

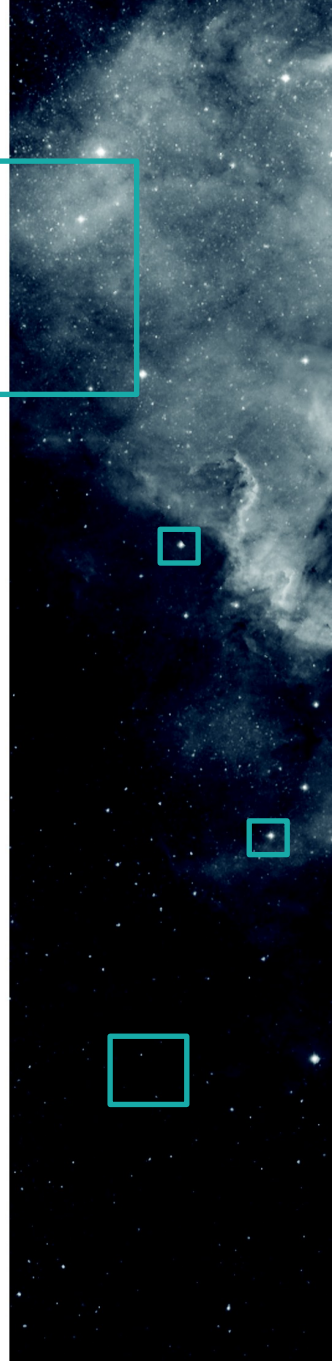
Faut-il déclarer les HiPS (Hierarchical Progressive Surveys) dans l'annuaire OV ?



Journées ASOV
Mars 2023



Mihaela Buga
Equipe Aladin





I. HiPS : introduction

II. Métadonnées HiPS → Enregistrements VO → Annuaire VO

III. Exemple

IV. Perspectives


Entry point to all services 


Object database 


Catalogue database 


Interactive sky atlas 

Other services



Partner services



CDS certified by the CoreTrustSeal



The CDS has been certified as a *Trustworthy Data Repository* by the CoreTrustSeal

Keep in touch



Latest news

- Aladin Lite v3 talk at ADASS 2022
- Aladin Lite v3 release
- DECaPS DR2 HPS available
- Aladin Desktop v12 release
- Catalogs added between 18-Feb-2023 and 25-Feb-2023
- Catalogs added between 11-Feb-2023 and 18-Feb-2023
- Catalogs added between 04-Feb-2023 and 11-Feb-2023

[More news](#)

Featured news

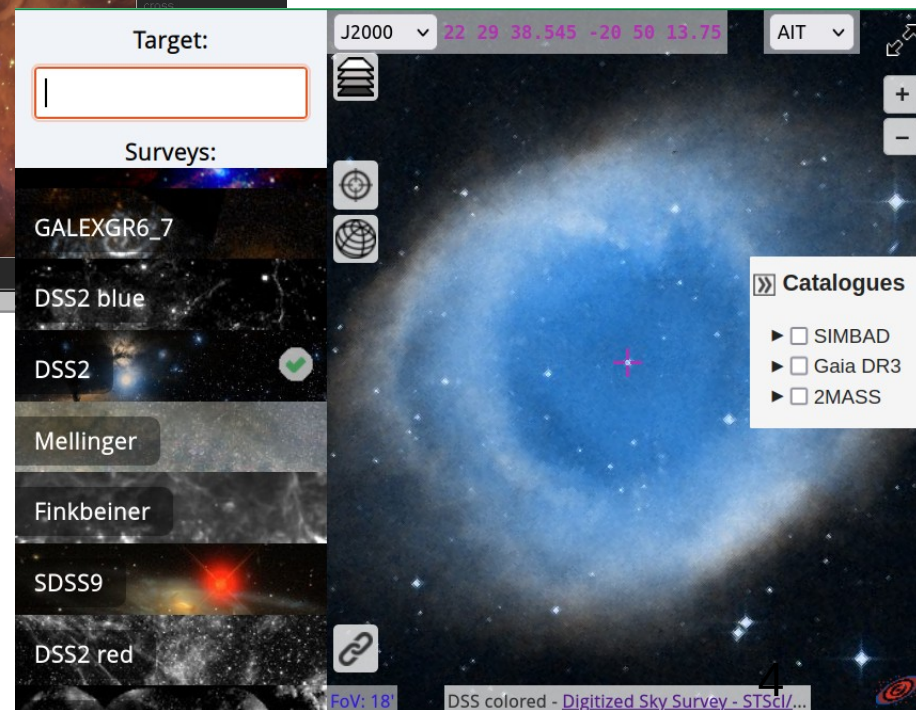
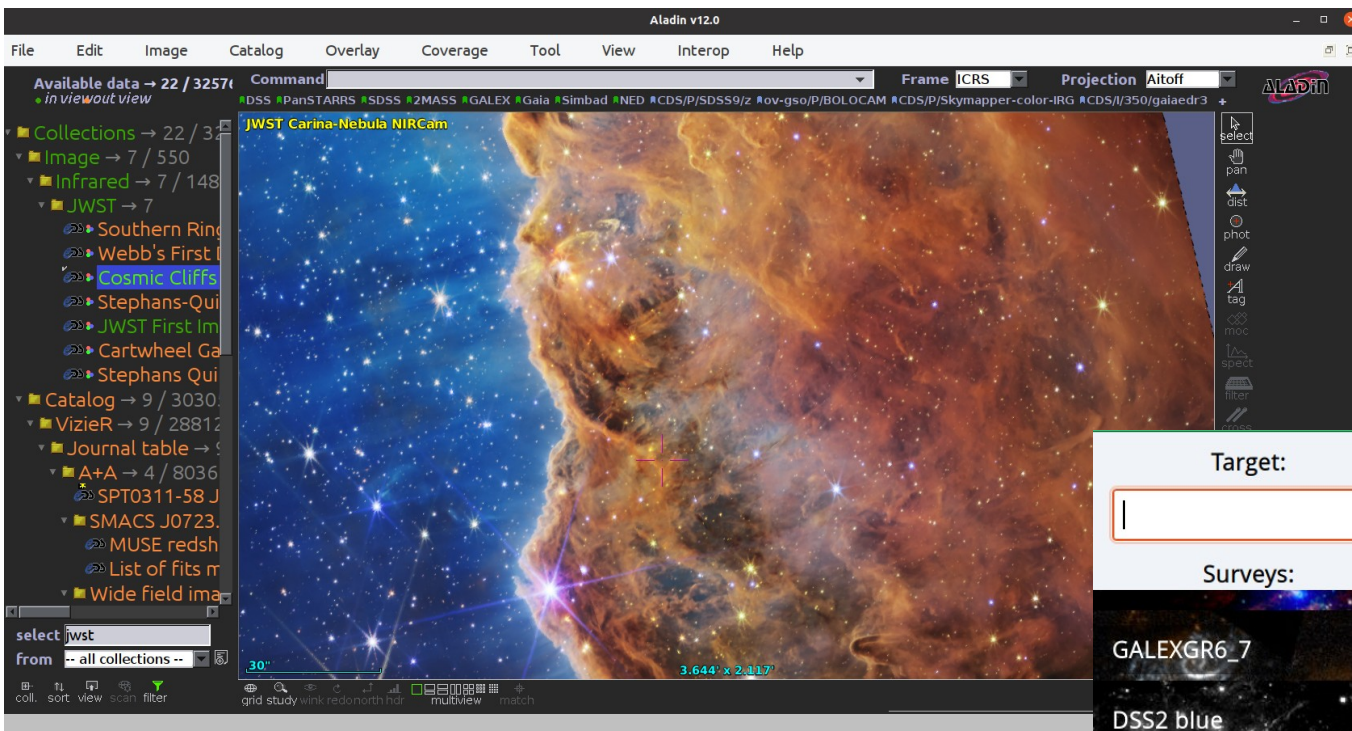
Aladin Lite v3 release



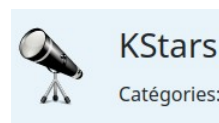
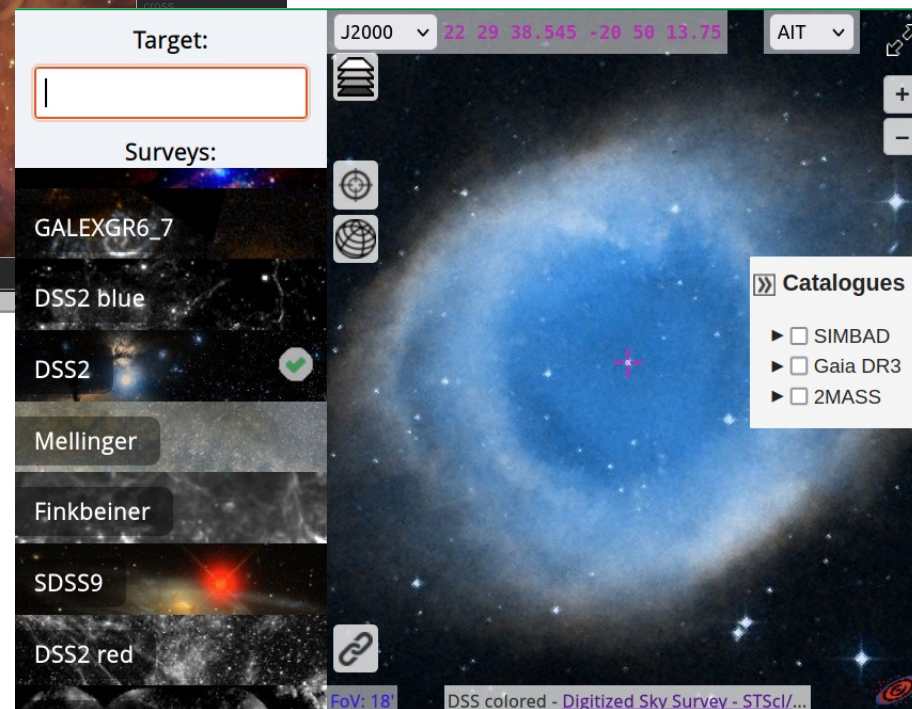
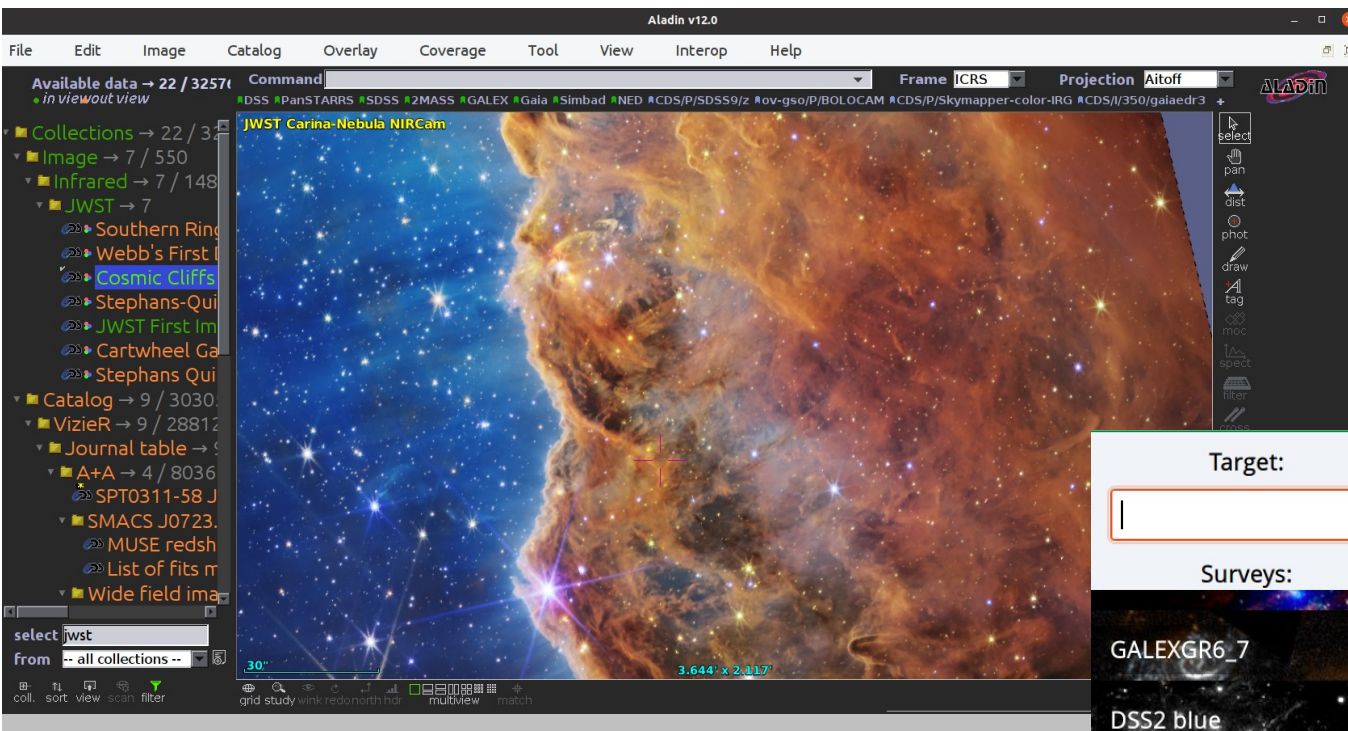
CDS 50th anniversary



Clients HiPS



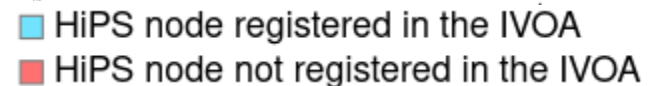
Clients HiPS



ALMA Science Archive Query

based on Aladin Desktop statistics

[\[Show legend\]](#)



□ HiPS Hierarchial Progressive Survey



International
Virtual
Observatory
Alliance

HiPS – Hierarchical Progressive Survey

Version 1.0
IVOA Recommendation
19th May 2017

This version:
1.0: Recommendation 2017-05-19

Previous version(s):
1.0: Proposed Recommendation 2017-04-06
1.0: Proposed Recommendation 2017-04-03
1.0: Proposed Recommendation 2017-02-07
1.0: Working Draft 2016-06-23

Interest/Working Group:
Applications: <http://www.ivoa.net/wiki/bin/view/IVOA/>

Editor: Pierre Fernique

Authors: Pierre Fernique, Mark Allen, Thomas Boch, Tom Don
Ken Ebisawa, Laurent Michel, Jesus Salgado, Felix

5.3 HiPS registration

HiPS surveys and/or servers **may** be registered in the IVOA registry [2].

HiPS registration in the IVOA registry **may** occur at two different levels:

1. *Individual HiPS survey* registration could be useful to at least get a valid IVOID identifier [3]. However this step is not required for client visibility;
2. *HiPS server* registration allowing HiPS clients to discover all the HiPS via their HiPS list.

Only the *HiPS server* registration is required in order to be visible through compatible clients. The HiPS clients get the HiPS list for each registered HiPS server in order to compute the list of available HiPS surveys, their location, and their potential mirror sites.

□ HiPS Hierarchial Progressive Survey



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HiPS – Hierarchical Progressive Survey

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- SIMBAD : TAP `ivo://cds.simbad/tap`
- VizieR : Catalogues (!!! mars 2023 : Hips catalogue capability)
 - CDS catalog HiPS `ivo://cds/vizier/hipserver`
 - TAPVizieR , `ivo://cds.vizier/tap`
 - VizieR SIA `ivo://cds.vizier/siap`
 - VizieR SSA `ivo://cds.vizier/ssap`
 - ObsTAP `ivo://cds.vizier/obstap`
- Aladin : CDS hipsmaster `ivo://cds/aladin/hipsmaster`
 - CDS hipsslave `ivo://cds/aladin/hipsslave`



- SIMBAD : TAP `ivo://cds.simbad/tap`
- VizieR : Catalogues (**!!!** mars 2023 : Hips catalogue capability)
 - CDS catalog HiPS `ivo://cds/vizier/hipsserver`
 - TAPVizieR , `ivo://cds.vizier/tap`
 - VizieR SIA `ivo://cds.vizier/siap`
 - VizieR SSA `ivo://cds.vizier/ssap`
 - ObsTAP `ivo://cds.vizier/obstap`
- Aladin : CDS hipsmaster `ivo://cds/aladin/hipsmaster`
 - CDS hipsslave `ivo://cds/aladin/hipsslave`
 - !!!** *HiPS image, cube, planete (mars 2023 - en cours)*



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HiPS Hierarchial Progressive Survey



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HiPS – Hierarchial Progressive Survey

Version 1.0
IVOA Recommendation
19th May 2017

This version:

1.0: Recommendation 2017-05-19

Previous version(s):

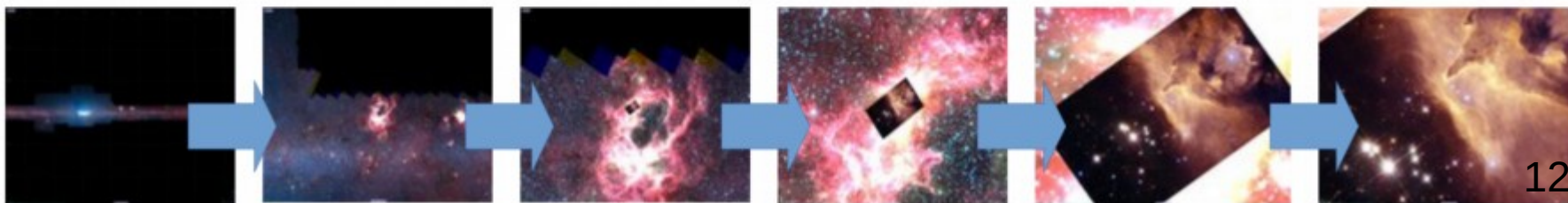
1.0: Proposed Recommendation 2017-04-06
1.0: Proposed Recommendation 2017-04-03
1.0: Proposed Recommendation 2017-02-07
1.0: Proposed Recommendation 2016-11-22
1.0: Working Draft 2016-06-23

Interest/Working Group:

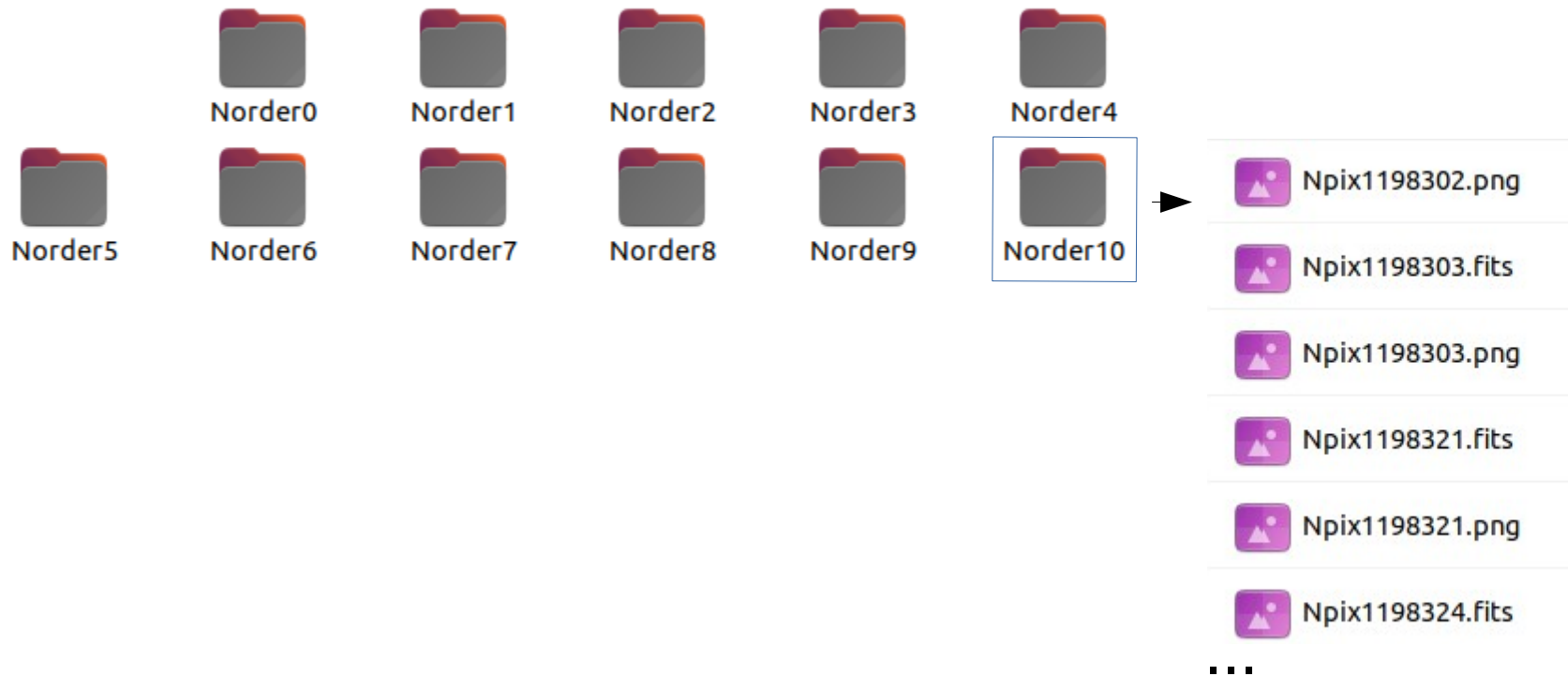
Applications: <http://www.ivoa.net/twiki/bin/view/IVOA/IvoaApplications>

Fernique

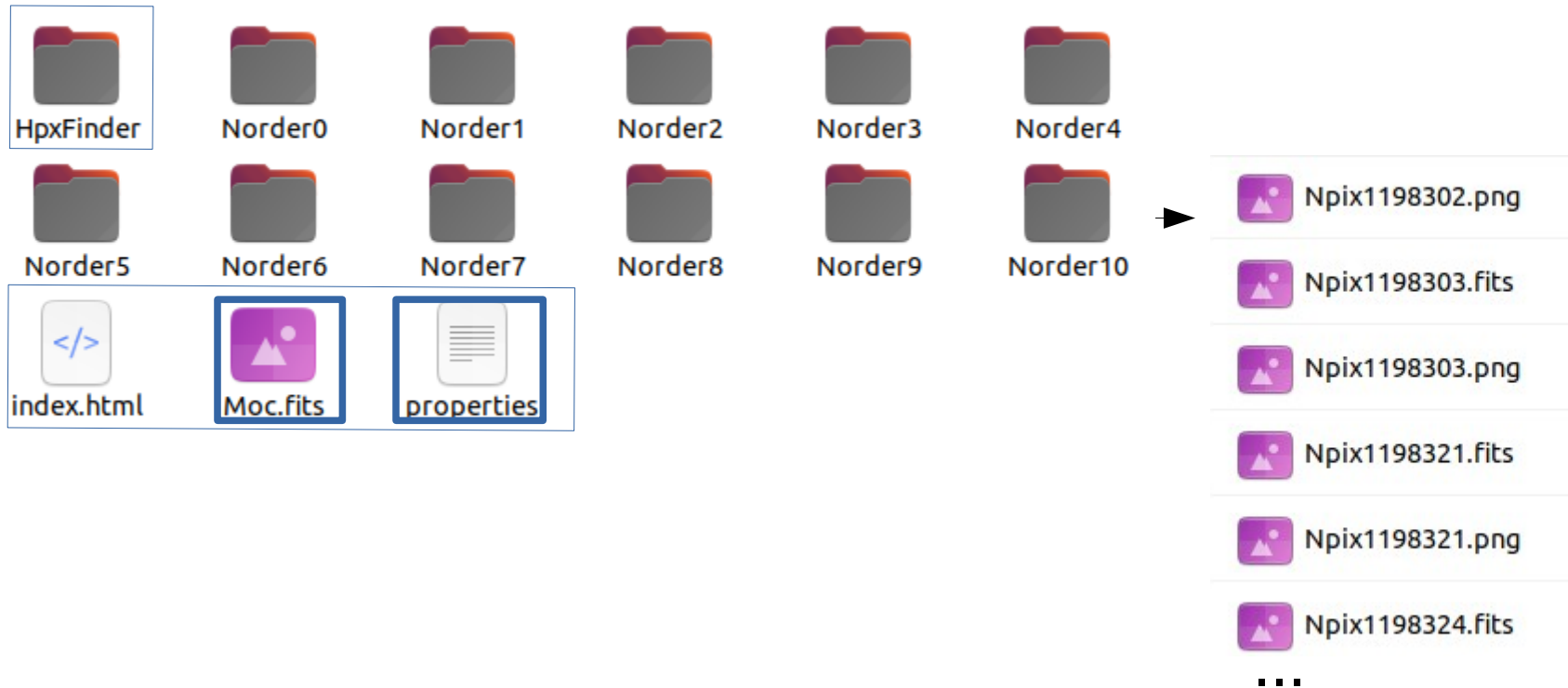
Allen, Thomas Boch, Tom Donaldson, Daniel Durand,
Jesus Salgado, Felix Stoehr



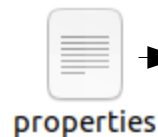
HiPS Hierarchial Progressive Survey : tuiles



HiPS Hierarchial Progressive Survey : métadonnées



□ Métadonnées associées aux HiPS : fichier properties

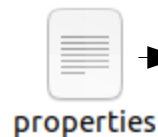


```
ID = CDS/P/2MASS/H
hips_initial_fov = 58.63230142835039
hips_initial_ra = 266.40499479
hips_initial_dec = -28.936173970
creator_did = ivo://CDS/P/2MASS/H
hips_pixel_bitpix = -32
data_pixel_bitpix = -32
hips_sampling = bilinear
hips_skyval_method = SKYVAL
hips_skyval_value = -0.5 100.0 -3146.3114318847656 13218.7626
hips_overlay = mean
hips_hierarchy = median
hips_creator = CDS (Oberto A.)
hips_copyright = CNRS/Unistra
hips_version = 1.4
hips_release_date = 2021-02-23T18:05Z
hips_frame = equatorial
hips_order = 9
hips_order_min = 0
hips_tile_width = 512
hips_tile_format = jpeg fits
dataprodut_type = image
dataprodut_type = image
hips_pixel_cut = -0.5 100
moc_access_url = http://alasky.u-strasbg.fr/2MASS/H/Moc.fits
hips_status = public master clonableOnce
obs_title = 2MASS H (1.66um)
obs_collection = The Two Micron All Sky Survey - H band (2
obs_description = 2MASS has uniformly scanned the entire sky
mJy in each band, with signal-to-noise ratio (SNR) greater than
relative to earlier surveys. 2MASS used two highly-automated 1.3
a three-channel camera, each channel consisting of a 256x256 array
(1.65 microns), and Ks (2.17 microns). The University of Massachu
the infrared cameras and on-site computing systems at both facil
processing through the Production Pipeline, and construction and
obs_copyright_url = http://www.ipac.caltech.edu/2mass/
obs_ack = University of Massachusetts & IPAC/Caltec
bib_reference = 2006AJ...131.1163S
bib_reference_url = http://simbad.u-strasbg.fr/simbad/sim-ref
obs_copyright = University of Massachusetts & IPAC/Caltec

...

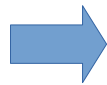
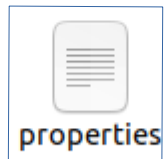
hips_service_url = https://alasky.cds.unistra.fr/2MASS/H
hips_progenitor_url = https://alasky.cds.unistra.fr/2MASS/H/Hp
hips_service_url_1 = https://alaskybis.cds.unistra.fr/2MASS/H
```

□ Métadonnées associées aux HiPS : fichier properties



```
ID = CDS/P/2MASS/H
hips_initial_fov = 58.63230142835039
hips_initial_ra = 266.40499479
hips_initial_dec = -28.936173970
creator_did = ivo://CDS/P/2MASS/H
hips_pixel_bitpix = -32
data_pixel_bitpix = -32
hips_sampling = bilinear
hips_skyval_method = SKYVAL
hips_skyval_value = -0.5 100.0 -3146.3114318847656 13218.7626
hips_overlay = mean
hips_hierarchy = median
hips_creator = CDS (Oberto A.)
hips_copyright = CNRS/Unistra
hips_version = 1.4
hips_release_date = 2021-02-23T18:05Z
hips_frame = equatorial
hips_order = 9
hips_order_min = 0
hips_tile_width = 512
hips_tile_format = jpeg fits
dataprodut_type = image
dataprodut_type = image
hips_pixel_cut = -0.5 100
moc_access_url = http://alaska.u-strasbg.fr/2MASS/H/Moc.fits
hips_status = public master clonableOnce
obs_title = 2MASS H (1.66um)
obs_collection = The Two Micron All Sky Survey - H band (2
obs_description = 2MASS has uniformly scanned the entire sky
mJy in each band, with signal-to-noise ratio (SNR) greater than
relative to earlier surveys. 2MASS used two highly-automated 1.3
a three-channel camera, each channel consisting of a 256x256 arc
(1.65 microns), and Ks (2.17 microns). The University of Massach
the infrared cameras and on-site computing systems at both facil
processing through the Production Pipeline, and construction and
obs_copyright_url = http://www.ipac.caltech.edu/2mass/
obs_ack = University of Massachusetts & IPAC/Caltec
bib_reference = 2006AJ...131.1163S
bib_reference_url = http://simbad.u-strasbg.fr/simbad/sim-ref
obs_copyright = University of Massachusetts & IPAC/Caltec
t_min = 50600
t_max = 51941
obs_regime = Infrared
em_min = 1.525E-6
em_max = 1.798E-6
hips_data_range = -3146 13219
prov_progenitor = TPAC/NASA
```

□ HiPS dans le Registry VO



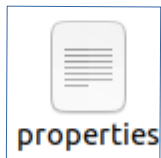
□ HiPS dans le Registry VO

5.3.2 Individual HiPS survey declarations

Optionally, each HiPS may be registered individually in the IVOA registry. There are two constraints: 1 – only the main HiPS creator is authorized to register them (and not by the potential clone site manager) 2 - Only the URL of the original HiPS (master site, not the clone site) may be provided by using the standardID: `ivo://ivoa.net/std/hips#hips-1.0`

```
<ri:Resource xmlns:(...) xsi:type="vs:CatalogService">
  <title>ALADIN image DSS2 blue survey collection</title>
  <shortName>Aladin DSS2 blue</shortName>
  <identifier>ivo://CDS/P/DSS2/blue</identifier>
  <curation>
    <publisher>CDS</publisher>
    <creator ivo-id="ivo://CDS">
      <name>Centre de Données astronomiques de Strasbourg</name>
    </creator>
    <contact>
      <name>CDS Helpdesk</name>
      <email>cds-question@unistra.fr</email>
    </contact>
    <description>ALADIN image DSS2 blue survey collection</description>
  </curation>
  <content>
    <subject>ALADIN image DSS2 blue survey collection</subject>
    <description>ALADIN image server provides reference ...</description>
    <referenceURL>http://aladin.u-strasbg.fr/referenceURL</referenceURL>
    <type>Survey</type>
    <contentLevel>Research</contentLevel>
    <capability standardID="ivo://ivoa.net/std/hips#hips-1.0">
      <interface role="std" xsi:type="vs:ParamHTTP">
        <accessURL use="base">
          http://alaska.u-strasbg.fr/DSS/DSS2-blue-XJ-S</accessURL>
        </interface>
      </capability>
    </content>
    <footprint ivo-id="ivo://mocivod">
      http://alaska.u-strasbg.fr/DSS/DSS2-blue-XJ-S/Moc.fits
    </footprint>
  </content>
</ri:Resource>
```

17 - Example of an individual HiPS survey registry record



HiPSToRegistry**



HiPS dans le Registry VO

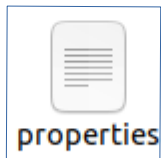
5.3.2 Individual HiPS survey declarations

Optionally, each HiPS may be registered individually in the IVOA registry. There are two constraints: 1 – only the main HiPS creator is authorized to register them (and not by the potential clone site manager) 2 - Only the URL of the original HiPS (master site, not the clone site) may be provided by using the standardID: `ivo://ivoa.net/std/hips#hips-1.0`

```
<ri:Resource xmlns:(...) xsi:type="vs:CatalogService">
  <title>ALADIN image DSS2 blue survey collection</title>
  <shortName>Aladin DSS2 blue</shortName>
  <identifier>ivo://CDS/F/DSS2/blue</identifier>
  <creator>ivo-id="ivo://CDS">
    <name>Centre de Données astronomiques de Strasbourg</name>
    <contact>
      <name>CDS Helpdesk</name>
      <email>cds-question@unistra.fr</email>
    </contact>
  </creator>
  <content>
    <subject>ALADIN image DSS2 blue survey collection</subject>
    <description>ALADIN image server provides reference ... </description>
    <referenceURL>http://aladin.u-strasbg.fr/referenceURL</referenceURL>
    <contentLevel>Research</contentLevel>
    <capability standardID="ivo://ivoa.net/std/hips#hips-1.0">
      <interface role="std" xsi:type="vs:ParamMTP">
        <accessURL use="base">
          http://alaska.u-strasbg.fr/DSS/DSS2-blue-XJ-S</accessURL>
        </interface>
      </capability>
    </content>
    <coverage>
      <footprint ivo-id="ivo://mocivod">
        http://alaska.u-strasbg.fr/DSS/DSS2-blue-XJ-S/Moc.fits
      </footprint>
    </coverage>
  </ri:Resource>
```

17 - Example of an individual HiPS survey registry record

string the full name of the resource
Name required
string optional
reference optional
name required. This name will be used where brief annotations for the resource are required. Applications may use to refer to this resource in a compact display.
name required. One word or a few letters is recommended. No more than sixteen characters are allowed.
mtifier an IVOA Identifier URI: vr:IdentifierURI
pe Unambiguous reference to the resource conforming to the IVOA standard for identifiers
currence required
Identifier a URI: `zs:anyURI`
type A reference to this resource in a non-IVOA identifier scheme, e.g., DOI or bibcode. Always use the an URI scheme here, e.g., `doi:10.1016/j.epsl.2011.11.037`. For bibcodes, use a form like `bibcode:2008ivoa.spec.0222P`.
deaming optional; multiple occurrences allowed.
Occurrence composite: `vr:Curation`
curation Information regarding the general curation of the resource
Type required
Meaning
Occurrence composite: `vr:Content`
content Information regarding the general content of the resource
Type required
Meaning
Occurrence



HiPSToRegistry**



- * <https://www.ivoa.net/documents/VOResource/20180625/REC-VOResource-1.1.pdf> , 1.2, etc.
- ** <https://gitlab.cds.unistra.fr/MihaelaBugaa/hipsivoaregistry/>

HiPS dans le Registry VO

5.3.2 Individual HiPS survey declarations

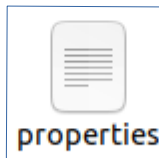
Optionally, each HiPS may be registered individually in the IVOA registry. There are two constraints: 1 – only the main HiPS creator is authorized to register them (and not by the potential clone site manager) 2 - Only the URL of the original HiPS (master site, not the clone site) may be provided by using the standardID: `ivo://ivoa.net/std/hips#hips-1.0`

```
<ri:Resource xmlns:(...) xsi:type="vs:CatalogService">
  <title>ALADIN image DSS2 blue survey collection</title>
  <shortName>Aladin DSS2 blue</shortName>
  <identifier>ivo://CDS/P/DSS2/blue</identifier>
  <curation>
    <publisher>CDS</publisher>
    <creator ivo-id="ivo://CDS">
      <name>Centre de Données astronomiques de Strasbourg</name>
    </creator>
    <contact>
      <name>CDS Helpdesk</name>
      <email>cds-question@unistra.fr</email>
    </contact>
  </curation>
  <content>
    <subject>ALADIN image DSS2 blue survey collection</subject>
    <description>ALADIN image server provides reference ... </description>
    <referenceURL>http://aladin.u-strasbg.fr/referenceURL</referenceURL>
    <type>Survey</type>
    <contentLevel>Research</contentLevel>
  </content>
  <capability standardID="ivo://ivoa.net/std/hips#hips-1.0">
    <interface role="std" xsi:type="vs:ParamMTP">
      <accessURL use="base">
        http://alaska.u-strasbg.fr/DSS/DSS2-blue-XJ-S/</accessURL>
      </interface>
    </capability>
  </content>
  <coverage>
    <footprint ivo-id="ivo://mocivod">
      http://alaska.u-strasbg.fr/DSS/DSS2-blue-XJ-S/Moc.fits
    </footprint>
  </coverage>
</ri:Resource>
```

17 - Example of an individual HiPS survey registry record

string the full name of the resource
Name required
string optional
reference optional
name required
compact display
One word or a few letters is recommended. No more than sixteen characters are allowed.
an IVOA Identifier URI: `vr:IdentifierURI`
Unambiguous reference to the resource conforming to the IVOA standard for identifiers
a URI: `zs:anyURI`
A reference to this resource in a non-IVOA identifier scheme, e.g., DOI or bibcode. Always use the an URI scheme here, e.g., `doi:10.1016/j.epsl.2011.11.037`. For bibcodes, use a form like `bibcode:2008ivoa.spec.0222P`.
optional; multiple occurrences allowed.
composite: `vr:Curation`
Information regarding the general curation of the resource
required
composite: `vr:Content`
Information regarding the general content of the resource
required

Element
Type
Meaning
Occurrence required



properties

HiPSToRegistry**



IVOID.xml



- * <https://www.ivoa.net/documents/VOResource/20180625/REC-VOResource-1.1.pdf> , 1.2, etc.
- ** <https://gitlab.cds.unistra.fr/MihaelaBugaa/hipsivoaregistry/>



I. HiPS : introduction

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```

<OAI-PMH xsi:schemaLocation="http://www.openarchives.org/OAI/2.0/ http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd http://www.ivoa.net/xml/RegistryInterface/RegistryInterface-1.0.xsd">
  <responseDate>2023-03-24T19:00:43Z</responseDate>
  <request verb="GetRecord" metadataPrefix="ivo_vor" identifier="ivo://CDS/P/DESI-Legacy-Surveys/DR10/color">http://cds.unistra.fr/beta/registry/</request>
  <GetRecord>
    <record>
      <header>
        <identifier>ivo://CDS/P/DESI-Legacy-Surveys/DR10/color</identifier>
        <datestamp>2023-03-24T15:15:18Z</datestamp>
        <setSpec>ivo_managed</setSpec>
        <setSpec>HiPS</setSpec>
      </header>
      <metadata>
        <ri:Resource xsi:type="vs:CatalogService" xsi:schemaLocation="http://www.ivoa.net/xml/RegistryInterface/v1.0 http://www.ivoa.net/xml/RegistryInterface/v1.0 http://www.ivoa.net/xml/VOResource/v1.0 http://www.ivoa.net/xml/VOResource/v1.0 http://www.ivoa.net/xml/VODataService/v1.1 http://www.ivoa.net/xml/VODataService/v1.1 http://www.ivoa.net/xml/ConeSearch/v1.0 http://www.ivoa.net/xml/ConeSearch/v1.0 http://www.w3.org/1999/xlink http://www.w3.org/1999/xlink http://www.ivoa.net/xml/VORRegistry/v1.0 http://www.ivoa.net/xml/TAPRegExt/v1.0 http://www.ivoa.net/xml/TAPRegExt/v1.0" created="2023-03-08T14:03Z" status="active" updated="2023-03-24T14:18:43Z">
          <title>
            DESI Legacy Surveys color (g, r, i, z) survey collection
          </title>
          <shortName>DESI-Legacy-Surveys DR10 color</shortName>
          <identifier>ivo://CDS/P/DESI-Legacy-Surveys/DR10/color</identifier>
          <curation>
            <publisher ivo-id="ivo://CDS">CDS</publisher>
            <creator>
              <name>Boch T.</name>
            </creator>
            <date role="Created">2023-03-08T14:03Z</date>
            <date role="Updated">2023-03-10T08:55Z</date>
            <contact>
              <name>CDS Helpdesk</name>
              <email>cds-question@unistra.fr</email>
            </contact>
          </curation>
          <content>
            <subject>Sky survey</subject>
            <subject>Optical astronomy</subject>
            <subject>Galactic center</subject>
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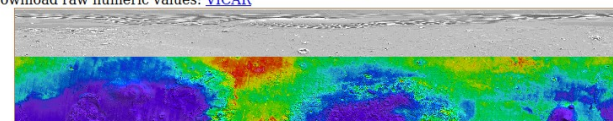
MARS SPACE FLIGHT FACILITY

Return to
[Mars Global
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Projection:	Simple cylindrical, -180E to 180E, 90N to -90N, 'ocentric
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Total Size:	2880x1440 pixels
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Citation:	Christensen et al., The Mars Global Surveyor Thermal Emission Spectrometer experiment: Investigation description and surface science results, J. Geophys. Res., 106, 23,823-23,871, 2001.

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 Download global map without MOLA: [PNG](#)
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décret n°2017-638, publié le 27 avril 2017


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I. HiPS : introduction

II. Métadonnées HiPS → Enregistrements VO → Annuaire VO

III. Exemple

IV. Perspectives

□ Perspectives



- Publier nos HiPS dans d'autres annuaires de la recherche



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- Ajouter des DOI aux HiPS image



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- Décrire hips2fits comme service de cutout associé



Merci !