Ber. Inst. Geol. Paläont. K.-F.-Univ. Graz	ISSN 1608-8166	Volume 7	Graz 2003

ANATOMY OF PLIOCENE CORAL REEFS ON KITA-DAITO-JIMA

Yuka SUZUKI*, A. NAMBU*, S. INAGAKI*, S. OZAWA** & Yasufumi IRYU*

* Institute of Geology and Paleontology, Graduate School of Science, Tohoku University, Aobayama, Sendai 980-8578, Japan; y_suzuki@dges.tohoku.ac.jp

** The Chunichi Shimbun, San-no-maru 1-6-1, Naka-ku, Nagoya 460-0001, Japan

Kita-daito-jima is a carbonate island located approximately 350 km to the east of Okinawa-jima, lying on a lithospheric bulge of the Philippine Sea Plate subducting beneath the Eurasian Plate. This island has been regarded as an elevated atoll because it is composed of a peripheral rim (up to 74 m in elevation) and an interior basin. The Daito Formation, consisting mainly of dolomitized coral reef deposits, extends over the island. The main body of the Daito Formation comprises reef-core facies that constitutes the peripheral rim and backreef facies exposed at cliffs lining the interior basin. The reef-core facies is represented by coral framestone and much less common coral bafflestone. Well-developed spur and groove systems are observed in several places and horizons at seacliffs. Nongeniculate coralline algal assemblage is dominated by *Lithophyllum prototypum*. The lower backreef facies consists mainly of rudstone and the upper backreef facies is composed of coral framestone and bafflestone with abundant *Halimeda* segments in places. Foraminiferal macroids are commonly found from the lower backreef facies. They are ellipsoidal in shape and range in mean diameter from 1 to 10 cm. They consist of encrusting foraminifer *Acervulina inhaerens* and much less common nongeniculate coralline algae. The nuclei of the macroids are mostly skeletal fragments derived from branching corals.

Paleontological and sedimentological lines of evidence indicate that topographic zonation and distribution of coral morho-groups on Pliocene Kita-daito-jima atoll are basically similar to those on the present-day atolls. But the nongeniculate coralline algal assemblage on Pliocene Kita-daito-jima atoll differs from those on modern coral reefs in overwhelming dominance of *L. prototupum* and few occurrences of *Hydrolithon* and *Neogoniolithon* species. The foraminiferal macroids formed in lagoonal environment of Pliocene Kita-daito-jima atoll, which contrasts well with that the foraminiferal macroids are distributed on a 40-m terrace in the Gulf of Aqaba, where the strong currents are running.