

# SCI-WMS: Python Based Web Mapping Service For Visualizing Geospatial Data

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## Introduction

- SCI-WMS is an open-source python implementation of the OGC WMS service for qualitatively assessing society-critical atmospheric and oceanographic model and forecasting data including: forecasting, risk assessment, model comparison, algorithmic/parameter selection
- SCI-WMS is able to achieve real-time visualization of externally hosted CF-Compliant georegistered data by abstracting a "dataset" into two quantities: a topology and corresponding model-data.
- A topology is defined as a geo-referenced structure and further categorized into one of two groups: c-grid and u-grid topologies
  - c-grid - Any regular grid, defined as a topology that is parameterizable. This includes rectangular grids or curvilinear grids.
  - u-grid - Unstructured grids
  - \* blah

SCI-WMS source code is available at <https://github.com/brandonmayer/sci-wms/tree/testbed>

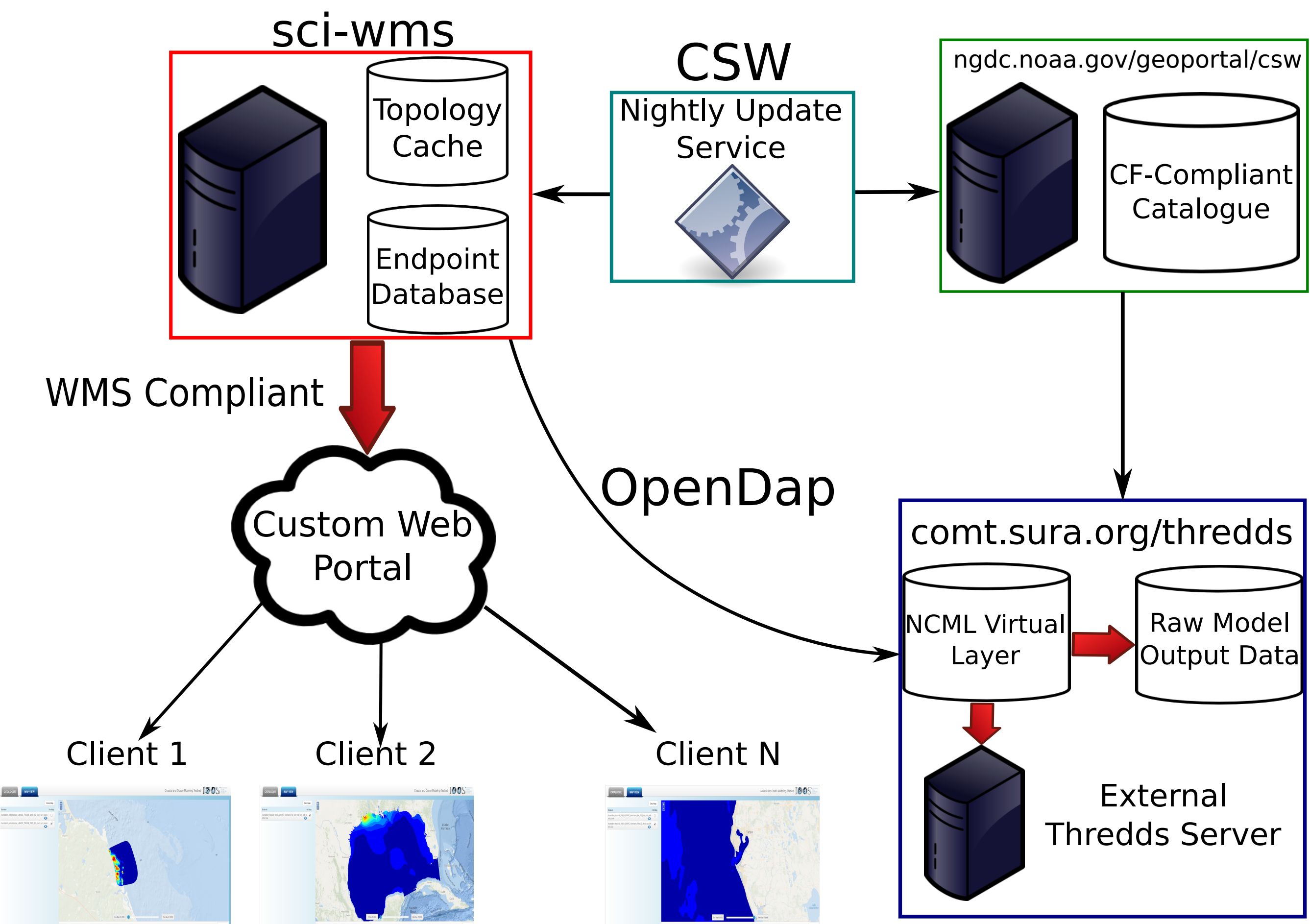


Figure 1: Overview of the SCI-WMS architecture within the scope of the U.S. IOOS COMT project.

| Topology | OpenDap Endpoint |
|----------|------------------|
|          | http:// . . .    |
|          | http:// . . .    |
|          | http:// . . .    |

Figure 2: Topology and endpoint data store. Topologies are classified as either c-grid or u-grid for efficient geospatial queries and remote model data access.

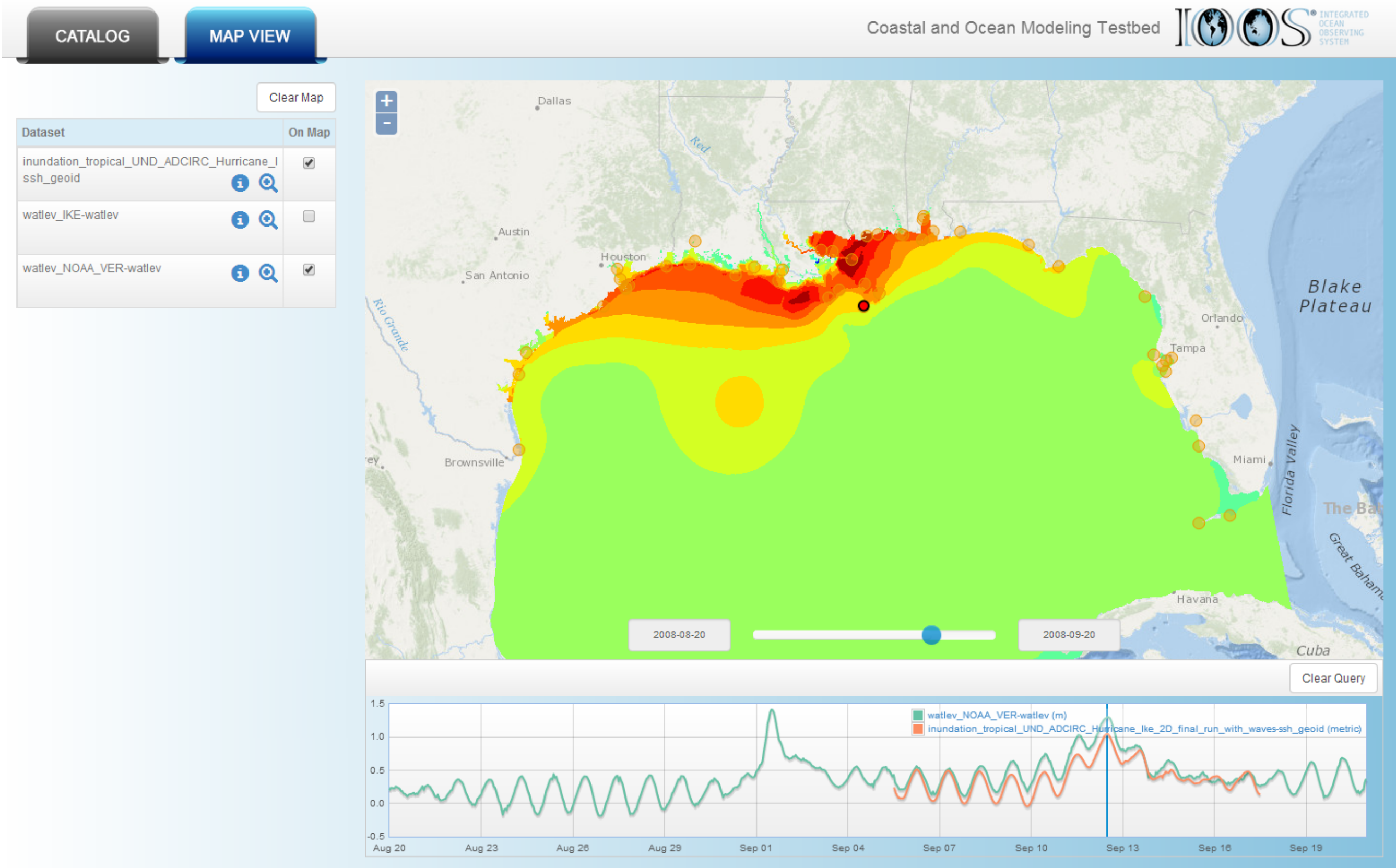


Figure 3: Comparison of ADCIRC (unstructured topology) model results with observed water levels in the Northern Gulf of Mexico for Hurricane Ike. Verified observed water levels are from NOAA's Station 8760922 (red dot on map). The map shows modeled water levels (in meters above the geoid) at the peak of the storm in southern Louisiana. The time series plot shows both the modeled (green) and observed (orange) water levels. The vertical blue line in the time series plot corresponds to the current time of the map.