

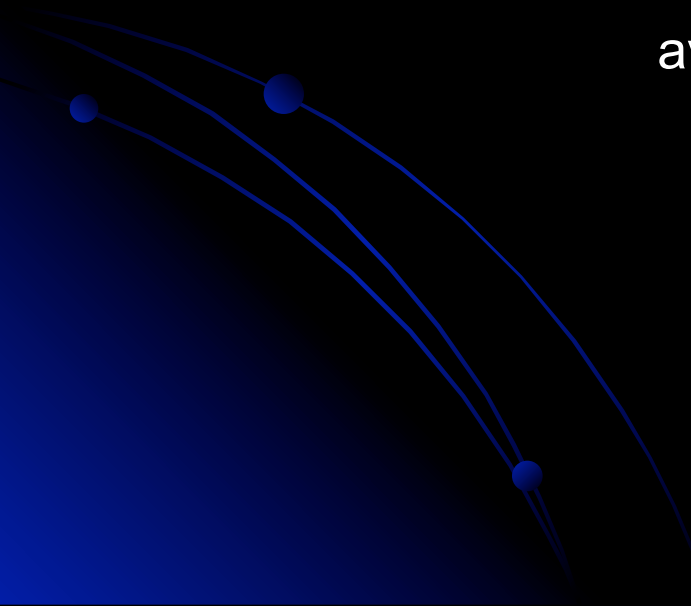
# Data Analysis and Visualization with Python

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# Goals

## 1. GISTEMP

- What / Why?
- ccc-gistemp
- New Interface
- GISTEMP Plotter

## 2. Station Locator

- Leaflet Map
- GeoJson
- Marker Clustering

## 3. Global Basemaps

- Matplotlib Basemaps

## 4. 3D Graphics

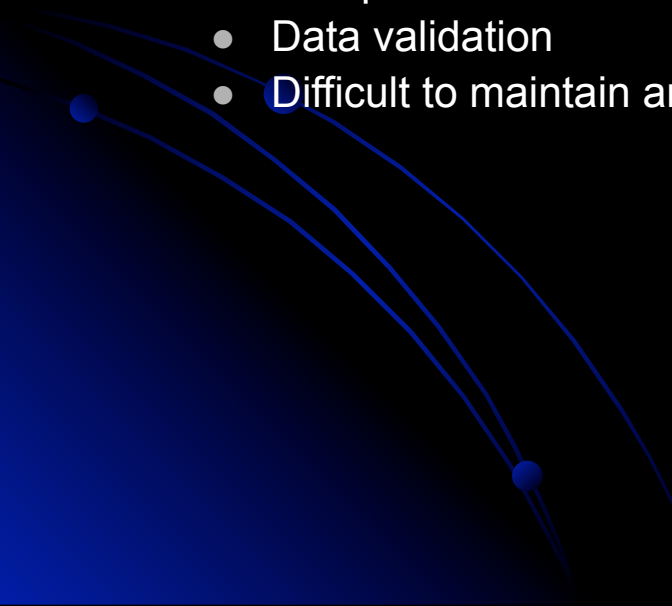
- Mayavi
- Climate Model

# What / Why ?

## What:

- Analysis of NOAA (GHCN), SCAR, Antarctica
- In-house graphics plotting library

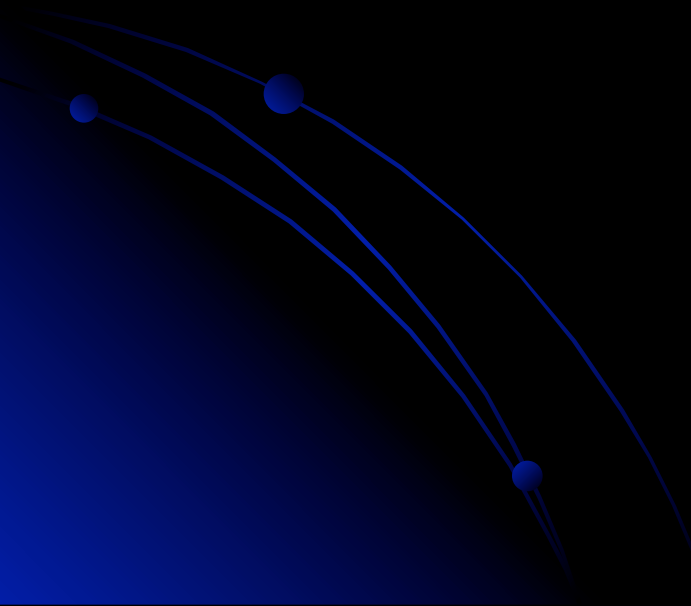
## Why:

- Heterogeneous code base (Fortran, .sh, .exe)
  - Multiple commands to execute
  - Data validation
  - Difficult to maintain and extend
- 

# CCC-GISTEMP

## Features:

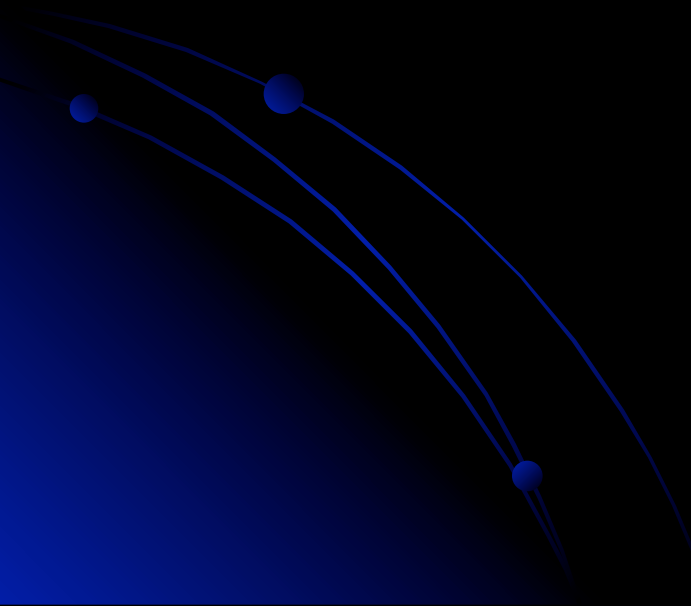
- < Python 2.7
- No Graphics
- No Optimizations
- Binary Reads



# New GISTEMP

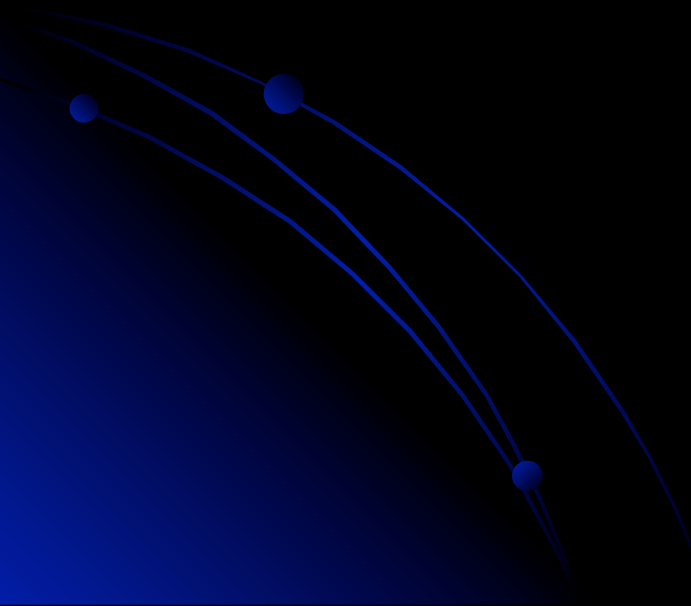
## Features:

- One stop shop
- Python 3.x support
- NumPy
- Compressed .npz files
- Alter variables
- Data Visualizations
- Matplotlib to D3



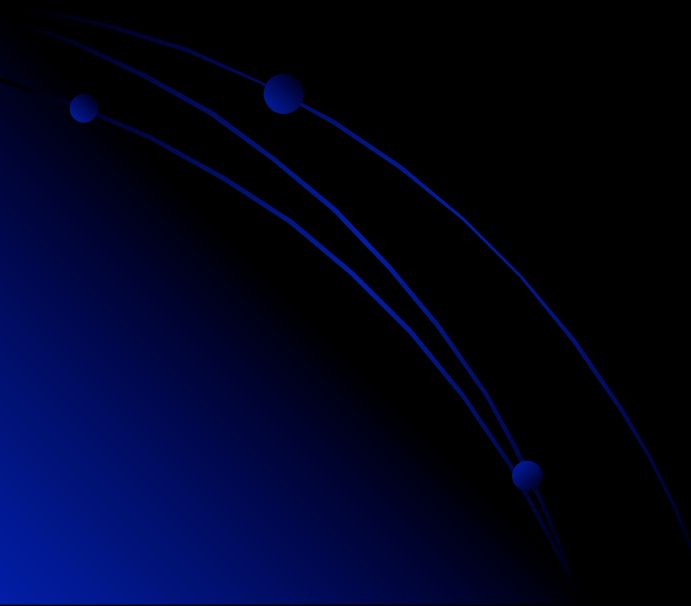
# Matplotlib and D3

- SVG vs Canvas
- Tex Support via MathJax
- Real time data retrieval via Ajax
- Custom interactive plugins



# Moving Forward

- Export as html/js file
- Additional smoothing techniques
- Allow for additional dataset/input file types
- Pick format for table data files



# Modules and Libraries

## Python:

- Anaconda
- Matplotlib
- NumPy
- SciPy
- Mayavi
- mpld3
- Pandas
- IPython Notebook

## JavaScript:

- D3.js
- Leaflet.js
- GeoJSON