

RHEEM LAB.

Responding to Global Warming from the Ocean



Department of Mechanical and Biofunctional Systems
Center for Integrated Underwater Observation Technology

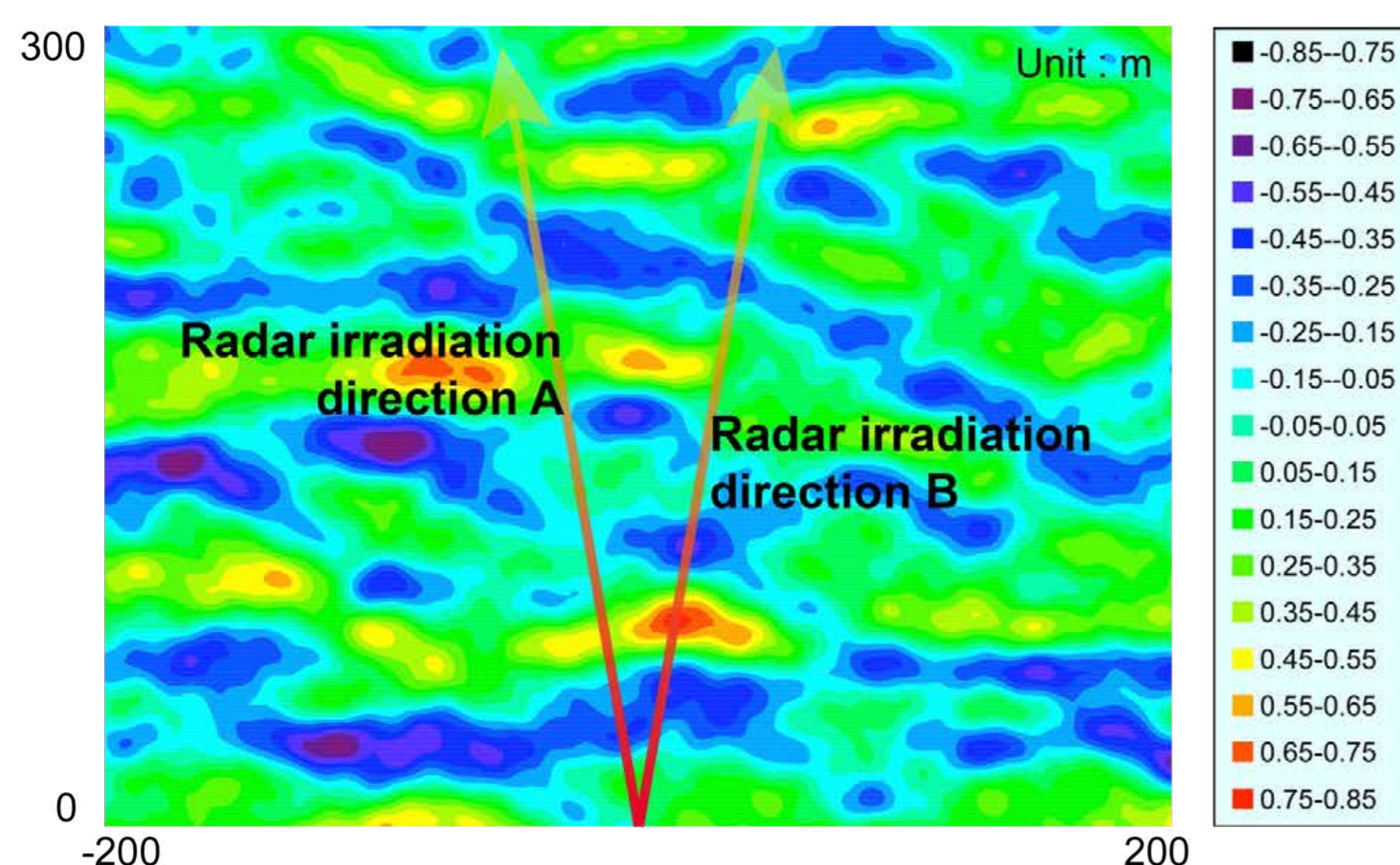
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<https://seasat.iis.u-tokyo.ac.jp/rheem/>

Sea Surface Measurement by Radar & Development of Wave Power plant

We are researching and developing systems to observe the physical environment of the sea surface such as waves, sea surface wind, tsunami, tide level and sea ice by remote sensing using microwave pulse Doppler radar, and wave power generation systems using wave energy. These researches will contribute to the promotion of global warming countermeasures such as mitigation of global warming (development of energy sources that do not emit greenhouse gases) and adaptation to global warming (response to environmental changes and disasters caused by abnormal weather).

Hiratsuka Offshore Experimental Tower & Wave Radar



Development of Ocean Renewable Energy



Kuji Wave Power Plant

Location : Tamanowaki fishing port in Kuji City, Iwate Pref.
Installation : September 2016 - March 2022
Maximum Power : 43 kW (Wave Height 4 m)
Features : Hydraulic drive pendulum wave power generator based on a hydraulic steering system of commercial vessels

Sabusawa Tidal Current Power Plant

Location : Sabusawa Channel in Shiogama City, Miyagi Pref.
Operation Period : November 2014 – June 2019
Maximum Power : 5 kW (Current Speed 1.25 m/sec)
Features : Two vertical axes, two-stage turbine blades having different phases

Namie Wave Power Plant Project

Location : Ukedo in Namie Town, Fukushima Pref.
Maximum Power : 100 kW
Features : Multi-cylinder hydraulic system

Hiratsuka Wave Power Plant Project II

Location : Hiratsuka Fishing Port in Hiratsuka City, Kanagawa Pref.
Maximum Power : 180 kW
Features : Parallel 3 units with 30kW×2

Hiratsuka Wave Power Plant

Location : Hiratsuka Fishing Port in Hiratsuka City, Kanagawa Pref.
Installation : February 2020 - February 2022
Maximum Power : 45 kW (Wave Height 1.5 m)
Features : Vertical layout ram-type hydraulic cylinders (VTC).

