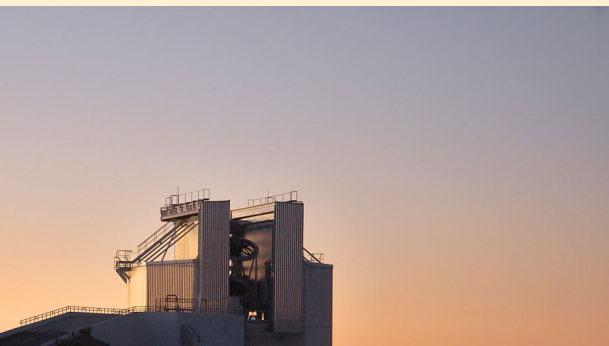


Public ESO Spectroscopic Survey of Transient Objects

PESSTO – Data Handling and Archive System

R. Smareglia¹, I. Arcavi³, A. Gal-Yam³,
C. Knäpik¹, M. Molinaro¹, S. Smartt²,
S. Valenti¹, O. Yaron³, D. Young²



PESSTO is the:

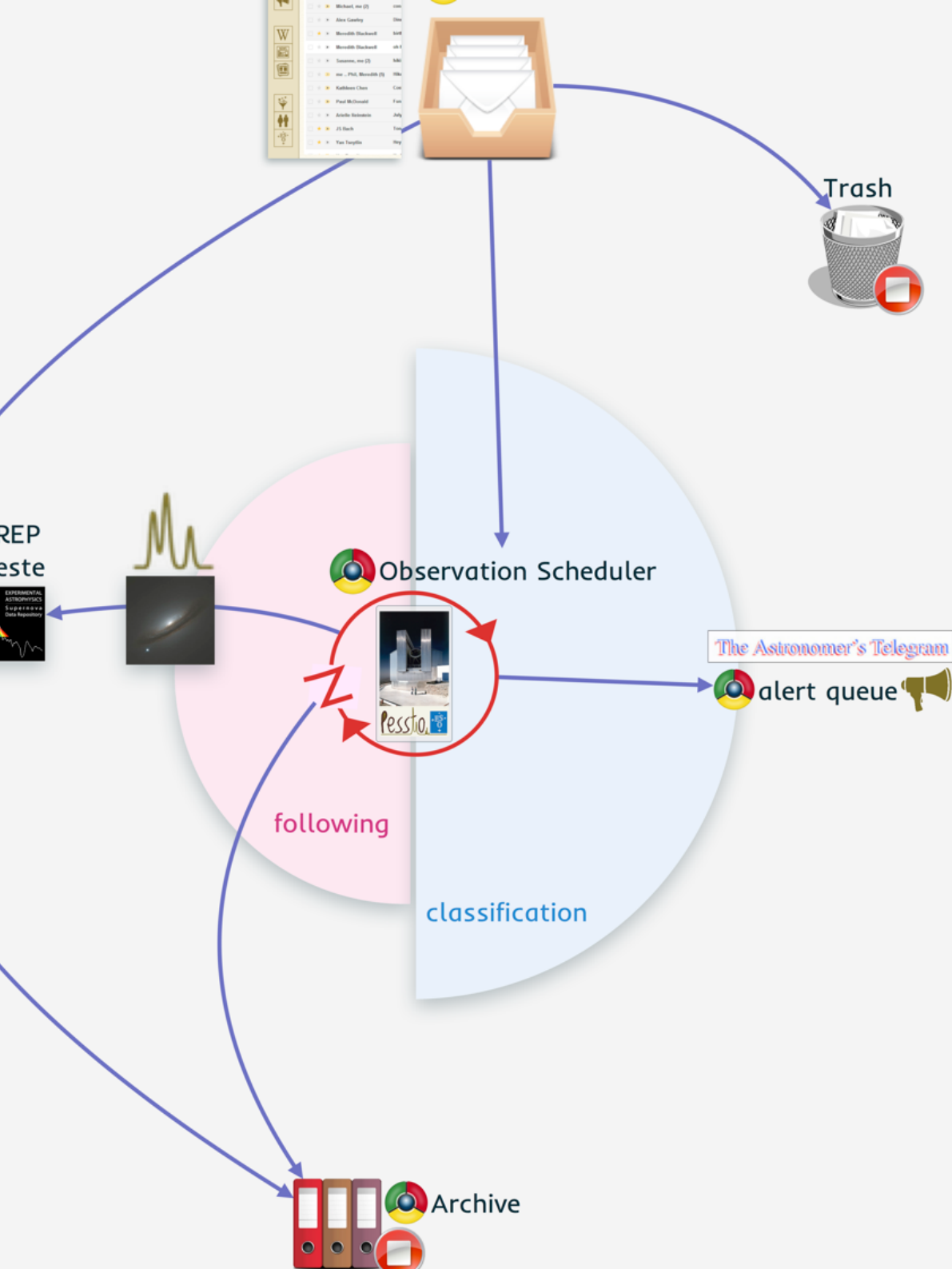
Public ESO Spectroscopic Survey of Transient Objects" using the ESO New Technology Telescope and the EFOSC2 (optical) and SOFI (NIR) spectrographs.

It is one of two currently running public spectroscopic surveys at ESO.

20 Institutes members

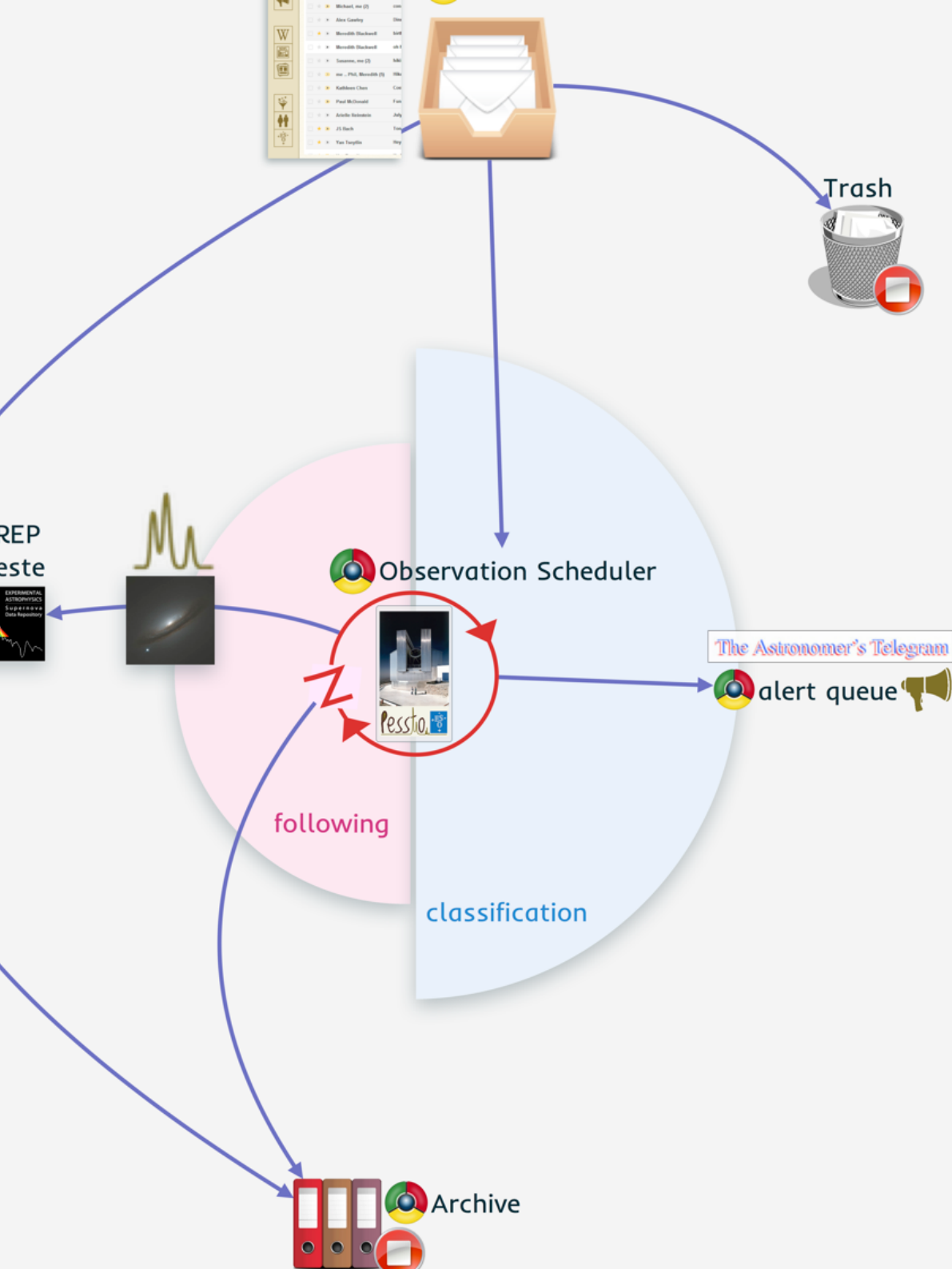
200 People

- Don't lose efficiency, don't lose data.
- use existing expertise to reduce development efforts



PESSTO Work Flow

- Marshall
- PESSTO@IA2
- WISeREP



PESSTO Work Flow

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- WISeREP

- It's the entry point for all information

- ✓ Raw data observer,

- ✓ data reduced,

- ✓ scientific discussion and result

- Manage the observation target

developed from Queen's University Belfast

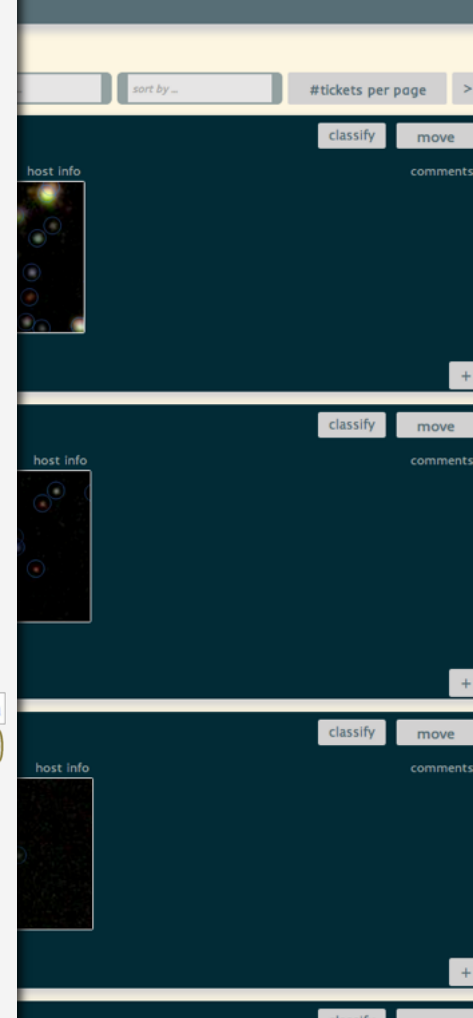
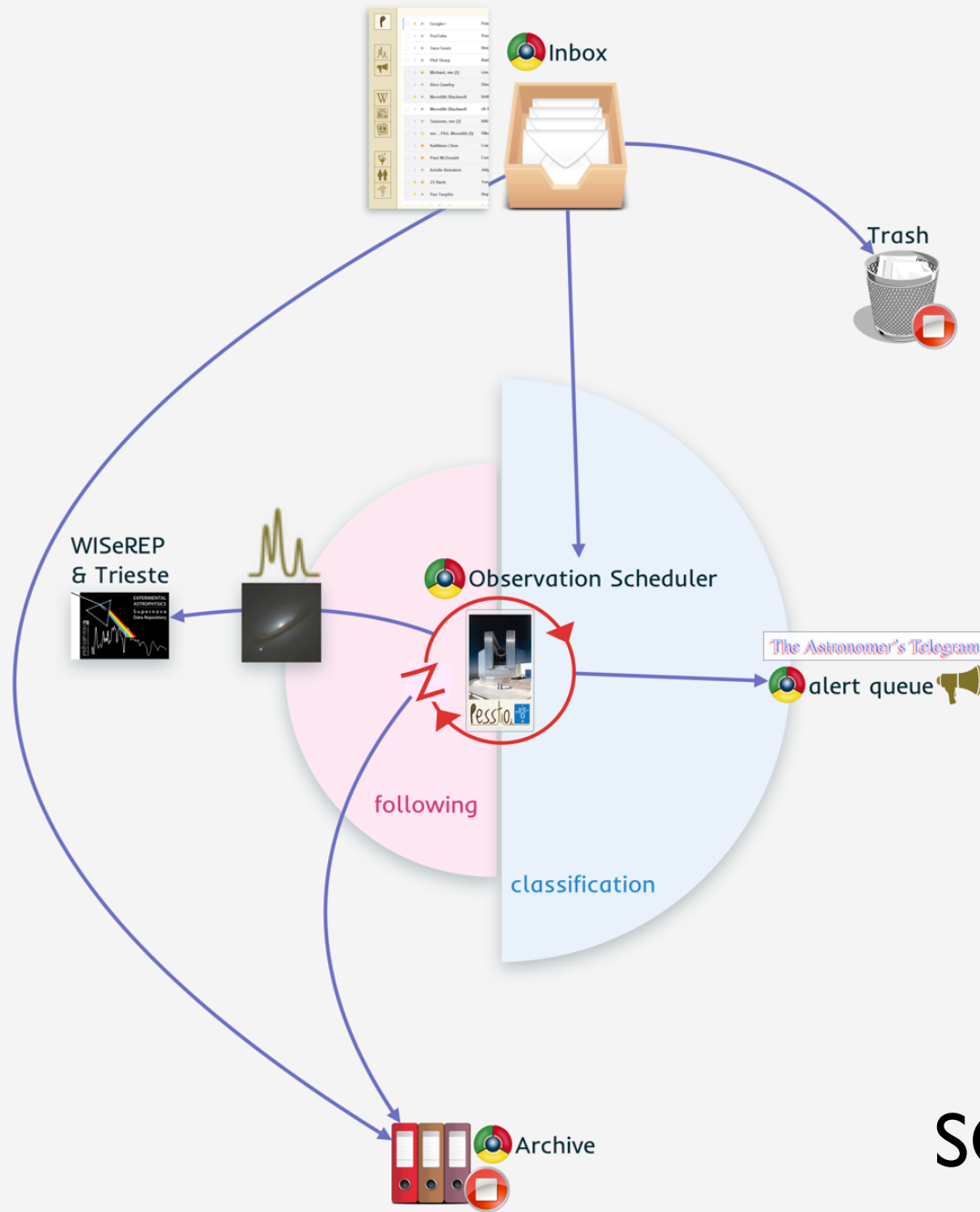
Short Term Goals

Scrape Atel webpages, add to Atel table to DB and cross-match them against pessto objects.
Develop page for observers/data reducers & url for others to download data from.
Automate pessto classification counters

Longer Term Goals (not complete)

Implement andrea's automated ranking score given for each object - a traffic light system to quickly tell good objects from semi-rubbish ones.
Ability to manually change the priority (overriding APs ranking system) of the object shall be included.
Individual object pages - page with ALL object info, with most important info positioned at top of page (includes links here to WISEREP plots and trieste data).
Automated finder charts, with blind off-sets etc
Light curves - data taken from feeder surveys & a form for pessto members to add extra points.
HTML & plain text table views of each of the workflow webpages.
Scripts required to process the objects (trash, archive or queue for classification).
Ability for members to create personal lists of objects they're interested in.
Ability to auto generated ATel text based on objects selected.
Send info to objects by running them through the QUB Transient Classifier
Develop 'Automatic Scheduler' code that constantly update object priorities (that change with time: you need to know the cadence of observations for each object, rescheduling targets based on this information.

PESSTO Marshall



SOFTWARE WORKFLOW



search for ...

sort by ...

#tickets per page >

- selection queues
 - inbox (9)
 - review for followup (8)
- observation queues
 - classification targets (8)
 - followup targets (11)
 - all targets (19)

classify move

PS1-12bah

Identity magnitude object info host info comments



ra **18:24:59.33**
dec **+22:33:33.0**
prediction **SN**
prediction source: **None**



g **17.2**^{+41d}
r **17.3**^{+53d}
i **17.4**^{+53d}
z **19.0**^{+127d}


classify move

- classification & atel queues
 - queued for classification (1)
 - queued for atel (7)
- reference
 - classified (81)
 - archived (240)


classify move

PS1-12bai

Identity magnitude object info host info comments

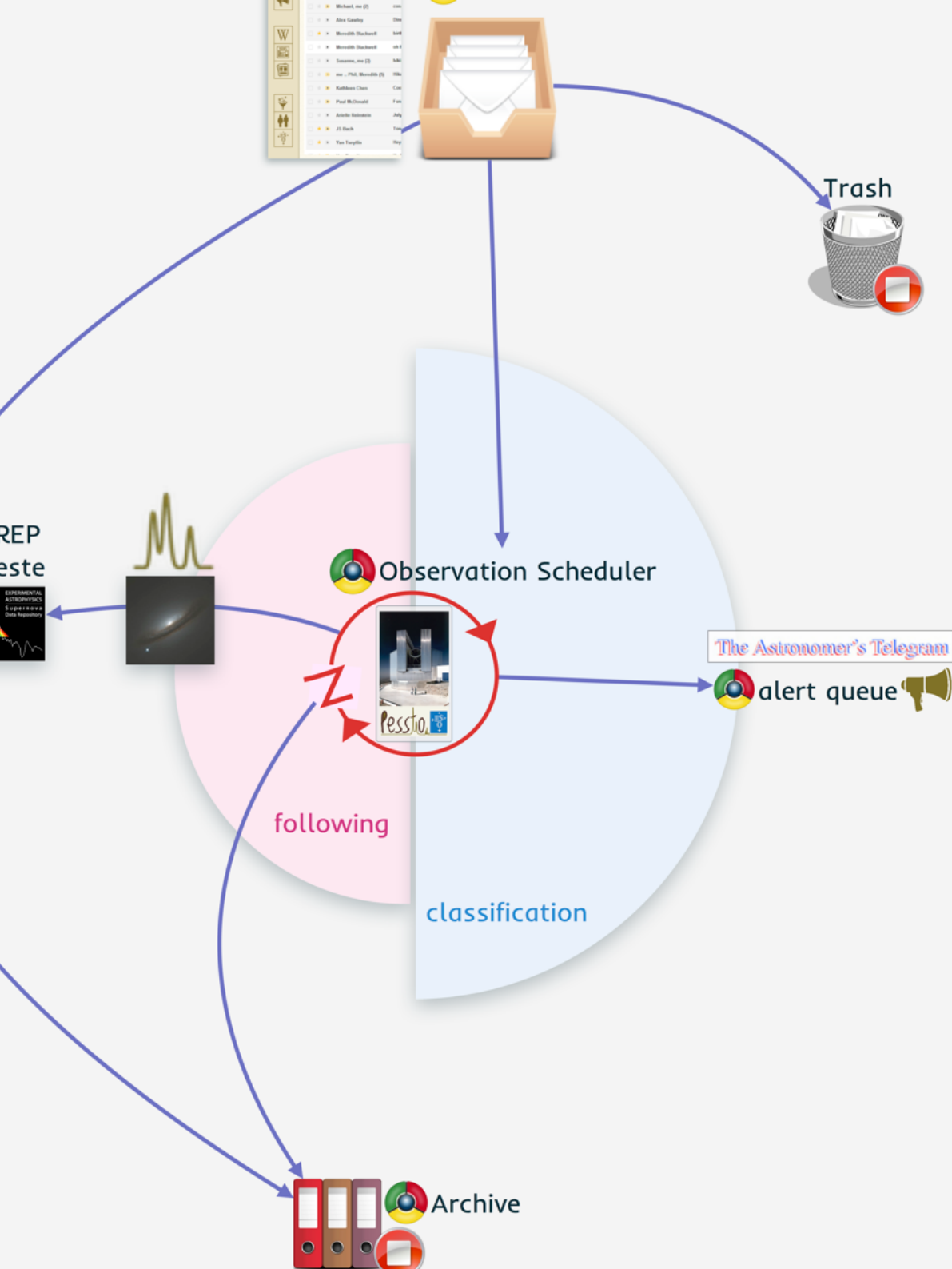


ra **21:09:54.14**
dec **+16:30:51.9**
prediction **SN**
prediction source: **None**



i **16.8**^{+51d}
l **16.6**^{+51d}
i **16.5**^{+52d}
l **16.7**^{+52d}
g **16.9**^{+53d}
g **17.0**^{+53d}
g **17.2**^{+53d}
z **19.5**^{+123d}
z **19.7**^{+123d}

classify move



PESSTO Work Flow

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Data/archive repository for all intermediate and reduce data obtained from PESSTO pipeline.

- Easy Retrieve:
 - All/selected data from a single run (for quality check)
 - All final data for ESO → Phase 3 (single run)
- User, selection:
 - Single object
 - Single run (photometric and/or spectroscopic)

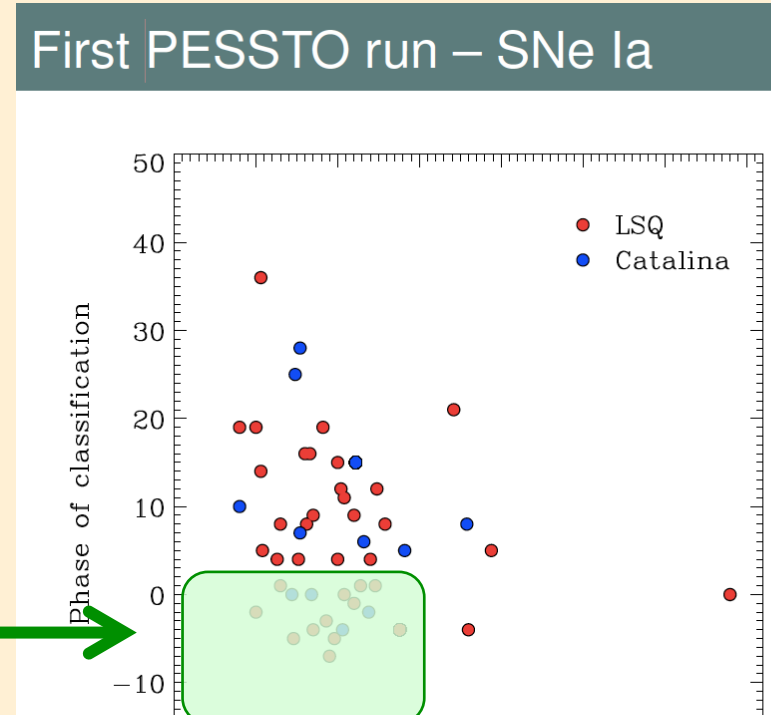
Backup of Marshall

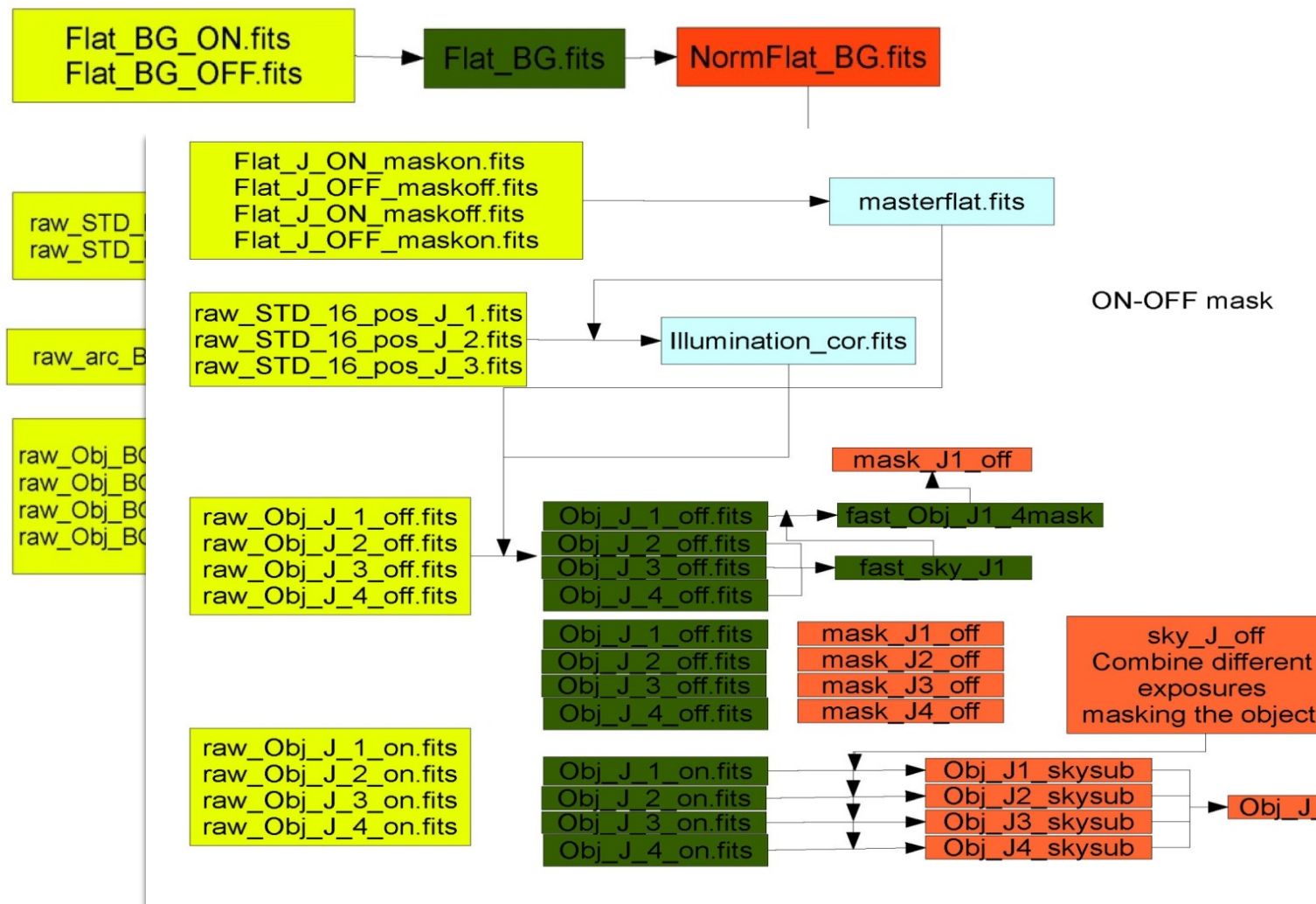
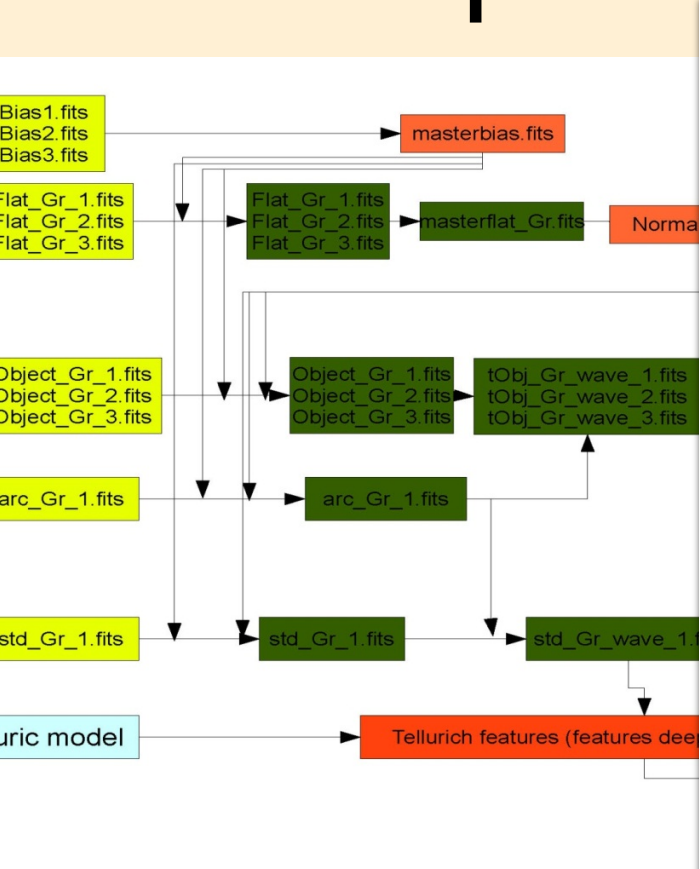
VO service for public data

- Published by VO-Dance tool (Cone Search, SSAP, SIAP, TAP)
- Export GELATO tool as VO service

ully automated *python/pyraf* pipeline (S.Valenti
NAF, Padova) : Flux calibrated spectra in seconds
when at NTT
ull reduction of all optical, NIR spectra and
maging, ESO Phase 3 compatible, at end of month

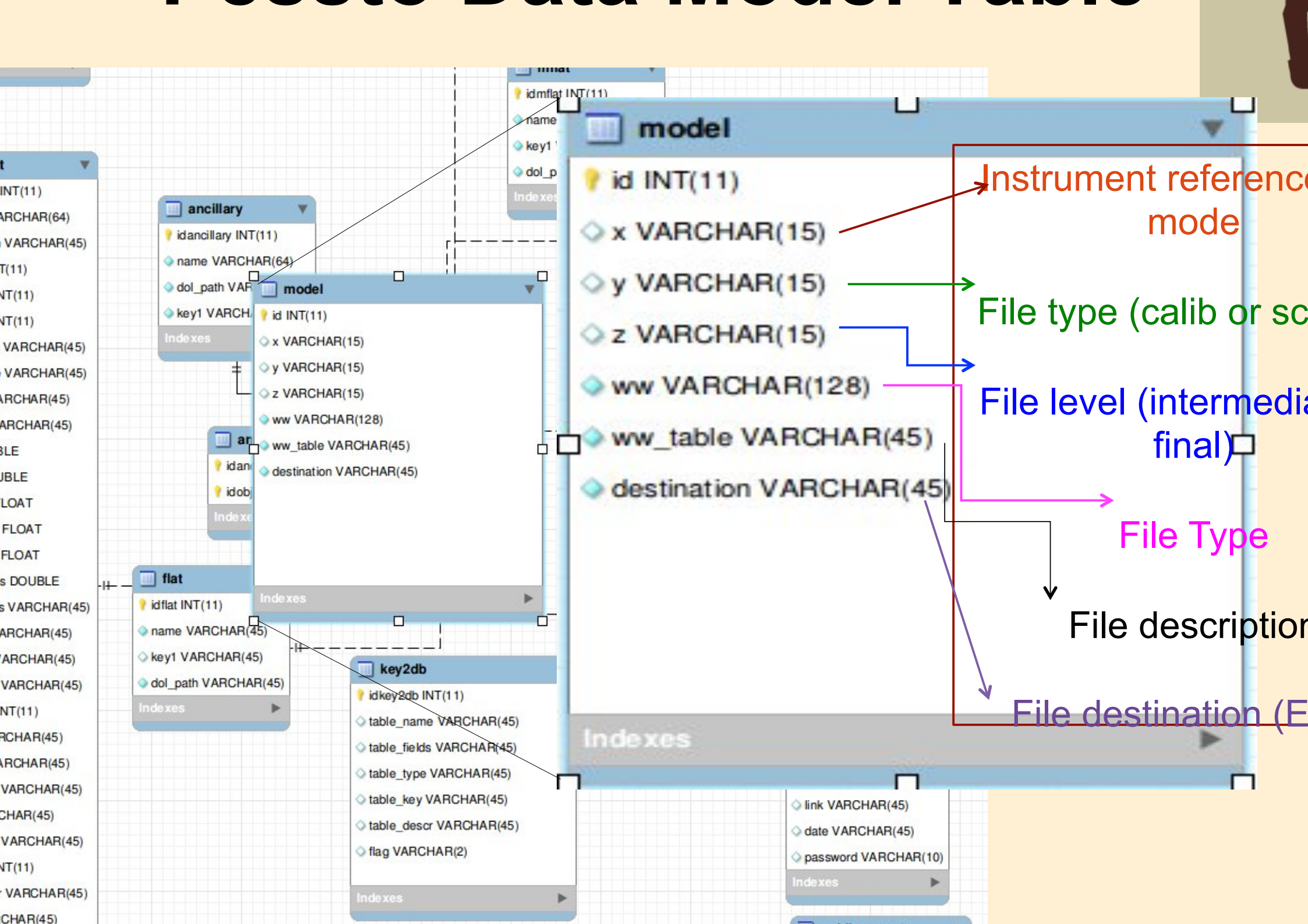
PESSTO goal : discover,
classify, target for follow-up.
Speed and classification
accuracy key. Automated
pipeline essential





Target:

easy way to store and retrieval data from PESSTO pipeline (5 different process)



QUB server

IA2 server

Marshall DB

Marshall Backup DB

QUB Trigger

IA2 Trigger

PESSTO AUX DB

PESSTO AUX DB

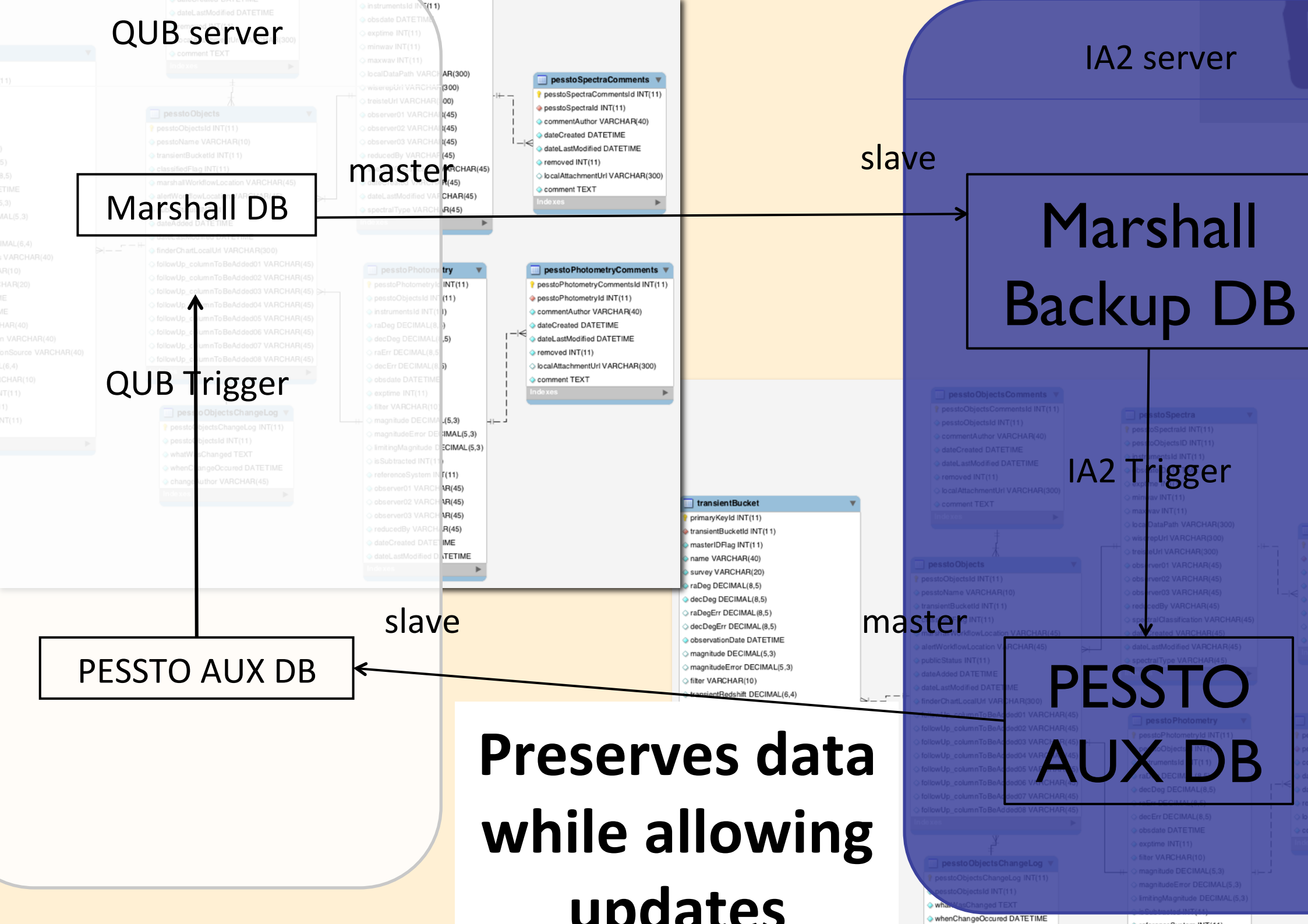
master

slave

slave

master

Preserves data while allowing updates



WEB GUI

Help & FAQ

Pessto

Proprietary data retrieval form:

Username:

Password:

[Enter \(Proprietary\)](#)

Powered by IA2 (INAF - Trieste Astronomical Observatory)

For any problem, please contact: [IA2 team](#)

SessionBean1.java x dataprov2.java x

PESSTO Database Query Form

Name Resolver: [RESOLVE](#)
(The name resolver research make use of SIMBAD, NED and VizieR databases, operating at CDS, Strasbourg, France)

FileName:

RA: (hh:mm:ss.ss) DEC: (+dd:mm:ss.ss) Radius: (arcmin) 14

Observ. Date (yyyy-mm-dd): From: To:

Exposure Time (s): From: To:

Filter: Detector: Instrum.:

Object: File Type: Observer:

Run: Grism: Airmass:

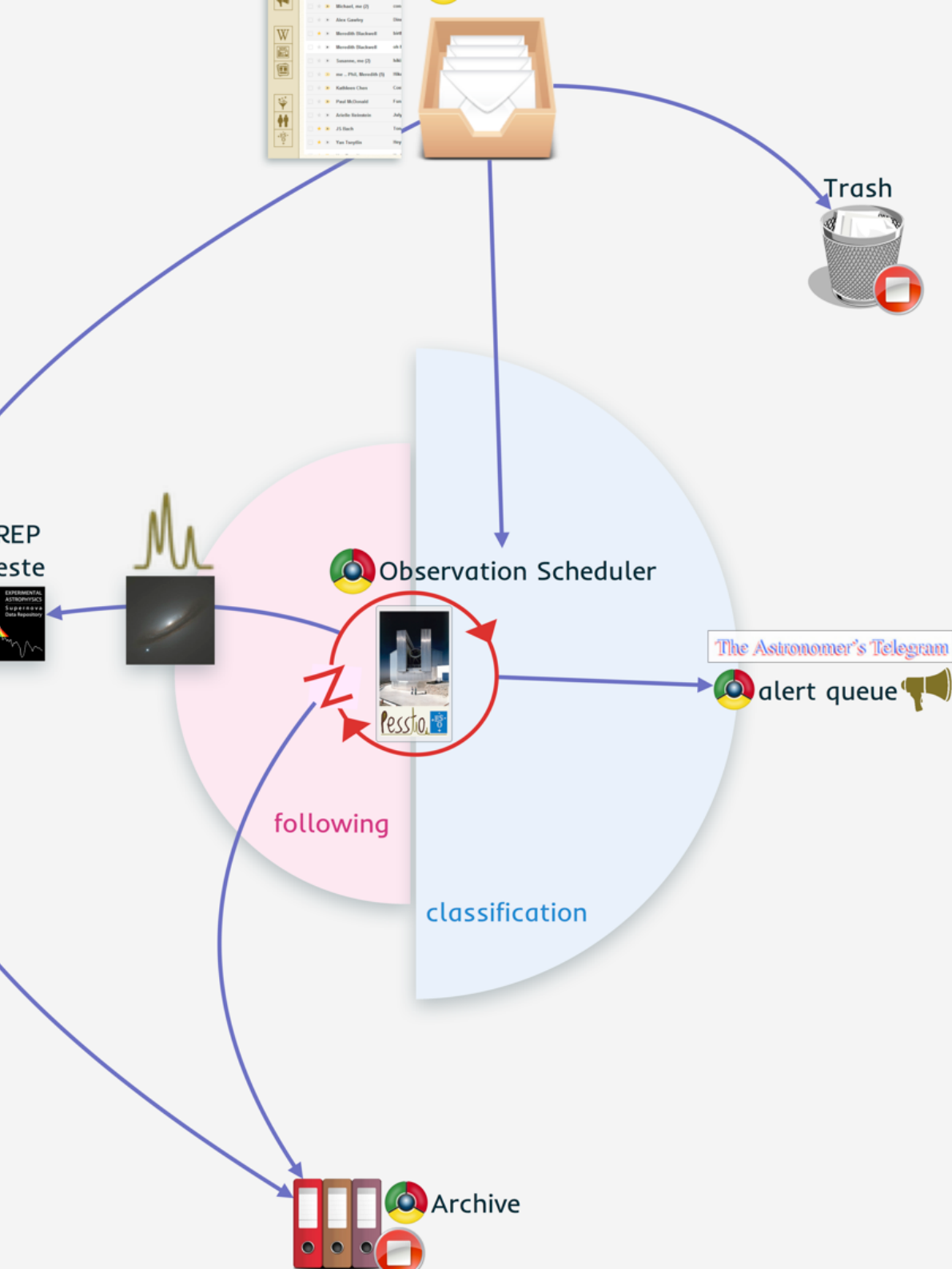
ESO Fast Retrieval WISeREP Fast Retrieval

[SEARCH](#) [RESET](#) [LOGOUT](#)

PESSTO Archive

[Get VOTable](#) [Get Files](#) [Back to selection page](#)

Select	Name	NAXes	NAXis1	NAXis2	Object	Ra	Dec	ExpTime	Ancillary files
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PESSTO Work Flow

- Marshall
- PESSTO@IA2
- WISeREP

(Pessto account logged in)

Weizmann Interactive Supernova data REpository

WISeREP Home

Submitted by admin on Wed, 12/01/2010 - 12:28

EXPERIMENTAL
ASTROPHYSICS

Supernova
Data Repository

מכון ויצמן למדע
WEIZMANN INSTITUTE OF SCIENCE

Welcome pessto



If using information from this site in the preparation of any publication, please cite:

2012PASP..124..668Y

and acknowledge:

The Weizmann interactive supernova data repository - www.weizmann.ac.il/astrophysics

Note that the website was developed and tested using **Mozilla Firefox**

Stat.

9072
3050
2944
5184
6024
3305

Reference

2012PASP..124..668Y

Center for
Astrophysics
Experimental
Astrophysics Group

- An SQL-- - based DB with an interactive web-- - based graphical Interface.
- Aim: To serve as an archive of high quality SN spectra (and additionally photometry), including both historical (legacy) data as well as data that is accumulated by ongoing modern programs.
- Utilizing interactive plots, we Provide a graphical interface to visualize data, perform line identification of the major relevant species, determine object redshifts, classify SNe and measure expansion velocities.
- Guest users may view and download spectra or other data that have been placed in the public domain. Registered users may also view and download data that are proprietary to specific programs with which they are associated.

Objects

Weizmann Interactive Supernova data REpository

Home

Objects

Submitted by admin on Tue, 12/07/2010 - 12:23

PESSTO - Recently Added (within last 7 days)

Search: Object: OR Obj Name (free text): Active:

Type: OR Type (free text): Program: Public:

RA between: and DEC between: and

OR arcmin around: RA DEC (cone search - both RA+DEC required)

Added within the last

Last Modified between: and (yyyy-mm-dd) Modified by (free text):

Creation Date between: and (yyyy-mm-dd) Created by (free text):

Sort by: (1) Desc (2) Asc (3) Asc Limit:

Show spectra plots: Yes No Show LC plots: Yes No

7 row(s) returned.

Id	Obj. Name	IAU Name	Cross References	RA	DEC	Type	Redshift	Host Name	Obj. Program	Active	Public	No. of Spectra	Photometry	Remarks	Created By	Last Modified
3961	LSQ12dwl		<input type="text" value="Coord. X-Refs"/>	22:12:41.95	+00:30:22.97	SN Ic-pec	0.01377		PESSTO	Y	N	1		aka PTF12gzk	ofer-UploadSet	2012-09-10
	Show Spectra															
3960	SSS120816.012937-175040		<input type="text" value="Coord. X-Refs"/>	01:29:38.59	-17:51:01.22	SN Ia	0.07		PESSTO	Y	Y	1			sagi-UploadSet	2012-09-10
	Show Spectra															
3959	PSNJ02263653+1208555		<input type="text" value="Coord. X-Refs"/>	02:26:36.66	+12:08:38.76	SN Ia	0.03		PESSTO	Y	N	1			admin-UploadSet	2012-09-08
	Show Spectra															
3958	SSS120817.002822-305723		<input type="text" value="Coord. X-Refs"/>	00:28:24.29	-30:57:23.58	SN Ia	0.055		PESSTO	Y	Y	1		aka PSNJ01001437-3048309	admin-UploadSet	2012-09-09
	Show Spectra															
3957	SNhunt146		<input type="text" value="Coord. X-Refs"/>	03:18:50.34	-13:03:53.60	SN Ia	0.031		PESSTO	Y	Y	1			admin-UploadSet	2012-09-08
	Show Spectra															
3956	LSQ12aer		<input type="text" value="Coord. X-Refs"/>	02:50:50.86	-16:55:26.88	SN II	0.04		PESSTO	Y	Y	1			admin-UploadSet	2012-09-08
	Show Spectra															

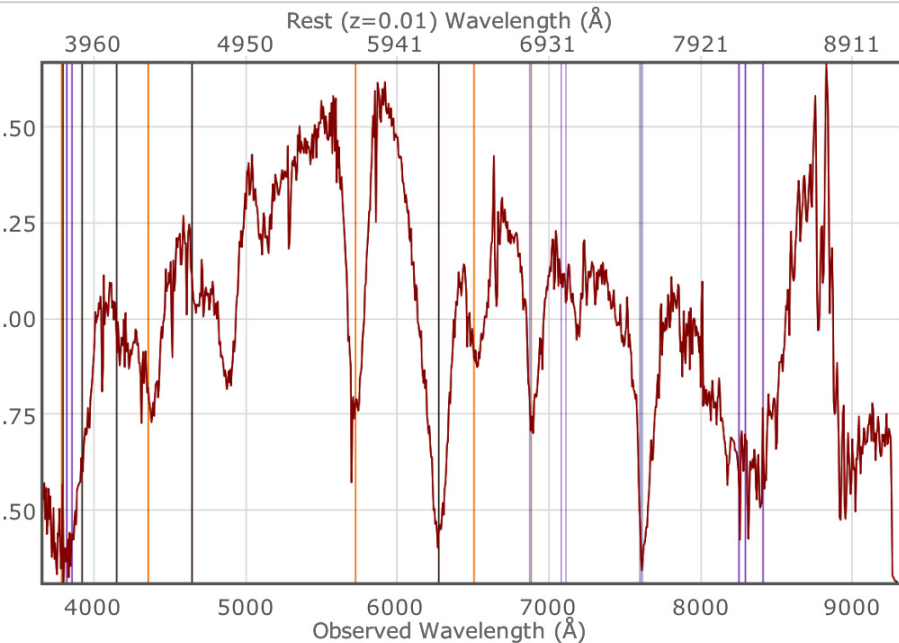
Line identifications example

Applying redshift & expansion velocities

Mouse hovers at WL: 0 (observed), 0 (rest)

Show Files

[tSN2012dy \(sn2012dy\)](#) SN I Ib PESSTO ESO-NTT - EFOSC2-NTT 2012-09-08 Arcavi,Pan 2012-09-08 Maguire 1800 1.5 N [tSN2012dy_20120907_Gr13_Free_slit1.5_1_f.ascii](#) [tSN2012dy_20120907_Gr13_Free_slit1.5_1_f.fits](#)



Zoom Full Auto Zoom Binning factor: 1 (rounded to nearest integer >1)

Mouse hovers at WL: 0 (observed), 0 (rest)

- | | | | | | |
|--|---------|-------------------------------|--|---------|-------------------------------|
| <input checked="" type="checkbox"/> Show H at | z= 0.01 | v _{exp} = 17000 km/s | <input type="checkbox"/> Show Mg at | z= 0.01 | v _{exp} = 0 km/s |
| <input checked="" type="checkbox"/> Show He at | z= 0.01 | v _{exp} = 11000 km/s | <input type="checkbox"/> Show Mg II at | z= 0.01 | v _{exp} = 0 km/s |
| <input type="checkbox"/> Show He II at | z= 0.01 | v _{exp} = 0 km/s | <input type="checkbox"/> Show Si II at | z= 0.01 | v _{exp} = 0 km/s |
| <input type="checkbox"/> Show O at | z= 0.01 | v _{exp} = 0 km/s | <input type="checkbox"/> Show S II at | z= 0.01 | v _{exp} = 0 km/s |
| <input type="checkbox"/> Show O II at | z= 0.01 | v _{exp} = 0 km/s | <input checked="" type="checkbox"/> Show Ca II at | z= 0.01 | v _{exp} = 12000 km/s |
| <input type="checkbox"/> Show O III at | z= 0.01 | v _{exp} = 0 km/s | <input type="checkbox"/> Show Fe II at | z= 0.01 | v _{exp} = 0 km/s |
| <input type="checkbox"/> Show Na at | z= 0.01 | v _{exp} = 0 km/s | <input type="checkbox"/> Show Fe III at | z= 0.01 | v _{exp} = 0 km/s |
| <input type="checkbox"/> Show [] Å at | z= 0.01 | v _{exp} = 0 km/s | <input checked="" type="checkbox"/> Show Tellurics | | |
| <input type="checkbox"/> Show [] Å at | z= 0.01 | v _{exp} = 0 km/s | <input type="checkbox"/> Galaxy lines at | z= 0.01 | |

Spec Type: Object

Quality: Rapid

id	File	Remarks	Creation-date	Last-modified	Modified-by
3936	Fits		2012-09-08 20:57:20	2012-09-08 20:57:20	admin

Show Files

- Don't lose efficiency, don't lose data.
- use existing expertise to reduce development efforts
- focus on collaboration between Data Centers
- Queen's: scheduler manager → useful for observation scheduler, ingestion and update of classification
- IA2: data archive → reduced data ingesting/retrieval tools, VO services
- WISePER → SN repository, cross-match tools