**Pacific Rainfall Program (PACRAIN)**

- Data collection, research, and observation networks for the tropical Pacific
- Schools of the Pacific Rainfall Climate Experiment
- Online rainfall database
  - ~2.75 million rainfall records
  - ~1000 sites
  - data begins in 1874
- pacrain.evac.ou.edu

**Why Python?**

- Easy to learn, yet powerful
- Encourages readability and maintainability
- "Batteries included" in standard library
- Scientific programming is well-supported
- Portable across all major platforms
- Open-source and freely available
- www.python.org

**Research Applications**

- NumPy for high-performance data arrays
- SciPy for scientific computing
- matplotlib for visualizing data

**GIS Applications**

- Fiona for reading/writing GIS data formats
- pyproj for geospatial transformations
- Shapely for geometric analysis
- Basemap for creating maps

**Web Applications**

- Flask for implementing WSGI applications
- Jinja2 for generating dynamic HTML documents
- WTForms for handling HTML form data
- Celery for asynchronous processing

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**Using Python as an Integrated Software Platform for the PACRAIN Program**

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