



Morphology of the Iceland Basin Excursion from a spherical harmonic analysis of sedimentary records

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Based on 5 published marine high-resolution sedimentary records of the Iceland Basin Excursion (IBE) dated around 186-190 kyr, we present models of the excursions Earth magnetic field at the surface of the earth using two different approaches. First a spherical harmonics analysis is performed after the synchronization of the directional records using paleointensity. The second applied method is an iterative Bayesian inversion procedure, calibrated using the single volcanic data available so far. The two approaches yield a similar general picture: during the IBE the dipole field undergoes a strong reduction, but mostly remains higher than the non-dipole field through the excursions process, except for a very short interval of time corresponding to the dipole minimum at about 187.5 ka. On the other hand, some differences exist in the two model results when the VGP paths are considered. The non-dipole field does not appear to undergo very significant changes during the excursion except for a slight increase just at the dipole minimum. The extent of mid-height of the dipole minimum, which can be considered as an approximate measure of the duration of the IBE is of the order of 3kyr, consistent with a suggestion of Gubbins (1999). These results will be compared to those obtained for the Laschamp Excursion and those relative to the Matuyama-Brunhes geomagnetic reversal.