GONG Magnetograms for STEREO

F. Hill

Fronting for

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Data Quality

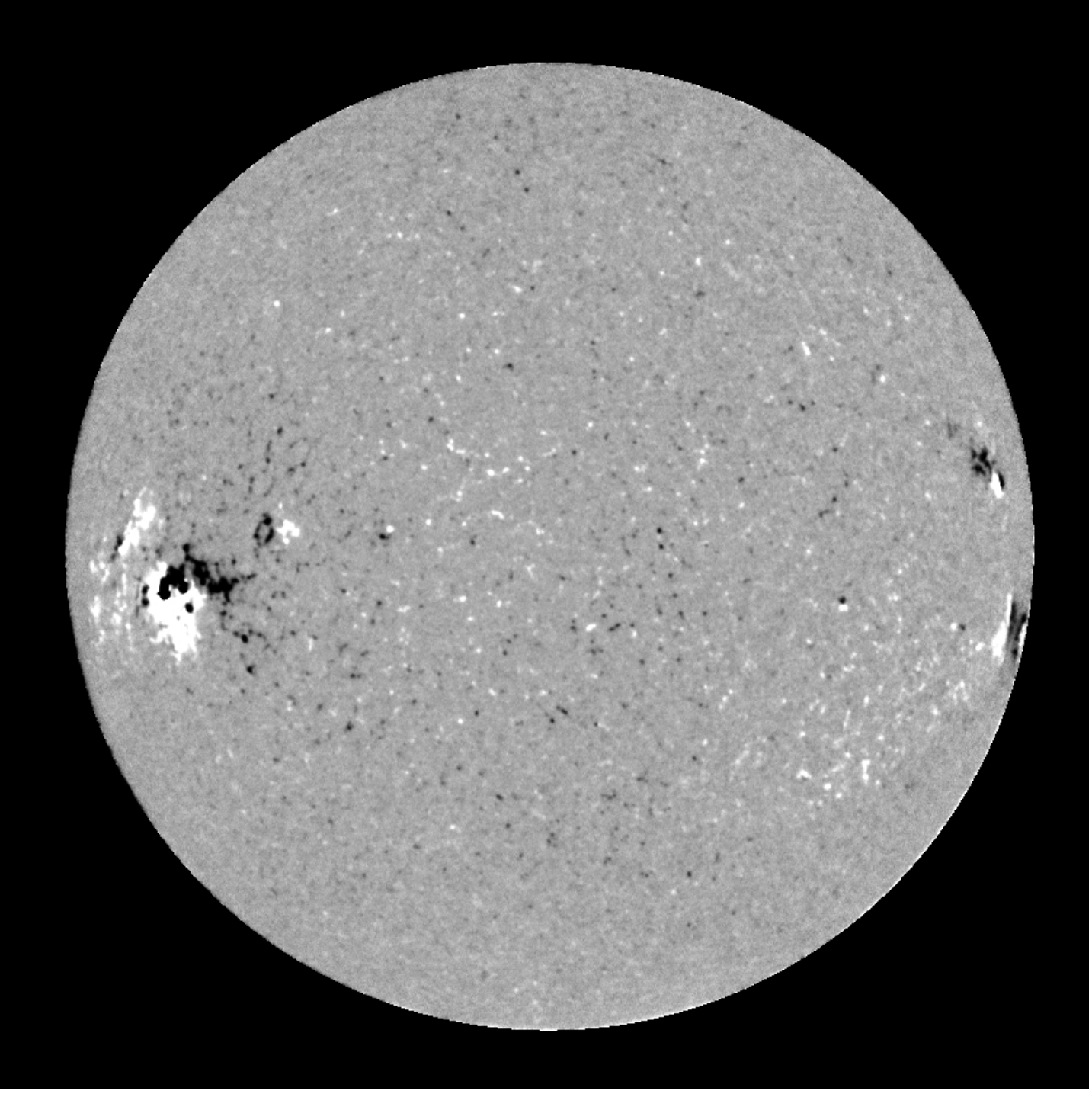
- New modulators and driving electronics installed in Spring 2006.
- Improvement of factor of 30 in zero-point background.
- Background zero point now ± 0.1 G.

Data Delivery – full disk magnetograms

- Ten-minute average formed at each of six sites.
- Calibration without temporal average.
- Images are registered and circularized.
- Bad images are rejected.
- Resulting magnetogram from each site returned immediately after production.
- Available ~10 mins after acquisition on the web in Tucson, 24-7.

Data Delivery – Synoptic Maps

- Uses the input of the 10-min averages from the sites.
- Images are remapped into heliographic coordinates using flux-conserving algorithm.
- Images weighted with $\cos^4(\theta)$.
- Synoptic map generated every hour.
- 7000-10000 input images for each map.
- Still working on pole filling.
- Now available on the web.
- Working on “Janus” maps, where latest magnetogram is inserted to update farside.



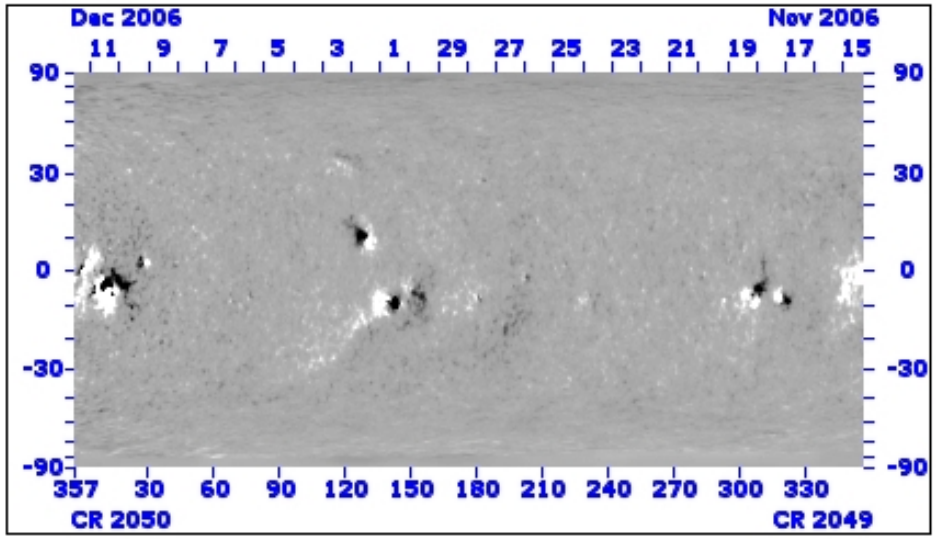
Example magnetogram

Udaipur

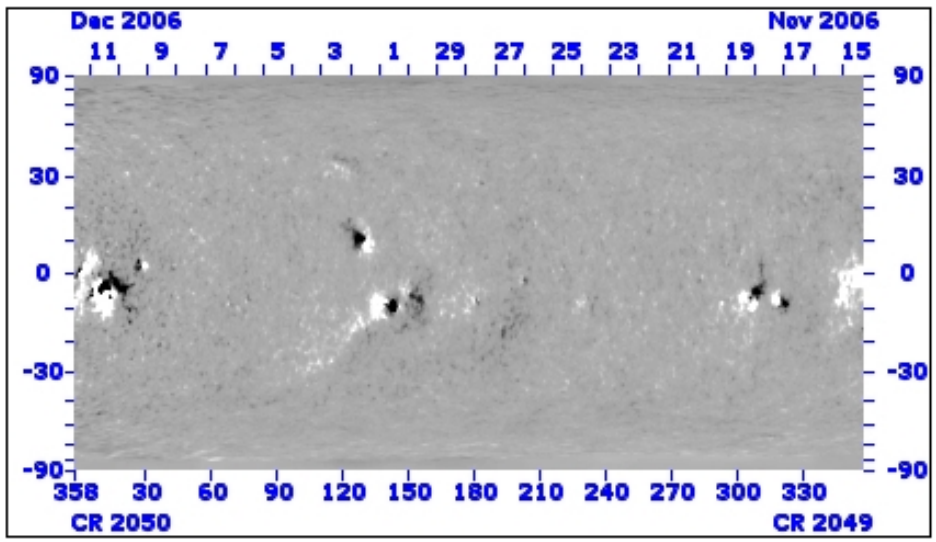
2006-Dec-07

10:44 UT

Latest Magnetogram Synoptic Maps from GONG

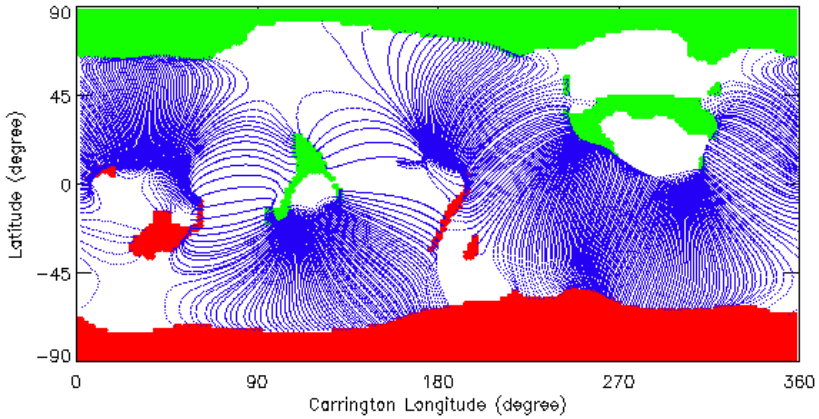


07 Dec 2006 21:24 UT

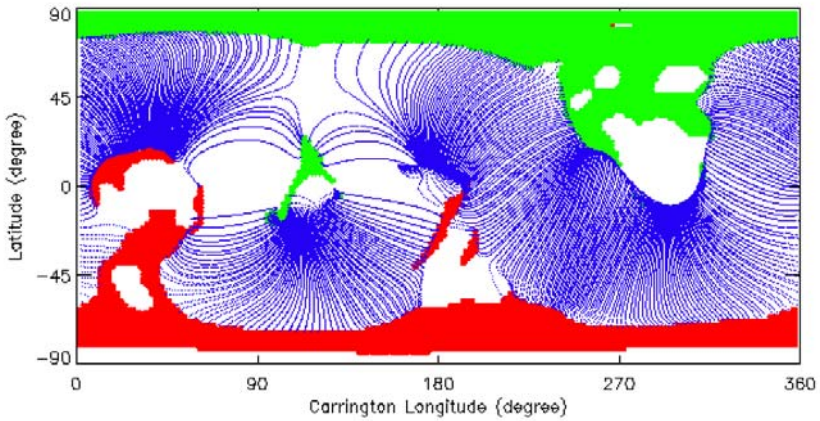


07 Dec 2006 20:24 UT

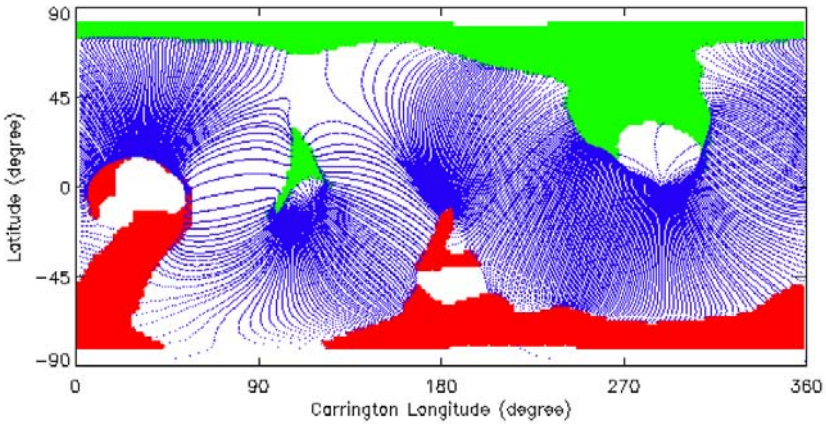
Example synoptic maps



GONG



SOLIS

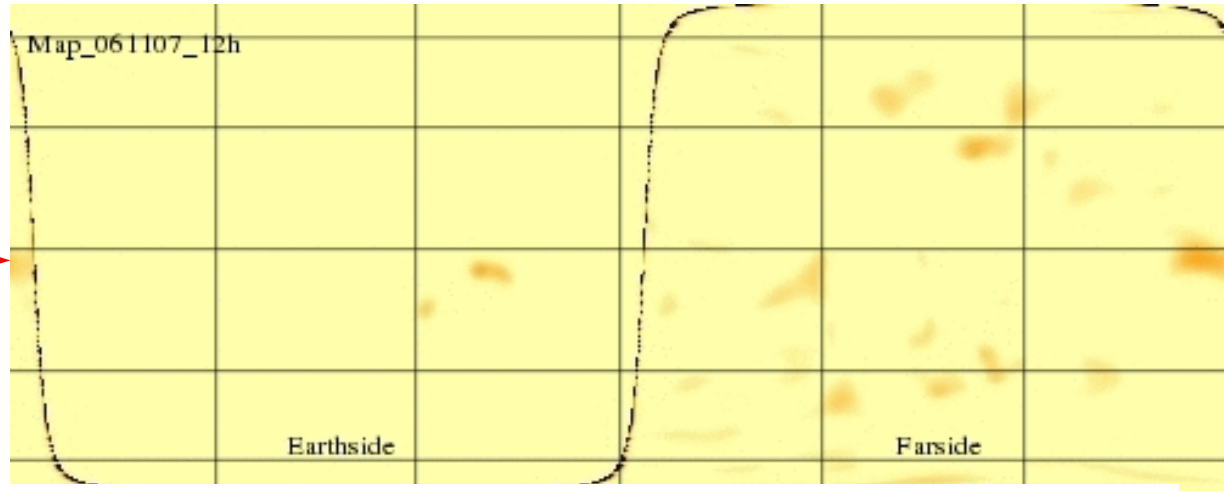


Wilcox

Field extrapolation for CR2024

GONG Farside imaging and calibration

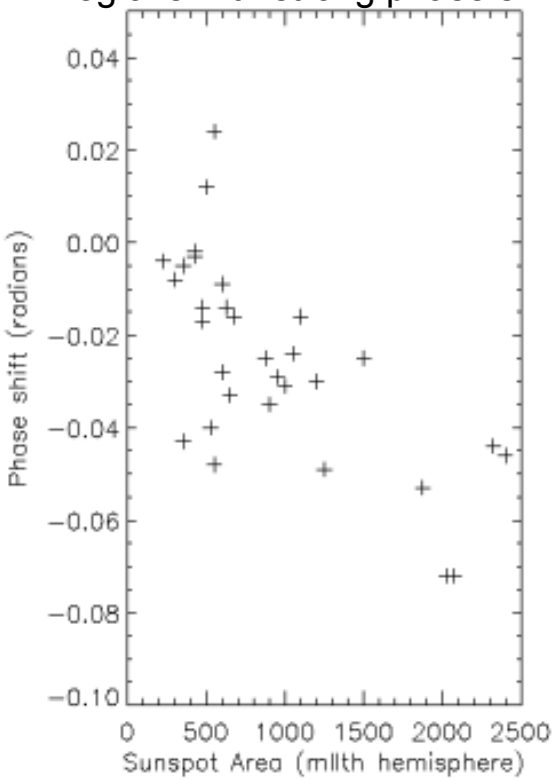
AR10923/19030



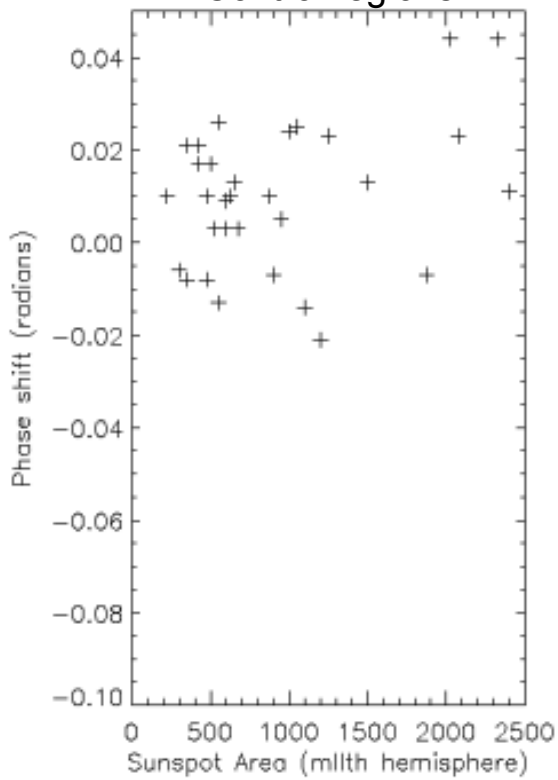
Movie showing two appearances of AR10923/10930. AR10930 produced many flares, including an X9. Time period: Nov 7, 2006 to Dec 8, 2006.

Preliminary calibration of farside signal in terms of sunspot area. Very large sunspots are most likely to be detected on the farside. AR10930 has an area of 400 MH, thus a weak signal

Regions with strong phase shift



Control regions



Irene González-Hernández, Charlie Lindsey, John Bolding

Conclusions

- GONG magnetograms are high-cadence, low noise and nearly continuous (87% average duty cycle).
- Resulting synoptic maps probably have the highest SNR currently available.
- High-quality products available in near real time.
- Farside images available for comparison with STEREO data.