



How damaging are time gaps in vector data coverage to global field models?

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The satellites Oersted and CHAMP provide oriented vector magnetic field data from early 1999 which have revolutionised the modelling of the geomagnetic field. More is promised for the future with the Swarm approved mission being set for launch in 2010. However, depending on factors beyond our control, this leaves the possibility of a gap in data coverage (for example, between 2008 and 2010). We investigate the consequences of this gap on our future understanding of field evolution by comparing a state of the art model (CHAOS) with what would have been possible had we only had intensity data for part of the period between 1999 and 2006, or if we had had no data at all. We perform similar experiments using data from the Swarm simulator project. We aim to assess whether field modelling difficulties (in particular the Backus effect) are now sufficiently understood that the loss of vector data coverage can be partially compensated for.