

sistemi integrati per la gestione di dati spettroscopici: VIPERS, LBT, VANDELS

Paolo Franzetti

IASF Milano

Come il **Gruppo Pandora** allo **IASF Milano**

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Paolo Franzetti

Marco Fumana

~~Luigi Paiore~~ ← Paolo Luigi Scala

Marco Scodeggio

**spacchetta, organizza, riduce,
verifica, visualizza, misura,
distribuisce**

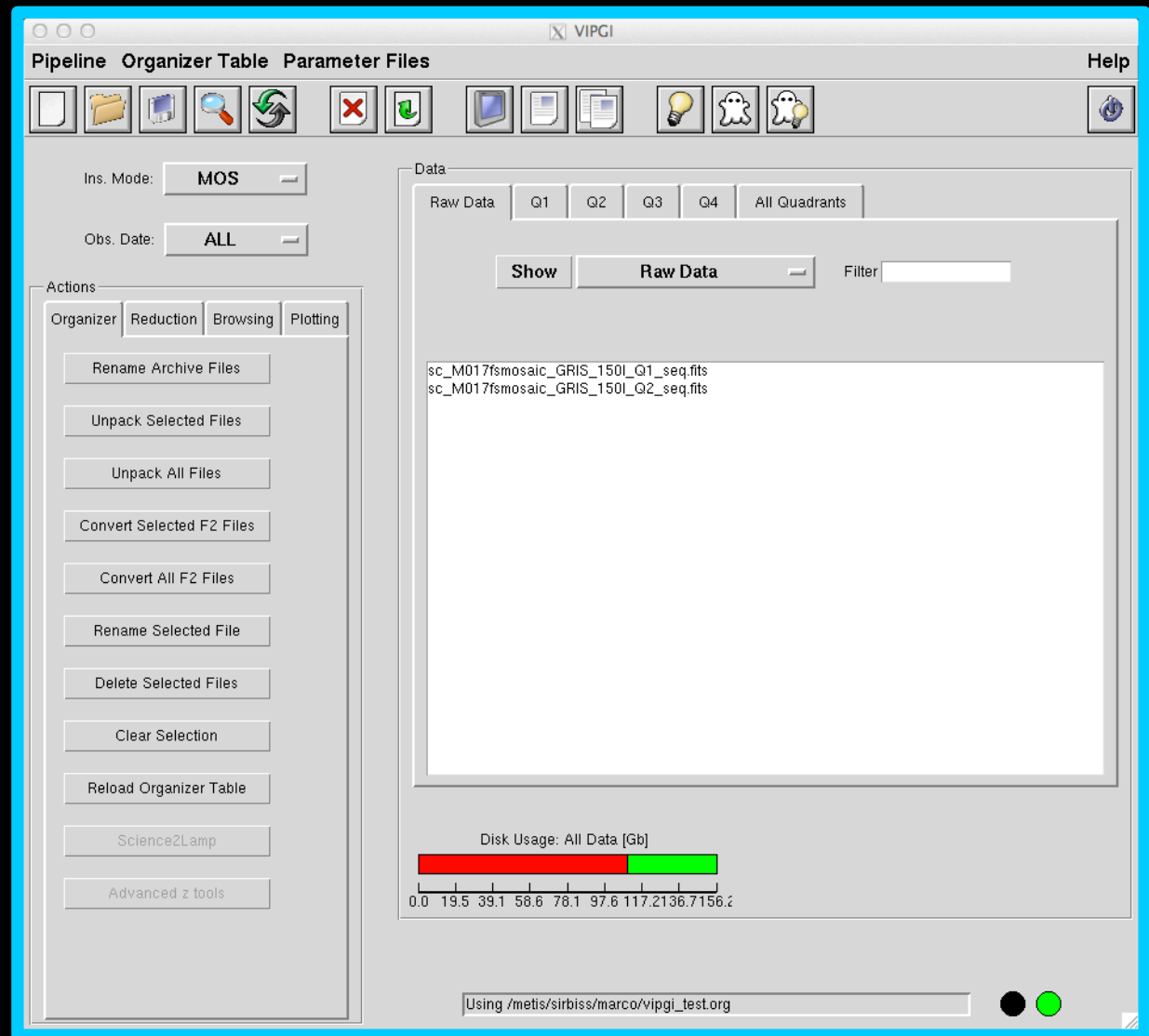
i dati spettroscopici

i precursori

come tutto è cominciato

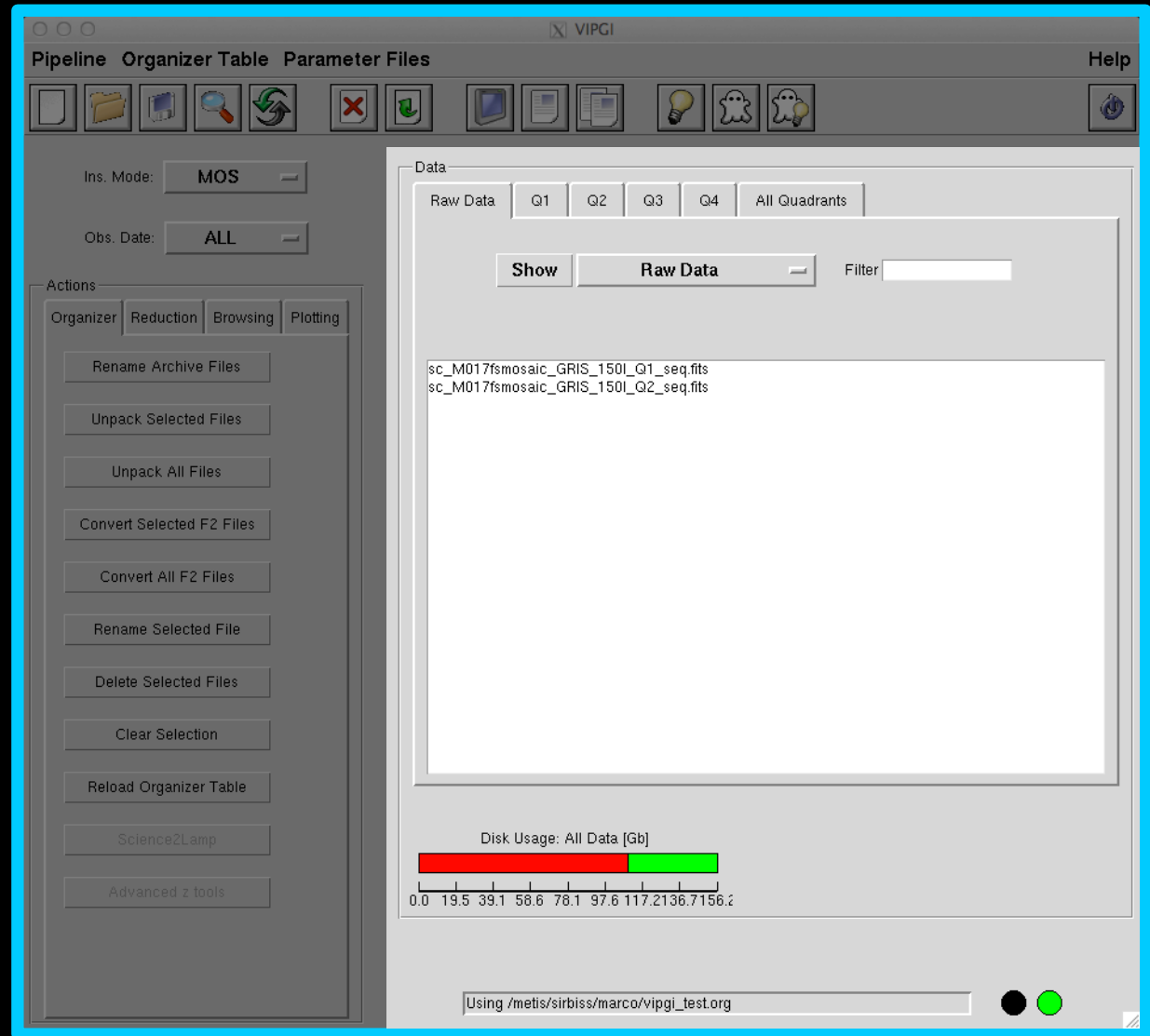
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2004 - 2011



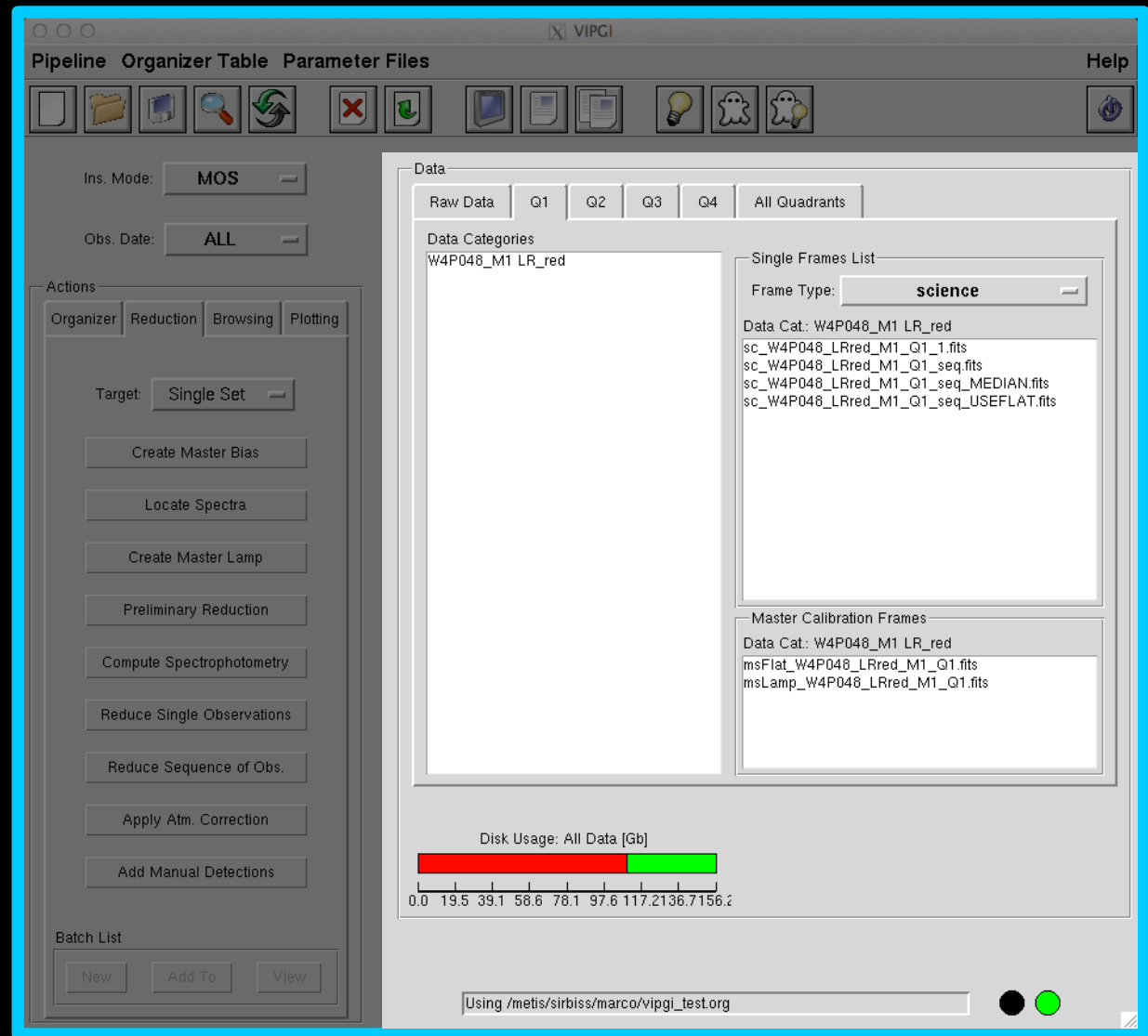
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unpack



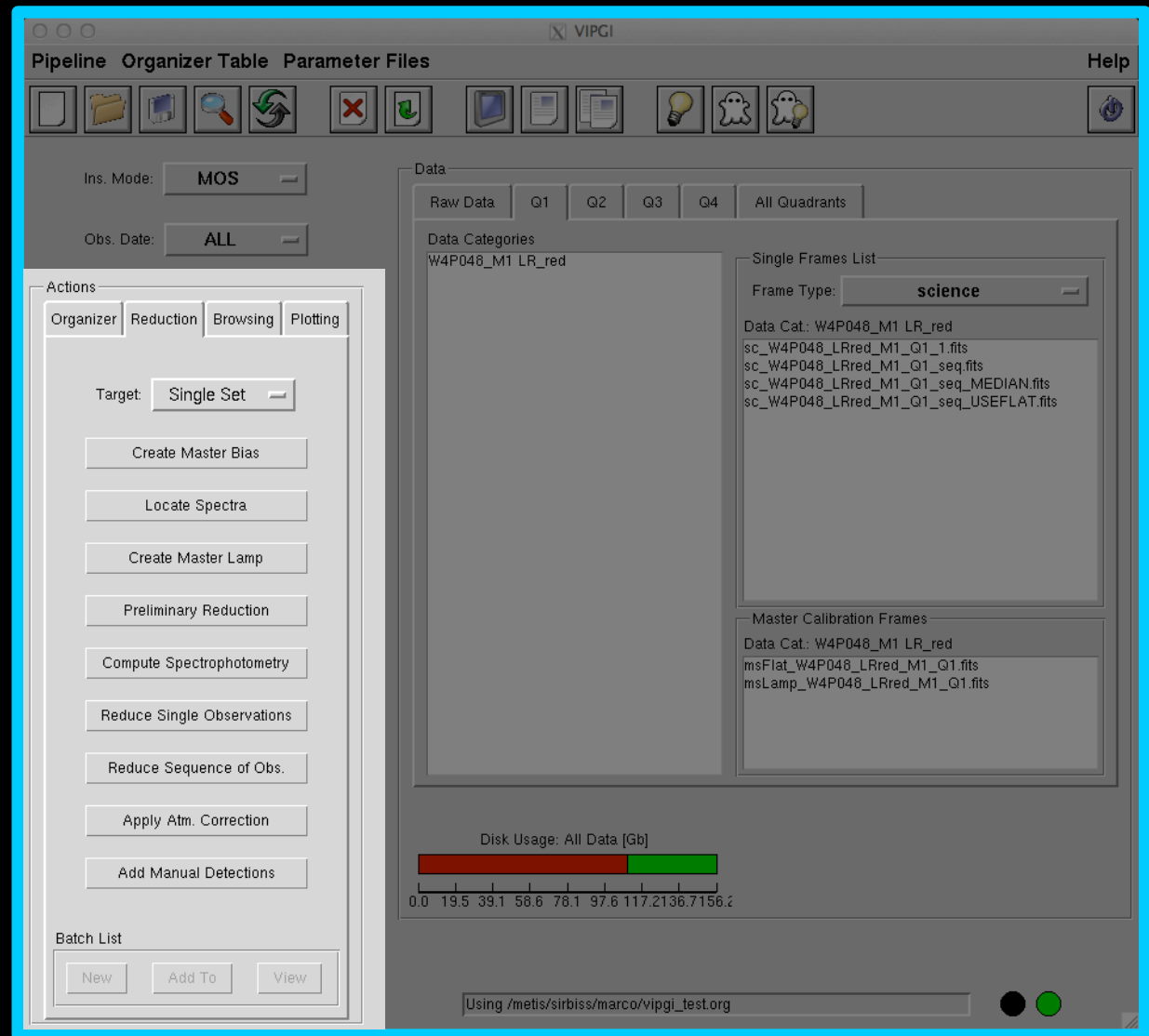
vimos
interactive
pipeline
graphical
interface

organize



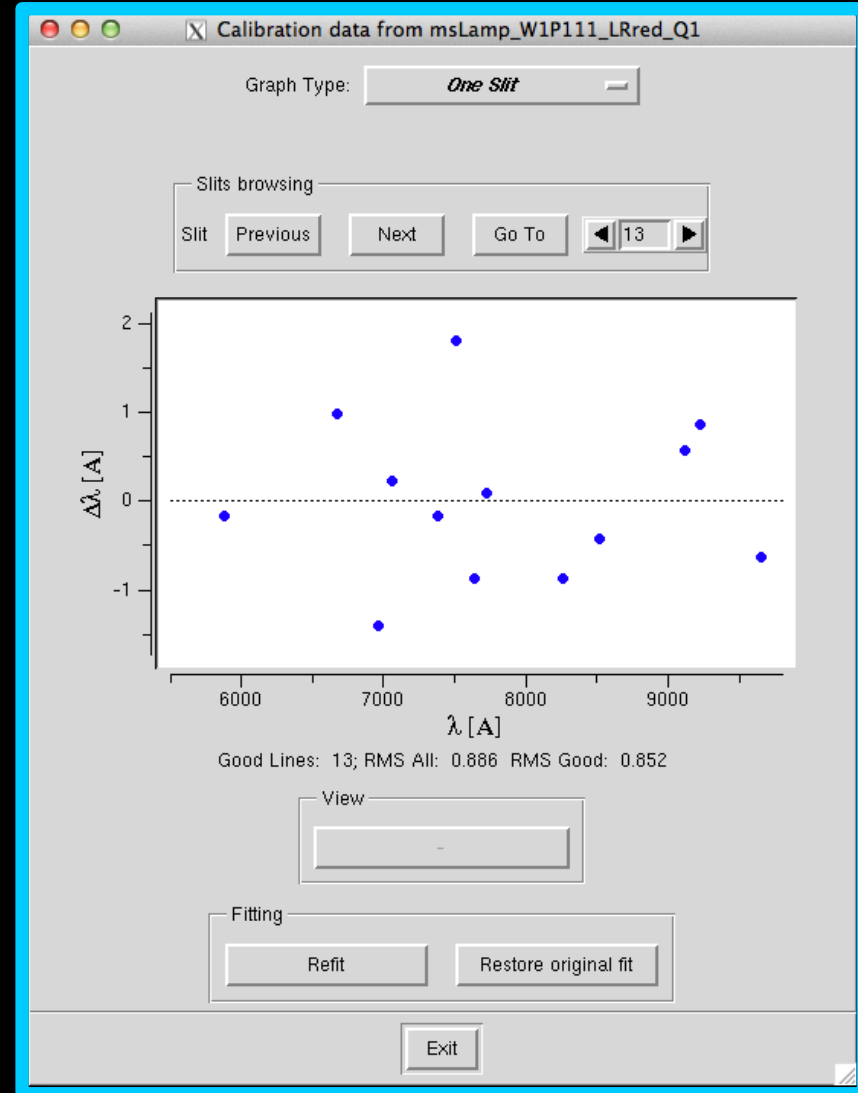
vimos
interactive
pipeline
graphical
interface

reduce

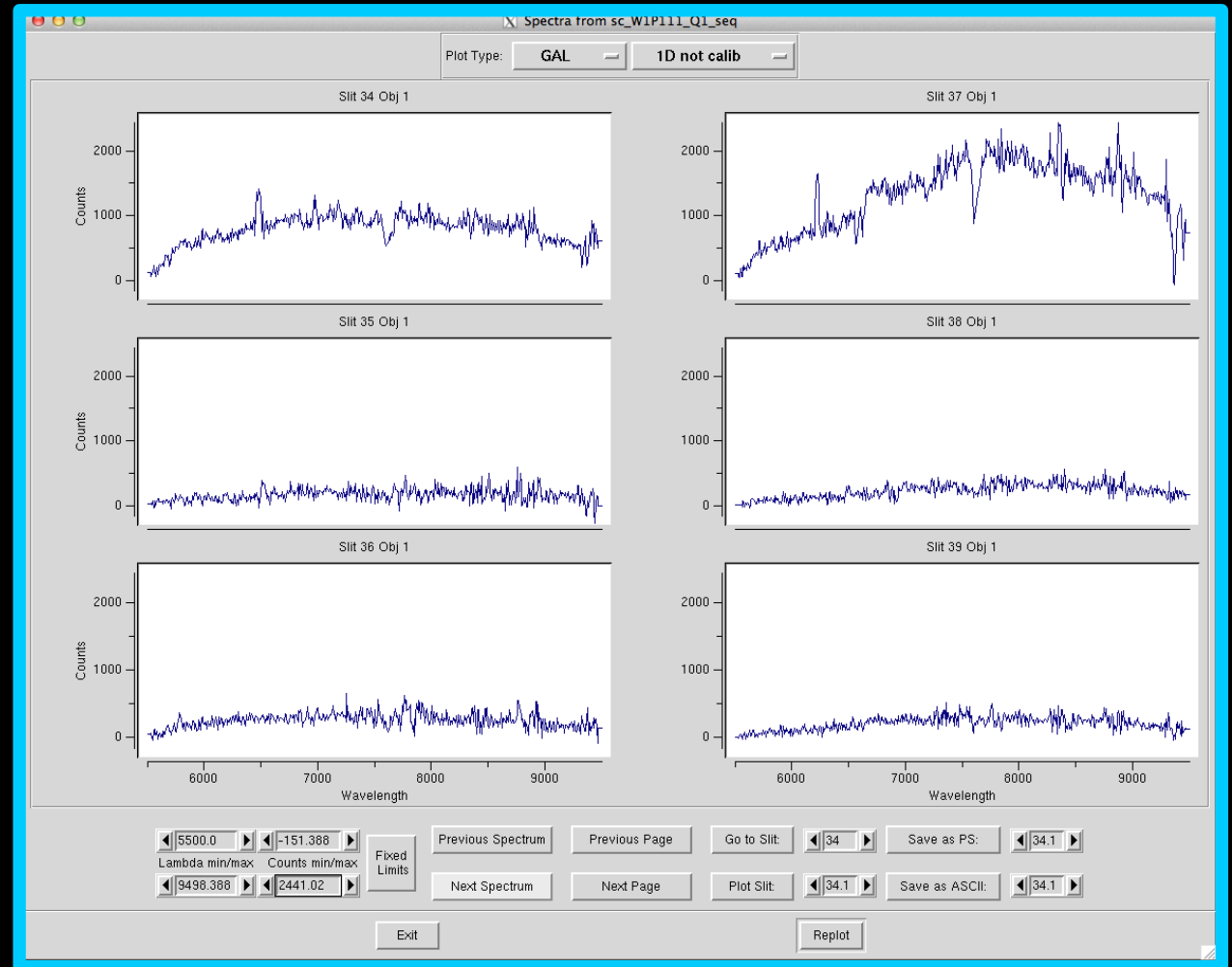


vimos
interactive
pipeline
graphical
interface

check

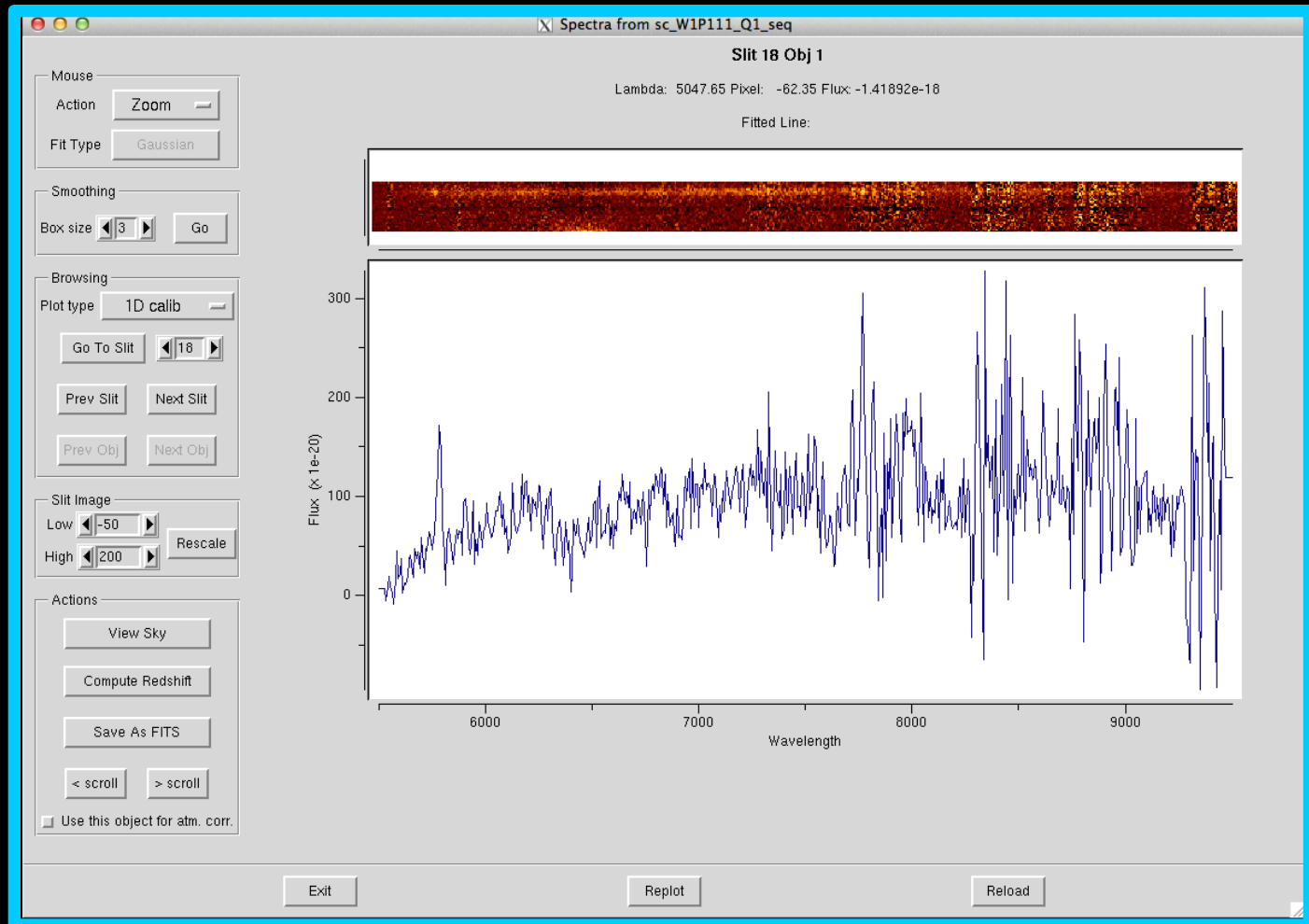


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visualize

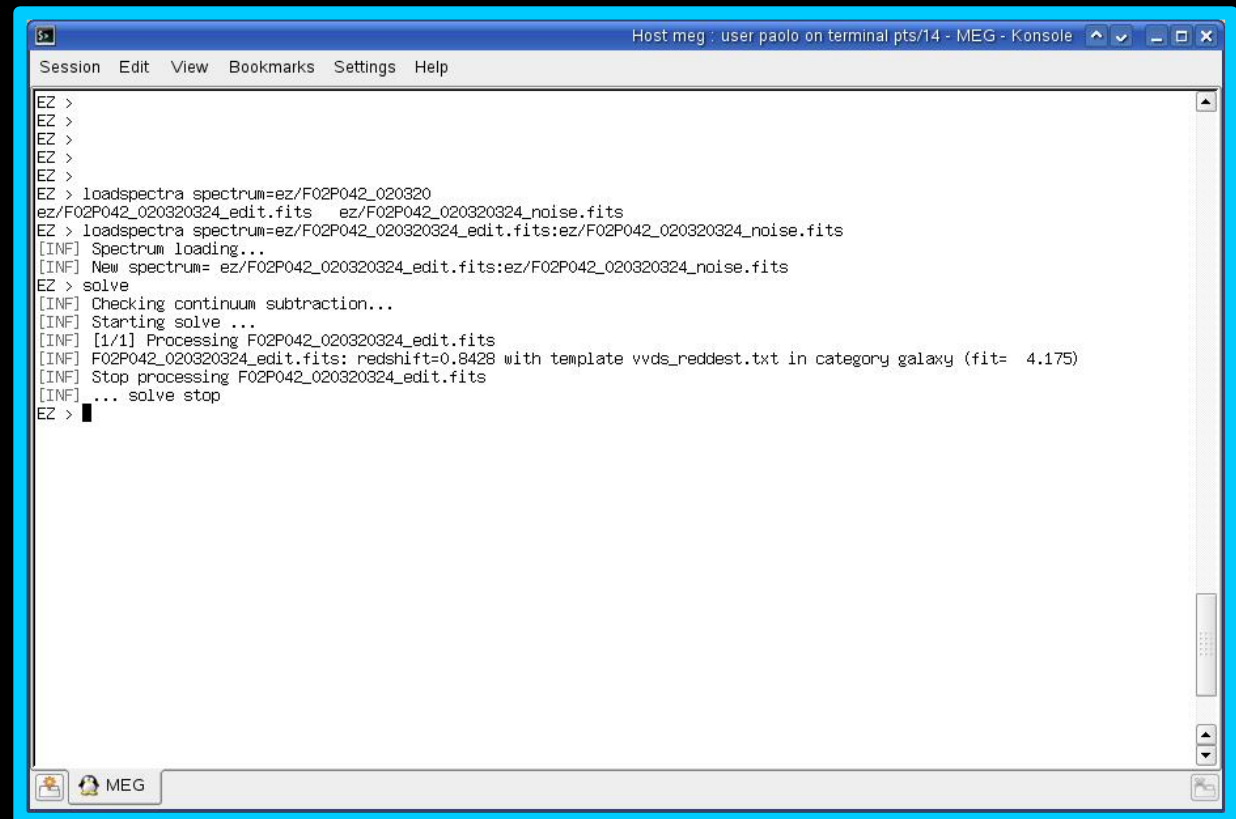
vimos
interactive
pipeline
graphical
interface



visualize

easy
z (redshift)

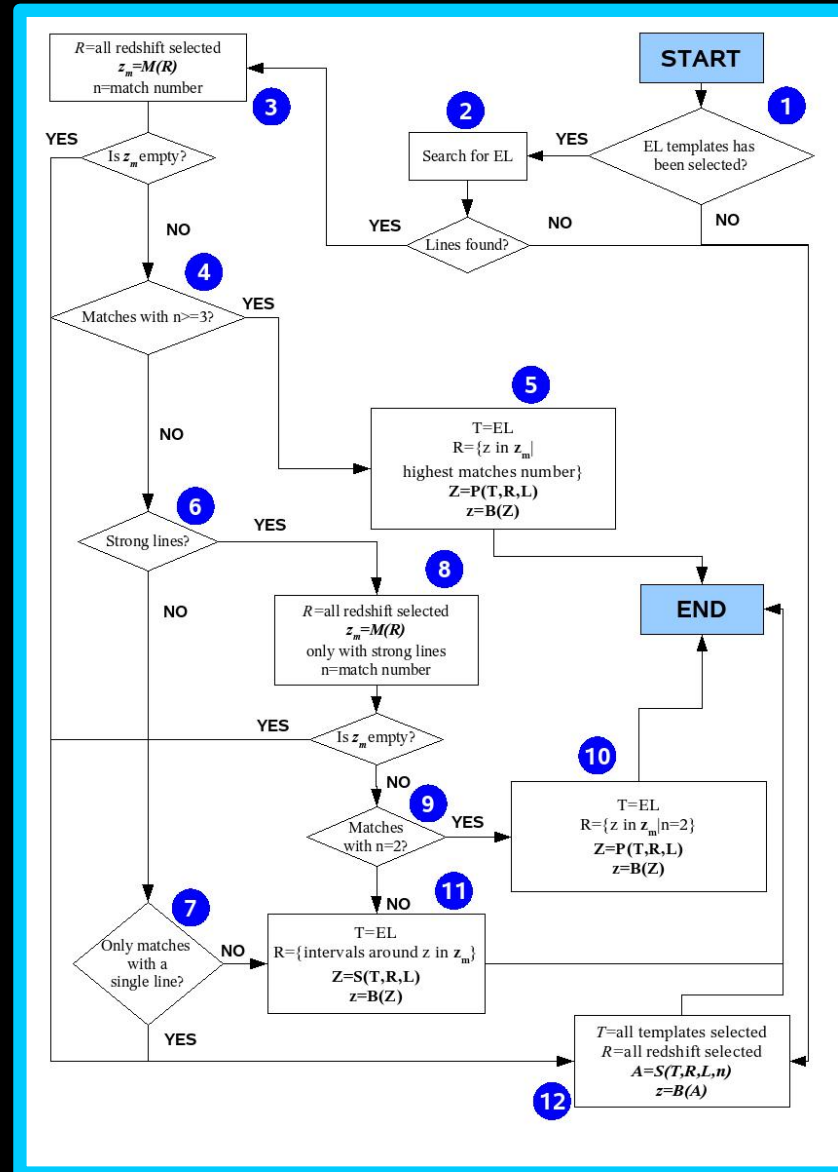
2007 - 2011



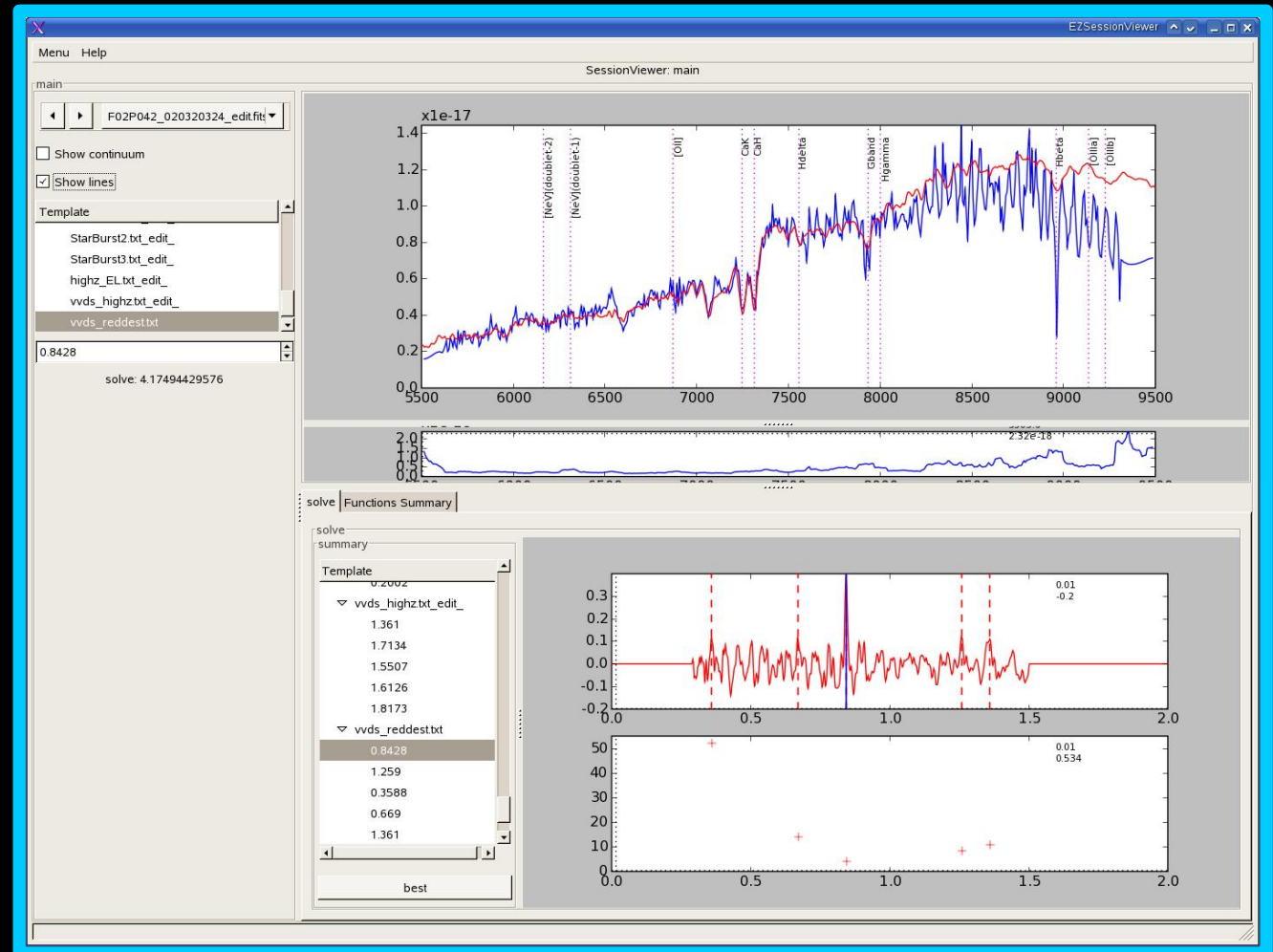
```
Host meg : user paolo on terminal pts/14 - MEG - Konsole
Session Edit View Bookmarks Settings Help
EZ >
EZ >
EZ >
EZ >
EZ >
EZ > loadspectra spectrum=ez/F02P042_020320
ez/F02P042_020320324_edit.fits ez/F02P042_020320324_noise.fits
EZ > loadspectra spectrum=ez/F02P042_020320324_edit.fits:ez/F02P042_020320324_noise.fits
[INF] Spectrum loading...
[INF] New spectrum= ez/F02P042_020320324_edit.fits:ez/F02P042_020320324_noise.fits
EZ > solve
[INF] Checking continuum subtraction...
[INF] Starting solve ...
[INF] [1/1] Processing F02P042_020320324_edit.fits
[INF] F02P042_020320324_edit.fits: redshift=0.8428 with template vvds_reddest.txt in category galaxy (fit= 4.175)
[INF] Stop processing F02P042_020320324_edit.fits
[INF] ... solve stop
EZ >
```

easy
z (redshift)

measure



easy
z (redshift)



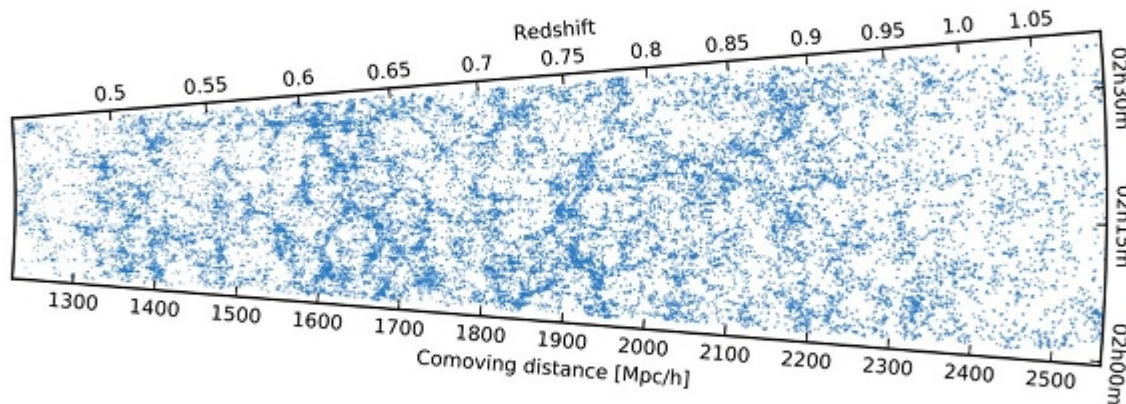
measure

vipers

il prototipo

la survey vipers

The VIMOS Public Extragalactic Redshift Survey (VIPERS) is an ongoing Large Program to map in detail the large-scale distribution of galaxies at $0.5 < z < 1.2$. With a combination of volume and sampling density that is unique for these redshifts, it focuses on measuring galaxy clustering and related cosmological quantities within the grand challenge of understanding the origin of cosmic acceleration.

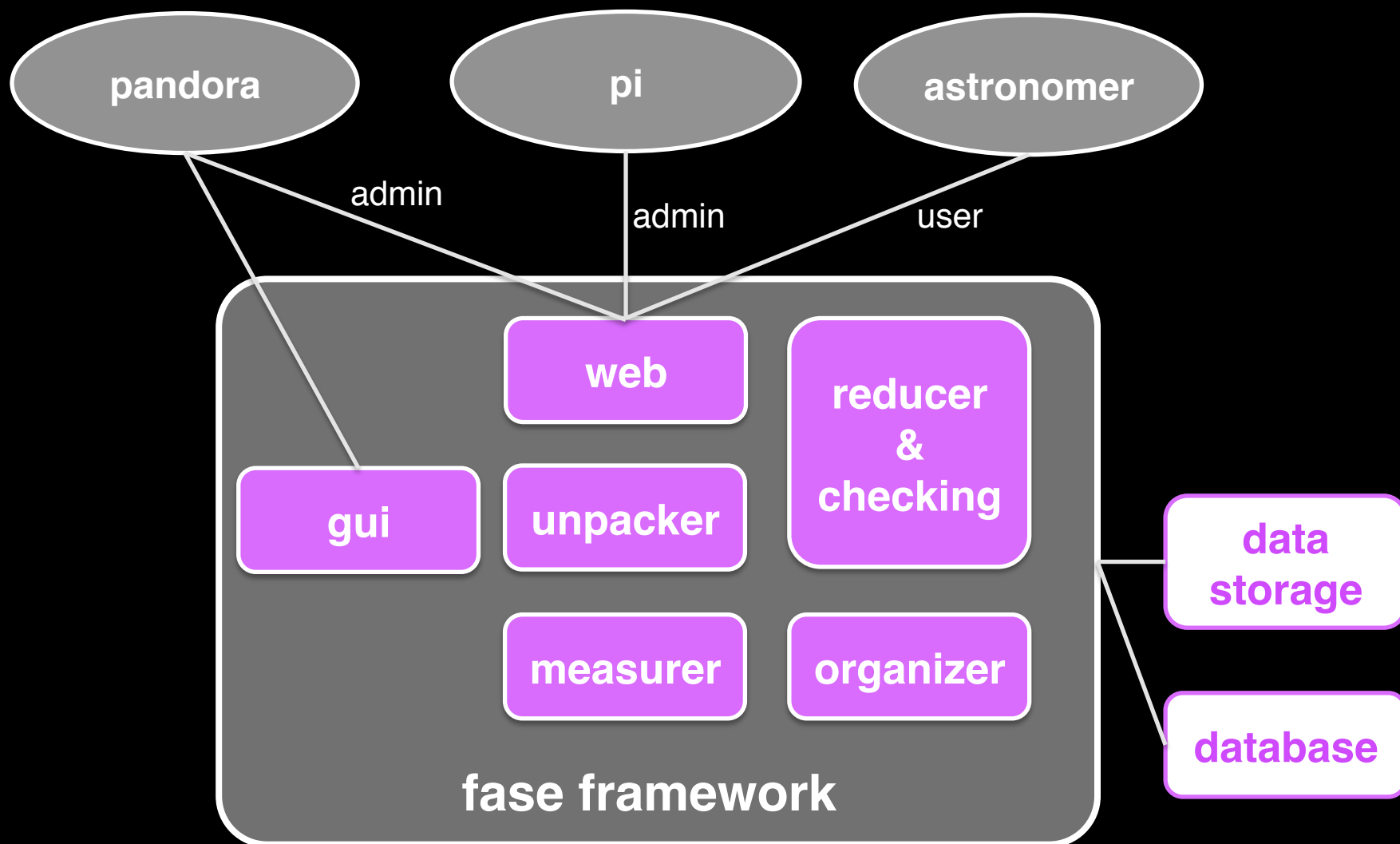


- Grandi numeri
 - ✓ VIPERS 100.000 spettri
 - ✓ Large Programs di ESO
 - 300 notti, proposals che arrivano fino a 1.000.000 di spettri
 - ✓ SDSS 1.000.000 spettri
 - ✓ BigBOSS (~ 30.000.000 spettri)
 - ✓ EUCLID (~ 50.000.000 spettri)
- Serve software con alto grado di automazione e affidabilità

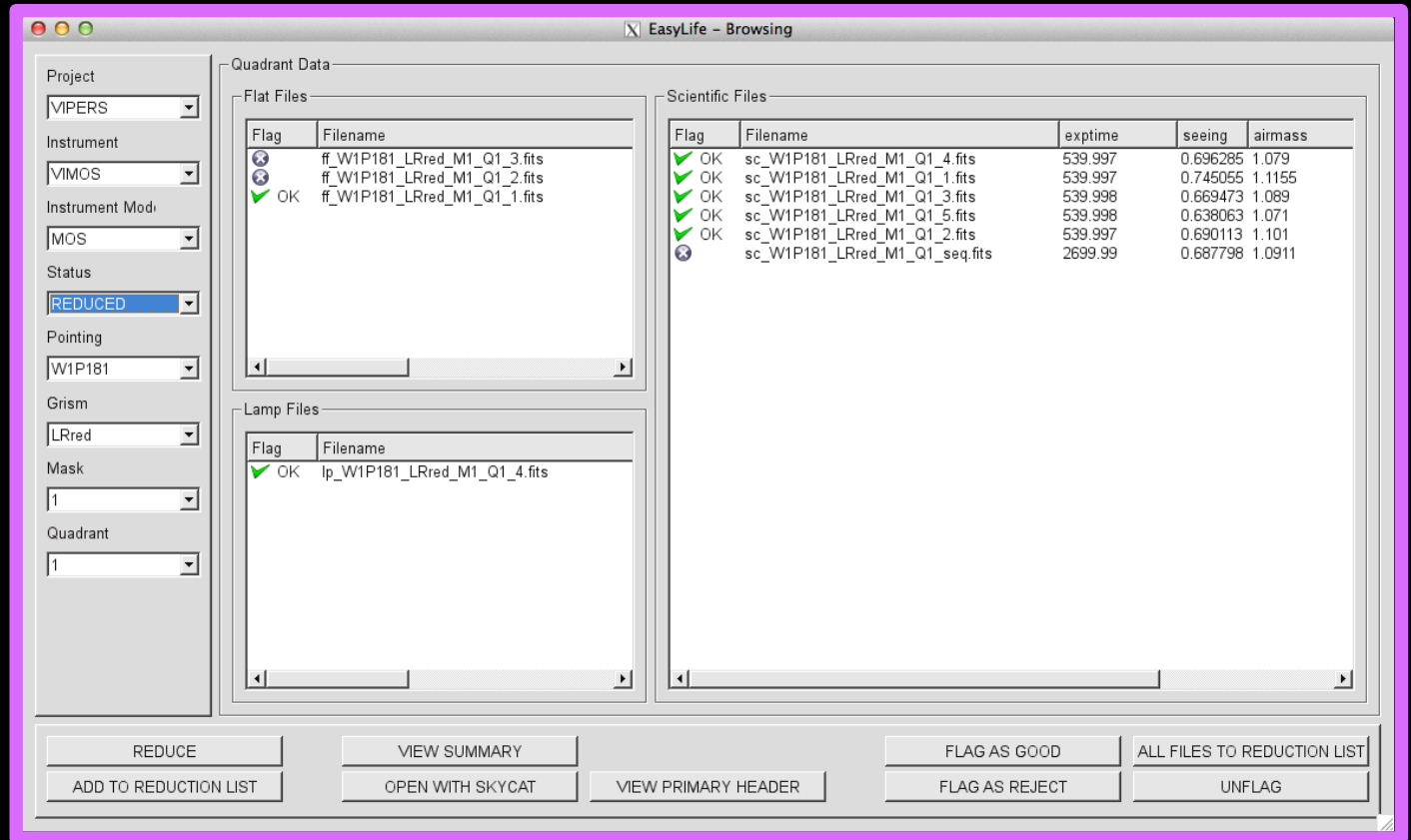
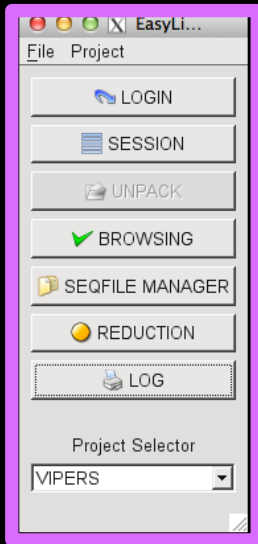
future
astronomical
software
environment

2004 - 2010

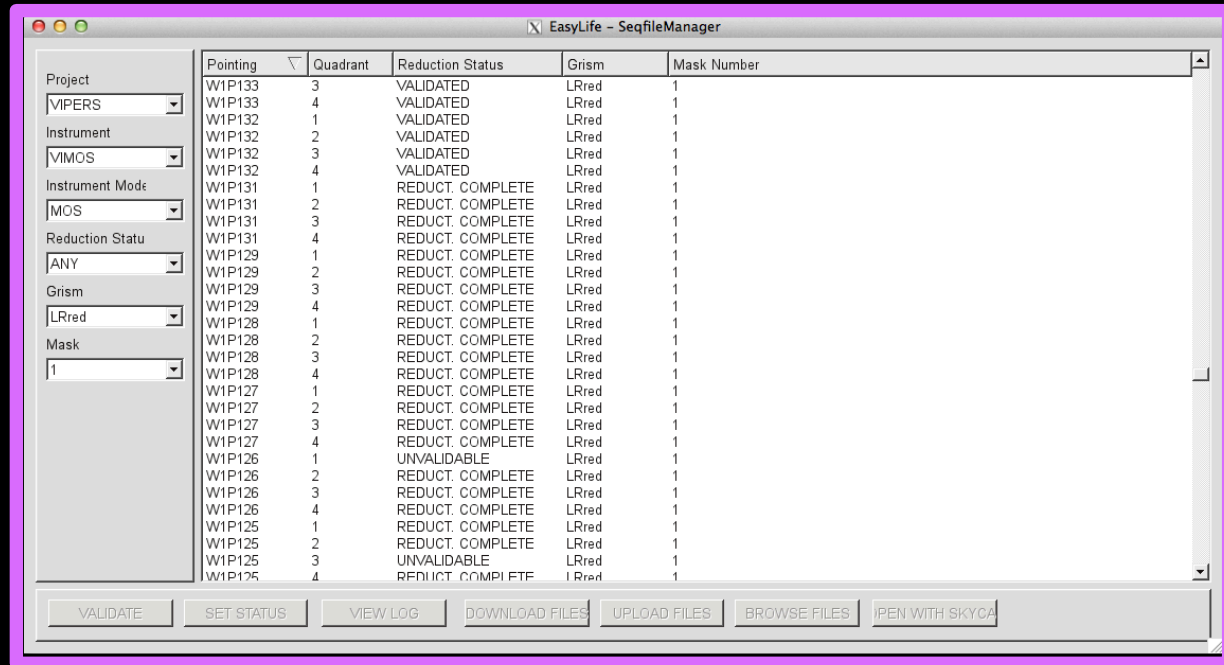
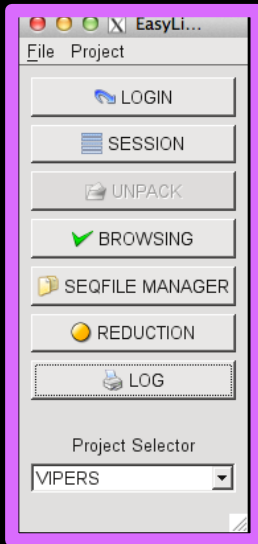
- Progetto OPTICON
 - ✓ Network 3.6
Fondi EU FP6
 - ✓ Network 9.2
Fondi EU FP7
 - ✓ PI P. Grosbol, co-chair F. Pasian
 - ✓ ESO, INAF, LAM OAMP, ESA, RAL, ...
- In collaborazione con US
 - ✓ US PI D. Tody
 - ✓ USVAO, NRAO, NOAO



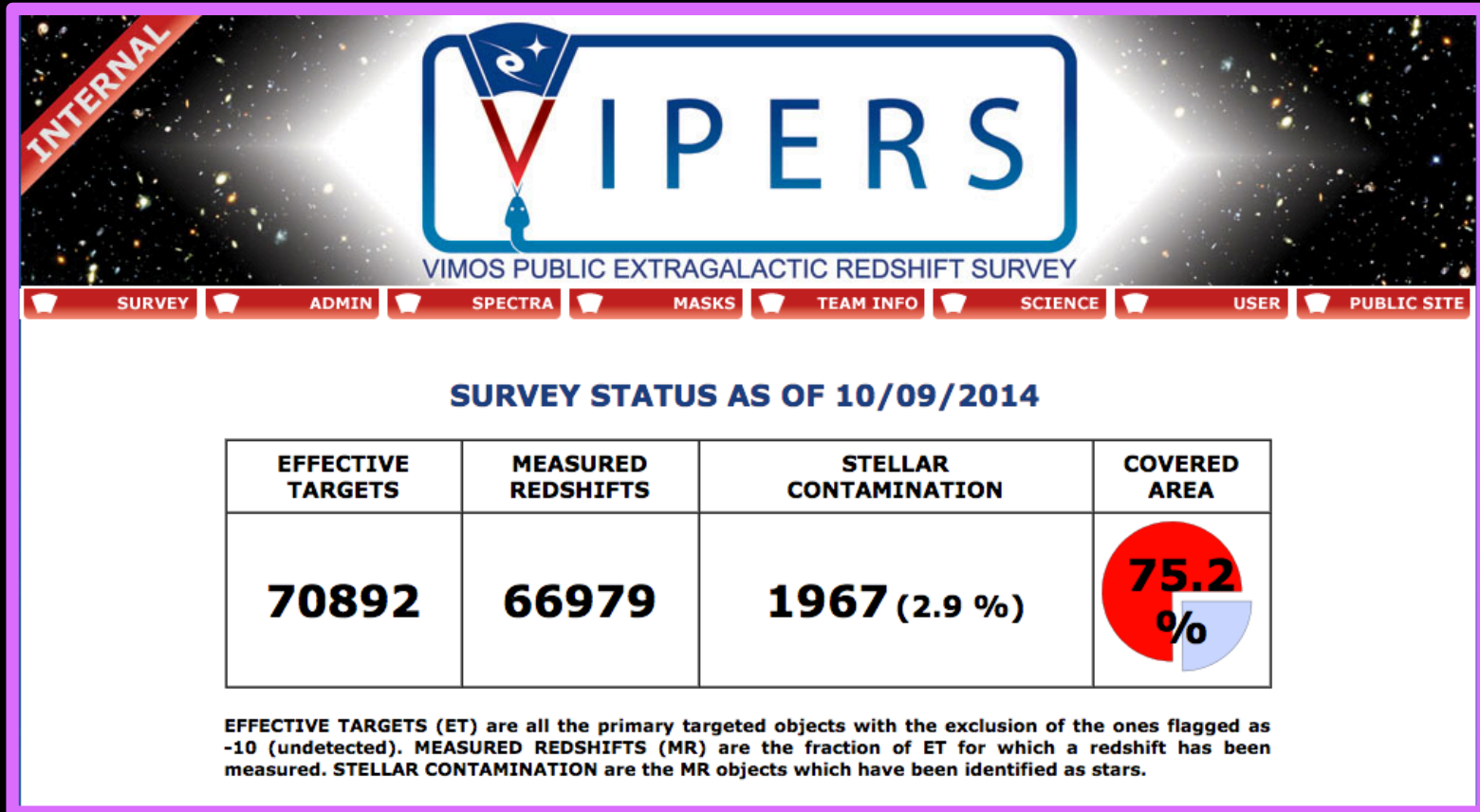
easylife / organizer vipers

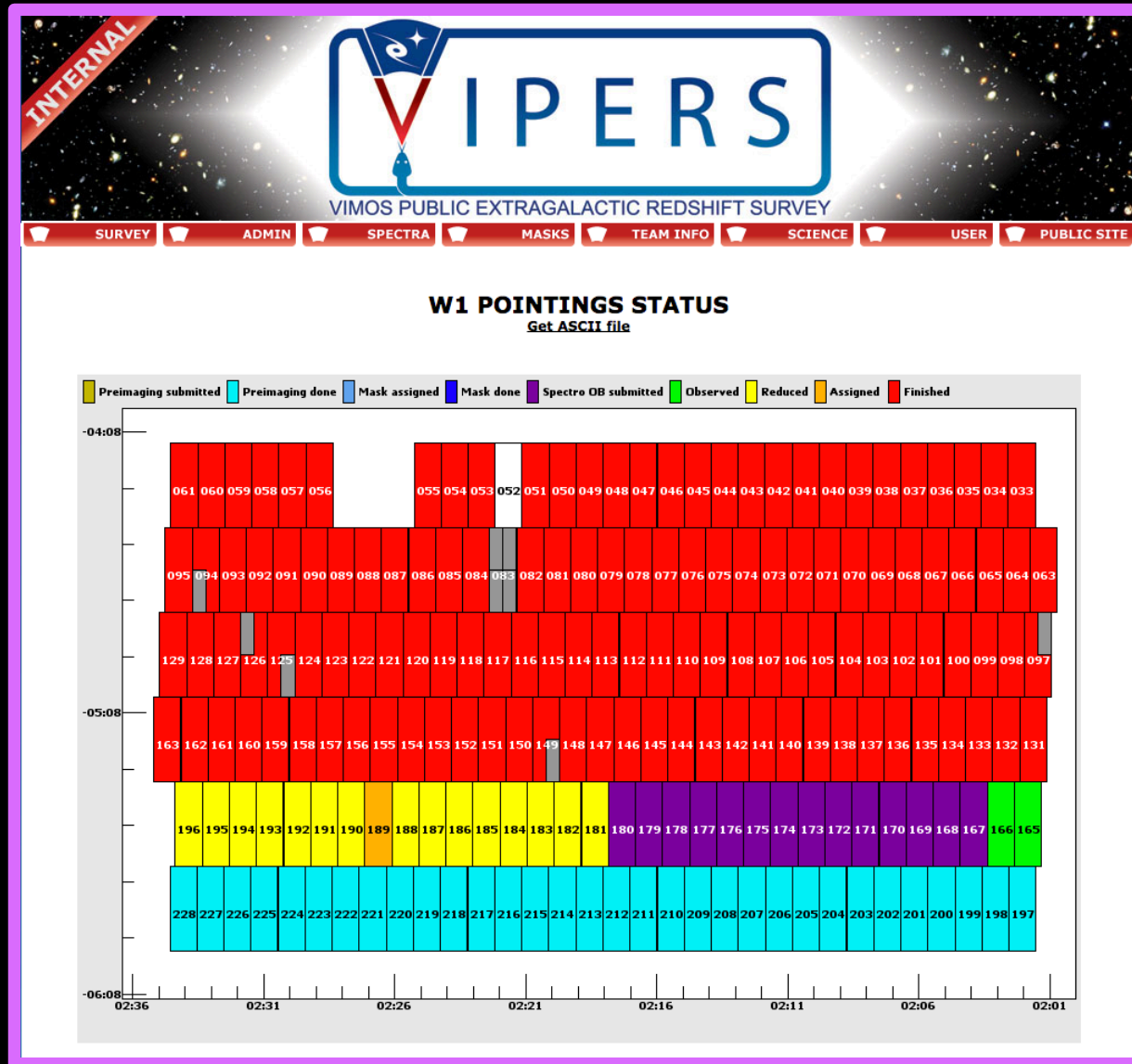


easyli / reduction vipers



- ✓ riduzione automatica con check-points
- ✓ intervento manuale limitato a casi problematici
- ✓ misura dei redshift automatica seguita da check manuale





W1P150

HISTORY		SEQUENCES	
Finding chart for Q1 Q2 Q3 Q4		A	
Notes from preparation/reduction		Not Used (clouds)	
Show comments from redshift validation		Observed on 11 Jan 13	
Preimaging submitted on period		Airmass from 1.13 to 1.22	
Preimaging done (Quality)		Seeing from 0.70 to 0.82	
Mask preparation assigned to Agnieszka Pollo on 24 Aug 12		No moon	
Mask done on 15 Oct 12		View ESO ambient monitor	
Spectroscopic OB submitted on period		View OB log	
Observed		No night log available	
Ingested on 02 Apr 13		B	
Q1	Reduced on 16 Apr 13	Used	
	Assigned to Sylvain DeLaTorre on 06 Jun 13	Observed on 13 Jan 13	
	Checked out on 13 Sep 13	Airmass from 1.15 to 1.25	
	Finished on 13 Sep 13	Seeing from 0.63 to 0.74	
Q2	Reduced on 16 Apr 13	No moon	
	Assigned to Sylvain DeLaTorre on 06 Jun 13	Q1 quality: 111	
	Checked out on 06 Sep 13	Q2 quality: 111	
	Finished on 13 Sep 13	Q3 quality: 111	
Q3	Reduced on 16 Apr 13	Q4 quality: 111	
	Assigned to Sylvain DeLaTorre on 06 Jun 13	Q1: 5 z failures, 2 undet. spectra	
	Checked out on 06 Sep 13	Q2: 6 z failures, 2 undet. spectra	
	Finished on 13 Sep 13	Q3: 3 z failures, - undet. spectra	
Q4	Reduced on 16 Apr 13	Q4: 3 z failures, 3 undet. spectra	
	Assigned to Sylvain DeLaTorre on 06 Jun 13	View ESO ambient monitor	
	Checked out on 06 Sep 13	View OB log	
	Finished on 13 Sep 13	No night log available	

database
access &
retrieval
tool

HOME

NEWS

HELP

LOGOUT

MY ACCOUNT

NEW QUERY

MODIFY QUERY

QUERY RESULTS

USER DATA

VIPERS
DATABASE

Luigi Paioro logged in
Users logged in: 20

Tables Simple Advanced Get all columns

TABLES

Photometry

<u>W1 PHOT</u>	☐
<u>W1 PHOT DER</u>	☐
<u>W4 PHOT</u>	☐
<u>W4 PHOT DER</u>	☐

Spectroscopy

<u>W1 SPECTRO</u>	☐
<u>W1 SPECTRO V1</u>	☐
<u>W1 SPECTRO V1_1</u>	☐
<u>W4 SPECTRO</u>	☐
<u>W4 SPECTRO V1</u>	☐

CORRELATION

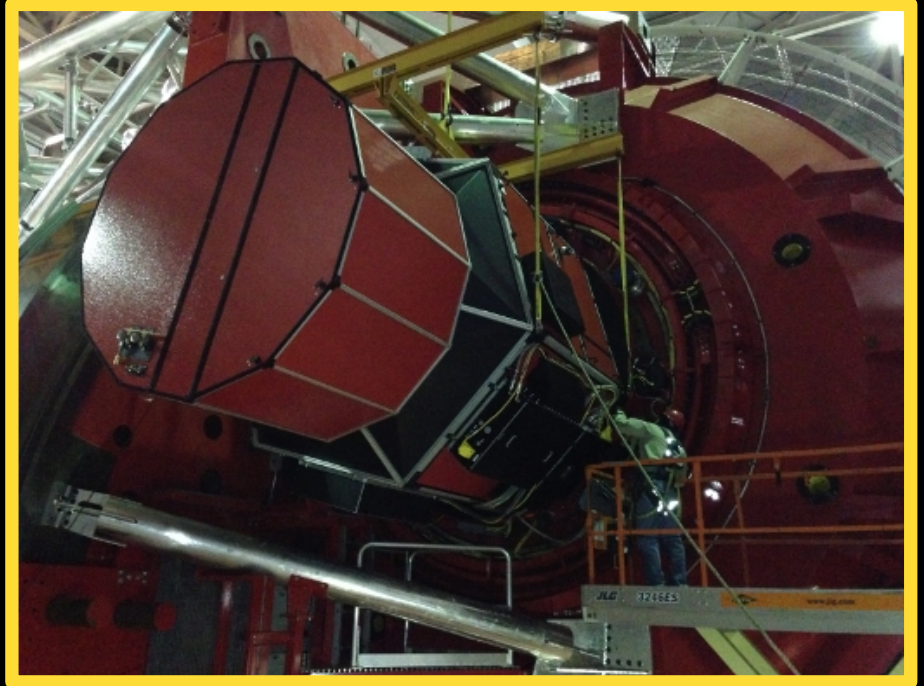
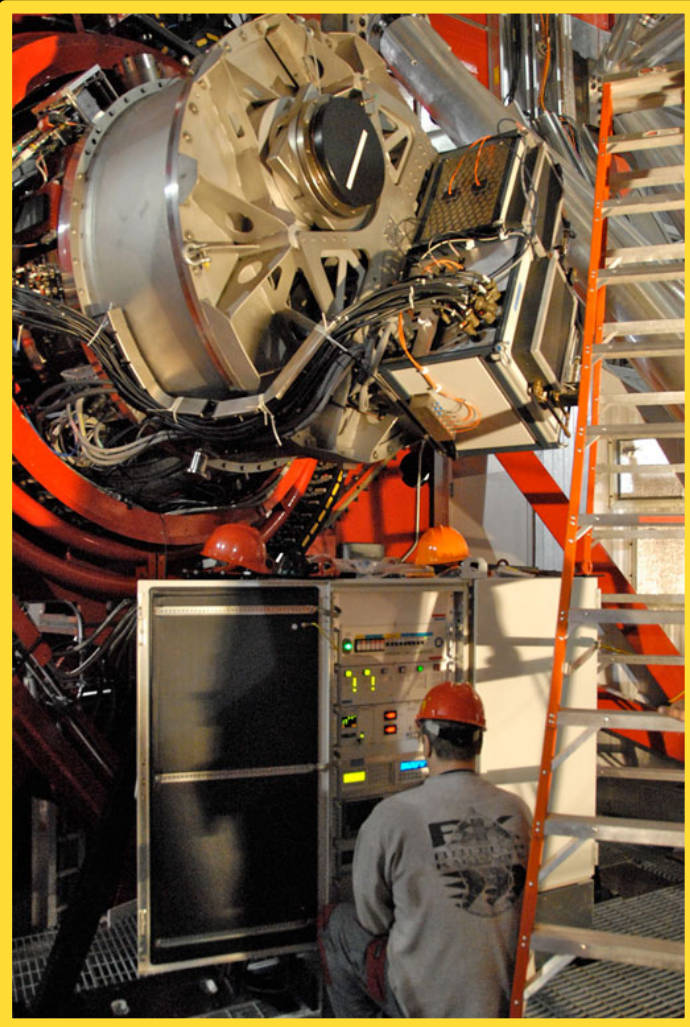
Do not apply correlation ☐

distribute

ibt

il servizio al pubblico

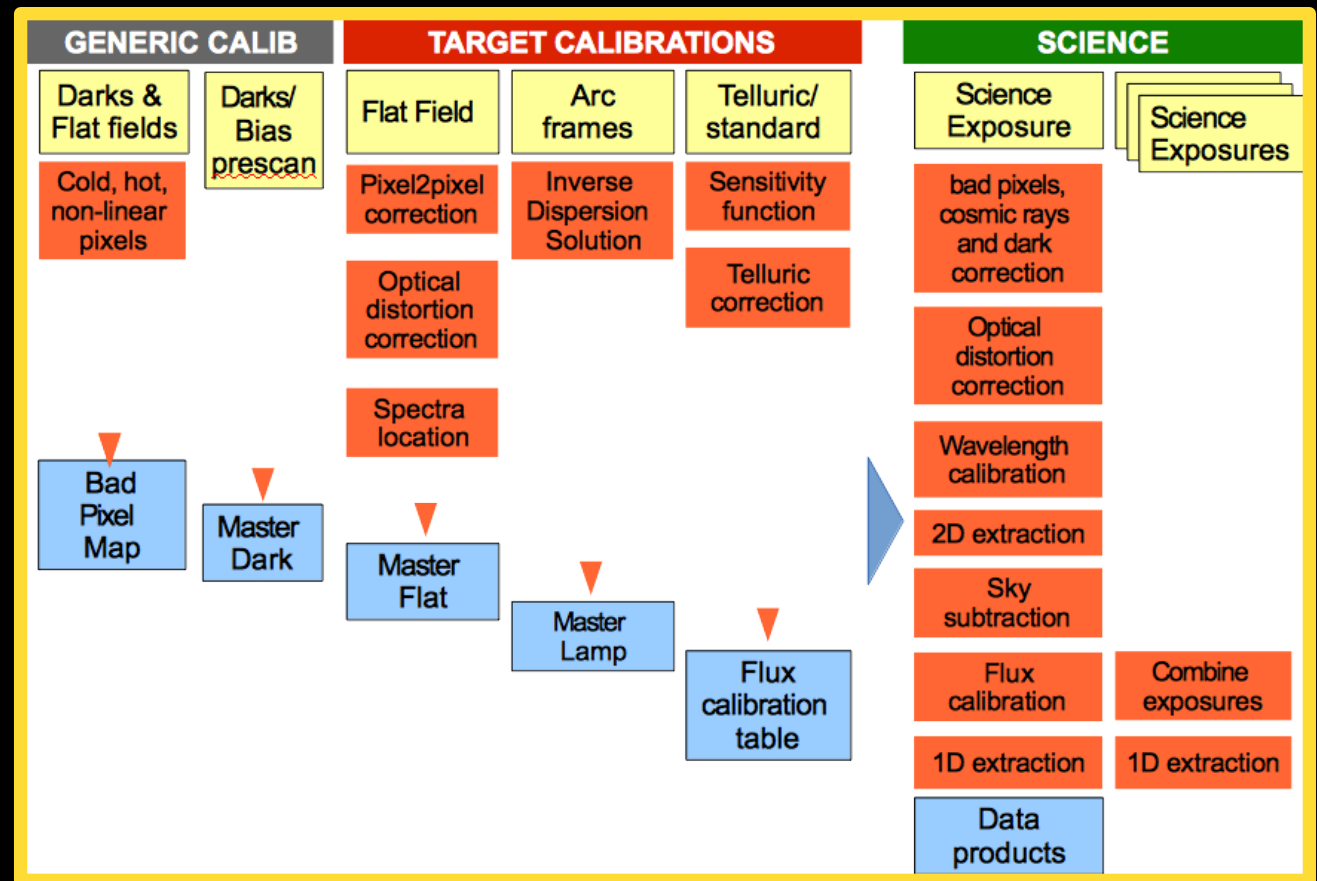
nuovi strumenti lbt



LUCI & MODS

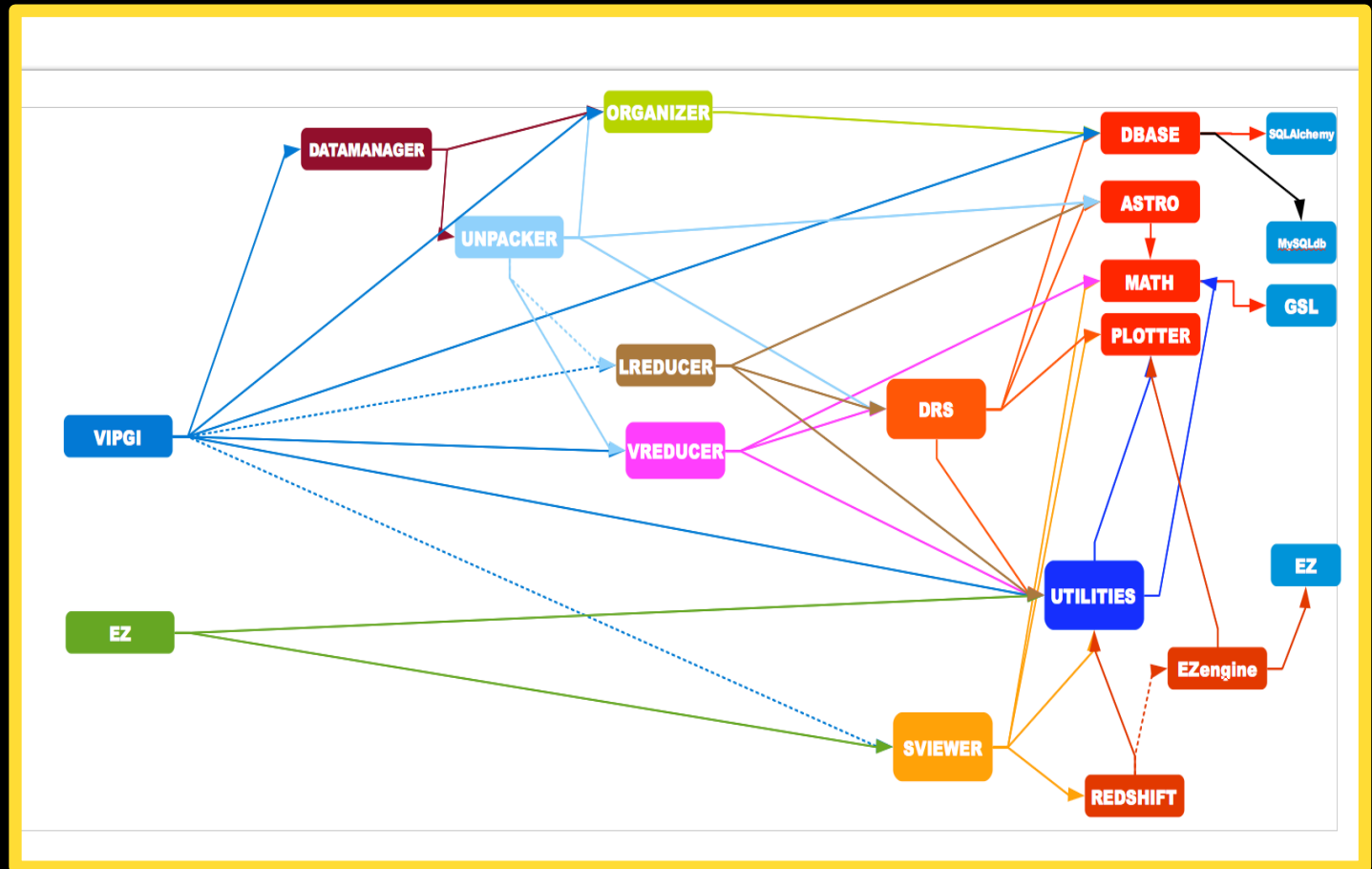
nuove pipelines lbt

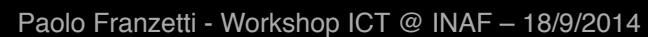
- ✓ multi-strumento
- ✓ infrarosso



nuovo software lbt

- ✓ fase 2.0
- ✓ PNGS





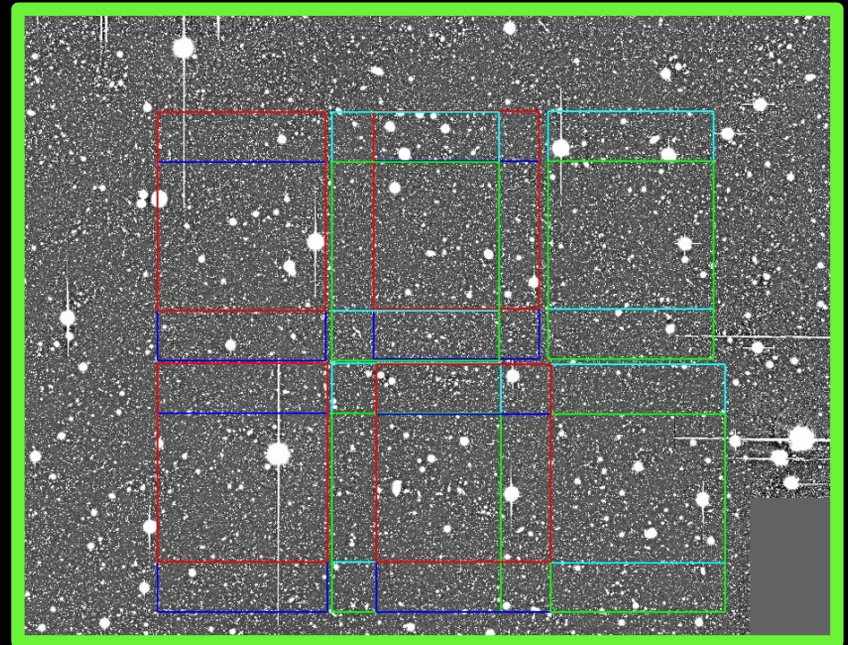
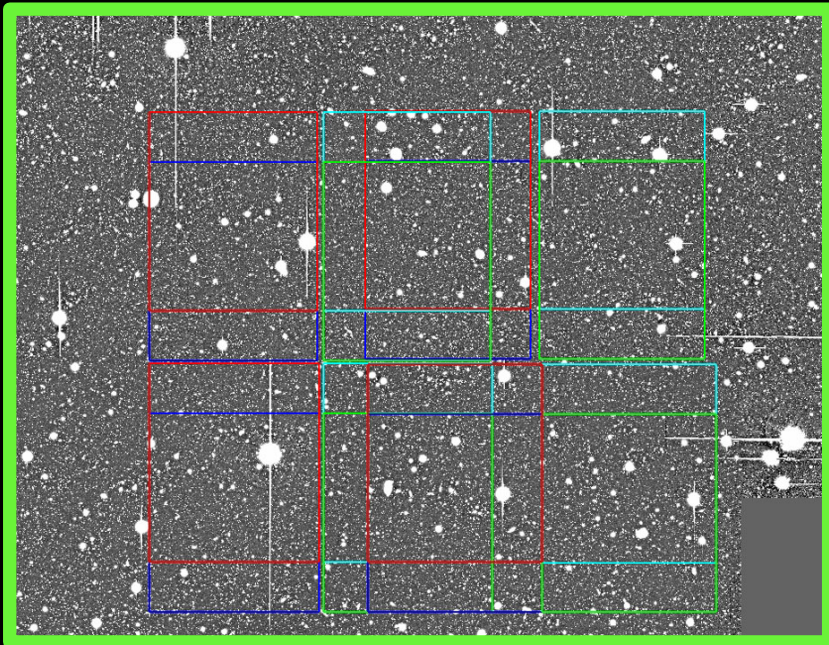
vandels

una nuova opportunità

la survey vandel

We propose to undertake a major ESO Public Spectroscopic Survey to perform the deepest ever spectroscopic study of the high-redshift Universe.

Our fundamental science goal is to move beyond simple redshift acquisition and obtain a spectroscopic dataset deep enough to study the astrophysics of high-redshift galaxy evolution. Consequently, we propose to target a large sample (≈ 900) of $HAB \leq 24$ star-forming galaxies in the redshift range $2.5 < z < 5.5$ using photometric redshift pre-selection.



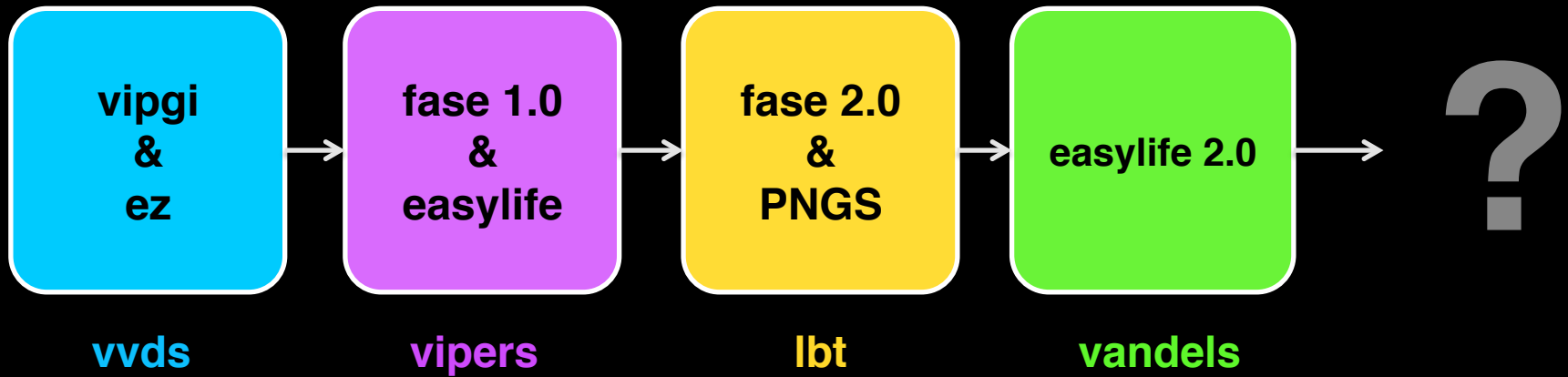
- ✓ Inclusion “mask preparation software”
- ✓ Revisione modulo web
- ✓ Gestione osservazioni multiple per puntamento
- ✓ Gestione spettri multipli per oggetto
- ✓ noSQL database per gli spettri
- ✓ ...

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- ✓ ...

easylife 2.0

concludendo

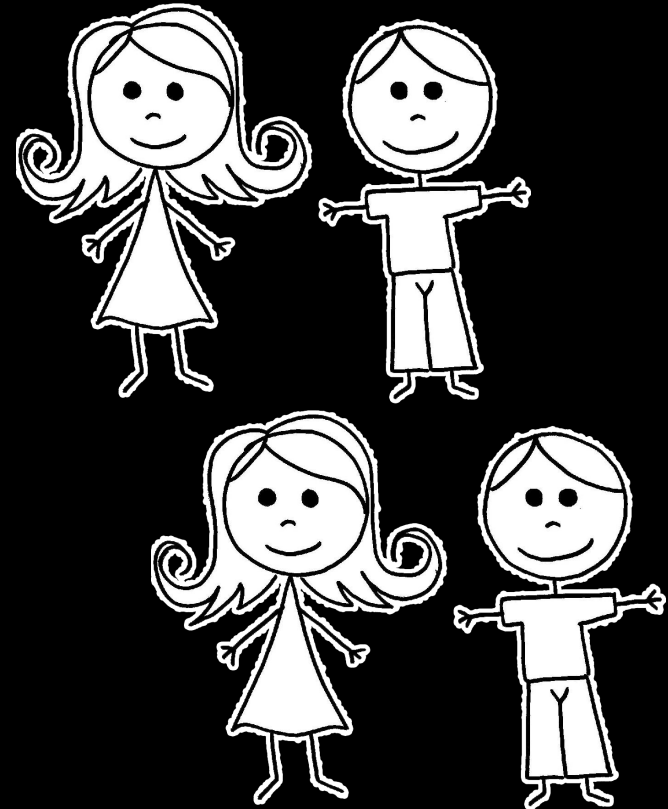
la storia concludendo



- Esistono le basi per un servizio stabile di riduzione dati spettroscopici multi-strumento
 - ✓ Esperienza
 - VVDS, zCosmos, MASSIV, XMM-LSS, CHANDRA-SWIRE
 - VIPERS
 - LUCIFER & MODS
 - ✓ Tecnologia
 - VIPGI, EZ, DART
 - FASE
 - EasyLife
- Esistono progetti futuri che hanno bisogno di un servizio di questo tipo:
 - ✓ VANDELS, EUCLID, Big BOSS, Moons, E-ELT surveys, ...

Ma il 70 % di tutto questo è stato ed è finanziato con fondi a termine

la richiesta **concludendo**



Spectroscopix

Spectroscopic Data Reduction Center

Opening 20??