Institute of Ocean Energy, Saga University, Japan [IOES]

The 2nd International Joint Research/Usage Promotion Workshop on Ocean Energy

IOES accepts applications for joint research using research equipment related to ocean energy at Saga University. For each joint research application submitted, after review, IOES provides support for research expenses and travel expenses to Japan. In this WORKSHOP, we would like to hold an open WORKSHOP on how to use the equipment, the application form, and your requests. We look forward to your participation.

Date : 09th March 2026 [JST] (10:00~12:00)
Form : Online (zoom) **Free event!**

ZOOM

Join Zoom Meeting
https://zoom.us/j/97663451867?pwd=hFEP9y2TwN3E6z9v47ZcMc4z14UhKa.1

Meeting ID: 976 6345 1867
Passcode: 728261

Institute of Ocean Energy, Saga University, Japan

International Joint Usage/Research Promotion Workshop

IOES(Institute of Ocean Energy, Saga University, Japan) accepts applications for joint research using research equipment related to ocean energy at Saga University. For each joint research application submitted, after review, IOES provides support for research expenses and travel expenses to Japan. In this WORKSHOP, we would like to hold an open WORKSHOP on how to use the equipment, the application form, and your requests. We look forward to your participation

https://www.ioes.saga-u.ac.jp/en/collabo/

Date : 09th March 2025 [JST] (10:00~12:00)
Form : Online (zoom) Free event!

PROGRAM

- Opening Remarks

10:00~10:10 Yasuyuki Ikegami, Director

- Introduction of the Institute of Ocean Energy

10:10~10:30 Yasuyuki Ikegami, Professor

- Research on Wave Power Generation in IOES

10:30~10:45 Yasutaka Imai, Associate Professor

- Research on Tidal Current Power Generation in IOES

10:45~11:00 Wakana Tsuru, Associate Professor

- Research on Offshore Wind Power in IOES

11:00~11:15 Shigeo Yoshida, Professor

- Research on Ocean Thermal Energy Conversion in IOES

11:15~11:30 Yasuyuki Ikegami, Professor

- Free Discussion

11:30~11:55 All participants

- Closing Remarks

11:55~12:00

Please send your questions to the email address below.

collabo@ioes.saga-u.ac.jp

ZOOM

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Meeting ID: 976 6345 1867
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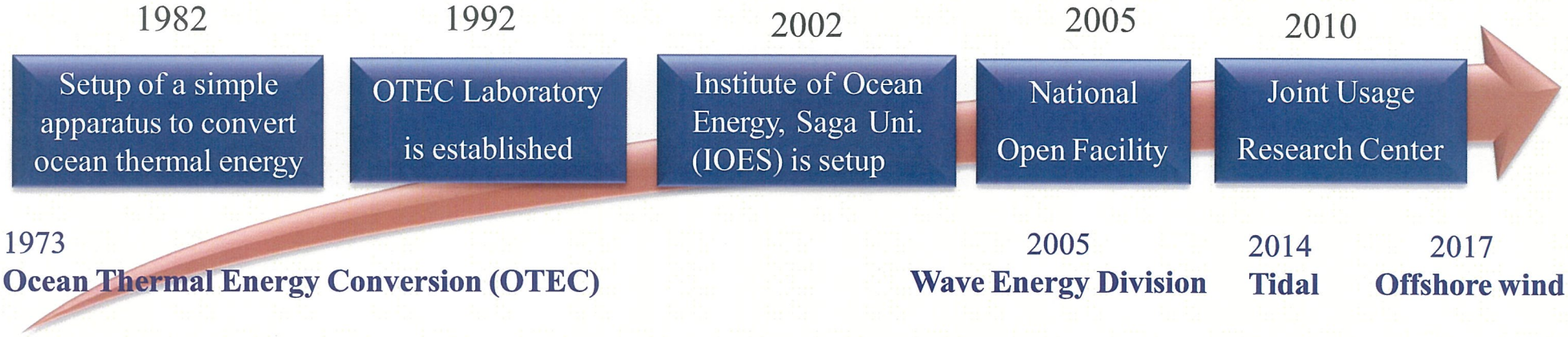
A Brief Introduction:

Institute of Ocean Energy, Saga University, Japan (IOES)

- Research center dedicated to Ocean Energy
- Elemental technological development
- Efforts to address global environmental issues

Imari satellite campus

Organization (Reorganized in March2026)



I. Ocean Thermal Energy Department
(Research started in 1973)
- (a) Division of Ocean Thermal Energy Conversion
- (b) Division of Innovation for Thermal Energy
- (c) Division of Utilization of Deep Ocean Water

II. Ocean Fluid Energy Department
- (a) Division of Wave Energy
  (Research started in 2005)
- (b)Division of Tidal and Ocean Current Energy
  (Research started in 2014)
- (c)Division of Offshore Wind Energy
  (Research started in 2017)

III. Sea Water Resource Department
- (a) Marine Biochemical Resource Creation(Aquaculture, Biomass, etc.)
- (b) Information and Environment for Ocean Energy
  (Remote sensing,etc.)
- (c) Ocean Energy Social Science
  (Regional Economics, etc.)
- (d) Comprehensive Ocean Energy Utilization(Lithium recovery, etc.)
- (e) Human Resource Cultivation for Ocean Energy (Skill development, etc.)

Overall 30 Researchers
(15 full-time faculty, 11 collaborating professors, 4 post-doctoral researchers)

Joint Use・Joint Research Center
Institute of Ocean Energy, Saga University

Institute History

2002
Internal Shared Facility
Institute of Ocean Energy

2005
National Joint Use Facility

2010
Joint Use・Joint Research Certification (2nd term)

【Main Activities】
- Successfully generated 50kW power generation facility in Kumejima, Okinawa
- Developed the world's most efficient high-efficiency air turbine
- Hydrogen Storage Tank adopted as international standard... etc.

2016
Joint Use・Joint Research Certification (3rd term)

【Main Activities】
- Contributed to global spread of air turbines
- New proposals and optimization for offshore floating wind turbines
- Reorganization of research structure... etc.

2022
Joint Use・Joint Research Certification (4th term)

1973
Ocean Thermal Energy Conversion
Research Commences

2005
Wave Energy
Research Commences

2014　2017
Tidal・Offshore Wind
Research Commences

2022
Institute of Ocean Energy
Renamed

Institute of Ocean Energy, Saga University's Domestic and International Activities

1973
Start of
OTEC Research

1. **Ocean Thermal Energy Conversion** — Developing a new model with the world's highest theoretical efficiency
2. **Wave Power** — Achieving the world's highest turbine efficiency
3. **Tidal Current** — Achieving world-class efficiency and proposing a new model
4. **Offshore Wind** — Proposing a new concept and aiming for lower costs

- Expanded to over 70 joint research projects
- Large-scale Competitive Funding Awarded
  (SATREPS: International expansion of Saga University OTEC technology, Malaysia)

- Ocean Energy Symposium
- Joint Use・Joint Research Results Presentation
- International Seminar on Ocean Energy
- SATREPS OTEC Forum
- Open Lab

Research

Community Information Sharing

Japan's first leading collaborative research center for ocean energy creation and application energy

National Joint Use・Joint Research Center

Institute of Ocean Energy, Saga University

Regional Cooperation / Outreach

International Exchange

Community Information Sharing

Community Building
(Industry-Academia Collaboration)
① Ocean Energy Association Japan (OEAJ)
② Global Ocean Resource and Energy Association
③ Ocean Renewable Energy Demonstration Field

Education

- International Platform for Young Researchers of Ocean Energy (up to 19 countries, held 9 times a year)

- Japan-China-Korea University Young Researchers' Seminar (up to 6 universities, held annually total 19 times)

- Participate as Japanese Representative in Ocean Energy-related Activities of International Organizations (IEA・IEC)
- Support for the Japan-US Inter-governmental Agreement (Ocean Energy)
- Brazil, USA, Korea, China, etc. University Academic Exchange Agreements

Becoming a world-class, comprehensive, International Research Center

Location and Facility

Location

- Headquarter (Honjo, Saga city)
  ➡ Office, Meeting room
- Imari satellite (Imari city)
  ➡ Experimental apparatus, Super-computers, Accommodation
- Kumejima satellite (Kumejima town, Okinawa) ➡ Demonstration plant

Imari Satellite
Est. 2003

Kumejima Satellite
Est. 2014

Facility

- OTEC related (6 devices)
- Ocean Fluid Energy related (4 devices)
- Material recovery (1 device)
- Hydrogen related (3 devices)
- Chemical analysis (8 devices) Total 22 devices
- Technical journal (OTEC Annual Report etc.)

2D Wave tank

Circulation tank

DOW simulation tank

Lithium recovery

Hydrogen production and storage

International Activities at IOES

Seminars

Internship support

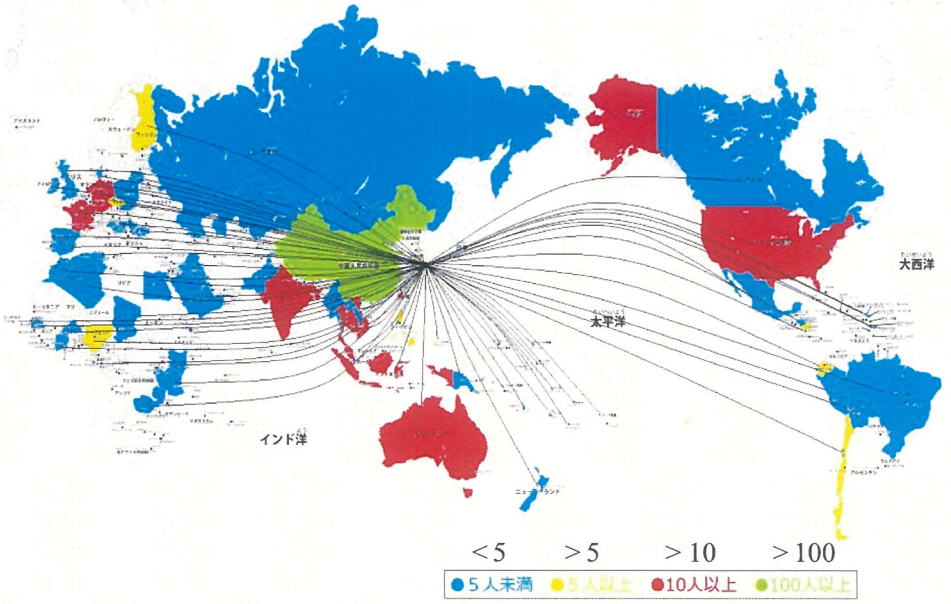
Joint research

Annual International Events

- International Seminar on Ocean Energy
- Young Researcher Forum on Ocean Energy
- International Platform on Ocean Energy for Young Researchers

- IOES encourages research into ocean energy by allowing access to our state-of-the-art equipment housed at our university and research laboratories.
- Free facility tour is also offered for interested researchers/agencies.

1,615 people from 90 countries have visited or collaborated with IOES in the past 10 years



Recent International Exchanges at IOES

The 12th International Platform Human Resource Development Project on Ocean Energy for Young Researchers was held at the Imari Satellite of the Institute of Ocean Energy, Saga University for six days from November 7 to November 12 , 2025. The 44 researchers from universities and research institutes in 22 countries were selected to participate.

Young researchers from various countries discussing the potential of ocean energy based on their own research results

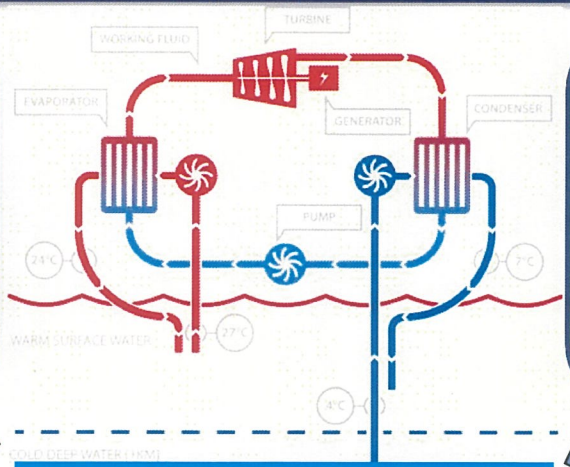
Participants visit Namura Shipyard Co., Ltd. and are briefed on the shipbuilding process and the latest marine technology.

Ocean Thermal Energy Department

Concept diagrams

USA 10MW project

France 10MW project



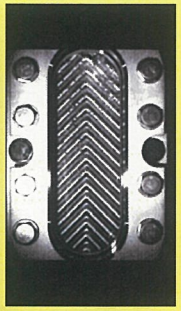
Working principle of OTEC

Demonstration plants

Kumejima 100kW OTEC

Hawai 105kW OTEC

Research on heat exchangers



Boiling phenomena

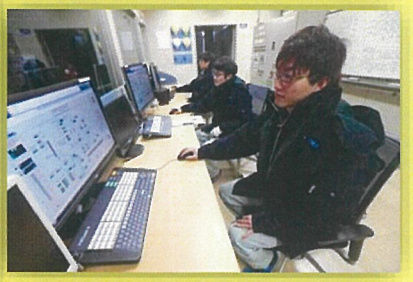
Deep ocean water plate heat exchanger experiment (Kumejima 2015~)

Boiling visualization experiment (Imari)

- Forced convection boiling heat transfer in heat exchangers using ammonia as a working fluid
- Research on heat transfer surface materials for plate heat exchangers

Research on system integration

30kW OTEC equipment (Imari)



Operation in the OTEC monitoring room

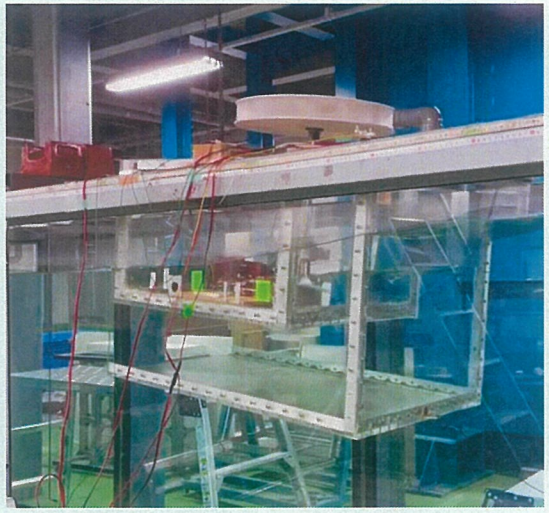
- Research on a novel high performance ocean thermal energy conversion system
- Research on seawater desalination using flash evaporation
- Development of a plate heat exchanger using a 3D printer

Ocean Fluid Energy Department

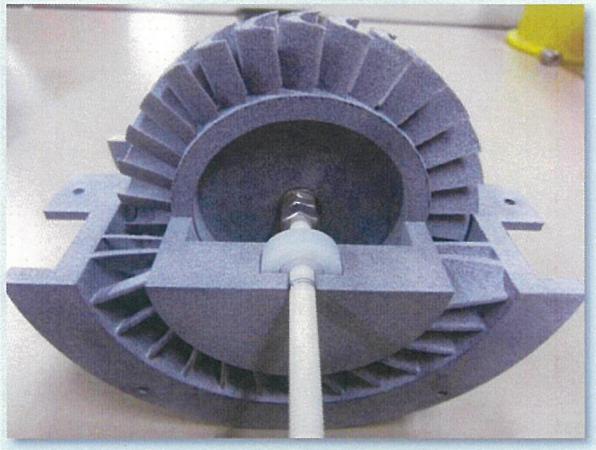
Division of Wave Energy

Development of elemental technologies to extract energy from ocean waves.

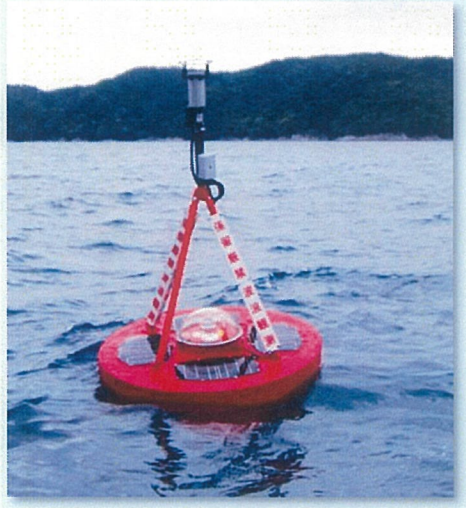
Research on optimum hull shape for wave power generator



Research on devices for power conversion of wave power generator



Research on remote communication of measurement data in actual sea area



Research themes:

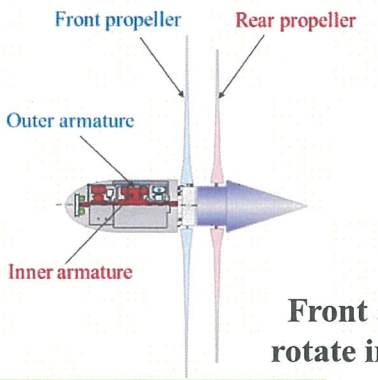
1) Research on optimum hull shape
2) Research on efficient power take off mechanisms
3) Research on remote communication and IoT using WEC devices

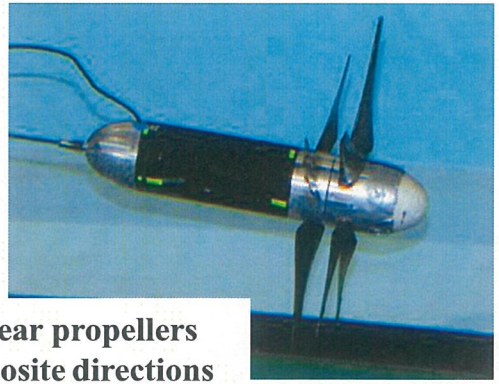
Ocean Fluid Energy Department

Division of Tidal and Ocean Current Energy

Tidal power energy

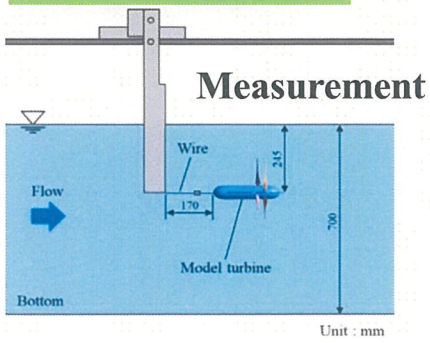
Counter-rotating propeller type tidal current power generation unit



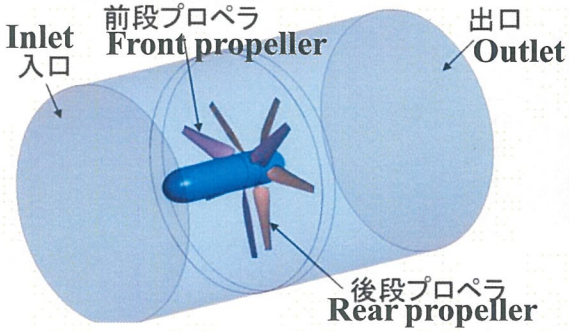


Front and rear propellers rotate in opposite directions

Circulating water tank experiment



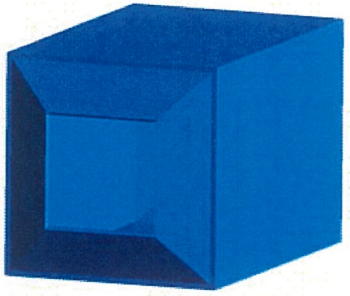
Numerical simulation

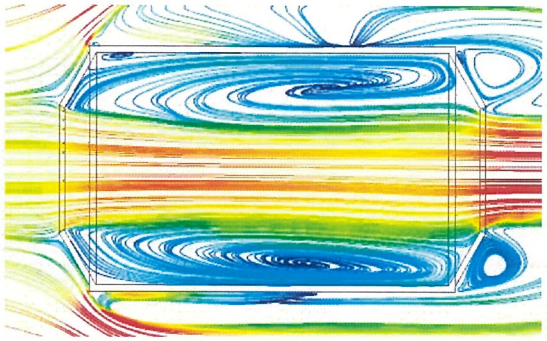


Verify blade performance

Marine environment protection

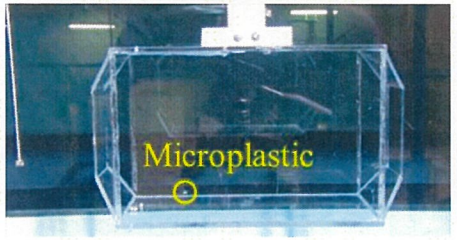
Development of microplastic collector device





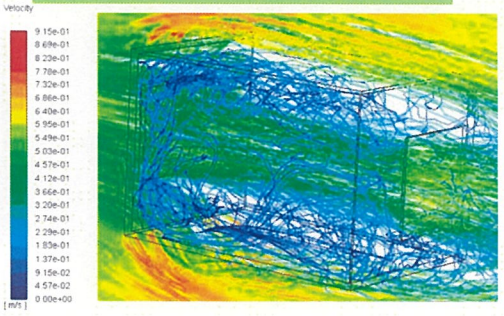
Collects microplastic by the effect of swirling currents

Circulating water tank experiment



To confirm if microplastics can be collected

Numerical simulation



Predicts the trajectory of plastic particles

Research themes:

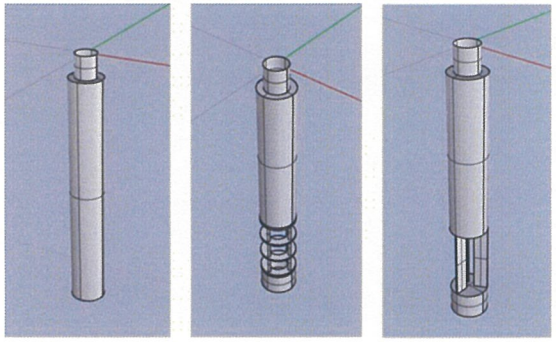
1) Research on power generation performance of tidal current generator
2) Research on microplastic collection (ongoing)

Ocean Fluid Energy Department

Division of Offshore Wind Energy

Offshore wind power is an integrated technology of various research topics such as ocean engineering, mechanical engineering, civil/structural engineering, electrical engineering and control engineering.

Damping plates for floating offshore wind turbines

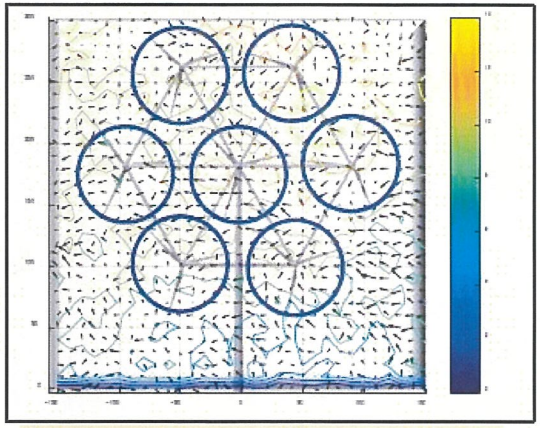


Type-A Type-B Type-C

SPAR model with damping plates

- Damping plates to suppress the floater motion
- Type-A: Basis
- Type-B: Horizontal plates
- Type-C: Vertical plates
- Model-scale experiments
- Development of simulation methodology
- Propose new damping plate concepts

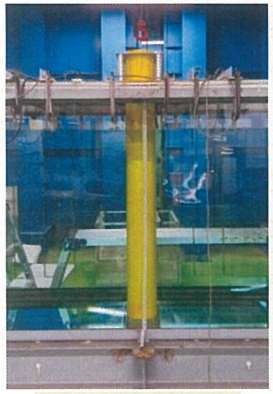
Multi-rotor floating wind turbine systems



Multi-rotor turbines (onshore)

- The benefits include larger size, quality improvement, and cost reduction.
- Potential to harness more energy per foundation
- Sophisticated coupled analysis code and structural optimization code
- Propose floating-type multi-rotor system

Bottom-fixed offshore wind turbine support structures

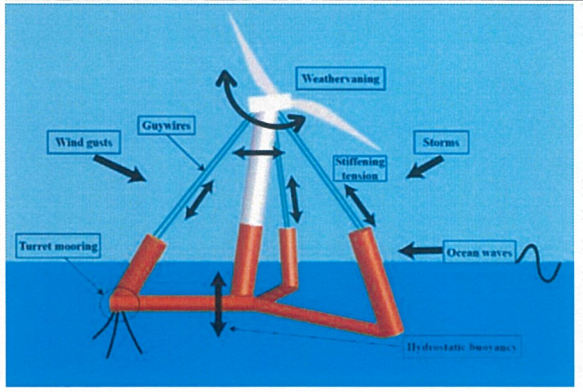


Monopile foundation

Jacket foundation

- Foundations for offshore wind turbine: Monopile and Jacket models
- Wave measurement around the foundations
- Model-scale experiments
- Development of simulation methodology
- Propose guidelines for surfers' acceptance

New concept of floating offshore wind turbine



Optiflow floating offshore wind turbine concept

- Large floating offshore wind turbine technology
- Guywire supported elastic floating platform
- In-house code for innovative concepts
- Propose new floating platform concepts for ultra-large wind turbines

IOES INSTITUTE OF OCEAN ENERGY
SAGA UNIVERSITY JAPAN

JP EN

KeyWord

WHAT'S OCEAN ENERGY | ABOUT IOES | JOINT USAGE/RESEARCH CENTER | RESEARCH & EDUCATION |
SYMPOSIUM/SEMINARS | ORGANIZATION | Staff Only

INSTITUTE OF OCEAN ENERGY

Joint Usage/Research Center

- Application for joint research
- Online application for IOES Joint Research
- Joint Usage/Research Facilities

Joint Usage/Research Center

Joint Usage/Research Center, Institute of Ocean Enegy Saga University

The Institute of Ocean Energy (IOES) began to operate as a "Joint Usage / Research Center" in April, 2010. We aim to encourage more research into ocean power energy by allowing access to the equipment housed at our university and research laboratories by national facilities and organizations.

collabo@ioes.saga-u.jp

Contact us

collabo@ioes.saga-u.ac.jp

●Joint Usage/Research Facilities

List of Joint Usage/Research Facilities

●Advertise for Joint Research

Advertise for Joint Research

Joint Usage/Research Center

- Application for joint research
- Online application for IOES Joint Research
- Joint Usage/Research Facilities

Application for joint research

●Advertise for Joint Research

Institute of Ocean Energy, Saga University studies and educates ocean energies and multipurpose utilization of that.
Now, we raise the "Joint Research of Ocean Energy "as the project of Joint Usage/Research Center of ocean energies.

●Application Procedures

■FY2026 Application Procedures for Joint Research Task (Category: Specially Promoted Research A, B, C, D, E and General Research)
PDF ※~~Dead line: Fri. Jan. 30th, 2026.~~ ->Deadline extended Fri. Feb., 6th, 2026.

■FY2026 Application Form (Category: Specially Promoted Research A, B, C, D, E and General Research)
Online

■FY2025 Application Procedures for Joint Research Task (Category: Specially Promoted Research A, B, C, D, E and General Research)
PDF ※Dead line: ~~Fri. Feb. 14th, 2025.~~ -> (Extension) Tue. Feb. 25th, 2025, 12PM (JST).

■FY2025 Application Form (Category: Specially Promoted Research A, B, C, D, E and General Research)
Online Word

●Application Procedures

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■FY2025 Application Form (Category: Specially Promoted Research A, B, C, D, E and General Research)
Online Word

Please chose an organizer of IOES and fill his name inthe application form.

Please e-mail the original copy of the application form to us before send it to us by postal mail. Please write as "Enclosed application form" by a red letter in an envelope.

[Postal address]
Sugiyama
Department of Joint Research
Institute of Ocean Energy, Saga University
1-Honjo machi, Saga-shi, Saga, Japan, 840-8502.

●Contact us

If you have any questions about application form and procedure for application, please contact us.
collabo[@]ioes.saga-u.ac.jp

Joint Usage/Research Center

- Application for joint research
- Online application for IOES Joint Research
- Joint Usage/Research Facilities

Online application for IOES Joint Research

Online application

Online Application Page

*Please click the "Online application page" button. You can move to "User login page".

[Notice]

We have started accepting applications for the first round of "Joint Research of Ocean Energy" for the FY2026 (Fixed-term). (From December 8th, 2025 to ~~Jan. 30th, 2026~~ Feb. 6th, 2026)

We have started accepting applications for the first round of "Joint Research of Ocean Energy" for the FY2025 (Full year). (From April 1st, 2025 to March 31st, 2026)

Online application manual

Download |Manual of onlie application for IOES Joint Research 1.7MB| (Rev. 2025/5/6, Ver1.6E)

List of Joint Usage/Research Facilities

- Application-staff
- Ultrapure water production system(Simpli Lab)
- Chemlab
- De-1
- Do-1
- Fe-1
- Gm-1
- Hf-1
- Hg-1
- Hs-1

List of Joint Usage/Research Facilities

Large scale experimental equipment
Analytical and measuring instruments
High performance computer
Facilities located in Honjo-campus of Saga Univ.

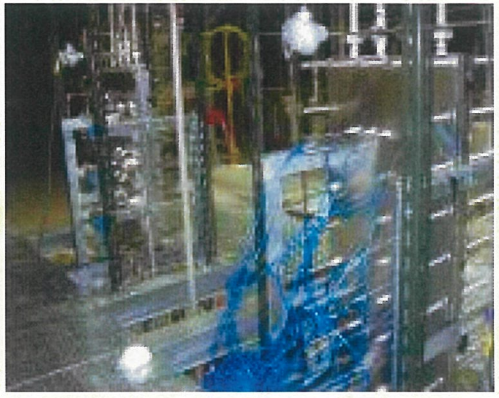
Large scale experimental equipment

Device No.	Room No.	Equipment	Maker	Model	Specification	Remark	Organizer
OE-1	E10	OTEC (Uehara cycle)	Xenesys Inc.	Xe50	Max power 30kW		Y. Ikegami
DE-1	E10	Sea water desalination plant	Xenesys	Xe50D1	Amount of fresh water generation		Y.

Large scale experimental equipment

Device No.	Room No.	Equipment	Maker	Model	Specification	Remark	Organizer
OE-1	E10	OTEC (Uehara cycle)	Xenesys Inc.	Xe50	Max power 30kW		Y. Ikegami
DE-1	E10	Sea water desalination plant	Xenesys Inc.	Xe50D1	Amount of fresh water generation 10t/day		Y. Ikegami
PH-1	E20	Fundamental equipment of plate heat exchanger	-	IOES01			H. Arima
PH-2	E20	Small size plate heat exchanger experimental apparatus for visualization	-				H. Arima

30kWOTEC
OTEC and Desalination



Heat Exchanger

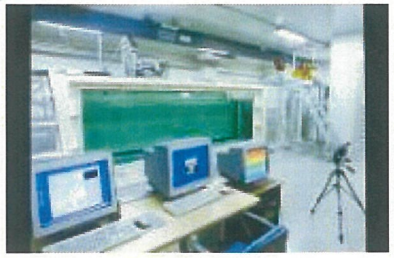
Large scale experimental equipment

Device No.	Room No.	Equipment	Maker	Model	Specification	Remark	Organizer
HG-1	E30	Production of hydrogen	Xenesys Inc.	Xe50H2	Hydrogen producing amount 1Nm3/hr		Y. Ikegami
HS-1	E30	Storage of hydrogen	Xenesys Inc.				Y. Ikegami
HF-1	E30	Fuel cell	Xenesys Inc.		Max power 900W		Y. Ikegami

Hydrogen Experimental Apparatus

Large scale experimental equipment

Device No.	Room No.	Equipment	Maker	Model	Specification	Remark	Organizer
DO-1	E40	Deep ocean water simulation equipment	Xenesys Inc.	XeDLCT50	6 layers circulating water tank		Y. Imiai
FE-1	E40	Water tank	-		Water tank: 18.1m long, 0.8m wide, 1m deep		Y. Imiai
CE-1	E30	Circulating water tank for tidal power generation		V2-8B	Length: 9m, Width: 1m, height: 4m, Flow velocity: 0.0-1.5m/s		W. Tsuru
LR-1	E50	Lithium recovery equipment	Xenesys Inc.	Xe50Lio1			Y. Ikegami



Deep Ocean Water Simulation

Water Tank for Wave Energy

Circulating Water Tank

Lithium recovery Equipment

Thank you very much for your visit.

Prof. Yasuyuki Ikegami

Professor and Director
Institute of Ocean Energy, Saga University (IOES)
1-Honjo machi, Saga-shi, Saga, Japan 840-8502
Email: ikegami [@] cc.saga-u.ac.jp
Contact no.: +81-952-28-8624 (IOES Office)