Current Status of SMOKA

http://smoka.nao.ac.jp/

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Subaru-**M**itaka-**O**kayama-**K**iso-**A**rchive (SMOKA)

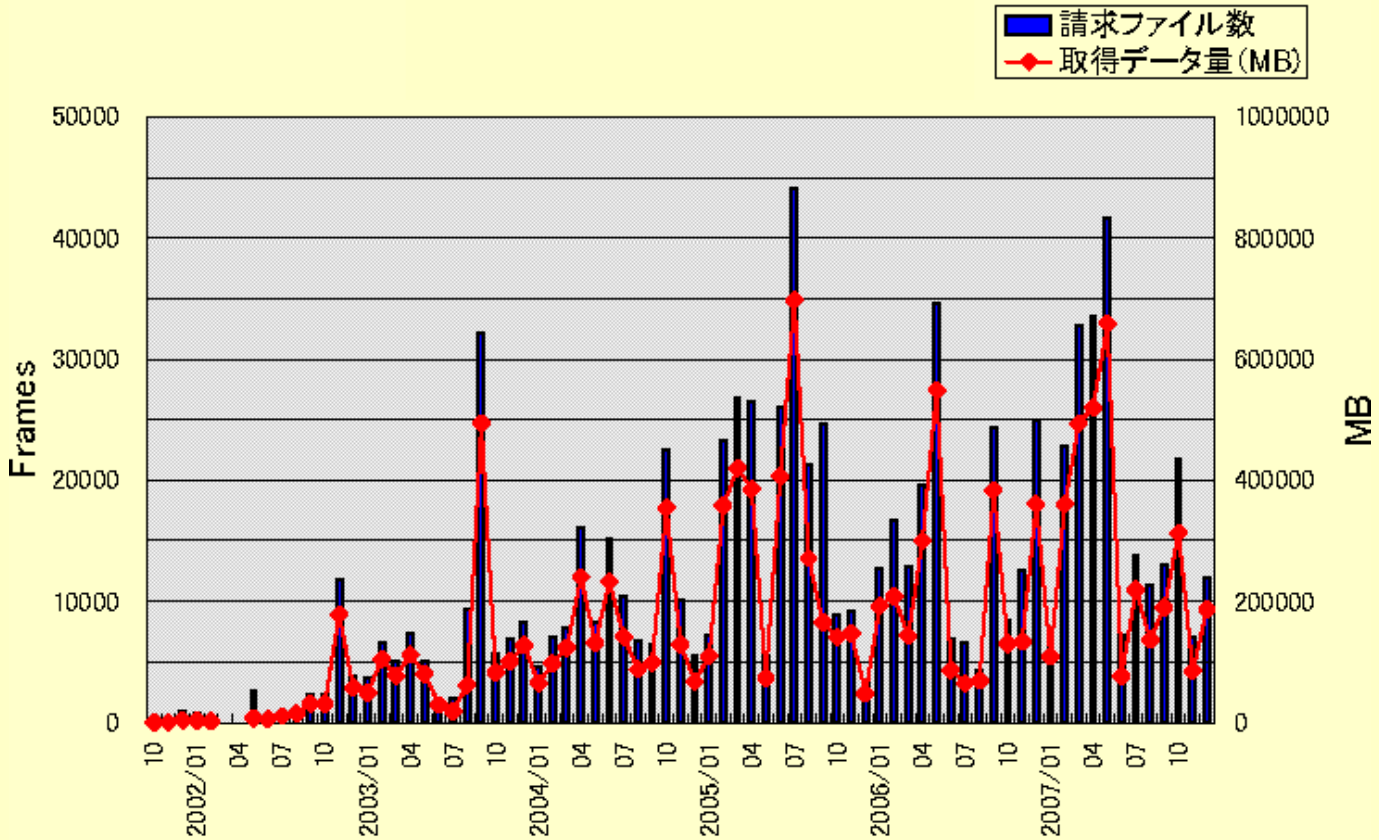
science archive system providing public data ;

- Subaru Telescope (8.2m)
- 188 cm telescope (OAO)
- 105 cm Schmidt telescope (Kiso Obs.)
- 50 cm telescope (Akeno Obs. and OAO)

SMOKA is developed and operated by ADC / NAOJ

Usage of SMOKA

Data Request :
  5000-20000 frames / month
Users :
  229 (29 Jan. 2008)



Products of SMOKA

Papers using SMOKA

- 3 papers in 2003 (Suprime-Cam 3)
- 5 papers in 2004 (Suprime-Cam 5)
- 6 papers in 2005 (Suprime-Cam 5, CIAO 1)
- 9 papers in 2006 (Suprime-Cam 7, HDS 1, IRCS 1)
- 8 papers in 2007 (Suprime-Cam 6, CIAO 1, 2kCCD 1)
- 1 thesis in 2005 (2kCCD)

Astronomical Teaching Materials using SMOKA

- "Hubble Law" for high school students (2003)
  (by PAOFITS-WG (http://paofits.dc.nao.ac.jp))

Current Status and Future Plan of SMOKA

Current version is SMOKA Ver. 3.1
Updates from Ver 3.0 (from previous Subaru UM)

- MITSuME data
- Weather Information Pages
- Computer Replacement (- Mar. 2008)

Related Things ...

- NAQATA
- Astrometric Calibration of Suprime-Cam Data

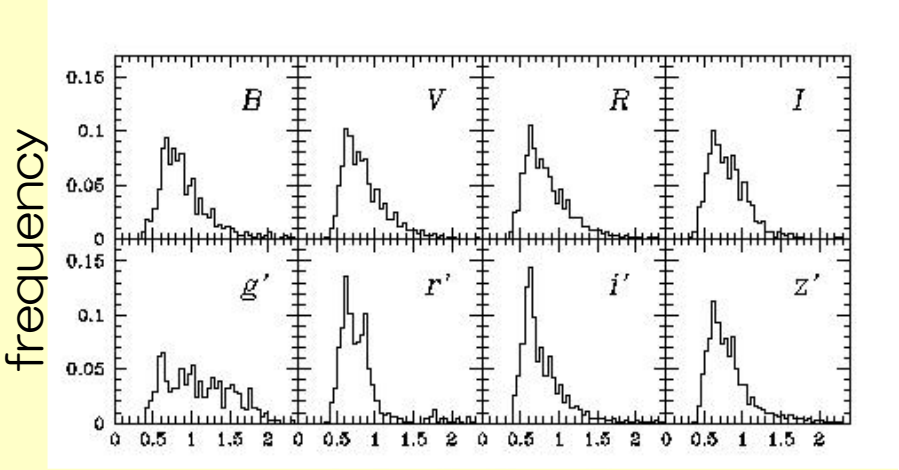
Future Plan

- astrometric calibrated data
- new instruments and telescopes
- catalogs

Quality Assessment System "NAQATA"

"NAQATA" is the data assessment system for observed data obtained by the Subaru Telescope. (May 2007～)

- Check for FITS data
  - FITS format (fitsverify)
  - Keywords of FITS header
- Assessment of the data quality
  - PSF
  - Limiting Magniture
  - Gain, Readout Noise



Final Aim : Construction of a Quality Control System

Judge continuation/cancellation of observation

- Whether the data quality is enough ?
- Is setting of instruments correct ?

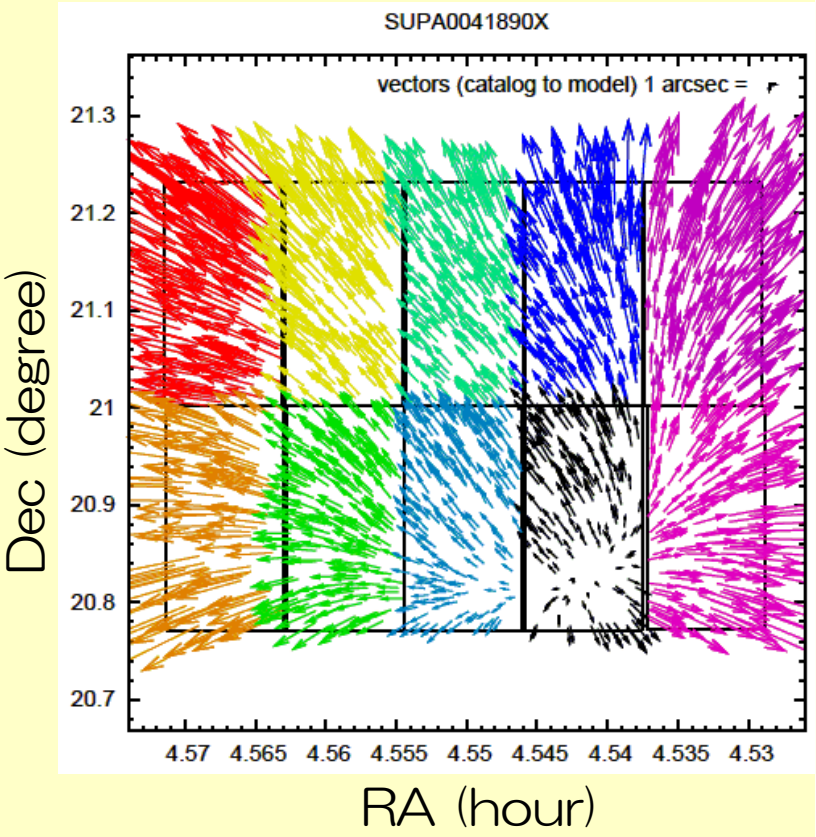
Astrometric Calibration of Suprime-Cam Data

The positions of objects are very important !

But.....the case of Suprime-Cam,

Informations of position
(WCS, World Coordinate System)
in the raw data has
error of about 30" (at maximum).

- shift (position of center)
- distortion



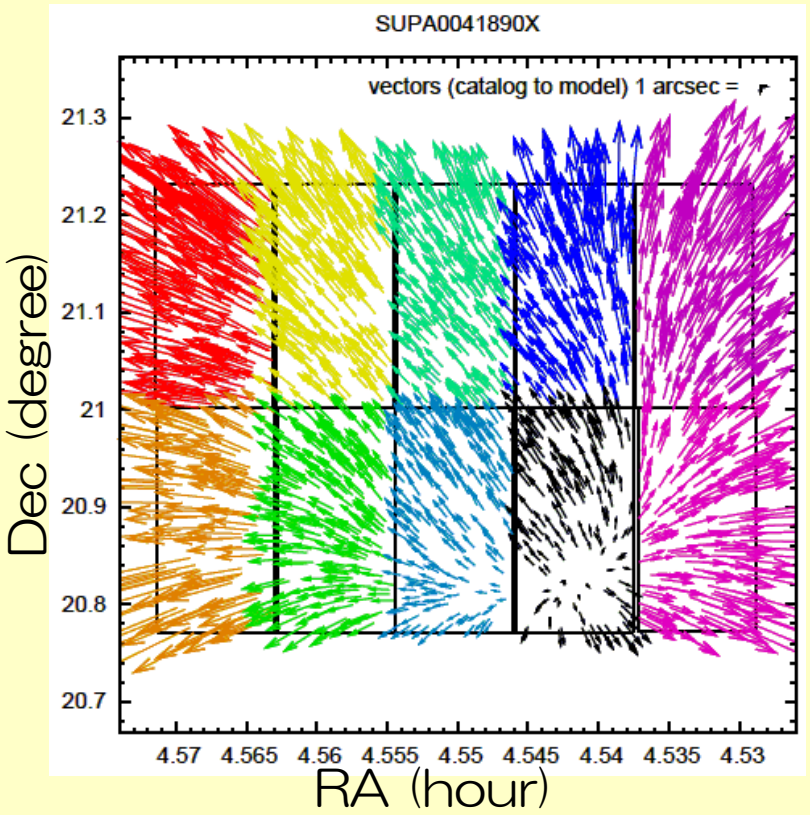
Calibration of the WCS (Astrometric Calibration)

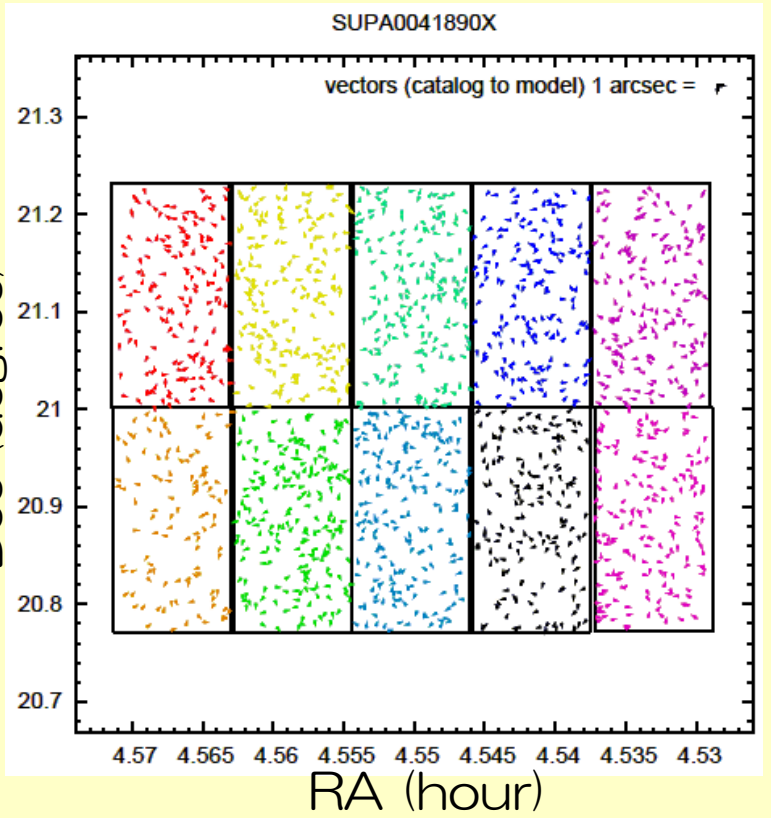
Stars detected in images ⟷ USNO-B1.0 catalog

fitting

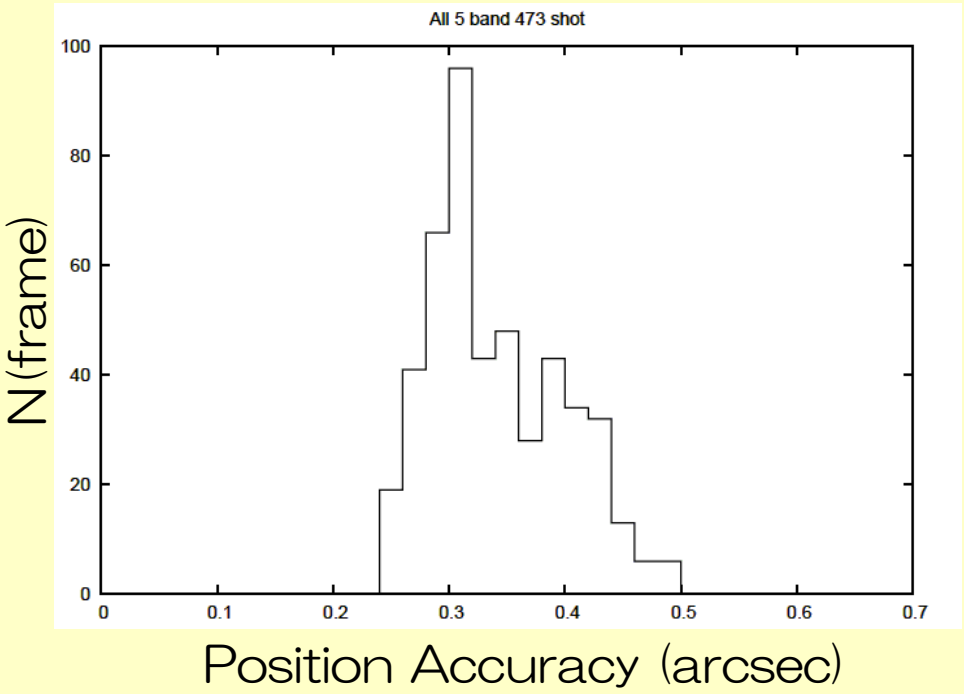
- fit by 3rd order expression
- fit 10 CCD chips at the same time
  using relative position between CCD chips
- thin out stars to make distribution of stars uniformly

Difference between coordinates of model and USNO-B1.0 catalog

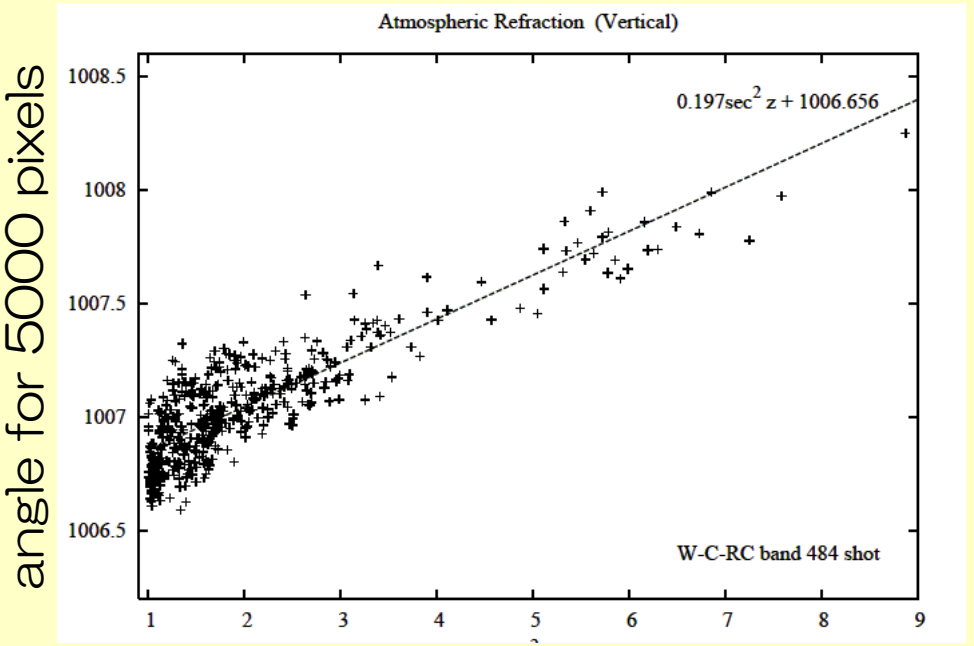




Distribution of
Position Accuracy
(0.2 - 0.5 arcsec)



Atmospheric Refraction
(larger refraction
at lower elevation)



$\sec^2 z$ (z = zenith distance)