13179 - Ultraviolet Spectra of the Exceptional SN 2009ip

Cycle: 20, Proposal Category: GO/DD

(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	(2) SN2009IP CCDFLAT	STIS/CCD	1	16-Oct-2012 23:51:06.0	yes
02	(2) SN2009IP	COS/FUV COS/NUV	3	16-Oct-2012 23:51:22.0	yes

4 Total Orbits Used

ABSTRACT

A truly exceptional supernova has just erupted. The object in question is SN 2009ip in NGC 7259. Although this object was discovered in 2009 and judged to be the eruption of a luminous blue variable star (LBV), it is now erupting again, which may well be the signature of its explosion as a supernova. We have been following this event at many wavelengths, including the UV with SWIFT. Although that gives us a baseline to estimate the UV properties of SN 2009ip, the SWIFT observations to date are quite limited. Ultraviolet observations with HST have proven exceptionally informative in some cases, such as SN 2010jl, and that is what we request here at the very end of Cycle 19. We have no further orbits left in our program GO12540, but this is a unique opportunity for HST. We request Director's Discretionary time for this set of observations, the first of which is a non-disruptive TOO.

OBSERVING DESCRIPTION

TBD

Visit

Proposal 13179, Visit 01, implementation Wed Oct 17 03:51:32 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: BETWEEN 15-OCT-2012:00:00:00 AND 05-NOV-2012:00:00:00

Comments: please try to schedule early in the SMS... if possible...

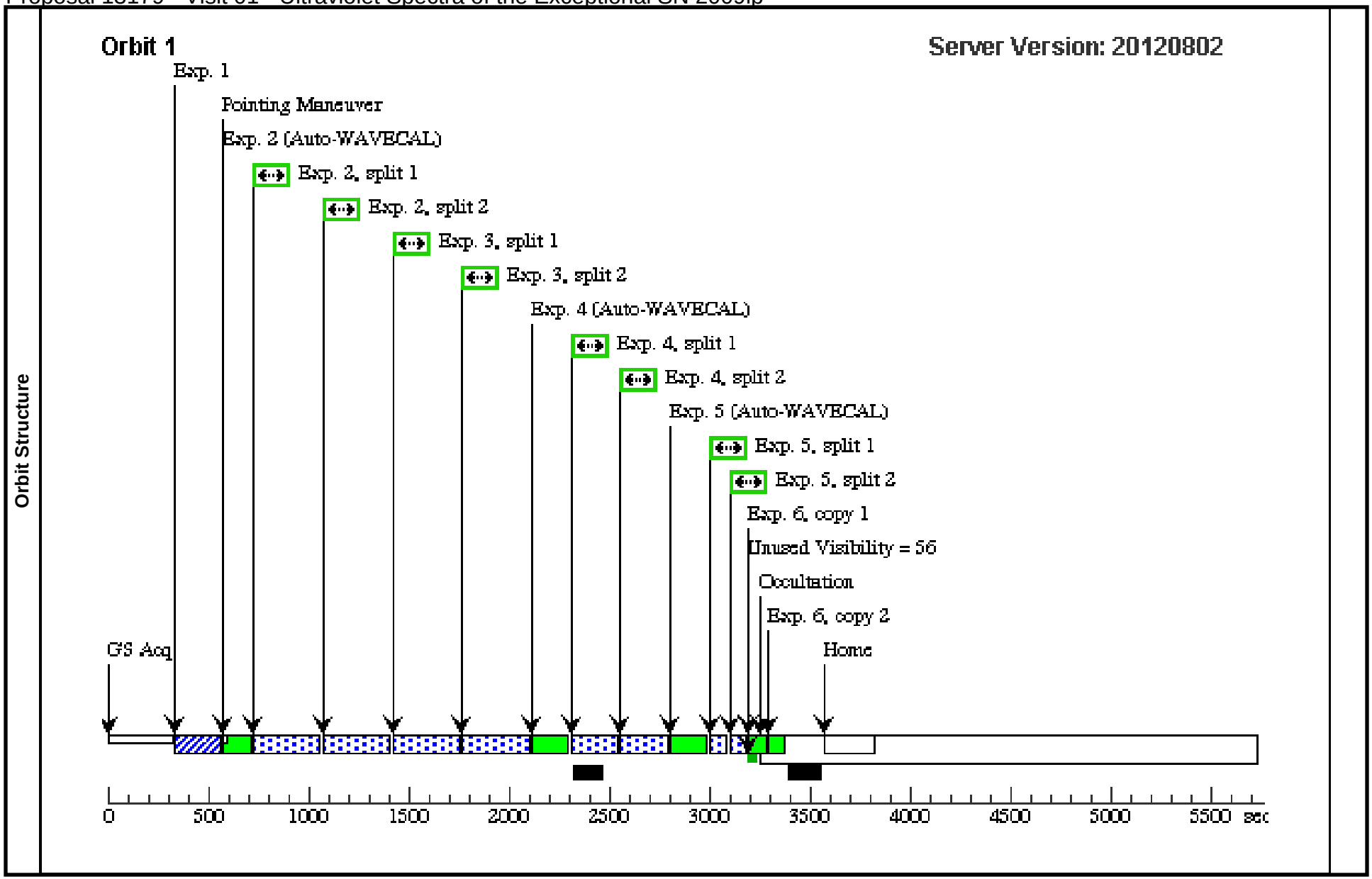
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SN2009IP	RA: 22 23 8.2600 (335.7844167d) Dec: -28 56 52.40 (-28.94789d) Equinox: J2000		V=14.3	Reference Frame: ICRS

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

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(STIS.ta.434 013)	(2) SN2009IP	STIS/CCD, ACQ, F28X50LP	MIRROR				0.5 Secs *[==>]*	***[1]***
2		(2) SN2009IP	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2			600 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
3		(2) SN2009IP	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2			600 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
4		(2) SN2009IP	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2			400 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
5		(2) SN2009IP	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A	CR-SPLIT=2			100 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
6		CCDFLAT	STIS/CCD, ACCUM, 52X0.2	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20120802
Exp. 1
Pointing Maneuver
Exp. 2 (Auto-WAVECAL)
Exp. 2, split 1
Exp. 2, split 2
Exp. 3, split 1
Exp. 3, split 2
Exp. 4 (Auto-WAVECAL)
Exp. 4, split 1
Exp. 4, split 2
Exp. 5 (Auto-WAVECAL)
Exp. 5, split 1
Exp. 5, split 2
Exp. 6, copy 1
Unused Visibility = 56
Occultation
Exp. 6, copy 2
GS Acq
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13179, Visit 02, implementation Wed Oct 17 03:51:34 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: BETWEEN 15-OCT-2012:00:00:00 AND 09-NOV-2012:00:00:00

Comments: The SWIFT UV mag show a slow decline of flux.
decline is 0.05 mag/day
Oct 15th measurement shows U flux of 12.8 +/- 0.1
I used Flat continuum @ 13.1 for the COS acq exposure.
we used the spectrum of type IIn sn1998S 13 days after
explosion to show an upper limit of what we expect with COS.
Currently, sn2009ip is about 2-3 times fainter in the UV then
sn1998S.
If STScI wants us to obtain the STIS spectrum first to make
sure COS acq exposure time... thats fine with us.

out latest SWIFT spectrum says acq exposure time of 120 seconds
COS.ta.434043, so probably 240 is okay.

we don't expect any emission lines brigher than geo coronal Lyman alpha.

Diagnostics

(Visit 02) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

(Visit 02) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SN2009IP	RA: 22 23 8.2600 (335.7844167d) Dec: -28 56 52.40 (-28.94789d) Equinox: J2000		V=14.3	Reference Frame: ICRS

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

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.ta.434 037)	(2) SN2009IP	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				240 Secs *[==>]*	 ***[1]***
*Comments: I used U 13.1 flat continuum. add a little more as the UV flux is decreasing. decline is 0.05 mags/day Oct 13th flux was 12.8, so on Oct 25th it will be 12 days * 0.05 = 0.3 mags fainter*									
2	(COS.sp.434 029)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=690; FP-POS=1			800 Secs *[==>]*	 ***[1]***
3	(COS.sp.434 029)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=690; FP-POS=2			1000 Secs *[==>]*	 ***[1]***
4	(COS.sp.434 029)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=540; FP-POS=3			650 Secs *[==>]*	 ***[2]***
5	(COS.sp.434 029)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=540; FP-POS=4			650 Secs *[==>]*	 ***[2]***
6	(COS.sp.434 030)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=390; FP-POS=1			500 Secs *[==>]*	 ***[2]***
7	(COS.sp.434 030)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=390; FP-POS=2			500 Secs *[==>]*	 ***[2]***
8	(COS.sp.434 030)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=1290; FP-POS=3			1400 Secs *[==>]*	 ***[3]***
9	(COS.sp.434 030)	(2) SN2009IP	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=1190; FP-POS=4			1300 Secs *[==>]*	 ***[3]***

Orbit Structure