Contribution ID: **20** Type: **not specified**

Solving for primary beams, pointing errors, and The Westerbork Wobble

Tuesday, 26 July 2011 10:20 (40 minutes)

I will present recent results on dealing with beam-related DDEs and the associated calibration artefacts in WSRT data.
An algorithm conceptually similar to pointing selfcal, but amenable to any kind of beamshape (including empirical beamshapes specified as e.g. FITS files), and able to solve for parameters of the primary beam, has been implemented in MeqTrees.
This has been applied to a range of test fields observed with and without deliberate pointing error.
The conclusion is that mis-pointing can be reliably recovered, but the improvements to the resulting maps are marginal at best, which is probably due to an inadequate beam model.
Better beam models are urgently needed.
In addition, my results suggest some rather puzzling low-level pointing variations at the WSRT.

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Session Classification: Calibration 2of2