

## Using Supplemental GPS VTEC Data to Reduce RO Retrieval Bias in the Ionospheric Profile

S.-Y. Su<sup>1</sup>, S. Tulasi Ram<sup>2</sup>, and C. H. Liu<sup>3</sup>

<sup>1</sup>*Institute of Space Science, and Center for Space and Remote Sensing Research, National Central University, Chung-Li, Taiwan*

<sup>2</sup>*EGRL, Indian Institute of Geomagnetism, Tirunelveli, India*

<sup>3</sup>*Academia Sinica, Taipei, Taiwan*

t2700146@cc.ncu.edu.tw, sysu@jupiter.ss.ncu.edu.tw

The spherical symmetry assumption used in the Abel inversion process for the RO retrieved ionospheric profile contains errors caused by the existence of non-uniform ionospheric lateral density distribution. To correct such biases, a modified Abel inversion procedure is devised that includes a supplemental GPS VTEC data to reflect the possible lateral non-uniformity in density distribution. The new profile indicates that the bias has been reduced by increasing the retrieved density level when the profile location is surrounded by low density distributions, and decreasing the density level when the neighborhood density is higher. Procedure of the modified Abel inversion and comparison of the new result with the available FORMOSAT 3/COSMIC data are presented for discussion.