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Technical Implementation Notice 12-41
National Weather Service Headquarters Washington DC
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From: Tim McClung
          Chief, Science Plans Branch
          Office of Science and Technology

Subject: New NGAC Aerosol Forecast System: Effective September 11, 2012

Effective on or about Tuesday, September 11, 2012, the National Centers
for Environmental Prediction (NCEP) will begin to run and disseminate data
from the NOAA Environmental Modeling System Global Forecast System (GFS)
Aerosol Component (NGAC).

NGAC is NCEP's global in-line atmospheric-aerosol module within GFS. The
aerosol component of the NGAC is the Goddard Chemistry Aerosol Radiation
and Transport Model (GOCART). Funded mainly by the National Aeronautics
and Space Administration's (NASA's) Earth Science programs, the GOCART
model was developed to simulate common atmospheric aerosols (sulfate,
black carbon (BC), organic carbon (OC), dust, and sea-salt), carbon
monoxide (CO), and sulfur gases.

NGAC Version 1 provides 5-day forecasts of aerosol dust proxies and five
dust particle size ranges listed below, once per day for the 0000
Coordinated Universal Time (UTC) cycle. The NGAC output will be available
in gridded binary version 2 (GRIB2) format on a 1x1 degree output grid,
with output available for 00 to 120 hours, with output every three hours.
The NGAC output will be disseminated via NCEP's ftp/http server at the
following location:

http://www.ftp.ncep.noaa.gov/pub/data/nccf/com/ngac
ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/ngac

Output files and their contents include:

(1) ngac.t00z.a2df$HR, where HR=00, 03, ...,120: two-dimensional (2-D)
products including:

AER_OPT_DEP_at550: dust aerosol optical depth at 550nm (dimensionless)
CR_AER_SFC_MASS_CON: coarse mode surface mass concentration (kg/m3)
FN_AER_SFC_MASS_CON: fine mode surface mass concentration (kg/m3)
CR_AER_COL_MASS_DEN: coarse mode column mass density (kg/m2)
FN_AER_COL_MASS_DEN: fine mode column mass density kg/m2

DUST_EMISSION_FLUX: dust emission fluxes (kg/m2/sec)
DUST_SEDIMENTATION_FLUX: dust sedimentation fluxes (kg/m2/sec)
DUST_DRY_DEPOSITION_FLUX: dust dry deposition fluxes (kg/m2/sec)
DUST_WET_DEPOSITION_FLUX: dust wet deposition fluxes (kg/m2/sec)

(2) ngac.t00z.a3df$HR, where HR=00, 03, ..., 120: 3-D products at model
levels including:

PRES: pressure (Pa)
RH: relative humidity (%)
TEMP: temperature (K)
DUST1: dust bin1 (0.1-1 micron) mixing ratio (kg/kg)
DUST2: dust bin2 (1-1.8 micron) mixing ratio (kg/kg)
DUST3: dust bin3 (1.8-3 micron) mixing ratio (kg/kg)
DUST4: dust bin4 (3-6 micron) mixing ratio (kg/kg)
DUST5: dust bin5 (6-10 micron) mixing ratio (kg/kg)

(3) ngac.t00z.aod_$NM, where NM=11p1um, 1p63um, 340nm, 440nm, 550nm,
660nm, 860nm:

Aerosol optical depth at specified wavelengths (11.1, 1.63, 0.34, 0.44,
0.55, 0.66, and 0.86 micron).

A consistent parallel feed of data is currently available on the NCEP
server via the following URLs:

ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/ngac/para
or
http://www.ftp.ncep.noaa.gov/data/nccf/com/ngac/para

Users please note that NGAC products are encoded in GRIB2 using a
relatively new GRIB template. Users should download the latest versions
of wgrib2 and the other NCEP GRIB utilities to use the NGAC output
products. Many of these utilities were updated on July 17, 2012. Users
can access the NCEP GRIB utilities from this URL:

http://www.nco.ncep.noaa.gov/pmb/codes/nwprod/util/exec

A website containing more information about NCEP's dust product can be
found at:

http://www.emc.ncep.noaa.gov/gmb/sarah/NGAC/html/realtime.ngac.html

For questions regarding the scientific content of the NGAC model, please
contact:

Sarah Lu
NCEP/EMC
College Park, MD
301-683-3733
sarah.lu@noaa.gov

For questions regarding the dataflow aspects of these data sets, please contact:

Rebecca Cosgrove
NCEP/NCO Dataflow Team
College Park, MD
301-683-0567
ncep.list.pmb-dataflow@noaa.gov

National Technical Implementation Notices are online at:

https://www.weather.gov/notification/archive

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