CHAPTER 8
SUMMARY

(1) The Joban Seamount Chain could have been identified as a well-straight seamount chain of the direction NE to SW. However, this thesis suggested that the Joban Seamount Chain is not a simple hotspot origin because of discordant age progression of the Daiichi-Kashima and Mizunagidori Seamounts. This result is consistent with the paleomagnetic data by Masalu *et al.* (1997). However, the origin of the Joban Seamount Chain is not yet clear.

(2) Based on the Ar-Ar age, more depleted trace element compositions, chromian spinel compositions and curious bathymetry, the Uyeda Ridge was considered to be a volcanic edifice made by magma leakage along some ruptures of the oceanic crust. This thesis was negative to the idea of part of an extinct remnant spreading ridge separated between the Uyeda Ridge and Joban Seamount Chain presented by Smoot and Heffner (1986).

(3) Mineral characteristics and trace element bulk compositions of alkali-basalts from the Japan Trench oceanward slope were similar to those of the undifferentiated post-shield rejuvenated volcanic rocks in Hawaii and Samoa, which are known as eruptions of strongly alkaline lavas originated from tensional cooling after passing the hotspot (Nakamura, 1986) or from rupturing by deformation of the oceanic lithosphere (Hawkins and Natland, 1975; Natland, 1980). When we trace back the present position, we obtained the 6 Ma position to be between approximately 600 to 800 km ESE off the northern Japan Trench.

Asking the bathymetric chart of the northwest Pacific, this area corresponds to the deepest portion of the present Pacific plate just before the bulge. A fracture may have occured in the downwarped oceanic lithosphere.

(4) The main shield volcanic period of the Fukunaga Seamount was much longer than the present Hawaiian shield volcanic period. Such a long period of main shield volcanism in the Early Cretaceous suggested that this seamount remained at a hotspot for a long time. The reason may be mainly attributed to the slow absolute motion of the Early Cretaceous Pacific Plate in contrast to the present fast spreading rate.

(5) In the Magellan and Marshall Seamount Chains, both Early and Late Cretaceous intra-plate volcanism have been suggested (Lincoln *et al.*, 1993 and Koppers *et al.*, 1998). Rejuvenation of the Early Cretaceous Fukunaga Seamount in the Paleocene may also have resulted from reheating of this seamount by the passage on another hotspot.

(6) The calculation result of the Early Cretaceous Euler pole was 40.3°N latitude, 103.71°E longitude and angular velocity of 0.33 degree per m.y. The slower angular velocity than the present Pacific Plate is consistent with very long life of shield-building volcanic activity of the Early Cretaceous Fukunaga Seamount. This newly obtained pole and the Euler poles reported by Koppers (1998MS) and Engebretson *et al.* (1985) were approximately on the same great circle of perpendicular line against the Shatsly Trail and the Magellan Trail on the suface of the Earth. In this thesis, newly calculated Early Cretaceous Euler pole must be more precise than the previous Euler poles that are based on the only seamount trail.