

Title: Satellite observations of military transmitter signals

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Abstract:

Transmitters operating in the very low frequency range, used in military for their characteristic features, are powerful and localised sources of electromagnetic waves at known distinct frequencies. These waves can affect the ionosphere surrounding their passing as well as the dynamics of energetic particles trapped in the Van Allen radiation belts. A systematic analysis of data acquired by the low altitude satellite DEMETER in the vicinity of the transmitters and their magnetically conjugate regions during six years of its operation allows for the recognition and description of these potential influences. This work is focused primarily on changes of ionospheric plasma density and temperature and energetic particle precipitation due to wave-particle interactions.

Keywords: Low frequency transmitters, DEMETER, ionosphere, particle precipitation