ID: Type: **Oral**

from the shallow submarine eruption of Bogoslof volcano, Alaska

Bogoslof is a submarine stratovolcano in the Aleutian Arc with a shallowly submerged vent that results in abundant seawater interaction during eruptions. Most of the 63 significant explosive events have been recorded on the Alaska Volcano Observatoryâ□□s infrasound arrays that range from 60 to 800 km from Bogoslof. The events have been dominated by low frequency energy (0.067-1 Hz), with notable exceptions that shed light on how seawater interaction affects infrasound production. For example, the 31 January eruption began with discrete, low frequency infrasound that after two hours transitioned into continuous, broadband infrasound. A satellite image captured shortly after the end of the event showed that a tephra ring was formed during the eruption that temporarily isolated the below-sea-level vent from the ocean, and likely resulted in the change in observed signal character. A subset of the eruptions that only produced low frequencies, and presumably maintained a flooded vent, have simple, pulse-like waveforms similar to signals from gas bubbles bursting at the top of magma columns. We model the nonlinear bubble motion with a variation of the Rayleigh-Plesset equation and find that decimeter radii bubbles are required for volumetric oscillation to reproduce the infrasound frequencies and pressures recorded.

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Track Classification: Analysis of Sources and Scientific Applications