

Propagating Slow Magneto-acoustic Waves in Coronal Loops as Seen from TRACE and CDS

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Propagating intensity disturbances along various Active region loop structures with projected speeds less than and close to acoustic speeds, now commonly called magneto-acoustic waves, are proposed to be photospheric p-modes leaking into solar atmosphere. Though, there is a wide range of periodicities observed, the 3 min. and 5 min. periodicities, which are characteristic of sunspot umbral and penumbral regions lifted their importance of study. Simultaneous observations of these waves at different heights from photosphere, through transition region to corona will give us direct evidence for their involvement and contribution to coronal heating. AR 10457 had been extensively studied for the presence of such propagating oscillations, when it is on-disk, on 11th September 2003, using the CDS/SoHO, TRACE, and MDI data of JOP 165 campaign. Different periodicities are found and the resonance feature in the periodicity is observed in few locations, but the speeds are found to be quite low (< 20 km/s). Comparison will be made between sunspot and non-sunspot linked open structures. There is also a signature of decelerating propagation in a structure. Significance of the results in the context of coronal heating and future observations with SDO will be discussed.

Keywords : sunspot; chromosphere; corona; active region; magneto-acoustic waves; coronal heating.

References

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