

Preliminary experimental studies of hydrocarbon transformations during solidification of felsic melts

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Experiments were carried out to examine transformation of sediment-derived hydrocarbons contained in felsic magma and during its solidification at middle crustal condition. Starting materials and conditions were: granitic glass + hydrocarbon (n-hexane and n-tetracosane) + H₂O; 5kb, 900deg.C. Materials were heated for several days and then either quenched, or cooled slowly over 2-3 days. Results showed that: (1) Remnant carbonaceous materials remained in all experimental products, not only as carbonate and graphite but also as solid state hydrocarbon, indicating that polymerization occurred. (2) Remnant solid state hydrocarbon was less in the quenched samples than in those cooled slowly, and was also lower in runs with low molecular starting materials than in those with higher materials.