

CURRICULUM VITAE OF JAKUB VELÍMSKÝ

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Degrees

2004 RNDr. in geophysics, Charles University in Prague

2003 Ph.D. in geophysics, Charles University in Prague

1998 Mgr. in physics, Charles University in Prague

Study and employment

- 2005 Research assistant, [Dept. of Geophysics, Charles University, Faculty of Mathematics and Physics](#)
- 2003–2005 Harris Post-doctoral Scholar at [Dept. of Geophysics, Texas A&M University](#)
- 2003 Programmer, Charles University, Faculty of Mathematics and Physics
- 1998–2003 Postgraduate study of geophysics at Charles University
- 1997 Geomagnetic sounding at archeological localities, Institute of Archeology of the Czech Academy of Sciences (part-time occupation)
- 1993–1998 Study of physics at Charles University

Research stays and schools

- May 2002 Dept. of Geology and Geophysics, Texas A&M University, College Station (5 weeks)
- Aug 2001 Summer School of Geology, Roztěž, Czech Republic (1 week)

Publications

Recently submitted papers

1. Velímský, J., Z. Martinec, and M.E. Everett. Electrical conductivity in the Earth's mantle inferred from CHAMP satellite measurements - I. Data processing and 1-D inversion. *submitted to Geophys. J. Int.* [PDF \(884 kB\)](#)

Reviewed papers

1. Velímský, J. and Z. Martinec, Time-domain, spherical harmonic-finite element approach to transient three-dimensional geomagnetic induction in a spherical heterogeneous Earth. *Geophys. J. Int.*, **160(1)**, 81–101. [PDF \(556 kB\)](#)

2. Velínský, J. and M.E. Everett, 2004. Electromagnetic Induction by Sq Ionospheric Currents in a Heterogeneous Earth: Modeling Using Ground-based and Satellite Measurements. *In: Reigberg C., H. Lühr, P. Schwintzer, and J. Wickert (Eds.), Earth Observation with CHAMP. Results from Three Years in Orbit.* Springer-Verlag, 2005, pp. 341–346. [PDF \(276 kB\)](#)
3. Martinec, Z, M.E. Everett and J. Velínský, 2003. Time-domain, spectral finite-element approach to transient 2-D geomagnetic induction in a spherical heterogeneous Earth. *Geophys. J. Int.*, **155**, 33–43.
4. Velínský J., M.E. Everett and Z. Martinec, 2003. The transient Dst electromagnetic induction signal at satellite altitudes for a realistic 3-D electrical conductivity in the crust and mantle, *Geoph. Res. Let.*, **30(7)**, 1355–9. [PDF \(1.2 MB\)](#)
5. Velínský J. and C. Matyska, 2000. The influence of adiabatic heating/cooling on magnetohydrodynamic systems, *Phys. Earth Planet. Inter.*, **117**, 197–207. [PDF \(594 kB\)](#)

Theses

1. Velínský, J., Electromagnetic induction in a heterogeneous Earth's mantle: Time-domain modelling. Charles University, Praha. Ph.D. thesis, supervisor: Zdeněk Martinec. [PDF \(2.8 MB\)](#)
2. Velínský J., 1998. Numerical simulations of the magnetohydrodynamic system. Charles University, Praha. Master thesis, supervisor: Ctirad Matyska. [Gzipped PostScript \(1.7 MB\)](#)

Popularization of science

1. Velínský J., Z. Martinec a M.E. Everett, 2004. Elektromagnetická indukce v Zemi: pohled z oběžné dráhy, *Čs. časopis pro fyziku*, **4/2004**, 209-213, (in Czech, English title: Electromagnetic induction in the Earth: A view from the satellite orbit). [PDF \(1.2 MB\)](#)

Presentations

1. Velímský, J., Z. Martinec, and M.E. Everett, Electromagnetic induction: Lateral variations in mantle electrical conductivity inferred from CHAMP and Ørsted magnetic vector data. *17th EM Induction Workshop, Hyderabad, 2004*. [Slides \(PDF, 11 MB\)](#), [Extended abstract \(PDF, 268 kB\)](#),
2. Velímský, J., Z. Martinec, and M.E. Everett, Electromagnetic induction: Lateral variations in mantle conductivity beneath the Pacific region inferred from CHAMP magnetic vector data, *EGU 1st General Assembly, Nice, 2004*. [Slides \(PDF, 3.2 MB\)](#)
3. Velímský, J. and M.E. Everett, Constraints on the surface conductance map by 3-D EM induction modeling using ground-based and satellite Sq data, *AGU Fall Meeting, San Francisco, 2003*. [Slides \(PDF, 1.4 MB\)](#)
4. Velímský, J. and M.E. Everett, Electromagnetic induction by Sq ionospheric currents in a heterogeneous Earth: Modeling using ground-based and satellite measurements, *2nd CHAMP Science Meeting, Potsdam, 2003*. [Slides \(PDF, 792 kB\)](#), [animation \(DivX, 1.4 MB\)](#)
5. Velímský, J., M.E. Everett and Z. Martinec, EM induction in 2-D and 3-D heterogeneous sphere: Time-domain and frequency-domain solvers *4th Oersted International Science Team Conference, Copenhagen, 2002*. [Poster \(Gzipped PostScript, 232 kB\)](#)
6. Velímský, J., Response of the mantle conductivity variations to the transient external currents computed at satellite heights. *16th EM Induction Workshop, Santa Fe, 2002*. [Slides \(Gzipped PostScript, 796 kB\)](#)
7. Velímský, J. and Z. Martinec, Initial-value approach to the electromagnetic induction in a heterogeneous sphere, *AGU Fall Meeting, San Francisco, 2001*. [Poster \(Gzipped PostScript, 240 kB\)](#)
8. Martinec, Z. and J. Velímský, Spectral-finite-element approach to three-dimensional electromagnetic induction in a spherical Earth. *AGU Fall Meeting, San Francisco, 2000*. [Poster \(Gzipped PostScript, 300 kB\)](#).
9. Velímský, J., Martinec, Z. and O. Čadek, 3D modelling of electromagnetic induction and its consequences for the mantle structure, *EGS XXIV General Assembly, The Hague, 1999*.

10. Velímský, J. and C. Matyska, Numerical simulations of magnetohydrodynamic systems with low Rayleigh number in the cartesian box, *6th SEDI Symposium, Tours, 1998*.