

The intuitive nature of understanding information portrayed on a map makes maps and the tools used to interact with them extremely useful to decision-makers. As more information about our world becomes open to more users the more we have to help our decision-makers incorporate that information. This fact is especially true when considering the vast amount of multidimensional scientific data that if provided and portrayed more easily could be used more effectively when incorporated in a framework of online maps and apps.

There wealth of scientific data available and the demand for this data is only increasing; however, applying scientific data towards practical decision-making poses several technical challenges. These challenges include the difficulty in working with scientific data due to the inherent complexity, variety, and volume that exists. Decision-makers have a difficult time finding the data or even understanding what to do with the data once they have it. This fact adds a layer of complexity by requiring several touch points between the scientists that produce the data and the end users that need it. As a result scientific data managers have increasing responsibilities to do whatever it takes to massage the data into formats that can then be used by custom developed tools needed to portray the information in a way that makes it simpler for decision-makers to use. Unfortunately this is often done on a case by case basis resulting in lots of different custom tools with little to no common user workflows for interacting with the data. Simply put, all these added layers of complexity in working with scientific data make it that much harder to use.

While these challenges are daunting, information technologies do exist that can help mitigate some of these issues. Many organizations for years have already been enjoying the benefits of modern service oriented architectures (SOAs) for everyday enterprise tasks. We can use this approach to modernize how we share and access our scientific data where much of the specialized tools and techniques needed to handle and present scientific data can be automated and executed by servers and done so in a consistent way, making it simpler to access and interact with scientific data. This poster aims to describe an approach for implementing an enterprise GIS platform that is used to share file based multidimensional scientific data (e.g. GRIB, netCDF) using standard based scientific web services. These scientific web services are able to encapsulate the logic needed to handle, describe, and portray scientific data through a variety of service types including, image, map, feature, and geoprocessing. By combining these types of services and leveraging a well-documented and modern web development APIs, we can afford to focus our attention on the design and development of user-friendly maps and apps that conform to consistent and familiar standardized workflows ultimately providing a more straightforward way for end users to access and use multidimensional scientific data for decision-making.

This presentation showcases a collaboration between the National Oceanic and Atmospheric Administration's (NOAA) Climate.gov portal, Climate Prediction Center and Esri, Inc. on the implementation of the ArcGIS platform, which is aimed at helping modernize scientific c data access through a service oriented architecture.