14499 - Hubble Heritage imaging of Mars opposition 2016

Cycle: 23, Proposal Category: GO/DD

(Availability Mode: AVAILABLE)

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) MARS-OPPOSITION-2016	WFC3/UVIS	1	27-Apr-2016 21:11:30.0	yes

1 Total Orbits Used

ABSTRACT

The Hubble Heritage Team proposes observe Mars with WFC3 around the time of opposition in May 2016, in order to produce images for a public release and also high-quality archival data for scientific analysis.

OBSERVING DESCRIPTION

We propose to observe Mars near opposition, which occurs on 22 May 2016, to obtain WFC3/UVIS multi-color imaging. Mars will be near the Earth evenly illuminated by the Sun, which is ideal for our observations. It will also be easily visible to the public in the nighttime sky. At opposition, Mars will be at a distance of 0.51 AU, and its disk will subtend a diameter of 18.4 arcsec. Within our one HST orbit, we will sweep through a set of four WFC3 filters (F275W, F410M, F502N, F673N) several times each, and include a small dither shift, to mitigate cosmic rays and detector artifacts. Mars will easily fit within the 1K subarray, which will minimize CTE effects and allow us to obtain over 20 exposures per orbit. We hedge a bit with exposure timess for each filter, since it is difficult to know in advance which Mars features might be prominent at the time of the observation (e.g. polar caps, clouds). Exposure times will generally be short, but some may saturate in spots, and we also use post-flash for some of the shotest exposures. We obtained approval to specify BLADE=A for all exposures to mitigate shutter-driven vibrations. The Hubble Heritage team imaged Mars at opposition in 2007 with WFPC2 (HST program 11361). We used filters F410M, F502N, and F673N. In this proposal we have included a wide UV filter (F275W) which also does not require very long exposures times and could reveal interesting Martian cloud structure. Opposition will be near the end of the aphelion cloud belt season, which was originally discovered using HST. We would like to schedule this observation a week or so before the opposition date, so the public release can coincide with the opposition.

Proposal 14499 - Visit 01 - Hubble Heritage imaging of Mars opposition 2016

Visit

Proposal 14499, Visit 01, implementation Thu Apr 28 01:11:32 GMT 2016

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 12-MAY-2016:00:00:00 AND 16-MAY-2016:00:00:00

Diagnostics

(Exposure 6 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 9 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 11 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 12 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 13 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 14 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 15 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 16 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 17 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 18 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 20 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 22 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 24 (Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	MARS-OPPOSITION-2016	STD=MARS				EARTH

Comments: Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F275W	FLASH=12; BLADE=A			2 Secs (2 Secs) *[==>]*	*[1]*
2		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F275W	BLADE=A; FLASH=12			6 Secs (6 Secs) *[==>]*	*[1]*
3		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F410M	FLASH=12; BLADE=A			0.5 Secs (0.5 Secs) *[==>]*	*[1]*
4		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F410M	FLASH=12; BLADE=A			1.0 Secs (1 Secs) *[==>]*	*[1]*
5		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F502N	FLASH=12; BLADE=A			1.0 Secs (1 Secs) *[==>]*	*[1]*
6		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F502N	BLADE=A			1.5 Secs (1.5 Secs) *[==>]*	*[1]*
7		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F673N	FLASH=12; BLADE=A			0.5 Secs (0.5 Secs) *[==>]*	*[1]*
8		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F673N	FLASH=12; BLADE=A			0.8 Secs (0.8 Secs) *[==>]*	*[1]*
9		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F275W	BLADE=A	POS TARG 1.0,1.0		10 Secs (10 Secs) *[==>]*	*[1]*
10		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F275W	BLADE=A; FLASH=12	POS TARG 1.0,1.0		20 Secs (20 Secs) *[==>]*	*[1]*
11		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F410M	BLADE=A	POS TARG 1.0,1.0		1.5 Secs (1.5 Secs) *[==>]*	*[1]*
12		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F410M	BLADE=A	POS TARG 1.0,1.0		2.0 Secs (2 Secs) *[==>]*	*[1]*
13		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F410M	BLADE=A	POS TARG 1.0,1.0		2.5 Secs (2.5 Secs) *[==>]*	*[1]*
14		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F502N	BLADE=A	POS TARG 1.0,1.0		2.0 Secs (2 Secs) *[==>]*	*[1]*
15		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F502N	BLADE=A	POS TARG 1.0,1.0		2.5 Secs (2.5 Secs) *[==>]*	*[1]*
16		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F673N	BLADE=A	POS TARG 1.0,1.0		0.7 Secs (0.7 Secs) *[==>]*	*[1]*
17		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F673N	BLADE=A	POS TARG 1.0,1.0		1.1 Secs (1.1 Secs) *[==>]*	*[1]*
18		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F275W	BLADE=A	POS TARG -1.0,-1.0		8 Secs (8 Secs) *[==>]*	*[1]*
19		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F275W	FLASH=12; BLADE=A	POS TARG -1.0,-1.0		4 Secs (4 Secs) *[==>]*	*[1]*
20		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F410M	BLADE=A	POS TARG -1.0,-1.0		1.2 Secs (1.2 Secs) *[==>]*	*[1]*
21		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F410M	FLASH=12; BLADE=A	POS TARG -1.0,-1.0		0.8 Secs (0.8 Secs) *[==>]*	*[1]*
22		(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F502N	BLADE=A	POS TARG -1.0,-1.0		1.7 Secs (1.7 Secs) *[==>]*	*[1]*

	23	(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F502N	FLASH=12; BLADE=A	POS TARG -1.0,-1.0	1.2 Secs (1.2 Secs) *[==>]*	 ***[1]***
	24	(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F673N	BLADE=A	POS TARG -1.0,-1.0	0.9 Secs (0.9 Secs) *[==>]*	 ***[1]***
	25	(1) MARS-OPPOSITION-2016	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F673N	FLASH=12; BLADE=A	POS TARG -1.0,-1.0	0.5 Secs (0.5 Secs) *[==>]*	 ***[1]***

Orbit Structure