

# Design and Implementation of the Japanese Virtual Observatory (JVO) system

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- **What can you do on Japanese Virtual Observatory (JVO) ?**
  - Web portal to the Astronomical Data
  - On-line data visualization
  - Simple and Easy Subaru data reduction
- **Who can use the JVO**
  - Anyone can use the most of the functionality (Guest)
  - Registered user can have a permanent storage area on the JVO and can submit a job for Subaru data reduction. (Astro. study only)
- **How can you access to the JVO**
  - <http://jvo.nao.ac.jp/portal>
  - Search on google with a keyword “JVO”



- **Many astronomical data sites in the world**
  - many are unnoticed even though they provide good data
  - need a broker system ( portal site )
- **Server side web service vs stand-alone application**
  - UI is a Web browser: very familiar and easy to use.
  - Always provide the most recent feature.
  - Doesn't require high-spec PC.
- **Increase the usability of the Subaru data**
  - especially of Suprime-Cam
  - Data reduction of large format data is time-consuming.

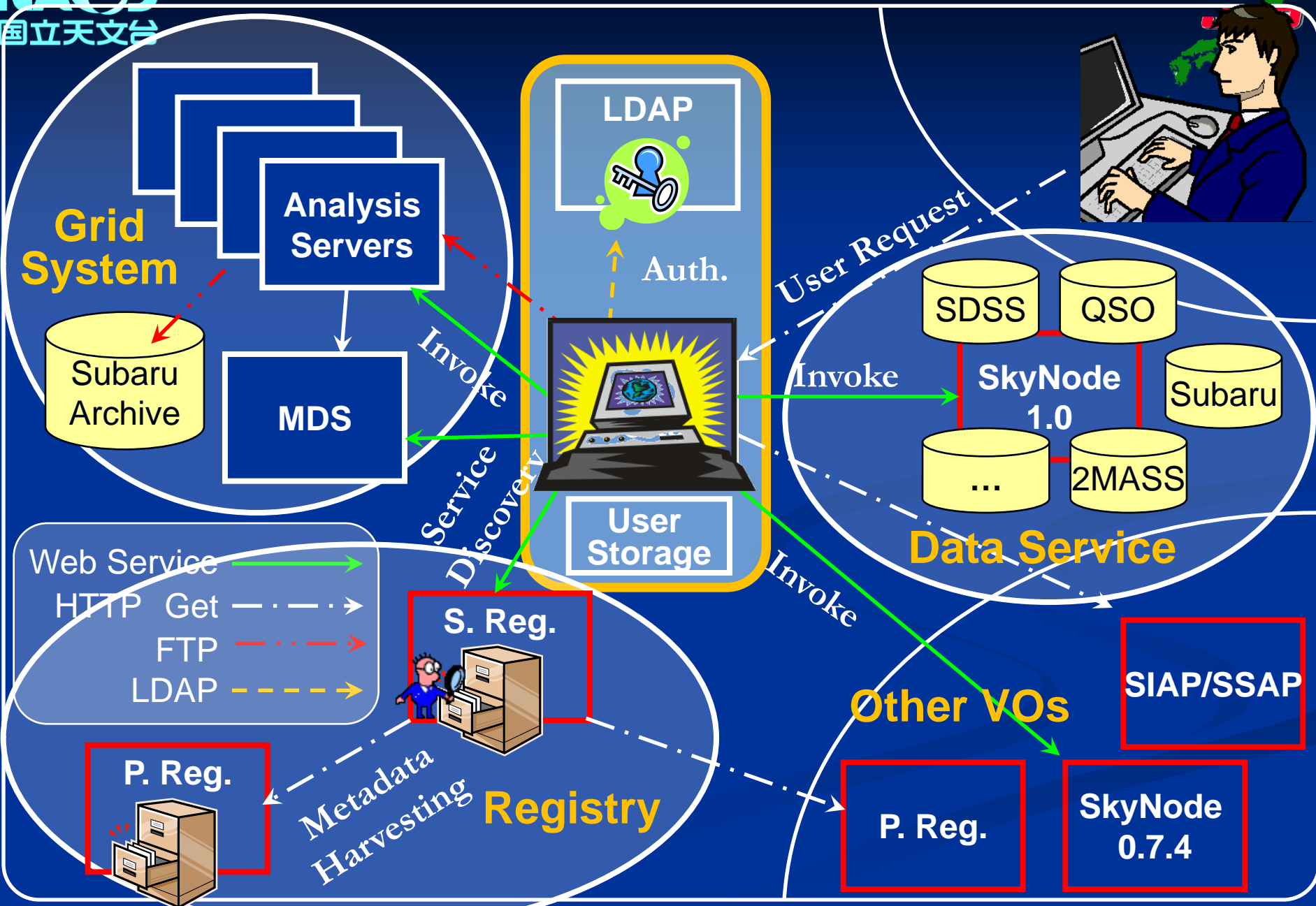


- Registry
  - Data service discovery
  - Metadata exchange and search
- SIAP/SSAP/SkyNode/SCS
  - Database query interface
- VOTable
  - Table data transport format

...



# Architecture

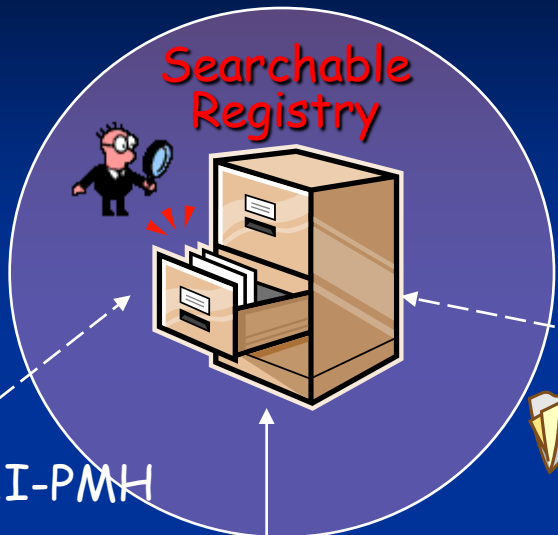


# Metadata exchange in the VO



**② Harvest (collection)**

**① Registration**



Metadata

- identifier of the service
- access URL
- contents (star, galaxy, AGN, ...)
- spectrum coverage
- ...

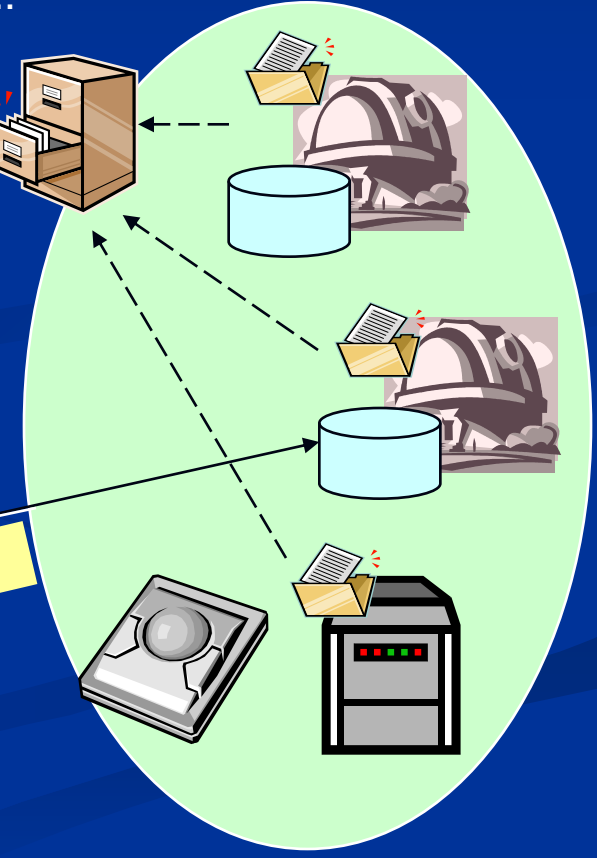


**③ Discovery**

SOAP/WS

Http SOAP/WS

**④ Search**

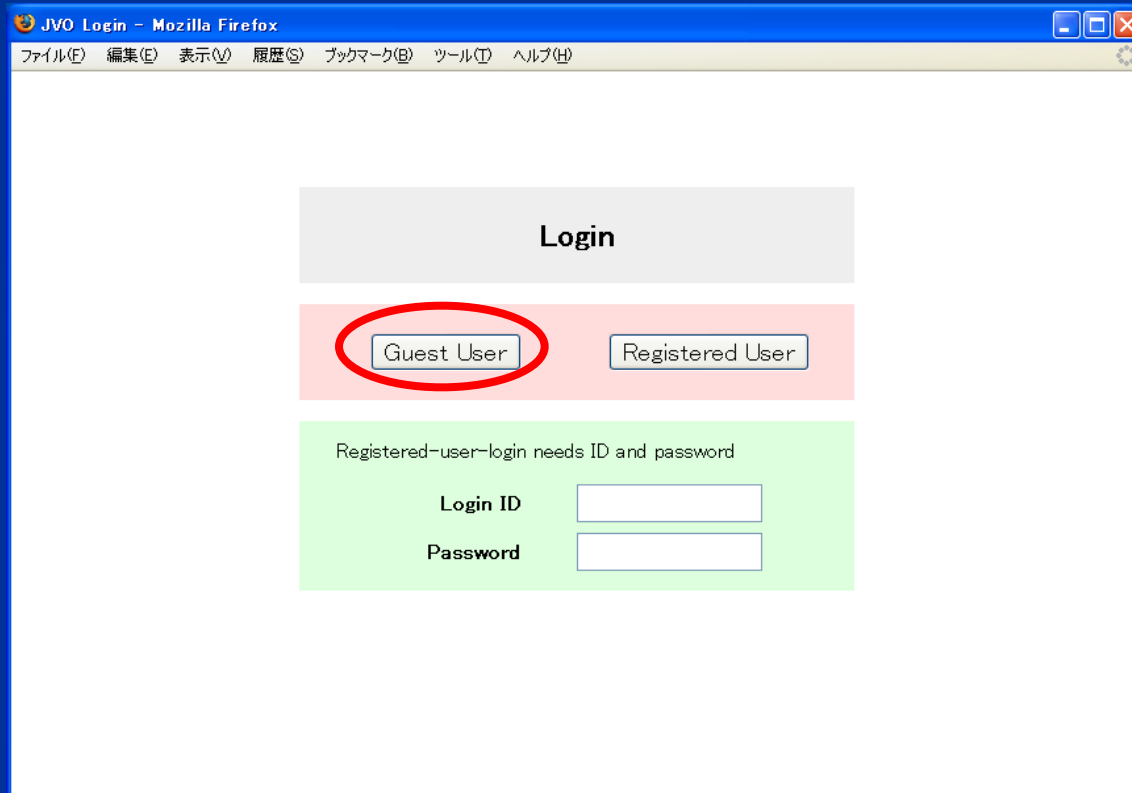




- SkyNode toolkit is developed to help people who want to open their own data to the VO.
- Enables to expose the content of the local database thorough the VO standard interface
  - SkyNode (will be replaced by TAP)
  - SIAP
  - SSAP
- <http://jvo.nao.ac.jp/download/skynode-toolkit>



<http://jvo.nao.ac.jp/portal>





# Top Page

**News**

- ◆ Suprime-Cam mosaic image updated. (2008-07-03)
- ◆ "add column" functionality is added to the VOTable viewer. (2008-06-04)
- ◆ New JVO SkyNode (Henry Draper Catalog) is available. (2008-05-27)
- ◆ Re-analyzed Suprime-Cam images are available. (2008-05-17)

**Registration**

- ◆ Read "about registration".

**Your account information**

**Service Contents** Help(J)

- Data Search**
  - ◆ Quick Search
  - ◆ Search on a single VO Service
  - ◆ Parallel search on multiple VO Services
  - ◆ Xmatch Search
  - ◆ JVOQL Search
- Subaru**
  - ◆ Suprime-Cam
  - ◆ HDS
- JVO Space**
  - ◆ Home
- Service Search**
  - ◆ Keyword Search
  - ◆ Category Search
  - ◆ Advanced Search
- Astronomical Tools**
  - ◆ Source Extractor
  - ◆ HyperZ
- Workflow**
  - ◆ Workflow Editor (Script)
  - ◆ Workflow Editor
  - ◆ Workflow Monitor
- Admin**
  - ◆ Admin




Data search by several types of UI

User registration

Access to the reduced Subaru data and data reduction service for Suprime-Cam

Service search by several types of UI

If you have any questions or requests on JVO, please contact us at:  
 [help\\_desk@jvo.nao.ac.jp](mailto:help_desk@jvo.nao.ac.jp)



- VO Service Registered in the JVO Registry
  - 1967 Resource Metadata as of 2008-08-01
  - 12 countries
    - USA, France, Canada, Italy, UK, Brazil, Australia, Spain, Mexico, ESA, China, and Japan
  - Harvest once a day from 6 sites (STSCI, NCSA, GSFC, CDS, ESAC, JVO)
- Search Interfaces for JVO Registry
  - Keyword Search
  - Directory (Category) Search
  - Search by Detailed Condition

# UI for JVO Registry

Service Category - Mozilla Firefox  
 ファイル(F) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)  
 http://jvo.nao.ac.jp/portal/registry.do?action=goCategory

JVO JAPANESE VIRTUAL OBSERVATORY p00 ver.080725

Location: Top Page > Registry > Service

| Service Type    | Waveband        |
|-----------------|-----------------|
|                 | Radio (175)     |
|                 | Millimeter (17) |
| SkyNode (76)    | Infrared (314)  |
| SIA/SSA (163)   | Optical (962)   |
| Registry (1935) | UV (34)         |
|                 | EUV (18)        |
|                 | X-ray (372)     |
|                 | Gamma-ray (66)  |

VO Service Search Result - Mozilla Firefox  
 http://jvo.nao.ac.jp/portal/registry.do?action=category&index=2&category=Subaru

JVO JAPANESE VIRTUAL OBSERVATORY p00 ver.080725

Location: Top Page > Registry > Services

| No. | ID        | Title          | Type | Reference URL | Access URL | Country |
|-----|-----------|----------------|------|---------------|------------|---------|
| 0   | More Info | Subaru Suprime |      |               |            |         |
| 1   | More Info | Subaru HDS Spe |      |               |            |         |
| 2   | More Info | Subaru/XMM-N   |      |               |            |         |
| 3   | More Info | Subaru/XMM-N   |      |               |            |         |
| 4   | More Info | Subaru Suprime |      |               |            |         |

完了


|               |              |
|---------------|--------------|
| IRAS (10)     | Magnetic fie |
| IRTS (2)      | Masers (11)  |
| IRSF (1)      | Multiple Sta |
| JCMT (3)      | Nebulae (47) |
| Kitt Peak (3) | Nonstellar ( |
| MAST (1)      | Novae (17)   |
| MSX (2)       | Open Clust   |
| RCSAT (18)    | Orbits (2)   |
| Spitzer (2)   | Planets (34) |
| Subaru (5)    | Pulsars (11) |
| VLA (2)       | QSOs (33)    |
| VLT (1)       | SNR (2)      |
| XMM (3)       | Stars (281)  |
|               | Star Forma   |
|               | SuperNovae   |
|               | YSOs (8)     |

Resource Metadata - Mozilla Firefox  
 http://jvo.nao.ac.jp/portal/registry.do?action=getResource&identifie

JVO JAPANESE VIRTUAL OBSERVATORY p00 ver.080725

Location: Top Page > Registry > Resource Metadata

### Resource Metadata

|                |  |
|----------------|--|
| Identifier     | ivo://jvo/sxds/v1.0  |
| Title          | Subaru/XMM-Newton Deep Survey v1.0   |
| ServiceType    | SkyNode  |
| AccessURL      | http://jvo.nao.ac.jp/skynode/services/SkyNodeForSXDS_V1  |
| ReferenceURL   | http://www.naoj.org/Science/SubaruProject/SDS/   |
| Country        |   |
| Harvested from | http://r00/cgi-bin/publishingRegistry/oaip   |
| Description    | The Subaru/XMM-Newton Deep Survey (SXDS) is a major new multi-wavelength survey of a ~1.3 square degree region of sky. The SXDS optical imagery represents an unprecedented combination of depth and area coverage, and will be combined with suitably deep images at other wavelengths to provide an accurate census of the contents of the Universe without suffering from the biasing effects of large-scale structure. |

XML



VO Parallel Search - Mozilla Firefox

http://jvo.nao.ac.jp/portal/search/parallel.do

**JVO** JAPANESE VIRTUAL OBSERVATORY p00 ver.080725 News | FAQ(J) | Help(J) | Bugs(J) Yuji Shirasaki [Logout]

Top | Search | VO Services | Subaru | Analysis | Workflow | JVO Space

=> Location: Top Page > Search > Parallel Search

**Parallel search on multiple services** [Help\(J\)](#)

Coordinates or Object Name

Search Clear

J2000 (FK5) Radius: 60 arcsec

Samples: 34.5 -5.0

If you have any questions or requests on JVO, please contact us at:  
[help\\_desk@jvo.nao.ac.jp](mailto:help_desk@jvo.nao.ac.jp)

- Only a search region can be specified
- Query to the multiple VO services by one click !

# Search Status for Parallel Search

- over 1,000 data resources are queried at once.
- impossible to do this by hand !
- Takes ~ 10 minutes to complete

2008-08-04



Search Status - Mozilla Firefox

ファイル(F) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

http://jvo.nao.ac.jp/portal/search/request.do?action=status&workflo... Yahoo! JAPAN

**JVO** Top | Search | VO Services | Subaru | Analysis | Workflow | JVO Space [Logout]  
JAPANESE VIRTUAL OBSERVATORY p00 ver.080725 News | FAQ(J) | Help(J) | Bugs(J) Yuji Shirasaki

⇒ Location: Top Page > Search > Search Status

### Search Status

Stop Polling

| Status    | Elapsed Time |
|-----------|--------------|
| executing | 61.982 sec   |

Cancel

| Service Name   | Table Name | # of result | result |
|--|------------|-------------|--------|
| NCSA Astronomy Digital Image Library Cone Search (Targeted Images) |            | 7           | Result |
| Hopkins Ultraviolet Telescope                                      |            | 1           | Result |
| Astrophysics Data System   |            | 200         | Result |
| 2MASS All-Sky Extended Source Catalog                              |            | 2           | Result |
| The SIMBAD astronomical database                                   |            | 3           | Result |
| International Ultraviolet Explorer                                 |            | 39          | Result |
| NOMAD Catalogue  |            | 47          | Result |
| USNO-B1 Catalogue  |            | 3           | Result |
| ROSAT PSPC and HRI observations                                    |            | 18          | Result |
| EXOSAT Observatory Data Archive                                    |            | 12          | Result |
| Einstein (HEAO-2) Observatory Data Archive                         |            | 33          | Result |
| Advanced Satellite for Cosmology and Astrophysics                  |            | 3           | Result |
| Oriented Scintillation Spectrometer Experiment (OS                 |            | 19          | Result |
| XMM-Newton Data Archive  |            | 35          | Result |
| Combined General Catalog of Variable Stars                         |            | 1           | Result |
| 2MASS All-Sky Point Source Catalog                                 |            | 44          | Result |
| 2MASS All-Sky Point Source Catalog                                 |            | 44          | Result |
| Rossi X-ray Timing Explorer Mission                                |            | 802         | Result |
| Revised New General Catalogue of Nonstellar Astron                 |            | 1           | Result |
| PSCz Catalog   |            | 1           | Result |
| Hubble Space Telescope   |            | 283         | Result |
| NVSS Source Catalog  |            | 3           | Result |
| Advanced Camera for Surveys  |            | 52          | Result |
| Space Telescope Imaging Spectrograph                               |            | 12          | Result |
| Wide Field Planetary Camera 2                                      |            | 129         | Result |
| Near Infrared Camera and Multi Object Spectrograph                 |            | 8           | Result |
| Westerbork Northern Sky Survey                                     |            | 3           | Result |

APRIM 2008, Kunming, Yunnan, China

16

# Quick Search

JVO



完了

- QI for the Virtual Universe
- Single Database from multiple catalogs
- Only RA, Dec, Brightness
- Quick Region Search algorithm is employed
- 0.8 sec for thousands of objects from three billions objects

# Search with a detailed criterion

- Single VO Service
- Criteria on each attribute
- Uniform QI for every VO service

Single Service Search - Mozilla Firefox

ファイル(F) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

http://jvo.nao.ac.jp/portal/search/single.do

Yahoo! JAPAN

**JVO** JAPANESE VIRTUAL OBSERVATORY p00 ver.080725 News | FAQ(J) | Help(J) | Bugs(J) [Logout] Yuji Shirasaki

⇒ Location: Top Page > Search > Single Service

[Data search on a single service](#) Help(J)

Subaru/XMM-Newton Deep Survey v1.0

sxds\_ukidss\_swire

1. Service | 2. Table | 3. Criteria

Execute Query Check SQL

**Region Criteria**

Object Name  Convert to Coordinate

Center Coord

Search Radius

**Limit and Offset**

# of skipped records  + -

Max # of returned records

**Other Criteria**

| Parameter   | Operator | Value                | Description                        |
|-------------|----------|----------------------|------------------------------------|
| CNTR        | =        | <input type="text"/> |                                    |
| OBJECT      | =        | <input type="text"/> |                                    |
| RA          | =        | <input type="text"/> |                                    |
| DEC         | =        | <input type="text"/> |                                    |
| UNC_RA      | =        | <input type="text"/> |                                    |
| UNC_DEC     | =        | <input type="text"/> |                                    |
| TILE        | =        | <input type="text"/> |                                    |
| FLUX_AP1_36 | =        | <input type="text"/> | APRIM 2008, Kunming, Yunnan, China |
| UNDF_AP1_36 | =        | <input type="text"/> |                                    |



JVO VOTable Viewer - Mozilla Firefox

ファイル(E) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

http://jvo.nao.ac.jp/portal/viewer.do

JVO JAPANESE VIRTUAL OBSERVATORY p00 ver.080728 News | FAQ(J) | Help(J) | Bugs(J) Yuji Shirasaki

Location: Top Page > VOTable Viewer

Save Filter Metadata Graphic Search Add Column Appearance Sky Map & SED Color-Color Plot

Total 99 records page: 1

save and download in a csv, text, or vatable format

SED Plot of each grouped object & Finding Chart

filtering based on a constraint for the column values

grouping by celestial coordinate

| group ID | check                    | download                 | ID | NAME               | ORG_ID | RA         | DEC       | LINK        | CLASS | BAND    | BAND_NAME | BAND_CENTER | BAND_UNIT | FLUX   | FLUX_ERR | FLUX_UNIT | FLUX_SRCH  |
|----------|--------------------------|--------------------------|----|--------------------|--------|------------|-----------|-------------|-------|---------|-----------|-------------|-----------|--------|----------|-----------|------------|
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 35 | 10462668-0314165   | 6      | 161.611206 | -3.237938 | 1.94444e-05 | Link  | twomass | J         | 1.26        | um        | 12.667 | 0.019    | mag       | 0.0139762  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 35 | 10462668-0314165   | 6      | 161.611206 | -3.237938 | 1.94444e-05 | Link  | twomass | Ks        | 1.5         | um        | 12.444 | 0.024    | mag       | 0.0110558  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 35 | 10462668-0314165   | 6      | 161.611206 | -3.237938 | 1.94444e-05 | Link  | twomass | Ks        | 2.15        | um        | 12.368 | 0.023    | mag       | 0.00753227 |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 35 | 587724648175239215 | 6      | 161.611209 | -3.237938 |             | Link  | sdss    | u'        | 0.3585      | um        | 15.011 | 0.009    | mag       | 0.00373273 |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 35 | 587724648175239215 | 6      | 161.611209 | -3.237938 |             | Link  | sdss    | g'        | 0.4858      | um        | 13.888 | 0.005    | mag       | 0.0100931  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 32 | 587724648175239215 | 6      | 161.611209 | -3.237938 |             | Link  | sdss    | r'        | 0.629       | um        | 13.564 | 0.005    | mag       | 0.0136781  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 33 | 587724648175239215 | 6      | 161.611209 | -3.237938 |             | Link  | sdss    | i'        | 0.7706      | um        | 13.464 | 0.006    | mag       | 0.0149978  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 34 | 587724648175239215 | 6      | 161.611209 | -3.237938 |             | Link  | sdss    | z'        | 0.9222      | um        | 13.466 | 0.008    | mag       | 0.014589   |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 35 | 587724648175239215 | 6      | 161.61121  | -3.237934 |             | Link  | sdss    | u'        | 0.3585      | um        | 15.014 | 0.009    | mag       | 0.00373273 |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 36 | 587724648175239215 | 6      | 161.61121  | -3.237934 |             | Link  | sdss    | g'        | 0.4858      | um        | 13.889 | 0.005    | mag       | 0.0100931  |
| group ID | check                    | download                 | ID | NAME               | ORG_ID | RA         | DEC       | LINK        | CLASS | BAND    | BAND_NAME | BAND_CENTER | BAND_UNIT | FLUX   | FLUX_ERR | FLUX_UNIT | FLUX_SRCH  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 37 | 587724648175239215 | 6      | 161.61121  | -3.237934 |             | Link  | sdss    | r'        | 0.629       | um        | 13.565 | 0.005    | mag       | 0.0135527  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 38 | 587724648175239215 | 6      | 161.61121  | -3.237934 |             | Link  | sdss    | i'        | 0.7706      | um        | 13.465 | 0.006    | mag       | 0.0148603  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 39 | 587724648175239215 | 6      | 161.61121  | -3.237934 |             | Link  | sdss    | z'        | 0.9222      | um        | 13.473 | 0.008    | mag       | 0.014589   |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 40 | 587724648175239215 | 7      | 161.61121  | -3.237934 |             | Link  | sdss    | u'        | 0.3585      | um        | 15.016 | 0.009    | mag       | 0.0036985  |
| 0        | <input type="checkbox"/> | <input type="checkbox"/> | 41 | 587724648175239215 | 7      | 161.61121  | -3.237934 |             | Link  | sdss    | g'        | 0.4858      | um        | 13.89  | 0.005    | mag       | 0.0100931  |

完了





JVO VOTable Viewer - Mozilla Firefox

ファイル(E) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

http://jvo.nao.ac.jp/portal/viewer.do

JVO JAPANESE VIRTUAL OBSERVATORY p00 ver.080728 News | FAQ(J) | Help(J) | Bugs(J) Yuji Shirasaki [Logout]

⇒ Location: Top Page > VOTable Viewer

Save Filter Metadata Graphic Search Add Column Appearance Sky Map & SED Color-Color Plot

Group ID: 1 - + Update  
group id = 1

10h46m26.825760 -03d14m40.95600  
size = 8.0 arcmin  
image from archive.eso.org

### Position Map

Dec (deg): -3.2420 to -3.2470  
RA (deg): 161.6125 to 161.6100

### SED

Flux Density [Jy]: 0.0001 to 0.001  
Wavelength [nm]: 100 to 10000

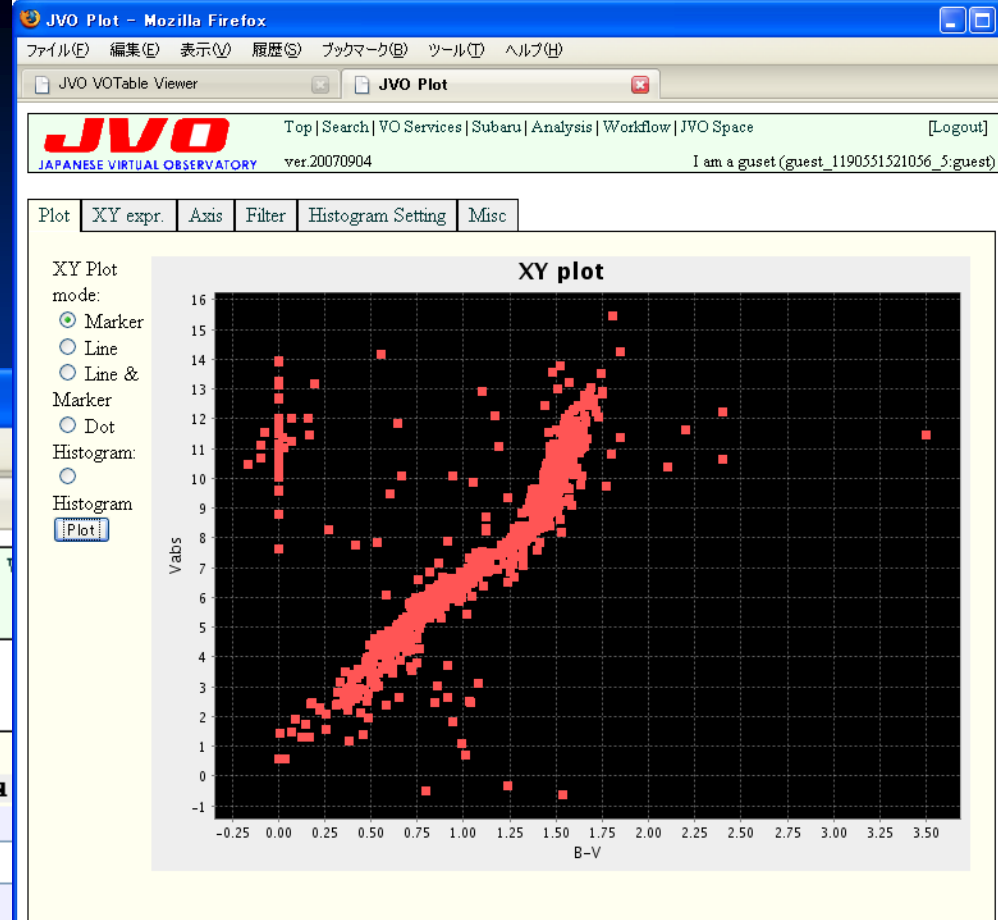
| C10       | C11    | C12      | C13       | C14        |
|-----------|--------|----------|-----------|------------|
| BAND_UNIT | FLUX   | FLUX_ERR | FLUX_UNIT | FLUX_SRCH  |
| sort      | sort   | sort     | sort      | sort       |
| um        | 12.667 | 0.019    | mag       | 0.0139762  |
| um        | 12.444 | 0.024    | mag       | 0.0110558  |
| um        | 12.368 | 0.023    | mag       | 0.00753227 |
| um        | 15.011 | 0.009    | mag       | 0.00373273 |
| um        | 13.888 | 0.005    | mag       | 0.0100931  |
| um        | 13.564 | 0.005    | mag       | 0.0136781  |
| um        | 13.464 | 0.006    | mag       | 0.0149978  |
| um        | 13.466 | 0.008    | mag       | 0.014589   |
| um        | 15.014 | 0.009    | mag       | 0.00373273 |
| um        | 13.889 | 0.005    | mag       | 0.0100931  |
| BAND_UNIT | FLUX   | FLUX_ERR | FLUX_UNIT | FLUX_SRCH  |
| um        | 13.565 | 0.005    | mag       | 0.0135527  |
| um        | 13.465 | 0.006    | mag       | 0.0148603  |
| um        | 13.473 | 0.008    | mag       | 0.014589   |
| um        | 15.016 | 0.009    | mag       | 0.0036985  |
| um        | 13.89  | 0.005    | mag       | 0.0100931  |

0 41 587724648175239217 161.61121 -3.237934 Link sdss g' 0.4858

完了



# JVO Plot



JVO Plot - Mozilla Firefox

ファイル(F) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(T) ヘルプ(H)

JVO VOTable Viewer JVO Plot

JVO JAPANESE VIRTUAL OBSERVATORY ver.20070904

Plot XY expr. Axis Filter Histogram Setting Misc

| Axis | Expression            | Label |
|------|-----------------------|-------|
| X    | c35                   | B-V   |
| Y    | c4-5*log(1000./c10)+5 | Vabs  |

1 2 3 ( ) + - \* / % ^

4 5 6 sqrt abs power mod exp log ln pi

7 8 9 sin cos tan cot

. 0 acos asin atan atan2

Clear

Setup for Color-Mag plot by HIP Catalog (This is for demo)

Do it

2008-08-04



- Provides reduced Subaru data
  - Mosaic image for Suprime-Cam
  - Reduced 1D spectrum of HDS
- Data reduction by your own criteria
  - Mosaic service for Suprime-Cam
  - Doesn't require detailed knowledge about Subaru
  - No installation of any software on your PC is required
  - Just click and wait about one hour

Location: Top Page > Subaru > SPCam

**Suprime-Cam Help(J)**

Object Name | Date | Reduction | Job Status | Command Queue

Alphabetic: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) [0](#)

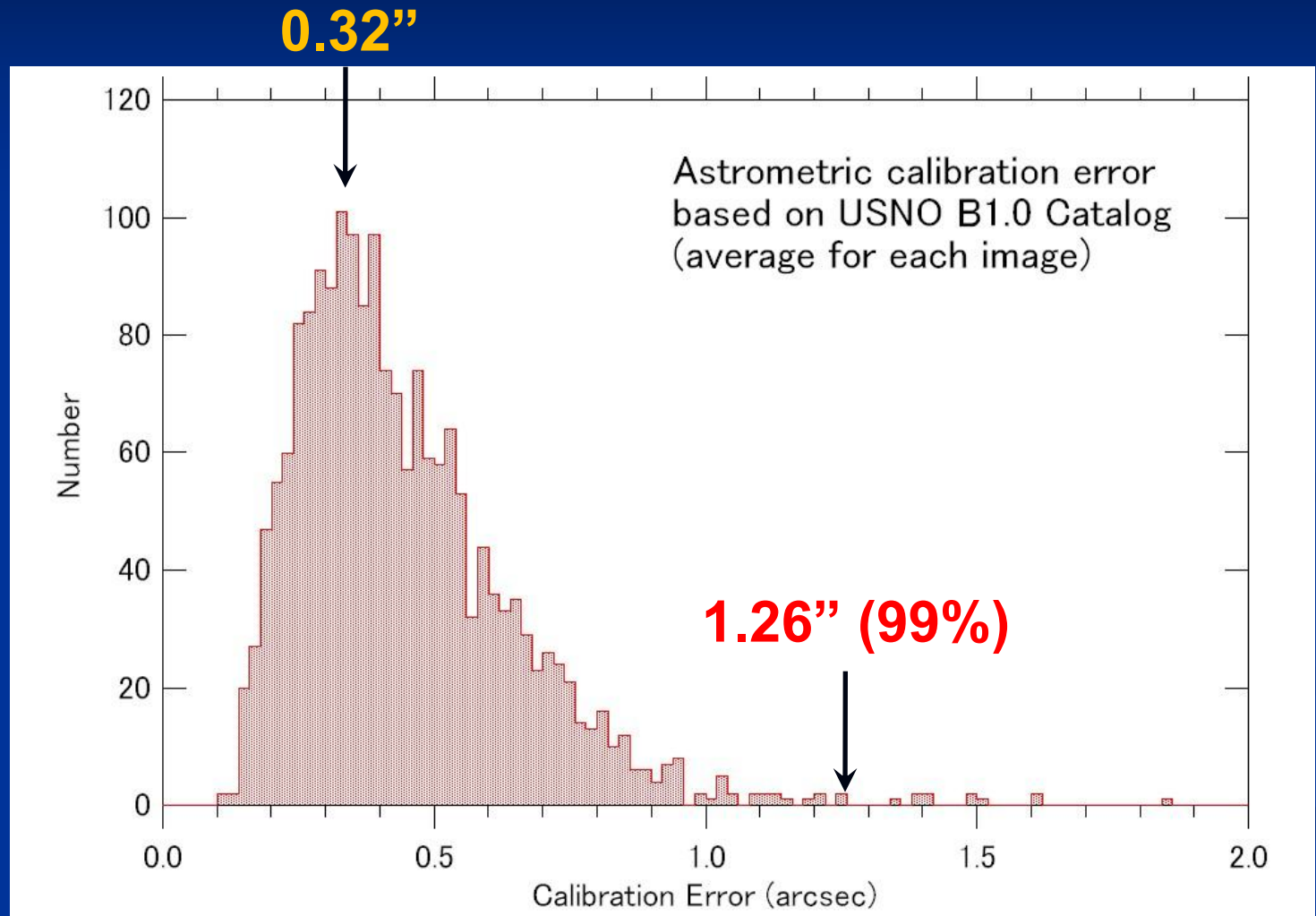
20 [Update] Total Number 49 [Back] [Next]

**Mosaic image for 1883 data sets**  
 < 1.2" for 1749 set  
 < 1.0" for 1542 set  
 < 0.8" for 1082 set

| #  | ObjectName    | <input type="checkbox"/> W-J-B   | <input type="checkbox"/> W-J-V   | <input type="checkbox"/> W-C-RC | <input type="checkbox"/> W-C-IC | <input type="checkbox"/> W-S-I+  | <input type="checkbox"/> W-S-Z  | <input type="checkbox"/> W-J-U | <input type="checkbox"/> W-J-VR | <input type="checkbox"/> W-S-G+ | <input type="checkbox"/> W-S-R+ | <input type="checkbox"/> W-S-ZB | <input type="checkbox"/> W-S-ZR |
|----|---------------|----------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 1  | CL0024        | <input type="checkbox"/> 2 (1)   | 0                                | <input type="checkbox"/> 11 (1) | 0                               | 0                                | <input type="checkbox"/> 8 (1)  | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 2  | CL1315+51     | <input type="checkbox"/> 8 (1)   | 0                                | <input type="checkbox"/> 5 (1)  | 0                               | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 3  | CL1320+70     | 0                                | 0                                | <input type="checkbox"/> 6 (1)  | 0                               | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 4  | CL1324        | 0                                | 0                                | <input type="checkbox"/> 12 (1) | 0                               | 0                                | <input type="checkbox"/> 25     | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 5  | CL1520-R      | 0                                | 0                                | <input type="checkbox"/> 5 (1)  | 0                               | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 6  | CL1604        | 0                                | <input type="checkbox"/> 36 (1)  | 0                               | <input type="checkbox"/> 2 (1)  | 0                                | <input type="checkbox"/> 15 (1) | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 7  | CL1604_0      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 11 (1) | <input type="checkbox"/> 2 (1)  | 0                                | <input type="checkbox"/> 26 (1) | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 8  | CL1604_1      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 4 (1)  | <input type="checkbox"/> 4 (1)  | 0                                | <input type="checkbox"/> 3 (1)  | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 9  | CL1604_2      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 4 (1)  | <input type="checkbox"/> 4 (1)  | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 10 | CL1604_3      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 3 (1)  | <input type="checkbox"/> 5 (1)  | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 11 | CL1604_4      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 15 (1) | <input type="checkbox"/> 4 (1)  | 0                                | <input type="checkbox"/> 5 (1)  | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 12 | CL1604_5      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 6 (1)  | <input type="checkbox"/> 5 (1)  | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 13 | CL1604_6      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 4 (1)  | <input type="checkbox"/> 5 (1)  | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 14 | CL1604_7      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 3 (1)  | <input type="checkbox"/> 4 (1)  | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 15 | CL1604_8      | <input type="checkbox"/> 1 (1)   | 0                                | <input type="checkbox"/> 3 (1)  | <input type="checkbox"/> 5 (1)  | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 16 | CLJ1226.9     | 0                                | <input type="checkbox"/> 6 (1)   | 0                               | 0                               | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 17 | CLJ1350.8     | 0                                | <input type="checkbox"/> 3 (1)   | <input type="checkbox"/> 3 (1)  | 0                               | 0                                | 0                               | 0                              | 0                               | 0                               | 0                               | 0                               | 0                               |
| 18 | COSMOS        | <input type="checkbox"/> 111 (1) | <input type="checkbox"/> 120 (1) | 0                               | 0                               | <input type="checkbox"/> 115 (1) | <input type="checkbox"/> 431    | 0                              | 0                               | <input type="checkbox"/> 121    | <input type="checkbox"/> 84     | 0                               | 0                               |
| 19 | COSMOS_CALIB1 | <input type="checkbox"/> 1 (1)   | <input type="checkbox"/> 1       | 0                               | 0                               | 0                                | 0                               | <input type="checkbox"/> 1     | 0                               | 0                               | 0                               | 0                               | 0                               |
| 20 | Cv'n          | 0                                | 0                                | 0                               | 0                               | 0                                | 0                               | 0                              | 0                               | <input type="checkbox"/> 4      | 0                               | 0                               | 0                               |

[Check All] [Uncheck All] [Register]

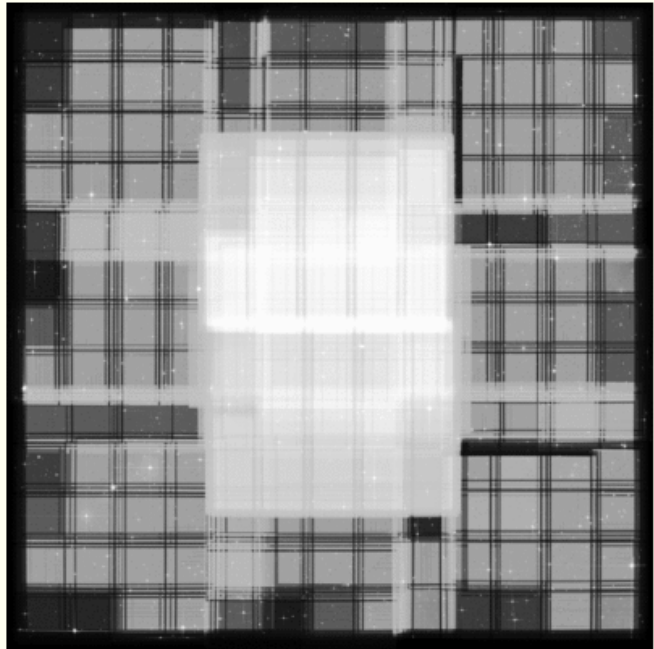
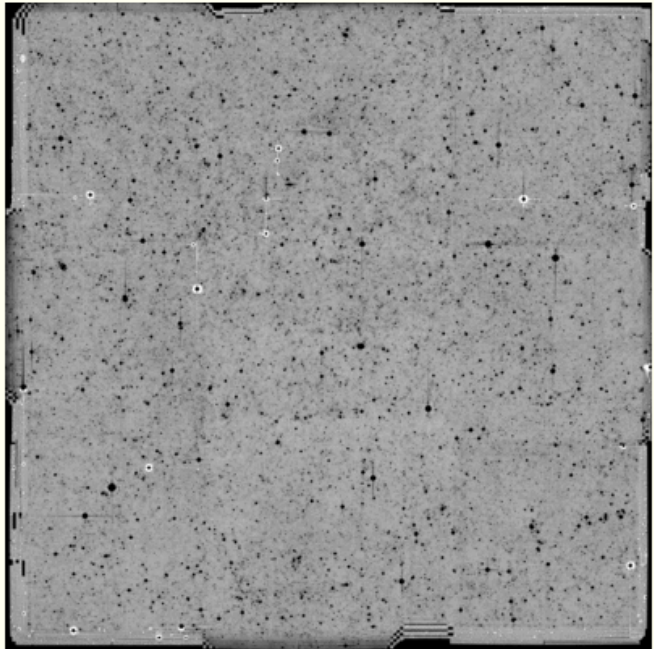
完了



# COSMOS W-S-I+ (080620\_214814\_g08\_94) Help(J)

Summary **QL Image** Exposures Flat Field

Mosaic Frame ID : SUPM2C3D69E956E0000



Mosaic frame: [Download](#) 2818.85 MB

Exposure frame: [Download](#) 2818.84 MB

Super fine frame: [Download](#) 2798.1 MB (FWHM < 0.8 arcsec)

Fine frame: [Download](#) 2818.84 MB (FWHM < 1.0 arcsec)

Good frame: [Download](#) 2818.84 MB (FWHM < 1.2 arcsec)

=> Location: Top Page > Subaru > SPCam

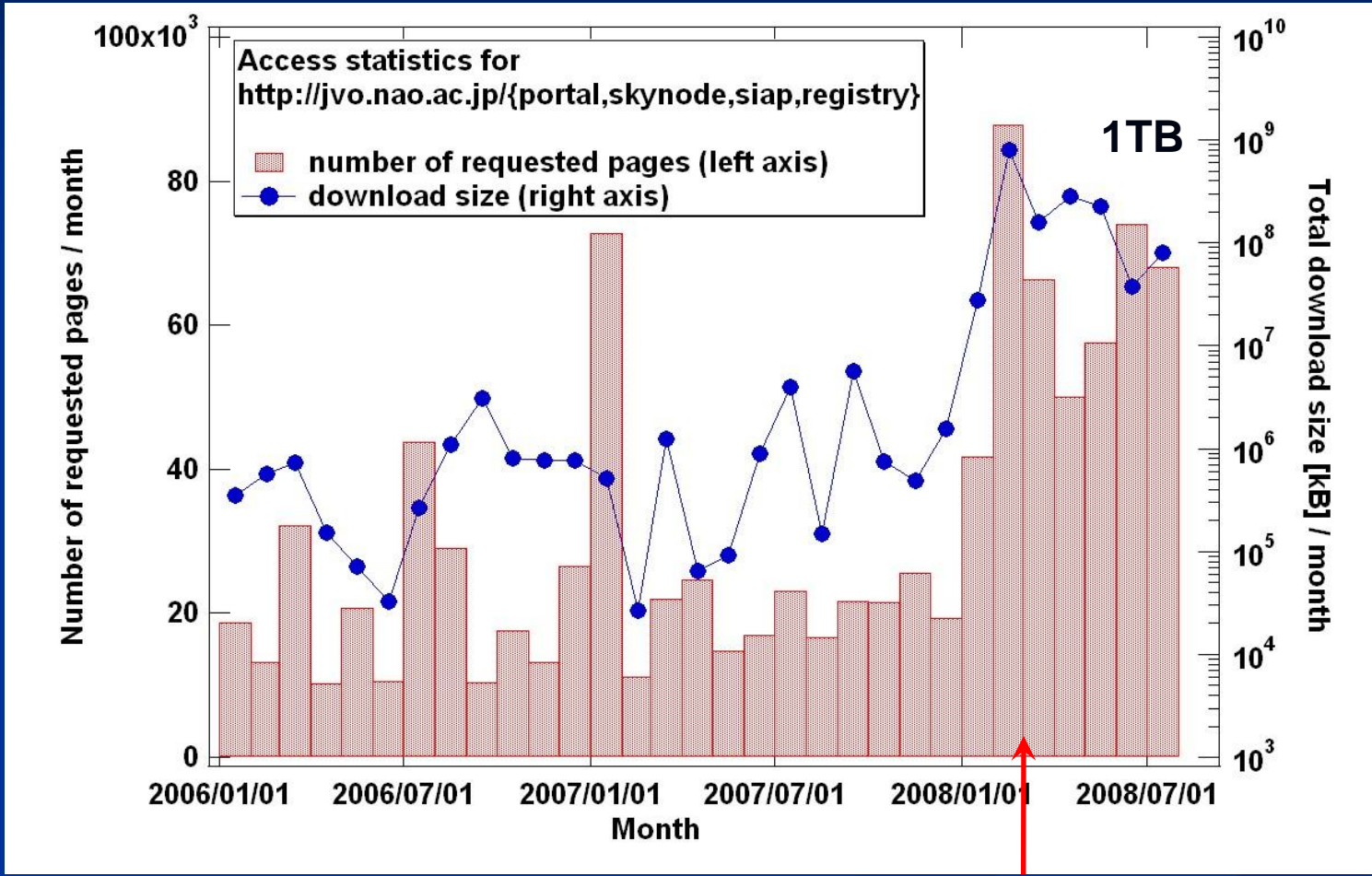
### Suprime-Cam Help(J)

| Object Name   | Date | Reduction | Job Status | Command Queue |
|---|------|-----------|------------|---------------|
| <input checked="" type="radio"/> mosaic.sh <input type="radio"/> cal-flat.sh <input type="radio"/> command list                                 |      |           |            |               |
| <b>RA</b> <input type="text"/> <b>Dec</b> <input type="text"/> <b>Size</b> <input type="text"/> or <b>OBJECT</b> <input type="text"/>           |      |           |            |               |
| <b>FILTER</b> <input type="text" value="Not selected"/>   |      |           |            |               |
| <b>MAX FRAMES</b> <input type="text" value="100"/> <b>MAX humidity (%)</b> <input type="text"/> <b>MAX seeing (arcsec)</b> <input type="text"/> |      |           |            |               |
| <b>Date (yyyy-mm-dd)</b> From <input type="text"/> To <input type="text"/>  |      |           |            |               |
| <input type="checkbox"/> Skip Quality Check <input type="checkbox"/> Only Data Retrieval <input type="checkbox"/> Skip Mosaic                   |      |           |            |               |
| <b>Excluded exposures (exposure id, comma separated)</b> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>               |      |           |            |               |
| <b>Job Class</b> <input type="text" value="Normal"/>  |      |           |            |               |
| <input type="button" value="Register"/>   |      |           |            |               |

OK



# Access Statistics



Start of official operation



- JVO Portal provides an integrated astronomical research environment
  - Web browser as an user friendly UI
  - Data access with the IVOA standard
  - Huge amount of computing/storage resource are available
- <http://jvo.nao.ac.jp/portal>
- <http://jvo.nao.ac.jp/download/skynode-toolkit>
- `help_desk@jvo.nao.ac.jp`