

The submersible Shinkai 6500 research cruises and the results

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The dive science by the use of the Shinkai 6500 started from 1991 at the Japan Sea and then 21 cruises and more than 350 dives were successfully performed in the Western Pacific subduction zones and Atlantic Ocean as well as the East Pacific Rise. Here the list of all the Shinkai 6500 cruises, the principal investigators, and the target areas were shown.

Table 1. Shinkai 6500 research cruises

1991 (55 dives/60)

- Leg 2. Japan Trench & Nankai Trough, 10 dives
- Leg 1. Japan Sea & Suruga Trough, 15 dives
- Leg 3. North Fiji Basin, (Urabe & Auzende), 15 dives
- Leg 4. North Fiji Basin (Tanahashi & Rueran), 15 dives

1992 (50 dives/60)

- Leg 1. Suruga & Nankai Trough, Ryukyu Trench (K.Fujioka, T. Mitsumoto), 15 dives
- Leg 2. Japan Trench and Japan Sea (K.Fujioka & H.Hotta), 14 dives
- Leg 3. Mariana and Izu-Bonin (S.Ohta and K.Fujioka), 11 dives
- Leg 4. Mariana Trough (T. Gamo), 10 dives

1993 (29 dive/30)

- Leg 1. Izu-Bonin & Mariana (K.Fujioka), 14 dives
- Leg 2. Mariana, Palau, Yap (S.Ohta & K.Fujioka), 15 dives

1994 (60 dives/ 60)

- Leg 1. WMARK (Fujimoto & Brian), 15 dives
- Leg 2. TAG (K.Fujioka), 15 dives
- Leg 3. SEPR-1 (T.Urabe), 15 dives
- Leg 4. SEPR-2 (K.Fujioka), 15 dives

1995. (45 dives/45)

- Leg 1. Japan Sea & Japan Trench (A.Takeuchi & Y.Ogawa), 15 dives
- Leg 2. Palau, Yap (K.Fujioka), 15 dives
- Leg 3. Manus Basin (T.Urabe), 15 dives

1996

- Leg 1. Nankai Trough (Kaiko & Tokai), & Ryukyu (K.Kobayashi & Segawa, Matsumoto), 13 dives
- Leg 2. Philippine Sea and Izu-Ogasawara (K.Fujioka & M.Yuasa), 9 dives
- Leg 3. Palau, Yap Trench (K.Kobayashi & K.Fujioka), 8 dives
- Leg 4. Mariana Trough (H.Fujimoto & K.Fujikura)

More than 350 (273 scientific dives on 6th Dec.) were performed.

The followings are the brief summary of the major results of the research cruises of the Shinkai 6500 from 1991.

Table 2. Results and New Findings

1991

Leg 1. Japan Sea & Suruga Trough

Finding of bacterial mat with nascent community at the Okushiri Ridge

Leg 2. Japan Trench & Nankai Trough

Finding of young fissures along the Japan Trench seaward slope

Finding of the deepest clam community at the landward slope of the Japan Trench

Leg 3. North Fiji Basin

Leg 4. North Fiji Basin

Elaborated geological, geophysical, and geochemical study at the north Fiji Basin

Settlement and recovery of long-term monitoring system

1992

Leg 1. Suruga & Nankai Trough, Ryukyu Trench

Finding of pavement type manganese at the steep cliff at the seaward slope of the Ryukyu Trench

Finding huge slope failure at the landward slope of the Ryukyu Trench

Leg 2. Japan Trench and Japan Sea

Finding of the different environment within fissures

Leg 3. Mariana and Izu-Bonin

Finding of whale bone animal community at the summit of the Torishima Seamount

Leg 4. Mariana Trough

Finding of new vents at the central Mariana Trough finding of ultramafic rocks at the southern Mariana forearc

1993

Leg 1. Izu-Bonin & Mariana

Settlement and recovery of hydrophone near hydrothermal vent

Finding of serpentine flows at Sumyo, Aogashima Seamounts

Finding of pavement type manganese along the Kinan Escarpment

Finding of ropy lava at the Kinan Escarpment

Finding of oldest Pacific oceanic crust at the seaward slope of the Mariana Trench

Leg 2. Mariana, Palau, Yap

Finding of a huge limestone body at the bottom of the Palau Trench

Finding of ultramafic rocks at the forearc of the Yap Trench

Finding of pavement type manganese at the seaward slope of the Yap Trench

1994

Leg 1. WMARK

Elaborated geophysical and petrological study at the WMARK area

Leg 2. TAG

Settlement of long-term monitoring system at the TAG hydrothermal mound

Leg 3. SEPR-1

Leg 4. SEPR-2

Study of evaluation of the heat and material fluxes at the super fast spreading center

1995

Leg 1. Japan Sea & Japan Trench

Finding of many seismogenic faults and fissures at the epicenter of the Hokkaido-nansei-oki earthquake

Leg 2. Palau, Yap

Elaborated dive survey at the Kyushu-Palau Remnant Arc
Finding of the CCD at a water depth of 4100m

Leg3. Manus Basin

Elaborated heat and material fluxes in the Manus Basin
Finding of two different type of vent system Pacmanus and DESMOS cauldron

1996

Leg 1. Nankai Trough (Kaiko/Tokai), & Ryukyu

Finding of a possible obducted Philippine sea Plate at the Zenisu Ridge
Finding of many seismogenic thrust faults

Leg 2. Philippine Sea and Izu-Ogasawara

Recognition of Central Basin Fault, a past spreading center
Finding of basaltic rocks from the Amami Triangle Basin
Finding of a long fissure at the slope of the Tempo Seamount
Finding of tonalitic rocks from the Sofu-gan Tectonic Line

Figure 1. Shinkai 2000 and 6500 dive sites

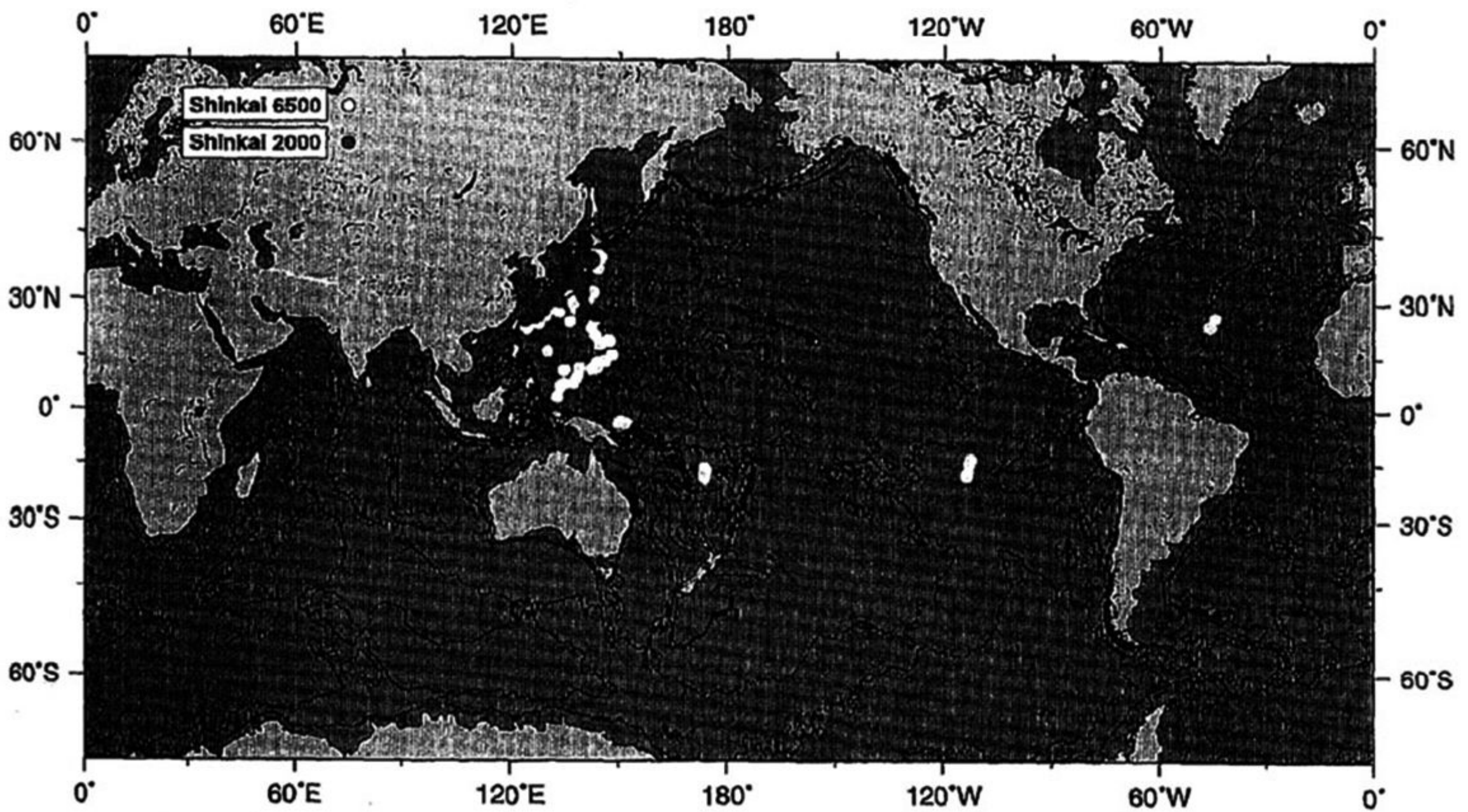


Figure 2. Shinkai 2000 and 6500 dive sites around the Western Pacific

