



Acoustic experiments in the ionosphere with the DEMETER satellite

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The aim of these investigations is to characterize possible changes of ionospheric parameters (measured by the DEMETER spacecraft) which could be induced by acoustic radiation of a strong ground emitter. Measurements were made during 2005 and 2006 using low-frequency (units to tens of Hz) acoustic waves emitted from a ground based device with 10-5 kW of irradiated acoustic power. Plasma parameters as well as low frequency electromagnetic waves were measured onboard DEMETER. We verify if there are any observed changes which would coincide with the beginning time of acoustic radiation and having their duration approximately equal to the duration of the acoustic emission. After this period, the ionospheric parameters should come back to their previous values. We investigate influence of the acoustic waves on the ion composition a number density, especially for light ions (H^+ and He^+). We also investigate changes of the total plasma number density and electron temperature, which would correspond to the profile of the acoustic signal. However, for some cases we could not estimate the time of propagation of the acoustic signal through the atmosphere and ionosphere and, as a consequence, we are not able to exactly determine the time of arrival of radiation to the spacecraft.