

Progress toward registering HiPS data collections



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Pierre Fernique

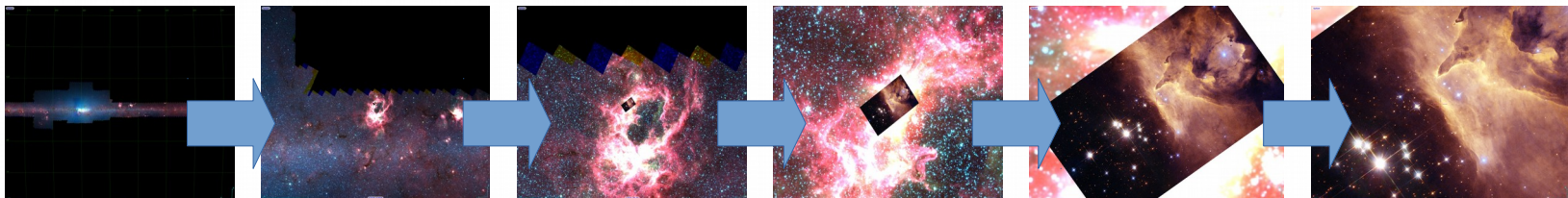


□ HiPS – What is it ?

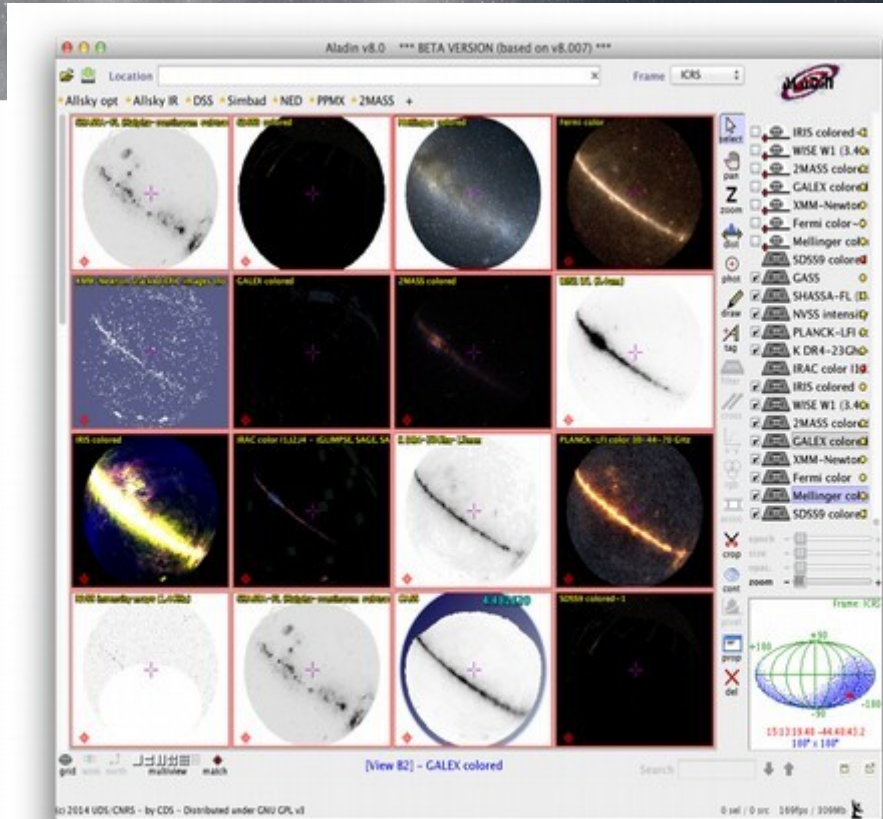
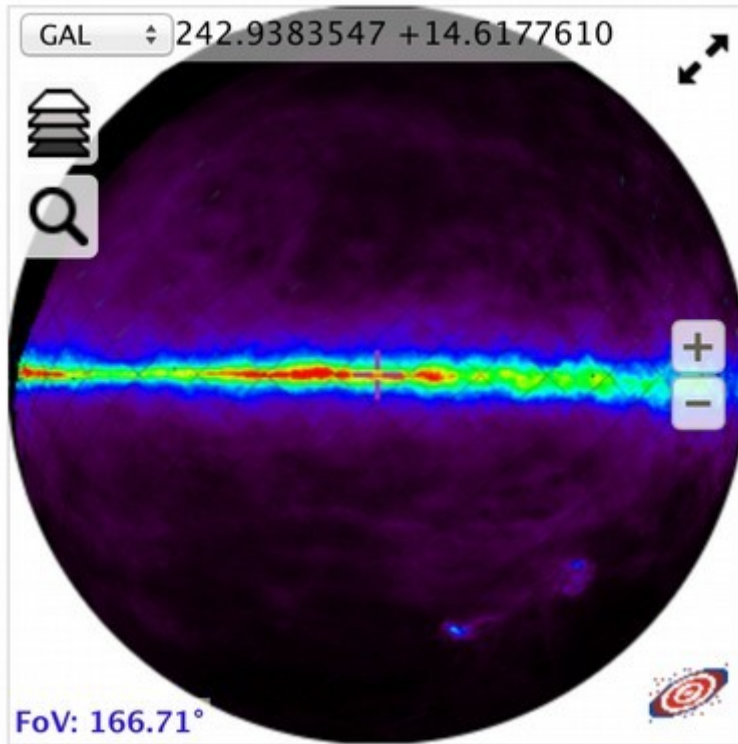
Hierarchical Progressive Survey

“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



Demonstration



- <http://aladin.unistra.fr/hips>

□ HiPS – State of art (oct 15)

- 250+ HiPS for 50TB data
- 6+ institutional clients:
 - Aladin Desktop (CDS), Aladin Lite (CDS), MIZAR (CNES) + AL extensions: [MMI](#) (ESAC), [JUDO2](#), [Akari-Viewer](#) (JAXA)
- 9+ HiPS providers:
 - CDS, SSC-XMM, CADDC, IAS, IRAP/CADE, IPAC, ADS, [ESAC](#), [JAXA](#)
- 2 HiPS generators:
 - Aladin/Hipsgen (image & cubes), Hipsgen-cat (catalogs)
- 1 paper → 2015A&A...578A.114F

Hips, hips, hips ...

- Fermi
- EGRET
- XMM
- INTEGRAL
- RASS
- GALEX
- DSS
- SDSS
- CFHTLS
- HST
- 2MASS
- ULTRAVISTA
- WISE
- ALLWISE
- DIRBE
- IRIS
- GLIMPSE360
- SPITZER
- AKARI
- SCUBA
- BGPS
- WMAP
- PLANCK
- NVSS
- CHIPASS
- SUMSS
- DWINGELOO
- HASLAM408
- VLSSR
- WENSS
- SHS
- SHASSA
- VTSS
- GASS
- CGPS
- GALFA
- CALIFA
- MUSE
- HARP/JCMT
- Gaia GUMS
- SIMBAD
- GOODS
- PHAT

□ Observations

- HiPS fulfils real needs (adapted to astronomical big data, Lite web clients, ...)
 - rapid expansion, great success
- Already used by several institutes, presently only driven by CDS, outside any consortium or official protocol (not an IVOA standard, ...)

 The risks: divergences, duplications, weakness...

□ Our answer

- We need to ensure:
 - Unique HiPS **identification**
 - Meta data: **description**, copyright, ...
 - Web **localisation**
 - **Mirror management** (performance, robustness, strategical policy, ...)

□ Proposal

→ Build the “**HiPS NETWORK**”

- Approach: simple & efficient
- Only 3 (new) basic notions:
 - HiPS list
 - HiPS node
 - HiPS registry

□ In details

- **HiPS list** = ASCII file: concatenation of the property file (associated to each HiPS) distributed by the HiPS node
- **A HiPS node** = a *HTTP server distributing HiPS (tile = classic file) + its HiPS list*
- **HiPS registry** = the list of HiPS nodes provided by a HTTP server (a simple ASCII file)

□ HiPS properties

key = val

...

Example



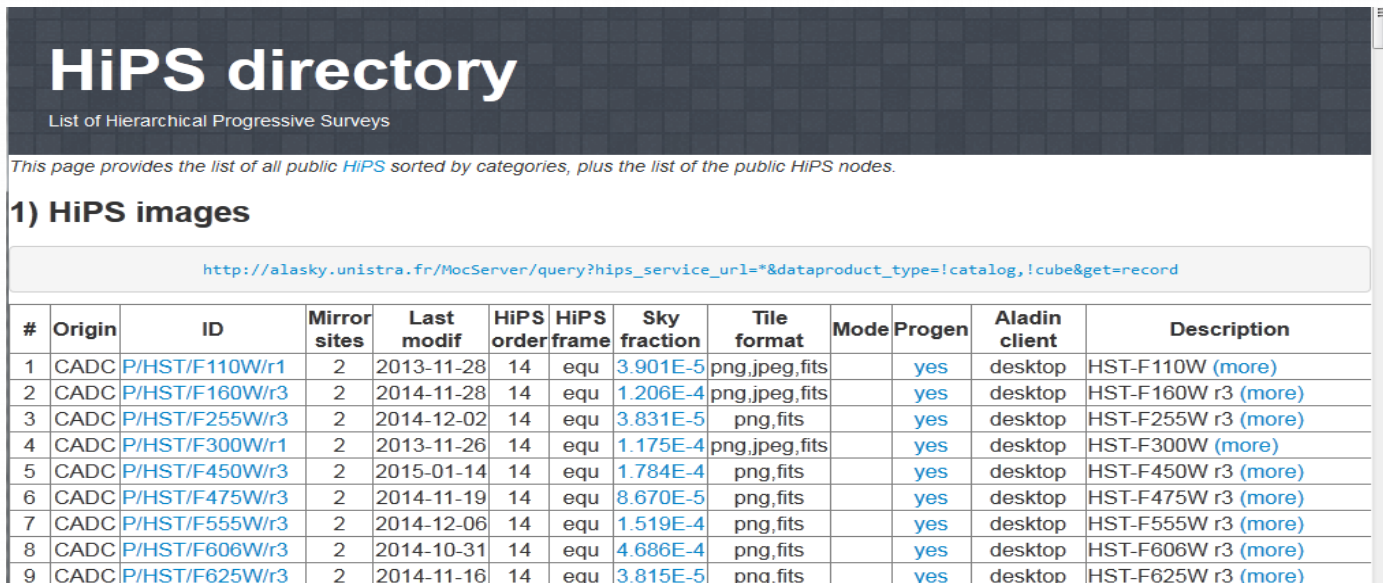
```
publisher_id = ivo://CDS/P/DSS2/color
obs_collection = DSS colored
obs_title = DSS2 optical HEALPix survey, color (R=red[~0.6um]/G
obs_description = Color composition generated by CDS. This HiPS sur
obs_copyright = Digitized Sky Survey - STScI/NASA, Colored & Healpi
obs_copyright_url = http://archive.stsci.edu/dss/acknowledging.html
client_category = Image/Optical/DSS
client_sort_key = 03-00
hips_builder = Aladin/HipsGen v8.149
hips_builder = Aladin/HipsGen v8.133
hips_creation_date = 2010-05-01T19:05Z
hips_release_date = 2015-05-11T08:45Z
hips_publisher = CDS (A.Oberto, P.Fernique)
hips_version = 1.3
hips_order = 9
hips_frame = equatorial
hips_tile_width = 512
hips_tile_format = jpeg
dataprodut_type = image
dataprodut_subtype = color
hips_glu_tag = P-DSS2-color.hpx
client_application = AladinLite
client_application = MediaDesktop
moc_access_url = http://alasky.u-strasbg.fr/DSS/DSSColor
hips_service_url =
hips_status =
hips_rgb_red = public master clonable [Linear]
hips_rgb_blue = DSS2-blue-XJ-S [4286.0 12122.5 19959.0 Linear]
hips_hierarchy = median
hips_pixel_scale = 2.236E-4
moc_sky_fraction = 1
hips_service_url_1 = http://alaskybis.u-strasbg.fr/DSS/DSSColor
hips_status_1 = public mirror clonable
moc_order = 9
obs_initial_ra = 0
obs_initial_dec = +0
obs_initial_fov = 0.11451621372724685
```

□ Prototype platform

- Deployed in June 2015
- With some partners: CDS, SSC-XMM, IRAP, *and soon IAS, ESAC*
- Technical documentation:
<http://aladin.unistra.fr/hips/hipsdoc.pdf>
- It is already working
→ <http://aladin.unistra.fr/hips/registry>

□ Derived tools

- HiPS metadata aggregator: [MocServer](#)
 - <http://alasky.unistra.fr/MocServer/query>
 - <http://aladin.unistra.fr/hips/list>



HiPS directory
List of Hierarchical Progressive Surveys

This page provides the list of all public HiPS sorted by categories, plus the list of the public HiPS nodes.

1) HiPS images

http://alasky.unistra.fr/MocServer/query?hips_service_url=&dataprodct_type=!catalog,!cube&get=record

#	Origin	ID	Mirror sites	Last modif	HiPS order	HiPS frame	Sky fraction	Tile format	Mode	Progen	Aladin client	Description
1	CADC	P/HST/F110W/r1	2	2013-11-28	14	equ	3.901E-5	png,jpeg,fits		yes	desktop	HST-F110W (more)
2	CADC	P/HST/F160W/r3	2	2014-11-28	14	equ	1.206E-4	png,jpeg,fits		yes	desktop	HST-F160W r3 (more)
3	CADC	P/HST/F255W/r3	2	2014-12-02	14	equ	3.831E-5	png,fits		yes	desktop	HST-F255W r3 (more)
4	CADC	P/HST/F300W/r1	2	2013-11-26	14	equ	1.175E-4	png,jpeg,fits		yes	desktop	HST-F300W (more)
5	CADC	P/HST/F450W/r3	2	2015-01-14	14	equ	1.784E-4	png,fits		yes	desktop	HST-F450W r3 (more)
6	CADC	P/HST/F475W/r3	2	2014-11-19	14	equ	8.670E-5	png,fits		yes	desktop	HST-F475W r3 (more)
7	CADC	P/HST/F555W/r3	2	2014-12-06	14	equ	1.519E-4	png,fits		yes	desktop	HST-F555W r3 (more)
8	CADC	P/HST/F606W/r3	2	2014-10-31	14	equ	4.686E-4	png,fits		yes	desktop	HST-F606W r3 (more)
9	CADC	P/HST/F625W/r3	2	2014-11-16	14	equ	3.815E-5	png,fits		yes	desktop	HST-F625W r3 (more)

□ Next steps

- 1) Extend the prototyped HiPS NETWORK to all partners
- 2) Toward an IVOA endorsement ?
 - Rewrite HiPS technical doc in IVOA note ?
 - VOSI interface to HiPS node ?
 - HiPS registration in IVOA registry ?
(individually or at HiPS node level ?)



Questions ?