

Asia Marine Energy Centre in Nagasaki - Activities and trends of NaMICPA -

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About NAMICPA

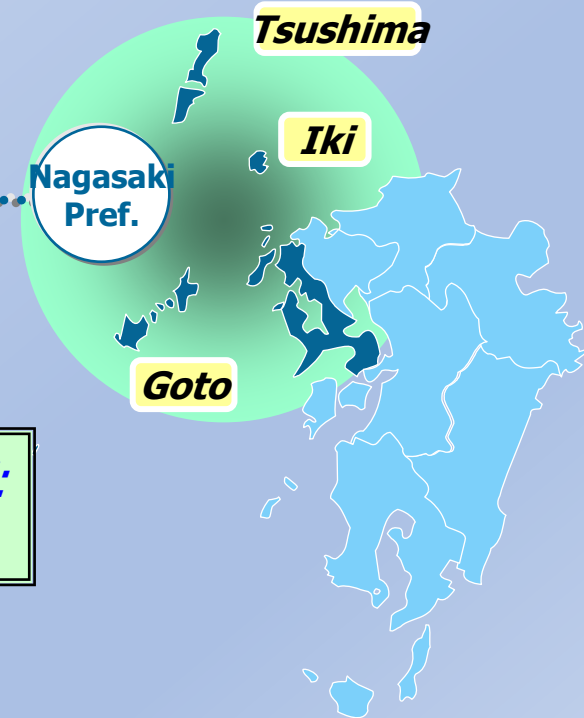
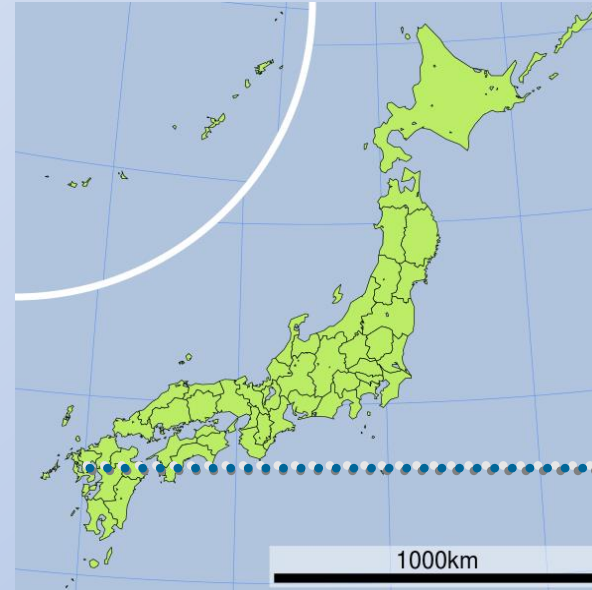
- NAMICPA: NPO Nagasaki Marine Industry Cluster Promotion Association
- Organization
 - Established: 19th March 2014
 - Became Not-for-Profit Organization on 10th October 2014
- Member: 95 companies, mainly located in Nagasaki Prefecture (as of 1st October 2021)
 - Marine construction, Machinery manufacturing
 - Ship building, Electrical facility manufacturing
 - Diving, Design support
 - Information technology & business solutions
 - Environmental research, Shipping & custom clearance
- Chairman: Mr. Sakai (Former president of Kyowa Kiden Industry)
- Staffs: 3 general affairs, 6 coordinators

Activity history

- FY2015 to FY2018: Regional Industry Tie-Up Program co-with JETRO(Japan External Trade Organization)
- FY 2014 to 2015: Industrial employment creation strategical project supported by the Ministry of Health, Labour and Welfare
- FY2016 to FY2017: Survey of overseas cooperation for ocean technician training supported by the Ministry of Land, Infrastructure, Transport and Tourism
- FY 2016 to present: The sea and Japan project supported by the Nippon Foundation
- FY2016 to present: Tidal turbine actual deployment promotion project supported by the Ministry of the Environment .
- FY2016 to FY2017: Automatic ocean environment measurement system development project supported by the Ministry of the Environment
- FY2019 to present: Ocean human resource development project supported by the Nippon Foundation
- FY2019 to present: Measurement and analysis of tidal current and offshore wind turbine maintenance related projects supported by Nagasaki prefecture.

Overview of Nagasaki Prefecture

- Japan has the world's 6th largest exclusive economic zone with rich marine resources.
- Nagasaki is a prefecture with a huge sea area which is at the forefront of Japan as a maritime nation.
 - Nagasaki Prefecture's Population: 1,314,000 (as of 1st June 2020)
 - Dimensions: 213 km (from eastern prefectural border to western edge), 307 km (from north to south)
 - Size: 4,105.3 km²
 - Coastline length : 4,203 km (the second longest following Hokkaido among Japan's 47 prefectures)
 - Number of islands: 594 (the largest number among Japanese prefectures)
 - Number of harbors: 104
 - Number of fishing ports: 286



*Total size of Japan's EEZ:
4.47 million km²*

Nagasaki demonstration sites

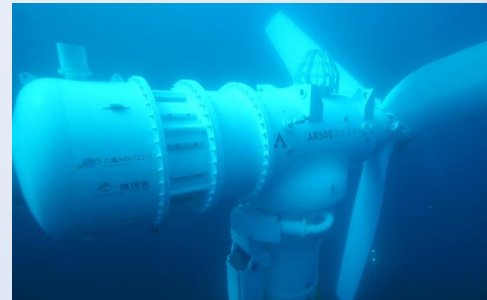
- The Japanese government designated three sea areas in the Nagasaki Prefecture as official demonstrate area.
- These areas provide preferable tidal current and wind velocity for tidal turbines and wind turbines.
- The Prefectural Government has already secured the consent of local fishermen to the use of these sea areas as demonstration fields through a series of negotiations.
- The Prefectural Government also supports the companies interesting in the utilization of the renewable energy.

Demonstration field in Nagasaki

1. Tidal power test sites
Hisaka-jima, Goto City
Max 3.0m/s

2. Tidal power nursery sites
Eno-shima & Hira-shima, Saikai City
Max 3.0m/s

3. Offshore wind power test site
Kaba-shima, Goto City
Average over 7.0m/s

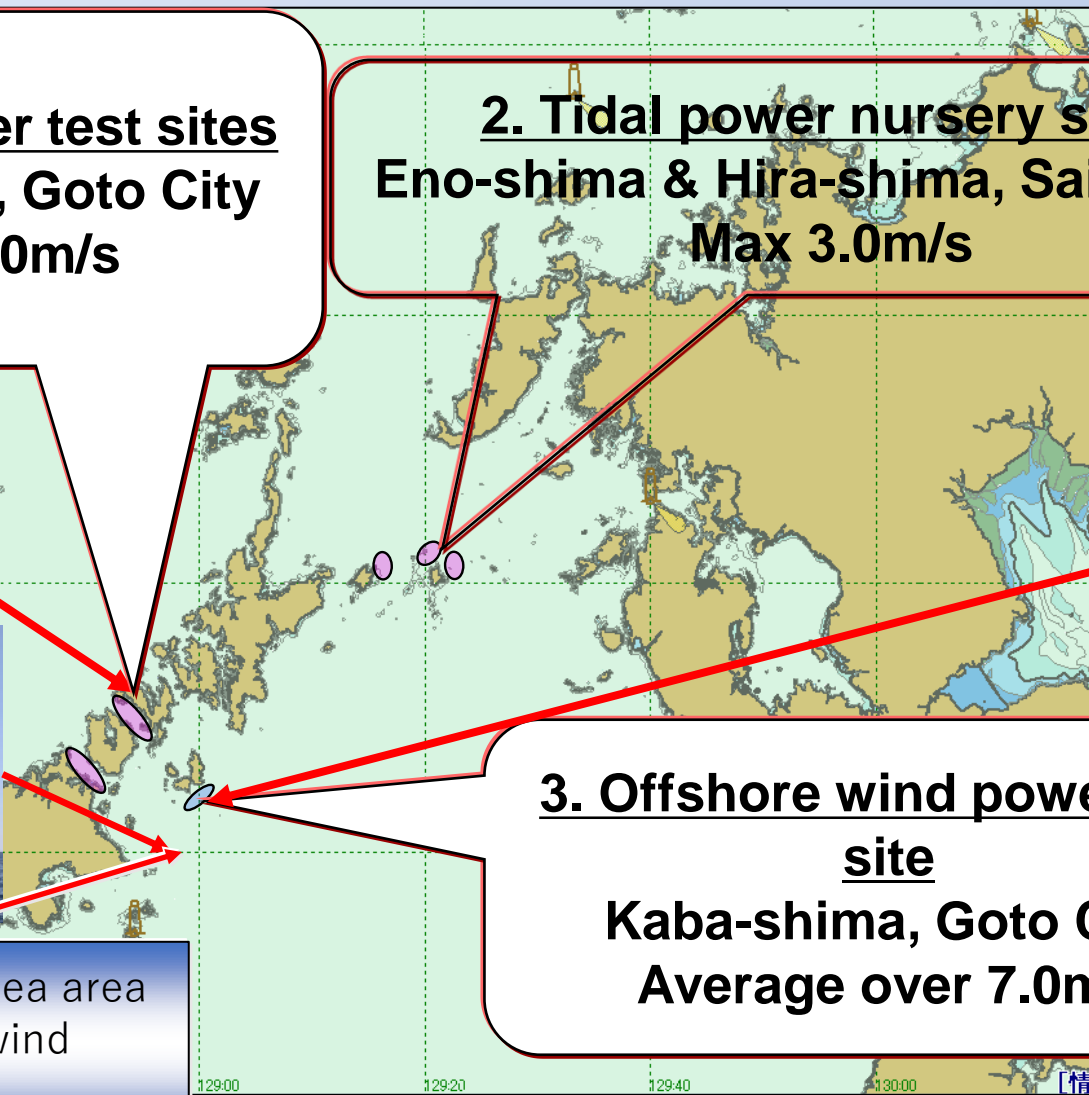


Demonstration was carried out for Simec Atlantis AR500 tidal turbine

2MW floating wind turbine in operation



Selected advanced sea area for 16MW offshore wind power farm(floating)



Demonstration was carried out for MIA; Marine environmental data Integrated Acquisition platform

MIA; Marine environmental data Integrated Acquisition platform

Equipment for measurement

Doppler lidar : DIABREZZA

Wind velocity measurement at the height from 40m to 250m, 3D wind vector measurement(with motion compensation)

Isolated power supply

Fuel cell, sola panel, Li-ion battery

Others

Wind direction, wind velocity, temperature, humidity, barometric pressure, insolation

Options

Bird radar, fish finder, hydrophone, camera



Floating body and lines

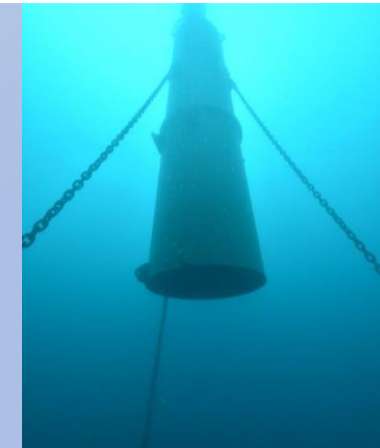
Spar type floating body

Height: abt26m, Diameter: 2.15m(lower part), 1.0m(upper part), draft: 4.5m, mass: abt46ton

Measurement space; 2.0m×2.0m,
Maximum width(incl sola panels) : 5.5m

Mooring

Three points catenary mooring by chain and fiber ropes combination lines,
Available water depth: over 30m



Tidal Turbine at Naru Seto

- The Simec Atlantis AR500 tidal turbine was installed on the seabed in the Naru Strait test site in the Goto Island chain under a contract with local company Kyuden Mirai Energy (KME) on January 23, 2021 in the demonstration project of the Ministry of the Environment of Japan. The turbine clocked its first 10MWh of generation within the first 10 days. Kyuden Mirai Energy.
- 79.6MWh cumulative as of the end of April 2021.



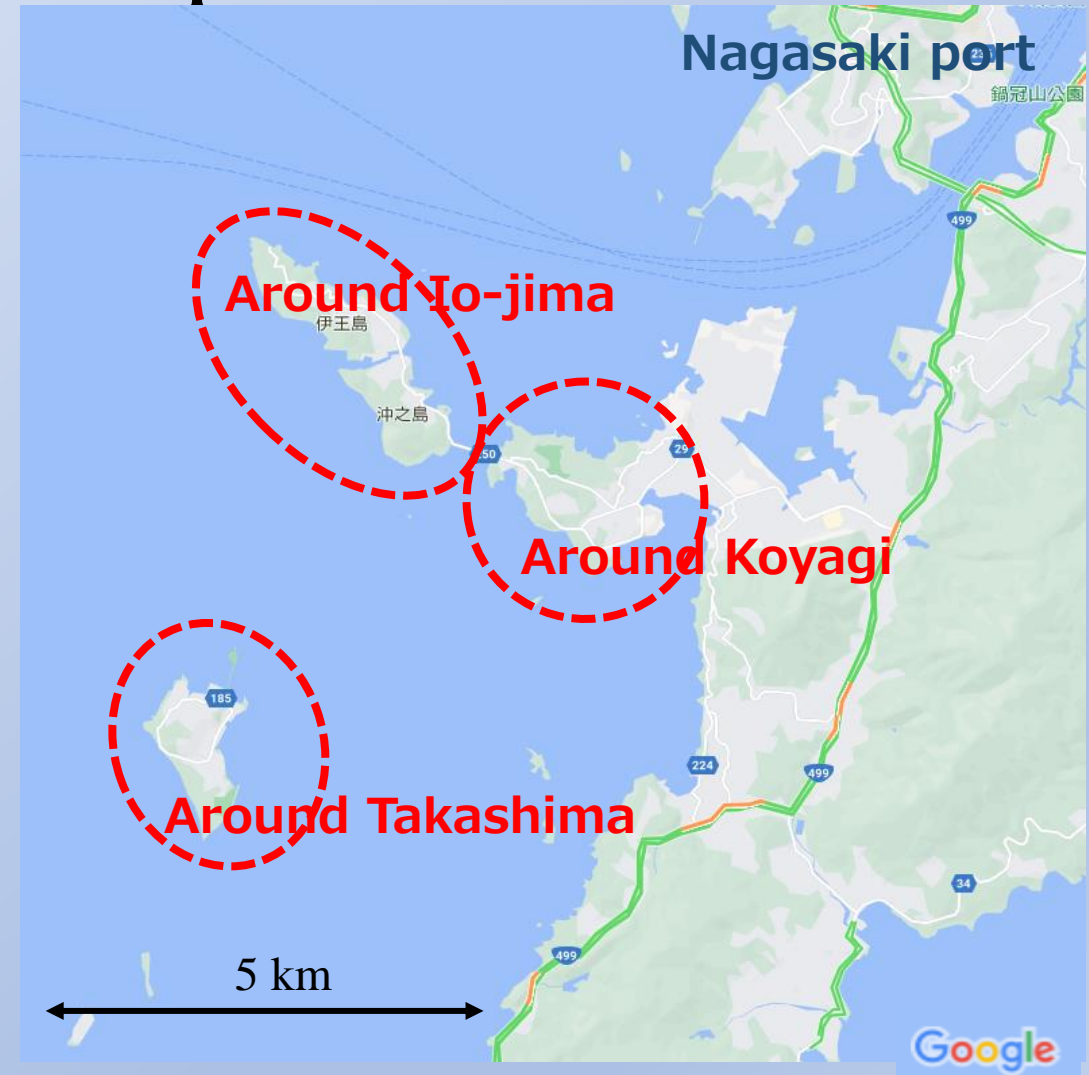
Nagasaki Ocean Academy

- Establishment of the Nagasaki Ocean Academy(NOAA) that provides education for future local offshore engineers in cooperation with DOB Academy, Netherland. The lessons include education and training contents at sea areas.
 - Offshore Wind Introduction
 - Project Development
 - Certification, Insurance and Finance
 - Offshore Installation
 - EPC Project Management
 - plus On-Site
- O&M and development of floating offshore turbine programs are coming.






Additional regions for sea experiment

- Basic agreement with related fishery associations has been concluded.
- Easily accessible. Iou-jima and Koyagi area are accessible through land route.
- Takashima is accessible by sea liners, 8 round trips a day, 35 minutes boarding from Nagasaki port.
- Water depth from 20m to 50m.
- Technical supports available from Nagasaki University, Nagasaki Institute of Applied Science, Nagasaki Marine Industry Cluster Promotion Association, local fishery boats, local shipping companies, local coastal contractors, and more.



Available rental equipment

items	notes
Measurement of wind condition	Doppler lidar (Mitsubishi electronics) 
Current and waves	ADCP with wave measurement (sea bottom installation type) 
Underwater exploration	ROV plus (DTG3) 
Data treatment	Data aquation system and telecommunication system
Isolated power supply	Solar panels, fuel cells, Li-ion batteries
Motion measurement	Small inertia sensor
Sea water measurement	Temperature, dissolved oxygen, and salinity measurement equipment

- NAMIPA develops and maintains various kinds of businesses for the formation of construction of AMEC

- Thank you.