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Pressure-temperature studies of talc plus water using X-ray diffraction

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ABSTRACT

X-ray diffraction measurements of natural talc plus water at combined pressures and temperatures of 0–15 GPa and 23–400 °C reveal the presence of a structural change that could be interpreted as a new high-pressure phase at 4.0 (± 0.5) GPa, and raise the possibility that the newly inferred phase transition takes place in cold subducting slabs as a precursor to appearance of the 10 Å phase of talc.

Keywords: Talc, X-ray diffraction, high pressure, subduction