

## **Assimilation of GPS RO observations at NCEP**

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NOAA NCEP has been assimilating FORMOSAT-3/COSMIC observations in its operational Global Data Assimilation System since May 2007. Since then, GPS RO profiles from additional missions have been incorporated into the operational suite (MetOP/GRAS, GRACE-A, TerraSAR-X, SAC-C and C/NOFS).

NCEP developed two different forward operators to assimilate soundings of GPS RO. The first one makes use of refractivities and it is the current operational configuration. The second one assimilates bending angles and it has recently been significantly upgraded. Quality controls and observation error characterization have been modified accordingly. The bending angle forward operator will replace the refractivity forward operator operationally in early 2012.

During this talk, recent work conducted at NCEP will be discussed, including the implementation of the bending angle forward operator.