

70. The Grand Butsuzo Overthrust

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The Butsuzo tectonic line and the Butsuzo thrust. The Butsuzo tectonic line (Kobayashi, 1941) is a tectonic line limiting the northern boundary of the Shimanto terrain in Southwest Japan (Fig. 1). The tectonic line is not a trace of a single large fault, but a combination of traces of the Butsuzo thrust, and high-angled dip-slip and strike-slip faults. However, the fundamental distribution of the Butsuzo line is controlled by the Butsuzo thrust which is remarkably sinuous and shows the nature of a grand low-angled

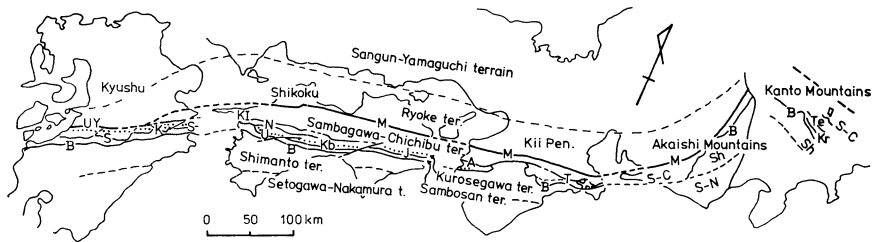


Fig. 1. Large overthrusts in the Sambagawa-Chichibu, Kurosegawa and Sambosan terrains. M, Median tectonic line; UY, Usuki Yatsushiro tectonic line; A, Aridagawa tectonic line; K, Kashimine thrust; KI, Kitatada-Ikegawa thrust; T, Takihara thrust; N, Nanokawa-Onoyama thrust; S, Shiraiwayama thrust; U, Uonashi thrust; Kb, Kambaradani thrust; J, Junisha thrust; Kr, Kurasawa thrust; Te, Tenmokusan thrust; B, Butsuzo thrust (Butsuzo tectonic line).

overthrust in the Kii peninsula (Fig. 2). The sinuous outline of the Butsuzo line in Kii, reported and studied by Shiida (1962), shows that the horizontal displacement along the Butsuzo thrust attains 25 km. The Coniacian-Campanian strata in the Shimanto supergroup (Kurimoto, 1982) and Cenomanian-Turonian strata (Morozumi, 1970) are cut by the Butsuzo thrust and the Eocene Nakaoku formation (Shiida, 1962) covers the Paleozoic and Mesozoic formations on both sides of the thrust. The overthrusting occurred after the Late Cretaceous and before the Eocene time.

The Butsuzo thrusts group. There are many large and small thrusts in the Sambagawa-Chichibu, Kurosegawa and Sambosan terrains to the north of the Butsuzo line. Some of them were formed

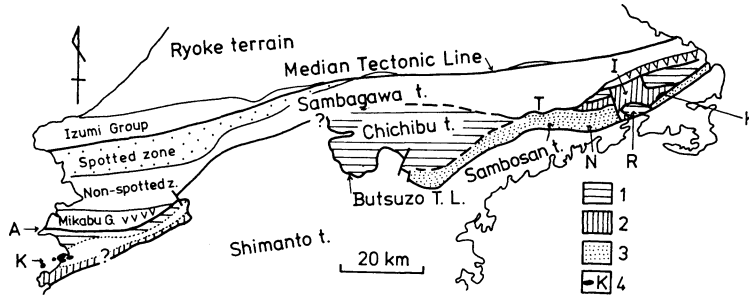


Fig. 2. Structural map of the Sambagawa-Chichibu, Kurosegawa and Sambosan terrains in Kii peninsula. After Shiida (1962), Kimura (1957) and Kurimoto (1982). 1, "northern subbelt of the Chichibu belt" (Chichibu terrain); 2, "middle subbelt" (Kurosegawa terrain); 3, "southern subbelt" (Sambosan terrain); 4, Kurosegawa rocks; R, Ryusenzan *Decke*; I, Ichinose *Decke*; N, Nomisaka *Decke*; A, Aridagawa tectonic line; T, Takihara thrust.

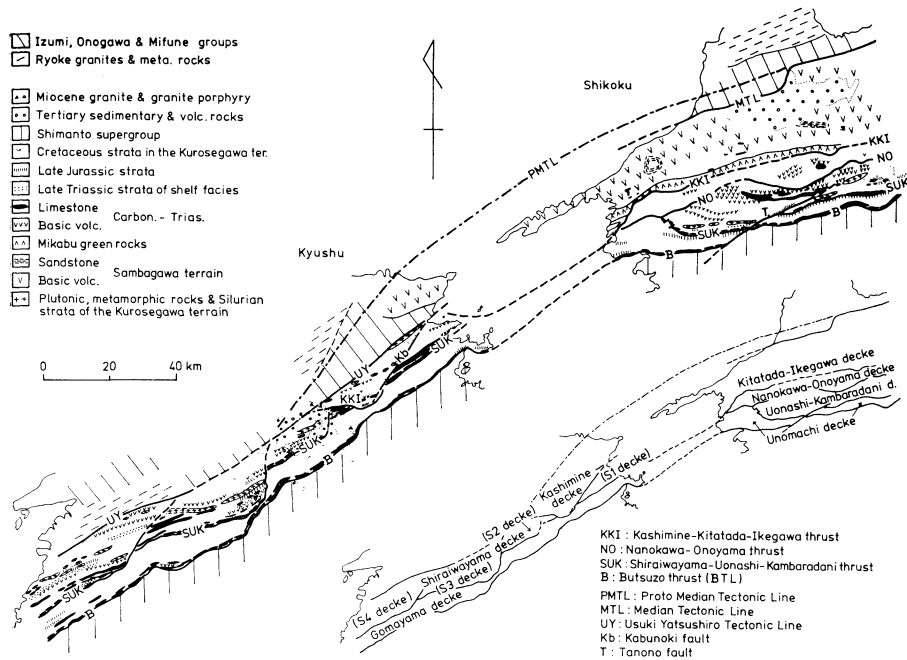


Fig. 3. Structural map of the Sambagawa-Chichibu, Kurosegawa and Sambosan terrains in Kyushu and western Shikoku.

as soles of submarine sliding *Decken* during the deposition of the Paleozoic and Mesozoic strata and some others were formed in the Early Cretaceous time relating to the Sambagawa metamorphism. However, many overthrusts, for example those in Kyushu and west-

ern Shikoku in Fig. 3, have been produced almost simultaneously with the Butsuazo thrust, although northern thrusts have been generally formed later than the southern ones (Murata, 1982). The Takihara thrust (Kimura, 1957) in eastern Kii (Fig. 2) is probably of nearly the same age.

Smaller high-angled thrusts forming the *Schüppen* structure in the Sakuradani area, Tokushima Prefecture (Kobayashi and Iwaya, 1941) and in the Sambosan terrain in Kyushu (Murata, 1981) are inferred to unite in the deep to form a single major thrust, the grand Butsuazo overthrust (Fig. 4). The large and small thrusts mentioned above, which were formed almost simultaneously with the Butsuazo thrust, make the Butsuazo thrusts group. Total sum of the displacements along the thrusts of the group attains probably 100 km in Kyushu and Shikoku (Murata, 1982).

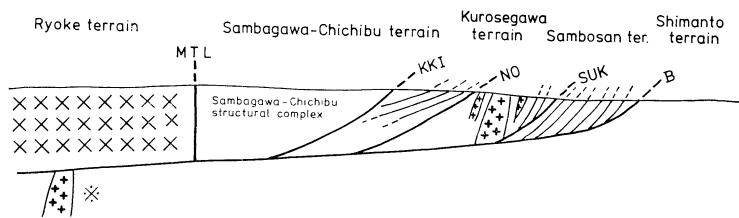


Fig. 4. Schematic cross section of the Sambagawa-Chichibu, Kurosegawa and Sambosan terrains. KKI, Kashimine-Kitatada-Ikegawa thrust; NO, Nanokawa-Onoyama thrust; SUK, Shiraiwayama-Uonashi-Kambaradani thrust; B, Butsuazo thrust (Butsuazo tectonic line); ※ root zone of the Kurosegawa terrain in Kii peninsula.

The Butsuazo thrust and shift of the Japanese Islands. The Japanese Islands area bends strongly to form an arcuated outline of the Honshu arc, the main arc in Japan, and the arc shifted toward south leaving the Paleo-Japan Sea behind it, after the Late Cretaceous and before the Eocene time. This was the time of the production of the Butsuazo thrusts group with the displacement of 100 km. The displacement along the Butsuazo thrusts group caused probably the shift of the Honshu arc.

The relation of the Butsuazo thrust to the continental crust. The Kurosegawa terrain with Pre-Silurian and Carboniferous granitic rocks are displaced by the part of the Butsuazo thrust near the earth surface, as well shown on the geological map of Kii (Fig. 2). The Kurosegawa terrain is now rootless. The Butsuazo thrust is only 10 km apart from the Median tectonic line in central Kii (Fig. 2), where the thrust has the displacement of 25 km. This means that the nearly vertical fault along the Median tectonic line and the

granites with 80–90 Ma age just to the north of the line in central Kii are also displaced by the Butsuzo low-angled overthrust in the deep (Kimura, 1983) (Fig. 4). These features mean that the grand Butsuzo overthrust displaced the upper granitic layer from the lower one. The Shimanto terrain to the south of the Butsuzo line is thought by some geologists to be an ancient subduction zone and the Butsuzo thrust to be a major underthrust along the subduction zone. However, geological features mentioned above show that the thrust is not one along a subduction zone.

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