A Study of Quiet Sun Oscillations Using the Hinode, SoHO and TRACE Spacecraft

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A sequence of simultaneous quiet Sun images obtained by SOT/Hinode in the Gband and Ca II filters and by TRACE in the 1550 °A UV passband at disk center are studied using Fourier power and phase analysis. The results are then combined with the photospheric magnetic field information as obtained by the MDI/SoHO to study wave behaviour in both magnetic and non-magnetic regions. Using simultaneous spectroscopic observations from SUMER/SoHO, the nature of oscillations in different layers of the transition region are also explored. The high resolution images of SOT allows us to identify the small scale chromospheric dynamics which could be also related to the emergence of small scale magnetic bipoles. The results indicate the presence of different oscillatory power and phases in magnetic and non-magnetic regions. The implication of these results in the context of coronal heating and wave propagation will be addressed.

Keywords: Sun: chromosphere; Sun: transition region; Sun: UV radiation; Sun: oscillations; MHD waves