DEFENDING A DOCTORAL THESIS IN ANTARCTICA

Dr Gadi’s dissertation focused on a comprehensive study of the under?ice dynamics at two significant glaciers: Petermann Glacier in Northwest Greenland and Thwaites Glacier in West Antarctica. By combining modeled ice melt rates, satellite?derived melt maps, and various other data sources, he examined the critical ice grounding zones—regions where glaciers transition from being land?bound to floating freely on the ocean as ice shelves.

His research revealed that seawater intrusion into these grounding zones plays a considerably stronger role in ice sheet deterioration and global sea level rise than previously thought. His work calls for a rethinking by climate modellers about how warming ocean waters affect the stability of these vulnerable areas, ultimately offering fresh insights into the broader implications of global climate change for ice sheets.

The thesis defense itself was as remarkable as Dr Gadi's research. It took place at the Princess Elisabeth Antarctica research station, with resident scientists, the station's medical doctor, and technical staff in attendance. While his advisor, the distinguished Professor Eric Rignot, participated in-person (after spending 24 days doing field work with Gadi on the King Baudouin Ice Shelf), other members of his thesis committee participated remotely via videoconference, including Professors Isabella Velicogna and François Primeau from UC Irvine, as well as Dimitris Menemenlis, a research scientist at NASA's Jet Propulsion Laboratory.

Dr Gadi had gone to Antarctica with Professor Rignot to take part in a 24?day field expedition to survey the King Baudouin Ice Shelf in the Queen Maud Land. The expedition involved fellow scientists and experts, including polar explorer Alain Hubert and mountain guide Daniel Mercier. The field experience not only allowed Dr Gadi and Professor Rignot to collect an enormous amount of useful data, bringing insights into the dynamics that govern the behaviour of ice shelves.