

A view of Earth from space, showing the horizon and clouds. The Earth's surface is visible with blue oceans and brown landmasses, partially obscured by white clouds. The horizon line is curved, and the sky is a deep blue gradient.

Visualizing and Clustering Climate Change

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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

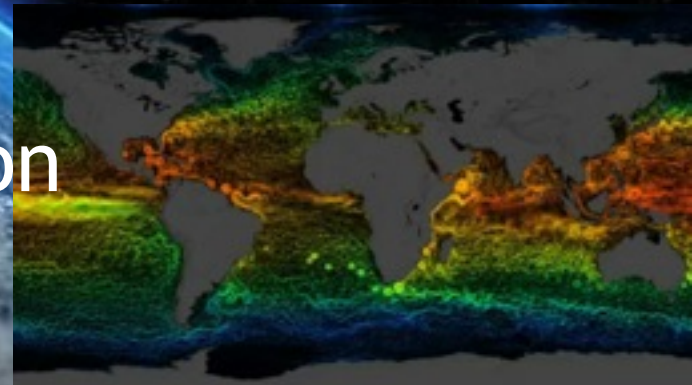
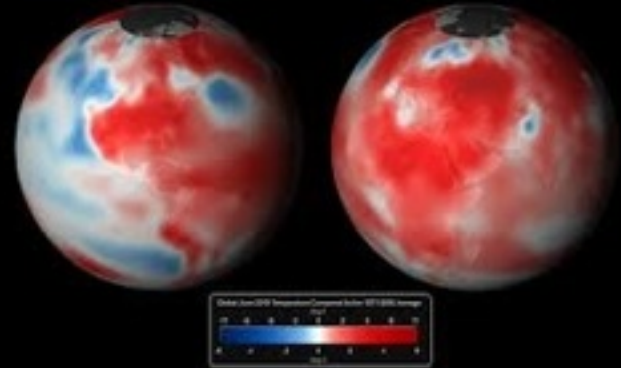


Dataset

- 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

A photograph of Earth from space, showing the curvature of the planet and a bright blue atmospheric glow along the horizon. The word "Thanks!" is overlaid in white text.

Thanks!