



18407 - New isolated, faint dwarf galaxies beyond the Local Group

Cycle: 34, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) SMDG1	ACS/WFC	1	13-Aug-2026 13:00:45.0	yes
02	(2) SMDG2	ACS/WFC	1	13-Aug-2026 13:00:45.0	yes
03	(3) SMDG3	ACS/WFC	1	13-Aug-2026 13:00:46.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
04	(4) SMDG4	ACS/WFC	1	13-Aug-2026 13:00:46.0	yes
05	(5) SMDG5	ACS/WFC	1	13-Aug-2026 13:00:47.0	yes
06	(6) SMDG6	ACS/WFC	1	13-Aug-2026 13:00:47.0	yes
07	(7) SMDG7	ACS/WFC	1	13-Aug-2026 13:00:48.0	yes
08	(8) SMDG8	ACS/WFC	1	13-Aug-2026 13:00:48.0	yes

8 Total Orbits Used

ABSTRACT

The Local Group satellite dwarf galaxies are often used as benchmarks for testing galaxy formation and evolution theories on the smallest scales because they are the lowest-mass galaxies for which detailed observations are available. However, most of these dwarfs have been affected by the Local Group environment. If we want to understand the physical mechanisms driving the evolution of low-mass galaxies, we must study dwarf galaxies beyond the Local Group across all environments.

We request 8 orbits of ACS imaging (F606W+F814W) to follow up eight new nearby faint dwarf galaxies discovered in ground-based surveys. The galaxies are likely just beyond the edge of the Local Group. HST imaging is essential to the determination of high-precision distances, basic physical properties, and the star formation histories of these newly discovered faint dwarfs. The requested observations will put these eight galaxies into context with other dwarf galaxies in and beyond the Local Group, providing a rare opportunity to assess the impact of environment on low-mass systems.

OBSERVING DESCRIPTION

The observations are going to be performed with ACS/WFC to match previous observations of faint dwarfs beyond the Local Group (e.g. Weisz et al. 2014, Hargis et al. 2020, Danieli et al. 2017, Bennet et al. 2019, Crnojevic et al. 2019, Mutlu-Pakdil et al 2022). We request imaging in F606W and F814W filters (broad V and I) for both instruments, in order to compute accurate TRGB distances for our targets and characterize their stellar content, while optimizing the exposure times.

Given the small size of each target (<1 arcmin), one pointing is sufficient to cover the entire spatial extent of each galaxy. Each dwarf will be placed on one of the ACS/WFC chips, and small dithers between exposures will remove detector defects and improve the PSF sampling. Given that the

possible distance range for our targets is $\sim 1\text{--}3$ Mpc, we use existing HST ACS data of Local Volume dwarfs at <3 Mpc (NGC253 dwarfs [GO-14259, GO-15938], CenA dwarfs [GO-13856], MADCASH dwarfs [GO-15228]) to guide our observational request and ensure that the depth is sufficient for the science goals of this proposal.

The archival ACS data for similar limiting magnitudes were obtained with 2 CR-SPLIT exposures of 1200 sec in F606W and 900 sec in F814W. The required exposure times nicely fit into one orbit per object after taking into account realistic overheads. We have checked that the charge transfer efficiency losses of ACS do not significantly affect our observations (at most 10% loss of flux). Our visits are 1-orbit, and we have no ORIENT requirements. Nor does this program have time constraints (other than the baseline excitement of the science!)

Proposal 18407 - SMDG1 (01) - New isolated, faint dwarf galaxies beyond the Local Group

Visit	Proposal 18407, SMDG1 (01) Thu Aug 13 17:00:48 GMT 2026				
	Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)				
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
	(1)	SMDG1	RA: 12 39 2.5632 (189.7606800d) Dec: -00 39 51.73 (-.66437d) Equinox: J2000		V=21+/-0.1
Exposures	Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES				
	#	Label	Target	Config,Mode,Aperture	Spectral Els.
	1	(1) SMDG1	ACS/WFC, ACCUM, WFC1	F606W	Pattern 1, Exps 1-1 i n SMDG1 (01) (1)
	2	(1) SMDG1	ACS/WFC, ACCUM, WFC1	F814W	Pattern 1, Exps 2-2 i n SMDG1 (01) (1)
					Exp. Time (Total)/[Actual Dur.]
					Orbit
					400 Secs (958 Secs)
					[==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]
					[1]
					400 Secs (958 Secs)
					[==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]
					[1]
Orbit Structure	Orbit 1				
	Server Version: 20260618				
	0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec				

Proposal 18407 - SMDG2 (02) - New isolated, faint dwarf galaxies beyond the Local Group

Visit	Proposal 18407, SMDG2 (02) Thu Aug 13 17:00:48 GMT 2026				
	Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)				
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
	(2)	SMDG2	RA: 10 40 10.1664 (160.0423600d) Dec: +04 54 31.10 (4.90864d) Equinox: J2000		V=22+/-0.1
	Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.
	1	(2) SMDG2	ACS/WFC, ACCUM, WFC1	F606W	
					Pattern 1, Exps 1-1 i n SMDG2 (02) (1)
					400 Secs (958 Secs)
					[==>479.0 Secs (Pattern 1)]
					[==>479.0 Secs (Pattern 2)]
					[1]
	2	(2) SMDG2	ACS/WFC, ACCUM, WFC1	F814W	
					Pattern 1, Exps 2-2 i n SMDG2 (02) (1)
					400 Secs (958 Secs)
					[==>479.0 Secs (Pattern 1)]
					[==>479.0 Secs (Pattern 2)]
					[1]
Orbit Structure	Orbit 1				
	Server Version: 20260618				

Proposal 18407 - SMDG3 (03) - New isolated, faint dwarf galaxies beyond the Local Group

Visit	Proposal 18407, SMDG3 (03)										Thu Aug 13 17:00:49 GMT 2026	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: ACS/WFC											
	Special Requirements: (none)											
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			
	(3)	SMDG3	RA: 01 11 51.9504 (17.9664600d) Dec: +02 27 46.76 (2.46299d) Equinox: J2000				V=21+/-0.1		Reference Frame: ICRS			
	Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES											
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(3) SMDG3	ACS/WFC, ACCUM, WFC1		F606W			Pattern 1, Exps 1-1 in SMDG3 (03) (1)	400 Secs (958 Secs) [==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]	[1]	
	2		(3) SMDG3	ACS/WFC, ACCUM, WFC1		F814W			Pattern 1, Exps 2-2 in SMDG3 (03) (1)	400 Secs (958 Secs) [==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]	[1]	
Orbit Structure	Orbit 1											
	Server Version: 20260618											

Proposal 18407 - SMDG4 (04) - New isolated, faint dwarf galaxies beyond the Local Group

Thu Aug 13 17:00:49 GMT 2026

Visit	Proposal 18407, SMDG4 (04)										
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: ACS/WFC										
	Special Requirements: (none)										
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		
	(4)	SMDG4	RA: 13 00 59.7888 (195.2491200d) Dec: -02 01 7.39 (-2.01872d) Equinox: J2000				V=21+/-0.1		Reference Frame: ICRS		
Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES											
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	
	1		(4) SMDG4	ACS/WFC, ACCUM, WFC1		F606W			Pattern 1, Exps 1-1 i n SMDG4 (04) (1)	400 Secs (958 Secs)	
										[==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]	[1]
	2		(4) SMDG4	ACS/WFC, ACCUM, WFC1		F814W			Pattern 1, Exps 2-2 i n SMDG4 (04) (1)	400 Secs (958 Secs)	
										[==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]	[1]
Orbit Structure	Orbit 1 Server Version: 20260618 GS Acq Exp. 1 Exp. 1 Exp. 2 Exp. 2 Occultation Pointing Maneuver Pointing Maneuver Pointing Maneuver Unused Orbital Visibility = 1 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec										

Proposal 18407 - SMDG5 (05) - New isolated, faint dwarf galaxies beyond the Local Group

Thu Aug 13 17:00:49 GMT 2026

Visit	Proposal 18407, SMDG5 (05) Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)				
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
	(5)	SMDG5	RA: 11 06 7.5024 (166.5312600d) Dec: -01 26 51.25 (-1.44757d) Equinox: J2000		V=21+/-0.1
	Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.
	1	(5) SMDG5	ACS/WFC, ACCUM, WFC1	F606W	
	2	(5) SMDG5	ACS/WFC, ACCUM, WFC1	F814W	
					Pattern 1, Exps 1-1 i n SMDG5 (05) (1)
					400 Secs (958 Secs) [==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]
					[1]
					Pattern 1, Exps 2-2 i n SMDG5 (05) (1)
					400 Secs (958 Secs) [==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]
					[1]
Orbit Structure	Orbit 1				
	Server Version: 20260618				

Proposal 18407 - SMDG6 (06) - New isolated, faint dwarf galaxies beyond the Local Group

Visit	Proposal 18407, SMDG6 (06) Thu Aug 13 17:00:49 GMT 2026				
	Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)				
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
	(6)	SMDG6	RA: 12 45 52.3224 (191.4680100d) Dec: +01 54 20.88 (1.90580d) Equinox: J2000		V=22+/-0.1
Exposures	Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES				
	#	Label	Target	Config,Mode,Aperture	Spectral Els.
	1	(6) SMDG6	ACS/WFC, ACCUM, WFC1	F606W	Pattern 1, Exps 1-1 i n SMDG6 (06) (1)
	2	(6) SMDG6	ACS/WFC, ACCUM, WFC1	F814W	Pattern 1, Exps 2-2 i n SMDG6 (06) (1)
					Exp. Time (Total)/[Actual Dur.]
					Orbit
					400 Secs (958 Secs)
					[==>479.0 Secs (Pattern 1)]
					[==>479.0 Secs (Pattern 2)]
					[1]
					400 Secs (958 Secs)
					[==>479.0 Secs (Pattern 1)]
					[==>479.0 Secs (Pattern 2)]
					[1]
Orbit Structure	Orbit 1				
	Server Version: 20260618				
	0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec				

Proposal 18407 - SMDG7 (07) - New isolated, faint dwarf galaxies beyond the Local Group

Visit	Proposal 18407, SMDG7 (07) Thu Aug 13 17:00:49 GMT 2026				
	Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)				
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
	(7)	SMDG7	RA: 12 38 50.0448 (189.7085200d) Dec: -01 05 11.98 (-1.08666d) Equinox: J2000		V=21+/-0.1
Exposures	Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES				
	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.
	1	(7) SMDG7	ACS/WFC, ACCUM, WFC1	F606W	
Exposures	Pattern 1, Exps 1-1 i n SMDG7 (07) (1)				
	400 Secs (958 Secs) [==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]				
Exposures	Orbit				
	[1]				
Exposures	2	(7) SMDG7	ACS/WFC, ACCUM, WFC1	F814W	
	Pattern 1, Exps 2-2 i n SMDG7 (07) (1)				
Exposures	400 Secs (958 Secs) [==>479.0 Secs (Pattern 1)] [==>479.0 Secs (Pattern 2)]				
	[1]				
Orbit Structure	Orbit 1				
	Server Version: 20260618				
Orbit Structure					
	0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec				

Proposal 18407 - SMDG8 (08) - New isolated, faint dwarf galaxies beyond the Local Group

Visit	Proposal 18407, SMDG8 (08) Thu Aug 13 17:00:49 GMT 2026				
	Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)				
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
	(8)	SMDG8	RA: 12 21 32.7400 (185.3864167d) Dec: +37 13 22.13 (37.22281d) Equinox: J2000		V=22+/-0.1
	Comments: Category=GALAXY Description=[DWARF SPHEROIDAL] Extended=YES Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.
	1	(8) SMDG8	ACS/WFC, ACCUM, WFC1	F606W	Pattern 1, Exps 1-1 i n SMDG8 (08) (1)
	2	(8) SMDG8	ACS/WFC, ACCUM, WFC1	F814W	Pattern 1, Exps 2-2 i n SMDG8 (08) (1)
					Exp. Time (Total)/[Actual Dur.]
					Orbit
					[1]
					[1]
Orbit Structure	Orbit 1				
	Server Version: 20260618				