

Framework for Nation-wide Educational Program of Climate Change and Greenhouse gases in Japan

Masayuki Kondo

- The IDEC Institute, Center for Peaceful and Sustainable Futures
- The sustainability division, Seto Inland Sea Carbon Neutral Research Center
- Network for Education and Research on Peace and Sustainability
 - Graduate School of Innovation and Practice for Smart Society
 - Graduate School of Humanities and Social Sciences
- School of Integrated Arts and Sciences, Department of Integrated Global Studies

Hiroshima University



**HIROSHIMA
UNIVERSITY**



IDEC
The IDEC Institute

LeXtra
League of geophysical
research eXcellences
for tropical asia



The Japan GHG Center initiative

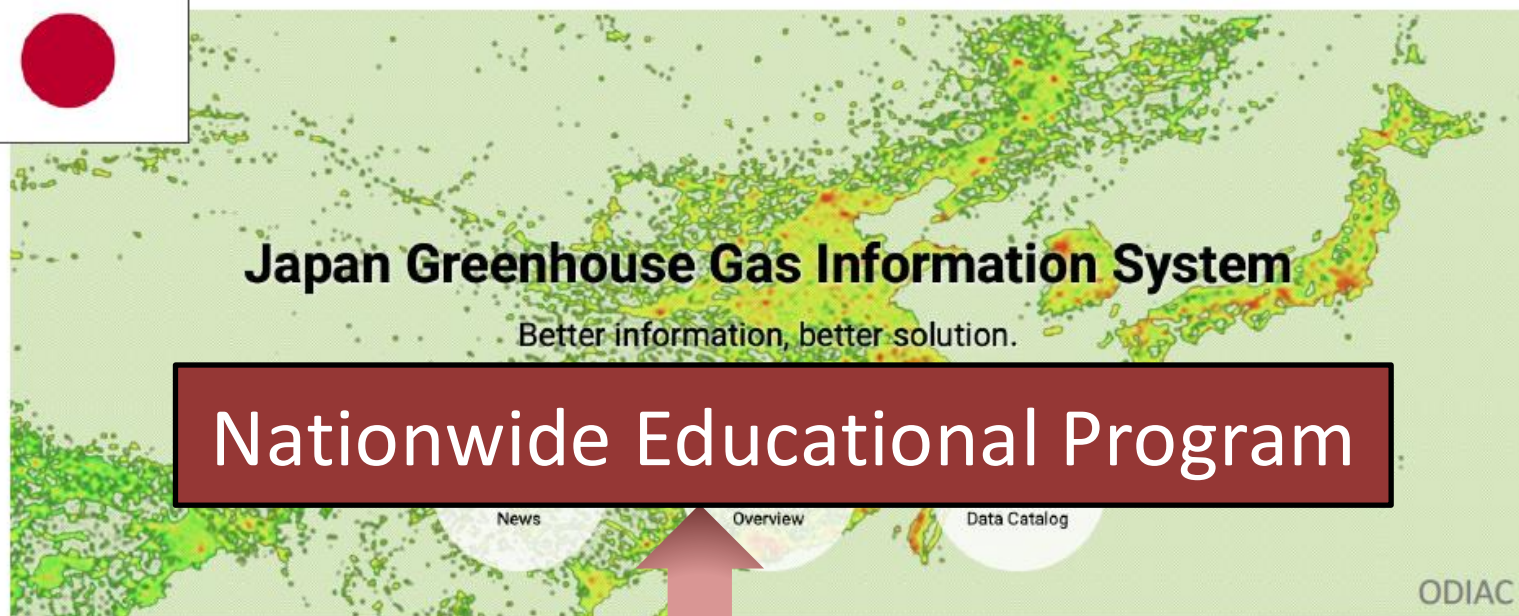
to help support climate change mitigation policies



- “One stop” information hub for scientists, policymakers and business leaders, for strong messaging on urgency of climate change mitigation
- Multi-agencies/institutes’ efforts for the “all-Japan, one-team” national initiative to better serve for the global society
- We will advance integrated assessments of GHG emissions/fluxes for Global Stocktake, WMO’s GGGW, UNEP’s IMEO, and business

The Japan GHG Center initiative

to help support climate change mitigation policies



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Ministry of the Environment
Government of Japan



文部科学省

Research/Educational Resources in Japan

*Showing only the representative educational and research institutions among many.

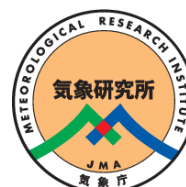
- Eddy flux measurement
- Ecosystem modelling
- Crop yield simulations, etc.



東北大学

- Atmospheric GHG measurement, etc.

- Eddy flux measurement
- Ecosystem modelling
- Inverse modelling
- Earth system modelling
- Environmental remote sensing
- Atmospheric & ocean GHG measurement, etc.



CHIBA UNIVERSITY

- Environmental remote sensing, etc.

- Eddy flux measurements
- Ecosystem modelling, etc.



東京大学
THE UNIVERSITY OF TOKYO

- Eddy flux measurement
- Ecosystem modelling
- Inverse modelling
- Earth system modelling, etc.



Educational hub

- GHG budget assessment
- Blue carbon measurement
- Carbon neutral experiment, etc.



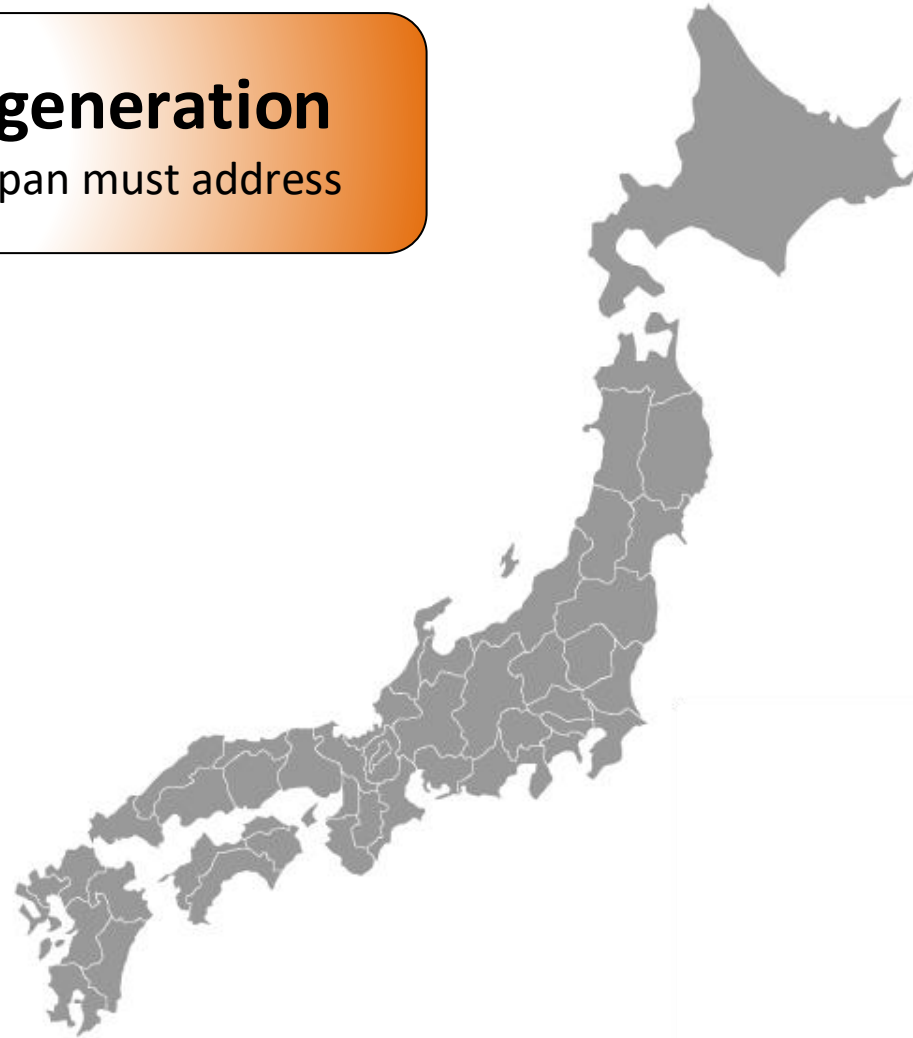
名古屋大学
NAGOYA UNIVERSITY

- Climate science
- Chemical transport modeling, etc.

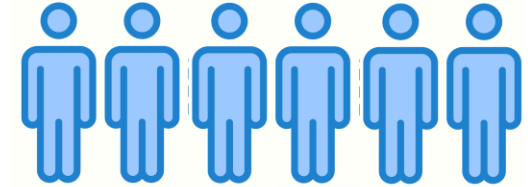
Research/Educational Resources in Japan

Nurturing the next generation

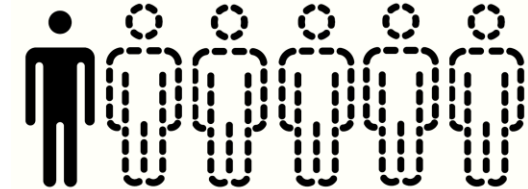
an immediate challenge that Japan must address



Over 40
years old



Under 40
years old

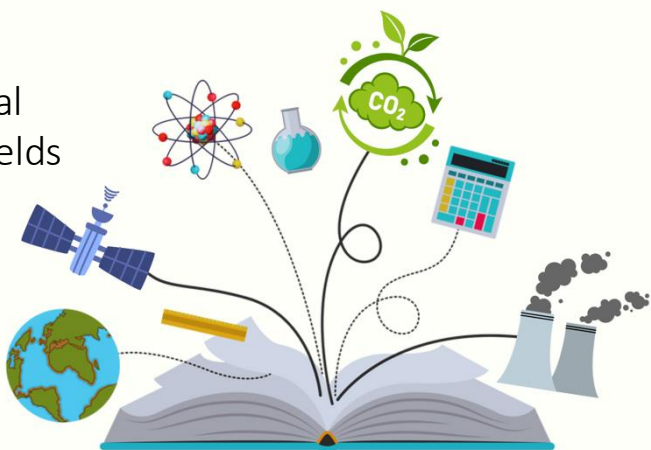


Research/Educational Resources in Japan

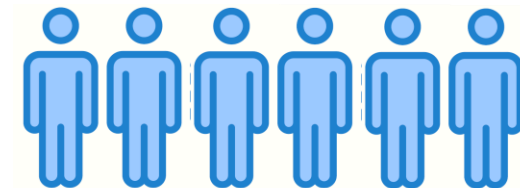
Nurturing the next generation

an immediate challenge that Japan must address

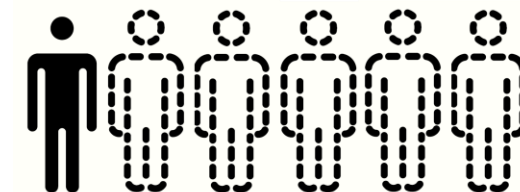
Integrated foundational
education of related fields



Over 40
years old



Under 40
years old



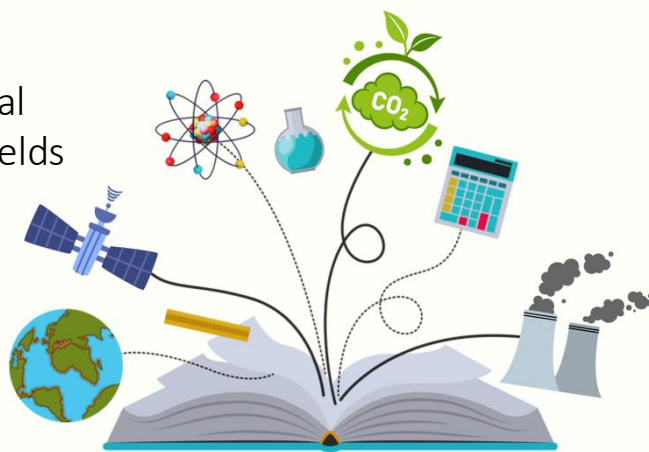
Reconstructing the foundational education

integrating GHG educational foundations

Research/Educational Resources in Japan

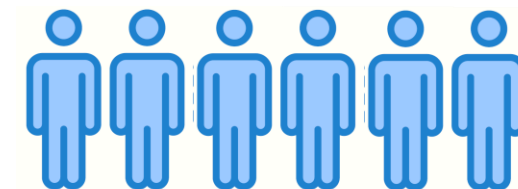
Nurturing the next generation
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Integrated foundational
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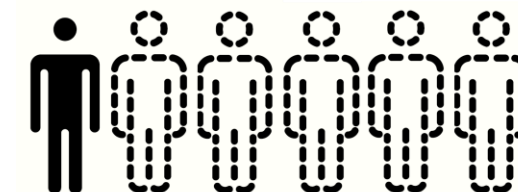


Nationwide education
nationwide expansion of GHG education

Over 40
years old

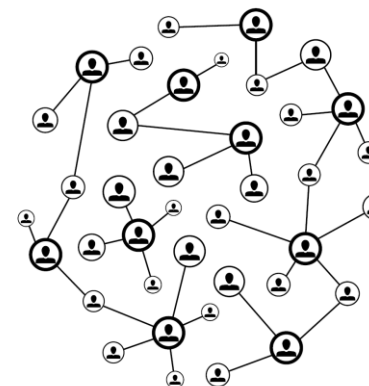


Under 40
years old



**Reconstructing the foundational
education**

integrating GHG educational foundations



Nationwide educational
network of research
institutes/universities

Nationwide Integrated Education Program



High School Education

Outreach lectures, high school seminars, university & faculty introductions



Career path first stage
(University and faculty matching)



Nationwide Integrated Education Program



High School Education

Outreach lectures, high school seminars, university & faculty introductions



Career path first stage
(University and faculty matching)



Undergraduate Education

Outreach lectures, seminars, university & faculty introductions



Career Path Stage 2
(Graduate School and Faculty Matching)



Nationwide Integrated Education Program



High School Education

Outreach lectures, high school seminars, university & faculty introductions



Career path first stage
(University and faculty matching)



Undergraduate Education

Outreach lectures, seminars, university & faculty introductions



Career Path Stage 2
(Graduate School and Faculty Matching)

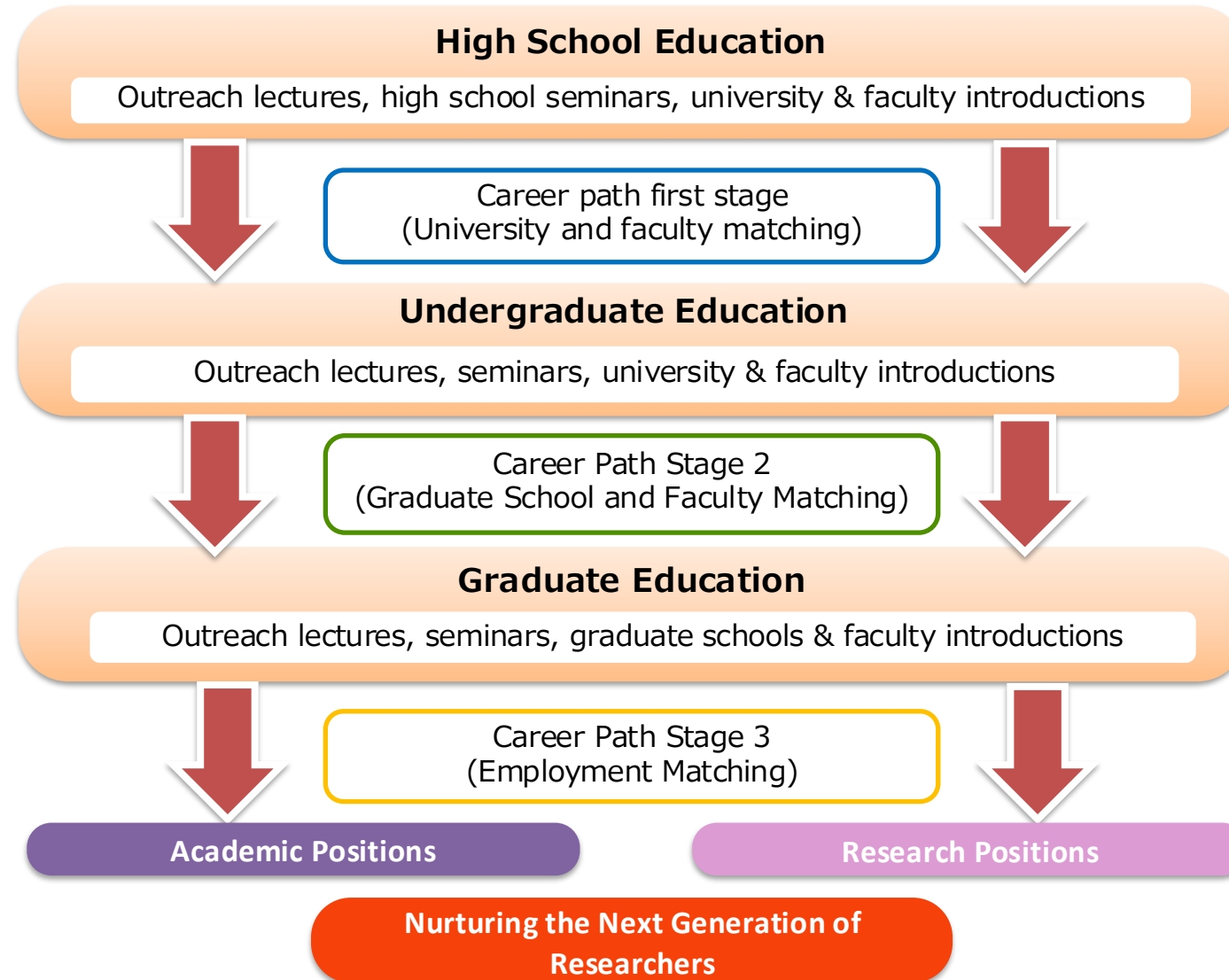


Graduate Education

Outreach lectures, seminars, graduate schools & faculty introductions



Nationwide Integrated Education Program



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IDECC
The IDECC Institute

Japan Science and Technology Agency (JST) STELLA program at Hiroshima University

> 250 students

Selection

~30 students



Advanced Course
Introduction to climate change

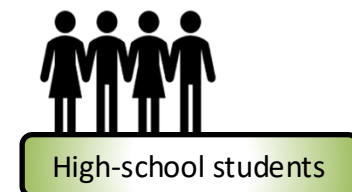


Sponsored by
Hiroshima
Prefecture

【Stella Program Overview】

Aim: To cultivate scientific and technological talent capable of solving social problems

- *Developing problem-solving skills*
- *Developing the ability to collaborate together*



High-school students



middle-school
students

Senior Course (high-school)

Pre-course
(0th stage)

Selection

(1st stage)
Common &
specialized
programs

Selection

New Science prospects

Advanced Course
(2nd stage)

Opportunity
to re-entry

Junior Course (middle school)

Pre-course
(0th stage)

Selection

(1st stage)
Exploration seminar

Moving
up

【Activities at Hiroshima University】



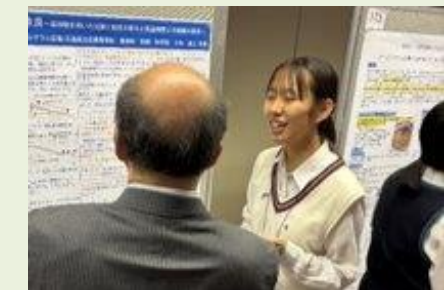
Junior Course
"Investigating parasites in crustaceans"



Senior Course
Brushing up research plan



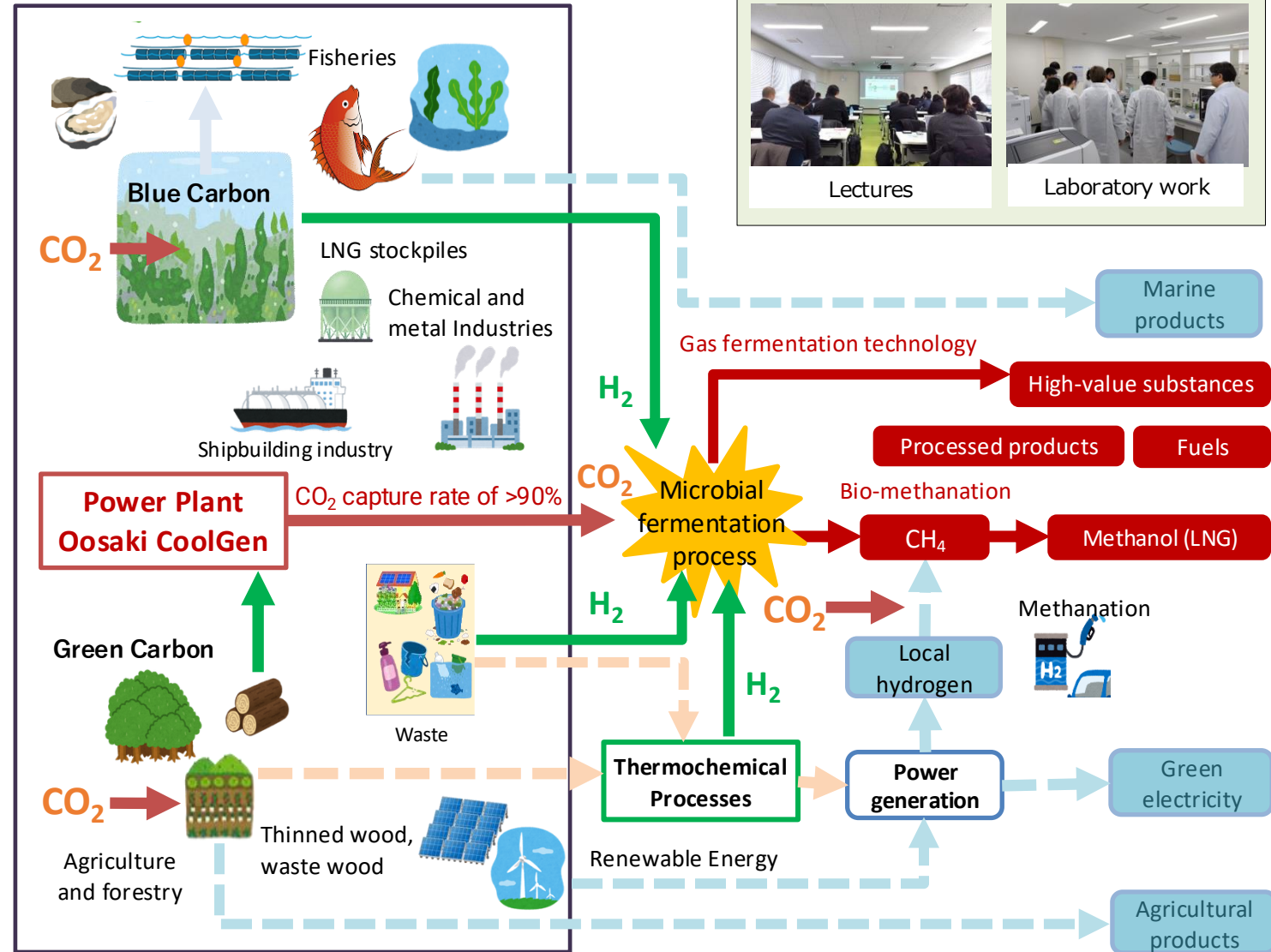
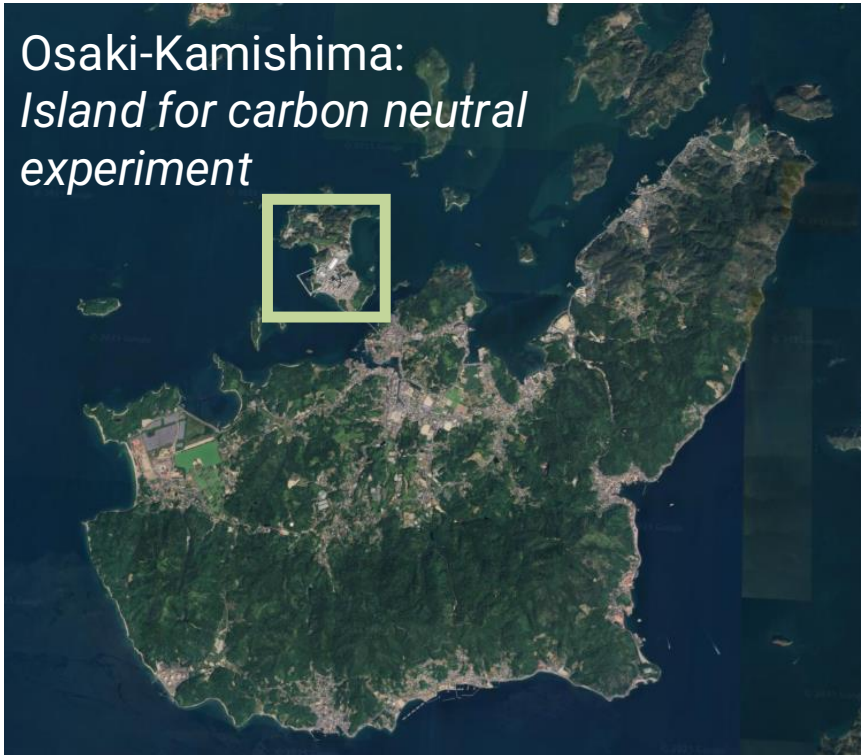
Senior Course
Seminar, workshop



Advanced Course
Conference presentation

The carbon neutrality experiment of Hiroshima University

Osaki-Kamishima:
*Island for carbon neutral
experiment*



“All-Japan” academic course will be launched at Hiroshima University in FY2026

The forefront of climate change research

Lesson 1: What are global environmental issues?

Lesson 2: Atmospheric radiation characteristics

Lesson 3: How global warming works

Lesson 4: Changes in the Earth's atmospheric composition

Lesson 5: Atmospheric composition and terrestrial ecosystems/oceans

Lesson 6: Greenhouse gas circulation

Lesson 7: Observing atmospheric composition: Ground-based, aircraft-based, and ship-based observations

Lesson 8: Observing atmospheric composition: Satellite-based observations

Lesson 9: Emission inventory

Lesson 10: Numerical model overview

Lesson 11: Numerical model details

Lesson 12: Current and future status of global warming

Lesson 13: Climate change policy: mitigation and adaptation

Lesson 14: Efforts toward decarbonization

Lesson 15: Climate change, international cooperation, and the SDGs



Planning to make a full use of the GOSAT series for education



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Welcoming participation of students and early-career researchers!!

Co-hosted with the Science Council of Japan

7th iLEAPS

Open Science Conference 2027

Bridging Land Ecosystems and Climate: Advancing Solutions for a Sustainable Future

1 March - 5 March 2027 | Hiroshima JAPAN



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UNIVERSITY



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



国立研究開発法人
国立環境研究所
National Institute for Environmental Studies



futureearth
Research. Innovation. Sustainability.



京都大学
KYOTO UNIVERSITY



名古屋大学
NAGOYA UNIVERSITY



北海道大学
HOKKAIDO UNIVERSITY



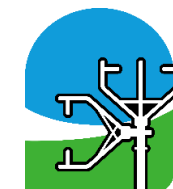
CHIBA UNIVERSITY



岐阜大学
GIFU UNIVERSITY



県立広島大学
Prefectural University of Hiroshima



一般社団法人
日本生態学会
The Ecological Society of Japan

