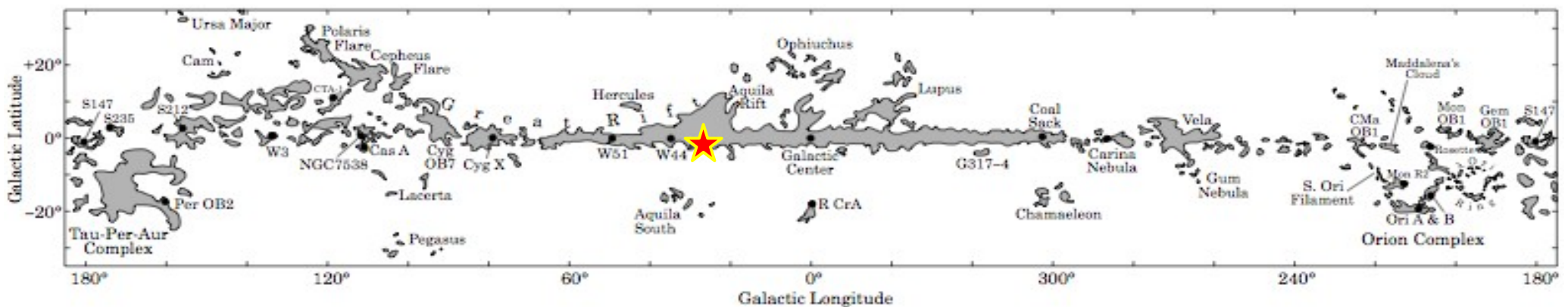


LRC03

- Field Choice
- Field Characterization

Barbieri M. - LAM



Field Selection 1/3

- Field selection was conducted analyzing a circular area of 15deg radius centered on $(l,b)=(+30,0)$
- The regions was subdivided in a regular grid of step 0.5 deg in galactic longitude and latitude, for each point of the grid a square of area 0.25 sq.degree was studied using the data contained in the Nomad catalog
- 68 millions of sources are present in the whole area, of this was used only 30 millions that have a measurement for the magnitudes R,J,H,K.

Field Selection 2/3

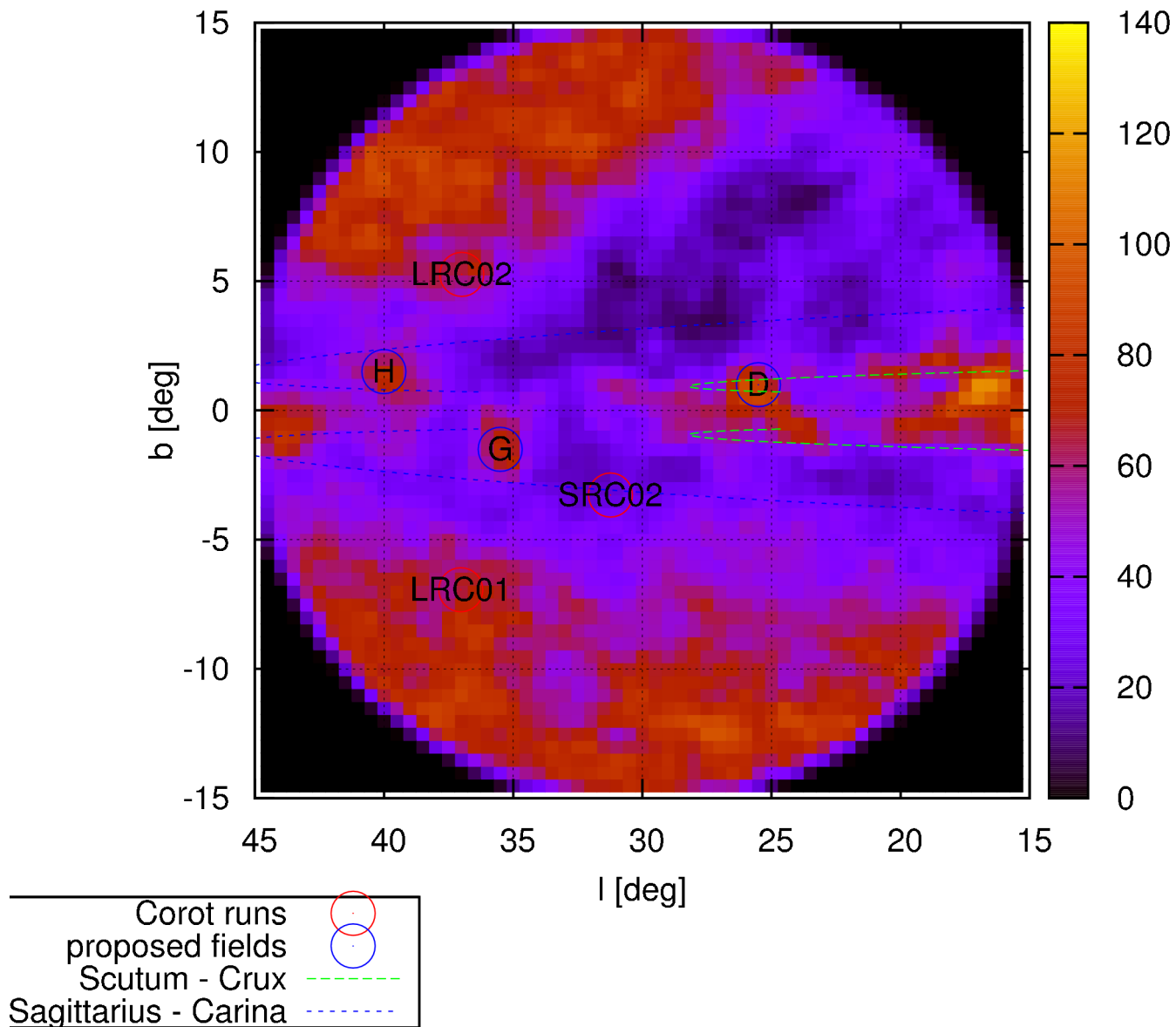
- The J,H,K magnitudes was used for providing an approximate classification of each star. The method adopted for the classification of a star is the classical dereddening using the universal law of extinction in the NIR and adopting two locus for the unreddened stars of main sequence stars and giants.
- The classification scheme here adopted is very sensitive to Upper Main Sequence stars especially A and F type stars. In this case the stars are recognized without ambiguity because in the (J-H),(H-K) two color diagram they do not overlap with giant stars. The contamination from O,B stars is negligible due to their low spatial density.
- Spatial density of G,K,M dwarves is almost uniform in the horizon of Corot, but in (J-H),(H-K) two color diagram these stars are overlapped with giants so it is not possible a correct classification.
- I use as a proxy for the density of dwarves the density of F dwarves.

Field Selection 3/3

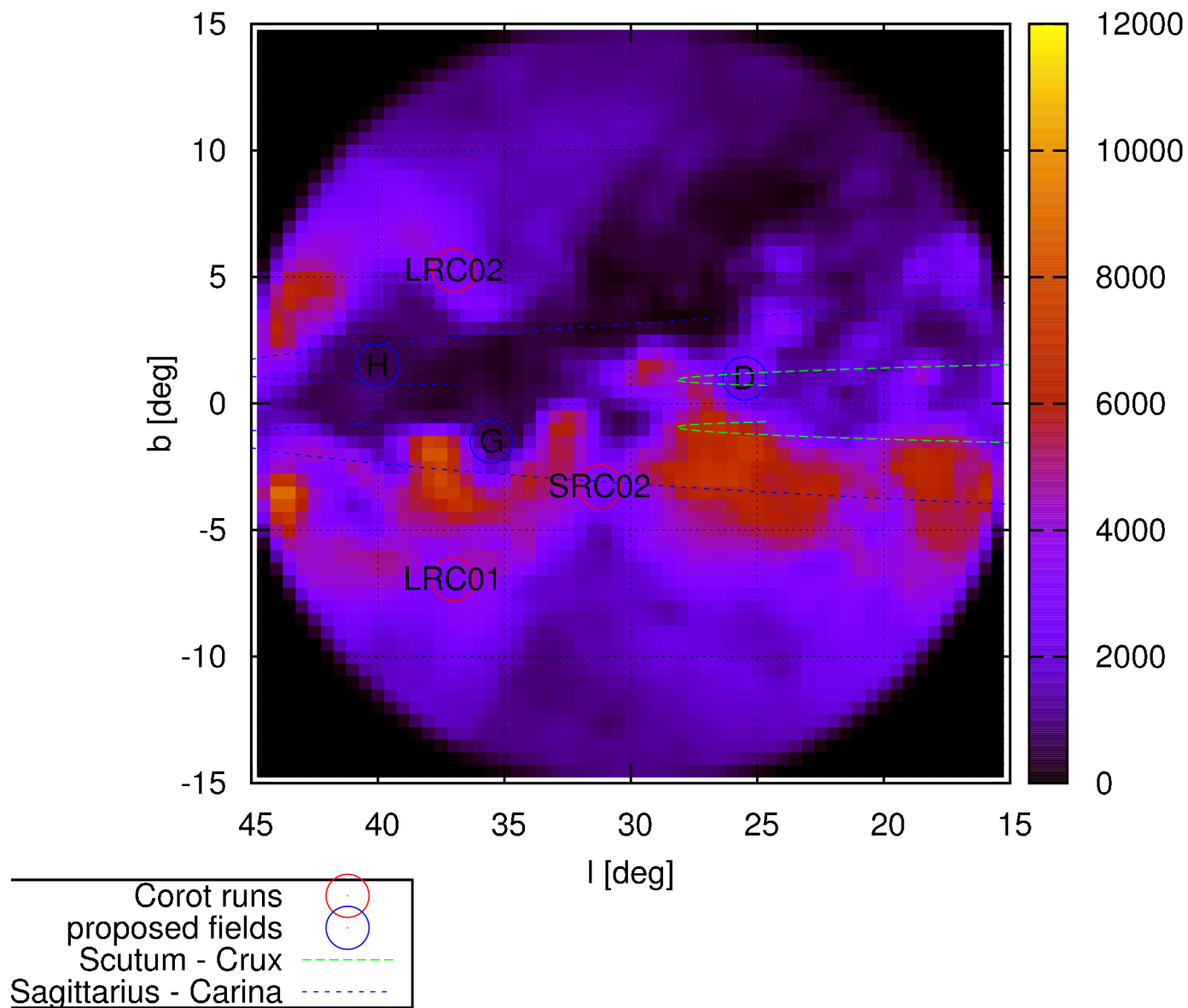
- Detection of shallow transits and Follow Up from ground, needs target stars with low level of contamination from background sources This requirement can be achieved in two way (Barbieri et al. 2004 Eddington Planet Finding Field Selection, ESA SP-538, p.163B), the first pointing to relatively high latitudes, the second pointing to a direction where there is an extended dark nebula at 2/3 kpc that dimmest the light of the background giants. Of the two approaches the first was the case for the already observed LRC01 and LRC02. I focused only on the second, and I have searched fields where C.M.D. and T.C.D. present a giant branch not dominant respect to the dwarfs population.
- The contamination was calculated for each star as the ratio of the sum of the fluxes of the background sources respect that fall on the PSF of the star respect to the flux of the target star, in formulae:

$$\frac{\sum_{i=1}^N 10^{-0.4J_C}}{10^{-0.4J_T}}$$

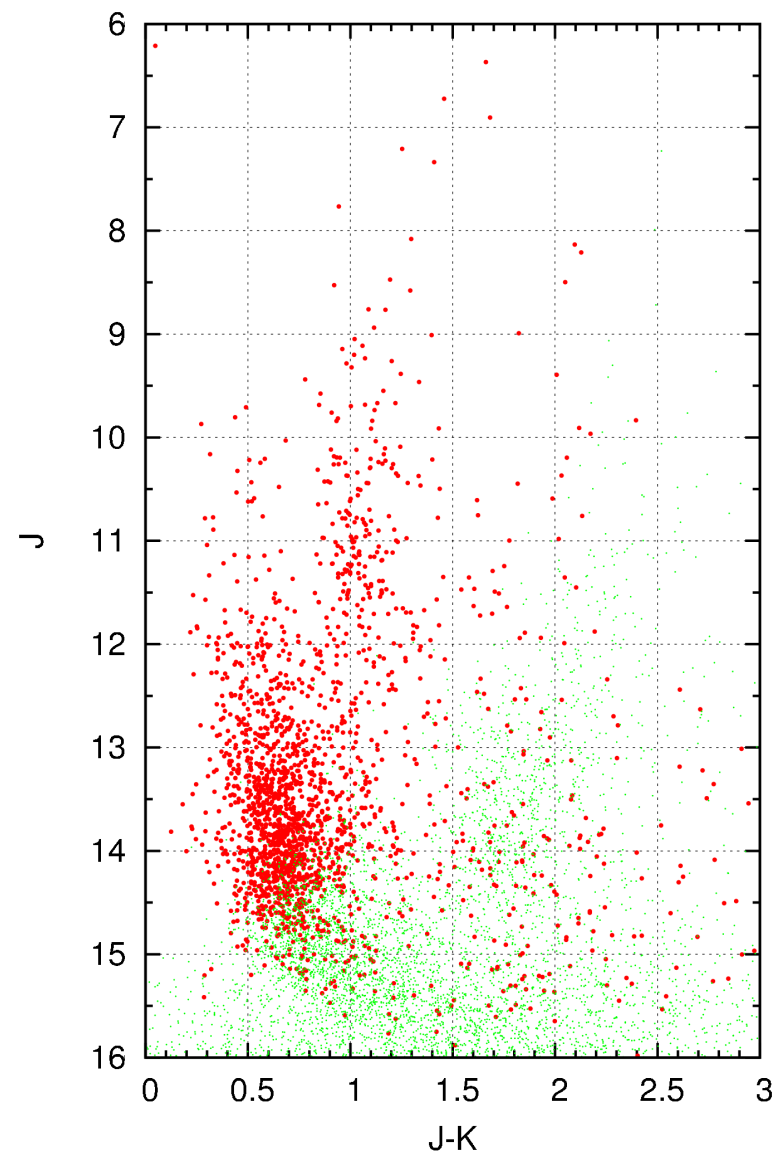
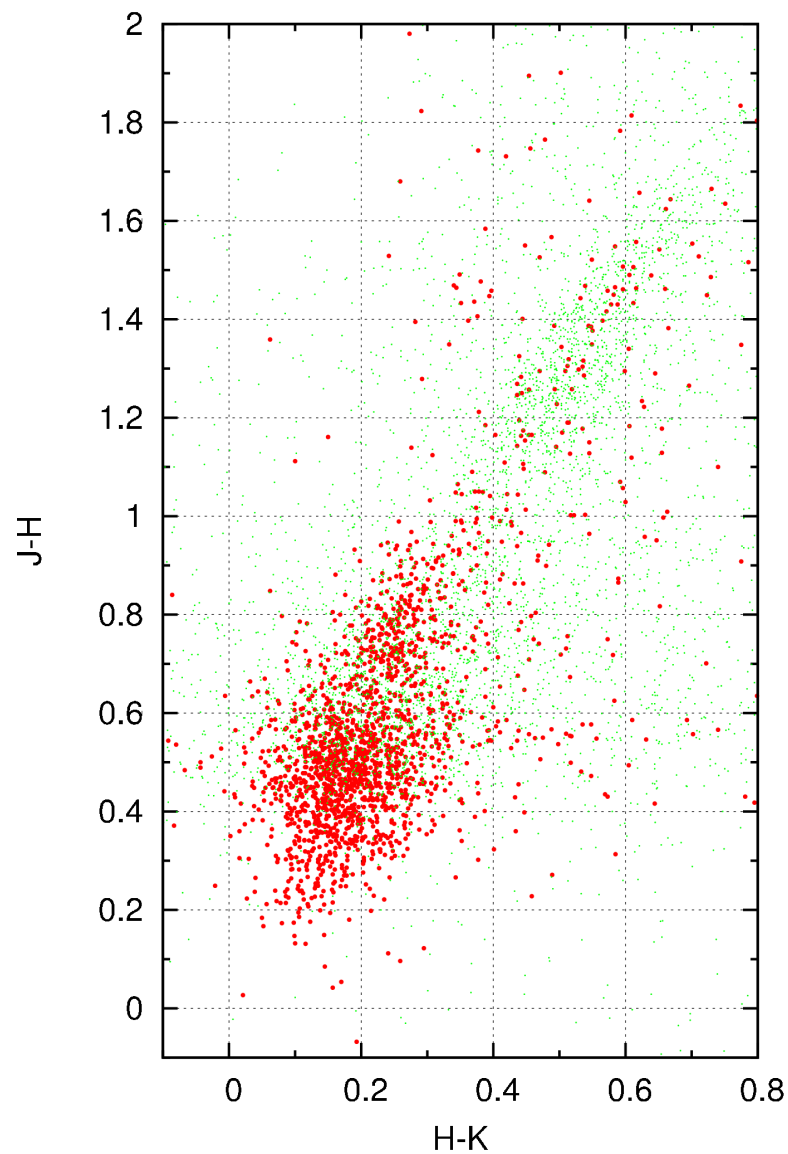
- where N is the number of background sources within 15" from the target, J_C is the J magnitude of each source, J_T is the magnitude of the target star. The PSF was assumed circular with a radius of 15"



Star counts per 0.25 sq.deg between R=11 and R=16. The red circles represents the location of the previous Corot observational fields. Blu and green lines are the dust height scale of the Carina-Sagittarius and Scutum-Crux spiral arms.

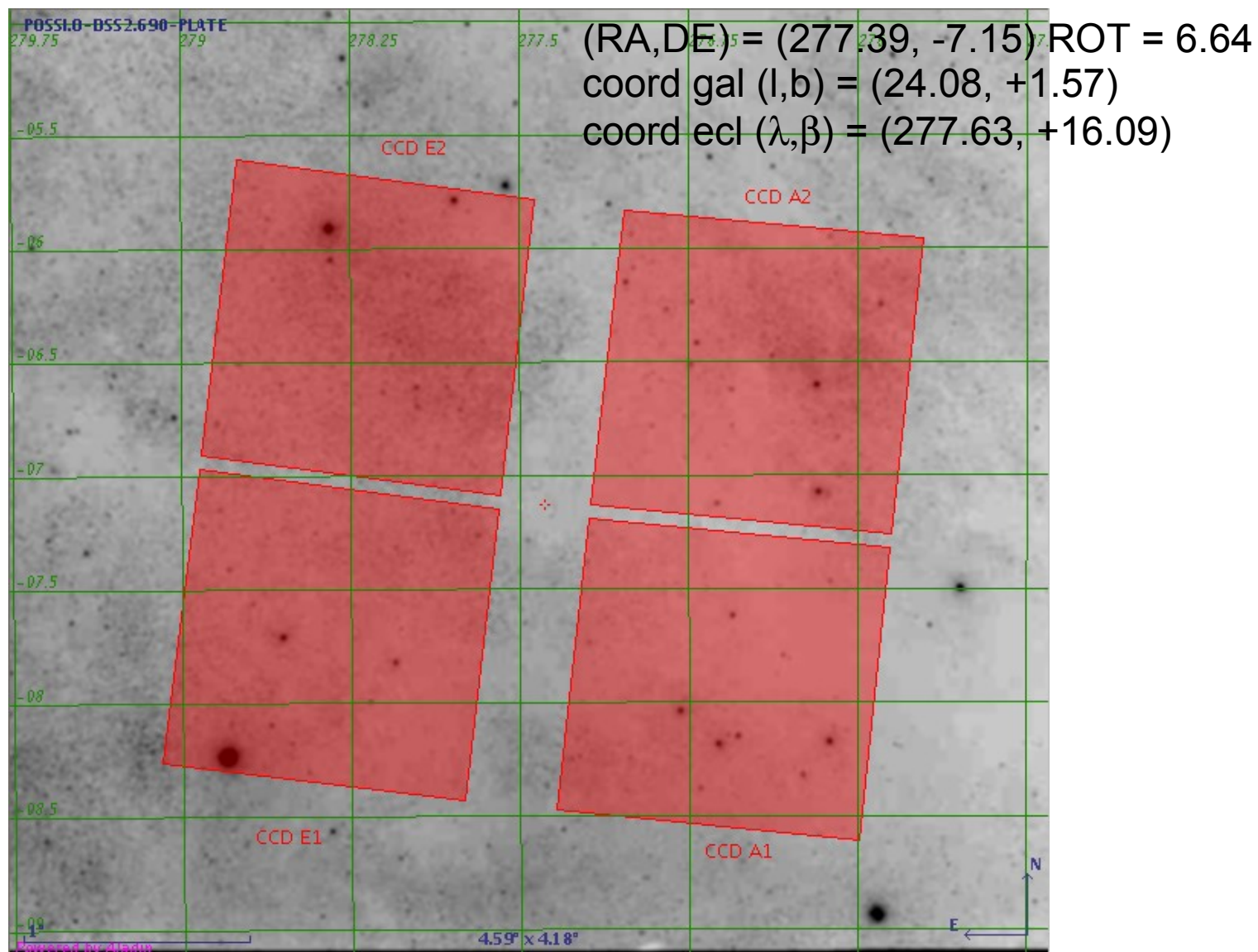


Number of F stars per 0.25 sq.deg between $R=11$ and $R=16$, with maximum level of contamination 5%. The red circles represents the location of the previous Corot observational fields. Blu and green lines are the dust height scale of the Carina-Sagittarius and Scutum-Crux spiral arms.



NIR TCD and CMD of 0.25 squared degree centered on $(l,b)=(25.5,+1.0)$. Red points are star with $R \leq 16$, green points are the stars with $R > 16$. In the observable range of magnitude of Corot the RGB is not well developed and M supergiants are not visibles. A notable feature in the CMD is the lack of giants at $J = 2.5$. The dark cloud LDN 515 that is responsible of the reduced number of giants, presumably lies on the Carina-Sagittarius spiral arm at a distance of about 3 kpc.

LRC03



CoRoT CCDs

Characterization of the Corot field

Lrc03 with MEGACAM@CFHT

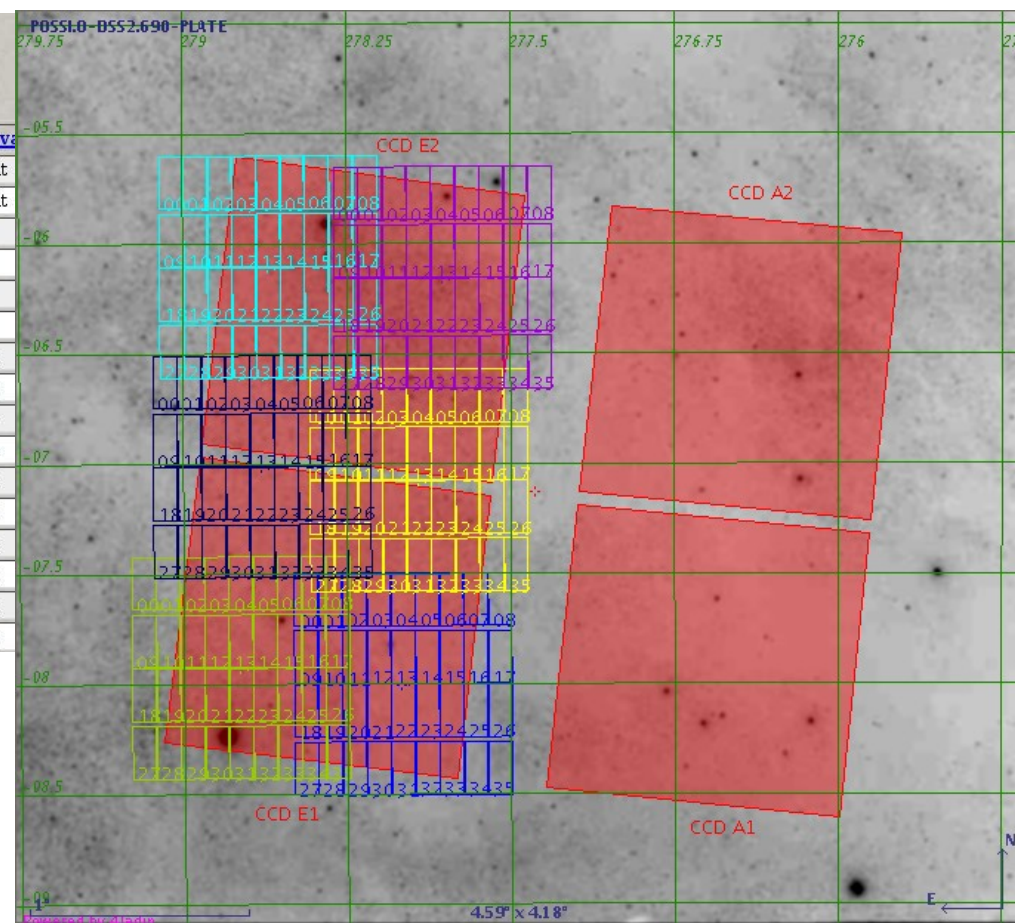
DDT program 08BD88

Characterization of the LRC03 field with ugriz filters
Observations was obtained on September 22

Exposures Log

87 validated exposure(s) found.

Date UT	Date HST	RunID	OG	OB	Iter	IC	Exp	Filter	E-Time	IQ Req	IQ Eval	SB Req	SB Eval
23 Sep 2008 05:05:38	22 Sep 2008 19:05:38	08BD88	OG1	OB1	1	I1	1030341	u	4.0	> 1.20	0.71	Bright	Bright
23 Sep 2008 05:06:36	22 Sep 2008 19:06:36	08BD88	OG2	OB2	1	I1	1030342	u	4.0	> 1.20	0.86	Bright	Bright
23 Sep 2008 05:07:33	22 Sep 2008 19:07:33	08BD88	OG3	OB3	1	I1	1030343	u	4.0	> 1.20	0.86	Bright	Grey
23 Sep 2008 05:09:50	22 Sep 2008 19:09:50	08BD88	OG3	OB3	1	I4	1030344	g	2.0	> 1.20	0.98	Bright	Grey
23 Sep 2008 05:10:44	22 Sep 2008 19:10:44	08BD88	OG1	OB1	1	I4	1030345	g	2.0	> 1.20	0.82	Bright	Grey
23 Sep 2008 05:11:40	22 Sep 2008 19:11:40	08BD88	OG2	OB2	1	I4	1030346	g	2.1	> 1.20	0.94	Bright	Grey
23 Sep 2008 05:13:45	22 Sep 2008 19:13:45	08BD88	OG2	OB2	1	I2	1030347	r	2.0	> 1.20	0.80	Bright	Dark
23 Sep 2008 05:14:35	22 Sep 2008 19:14:35	08BD88	OG2	OB2	1	I5	1030348	r	17.0	> 1.20	0.95	Bright	Dark
23 Sep 2008 05:15:46	22 Sep 2008 19:15:46	08BD88	OG3	OB3	1	I2	1030349	r	2.1	> 1.20	0.80	Bright	Dark
23 Sep 2008 05:16:36	22 Sep 2008 19:16:36	08BD88	OG3	OB3	1	I5	1030350	r	17.0	> 1.20	0.91	Bright	Dark
23 Sep 2008 05:18:34	22 Sep 2008 19:18:34	08BD88	OG1	OB1	1	I2	1030351	r	2.0	> 1.20	0.87	Bright	Dark
23 Sep 2008 05:19:25	22 Sep 2008 19:19:25	08BD88	OG1	OB1	1	I5	1030352	r	17.0	> 1.20	0.84	Bright	Dark
23 Sep 2008 05:21:49	22 Sep 2008 19:21:49	08BD88	OG1	OB1	1	I6	1030353	i	2.1	> 1.20	1.00	Bright	Dark
23 Sep 2008 05:22:43	22 Sep 2008 19:22:43	08BD88	OG2	OB2	1	I6	1030354	i	2.0	> 1.20	0.60	Bright	Dark
23 Sep 2008 05:23:39	22 Sep 2008 19:23:39	08BD88	OG3	OB3	1	I6	1030355	i	2.1	> 1.20	0.58	Bright	Dark
23 Sep 2008 05:25:50	22 Sep 2008 19:25:50	08BD88	OG3	OB3	1	I3	1030356	z	2.0	> 1.20	0.99	Bright	Dark



Megacam frames