

Determining Prominence Magnetic Field Strength through Prominence Seismology Using Hinode SOT Data - 2

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The SOT on the Hinode satellite has allowed long duration time-series prominence observations in the seeing free environment of space. These observations provide a valuable tool analyse the structure and dynamics of quiescent prominences. Using the high-time cadence, high-spatial resolution observations in the H- α spectral line, the oscillations of quiescent prominence threads of the prominence observed on 08-Aug-2007 have been analysed. The oscillation of threads is determined by using slits to see the temporal evolution of the slit movement, then fitting sine curves to the observed thread oscillations, the amplitude, period and propagation velocity of the waves are determined. The observations show both shorter period (~ 700 s) and longer period oscillations (~ 3000 s). By identifying the wave mode as kink oscillations with a propagation velocity of $\sim 10 \text{ km s}^{-1}$ we can show that the magnetic field strength of the prominence is $\sim 3\text{G}$ which is consistent with observations of prominence magnetic field. We discuss the implications for the support of prominence material.