HiPS
State of the art

IVOA meeting – Oct 2015 - Sydney

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HiPS – State of art (oct 29)

- 250+ HiPS for 50TB data
- 7+ institutional clients:

  → Aladin Desktop & Aladin Lite (CDS), MIZAR (CNES), MAST portal (NASA) + AL extensions: ESA-Sky/MMI (ESAC), JUDO2, Akari-Viewer (JAXA) + OpenWWT (in developement)
- 9+ HiPS providers:

  → CDS, SSC-XMM, CADC, IAS, IRAP/CADE, IPAC, ADS, ESAC, JAXA
- 2 HiPS generators:

  → Aladin/Hipsgen (image & cubes), Hipsgen-cat (catalogs)
- 1 paper → 2015A&A...578A.114F

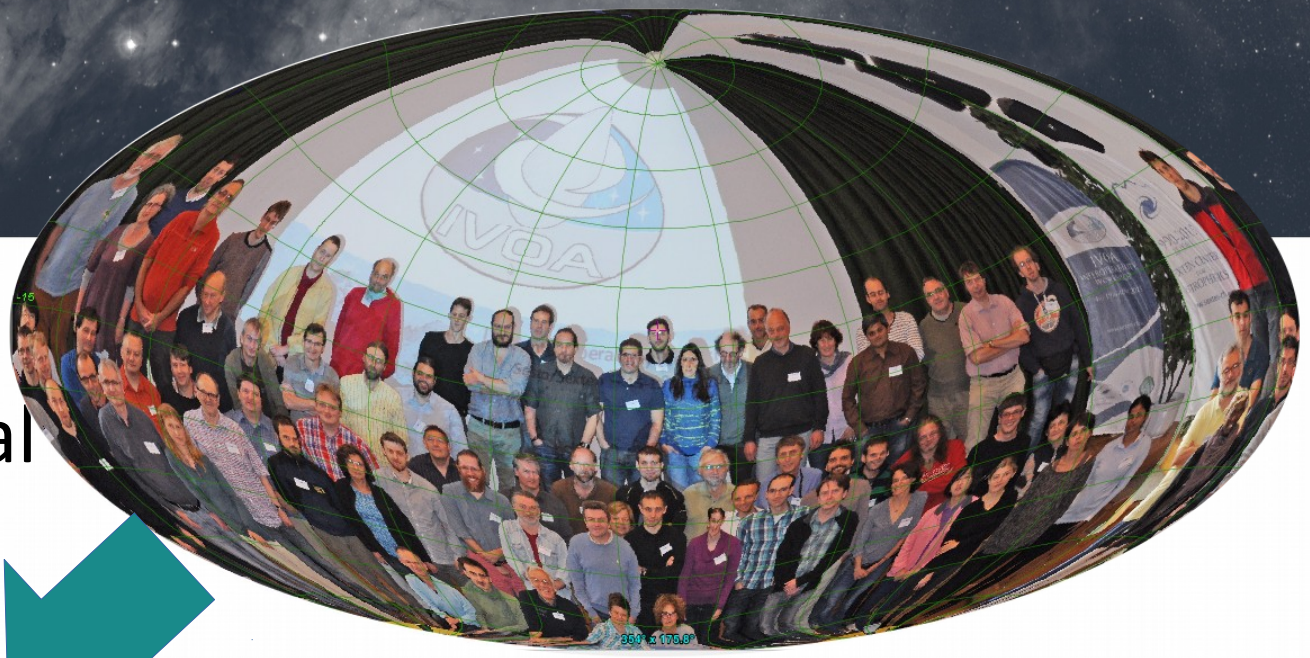
Observations

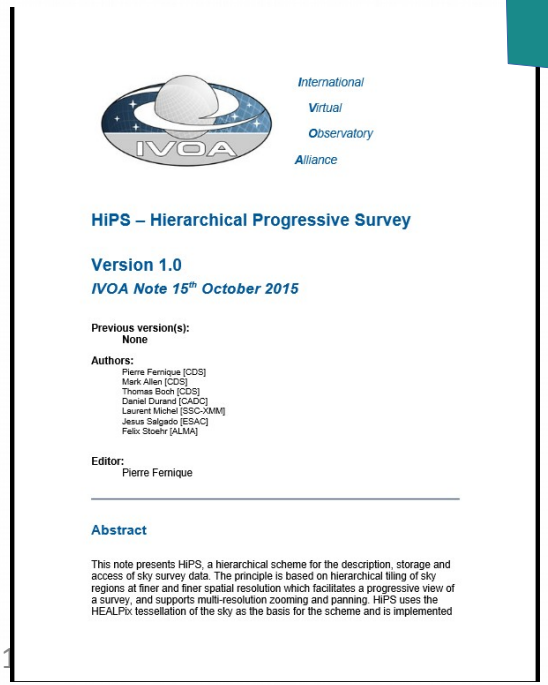
- HiPS fulfils real needs (adapted to astronomical big data, Lite web clients, easy to deploy, easy to adapt…)
  → rapid expansion, great success
- Already used by several institutes, presently only driven by CDS, outside any consortium or official protocol

→ The risks: divergences, duplications, weakness...

The idea

- Provide a more formal framework





International Virtual Observatory Alliance

HiPS – Hierarchical Progressive Survey

Version 1.0

IVOA Note 15th October 2015

Previous version(s):
None

Authors:
Pierre Fernique [CDS]
Mark Allen [CDS]
Thomas Boch [CDS]
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Editor:
Pierre Fernique

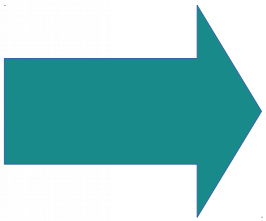
Abstract

This note presents HiPS, a hierarchical scheme for the description, storage and access of sky survey data. The principle is based on hierarchical tiling of sky regions at finer and finer spatial resolution which facilitates a progressive view of a survey, and supports multi-resolution zooming and panning. HiPS uses the HEALPix tessellation of the sky as the basis for the scheme and is implemented

- An IVOA note and may be → a Working Draft → REC

Authors/collaborators

- Several involved persons



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The content of the note

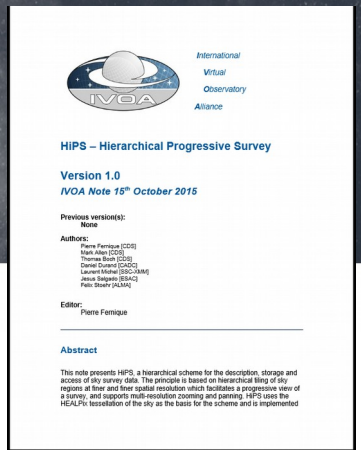

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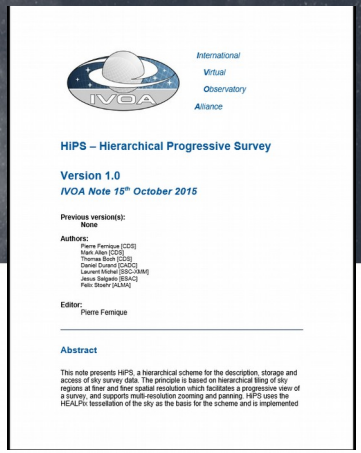
Table of Contents

HiPS access and distribution

- We ensure:
  - Unique HiPS identification:
    → IVORN
  - Meta data: description, copyright, …:
    → a la ObsCore
  - Web localisation:
    → VO registry

The content of the appendixes



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Sharing and mirroring

→ Build a "***Federation of HiPS nodes***"

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

In details

- HiPS list = 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
  => VO registry role ?

HiPS properties

key = val

...

Example

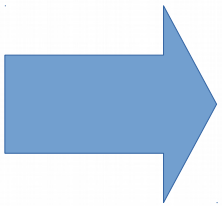
```
publisher_did          = ivo://CDS/P/DSS2/color
obs_collection         = DSS colored
obs_title              = DSS2 optical HEALPix survey, color (R=red[~0.6um]/G
obs_description        = Color composition generated by CDS. This HiPS surve
obs_copyright          = Digitized Sky Survey - STScI/NASA, 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
dataproduct_type       = image
dataproduct_subtype    = color
hips_glu_tag           = P-DSS2-color.hpx
client_application     = AladinLite
client_application     =
moc_access_url         = http://alasky.u-strasbg.fr/DSS/DSSColor
hips_service_url       =
hips_status            = public master clonable
hips_rgb_red           =                                    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
```

Next step

- Caution:

  "*The formalisation of HiPS as an IVOA standard must take into account that HiPS is already widely used. But IVOA has already a good experience for managing the evolution of the interoperability. We can see this HiPS standardization effort as a kind of formal upgrade of HiPS. Improvements of HiPS are obviously welcome, but, as usual, we have to insure that the ascending compatibility will be guaranteed. Or to evaluate very carefully the efforts asked to the providers and developers if this ascending compatibility is broken".*

Questions ?
Comments ?
Suggestions ?



Ready for a WD exercise ?