



12381 - Imaging the Crab nebula while it is flaring in gamma-rays

Cycle: 18, 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>
01	(1) CRAB-NEBULA-AND-PULSAR	ACS/WFC	1	29-Sep-2010 21:38:32.0	yes
51	(1) CRAB-NEBULA-AND-PULSAR	ACS/WFC	1	29-Sep-2010 21:38:36.0	yes

2 Total Orbits Used

ABSTRACT

The high energy gamma-ray flux from the Crab nebula doubled in a couple of days (from September 19 to September 21). Such enhancement, never seen before, is clearly detected both by Agile and Fermi, the two gamma-ray telescopes currently in operation. While such huge brightening is exciting the entire astrophysical community, TOOs are being scheduled by high energy space observatories such as Integral, Swift and Chandra. By imaging the status of the knots and wisps in the inner Crab nebula, HST could provide a unique piece of information, which may yield a clue to understand the source behavior.

OBSERVING DESCRIPTION

We ask for straight imaging of the Crab Nebula. We will use the HST/ACS instrument in its WFC configuration (which will cover the entire field of interest). We propose to use the large-band F550M filter, well suited to sample the continuum emission from the system, with almost no contamination from line emission from the SNR filaments. Such a choice will also allow for an easy comparison of the new image with the large available database of HST images of the Crab collected with the WFPC2 instrument through the F547M filter, having a very similar bandpass to the F550M selected here. The observation (2200s integration; one single orbit) must be split in 4 frames (550s each) with a standard 4-point BOX dithering pattern (few pixel spacing).

REAL TIME JUSTIFICATION

The observation has to be performed as soon as possible (within 2 days maximum) to observe the target as close as possible to the peak of its variability

Proposal 12381 - Visit 01 - Imaging the Crab nebula while it is flaring in gamma-rays

Thu Sep 30 01:38:39 GMT 2010

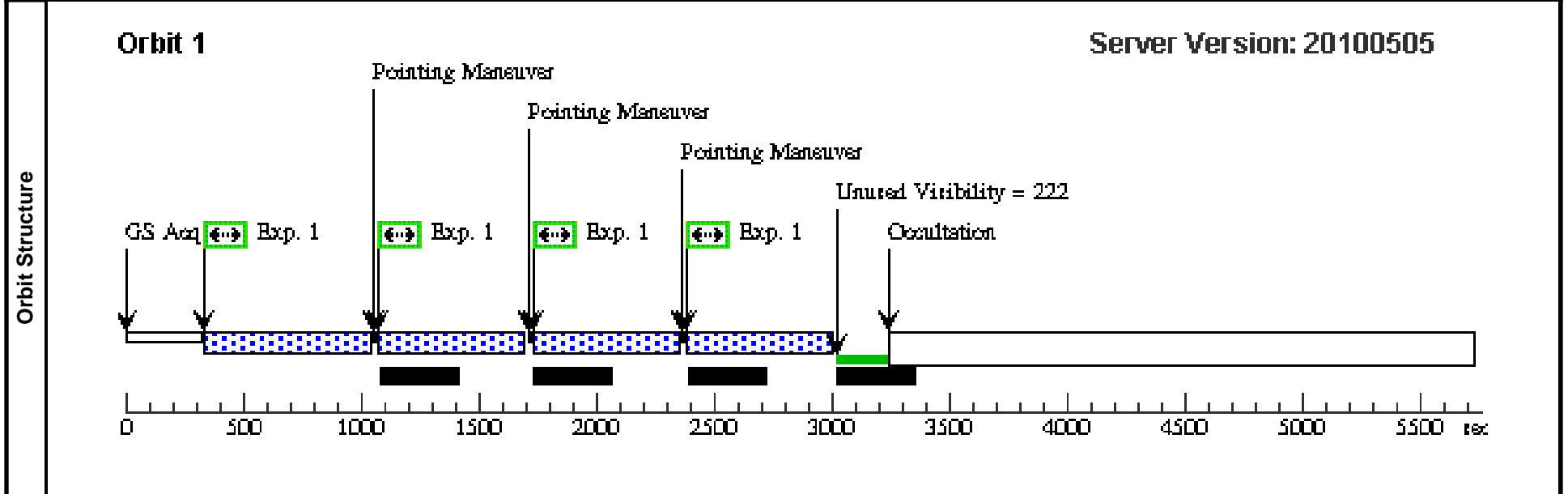
Visit	Proposal 12381, Visit 01, scheduling			
	Diagnostic Status: No Diagnostics			
	Scientific Instruments: ACS/WFC			
	Special Requirements: (none)			

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	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	CRAB-NEBULA-AND-PULSAR	RA: 05 34 31.9500 (83.6331250d) Dec: +22 00 52.10 (22.01447d) Equinox: J2000		V=16.65+/-0.05	Reference Frame: ICRS

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

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) CRAB-NEBULA-AND-PULSAR	ACS/WFC, ACCUM, WFC1-FIX	F550M				Pattern 1, Exps 1-1 (1)	500 Secs [=>500.0 Secs (Pattern 1)] [=>500.0 Secs (Pattern 2)] [=>500.0 Secs (Pattern 3)] [=>500.0 Secs (Pattern 4)]



Proposal 12381 - Visit 51 - Imaging the Crab nebula while it is flaring in gamma-rays

Thu Sep 30 01:38:40 GMT 2010

Visit	Proposal 12381, Visit 51		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: ACS/WFC		
	Special Requirements: (none)		

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	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	CRAB-NEBULA-AND-PULSAR	RA: 05 34 31.9500 (83.6331250d) Dec: +22 00 52.10 (22.01447d) Equinox: J2000		V=16.65+/-0.05	Reference Frame: ICRS

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

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) CRAB-NEBULA-AND-PULSAR	ACS/WFC, ACCUM, WFC1-FIX	F550M				Pattern 1, Exps 1-1 (1)	500 Secs [=>500.0 Secs (Pattern 1)] [=>500.0 Secs (Pattern 2)] [=>500.0 Secs (Pattern 3)] [=>500.0 Secs (Pattern 4)]

