



# 12792 - High Spatial Resolution Photometric Imaging of the Area Around the Nucleus of C/2011 W3 Lovejoy

Cycle: 19, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Matthew M Knight (PI)</b>	<b>Lowell Observatory</b>	<b>knight@lowell.edu</b>
Dr. Harold A. Weaver (CoI) (Contact)	The Johns Hopkins University Applied Physics Laboratory	hal.weaver@jhuapl.edu
Dr. Carey M Lisse (CoI)	The Johns Hopkins University Applied Physics Laboratory	carey.lisse@jhuapl.edu
Dr. Neil Dello Russo (CoI)	The Johns Hopkins University Applied Physics Laboratory	neil.dello.russo@jhuapl.edu
Dr. Steven Chesley (CoI)	Jet Propulsion Laboratory	steve.chesley@jpl.nasa.gov

## 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) LOVEJOY	WFC3/UVIS	1	28-Dec-2011 21:05:00.0	yes

1 Total Orbits Used

## ABSTRACT

We propose to observe the newly discovered comet C/2011 W3 Lovejoy at one epoch near its closest approach to the Earth in early-January 2012. Lovejoy is a member of the Kreutz group of sungrazing comets and is the first sungrazing comet known to have survived perihelion during the era of modern observations (since 1970). Its size is currently unconstrained but is critical for understanding Lovejoy's place in the Kreutz group hierarchy (either as one of the 1600+ known "pygmy" fragments or one of a handful of major fragments of the parent body, which support and fuel the rest).

Kreutz comets are known to fragment frequently, and we expect that Hubble's high spatial resolution will reveal individual fragments undetectable by any other means. We will estimate the size distribution of these fragments. Due to Lovejoy's extreme southern declination, small solar elongation, and 300+ year orbit, these observations can only be obtained using Hubble, and cannot be accomplished at any other epoch.

### **OBSERVING DESCRIPTION**

We will obtain 6 x 350s exposures using the F606W filter. We will use two different dither positions (3 images at each dither location) to fill-in the gap between the two CCDs and to mitigate the effects of bad pixels. If necessary, the exposure time for the sixth image should be reduced to fit the observations into one orbit.

Proposal 12792 - Visit 01 - High Spatial Resolution Photometric Imaging of the Area Around the Nucleus of C/2011 W3 Lovejoy

Thu Dec 29 02:05:07 GMT 2011

<b>Visit</b>	<b>Proposal 12792, Visit 01, scheduling</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: WFC3/UVIS Special Requirements: DROP TO GYRO IF NECESSARY ; BETWEEN 07-JAN-2012 AND 11-JAN-2012									
	(Visit 01) Warning (Orbit Planner): VISIBILITY OVERRUN									
<b>Diagnostics</b>										
<b>Solar System Targets</b>	<b>#</b>	<b>Name</b>	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>Window</b>	<b>Ephem Center</b>			
	(1)	LOVEJOY	TYPE=COMET,Q=0.0055547725139 74684,E=0.9999271792540354,I=134. 4069584659192,O=326.520935644692 ,W=53.61581727191412,T=16-DEC- 2011:00:20:00,TimeScale=TDB,EQ UINOX=J2000,EPOCH=08-JAN- 2012,EpochTimeScale=TDB				MOSS Planning Start: 01-JAN- 2012:00:00:00 MOSS Planning End: 31-MAR- 2012:00:00:00	EARTH		
Comments: Acquisition Uncertainty: 10 Arcsec Ephemeris Uncertainty: 3625 Kilometers										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	(1) LOVEJOY	(1) LOVEJOY	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO	REQ EPHEM CORR LOVE01;		350 Secs X 3 [=>(Copy 1)]	
							GS ACQ SCENARI O SINGLE		[=>(Copy 2)]	[1]
									[=>(Copy 3)]	
2	(1) LOVEJOY	(1) LOVEJOY	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO	POS TARG 0.2,2.41;	REQ EPHEM CORR LOVE01		350 Secs X 3 [=>(Copy 1)]	
								[=>(Copy 2)]	[1]	
								[=>(Copy 3)]		

