Nuevo Observatorio Virtual Argentino

Utilizando NOVA: ADQL-TopCat-Online

Leticia Lorena Rodríguez
Coordinadora Informática NOVA

2do Taller de Herramientas para Observatorios Virtuales
Argentina - 20 de Noviembre del 2013

CONICET

Segunda Charla NOVA

- Utilizando NOVA con Topcat y ADQL
- Interfaz Web de NOVA
- ¿Más Herramientas?

Recapitulando

Protocolo

SIA

Imágenes

Software

ALADIN

Ahora vamos a ver...

Protocolos

SAMP

Tablas

Software

Web-Online

TOPCAT

ADQL

ADQL

Servicios Disponibles en http://nova.conicet.gov.ar

Nuevo Observatorio Virtual Argentino

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Welcome to NOVA's Data Center

NOVA Argentina's Virtual Observatory: VO Software, Tools and Astronomical Information online.

This is public information and could be used by **astronomy researchers**, **researchers** of other fields, **students** and the **general public**.

Supported Astronomical Software Go to NOVA Data Center

Access to NOVA's Data Center

To access NOVA information online just select the Q or i icon of the Resource of interest or access using an Astronomical Software (recommended). Check out the section: Supported Astronomical Software

- ICATE Multispectral observations Online i Q
- ICATE Multispectral observations SSAP i
  The spectroscopic data available at ICATE, represents 45 years of observations, including photographics plates and digital detectors. This information will be offered to national and international users, very useful for all kind of studies, specially on spectral variations along time. Nowadays the 1987 Data Base is stored in CD`s and DVD`s with a limited lifetime. Before this date the information is stored in photographic plates which endangers its conservation. The preservation of this material is urgently needed, to avoid any possibility of loosing it. The project foresees to give the information to all the national and international astronomic community.
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- Very Large Array (VLA) Observations at IAFE i Q
  These are the VLA observations produced by researchers at the Argentine Institute for Astronomy and Space Physics (IAFE). The Very Large Array (VLA) has been an extraordinarily productive scientific instrument. Astronomers from around the World use it to study a wide variety of objects, from our solar system up to the edges of the known Universe, billions of light-years from the Earth.

Web-Online

Servicios Disponibles en NOVA

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- VVV Survey Data for Tile B214 i Q
  Band merged JHKs catalogue for first epoch data from CASU v1.3
- VVV Survey Data for Tile B228 i Q
  Band merged JHKs catalogue for first epoch data from CASU v1.3
- VVV Survey Data for Tile B242 i Q
  Band merged JHKs catalogue for first epoch data from CASU v1.3
- VVV Survey Data for Tile B253 i Q

Consultando el Recurso

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Follow

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Resources > VVV Survey Data for Tile B214 > Query

VVV Survey Data for Tile B214

Band merged JHKs catalogue for first epoch data from CASU v1.3

Ra_h [deg]	J2000	[?num. expr.]
Dec_h [deg]	J2000	[?num. expr.]
Ra_j [deg]	J2000	[?num. expr.]
Dec_j [deg]	J2000	[?num. expr.]
Ra_k [deg]	J2000	[?num. expr.]
Dec_k [deg]	J2000	[?num. expr.]
Mag_h [mag]	H-band mag	[?num. expr.]
Mag_j [mag]	J-band mag	[?num. expr.]
Mag_k [mag]	Ks-band mag	
Magerr_h [mag]	H-band mag	
Magerr_j [mag]	J-band mag	

Table Sort by Limit to 100 items.

Output format HTML

Go

Parámetros de Búsqueda

VVV Survey Data for Tile B214

Result

Matched: 100

Send via SAMP | Quick Plot | Open in VOPlot

The query limit was reached. Increase it to retrieve more matches. Note that unsorted truncated queries are not reproducible (i.e., might r result set at a later time).

Ra_h [deg]	Dec_h [deg]	Ra_j [deg]	Dec_j [deg]	Ra_k [deg]	Dec_k [deg]	Mag_h [mag]	Mag_j [mag]	Mag_k [mag]	Magerr_h [mag]	Magerr_j [mag]	Magerr_k [mag]	Sourceclass_h	S
280.869	-25.4382	280.869	-25.4382	280.869	-25.4382	17.21	17.992	16.51	0.071	0.056	0.08	-7.0	-7
280.942	-25.4696	280.942	-25.4695	280.942	-25.4696	16.746	17.685	16.368	0.047	0.043	0.071	1.0	0.
280.842	-25.4259	280.842	-25.4259	280.842	-25.4259	17.118	17.927	17.023	0.065	0.053	0.127	1.0	1.
280.909	-25.4552	280.909	-25.4552	280.909	-25.4552	16.555	17.017	16.141	0.04	0.025	0.058	1.0	1.
280.908	-25.4545	280.908	-25.4545	280.908	-25.4545	16.465	16.894	16.228	0.037	0.022	0.063	1.0	1.
280.755	-25.3883	280.755	-25.3883	280.755	-25.3883	17.339	18.2	17.265	0.079	0.067	0.155	-7.0	-7
280.785	-25.4014	280.785	-25.4014	280.785	-25.4014	16.127	16.876	15.82	0.027	0.022	0.045	-1.0	1.
280.863	-25.4351	280.863	-25.4351	280.863	-25.4351	16.797	17.492	17.012	0.049	0.037	0.124	1.0	1.
280.836	-25.4235	280.836	-25.4235	280.836	-25.4235	15.99	16.381	15.936	0.024	0.015	0.049	1.0	1.
280.83	-25.421	280.83	-25.421	280.83	-25.421	15.268	15.86	15.264	0.013	0.01	0.027	1.0	1.
280.729	-25.377	280.729	-25.377	280.729	-25.377	16.392	16.979	16.304	0.034	0.024	0.069	1.0	-7
280.674	-25.3532	280.674	-25.3532	280.674	-25.3532	15.734	16.505	15.616	0.019	0.016	0.038	-7.0	-7
280.792	-25.4043	280.792	-25.4043	280.792	-25.4043	16.638	17.093	16.7	0.043	0.026	0.098	1.0	1.
281.306	-25.6252	281.306	-25.6252	281.306	-25.6253	16.939	17.31	15.907	0.056	0.031	0.046	-7.0	-7
280.838	-25.4241	280.838	-25.4241	280.838	-25.4241	14.326	14.777	14.274	0.01	0.01	0.012	-1.0	-1
280.92	-25.4593	280.92	-25.4593	280.92	-25.4593	15.786	16.184	15.67	0.02	0.013	0.038	-1.0	-1
280.665	-25.349	280.665	-25.349	280.665	-25.3491	16.235	16.159	15.089	0.03	0.012	0.024	-7.0	-7
280.716	-25.3713	280.716	-25.3714	280.716	-25.3714	15.087	15.495	14.656	0.011	0.01	0.016	-7.0	-7

Consultando el Recurso

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Resources > VVV Survey Data for Tile B214 > Query

VVV Survey Data for Tile B214

Band merged JHKs catalogue for first epoch data from CASU v1.3

Ra_h [deg]	> 281 *J2000*	[?num. expr.]
Dec_h [deg]	*J2000*	[?num. expr.]
Ra_j [deg]	*J2000*	[?num. expr.]
Dec_j [deg]	*J2000*	[?num. expr.]
Ra_k [deg]	*J2000*	[?num. expr.]
Dec_k [deg]	*J2000*	[?num. expr.]
Mag_h [mag]	*H-band mag*	[?num. expr.]
Mag_j [mag]	*J-band mag*	[?num. expr.]
Mag_k [mag]	*Ks-band mag*	[?num. expr.]
Magerr_h [mag]	*H-band mag*	[?num. expr.]
Magerr_j [mag]	*J-band mag*	[?num. expr.]
Magerr_k [mag]		[?num. expr.]

Busca Ra_h > 281

Resources > VVV Survey Data for Tile B214 > Query

VVV Survey Data for Tile B214

Parameters

- Ra_h: > 281

Result

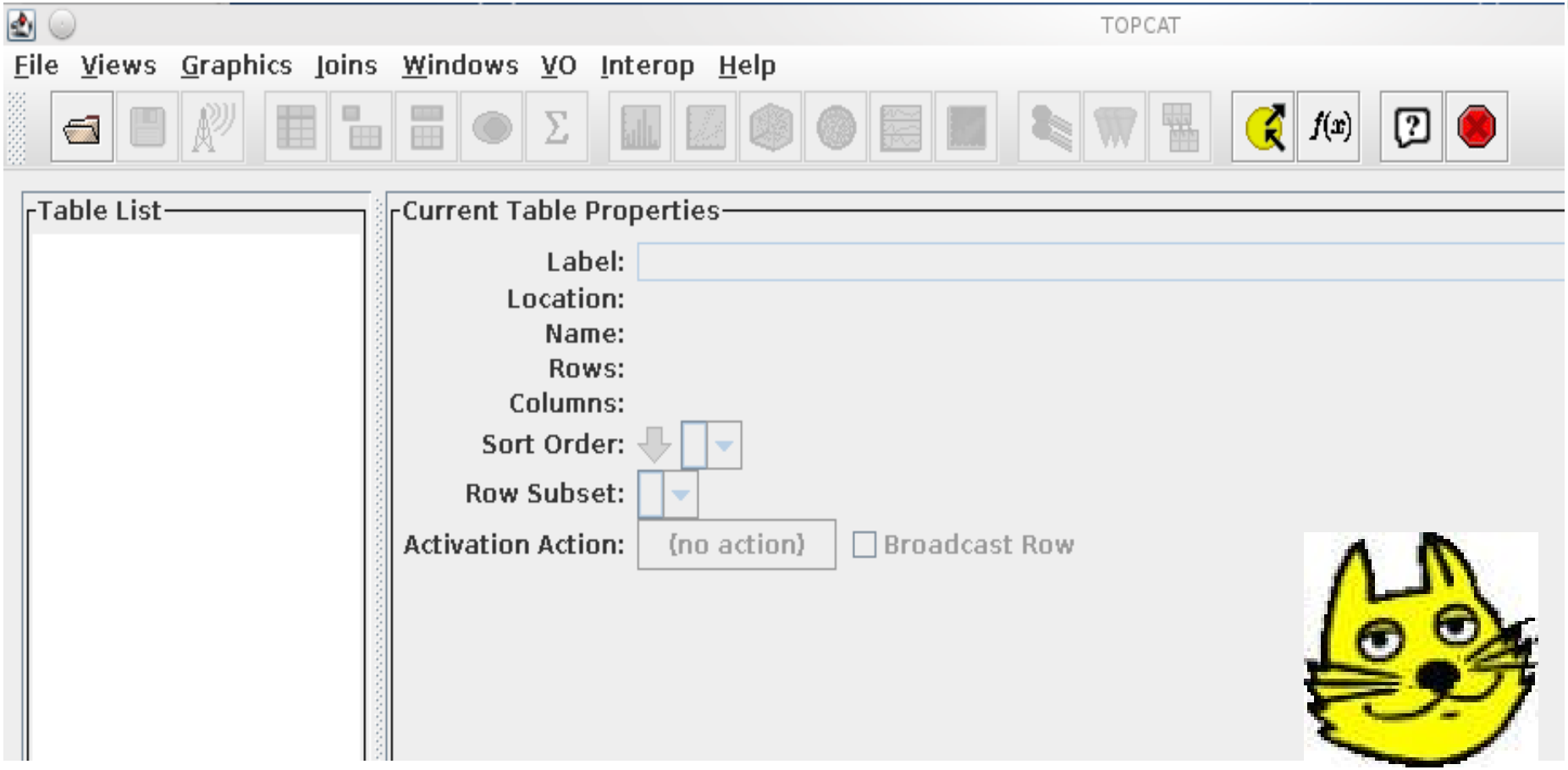
Matched: 100

Send via SAMP | Quick Plot | Open in VOPlot

The query limit was reached. Increase it to retrieve more matches. Note that unsorted truncated queries are not reproducible (i.e., might return a differe result set at a later time).

Ra_h [deg]	Dec_h [deg]	Ra_j [deg]	Dec_j [deg]	Ra_k [deg]	Dec_k [deg]	Mag_h [mag]	Mag_j [mag]	Mag_k [mag]	Magerr_h [mag]	Magerr_j [mag]	Magerr_k [mag]	Sourceclass_h	Sourceclass_j
281.306	-25.6252	281.306	-25.6252	281.306	-25.6253	16.939	17.31	15.907	0.056	0.031	0.046	-7.0	-7.0
281.325	-25.633	281.325	-25.633	281.325	-25.633	17.084	16.871	16.337	0.063	0.021	0.068	-7.0	-7.0
281.211	-25.5841	281.211	-25.5841	281.211	-25.5841	15.357	15.805	14.691	0.014	0.01	0.016	-7.0	-7.0
281.255	-25.6031	281.256	-25.6031	281.255	-25.6031	15.843	17.092	15.807	0.021	0.026	0.044	-7.0	-7.0
281.336	-25.6373	281.336	-25.6373	281.336	-25.6373	16.149	16.67	16.232	0.028	0.018	0.062	-1.0	-1.0
281.358	-25.6466	281.358	-25.6466	281.358	-25.6466	16.56	16.84	16.666	0.04	0.021	0.091	-2.0	1.0
281.288	-25.6165	281.288	-25.6165	281.288	-25.6165	16.34	17.089	16.466	0.033	0.026	0.078	-7.0	-7.0
281.258	-25.604	281.258	-25.604	281.258	-25.6039	16.441	16.906	16.265	0.036	0.022	0.066	1.0	1.0
281.412	-25.6698	281.412	-25.6698	281.412	-25.6699	14.134	14.154	14.223	0.01	0.01	0.011	-7.0	-7.0
281.266	-25.607	281.266	-25.6071	281.266	-25.6071	15.716	16.155	15.545	0.019	0.012	0.035	-1.0	-7.0
281.216	-25.5859	281.216	-25.5858	281.216	-25.5858	17.199	17.357	16.627	0.069	0.032	0.09	1.0	1.0
281.36	-25.6471	281.36	-25.6471	281.36	-25.6471	16.755	17.275	16.908	0.047	0.03	0.113	1.0	-1.0
281.296	-25.6201	281.296	-25.62	281.296	-25.6201	13.796	14.58	13.974	0.01	0.01	0.01	-7.0	-7.0
281.256	-25.6029	281.256	-25.6028	281.256	-25.6029	16.696	16.949	16.489	0.044	0.023	0.08	1.0	-2.0

Con el software Topcat ejecutando



Enviar datos via SAMP

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Resources > VVV Survey Data for Tile B214 > Query

VVV Survey Data for Tile B214

Parameters

- Ra_h: > 281

Se selecciona la opción

SAMP

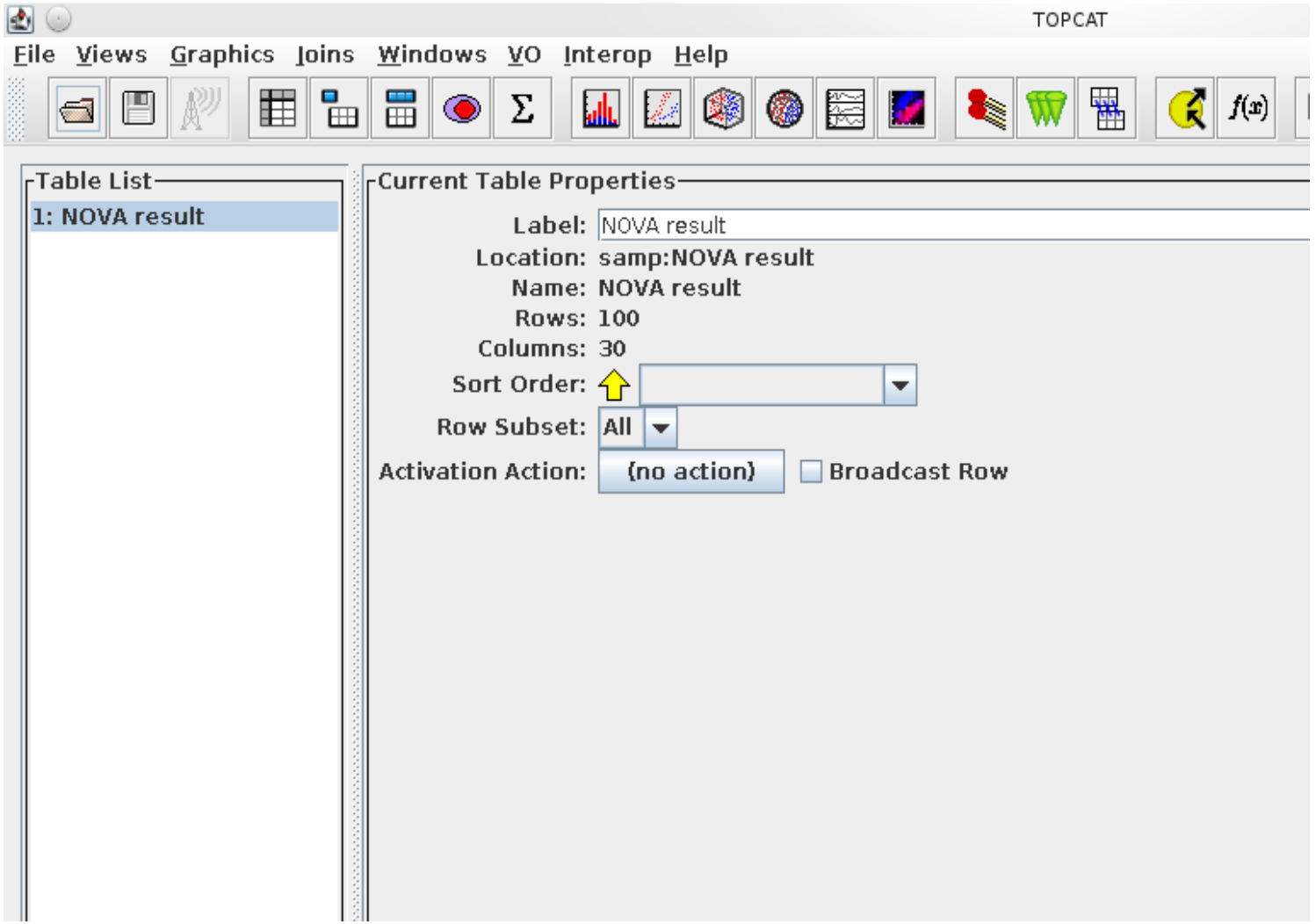
Result

Matched: 100

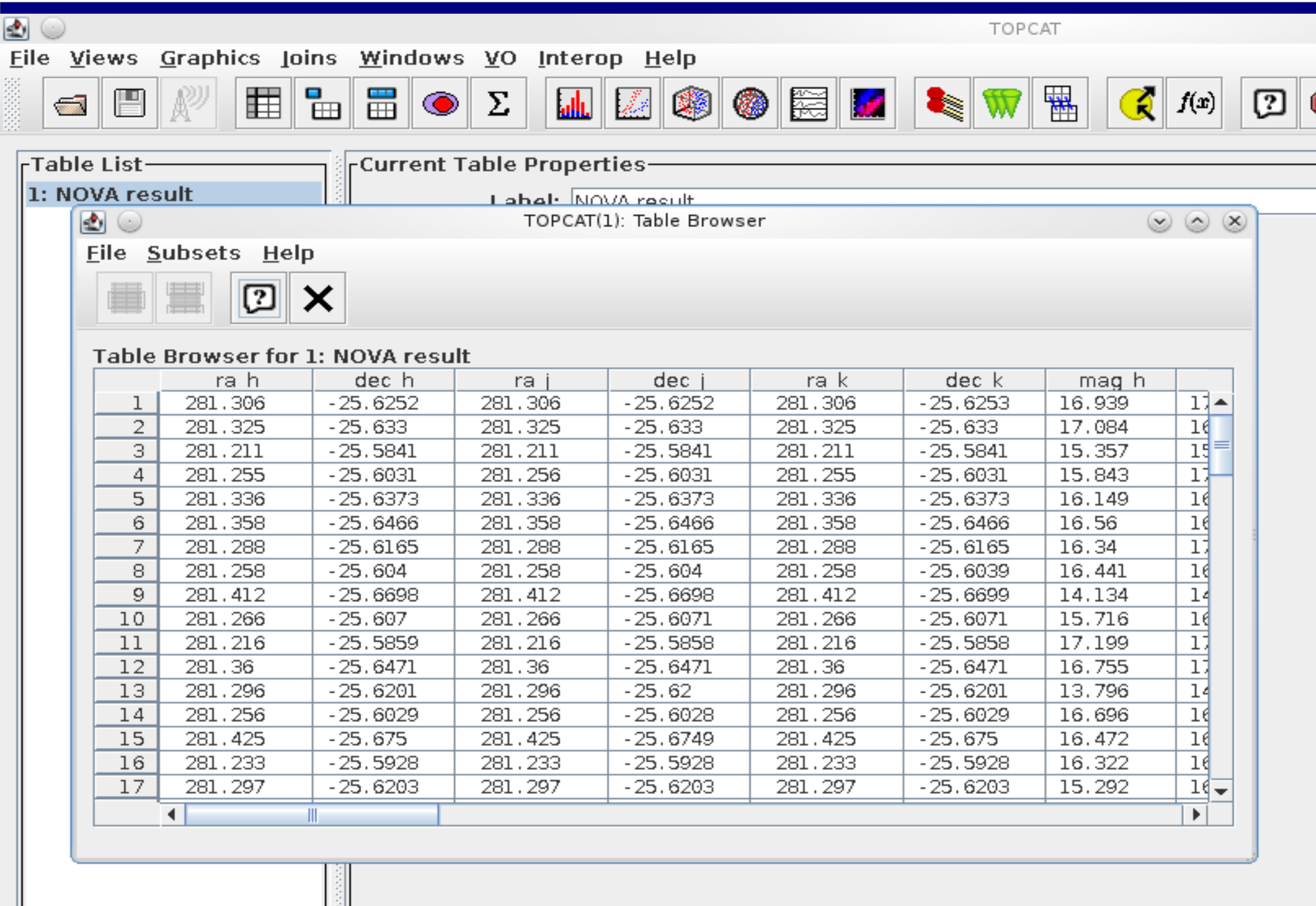
Send via SAMP | Quick Plot | Open in VOPlot

The query limit was reached. Increase it to retrieve more matches. Note that unsorted truncated queries are not reproducible (i.e., might return a differe result set at a later time).

Ra_h [deg]	Dec_h [deg]	Ra_j [deg]	Dec_j [deg]	Ra_k [deg]	Dec_k [deg]	Mag_h [mag]	Mag_j [mag]	Mag_k [mag]	Magerr_h [mag]	Magerr_j [mag]	Magerr_k [mag]	Sourceclass_h	Sourceclass_j
281.306	-25.6252	281.306	-25.6252	281.306	-25.6253	16.939	17.31	15.907	0.056	0.031	0.046	-7.0	-7.0
281.325	-25.633	281.325	-25.633	281.325	-25.633	17.084	16.871	16.337	0.063	0.021	0.068	-7.0	-7.0
281.211	-25.5841	281.211	-25.5841	281.211	-25.5841	15.357	15.805	14.691	0.014	0.01	0.016	-7.0	-7.0
281.255	-25.6031	281.256	-25.6031	281.255	-25.6031	15.843	17.092	15.807	0.021	0.026	0.044	-7.0	-7.0
281.336	-25.6373	281.336	-25.6373	281.336	-25.6373	16.149	16.67	16.232	0.028	0.018	0.062	-1.0	-1.0
281.358	-25.6466	281.358	-25.6466	281.358	-25.6466	16.56	16.84	16.666	0.04	0.021	0.091	-2.0	1.0
281.288	-25.6165	281.288	-25.6165	281.288	-25.6165	16.34	17.089	16.466	0.033	0.026	0.078	-7.0	-7.0
281.258	-25.604	281.258	-25.604	281.258	-25.6039	16.441	16.906	16.265	0.036	0.022	0.066	1.0	1.0
281.412	-25.6698	281.412	-25.6698	281.412	-25.6699	14.134	14.154	14.223	0.01	0.01	0.011	-7.0	-7.0
281.266	-25.607	281.266	-25.6071	281.266	-25.6071	15.716	16.155	15.545	0.019	0.012	0.035	-1.0	-7.0
281.216	-25.5859	281.216	-25.5858	281.216	-25.5858	17.199	17.357	16.627	0.069	0.032	0.09	1.0	1.0
281.36	-25.6471	281.36	-25.6471	281.36	-25.6471	16.755	17.275	16.908	0.047	0.03	0.113	1.0	-1.0
281.296	-25.6201	281.296	-25.62	281.296	-25.6201	13.796	14.58	13.974	0.01	0.01	0.01	-7.0	-7.0
281.256	-25.6029	281.256	-25.6028	281.256	-25.6029	16.696	16.949	16.489	0.044	0.023	0.08	1.0	-2.0

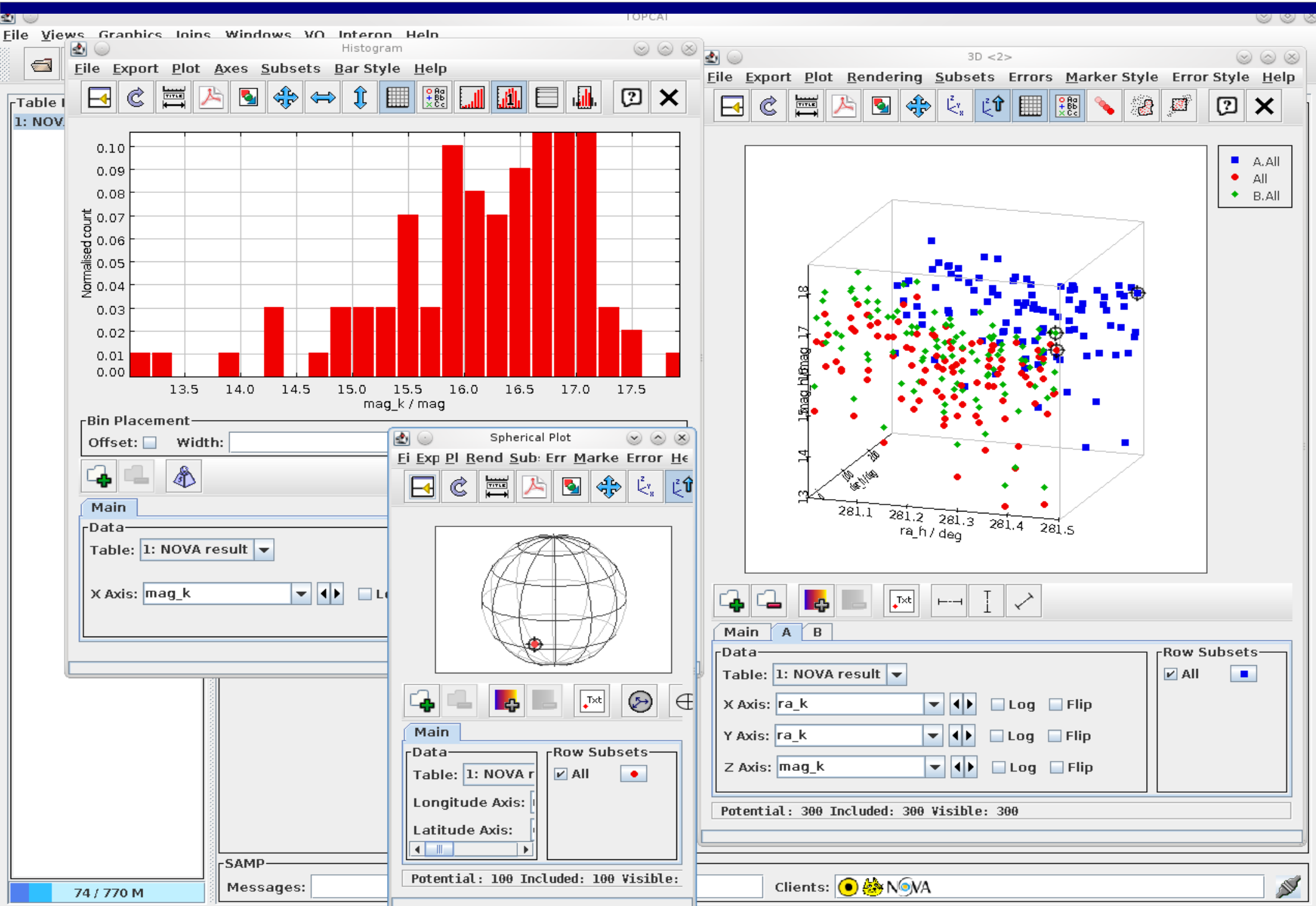

TOPCAT
File Views Graphics Joins Windows VO Interop Help
Table List
1: NOVA result
Current Table Properties
Label: NOVA result
Location: samp:NOVA result
Name: NOVA result
Rows: 100
Columns: 30
Sort Order:
Row Subset: All
Activation Action: (no action)
Broadcast Row

TOPCAT: Visualizando tabla

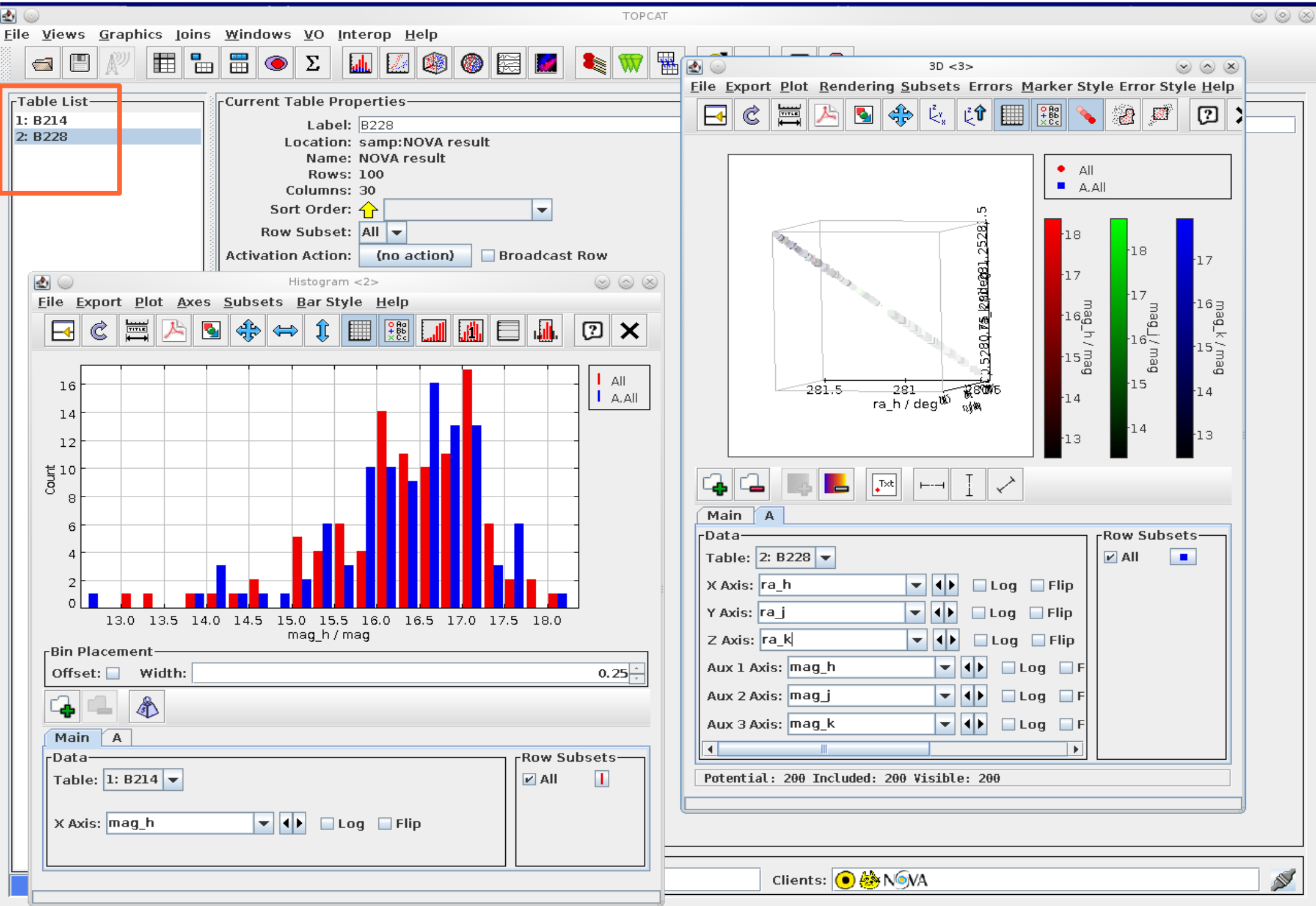


	ra h	dec h	ra j	dec j	ra k	dec k	mag h	
1	281.306	-25.6252	281.306	-25.6252	281.306	-25.6253	16.939	17
2	281.325	-25.633	281.325	-25.633	281.325	-25.633	17.084	16
3	281.211	-25.5841	281.211	-25.5841	281.211	-25.5841	15.357	15
4	281.255	-25.6031	281.256	-25.6031	281.255	-25.6031	15.843	17
5	281.336	-25.6373	281.336	-25.6373	281.336	-25.6373	16.149	16
6	281.358	-25.6466	281.358	-25.6466	281.358	-25.6466	16.56	16
7	281.288	-25.6165	281.288	-25.6165	281.288	-25.6165	16.34	17
8	281.258	-25.604	281.258	-25.604	281.258	-25.6039	16.441	16
9	281.412	-25.6698	281.412	-25.6698	281.412	-25.6699	14.134	14
10	281.266	-25.607	281.266	-25.6071	281.266	-25.6071	15.716	16
11	281.216	-25.5859	281.216	-25.5858	281.216	-25.5858	17.199	17
12	281.36	-25.6471	281.36	-25.6471	281.36	-25.6471	16.755	17
13	281.296	-25.6201	281.296	-25.62	281.296	-25.6201	13.796	14
14	281.256	-25.6029	281.256	-25.6028	281.256	-25.6029	16.696	16
15	281.425	-25.675	281.425	-25.6749	281.425	-25.675	16.472	16
16	281.233	-25.5928	281.233	-25.5928	281.233	-25.5928	16.322	16
17	281.297	-25.6203	281.297	-25.6203	281.297	-25.6203	15.292	16

TOPCAT


TOPCAT
File Views Graphics Joins Windows VO Interop Help
Histogram
File Export Plot Axes Subsets Bar Style Help
Normalised count
mag_k / mag
Bin Placement
Offset:
Width:
Main
Data
Table: 1: NOVA result
X Axis: mag_k
Spherical Plot
Fi Exp Pl Rend Sub Err Marke Error He
Main
Data
Table: 1: NOVA r
Longitude Axis:
Latitude Axis:
Row Subsets
All
Potential: 100 Included: 100 Visible:
3D <2>
File Export Plot Rendering Subsets Errors Marker Style Error Style Help
A.All
All
B.All
ra_h / deg
Main A B
Data
Table: 1: NOVA result
X Axis: ra_k
Y Axis: ra_k
Z Axis: mag_k
Log
Flip
Row Subsets
All
Potential: 300 Included: 300 Visible: 300
SAMP
Messages:
Clients:
74 / 770 M

TOPCAT: cruce entre dos tablas



Astronomy **D**ata **Q**uery **L**anguage

- Es un **lenguaje para la consulta de datos astronómicos**

- Extiende al lenguaje SQL 92, que es amplimente utilizado en el mundo de la informática para la consulta de base de datos relacionales

- Los Observatorios Virtuales tienen sus datos almacenados en base de datos relacionales, esto hace conveniente el uso de SQL para el acceso a los datos.

Tablas

- Almacenan los Datos.
- Están identificadas por un **nombre de tabla**
- Posee una o varias **columnas/campos**
- Los datos que se encuentran en las **filas** de la tabla y una línea de datos corresponde a un único **registro o row**.

campo columna →

registro / row →

Ra_h [deg]	Dec_h [deg]	Ra_j [deg]	Dec_j [deg]	Ra_k [deg]
280.869	-25.4382	280.869	-25.4382	280.869
280.942	-25.4696	280.942	-25.4695	280.942
280.842	-25.4259	280.842	-25.4259	280.842
280.909	-25.4552	280.909	-25.4552	280.909
280.908	-25.4545	280.908	-25.4545	280.908
280.755	-25.3883	280.755	-25.3883	280.755
280.785	-25.4014	280.785	-25.4014	280.785
280.863	-25.4351	280.863	-25.4351	280.863
280.836	-25.4235	280.836	-25.4235	280.836
280.83	-25.421	280.83	-25.421	280.83

Tablas disponibles en NOVA

Astronomy Software - Tools for access to NOVA

OnLine

To access NOVA information online just select the Q or i icon of the Resource of interest in the Data Center Section below.

ADQL

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Tables Available for ADQL Access NOVA using ADQL

TAP

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Tables Available Access NOVA using TAP Queries

TopCat

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Listar Tablas en NOVA

Nuevo Observatorio Virtual Argentino

Resources Home | VO Tools | About Project NOVA

NOVA is the Argentina's Virtual Observatory. It provides astronomical information online.

Astronomical Institutions of Argentina in NOVA

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This is public information and it could be used by astronomy researchers, researchers of other fields, students and the general public.

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Argentine Virtual Observatory Public Tables

Result

Matched: 12

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Tablename	Info	Table desc.	Res desc.
ivoa.ObsCore	Table Info	Definition and support code for the ObsCore data model and table.	Definition and support code for the ObsCore data model and table.
tap_schema.columns	Table Info	Columns in tables available for ADQL querying.	Unnamed data center's Table Access Protocol (TAP) service with table metadata.
tap_schema.examples	Table Info	Site-local example queries"	Unnamed data center's Table Access Protocol (TAP) service with table metadata.
tap_schema.groups	Table Info	Columns that are part of groups within tables available for ADQL querying.	Unnamed data center's Table Access Protocol (TAP) service with table metadata.
tap_schema.key_columns	Table Info	Columns participating in foreign key relationships between tables available for ADQL querying.	Unnamed data center's Table Access Protocol (TAP) service with table metadata.
tap_schema.keys	Table Info	Foreign key relationships between tables available for ADQL querying.	Unnamed data center's Table Access Protocol (TAP) service with table metadata.
tap_schema.schemas	Table Info	Schmemas containing tables available for ADQL querying.	Unnamed data center's Table Access Protocol (TAP) service with table metadata.
tap_schema.tables	Table Info	Tables available for ADQL querying.	Unnamed data center's Table Access Protocol (TAP) service with table metadata.
vvvsurvey.b214	Table Info	N/A	N/A
vvvsurvey.b228	Table Info	N/A	N/A
vvvsurvey.b242	Table Info	N/A	N/A
vvvsurvey.b253	Table Info	N/A	N/A

Información de tablas en NOVA

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Table information for 'vvvsurvey.b214'

General

This table is available for **ADQL** queries and through the TAP endpoint.

For a list of **all services and tables** belonging to this table's resource, see Information on resource 'VVV Survey Data'

Fields

Sorted by DB column index. [Sort alphabetically]

Name	Table Head	Description	Unit	UCD
ra_h	Ra_h	J2000	deg	pos.eq.ra
dec_h	Dec_h	J2000	deg	pos.eq.dec
ra_j	Ra_j	J2000	deg	pos.eq.ra
dec_j	Dec_j	J2000	deg	pos.eq.dec
ra_k	Ra_k	J2000	deg	pos.eq.ra
dec_k	Dec_k	J2000	deg	pos.eq.dec
mag_h	Mag_h	H-band mag	mag	phot.mag
mag_j	Mag_j	J-band mag	mag	phot.mag
mag_k	Mag_k	Ks-band mag	mag	phot.mag
magerr_h	Magerr_h	H-band mag	mag	phot.mag
magerr_j	Magerr_j	J-band mag	mag	phot.mag
magerr_k	Magerr_k	Ks-band mag	mag	phot.mag
sourceclass_h	Sourceclass_h	H-band source class: -1 star, -9 saturated, 7 bad pix, +1 nonâstellar, 0 noise, â2 borderline stellar	N/A	src.class
sourceclass_j	Sourceclass_j	J-band source class: -1 star, -9 saturated, 7 bad pix, +1 nonâstellar, 0 noise, â2 borderline stellar	N/A	src.class
sourceclass_k	Sourceclass_k	K-band source class: -1 star, -9 saturated, 7 bad pix, +1 nonâstellar, 0 noise, â2 borderline stellar	N/A	src.class
phys_p_angsize_h	Phys_p_angsize_h	H-band Petr radius	deg	phys.angSize

Acceder a NOVA con ADQL

Astronomy Software - Tools for access to NOVA

OnLine

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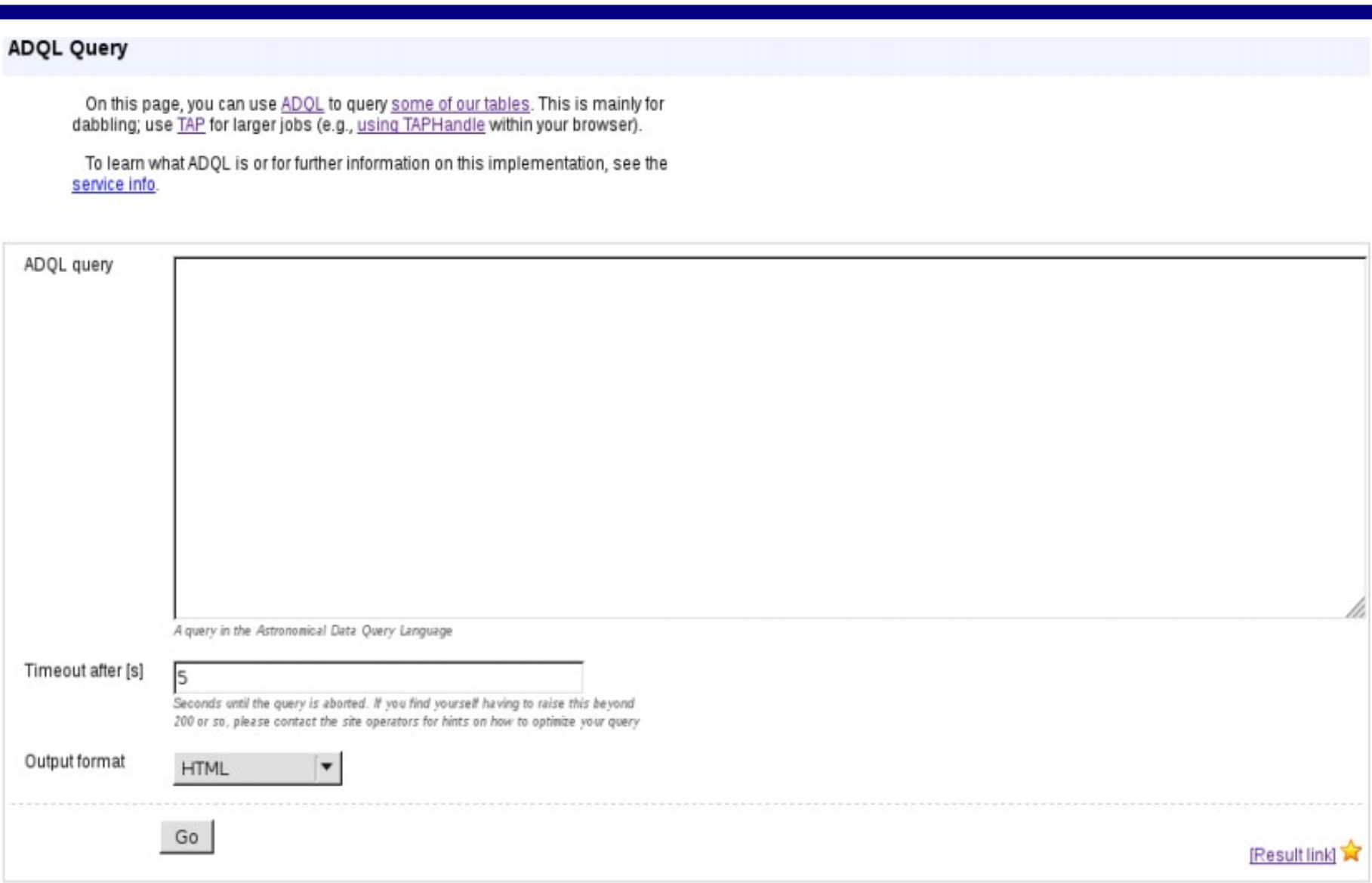
Acceder a NOVA con ADQL



Ejemplo uso de ADQL en NOVA

Ejemplo usando el Lenguaje ADQL para listar los datos sobre el VVV Survey Tile 214.

1ero. Nombre de la Tabla: **vvvsurvey.b214**

2do. Condición de la búsqueda: **ra_h > 281**

Query Final:

select * from vvvsurvey.b214 where ra_h > 281

select * from vvvsurvey.b214 where ra_h > 281

- Formato básico:

  select [columnas] from [tabla] where [condiciones]

- Donde columnas puede ser:

  * para indicar todas las columnas

  nombres de columnas sepados por comas.

- Donde condiciones son los criterios que tienen que cumplir los datos para ser devueltos en la consulta. Es opcional.

Escribiendo consulta ADQL

ADQL Query

On this page, you can use ADQL to query some of our tables. This is mainly fo
dabbling; use TAP for larger jobs (e.g., using TAPHandle within your browser).

To learn what ADQL is or for further information on this implementation, see th
info.

ADQL query

```
select * from vvvsurvey.b214
where ra_h > 281
```

A query in the Astronomical Data Query Language

Timeout after [s]: 5

Seconds until the query is aborted. If you find yourself having to raise this beyond 200 or so, please contact the site operators for hints on how to optimize your query

Output format: HTML

Go

Visualizando resultado de consulta ADQL

Resources > ADQL Query > Query

ADQL Query

Parameters

- ADQL query: select * from vvsurvey.b214 where ra_h > 281

Result

Matched: 2000

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Query result probably incomplete due to the match limit kicking in. Add a TOP clause to your query and/
increase MAXREC to retrieve more data.

Ra_h [deg]	Dec_h [deg]	Ra_j [deg]	Dec_j [deg]	Ra_k [deg]	Dec_k [deg]	Mag_h [mag]	Mag_j [mag]	Mag_k [mag]	Magerr_h [mag]	Magerr_j [mag]
281.122	-25.5263	281.122	-25.5263	281.122	-25.5263	17.779	18.465	17.6	0.115	0.084
281.47	-25.6748	281.47	-25.6748	281.47	-25.6749	17.273	17.583	17.171	0.075	0.039
281.118	-25.5249	281.118	-25.5249	281.118	-25.5249	17.088	17.436	16.78	0.063	0.035
281.119	-25.5248	281.119	-25.5248	281.119	-25.5248	16.817	17.141	16.566	0.05	0.027
281.147	-25.5371	281.147	-25.537	281.147	-25.537	17.538	17.924	17.381	0.094	0.053
281.16	-25.5427	281.16	-25.5427	281.16	-25.5427	17.213	17.489	17.012	0.07	0.036
281.095	-25.5147	281.095	-25.5147	281.095	-25.5147	16.502	17.242	16.307	0.038	0.029
281.019	-25.482	281.019	-25.482	281.019	-25.482	17.541	18.095	17.527	0.093	0.061
281.109	-25.5205	281.109	-25.5205	281.109	-25.5205	17.073	18.705	17.599	0.136	0.103

SQL brinda una amplia cantidad de funciones que pueden ser aplicadas a los valores y a las columnas, tanto en la sección de columnas del SELECT como en la sección de condiciones.

- Busca los datos de la tabla b214 y verifica si están contenidos en un círculo con centro en un punto de la tabla b242 y radio 1.6:

```
select * from (SELECT TOP 1 * FROM vvvsurvey.b242) AS b242
Inner join vvvsurvey.b214
on
(1=CONTAINS(POINT('ICRS', b214.ra h,
b214.dec h), CIRCLE('ICRS', b242.ra h, b242.dec h, 1.6))
```

ADQL

- SQL es un lenguaje muy podereso de consulta de Datos
- Permite filtrar, agrupar y ordenar datos facilmente.
- Existen funciones para tomar máximos, mínimos, sumarizar, etc.
- Ideal para calcular información estadística.
- Es de sintaxis acotada, posee pocas instrucciones, sencillo de aprender
- ADQL agrega funciones que facilitan la búsqueda en datos astronómicos por ejemplo, buscar dentro de un radio de Coordenadas.

Conclusiones Segunda Charla

- Se puede usar TopCat para acceder a NOVA
- Visualizar las Tablas de NOVA y acceder a los datos via ADQL