

#14 International Cooperative for Aerosol Prediction Global Multi-Model Ensemble (ICAP-MME)

Sarah Lu^{1*}, Sara Basart², Angela Benedetti³, Malcom Brooks⁴, Peter Colarco⁵, Arlindo da Silva⁵, Oriol Jorba², Peng Lynch⁶, Yaswant Pradhan⁴, Jeffrey Reid⁶, Thomas Sekiyama⁷, Walter Sessions⁸, Taichu Tanaka⁷

¹*National Centers for Environmental Prediction, College Park, MD, USA*

²*Earth Sciences Department, Barcelona Supercomputing Center-Centro Nacional de Supercomputación, Barcelona, Spain*

³*European Centre for Medium-Range Weather Forecasts, Reading, UK*

⁴*U. K. Met Office, Exeter, UK*

⁵*NASA Goddard Space Flight Center, Greenbelt, MD, USA*

⁶*Naval Research Laboratory, Monterey, CA, USA*

⁷*Japan Meteorological Agency/Meteorological Research Institute, Tsukuba, Japan*

⁸*University of Wisconsin, Madison, WI, USA*

Over the past several years, there has been a rapid development in global aerosol prediction at major operational weather centers and quasi-operational research centers with global numerical weather prediction (NWP) capabilities. The International Cooperative for Aerosol Prediction (ICAP), consisting of forecasting center aerosol developers and remote sensing data providers, began meetings since 2010. Current models in the ICAP include: 1) BSCC CTM/NCEP Non-hydrostatic Multi-scale Meteorological Model, NMMB; 2) ECMWF Monitoring Atmospheric Composition and Climate Model, MACC; 3) FNMOC/NRL Navy Aerosol Analysis and Prediction System, NAAPS; 4) JMA Model of Aerosol Species IN the Global Atmosphere, MASINGAR; 5) NASA/GMAO Goddard Earth Observing System Version 5, GEOS-5; 6) NOAA/NCEP NEMS GFS Aerosol Component, NGAC; and 7) UKMO Unified Model, MetUM.

The NWP community has long recognized the value in multi-model ensembles in developing probabilistic forecast tools. The ICAP member developers created a developmental global multi-model ensemble (MME) based on aerosol optical depth – the metric that is globally available. Daily products include a host of maps, mean-spread plots, verification plots, and threat scores. While currently ICAP-MME data is only available to participating member centres, it is expected to be made public on a quasi-operational basis by in 2014.