PolarBase

A data base of high resolution spectropolarimetric stellar observations

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http://polarbase.irap.omp.eu

Data providers

ESPaDOnS@CFHT, NARVAL@TBL

(twin spectropolarimeters)

- Classical spectrocopy (R= 65,000 – 76,000)
- Optical domain (370 nm – 1,000 nm)
  (including e.g. CaII H&K, Halpha, CaII IRT)
- Polarimetry (circular and/or linear)

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Database content

- All stellar (public) data, in their reduced form
  (ASCII format through web interface, FITS format through VO)

- Cross-correlation pseudo-line profiles
  (using SIMBAD spectral type and assuming MS star of solar metallicity)

Standard VO definition of such models?
(normalized Stokes parameters as a function of radial velocity)

Data volume

- 2014 :
  ~ 160,000 spectra / 2,000 stars (2 To)

- 2017 (expected) :
  ~ 240,000 spectra / 3,000 stars (3 To)

- 2020 (expected, including SPIRou) :
  ~ 400,000 spectra / 5,000 stars (5 To)

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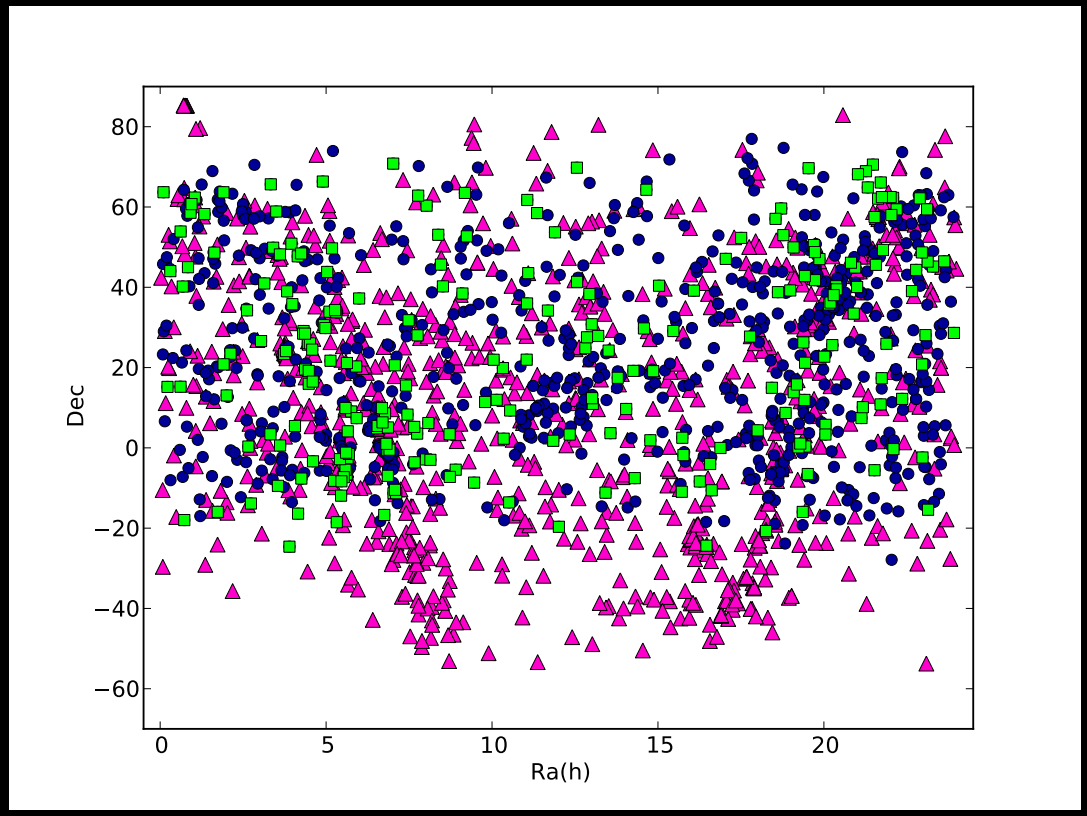
PolarBase sky

- ~2,000 objects
- Denser sampling along Milky Way

- ESPaDOnS (alone) in pink
- NARVAL (alone) in blue
- ESPaDOnS+NARVAL in green



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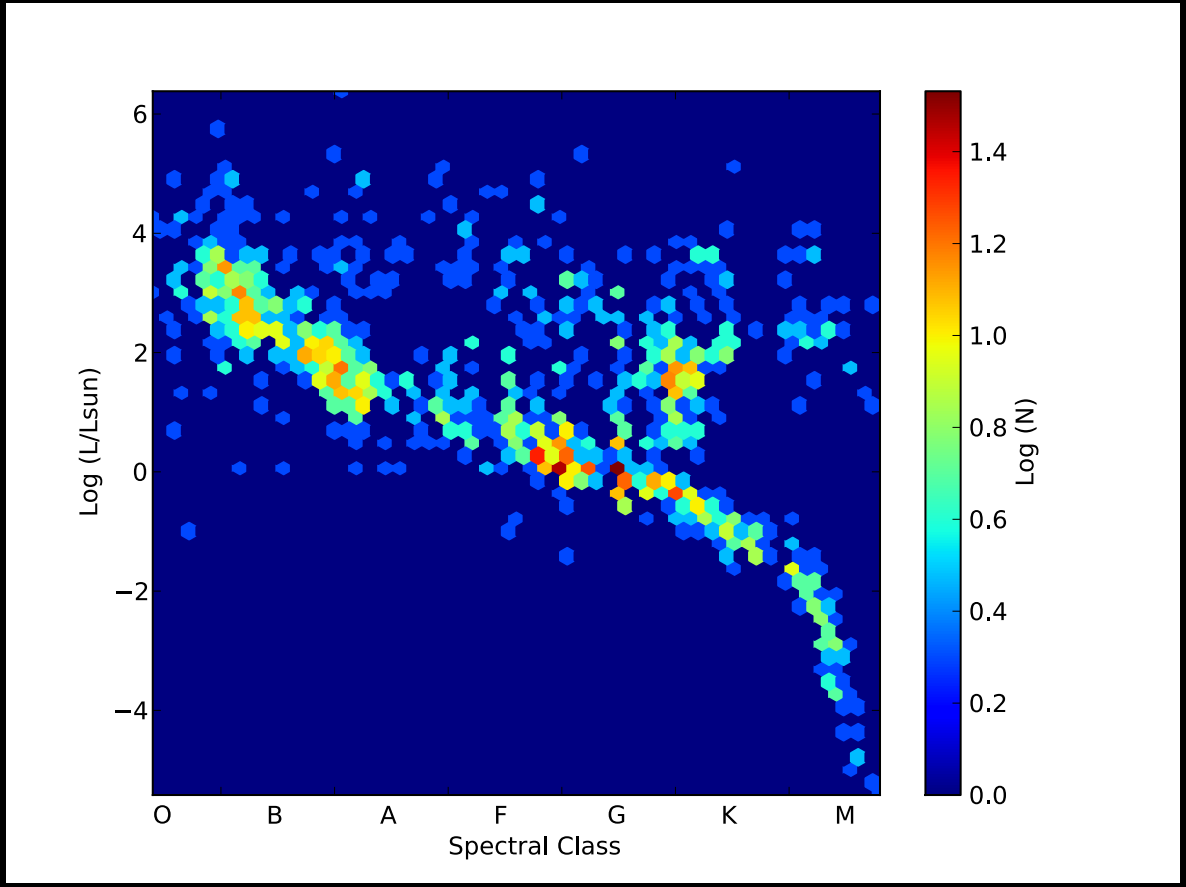
HR Diagram

(SIMBAD) spectral types : O4 to M8 (60% cooler than F5)

- Main sequence
- TTS
- Evolved objects



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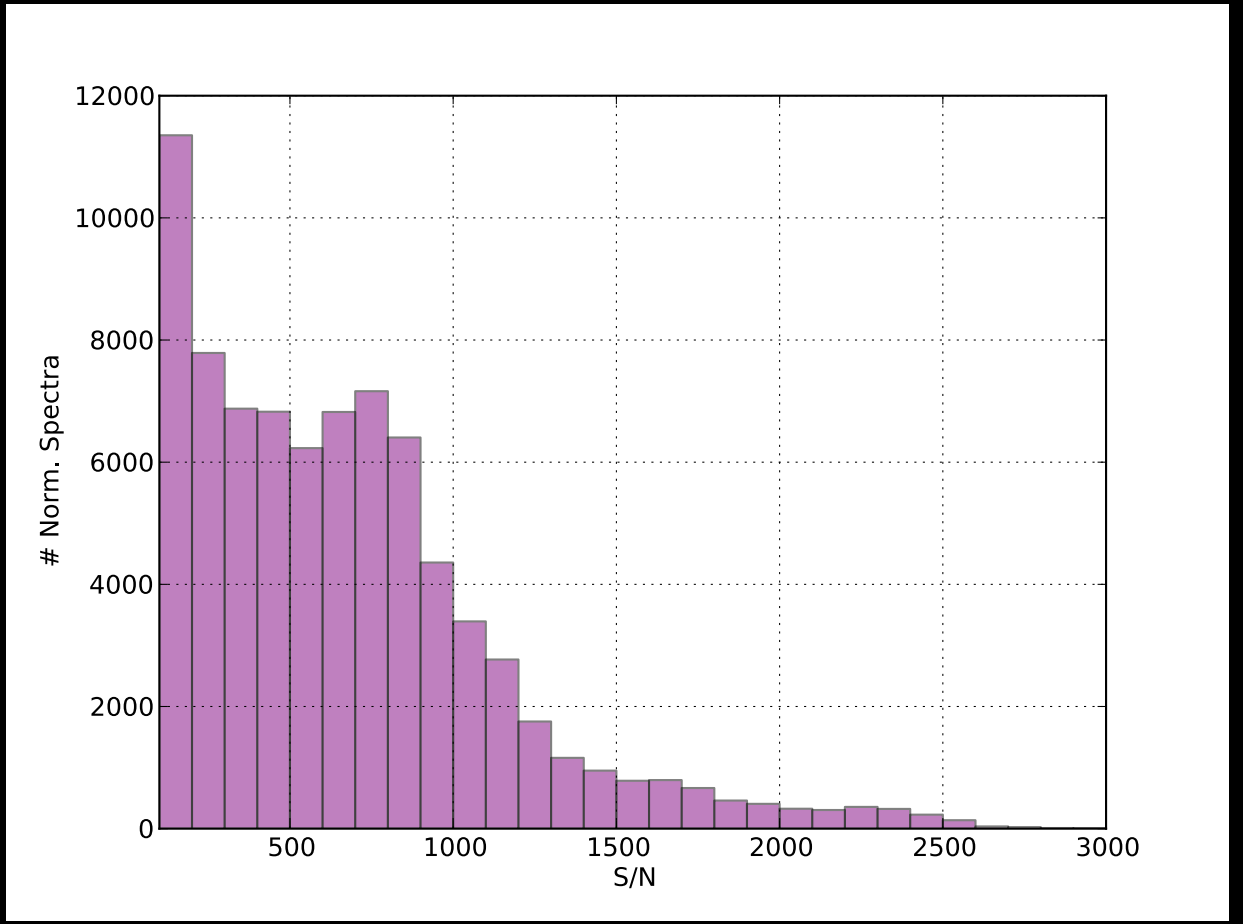
S/N ratio

- 58% of data with S/N > 500
- 18% with S/N > 1,000



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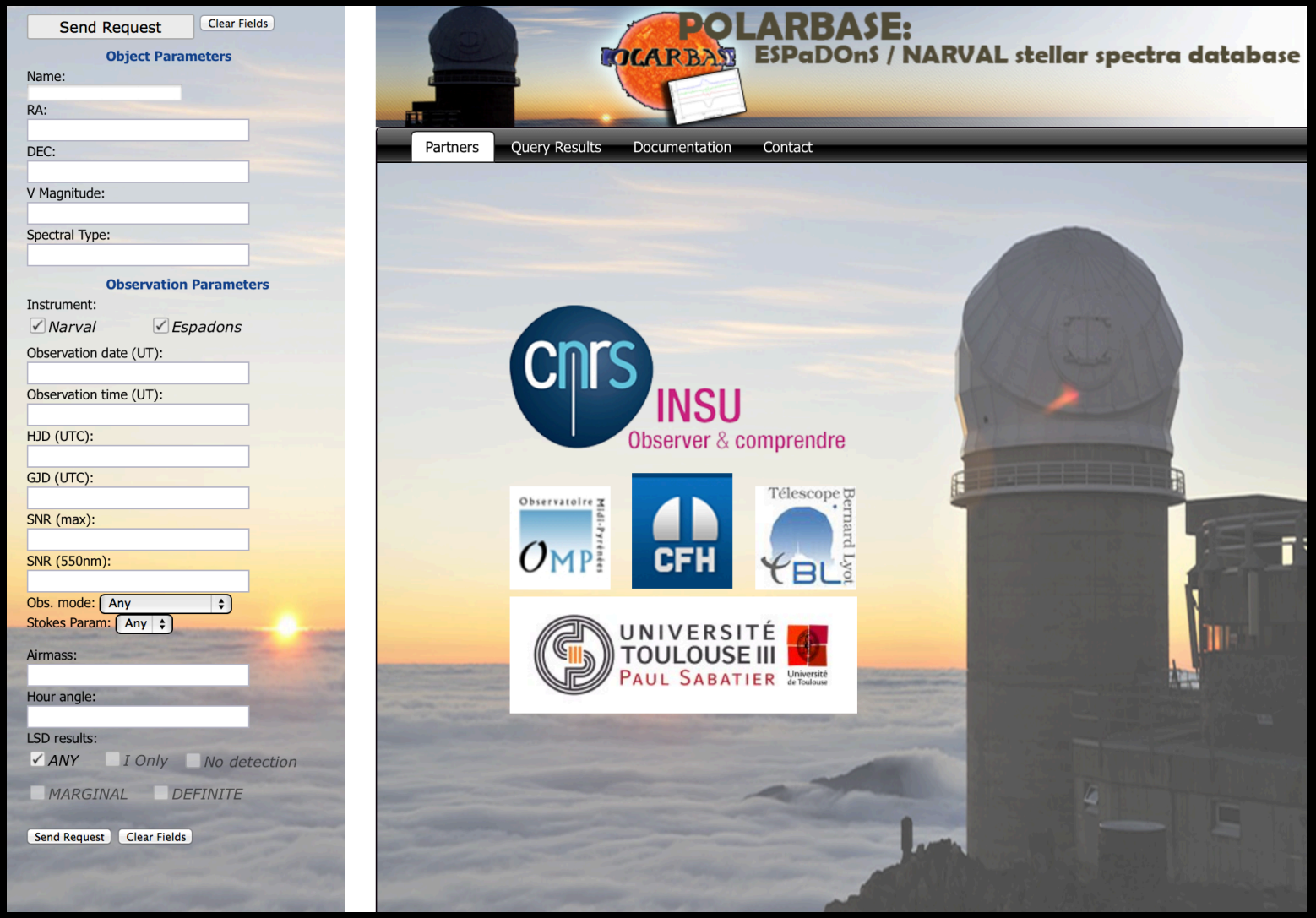
Web interface



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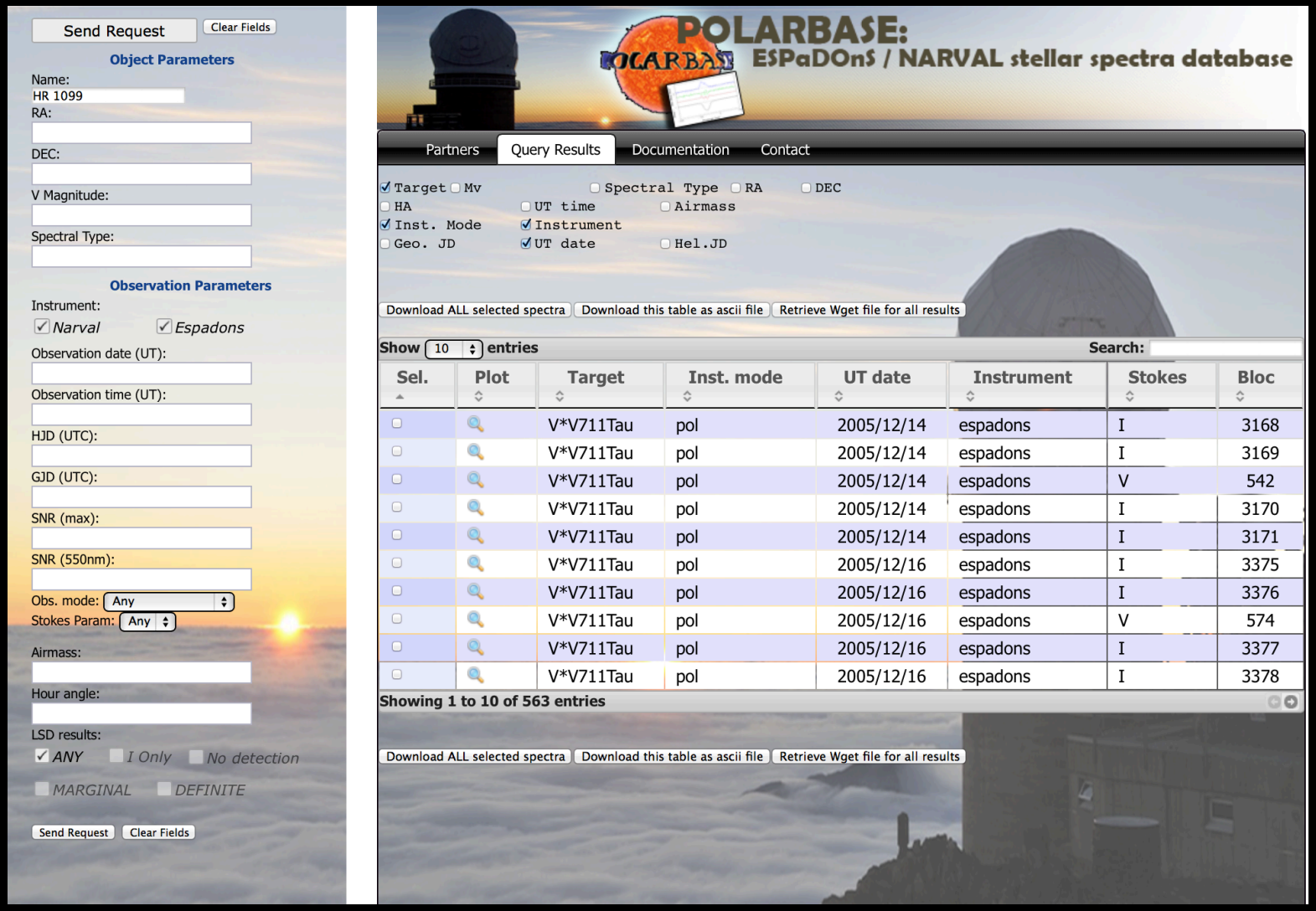

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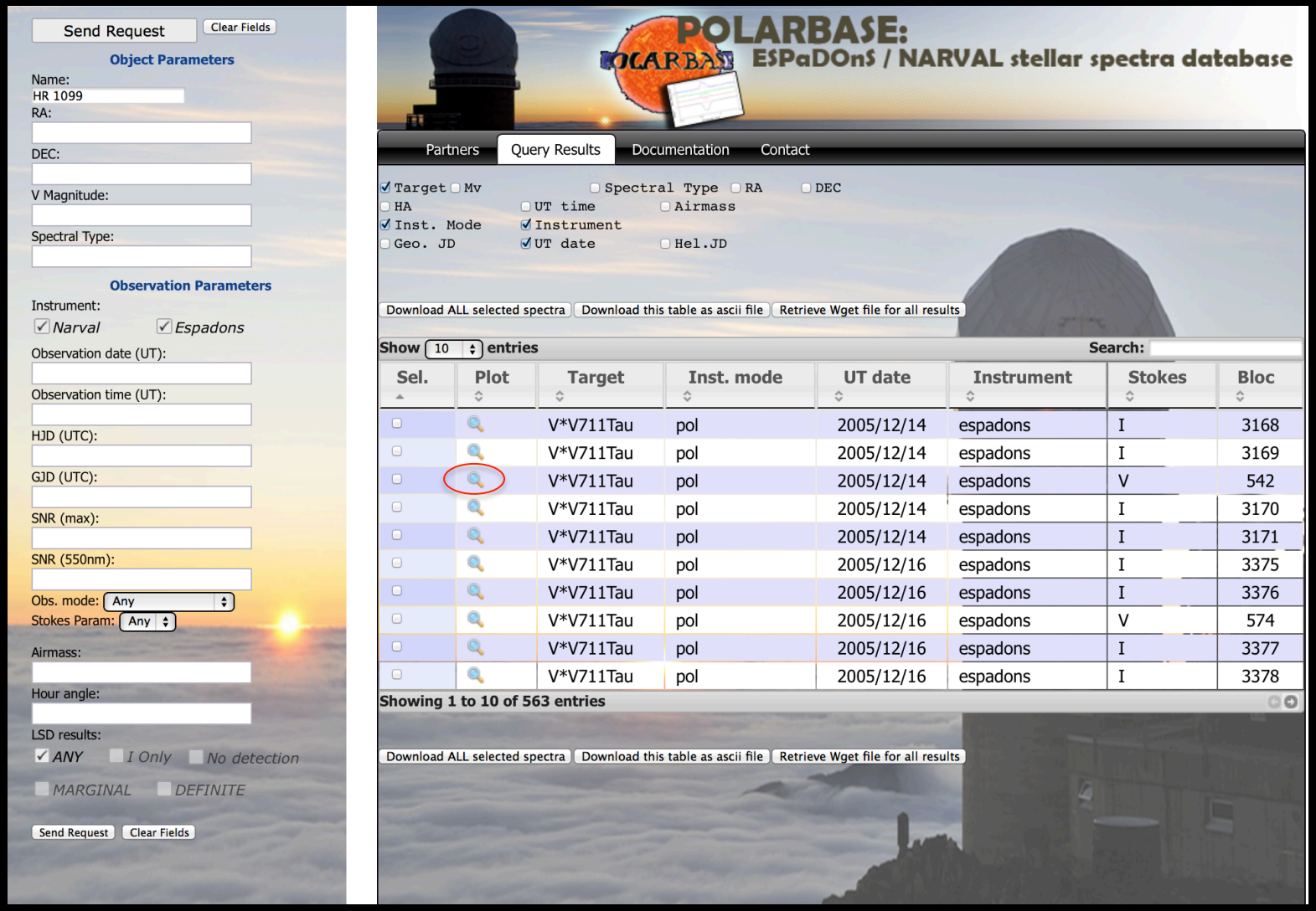

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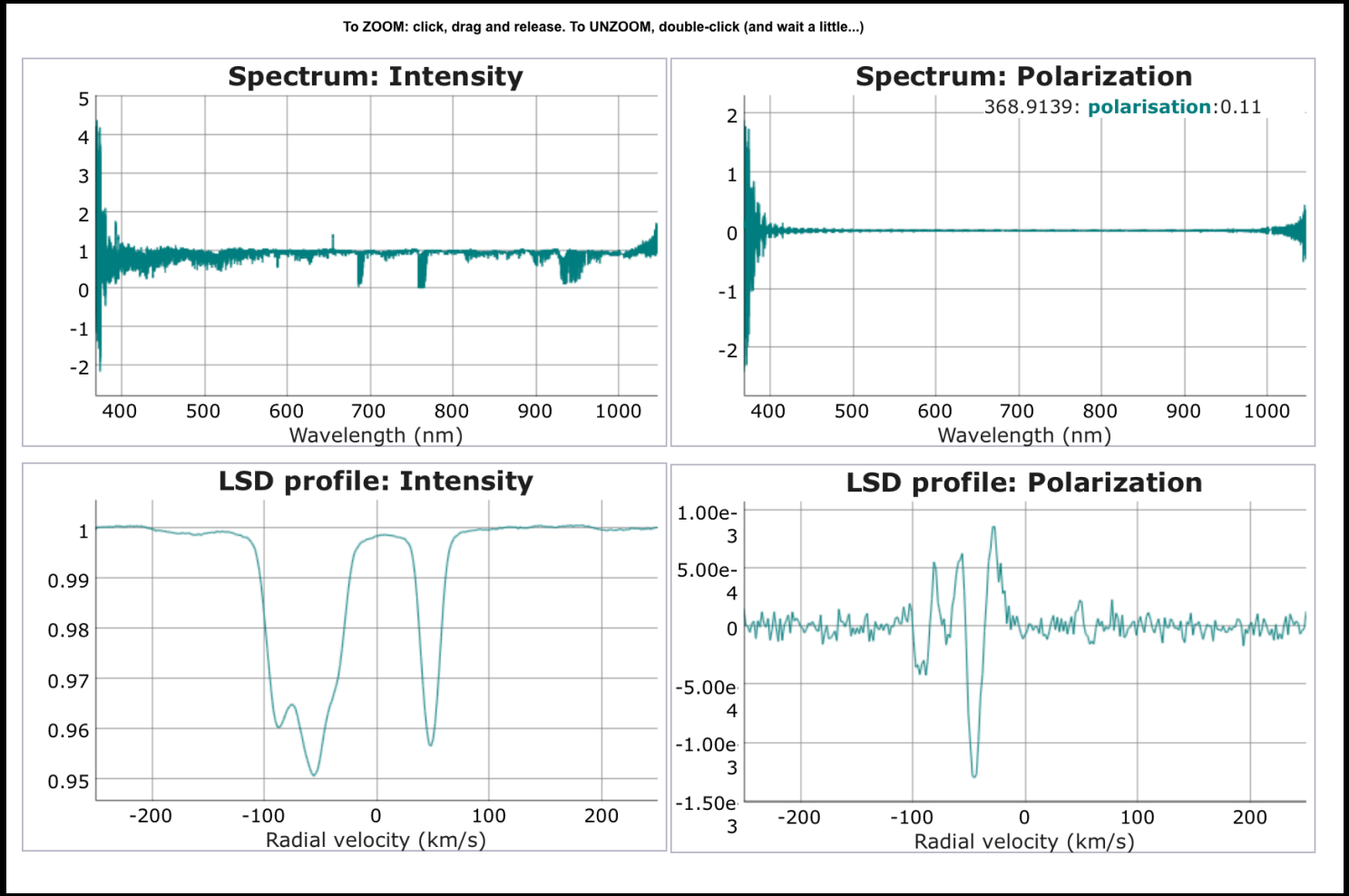

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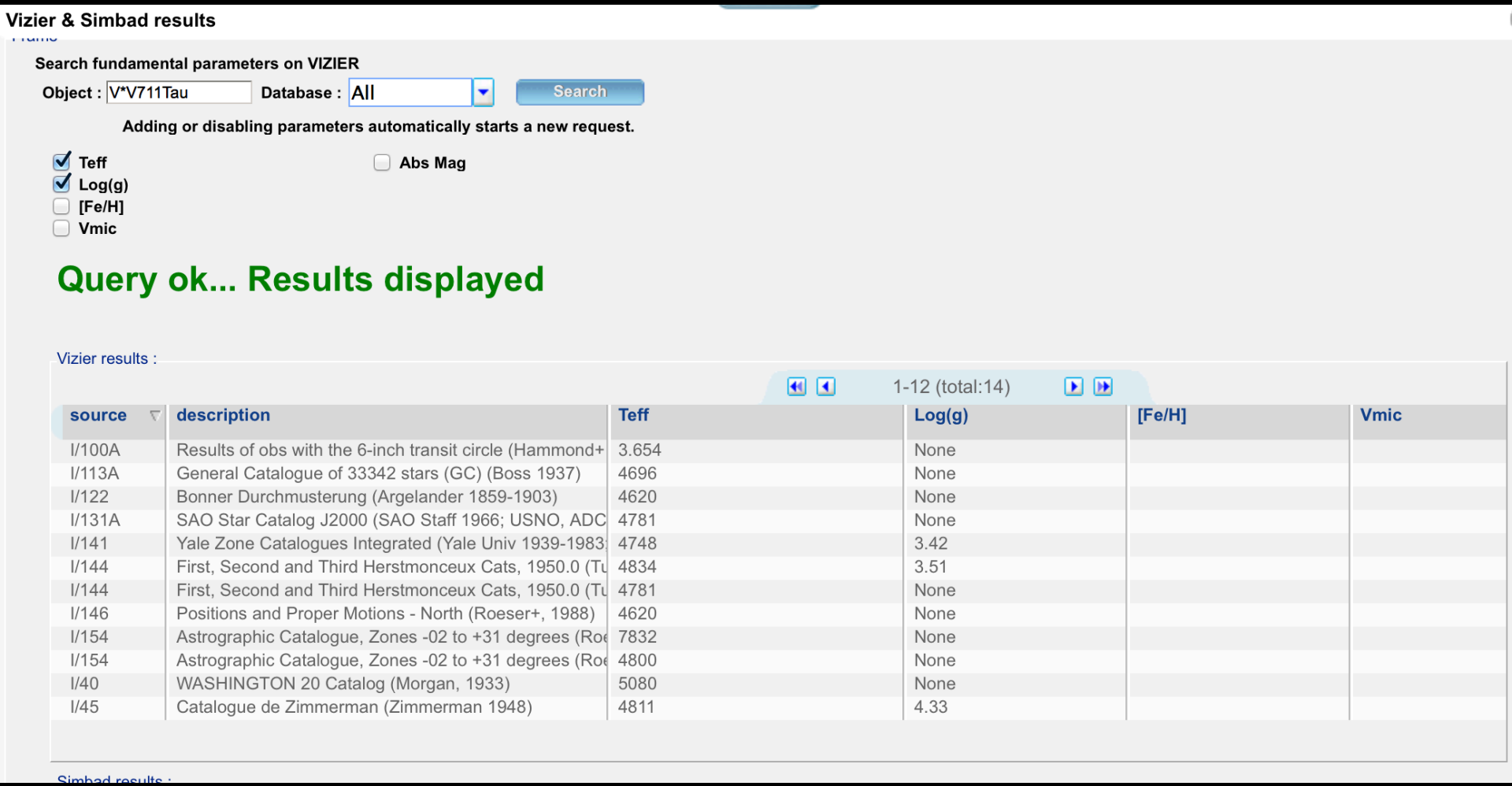

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Web interface

Simbad results :

description	Value
Raw identifier as typed in the query	V*V711Tau
Angular distance from the center	none
object creation date	30-Sep-2006
Object last modification date	20-Sep-2013
Object internal identifier	@663971
Old Object Identifier (in Simbad3)	@144830,0
Coordinate box	4798
Main identifier for an object	V* V711 Tau
Object type	RSCVn
Right ascension	054.19704324
Declination	+00.58775909
Proper motion in RA	-31.45
Proper motion in DEC	-162.87
Parallax	32.59

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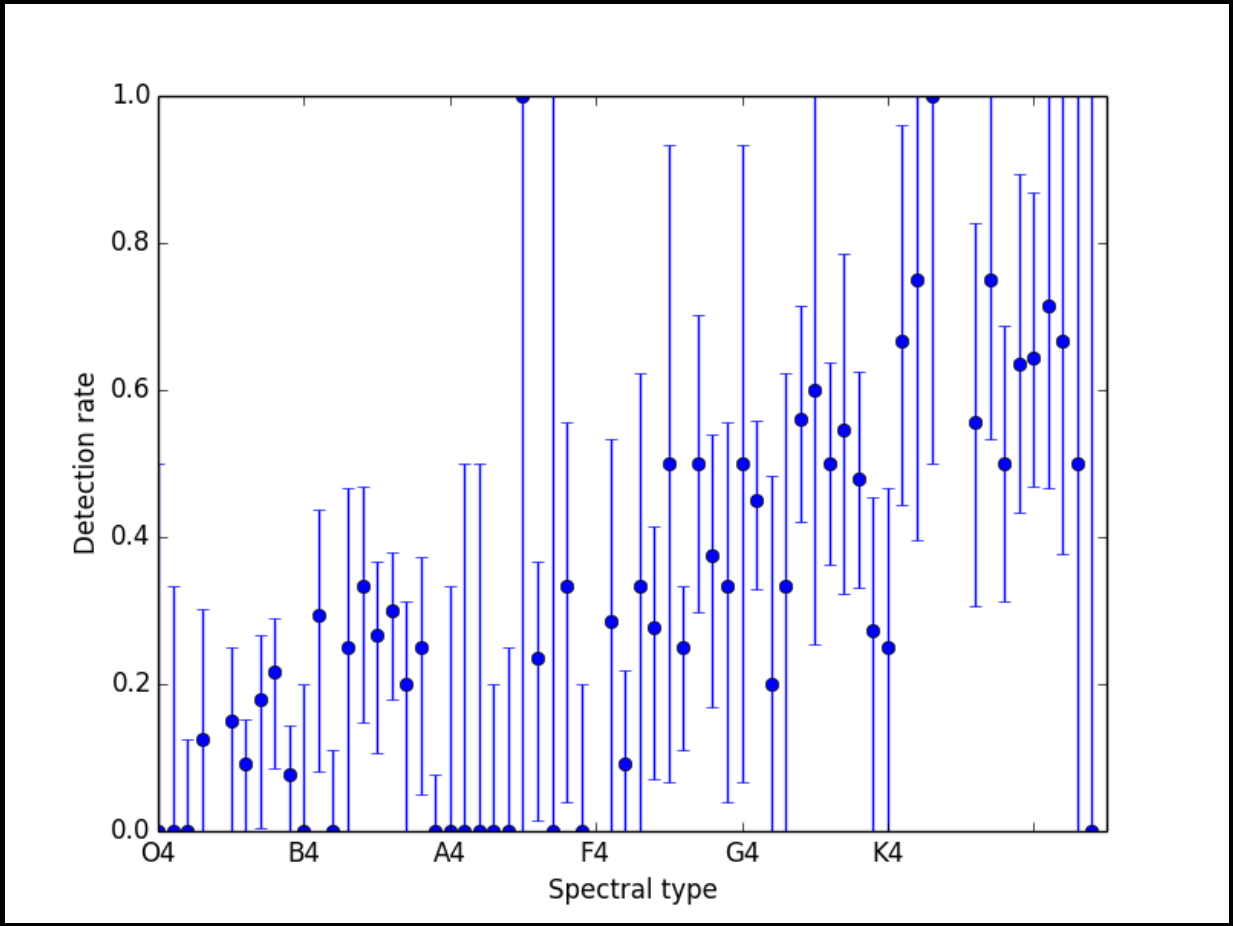
Magnetism across HR diagram

- ~300 magnetic stars
- Detection rate anti-correlated with Teff



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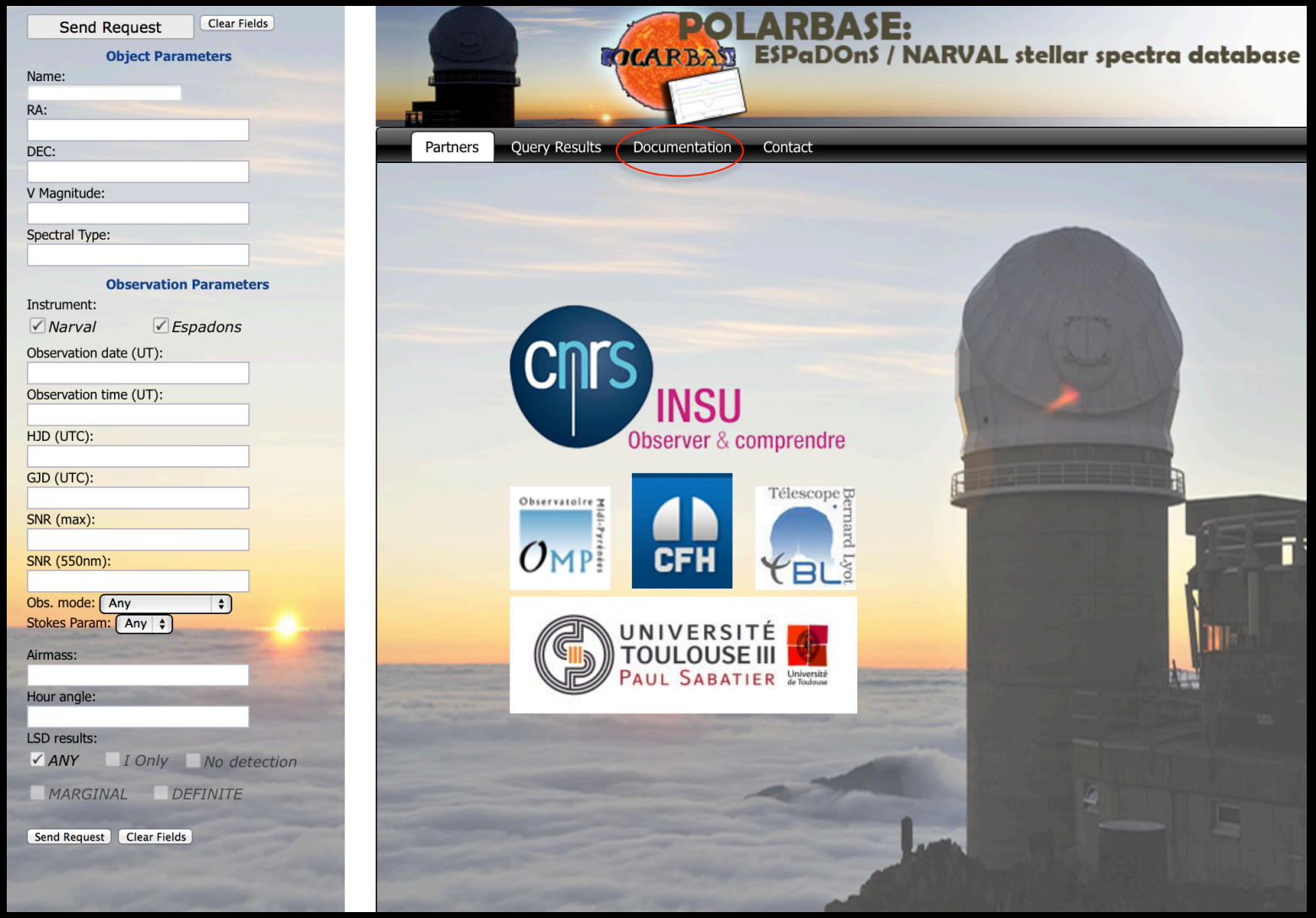

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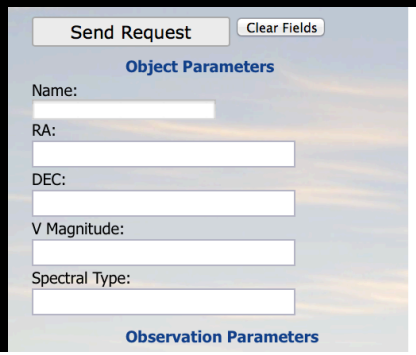

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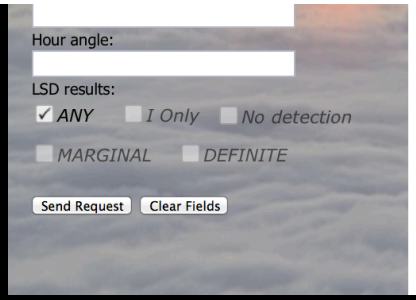

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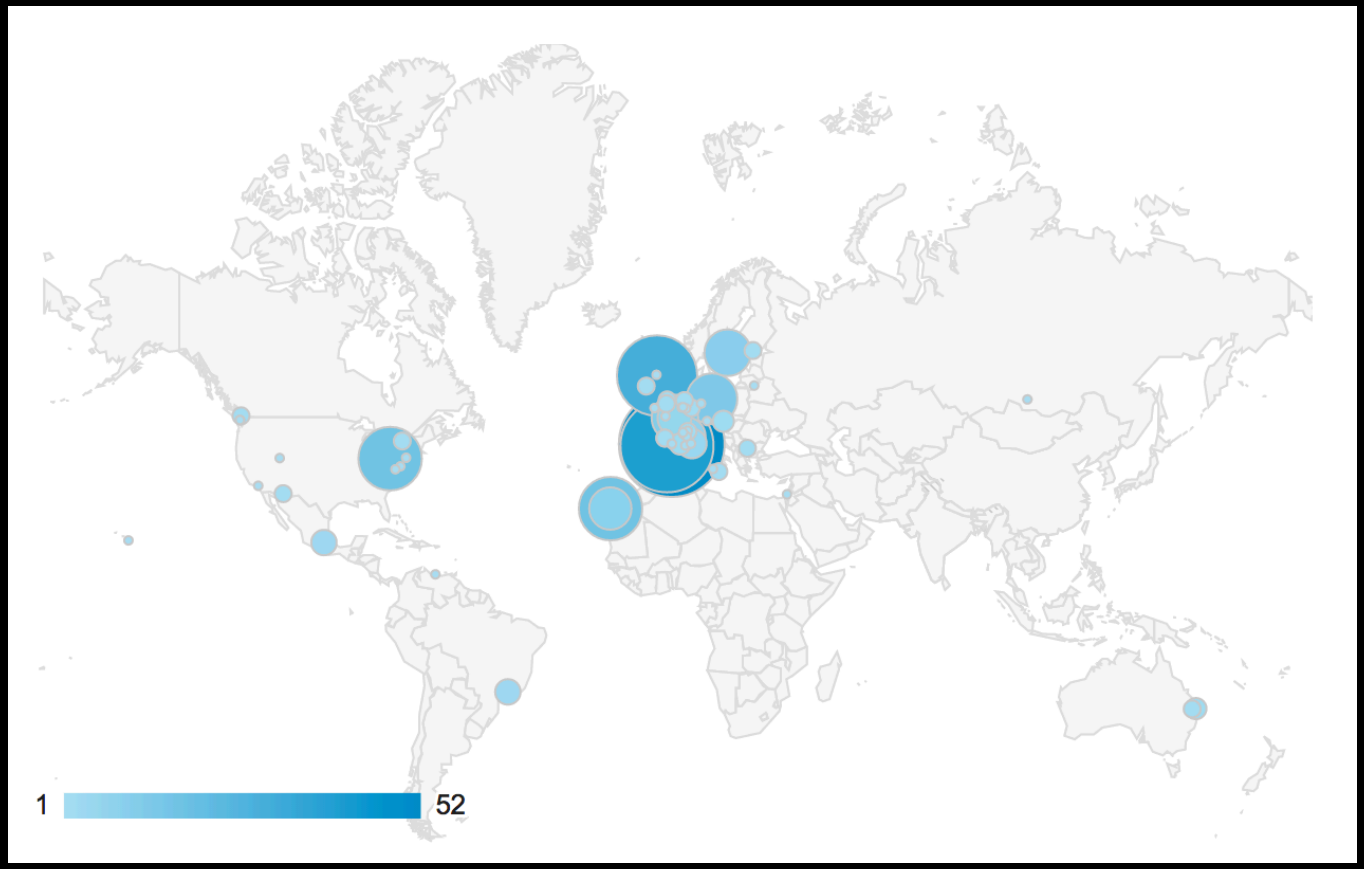
Traffic statistics

- Google Analytics: interface traffic
- Homemade python scripts: download statistics (who downloads what)



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Future plans

1. Offer Bl & Radial Velocities from LSD profiles
2. Offer S-index from Stokes I spectra

→ VizieR storage of measurements

Future plans

1. Offer Bl & Radial Velocities from LSD profiles
2. Offer S-index from Stokes I spectra
3. Get spectral classification tool (at least for FGK stars)
4. Explore inter-operability with POLLUX
5. Set up Australian mirror (USQ)
6. Get data from other instruments SemelPol, MuSiCoS.