Using of a new method for geomagnetic field modeling

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By expressing the geomagnetic field at any point on the Earth as the integral of electrical currents in the spherical shell of the Outer Core and by using the definite integral properties, expressions of the geomagnetic field components as infinite sums of non linear functions of the point coordinates are obtained. By truncating such expressions, the geomagnetic field components at any observation point are modeled as finite sums of nonlinear functions of the point coordinates with a limited number N of coefficients that depend on the order of approximation used. Knowing the values of the geomagnetic field components at a given moment at N different points on the Earth, the values of these coefficients of the model can be defined by solving numerically an algebraic system of nonlinear equations. Following this kind of geomagnetic field modeling, a discussion on the geomagnetic field jerks will be presented.