EVALUATION OF REFRACTIVITY PROFILES FROM CHAMP AND SAC-C GPS RADIO OCCULTATION

P. Poli *(1), (2), (4), J. Joiner (1), M. de la Torre Juarez (3), and R. M. Hoff (2)

(1) Data Assimilation Office, NASA Goddard Space Flight Center, Greenbelt, MD, U.S.A.
(2) Joint Center for Earth Systems Technology, University of Maryland, Baltimore, MD, U.S.A.
(3) NASA Jet Propulsion Laboratory, Pasadena, CA, U.S.A.
(4) Meteo France Centre National de Recherches Meteorologiques, Toulouse, France

The GeoForschungsZentrum's Challenging Minisatellite Payload for Geophysical Research and Application (CHAMP, Germany-US) and the Comision Nacional de Actividades Especiales' Satelite de Aplicaciones Cientificas-C (SAC-C, Argentina-US) missions are the first missions to carry a second-generation "Blackjack" Global Positioning System (GPS) receiver. One of the new features of this receiver is its ability to sense the lower troposphere closer to the surface than the proof-of-concept GPS/MET 1995 experiment. Since their launch, CHAMP and SAC-C have collected thousands of GPS radio occultations, representing a wealth of measurements available for data assimilation in Numerical Weather Prediction (NWP) models. In order to evaluate the refractivity data derived by the Jet Propulsion Laboratory (JPL) from raw radio occultation measurements, we use Data Assimilation Office (DAO) 6-hour forecasts as an independent state of the atmosphere. We compare CHAMP and SAC-C refractivity (processed by JPL) with refractivity calculated from the DAO global fields of temperature, water vapor content and humidity. We will show statistics of the differences as well as Probability Density Functions (PDFs) of the differences. Depending upon availability of Atmospheric Infrared Sounder (AIRS) data, we plan to show individual profile comparisons between GPS radio occultation and AIRS atmospheric retrievals.