PALAEOMAGNETIC SECULAR VARIATION AND RELATIVE FIELD INTENSITY IN PLEISTOCENE LACUSTRINE SEDIMENTS IN THE U.S. GREAT BASIN AS CHRONOLOGIC TOOLS FOR DATING CLIMATE IN WESTERN NORTH AMERICA

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Since the end of the 19th Century when first it was reported that large pluvial lakes formed during the Pleistocene in the U.S. Great Basin (Russell, 1885), the sediments deposited by some of those lakes have been used to study climate in western North America back about 3 m.y. (Smith et al., 1983, Morrison, 1991: many others). That research includes mineralogic, isotopic, geochemical, and sedimentologic data; radiometric dates; lacustrine fossils; volcanic ashes; and a record of long-term behaviour (secular variation) and excursions (Pringle Falls, Laschamp, and Mono Lake) of the palaeomagnetic field. In an attempt to establish an accurate chronology for the palaeoclimate in western North America during the past approximately 50,000 years, I will compare the records of palaeomagnetic directions for Pyramid Lake (the remnant of Lake Lahontan in northwestern Nevada)(Benson et al., 2008), Mono Lake (the remnant of Lake Russell in east-central California)(Lund et al., 1988; Zimmerman et al., 2006), and Searles Lake in the southeastern Great Basin (Liddicoat et al., 2008) with other records of palaeomagnetic field behaviour, especially the relative palaeomagnetic field intensity for the North and South Atlantic oceans (Laj et al., 2000; Stoner et al., 2004). This is possible because large- and small-scale fluctuations occur in the records that are distinctive and often are common to all.

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