

EXPLORATION OF UNPREDICTABILITY OF WEATHER FORECAST

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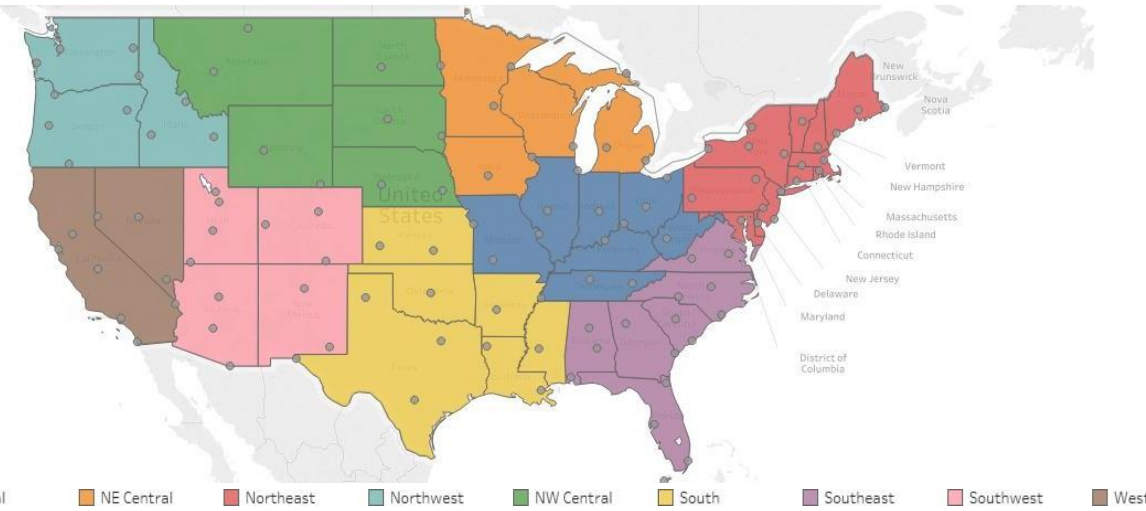
OVERVIEW OF DATASET

By subdividing the original data according to forecast closeness (days), regions*, and seasons, we were able to further break down the predictability of weather forecast.

Our exploration suggests that while there is an undeniable presence of error in the forecast for both temperature and precipitation, it can be controlled through a careful study in variables that causes regions and seasons to differ.

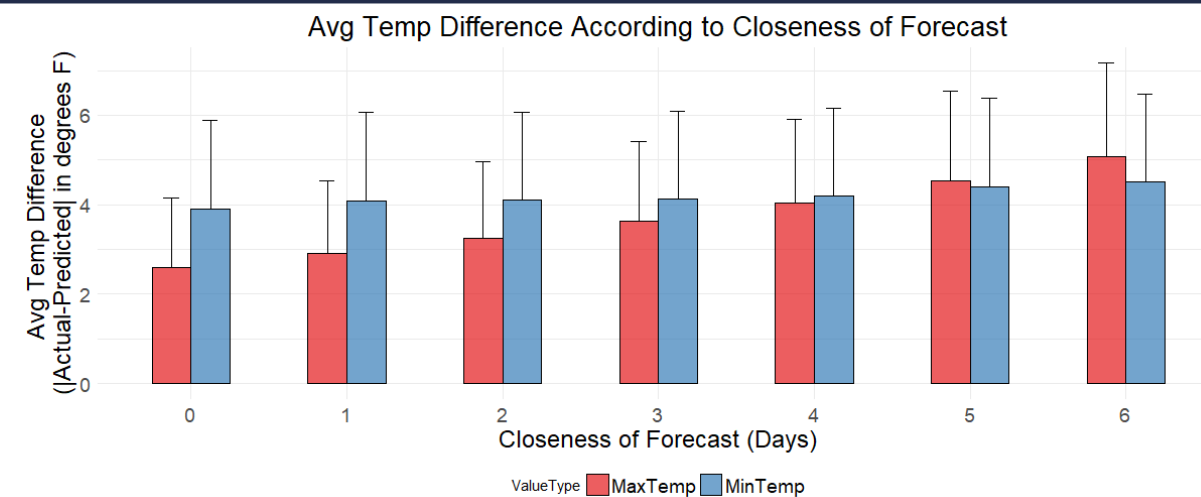
*Regions in United States are grouped by climate, division of regions provided by National Centers for Environmental Information

REGIONS & AIRPORTS



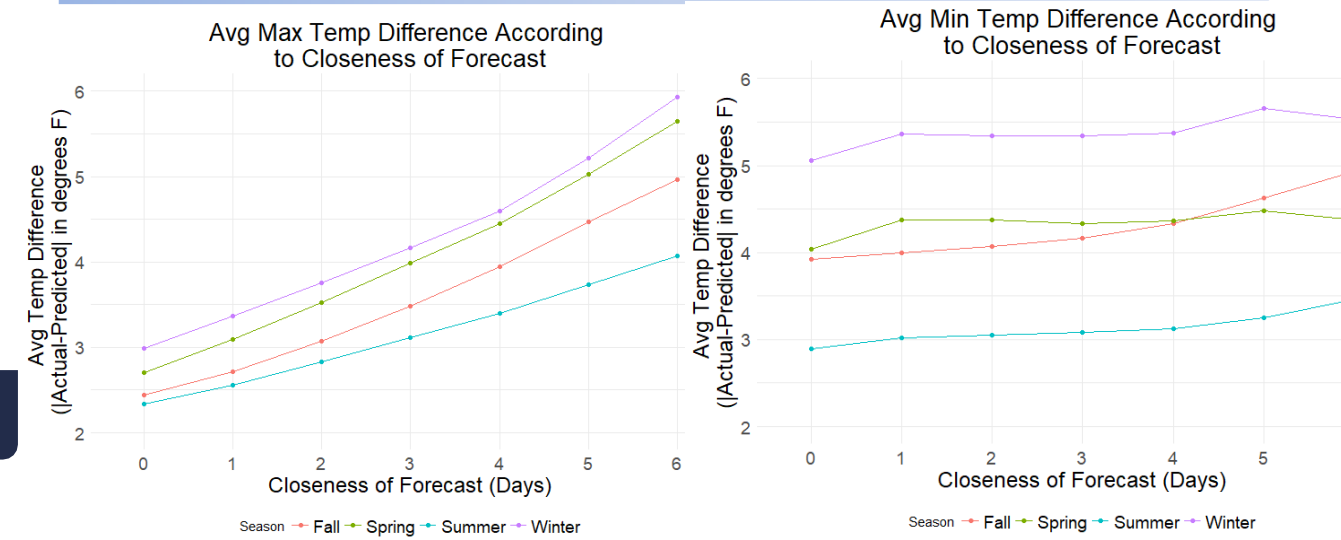
United States is a large area that is diverse in terms of its geological, ecological, and climatic structures. Factors such as land structure, latitude and longitude, and presence of large bodies can be used to explore the predictability of weather forecast.

SEASON + FORECAST

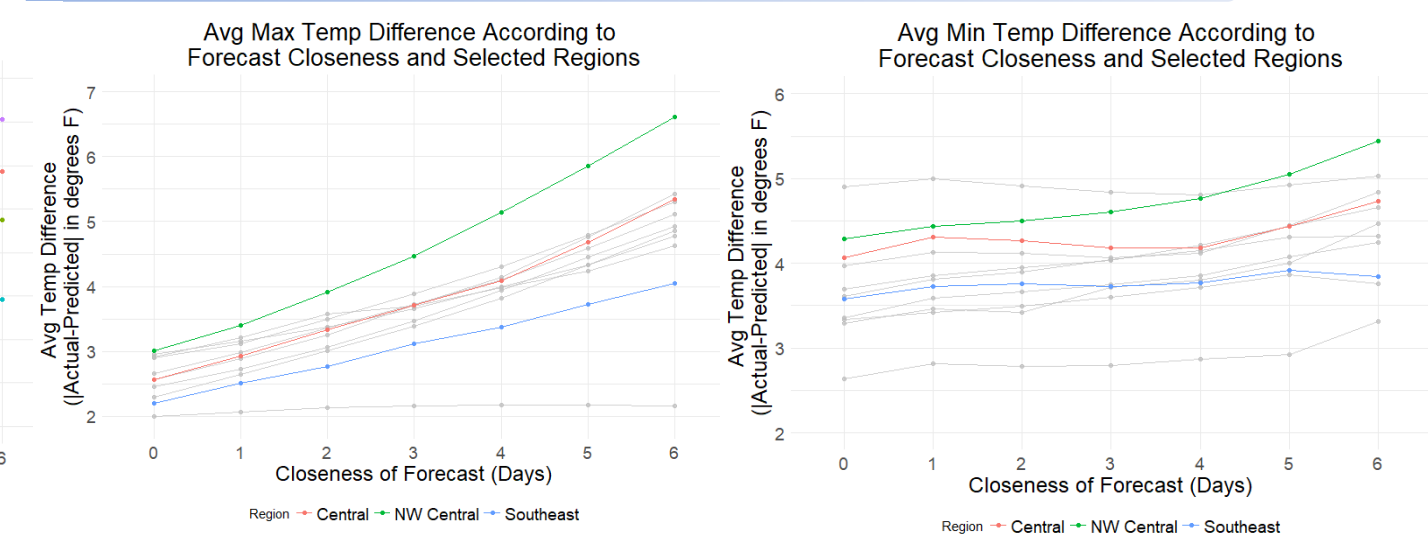


Error of the forecast for the maximum temperature (red) for a given day, decreases as the forecast closeness decreases. Error of minTemp (blue), however, remains somewhat constant.

SEASON + FORECAST CLOSENESS

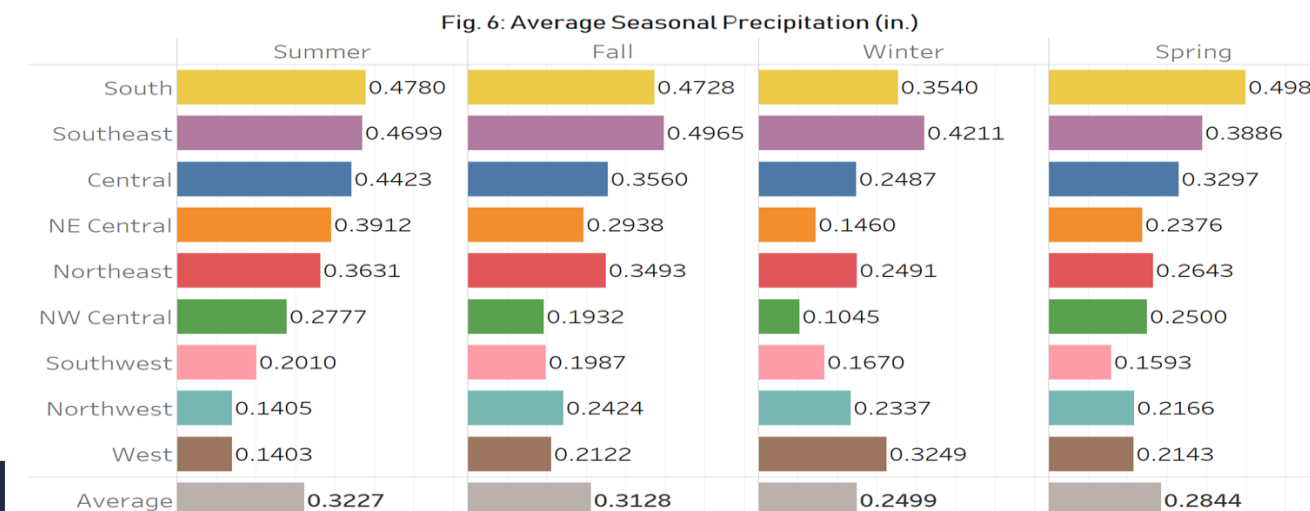


REGION + FORECAST CLOSENESS



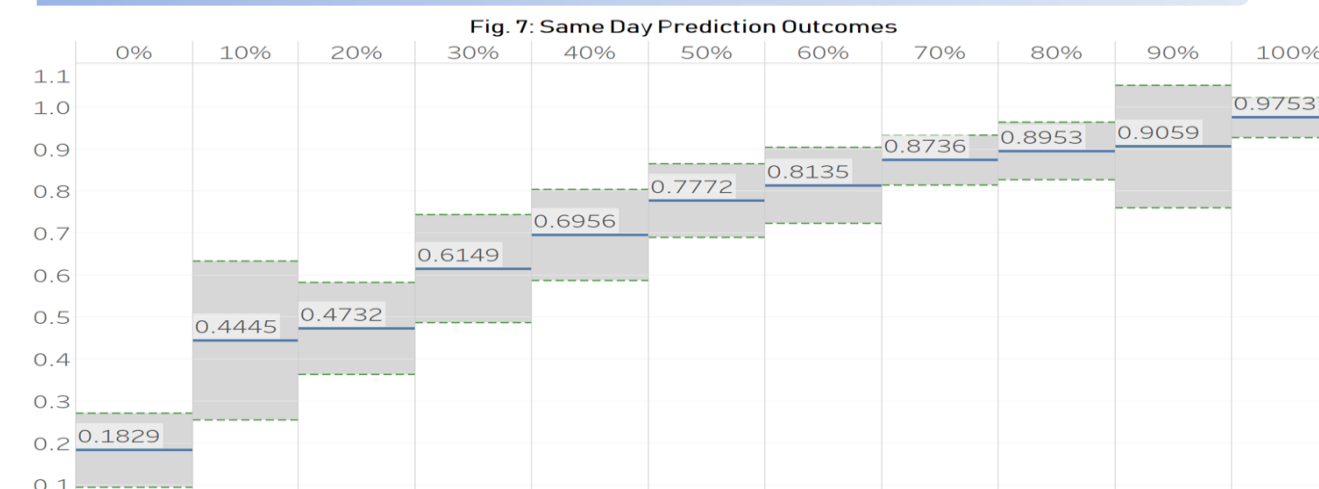
PRECIPITATION

SEASON + REGION



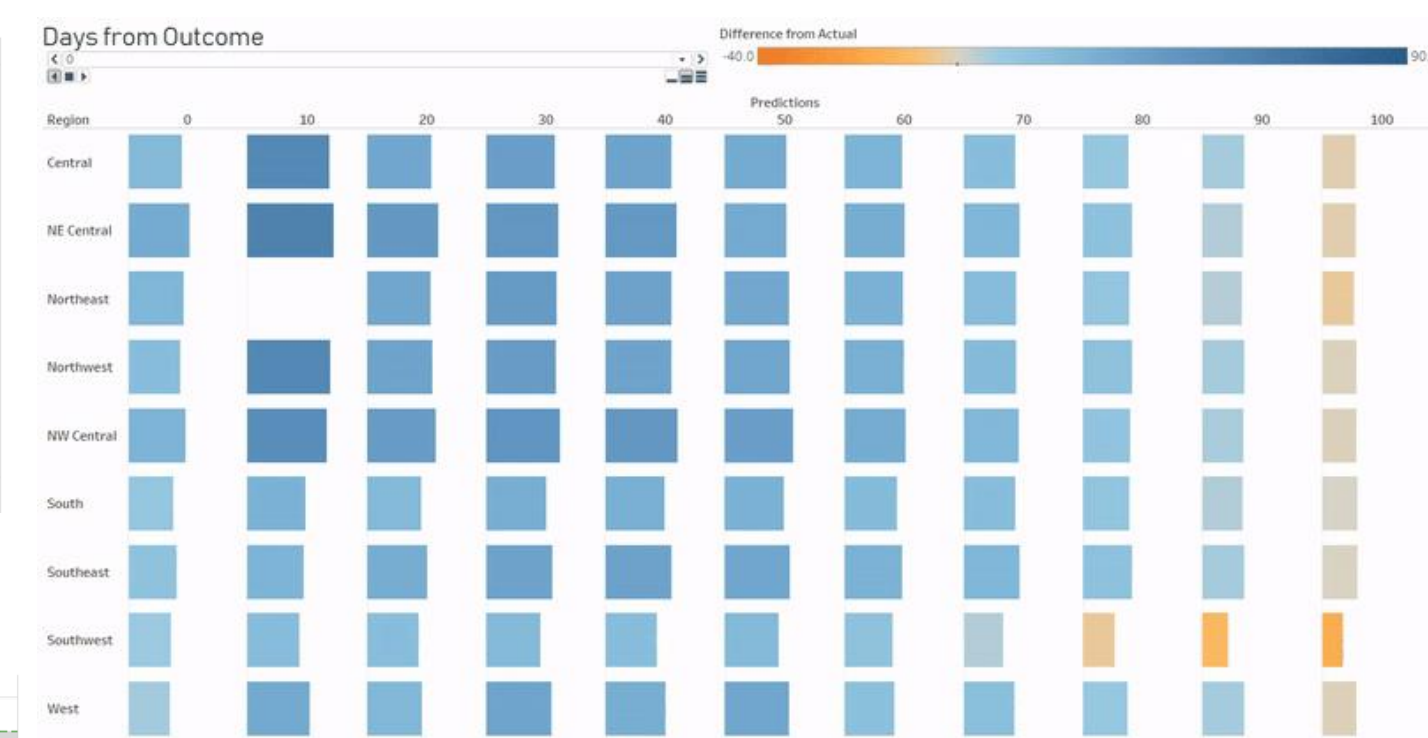
Each region in the U.S. has different amount of precipitation over each season.

LIKELIHOOD



Each forecast is categorized by the likelihood of precipitation, which is then compared to actual occurrence of precipitation. The grey bars indicate variance.

PREDICTION ACCURACY OVER TIME



A heat map of prediction accuracy by region and by estimation group (predicted percentage of precipitation).

ACKNOWLEDGEMENTS

Intergovernmental Panel on Climate Change // The Regional Impacts of Climate Change
• <http://www.ipcc.ch/ipccreports/sres/regional/>
National Centers for Environmental Information
• National Climate Report -2014, 2015, 2016, and 2017
• <https://www.ncdc.noaa.gov/sotc/national/>

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