Databases

The following databases are available on the JAMSTEC website.

- JAMSTEC Data Catalog JAMSTECデータカタログ
- JAMSTEC Grid Data Archive System
- JAMSTEC 文書カタログ JAMSTEC Document Catalog
- DARWIN JAMSTEC 航海・潜航 データ・サンプル探索システム
- BISMaL Biological Information System for Marine Life
- J-EDI 深海映像・画像アーカイブス JAMSTEC E-library of Deep-sea Images

Documents and Reports

- Earth Simulator Research Results Repository
- JAMSTEC Repository
- JAMSTEC's Patent List

Images and Samples

- JAMSTEC E-library of Deep-sea Images (J-EDI)
- Marine Biological Sample Database
- Deep Seafloor Rock Sample Database (GANSEKI)
- COre Electronic Database of Ocean floor (COEDO)

Marine Observation Data

- Argo JAMSTEC
- TRITON web
- Indo-Pacific*
- Subsurface ADCP mooring dataset
- JAMSTEC Compact Arctic Drifter (J-CAD, POPS)*
- JAMSTEC OceanSITES
- Database for time-series stations K2 and S1
- Paleoclimate-Ocean Database
- Extremo Base
- Image database of planktonic foraminifera
- Okinotorishima Island Observations*

Terrestrial Observation Data

- Cryosphere Data Base

Earthquake and Geoscience Data

- Crustal Structural Database Site
- JAMSTEC Ocean-bottom Seismology Database (J-SEIS)
- Google Earth as geoscience data browser project

Forecasts and Simulations

- Global Chemical Weather Forecast System
- Japan Coastal Ocean Predictability Experiment (JCOPE) System (ocean weather forecasts)
- Low-latitude Climate Prediction Research
- ALERA (AFES–LETKF experimental ensemble reanalysis)
- ALERA2
- General Ocean Circulation Model for the Earth Simulator Center (OFES)
- Estimated State of Global Ocean for Climate Research

*Japanese only

JAMSTEC supports the Sustainable Development Goals (SDGs)

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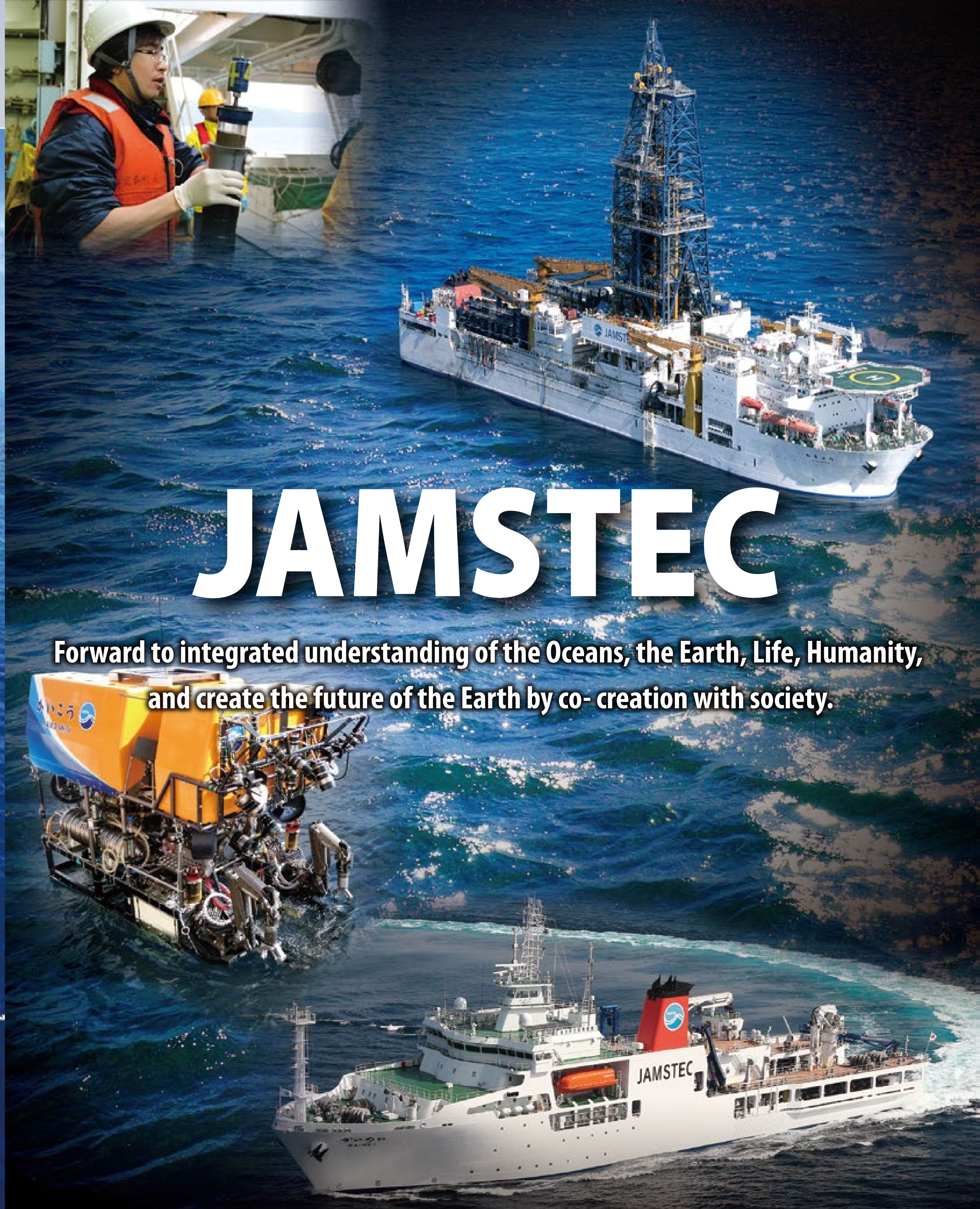
Revised: February 2025



JAMSTEC

Forward to integrated understanding of the Oceans, the Earth, Life, Humanity, and create the future of the Earth by co- creation with society.

JAMSTEC 国立研究開発法人 海洋研究開発機構
Japan Agency for Marine-Earth Science and Technology

About JAMSTEC

History of JAMSTEC

October	1971	Japan Marine Science and Technology Center established
May	1989	Research vessel HAKUHO MARU completed
April	1990	Deep sea survey support vessel YOKOSUKA completed
April	1990	SHINKAI 6500 deep sea research system completed
October	1995	Mutsu Institute for Oceanography opened
March	1997	Deep sea research vessel KAIREI completed
October	1997	Oceanographic research vessel MIRAI completed
November	2001	Global Oceanographic Data Center (GODAC) opened
April	2002	Earth Simulator recorded the world's highest computing performance.
August	2002	Yokohama Institute for Earth Sciences opened
April	2004	Japan Agency for Marine-Earth Science and Technology established
July	2005	Deep sea drilling vessel CHIKYU completed
October	2005	Kochi Institute for Core Sample Research opened
April	2009	2nd mid-term plan launched
August	2011	Dense oceanfloor network system for earthquakes and tsunamis (DONET1) full-scale operation launched
March	2012	Autonomous underwater vehicles YUMEIRUKA, OTOHIME and JINBEI completed, SHINKAI 6500 upgraded
October	2012	JAMSTEC long-term vision formulated
April	2014	3rd mid-term plan launched
April	2015	Change in status to National Research and Development Agency
March	2016	Wide-area seabed research vessel KAIMEI completed
March	2016	Dense Oceanfloor Network system for Earthquakes and Tsunamis (DONET2) deployment completed
April	2016	DONET2 transferred to National Research Institute for Earth Science and Disaster Resilience (NIED)
April	2017	Deep sea debris database made publicly available
September	2017	Deep-sea Bio Open Innovation Platform established
October	2018	First single-pilot operation of SHINKAI 6500
April	2019	4th mid-term plan launched
October	2021	JAMSTEC 50th anniversary
February	2022	Deep Sea Research Vessel KAIREI retired
October	2023	"Advanced Institute for Marine Ecosystem Change" selected for the World Premier International Research Center Initiative (WPI)
September	2024	IODP Expedition 405 "Understanding the time-spatial changes after the Tohoku great earthquake" was conducted using the Deep-sea Scientific Drilling Vessel CHIKYU

Organization Chart

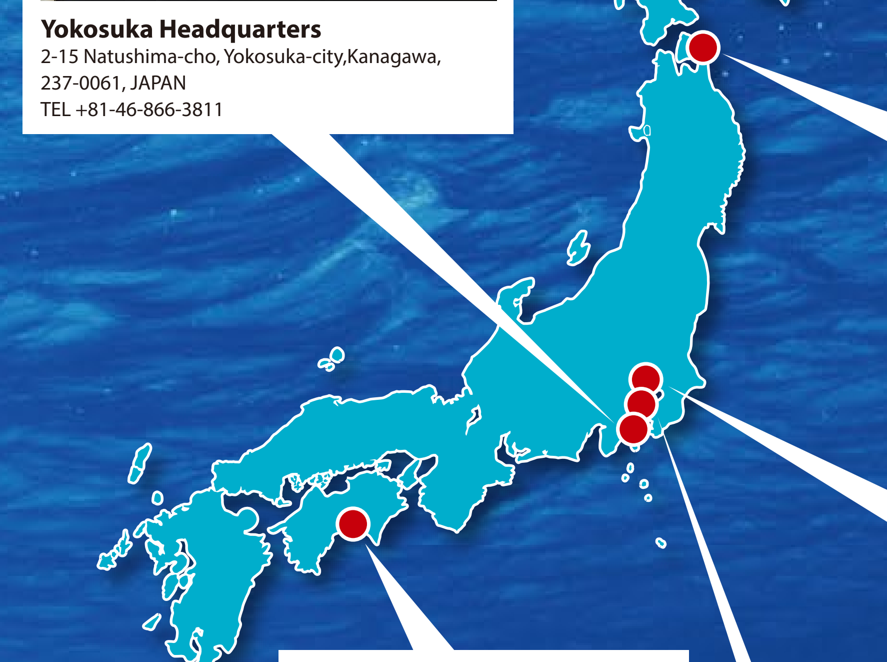
Executive Directors

President	Executive Director	Auditor
Hiroyuki Yamato	Takeshi Kawano Shuichi Kodaira Katsuyuki Kudo	Satoshi Kikuchi Mieko Mio

- Research Institute for Global Change (RIGC)
  - Global Ocean Observation Research Center (GOORC)
  - Institute of Arctic Climate and Environment Research (IACE)
  - Earth Surface System Research Center (ESS)
  - Research Center for Environmental Modeling and Application (CEMA)
  - Marine Biodiversity and Environmental Assessment Research Center (BioEnv)
  - Center for Coupled Ocean-Atmosphere Research (CCOAR)
  - Mutsu Institute for Oceanography (MIO)
- Research Institute for Marine Resources Utilization (MRU)
  - Biogeochemistry Center (BGC)
  - Research Center for Bioscience and Nanoscience (CeBN)
  - Submarine Resources Research Center (SRRC)
- Research Institute for Marine Geodynamics (IMG)
  - Subduction Dynamics Research Center (SDR)
  - Research and Development Center for Earthquake and Tsunami Forecasting (FEAT)
  - Volcanoes and Earth's Interior Research Center (VERC)
- Research Institute for Value-Added-Information Generation (VAiG)
  - Center for Mathematical Science and Advanced Technology (MAT)
  - Application Laboratory (APL)
  - Center for Earth Information Science and Technology (CEIST)
  - Global Oceanographic Data Center (GODAC)
- Institute for Extra-cutting-edge Science and Technology Avant-garde Research (X-star)
  - Super-cutting-edge Grand and Advanced Research (SUGAR) Program
  - Kochi Institute for Core Sample Research (KOCHI)
- Engineering Department
- Project Office for Arctic Research Vessel (PARV)
- Research Support Department
- Advanced Institute for Marine Ecosystem Change(WPI-AIMEC)
  - Research Division
  - Research Promotion and Planning Division
- Institute for Marine-Earth Exploration and Engineering (MarE3)
  - Planning and Coordination Department
  - Operations Department
  - Fleet Maintenance and Engineering Department
  - Drilling Projects Support Office
- Planning Department
- Marine Science and Technology Strategy Department
- General Affairs Department
- Human Resources Department
- Finance and Contracts Department
- Information Security and System Department
- Safety and Health Supervision Office
- Research Integrity and Legal Office
- Audit Office
- Project Team

Institutes and Offices

JAMSTEC
Japan Agency for Marine-Earth Science and Technology



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TEL +81-46-866-3811

Mutsu Institute for Oceanography
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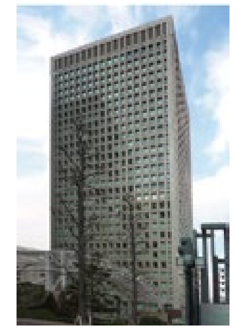


Tokyo Office
Fukokuseimei Bld. 23F, 2-2-2 Uchisaiwaicho, Chiyoda-ku, Tokyo, 100-0011, Japan
TEL +81-3-5157-3900

Kochi Institute for Core Sample Research
200 Monobe Otsu, Nankoku-city,Kochi, 783-8502, JAPAN
(on Monobe campus of Kochi University)
TEL +81-88-864-6705

Global Oceanographic Data Center (GODAC)
224-3 Toyohara, Nago-shi, Okinawa, 905-2172, JAPAN
TEL +81-980-50-0111

Yokohama Institute for Earth Sciences
3173-25 Showa-machi, Kanazawa-ku, Yokohama-city, Kanagawa, 236-0001, JAPAN
TEL +81-45-778-3811

We will promote research and development towards solution of global issues by understanding the current status and projecting the future of the global change.

To contribute to the resolution of global issues such as climate change, ocean acidification, and plastic pollution, we will lead international projects to conduct integrated research on oceans at all depths and on the close interactions of oceans with the atmosphere and land masses. We will apply the data obtained from this research to formulate both short-term seasonal predictions and mid- to long-term predictions covering centuries.

We will actively disseminate our research results through international frameworks such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, the UNESCO Intergovernmental Oceanographic Commission (IOC), the Intergovernmental Panel on Climate Change (IPCC), and the Arctic Council (AC). We will contribute to the achievement of the United Nations Sustainable Development Goals (SDGs), in particular Goal 13 (climate action) and Goal 14 (life below water), as well as Japanese government policies.

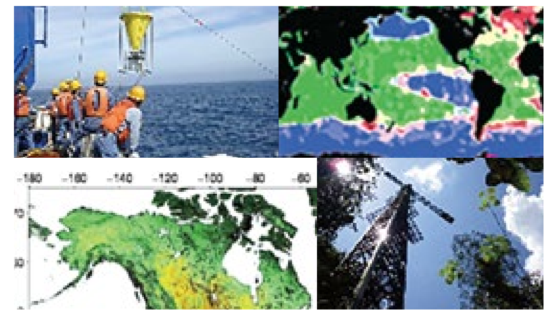
1 Observing and understanding ocean environmental change and developing observation technologies

We will maintain our conventional ocean observation network while at the same time working to develop a new optimized observing system that integrates various observation platforms, including research vessels, drifting floats, and moored systems. Our goal is to understand the physical and chemical states of the ocean and their temporal development, and to uncover the mechanisms of various oceanic phenomena with the aim of producing more reliable forecasts. We also plan to miniaturize and automate observation instruments to better monitor the global ocean.

2 Understanding environmental change in the Arctic region and developing technologies for making observations under sea ice

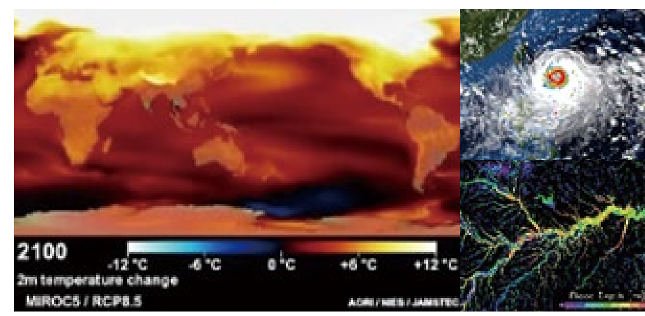
The impacts of global warming are currently most conspicuous in the Arctic region, and we will conduct observation and prediction research there to better understand interactions between oceans and sea ice and other aspects of Arctic climate systems, and help reduce prediction uncertainties. To this end, we will also develop underwater drones and other new observation technologies to enable us to observe what is going on beneath sea ice, a difficult endeavor up to now.

3 Understanding ecosystems/geochemistry dynamics linking Earth surface sub systems to reveal their interactions with human activities



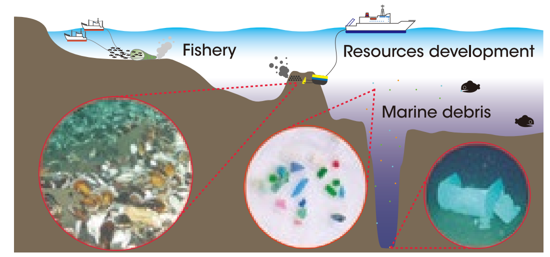
Based on oceanic and atmospheric observations, lab experiment and model simulations, we understand and evaluate the impacts of ocean acidification, warming, hypoxia, and environmental pollution on changes and processes of ecosystems/geochemistry linking Earth surface sub systems (ocean/atmosphere/land systems) to reveal their interactions with human activities. We also focus on "hotspot" areas, Arctic region, and on Tsugaru Strait driving/representing global or near-Japan climate and environmental changes.

4 Projection of global environment



We work on further sophistication of the simulation models that have been developing at JAMSTEC to better project the environment on various temporal and spatial scale. We promote collaborations among different models taking the best of them, in order to obtain novel insights on phenomena ranging from short-term events such as torrential rain and typhoon, medium-term ones such as El Nino, and long-term ones such as global warming, including interactions among them.

5 Assessing the impact of human activity and global environmental change on biodiversity



In order to evaluate the impacts of human activities on the marine ecosystems, we will seek to understand the changes in marine biodiversity, which are sensitive to variations of the global environment. Particularly to fill the current data and knowledge gaps in the deep-sea ecosystems, we will develop analytical methods for environmental DNA and measuring methods of pollutants such as microplastics. Through these approaches, we aim to establish and upgrade the integrated environmental impacts assessment measures.

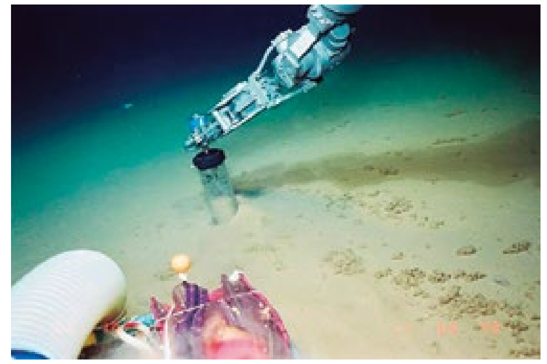
Research Institute for Marine Resources Utilization (MRU)

Understanding material circulation and origin of marine resources to ensure sustainable use

Our primary goal is to understand the formation processes of marine resources, including organisms, minerals, and energy resources found in the ocean. In addition to conducting the research that contributes to the sustainable use of oceans, we will seek collaborations with other institutions and industries through providing marine samples and sharing data, technologies, and scientific knowledge to accelerate the utility of the ocean.

1 Effective use of marine organisms and biological functions

We will endeavor to develop a precise understanding of oceanic material circulation through conducting chemical and molecular biological analyses of marine biological, geological, and other specimens, identifying the environmental, physiological, and evolutionary factors controlling circulation, and developing a quantitative understanding of marine bio-resources. We will also investigate the unique capabilities acquired by organisms in the process of adapting to extreme deep-sea environments. We will contribute to society by disseminating the environmental analysis technologies and methodologies developed by JAMSTEC.



Collecting sediment from the bottom of the Challenger Deep (depth: 10,896 m) in the Mariana Trench. Our efforts will hopefully lead to the discovery of novel microbial resources.

Photosynthetic bacteria inhabiting gypsum deposited by seawater evaporation

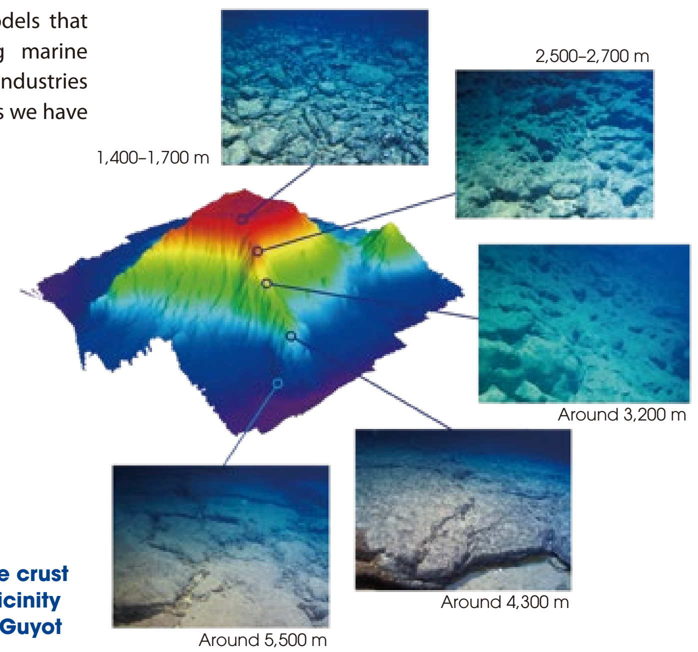
Nano EA (elemental analyzer) / IRMS (isotopic mass spectrometer) capable of measuring the smallest amounts of trace sample isotopes by this type of device worldwide

2 Effective use of submarine resources

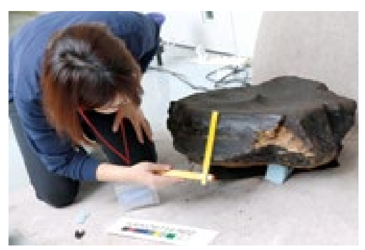
We have sought to shed light on the processes by which submarine resources are formed by conducting field research, collecting and analyzing specimens, analyzing data, and developing numerical models. These efforts have shown that both physical and chemical processes influence the concentration of elements in complex ways over a broad spatiotemporal scale. We will conduct research and development using these research methods to identify correlations between chemical and physical processes and to apply the knowledge gained to build submarine resource formation models that would enable us to theoretically pinpoint promising marine locations. We will also support the development of marine industries by broadly disseminating the knowledge and technologies we have acquired among relevant industries.

Takuyo-Daisan Guyot

Crusts spread all over the seabed at all depths



An area rich in manganese nodules discovered around Minamitorishima at a depth of 5,500–5,800 m



A ferromanganese crust collected in the vicinity of Takuyo-Daisan Guyot

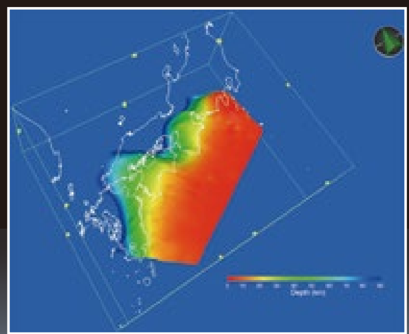
This cobalt-rich crust, which is a type of ferromanganese crust, is 13 cm thick. (It was collected by the remotely operated KAIKO Mk-IV.)

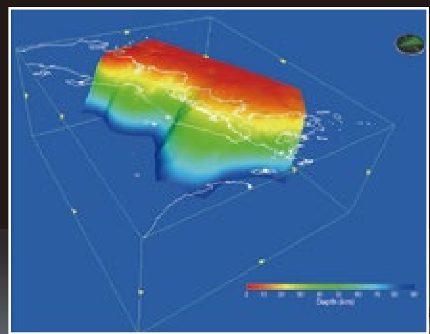
Illuminating Earthquakes and Volcanic Activities for Disaster Mitigation

To reveal earthquakes and volcanic activities, the scientists and staff of the Research Institute for Marine Geodynamics will conduct large-scale observations around Japan and the western Pacific using JAMSTEC vessels and various state-of-the-art marine exploration technologies. In particular we will conduct geophysical-geological surveys in the Nankai Trough, Japan Trench, Kuril Trench, and other tectonically active zones that may be subject to a forthcoming megathrust earthquake or volcanic eruption. Moreover, we will develop, improve, and upgrade the methods and systems to acquire and process data.

Furthermore, in line with SDGs 11 (sustainable cities and communities), our institute will contribute to disaster mitigation by sharing the scientific knowledge we have gained with society. We will also endeavor to conduct observational surveys and apply our research results in countries that are vulnerable to frequent natural disasters such as earthquakes, tsunamis, and volcanic activities.

Remotely operated vehicle HYPER-DOLPHIN collecting rocks

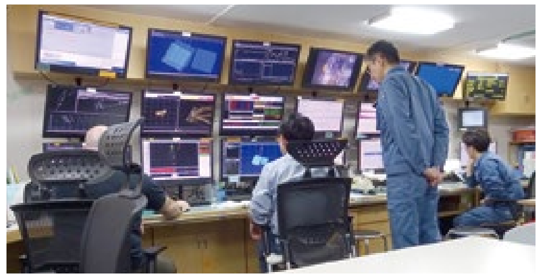




Three-dimensional plate geometry model of the Nankai Trough subduction zone viewed from SW and NW of Japan. Vertical exaggeration is 2.5.

1 Understanding seismogenic zones through offshore survey and observation

Compared with onshore earthquakes, we still know very little about offshore events. To improve this situation and make a better understanding of the current status of seismic activity, we develop and deploy a real-time observation system of seafloor crustal deformation and seismic activity. Focusing on regions having high urgency and importance as the presumed source area of large earthquakes and tsunamis, we conduct seismic surveys and observations to investigate three-dimensional crustal structure, seismic activity, the physical properties of faults, paleoseismic record, and other factors. The data we have obtained from our surveys and observations are broadly shared with relevant institutes and universities.



A laboratory on board vessel KAIMEI

2 Understanding about the generation process and forecasting of earthquake and tsunami

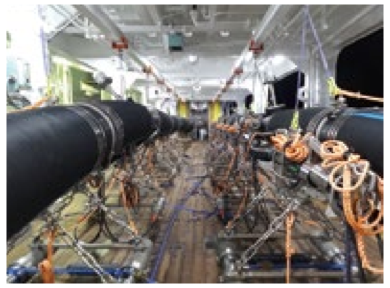
To contribute monitoring of the current status and long-term evaluation of seismogenic zones, we will accumulate and disseminate knowledge that promotes our understanding of earthquake generation mechanisms and our ability to grasp and forecast the status of the inter plate locking and slipping based on the latest data obtained from observations and research on seismogenic zones. To this end, we will integrate various data to improve the precision of our seismogenic zone models and upgrade our real-time tsunami forecasting system.

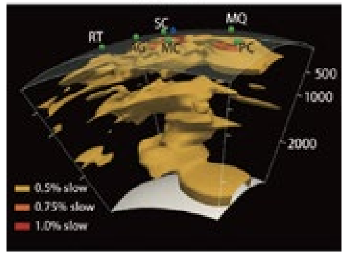
Installation of long-term borehole monitoring point C0006G (just after the KS-18-J04 HYPER-DOLPHIN connected the DONET cable)

3 Understanding current status of the Earth's interior and forecasting its variation as a cause of volcanic activity and the Earth's evolution

Submarine volcanic eruptions have caused sudden, large-scale disasters. Because of their huge impact on the human society and global environment, forecasting their occurrence and evaluating their impact on the environment are of vital importance. To address these issues, we will conduct ocean drilling surveys using our Deep-sea Scientific Drilling Vessel CHIKYU and investigate the internal structures of the Earth that control volcanic activity, the mechanisms controlling circulation of fluids and energy within the Earth, and magma supply systems from both single volcano and global perspectives.

Investigation of oceanic volcanoes

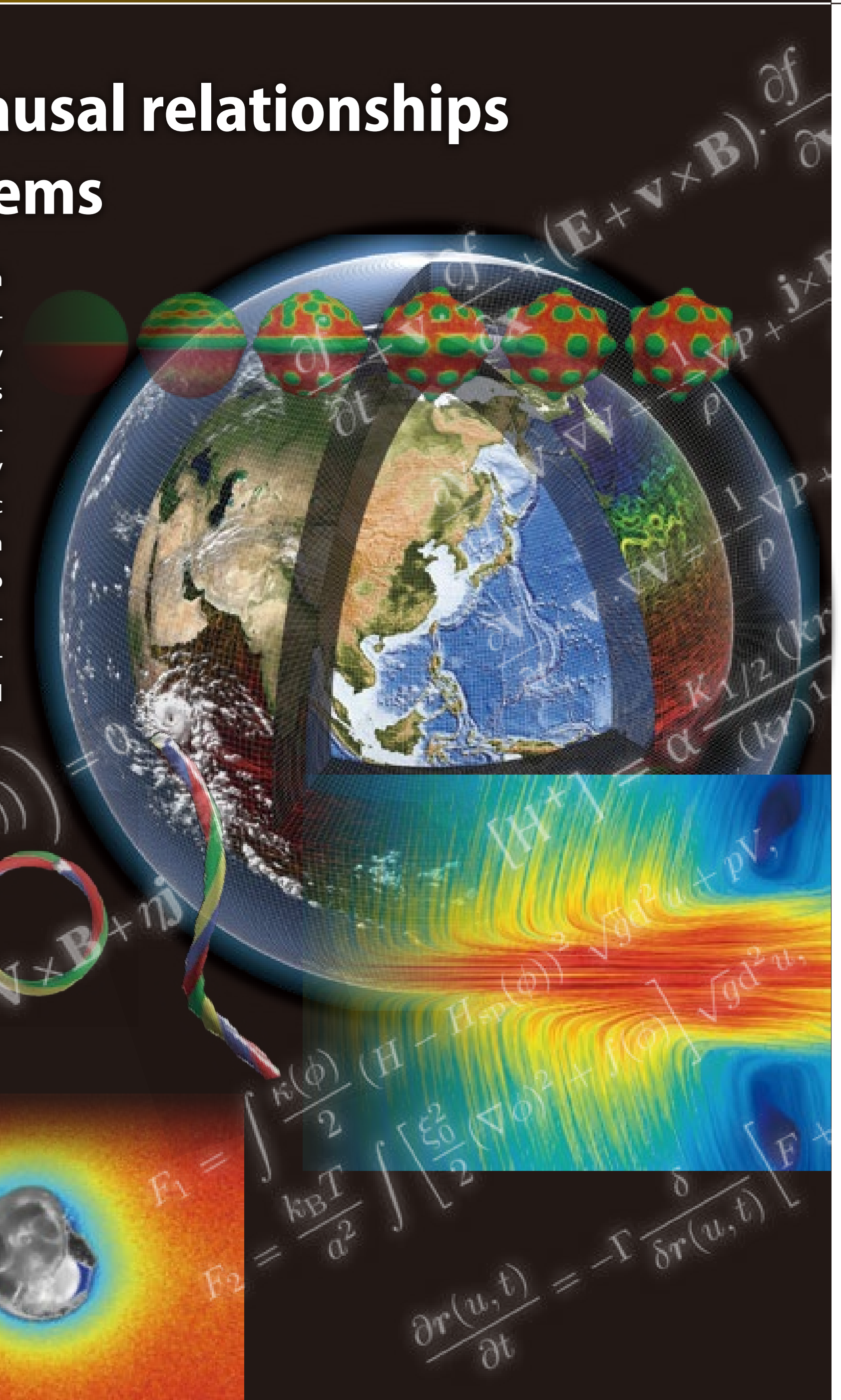


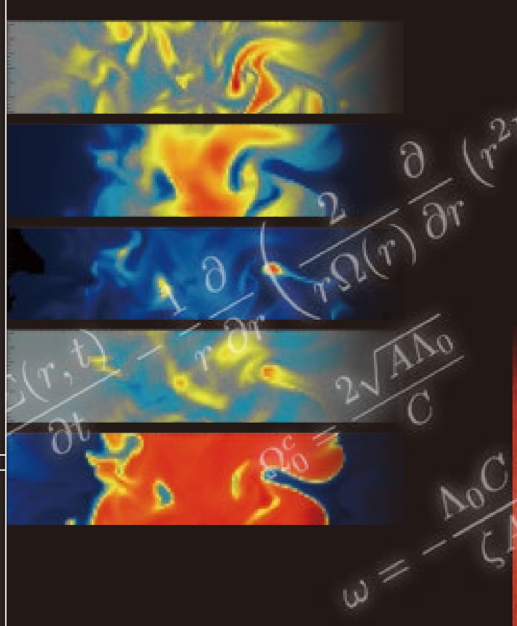


Behavior and circulation of solid, fluid and volatile components in the Earth's mantle (top) and a seismic tomographic image of a mantle upwelling flow beneath French Polynesia in the South Pacific (bottom)

Probing unknown causal relationships hidden in Earth systems

To identify interrelationships between changes in Earth systems and human activity, we will develop methodologies for integrating the vast amounts of data generated by JAMSTEC R&D activities, and mathematical analysis methods for efficiently processing the resulting integrated data. We will also support the resolution of policy issues and development of sustainable socioeconomic systems by generating and disseminating information tailored to various needs. We will additionally endeavor to expand this initiative to encompass other relevant organizations both in Japan and overseas so as to build a framework for generating even more advanced and useful information.





1 Research and development of numerical analysis and verification methodologies

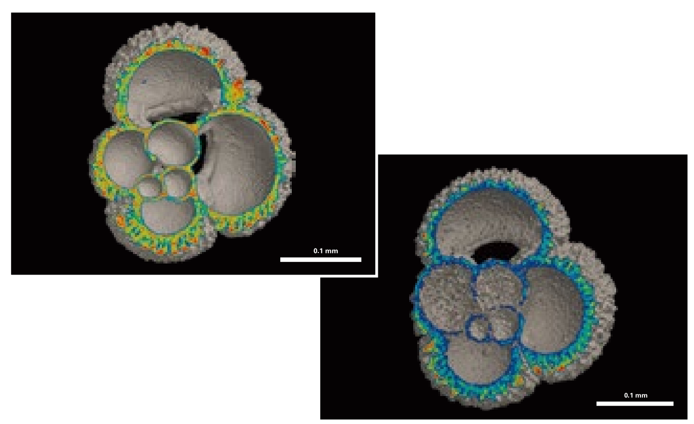
We will develop data conversion tools to unify the formats of research and development-generated data sets for the various phenomena comprising Earth systems that are based on very different scales of time, space, and other parameters. In order to mathematically process data that has been integrated by unifying formats, we will then carry out time evolution calculation and data assimilation, and develop a large-scale repository of numerical analysis methodologies of various kinds including AI and other advanced functions. As a part of repository development, we will also develop verification technologies to guarantee the quality of the numerical analyses it is used for.

2 R&D on the the use of numerical analysis results to generate advanced and optimized information

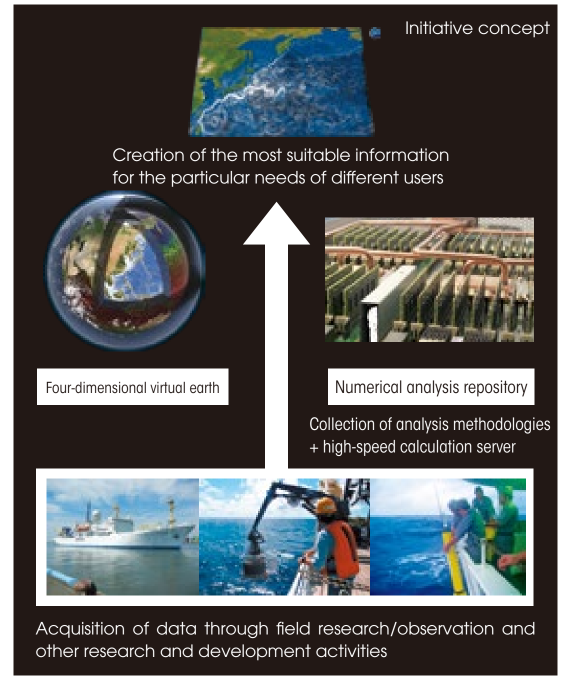
We will develop a four-dimensional virtual earth as a large-scale data system equipped with advanced data analysis functions and capable of efficiently aggregating and managing data generated by the numerical analysis repository and other sources. Using this four-dimensional virtual earth, we will seek to discover and elucidate the complex relationships between intertwined Earth systems, and based on those relationships, generate information optimized to best serve user needs, making it more valuable to society as a whole.

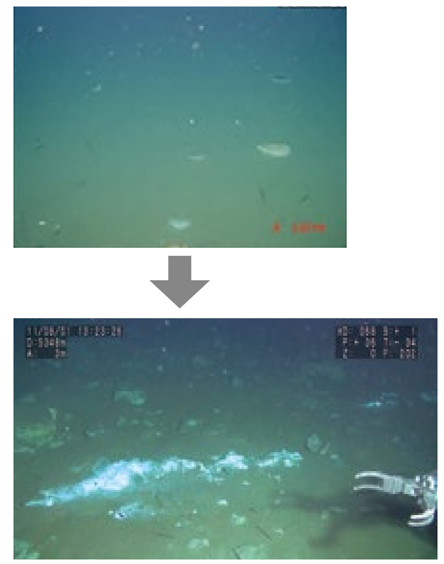
3 Development and operation of an execution platform optimized for information generation

As an execution platform for the numerical analysis repository and four-dimensional virtual earth, we will build a high-speed computing system capable of handling the huge amount of information stored in the data server, connecting the system and server through a high-speed network. To further advance and support enrichment of this platform, we will also focus on security and compatibility in its development and operation so as to facilitate sharing and collaboration with other organizations and gain more users as a result.

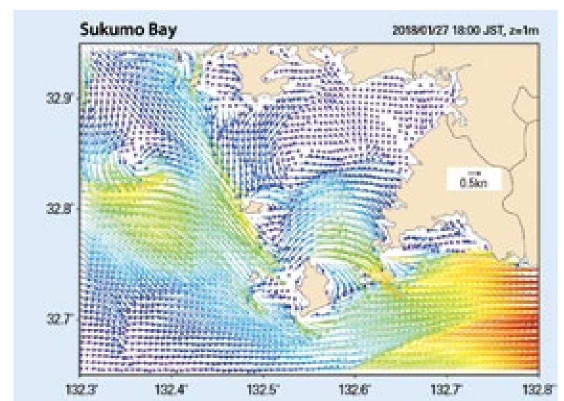


Comprehensive assessment of the health of the marine environment





Effect of crustal movement on biota (microbial community) (Formation of a bacterial mat (white part) in conjunction with outflow of spring water from a seabed)



For fisheries and agriculture
Providing fishermen with fishery area forecast information

Exploratory and challenging research and technological development for the future

Our exploratory and challenging research and development on deep-sea extreme environments, or so to be called the Earth's last frontiers, will build a scientific, technological, and intellectual platform which will lead to generating diverse knowledge and innovation to support future Japan as a maritime nation. It is expected to raise public interest in science and technology, and contribute significantly to the promotion of Japan's science and technology policies. We also lead JAMSTEC basic research and development, promote research collaboration between different fields, and accelerate mission achievement.

Black smoker in the Beebe Hydrothermal Vent Field of the Mid-Cayman Rise in the Caribbean Sea

1 Basic, exploratory and challenging research based on out-of-the-box thinking

We will conduct challenging and highly speculative research with the aim of making breakthroughs and generating systematic understanding that will lead to future paradigm shift in science. Japan has already gained worldwide recognition for the originality of its exploratory research on the role of the ocean in the origin of life and the co-evolution of life and the environment, and on microbial dark matter (unknown microbes occupying dark and extreme environments) and the physiological functions supporting such life forms; by focusing on these themes, we will establish a new academic field in which Japan will lead the world.

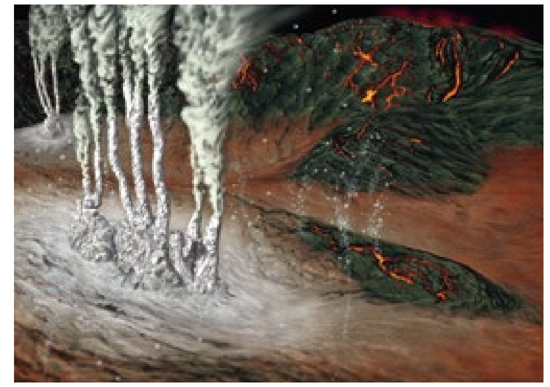
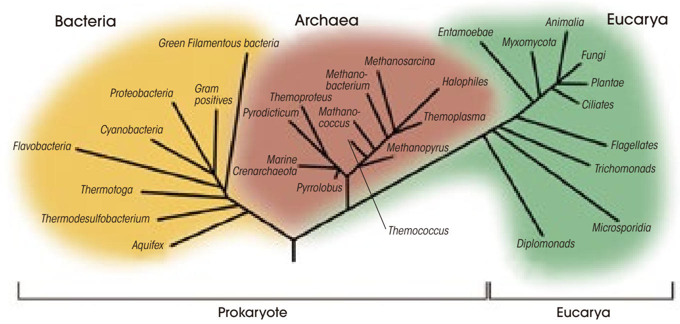


Illustration of deep sea hydrothermal activity of 4 billion years ago may have looked



The three domains of the tree of life

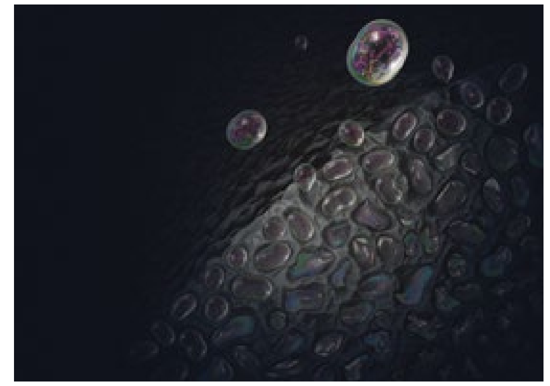


Image of the birth of life in a small hole inside a deep sea hydrothermal chimney

2 Building the future of oceanographic technology through pioneering technological development research

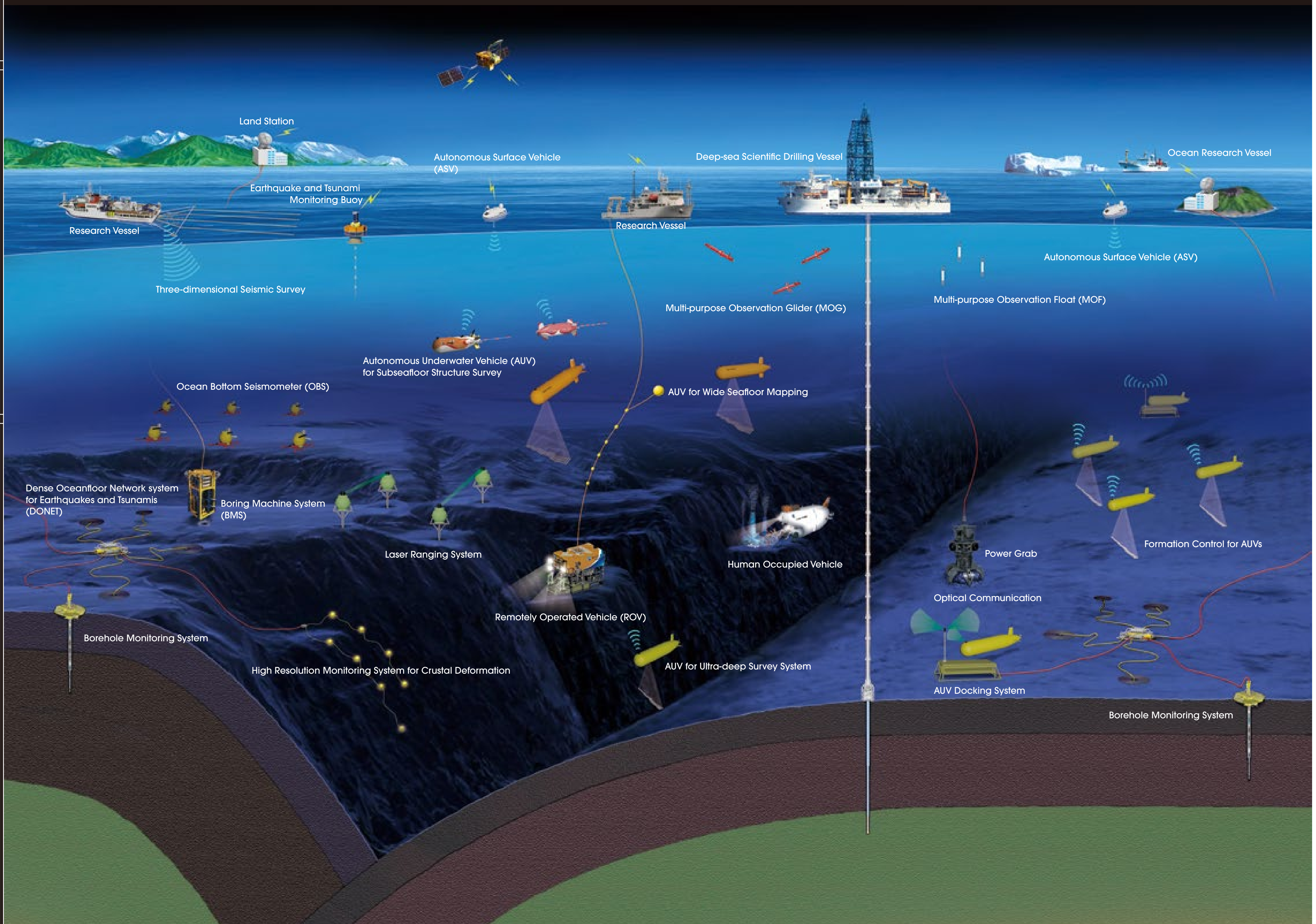
With the goal of producing outcomes that transform oceanographic technology, we will engage in highly speculative and pioneering technological development research rather than endeavoring to extend existing technologies. We will focus in particular on developing original technologies that combine new exploratory technologies such as measurement using laser processing and electrochemical processing, and ultra-high resolution nanoscale analysis.

Ultra-high resolution nanoscale analysis (NanoSIMS)

Development of deep sea organism identification technology using underwater laser processing technology

Advanced technology bringing new insights of the Earth and its oceans

We operate marine research facilities capable of supporting research across vast and diverse fields of investigation. While maintaining and enhancing our advanced capabilities for investigating and observing the global ocean, we contribute to world-leading research and support Japan's ocean policies.



Institute for Marine-Earth Exploration and Engineering (MarE3)

Operation of ocean research platforms

We operate safe, efficient, and stable ocean research platforms to address important R&D and societal needs. We continually upgrade the capabilities and performance of our equipment and facilities, incorporating newly-developed methodologies and technologies to improve the sophistication of our research and observations. We provide all researchers aboard our vessels and platforms with complete scientific and technical support.

Engineering Department

Automating & Streamlining Exploration & Oceanic Observational Tools

We advance marine robotics through automating, streamlining, and miniaturizing our underwater exploration vehicles and oceanic observation systems in support of a wide range of scientific disciplines and research targets. Our primary focus is the technological advancement of our Autonomous Underwater Vehicles (AUVs) for deep-sea surveys with the aim to develop AUVs capable of operating to 7000 meters water depth and deeper.

Image of 8,000-meter-class AUV currently under development

JAMSTEC

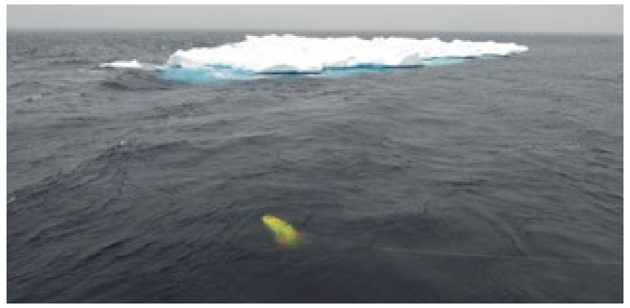
Construction of the Arctic Research Vessel MIRAI II with icebreaking capabilities and world-class scientific facilities

Global warming is causing rapid environmental changes in the Arctic region, significantly impacting ecosystems, human societies, and the global climate and weather system of Earth. To better understand these changes and contribute to addressing various challenges, the Arctic Research Vessel MIRAI II is under construction and scheduled for completion in 2026. MIRAI II will be Japan's first research vessel with icebreaking capabilities and world-class scientific facilities.

Image of MIRAI II's main functions and facilities

1 High-precision observations in the Arctic Ocean, a region with sparse data and observation gaps

Understanding the realities and processes of environmental changes in the Arctic and predicting future trends is imperative. However, the region suffers from insufficient observational data, and scientific findings must be enhanced. With its icebreaking capabilities, MIRAI II will enable high-precision observations of key parameters, including the atmosphere, weather, ocean, and sea ice, even in sea-ice-covered areas where observation has traditionally been difficult. This is expected to contribute significantly to the advancement of scientific knowledge.


Testing of the under-ice drone COMAI, scheduled to be deployed on MIRAI II in the Arctic Ocean

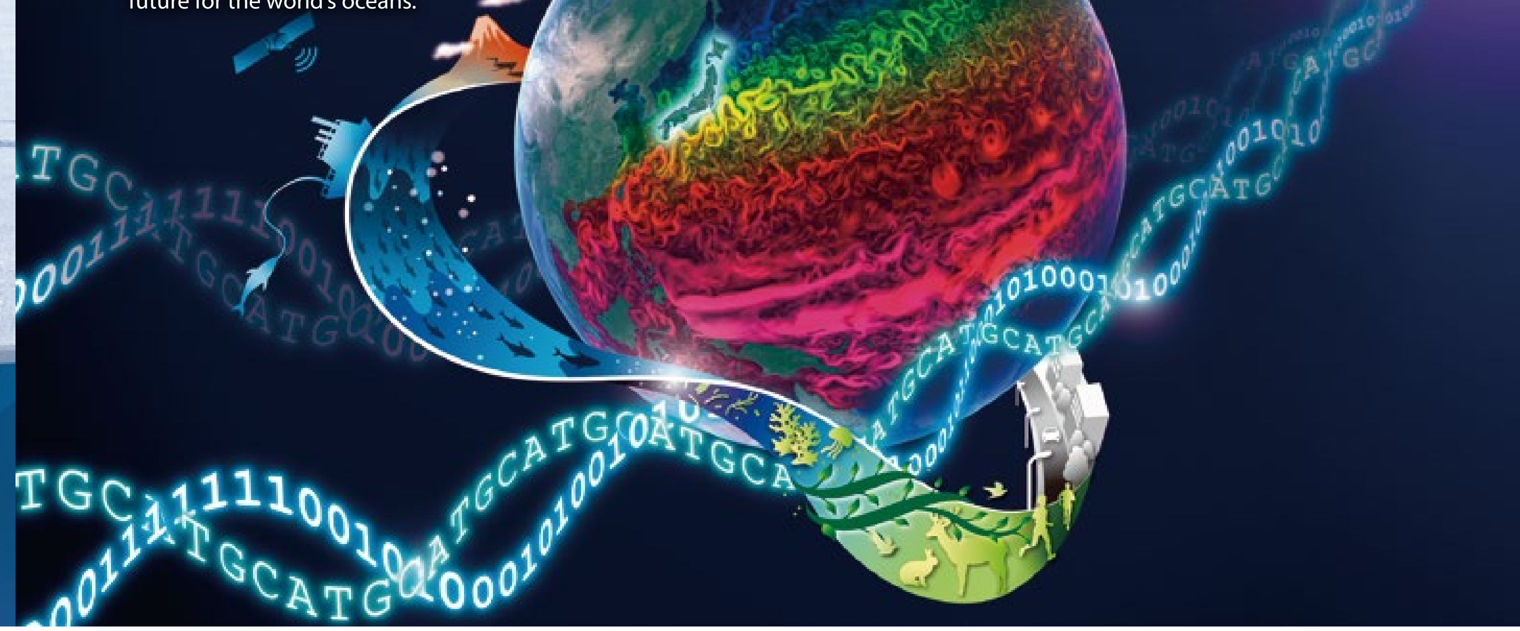
2 Functioning as an international research platform and contributing to the development of human resources

To contribute toward addressing the challenges in the Arctic, which have profound impacts on the entire planet, MIRAI II will serve as an international research platform. Japan will play a leading role, collaborating with partner countries to conduct advanced surveys, observations, and joint international research. Additionally, MIRAI II will serve as a foundation for fostering the next generation of Arctic researchers, contributing to human resource development in Arctic studies.


MIRAI II will also collect navigation data in ice-covered seas, thus improving the safety and operational efficiency of ships in these challenging environments.

A new research hub to understand and predict changes in marine ecosystems, contributing to the ocean and society

Established in 2024 under the Ministry of Education, Culture, Sports, Science and Technology's World Premier International Research Center Initiative (WPI), this cutting-edge research hub was launched in collaboration with Tohoku University. Our mission is to elucidate the response and adaptation mechanisms of ecosystems to changes in the marine environment using an approach that combines ocean physics, ecology, and data science. Furthermore, we will realize predictions of marine ecosystem change at various scales from the northwest Pacific to the global ocean, and thus establish a new academic field, "Ocean and Ecosystem Change Systematics (OECS)". This pioneering work will contribute to a sustainable future for the world's oceans.



1 Clarifying interactions among the ocean, ecosystems and climate

We aim to achieve an integrated understanding of relationships among rapid changes in marine ecosystem (regime shifts), physical and biogeochemical ocean environments, and climate variability towards realizing regeneration and recovery of oceans and ecosystems impacted by climate change.

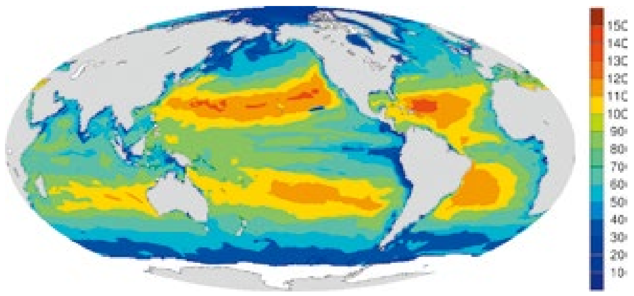

Deployment of ARGO FLOAT, a robot capable of automatically observing water temperature, salinity, and pressure

2 Describing environmental responses and associated adaptive mechanisms of marine ecosystems

By synthesizing data from genomic and ecological research with oceanographic and geochemical observations, we aim to unveil the mechanisms underlying the response, adaptation, and evolution of marine ecosystems in changing environments.

3 Predicting marine ecosystem changes

We will employ AI approaches for integrative computational analysis of big data on ocean physics and ecosystems to build a model of marine ecosystem change of global relevance and predict future changes.


(adapted from Masuda et al., 2021).
Simulation of depths with maximum chlorophyll concentration

Collaboration with others

Through collaborations with countries, universities, private industry, and other parties, we actively participate in joint projects, personnel and information exchanges, and networking events with the aim of developing, enhancing, and raising the profile of our intellectual property. We will further pursue cooperation and collaboration with regional marine industry promotion and human resource development measures, and promote activities aimed at achieving the goals of collaborative initiatives with private industry and other stakeholders.

JAMSTEC Report Meeting

International cooperation

We actively engage in international frameworks promoted by the United Nations and other organizations and will take on leadership roles as required. We also seek to drive the further growth of oceanographic research and technology and strengthen Japan's research and development capabilities in the field by building effective structures for cooperation with overseas organizations. We will continue to operate "CHIKYU" for international scientific drilling programs such as the International Ocean Drilling Programme (IODP[3]), and will pursue a range of initiatives to drive scientific drilling projects.


Researchers discussing core samples collected on an IODP cruise

Ocean STEAM Project

We are promoting the Ocean STEAM Project to nurture the next generation of ocean-related professionals and enhance children's ocean literacy. STEAM education is a cross-disciplinary learning framework integrating science, technology, engineering, arts, and mathematics. It fosters interdisciplinary learning, encouraging students to apply knowledge from each subject to identify and solve social challenges in the real-world.
Using images and videos from previous surveys and observations, we produce Ocean STEAM educational materials based on the Government Curriculum Guidelines for practical use in educational settings.
In collaboration with local governments, we are promoting the implementation of Ocean STEAM materials in schools, such as encouraging their use during "period for integrated studies," to enhance their integration into educational practices.

Example of Ocean STEAM Educational Materials
(Volume 2: Marine Plastic Pollution and Our Lives)


A lesson conducted at Kanazawa Elementary School in Yokohama City using Ocean STEAM educational materials

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海洋STEAM

Inspired by ocean waves, the logo also resembles the kanji character for "person." This duality expresses how the Ocean STEAM platform intends to nurture "persons" for the future.

Research Facilities


Deep-sea Scientific Drilling Vessel
CHIKYU
Length 210.0m
Gross tonnage 56,752 tons
Accommodation 200
Built 2005


Human Occupied Vehicle
SHINKAI 6500
Maximum operating depth 6,500 m
Crew 3
Length 9.7 m
Weight in air 26.7 tons


Research Vessel
KAIMEI
Length 100.5 m
Gross tonnage 5,747 tons
Accommodation 65
Built 2016

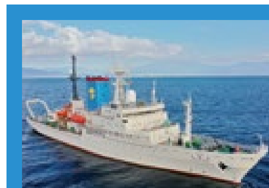

Remotely Operated Vehicle (ROV)
KAIKO
Maximum operating depth 4,500 m
Length 3.0 m
Weight in air 5.2 tons

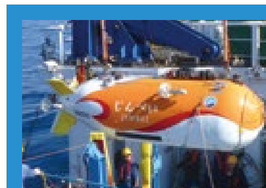

Support Vessel
YOKOSUKA
Length 105.2 m
Gross tonnage 4,439 tons
Accommodation 60
Built 1990


Remotely Operated Vehicle (ROV)
HYPER-DOLPHIN
Maximum operating depth 4,500 m
Length 3.0 m
Weight in air 4.3 tons


Oceanographic Research Vessel
MIRAI
Length 128.5 m
Gross tonnage 8,706 tons
Accommodation 80
Built 1997


Autonomous Underwater Vehicle (AUV)
URASHIMA
Maximum operating depth 3,500 m
Length 10.0 m
Weight in air 7.0 tons


Research Vessel
HAKUHO MARU
Length 100 m
Gross tonnage 4,073 tons
Accommodation 89
Built 1989


Autonomous Underwater Vehicle (AUV)
JINBEI
Maximum operating depth 3,000 m
Length 4.0 m
Weight in air 1.7 tons


Research Vessel
SHINSEI MARU
Length 66 m
Gross tonnage 1,635 tons
Accommodation 41
Built 2013


(Yokohama Institute for Earth Sciences)
Earth Simulator
Total Peak Performance 19.5 PFLOPS
Total Memory 556.5 TiB
Shared Storage Capacity 61.4 PB
Interconnect Bandwidth 200 Gb/s (for two-way)


Arctic Research Vessel
MIRAI II
Length 128 m
Gross tonnage 13,000 tons
Ice-breaking capacity capable of continuously breaking 1.2 m of flat, one-year ice at a speed of 3.0 knots
Ice Class Polar class 4 (capable of navigating year-round operation in thick first-year ice, which may include old ice inclusions)
Accommodation 97
Completion (planned) 2026

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