



15415 - One last peek at SN 2015F

Cycle: 25, 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) SN2015F	WFC3/UVIS	1	08-Dec-2017 18:00:58.0	yes
02	(1) SN2015F	WFC3/UVIS	3	08-Dec-2017 18:00:59.0	yes

4 Total Orbits Used

ABSTRACT

As part of GO-14611, we have been observing the fading light curve of the Type Ia supernova (SN Ia) SN 2015F out to 920 days past maximum light. Following similar late-time observations of other SNe Ia, we expected the light curve of this SN to begin to decline at a slower rate as light from the long-lived ^{57}Co decay chain begins to add a measurable boost to the light from the radioactive decay of ^{56}Co . We have one last visit to this SN, on 29 Sep. 2017, but the data have already been surprising. The observations so far are still consistent with both scenarios: ^{56}Co decay alone, as

well as a combination of ^{56}Co and ^{57}Co decays. Either the light curve is still solely dominated by ^{56}Co decay or the mass ratio of the two isotopes is much smaller than in other SNe Ia that have been followed out to similar late times. We ask for two more visits in with WFC3 in F555W (four orbits total) to follow the SN out to 1020 days past maximum light and conclusively discriminate between these two scenarios.

OBSERVING DESCRIPTION

We will schedule two visits to SN 2015F. In each visit, we will observe the SN in F555W using a 3-point line dither pattern in each orbit. The scheduling of the visits is important. We ask that the first visit be scheduled as early as possible (optimally before 5 December 2017), and that the second visit be scheduled between 22-28 January 2018. To make scheduling easier, we have allocated 1 orbit to the first visit, and 3 orbits to the second one. Please let us know if the first visit cannot be scheduled as early as desired, and we will change our phase II accordingly.

Proposal 15415 - SN 2015F +990 (01) - One last peek at SN 2015F

Visit	Proposal 15415, SN 2015F +990 (01), completed Fri Dec 08 23:01:03 GMT 2017				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BEFORE 14-DEC-2017:00:00:00				
Patterns	#	Primary Pattern		Secondary Pattern	
	(1)	Pattern Type=WFC3-UVIS-DITHER- LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	SN2015F	RA: 07 36 15.7600 (114.0656667d) Dec: -69 30 23.00 (-69.50639d) Equinox: J2000		V=27.6+/-0.5
	Comments: Category=EXT-STAR Description=[SUPERNOVA TYPE IA]				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.
	1	F555W	(1) SN2015F	WFC3/UVIS, ACCUM, UVIS2	F555W
					Pattern 1, Exps 1-1 i n SN 2015F +990 (0 1) (1)
					Exp. Time (Total)/[Actual Dur.] 930 Secs (2790 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]
					Orbit [1]
Orbit Structure	Orbit 1 Server Version: 20171009				

Proposal 15415 - SN 2015F +1040 (02) - One last peek at SN 2015F

Visit	Proposal 15415, SN 2015F +1040 (02)					Fri Dec 08 23:01:07 GMT 2017				
	Diagnostic Status: No Diagnostics									
	Scientific Instruments: WFC3/UVIS									
	Special Requirements: BETWEEN 22-JAN-2018:00:00:00 AND 28-JAN-2018:00:00:00									
Comments: This visit consists of three orbits, set up in a LINE dither pattern that uses the UVIS-DITHER-LINE-3PT as a subpattern. That way, each orbit is slightly shifted relative to the first orbit, and within each orbit the exposures are dithered along the 3PT pattern.										
Patterns	#	Primary Pattern			Secondary Pattern			Exposures		
	(2)	Pattern Type=LINE Purpose=DITHER Number Of Points=3 Point Spacing=1 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=135 Angle Between Sides= Center Pattern=false	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false	(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	SN2015F	RA: 07 36 15.7600 (114.0656667d) Dec: -69 30 23.00 (-69.50639d) Equinox: J2000			V=27.6+/-0.5		Reference Frame: ICRS		
	Comments: Category=EXT-STAR Description=[SUPERNOVA TYPE IA]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F555W	(1) SN2015F	WFC3/UVIS, ACCUM, UVIS2	F555W			Pattern 2, Exps 1-1 in SN 2015F +1040 (02) (2)	983 Secs (9069 Secs)	
								[==>(Pattern 1,1)]		
								[==>(Pattern 1,2)]		[1]
								[==>(Pattern 1,3)]		
								[==>1094.0 Secs (Pattern 2,1)]		
								[==>(Pattern 2,2)]		[2]
							[==>(Pattern 2,3)]			
								[==>1094.0 Secs (Pattern 3,1)]		
								[==>(Pattern 3,2)]		[3]
								[==>(Pattern 3,3)]		



