16247 - The radial chromosomic map of Omega Centauri

Cycle: 28, Proposal Category: GO

(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) NGC-5139-RSTTV1	ACS/WFC WFC3/UVIS	1	31-Jan-2022 12:02:21.0	yes
02	(2) NGC-5139-BRWNV1V3	ACS/WFC WFC3/UVIS	1	31-Jan-2022 12:02:22.0	yes

2 Total Orbits Used

ABSTRACT

A complete characterization of the spatial distributions of the different multiple stellar populations in Omega Centauri is of fundamental importance to study their formation and dynamical history. Recent studies have revealed a very complex picture of this cluster and found the presence of 15 different sub-populations groups. While previous studies have found a radial gradient in the number fraction of the two major groups of stellar populations, nothing is known about the radial variation of all the other groups of sub-populations. Studies of all the sub-populations are available in the core (from the literature) and in the outermost regions (from HST archival observations) of the cluster, while data in the intermediate regions are missing. These intermediate regions are those where the strongest radial gradient of the two major groups of stars has been found and they are thus

essential to explore possible structural differences between all the different sub-groups.

Here we propose to collect the missing observations needed to separate and identify all the sub-groups multiple populations in these intermediate regions. This will give us the opportunity to obtain the necessary radial coverage to trace for the first time the radial gradient of all the multiple populations along almost the entire cluster. Such a major improvement requires a relatively modest investment of only two additional HST orbits.

OBSERVING DESCRIPTION

The observations consist in a short image, ~20 s, at the beggining of each orbit, and six ~350 s deep exposure (four in the F814W filter and two in the F606W filter) per orbit. WFC3/UVIS will be used as the primary camera, while ACS/WFC will image the parallel field with one ~110 s exposure in the F606W filter per orbit.

Visit

Proposal 16247, Visit 01, scheduling Mon Jan 31 17:02:22 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS, ACS/WFC

Special Requirements: ORIENT 339.1D TO 340.1 D

Diagnostics

(Exposure 1 (Sequence 1-8 Non-Int in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 2 (Sequence 1-8 Non-Int in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 3 (Sequence 1-8 Non-Int in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 4 (Sequence 1-8 Non-Int in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 5 (Sequence 1-8 Non-Int in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 6 (Sequence 1-8 Non-Int in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Primary Exposure 7 (Prime + Parallel Group 7-8 in Sequence 1-8 Non-Int in Visit 01)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Fixed Targets

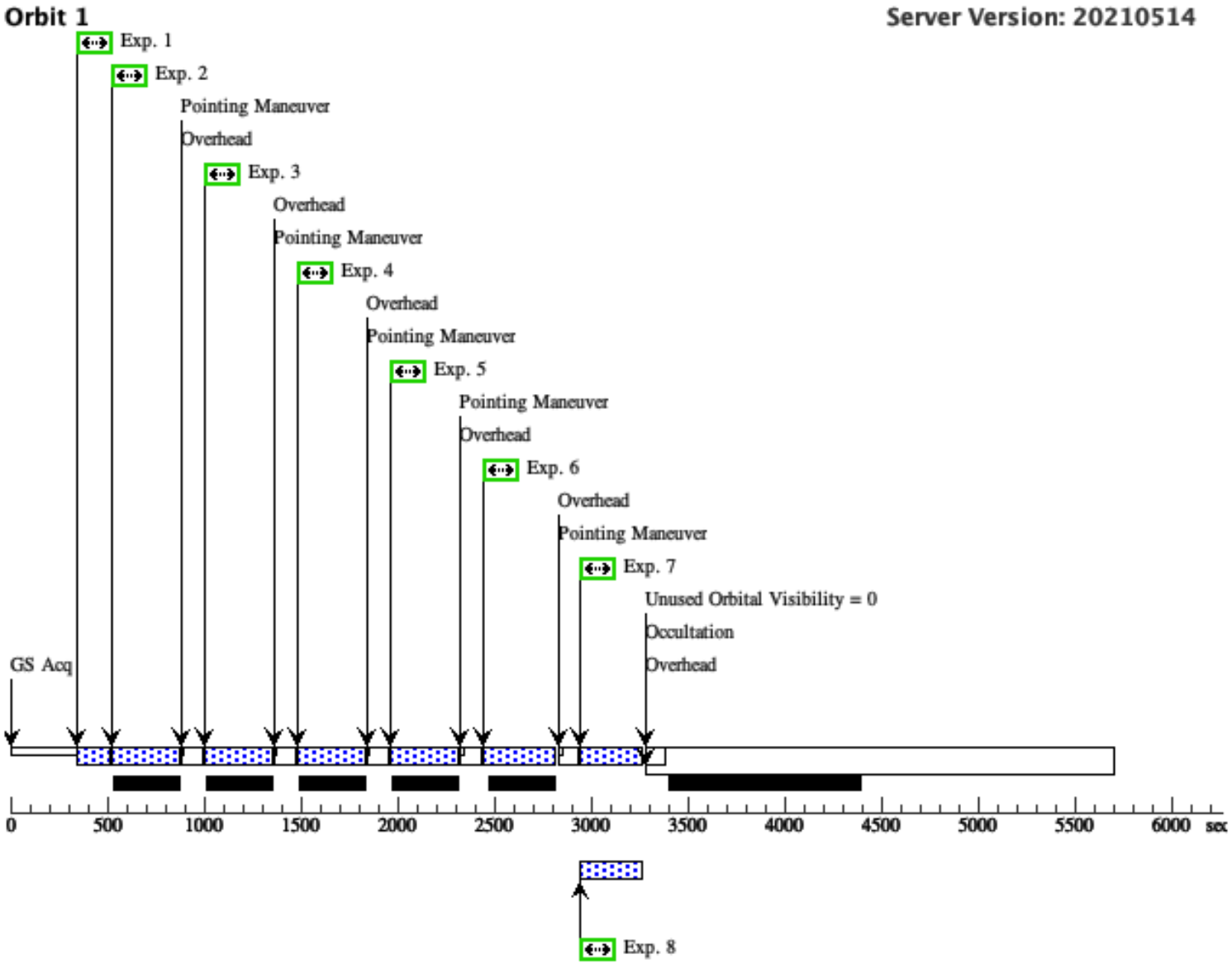
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC-5139-RSTTV1	RA: 13 26 30.1500 (201.6256250d) Dec: -47 33 50.00 (-47.56389d) Equinox: J2000	Proper Motion RA: -5.928302449291017E-4 sec of time/yr Proper Motion Dec: -0.005019999980504508 arcsec/yr Epoch of Position: 2015.5	V=5.33	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STELLAR CLUSTER
Description=[GLOBULAR CLUSTER]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) NGC-5139-RSTTV1	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=11	POS TARG -7.5,-7.5	Sequence 1-8 Non-Int in Visit 01	13 Secs (13 Secs) *[==>]*	***[1]***
2		(1) NGC-5139-RSTTV1	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -7.5,-7.5	Sequence 1-8 Non-Int in Visit 01	348 Secs (348 Secs) *[==>]*	***[1]***
3		(1) NGC-5139-RSTTV1	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -2.4901, -2.4801	Sequence 1-8 Non-Int in Visit 01	348 Secs (348 Secs) *[==>]*	***[1]***
4		(1) NGC-5139-RSTTV1	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 2.5199,2.5099	Sequence 1-8 Non-Int in Visit 01	348 Secs (348 Secs) *[==>]*	***[1]***
5		(1) NGC-5139-RSTTV1	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 7.5298,7.5298	Sequence 1-8 Non-Int in Visit 01	348 Secs (348 Secs) *[==>]*	***[1]***
6		(1) NGC-5139-RSTTV1	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG -8,-8	Sequence 1-8 Non-Int in Visit 01	348 Secs (348 Secs) *[==>]*	***[1]***
7		(1) NGC-5139-RSTTV1	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 8.0198875,8.0198875	Sequence 1-8 Non-Int in Visit 01 Prime + Parallel Group 7-8 in Sequence 1-8 Non-Int in Visit 01	325 Secs (325 Secs) *[==>]*	***[1]***
8		(1) NGC-5139-RSTTV1	ACS/WFC, ACCUM, WFC-FIX	F814W			Sequence 1-8 Non-Int in Visit 01 Prime + Parallel Group 7-8 in Sequence 1-8 Non-Int in Visit 01	113 Secs (113 Secs) *[==>]*	***[1]***

Orbit Structure



Visit

Proposal 16247, Visit 02, scheduling Mon Jan 31 17:02:23 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS, ACS/WFC

Special Requirements: ORIENT 43D TO 43 D; ORIENT 223D TO 223 D

Diagnostics

(Exposure 1 (Sequence 1-8 Non-Int in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 2 (Sequence 1-8 Non-Int in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 3 (Sequence 1-8 Non-Int in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 4 (Sequence 1-8 Non-Int in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 5 (Sequence 1-8 Non-Int in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Exposure 6 (Sequence 1-8 Non-Int in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(Primary Exposure 7 (Prime + Parallel Group 7-8 in Sequence 1-8 Non-Int in Visit 02)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	NGC-5139-BRWNV1V3	RA: 13 27 13.3510 (201.8056292d) Dec: -47 32 8.37 (-47.53566d) Equinox: J2000	Proper Motion RA: -5.928302449291017E-4 sec of time/yr Proper Motion Dec: -0.005019999980504508 arcsec/yr Epoch of Position: 2015.5	V=5.33	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STELLAR CLUSTER
Description=[GLOBULAR CLUSTER]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) NGC-5139-BRWNV1V3	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=11	POS TARG -7.5,-7.5	Sequence 1-8 Non-Int in Visit 02	13 Secs (13 Secs) *[==>]*	 ***[1]***
2		(2) NGC-5139-BRWNV1V3	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -7.5,-7.5	Sequence 1-8 Non-Int in Visit 02	348 Secs (348 Secs) *[==>]*	 ***[1]***
3		(2) NGC-5139-BRWNV1V3	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG -2.4901, -2.4801	Sequence 1-8 Non-Int in Visit 02	348 Secs (348 Secs) *[==>]*	 ***[1]***
4		(2) NGC-5139-BRWNV1V3	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 2.5199,2.5099	Sequence 1-8 Non-Int in Visit 02	348 Secs (348 Secs) *[==>]*	 ***[1]***
5		(2) NGC-5139-BRWNV1V3	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=4	POS TARG 7.5298,7.5298	Sequence 1-8 Non-Int in Visit 02	348 Secs (348 Secs) *[==>]*	 ***[1]***
6		(2) NGC-5139-BRWNV1V3	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG -8,-8	Sequence 1-8 Non-Int in Visit 02	348 Secs (348 Secs) *[==>]*	 ***[1]***
7		(2) NGC-5139-BRWNV1V3	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 8.0198875,8.0198875	Sequence 1-8 Non-Int in Visit 02 Prime + Parallel Group 7-8 in Sequence 1-8 Non-Int in Visit 02	325 Secs (325 Secs) *[==>]*	 ***[1]***
8		(2) NGC-5139-BRWNV1V3	ACS/WFC, ACCUM, WFC-FIX	F814W			Sequence 1-8 Non-Int in Visit 02 Prime + Parallel Group 7-8 in Sequence 1-8 Non-Int in Visit 02	113 Secs (113 Secs) *[==>]*	 ***[1]***

Orbit Structure