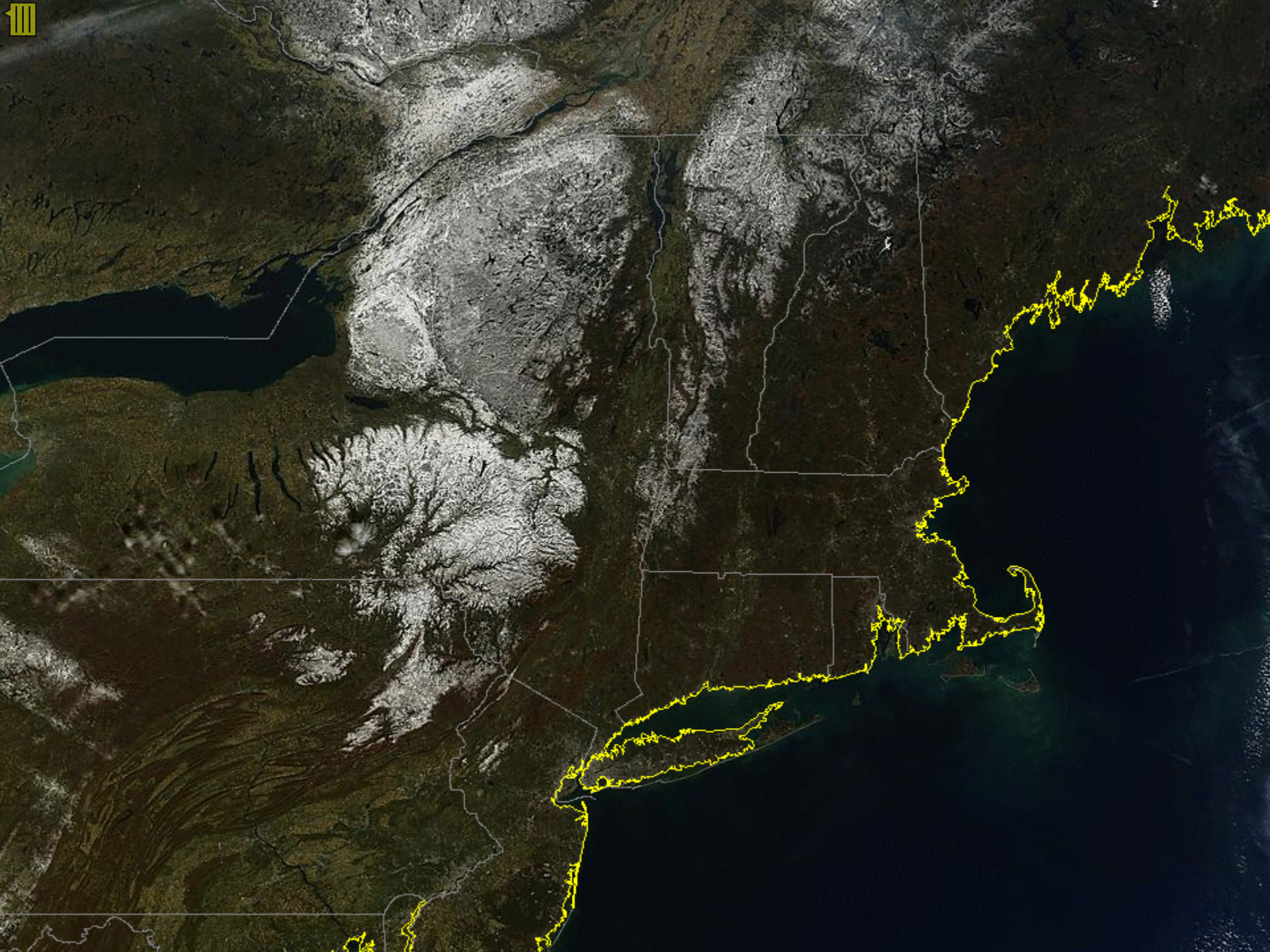
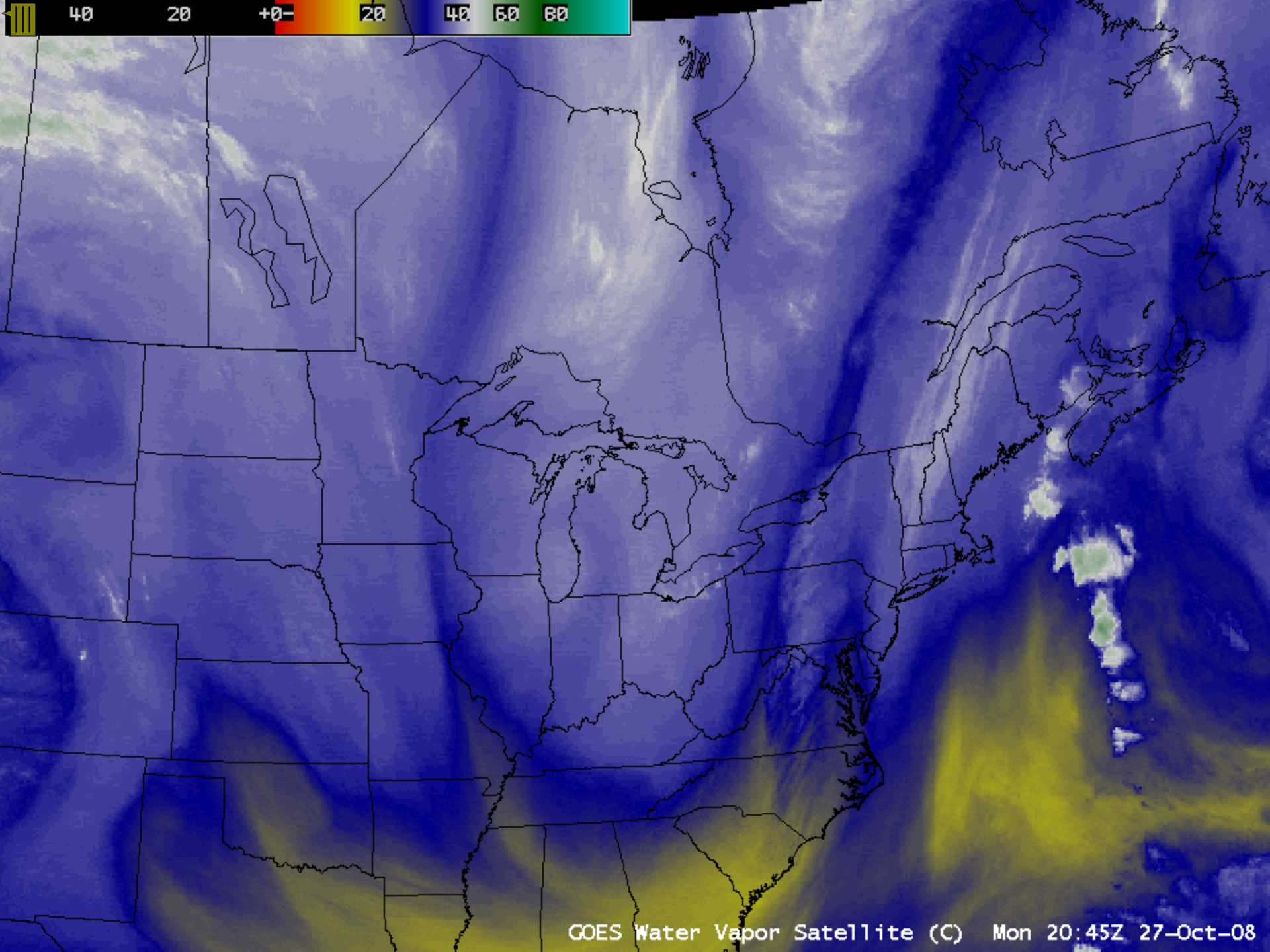
The October 28 2008 Snow Event:

Model Trends and Forecast Implications

Justin Arnott

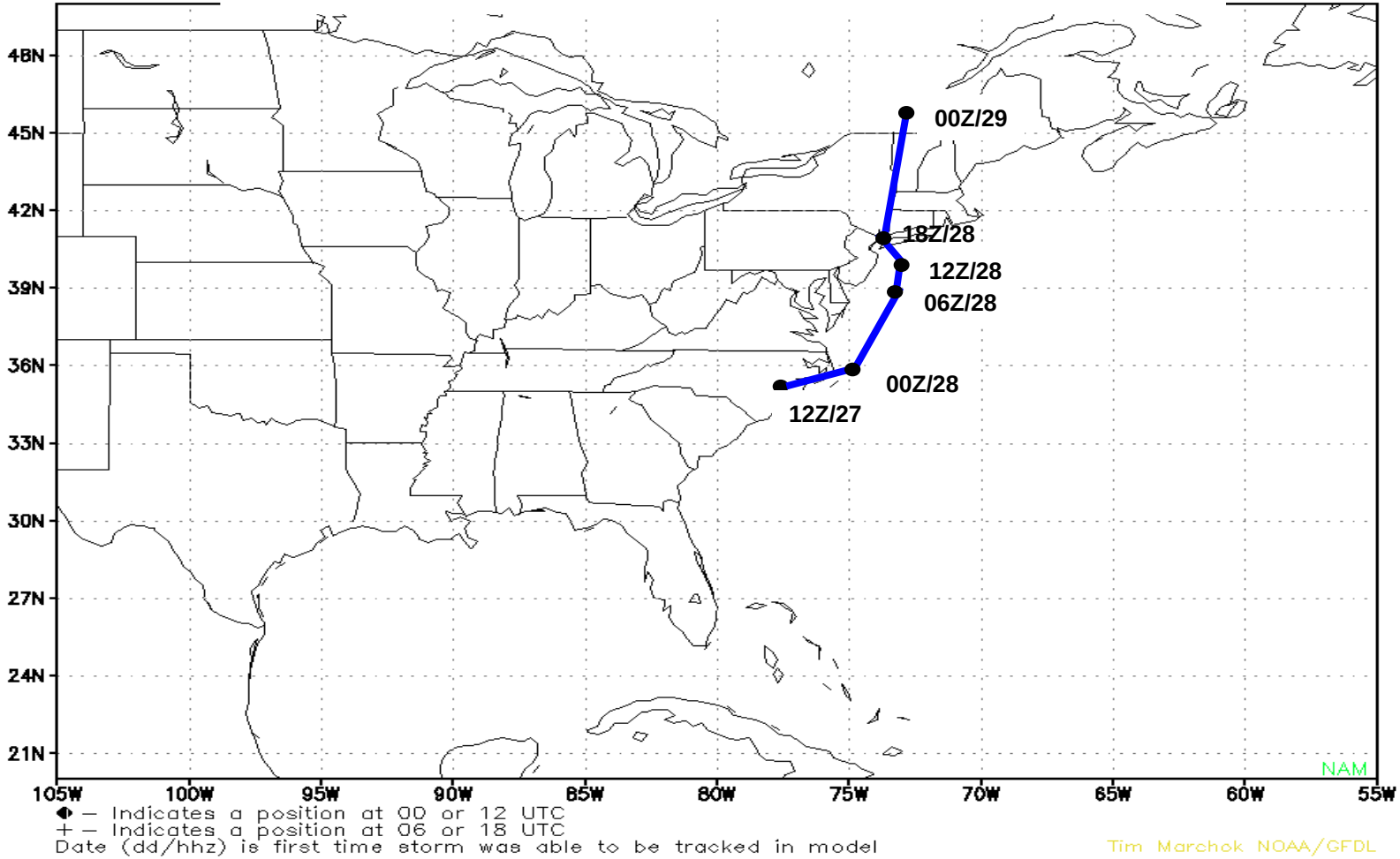



40 20 +0- 20 40 60 80
GOES Water Vapor Satellite (C) Mon 20:45Z 27-Oct-08

Motivation

- Difficult event with relatively short lead times
  - No watch issued
  - HWO did not mention event until 08Z27OCT
    - 11 hours before warning issuance
    - ~24 hours before the onset of snow
  - Models did not “catch on” to the event until about T-18hrs.
  - Warnings/advisories issued about 12hrs before event onset

NCEP Low Track



NCEP/EMC Cyclone Tracks Page - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.emc.ncep.noaa.gov/gmb/tpm/emchurr/tcgen/

Most Visited | WeatherTAP -- Regio... | NOAA Mail | Text ETs | Oracle Web Calendar ... | Rivers | AMDAR Data Display F... | Yahoo! | Climate Prediction Cen... | NOAA's National Weat... | Google | Product_QC

NCEP/EMC Cyclogenesis Tracking Page

Main

2008111206
2008111200
2008111118
2008111112
2008111106
2008111100
2008111018
2008111012
2008111006
2008111000
2008110918
2008110912
2008110906
2008110900
2008110818
2008110812
2008110806
2008110800
2008110718
2008110712
2008110706
2008110700
2008110618
2008110512
2008110506
2008110500
2008110418
2008110412
2008110406
2008110400
2008110318
2008110312
2008110306
2008110300
2008110218
2008110212

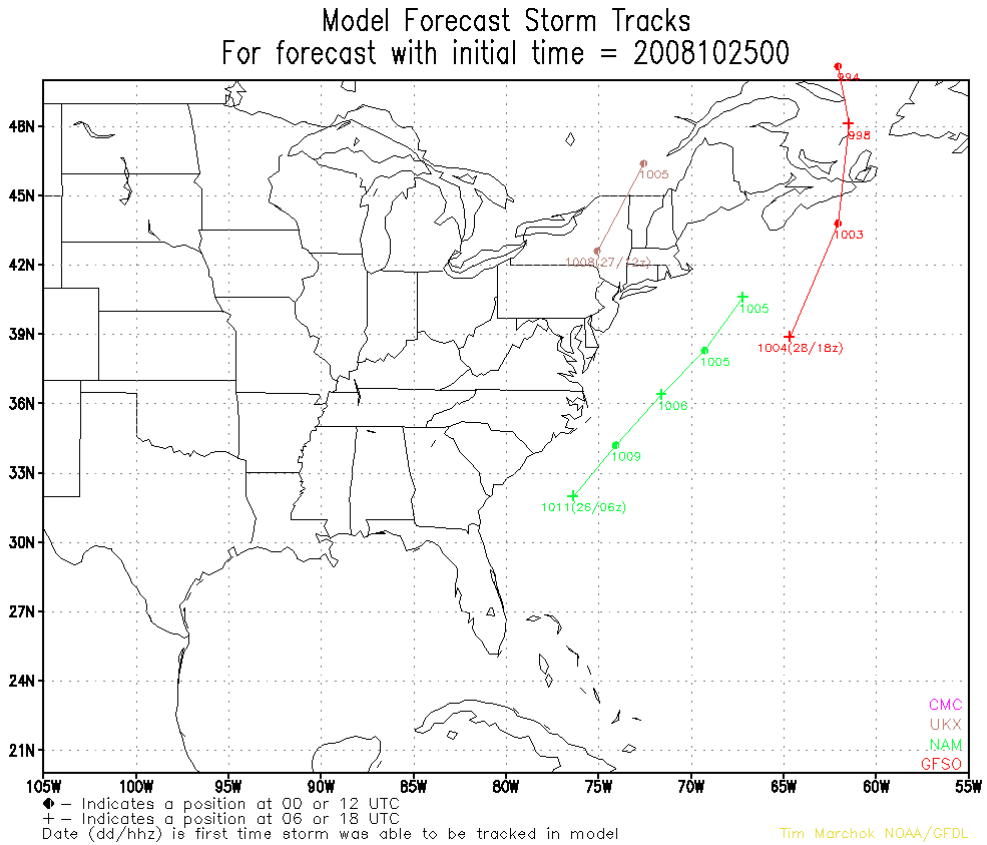
-- EMC Cyclogenesis Tracking Page --

Model Cycle: 2008111200

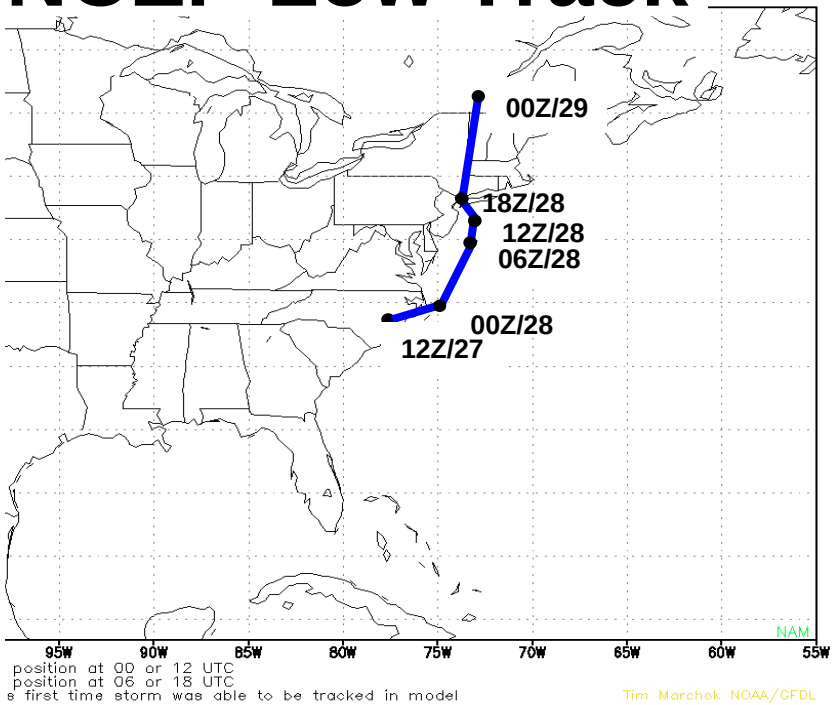
North America: Model Tracks for Mid-Latitude Cyclones

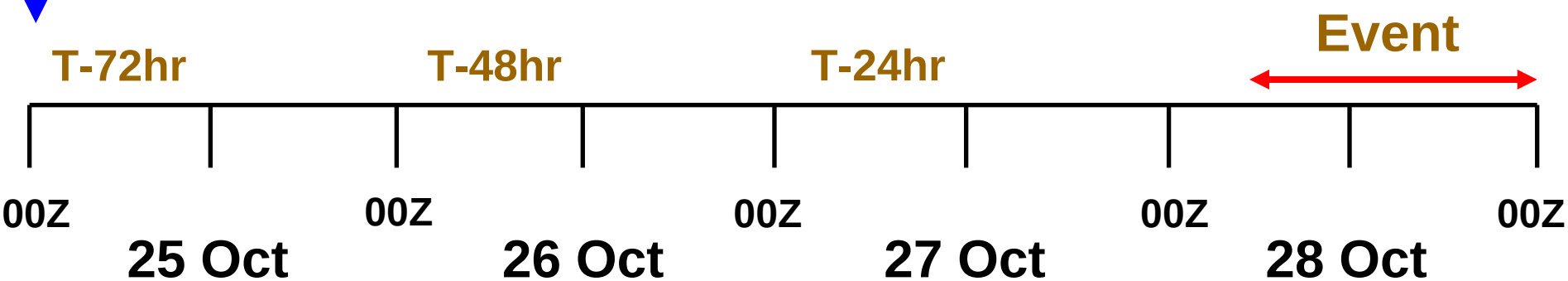
	Model Guidance											
Region	Multi-Model	GFS	NAM	NCEP Ensemble	SREF Ensemble	Ukmet	NOGAPS	CMC	CMC Ensemble	ECMWF (RESTRICTED)	ECMWF Ensemble (RESTRICTED)	Multi-Model w/ECMWF (RESTRICTED)
U.S. East Coast (Current DTG; lat/lon)	☑	☑	☑	☑	☑	☑	☑	☑	X	☑	X	☑
Eastern North America (Current DTG; NPS)	☑	☑	☑	☑	☑	☑	☑	☑	X	☑	X	☑
NW Atlantic (Current DTG; lat/lon)	☑	☑	☑	☑	☑	☑	☑	☑	X	☑	X	☑
NW Atlantic (Current DTG;	☑	☑	☑	☑	☑	☑	☑	☑	X	☑	X	☑

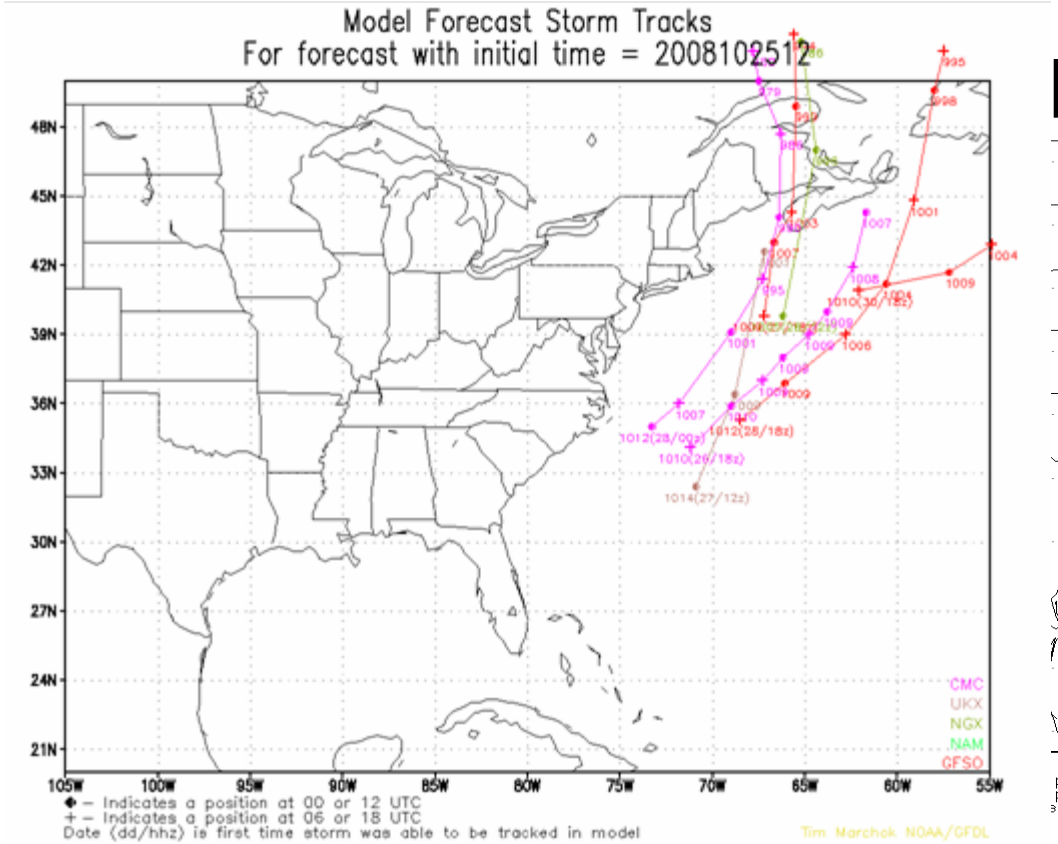
http://www.emc.ncep.noaa.gov/gmb/tpm/emchurr/tcgen/mgtracks.2008111200.html



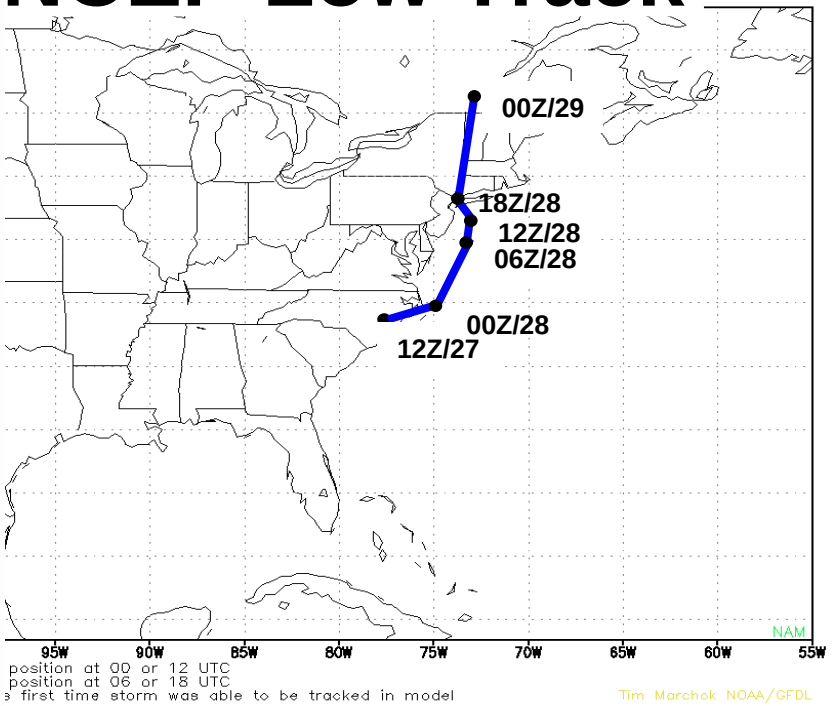
NCEP Low Track

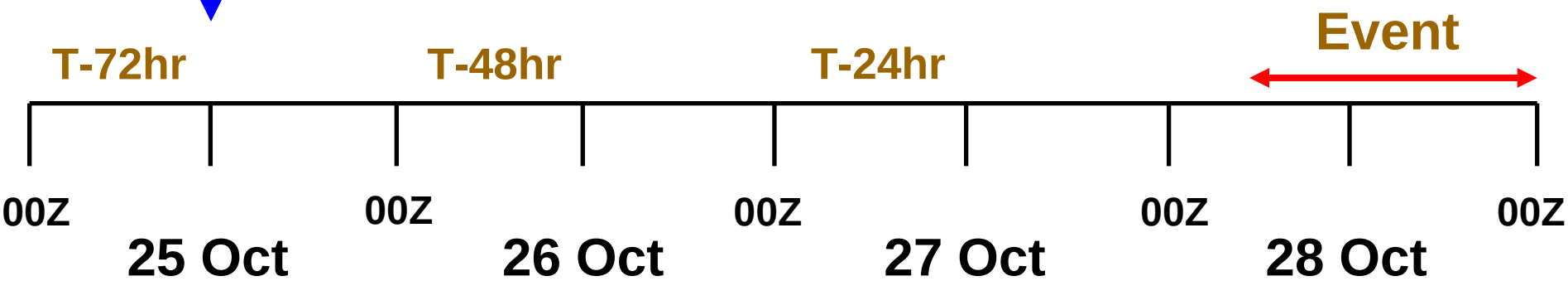


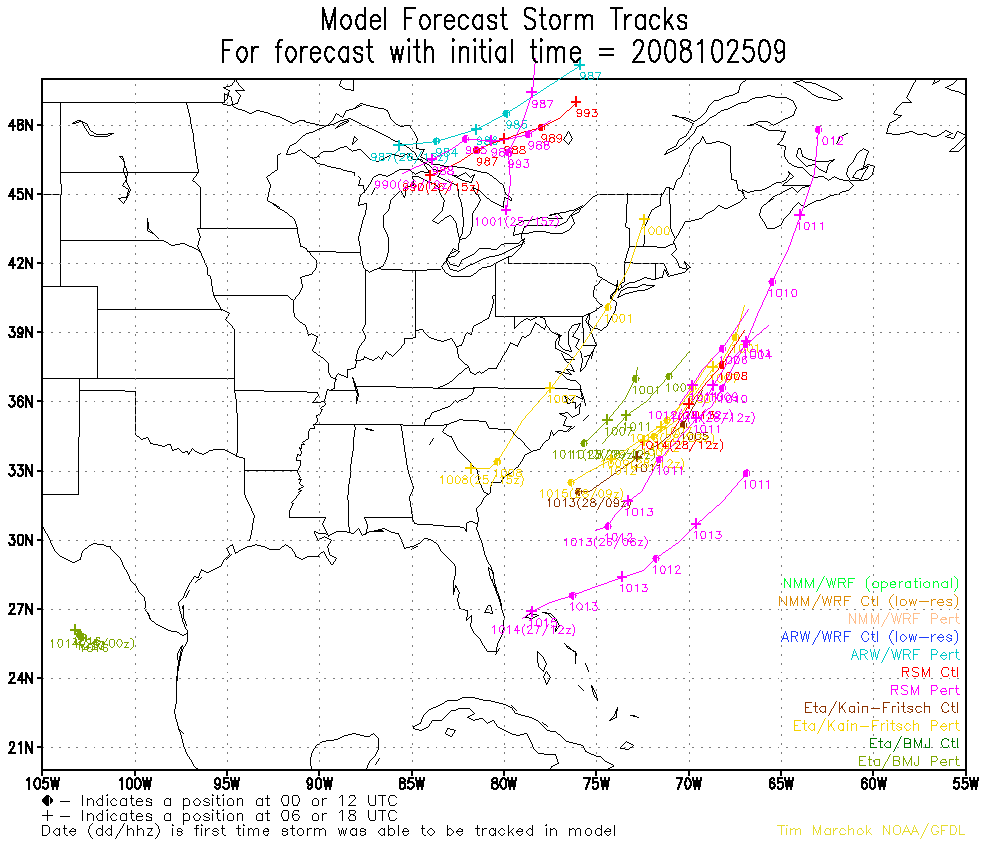




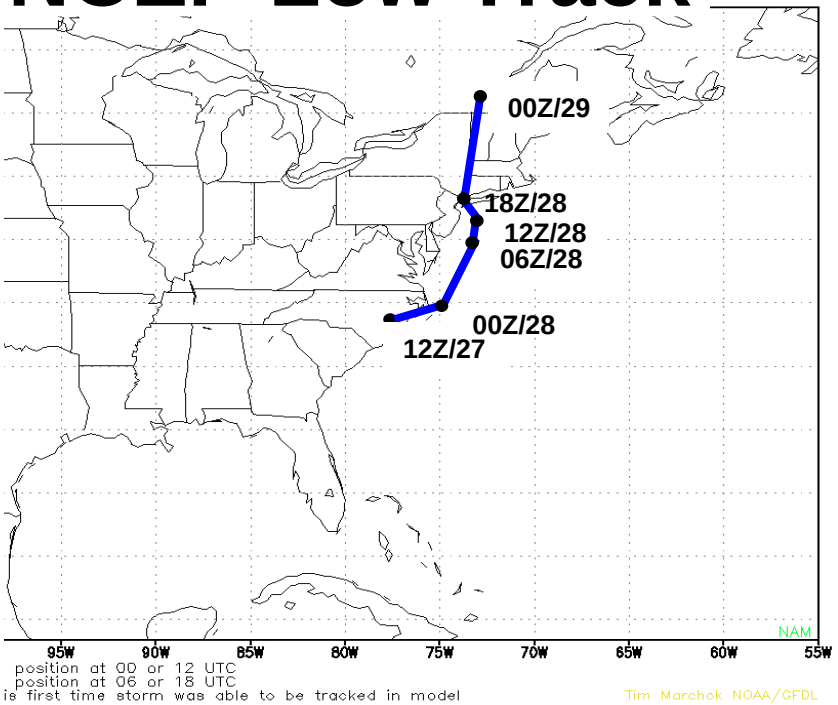
NCEP Low Track

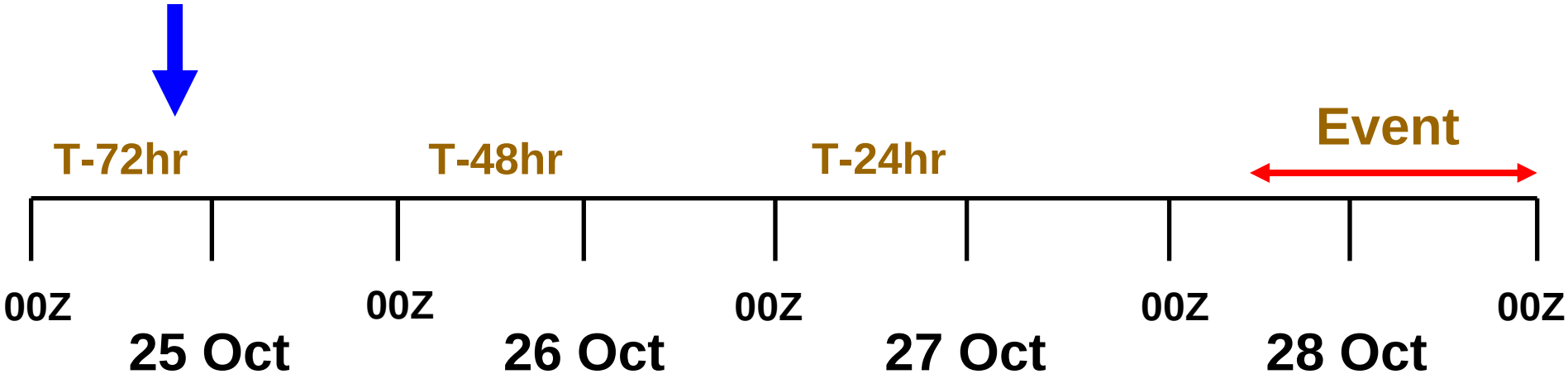


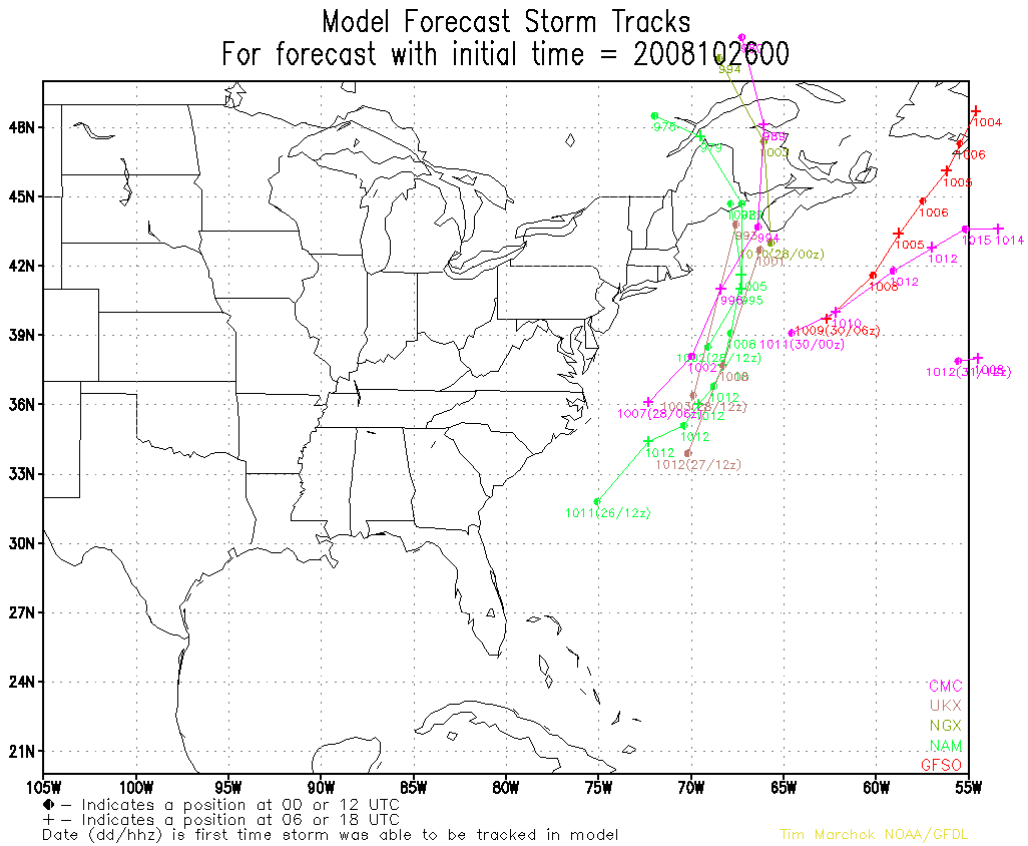




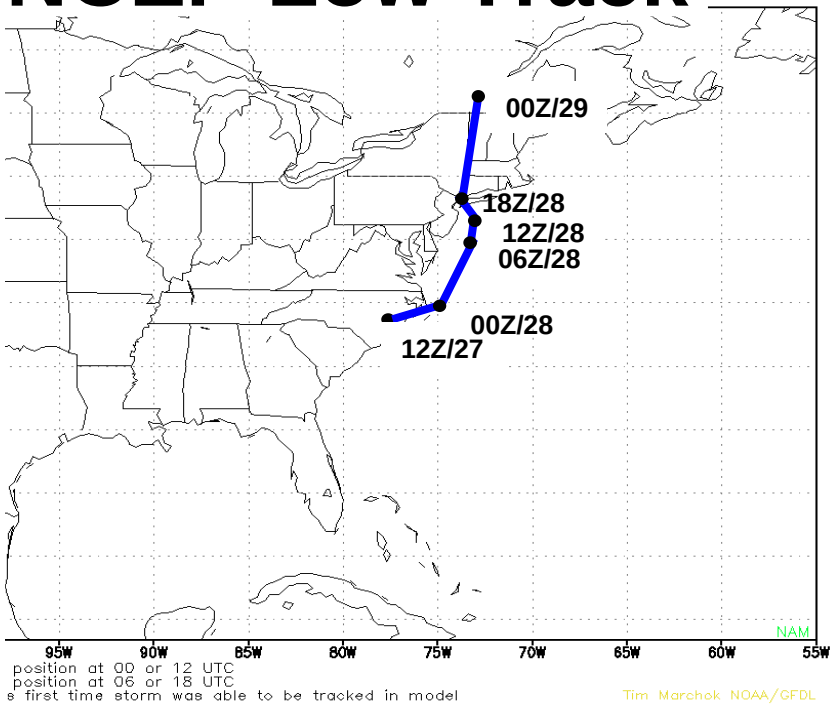
NCEP Low Track

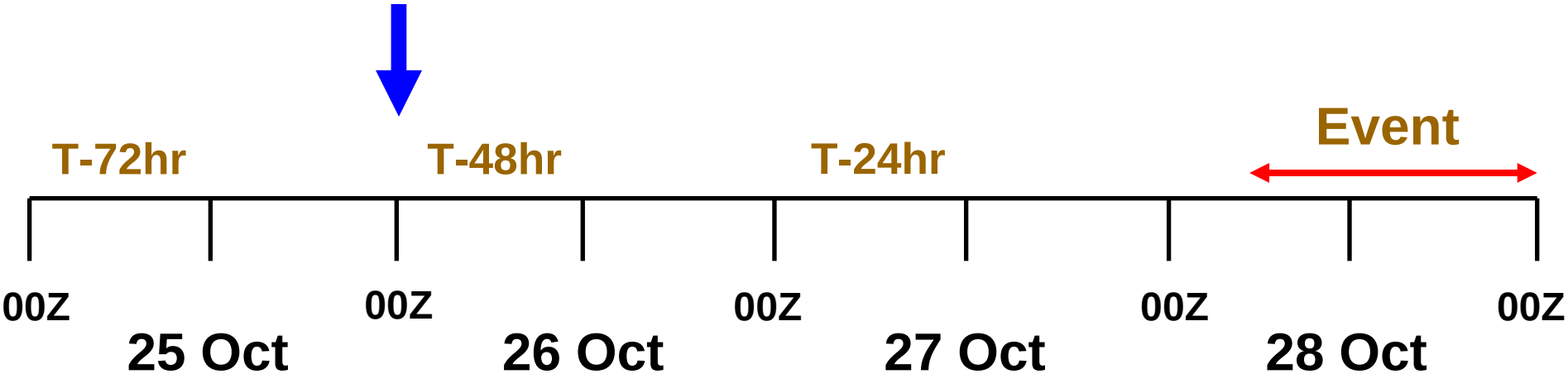


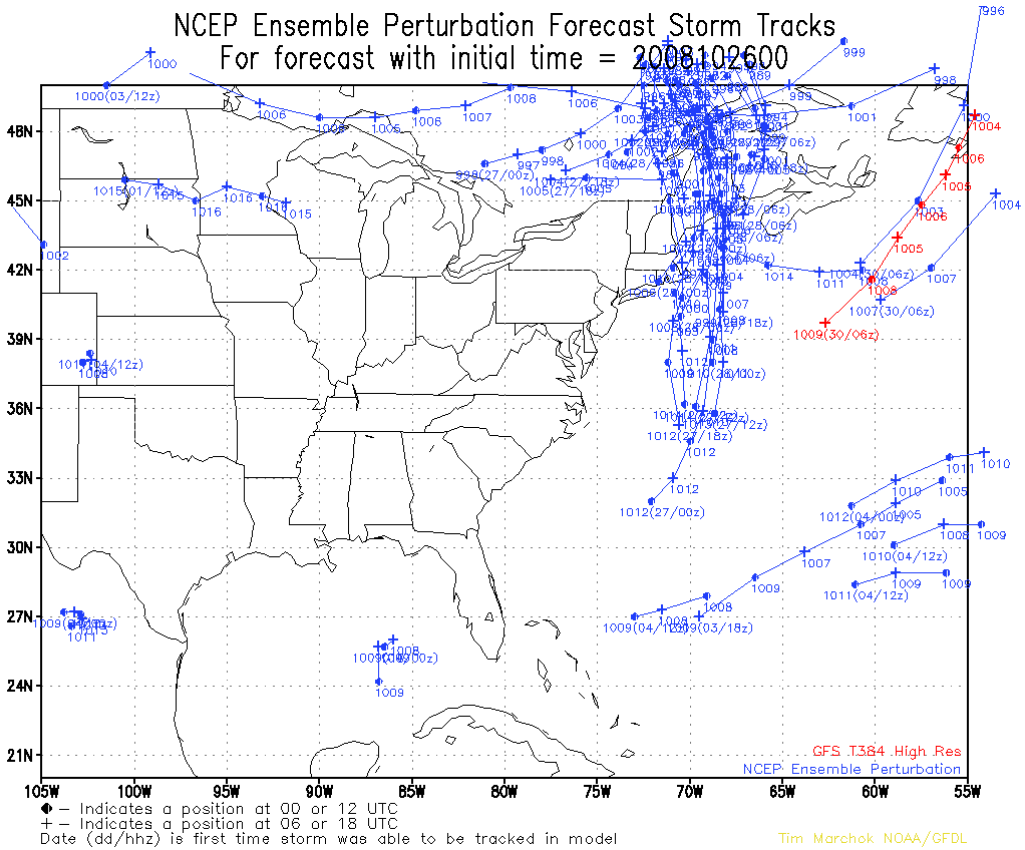




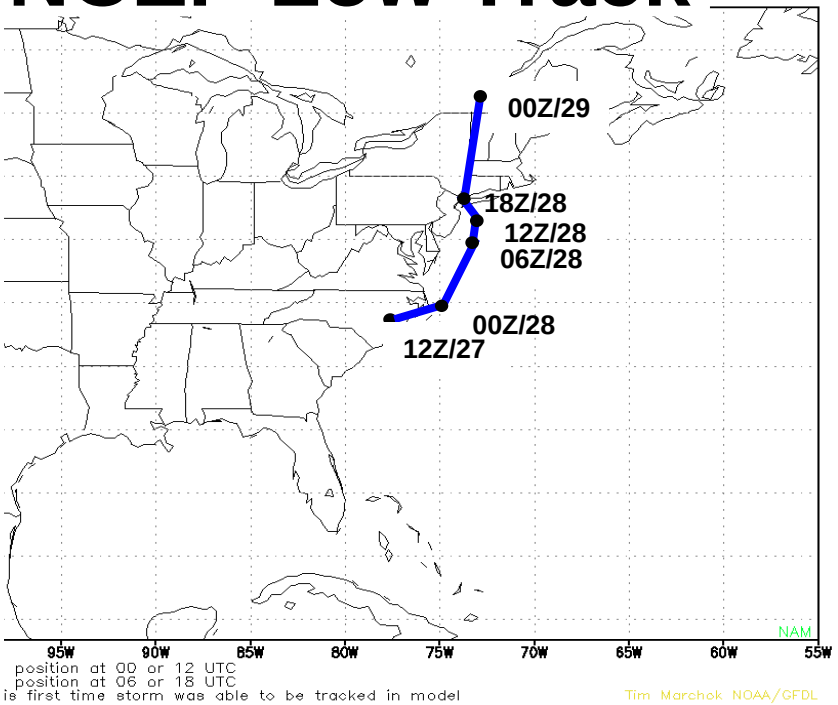
NCEP Low Track

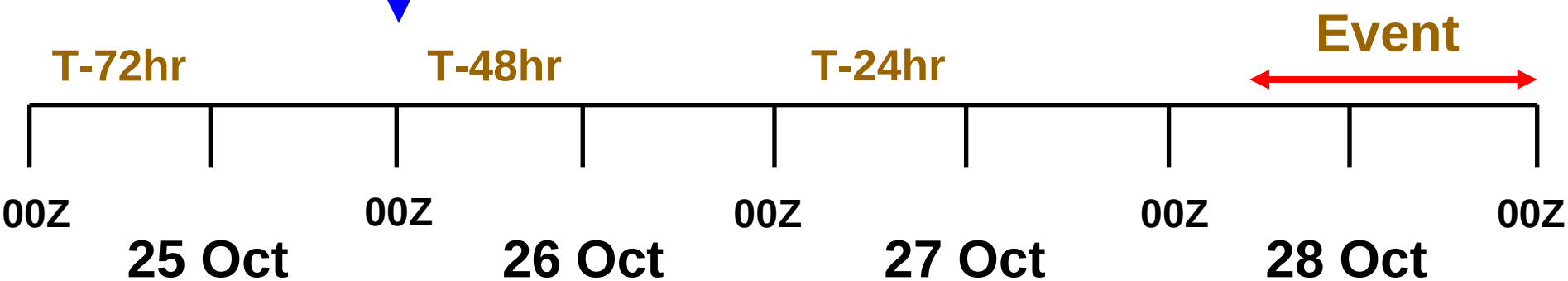


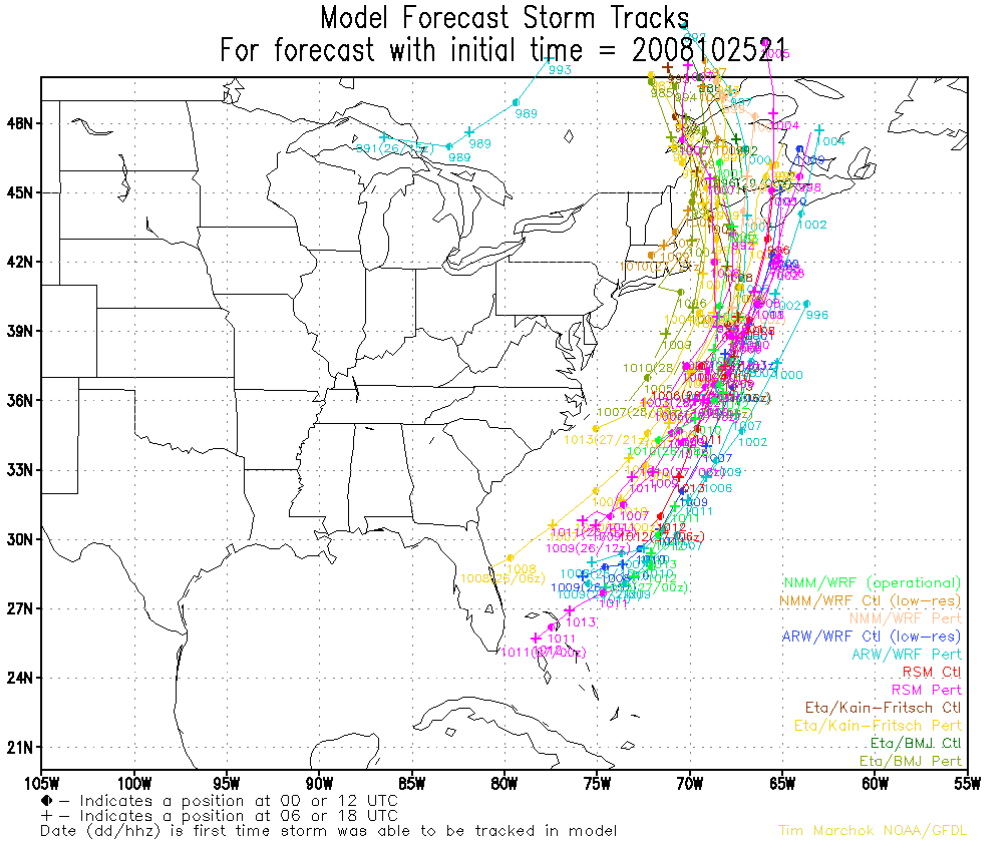




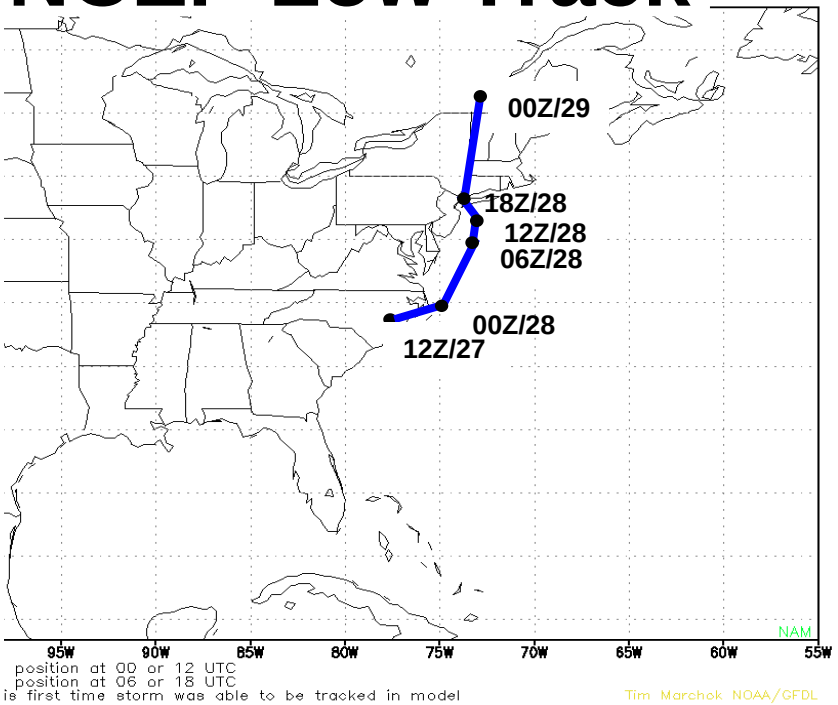
NCEP Low Track

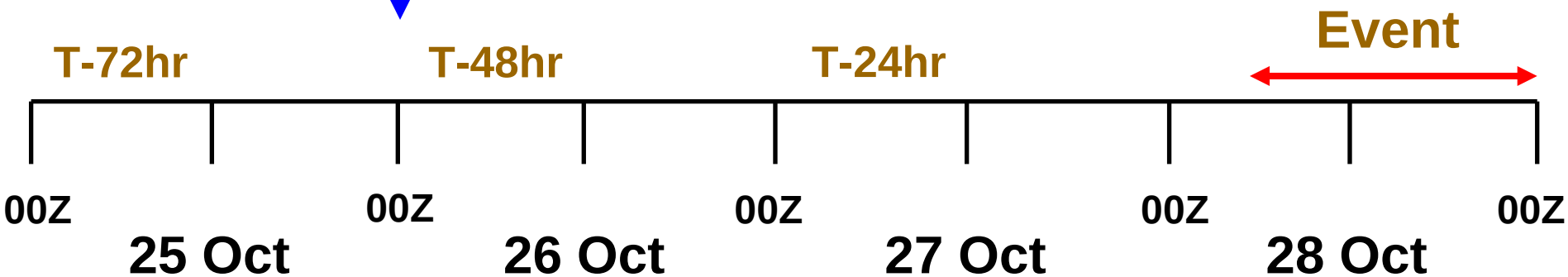


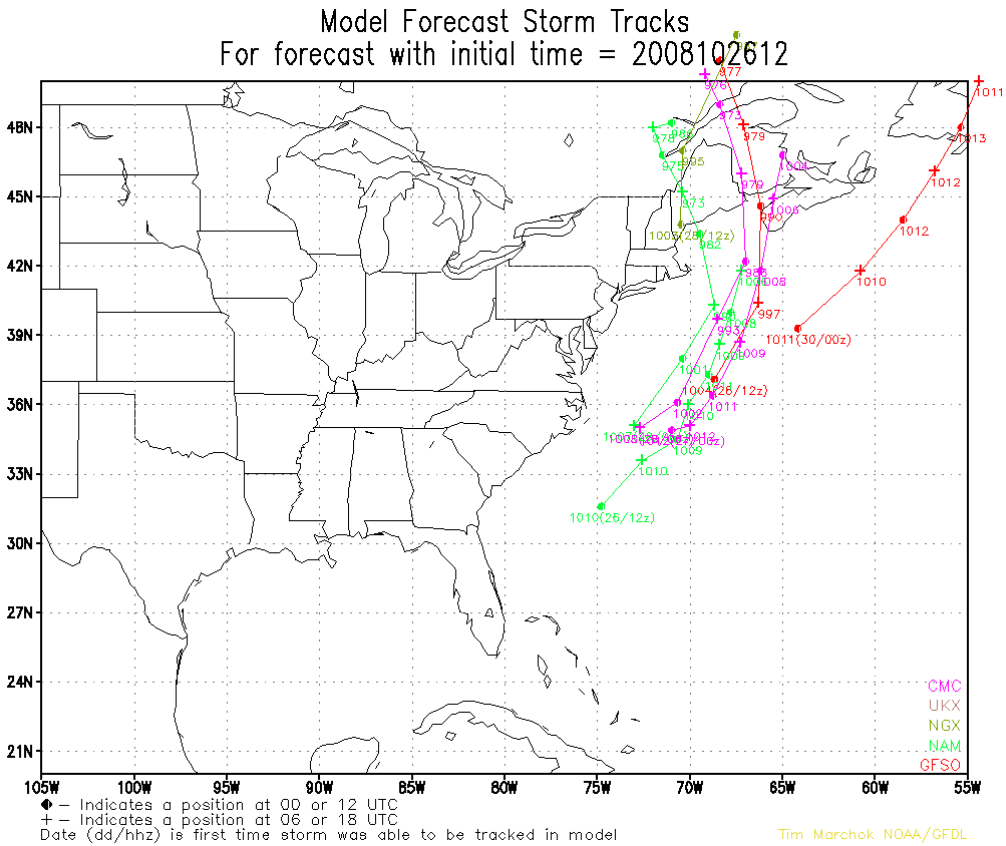




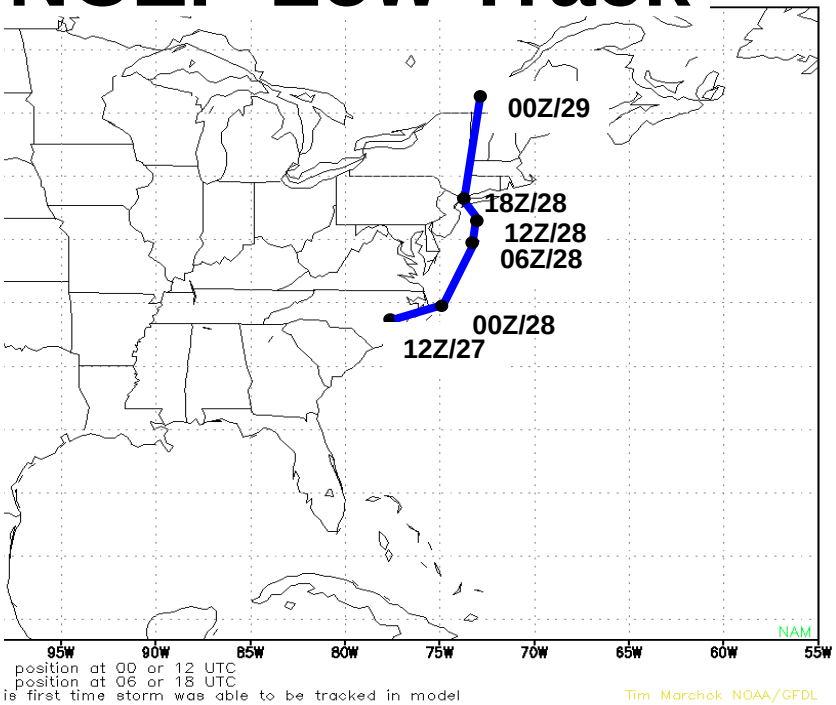
NCEP Low Track

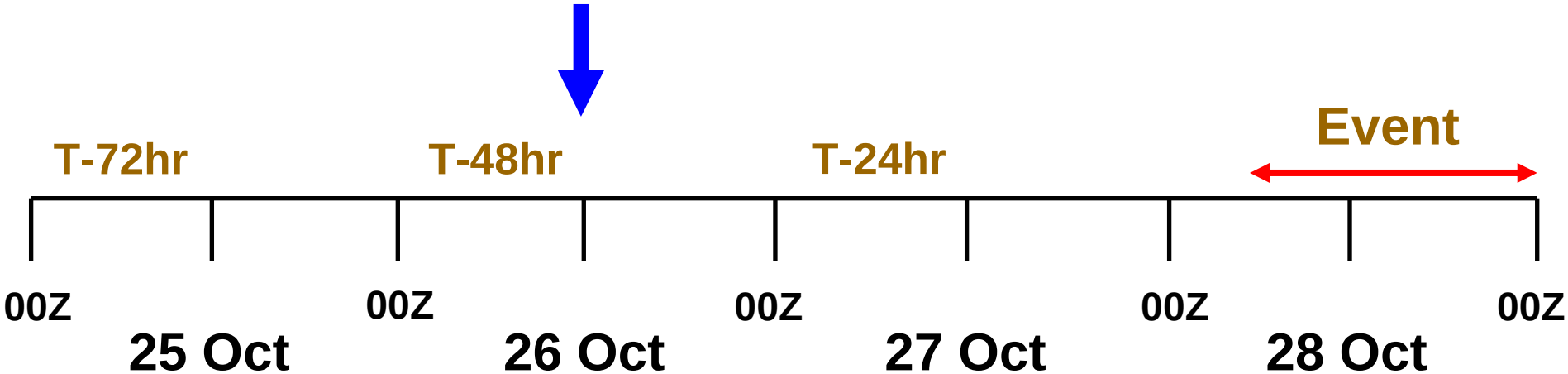


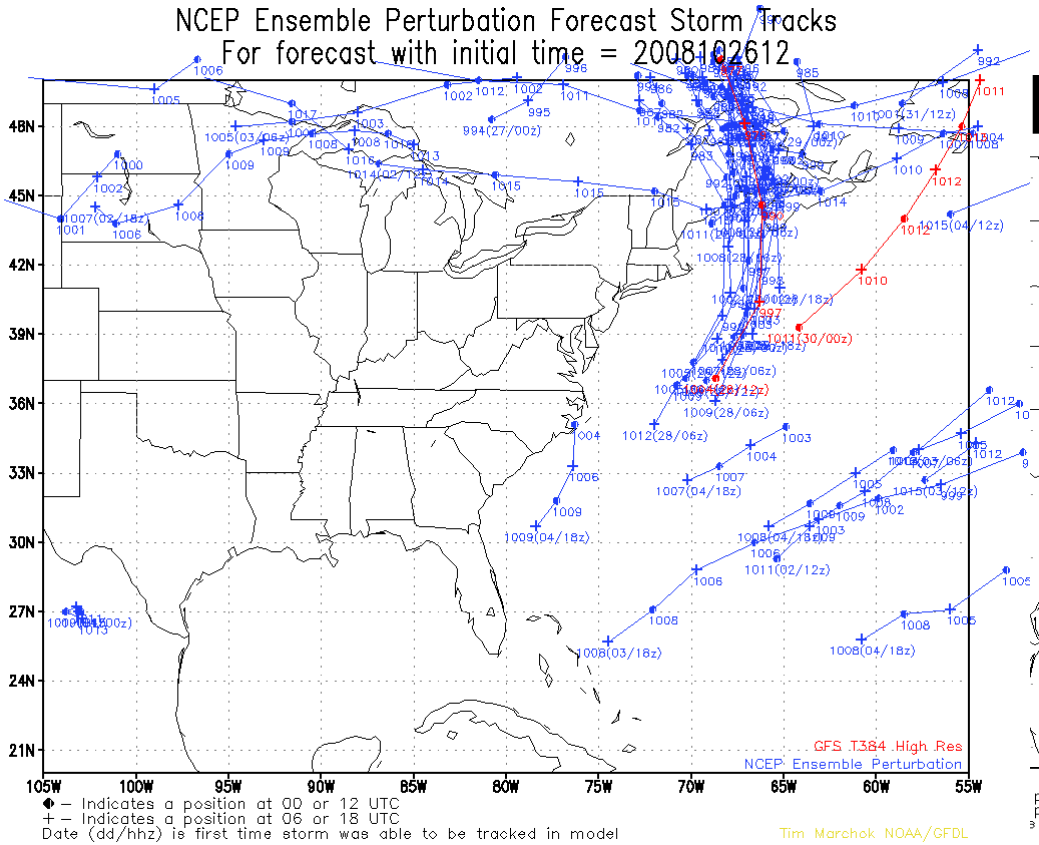




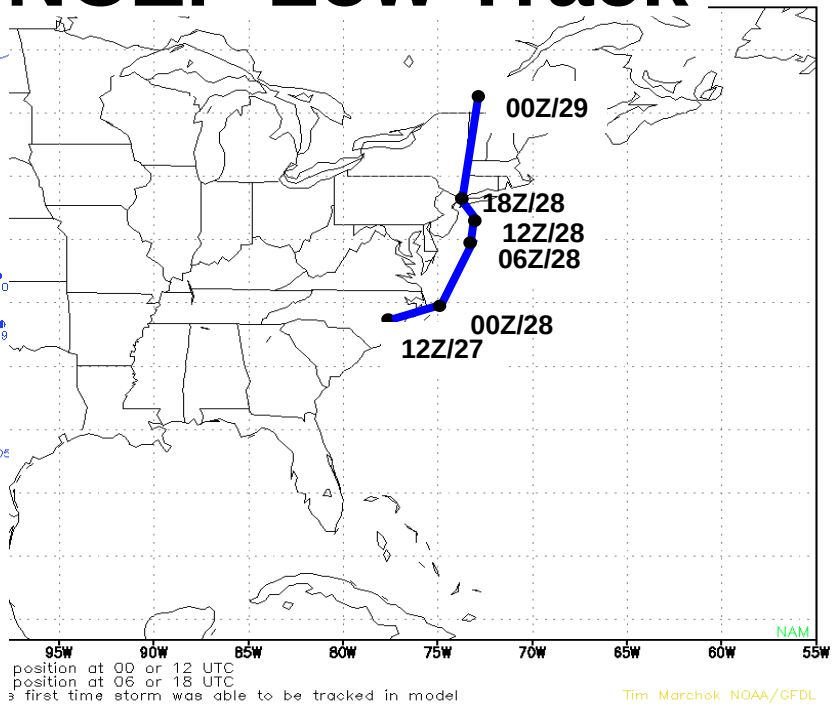
NCEP Low Track

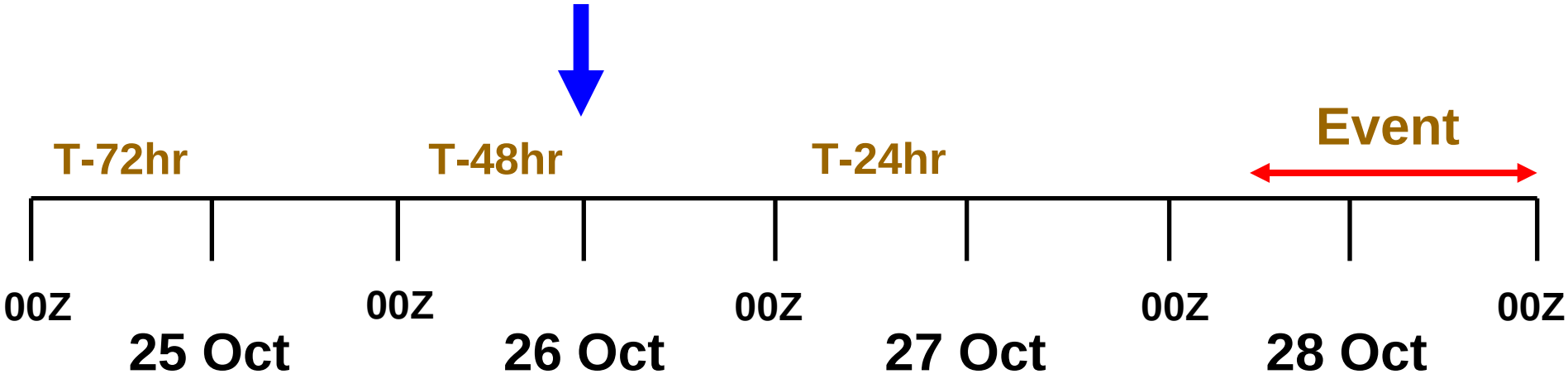


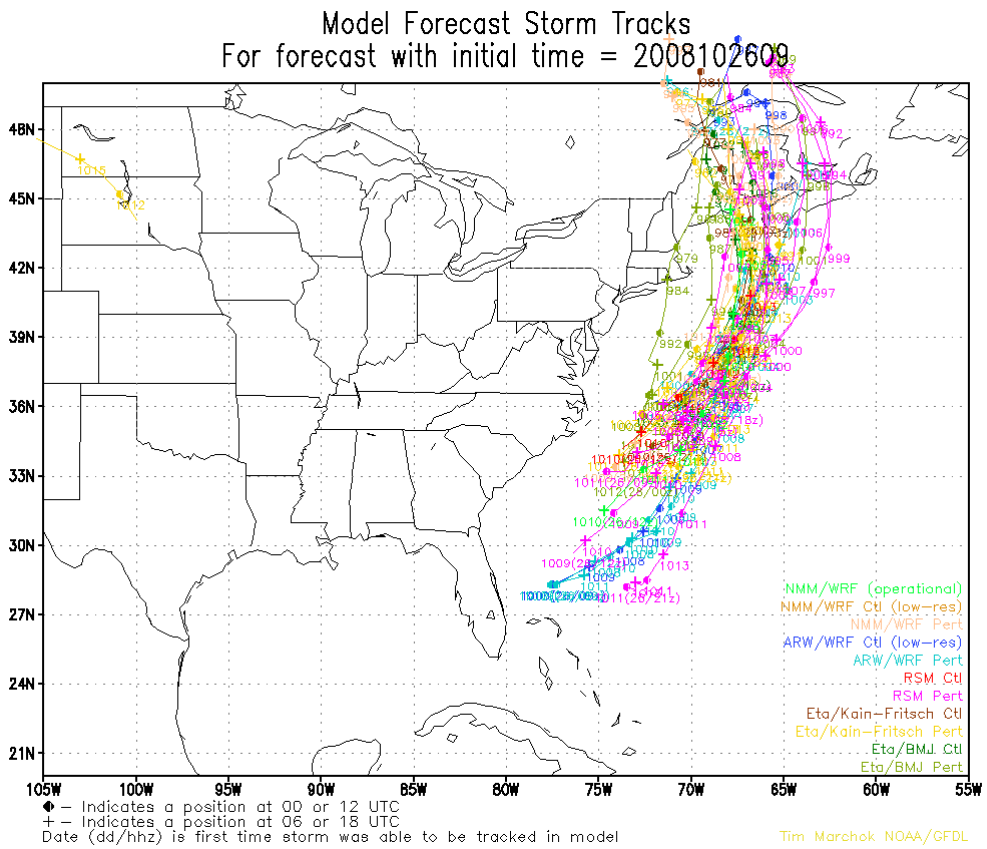




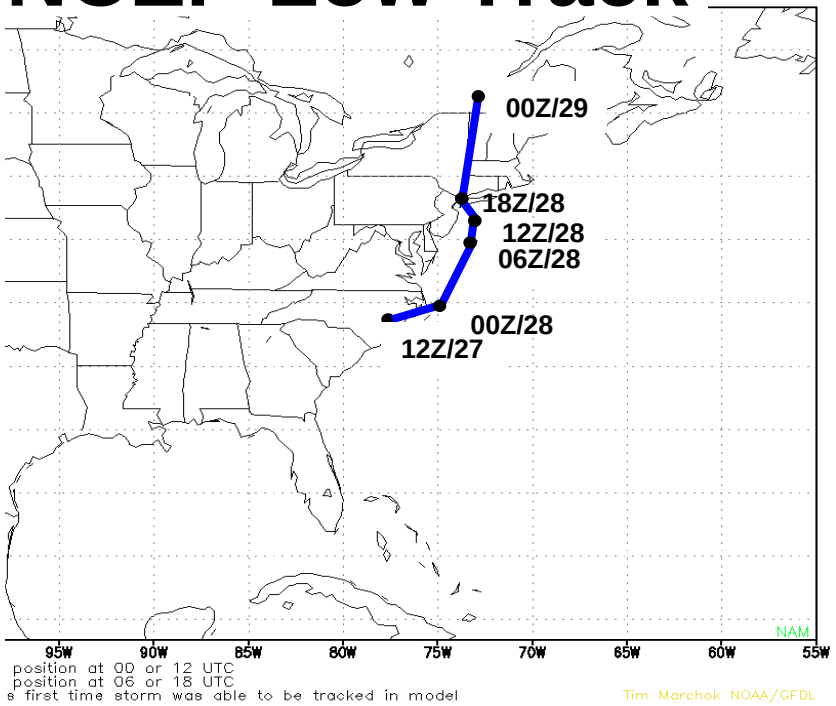
NCEP Low Track

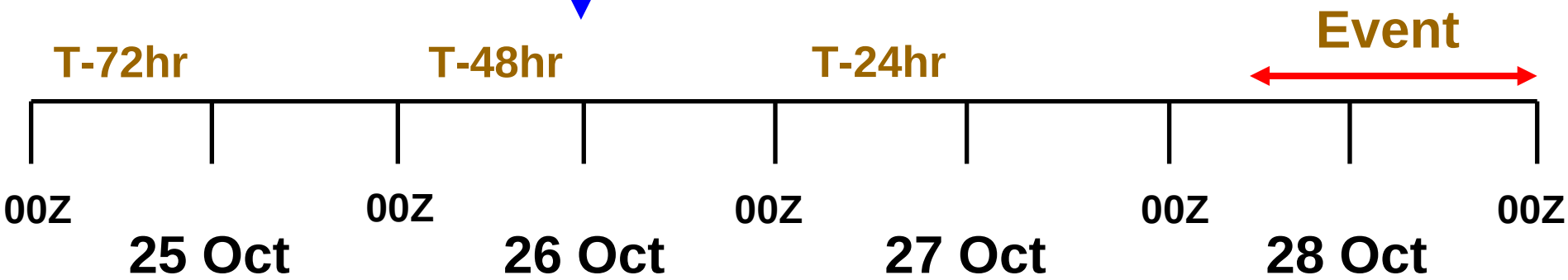


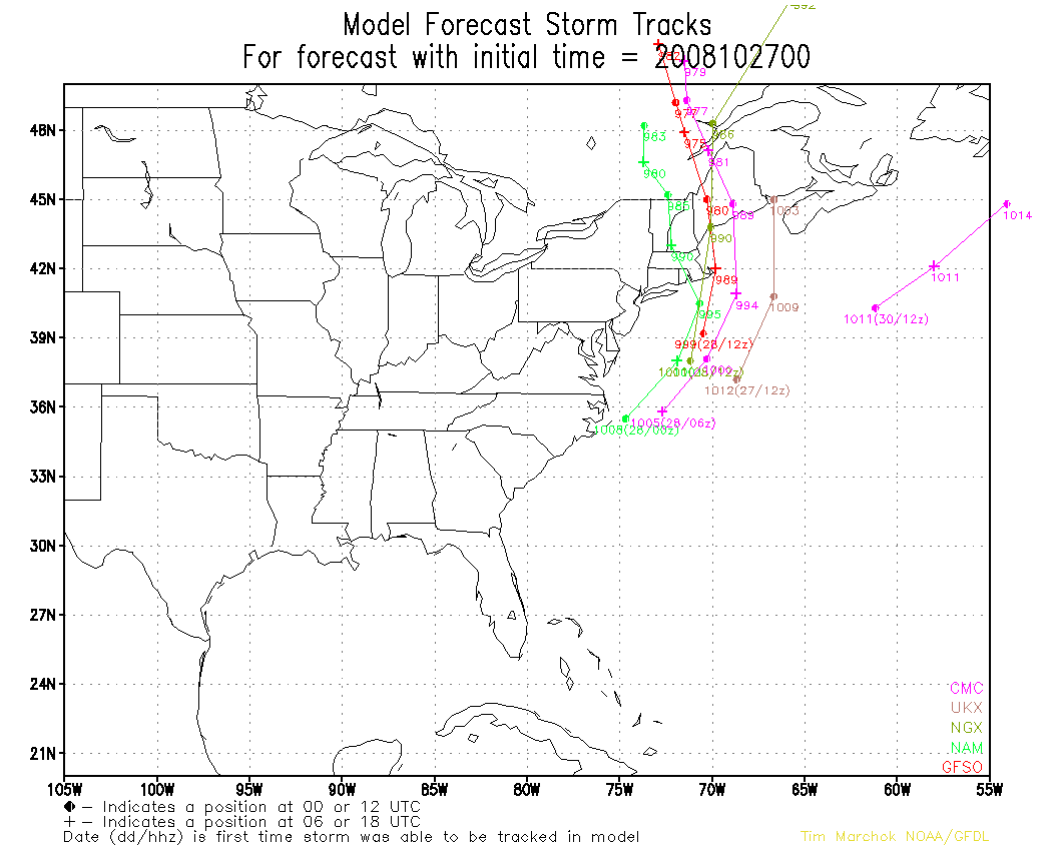




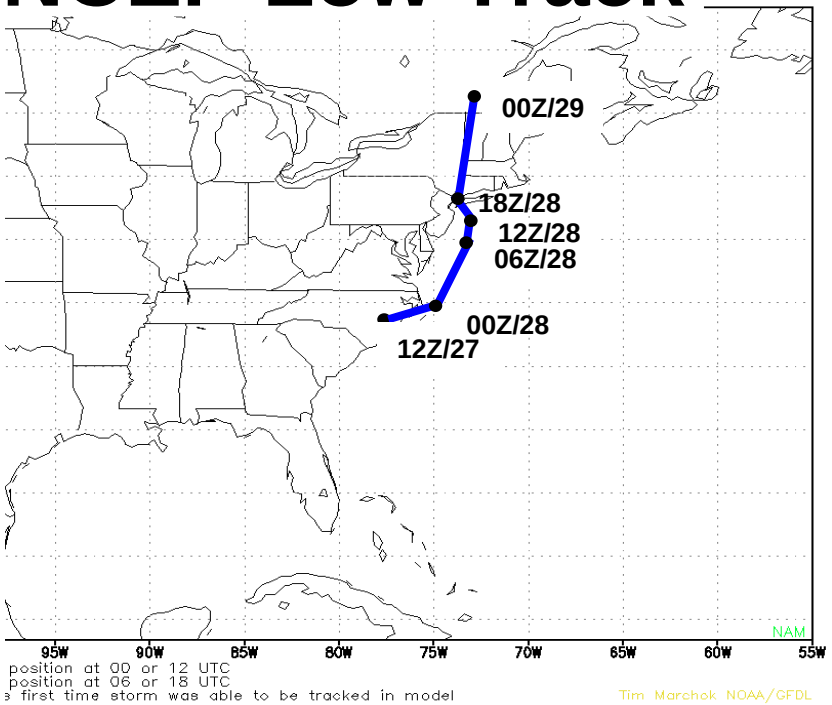
NCEP Low Track

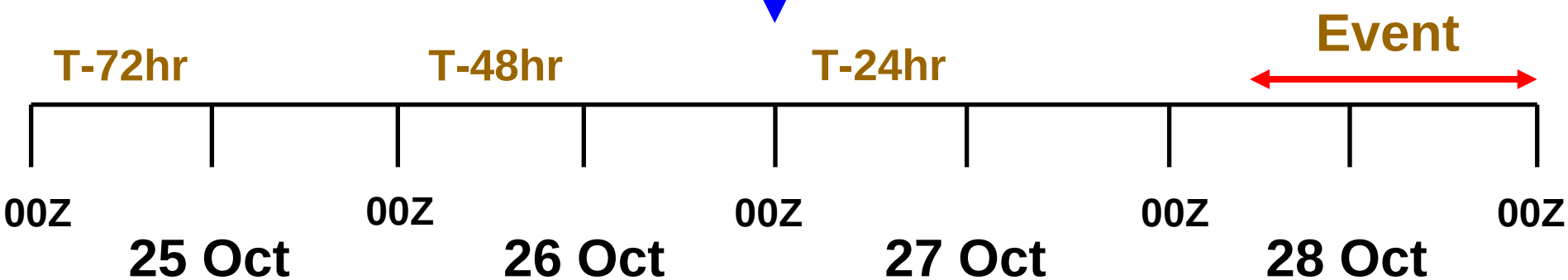


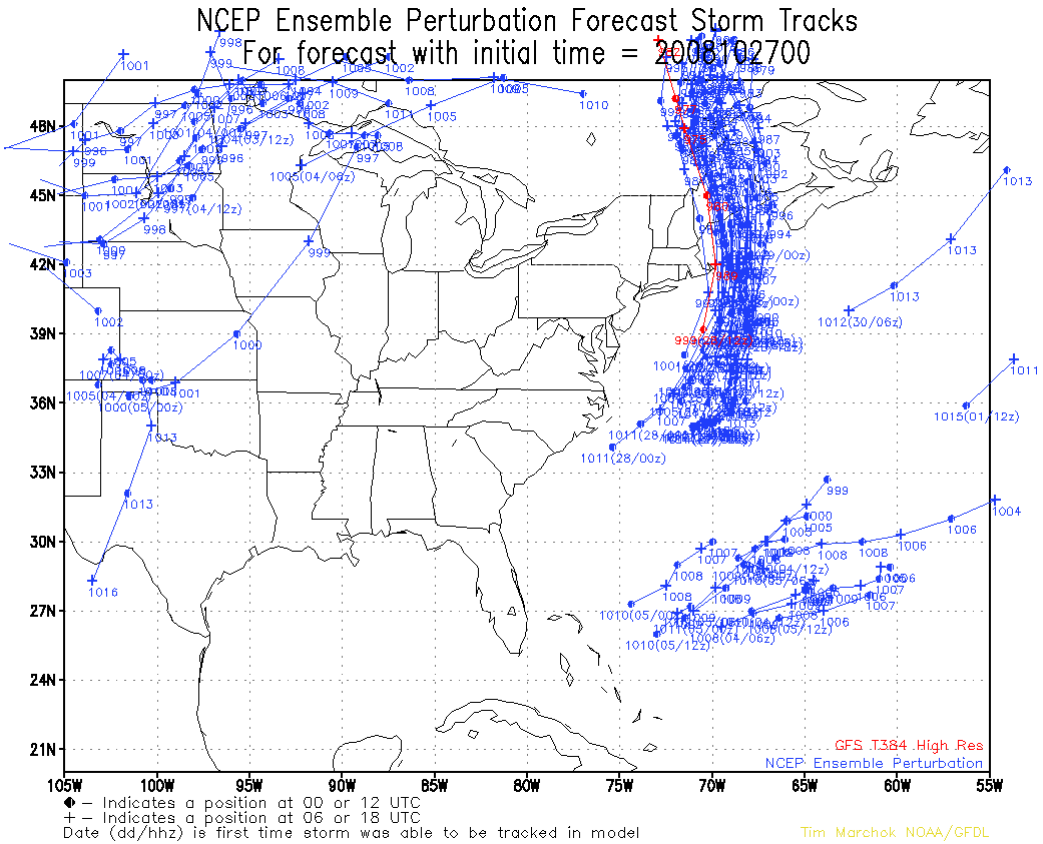




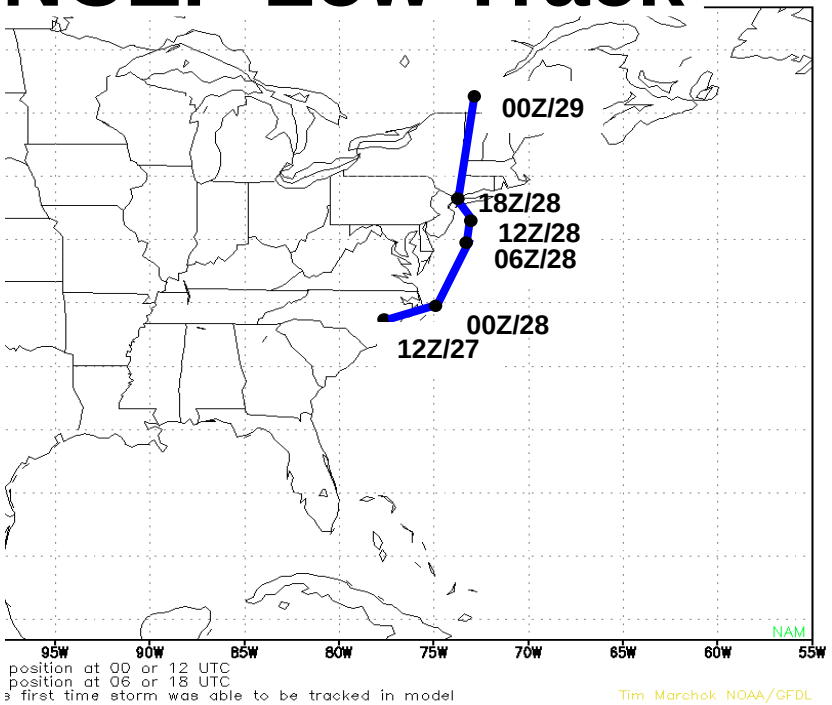
NCEP Low Track

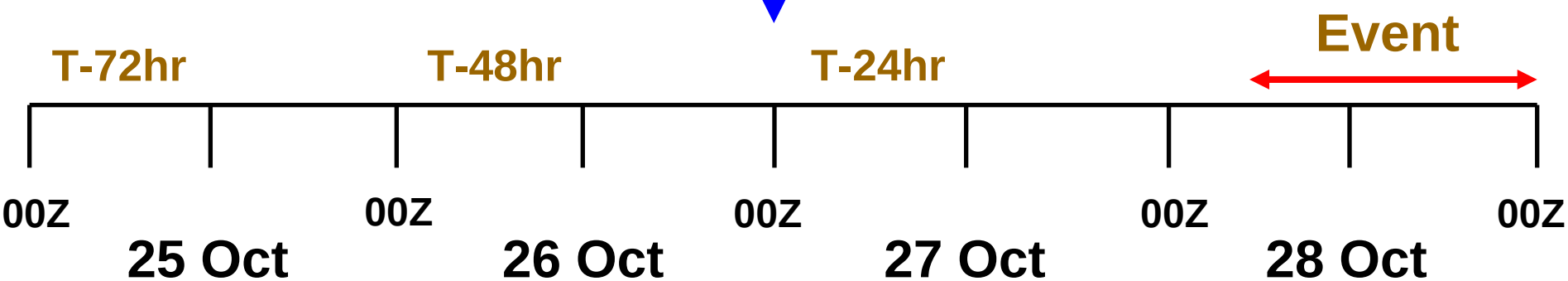


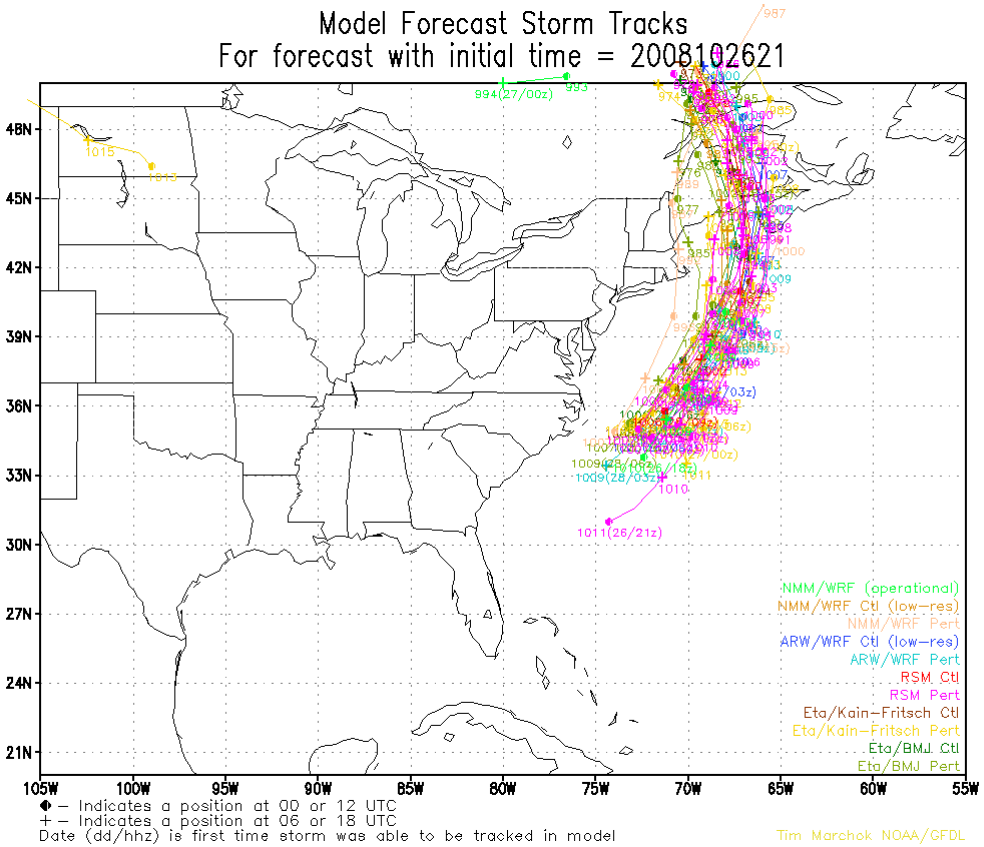




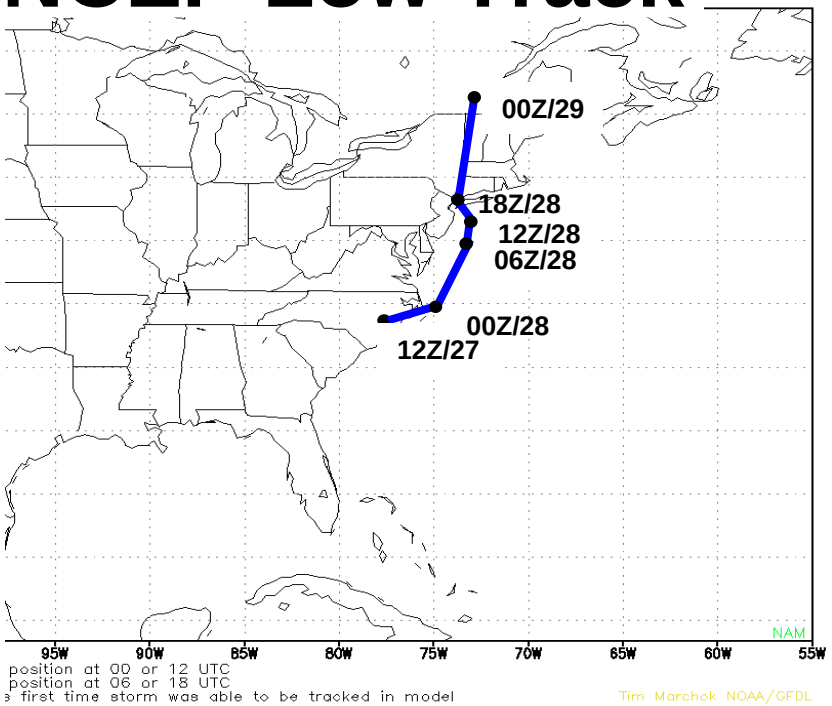
NCEP Low Track

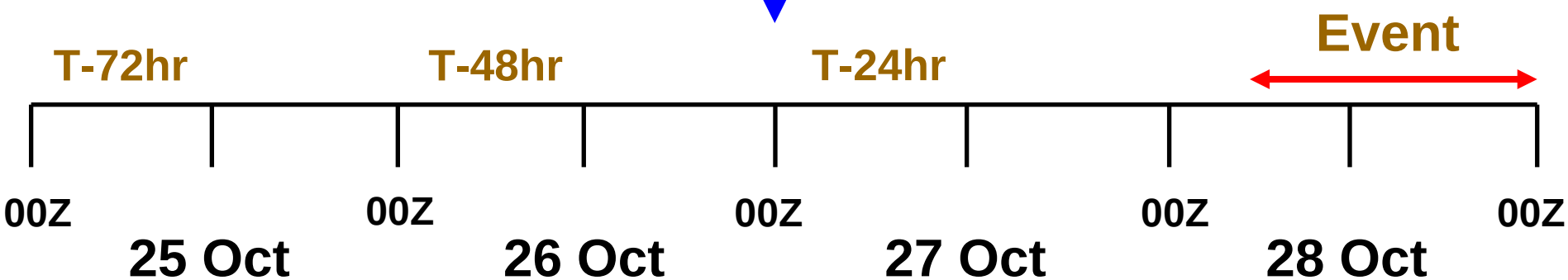






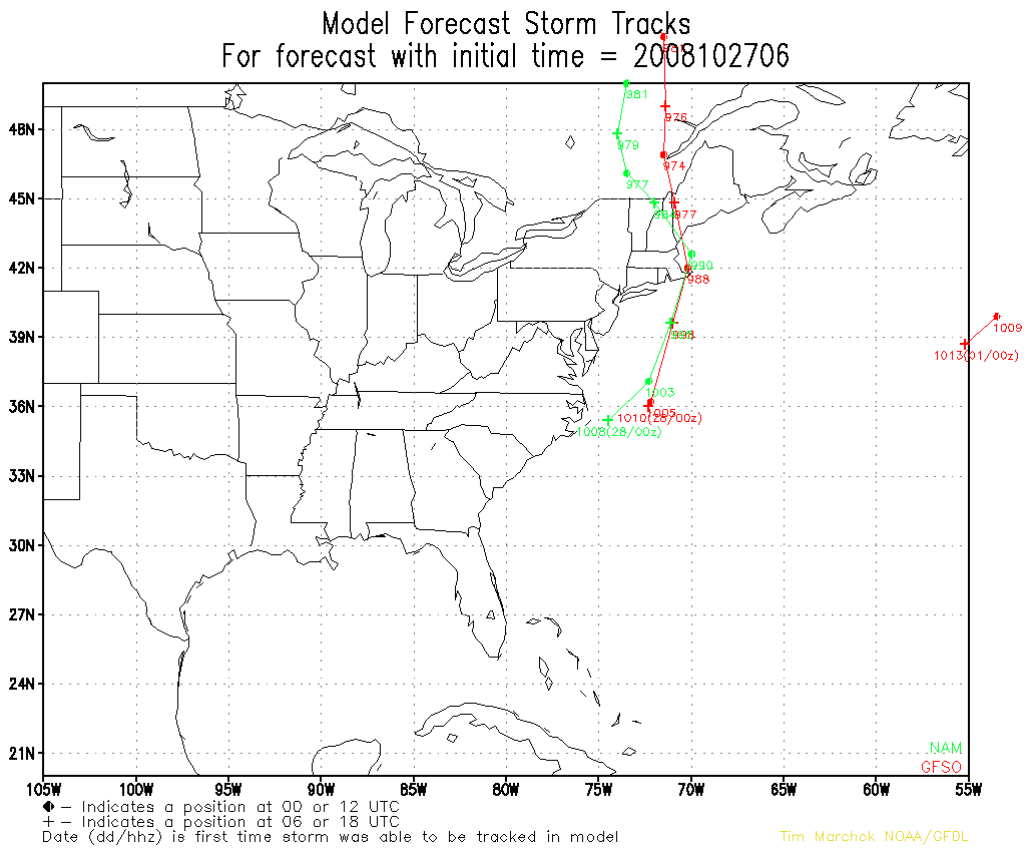
NCEP Low Track



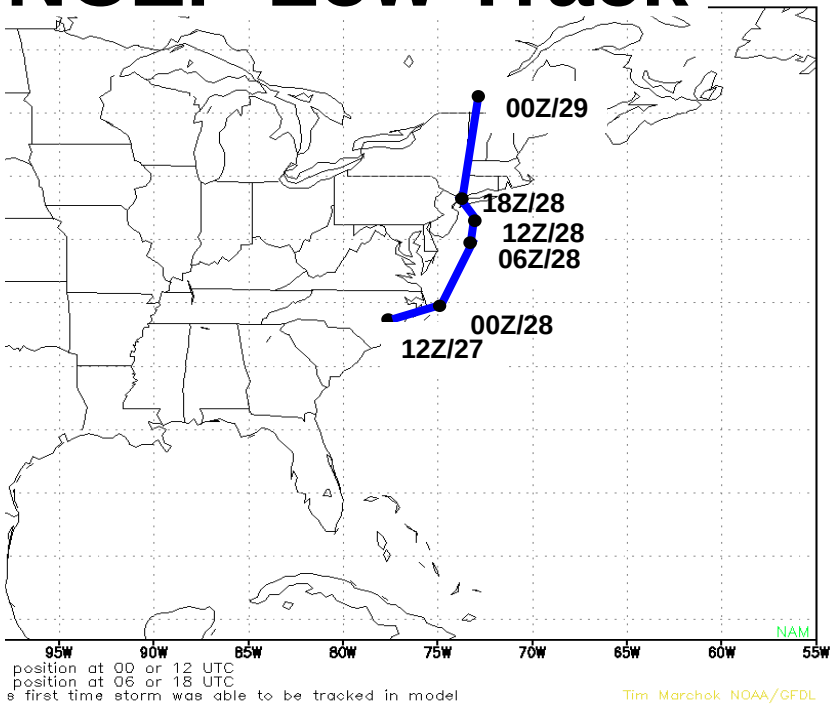


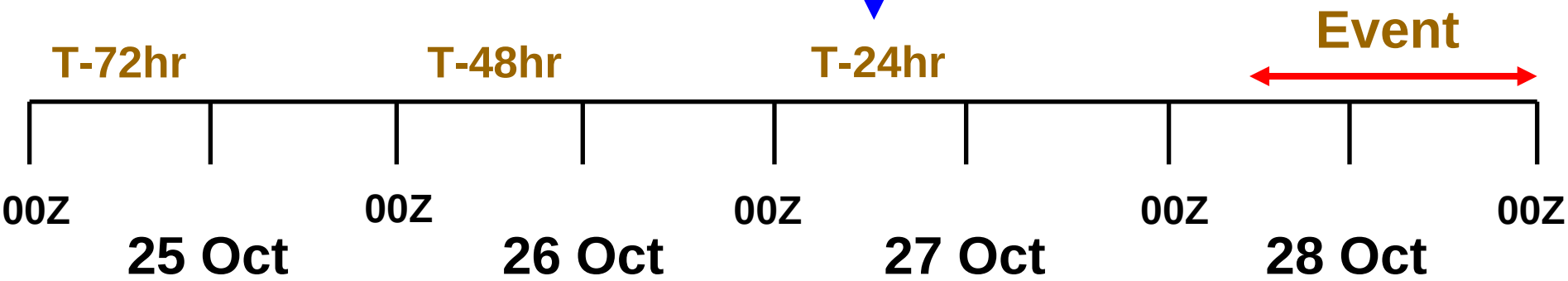
Tidbits

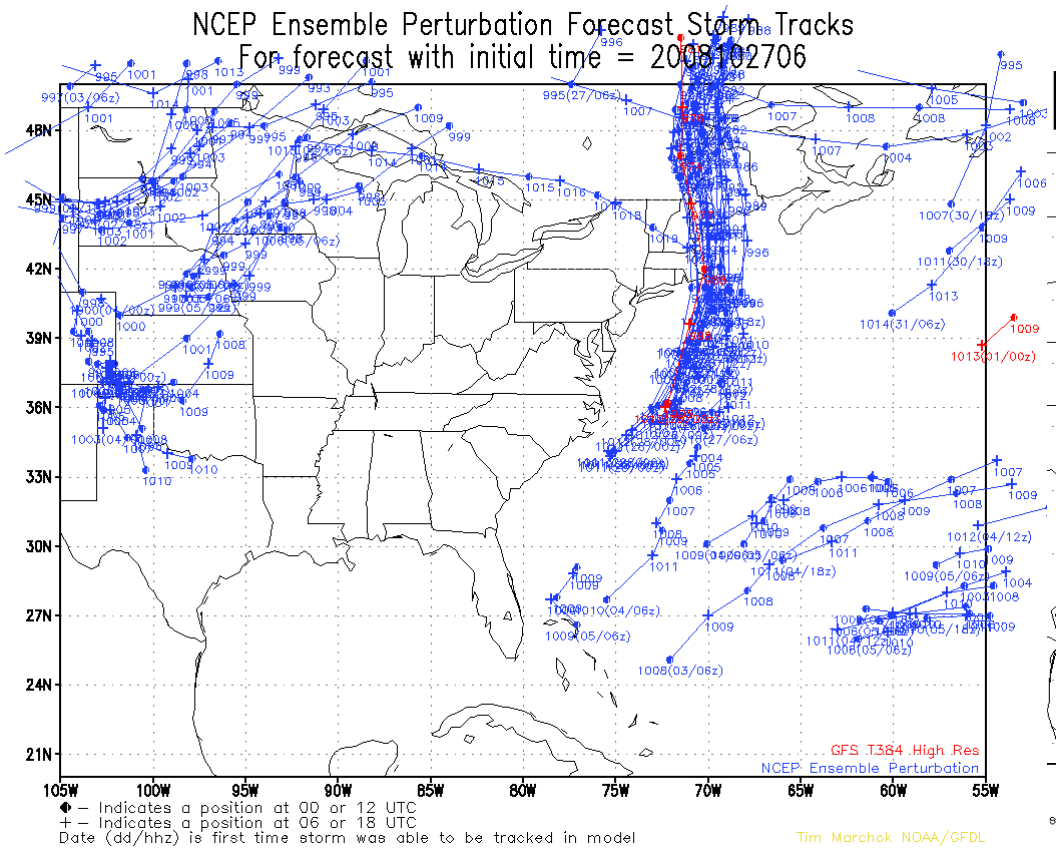
- Operational guidance on the western edge of the “ensemble envelope”.
  - Interesting given higher resolution of control GFS simulation (what is it seeing?).
- Ensembles lagging trend of operational guidance.



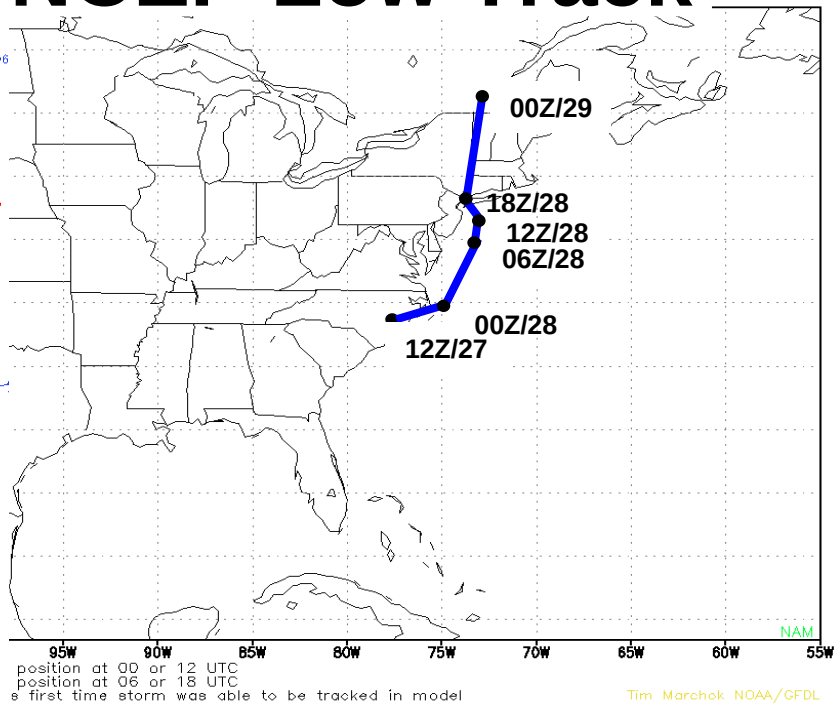
NCEP Low Track

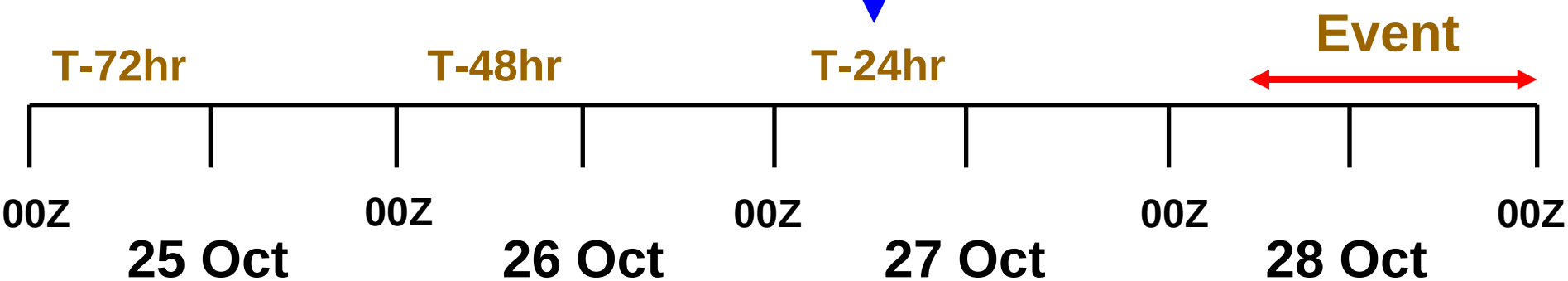


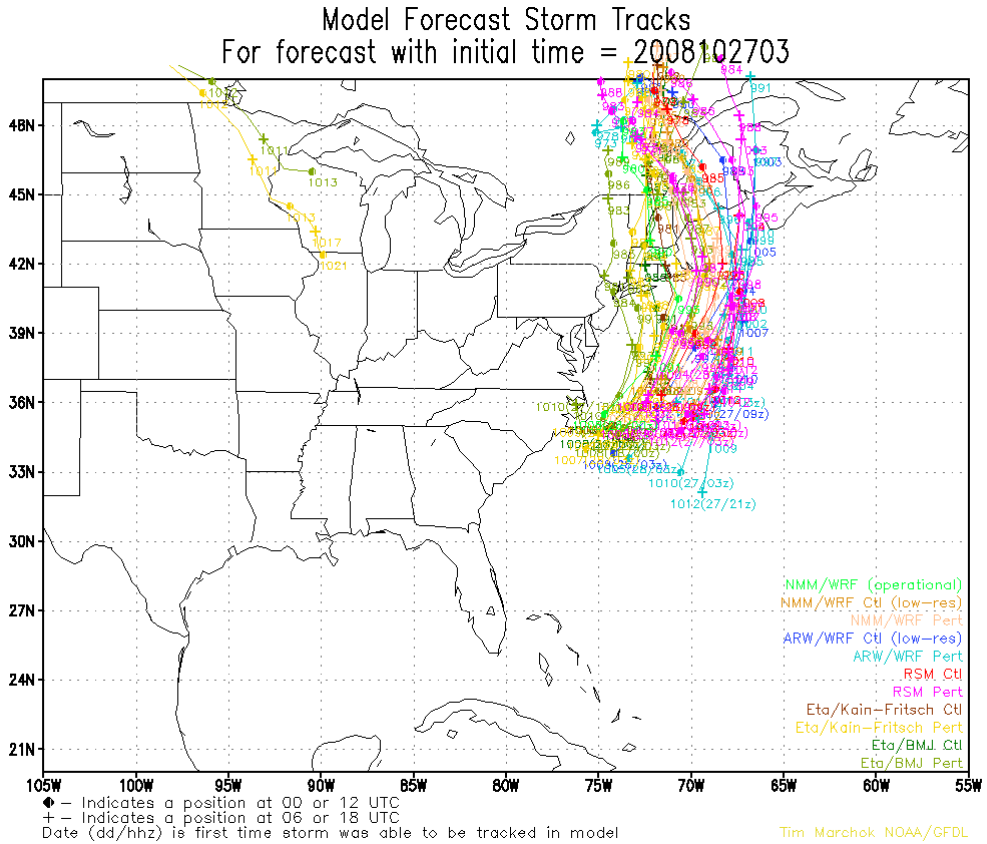




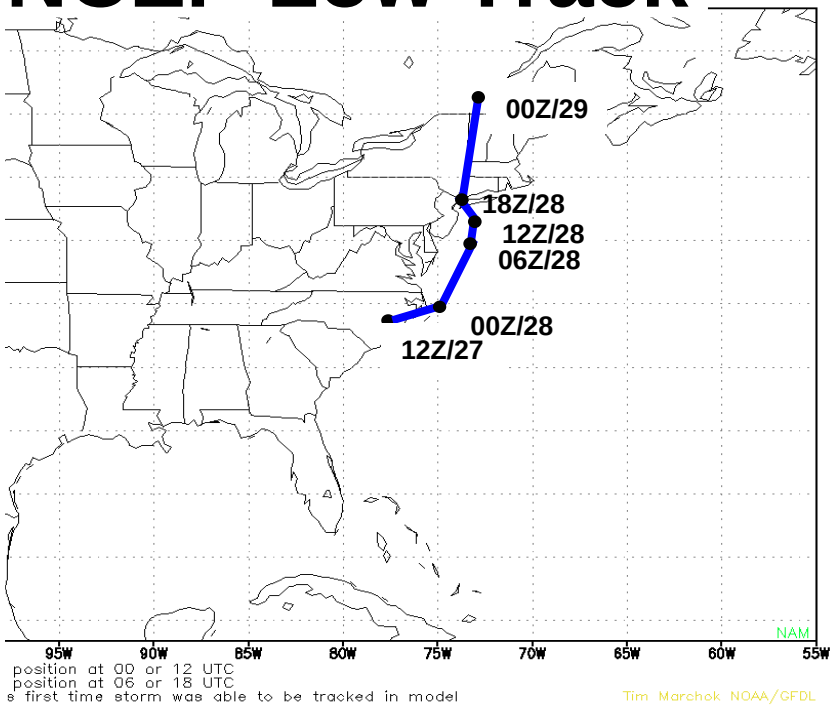
NCEP Low Track

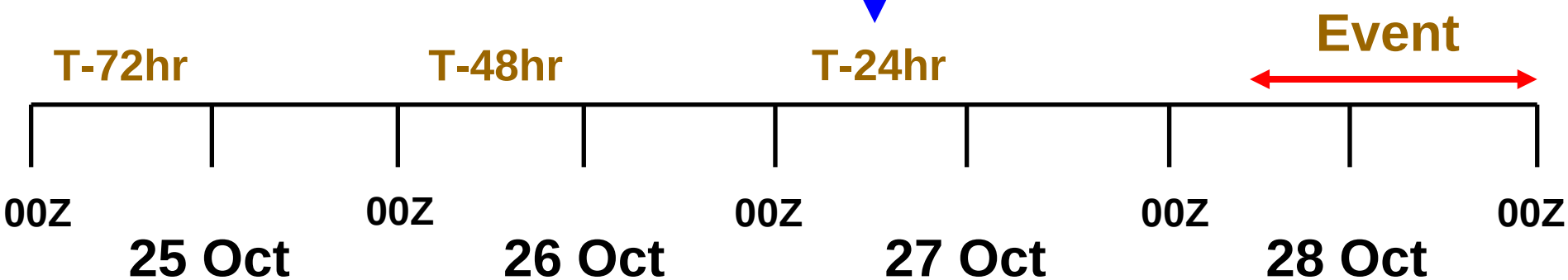






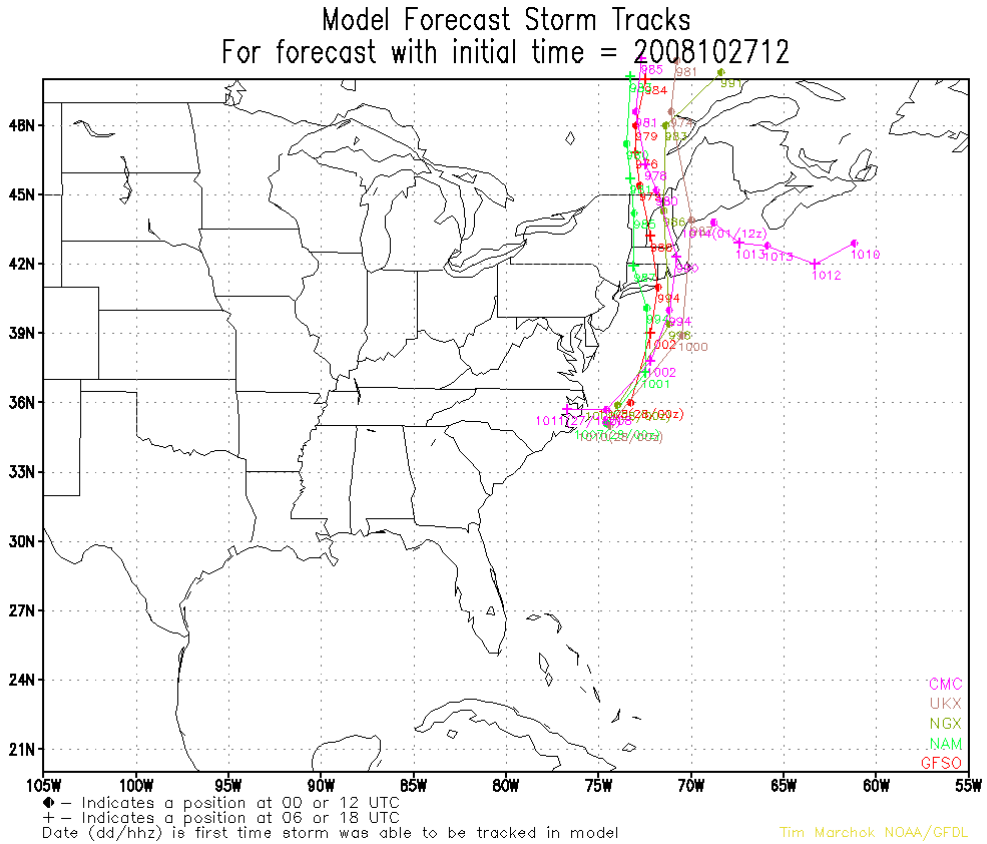
NCEP Low Track



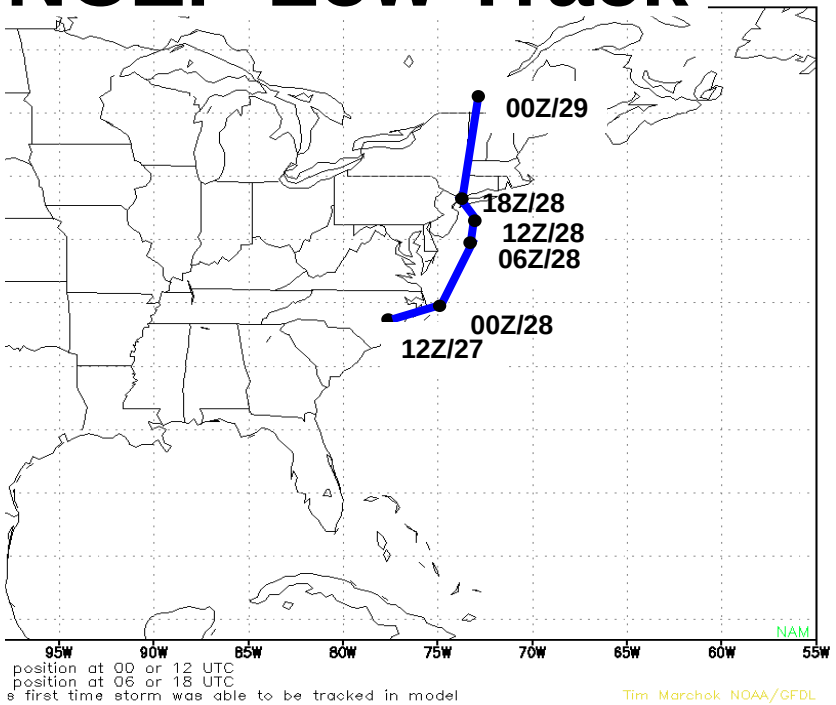


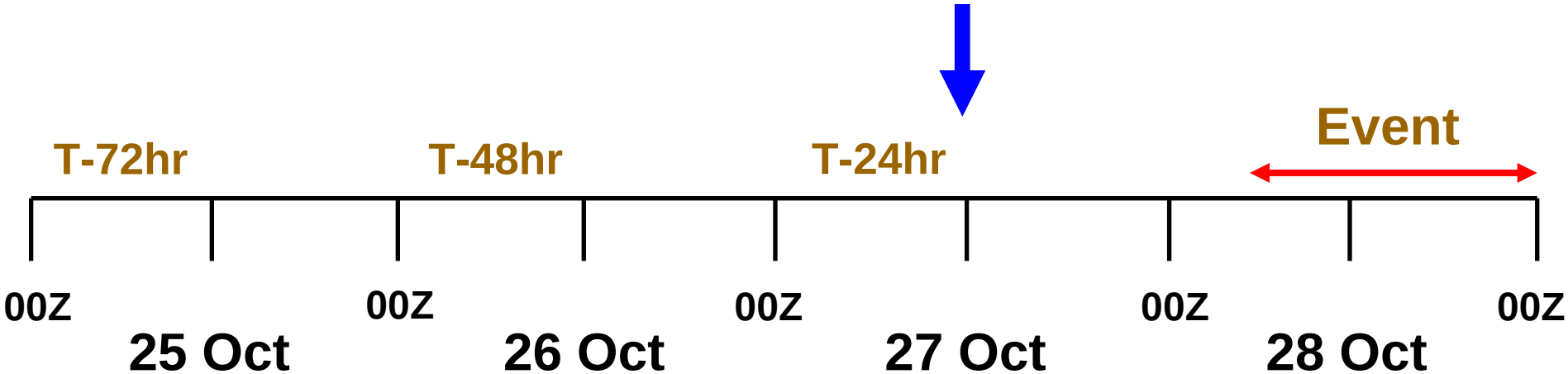
Tidbits

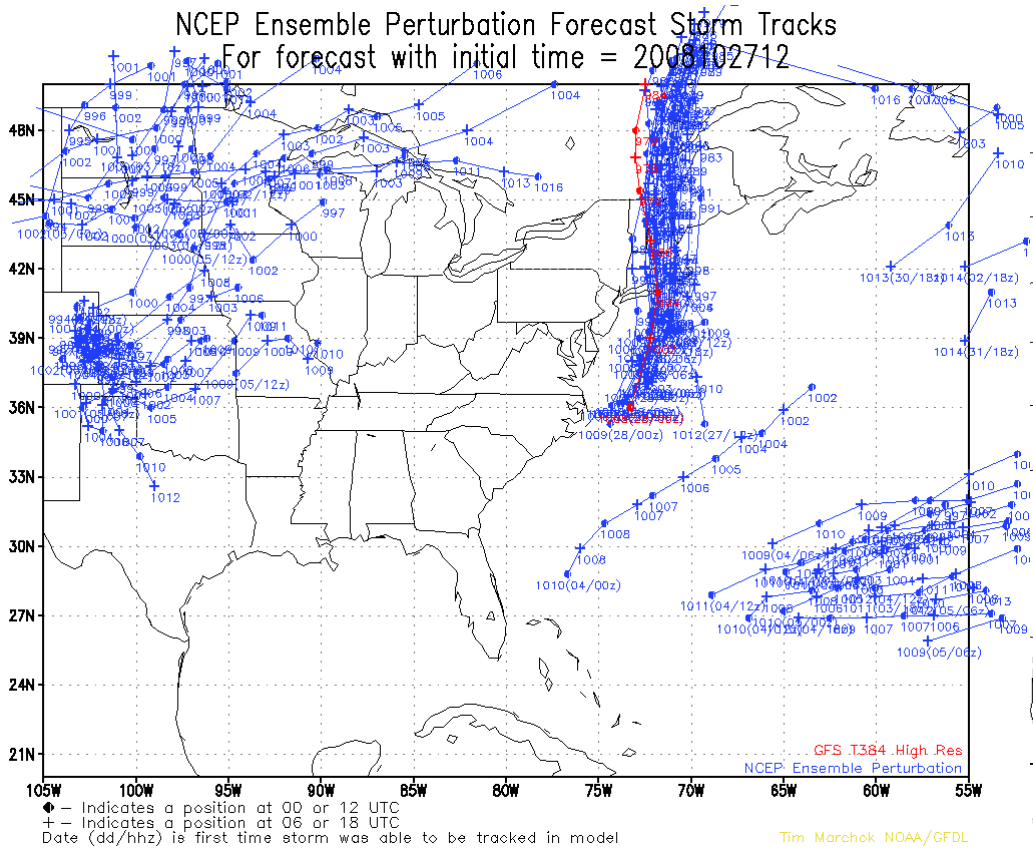
- Now, some SREF members catching on to eventual track and adding valuable information to the deterministic runs.



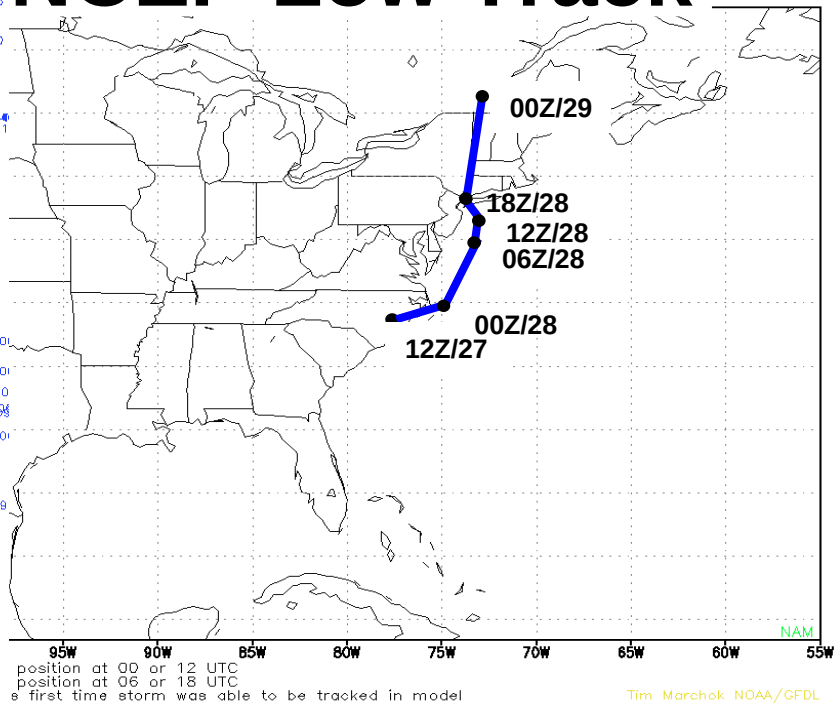
NCEP Low Track

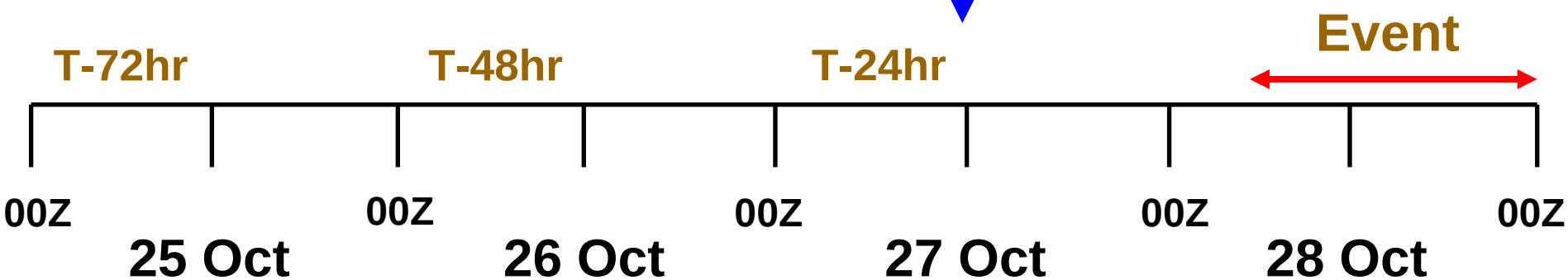


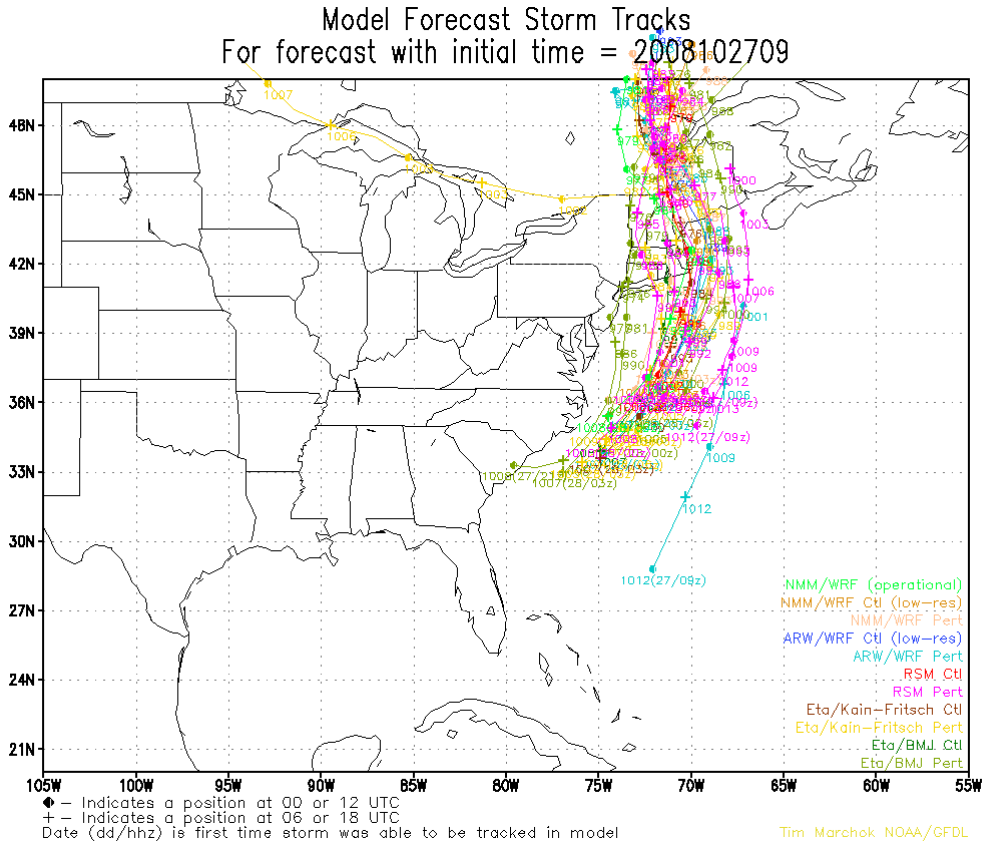




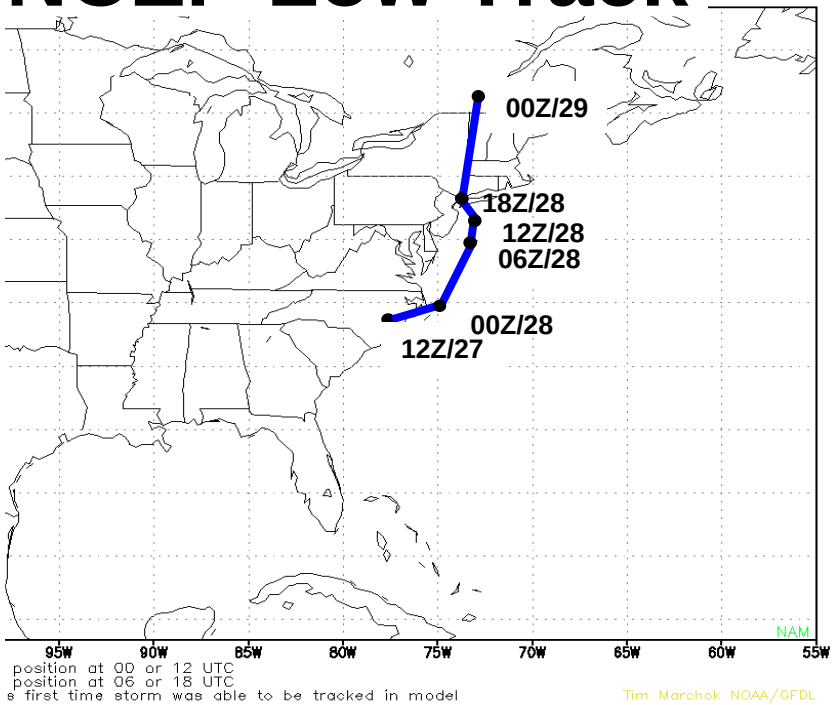
NCEP Low Track

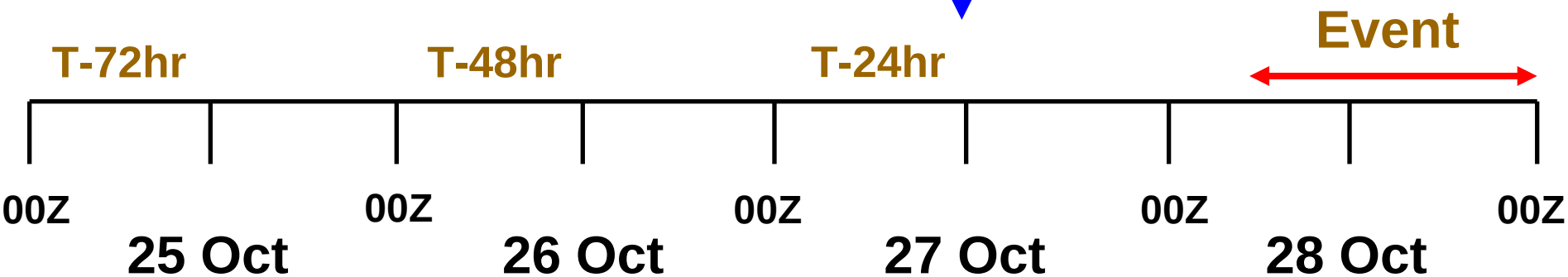






NCEP Low Track

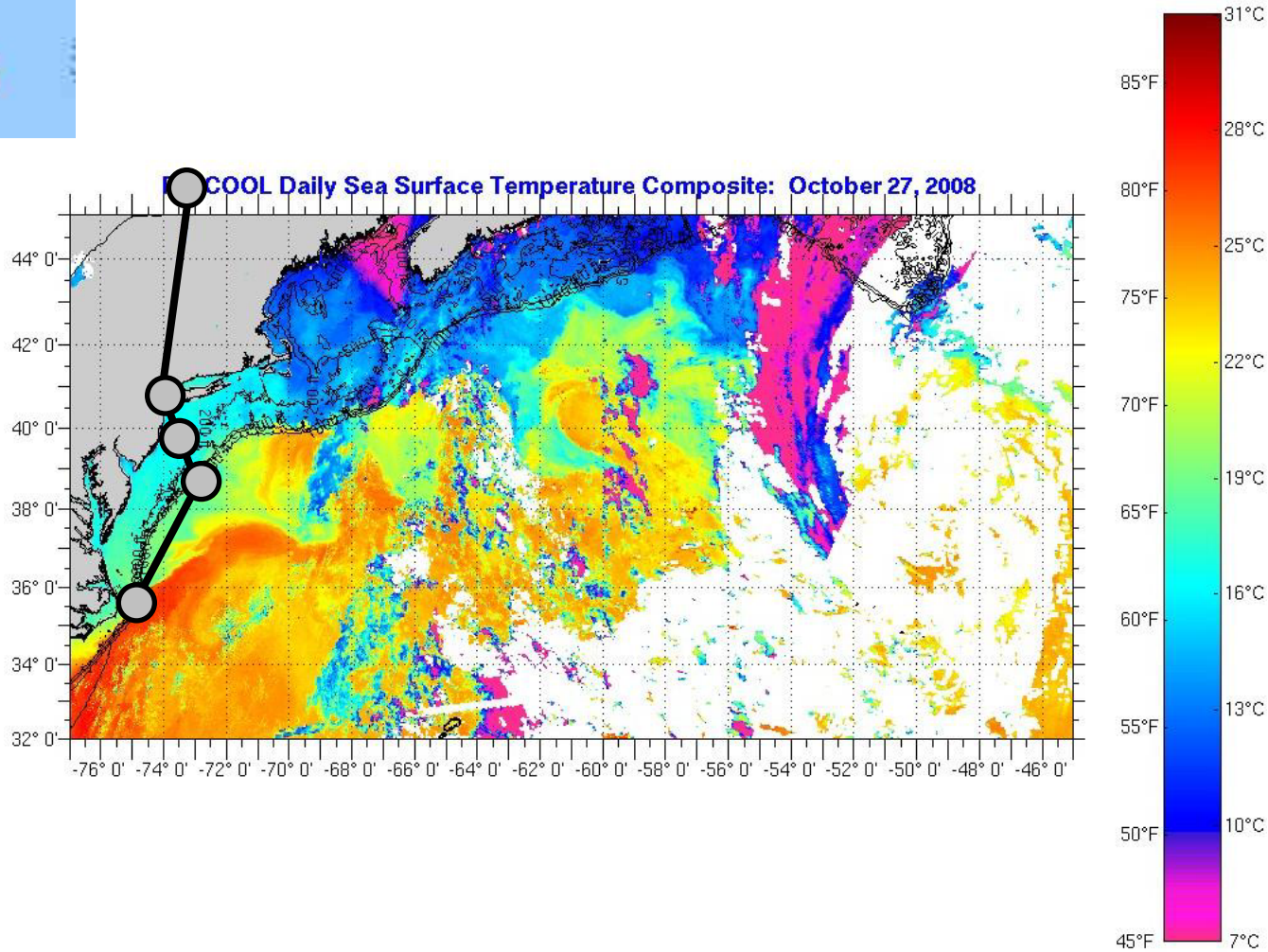




Tidbits

- Eventual track still on the western edge of the guidance envelope, but the models pretty much “have it” now.

Possible Explanation



Summary/Conclusions

- In the watch timeframe, guidance indicated potential for storm near or just west of the benchmark
- 42-54 hr guidance showed no improvement (i.e. the trend was not your friend!)
- dprog/dt again helps from 42→30→24→18hrs

Discussion

- How to handle these watch period systems forecast to develop near the benchmark?
  - Deterministic/Ensemble simulations suggest NO chance of a high impact event.
  - Surface forcing (sensible/latent heat fluxes) indicate possible low track much further west
    - Upper dynamics vs. surface forcing for low placement
  - So, actual “probability” of an event may be higher?