

Understanding the Sources of Variability in the MgII Index

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The solar MgII core-to-wing ratio has been a well-studied proxy for chromospheric activity since 1978 but spatially resolved MgII spectra were very limited until the launch of the Interface Region Imaging Spectrograph (IRIS). IRIS provides high-spectral and spatial resolution spectra of the MgII h and k lines on a daily basis. Full-disk mosaics have been acquired approximately once a month since September 2013. This large dataset, which spans from solar maximum to solar minimum conditions, allows us to get new insight on the sources of variability in the disk-integrated MgII irradiance data.

We used the IRIS data, in combination with HMI and AIA data, to classify spectra in different magnetic structures, from sunspots to active network to quiet Sun. We present examples of how the MgII profiles vary as a function of magnetic flux and disk position and provide some preliminary thoughts on how the Mg II profile variation impacts on the Mg II index. We focus, in particular, on the magnetic regions found on the Sun during quiescent conditions: network, intra-network, filaments, and coronal holes.