Cruise Summary

1. Cruise Information

(1) **Cruise ID:** KS-22-15

(2) **Vessel:** R/V SHINSEI MARU

(3) **Cruise Title**

Aggregate biosphere: Elucidation of unknown control mechanism of biological carbon pump in the oligotrophic subtropical water in the western North Pacific

(4) **Chief Scientist**

Hideki Fukuda (AORI)

(5) **Representative of the Science Party**

S22-21 Hideki Fukuda (AORI)

(6) **Research Titles**

S22-21 Aggregate biosphere: Elucidation of unknown control mechanism of biological carbon pump in the oligotrophic subtropical water in the western North Pacific

(7) **Cruise Period**

2022/10/16 - 2022/10/27

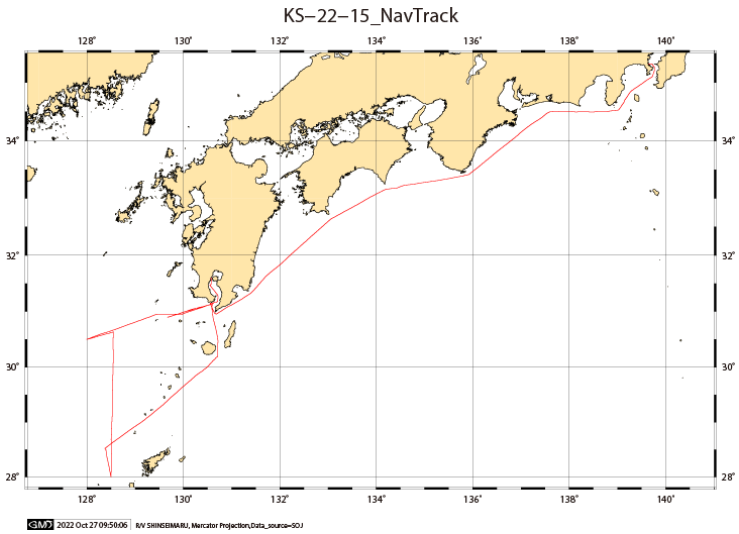
(8) **Ports of departure/call/arrival**

Yokosuka - Kagoshima

(9) **Research Area**

Southern part of Shikoku, Tokai and East China Sea

(10) **Cruise Track**



2. Overview of the Observation

To elucidate unknown control mechanism of biological carbon pump in the oligotrophic subtropical water in which nano- and pico-plankton are major primary producer, we determined 1) POC sinking flux at the subsurface chlorophyll maximum, 2) species compositions of free-living and attached microbes and organisms in higher trophic level including fish based on molecular genetic technique, 3) metabolic rate of microbes using RI labeled materials and 4) depth profiles of dissolved and particulate organic carbon and nitrogen. Dissolve and particulate materials including eDNA were collected using Conductivity-Temperature-Depth/Carousel Multi-sampling System (CTD-CMS). Sinking particles and zooplankton were collected marine snow catcher (OSIL, United Kingdom) and vertical multiple plankton sample (VMPS, Tsurumi Seiki, Japan). Sampling collection of sinking particles by using free drifting sediment trap was cancelled because of rough sea condition. Observation and sampling were conducted at the slope side (3 stations) and Ryukyu Islands side (2 stations) of the Kuroshio Current in the East China Sea. Sample analysis will be conducted after coming back to land facilities comparing with the results obtained from previous our cruise in the subarctic water in the Oyashio region off south of Hokkaido.