

# Dr. Christian Levers

Conservation Biogeography Lab  
Department of Geography  
Humboldt-Universität zu Berlin  
Unter den Linden 6  
10099 Berlin, Germany  
christian.levers@geo.hu-berlin.de  
phone: +49 (0) 30 2093 9341  
fax: +49 (0) 30 2093 6848

## EDUCATION

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- 2011 – 2016      Doctoral degree (Dr. rer. nat.) in Geography  
Faculty of Mathematics and Natural Sciences, Humboldt-Universität zu Berlin, Germany.  
Overall grade: magna cum laude  
*Thesis title: Understanding spatial patterns of land-system change in Europe.*  
*Advisors: Tobias Kuemmerle, Tobia Lakes, and Ariane Walz.*  
*Thesis grade: magna cum laude*  
*Defense grade: summa cum laude*
- 2007 – 2009      Master of Science in Geography  
Department of Geography, Humboldt-Universität zu Berlin, Germany.  
Overall grade: excellent (1.0)  
*Thesis title: Modellierung von Grundwasserströmung und Wärmetransport in einer peri-urbanen Flusstalaue [Modeling of groundwater flows and heat transport in a peri-urban river valley flood plain].*  
*Advisors: Gunnar Nützmann and Tobia Lakes.*  
*Thesis grade: excellent (1.0)*
- 2003 – 2006      Bachelor of Science in Geography  
Department of Geography, Ruhr-Universität Bochum, Germany.  
Overall grade: excellent (91 %)  
*Thesis title: Untersuchung zum Einfluss von Beleuchtungssystemen auf das Mikroklima von Schauhöhlen am Beispiel der Punkva-Höhle (Tschechische Republik) und der Jewel Cave (USA) [Investigation of influences on the microclimate of show caves caused by lighting systems shown at the examples of Punkva Cave (Czech Republic) and Jewel Cave (USA)].*  
*Advisor: Andreas Pflitsch.*  
*Thesis grade: excellent (100%)*
- 1993 – 2002      Abitur  
Franz-Haniel Gymnasium, Duisburg, Germany.  
Overall grade: good (1.9)

## EMPLOYMENT

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### *Professional experience*

- 2016/03 – ongoing      Postdoctoral researcher at the Department of Geography, Conservation Biogeography Lab, Humboldt-Universität zu Berlin, Germany.
- 2011/05 – 2016/02      Doctoral researcher at the Department of Geography, Conservation Biogeography Lab, Humboldt-Universität zu Berlin, Germany.
- 2010/08 – 2010/09      Scientific assistant at the Department of Geography, Geomatics Lab, Humboldt-Universität zu Berlin, Germany.
- 2009/10 – 2010/07      Research and teaching assistant at the Department of Geography, Geomatics Lab, Humboldt-Universität zu Berlin, Germany.

*Undergraduate experience*

- 2009/04 – 2009/06 Student assistant at the Department of Ecohydrology, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany.
- 2009/02 – 2009/07 Graduate assistant at the Department of Geography (Climatology), Ruhr-Universität Bochum, Germany.
- 2008/06 – 2008/12 Student assistant at the Department of Geography (Climatology), Humboldt-Universität zu Berlin, Germany.
- 2008/04 – 2008/07 Student assistant at the Department of Ecohydrology, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany.
- 2005/06 – 2007/03 Student assistant at the Department of Geography (Soil Science), Ruhr-Universität Bochum, Germany.

**RESEARCH***Publications in peer-reviewed journals*

- 21 Estel, S., Mader, S., **Levers, C.**, Verburg, P.H., Baumann, M. & Kuemmerle, T. (under review). Mapping grassland management intensity in Europe by combining satellite data and agricultural statistics. submitted to *Environmental Research Letters*.
- 20 Gerstner, K., **Levers, C.**, Kuemmerle, T., Pereira, H.M., & Seppelt, R. (under review). Modelling land-use effects on European plant diversity using a countryside SAR approach. submitted to *Diversity and Distributions*.
- 19 Tieskens, K.F., Schulp, C.J.E., **Levers, C.**, Lieskovský, J., Kuemmerle, T., Plieninger, T. & Verburg, P.H. (under review). Characterization of European Cultural Landscapes: accounting for structure, land-use intensity and value of rural landscapes. submitted to *Land Use Policy*.
- 18 **Levers, C.**, Müller, D., Verburg, P.H., Butsic, V. & Kuemmerle, T. (2016). Drivers of changes in agricultural land-use intensity in Europe. *Land Use Policy*, 58, pp 380-393.
- 17 Kuemmerle, T., **Levers, C.**, Kroisleitner, C., Erb, K., Estel, S., Jepsen, M.R., Müller, D., Plutzer, C., Stürck, J., Verkerk, P.J., Verburg, P.H. & Reenberg, A. (2016). Hotspots of land-use change in Europe. *Environmental Research Letters*, 11(6), 064020.
- 16 Smaliychuk, A., Müller, D., Prishchepov, A.V., **Levers, C.**, Kruhlov, I. & Kuemmerle, T. (2016). Recultivation of abandoned agricultural lands in Ukraine: Patterns and drivers. *Global Environmental Change*, 38, pp 70-81.
- 15 van der Zanden, E.H., **Levers, C.**, Verburg, P.H. & Kuemmerle, T. (2016). Representing composition, spatial structure and management intensity of European agricultural landscapes: A new typology. *Landscape and Urban Planning*, 150, pp 36-49.
- 14 Estel, S., Kuemmerle, T., **Levers, C.**, Baumann, M. & Hostert, P. (2016). Mapping cropland-use intensity across Europe using MODIS NDVI time series. *Environmental Research Letters*, 11(2), 024015.
- 13 Stürck, J., **Levers, C.**, van der Zanden, E.H., Schulp, C.J.E., Verkerk, P.J., Kuemmerle, T., Helming, J., Lotze-Campen, H., Popp, A., Schrammeijer, E. & Verburg, P.H. (2015). Simulating and visualizing future land change trajectories in Europe. *Regional Environmental Change*, online first.
- 12 **Levers, C.**, Müller, D., Erb, K., Haberl, H., Jepsen, M.R., Metzger, M.J., Meyfroidt, P., Plieninger, T., Plutzer, C., Stürck, J., Verburg, P.H., Verkerk, P.J. & Kuemmerle, T. (2015). Archetypical patterns and trajectories of land systems in Europe. *Regional Environmental Change*, online first.
- 11 Verkerk, P.J., **Levers, C.**, Kuemmerle, T., Lindner, M., Valbuena, R., Verburg, P.H. & Zudin, S. (2015). Data from: Mapping wood production in European forests. *Forest Ecology and Management*, <http://dx.doi.org/10.5061/dryad.mk067>.
- 10 Verkerk, P.J., **Levers, C.**, Kuemmerle, T., Lindner, M., Valbuena, R., Verburg, P.H. & Zudin, S. (2015). Mapping wood production in European forests. *Forest Ecology and Management*, 357, pp 228-238.
- 9 Kehoe, L., Kuemmerle, T., Meyer, C., **Levers, C.**, Václavík, T. & Kreft, H. (2015). Global patterns of agricultural land-use intensity and vertebrate diversity. *Diversity and Distributions*, 21(11), pp 1308-1318.

- 8 Mouchet, M.A., **Levers, C.**, Plutzer, C., Kuemmerle, T., Zupan, L., Thuiller, W., Erb, K-H., Lavorel, S. & Haberl, H. (2015). Testing the effectiveness of environmental variables to explain European terrestrial vertebrate species richness across biogeographical scales. *PLoS ONE*, 10(7), e0131924.
- 7 Plutzer, C., Kroisleitner, C., Haberl, H., Fetzel, T., Bulgheroni, C., Beringer, T., Hostert, P., Kastner, T., Kuemmerle, T., Lauk, C., **Levers, C.**, Lindner, M., Moser, D., Müller, D., Niedertscheider, M., Paracchini, M., Schaphoff, S., Verburg, P., Verkerk, P.J. & Erb, K. (2015). Changes in the spatial patterns of human appropriation of net primary production (HANPP) in Europe 1990-2006. *Regional Environmental Change*, online first.
- 6 Estel, S., Kuemmerle, T., Alcantara, C., **Levers, C.**, Prishchepov, A. & Hostert, P. (2015). Mapping farmland abandonment and recultivation across Europe using MODIS NDVI time series. *Remote Sensing of Environment*, 163, pp 312-325.
- 5 Plieninger, T., **Levers, C.**, Mantel, M., Costa, A., Schaich, H. & Kuemmerle, T. (2015). Patterns and drivers of scattered tree loss: orchard meadows in Southern Germany. *PLoS ONE*, 10(5), e0126178.
- 4 **Levers, C.**, Verkerk, P.J., Müller, D., Verburg, P.H., Butsic, V., Leitão, P.J., Lindner, M. & Kuemmerle, T. (2014). Drivers of forest harvesting intensity patterns in Europe. *Forest Ecology and Management*, 315, pp 160-172.
- 3 Nützmann, G., **Levers, C.** & Lewandowski, J. (2013). Coupled groundwater flow and heat transport simulation for estimating transient aquifer-stream exchange at the lowland River Spree (Germany). *Hydrological Processes*, 28(13), pp 4078-4090.
- 2 Kuemmerle, T., Erb, K., Meyfroidt, P., Müller, D., Verburg, P.H., Estel, S., Haberl, H., Hostert, P., Jepsen, M.R., Kastner, T., **Levers, C.**, Lindner, M., Plutzer, C., Verkerk, P.J., van der Zanden, E.H. & Reenberg, A. (2013). Challenges and opportunities in mapping land use intensity globally. *Current Opinion in Environmental Sustainability*, 5(5), pp 484-493.
- 1 Fobil, J.N., **Levers, C.**, Lakes, T., Loag, W., Kraemer, A. & May, J. (2012). Mapping Urban Malaria and Diarrhea Mortality in Accra, Ghana: Evidence of Vulnerabilities and Implications for Urban Health Policy. *Journal of Urban Health*, 89(6), pp 977-991.

#### *Publications in peer-reviewed monographies*

- 1 Müller, D., Haberl, H., Bartels, L.E., Baumann, M., Beckert, M., **Levers, C.**, Schierhorn, F., Zscheischler, J., Havlik, P., Hostert, P., Mertz, O. & Smith, P. (2016). Competition for land-based ecosystem services: Trade-offs and synergies. In: *Niewöhner, J., Bruns, A., Hostert, P., Krüger, T., Nielsen, J.Ø., Haberl, H., Lauk, C., Lutz, J., & Müller, D. (Eds.), Land Use Competition: Ecological, Economic and Social Perspectives*. Springer, Dordrecht, The Netherlands.

#### *Project reports*

- 3 Kuemmerle, T., Stürck, J., **Levers, C.**, Müller, D., Erb, K., Gingrich, S., Jepsen, M.R., Kastner, T., Verkerk, P.J. & Verburg, P.H. (2014). Interpretation of scenario results in terms of described and mapped land change trajectories and archetypes. VOLANTE deliverable No. 11.2.
- 2 Kuemmerle, T., **Levers, C.**, Müller, D., Verburg, P.H., Stürck, J., Erb, K., Haberl, H. & Jepsen, M.R. (2014). Maps of syndromes of land system changes in Europe. VOLANTE deliverable No. 3.4.
- 1 Kuemmerle, T., **Levers, C.**, Müller, D., Erb, K., Plutzer, C., Verburg, P.H. & Verkerk, P.J. (2013). Report on drivers of recent land use transitions in Europe. VOLANTE deliverable No. 3.3.

#### *Other publications*

- 5 Lückmann, J.M., **Levers, C.** & Kindt, A. (2015). Die Sprache der Statistik. *Junge Akademie Magazin*, 20, p 38.
- 4 **Levers, C.** (2010). Kenya and the Mt. Kenya Region - A geographical classification of the physical environment. In: *Dannenberg, P. & Nduru, G. (2010): Challenges for export orientated fruits and vegetables farmers in the Mt. Kenya region - Experiences of an intercultural student project*. Work reports Department of Geography, Humboldt-Universität zu Berlin. Vol. 155, pp 24-34.
- 3 **Levers, C.** (2009). Modellierung von Grundwasserströmung und Wärmetransport in einer peri-urbanen Flusstalaue. Master Thesis, Humboldt-Universität zu Berlin.

- 2 Baumann, M., Grunow, B., **Levers, C.** & Schierbaum, T. (2009). Mikroklimatische Untersuchungen im Linken Talgar-Tal des Tian Shan, Kasachstan. In: *Baumann, M., Lentschke, J., Munack, H. & Schröder, H. (2009). Landschaftsökologie des Hochgebirges (Zailijskij Alatau, Tian Shan, Kasachstan). Work reports Department of Geography, Humboldt-Universität zu Berlin. Vol. 150, pp 12-22.*
- 1 **Levers, C.** (2006). Untersuchung zum Einfluss von Beleuchtungssystemen auf das Mikroklima von Schauhöhlen am Beispiel der Punkva-Höhle (Tschechische Republik) und der Jewel Cave (USA). Bachelor Thesis, Ruhr-Universität Bochum.

### Conference presentations

- 16 Schneider, M., Blanchard, G., **Levers, C.**, Kuemmerle, T. (2015). Spatial variation of drivers of agricultural abandonment with spatially boosted models. 30th International Workshop on Statistical Modelling, Linz, Austria. July 2015. *Poster presentation.*
- 15 Schneider, M., Blanchard, G., **Levers, C.**, Kuemmerle, T. (2015). Spatial variation of drivers of agricultural abandonment with spatially boosted models. Spatial Statistics 2015: Emerging Patterns, Avignon, France. June 2015. *Poster presentation.*
- 14 Kehoe, L., Kuemmerle, T., Senf, C., Meyer, C., **Levers, C.**, Václavík, T., Gerstner, K. & Kreft, H. (2015). Global patterns of agricultural land use intensity and biodiversity. International Biogeography Society 7th Biennial Conference, Bayreuth, Germany. January 2015. *Oral presentation.*
- 13 Kehoe, L., Kuemmerle, T., Meyer, C., **Levers, C.** & Kreft, H. (2015). Relating Global Agricultural Land Use Intensity and Biodiversity Patterns. Global Land Project - Open Science Meeting, Berlin, Germany. March 2014. *Oral presentation.*
- 12 **Levers, C.**, Kuemmerle, T., Erb, K-H., Estel, S., Haberl, H., Jepsen, M.R., Kroisleitner, C., Lindner, M., Müller, D., Plutzar, C., Stürck, J., Verburg, P.H., Verker, P.J., van der Zanden, E.H. & Reenberg, A. (2014). Hotspots and Archetypes of Land System Change in Europe. Global Land Project - Open Science Meeting, Berlin, Germany. March 2014. *Oral presentation.*
- 11 Nützmann, G., **Levers, C.** & Lewandowski, J. (2014). Simulating transient aquifer-stream exchange at the lowland River Spree (Germany) with a coupled groundwater flow and heat transport model. Computational Methods in Water Resources, Stuttgart, Germany. June 2014. *Poster presentation.*
- 10 Lindner, M., Verkerk, P.J., **Levers, C.**, Kuemmerle, T., Zudin, S. & Vilén, T. (2013). Improved mapping of forest management effects on carbon storage in European forests. GHG-Europe conference, Antwerp, Belgium. September 2013. *Oral presentation.*
- 9 Verkerk, P.J., **Levers, C.**, Kuemmerle, T., Zudin, S. & Lindner, M. (2013). Mapping ecosystem services provided by European forests. 6th Annual International ESP conference, Bali, Indonesia. August 2013. *Oral presentation.*
- 8 **Levers, C.**, Lakes, T. & Kümmerle, T. (2012). Social segregation in urban areas – an exploratory data analysis using different statistical regression models. IGC 2012, Cologne, Germany. August 2012. *Oral presentation.*
- 7 Estel, S., **Levers, C.** & Kümmerle, T. (2012). Mapping hotspots of forest disturbance across Europe. IAMO Forum 2012, Halle (Saale), Germany. June 2012. *Oral presentation.*
- 6 **Levers, C.**, Müller, D., Verkerk, H. & Kümmerle, T. (2012). Identifying drivers of land use change and their importance in Europe: a data mining approach with Boosted Regression Trees. IAMO Forum 2012, Halle (Saale), Germany. June 2012. *Oral presentation.*
- 5 Nützmann, G., **Levers, C.** & Lewandowski, J. (2010). Modelling of Transient River - Aquifer Exchange Using Pressure Head and Heat Measurements: The Hyporheic Zone's Dimension. The XVIII Conference on Computational Methods in Water Resources, Barcelona, Spain. June 2010. *Oral presentation.*
- 4 **Levers, C.**, Fobil, J., Kraemer, A., May, J. & Lakes, T. (2010). A malaria risk analysis in Accra, Ghana using geographically weighted regression. GI\_Forum 2010, Salzburg, Austria. July 2010. *Oral presentation.*
- 3 **Levers, C.**, Brückner, M. & Lakes, T. (2010). Social segregation in Berlin - an exploratory data analysis using geographically weighted regression analysis. 13th AGILE International Conference on Geographic Information Science, Guimarães, Portugal. May 2010. *Poster presentation.*
- 2 **Levers, C.**, Grunow, B. & Pflitsch, A. (2007). Investigation of influences on the microclimate of show caves caused by lighting systems shown at the examples of Punkva Cave (Czech Republic) and Jewel Cave

(USA). Symposium on Cave Climatology, Wind Cave, Hot Springs, South Dakota, USA. March 2007. *Oral presentation.*

- 1 **Levers, C.**, Grunow, B. & Pflitsch, A. (2006). Untersuchung zum Einfluss von Beleuchtungssystemen auf das Mikroklima von Schauhöhlen am Beispiel der Punkva-Höhle (Tschechische Republik) und der Jewel Cave (USA). 25th annual meeting AK-Klima, Passau, Germany. November 2006. *Poster presentation.*

### *Conference, workshop, and school attendance*

#### **Conferences**

- 2014 2nd Global Land Project - Open Science Meeting, Berlin, Germany.
- 2012 32rd IGC, Cologne, Germany.
- 2012 IAMO Forum 2012, Halle (Saale), Germany.
- 2012 1st ResearchDay of the Department of Geography, Humboldt-Universität zu Berlin, Germany (Co-organizer).
- 2010 GI\_Forum 2010, Salzburg, Austria.
- 2010 13th AGILE International Conference on Geographic Information Science, Guimarães, Portugal.
- 2007 Symposium on Cave Climatology, Wind Cave, Hot Springs, South Dakota, USA.
- 2006 25th annual meeting AK-Klima, Passau, Germany.

#### **Workshops**

- 2015 Interdisciplinary workshop on causality hosted by the Junge Akademie, Ohlstadt, Germany.
- 2014 VOLANTE workshop on archetypes of land use change in Europe, Berlin, Germany.
- 2014 2nd VOLANTE workshop on identifying pathways to land use visions in Europe, Barcelona, Spain.
- 2013 VOLANTE workshop on regime shifts, hotspots, and archetypes of land use change in Europe, Vienna, Austria.
- 2013 1st VOLANTE workshop on identifying pathways to land use visions in Europe, The Hague, The Netherlands.
- 2012 VOLANTE workshop on methodology development to map hotspots of land use change across Europe, Berlin, Germany.
- 2012 VOLANTE & GHG Europe workshop on forest management, Ede, The Netherlands.
- 2011 VOLANTE & GHG Europe workshop on mapping forest disturbances and forest intensity indicators across Europe, Berlin, Germany.

#### **Summer/Winter schools**

- 2014 KOSMOS Summer University *FutureLand: Land use competition*, Berlin, Germany.
- 2009 Summer School *Megacities: Health, Geomatics and Climate Change*, Bielefeld, Germany.

### **INTERNATIONAL WORKING EXPERIENCE**

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- 2015/05 Visiting scientist at the Mediterranean Regional Office of the European Forest Institute (EFIMED), St. Antoni M. Claret 167, 08025 Barcelona, Spain.
- 2013/02 Visiting scientist at the European Forest Institute (EFI), Torikatu 34, 80100 Joensuu, Finland.

## TEACHING EXPERIENCE

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### *Graduate level*

- 2016 Invited lecture and seminar on spatial modelling and spatial statistics (IAMO Doctorate Programme, Halle, Germany, 8 h)
- 2012 – 2014 Invited lecture and seminar on spatial statistics and ESDA (IAMO Doctorate Programme, Halle, Germany, 3 h)

### *Master level*

- 2014 Quantitative methods (Humboldt-Universität zu Berlin, seminar, final exam project supervision, winter term)
- 2014 & 2015 Ecosystem Services and Biodiversity - seminar on spatial clustering techniques (Humboldt-Universität zu Berlin, seminar, 3h, summer term)
- 2013 Land System Science - seminar on land use intensity (Humboldt-Universität zu Berlin, seminar, 3 h, winter term)
- 2011 Land System Science - literature seminar on land use change processes, impacts, drivers, and actors (Humboldt-Universität zu Berlin, seminar, 3 h, winter term)
- 2009 Advanced methods of Geoinformation processing (Humboldt-Universität zu Berlin, seminar, 32 h, winter term)
- 2009 Advanced methods of Geoinformation processing (Humboldt-Universität zu Berlin, substitute lecture on spatial modelling and spatial analysis, 6 h, winter term)
- 2009 Mathematics for Geographers (Humboldt-Universität zu Berlin, lecture and seminar, 6 h, winter term)

### *Undergraduate level*

- 2015 Applied Conservation Biology using R (Humboldt-Universität zu Berlin, module, 30 h, winter term)
- 2012 Spatial analysis and geostatistics (Humboldt-Universität zu Berlin, seminar, 28 h, winter term)
- 2011 – 2014 Statistics I (Humboldt-Universität zu Berlin, seminar, 28 h, winter term)
- 2011 – 2012 Introduction to Geoinformation processing (Humboldt-Universität zu Berlin, seminar, 30 h, summer term)
- 2010 Ruhr Area and Geomatics (Humboldt-Universität zu Berlin, study trip, 4 days)
- 2010 Applied Geomatics (Humboldt-Universität zu Berlin, seminar, 28 h, summer term)

## INTERNSHIPS

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- 2008/03 – 2008/04 Department of Ecohydrology, Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin, Germany.
- 2006/10 – 2007/03 Department of Geography (Cartography), Ruhr-Universität Bochum, Germany.
- 2005/08 – 2005/09 PCG Project Consult GmbH, Essen, Germany.

## GRANTS, AWARDS AND FELLOWSHIPS

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- 2010 Nomination for the Humboldt-Preis 2010, Humboldt-Universität zu Berlin, Germany.
- 2010 2nd place in the Best Poster Award at the 13th AGILE International Conference on Geographic Information Science, Guimarães, Portugal.

- 2010 ESRI sponsors grant for researchers to attend the 13th AGILE International Conference on Geographic Information Science, Guimarães, Portugal.
- 2009 Best Master graduation, year 2009, Humboldt-Universität zu Berlin, Germany.
- 2007 Travel award by the Ruth und Gert Massenbergr foundation to attend the Symposium on Cave Climatology at Wind Cave, Hot Springs, South Dakota, USA.

## PROFESSIONAL SERVICES

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- Reviewer *Environmental Research Letters*  
*Agricultural Systems*  
*Regional Environmental Change*  
*European Journal of Forest Reserach*  
*Land*
- 2012 – 2014 Elected member of the institutional board of the Department of Geography, Humboldt-Universität zu Berlin, Germany.

## PERSONAL SKILLS AND COMPETENCES

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### *Languages*

- German Native language
- English Proficient user (understanding, speaking, writing)
- Spanish Independent user (understanding, speaking); Basic user (writing)

### *Qualifications*

- German driving licence (classes A1, A, B, M, L, T/S)
- PADI certified Advanced Open Water Diver

### *Computer skills*

- Microsoft Office very good command
- ESRI ArcGIS very good command
- OpenGeoDa very good command
- R very good command
- EndNote very good command
- QGIS good command
- LaTeX/BibTeX good command
- SPSS good command
- MODFLOW good command
- SUTRA good command
- Python basic command
- Surfer basic command
- Grapher basic command

## MISCELLANEOUS

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2014 – ongoing	Community service at the neighborhood management programme "Mariannenkiez", Berlin, Germany.
2010/10 – 2011/04	Long term travel through Central and South America incl. 2.5 weeks one-on-one Spanish course at San Pedro Spanish School, San Pedro La Laguna, Guatemala.
2007/03 – 2007/06	Volunteering at American Conservation Experience (ACE) in the field of nature conservation and restoration.
Interests	Travelling, Hiking/Trekking, Sports

Berlin, August 12, 2016

Christian Levers