

Sandy Supplemental Grant Recipient Quarterly Progress Report

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Quality Control and Impact Assessment of Aircraft Observations in the GDAS/GFS NA13NWS4830022

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Major Accomplishments or Changes

1. AMDAR observation data types identified in GDAS

Some ambiguity exists pertaining to which aircraft observations are or are not part of the AMDAR data set. MDCRS observations distributed through ACARS, for example, are classified separately from AMDAR observations in the GDAS, even though the WMO considers MDCRS observations to be part of AMDAR. These delineations are crucial to implementing new quality control procedures for aircraft data.

2. Current quality control of AMDAR observations examined in GDAS

Using the existing quality control (which currently includes no assimilation of moisture observations), the assimilation characteristics of current AMDAR observations was evaluated for 183 analysis periods from Sep – Oct 2012. Special attention is paid to temperature observations, where biases in the assimilation/quality-control of temperature observations will have an impact on future assimilation of moisture observations.

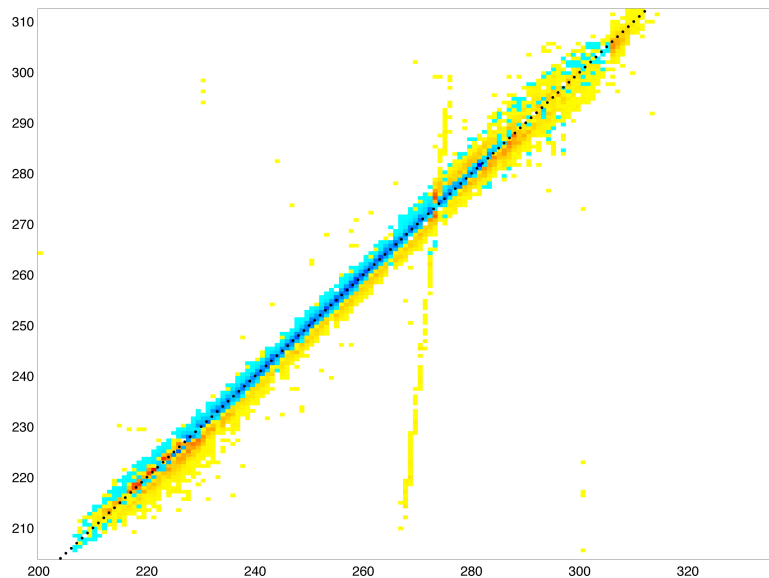


Figure: Comparison of acceptance/rejection rates between AMDAR and non-AMDAR aircraft temperature observations on a phase-space defined by the observed temperature (abscissa) and the model background temperature (ordinate). Warm (cool) colors indicate higher (lower) rejection rates in AMDAR observations compared to non-AMDAR aircraft observations. The set of observations deviating far from the $y=x$ line represents bad data from an aircraft flagged as having malfunctioning

instrumentation. Of note is the tendency for AMDAR observations to experience more rejections than non-AMDAR data at extreme temperatures as well as when the observation is warmer than the background temperature, indicating a possible bias in quality control.

3. Hurricane Sandy Appropriations Review

Representatives from NOAA Grants Management Division attended a review for several Sandy-funded proposals at CIMSS on 19 December 2013. A review and status of this project was given. Also in attendance were grants and contracts agents from the University of Wisconsin's Research and Sponsored Programs (RSP) and Space Science and Engineering Center (SSEC).

Resolved Issues and /or Risks

1. Researchers need access to restricted data
Restricted Data Access Request made through EMC sponsor
2. Researchers need computation-time on computing cluster
NCEP computer 'Zeus' has been chosen as candidate and computation-time is being arranged by EMC sponsor

New Issues and/or Risks

1. None.