



Welcome Scientists!

4th Annual Esri Science Symposium

#ScienceSymposium

ESRI USER CONFERENCE

#EsriUC

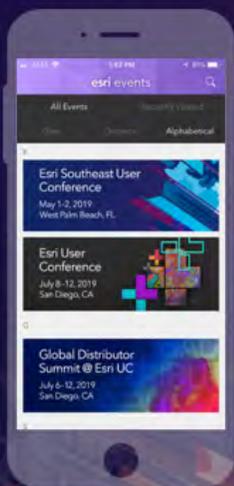


2019 is a huge year, for as many of you know it is the 50th anniversary of Esri, the 50th anniversary of the publication of Ian McHarg's Design with Nature, as well as the important journal Geographical Analysis, the 50th anniversary of the Apollo 11 moon landing.... and ... AND!!!
The FOURTH Annual Esri Science Symposium!!!

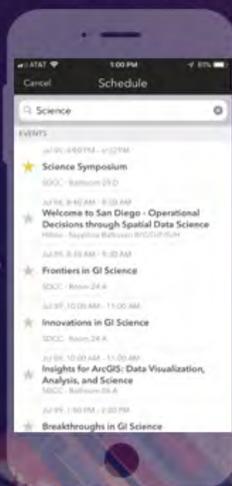
Welcome to this event which technically constitutes the final session of the ED SUMMIT as well as the continuation of
Advances/Frontiers/Innovations/Breakthroughs in GIScience sessions
An event for YOU.

Please Take Our Survey on the App

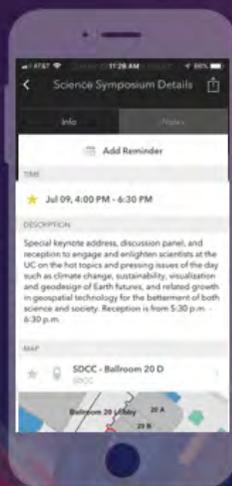
Download the Esri Events app and find your event



Select the session you attended



Select the "Survey" icon



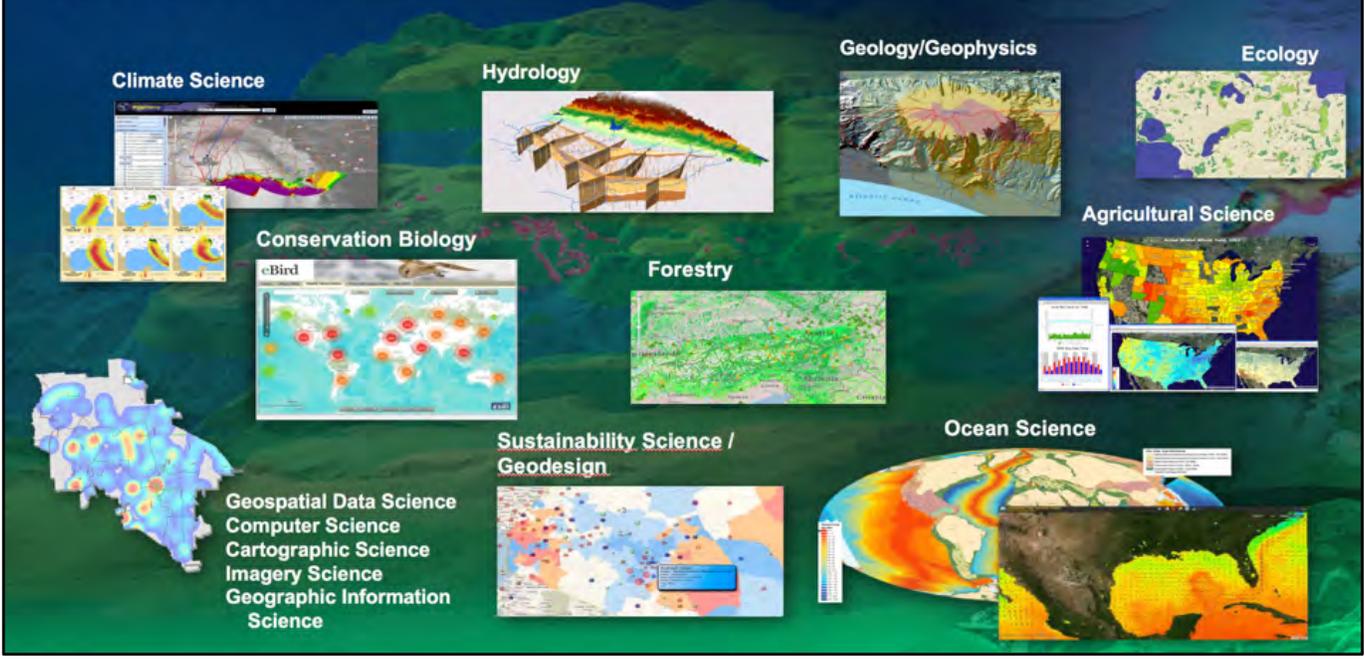
Complete answers and select "Submit"



We ARE in the conference program this year so we encourage you to please take the survey, **especially those of you who tell me each year that this is your FAVORITE event of the whole UC** 😊

Strengthen science base at Esri ...
Establish Esri as a *member* of the scientific community ...

esriurl.com/scicomm



As the Chief Scientist of Esri I foster a program to strengthen the scientific foundation for Esri software and services (especially in the disciplines shown), while representing Esri to the national/international scientific community on various boards, councils, and research projects, as well as our internal research projects such as the Ecological Marine Units (<http://www.esri.com/ecological-marine-units>).

Esri UC Q&A
2019
esriurl.com/2019qa

A message from Esri President Jack Dangermond

We like to maintain open and ongoing conversation with our users. Here we provide answers to common questions about our software development, products, education, and support. If you have additional questions, I encourage you to join our online community, GeoNet, where you can share, chat, and collaborate on all things "geo" with other geospatial enthusiasts around the world.

Search: geographic science

Search Results

How is Esri advancing geographic science?

At Esri, we focus primarily on applied science, but value basic science as well. We recognize that scientific research will be driven by major themes of compelling interest to society. Science helps us to understand not only how the Earth works, but also how the Earth should look (by way of geodesign), and how we should look at the Earth (by way of Earth observation in varying forms, and the accompanying data science issues of analysis, modeling, developing and documenting useful datasets for science, and interoperating between these datasets and between various approaches). These are, in fact, examples of The Science of Where.

You can also check the Esri UC 2019 Q&A which is one of single best sources of information on Esri as a company + our products/ services. It is based on YOUR questions. Still available online and searchable at (e.g., search for "geographic science" or by industry or product). The Geographic Science entry here focuses more on the specific ArcGIS software capabilities and tools for scientists.

Twitter
@GISandScience

GIS and Science
@GISandScience · Follows you

Sharing applications of geospatial technology for scientific research and understanding. Tweets by @deepseadawn and Esri Science Team. Brought to you by @Esri.

Redlands, CA USA
esri.com/sciences
Joined September 2008

Tweets 5,891 Following 11.9K Followers 21.5K Likes 58 Lists 2

Tweets Tweets & replies Media

GIS and Science @GISandScience · Jun 21
It's time get BOOK SMART, especially with the forthcoming great @EsriPress titles "GIS for Science," by @deepseadawn + @GeoHarder and "Smarter Government" by @MartinOMalley p.ctx.ly/r/r/9gke

Who to follow · Refresh · View all

- GISuser GeoTech News ... Follow
- GeoNe.ws @GeoNe_ws Follow
- OSGeo @OSGeo Follow

Find people you know

Realizing that many of you do not want to sign up for or have to LOG IN to yet another community and that Twitter is your preferred “discussion forum” (as well as the place to get news and content), we have a popular presence there too, at @GISandScience.

Tweets 35.2K **Following** 639 **Followers** 9,702 **Likes** 20.8K **Lists** 12 **Moments** 1 [Edit profile](#)

Dawn Wright
@deepseadawn
Chief Scientist of smart mapping company @Esri + GIS/oceans professor at @OregonState, cyclist, ocean/climate mapper, Lego fan, raised in Hawaii. Tweets mine.
📍 somewhere under the sea
🌐 dusk.geo.orst.edu
📅 Joined December 2008
🎂 Born April 15, 1961
📷 3,240 Photos and videos

Tweets **Tweets & replies** **Media**

★ Pinned Tweet
Dawn Wright @deepseadawn · 3 Feb 2017
I'm Dawn! I map the oceans, study underwater volcanos & hot springs. I also build Legos! #actualivingscientist #meetascientist #sciocomm

Your Tweet activity
Your Tweets earned 4,577 impressions over the last 24 hours
SPM SPM
[View your top Tweets](#)

Who to follow · Refresh · View all

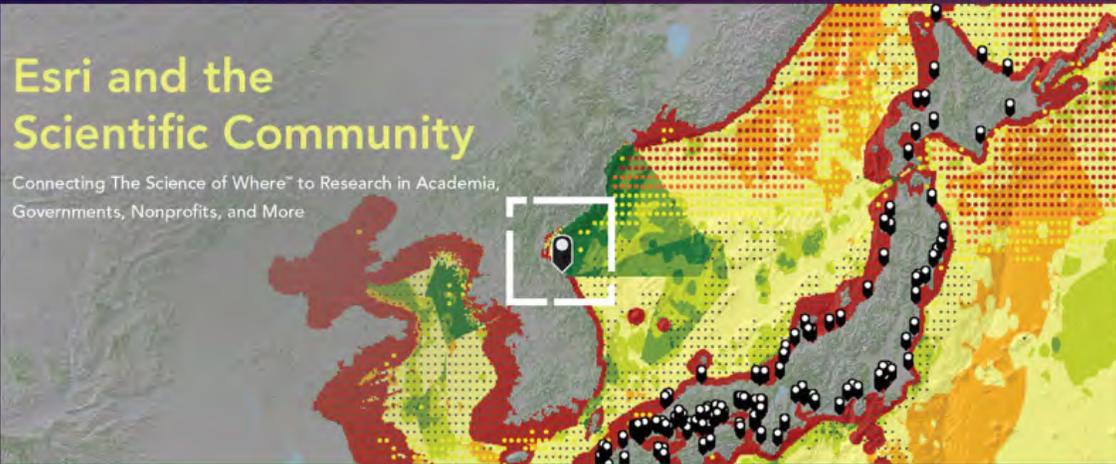
- [Esri User Conference @EsriUC](#) [Follow](#)
- [Esri GIS Education @GISEd](#) [Follow](#)

The same for my account directly, though you'll find other fun and interesting content there, including Legos! 😊

Esri & the Scientific Community

esriurl.com/scicomm

geonet.com/groups/sciences



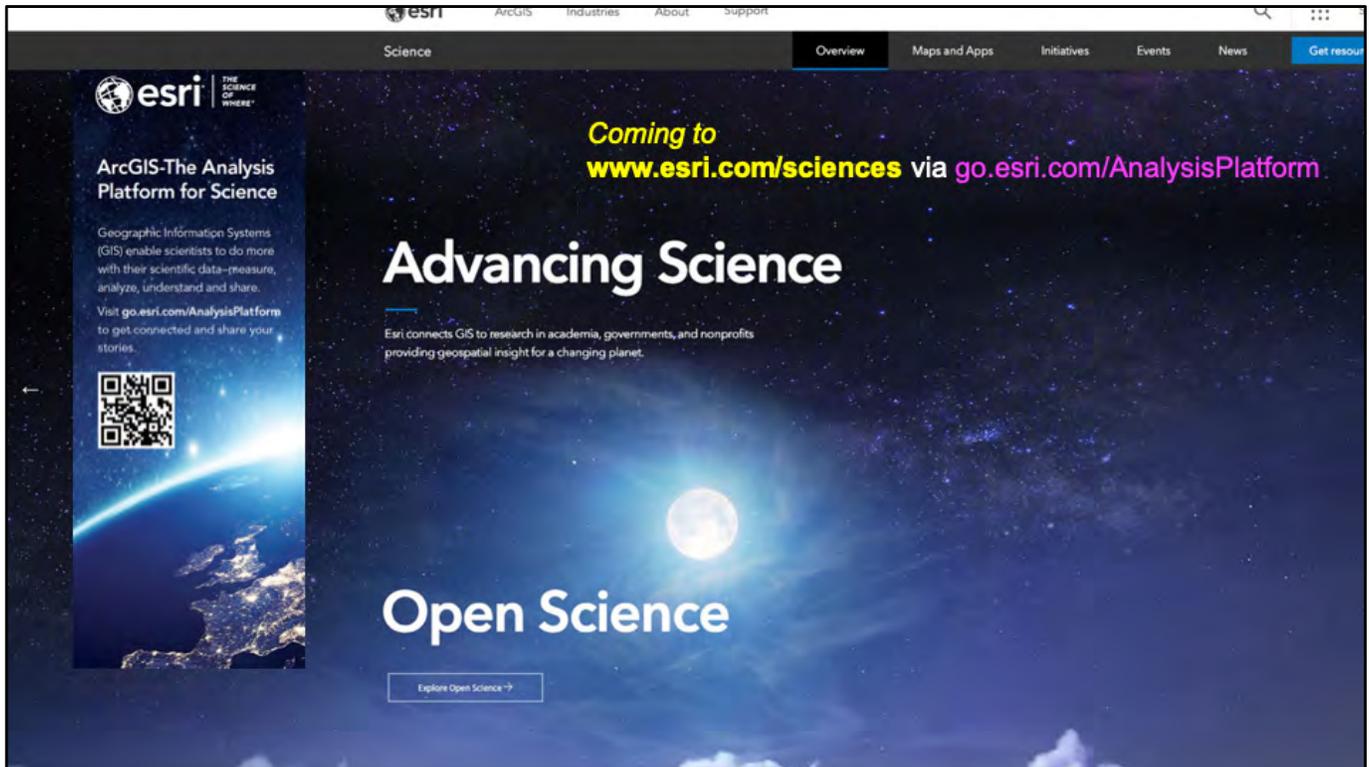
Esri and the Scientific Community

Connecting The Science of Where™ to Research in Academia, Governments, Nonprofits, and More

See Esri's complete science portfolio at esriurl.com/scicomm.
Join our online science community at geonet.esri.com/groups/sciences.

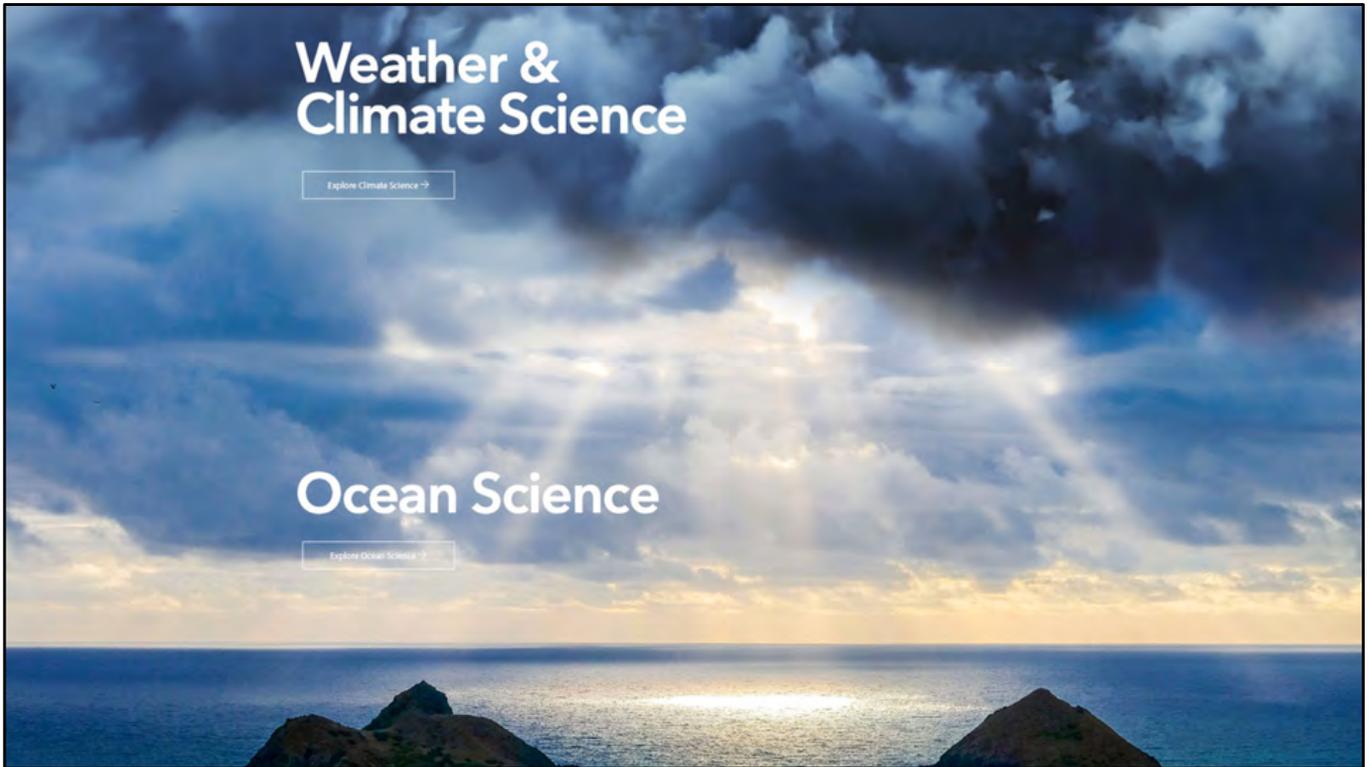


Each of you should have received this postcard which guides you to more information on the web, our full science portfolio, as well as the Sciences Geonet Community, where you can ask questions, discuss with issues with us, and of course access the latest in news and content. The address **esriurl.com/scicomm** will point to the big, bold, beautiful new web site as soon as it is ready later this month.

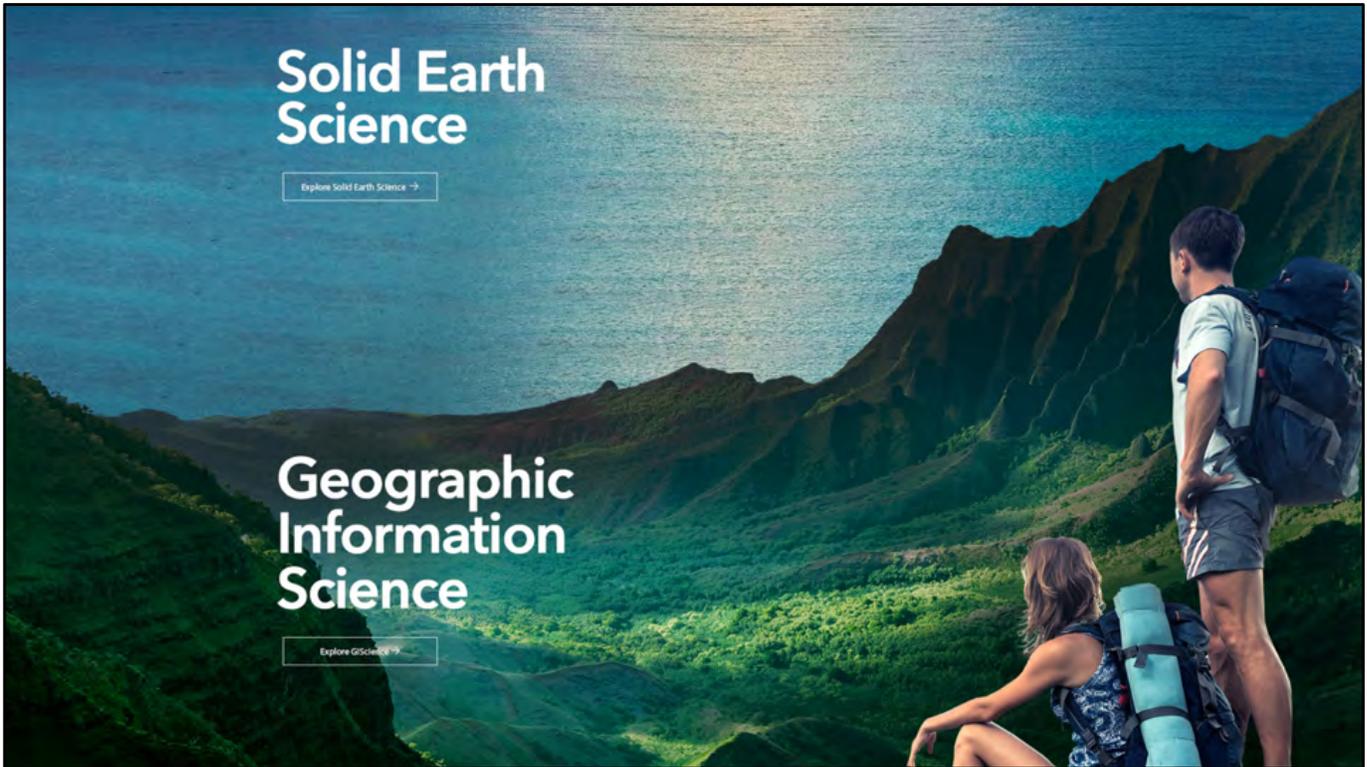


After many years of striving, Science will have its own comprehensive Esri web site that will incorporate all of the prior and more. The existing site www.esri.com/sciences will magically morph into this amazing new site by the end of this month.

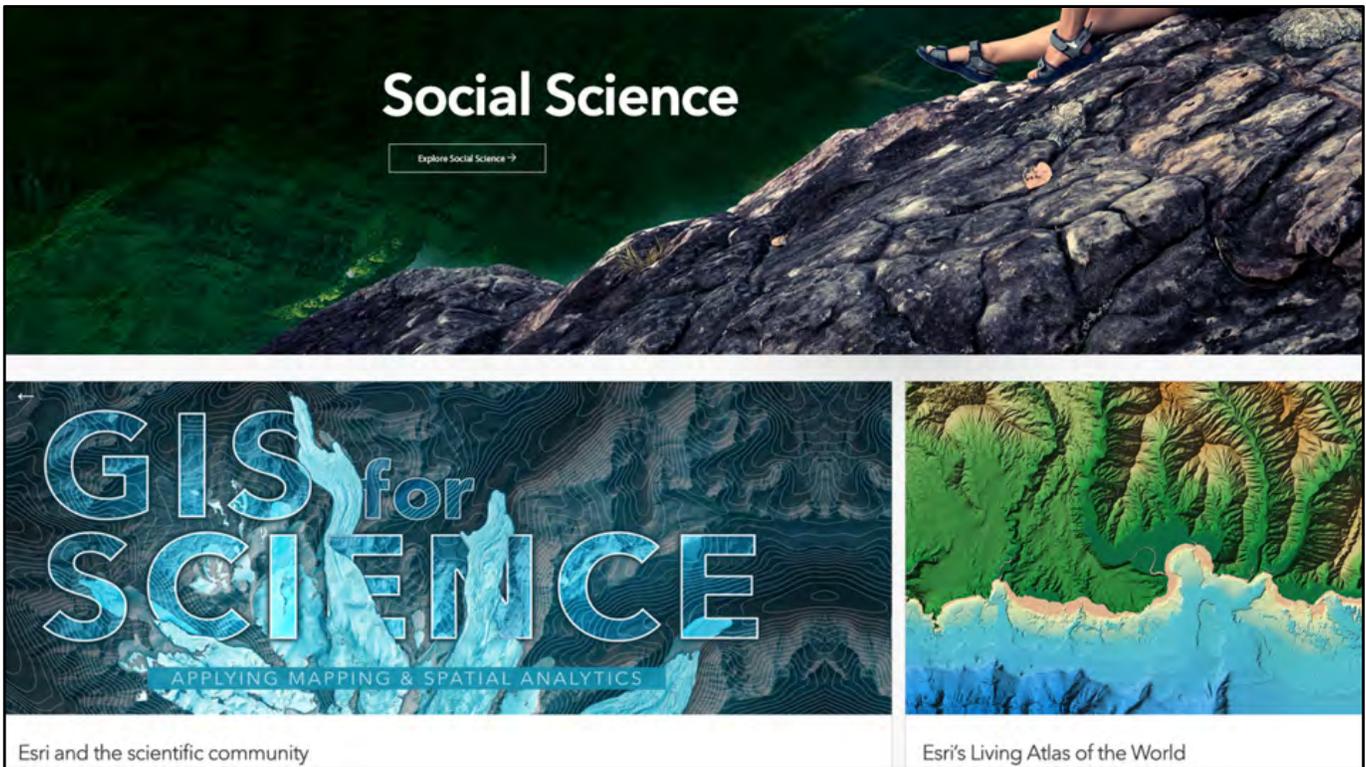
This site is also reachable from the landing page that is referenced on these beautiful bookmarks that are available to you in this session.



After many years of striving, Science will have its own comprehensive Esri web site that will incorporate all of the prior and more ...



After many years of striving, Science will have its own comprehensive Esri web site that will incorporate all of the prior and more ...



After many years of striving, Science will have its own comprehensive Esri web site that will incorporate all of the prior and more ...

Your Analysis Platform for Science

Scientists use the unique capabilities and flexible licensing of ArcGIS to incorporate location-based data and analytics in their pursuits. Migrate to ArcGIS Pro to take advantage of all available capabilities.



Spatial Analysis
and Data Science



Mapping and Location
Enablement



3D Visualization and
Analytics



Imagery and
Remote Sensing



Real-Time Visualization
and Analytics

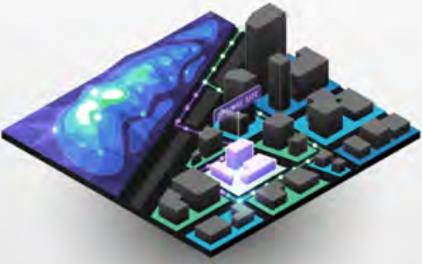


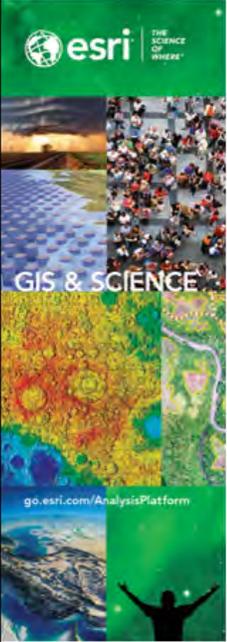
Developer Tools
and Services

Spatial Analytics and Data Science

Connect the seemingly disconnected with the most comprehensive set of analytical methods and spatial algorithms available. Use location as the connective thread to uncover hidden patterns, improve predictive modeling, and create a competitive edge. Leverage the power of spatial analysis and data science on demand and at scale with the Esri Geospatial Cloud.

[Explore spatial analysis →](#)





GIS & SCIENCE

go.esri.com/AnalysisPlatform

After many years of striving, Science will have its own comprehensive Esri web site that will incorporate all of the prior and more ...



After many years of striving, Science will have its own comprehensive Esri web site that will incorporate all of the prior and more ...

2019
ESIP
SUMMER
MEETING
JULY 16-19
TACOMA, WA

Jul 16-19, Tacoma, WA



Nov 5-7, Redlands, CA

Esri Ocean and Atmospheric GIS Forum

Save the date!

November 5-7, 2019 | Esri Conference Center, Redlands, California



Dec 9-13, San Francisco, CA

AGU
100 **FALL MEETING**

EXHIBIT FAQs PLAN YOUR MEETING SESSIONS

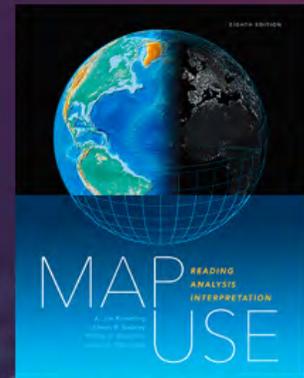
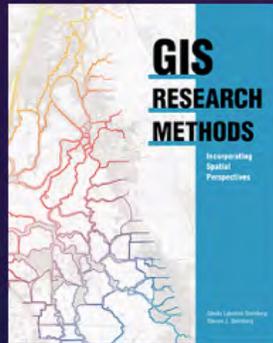
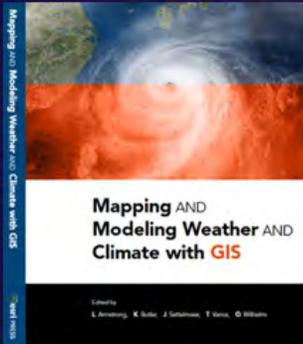


Fall Meeting 2019

Join us from 9 - 13 December 2019 in San Francisco and
celebrate our Centennial.

Esri Press Scientific Monographs and Textbooks

Esri Store

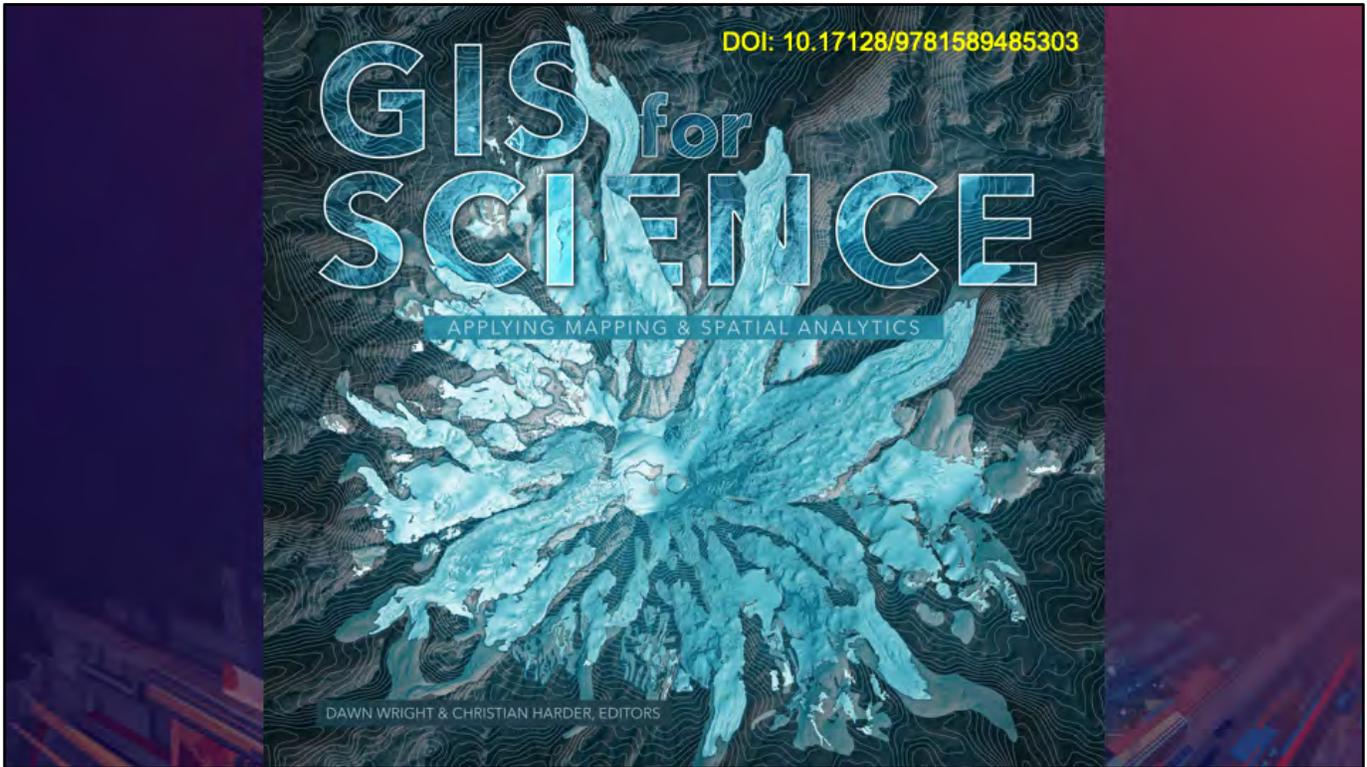


Esri Press Scientific Monographs

Esri Store



The already classic *Cartography* <period> or *Cartography* <full stop> with wonderful scientific maps and content...



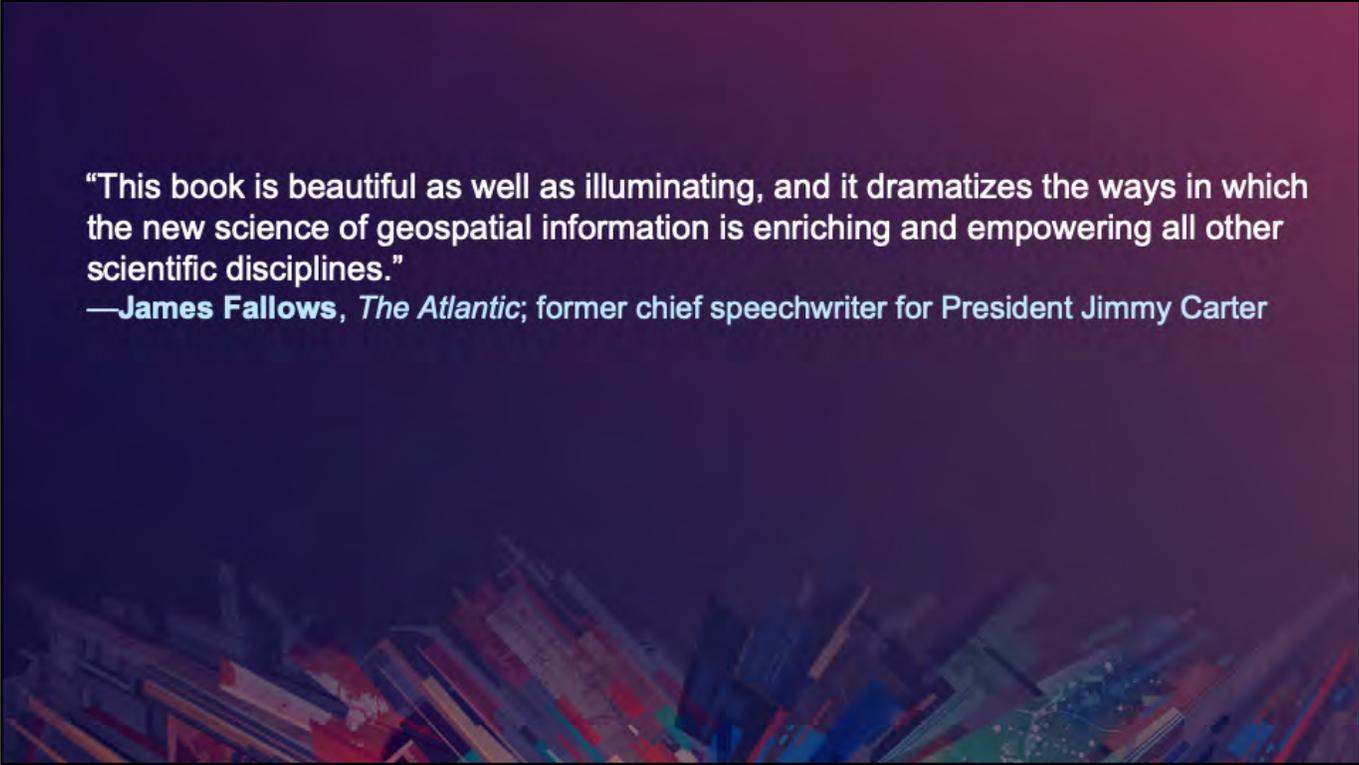
This year we are pleased to announce the publication of the new book, *GIS for Science: Applying Mapping & Spatial Analytics*

This book, NOT just a dry research monograph, but **a cross between *Wired Magazine*, *National Geographic*, and *Scientific American*** includes 12 stories written by top-rated scientists about how many things GIS, including geospatial data science, are a **force multiplier** for great science writ large. There is also a technical showcase describing scientific innovations developed by us at Esri. And for my informatics and library science colleagues, this book also has a DOI!

EACH ONE OF YOU WILL RECEIVE A COPY, and there are other bits of swag in limited quantities available to here within the room

As we all know, we are increasingly seeing GIS used as part of scientific workflows to address a broad range of critically-important problems. At Esri we believe strongly that GIS, and particularly Web GIS, can provide an *objective* platform for effectively conducting and sharing scientific research. At a time in history when so many indicators of long-term sustainability are pointing in the wrong direction, I think we can all agree that the world desperately needs *spatial* applications of the very best in scientific thinking. Hence we have assembled this collection of great examples from across the scientific spectrum (*with more to come in a second volume next year*).

Indeed, the Table of Contents includes a very strong cast of scholars working at the intersection of GIS and science, and from institutions such as Harvard, the University of Minnesota, the National Center for Atmospheric Research (NCAR), The Nature Conservancy (TNC), and the National Audubon Society, the US Geological Survey



“This book is beautiful as well as illuminating, and it dramatizes the ways in which the new science of geospatial information is enriching and empowering all other scientific disciplines.”

—**James Fallows**, *The Atlantic*; former chief speechwriter for President Jimmy Carter

With an introduction by the first American woman in space and former NOAA Administrator, Kathryn Sullivan, This book is getting some pretty rave reviews including ...

ACKNOWLEDGE Christian, Esri Press staff, and CHAPTER AUTHORS IN THE ROOM. HAVE THEM STAND.

“This astonishing book beautifully displays GIS in all its scientific, artistic, and creative splendor....”

—Peter Kareiva, Director, UCLA Institute of the Environment and Sustainability



“It’s a book for scientists and all of Earth’s stewards...”

—**Jessica Hellmann**, Director, Institute on the Environment, University of Minnesota



“With vivid imagery, lucid writing, interactive learning, and compelling, relevant examples from Earth’s past, present, and future...”
—**Healy Hamilton**, Chief Scientist, NatureServe

“This gorgeous book is a joy to read, explore, and also experience online ...”
—**Shelley Stall**, Director of Data Programs, American Geophysical Union (AGU)



Speaking of online, the book comes even more alive with this **companion** web site of data, web maps, web apps, story maps, videos, workflows, Python notebooks, journal articles, and more.



That's all the announcements. And now FINALLY on to the symposium itself.
Not livestreamed or recorded but if tweeting please use these hashtag.s
And slides will be available later at esriurl.com/symposium19

Prior Science Symposia

2016



Margaret Leinen
Director

Scripps Institution of Oceanography

- Marco Painho (Universidade Nova de Lisboa Geography)
- Ming Tsou (San Diego State)
- Cyrus Shahabi (USC Computer Science)
- John Wilson (USC Spatial Sciences)

Moderated by Prof. Mike Goodchild, UCSB

The past 3 years we have followed a format where the chosen keynote speaker was *not* a GIS specialist by design, but a noted scientist with a strong, compelling vision for improving/protecting the planet, along with a healthy *respect* for geospatial technology. But we followed the keynote with a conversational reaction panel deliberately made up of GIS specialist so that they could *respond* to the vision of the keynoter from the *perspective* of geospatial and discuss further how best to use GIS to *implement* the vision laid out by the keynoter

2016 – Margaret – what data and facilities will be necessary to understand and protect Earth... and us?

Prior Science Symposia

2017



Jon Foley
Executive Director
California Academy of Sciences

- Christina Boggs-Chavira (CA Dept Water Resources)
- Andre Skupin (San Diego State Geog)
- Sheila Steinberg (Brandman U, Soc/Env Sci)
- Shaowen Wang (U Illinois Geog)

Moderated by Prof. Mike Goodchild, UCSB

2017 – Jon – on honest, integrity, and scientific TRUTH in a post-truth world and the critical importance of science communication

Prior Science Symposia

2018



Camilo Mora

Department of Geography and Environment
University of Hawai'i

- Tom Cova (U Utah Geog)
- Kellee Koenig (Conservation International)
- Karen Kemp (USC Spatial Sciences)
- Mark Kumler (U Redlands GIScience)
- Amber Wittner (USGS)

Moderated by yours truly

2018 – Camilo – on worry and hope, how climate change is a deadly serious issue, way worse than you think, BUT still reversible



Keynote Address

Olga Wilhelmi and Jennifer Boehnert
National Center for Atmospheric Research

Very pleased to continue this important theme this year with TWO valued colleagues who will tag team their presentation for us. Because of this, as well as their deep GIS expertise, we will dispense with the reaction panel this year so that we'll have more time for their presentation and for a richer Q&A.

Dr. Olga Wilhelmi is a geographer with twenty years of experience working at the interface of atmospheric and social sciences and GIS. She is the Head of the GIS Program at the National Center for Atmospheric Research (NCAR) and is a Project Scientist in NCAR's Research Application Laboratory. Olga is a graduate of Lomonosov Moscow State University where she majored in Physical Geography. She completed her Ph.D. in the School of Natural Resources at the University of Nebraska-Lincoln in 1999. Her research interests span a wide range of topics in the weather, climate, and society interactions, with the main focus on societal risk, vulnerability and adaptive capacity to extreme weather events and climate change. Olga has published over 60 peer-reviewed articles, book chapters, and reports addressing societal aspects of weather extremes and climate change, urban heat and human health, drought and water management, and preparedness and response to flash floods and hurricane storm surge. She co-edited *Mapping and Modeling Weather and Climate with GIS* and contributed a chapter to *GIS and Science: Applying Mapping and Spatial Analytics*, both by Esri Press. Olga is a recipient of Esri's Special Achievement in GIS award, as well as the UCAR's Outstanding Accomplishment Awards for the Scientific Publication, Diversity, and Education and Outreach. She served as Editor of *Weather, Climate and Society* and is a member of the American Meteorological Society Board on Societal Impacts. Olga's current work focuses on extreme heat and air quality impacts on human health, urban governance of the food-water-energy nexus, and the role of geovisualization in weather risk communication.

Jennifer Boehnert, GISP is the Sr. GIS Coordinator at the National Center for Atmospheric Research (NCAR) in Boulder, CO, where she serves as technical lead in the GIS Program. In this role, she is responsible for coordinating GIS technical support services, overseeing geospatial data infrastructure, and developing education and training programs across the institution and for external stakeholders and workshops. Jennifer is a graduate of University of Guelph, Canada where she majored in International Development and Geography. For the past fifteen years, Jennifer has helped to shape new research initiatives at NCAR, by leading and participating in research on the development and implementation of new geospatial technologies and methods for the integration of multidimensional atmospheric data with traditional GIS data and analysis tools. At NCAR, she is an active participant in research projects that focus on weather hazards, national security, risk communication, and climate and health. Jennifer provides technical expertise in spatial analysis, multidisciplinary data integration, web-based applications, decision support tools, 3D modeling, and visualizations. Jennifer is a recipient of Esri's Special Achievement in GIS award, as well as the UCAR's Outstanding Accomplishment Awards for Diversity and Education and Outreach. Jennifer has authored and co-authored numerous peer-reviewed publications, including book chapters in *Mapping and Modeling Weather and Climate with GIS* and *GIS and Science: Applying Mapping and Spatial Analytics* by Esri Press. Jennifer's current work focuses on the development of innovative desktop and web-based displays to communicate risks of urban heat and hurricane storm surge.

