

Schedule of Configurations during Cycle 0

It has already been agreed that two configurations – “Compact” and “Extended” – will be available during Cycle 0. The key parameters are at the end of this note. It has also been agreed that the outline schedule will be announced ahead of the date for the start of proposal submission so that the users know what ranges of Right Ascension will be accessible.

After some discussion of the options the proposal is that we start in the Extended configuration, change to the Compact arrangement at around the beginning of December, and then move back to the Extended configuration for the final two months of the Cycle 0 period. Obviously the actual dates of the moves could be adjusted in light of demand for the different arrays, progress with the observing and other practical considerations.

This table illustrates what this would mean in terms of RA coverage. The numbers in the table show the approximate LST at the site as a function of local time and date. The colour shows the RA range that would be observable at the most favourable time of day, i.e. transit between 10pm and 7am, with pink for the Extended configuration and green for the time spent in the Compact configuration.

| Local Time | 13.00 | 16.00 | 19.00 | 22.00 | 1.00 | 4.00 | 7.00 | 10.00 | 13.00 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 07-Oct-11 | 12.00 | 15.00 | 18.00 | 21.00 | 0.00 | 3.00 | 6.00 | 9.00 | 12.00 |
| 22-Oct-11 | 13.00 | 16.00 | 19.00 | 22.00 | 1.00 | 4.00 | 7.00 | 10.00 | 13.00 |
| 06-Nov-11 | 14.00 | 17.00 | 20.00 | 23.00 | 2.00 | 5.00 | 8.00 | 11.00 | 14.00 |
| 21-Nov-11 | 15.00 | 18.00 | 21.00 | 0.00 | 3.00 | 6.00 | 9.00 | 12.00 | 15.00 |
| 06-Dec-11 | 16.00 | 19.00 | 22.00 | 1.00 | 4.00 | 7.00 | 10.00 | 13.00 | 16.00 |
| 22-Dec-11 | 17.00 | 20.00 | 23.00 | 2.00 | 5.00 | 8.00 | 11.00 | 14.00 | 17.00 |
| 06-Jan-12 | 18.00 | 21.00 | 0.00 | 3.00 | 6.00 | 9.00 | 12.00 | 15.00 | 18.00 |
| 21-Jan-12 | 19.00 | 22.00 | 1.00 | 4.00 | 7.00 | 10.00 | 13.00 | 16.00 | 19.00 |
| 05-Feb-12 | 20.00 | 23.00 | 2.00 | 5.00 | 8.00 | 11.00 | 14.00 | 17.00 | 20.00 |
| 21-Feb-12 | 21.00 | 0.00 | 3.00 | 6.00 | 9.00 | 12.00 | 15.00 | 18.00 | 21.00 |
| 07-Mar-12 | 22.00 | 1.00 | 4.00 | 7.00 | 10.00 | 13.00 | 16.00 | 19.00 | 22.00 |
| 22-Mar-12 | 23.00 | 2.00 | 5.00 | 8.00 | 11.00 | 14.00 | 17.00 | 20.00 | 23.00 |
| 06-Apr-12 | 0.00 | 3.00 | 6.00 | 9.00 | 12.00 | 15.00 | 18.00 | 21.00 | 0.00 |
| 21-Apr-12 | 1.00 | 4.00 | 7.00 | 10.00 | 13.00 | 16.00 | 19.00 | 22.00 | 1.00 |
| 07-May-12 | 2.00 | 5.00 | 8.00 | 11.00 | 14.00 | 17.00 | 20.00 | 23.00 | 2.00 |
| 22-May-12 | 3.00 | 6.00 | 9.00 | 12.00 | 15.00 | 18.00 | 21.00 | 0.00 | 3.00 |
| 06-Jun-12 | 4.00 | 7.00 | 10.00 | 13.00 | 16.00 | 19.00 | 22.00 | 1.00 | 4.00 |
| 21-Jun-12 | 5.00 | 8.00 | 11.00 | 14.00 | 17.00 | 20.00 | 23.00 | 2.00 | 5.00 |

Here it is assumed that we do not observe during February and that an equal length of time is spent in each configuration.

It can be seen that even with this rather restrictive assumption on the times of day for taking the data, there is nearly complete coverage in the Extended configuration and only a modest gap, from 19:00 to 01:00 in the Compact one. In practice we can and almost certainly will take data outside these periods: for the longer wavelengths in particular there is no need to be so restrictive, so effectively all RA's can be reached in both arrays with this scheme.

The other option discussed was to only change the configuration once, during the February shut-down. This would obviously be easier from an operational point of view, but it would limit the RA coverage available quite strongly.

Points to be considered here are:

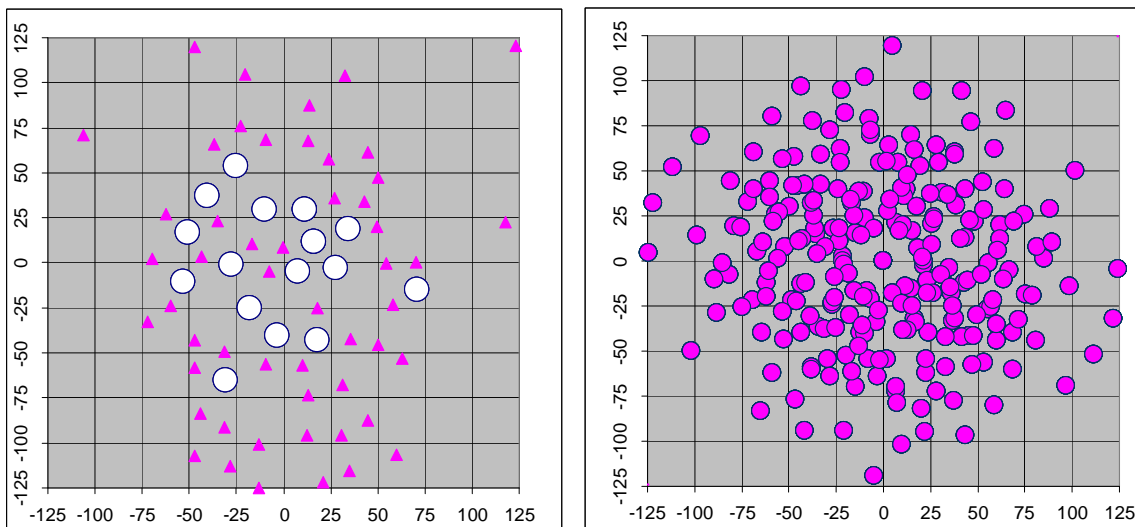
1. Based on the recent experience of moving the antennas from the ACA to the central cluster, we think that it will take about a week, or at most 10 days, to move from one configuration to the other and get the system “shaken-down” again. This is a significant overhead but not so large as to rule out two moves.

- Assuming the weather reverts to something closer to the normal pattern, we can reasonably expect good conditions (in particularly periods dry enough for Band 9) until early January and then much worse conditions until mid March with a slow improvement back to very good conditions in late April. In general terms it obviously makes sense to do the longer baseline observations when the weather conditions are good. The proposed scheme would be somewhat problematic if it turns out that the higher frequency observations are strongly weighted towards the Compact array, but it should be possible to mitigate this by adjusting the change dates.

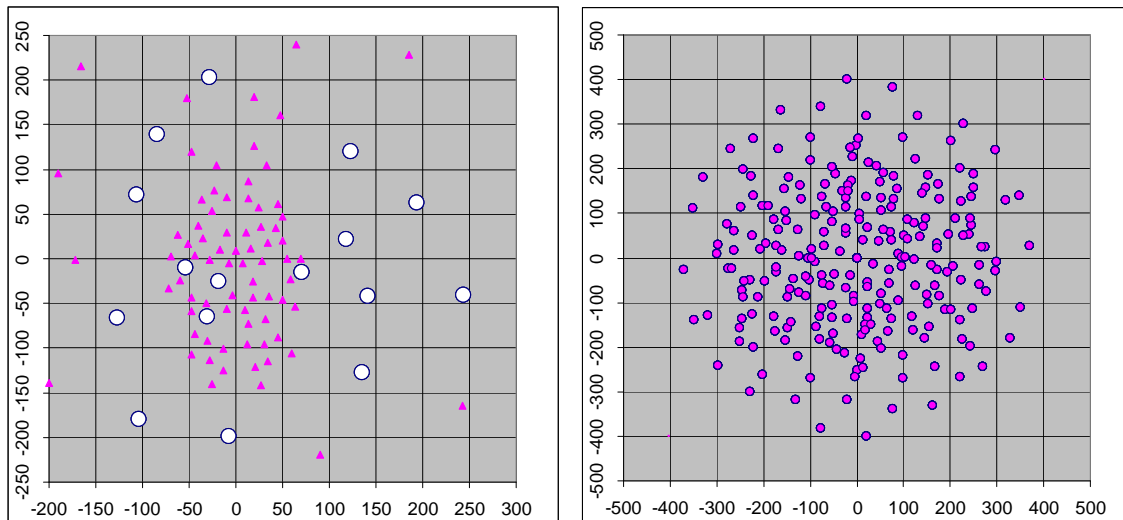
Cycle 0 Arrays

These plots show the antennas locations and the snapshot UV coverage. Scales are in meters.

Compact



Extended



The angular resolutions (FWHM major and minor axes) are as follows:

| Dec -30 | Band 3 | | Band 6 | | Band 7 | | Band 9 | |
|----------|--------|------|--------|------|--------|------|--------|------|
| | Maj. | Min. | Maj. | Min. | Maj. | Min. | Maj. | Min. |
| Compact | 5.5 | 4.8 | 2.4 | 2.1 | 1.6 | 1.4 | 0.8 | 0.7 |
| Extended | 1.5 | 1.4 | 0.6 | 0.6 | 0.4 | 0.4 | 0.2 | 0.2 |