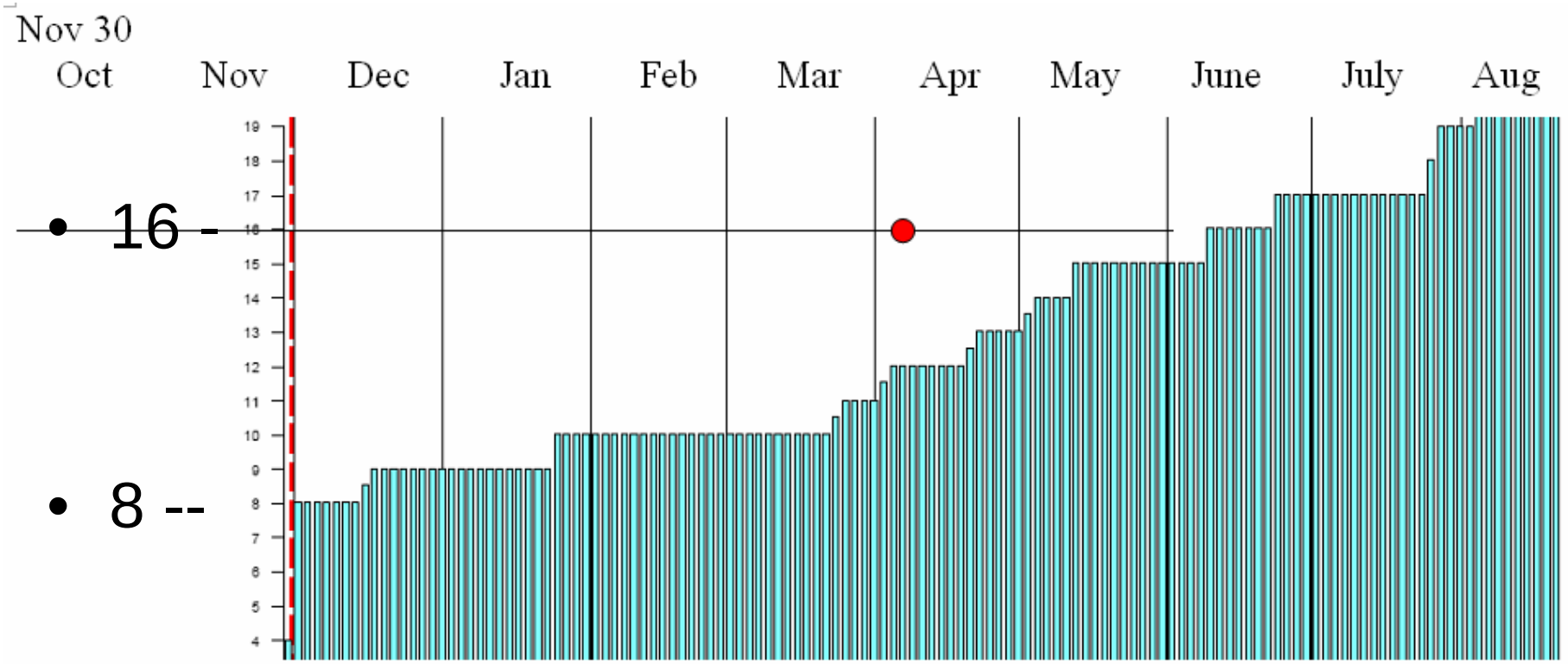
CSV 2011

Outline of what we are looking forward to in 2011 (as seen on 1st January).

Framework

- Antennas arriving at high site – present forecast

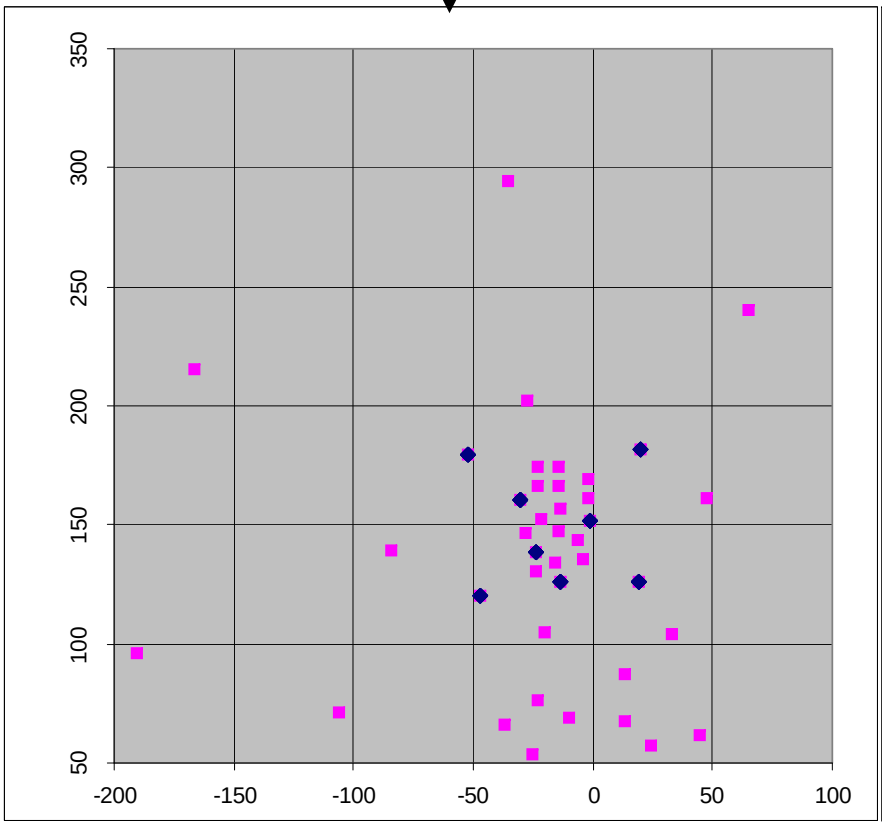


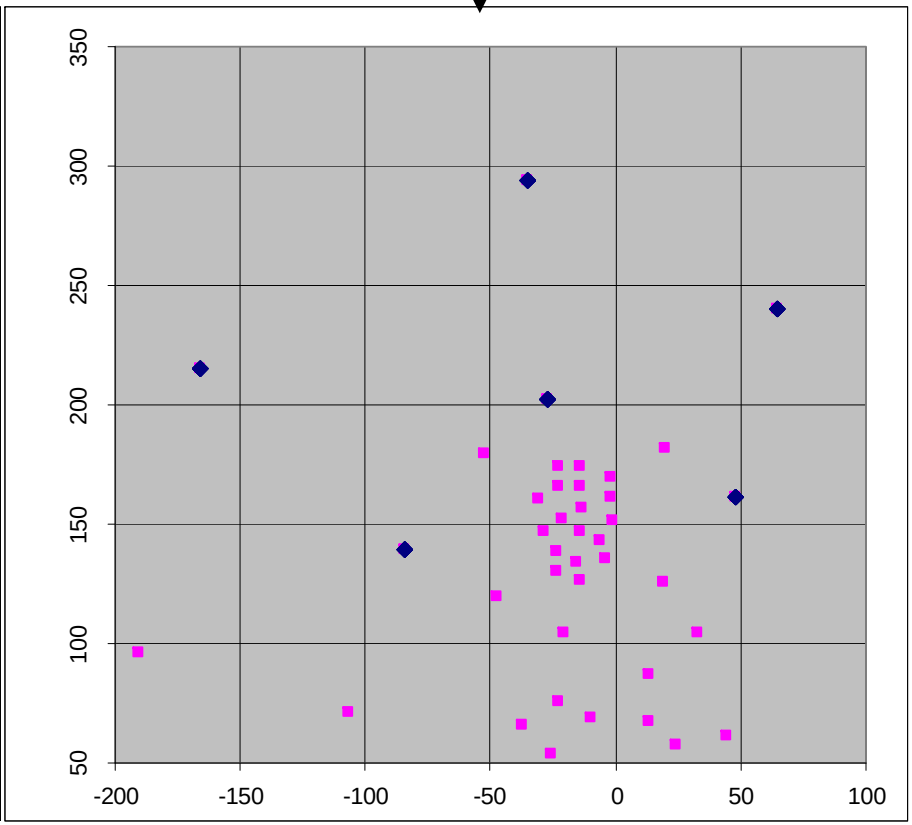
- 16 -
- 8 --

- This is well behind what we hoped for and may yet get worse. Limitation <u>at present</u> is Front Ends
- It is nevertheless a lot of antennas!

Framework (2)

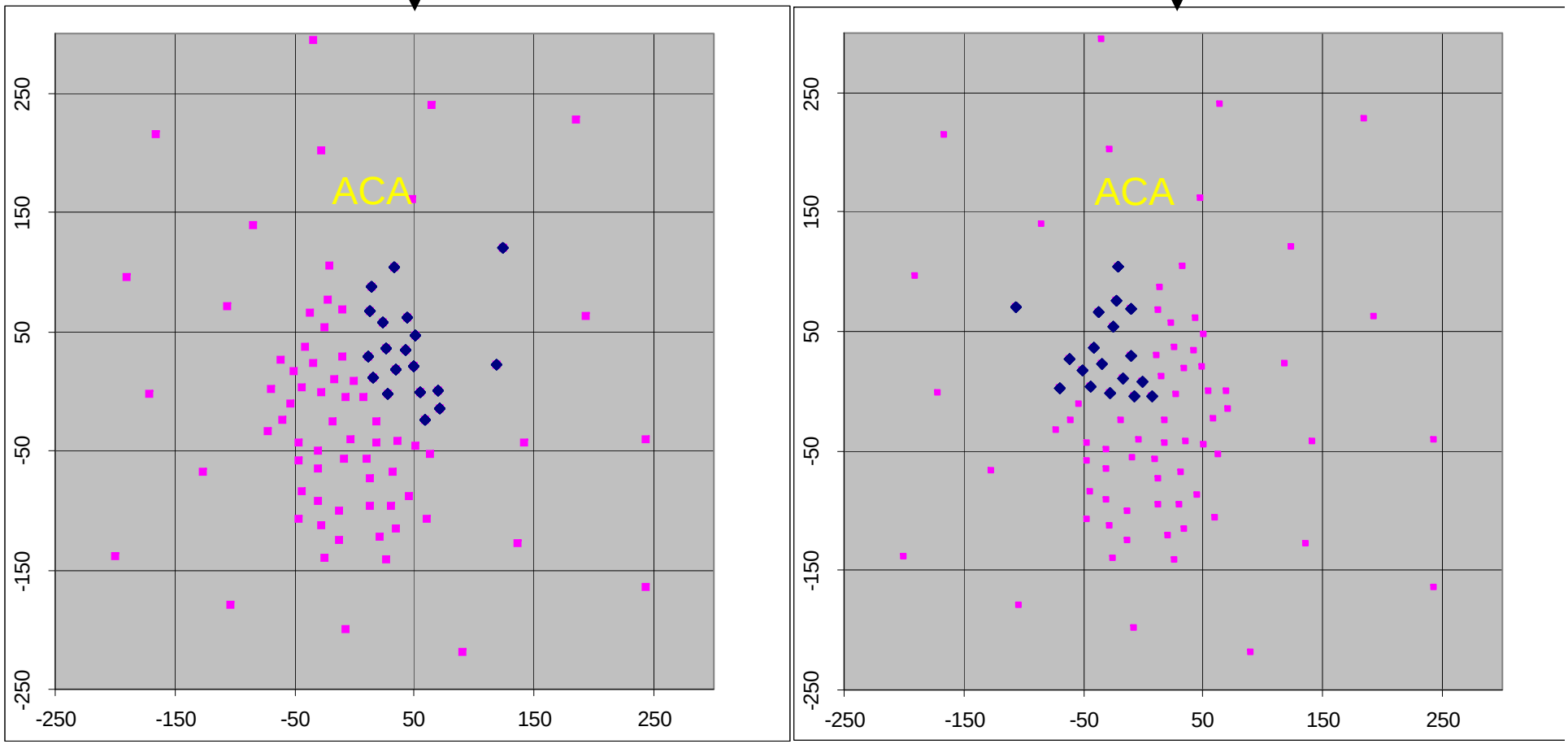
- Power and pads
  - Present array on ACA
  - Phase 3 (available)





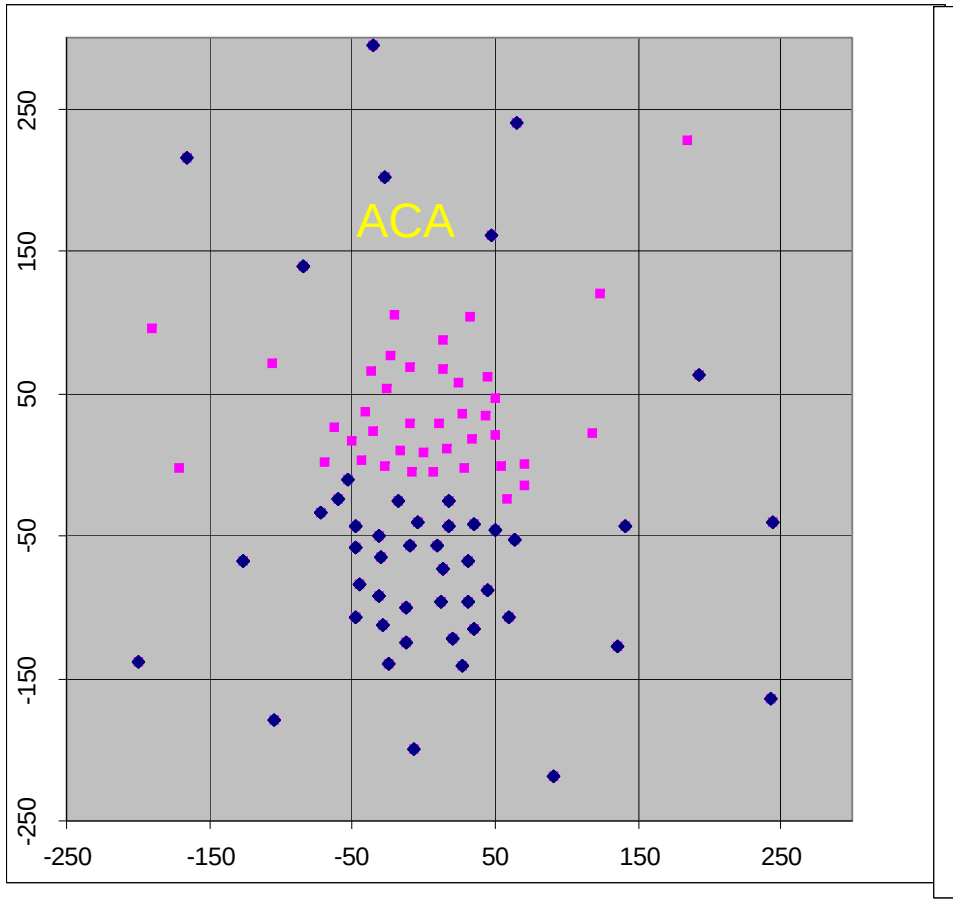
- Power and pads (2) New priorities defined

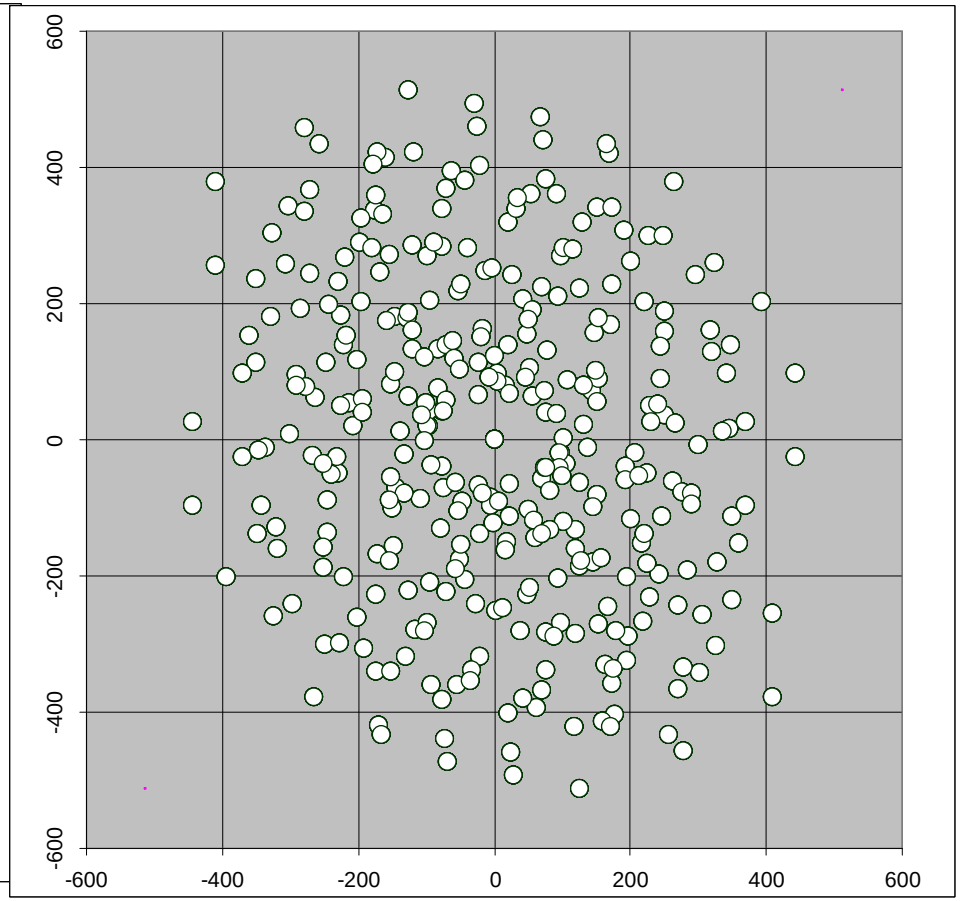
Phase 4A March 8th? Phase 4B, also March 8th??



These dates are rather critical and very uncertain!

- Power and pads (3) - all the pads on GR2 & 7
  - Phase 4C March 25th!! Baselines from outer pads

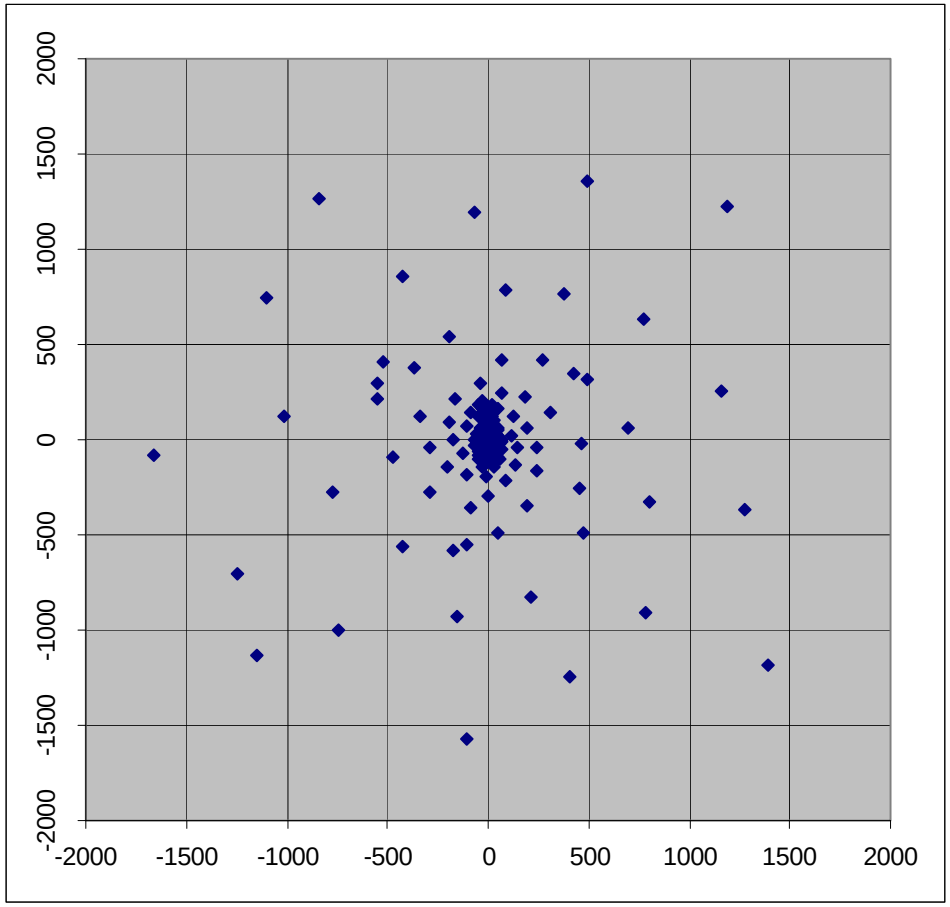




OK for an array of up to ~ 440m E-W and 500m N-S.

- Power and pads (4) – rest of inner array.

  Temporary Power System (Generators) can only support two sets of switchgear.



Phase 5 pads should be available by Sept(?) 2011 But we can't use them until Permanent Power system is ready. Aim is for Aug but plan is not to switch over main array until ~Jan 2012.

Framework (3)

- New (final) LO system – March 2011
- Two Correlator Quadrants – also March ’11
- Various fixes to antennas and receivers, band 7 orientation, tuning tables….
- Software
  - Jan 24/25 meeting to plan priorities.
  - Feb/March Archive hardware and software changes – replication in Santiago, etc.
  - June/July R 8.1 testing / deployment.
  - (R 9.0 at end of the year)

To be written

- ALMA First Data Paper – based on first phase of Science Verification data. The ALMA Science Team should be the co-authors. By April?
- ALMA Technical Description Paper – intended as the reference paper for the ALMA design and capabilities. Everyone involved in design and construction should be co-authors. Details will be covered by references to e.g. SPIE papers. By June?
- Lots of individual papers on SciVeri and ES data!

Before ES Call for Proposals - Goals

- Amp Calibration: demonstrate ~5% at Band 3 scaling to ~15% at Band 9. Document method.
- Phase Calibration: decide whether we can reliably do (slow) transfer, e.g. Band 3 to Band 9.
- Pointed Mosaics – demonstrate mosiacs of up to 25(?) pointings, by Feb 15th 2011.
- Spectral line single dish – demonstrate mapping by 31st Jan, and then see what can be done in terms of combining these with interferometric data.
- Polarization – show < 1% for compact sources after calibration – by March 15th 2011. (*Campaign in Feb.*)

Science Verification – first phase

- See web page – http://wikis.alma.cl/bin/view/CSV/ScienceVerification
- Need to get source list decided in next couple of weeks
- A few thoughts
  - Limited number of targets. No more than 10?
  - Existing observations: Certainly helpful to have original data, or at least data in numerical form, but….
  - Focus should be on rather basic quantities: positions, fluxes, presence / absence of features in maps, frequency scales, line widths/shapes, etc.

- January (weather getting worse)
  - Deployment of R 8.0
  - Complete 600m baseline tests
  - Start Scientific Verification Observations
  - Test “small” mosaics – observe and reduce
  - Single-dish test data sets
  - Polarization de-bugging continues
  - Astigmatism problem
  - DV03 goes down, PM01 comes up.
  - Move DV09 back to phase III pads?
  - Introduction to ALMA sessions continue

- February (worst weather?)
  - Accept R8.0?
  - Continue Scientific Verification Observations
  - Organize groups to focus on individual SciVeri targets and outline publications[1]
  - Polarization campaign 10th Feb to 1st Mar
  - Complete correlator mode check-out?
  - Antennas on ACA and phase III pads
  - Some retreats / workshops / internal reviews in here?

[1]Probably should be in January

- March (weather getting better?)
  - Complete first phase of Sci Veri obs
  - Reach conclusion on Mosaicing, Polarization, Single Dish and Baselines
  - Shut-down 18th to 25th ? March
  - CLOA2, 2-quadrant Correlator, control-room HVAC, plus ?
  - Establish some antennas on Central Cluster
  - Test new systems from 25th March onwards
  - Call for ES proposals 31st March
    (need list of further Sci Veri targets for this)

- April
  - Continued check-out of new systems and configurations.
  - Start second phase of Sci Veri observations
  - Start taking data through “final” process – ObsPrep Ph 1 and 2, observe, reduce and assess quality.
  - Solar observing first trials (first Cycle 1 item)
  - Move remaining antennas to the central cluster?
  - More antennas coming up here.
  - In depth check of open technical issues.

  (TIME ALLOTED TO WORK ON PROPOSALS)

- May / June / July - overview

  (June 1 Proposal Submission starts June 31 closes)

  – Not to be neglected, bread-and-butter stuff:
    - Bug finding and fixing, Obs Mode tests…
    - Complete Antenna performance evaluation?
    - Ancilliary equipment
    - System Verification
    - Check-out of new antennas – lots coming here
  – R8.1 test and deployment
  – Continue Science Verification phase 2
  – Move antennas out to a 250m configuration?
  – More full-process end-to-end tests
  – First 7 meter and/or AEM antennas at AOS?
  – Other Cycle 1 commissioning activities

- Aug / Sept - overview
  - Most items above continue
  - Run up to Early Science:
    - Full complement of antennas on the start configuration
    - Deliver Test Reports and Procedures to Operations
    - Even more test runs of full-up observing process
  - More on Cycle 1 commissioning:
    - Additional Receiver bands?
    - Largish Mosaics
    - Extended field polarization
    - Single dish: fast scanning, nutator?
    - “Proper” Solar Observations
  - System review: finalize the requirements !

- Oct/Nov/Dec - overview
  - CSV continues in parallel with ES observing / data reduction / quality assessment
  - Nominally 2/3 of “useable time” is still for CSV
  - Items from above continue + more advanced?
  - Demonstrate all Cycle 1 capabilities by the end of the year?
  - Testing of R 9.0 (Dec)
  - Current forecast is 26 antennas at high site by 20 Dec 2011!
  - Happy Christmas