

ESASky Updates

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Introduction: ESASky

Goal: a scientific tool to facilitate data discovery and archival science

- Multi-wavelength and multi-mission portal (more than 60 missions!)
- Driven by scientific use cases and needs from the scientific community
- Exploration and Data Discovery
- Archival science and unplanned science!



- Interface 'on top of' all ESA astronomy archives + others

ESASky <https://sky.esa.int>

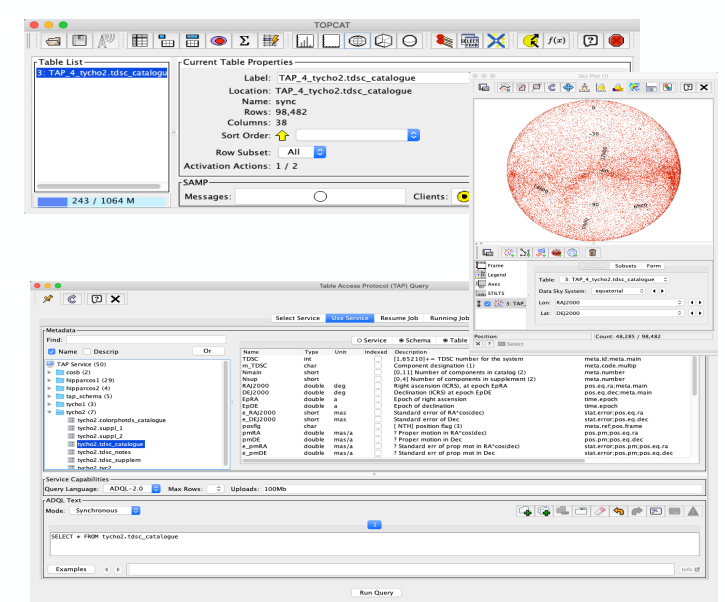
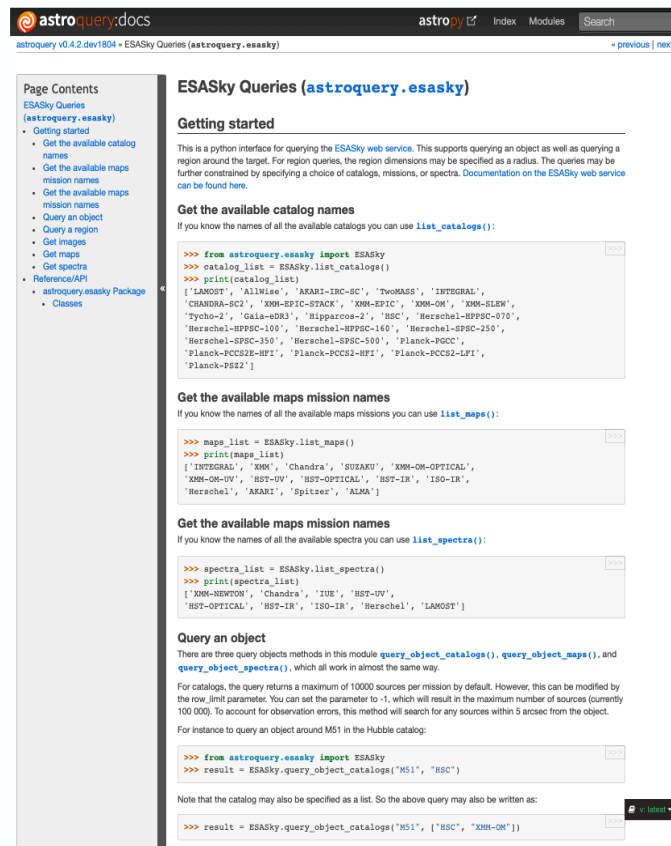
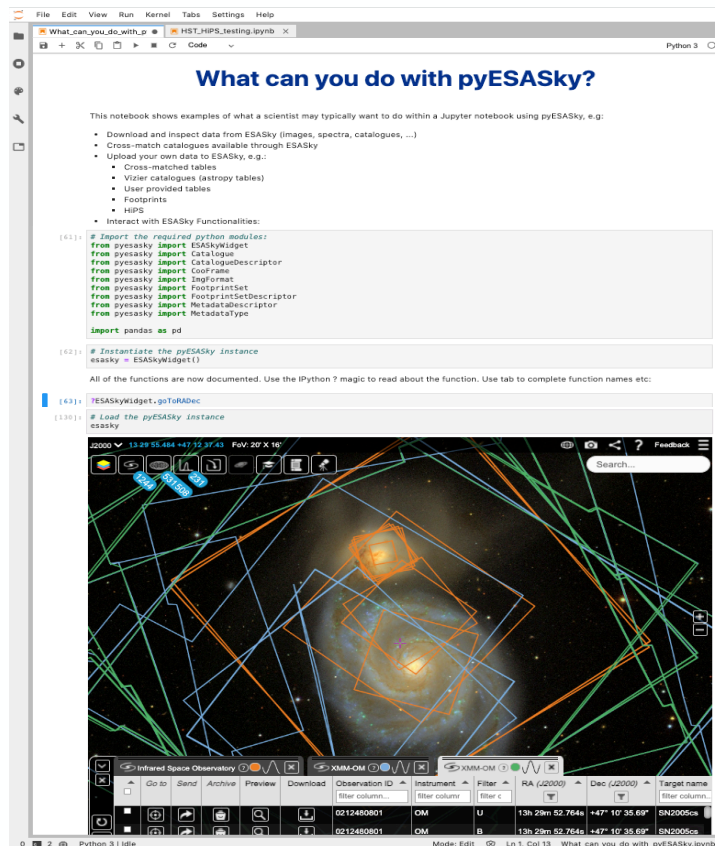


Introduction: ESASky <https://sky.esa.int>

pyESASky
Jupyter widget

Astroquery module:
`astroquery.esasky`

Table Access Protocol (TAP) access



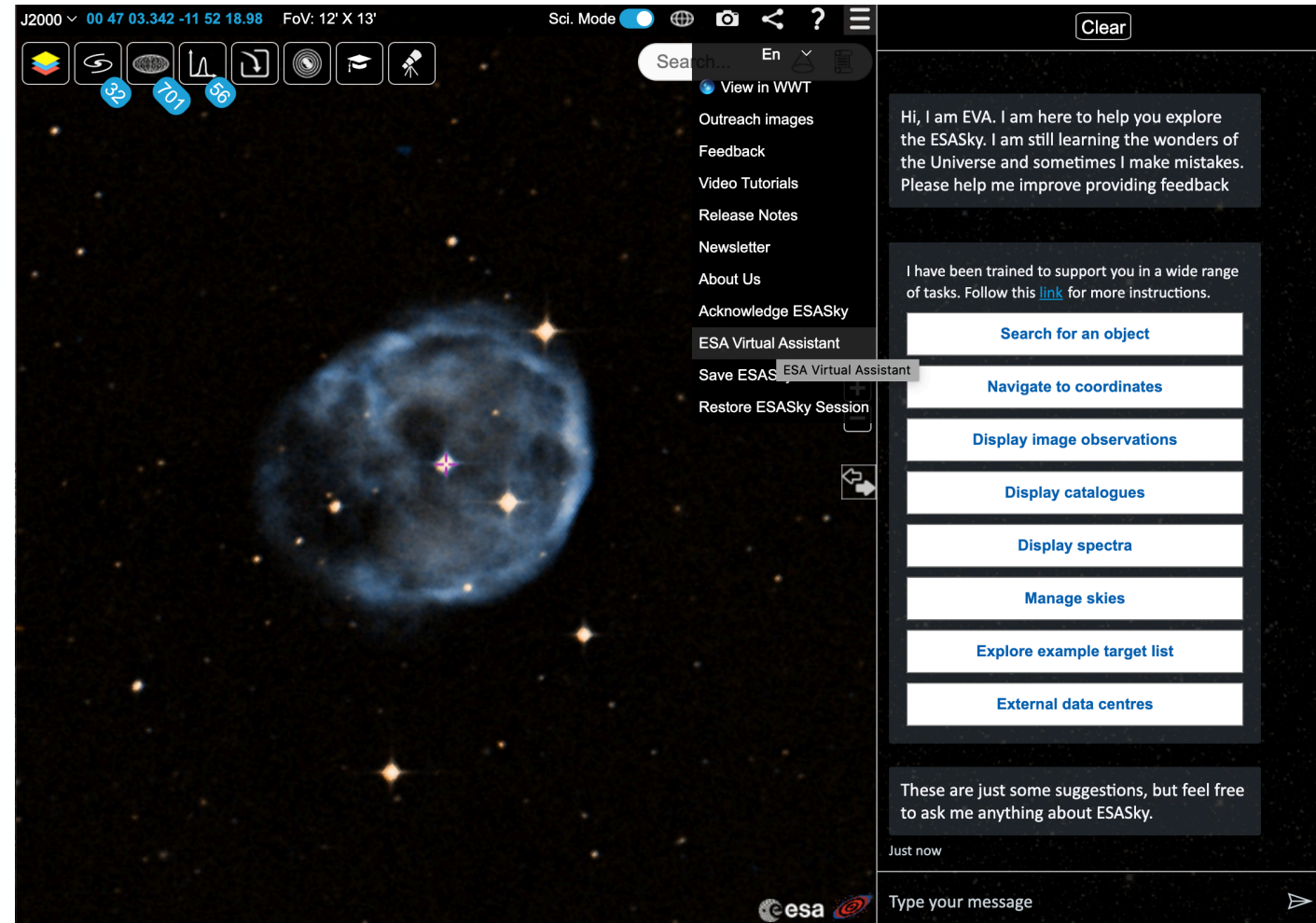
- <http://sky.esa.int/esasky-tap/tap>
- <http://esaskylegacy.esac.esa.int/esasky-legacy-sl-tap/tap>

Additional scientific use cases that you can't perform in the main interface.

Latest releases: version 4.1.3 on 16 May 2022

ESA Virtual Assistant (EVA) added to ESASky.

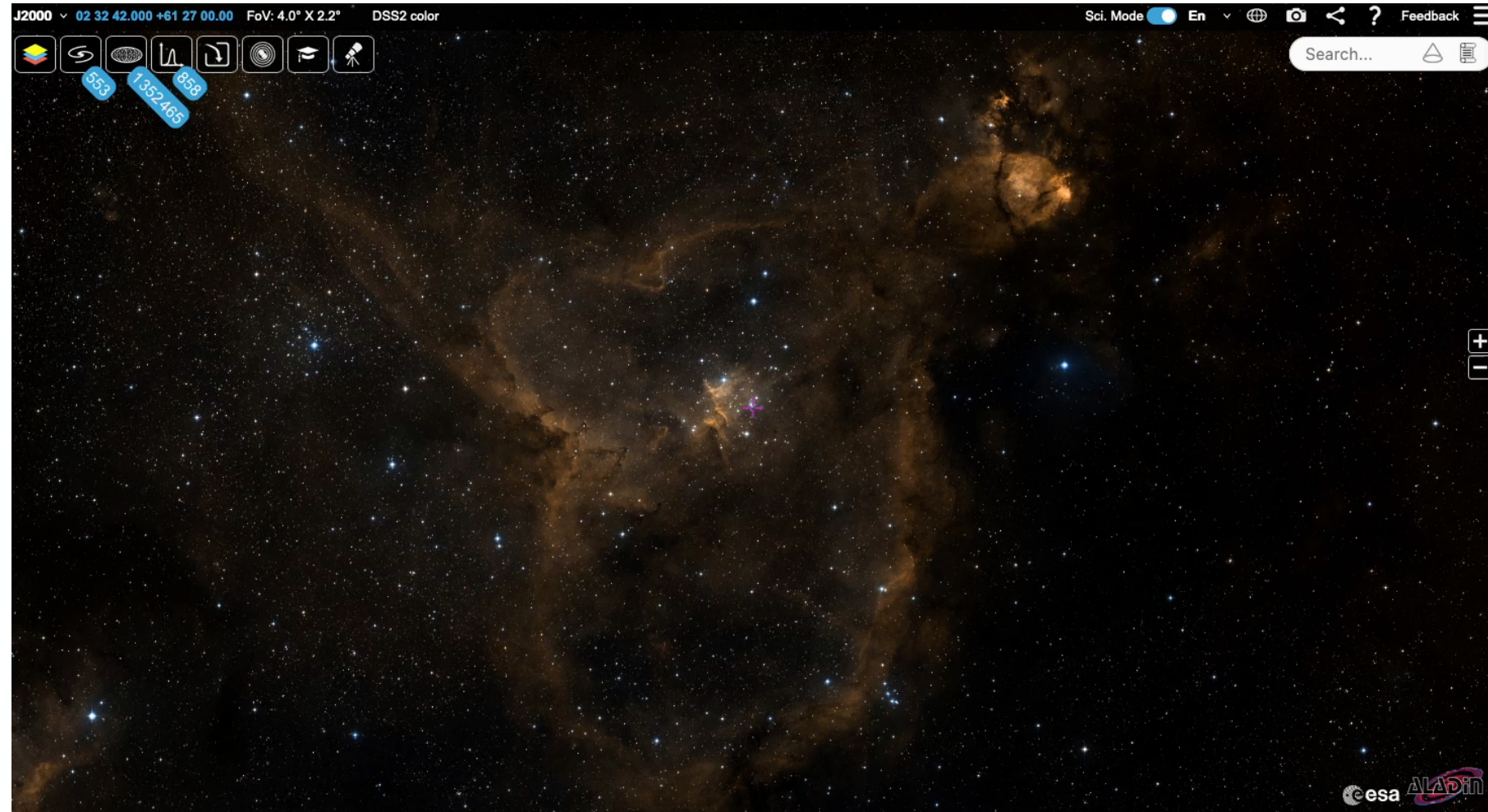
- From an external contract involving other ESA projects (see <https://eva.esa.int>).
- Uses natural language processing.
- Allows users to interact with ESASky using simple sentences (typed or spoken) that trigger the commanding of ESASky via its API. Most features of ESASky are included.
- Bot is still in training: the more users, the more the neural network running behind the bot will be able to understand more complex sentences and commands.



Latest releases: version 4.1.3 on 16 May 2022

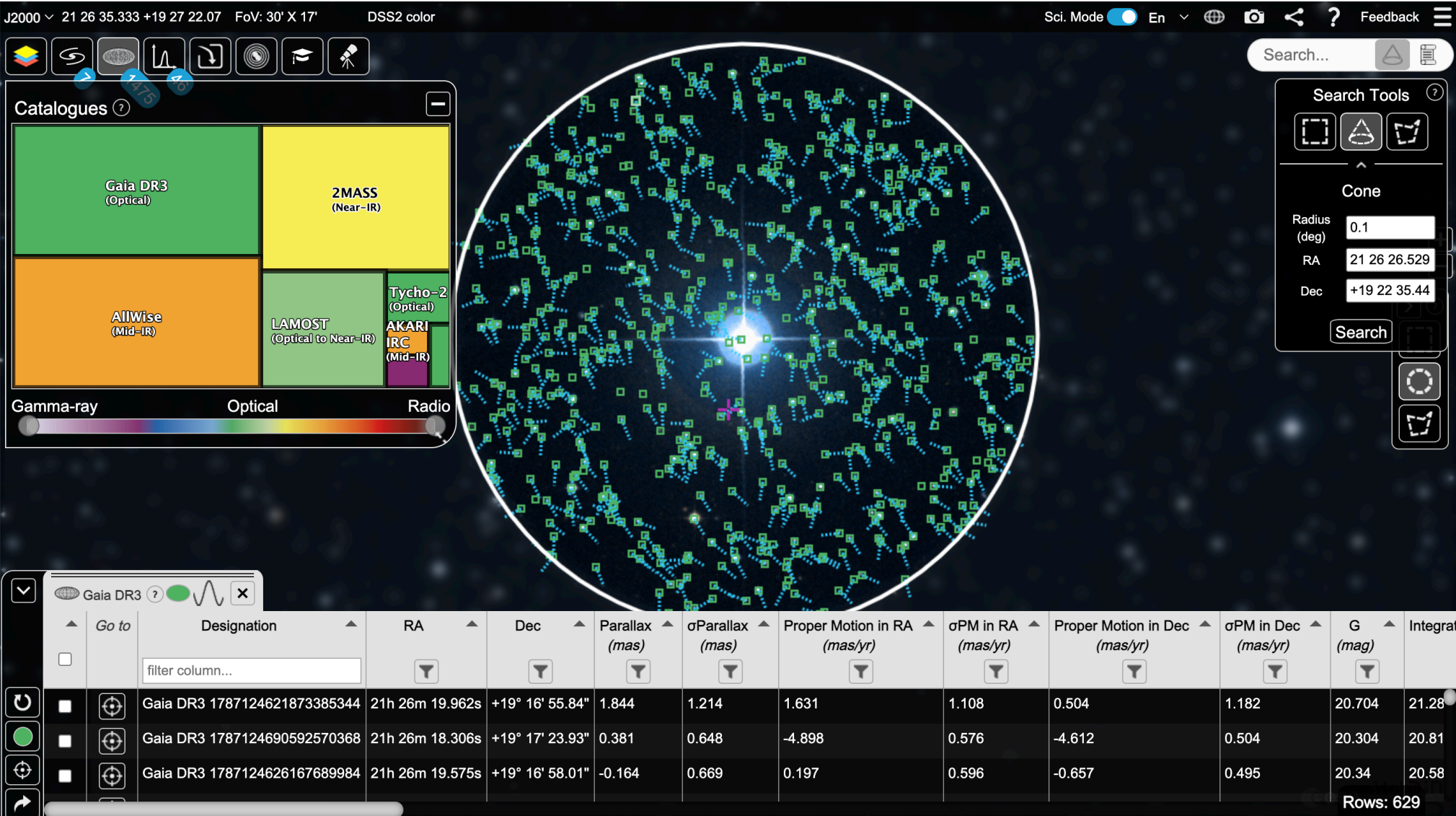
ESA Virtual Assistant (EVA) added to ESASky.

- Potential in the future for more advanced exploration of ESASky? E.g. questions such as ‘Show me all objects simultaneously observed by XMM-Newton and JWST’, ‘Show me all exoplanets with data from CHEOPS and JWST’.
- Interested to hear your feedback!



Latest releases: version 4.2 on 13 June 2022

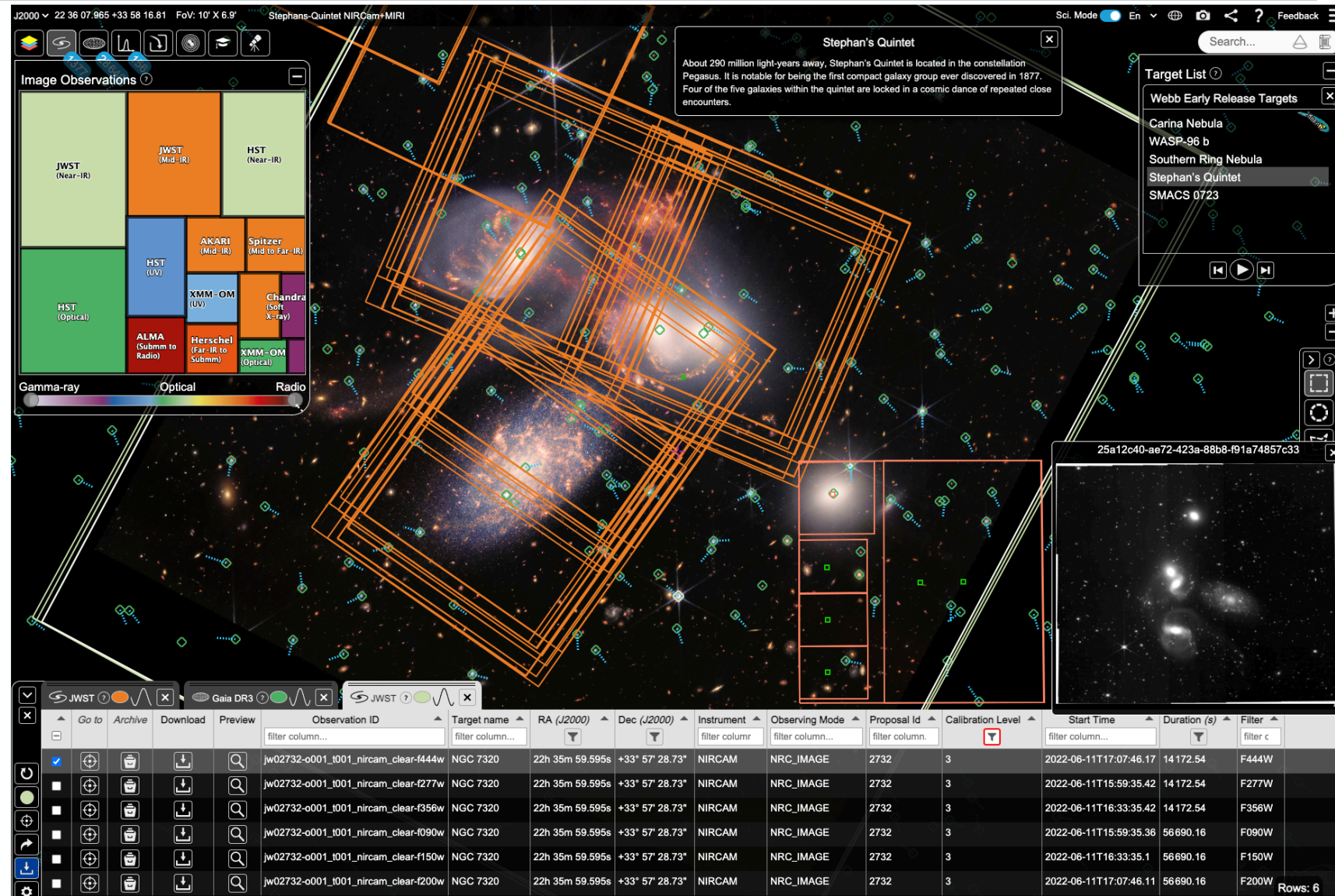
Gaia DR3 main catalogue added to ESASky (same day as Gaia DR3 release)



Latest releases: version 4.3 on 13 July 2022

JWST data added to ESASky

- JWST observations (Early Release Observations and early science observations)
- HiPS (MIRI, NIRCам & NIRISS)
- Webb Early Release targets added to target list



Next release: version 4.4 ~15 Sept 2022

ESA/Webb Outreach Images (similar to Hubble Outreach Images feature).

J2000 ▾ 22 36 01.477 +33 57 34.89 FoV: 13' X 7.7' DSS2 color

Sci. Mode ☐ En ▾ Feedback

ESA/Webb Outreach Images Hide Footprints ☐ ✕ —

Object Name ▴ Description ▴

▶ Outside Field of View (11 images)

▼ In Field of View (2 images)

NGC 7317

Stephan's Quintet (MIRI Imaging)

Stephan's Quintet (NIRCam + MIRI Imaging)

Rows: 13

Stephan's Quintet (NIRCam + MIRI Imaging) ✕

An enormous mosaic of Stephan's Quintet is the largest image to date from the NASA/ESA/CSA James Webb Space Telescope, covering about one-fifth of the Moon's diameter. It contains over 150 million pixels and is constructed from almost 1,000 separate image files. The visual grouping of five galaxies was captured by Webb's Near-Infrared Camera (NIRCam) and Mid-Infrared Instrument (MIRI). With its powerful, infrared vision and extremely high spatial resolution, Webb shows never-before-seen details ...

Show More

+

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Image Opacity

esa

ALADIN

DEMO

Future releases

In Q4 2022 we plan to release:

- **NEW DATA:** eROSITA (Observations for all released fields; HiPS maps of the eFEDS field; Catalogues, eFEDS and eta Chamaeleontis); 4XMM DR12 catalogues; LAMOST DR8
- And keep working on features requested by the AAUG and adding more new data.

Longer-term roadmap (from ESASky development contract, KO in July 2022):

1. External TAPs (Table Access Protocol; will include VizieR, IPAC/IRSA, etc). For ~ 6 months after KO, Q1 2023.
 2. User area (will allow saving sessions, uploading own data). ~12 months after KO, Q3 2023
 3. FITS visualiser (allowing change of contrast of HiPS skies, displaying user FITS on the sky). ~ 18 months after KO, Q1 2024
 4. Time domain (allowing searches for contemporaneous data). ~24 months after KO, Q3 2024.
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Summary

- JWST observations and features fully integrated in ESASky (and see next presentation on eJWST archive).
 - ESASky development contract started in July, development in full swing again.
 - Next new features will include ESA/Webb outreach images; access to more new data; access to all external TAPs (Table Access Protocol; including VizieR, IPAC/IRSA, etc).
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