Starlink: the 2025A release

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The Starlink software collection

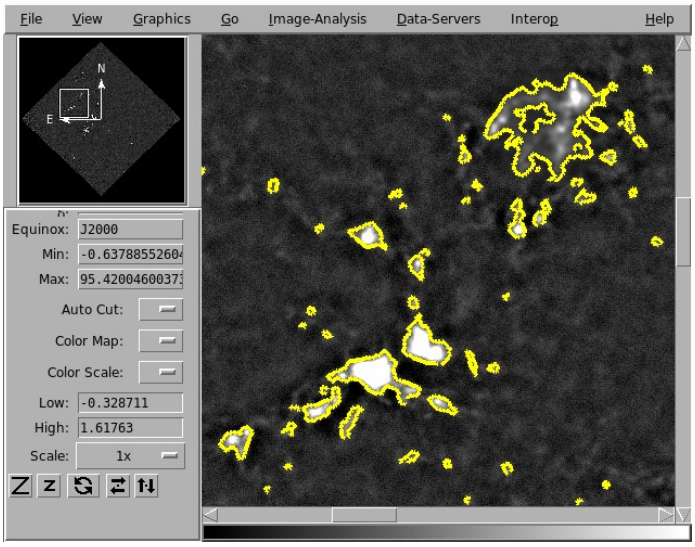
Currently maintained by the East Asian Observatory, primarily to support data from the James Clerk Maxwell Telescope.

Contains various packages, for example:

- *Data reduction:* SMURF (current JCMT instruments), CCDPACK (imaging), POLPACK (polarimetry)
- *Analysis:* CUPID (clump analysis), KAPPA (general purpose), PHOTOM (photometry)
- *Visualization:* GAIA image / data cube viewer.

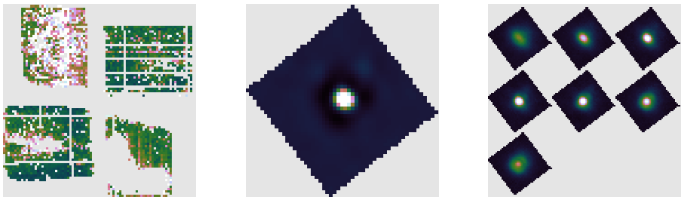
Releases also include:

- ORAC-DR pipeline.
- StarJava applications: TOPCAT, SPLAT.



GAIA image viewer with a MOC of detected emission outlined in yellow.

Preview images for heterodyne pointing and focus observations.



Preview images for SCUBA-2 noise, pointing and focus observations.

The 2025A (and 2023A) releases

Include the last four years of developments since Starlink was last presented at ADASS, such as:

- Updates for modern systems:
  - Starlink is now available via Flatpak (package manager) for easy installation on Linux.
  - Scripts converted from csh to sh (to allow usage on systems without csh).
  - Python scripts use interpreter "python3" (instead of unversioned "python").
- Multi-threading has been added to more applications:
  - *CUPID:* GaussClumps method.
  - *KAPPA:* BLOCK image smoothing program.
- Support for IVOA MOC (Multi-Order Coverage) has been improved:
  - *AST library:* small features can be added to lower resolution MOCs. The outline tracing routine now handles more complex MOCs.
  - *KAPPA:* new MOCGEN program.
  - *GAIA:* only draws the part of the MOC overlapping the current plot.
- The PICARD MAKE_HIPS recipe has been made (slightly) more efficient and can take (HEALPix) "JSA tiles" as input.
- The SCUBA-2 and heterodyne pipelines now produce useful preview images for pointing, focus and noise observations.
- A telescope position validation option (TELPOSERRMAX) was added to the heterodyne reduction program MAKECUBE.
- Various new Wesley (pre-processing pipeline) recipes to handle problematic raw data:
  - CLEAR_HEADER_SIMULATE
  - COPY_BLANK_HEADERS
  - FILTER_DOME_OPEN
  - FIX_HEADER_IFFREQ
  - FIX_HEADER_LST
  - FIX_HEADER_STEPTIME
  - FIX_INCONSISTENT_OBJECT
  - REMOVE_NAN_VALUES

https://starlink.eao.hawaii.edu/ https://github.com/Starlink/starlink/ https://ftp.eao.hawaii.edu/starlink/2025A/