

SMOKA and FOCAS

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2018-11-06, 08

How to Retrieve Archived Data from SMOKA

2018-11-06

SMOKA archive

- Say you want to find the data for this paper:

The screenshot shows a journal article from Nature magazine. The header includes the volume (Vol 456), issue (4 December 2008), and DOI (doi:10.1038/nature07608). The word "nature" is also present. Below the header, the word "LETTERS" is centered. The main title of the article is "Tycho Brahe's 1572 supernova as a standard type Ia as revealed by its light-echo spectrum". Below the title, the authors are listed: Oliver Krause¹, Masaomi Tanaka^{2,3}, Tomonori Usuda⁴, Takashi Hattori⁴, Miwa Goto¹, Stephan Birkmann^{1,5} & Ken'ichi Nomoto^{2,3}. The text of the article discusses the re-observation of the supernova using the Faint Object Camera And Spectrograph (FOCAS) at the Subaru 8.2-m telescope on Mauna Kea, Hawaii, on 24 September 2008. It mentions a peak brightness of $R = 23.5 \pm 0.2 \text{ mag arcsec}^{-2}$ and a shift of $1.4 \pm 0.2 \text{ arcsec}$ within 22 days, consistent with a light-echo origin. A long-slit spectrum was obtained on the same night, covering the wavelength range from 3,800 to 9,200 Å with a spectral resolution of 24 Å.

Vol 456 | 4 December 2008 | doi:10.1038/nature07608

nature

LETTERS

Tycho Brahe's 1572 supernova as a standard type Ia as revealed by its light-echo spectrum

Oliver Krause¹, Masaomi Tanaka^{2,3}, Tomonori Usuda⁴, Takashi Hattori⁴, Miwa Goto¹, Stephan Birkmann^{1,5} & Ken'ichi Nomoto^{2,3}

The region was re-observed using the Faint Object Camera And Spectrograph (FOCAS) at the Subaru 8.2-m telescope on Mauna Kea, Hawaii, on 24 September 2008 (Fig. 1b). The peak of the emission, with a surface brightness of $R = 23.5 \pm 0.2 \text{ mag arcsec}^{-2}$, has again shifted away from SN 1572. The shift of $1.4 \pm 0.2 \text{ arcsec}$ within 22 days is consistent with a light-echo origin. A long-slit spectrum of the brightness peak of the echo structure at position RA 00 h 52 m 12.79 s, dec. $65^\circ 28' 49.7''$ (J2000) was obtained with FOCAS on the same night, covering the wavelength range from 3,800 to 9,200 Å with a spectral resolution of 24 Å.

FOCAS: OK, we can use "SMOKA"

DATE-OBS = 2008-09-24, RA/DEC is given

They used R-filter (photometry)

& 3800-9200 Å spectroscopy

Contents

- Register
- Search:
 - simple search
 - advanced search
- Request
- Download

SMOKA archive

- Register: <https://smoka.nao.ac.jp/register.jsp>

* Your full name	<input type="text"/>
* E-mail address	<input type="text"/>
* Affiliation	<input type="text"/>
* Postal Address and Country	<input type="text"/>
* ZIP Code	<input type="text"/>
* Telephone number	<input type="text"/>
FAX number	<input type="text"/>
* Position	<input type="radio"/> Professional researcher <input type="radio"/> Post-graduate student <input type="radio"/> Under-graduate student <input type="radio"/> School Teacher <input type="radio"/> Other Educator <input type="radio"/> Amateur
* Purpose	Research activities <input type="checkbox"/> Solar System <input type="checkbox"/> Stars <input type="checkbox"/> Star forming region <input type="checkbox"/> Galaxies <input type="checkbox"/> Cosmology <input type="checkbox"/> Software development <input type="checkbox"/> Instrument development <input type="checkbox"/> Other Educational activities <input type="checkbox"/> Teaching <input type="checkbox"/> Extracurricular <input type="checkbox"/> Museum/Planetarium <input type="checkbox"/> Other
* Account name (Minimum of 5 and Maximum of 8 alphanumerics in length, Containing at least 1 alphabet character)	<input type="text"/>

Simple Search

SMOKA archive: (1) Simple Search

- <https://smoka.nao.ac.jp>

Resources

[SMOKA Web Index](#)

[SMOKA Overview](#) and [How To Search and Request Data](#)

[Online Help](#)
How to use SMOKA for a detail, and descriptions of reduction method.

[User Registration](#)
You need to register if you wish to retrieve FITS data.

[Data Search](#)
Abbreviations for search available data of telescope or observatory are as follows: [Subaru](#) (Sub)
Simple Search ([Subaru](#), [DAO](#), [Kiso](#), [MITSUME](#), [HHO](#)) : search data from a list of obj
Advanced Search ([Subaru](#), [DAO](#), [Kiso](#), [MITSUME](#), [HHO](#)) : search data from various
SUP Search (SUP) : search raw data and astrometric calibrated data
Pin-point Search ([KCD](#), [KCC](#), [MITSUME](#)) : search frames whose fields contain
Calendar Search ([Subaru](#), [DAO](#), [Kiso](#), [MITSUME](#), [HHO](#)) : search data from a calendar
Supernova Search (KCC, KCD, [MITSUME](#)) NEW! : search calibrated data for astrometry
All Keywords Search ([Subaru](#), [DAO](#), KWFC, [HHO](#)) : search data by FITS-Header
Full-Text Search ([Subaru](#), [DAO](#), [Kiso](#), [MITSUME](#), [HHO](#)) : search any words in FITS
Overlapped Area Search ([SUP](#) and [KCD](#)) : search area(s) observed multiple times
Summit Log Search ([Subaru](#)) : search any words in Summit Logs

[Engineering Data Search](#)
ENG Search (HSC) : search engineering data

SMOKA Archive Simple Search

Target frame of this search is Data type "**OBJECT**" only.

[Click here to know how to search.](#)

Subaru	<input checked="" type="checkbox"/> Suprime-Cam	Go
	HDS	Go
	FOCAS	Go
Kiso Schmidt	OHS/CISCO	Go
	IRCS	Go
Okayama	CIAO	Go
MITSUME	COMICS	Go
Higashi-Hiroshima	CAC	Go
	MIRTOS	Go
	MOIRCS	Go

SMOKA archive: (1) Simple Search

- Find your object (e.g., SN 1572 == Tycho SNR)

SMOKA Archive Simple Search

FOCAS Object List

[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](#) [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) other

Name Resolve NONE SIMBAD NED

Output Format TABLE (max 1,000 rows, HTML) ASCII (max 20,000 rows, text)

Click all candidates

- [tyc3725_7 \(42\)](#)
- [tyc3925_3 \(46\)](#)
- [tyc3925_8 \(64\)](#)
- [tyc4025_3 \(30\)](#)
- [tyc4419_1 \(70\)](#)
- [tyc4820_5 \(14\)](#)
- [Tycho \(362\)](#)
- [Tycho field \(4\)](#)
- [Tycho near field \(4\)](#)
- [Tycho near field 2 \(4\)](#)
- [Tycho A \(20\)](#)
- [TYCO \(4\)](#)
- [T_mask2 \(20\)](#)
- [T_mask3 \(22\)](#)
- U [USco \(14\)](#)

Check DATE-OBS
(same as the publication?)

Check OBSERVER
(co-authors of publication included?)

No.	Doubt	Raw Data	FRAMEID	DATE_OBS	FITS_SIZE	OBS_MODE	SEARCH_ID
1		<input type="checkbox"/>	FCSA00100473	2008-09-24 weather	4	IMAG	0
2		<input type="checkbox"/>	FCSA00100474	2008-09-24 weather	4	IMAG	0
3		<input type="checkbox"/>	FCSA00100475	2008-09-24 weather	4	IMAG	0
4		<input type="checkbox"/>	FCSA00100476	2008-09-24 weather	4	IMAG	0
5		<input type="checkbox"/>	FCSA00100477	2008-09-24 weather	0	SPEC	0
6		<input type="checkbox"/>	FCSA00100478	2008-09-24 weather	0	SPEC	0
7		<input type="checkbox"/>					

OBSERVER
Usuda, Hattori

Check RA/DEC, FILTER, WVLEN too for sure.

SMOKA archive: (1) Simple Search

- Check “Raw Data” if you want to download → “Datarequest”

The diagram illustrates the process of creating a Datarequest from a search result. It consists of two main panels: a search results table on the left and a detailed configuration form on the right.

Search Results Table:

No.	Doubt	Raw Data	FRAMEID	DATE_OBS	...
1		<input checked="" type="checkbox"/>	FCSA00100473	2008-09-24 weather	4
2		<input checked="" type="checkbox"/>	FCSA00100474	2008-09-24 weather	4
3		<input checked="" type="checkbox"/>	FCSA00100475	2008-09-24 weather	4
4		<input checked="" type="checkbox"/>	FCSA00100476	2008-09-24 weather	4
5		<input checked="" type="checkbox"/>	FCSA00100477	2008-09-24 weather	0
6		<input type="checkbox"/>	FCSA00100478	2008-09-24 weather	0
7		<input type="checkbox"/>	FCSA00100479	2008-09-24 weather	0

An orange arrow points from the "Raw Data" column header in the table to the "Datarequest (for 1-1000)" button at the top of the table.

Datarequest Configuration Form:

1. Your Account: A text input field for account information.

2. Bytes of requested frames (approximately): 17,242,560.

3. Media type: A dropdown menu set to "FTP".

4. Data Compression: A table with four columns: Not Compress, GZIP(.gz), and FPACK(.fz). The "Not Compress" row has three checkboxes. The "ZIP (.zip)" row has three checkboxes. The "TAR (.tar)" row has three checkboxes; the second checkbox is checked and highlighted with an orange arrow.

5. Purpose: A dropdown menu set to "Research(galaxies)".

6. Number of requested frames: 5.

7. Requested FrameID: A list of frame IDs and dates: FCSA00100473 2008-09-24, FCSA00100474 2008-09-24, FCSA00100475 2008-09-24, FCSA00100476 2008-09-24, FCSA00100477 2008-09-24.

8. Buttons: "Search for Calibration Frames ...", "About Calibration Frames ...", "Are you ok?", and "OK". An orange arrow points from the "Are you ok?" button to the "OK" button.

* sometimes DATE_OBS is not unique, so you may not want to click “Mark all”

Advanced Search

SMOKA archive: (2) Advanced Search

- <https://smoka.nao.ac.jp>

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[Advanced Search](#) ([Subaru](#), [DAO](#), [Kiso](#), [MITSUME](#), [HKO](#)) : search data from various
[SUP Search](#) (SUP) : search raw data and astrometric calibrated data
[Pin-point Search](#) ([KCD](#), [KCC](#), [MITSUME](#)) : search frames whose fields contain
[Calendar Search](#) ([Subaru](#), [DAO](#), [Kiso](#), [MITSUME](#), [HKO](#)) : search data from a calend
[Supernova Search](#) (KCC, KCD, [MITSUME](#)) [NEW!](#) : search calibrated data for astrometry
[All Keywords Search](#) ([Subaru](#), [DAO](#), KWFC, [HKO](#)) : search data by FITS-Header
[Full-Text Search](#) ([Subaru](#), [DAO](#), [Kiso](#), [MITSUME](#), [HKO](#)) : search any words in FITS
[Overlapped Area Search](#) ([SUP](#) and [KCD](#)) : search area(s) observed multiple ti
[Summit Log Search](#) ([Subaru](#)) : search any words in Summit Logs

[Engineering Data Search](#)
[ENG Search](#) (HSC) : search engineering data

Search Conditions

Object Name (for name resolve)
 Object Name
 SIMBAD NED Don't Resolve **Resolve**

Coordinate System
 Equatorial Circular Equinox J2000

Field of View (arcmin)
 auto Circular Rectangle

center (RA) 00h52m12.79s **copy/paste to**
center (DEC) 65d28m49.7s **copy/paste to**

Radius(arcmin) 10.0

From (RA) Corner Coordinate **To (RA)** Opposite Corner Coordinate
From (DEC) Corner Coordinate **To (DEC)** Opposite Corner Coordinate

Observation Date 2008-09-24 **Exp Time (sec)** Exp Time **Observer** Observer

Frame ID Frame ID **Exposure ID** Exposure ID

Output Format
 TABLE (max 5,000 rows, HTML) ASCII (max 20,000 rows, text)

Frame or Shot mode
 FRAME SHOT (SUP, HSC, and KWF ONLY)

Search **Reset to defaults** **Help...**

SMOKA archive: (2) Advanced Search

- click blue links → explanations.

Search Conditions

<u>Object Name (for name resolve)</u>	<u>Resolver</u>
<input type="text" value="Object Name"/>	<input type="radio"/> SIMBAD <input type="radio"/> NED <input type="radio"/> Don't Resolve <input type="button" value="Resolve"/>
<u>Coordinate System</u>	
<input type="radio"/> Equatorial <input type="radio"/> Circular <input type="radio"/> Equinox <input type="radio"/> J2000	<u>center (RA)</u> 00h52m12.79s <input type="button" value="copy/paste to"/> <input type="button" value="From"/> <input type="button" value="To"/> <u>center (DEC)</u> 65d28m49.7s <input type="button" value="copy/paste to"/> <input type="button" value="From"/> <input type="button" value="To"/>
<u>Field of View</u> (arcmin) <input type="radio"/> auto <input type="radio"/> Rectangle	
<u>Observation Date</u> 2008-09-24	<u>From (RA)</u> Corner Coordinate <input type="text"/> To (RA) Opposite Corner Coordinate <u>From (DEC)</u> Corner Coordinate <input type="text"/> To (DEC) Opposite Corner Coordinate
<u>Frame ID</u> <input type="text" value="Frame ID"/>	<u>Exp Time (sec)</u> <input type="text" value="Exp Time"/> <u>Observer</u> <input type="text" value="Observer"/>
<u>Output Format</u> <input type="radio"/> TABLE (max 5,000 rows, HTML) <input type="radio"/> ASCII (max 20,000 rows, text)	
<u>Frame or Shot mode</u> <input type="radio"/> FRAME <input type="radio"/> SHOT (SUP, HSC, and KWF ONLY)	
<input type="button" value="Search"/> <input type="button" value="Reset to defaults"/> <input type="button" value="Help..."/>	

Check all not to B/D/F will be
lose any data retrievable later

Instruments
1 selected
✓ Check all ✗ Uncheck all
Subaru
Suprime-Cam (selected)
FOCAS (selected)
HDS
OHS/CISCO
IRCS
CIAO

Observation Mode
4 selected
✓ Check all ✗ Uncheck all
IMAG (selected)
SPEC (selected)
IPOL (selected)
OTHER (selected)

Data Type
1 selected
✓ Check all ✗ Uncheck all
OBJECT (selected)
BIAS
DARK
FLAT
COMPARISON
TEST

SMOKA archive: (2) Advanced Search

- click blue links → explanations.

Search Conditions

<u>Object Name (for name resolve)</u>	<u>Resolver</u>	
<input type="text" value="Object Name"/>	<input type="radio"/> SIMBAD <input type="radio"/> NED <input type="radio"/> Don't Resolve <input type="button" value="Resolve"/>	
<u>Coordinate System</u>		
<input type="radio"/> Equatorial <input type="radio"/> Circular <input type="radio"/> Equinox <input type="radio"/> J2000	<u>center (RA)</u> 00h52m12.79s <input type="button" value="copy/paste to"/> From <input type="button" value="To"/> <u>center (DEC)</u> 65d28m49.7s <input type="button" value="copy/paste to"/> From <input type="button" value="To"/>	<u>Radius(arcmin)</u> 10.0
<u>Field of View</u> (arcmin) auto	<u>From (RA)</u> Corner Coordinate <u>From (DEC)</u> Corner Coordinate	<u>To (RA)</u> Opposite Corner Coordinate <u>To (DEC)</u> Opposite Corner Coordinate
<u>Observation Date</u> 2008-09-24	<u>Exp Time (sec)</u> Exp Time	<u>Observer</u> Observer
<u>Frame ID</u> Frame ID		<u>Exposure ID</u> Exposure ID
<u>Output Format</u> <input checked="" type="radio"/> TABLE (max 5,000 rows, HTML) <input type="radio"/> ASCII (max 20,000 rows, text)		
<u>Frame or Shot mode</u> <input checked="" type="radio"/> FRAME <input type="radio"/> SHOT (SUP, HSC, and KWF ONLY)		
<input style="background-color: orange; color: white; border-radius: 5px; padding: 5px; font-weight: bold; width: 100px; height: 30px; margin-right: 10px;" type="button" value="Search"/>		<input type="button" value="Reset to defaults"/>
Help...		

Check all not to B/D/F will be
lose any data retrievable later

Instruments

1 selected

Check all Uncheck all

Subaru

Suprime-Cam

FOCAS

HDS

OHS/CISCO

IRCS

CIAO

Observation Mode

4 selected

Check all Uncheck all

IMAG

SPEC

IPOL

OTHER

Data Type

1 selected

Check all Uncheck all

OBJECT

BIAS

DARK

FLAT

COMPARISON

TEST

SMOKA archive: (2) Advanced Search

- Most likely only one DATE_OBS → Mark all and Datarequest.

No.	Doubt	Raw Data	FRAMEID	DATE_OBS
1		<input type="checkbox"/>	FCSA00100473	2008-09-24 weather
2		<input type="checkbox"/>	FCSA00100474	2008-09-24 weather
3		<input type="checkbox"/>	FCSA00100475	2008-09-24 weather
4		<input type="checkbox"/>	FCSA00100476	2008-09-24 weather

1

Your Account

Bytes of requested frames (approximately) 17,242,560

Media type

FTP

Data Compression *1) *2)

	Not Compress	GZIP(.gz)	FPACK(.fz)
Not Compress	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ZIP (.zip)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TAR (.tar)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Purpose

Research(galaxies)

2

Number of requested frames

Requested FrameID

5

FCSA00100473 2008-09-24
FCSA00100474 2008-09-24
FCSA00100475 2008-09-24
FCSA00100476 2008-09-24
FCSA00100477 2008-09-24

3

Search for Calibration Frames [About Calibration Frames ...](#)

Are you ok? 4

Download

Email

- You'll get an email once it is ready to be downloaded.
- It explains how to.

Windows: use git bash or WSL
UNIX: use terminal



user = bastro99

Thank you very much for using SMOKA.

The placement process of the data you have requested has been finished.

Now the requested data are ready for download.

Please access the URL below.

<ftp://smokaftp.nao.ac.jp/S06/P06bastro991106102528NT>

(user = smokaftp passwd = Ht0m5gYr)

You can also download all requested data including FITS, etc. and some information files using the following command:

wget -nd -r <ftp://smokaftp:Ht0m5gYr@smokaftp.nao.ac.jp/S06/P06bastro991106102528NT>

The retention period of the directory is seven days.

nFile= 272, Size=1579 MB

Download Size=565 MB

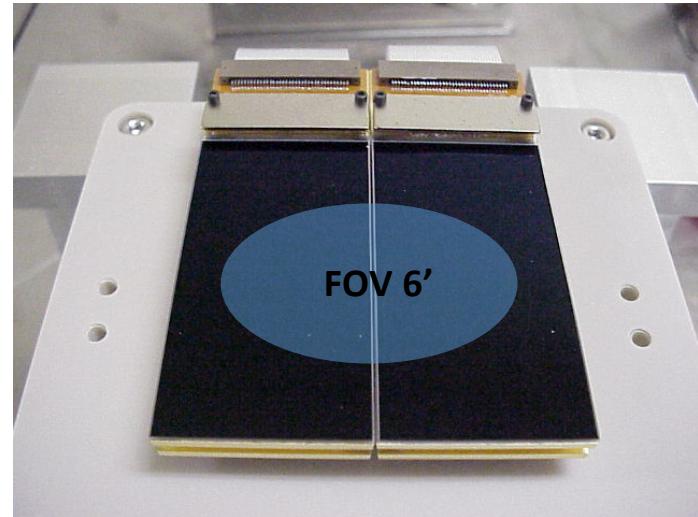
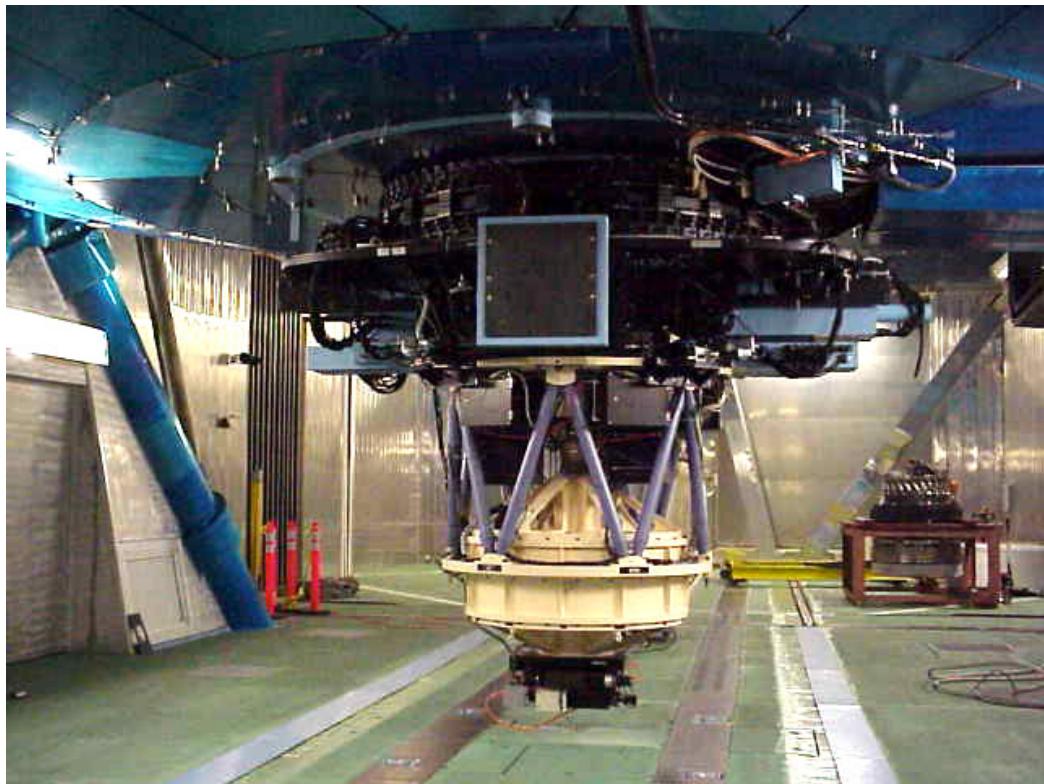
FOCAS Description

2018-11-08

FOCAS

- Faint Object Camera And Spectrograph
- Optical imaging (photometry) / long-slit / multi-slit
- FOV = 6'
- Most useful explanations:
 - <http://subarutelescope.org/Observing/Instruments/FOCAS/index.html>

FOCAS

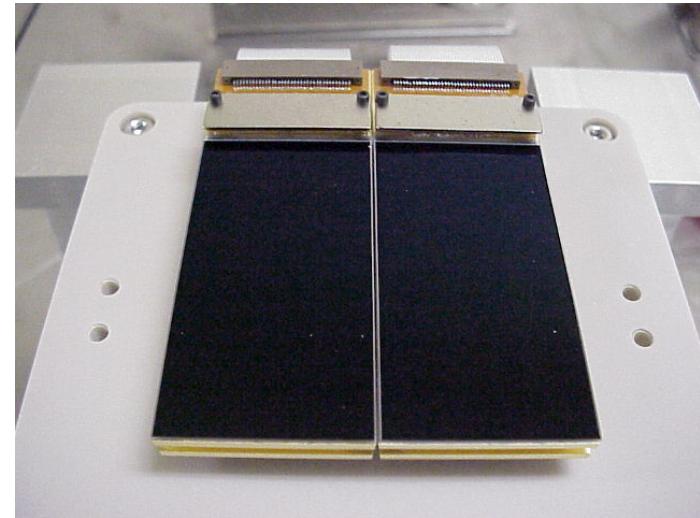
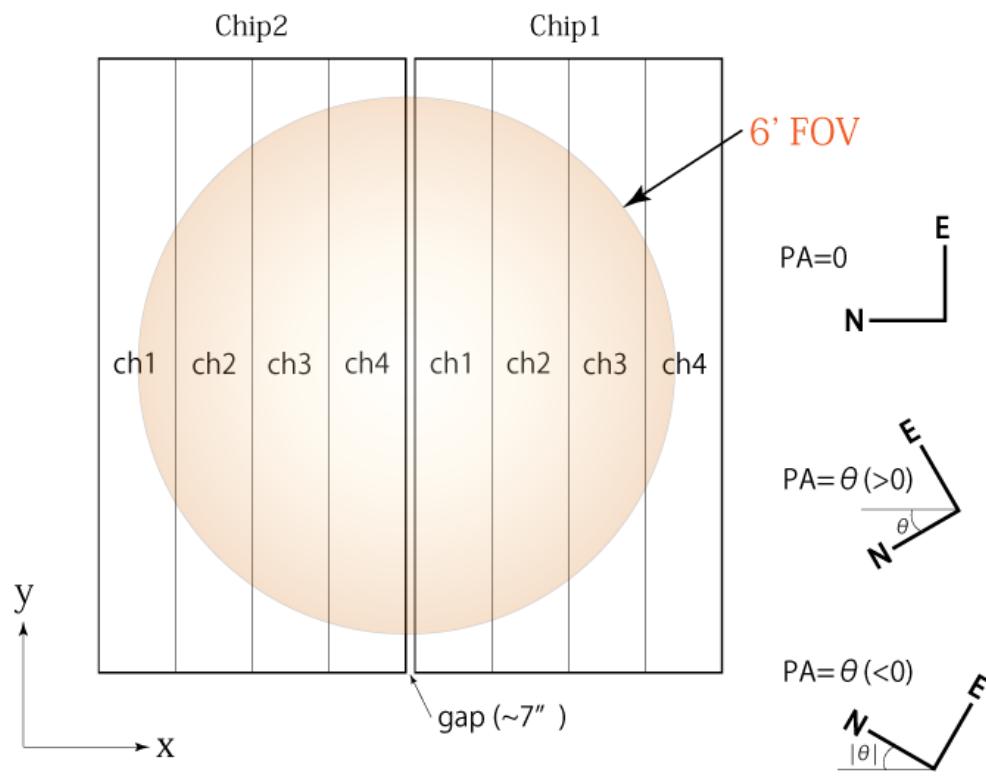


~2m

CCD: two 2K*4K

<http://subarutelescope.org/Observing/Instruments/FOCAS/Detail/UsersGuide/Introduction/SpecTable.html>

FOCAS



	Chip2			
	ch1	ch2	ch3	ch4
gain (e/ADU)	2.105	1.968	1.999	1.918
readout noise (e)	4.3 ^(*)1)	3.7	3.4	3.6
active area ^(*)2)	[9:520,49:4224]	[553:1064,49:4224]	[1081:1592,49:4224]	[1625:2136,49:4224]
over-scan region ^(*)2)	[521:536,*]	[537:552,*]	[1593:1608,*]	[1609:1624,*]

	Chip1			
	ch1	ch2	ch3	ch4
gain (e/ADU)	2.081	2.047	2.111	2.087
readout noise (e)	4.2 ^(*)1)	3.8	3.6	4.0
active area ^(*)2)	[9:520,49:4224]	[553:1064,49:4224]	[1081:1592,49:4224]	[1626:2137,49:4224] ^(*)3)
over-scan region ^(*)2)	[521:536,*]	[537:552,*]	[1593:1608,*]	[1610:1625,*] ^(*)3)

FOCAS

- Grism List:
 - http://subarutelescope.org/Observing/Instruments/FOCAS/Detail/UsersGuide/PartsDetail/Grisms/GrismSelection_e.html
- OR,
 - <http://www.naoj.org/Observing/Instruments/FOCAS/spec/grisms.html>
- Use Grating&Filter ID to find out what had been used for your group project.

FOCAS

- For image reduction, you may use python or use FOCASRED package.
- FOCASRED Manual:
 - <http://subarutelescope.org/Observing/Instruments/FOCAS/Detail/UsersGuide/DataReduction/focasred.html>
 - And
<http://subarutelescope.org/Observing/Instruments/FOCAS/Detail/UsersGuide/DataReduction/IDL/SpecReduction.html>
 - The package can be downloaded – ask TA