

## Formation process and FT dating of the Kumano Acidic Igneous Rocks in the Owase area, Kii Peninsula, Japan

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In the Owase area, the Kumano Acidic Igneous Rocks (KAIRs) are underlain by or intrude into Cretaceous sedimentary rocks (Shimanto accretionary complex) and Miocene sedimentary rocks (Owase Group). The KAIRs consist of three lithologic members: Owase-Shirahama Pyroclastic Flow Deposit (OSP), Kumano Granite Porphyry (KGP), and Fudodani Granite. The OSP unconformably overlies the Owase Group and Shimanto. The KGP intrudes into the OSP and Shimanto but is in turn intruded by the Fudodani Granite. The KGP has an arcuate intrusive body at its outer margin, suggesting intrusion associated with caldera formation. Additionally, caldera formation is also suggested from the fact that the Owase Group and OSP are exposed only within the area encompassed by the arcuate body of granite porphyry.

FT dating of samples from the OSP and KGP showed a consistent age of the OSP and the fine-grained part of the KGP around 15 Ma, indicating caldera formation and related emplacement of a pyroclastic flow and granite porphyry at that time. Some samples from the coarse-grained part of the KGP, however, showed a younger age (13.7 +/- 0.6 Ma). Difference in cooling rate of magma probably causes the observed slight difference in FT age.