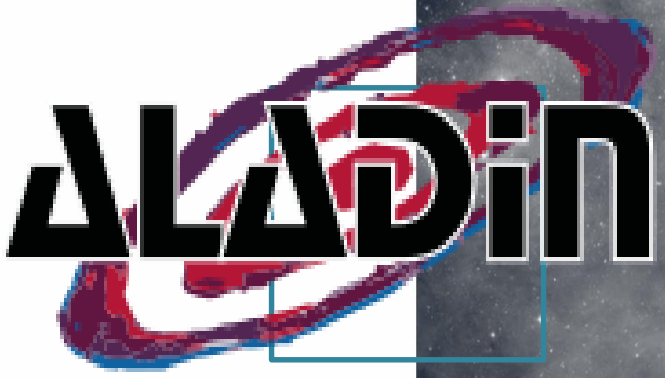
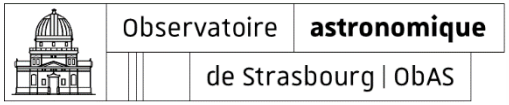


Aladin and the planets

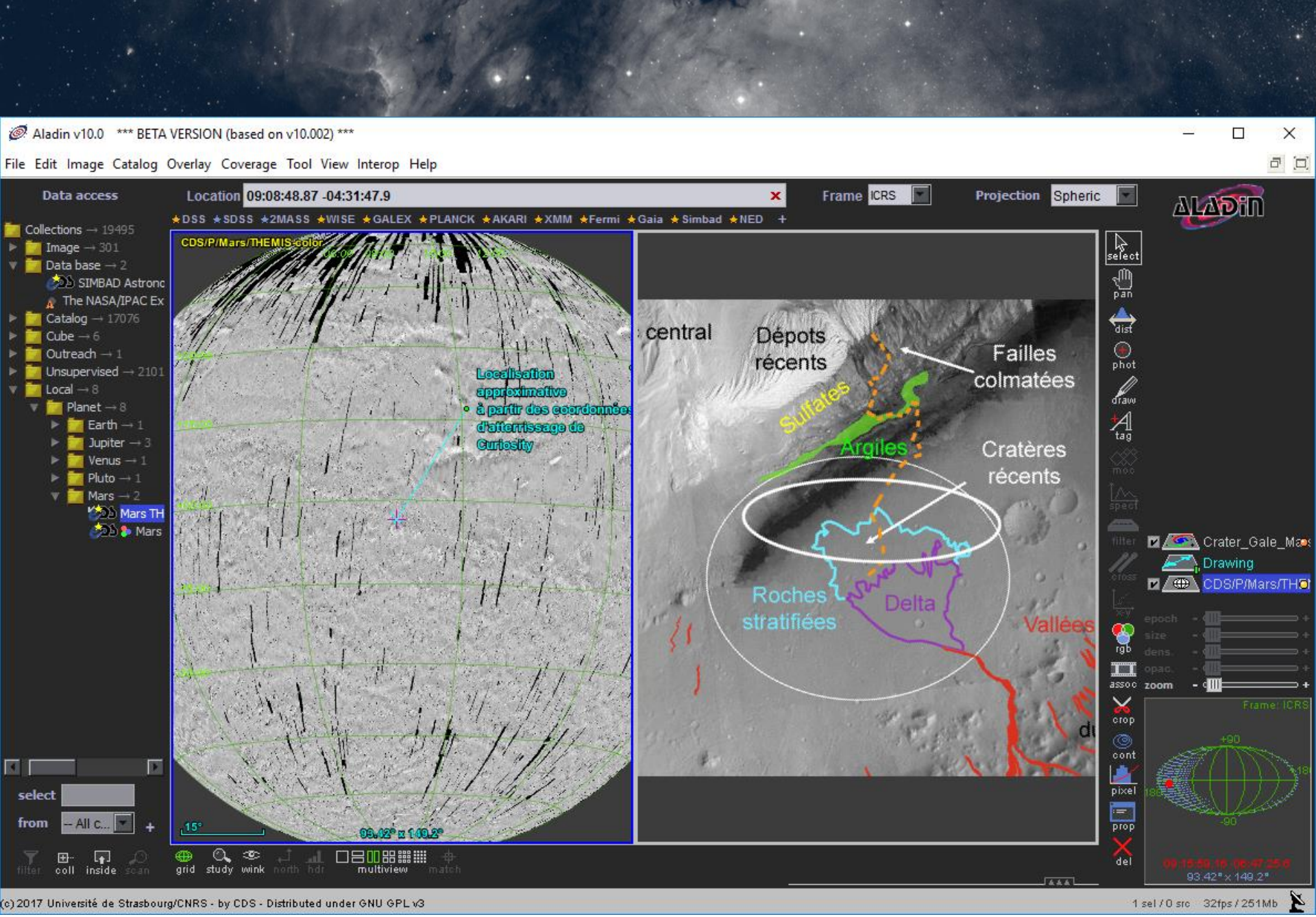
Interop meeting – 28 May to 1 June 2017

Pierre Fernique
On behalf of the Aladin team



Why in Aladin?

- Aladin sky facilities easily re-usable for planets (background map + graphical overlays)
  => as a regular GIS (Geographic Information System)
- HiPS is dedicated to spherical maps… and a planet is spheric (better than cartesian GIS tool projection)
- Europlanet VESPA project CDS participation
- VESPA project is deploying IVOA adapted protocols (TAP EPN-CORE…)
  => Aladin is already IVOA protocol ready
- And it works ! (see live demo in a few minutes)


Aladin v10.0 *** BETA VERSION (based on v10.002) ***
File Edit Image Catalog Overlay Coverage Tool View Interop Help
Data access
Location 09:08:48.87 -04:31:47.9
Frame ICRS
Projection Spheric
DSS SDSS 2MASS WISE GALEX PLANCK AKARI XMM Fermi Gaia Simbad NED
Collections → 19495
Image → 301
Data base → 2
SIMBAD Astronc
The NASA/IPAC Ex
Catalog → 17076
Cube → 6
Outreach → 1
Unsupervised → 2101
Local → 8
Planet → 8
Earth → 1
Jupiter → 3
Venus → 1
Pluto → 1
Mars → 2
Mars TH
Mars
CDS/P/Mars/THEMIS-color
Localisation approximative à partir des coordonnées d'atterrissage de Curiosity
central
Dépots récents
Failles colmatées
Sulfates
Argiles
Cratères récents
Roches stratifiées
Delta
Vallées
Crater_Gale_Ma
Drawing
CDS/P/Mars/TH
select
from
All c...
filter coll inside scan
grid study wink north hdr multiview match
(c) 2017 Université de Strasbourg/CNRS - by CDS - Distributed under GNU GPL v3
1 sel / 0 src 32fps / 251Mb

What is useful for planets ?

- **Map display** (HiPS) + **graphical overlays** (catalog + graphical tags)
- **Data discovery tree** for planetary services
- Planetary coverage by **MOC**
- Manual positional **calibration** of planetary images/cubes
- …

A few Aladin adaptations

- **Longitude** inversion (just for display)
  - The sky is visible inside the celestial sphere, contrary to the planets where the observer is outside
- Coordinate **syntax**
  - Decimal, sexagesimal, cardinal specification (NSEW) rather than negative values…
- **EPN-core** support
  - Coordinates extraction form box location
  - FOV interpretation
  - Link to additional resources

A few HiPS adaptations

- VESPA action to **convert PDS images into FITS** (Chiara Marmo)
- **Hipsgen** extensions:
  - Able to process **one file colored CAR map** + optional 2 pole images (without additionnal WCS solution)
  - Usage of « ImageMagik » to prepare (split) huge TIFF maps
- The results:
  - Generation of ~**50 HiPS for all planets and satellites** at the best public resolution (ex:THEMIS mars 100m/pixel). Thanks to USGS Astrogeology Science Center , University of Arizona, JPL.
  - **Distributed in the HiPS network** by CDS HiPS nodes & Paris Observatory HiPS node

The live demo…

Please do not load the net for the next 5 minutes...thanks

Download Mars CAR map
Generate HiPS
Display in Aladin
TAP-EPNcore query for Mars craters
Generation of MOC for these craters
Query by this MOC

What is still missing ?

- **Reference system label** associated to the body/sky
  - To avoid to project stars over the Moon, or Mars craters in the sky…
  - To use in HiPS properties, in STC, in COOSYS, in MOC, …
- Data tree **categories** for planetary data
  - Not so easy to separate planets resources and sky resources
- IVOA **Datalink in EPN-core** (presently an Earth GIS XML convention not usable by Aladin, and probably not so well adapted to planetary context)
- **EPN-core** 2
  - lon,lat dedicated columns (not a box/cube please)

Available in Aladin Beta

http://aladin.u-strasbg.fr/java/AladinBeta.jnlp

Thanks – Question ?