Bio --

Paul Poli earned a "Diplome d'Ingenieur" in Meteorology -- an equivalent of a M.S. in Meteorology -- from the Ecole Nationale de la Meteorologie in Toulouse, France. He stayed at the Centre National de Recherches Meteorologiques (CNRM) in Toulouse for the second half of 1999, working on the assimilation of radiances collected by the High resolution Infrared Radiation Sounder (HIRS) and the Advanced Microwave Sounder Unit-A (AMSU-A) in the Meteo France global Numerical Weather Prediction (NWP) system.

From 2000 to 2004, he served as a Visiting Faculty Research Assistant for the Joint Center for Earth Systems Technology (JCET), a cooperative agreement between UMBC and the NASA Goddard Space Flight Center (GSFC). During that time, he conducted research at NASA-GSFC on the assimilation of space-based measurements into NWP systems. He worked as part of the NASA-GSFC Data Assimilation Office (DAO, now called Global Modeling and Assimilation Office) on several atmospheric remote sensing techniques, including infra-red sounding (HIRS and Atmospheric InfraRed Sounder (AIRS)), microwave sounding (AMSU-A and Microwave Limb Sounder (MLS)) and in particular radio occultation (RO) using the Global Positioning System (GPS). After assimilating GPS RO data collected by the 1995 GPS/MET mission in collaboration with NASA-JPL into the DAO NWP system, Paul joined the CHAMP Science Team of co-investigators and used GPS RO data from CHAMP and SAC-C and demonstrated in particular that more information could be extracted from GPS RO measurements by properly accounting for atmospheric inhomogeneities along the limb line-of-sight. Overall, Paul's interest into GPS RO stems from the novel approach this measurement technique represents when it comes to probing our atmosphere using an independently-calibrated reference, and the peculiar nature of the geometries involved.

At NASA, Paul was advised and supervised by Dr. Joanna Joiner and benefited from numerous interactions with related fields. In parallel to this experiencee, Paul also worked toward a PhD degree in Atmospheric Physics at UMBC and graduated in May 2004. His PhD Thesis advised by Pr. Raymond Hoff focused on the GPS RO technique.

After completing his PhD, Paul returned to CNRM at Meteo France in mid-2004. He has since conducted research on the use of data collected by means of ground-based GPS stations from various networks over Europe. His work has shown that the atmospheric delays derived from ground-based GPS data can be used at low cost within an NWP system to yield a substantial improvement in weather predictions both in terms of precipitation as well as synoptic atmospheric flow. These results, obtained over a wide range of cases and in a four dimensional variational assimilation system, also suggested that the dual signal contained in zenith delay measurements (namely surface pressure and integrated water vapor) could be captured because they present distinct time scales. Paul serves as NWP consultant expert for the European meteorological service network GPS water Vapor Programme (E-GVAP).

At Meteo France, he also works under a contract with ESA in collaboration

with the European Centre for Medium-range Weather Forecasts to develop the Level-2B processor for the future ADM-AEOLUS wind lidar mission. This mission is expected to be launched in 2008 and to demonstrate from space the measurement of wind along a lidar line-of-sight with unprecedented accuracy, thus improving our understanding of the upper-air global circulation from space. Paul has followed the evolution of the GPS RO field serving as a scientific advisor in the development of a GPS receiver by a contractor for the French Centre National d'Etudes Spatiales (CNES). Paul also serves as the contact point for the use of AIRS within Meteo France and reported within the International TOVS Working Group (ITWG) on the not-so-trivial geometry of so-called nadir sounders.

Paul Poli has served as a reviewer for several journals and national funding organizations and is now an Associate Editor for the Monthly Weather Review, a publication of the American Meteorological Society. He has contributed to and put together several proposals, namely for NASA, the NASA/NOAA/DoD Joint Center for Satellite Data Assimilation, ESA, and CNES. He is thus very aware of the funding context in which the community operates and the constraints under which scientific findings must be delivered -- whether they be good or bad news -- and in an understandable manner to our societies.

Statement of interest --

As an atmospheric physicist, the GGOS program interests me because it is designed to provide ‘observations’ which are in fact the reference on which all atmospheric measurements are based. The Earth’s gravity field and shape are the ‘conversion factors’ used to map atmospheric model outputs onto actual observations whose locations are known more and more not as a function of geopotential height but in geometric altitude or in an Earth-centered geodetic reference frame.

Coming from the atmospheric side, I am not an expert in analyzing the three GGOS fundamental observables. However, for having worked in the field of data assimilation and projected model outputs onto various atmospheric remote sensing geometries (limb and nadir) I am convinced that atmospheric remote sensing techniques and models need to harmonize their reference frames as each uses different coordinate references. This is important in my view not only to ensure consistent measurements between systems, but also -- in the longer term -- to ensure that variations observed in each are consistent. GGOS might offer a solution in that regard given its position with respect to GEOSS.

Overall, I would be interested in serving on the Science Panel of GGOS because I would like to be useful in helping the atmospheric community organize a reflexion on how to best define/start using reference frame that would be monitored by GGOS. The second stake I see in my possible participation to the GGOS program would be to help reflect the needs of the atmospheric community, having worked on various space-based observing techniques.