ALMA-IMF Data Reduction Telecon, June 5, 2020
Time: 0900 EDT / 1300 UTC June 5, 2020
Unirse a la reunión Zoom
https://cuaed-unam.zoom.us/j/91484486311

ID de reunión: 914 8448 6311
Contraseña (password): dr_meeting

Last week's notes
Next week's notes

**Attendees:** Adam, Roberto, manuel, Tapas, Fred, Fab, Patricio, Mélisse, Thomas, Estrella, Amy, Hongli, Hongli, Yohan
**Not attending:**

## Agenda:

- Noise Calculation Discussion
  Adam's talk in the science workshop shows that desired noise is rarely reached.
  Adam requested us to check if they are appropriate and go back to him.
  https://github.com/ALMA-IMF/reduction/tree/master/reduction/noise_estimation_regions
- Problems that will affect line intensity (and maybe continuum):
  - https://help.almascience.org/index.php?/na/Knowledgebase/Article/View/419
    (Ana notified us about this)
  - This tool:
    https://github.com/ALMA-IMF/reduction/blob/master/reduction/plot_autocorrelations.py can be used to plot autocorrelations to see if a bright line affects the data
    - In many cases, the CO 2-1 line is clearly evident in the autocorr spectrum
    Patricio: also the weblog Tsys plots can be used to see this, and maybe we even saw it when we started reduction. It may affect more the 7M data.
    Timea: Have we already done these corrections?
    Roberto: I think I made some tests of re-running the pipeline flagging out some Tsys ranges, with no obvious improvement. Will check.
    https://docs.google.com/spreadsheets/d/1xM8AfiMpe8SVifqzl0lzjD10CEB2OlLIw_Kw5R1sxAM/edit#gid=1692076735
- Full (CASA) cubes:
  - /bio/web/secure/adamginsburg/ALMA-IMF/fullcubes
  - Only temporarily at that location; for future access, need Globus
  - Roberto: i think we need to agree on two things:
    1) a set of default parameters to make these full spw cubes. My current take is concatenated visibilties and perchanweightdensity=False to have almost same

beam as continuum image, small value of chanchunks and hogbom deconvolver to to make it faster, "short-baseline" (name from CASA tutorial) auto-MT and deep cleaning (niter of millions for a full spw with 1920 chans, threshold at ~ 5 to 10 mJy). I'm still investigating the details of CVEL-ing visibilities prior to concat. Details in:
https://docs.google.com/document/d/1nNmpEcD-axjVrHRowfcK3cImaZ0xrapBRcWnCg-HkVI/edit#heading=h.wc0r6ja4cl6f
Roberto will modify defaults in imaging_parameters.py and submit pull request
HongLi: maybe more complicated lines like CO need to set a restrictive pblimit.
Manuel: pblimit = 0, pbmask = 0.2 to avoid convergence problems at edges
2) Do we make these cubes in a distributed way or can the Florida supercomputer handle all of them?

- IMAGER vs CASA
  - Are there benchmarks?  Is IMAGER really better & faster?
  - If it is faster and better, how can we start using it?
    Tests are being done both for continuum and cubes. Full spw cubes can be done in ~ 1 hour
- Cube beam sizes are often wrong
  - Problem seems to be tclean(vis=[one, two, three, …]) Can be resolved by cleaning a concatenated data set. However, we may be able to hack around this (and avoid unnecessary data duplication) by modifying the headers
    - Or we can just bite the bullet and accept yet another data duplication
- https://bio.rc.ufl.edu/secure/adamginsburg/ALMA-IMF/May2020/quicklooks/
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