14055 - HST NIR observations of the currently active magnetar SGR 1935+2154

Cycle: 22, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Prof. Andrew J. Levan (PI) (ESA Member) (Contact)	**The University of Warwick**	**a.j.levan@warwick.ac.uk**
Dr. C. Kouveliotou (CoI) (AdminUSPI)	George Washington University	ckouveliotou@gwu.edu
Dr. Andrew S. Fruchter (CoI)	Space Telescope Science Institute	fruchter@stsci.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) SGR1935+2154	WFC3/IR	1	30-Jul-2015 21:07:28.0	yes
02	(1) SGR1935+2154	WFC3/IR	1	30-Jul-2015 21:07:30.0	yes

2 Total Orbits Used

ABSTRACT

The newly discovered (2014, July 5) magnetar SGR 1935+2154 entered a burst active phase on 2015 February 22 and has been detected to emit at least 6 bursts in the last 48 hours. Very few magnetars have been detected in wavelengths other than X-rays, mostly because there is typically a large extinction along the line of sight. This particular source, however, is located in an uncrowded field with very low extinction and has therefore an excellent chance to be detected with the superb capabilities of HST. Such a detection would provide, besides a very accurate location, an unambiguous IR counterpart via photometric variability and establish the putative association of the source with a supernova remnant. A detection would also allow the determination (with future observations) of the proper motion of the source and thereby an estimate of the natal kick of the source. The proposed observations are likely to be extremely valuable for understanding the nature of these rare objects and their progenitors.

OBSERVING DESCRIPTION

We wish to obtain deep IR observations of the currently active magnetar SGR 1935+2154. We will use a single orbit of F140W observations and a standard 4-point dither to reach depths of AB~28 (3-sigma). We will repeat this observation ~6 months later (with the PA of the observation rotated by 180 degrees) in order perform a subtraction and search for variability in the sources within the X-ray error circle.

Visit

Proposal 14055, Visit 01, completed Fri Jul 31 01:07:31 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 75D TO 125 D; ORIENT 165D TO 215 D; ORIENT 255D TO 305 D; ORIENT 345D TO 35 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

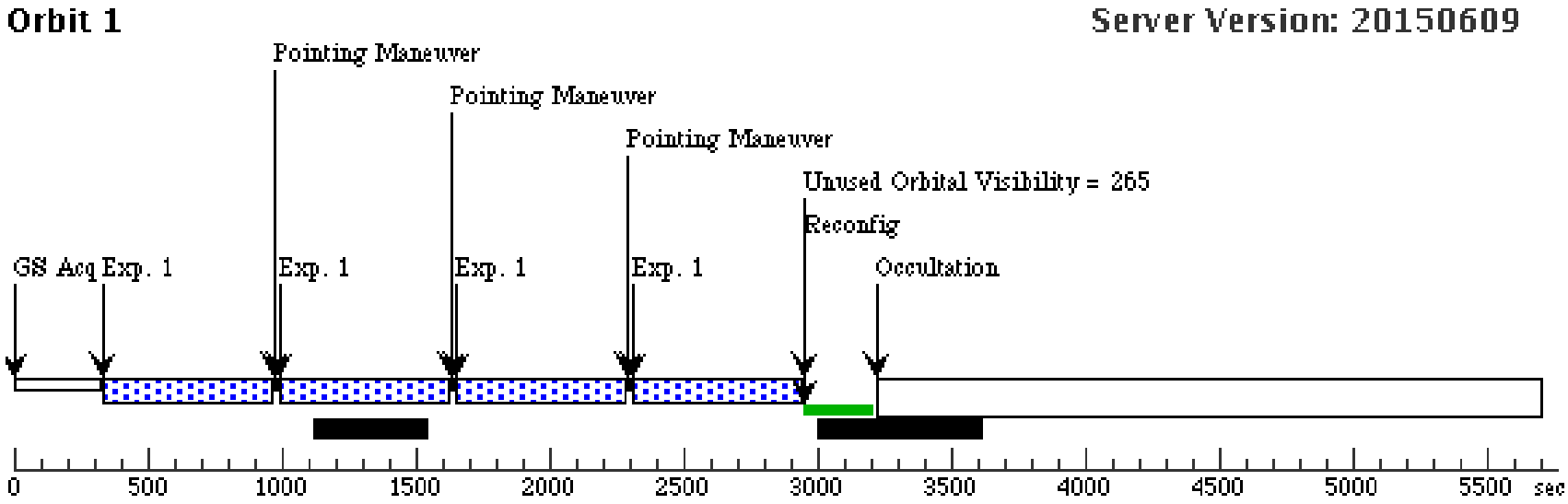
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SGR1935+2154	RA: 19 34 55.6800 (293.7320000d) Dec: +21 53 48.20 (21.89672d) Equinox: J2000		V=25+/-5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) SGR1935+2154	WFC3/IR, MULTIACCUM, IR	F140W	NSAMP=12; SAMP-SEQ=STEP100		Pattern 1, Exps 1-1 in Visit 01 (1)	599.232292 Secs (2396.929 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 14055, Visit 02, scheduling Fri Jul 31 01:07:31 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 180D TO 180D FROM 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SGR1935+2154	RA: 19 34 55.6800 (293.7320000d) Dec: +21 53 48.20 (21.89672d) Equinox: J2000		V=25+/-5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) SGR1935+2154	WFC3/IR, MULTIACCUM, IR	F140W	NSAMP=12; SAMP-SEQ=STEP100		Pattern 1, Exps 1-1 in Visit 02 (1)	599.232292 Secs (2396.929 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure