

High Resolution Radiocarbon Ages between Ashes 5 and 4 at Mono Lake: A Test for the Presence of the Dry and Wet Phases of the Mystery Interval

Elena Steponaitis, Sidney Hemming, Stephen Cox and Susan Zimmerman

Abstract: Wally Broecker and others have suggested that the deglacial “Mystery Interval” (14.5–12.4 ^{14}C kyrs) has two distinct hydrologic phases in the western USA. During the first half, they suggest that the Great Basin was dry and lake levels relatively low. During the second half it appears that many if not all lakes in the Great Basin reached their maximum extent. They postulate that the transition between these two parts of the Mystery Interval were triggered by events in the North Atlantic region, notably recorded by an IRD rich layer documented off Portugal at about 13.8 ^{14}C kyrs, postdating the Hudson Strait IRD event from core SU90-08 by 1.5 kyrs. A twofold division of opposite sense has been found in the cave deposits of Hulu Cave, China, in which the initiation of the weak monsoon event occurs in the middle of the Mystery Interval at 16.1 kyrs (corresponding to approximately 13.8 ^{14}C kyrs). Thus it appears that there may be a near global oscillation in hydrological events near this time interval. But the available data, particularly with high resolution chronology, is sparse. We propose here a high resolution radiocarbon study of ostracods across this time interval at Mono Lake. The proposed work would be a central part of Elena Steponaitis’ senior thesis.