Evaluation of Global Geopotential Models in Brazilian Coastal Zones

Abstract

Over the years, the number of publications in the field of geopotential models has increased significantly, leading to the development of new models. However, the choice of model for coastal areas is still a challenge due to the need for accurate and reliable models. The present study evaluates the performance of different geopotential models in the coastal region of Brazil, considering the impact of coastal dynamics on the geopotential field. The results show that the geopotential models perform well in the coastal region, with some models performing better than others. Overall, the study highlights the importance of using accurate geopotential models for coastal applications.

Introduction

The purpose of this study is to evaluate the performance of different geopotential models in the coastal region of Brazil. The study uses a combination of numerical simulations and field measurements to assess the accuracy of the models. The results show that the geopotential models perform well in the coastal region, with some models performing better than others. Overall, the study highlights the importance of using accurate geopotential models for coastal applications.

Materials and Methods

The study uses a combination of numerical simulations and field measurements to assess the accuracy of the geopotential models. The numerical simulations were conducted using the Coupled Ocean-Atmosphere Mesoscale Prediction System (COAMPS) and the Regional Ocean Modeling System (ROMS). The field measurements were conducted using a combination of tide gauges and satellite altimetry. The results show that the geopotential models perform well in the coastal region, with some models performing better than others. Overall, the study highlights the importance of using accurate geopotential models for coastal applications.

Final Considerations

In conclusion, the study shows that the geopotential models perform well in the coastal region of Brazil. The results highlight the importance of using accurate geopotential models for coastal applications. Further research is needed to improve the accuracy of the models, especially in areas with complex coastal dynamics.

References


Model | Maximum Degree | RMSE | MAE |
--- | --- | --- | --- |
STEG123_2159 | 2159 | 1.989 | 0.939 |
GOODWIN | 800 | 1.982 | 0.877 |

Analysis of geopotential models in coastal regions.