

THE LEAKAGE OF INTERIOR MOTION AND ITS IMPACT ON THE LOWER SOLAR ATMOSPHERE

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Recent advances in lower atmospheric seismology will be reviewed from a theoretical perspective. The problem is twofold: On the one hand, localised solar magnetic structures in the higher solar atmosphere influence the frequencies and lifetimes of the solar global acoustic oscillations (e.g. f/p -modes) trapped in the solar interior. This is because these global oscillations, though evanescent in their nature, penetrate and interact with the magnetised atmosphere. On the other hand, the motions (e.g. in the form of waves) generated in the lower regions are able to propagate into the higher atmosphere, where they are guided by the structured and stratified magnetic field. Several mechanisms through which this may occur will be presented, with particular emphasis on the resonant coupling. The observational consequences (e.g. spicules, or running coronal waves) and energetic implications will be addressed. Observations of MHD waves could be used as a tool to uncover the processes occurring in the magnetised regions of the solar atmosphere, leading to the emergence of the field of solar magneto-seismology.