**Global land ice trends from satellite altimeter and gravity missions**

*Bert Wouters1 & Jonathan L. Bamber2*

*1 Institute for marine and atmospheric research Utrecht, Utrecht University, The Netherlands; 2 University of Bristol, Bristol, UK*

Ice sheets, glaciers and ice caps are major contributors to current sea level change and ice losses have been increasing in recent decades. Yet, their remote location and vast sizes make it challenging to obtain a comprehensive picture of these changes from in-situ measurements alone. Remote sensing observations are therefore of paramount importance to monitor the Earth’s ice covered regions. This presentation will show how satellite measurements can be used to derive reliable estimates of ice mass loss, and the progress that has been made in this domain in the last decade. We focus on elevation measurements made by NASA’s ICESat laser and ESA’s Cryosat-2 radar altimeter missions and combine their observations with results from the Gravity Recovery and Climate Experiment, which measures changes in the Earth’s gravity field. The results for Greenland, Antarctica and the Arctic glaciers and ice cap show that these glaciated regions can respond rapidly to changes in the atmosphere and ocean and highlight the importance of continuous, global monitoring of the cryosphere.