



Progress in mapping the Earth magnetic lithospheric field

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The Earth's magnetic lithospheric field spans all wavelengths from several thousand kilometers to meters. Its modeling is possible from satellite data on global scale from Spherical Harmonic (SH) degree 16, while wavelengths of the order of the kilometer are only mapped by interpolating airborne, land or marine data survey. We will discuss progress made in two aspects. First the CHAMP satellite is flying now at low altitude and because of the low level of magnetic activity, the available data set is particularly well suited for modeling the lithospheric field. We recently derived such a model, incorporating data up to 2010.0. The resulting model is robust up to SH degree 80 at all latitudes but requires regularization for higher degrees. The main characteristic of the new model will be resented. Secondly, if the interpolation techniques used for a single airborne survey are well established and efficient, they proved to be not very well suited for merging large compilations together or to handle marine surveys. In particular, isolated marine tracks are not easily integrated to global maps. We have therefore investigated the possibility in using alternative techniques, based on wavelet like functions, to improve the interpolation process. Examples of application will be shown.