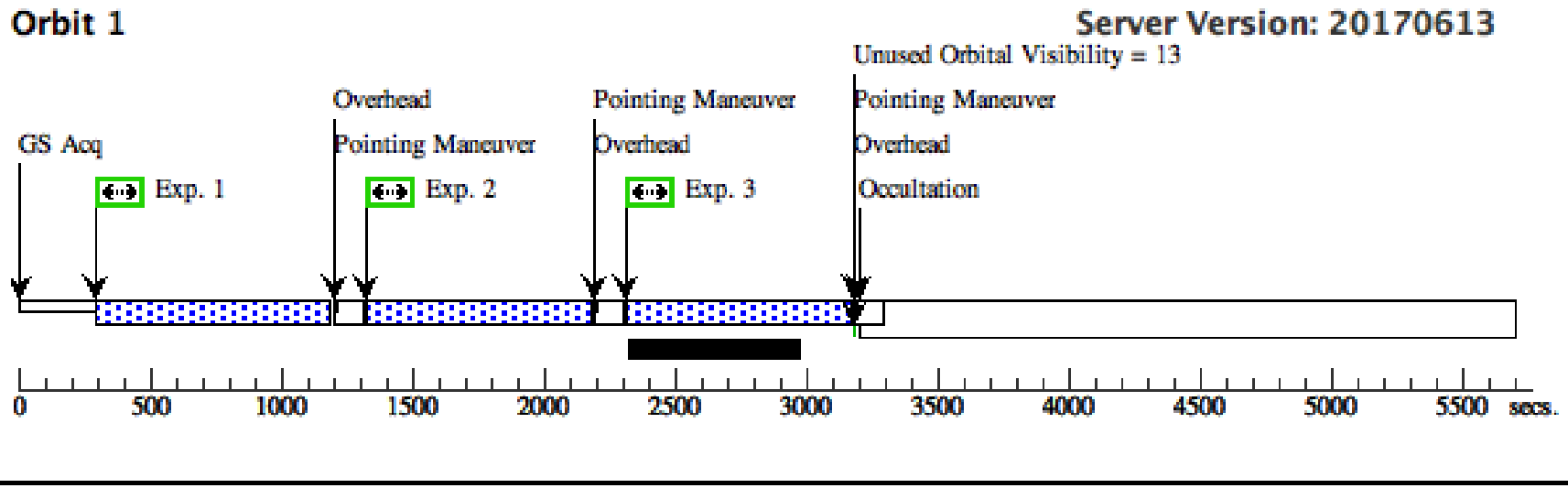
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	UGC-05205	RA: 09 44 3.8535 (146.0160562d) Dec: -00 39 42.34 (-.66176d) Equinox: J2000		V=26+/-0.3	Reference Frame: NED

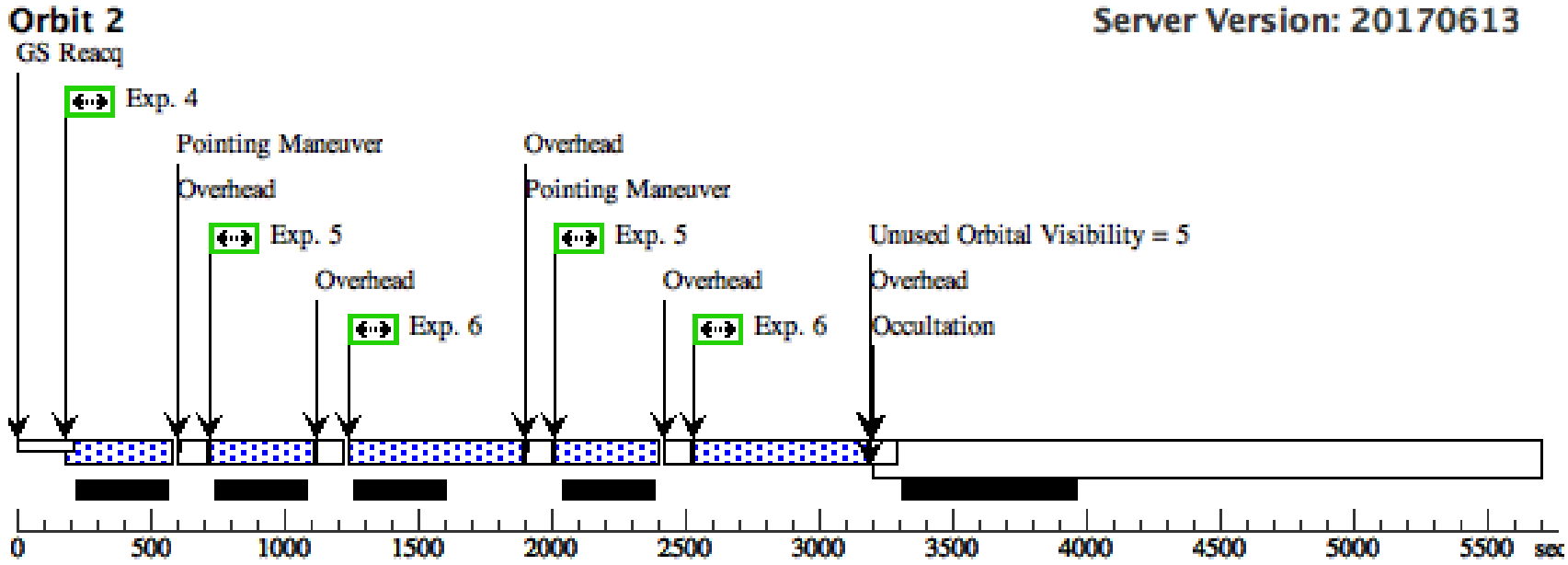
Comments: This object was generated by the targetselector and retrieved from the NED database.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F657N 1	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F657N	FLASH=9			860 Secs (860 Secs) *[==>]*	***[1]***
2	F657N 2	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F657N	FLASH=9	POS TARG 1.12,-1.52		860 Secs (860 Secs) *[==>]*	***[1]***
3	F657N 3	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F657N	FLASH=9	POS TARG 2.24,1.52		860 Secs (860 Secs) *[==>]*	***[1]***
4	F438W	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F438W	FLASH=9			370 Secs (370 Secs) *[==>]*	***[2]***
5	F606W	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F606W			Pattern 4, Exps 5-6 in Red filters (01) (4)	370 Secs (740 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[2]***
6	F814W	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F814W			Pattern 4, Exps 5-6 in Red filters (01) (4)	625 Secs (1250 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[2]***

Orbit Structure





Visit

Proposal 15114, Blue filters (02) Fri Jul 21 19:00:34 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SAME ORIENT AS 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(4)	Pattern Type=WFC3-UVIS-GAP-LINE	Coordinate Frame=POS-TARG		(9)
	Purpose=MOSAIC	Pattern Orientation=85.759		
	Number Of Points=2	Angle Between Sides=		
	Point Spacing=2.414	Center Pattern=true		
	Line Spacing=			

Fixed Targets

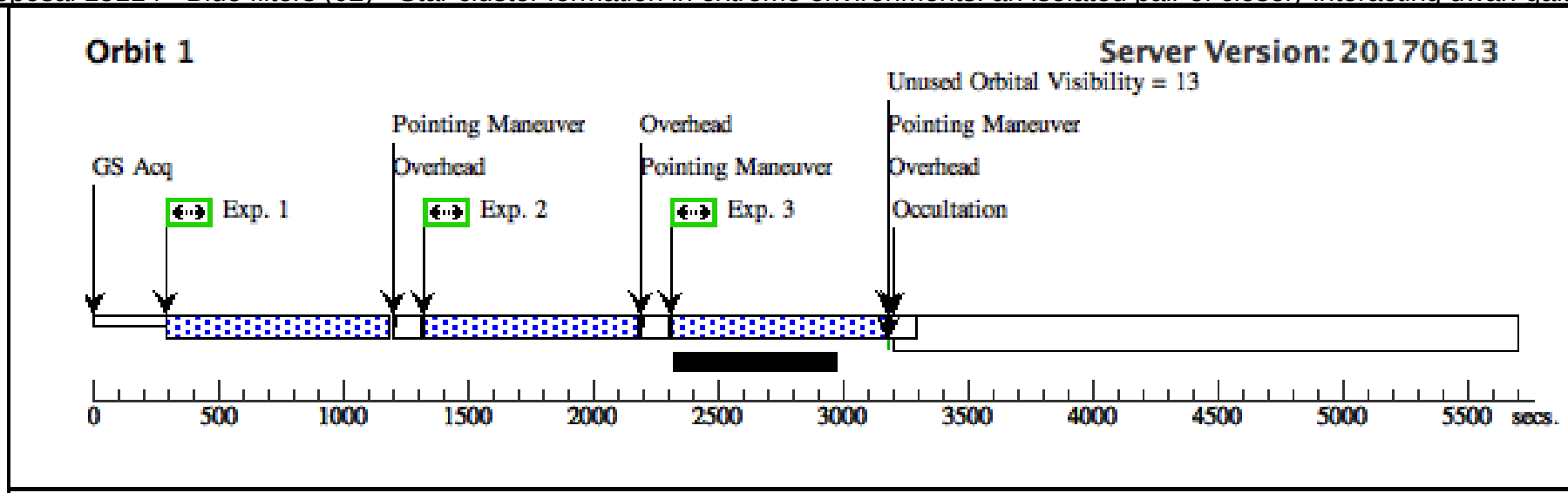
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	UGC-05205	RA: 09 44 3.8535 (146.0160562d) Dec: -00 39 42.34 (-.66176d) Equinox: J2000		V=26+/-0.3	Reference Frame: NED

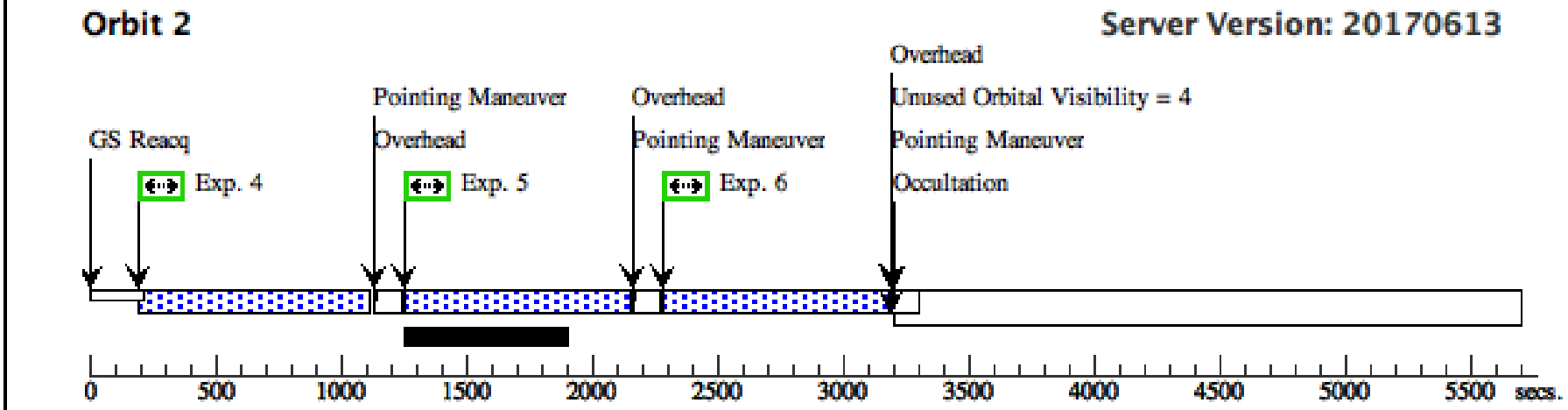
Comments: This object was generated by the targetselector and retrieved from the NED database.

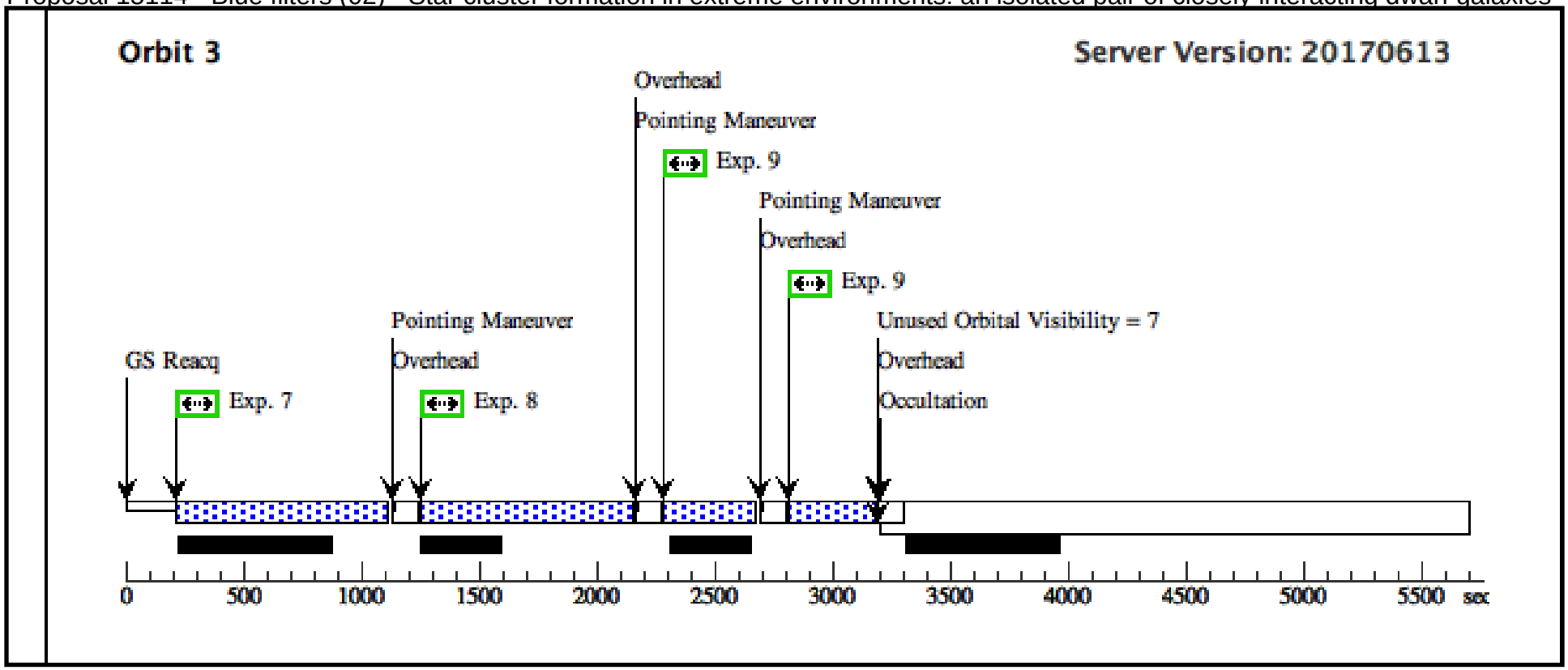
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F336W 1	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	FLASH=9			860 Secs (860 Secs) *[==>]*	***[1]***
2	F336W 2	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	FLASH=9	POS TARG 1.12,-1.52		860 Secs (860 Secs) *[==>]*	***[1]***
3	F336W 3	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	FLASH=9	POS TARG 2.24,1.52		860 Secs (860 Secs) *[==>]*	***[1]***
4	F275W 1	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	FLASH=9			900 Secs (900 Secs) *[==>]*	***[2]***
5	F275W 2	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	FLASH=9	POS TARG 1.12,-1.52		900 Secs (900 Secs) *[==>]*	***[2]***
6	F275W 3	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	FLASH=9	POS TARG 2.24,1.52		900 Secs (900 Secs) *[==>]*	***[2]***
7	F275W 4	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	FLASH=9			900 Secs (900 Secs) *[==>]*	***[3]***
8	F275W 5	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F275W	FLASH=9	POS TARG 1.12,-1.52		900 Secs (900 Secs) *[==>]*	***[3]***
9	F438W	(1) UGC-05205	WFC3/UVIS, ACCUM, UVIS-FIX	F438W	FLASH=9		Pattern 4, Exps 9-9 in Blue filters (02) (4)	370 Secs (740 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[3]***

Orbit Structure



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