

The benefits of good metadata

Get your data to shine in VO applications like ESASky by adding a few UCDs

Henrik Norman, Winter Way for ESA

ESA ESAC

ESASky and other VO applications



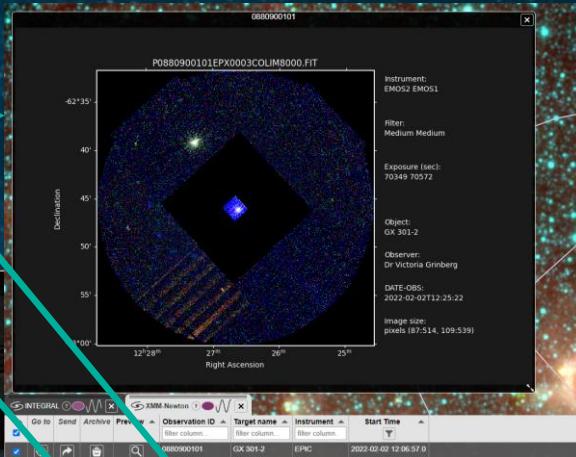
Format, filter, sort, preview, & datalinks

filter column... Access Url

https://jwst.esac.esa.int/server/data?planeid=4ac8d94b-43dc-4174-987d-bc9c39311ebb&PRODUCT_TYPE=science&RETRIEVAL_TYPE=PRODUCT&DATA_RETRIEVAL_ORIGIN=ESASKY

Download Archive

Preview



Start Time

52 596.4661 60 028.5323

Start Time End Time

52 596.4661	52 596.6458
52 611.4323	52 611.7887
52 611.7898	52 611.8315

Start Time

Sun Jun 19 2022 Mon Mar 06 2023

June 2022 March 2023

Mon	Tue	Wed	Thu	Fri	Sat	Sun
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Bad metadata

Dates

Start Time End Time

2022-06-20 09:54:37.08	2022-06-20 10:13:07.13
2022-06-20 09:54:37.08	2022-06-20 09:57:06.94
2022-06-20 09:59:56.25	2022-06-20 10:02:26.1

Requested file (X-FITS-HCOMPRESS, 184 MB)

ESO Originfile: V20110611 00331 SI TI Fits Fz

ESO Category: SCIENCE IMAGE

PDE preview of the requested file (PDF, 977 KB)

HTML representation of the dataset (HTML, 977 KB)

Accessory file associated to the requested file (X-FITS-HCOMPRESS, 63 MB)

ESO Originfile: V20110611 00331 SI TI Conf Fits Fz

ESO Category: ANCILLARY WEIGHTMAP

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 77 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

File used to generate the requested file (processing provenance) (X-FITS-HCOMPRESS, 78 MB)

Science product derived from the requested file (FITS, 258 MB)

ESO Originfile: V20110611 00331 SI TI Cat Fits

ESO Category: SCIENCE SRC1BL

Release description of the collection the requested file belongs to (PDF, 977 KB)

Good metadata

Access Estsize [B]

5 MB 81 GB

RA (J2000)	Dec (J2000)	Duration (s)	File Size
19h 58m 21.680s	+35° 12' 05.80"	15 526	477 MB
19h 58m 21.680s	+35° 12' 05.80"	30 800	1 GB

Access Estsize

65 564 36 685 168

Access Estsize	Access Format
7 536 629	application/x-tar
9 333 194	application/x-tar

File size

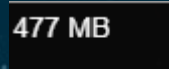
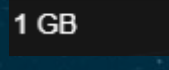



Bad metadata

Users can switch RA, Dec display format

RA (J2000)	Dec (J2000)
299.5903333°	+35.2016111°
299.5903333°	+35.2016111°



- IVOA standards
 - **UCD** – Unified Content Descriptors are the primary way to inform VO applications about how to interpret your data
 - UType
 - XType
 - Datatype
- Update your database table **tap_schema.all_columns** with UCD information to reap the benefits. Bonus points for adding UType and XType information

- *phys.size* → Allows ESASky to show user-friendly numbers like 20 MB, 1 GB, or similar, instead of just a number like 12345678 

- *pos.eq.ra* → RA field 
- *pos.eq.dec* → Dec field
- *meta.ref.url;meta.preview* → Enable viewing of postcards within ESASky, instead of just a link in plain text 
- *meta.dataset;meta.ref.url* → To enable download functionality within ESASky (including datalink browser, if the product is a datalink). So instead of showing an unclickable link in plain text, a download button is shown and given the appropriate behavior. 
- *meta.ref.url* → for other URLs
- *time.start* or *time.end* → To show time and date instead of MJD

TAP Schema information in ESASky



- *principal* – Decide which columns to show the user. For example, showing the `stc_s` – column by default is usually not very useful to the user, and it takes up a lot of screen real estate. ALL columns are still loaded into ESASky, and the user can then manually choose which columns to show or hide. When a user downloads a table, all columns are downloaded.
- *column_index* – Order your columns. RA, Dec, RA error & Dec error should be close to each other. Columns without column index will be put at the end (in the same order as in the database).

S Fov [deg]	S Resolution [arcsec]	Em Min [m]	Em Max [m]
0.5356	1.61	1.174E-6	1.332E-6

- *unit* – Units are shown in the header ->
- *description* – Visible when hovering over a column header or when deciding what columns to show

Visible	Column	Database Name	Description
<input type="checkbox"/>	filter column...	s	filter column...
<input type="checkbox"/>	Observation Oid	observation_oid	Observation internal identifier
<input checked="" type="checkbox"/>	Preview	postcard_url	Visualize a preview of the data
<input checked="" type="checkbox"/>	Observation ID	observation_id	Data set 9 character name. First character indicates instrument; L=...
<input checked="" type="checkbox"/>	Instrument	instrument_name	The HST instrument and channel
<input checked="" type="checkbox"/>	Obs Type	obs_type	
<input checked="" type="checkbox"/>	Start Time	start_time	Observation start time
<input checked="" type="checkbox"/>	Duration (s)	exposure_duration	Exposure time of observation
<input type="checkbox"/>	Stc S	stc_s	Footprint of the observation in STC string format

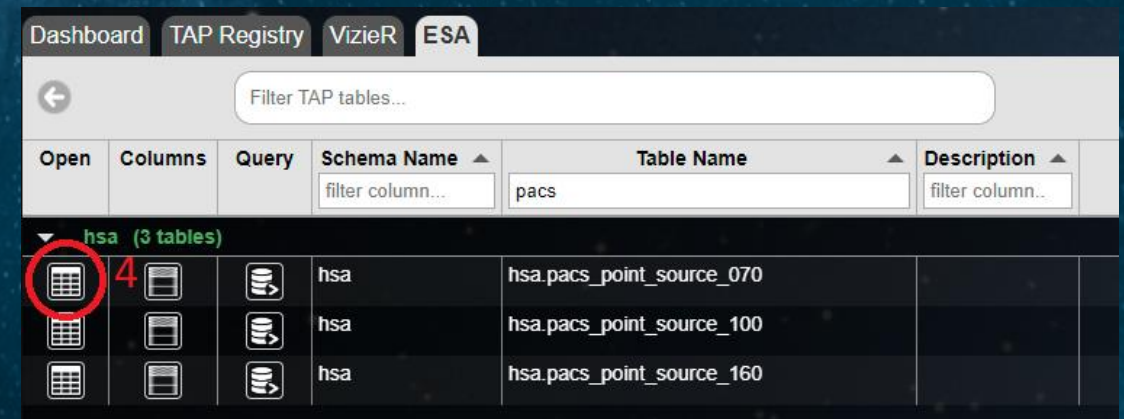
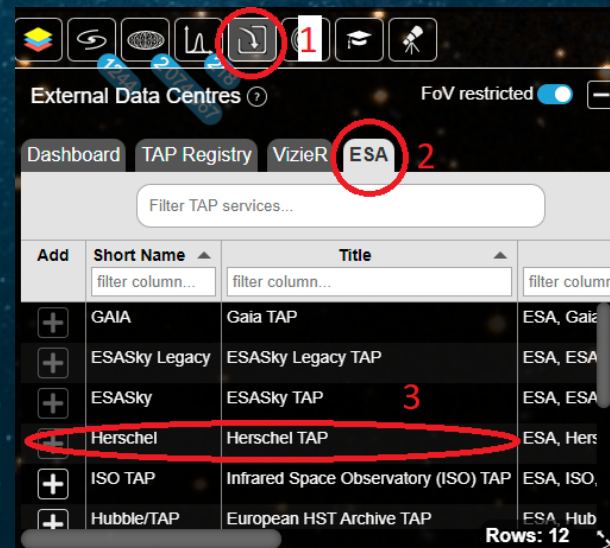


Validate in ESASky

- Go to <https://sky.esa.int> -> open browser console -> edit the bold part to the URL of your TAP -> paste message in browser console and press enter

```
postMessage({'event':'plotTapServiceWithDetails', 'content': {'name':'JWST', 'tapUrl':'https://jwst.esac.esa.int/server/tap', 'adql':'SELECT TOP 1 * FROM ivoa.obscore'}})
```

OR →



- [UCD standard](#)
- [List of valid UCDs](#)
- [Tool to help you find good UCDs](#)
- [Extra UCD info](#)

If you need support:

Henrik Norman

henrik@winterway.eu