15455 - Mass Measurements of Exoplanet Microlens Host Stars with Near Simultaneous Hubble and Keck AO Observations

Cycle: 25, Proposal Category: GO/DD

(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) OGLE-2012-BLG-0563	WFC3/UVIS	2	03-Apr-2018 13:03:25.0	yes
02	(3) MOA-2010-BLG-328	WFC3/UVIS	2	03-Apr-2018 13:03:31.0	yes
03	(2) OGLE-2012-BLG-0950	WFC3/UVIS	1	03-Apr-2018 13:03:34.0	yes

5 Total Orbits Used

ABSTRACT

We propose Hubble observations to detect both the photometric and astrometric signatures of host stars for 3 planets found by gravitational microlensing. These signatures will allow us to determine the masses and distances of the exoplanet host stars, and they will help us sharpen tests of the core accretion theory predictions for the exoplanet mass function beyond the snow line. We request nearly simultaneous observations with our NASA Keck Key Strategic Mission Support observing program to provide a precise comparison between optical astrometry of the Hubble images and the infrared astrometry of Keck adaptive optics (AO) images. This will allow us to detect the separation of the planetary host and source stars via the color-dependent centroid shift effect. In order to avoid systematic errors due to stellar proper motions, we request observations within 5 days of our Keck Key observing program, which is scheduled for 5 half-nights during May 21-27. This effect is maximized with the optical-infrared color difference that the combined HST and Keck AO data will provide. Our proposed observations will help us to develop and test this optical-infrared color-dependent centroid shift method for use with a larger sample of microlens planetary systems during the second year of our Keck observing program.

OBSERVING DESCRIPTION

We will want ~16 exposures per orbit in the WFC3/UVIS F814W and F555W passbands to get good spatial sampling of the effective PSFs (Anderson and King 2000), and this means that we will be unable to do parallel, full-frame buffer dumps. Fortunately, a 1024x1024 WFC3/UVIS sub-array image will contain 1600 bulge G and K-dwarfs, similar to the source stars, which can be used to construct precise PSF models. We will use the sub-array with minimal CTE degradation, but we will also use the FLASH. For OGLE-2012-BLG-0950, we will obtain 8x60 sec exposures in F814W and 8 x 110 sec exposures in F555W. We will employ a custom dither pattern designed to optimally map the effective PSF with 8 exposures. For the faintest target, OGLE-2012-BLG-0563, and the target with the lowest predicted S/N, MOA-2010-BLG-328, we request 2 orbits with 16 optimally dithered observations in each of the F814W and F555W filters. The exposure times for these two targets will be 85-92 sec.

Visit

Proposal 15455, Visit 01, implementation Tue Apr 03 17:03:36 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 20-MAY-2018:00:00:00 AND 29-MAY-2018:00:00:00

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OGLE-2012-BLG-0563	RA: 18 05 57.7200 (271.4905000d) Dec: -27 42 43.20 (-27.71200d) Equinox: J2000		V=21.60+/-0.10 I = 20.12 +- 0.05	Reference Frame: ICRS

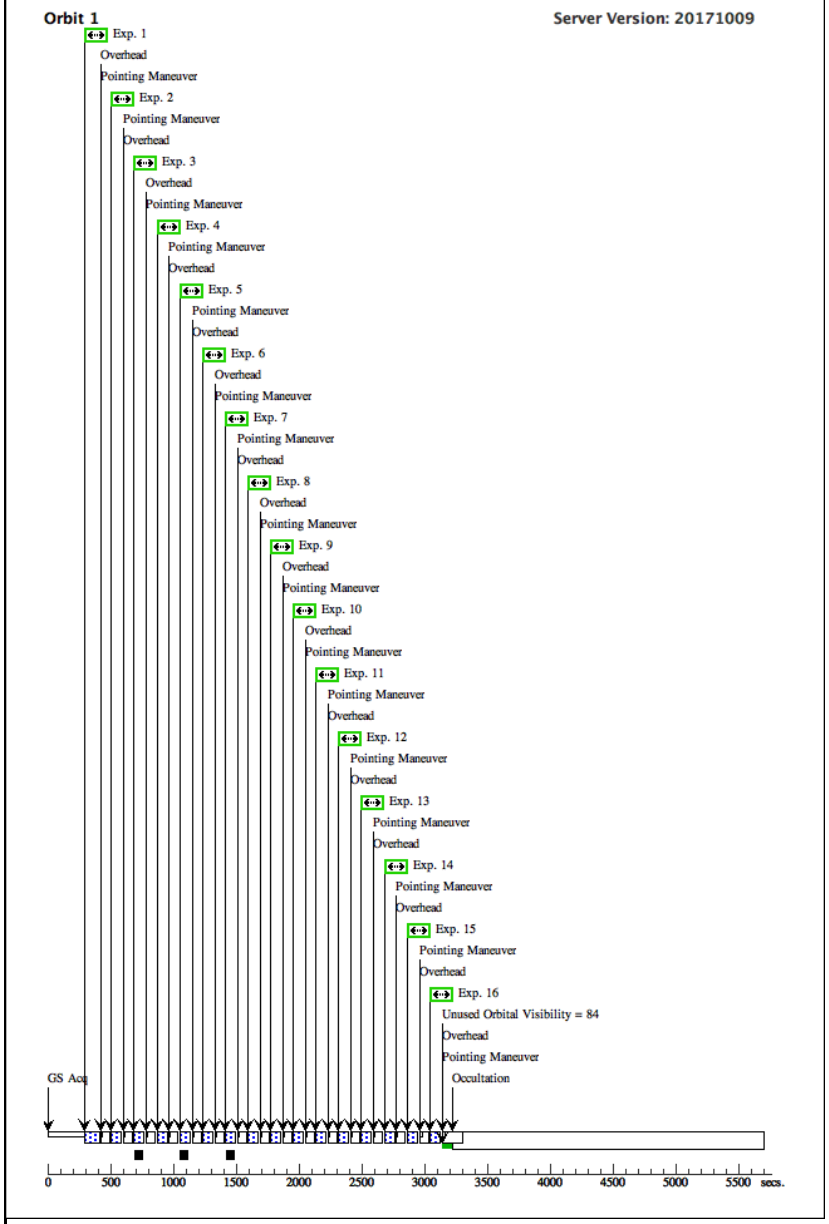
Comments:
Category=EXT-STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, GRAVITATIONAL LENS]

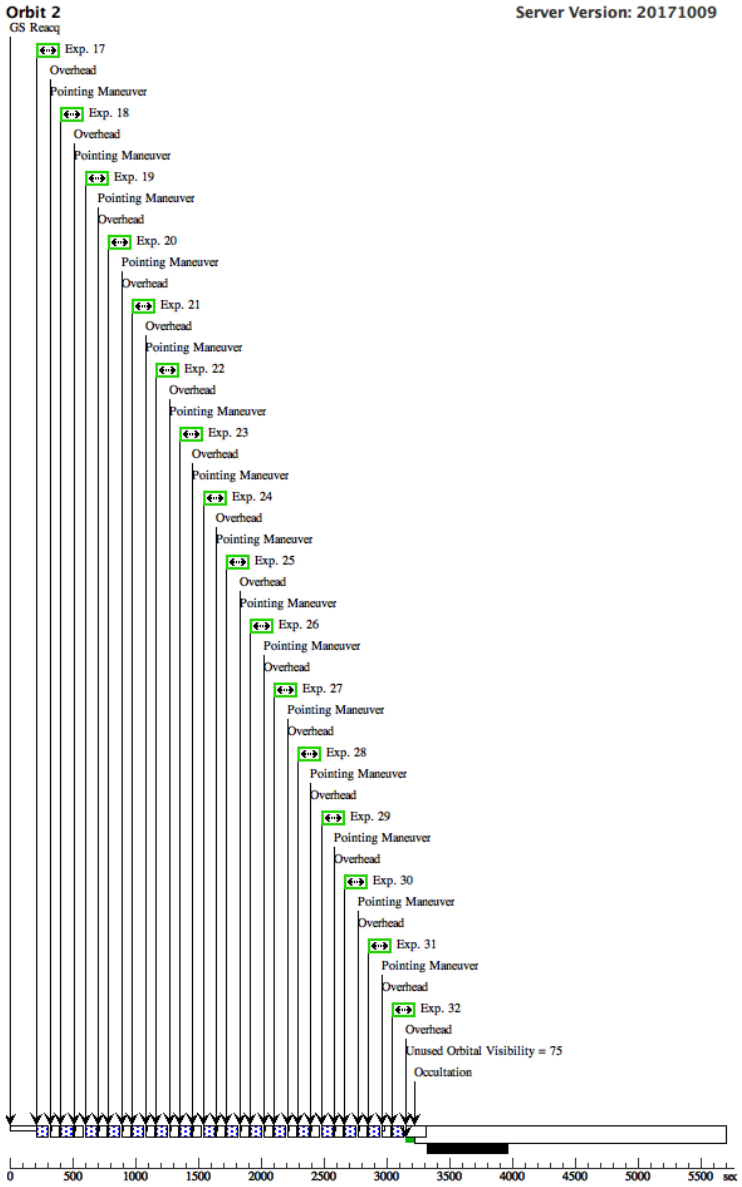
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		85 Secs (85 Secs) *[==>]*	*[1]*
2		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.21981, 0.01893		85 Secs (85 Secs) *[==>]*	*[1]*
3		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.08573, 0.22678		85 Secs (85 Secs) *[==>]*	*[1]*
4		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.30554, 0.24572		85 Secs (85 Secs) *[==>]*	*[1]*
5		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.56707, 0.11780		85 Secs (85 Secs) *[==>]*	*[1]*
6		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.78688, 0.13673		85 Secs (85 Secs) *[==>]*	*[1]*
7		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.65279, 0.34459		85 Secs (85 Secs) *[==>]*	*[1]*
8		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.91230, 0.36598		85 Secs (85 Secs) *[==>]*	*[1]*
9		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.08446, 0.53624		85 Secs (85 Secs) *[==>]*	*[1]*
10		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.30427, 0.55517		85 Secs (85 Secs) *[==>]*	*[1]*
11		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.20990, 0.76546		85 Secs (85 Secs) *[==>]*	*[1]*
12		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.38999, 0.78195		85 Secs (85 Secs) *[==>]*	*[1]*
13		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.65150, 0.65404		85 Secs (85 Secs) *[==>]*	*[1]*
14		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.87130, 0.67303		85 Secs (85 Secs) *[==>]*	*[1]*
15		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.73722, 0.88083		85 Secs (85 Secs) *[==>]*	*[1]*
16		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 0,0		85 Secs (85 Secs) *[==>]*	*[1]*
17		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0,0		92 Secs (92 Secs) *[==>]*	*[2]*
18		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.21981, 0.01893		92 Secs (92 Secs) *[==>]*	*[2]*
19		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.08573, 0.22678		92 Secs (92 Secs) *[==>]*	*[2]*
20		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.30554, 0.24572		92 Secs (92 Secs) *[==>]*	*[2]*
21		(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.56707, 0.11780		92 Secs (92 Secs) *[==>]*	*[2]*

	22	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.78688, 0.13673	92 Secs (92 Secs) *[==>]*	 ***[2]***
	23	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.65279, 0.34459	92 Secs (92 Secs) *[==>]*	 ***[2]***
	24	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.91230, 0.36598	92 Secs (92 Secs) *[==>]*	 ***[2]***
	25	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.08446, 0.53624	92 Secs (92 Secs) *[==>]*	 ***[2]***
	26	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.30427, 0.55517	92 Secs (92 Secs) *[==>]*	 ***[2]***
	27	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.20990, 0.76546	92 Secs (92 Secs) *[==>]*	 ***[2]***
	28	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.38999, 0.78195	92 Secs (92 Secs) *[==>]*	 ***[2]***
	29	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.65150, 0.65404	92 Secs (92 Secs) *[==>]*	 ***[2]***
	30	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.87130, 0.67303	92 Secs (92 Secs) *[==>]*	 ***[2]***
	31	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.73722, 0.88083	92 Secs (92 Secs) *[==>]*	 ***[2]***
	32	(1) OGLE-2012-BL G-0563	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F555W	FLASH=10	POS TARG 0,0	92 Secs (92 Secs) *[==>]*	 ***[2]***

Orbit Structure




Orbit 2
Server Version: 20171009
GS Reacq
Exp. 17
Overhead
Pointing Maneuver
Exp. 18
Overhead
Pointing Maneuver
Exp. 19
Pointing Maneuver
Overhead
Exp. 20
Pointing Maneuver
Overhead
Exp. 21
Overhead
Pointing Maneuver
Exp. 22
Overhead
Pointing Maneuver
Exp. 23
Overhead
Pointing Maneuver
Exp. 24
Overhead
Pointing Maneuver
Exp. 25
Overhead
Pointing Maneuver
Exp. 26
Pointing Maneuver
Overhead
Exp. 27
Pointing Maneuver
Overhead
Exp. 28
Pointing Maneuver
Overhead
Exp. 29
Pointing Maneuver
Overhead
Exp. 30
Pointing Maneuver
Overhead
Exp. 31
Pointing Maneuver
Overhead
Exp. 32
Overhead
Unused Orbital Visibility = 75
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15455, Visit 02, implementation Tue Apr 03 17:03:36 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 20-MAY-2018:00:00:00 AND 29-MAY-2018:00:00:00

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	MOA-2010-BLG-328	RA: 17 57 59.1200 (269.4963333d) Dec: -30 42 54.63 (-30.71517d) Equinox: J2000		V=21.06+/-0.1 I = 19.17 +- 0.1	Reference Frame: ICRS

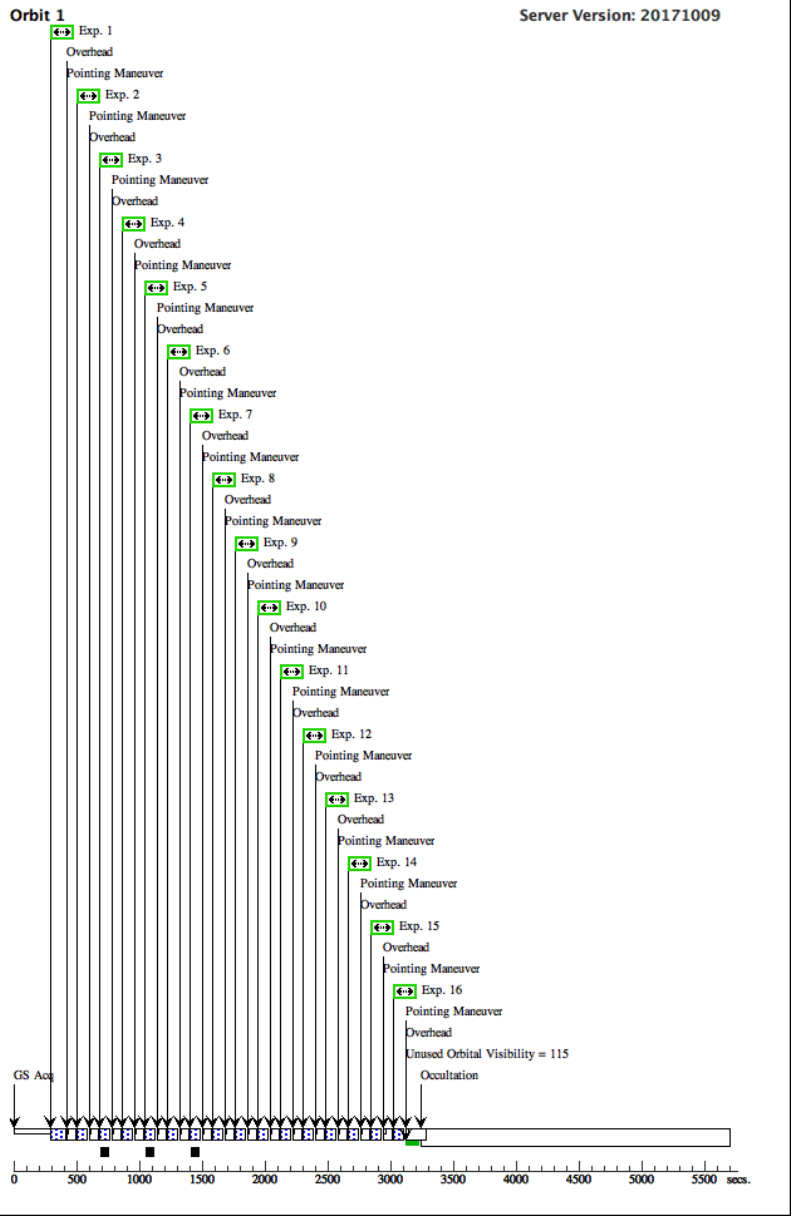
Comments:
Category=EXT-STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, GRAVITATIONAL LENS]

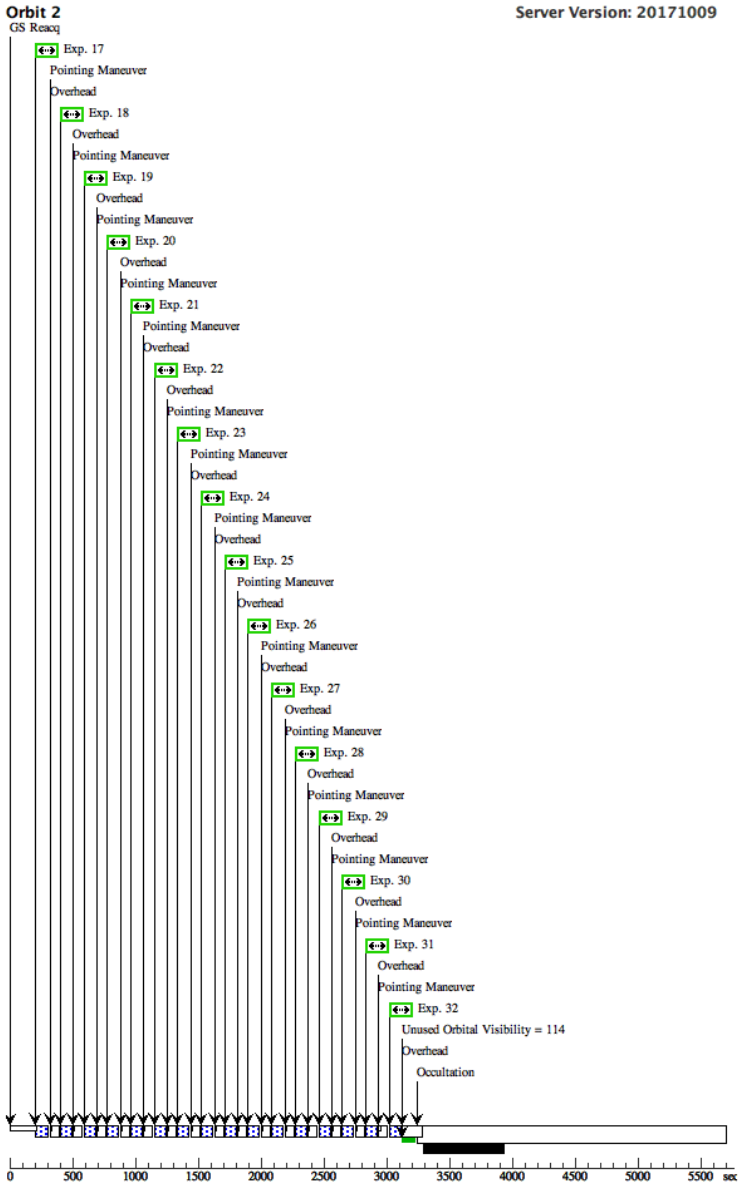
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0,0; GS ACQ SCENARIO BASE1B3		84 Secs (84 Secs) *[==>]*	*[1]*
2		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.21981, 0.01893		84 Secs (84 Secs) *[==>]*	*[1]*
3		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.08573, 0.22678		84 Secs (84 Secs) *[==>]*	*[1]*
4		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.30554, 0.24572		84 Secs (84 Secs) *[==>]*	*[1]*
5		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.56707, 0.11780		84 Secs (84 Secs) *[==>]*	*[1]*
6		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.78688, 0.13673		84 Secs (84 Secs) *[==>]*	*[1]*
7		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.65279, 0.34459		84 Secs (84 Secs) *[==>]*	*[1]*
8		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.91230, 0.36598		84 Secs (84 Secs) *[==>]*	*[1]*
9		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.08446, 0.53624		84 Secs (84 Secs) *[==>]*	*[1]*
10		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.30427, 0.55517		84 Secs (84 Secs) *[==>]*	*[1]*
11		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.20990, 0.76546		84 Secs (84 Secs) *[==>]*	*[1]*
12		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.38999, 0.78195		84 Secs (84 Secs) *[==>]*	*[1]*
13		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.65150, 0.65404		84 Secs (84 Secs) *[==>]*	*[1]*
14		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.87130, 0.67303		84 Secs (84 Secs) *[==>]*	*[1]*
15		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.73722, 0.88083		84 Secs (84 Secs) *[==>]*	*[1]*
16		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 0,0		84 Secs (84 Secs) *[==>]*	*[1]*
17		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0,0		91 Secs (91 Secs) *[==>]*	*[2]*
18		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.21981, 0.01893		91 Secs (91 Secs) *[==>]*	*[2]*
19		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.08573, 0.22678		91 Secs (91 Secs) *[==>]*	*[2]*
20		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.30554, 0.24572		91 Secs (91 Secs) *[==>]*	*[2]*
21		(3) MOA-2010-BLG-328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.56707, 0.11780		91 Secs (91 Secs) *[==>]*	*[2]*

	22	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.78688, 0.13673	91 Secs (91 Secs) *[==>]*	 ***[2]***
	23	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.65279, 0.34459	91 Secs (91 Secs) *[==>]*	 ***[2]***
	24	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.91230, 0.36598	91 Secs (91 Secs) *[==>]*	 ***[2]***
	25	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.08446, 0.53624	91 Secs (91 Secs) *[==>]*	 ***[2]***
	26	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.30427, 0.55517	91 Secs (91 Secs) *[==>]*	 ***[2]***
	27	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.20990, 0.76546	91 Secs (91 Secs) *[==>]*	 ***[2]***
	28	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.38999, 0.78195	91 Secs (91 Secs) *[==>]*	 ***[2]***
	29	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.65150, 0.65404	91 Secs (91 Secs) *[==>]*	 ***[2]***
	30	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.87130, 0.67303	91 Secs (91 Secs) *[==>]*	 ***[2]***
	31	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=10	POS TARG 0.73722, 0.88083	91 Secs (91 Secs) *[==>]*	 ***[2]***
	32	(3) MOA-2010-BLG -328	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F555W	FLASH=10	POS TARG 0,0	91 Secs (91 Secs) *[==>]*	 ***[2]***

Orbit Structure




Orbit 2
Server Version: 20171009
GS Reacq
Exp. 17
Pointing Maneuver
Overhead
Exp. 18
Overhead
Pointing Maneuver
Exp. 19
Overhead
Pointing Maneuver
Exp. 20
Overhead
Pointing Maneuver
Exp. 21
Pointing Maneuver
Overhead
Exp. 22
Overhead
Pointing Maneuver
Exp. 23
Pointing Maneuver
Overhead
Exp. 24
Pointing Maneuver
Overhead
Exp. 25
Pointing Maneuver
Overhead
Exp. 26
Pointing Maneuver
Overhead
Exp. 27
Overhead
Pointing Maneuver
Exp. 28
Overhead
Pointing Maneuver
Exp. 29
Overhead
Pointing Maneuver
Exp. 30
Overhead
Pointing Maneuver
Exp. 31
Overhead
Pointing Maneuver
Exp. 32
Unused Orbital Visibility = 114
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15455, Visit 03, implementation Tue Apr 03 17:03:36 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 20-MAY-2018:00:00:00 AND 29-MAY-2018:00:00:00

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	OGLE-2012-BLG-0950	RA: 18 08 4.6200 (272.0192500d) Dec: -29 43 53.70 (-29.73158d) Equinox: J2000		V=20.64+/-0.1 I = 19.29 +- 0.05	Reference Frame: ICRS

Comments:
Category=EXT-STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, GRAVITATIONAL LENS]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG 0,0		111 Secs (111 Secs) *[==>]*	 ***[1]***
2		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG +0.49705,+0.15082		111 Secs (111 Secs) *[==>]*	 ***[1]***
3		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG 0.13021, 0.25822		111 Secs (111 Secs) *[==>]*	 ***[1]***
4		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG 0.62726, 0.40905		111 Secs (111 Secs) *[==>]*	 ***[1]***
5		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG 0.24056, 0.51521		111 Secs (111 Secs) *[==>]*	 ***[1]***
6		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG 0.73759, 0.66605		111 Secs (111 Secs) *[==>]*	 ***[1]***
7		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG 0.37076, 0.77342		111 Secs (111 Secs) *[==>]*	 ***[1]***
8		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=9	POS TARG 0.86777, 0.92426		111 Secs (111 Secs) *[==>]*	 ***[1]***
9		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0,0		62 Secs (62 Secs) *[==>]*	 ***[1]***
10		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.37508, 0.14900		62 Secs (62 Secs) *[==>]*	 ***[1]***
11		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.75015, 0.29800		62 Secs (62 Secs) *[==>]*	 ***[1]***
12		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.13220, 0.38557		62 Secs (62 Secs) *[==>]*	 ***[1]***
13		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.50726, 0.53457		62 Secs (62 Secs) *[==>]*	 ***[1]***
14		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=10	POS TARG 0.24680, 0.64425		62 Secs (62 Secs) *[==>]*	 ***[1]***
15		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-C512C-SUB	F814W	FLASH=10	POS TARG 0.62186, 0.79325		62 Secs (62 Secs) *[==>]*	 ***[1]***
16		(2) OGLE-2012-BLG-0950	WFC3/UVIS, ACCUM, UVIS2-2K2C-SUB	F814W	FLASH=10	POS TARG 0.38893, 0.45382		62 Secs (62 Secs) *[==>]*	 ***[1]***

Orbit Structure