

ON THE CHARACTERIZATION OF LONG TERM IONOSPHERIC BEHAVIOR FROM MONITORING VLF SIGNALS

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The basement of ionosphere, D-region, have been monitored by very low frequency (VLF) radio waves propagating within the waveguide formed by the ground-ionosphere. From monitoring the amplitude and phase of VLF signals transmitted from different stations is possible to follow the ionospheric conditions as a function of time and space, because they depend sensitively on ionospheric physical and chemical properties. Here we present the analysis of VLF signals transmitted from USA Navy stations at Hawaii (NPM) and at Cutler/Maine (NAA), which were received at Atibaia (Brazil) and at Brazilian Station in Antarctica. The analysis is done from 2001 through 2008, which covers the maximum up to the minimum of 23 solar cycle. Preliminary results show at least two well defined time scale variations, a longer time scale presenting seasonal variation, and a faster time scale of tens of days, which are shifted by 6 months as a function of paths considered here. We discuss the results considering the effects of solar phenomena and possible coupling of ionosphere with lower atmospheric layers.

ionosphere, solar forcing, middle latitudes

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