

Q4 FY2011 Upgrade of the NCEP Global Ensemble Forecast System

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http://wwwt.emc.ncep.noaa.gov/gmb/yzhu/html/imp/201109_imp.html

Acknowledgements

EMC: Jiayi Peng, Malaquias Pena, Weiyu Yang, Julia Zhu,
Yucheng Song, Yan Luo, Jun Du, Mark Iredell,
John Ward, Bill Lapenta and Steve Lord

CPC: Jon Gottschalck, Dan Collins

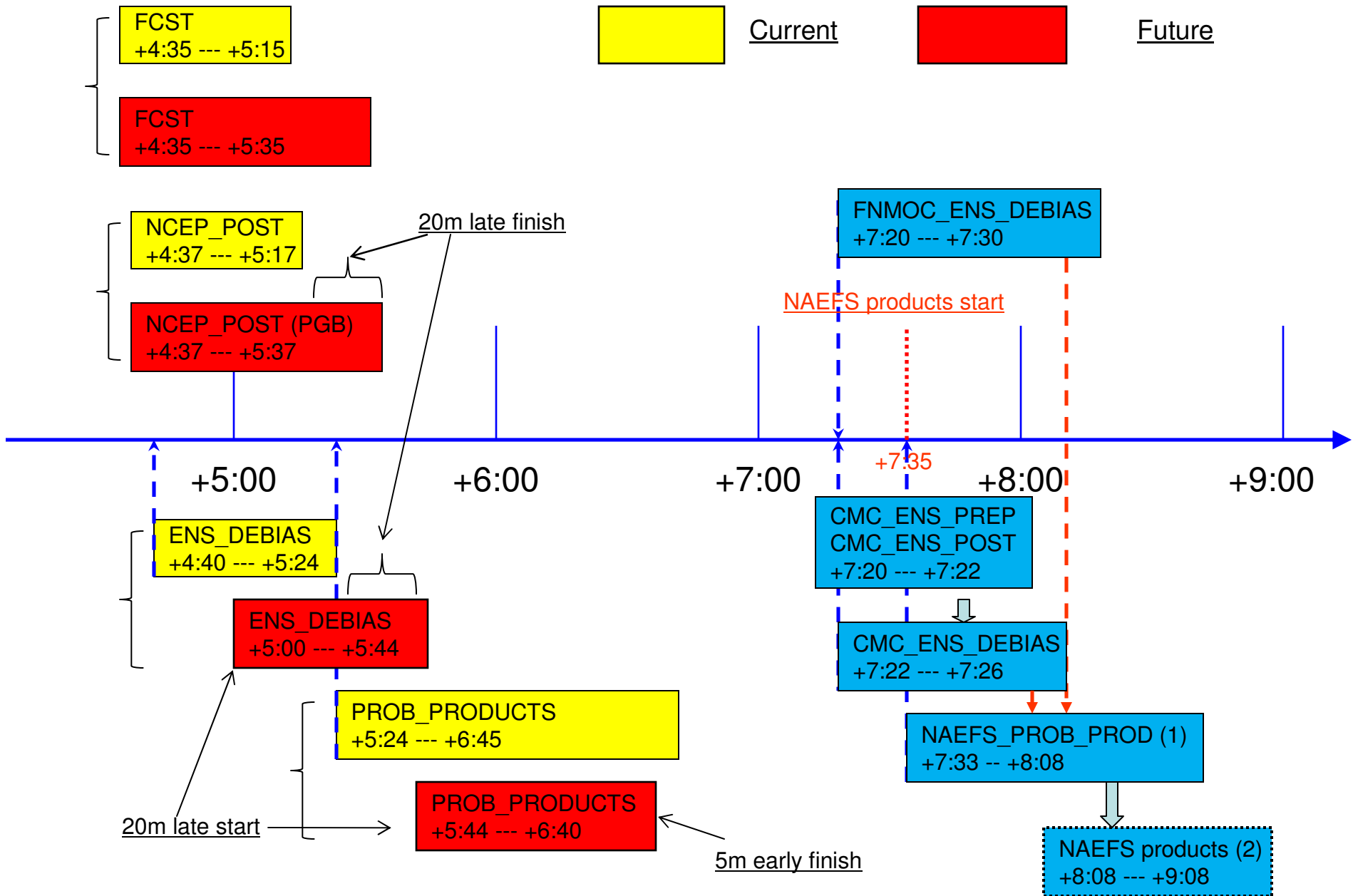
NCO: Christine Caruso Magee,
Rebecca Cosgrove and Daniel Starosta

MDL: Kathryn Gilbert

MSC/Canada: Lewis Poulin and Andre Methot

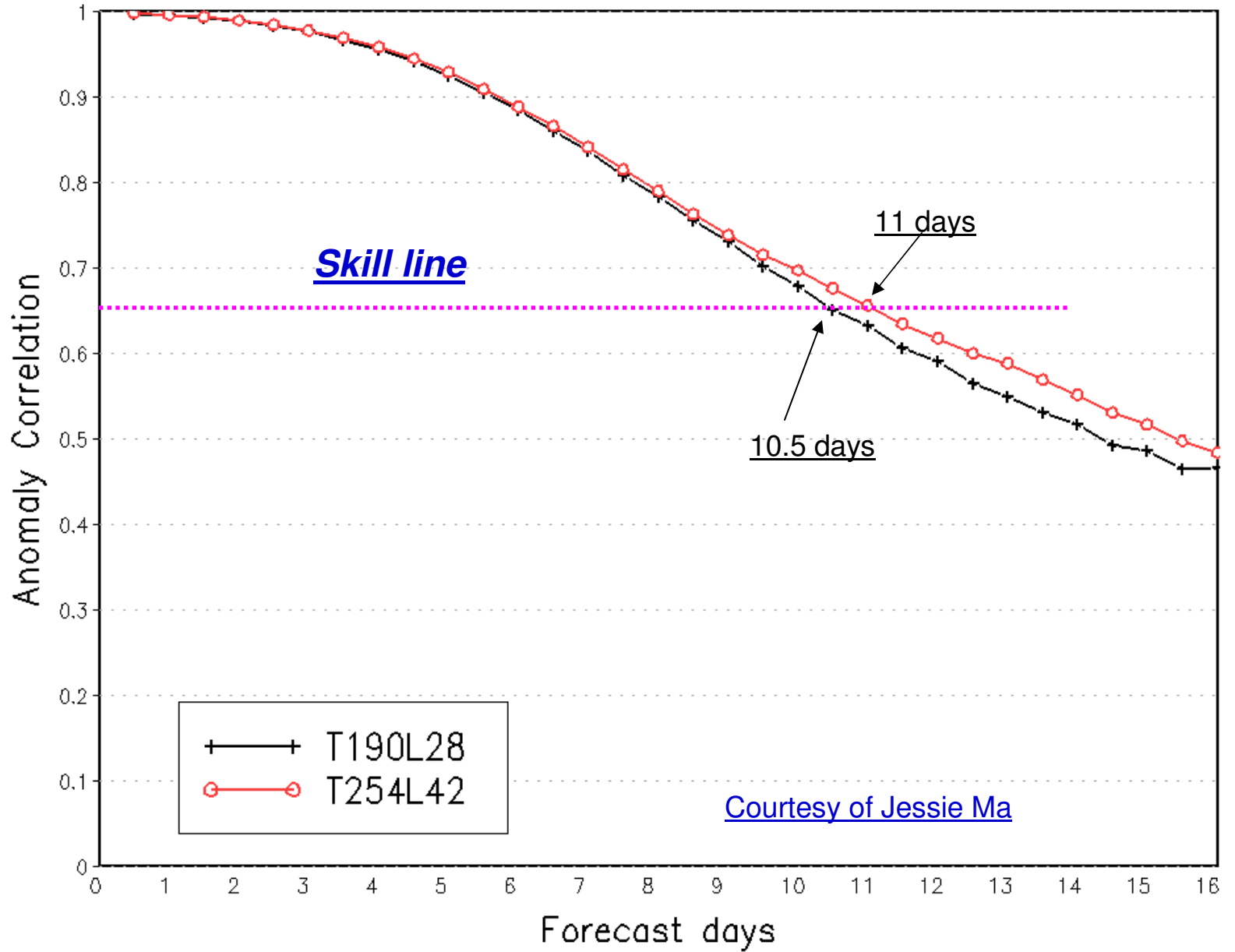
Next GEFS Implementation Plan (Q4 FY11)

- According to total resource distribution for each model (Jigsaw puzzle)
 - GEFS has 40% of total CPUs (52 of 130) during +4:35 and +6:00 for main integration and main post-process
- Current: GEFS and GEFS/NAEFS post processing
 - T190L28 for all 384 hours lead-time
 - 20+1 members per cycle, 4 cycles per day
 - Computation usage: **average 20 nodes (22 high mark) for 50 minutes**
- Next GEFS and GEFS/NAEFS post processing (Q4FY2011):
 - **T254L42 (0-192hr)** – increasing both horizontal and vertical resolutions
 - Factor of 3.6 by comparing T190L28
 - **T190L42 (192-384hr)** – increasing vertical resolution
 - Factor of 1.5 by comparing T190L28
 - 20+1 members per cycle, 4 cycles per day
 - Total cost for integration and post processing
 - Factor of 3.6 for 0-192hrs, factor of 1.5 for 192-384
 - Average factor for processing (0-384hrs) is 2.55
 - **51 nodes for 50 minutes (start: +4:35 end: +5:25)**
 - **Products will be delayed by approximately 20 minutes because CCS can't offer 51 nodes**
 - **40 nodes for 70 minutes (start +4:35 end: +5:45)**
- Why do we make this configurations?
 - Considering the limited resources
 - Resolution makes difference ([T126](#) .vs [T190](#))
- What do we expect from this implementation?
 - Preliminary results ([NH 500hPa](#) and [SH 500hPa](#) height)

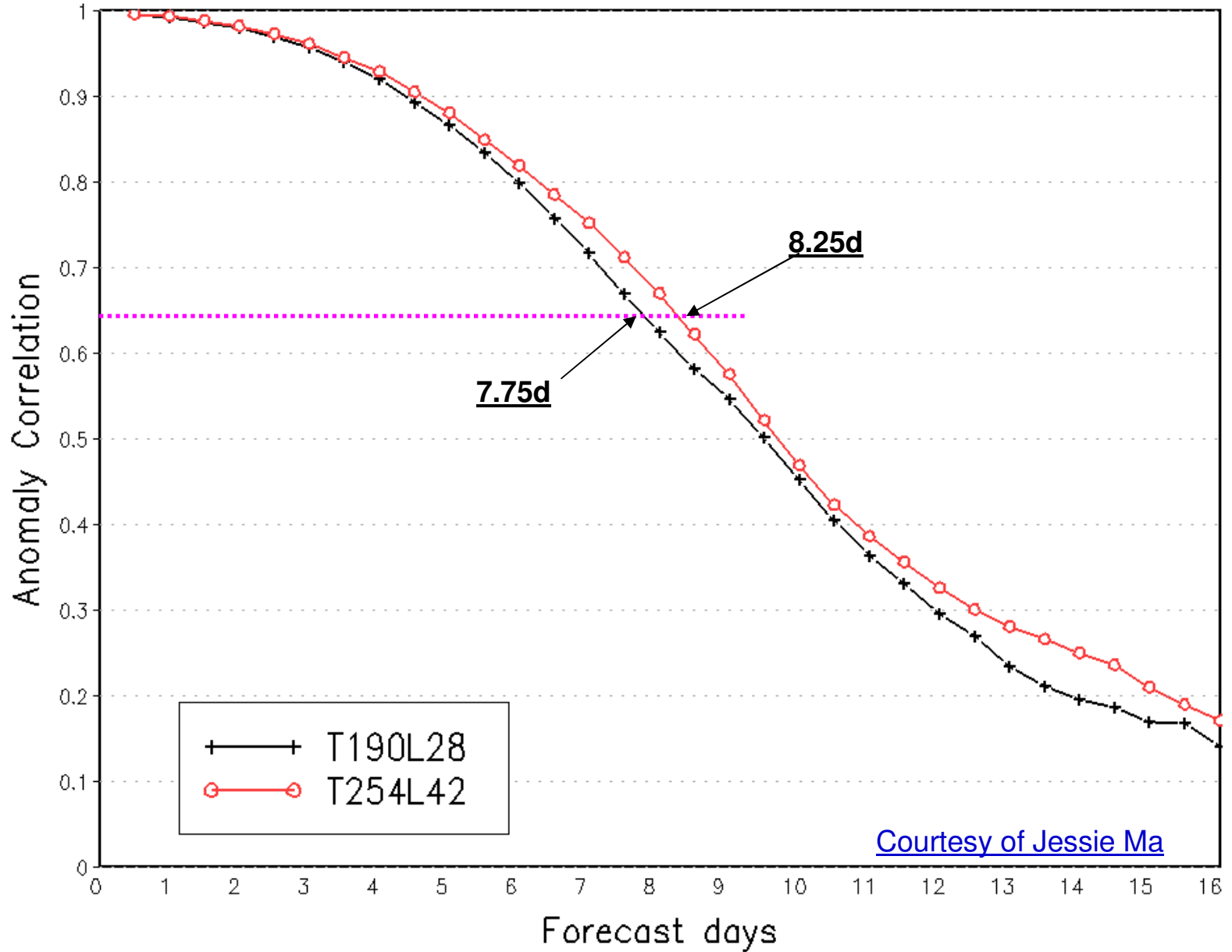


GEFS/NAEFS 6-hr window flow chart

Northern Hemisphere 500hPa Height
Ensemble Mean Anomaly Correlation
Average For 20091201 – 20100131



Southern Hemisphere 500hPa Height
Ensemble Mean Anomaly Correlation
Average For 20091201 – 20100131



[Courtesy of Jessie Ma](#)

Future GEFS initialization plan

Flow Chart for Hybrid Variation and Ensemble Data Assimilation System (HVEDAS) - concept

