1163-86-1172 **Julien Chaput*** (jachaput@utep.edu), 500 W University ave, El Paso, TX 79968, and **Richard Aster** (rick.aster@colostate.edu), Warner College of Natural Resources, Fort Collins, CO 80523. *Seismic resonances in dynamic snow environments: modeling climate forcing through singing ice.*

Significant pushes in the pace of Antarctic data collection have occurred over the past decade in light of accelerating climate change. Multiple unknowns currently impede models describing ice mass evolution and stability, and there exists a hierarchy of effects that cascade into the disintegration of these systems. Of those effects, firn, the uppermost porous snow that progressively compacts into solid ice, is viewed as the most sensitive link in the chain, and loss of the firn due to melt may cause ice shelf destruction through melt water ponding and hydrofracture. Here, we present the results of ongoing work on the Ross Ice Shelf, whereby spectrograms of passively recorded seismic signals across a broad array reveal dissonant resonance patterns caused by trapped waves in the top few meters of snow. These ghostly songs can be leveraged to model a slew of surface climate forcing effects, from variations in surface snow forms due to passing storms, to direct melt related to periods of anomalously high temperatures, to variable patterns of crevassing and tensile strain. Spectrograms of this data thus provide information-rich images of the "state of mind" of the cryosphere and could be learned to provide near real-time estimates of stress undergone by such environments. (Received September 14, 2020)