14365 - Is Muzzio 10 The Ex-Companion Star of the PSR B1509-58 Progenitor?

Cycle: 23, 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) 2MASS-J15135520-5907516 (2) TYC-8706-841-1 (3) S7PM000190 (4) S7PM000196 (7) S7PN001637 (8) S7PM005976 (9) S7PN002081 (10) S7PM000188 (11) S7PN001828 (12) S7PM004994	FGS	1	20-Oct-2015 21:53:07.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
02	(1) 2MASS-J15135520-5907516 (2) TYC-8706-841-1 (3) S7PM000190 (4) S7PM000196 (7) S7PN001637 (8) S7PM005976 (9) S7PN002081 (10) S7PM000188 (11) S7PN001828 (12) S7PM004994	FGS	1	20-Oct-2015 21:53:13.0	yes

2 Total Orbits Used

ABSTRACT

PSR B1509-58 is a pulsar with spin-down age of 1700 years. Just 18.1" north of the pulsar is a V=11.63 runaway O4.5III(fp) star called Muzzio 10 with a similar distance as the pulsar. We make a strong case that Muzzio 10 is the first known ex-companion star in a supernova remnant. We proposed to prove whether Muzzio 10 is an ex-companion by measuring the proper motions of the pulsar (with 20 ksec of ACIS-I) and of Muzzio 10 (with 2 orbits of FGS), all to see if the positions coincide 1700 years ago. The identification of a confident ex-companion would allow for testing the predictions of the effects of a SN blast on a nearby star, testing the direction of a pulsar kick with respect to its rotational axis, testing the site of the r-process, and testing the spin-down age of pulsars.

OBSERVING DESCRIPTION

GO-14365 will use Fine Guidance Sensors (FGS) to measure the proper motion of runaway O4.5III(fp) star Muzzio 10 to see whether it will bring Muzzio 10 to coincide with the location of the pulsar PSR B1509-58 ~1700 years ago. Hence we are trying to test whether Muzzio 10 is the ex-companion of PSR B1509-58 progenitor. The identification of a confident ex-companion would allow for testing the predictions of the effects of a SN blast on a nearby star, testing the direction of a pulsar kick with respect to its rotational axis, testing the site of the r-process, and testing the spin-down age of pulsars.

Selected stars in the Muzzio 10 and PSR B1509-58 field are to be sequentially observed in POSITION mode by FGS1r with the F583W filter. Each

visit will have about 28 exposures of 10 stars (V < ~14.5 mag). Several stars will be observed multiple times so that the telescope drift, which is astrometrically significant, can be modeled and eliminated during the data reductions. Each visit will require a specific ORIENT to cover our target and reference stars. Each visit would take up one whole orbit. Two vists should be sepearted by exactly one year to avoid stellar parallax. A ~1.1mas/yr accuracy is expected with one year baseline for the proper motion measurement.

Proposal 14365 - Visit 01 - Is Muzzio 10 The Ex-Companion Star of the PSR B1509-58 Progenitor?

Visit	**Proposal 14365, Visit 01, implementation** Wed Oct 21 01:53:15 GMT 2015 **Diagnostic Status: Warning** Scientific Instruments: FGS Special Requirements: SCHED 100%; ORIENT 253.0D TO 253.5 D; BETWEEN 01-JAN-2016:00:00:00 AND 02-JAN-2016:00:00:00
Diagnostics	(Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 01) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	2MASS-J15135520-5907516 Alt Name1: MUZZIO10	RA: 15 13 55.2100 (228.4800417d) Dec: -59 07 51.60 (-59.13100d) Equinox: J2000		V=11.63	Reference Frame: SIMBAD
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *This is Muzzio 10, the object we want proper motion of.* *Extended=NO*				
(2)	TYC-8706-841-1	RA: 15 13 30.8650 (228.3786042d) Dec: -59 08 48.56 (-59.14682d) Equinox: J2000		V=10.52	Reference Frame: SIMBAD
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Extended=NO*				
(3)	S7PM000190	RA: 15 14 16.8237 (228.5700987d) Dec: -59 07 18.42 (-59.12178d) Equinox: J2000		V=12.9901	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(4)	S7PM000196	RA: 15 13 14.9524 (228.3123017d) Dec: -59 08 42.44 (-59.14512d) Equinox: J2000		V=11.33093	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(7)	S7PN001637	RA: 15 14 23.7268 (228.5988617d) Dec: -59 06 27.93 (-59.10776d) Equinox: J2000		V=13.6611	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(8)	S7PM005976	RA: 15 13 31.4648 (228.3811033d) Dec: -59 06 56.02 (-59.11556d) Equinox: J2000		V=13.3144	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(9)	S7PN002081	RA: 15 14 42.8284 (228.6784517d) Dec: -59 04 25.13 (-59.07365d) Equinox: J2000		V=12.5469	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(10)	S7PM000188	RA: 15 14 6.7090 (228.5279542d) Dec: -59 06 51.15 (-59.11421d) Equinox: J2000		V=11.76493	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(11)	S7PN001828	RA: 15 14 13.1360 (228.5547333d) Dec: -59 05 35.66 (-59.09324d) Equinox: J2000		V=13.5011	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				

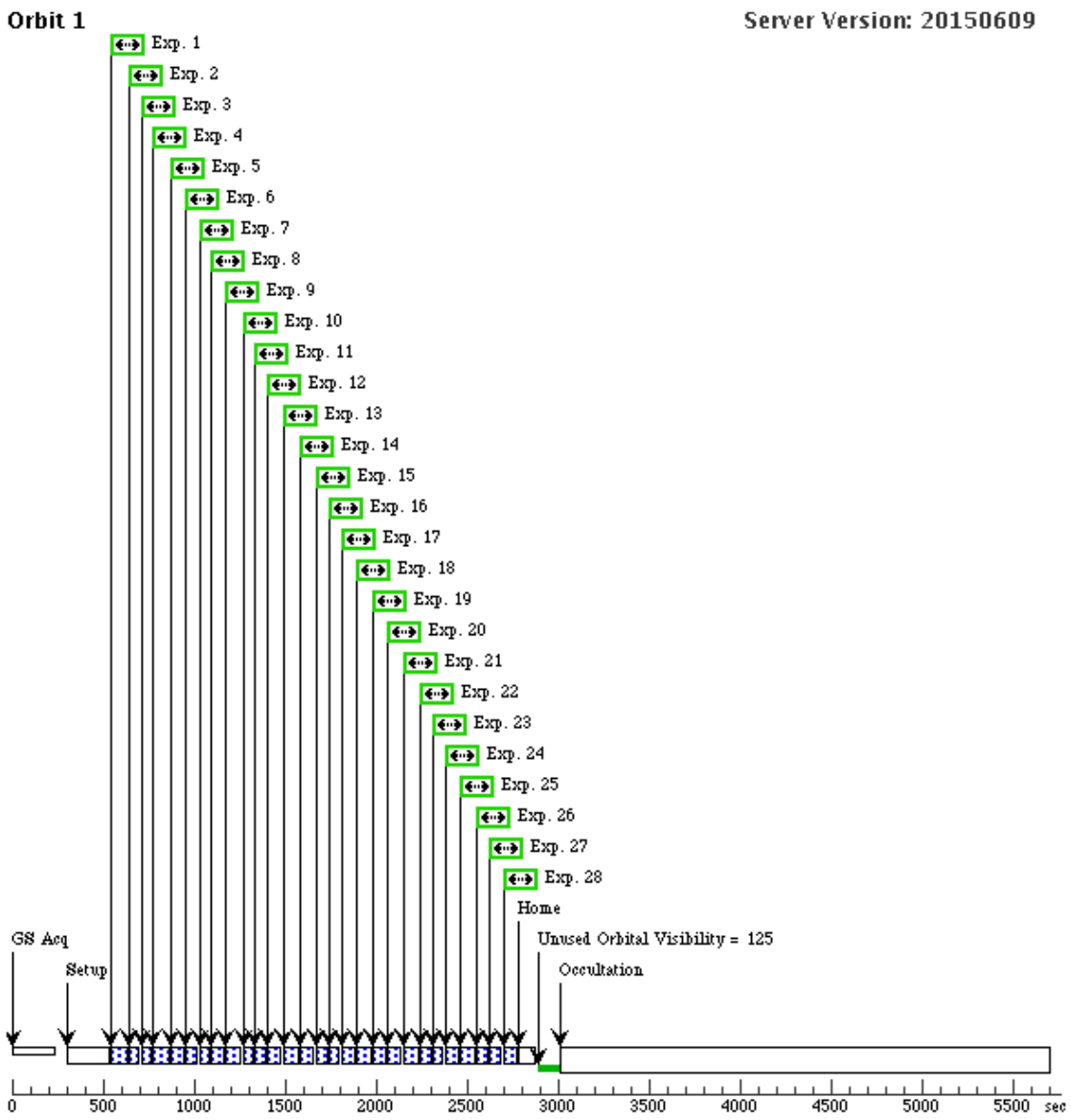
	(12)	S7PM004994	RA: 15 13 14.2200 (228.3092500d) Dec: -59 09 53.45 (-59.16485d) Equinox: J2000	V=14.0005	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. Extended=NO				

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		GS ACQ SCENARIO ONEB1B3	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
2		(10) S7PM000188	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
3		(3) S7PM000190	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
4		(8) S7PM005976	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
5		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
6		(2) TYC-8706-841-1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
7		(4) S7PM000196	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
8		(12) S7PM004994	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
9		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
10		(10) S7PM000188	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
11		(11) S7PN001828	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
12		(9) S7PN002081	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
13		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
14		(8) S7PM005976	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
15		(2) TYC-8706-841-1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
16		(4) S7PM000196	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
17		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
18		(7) S7PN001637	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
19		(11) S7PN001828	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
20		(9) S7PN002081	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
21		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***
22		(2) TYC-8706-841-1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs)	
								[==>]	***[1]***

	23	(4) S7PM000196	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs) *[==>]*	 ***[1]***
	24	(12) S7PM004994	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs) *[==>]*	 ***[1]***
	25	(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs) *[==>]*	 ***[1]***
	26	(3) S7PM000190	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs) *[==>]*	 ***[1]***
	27	(7) S7PN001637	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs) *[==>]*	 ***[1]***
	28	(11) S7PN001828	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 01	6 Secs (6 Secs) *[==>]*	 ***[1]***

Orbit Structure



Proposal 14365 - Visit 02 - Is Muzzio 10 The Ex-Companion Star of the PSR B1509-58 Progenitor?

Visit	**Proposal 14365, Visit 02, implementation** Wed Oct 21 01:53:16 GMT 2015 **Diagnostic Status: Warning** Scientific Instruments: FGS Special Requirements: SCHED 100%; ORIENT 253.0D TO 253.5 D; BETWEEN 01-JAN-2017:00:00:00 AND 02-JAN-2017:00:00:00
Diagnostics	(Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA (Visit 02) Warning (Orbit Planner): FGS EXPOSURE TOO SHORT TO GUARANTEE SCIENCE DATA

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	2MASS-J15135520-5907516 Alt Name1: MUZZIO10	RA: 15 13 55.2100 (228.4800417d) Dec: -59 07 51.60 (-59.13100d) Equinox: J2000		V=11.63	Reference Frame: SIMBAD
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *This is Muzzio 10, the object we want proper motion of.* *Extended=NO*				
(2)	TYC-8706-841-1	RA: 15 13 30.8650 (228.3786042d) Dec: -59 08 48.56 (-59.14682d) Equinox: J2000		V=10.52	Reference Frame: SIMBAD
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *Extended=NO*				
(3)	S7PM000190	RA: 15 14 16.8237 (228.5700987d) Dec: -59 07 18.42 (-59.12178d) Equinox: J2000		V=12.9901	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(4)	S7PM000196	RA: 15 13 14.9524 (228.3123017d) Dec: -59 08 42.44 (-59.14512d) Equinox: J2000		V=11.33093	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(7)	S7PN001637	RA: 15 14 23.7268 (228.5988617d) Dec: -59 06 27.93 (-59.10776d) Equinox: J2000		V=13.6611	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(8)	S7PM005976	RA: 15 13 31.4648 (228.3811033d) Dec: -59 06 56.02 (-59.11556d) Equinox: J2000		V=13.3144	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(9)	S7PN002081	RA: 15 14 42.8284 (228.6784517d) Dec: -59 04 25.13 (-59.07365d) Equinox: J2000		V=12.5469	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(10)	S7PM000188	RA: 15 14 6.7090 (228.5279542d) Dec: -59 06 51.15 (-59.11421d) Equinox: J2000		V=11.76493	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				
(11)	S7PN001828	RA: 15 14 13.1360 (228.5547333d) Dec: -59 05 35.66 (-59.09324d) Equinox: J2000		V=13.5011	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. *Extended=NO*				

	(12)	S7PM004994	RA: 15 13 14.2200 (228.3092500d) Dec: -59 09 53.45 (-59.16485d) Equinox: J2000	V=14.0005	Reference Frame: ICRS
	Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database. Extended=NO				

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		GS ACQ SCENARIO ONEB1B3	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
2		(10) S7PM000188	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
3		(3) S7PM000190	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
4		(8) S7PM005976	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
5		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
6		(2) TYC-8706-841-1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
7		(4) S7PM000196	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
8		(12) S7PM004994	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
9		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
10		(10) S7PM000188	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
11		(11) S7PN001828	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
12		(9) S7PN002081	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
13		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
14		(8) S7PM005976	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
15		(2) TYC-8706-841-1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
16		(4) S7PM000196	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
17		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
18		(7) S7PN001637	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
19		(11) S7PN001828	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
20		(9) S7PN002081	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
21		(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***
22		(2) TYC-8706-841-1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs)	
								[==>]	***[1]***

	23	(4) S7PM000196	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs) *[==>]*	 ***[1]***
	24	(12) S7PM004994	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs) *[==>]*	 ***[1]***
	25	(1) 2MASS-J15135520-5907516	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs) *[==>]*	 ***[1]***
	26	(3) S7PM000190	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs) *[==>]*	 ***[1]***
	27	(7) S7PN001637	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs) *[==>]*	 ***[1]***
	28	(11) S7PN001828	FGS, POS, 1	F583W	SAME POS AS 1	Sequence 1-28 Non-Int in Visit 02	6 Secs (6 Secs) *[==>]*	 ***[1]***

Orbit Structure