

## THE BE STARS SPECTRA (BESS) DATABASE

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**Abstract.** We present the Be Star Spectra (BeSS) database, which contains a catalogue of all known Be stars and a large collection of their spectra of any wavelength and from various sources, from amateur astronomers to professional high-resolution echelle spectra.

### 1 Be stars

Be stars are non-supergiant B stars that at least once have displayed Balmer line emission. This property applies to about 20% of all B-type stars in the field of our galaxy and can concern an even larger fraction of B stars in other environments. Some late O and early A stars also show such emission and are considered as an extension of Be stars. The phases of emission in the optical and infrared lines of hydrogen and several ions most likely reflect changes in the structure of the circumstellar envelope created by episodic ejections of mass. The origin of this phenomenon, called the *Be phenomenon*, is still unexplained but probably related to the high rotational velocity of Be stars, their pulsations and/or the presence of a magnetic field.

Be stars undergo variations at all timescales. First of all, rapid periodic variations are related to pulsations and rotation. Moreover, long-term variations are associated to the stellar wind and the disk. Finally, ejections of material from the star into the disk produce sudden episodic variations. Therefore, neither two Be stars nor two spectra of a given Be star are identical. Although the short-term variations of Be stars can be easily studied by observing them during a few days or weeks, the study of longer term phenomena requires the collection of data over several years or decades. This is why it appeared important to put all available spectra of Be stars in one place, in one unique format, together with all relevant information for the analysis, and to allow easy exchanges of spectra between professional and amateur astronomers.

### 2 BeSS

BeSS is accessible at <http://basebe.obspm.fr> or via the Virtual Observatory (see Fig. 1). BeSS is a new tool to be used by the whole community working on Be stars. It collects available Be stars spectra from any epoch, any wavelength, any resolution and any Be star, obtained by professional as well as amateurs astronomers. It also contains a catalogue of all known ( $\sim 2000$ ) Be stars. This catalogue will soon also include the stellar parameters of all these Be stars.

BeSS is a two-way database: data can be retrieved (see query page on Fig. 2) and spectra can also be uploaded. It thus allows the whole community to share data on Be stars. Queries can be performed either by star name or by parameters (e.g. stellar magnitude, coordinates, site of observation,...). Anyone can query the database to obtain either a list of Be stars or a list of Be star spectra to be downloaded. The user can also obtain additional information about the stars, spectra, instruments, sites of observation and observers. Professional or amateur astronomers in possession of Be star spectra can also upload them in BeSS to enrich the database. The format of the spectra is automatically checked at upload and its scientific content is checked by the administrators. The spectra uploaded in BeSS must follow the BeSS format specifications, i.e. they must be SIMPLE FITS spectra with a header including at least a few mandatory keywords. Moreover, while uploading spectra, the user is asked for details concerning the instrument used to obtain the spectra, the observation site and the author(s) of the spectra, if these details are not yet registered in BeSS. For more details on BeSS, see Neiner et al. (2007).

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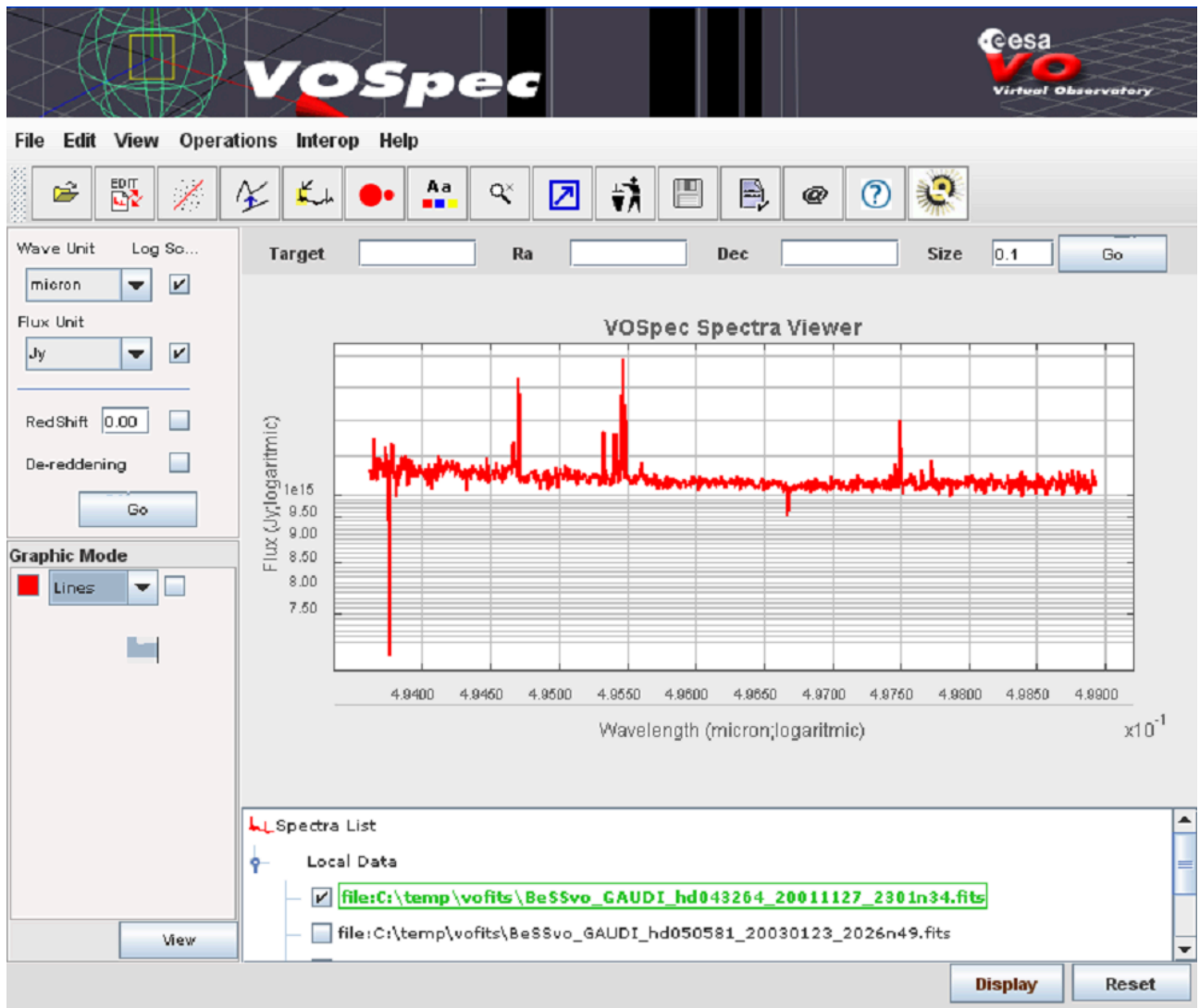


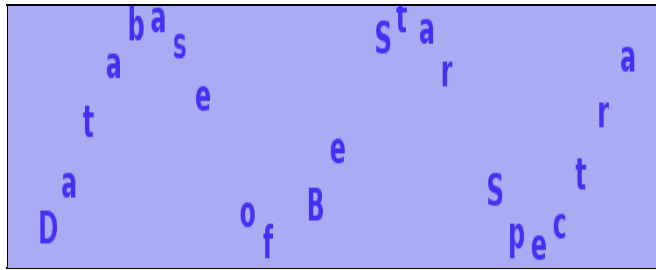
Fig. 1. Screenshot of a BeSS spectrum displayed via the Virtual Observatory (VOSPEC)

### 3 Future developments

The version of BeSS currently available is version 1.0. A new version including additional features is currently under development. This version 2.0 will include in particular a graphical visualisation of the spectra to allow a quick check of the spectra before download.

### 4 Conclusions

The first version of the BeSS database is accessible online at <http://basebe.obspm.fr> or via the Virtual Observatory. It includes a catalogue of all currently known Be stars (soon with their parameters). It also already contains more than 33000 spectra of these stars and several hundred thousands of them will be added in the near future. This collection of spectra will allow the community to study the long-term phenomena observed in Be stars.



**Menu**

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**Member Zone**

Observer  
  
 Password

**Visits**

3734 visitors  
 since February  
 26, 2007

**This page allows you to query the database for Be stars spectra. Warning: when a parameter (e.g. vsini) is used in a query, only spectra for which this parameter is defined in BeSS are returned.**

## Spectra query

There is currently 33186 Be stars spectra in BeSS

Be star <input style="width: 150px;" type="text"/> RA ( $\alpha$ ) <input style="width: 30px;" type="text"/> h <input style="width: 30px;" type="text"/> m <input style="width: 30px;" type="text"/> s DEC ( $\delta$ ) <input style="width: 30px;" type="text"/> d <input style="width: 30px;" type="text"/> ' <input style="width: 30px;" type="text"/> "	<input type="button" value="this star only"/> <input type="button" value="around this star"/>
V magnitude between <input style="width: 40px;" type="text"/> and <input style="width: 40px;" type="text"/>	
Spectral type between <input style="width: 40px;" type="text"/> and <input style="width: 40px;" type="text"/>	
Vsini between <input style="width: 40px;" type="text"/> and <input style="width: 40px;" type="text"/> km/s	
Observations date between <input style="width: 60px;" type="text"/> and <input style="width: 60px;" type="text"/> (AAAA-MM-JJ)	
Source <input style="width: 100px;" type="text" value="PROS &amp; AMATEURS"/>	
Observer <input style="width: 150px;" type="text" value="All"/>	
Instrument <input style="width: 150px;" type="text" value="All"/>	
Wavelength domain between $\lambda_1 =$ <input style="width: 60px;" type="text"/> and $\lambda_2 =$ <input style="width: 60px;" type="text"/> Å	
Site <input style="width: 150px;" type="text" value="All"/>	

Fig. 2. Screenshot of the query page of BeSS.

**References**

Neiner, C., de Batz, B., Mekkas, A., Cochard, F., Martayan, C., Floquet, M., & Hubert, A.-M. 2007, A&A in press