17242 - Resolving an orphan cloud as a signpost of ICM clumping

Cycle: 30, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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Dr. Thomas C Scott (CoI) (ESA Member)	Universidade do Porto
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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) A1367-OC-ACS	ACS/WFC	1	07-Dec-2023 12:00:17.0	yes
03	(1) A1367-OC-ACS	ACS/WFC	1	07-Dec-2023 12:00:17.0	yes
02	(2) A1367-OC-WFC3	WFC3/UVIS	1	07-Dec-2023 12:00:18.0	yes

3 Total Orbits Used

ABSTRACT

A first and only known isolated (or galaxy-less) cloud detected in Ha, CO and X-rays was discovered in the nearby galaxy cluster A1367. This discovery provides a firm connection between the clumps in the intracluster medium (ICM) and the stripped gas from infall galaxies. This case suggests that at least some ICM clumps are multi-phase in nature. The cloud presents a great laboratory to study the evolution of the stripped ISM far away from the parent galaxy and ICM clumps in details. We request joint Chandra, HST and VLA observations to 1) look for a sharp edge in X-rays; 2) study the central orphan X-ray cool core; 3) resolve X-ray point sources; 4) study SF history and conditions; and 5) search for HI gas around the cloud.

OBSERVING DESCRIPTION

We will observe the orphan cloud in A1367 with three filters F275W, F475W and F814W in two orbits to search for star formation and features indicative of ram pressure stripping. F475W and F814W observations will be done in one orbit with ACS/WFC, while the F275W observation will be done in another orbit with WFC3/UVIS. The ACS data in two high-throughput filters allow detections of faint features (e.g., individual star cluster associations). The F275W data will add important information on the SF in the last several 10^7 years and the F275W - F475W color is a very good age indicator.

Visit

Proposal 17242, Visit 01, failed Thu Dec 07 17:00:18 GMT 2023

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false		(1-2)

Fixed Targets

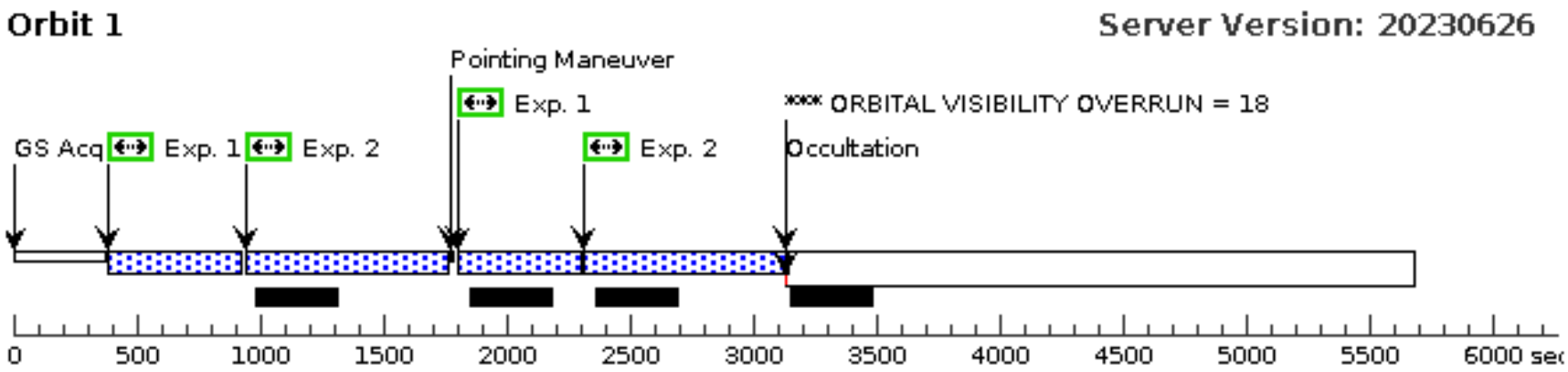
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	A1367-OC-ACS	RA: 11 44 25.8060 (176.1075250d) Dec: +20 10 26.57 (20.17405d) Equinox: J2000	Epoch of Position: 2000	V=16	Reference Frame: SIMBAD

Comments:
Category=CLUSTER OF GALAXIES
Description=[EMISSION LINE NEBULA, RICH CLUSTER, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) A1367-OC-ACS	ACS/WFC, ACCUM, WFCENTER	F814W			Pattern 1, Exps 1-2 in Visit 01 (1)	337 Secs (674 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(1) A1367-OC-ACS	ACS/WFC, ACCUM, WFCENTER	F475W			Pattern 1, Exps 1-2 in Visit 01 (1)	662 Secs (1323 Secs) *[==>661.0 Secs (Pattern 1)]* *[==>(Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 17242, Visit 03

Thu Dec 07 17:00:18 GMT 2023

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Comments: re-observation for visit 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false		(1-2)

Fixed Targets

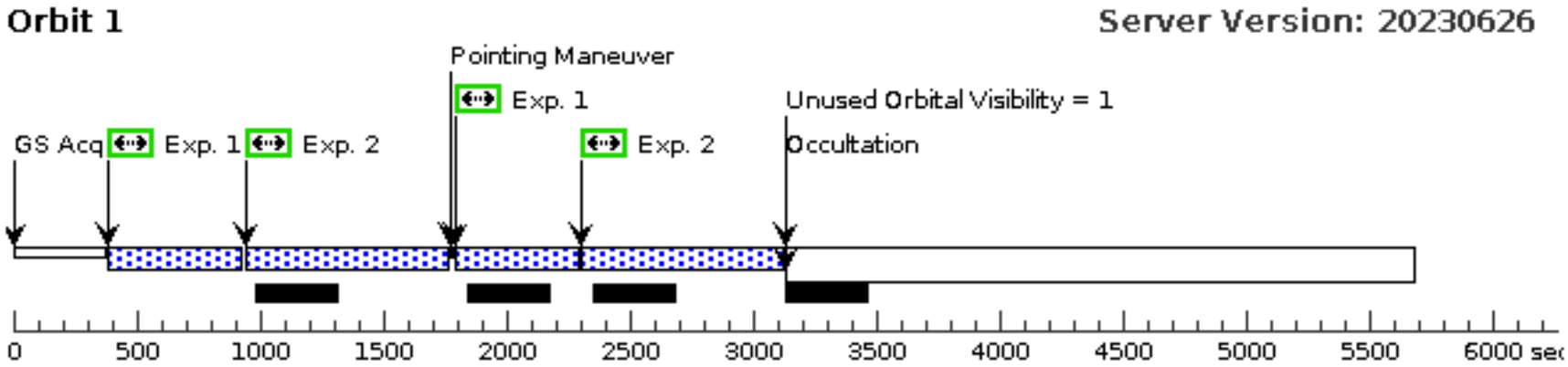
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	A1367-OC-ACS	RA: 11 44 25.8060 (176.1075250d) Dec: +20 10 26.57 (20.17405d) Equinox: J2000	Epoch of Position: 2000	V=16	Reference Frame: SIMBAD

Comments:
Category=CLUSTER OF GALAXIES
Description=[EMISSION LINE NEBULA, RICH CLUSTER, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) A1367-OC-ACS	ACS/WFC, ACCUM, WFCENTER	F814W			Pattern 1, Exps 1-2 in Visit 03 (1)	337 Secs (674 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*
2		(1) A1367-OC-ACS	ACS/WFC, ACCUM, WFCENTER	F475W			Pattern 1, Exps 1-2 in Visit 03 (1)	652 Secs (1304 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*

Orbit Structure



Visit

Proposal 17242, Visit 02, completed Thu Dec 07 17:00:18 GMT 2023

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-MOS-DITH-LINE Purpose=MOSAIC Number Of Points=3 Point Spacing=2.4 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.754 Angle Between Sides= Center Pattern=true		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	A1367-OC-WFC3	RA: 11 44 24.7000 (176.1029167d) Dec: +20 10 19.60 (20.17211d) Equinox: J2000	Epoch of Position: 2000	V=16	Reference Frame: SIMBAD

Comments:
Category=CLUSTER OF GALAXIES
Description=[EMISSION LINE NEBULA, RICH CLUSTER, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) A1367-OC-WFC3	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=20		Pattern 2, Exps 1-1 in Visit 02 (2)	830 Secs (2488 Secs) *[==>829.0 Secs (Pattern 1)]* *[==>829.0 Secs (Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure