

# Feedbacks on implementing VO standards in Aladin Lite in the frame of SKA

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# Exploring the SKA dataset through Aladin Lite

1. **Query** the **SRCNet discovery service** with a position/radius (cone)
2. Get back an **ObsCore** table storing dataset **metadata**: position, footprint (STC-S region), data type (image, cube, spectra...),
3. Links to **Datalink** table for related data/services:
  - a. Download the full dataset
  - b. or a subset of it (query a SODA service)
  - c. Visualize related dataset i.e. moment map HiPS, cubes

# 1. Query the SRCNet discovery service

- JS API: Query the service

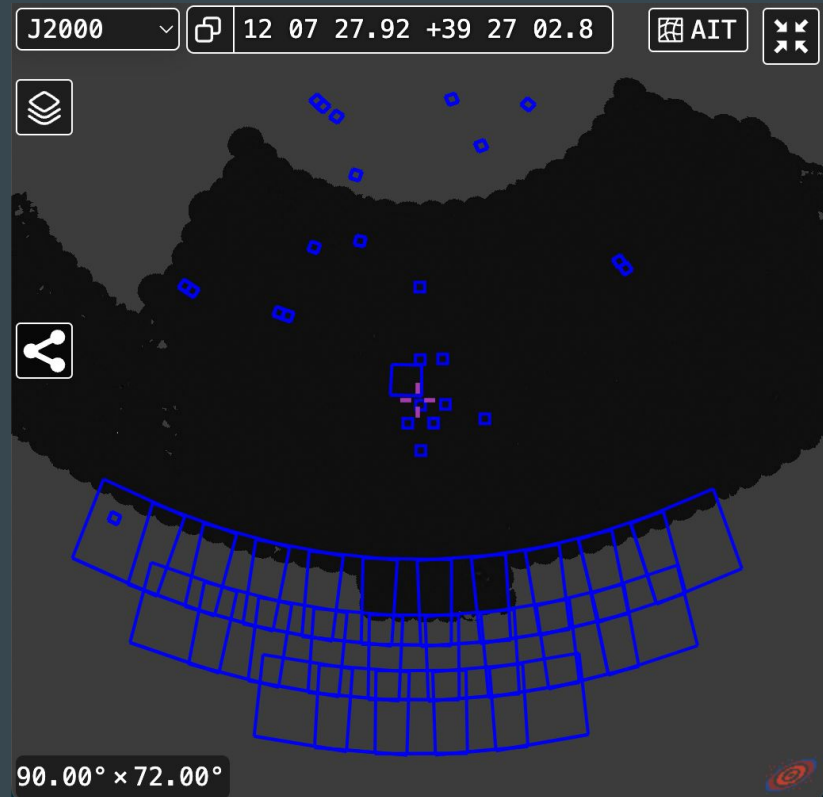
```
aladin.addCatalog(  
  A.catalogFromSKAORucio("m51", 90, {  
    onClick: "showTable",  
    hoverColor: "yellow",  
  })  
);
```

- Service URL:

<https://ivoa.dachs.srcdev.skao.int/rucio/rucio/cone/form>

API doc: 90.00° × 72.00°

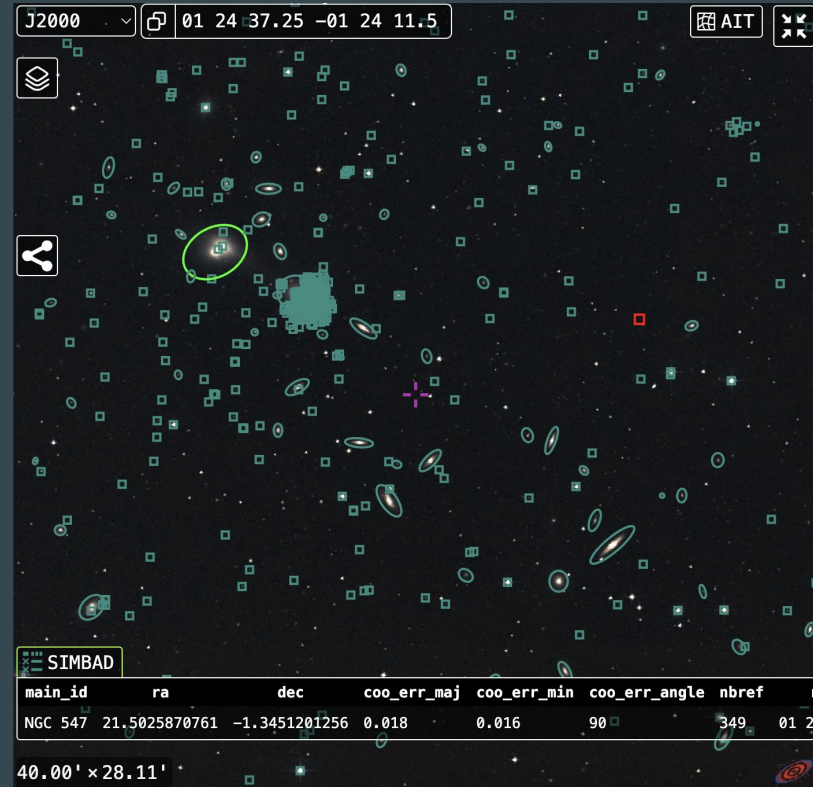
<https://cds-astro.github.io/aladin-lite/A.html#.catalogFromSKAORucio>





## 2. Example: SIMBAD HiPSCat with ellipse footprints

```
var hips = A.catalogHiPS(  
  "https://axel.u-strasbg.fr/HiPSCatService/Simbad",  
  {  
    onClick: "showTable",  
    name: "Simbad",  
    color: "cyan",  
    hoverColor: "red",  
    shape: (s) => {  
      let galaxy =  
["Seyfert", "Gin", "StarburstG", "LINER", "AGN", "Galaxy",  
"].some((t) => s.data.main_type.indexOf(t) >= 0);  
      if (!galaxy) return;  
      // draw a point source if not a galaxy  
      let a = +s.data.size_maj; // major axis  
      let b = +s.data.size_min; // minor axis  
      let theta = +s.data.size_angle || 0.0;  
      return A.ellipse(s.ra, s.dec,  
        a / 60, // arcmin to deg  
        b / 60, theta, // arcmin to deg  
        { color: "cyan" }  
      );  
    },  
  },  
);  
aladin.addCatalog(hips);
```



# 3. Demo: Datalink support for accessing related dataset/services

## 1. Proper motion display around LMC

```
SELECT avg(ra) as ra, avg(dec) as dec, avg(pmra) as pmra, avg(pmdec) as pmdec,  
healpix(ra, dec, 8) AS h  
FROM "I/345/gaia2"  
WHERE CONTAINS(POINT('ICRS',ra,dec),CIRCLE('ICRS',80.8942,-69.7561,2.5))=1  
AND sqrt(pmra*pmra+pmdec*pmdec)<30 // discard too big proper motions  
GROUP BY h
```

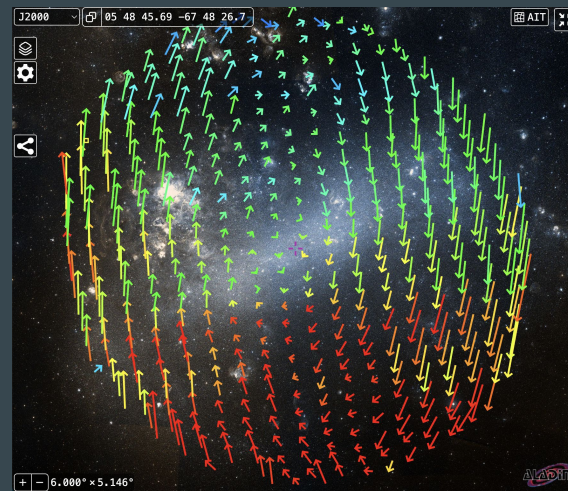
*TAP query: Get mean proper motions over HEALPix order 8 cells around LMC*

2. UI: new search box, HiPS browser box + filter box: spatial, pixel angular resolution, obs regime
3. Datalinks for discovering SKA dataset:
  - a. Moment zero HiPS around Abell 194 access:  
[https://alasky.cds.unistra.fr/SRCnet-dev/abell194/Abell\\_194HiPS/](https://alasky.cds.unistra.fr/SRCnet-dev/abell194/Abell_194HiPS/)
  - b. On the fly HiPS generation service access (see Thomas Boch's ASOV 2024 talk): <https://alasky.cds.unistra.fr/onthefly-cube-hips/>

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# Other misc developments

- JS API: new `hipsList` option keyword

```
let aladin = A.aladin("#aladin-lite-div", {  
  fullscreen: true,  
  target: "M51",  
  fov: 90,  
  projection: "AIT", // Hammer-Aitoff rendering  
  hipsList: [ // Some predefined HiPS surveys  
    // Radio  
    "CDS/P/MeerKAT/Galactic-Centre-1284MHz-StokesI",  
    "CSIRO/P/RACS/low/I", ...  
  ],  
});
```

- MOC drawing
- New API documentation (W.I.P):  
<https://cds-astro.github.io/aladin-lite/>

The screenshot displays the Aladin Lite web interface. At the top, the coordinates J2000 12 25 53.47 +12 44 31.5 are shown. The interface includes a 'Stack' panel with 'Overlays' and 'Surveys' sections. The 'Surveys' section is set to 'DSS colored'. A 'HiPS browser' panel is open, showing a search bar with the text 'Browse a HiPS by an URL' and a 'Filter by' section with options for 'Regime', 'Inside view', and 'Pixel res'. The 'Regime' is set to 'Optical'. The 'Max res [°/px]' is shown as a slider. The main view is a star field with various overlays and a 'Simbad' label. The bottom status bar shows the zoom level as 4.000° x 2.860°.



# Feedbacks

- ObsCore: Links in SKA discovery service not accessible: **authentication required (403 forbidden)**, same **obs\_publisher\_id**, difficulty to keep the rucio datalinks alive (502 bad gateway)
- **CORS** issues found at many levels: accessing FITS, HiPS tiles, datalink tables, SODA services... => as a recommendation somewhere in DALI ?
- Datalink impl in Aladin Lite not user friendly, find a way to enhance user experience, deal with recursive datalink
- We appreciate collaboration: <https://github.com/cds-astro/aladin-lite>



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Thank you!

