Binaries
Thematic team

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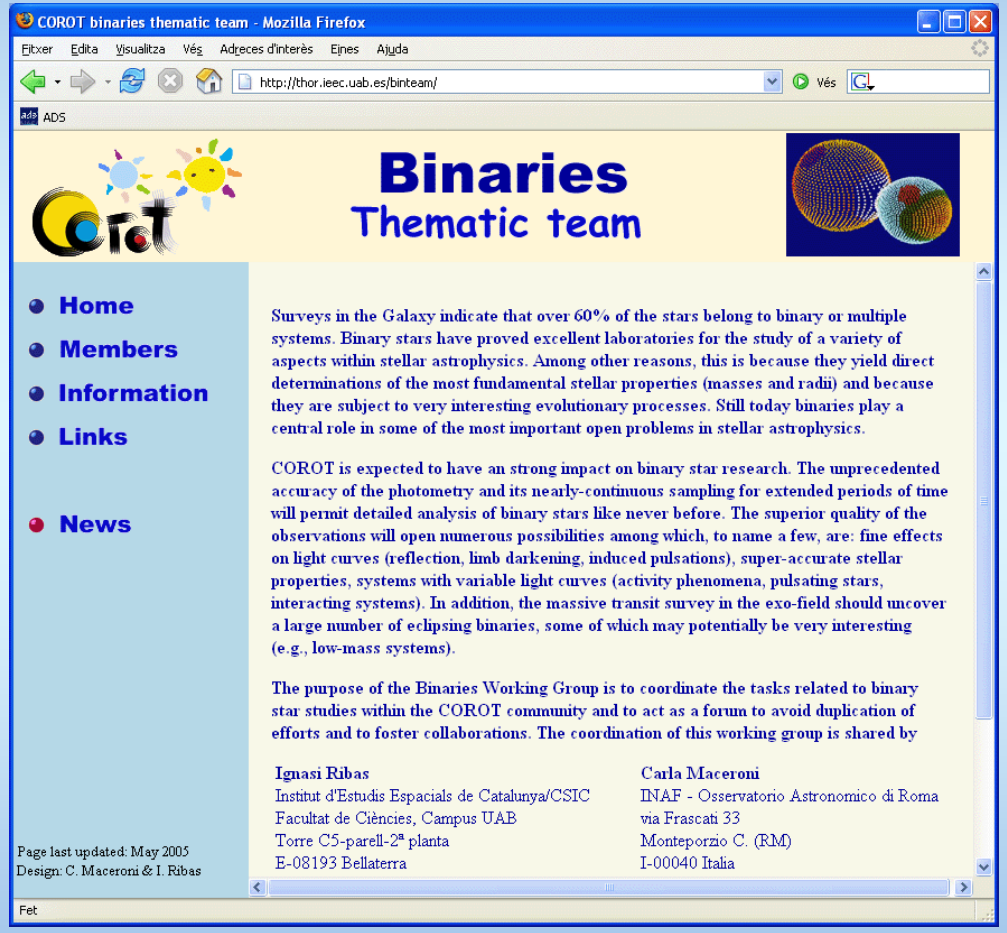
Outline

- Team information
- Binaries in the COROT “eyes”
- Plans for the upcoming AO call

Team information

http://thor.ieec.uab.es/binteam



- **44 members** (as of 20/05/2005)
  - Austria: 1
  - Belgium: 4
  - Brazil: 11
  - France: 1
  - Germany: 2
  - Italy: 21
  - Spain: 4
- **25% women**

Objectives:

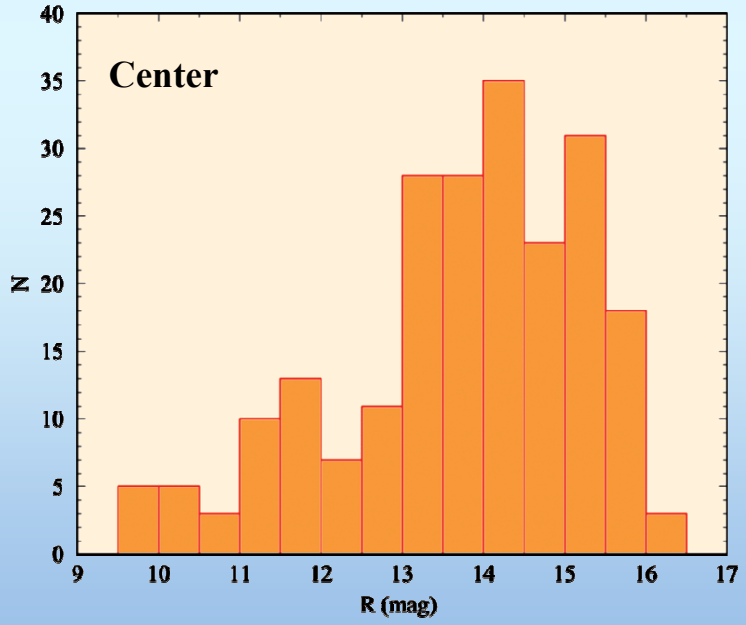
- Coordinate binary star activities within COROT
- Act as a forum to avoid duplications
- Foster collaborations

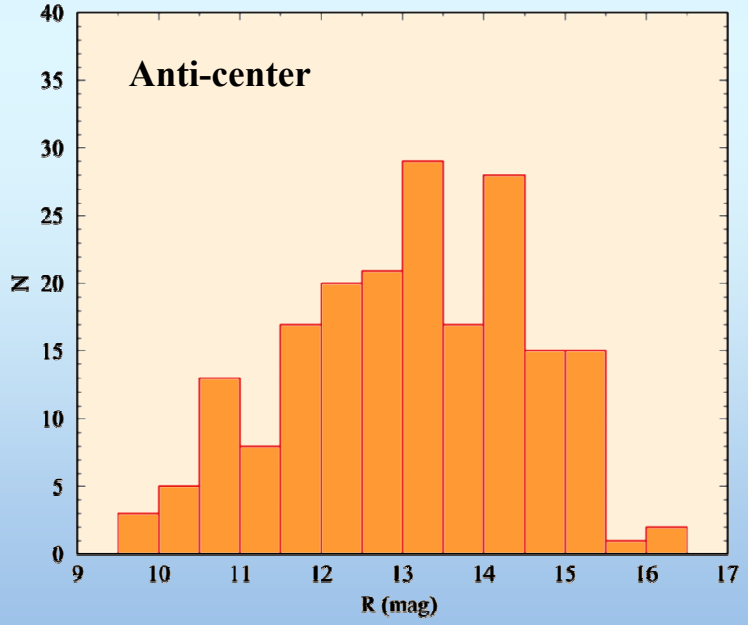
Binary stars in the COROT "eyes"

- **Three catalogs:**
  - **GCVS**
  - **The 9th Catalog of Spectroscopic Binaries**
  - **The 6th Catalog of Orbits of Visual Binary Stars**
- **Search radius of 15º (to accommodate a possible drift)**
- **9.5 mag < m < 17 mag**

	Center	Anti-center
Eclipsing binaries	220	194
Spectroscopic binaries	17	12
Visual binaries (w/orbits)	3	4

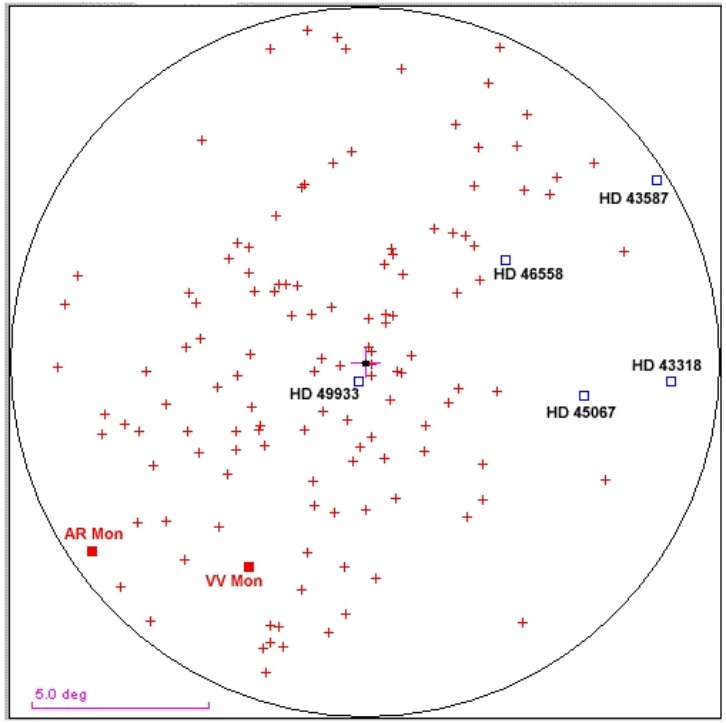
- **EB statistics:**
  - **E & E: ⇨ ~12%**
  - **EA & EA: ⇨ ~60%**
  - **EB & EB: ⇨ ~10%**
  - **EW & EW: ⇨ ~13%**
  - **Others ⇨ ~5%**
- **SB statistics:**
  - **SB1 ⇨ ~65%**
  - **SB2 ⇨ ~35%**


Center
N
R (mag)
0
5
10
15
20
25
30
35
40
9
10
11
12
13
14
15
16
17

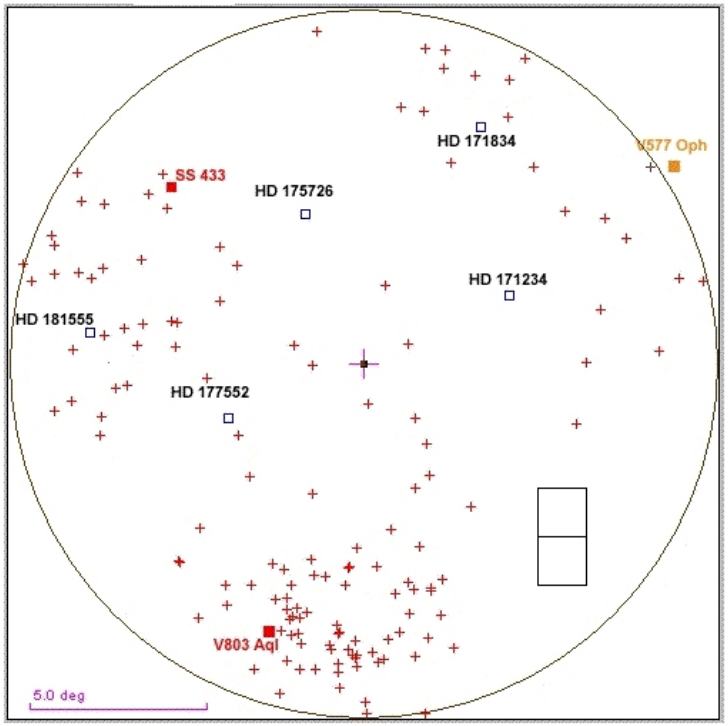

Anti-center
N
R (mag)
0
5
10
15
20
25
30
35
40
9
10
11
12
13
14
15
16
17

Known binaries and primary targets

Known eclipsing binaries in COROT FoV, Anticenter



Known eclipsing binaries in COROT FoV, Center

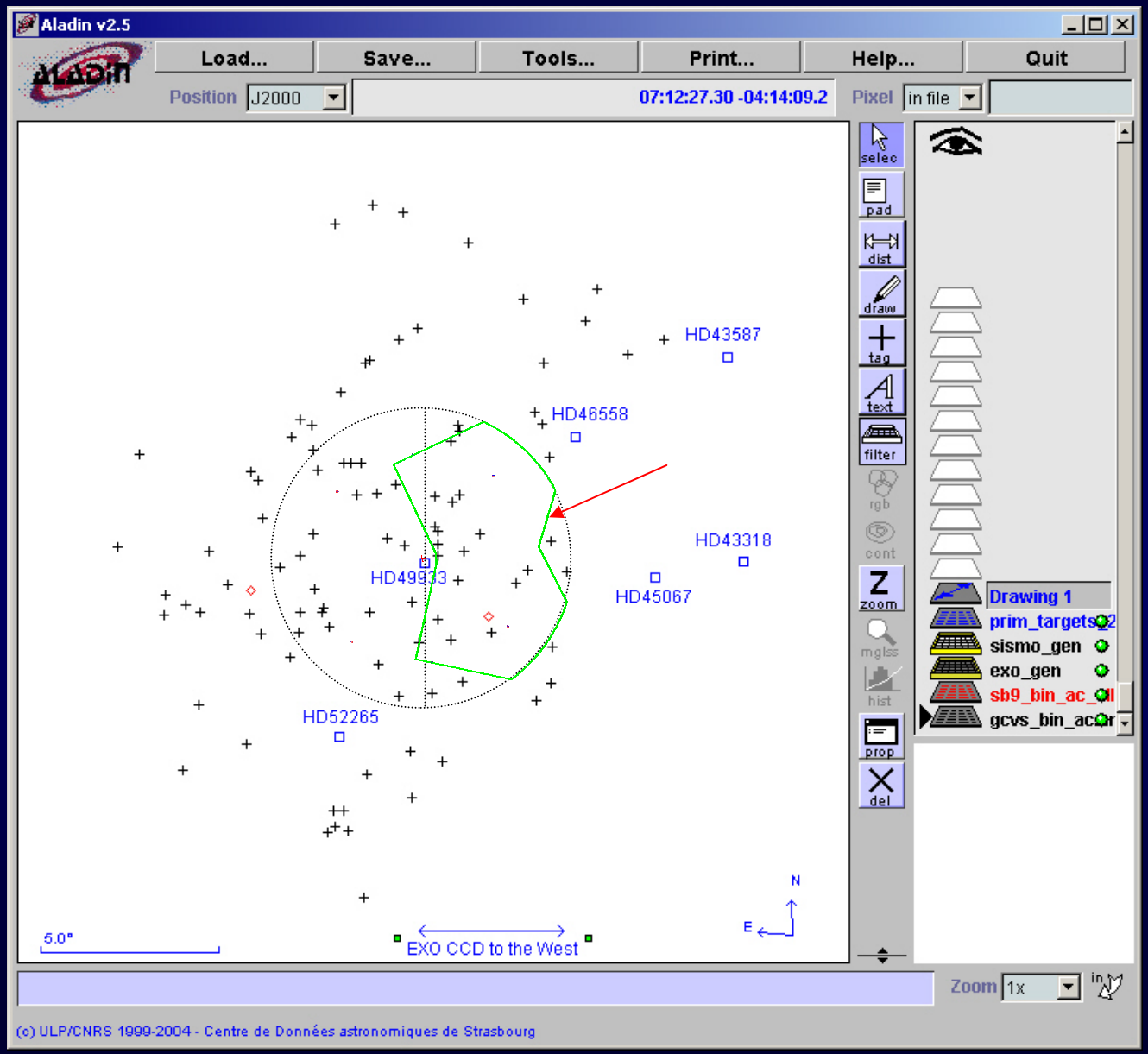


GCVS4 and SB9, Anticenter, E

Field: AC

E-filter

Targets for GB obs (spectr.) to the West of HD 49933 & HD 52265

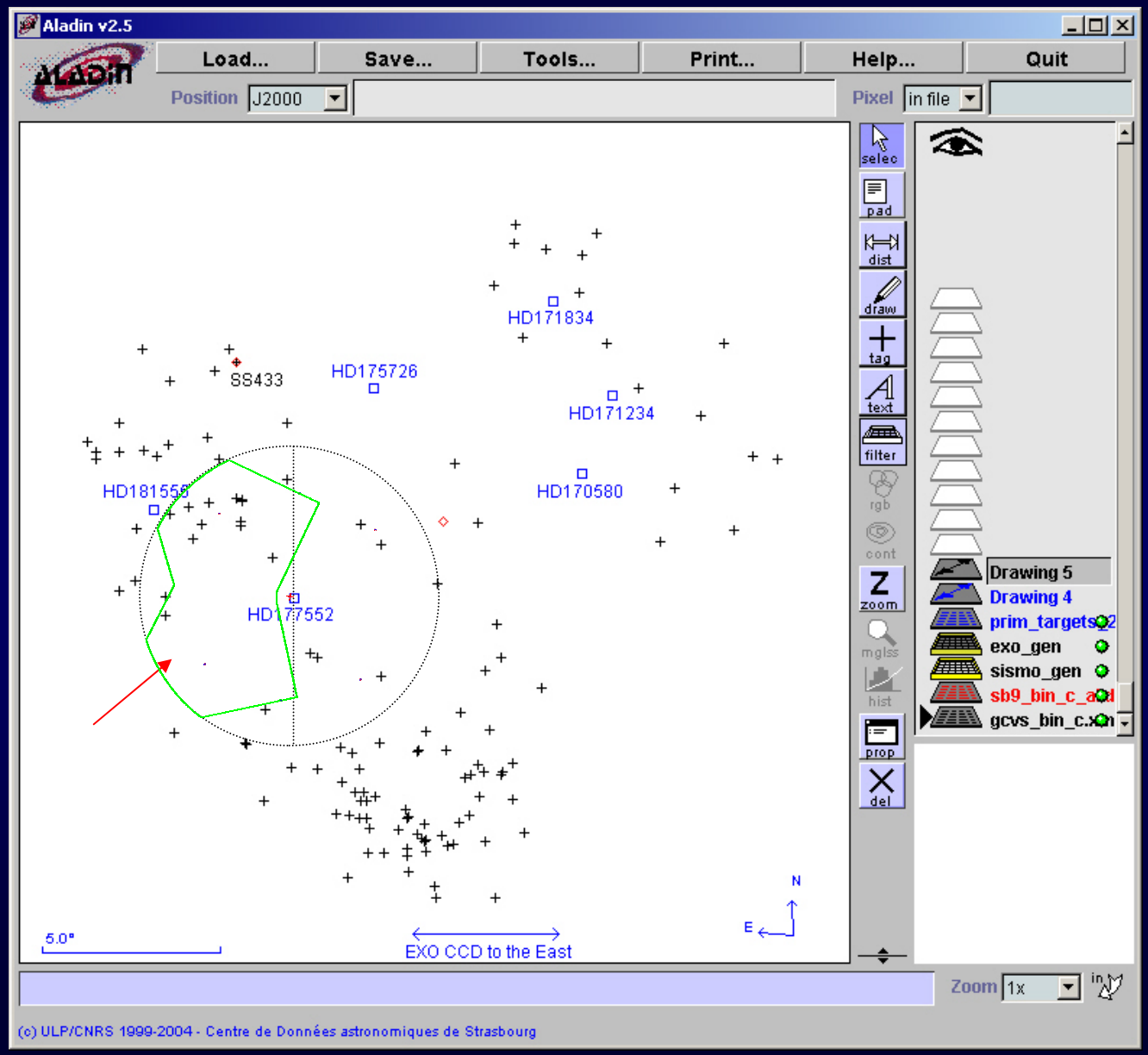


GCVS4 and SB9, Center, E

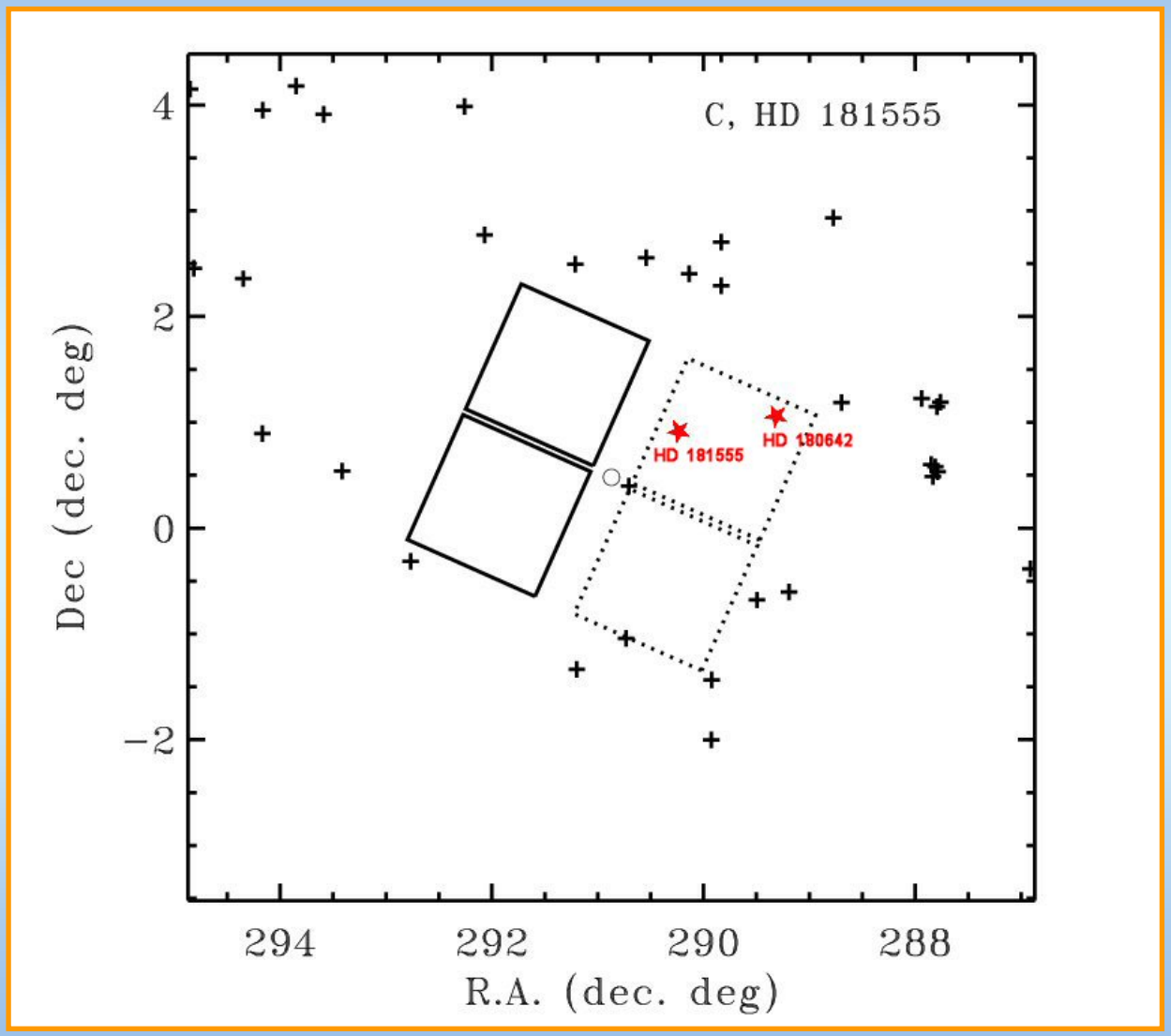
Field: C

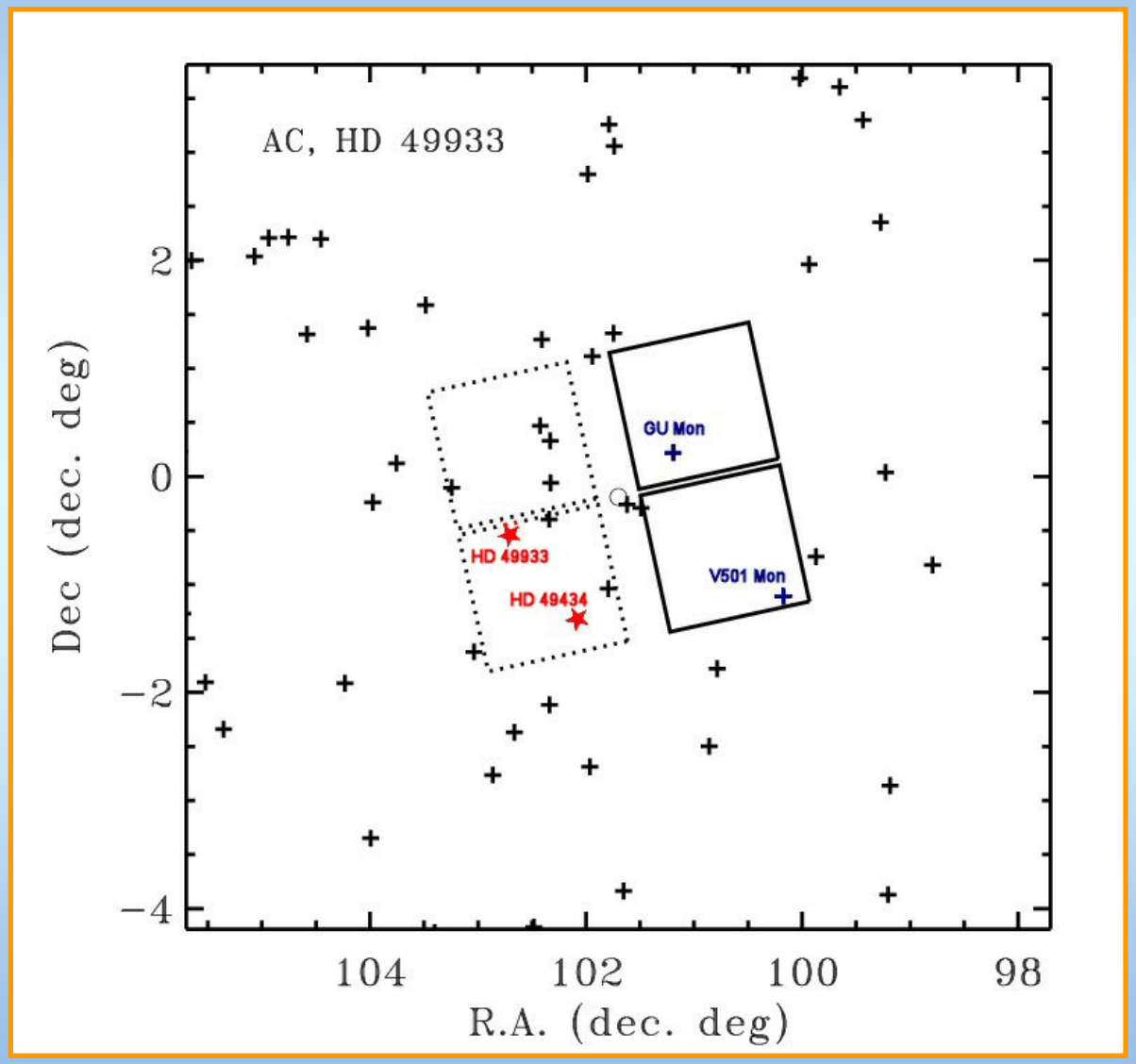
E-filter

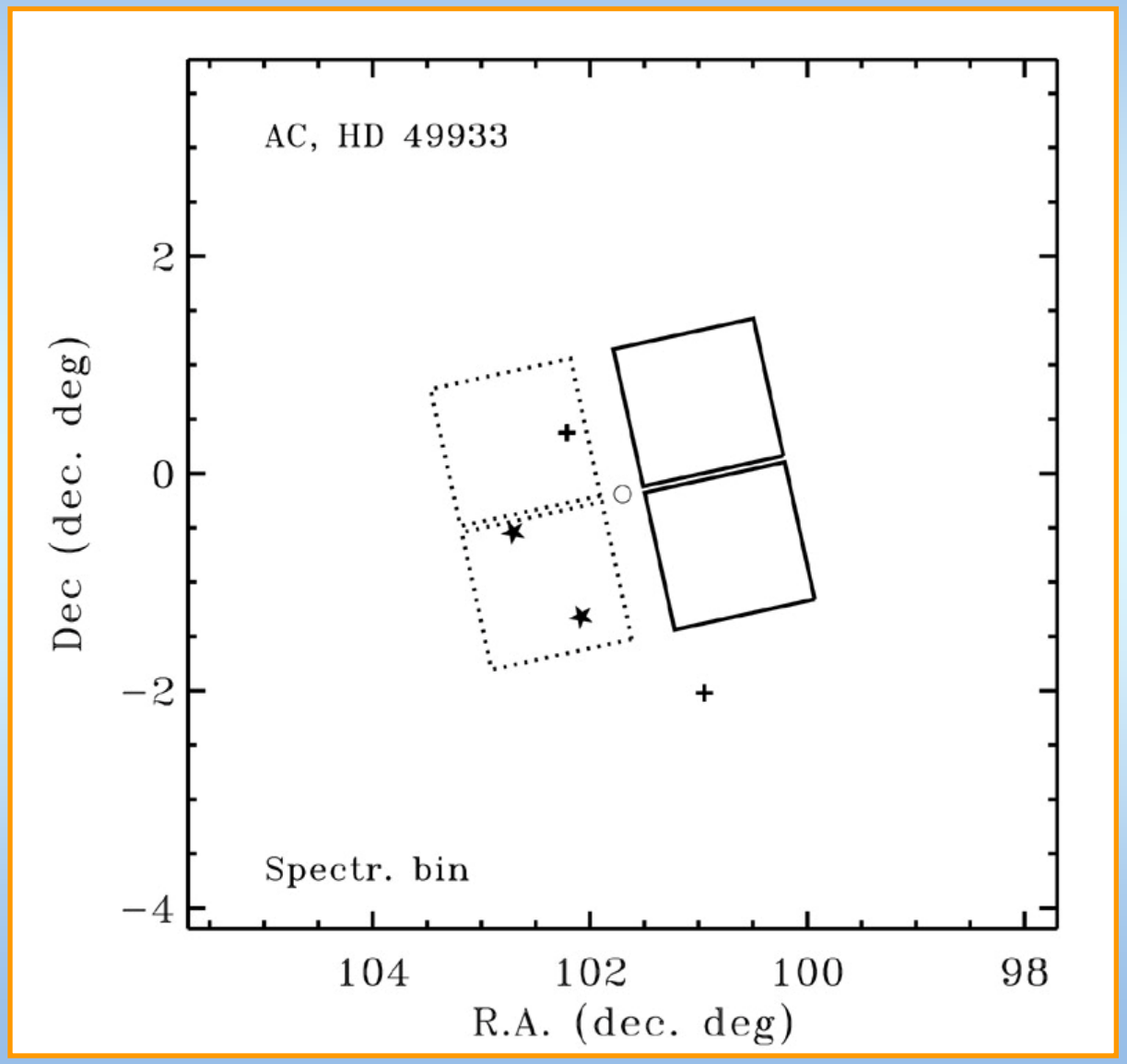
Targets for GB obs (spectr.) to the East



Preparing the upcoming AO call




AC, HD 49933
GU Mon
V501 Mon
HD 49933
HD 49434
Dec (dec. deg)
R.A. (dec. deg)
2
0
−2
−4
104
102
100
98


AC, HD 49933
Spectr. bin
Dec (dec. deg)
R.A. (dec. deg)
2
0
−2
−4
104
102
100
98

Known EBs in the AC field… V501 Mon

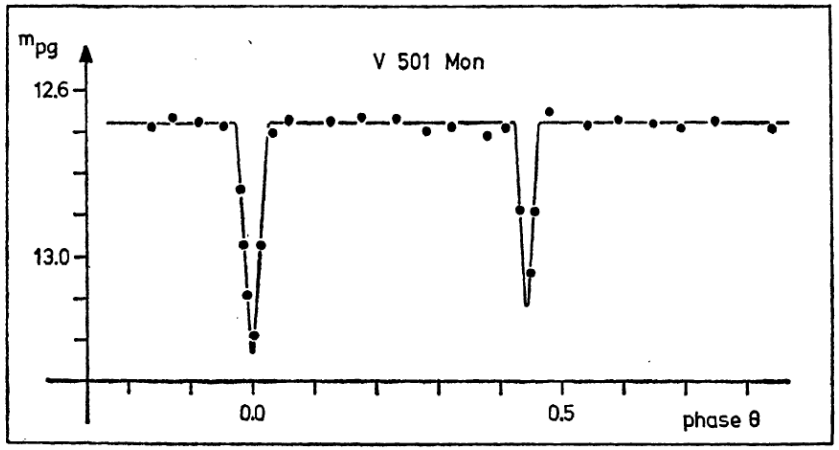


Fig. 1. Photographic light curve of V 501 Mon.

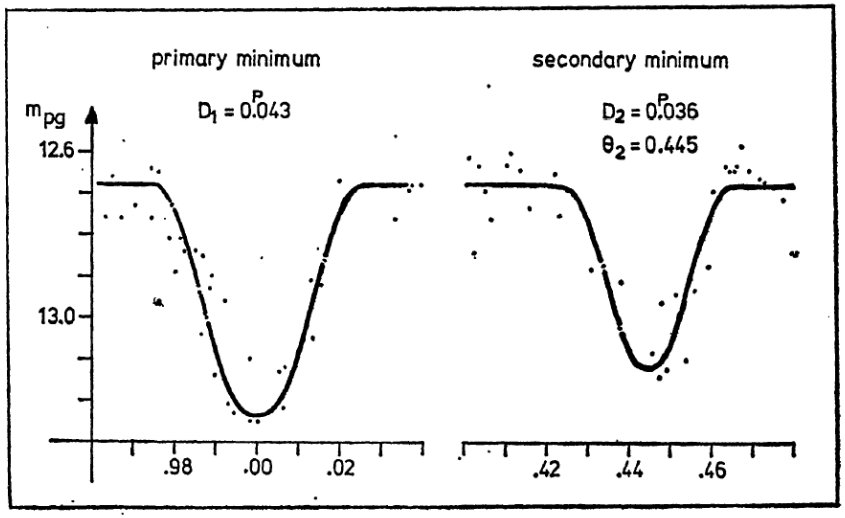
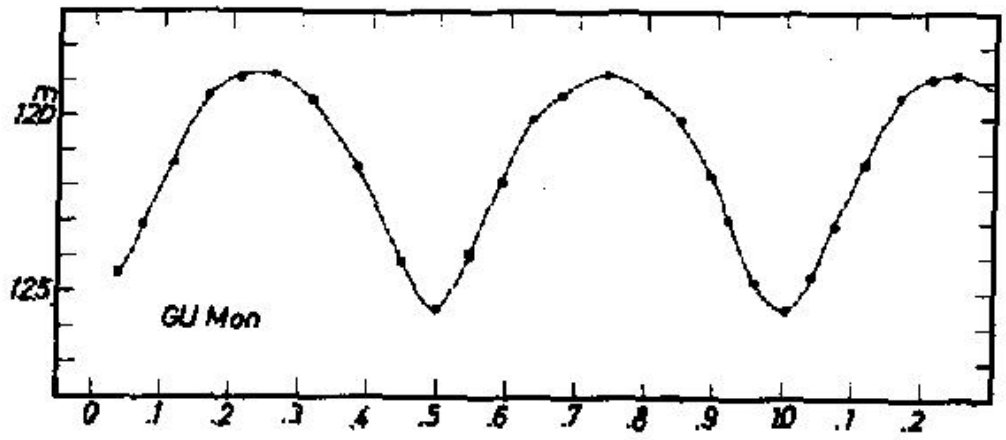


Fig. 2. Minima of V 501 Mon.

- Bossen & Klawitter (1972, AcA, 22, 411)
- Eccentric detached EB
- Possibly mid-F type
- P = 7.02 days
- m = 12.7-13.2 mag
- e ≈ 0.1

Very little photometry
Probably apsidal motion
No spectroscopy

Known EBs in the AC field… GU Mon



Maximum	Helligkeit	$11.^{m}88$ pg		
Minimum I	Helligkeit	12. 55	Amplitude I	$0.^{m}67$
Minimum II	Helligkeit	12. 55	Amplitude II	0. 67

- **W UMa-type EB**
- **m = 11.9-12.6 mag**

Almost no photometry
No spectroscopy

Binary letters of interest

Title	P.I.
Fundamental stellar parameters and atmosphere properties by photometric monitoring of known close binaries	C. Maceroni
The formation and early stages of contact binaries: the twin system V803 Aql	C. Maceroni
Monitoring the optical counterpart of the micro-quasar SS 433 (V1383 Aql)	C. Maceroni
A search for key eclipsing binaries with COROT	I. Ribas
A largely unknown delta Scuti star in an eccentric eclipsing binary: V577 Oph	P. Lampens
Two magnetically active close eclipsing binaries not too far from the HD 49933 & HD 49434 field	A. Lanza
Interacting binaries	E. Janot-Pacheco
Pulsation in early type binaries	H. Lehmann
Self lensing in binary systems	J. Schneider

So… what do we do?

- Join efforts & team up
- Ground-based observations
- Short runs