



13054 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region in Eta Carinae

Cycle: 20, Proposal Category: GO

(Availability Mode: AVAILABLE)

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) ETA-CAR WAVE	STIS/CCD	1	09-Oct-2013 21:18:15.0	yes
02	(1) ETA-CAR WAVE	STIS/CCD	1	09-Oct-2013 21:19:53.0	yes
03	(1) ETA-CAR WAVE	STIS/CCD	2	09-Oct-2013 21:21:31.0	yes

4 Total Orbits Used

ABSTRACT

Our primary goal is to constrain the physical properties of Eta Car's wind-wind collision region and the properties of Eta Car B, the hot, very massive secondary companion that is hidden from our view. We propose to do this by measuring the forbidden emission lines in the extended, interacting wind structures resolved in the inner 1.5 arcseconds region. As the mass-loss structures evolve across the 5.54-year orbital period, we will selectively map their spatial and velocity changes at critical phases using the spatial resolution of HST and moderate spectral resolving power of the STIS to generate spatial (2-D), velocity (1-D) data cubes of regions of critical collisional densities. We will use these spatial-velocity data cubes to drive ongoing 3-D models of the interacting winds, adding radiative transfer. We will (A) strongly constrain the 3-D mass loss from the system and (B) determine the properties of Eta Car B, the source of FUV radiation and the driving wind creating the X-ray emitting cavity out of the dominating wind of Eta Car A.

OBSERVING DESCRIPTION

These observations are planned to observe the extended winds of Eta Carinae at critical times to test current and developing 3D hydrodynamic models that eventually will incorporate radiative transfer. Each visit will map the 1.5" extended winds in forbidden emission lines of high and low ionization species including Fe⁺⁺, Ar⁺⁺, N⁺, Fe⁺ and Ni⁺. CVZ is requested to obtain complete mappings in each of these lines using one G430M grating setting (4706A) and two G750M grating settings (7354 and 5734). The mapping is accomplished with a 52"X0.1" aperture at arbitrary position angles, sampled at 0.05" spacing.

The observations under this specific program will occur at apastron (phase 0.8) in mid-2012. Cycle 19 observations, under program 12508 occurred at (phase 0.5) in fall 2011. Cycle 21 is intended to begin weeks before periastron (phase 0.98) in June 2014, and will sample at two critical phases just after periastron in fall 2015 (near phases 1.06 and 1.09). We anticipate a very asymmetric recovery structure in [Fe III] and [Ar III] near phase 1.06 with symmetry accomplished by 1.09. The reference phase for structure is at apastron and maximum structures should be between phase 0.8 and 0.98. Mappings now exist for phases 0.084, 0.163, 0.323, 0.466 from programs 11506, 12013, 13508 and have been fitted by SPH modeling (in preparation).

January 2013 addenda: Having examined current 3D hydrodynamic models run by Dr. Tom Madura, changes to the cycle 20 and cycle 21 phases of the multicycle observing proposal are as follow: The three orbits allocated for Cycle 20 will be used for three single orbit visits using the 4706 grating setting only for mapping of the central 1.75" region. These visits are planned for phase 12.8 in September 2013, phase 12.9 in February 2014

Proposal 13054 (STScI Edit Number: 1, Created: Wednesday, October 9, 2013 8:21:59 PM EST) - Overview

and phase 13.03 in September 2015. Focus will be on changes in [Fe III], He I and He II and [Fe II]

The cycle 21 program continues to be three three orbit visits using 4706, 5755 and 7283 grating settings. They are planned for near 12.985, June 7 2014, phase 13.06 near November 21, 2014 and 13.09 near January 15 2015. Focus will enlarge to include [N II], He I, [Ar III], [Fe II] and [Ni II] emissions.

Proposal 13054 - Visit 01 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

Thu Oct 10 01:22:00 GMT 2013

Visit	Proposal 13054, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: PCS MODE FINE; GYRO MODE 3GOBAD; CVZ; BETWEEN 01-SEP-2013:00:00:00 AND 30-NOV-2013:00:00:00 <i>Comments: Schedule near phase 12.8 Jun, 2013</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(6)	Pattern Type=STIS-PERP-TO-SLIT Purpose=MOSAIC Number Of Points=7 Point Spacing=0.05 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0.0 Angle Between Sides= Center Pattern=true		(5)	
	(7)	Pattern Type=STIS-PERP-TO-SLIT Purpose=MOSAIC Number Of Points=37 Point Spacing=.05 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0.0 Angle Between Sides= Center Pattern=true		(3)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	ETA-CAR	RA: 10 45 3.5910 (161.2649625d) Dec: -59 41 4.26 (-59.68452d) Equinox: J2000 Plate Id: ZZZQ		V=4.5+/-0.2	Reference Frame: GSC1
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 13054 - Visit 01 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition exposure	(1) ETA-CAR	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs (0.5 Secs)	
								[==>]	[1]
<i>Comments: Peak=9290 e-, Total=15480 e-, S/N=123</i>									
2	ACQ/Peak	(1) ETA-CAR	STIS/CCD, ACQ/PEAK, 52X0.1	G750M 7795 A				0.5 Secs (0.5 Secs)	
								[==>]	[1]

Exposures

Proposal 13054 - Visit 01 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

3	Mapping [F (1) ETA-CAR e III], [Fe II] , Fe II	STIS/CCD, ACCUM, 52X0.1	G430M 4706 A	CR-SPLIT=2; GAIN=4; SIZEAXIS2=128; WAVECAL=NO	Pattern 7, Exps 3-3 i n Visit 01 (7)	24. Secs (888 Secs)
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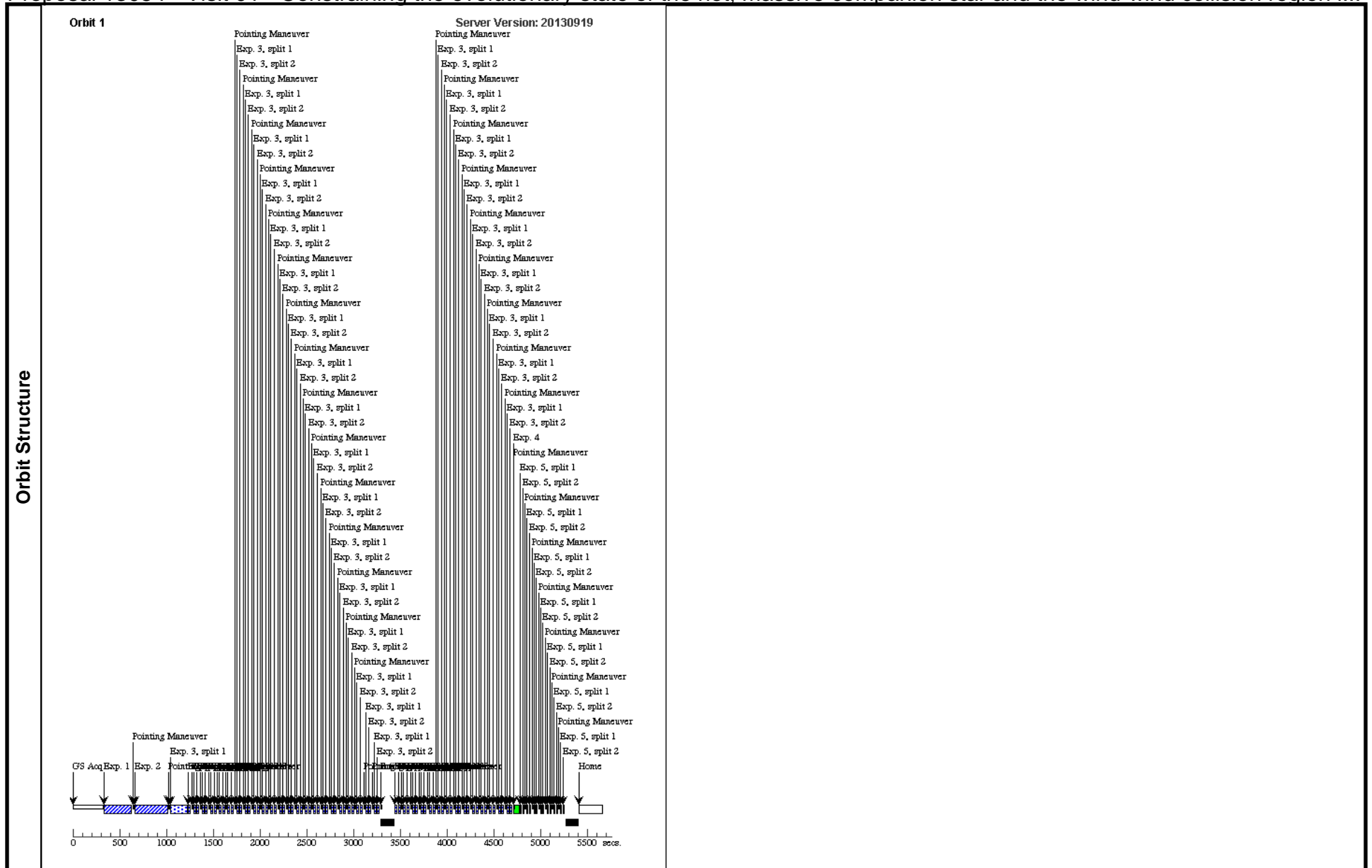
	<p>[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 4, Split 1)] [==>(Pattern 4, Split 2)] [==>(Pattern 5, Split 1)] [==>(Pattern 5, Split 2)] [==>(Pattern 6, Split 1)] [==>(Pattern 6, Split 2)] [==>(Pattern 7, Split 1)] [==>(Pattern 7, Split 2)] [==>(Pattern 8, Split 1)] [==>(Pattern 8, Split 2)] [==>(Pattern 9, Split 1)] [==>(Pattern 9, Split 2)] [==>(Pattern 10, Split 1)] [==>(Pattern 10, Split 2)] [==>(Pattern 11, Split 1)] [==>(Pattern 11, Split 2)] [==>(Pattern 12, Split 1)] [==>(Pattern 12, Split 2)] [==>(Pattern 13, Split 1)] [==>(Pattern 13, Split 2)] [==>(Pattern 14, Split 1)] [==>(Pattern 14, Split 2)] [==>(Pattern 15, Split 1)] [==>(Pattern 15, Split 2)] [==>(Pattern 16, Split 1)] [==>(Pattern 16, Split 2)] [==>(Pattern 17, Split 1)] [==>(Pattern 17, Split 2)] [==>(Pattern 18, Split 1)] [==>(Pattern 18, Split 2)] [==>(Pattern 19, Split 1)] [==>(Pattern 19, Split 2)] [==>(Pattern 20, Split 1)] [==>(Pattern 20, Split 2)] [==>(Pattern 21, Split 1)] [==>(Pattern 21, Split 2)] [==>(Pattern 22, Split 1)] [==>(Pattern 22, Split 2)] [==>(Pattern 23, Split 1)]</p>	<p>[1]</p>
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Proposal 13054 - Visit 01 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

	<p>[==>(Pattern 23, Split 2)] [==>(Pattern 24, Split 1)] [==>(Pattern 24, Split 2)] [==>(Pattern 25, Split 1)] [==>(Pattern 25, Split 2)] [==>(Pattern 26, Split 1)] [==>(Pattern 26, Split 2)] [==>(Pattern 27, Split 1)] [==>(Pattern 27, Split 2)] [==>(Pattern 28, Split 1)] [==>(Pattern 28, Split 2)] [==>(Pattern 29, Split 1)] [==>(Pattern 29, Split 2)] [==>(Pattern 30, Split 1)] [==>(Pattern 30, Split 2)] [==>(Pattern 31, Split 1)] [==>(Pattern 31, Split 2)] [==>(Pattern 32, Split 1)] [==>(Pattern 32, Split 2)] [==>(Pattern 33, Split 1)] [==>(Pattern 33, Split 2)] [==>(Pattern 34, Split 1)] [==>(Pattern 34, Split 2)] [==>(Pattern 35, Split 1)] [==>(Pattern 35, Split 2)] [==>(Pattern 36, Split 1)] [==>(Pattern 36, Split 2)] [==>(Pattern 37, Split 1)] [==>(Pattern 37, Split 2)]</p>	
<p><i>Comments: two [Fe III] and one [Fe II] line within this grating coverage.</i></p>		
<p>4 4706 WAV WAVE STIS/CCD, ACCUM, 52X0.1 G430M ECAL 4706 A</p>	<p>[==>]</p>	<p>[1]</p>
<p><i>Comments: Placed in earth occultation</i></p>		

Proposal 13054 - Visit 01 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

5	Submapping (1) ETA-CAR [Fe III], [Fe II]	STIS/CCD, ACCUM, 52X0.1	G430M 4706 A	CR-SPLIT=2; GAIN=4; SIZEAXIS2=64	Pattern 6, Exps 5-5 i n Visit 01 (6)	5.0 Secs (35 Secs) [=>(Pattern 1, Split 1)] [=>(Pattern 1, Split 2)] [=>(Pattern 2, Split 1)] [=>(Pattern 2, Split 2)] [=>(Pattern 3, Split 1)] [=>(Pattern 3, Split 2)] [=>(Pattern 4, Split 1)] [=>(Pattern 4, Split 2)] [=>(Pattern 5, Split 1)] [=>(Pattern 5, Split 2)] [=>(Pattern 6, Split 1)] [=>(Pattern 6, Split 2)] [=>(Pattern 7, Split 1)] [=>(Pattern 7, Split 2)]	[1]
<i>Comments: Submapping on bright stellar positions.</i>							



Proposal 13054 - Visit 02 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

Thu Oct 10 01:22:07 GMT 2013

Visit	Proposal 13054, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: PCS MODE FINE; GYRO MODE 3GOBAD; CVZ; BETWEEN 01-AUG-2014:00:00:00 AND 31-AUG-2014:00:00:00 <i>Comments: Schedule near phase 13.03 August 2014</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(8)	Pattern Type=STIS-PERP-TO-SLIT Purpose=MOSAIC Number Of Points=3 Point Spacing=0.05 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0.0 Angle Between Sides= Center Pattern=true		(5)	
	(9)	Pattern Type=STIS-PERP-TO-SLIT Purpose=MOSAIC Number Of Points=41 Point Spacing=.05 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0.0 Angle Between Sides= Center Pattern=true		(3)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	ETA-CAR	RA: 10 45 3.5910 (161.2649625d) Dec: -59 41 4.26 (-59.68452d) Equinox: J2000 Plate Id: ZZZQ		V=4.5+/-0.2	Reference Frame: GSC1
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 13054 - Visit 02 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition exposure	(1) ETA-CAR	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs (0.5 Secs) [==>]	[1]
<i>Comments: Peak=9290 e-, Total=15480 e-, S/N=123</i>									
2	ACQ/Peak	(1) ETA-CAR	STIS/CCD, ACQ/PEAK, 52X0.1	G750M 7795 A				0.5 Secs (0.5 Secs) [==>]	[1]

Exposures

Proposal 13054 - Visit 02 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

3	Mapping [F (1) ETA-CAR e III], [Fe II] , Fe II	STIS/CCD, ACCUM, 52X0.1	G430M 4706 A	CR-SPLIT=2; GAIN=4; SIZEAXIS2=128; WAVECAL=NO	Pattern 9, Exps 3-3 i n Visit 02 (9)	22 Secs (902 Secs)
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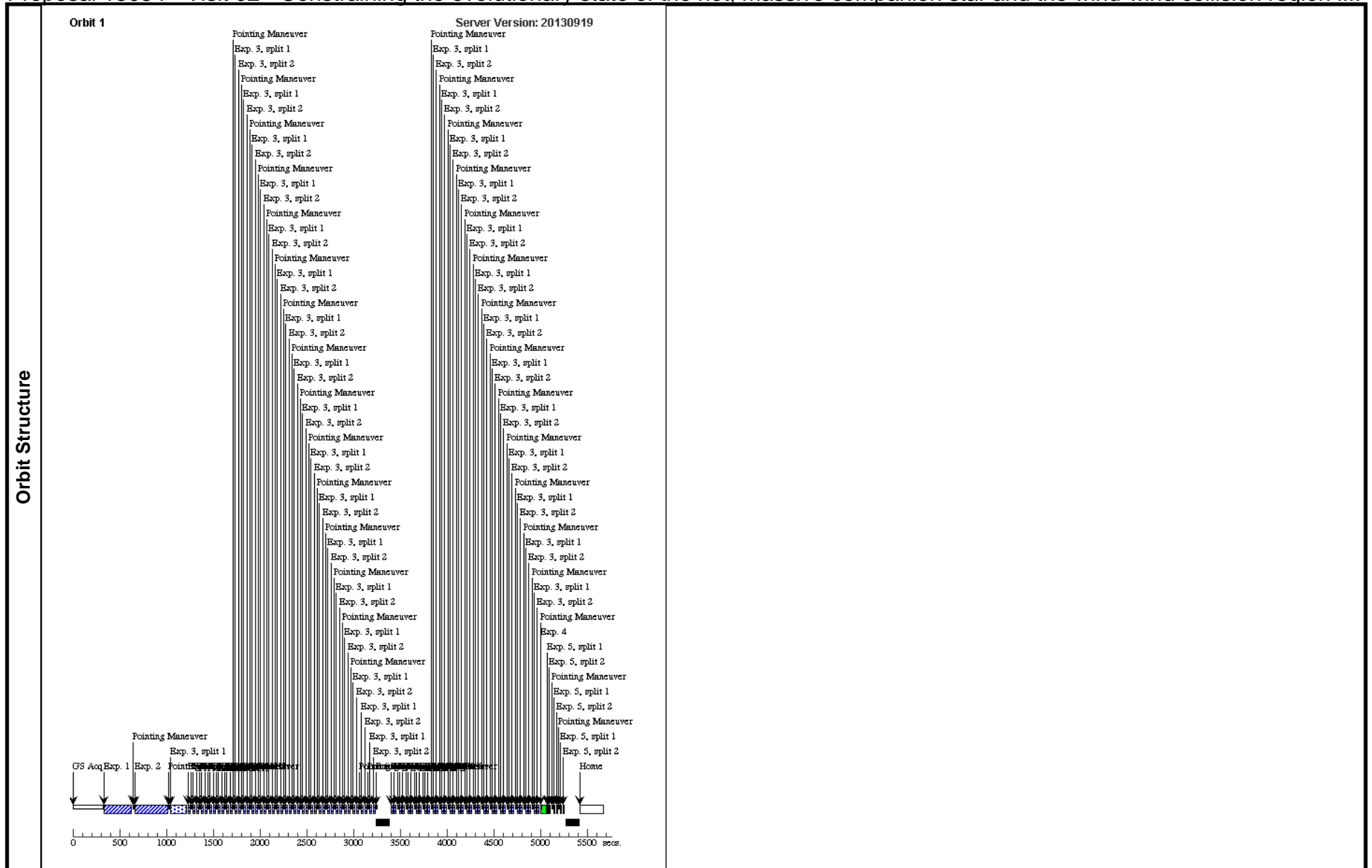
	<p>[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 4, Split 1)] [==>(Pattern 4, Split 2)] [==>(Pattern 5, Split 1)] [==>(Pattern 5, Split 2)] [==>(Pattern 6, Split 1)] [==>(Pattern 6, Split 2)] [==>(Pattern 7, Split 1)] [==>(Pattern 7, Split 2)] [==>(Pattern 8, Split 1)] [==>(Pattern 8, Split 2)] [==>(Pattern 9, Split 1)] [==>(Pattern 9, Split 2)] [==>(Pattern 10, Split 1)] [==>(Pattern 10, Split 2)] [==>(Pattern 11, Split 1)] [==>(Pattern 11, Split 2)] [==>(Pattern 12, Split 1)] [==>(Pattern 12, Split 2)] [==>(Pattern 13, Split 1)] [==>(Pattern 13, Split 2)] [==>(Pattern 14, Split 1)] [==>(Pattern 14, Split 2)] [==>(Pattern 15, Split 1)] [==>(Pattern 15, Split 2)] [==>(Pattern 16, Split 1)] [==>(Pattern 16, Split 2)] [==>(Pattern 17, Split 1)] [==>(Pattern 17, Split 2)] [==>(Pattern 18, Split 1)] [==>(Pattern 18, Split 2)] [==>(Pattern 19, Split 1)] [==>(Pattern 19, Split 2)] [==>(Pattern 20, Split 1)] [==>(Pattern 20, Split 2)] [==>(Pattern 21, Split 1)] [==>(Pattern 21, Split 2)] [==>(Pattern 22, Split 1)] [==>(Pattern 22, Split 2)] [==>(Pattern 23, Split 1)]</p>	<p>[1]</p>
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Proposal 13054 - Visit 02 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

	<p>[==>(Pattern 23, Split 2)] [==>(Pattern 24, Split 1)] [==>(Pattern 24, Split 2)] [==>(Pattern 25, Split 1)] [==>(Pattern 25, Split 2)] [==>(Pattern 26, Split 1)] [==>(Pattern 26, Split 2)] [==>(Pattern 27, Split 1)] [==>(Pattern 27, Split 2)] [==>(Pattern 28, Split 1)] [==>(Pattern 28, Split 2)] [==>(Pattern 29, Split 1)] [==>(Pattern 29, Split 2)] [==>(Pattern 30, Split 1)] [==>(Pattern 30, Split 2)] [==>(Pattern 31, Split 1)] [==>(Pattern 31, Split 2)] [==>(Pattern 32, Split 1)] [==>(Pattern 32, Split 2)] [==>(Pattern 33, Split 1)] [==>(Pattern 33, Split 2)] [==>(Pattern 34, Split 1)] [==>(Pattern 34, Split 2)] [==>(Pattern 35, Split 1)] [==>(Pattern 35, Split 2)] [==>(Pattern 36, Split 1)] [==>(Pattern 36, Split 2)] [==>(Pattern 37, Split 1)] [==>(Pattern 37, Split 2)] [==>(Pattern 38, Split 1)] [==>(Pattern 38, Split 2)] [==>(Pattern 39, Split 1)] [==>(Pattern 39, Split 2)] [==>(Pattern 40, Split 1)] [==>(Pattern 40, Split 2)] [==>(Pattern 41, Split 1)] [==>(Pattern 41, Split 2)]</p>	
<p><i>Comments: two [Fe III] and one [Fe II] line within this grating coverage.</i></p>		
<p>4 4706 WAV WAVE STIS/CCD, ACCUM, 52X0.1 G430M ECAL 4706 A</p>	<p>[==>]</p>	<p>[1]</p>
<p><i>Comments: Placed in earth occultation</i></p>		

Proposal 13054 - Visit 02 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

5	Submapping (1) ETA-CAR [Fe III], [Fe II]	STIS/CCD, ACCUM, 52X0.1	G430M 4706 A	CR-SPLIT=2; GAIN=4; SIZEAXIS2=64	Pattern 8, Exps 5-5 i n Visit 02 (8)	5.0 Secs (15 Secs) [=>(Pattern 1, Split 1)] [=>(Pattern 1, Split 2)] [=>(Pattern 2, Split 1)] [=>(Pattern 2, Split 2)] [=>(Pattern 3, Split 1)] [=>(Pattern 3, Split 2)]	[1]
<i>Comments: Submapping on bright stellar positions.</i>							



Proposal 13054 - Visit 03 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

Thu Oct 10 01:22:13 GMT 2013

Visit	Proposal 13054, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: PCS MODE FINE; GYRO MODE 3GOBAD; CVZ; BETWEEN 01-SEP-2014:00:00:00 AND 31-OCT-2014:00:00:00 <i>Comments: Schedule near phase 13.03 Sep 26, 2014</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(8)	Pattern Type=STIS-PERP-TO-SLIT Purpose=MOSAIC Number Of Points=3 Point Spacing=0.05 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0.0 Angle Between Sides= Center Pattern=true		(5)	
	(9)	Pattern Type=STIS-PERP-TO-SLIT Purpose=MOSAIC Number Of Points=41 Point Spacing=.05 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0.0 Angle Between Sides= Center Pattern=true		(3)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	ETA-CAR	RA: 10 45 3.5910 (161.2649625d) Dec: -59 41 4.26 (-59.68452d) Equinox: J2000 Plate Id: ZZZQ		V=4.5+/-0.2	Reference Frame: GSC1
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 13054 - Visit 03 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition exposure	(1) ETA-CAR	STIS/CCD, ACQ, F25ND3	MIRROR				0.5 Secs (0.5 Secs)	
								[==>]	[1]
<i>Comments: Peak=9290 e-, Total=15480 e-, S/N=123</i>									
2	ACQ/Peak	(1) ETA-CAR	STIS/CCD, ACQ/PEAK, 52X0.1	G750M 7795 A				0.5 Secs (0.5 Secs)	
								[==>]	[1]

Exposures

Proposal 13054 - Visit 03 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

3	Mapping [F (1) ETA-CAR e III], [Fe II] , Fe II	STIS/CCD, ACCUM, 52X0.1	G430M 4706 A	CR-SPLIT=2; GAIN=4; SIZEAXIS2=128; WAVECAL=NO	Pattern 9, Exps 3-3 i n Visit 03 (9)	24. Secs (984 Secs)
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	<p>[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 4, Split 1)] [==>(Pattern 4, Split 2)] [==>(Pattern 5, Split 1)] [==>(Pattern 5, Split 2)] [==>(Pattern 6, Split 1)] [==>(Pattern 6, Split 2)] [==>(Pattern 7, Split 1)] [==>(Pattern 7, Split 2)] [==>(Pattern 8, Split 1)] [==>(Pattern 8, Split 2)] [==>(Pattern 9, Split 1)] [==>(Pattern 9, Split 2)] [==>(Pattern 10, Split 1)] [==>(Pattern 10, Split 2)] [==>(Pattern 11, Split 1)] [==>(Pattern 11, Split 2)] [==>(Pattern 12, Split 1)] [==>(Pattern 12, Split 2)] [==>(Pattern 13, Split 1)] [==>(Pattern 13, Split 2)] [==>(Pattern 14, Split 1)] [==>(Pattern 14, Split 2)] [==>(Pattern 15, Split 1)] [==>(Pattern 15, Split 2)] [==>(Pattern 16, Split 1)] [==>(Pattern 16, Split 2)] [==>(Pattern 17, Split 1)] [==>(Pattern 17, Split 2)] [==>(Pattern 18, Split 1)] [==>(Pattern 18, Split 2)] [==>(Pattern 19, Split 1)] [==>(Pattern 19, Split 2)] [==>(Pattern 20, Split 1)] [==>(Pattern 20, Split 2)] [==>(Pattern 21, Split 1)] [==>(Pattern 21, Split 2)] [==>(Pattern 22, Split 1)] [==>(Pattern 22, Split 2)] [==>(Pattern 23, Split 1)]</p>	<p>[1]</p>
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Proposal 13054 - Visit 03 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

	<p>[==>(Pattern 23, Split 2)] [==>(Pattern 24, Split 1)] [==>(Pattern 24, Split 2)] [==>(Pattern 25, Split 1)] [==>(Pattern 25, Split 2)] [==>(Pattern 26, Split 1)] [==>(Pattern 26, Split 2)] [==>(Pattern 27, Split 1)] [==>(Pattern 27, Split 2)] [==>(Pattern 28, Split 1)] [==>(Pattern 28, Split 2)] [==>(Pattern 29, Split 1)] [==>(Pattern 29, Split 2)] [==>(Pattern 30, Split 1)] [==>(Pattern 30, Split 2)] [==>(Pattern 31, Split 1)] [==>(Pattern 31, Split 2)] [==>(Pattern 32, Split 1)] [==>(Pattern 32, Split 2)] [==>(Pattern 33, Split 1)] [==>(Pattern 33, Split 2)] [==>(Pattern 34, Split 1)] [==>(Pattern 34, Split 2)] [==>(Pattern 35, Split 1)] [==>(Pattern 35, Split 2)] [==>(Pattern 36, Split 1)] [==>(Pattern 36, Split 2)] [==>(Pattern 37, Split 1)] [==>(Pattern 37, Split 2)] [==>(Pattern 38, Split 1)] [==>(Pattern 38, Split 2)] [==>(Pattern 39, Split 1)] [==>(Pattern 39, Split 2)] [==>(Pattern 40, Split 1)] [==>(Pattern 40, Split 2)] [==>(Pattern 41, Split 1)] [==>(Pattern 41, Split 2)]</p>	
<p><i>Comments: two [Fe III] and one [Fe II] line within this grating coverage.</i></p>		
<p>4 4706 WAV WAVE STIS/CCD, ACCUM, 52X0.1 G430M ECAL 4706 A</p>	<p>[==>]</p>	<p>[1]</p>
<p><i>Comments: Placed in earth occultation</i></p>		

Proposal 13054 - Visit 03 - Constraining the evolutionary state of the hot, massive companion star and the wind-wind collision region i...

5	Submapping (1) ETA-CAR [Fe III], [Fe II]	STIS/CCD, ACCUM, 52X0.1	G430M 4706 A	CR-SPLIT=2; GAIN=4; SIZEAXIS2=64	Pattern 8, Exps 5-5 i n Visit 03 (8)	5.0 Secs (15 Secs) [=>(Pattern 1, Split 1)] [=>(Pattern 1, Split 2)] [=>(Pattern 2, Split 1)] [=>(Pattern 2, Split 2)] [=>(Pattern 3, Split 1)] [=>(Pattern 3, Split 2)]	[1]
<i>Comments: Submapping on bright stellar positions.</i>							

