Transition from SIA to DAP
And SODA 1.1

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Table of content

- SIA2 extending scope towards Data acces protocol
- SODA also providing extended metadata
- DAP + SODA = more transformations standardized and accessible
  - reprojecting/rebinning
  - Productype transformation
  - Format transformation (including HiPS)
  - Avaibility from DAP
- Other changes
- Roadmap

SIA2 extending scope towards Data acces protocol

- The idea is we need parameter based protocols for Spectra and TimeSeries
- For spectra it could be something like an SSA2 consistent with ObsCore
- Basically can be seen as a server-side paramater based front-end to ObsTAP
- Also useful to discover all sky datasets (HiPS or whatever) and catalogs

SODA also providing extended dataset metadata

- Use case (A.Micoll and ESO):
  - Extract sub cubes from a velocity cube requires WCS information
  - A SODA mode could deliver the WCS metadata
- Other candidates : full characterisation, Dataset DM, last step provenance ?
- The basic idea is that SODA is providing anythong extracted from a specific dataset (server side operations)
- Prototype available at CADC

DAP + SODA = more transformations standardized and accessible -1

- Rebinning and reprojecting is required for many reasons
  - (dataset comparisons, get rid of odd (HPX) projections, preview generation, etc.)
  - Adding PROJ, SPECRP, SPATRES, etc.
- Productype transformation
  - Choose between image, spectrum and cube
  - CASDA provides two different SODA services (spectrum and cube extraction)
  - Proposal to use DPTYPE to drive this

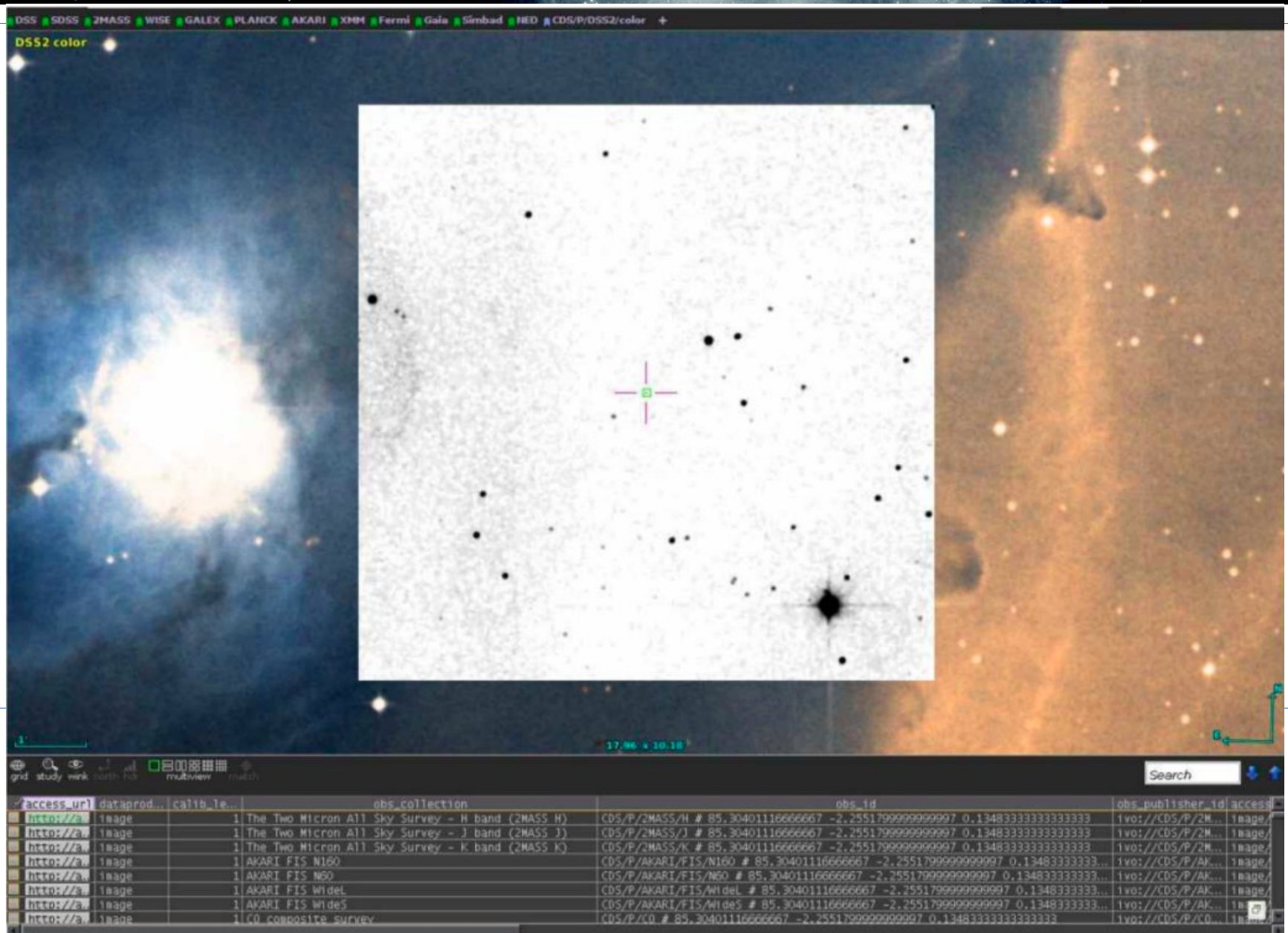
DAP + SODA = more transformations standardized and accessible -2

- Format transformation (including HiPS)
  - Use case strongly related to SKA prototyping (see M.Baumann AladinLite presentation) and implemented through hips2fits
  - SKA data are huge : cube of petabytes. Even a single spectral slice could be a coupleof hudreds gigabytes or a terabyte
  - When you know it exists with ObsCore how do you go to the right place for SODA ?
  - HiPS on moment maps, summing of all channels, velocity maps helps for advanced discovery
  - Extract 2D images or cubes from that on whatever projection
    - Probably not in HPX , which is native HiPS tiles projection .
  - Extract dynamically 2D HiPS from 3D HiPS (see Thomas Boch Apps presentation)

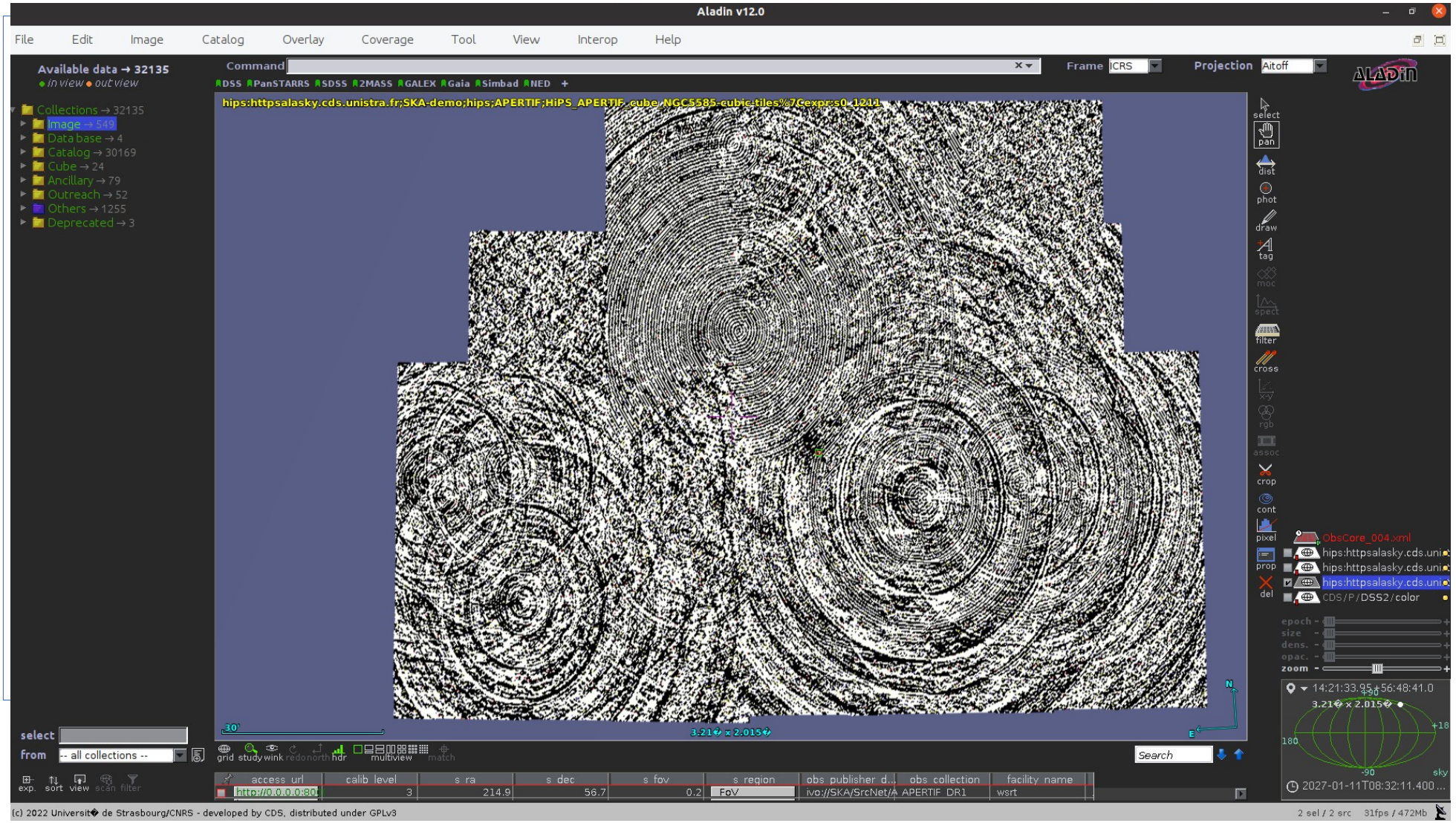
DAP + SODA
List of HIPS discovered via DAP-SIA2

DAP + SODA

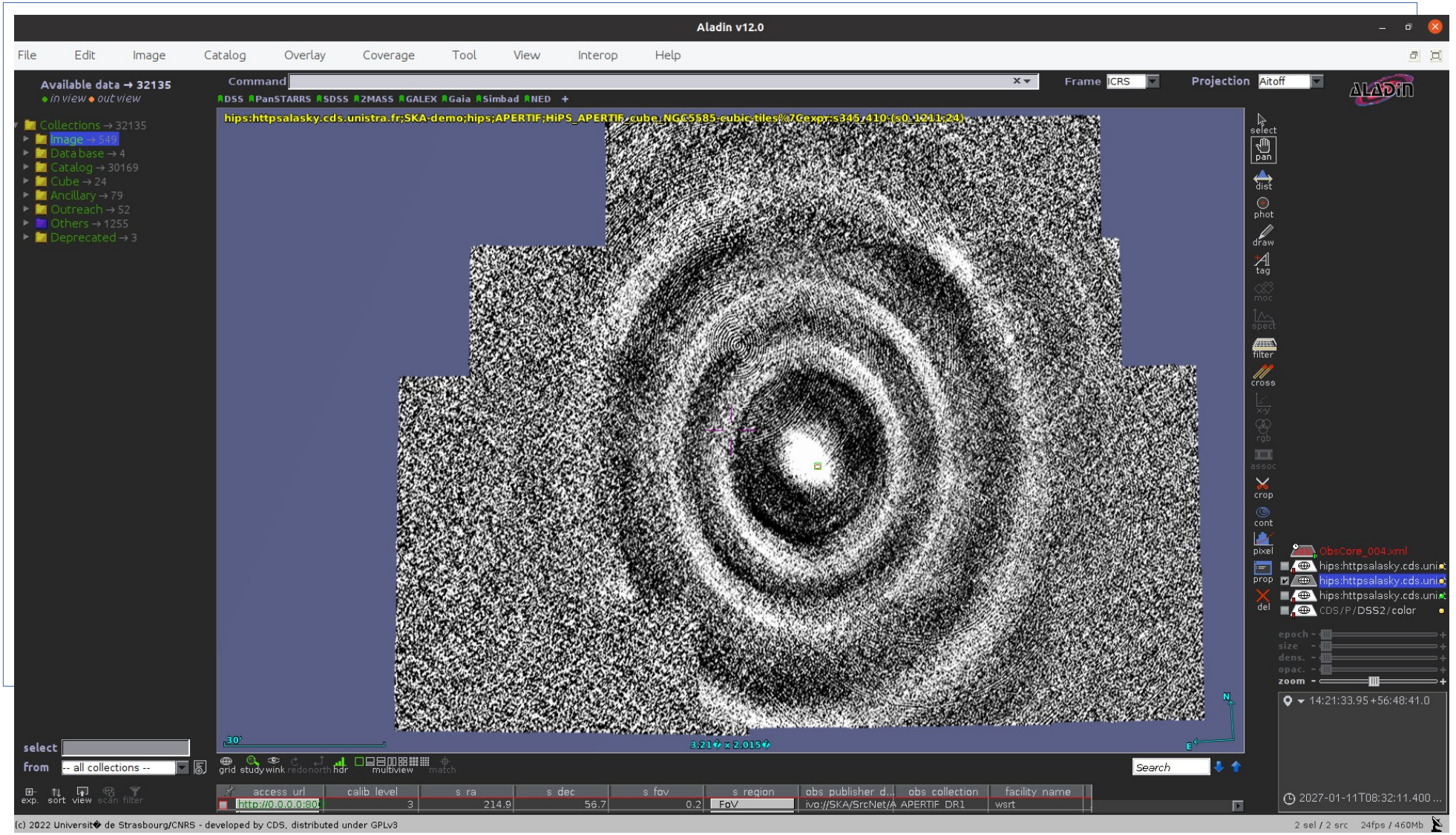
SODA Cutout/reprojection from hips2fits



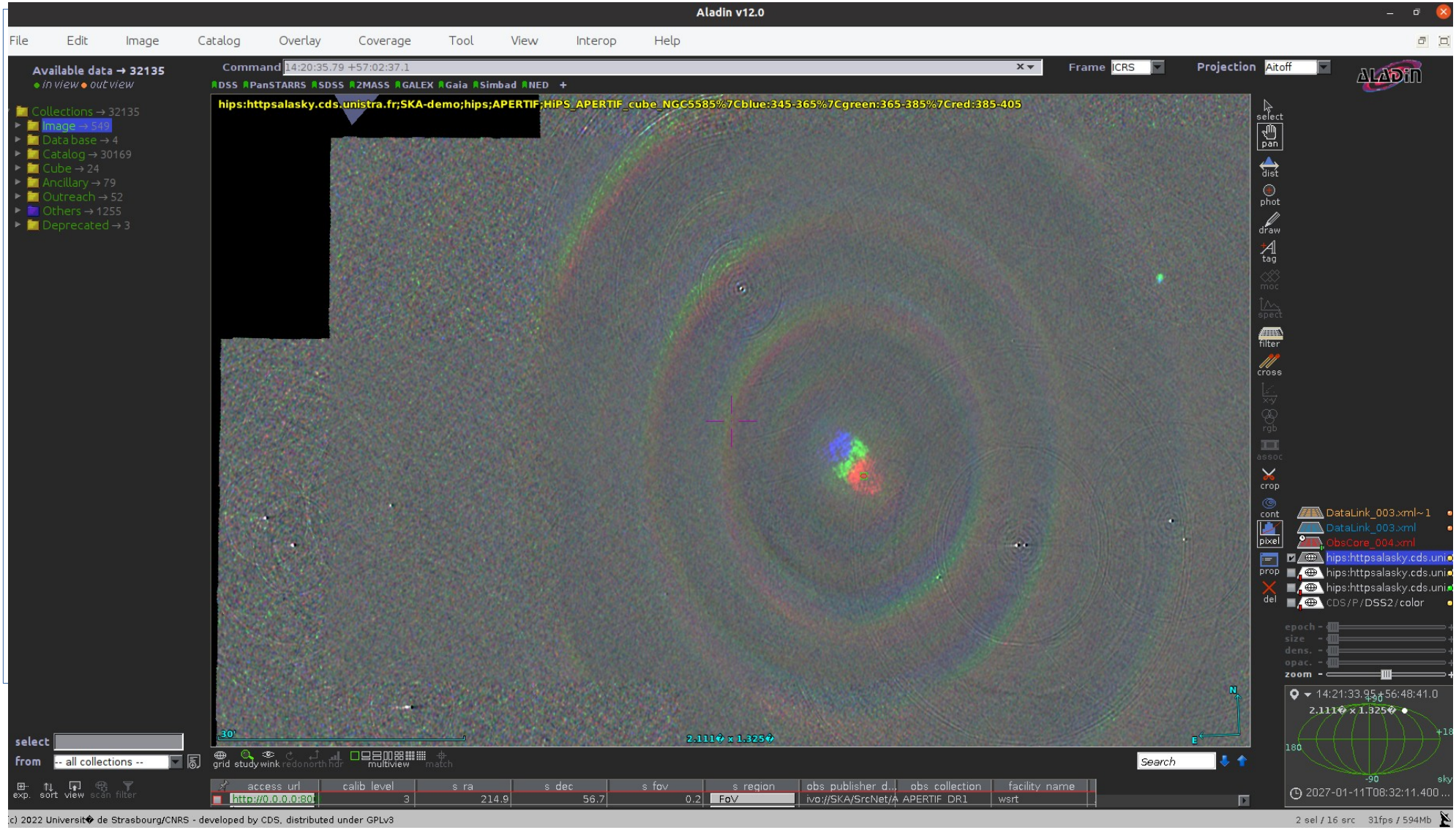
Dynamic generation of HiPS2D from HiPS3D via SODA interface – moment 0 map



Dynamic generation of HiPS2D from HiPS3D via SODA interface – channels for the line



Dynamic generation of HiPS2D from HiPS3D via SODA interface – channels for the line



DAP + SODA = more transformations standardized and accessible -2

- Format transformation (including HiPS)
  - 1) Raise SODA on an HIPS (it has an ivoa id)
    - ASK for FORMAT=application/fits, PROJ = TAN , SPATRES= r (in arcsec)
  - 2) Raise SODA on an HiPS 3D (or 2D)
    - ASK for FORMAT=application/HiPS-2D PROJ=TAN, SPATRES= r , TRANS = some formula to apply to the HiPS3D to extract a 2D.

DAP + SODA = more transformations standardized and accessible - 3

- From DAP (ex SIA2) : how do I discover cutouts and SODA-transformed data ?
- Standard way is multistep = ObsCore --→ DataLink --→ SODA SD menu → parameter choice → access to data
- Something more direct ? (« à la » SIA1?) → 2 solutions, but the nice thing is that DAP/SIA and SODA have the same parameters.
  - Either Include the SODA URL based on DAP parameters in the access_url
  - Or the client use the SODA service descriptor in the response to directly generate the query with DAP input parameters

DAP-SIAP2/SODA
Other changes

- DAP : Self description of service for list of supported STRING parameters
- DAP : Include MOC parameter
- DAP : Wildcarding an case sensitivity ?
- DAP : Releasedate parameter
- SODA : PIXEL cutouts (and Velocity axis cutouts?)
- SODA : MOC parameter
- SODA : Multiple input parameters

Roadmap

- A big DAP merge and SODA merge with proposals
- Do not try to merge now ! Discuss !
- The corresponding documents availabale as DAL internal drafts aon SIA-nxt and SODA-next pages
- WD by November interop
- Some prototyping is already there → more formal implementations to come ? (CDS for SODA/HIPS)