Fourth FORMOSAT-3/COSMIC Data Users Workshop

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WELCOME!
GPS/MET Proof of Concept Mission

GPS/MET Launch
April 3, 1995

April 16, 1995

The first RO profile from Earth

Mike Exner (UCAR), Charley Dunn (JPL), Tom Meehan (JPL), ????
Micro-Lab-1
First sounding retrieval by Ben Herman and Da Sheng Feng, U. Arizona
An early water vapor and wet temperature retrieval.
22 June 1995

Moisture Retrieval

Derived temperature using NMC moisture
Derived moisture using NMC temperature

gpsTdry
gpsTwet
ecmwfT
gpsVp
ecmwfVp

Occ #66, June 22, 1995
7S Lat, 172W Lon
11:40 UTC

UCAR GPSMET Program
1995 Fall AGU Meeting
Richard Anthes
12/12/95
Number of COSMIC Atmospheric Profiles

Total atmospheric occultations: 2,025,882
Operational ECMWF system September to December 2008. Averaged over all model layers and entire global atmosphere. % contribution of different observations to reduction in forecast error.

GPS RO has significant impact (ranked #5 among all observing systems) in reducing forecast errors, despite the small number of soundings.

Courtesy: Carla Cardinali and Sean Healy, ECMWF 22 Oct. 2009
COSMIC Impact on NWS forecast accuracy

AC scores (the higher the better) for forecast days 1-8 40-day experiments:

\[
\begin{align*}
\text{expx (NO COSMIC)} \\
\text{cnt (operations - with COSMIC)} \\
\text{exp (updated RO assimilation code - with COSMIC)}
\end{align*}
\]

COSMIC provides 8 hours of gain in model forecast skill at day 4!!!! This is a very significant impact for a single observing system.