

Geotectonic history and structural framework of the Japanese Islands: a new proposal

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The study of geotectonic history of the Japanese Islands was rejuvenated in the mid-1970s when Ueda & Miyashiro applied plate tectonics to the on-land geology of Japan. After accumulating information particularly on accretionary complexes and high-P-T metamorphic rocks in the 1980s, the general picture of the entire geologic history and fundamental structure of Japan was summarized in the early 1990s.

Almost after the first decade of the 21st century, now it is likely the right time to step forward again, with new lines of evidence and perspectives; e.g., detailed tomographic images of mantle under Japan and Far East Asia, vibroseis images of deep crust of Japan, precise U-Pb ages of zircons in relatively older sedimentary rocks in Japan, and new geotectonic boundaries recognized by intense field works.

In this session, we will discuss again the geological significance of the Japanese Islands under a new light, and try to establish a general model of orogenic processes tuned by the Wilson cycle; i.e., starting from the breakup of a supercontinent, development of a passive margin, conversion into an active margin, and ending in continental collision. Moreover, on the basis of the latest observations on all Asian geology/geophysical properties, we try to document a general concept of orogeny of a higher hierarchy (Miyashiro process) above the ordinary Wilson cycle style processes.