



IVOA
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Interoperability
Meeting

VLKB VO Plans for Multi-Cutout

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ECOGAL

DAL session 1
Tuesday, 26 April 2022

- VLKB overview
- Datasets services
- Multi-cutout

A set of **catalogues**, **observational data**, **simulated data**, and **search & access** resources dedicated to Milky Way research in astrophysics. Initially set up within an EU FP7 Project.

Kept running, minimal maintenance mode, over time and re-used in other projects (ECOGAL ERC, NEANIAS, connected to ESCAPE).

Data collections consists in:

- 11 catalogues of compact sources (from few k-rows to tens of M-rows)
- a catalogue of SED combined compact sources (~2 M-rows, ~200 columns)
- a catalogue of diffuse objects (few tens of k-rows, structured in 4 tables)
- a table of simulated SED for compact objects (30 M-rows, 110 columns)
- a table of source distances (~150 k-rows)
- ~39k datasets (~6600 images, ~32400 cubes)
 - in ~100 sub-surveys (~25 surveys)
 - ~1.8 TB in total (400 GB images)

Plans exist to grow the number of collections.



TAP & Custom

search, cutout & merge



**INAF-IA2
GARR (NEANIAS)**



File Help

31.9818, 0.5019

Level Image Level DC 3D Select

Survey Selector

HI-GAL	SLAMPS/MIPSGAL	WISE
500 µm	24 µm	22 µm
350 µm	3.6 µm	12 µm
250 µm	4.5 µm	3.6 µm
70 µm	4.8 µm	4.8 µm
160 µm	3.6 µm	3.6 µm
ATI-SGAL	BOL-CAM-SPS	COMWIS
672 µm	1.1 mm	8 GHz

Selection

- None
- Point
- Rectangular

Coordinates (center of selection)

glon 30.7125
glat -0.0338

Compact sources Filaments Bubble 3D Layer setting Gray

Directly consumes all VLKB services

Compact sources Filaments Bubble 3D Layer setting Gray Linear Long

Legend:

- HI-GAL 500 µm Source De
- HI-GAL 350 µm Source De
- HI-GAL 250 µm Source De
- HI-GAL 160 µm Source De
- HI-GAL 70 µm Source De
- MIPSGAL 24 µm Source Di
- WISE Source Designation
- MSX Source Designation
- HI-GAL Mosaic Continuum 250 µm

Legend:

- Filaments_0
- Filaments_branches_contour
- Filaments_branches_continu
- Filaments_branches_continu
- Filaments_branches_continu
- HI-Gal mosaic PSW_dust_250um

vitello & al. 2018

Custom, project-driven requirements, dataset APIs have been set up for

- Search: filtering datasets by
 - position, spectral/velocity, collection details
- Cutout: same interface as search
 - mandatory DID
- Merge:
 - multiple DID, same interface params
 - fixed by sub-survey (name, species, transition)
- Catalogues:
 - TAP access
 - (requires better curation and crossmatch solutions)
- SED models: filter & access
 - was/is RDB based
 - under refurbishment (HDF5)

Mixed Data Policy
AAI undergoing cleanup

	SEARCH	CUTOUT	VALUES
surveyname	yes	no	<surveys table>
species	yes	no	<surveys table>
transition	yes	no	<surveys table>
pubdid	no	yes	<search result provided>
skysystem	yes	yes	GALACTIC,FK5,FK4
l,b	yes	yes	0/360, -90/+90 [deg]
r	yes	yes	0/2 [deg]
dl,db	yes	yes	0/2, 0/2 [deg]
vl,vu	yes	yes	<dataset depending>



VLKB services are being moved (slowly, no dedicated resources) towards interoperability:

- Search:
 - Obscore table already implemented (not yet enabled)
 - Will feed both a SIAP-2.0 and an ObsTAP service
- Cutout:
 - SODA interface
 - sync/async (possibly a fake sync over a UWS job)
- Merge:
 - DataLink custom service on UWS
- Catalogues:
 - TAP (refurbished)
 - non-compact objects solution to be investigated

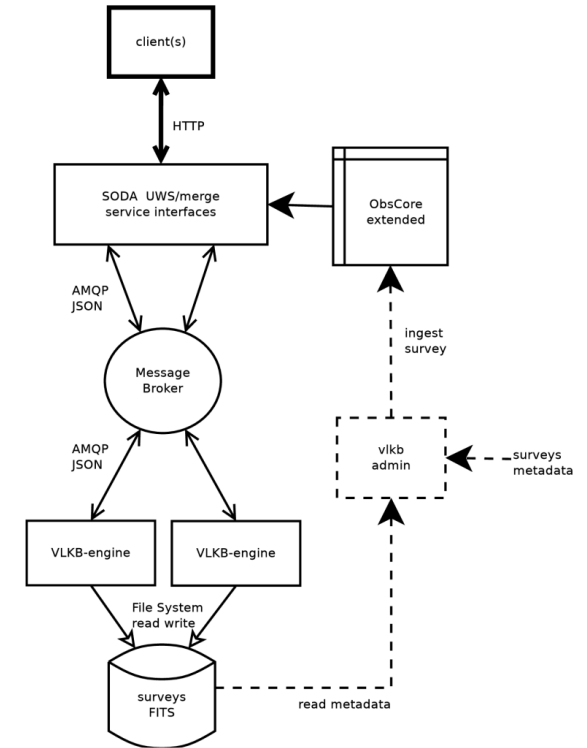
A&A token-bases (OAuth2/OIDC) attached to two AAI providers: NEANIAS & INAF-IA2.

The request came in to

- query the datasets service with a list of sources
- make a unique request to retrieve multiple cutouts of datasets
 - at sources' positions
 - each position with its set of cutout parameters

Current possibilities for multiple-requests:

- with SODA parameter multiplicity
 - problem is interpretation of combinations of params
- with UWS: launch several jobs, one per each cutout
 - complex client implementation: no fit to requirements
- with UWS but as a single job:
 - needs to define how to associate elementary cutout requests with corresponding results





Standardisation status

SODA

- allows multiple ID(s) and parameters
- doesn't have a way to bind each ID to other (multiple) parameters
 - SODA-1.0 §3.1 & DataLink “future” reference
- response might be not enough (SODA §5 & §6)
 - connected to UWS for single job/multiple output
 - combinatory behaviour for multiple parameters

UWS (?)

- handle different successfull/error responses for each cutout
- bind them to the elementary cutout array-index

Current implementation

single UWS job

- (JSON) array-index serves as identifier to associate elementary request-params <-> result
- happy to have it as VOTable
- result is
 - ref to packaged set of cutouts
 - with status on each single cutout (Ok/Error/(Not)AuthZ)
- future: possible to access elementary cutouts in /results:
 - cut/elementcount
 - cut/1
 - cut/2
 - ...



EU H2020 ERC ECOGAL – Scientific requirements



EU H2020 NEANIAS – Cloud and AAI setup in EOSC



EU H2020 ESCAPE – VO Interoperability and EOSC integration



INAF PrIN TEC 2019 CIRASA – Scientific requirements

Thank you for your attention!