

## II. SYNOPTIC CHARTS OF SOLAR MAGNETIC FIELDS

### Mount Wilson Observatory

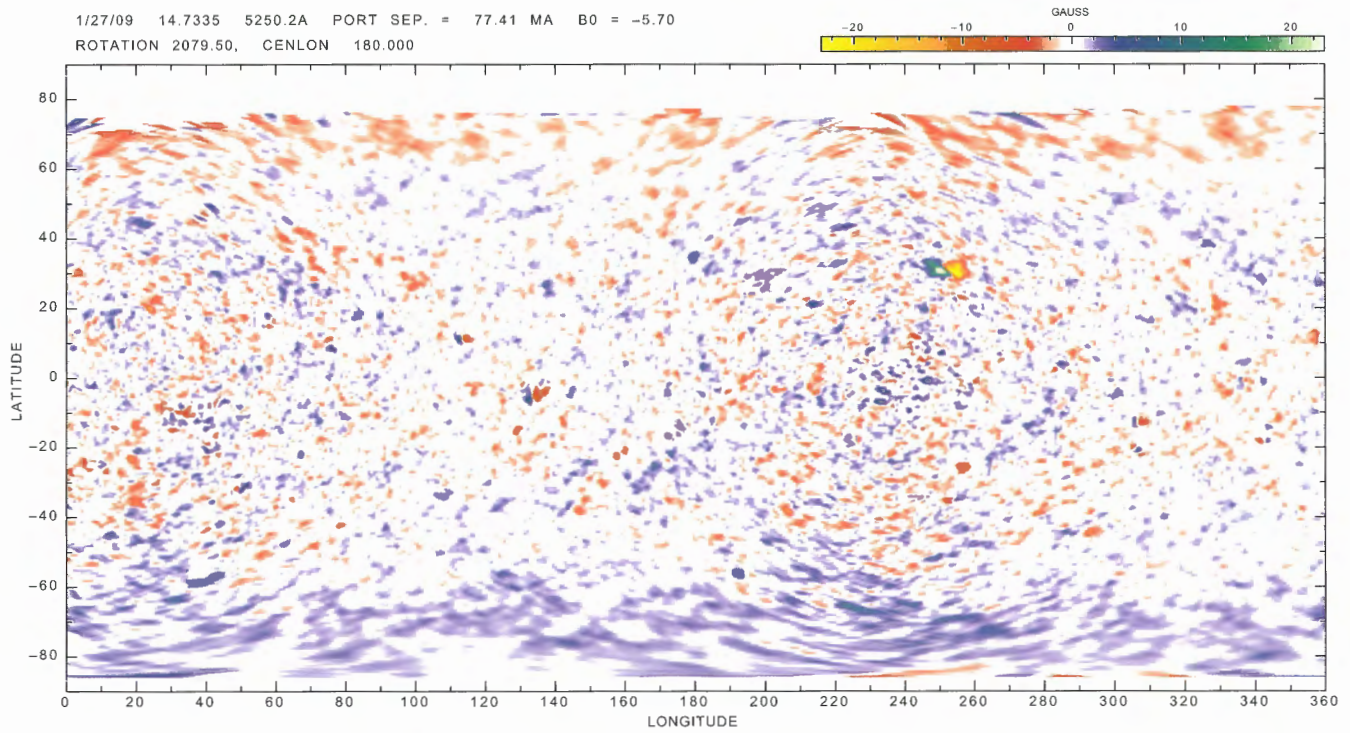
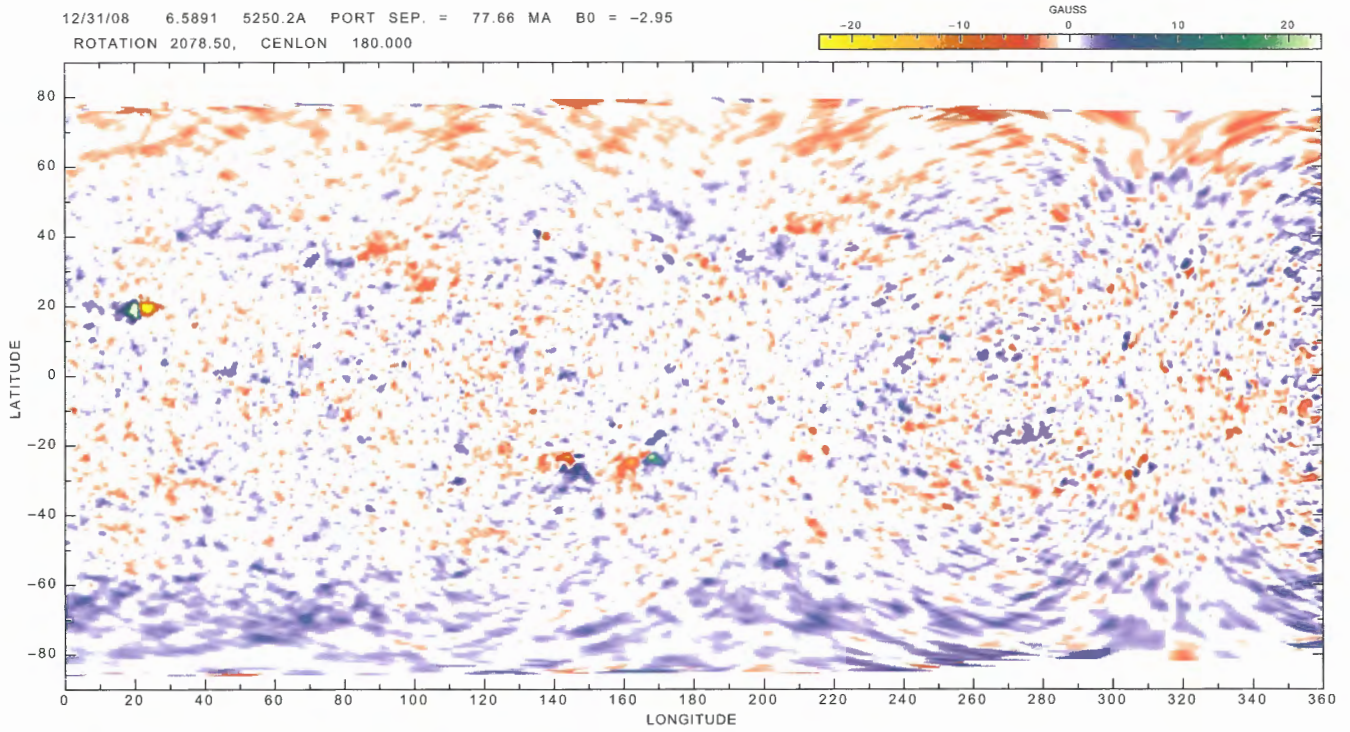
These synoptic charts are constructed from the digital data of the daily magnetograms obtained at the 150-foot Tower Telescope at Mount Wilson. The spectrum line employed is 525.02 nm, Fe I. The magnetograph at the Tower Telescope measures only the longitudinal component of the Zeeman effect. The aperture is a square of either 12.5 or 20.0 arc-seconds on a side and the whole sun is covered in each magnetogram. The digital image is built up over an interval of either 50 minutes for the small aperture or 30 minutes for the larger aperture by scanning the solar image over the spectrograph entrance slit boustrophedonically.

The synoptic chart is built up using all observations available for each point of the solar surface during a specified Carrington Rotation. The point position is based on its Carrington coordinates at the time of central meridian passage. Observations taken when the point is not on the central meridian are corrected for differential rotation to obtain the position which corresponds to that at central meridian passage. The measurement shown is the weighted average of all these observations using a weight function which is the cosine of the central meridian distance. The color coding of the resulting average fields is linear in blue and red with the blue saturated for fields larger than 20 gauss and the red saturating for fields more negative than -20 gauss.

This project was initiated under the auspices of the Carnegie Institution of Washington through their Mount Wilson and Las Campanas Observatory in Pasadena, CA. It is currently operated by UCLA in agreement with the Mount Wilson Institute which has offices at 740 Holladay Road, Pasadena, CA 91106. Partial support for the project is provided by NASA, NSF and ONR.

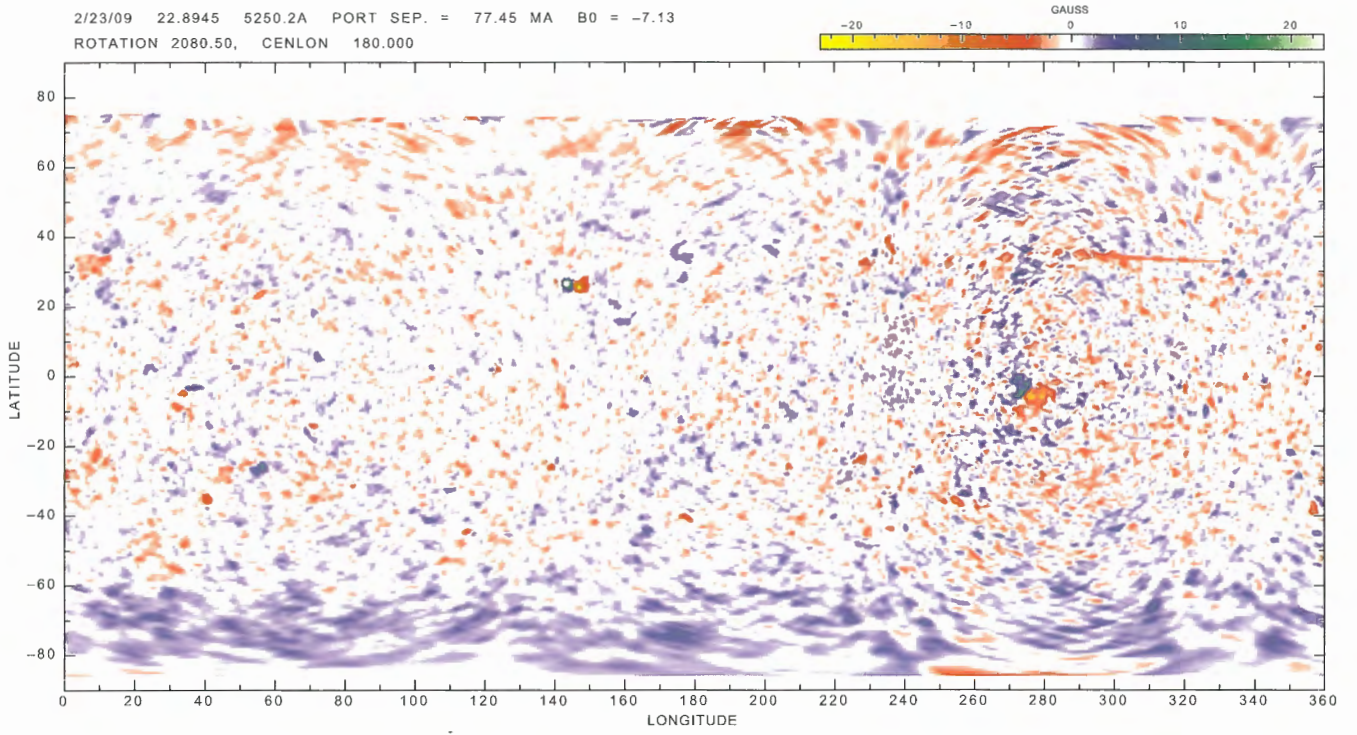
Roger K. Ulrich

II - 2 (2009)

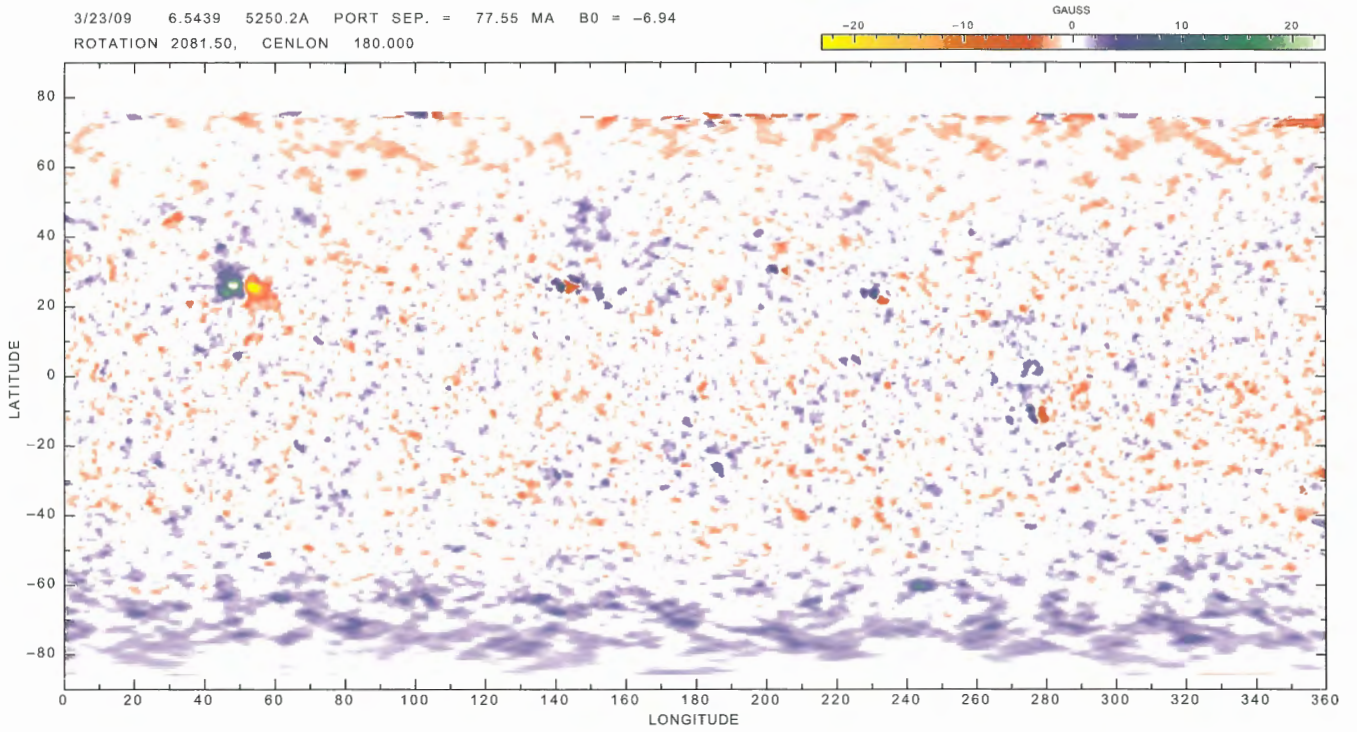


II - 3 (2009)

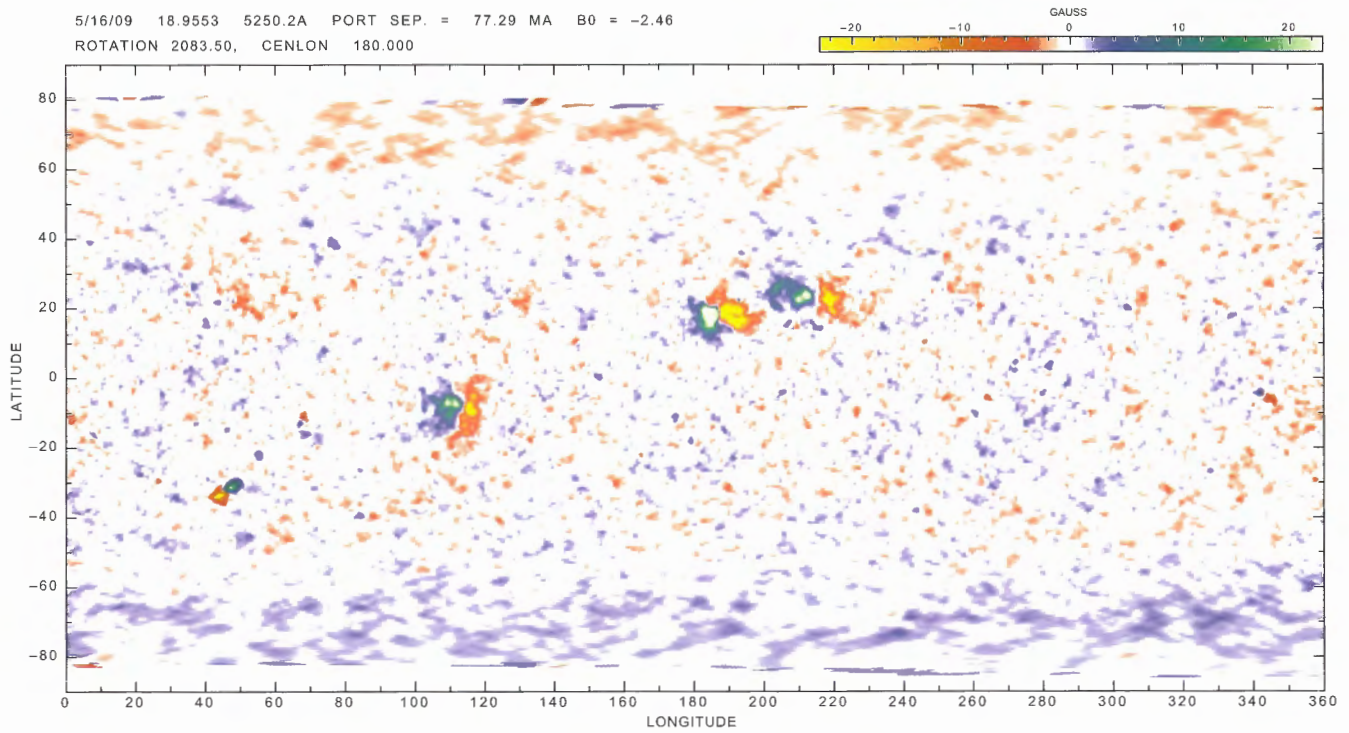
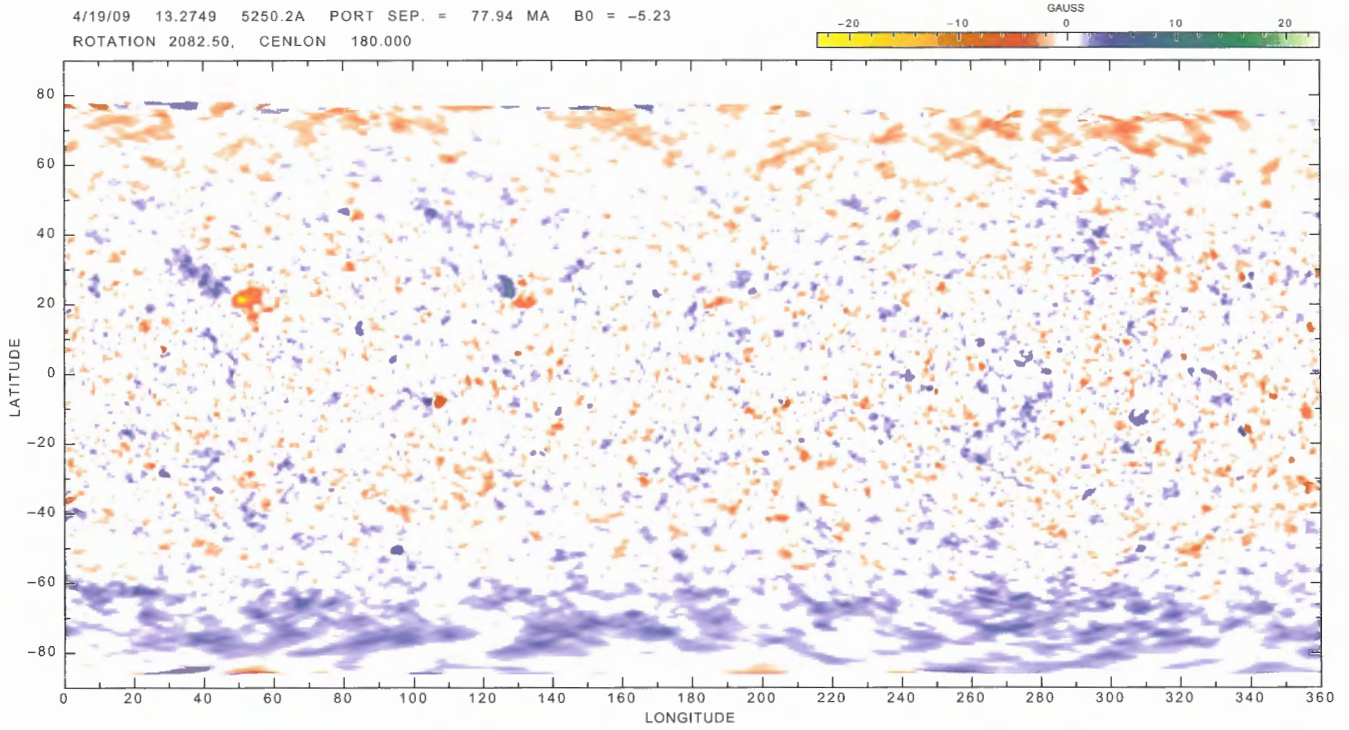
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ROTATION 2080.50, CENLON 180.000



3/23/09 6.5439 5250.2A PORT SEP. = 77.55 MA B0 = -6.94  
ROTATION 2081.50, CENLON 180.000

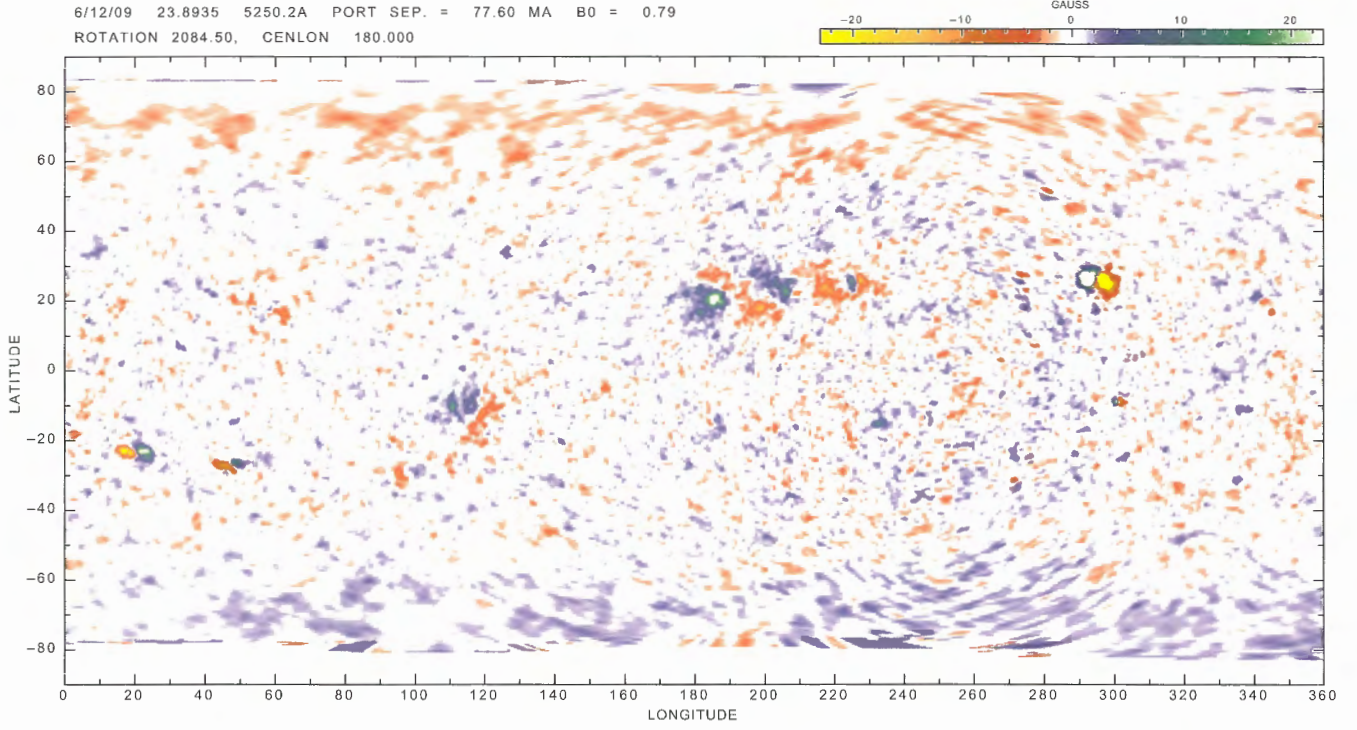


II - 4 (2009)

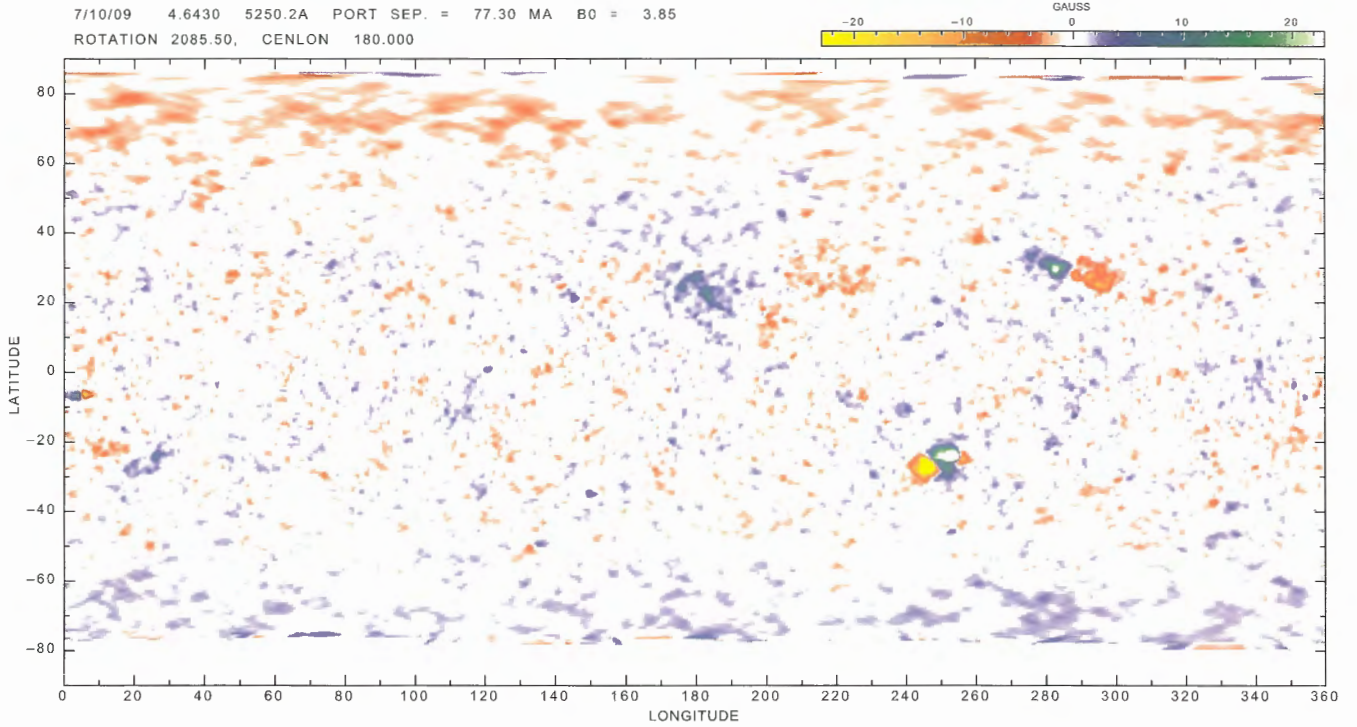


II - 5 (2009)

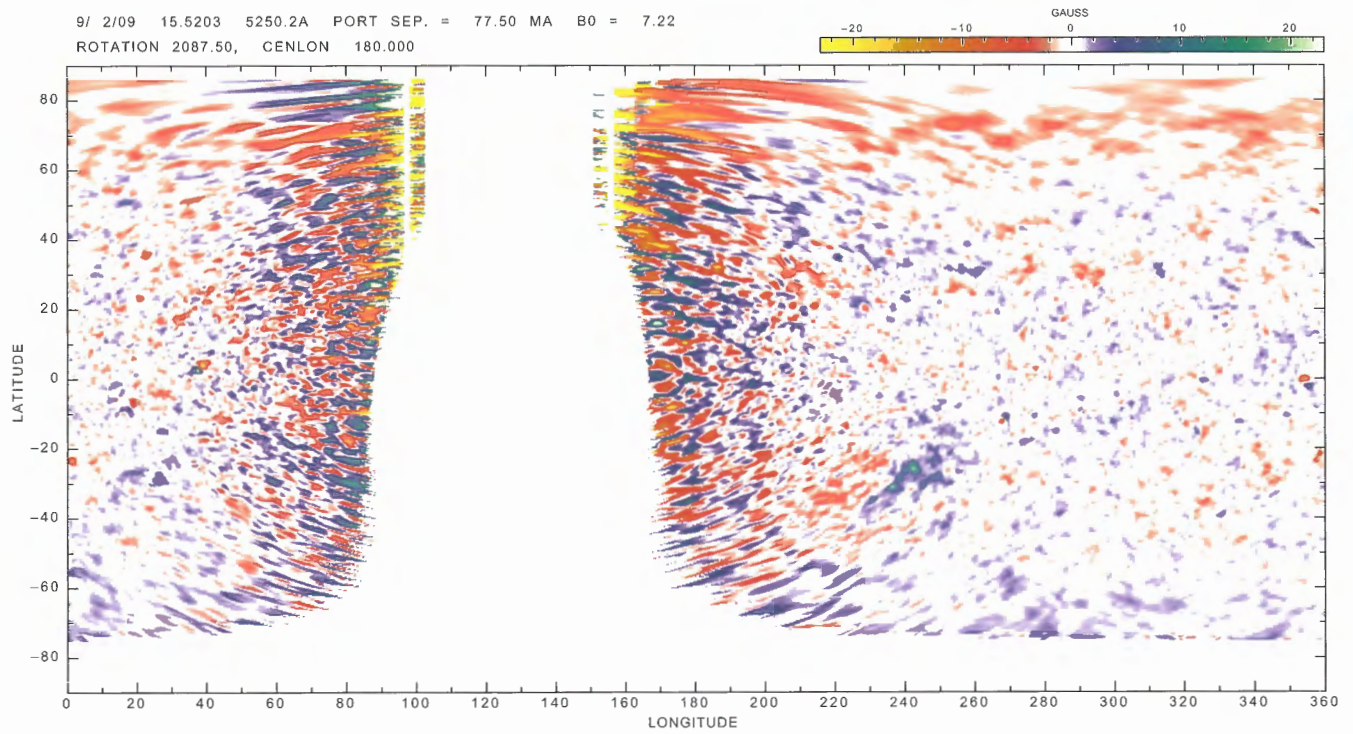
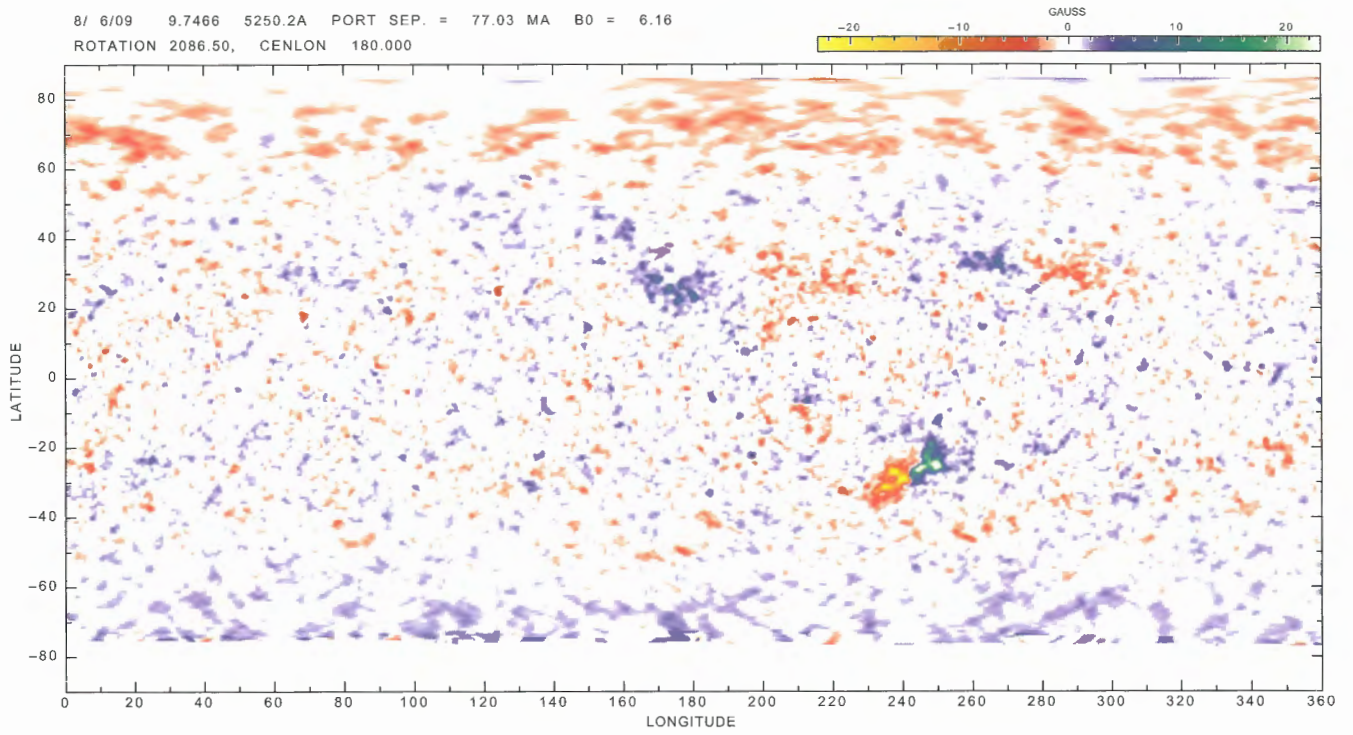
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ROTATION 2084.50, CENLON 180.000



7/10/09 4.6430 5250.2A PORT SEP. = 77.30 MA B0 = 3.85  
ROTATION 2085.50, CENLON 180.000



II - 6 (2009)



II - 7 (2009)

9/29/09 21.9726 5250.2A PORT SEP. = 77.18 MA B0 = 6.77  
ROTATION 2088.50, CENLON 180.000

