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Japan Science and Technology Agency (JST)

JST to fund six projects under the EIG CONCERT-Japan initiative of the Strategic International Collaborative Research Program (SICORP)

The Japan Science and Technology Agency (JST), in collaboration with 12 European countries and their respective research funding agencies (Appendix 1), has selected new projects for funding under the EIG CONCERT-Japan* initiative of the Strategic International Collaborative Research Program (SICORP).
EIG CONCERT-Japan is an international joint initiative to support and enhance science, technology and innovation cooperation between Japan and European countries (Appendix 2).
The 12th EIG CONCERT-Japan call for proposals was conducted from April 28 to July 22, 2025 with the topic “Oceans: Climate Change Mitigation and Adaptation.” A total of 19 proposals were submitted, covering a variety of topics such as blue carbon technologies, marine ecosystem conservation, and analysis of marine phenomena. Following an in-depth evaluation by a scientific committee (Appendix 3) and subsequent deliberations among the participating funding agencies, six projects were selected for funding (Appendix 4). These projects will receive support for a period of three years. During this time, each project in Japan will be allocated up to 18.2 million JPY (including indirect costs).

* EIG CONCERT-Japan
The CONCERT-Japan initiative was originally funded by the European Union as an ERA-NET (European Research Area Network) of the Seventh Framework Programme for Research and Technology Development (FP7) international cooperation activity. Its continuation, the EIG CONCERT-Japan initiative, aims to further develop existing cooperation between European countries and Japan by promoting and enabling effective collaboration in science and technology research.
URL: https://www.jst.go.jp/inter/english/program_e/multilateral_e/concert-japan.html

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Contact

SHIRAISHI Junko

Department of International Affairs

Japan Science and Technology Agency

K's Gobancho, 7 Gobancho, Chiyoda-ku, Tokyo 102-0076

Tel: +81-3-5214-7375 Fax: +81-3-5214-7379

E-mail: concert@jst.go.jp

"Empowering Science, Inspiring Futures"

Our world faces unprecedented global challenges — such as climate change, energy crises, and emerging infectious diseases — that demand innovative solutions. JST will rise to these challenges through "Science and Technology," as a national research and development agency that plays a central role in implementing Japan's science, technology, and innovation policy. We support fundamental research and startups to create new value, develop R&D strategies, foster the next generation of talent, disseminate vital information, and manage the Japan University Fund. Like a compass guiding ships through turbulent waters, JST will chart the way towards a vibrant and secure future by empowering science through a multifaceted approach.

Appendix 1

Participating Funding Organizations

This call for proposals involved 13 funding organizations from 13 countries, including Japan and Europe. Of these, 11 funding organizations from 11 countries are European members of EIG CONCERT-Japan. In addition, one funding organization from one additional country participated as a guest in this call.

Country	Funding Organization
Japan	Japan Science and Technology Agency (JST)
Bulgaria	Bulgarian National Science Fund (BNSF)
Cyprus	Research and Innovation Foundation (RIF)*
Czech Republic	Ministry of Education, Youth and Sports (MEYS)
Estonia	Estonian Research Council (ETAG)
France	National Center for Scientific Research (CNRS)
Germany	DLR Project Management Agency (DLR-PT)
Hungary	National Research, Development and Innovation Office (NKFIH)
Italy	National Research Council (CNR)
Poland	National Centre for Research and Development (NCBR)
Slovakia	Slovak Academy of Sciences (SAS)
Spain	The State Research Agency (AEI)
Türkiye	The Scientific and Technological Research Council of Türkiye (TÜBİTAK)

Alphabetical order excluding Japan

*At the time of this call, the organization was not a member of EIG CONCERT-Japan but participated in this call solely with the approval of member organizations.

Appendix 2

EIG CONCERT-Japan Member Organizations

At the time of this call: 15 institutions, 13 countries.

Country	Member Organization
Japan	Japan Science and Technology Agency (JST)
Bulgaria	Bulgarian National Science Fund (BNSF)
Czech Republic	Czech Academy of Sciences (CAS)
Czech Republic	Ministry of Education, Youth and Sports (MEYS)
Estonia	Estonian Research Council (ETAG)
France	French National Research Agency (ANR)
France	National Center for Scientific Research (CNRS) (Secretariat)
Germany	DLR Project Management Agency (DLR-PT)
Hungary	National Research, Development and Innovation Office (NKFIH)
Italy	National Research Council (CNR)
Norway	Research Council of Norway (RCN)
Poland	National Centre for Research and Development (NCBR)
Slovakia	Slovak Academy of Sciences (SAS)
Spain	The State Research Agency (AEI)
Türkiye	The Scientific and Technological Research Council of Türkiye (TÜBİTAK)

Alphabetical order excluding Japan

Appendix 3

Scientific Committee Member List

Country	Name	Affiliation	Role
Greece	Maria Kanakidou	University of Crete	Chair
Bulgaria	Yuri Kalvachev	Bulgarian Academy of Sciences	Member
Cyprus	Mihalis Lazaridis	Technical University of Crete	Member
Czech Republic	Michal Kučera	University of Bremen	Member
Estonia	Tarmo Soomere	Tallinn University of Technology	Member
France	Paola Formenti	National Center for Scientific Research	Member
Germany	Thorsten Blenckner	Stockholm University	Member
Hungary	László Horváth	University of Szeged	Member
Italy	Pier Francesco Moretti	National Research Council	Member
Japan	FURUMAI Hiroaki	Chuo University	Member
Poland	Aldona Dobrzycka-Krahel	WSB Merito University in Gdansk	Member
Slovakia	Martina Repikova	Slovak Academy of Sciences	Member
Spain	Emilio Fernández Suárez	Universidad de Vigo	Member
Türkiye	Barış Salihoglu	Middle East Technical University	Member

Alphabetical order excluding Chair

Appendix 4

Projects Selected for Funding

	Project Title (Abbreviation)	Principal Investigators	Project Outline
1	Blue-green coastal infrastructures for carbon storage and flood protection (Coast-blue-green-protect)	IKEGUCHI Akiko Professor College of Education Yokohama National University (Japan)	This project aims to present a sustainable assessment framework based on an investigation of the uses and values of coastal wetlands and to develop a model for future integrated wetland infrastructure. Particular emphasis is placed on exploring and evaluating relational values—derived from the human-nature relationship —which have gained increasing importance in recent international policy discussions. This well-managed coastal area, with its high carbon storage capacity to mitigate climate change, also serves as a buffer zone that realizes social and cultural values while reducing the impact of disasters. The Japanese team analyzes the use and value of wetlands based on the social characteristics of coastal communities and conducts related analyses with their ecosystems. The German team specializes in the environmental assessment of coastal waters and waste management based on these assessments, as well as conducting optimization analyses for multi-purpose use infrastructure. The Polish team links the spatial analysis of ecosystem services with carbon storage capacity evaluation through the analysis of wetland ecosystems using remote sensing and GIS. Through joint research between Japan and Europe, the study aims to contribute to the restoration of healthy coastal wetlands with carbon storage functions, while incorporating cultural and social evaluations alongside ecological assessments to propose planning methodologies for realizing diverse coastal values.
		<u>Walter Leal</u> Professor Faculty of Health Science Hamburg University of Applied Sciences (Germany)	
		Piotr Banaszuk Professor Department of Environmental Protection and Management Bialystok University of Technology (Poland)	

Underlined: Lead Principal Investigator

	Project Title (Abbreviation)	Principal Investigators	Project Outline
2	Understanding Ocean Heat Content and Its Role in Driving Marine Heatwaves and Ecosystem Responses (UHEAT)	KURODA Hiroshi Associate Professor Institute of Low Temperature Science Hokkaido University (Japan) <u>Francisco-Jaime Mir-Calafat</u> Associate Professor Department of Physics University of the Balearic Islands (Spain) Eleanor Frajka-Williams Professor Earth System Science University of Hamburg (Germany)	This research aims to deepen the understanding of changes in regional ocean heat content and the associated mechanisms of marine heatwave occurrences in the North Pacific and North Atlantic Oceans. By developing precise prediction methods for marine heatwaves, it seeks to forecast future fish distribution, aiding the creation of flexible fisheries that can adapt to frequent heatwaves. Traditional methods involved averaging climate model outputs over about 10 years to remove decadal-scale variations and predicting fish distribution based on these future sea temperatures. In contrast, the new method aims to predict marine heatwaves, which typically last from five days to several months, with high precision, providing more reliable fish distribution forecasts that can be implemented in fishing operations. The Japanese team evaluates and forecasts future ocean heat content and marine heatwaves using climate model outputs and emergent constraint methods and predicts habitat distribution of major fish species. Meanwhile, the European team uses satellite data and Bayesian methods to accurately estimate ocean heat content and heat transport, building AI models to forecast heatwaves. This provides information essential for the development and maintenance of a sustainable fishery industry. The strength of the Japan-Europe joint research lies in its ability to achieve highly precise predictions of marine heatwaves by integrating future predictions from climate models and deep learning, with ocean heat content serving as a common axis, in the North Pacific and North Atlantic Oceans. By targeting these two major oceans, both the generality and regional specificity of marine heatwaves are elucidated.

Underlined: Lead Principal Investigator

	Project Title (Abbreviation)	Principal Investigators	Project Outline
3	Electrochemical System Marine-Based Remediation and Advanced CO_2 Efficient Removal (EMBRACE)	TADANAGA Kiyoharu Professor Faculty of Engineering Hokkaido University (Japan)	The project aims to develop an electrochemical CO_2 removal system compatible with marine ecosystems, which will support blue carbon ecosystems and promote long-term climate mitigation strategies. The focus is on designing layered double hydroxide (LDH)-based electrocatalysts that offer excellent corrosion and biofouling resistance, enabling selective electrochemical CO_2 reduction in seawater using surplus renewable energy. By applying this system near blue carbon ecosystems, the aim is to achieve synergistic effects such as enhanced CO_2 absorption, restoration of seawater alkalinity, and improvement of ecosystem resilience. The Japanese team excels in the synthesis and functionalization of advanced inorganic and hybrid materials, leading the development of electrochemical devices with high catalytic activity and chemical stability. The Spanish team has extensive experience in corrosion protection within saline environments and optimizes the functional and structural evaluation of inorganic materials, including electrochemical performance assessments under simulated marine conditions. The Czech team are experts in the ecotoxicity of various materials and will assess the potential environmental and biological impacts of the developed materials. By collaborating between materials scientists and ecotoxicologists, the project aims to establish a safe and stable electrochemical CO_2 removal system for marine ecosystems without adversely affecting them.
		<u>Nataly Carolina Rosero-Navarro</u> Tenured Scientist Institute of Ceramic and Glass (Spain)	
		Ludek Bláha Professor Faculty of Science Masaryk University (Czech Republic)	

Underlined: Lead Principal Investigator

	Project Title (Abbreviation)	Principal Investigators	Project Outline
4	Marine Nitrogen Fixation - from Single Cells to Productivity Estimates for a Warming Ocean (MARNIFIX)	MASUDA Takako Senior Scientist Fisheries Resources Institute Japan Fisheries Research and Education Agency (Japan)	This project aims to understand how marine nitrogen fixation is affected by temperature fluctuations at cellular, population, and community levels, with the goal of improving predictions of future ocean productivity. By elucidating how intra- and interspecific interactions shape responses to global warming, it will enable parameterization of nitrogen-fixing organisms in ecosystem models. Comprehensive analysis of oceanic nitrogen and carbon cycles at different time scales of warming, along with the use of disturbance-assumed models to estimate biological productivity, will enhance predictions of future marine nitrogen fixation and primary productivity under climate change. The Japanese team will analyze the community structure and metabolic activity of natural nitrogen-fixing organisms through marine observations and onboard culture experiments, quantitatively assessing their response to warming. The Czech team will analyze cell-to-cell heterogeneity across different nitrogen-fixing organisms under varying fluctuation time scales through culture experiments, evaluating response mechanisms to warming for each group of nitrogen-fixing organisms. The German team will perform analyses of energy budgets and redox balances using cultured strains, and integrate the results from each team to newly introduce nitrogen-fixing communities into ecosystem models. Through joint research by the three teams, physiological analysis, field observations, and theoretical models are integrated to improve the accuracy of ocean productivity predictions under global warming.
		<u>Meri Eichner</u> Associate Scientist Microbiology Institute of the Czech Academy of Sciences (Czech Republic)	
		Sebastian Rokitta Senior Scientist Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (Germany)	

Underlined: Lead Principal Investigator

	Project Title (Abbreviation)	Principal Investigators	Project Outline
5	Tiny Tunicate - Big Carbon Impact: Climate-Resilient Genomes of *Oikopleura dioica* (OIKOPOP)	Nicholas Luscombe Professor Genomics and Regulatory Systems Unit Okinawa Institute of Science and Technology (Japan) <u>Cristian Cañestro</u> Associate Professor Department of Genetics Microbiology and Statistics University of Barcelona (Spain) Yad Ghavi-Helm Group Leader Institute of Functional Genomics of Lyon National Center for Scientific Research (France)	This project aims to elucidate the adaptive capacity of the marine organism *Oikopleura dioica* to climate change by analyzing its genomic structure and genetic diversity, thereby highlighting its contribution to the maintenance of blue-carbon ecosystems. Conservation strategies using adaptive mutations will help sustain carbon sequestration and fishery resources, contributing to the sustainability of coastal livelihoods and marine resources. By combining ecological sampling and long-read sequencing (Japan), lab-based functional assays (Spain), and cutting-edge genomics technology (France), the study seeks to understand how *Oikopleura* populations evolve and adapt to climate stress, generating transferable knowledge for marine ecosystem protection, predictive modeling, and climate change mitigation planning. The Japanese team will develop and standardize a method for environmental DNA analysis taking advantage of long-read DNA sequencing to detect genetic variations within and between *Oikopleura* populations. This method will be deployed to conduct a parallel study in coastal regions of Japan, and along the French and Spanish Mediterranean coast. Utilizing the system that allows for sample acquisition and comparison from different marine environments in Japan and Europe, the project aims to establish versatile adaptive indicators and practical applications. Through the Japan-Europe joint research, the identification of adaptive mutations and the construction of ocean monitoring and conservation strategies using them will be pursued.

Underlined: Lead Principal Investigator

	Project Title (Abbreviation)	Principal Investigators	Project Outline
6	Unravelling Marginal Sea Sub-Mesoscale Processes (UmiSubMeso)	WAGAWA Taku Senior Researcher Fisheries Resources Institute Japan Fisheries Research and Education Agency (Japan) <u>Taavi Liblik</u> Senior Researcher Department of Marine Systems Tallinn University of Technology (Estonia) Anil Akpinar Assistant Professor Institute of Marine Sciences Middle East Technical University (Türkiye) Veselka Marinova Associate Professor Institute of Oceanology Bulgarian Academy of Sciences (Bulgaria)	This project aims to elucidate the impacts of climate change on marginal seas by focusing on submesoscale oceanic processes, which occur at spatial scales of several kilometers to several tens of kilometers. The research targets three marginal seas with different hydrographic and climatic conditions: the Sea of Japan, the Black Sea, and the Baltic Sea. It involves high-resolution observations, comparative analysis, and knowledge transfer facilitated by stakeholders. By understanding submesoscale phenomena in marginal seas, the study aims to provide insights that contribute to climate change adaptation and preparedness for extreme events. The Japanese team will analyze changes in water mass structure and circulation in the Sea of Japan using existing observational and satellite data, while conducting high-resolution observations with gliders. The European team, comprising researchers from Turkey, Estonia, and Bulgaria, will conduct similar observations and analyses in the Black and Baltic Seas. Through the joint Japan-Europe research efforts, it is expected that the understanding of submesoscale phenomena in different marginal seas and their responses to climate change will deepen, providing foundational knowledge for future climate adaptation strategies.

Underlined: Lead Principal Investigator

Annex

Overview of EIG CONCERT-Japan Call for Proposals

The topic for this call for proposals has been developed based on the agreement of the funding agencies (FA) participating in EIG CONCERT-Japan program. The ocean targeted by this call faces global challenges such as rising sea temperatures, ocean acidification, and the loss of biodiversity due to climate change. Mitigating and adapting to these impacts of climate change while maintaining the health of the ocean is one of the important challenges of our time. Innovative approaches that enhance the role of the ocean are required to achieve a sustainable society. This call for proposals aims to leverage the strengths of Japan and Europe to enable CO_2 reduction and climate change adaptation.

Evaluation Criteria	
1. Scientific excellence	· Sound research concept and quality of objectives · Ambition, innovative potential, and uniqueness of the research idea · Scientific track–record, potential of the partners (including publications in scientific journals) · Scientific standing of the organizations the applicants belong to
2. Impact of project results	· Impact of the project on the scientific field, community · Contribution to enhancing innovation capacity and integration of new knowledge · Expected exploitation and dissemination of the results · Added value of the multilateral project consortium
3. Implementation	· Quality and effectiveness of the methodology · Feasibility of the work plan (in relation to governance, adequate budget, resources, time schedule) · Collaborative interaction and complementarity of project partners · Expected sustainability of the collaboration · Interdisciplinarity · Involvement of early-stage researchers and gender balance