

# **Morphology in the total electron content during the magnetic storms derived from global ionosphere maps**

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Using 8-year global ionosphere maps (GIM) TEC data and adopting the auto-correlation function analysis, we make a statistical study on the morphology of the global ionospheric behavior with respect to the magnetic disturbance. Results show that negative phase (trend) is most prominent at Canadian/American and Australian areas which are near the geomagnetic poles. Positive phase is most obvious in the low latitudinal American region. Both negative phase and positive phase in the East-Asian region (far pole) remain indistinctive. During the intense storms where  $Dst < -100nT$ , positive phase shows no delay in the high latitudes and low latitudes to the magnetic disturbance that may be caused by particle precipitation and prompt electric fields respectively. Negative phase shows clear delay when propagates from high latitudes to the low latitudes. Negative phase toward lower latitudes most occurs at post-midnight sector and recede to high latitude after sunrise. Positive phase most occurs at 12:00-20:00LT sector.