



CLIMATE, PEOPLE, AND THE ENVIRONMENT PROGRAM SEMINAR SERIES



Eric Wolff

*Professor, Department of Earth Sciences
University of Cambridge*

Interglacials of the last 800,000 years

Interglacials, including the present (Holocene) period, are warm, low land-ice extent (high sea-level), end members of glacial cycles. Concentrating mainly on the better-documented period of the last 800,000 years, we first explore different definitions of interglacials to make sure that we understand what the population of the species “interglacial” is. We observe that it is very hard to find a definition that includes MIS 13 without also identifying 2 interglacials in each of the clusters of MIS 7 and MIS 15. We therefore use a quasi-sea level definition to identify 11 interglacials in the last 800 ka.

Having identified the group we need to understand, we study their diversity. Marine, ice and terrestrial data compilations suggest that, despite spatial heterogeneity, Marine Isotope Stages (MIS) 5e (last interglacial) and 11c (~400 ka ago) were globally strong (warm), while MIS 13a (~500 ka ago) was cool at many locations. . The onset of an interglacial (glacial termination) seems to require a reducing precession parameter (increasing northern hemisphere summer insolation), but this condition alone is insufficient. Terminations involve rapid, non-linear, reactions of ice volume, CO₂ and temperature to external astronomical forcing. We can find a rule that correctly identifies which insolation peaks lead to interglacials but some of the physics behind the rule has still to be understood.

The precise timing of events may be modulated by millennial-scale climate change that can lead to a contrasting timing of maximum interglacial intensity in each hemisphere. This will be illustrated particularly for the case of MIS5e, and I will discuss the relevance of that interglacial in the context of future sea level rise.

Tuesday, March 7, 2017 1:00 pm

AOSS Building, Room 811

1225 W. Dayton St.

Please join us for coffee at 12:45 in Room 853