



Fleet Numerical Meteorology & Oceanography Center

FNMOC Global Ensemble Forecast System

1 May 2011

Michael Sestak,



Current FNMOC Global EFS

- Current operational ensemble
 - T159 resolution with 42 vertical levels
 - 80 total members, 20 chosen
 - Run twice a day (00Z, 12Z) out to 384 hours (16 days) at 6-hourly increments
 - Initialized with 9-band Ensemble Transform
 - Updated 4 times per day
 - In operations since September 2011
 - Verification web page includes forecast vs obs skill statistics for surface winds and temperatures based on buoys

FNMOOC Global EFS Plans

- NOGAPS T239L42 to fcst hour 192, T159L42 to fcst hour 384
 - Will use analysis error from model history rather than based on NAVDAS code
 - Begin operational test late June to early July
 - In operations by early Aug
- Stochastic Kinetic Energy Backscatter (SKEB) model implementation on hold pending T239 NAVGEM

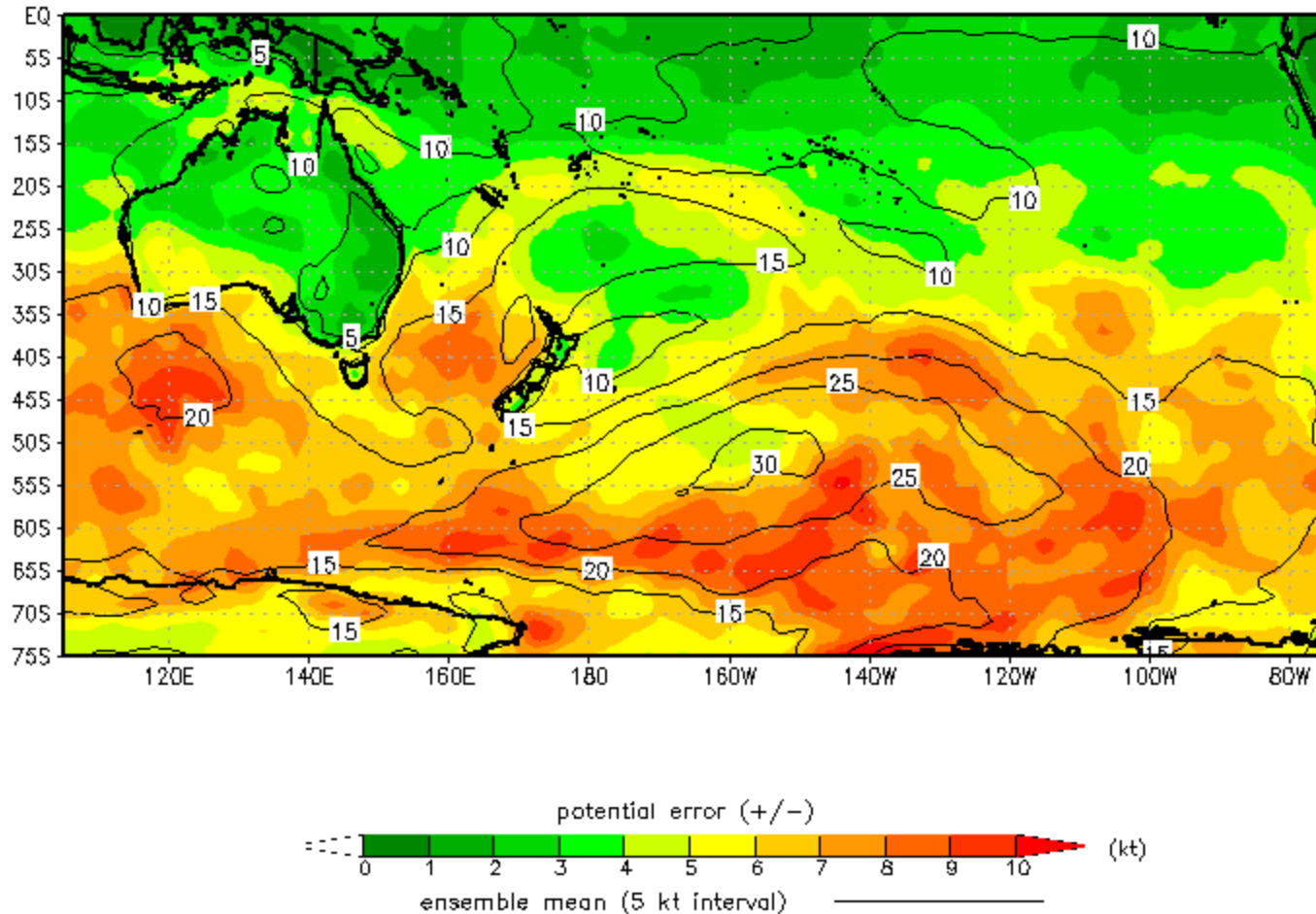
FNMOOC Global EFS Plans (cont'd)

- NCEP bias correction (Cui et al., *in press*)
 - May 2012 implementation
- NUOPC Multimodel Products
 - Current WxMap and gridded NUOPC products use 20 NOGAPS and 20 GFS members
 - Add CMC members by Q1 2013.
- Verification and validation web page to include all NUOPC forecast vs obs metrics except precip and clouds by Q4 2012.

FNMOOC EFS Verification

- Based on fcst vs obs using NRL NAVDAS-AR fcststats code to create “extended” innovations (fcst-obs, not just analysis-background)
- Currently implemented:
 - surface winds from buoys, land stations, SSMI and satellite scatterometer
 - surface temperature from buoys and land stations
 - upper air temperatures and heights from radiosondes
 - wave height from buoys and satellite altimeter
 - bias, rmse, brier score, crps, reliability diagram, ROC diagram

10 m wind speed and ensemble spread

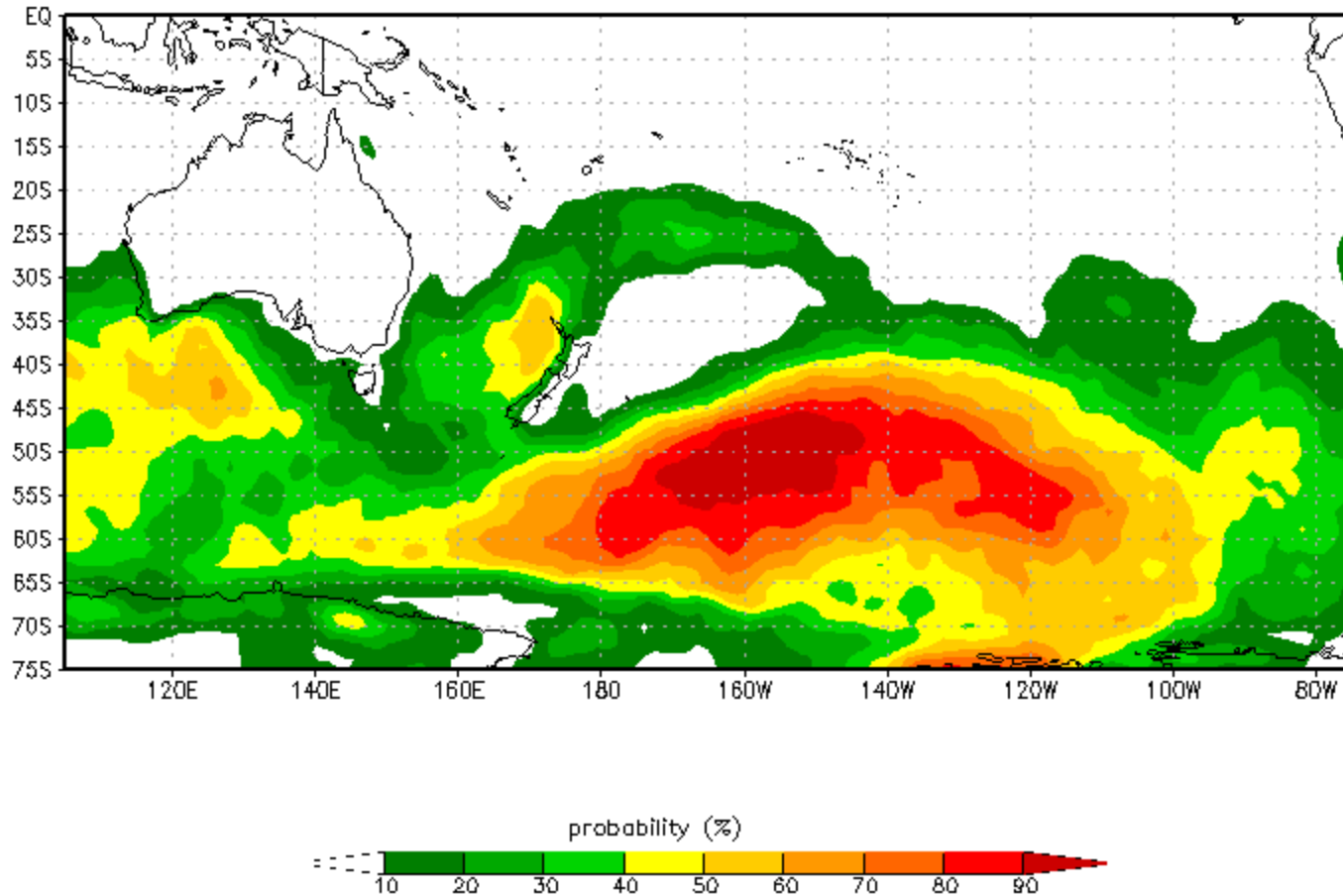


VT: Tue 00Z 08 MAY 12
FNMOC EFS (U): 10m Wind Speed
Run: 2012043012Z Tau: 180

Members Available: NGP 20 GFS 20 CMC 0

Approved for public access. Distribution is unlimited.

Probability of wind speed > 20 kt



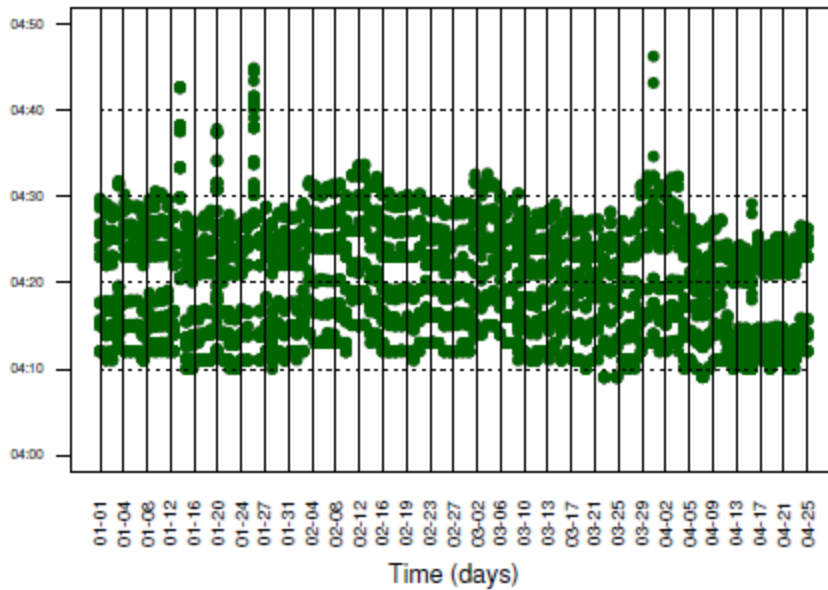
VT: Tue 00Z 08 MAY 12
FNMOC EFS (U): Probability of 10m Wind Speeds > 20 kts
Run: 2012043012Z Tau: 180

Members Available: NGP 20 GFS 20 CMC 0

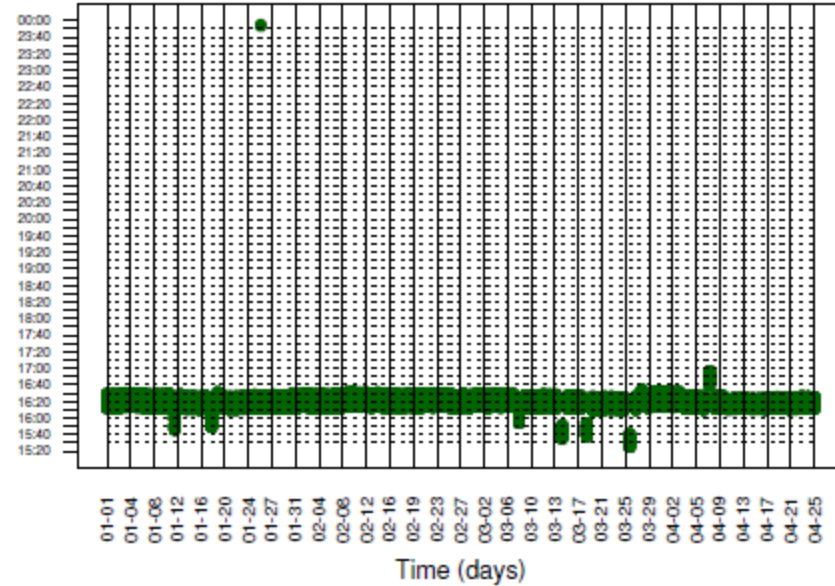
Approved for public access. Distribution is unlimited.

FNMOE EFS Grids to BFTN

Timeline of END TIMES for : nogaps bun jobs

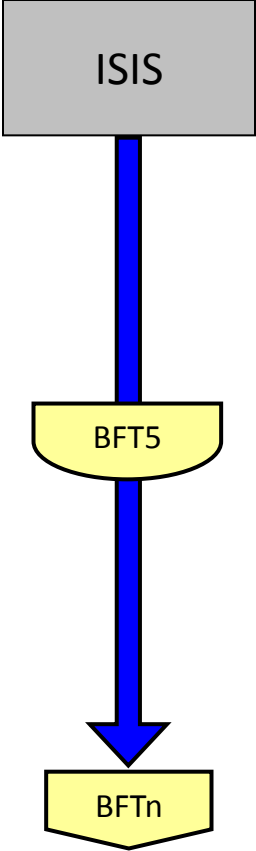
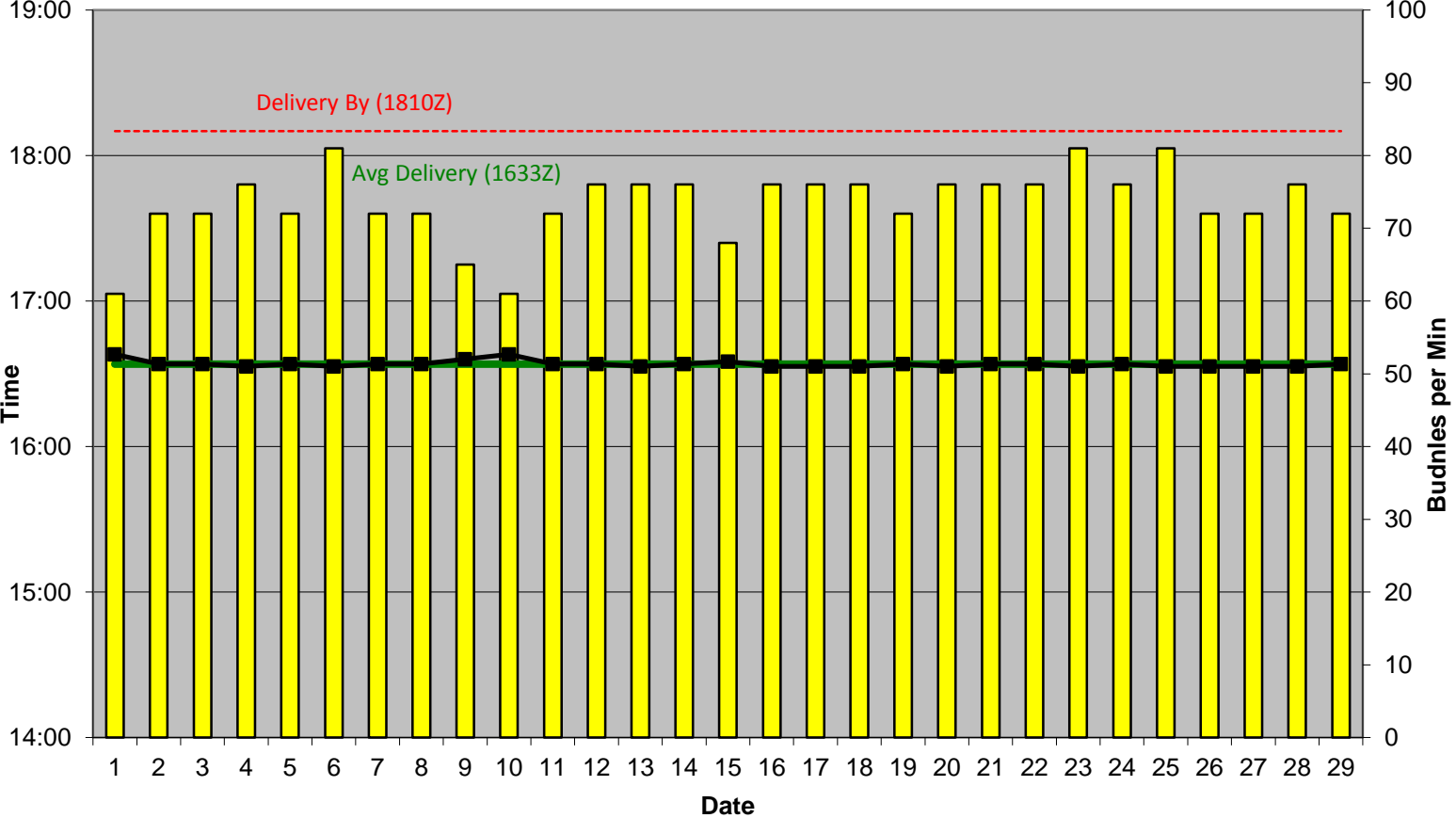


Timeline of END TIMES for : nogaps bun jobs



NAEFS/CAGIPS: 12Z

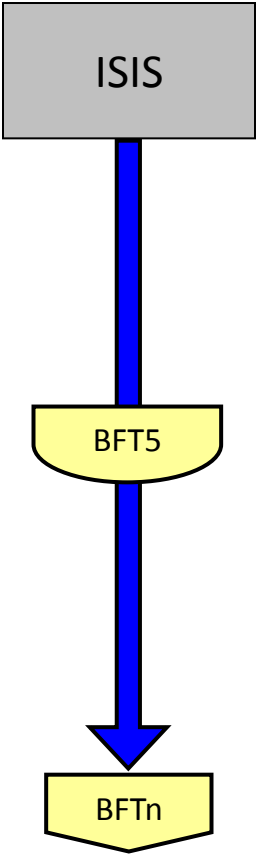
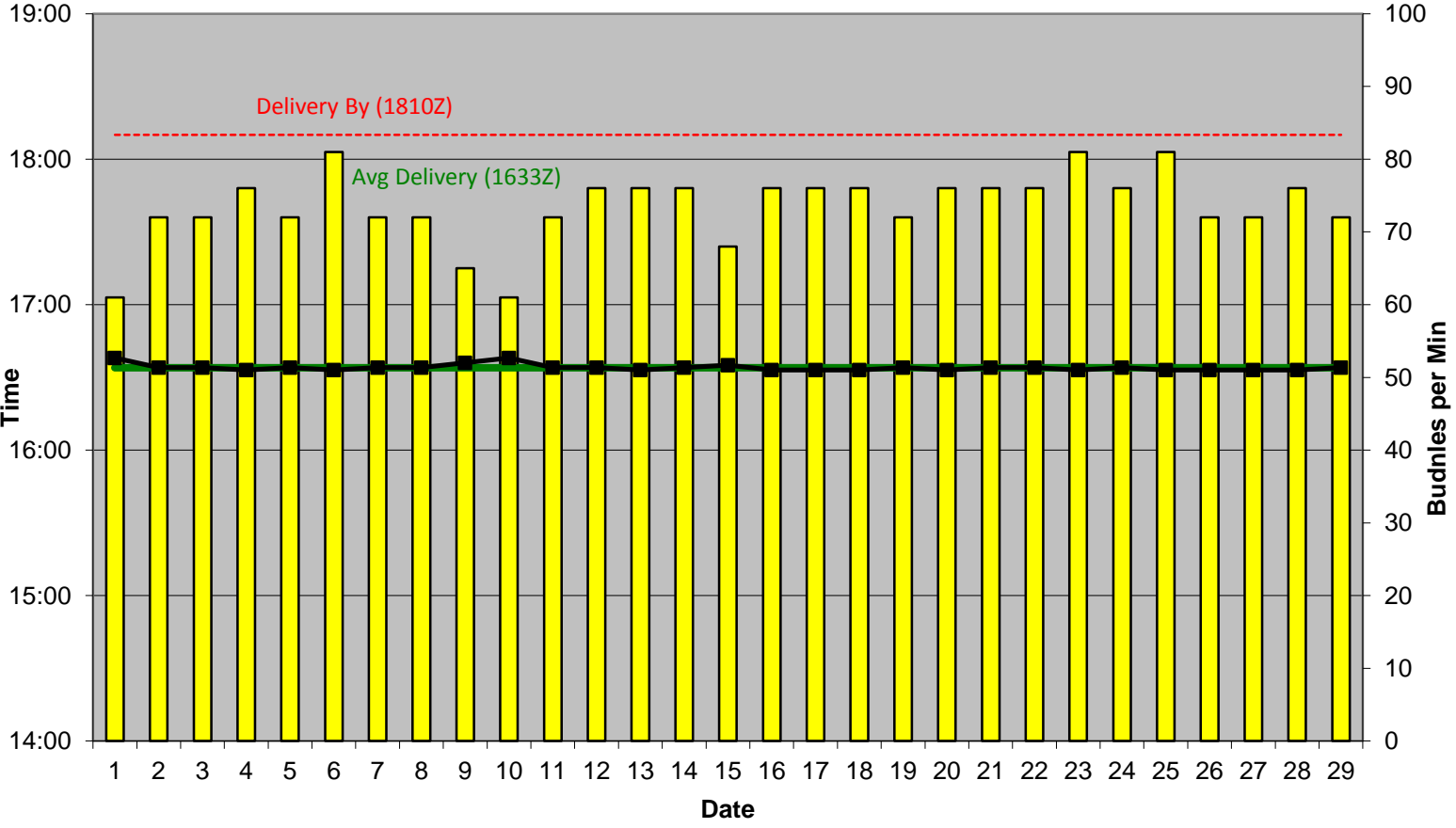
FEB ENSEMBLE_MET 12Z



Average Bundles per Min: 73.4
On-Time: 100%

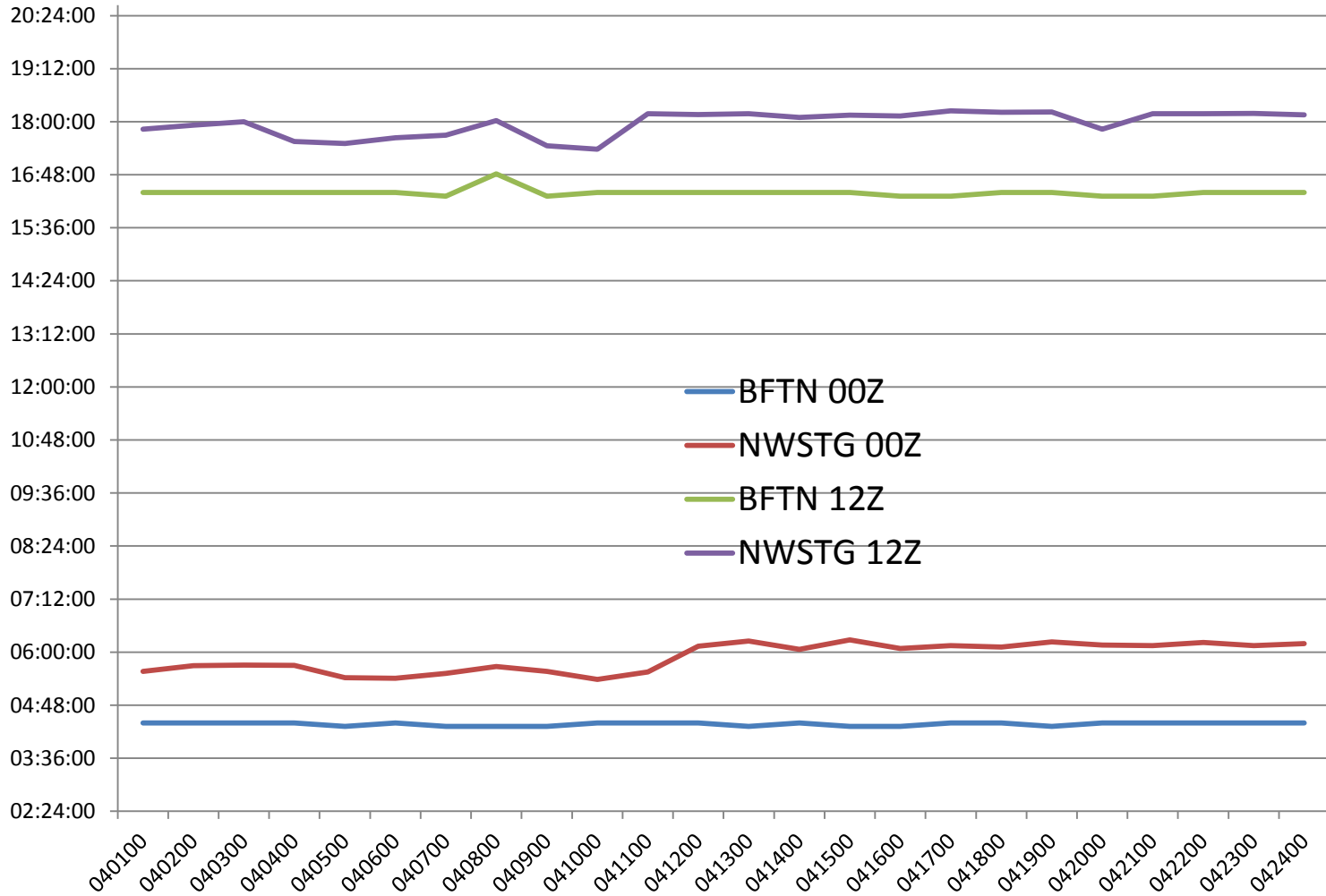
NAEFS/CAGIPS: 12Z

FEB ENSEMBLE_MET 12Z



Average Bundles per Min: 73.4
On-Time: 100%

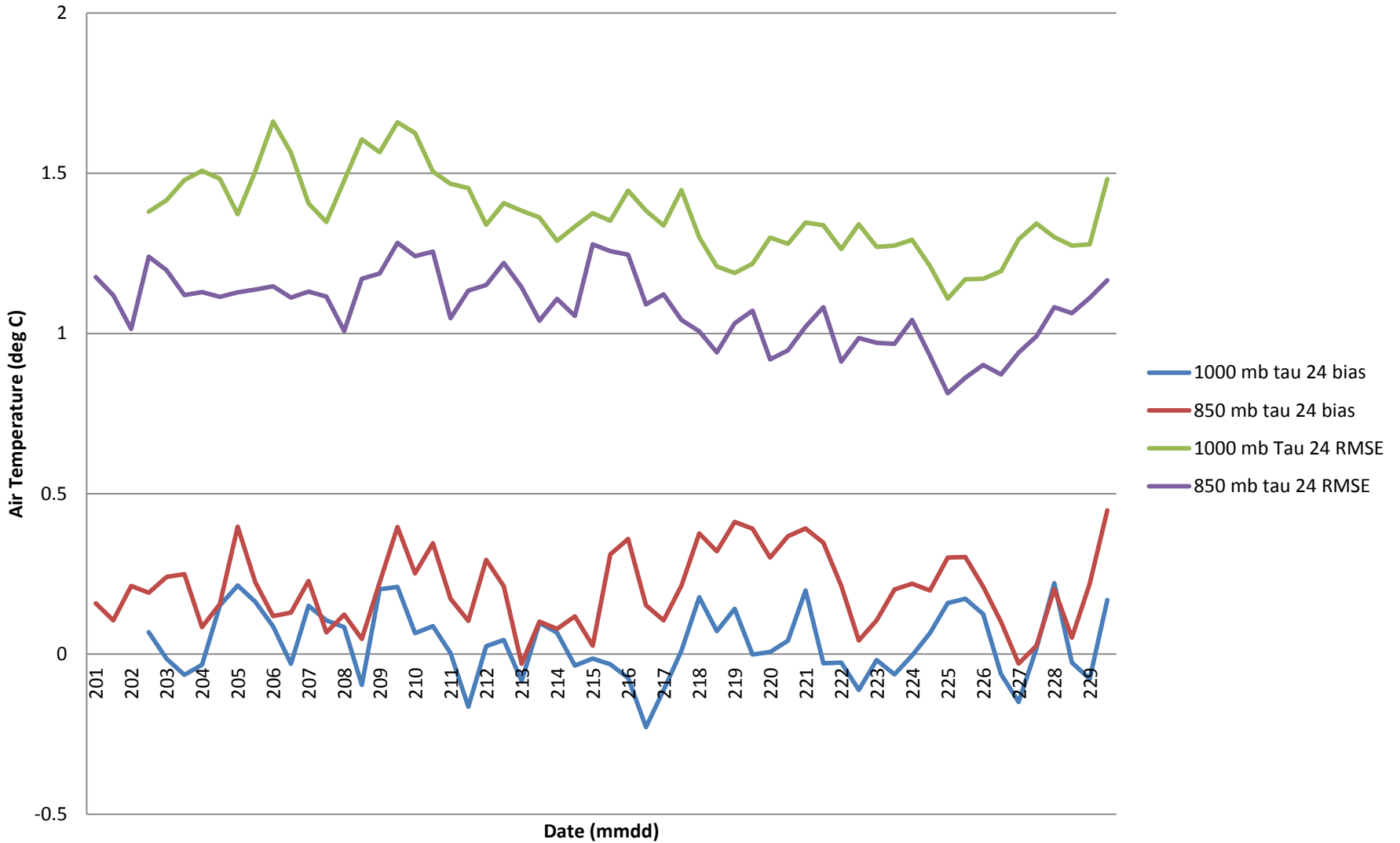
FNMOEC EFS Grid Delivery to NCEP



Northern Polar (60 to 90 deg) Air Temperature Statistics

Forecast - Analysis for Ensemble Mean

Feb 1 - 29, 2012



Northern Hemisphere (80 to 20 deg) Air Temperature Statistics

Observation - Forecast for Ensemble Mean

Nov 20 – Dec 28, 2012

