

**An Albertan New Years' Day Icebreaker – Analysis of Cryoseismic Events at Central Alberta Lakes on January 1-2, 2018**

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On the late evening of January 1, 2018 and very early morning of January 2, Alberta Geological Survey (AGS) seismic monitoring stations recorded a series of magnitude 2 events in central Alberta. Within the next 24 hours, reports of an enormous ice-ridge at a number of Alberta lakes (Gull, Pigeon, Lac. St. Anne, Wabamun, Baptiste), as well as damage to homes and cottages (Lac St. Anne, Wabamun) appeared in the news media, with speculations about an earth quake. Media interviews with Jeff Kavanaugh, a glaciologist at the University of Alberta, and with Ryan Schultz at the AGS, confirmed that indeed an event had occurred, but that the exact cause was unclear. Over the course of January the AGS and UofA visited some of these lakes to gain a better understanding of what lead to the seismic event. We were able to establish that what cottage owners experienced that night was an ice-quake, a particularly violent cryoseismic expression of ice failure.

The talk will highlight the factors that we believe contributed to the ice-quake, examining the contributions of meteorological, hydrological and geological factors to triggering the ice-quake. A conceptual model is proposed of how the ice-quake manifested itself along the shorelines, focussing on the impacts at Lac. St. Anne and Lake Wabamun. We will examine the effects on, and damage to, lake-shore infrastructure that resulted from not only the initial cryoseismic event, but also to the subsequent destructive processes associated with ice-jacking that occurred over the course of January and early February, 2018.

You may never again want to venture onto lake ice on a balmy day in winter.