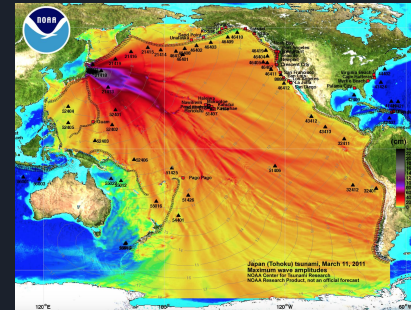
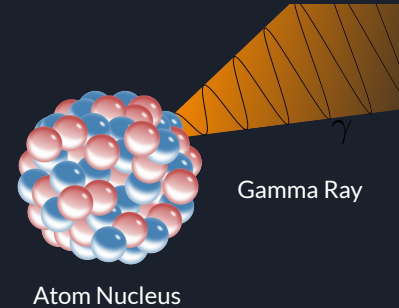


# Environmental Radiation Monitoring in the US

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UCSD DSE241 Project Proposal

# What is gamma radiation and why do we care?

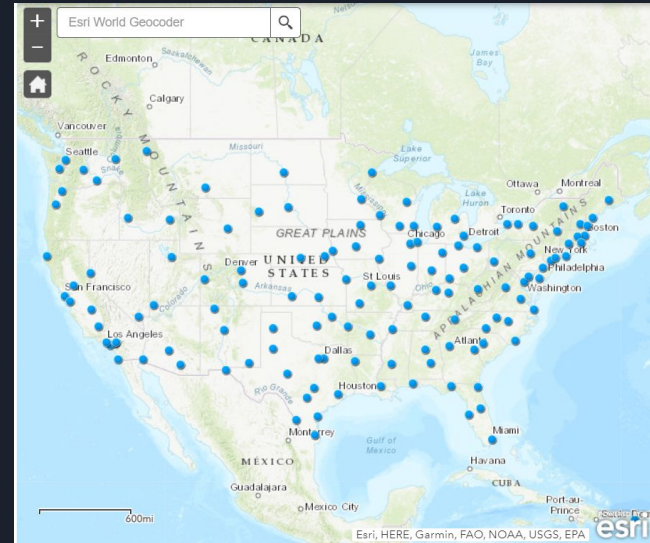
- Can't avoid
- Varies across the US
- Radiation sensitive instruments may fail
- Can be harmful at higher levels
- Difficult to detect
- Affected by human and natural events



Source:  
National Weather Service Heritage - [vlab.ncep.noaa.gov](http://vlab.ncep.noaa.gov)

# Available Radiation Data

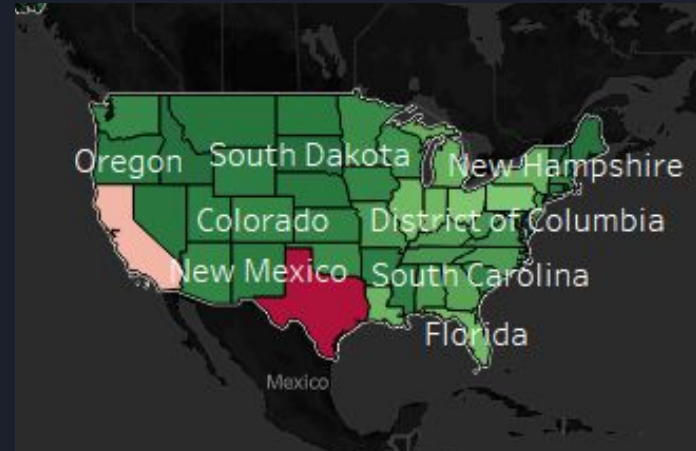
- Environmental Protection Agency
- RadNet
  - 140 Radiation sensors across the US
  - Near real time data (1hr resolution)
  - Trace back to mid 2000s
- Radiation Collections
  - Counts per minute
  - Dose equivalence (human)
  - Radiation Exposure



Source:  
[www.epa.gov/radnet/near-real-time-and-laboratory-data-state](http://www.epa.gov/radnet/near-real-time-and-laboratory-data-state)

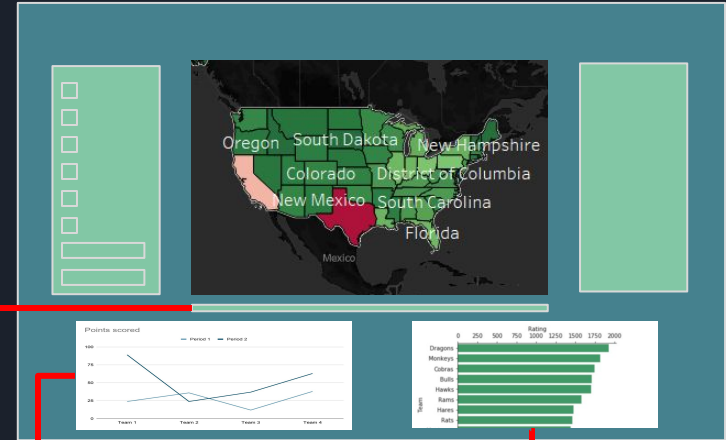
# Our goals

- To empower researchers and environmental & health authorities in monitoring radiation
- Improve access to data with an interactive dashboard
- Types of Analysis
  - Compare radiation levels across the US
  - Show time lapse
  - Mark world events such as natural disasters
  - Explore correlations such as altitude and rain with radiation



# Visualization Solution Implementation

- Programming Approach
  - Python - Dash Plotly
- Compute statistics by station, city, or state.
- Color driven visualization



Time Select

Time Series Line Chart

Comparison Bar Chart



# Visualization Features

- Selection, zoom, and sorting
- Actions/buttons for filtering and updating
- Group by options (i.e. by day, by year)
- Timelapse view for map
- Hover tool for displaying metadata