12037 - COS-GTO: NUV Spectra of Bright Kuiper Belt Objects Part 2

Cycle: 18, Proposal Category: GTO/COS

(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) KBO-HAUMEA	COS/NUV	2	15-Mar-2011 21:00:55.0	yes

2 Total Orbits Used

ABSTRACT

NUV spectra of Kuiper Belt Objects (KBOs) other than Pluto have never yet been obtained. We seek to use COS's sensitivity to determine NUV KBO reflectance slopes and to compare/contrast different KBO spectra by observing two of the brightest, Makemake (2005 FY9) and Haumea (2003 EL61), across the NUV band. These particular KBOs are known to have some distinctive characteristics, prominently showing solid methane (Makemake) and water ice (Haumea) absorption in near-IR spectra. Haumea is also unique for its elongated shape; its rapid, 3.9-hour rotation period; and the presence of two moons.

OBSERVING DESCRIPTION

Observe KBO Haumea (2006 EL61) for two orbits, obtaining FUV spectra with G230L. Use longest effective wavelength coverage setting (3000Å). Single grating will also catch lightcurve variations of this 3.9-hour rotator with a double-peaked lightcurve.

Visit

Proposal 12037, Visit 01, implementation Wed Mar 16 01:00:59 GMT 2011

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	KBO-HAUMEA	TYPE=ASTEROID,A=42.9950720730 6954,E=.1981371235542279,I=28.218 33301116119,O=122.0522652259027, W=239.880877705018,M=203.967560 0150349,EQUINOX=J2000,EPOCH= 23-JUL-2010:00:00:00				EARTH

Comments: orbital parameters from JPL Small-Body Database on 2011/3/08 (Solution date 2011-Feb-22)

Formal errors in sky coordinates through Cyle 18: <= 0.4" (3 sigma), from JPL Horizons ephemeris generator, http://ssd.jpl.nasa.gov/horizons.cgi

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) KBO-HAUMEA	COS/NUV, ACQ/SEARCH, PSA	MIRRORA	SCAN-SIZE=2	GS ACQ SCENARI O BASE1B3		190 Secs	
								[==>]	***[1]***
Comments: simulated in ETC COS.A230410, as solar spectrum with effective mV = 17.9, 0.5 magnitudes dimmer in longer NUV wavelengths relative to visible. acquisition S/N = 40 is prohibitive, so imaging is relaxed to achieve S/N = 30.									
2		(1) KBO-HAUMEA	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				190 Secs	
								[==>]	***[1]***
3		(1) KBO-HAUMEA	COS/NUV, TIME-TAG, PSA	G230L 3000 A	BUFFER-TIME=95 0; FP-POS=1			950 Secs	
								[==>]	***[1]***
Comments: simulated in ETC, COS.A331124, assuming effective m_V=18.4 point source with solar spectrum (Kurucz G2V) and average airglow. Calculated buffer time: 2/3 of 7400s									
4		(1) KBO-HAUMEA	COS/NUV, TIME-TAG, PSA	G230L 3000 A	BUFFER-TIME=13 35; FP-POS=2			1445 Secs	
								[==>]	***[2]***
5		(1) KBO-HAUMEA	COS/NUV, TIME-TAG, PSA	G230L 3000 A	BUFFER-TIME=14 45; FP-POS=3			1445 Secs	
								[==>]	***[2]***

Orbit Structure