



Observations simulées

Synergie TBL Legacy – POLLUX



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Présentation de l'application VOSPECFLOW

développement effectué dans le cadre de l'OV-GSO

The screenshot shows a web browser window with the URL `cdab.bagn.obs-mip.fr/votp/votp.php?PHPSESSID=b49sh5om4se19a86aem9og0o72&TP=pollux`. The page features a header with logos for irap, LUPM (LABORATOIRE MONTPELLIER UNIVERS & PARTICULES), LAB, and CESBIO. Below the header is a navigation menu with items like OV/BDD, UM2, cours, SCIENCE, 517, CONF, PUBLI, ASTRO, OBS, jeux, Facebook, AOL.fr, Orange, Sport, ANR TOUPIES, pgplot, Google_Art, and Bateau. The main content area displays a network diagram with a central laptop and four server icons connected to it. The laptop screen shows buttons for 'Start', 'Reset', and 'Help'. Surrounding the network diagram are several data source boxes: 'LUPM: Pollux Database', 'LUPM: Convolution', 'CDS: Simbad', 'CDS: Vizier/Pastel', 'CDAB: TBL Naval Legacy', and 'OV-GSO: VOSPECFLOW space'. On the left side, there is a sidebar with 'WebSampConnector' and 'Broadcast the data' buttons, a 'Links' section, and a 'VO tools' section listing EURO-VO, VOSpec, Splat VO, and VOPlot. Below the tools are 'Databases' listed as CDAB/tblegacy and Pollux, and a 'Demo' button. A red circle highlights the text 'emploi de protocoles et outils OV' in the bottom left area.

emploi de protocoles et outils OV

Comparaison entre des spectres stellaires observés (TBLegacy) et théoriques (POLLUX)



Telescope Bernard Lyot Narval archive

Archive *Science Ready* des données spectropolarimétriques de l'instrument NARVAL du TBL.

Spectres haute résolution normalisés ou non au continu, dans le domaine spectral [375 nm; 1050 nm].

Données contenant l'information spectrale + l'information de polarisation (paramètres de Stokes).



Pollux Database for High Resolution Synthetic Stellar Spectra and SEDs

Base de données de spectres synthétiques très haute résolution ($R = 120\,000$) dans l'optique [300 nm; 1200 nm].

Spectres pour étoiles de tous types (sauf B, en cours de production).

Spectres fournis donnant le flux absolu et le flux normalisé au continu

SEDs entre 5 nm et 20 000 nm (domaine dépendant du type spectral)

Bases de données inscrites sur les registry de l'OV comme services SSAP

L'application VOSPECFLOW : ses objectifs



Spectre observé – Archives de télescope (TBLegacy)

Spectre calculé – Bases de Données de spectres théoriques (POLLUX)



Module de convolution

(macroturbulence, rotation, profil instrumental)



Observation simulée, directement comparable à la donnée NARVAL

Problème :

Spectre observé et Spectre calculé sont des fichiers de structure différente.
Leurs bases de données s'interrogent aussi avec des requêtes différentes.

Mise en œuvre : à partir d'un nom d'étoile,

Requêtes automatiques sur SIMBAD, VizieR, TBLegacy et POLLUX

Protocoles OV entre ces services OV

Module de convolution (sur des portions de spectres de 100 à 500 Å)

Interface graphique de vérification

Exportation des données sous applications graphiques OV (VOspec)

L'application VOSPECFLOW a pour but de dégrossir une analyse, ou de vérifier la nature d'une cible.

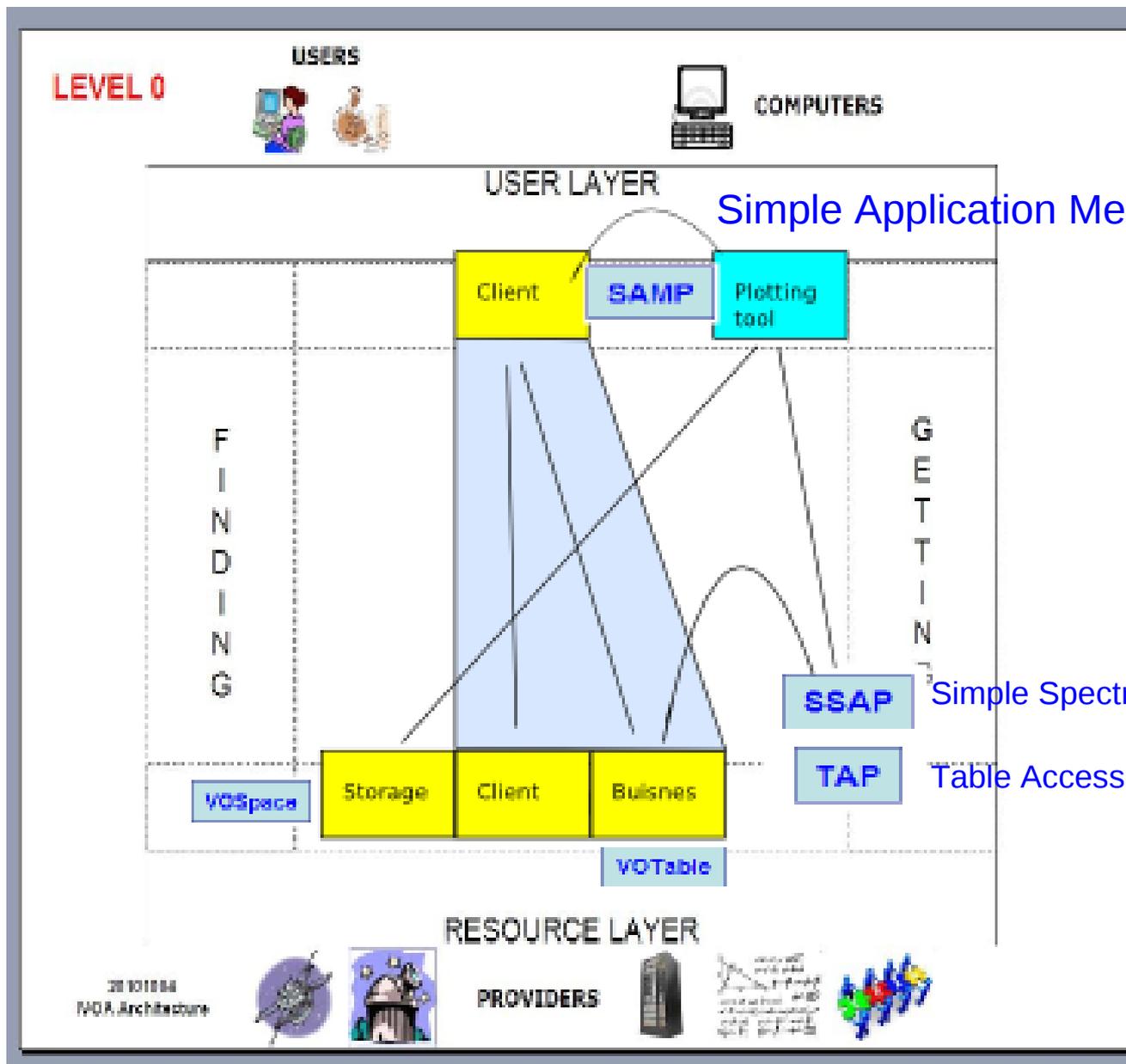
Ce n'est pas un outil de détermination automatique de paramètres stellaires.

Un objectif peut être de vérifier

l'activité d'un objet

la présence ou non de certains éléments dans le spectre

Protocoles et fonctionnement de VOSPECFLOW dans le cadre de l'OV





Wave Unit Log

Angstrom

Flux Unit

Counts

RedShift 0.00

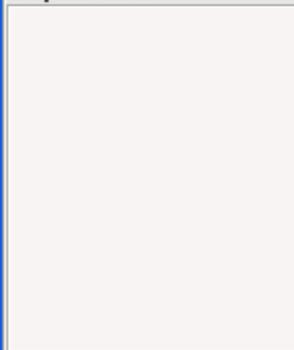
De-reddening

λ V 0.00

Y-axis error

X-axis error

Graphic Mode



View

Target Ra Dec Size

Query

HD 232862
Spectral type G8II



Spectra List

Server Selector

Query by Service
Green services are online and support params selected

- Server Selector
 - SSA Services
 - Theoretical Spectra Services

Query Outlook

Refresh Add SSA/TSA Select All SSA

Query by params

Tree

Query

- TARGET.NAME HD232862
 - Simple Query
 - POS 59.34,50.86
 - SIZE 1
 - Advanced Query
 - Service Specific Query

Insert Param Value

Point mouse on param label to see description

Text Param Add

Query Reset

RETRIEVE **Unmark All** **Reset**

Server Selector

Query by Service
 Green services are online and support params selected

- Theoretical Spectra Services
 - A High-Resolution Stellar Library for Evolu
 - Allard, COND 2000
 - Allard, DUSTY 2000
 - Allard, NextGen
 - Coelho Synthetic stellar library
 - Dalessio disk models
 - Husfeld et al models for non-LTE Helium-
 - Kurucz ODFNEW /NOVER models
 - PGos3: X-ray SSP models
 - PGos3: evolutionary synthesis models rep
 - POLLUX Database**
 - POLLUX Database(2)
 - POPSTAR with Chabrier IMF
 - POPSTAR with Ferrini IMF

Query Outlook

Refresh Add SSA/TSA Select All SSA

```

http://tblegacy.bagn.obs-mip.fr/cgi-bin/ssap/ssa_tbl?&
-----
http://tblegacy.bagn.obs-mip.fr/cgi-bin/ssap/ssa_tbl?&
-----
http://tblegacy.bagn.obs-mip.fr/cgi-bin/ssap/ssa_tbl?&
-----
http://pollux.graal.univ-montp2.fr/ssaserver/tsap?&vtu
  
```

Query by params

Tree

Query

- TARGET.NAME** HD232862
- Simple Query
 - POS** 59.34,50.86
 - SIZE** 1
- Advanced Query
- Service Specific Query
 - TBL Narval legacy
 - POS** 59.34,50.86
 - SIZE** 1
 - FORMAT
 - POLLUX Database
 - teff_min** 3000
 - teff_max** 3000
 - logg_min** -1.000
 - logg_max** -1.000
 - vturb_min** 1.000
 - vturb_max** 1.000
 - meta_min** -5.000
 - meta_max** -5.000
 - model** ALL

Insert Param Value

Point mouse on param label to see description

Text Param

Very specific requests to access to TBLegacy or to POLLUX.

Different structures for the files stored in TBLegacy and in POLLUX (number of columns, units, ...)

OV-GSO homepage

WebSampConnector
Broadcast the data

Links

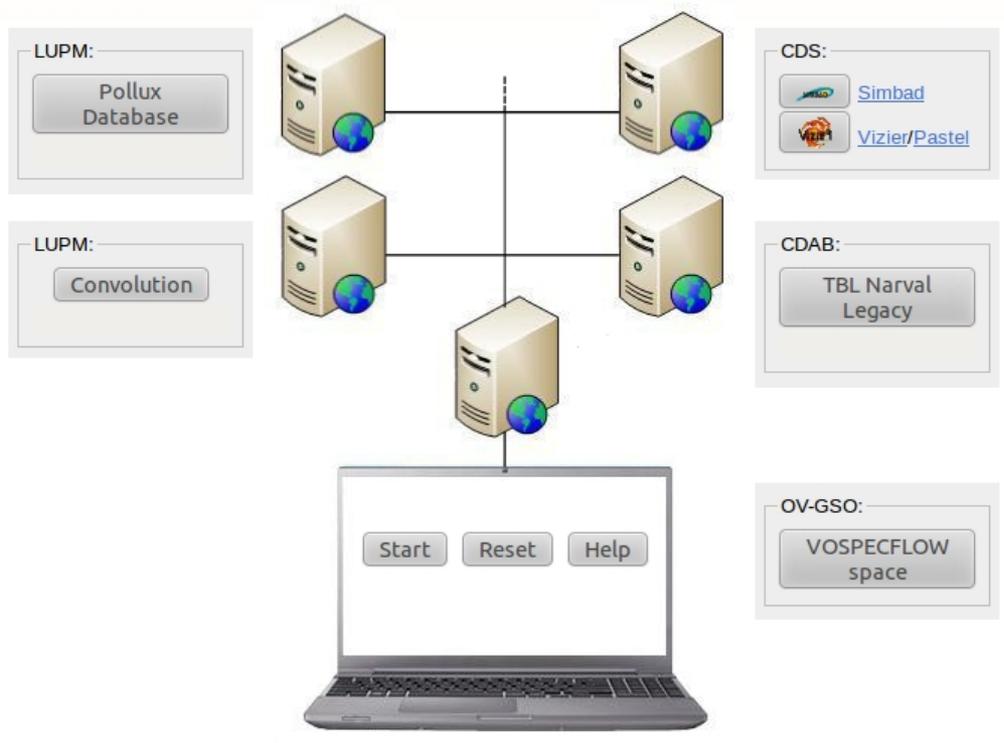
VO tools

- EURO-VO
- VOSpec
- Splat VO
- VOPlot

Databases

- CDAB/tblegacy
- Pollux

Demo



Start on HD 232862, a G8II cool giant.

OV-GSO homepage

WebSampConnector
Broadcast the data

Links

VO tools

- EURO-VO
- VOSpec
- Splat VO
- VOPlot

Databases

- CDAB/tblegacy
- Pollux

Demo

Search for Spectra in Tblegacy

Star ID: HD232862 Simbad

RA: 059.333275

DEC: +50.855156

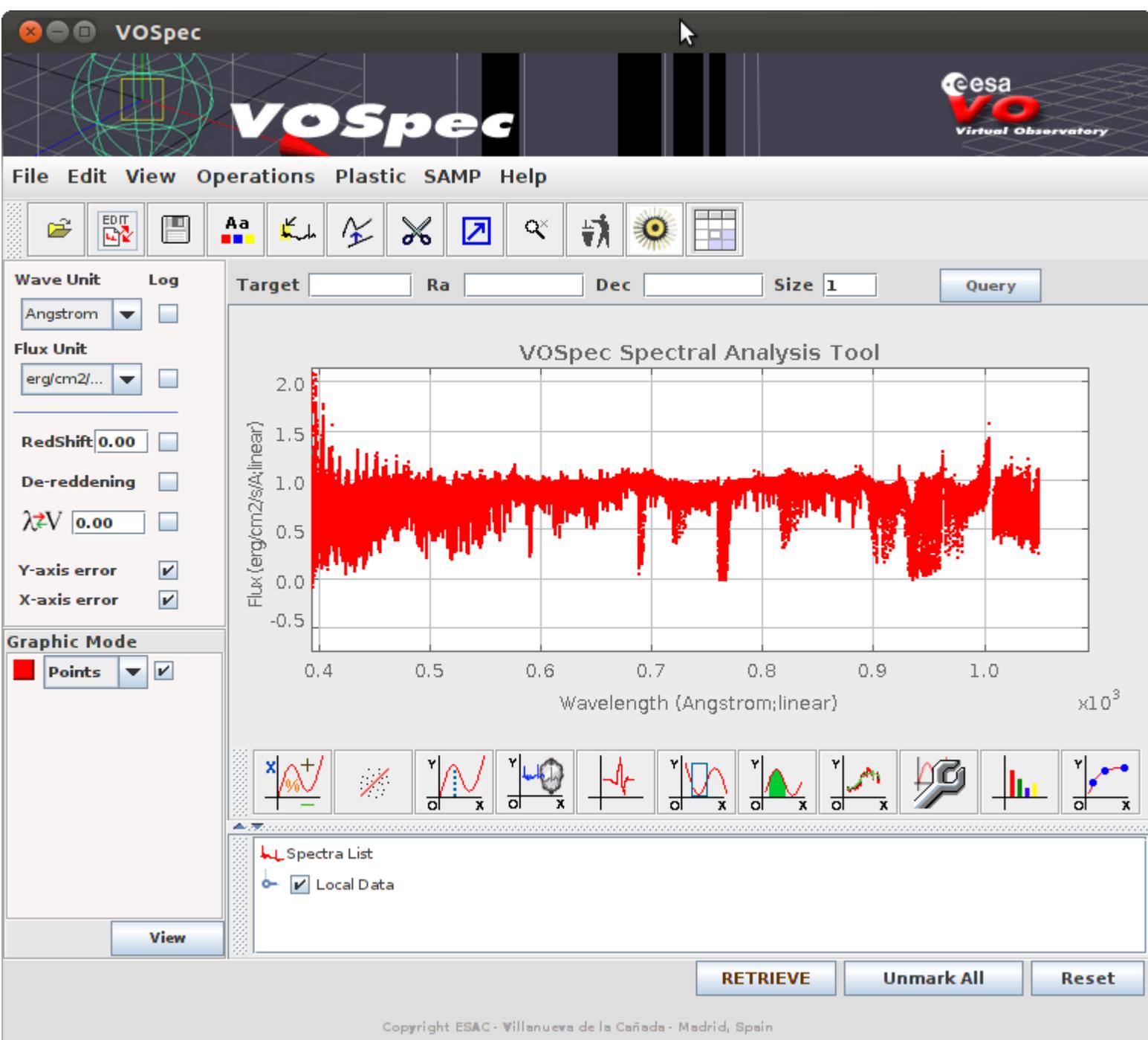
SIZE: 1.6

Request Tblegacy VOTP Space Store Step next

- nu232862_narval_21sep08_pol_Normal_V_01_tbl.fts
- hd232862_narval_25sep08_pol_Normal_V_01_tbl.fts
- hd232862_narval_26sep08_int_Normal_I_001_tbl.fts
- hd232862_narval_26sep08_int_Normal_I_002_tbl.fts
- hd232862_narval_26sep08_int_Normal_I_003_tbl.fts
- hd232862_narval_26sep08_int_Normal_I_004_tbl.fts

Step 1:
Retrieve coordinates from SIMBAD and, from these values, retrieve spectra from Tblegacy

Store selected spectra in VOspace



NARVAL
spectrum
broadcasted
to VOSPEC via
SAMP

OV-GSO homepage

WebSampConnector
Broadcast the data

Links

VO tools

- EURO-VO
- VOSpec
- Splat VO
- VOPlot

Databases

- CDAB CDAB/tblegacy
- Pollux

Demo

Search for Stellar parameters from VizieR

Star ID: HD232862 Source: all Show details

phys.temperature.effective
 phys.gravity
 phys.abund.Fe
 phys.veloc.microTurb

Request and mean of parameters **VizieR** Step prev next

Result of your request:
QUERY_STATUS: OK QUERY_STATUS: OK (UCD number: 1)
[VizieR \(VOTable\)](#)

Mean of stellar parameters:

phys.temperature.effective	4900.0
----------------------------	--------

Details:

<input checked="" type="checkbox"/> Source	phys.temperature.effective
<input checked="" type="checkbox"/> I/61B	4900

Step 2:
Retrieve selected stellar parameters from VizieR and, from these values, compute the mean parameters

Search for synthetic spectra in Pollux Database

Min/Max range of stellar parameters

teff	logg	meta	vturb
3969	3.0	-0.5	None
5929	3.0	0	None

Request Pollux VOTP Space Store Step prev next

Result of your request:

- NORMFLUX_M_s5000g3.0z-0.25t1.0_a0.10c0.00n0.00o0.00r0.00s0.00_VIS.spec.FITS
- NORMFLUX_M_s5250g3.0z-0.25t1.0_a0.10c0.00n0.00o0.00r0.00s0.00_VIS.spec.FITS
- NORMFLUX_M_s5500g3.0z-0.25t1.0_a0.10c0.00n0.00o0.00r0.00s0.00_VIS.spec.FITS

Step 3:

From the mean values of stellar parameters, define parameter ranges to retrieve synthetic spectra from POLLUX

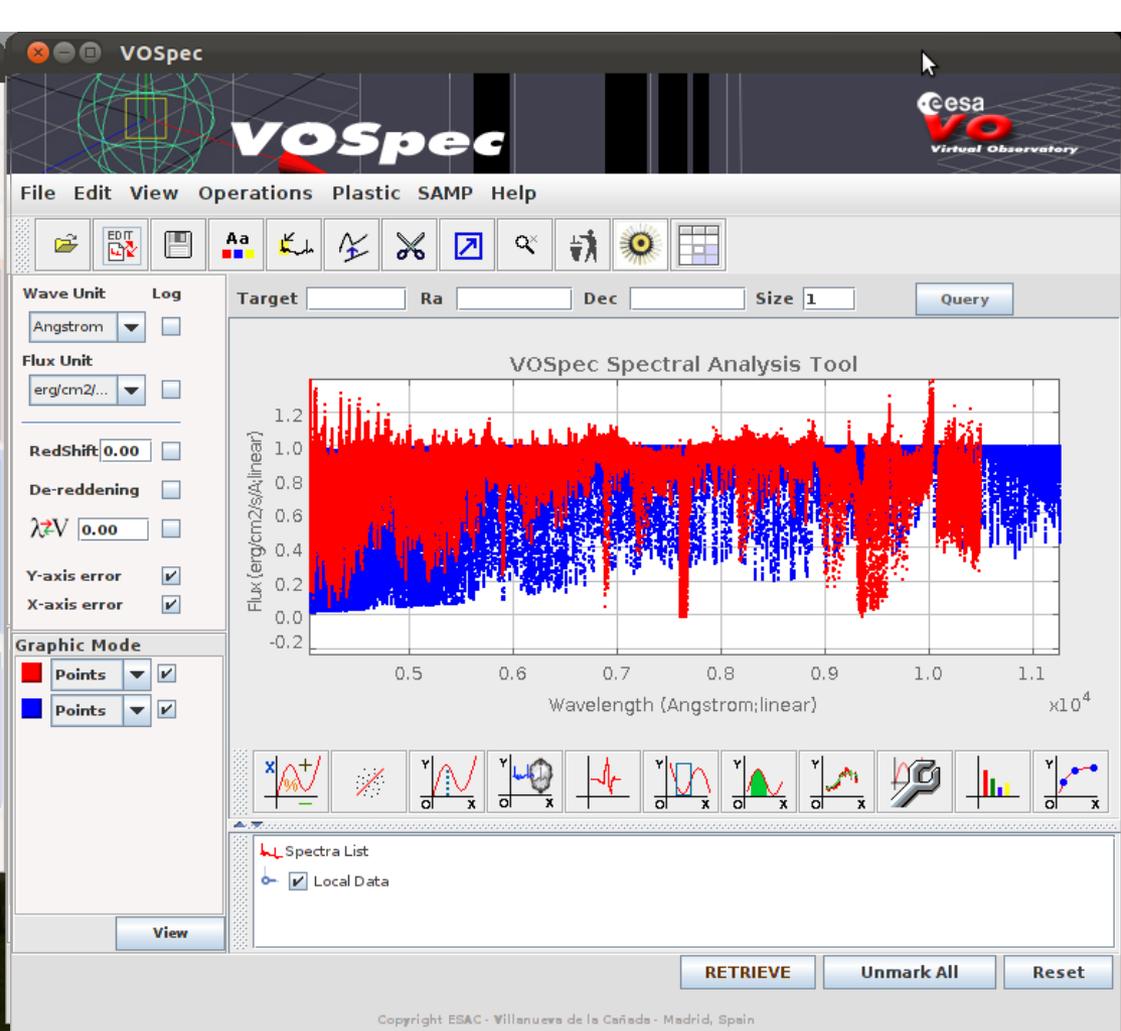
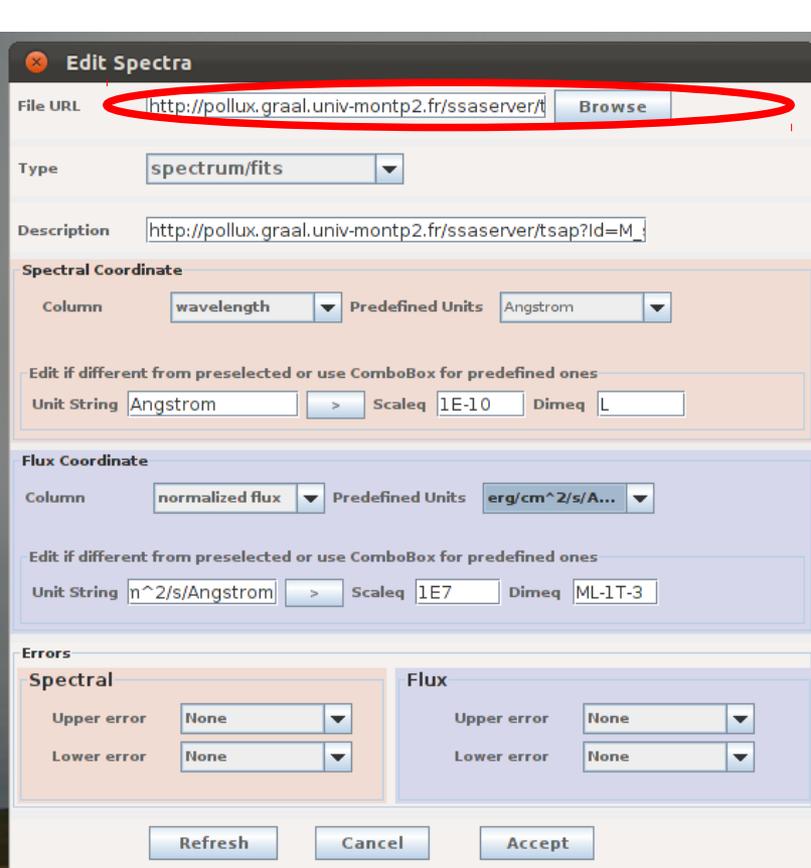
Store selected spectra in VOspace

WebSampConnector

Broadcast the data

- Links
- VO tools
- EURO-VO
 - VOSpec
 - Splat VO
 - VOPlot
- Databases
- CDAB/tblegacy
 - Pollux
- Demo

Send the selected spectrum to VOSPEC



POLLUX theoretical spectrum broadcasted to VOSPEC via SAMP

OV-GSO homepage

WebSampConnector
Broadcast the data

Links

VO tools

- EURO-VO
- VOSpec
- Splat VO
- VOPlot

Databases

- CDAB/tblegacy
- Pollux

Demo

Convolution of a synthetic spectrum

RESET

List of synthetic spectra from Pollux Database (FITS files):

- NORMFLUX_M_s5000g3.0z-0.25t1.0_a0.10c0.00n0.00o0.00r0.00s0.00_VIS.spec.FITS
- NORMFLUX_M_s5250g3.0z-0.25t1.0_a0.10c0.00n0.00o0.00r0.00s0.00_VIS.spec.FITS
- NORMFLUX_M_s5500g3.0z-0.25t1.0_a0.10c0.00n0.00o0.00r0.00s0.00_VIS.spec.FITS
- NORMFLUX_M_s5750g3.0z-0.25t1.0_a0.10c0.00n0.00o0.00r0.00s0.00_VIS.spec.FITS

Central wavelength: A Output file format:

Function	Value	Unit
Macroturbulence velocity	<input type="text" value="2"/>	<input type="text" value="km/s"/>
Rotational velocity	<input type="text" value="20.6"/>	<input type="text" value="km/s"/>
Instrumental profile	<input type="text" value="102"/>	<input type="text" value="mA"/>

Request **Convolution** VOTP Space Step

Result of your request:
QUERY_STATUS: OK
Spectre convolué:

Step 4:
On a selected POLLUX spectrum, and over a 100 A wide spectral domain, perform up to three successive operations of convolution.

VOTP < Accueil < TWiki

poste5.bagn.obs-mip.fr/votp/votp.php?PHPSESSID=0ju33mjfv4m3umhtn65nbpt3v6&TP=pollux

OV/BDD 12 cours SCIENCE CONF PUBLI OBS ASTRO jeux jantar-mantar Facebook AOL.fr Orange ANR TOUPIES pgplot Google_Art

Cette page est en anglais Voulez-vous la traduire? Traduire Non Options

OV-GSO homepage

WebSampConnector

Broadcast the data

Broadcast data to VO applications

Request Convolution VOTP Space Store Step previous next

Result of your request:

CONVFLUX_T2R27G100mA_L6700_M_s5250g2.5z0.25t1.0_a0.00c0.00n0.00o0.00sl

Store selected convolved spectra in VOspace

Links

VO tools

- EURO-VO
- VOSpec
- Splat VO
- VOPlot

Databases

- CDAB/tblegacy
- Pollux

Demo



VOTP < Accueil < Twiki

poste5.bagn.obs-mip.fr/votp/votp.php?PHPSESSID=0ju33mjfv4m3umhntn65nbpt3v6&TP=pollux

OV/BDD 12 cours SCIENCE CONF PUBLI OBS ASTRO jeux jantar-mantar Facebook AOL AOL.fr Orange ANR TOUPIES pgplot Google_Art

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irap astrophysique & planétologie LUPM LABORATOIRE MONTPELLIER UNIVERS & PARTICULES LAB CESBIO

OV-GSO homepage

WebSampConnector

Broadcast the data

Links

VO tools

- EURO-VO
- VOSpec
- Splat VO
- VOPlot

Databases

- CDAB/tblegacy
- Pollux

Demo

Vizualization of selected spectra

Central wavelength: 6700

List of selected spectra:

- hd232862_narval_26sep08_int_Normal_I_001_tbl.fits
 - FLUX_NOR
 - FLUX_ERR
- NORMFLUX_M_s5250g2.5z0.25t1.0_a0.00c0.00n0.00o0.00r0.00s0.00_VIS.spec FITS
 - FLUX
 - CONT
- CONVFLUX_T2R27G100mA_L6700_M_s5250g2.5z0.25t1.0_a0.00c0.00n0.00o0.00r0.00s0.00
 - CONVFLUX

Request Plot Step previous

Step 5:
Select central wavelength and spectra to plot (over a 100 A wide spectral domain).



VOTP < Accueil < TWiki

poste5.bagn.obs-mip.fr/votp/votp.php?PHPSESSID=0ju33mjfv4m3umhtr65nbpt3v6&TP=pollux

OV/BDD 12 cours SCIENCE CONF PUBLI OBS ASTRO jeux jantar-mantar Facebook AOL AOL.fr Orange ANR TOUPIES pgplot Google_A

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OV-GSO homepage

WebSampConnector

Broadcast the data

Links

VO tools

- EURO-VO
- VOSpec
- Splat VO
- VOPlot

Databases

- CDAB/tblegacy
- Pollux
- Demo

Plot with DyGraph

Back to [VOTP Space](#)

Select a portion to zoom in. Double click to zoom out.

VOTP < Accueil < TWiki

poste5.bagn.obs-mip.fr/votp/votp.php?PHPSESSID=0ju33mjfv4m3umhtrn65nbpt3v6&TP=pollux

OV/BDD 12 cours SCIENCE CONF PUBLI OBS ASTRO jeux jantar-mantar Facebook AOL AOL.fr Orange ANR TOUPIES pgplot Google_

Cette page est en anglais Voulez-vous la traduire? Traduire Non

OV-GSO homepage

WebSampConnector

...

 Broadcast the data

Links

VO tools

-  EURO-VO
-  VOSpec
-  Splat VO
-  VOPlot

Databases

-  CDAB/tblegacy
-  Pollux
-  Demo

Plot with DyGraph

Back to [VOTP Space](#)

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File Edit View Operations Plastic SAMP Help



Wave Unit Log
 Angstrom

Flux Unit
 erg/cm2/...

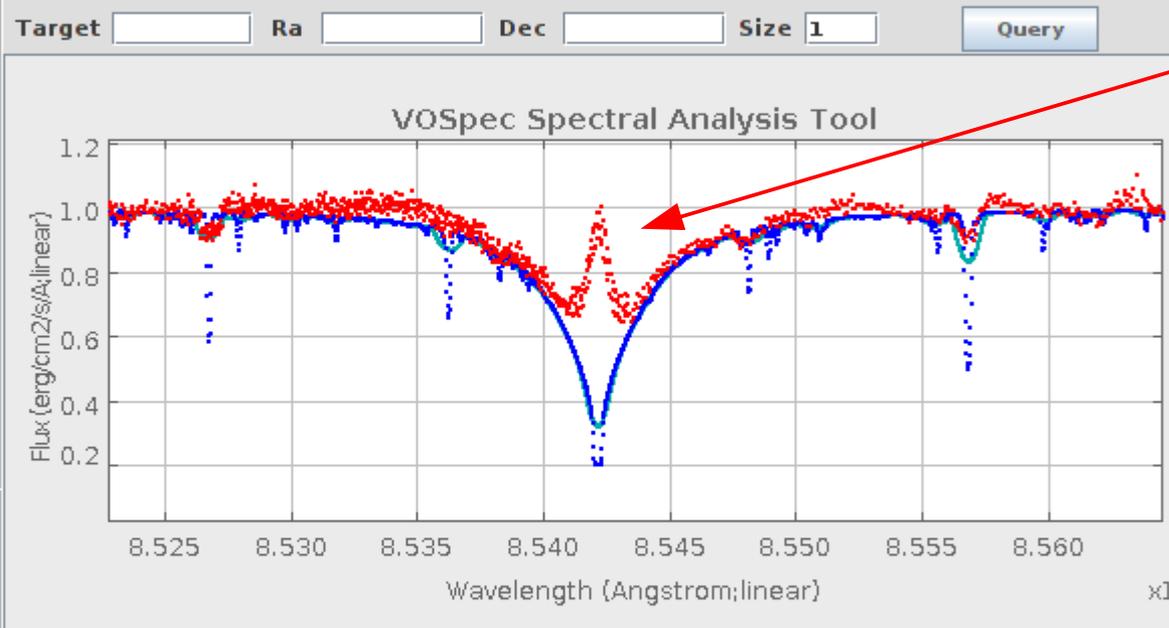
RedShift 0.00

De-reddening

λ V 0.00

Y-axis error

X-axis error



Active star

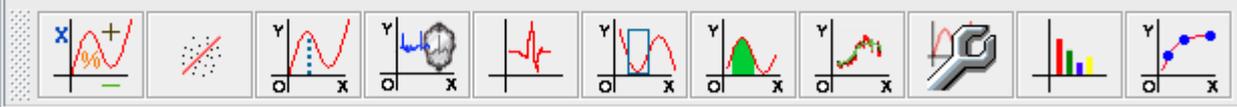
Observation
 Theoretical spectrum
 Convolved spectrum

Graphic Mode

Points

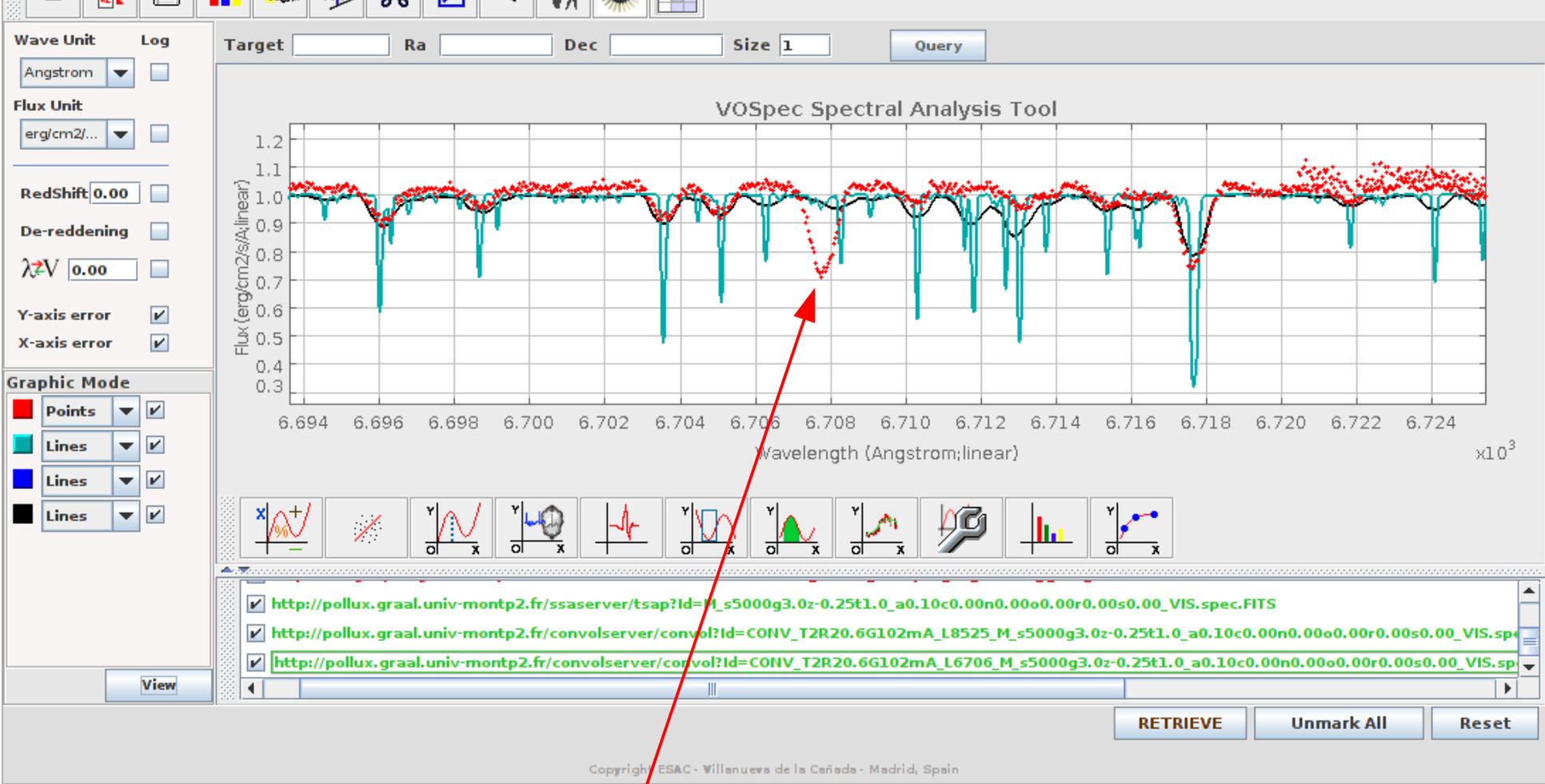
Points

Points



Spectra List

Local Data



Lithium -rich star



Exemples d'utilisation en spectro stellaire :



Outil d'accompagnement des observations spectroscopiques (à disposition des observateurs et opérateurs de télescope)
par ex. pour vérification du pointage du bon objet

En amont, pour une simulation d'observation envisagée
(+ bruit ?)

En aval, pour

produire des contraintes (grossières) sur les paramètres stellaires
(v_{sini} , T_{eff} , $\log g$, métallicité ...),
permettre de dégrossir une analyse,
identifier rapidement la présence/absence d'une signature spectrale.



Développements/actions complémentaires :



Optimisation de la moyenne des paramètres stellaires (exclusion *des bad values*)

Correction en vitesse radiale

Format de sortie des spectres convolués (VOtable, ...) et possibilité de *download*

Exportation des données sous applications graphiques OV (VOplot, splatVO, ...)

Enregistrement du service et ouverture à la communauté pour utilisation scientifique via l'OV-GSO

Ajout d'autres services OV (Archives de télescope - Bases de spectres calculés)

Utilisation dans le cadre de PolarBase service SO5 nouvellement labélisé.

Nouvelle ergonomie à l'étude pour distribution de l'application

VOSPECFLOW

Observed spectra Synthetic spectra

CART

DRAG DROP

Welcome to VOSPECFLOW

This application is meant to transform portions of synthetic spectra (100 AA to 500 AA) into simulated observations to compare them with observed spectra.
To achieve this, VOSPECFLOW allows to perform a convolution of the synthetic spectra with a rotation profile, an instrumental profile and a turbulent microturbulence velocity profile, and to doppler shift it according to the radial velocity of the star it is meant to represent.

Through the tab "Observed spectra", you will be able to:

- select a star, retrieve its parameters from a query to SIMBAD and the catalogs in Vizier
- select the temperature, metallicity, gravity and microturbulence velocity from the results of the Vizier's catalogs query
- select and observed spectrum of the selected star from the TBLegacy database or upload your own spectrum
- store the doppler shift associated to the radial velocity of the star selected in the "Observed Spectra" tab and/or downloading

Through the tab "Synthetic spectra", you will be able to:

- select a range in temperature, metallicity, gravity and microturbulence velocity according to the results of the Vizier's catalogs query
- search the POLLUX database for high resolution synthetic spectra corresponding to these parameters or upload your own spectra
- convolve portions of the selected spectra to transform them into simulated observations
- apply the doppler shift associated to the radial velocity of the star selected in the "Observed Spectra" tab
- store the resulting spectra into the VOTPSpace for further plotting (with VOSPEC or with a local display device) and/or downloading

Please connect to the VO-tool of your choice to further visualize your data

VO TOOLS

TOPCAT

VOSpec

Splat VO

VOPlot

Last update : 2013 / 03 / 05

Nouvelle ergonomie à l'étude pour distribution de l'application

VOSPECFLOW Home **Observed spectra** **Synthetic spectra** **CART**

Search for stellar parameters

Star ID:

Catalog:

Results of request

Average of stellar parameters

Temperature	Gravity	Velocity
8829.83	3.94	2.0

Source **Temperature** **Gravity** **Velocity**

<input checked="" type="checkbox"/>	I/34	9790	4.1	None
<input checked="" type="checkbox"/>	I/40	0.53	4.0	2.0

Search for observed spectra

From local disk

From a database

RA: DEC:

Results of request

- vega_narval_04jul09_pol_Fast_V_01_tbl.fts
- vega_narval_04jul09_pol_Fast_V_02_tbl.fts
- vega_narval_04jul09_pol_Fast_V_03_tbl.fts
- vega_narval_04jul09_pol_Fast_V_04_tbl.fts
- vega_narval_04jul09_pol_Fast_V_05_tbl.fts
- vega_narval_04jul09_pol_Fast_V_06_tbl.fts
- vega_narval_04jul09_pol_Fast_V_07_tbl.fts
- vega_narval_04jul09_pol_Fast_V_08_tbl.fts
- vega_narval_04jul09_pol_Fast_V_09_tbl.fts
- vega_narval_04jul09_pol_Fast_V_10_tbl.fts

Last update : 2013 / 03 / 05

VO TOOLS

-
-
-
-

Design : Aurélien Emeras – stagiaire info

Nouvelle ergonomie à l'étude pour distribution de l'application

VOSPECFLOW

Observed spectra Synthetic spectra

Search for synthetic spectra

Results of request

Convolutions of choosen synthetic spectras

Results of request

NORMFLUX_A_p10000g5.0z-1.0t2.0_a0.00c0.00n0.00o0.00

CONV_T2_L8525_A.p8000g4.0z-1.0t2.0_a0.00c0.00n0.00o0.00

Central wavelength A

Wavelength width A

	Value	Unit	Function
Macroturbulence velocity	<input type="text"/>	km/s	radial tangent
Rotational velocity	<input type="text"/>	km/s	rotational
Instrumental profile	<input type="text"/>	mÅ	Gaussian
Radial velocity	<input type="text"/>	km/s	

Output file format

Process

RESET

Last update : 2013 / 03 / 05

CART

VO TOOLS

TOPCAT

VOSpec

Splat VO

VOPlot

Ajout du décalage en vitesse radiale

Nouvelle ergonomie à l'étude pour distribution de l'application

The screenshot displays the VOSPECFLOW application interface. At the top, there are navigation tabs for 'Observed spectra' and 'Synthetic spectra'. A central 'CART' window lists four files with checkboxes: 'vega_narval_04jul09_pol_Fast_V_03_tbl.fits' (checked), 'NORMFLUX_A_p10000g3.5z-1.0t2.0_a0.00c0.00n0.00o0.00r0.s0.00_VIS.spec.FITS' (unchecked), 'NORMFLUX_A_p10000g4.5z-1.0t2.0_a0.00c0.00n0.00o0.00r0.s0.00_VIS.spec.FITS' (checked), and 'CONV_T2_L8525_A.p8000g4.0z-1.0t2.0_a0.00c0.00n0.00o0.00r0.s0.00_VIS.spec.FITS' (checked). Below the cart, three icons represent actions: a monitor (green), a plot (orange), and a download arrow (blue). A red text overlay 'Broadcast, display ou download depuis le panier' has arrows pointing to these icons. On the right, a 'CART' sidebar shows a shopping cart icon and a 'VO TOOLS' section with buttons for 'TOPCAT', 'VOSpec', 'Splat VO', and 'VOPlot'. The footer indicates 'Last update : 2013 / 03 / 05'.

Design : Aurélien Emeras – stagiaire info