

## A Cretaceous cauldron in the Yanahara area,

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Cretaceous volcanic rocks (volcanic, pyroclastic and lesser sedimentary rocks) unconformable overlying the basement rocks composed of the Maizuru Group and the Yakuno complex are widely distributed in the region from Okayama to Hyogo Prefectures, central Chugoku, SW Japan.

Low gravity anomalies concordant with the thick Cretaceous volcanic rocks and the surrounding high gravity anomalies concordant with the basement rocks are observed in the Yanahara area, Okayama Prefecture (Ishikawa et al. 2014). These low gravity anomalies suggest concealed calderas (cauldrons) filled-up with ignimbrite. Its age was estimated as ca. 80Ma by the K-Ar dating of quartz diorite intruded into this ignimbrite. 3-D inversion analysis for gravity anomaly reveals that the cauldron floor lies 1 to 3km deep (Ishikawa et al. 2014b).

The lithofacies and geologic structure of the Cretaceous volcanic rocks in the Yanahara area are as follows. The volcanic rocks in this area consist of welded tuff, crystal tuff, andesite lava, rhyolite lava, tuffaceous sandstone, lapilli stone and lapilli tuff, in ascending order. The felsic rocks are dominant in these secessions, whereas the andesite lava is not so thick as the previous study described (Okayama Geologic map project, 2009). The rhyolite lavas laterally attenuate and change to well-bedded rhyolitic lapilli stones and tuffaceous sandstones.

These volcanic, pyroclastic and epiclastic sedimentary rocks, which gently incline northward in the main part, shows nearly vertical attitude along the basement rocks. Some ring dikes of quartz porphyry and andesitic porphyry are also found along these boundary faults, and some fracture zones intercalating fault breccias are observed in the peripheral basement rocks. These structures suggest the syn-eruptional subsidence along the boundary faults. No unconformable relationship is observed. The fault displacement is estimated more than 1km by the borehole evidence (MMAJ 1980).

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