

**M38a**

**EVIDENCE OF EIT AND MORETON WAVES IN NUMERICAL SIMULATIONS**

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Solar coronal mass ejections (CMEs) are up to now the largest solar eruptive activities, not only in spatial scale, but also in energetics and their geomagnetic effect. They are associated with a lot of solar phenomena with quite different scales and observed at various wavelengths. Among these associations, EIT wave has always been a puzzle. In this paper, the MHD processes of CMEs are numerically simulated. It is shown that as the flux rope rises, a piston-driven shock is formed above the flux rope, this fast shock extends to the solar surface, and may sweep the chromosphere as the shock propagates. We propose that this corresponds to the Moreton wave. At the same time, a much slowly moving wave structure is discerned with spreading coronal dimming inside the wave front, which we propose to correspond to the observed EIT wave. The mechanism for such waves is suggested, and their relation with Moreton wave and radio bursts are discussed.

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