



## **Preliminary study of sudden commencements propagation using wavelet techniques analysis.**

Virginia Klausner (1,2), Rodion Stepanov (2), Peter Frick (2), Odim Mendes (1), and Margarete Domingues (1)

(1) Instituto Nacional de Pesquisas Espaciais, Sao Jose dos Campos, Brazil, (2) Institute of Continuous Media Mechanics, Perm, Russia

We analyzed, in an exploratory way, the sudden commencements (SC) phenomena in response to the two interplanetary shock happened on the June 6, 2012. The goal of this work is detected the differences in SC arrival times from the ground location of the first magnetospheric compression to latitudinal and longitudinal directions. We selected 40 ground magnetic observatories distributed, around the world, to cover in a wide way – latitudinal and longitudinal – the compression of the magnetosphere effects. It is well-knowing that the compression of the magnetosphere produces MHD wave propagation from the source to all directions. As methodology, discrete wavelet analysis (DWT) was used to calculated the SC arrival time delay between the magnetic observatories. Also, we calculated the phase shift of their wavelet transforms in order to detected the MHD wave propagation trends. The time delay observed in the wavelet signatures of magnetic observatories can give precious information on the main processes responsible for the energy transfer from latitudinal and longitudinal directions. Some peculiarities detected by the wavelet analysis for each event are discussed.