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# Improved Land-Sea Correlations in Iceland Based on Paleomagnetic Secular Variations

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High-resolution paleoclimatic reconstructions from both terrestrial and nearby marine archives are available from Iceland. Independently dated tephras and radiocarbon dates could theoretically synchronize these records, thereby allowing evaluation of leads and lags in the climate record. However, direct comparisons between records are limited by the difficulties in deriving precise age control. Here, Paleomagnetic Secular Variation (PSV) records reconstructed through alternating field demagnetization of u-channel samples from two lacustrine archives (HAK-1B & HVT-1A) are compared to the PSV records from a well-dated marine record (MD99-2269) taken from North Iceland shelf. Over the past 10 ka of the sediment records 40 to 60 tie points are utilized, based on diagnostic tephra layers and unique features in the PSV records, to synchronize the three sediment cores within a lock-in depth uncertainty. The uncertainties are likely to be on the order of decades due to the high accumulation rate, allowing all records to be placed on a common time scale. Using the well-dated marine core as a chronological template demonstrates the difference between linearly-interpreted tephra-based age model and the more time-variable PSV age model. The high frequency of tie points allows the reconstruction of sediment accumulation rate changes in the lacustrine records that were not apparent from the tephrochonological controls. The resulting PSV synchronized paleoclimate records from land and sea add valuable information about forcing and responses of the Holocene climate system.