

M13a Numerical simulation and identification of fast and slow MHD waves in heating magnetic chromosphere by realistic simulation

Yikang Wang, Takaaki Yokoyama (The University of Tokyo), Haruhisa, Iijima (Nagoya University)

The problem of how to heat the chromosphere is still under debate, especially in the low beta magnetic chromosphere. MHD waves are considered as important energy transporter and make contribution to chromospheric heating. Previous researches on wave heating usually discuss propagation of MHD waves in the chromosphere in detail but the setting of flux tube and wave generation is artificial. There are also studies by realistic simulation but they are usually used for spectra synthesizing for comparison with observations, without discussing detail physical processes. In our study, we perform two-dimensional realistic MHD simulation. We catch shock fronts from the simulation data and separate fast and slow MHD waves by comparing physical parameters in upstream and downstream side. These parameters are also used for estimation of shock heating rate by slow and fast waves. We conclude that fast waves play a more dominant role in heating the magnetic chromosphere than slow waves.