

The role of flow localization in transport property of analogue partially molten system

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Melt migration in partially molten medium is conceptually classified into two contrasting models; homogeneous permeable flow and localized channel flow. The transition from permeable flow to localized one is promoted with advance of melting and deformation of the medium. Permeability measurement was conducted to explore transport rate of liquid phase in these models. Homogeneous permeable flow and localized one are realized at low liquid fraction under about 30% and at high liquid fraction over about 30%, respectively in our experiments. The permeability at high liquid fraction (localized channel flow) is larger than the value extrapolated from the value at low liquid fraction (homogeneous permeable flow). This result indicates that localized flow system can transport liquid phase more effectively than the homogeneous one.