

**Chikyu Shallow Core Program (SCORE)
Proposal Cover Sheet**

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New / Revised	Revised

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Basic Information

Title:	Shallow sediment deformations modulated by subducting Kyushu-Palau Ridge
Keywords: (5 or less)	Subduction zone, seamount subduction, slow earthquakes, geomechanical properties, Hyuga-Nada
Area:	Hyuga-Nada, Kyushu, Japan

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Scientific Objectives (250 words or less)

The Kyushu-Palau Ridge (KPR) subducts in Hyuga-Nada and induces structural, hydrological and geomechanical disturbances of the upper plate. Slow earthquakes recurrently occur surrounding a subducting seamount of KPR, suggesting its strong impact on seismic coupling. An IODP proposal was submitted to explore these effects of the subducting seamount by drilling into and installing observatories at a depth of ~1 km. Even at much shallower depths (~ 100 m), seismic profiles exhibit complex geomorphological features such as possible thrust faults reaching to the surface, discontinuities in slope sediments, and mass transfer deposits. We believe that they are direct consequences of the subducting seamount, although little ground-truthing evidence is available so far.

We propose two shallow primary drill sites as SCORE to achieve three scientific objectives; 1) describing lithology, age and deformation as geologic constraints for active tectonics, 2) measuring physical properties to understand the geomechanical nature around the subducting seamount, 3) detecting hydrological signatures of fluid migration along a fault through thermal/geochemical proxies. Finally, we aim to obtain series of evidence of deformation episodes caused by the KPR subduction through documenting lithology, structures, physical properties, geochemistry, age and temperature. The primary sites will

penetrate i) an discontinuity including erosion and sedimentation histories in a slope basin and ii) a thrust fault from subducting seamount reaching the surface. Achieving the objectives requires at least 100 m penetration to sample beneath thick slope sediments. The proposed SCORE operation will provide unique geological constraints for the seamount subduction and complement the deep IODP drilling.

Proposed Sites

Site Name	Position (Lat, Lon)	Water Depth (m)	Penetration (m)	Primary or alternate
HG-01	31°31'38.7381"N, 132°21'34.0762"E	2060	100	Primary
HG-02	31°01'57.0952"N, 132°28'24.2414"E	3410	100	Primary
HG-03	31°31'32.6668"N, 132°21'38.6468"E	2200	100	Alternate
HG-04	31°09'17.4612"N, 132°42'40.7895"E	3740	100	Alternate

[Note: Only shallow-penetration coring (about <100 m below seafloor) is available.]

Non-standard Measurements

APC-T, vane-shear, penetrometer, resistivity, Vp measurements, MAD, paleo-mag

[Note: Please describe above any non-standard measurements needed to achieve the proposed scientific objectives. Standard measurements are X-ray CT, Multi-sensor core logger, and split surface image.]

List previous drilling in area

No previous drilling in the past

List potential hazards and preferred weather window

Typhoon, LIMA (a U.S. Naval training area), Fishery

Proponent List

First Name	Last Name	Affiliation	Country	Expertise
Yoshitaka	Hashimoto	Kochi University	Japan	Geology
Rie	Nakata	The University of Tokyo, ERI	Japan	Geophysics
Masataka	Kinoshita	The University of Tokyo, ERI	Japan	Geophysics
Yohei	Hamada	JAMSTEC	Japan	Physical Properties
Toshiya	Kanamatsu	JAMSTEC	Japan	Sedimentology
Yoshimi	Kubota	National Museum of Nature and Science	Japan	Paleontology
Akira	Ijiri	Kobe University	Japan	Geochemistry

[Note: For proponents who do not have J-DESC memberships, please put an asterisk (*)
AFTER his/her last name.]