One of the most spectacular effects of climate change is the transformation of our planet's cold regions. The rapid recession of glaciers, the degradation of permafrost and the decline of sea ice have changed the functioning of the Arctic and subarctic geoecosystems. As a result of these processes, there is a rapid transformation of the landscape in which the coastal zone plays a special role. It is believed that this is where the negative effects of environmental changes occurring in the less and less icy seas and more and more thawing lands accumulate. Along these often freshly exposed or thawed coastal areas, extreme geomorphological processes, such as landslides and rockfall, play an increasingly important role. Landslides falling into the sea generate powerful tsunamis capable of destroying everything in their path. They are real arctic monsters!
Importantly, it is along the Arctic coasts that human activity has concentrated and the current intensification of geohazards has a direct impact on the safety of the population and settlement infrastructure.

In the GLAVE project, I will build an interdisciplinary team of geomorphologists, remote sensing and geographic information systems specialists as well as spatial planners and human geographers to fill an important gap in understanding the role of tsunami waves in transforming the Arctic coastal landscape and how to prepare coastal communities to mitigate their effects. I have invited partners from Denmark, Germany, the USA and Canada to join our Arctic Tsunami Hunters team. We chose the coasts of West and East Greenland, Southeast Alaska and Baffin Island - regions of exceptional importance for studying climate change at high latitudes as our research area.

I believe that our interdisciplinary and international team will answer some key questions that have not yet found a scientific explanation. Using a mosaic of geographical and geological methods, we will face three research challenges. First, we will try to determine the manner and time of relaxation of paraglacial coasts after tsunami waves, and describe the processes that erase or preserve the effects of wave impacts in the coastal landscape. Secondly, we will look into the past and try to find a record of palaeo-waves that may have flooded the study areas during the Holocene. Finally, we will indicate places where a high risk of future waves can be expected and we will prepare recommendations for local communities on how to mitigate the effects of geohazards.

A unique arctic adventure is ahead of us!