

「あかり」全天サーベイのカタログ・アーカイブ・サーバ (AKARI-CAS) 公開



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AKARI-CASは、ISAS/JAXAの宇宙科学データ公開サービスである「DARTS」(<http://darts.jaxa.jp/>)の一部として開発され、幅広い研究テーマで「あかり」衛星による各種カタログデータを効率良く活用可能にするためのWebサービスである。今回公開するサービスは、「あかり」のFIS(遠赤外)とIRC(中間赤外)全天カタログについてのRDBを利用した検索サービスと、いくつかのビジュアルツールである。「Radial Search」のような基本的な検索サービスに加え、「Cross ID」や「SQL Search」のような高度な検索機能を持ち、ビジュアルツールでQL画像や外部リンクが動的に提供される。

DARTS
Astrophysics Solar Physics Solar-Terrestrial Physics Lunar and Planetary Science
AKARI SUZAKU HALCA ASCA IRTS GINGA TENMA JUDO

Radial Search
This page provides an easy interface to search FIS or IRC objects within a radius(arcmins) of a point. The point (lon,lat) can be set by J2000, B1950, Ecliptic or Galactic coordinates.

Coordinate conditions:
 ● Coordinate longitude [deg or 'hh:mm:ss.ss'] 266.0
 ● Object Name Name to identify by SIMBAD(e.g., M101, NGC4900, etc.)
 Radius 10 arcmins

Instruments and Quality:
 Enable? Min Max
 FIS ☒ ☐ ☐ fQual_65
 IRC ☐ ☐ ☐ fQual_90
 fQual_140
 fQual_160

Note: Qualities are connected by 'AND'.

Database: ED2 (Fis.b2.0 Irc.b1.0.2) Columns: all digest Rows: all max 10
 Format: HTML TEXT delimiter: newline LF reset submit

You can select version of FIS and IRC catalogs by Database selector. Default setting is for latest version of catalog set.

A table [FisObjAll, IrcObjAll] or a view [IrcObj, IrcObj] is selected, when you select 'all' or 'digest' on the Columns section, respectively. Distance column is appended to selected columns.

This SQL call is equivalent to using this page with a default setting:
 SELECT o.x, n.distance
 FROM fgetNearbyObjCell('Fis', 'J2000', 266.0, -28.0, 10) n, FisObj o
 WHERE n.objID = o.objID AND
 0 <= o.fQual_65 AND o.fQual_65 <= 3 AND
 0 <= o.fQual_90 AND o.fQual_90 <= 3 AND
 0 <= o.fQual_140 AND o.fQual_140 <= 3 AND
 0 <= o.fQual_160 AND o.fQual_160 <= 3
 ORDER BY n.distance
 LIMIT 10

There are also functions for B1950, Ecliptic and Galactic coordinates. See [SQL functions page](#) describes them. For the selections with more complex conditions, use [SQL Search page](#).

See the [SQL schema page](#) to find out more about structure or function of the SQL.

△「Radial Search」のページ。J2000、B1950、銀河座標、黄道座標と天体名による検索ができる。FISとIRCとの同時検索も可能。出力形式は、HTMLとテキストをサポート。左側のメニューの「CAS」以下が本サービスによるページで、ツール類とドキュメント類がある。

▽「Cross Identifications」は、ユーザが用意した座標リストのそれぞれの座標について、カタログにある天体を検索するツールである。座標に最も近い天体だけでなく、有効半径内のすべての天体一覧を得る事もできる。

Cross Identifications

This page provides an interface for dynamic cross identifications of FIS or IRC objects with a user defined list of object positions. The positions (lon,lat) of user's list can be set by J2000, B1950, Ecliptic or Galactic coordinate.

For each position in your upload list, this tool can search not only a nearest object but also all nearby objects. If you want to obtain the list of all nearby objects, set "All nearby objects" at the Search scope selector.

Conditions:
 Search scope: All nearby objects
 Search radius (Max 30.0 arcmin): 30.0 arcmin
 Coordinate system of Upload list: J2000

Upload list (Cut and paste your list here):
 Or, upload list as text file:
 name longitude latitude
 A1 195.1620 2.5028
 A2 162.9899 3.7919
 A3 12:55:15.26 +02:53:48.8
 A4 02 52 20.38 -87 20 22.6

Note: Upload list including '[±]12:34:56.7' and '[±]12 34 56.7' styles is also accepted. Name column is automatically generated when omitting name column in your list. The upload file is limited to a size of 80kB. See also [Query Limits](#) page for details.

Selection of Table and Columns:
 ● FIS simple result Obtain the Result table only.
 ● FIS digest name_x, seqNo and distance of Result table and all columns of FisObj are selected.
 ● FIS all name_x, seqNo and distance of Result table and all columns of FisObjAll are selected.
 ● FIS SQL SELECT n.name_x, n.seqNo, n.objCount, n.distance, o.objID, o.objName, o.ra, o.dec, o.flux_65, o.flux_90, o.flux_140, o.flux_160 FROM fresult n, FisObjAll o WHERE n.objID = o.objID ORDER BY n.id_x, n.objCount
 ● IRC simple result Obtain the Result table only.
 ● IRC digest name_x, seqNo and distance of Result table and all columns of IrcObj are selected.
 ● IRC all name_x, seqNo and distance of Result table and all columns of IrcObjAll are selected.
 ● IRC SQL SELECT n.name_x, n.seqNo, n.objCount, n.distance, o.objID, o.objName, o.ra, o.dec, o.flux_09, o.flux_18 FROM fresult n, IrcObjAll o WHERE n.objID = o.objID ORDER BY n.id_x, n.objCount

Note: Do not remove '#result' and 'n.objID = o.objID'.
 Database: ED2 (Fis.b2.0 Irc.b1.0.2)
 Format: HTML TEXT delimiter: newline LF reset submit

Click number of objid column to open the Explore Tool.

name_x	seqno	objcount	distance	objid	objname	ra	dec	flux_65	flux_90	flux_140	flux_160
A1	1	1	0.133612661328217	2084674	1300394+023007	195.164065668329	2.50196326073938	3.32941	6.58853	11.2367	11.3244
A1	1	2	29.0807502738331	2084685	1259578+020257	194.990906296454	2.04927252979703	0.530771	0.695332	0.968018	0.608168
A2	2	1	0.132057644009147	2072728	1051581+034728	162.991947979799	3.79108247511424	1.64099	3.07167	5.87632	0
A3	3	1	0.133935877844111	2083833	1255155+025356	193.814452169985	2.89894559929863	0.390602	1.74502	3.57804	3.1446
A3	3	2	15.9976281028888	2083836	1254511+023900	193.712929228123	2.64994250671284	0.171965	0.603279	0.821779	0.620455
A3	3	3	24.8334691309275	2083769	1254110+023452	193.545737186632	2.58109095736139	0	0.632591	0	0
A4	4	1	0.13182048667748	2208270	0252278-872029	43.1157846545479	-87.3412770390141	10.8749	6.93478	2.03631	0.316944

△「Cross Identifications」の検索結果。このように、検索半径内すべての天体情報を距離順に得る事ができる。

AKARI-CAS Explore Tool
Database: ED2, Instrument: IRC, objID: 100231645
Requested coordinate: Lon=182.04711396, Lat=2.87884015 (J2000)

ra 182.04676933 [12:08:11.22] dec 2.87844067 [+02:52:42.4]
 ra1950 181.40655870 [12:05:37.57] dec1950 3.15670703 [+03:09:24.1]
 lambda 180.73195978 [12:02:55.67] beta 3.45485809 [+03:27:17.5]
 l 277.97717824 [18:31:54.52] b 63.63486786 [+63:38:05.5]

nDataPos 3

FIS image IRC image SDSS i.r.g (SDSS CAS)

Under construction Under construction

IRIS 100μ, 60μ, 25μ (SkyView) 2MASS K,H,J (SkyView) DSS2 IR,R,B (SkyView)

Zoom: Image scale: 2.0 "/pix Draw grid Invert image update

flux_09 0.0759159 flux_18 0.529179
 fErr_09 0.0202474 fErr_18 0.0509449
 fQual_09 0 fQual_18 0
 flags_09 0 flags_18 0
 nScanC_09 3 nScanC_18 7
 nScanP_09 0 nScanP_18 0
 mConf_09 1 mConf_18 1
 nData_09 3 nData_18 5
 meanAB_09 3.66262 meanAB_18 5.83752

Search other catalogs on the CAS database
 FIS IRC
 SDSS search NED search SIMBAD search ADS search
 SkyView links
 DSS DSS1 Red DSS1 Blue H-α Comp
 DSS2 IR DSS2 Red DSS2 Blue
 2MASS-K 2MASS-H 2MASS-I
 IRIS 100μ IRIS 60μ IRIS 25μ IRIS 12μ

Other Surveys (Document): ROSAT WFC F2 go to skyview

△ローカルな端末から専用ツール (sqlcl_akari.py) やwgetなどを使ってネットワーク経由でCASにアクセスし、SQL検索が可能。スクリーンで利用すれば最良。

AKARI-CAS Explore Tool
Database: ED2, Instrument: IRC, objID: 100231645
Requested coordinate: Lon=182.04711396, Lat=2.87884015 (J2000)

ra 182.04676933 [12:08:11.22] dec 2.87844067 [+02:52:42.4]
 ra1950 181.40655870 [12:05:37.57] dec1950 3.15670703 [+03:09:24.1]
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Zoom: Image scale: 2.0 "/pix Draw grid Invert image update

flux_09 0.0759159 flux_18 0.529179
 fErr_09 0.0202474 fErr_18 0.0509449
 fQual_09 0 fQual_18 0
 flags_09 0 flags_18 0
 nScanC_09 3 nScanC_18 7
 nScanP_09 0 nScanP_18 0
 mConf_09 1 mConf_18 1
 nData_09 3 nData_18 5
 meanAB_09 3.66262 meanAB_18 5.83752

Search other catalogs on the CAS database
 FIS IRC
 SDSS search NED search SIMBAD search ADS search
 SkyView links
 DSS DSS1 Red DSS1 Blue H-α Comp
 DSS2 IR DSS2 Red DSS2 Blue
 2MASS-K 2MASS-H 2MASS-I
 IRIS 100μ IRIS 60μ IRIS 25μ IRIS 12μ

Other Surveys (Document): ROSAT WFC F2 go to skyview

△「Radial Search」の結果の例。すべての結果ページには、SQL文が表示される。表示されたSQL文をテンプレートとして活用すれば、「SQL Search」も簡単に使える。

Link

▽「SELECT」から始まる任意のSQL文で検索が可能。表の中のボタンをクリックする事により、入力欄に例文が用意されるため、習得が容易である。SQLを全く知らない方のために、別ページに入門記事を提供。

SQL Search

You can directly submit a SQL (Structured Query Language) query to the 'AKARI CAS' of DARTS database server.

We have prepared a lot of example calls to learn the 'SELECT' statement of SQL. Let's click the buttons in table, then an explanation and an example SQL statement will be set in the command field. You will easily understand the basic of SQL statement.

If you think that using SQL calls is difficult, see also our [Tutorial page](#) or [SDSS SQL Tutorial page](#).

Example SQL calls (Label on buttons indicate 'thema' of calls):

	Basic Calls	Radial Search	Rectangular Search
FIS	=> Digest All AND-OR Bit-Flags Sort Random	J2000 Ecliptic Galactic Input 'hh:mm:ss' CrossID Advanced	J2000 Ecliptic Galactic Input 'hh:mm:ss' Random CrossID Advanced
IRC	=> Digest All AND-OR Bit-Flags Sort Random	J2000 Ecliptic Galactic Input 'hh:mm:ss' CrossID Advanced	J2000 Ecliptic Galactic Input 'hh:mm:ss' Random CrossID Advanced

Press buttons to import examples :-)

```
-- Basic of SELECT statement of SQL:
-- SELECT col1 [as c1], col2 [as c2], ...
-- Set required columns after SELECT keyword.
-- You can define aliases after 'as' keyword.
-- FROM table1 [t1], table2 [t2], ...
-- Set table or view names after FROM keyword.
-- t1 and t2 are aliases of each table.
-- WHERE conditions...
-- Set conditions after WHERE keyword.

-- This is an example query to obtain the first 10
-- rows of FIS catalog using a flux cut.
SELECT objID, objName, ra, dec,
       fDeg2LonStr(ra) as ra_hms,
       fDeg2LatStr(dec) as dec_dms,
       fQual_65, fQual_90, fQual_140, fQual_160,
       flux_65, flux_90, flux_140, flux_160
FROM FisObjAll
WHERE
  19.5 < flux_90 AND flux_90 <= 20.0
LIMIT 10
```

Database: ED2 (Fis.b2.0 Irc.b1.0.2) Check Syntax Only?
 Format: HTML TEXT delimiter: newline LF clear reset submit

▽「Image List Tool」はその名の通り、QL画像のリストを作成するツール。座標のリストを入力欄に張り付けるだけで、ページネーションが可能な画像リストのページが表示される。画像は、SDSSとSkyViewのIRIS、2MASS、DSS2が選択可能。FIS、IRC、SDSSのExplore、NED、SIMBAD、ADSへのリンクも同時に作成される。

Image List Tool

Conditions:
 Image: SDSS i.r.g (SDSS CAS)
 Image scale: 2.0 "/pix
☒ Draw Grid ☒ Invert Image
 Database name in URLs: ED2
 Coordinate system of list: J2000

Upload list (Max: 1000 targets):
 name longitude latitude
 NGC3434 162.989887 3.791931
 NGC4043 180.595535 4.329907
 NGC4046 180.674820 1.978787
 NGC4123 182.045071 2.879724
 NGC4178 183.195006 10.868349
 NGC4180 183.264100 7.039065
 NGC4207 183.876040 9.585894

Image List Tool

Click [here](#) to input new targets.

Image: SDSS i.r.g (SDSS CAS) Database name in URLs: ED2
 Image scale: 2.0 "/pix Draw Grid Invert Image update

List Page: 1 2 3

NGC3434 FIS IRC SDSS NED SIM ADS	NGC4043 FIS IRC SDSS NED SIM ADS	NGC4046 FIS IRC SDSS NED SIM ADS	NGC4123 FIS IRC SDSS NED SIM ADS	NGC4178 FIS IRC SDSS NED SIM ADS
NGC4180 FIS IRC SDSS NED SIM ADS	NGC4207 FIS IRC SDSS NED SIM ADS	NGC4234 FIS IRC SDSS NED SIM ADS	NGC4273 FIS IRC SDSS NED SIM ADS	NGC4307 FIS IRC SDSS NED SIM ADS
NGC4316 FIS IRC SDSS NED SIM ADS	NGC4334 FIS IRC SDSS NED SIM ADS	NGC4343 FIS IRC SDSS NED SIM ADS	NGC4370 FIS IRC SDSS NED SIM ADS	NGC4380 FIS IRC SDSS NED SIM ADS
NGC4385 FIS IRC SDSS NED SIM ADS	NGC4409 FIS IRC SDSS NED SIM ADS	NGC4416 FIS IRC SDSS NED SIM ADS	NGC4424 FIS IRC SDSS NED SIM ADS	NGC4429 FIS IRC SDSS NED SIM ADS

【AKARI-CASの技術】

- ・RDBMSは PostgreSQL 8 を使用。Web開発言語は PHP 5 で、フレームワークは使用していない。
- ・Javascriptは補助的利用のみ。w3mなどのテキストブラウザもサポート。
- ・Webアプリケーション層は、SDSSのCASを参考に、ステートレスで実装。原則として、全APIを公開。
- ・SDSSのRDBMS (Microsoft SQL Server)の実装を参考に、ストアードファンクションをフル活用。
- ・AKARI-CASのために作成したストアードファンクション (単位変換、座標変換、Radial Search等) は、API仕様を公開。

PostgreSQL

