ASKAP & RACS
Status and plans

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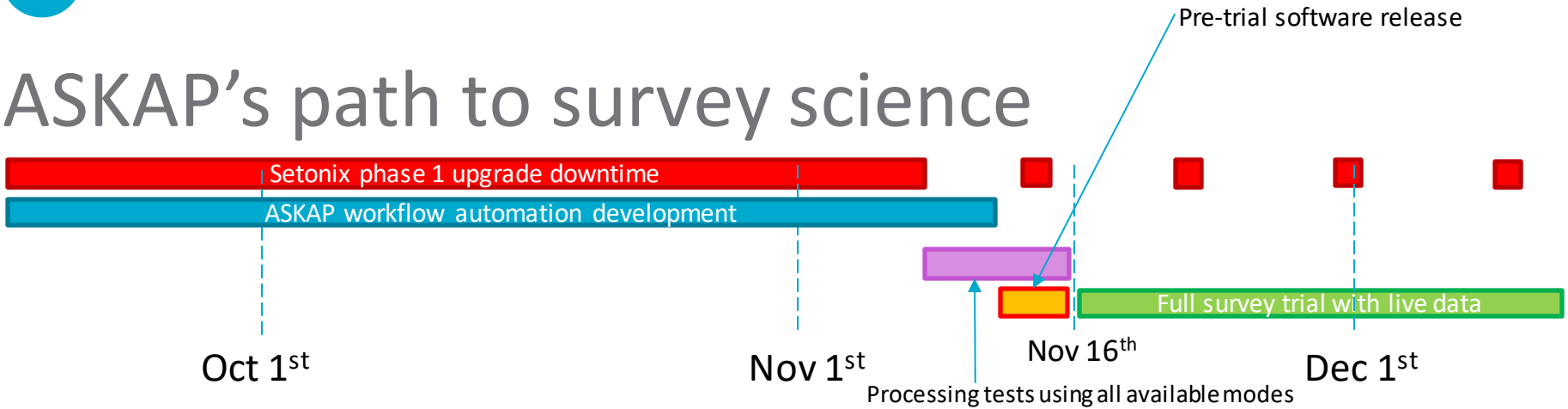
The ASKAP survey plan

On October 31st we released a survey commencement and operations plan	• This describes ASKAP's operational workflow, technical capabilities and expectations for data validation
The full survey program begins with a trial month starting November 16th	• This will be the first test of sustained survey operations • If things go smoothly, the trial transitions into full operations
Full survey mode is challenging and more constrained than pilot surveys	• Expecting higher data throughput on Setonix • Need to maintain 70% on-sky efficiency for 5 years
Significant development required before surveys can be completed	• Some parts of the sky will initially be quarantined • Not all survey science teams will take part in the initial trial

ASKAP's path to survey science



- Experience from Pilot Surveys is still translating into processing requirements
- We can support EMU, POSSUM, WALLABY, FLASH and CRAFT (non-CRACO)
  - VAST cadence requirements conflict with the goals of a one-month trial and need refinement
  - DINGO would prefer to wait for better u,v grid compression before taking data
  - GASKAP-HI is comparing WSCLEAN and ASKAPSoft joint deconvolution capabilities
  - GASKAP-OH needs a solution to LSRK velocity smearing and further tests

Starting full surveys begins a new era

- Pilot Surveys are concluding after two successful rounds
  - 37 papers published in 2022, many more in preparation
- Guest science expected to start in the October 2023 semester
  - At most 10% of ASKAP's time will be available for guest science
- Autonomous operation will maximise survey efficiency
  - Allow people to focus on making improvements

The Rapid ASKAP Continuum Survey

- For the observatory:
  - Sky model for calibration of future ASKAP observations
  - Testing observatory systems/performance

- For the science-users:
  - Images and catalogues
  - Some of the highest resolution/sensitivity data available in the Southern Sky at these frequencies

RACS: survey details

Band	Frequency (MHz)	Name	Pointings	Resolution (arcsec)	Median noise (μJy/beam)	Sources
Band 1	887.5	RACS-low	903	>12	266	~3M
Band 2	1367.5	RACS-mid	1493	>8	197	>3M
Band 3	1667.5	RACS-high	1493	>6	198	>3M
Band 1	887.5	RACS-low2	947	>12	211	>4M?

RACS: data products

- **Stokes I (and V) continuum:**
  - Per field/tile/pointing:
    - PAF beam mosaic
    - Individual beam visibility datasets
    - Source-lists
    - Additional per-observation metadata
  - Combined tiles:
    - Full-sensitivity mosaics
  - Full sky:
    - HiPS maps
    - Radio source catalogue
- **Stokes Q,U spectra:**
  - Single source RM spectra

RACS-low (no Stokes V)

RACS-mid (on CASDA, waiting for release!)

RACS-high (coming soon!)

RACS-low2 (coming soon!)

SPICE-RACS (coming soon!)
30-field pilot based on RACS-low, and will be expanded to mid/high/low2

RACS: where to find and access data

- CASDA observation search (for all publicly accessible ASKAP products):
  - https://data.csiro.au/domain/casdaObservation
  - RACS is project AS110
- CASDA Sky Map (for RACS):
  - https://data.csiro.au/domain/casdaSkymap
  - Get quick-look measures from RACS while zooming around the HiPS image
- CASDA Cutout Service (for RACS):
  - https://data.csiro.au/domain/casdaCutoutService
  - Generate cutout from the "best" RACS images
- CASDA through astroquery/python (for all ASKAP data):
  - A programmatic interface for getting data from CASDA
  - https://astroquery.readthedocs.io/en/latest/casda/casda.html
- RACS HiPS through Aladin
  - Load the RACS HiPS image in Aladin to explore the sky and compare to other surveys