

The 2022 Tonga Volcanic Tsunami: Lessons from a Global Event



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11:30 a.m.



Conference Room, 3/F,
Mong Man Wai Building



[Zoom Link \(Mixed-mode\)](#)

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The January 15, 2022, Tonga eruption provides a rare opportunity to understand global tsunami impacts of explosive volcanism, including "air-shock" tsunamis, and to evaluate future hazards. Oceanic tsunamis (up to 1.7m) occurred only in the Pacific, but air-shock tsunamis arrived first and occurred globally. The air-shock repeatedly boosted tsunami wave energy as it circled the planet several times. In some locations, the air-shock was amplified as much as 35X relative to inverse barometer by Proudman resonance and topographic effects. Thus, a large volcanic air-shock (10-30mb) could cause a 3.5-10m near-field tsunami that would occur in advance of (usually) larger oceanic waves and could cause enormous damage and loss of life. Present tsunami warning systems do not consider this threat.



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