

Chikyu Shallow Core Program (SCORE)

Proposal Cover Sheet

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Basic Information

Title:	Enigmatic recurrence pattern of Tokai earthquake in Nankai Trough, southwest Japan: the link between great earthquakes and ridge subduction.
Keywords: (5 or less)	Tokai earthquake, Nankai Trough, Paleoseismology, Seismo-turbidite
Area:	Tokai, Tonankai

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Scientific Objectives (250 words or less)

One of approaches to elucidate the nature of earthquake occurrence in a seismogenic zone is to understand its spatio-temporal recurrence pattern in the past. This has been mainly investigated through historical literature studies and tsunami deposit studies ashore. Additionally, recent works have revealed that marine sediments also contain important information on the past earthquake occurrence. However, such verification in Nankai Trough, southeast Japan has not yet been sufficiently studied so far. We propose to study a continuous sedimentary sequence at a local tectonic basin to investigate the unique recurrence pattern of Tokai segment, Nankai Trough. It is considered that the historical earthquake occurrence of Tokai segment is deviated from those of other segments due to a ridge subduction. We plan to validate its hypothesis by

observing the earthquake recurrence intervals in geologic time. Hydraulic Piston Coring System (HPCS) of the ocean drilling vessel (D/V) *Chikyu* can provide an opportunity to obtain an excellent long and continuous sedimentary record to unravel the earthquake recurrence pattern of Tokai segment.

Proposed Sites

Site Name	Position (Lat, Lon)	Water Depth (m)	Penetration (m)	Primary or alternate
KNS01	34-05.7'N, 138-08.03'E	2400	95	Primary
ANG01a	34-05.20'N, 137-02.80'E	1650	80	Alternate

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

Non-standard Measurements

paleomagnetic measurements

[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

Most close scientific drilling sites done by DV *Chikyu* are IODP C0009, IODP C0002 etc.

List potential hazards and preferred weather window

No potential hazard is expected.

Preferred weather window: no typhoon season.

Proponent List

First Name	Last Name	Affiliation	Country	Expertise
Toshiya	Kanamatsu	JAMSTEC	Japan	paleomagnetism
Kan-Hsi	Hsiung	JAMSTEC	Japan	sedimentology
Ken	Ikehara	AIST	Japan	sedimentology
Juichiro	Ashi	University of Tokyo	Japan	sedimentology
Shuichi	Kodaira	JAMSTEC	Japan	seismology
Kohsaku	Arai	AIST	Japan	Geological interpretation

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