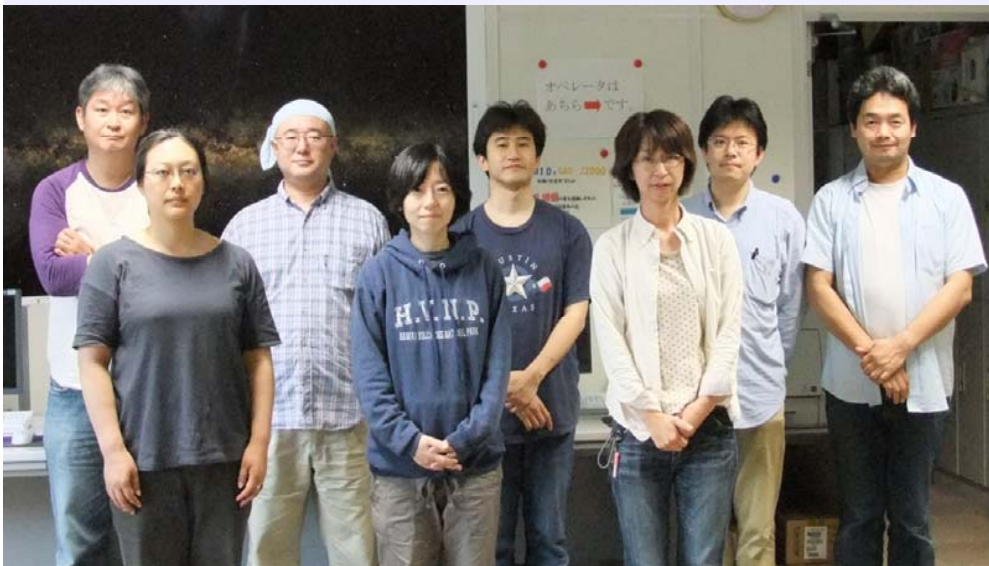


# Current Status of SMOKA

@Subaru Users Meeting  
2011-01-19

FURUSHO, Reiko  
(Astronomy Data Center, NAOJ)



## Topics:

1. Minor Bodies Search is Opened.
2. Number of paper using SMOKA is increasing.

# What is SMOKA?

**SMOKA** (**S**ubaru-**M**itaka-**O**kayama-**K**iso-**A**rchive)  
is science archive system providing public data

- 8.2m Subaru Telescope (Hawaii)
- 188 cm telescope (OAO)
- 105 cm Schmidt telescope (Kiso Obs.)
- 50 cm telescopes (Akeno Obs. & OAO)
- 1.5m Kanata telescope (Higashi-Hiroshima)
- Observed data after proprietary period become open.
- SMOKA provides several ways of data search.
- Data request and downloading with FTP, DDS4 are available after registration.

## Status

	Frames	(GB)	Occupation	
Subaru	1,604,000	17,100	18 months	1999 ~
Okayama	217,000	1,870	2 years	1991 ~
Kiso	196,000	1,160	1 year	1993 ~
MITSuME	1,827,000	3,760	1 year	2007 ~
Higashi-Hiroshima	5,000	80	18 months	2010 ~

2011 January 17

The screenshot shows the SMOKA Science Archive website in a Mozilla Firefox browser. The page title is "SMOKA Science Archive". A red notice states: "Due to a system maintenance of data server, SMOKA will be down on Thu. Jan. 27 09:00 - 13:00 (JST). We are sorry for inconvenience. (Jan. 13, 2011)". Below this, it says "SMOKA ver 3.3" and lists new features: "Minor Bodies Search (test version) is released. (Jan. 7 2011)", "Overlapped area search interface for KISO Schmidt Telescope / 2k CCD (KCD) is released. (Dec. 16 2010)", and "HWPFAI data from Higashi-Hiroshima Observatory (HHO) are now released. (Jan. 07 2010)". A "ver 3.3" update note mentions the addition of the Minor Bodies Search module and system reconfiguration. The page also includes sections for "Resources", "Remarks", "Data Search", and "User Registration".

SMOKA Top Page  
<http://smoka.nao.ac.jp/>

# Development Status of SMOKA

Current version is **3.3**

- **Minor Bodies Search (test version for SUP) has been released (2011.01.07- )**
- **Overlapped Area Search has been updated**
  - **Kiso/2kCCD Camera (KCD) (2010.12.16- )**
- **New calibrated data has been included**

Astrometrically calibrated data for KCD
- **Public data of New instruments have been added.**

Okayama/ISLE, KOOLS and Higashi-Hiroshima/HOWPol

## Future Plan...

- Providing calibrated data for astrometry: Suprime-Cam, MOIRCS, 1kCCD, ...
- Providing data of new instruments and telescopes : FMOS, HiCIAO, KWFC, ...
- Query using indices of quality assessment : add indices of quality assessment as search conditions for several instruments
- Construction of catalogs : catalog of objects detected by each instrument

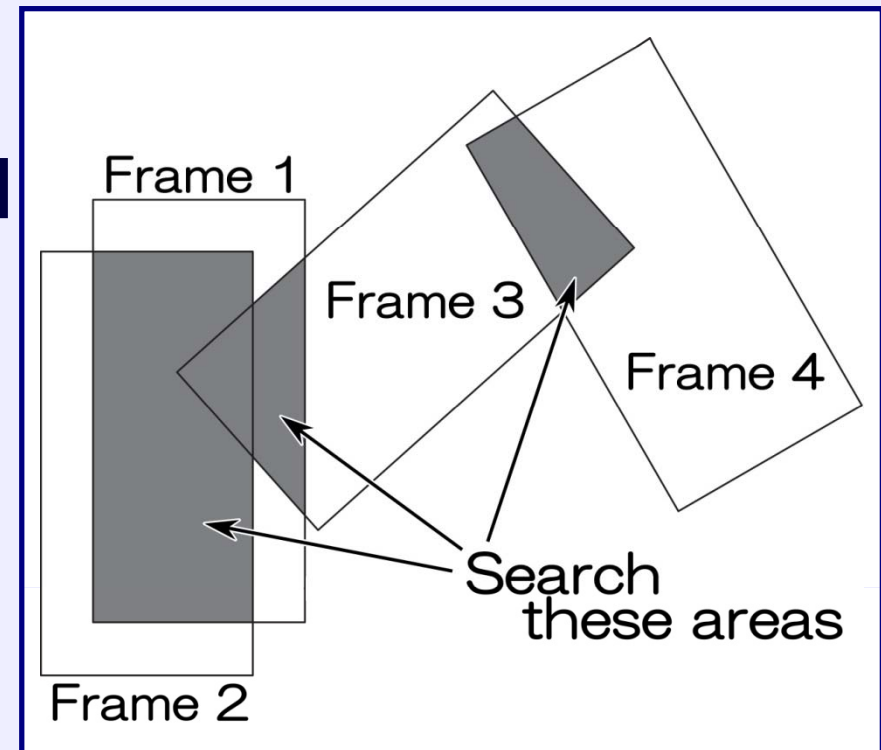
# Overlapped area search

(for Suprime-Cam and Kiso 2kCCD Camera)

- **Searching multiple observed area**
  - Solar system bodies survey
  - Variable objects search (SNes, variable stars, etc.)
  - Query for deep observed region
- **Indexing area (1-arcmin at smallest) over the sky by using HEALPix\* method**

\*) <http://healpix.jpl.nasa.gov/>

→ **Search the area of which indices in the frames are the same.**



# Overlap (for Suprime-C)

- Searching multiple

SMOKA Overlapped Area Search for KCD

Whole Sky

◆ 2-9      ◆ 10-99      ◆ 100-

Frame List

Frame list will appear in magnified map. To get data of frames in the list, use [data request system via e-mail \(DRM\)](#).

SMOKA Overlapped Area Search - Mozilla Firefox

SMOKA Overlapped Area Search for KCD ([help](#)) [SMOKA Top](#)

Whole Sky

Map 1 ↓ magnified

Map 2 ↓ magnified

Map 3

04h06m +02d50m

04h06m00.0s +02d00m00.0s

magnified →

3 arcmin

2007-01

2008-01

2009-01

2010-01

483

Frame List To get data of the frames in the following list, use [data request system via e-mail \(DRM\)](#).

483 frames include marked region.: [List File\(Text\)](#)

FRAME_ID	DATE_OBS	DATA_TYP	OBJECT	FILTER	RA2000	DEC2000	UT_STR	EXP
KCD: 35483	2008-12-15	OBJECT	2MASSJ	I	04:05:57.51	+02:58:14.4	10:58:35	30.
KCD: 35484	2008-12-15	OBJECT	2MASSJ	I	04:05:57.52	+02:58:15.3	11:01:32	30.
KCD: 35485	2008-12-15	OBJECT	2MASSJ	I	04:05:57.56	+02:58:16.2	11:04:09	30.

Frame 4

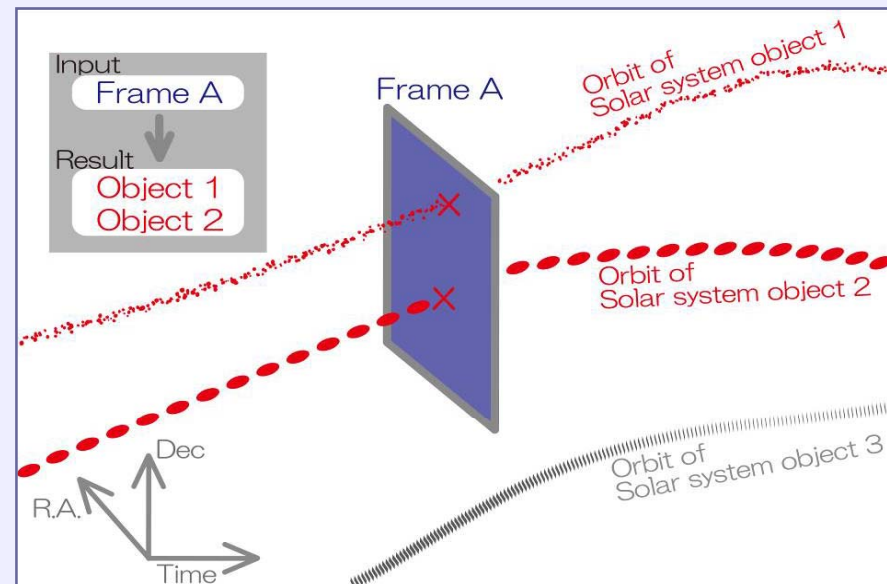
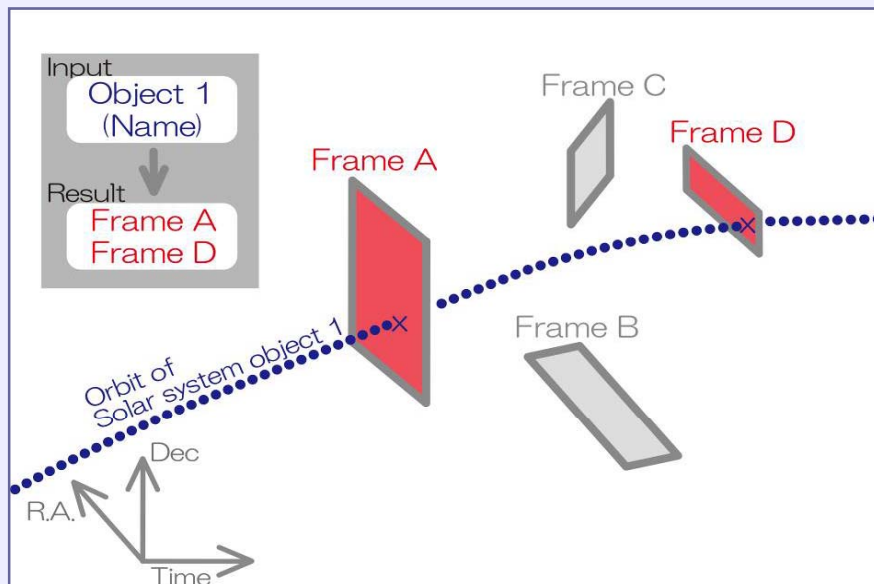
Search these areas



# Minor Bodies Search (test version)

## (for Suprime-Cam)

- **Searching (known) Minor Bodies in Solar System from the archived frames. Two search interfaces:**
  - Search by 'Object Name',
  - Search by 'FRAME ID' list.
- **Thumbnail image to check searched body.**
- **Requested FITS Data:**
  - a Binary Table Extension for found minor bodies list is attached



SMOKA - Mozilla Firefox

# SMOKA Archive Search for Minor Bodies

## Minor Bodies Search by Object Name

[Click here for Minor Bodies Search by FRAME ID list.](#)  
[Click here to know how to Minor Body Search.](#)

Search for Minor Bodies by Object Name.

\*\*\* This is a test version. All solar system objects are not included in SMOKA database completely. (2011-01-07)\*\*\*

1. Select Asteroid or Comet,
2. Select kind of the key-word/value for name resolve among "object Number", "object DSGN Name", and "object Name",
3. Input key-value/word, then click "Resolve" button.

**Search Conditions**

Object Category (select)    Asteroid    Comet

Keyword type for Object    object Number    object DSGN Name

Name Resolve (select)   Name    object Name

Object Number/DSGN

SMOKA - Mozilla Firefox

# Result of SMOKA Archive Search for Minor Bodies

## Search Conditions

OBJECT NAME	Instrument	Search Period	
		From	To
(2835) Ryoma [1982 WF]	SUP	2002-09-28	2009-07-13

## Results

A link of "No." column will lead you to the detailed information of corresponding frame.

To view the object within thumbnail image of frames (up to 10 frames):

- (1) mark checkboxes at "Data" columns of rows which correspond to the frames which you'd like to view,
- (2) then push "View Thumbnails" button.

Note that the number of thumbnail images that can be displayed is limited to 10 images.

To retrieve data, mark checkboxes at columns of rows which correspond to the frames which you'd like to retrieve. Then push "Datarequest" button located before/after the table.

View Thumbnails   Datarequest

No.	Data	FRAMEID	DATE_OBS	Object Position [pix]	Inf
1	<input type="checkbox"/>				

SMOKA - Mozilla Firefox

# SMOKA Archive Search for Minor Bodies (by 'FRAME ID' list)

## Minor Bodies Search by 'FRAME ID' list

[Click here for Minor Bodies Search by Object Name.](#)  
[Click here to know how to Minor Body Search.](#)

\*\*\* This is a test version. All solar system objects are not included in SMOKA database completely. (2011-01-07)\*\*\*

\*\*\* The data dealed in the minor bodies search are limited to the frames which are WCS corrected. You can search corrected frames from [List of All Frames](#).

**Search By FRAME ID**

SUPA00358030  
 SUPA00359760  
 SUPA00359800

Search   Reset

SMOKA - Mozilla Firefox

# Result of SMOKA Archive Search for Minor Bodies (by 'FRAME ID' list)

A link of "No." column will lead you to the detailed information of corresponding frame.

A link of "Detail" column will lead you to the detailed information of the Minor Body.

To view the object within thumbnail image of frames (up to 10 frames):

- (1) mark checkboxes at "Data" columns of rows which correspond to the frames which you'd like to view,
- (2) then push "View Thumbnails" button.

Note that the number of thumbnail images that can be displayed is limited to 10 images.

To retrieve data, mark checkboxes at columns of rows which correspond to the frames which you'd like to retrieve. Then push "Datarequest" button located before/after the table.

View Thumbnails   Datarequest

No.	Detail	Data	FRAMEID	OBJECT Name List
<a href="#">1</a>	<a href="#">1</a>	<input type="checkbox"/>	SUPA00358030	(2835) Ryoma [1982 WF], (17035) Velichko [1999 FC10]
<a href="#">2</a>	<a href="#">2</a>	<input type="checkbox"/>	SUPA00359760	(2835) Ryoma [1982 WF], (17035) Velichko [1999 FC10], (57632) 2001 TB182
<a href="#">3</a>	<a href="#">3</a>	<input type="checkbox"/>	SUPA00359800	(2835) Ryoma [1982 WF], (17035) Velichko [1999 FC10], (57632) 2001 TB182

SMOKA - Mozilla Firefox

# SMOKA Archive Search for Minor Bodies

## Minor Bodies Search by Object Name

[Click here for Minor Body Search by FRAME ID list.](#)  
[Click here to know how to search minor body search.](#)

Search for Minor Bodies by Object Name.

\*\*\* This is a test version. All solar system objects are not included in the SMOKA database completely. (2011-01-07)\*\*\*

1. Select Asteroid or Comet,
2. Select kind of the key-word/value for name resolve among "object Number", "object DSGN Name", and "object Name",
3. Input key-value/word, then click "Resolve" button.

Search Conditions	
Object Category (select)	<input checked="" type="radio"/> Asteroid <input type="radio"/> Comet
Keyword type for Object Name Resolve (select)	<input type="radio"/> object Number <input type="radio"/> object DSGN <input checked="" type="radio"/> object Name
Object Number/DSGN	

SMOKA - Mozilla Firefox

# Result of SMOKA Archive Search for Minor Bodies

## Search Conditions

OBJECT NAME	Instrument	Search Period	
		From	To
(2835) Ryoma [1982 WF]	SUP	2002-09-28	2009-07-13

## Results

of "No." column will lead you to the detailed information of corres

Thumbnail Image - SMOKA MBSearch - Moz

# Thumbnail images

The arrow in each thumbnail image shows the direction of North of the frame.

SMOKA - Mozilla Firefox

# SMOKA Archive Search for Minor Bodies (by 'FRAME ID' list)

## Minor Bodies Search by 'FRAME ID' list




[Click here for Minor Body Search by Object Name.](#)  
[Click here to know how to search minor body search.](#)

\*\*\* This is a test version. All solar system objects are not included in the SMOKA database completely. (2011-01-07)\*\*\*

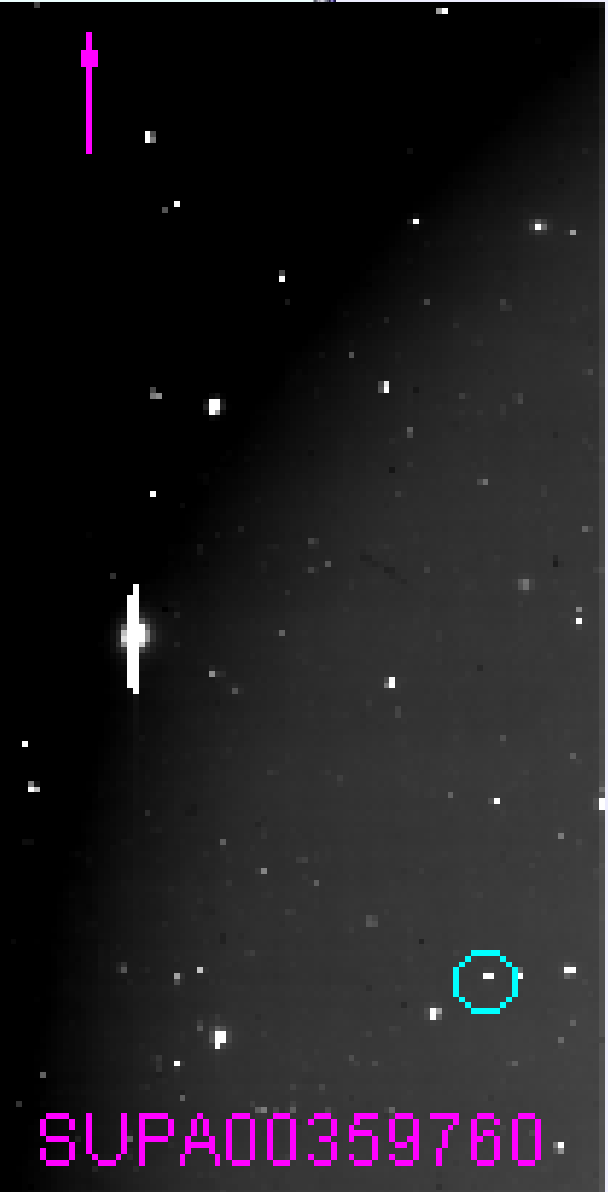
\*\*\* The data dealed in the minor bodies search are limited to the frames which are WCS corrected search corrected frames from [List of All Frames](#).

Search By FRAME ID	
SUPA00358030	
SUPA00359760	
SUPA00359800	

Search Reset

		
SUPA00358030	SUPA00359760	SUPA00359800
2004-12-12	2004-12-13	2004-12-13

2	2	<input type="checkbox"/>	SUPA00359760	(2835) Ryoma [1982 WF], (17035) Velichko [1999 FC10], (57632) 2001 TB182
3	3	<input type="checkbox"/>	SUPA00359800	(2835) Ryoma [1982 WF], (17035) Velichko [1999 FC10], (57632) 2001 TB182





SMOKA - Mozilla Firefox

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

SAOImage ds9

ファイル 編集 表示 フレーム ピンまとめ ズーム スケール 色 領域 WCS 解析 ヘルプ

ファイル SUPW00359760.fits

天体名 F37

値 27764

FK5  $\alpha$  22:23:29.813  $\delta$  -10:16:46.67

物理座標 X 1681.056 Y 751.667

論理座標 X 1681.056 Y 751.667

フレーム 3 ズーム 1.756 角度 0.000

ファイル 編集 表示 フレーム ピンまとめ ズーム スケール 色 領域 WCS ヘルプ

- + 画面一杯 ズーム 1/8 ズーム 1/4 ズーム 1/2 ズーム 1 ズーム 2 ズーム 4 ズーム 8

11000 11200 11400 11600 11800 12000 12200 12400

Search Reset

SMOKA - Mozilla Firefox

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

### Archive Search for Minor Bodies

Information of corresponding frame.

(up to 10 frames):

which correspond to the frames which you'd like to view,

isplayed is limited to 10 images.

which correspond to the frames which you'd like to retrieve. The

on [pix] Inf

Firefox

ヘルプ(H)

### Archive Search for

Information of corresponding frame.

Information of the Minor Body.

(up to 10 frames):

which correspond to the frames which you'd like to

isplayed is limited to 10 images.

which correspond to the frames which you'd like to retrieve before/after the table.

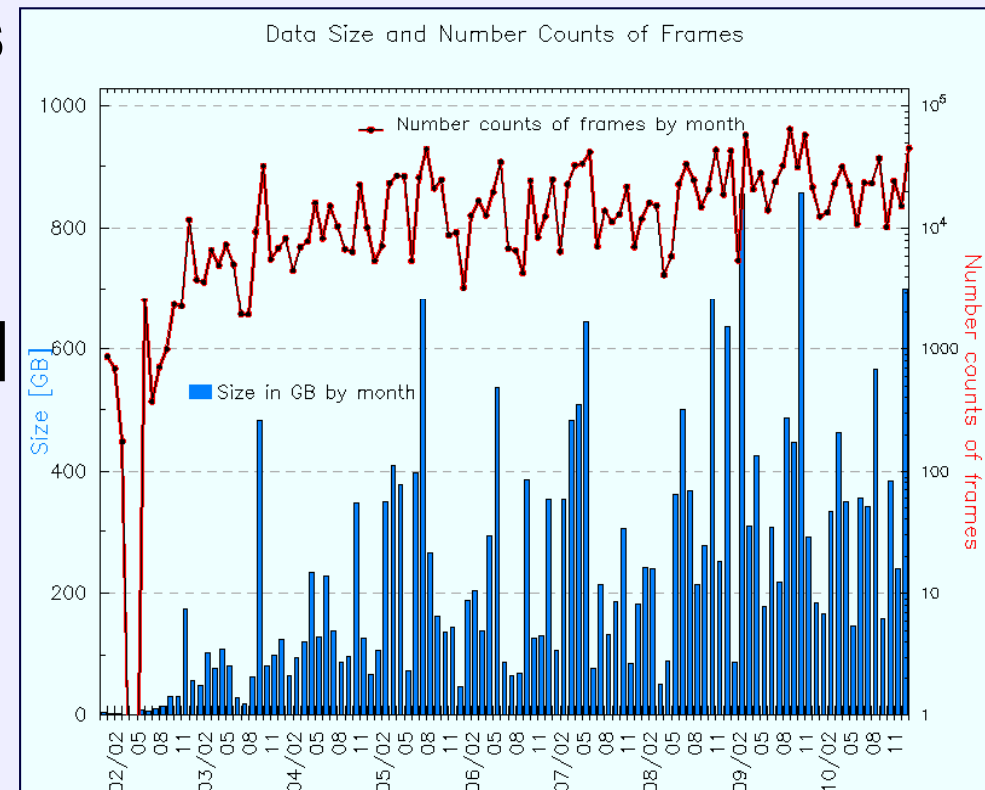
list

1982 WF], (17035) Velichko [1999 FC10]
1982 WF], (17035) Velichko [1999 FC10],
1982 WF], (17035) Velichko [1999 FC10],
SUPA00359800 [(2855) Kyama [1982 WF], (17035) Velichko [1999 FC10],
(57632) 2001 TB182

# Usage of SMOKA (Users & Data Request)

<http://smoka.nao.ac.jp/about/drstat.jsp>

- Number of Users
  - **221** (2010/04/01 - 2011/01/17)
- Data Request per Month
  - 5000~40000 frames
  - 100~600 GB
- Subaru/Suprime-Cam Data is most requested



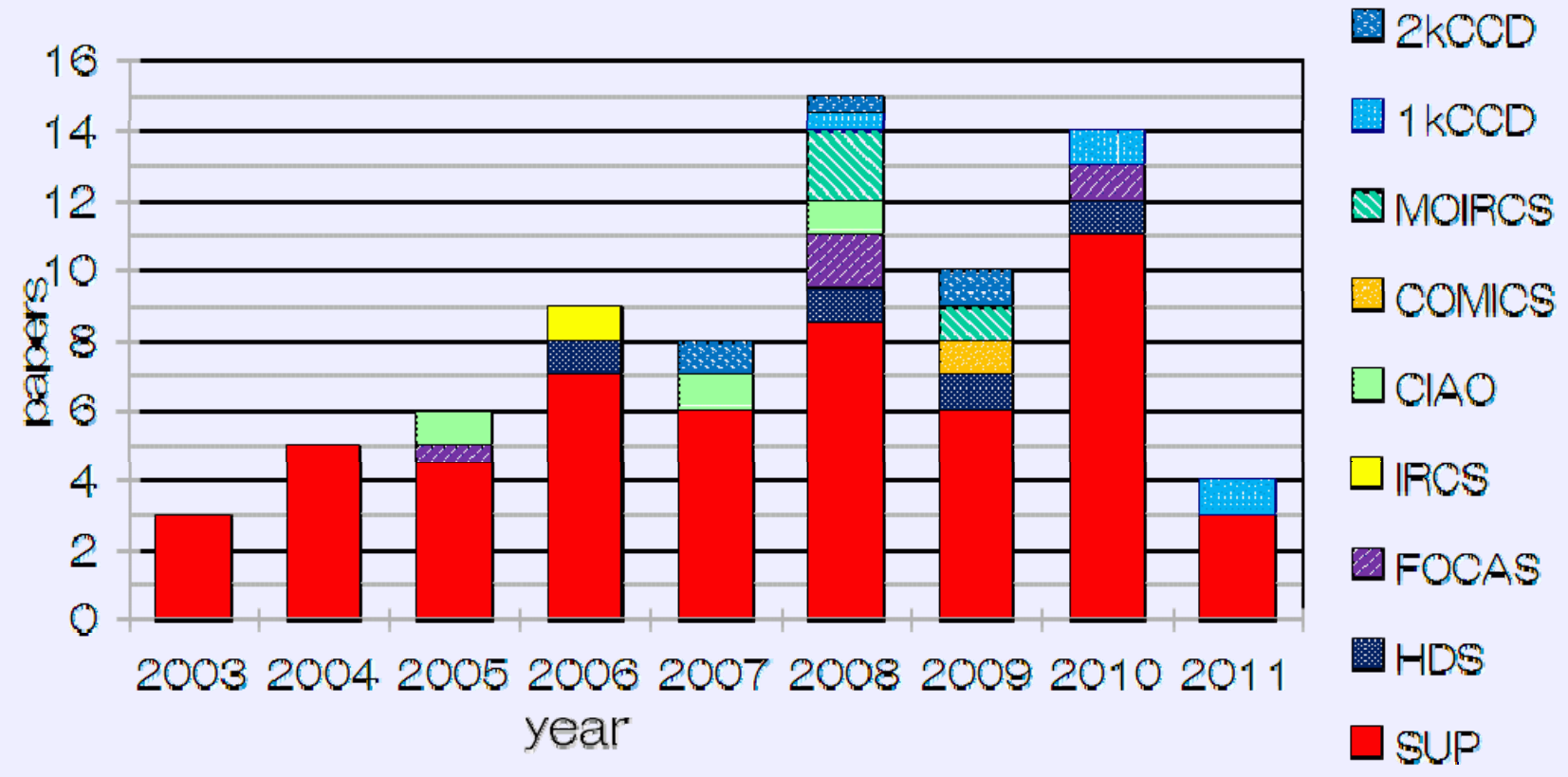
# Products of SMOKA

<http://smoka.nao.ac.jp/about/publish.jsp>

## ■ Papers using SMOKA

- 2003-2011 : **74 papers**  
(A&A, ApJ, AJ, PASJ, MNRAS, PASP, ICARUS, etc.)

Papers in main journals



**Dear Users:**

**Please Use SMOKA for  
your study!**

**Dear Subaru Staff:**

**Please keep in touch,  
and assist us for stable  
operation of SMOKA.**