NAEFS (V5.0) upgrade

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NCEP/NWS/NOAA

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NAEFS (V5.0) Upgrade

Project Status as of 03/06/2014

G Project Information and Highlights

Lead: Yuejian Zhu and Bo Cui, EMC, Becky Cosgrove, NCO

Scope:

- Based on NAEFS/GEFS 1*1
  - Using RTMA/URMA as proxy of truth, downscale bias corrected ensemble forecast to CONUS 2.5km & Alaska 3km. Grid will extend CONUS domain to north to cover part of Canada, and south to cover part of Mexico for NAEFS project. Products include 10%, 50%, 90%, mean, mode and spread
  - Adding cloud cover to the list of bias correction and downscaling
  - Various new methodologies have been applied to improve NAEFS bias correction, 2nd moment adjustment.
- ECMWF ensemble based post-product (new – internal use only)
- GRIB II (encoding/decoding directly) for:
  - All new/exist products

Expected Benefits:

- Higher resolution (2.5km for CONUS and extended domain, 3.0km for Alaska)
- Reduce the bias for most variables
- Increase probabilistic forecast skills
- For WPC, regions (Alaska), CPC (likely) and Partner of North American

G Scheduling

Milestone (NCEP)	Date	Status
Initial coordination with SPA team	12/20/2014 →5/01/2015	
EMC testing complete/ EMC CCB approval	2/01/2015 →05/15/2015	
Final Code Delivered to NCO	6/1/2015	
Technical Information Notice Issued	5/1/2015	
SPA begins prep work for 30 day test	4/6/2015	
30-day evaluation begins	5/4/2015	
30-day evaluation ends	6/2/2015	
IT testing ends	5/15/2015	
Management Briefing	6/19/2015	
Operational Implementation	6/23/2015	

G Issues/Risks

Issues: N/A

Risks:

Mitigation:

Current: 16 nodes – 60 minutes
Future: 48 nodes – 60 minutes

G Finances

Associated Costs:

Funding Sources: EMC Base and Blender project: T2O 24 Man-months NCO Base: 2 man-months for implementation, 1 man-month annually for maintenance

R	Management Attention Required	Y	Potential Management Attention Needed	G	On Target

Resource of changes

- Current:
  - Length of process – last 2+ hours
  - How many nodes? - 16 nodes (peak)
  - Start time / end time – +6:00 - +8:00
  - Disk storage - 16GB/per day (ndgd_gb2)

- Future:
  - Length of process – last 2+ hours
  - How many nodes? – 50 nodes (peak)
  - Start time / end time – +6:00 - +8:00
  - Disk storage - 48GB/per day (ndgd_gb2, plus ECMEF products)

I/O Changes for GEFS/NAEFS

- Current:
  - Input
    - 1x1 degree global fields
    - 5km CONUS RTMA fields
    - 6km Alaska RTMA fields
  - Output
    - 1x1 degree global fields
    - 5km CONUS NDGD fields
    - 6km Alaska NDGD fields
- Future:
  - Input
    - 1x1 degree global fields
    - 2.5km CONUS RTMA_ext fields
    - 3km Alaska RTMA fields
  - Output
    - 1x1 degree global fields (add one new variable)
    - 5km CONUS NDGD fields
    - 2.5km CONUS extended NDGD fields (new)
    - 6km Alaska NDGD fields
    - 3km Alaska NDGD fields (new)

I/O Changes for ECMWF ensemble

- Current:
  - Input
    - N/A
  - Output
    - N/A

- Future: all new to internal users (WPC request)
  - Input
    - 1x1 degree global fields
    - 2.5km CONUS RTMA_ext fields
    - 3km Alaska RTMA fields
  - Output
    - 1x1 degree global fields
    - 2.5km CONUS extended NDGD fields
    - 3km Alaska NDGD fields