

## FORMOSAT-3/COSMIC GPS RO data impact on CWB/GFS

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### Abstract

The Taiwan-USA joint FORMOSAT-3/COSMIC mission had been launched in mid-April, 2006. And, its first GPS RO observation had arrived on April 21. Since then, more and more data became available. Though, still not up to its promised number, there are currently about 1600 available limb-soundings daily (Feb., 2007). In order for the Central Weather Bureau (CWB) of Taiwan to make the best use of these newly acquired satellite measurements, we had helped implementing the necessary modules onto its Global 3DVAR Analysis System so that it is capable of assimilating either refractivity or bending angle profiles. For the latter, a revised 2D GPS ray-tracing operator from Zou et al. (1999) was used, and a local operator is currently available for the former. The Global Forecasting System (GFS) of CWB is a variation of the NOGAPS, while the GFS-3DVAR is adopted from an earlier version of the NCEP/SSI. In this report, some preliminary results of using both data from the TACC (Taiwan Analysis Center for COSMIC) will be discussed. While our previous tests had shown mostly a slight, negative impact on the CWB/GFS with the “local” refractivity data, it is particularly interesting to note that the inclusion of only “full” profiles can be positive.