



The years 2003.0-2004.5 is a good time for comparison of the solar magnetic field as measured at different observatories. During that year there were two major dipoles on the sun: the polar dipole and a strong equatorial dipole. The relatively strong fields mean that noise is less of a problem. Calculating the mean field (averaged over all pixels) gives the same result as simply measuring the magnetic for the sun-as-a-star, because the contributions from these two dipoles cancel out near the limb. This means that we can compare all observatories even if the mean field is determined somewhat differently at each observatory: Sun-as-a-star at Wilcox Solar Observatory (WSO) and Crimean Astrophysical Observatory (CrAO), and disk average (National Solar Observatory (SOLIS) and Mount Wilson Observatory (MWO)). The Figure shows the result. It is immediately clear that all observatories measure the same thing as the ups and downs match closely. This also shows that zero-level errors are not important. It is also immediately clear to the eye that there are systematic differences in the amplitude. SOLIS and CrAO are believed to measure the correct flux. They also basically agree. However, WSO is down by about a factor of two (more accurately 1.85) and MWO is down by a further factor of more than two (more accurately 2.2 , for a total of $1.85 * 2.2 = 4.1$). When multiplied by these factors all observatories agree.