

# CURRICULUM VITAE

## LIBOR ŠACHL

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### OFFICE ADDRESS AND PERSONAL INFO:

Department of Geophysics	Gender:	Male
Faculty of Mathematics and Physics	Date of birth:	January 3, 1987
Charles University in Prague	Place of birth:	Brno (Czech Republic)
V Holešovičkách 2	Marital status:	Single
Praha 8, 180 00	Nationality:	Czech
Czech Republic		
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### EDUCATION

- 2011-2020      Ph.D. student at Charles University, Faculty of Mathematics and Physics, Department of Geophysics, Czech Republic  
Ph.D. thesis *Modelling of global ocean circulation and ocean-induced magnetic field* supervised by Prof. RNDr. Zdeněk Martinec, DrSc. was defended on 20th September 2020.
- 2009-2011      MSc. student at Charles University, Faculty of Mathematics and Physics, Department of Geophysics, Czech Republic  
MSc. thesis *Ray-based Born approximation* supervised by RNDr. Luděk Klimeš, DrSc. was defended on 20th September 2011, graduated with honors.
- 2006-2009      Bachelor student at Charles University, Faculty of Mathematics and Physics, Czech Republic  
Bachelor thesis *Termální konvekce jako nelineární dynamický systém: vliv radičního přenosu tepla (Thermal convection as a nonlinear dynamical system: influence of a heat transfer by radiation)* supervised by Doc. RNDr. Ctirad Matyska, DrSc. was defended on 23rd June 2009.
- 1998-2006      Grammar school in Brno
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### PUBLICATIONS

- L. Šachl, D. Einšpigel and Z. Martinec. Simple numerical tests for ocean tidal models. *Stud. Geophys. Geod.*, 64:202-240, 2020.
- S. Sajjadi, Z. Martinec, P. Prendergast, J. Hagedoorn, L. Šachl, P. Readman, E. Robin, B. O'Reilly and C. Horan. The unification of gravity data for Ireland-Northern Ireland. *Lead. Edge*, 39(2):135-143, 2020.
- L. Šachl, Z. Martinec, J. Velínský, C. Irrgang, J. Petereit, J. Saynisch, D. Einšpigel, and N. R. Schnepf. Modelling of electromagnetic signatures of global ocean circulation: physical approximations and numerical issues. *Earth Planets Space*, 71(1):58, 2019.
- J. Velínský, L. Šachl, and Z. Martinec. The global toroidal magnetic field generated in the Earth's oceans. *Earth Planet. Sc. Lett.*, 509:4754, 2019.

- J. Velínský, A. Grayver, A. Kuvshinov, and L. Šachl. On the modelling of  $M_2$  tidal magnetic signatures: Effects of physical approximations and numerical resolution. *Earth Planets Space*, 70(1):70192, 2018.
- Z. Martinec, J. Velínský, R. Haagmans, and L. Šachl. A two-step along-track spectral analysis for estimating the magnetic signals of magnetospheric ring current from Swarm data. *Geophys. J. Int.*, 212(2):12011217, 2017.
- L. Šachl. Validation of 3-D synthetic seismograms based on the ray-Born approximation. *Stud. Geophys. Geod.*, 57(1): 84-102, 2013.

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#### REPORTS

- J. Velínský, Z. Martinec, L. Šachl, D. Einšpigel and L. Hanyk. Magnetic Signatures of Barotropic and Baroclinic Flows in Swarm Data. ESA Study Contract Report, 4000109562/14/NL/CBi, 2016.  
URL <http://geo.mff.cuni.cz/SwarmOceans/files/Swarm+Oceans.pdf>.
- L. Šachl. Born and ray-theory seismograms in 2D heterogeneous isotropic models. Seismic Waves in Complex 3-D Structures, Report 22, Dep. Geophys., Charles Univ., Prague, 83-112, 2012.  
URL <http://sw3d.cz/papers.bin/r22ls2.pdf>.
- L. Šachl. Effect of caustics on the ray-based Born approximation. Seismic Waves in Complex 3-D Structures, Report 22, Dep. Geophys., Charles Univ., Prague, 55-82, 2012.  
URL <http://seis13.karlov.mff.cuni.cz/papers.bin/r22ls1.pdf>.
- L. Šachl. 2D computations of 3D synthetic seismograms using the ray-based Born approximation in heterogeneous background model P1. Seismic Waves in Complex 3-D Structures, Report 21, Dep. Geophys., Charles Univ., Prague, 99-114, 2011. URL <http://sw3d.cz/papers.bin/r21ls2.pdf>.
- L. Šachl. 3D and 2D computations of 3D synthetic seismograms using the ray-based Born approximation in simple models. Seismic Waves in Complex 3-D Structures, Report 21, Dep. Geophys., Charles Univ., Prague, 69-98, 2011. URL <http://sw3d.cz/papers.bin/r21ls2.pdf>.

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#### PRESENTATIONS

- L. Šachl. Oceans and their numerical modelling. Fyzikální čtvrtky, Prague, March 5, 2020.
- L. Šachl, Z. Martinec and D. Einšpigel. Ocean model LSOMG: Development and applications. Geophysical Doctoral Day, Prague, May 31, 2017.
- L. Šachl, Z. Martinec and D. Einšpigel. Ocean model LSOMG: Development and applications. Irish Geological Research Meeting, Galway, February 20, 2016.
- L. Šachl and Z. Martinec. LSG Ocean Model Introduction and Preliminary Results. Week of Doctoral Students, Prague, June 6, 2013.
- L. Šachl and Z. Martinec. Introduction to Ocean Modelling. Week of Doctoral Students, Prague, May 31, 2012.

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## POSTERS

- L. Šachl and Z. Martinec. Global singularity-free grids in ocean modelling. EGU General Assembly, Vienna, April 11, 2019.
- L. Šachl, D. Einšpigel, A. Grayver, C. Irrgang, A. Kuvshinov, Z. Martinec, J. Petereit, J. Saynisch, N. Schnepf and J. Velímský. Benchmark study of magnetic induction codes forced by ocean electric currents. EGU General Assembly, Vienna, April 25, 2017.
- J. Velímský, D. Einšpigel, A. Grayver, C. Irrgang, A. Kuvshinov, Z. Martinec, J. Petereit, L. Šachl, J. Saynisch and R. Tyler. Benchmark study of magnetic induction codes forced by ocean tides. EGU General Assembly, Vienna, April 25, 2017.
- L. Šachl, D. Einšpigel, Z. Martinec and J. Velímský. Computations of wind-driven ocean-induced magnetic fields. EGU General Assembly, Vienna, April 20, 2016.
- L. Šachl and Z. Martinec. Development of ocean model LSOMG. IUGG General Assembly, Prague, June 27, 2015.
- L. Šachl and Z. Martinec. Development of ocean model LSOMG. EGU General Assembly, Vienna, April 15, 2015.
- D. Einšpigel, J. Velímský, Z. Martinec and L. Šachl. Magnetic signals generated by ocean flow in Swarm satellite data: prediction and observation. EGU General Assembly, Vienna, April 15, 2015.
- L. Šachl, D. Einšpigel and Z. Martinec. A benchmark study for two barotropic ocean model codes. EGU General Assembly, Vienna, April 28, 2014.
- L. Šachl. Seismogram Improvement Using the Born Aproximation. EAGE Conference & Exhibition incorporating SPE EUROPEC, Vienna, May, 2011.

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## GRANTS AND PROJECTS

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| 2014-2016 | Magnetic Signatures of Barotropic and Baroclinic Ocean Flows in Swarm Data, European Space Agency Contract No. 4000109562/14/NL/CBi, team member.  |
| 2010-2012 | Nové trendy v paprskových metodách - část 4, Grant Agency of the Czech Republic, P210/10/0736, team member.  |
| 2010-2012 | Vlastní kmity a viskoelastické slapy selfgravitujících planetárních těles: pseudospektrální přístup (Free oscillations and viscoelastic tides of selfgraviting planetary bodies, pseudospectral approach), Grant Agency of Charles University, GAUK 141610, team member. |

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## TEACHING ACITIVITIES

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| 2011-2013 | Programming for physicists (exercises), Faculty of Mathematics and Physics, Charles University, Czech Republic. |
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#### WORKSHOPS AND SUMMER SCHOOLS

8/2018	Waves in Flows, Prague, Czech Republic, August 27-31, 2018
9/2014	Physics of the Ocean, Bad Honnef, Germany, September 21-26, 2014
8/2014	ESA Earth Observation Summer School, ESA-ESRIN, Frascati, August 4-14, 2014
6/2010	Seismic waves in laterally inhomogeneous media VII, Teplá, Czech Republic, June 21-26, 2010

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#### SKILLS

- Native Czech speaker, C1 in English
- Computer skills: Fortran 95, FORTRAN 77, Matlab, C, C++, LaTeX, HTML, CSS
- Owner of the driving licence since 2006