Frozen in time - Unlocking the Earth's climate history using ice cores

Elizabeth Thomas (lith@bas.ac.uk)
British Antarctic Survey, UK

Ice cores have proved to be a powerful tool for reconstructing past climate. These "two-mile time machines" have driven our understanding of global climate variability, tracing the transitions from glacial to interglacial over the past 800,000 years. And yet the secrets in the ice are still being unlocked. In this presentation I will outline recent advances in ice core research, touching on the development of exciting new climate proxies and demonstrating the power of international collaboration in producing continental reconstructions with unprecedented spatial coverage. I will focus on climate variability over human timescales, decades to centuries, in Antarctica; a continent experiencing dramatic climate change in recent decades but one with the shortest historical observations and arguably the largest potential to drive future climate through its contribution to global sea levels. I will summarise findings from two recent community based reconstructions, of past surface temperature and snow accumulation, capturing the drivers of Antarctic climate variability and its influence on global sea levels during the 20th century.