

# NAEFS/NUOPC Multi-model Ensemble Tracks Verification

For Summer 2011

Jiayi Peng and Yuejian Zhu  
EMC ensemble team

# NAEFS/NUOPC multi-model Ensemble

Latest statistics for 2011 hurricane season  
EMC Ensemble Team

AEMN----NCEP Ensemble Mean

CEMN----CMC Ensemble Mean

FEMN----FNMOC Ensemble Mean

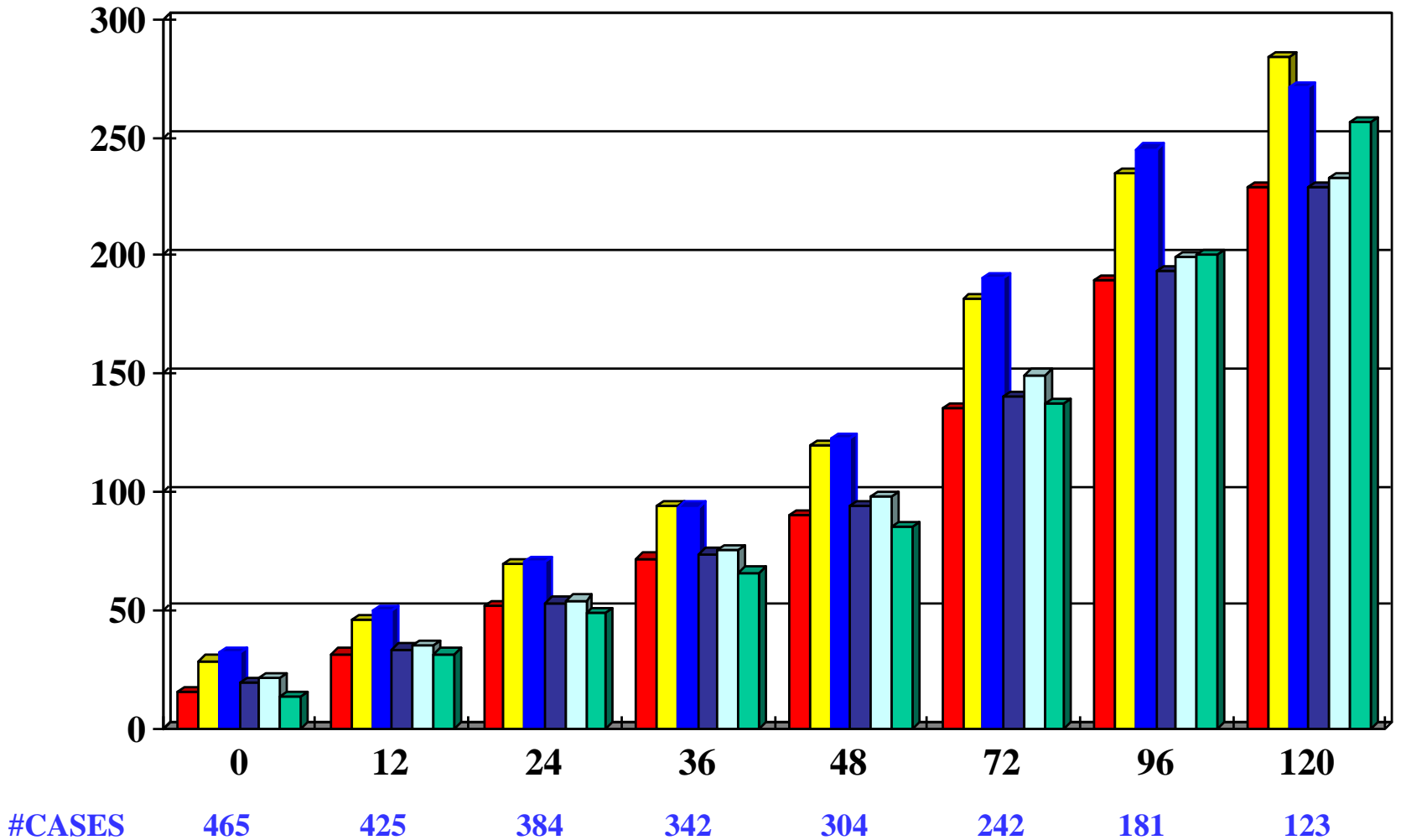
2EMN----NCEP+CMC 40-member Mean

3NCF----NCEP+CMC+FNMOC 60-member Mean

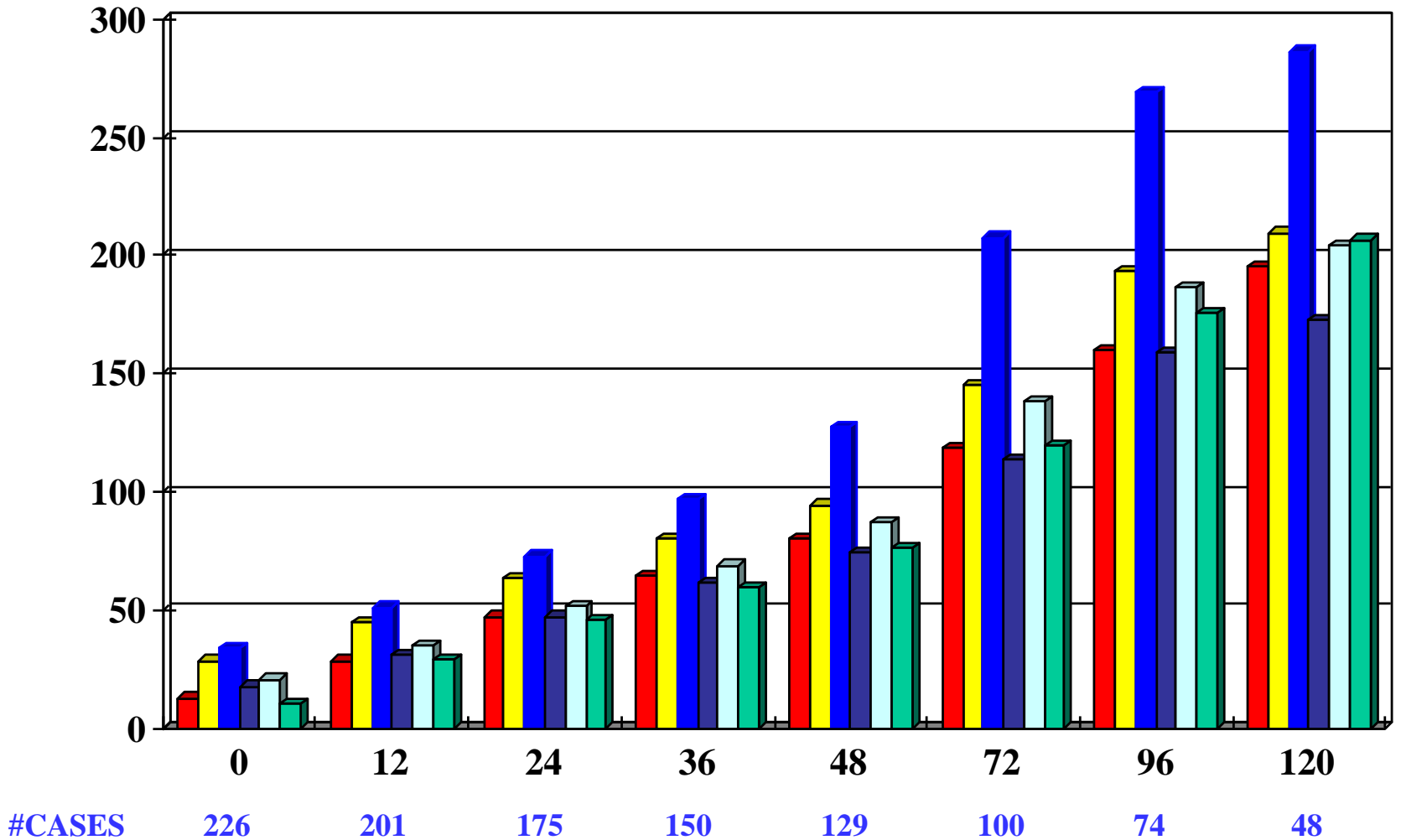
Please visit:

[http://www.emc.ncep.noaa.gov/gmb/jpeng/NUOPC\\_TC.html](http://www.emc.ncep.noaa.gov/gmb/jpeng/NUOPC_TC.html) 2

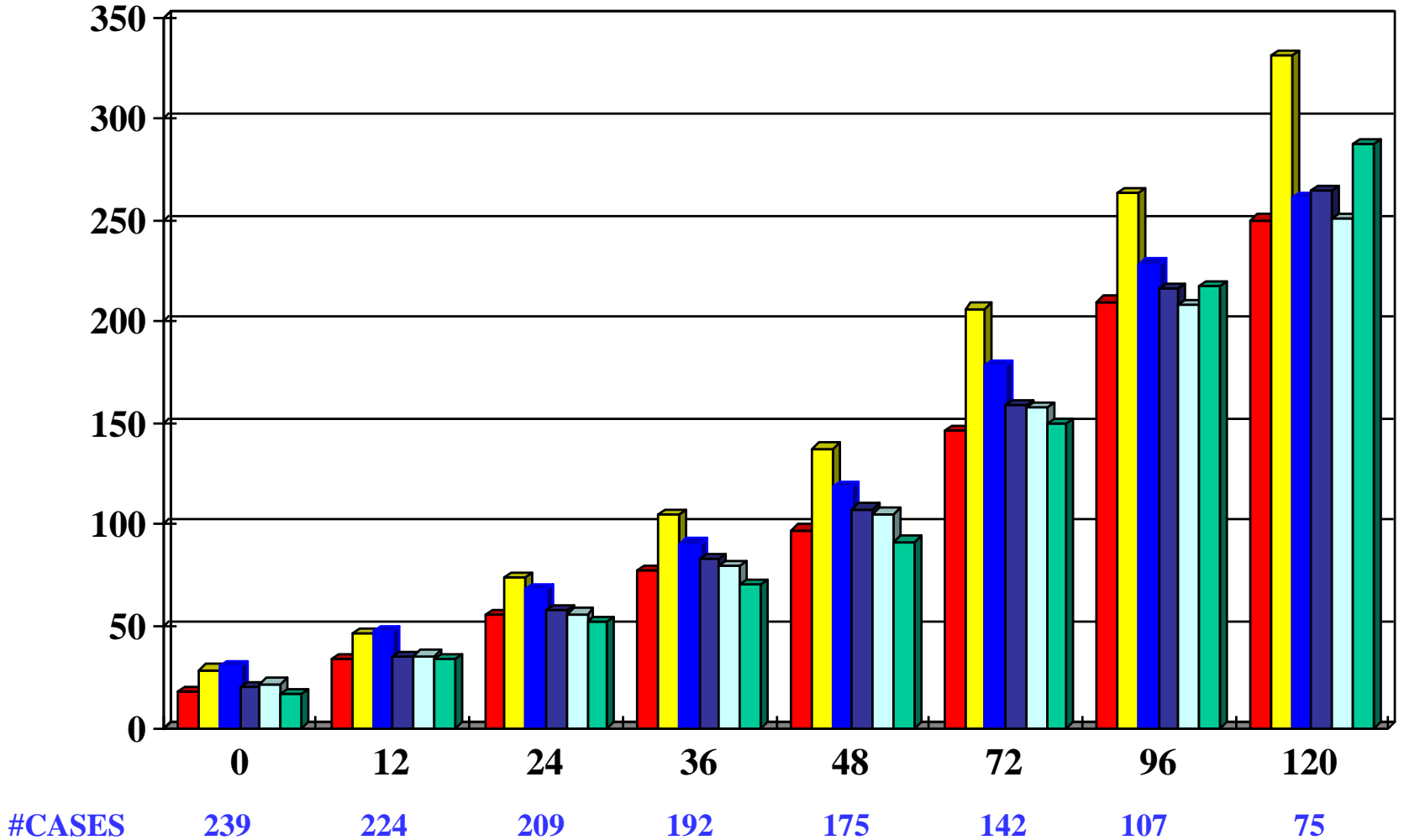
Atlantic, East and West Pacific, AL01~17, EP01~09, WP03~22 (05/01~09/30/2011)



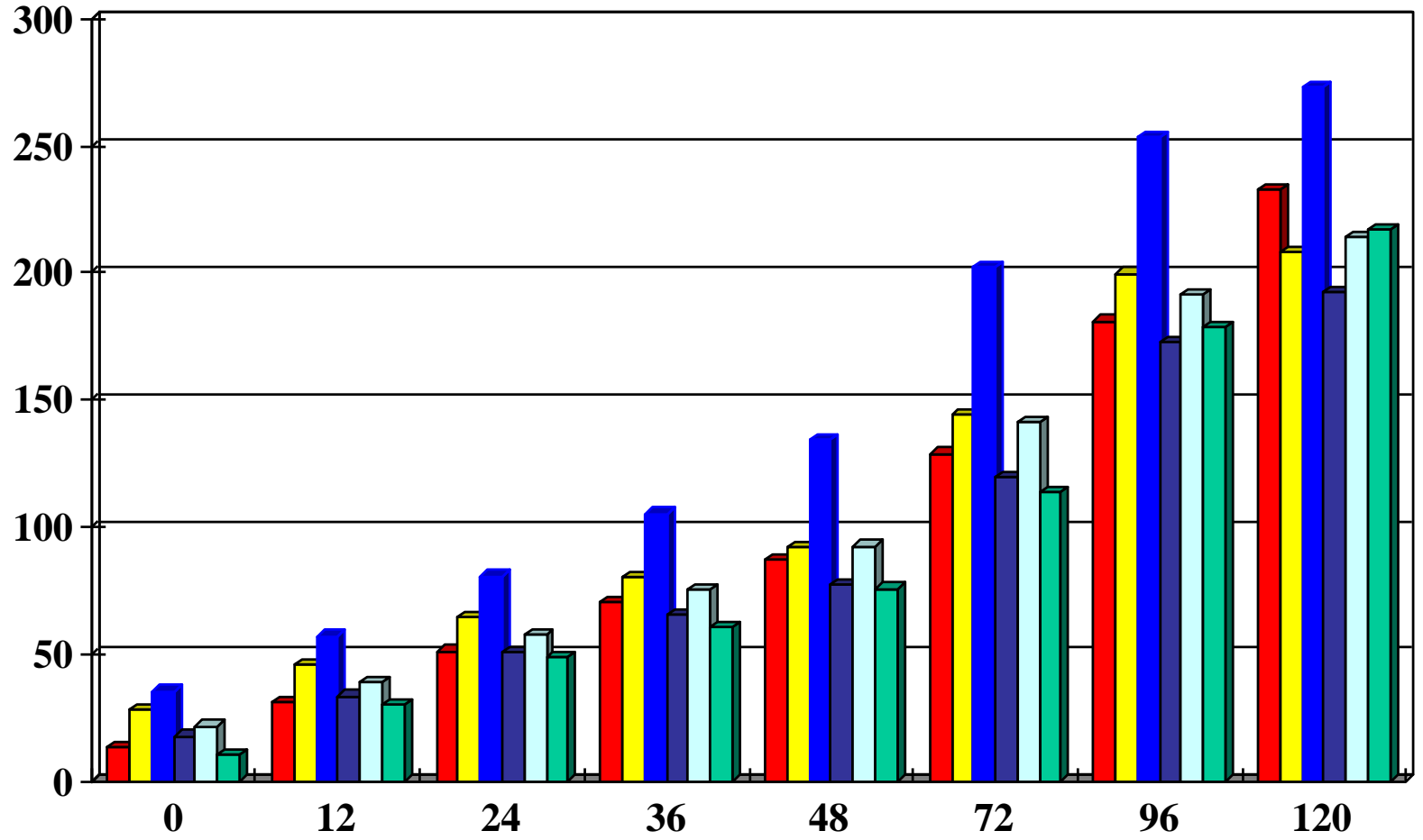
Atlantic, East Pacific, AL01~17, EP01~09 (05/01~09/30/2011)



West Pacific, WP03~22 (05/01~09/30/2011)



Atlantic, AL01~17 (05/01~09/30/2011)



#CASES

143

126

108

91

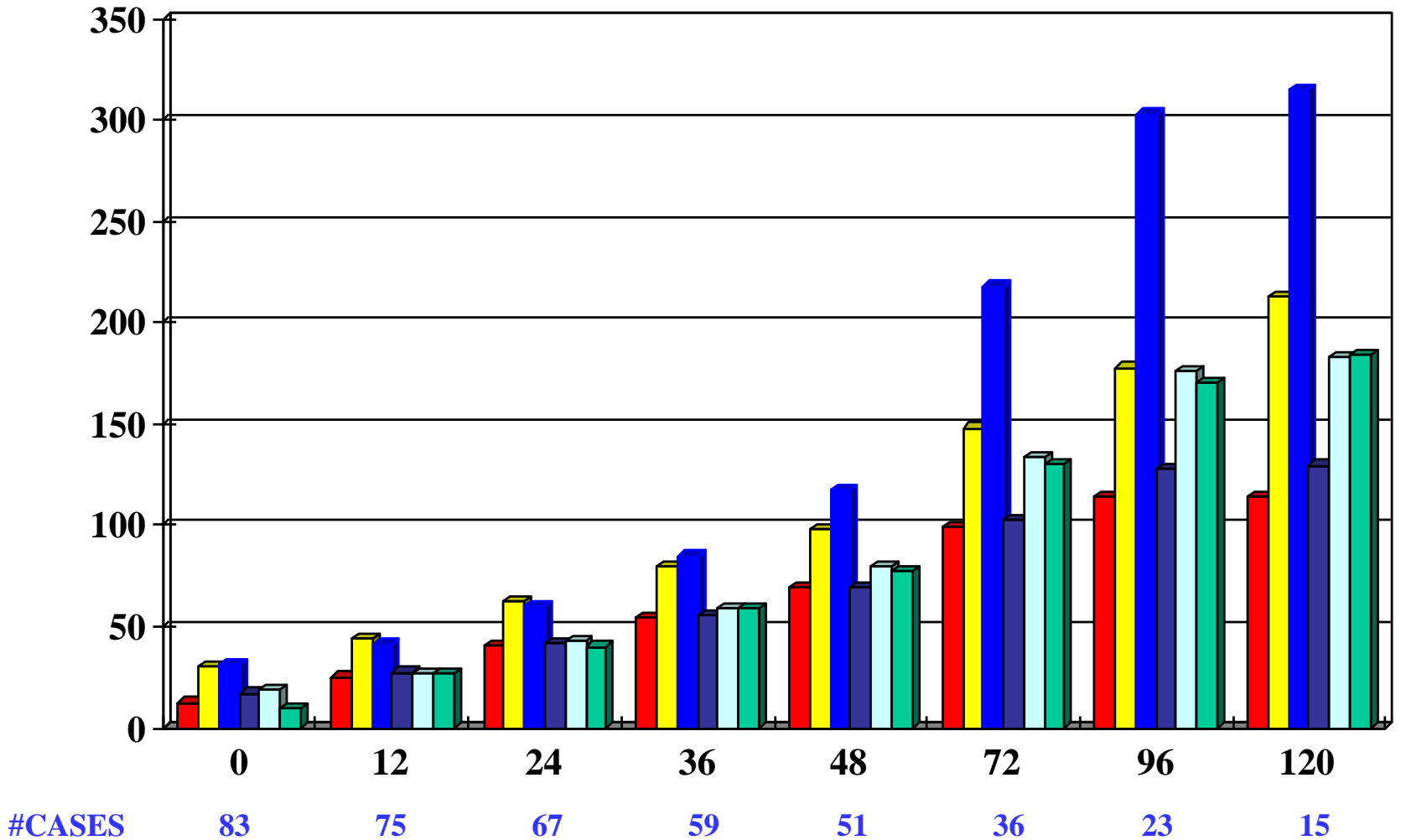
78

64

51

33

East Pacific, EP01~09 (05/01~09/30/2011)



# NCEP GEFS track review

Jiayi Peng

EMC Ensemble Team

Present for NAEFS conference  
October 12 2011

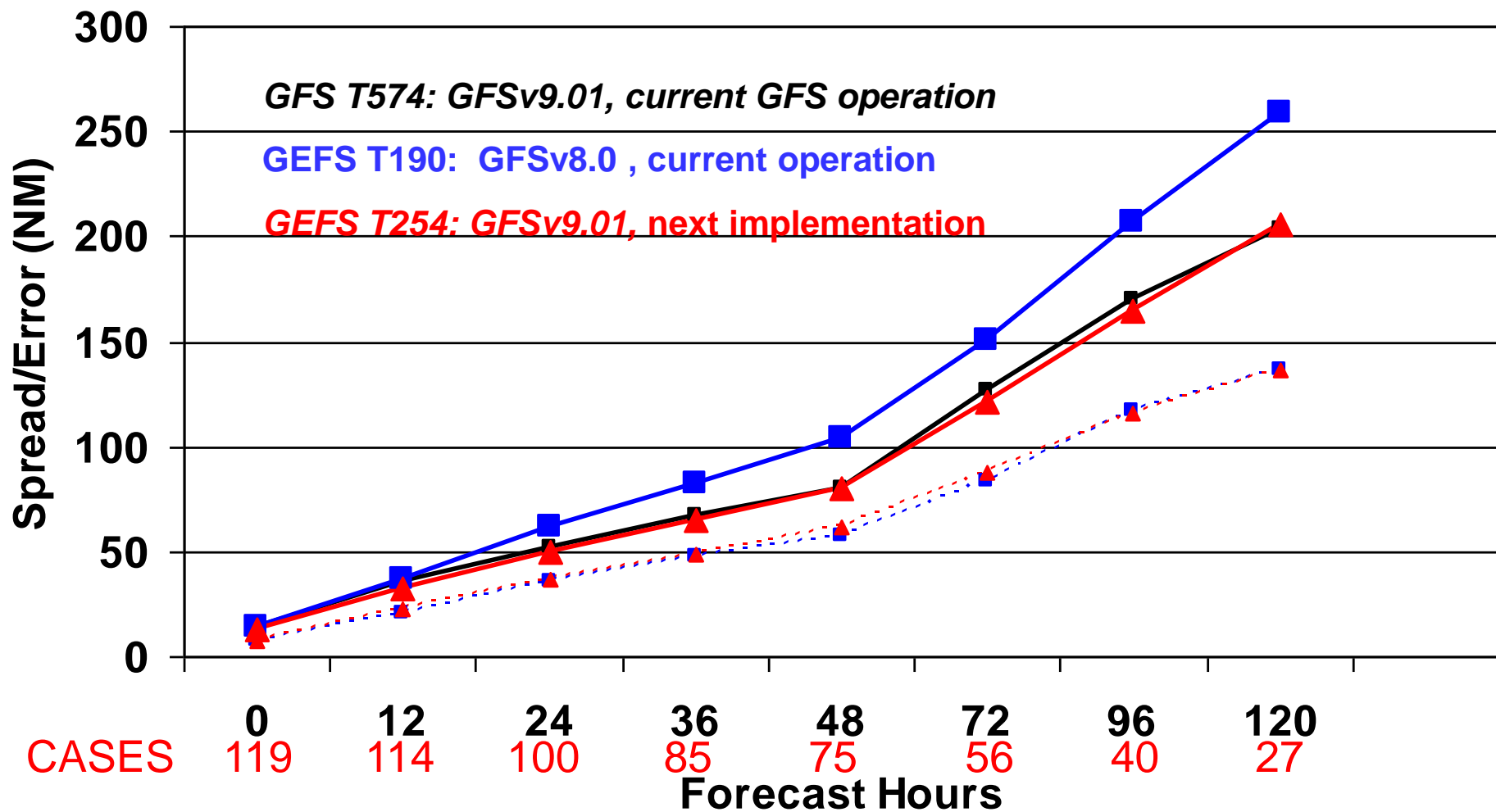
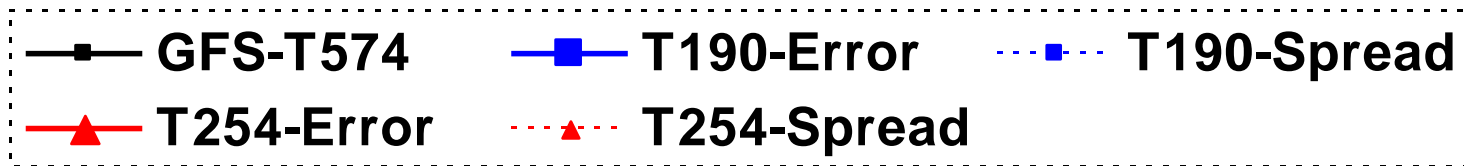


# Proposal Changes

- Model and initialization
  - Using GFS V9.01 (current operational GFS) instead of GFS V8.00
  - Improved Ensemble Transform with Rescaling (ETR) initialization
  - Improved Stochastic Total Tendency Perturbation (STTP)
- Configurations
  - T254 (55km) horizontal resolution for 0-192 hours (from T190 – 70km)
  - T190 (70km horizontal resolution for 192-384 hours (same as current opr)
  - L42 vertical levels for 0-384 hours (from L28)
- Add Sunshine duration for TIGGE data exchange
- Part of products will be delayed by approximately 20 minutes
  - Due to limit CCS resources
  - 40-42 nodes for 70 minutes (start +4:35 end: +5:45)
- Unchanged:
  - 20+1 members per cycle, 4 cycles per day
  - pgrb file output at 1\*1 degree every 6 hours
  - GEFS and NAEFS post process output data format
- Why do we make this configurations?
  - Considering the limited resources
  - Resolution makes difference (example of T126 .vs T190)
- What do we expect from this implementation?
  - Preliminary results (NH 500hPa and SH 500hPa height and tracks)

# Retrospective runs for 2010 hurricane season

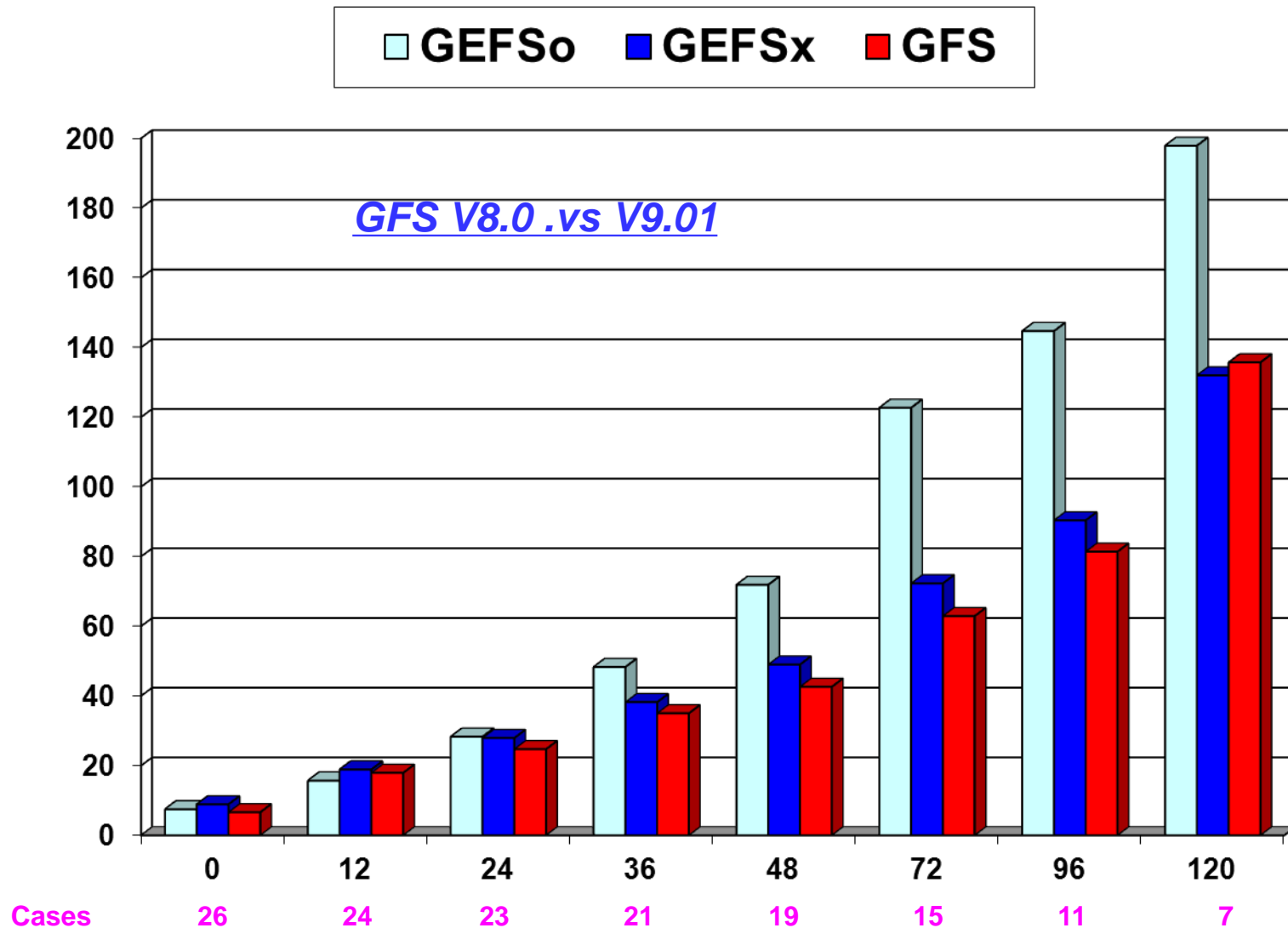
# GEFS-T254 next implementation



Tropical Storm Tracks (Aug. – Sep. 2010, for AL, EP and WP)

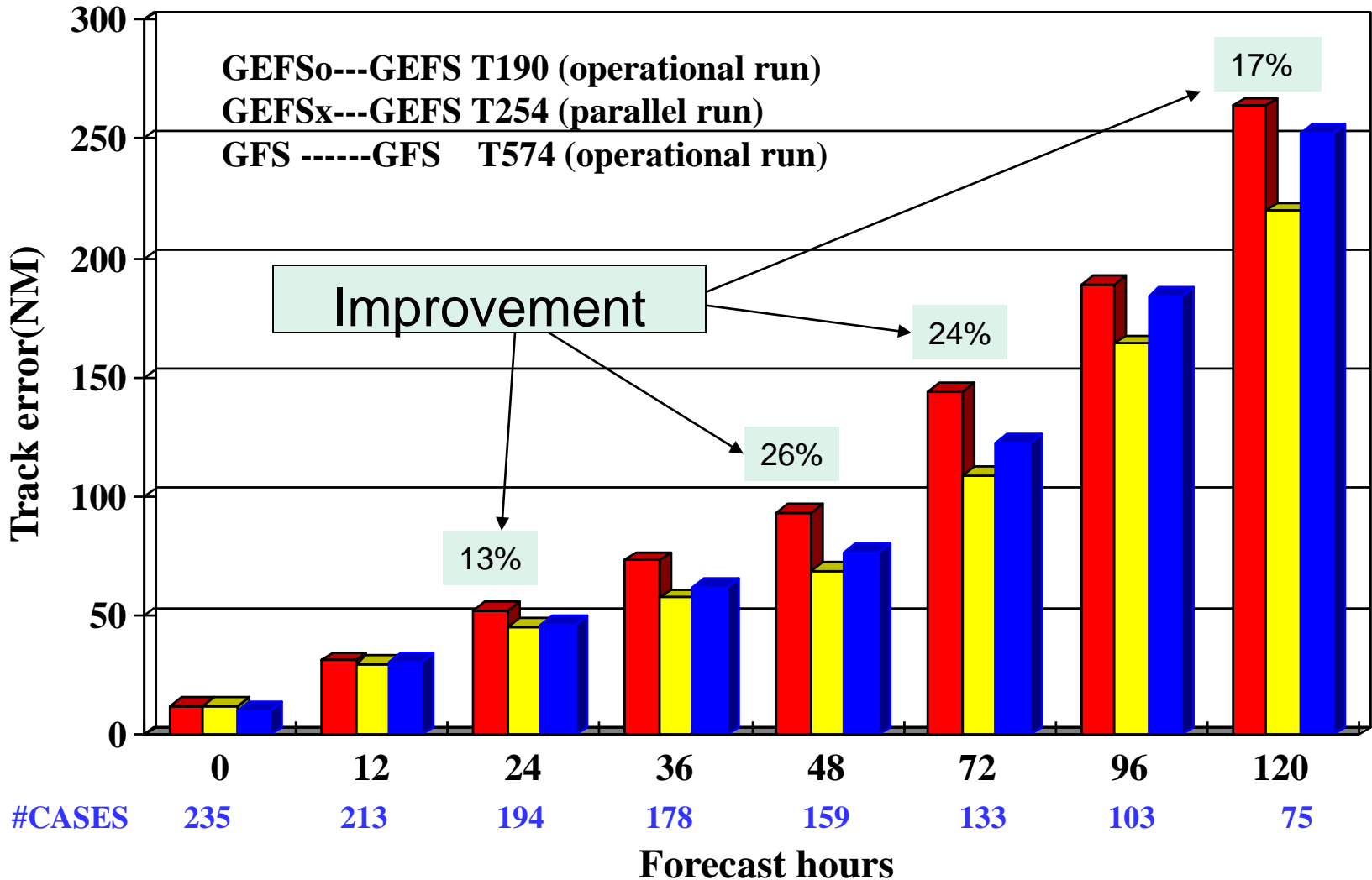
# Latest statistics for 2011 hurricane season

# Track forecast error for Hurricane Irene (2011)

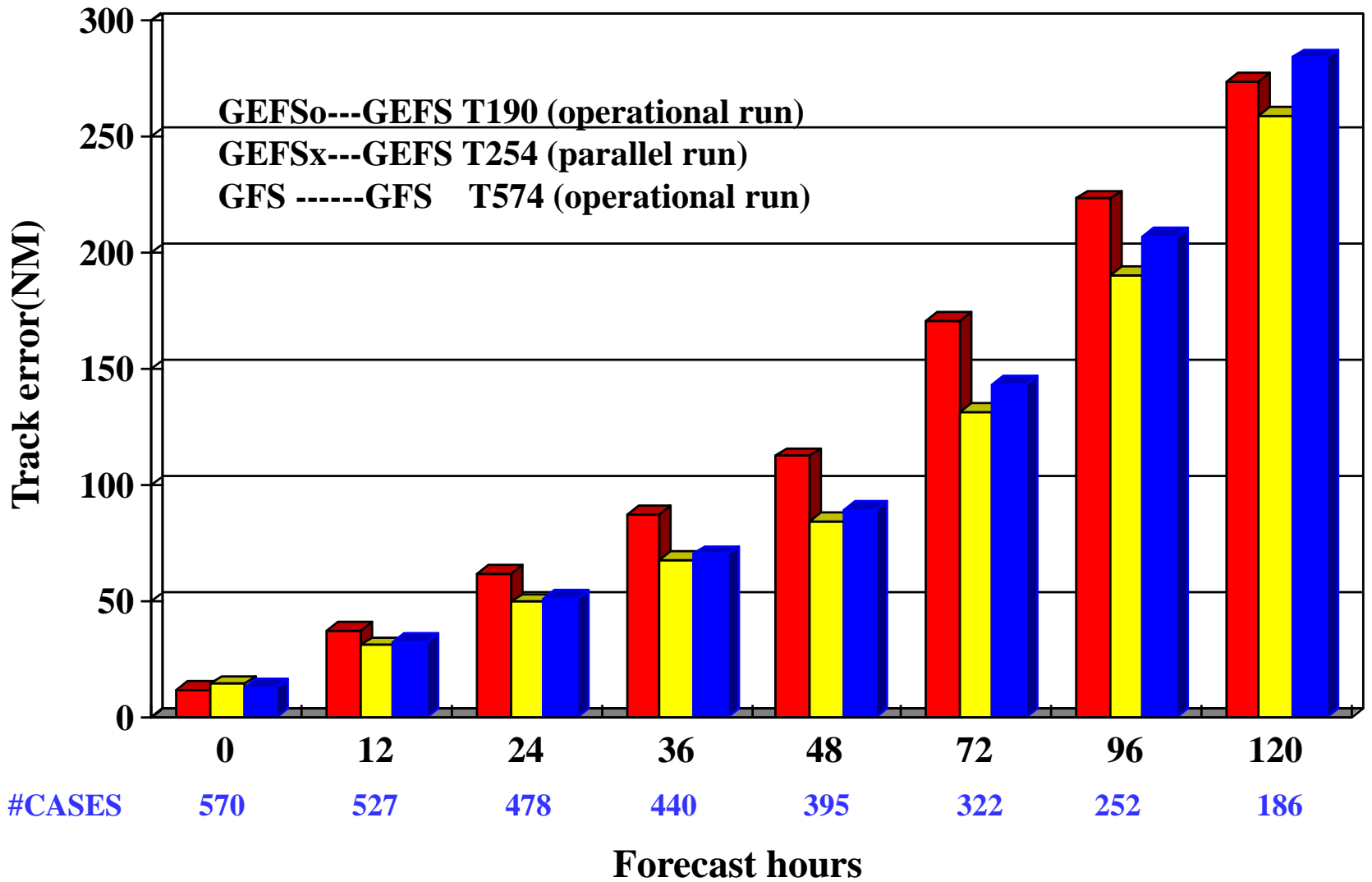


Period: 08/20 – 08/27/2011

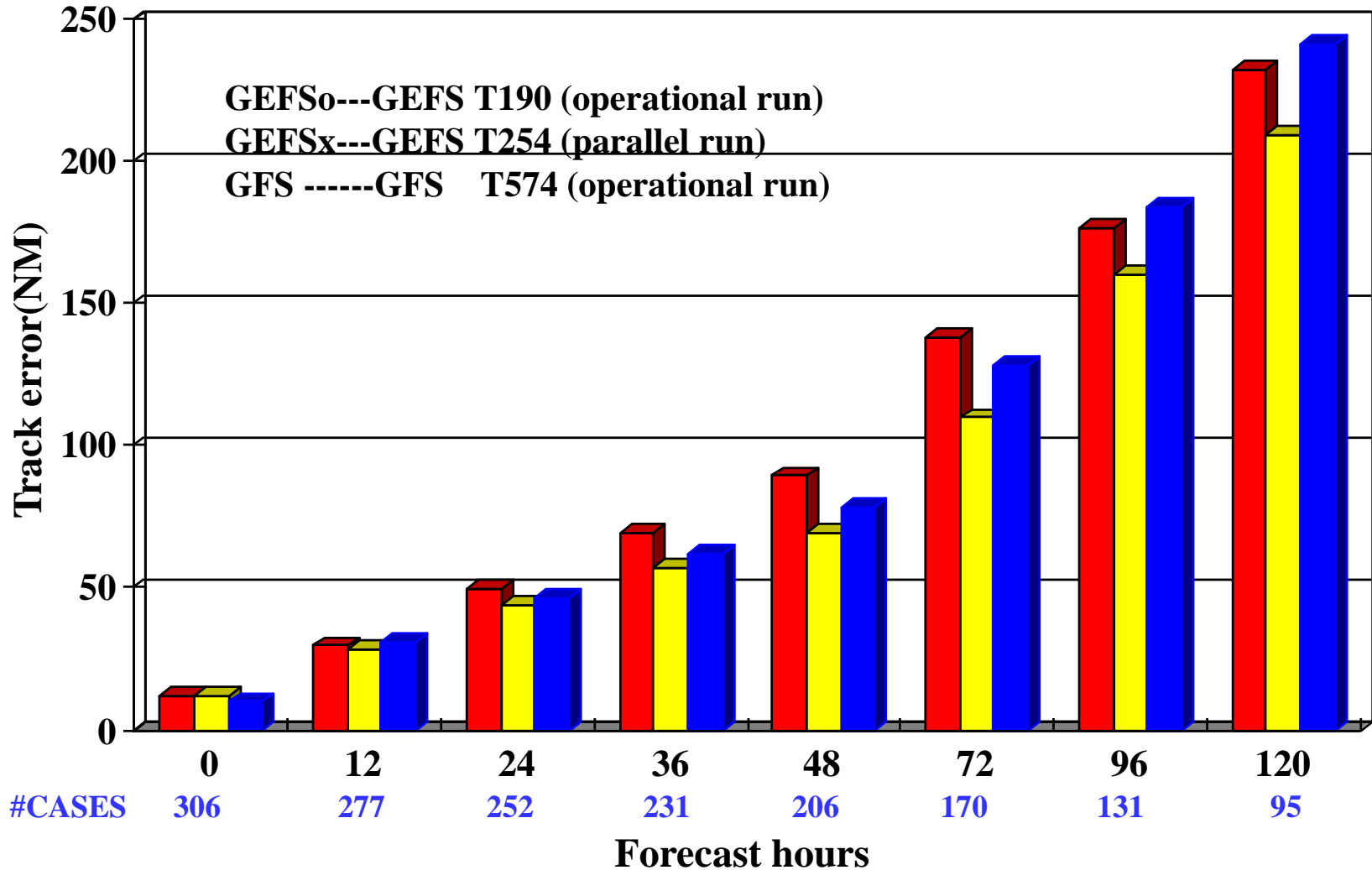
# Atlantic, AL01~17 (06/01~09/30/2011)



Atlantic, East and West Pacific, AL01~17, EP01~09, WP05~22 (06/01~09/30/2011)



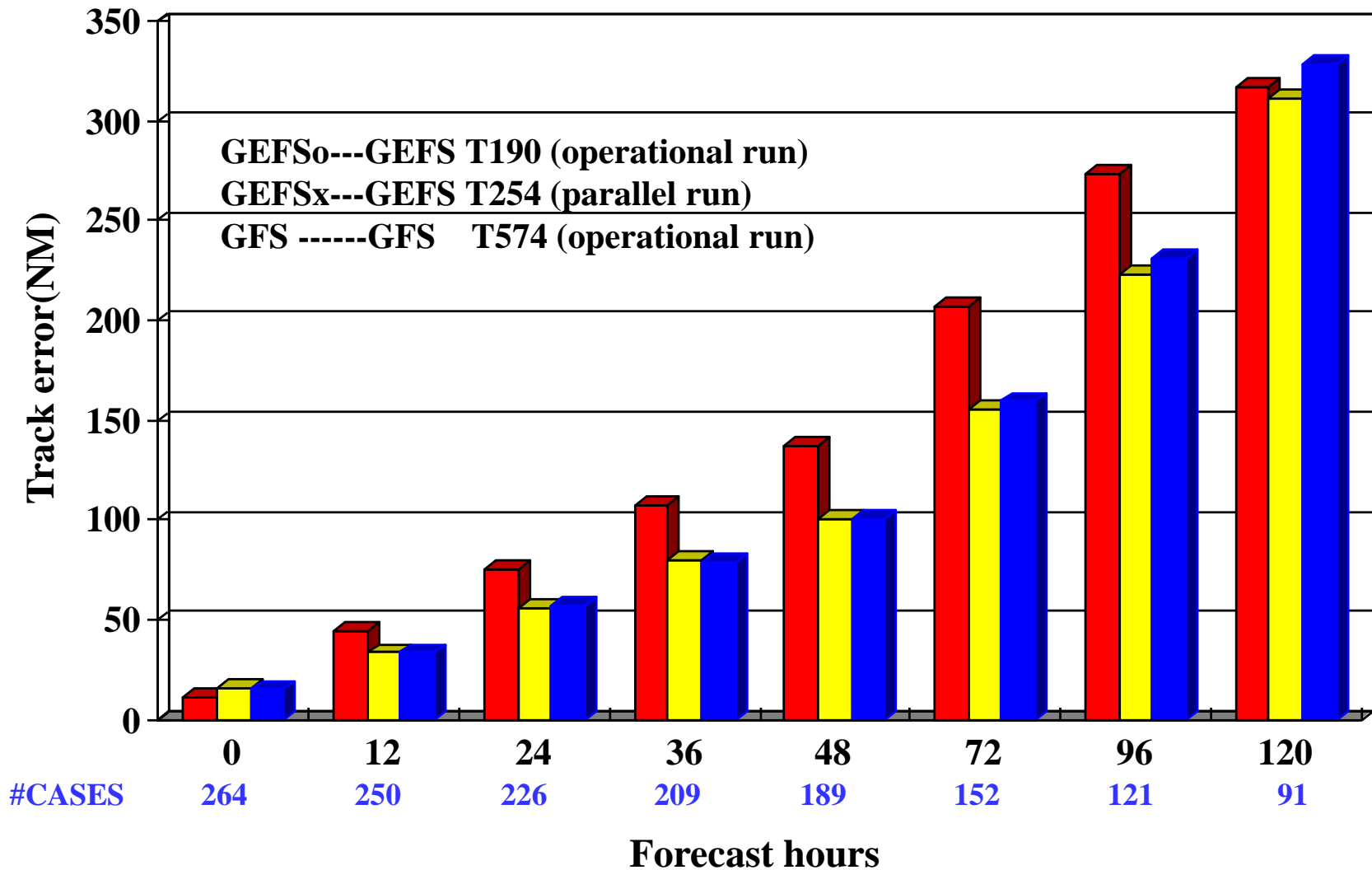
# Atlantic and East Pacific, AL01~17, EP01~09(06/01~09/30/2011)



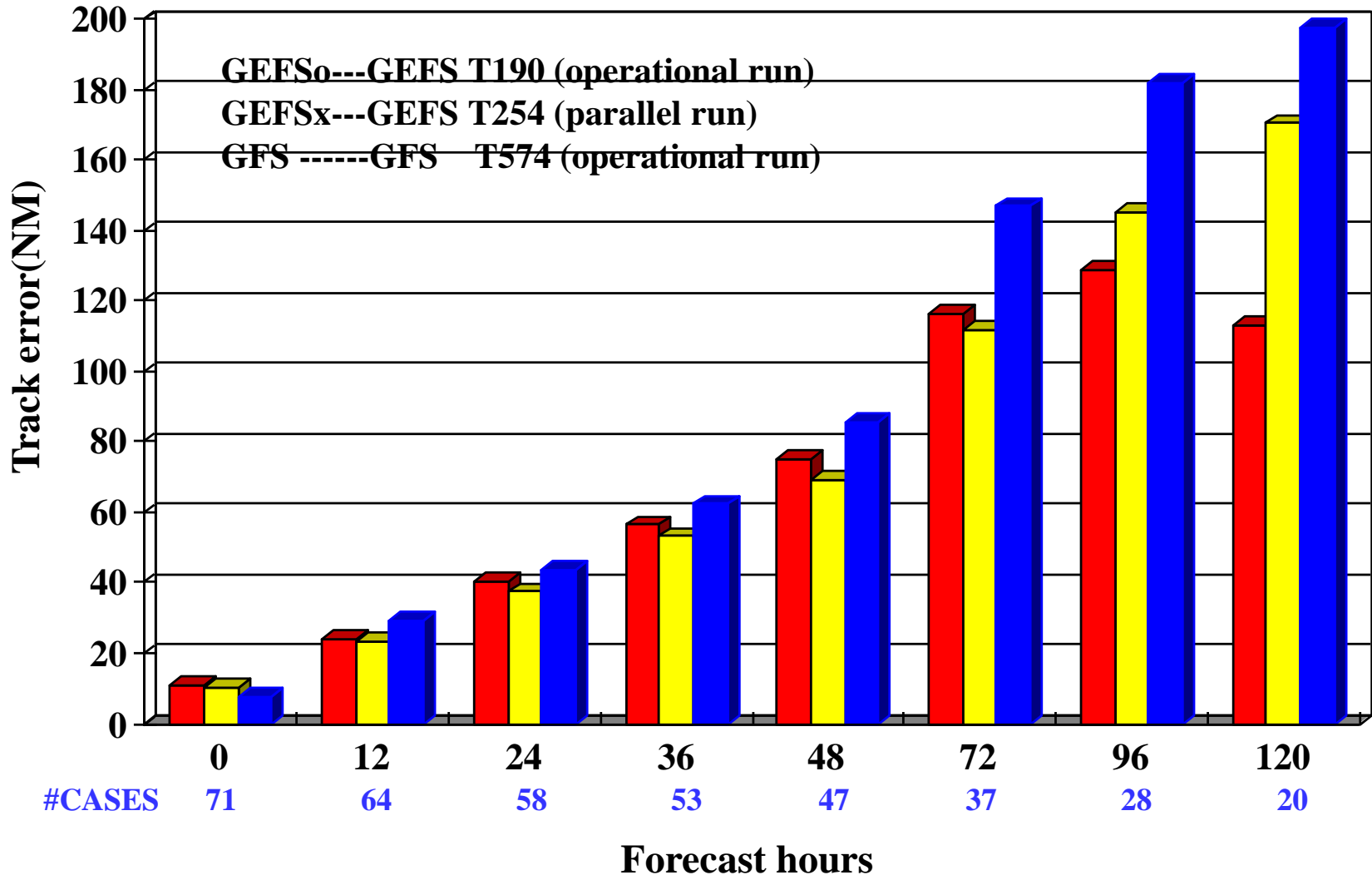


# West Pacific, WP05~22 (06/01~09/30/2011)

**■ GEFS<sub>o</sub> ■ GEFS<sub>x</sub> ■ GFS**



# East Pacific, EP01~09 (06/01~09/30/2011)



# Track forecast for hurricane Irene

(Verification will be made later)

AEMN----NCEP Ensemble Mean

CEMN----CMC Ensemble Mean

FEMN----FNMOC Ensemble Mean

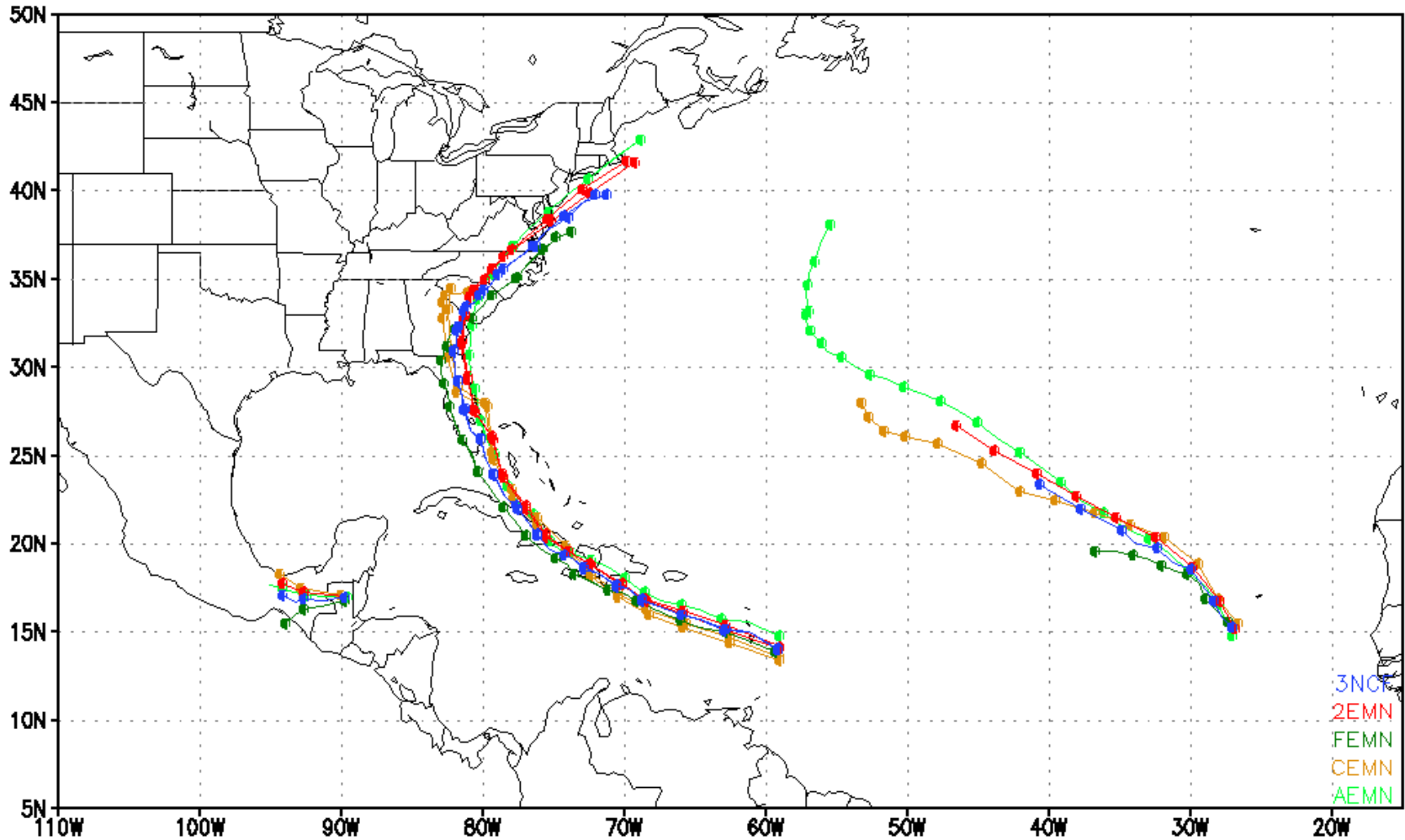
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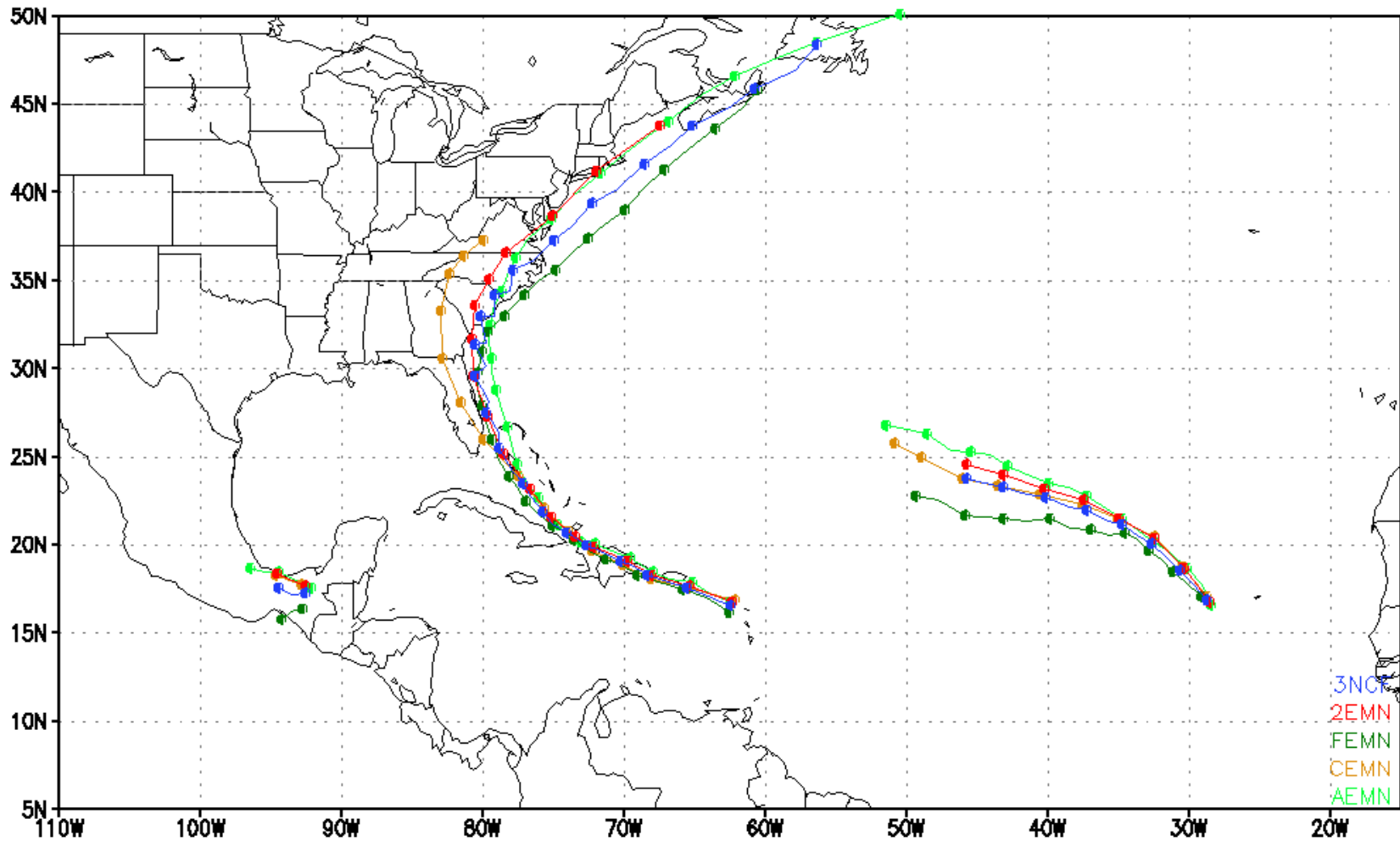
# Multimodel Ensemble Forecast TC Tracks 2011082100



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMO)

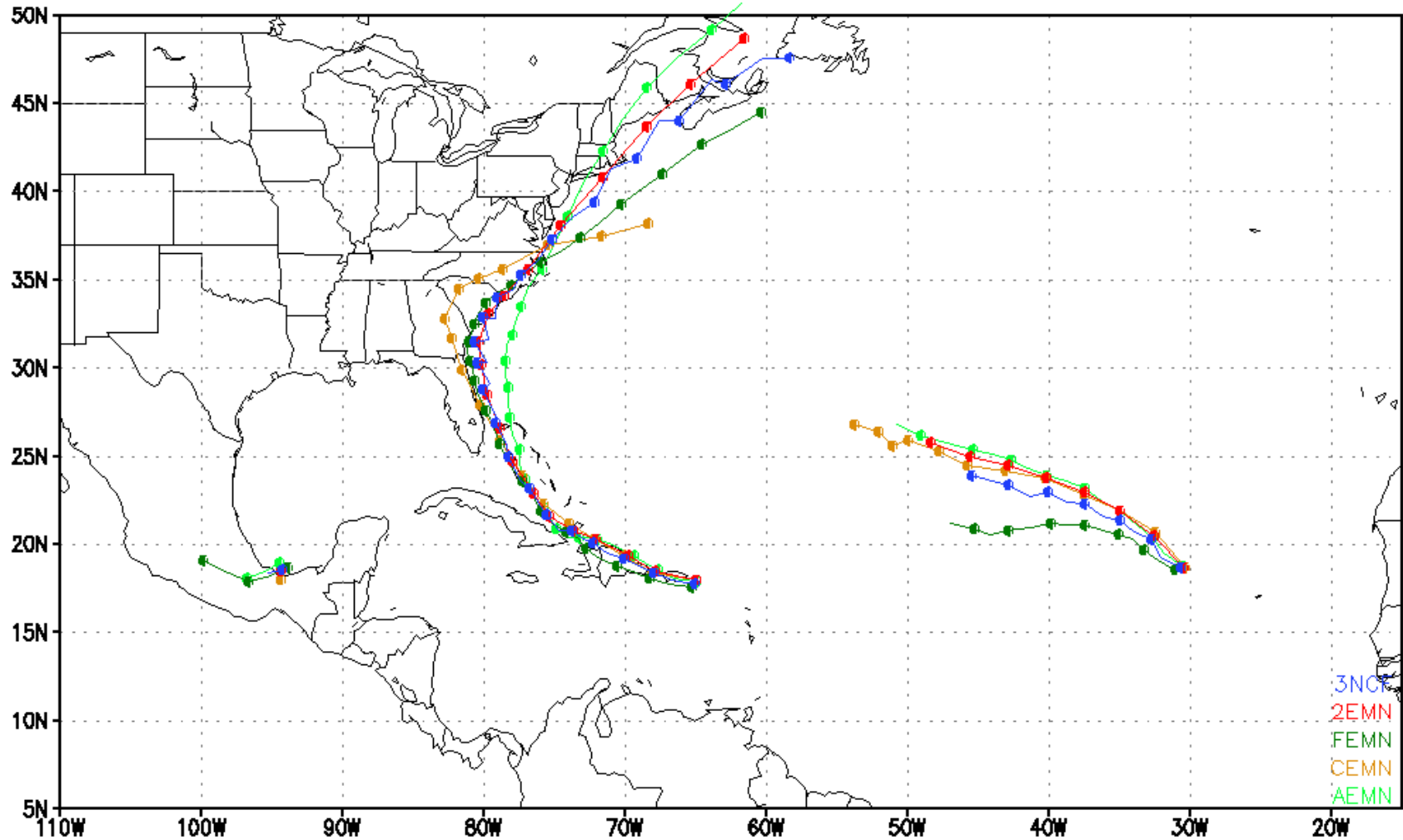
# Multimodel Ensemble Forecast TC Tracks 2011082112



● Indicates a position at 00 or 12 UTC

2EMN...40—member mean (NAEFS:NCEP+CMC) 3NCF...60—member mean (NCEP+CMC+FNMO)

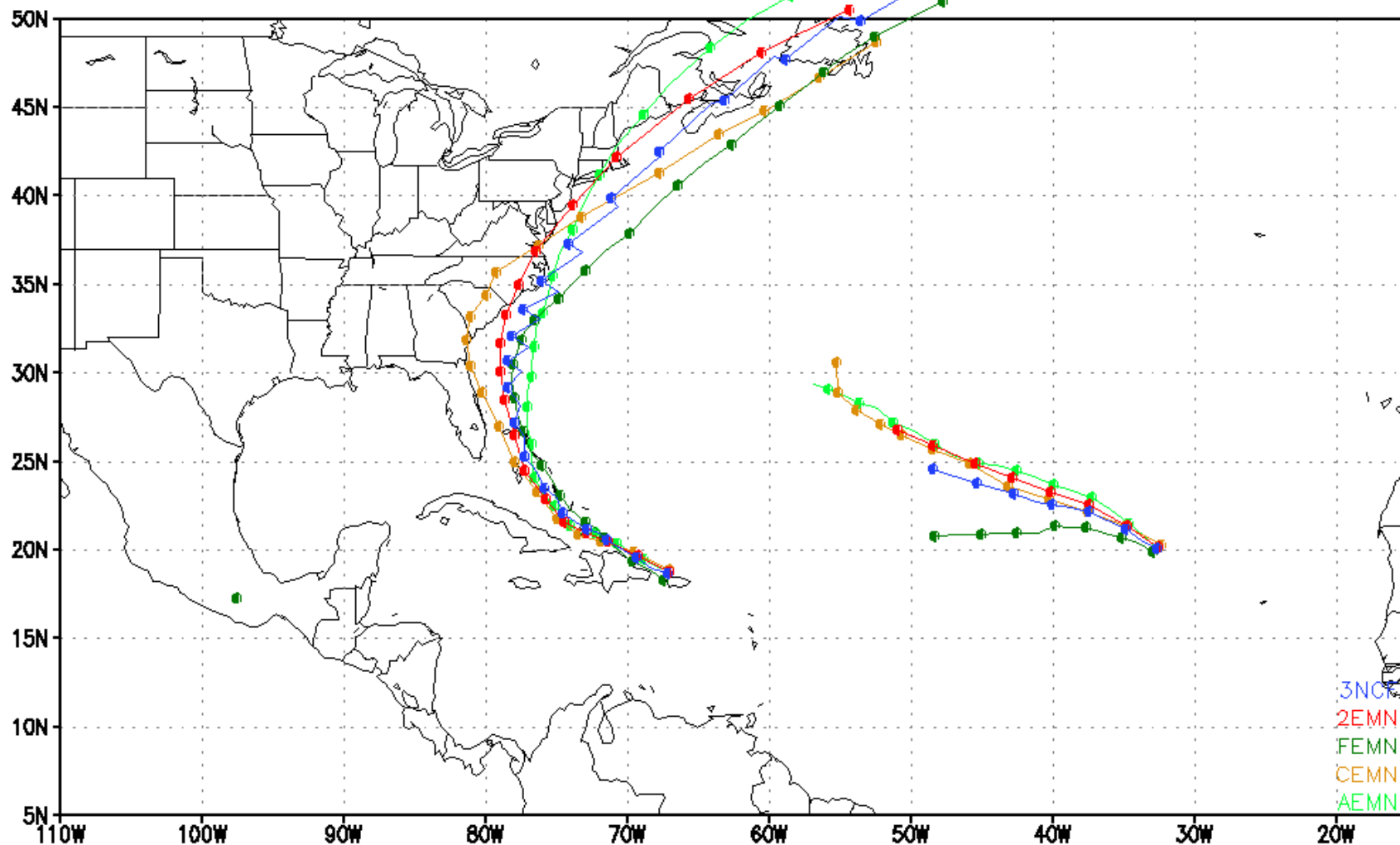
# Multimodel Ensemble Forecast TC Tracks 2011082200



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMOG)

# Multimodel Ensemble Forecast TC Tracks 2011082212

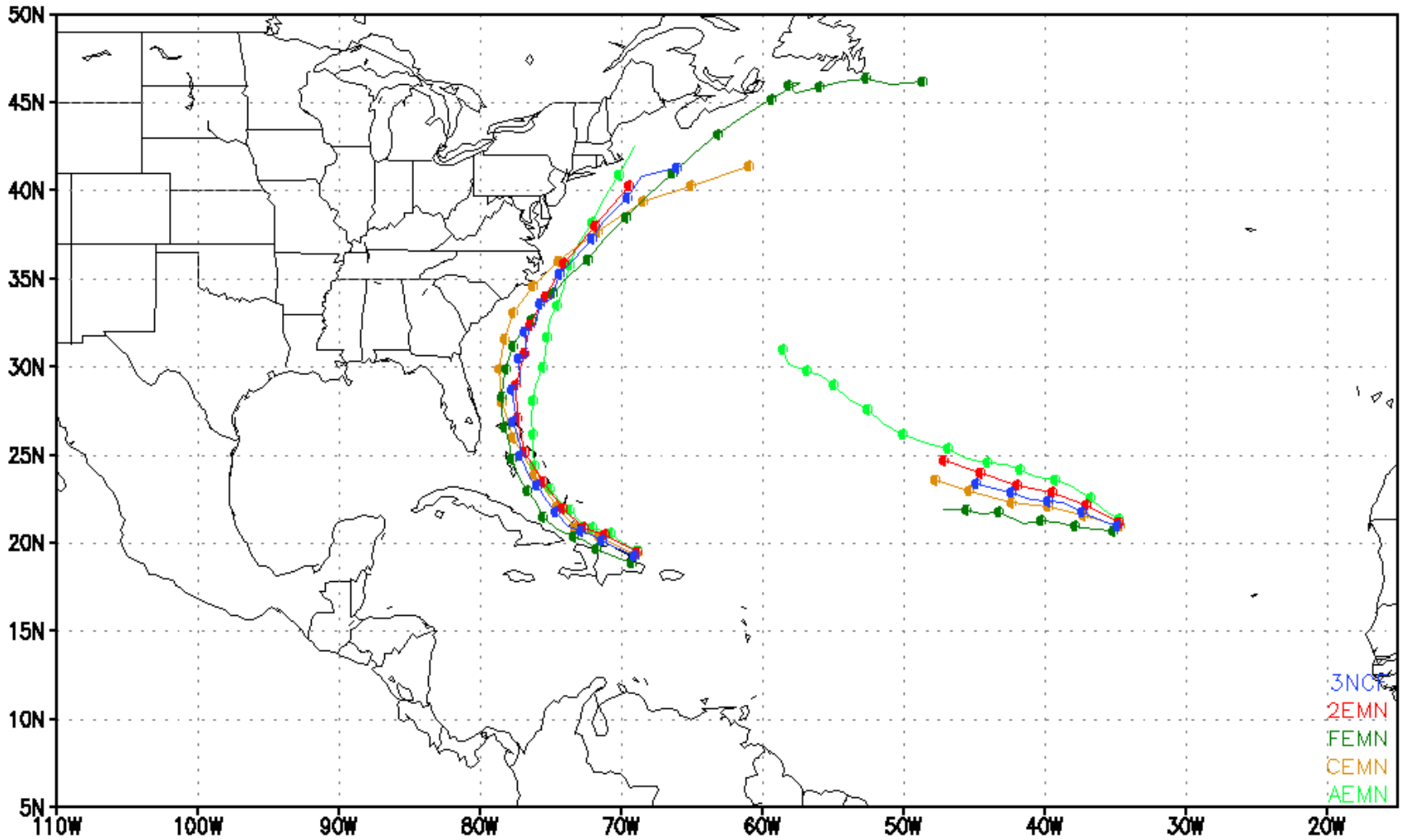


● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMO)



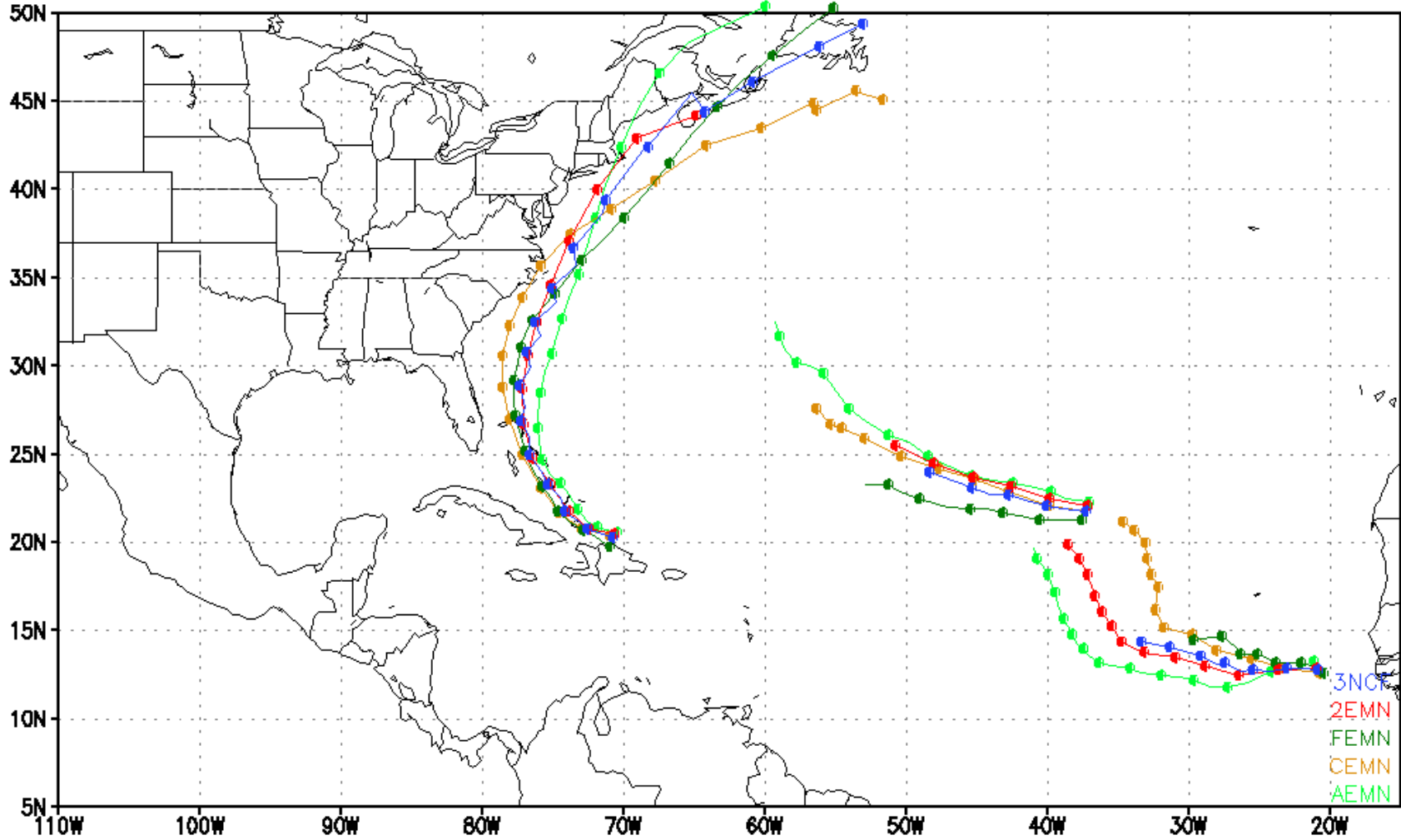
# Multimodel Ensemble Forecast TC Tracks 2011082300



● Indicates a position at 00 or 12 UTC

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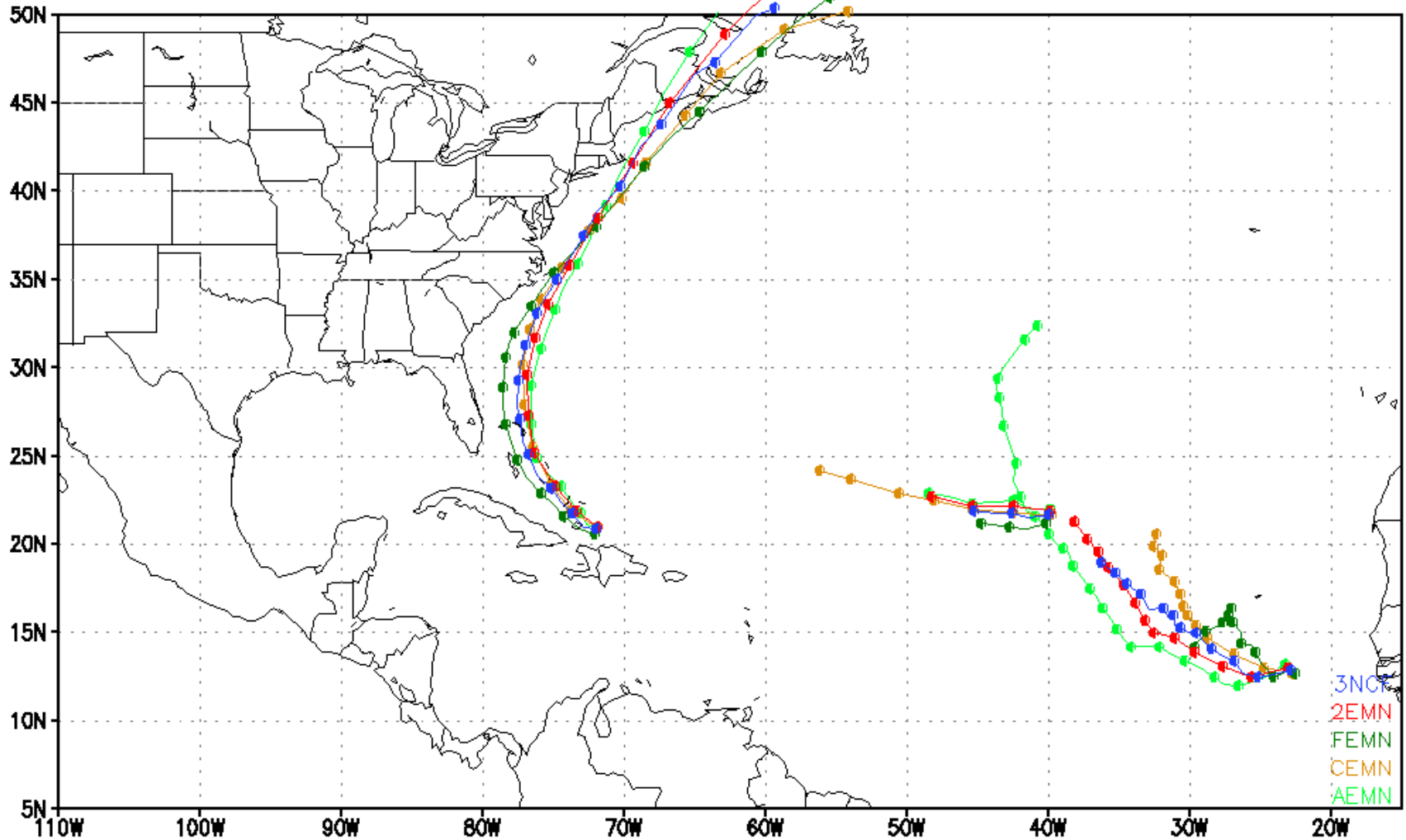
# Multimodel Ensemble Forecast TC Tracks 2011082312



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMOG)

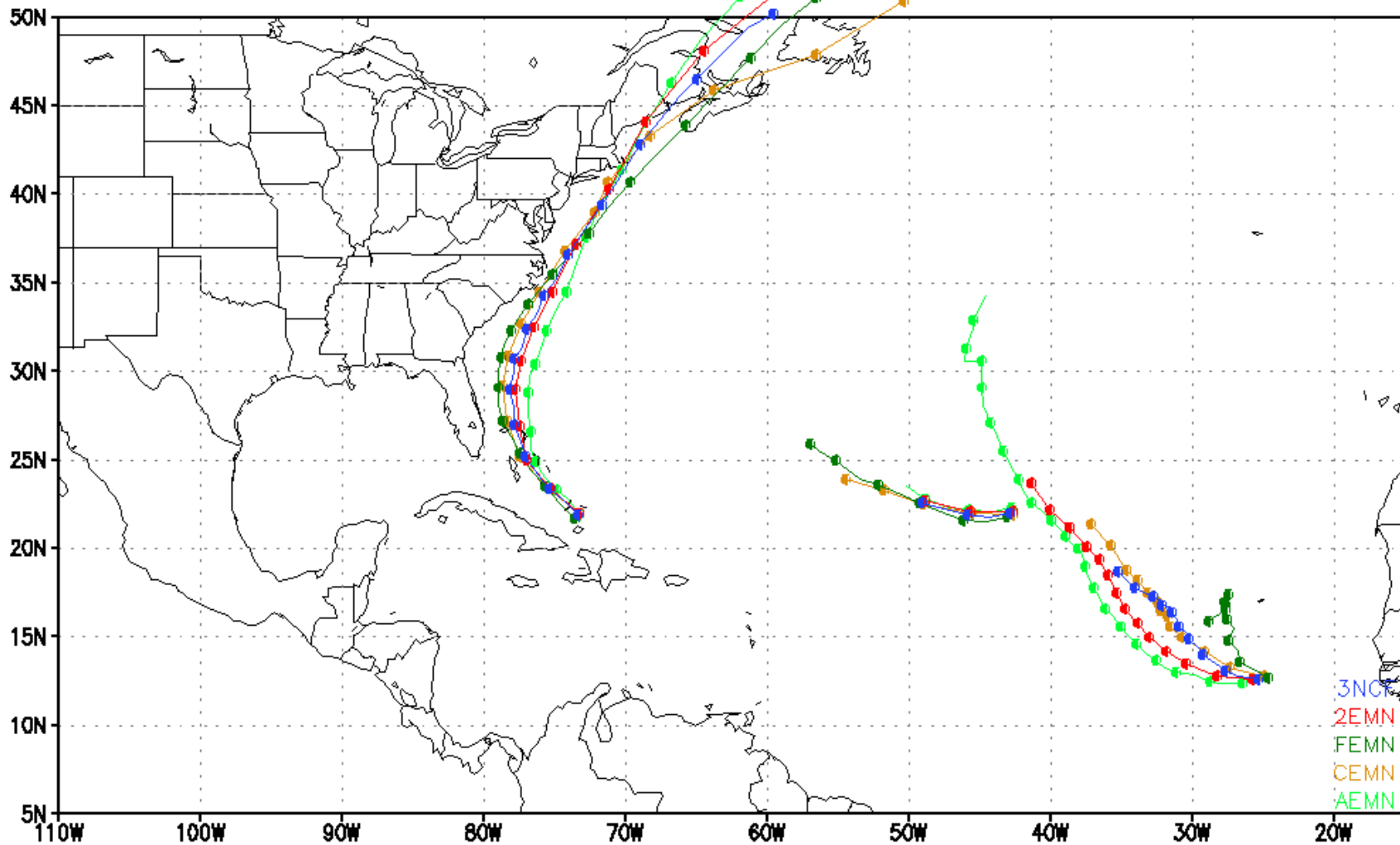
# Multimodel Ensemble Forecast TC Tracks 2011082400



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMO)

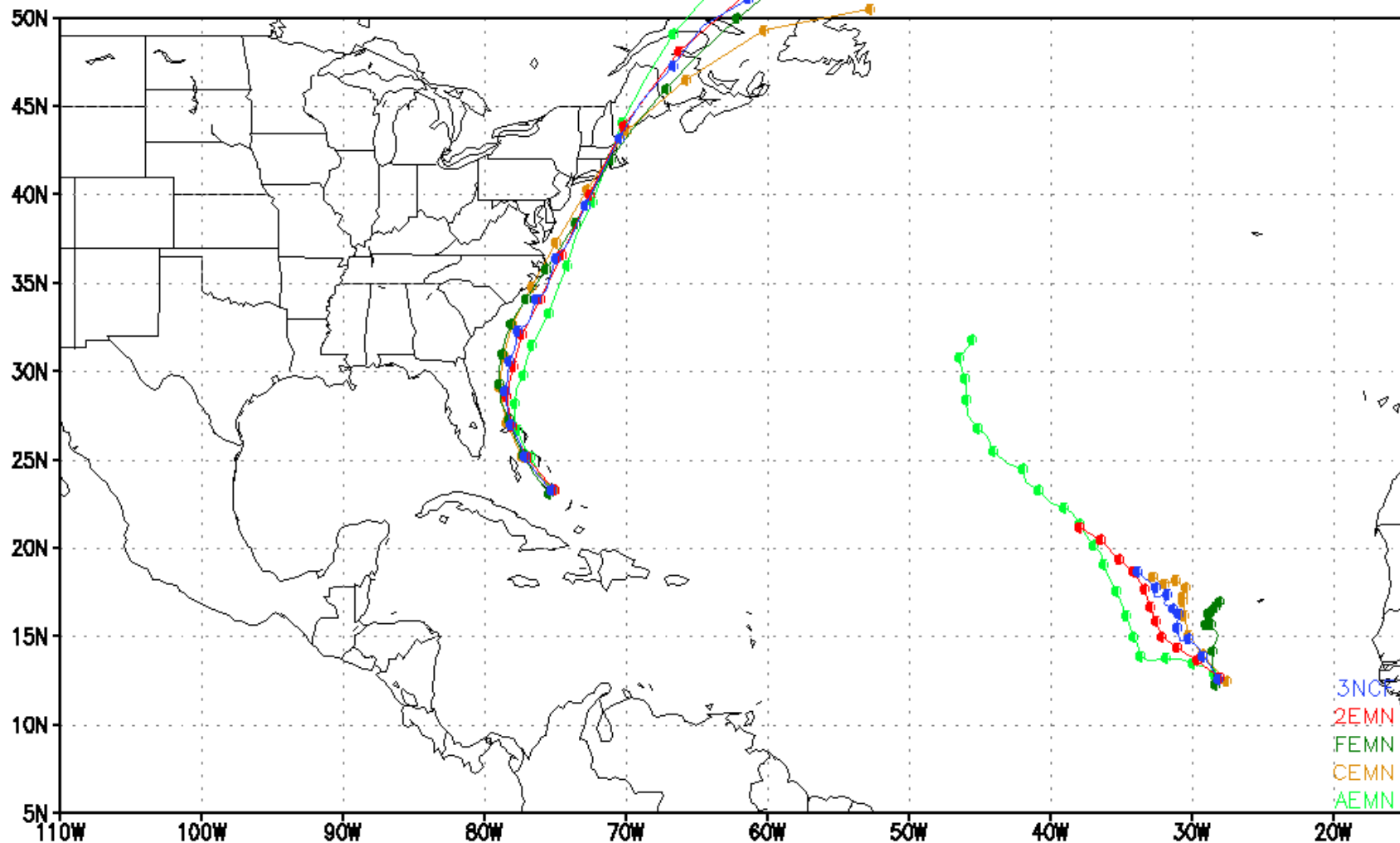
# Multimodel Ensemble Forecast TC Tracks 2011082412



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMOG)

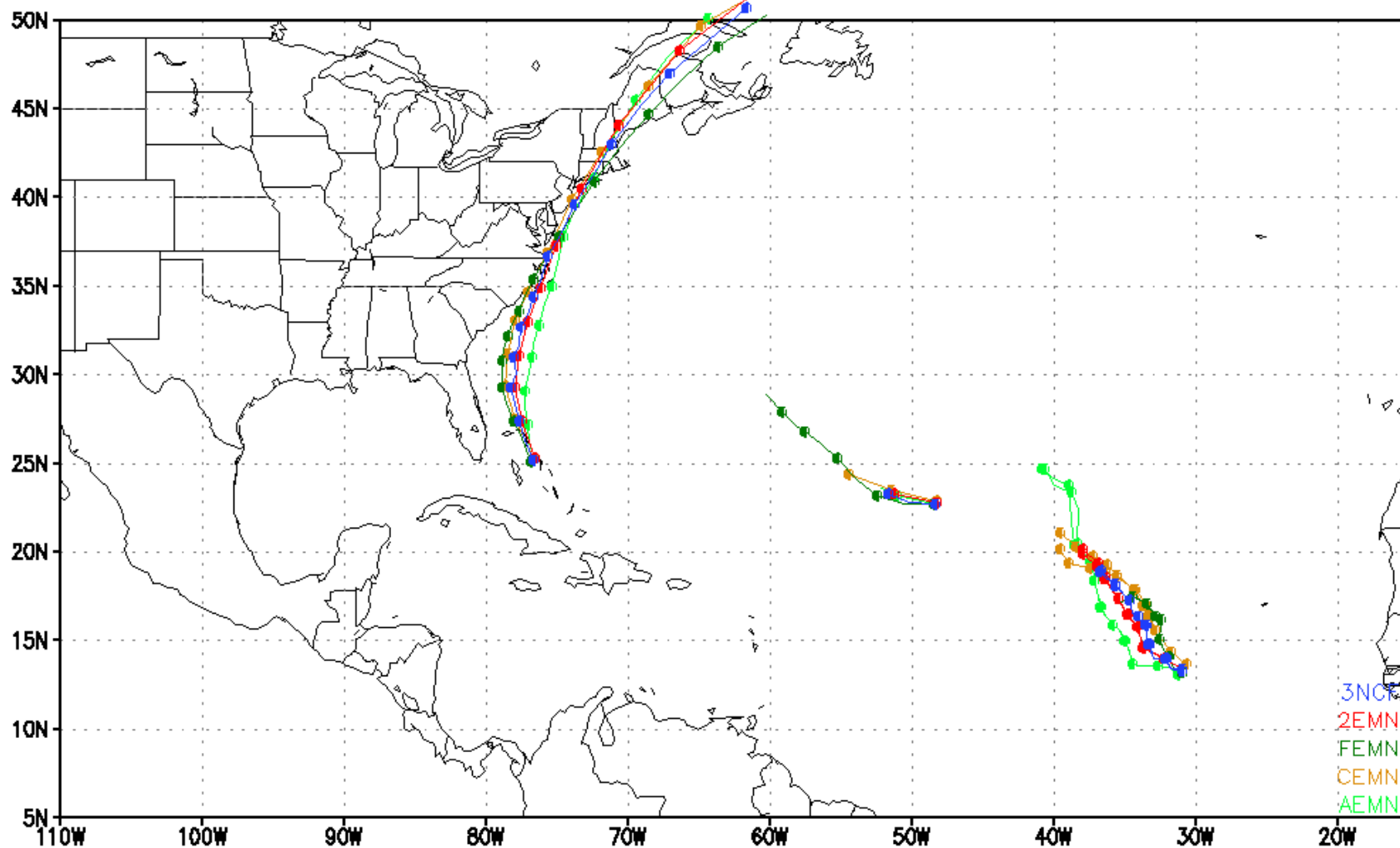
# Multimodel Ensemble Forecast TC Tracks 2011082500



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMO)

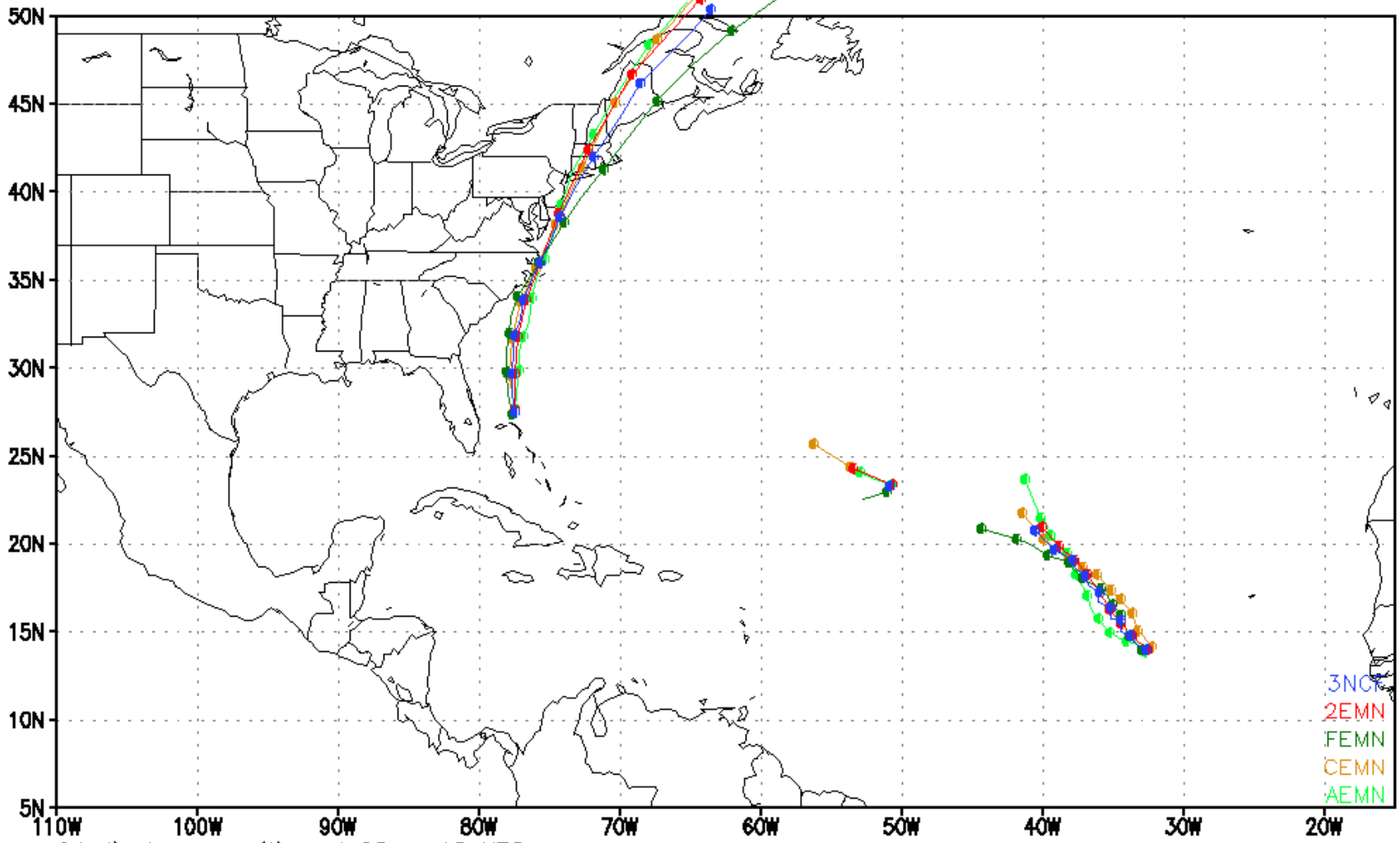
# Multimodel Ensemble Forecast TC Tracks 2011082512



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMO)

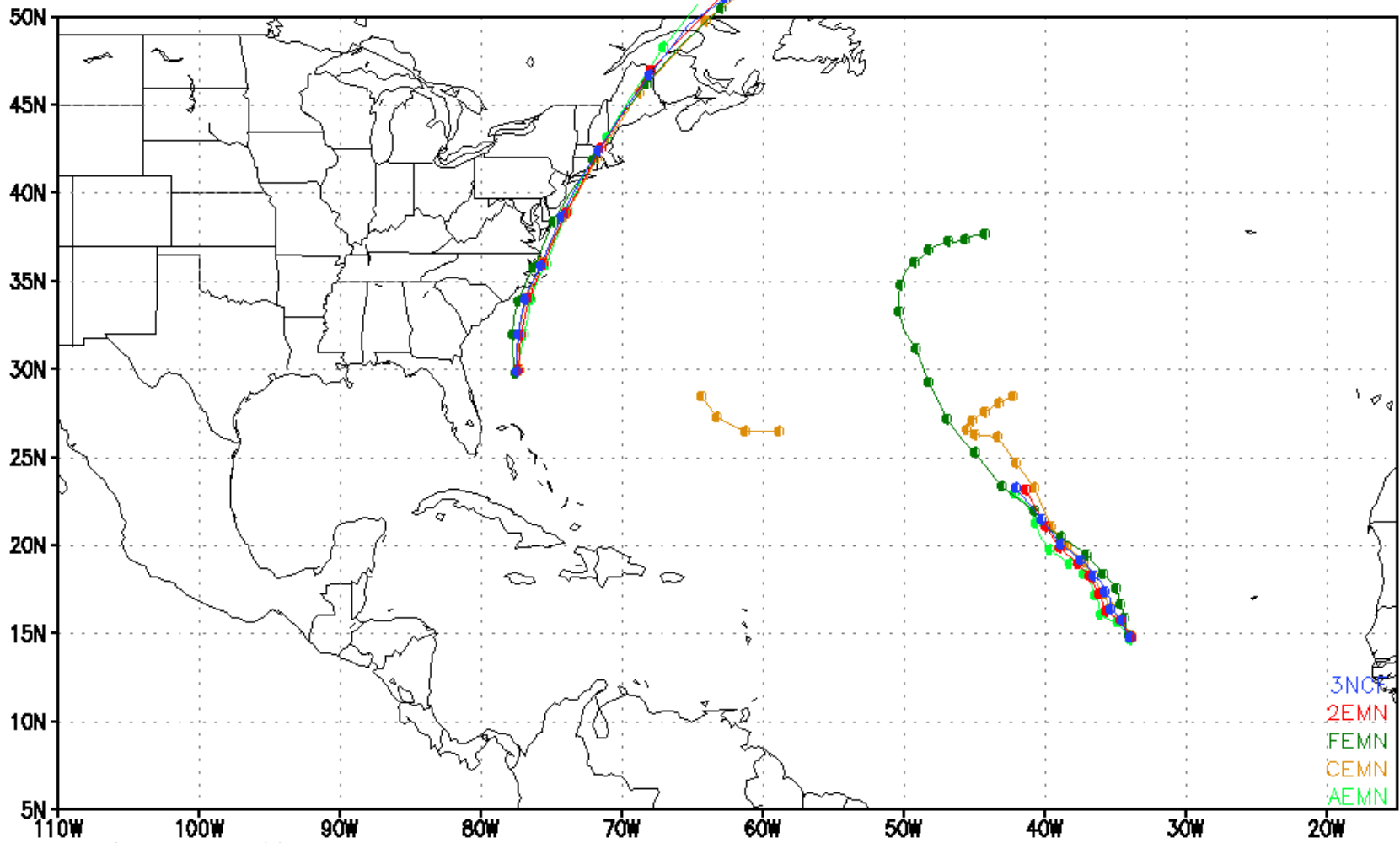
# Multimodel Ensemble Forecast TC Tracks 2011082600



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMOG)

# Multimodel Ensemble Forecast TC Tracks 2011082612

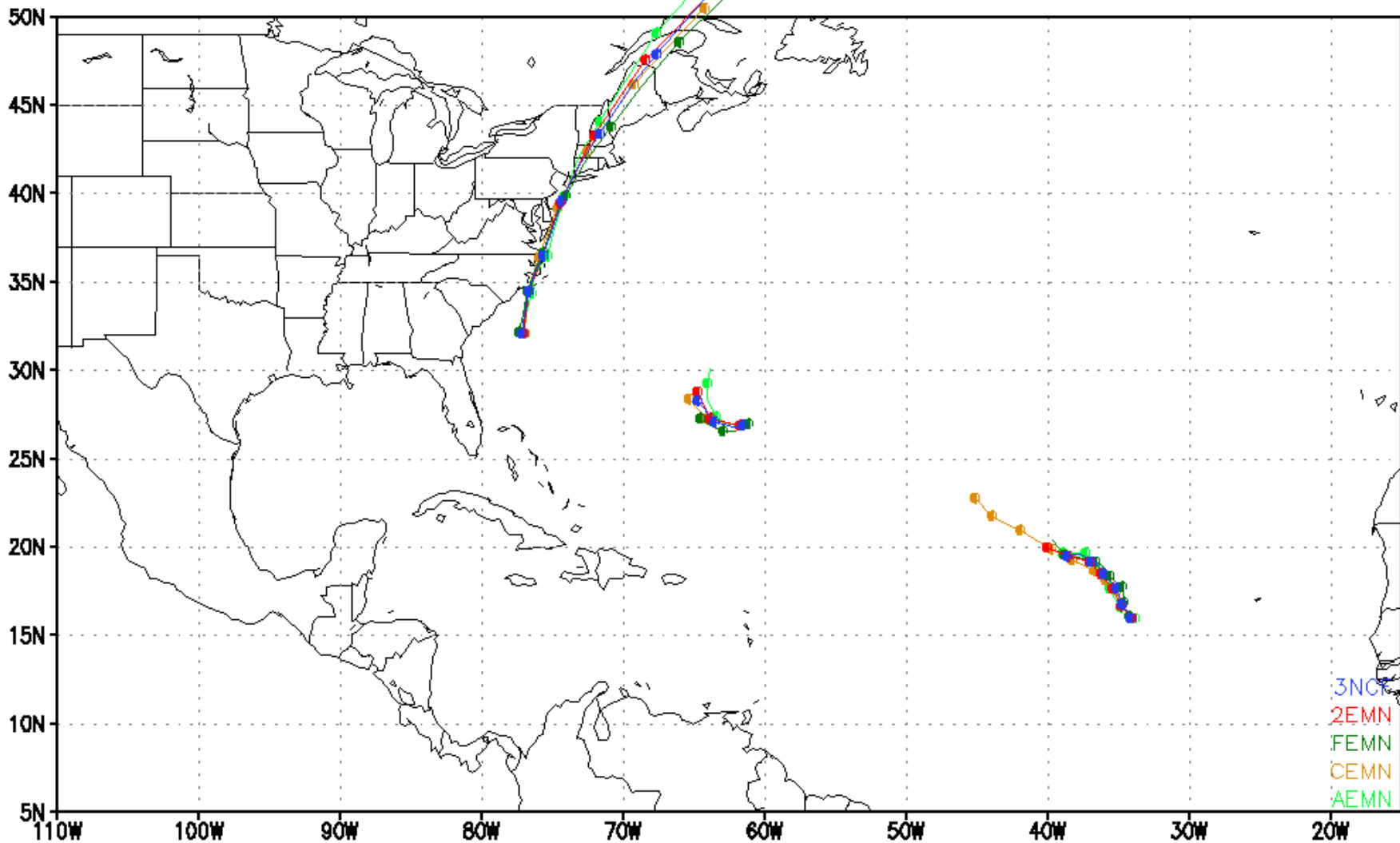


● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMOD)



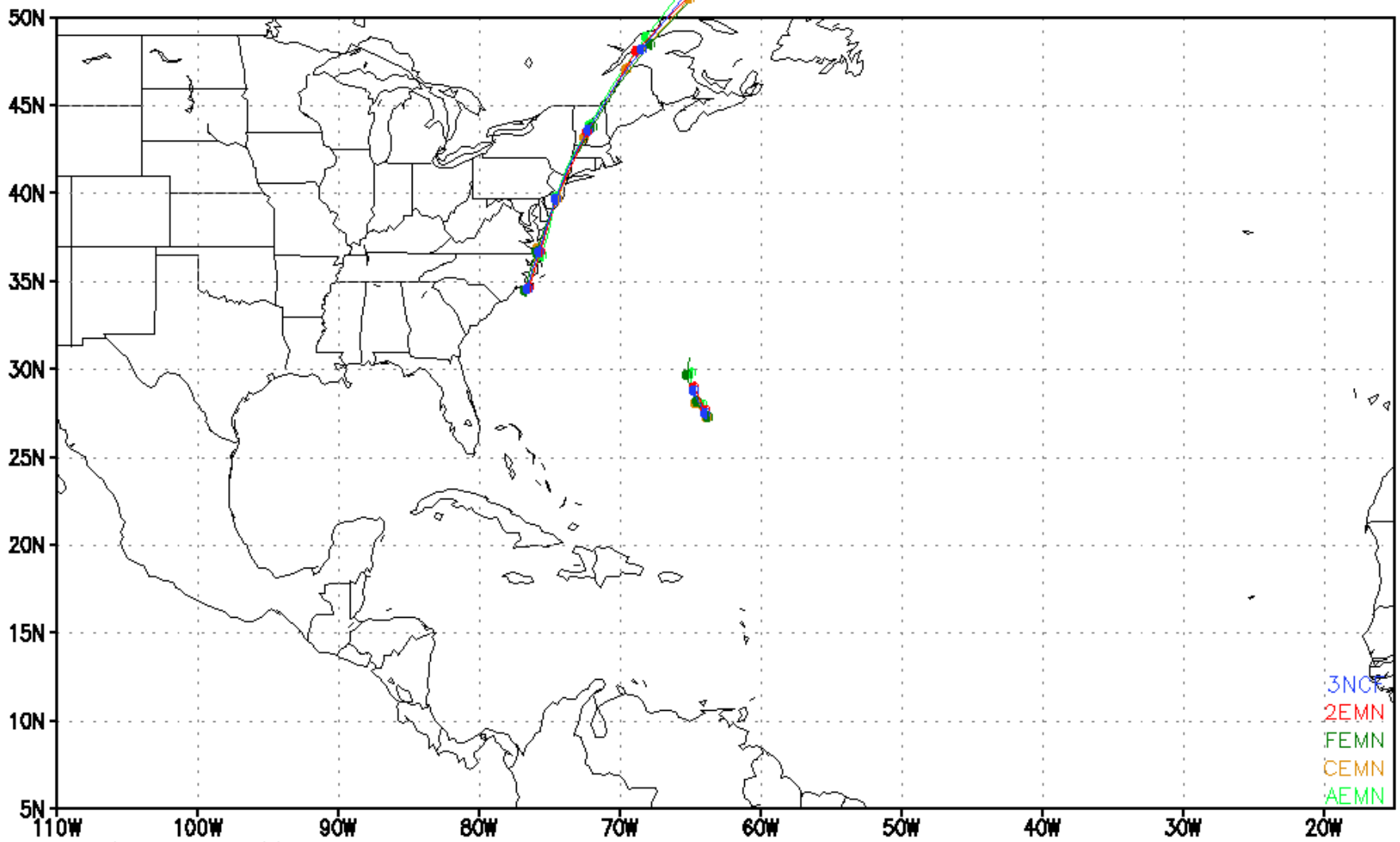
# Multimodel Ensemble Forecast TC Tracks 2011082700



● Indicates a position at 00 or 12 UTC

2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMOG)

# Multimodel Ensemble Forecast TC Tracks 2011082712



2EMN...40-member mean (NAEFS:NCEP+CMC) 3NCF...60-member mean (NCEP+CMC+FNMOG)