

# **A Comparison of the North American Regional Reanalysis (NARR) to an Ensemble of Analyses Including the CFSR**

Wesley Ebisuzaki  
Climate Prediction Center, NCEP, NOAA, Maryland, USA

Fedor Mesinger  
University of Maryland, College Park, MD, USA

Li Zhang  
Climate Prediction Center, NCEP, NOAA, Maryland, USA  
Wyle Information Systems, McLean, Virginia, USA

Arun Kumar  
Climate Prediction Center, NCEP, NOAA, Maryland, USA

The North American Regional Reanalysis (NARR, Mesinger et al, BAMS 2006) is a 32-km resolution reanalysis for the North American domain for the period from 1979 to the present. The CFSR (Climate Forecast System Reanalysis, Saha et al., BAMS 2010) is a global reanalysis for the same time period with slightly coarser resolution (0.5 degree latitude-longitude files, 35 km Gaussian grid files). Since both reanalyses are produced by NCEP, the study will evaluate both of these reanalyses for the continental US domain. Since the CFSR and NARR were not strong performers in the stratosphere, we will limit our examination to the troposphere and surface variables.

In an earlier work (Ebisuzaki and Zhang, Clim Dyn 2011), we examined the quality of a reanalysis (CFSR) by looking at its long-term variability and its daily variability. Likewise in this study we take a similar approach. To study the long term variability, the monthly means of the CFSR and NARR will be compared to an ensemble of reanalyses which consists of ERA-40, ERA-interim, JRA-25, MERRA, NCEP/DOE Reanalysis and NCEP/NCAR Reanalysis. We look at the trends and determine whether the trends are consistent with the ensemble of reanalyses.

To examine the daily variability, we will compare the NARR and CFSR to an ensemble of operational analyses from the following centers: Canadian Meteorological Centre, European Centre for Medium Range Weather Forecasts, NOGAPS analyses from Fleet Numerical Ocean and Meteorological Center, and the UK MetOffice. In Ebisuzaki and Zhang, two statistical measures suggested that the ensemble mean was better than any individual analysis system. Since we are using the same ensemble except for the inclusion of the NARR, we expect a similar result. So our evaluation will consist of examining the RMS of the analyses relative to the ensemble mean.

## **Corresponding Author:**

**Name:** Wesley Ebisuzaki  
**Organization:** Climate Prediction Center, NCEP, NOAA  
**Address:** W/NP51, Room 811, WWBG  
NOAA  
5200 Auth RD  
Camp Springs, MD 20746-4304  
USA