

## Calculated P-wave velocity for xenoliths from the lower crust beneath Shikoku

Masahiro Ishikawa<sup>1\*</sup>, Noritsugu Takahashi<sup>1</sup>, Hideo Ishizuka<sup>2</sup>

<sup>1</sup>Yokohama National University, <sup>2</sup>Kochi University

Mafic and ultramafic xenoliths (olivine gabbro, melanocratic gabbro, melanocratic hornblende-pyroxene gabbro, leucocratic gabbro, norite, leucocratic norite, clinopyroxenite, olivine clinopyroxenite) occur in alkali basalt at Kochi, southwest Japan. The constituent minerals of xenoliths were analysed chemically to obtain the equilibrium P-T conditions and the seismic velocities. Calculated temperatures using two-pyroxene thermometry give values of 960C and 1060C for melanocratic gabbro and clinopyroxenite, respectively. Modal compositions of xenolith samples were analyzed, and then compressional wave velocities ( $V_p$ ) were calculated using elastic dataset of minerals. The calculated  $V_p$  of most of the melanocratic gabbroic rocks (7.1-7.4 km/s) is significantly higher than  $V_p$  of the lower crust beneath Shikoku. Combining the calculated velocities of the xenoliths with the P wave velocity structure beneath Shikoku of the southwest Japan arc, we infer that leucocratic plagioclase-rich gabbro-norite is the main constituent rock type of the lower crust.