HiPS

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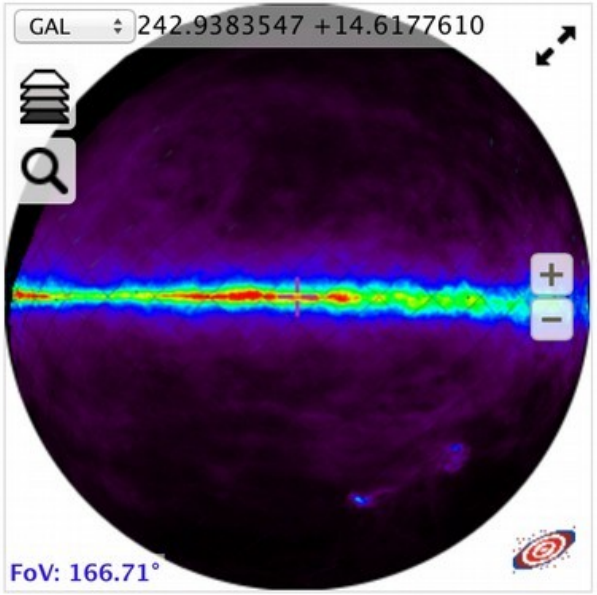
What's the plan ?

1)What is a HiPS ?

2)How to create it ?

3)How to publish it ?

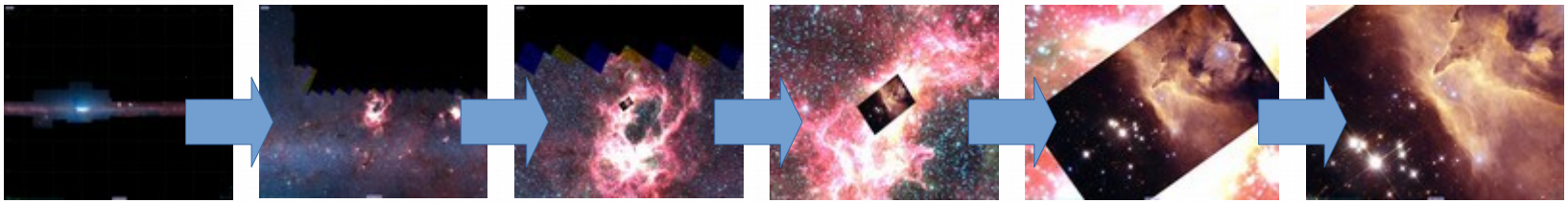


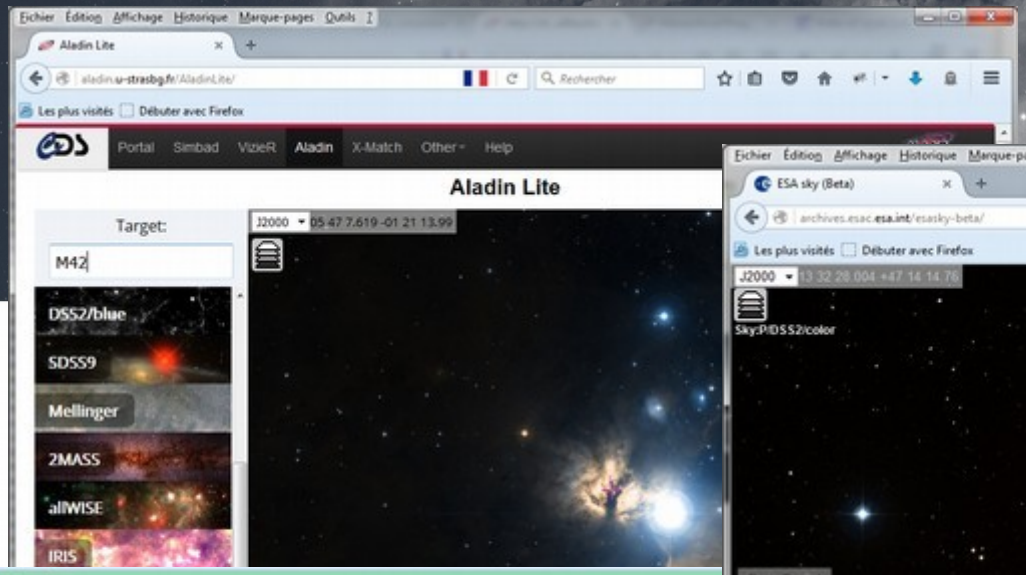
HiPS – What is it ?

Hierachical Progressive Survey

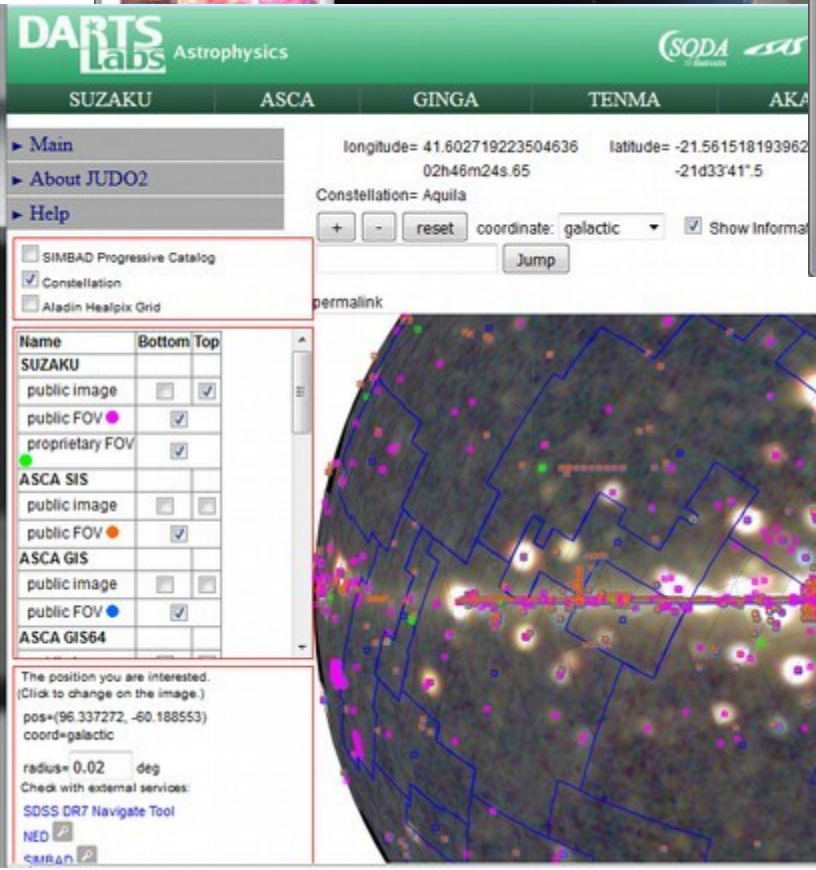
"*The more you zoom in on a particular area,the more details show up*"

- Multi-resolution HEALPix data structure
  for Images, Catalogues, 3-dimensional data cubes, ...
- Conserves scientific data properties alongside visualisation considerations
- No databases or servers, just HTTP




Aladin Lite
Portal
Simbad
VizieR
Aladin
X-Match
Other
Help
Aladin Lite
Target:
M42
DSS2/blue
SDSS9
Mellinger
2MASS
allWISE
IRIS


ESA sky (Beta)
Upload target list
Sky:P/DSS2/color
Data Panel
ESA Observations
ESA Catalogues
Close data panel
esa


DARTS Labs
Astrophysics
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About JUDO2
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The position you are interested.
(Click to change on the image.)
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coord=galactic
radius= 0.02 deg
Check with external services:
SDSS DR7 Navigate Tool
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[View 82] - GALEX colored

State of art (June 2016)

- 300+ HiPS for 85TB data (CDS 92%, CADC 5%, ESAC 2%)
- 300 000+ HiPS tiles requested / day (+40% in 1 year)
- More a more HiPS clients :

→ Aladin Desktop (CDS), Aladin Lite (CDS), MIZAR (CNES)
+ in dev: STScI portal (NASA), openWWT (Microsoft), proto (China), …

+ Aladin Lite implementation: ESAsky (ESAC), JUDO2 (JAXA), SkyWatch, ...
+ Aladin Lite web page inclusion: Simbad, VizieR, GLIMPSE360, CADE, ADS allsky, CASSIS, Akari-Viewer, VistaOrion, AstroDEEP, CDS portal v2…
+ Aladin Desktop usage "diversion": Arches walker

State of art (June 2016)

- 12+ HiPS servers

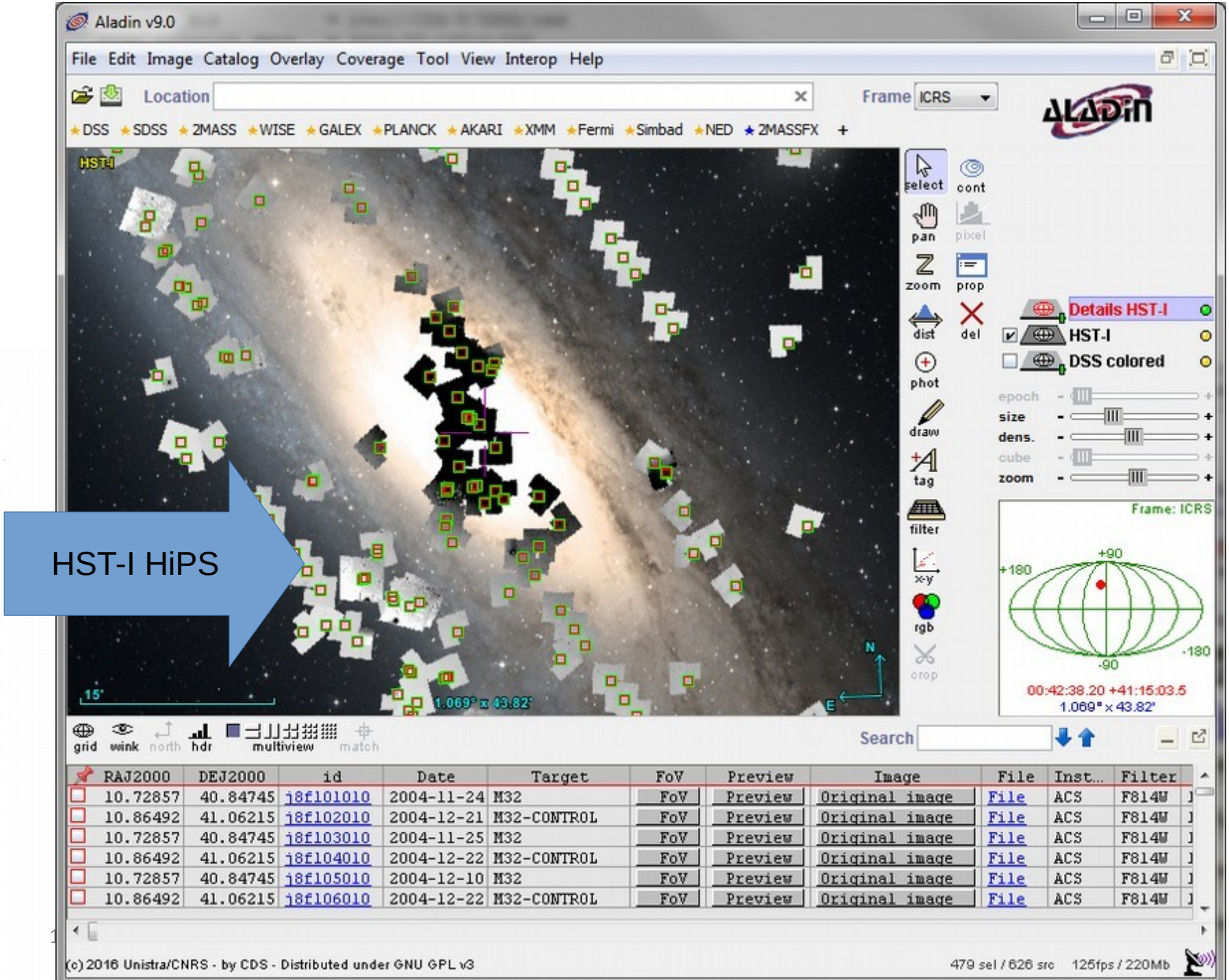
  → CDS, SSC-XMM, IAS, IRAP/CADE, IPAC, ADS, ESAC, JAXA, AMIGA, Spanish-VO, Vista-Orion, TGSSADR...

- 2 HiPS generators
  - Images & cubes: Aladin/Hipsgen (perf: 10h/1Tpix),
  - Catalogs: Hipsgen-cat
- 1 paper →2015A&A...578A.114F
- More docs →http://aladin.unistra.fr/hips

  ("*Make your HiPS in 10 steps*", *Aladin Lite examples*, ...)

HiPS in action

- **HST & HLA : 48 HiPS**
  built by D.Durand/CADC – released in Feb 2016
  - grouped by "usual filters": B, CO, H, H2O, Halpha, HBeta, I, J, NII, OII, OIII, Palpha, Palpha_c, R, SDSSg, SDSSr, SDSSz, SIII, U, UV, V, Y, wideUV, wideV (rather than wavelength ranges).
  - Provided both in preview tiles & in full dynamic tiles
  - Incorporate "progenitor links" facility: for accessing associated original images directly
  - Use "-live" HiPS extension: allow incremental updates


Aladin v9.0
File Edit Image Catalog Overlay Coverage Tool View Interop Help
Location
Frame ICRS
DSS SDSS 2MASS WISE GALEX PLANCK AKARI XMM Fermi Simbad NED 2MASSFX
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10.86492 41.06215 j8f106010 2004-12-22 M32-CONTROL FoV Preview Original image File ACS F814W
(c) 2016 Unistra/CNRS - by CDS - Distributed under GNU GPL v3
479 sel / 626 src
125fps / 220Mb

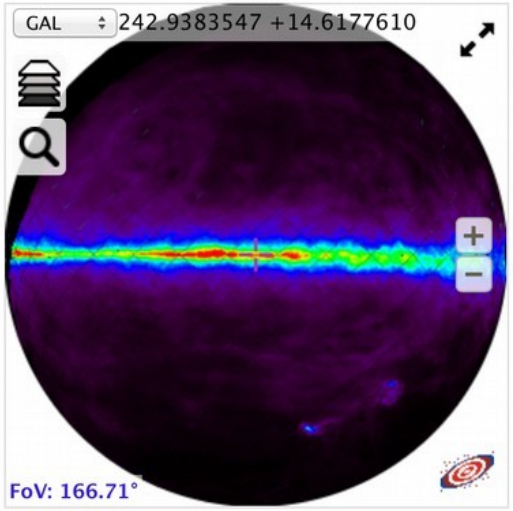
HST-I HiPS

The 4 HiPS principles (in an ideal world)

- **Universality**: Anybody should be able to generate HiPS (authors, projects, missions, archives, data centers...)
- **Quality**: HiPS should be generated by the data providers themselves (they know their data). Otherwise, archives or data centers do the job.
- **Efficiency**: HiPS should be distributed by several sites and mirrored/synchronized as much as possible (big data is here – think petabytes !)
- **Simplicity**: user point of view: just "click & play" !

HiPS hands-on

Do HiPS yourself! (20mn)



Thanks !
Questions ?