**The first chronology for the Roosevelt Island Climate Evolution ice core, West Antarctica: climate and ice dynamics of the East Ross, Antarctica.**

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Ice cores drilled in Antarctica have proven to be remarkable archives of past climate, but most have been recovered from the remote Antarctic interior. In contrast, little is known about the climate history of coastal ice domes, despite their relevance to ocean-ice interaction and sea level rise. The Roosevelt Island Climate Evolution project (RICE) recovered a 763 m ice core in 2013 from Roosevelt Island in the East Ross Sea, West Antarctica. Located at the edge of the Ross Ice Shelf and grounded below sea level, Roosevelt Island is sensitive to oceanic forcing and may provide new information about potential drivers of abrupt interhemispheric climate connections and its location is ideal for exploring the retreat of the West Antarctic Ice Sheet (WAIS) from its glacial maximum through the Ross Sea. Here we present the first chronology for the RICE Ice Core, covering the last 40,000 years, with additional evidence of ice dating to at least 80,000 years near the bottom of the core. Both the depth-age relationship and reconstructed profile of annual layer thicknesses can be used to infer changes in climate and the glacial history of the East Ross Sea Embayment. The most striking feature of the record occurred during the Antarctic Cold Reversal. At this time a combination of data including thin annual layers, abrupt lowering of δ15N of N2 and δ40Ar in atmospheric air, and strongly depleted δD of ice suggest either a pronounced change in cyclonic activity and regional storm tracks and/or adjustment in the configuration of the Ross Ice Sheet during this period of rapid climate change and sea level rise.

**PP009 Climate variability in the mid-to-high-latitude Southern Hemisphere since the Last Glacial Maximum**

**Session ID#:**8595

##### Session Description:

In contrast to the Northern Hemisphere, the climate of the ocean-dominated Southern Hemisphere (SH) is regulated by strongly zonal atmospheric and oceanic circulation patterns. Proxy records suggest that the strength and position of these zonal features, particularly the SH westerly winds, have changed significantly since the Last Glacial Maximum (LGM) at ~21,000 years BP. Such changes have climatic influence beyond the SH, due to interactions between the westerlies, the Southern Ocean, and the global carbon cycle.  However, records of climate variability from this region are spatially limited by a relatively small landmass area and by the difficulty of obtaining records. This session aims to bring together recent investigations of post-LGM, mid-to-high latitude SH climate variability. We encourage submissions that present new proxy-based reconstructions of climate change from marine and terrestrial archives. We also invite submissions of modeling studies that examine climate forcing mechanisms and regional responses.

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##### Index Terms:

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