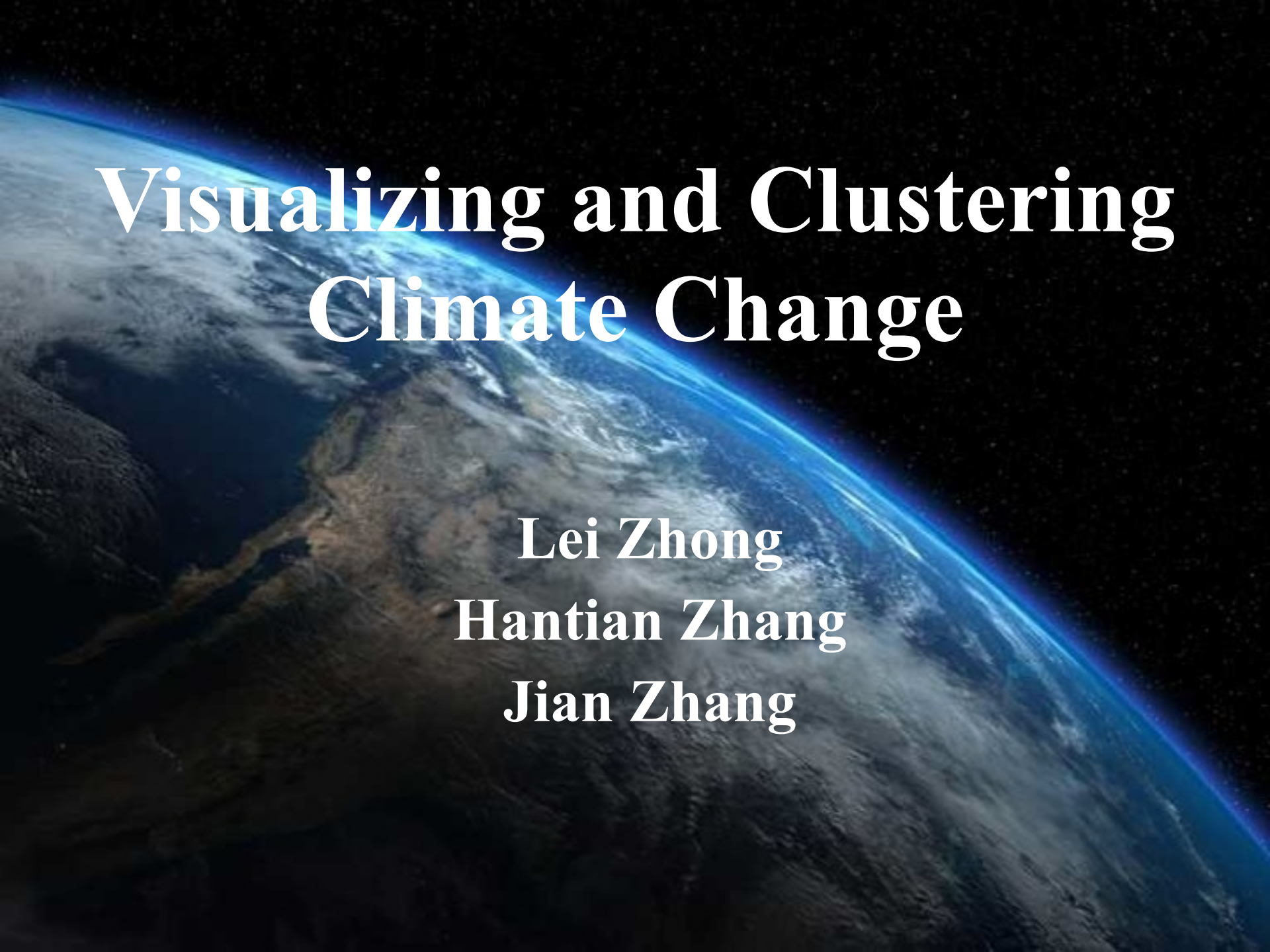

Visualizing and Clustering Climate Change

Lei Zhong
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Global Climate Change

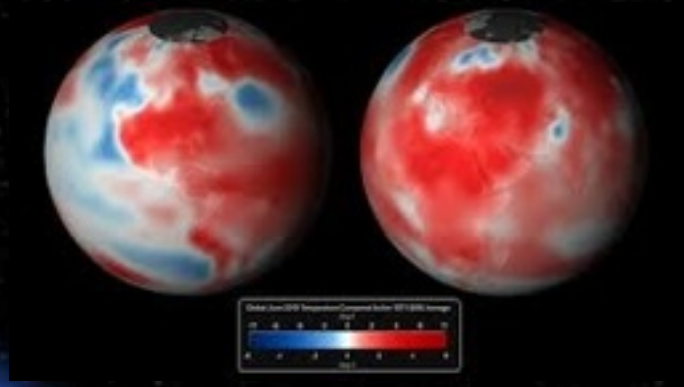
- Melting of glaciers and desertification get severe
- Analyzing climate change data helps to identify causes
- Insight into the change helps to control negative effect

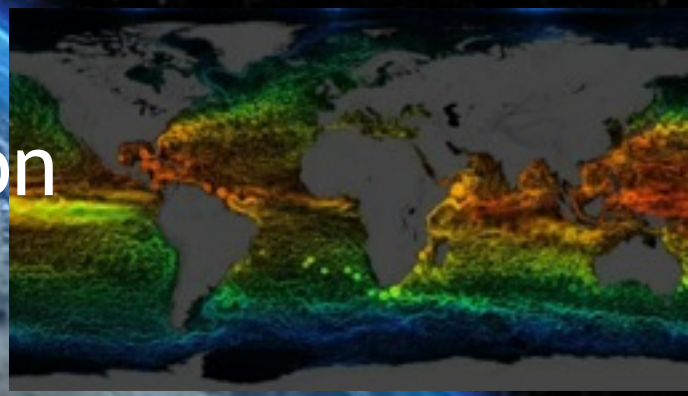
Dataset

- Global Surface Summary of Day (GSOD) by the National Climactic Data Center (NCDC)
- Available on Amazon S3
- 18 surface meteorological elements (temperature, humidity etc.)
- 9000+ monitoring stations
- Historical data for 1929 to the present
- Total data size ~ 20GB

Visualization

- Difference and variance of different attributes
- Geometrical location collection
- Interpolation for continuous maps





Clustering

- Memory Challenge for local computers or remote servers
- Clustering proximal points for similar change pattern
- Finding interesting result by Map-Reduce on Amazon Server
- Analyse similar patterns for common causes


Thanks!