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Poster

2. Chromospheric heating and dynamics

Tracing non-vertical acoustic shock propagation in the chromosphere

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We report on preliminary progress toward quantifying the energetic impact of acoustic shocks to the chromosphere in magnetic regions. We use the Bifrost simulation to track the hydrodynamic and radiative evolution of shocks in both vertical and inclined field regions in 2D and 3D simulations. It is well known that the telltale Ca II H&K shock signature is near wing emission (grain) followed by a protracted blue-to-red Doppler shift in absorption (sawtooth) for a vertical fluxtube. Given that the chromospheric magnetic field is highly structured and that the formation height of chromospheric lines vary, we build off that earlier work by identifying the signature of shocks in a broader environmental and spectral context. In particular, we focus on the Mg II h&k lines which are observed by IRIS and the Ca II 8542A line which is observed by the Swedish Solar Telescope. We plan to use the diagnostics derived from the simulations to derive an occurrence rate and an energetic deposition rate for a shocks in a plage region.