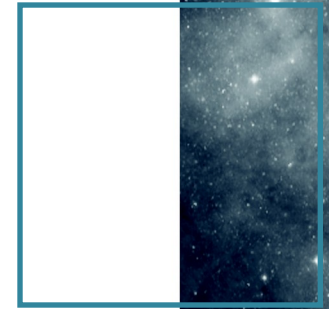


Transition from SIA to DAP And SODA 1.1



F.Bonnarel and co-authors + DAL WG



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SIA2 extending scope towards Data access 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 parameter 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 anything 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, SPECPR, 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 couple of hundreds 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

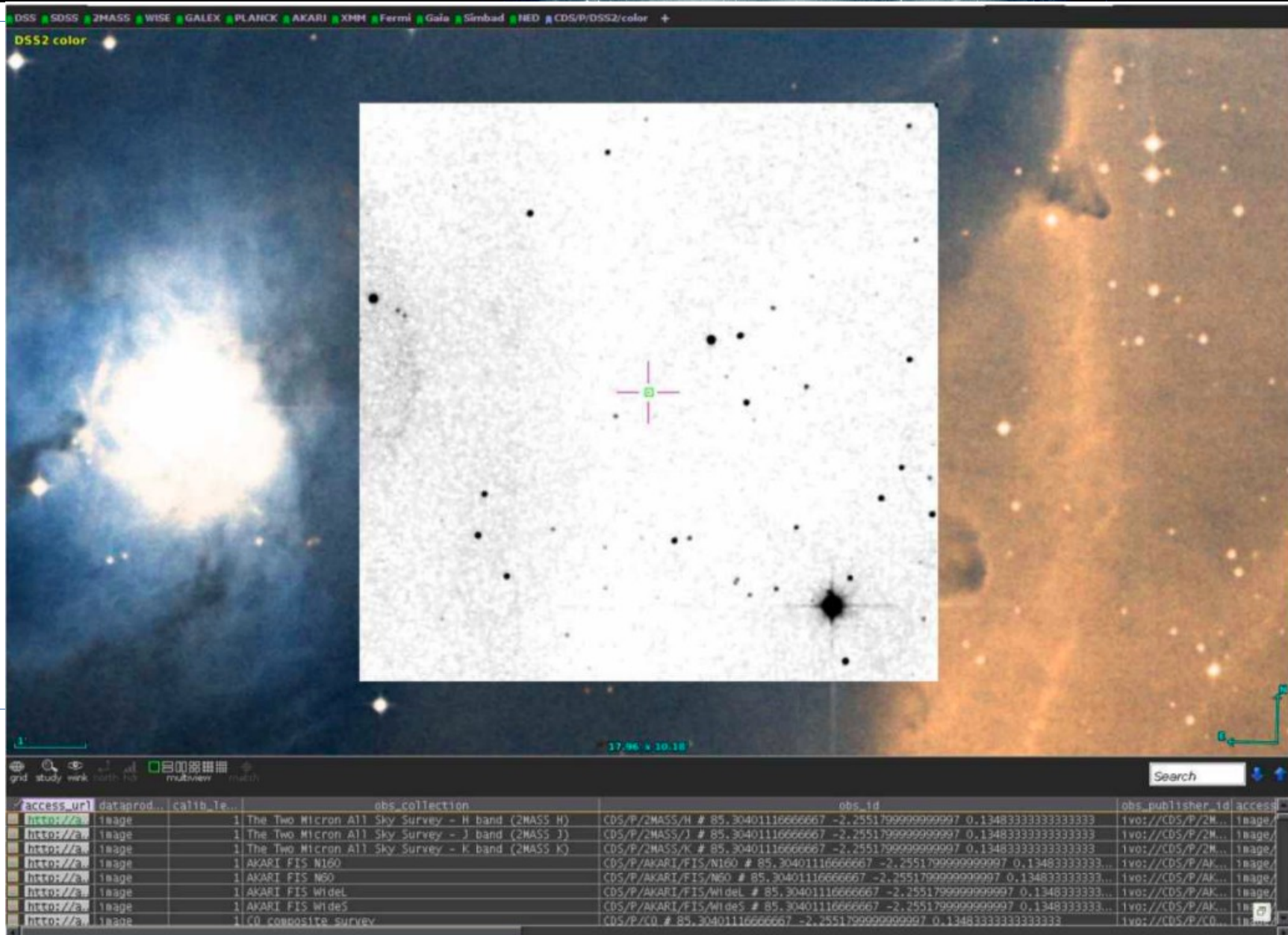
List of HIPS discovered via DAP-SIA2

The screenshot displays the ALADIN software interface. The main window shows a star field with a central star highlighted by a green crosshair. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a command line, and various toolbars. The bottom panel shows a table of data with columns for access url, dataprod, calib, obs_collection, obs_id, and obs_publisher_id.

access url	dataprod	calib	obs_collection	obs_id	obs_publisher_id	access
image	1	The Two Micron All Sky Survey - H band (2MASS H)	CDS/P/2MASS/H # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/2M...	image/	
image	1	The Two Micron All Sky Survey - J band (2MASS J)	CDS/P/2MASS/J # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/2M...	image/	
image	1	The Two Micron All Sky Survey - K band (2MASS K)	CDS/P/2MASS/K # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/2M...	image/	
image	1	AKARI FIS N160	CDS/P/AKARI/FIS/N160 # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/AK...	image/	
image	1	AKARI FIS N60	CDS/P/AKARI/FIS/N60 # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/AK...	image/	
image	1	AKARI FIS WideL	CDS/P/AKARI/FIS/WideL # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/AK...	image/	
image	1	AKARI FIS WideS	CDS/P/AKARI/FIS/WideS # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/AK...	image/	
image	1	CO composite survey	CDS/P/CO # 85_30401116666667 -2_25517999999999997 0_13483333333333333	1vo://CDS/P/CO...	image/	

DAP + SODA

SODA Cutout/reprojection from hips2fits



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

The screenshot displays the Aladin v12.0 software interface. The main window shows a moment 0 map of a star field, characterized by concentric interference patterns. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a toolbar with various tools (select, pan, draw, tag, etc.), and a bottom panel with a table of data and a search bar.

Command: `hips:httpsalasky.cds.unistra.fr;SKA-demo;hips;APERTIF;HiPS_APERTIF_cube_NGCS585-cubic-tiles%7Cexprs0_1211`

access url	calib level	s ra	s dec	s fov	s region	obs publisher d...	obs collection	facility name
https://0.0.0.0:80/	3	214.9	56.7	0.2	FoV	ivo://SKA/SrcNet/A	APERTIF_DR1	wsrt

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

The screenshot displays the Aladin v12.0 software interface. The main window shows a HiPS2D visualization of a star field, with a central bright star and surrounding fainter stars. The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Coverage, Tool, View, Interop, Help), a command line, and a toolbar with various tools like select, pan, dist, phot, draw, tag, mac, spect, filter, cross, crop, cont, pixel, prop, and del. The bottom status bar shows the current selection and various parameters.

Available data → 32135
● in view ● out view

Command

Frame ICRS Projection Aitoff

select
pan
dist
phot
draw
tag
mac
spect
filter
cross
crop
cont
pixel
prop
del

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

14:21:33.95 +56:48:41.0

access url	calib level	s ra	s dec	s fov	s region	obs publisher d...	obs collection	facility name
https://0.0.0.0:801	3	214.9	56.7	0.2	FoV	ivo://SKA/SrcNet/A	APERTIF_DR1	wstr

Search

2 sel / 2 src 24fps / 460Mb

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

ALADIN v12.0

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Available data → 32135
in view out view

Command: 14:20:35.79 +57:02:37.1

Frame: ICRS Projection: Aitoff

hips:httpsalasky.cds.unistra.fr;SKA-demo;hips;APERTIF;HIPS_APERTIF_cube_NGC5585%7Cblue:345-365%7Cgreen:365-385%7Cred:385-405

select pan dist phot draw tag moc spect filter cross rgb assoc crop cont pixel prop del

epoch size dens. opac. zoom

14:21:33.95 +56:48:41.0
2.111 x 1.325

access url	calib level	s ra	s dec	s fov	s region	obs publisher d...	obs collection	facility name
https://0.0.0.0:80	3	214.9	56.7	0.2	FoV	ivo://SKA/SrcNet/A	APERTIF_DR1	wrst

2 eel / 16 src 31fps / 594Mb

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 available as DAL internal drafts on SIA-nxt and SODA-next pages
- WD by November interop
- Some prototyping is already there → more formal implementations to come ? (CDS for SODA/HIPS)

