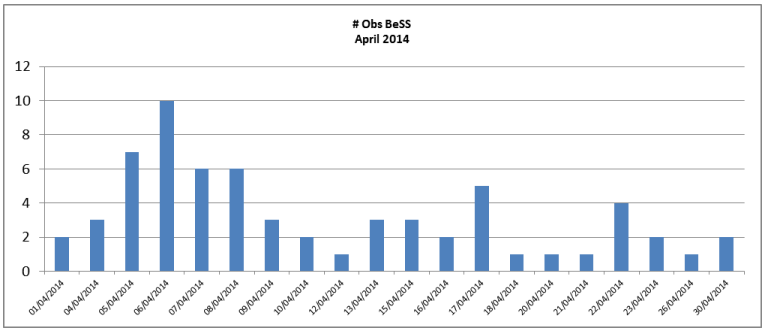
BeSS report – April 2014

Do not miss the new section on the Be projects by E.Pollmann [here]

Observateur	Nb spec
Guarro Fló	18
Sawicki	9
Graham	8
Buil	6
GARDE	6
Fosanelli	5
Barbotin	3
Li	3
Bohlsen	2
Berardi	2
Martineau	2
Favaro	1
Total général	**65**

- 65 H-alpha spectra acquired
- 42 objects observed
- 12 observers contributed

The most observed objects were kap Dra, nu gem, zet Tau



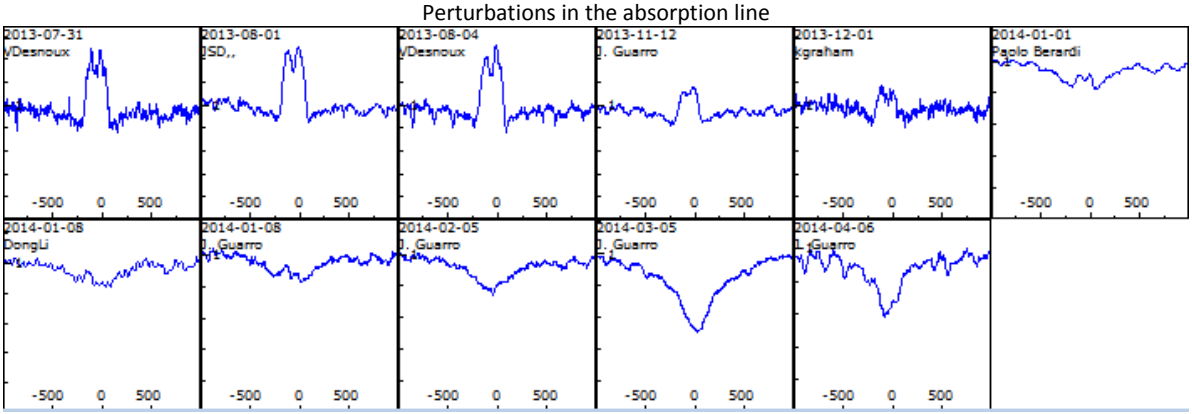
Objects observed

Classique						Classique ou Herbig	Herbig
kap Dra	19 Mon	QR Vul	PLEIONE	HD 65930	HD 76868		
nu Gem	HD 251726	V647 Mon	FF Cam	PHECDA	HD 70340		
zet Tau	GP Vir	GW Vel	V725 Tau	del Sco	HD 64109		
zet Crv	V744 Mon	17 Sex	tet CrB	V442 And	5 Cnc		
gam Cas	ome Ori	AG Aur	phi Leo	HD 258782	IU Aur		
bet CMi	FY CMa	I Hya	HD 55806	SHELIAK	HD 44783		
OT Gem	HD 79066	V1165 Tau	HD 45995	BT CMi	HD 61025		

Emission increase since last observations

V442 And

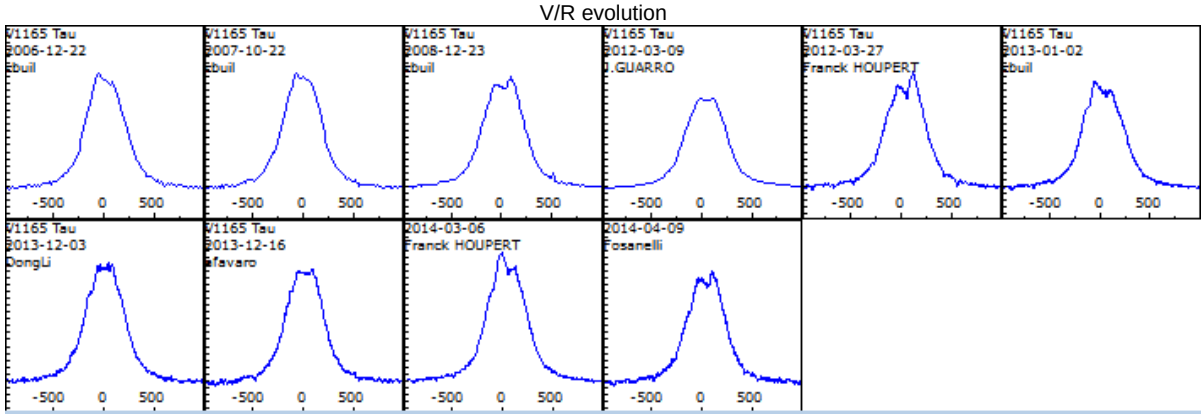
Perturbations in the absorption line



Moderate evolutions of H-alpha line

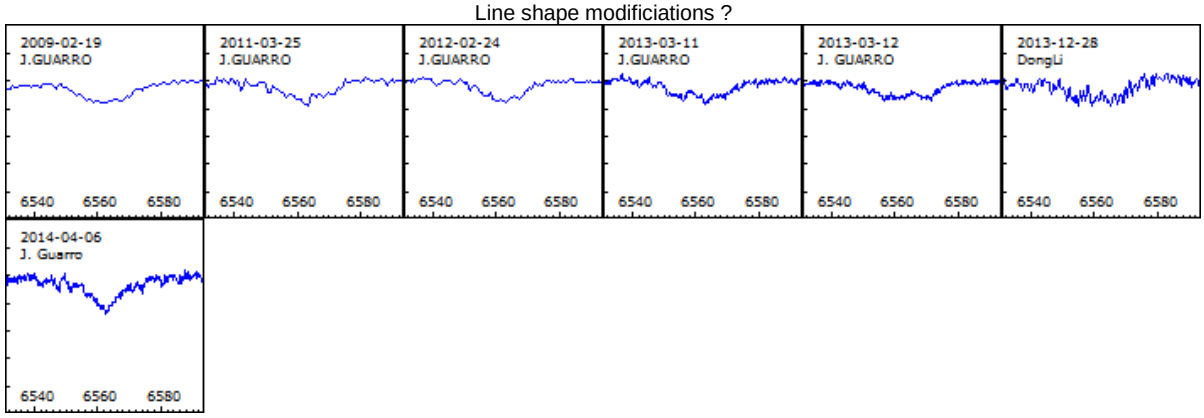
V1165 Tau

V/R evolution



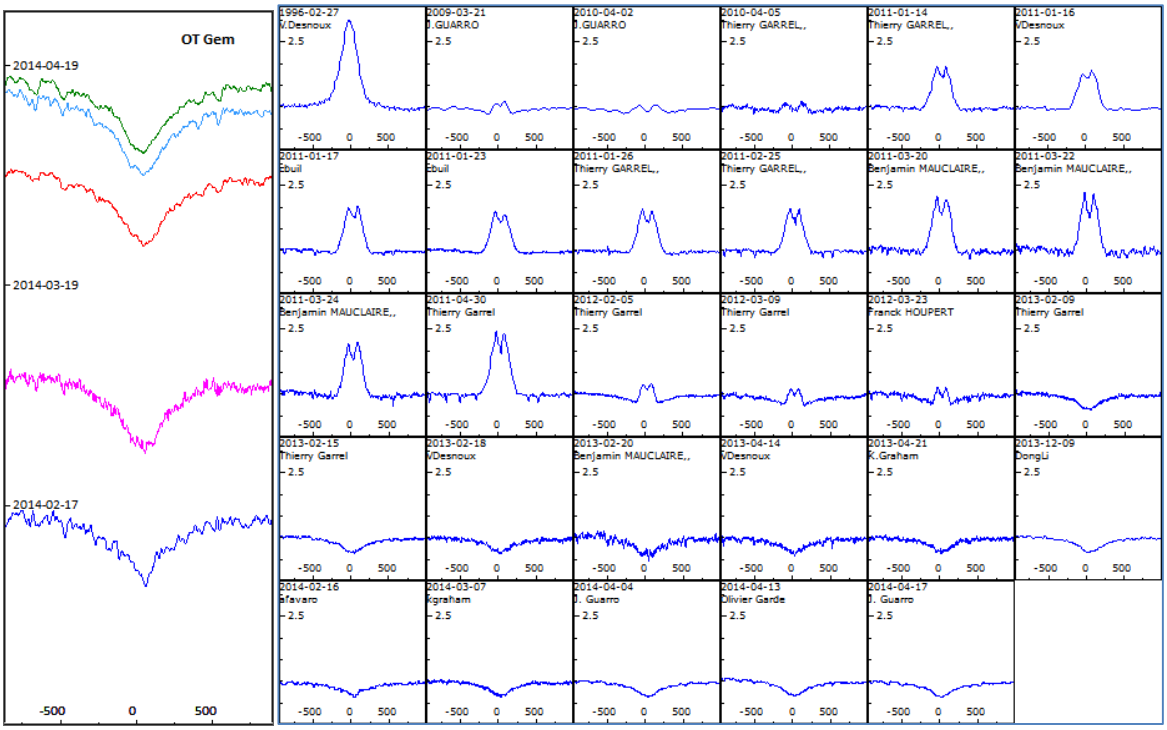
IU Aur

Line shape modificiations ?



OT Gem

Modification at the bottom of the line



Be monitoring projects

By Ernst Pollmann

1) **The periodic behavior of the HeI6678 emission line in gamma Cas *(ongoing investigation)***
   The observations of the V/R variability of the HeI 6678 Å line in the spectrum of gamma Cas is presented for the first time. The spectra with a resolution of R~17000 were obtained with the Littrow grating spectrograph LHIRES III and the C14 Schmidt-Cassegrain telescope of the Vereinigung der Sternfreunde Köln (Pollmann) and the Piera-Barcelona observatory Spain (Guarro). The signal-to-noise (S/N) in the continuum near the HeI 6678 Å line was always higher than 1000 (higher than 1500 in most spectra). We found that this variability has a period of 280 d with a clear orbital independency.
   Published as IBVS No. 6103
   Preprints: http://astrospectroscopy.de/IBVS_6103.pdf

2) **Monitoring of Hα emission strength and photometric V magnitude of gam Cas *(ongoing investigation)***
   Members of the ARAS spectroscopy group has been observing the Hα emission line strength of the disk of the Be star gamma Cas from the year 1994 up to today (2014). By using the photometric Vmag measures of G. Henry for the time period JD 2451085 to JD 2456702, we were able to study the correlation of Hα equivalent width EW versus V magnitude.
   Newer correlation model calculations of Hα and UBV for Be stars with increasing disk sizes and/or increasing disk density of Sigut & Patel did lead to good conformities of positive and negative correlations between long-term variations in Hα and V brightness with well known Be stars. The authors stressed expressly the necessity of real observations for the examination of calculations of such a model.
   Report submitted at IBVS.
   Preprints:
   http://astrospectroscopy.de/Halpha%20emission%20and%20V%20magnitude%20in%20gamma%20Cas.pdf

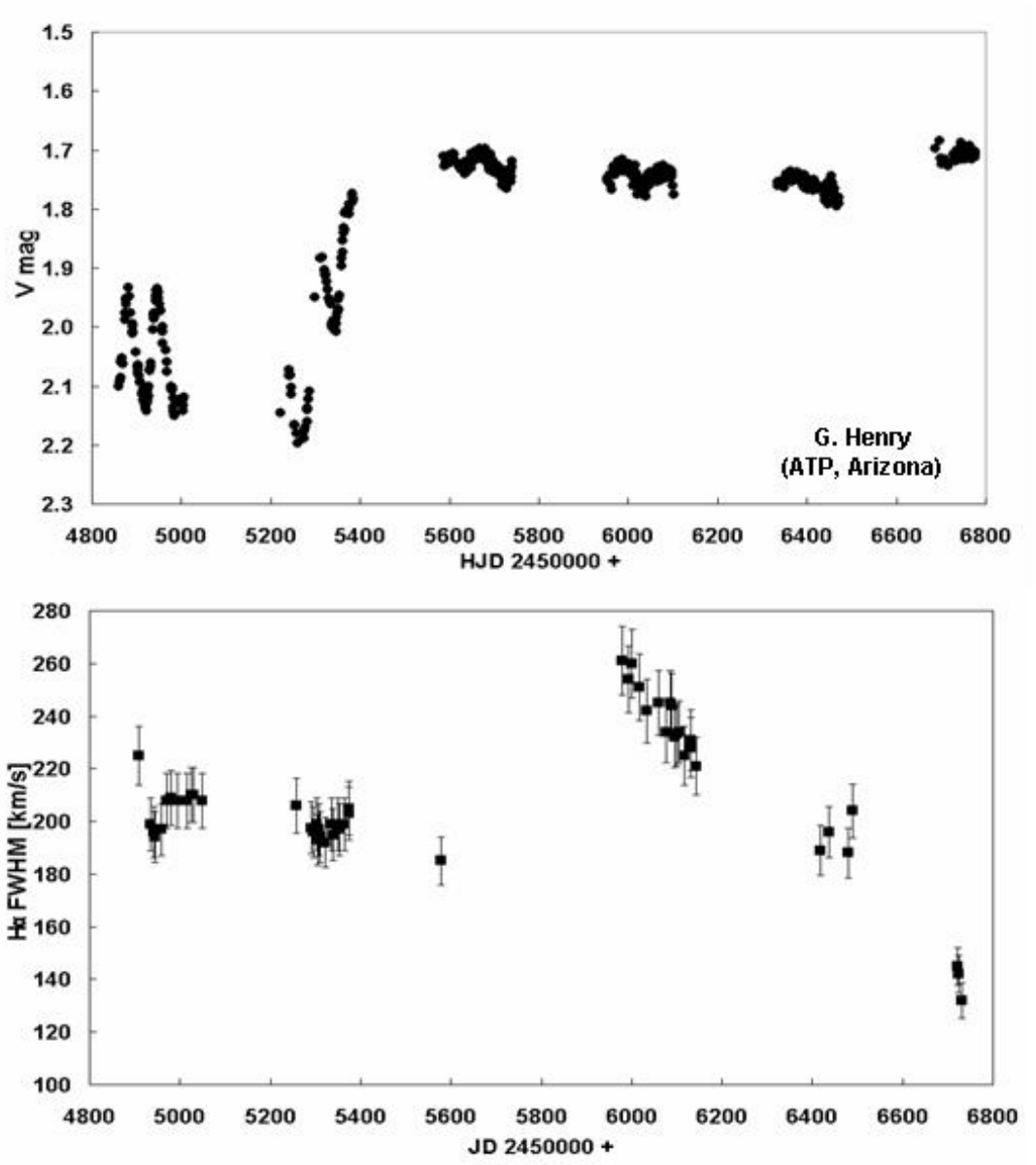
3) **Periodic behavior of the He I 6678 emission in delta Sco *(ongoing investigation)***
   The He I 6678 line double-peaked profile exhibits a variable V=R ratio. For the first time it was possible to monitor the entire cycle of the V=R variations in 2009. In the earlier seasons, merely the descent could be measured. On this occasion I would like to emphasize particularly that, amongst others, members of the ARAS group made a significant contribution to the frequent observations. The V=R measurements of the five cycles presented here permitted an analysis of its possible periodicity. Th. Gandet, Th. Rivinius and E. Pollmann independently calculated the following periods:
   Gandet: 535 d
   Rivinius: 536 d
   Pollmann: 541 d
   Further information see:
   http://astroweb.iag.usp.br/~activebstars/images/BeSN_archive/benews40.pdf

4) The current state of delta Scorpiï s circumstellar disk ***(Fig. bottom shows the ongoing investigation)***

The Hα-emission line profiles resulting from a rotational motion in Be star envelope. On basis of a calibration of the effective rotation velocity of the star (vsini) with the half maximum intensity (FWHM = full width half maximum) of the spectral line, this FWHM (in km/s) is used as measure for the projected rotation velocity of the disk gas.

The orbital velocity v of the gas rotating around the star in the envelope decreases with increasing distance from the star according to Kepler´s third law $v \sim r^{(-0.5)}$. Higher velocity corresponds to smaller distance from the primary and vice versa.

Further information: http://astrospectroscopy.de/State_of_delSco_disk.pdf



The study contains the investigation of the correlation between the total brightness of delta Sco and the disk diameter as Halpha FWHM.