

Analysis of Solar Observations and Engineering data from 2009 Sunrise Flight

Piyush Agrawal
Indian School of Mines, India

Michael Knölker¹, Jesse Lord^{1,2}, Alice Lecinski¹
High Altitude Observatory¹, NCAR University of Colorado², Boulder, CO

The Solar irradiance variation with solar cycle is approximately 0.1%. The irradiance variation for visible wavelengths is similarly small while for UV and EUV, it is much higher. This is thought to be largely due to temporal variations in the number density of small bright magnetic structures called faculae and plage, but there may also be a contribution due to changes in the thermal structure of the non-magnetized plasma as well. The project aims to relate how the intensity contrast changes due to the variable presence of magnetic field. Sunrise provides high resolution data in 5 wavelengths. Sunrise engineering data has been studied to find periods of best instrument performance. The RMS intensity contrast of the good data subsets were than calculated. This study then explored the strong influence of the magnetic fields on the intensity contrasts. So far, we concentrated on June 9 data, application of analysis tools to the other data will follow and the rms contrast variation with varying magnetic flux content will be studied extensively. The extraction tools developed also brought about other interesting findings in the engineering data.