13111 - Monitoring M31 for BHXNe

Cycle: 20, Proposal Category: GO

(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) M-31	ACS/WFC	2	21-May-2014 21:00:43.0	yes
02	(2) M-31-CORE	ACS/WFC	2	21-May-2014 21:00:44.0	yes

4 Total Orbits Used

ABSTRACT

During A01-13 we found ~28 Black Hole X-ray Novae (BHXNe) in M31 using Chandra, and with HST follow-up have estimated orbital periods for 12 of these. Observations are under way with HST to attempt to estimate additional periods. Preliminary results indicate these orbital periods are shorter than in the Galaxy and also shorter nearer the nucleus, indicating that some BHXN are formed via tidal capture. Continued observations can confirm or refute this. We propose to continue this program concentrating our HST resources on a single transient which is >1e38 erg/s or <1 from the nucleus. Only uninterrupted monitoring can yield the duty cycles and long-term light curves of BHXNe (and other variables) in M31.

OBSERVING DESCRIPTION

This is a target of opportunity. We will trigger based on the discovery of a bright X-ray transient with Chandra. The first observation will be made within ~3 weeks of the Chandra detection (2 orbits); a follow-up observation will be made 6 months later (also 2 orbits). The target co-ordinates will be updated at the time of the trigger

Proposal 13111 - Visit 01 - Monitoring M31 for BHXNe

Visit

Proposal 13111, Visit 01, completed Thu May 22 01:00:46 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: SCHED 100%

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)

Fixed Targets

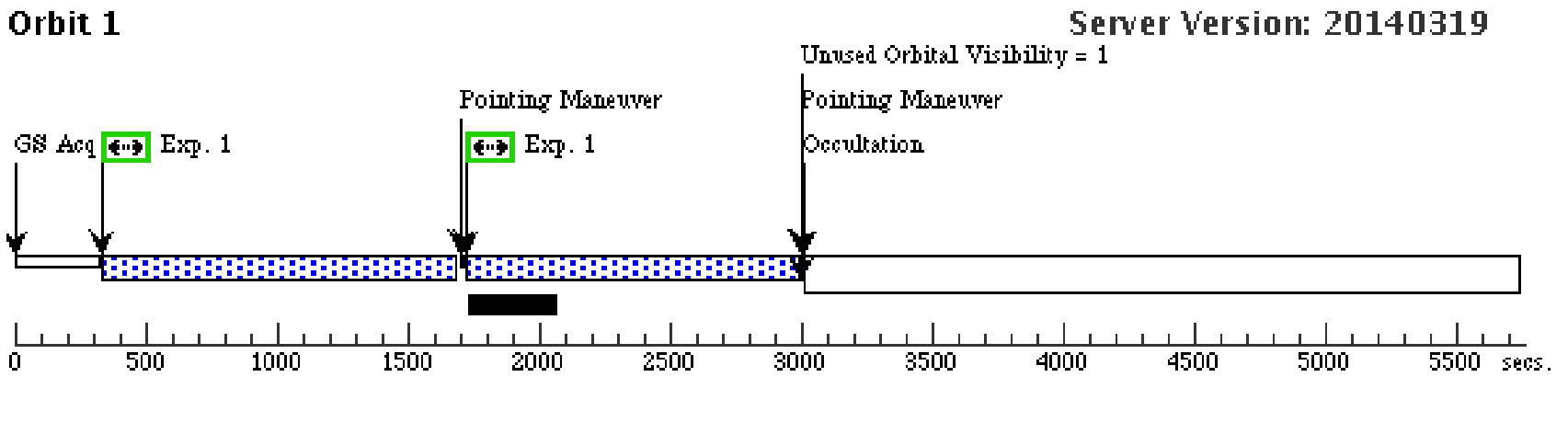
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	M-31	RA: 00 42 52.4670 (10.7186125d) Dec: +41 16 31.17 (41.27532d) Equinox: J2000		V=25	Reference Frame: SIMBAD

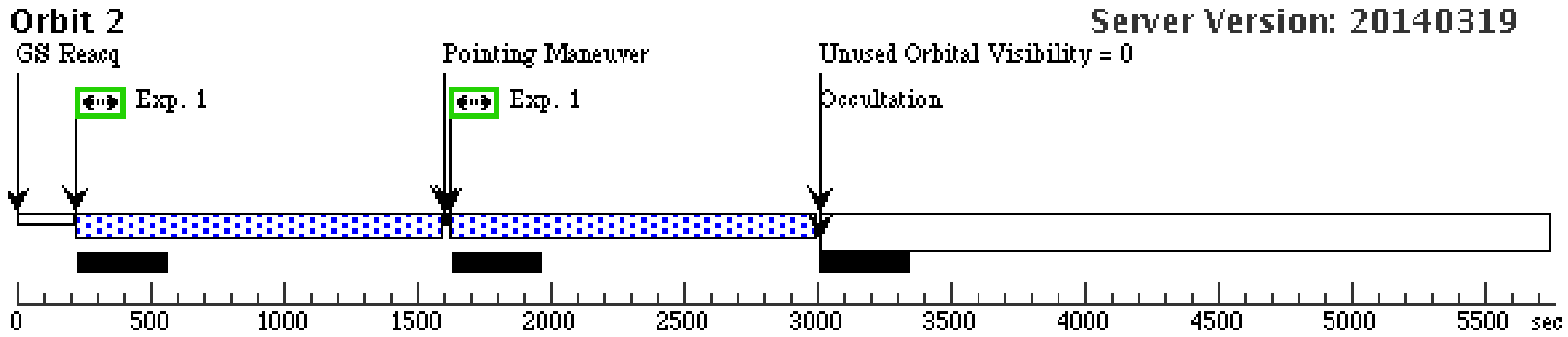
Comments: New M31 transient.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) M-31	ACS/WFC, ACCUM, WFC1-CTE	F435W			Pattern 1, Exps 1-1 in Visit 01 (1)	1000 Secs (4790 Secs)	
								[==>1149.0 Secs (Pattern 1)] *[==>1149.0 Secs (Pattern 2)]*	***[1]***
								[==>1246.0 Secs (Pattern 3)] *[==>1246.0 Secs (Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 13111, Visit 02, implementation Thu May 22 01:00:46 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: SCHED 100%

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-BOX	Coordinate Frame=POS-TARG		(1)
	Purpose=DITHER	Pattern Orientation=20.67		
	Number Of Points=4	Angle Between Sides=69.05		
	Point Spacing=0.265	Center Pattern=false		
	Line Spacing=0.187			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	M-31-CORE	RA: 00 42 5.7700 (10.5240417d)		V=3.44	Reference Frame: ICRS
		Dec: +41 13 30.43 (41.22512d)			
		Equinox: J2000			

Comments: Position to be ubdated ~3 weeks before observation; the location will be within 8' of the current position.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) M-31-CORE	ACS/WFC, ACCUM, WFC1-CTE	F435W			Pattern 1, Exps 1-1 in Visit 02 (1)	1100 Secs (4790 Secs)	
								[==>1149.0 Secs (Pattern 1)]	***[1]***
								[==>1149.0 Secs (Pattern 2)]	
								[==>1246.0 Secs (Pattern 3)]	***[2]***
								[==>1246.0 Secs (Pattern 4)]	

Orbit Structure