

## Improving Data Discovery and Access through Interoperable System in Climate.gov

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The National Oceanic and Atmospheric Administration's (NOAA) Climate.gov team is enhancing users' ability to locate, preview, interact and access/acquire climate data and products in most commonly used data formats through a seamless and elegantly simple Climate.gov Maps and Data Section interface. The Climate.gov "Data" team faces multiple challenges from the diversity within the nation's climate data management such as various kinds of data, digital formats, inconsistency of metadata records, variety of data service implementations, very large volumes of data and geographically distributed locations. The Climate.gov team has created the Data Access and Interoperability project to design a web-based platform where interoperability between systems can be leveraged to allow greater data discovery, access, visualization and delivery. There are variety of definitions on Interoperability based on the use case. Climate portal Data team has approved the definition of the Interoperability as "an interface that allows users to find, display, manipulate, and (where applicable) download NOAA's and its partners' climate data products that are stored in and served from different data centers."

Based on the definition of the Interoperability, the team proposes developing an Interoperable Data Platform in Climate.gov Maps and Data Section tab wherein systems can integrate with each other to support the synthesis of Climate data and products. This simple web based interoperable system platform will provide users the ability to discover the available climate data, preview and interact with them, and acquire the data in common digital formats.

The Climate.gov Interoperable Data Platform is designed around the concepts of Representational State Transfer (REST) and implements design patterns and use cases which conform to best common practices for Web Services. Emerging standards for automation of machine-to-machine services discovery, such as OpenSearch autodiscovery, are being implemented throughout the Data Platform to ensure harmonization between data service providers, integrators and consumers. Implementation of these common specifications will not only ensure compatibility between systems within NOAA, but also with non-NOAA systems and innovators in the public. The proposed Data Interoperable System platform will have improved and smooth experience to the users in Data discovery, Access, preview and data export due to scalable interoperability. As the team works across the organization, it will evaluate the capabilities of the participating systems to capture and assess the relative maturity of each system according to the Technology Infusion Working Group (TIWG) Interoperability Readiness Levels (IRL) as the reference for the interoperability mapping within NOAA. This will help establish the gaps and opportunities for integrating systems across a common set of discrete aspects of interoperability. Applying the principles of IRL will give NOAA reasonable and consistent snapshots of current readiness of systems to be interoperable, but also provide consistent targets for evolving a more integratable ecosystem for Earth Sciences data throughout NOAA.

In this presentation, we will provide an overview of the Climate.gov Data Interoperability concept, explore the TIWG IRL within the process, examine the technologies and standards being used, demo the prototype the team has developed for the proof of concept and discuss the challenges and ongoing activities within the Interoperable Data Platform team.

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<sup>1</sup> *The Federation of Earth Science Information System (ESIP) Interoperability Talk on May 2, 2013.*

<sup>1</sup> <http://www.esipfed.org/>; [www.climate.gov](http://www.climate.gov)