

Spence, R., I. Kelman, A. Brown, G. Toyos, D. Purser, and P. Baxter. 2007. "Residential Building and Occupant Vulnerability to Pyroclastic Density Currents in Explosive Eruptions". Natural Hazards and Earth Systems Sciences, vol. 7, pp. 219-230.

### Paper Abstract

A major hazard during the eruption of explosive volcanoes is the formation of pyroclastic density currents (PDCs). Casualties and physical building damage from PDCs are caused by the temperature, pressure, and particle load of the flow. This paper examines the vulnerability of buildings and occupants to the forces imposed by PDCs along with associated infiltration of PDC particle and gas mixtures into an intact building. New studies are presented of building and occupant vulnerability with respect to temperature, pressure, and ash concentration. Initial mitigation recommendations are provided.