

OT tutorial: Advanced group (changes since Cycle 0)

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Some terminology

- Official names of different arrays
 - 12-m array
 - (ACA) 7-m array
 - (ACA) TP array
- Official correlator names
 - 64-input correlator
 - ACA correlator

Proposal

- Abstract limit <4000 characters
- 5 scientific categories
- Must choose at least one scientific keyword
- Note: DDT time will be available at Cycle 1, but how this will be done is still not entirely clear

Field Setup

- Nyquist sampling now explicit
 - Value is for triangular mosaic pattern
 - Antenna beamsize / (1.2 * sqrt(3))
 - Reset button makes changing back very easy
- Mosaicing algorithm improved
 - More uniform sensitivity over rectangle
- Number of mosaic pointings reported
 - Can be exported for use in e.g. simdata
- Enter sensitivity of mosaic, not per pointing

Spectral window table

- Spectral windows are now added per baseband
 - Spectral Line Picker is run separately for each
- Why?
 - Cycle 2 will allow multiple spectral windows per baseband
 - Get users used to concept of basebands
- See details of spws for Single Continuum as well
 - Had to rely on Visual Editor at Cycle 0

Representative Frequency

- Was on Control & Performance page
 - Now on Spectral Setup page
 - All spectral information can be viewed at once
- Must choose a “Representative Window” i.e. spw
 - RF defaults to centre frequency
 - Can move RF within this spw
- Choice of RF usually not important
 - Only in areas of changing atmospheric opacity
- Defined in rest frame of source
 - Velocity used to shift to observed frame for each source

Hanning smoothing

- Don't forget this again!

PWV octile

- At Cycle 0, one fixed value per band
 - Doesn't work for bands with variable transmission
 - i.e. 325-GHz H₂O line
- New algorithm reacts to changing opacity
 - Calculate time for each octile
 - If time required for octile n is $\geq 50\%$ compared to first octile, choose octile n-1
 - Octile therefore depends on source declination
- ASC properly takes elevation into account
 - T_{sys} didn't include increased atmospheric emission before

Velocities/tunings

- Only one Spectral Setup allowed per SG
 - One set of spw's that can be observed simultaneously
- Sources can have different velocities
 - Each **probably** requires a different tuning
- Maximum of 5 tunings per SG allowed
 - OT has an algorithm to check how many tunings are allowed i.e. very similar velocities require only 1 tuning
- Number of tunings reported in Time Estimate
 - Each requires a separate calibration
- Only one ALMA band allowed

Band cycling

- OT can't yet do multiple bands per Science Goal
 - Should be there for Cycle 2
- Band cycling is allowed for Cycle 1
 - Should justify need for simultaneity
- Put each band into a separate Science Goal
 - SBs will be merged during Phase 2

ACA

- How is ACA chosen?
 - 12-m array configuration chosen on angular resolution
 - ACA not **allowed** for two largest (C32-5 and -6) configs
 - ACA then suggested if source LAS > maximum recoverable scale of selected configuration
- Suggestion can be ignored, but must be justified
- TP array not allowed for continuum observations
 - No nutators
 - OT identifies these as “single continuum” choice

Time Estimate

- Overheads now include system “latencies”
 - Software and hardware overheads
- Separate calibrations for each SB
 - Assume 30 min on-source for each SB
- Separate calibrations for each tuning
- ACA time reported
 - 3 times that of 12-m array (including calibrations)
 - Same factor of 3 whether TP array allowed or not

TA flag sheet

- OT produces a printable summary of proposal
 - Now includes a “TA flag sheet”
- Flag sheet lists “interesting” SG features
 - Obvious example is choosing single polarization
- The idea is to help the Technical Assessors
 - Draws their attention to where it is needed
- Flag sheet warnings are not necessarily a problem
 - Don’t panic!
 - Most are also shown as validation **warnings** (not errors)

Bugs we already know about

- Known Issues page:
 - Available via the Science Portal
 - <http://almascience.eso.org>
 - Or directly from
 - <http://almasw.hq.eso.org/almasw/bin/view/OBSPREP/Cycle1KnownIssues>