AWC 2007 Review

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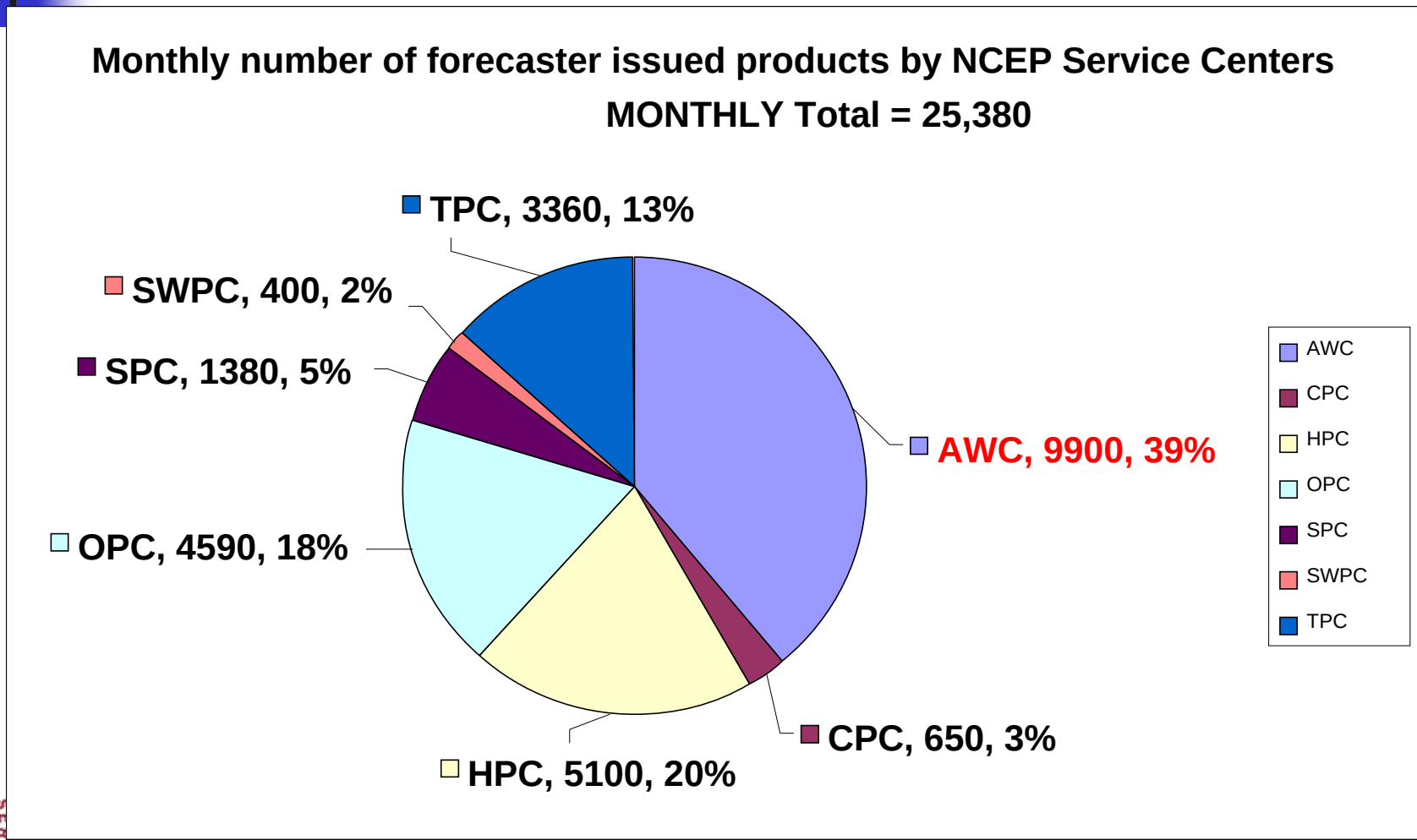
AWC Products
Serve the Nation and the World



AWC Forecasts

- Global and CONUS
- Short term (0→24)
- Ceiling (500, 1000, 3000 ft AGL)
- Visibility (1, 3, 5 st mi)
- Mountain obscuration
- Turbulence
- Mountain wave breaking
- Low-level wind > 20 kt
- Low-level vector wind shear ≥ 10 kt/100 ft in lowest 2000 ft AGL
- Icing
- Freezing level height
- Multiple freezing levels
- Convection
- Towering Cu
- Jet streams
- Tropopause height

AWC's Graphical Forecast for Aviation (GFA)

- Graphical production of Text AIRMET
  - AIRMET SIERRA: IFR CIG/VIS (<1000 ft/3 mi), Mountain Obscuration
  - AIRMET TANGO: Turb, Strong Sfc Wind (> 30 kt), Low-level Wind Shear (≥ 10 kt/100 ft - lowest 2000 ft AGL)
  - AIRMET ZULU: Icing, Freezing Level Height, Multiple Freezing Levels (inversions)
- Issued every 6 hours

AWC Guidance from EMC/NCO/GSD

- GFS
- NAM-NMM-WRF, NAM-HiRes, NAM-KF & NAM-WRF 4 km
- NGM
- RUC
- RUC-ConvProb (test from GSD)
- SREF (SPC, David Bright)
- UKMET
- Importance of observations, data assimilation, spin-up, dynamics, microphysics, and physics

AWC **Appreciation** for EMC/GSD Progress in 2007

- GFS
  - improved jet stream speed, turb diagnostics, unified post, freezing level height diagnostics, & satellite look-alike (Hui-ya Chuang, Mark Iredell, et al.)
  - GFS jet stream strength now comparable with UKMET
- NAM
  - diffusion, divergence damping, convection and microphysics, roughness length, canopy resistance, satellite look-alike (Geoff D., Eric Rogers, et al.)
- RUC
  - improved observation QC, lake temperatures, boundary smoothing, analysis improvements (Stan Benjamin, John Brown, Geoff M., RUCsters)
- Additional balloon soundings for Cb fcst
- SREF Aviation Diagnostics
  - icing, turb, IFR, MVFR, VFR (Jun Du & Binbin Zhou)

AWC Wish List: 2008

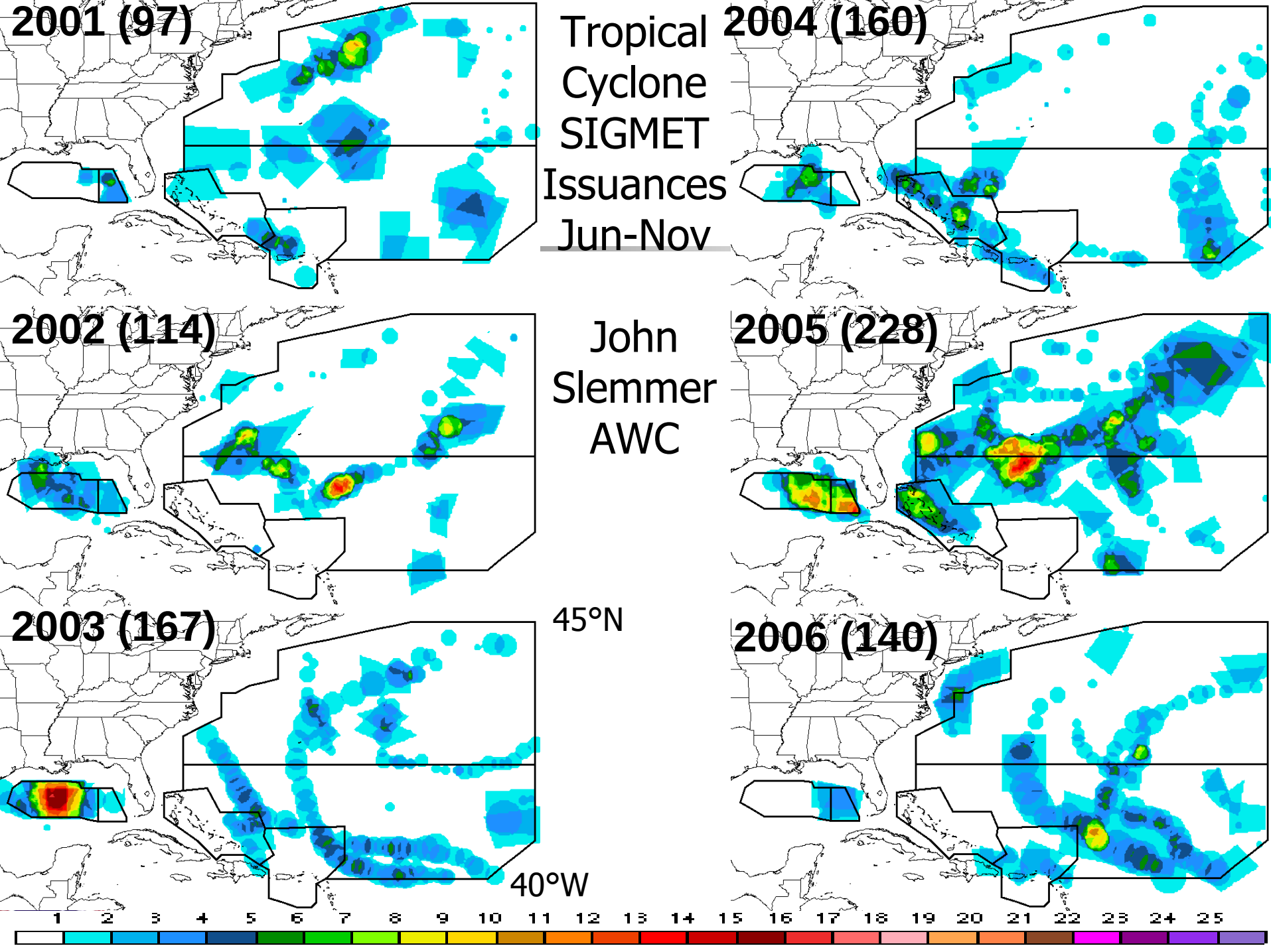
- Post additions
  - Add microphysics to GFS and RUC isobaric output (planned for RUC)
  - Add simulated radar reflectivity to RUC, GFS (planned for RUC)
  - Add simulated echo tops to GFS, NAM, & RUC
  - Add cloud coverage and height to GFS and RUC (planned for RUC)
  - Add OPC visibility to GFS
  - Add mountain wave diagnostic/gravity waves to GFS, NAM, and RUC
  - Add Turbulence Diagnostics to GFS, NAM, and RUC: every 25 hPa in isobaric output for grids sent to AWC (Ellrod, Ri, TKE—in NAM)

AWC Wish List: 2008

- Extend on-time RUC to F24: add F15, F18, F21, F24
- Extended RUC/RR domain (in progress)
- Extend NAM domain → Feb 08
- Ascent/descent soundings from ACARS/TAMDAR
- Increase convective diversity in SREF
  - Include RUC, RUC-CP, and NGM (Kuo scheme) convection

Example

- Atlantic Tropical Cyclone SIGMET Climatology by Jonathan Slemmer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2004 (160)
Tropical
Cyclone
SIGMET
Issuances
Jun-Nov
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2005 (228)
John
Slemmer
AWC
2003 (167)
2006 (140)
45°N
40°W
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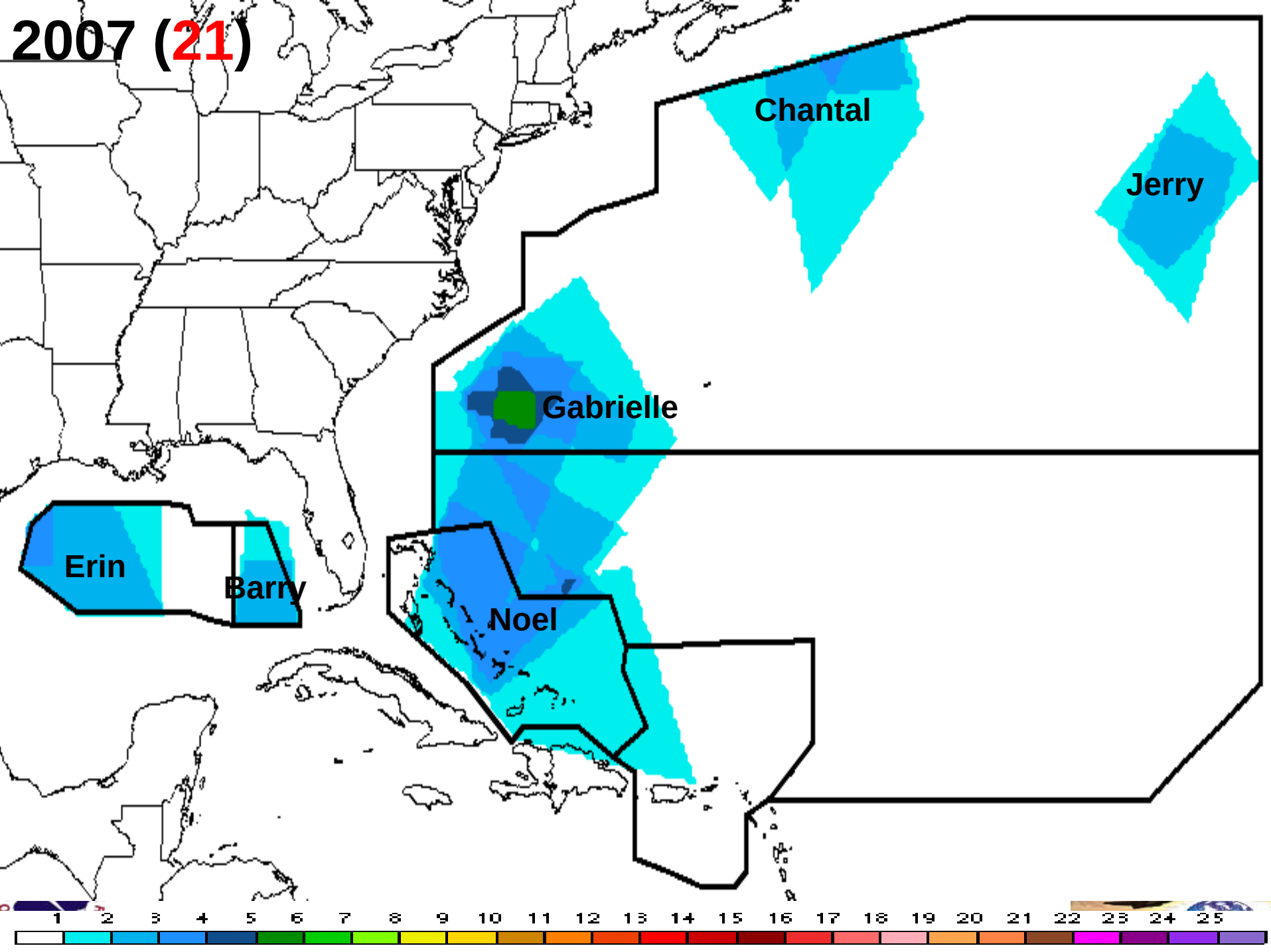
2007 (21)
Chantal
Jerry
Gabrielle
Erin
Barry
Noel
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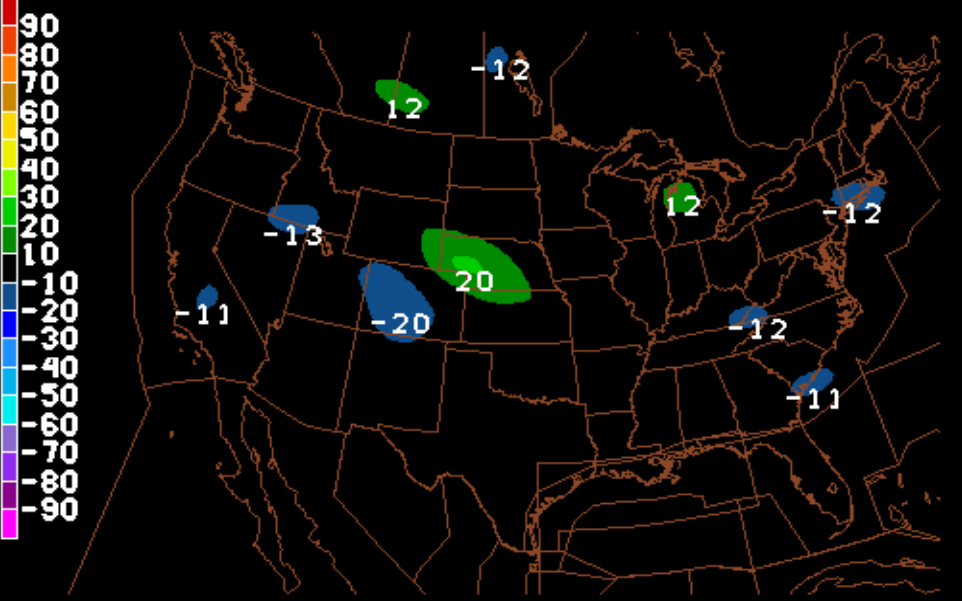
Example

- NAM jet stream too strong with anticyclonic curvature
  - Ellrod turb diagnostics too strong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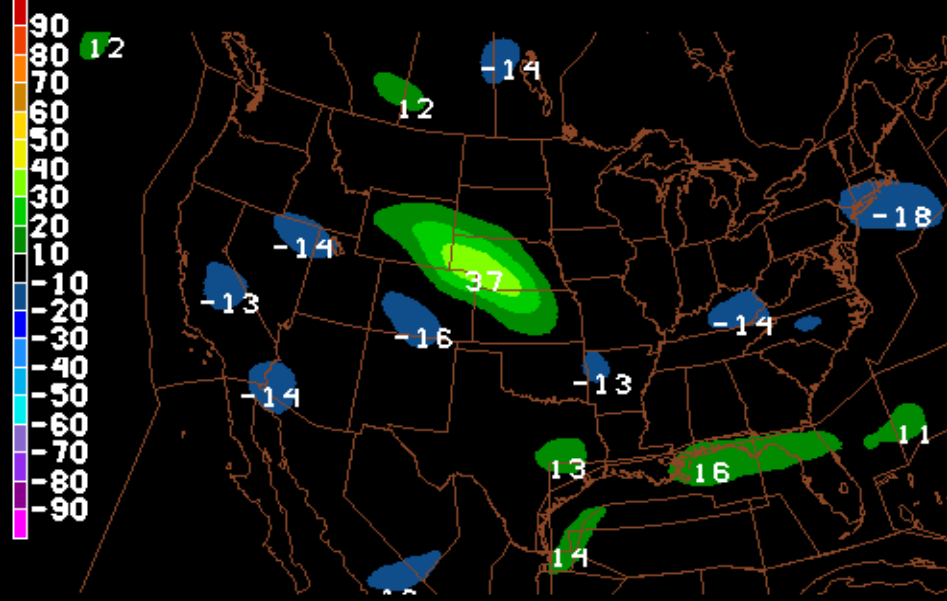
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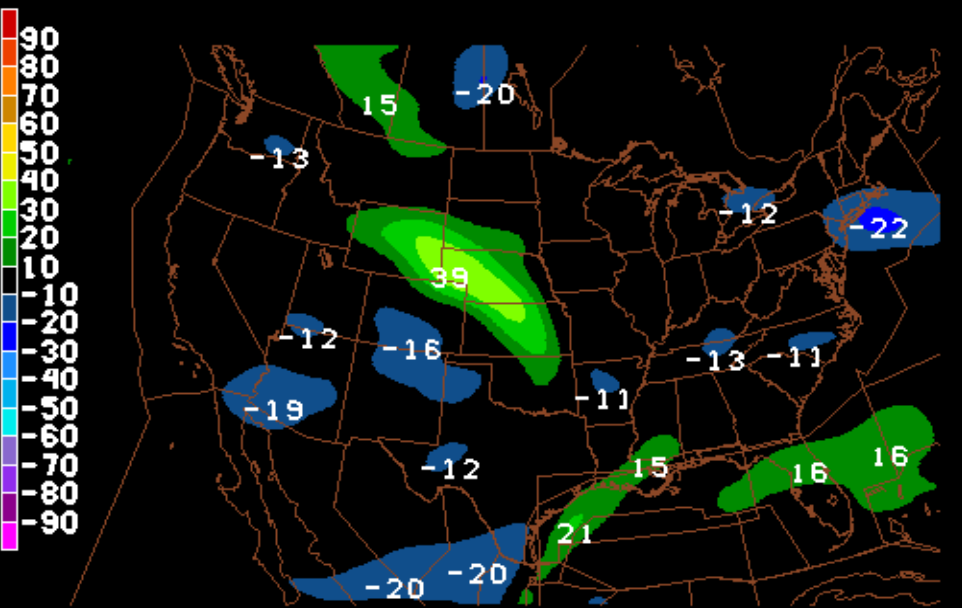
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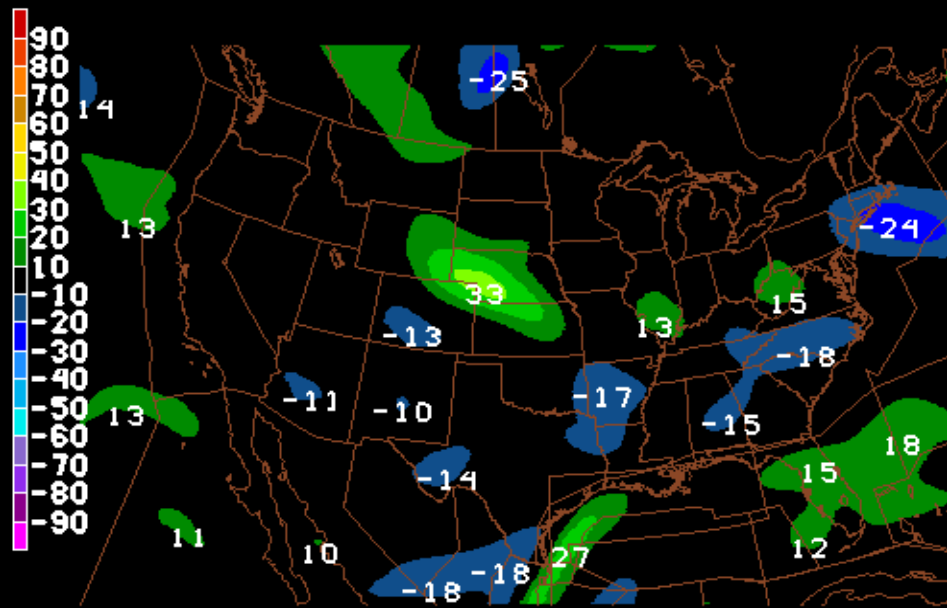
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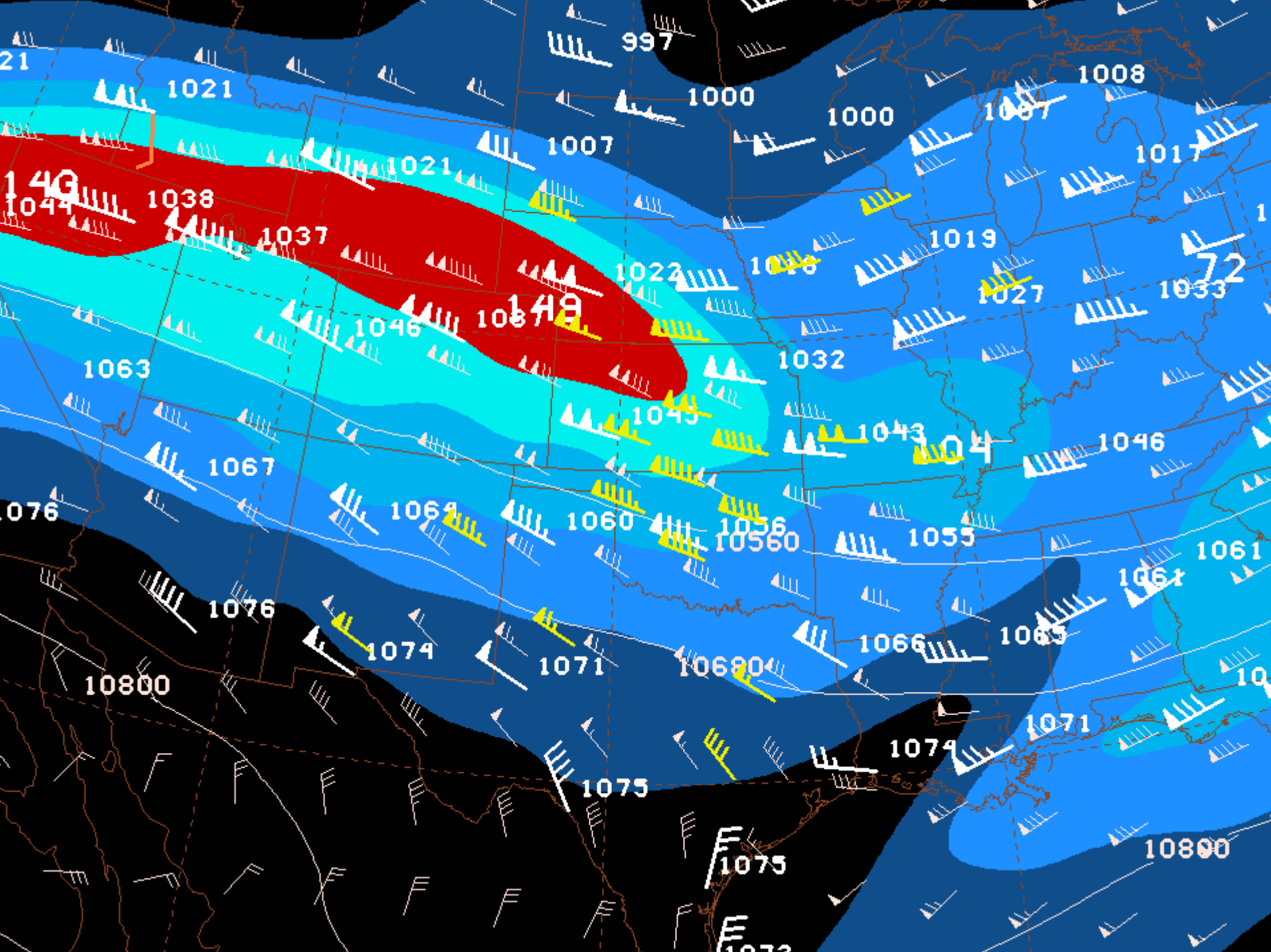
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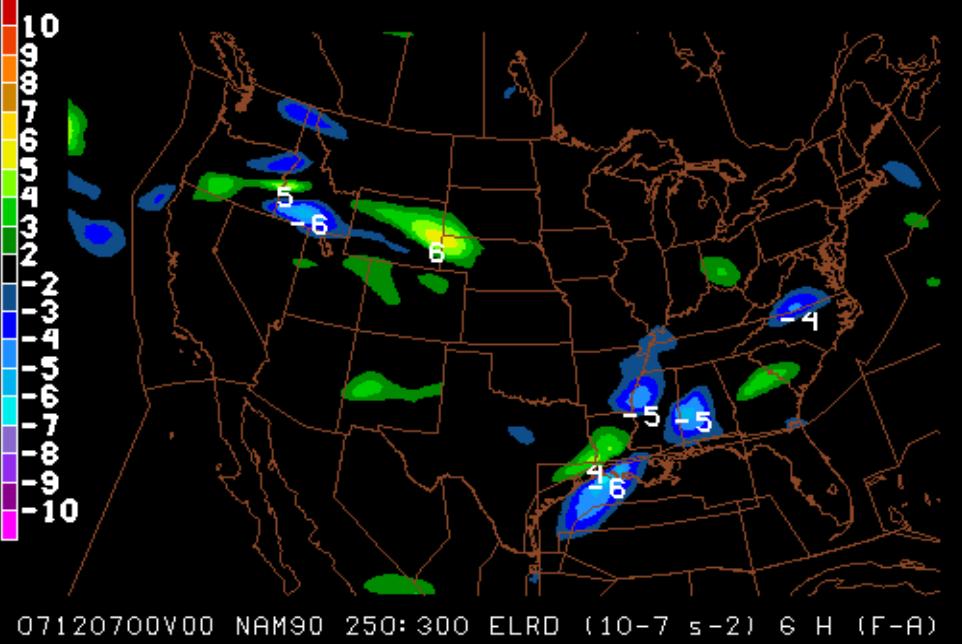
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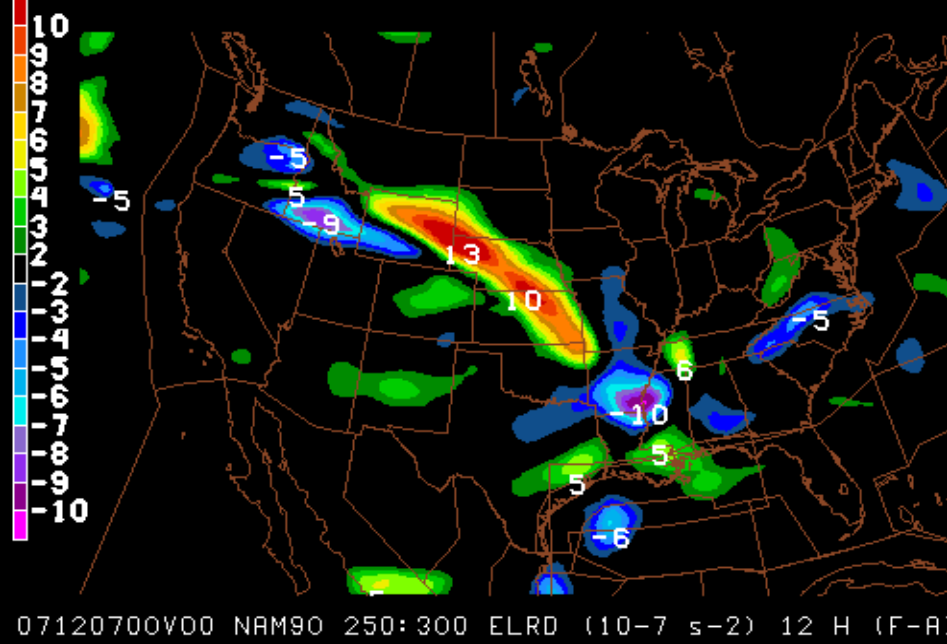
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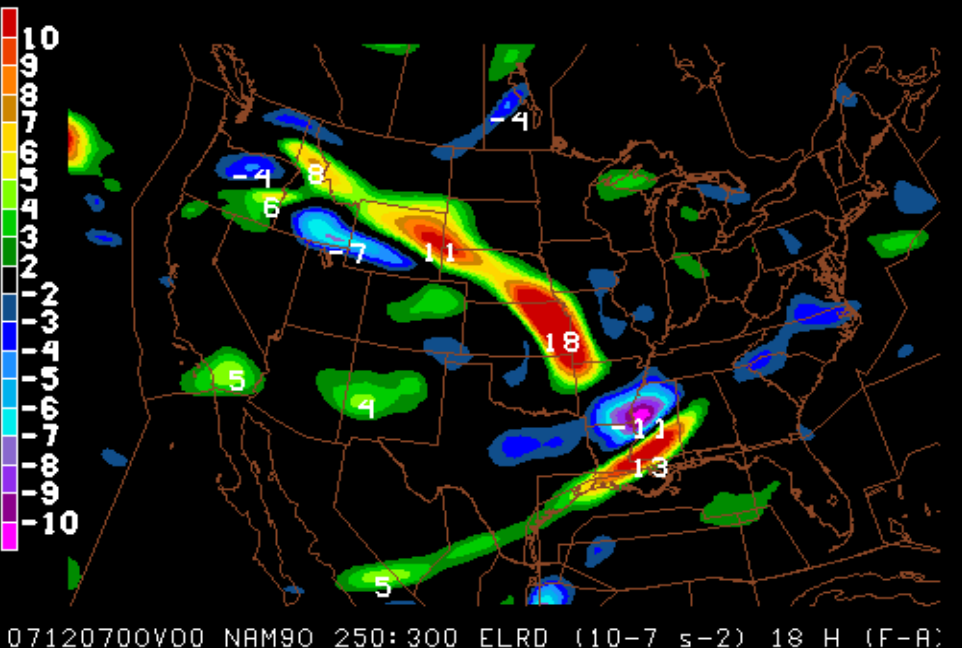
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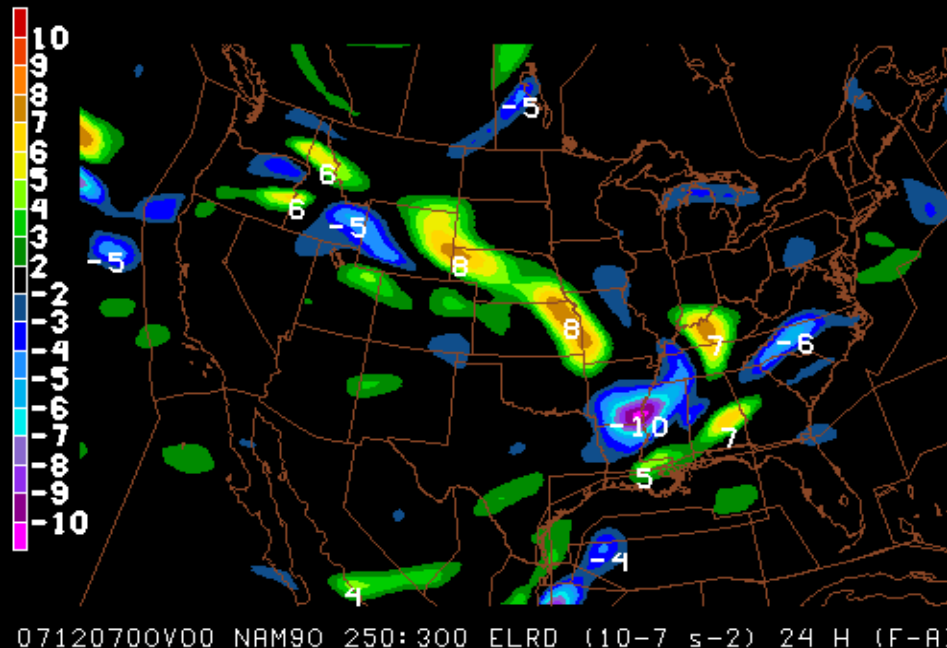
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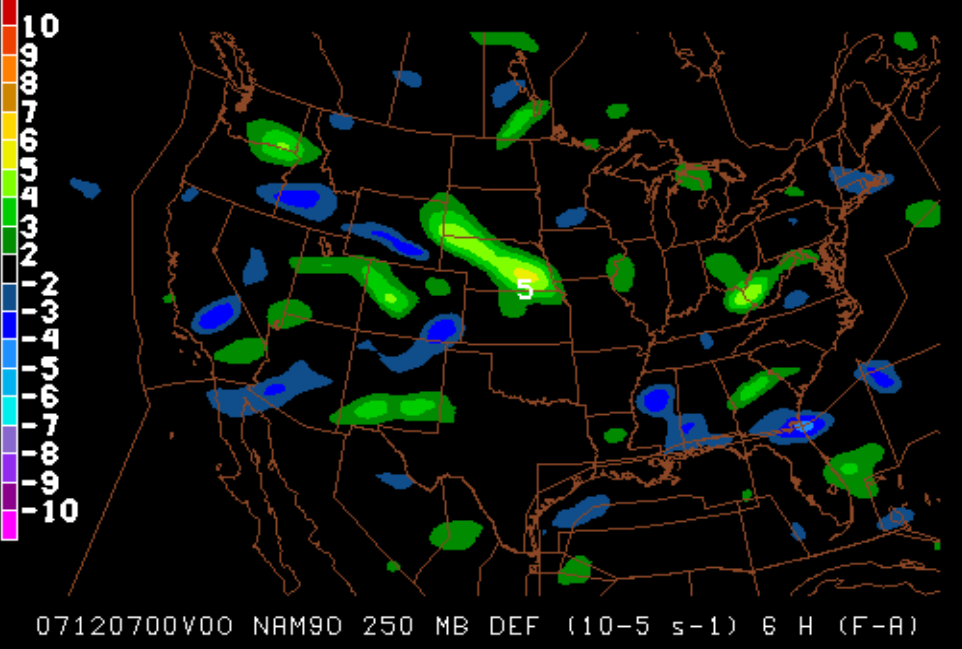
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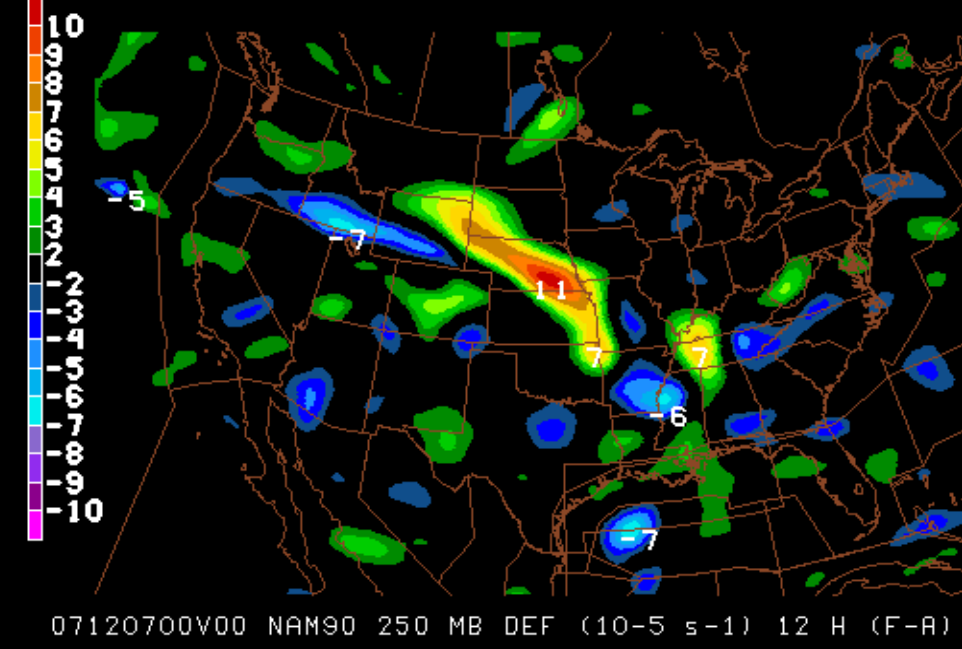
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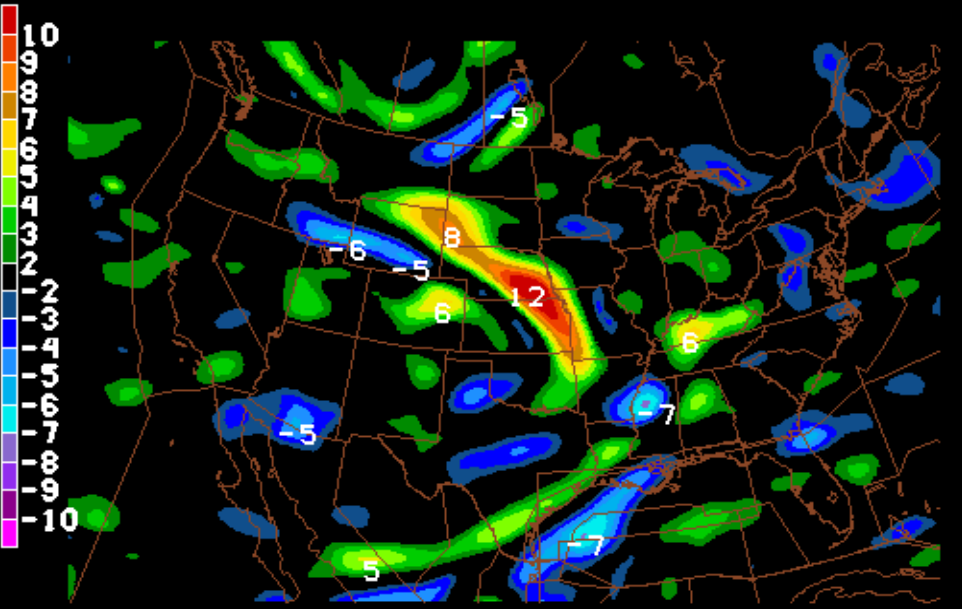
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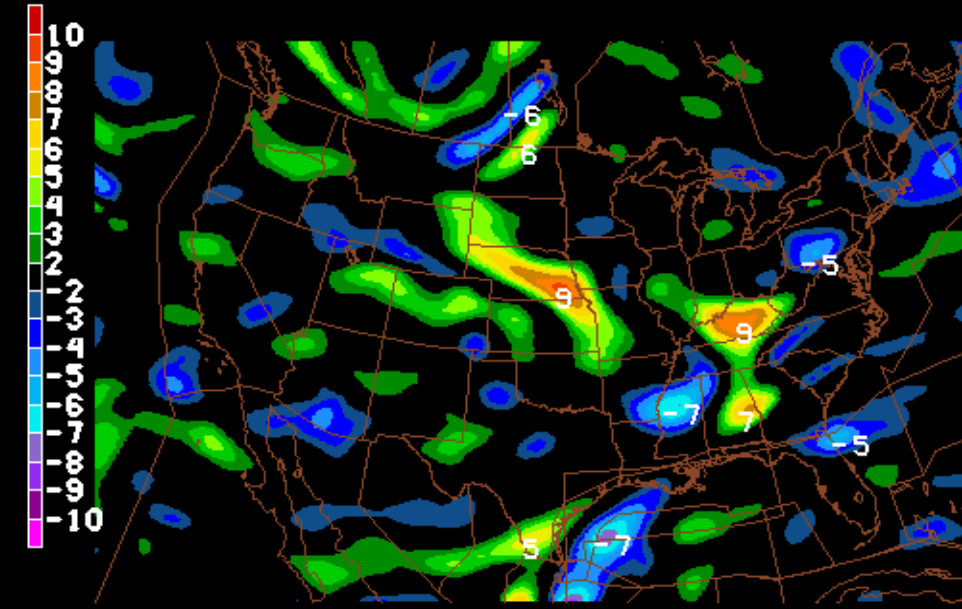
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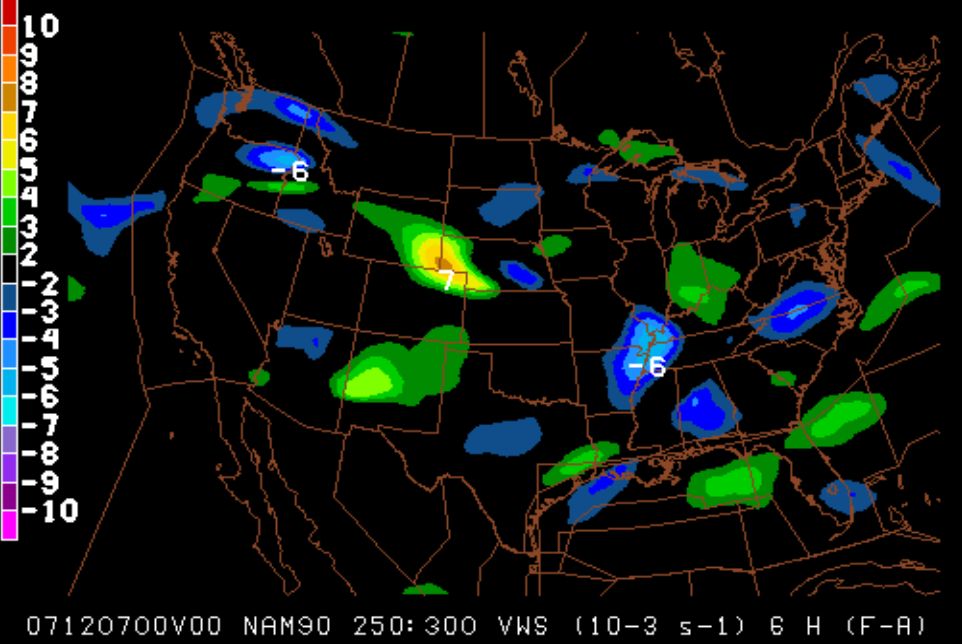
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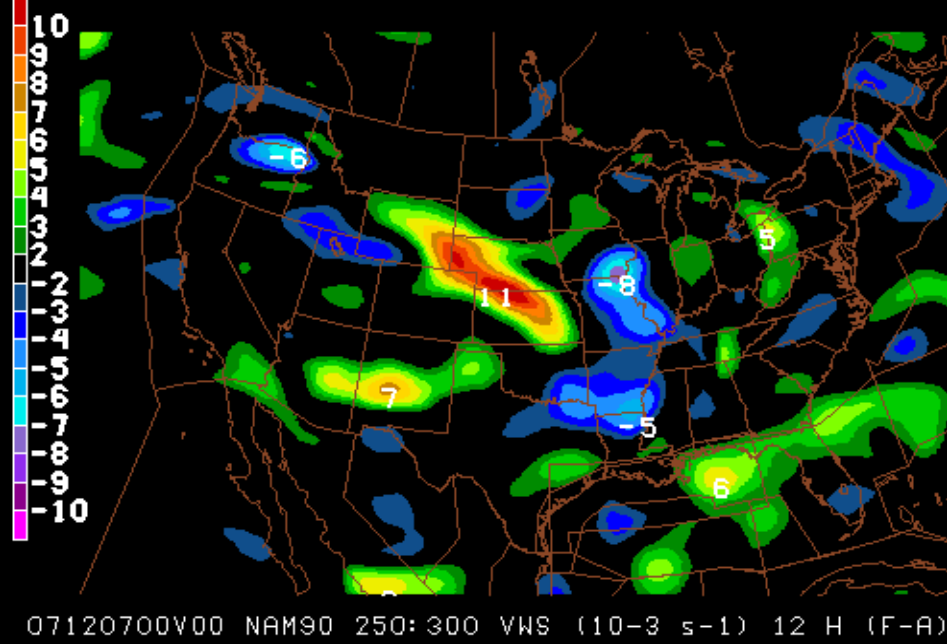
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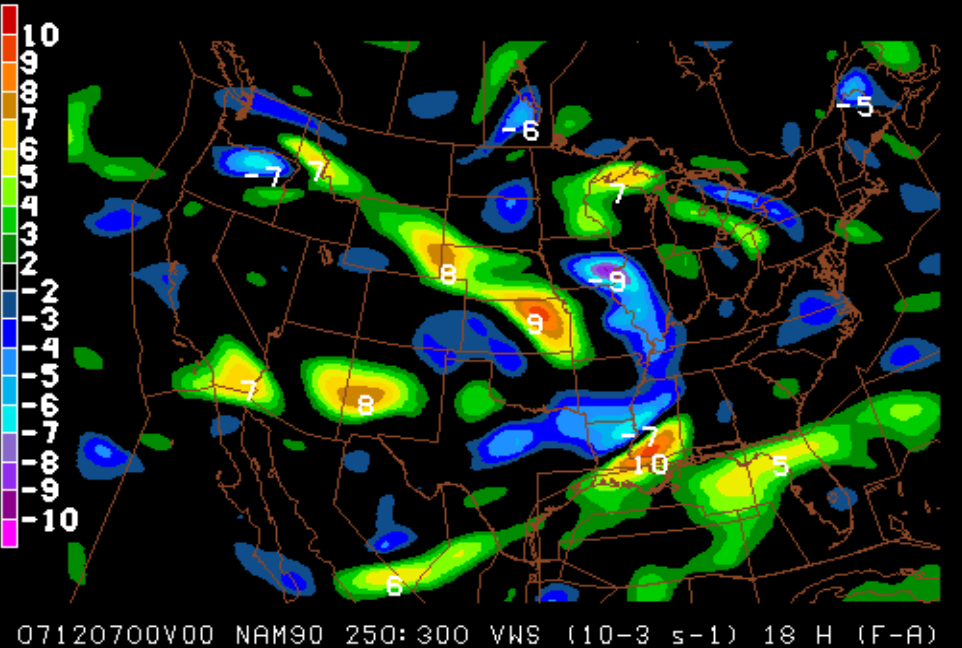
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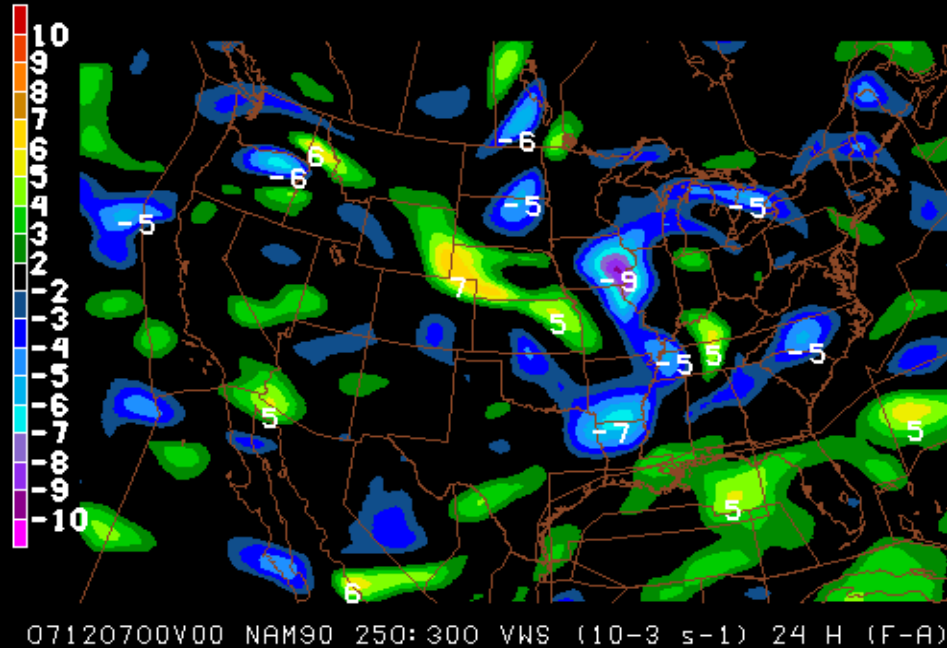
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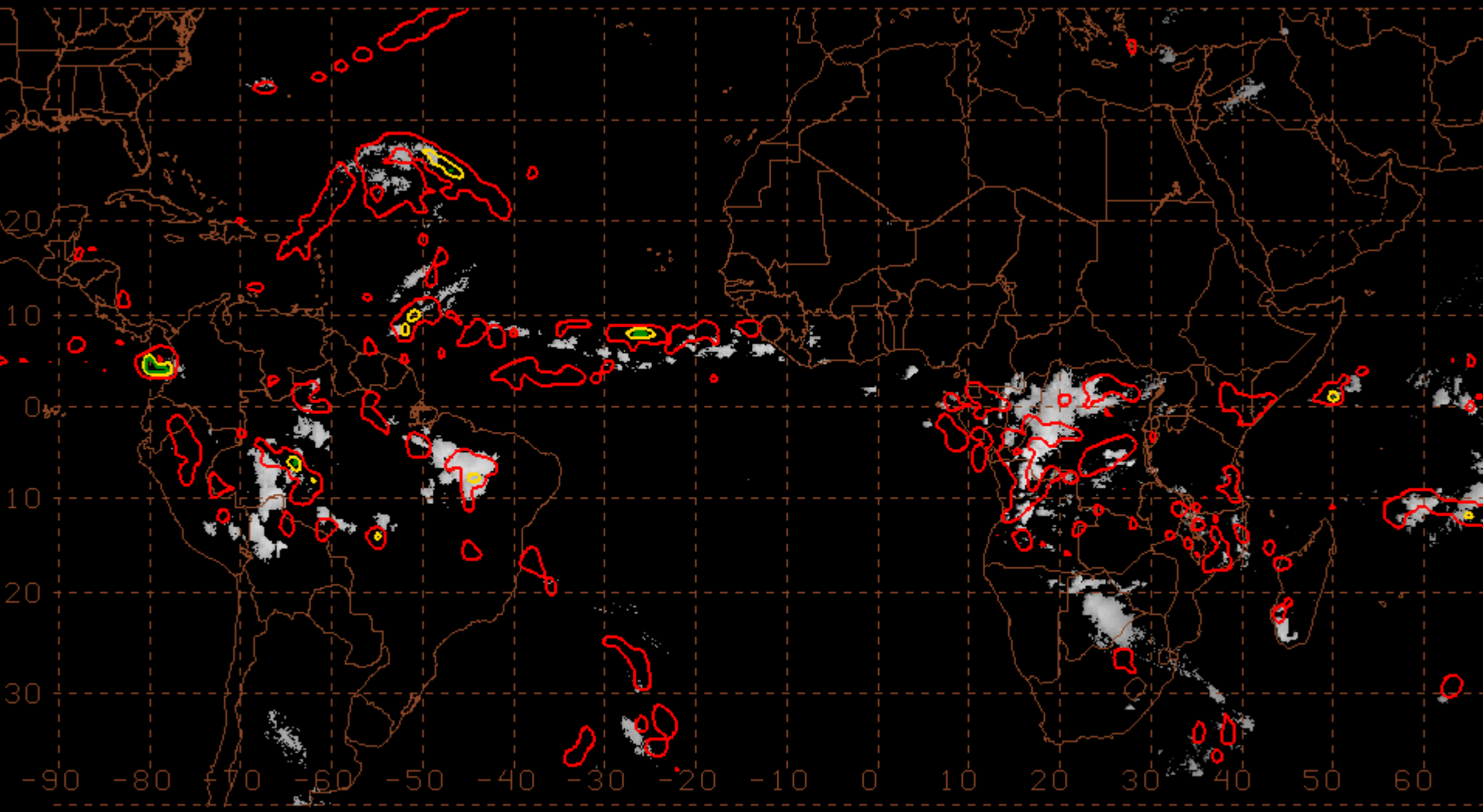
Example

- GFS Convective Precipitation
  - Diurnal cycle over Africa & S. America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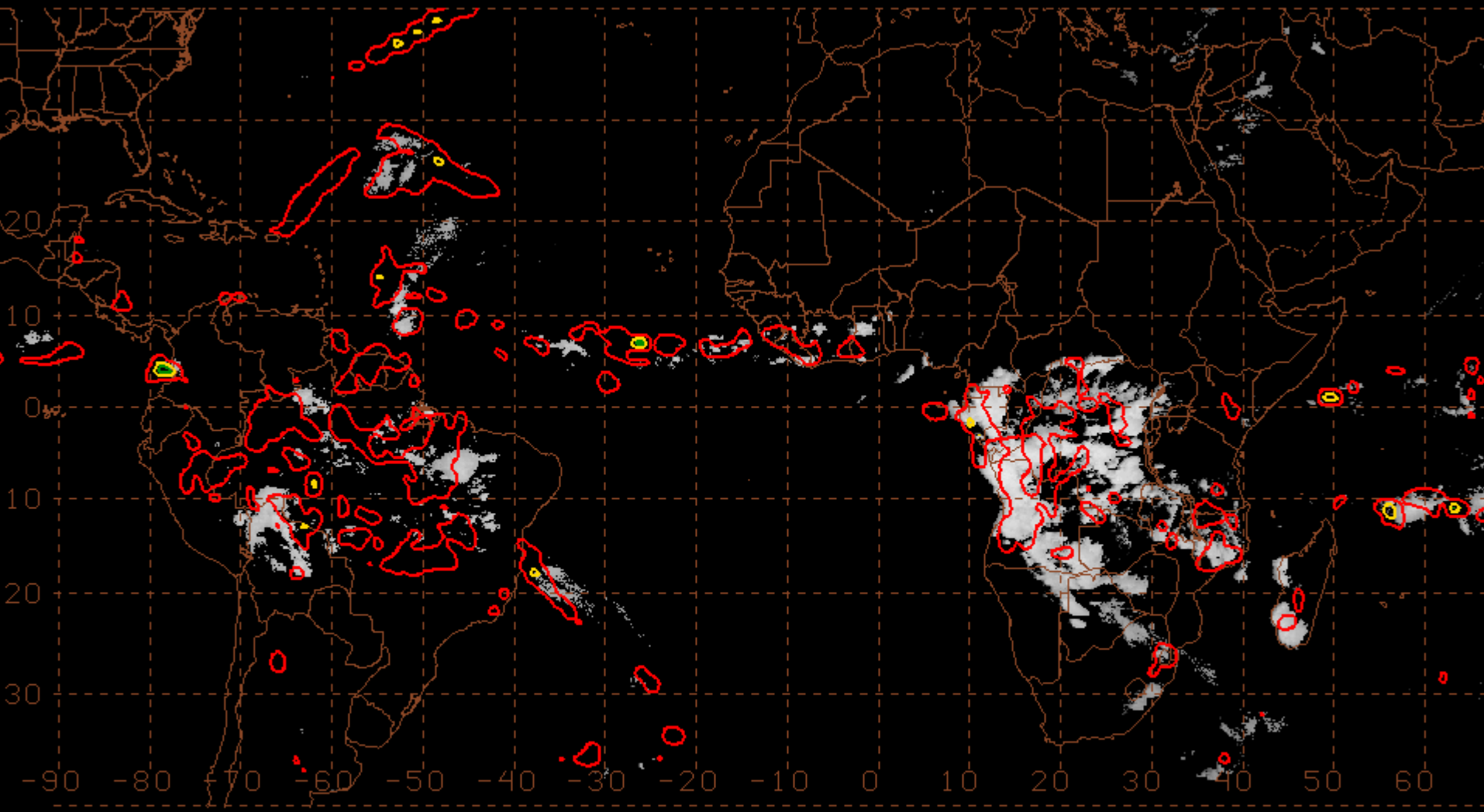
071201/1200V024 GFS 6 H ACCUM CONV PCP (3, 13, 20 MM/.12, .51, .79 IN)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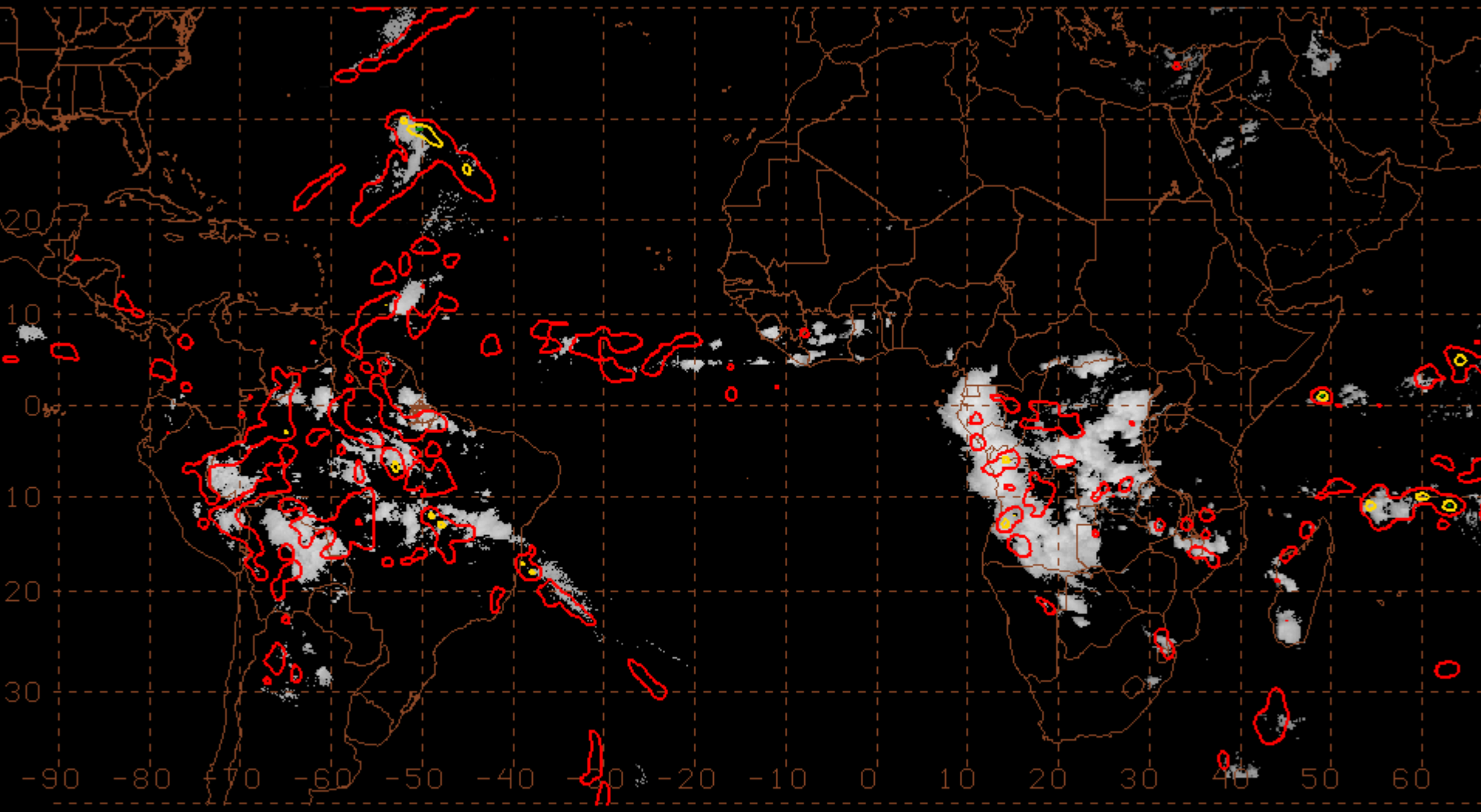
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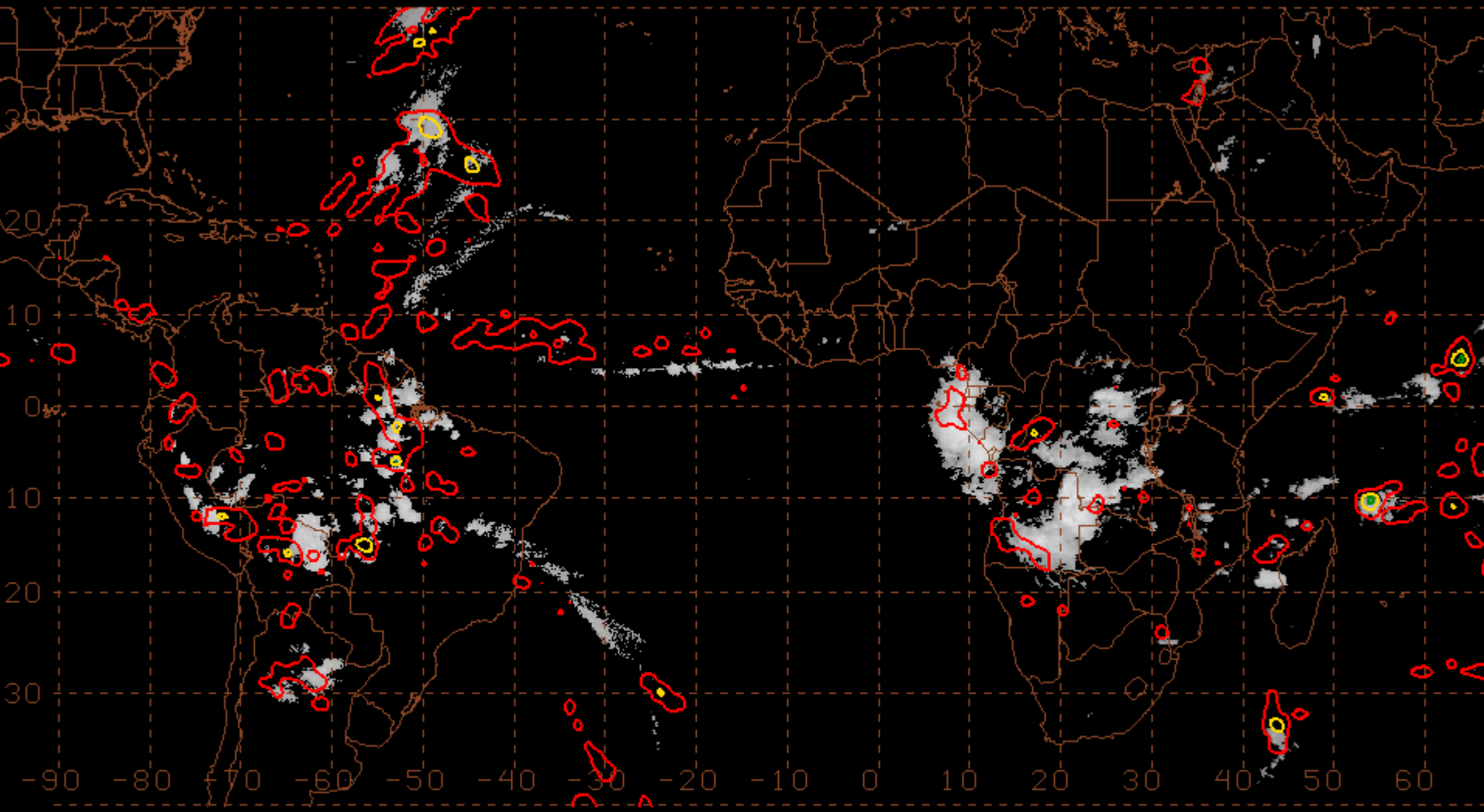
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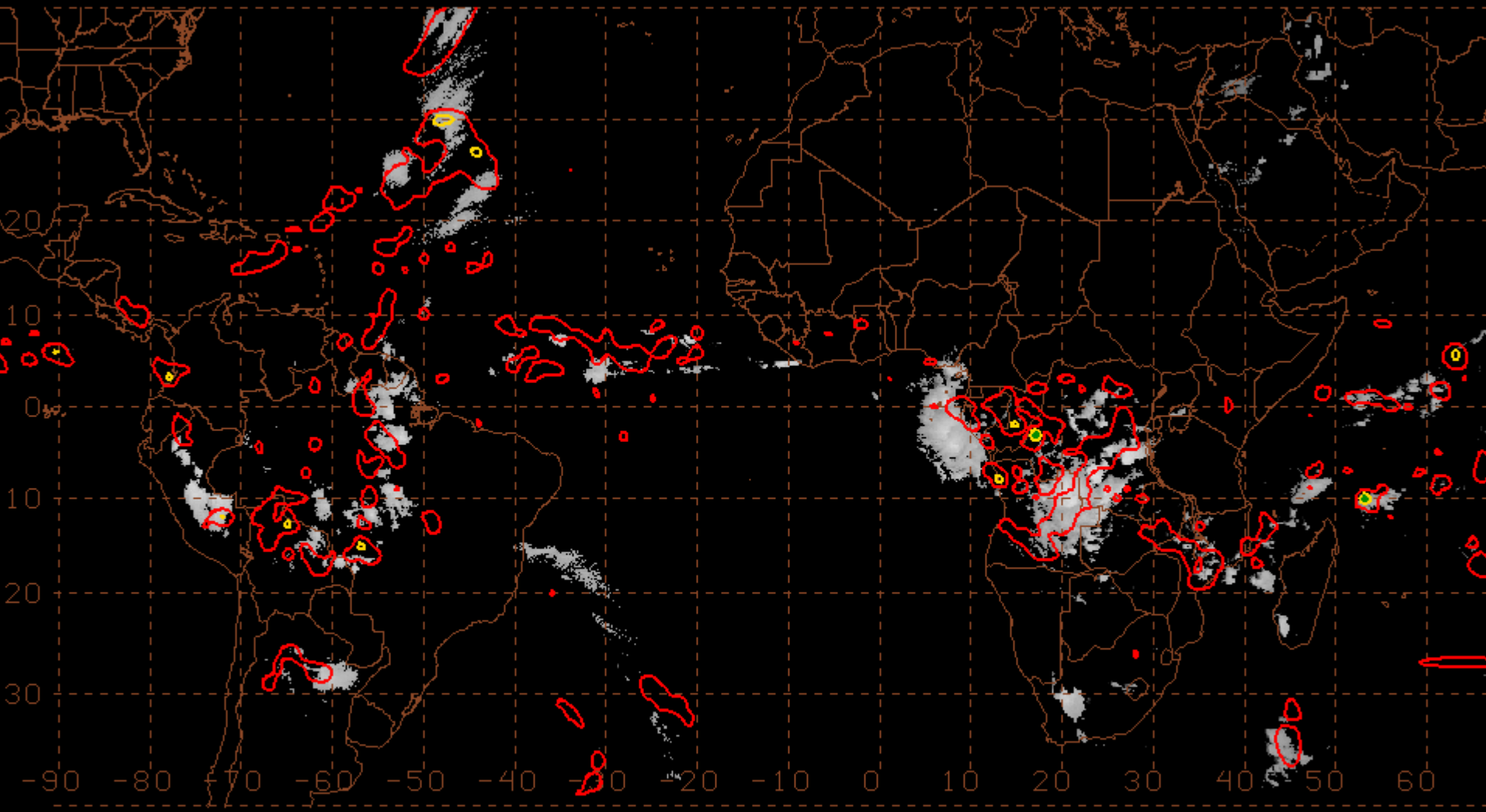
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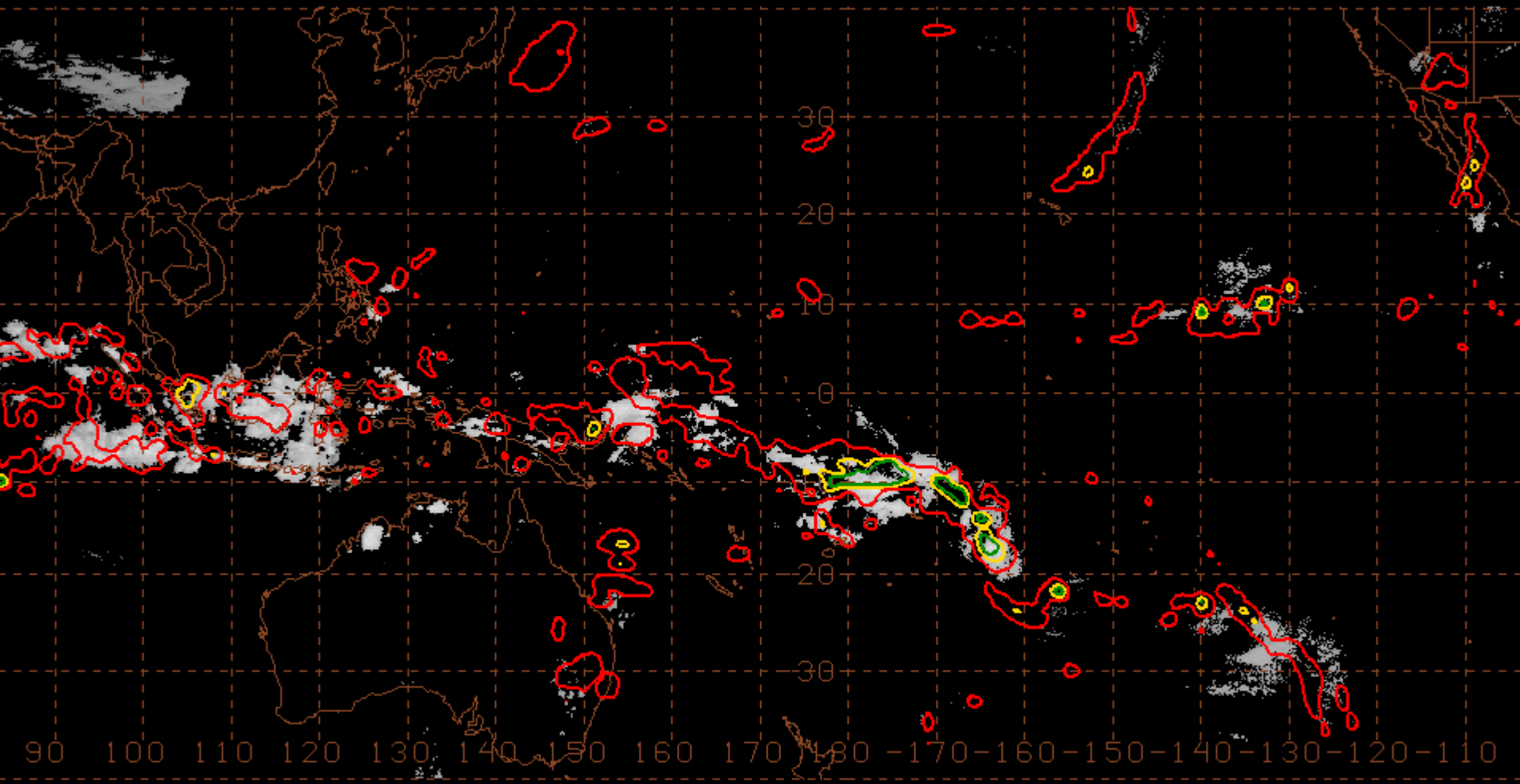
Example

- GFS Convective Precipitation
  - Pacific/Indian Ocean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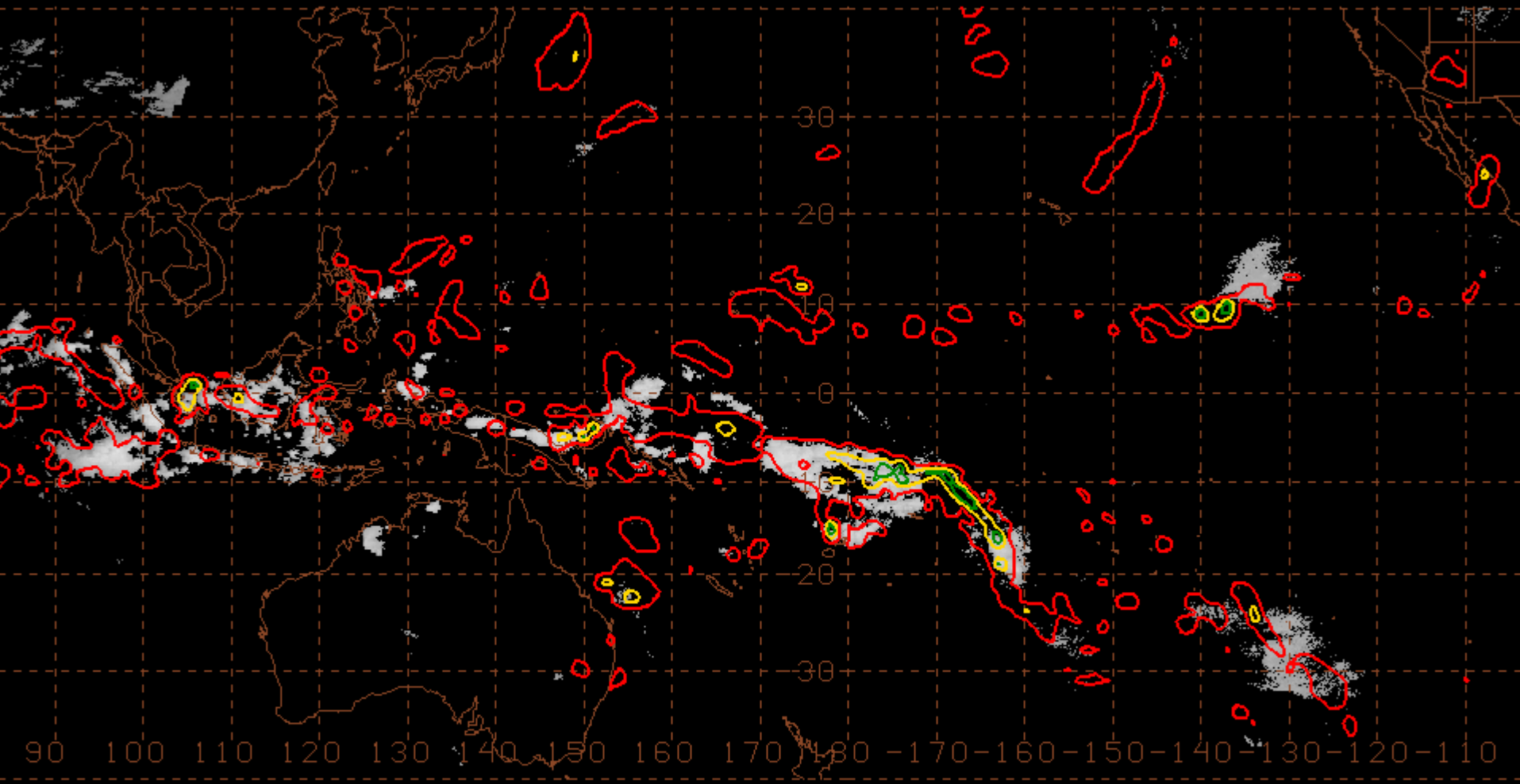
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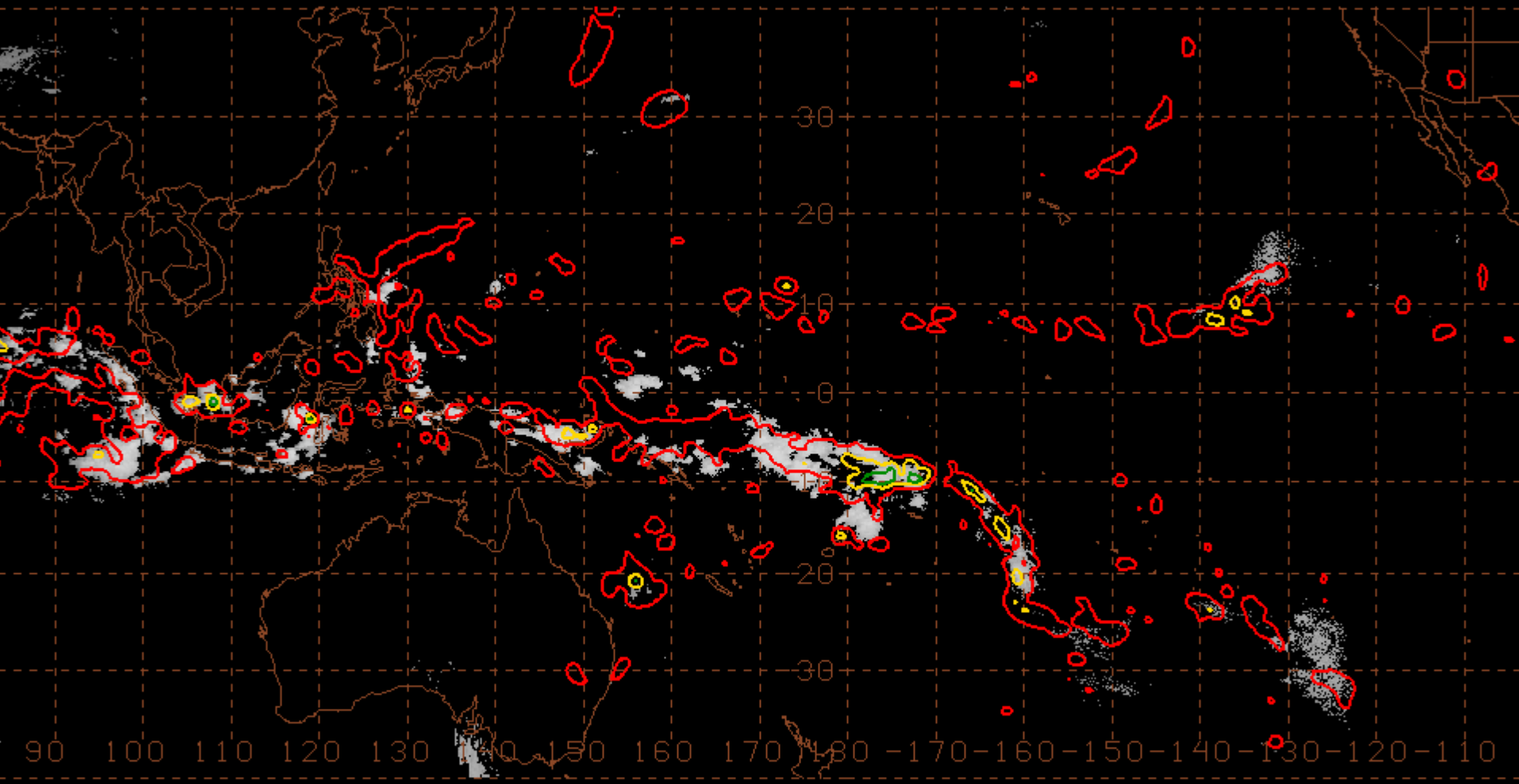
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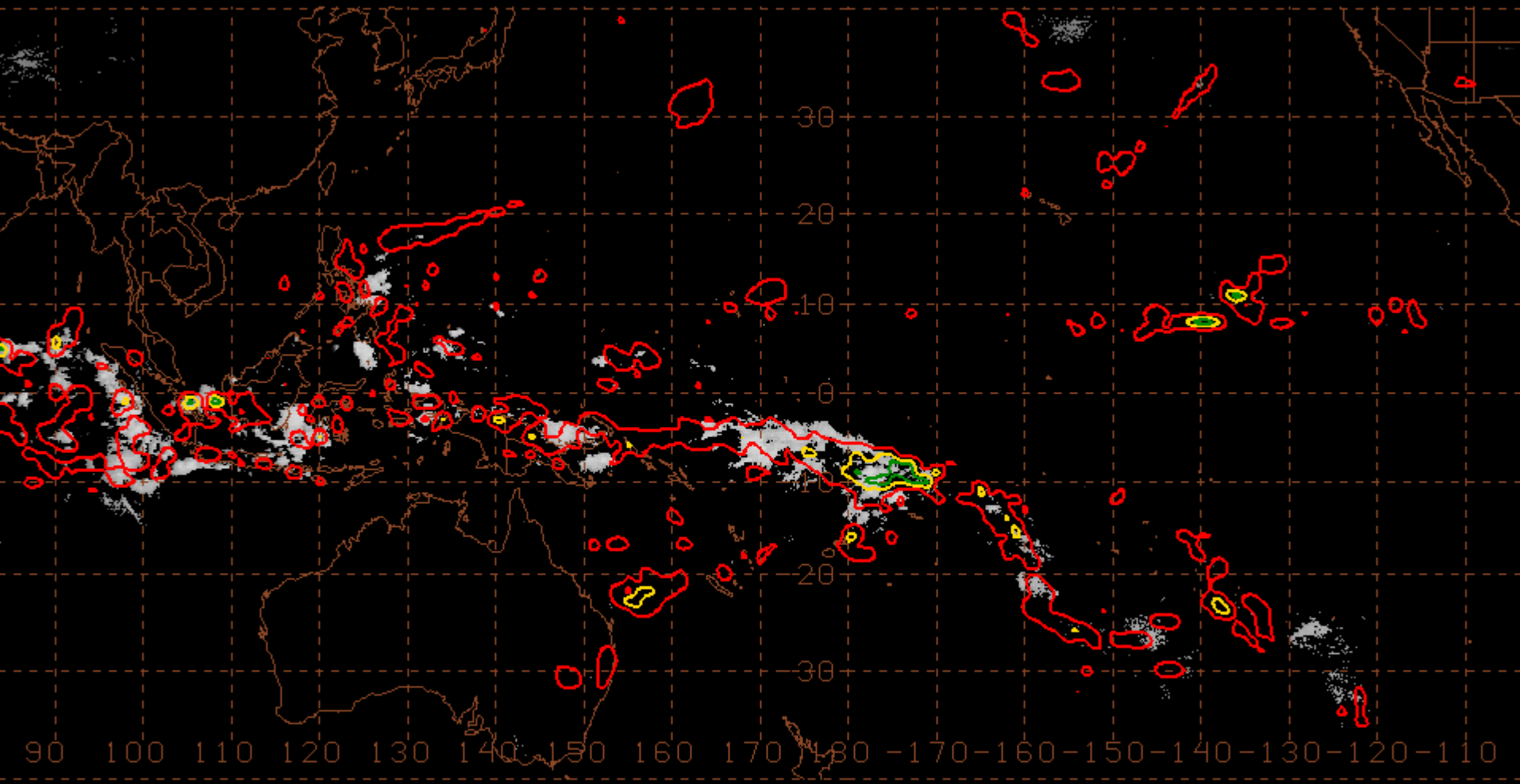
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071202/0600V024 GFS 6 H ACCUM CONV PCP (3, 13, 20 MM/.12, .51, .79 IN)

Summary

- Thank you EMC, NCO, GSD, & NCEP Centers for
  - 2007 Improvements and Collaboration
  - Responsiveness to AWC needs
- Best Wishes for a successful and productive 2008