Vertical variation of the refractive index of volcanic glass constituting Onikobe-Ikezuki tephra

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Onikobe-Ikezuki tephra (O-Ik: 200-300ka) which erupted from Onikobe caldera is distributed widely in the central part of Northeast Japan. O-Ik is composed of pyroclastic fallout deposits and pyroclastic flow deposits around the source. There are two or more weak welded horizons in pyroclastic flow deposits and these show two or more cooling units existed. O-Ik is interpreted as co-ignimbrite air-fall deposits about 50km northwards from its source.

The refractive index of volcanic glass varies vertically as follows, 1.500-1.502 (pyroclastic fallout deposits), 1.496-1.499 (non-welded horizons of pyroclastic flow deposits) and under 1.490 (weak welded horizons of pyroclastic flow deposits).

The mechanism by which the refractive index of volcanic glass shows vertical variation may be varied chemistry of magma and/or diagenesis changes. This will be clarified by chemical analyses.