

CIRES Outstanding Performance Award (OPA)

[← Return to Committee View](#)

General Information

Nomination ID:222 - Submitted: 02-02-2024

Barry Eakins, Rick Saltus, Erin LeFevre, Finn Dahl, and Elliot Lim

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Nominated for Science Award

Nominator Information

Carrie Wall

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Nomination Statement

In Dec, 2023, the United States released the geographic coordinates defining the outer limits of the continental shelf of the United States in areas beyond 200 nautical miles from the coast. The portion of the continental shelf beyond 200 nautical miles from the coast is known as the “extended continental shelf,” or ECS. The CIRES team at NCEI played a critical role in establishing the outer limits in accordance with international law, which added nearly one million square kilometers of seafloor to the United States to manage or conserve.

The outer limits of the U.S. extended continental shelf were announced (<https://www.state.gov/announcement-of-u-s-extended-continental-shelf-outer-limits/>) on Tuesday, Dec 19th by the Department of State. It was the culmination of a 20+ year effort by 14 Federal agencies and numerous academic institutions. The U.S. ECS Project is led by the Department of State, NOAA and USGS, and the CIRES members of the U.S. ECS Project played a major role in developing the scientific documentation necessary to support these ECS outer limits. The announcement included a public release of the Executive Summary (<https://www.state.gov/the-us-ecs/>) of the U.S. outer limits of the ECS, along with seven regional maps. Numerous news stories were produced following this announcement, which have been gathered in this document (https://docs.google.com/document/d/15yNjFRqd9oXEZca_l7jcHdeQVzs_zVTXIZiWcehZbzs/edit#heading=h.my8s5hjrhi60). The U.S. ECS area is spread across seven regions and this maritime zone holds many resources (e.g., corals, crabs) and vital habitats for marine life.

The CIRES team on the U.S. ECS Project (Barry Eakins, Rick Saltus, Finn Dahl, Erin LeFevre, and Elliot Lim) managed all of the ECS data, products, and documents created over the course of the project, analyzed the seafloor data collected in numerous areas, developed the nearly 2,000 pages of scientific documentation, and organized and participated in many national and international meetings and workshops from approximately 2015 to the project's completion.

Dr. Barry Eakins led development of the scientific documentation for the Bering Sea and Pacific (West Coast) regional documents, as well as the supporting Methods & Approaches document. Dr. Rick Saltus led the development of the scientific documentation for the Arctic and Atlantic regional documents. Finn Dahl led the organization and management of U.S. ECS data, products, and documents. Erin LeFevre led the development of all maps and figures used in the scientific documentation. Elliot Lim led the analyses of the base of the continental shelf and derived analytical products that conform to the criteria specified in Article 76 of the Law of the Sea Convention (https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf).

Criteria

Criteria 1: Development of new scientific, engineering and/or software tools or models directly resulting in novel research valuable to CIRES and the wider scientific community.

The CIRES team on the U.S. ECS Project led the development of over 2,000 pages of scientific documentation, including more than 1,000 figures, that demonstrate the extent of the U.S. extended continental shelf. The nearly 1 million square kilometers of seafloor added to the United States will allow the United States to conserve and manage the resources of these hard-to-reach deep ocean areas. The non-public scientific documents themselves demonstrate, from a geologic, bathymetric, and legal perspective, that the U.S. ECS outer limits developed from the analytical research that the CIRES team on the U.S. ECS Project conducted are robust and defensible in international forums.

Criteria 2: Uncommon initiative, resourcefulness, and/or scientific creativity conducting research with potential to expand or change the direction of a particular field or discipline.

The CIRES team members developed a data organizational system and procedures to ensure standardization and consistency in: analysis of the base of the continental slope, managing of ECS data and analytical products, creation of maps and figures with common symbologies, and common structure of regional scientific and supporting documents. This data organizational system is being modified for use in follow-on U.S. Department of State projects, such as identifying potential marine protected areas beyond national jurisdiction and assessing the claimed maritime limits of other nations.

Criteria 3: Participation in collaborative and/or multidisciplinary research that engages a broader cross-section than the nominee's typical scientific or engineering community.

The multi-agency U.S. ECS Project was led by DOS, NOAA, and USGS, with involvement from 11 other U.S. agencies. This effort required numerous national and international meetings and workshops to facilitate collaboration. As vital members of the project team, CIRES scientists helped organize and participate in these workshops. Their participation and coordination was particularly valuable for international ECS experts, who were responsible for reviewing and assessing the results of ECS analyses. The CIRES team also provided valuable feedback on all of the scientific regional and supporting documentation in the seven U.S. ECS areas.

Supporting Documentation

- OPA_222_ECS_Executive_Summary.pdf
- OPA_222_USA_ExecutiveSummary_ARC_LF_MAP_2023.pdf
- OPA_222_USA_ExecutiveSummary_ATL_LF_MAP_2023.pdf
- OPA_222_USA_ExecutiveSummary_BER_LF_MAP_2023.pdf
- OPA_222_USA_ExecutiveSummary_GME_LF_MAP_2023.pdf

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Supporting Statements

Brian Van Pay

vanpaybj@state.gov

Awards Committee,

I highly recommend Barry Eakins, Rick Saltus, Erin LeFevre, Finn Dahl, and Elliot Lim for the 2024 CIRES Outstanding Performance Award.

I serve as the Director of the U.S. extended continental shelf (ECS) Project at the National Centers for Environmental Information (NCEI) in Boulder. I am a U.S. Department of State employee from the Office of Ocean and Polar Affairs. I serve as the U.S. Government Science Advisor for most of the nominees and I manage the ECS Project Office funded by the Department of State. I have worked closely with all the nominees for nine years, and three of them for fourteen years.

Criteria 1: Development of new scientific, engineering and/or software tools or models directly resulting in novel research valuable to CIRES and the wider scientific community

On December 19, the U.S. Department of State announced the geographic coordinates of the U.S. continental shelf in areas beyond 200 nautical miles from the coast, known as the extended continental shelf or ECS. The U.S. ECS area is approximately one million square kilometers. This maritime zone holds many resources (e.g., corals, crabs) and vital habitats for marine life.

The nominees for this award conducted many years of analysis, produced over 2000 pages of documentation, and created more than 1000 maps and other figures that made the ECS announcement possible. A small sample of their work is available at www.state.gov/shelf.

Criteria 2: Uncommon initiative, resourcefulness, and/or scientific creativity conducting research with potential to expand or change the direction of a particular field or discipline.

Their work and products have been seen and briefed at the highest levels in the U.S. Government, including NOAA Administrator, Dr. Rick Spinrad, U.S. Geological Survey Director, Dr. David Applegate, and Secretary of State Antony Blinken. Because of the efforts of these dedicated CIRES employees, the United States is now in a position to conserve and manage the resources to an area about twice the size of California.

Criteria 3: Participation in collaborative and/or multidisciplinary research that engages a broader cross-section than the nominee's typical scientific or engineering community.

The Department of State and NCEI stood up the ECS Project Office in 2014 to manage the analysis and integrate expertise on policy, law, geology and geophysics, geospatial analysis, cartography, graphic design, among other areas of expertise. The nominees for this award collaborated across their respective disciplines that enabled the December announcement after many years of dedicated work.

I recommend them for this award without reservation.

Sincerely,

Brian Van Pay
Director, U.S. Extended Continental Shelf Project
U.S. Department of State

Kevin Baumert

baumertka@state.gov

Dear CIRES Outstanding Performance Awards Review Committee:

I am writing to recommend Barry Eakins, Rick Saltus, Erin LeFevre, Finn Dahl, and Elliot Lim for the 2024 CIRES Outstanding Performance Award.

I serve as the Legal Counsel for the U.S. Extended Continental Shelf (ECS) Project. I am a U.S. Department of State employee from the Office of the Legal Adviser. I have worked closely with all the nominees for between 7 and 10 years at the ECS Project Office located at the National Centers for Environmental Information (NCEI) in Boulder, Colorado.

Criteria 1: Development of new scientific, engineering and/or software tools or models directly resulting in novel research valuable to CIRES and the wider scientific community

On December 19, 2023, the U.S. Department of State announced the locations of the outer limits of the U.S. continental shelf in areas beyond 200 nautical miles from the coast. The United States has ECS in seven different regions which collectively amounts to almost a million square kilometers. This announcement built upon two decades of work, three years of ship time, collaboration among 300 experts, and more than \$100 million in investments across the U.S. Government.

Since 2014, the work undertaken in furtherance of this effort was primarily done at the ECS Project Office, especially the analysis, documentation, and cartography, and figure production by the five nominees for this award. Quite simply, this historic accomplishment would not have been possible without the sustained and dedicated efforts of Barry, Rick, Erin, Finn, and Elliot.

Criteria 2: Uncommon initiative, resourcefulness, and/or scientific creativity conducting research with potential to expand or change the direction of a particular field or discipline.

The legal definition of the continental shelf is set forth in the 1982 United Nations Convention on the Law of the Sea (Convention). The continental shelf extends 200 nautical miles from the coast, or further (i.e., ECS) if the seabed and subsoil meet the requirements set forth in the Convention. Applying the complex rules in this treaty requires not only knowledge of the law but also a deep understanding of the geophysical and geological characteristics of the continental shelf.

Thus, the ECS work is a mix of law and science. As such, I would have been unable to effectively perform my own job as legal adviser without the input and assistance of these CIRES scientists. Each of the nominees has deep knowledge and expertise on the scientific and technical aspects of the law of the sea. Their diligence and attention to detail were vital in consolidating the data, analyses, text, and figures that compose the 2000 pages of ECS documentation produced by the Project. The results of a small portion of nearly a decade of work by these nominees can be reviewed at www.state.gov/shelf.

Criteria 3: Participation in collaborative and/or multidisciplinary research that engages a broader cross-section than the nominee's typical scientific or engineering community

These experts worked as a collaborative team to synthesize the underlying science and law that bolster the U.S. outer limits and explain our efforts to an international audience. These nominees were an essential component to the success of this interdisciplinary project and the December announcement.

Because of the dedicated efforts of these CIRES employees, the United States is able to exercise jurisdiction with respect to natural resources, marine scientific research, and other matters such as the protection of the marine environment, as provided for in the Convention for the foreseeable future. I highly recommend these five nominees for an Outstanding Performance Award.

Sincerely,
Kevin Baumert
Legal Counsel, U.S. Extended Continental Shelf Project
U.S. Department of State

Ginger Barth

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2-22-2024

Statement from Dr. Ginger Barth, USGS, in Support of the US ECS Team at CIRES Nomination for CIRES Outstanding Performance Award in Science

To Whom it May Concern –

I am very pleased to support the nomination of the US Extended Continental Shelf (ECS) Project scientific team at CIRES for a CIRES Outstanding Performance Award. I have worked with this team over the course of the past decade within the federal government's interagency US ECS Project. I am the US Geological Survey's ECS task lead, and through most of the development of the ECS documentation - the central accomplishment for which this team is nominated - I served as the USGS west-coast project lead, and the geologic content lead for the Pacific and Bering Sea ECS regions. I have collaborated extensively with the CIRES team on development of the Pacific and Bering Sea regional documentation packages, on analyses of Gulf of Alaska, Aleutian arc, central and western Pacific ECS potential, and on numerous interagency methodology, data management, and strategic planning efforts. I have seen first-hand the individually excellent scientific and technical skill of each nominated team member, their unique and critically important contributions to the work, and also their collective patience, persistence, dedication to the good of the whole, and tremendous collaborative spirit. This team makes CIRES shine.

The work being honored is of the highest importance. It will impact conservation of global resources and stewardship of our oceans for generations to come. Rules that govern the outer limit of each nation's ECS are set forth by the international Law of the Sea Convention (UNCLOS), a treaty that establishes the exclusive offshore rights of nations to explore, manage, and conserve living and non-living resources at and below the sea floor within a Continental Shelf maritime zone. USA announced its ECS limits - the full extent of this US Continental Shelf, consistent with international law - in December 2023, adding nearly 1 million square kilometers of US seabed territory (www.state.gov/shelf). This announcement was made possible by many preceding years of hard work by the CIRES team in Boulder, as they are the engine within the US ECS Project Office (co-located with NOAA NCEI) as well as the collaborative hub of the interagency Project team.

Treaty boundaries are the purview of the US Department of State, but UNCLOS Article 76 requires boundary delineation through a process of advanced scientific analysis of data describing the depth, shape, physical processes and geophysical characteristics of the seabed and sub-sea floor. To this end, for over a decade and with very little fanfare, the interagency US ECS team has worked tirelessly on the Nation's assessment of the extended

continental shelf, combining accurate and comprehensive scientific information, innovative methodology, and clear and consistent representations to formulate an enduring definition of the US Shelf extent. This is the work that the CIRES team has done. NOAA, USGS, and Dept of State team members have contributed a great deal, to be sure, but the nominated CIRES team members have been at the center of the action for every region and decision. And it is important to note that, due to the nature of the ECS product, much of this work will never be published, nor individually attributed – the small portion of the body of work that faces the public and stands up to international scrutiny is identified simply as a product of the “US Government”.

The US ECS endeavor has been multidisciplinary by definition, and the scientific and regulatory realms that it will impact are global. Research by the CIRES team spans geology and geophysics, hydrography, geography and cartography, and engages a governmental cross-section including partners from NOAA, USGS, BOEM, Department of State, US Navy and more. The accomplishments of the CIRES team include - for example - applying geology and geophysics to advance scientific understanding of the tectonics of the Arctic (Dr. Saltus), sedimentary and volcanic processes operating on Pacific Island margins (Dr. Eakins), and transform fault processes in the eastern Pacific (Dr. Eakins and Mr. Lim). The CIRES team supports the Department of State in the international arena when policy needs to be backed by scientific expertise – including regular attendance at the Arctic-4 annual meeting, and boundary discussions with neighboring nations including Japan, Canada and the Bahamas. The CIRES ECS team has devised and refined data analysis methodology to ensure consistent boundary derivation among areas as diverse as the Mid-Pacific Mountains, the Atlantic seaboard, and the Bering Shelf. They honed plan- and profile-curvature analyses of bathymetric data grids for consistent, quantitative identification of pertinent changes in the seabed. They devised and refined data presentation standards for bathymetric profiles, subbottom acoustic images, acoustic backscatter imagery and more – each of these now being used in academic manuscripts as well as in the US ECS documentation package. And they wrote nearly all of the 1500 pages of documentary text that officially describes the US ECS. Using a specialized GIS environment, Mr. Lim single-handedly evaluated untold thousands of bathymetric profiles for every US region of study, and he calculated and optimized every one of the over 5000 final US boundary points presented in the official federal register notice (Public Notice 12244, Federal Register Vol. 88, No. 244, 21 December 2023). Mr. LeFevre devised and created every one of the over 100 maps for cartographic presentation. Mr. Dahl devised and created the US ECS data management system, a database in which the hundreds of draft documents and original datasets are organized and staged.

Uncommon dedication, agility, initiative, resourcefulness, and scientific creativity define this team. It is difficult to convey the enormity of the effort to delineate the vast US ECS using the best bathymetric, geological and geophysical data, the best methodologies, the best scientific understandings, AND to develop a documentation package responsive to treaty standards on the State Department’s timeline. The CIRES team in the US ECS Project Office was tasked to sprint a marathon, and they have done it!

I heartily endorse this Outstanding Performance Award group nomination.

Yours Sincerely,
Ginger A. Barth, PhD.
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