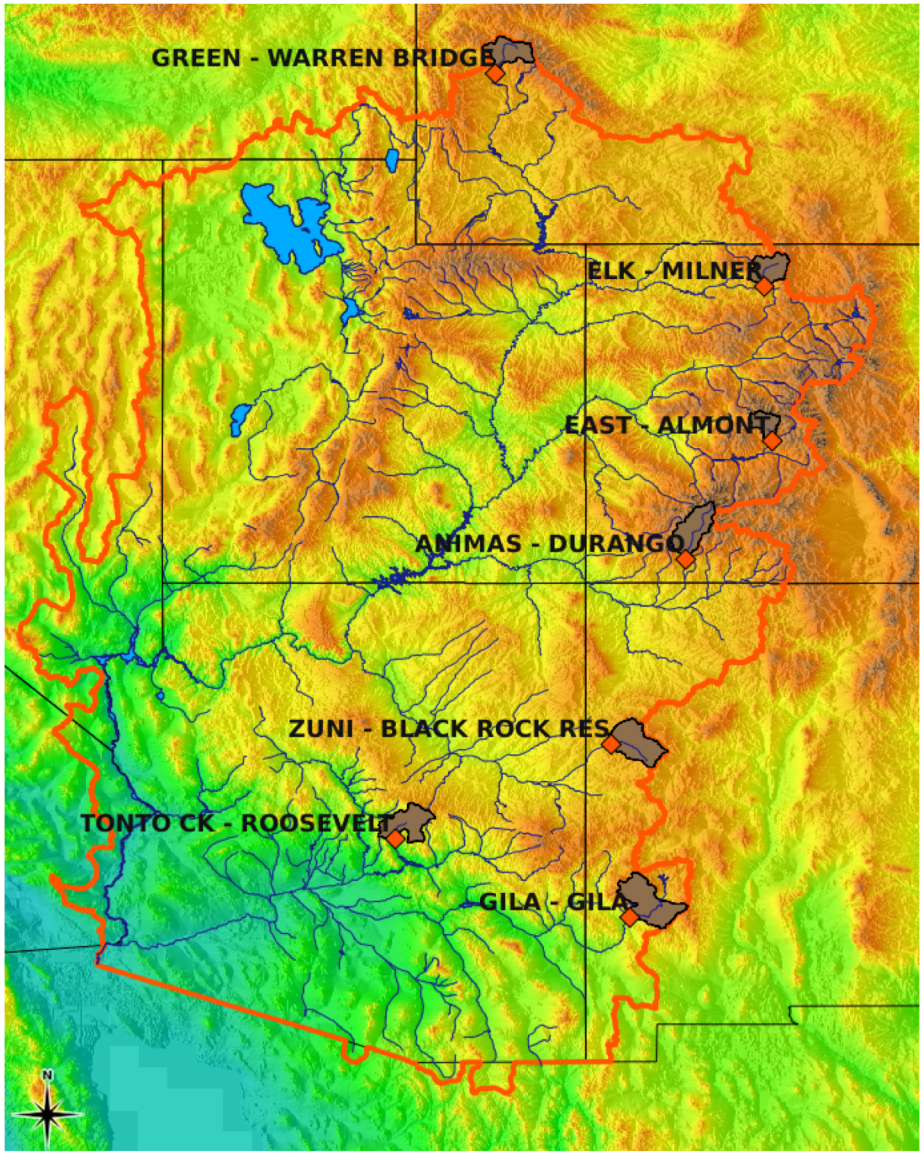
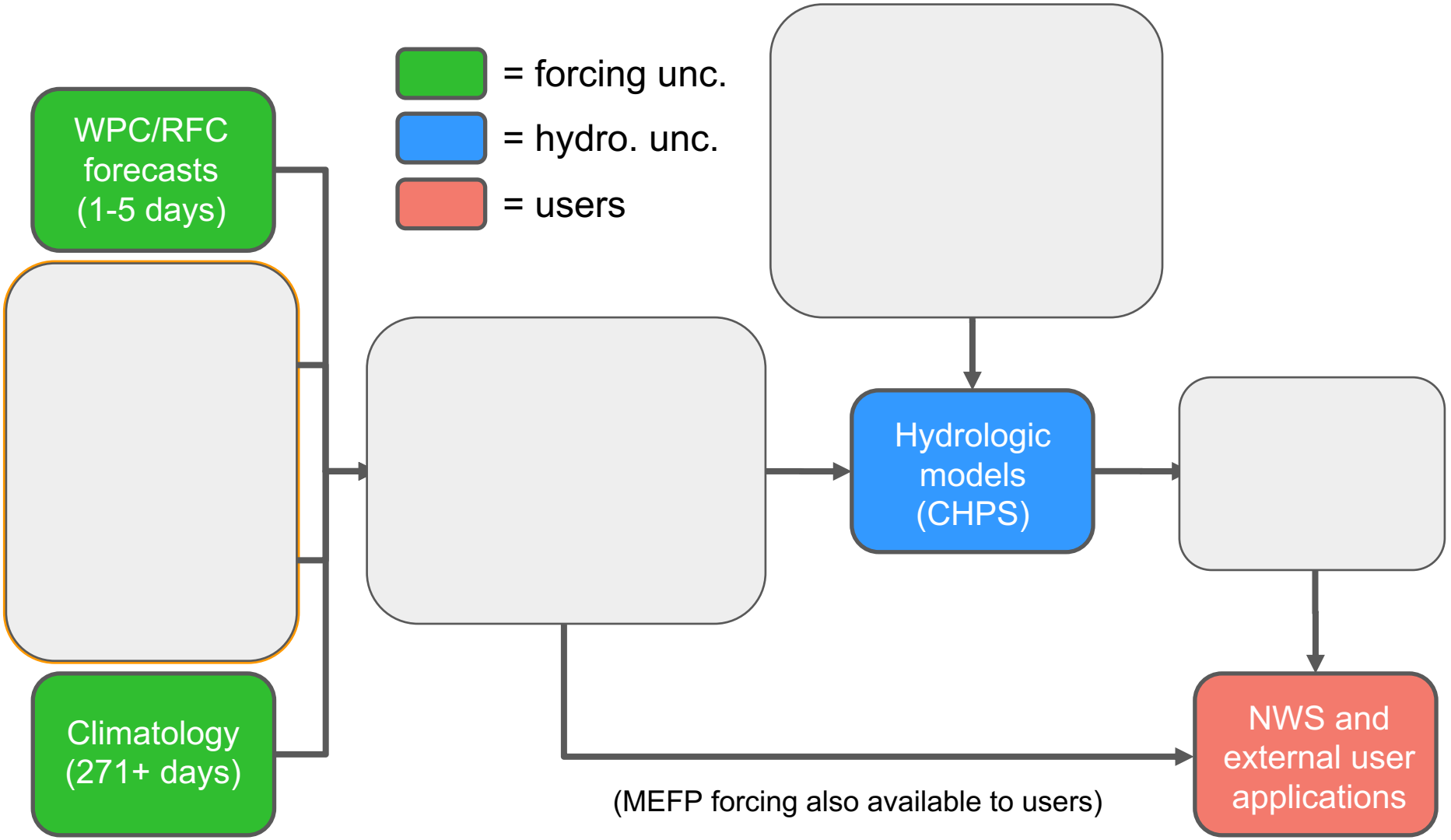
Including Meteorological Models in Extended Streamflow Prediction (ESP)

Presentation Overview

- Inputs to ESP in
- GEFS Temperature and Precipitation Skill
- CFSv2 Temperature and Precipitation Skill
- Reforecast verification plots
  - plus current year evolution plot
- Questions

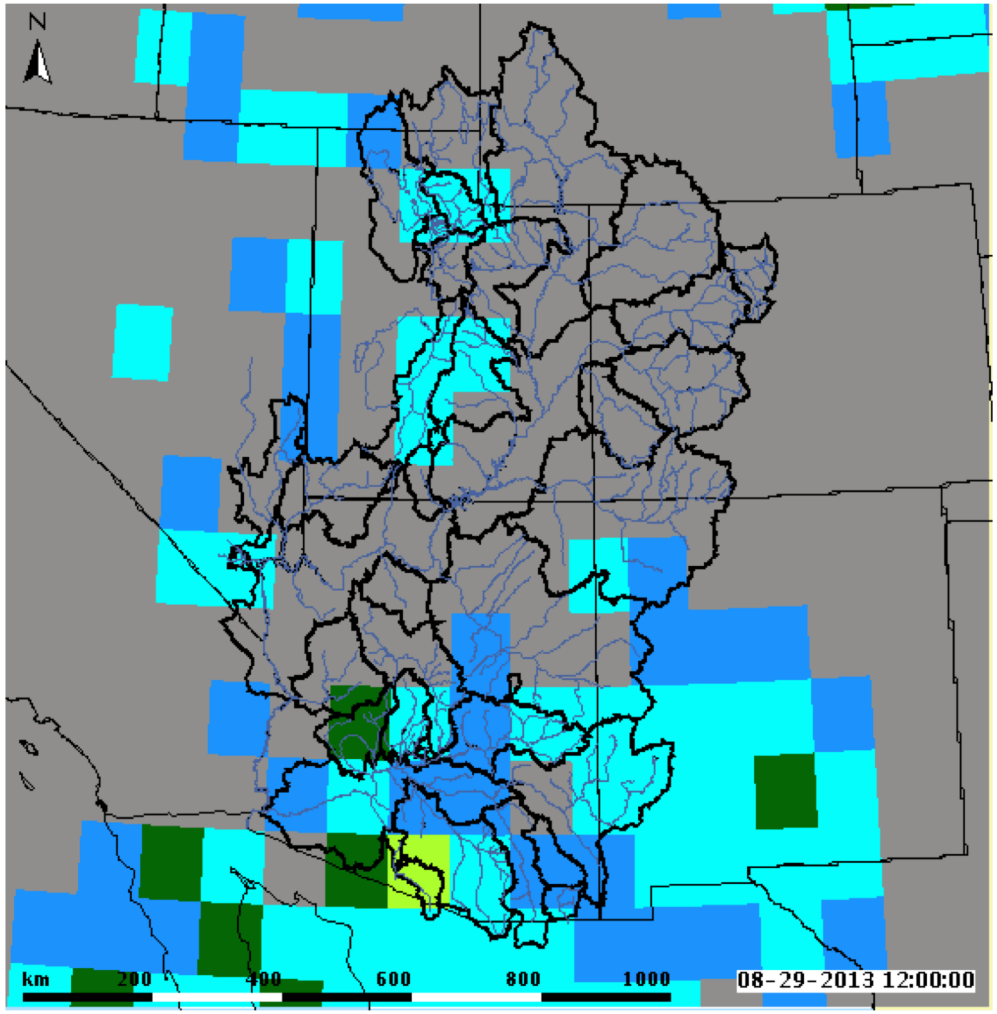


Meteorological Forecasts in ESP



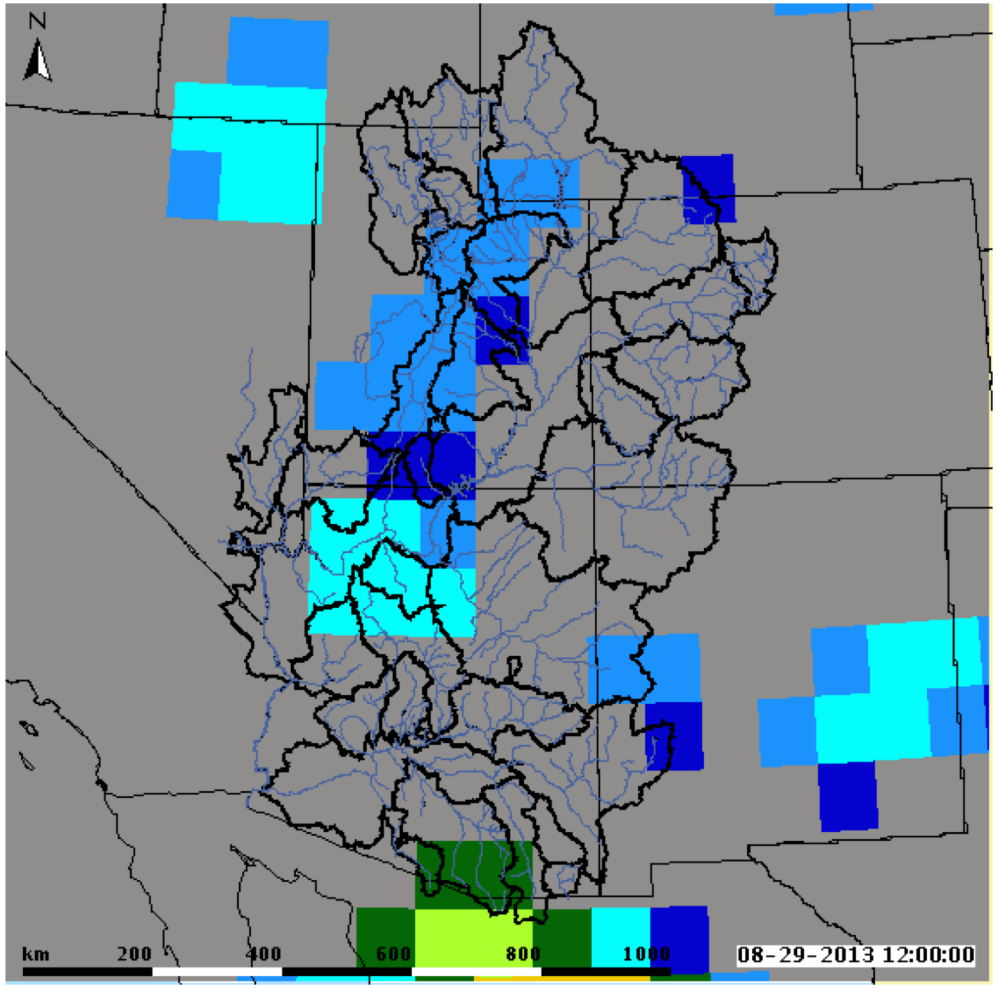
Global Ensemble Forecast System (GEFS)

- short term forecast 15 days out
- precipitation and temperature max/min
- comes as gridded product
- 1 degree resolution
- use the average of the GEFS 20 traces
- reforecasts available for 1985-2010
- http://www.emc.ncep.noaa.gov/GEFS/faq.php



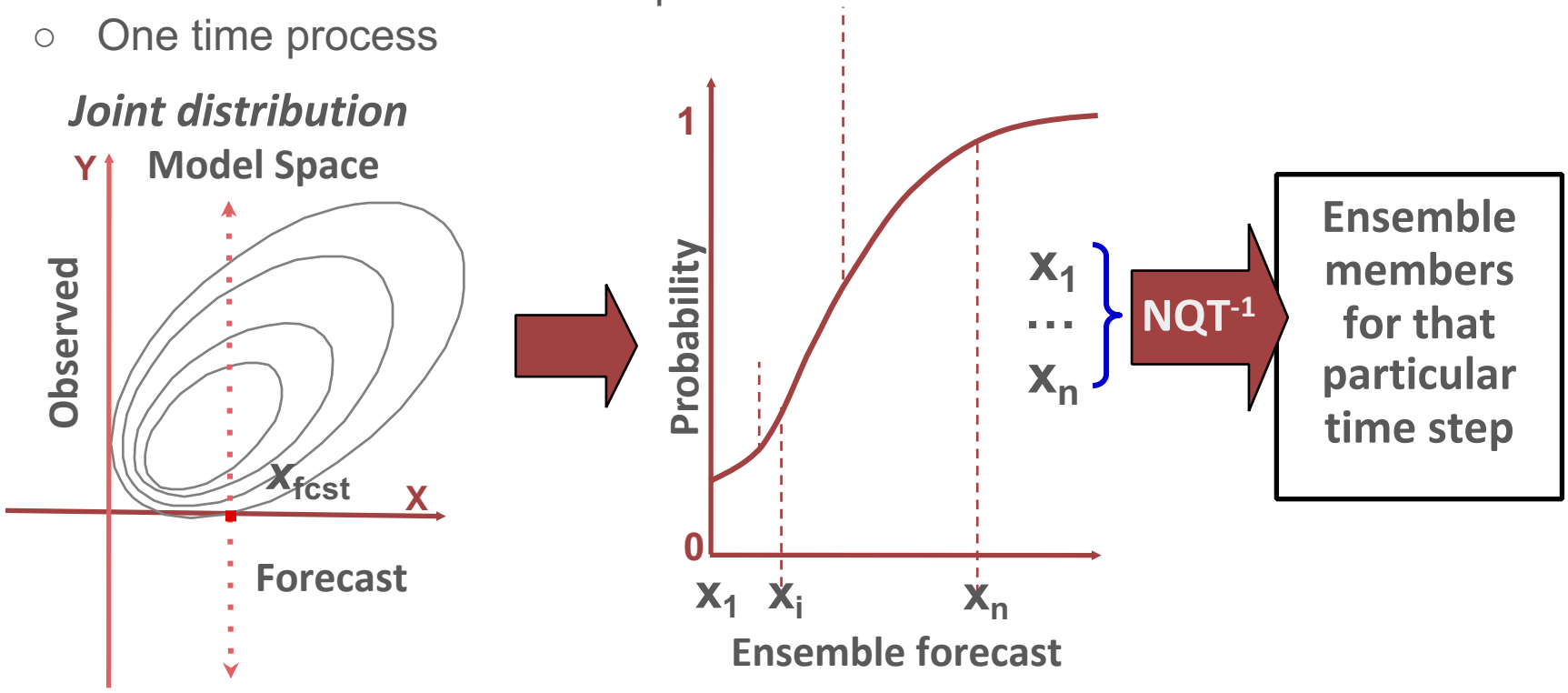
Climate Forecast System (CFSv2)

- long term forecast out 9 months (270 days)
- precipitation and temperature max/min
- comes as gridded product
- 1 degree resolution
- use the lagged ensemble mean
- reforecasts available for 1982-2011
- http://cfs.ncep.noaa.gov/cfsv2.info



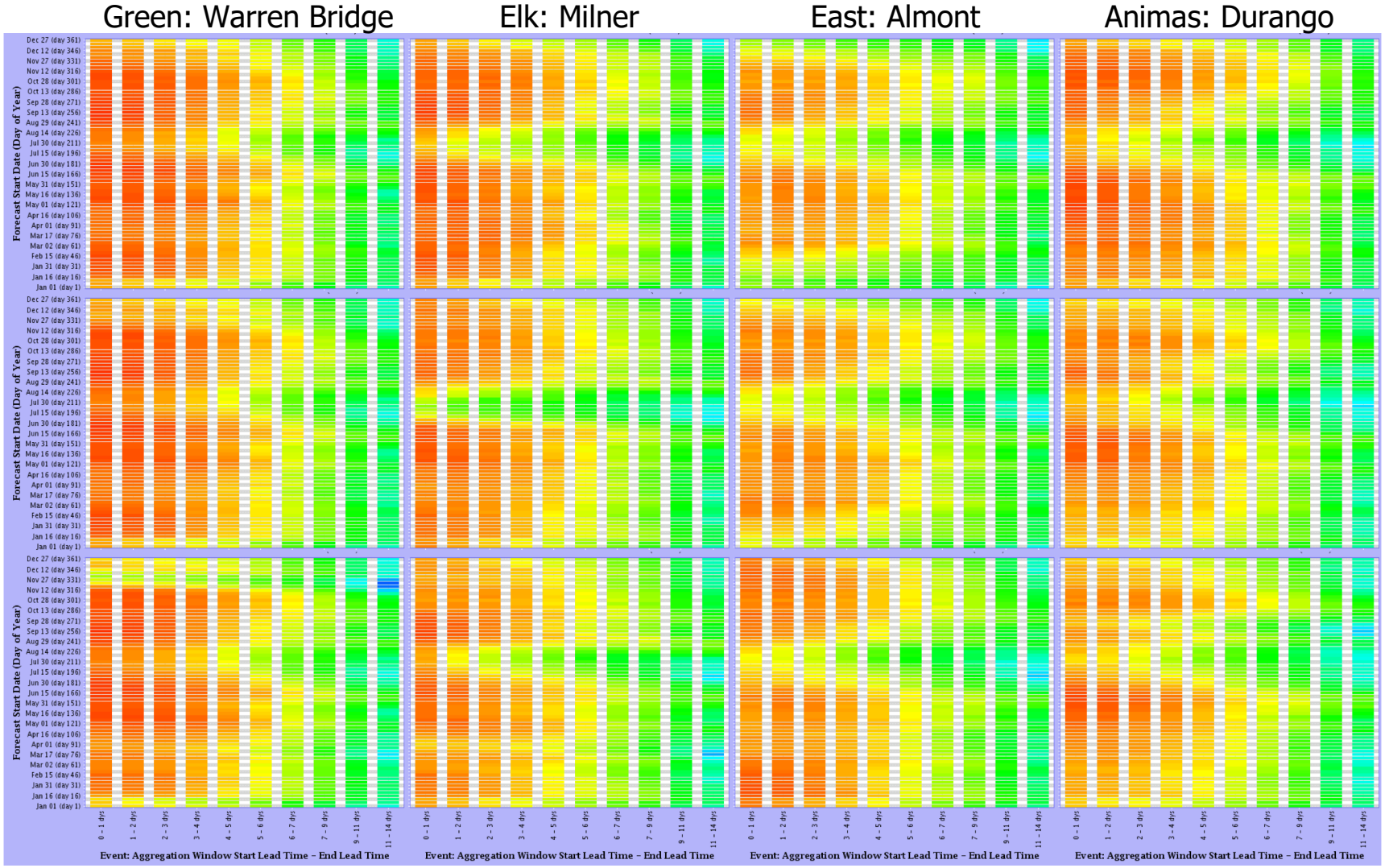
GEFS and CFSv2 Processor (MEFP)

- Meteorological Ensemble Forecast Processor
  - Historical Observation, precipitation and max/min temperature, are statically related to GEFS and CFSv2 hindcasts to develop a bivariate relationship
  - Parameters used in forecast process
  - One time process



http://www.nws.noaa.gov/oh/hrl/general/HEFS_doc/Aug_2014_Seminar/Seminar_D_MEFP_Theory.pdf

GEFS Temperature MAX Skill



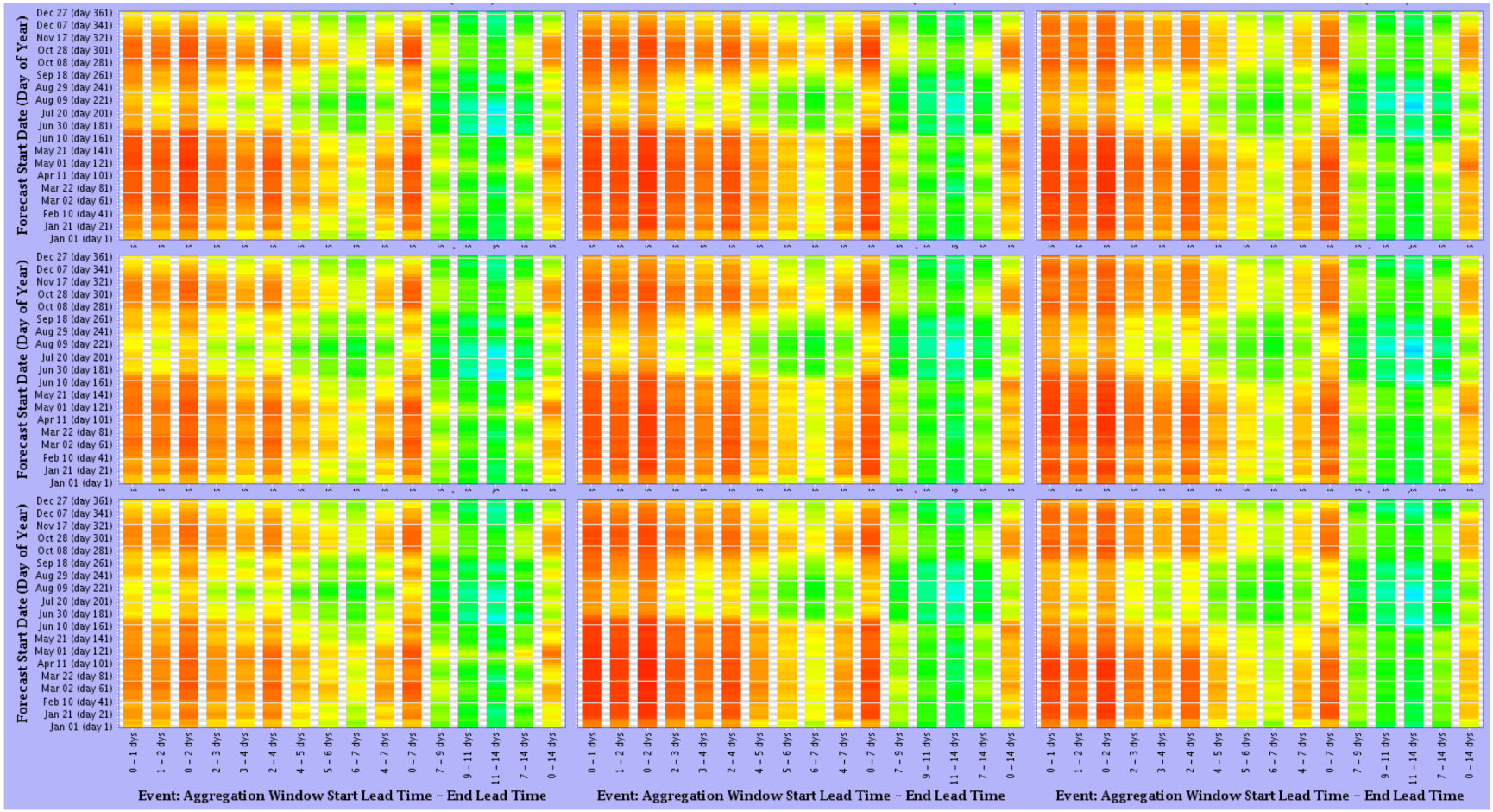
GEFS Temperature MAX Skill

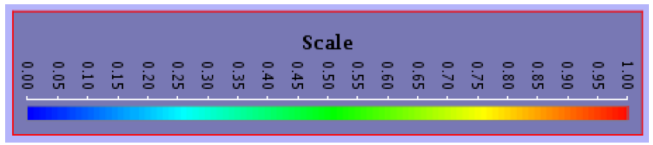
Zuni: Black Rock | Tonto: Roosevelt | Gila: Gila

Lower

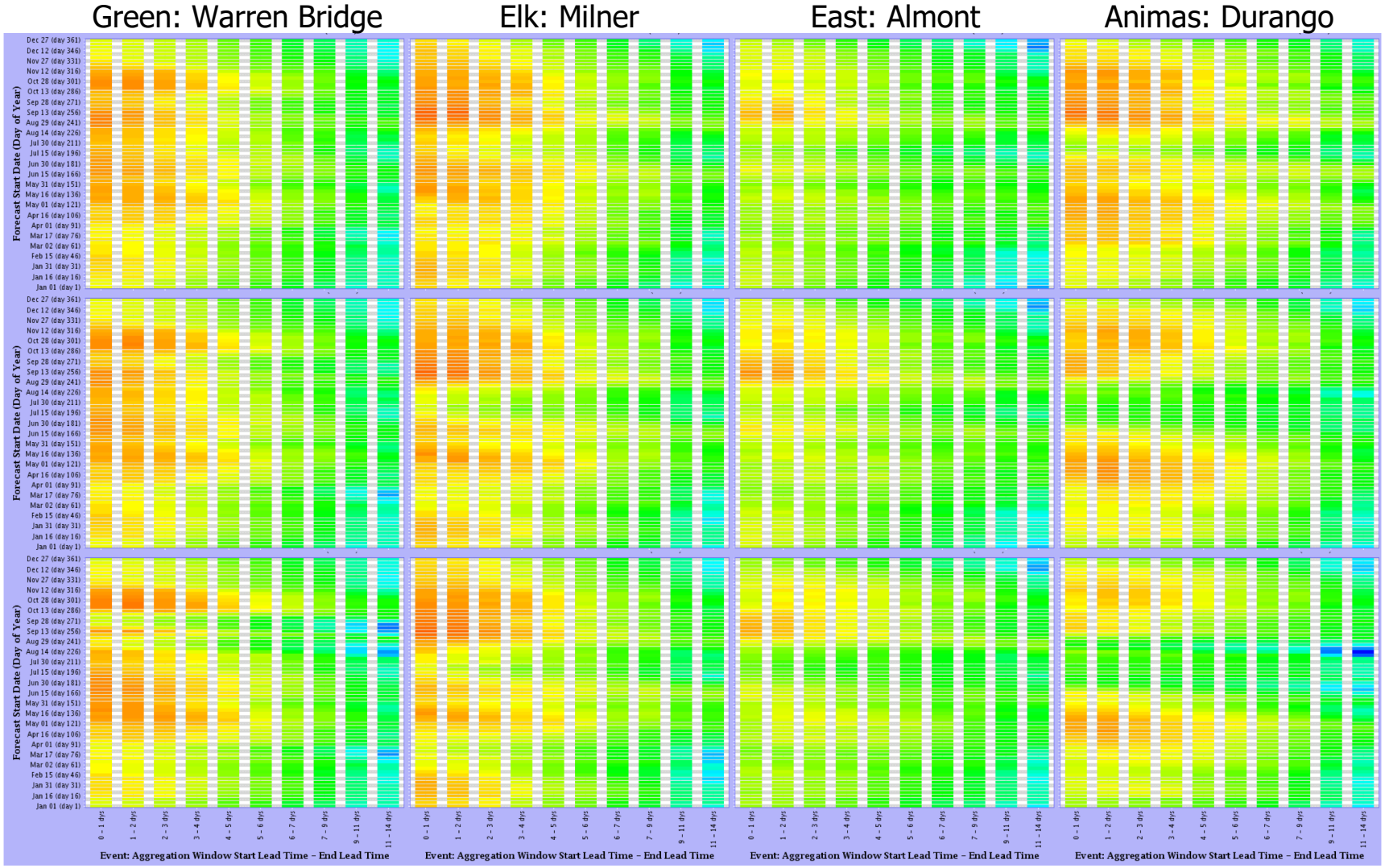
Mid

Upper





GEFS Temperature MIN Skill



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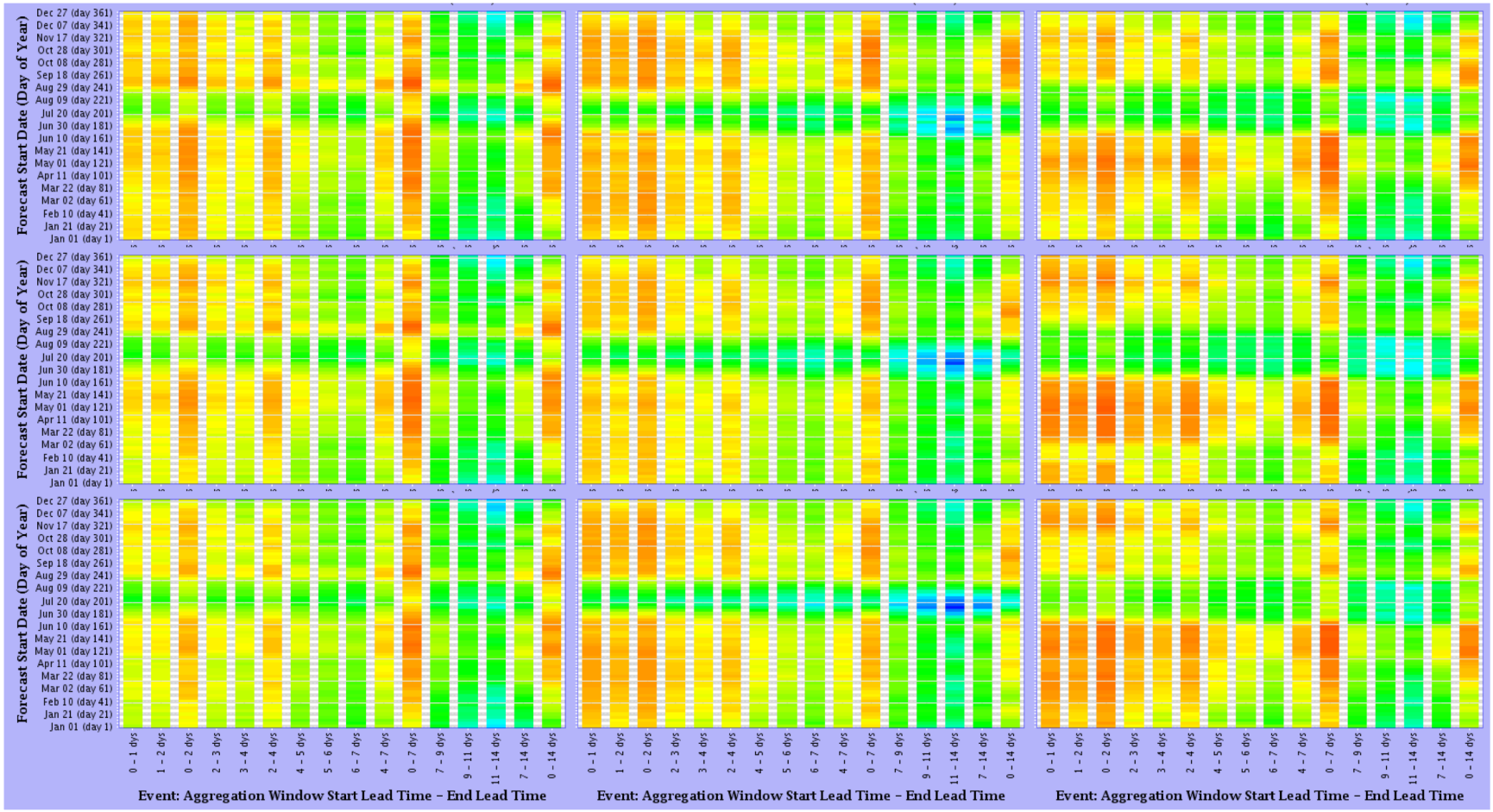
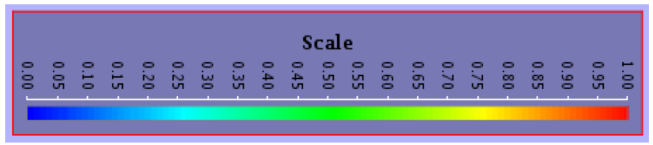
Mid

Upper





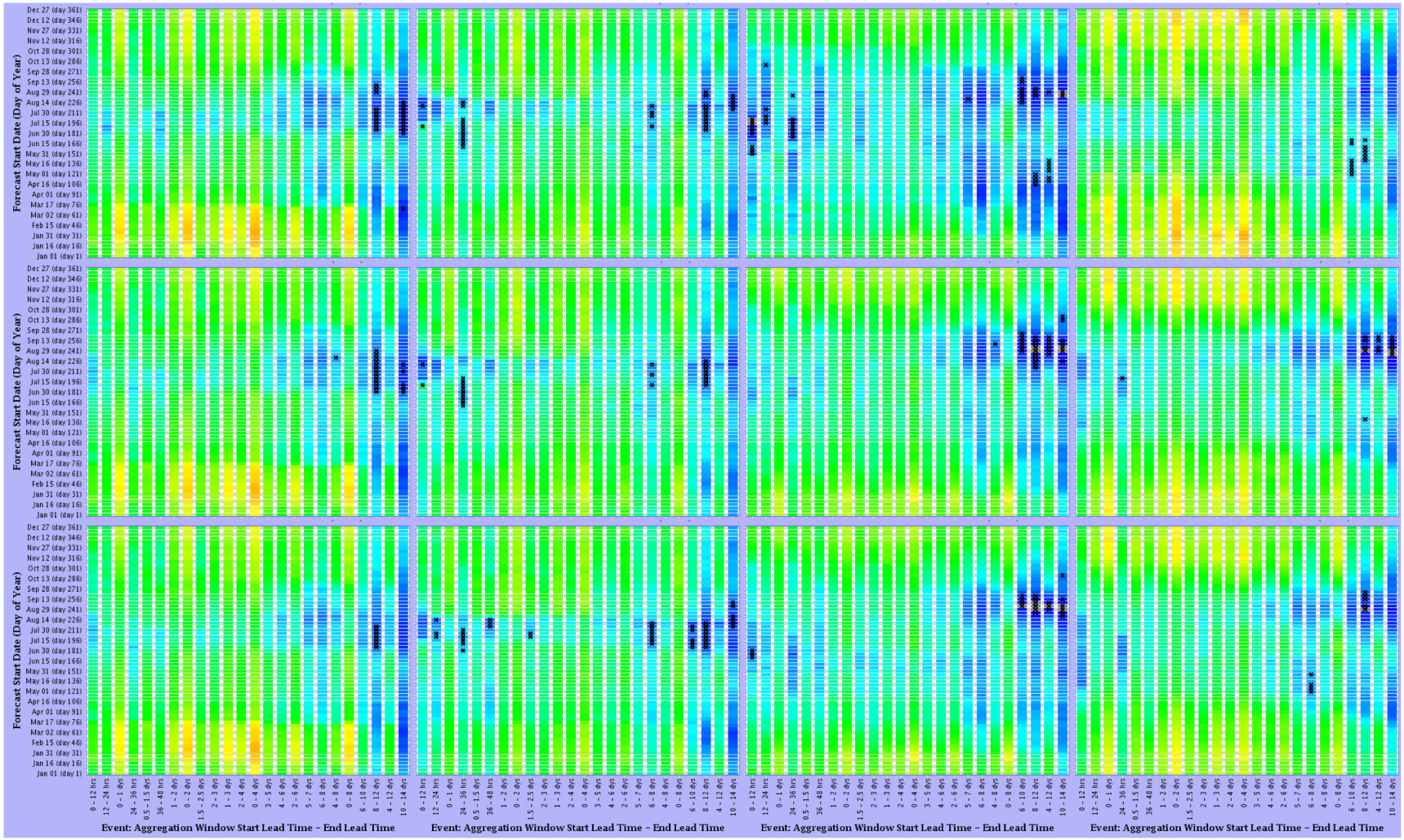
GEFS Precipitation Skill

Green: Warren Bridge | Elk: Milner | East: Almont | Animas: Durango

Lower

Mid

Upper



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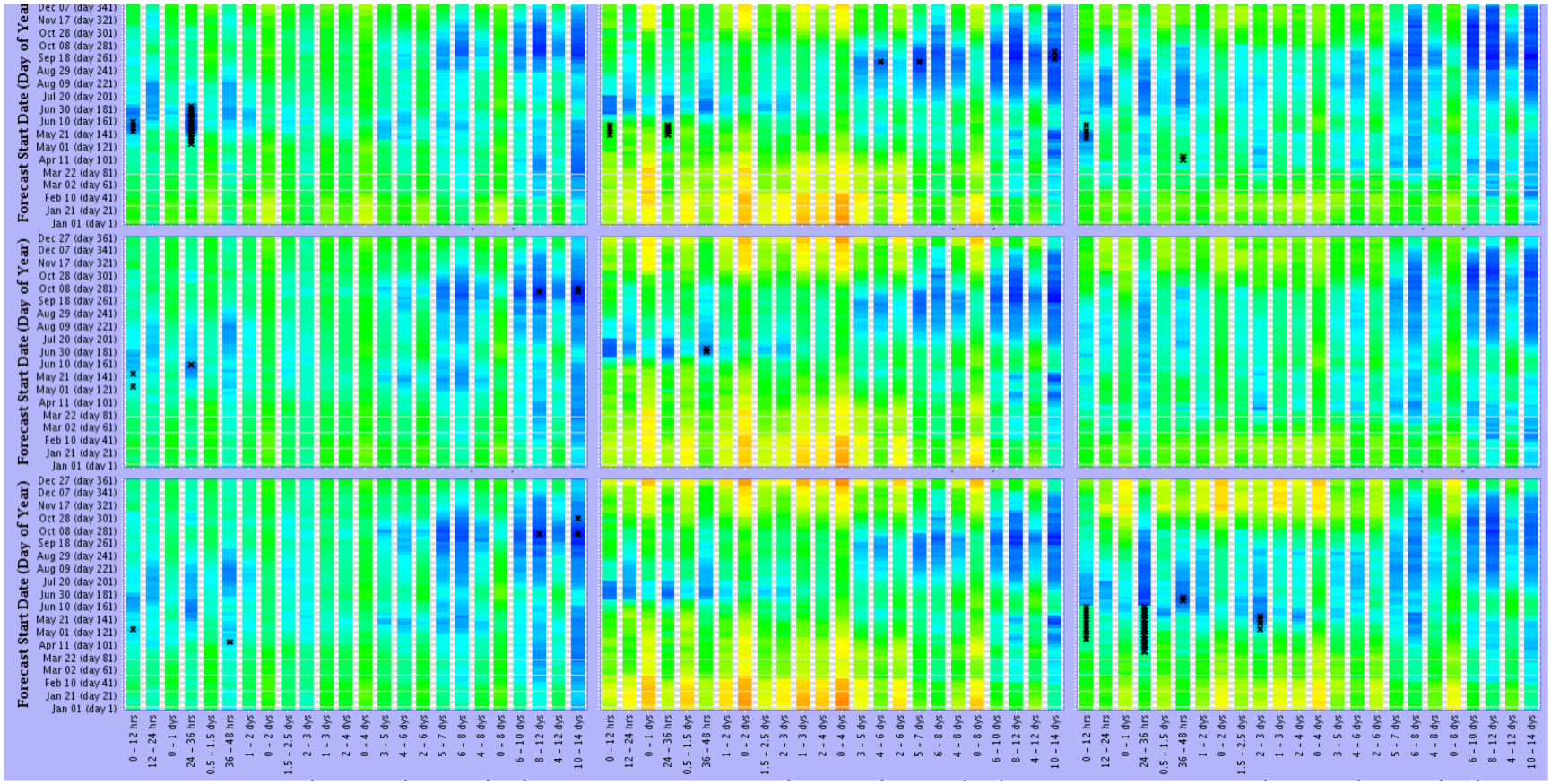

CFSv2 Temperature MAX Skill

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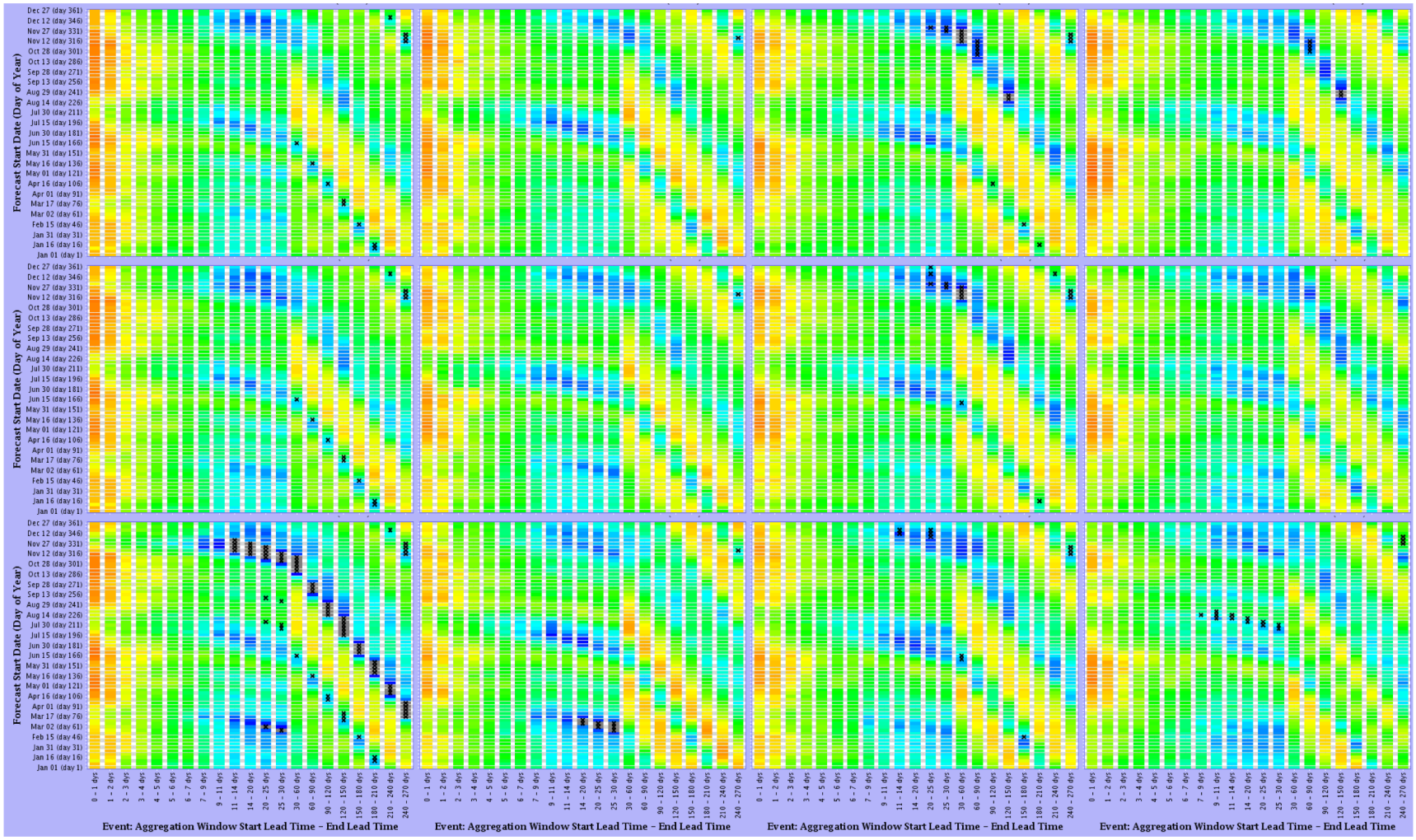

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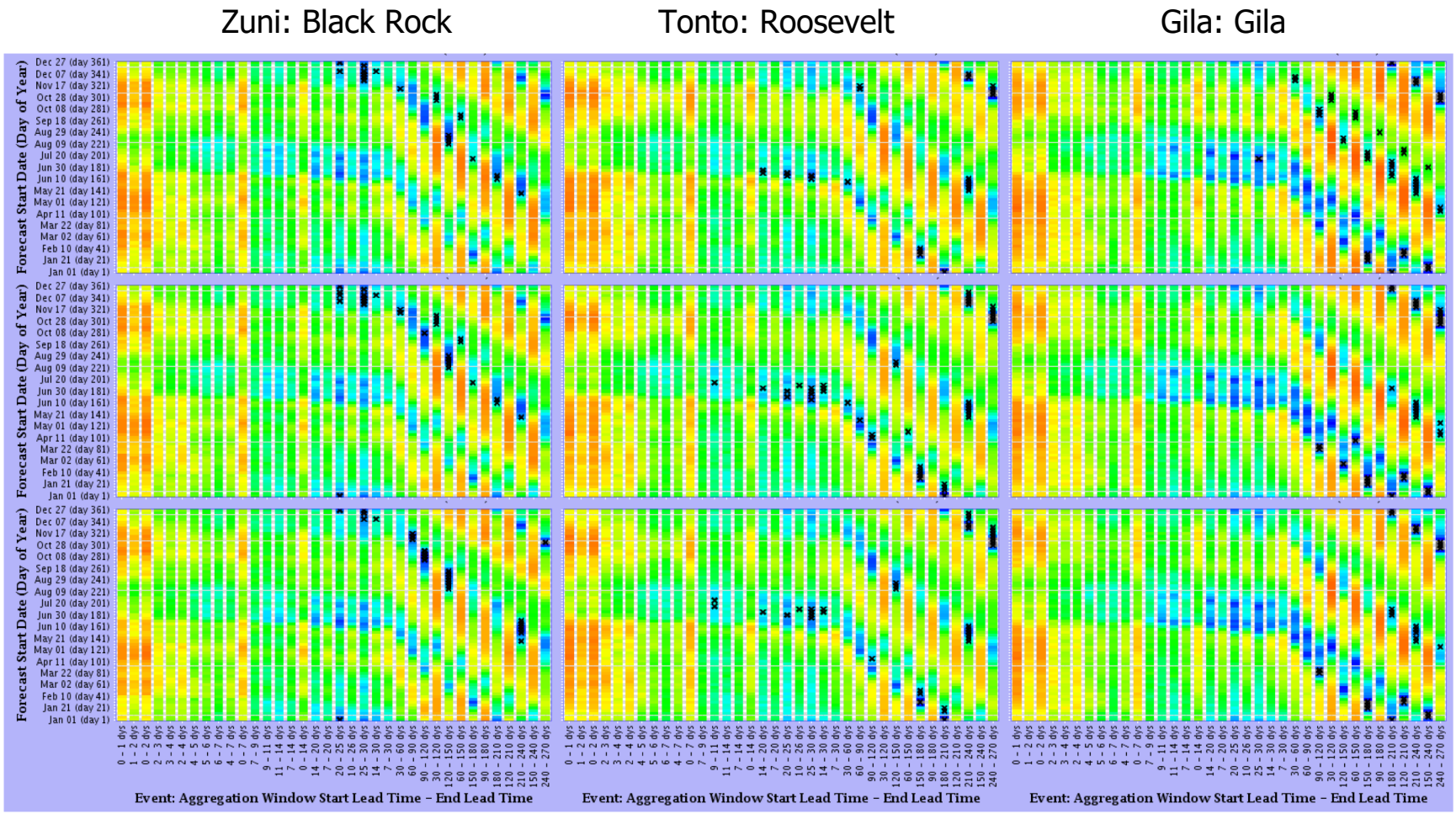
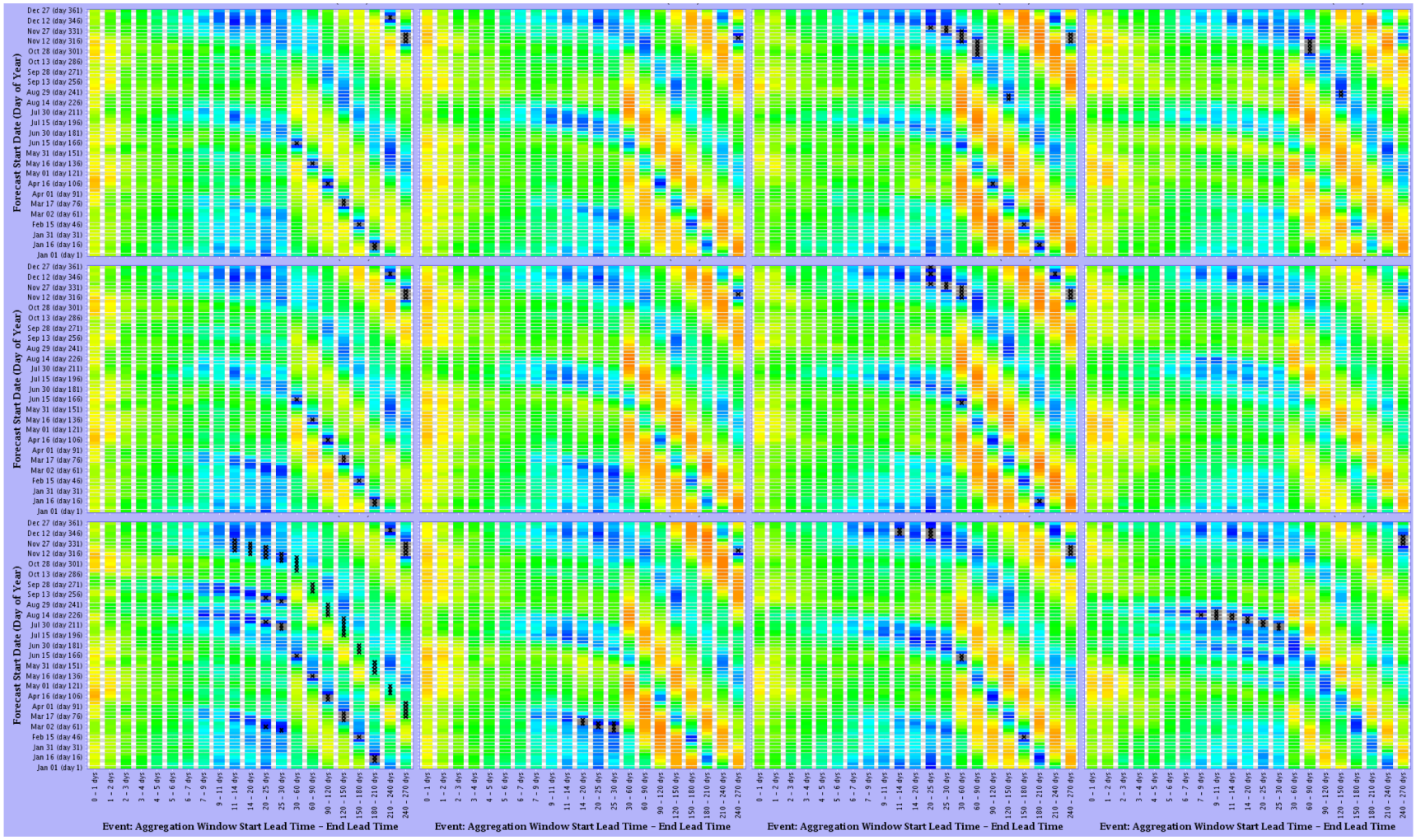


CFSv2 Temperature MIN Skill



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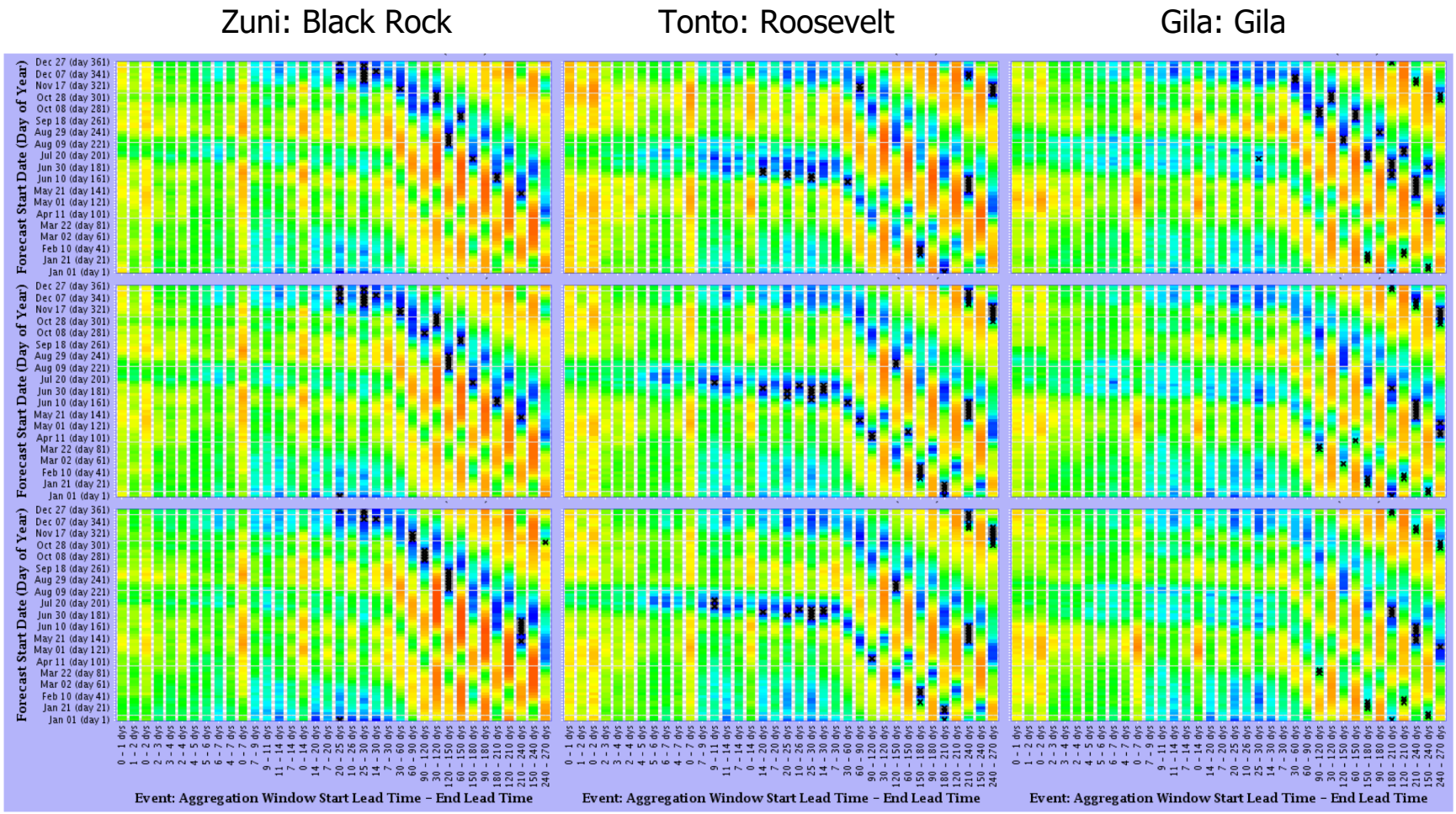

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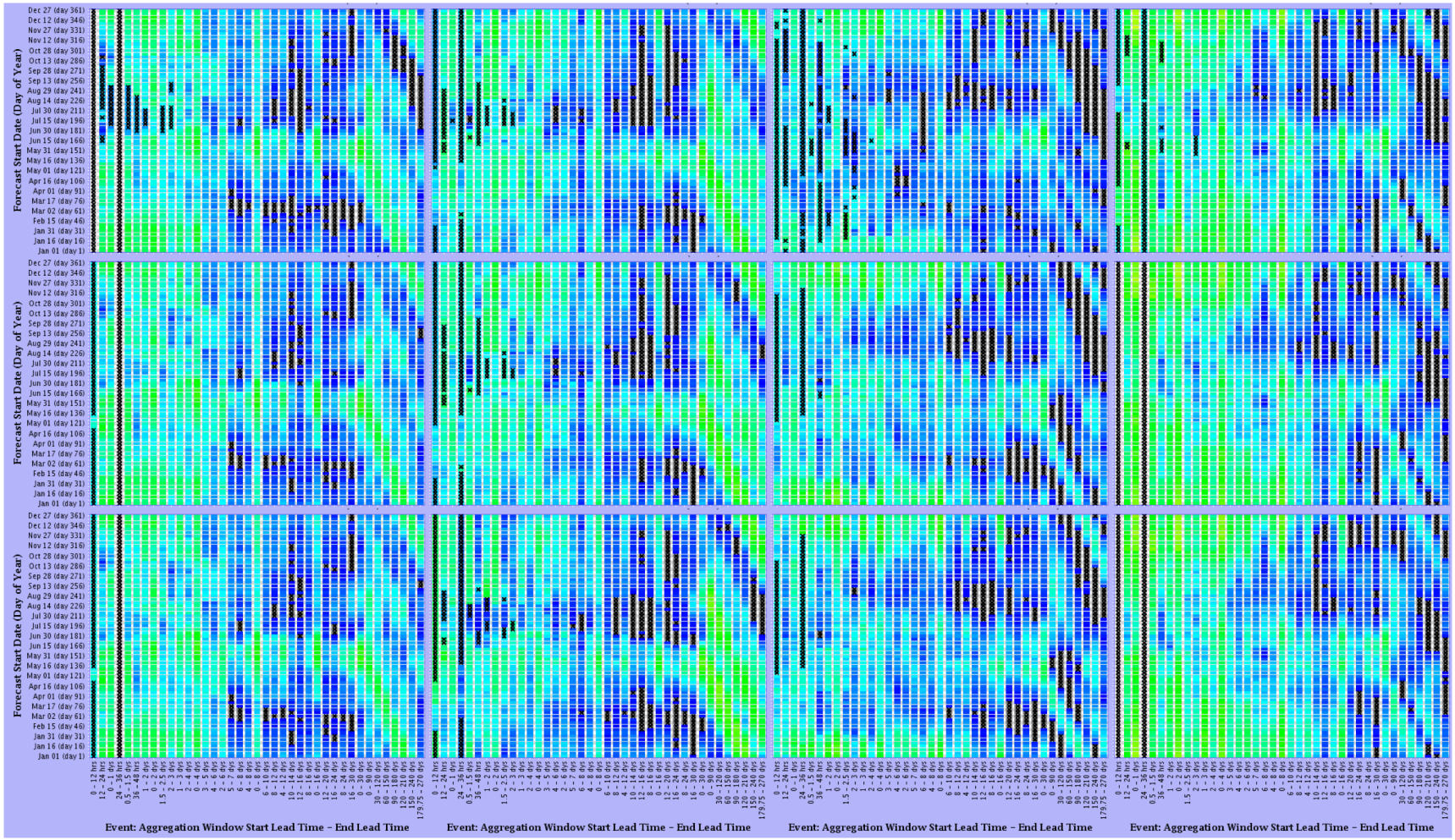

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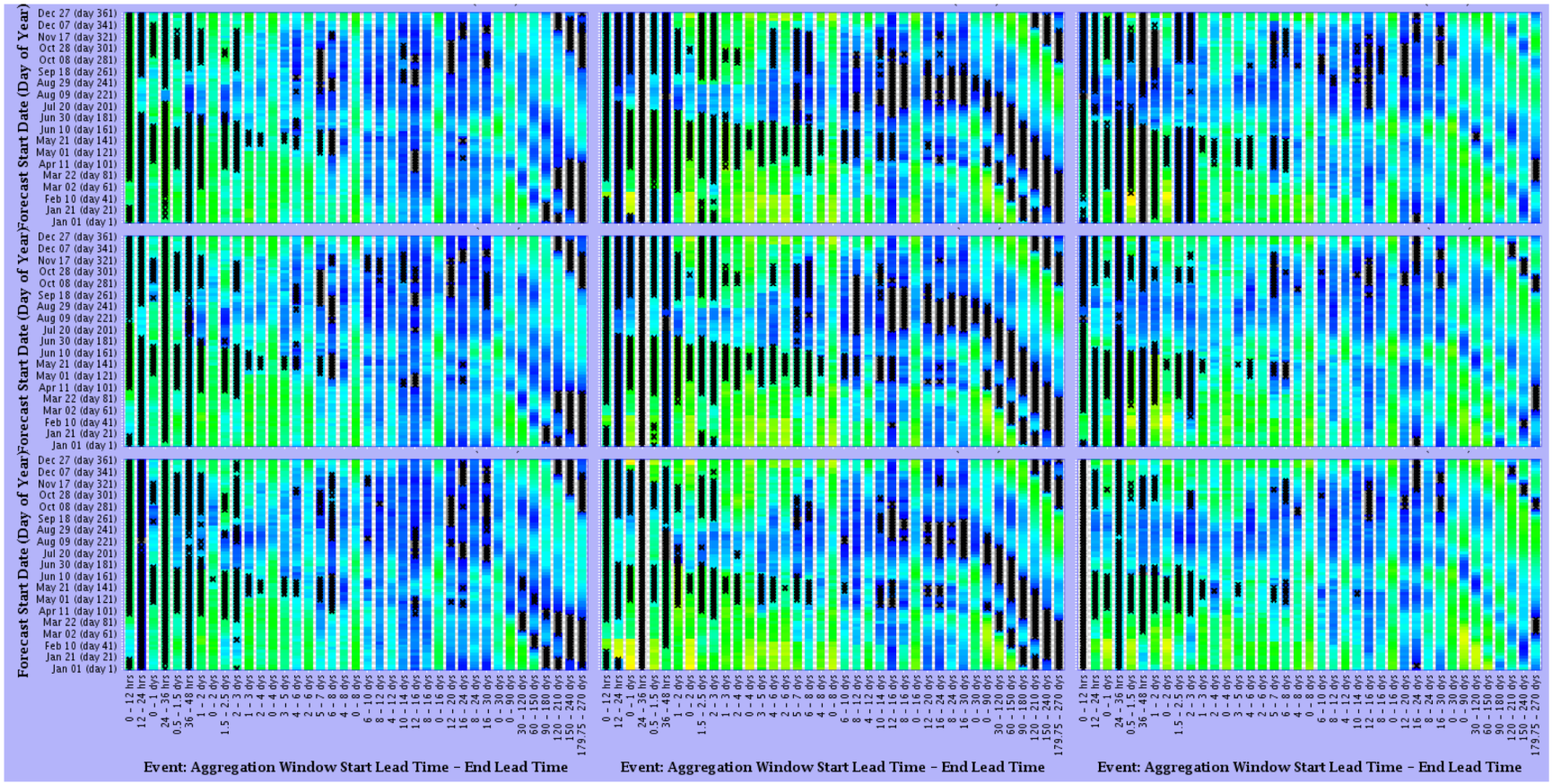
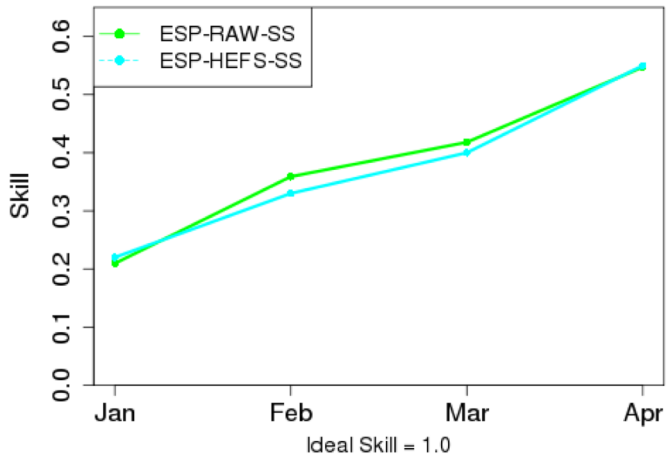
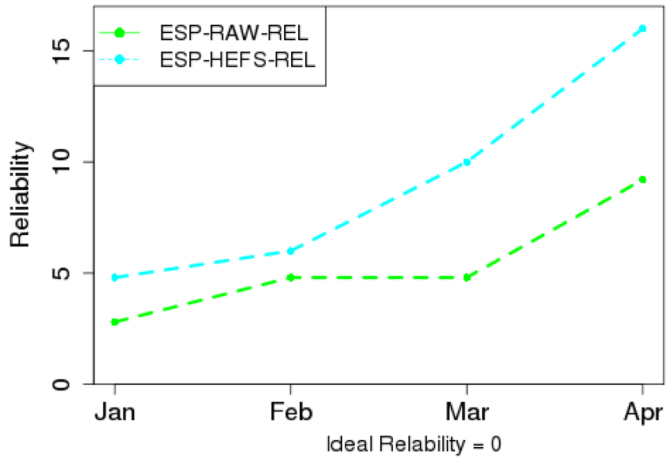
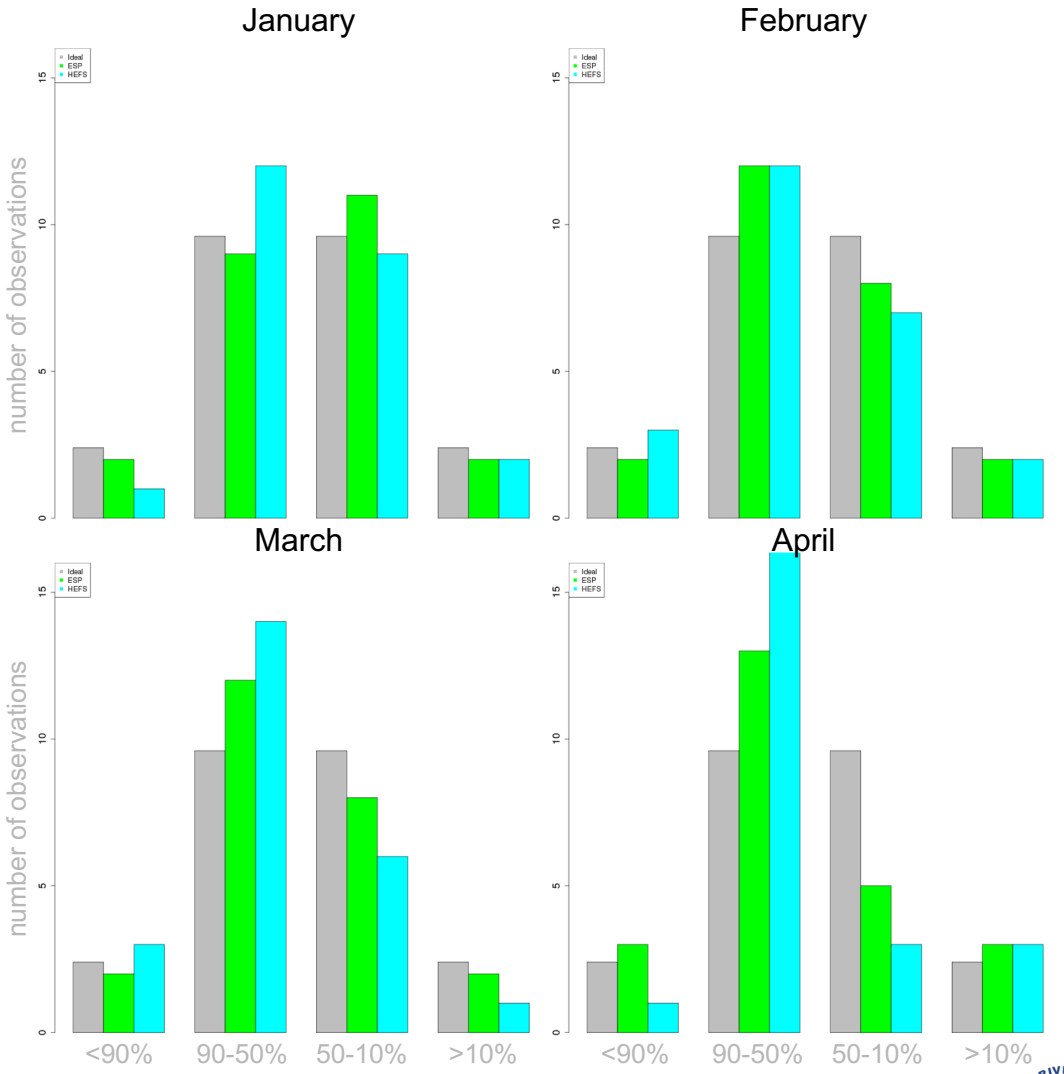


April - July Volume HEFS Skill

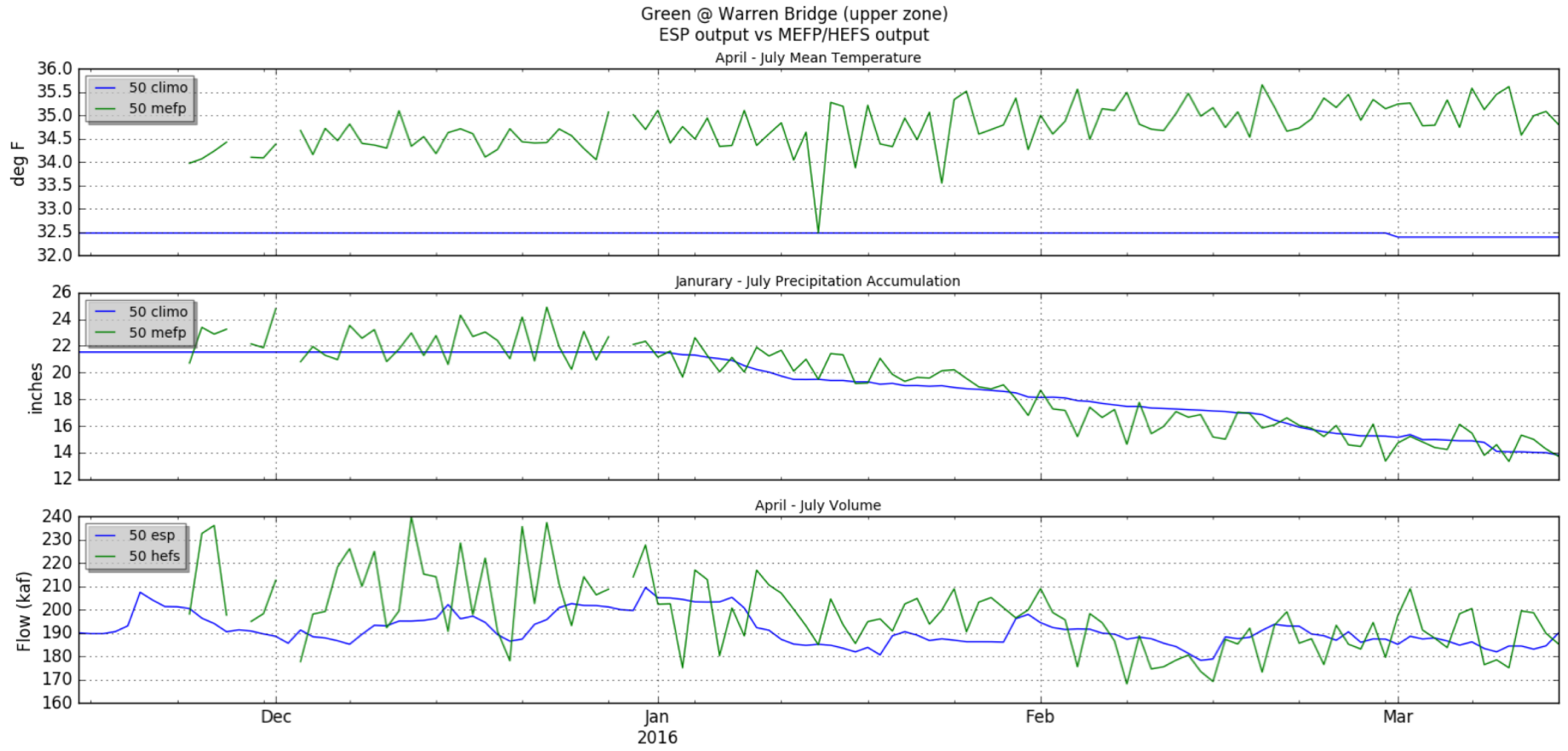




Green Warren Bridge



ESP Evolution Climatology vs CFSv2



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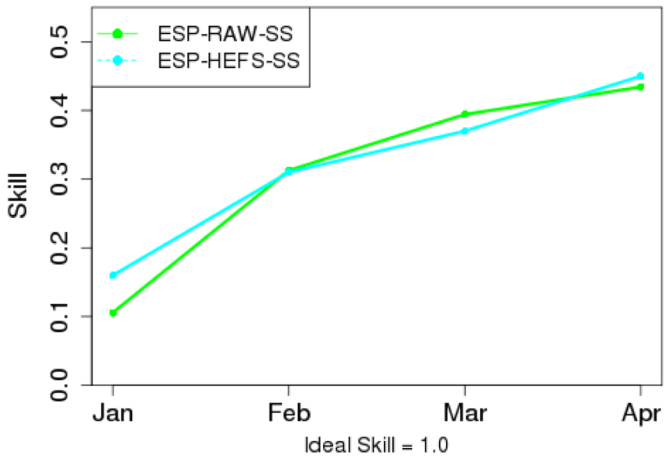

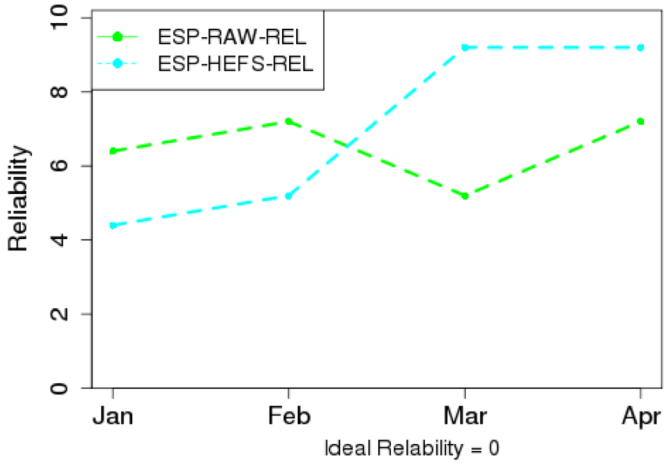

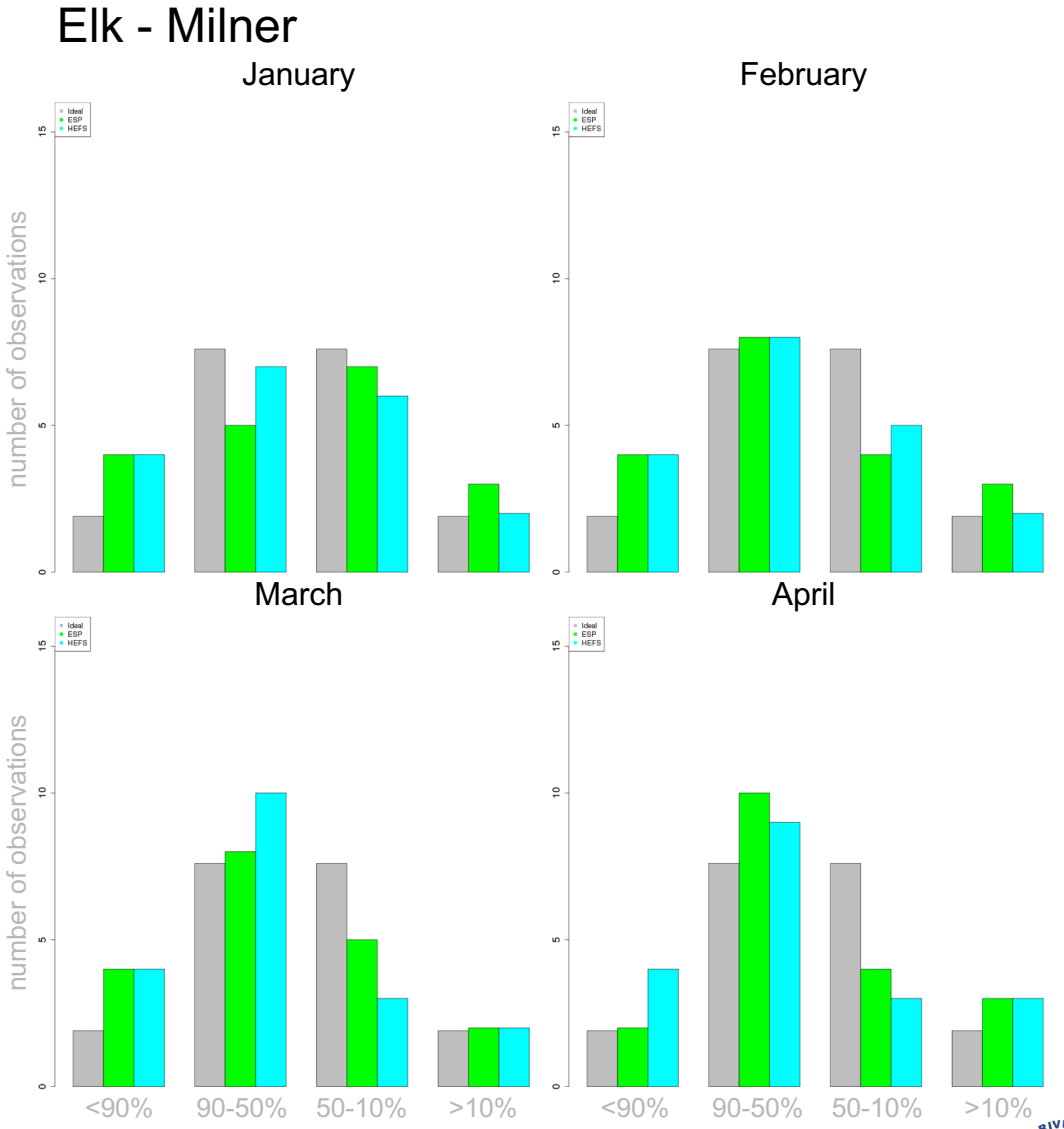

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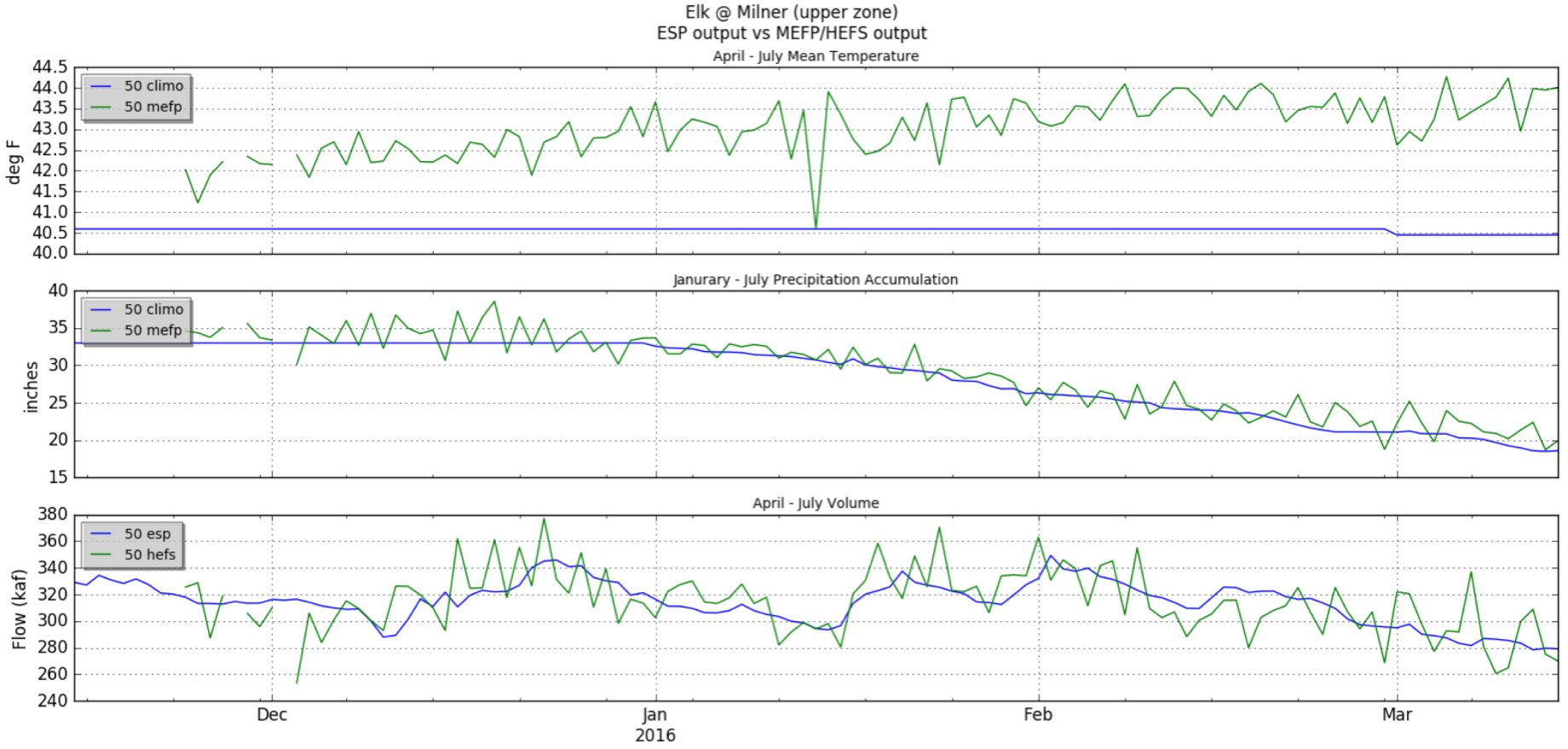

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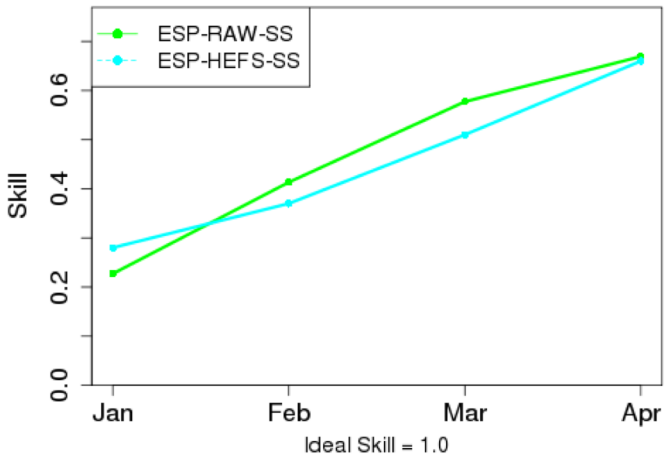

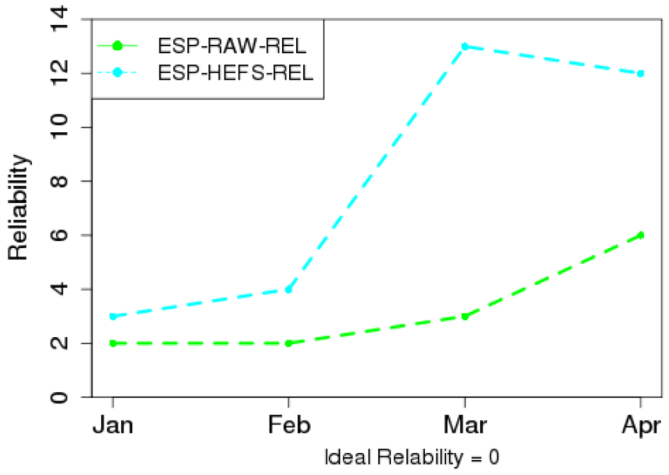

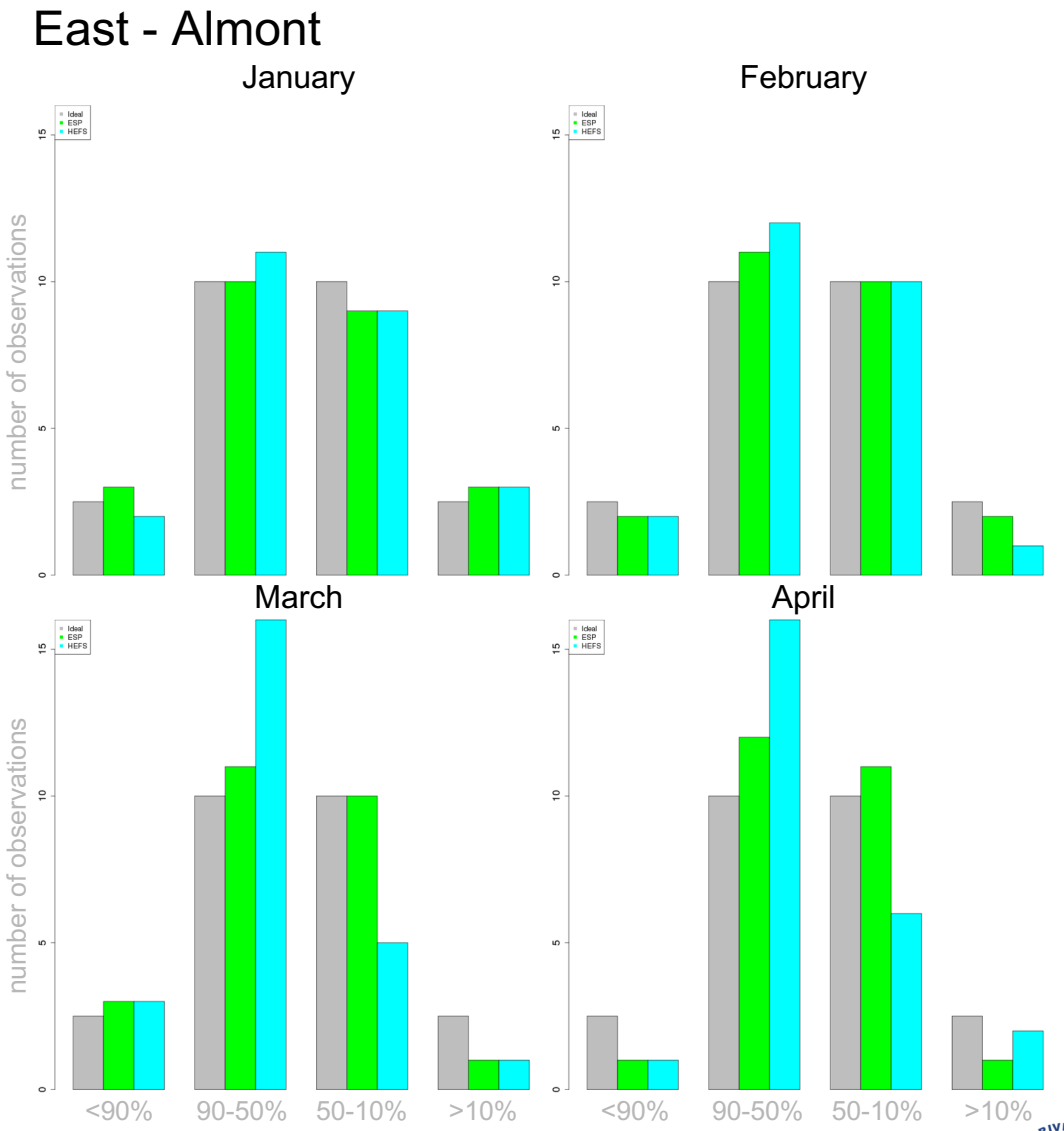

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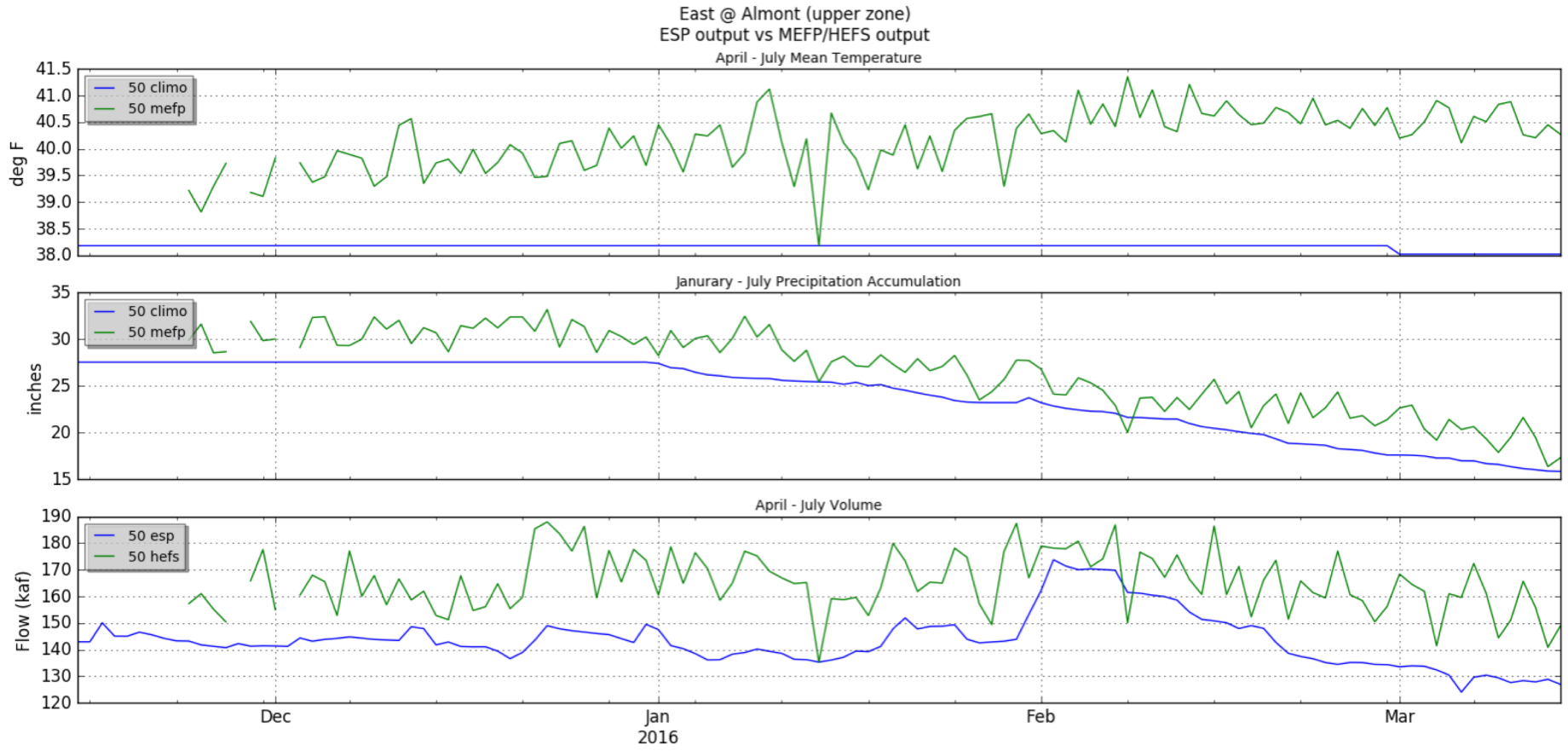

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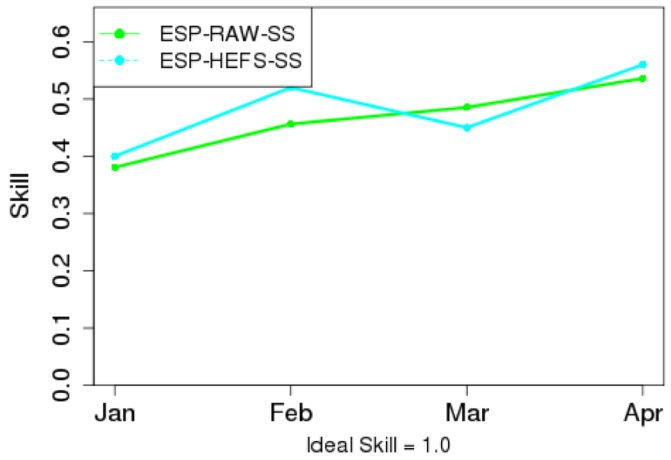
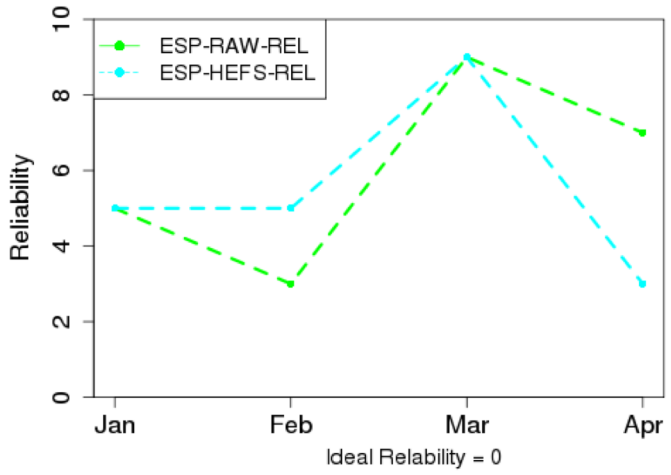
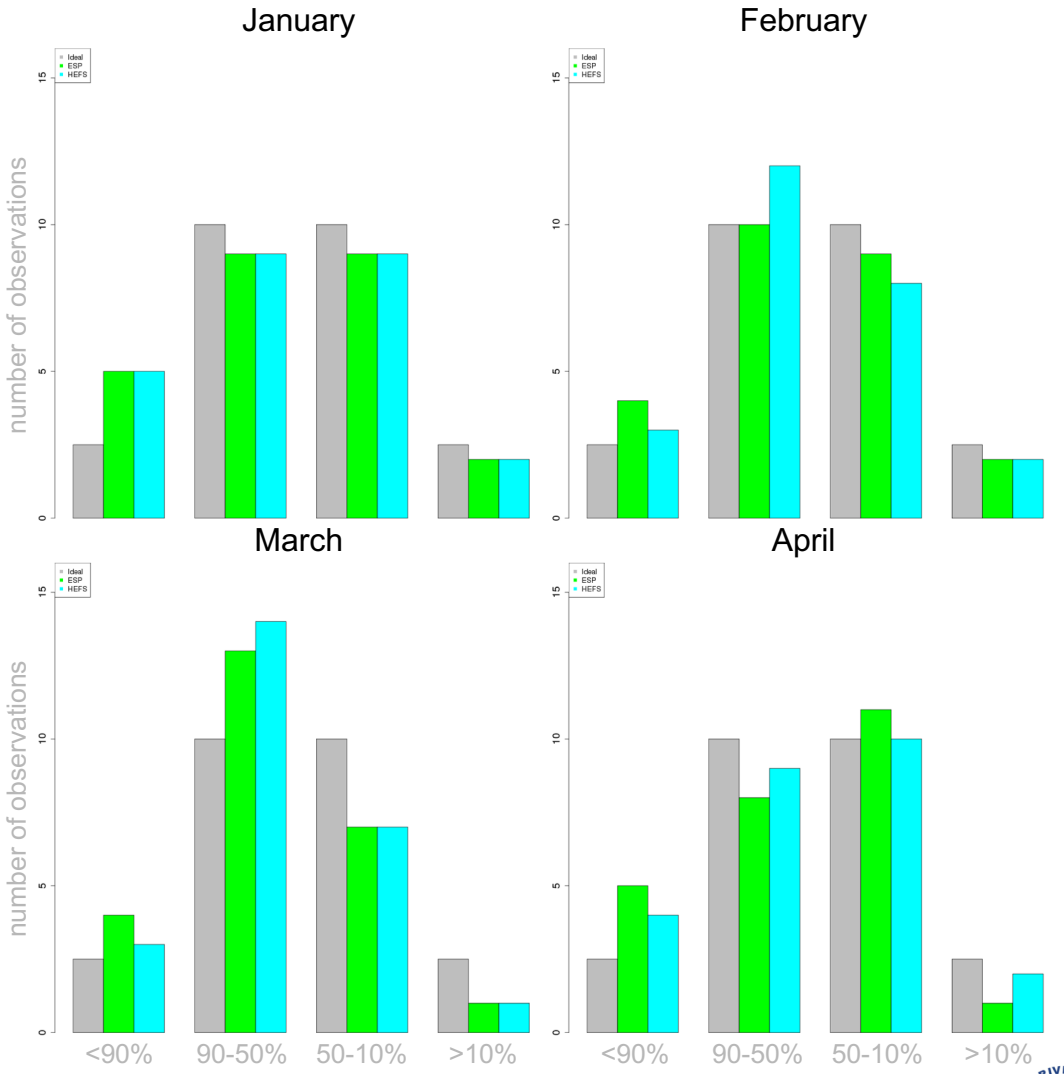




Animas - Durango



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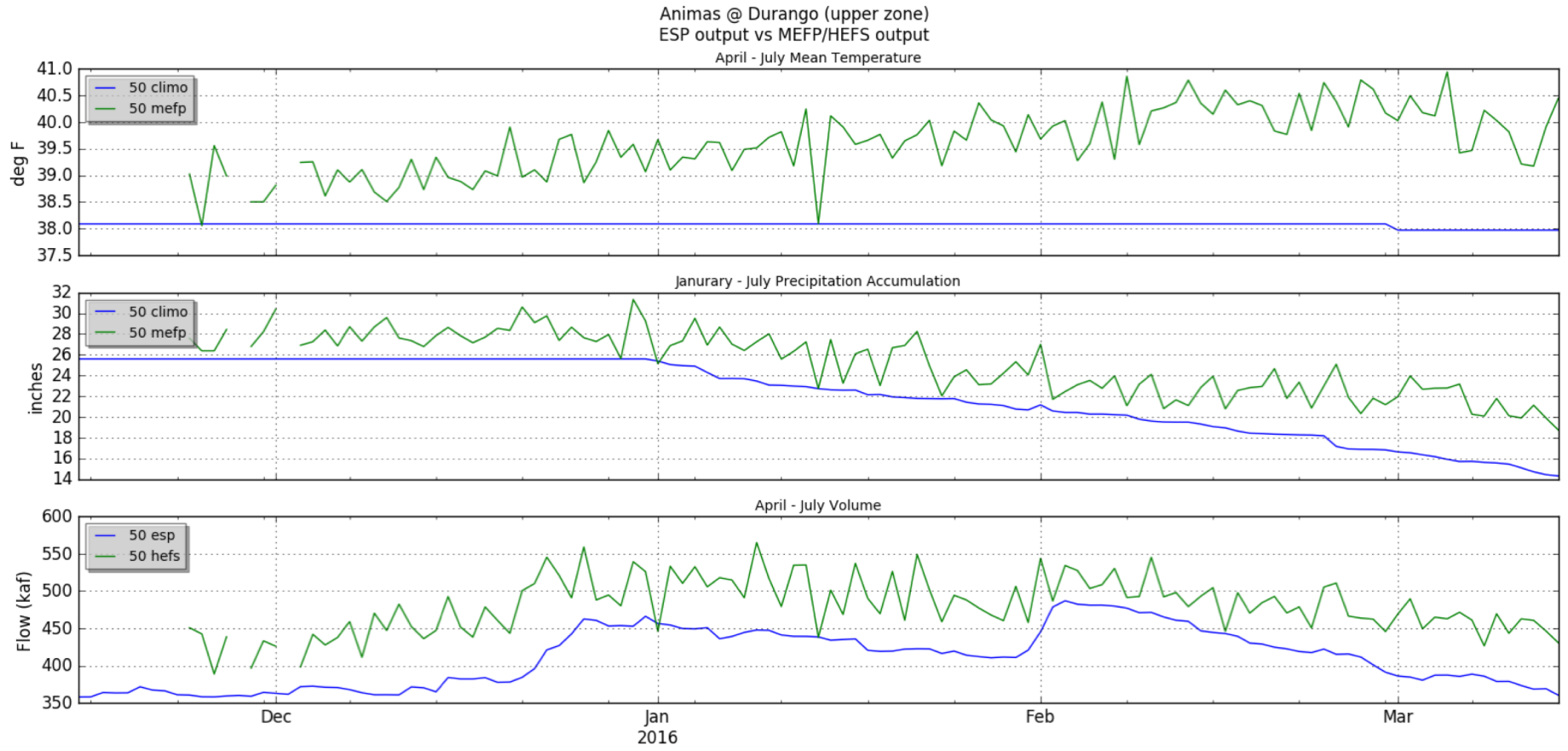

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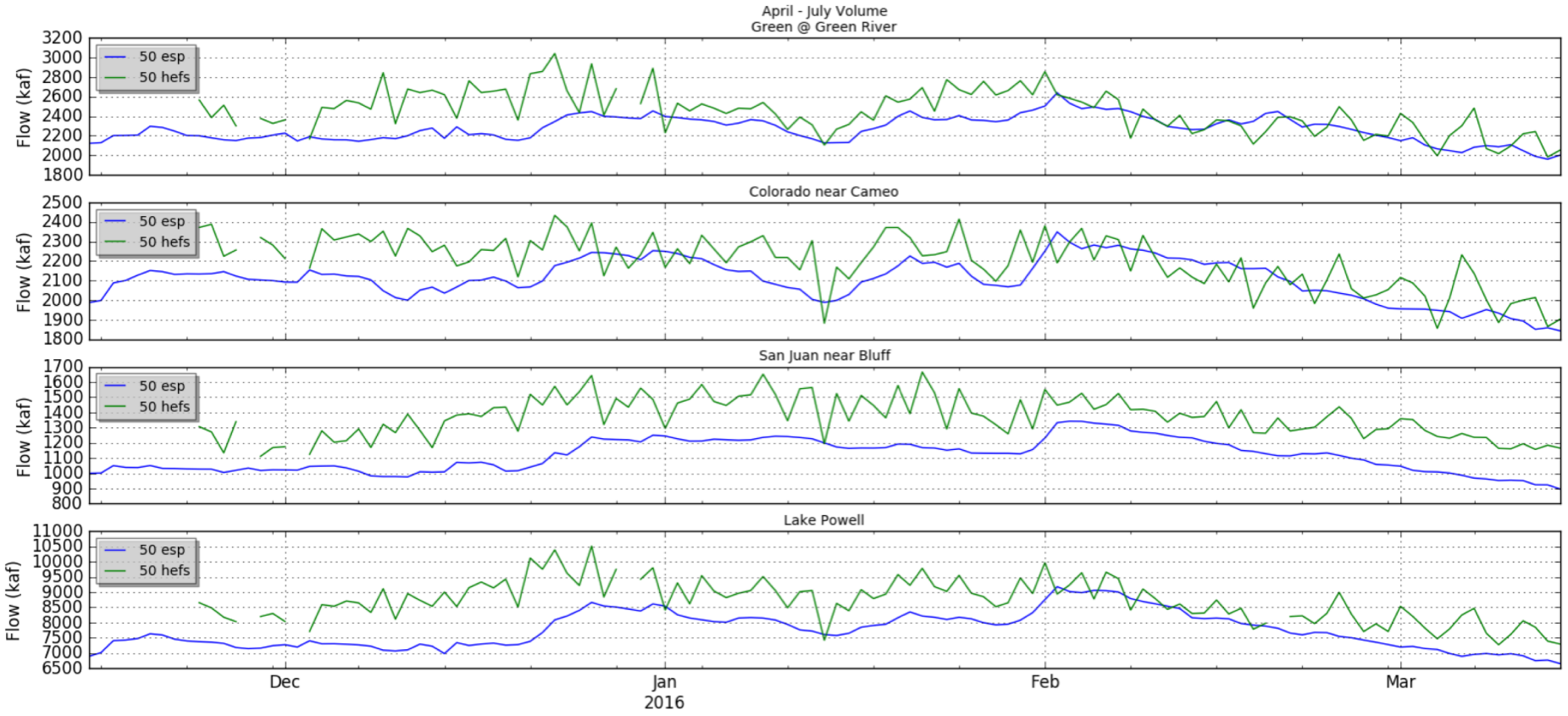

Questions