

# Seasonal Climate Prediction in Singapore and SE Asia

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# Scope

- Statistical Downscaling Applications
- Monthly Forecasts for Singapore
- Seasonal Forecasts for SE Asia
- Future and related work



# SCOPIC

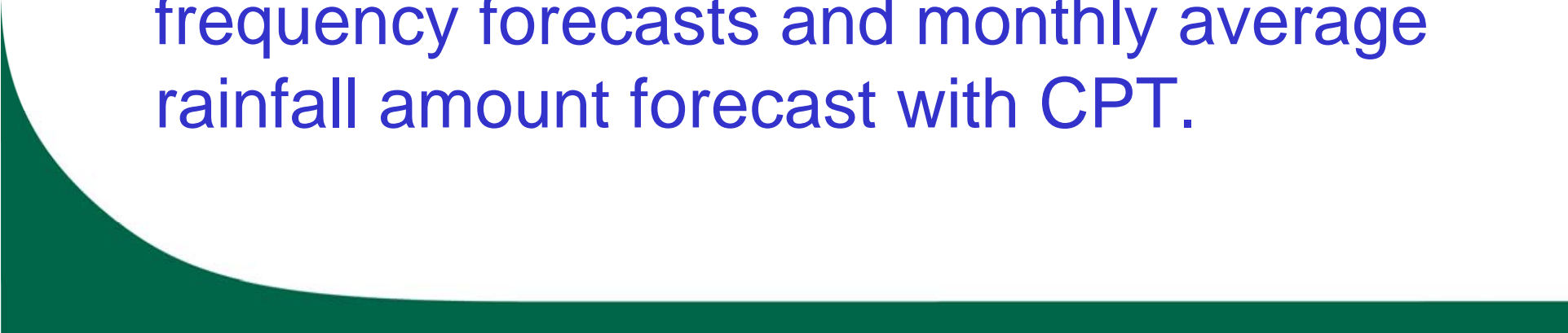
- Seasonal Climate Outlooks for Pacific Island Countries
- Developed by Australia Bureau of Meteorology
- PC-based standalone software
- Uses statistical downscaling to extract relationship between historical station data and a set of predictors (either SSTs or SOI)

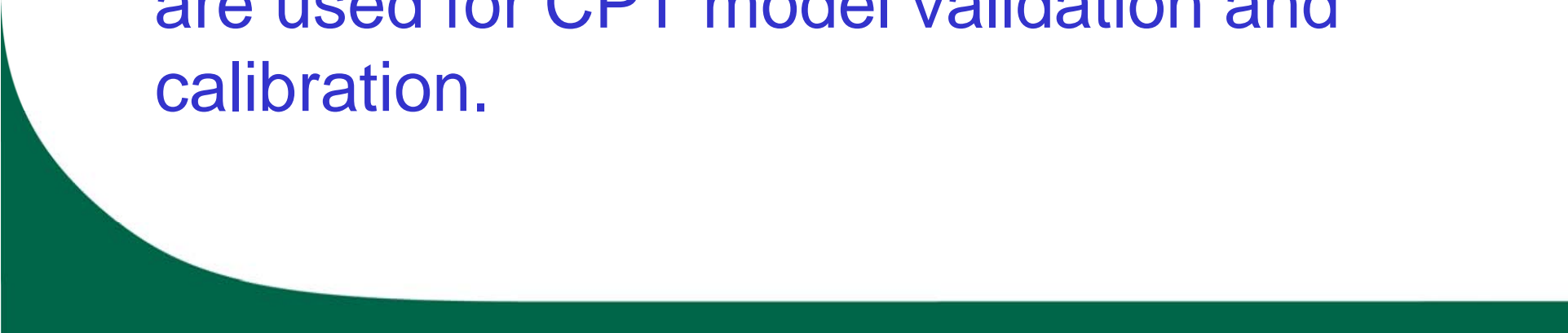
# SCOPIC

- Forecast verification feature is available within the software.
- monthly rainfall forecasts up to 6 months ahead is being produced over Singapore using SSTs



# Climate Prediction Tool


- Climate Prediction Tool is a US NOAA IRI developed software for making seasonal climate forecasts
  - It can produce model validation and make forecasts with updated data.
  - Currently, MSD generates monthly rainday frequency forecasts and monthly average rainfall amount forecast with CPT.
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- Coefficients are developed using Global Circulation Model retrospective forecasts and local station data.
  - Global monthly ECHAM retrospective precipitation forecast data and 6 local station rainfall data for 1970 – 2006 period are used for CPT model validation and calibration.
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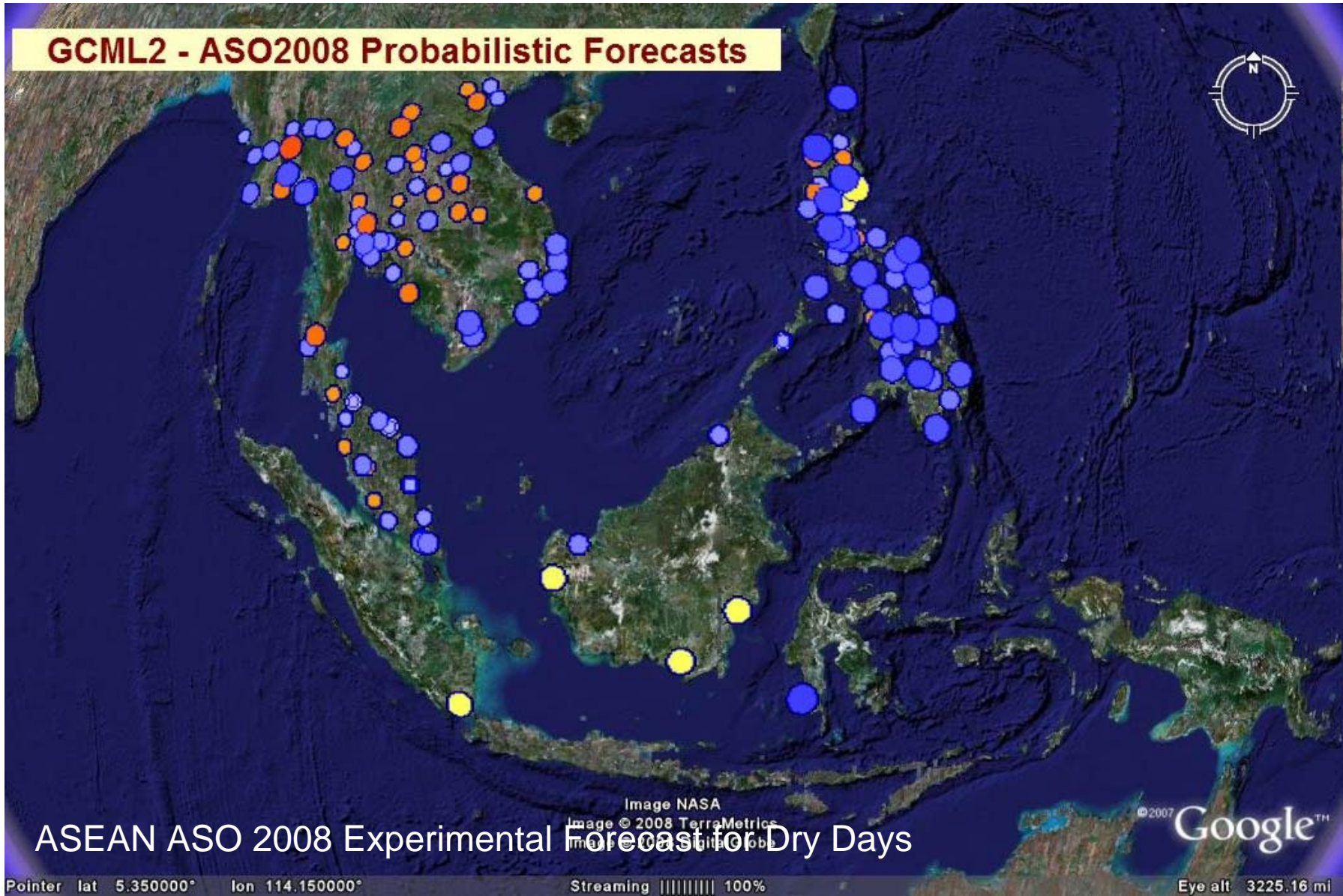
- ECHAM retrospective forecast can be downloaded from IRI website.
- ECHAM current forecasts available up to 6 months ahead from 8-10<sup>th</sup> day of each month onwards



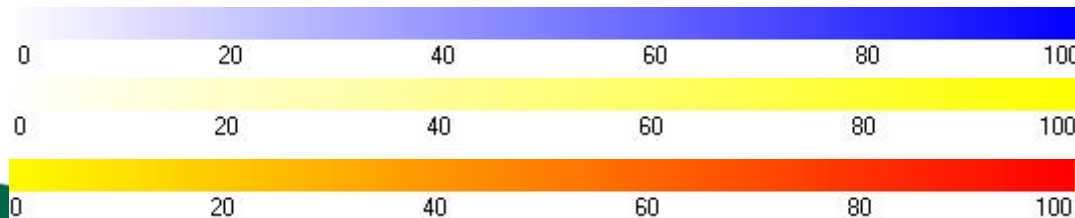
# ASEAN Climate Forecast

- Use CPT tool to produce dry day forecasts for two periods, MAM and ASO.
  - Download ECHAM model forecasts from IRI website
  - Develop model using seasonal dry day frequency at selected stations in SE Asia.
  - Collaboration effort agreed during IRI/ASMC workshop in Singapore, May 2007
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# GCML2 - ASO2008 Probabilistic Forecasts



ASEAN ASO 2008 Experimental Forecast for Dry Days

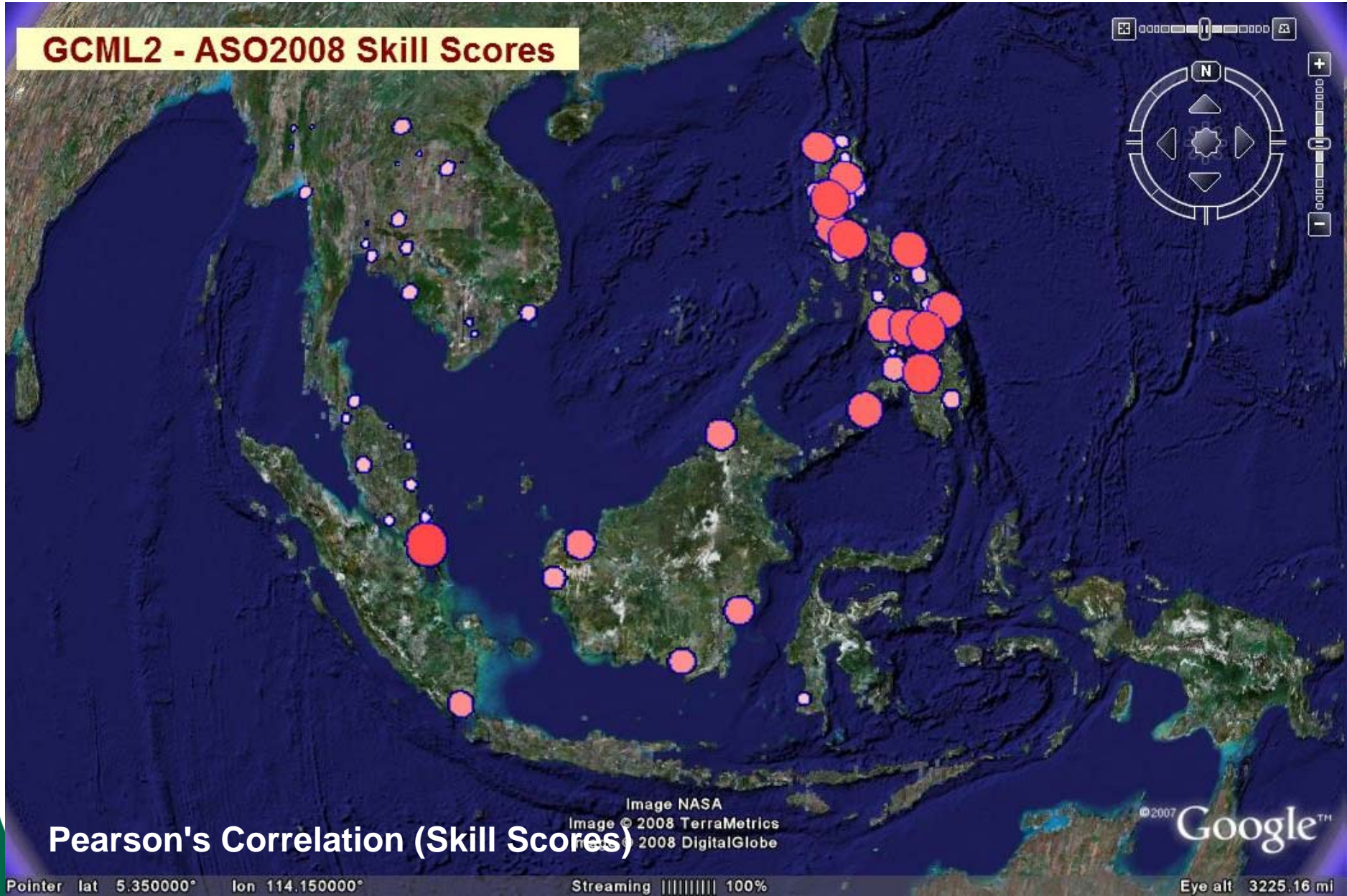


Below Normal

Normal

Abvoe Normal

# GCML2 - ASO2008 Skill Scores



Pearson's Correlation (Skill Scores)

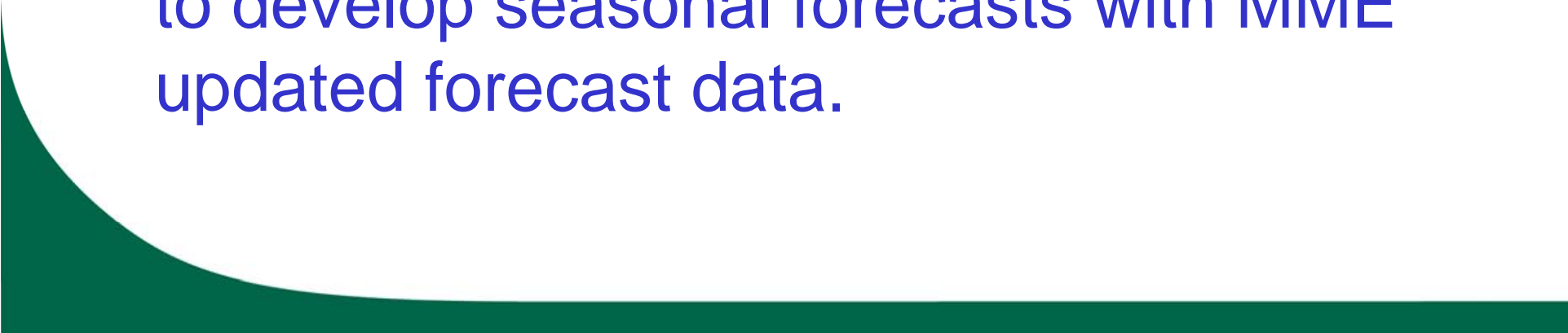


# Related work

- Numerical Weather Prediction
  - Weather Research and Forecasting (WRF)
- Longterm climate modeling
  - PRECIS



# Future Work

- Use of multi-model ensemble forecast for input to CPT tool or alternative downscaling software
  - Work with APCC to obtain MME retrospective forecasts to compute downscaling coefficients and use the tool to develop seasonal forecasts with MME updated forecast data.
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# Questions?