
The Earth Science Seminar On The Marine Based Ice Sheet

In the seminar conducted in the Earth and Space Science Department, Ralph Haugerud discusses "The Last Glaciation of NW Washington: hysteresis of a marine based ice sheet". The main focus of this seminar was to talk about the retreat of the Juan de Fuca lobe and show that it is a prime example of a collapsed marine ice sheet.

He begins by giving listeners some background information on the two lobes in the Cordilleran ice sheet--the Juan de Fuca and Puget lobes. He then discusses a series of theories and speculations as to what could've caused the Juan de Fuca lobe to retreat before the Puget lobe. The first theory he explores is regional warming or drying which led to the wasting and retreat of the Cordilleran ice sheet. However, he quickly dismisses this theory as this doesn't explain why the Juan de Fuca lobe retreated before the Puget lobe, even though both were fed via plenum in central salish lowland and thus should have the same development history. He then explores an idea of the warming of the North East Pacific ocean which would've caused the melting of the Juan de Fuca lobe. However he dismisses that idea as there would be fossil evidence of these sea-to-surface temperature level changes. The last theory suggests that the rising sea level triggered floating thinning feedback. He points out that at that point in time, the ocean volume was rapidly increasing and the local sea level may have been increasing faster because of isostatic subsidence upon loading by the ice sheet. Parts of the Juan de Fuca lobe floor sloped east, which facilitated floating of grounded ice and a positive feedback loop which accelerated the collapse of the Juan de Fuca lobe. Overall, he speculates that these series of events were triggered by climate change, and driven by ice sheet ocean dynamics.

I chose this seminar specifically because I am in the Earth and Space Science-Geology major, and I wanted to be able to connect my own major to ideas we discuss in this course. I really enjoyed watching him discuss different theories and give his own opinions and reasonings as to why he dismissed those possibilities. He was very descriptive and gave a sufficient amount of background information on the topic which made it easy to follow along for people who aren't in the major and aren't as knowledgeable. While the ideas Haugerud discussed had more to do with my major in particular, the overarching theme was the effect that climate change has on all parts of earth. Why should we care about the collapse of the Juan de Fuca lobe? We should care because it is only a matter of time before the polar ice sheets start melting, which will cause not only issues for Arctic areas, but severe consequences for the rest of the planet as they contain the majority of the Earth's freshwater supply and regulate sea levels. The rising of global temperatures from greenhouse gas emissions are the biggest factors in the melting of these ice sheets, and the effects of this will affect every aspect of life on earth from sea level, to food sources, to animal/plant extinction.