

VOツール使用法(1)



TOPCAT

国立天文台 天文データセンター

小宮 悠

インストール

- <http://www.star.bristol.ac.uk/~mbt/topcat/#install>
- (Virtual Machine にはインストール済)
- ダウンロードして使用する場合
 - Windows
 - topcat-full.jar をダウンロード。ダブルクリックで実行。
 - 大きなデータを読む場合は、JAVAの最大メモリ量を大きく設定して開く。コマンドプロンプトから
`java -Xmx512m -jar topcat-full.jar`
 - Mac
 - topcat-full.dmg をダウンロードしてインストール。
 - UNIX
 - topcat-full.jar と、起動スクリプトをダウンロード
 - スクリプトに実行権限を付与(`chmod +x topcat`)
 - コマンドラインから起動
- Web start も可能
 - OSに依らず。ホームページのWebStartにある topcat-full をクリックすると、起動。



TOPCAT

- カタログ・テーブルデータの処理
- VOからのカタログの取得・検索
- グラフの作成
- ファイル形式 : FITS, VOTable, ASCII, CSV ...
- ホームページ
<http://www.star.bristol.ac.uk/~mbt/topcat/>

マニュアル

- 講習会用資料
 - <http://jvo.nao.ac.jp/vos2012b/>
- マニュアル
 - <http://www.star.bristol.ac.uk/~mbt/topcat/>
 - FAQ, スクリーンショット集などもある
- Euro VOによるVO使用例 (他のVOツールも含む)
 - <http://www.euro-vo.org/pub/fc/workflows.html>
 - <http://www.euro-vo.org/pub/fc/recipes.html>
- Help 
 - その画面に関するHelpページを表示

- 検索
- 部分集合
- カラム合成
- クロスマッチ
- VOカタログとのクロスマッチ (Multiple search)
- グラフ
 - Subgroup
- 他ツールとの連携 (SAMP)
-

検索

TOPCAT

File Views Graphics Joins Windows VO Interop Help

Table List

Current Table Properties

Label: _____

Location: _____

Name: _____

Load New Table

File DataSources Examples Help

Format: (auto)

Location: _____

Filestore Brow

System Brow

Loading Tables

VizieR Catalogue Service

File Help

VizieR Server

Server:

Row Selection

Cone Selection

Object Name: Resolve

RA: degrees (J2000)

Dec: degrees (J2000)

Radius: degrees

All Rows

Maximum Row Count:

Column Selection

Output Columns:

Catalogue Selection

By Category **By Keyword** Surveys Missions

Keywords:

Sub-Table Details Include Obsolete Tables

Search Catalogues Cancel Search

Δ Name	Popularity	Density	Description
I/278	514	0	Catalog of stars in M3 (von Zeipel, 1908)
J/A+A/208/83	58	0	M3 photographic photometry (Buenann
J/A+A/320/757	16	0	M3 stars CCD photometry (Ferraro+ 19
J/A+A/324/915	13	0	Blue stragglers in M3 (Ferraro+ 1997)
J/A+A/392/851	398	0	QSOs in the M3 field (Meusinger+, 2002)
J/A/J/108/1786	514	0	Blue stragglers and variable stars in M3
J/A/J/120/1364	320	0	Abundances in M3 and M13 (Cavallo+,
J/A/J/122/3219	529	0	M3 and M13 CCD BV photometry (Rey+
I/A/I/129/1596	239	0	BVI photometric variability survey of M3

OK

TOPCAT

File Views Graphics Joins Windows VO Interop Help

Table List

- 1: CAIXA-20d
- 2: VII_252-20d
- 3: match(1,2)
- 4: cones(1)
- 5: sias(4)

26 / 248 M

Current Table Properties

Label: 名前の変更できない

Location: C:\Users\komiya\Documents\JVO講習会\2013a\AGNcase.fits-5

Name: #5

Rows: 5

Columns: 57

Sort Order: [Down Arrow]

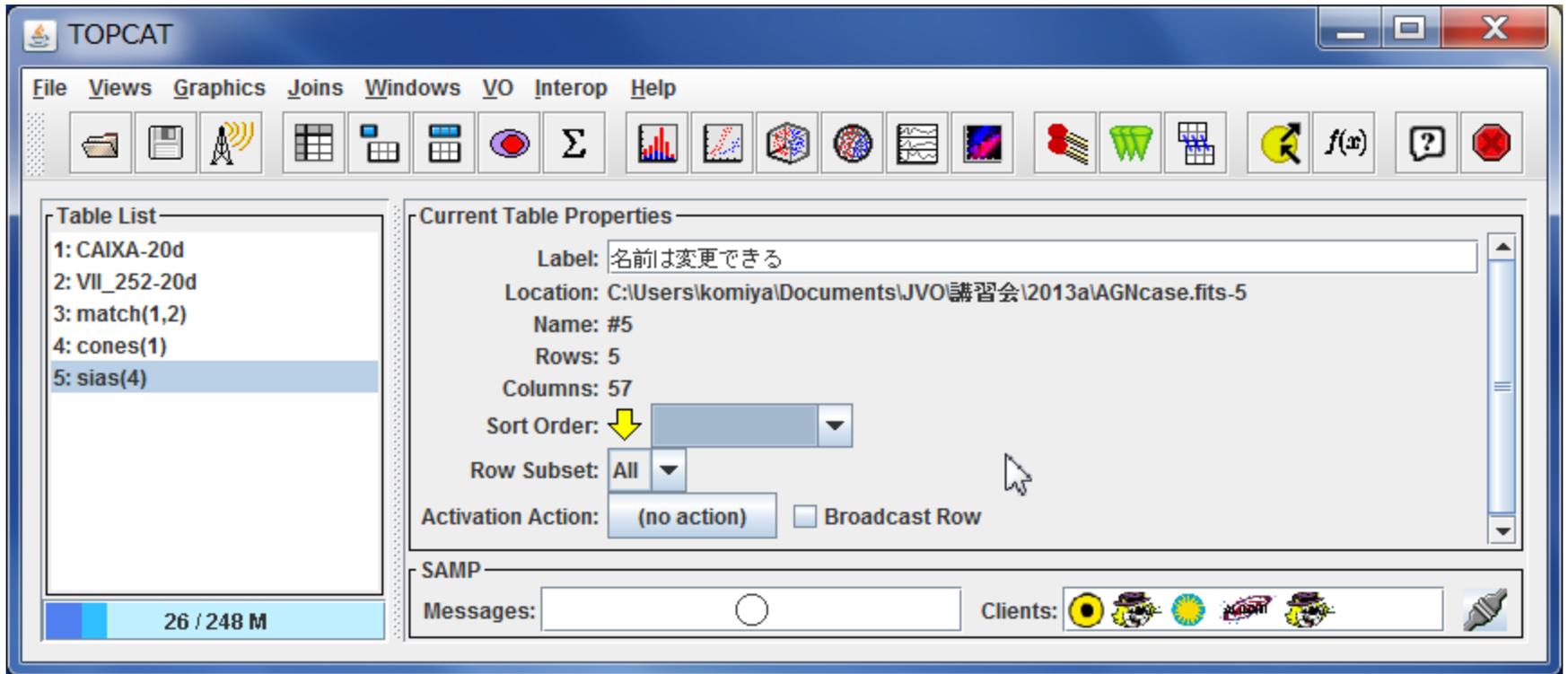
Row Subset: All

Activation Action: (no action) Broadcast Row

SAMP

Messages: [Empty Field]

Clients: [Icons]



TOPCAT

File Views Graphics Joins Windows VO Interop Help

Table List: 1: J_A+A_320_75

Current Table Properties

TOPCAT(1): Table Browser

File Subsets Help

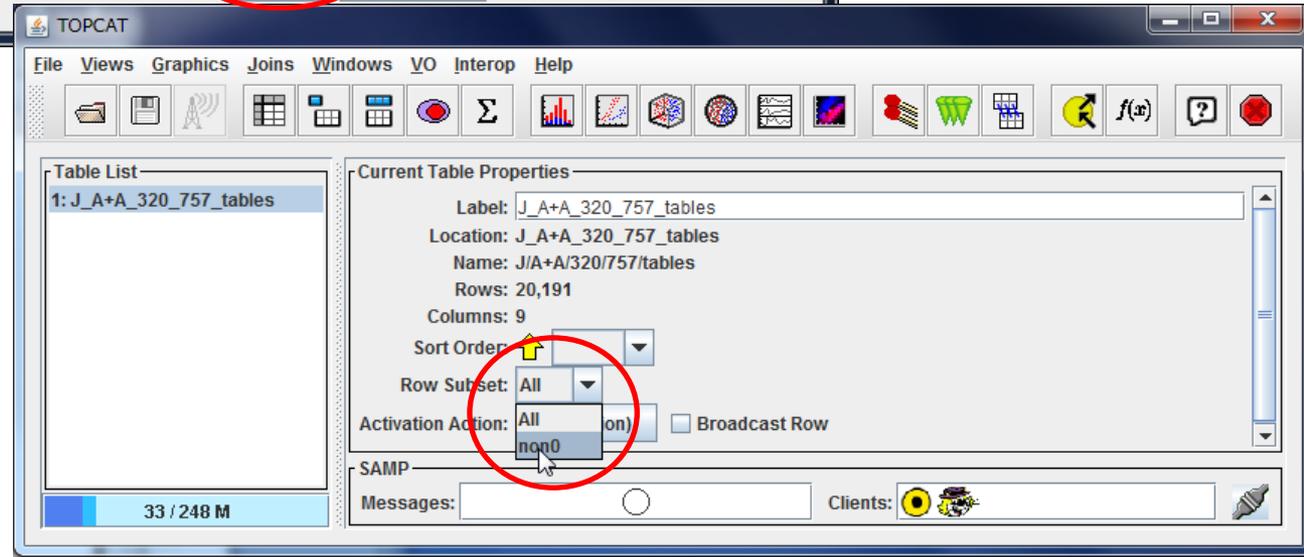
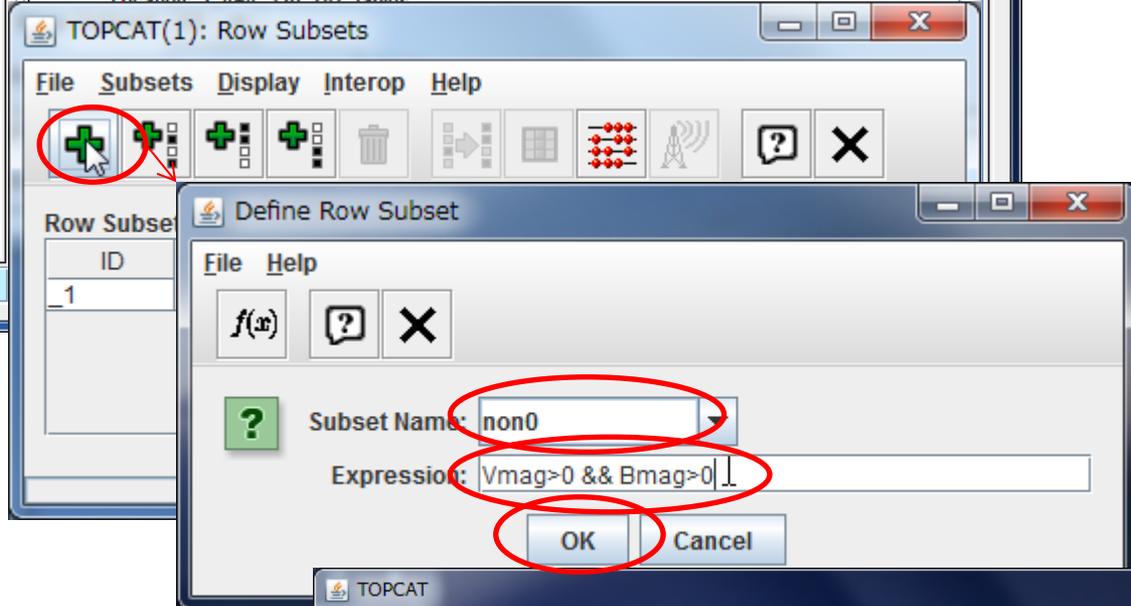
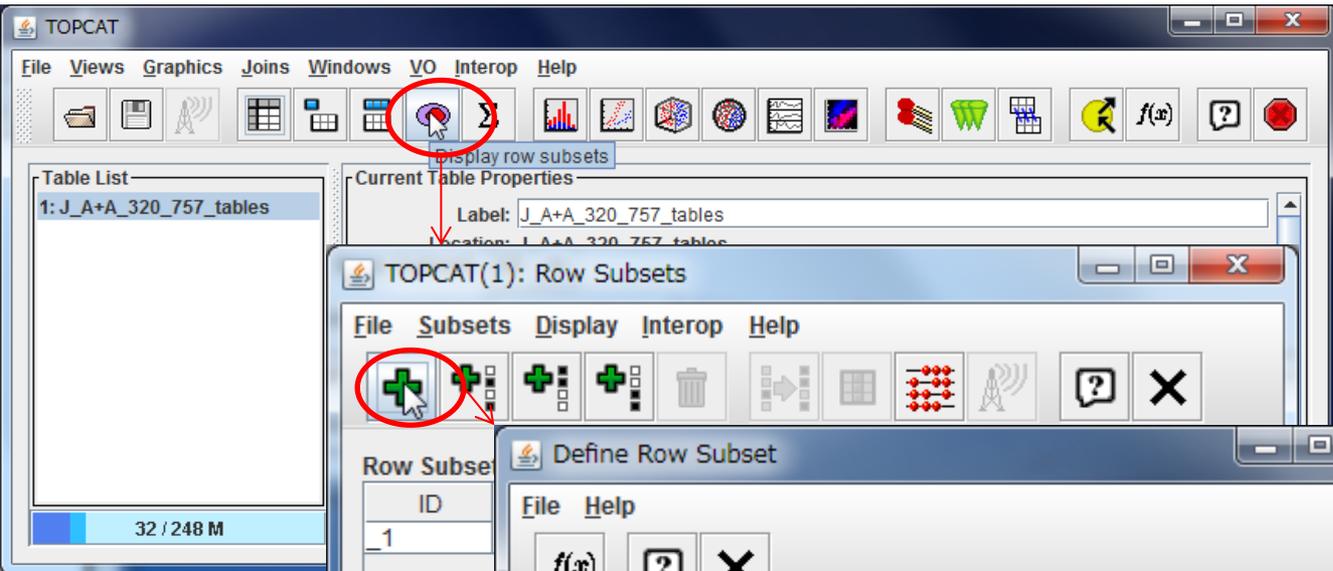
Table Browser for 1: J_A+A_320_757_tables

	recno	Name	Vmag	Bmag	Imag	Xpos	Ypos	Star	n_Star
1	1	1	17.024	17.746	0.	-87.	-460.	0	0
2	2	2	15.737	16.137	0.	142.	-440.6	17	1
3	3	3	17.618	18.305	0.	163.	-436.	0	0
4	4	4	16.304	17.028	0.	-3.	-433.	0	0
5	5	5	15.745	16.215	0.	127.	-431.	0	0
6	6	6	17.715	18.384	0.	218.	-421.	0	0
7	7	7	16.844	17.844	0.	269.	-417.	0	0
8	8	8	16.886	17.886	0.	126.	-411.	0	0
9	9	9	16.886	17.886	0.	-178.	-410.	0	0
10	10	10	15.844	16.844	0.	-29.4	-408.7	92	1
11	11	11	15.886	16.886	0.	-84.	-398.	430	1
12	12	12	15.886	16.886	0.	40.	-398.	0	0
13	13	13	15.908	16.655	0.	-301.	-397.	0	0
14	14	14	15.938	16.652	0.	-358.	-396.	0	0
15	15	15	17.618	18.49	0.	-61.	-383.	0	0
16	16	16	17.995	18.636	0.	285.	-378.	0	0
17	17	17	15.745	16.215	0.	101.	-377.	0	0
18	18	18	17.636	18.306	0.	230.	-375.	0	0
19	19	19	17.359	18.036	0.	68.	-375.	0	0

セルを選択して、データの直接編集も可能

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Filter



カラム間の演算

TOPCAT

File Views Graphics Joins Windows VO Interop Help

Table List

1: J_A+A_320_757_tables

Current Table Properties

Label: J_A+A_320_757_tables
Location: J_A+A_320_757_tables
Name: J/A+A/320/757/tables
Rows: 20,191 (12,212 apparent)
Columns: 9

TOPCAT(1): Table Columns

File Columns Display Help

Add a new column defined algebraically from existing ones

Table Columns for 1: J_A+A_320_757_tables

	Visible	In
0	<input type="checkbox"/>	In
1	<input checked="" type="checkbox"/>	re
2	<input checked="" type="checkbox"/>	N
3	<input checked="" type="checkbox"/>	Vr
4	<input checked="" type="checkbox"/>	Br
5	<input checked="" type="checkbox"/>	In
6	<input checked="" type="checkbox"/>	Xp
7	<input checked="" type="checkbox"/>	Yp
8	<input checked="" type="checkbox"/>	St
9	<input checked="" type="checkbox"/>	n

Define Synthetic Column

File Help

$f(x)$? X

Name: B-V

Expression: Bmag-Vmag

Units: magnitude

Description: B-V color

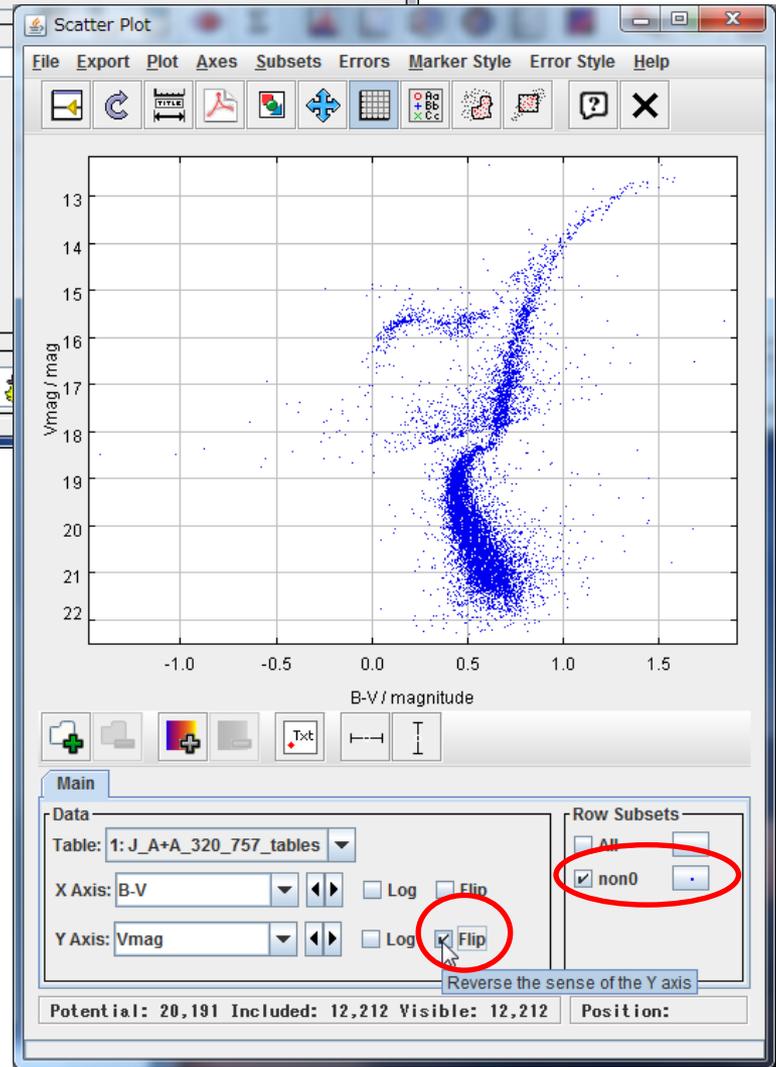
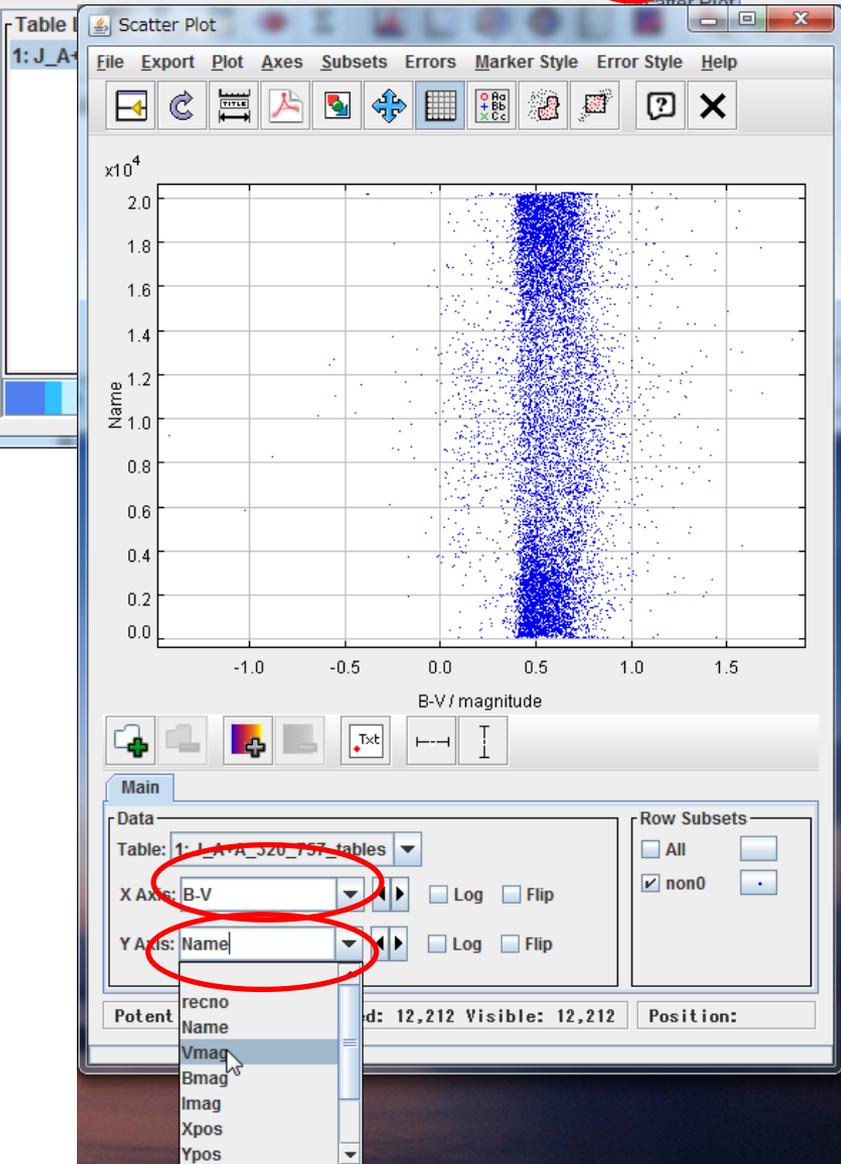
UCD: PHOT_CI_B-V

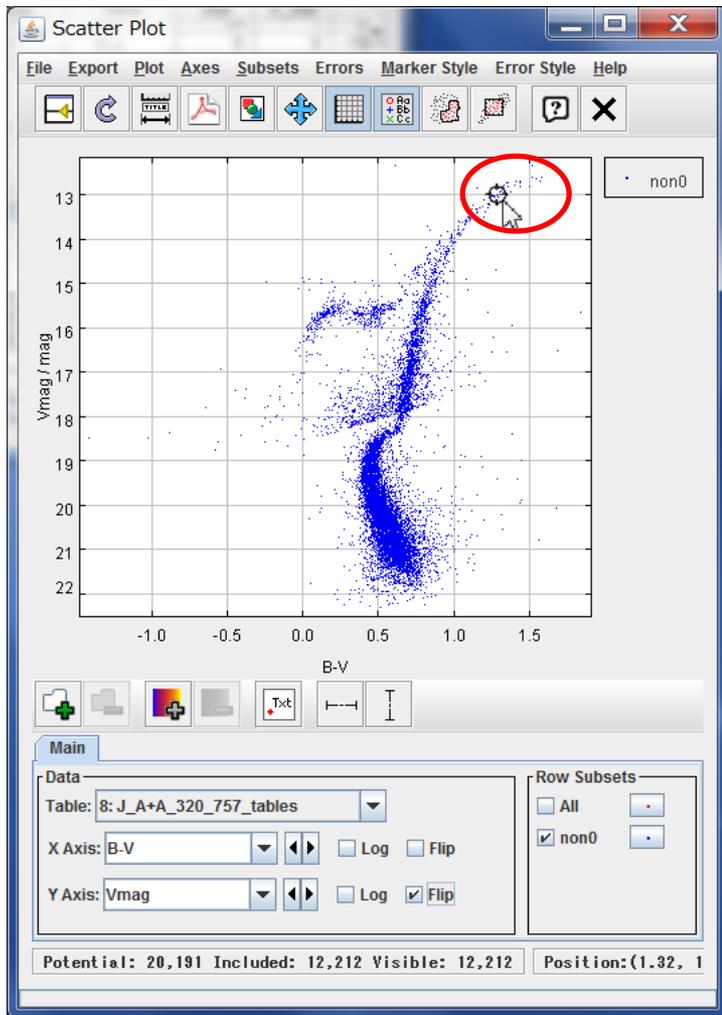
Color index B-V in a non-conventional system

Index: 10

OK Cancel

この3つは記入
しなくてもよい





TOPCAT(8): Table Browser

Table Browser for 8: J_A+A_320_757_tables

recno	Name	Vmag	Bmag	Imag	Xpos	Ypos	Star	n_Star
10865	10865	19.206	0.	18.744	88.9	10.2	0	0
10866	10866	18.502	0.	17.385	45.3	10.2	0	0
10867	10867	18.955	0.	18.304	94.1	10.2	0	0
10868	10868	16.496	17.254	15.64	35.1	10.3	0	0
10869	10869	18.635	0.	18.053	24.9	10.3	0	0
10870	10870	19.029	0.	18.437	-111.7	10.3	0	0
10871	10871	19.35	0.	18.116	182.1	10.3	0	0
10872	10872	13.366	14.48	12.081	-18.8	10.4	0	0
10873	10873	13.023	14.307	11.629	-57.7	10.4	0	0
10874	10874	18.986	0.	18.379	-209.9	10.4	0	0
10875	10875	19.637	0.	19.004	-89.6	10.4	0	0
10876	10876	18.057	0.	17.251	97.6	10.5	0	0
10877	10877	18.652	0.	17.987	28.3	10.5	0	0
10878	10878	20.403	0.	20.145	29.9	10.5	0	0
10879	10879	18.74	0.	18.097	-37.9	10.5	0	0
10880	10880	18.895	0.	18.292	-100.	10.5	0	0
10881	10881	19.016	0.	18.49	31.	10.6	0	0

テーブルデータと、グラフ上の点の
対応関係を確認できる

恒星理論データの検索

The image shows a software interface for loading data from BaSTI. The main window is titled "BaSTI Data Loader" and has a "Query" tab selected. The interface includes a menu bar with "File" and "Help", and a toolbar with various icons. A red circle highlights a specific icon in the toolbar. Below the toolbar, there are several input fields and checkboxes for defining a query. The "Query" tab contains the following parameters:

Parameter	Value	min	max
Data Type	<input checked="" type="checkbox"/> Isochrone		
Age [Gyr]	<input checked="" type="checkbox"/>	12	13
Scenario	<input checked="" type="checkbox"/> Canonical		
Mass [MSun]	<input type="checkbox"/>		
Type	<input checked="" type="checkbox"/> Normal		
Z	<input checked="" type="checkbox"/>		
Mass Loss	<input checked="" type="checkbox"/> 0.4		
Y	<input checked="" type="checkbox"/>		
Photometric System	<input checked="" type="checkbox"/> Johnson Castelli		
[Fe/H]	<input checked="" type="checkbox"/>	-2	-1
Mixture	<input checked="" type="checkbox"/> Alpha Enhanced		
[M/H]	<input checked="" type="checkbox"/>		

At the bottom of the "Query" tab, it says "Number of results (present query): 24". There are two buttons: "RESET" and "SUBMIT". A red circle highlights the "SUBMIT" button. Below the "SUBMIT" button is an "OK" button.

The "Load New Table" window in the background shows a menu bar with "File", "DataSources", "Examples", and "Help", and a toolbar with various icons. A red circle highlights a specific icon in the toolbar.

選択していくのにやや
時間がかかります

BaSTI Data Loader

File Help

Query Results

Found 24 results.
Select the desired rows and press OK to load the corresponding tables.

	Mass Loss	Photometry	Mixture	Age [Gyr]	Z	Y	[Fe/H]	[M/H]
4		JOHNSON CASTELLI	ALFA ENHANCED	12	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12.5	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	13	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12.5	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	13	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12.5	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	13	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12.5	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	13	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12.5	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	13	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12.5	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	13	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	12.5	.001	.246	-1.62	-1.27
4		JOHNSON CASTELLI	ALFA ENHANCED	13	.001	.246	-1.62	-1.27

OK

Load New Table

File DataSources Examples Help

Format: (auto)

Location: OK

Filestore Browser

System Browser

Loading Tables

BaSTI

 Cancel

絶対等級の計算

The image shows a sequence of three overlapping windows from the TOPCAT software interface, illustrating the steps to define a synthetic column for absolute magnitude (Mv).

TOPCAT (Main Window): The top window shows the main interface with a menu bar (File, Views, Graphics, Joins, Windows, VO, Interop, Help) and a toolbar. A red circle highlights the 'Columns' icon in the toolbar.

TOPCAT(1): Table Columns: The middle window shows the 'Table Columns' dialog. A red circle highlights the '+' icon in the toolbar. Below the toolbar is a table of existing columns:

Tab	Visible	Name	\$ID	Class
2	<input checked="" type="checkbox"/>	Name	\$2	Integer
3	<input checked="" type="checkbox"/>	Vmag	\$3	Float
4	<input checked="" type="checkbox"/>	Bmag	\$4	Float
5	<input checked="" type="checkbox"/>	Imag	\$5	Float
6	<input checked="" type="checkbox"/>	Xpos	\$6	Float
7	<input checked="" type="checkbox"/>	Ypos	\$7	Float
8	<input checked="" type="checkbox"/>	Star	\$8	Short
9	<input checked="" type="checkbox"/>	n_Star	\$9	Short
10	<input checked="" type="checkbox"/>	B-V	\$10	Float
11	<input checked="" type="checkbox"/>	Mv	\$11	Double

Define Synthetic Column: The bottom window shows the 'Define Synthetic Column' dialog. A red circle highlights the 'Name' and 'Expression' fields. The 'Name' field contains 'Mv' and the 'Expression' field contains the formula $Vmag - 5 * \log_{10}(10.4 * 100)$. Other fields include 'Units', 'Description', 'UCD' (set to 'no UCD'), and 'Index' (set to 11). Buttons for 'OK' and 'Cancel' are at the bottom.

重ねてplot

The image displays a software interface for creating and editing scatter plots. It features two overlapping 'Scatter Plot' windows and a 'Plot Style Editor' dialog box.

Scatter Plot (Left): Shows a plot with 'Mv' on the Y-axis (ranging from -2 to 7) and 'B-V' on the X-axis (ranging from -1.0 to -0.5). The plot contains blue data points and a green trend line.

Scatter Plot (Right): Shows a plot with 'Mv' on the Y-axis (ranging from -2 to 8) and 'B-V / magnitude' on the X-axis (ranging from -1.0 to 1.5). The plot contains blue data points and a green trend line. A legend in the top right corner identifies the data series as 'non0' (blue dot) and 'A.All' (green dot).

Plot Style Editor: A dialog box for customizing the plot's appearance. It includes the following settings:

- Legend:** Icon: Label: A.All Hide Legend
- Marker:** Shape: Size: 1 (circled in red) Colour: (circled in red)
- Transpa:** Hide
- Error Ba:** Hide
- Line:** Thickness: 1 Dash:
- Line Style:** None Dot to Dot Linear Correlation

Bottom Panel: Contains data source information and axis settings. The 'Data' section shows 'Table: 2: wz103y246aes.t612500_c04ae' (circled in red). The 'X Axis' is '(B-V)' (circled in red) and the 'Y Axis' is 'Mv' (circled in red). The 'Row Subsets' section has 'All' checked (circled in red). The 'Reverse the sense of the Y axis' checkbox is checked. The status bar at the bottom indicates 'Potential: 22,191 Included: 14,212 Visible: 14,212 Position:'.

Row subset

The image displays a sequence of three overlapping windows from a scatter plot software, illustrating the process of creating a row subset. The main window shows a scatter plot of Mv (Y-axis, ranging from -2 to 8) versus B-V/magnitude (X-axis, ranging from -1.0 to 1.5). The data points are colored blue (non0) and pink (A.All). A pink curve is drawn through the data. A red circle highlights the 'Draw a region' button in the toolbar. The second window shows a grey rectangular region drawn around a portion of the data, with a red circle highlighting the 'Draw a region' button and another red circle highlighting the drawn region. The third window is the 'New Subset' dialog box, where the 'New Subset Name' is 'HorizontalBranch', the 'Add Subset' button is highlighted with a red circle, and a tooltip reads 'Add Add the new subset to the table's Subset'. The 'Transmit Subset' button and 'All Clients' dropdown are also visible. The bottom of the windows shows the 'Data' panel with 'Table: 1: J_A+A_320_757_tables', 'X Axis: B-V', 'Y Axis: Mv', and 'Potential: 22,191 Included: 14,212 Visible: 14,212'. The 'Row Subsets' panel shows 'All' and 'non0' (checked).

図の保存

Scatter Plot

File Export Plot Axes Subsets Errors Marker Style Error Style Help

non0
A.All
HorizontalBranch
A.HorizontalBranch

Mv

2
3
4
5
6
7
8

Plot Title
Title: M3 HR diagram

X Axis
Label: B-V / magnitude
Range: -1 - 2

Y Axis
Label: Mv
Range: -3 - 8

Cancel Apply OK

Potential: 22,191 Included: 14,212 Visible: 14,212 Position:

Scatter Plot

File Export Plot Axes Subsets Errors Marker Style Error Style Help

Export as pdf
Export as gif
Export as eps
Export as eps-gzip
Export as jpeg
Export as png

non0
A.All

Export Plot As gif

参照: VOS2013a

ファイル名: HRdiagram

ファイルのタイプ: .gif

Write gif 取消

Potential: 22,191 Included: 14,212 Visible: 14,212 Position:

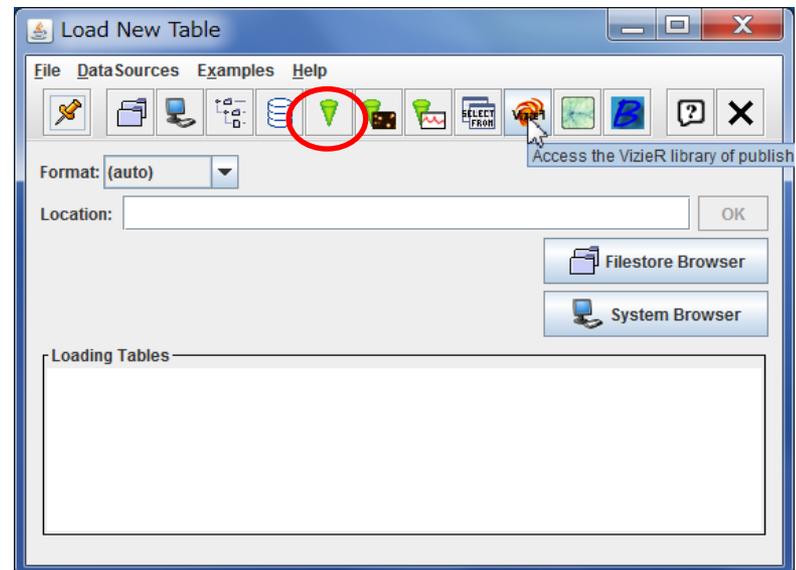
データの保存

「session」を選ぶと、
全てのカタログ、作成
したカラム、サブセット
をまとめて保存できる。

Save	Table
<input checked="" type="checkbox"/>	1: J_A+A_320_757_tables
<input checked="" type="checkbox"/>	2: wz103y246aes.t612500_c04ae

使用例(2) クロスマッチ

X線と可視光でのAGNのカタログを
取得してクロスマッチする。
まずは、各カタログを検索。



Cone Search

File Columns Registry Interop Help

Available Cone Services

Registry: http://registry.astrogrid.org/astrogrid-registry/services/RegistryQueryv1_0

Keywords: XMM AGN

Match Fields: Short Name Title Subjects ID Publisher Description

Accept Resource Lists

Cancel Query Submit Query

Short Name	Title
AGNSDSSXM2	Sloan Digital Sky Survey/XMM-Newton Type1 AGN X-Ray and Radio Properties Ca
AGNSDSSXMM	Sloan Digital Sky Survey/XMM-Newton AGN Spectral Properties Catalog
CAIXA	Catalog of AGN in the XMM-Newton Archive
J/A+A/444/79	XMM observations of Lockman Hole brightest AGNs (Mateos+, 2005)
J/A+A/457/501	XMM-Newton survey of the ELAIS-S1 field (Pucetti+, 2006)
J/A+A/459/693	XMM/CDFS AGN intrinsic absorption (Akylas+, 2006)
J/A+A/471/1105	XMM-LSS at 240MHz and 610MHz (Tasse+, 2007)
J/A+A/473/105	Lockman Hole AGN variability with XMM (Mateos+, 2007)
J/A+A/474/472	XMM-LSS survey AGN classifications (Carretti+, 2007)

AccessURL	Description	Version
http://heasarc.gsfc.nasa.gov/cgi-...		

Cone Parameters

Cone URL: <http://heasarc.gsfc.nasa.gov/cgi-bin/vo/cone/coneGet.pl?table=caixa&>

Object Name: Resolve

RA: 170 degrees (J2000) Accept Sky Positions

Dec: 30 degrees (J2000)

Radius: 20 degrees

OK

Load Selected Table

14件ヒット

Cone Search

File Columns Registry Interop Help

Available Cone Services

Registry:

Keywords:

Match Fields: Short Name Title Subjects ID Publisher Description

Accept Resource Lists

Short Name	Title
SDSSXMMQSO	Sloan Digital Sky Survey (DR3)/XMM-Newton Quasar Survey Catalog
SWSDSSQSO	Swift Simultaneous UV, Optical, and X-Ray Observed Quasar Catalog
VII/243	SDSS quasar catalog, III (Schneider+, 2005)
VII/252	SDSS-DR5 quasar catalog (Schneider+, 2007)
VII/260	The SDSS-DR7 quasar catalog (Schneider+, 2010)
VII/269	SDSS Quasar Catalog, DR9Q (Paris+, 2012)
	SDSSQUASAR: Sloan Digital Sky Survey Quasar Catalog (5th Data Release) (LEDAS)
	SDSSNBCQSC: Sloan Digital Sky Survey NBC Quasar Candidate Catalog (LEDAS)
	DR3QSO: SDSS Quasar Catalog (Release 3) (LEDAS)

AccessURL	Description	Version
http://vizier.u-strasbg.fr/viz-bin/votable/		

Cone Parameters

Cone URL:

Object Name:

RA: degrees (J2000) Accept Sky Positions

Dec: degrees (J2000)

Radius: degrees

Help

Properties

match(1,2)

match(1,2)

Joined

5

23

All

(no action) Broadcast Row

Clients:

Match Tables

File Tuning Help

Match Criteria

Algorithm: Sky + X

Max Error: 2.0 arcsec

Error in X: 0.02

Table 1

Table: 1: CAIXA-20d

RA column: ra degrees

Dec column: dec degrees

X column: redshift

Table 2

Table: 2: VII_252-20d

RA column: _RAJ2000 degrees

Dec column: _DEJ2000 degrees

X column: z

Output Rows

Match Selection: Best match, symmetric

Join Type: 1 and 2

Go Perform the match

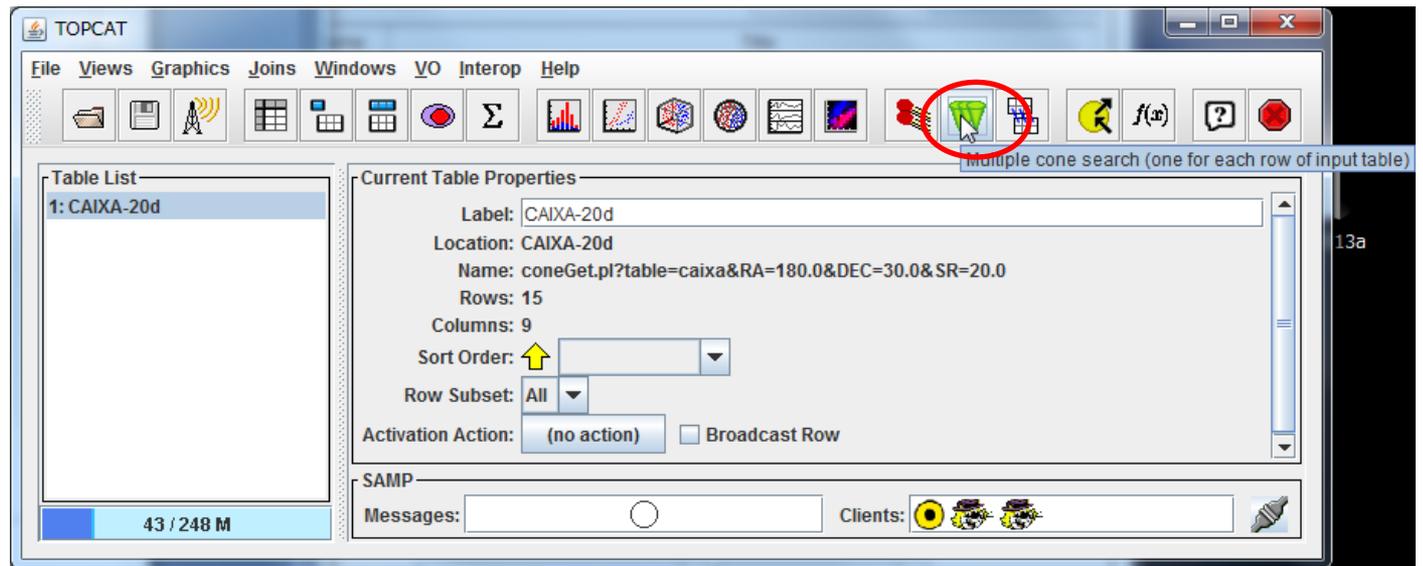
TOPCAT(3): Table Browser

File Subsets Help

Table Browser for 3: match(1,2)

	hb_lx	hb_lx_error	Search_Offset	_r	_RAJ2000	_DEJ2000
1	1.030000E44	5.000000E42	431.86216	7.19752	162.9329	33.99075
2	7.900000E43	6.000000E42	626.16649	10.43611	169.62619	40.43167
3	1.250000E44	3.000000E42	854.24673	14.23745	169.27666	44.22592
4	1.900000E45	5.000000E44	1102.17799	18.36954	182.24171	45.67652
5	2.300000E45	5.000000E44	1116.42227	18.60703	167.66101	48.52102

クロスマッチ検索



The screenshot displays the TOPCAT software interface. The window title is "TOPCAT". The menu bar includes "File", "Views", "Graphics", "Joins", "Windows", "VO", "Interop", and "Help". The toolbar contains various icons, with a green cone icon circled in red. A tooltip for this icon reads "Multiple cone search (one for each row of input table)".

The interface is divided into two main panels:

- Table List:** Contains a single entry: "1: CAIXA-20d".
- Current Table Properties:** Displays the following information:
 - Label: CAIXA-20d
 - Location: CAIXA-20d
 - Name: coneGet.pl?table=caixa&RA=180.0&DEC=30.0&SR=20.0
 - Rows: 15
 - Columns: 9
 - Sort Order: ↑
 - Row Subset: All
 - Activation Action: (no action) Broadcast Row

At the bottom, the "SAMP" section shows "Messages: 0" and "Clients: 3". A status bar at the bottom left indicates "43 / 248 M".

Multiple Cone Search

File Columns Registry Interop Help

Registry: http://registry.astrogrid.org/astrogrid-registry/services/RegistryQueryv1_0

Keywords: SDSS quasar And

Match Fields: Short Name Title Subjects ID Publisher Description

Accept Resource Lists Cancel Query Submit Query

Short Name	Title
VII/252	SDSS-DR5 quasar catalog (Schneider+, 2007)
VII/260	The SDSS-DR7 quasar catalog (Schneider+, 2010)
VII/269	SDSS Quasar Catalog, DR9Q (Paris+, 2012)
	SDSSQUASAR: Sloan Digital Sky Survey Quasar Catalog (5th Data Release) (LEDAS)
	SDSSNBCQSC: Sloan Digital Sky Survey NBC Quasar Candidate Catalog (LEDAS)
	DR3QSO: SDSS Quasar Catalog (Release 3) (LEDAS)

AccessURL	Description	Version
http://vizier.u-strasbg.fr/viz-bin/votable/		

Multiple Cone Search Parameters

Cone Search URL: <http://vizier.u-strasbg.fr/viz-bin/votable/-A?-source=VII/260&>

Input Table: 1: CAIXA-20d

RA column: ra degrees (J2000)

Dec column: dec degrees (J2000)

Search Radius column: 1.0 arcsec

Verbosity: 2 (normal)

Output Mode: New joined table with best matches

Parallelism: 5 Error Handling: abort

Go Stop

Start multiple query running

Multiple Cone Search

File Columns Registry Interop Help

Available Cone Search Services

Registry: http://registry.astrogrid.org/astrogrid-registry/services/RegistryQueryv1_0

Keywords: SDSS quasar And

Match Fields: Short Name Title Subjects ID Publisher Description

Accept Resource Lists Cancel Query Submit Query

Short Name	Title
VII/252	SDSS-DR5 quasar catalog (Schneider+, 2007)
VII/260	The SDSS-DR7 quasar catalog (Schneider+, 2010)
VII/269	SDSS Quasar Catalog, DR9Q (Paris+, 2012)
	SDSSQUASAR: Sloan Digital Sky Survey Quasar Catalog (5th Data Release) (LEDAS)
	SDSSNBCQSC: Sloan Digital Sky Survey NBC Quasar Candidate Catalog (LEDAS)
	DR3QSO: SDSS Quasar Catalog (Release 3) (LEDAS)

AccessURL	Description	Version
http://vizier.u-strasbg.fr/viz-bin/vot...		

Multiple Cone Search Parameters

Cone Search URL: <http://vizier.u-strasbg.fr/viz-bin/vot...>

Input Table: 1: CAIXA-20d

RA column: ra

Dec column: dec

Search Radius column: 2.0

Verbosity: 2 (normal)

Output Mode: New joined table

Parallelism: 5

TOPCAT(4): Table Browser

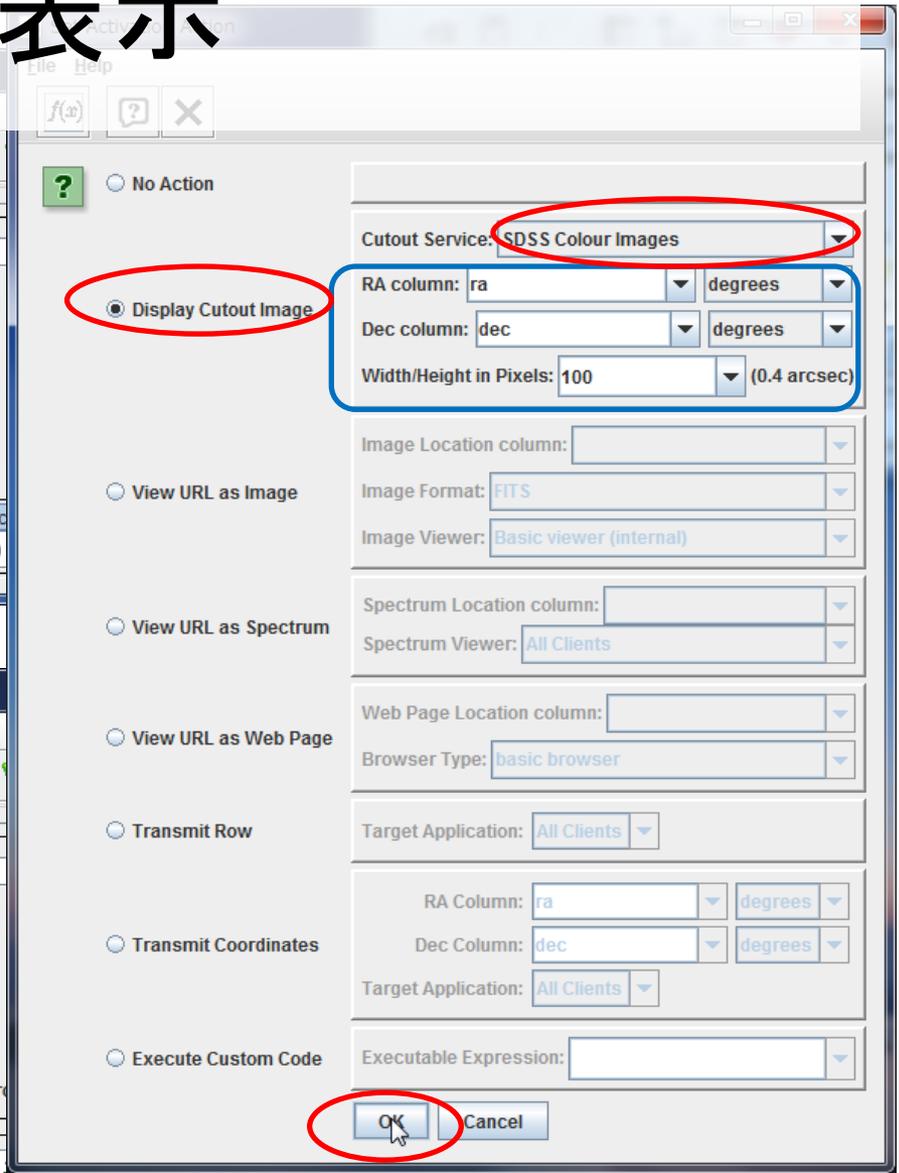
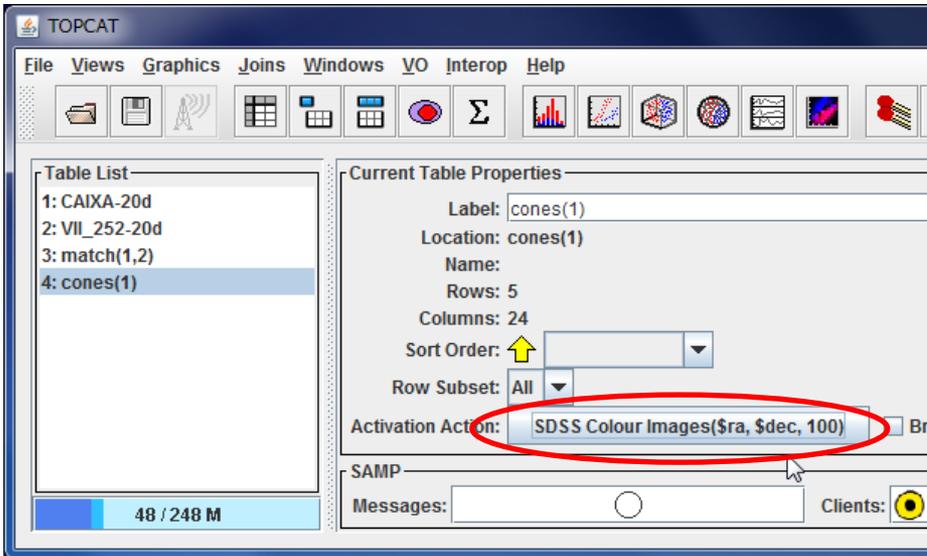
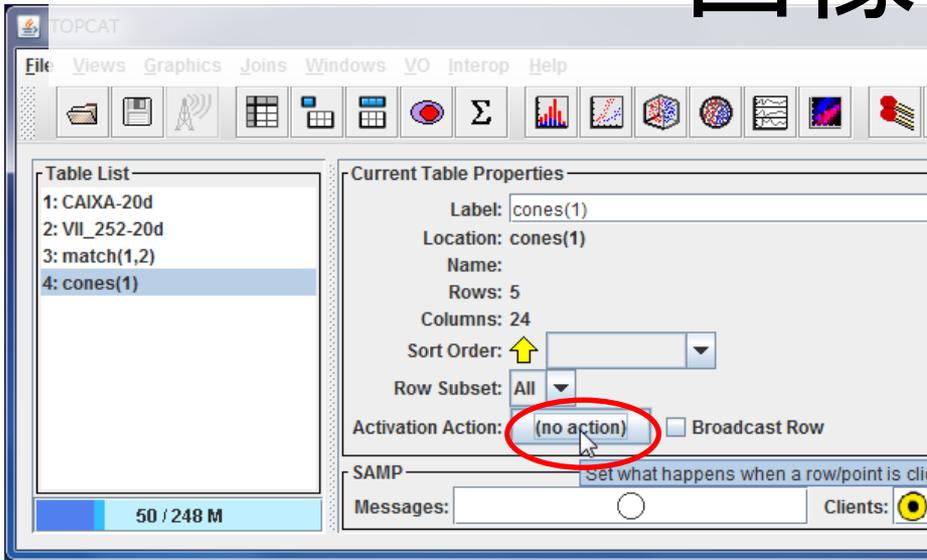
File Subsets Help

Table Browser for 4: cones(1)

	l2000	z	umag	gmag	rmag	imag	zmag	logX	DR5	Separation
1	99075	0.1671	16.771	16.853	16.737	16.261	16.518	-0.665	DR5	0.00038
2	43167	0.1546	15.834	15.909	15.999	15.628	15.815	-0.298	DR5	1.297864E-5
3	22592	0.1438	16.012	15.889	15.79	15.283	15.603	-1.641	DR5	5.016166E-6
4	67652	1.1625	15.672	15.466	15.241	15.273	15.292		DR5	0.00011
5	52102	2.9549	18.293	16.771	16.718	16.521	16.504		DR5	6.818823E-6

Start multiple query running

画像表示



画像表示

TOPCAT(4): Table Browser

File Subsets Help

Table Browser for 4: cones(1)

	name	ra	dec	hb_flux	hb_flux_error	redshift
1	PG 1048+342	162.9325	33.99056	1.330000E-12	6.000000E-14	0.167
2	PG 1115+407	169.62621	40.43167	1.120000E-12	9.000000E-14	0.154
3	PG 1114+445	169.27667	44.22592	2.240000E-12	6.000000E-14	0.144
4	PG 1206+459	162.24172	45.67663	1.700000E-13	4.000000E-14	1.158
5	Q 1107+487	167.661	48.52103	4.000000E-14	9.000000E-15	2.96

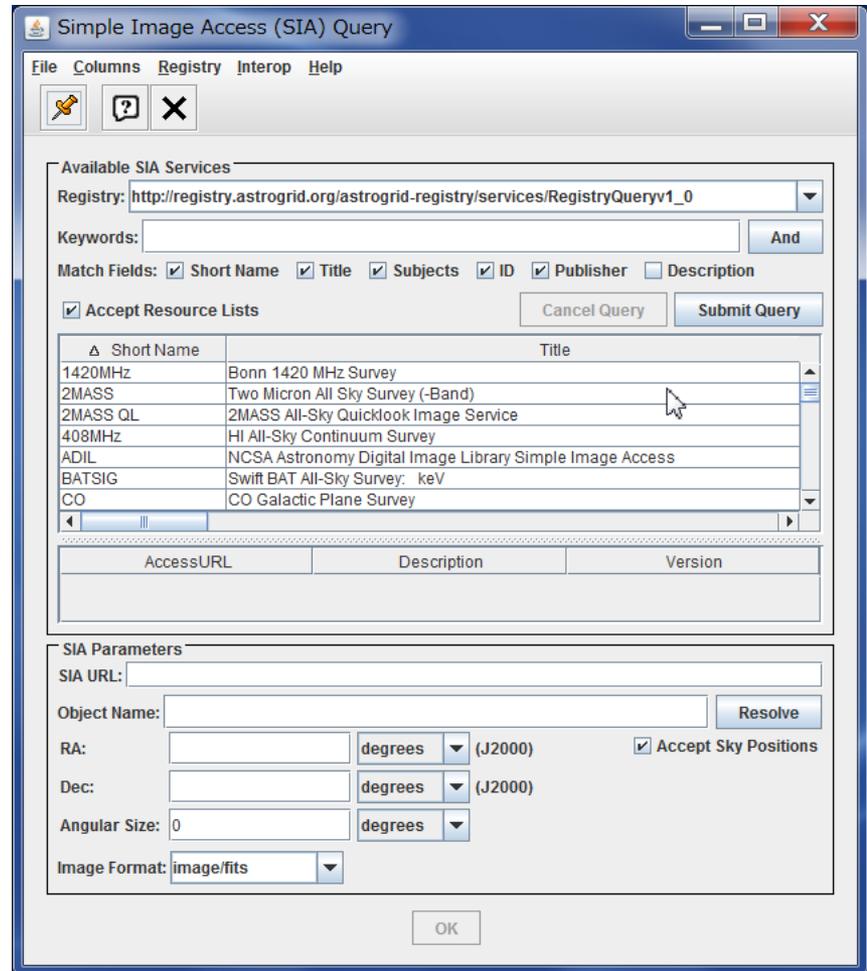
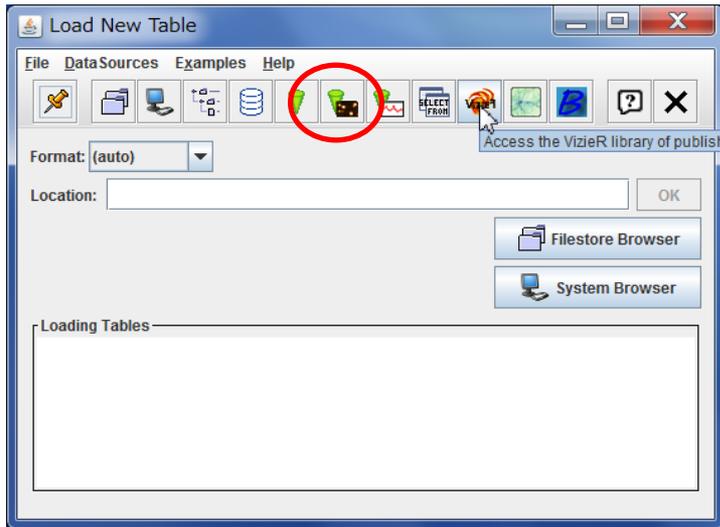
SDSS (4)

File Help

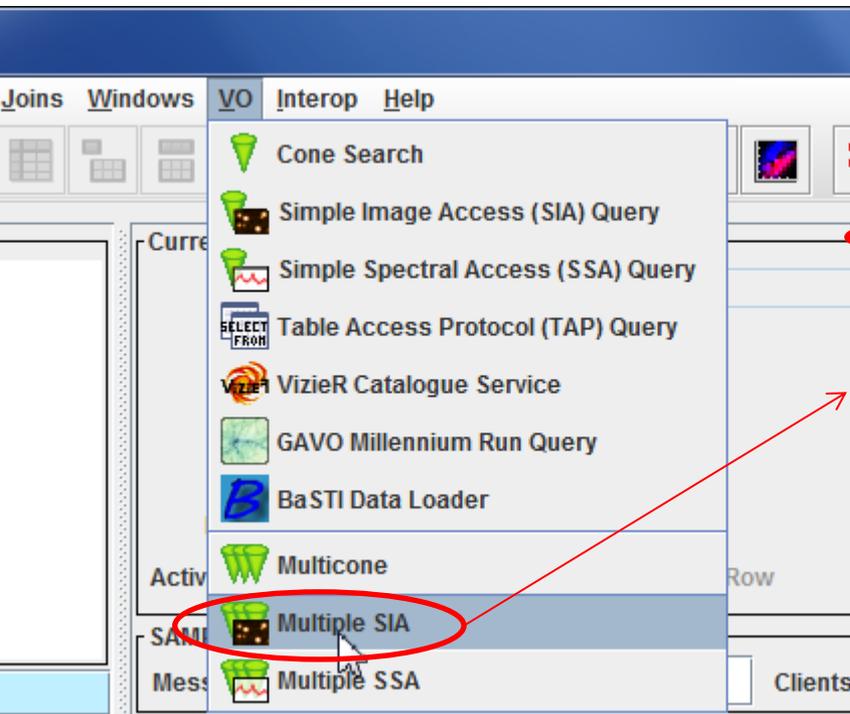


The image shows a galaxy with a bright purple/white core and a diffuse blue/purple halo, set against a black background with some faint stars.

画像データの検索



画像データのクロスマッチ検索



Multiple SIA

Available SIA Services

Registry: http://registry.astrogrid.org/astrogrid-registry/services/RegistryQueryv1_0

Keywords: And

Match Fields: Short Name Title Subjects ID Publisher Description

Accept Resource Lists

Cancel Query Submit Query

Short Name	Title
1420MHz	Bonn 1420 MHz Survey
2MASS	Two Micron All Sky Survey (-Band)
2MASS QL	2MASS All-Sky Quicklook Image Service
408MHz	HI All-Sky Continuum Survey
ADIL	NCSA Astronomy Digital Image Library Simple Image Access
BATSIG	Swift BAT All-Sky Survey: keV

AccessURL	Description	Version
http://irsa.ipac.caltech.edu/cgi-bin/...		

Multiple SIA Parameters

SIA URL: http://irsa.ipac.caltech.edu/cgi-bin/2MASS/IM/nph-im_sia?type=ql&ds=asky

Input Table: 4: cones(1)

RA column: (J2000)

Dec column: (J2000)

Search Radius column:

Image Format: image/fits

Output Mode: New joined table with best matches

Parallelism: 5 Error Handling: abort

Go Stop

検索半径 0 でもOK

TOPCAT(5): Table Browser

File Subsets Help

Table Browser for 5: sias(4)

		Format	PixFlags	URL	Logical...	Separation
1	111111111111E-4)	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
2	111111111111E-4)	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
3	111111111111E-4)	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
4	111111111111E-4)	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
5	111111111111E-4)	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.

画像のあるURLリスト

TOPCAT

File Views Graphics Joins Windows VO Interop Help

Display table cell data

Table List

- 1: CAIXA-20d
- 2: VII_252-20d
- 3: match(1,2)
- 4: cones(1)
- 5: sias(4)

Current Table Properties

Label: sias(4)
 Location: sias(4)
 Name:
 Rows: 5
 Columns: 35
 Sort Order:
 Row Subset: All

Activation Action: **image(URL)** Broadcast Row

SAMP

Messages: Clients:

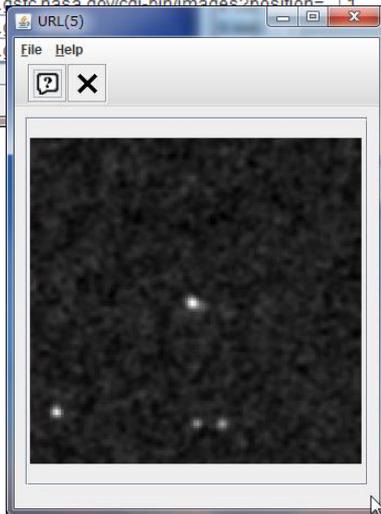
43 / 248 M

TOPCAT(5): Table Browser

File Subsets Help

Table Browser for 5: sias(4)

	Format	FixFlags	URL	Logic
1	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1
2	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1
3	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1
4	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1
5	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1



Set Activation Action

File Help

No Action

Display Cutout Image

View URL as Image

View URL as Spectrum

View URL as Web Page

Transmit Row

Transmit Coordinates

Execute Custom Code

Cutout Service: SuperCOSMOS All-Sky Blue

RA column: ra degrees

Dec column: dec degrees

Width/Height in Pixels: 100 (0.67 arcsec)

Image Location column: URL

Image Format: FITS

Image Viewer: Basic viewer (internal)

Spectrum Location column:

Spectrum Viewer: All Clients

Web Page Location column:

Browser Type: basic browser

Target Application: All Clients

RA Column: ra degrees

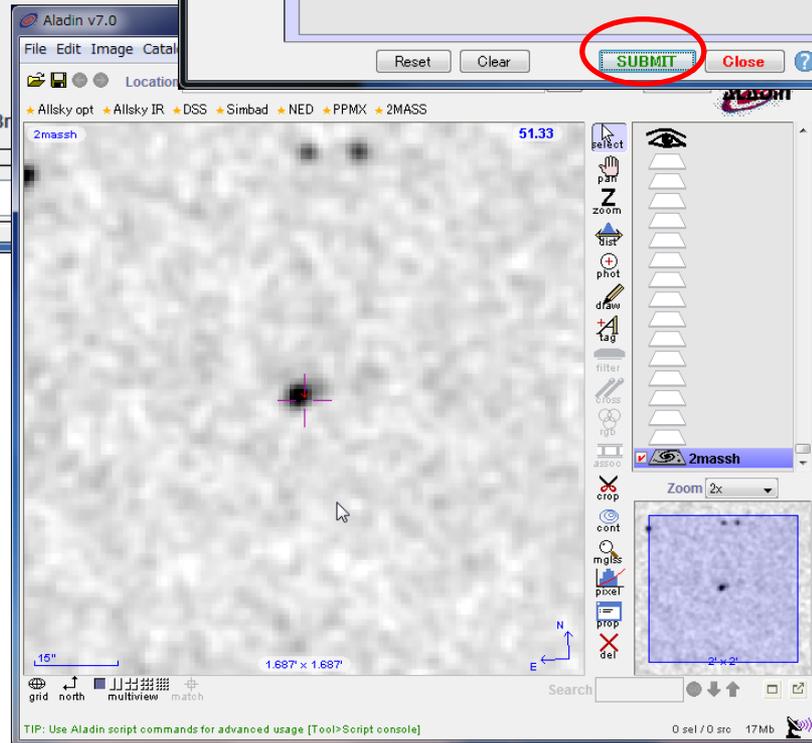
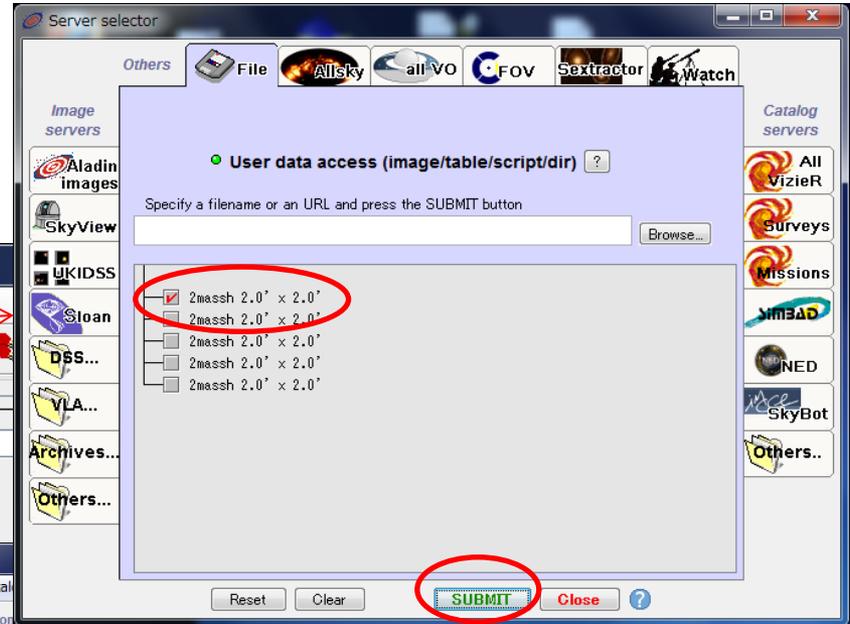
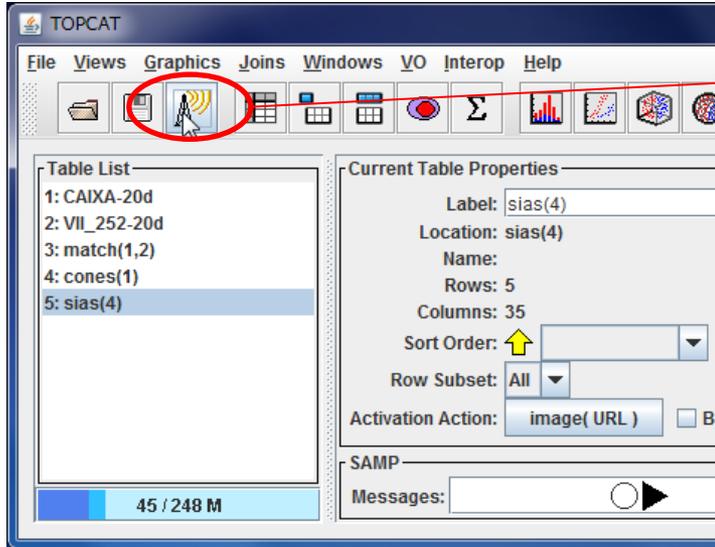
Dec Column: dec degrees

Target Application: All Clients

Executable Expression:

OK Cancel

SAMP



画像 : Aladin, DS9
スペクトル : VOSpec, SPLAT

Set Activation Action

File Help

$f(x)$? X

No Action

Display Cutout Image

View URL as Image

View URL as Spectrum

View URL as Web Page

Transmit Row

Transmit Coordinates

Execute Custom Code

Cutout Service: SuperCOSMOS All-Sky Blue

RA column: ra degrees

Dec column: dec degrees

Width/Height in Pixels: 100 (0.67 arcsec)

Image Location column: download

Image Format: FITS

Image Viewer: Aladin

Spectrum Location: **Basic viewer (internal)**

Spectrum View: **All Clients (SAMP)**

SAOImage DS9

Aladin

Web Page Location column:

Browser Type: basic browser

Target Application: All Clients

RA Column: ra degrees

Dec Column: dec degrees

Target Application: All Clients

Executable Expression:

OK Cancel

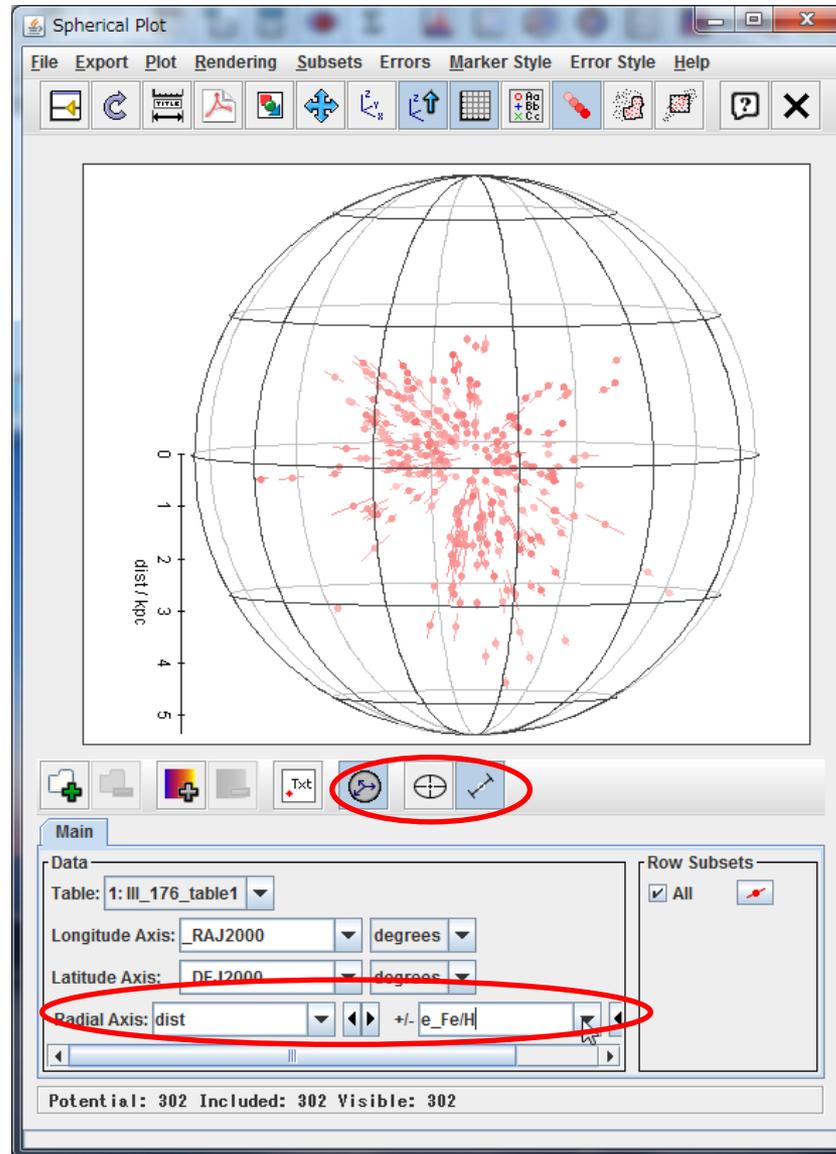
Browser

X

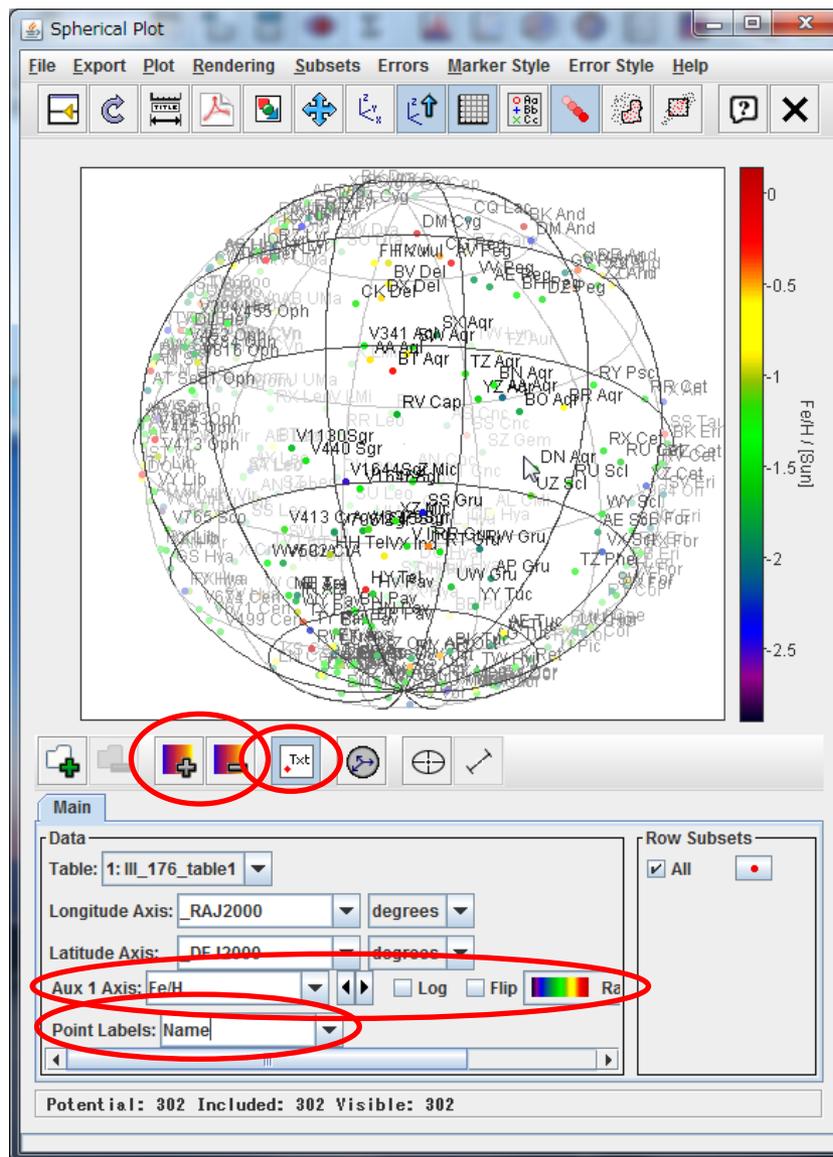
as(4)

	Format	PixFlags	URL	Logical...	Separation
	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.
	image/fits	F	http://skyview.gsfc.nasa.gov/cgi-bin/images?position=...	1	0.

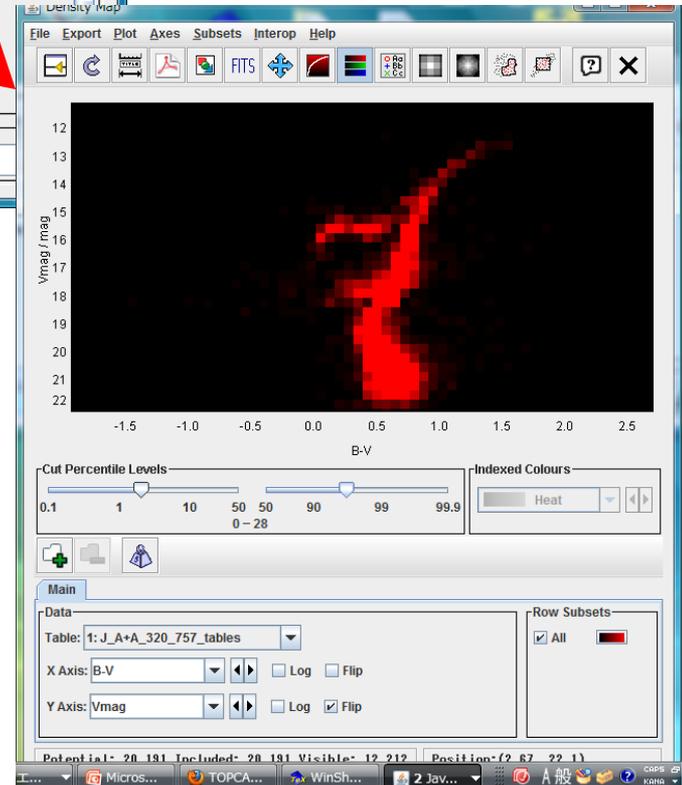
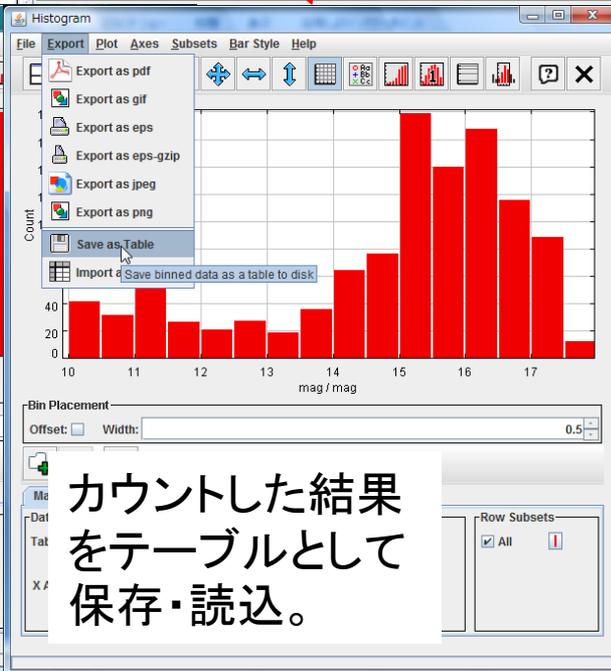
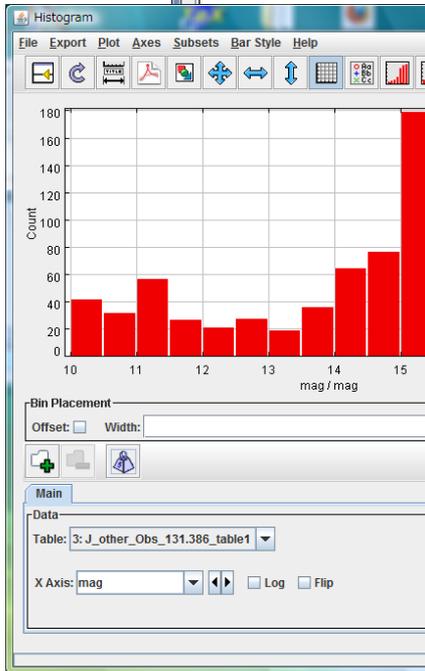
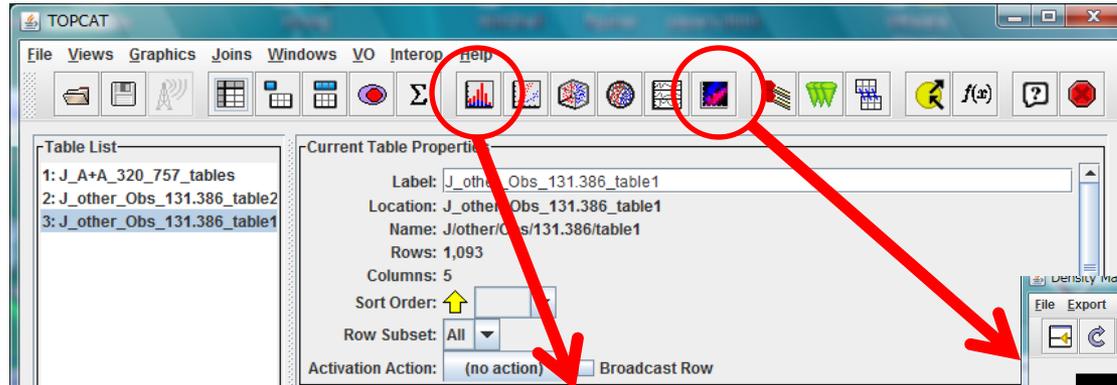
様々なplot



3次元極座標表示
Error bar



ヒストグラム、 density plot(2Dヒストグラム)



同じX軸で、複数のグラフをプロット

The image shows the TOPCAT software interface. The main window displays a table list and current table properties. A red circle highlights a plot icon in the toolbar, with an arrow pointing to the plot window. The plot window shows two vertically stacked scatter plots sharing the same X-axis (phase). The top plot shows Vmag / mag vs phase with red crosses, and the bottom plot shows B-V / mag vs phase with black dots.

Table List:

- 1: J_A+A_320_757_tables
- 2: J_other_Obs_131.386_table2
- 3: J_other_Obs_131.386_table1

Current Table Properties:

- Label: J_other_Obs_131.386_table1
- Location: J_other_Obs_131.386_table1
- Name: J/other/Obs/131.386/table1
- Rows: 1,093
- Columns: 5
- Sort Order: ↑
- Row Subset: All
- Activation Action: (no action) Broadcast Row

Plot Window:

- Table: 3: RRu-aql
- X Axis: phase
- Y Axis: Vmag
- Row Subsets: All
- Position: (5.57, 1.260)

Join(縦に)

TOPCAT

File Views Graphics Joins Windows VO Interop Help

Table List

- 1: J_A+A_320_757_tables
- 2: J_other_Obs_131.386_table2
- 3: J_other_Obs_131.386_table1

Current Table Properties

Label: J_other_Obs_131.386_table1
Location: J_other_Obs_131.386_table1
Name: J/other/Obs/131.386/table1
Rows: 1,093
Columns: 5
Sort Order: ↑
Row Subset: All
Activation Action: (no action) Broadcast Row

SAMP

Messages: Clients:

43 / 248 M

Concatenate Tables

File Help

Base Table: 1: J_A+A_320_757_tables
Appended Table: 3: J_other_Obs_131.386_table1

Column Assignments

Base Table	Appended Table
recno:	recno
Name:	
Vmag:	
Bmag:	
Imag:	
Xpos:	
Ypos:	
Star:	

Concatenate

座標系の変換

The image shows a sequence of three overlapping windows in the TOPCAT software interface, illustrating the steps to convert coordinate systems. Red circles and arrows highlight the specific actions being performed.

TOPCAT (Main Window): The 'Windows' menu is circled in red, with an arrow pointing to the 'Sky Coordinate Columns' dialog box.

TOPCAT(3): Table Columns: The 'Columns' menu is circled in red, with an arrow pointing to the 'Sky Coordinate Columns' dialog box. Below this, a table lists columns for 'J_other_Obs_131.386_table1':

Visible	Name	SID	Class	Units	Description
<input type="checkbox"/>	0				
<input checked="" type="checkbox"/>	1				
<input checked="" type="checkbox"/>	2				
<input checked="" type="checkbox"/>	3				
<input checked="" type="checkbox"/>	4				
<input checked="" type="checkbox"/>	5				

Sky Coordinate Columns: This dialog box shows the configuration for coordinate conversion. The 'Input Coordinates' section is set to:

- System: FK5 J2000.0
- Units: degrees
- Right Ascension: _RAJ2000
- Declination: _DEJ2000

The 'Output Coordinates' section is set to:

- System: IAU 1958 Galactic
- Units: degrees
- Longitude: GAL_LONGx
- Latitude: GAL_LATx

Buttons for 'OK' and 'Cancel' are visible at the bottom of the dialog.

関数一覧



Available Functions

File Functions Help

+ [?] X

- Arithmetic
- Arrays
- Conversions
- CoordsDegrees
 - f() degreesToDms(deg)
 - f() **degreesToDms(deg, secFig)**
 - f() degreesToHms(deg)
 - f() degreesToHms(deg, secFig)
 - f() dmsToDegrees(deg, min, sec)
 - f() dmsToDegrees(dms)
 - f() hmsToDegrees(hour, min, sec)
 - f() hmsToDegrees(hms)
 - f() skyDistanceDegrees(ra1, dec1, ra2, dec2)
- CoordsRadians
- Distances
- Fluxes
- Formats
- Maths
- Strings
- Tilings
- Times
- TrigDegrees
- Activation Functions

Function `degreesToDms(deg, secFig)`

Description:
Converts an angle in degrees to a formatted degrees:minutes:seconds string with a given number of decimal places in the seconds field.

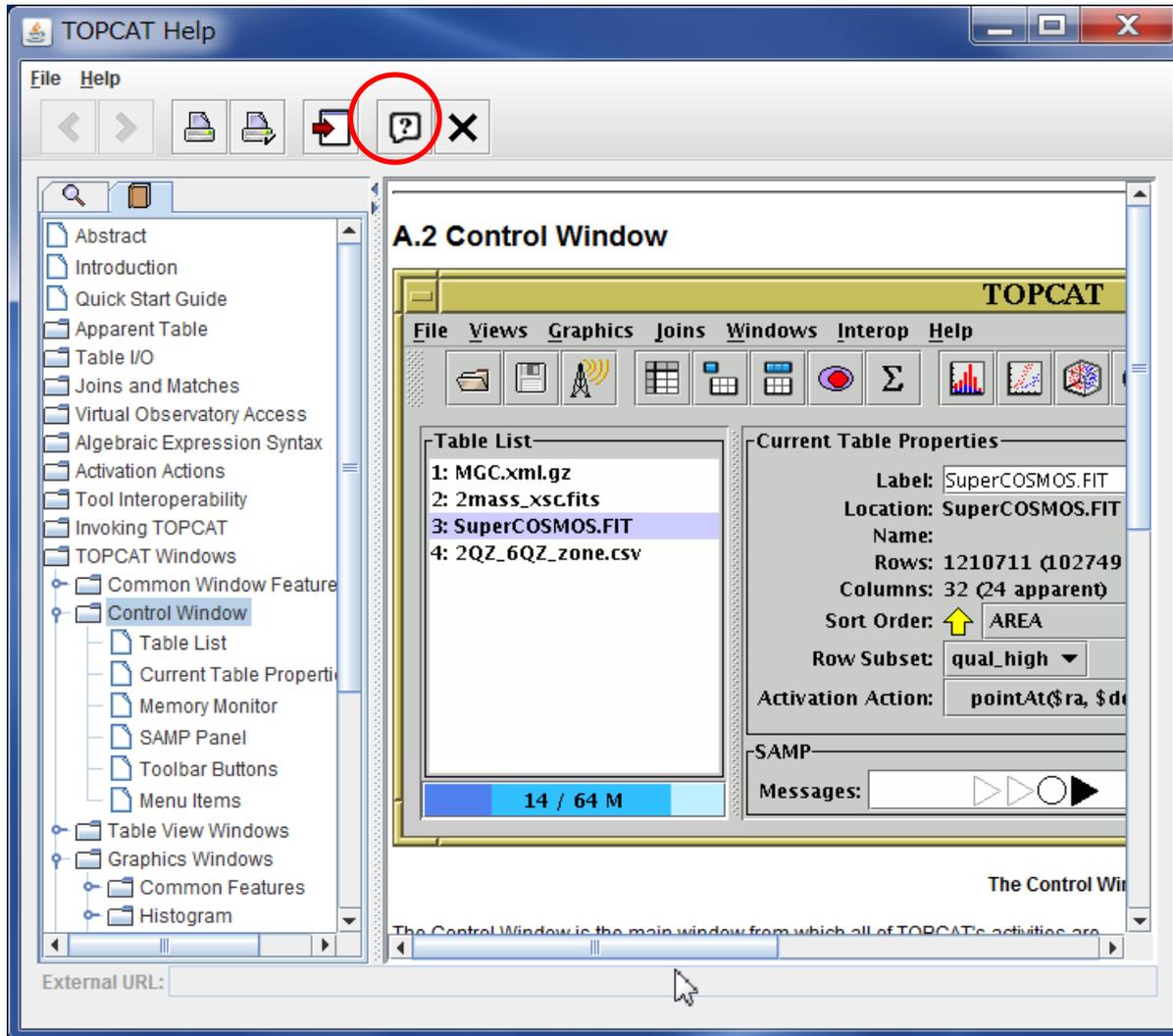
Parameters:

- deg** (floating point)
angle in degrees
- secFig** (integer)
number of decimal places in the seconds field

Return Value (String):
DMS-format string representing `deg`

Signature:
String degreesToDms(double, int)

Help



STILTS

- コマンドラインでのテーブル操作ツール
- <http://www.star.bristol.ac.uk/~mbt/stilts/>
- クロスマッチ、検索、plot