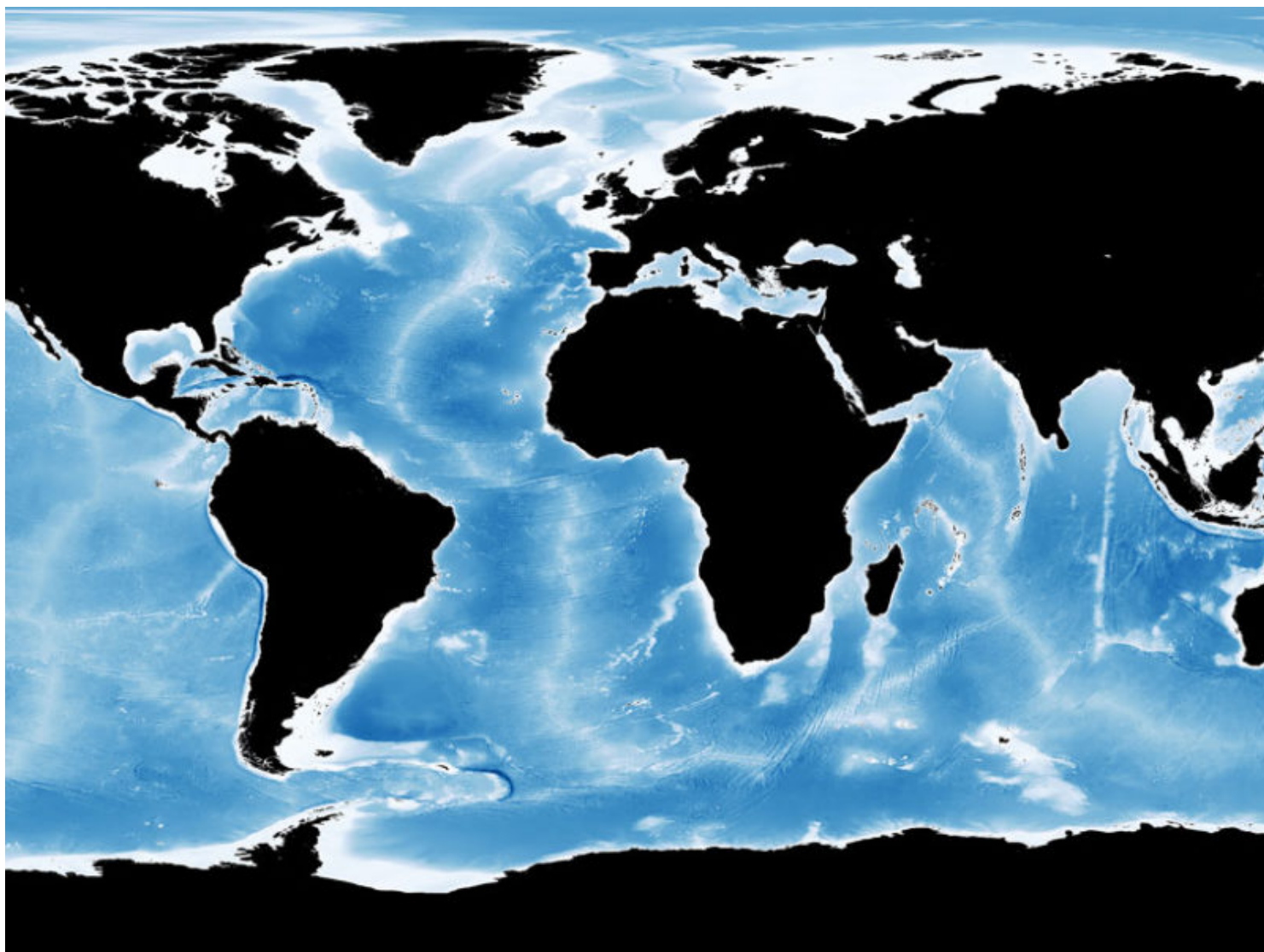


Momentum Grows for Mapping the Seafloor

Initiatives like the Nippon Foundation-GEBCO Seabed 2030 Project can help us better understand the ocean.



More than 80% of the seafloor remains unmapped at a resolution of 100 meters or better. Credit: [Jesse Allen, NASA's Earth Observatory, using data from the General Bathymetric Chart of the Oceans \(GEBCO\) produced by the British Oceanographic Data Centre](#)

By [Randy Showstack](#) © 9 December 2019

This is a “superexciting” time for seafloor mapping, according to Vicki Ferrini.

This is a “superexciting” time for seafloor mapping, according to Vicki Ferrini, a marine geophysicist at Columbia University’s Lamont-Doherty Earth Observatory in Palisades, N.Y.

More than 80% of the seafloor remains unmapped at a resolution of 100 meters or better, but there is growing momentum to close that gap, according to [Ferrini](https://www.ldeo.columbia.edu/user/ferrini) (<https://www.ldeo.columbia.edu/user/ferrini>).

This momentum includes an increasing recognition that these data are vital to better understanding our planet, the mapping community working more closely together, and “a technology push that has put us at this edge of a new era in ocean mapping,” she said.

In addition, Ferrini pointed to several major initiatives, including the [United Nations Decade of Ocean Science for Sustainable Development](https://www.oceandecade.org/) (<https://www.oceandecade.org/>), which will stretch from 2021 to 2030.

Another related initiative is the [Nippon Foundation-GEBCO Seabed 2030 Project](https://seabed2030.gebco.net/) (<https://seabed2030.gebco.net/>), started in 2016. This project, between the Nippon Foundation and the General Bathymetric Chart of the Oceans (GEBCO), which is itself a joint project of the International Hydrographic Organization and the Intergovernmental Oceanographic Commission, has an aspirational goal: the entire accessible part of the ocean floor mapped to a resolution of 100 meters or better by 2030.

With so much momentum for mapping the seafloor, several sessions at AGU’s Fall Meeting 2019 in San Francisco, Calif., focus on the topic, including a [poster session](https://agu.confex.com/agu/fm19/meetingapp.cgi/Session/81525) (<https://agu.confex.com/agu/fm19/meetingapp.cgi/Session/81525>) on Monday afternoon, 9 December, “Beyond Hydrography: Seafloor Mapping as Critical Data for Understanding Our Oceans II.” The session includes a number of posters related to the Seabed 2030 Project. [A related oral session](https://agu.confex.com/agu/fm19/meetingapp.cgi/Session/88284) (<https://agu.confex.com/agu/fm19/meetingapp.cgi/Session/88284>), “Beyond Hydrography: Seafloor Mapping as Critical Data for Understanding Our Oceans I,” takes place on Monday morning.

So Much Unmapped, Unexplored, and Unknown

With smartphones, “we are all very much accustomed to having detailed maps in the palm of our hands,” said Ferrini, who is a coconvener and cochair of both Fall Meeting sessions. She also serves as the head of GEBCO’s Atlantic and Indian Oceans Regional Center and chair of its Sub-Committee on Regional Undersea Mapping. “To think that the majority of our planet is not known with even the coarsest detail of 100-meter resolution is pretty astounding.”

“There is so much of our planet and our ocean that is not just unmapped but really unexplored and unknown. So there is a huge amount of excitement and wonder about what we’re going to find.”

“If we really want to understand the planet, if we want to understand the ocean, if we want to manage resources in a sustainable way, we have to have at least a first-order map to help guide what we’re doing,” Ferrini said. “There is so much of our planet and our ocean that is not just unmapped but really unexplored and unknown. So there is a huge amount of excitement and wonder about what we’re going to find.”

Seabed 2030 will bring together all of the available data that exist and synthesize them into a publicly available GEBCO map, Ferrini said. The project relies on regional projects and coalitions as “the building blocks” of the map.

Mapping the U.S. Exclusive Economic Zone

Ferrini also mentioned a 19 November White House [memorandum](https://www.whitehouse.gov/presidential-actions/memorandum-ocean-mapping-united-states-exclusive-economic-zone-shoreline-nearshore-alaska/) that calls for mapping the exclusive economic zone (EEZ) of the United States and the near shore of Alaska.

[Elizabeth Lobecker](https://ccom.unh.edu/user/elobecker), a physical scientist with the National Oceanic and Atmospheric Administration’s (NOAA) Office of Ocean Exploration and Research (OER), said that the memorandum recognizes the importance of ocean exploration and “is right in line with what we do: ocean mapping for exploration [and for] identification of important resources and habitat.” In a [poster](https://agu.confex.com/agu/fm19/meetingapp.cgi/Paper/626385), Lobecker will focus on NOAA’s ocean exploration and research mapping contributions to Seabed 2030, including OER’s efforts to assess mapping data holdings and identify gaps in bathymetric coverage within the United States’ EEZ.

“When sonars go over a new area, what was once just a blurry smudge of data where you couldn’t see any details” transforms into a “remarkable level of resolution, and you can pick up interesting features.”

Within NOAA, Lobecker noted, the *Okeanos Explorer* research vessel is very close to reaching a milestone of having mapped 2 million square kilometers of the seabed. Still, “the fact that so much of the seafloor is not mapped is actually very exciting,” she said.

“When sonars go over a new area, what was once just a blurry smudge of data where you couldn’t see any details” transforms into a “remarkable level of resolution, and you can pick up interesting features.”

Despite the current momentum for mapping the seafloor, Columbia University’s Ferrini doesn’t want to speculate about whether Seabed 2030 will reach its goal by 2030, though she is hopeful. “To me, it almost doesn’t matter if we do, because we are building a global community that is learning to work together in ways that we have not done before,” she said. “That is going to be one of the biggest and most long-lasting impacts of this initiative. I think that there is the potential to make huge progress.”

—Randy Showstack (@[RandyShowstack](https://twitter.com/RandyShowstack)), Staff Writer

Citation: Showstack, R. (2019), Momentum grows for mapping the seafloor, *Eos*, 100, <https://doi.org/10.1029/2019EO137617>. Published on 09 December 2019.

Text © 2019. AGU. [CC BY-NC-ND 3.0](https://creativecommons.org/licenses/by-nc-nd/3.0/)

Except where otherwise noted, images are subject to copyright. Any reuse without express permission from the copyright

owner is prohibited.