



Implications from vitrinite reflectance in two profiles of Coastal Range, Eastern Taiwan

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Taiwan orogeny was formed by the oblique collision of Luzon arc with the Eurasian continent. The collision started from north and propagated to south. The eroded sediments from Taiwan Orogeny dispersed at adjacent fore arc basin areas. Clay mineralogy and illite crystallinity measurements in Madagida section, southern coastal range indicate illite/smectite decrease and illite crystallinity increase gradationally from old lower section to young upper section. This phenomenon can not record the in-situ burial temperature only reflect the materials being derived from Taiwan central range to adjacent basins. In this study, we try to measure the mudstones samples collected from other sections in coastal range. We chose two profile, Fengpin section and Loho section fore study. These two sections located in northern and central coastal range respectively, 10 and 11 samples were collected for each section. Maceral and carbonaceous materials were extracted do into pellet for measurements of vitrinite reflectance. We use vitrinite reflectance to deduce the basin thermal history. Some sample strata also contain coalified woods and can be analysed to constraint the in-situ burial thermal record. In Loho section, the older Pliocene Fanshuliao Formation samples decrease gradationally to younger whereas the Pleistocene Paliwan Formation samples increase gradationally vitrinite reflectance upward. Beside the younger Pleistocene strata, the Lichi Mélange and the normal sedimentary sequence Paliwan and Fanshuliao Formation revealed significant variation in vitrinite reflectance. However in Fengpin section, we found two significant vitrinite reflectance gaps, this two significant gaps imply evidence of faults. The field geological structure measurement and Raman Spectroscopy carbonaceous materials (RSCM) could be good constraints with the vitrinite reflectance data.