

The initial stage of the formation of the accretional prism model for the Shimanto Belt by the stratigraphy group of Kyushu University

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The stratigraphy group of Kyushu University (SGKU) significantly contributed to the adaptation of plate tectonics to the geological field in Japan through the establishment of the accretional prism theory (APT) for the Shimanto Belt (SB). It is important not only for the history of Japanese geology but also scientific philosophy and methodology to understand the initial stage of the APT for the SB in the SGKU. In this presentation, I examine this issue based on analyses of related literatures and interviews of Sakai, Takashi who is one of members figured it.

It is generally considered that the APT for the SB was started with Kanmera & Sakai (1975) and supervised by Kametoshi Kanmera, who was an associated professor of the SGKU at that time. Kanmera, however, had not experienced a full-scale research for the SB before 1975. In 1970's, the APT for the SB was discussed from the viewpoint of structural geology. Kanmera, however, did not have insight into structural geology and tectonics worth to note deciding from his literatures.

When the APT for the SB started at 1975, the professor supervising the SGKU was Tatsuro Matsumoto. Based on field observations and geological comparison of Japan and the Eurasian continent, he proposed a tectonic boundary fault in the Tsushima straits in 1940's (Matsumoto, 1969), which proved to exist in 1972 and is called the Tsushima-Goto fault at the present day. Matsumoto also predicted that the Tsushima-Goto would be a strike-slip fault. These lines of evidence indicate that Matsumoto was excellent in insight into structural geology and tectonics. Concerning the SB, he recognized "the twill disturbance structure of Nichinan" which is regarded as olistostromes of the Nichinan Group at the present day, and proposed "the Takachiho Orogeny" which is regarded as the early Miocene compressional tectonics uplifting the SB at the present day (Kuroda and Matsumoto, 1942). Both directly connect with the APT for the SB.

In "the Kyushu District" published in 1962, just after the appearance of the seafloor spreading model, Matsumoto pointed out the importance of ocean such as the Shikoku Basin and the Kyushu-Palau Ridge for tectonic evolution of Kyushu. Hashimoto (1962), a disciple of Matsumoto, published a summary of his researches for the SB, in which the Hokusatsu Bend and the Nobeoka-Shibisan tectonics line were proposed. Shuto (1963), who is also a disciple of Matsumoto, studied the Nichinan Group to examine the Takachiho Orogeny. In 1965, Matsumoto experienced "Studies of Geosynclinal Sediments" as the Kanen theme. From 1967 to 1969, he held a research project "Systematic Study of Geosynclinal Sediments". Results of this project were published as the memoirs of the geological society of Japan vol. 1 and 6. He indicated his positive position to plate tectonics in prefatory note of Iwani "Kagaku" in 1972. Matsumoto was a commissioner of the division of solid earth science of Pacific science association from 1963 to 1975, and was its president from 1972 to 1975.

As described above, Matsumoto had deep insight into structural geology and tectonics, extensive knowledges of earth science and commitments for scientific communities, which are required for the paradigm shift to the APT. His accomplishments therefore lead us to a query that Matsumoto supervised the initial stage of the APT for the SB. Testimonies of Takashi Sakai, who was one of the authors of

Kanmera and Sakai (1975), approved the interpretation. Sakai was a master course student supervised by Matsumoto at that time. The acknowledgement of Sakai (1978), which is a part of his mater theme concerning the SB, also indicates that Matsumoto supervised the initial stage of the APT for the SB. The APT therefore is a result of studies for the SB by Matsumoto and his disciples since 1940' s.

Keywords: plate tectonics, the Shimanto Belt, accretional prisms, paradigm, a priori, a posteriori