

Observation and analysis of deep radio occultations signals in COSMIC

S. Sokolovskiy, W. Schreiner, C. Rocken, Z. Zeng, D. Hunt, and J. Lin

University Corporation of Atmospheric Research, Boulder, Colorado

sergey@ucar.edu

In some COSMIC radio occultations, the signals are observed above noise level deep in the region of geometric-optical shadow. Analysis of such signals indicates that in some cases they are interfering signals i.e. not transmitted by the occulted GPS satellite, while in other cases they are caused by propagation of the occulted signals in the moist lower troposphere. We will present examples of deep radio occultation signals and the results of their analysis. In some cases the interfering signals can be identified as signals from non-occulted GPS (while in other cases their source is not known). We will estimate inversion errors introduced by the interfering signals and consider possible mechanisms of the tropospheric propagation that cause deep radio occultation signals.