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## PP53B-2389: Past Peatland Distribution as an Indicator of Hydroclimate and Temperature

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**Friday, 16 December 2016**

**13:40 - 18:00**

 *Moscone South - Poster Hall*

Peatlands, wetlands with > 30 cm of organic sediment, cover more than  $3 \times 10^6$  km<sup>2</sup> of the earth surface and have been accumulating carbon and sediments throughout the Holocene. The location of peatland formation and accumulation has been dynamic over time, as peat formation in areas like Alaska and the West Siberian Lowlands preceded peat formation in Fennoscandia and Eastern North America due to more favorable climate for peat formation. Using the geographic distribution of peatlands in the past can indicate general climatic conditions, including hydroclimate, given that the underlying geology is well understood. Peatlands form under a variety of climatic conditions and landscape positions but do not persist under arid conditions, instead requiring either humid conditions or cold temperatures. However, peatlands may have existed in the past in areas not currently suitable for peatland formation and persistence, but where peats can be found at depth within the sediment column. Here we map the locations of histic paleosols, relict peat, and buried peats since the Last Glacial Maximum using a compilation of sites from previous studies. We compare these records of past peatland distribution to present-day peatland distribution. We evaluate regional differences in timing of peatland development in these buried peatlands to the development of extant peatlands. Finally, we compare the timing of past peatland extent to the modeled paleoclimate during the Quaternary. In addition to implications for paleoclimate, these past peatlands are not well accounted for in present-day soil carbon stocks but could be an important component of deep soil carbon pools.