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Some detailed records of secular variation during the Permian-Carboniferous Reversed Superchron

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Recent numerical geodynamo models speculate that the state of the geodynamo during Superchrons (long periods without polarity reversals) is different from its state during periods of mixed polarity. Robust observational data, however, are still conspicuously lacking.

For the Cretaceous Normal Superchron (CNS) there is some indication that secular variation (SV) or VGP scatter may have been reduced.

A recently acquired high-quality red bed record from the Dôme de Barrot (France) showed non-reduced secular variation during the Permo-Carboniferous Reversed Superchron (PCRS, $\sim$50 Myr). The secular variation is comparable to recent times, a result that contrasts with model predictions. A recent analysis of paleointensities during the Cretaceous Normal Superchron (CNS, $\sim$35 Myr), however, provided tentative support that secular variation, indeed, may have been reduced during this Superchron. This discrepancy may indicate that the geodynamo was fundamentally different during these two Superchrons, but existing records cannot substantiate this.

Since red beds are often excellent recorders of the geomagnetic field; we sampled additional red bed sequences in southern France (Dôme de Barrot and Lodève). The results confirm that –at equatorial latitudes- SV is not different from today. We compare our results with data from literature and we present the preliminary results of an extended data set of volcanic data from the Oslo Graben.