

Study of high-pressure minerals in shocked L6-chondrites

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We clarified the high-pressure minerals existing in the two shocked L6-chondrites, Y791384 and ALH78003.

First, we made elemental X-ray maps of these chondrite samples by using the scanning X-ray analytical microscope. Second, we identified high-pressure minerals in each chondrite by using the micro-Raman spectrometer. High-pressure minerals such as ringwoodite, wadsleyite, akimotoite, majorite, NaAlSi₃O₈-hollandite and jadeite have been found in the shock veins of these chondrites. These observations indicate that these meteorites experienced high pressure and temperature during shock events. From the results of the phase identification, we mapped distribution of high-pressure minerals in these chondrites.

Based in these measurements, we estimate the P-T-t history of the two chondrites during the shock events.