

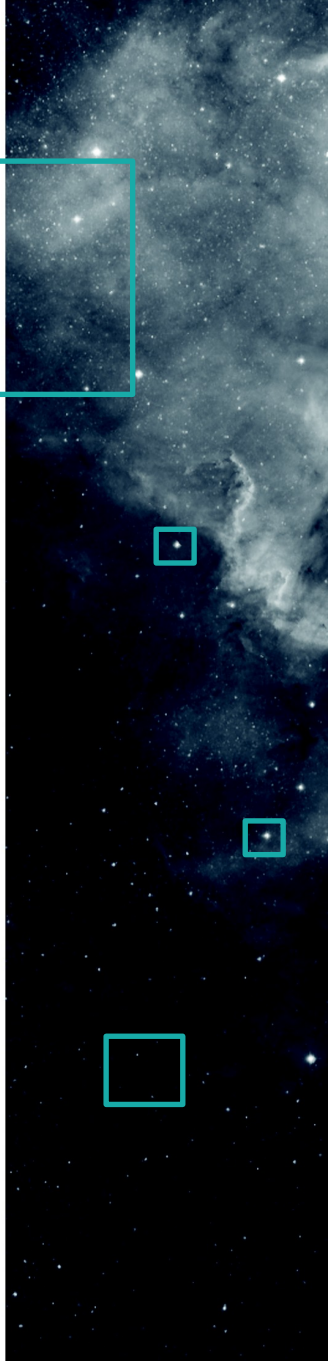
# HiPS data curation process



IVOA INTEROP  
October 2022



Mihaela Buga  
on the behalf of the Aladin team



# □ Table of content



## **I. HiPS introduction**

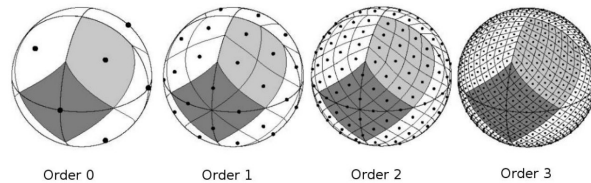
II. Images and data cube curation process

III. Explore HiPS data and meta data with Aladin

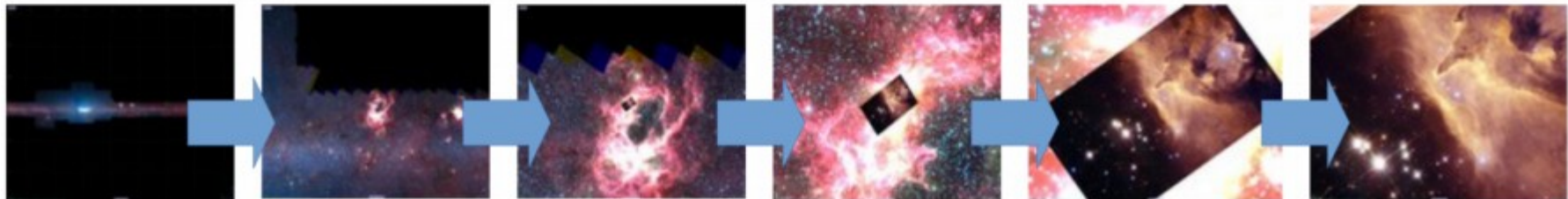
# □ HiPS Hierarchical Progressive Survey □

- IVOA standard invented by the CDS in 2009 in order to manage large image surveys

- Hierarchical multi-resolution tessellation of the sky



- HiPS data format : the more I zoom in the progressive hierarchical sky map, the more details show up



# □ Table of content



I. HiPS introduction

**II. Images and data cube curation process**

III. Explore HiPS data and meta data with Aladin

# □ Main steps in data curation process



Establish **priorities**



Choose the **relevant data product**



Aladin/Hipsgen



Examine and **process a small data sample**

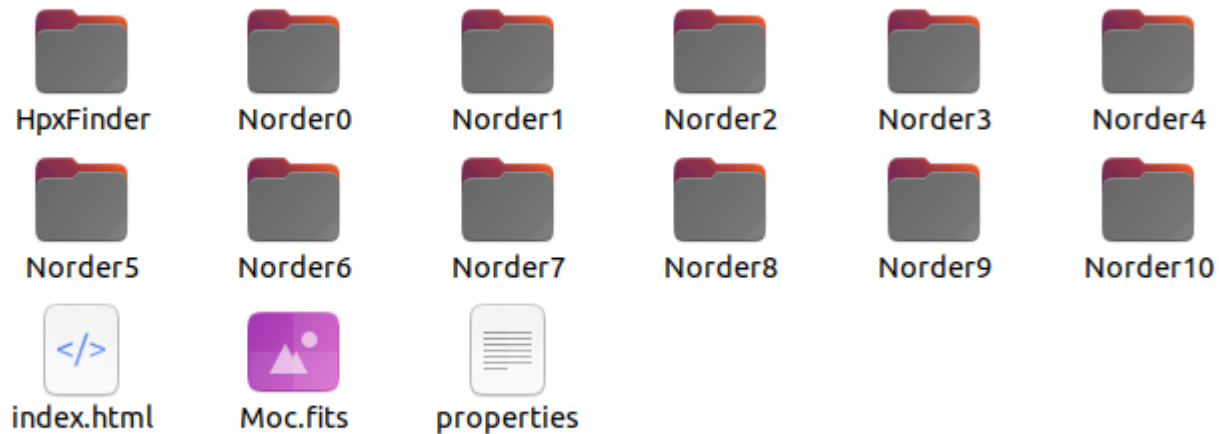


**Process all original data**

# □ HiPS structure



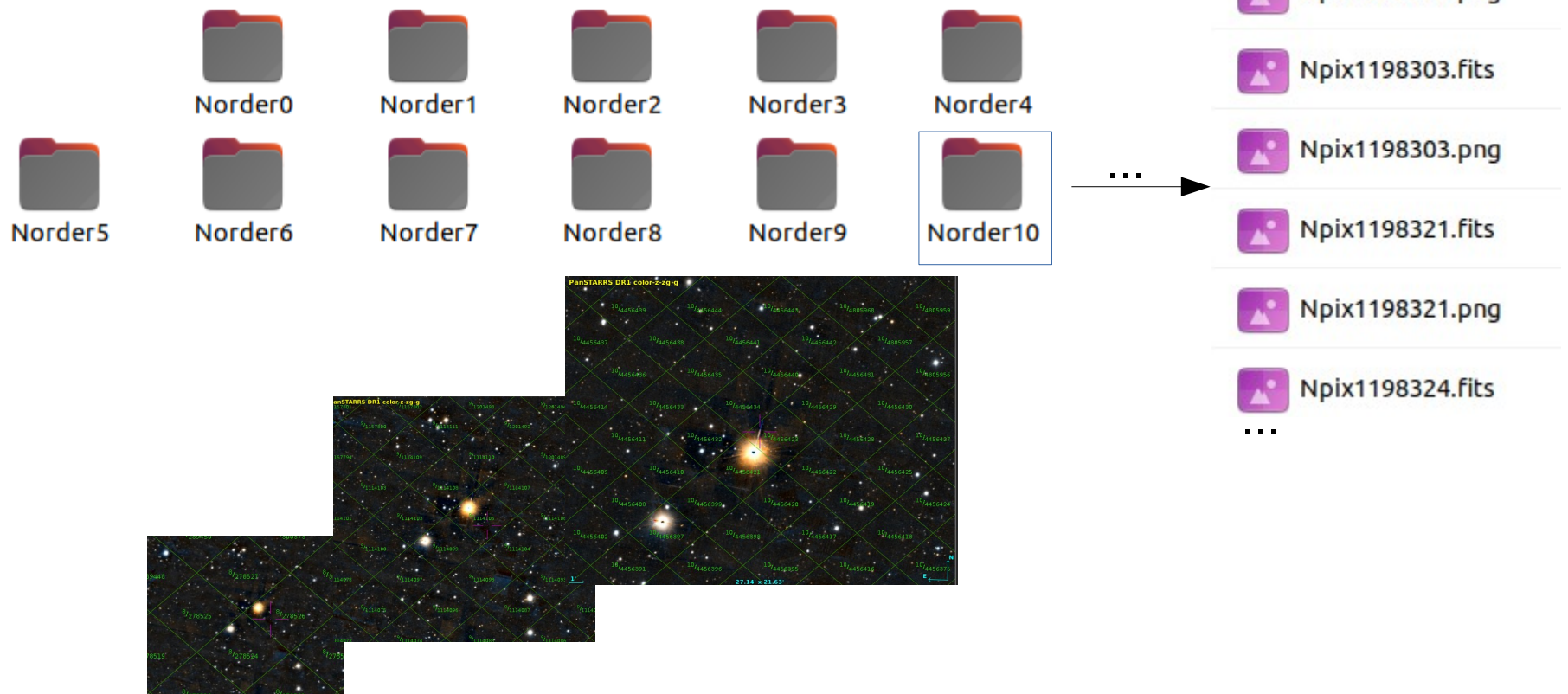
## Original survey data



## Associated metadata

# □ HiPS structure : original survey data

**Original survey data** structured as a mosaic of tiles at various resolutions



# □ Main steps in data curation process



**Verify** the final HiPS



Add/update the **metadata**

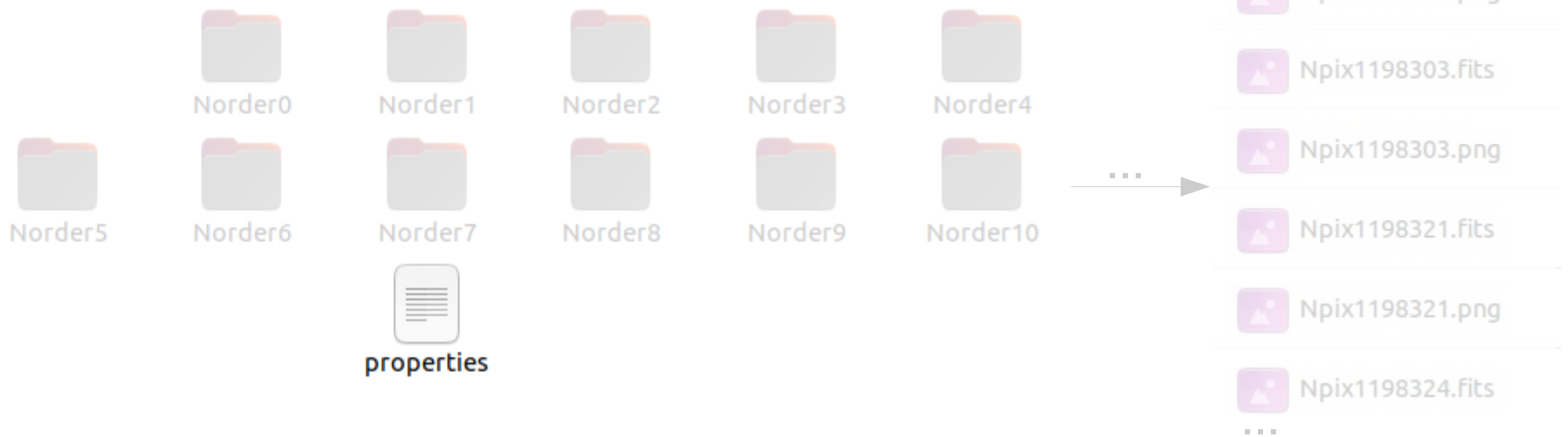


**Validate** the result together with the team



# □ HiPS associated meta data

**Original survey data** structured as a mosaic of tiles at various resolutions



**Associated metadata :** properties file

# □ Properties

**Properties**

Properties of the plane "CDS/P/PanSTARRS/DR1/color-z-zg-g"

PanelID:

Description: *PanSTARRS DR1 color (from bands z and g) ...*

Acknowledgment: *Images data retrieved from the Mikulski ...*

Bib. reference: [2016arXiv161205560C](#)

Dataset ID: CDS/P/PanSTARRS/DR1/color-z-zg-g

HiPS creator: Thomas Boch

Release date: 2019-05-20T08:25Z

Format: Hierarchical Progressive Survey (HiPS)

Url: <http://alaska.cds.unistra.fr/Pan-STARRS/DR1/color-...>

---

**HiPS properties**

Best pixel resolution: 201.3mas

HEALPix NSide: 1048576 (2^20)

Coord.sys.: equatorial

Number of levels: 11

Tile format: JPEG color

Tile width: 512 pix (2^9)

---

**Coverage**

Time range: 2009-06-17 .. 2014-08-27

Energy range: 394.3nm/760.3THz .. 951nm/315.2THz

Space: 100 % of sky

---

**Original data**

Provenance: MAST/STScI

Copyright: [PS1 Science Consortium](#)

---

**Specific drawing method**

.projection:

.frame:

.longitude:  ascending  descending



**Mandatory\*  
keywords**

```

hips_initial_fov = 80
hips_initial_ra = 291.88185
hips_initial_dec = 21.43516
creator_did = ivo://CDS/P/PanSTARRS/DR1/color-z-zg-g
hips_copyright = CNRS/Unistra
obs_collection = PanSTARRS DR1 color (from bands z and g)
obs_description = Pan-STARRS is a system for wide-field astronomical imaging developed and operated by the Institute for Astronomy at the University of Hawaii. Pan-STARRS1 (PS1) is the first part of Pan-STARRS to be completed and is the basis for Data Release 1 (DR1). The PS1 survey used a 1.8 meter telescope and its 1.4 Gigapixel camera to image the sky in five broadband filters (g, r, i, z, y). The PS1 Science Consortium funded the operation of the Pan-STARRS1 telescope, situated at Haleakala Observatories near the summit of Haleakala in Hawaii, for the purposes of astronomical research. The PS1 consortium is made up of astronomers and engineers from 14 institutions from six countries.\nPan-STARRS1 has carried out a set of distinct synoptic imaging sky surveys including the 3m Steradian Survey and the Medium Deep Survey in 5 bands (grizy). The mean 5o point source limiting sensitivities in the stacked 3m Steradian Survey in grizy are (23.3, 23.2, 23.1, 22.3, 21.4) respectively. The upper bound on the systematic uncertainty in the photometric calibration across the sky is 7-12 millimag depending on the bandpass. The systematic uncertainty of the astrometric calibration using the Gaia frame comes from a comparison of the results with Gaia: the standard deviation of the mean and median residuals (Δra, Δdec) are (2.3, 1.7) milliarcsec, and (3.1, 4.8) milliarcsec respectively.
obs_ack = Images data retrieved from the Mikulski Archive for Space Telescopes (MAST) at STScI. Thanks to Clara Brasseur for her help.
prov_progenitor = MAST/STScI
bib_reference = 2016arXiv161205560C
bib_reference_url = https://ui.adsabs.harvard.edu/?#abs/2016arXiv161205560C
obs_copyright_url = PS1 Science Consortium
obs_copyright_url = http://panstarrs.stsci.edu/
t_min = 54999.5103005881
t_max = 56896.245445359
client_category = Image/Optical/PanSTARRS
client_application = AladinLite
obs_regime = Optical
# PanSTARRS filters are described at http://svo2.cab.inta-csic.es/svo/theory/fps/index.php?mode=browse&gname=PAN-STARRS
em_min = 3.94340e-7
em_max = 9.510e-7
hips_builder = Aladin/HipsGen v10.125
hips_version = 1.4
hips_release_date = 2019-05-20T08:25Z
hips_frame = equatorial
hips_order = 11
hips_tile_width = 512
hips_status = public master clonableOnce
hips_tile_format = jpeg
dataprodct_type = image
moc_sky_fraction = 1
hips_sampling = bilinear
hips_overlay = mean
hips_hierarchy = median
hips_creator = Thomas Boch
obs_title = PanSTARRS DR1 color (from bands z and g)
hips_creation_date = 2017-05-04T13:27Z
#hips_master_url = ex: http://yourHipsServer/null
hips_data_range = -7.997 15.85

hips_order_min = 0
#hips_service_url = ex: http://yourHipsServer/PanSTARRS DR1 color-z-zg-g
hips_pixel_scale = 5.591E-5
dataprodct_subtype = color
hips_estsize = 1202572500
hipsgen_date = 2019-05-20T08:25Z
hipsgen_params = out=/asd-volumes/sc1-asd-volume11/Pan-STARRS/DR1/color-z-zg-g
  
```

\*See <https://www.ivoa.net/documents/HiPS/>

# □ Properties

### Properties

Properties of the plane "CDS/P/PanSTARRS/DR1/color-z-zg-g"

PanelID:

Description: [PanSTARRS DR1 color \(from bands z and g\) ...](#)

Acknowledgment: [Images data retrieved from the Mikulski ...](#)

Bib. reference: [2016arXiv161205560C](#)

Dataset ID: CDS/P/PanSTARRS/DR1/color-z-zg-g

HiPS creator: Thomas Boch

Release date: 2019-05-20T08:25Z

Format: Hierarchical Progressive Survey (HiPS)

Url: <http://alaska.cds.unistra.fr/Pan-STARRS/DR1/color-...>

#### HiPS properties

Best pixel resolution: 201.3mas

HEALPix NSide: 1048576 (2^20)

Coord.sys.: equatorial

Number of levels: 11

Tile format: JPEG color

Tile width: 512 pix (2^9)

#### Coverage

Time range: 2009-06-17 .. 2014-08-27

Energy range: 394.3nm/760.3THz .. 951nm/315.2THz

Space: 100 % of sky

#### Original data

Provenance: MAST/STScI

Copyright: [PS1 Science Consortium](#)

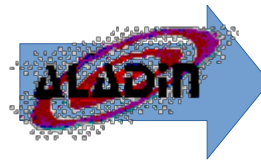
#### Specific drawing method

.projection:

.frame:


.longitude:  ascending  descending

## Data curation



```
hips_initial_fov = 80
hips_initial_ra = 291.88185
hips_initial_dec = 21.43516
creator_did = ivo://CDS/P/PanSTARRS/DR1/color-z-zg-g
hips_copyright = CNRS/Unistra
obs_collection = PanSTARRS DR1 color (from bands z and g)
obs_description = Pan-STARRS is a system for wide-field astronomical imaging developed and operated by the Institute for Astronomy at the University of Hawaii. Pan-STARRS1 (PS1) is the first part of Pan-STARRS to be completed and is the basis for Data Release 1 (DR1). The PS1 survey used a 1.8 meter telescope and its 1.4 Gigapixel camera to image the sky in five broadband filters (g, r, i, z, y). The PS1 Science Consortium funded the operation of the Pan-STARRS1 telescope, situated at Haleakala Observatories near the summit of Haleakala in Hawaii, for the purposes of astronomical research. The PS1 consortium is made up of astronomers and engineers from 14 institutions from six countries. Pan-STARRS1 has carried out a set of distinct synoptic imaging sky surveys including the 3 $\pi$  Steradian Survey and the Medium Deep Survey in 5 bands (grizy). The mean 5 $\sigma$  point source limiting sensitivities in the stacked 3 $\pi$  Steradian Survey in grizy are (23.3, 23.2, 23.1, 22.3, 21.4) respectively. The upper bound on the systematic uncertainty in the photometric calibration across the sky is 7-12 millimag depending on the bandpass. The systematic uncertainty of the astrometric calibration using the Gaia frame comes from a comparison of the results with Gaia: the standard deviation of the mean and median residuals ( $\Delta\alpha$ ,  $\Delta\text{dec}$ ) are (2.3, 1.7) milliarcsec, and (3.1, 4.8) milliarcsec respectively.
obs_ack = Images data retrieved from the Mikulski Archive for Space Telescopes (MAST) at STScI. Thanks to Clara Brasseur for her help.
prov_progenitor = MAST/STScI
bib_reference = 2016arXiv161205560C
bib_reference_url = https://ui.adsabs.harvard.edu/?#abs/2016arXiv161205560C
obs_copyright = PS1 Science Consortium
obs_copyright_url = http://panstarrs.stsci.edu/
t_min = 54999.5103005881
t_max = 56896.245445359
client_category = Image/Optical/PanSTARRS
client_application = AladinLite
obs_regime = Optical
# PanSTARRS filters are described at http://svo2.cab.inta-csic.es/svo/theory/fps/index.php?mode=browse&gname=Pan-STARRS
em_min = 3.94340e-7
em_max = 9.510e-7
hips_builder = Aladin/HipsGen v10.125
hips_version = 1.4
hips_release_date = 2019-05-20T08:25Z
hips_frame = equatorial
hips_order = 11
hips_tile_width = 512
hips_status = public master clonableOnce
hips_tile_format = jpeg
dataprodct_type = image
moc_sky_fraction = 1
hips_sampling = bilinear
hips_overlay = mean
hips_hierarchy = median
hips_creator = Thomas Boch
obs_title = PanSTARRS DR1 color (from bands z and g)
hips_creation_date = 2017-05-04T13:27Z
#hips_master_url = ex: http://yourHipsServer/null
hips_data_range = -7.997 15.85

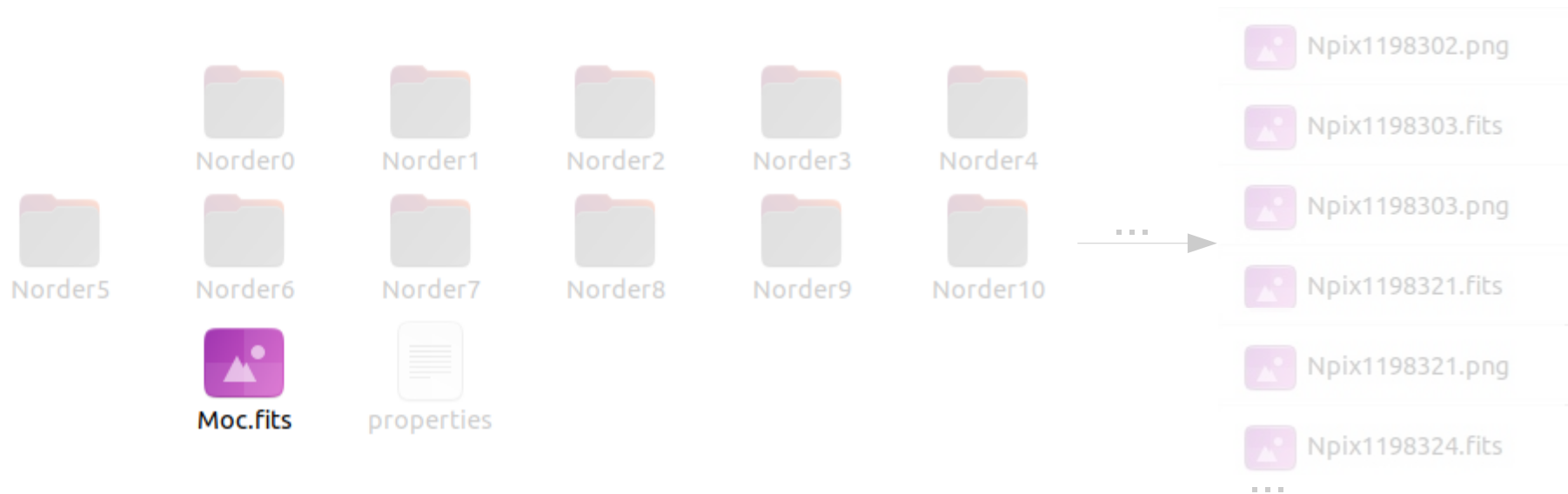
hips_order_min = 0
#hips_service_url = ex: http://yourHipsServer/PanSTARRS DR1 color-z-zg-g
hips_pixel_scale = 5.591E-5
dataprodct_subtype = color
hips_estsize = 1202572500
hipsgen_date = 2019-05-20T08:25Z
hipsgen_params = out=asd-volumes/sc1-asd-volume11/Pan-STARRS/DR1/color-z-zg-g
```

Keyword	Displayed properties	Description
creator_id	 Dataset ID: CDS/P/PanSTARRS/DR1/color-z-zq-a	HiPS unique identifier
obs_title obs_collection obs_description	Description: PanSTARRS DR1 color (from bands z ai	HiPS title and short description
hips_status hips_copyright	hips_status = public master clonableOnce hips_copyright = CNRS/Unistra	HiPS rights of use, copyrights
hips_creator hips_creation_date hips_release_date	HiPS creator Thomas Boch Release date 2019-05-20T08:25Z	The name of the person who generated the HiPS, the date of creation/update(s)
hips_frame hips_order hips_tile_width hips_tile_format moc_sky_fraction hips_sampling hips_overlay hips_hierarchy hips_data_range hips_order_min hips_pixel_scale dataprodtype dataprodsubtype hips_estsize	<b>HiPS properties</b> Best pixel resolution 201.3mas HEALPix NSide: 1048576 (2 <sup>20</sup> ) Coord.sys.: equatorial Number of levels 11 Tile format JPEG color Tile width: 512 pix (2 <sup>9</sup> )	HiPS technical characteristics
client_category client_application	<ul style="list-style-type: none"> <li>▼ Optical → 138</li> <li>▶ HST → 28</li> <li>▶ Skymapper → 7</li> </ul>	Client display properties



# HiPS associated meta data

**Original survey data** structured as a mosaic of tiles at various resolutions



**Associated metadata** : spatial/time coverage

# Map of Coverage

**Aladin v11.9 \*\*\* BETA VERSION (based on v11.902) \*\*\***

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data → 1047 / 3045: in view out view

Command:  Frame: **ICRS** Projection: **Aitoff**

**HLA-SDSSg**

**HLA-SDSSg : F475W ...**

Provenance: Canadian Astronomy Data Centre  
Coverage: 7.863°<sup>2</sup> 390nm/768.7THz .. 554.1nm/541.1THz 2002-04-01 .. 2017-09-27 Res: 50.29mas

Access mode & derived prod.  progressive +  STMOC cov.  Links to orig. img.

CDS/P/HLA/SDSSg

Time plot

Time	Coverage
1995-10-09	High
1998-07-05	Low
2001-03-31	High
2003-12-26	Low
2006-09-21	High
2009-06-17	High
2012-03-13	High
2014-12-08	High

[View A1] - CDS/P/HLA/SDSSg

select:  from:

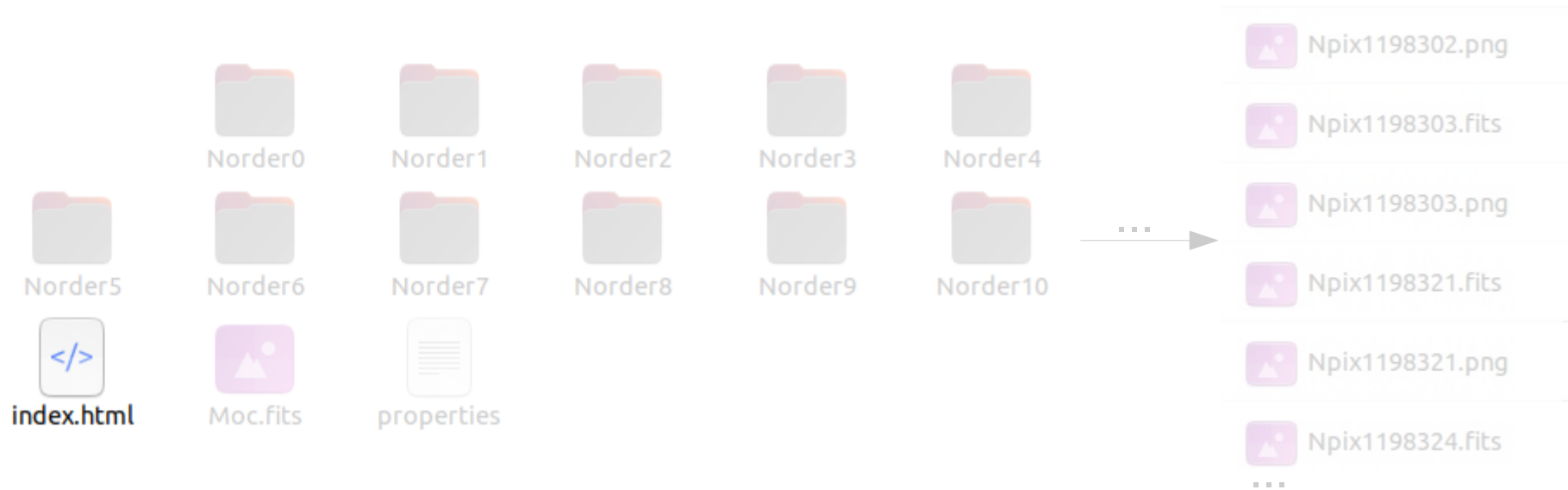
epoch -   
size -   
dens. -   
cube -   
opac. -   
zoom -

0 sel / 0 src 451Mb

# □ HiPS associated meta data



Original survey data structured as a mosaic of tiles at various resolutions



**Associated metadata :** HTML presentation of the survey

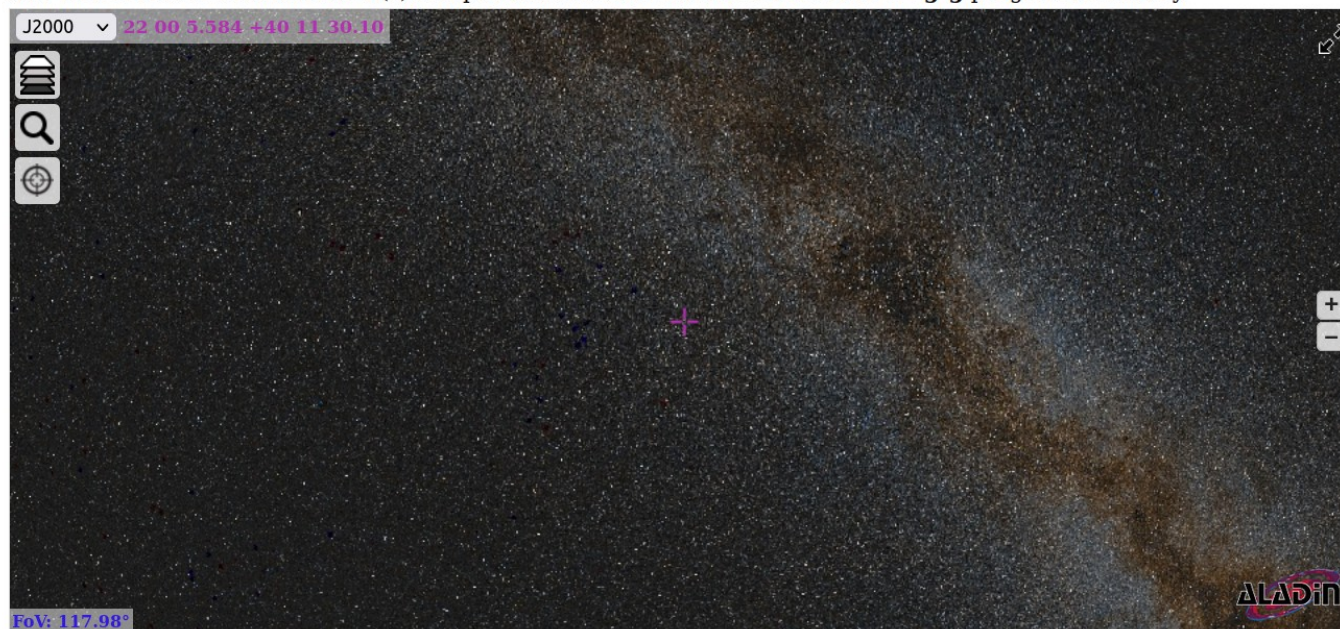


# □ Landing page



## "PanSTARRS DR1 color-z-zg-g" progressive survey

This Web resource contains HiPS(\*) components for **PanSTARRS DR1 color-z-zg-g** progressive survey.



- **Label:** PanSTARRS DR1 color-z-zg-g
- **Type:** colored HiPS image
- **Best pixel angular resolution:** 201.3mas
- **Max tile order:** 11 (NSIDE=2048)
- **Available encoding tiles:** jpeg
- **Tile size:** 512x512
- **Processing date:** 2019-05-20T08:25Z
- **HiPS builder:** Aladin/HipsGen v10.125
- **Coordinate frame:** equatorial
- **Sky area:** 100.0% of sky =>  $41253\hat{A}^{\wedge}2$
- **Associated coverage map:** [MOC](#)
- **Property file:** [properties](#)
- **Base URL:**

<http://alasky.cds.unistra.fr/PanSTARRS/DR1/color-z-zg-g>

This survey can be displayed by [Aladin Lite](#) (see above), by [Aladin Desktop](#) client (just open the base URL) or any other HiPS aware clients.

---

(\*) HiPS is a recommended [International Virtual Observatory Alliance](#) standard: [HiPS REC](#). The HiPS technology allows a dedicated client to access an astronomical survey at any location and at any scale. HiPS has been invented by [CDS-Université de Strasbourg/CNRS \(2015A&A...578A.114F\)](#). It is based on HEALPix sky

# □ HiPS progenitors



The available meta information about the images allow us to generate **links towards the progenitors**



HpxFinder



Norder0



Norder1



Norder2



Norder3



Norder4



Norder5



Norder6



Norder7



Norder8



Norder9



Norder10



index.html



Moc.fits



properties



Npix1198302.png



Npix1198303.fits



Npix1198303.png



Npix1198321.fits



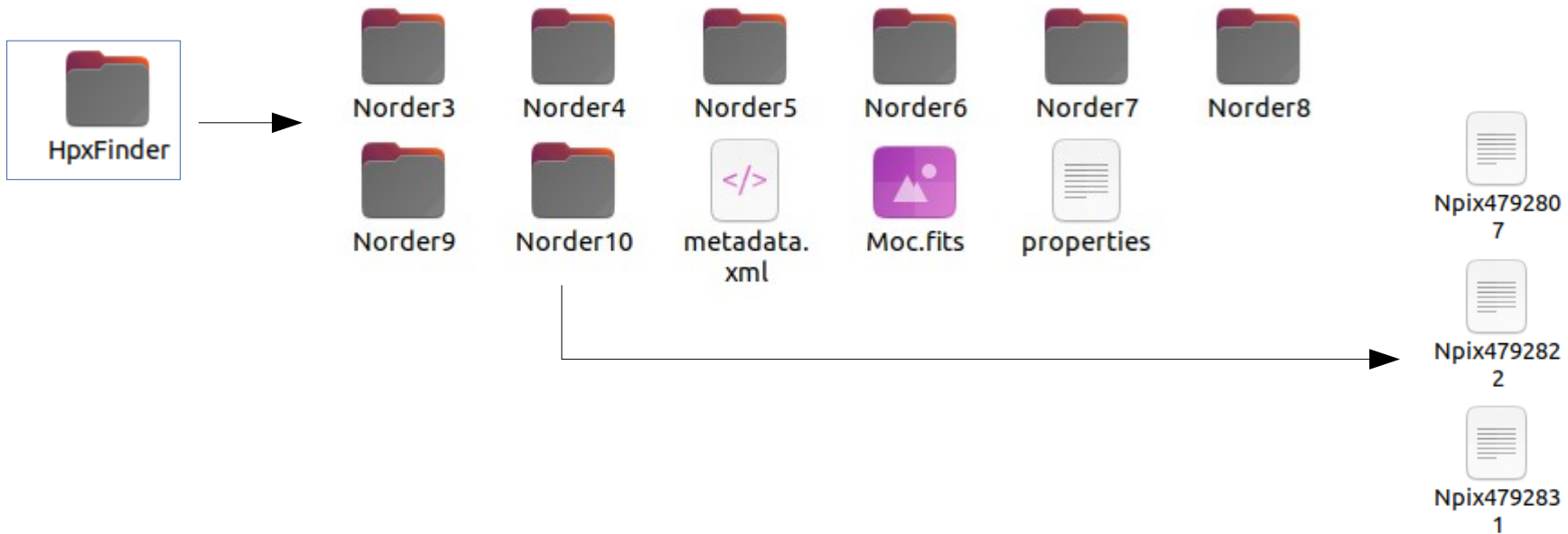
Npix1198321.png



Npix1198324.fits



# □ Link towards the original images □



\*See <https://www.ivoa.net/documents/Notes/HiPSProg/20180525/>

# □ Main steps in data curation process



- **HiPS generator tool** evolution:
  - Internal **global verification and updates**
  - **enrich the metadata**, prior or subsequent to new developments
- **HiPS IVOA standard compatibility checks** (Hipsgen LINT action)
- **Properly curated data** → FAIR data
- Maintain contact with :
  - **data** providers
  - **HiPS providers**

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II. Images and data cube curation process

**III. Explore HiPS data and meta data with Aladin**

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  - Image → 7 / 522
    - Infrared → 7 / 148
      - JWST → 7
        - Southern Ring Nebula
        - Webb's First Deep Field SMAC 0723
        - Cosmic Cliffs in the Carina Nebula
        - Stephans-Quintet NIRCcam+MIRI
        - JWST First Images
        - Cartwheel Galaxy
        - Stephans Quintet MIRI
- Catalog → 4 / 28501
  - VizieR → 4 / 27014
    - Journal table → 4 / 25221
      - A+A → 1 / 7373
        - Wide field imagers ground-based astrometry
        - JWST calib. field astro-photometric cata
      - AJ → 2 / 3932
        - Spitzer IRAC photometry of 36 JWST calibr
        - Jovian-type planets around M dwarfs with
      - ApJ → 1 / 5412
        - TIC star exposure times for JWST, LUVVOIR,
- Others → 2 / 1186
  - HIPS → 1 / 259
    - esavo → 1 / 37
      - eJWST-NIRCcam\_Imaging
  - TAP (table) → 1 / 203
    - esavo → 1 / 10
      - European JWST Archive TAP

### Data discovery tree filter

Filter name

Save

Delete



Global constraints

Dedicated to catalog

Coverage

Technical

Keywords

Category

<input type="checkbox"/> Ancillary	<input type="checkbox"/> Catalog	<input type="checkbox"/> Cube	<input type="checkbox"/> Data base	<input type="checkbox"/> Image
<input type="checkbox"/> Others	<input type="checkbox"/> Outreach	<input type="checkbox"/> Solar sy...		

Regime

<input type="checkbox"/> Radio	<input type="checkbox"/> millimeter	<input type="checkbox"/> Infrared	<input type="checkbox"/> Optical	<input type="checkbox"/> UV
<input type="checkbox"/> euv	<input type="checkbox"/> x-ray	<input type="checkbox"/> Gamma-ray	<input type="checkbox"/> Infrared...	

Bib. year

Authority

<input type="checkbox"/> 3crsnaps...	<input type="checkbox"/> CDS	<input type="checkbox"/> CEFC A
<input type="checkbox"/> CSIRO	<input type="checkbox"/> China-VO	<input type="checkbox"/> ESAVO
<input type="checkbox"/> IAPS	<input type="checkbox"/> IPAC	<input type="checkbox"/> JAXA
<input type="checkbox"/> Leiden	<input type="checkbox"/> NOAO	<input type="checkbox"/> ads.harv...

Obs. epoch

 .. 

Spatial coverage

expression & MOC generated by the filter

MOC

Display it

→ Filter activated → matching collections: 22

Apply the filter

Reset

Close

select jwst  
from -- all collections --

coll. sort view scan filter

grid s

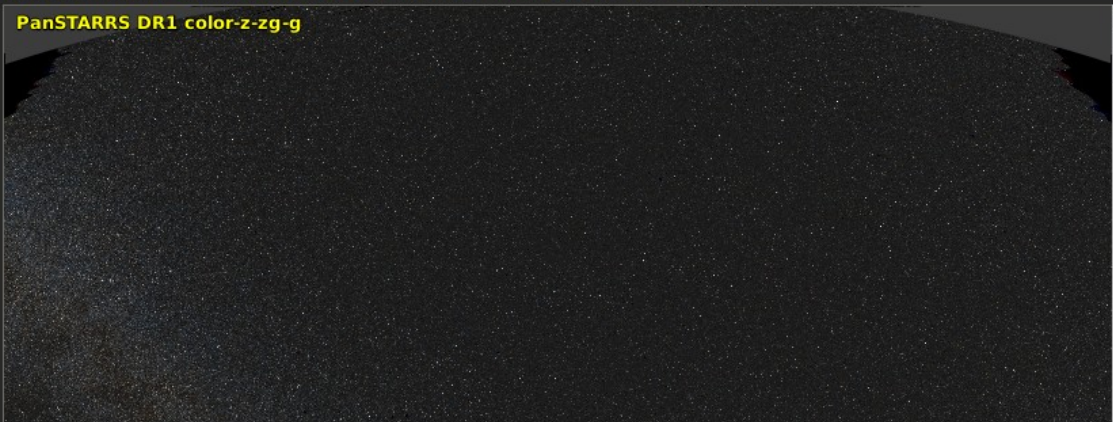
Available data → 13 / 30371

● in view ● out view

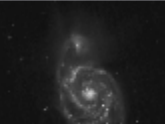
- Collections → 13 / 30371
  - Image → 7 / 522
    - Infrared → 7 / 148
      - JWST → 7
        - Southern Ring Nebula
        - Webb's First Deep Field SMAC 0723
        - Cosmic Cliffs in the Carina Nebula
        - Stephans-Quintet NIRCam+MIRI
        - JWST First Images
        - Cartwheel Galaxy
        - Stephans Quintet MIRI
  - Catalog → 4 / 28501
    - VizieR → 4 / 27014
      - Journal table → 4 / 25221
        - A+A → 1 / 7373
          - Wide field imagers ground-based astrometr
          - JWST calib. field astro. photometry calib

Command  Frame **ICRS** Projection **Aitoff**

DSS 
  PanSTARRS 
  SDSS 
  2MASS 
  GALEX 
  Gaia 
  Simbad 
  NED 
  CDS/P/SDSS9/z +



select  
pan  
dist  
phot  
draw  
tag  
moc  
spect  
filter  
cross

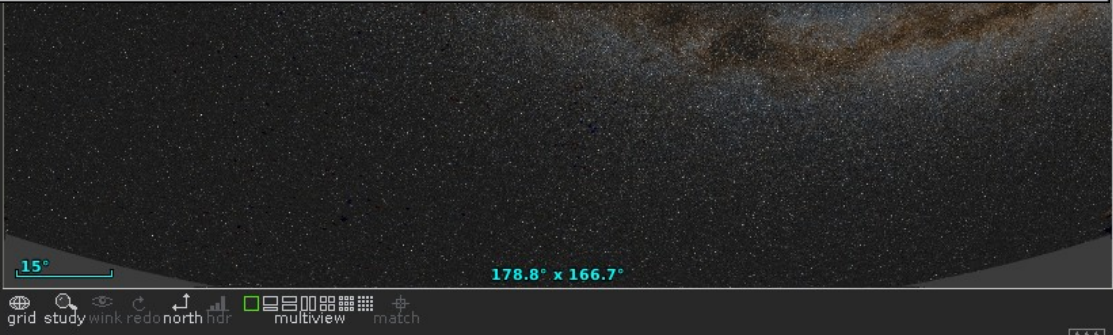


**SDSS band u ...**  
 Provenance: SLOAN ...  
 Coverage: 37.86% 304.8nm/983.6THz .. 402.8nm/744.3THz 2008 .. 2014-08-30 Res: 402.5mas

Access mode & derived prod.  progressive +  STMOC cov.  Links to orig.img.

**CDS/P/SDSS9/u** Load

- CDS/P/PanSTARRS/z
- CDS/P/JWST/Southern Ring Nebula
- CDS/P/JWST/Southern Ring Nebula
- CDS/P/2MASS/color
- CDS/P/DSS2/blue
- CDS/P/PanSTARRS/z



epoch -

size -

dens. -

cube -

pixel -

opac. -

zoom -

prop 11:04:29.33+88:03:03.1

del 178.8° x 166.7°

no time filter

select

from -- all collections --

coll. sort view scan filter

Available data → 13 / 30371

● in view ● out view

- Collections → 13 / 30371
  - Image → 7 / 522
    - Infrared → 7 / 148
      - JWST → 7
        - Southern Ring Nebula
        - Webb's First Deep Field SMAC 0723
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        - Stephans-Quintet NIRCcam+MIRI
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          - Wide field imagers ground-based astrometr
          - JWST calib. field astro. photometry calib

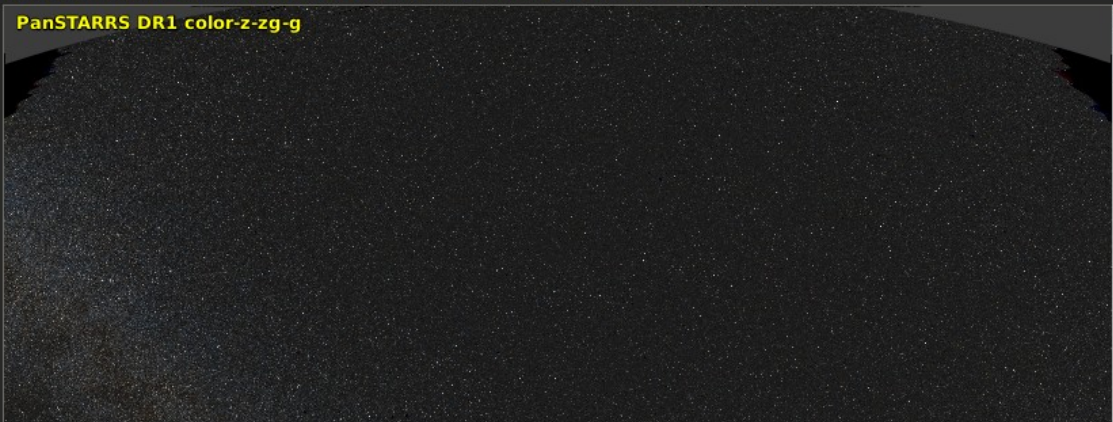
Command [dropdown]

Frame ICRS

Projection Aitoff



DSS PanSTARRS SDSS 2MASS GALEX Gaia Simbad NED CDS/P/SDSS9/z +



select  
pan  
dist  
phot  
draw  
tag  
moc  
spect  
filter  
cross  
CDS/P/PanSTARRS/z  
CDS/P/JWST/Southern Ring Nebula  
CDS/P/JWST/Southern Ring Nebula  
CDS/P/2MASS/color  
CDS/P/DSS2/color  
CDS/P/DSS2/blue  
CDS/P/PanSTARRS/z

epoch - [slider]  
size - [slider]  
dens. - [slider]  
cube - [slider]  
pixel - [slider]  
zoom - [slider]

prop 11:04:29.33+88:03:03.1  
178.8° x 166.7°  
no time filter



### SDSS9 band u ...

Provenance: SLOAN ...

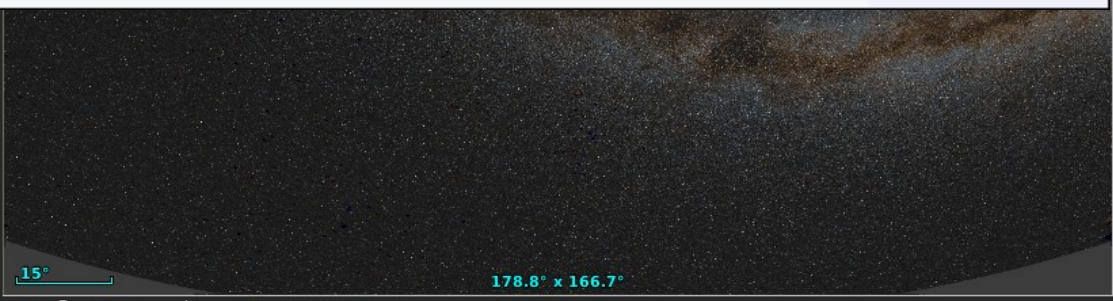
Coverage: 37.86% 304.8nm/983.6THz .. 402.8nm/744.3THz 2008 .. 2014-08-30 Res: 402.5mas

Access mode & derived prod.  progressive +  STMOC cov.  Links to orig.img.

Load

CDS/P/SDSS9/u

- esavo → 1 / 10
  - European JWST Archive TAP



select jwst  
from -- all collections --

coll. sort view scan filter

grid study wink redo north hdr multiview match



Available data → 13 / 30371

● in view ● out view

- Collections → 13 / 30371
  - Image → 7 / 522
    - Infrared → 7 / 148
      - JWST → 7
        - Southern Ring Nebula
        - Webb's First Deep Field SMAC 0723
        - Cosmic Cliffs in the Carina Nebula
        - Stephans-Quintet NIRCcam+MIRI
        - JWST First Images
        - Cartwheel Galaxy
        - Stephans Quintet MIRI
  - Catalog → 4 / 28501
    - VizieR → 4 / 27014
      - Journal table → 4 / 25221
        - A+A → 1 / 7373
          - Wide field imagers ground-based astrometr
          - JWST calib. field astro. photometry

Command [dropdown]

Frame ICRS

Projection Aitoff

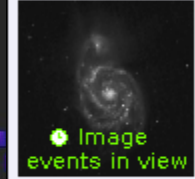
DSS PanSTARRS SDSS 2MASS GALEX Gaia Simbad NED CDS/P/SDSS9/z +



ALADIN

- select
- pan
- dist
- phot
- draw
- tag
- moc
- spect
- filter
- cross
- CDS/P/PanSTARRS/z
- CDS/P/JWST/South
- CDS/P/JWST/South
- CDS/P/2MASS/color
- CDS/P/DSS2/color
- CDS/P/DSS2/blue
- CDS/P/PanSTARRS/z
- epoch
- size
- dens.
- cube
- pixel
- zoom
- prop
- del

11:04:29.33+88:03:03.1  
178.8° x 166.7°  
no time filter



**SDSS band u** ...  
 Provenance: SLOAN ...  
 Coverage: 37.86% 304.8nm/983.6THz .. 402.8nm/744.3THz 2008 .. 2014-08-30 Res: 402.5mas

Access mode & derived prod.  progressive +  STMOC cov.  Links to orig.img.

CDS/P/SDSS9/u

- esavo → 1 / 10
  - European JWST Archive TAP



select jwst  
 from -- all collections --

coll. sort view scan filter

grid study wink redo north hdr multiview match

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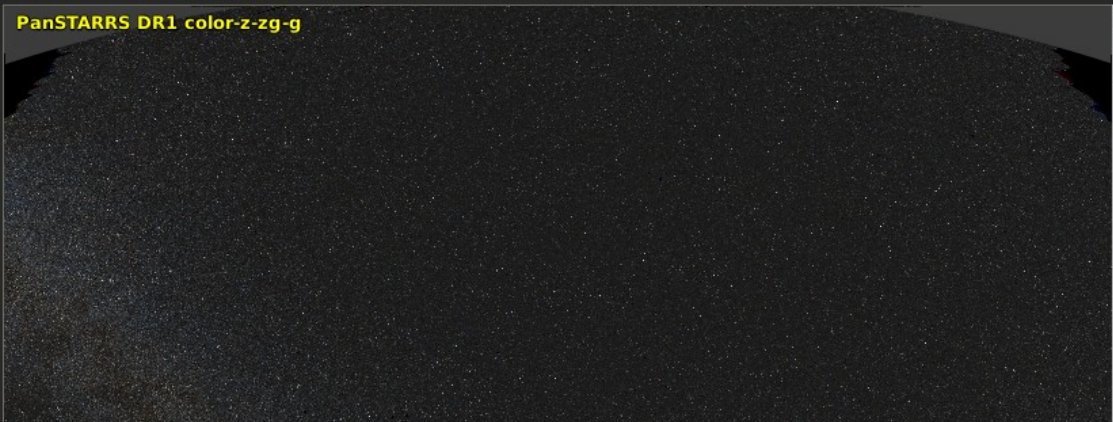
Command [dropdown]

Frame ICRS

Projection Aitoff



DSS PanSTARRS SDSS 2MASS GALEX Gaia Simbad NED CDS/P/SDSS9/z +



select  
pan  
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moc  
spect  
filter  
cross  
CDS/P/PanSTARRS/z  
CDS/P/JWST/Southern Ring Nebula  
CDS/P/JWST/Southern Ring Nebula  
CDS/P/2MASS/color  
CDS/P/DSS2/color  
CDS/P/DSS2/blue  
CDS/P/PanSTARRS/z

epoch - [slider]  
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pixel - [slider]  
zoom - [slider]

prop 11:04:29.33+88:03:03.1  
178.8° x 166.7°  
-90  
sky  
no time filter



SDSS band u

Provenance: SLOAN

Coverage: 37.86% 304.8nm/983.6THz .. 402.8nm/744.3THz 2008 .. 2014-08-30 Res: 402.5mas

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CDS/P/SDSS9/u

Load



- esavo → 1 / 10
  - European JWST Archive TAP

select jwst from -- all collections --

coll. sort view scan filter

grid study wink redo north hdr multiview match

# □ IVOA registry



- HiPS server registration
- Individual HiPS survey registration : not yet



Thank you!