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- 1994-1996: Determination of a precise regional geoid (Grant Agency of Czech Republic, principal investigator)
- 1996-1997: Study of the relation of the geoid and mantle processes (Grant Agency of Charles University in Prague, co-investigator)
- 1997-1999: Determination of a precise regional geoid: theory and numerical aspects (Grant Agency of Czech Republic, principal investigator)
- 1997-2002: Precise geoid determination (NATO Linkage grant, Canada, co-investigator)
- 2000-2002: Glacial relaxation of the Earth and mantle viscosity: three-dimensional modeling (Grant Agency of Czech Republic, principal investigator)
- 2000-2002: Three-dimensional model of electrical conductivity below Europe inferred from the analyses of long-term variations of geomagnetic field (Grant Agency of Czech Republic, co-investigator)
- 2003-2005: Mathematical geophysics, meteorology, and their applications (European Commission Programme, co-investigator)
- 2003-2005: A deep three-dimensional geoelectrical model of the Earth, in particular for Europe, inferred from the analyses of time variations of geomagnetic field and electromagnetic induction modelling (Grant Agency of Czech Republic, co-investigator)
- 2003-2005: Glacial isostatic adjustment of the Earth: a tool for determination of lateral viscosity distribution (Grant Agency of Czech Republic, principal investigator)
- 2006-2008: Electromagnetic induction and distribution of electrical conductivity in the Earth's interior: global, continental and regional laterally inhomogeneous models (Grant Agency of Czech Republic, co-investigator)
- 2006-2008: Inference of the Earth's lateral viscosity structure from observations of the GRACE gravity mission, GPS and glacial isostatic adjustment (Grant Agency of Czech Republic, principal investigator)
- 2006-2010: VILMA-I, II: Development and validation of a three-dimensional viscoelastic lithosphere and mantle model for reducing GRACE-gravity data (under the priority program "Mass transport and mass distribution in the Earth system", German Research Foundation, principal investigator)
- 2009-2010: AGIA-I: Improved Antarctic ice-mass balance by assimilation of GRACE and SLI data to 3D viscoelastic earth model and joint gravity field inversion (under the priority program "Mass transport and mass distribution in the Earth system", German Research Foundation, principal investigator)
- 2009- Reconciling present-day and long-term ice-mass variations resolved from satellite observations with glacial-isostatic-adjustment models (Grant Agency of Czech Republic, principal investigator)
- 2010- Regional and global distribution of the electrical conductivity in the Earth's mantle from ground-based and satellite observations. (Grant Agency of Czech Republic, co-investigator)