

## **CHAOS-2: A GEOMAGNETIC FIELD MODEL DERIVED FROM ONE DECADE OF CONTINUOUS SATELLITE DATA**

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We have derived a model of the near-Earth's magnetic field using more than 10 years of high-precision geomagnetic measurements from the three satellites Ørsted, CHAMP and SAC-C. This model is an update of the two previous models, CHAOS and xCHAOS. Data selection and model parameterization follow closely those chosen for deriving these models. The main difference concerns the maximum spherical harmonic degree of the static field ( $N=60$  compared to  $N=50$  for CHAOS and xCHAOS), and of the core field time changes, for which spherical harmonic expansion coefficients up to  $N=20$  are described by order 5 splines (with 6-month knot spacing) spanning the years 1997.0 to 2009.5.

Compared to its predecessors, the temporal regularization of the CHAOS-2 model is also modified. Indeed, second and higher order time derivatives of the core field are damped by minimizing the second time derivative of the squared magnetic field intensity at the core mantle boundary. The CHAOS-2 model describes rapid time changes, as monitored by the ground magnetic observatories, much better than its predecessors.

Geomagnetic field model, geomagnetic secular variation, satellite, spherical harmonics, lithosphere

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