Name: Yevgeniy Morozov

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NOAA-CREST Event

Presentation of Interest: Assessing Performance of the NCAR Rapid Refresh Model to Predict Boundary Layer Properties

This research centered on analyzing Rapid Refresh system’s Models in order to help obtain better accuracy with estimating Relative Humidity. The student used publicly available weather data with accurate measured temperatures and humidity’s by the sensors and tried to see if the Rapid Refresh model was able to predict within a certain degree of accuracy the humidity of a particular area.

Speaking to the student involved, I learned that he struggled with creating an algorithm using Python for a few months. He kept running into problems with his ability to feed the data into the algorithm, but when a fellow faculty member suggested he tried Matlab, he was able to resolve his differences and get good results within a week’s time. Once he resolved his issues, he was able to get good results with his models.

He was able to arrive at the conclusion that as the time goes by throughout the sample weather data, the performance of the Rapid Refresh model based on humidity deteriorated on different elevations. But when he used temperature data instead of humidity, the correlation was much better using the Rapid Refresh system.

What this means is that the Rapid Refresh, and other models still require a significant amount of development in order to help better predict weather patterns, and in case of weather disasters, help local, state and federal governments to better prepare in order to minimize loss of life and valuable assets. The opportunity in this field is vast and I am looking forward to possibly pursuing additional studies within the Environmental Engineering field using the knowledge I gained here in City Tech.