~8 years of public HARP data and RxA3 with ACSIS data, and ~3 years of public SCUBA-2 data

- raw observations in instrumental time series format
- reduced individual observations (FITS format)
- night products – co-add of obs taken by one project towards a single source on one night

Detailed (searchable) meta data, including position, wavelength, transition, weather info, data quality, etc.

VO enabled – can search with TAP e.g. through TOPCAT on all meta data, not just those visible in advanced search.

WHY DO WE DO LEGACY RELEASES?

- Raw data is always available, but for non-experienced JCMT users this presents a significant barrier to use (even with ORAC-DR).

- Normal reduced products in archive are reduced using the PI’s chosen config.
  - sometimes they picked an unusual configuration.
  - should not usually combine data reduced with different configs.
**WHY DO WE DO LEGACY RELEASES?**

We want the astronomical community to get the most science possible from all of our observations.

- Providing consistent reduction and co-adds of all public data towards a given region will enable users to easily see where we have observed, what noise levels we’ve reached, and what we’ve detected.
JCMT LEGACY RELEASE 1: SCUBA-2 850 OBSERVATIONS

- First batch of products released September 2015

- Reduction of all public 850um observations taken between 2011 February 2 and 2013 August 1.

- 2261 hours/5161 science observations reduced using this config.

- 40% of all STFC-era SCUBA-2 science observations.

- Includes calibrations, PI data from all the STFC-era country queues, UH observations and JCMT Legacy Survey data.
JCMT LR1: 850 SCUBA-2 OBSERVATIONS
1. Science and pointing observations individually reduced, on HPX grid.

2. **Coadds** of science observations (that passed QA) towards the same tile.

3. **Extent Catalog**: contiguous regions of detected emission (>5σ) – peak flux in a pixel, position of the peak, outline of detection, total flux contained in area.

4. **Peak Catalog**: (only within regions in the extent catalog) position of local maxima (>5σ difference from neighbouring maxima) – peak flux, position, parent extent ID.
DETAILS OF REDUCTION PROCESS USED

- Uses dimmconfig jsa_generic (in star-2015B release)
- Does not attempt to recover the largest scale structures (com.perarray=1)
- Limited number of iterations used due to computational resources.
- Auto-masked reduction.
  - See Mairs+ 2015 for detailed comparison of effect of position within or without masks on source recovery.
- HEALPix reduction— maps are gridded on to HPX projection and tiled in HEALPix tiles.
FCFs calculated for all observations of Uranus, CRL 618 and CRL 2688.

Average value then used: \( \text{FCF}_{\text{arcsec,850}} = 2.47 \pm 0.14 \text{ Jy pW}^{-1}\text{arcsec}^2 \)

5% higher than ‘canonical’ JCMT arc second FCF derived in Dempsey et al 2013.
mitaka user's meeting: jcmt legacy release

using the jcmt legacy release

- Search CADC with proposal ID='JCMT-LR1' to view the coadds and catalogues.
  http://www.cadc-ccda.hia-iha.nrc-cnrc.gc.ca/en/search/?Observation.proposal.id=JCMT-LR1&Observation.collection=JCMT#resultTableTab

- Preview images for catalogs show you if there are any detections.

- MOC footprints of co-adds and sources also available.
**FUTURE RELEASES**

- **Update to SCUBA-2 850um: observations taken up to March 2015**
  
  - All individual observations reduced, and are awaiting available effort to finish the QA, do co-adds and analysis. *Release expected later this year*

- **450um data: from start to March 2015:**
  
  - Individual observations reduced, QA on first half complete.

- **HARP legacy release:**
  
  - Most observations reduced, co-adding not yet investigated and QA plan still to be defined.

- In future, we would like to move to a mode where `Legacy Release` products are a regular, and expected part of the JCMT data releases – updated at end of every semester with newly public data.
SURVEY AND PI PRODUCTS IN THE JSA

- (Not part of the legacy release)

- We want to help the JLS and PI teams make their scientifically focused reductions easily findable and searchable.

- Currently working with the Gould Belt Survey to include the published products from their latest data release in the archive. SCUBA-2 and HARP.

- These will be fully searchable and available from CADC via the collection ‘JCMTLS’.

- Search results should include link to webpage showing papers/DOIs etc.