

ALMA Development

We have the list of possible developments from the 2008 Working Group together with the ASAC's discussion of them and of the relative priorities.

There are also ideas from within the project and other suggestions coming in from the community.

We propose to carry out an analysis of these to establish:

- a) feasibility and order of magnitude cost and effort
- b) readiness (e.g. ready to implement, early R & D...)
- c) impact on other aspects of the project.

In addition, where this has not already been done, an outline scientific case will be prepared. We will try to do this using a combination of in-project effort and support from a small number of outside experts.

Aim to report to the Mar/Apr meetings of ASAC & Board.

Development Items (not prioritized)

- Phasing-up for VLBI
- Solar Widget for wider field of view
- Six sub-arrays.
- Building-in expansion capability to longer baselines
- More antennas
- Additional receiver bands:
 - (Band 0 20-30 GHz)
 - Band 1 31 to 45 GHz
 - Band 2 67 to 90 GHz (band 3 covers 84 to 116 GHz)
 - Band 5 163 to 211 GHz
 - Band 11 ~1500 GHz ???
- Multi-beam feeds
- Multi-band operation
- Improved phase correction
- Improved Calibration accuracy
- Upgrading the backend and correlator
- Improved FE's more sensitivity.
- Additional correlator for serendipity
- More accurate polarization systems
- Software developments:
 - Better scheduling and setup tools
 - More advanced reduction and visualization
 - New algorithms

Call for Proposals

We expect that this will produce a classification of items ranging between “exciting, ready to go and affordable” to “not worth thinking about any further at the moment”.

The suggestion is that we put the ones in the top list into a targeted Call for Proposals.

We would expect these proposals to include sufficient information to allow us to proceed with execution, i.e. reasonably detailed plans, convincing cost and effort estimates, as well as a strong science case.

In addition, either separately, or as part of the same Call we might ask for proposals for “seed-corn” funding to enable the start of longer-term development projects. If so, this could be a rather open call, e.g. it would list the items that emerge from the process described above but indicate that other ideas are not excluded.