# 海岸山脈東河地區岩漿混和之初步研究
# A Preliminary Study of Magma Mingling in the Donghe area, Coastal Range of East Taiwan.

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The Coastal Range volcanic rocks are situated in the eastern Taiwan, as a result of the South China Sea subducted beneath the Philippine Sea plate and exposed after arc-continent collision. The volcanic sequence (Tuluanshan Formation) is composed of basaltic to andesitic lavas, pyroclastic breccias and tuffs. Geochemical studies on chemical components, dating and isotopic data were much reported in the northern Coastal Range than in the south. In order to establish the magma evolution of Coastal Range volcanics, intensive researches on the southern part are necessary.

A profile of outcrop at Highway no.23 along the Mawuku River near Donghe has been investigated. The strike of the profile is N-S and total length is about 160 meters. According to field observations, the magma mingling can be identified in terms of black and white breccias appearing repeatedly and mixing together. Some faults appear on not only the mixing boundary but also penetrating into both breccias. Total 30 samples including these three components were collected along the profile.

Based on field occurrences and petrographic examinations, the volcanic rocks may be produced by the mixing process of solid and liquid phases. Black breccia intruded into white breccia and showed the flow structure. Black breccia is porphyritic containing phenocrysts of plagioclase, clinopyroxene, orthopyroxene and Fe-Ti oxides with rare groundmass. The plagioclases show dusty/clear core textures, sieved structures and oscillatory zoning might record the process of magma mingling.

The L.O.I. analyses on the black and white breccias and mixing layer are 1.40 ~ 1.94, 2.14 ~ 2.74 and 4.14 in weight percents, respectively. Major elements shows two kinds of breccias are both in calc-alkaline series but much difference in $SiO_2$ contents. The black breccia is basaltic andesite with low potassium, while white breccia is dacite with medium potassium. Analyses on the mineral compositions, trace elements, isotopic ratio and dating are under the way.