

Title: Narrowband VLF measurements as a tool to study gravity waves in the lower ionosphere

Authors: Tamás Bozóki^{1,2}, Jaroslav Chum³

¹HUN-REN Institute of Earth Physics and Space Science, Sopron, Hungary

²ELTE Eötvös Loránd University, Institute of Geography and Earth Sciences, Department of Geophysics and Space Science, Budapest, Hungary

³Institute of Atmospheric Physics, Czech Academy of Sciences, Prague, Czech Republic

Abstract:

Gravity waves (GWs) are an important class of atmospheric waves that can propagate from the troposphere up to the upper atmosphere, where they can contribute significantly to the dynamical changes in the ionosphere. Nowadays, there is a growing interest in the parallel observation of GWs in different layers of the atmosphere, with the aim of understanding the physical background of their highly complex upward propagation. This effort is expected to contribute to a better understanding and mitigation of the distorting effects of atmospheric waves on satellite communications and global GNSS-based positioning. The present contribution will introduce the use of narrowband VLF measurements in the remote sensing of GWs in the lower ionosphere, which could make a valuable contribution to this general aim. Related results from the UPGW (Upward Propagating Gravity Waves in the lower and middle ionosphere) research project, supported by the PITHIA TNA programme, will also be presented.