Over the last decade, broadband sensors at teleseismic distances have been used to
detect and locate large Greenlandic iceberg calving events using emitted surface wave
energy. GLISN (the Greenland Ice Sheet Monitoring Network) is nearing completion and
will include about 20 continuous, realtime, very broadband, high dynamic range
observatory quality seismic stations located on Greenland. Currently, 5 stations located
within 100km of major calving fronts are operational. At these local distances, calving
events produce a complex wavetrain rich in frequency over very wide bands, including
long duration, low frequency resonant signals (100-1000 s) which we believe are
produced by local fjord seiching stimulated by the calving process. We show the
remarkable similarity of these signals with near co-located local icefjord water pressure
gauges. We demonstrate how 1. these calving events can be optimally, automatically
identified using these local stations, 2. these detections can extend the current
teleseismic calving catalogues and 3. how the calving process can be better understood
using this new dataset.