Gonzales-Esparza et al: MEXART array:

Antenna details:
MEXART situated about 400km from Mexico City at a height of ~2000m above sea level.
Freq: 139.65MHz, bandwidth 1.5MHz, 4096 dipoles, 64x64 elements, 9600 m2 area.
Currently operating on a quarter of the antenna.
Uses Butler matrix designed at NCRA, India, to generate 16 beams able to be pointed at different declinations.

First results:
Galactic transit taken over 24 hours shows peak of central core and spikes corresponding to main radio sources.
Some scintillation seen in scans over a few of the main sources.
138 sources seen (>4 sigma above mean), 24 of which appear in other IPS catalogues.

Aims for the Workshop:
A standard methodology for g-values and velocities/errors.
Cross-correlation of IPS data sets to perform blind tests?
Common radio sources to inter-calibrate data?
IPS data format
Plot formats.
Virtual observatory for IPS?

From Divya/Mano: Look at power spectra. Next thing for MEXART analysis.

Jackson et al: UCSD Work:

SMEI data up to 1Gb per day; now 2Tb total.
New computers should speed up analysis.
6 years of data on web, including tomographic analyses.
High resolution images of the 28 October 2003 CME shown.
Reconstructions as seen from the HI imagers of the 20 November 2007 CME shown. Compares well with the images seen by HI.
Comparison between SMEI and HI from 24-25 January 2007 CME shows some nice CME fronts in difference images particularly.
J-plots from WHI March-April 2008 data shown. Agreed well with J-plots from other soures.
Reconstructions showing number of lines of sight also produced now. Can be used to determine confidence in structures seen in density reconstructions.
Ooty reconstructions shown. LASCO CMEs which produced big storms at Earth reproduced well.

Manoharan: Ooty IPS:

Can observe a single source for 10.5 hours each day and has a declination range of +/- 60 degrees.
Ooty now capable of observing 1000-1200 lines of sight per day.
Different structure observed in temporal power spectra observed as a source tracks towards and away from the Sun. Turbulence varies as ~R^-2.3; density turbulence often much higher.
Significant differences seen between this minimum and last, both in high latitude speed and density

turbulence.
Some CME speed profiles able to be plotted with Ooty data. CME's basically observed to tend towards the same speed (~500km/s) as they propagate through interplanetary space.
Going to upgrade Ooty telescope front end to improve the flexibility (~50 times more coverage and get up to 4-5000 lines of sight per day).

Tokumaru et al: STELab IPS

New antenna at Toyokawa now up and running and able to observe ~100-120 sources per day.
41x106m area, steerable North-South.
Receivers much lower noise than at the other sites.
Variations of scintillation level and g-level for the source B1730-13 shown.
Comparison of g-level all-sky maps between new Toyokawa site and Kiso shown and looks good with more sources seen at Toyokawa.
Upgrades underway at Fuji and Kiso to bring sensitivity closer to the new Toyokawa telescope.
Comparison between last and present solar minima very interesting: Heliospheric current sheet more twisted and solar wind structure much less well defined this minimum compared to last. No-one knows why at present.
Continuous monitoring of the solar wind needed.

Tyul-Bashev et al: Puschino IPS and IoS monitoring:

For CME observations, need to observe many more sources; this means being able to observe sources at the confusion limit. Get down to 0.1Jy sources and there are enough for one source per square degree of sky.
Optimal IPS seen between 0.3 and 1AU at observing frequency of 100MHz.
For optimal analysis, need to know exact source angular size and strength and size of scintillating component. Can use a different parameter, gamma, to estimate m0, the actual scintillating component(?).
SNR 2-3 for 0.1Jy source.

Session 1 Discussion:

Time for practicalities: What we want do do, what we want to use and how we're going to do it.

Should go for Virtual Observatory, including all tomography data from both white light and IPS. Routine products should include movies, J-plots, all suitable in-situ data. For this need good integration of all data products, perhaps using the solarsoft tree or something derived from it. This needs to be bourne in mind when discussing the common IPS data format. Solarsoft is probably the way to go as it already exists and would be easier than trying to build something from scratch. For a VO, should add our datasets to one or more of the Virtual Observatories that already exist.

Some disappointment expressed over the lack of collaboration between parts of the STEREO teams and SMEI. Recommendation that people who wish to use HI data go to the RAL site at www.stereo.rl.ac.uk and go from there. The RAL people are willing to collaborate. Much calibrated data is available via an rsync server (speak to Steve Crothers for access). Main Stereo data site is http://www.ukssdc.rl.ac.uk/solar/stereo/

Idea of the new IPS database is that any non-specialist user will be able to use the data and not worry about where it's come from. Good documentation will help the user as will good explanation of the different levels of analysis. Data should be provided at different levels of analysis equivalent to those of the SoHO datasets for example.

Need to watch that documentation covers a broad view and not on the assumption that the data will only be used for current purposes. For example, J-plots are good close to the Sun, but not much use further away and the documentation doesn't reflect this difference.

Some caveats with general SolarSoft use in that some routines are very good, but others should not be touched with a barge-pole. There are also examples of routines with duplicate names but do different things (eg readfits). Perhaps include in any documentation we put together recommendations for which SolarSoft routines to use for particular things. Essentially a good User Guide is needed.

The new IPS format is being written in Python; linking between IDL and Python (to link to SolarSoft) should be possible but will need some work. John Clover knows most about this at present.

For the IPS common format, need to establish the different analysis techniques used and ensure that consistent results are achieved so that, for example, a g-level from one IPS station analysed in one way is the same as another g-level from another analysis.

Collaborations etc:

June joint IPS campaign: Suggestion to put in an application for a Soho JOP if we want further supporting measurements from white light etc... Short on time for this occasion, but it might be possible to put something together.

Common source list with common names and epoch desperately needed. Preferably J2000 co-ordinates. Suggestion that the source list has three columns for names to encompass most names currently in use. An established list of good IPS sources needed for the new generation of telescopes. It is also needed for the planned IPS database.

A joint campaign between all instruments next spring/summer, perhaps a Whole Sun Month 4, to re-visit the solar minimum Sun. Could be timely as there are some suggestions that the Sun has yet to reach solar minimum. It would also be useful to compare two very different minima. Should use MWA and LOFAR arrays as available, even if only to demonstrate that IPS exists on LOFAR... Plans need to be started now for this.