

2001-2004

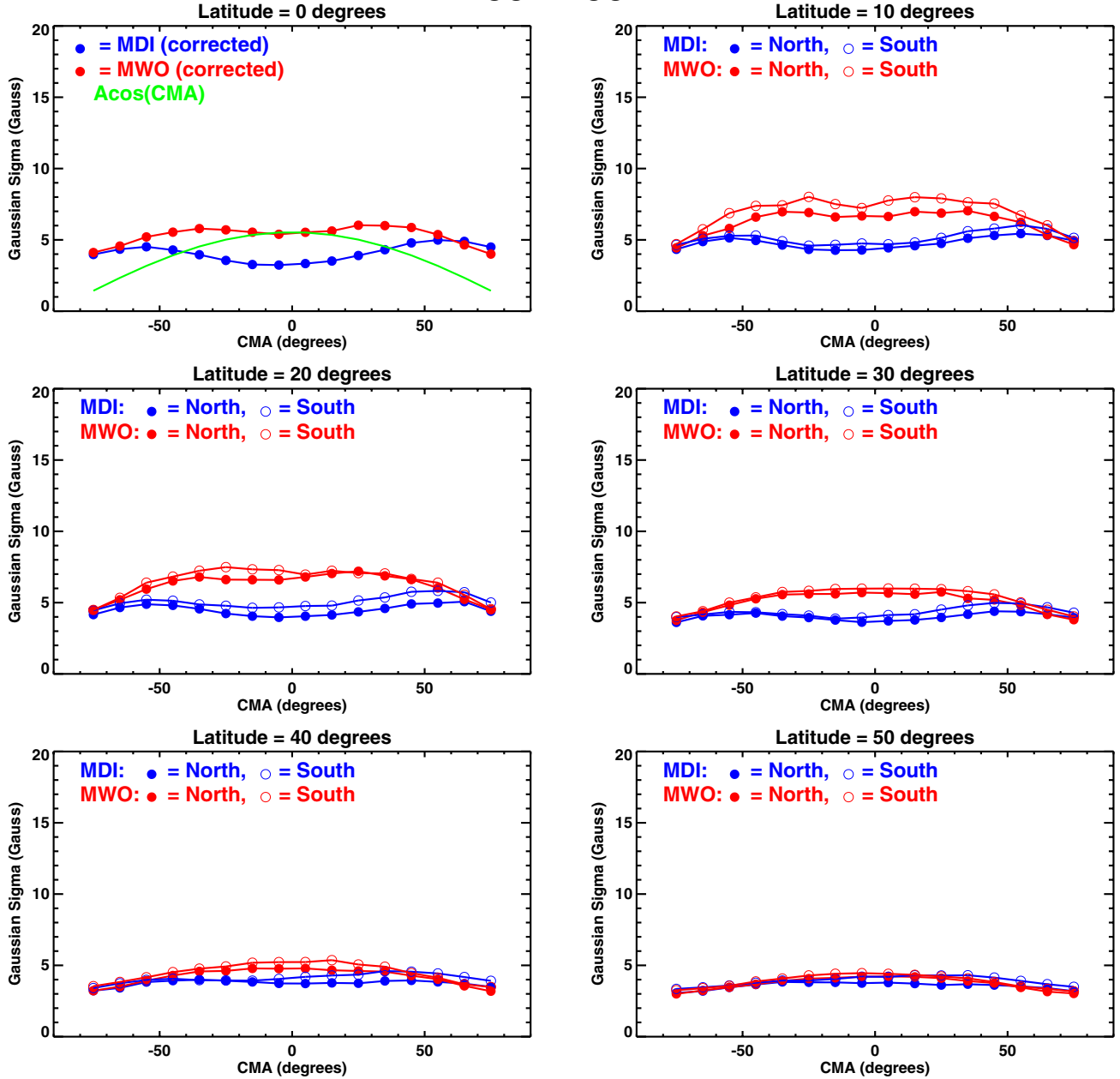


Figure 1. East-West variability of a proxy for the average line-of-sight magnetic field strength as measured from MDI and MWO magnetograms during the period 2001-2004. Each point in this figure is the width of a Gaussian function derived from the fit of the observed magnetic field distribution during the 4 years investigated in this work inside a 3 by 3 heliographic degrees window centered at that particular latitude and central meridian angle (CMA). As a reference, a cosine function of the CMA is shown in green in the top left plot of the figure. This is the result expected if the field lines are radial. This procedure is described as histogram analysis in the text.

2001-2004

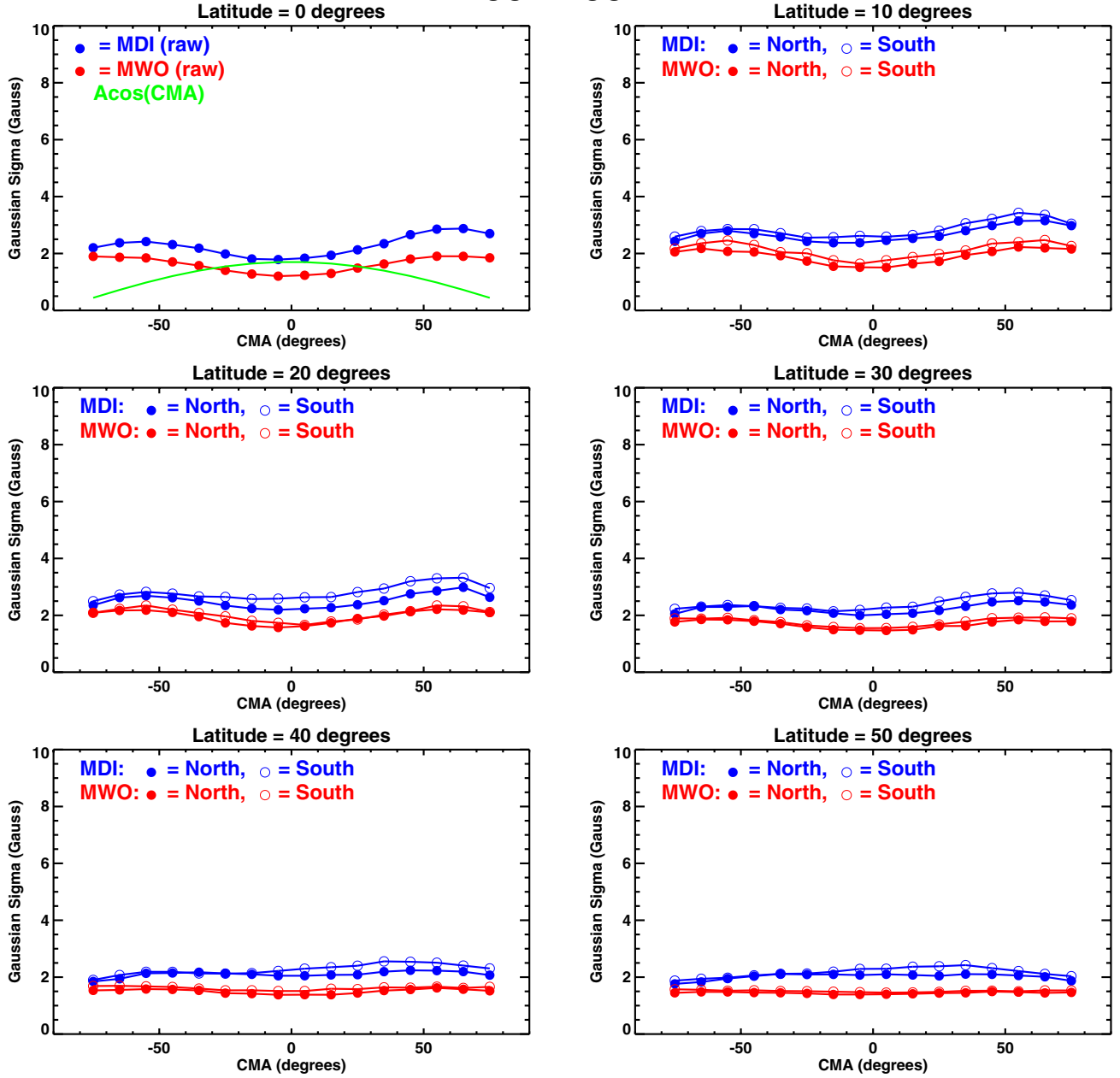


Figure 2. Same as Figure 1. but before the application of a correction factor to the MDI and MWO parameters derived from the Gaussian fit to the observed magnetic field distribution as discussed in the text.

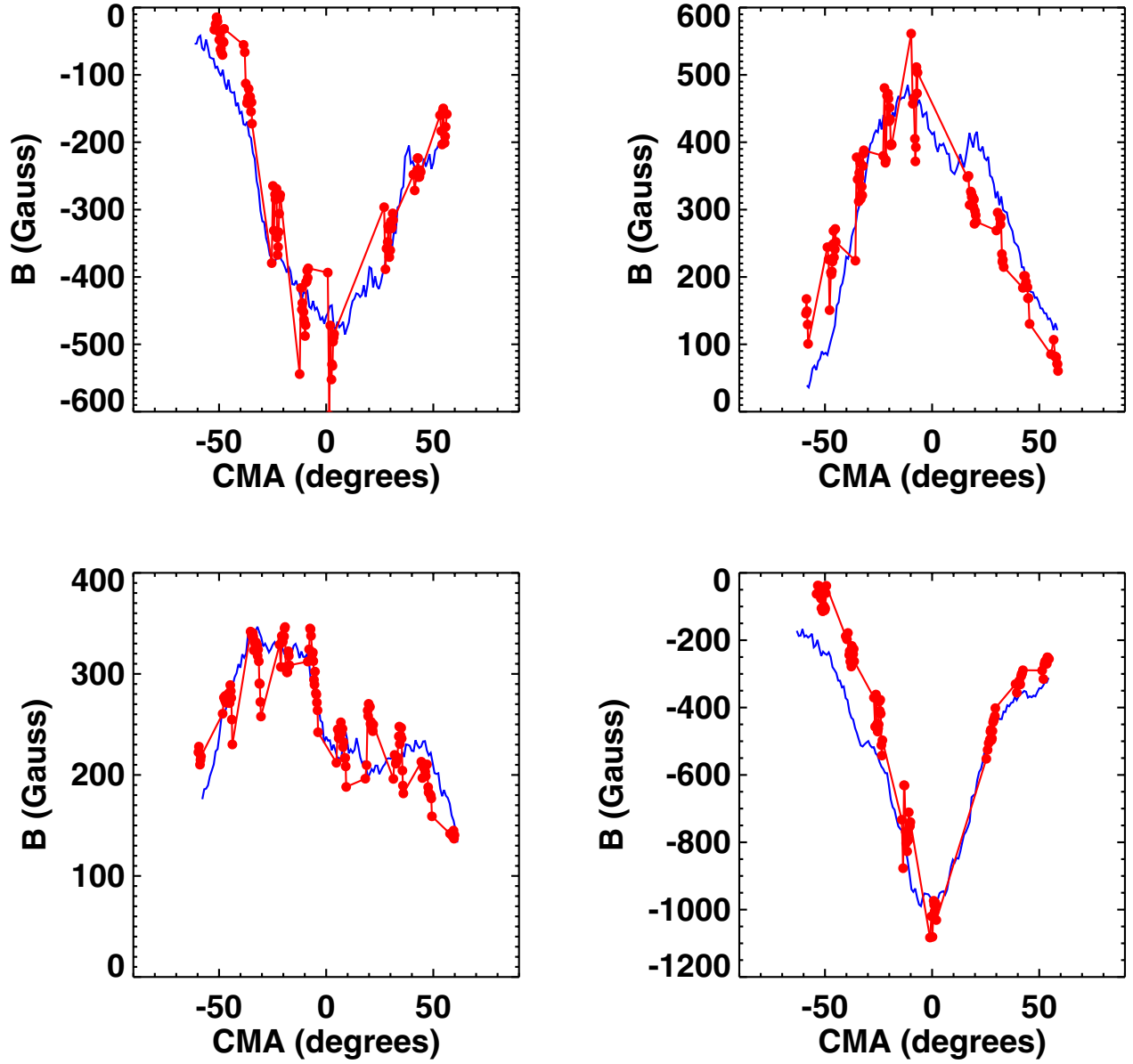


Figure 3. Examples of variability in the East-West direction of the observed average magnetic field obtained using the tracking analysis described in the text. A 4 by 4 heliographic degrees window is initially selected at 0 central meridian angle (CMA) and at a latitude between 10 and 30 degrees (North or South). The pixels inside this window are then tracked in time using the Mount Wilson Doppler rotation rate to determine the dependency of the average field from the CMA value. Each plot shows a different selection in time and space for the initial window. The MDI results are shown in blue while the MWO results are shown in red.

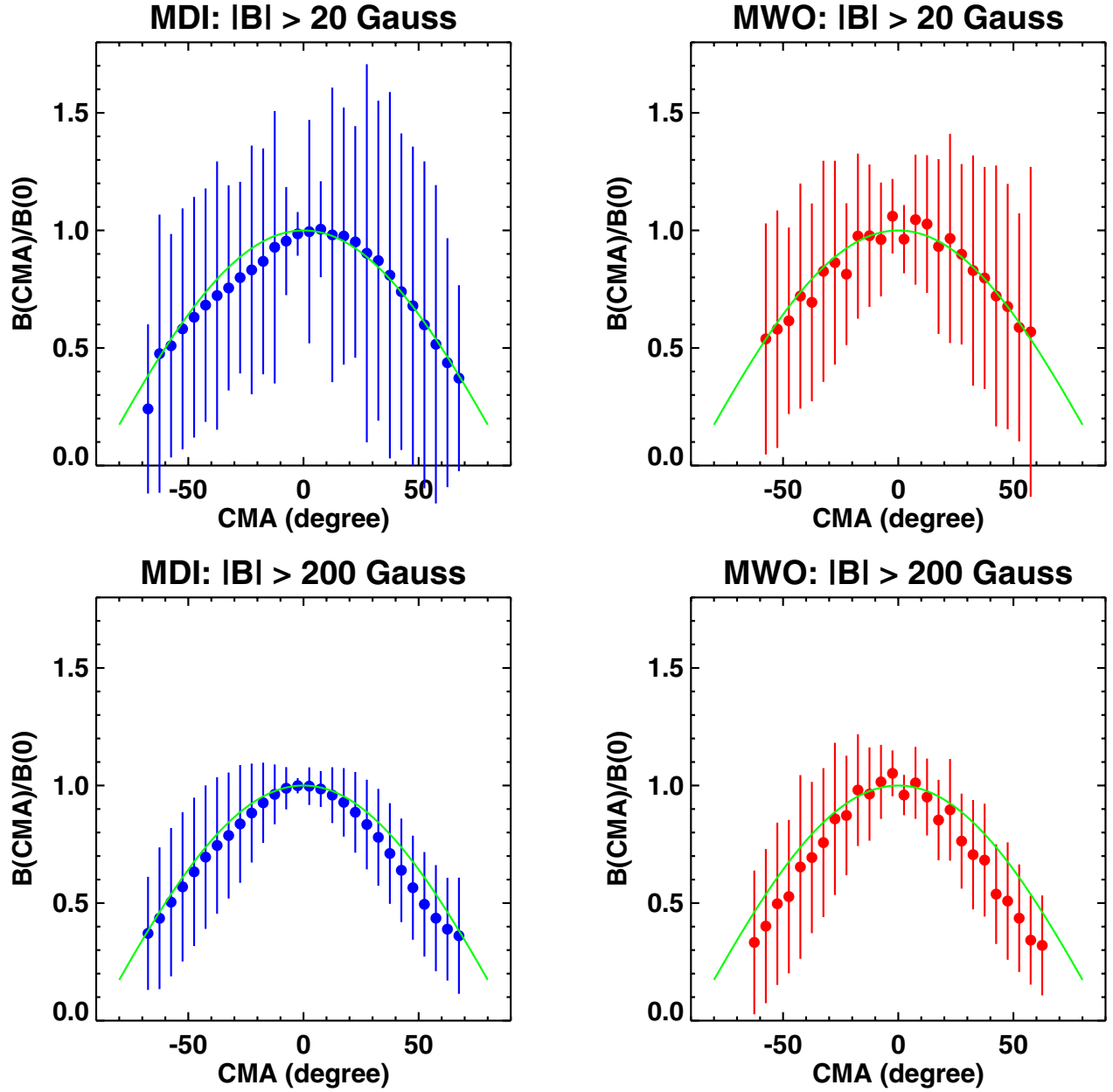
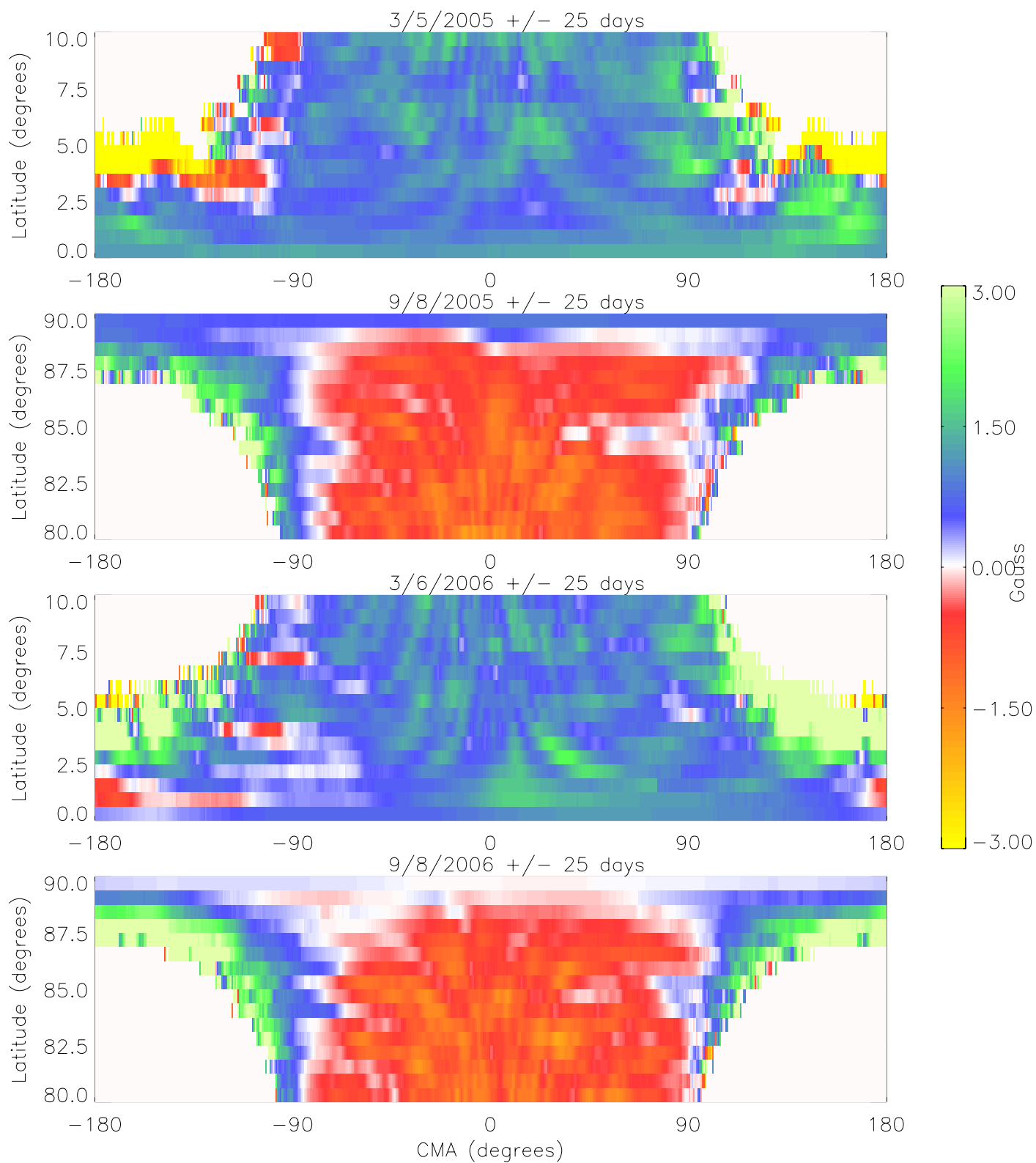
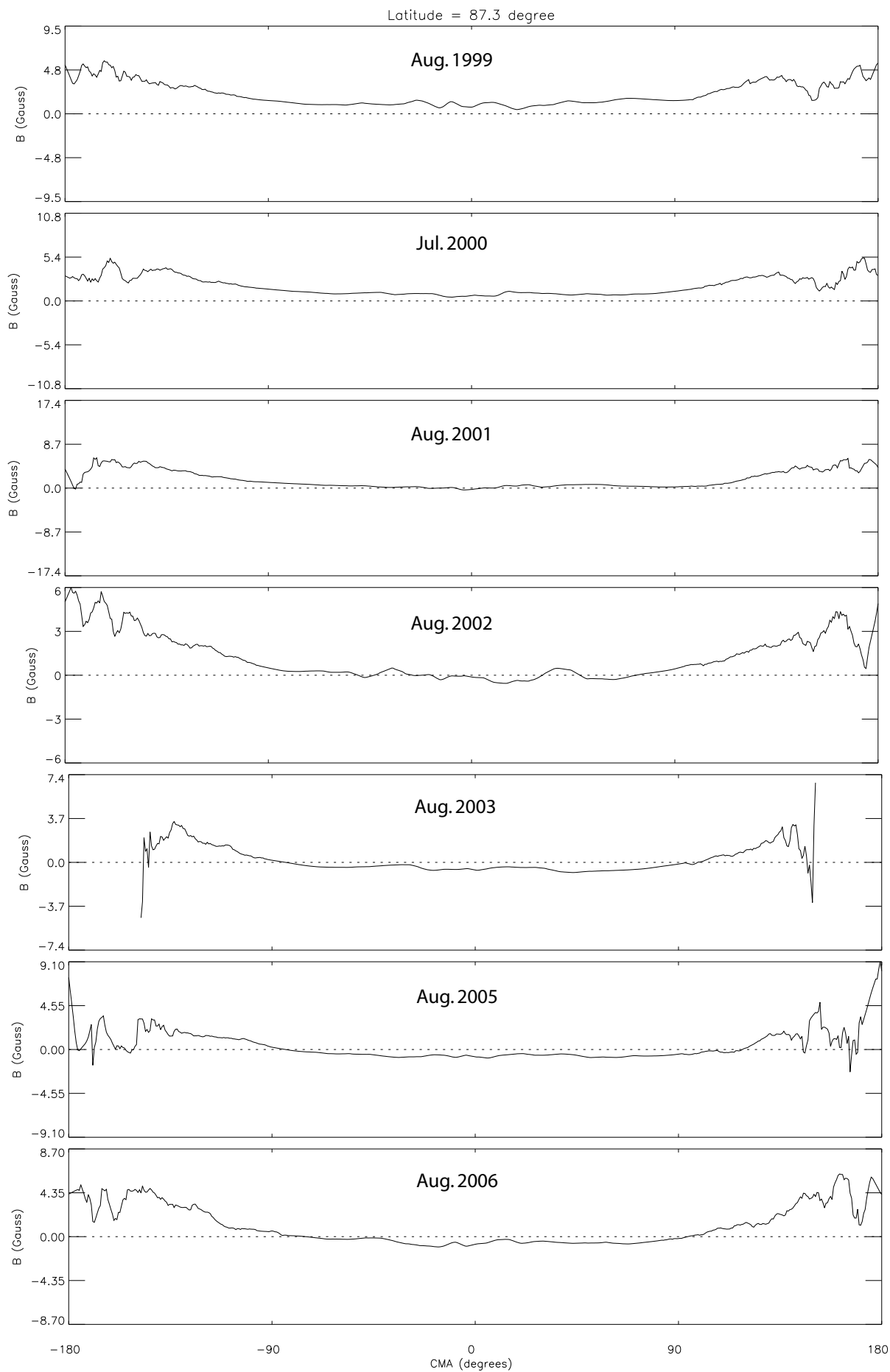
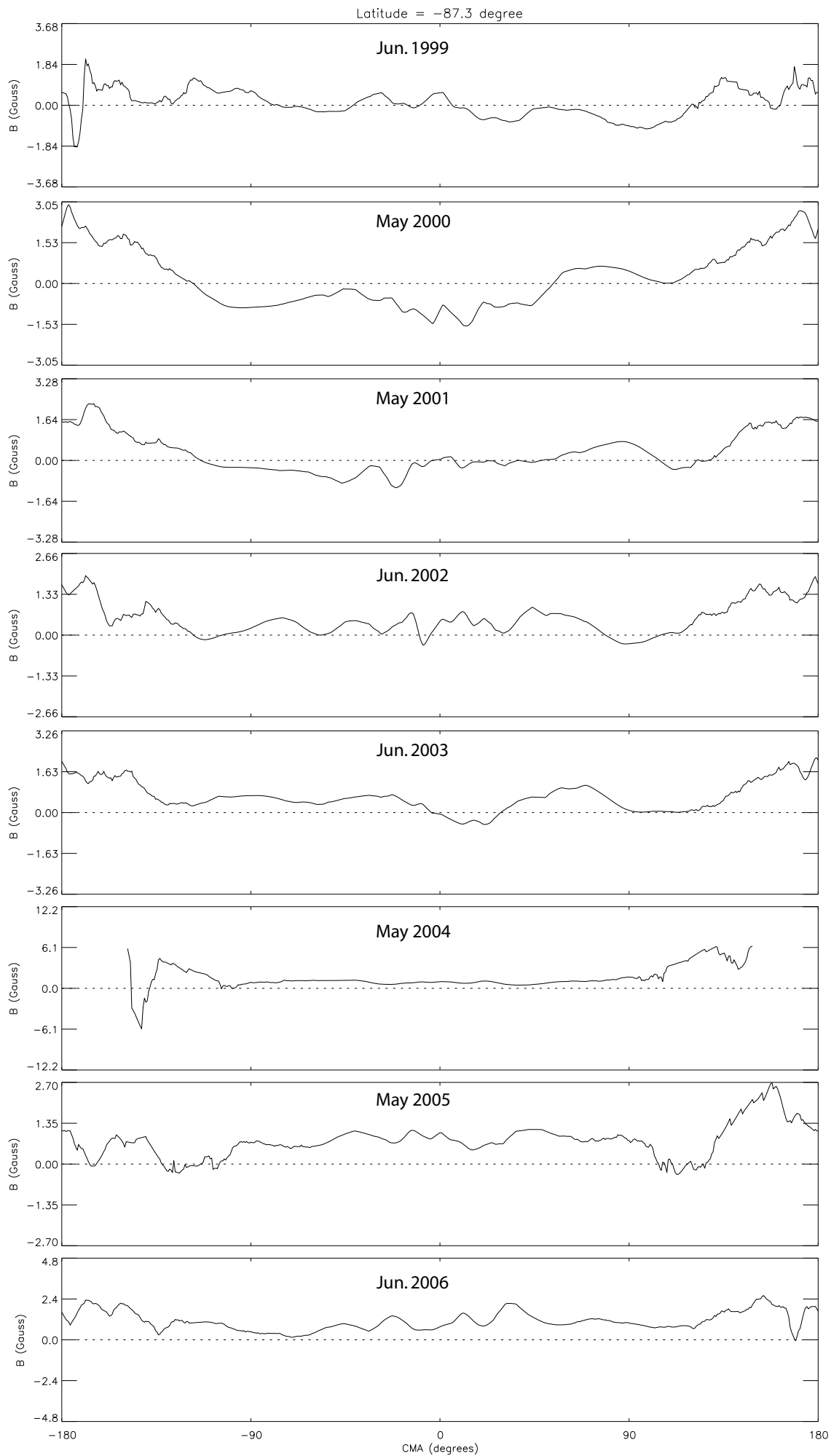


Figure 4. Variability of the line-of-sight magnetic field distribution as measured from MDI and Mount Wilson magnetograms during the period 2001-2004 using the tracking analysis discussed in the text. More than thousand curves, like the ones shown in Figure 3, were combined together to produce this result. The top two plots are for an initial 4 by 4 heliographic degrees window with an absolute value of the average field greater than 20 Gauss. The bottom two plots are for a threshold of 200 Gauss. The error bars are the standard deviations of the data in each bin. As a reference, the cosine function of the central meridian angle CMA is also shown in green.





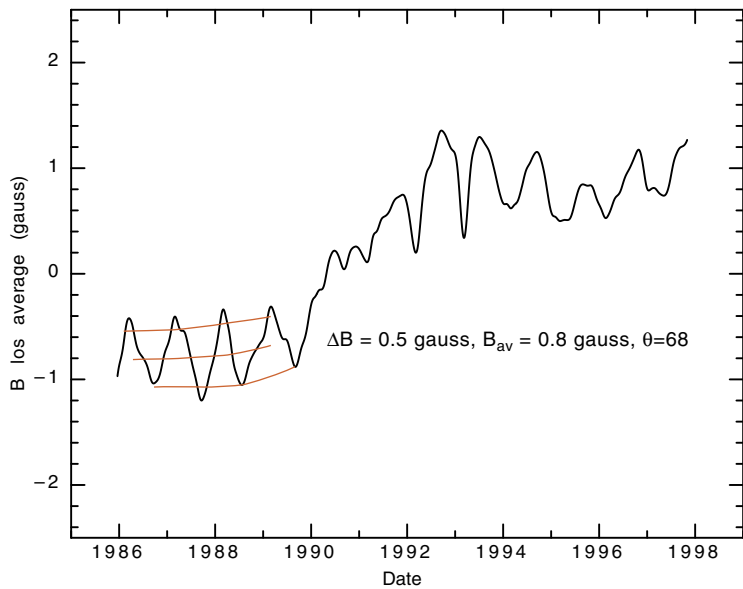


$$B_{\text{los}} = B \cos(\theta \pm b_0) = B(\cos\theta \cos b_0 \mp \sin\theta \sin b_0)$$

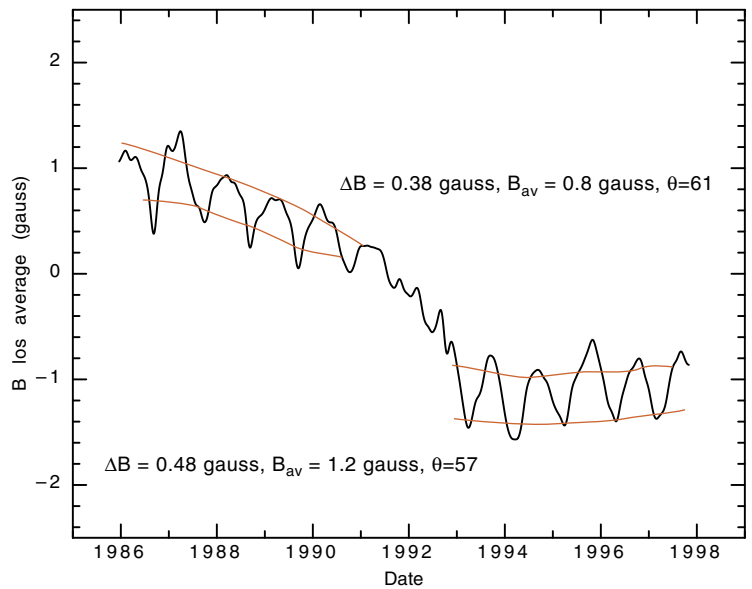
$b_0 = 7.25^\circ$ $\Delta B =$ peak to peak amplitude of the variation.

$$\frac{\Delta B}{B_{\text{av}}} = \frac{2 \sin\theta \sin b_0}{\cos\theta \cos b_0} \quad \tan\theta = \cot b_0 \frac{\Delta B}{2B_{\text{av}}}$$

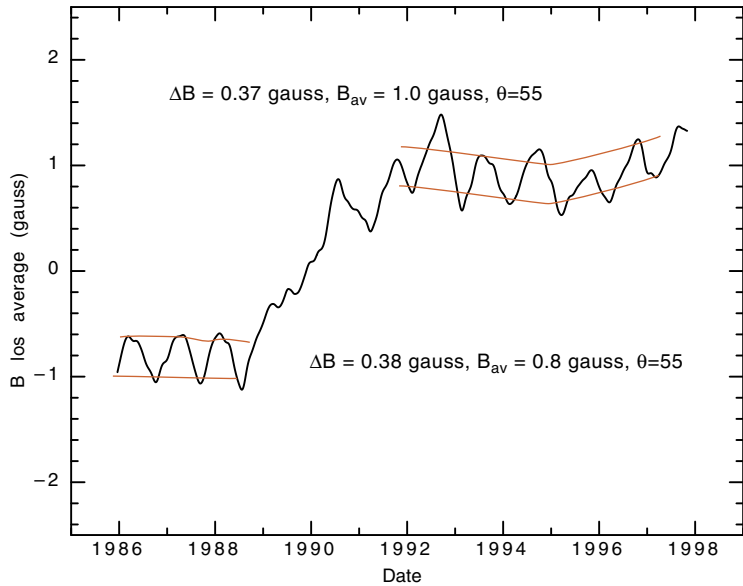
zone 34, 80.2 N



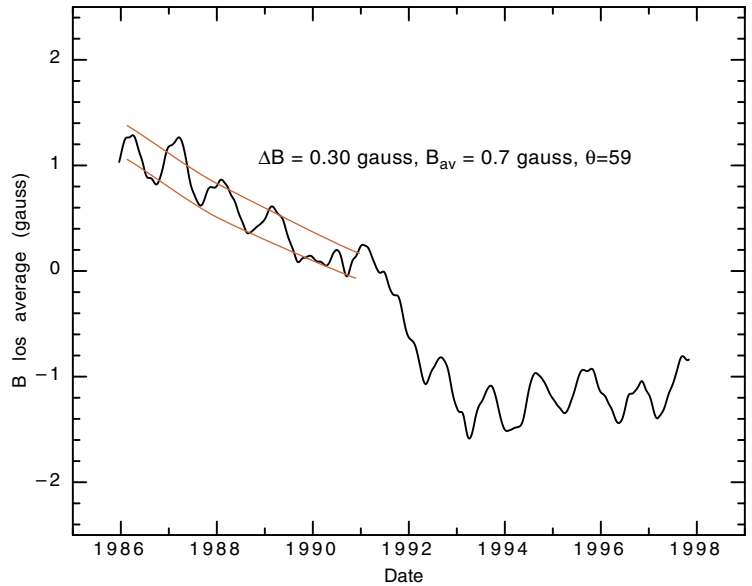
zone 1, 80.2 S



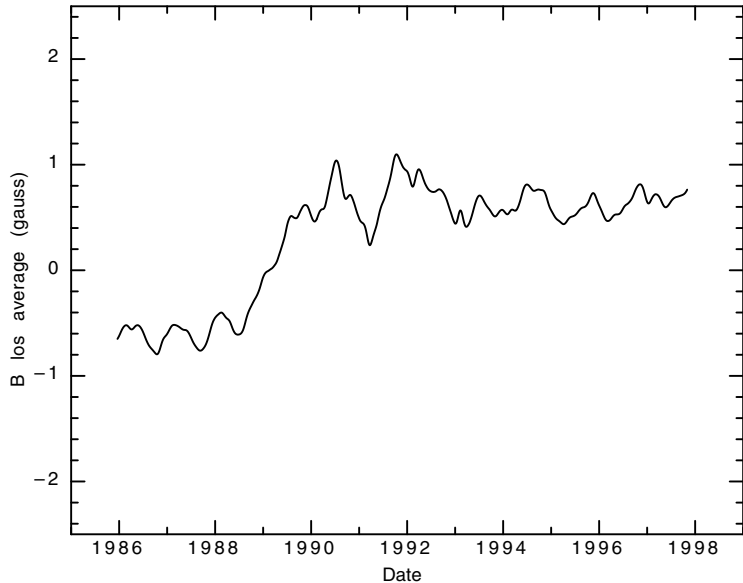
zone 33, 72.9 N



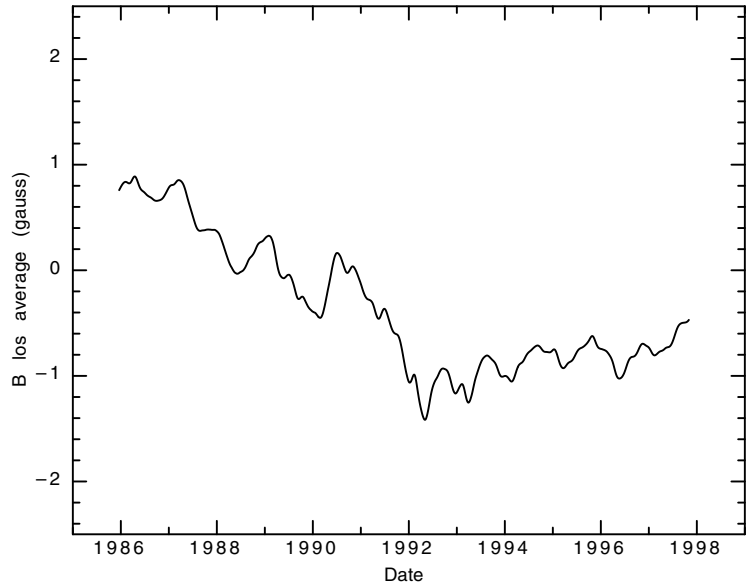
zone 2, 72.9 S

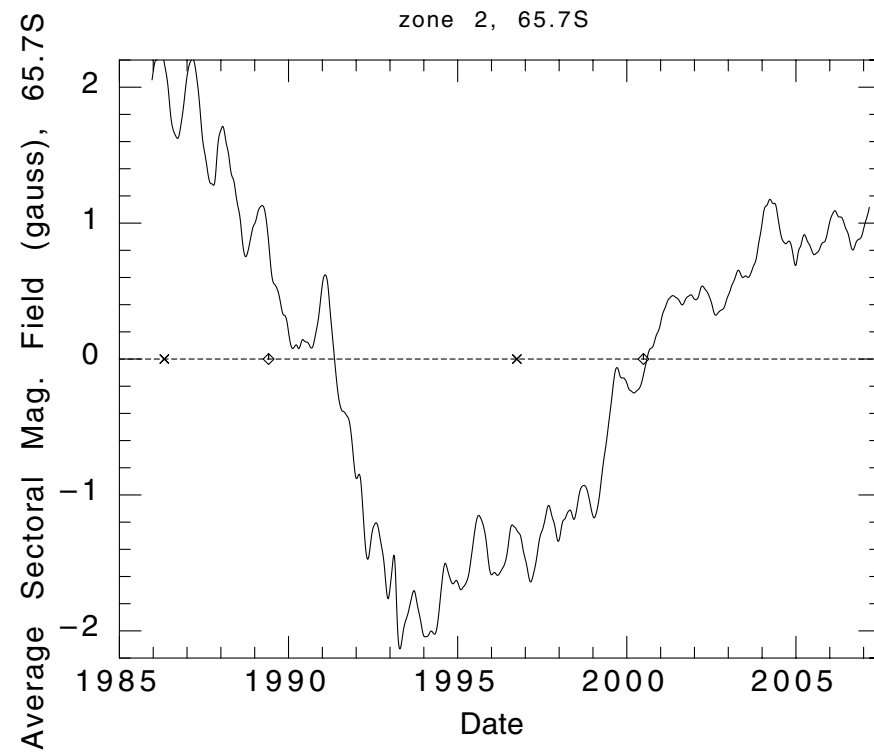
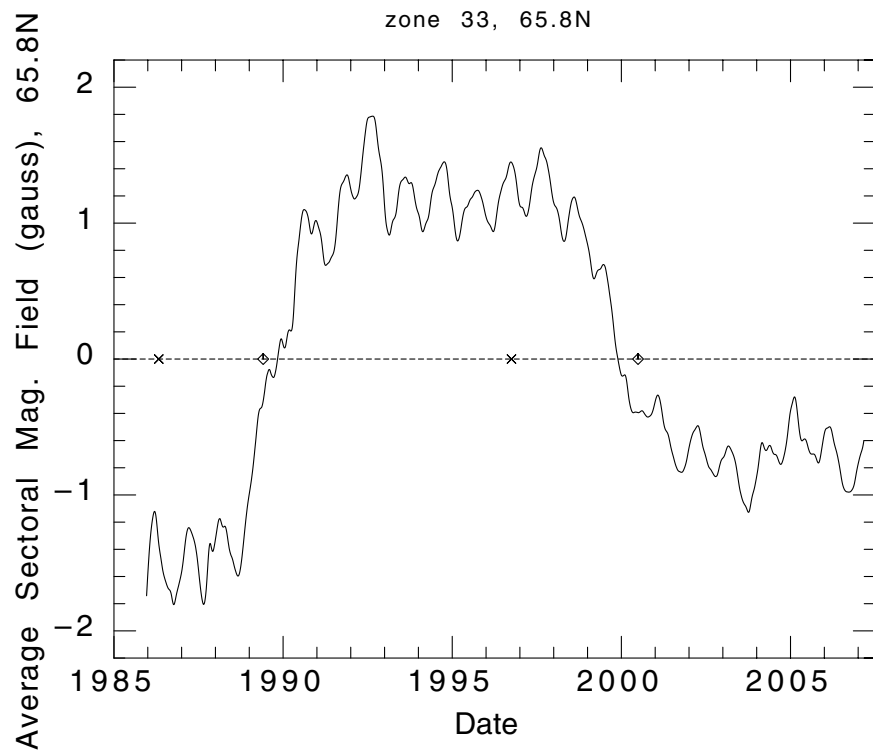
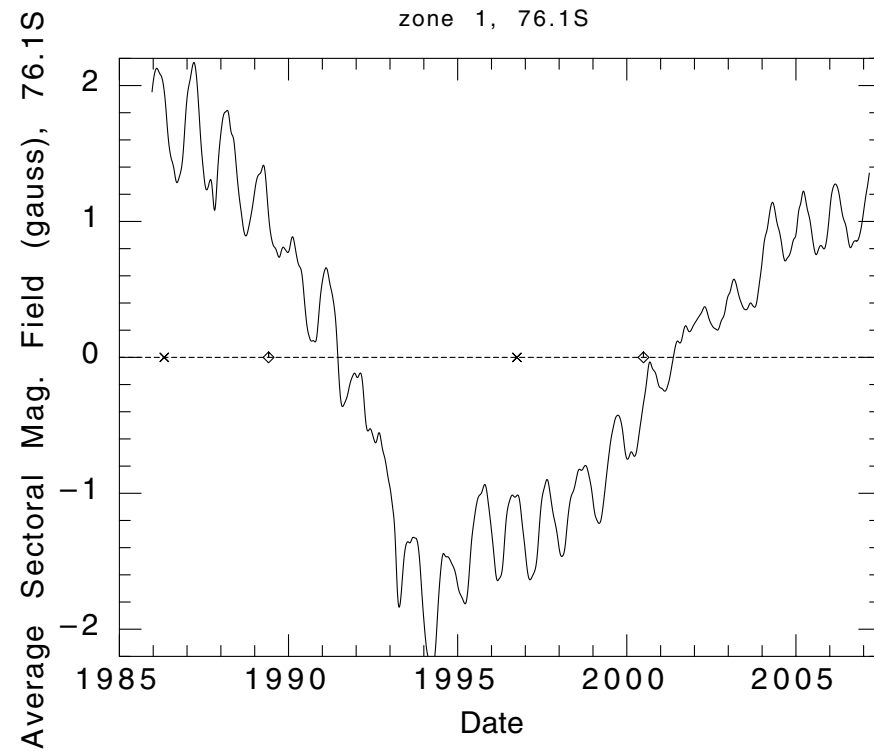
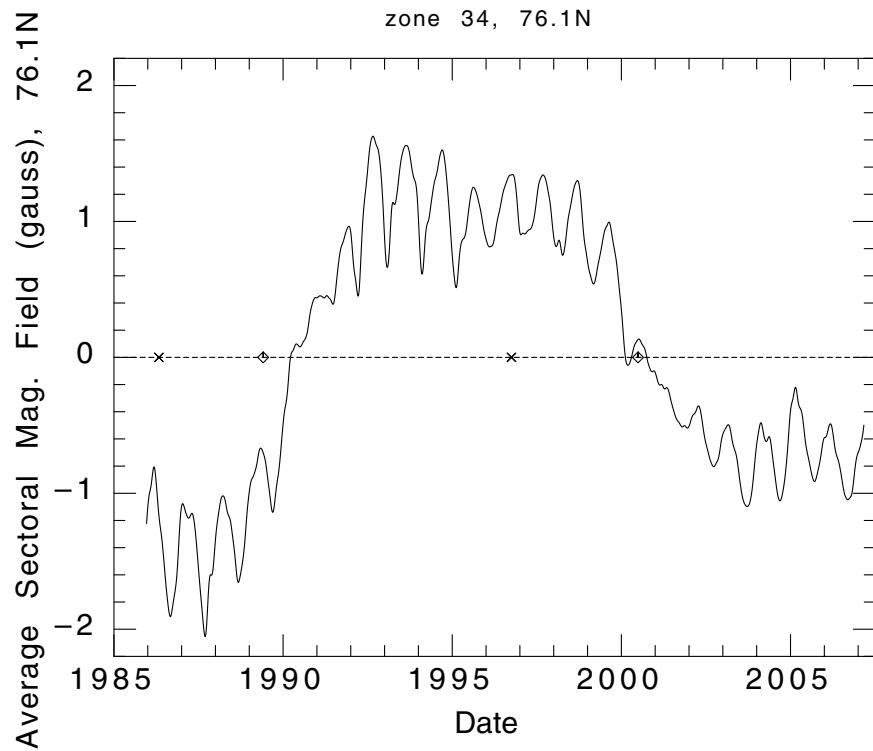


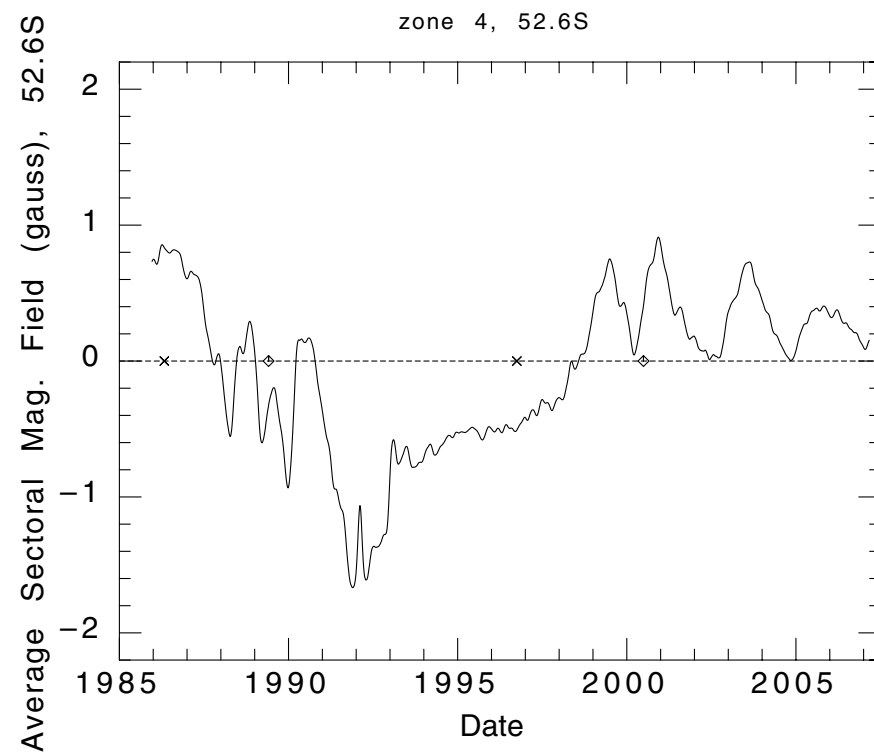
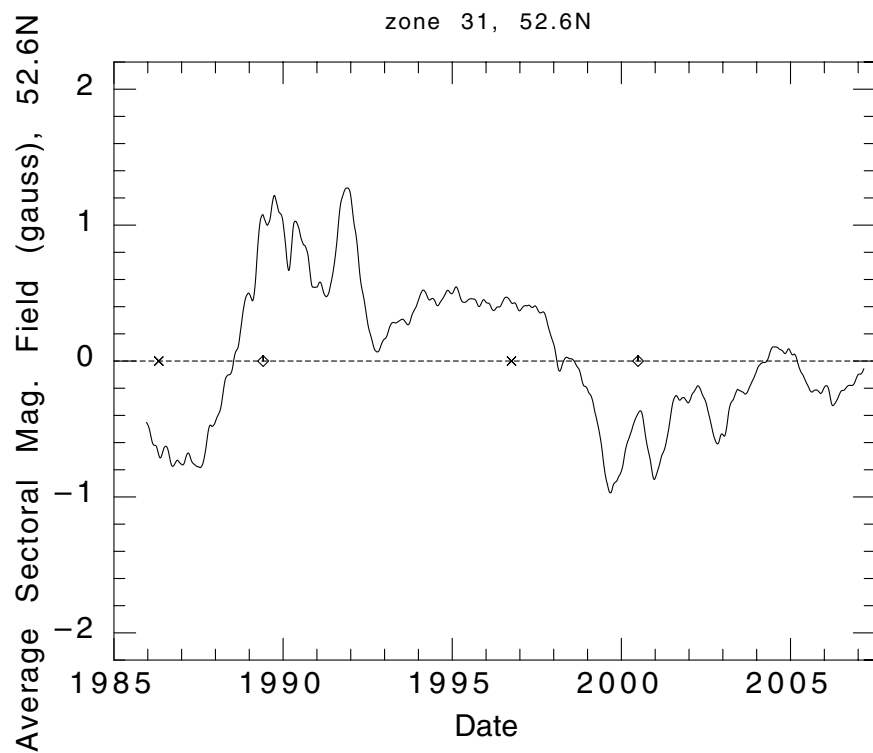
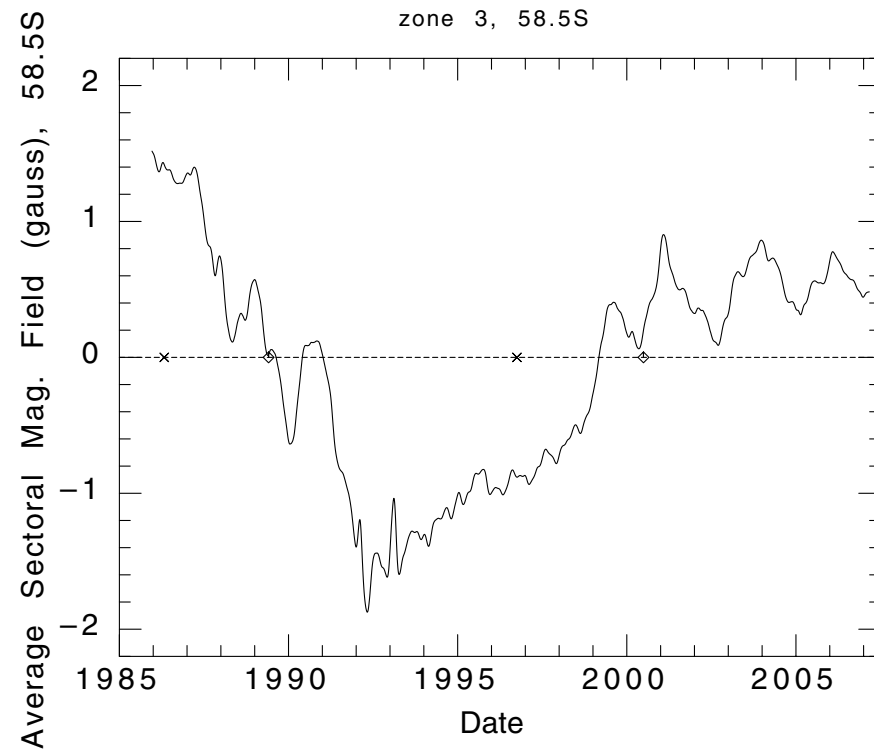
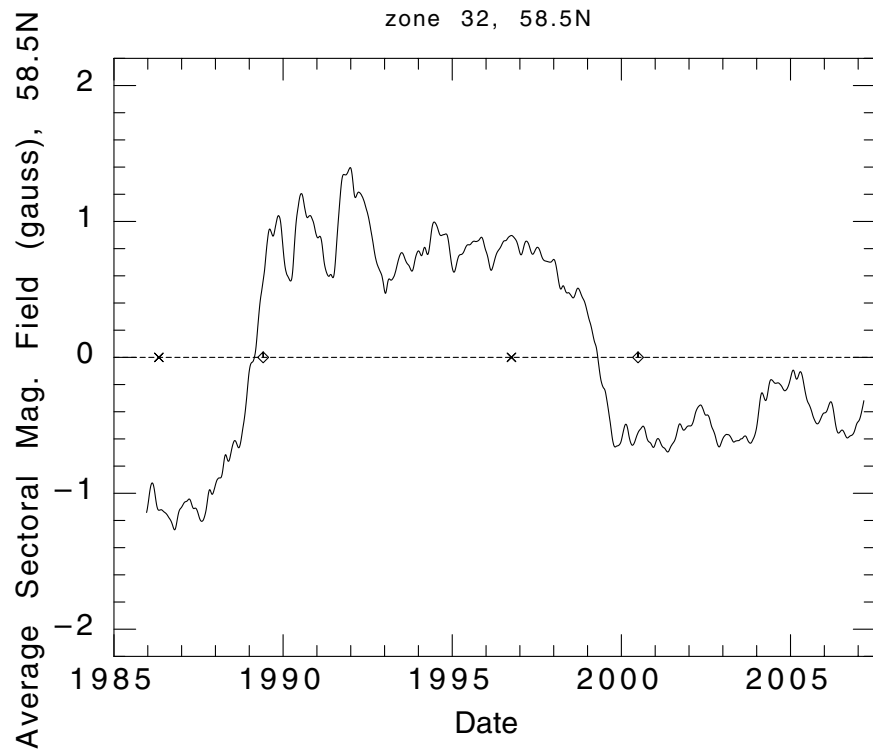
zone 32, 67.9 N

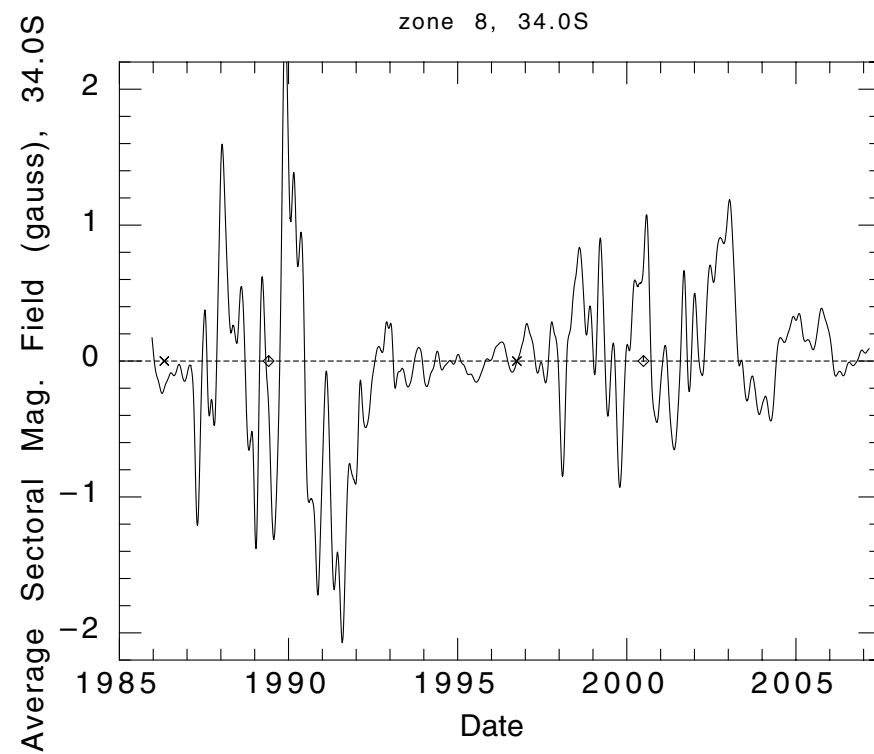
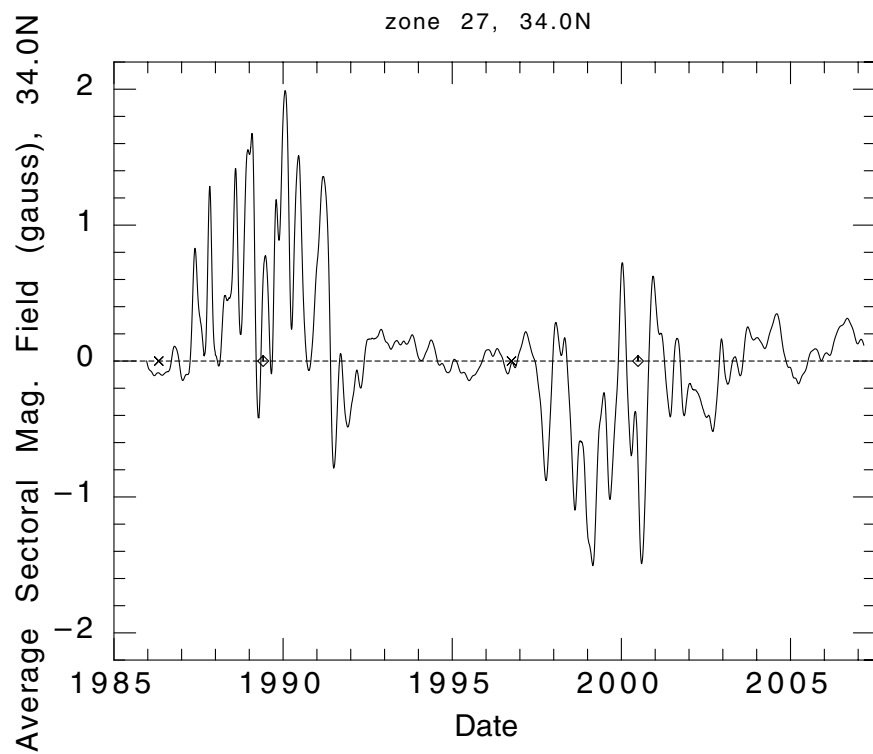
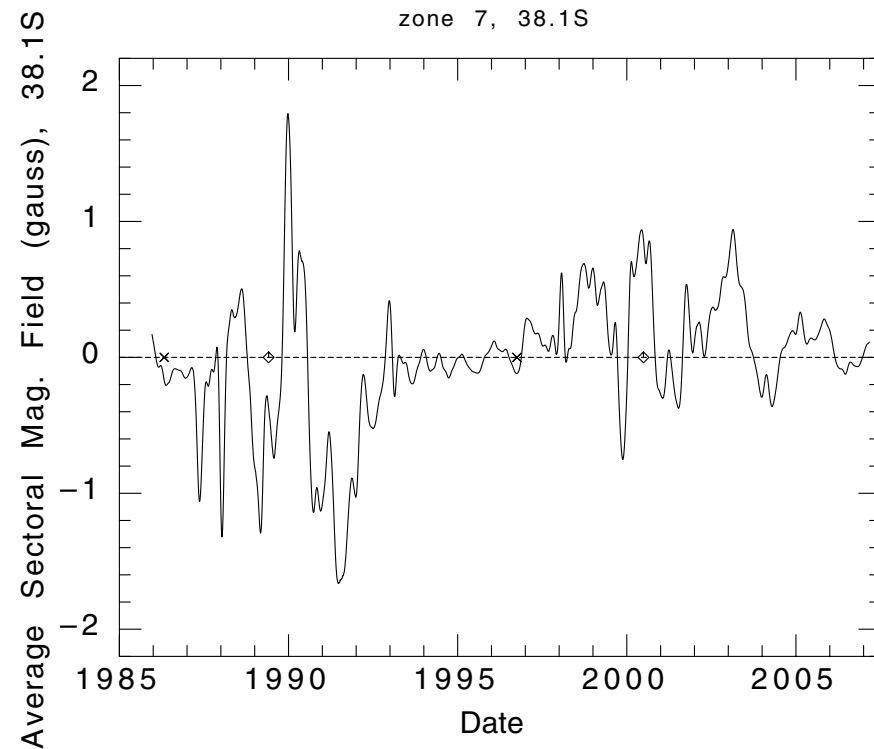
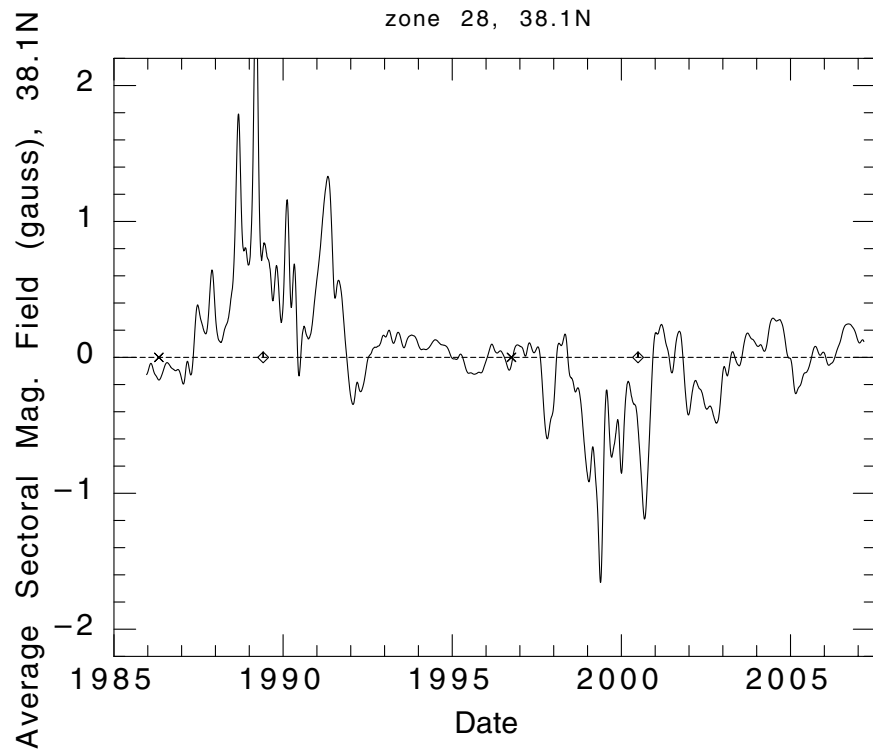


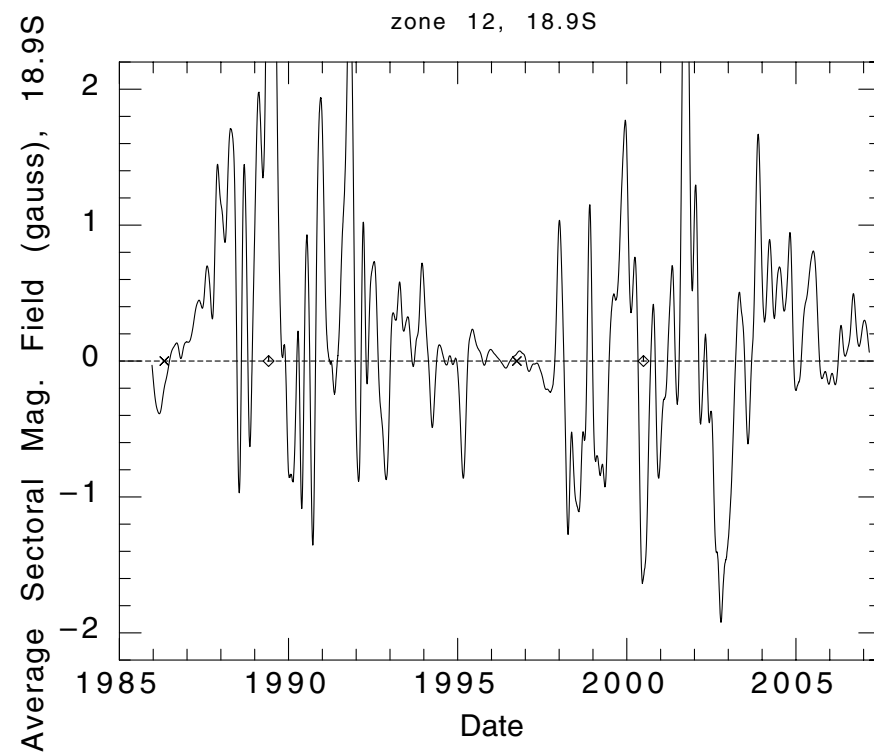
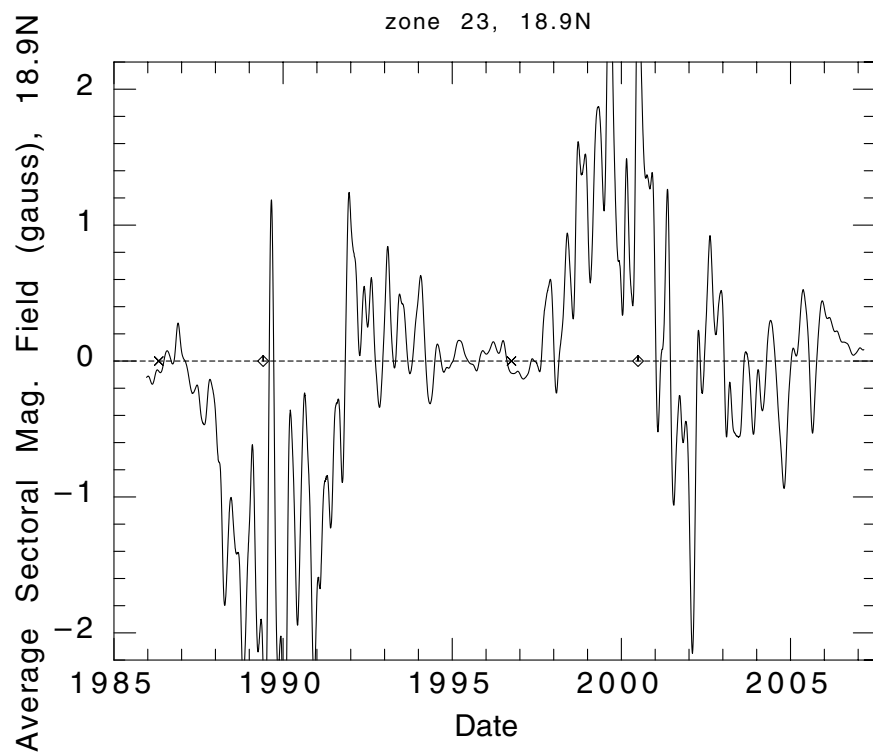
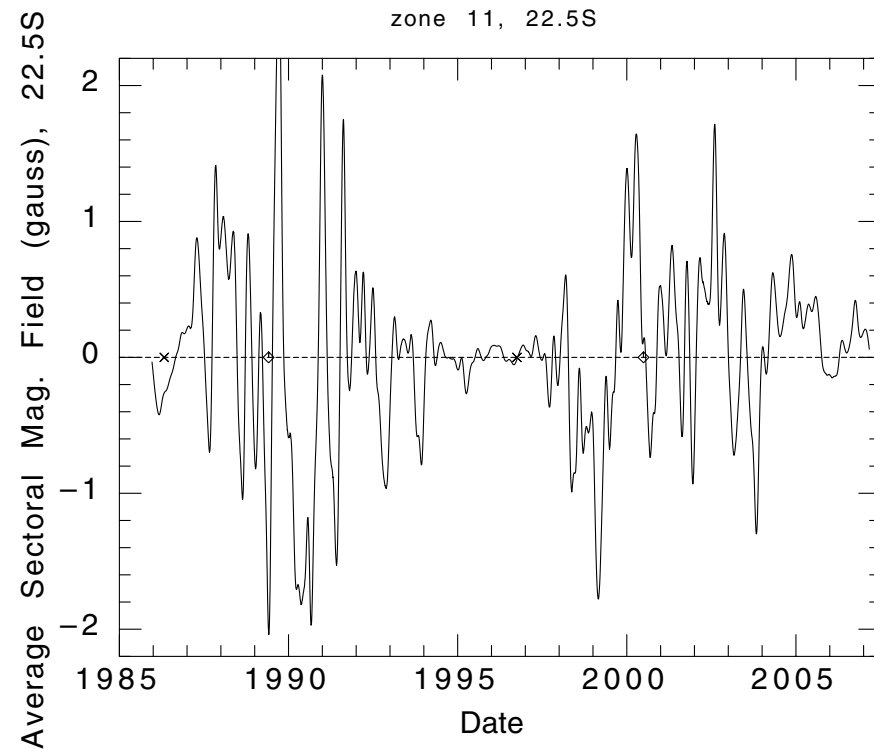
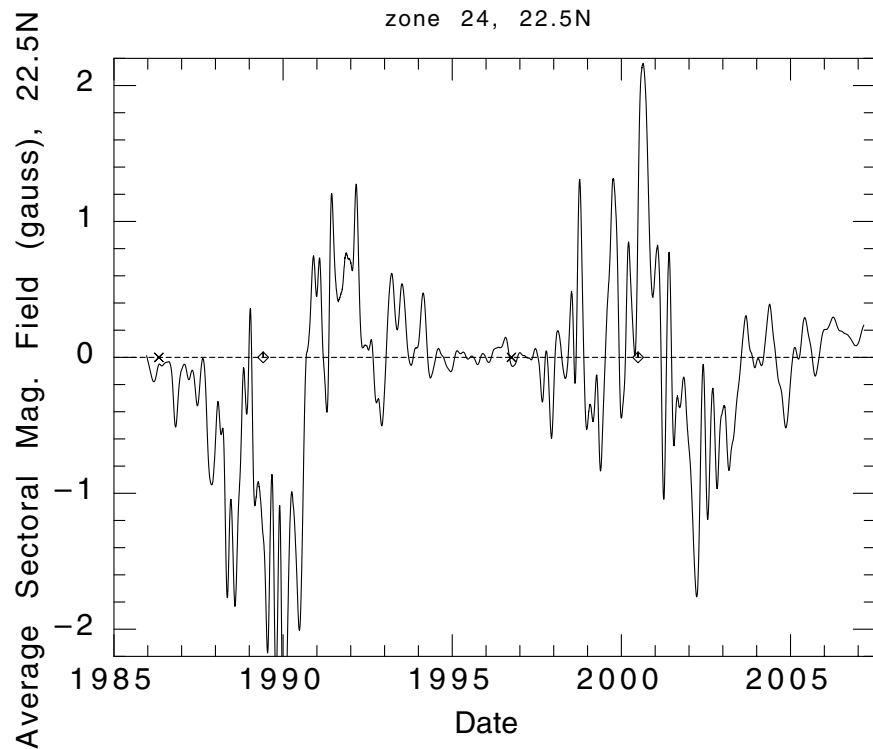
zone 3, 67.9 S

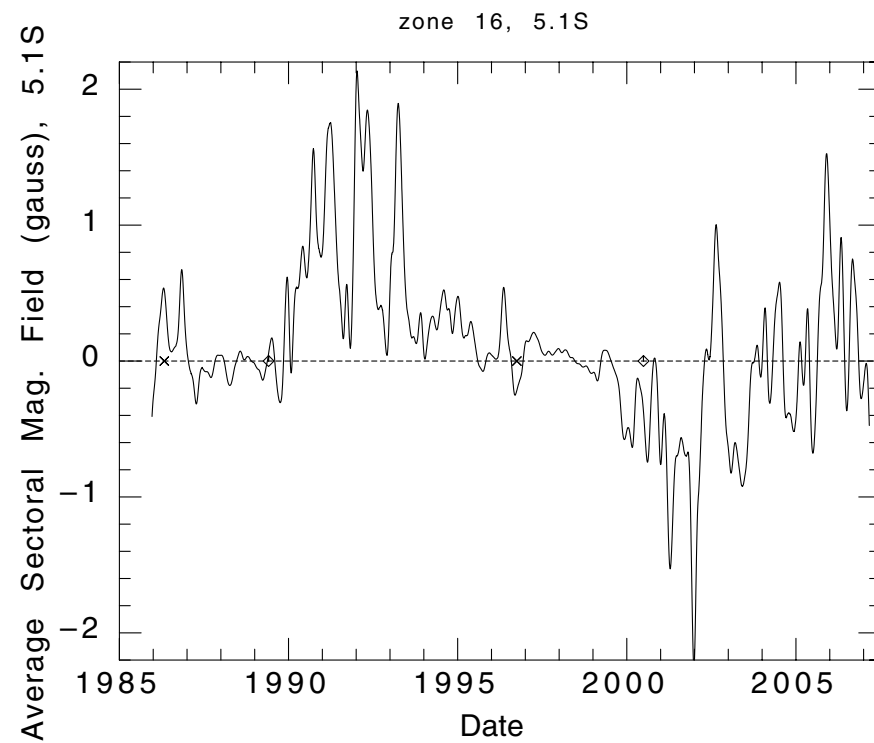
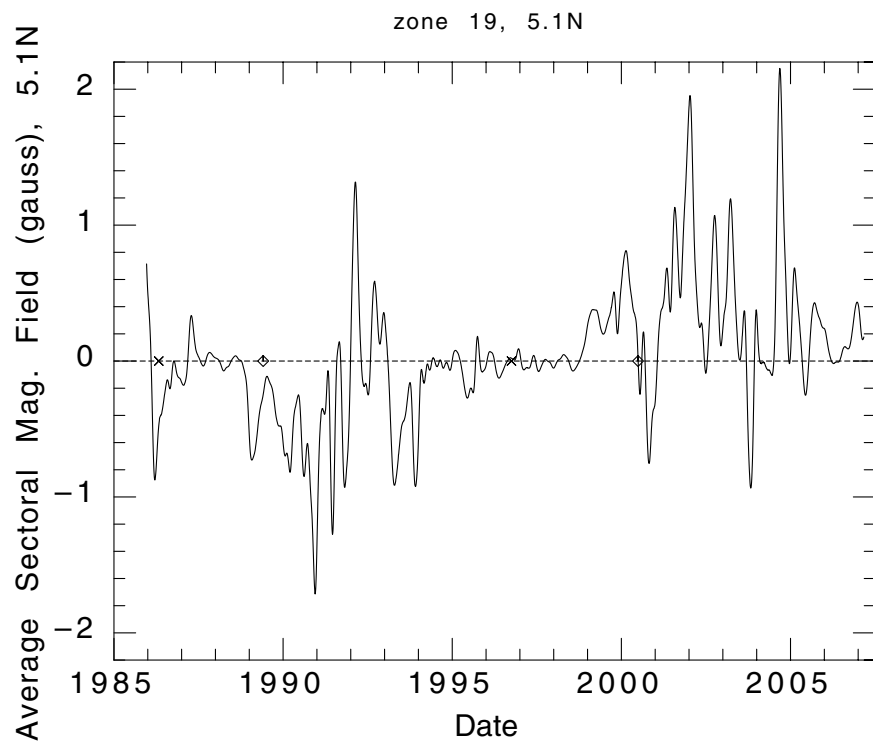
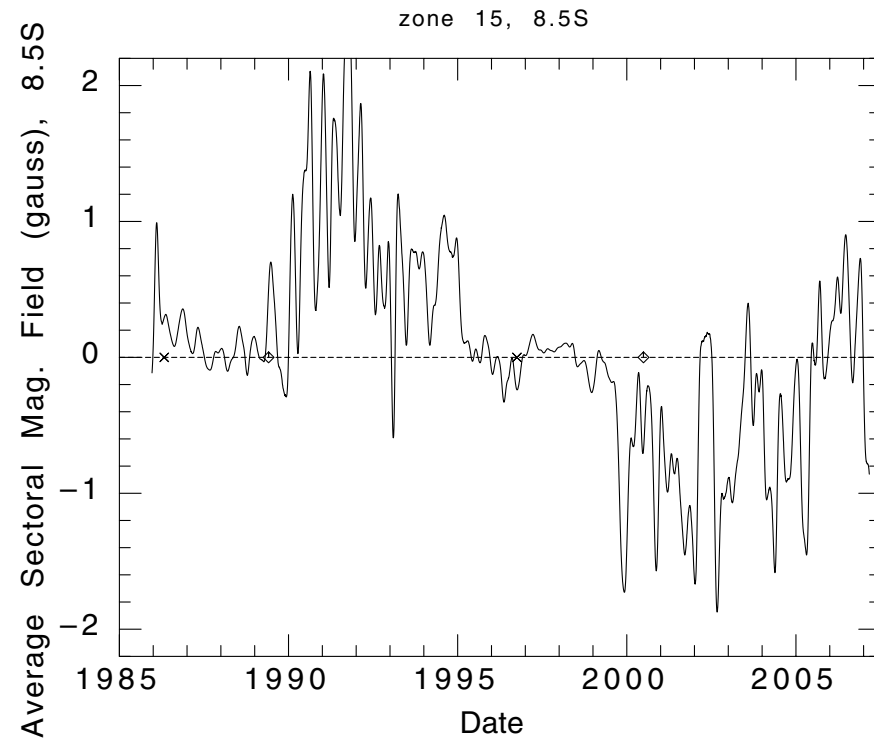
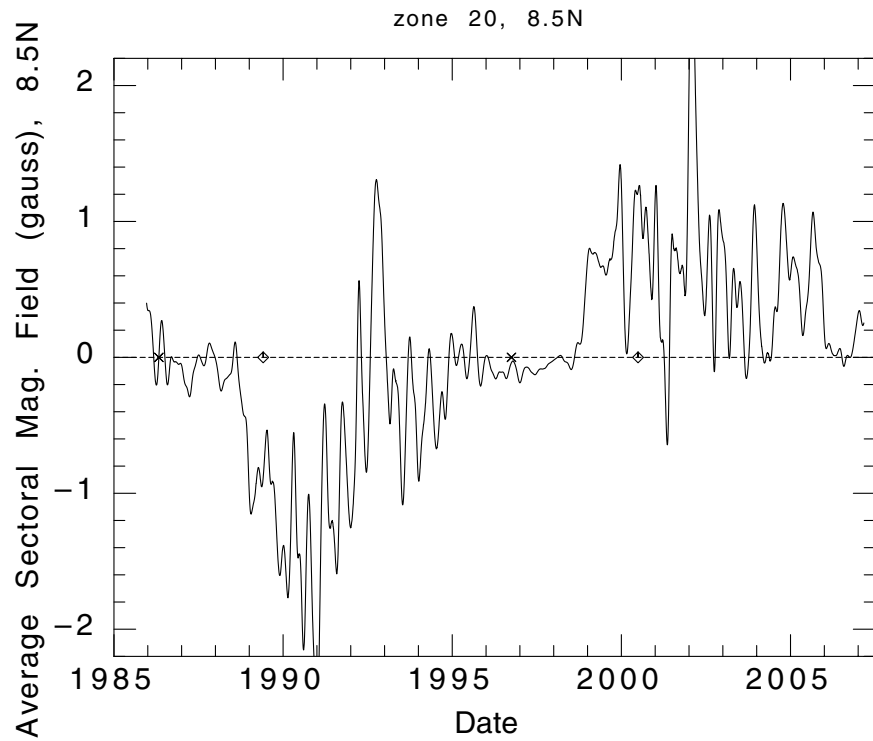




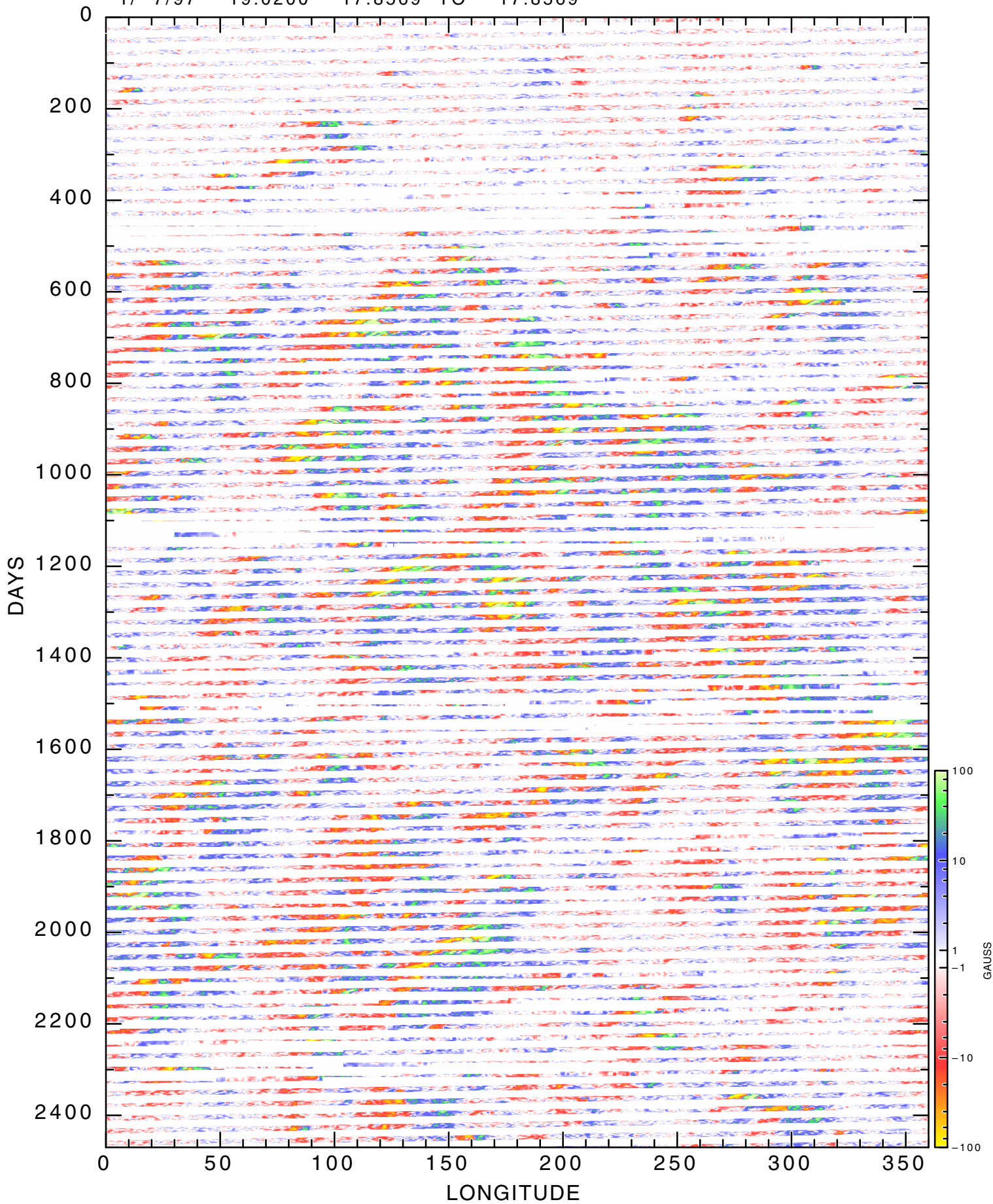




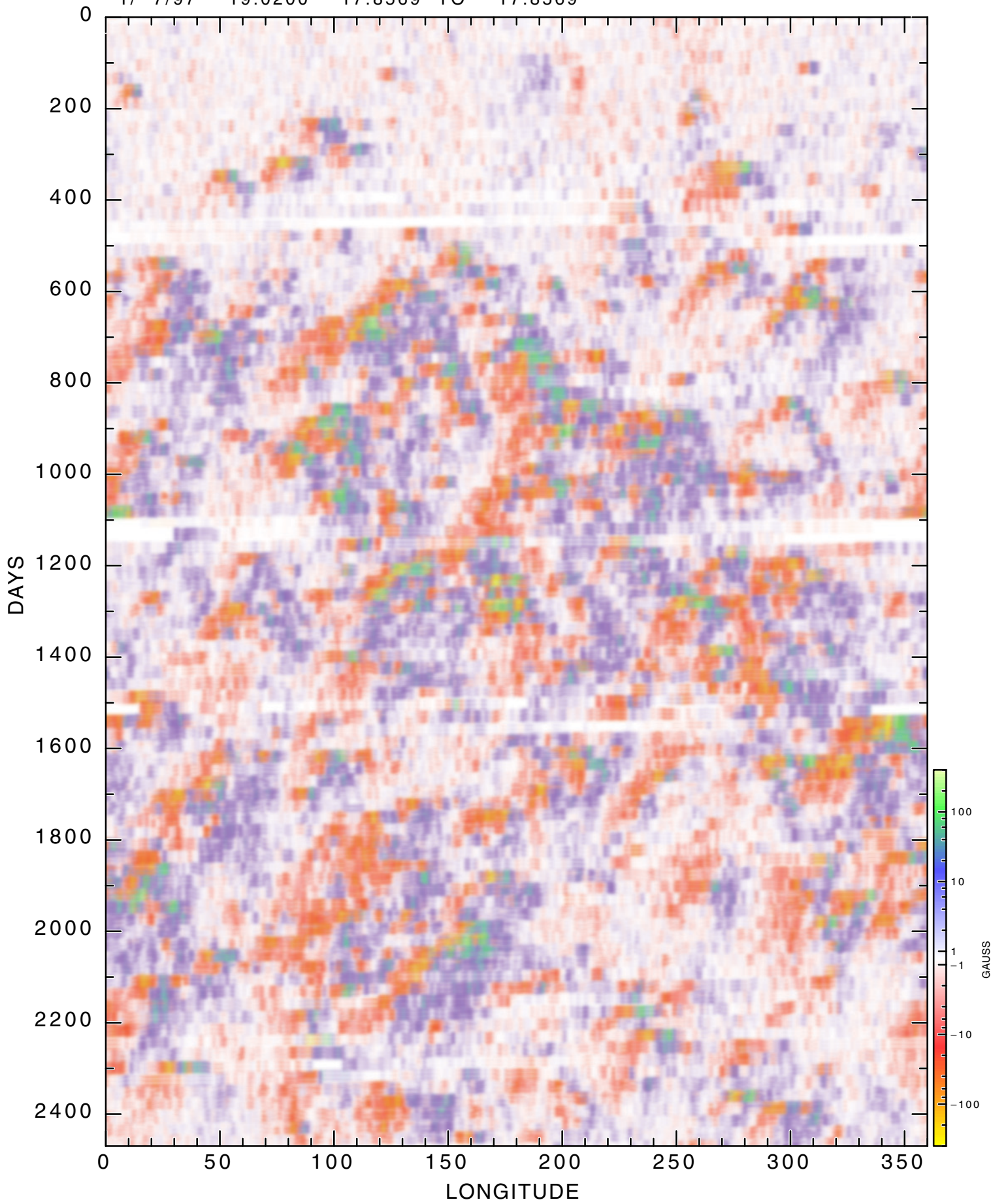


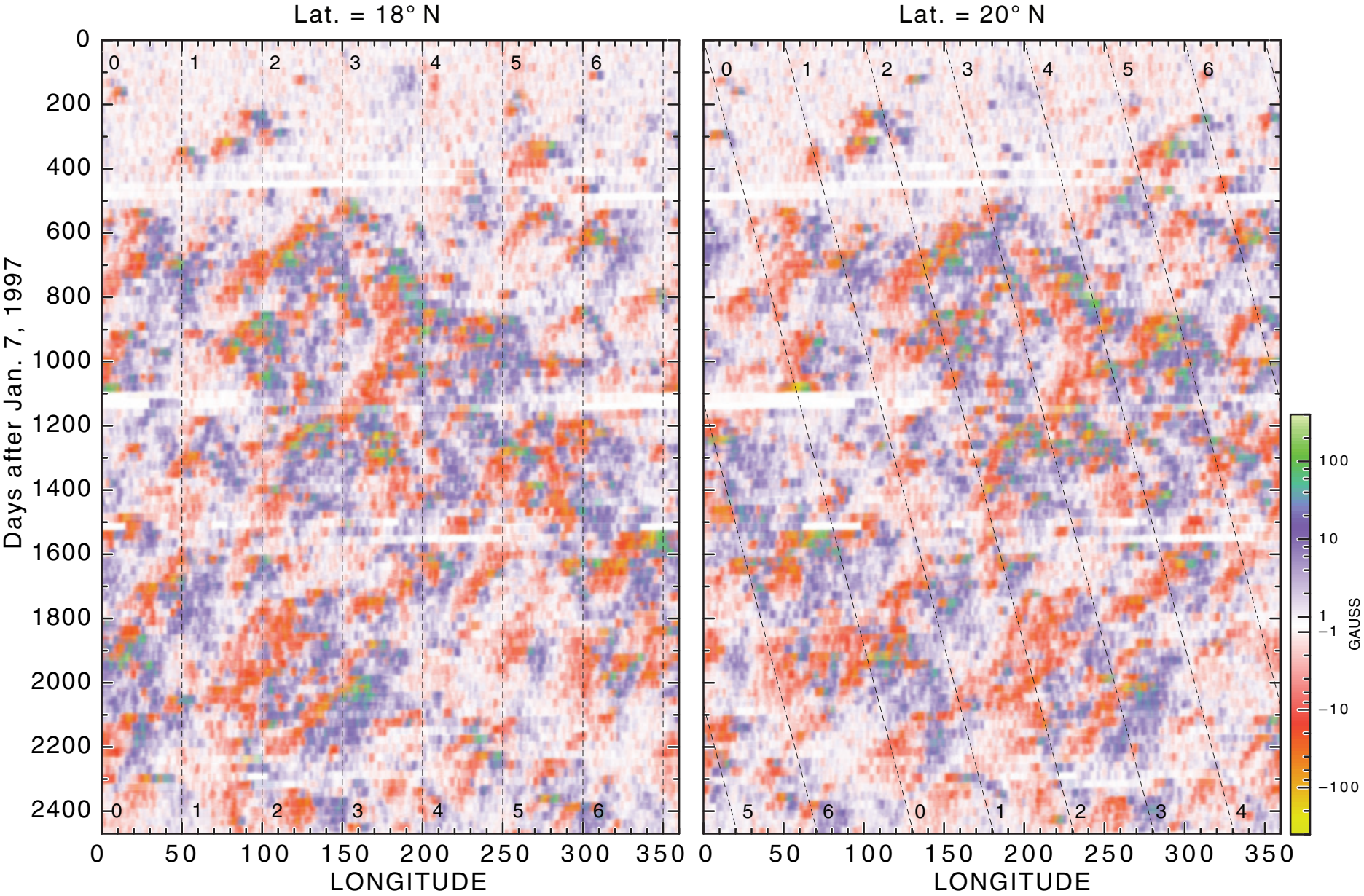


1/ 7/97 19.0200 17.8569 TO 17.8569

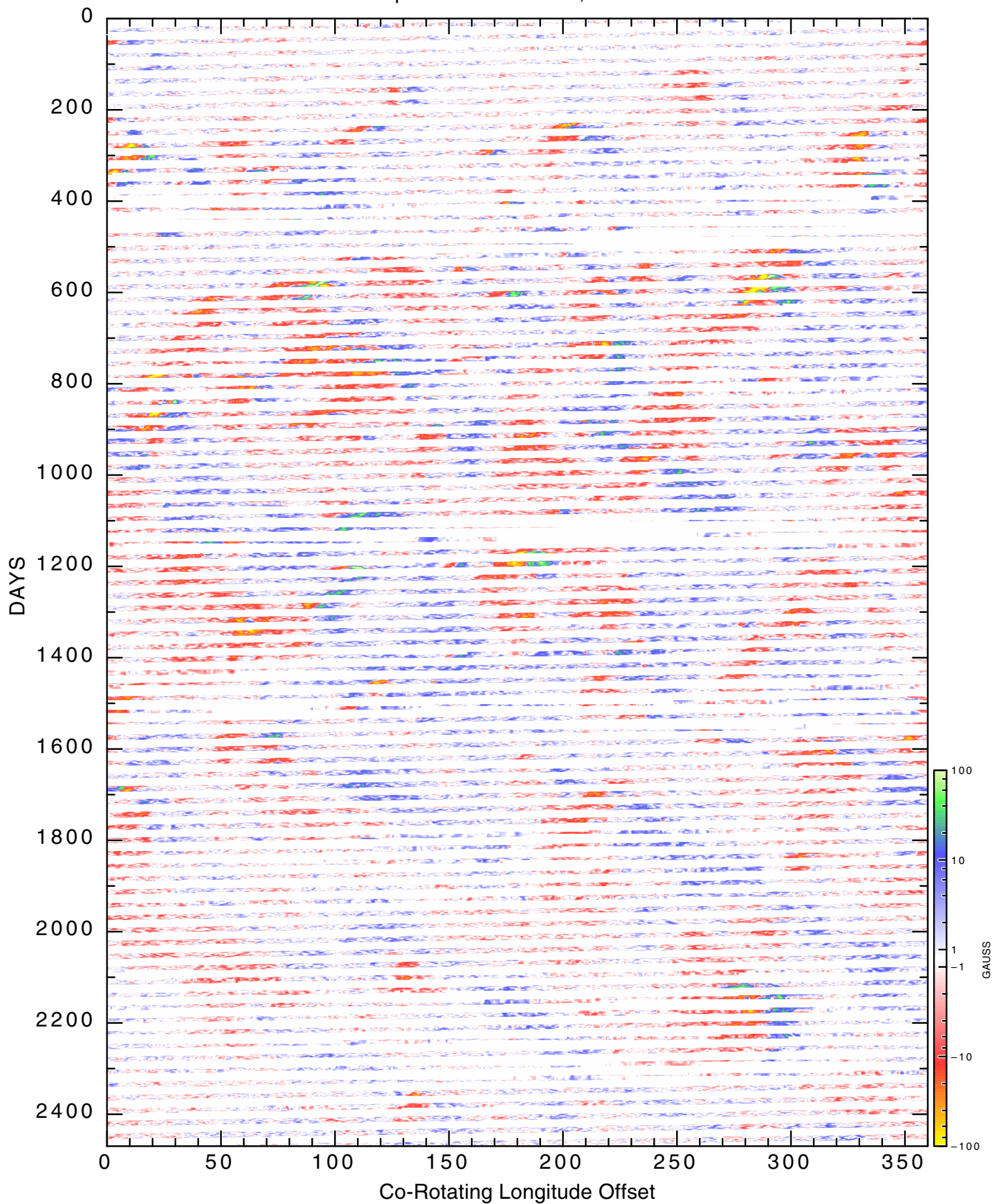


1/ 7/97 19.0200 17.8569 TO 17.8569





Start Stackplot: 1997 - Jan - 07, Latitude = 32° N



Start Stackplot: 1997 - Jan - 07, Latitude = 32° N

