IMPROVING NGDC TRACK-LINE DATA QUALITY CONTROL
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ABSTRACT
In this study we examine and illustrate the Regional Geophysical Data Center (NGDC) trackline data quality control process. We argue that many trackline data errors are not instrument errors, but are rather due to the data analysis process itself, such as coarse spatial resolution, spatial and temporal effects of advection and diffusion, and parameterization and modeling. To improve the quality of the data, we develop a comprehensive quality control (QC) methodology, which includes 1) improving spatial and temporal resolution, 2) removing spurious tracks, and 3) improving the parameterization and modeling. The methodology is implemented in a software package called NGDC-QC. Results show that the quality of the data can be significantly improved by applying these QC methods, and that the resulting data can be used to improve our understanding of the Earth's dynamic processes.

Quality Control Measures

- Data analysis
- Data filtering
- Data interpolation
- Data smoothing
- Data visualization

Figure 1: Flowchart of the NGDC-QC methodology.

Figure 2: Bar chart showing the number of data points before and after applying the QC methods.

Figure 3: Scatter plot showing the relationship between the original and the improved data.

Figure 4: Heatmap of the quality control results, showing the improvement in data quality across different regions.

Future Work
We plan to extend the NGDC-QC methodology to include additional quality control measures, such as temporal and spatial interpolation, and to apply the methodology to a larger dataset.

Background Image
The background image shows the Earth's surface, highlighting the importance of improving the quality of trackline data for better understanding of the Earth's processes.