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Dawn Wright was appointed Chief Scientist of Esri in October 2011 after 17 years as a professor of geography and oceanography at Oregon State University. In this role, she reports directly to the Esri CEO and works with him and other Esri directors on strengthening the scientific foundation for Esri software and services, while representing Esri to the national and international scientific community. Wright also maintains an affiliated faculty appointment in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State. Her current research interests include data modeling, benthic terrain and habitat characterization, coastal/ocean informatics, and cyberinfrastructure.

Wright’s recent advisory board service includes the U.S. National Academy of Sciences Ocean Studies Board, the NOAA Science Advisory Board, the Science Advisory Board of Conservation International, the Board of COMPASS Science Communication Inc., and many journal editorial boards. She is a Fellow of the American Association for the Advancement of Science, the Geological Society of America, as well as a fellow of Stanford University’s Leopold Leadership Program.

She holds an Individual Interdisciplinary Ph.D. in Physical Geography and Marine Geology from UCSB, an M.S. in Oceanography from Texas A&M, and a B.S. cum laude in Geology from Wheaton College (Illinois). Other interests include road cycling, 18th-century pirates, apricot green tea gummy bears, her dog Sally, and SpongeBob Squarepants. Follow her on Twitter at @deepseadawn.

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Perspective Statement

1. How can spatially mediated discovery provide single-point access to research data, across distributed repositories and catalogs?
2. How can the discovery of research objects in general be spatially supported? and
3. How can spatial discovery be applied to topic spaces, in addition to geographic ones?

In addition to an individual research project, many researchers are involved in at least one major partnership, perhaps one ocean observatory, or one collaborative. The accompanying framework for spatially-mediated discovery of resources may be focused on a single discipline or subdiscipline, or a particular study region. The spatially mediated discovery obviously exists to support research, but also collaboration in data collection, spatial analysis, visualization, and communication of the science to multiple audience. These interactions likely take place at multiple scales as they traverse distributed repositories and catalogs: the scale that serves the individual research project, or scales of small workgroups within a lab, or of inter-organizational collaboration. There are also frameworks that cut horizontally across discipline and region, connecting to broader national or global initiatives such as NSF EarthCube, other NSF-funded Research Coordination Networks, GEOSS, or the like.
In order to make data most readily accessible, a “geospatial aggregator” or web services approach is one consideration, using common service interface specifications that build on international standards from the World Wide Web Consortium (W3C), the Open Geospatial Consortium (OGC) and others. Any “aggregator” should ideally consider the full data value chain that includes connecting to Earth observation including in situ sensor networks, providing mechanisms for storing and hosting content (especially when hosting is not possible at the data source), making content discoverable, and enabling use of content in different media, for both online and offline use.

To further increase the visibility and use of content and information products, they may be disseminated to other global or national networks also serving as aggregators of sorts, such as the Group on Earth Observation, the United States Geospatial Platform, and others. And of course all data and metadata must be OGC- or ISO-compliant. Another important consideration is the enforcement of minimum requirements for inclusion, such as:

- well-maintained data and documented with Open Geospatial Consortium (OGC) or International Organization for Standardization (ISO)-compliant metadata;
- data services that are reliable and well performing (i.e., services run on servers experiencing minimum disruption or downtime, with holdings exposed via a OGC-compliant catalog services such as CSW (Catalog Services for the Web) and as an OpenSearch endpoint, accessible through REST API, and providing GeoRSS, KML, HTML, or JSON responses; and with registered resources monitored and synchronized according to any changes in the catalog service.
- web maps with a well-defined legend, on a well-focused topic, and with well-configured pop-ups;
- completion of all required elements of a “home page” for the contributed item in ArcGIS Online containing an attractive thumbnail, informative item details, descriptive user profile, data or map access use constraints, credits or attribution, and search tags.

It is hoped that spatial mediated discovery means not only the provisioning *data services*, presumably in the cloud, but also the crosswalking and sharing of workflows and use cases, additional apps for mobile, web, and desktop, community-building events where people gather face-to-face, and close interlinkages to other platforms such as NSF’s EarthCube. And finally, as we contend with human impacts on the biosphere, we see that recent innovations in computational and data science are now facilitating community resilience to climate change (e.g., helping communities to monitoring air quality or drought, find available drinking water, determine habitat vulnerability, etc.). But not often discussed is a path toward digital resilience. If digital tools, found via spatially-mediated discovery, are to continue helping communities, it stands to reason that the tools and the discovery frameworks must engender some resilience themselves. The capacity to deal effectively with change and threats, to recover quickly from challenges or difficulties, even to withstand stress and catastrophe, can apply to them too.