



Investigations About the Recording of the Palaeomagnetic Field in the Mono Basin, CA, in Siltstone from a Granitic Provenance

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For more than three decades, Reidar Lovlie did innovative laboratory and field experiments that advanced our understanding about how sediments acquire a remanent magnetization (Lovlie, 1979, and his subsequent publications about that research). The investigations we and our students have done with lacustrine sediments deposited during the late Pleistocene in the Mono Basin, CA, have benefited from those experiments. One of Lovlie's laboratory experiments that was especially useful in our investigation of the role of relative field intensity (RFI) during a rapidly changing field, the Mono Lake Excursion (MLE; Coe and Liddicoat, 1994), was his study of suspended magnetic grains in slowly curing epoxy resin as the field strength was varied (Lovlie, 1993). More recently we did comparative field and laboratory experiments with sediments from different depositional environments in the Mono Basin that help to explain the recording of the palaeomagnetic field in unweathered siltstone derived from a granitic provenance in the California Sierra Nevada. Our investigations are possible because inclination, declination, and RFI using alternating field and thermal demagnetization and intensity normalizing experiments of magnetic susceptibility (k), saturation isothermal remanent magnetization (SIRM), and anhysteretic remanent magnetization (ARM)(Lund et al., 2005) can be measured with precision for localities separated by as much as 15 kilometres using volcanic ash beds as marker horizons. In addition to making the comparison between localities in the Mono Basin that record the MLE, we have done that for a time interval following the MLE also in the Mono Basin where the palaeomagnetic directions are anomalous compared to secular variation (waveform Delta in Lund et al., 1988; Liddicoat and Coe, 2013). In that interval the RFI is nearly double the RFI during the MLE (Zimmerman et al., 2006), which again allows us to study RFI as a factor in the palaeomagnetic recording process in lacustrine sediments. We will present those findings as our tribute to Reidar Lovlie.