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Systematic study of wave intensity and properties in ELF/VLF range

F. Nemeč (1, 2), **O. Santolík** (2), **M. Parrot** (1), **J. J. Berthelier** (3)

(1) LPCE/CNRS, Orleans, France, (2) Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic and IAP/ASCR, Prague, Czech Republic, (3) CETP/CNRS, Saint-Maur des Fosses, France

A systematic study of wave intensities (in the VLF range) and detailed wave properties (in the ELF range) observed by the DEMETER spacecraft is presented. The data are organized as a function of frequency, geomagnetic latitude, geomagnetic longitude, magnetic local time, Kp index and day of the week. The representation by histogram of values instead of only mean value/standard deviation has been used, providing a valuable information about the shape of distributions, which are usually far from the Gaussian ones. The obtained "maps" of electromagnetic activity allow us to check for many different natural and man-made wave phenomena. We have mainly focused on the following: 1) Overall maps of wave intensity as a function of various parameters. 2) Global geographic maps of wave intensity. These are especially useful for checking of man-made effects like wave intensification above industrialized parts of the world. 3) Wave activity as a function of day of the week. This represents another possibility of checking for man-made effects - a 7 day cycle would be a clear demonstration of man-made origin.