Demonstration of International Collaboration, Interoperable Data Flows and the Architecture of GEOSS

R.B. Husar (1), G. Percivall (2), C. Perez (3), X. Querol (4), D. Westphal (5), G. Leptoukh (6), E. M. Robinson (1), J. D. Husar (1) and M. Kieffer (1)

(1) Washington University, St. Louis, MO, USA, (2) Open Geospatial Consortium (OGC), Wayland, MA, USA, (3) Barcelona Supercomputing Center (BSC), Barcelona, Spain, (4) Institut Jaume Almera (IJA), Barcelona, Spain, (5) Naval Research Laboratory (NRL), Monterey, CA, USA, (6) Goddard Space Flight Center, NASA, Washington D.C., USA
(rhusar@me.wustl.edu/Phone: +1 314-935-6099)

In July 2007 a demonstration was performed at the GEO-sponsored workshop entitled "The User and the GEOSS Architecture". The Barcelona workshop provided a forum for addressing and discussing the benefits and challenges of advanced global information system implementation with sample applications in *Biodiversity in the Mediterranean Region*. The demonstration used multiple regional and global dust models to simulate the dust transport from Sahara to the Mediterranean Basin. The model simulations were compared to satellite and surface aerosol monitoring data in Spain and elsewhere in the Mediterranean Basin. A scientific challenge was to quantify the dust-chlorophyll relationship in the context of other environmental factors such as the state of the atmosphere and ocean and biological indicators like chlorophyll. GEOSS offers an attractive architectural framework for international collaboration and for integrating the data resources on the dust-chlorophyll topic. This demo illustrated the access and exploration of distributed datasets. Each dataset was accessible from autonomous providers through OGC standard protocols, WMS and WCS. The standard interface was provided either by the data custodian or by third-party mediators such as NASA's Giovanni data portal and Washington University's DataFed. The universal WMS/WCS web service interface permitted the loose coupling between the data access and other

services such as portrayal. The WMS and WCS interface to the Google Earth data browser, was a good example of a loosely coupled information system. The current data access standardization is very spotty and fragile but non-intrusive mediator services can bridge the interoperability gaps. Continued interoperability demonstrations are key steps toward the establishment of configurable, robust data flow and processing networks.