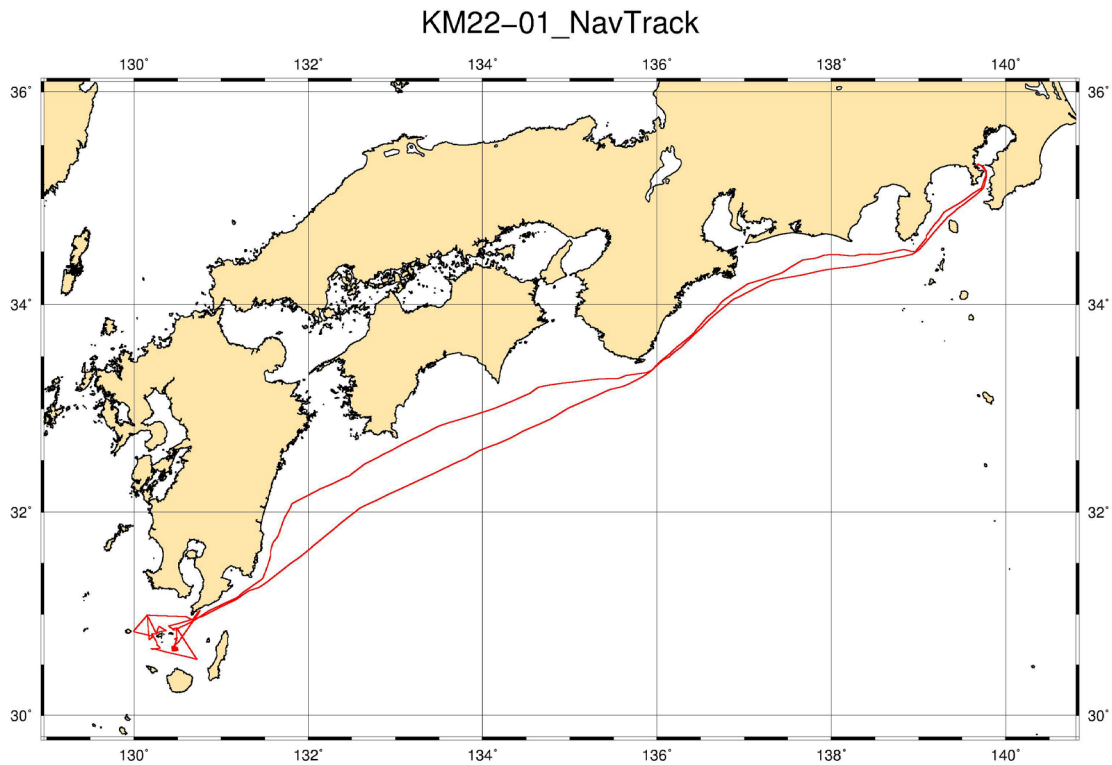


Cruise Summary

1. Cruise Information

- (1) **Cruise ID:** KM22-01
- (2) **Vessel:** R/V KAIMEI
- (3) **Cruise Title**
A general study of Kikai submarine caldera
- (4) **Chief Scientist**
Satoru Tanaka (JAMSTEC)
- (5) **Representative of the Science Party**
P21-10_2 Satoru Tanaka (JAMSTEC)
- (6) **Research Titles**
P21-10_2 A general study of Kikai submarine caldera
- (7) **Cruise Period**
2022/01/07 - 2022/01/19
- (8) **Ports of departure/call/arrival**
Yokosuka - Yokosuka
- (9) **Research Area**
South to Southeast Offshore of Kyushu
- (10) **Cruise Track**



2. Overview of the Observation

Kikai Caldera that locates in the south of Kyushu is known as a large submarine caldera volcano that made a catastrophic eruption at approximately 7300 years ago. This volcano made several pulses of caldera-forming events within approximately 130,000 years. The latest caldera-forming eruption was followed by post-caldera volcanic activities that had intermittently occurred in and around the caldera. Because most part of the caldera volcano exists underwater, volcanic subsurface structure and activities during and after the caldera-forming event are poorly understood. Recent surveys have revealed several characteristic topographies in and around the caldera, including a central lava dome, small satellite lava domes, double caldera walls, and intrusive bodies. We have sampled volcanic and sedimentary rocks on the seafloor in these areas by dredge and piston coring during the KS-19-17, KR19-11 and KR20-11 cruises. After description of the samples on the ship, chemical compositions were determined in the laboratory to understand the magmatic processes and eruption styles.

This cruise aims to conduct to sample volcanic and sedimentary rocks by drilling with the boring machine system (BMS) and remotely operated vehicle (KM-ROV).

We conduct drilling on the caldera wall to sample intrusive bodies along the wall. Drilling inside and outside the caldera enable us to sample volcanic materials that occurred during older catastrophic eruptions and small eruptions in between them. KM-ROV is used for pre-survey at the drilling sites but also for observation and rock sampling from the seafloor in and around the caldera. Additionally, we conduct geophysical measurements of geomagnetic force, gravity, bathymetry, and sub-bottom profiling, etc. The operation of call and response for the unrecovered OBSs is done.

This research is conducted under the collaborative study of JAMSTEC and Kobe University "General investigations on caldera volcanoes that repeat large scale volcanic eruptions" (FY2019- FY2021), and that of JAMSTEC and Nuclear Regulation Authority "The study on the time evolution process of large-scale volcanic eruption phenomena".