

ACTIVE TECTONICS OF THE KANNAWA-KOUZU-MATSUDA FAULT SYSTEM AS A THRUST-FRONT MIGRATION, ANALYZED BY SEISMIC REFLECTION PROFILING

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Successive collision of the Izu-Ogasawara arc to the Honshu arc has produced active tectonics along the northernmost border of the subduction Philippine Sea plate, central Japan. The crustal shortening there has generated tectonic mountains and hills by reverse faulting; the Misaka Mountains, the Tanzawa Mountains, and the Oiso Hills in turn. The newest active zone is along the Sagami Trough - Ashigara coastal plain of the frontal margin of the Tanzawa Mountains. This subduction zone curiously appears on land by rapid valley-fill sedimentation along the Sakawa River, where the Kannawa-Kouzu-Matsuda fault system composed of the main thrust and its subsidiary faults has developed. We examined tectonic evolutionary process synthesizing geological and geomorphological survey and several kinds of seismic reflection profiling, to understand how the tectonic evolution has progressed at the frontal fault zone. This suggests that the Kannawa-Kouzu-Matsuda fault as the main thrust dips north and east at high angle, and that subsidiary frontal reverse faults are distinguishable in the basin-fill sediments of downthrown plain side. We concluded that such front-thrust migration is distinct along the Kouzu-Matsuda fault system uplifting the Oiso Hills. The east-dipping upper surface of middle Pleistocene tephra (OS) from the Hakone Volcano may behavior as a geologic fault of material boundary. The frontal area of Kannawa fault deformed with south-dipping reverse faulting oppositely. Thus, the Kouzu-Matsuda fault system has tectonically shifted major deformed zone in time, associated with progressive subduction of the Philippine Sea plate.