

Geological philosophy and consciousness of Tatsuro Matsumoto (1): His contributions to acceptance of plate tectonics in Japan

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Tatsuro Matsumoto (1913 –2009) academically and mentally furthered Japanese earth science through his ca. 70 year' s research activities. His academic contributions were mainly stratigraphy and paleontology but multidisciplinary. His substantial contributions however have been forgotten by Japanese earth scientists, since he focused his research on Mesozoic paleontology after his retirement from Kyushu University (KU) at 1977. From 1967 to 1977, the stratigraphy group of KU supervised by Matsumoto played an essential role in the introduction of the plate tectonics (PT) theory to the geology field of Japan. On the other hand, Shoji Ijiri, Matsumoto' s classmate at Tokyo Imperial University (TIU), negative to PT, got PhD from KU at 1949. Matsumoto was skeptical about the Sakawa orogenic cycle of Teichi Kobayashi, Matsumoto' s senior at TIU. Thus, understanding of geological philosophy and consciousness of Matsumoto is important for our understanding of history of Japanese earth science and appropriate geological methodology.

Matsumoto supervised adoption of PT at the stratigraphy group of KU. He started to contend with issues of geosyncline at 1964. He organized a research group “Comprehensive studies of geosyncline sediments” from 1967 –1969. Many young researches attended to it. Achievements of this project were published in two memoirs of the GSJ (Matsumoto, 1968; Matsumoto & Kanmera, 1971). Matsumoto (1972) mentioned his espousal of PT and pointed out that PT could not explain the Cretaceous large granitic magmatism in East Asia at that stage. In this year, Matsumoto' s colleagues, Kanmera and Okada, attended an international symposium of geosynclinal processes at Madison. Takashi Sakai was given an assignment “review of global orogenic belts” from Matsumoto when he enrolled into the graduate school of KU at 1974. Sakai and Kanmera started to present researches of the Nichinan Group in the Shimanto Belt at 1975, which escalated developments of the accretion theory in Japan.

Japanese geologists other than Matsumoto tended to assume a tectonic force from the Eurasian continent when they explained tectonic evolution of Japan. The introduction of accretion model to the Shimanto was also a paradigm shift of the tectonic agent from the continent to the ocean. Matsumoto had proposed the Tsumi-Goto fault in 1940' s as a tectonic domain boundary between Japan and main Eurasian continent based on the research of Tsumi (Matsumoto, 1969). Matsumoto (1961) pointed out the straight line configuration of the Hokusetsu bend, the twill-weave disturbance of Nichinan and the northwestern margin of the Shikoku Basin around Kyushu. He also suggested that the Shikoku Basin would have been formed in the early to middle Miocene. These insights of Matsumoto were bases of the adoption of PT at KU. KU adopted PT not as a trendy a priori model but a posteriori model which can explain geological features of Kyushu. Matsumoto therefore was the driving force of adoption of PT in Japan at the initial stage.

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