JMMC

Updates in 2021

Laurent Bourgès & Guillaume Mella, JMMC / OSUG
Gilles Duvert, IPAG
Isabelle Tallon-Bosc, CRAL

JMMC organization

Seen from the inside (French CNRS/INSU) **JMMC** is composed of two parts, people working on the tools and databases in a 'service' called **MOIO**, and people working on the user support, outreach, schools, surveys etc, in a 'service' called **SUV**.

JMMC *per se* is the organization of these two parts, comprising a director, a scientific council / users committee and board of directors.

(All this is probably irrelevant when seen from abroad)

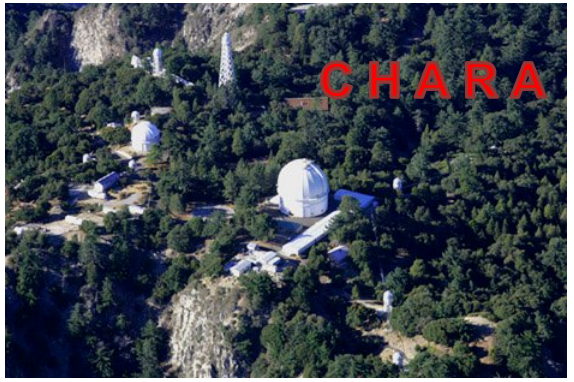
Effective June 2021,

JMMC will be headed by **Isabelle Tallon-Bosc**

and **MOIO** by **Jean-Philippe Berger**.

SUV continues to be headed by **Alexis Matter**.

Service overview



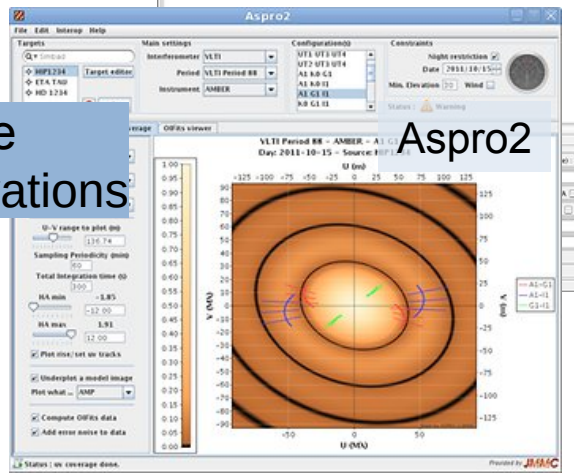
+ Training

+ User Support

SearchCal

Reduce data

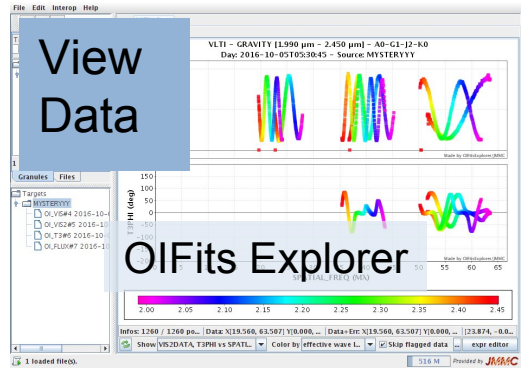
amdlib
pndrs



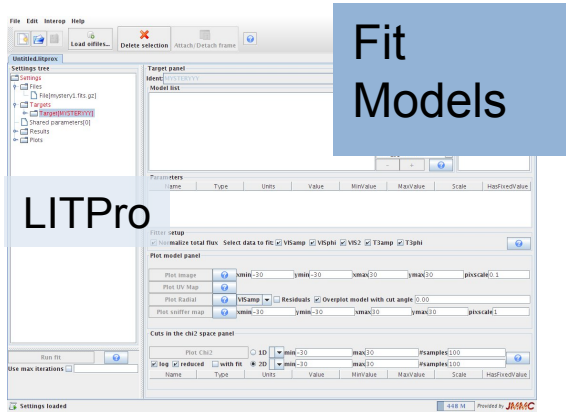
Prepare Observations

Aspro2

View Data

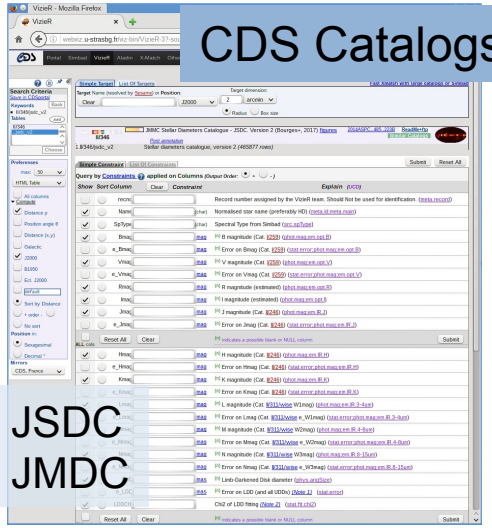


OIFits Explorer



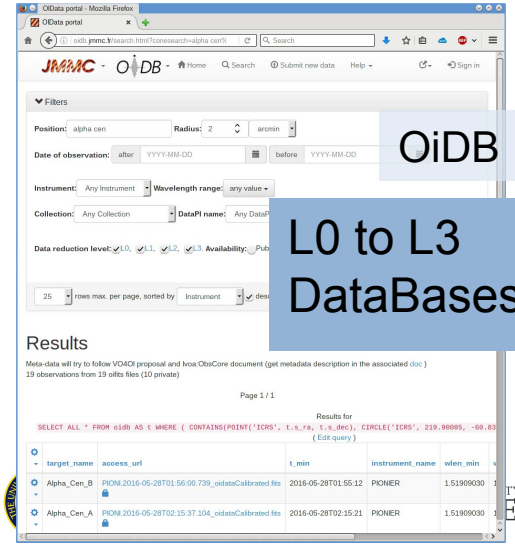
Fit Models

LITPro



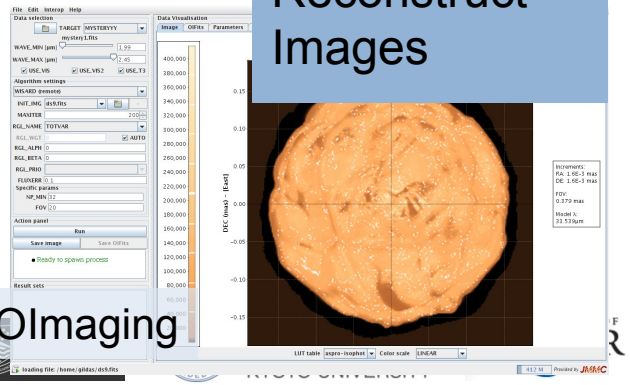
CDS Catalogs

JSDC
JMDC



OiDB

L0 to L3 DataBases



Reconstruct Images

OImaging

Georgia State University · NSF · NOIR Lab · l'Observatoire de Paris · LESIA

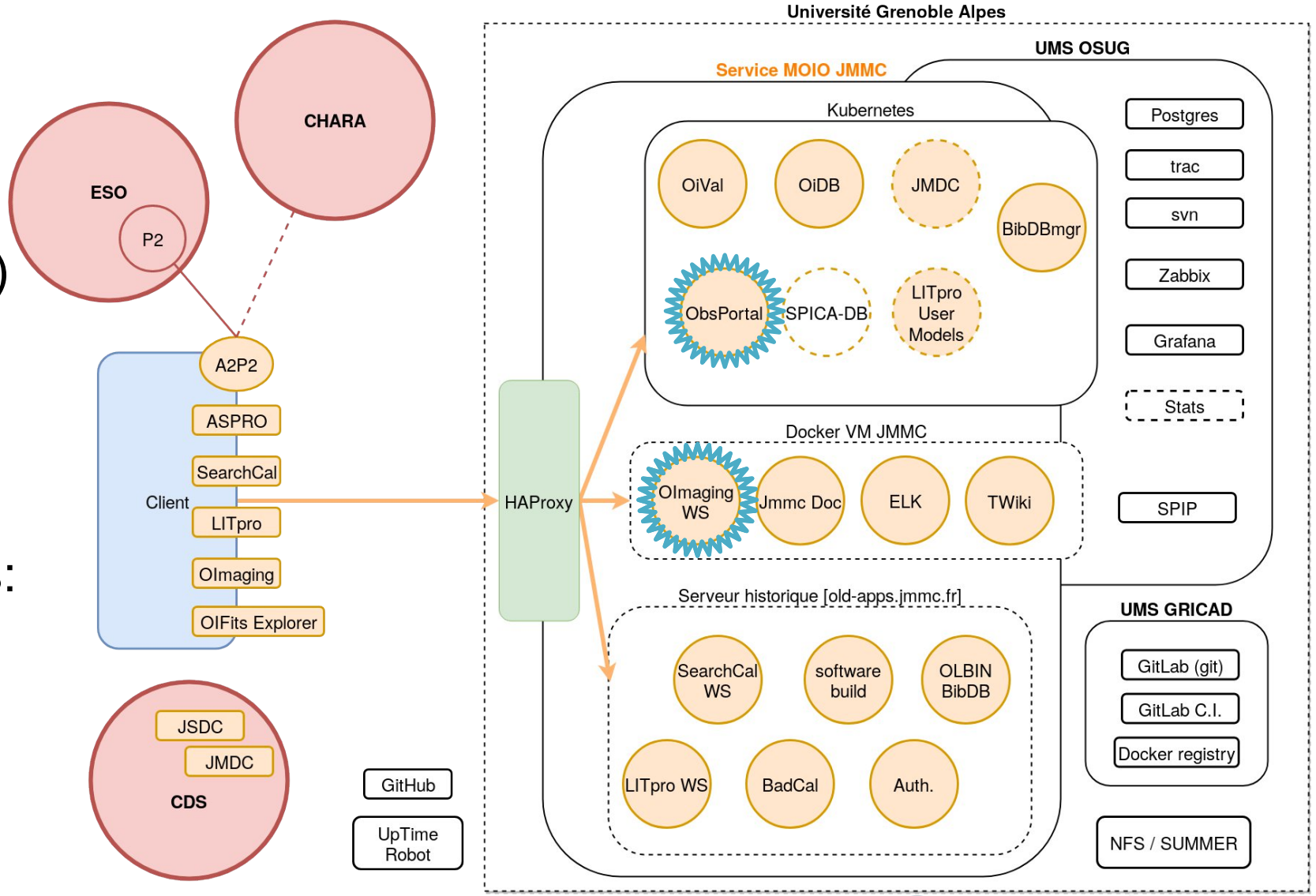
Main facts

2018 - 2020

Georgia State University · NSF · NOIR Lab · l'Observatoire de Paris – LESIA · The University of Manchester · Observatoire de la Côte d'Azur · The University of Sydney · Australian National University · 京都大学 Kyoto University · University of Exeter

Behind the scene, JMMC servers updated but *Staying alive !*

- Infrastructure moving to containers (docker, k8s)
- Plenty of software / services to maintain
- New software / services:
  - OImaging (2018)
  - Obs Portal (2020)



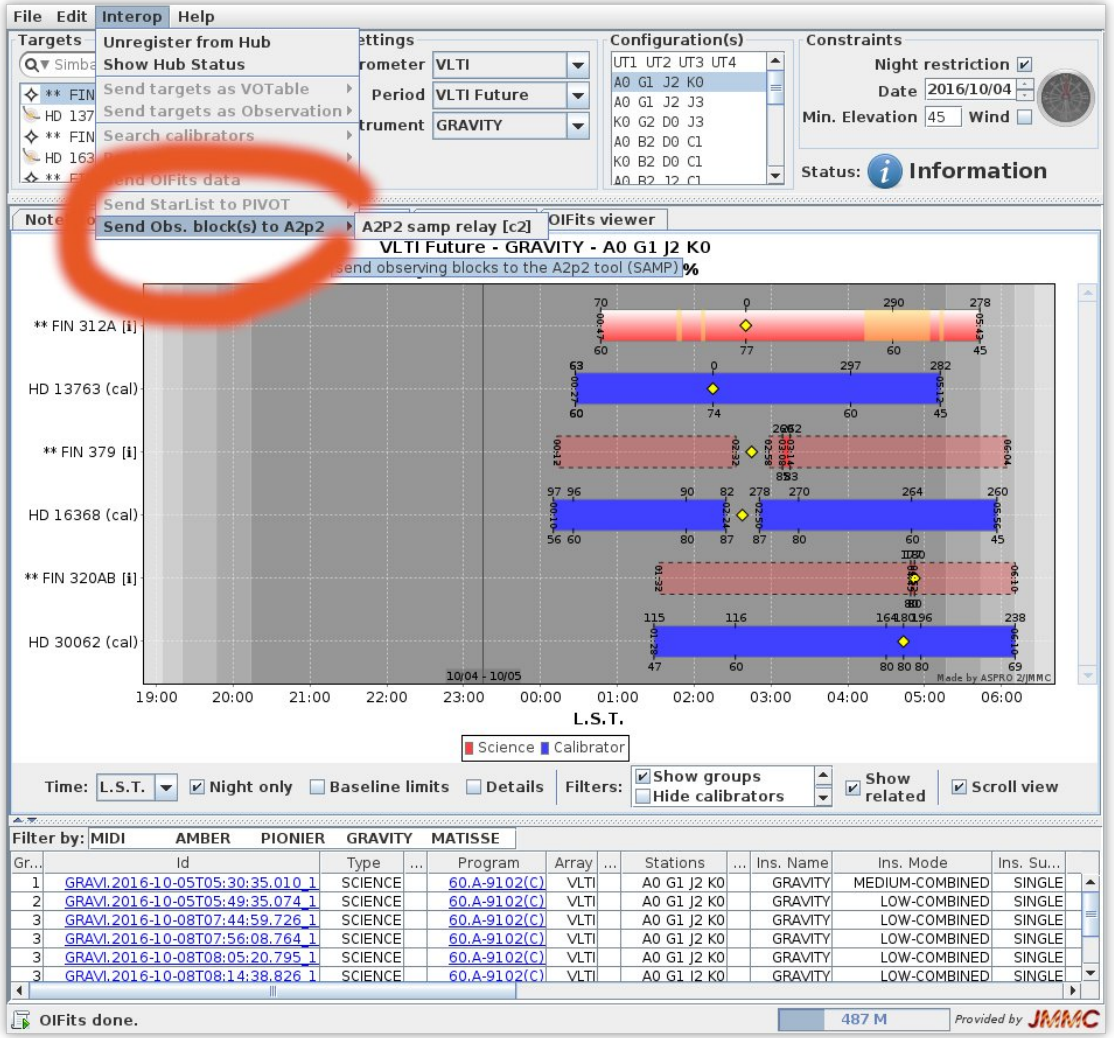
ASPRO 2
& Obs Portal

Integrate (VLTI) observation logs in ASPRO2

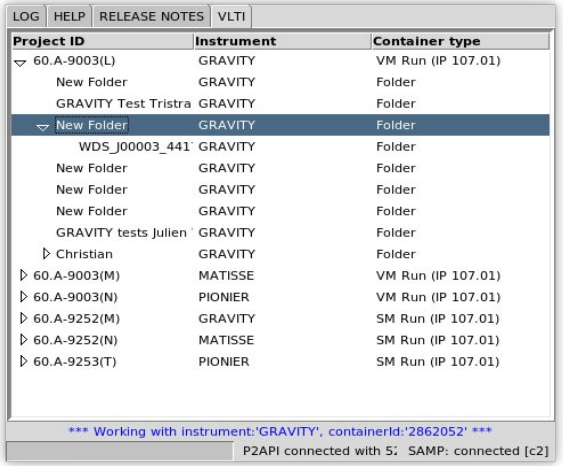
http://www.jmmc.fr/twiki/bin/view/Jmmc/Software/JmmcAspro2#Get_Information_about_past_obser

ASPRO2 21.03 released !

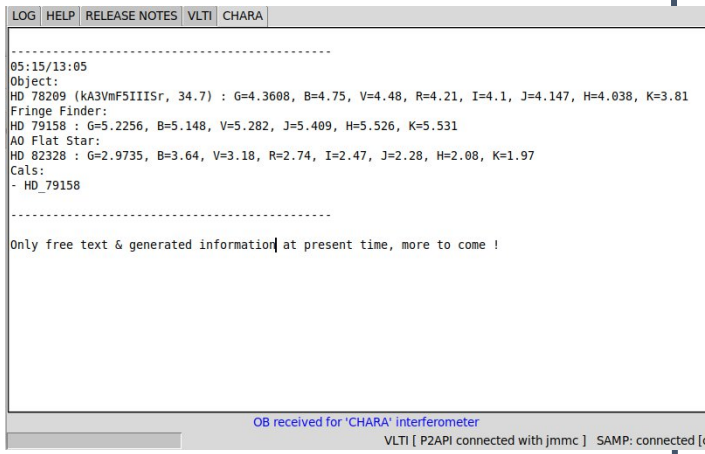
A2P2, the ASPRO2 companion tool in Python **: send observing blocks to ...**



can dialog with ASPRO and the interferometer software to send « observing blocks » to, e.g., a scheduler.



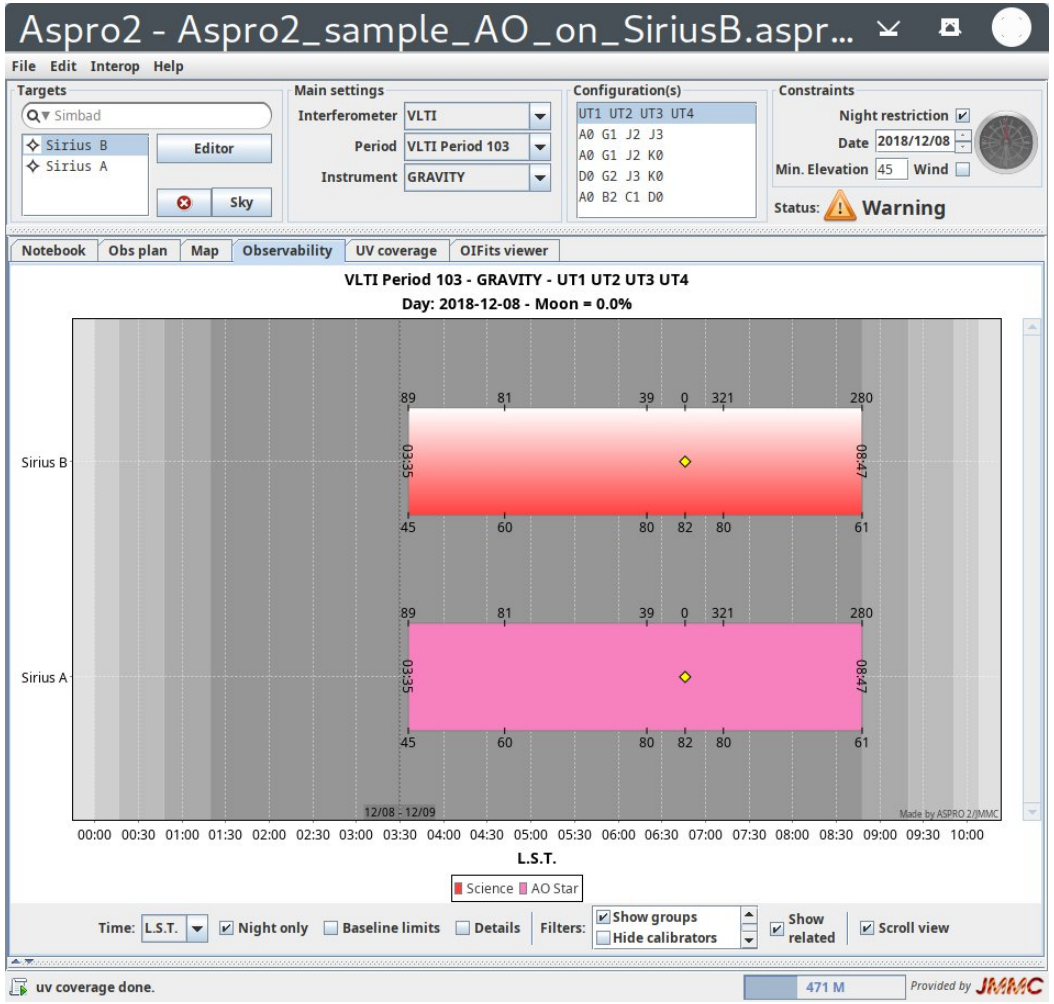
Implemented for VLTI: ASPRO2 to ESO p2

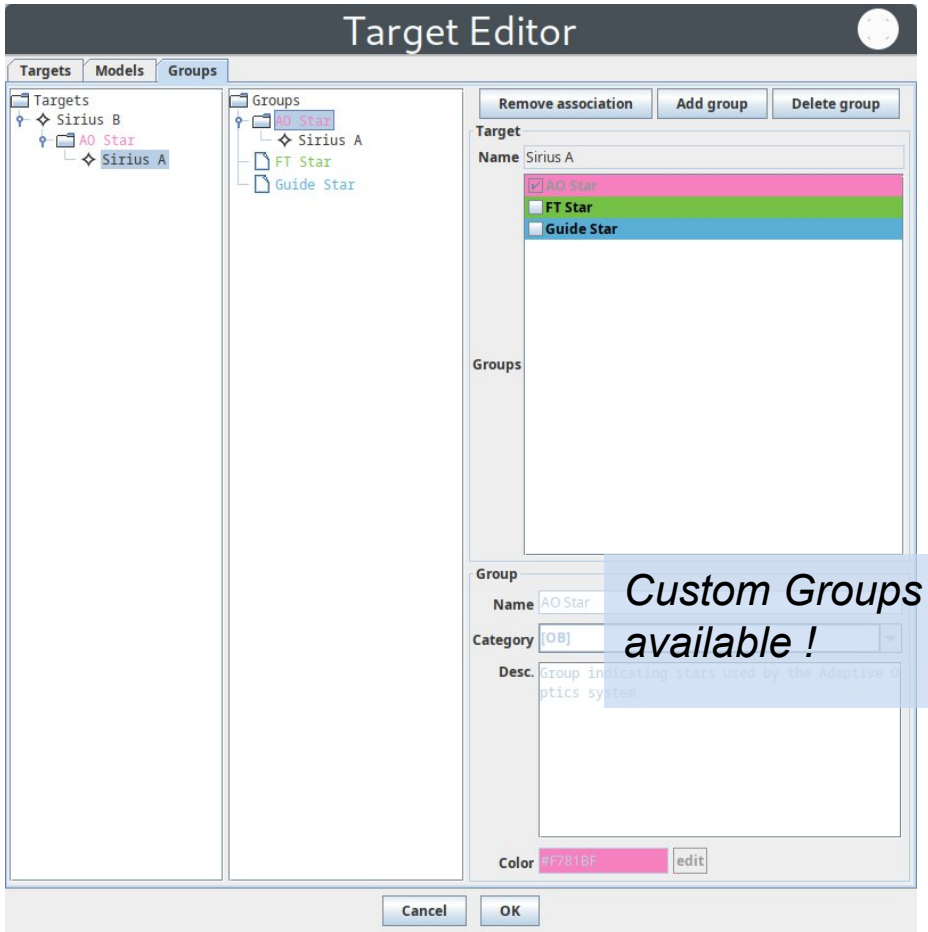


Basic CHARA support
(to be improved) => log

Python code on GitHub : easy to tweak, to maintain by instrument scientist. Try **`pip install a2p2`**

Target Groups : AO / FT stars, custom



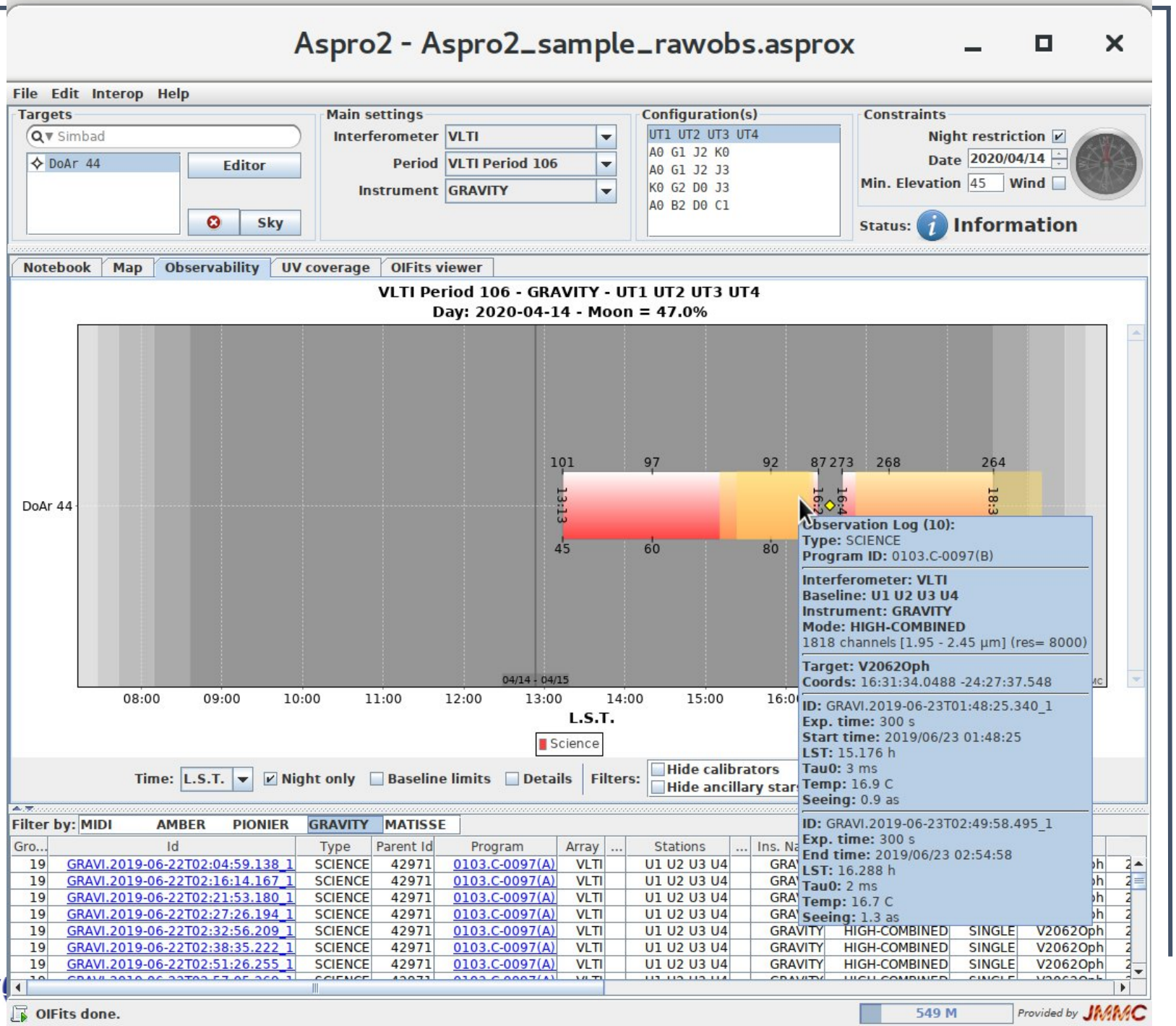


Custom Groups are available !

Obs logs

- Get latest obs logs from obs portal
  - Show table + details in tooltips
  - Filter obs logs by instrument (more filters to come)

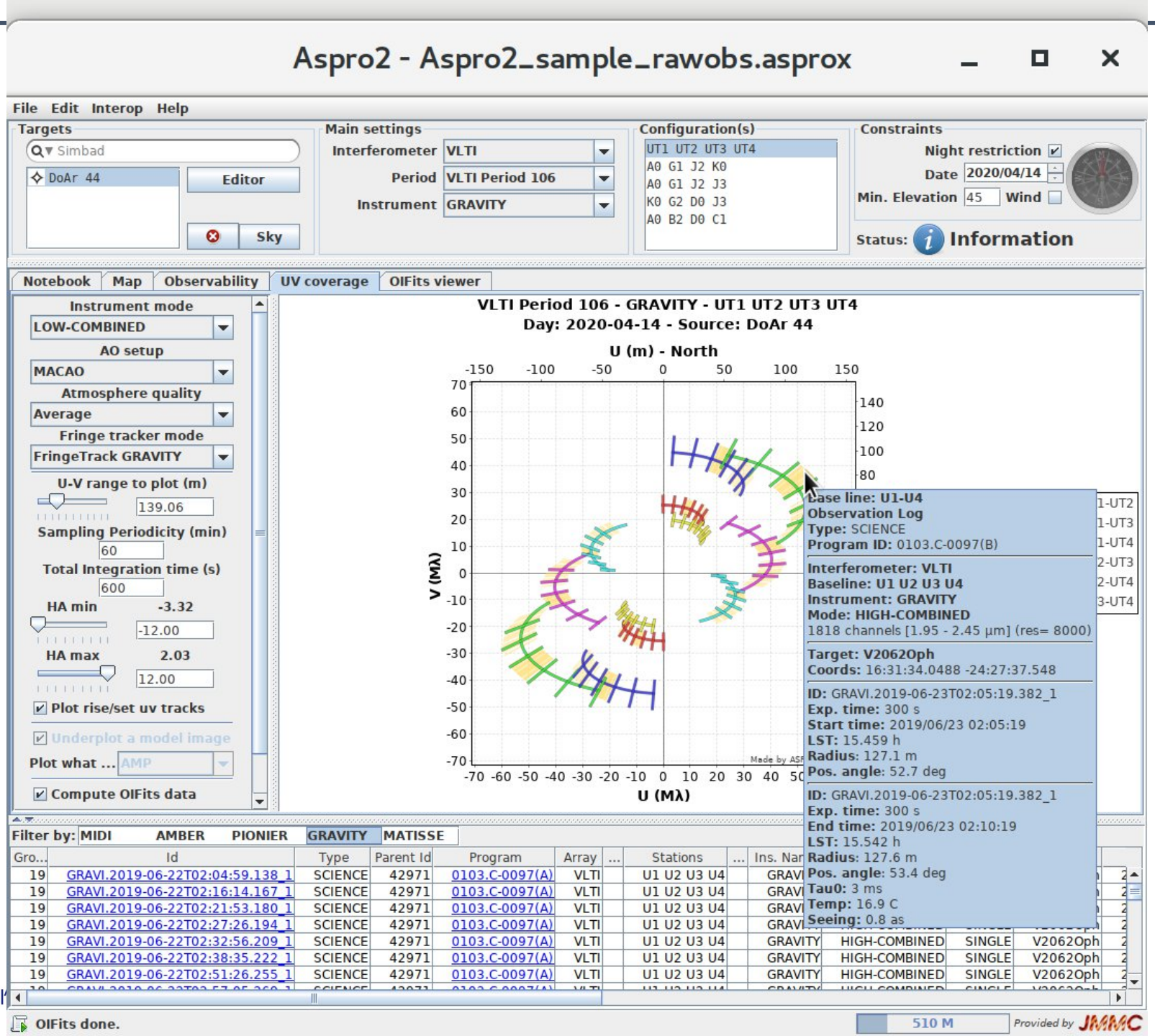
Looking forward having CHARA logs in ASPRO2 !



Obs logs

Show UV tracks of (filtered) obs logs

Note: each ESO OB gives projected baseline (radius + pa) + mjd times



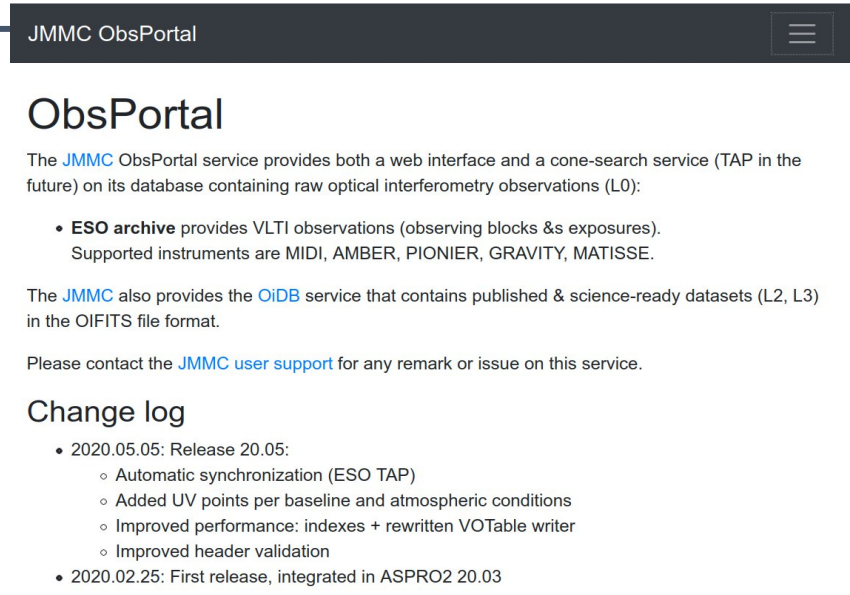
JMMC Obs Portal

http://obs.jmmc.fr/

(Python / postgresql web app)

- Observation Logs VLTI
  - all instruments
  - ESO sync twice a day (TAP)
- OiDB sync => L0 ESO

- Future:
  - Better Log filtering in ASPRO2
  - VO TAP interface
  - Improved cross identification
  - **Ingest CHARA & SPICA logs**



Database statistics	
Header count	1014509
Target count	34719
Observation count	46406
Exposure count	332563
Valid exposure count	326476 (98.17%)
Exposure Date min	2003-06-14 07:13:36.000
Exposure Date max	2021-01-18 08:42:29.592

JSDC 3 / SearchCal 6

Important JSDC upgrade to get latest data from
SIMBAD / GAIA DR2 / MDFC

Georgia State University · NSF · NOIR Lab · l'Observatoire de Paris · LESIA · The University of Sydney · Australian National University · 京都大学 Kyoto University · University of Exeter

JSDC3: 475 000 stars ... to 2.5m stars !

Changes:

- Crossmatch +++ : best in 3as neighbourhood + XM flags = No duplicates.
  "CalFlag bit 3 set if the star has neighbours within 0.5 as (GAIA) or 1.0 as (2MASS)"
- Data: SIMBAD, GAIA DR2 (better ra/dec, pm, teff, dist), MDFC (flag, flux)
- *JSDC3 BRIGHT EA* : http://jmmc.fr/~bourgesl/sclsvr_JSDC/JSDC_2020/LAST/
- *JSDC3 FAINT EA* : http://jmmc.fr/~bourgesl/sclsvr_JSDC/JSDC_FAINT_2020/LAST/

Services: SearchCal 6 EA: 2021 ? GetStar EA

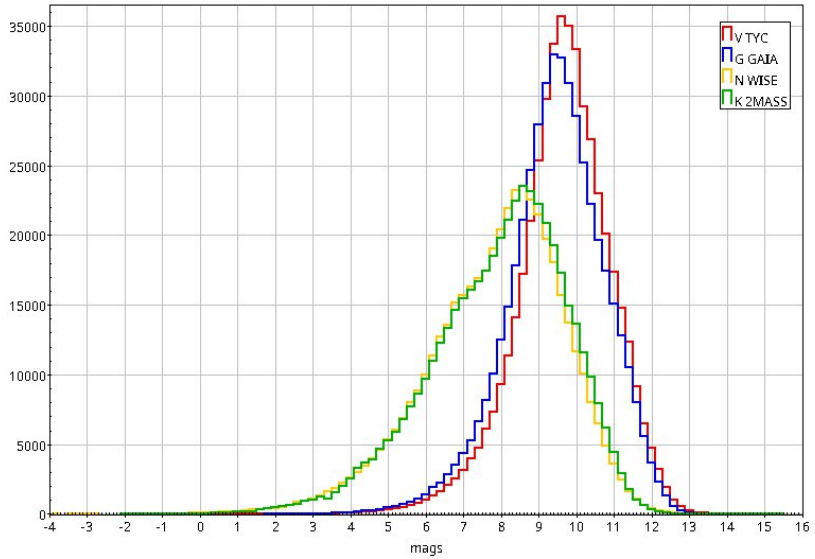
Perspectives:

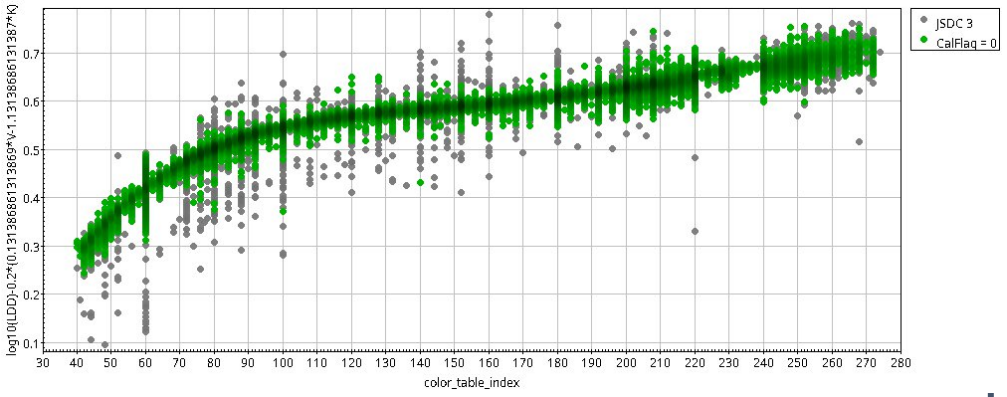
- Publish both Bright / Faint catalogs in 2021: 2.5m star (TYCHO2) in JMMC TAP interface + CDS
- Future: use updated JMDC and new color GAIA (G, Bp, Rp) + All Wise (L, M, N)

JSDC 3 BRIGHT EA:

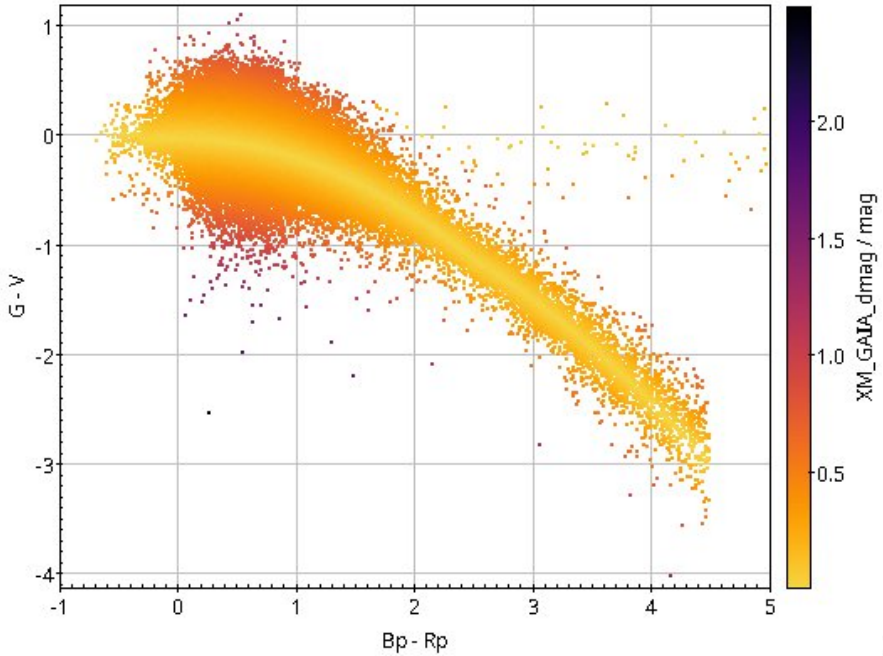
Total Rows: 474963

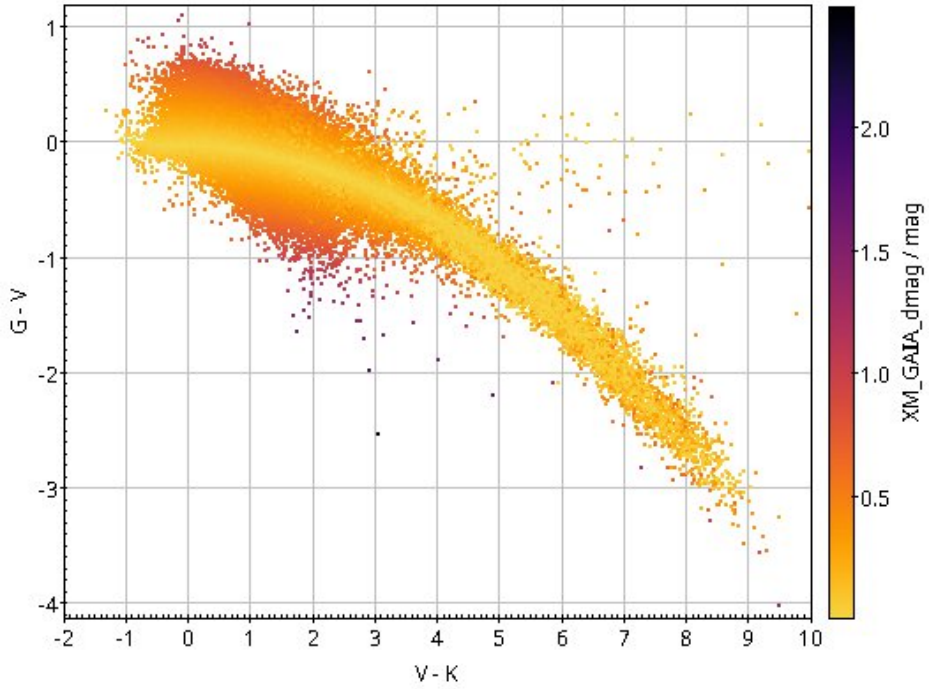
column	good
SIMBAD	474963
GAIA	471475
TYC1	473651
TYC2	473651
TYC3	474963
2MASS	474963
WISE	470294
AKARI	153541
HD	245091
HIP	105272
DM	348198
SBC9	2454
WDS	39400





GAIA G color relations used by crossmatch :

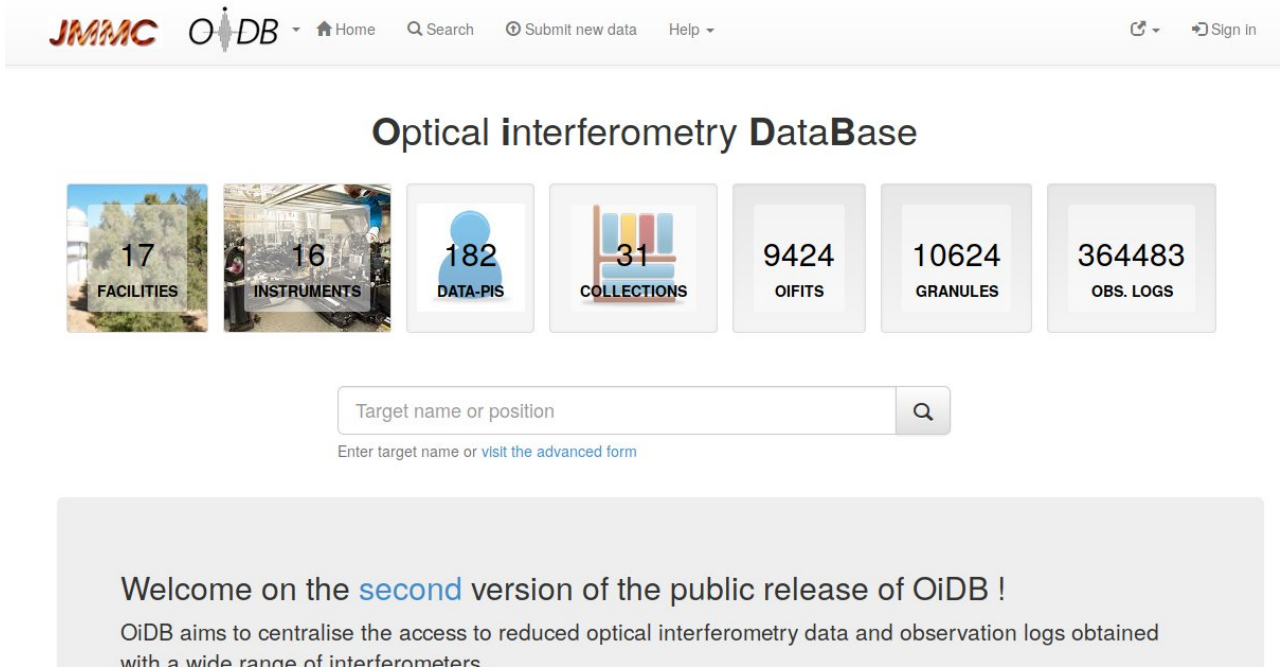




O DB

Georgia State University · NSF · NOIR Lab · l'Observatoire de Paris – LESIA · The University of Arizona · Observatoire de la Côte d'Azur · The University of Sydney · Australian National University · Kyoto University 京都大学 · University of Exeter

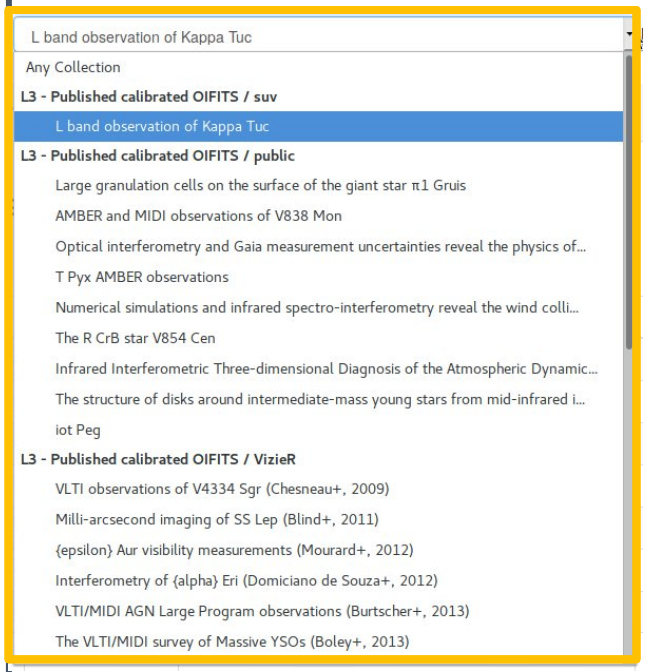
OiDB 2.0 online

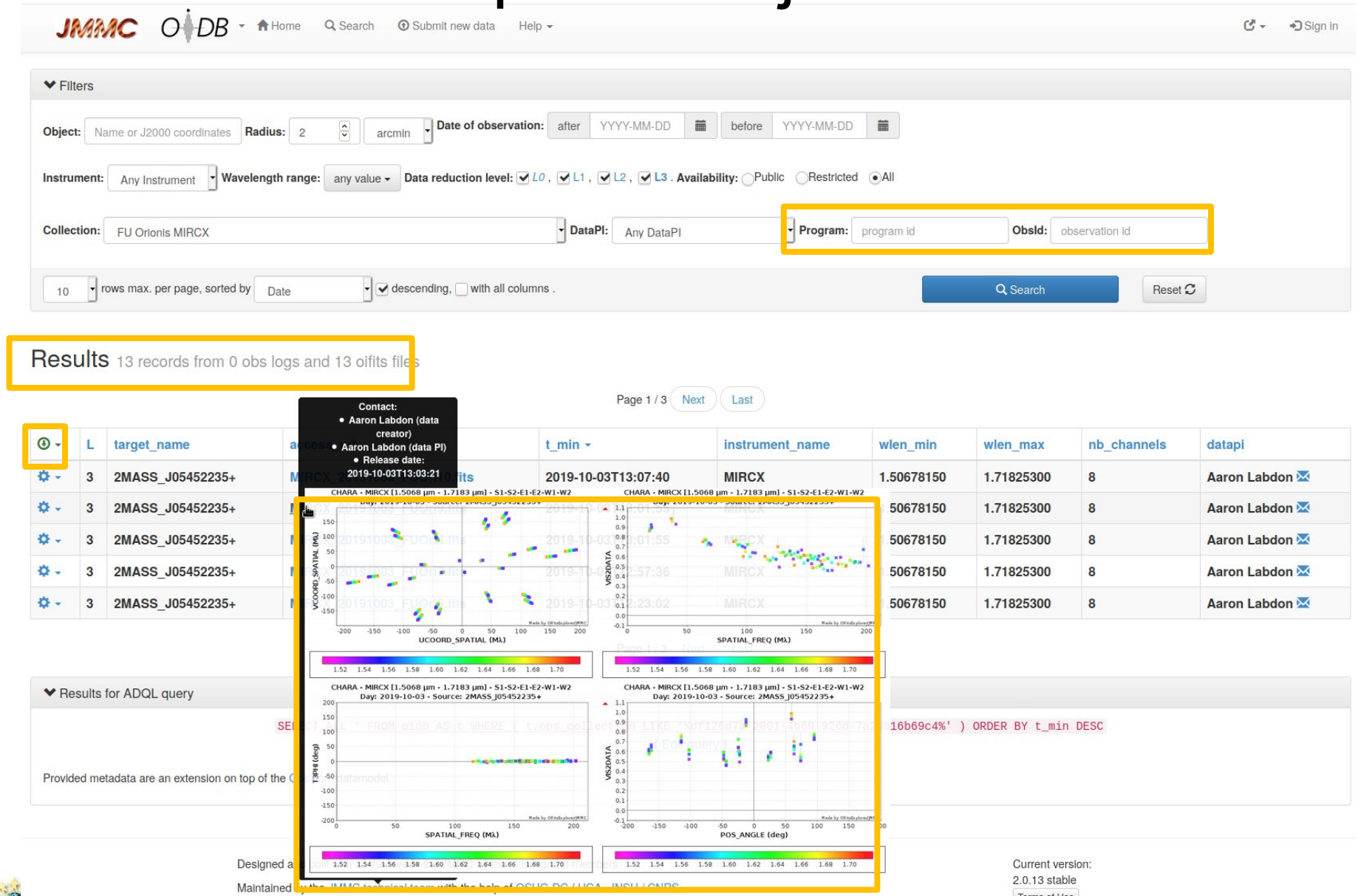


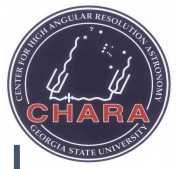
- UI enhancements:
  - search form, result table
  - quick plots, data quality plots / TF...
  - show ancillary links accross various calibration levels L(0-3)<->L(0-3)
- New categories for data collections: simulations, private (SUV)
- Improved obs log ingestion (L0) : synchronized with Obs Portal

CHARA obs log were uploaded into OiDB => take advantage of the coming CHARA Online Database (metadata++)

OiDB screenshots of https://oidb.jmmc.fr







JMMC OiDB Home Search Submit new data Dashboard Help Logged In.

Add calibrated OIFITS files

Step 1 : Upload OIFITS files

Target	Instrument	Instrument mode	Time interval	Quality

+ Add files

Step 2 : Choose collection

Create a collection

Append to ...

HD 163296 - Jozsef Varga

Step 3 : Save

JMMC OiDB Home Search Submit new data Dashboard Help Logged In.

Add calibrated OIFITS files

Step 1 : Upload OIFITS files

Target	Instrument	Instrument mode	Time interval	Quality

+ Add files

Step 2 : Choose collection

Collection details

Collection type: public / simulation / SUV

Name: collection name

Title: collection title

Description: ...

Keywords:

Data PI: Guillaume Mella

Step 3 : Save

Save

Cancel

Contact

Data PI / OBS creator

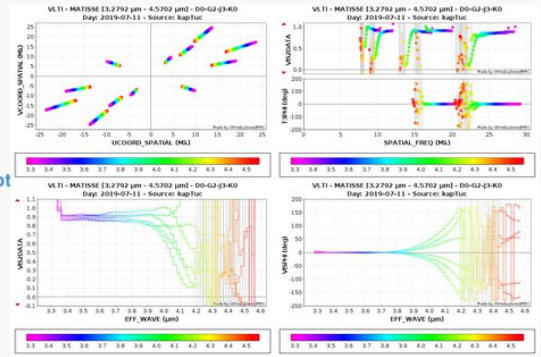
Florian Kirchschlager

Comments

+ Add the first comment

Quicklook plots

Quick plot



Contact

Data PI

Not present in metadata

OBS creator

jmmc-tech-group - Bour

Ancillary data

calib_level	id	obs_collection	datapi
0	1293809	ESO VLTI Import	

Commer

+ Add the first comme

External resources

Details progid *0103.C-0725(A)* on ESO archive

Details progid *0103.C-0725(A)* on JMMC ObsPortal

Check or display content in OIFitsValidator

Ancillary

calib_level			
3	1355457	Kappa Tuc	Florian Kirchschlager
3	1355464	Kappa Tuc	Florian Kirchschlager

External resources

Details progid *0103.C-0725(A)* on ESO archive

Details progid *0103.C-0725(A)* on JMMC ObsPortal

Details exposure *MATIS.2019-07-11T09:03:31.168_1* on JMMC ObsPortal

Current projects, next operations ...

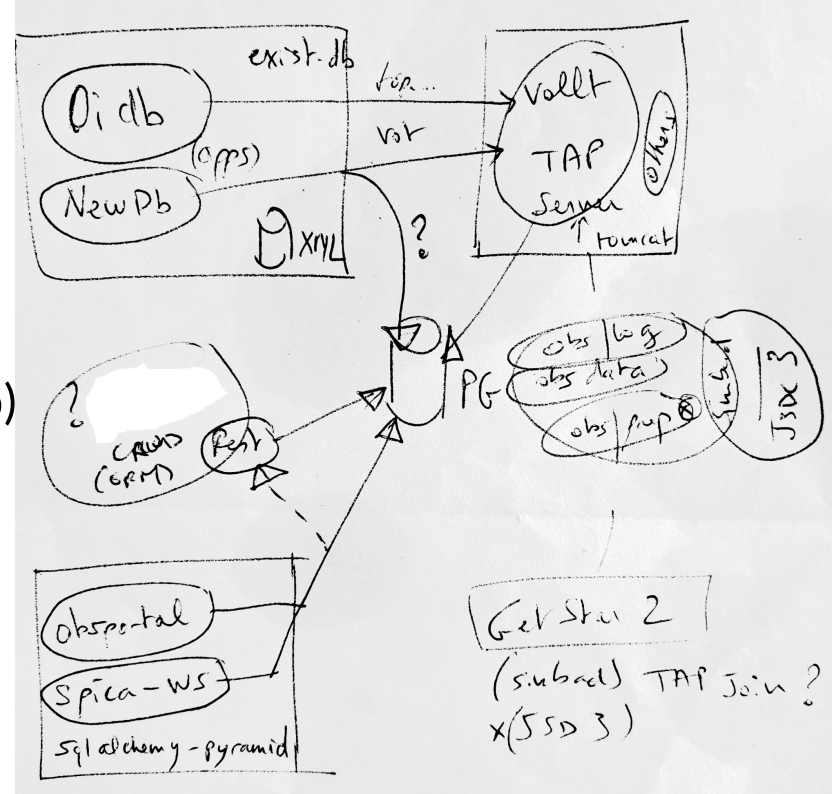
Georgia State University · NSF · NOIR Lab · l'Observatoire de Paris – LESIA · The University of Arizona · Observatoire de la Côte d'Azur · The University of Sydney · Australian National University · 京都大学 Kyoto University · University of Exeter

SPICA-DB Project @ JMMC

SPICA-DB is developed on top of (OiDB + ObsPortal + TAP) services + JSDC data + few specific SPICA services to ingest data and manage database (authentication + specific web interface)

SPICA-DB project will lead to many benefits for CHARA & VLTI users:

- ASPRO2 enhancements:
  - Handle large programs (**filters**) + target extra informations
  - Manage observations with different instrument, modes (**multi-setup**)
  - Refine **Pops optimization** according to **groups**, selection … find best successive PoPs to follow a target in H.A.
  - **Improve interoperability** (votable / CSV) with VO tools
- Obs Portal / OiDB: SPICA / CHARA logs + data quality flags + index OIFITS files
- New JMMC TAP server : JSDC + obs portal + OiDB (unified view)



SPICA-DB Project @ JMMC

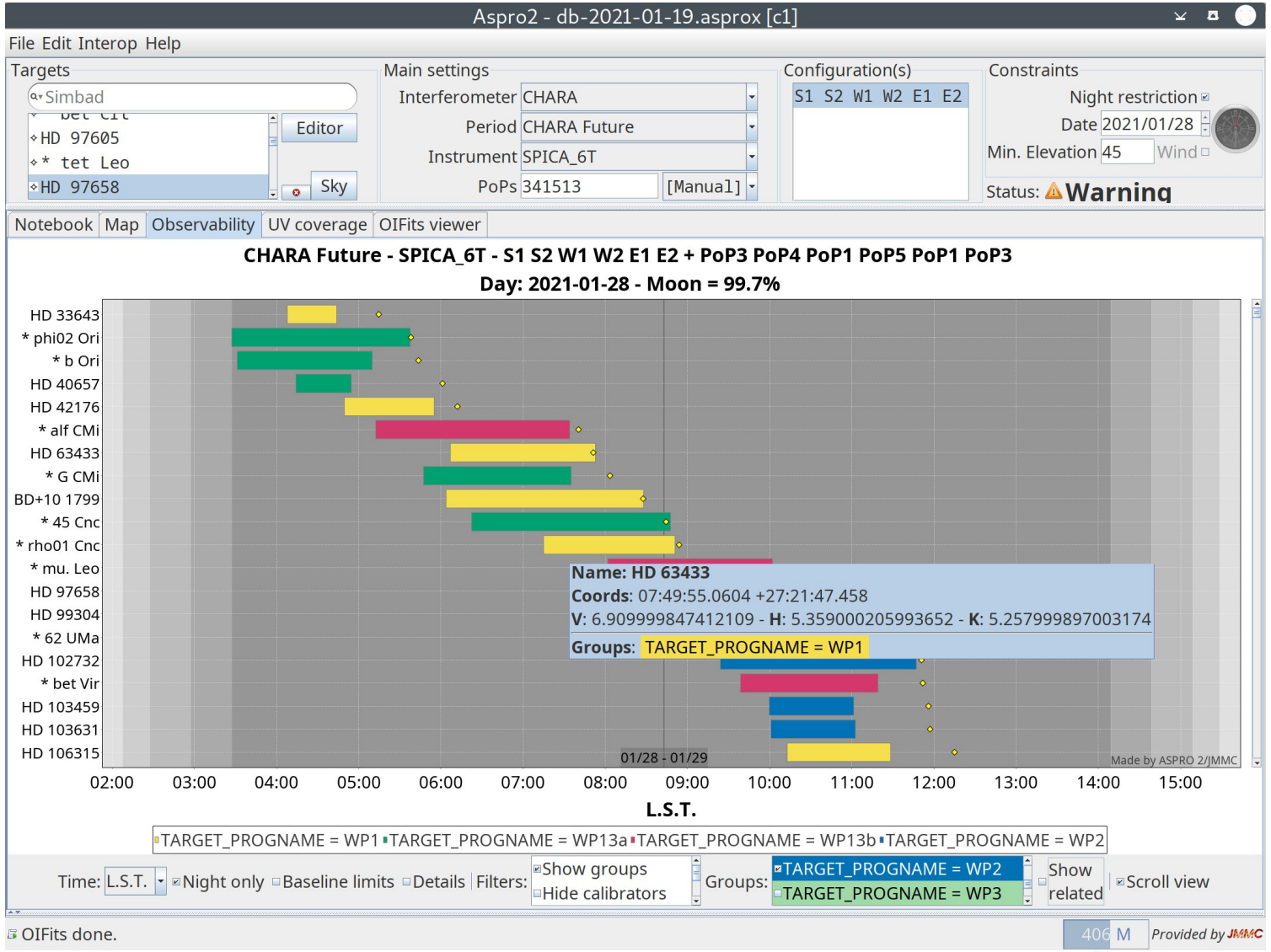
Early result:

Import SPICA's Science DB in ASPRO2:

~ 3000 sources grouped by Work Package

(best PoPs slow

& useless in such case)



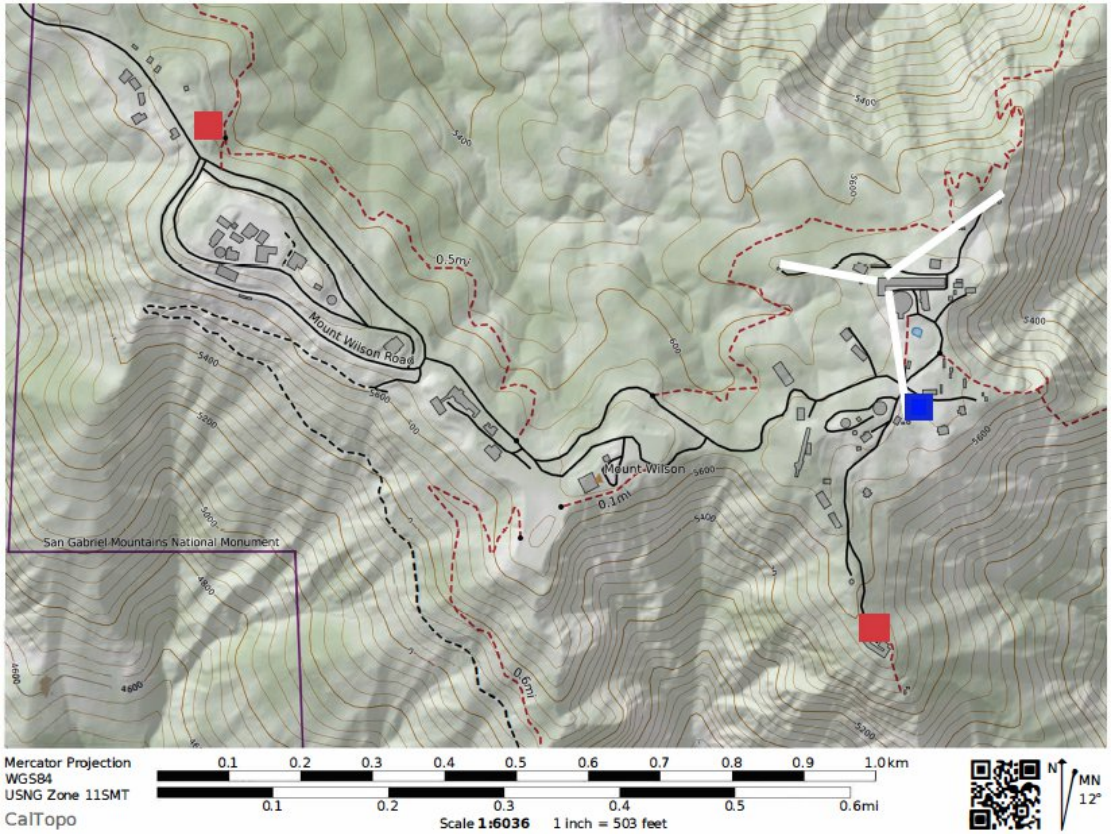
CHARA upgrade in ASPRO2: 7th to 12 telescopes

Aim: build a new ASPRO2 configuration editor & fix observability (refine optical path lengths, fiber length, PoPs, switchyard …)

- *Tiger team (Laurent, Gilles, Gail ?)*
- *Planning to be defined ? kick off ?*

Requirements:

- edit ASPRO2 configuration files: telescope positions, elements of delay ('POPS'), length and maximum velocity of each delay line cart, length of the beam transport system
- save these edited parameter files under a different file name
- load these alternative configuration files
- A well-defined format for the configuration files so that our own engineering software is able to create and save alternative configuration files.



Side topics

- Update LITpro / OImaging :
  - UI enhancements
  - Fix performance issues (be ready for next VLTI School)
  - Release new algorithms (genetic fitter, polychromatic data)
- OIFitsExplorer enhancements: binning, filtering
- Open more codes :
  - https://github.com/JMMC-OpenDev/
  - https://github.com/JMMC-OpenDev/jmmc-java-build to get source code and build all java applications
  - https://gricad-gitlab.univ-grenoble-alpes.fr/OSUG/JMMC

Final words

! Special thanks to Gilles Duvert, the author of ASPRO 1 ! still in the JMMC shuttle, giving commands to the new command crew before his retirement.

Already great CHARA support @ JMMC, let's go further with new opportunities (telescope upgrades, SPICA-DB...) and have a stronger collaboration !

Please report any problem or question

to the JMMC User Support (SUV team)

Feedback always appreciated and useful !

CHARA / JMMC action items to be planned:

- CHARA upgrade in ASPRO2
- CHARA databases <=> JMMC databases
- A2P2 for CHARA (cosmic debris) ?

Let's plan a regular virtual meeting ?