

## AN ANALYSIS OF GPS OCCULTATIONS FROM MT. TSUKUBA AND MT. FUJI

C. Zuffada, G. Hajj, T. Tsuda, Y. Shoji and Y. Aoyama

The occultation technique was demonstrated recently for the case when the receiver is placed at an elevated site within the atmosphere, representing a combination of occultation and line-of-sight measurement. Such technique could be cost effective for regional monitoring of the lower atmosphere in mountainous regions, where a small number of receivers could cover and resolve the variations introduced by the changing topography with fine vertical resolution. We present the results of the analysis of occultation data taken with a JPL GPS receiver installed first on Mt. Tsukuba in October of 2000, and with the same JPL GPS receiver later installed on Mt. Fuji in the summer of 2001. A subsequent campaign was conducted on Mt. Fuji in the summer of 2002. This effort is part of a collaboration between the University of Kyoto, Japan, the Meteorological Institute of Japan Meteorological Agency and NASA/JPL. In this effort the data were analyzed at JPL and profiles of refractivity were obtained using different techniques, including performing an Abel transform over a domain of integration truncated at the receiver location. Additionally, an alternative numerical approach based on the work of *Zuffada et al.*, JGR 1999, was also carried out to assess whether this different strategy has the advantage to retrieve the atmospheric refractivity up to some distance above the receiver location, rather than at the receiver location only. The optimal retrieval technique is discussed and preliminary results are presented for the characterization of the atmosphere and its seasonal variation in the areas around Mt. Tsukuba and Mt. Fuji where the experimental campaigns were performed. Comparisons with alternative measurements are presented.