

Abstract Submitted
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Traces of Hiroshima: a forensic investigation of shocked recovered samples CAMELIA VERONICA STAN, Lawrence Livermore National Laboratory, HANS-RUDOLF WENK, University of California, Berkeley, NOBUMICHI TAMURA, Lawrence Berkeley National Laboratory — The bombing of Hiroshima lead to the volatilization of a large volume of material due to the high pressures and temperatures generated during the blast. These dynamically shocked conditions lead to the synthesis of completely new materials that would subsequently be deposited within some distance of the original hypocenter. In this study, we have discovered and analyzed a selection of sands from Motoujina Peninsula, 6 km south of the hypocenter. Using a variety of techniques, including scanning electron microscopy with energy dispersive spectroscopy, and x-ray fluorescence combined with powder microdiffraction, we have identified these as compositionally and morphologically distinct from the prevailing local mineralogy. Because of this, the volume of particles found, and the absence of other viable anthropogenic sources of formation, we conclude that the diverse glass particles originated from the Hiroshima event and were formed at temperatures exceeding 2000 K combined with rapid cooling.

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