



HST in the VO and the Clouds

Daniel Durand: National Research Council
CADC



HST: Past systems

- First system: Full static (get everything from STScI on optical media (2 generations))
- Then, OTFR (on-the-fly recalibration) to provide better calibration to scientists
 - Slow for large requests
 - not Data-Mining friendly

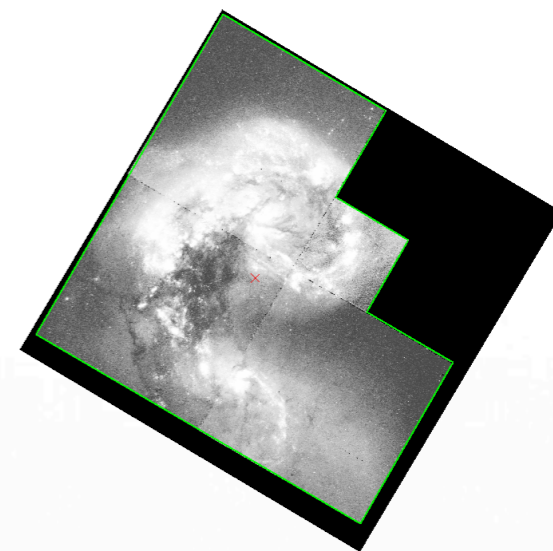


HST Current System

- HST cache: constant recalibration in background
- Full redo could be trigger by:
 - new calibration software, calibration, but...
 - Hard to capture the right knowledge
 - Cosmetic for one, scientific for others



HST cache



STScI



Storage/DB



OTFR
OTFC



calib



Storage/DB



Users

Limitations

- 80 cores
- < 3 months
- Physical space
- Electricity
- €€€€€



Main problems

- Need more CPUs to calibrate HST faster:
solution = Grid computing
- The calibration files need to be available on
a local file system: solution = VOSpace



CANFAR

- Enable leading-edge scientific discoveries
- Deliver a network-enabled platform for delivery, processing, storage and analysis of large astronomical datasets
- Support the changing sociology of science:
Survey/project teams
- HOW? - VO technologies + Cloud + VM



CANFAR

- VO technologies
 - VOSpace (virtual file system (almost))
 - Access control
 - Provide interoperability



CANFAR

- Execution via Virtual machine
 - Allow custom environment
 - Owner is responsible for the VM
 - Owner is responsible for data in/out



VoSpace

- Helping the data in/out, sharing
- Managing a collection of links to data
- Organized like a file system
- DB and storage pointers underneath



VoSpace usage: reference files

CANFAR
Canadian Advanced Network for Astronomical Research

Welcome
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durand

5 items, 124.01 GB available

Name	Size	Last Modified (UTC)
..	---	---
data	1.05 TB	2013-02-12 - 00:02:27
results	0 bytes	2012-06-05 - 23:35:06
dummy.dat	249.00 bytes	2012-04-16 - 15:40:27
durand.img.gz	3.07 GB	2013-02-12 - 15:43:12
WFC3regression.lst_cleaned.txt	1.37 kB	2012-09-28 - 15:55:16

Actions

- Add files
- Add folder
- Upload folder
- Add link
- Add bookmark link
- Download
- Delete
- Move
- Edit permissions

Manage Groups

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CANFAR

Canadian Advanced Network for Astronomical Research

Welcome
Register

durand > data > hst-refer

11 items, 123.77 GB available

Actions

- Add files
- Add folder
- Upload folder
- Add link
- Add bookmark link
- Download
- Delete
- Move
- Edit permissions

Manage Groups

Name ▲	Size	Last Modified (UTC)
-	---	---
cachemodes	1.93 MB	2012-10-01 - 06:10:19
comp	329.07 MB	2013-01-31 - 14:33:18
iref	141.63 GB	2013-02-11 - 20:34:54
jref	807.67 GB	2013-03-01 - 17:25:19
lref	863.21 MB	2013-02-11 - 20:19:36
mtab	320.51 MB	2013-02-11 - 19:57:54
nref	2.60 GB	2012-09-21 - 15:53:43
oref	18.58 GB	2013-01-23 - 20:17:11
uref	101.06 GB	2013-02-12 - 00:01:31
acs_header.rules	8.75 kB	2013-02-25 - 13:39:07
x2m184851_drk.fits	160.30 MB	2013-02-25 - 13:36:31

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Herzberg Institute of Astrophysics

Group Management

Group Management

- Create Group ▶
- My Groups ▶
- Other Groups ▶
- Help ▶

CADC Links

- CADC Home ▶
- CADC Registration ▶

Group Details

Group Name: HST-RO
Group ID: ivo://cadc.nrc.ca/gms#HST-RO
Group Description: HST CAOM R/O group
Owner Name: Daniel Durand (durand)
Public Read Access: false
Groups read and write permission:
Groups read permission:

[\[Modify group details\]](#)

Current Members of HST-RO

Group Members:

- Daniel Durand (durand / CN=durand_3ab,OU=CADC,O=HIA,C=CA)
- Jonas Haase (jhaase / CN=jhaase_f04,OU=CADC,O=HIA,C=CA)
- Mike Swam (mswam / CN=mswam_fbc,OU=CADC,O=HIA,C=CA)

[Remove Members](#)

Add Group Member to HST-RO

CADC User ID or
Distinguished Name:

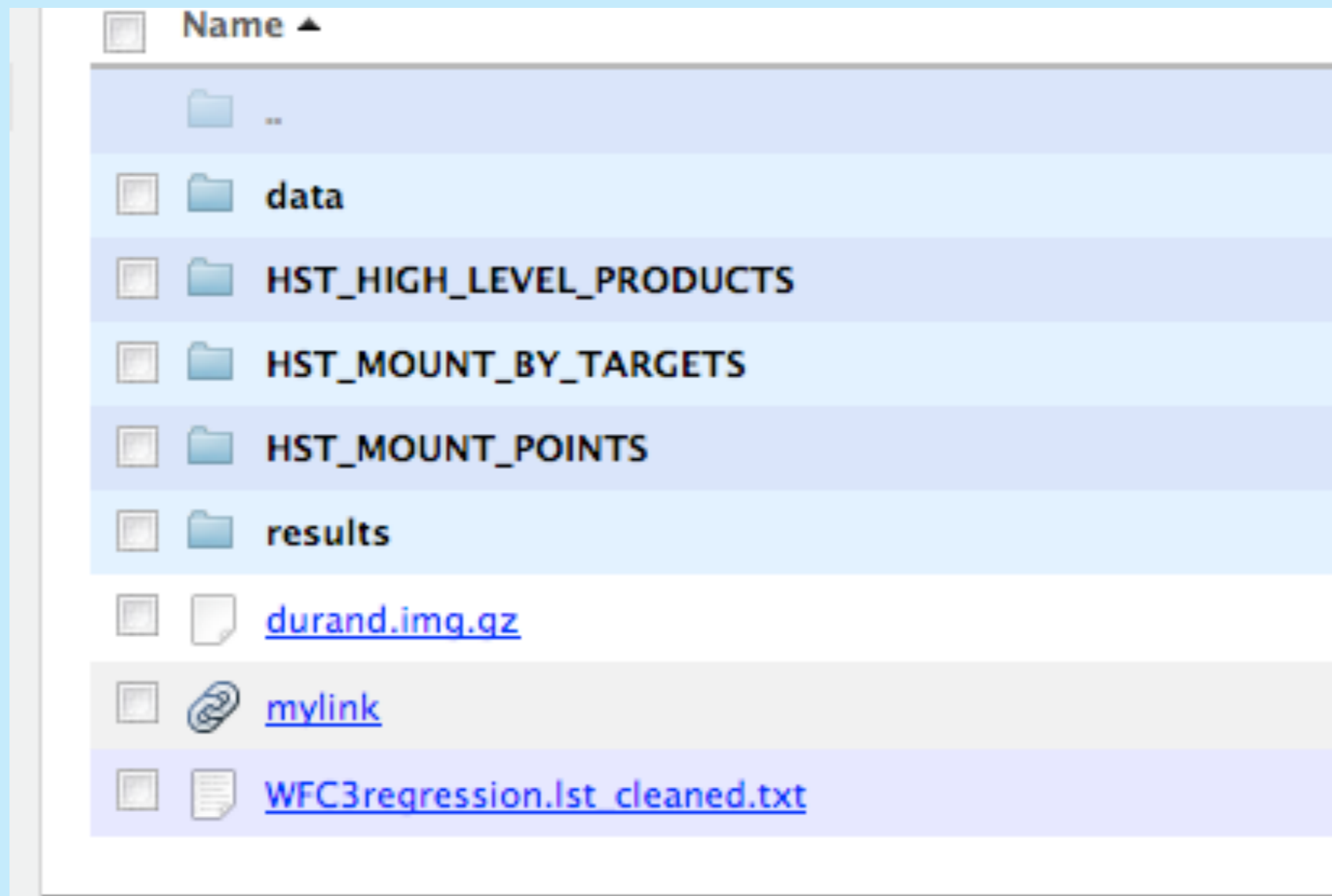
[Add Member](#)



VOSPACE: FUSE

- Usage of FUSE for 'mounting' VOSpace as a local disk
- mountvofs

- ```
sciproc2 16% ls -lrt /tmp/vospace/durand
total 0
-rwx---r-x 1 durand durand 249 2012-04-16 07:40 dummy.dat*
drwx---r-x 2 durand durand 0 2012-06-05 15:35 results/
-rwx---r-x 1 durand durand 1399 2012-09-28 07:55 WFC3regression.lst_cleaned.txt*
drwx---r-x 2 durand durand 1152045553983 2013-02-11 16:02 data/
-rwx---r-x 1 durand durand 3293859674 2013-02-12 07:43 durand.img.gz*
```





# CANFAR

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## Processing

[New VM](#)[Boot VM](#)[Running VMs](#)[Submit Job\(s\)](#)[Running Jobs](#)

### All Running Jobs

Network latency: 3.485 seconds - Data load: 0.091 seconds. Table rendering: 0.033 seconds.

| Job ID  | User      | Started on          | Status  | Command           | VM Type       | Min. No. of CPUs | Min. Memory (MB) | No. of Starts |
|---------|-----------|---------------------|---------|-------------------|---------------|------------------|------------------|---------------|
| 6798.2  | MarkBooth | 2013-02-21 11:01:05 | Running | mercury.sh 16 ... | mercury       | 1                | 24               | 3             |
| 6832.28 | MarkBooth | 2013-02-23 01:16:12 | Running | mercury.sh 28 ... | mercury       | 1                | 24               | 3             |
| 6832.27 | MarkBooth | 2013-02-26 20:45:01 | Running | mercury.sh 27 ... | mercury       | 1                | 24               | 3             |
| 6990.0  | cadcs     | 2013-03-01 07:00:25 | Running | jaotest.sh        | debug1-breezy | 1                | 2048             | 1             |
| 6988.0  | cadcs     | 2013-03-01 05:08:54 | Running | jaotest.sh        | debug1-hermes | 1                | 2048             | 1             |
| 6991.9  | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.8  | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.7  | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.6  | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.5  | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.4  | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.3  | durand    | 2013-03-01 09:52:42 | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.2  | durand    | 2013-03-01 09:51:20 | Running | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.1  | durand    | 2013-03-01 09:48:16 | Running | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.0  | durand    | 2013-03-01 08:47:58 | Running | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.35 | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.34 | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.33 | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |
| 6991.32 | durand    |                     | Idle    | hst_cache_pro...  | durand        | 1                | 2048             | 0             |

Showing all 1489 rows

Powered by

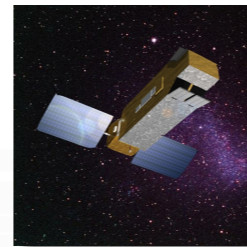




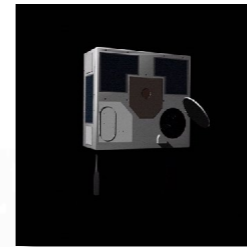
# HST in VO - CAOM2



**HST**



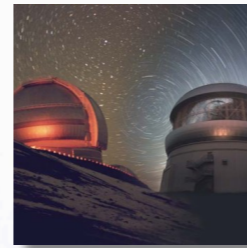
**FUSE**



**MOST**



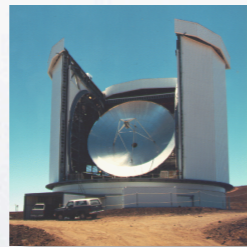
**CFHT**



**Gemini**



**BLAST**



**JCMT**



**CGPS**



**MACHO**





# CAOM2 status

- Usage of cache software for ingest
- fits2caom2 to create first XML seed for planes (<http://code.google.com/p/opencadc/source/browse/>)
- Using caom2repo for ingest in Sybase
- Harvested every hour in Postgress
- Have to use pycaom lib for filling up bounds values (mostly footprint)



# CAOM2 status

- HST images (almost done)
- HLA images (getting there)
- HST spectroscopy (later)
- HLA spectroscopy (later)



# CADC Advanced Search

CAOM Query

ObsCore Query

Results

Errors

ADQL Query

About

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Search

Reset

## Observation

Observation ID

- P.I. Name
- Proposal ID
- Proposal Title
- Proposal Keyword(s)

## Spatial Constraints

- Target
- Pixel Scale
- Do Spatial Cutout

## Time

- Observation Date
- Integration Time
- Time Span

## Spectral Constraints

- Spectral Coverage
- Spectral Sampling
- Bandpass Width
- Do Spectral Cutout

## Band

- All (5)
- Infrared
- Millimeter
- Optical
- Radio
- null

## Collection

- All (9)
- ALMA
- BLAST
- CFHT
- CGPS
- DAO
- GEMINI
- HST
- IRIS
- VGPS

## Instrument

- All (6)
- ACS
- HRS
- NICMOS
- STIS
- WFC3
- WFPC2

## Filter

- All (1)
- F336W

## Calibration Level

- All (3)
- Raw Standard
- Calibrated
- Product

## Data Type

- All (1)
- image



CAOM Query | ObsCore Query | **Results** | Errors | ADQL Query | About

[Login](#)

Product types

- Calibration
- Auxiliary
- Info
- Preview

[Download](#)

Results 1-50 of 195 (195 before filtering) sorted by Start Date [Get Full VOTable](#)

Show  results per page

◀ Previous 1 2 3 4 Next ▶

Text boxes under columns select matching rows [Apply Filter](#) [Clear Filter](#)

| <input type="checkbox"/> | Preview | Collection                          | RA (J2000.0)                        | Dec. (J2000.0)                      | Target Name                         | Start Date                            | Integration Time                     | Instrument                          | Filter                              | Observation ID                      | Calibration Level                   | Min. Wavelength                     | Max. Wavelength                     |
|--------------------------|---------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
|                          |         | <input type="text" value="String"/> | <input type="text" value="Number"/> | <input type="text" value="Number"/> | <input type="text" value="String"/> | <input type="text" value="Number"/>   | <input type="text" value="Number"/>  | <input type="text" value="String"/> | <input type="text" value="String"/> | <input type="text" value="String"/> | <input type="text" value="Number"/> | <input type="text" value="Number"/> | <input type="text" value="Number"/> |
|                          |         |                                     | <input type="text" value="H:M:S"/>  | <input type="text" value="D:M:S"/>  |                                     | <input type="text" value="Calendar"/> | <input type="text" value="Seconds"/> |                                     |                                     |                                     |                                     | <input type="text" value="A"/>      | <input type="text" value="A"/>      |
| <input type="checkbox"/> |         | HST                                 | 22:57:38.14                         | -29:37:32.2                         | NAME-FOMALHAUT                      | 2009-04-24 00:40:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1505m                           | Product                             | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:38.84                         | -29:37:25.6                         | NAME-FOMALHAUT                      | 2009-04-24 00:40:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1505m                           | Product                             | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:40.40                         | -29:37:10.1                         | NAME-FOMALHAUT                      | 2009-04-24 00:40:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1505m                           | Raw Standard                        | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:40.40                         | -29:37:10.1                         | NAME-FOMALHAUT                      | 2009-04-24 00:40:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1505m                           | Calibrated                          | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:40.40                         | -29:37:10.1                         | NAME-FOMALHAUT                      | 2009-04-24 00:40:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1505m                           | Calibrated                          | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:38.14                         | -29:37:32.2                         | NAME-FOMALHAUT                      | 2009-04-24 00:34:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1504m                           | Product                             | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:38.84                         | -29:37:25.6                         | NAME-FOMALHAUT                      | 2009-04-24 00:34:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1504m                           | Product                             | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:40.40                         | -29:37:10.1                         | NAME-FOMALHAUT                      | 2009-04-24 00:34:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1504m                           | Raw Standard                        | 6553                                | 6553                                |
| <input type="checkbox"/> |         | HST                                 | 22:57:40.40                         | -29:37:10.1                         | NAME-FOMALHAUT                      | 2009-04-24 00:34:12                   | 260.00                               | WFPC2                               | F656N                               | ubaf1504m                           | Calibrated                          | 6553                                | 6553                                |



## CADC Advanced Search

[CAOM Query](#)[ObsCore Query](#)[Results](#)[Errors](#)[ADQL Query](#)[About](#)

### Login

```
SELECT Observation.observationURI AS "Preview", Observation.collection AS "Collection",
COORD1(CENTROID(Plane.position_bounds)) AS "RA (J2000.0)", COORD2(CENTROID(Plane.position_bounds)) AS "Dec.
(J2000.0)", Observation.target_name AS "Target Name", Plane.time_bounds_cval1 AS "Start Date", Plane.time_exposure AS
"Integration Time", Observation.instrument_name AS "Instrument", Plane.energy_bandpassName AS "Filter",
Observation.observationID AS "Observation ID", Plane.calibrationLevel AS "Calibration Level", Plane.energy_bounds_cval1 AS
"Min. Wavelength", Plane.energy_bounds_cval2 AS "Max. Wavelength", Observation.proposal_id AS "Proposal ID",
Observation.proposal_pi AS "P.I. Name", Plane.productID AS "Product ID", Plane.dataRelease AS "Data Release",
AREA(Plane.position_bounds) AS "Field of View", Plane.dataProductType AS "Data Type", Plane.position_timeDependent AS
"Time Dependent", Plane.provenance_name AS "Provenance Name", Plane.provenance_keywords AS "Provenance Keywords",
Observation.intent AS "Intent", Observation.target_type AS "Target Type", Observation.target_standard AS "Target Standard",
Observation.type AS "Observation Type", Plane.metaRelease AS "Meta Release", Observation.sequenceNumber AS "Sequence
Number", Observation.algorithm_name AS "Algorithm Name", Observation.proposal_project AS "Proposal Project",
```



# TAPHandle

<http://beta.cadc-ccda.hia-ih.nrc-cnrc.gc.ca/tap> Node Selector



betacadc-ccdahia-ihanrc-cnrcgcca-tap>caom2>caom2.ObsCore>sqnd7x2cezfsmh1w

- ip Nodes
- betacadc-ccdahia-ihanrc-  
  - TAP\_SCHEMA
  - ivoa
    - ivoa.ObsCore
  - cfht
  - caom2
    - caom2.Plane
    - caom2.Part
    - caom2.Observation
    - caom2.ObsCore
    - caom2.EnumField
    - caom2.Chunk
    - caom2.Artifact
  - caom

Show 10 entries

Search:

| dataproduct_type | calib_level | obs_collection | facility_name | instrument_name | obs_id    | obs_publisher_did                | obs_release_date        | acc |
|------------------|-------------|----------------|---------------|-----------------|-----------|----------------------------------|-------------------------|-----|
| image            | 1           | HST            | HST           | WFC3            | ib1n18kpq | caom:HST/ib1n18kpq/ib1n18kpq_raw | 2011-06-08T16:09:01.000 |     |
| image            | 2           | HST            | HST           | WFC3            | ib1n18kpq | caom:HST/ib1n18kpq/ib1n18kpq_ima | 2011-06-08T16:09:01.000 |     |
| image            | 2           | HST            | HST           | WFC3            | ib1n18kpq | caom:HST/ib1n18kpq/ib1n18kpq_fit | 2011-06-08T16:09:01.000 |     |
| image            | 3           | HST            | HST           | WFC3            | ib1n18kpq | caom:HST/ib1n18kpq/ib1n18kpq_drz | 2011-06-08T16:09:01.000 |     |
| image            | 3           | HST            | HST           | WFC3            | ib6wrc050 | caom:HST/ib6wrc050/ib6wrc050_drz | 2010-07-06T20:12:53.000 |     |
| image            | 3           | HST            | HST           | WFC3            | ib6wrc080 | caom:HST/ib6wrc080/ib6wrc080_drz | 2010-07-06T18:20:05.000 |     |
| image            | 1           | HST            | HST           | WFC3            | ib6wrciuq | caom:HST/ib6wrciuq/ib6wrciuq_raw | 2010-07-06T20:12:53.000 |     |
| image            | 2           | HST            | HST           | WFC3            | ib6wrciuq | caom:HST/ib6wrciuq/ib6wrciuq_fit | 2010-07-06T20:12:53.000 |     |
| image            | 3           | HST            | HST           | WFC3            | ib6wrciuq | caom:HST/ib6wrciuq/ib6wrciuq_drz | 2010-07-06T20:12:53.000 |     |
| image            | 1           | HST            | HST           | WFC3            | ib6wrcj5q | caom:HST/ib6wrcj5q/ib6wrcj5q_raw | 2010-07-06T20:12:53.000 |     |

Showing 1 to 10 of 10 entries





APHandle

betacadc

Node Selector



betacadc>caom2>caom2.Plane>boe78ijozzvjokr0

Show 10 entries

Showing 1 to 10 of 10 entries

| obsID                | planeID              | planeURI                         | productID     | metaRelease             | dataRelease             |
|----------------------|----------------------|----------------------------------|---------------|-------------------------|-------------------------|
| -1049618824171244631 | -8208090431876645476 | caom:HST/n3uub1u0q/n3uub1u0q_cal | n3uub1u0q_cal | 1998-04-20T01:03:56.000 | 1998-04-20T01:03:56.000 |
| -5969519942096795308 | -3469177723976035640 | caom:HST/n3uub1u1q/n3uub1u1q_cal | n3uub1u1q_cal | 1998-04-20T01:03:56.000 | 1998-04-20T01:03:56.000 |
| -7575897634184504263 | 5332263322789471620  | caom:HST/n3uub1u2q/n3uub1u2q_cal | n3uub1u2q_cal | 1998-04-20T01:03:56.000 | 1998-04-20T01:03:56.000 |
| -4218182637003083300 | -4218182637003082734 | caom:HST/n3uub1010/n3uub1010_mos | n3uub1010_mos | 1998-04-20T01:03:56.000 | 1998-04-20T01:03:56.000 |
| 4602398708181218372  | -6095057781707258998 | caom:HST/j8d704e1q/j8d704e1q_drz | j8d704e1q_drz | 2003-07-22T04:29:03.000 | 2003-07-22T04:29:03.000 |
| 4602398708181218372  | 1638748678394722867  | caom:HST/j8d704e1q/j8d704e1q_flc | j8d704e1q_flc | 2003-07-22T04:29:03.000 | 2003-07-22T04:29:03.000 |
| -8829024230497858866 | -4301780705083663864 | caom:HST/j8d704e8q/j8d704e8q_drz | j8d704e8q_drz | 2003-07-22T04:29:03.000 | 2003-07-22T04:29:03.000 |
| -8829024230497858866 | -8186979808620851015 | caom:HST/j8d704e8q/j8d704e8q_flc | j8d704e8q_flc | 2003-07-22T04:29:03.000 | 2003-07-22T04:29:03.000 |
| 3410915131765023285  | -4733281844381093582 | caom:HST/j8d704egq/j8d704egq_drz | j8d704egq_drz | 2003-07-22T04:29:03.000 | 2003-07-22T04:29:03.000 |
| 3410915131765023285  | 1366843850892240900  | caom:HST/j8d704egq/j8d704egq_flc | j8d704egq_flc | 2003-07-22T04:29:03.000 | 2003-07-22T04:29:03.000 |

Show 10 entries

Search:



APHandle

betacadc

Node Selector



betacadc>caom2>caom2.Plane>boe78ijozzvjokr0

Show 10 entries

Showing 1 to 10 of 10 entries

| obsID                | planeID         |
|----------------------|-----------------|
| -1049618824171244631 | -82080904318766 |
| -5969519942096795308 | -34691777239760 |
| -7575897634184504263 | 53322633227894  |
| -4218182637003083300 | -42181826370030 |
| 4602398708181218372  | -60950577817072 |
| 4602398708181218372  | 16387486783947  |
| -8829024230497858866 | -43017807050836 |
| -8829024230497858866 | -81869798086208 |
| 3410915131765023285  | -47332818443810 |
| 3410915131765023285  | 13668438508922  |

**Link Browser** ✕

Link <ivo://ivoa.net/std/DataLink/v1.0#DOWNLOAD>

auxiliary  
 Product URI: caom:HST/j8d704e8q/j8d704e8q\_drz  
 Content: application/fits 50728b

---

Link <ivo://ivoa.net/std/DataLink/v1.0#DOWNLOAD>

science,auxiliary  
 Product URI: caom:HST/j8d704e8q/j8d704e8q\_drz  
 Content: application/fits 103300146b

---

Link <ivo://ivoa.net/std/CutoutService/v1.0>

science,auxiliary  
 Product URI: caom:HST/j8d704e8q/j8d704e8q\_drz  
 Content: application/fits

|    | metaRelease             | dataRel      |
|----|-------------------------|--------------|
| il | 1998-04-20T01:03:56.000 | 1998-04-20T0 |
| il | 1998-04-20T01:03:56.000 | 1998-04-20T0 |
| il | 1998-04-20T01:03:56.000 | 1998-04-20T0 |
| os | 1998-04-20T01:03:56.000 | 1998-04-20T0 |
| :  | 2003-07-22T04:29:03.000 | 2003-07-22T0 |
|    | 2003-07-22T04:29:03.000 | 2003-07-22T0 |
| :  | 2003-07-22T04:29:03.000 | 2003-07-22T0 |
| :  | 2003-07-22T04:29:03.000 | 2003-07-22T0 |
| :  | 2003-07-22T04:29:03.000 | 2003-07-22T0 |
|    | 2003-07-22T04:29:03.000 | 2003-07-22T0 |

Show 10 entries

Search:



# New VO protocol: DATALINK

[curl http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/  
caom2proto/datalink?uri=caom:HST/jbwjt1cbq/  
jbwjt1cbq\\_drz](http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/caom2proto/datalink?uri=caom:HST/jbwjt1cbq/jbwjt1cbq_drz)

```
<TR>
 <TD>caom:HST/jbwjt1cbq/jbwjt1cbq_drz</TD>
 <TD>http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/data/pub/HSTCA/jbwjt1cbqflt_hlet</TD>
 <TD>ivo://ivoa.net/std/DataLink/v1.0#DOWNLOAD</TD>
 <TD>auxiliary</TD>
 <TD>application/fits</TD>
 <TD>50759</TD>
 <TD />
</TR>
<TR>
 <TD>caom:HST/jbwjt1cbq/jbwjt1cbq_drz</TD>
 <TD>http://www.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/data/pub/HSTCA/jbwjt1cbq_drz</TD>
 <TD>ivo://ivoa.net/std/DataLink/v1.0#DOWNLOAD</TD>
 <TD>science,auxiliary</TD>
 <TD>application/fits</TD>
 <TD>104822325</TD>
 <TD />
</TR>
<TR>
 <TD>caom:HST/jbwjt1cbq/jbwjt1cbq_drz</TD>
 <TD>http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/caom2proto/cutout?uri=ad:HSTCA/jbwjt1cbq_drz&</TD>
 <TD>ivo://ivoa.net/std/CutoutService/v1.0</TD>
 <TD>science,auxiliary</TD>
 <TD>application/fits</TD>
 <TD />
 <TD />
</TR>
```

[http://beta.cadc-ccda.hia-ih.nrc-cnrc.gc.ca/caom2proto/datalink?uri=caom:HST/jbwjt1cbq/jbwjt1cbq\\_raw](http://beta.cadc-ccda.hia-ih.nrc-cnrc.gc.ca/caom2proto/datalink?uri=caom:HST/jbwjt1cbq/jbwjt1cbq_raw)

```
<TABLEDATA>
 <TR>
 <TD>caom:HST/jbwjt1cbq/jbwjt1cbq_raw</TD>
 <TD>http://www.cadc-ccda.hia-ih.nrc-cnrc.gc.ca/data/pub/HSTCA/jbwjt1cbq_tr1</TD>
 <TD>ivo://ivoa.net/std/DataLink/v1.0#DOWNLOAD</TD>
 <TD />
 <TD>application/fits</TD>
 <TD>5564</TD>
 </TR>
 <TR>
 <TD>caom:HST/jbwjt1cbq/jbwjt1cbq_raw</TD>
 <TD>http://www.cadc-ccda.hia-ih.nrc-cnrc.gc.ca/data/pub/HSTCA/jbwjt1cbq_spt</TD>
 <TD>ivo://ivoa.net/std/DataLink/v1.0#DOWNLOAD</TD>
 <TD />
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 </TR>
 <TR>
 <TD>caom:HST/jbwjt1cbq/jbwjt1cbq_raw</TD>
 <TD>http://www.cadc-ccda.hia-ih.nrc-cnrc.gc.ca/data/pub/HSTCA/jbwjt1cbq_raw</TD>
 <TD>ivo://ivoa.net/std/DataLink/v1.0#DOWNLOAD</TD>
 <TD>science</TD>
 <TD>application/fits</TD>
 <TD>13409220</TD>
 </TR>
 <TR>
 <TD>caom:HST/jbwjt1cbq/jbwjt1cbq_raw</TD>
 <TD>http://beta.cadc-ccda.hia-ih.nrc-cnrc.gc.ca/datalink/cutout?uri=ad:HSTCA/jbwjt1cbq_raw&</TD>
 <TD>ivo://ivoa.net/std/CutoutService/v1.0</TD>
 <TD>science</TD>
 <TD>application/fits</TD>
 <TD />
 </TR>
</TABLEDATA>
```

CLASS	FOS	COS
ALL	['C1F','C4F','C5F','CQF','D0F','Q0F','SHF','TRL','ULF','POA','C0F','C2F','C7F','X0F','XQF','D1F','Q1F','C6F','C8F','C3F']	['FLT','FLTSUM','LAMPFLASH','FLT_A','FLT_B','PHA','RAWACCUM','RAWACQ','RAWTAG','SPT','TRL','XID','XIDSUM','XIDSUM1','XIDSUM2','XIDSUM3','XIDSUM4','ASN']
RAW	['D0F','Q0F','SHF','TRL','ULF','X0F','XQF','D1F','Q1F']	['RAWACCUM','SPT','TRL','RAWTAG','RAWACQ','ASN','LAMPFLASH','PHA']
CAL	['C1F','C4F','C5F','CQF','C0F','C2F','C7F','C6F','C8F','C3F']	['FLT','FLTSUM','FLT_A','FLT_B']
PROD	['POA']	['XIDSUM','XID','XIDSUM1','XIDSUM2','XIDSUM3','XIDSUM4']
NOMAP	['X0Q','XQF','C4F','C5F','CQF','C2F','C7F','C6F','C8F','C3F','Q0F','SHF','TRL','ULF','X0F','XQF','Q1F']	['SPT','TRL','ASN','LAMPFLASH','CORRTAG','PHA','FLT_A','FLT_B']
CTE	[]	[]

# Monitoring

## XML structure

[http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/  
getObservation2/view/HST/jbwjt1010](http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/getObservation2/view/HST/jbwjt1010)

## AdvancedSearch

[http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/  
AdvancedSearch/](http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/AdvancedSearch/)

## TAP access (Obscore as well)

saada.unistra.fr/tap

<http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/tap>

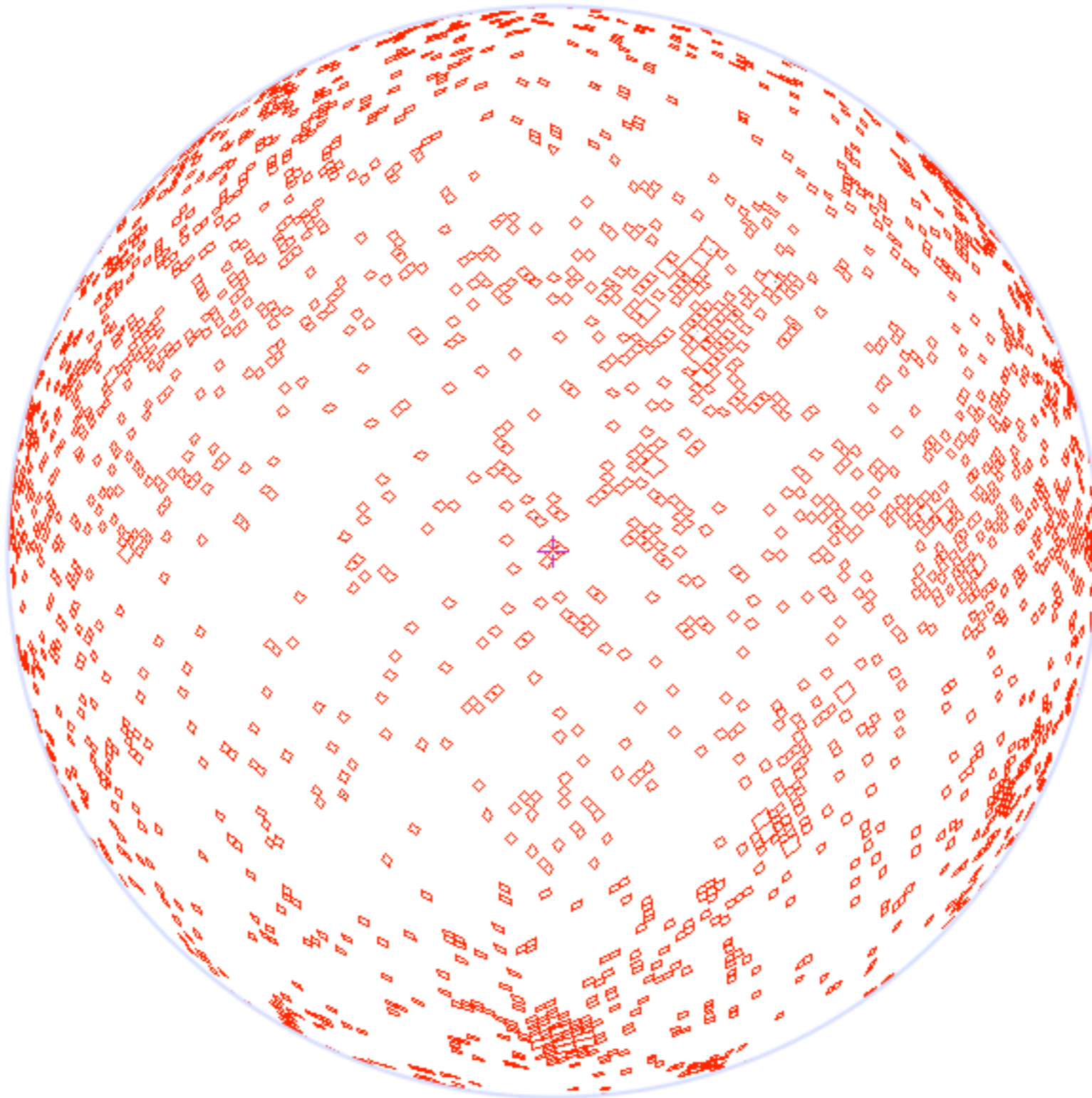
# CAOM2 XML Access

Required to insure HST meta  
uniformity between 3 sites

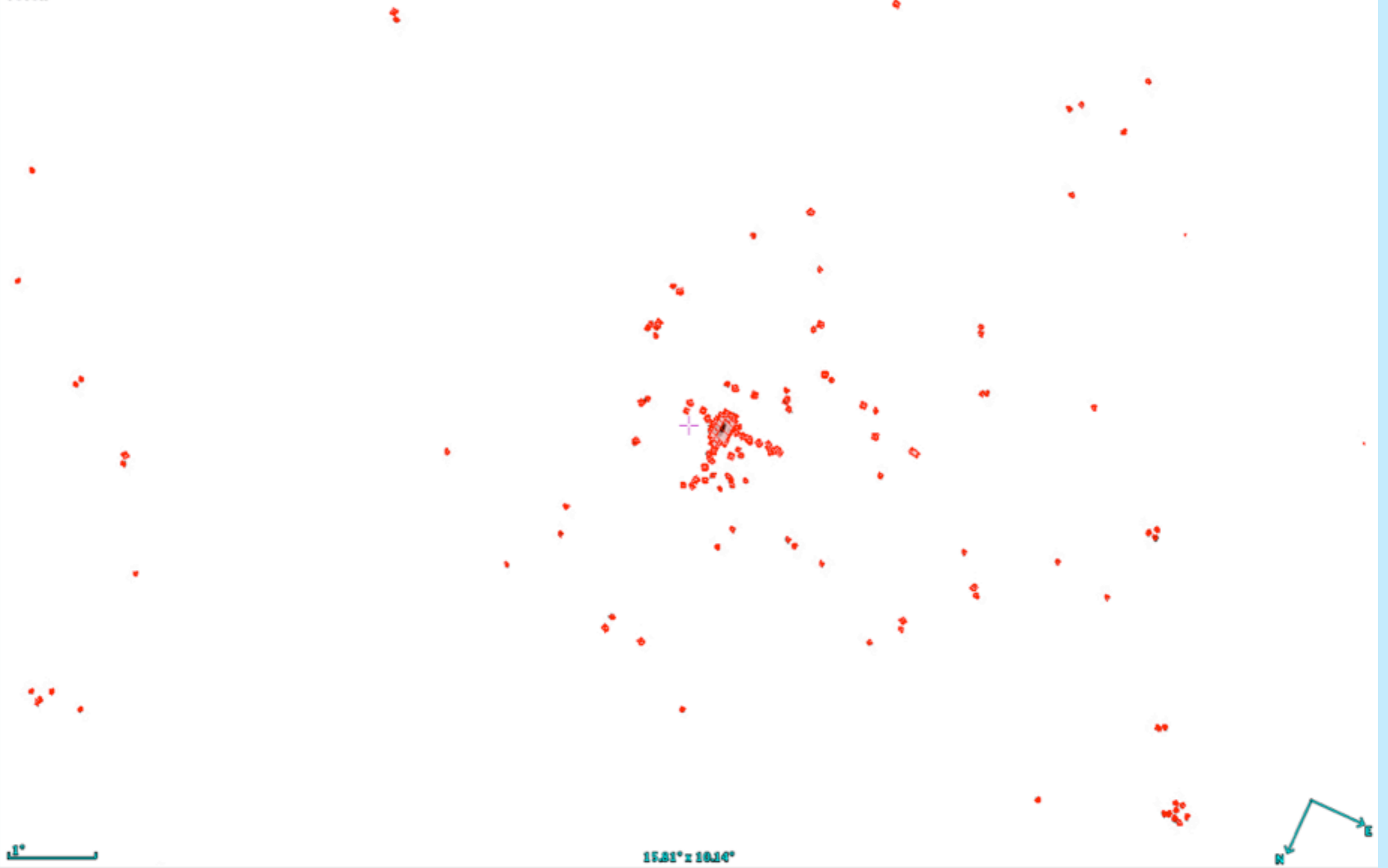
```
wget 'http://beta.cadc-ccda.hia-ihp.nrc-cnrc.gc.ca/caom2/
repo/pub/HST/ib6wrcjbq' -O ib6wrcjbq.xml
```

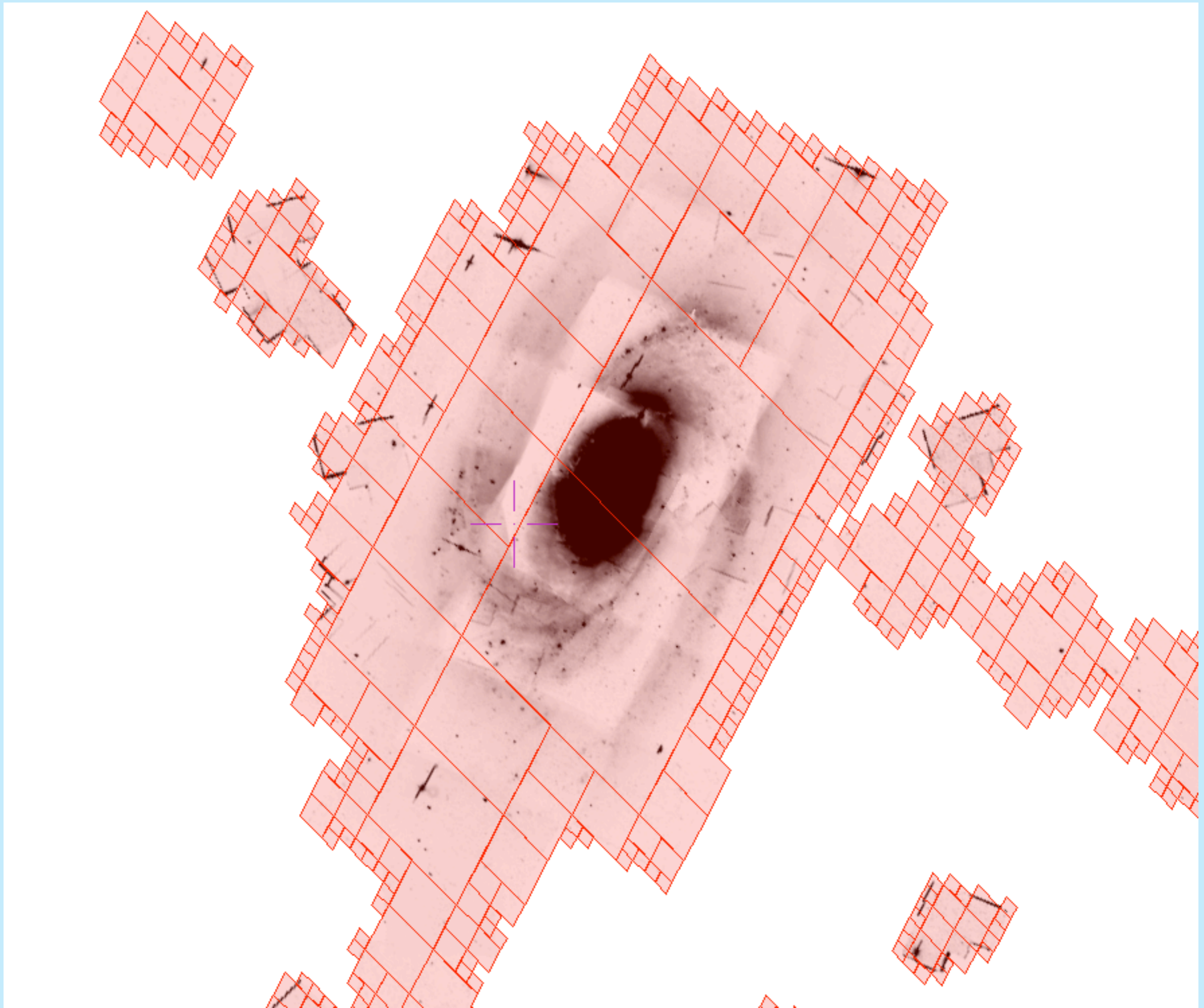
High Level MetaData exchange to insure  
identical presentation of information

# HST - MOC



FG06W









The image shows a large-scale astronomical observation of a galaxy, likely a barred spiral galaxy, with a prominent dark central region. The image is overlaid with a red grid, indicating a mosaic of individual frames. A purple crosshair is centered on the dark region. In the foreground, there is a software interface window titled "Access to original images" with a list of image identifiers and two buttons: "Load orig. images" and "Fermer".

Access to original images

- hst\_09676\_za\_wfpc2\_f606w\_wf\_drz
- hst\_09710\_9m\_wfpc2\_f606w\_pc\_drz
- hst\_09710\_9m\_wfpc2\_f606w\_wf\_drz
- u8ixza01m\_sci\_drz
- u8ixza02m\_sci\_drz
- u8lk9m01m\_sci\_drz
- hst\_09676\_za\_wfpc2\_f606w\_pc\_drz

Load orig. images      Fermer

**Thanks**

CLASS	WFPC2	ACS/WFC3
ALL	['C0M','C1M','D0M','DRZ','DRZPC','Q0M','Q1M','SHM','TRL','X0M']	['DRZ','SPT','TRL','FLT','RAW','SFL','ASN','DRC','FLC','FLT_HLET','IMA']
RAW	['D0M','Q0M','Q1M','SHM','TRL','X0M']	['TRL','RAW','SPT','SFL','ASN']
CAL	['C0M','C1M']	['FLT','FLC','IMA']
PROD	['DRZ','DRZPC']	['DRZ','DRC','FLT_HLET','CRJ']
NOMAP	['SHM','TRL','X0M','Q0M','Q1M']	['TRL','SPT','FLT_HLET','ASN','SFL','IMA']
CTE	[]	['FLC','DRC']

CLASS	STIS	FOC
ALL	['RAW','SPT','TRL','FLT','CRJ','SX2','X2D','WAV','WSP','SXI','LRC','LSP','XID','TAG','SFL','ASN']	['CGR','D0F','DGR','Q0F','SHF','TRL','ULF','C0F','CIF']
RAW	['RAW','TRL','SPT','TAG','WAV','LRC','LSP','WSP','ASN']	['DGR','TRL','Q0F','SHF','D0F','ULF']
CAL	['FTL','XID','X2D']	['CGR','C0F','CIF']
PROD	['SXI','XID','CRJ','SFL']	[]
NOMAP	['TRL','SPT','TAG','WAV','LRC','LSP','WSP','ASN']	['DGR','TRL','SHF','CGR','ULF','Q0F']
CTE	[]	[]

CLASS	HRS	NICMOS
ALL	['D0F','Q0F','SHF','TRL','ULF','X0F','XQF','CIF','C2F','C3F','C4F','CQF','C0F','C5F','DIF','QIF']	['CAL','RAW','SPT','TRL','ASC','MOS','IMA','SAA','SPR']
RAW	['D0F','Q0F','QIF','X0F','DIF','TRL','ULF','XQF']	['RAW','TRL','SPT','ASN']
CAL	['C0F','CIF','C2F','C3F','C4F','C5F','CQF']	['CAL','IMA','SAA']
PROD	[]	['MOS','ASC']
NOMAP	['C2F','C3F','C4F','C5F','CQF','Q0F','QIF','TRL','ULF','XQF']	['TRL','SPT','ASN','SAA','ASC','IMA']
CTE	[]	[]