

ERICA LUCAS

TROTTIER SPACE INSTITUTE

SEISMOLOGICAL INVESTIGATIONS OF WEST ANTARCTICA: FROM MANTLE STRUCTURE TO ICEQUAKES

11 Apr 2023 · 3:30 pm ET · *Bell Room (Rutherford 103)*

AS CLIMATE CHANGE DRIVES ICE MASS LOSS, IT IS OF EVER-INCREASING IMPORTANCE TO ACCURATELY ESTIMATE BOTH THE CURRENT AND FUTURE CONTRIBUTIONS OF THE ANTARCTIC ICE SHEET TO SEA LEVEL VARIABILITY. IN ADDITION TO CLIMATIC PROCESSES, THE SOLID EARTH RESPONSE TO CHANGES IN ICE MASS DISTRIBUTION AND THE NATURE OF VARIOUS CRYOSPHERIC PROCESSES MUST BE ACCOUNTED FOR WHEN EVALUATING THE FUTURE STABILITY OF THE ANTARCTIC ICE SHEET. WITH THE REMOTE SETTING AND NEAR COMPLETE ICE COVERAGE, CHARACTERIZING THE GEOPHYSICAL SETTING OF ANTARCTICA REMAINS A UNIQUE CHALLENGE. OVER THE LAST TWO DECADES, A SURGE IN SEISMIC STATION DEPLOYMENTS HAVE SIGNIFICANTLY CONTRIBUTED TO OUR UNDERSTANDING OF THE SOLID EARTH STRUCTURE AND GLACIOLOGIC SETTING OF ANTARCTICA.

IN THIS TALK, I WILL DISCUSS RECENT INVESTIGATIONS OF MANTLE STRUCTURE AT THE REGIONAL AND LOCAL SCALES IN WEST ANTARCTICA AND THE IMPLICATIONS FOR TECTONICS AND SOLID EARTH - ICE SHEET INTERACTIONS. I WILL ALSO PRESENT ON STUDIES OF GLACIAL SEISMICITY AT SEVERAL OUTLET GLACIERS IN WEST ANTARCTICA, WHICH HAVE PROVIDED NEW INSIGHTS INTO THE DYNAMICS OF GLACIER FLOW AND DISCHARGE.