14150 - Searching for the disappearance of the progenitor of the unique SN 2009ip

Cycle: 23, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Morgan Fraser (PI) (ESA Member) (Contact)	**University of Cambridge**	**mf@ast.cam.ac.uk**
Dr. Rubina Kotak (CoI) (ESA Member)	The Queen's University of Belfast	r.kotak@qub.ac.uk
Dr. Andrea Pastorello (CoI) (ESA Member)	Osservatorio Astronomico di Padova	andrea.pastorello@oapd.inaf.it

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) SN-2009IP	ACS/WFC	1	01-Aug-2015 21:09:56.0	yes
02	(1) SN-2009IP	WFC3/IR WFC3/UVIS	1	01-Aug-2015 21:09:57.0	yes

2 Total Orbits Used

ABSTRACT

We request HST time in order to obtain late-time imaging of SN 2009ip, where for the first time in the history of astronomy we have monitored a star for many years before it has (possibly) exploded as a supernova (SN). SN 2009ip was first discovered as a giant outburst of a luminous blue variable star in 2009, and three years later an explosive event caused it to reach SN-like luminosities of M_V~-18, and a bolometric luminosity of 10E43 erg/s. We have monitored SN 2009ip extensively over the following 2.5 years, and now seek to conduct the definitive test of whether SN 2009ip exploded as a core-collapse supernova or not, by observing whether SN 2009ip fades below or remains above the progenitor magnitude.

OBSERVING DESCRIPTION

We wish to obtain deep imaging of the nearby supernova/supernova impostor SN 2009ip, to confirm (or otherwise) the disappearance of the progenitor candidate seen in pre-explosion WFPC2 imaging. We will observe SN 2009ip with ACS/WFC F606W and F814W, with WFC3/UVIS F438W, and with WFC3/IR F606W. As the target is still fading, we wish to observe it as late as possible in Cycle 23 to ensure that it will have faded below the expected flux level of the progenitor.

Visit

Proposal 14150, ACS (01), implementation Sun Aug 02 01:09:58 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: PCS MODE FINE; AFTER 01-SEP-2016:00:00:00

Comments: ACS/WFC imaging in F606W and F814W

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1), (2)

Fixed Targets

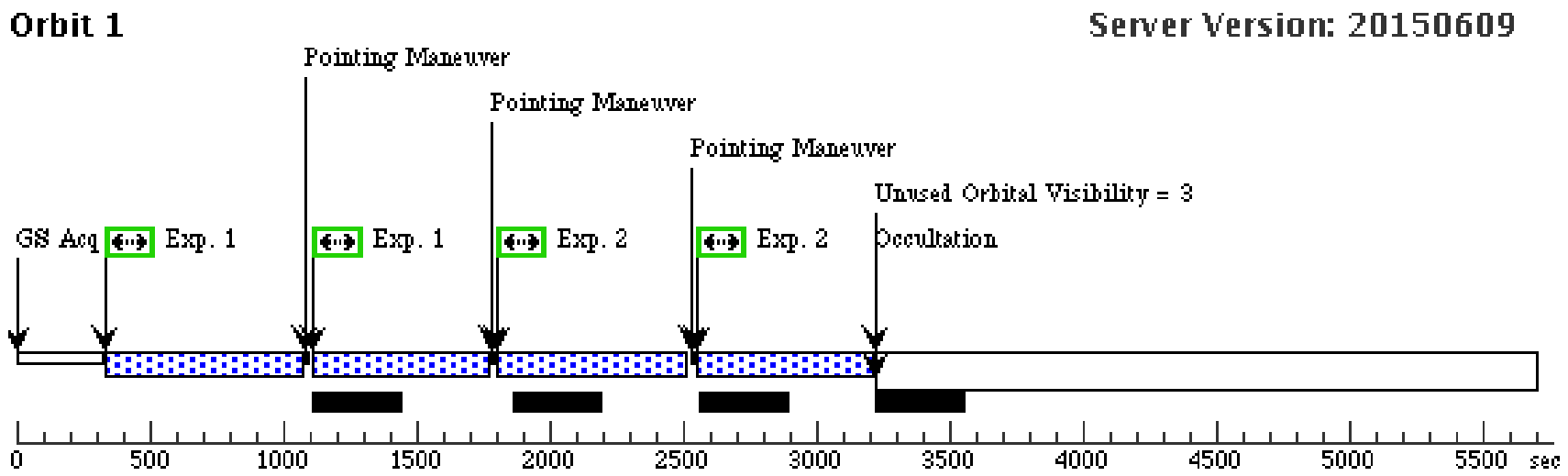
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SN-2009IP	RA: 22 23 8.2600 (335.7844167d) Dec: -28 56 52.40 (-28.94789d) Equinox: J2000		V=23.7	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F606W	(1) SN-2009IP	ACS/WFC, ACCUM, WFC1	F606W		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in ACS (01) (1)	550 Secs (1066 Secs) *[==>533.0 Secs (Pattern 1)]* *[==>533.0 Secs (Pattern 2)]*	*[1]*
2	F814W	(1) SN-2009IP	ACS/WFC, ACCUM, WFC1	F814W			Pattern 1, Exps 2-2 in ACS (01) (1)	550 Secs (1066 Secs) *[==>533.0 Secs (Pattern 1)]* *[==>533.0 Secs (Pattern 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14150, WFC3 (02), implementation Sun Aug 02 01:09:58 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: PCS MODE FINE; AFTER 01-SEP-2016:00:00:00

Comments: WFC3 imaging in F435W and F160W

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(3)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SN-2009IP	RA: 22 23 8.2600 (335.7844167d) Dec: -28 56 52.40 (-28.94789d) Equinox: J2000		V=23.7	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F438W	(1) SN-2009IP	WFC3/UVIS, ACCUM, UVIS2	F438W	FLASH=7	GS ACQ SCENARIO SINGLE	Pattern 2, Exps 1-1 in WFC3 (02) (2)	550 Secs (1292 Secs) *[==>646.0 Secs (Pattern 1)]* *[==>646.0 Secs (Pattern 2)]*	***[1]***
2	F160W	(1) SN-2009IP	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPARS50		Pattern 3, Exps 2-2 in WFC3 (02) (3)	602.937703 Secs (1205.875 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***

Orbit Structure