

# Maturity of current SSAP for Stellar Spectroscopy

(Experience of building VO-compatible spectra archive)

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# Outline of the talk

Scientific motivations for cutout service

HEROS archive - Pleinpot

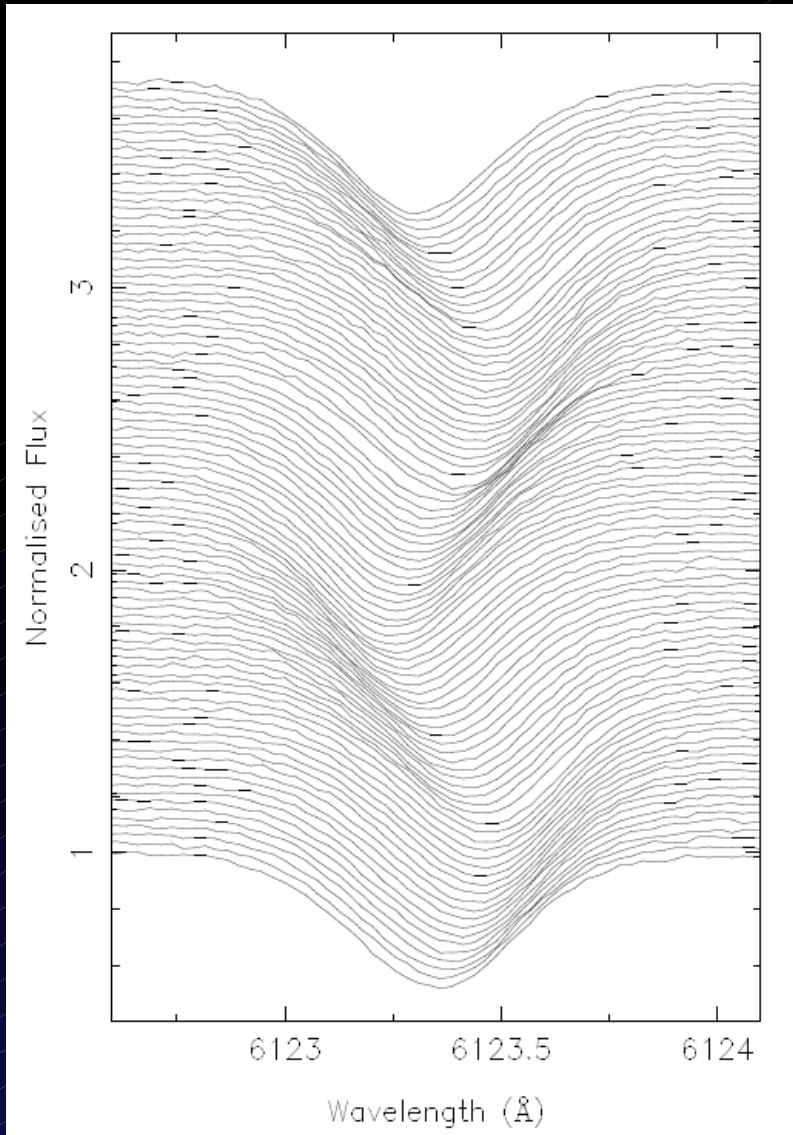
Spectra cutout - implementation

Handling normalized spectra

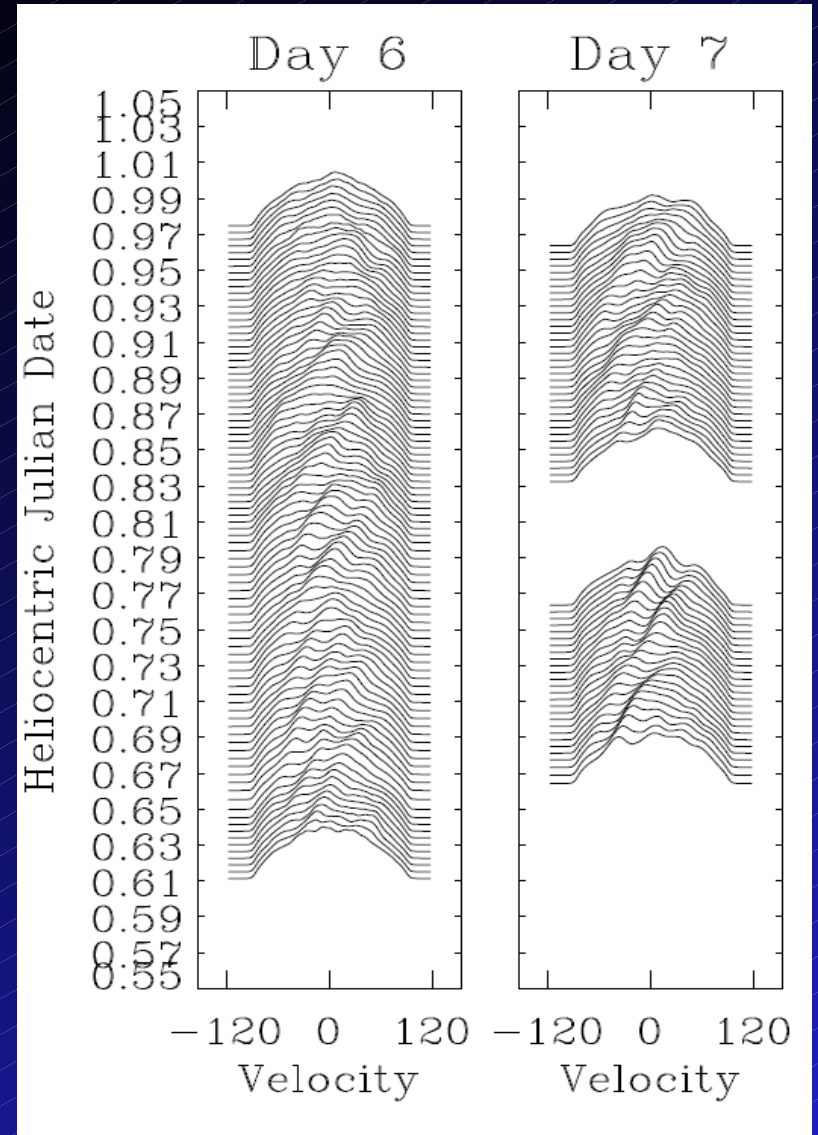
Killer use case for cutout service

DEMO

# Measured Pulsations

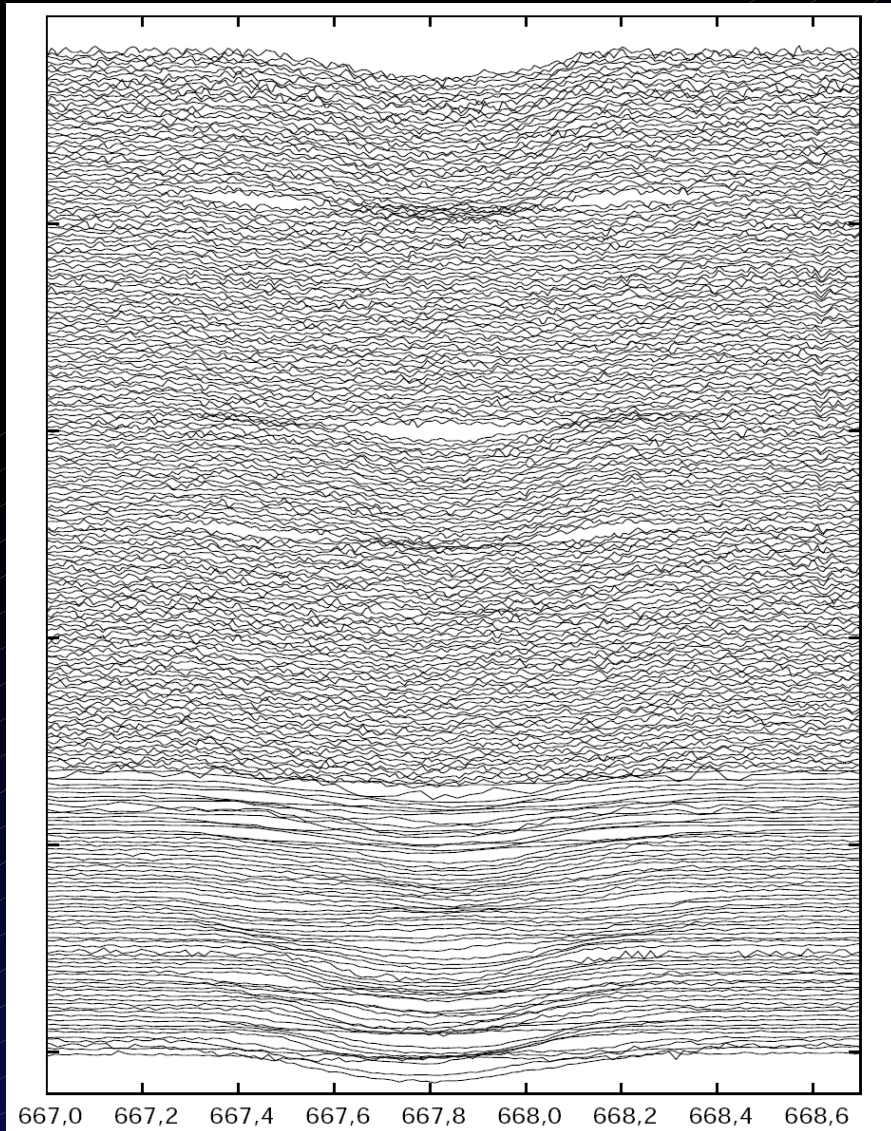


Rho Pup - Aerts



Eps Cep - Aerts

# Many spectra overplotted to find cuts



Postprocessing - KOREL

Limited performance !

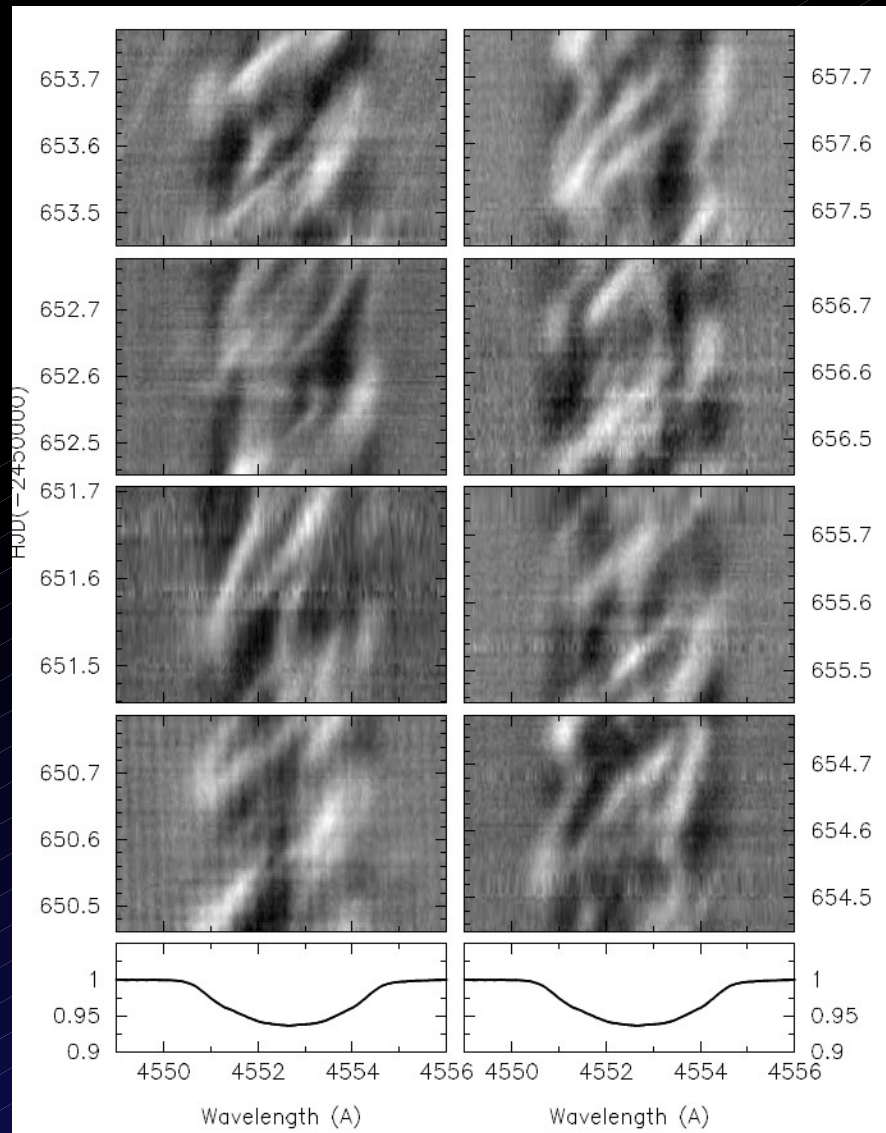
Really 100-1000s spectra

Small regions

Stack or overplot

Check ranges before FFT

# Dynamic Spectra



Small details of line

Differences/Ratios map to gray values

Time, HJD , bins

Many spectra – series !

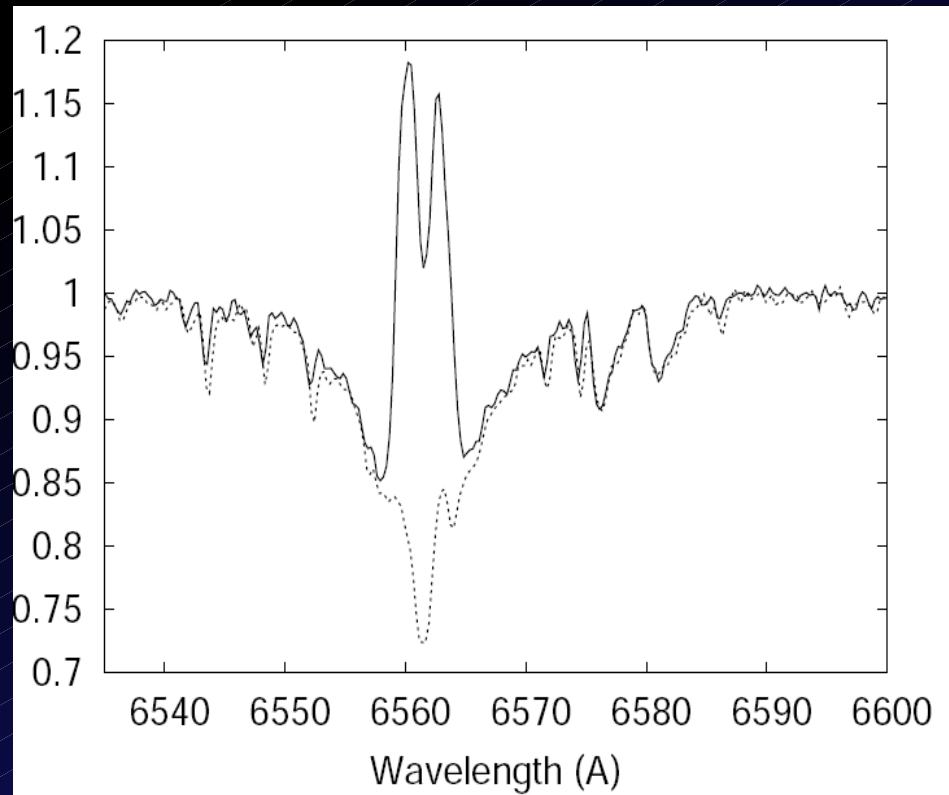
# Changes of Line Profiles in Time

Blind comparison of different exposures

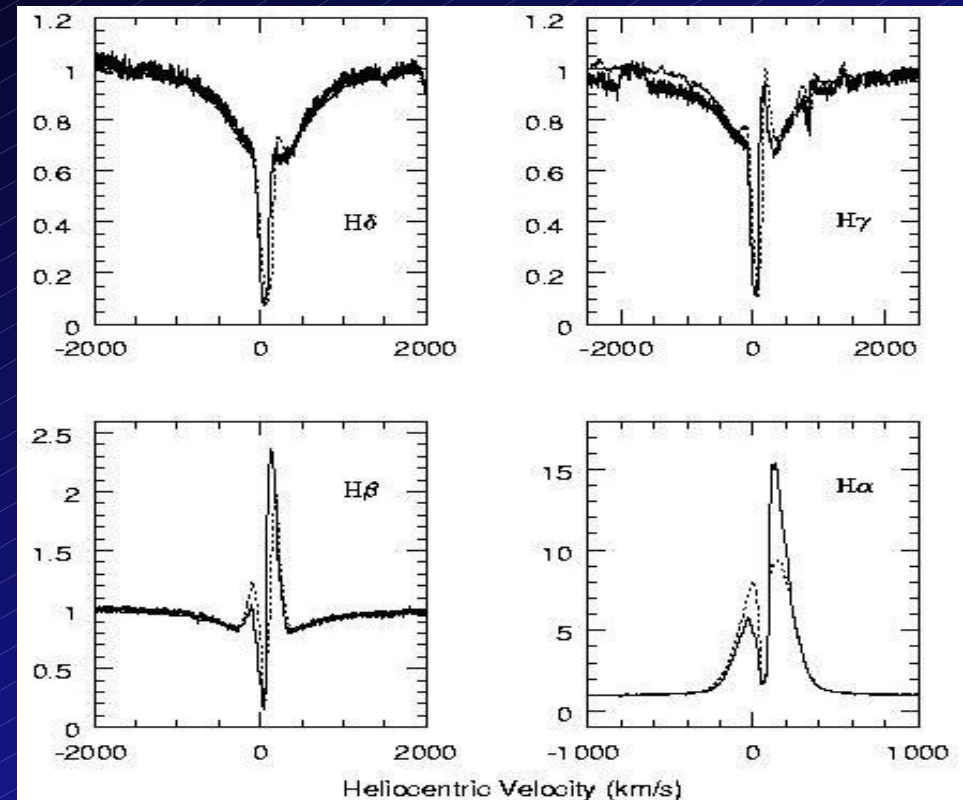
Emission/absorption, shell phases

Time evolution of object – mass transfer,

V/R variations



HD6226 : Slechta and Skoda 2004



Borges et al. 2008

# HEROS Archive

~6000 spectra 2000-2003 HEROS at 2m

R~20000, LSW Heidelberg (Kaufer)

2 channels : 3700-5600Å, 5800-8400Å

Pipeline processed – merging bad

Rebinned to  $\Delta\lambda = 0.1\text{Å}$

No maintenance – closed project

Hot stars – compare with Elodie !

Use ELODIE archive system -Pleinpot (PP)

# (HEROS) Spectra Cutout Service

## Motivations:

Scientific - study 1 line in detail

Transport speed issues – huge data flow!

Practical – echelle orders not merged

## Implementation:

In Pleinpot (P. Prugniel, GIRAFFE, ELODIE)

Not only server but postprocessing

Remote URLs, metatables, interactive web

Clients – best SPLAT

BAND, (TIME), (FLUXCALIB), (WAVECALIB)

TARGETNAME ! (double stars)



# Spectra Cutout Service

## Current functionality

Different ServiceURL

In Pleinpot cgi string (c=ssac)

BAND=lamba1/lambda2

Ranges – how to interpret only one value?

Select and cut (HEROS 5000-7000A)

## Future development

Orders at echelle ? ASSOCIATION, Future

Transformation

What ranges in RV ?

Rebinning necessary ?

How to give reference lambda? (param?)

# Problems

Pre – SSA (VOX keywords)

Dimensional LTM and units (old VOSpec)

FORMAT=Metadata uncomplete (Charac,  
Curation ... how to describe well ?)

Not rectified data now

Clients – SPLAT-VO, VOSpec, SpecView

Registry nightmare !! (SPLAT – voservices.net,  
VOSpec – ESA Registry)

Publishing in ESA,NVO – search - not seen

Local services in SPLAT config – nice !

# NORMALIZED spectra in VO

Most optical spectra in two versions

Raw counts (unrectified, but wavelength calib)

Normalized (1.0) – most of final reports (even artistic continuum – novae , molecular bands)

How to present in VO ?

2 files, same metadata, FLUXCALIB=NORMALIZED → other directory?

How to refer continuum curve

Ratio, reference continuum ?

# Killer spectral applications

Use VO to get 1000s spectra of the given object  
cut out regions around given lines, plot the  
lines, make a gray dynamic spectrum folded in  
time

Key for GAIA – detailed lines 8470-8740Å

Add Period analysis to fold by phase

Disentangling

Surface mapping (Doppler Imaging)

Polarimetry – several „stokes component“  
spectra