

BeSS report – December 2017

Data compiled by Valérie Desnoux – H-alpha monitoring
 Be projects section by Ernst Pollmann [here](#)

- 87 stars were observed
- 14 Observers contributed this month
- 143 Spectra

Observers...

Observateur	Nb spec
Thizy	34
bertrand	23
Buil	22
Guarro Fló	18
Leonardi	13
Sawicki	7
Graham	6
Rodda	6
Daglen	4
GARDE	3
Heathcote	2
Bohlsen	2
Li	2
Schwarz	1
Total général	143

Events of the month...

EE: Emission Event, ME: Moderate Events, DE: Decreasing Event

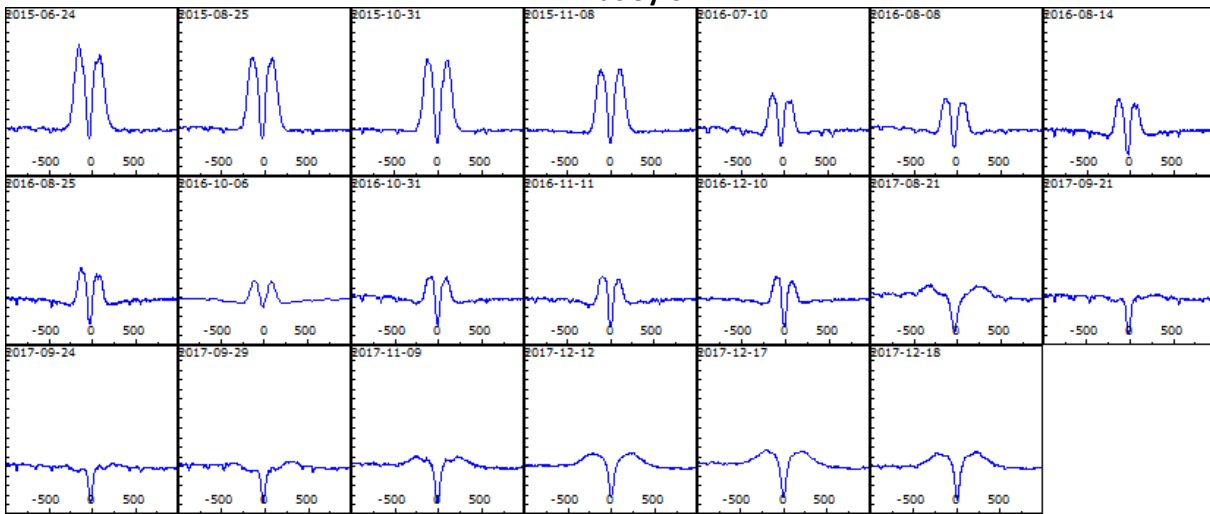
EE	ME	DE	EE	ME	DE
EW Lac	CX Dra	12 Aur	B3IVpe	B2.5Ve	B5e
phi Per	14 Lac	HD 23982	B2Vpe	B3IVe	B3e
25 cyg	eps Cas	V351 Per	B3IVe	B3IIIe	B1IVe
FS CMa	ELECTRA	HD 57682	Bpshe	B6IIIe	O9Ve
BD+62 287	ALCYONE	HD 38191	B8Ve	B7IIIe	B1Vne
KU CMa	V549 Per	KZ CMa	B1.5Vnpe	B2IVe	B2Vnne
	V420 Aur	HD 215227		B0IVpe	B5ne
	kap Dra	AN Col		B6IIIpe	B2Vnpe
		V803 Cas			B0.5IVnne

Objects observed

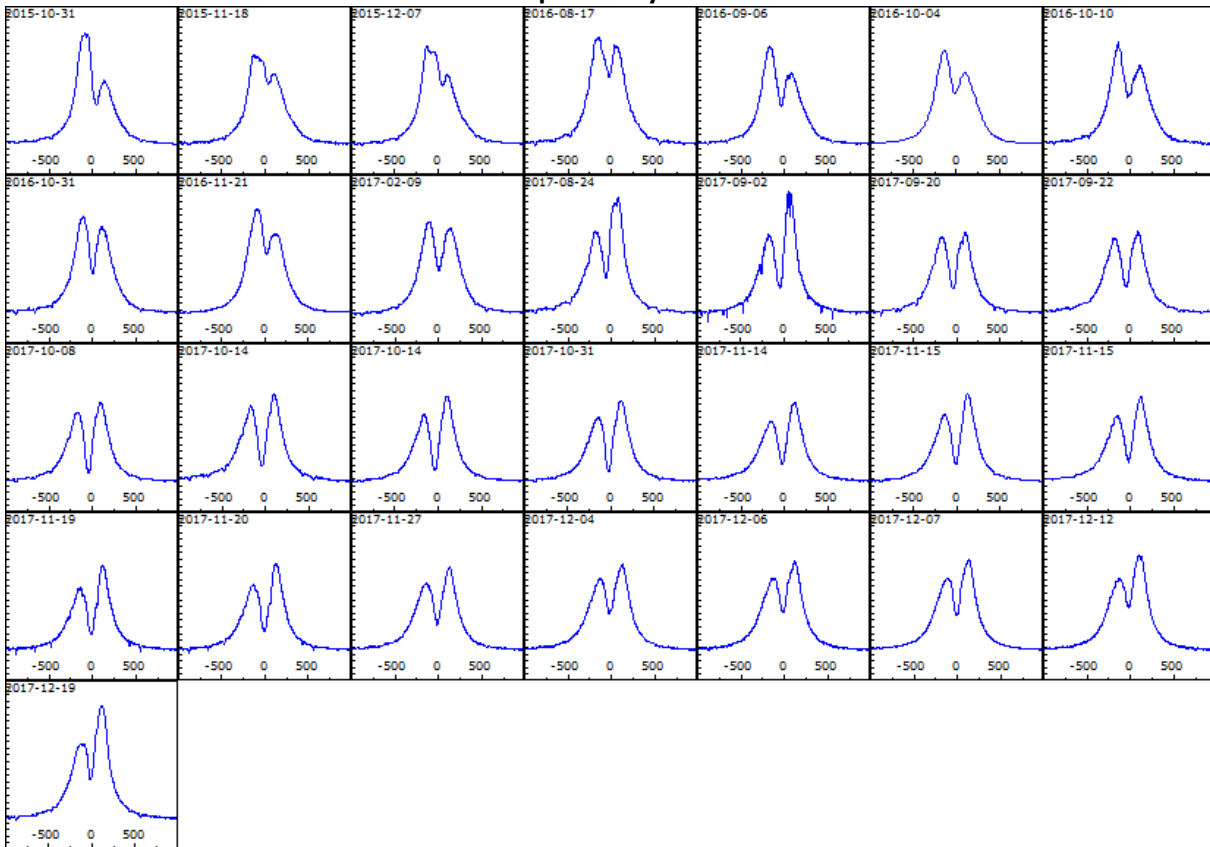
Classique	B[e]	Herbig						
gam Cas	phi And	60 Cyg	ACHERNAR	HD 35345	HD 64109	HD 37352	V594 Cas	AB Aur
zet Tau	28 Cyg	25 Cyg	HD 20899	HD 57682	QR Vul	V549 Per		CQ Tau
PLEIONE	iot Lyr	ELECTRA	RW Per	HD 256577	SHELIAC	8 Lac A		V700 Mon
V442 And	bet Cyg B	HD 18552	HD 237134	V803 Cas	CX Dra	12 Aur		
OT Gem	HD 224544	tet Ari	HD 237060	BD+62 287	CQ UMa	V420 Aur		
5 Cnc	lam Cyg	KY And	V808 Cas	HD 244894	HD 91120	V413 Aur		
ome Ori	18 And	omi Cas	HD 23982	HD 38191	omi And	V584 Per		
V1165 Tau	EW Lac	HD 24479	HD 81357	KZ CMa	12 Vul	V351 Per		
PHECDA	pi Aqr	48 Per	mu Pic	KU CMa	eps Cas	HD 37971		
zet Crv	ALFIRK	ALCYONE	HD 175863	V356 Per	phi Per	AN Col		
kap Dra	14 Lac	11 Cam	HD 215227	V982 Cas	BK Cam	HD 12856		
HD 79066	ups Cyg	8 Lac B	HD 13561	FS CMa	10 Cas	HD 50209		
phi Leo	psi Per	HD 50820						

Emission increase since last observations

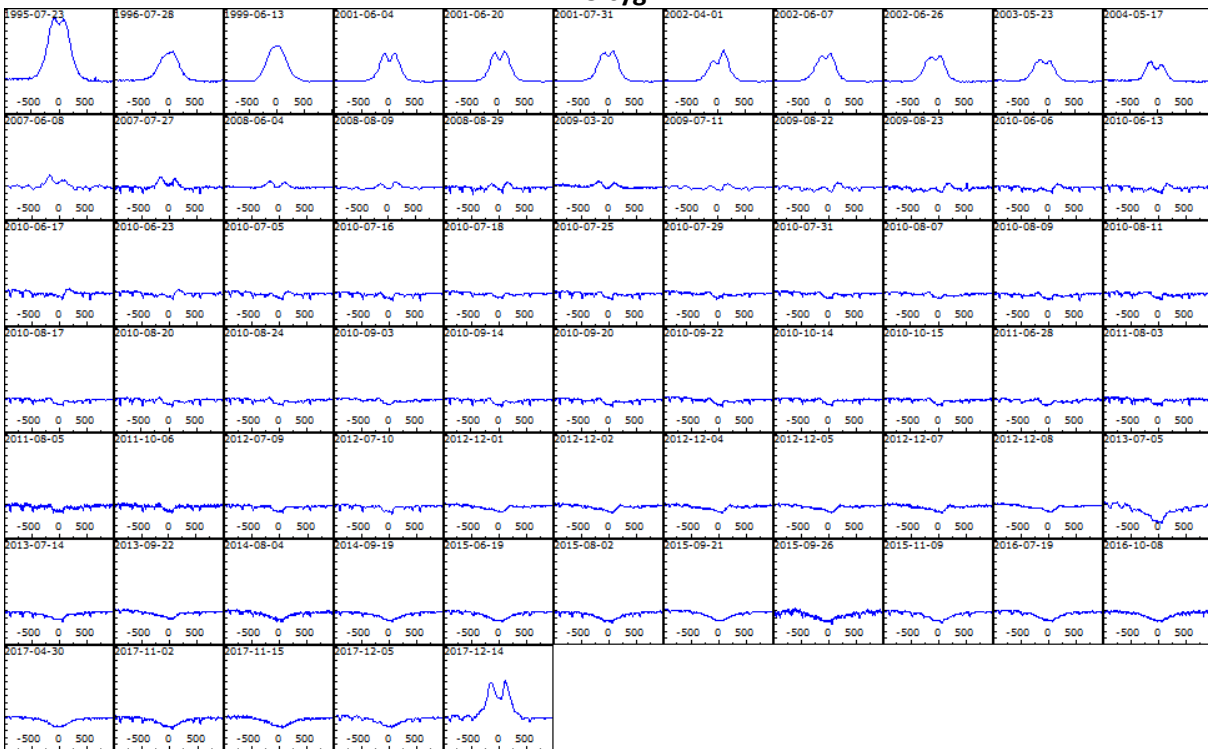
EW Lac 3yrs



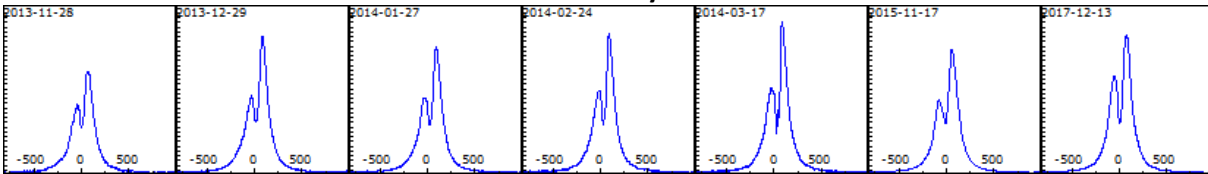
phi Per 3yrs



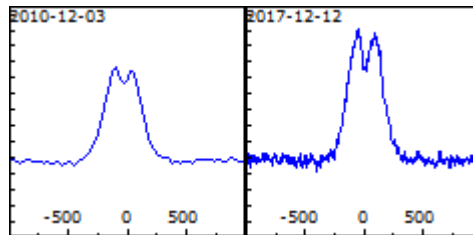
25 cyg



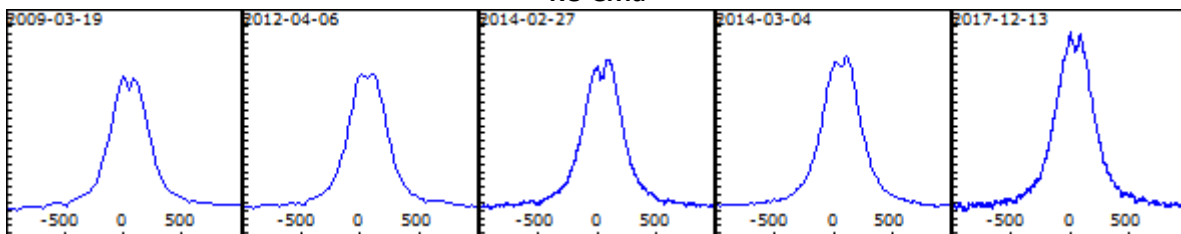
FS CMa 5yrs



BD+62 287

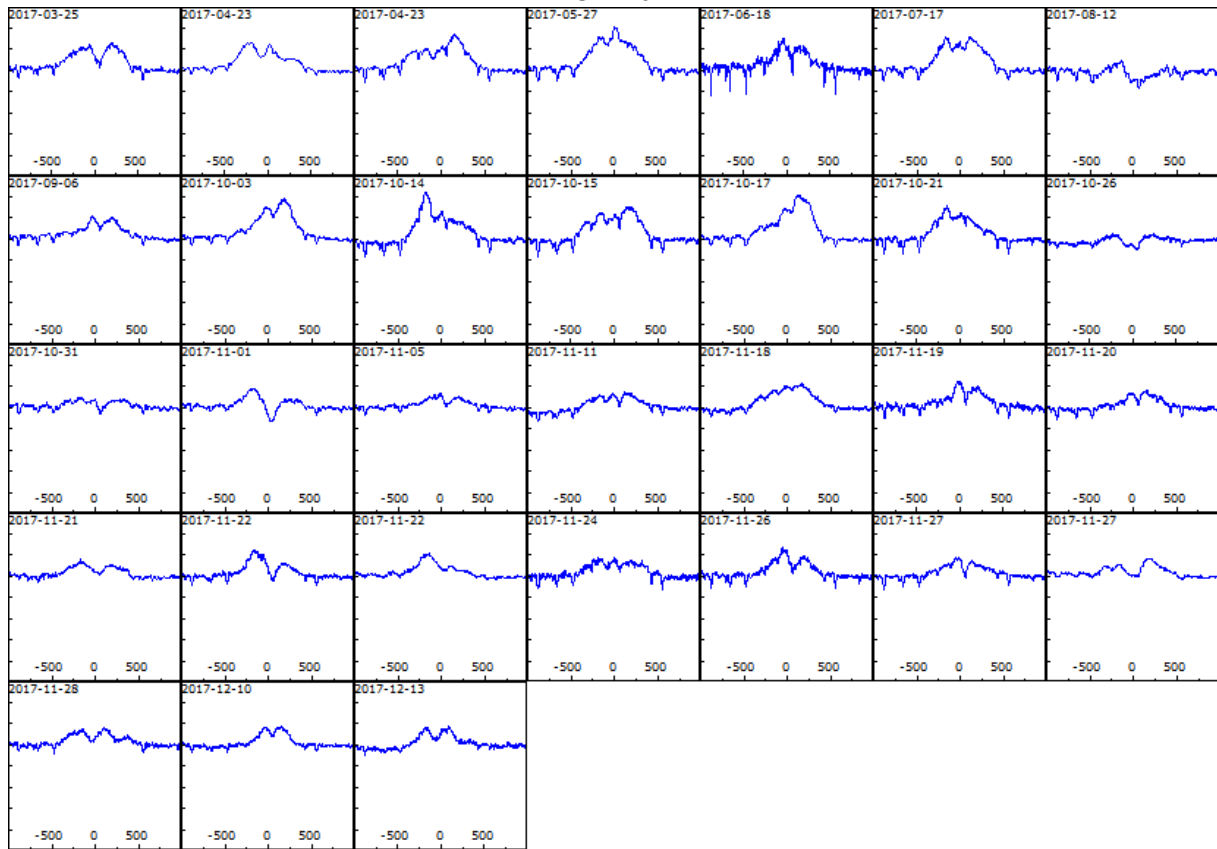


KU CMa

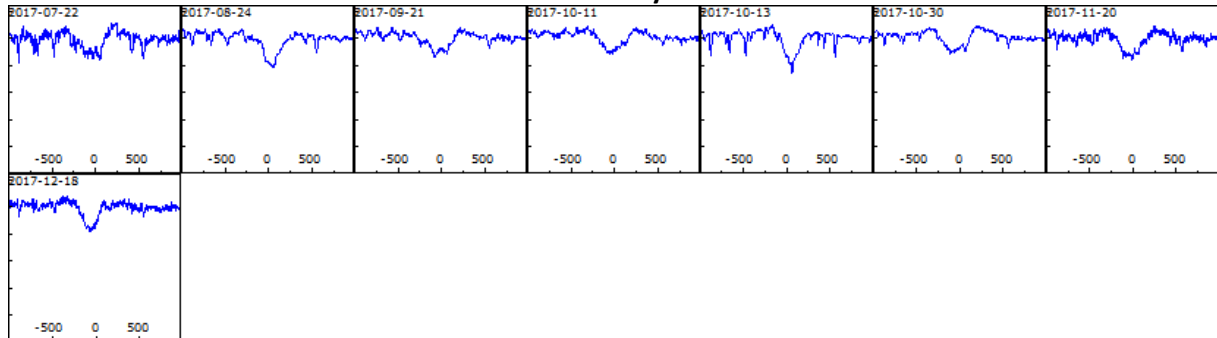


Moderate evolutions of H-alpha line

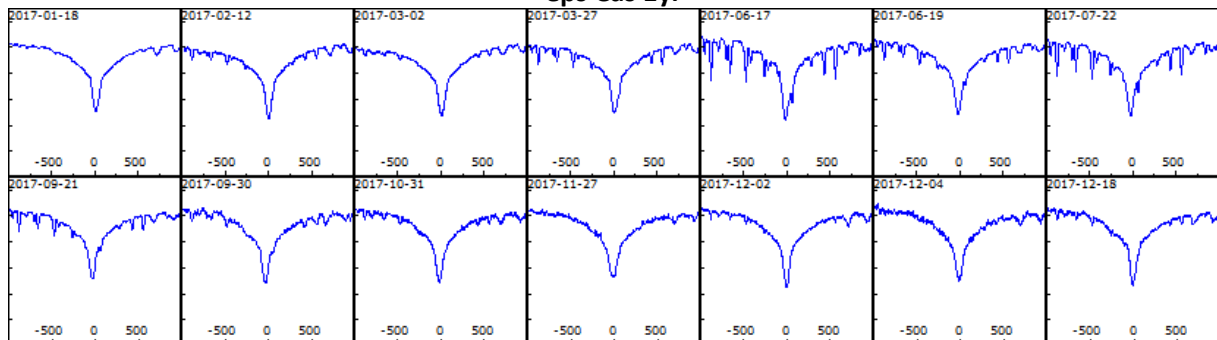
CX Dra



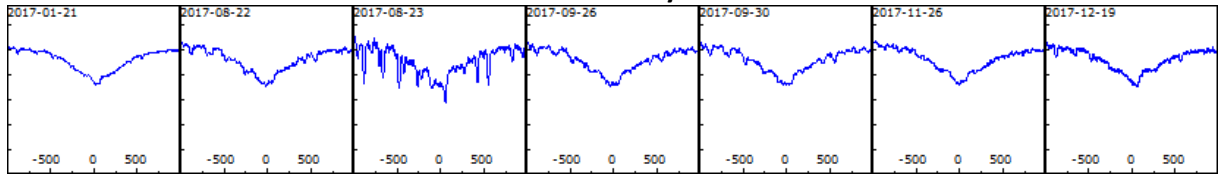
14 Lac 1yr



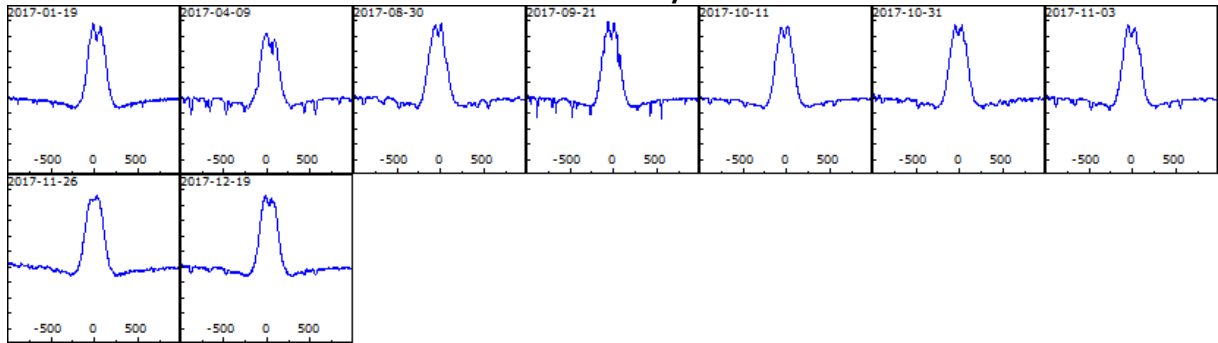
eps Cas 1yr



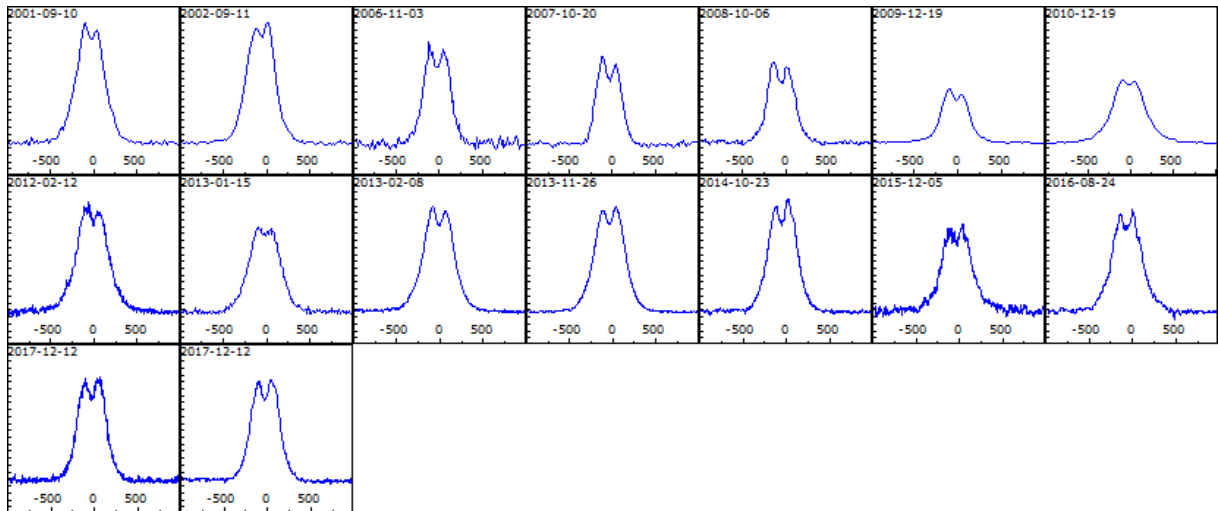
ELECTRA 1yr



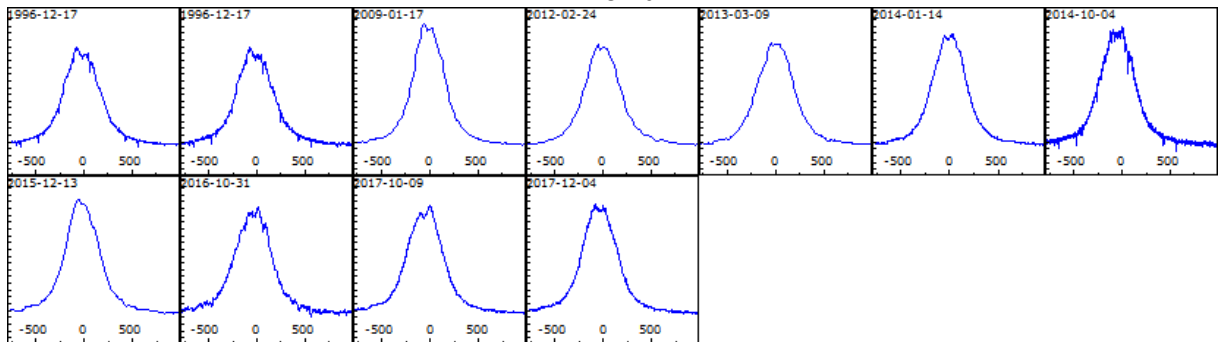
ALCYONE 1yr



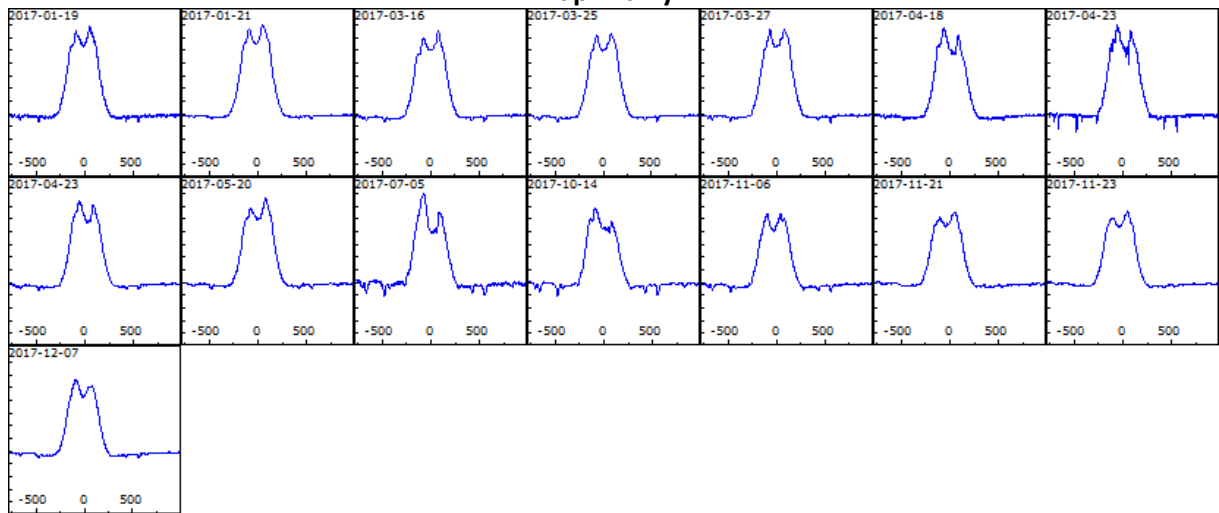
V549 Per



V420 Aur

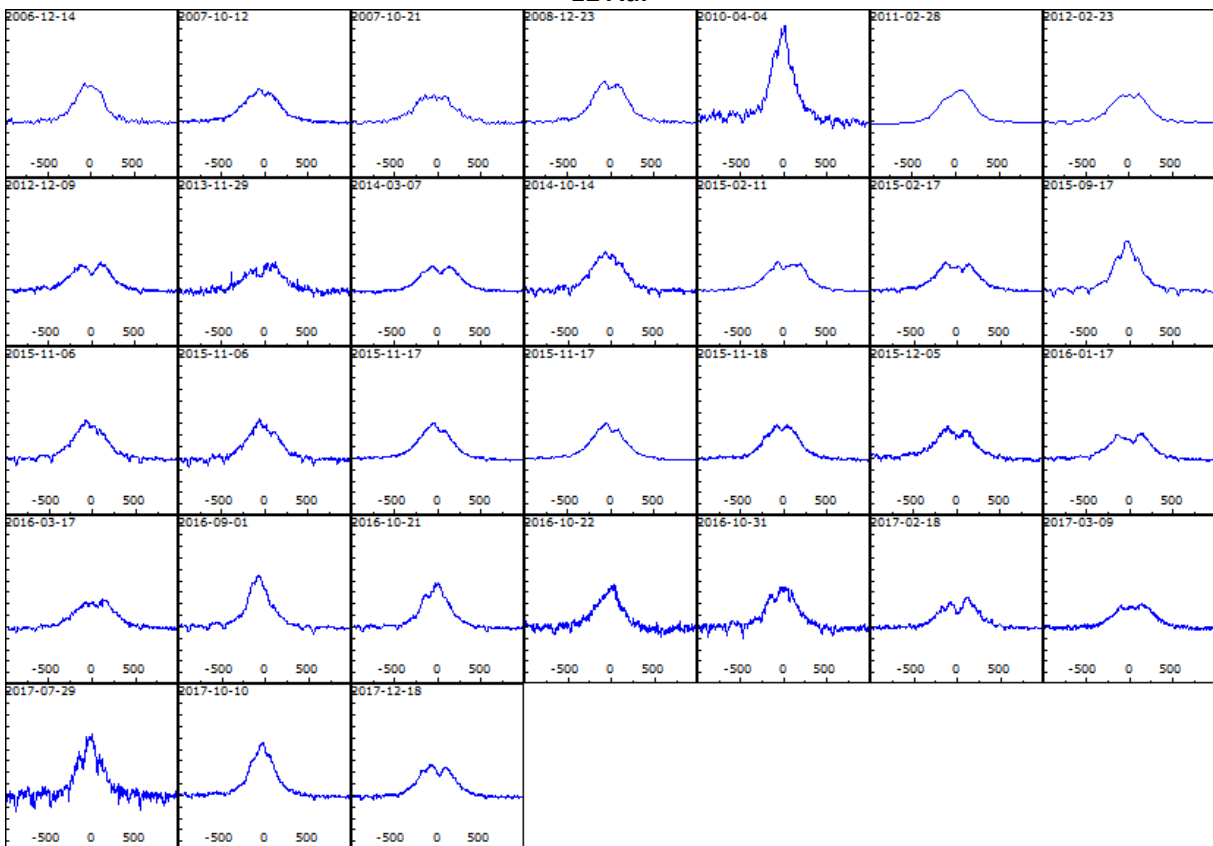


Kap Dra 1yr

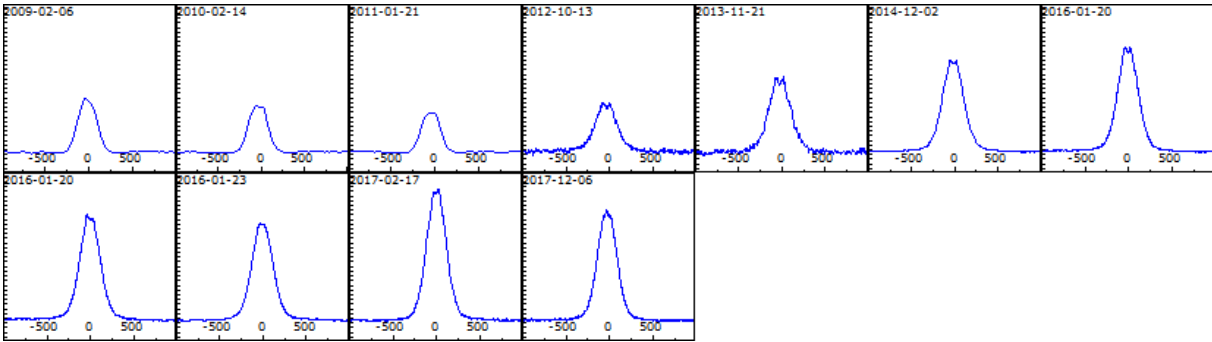


Emission decrease of H-alpha line

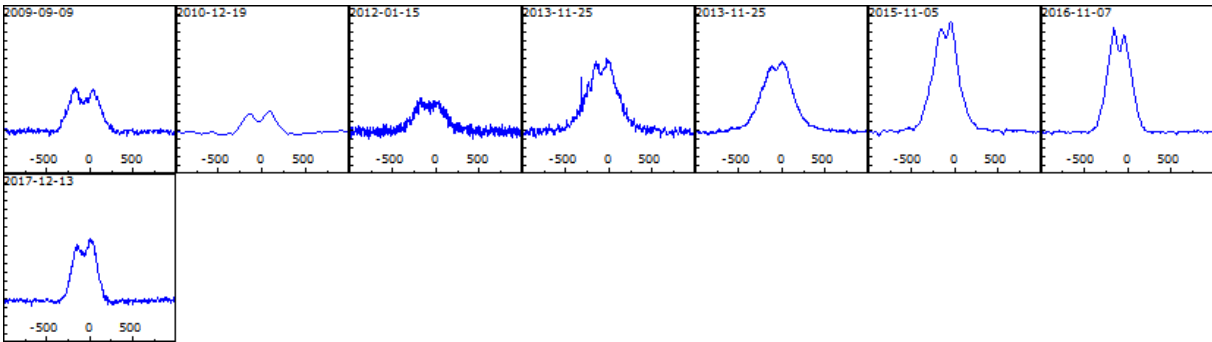
12 Aur



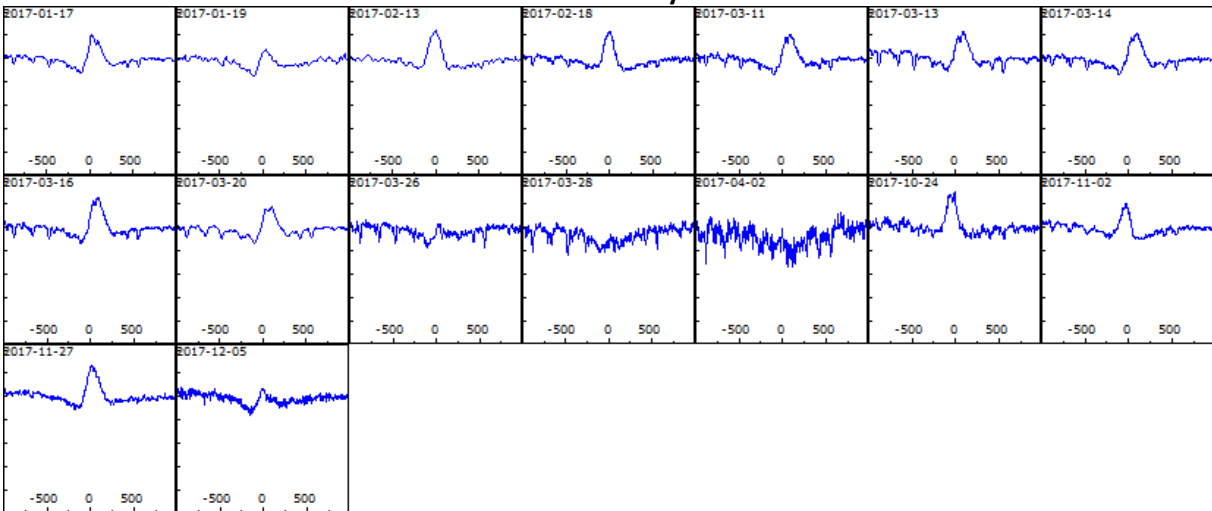
HD 23982



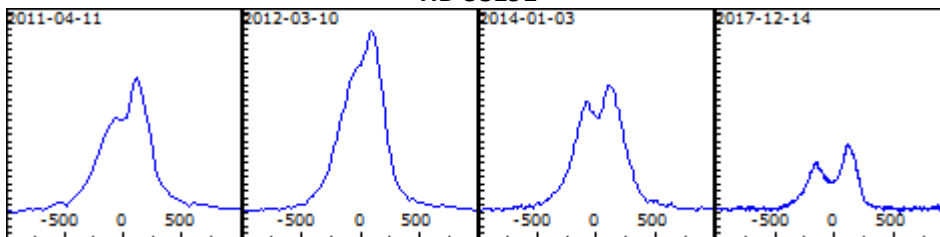
V351 Per



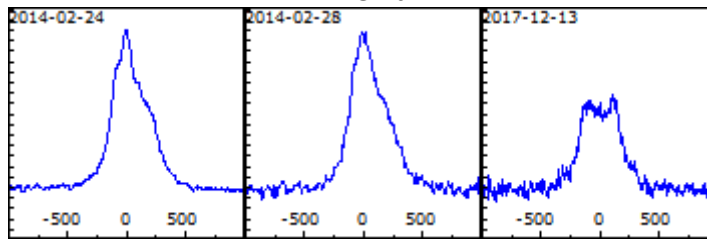
HD 57682 1yr



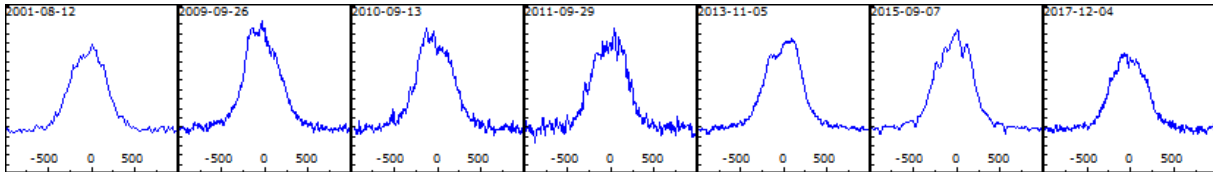
HD 38191



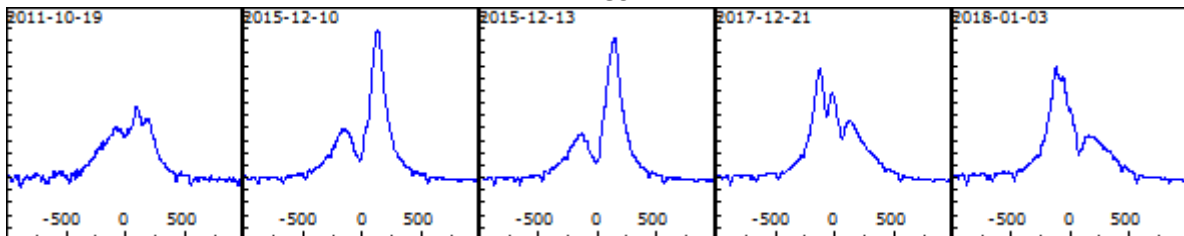
KZ CMa



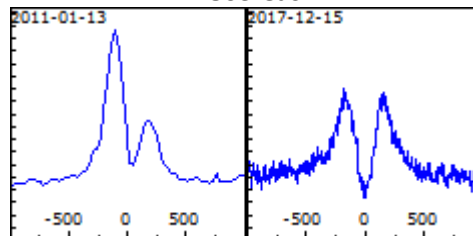
HD 215227



AN Col



V803 Cas



Be monitoring projects

By Ernst Pollmann

Precession of the Disk in ζ Tau

ζ Tauri (HD37202, HR1910) is a well known classical Be binary star with a gaseous circumstellar disk. Observations of the H α emission line of that star reach back many decades. Since ζ Tau is a binary, any tilt of the disk will be modulated by the tidal force of the companion. This can manifest itself as nodding movement and is among others measurable at the depth of the central absorption (CA) within the H α emission.

The monitoring of the H α emission profile of ζ Tau for almost 7 years (JD 2455640 to JD 2458109) enables the study of the time behavior of the CA of that profile. During this time section the circumstellar disk of ζ Tau had a minimum of mass.

On the base of 200 high resolved spectra of the ARAS spectroscopy group the depth of the CA minima has been evaluated. The period analysis of that time series data led to a period of 474 days. That period has been attributed to the nodding period and hence to the precession period of ζ Tau's disk during the time section mentioned above.

Fig. 1 in the attachment shows the ARAS group monitoring of CA of the H α emission, Fig. 2 shows the period analysis of the data in Fig. 1 with the dominant period of 474 days. Fig. 3 shows the corresponding phase diagram of the found period. This data set improve with additional observations of more than one year, the period of 442 days, published in IBVS No. 6208 (Pollmann, 2017).

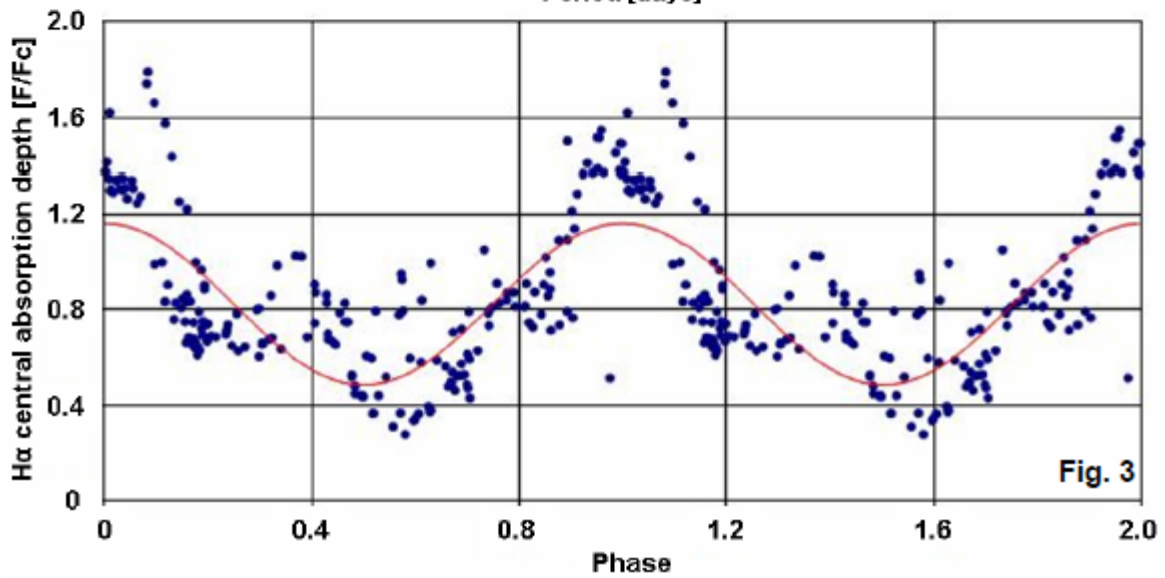
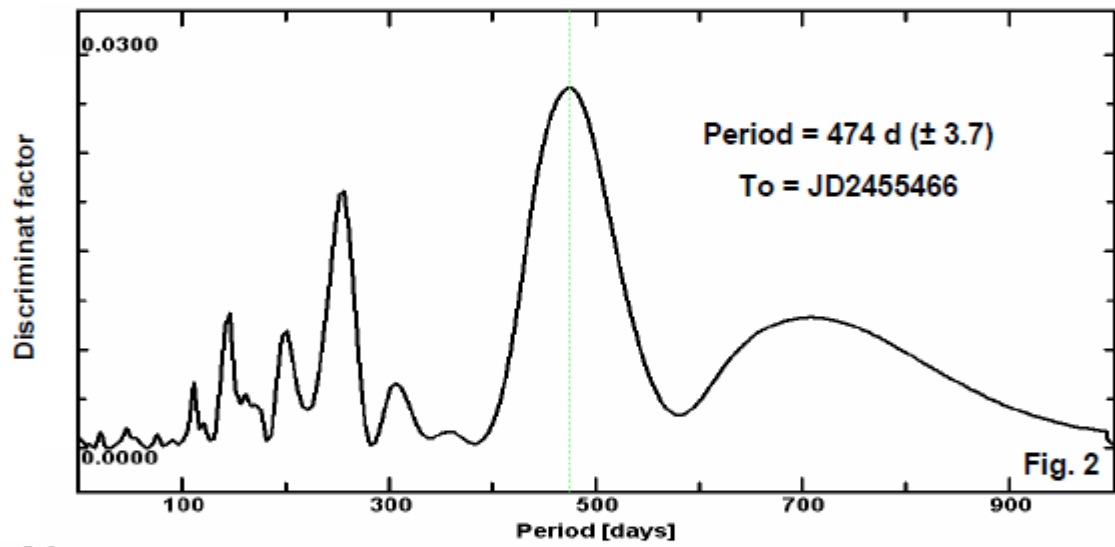
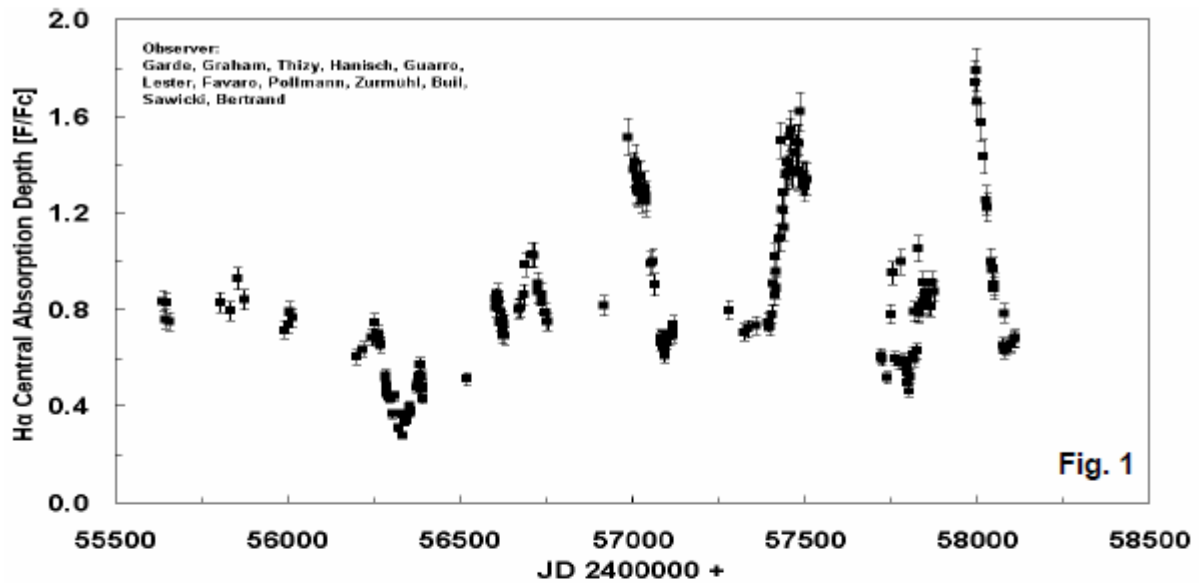
The CA minimum at phase 0.5 in Fig. 3 corresponds to a maximum of the self absorption in the H α emission, the CA maximum at phase 1 corresponds to a minimum of self absorption.

The spectra used for the evaluation of the CA of H α were taken by the following observers of the ARAS spectroscopy group:
O. Garde, K. Graham, O. Thizy, B. Hanisch, J. Guarro, T. Lester, A. Favaro, E. Pollmann, U. Zurmühl, Ch. Buil, C. Sawicki, E. Bertrand.

I am very grateful this colleagues of the group for that collaboration.

Pollmann, Ernst, 02.02.2018

Observatory of the Vereinigung der Sternfreunde Köln, Germany



BeSS report Materiel & Method

For each star having a spectrum loaded in BeSS database for the monthly report the last six spectra in BeSS are displayed. A visual check is performed to detect any change in the H-alpha profile. Sometimes a copy/paste is needed for subtle evolutions.

For each star, which exhibits a change, the above series are generated with the following steps. Each spectrum is zoomed on the H-alpha line. Each profile is scaled on the continuum on a region around 6580 angströms. The x-axis is converted into Doppler velocity centered on H-alpha.

If too many spectra of the object are available, a shorter period of observation is displayed and thus the length period is indicated (1yr, 3yrs).

All data are processed with Visual Spec with dedicated function to automatically load BeSS spectra and automatize most of the above processing.

Authors

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Aras Site at <http://www.astrosurf.com/aras/>

BeSS database at <http://basebe.obspm.fr/basebe/>

ArasBeAM portal at <http://arasbeam.free.fr/>

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International Working Group ASPA

Active Spectroscopy in Astronomy

<http://www.astrospectroscopy.de>

<http://www.astronomie.de/astronomische-fachgebiete>