

Accuracy of European and American Snow Depth Analyses

Artemis Zhang

Mentor: Dr. Cesar Kongoli

Objectives

- Compare measured snow depth data with GFS and ECMWF analyses using python
- Determine the more accurate algorithm for analyzing snow depth by comparing the error in analysis

Results

- Average daily and monthly errors are greater for ECMWF than for GFS
- This means that GFS uses the more accurate algorithm for analyzing the period of December 2015 - March 2016

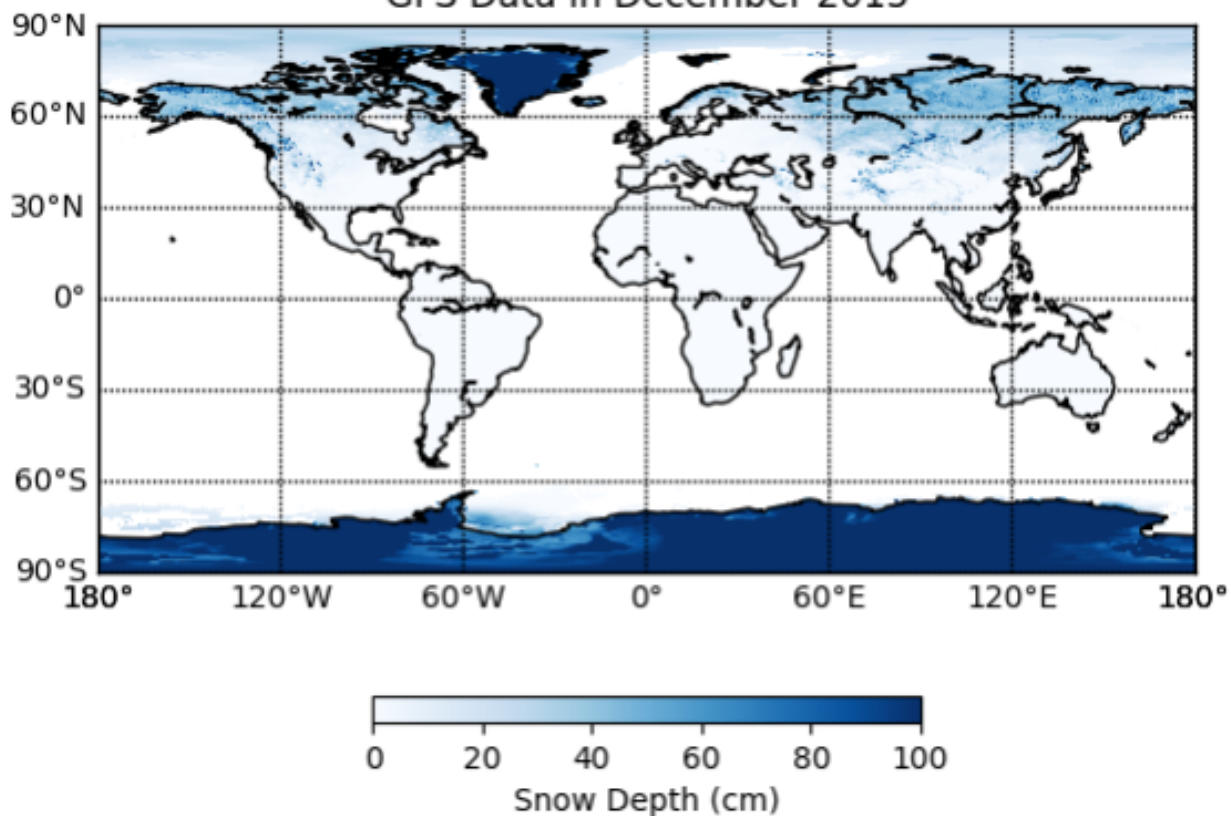
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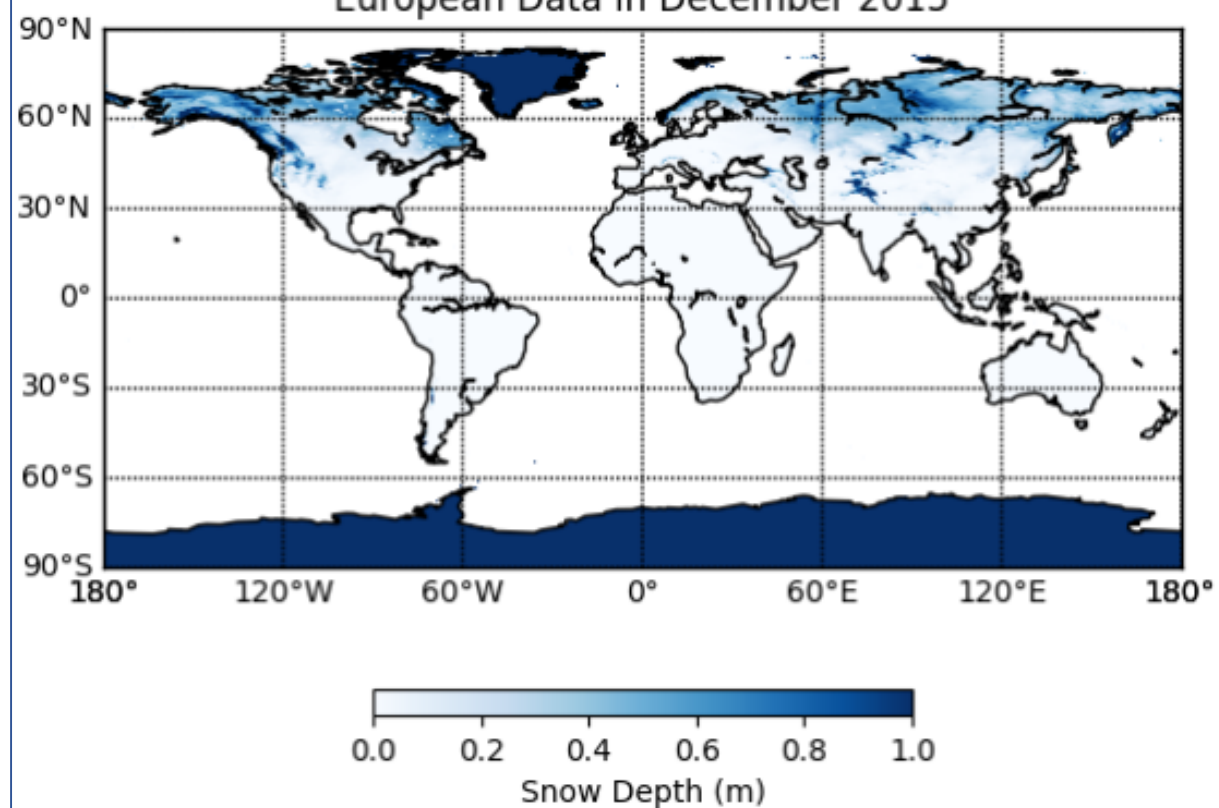
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Data Maps

GFS Data in December 2015



European Data in December 2015



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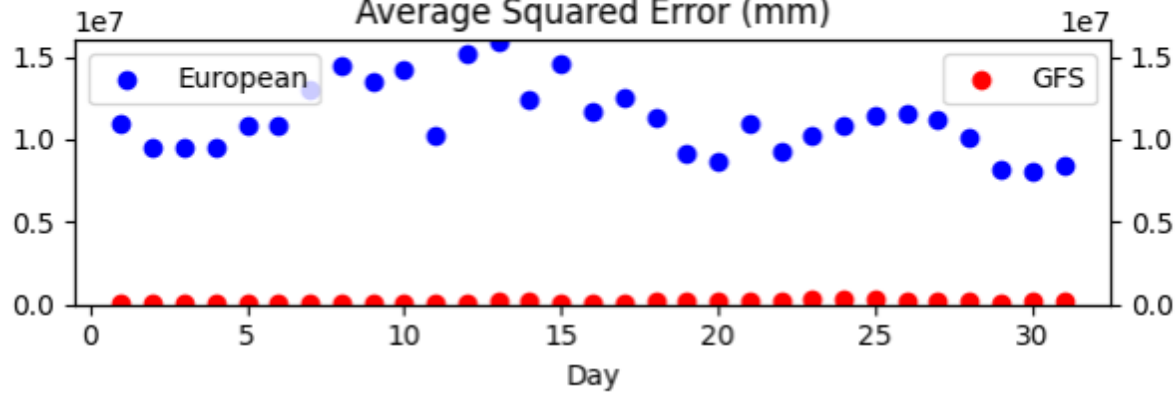
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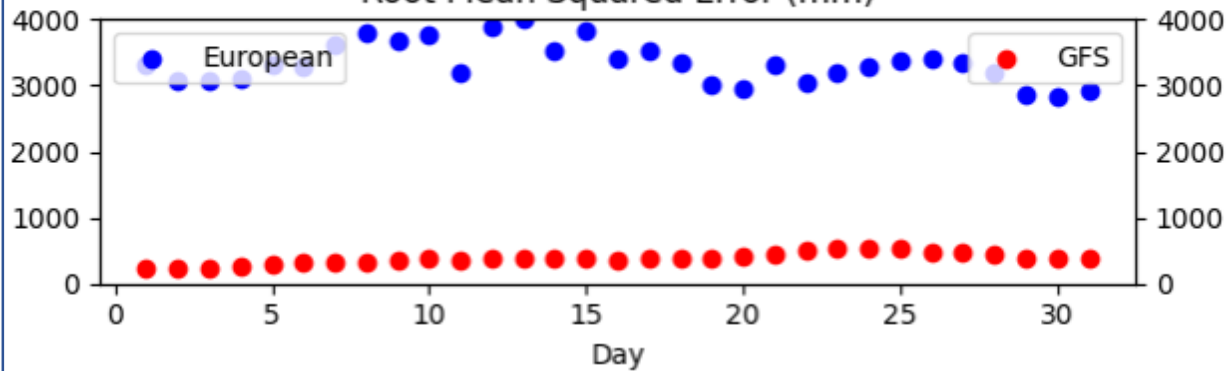
Errors in Analyses

December 2015

Average Squared Error (mm)

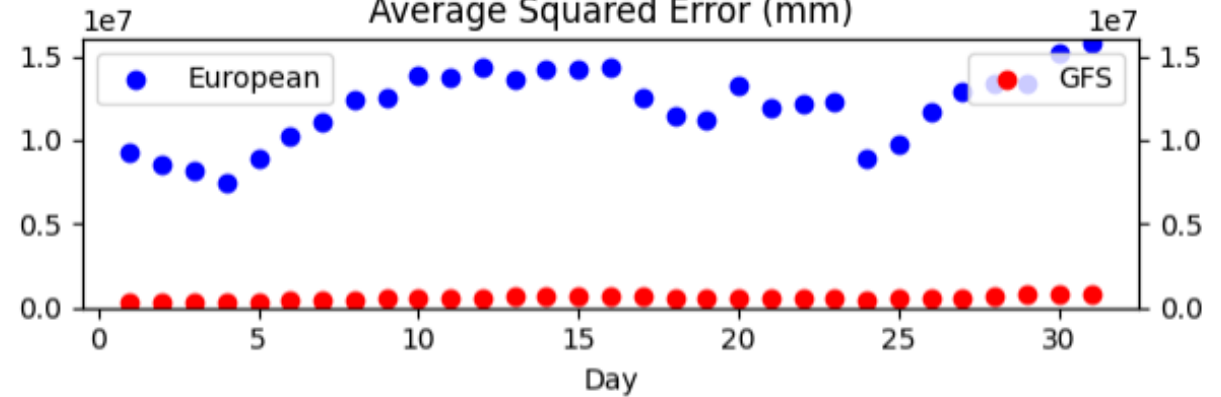


Root Mean Squared Error (mm)

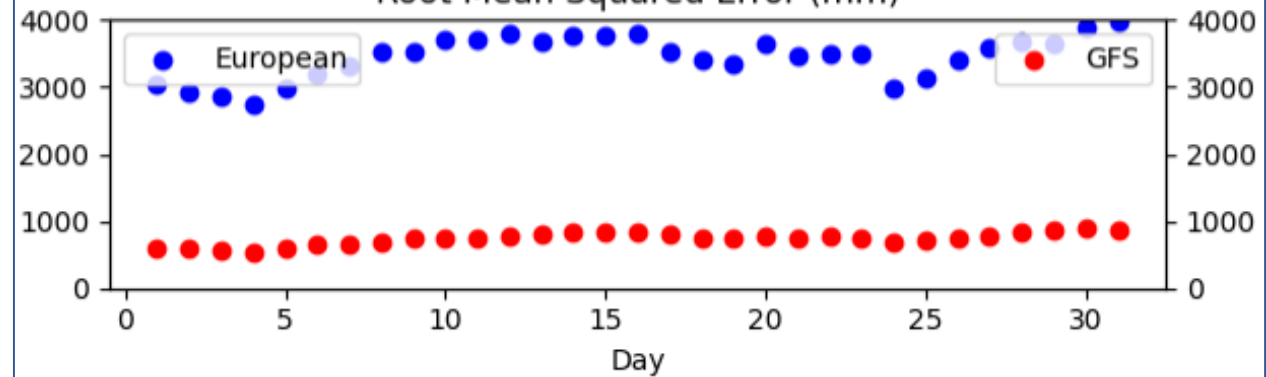


March 2016

Average Squared Error (mm)



Root Mean Squared Error (mm)



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What I Learned

- How to extract and graph data from GRIB files using python
- How to customize the graphs I created using python
- How to work with Pandas dataframes in python