HSC Pipeline Help desk - Support for Open Use Users

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Abstract

The Hyper Sprime-Cam is the prime focus camera of Subaru telescope. It has 104 main science CCDs and covers 1.5 deg FoV in diameter. HSC pipeline is data processing software observed with HSC. Its manual has been released and the help desk for open use uses opened in 2016. The contents of the manual are; Basic information of HSC, Distribution of pipeline binary package and its installation, Pipeline analysis tutorial, Pipeline tools, Machine environment, Analysis tips, and FAQ. HSC data analysis machine for open use（hanaco）is provided for Open Use users who do not have enough analysis environment. We also present the cooperation with pipeline developing team.

About HSC Pipeline

- HSC data analysis software developed by NAOJ, Princeton University and Kavli IPMU.
- Based on LSST (Large Synoptic Survey Telescope) pipeline. HSC pipeline is the one of its package to add HSC specific processing.
- Basically written by Python. Imaging or high-speed processing is implemented by C++, then SWIG used to connect to Python.
- Originally developed for the uncrowded region and the area where there is no extended object.
- SDSS DR9 is used for astrometry and flux calibration.

Helpdesk info

Please send an e-mail if you have any problems or questions about HSC pipeline;

helpdesk@anela.mtk.nao.ac.jp

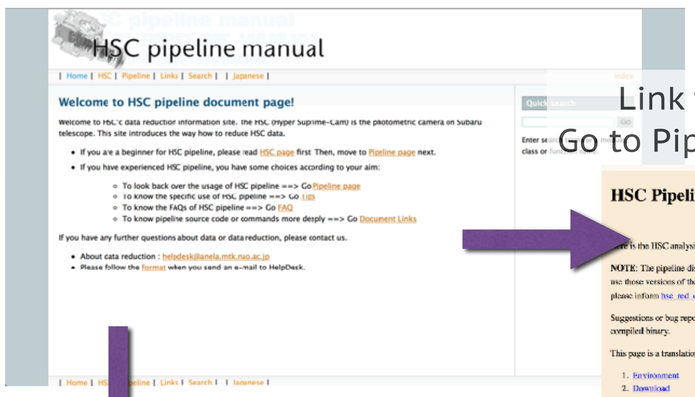
Note:
- Help desk is opened for Open Use users. If you have questions about SSP, please contact SSP team. Before sending message, please refer to FAQ in users manual.
- Please follow the mail format (http://hsc.mtk.nao.ac.jp/pipedoc/format.html#format)。

Contents of HSC Pipeline Users Manual

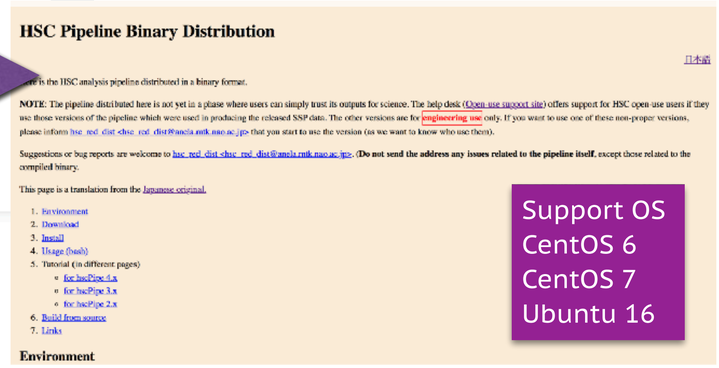
Manual Page

Japanese: http://hsc.mtk.nao.ac.jp/pipedoc/, English: http://hsc.mtk.nao.ac.jp/pipedoc_e/

- Pipeline Installation, Analysis Tutorial

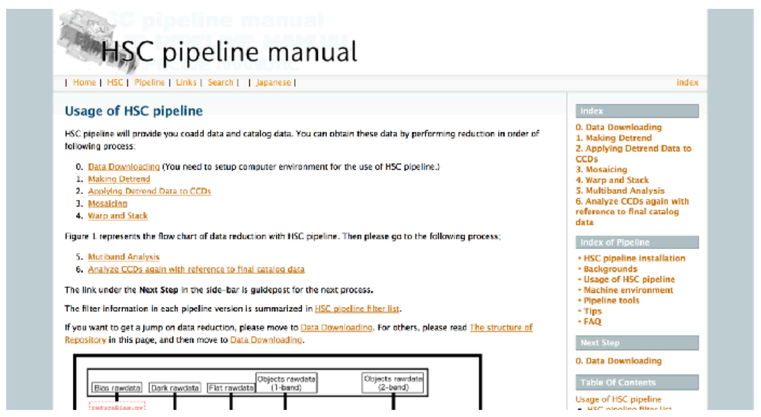


Link to HSC Pipeline Binary Distribution;
Go to Pipeline page -> HSC pipeline installation



Support OS
CentOS 6
CentOS 7
Ubuntu 16

Tutorial page;
Go to Pipeline page ->
Usage of HSC pipeline



In the tutorial;
- Applying detrend data to CCDs
- Mosaicing and Stack
- Multiband analysis

are shown and finally the coadd image and catalogs are created.

- Pipeline Tools (http://hsc.mtk.nao.ac.jp/pipedoc_e/e_tool/index.html)
- Some python-based pipeline tools are included in the package.
- You can check images and catalogs.
- Tools (Sample scripts are available.)
  - butler
  - Exposures, MaskedImage, Images
  - SourceCatalog

Sample script

```
# python module calling butler
import lsst.daf.persistence as dafPersist

# Specify rerun directory in which the data you want to use is stored
dataDir = "~/hsc/rerun/dith_16h_test"

# Call butler
butler = dafPersist.Butler(dataDir)

# Specify the target data and searched by butler
#
# CORR-0902798-59.fits
# 'calexp' means CORR-*.fits
dataId = {'visit': 902798, 'ccd': 59}
exp = butler.get('calexp', dataId)
```

- Machine Environment (http://hsc.mtk.nao.ac.jp/pipedoc_e/e_env/index.html)
- The required machine specification; 12 cores, 64 GB memory, 10 TB HDD for ~300 shots. If you analyze 300 shots with 12 cores machine, it will take 2 weeks to complete.
- If you don't have enough environment, you can use **HSC data analysis machine for open use** (**hanaco**, Table 1). It supports imaging and catalog creation using HSC pipeline.
- hanaco use expiration: 6 months
- hanaco application form -> http://hsc.mtk.nao.ac.jp/hanaco-application/cgi-bin/form#en

Table1. hanaco specification

	Specification
CPU	16 core, 32 threads, 2.3 GHz, x86-64
Memory	256 GB
HDD	36 TB x2

- Tips (http://hsc.mtk.nao.ac.jp/pipedoc_e/e_tips/index.html#tips)
- Helpful information for pipeline analysis.
- Gathering information about command editing or how to set your original astrometry catalog.

- FAQ (http://hsc.mtk.nao.ac.jp/pipedoc_e/e_faq/index.html)
- Collect frequently asked question.
- You can check your problem here before sending an e-mail to help desk.

- Document links (http://hsc.mtk.nao.ac.jp/pipedoc_e/e_link/index.html#link)
- Links to documentation to understand each command deeply or check pipeline source.

- **Issue tracking / Information sharing**
- The sent issues are recorded in issue list. Problem description, issued date, and way forward are listed. It is shared with NAOJ HSC pipeline team.
- Total number of issues in 2016: 38 (All closed)

- **Information sharing with development team**
- Development team has JIRA and manages problems about pipeline. We report and track the issue in JIRA from users if it can be a bug.
- Users can ask detailed algorithms of pipeline directly to HSC Q&A Forum (http://hsca.ipmu.jp:8080/questions/).

Future Works

- Summarize requests for improvement from users and feedback to development team.
- Testing automatic processing scripts.