

DARTS/Astro Query System (P11-9)

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About DARTS: DARTS (<http://darts.isas.jaxa.jp>) is JAXA's multidisciplinary space science data archive. We archive not only astronomical data, but also solar, planetary, solar-terrestrial physics, and micro-gravity experiment data taken mostly by JAXA's spacecrafts.

About DARTS/Astro : DARTS/Astro archives JAXA's multi-wavelength astronomical data in X-ray, infrared and radio, taken by various spacecrafts. Previously, we were operating independent query systems for different spacecrafts or instruments. This was not efficient, and we started development of a new generic query system which can be used for all kinds of the astronomical data archived at DARTS.

Requirements :

1. **Generic.** Can be used for multiple missions and easily add new missions.
2. **Static URL.** Searched-results have static URLs which may be reusable.
3. **Graphical interface.** Basic search is graphically possible with minimum text inputs.
4. **SQL and ADQL interface.** SQL/ADQL statements can be input for fully flexible search capability.
5. **Precise judgement of the hits.** Areal overlap of the instrument FOV and the searched region is judged.

Implementation: We adopt PostgreSQL, PgSphere, Python (Astropy) and ADQL. In the database, precise celestial region (four corners or scan path) of each observation is registered, so that areal comparison is made possible between the observed region and the searched region.

Example of usage :

Currently, 5 satellites and 15 databases are registered. All the data products which meets the search condition are output.

In Basic Search, users only need to specify the target name and the search radius

Users may specify only particular satellites or databases.

The searched-result has a static URL for users to reproduce the same result.

The used SQL statement is available

Data download wget script available

For each dataset, URL is output for download

Quick look images

Plenty of SQL statement examples/templates are available.

Edit the used SQL statement in "Basic Search", and use it in "SQL Search"

The searched-result has a static URL for users to reproduce the same result.

No.	q_image_url	q_access_url	data_file_id	center_ra	center_dec	band_name	coordinate_system	data_access_url
1		Quick Look	461	9.259761698	42.573692411	N160	Ecliptic	https://darts.isas.jaxa.jp/pub/akari/akari_fis_allskymap_2_1/N160/1027.47_b+35.00_ecl_6deg_N160.ta
2		Quick Look	2018	9.259761698	42.573692411	N60	Ecliptic	https://darts.isas.jaxa.jp/pub/akari/akari_fis_allskymap_2_1/N60/1027.47_b+35.00_ecl_6deg_N60.ta
3		Quick Look	998	9.259761698	42.573692411	WIDE-L	Ecliptic	https://darts.isas.jaxa.jp/pub/akari/akari_fis_allskymap_2_1/WideL/1027.47_b+35.00_ecl_6deg_WideL.ta
4		Quick Look	328	9.259761698	42.573692411	WIDE-S	Ecliptic	https://darts.isas.jaxa.jp/pub/akari/akari_fis_allskymap_2_1/WideS/1028.87_b+30.00_ecl_6deg_WideS.ta

```
SELECT q_image_url,
q_access_url,
data_file_id,
center_ra,
center_dec,
band_name,
coordinate_system,
data_access_url,
corner1_ra,
corner1_dec,
corner2_ra,
corner2_dec,
corner3_ra,
corner3_dec,
corner4_ra,
corner4_dec
FROM akari_fis_allskymap_2_1
WHERE '1'=(spoly(concat(';',
spoint(radians(corner1_ra), radians(corner1_dec)),
spoint(radians(corner2_ra), radians(corner2_dec)),
spoint(radians(corner3_ra), radians(corner3_dec)),
spoint(radians(corner4_ra), radians(corner4_dec)),
';'))))
ORDER BY center_ra ASC
LIMIT 100
```

http://darts.isas.jaxa.jp/astro/query/basic.php?point_type=target&target_name=M31&name_resolver=simbad&radius=1&radius_unit=degree&format=html&max_rows=100&sort_column=center_ra&sort_order=-%2B&display=digest&options=akari_pointed_rawdata_package_info%2Cakari_fis_bsc_1%2Cakari_fis_allskymap_2_1%2Csuzaku_observation_log%2Csuzaku_master_data%2Csuzaku_xis_observation_log%2Csuzaku_xis_psum_mode%2Ccasca_observation_log%2Ccasca_proposal%2Ccasca_sis_bright_mode%2Ccasca_sis_faint_mode%2Cginga_observation_log%2Cginga_asm_1_2%2Chalca_observation_log%2Chalca_vlba&table_name=akari_fis_allskymap_2_1&time=1570197650227#searched

QR coder for the URL. Try it!

http://darts.isas.jaxa.jp/astro/query/sql.php?sql=SELECT%0D%0Acenter_ra%2C%0D%0Acenter_dec%2C%0D%0Aband_name%2C%0D%0Adata_access_url%0D%0AFROM+akari_fis_allskymap_2_1%0D%0AWHERE+%27%27%2D%28spoly%28concat%28%27%7B%27%2C+spoint%28radians%27%2C+spoint%28radians%28corner1_ra%29%2C+radians%28corner1_dec%29%29%2C+%27%2C%27%2C+spoint%28radians%28corner2_ra%29%2C+radians%28corner2_dec%29%29%2C+%27%2C%27%2C+spoint%28radians%28corner3_ra%29%2C+radians%28corner3_dec%29%29%2C+%27%2C%27%2C+spoint%28radians%28corner4_ra%29%2C+radians%28corner4_dec%29%29%2C+%27%27%2D%27%29%29+%26%26+circle%28point%28radians%2810.684708%29%2C+radians%2828.2641.268750%29%29%2C+radians%281.281%29%29%29%29%0D%0AORDER+BY+center_ra+ASC%3B%0D%0A%0D%0A&format=html#searched

QR coder for the URL. Try it!