

DSC680 - Temperature Prediction – Q & A

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Q&A (Answer the questions you proposed in Milestone 2)

Q. How are you performing Temperature forecasting? What are the main tools used for forecasting?

A. Tensorflow, Keras and LSTM model have been used for forecasting.

Q. What are the factors that control the weather?

A. The four main factors are:

- a. Solar radiation
- b. The amount of Earth's tilt
- c. Orbital distance from the sun
- d. Latitude, temperature, air pressure and the abundance of water.

Q. Is the prediction model reliable?

A. Looking at the RMSE and Predicted Vs Real Value plot we can state that model predictions are close to accurate.

Q. What are the uncertainties in forecasting temperature?

A. Below are the uncertainties:

- Initial conditions: uncertainty due to structures not seen by the observing system or estimated by the data assimilation scheme, due e.g. to limited resolution or other instrument limitations
- Physical parameterisations: uncertainty resulting from the model formulation of convection, cloud microphysical, planetary boundary layer, or other processes
- Boundary conditions: uncertainty in the synoptic and meso-scale environment that influences the limited area model through the boundary conditions obtained from a global model

Q. Can improvements be made in the forecasting model?

A. There is always scope of improvement specially in weather forecast models. More we cater to uncertainties better will be our model. Defining the cone of uncertainty so that it helps the decision maker in strategic judgment. Many factors go into delineating the cone of uncertainty, but the most important is defining its breadth, which is a measure of overall uncertainty.

Q. What other factors can be considered for improvement in predictions?

A. One such other factor is looking for S curve, change rarely unfolds in a straight line. The most important developments typically follow the S-curve shape of a power law: Change starts slowly and incrementally, putters along quietly, and then suddenly explode, eventually tapering off and even dropping back down.

References:

<https://hbr.org/2007/07/six-rules-for-effective-forecasting>

https://www.researchgate.net/publication/227223903_Uncertainties_in_Weather_Forecast_-_Reasons_and_Handling#pf5