Temperature estimate from seismic velocity: Effect of fluid

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In the northeastern Japan arc, low-velocity zones observed beneath the volcanic front and downwards to the back-arc side are generally due to high temperatures (and partial melting) and/or fluids. Therefore, one needs to separate effects of temperature from those of fluid on the low velocity zones. The two parameters may be determined from P- and S-wave velocities. We collect available elasticity and velocity data of dry and wet rocks at high pressure and temperature. Those data are compared with both P- and S-wave velocities determined by seismic tomography. From this comparison, we estimate temperature and water content. We will report the available laboratory velocity data, and the results of temperature and fluid distributions.