

# Monitoring Weather Hazards with Geostationary Satellites

Prepared by

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FAIR Science in Climate

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## Objective

The objective of this module is to equip students with the knowledge and practical skills needed to utilize geostationary satellite data for the retrospective and near-real-time monitoring of weather hazards. By the end of this module, participants will be able to apply satellite data analysis techniques to detect and analyze various atmospheric phenomena such as storms, fires, and aerosols.

## Overview of Steps

**Introduction to Geostationary Satellites:** Understanding the operational characteristics and advantages of geostationary satellites in weather monitoring.

**Data Acquisition:** Learning how to access and manipulate satellite data files using Python tools and libraries.

**Data Processing and Visualization:** Techniques for processing satellite imagery to enhance the visibility of weather features and hazards.

**Case Studies:** Applying learned skills to real-world scenarios to identify and analyze specific weather events.

## Instructions

- **Navigating the Notebooks:** Each Jupyter Notebook provided in this course contains step-by-step instructions to perform specific tasks related to weather hazard monitoring using satellite data. Begin with the introductory notebook (Lecture 1) and progress sequentially.
- **Following the Instructions:** Execute the Python cells in each notebook to observe the outputs directly. Modify parameters and rerun cells to see different results and deepen your understanding.
- **Refer to the PDF Solutions:** For detailed explanations and solutions to the exercises, refer to the accompanying PDF documents. The documents provide insights into the expected outcomes and expert interpretations of the data.
- **Utilize Resources:** Make use of the provided links and resources to expand your knowledge about satellite data analysis and weather forecasting.