

CURICULUM VITAE
DENITZA D. VOUTCHKOVA

PERSONAL DETAILS

names: Denitza Dimitrova Voutchkova (bg: Деница Димитрова Вучкова)
date of birth: 05 August 1982
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SCIENTIFIC INTERESTS

- Hydrology, hydrograph analysis of headwater watersheds, time-series analysis, automation of data-analyses in R
- Water quality, inorganic hydrogeochemistry; GIS and geospatial statistics; exploratory multivariate data analysis (incl. PCA); Theory of Sampling
- Medical geology; Human exposure and health implications; environmental science
- Science communication for general public, social media involvement;

EDUCATION

PhD in Geoscience (15 October 2014) **Aarhus University** (AU, Denmark), Faculty of Science and Technology, Department of Geoscience;
PhD Dissertation: Iodine in Danish Groundwater and Drinking water;
PhD Supervisors: Søren Munch Kristiansen (AU) and Birgitte Hansen (Geological Survey of Denmark and Greenland, GEUS);
Committee: Martin Rygaard (Technical University of Denmark, DTU), Olle Selinus (Linneaus University, Sweden), Bo Holm Jacobsen (chair, AU)

MSc in Engineering - Water and Environment (22 June 2011) **Aalborg University** (AAU, Denmark), Faculty of Engineering and Science, Department of Civil Engineering;
Master thesis: Mapping of Nitrate Reduction Capacities on a Small Scale: Lundgårds Bæk Catchment Area;
Supervisors: Jacob Birk Jensen (NIRAS and AAU) and Morten Lauge Pedersen (AAU)

MEng in Hydraulic (Hydrotechnic) engineering (13 July 2007) **University of Architecture, Civil Engineering and Geodesy** (UACEG, Bulgaria), Faculty of Hydraulic Engineering; *Major:* Hydraulic Engineering; *Professional qualification:* Civil/Construction Engineering;
Master thesis: Reconstruction of Pier 2 of Rosenets petrol port (Bulgaria);
Supervisor: Maria Girginova (UACEG)

High school (1996-2001) National High School in Finance and Business (Sofia, Bulgaria)

EMPLOYMENT AND EXPERIENCE

- Jan. 2017 – Present **Lecturer** at the Department of Geography (National University of Singapore, Singapore), Education track. Teaching modules: GE4229 Earth Systems Science (16/17 sem-2), GE4212 Environmental Modelling (2017/2018 Sem-1), GE6221 Discussing Human-Environment Interactions (2017/2018 Sem-1), GE4211 Advanced Hydrology and Catchment Management (2017/2018 Sem-2), GE2229 Water and Environment (2017/2018 Sem-2)
- Jul. 2015 – Dec. 2017
(1 ½ year) **Postdoctoral researcher** at the Department of Ecosystem Science & Management (UWyo, US) Affiliated with Wyoming Center for Environmental Hydrology and Geophysics (WyCEHG) & Spatial Analysis of Watershed & Landscape Systems Group (SAWLS)
- *Project*: “Uncovering the hidden signals in streamflow”.
 - *Short description*: I am looking at streamflow variability/change at several snowmelt dominated headwater watersheds located in Wyoming. The goal of the study is to differentiate between streamflow responses due to climate and/or other local disturbances, e.g. bark beetle infestation, forest fires etc. The main focus of the study is on summer low flows. Current work includes preparation of SNOTEL data from Wyoming (near 70 stations, ~30 years of data per station) for temporal and spatial analysis aiming at uncovering trends in snow-water equivalent magnitudes and timing.
 - *Additional*: involvement in field work for other WyCEHG projects (e.g. intensive snow survey April 2016, hydrogeophysics and geotechnical field work, field season 2015 & 2016), preparation of short movie (<5 min) about irrigation return flow quantification and hydrogeophysical methods
- Nov. – 31 Dec. 2014
(2 months) **Research assistant** at the Department of Geoscience (AU, Denmark)
Job description: concluding project (data management), revising and submitting manuscripts based on the PhD work
- 2011-2014
(3 years) **PhD fellow** at the Department of Geoscience (AU, Denmark)
- *Projects involvement*: “Iodine in the hydrological cycle in Denmark and implications for human health” and “Arsenic levels in Danish Groundwater and Drinking water: Historical Data Assessment 2001-2013”.
 - *Teaching and student supervision*: field course in Hydrology and Geomorphology (in Danish: “Hydrologisk og Geomorfologisk Feltkursus, Klim”, 2012: 2 weeks, 2013: 6 days; 2014: 5 days); assisting with the course “Hydrology, soil and dynamic geomorphology” (in Danish: “Hydrologi, jordbund og dynamisk geomorfologi” (2012)); supervision of 2 small student projects.
 - *Research visits*: 3-4 months at Department of Groundwater and Quaternary Geology (GEUS) working on the Arsenic project, and regular visits for supervisor meetings (once every (next) week); 3 months in Autumn 2013 at GIS Centre, Ryan Institute and School of Geography and Archaeology, National University of Ireland, Galway (NUI Galway, Ireland)
- Apr. – 30 Apr. 2011
(1 month) **Engineer** at Danish Nature Agency (Naturstyrelsen, Aalborg)
Job description: field measurements and data analysis, Lundgårds Bæk Catchment Area
- 2008-2009 **Freelancing civil engineer** (geotechnical, hydrotechnical projects)
- 2006-2008 **Civil engineer** at “Plana –B” LTD (Bulgarian R&D company founded in 1992) (geotechnical, hydrotechnical projects)

- Jul. – Sept. 2006
(3 months) **Trainee** at Direction de l’Environnement et du Cadre de Vie, Service Aménagement des Rivières, Conseil Général du Haut-Rhin (Colmar, France); *internship description*: designing of fish ladders
- Jul. – Aug. 2005
(2 months) **Trainee** at bureau “Constructions”, GBS engineering (part of Glavbolgarstroy Holding, Bulgaria); *internship description*: designing concrete monastery wall (fence)

PHD DISSERTATION & MASTER THESIS

- Voutchkova, D.D.** Iodine in Danish Groundwater and Drinking Water (PhD thesis submitted to GSST, Aarhus University, on 31st of July 2014, defended on 9th of October 2014), p. 139
- Voutchkova, D.D.** **Mapping of Nitrate Reduction Capacities on a Small Scale: Lundgårds Bæk Catchment Area** (Msc thesis, Aalborg University, Denmark)
- Voutchkova, D.D.** Reconstruction of Pier 2 of Rosenets petrol port (Bulgaria); Supervisor: Maria Girginova (Master thesis, UACEG, Bulgaria)

PUBLISHED PEER-REVIEW PUBLICATIONS

- Voutchkova, D.D.**, Ernstsén, V., Kristiansen, S.M., Hansen, B. **Iodine in Major Danish Aquifers**. In *Environmental Earth Sciences* (2017) doi:10.1007/s12665-017-6775-6
- Nikoline, N.K., Schullehner, J., Hansen B., Jørgensen, L.F., Kristiansen S.M., **Voutchkova, D.D.**, Gerds, T.A., Andersen, P.K., Bihmann, K., Grønbæk, M., Kessing, L.V., Ersbøll, A.K. **Lithium in Drinking Water and Incidence of Suicide: A Nationwide Individual-Level Cohort Study with 22 Years of Follow-Up**. In *International Journal of Environmental Research and Public Health* (2017) doi:10.3390/ijerph14060627
- Voutchkova, D.D.**, Schullehner, J., Knudsen, N. N., Jørgensen, L. F., Ersbøll, A. K., Kristiansen, S. M., Hansen, B. **Exposure to Selected Geogenic Trace Elements (I, Li, and Sr) from Drinking Water in Denmark**. In *Geosciences* (2015) doi: 10.3390/geosciences5010045
- Voutchkova, D.D.**, Ernstsén, V., Hansen B., Sørensen B., Chaosheng Z., Kristiansen, S.M. **Assessment of spatial variation in drinking water iodine and its implications for dietary intake: A new conceptual model for Denmark**. In: *Science of the Total Environment*, (2014) doi: 10.1016/j.scitotenv.2014.06.008
- Voutchkova, D.D.**, Kristiansen, S.M., Hansen, B., Ernstsén V., Sørensen, B., Esbensen, K. **Iodine concentrations in Danish groundwater: historical data assessment 1933-2011**. In: *Environmental Geochemistry and Health*, (2014) doi: 10.1007/s10653-014-9625-4

MANUSCRIPTS IN PRESS, REVISION, OR PREPARATION

- Kessing, L.V., Gerds, T., Knudsen, N.K., Jørgensen, L.F., Kristiansen, S.M., **Voutchkova, D.D.**, Ernstsén, V., Schullehner, J., Hansen, B., Andersen, P.K., Ersbøll, A.K. Lithium in drinking water and the incidence of bipolar disorder – a nationwide population-based study. *Bipolar disorders*: doi: 10.1111/bdi.12524 (accepted).
- Kessing, L.V., Gerds, T.A., Knudsen, N.N, Jørgensen, L.F., Kristiansen, S.M., **Voutchkova D.D.**, Ernstsén, V., Schullehner, J., Hansen, B., Andersen P.K., Ersbøll, A.K., A nation-wide population-based case-control study on lithium in drinking water and the incidence of dementia. *JAMA Psychiatry* (accepted).
- Voutchkova, D.D.**, Miller S.N., Gerow K.G. Automated hydrograph separation for snow-dominated watersheds (revised and resubmitted to *Hydrological Processes* as a scientific briefing)

- Voutchkova, D.D.**, Hansen, B., Ernstsens, V., Kristiansen, S.M. Design of a nationwide drinking-water sampling campaign for assessment of dietary iodine intake and human health outcomes. (Technical Note I in PhD thesis, final revisions)
- Voutchkova, D.D.**, Miller S.N. Temporal variability and spatial differences in snow-water equivalent characteristics in Wyoming (in preparation)
- Voutchkova, D.D.**, Miller S.N. Retrospective analysis of low flows at headwater watersheds in Wyoming: vegetation disturbance and climate variability (in preparation)

PUBLISHED CONFERENCE ABSTRACTS

(From least to most recent)

- Hansen, B., Ernstsens, V., Sørensen, B., Esbensen, K., Kristensen, S.M., **Voutchkova, D.D.** Iodine in groundwater and human health in Denmark; Issue of medical geology - relating natural geological factors and health. *MEDGEO 2011*
- Voutchkova, D.D.**, Kristensen, S.M., Hansen, B., Ernstsens, V., Sørensen, B., Esbensen, K., Iodine in Groundwater in Denmark; Implications for Human Health, **2012**. Abstract & oral presentation, *Medical geology workshop (GEUS)*
- Voutchkova, D.D.**, Kristensen, S.M., Hansen, B., Sørensen, B., Ernstsens, V., Esbensen, K. Iodine in Groundwater in Denmark and Implications for Human Health, **2012**. Abstract & oral presentation, *ATV Jord og Grundvand*, Gentofte, Denmark (oral presentation)
- Voutchkova, D.D.**, Kristensen, S.M., Hansen, B., Ernstsens, V., Sørensen, B., Esbensen, K. Multivariate Analysis of Danish Historical Hydrogeochemical Data with Respect to Iodine in Groundwater, **2012**. Abstract and oral presentation, *SESEH 2012*, Galway, Ireland.
- Kristensen, S.M., **Voutchkova, D.D.**, Sørensen, B., Hansen, B., Ernstsens, V., Esbensen, K., Iodine in Danish ground and drinking water – preliminary speciation results and design of a nationwide sampling campaign, **2013**. Abstract, *7th annual meeting of Danish Water Research and Innovation Platform (DWRIP2013)*, DTU, Copenhagen, Denmark
- Voutchkova, D.D.**; Kristensen, S.M.; Hansen, B.; Ernstsens, V.; Sørensen, B.; Esbensen K., Dietary Iodine Intake from Drinking Water in Denmark, **2013**. Abstract and oral presentation, *5th International Conference on Medical Geology (MEDGEO2013)*, Arlington, Virginia, United States.
- Voutchkova, D.D.**; Hansen, B.; Sørensen, B.; Larsen, C.L.; Kristensen, S.M.. Arsenic Levels in Danish Groundwater and Drinking Water: Historical Data Assessment 2001-2013, **2013**. Abstract and poster presentation, *5th International Conference on Medical Geology (MEDGEO2013)*, Arlington, Virginia, United States.
- Voutchkova, D.D.**, Ernstsens, V., Kristensen, S.M., Hansen, B., Spatial variability of drinking water iodine in Denmark: implications for future policy making, **2014**. Abstract and poster presentation, *European Geoscience Union General Assembly 2014 (EGU2014)*, Vienna, Austria.
- Voutchkova, D.D.**, Hansen, B., Ernstsens, V., Esbensen, K., Sørensen, B, Kristensen, S.M.. High spatial variability of iodine in Danish groundwater and drinking water: geochemical factors and human health implications, **2014**. Abstract and oral presentation, *30th International Conference of the Society of Environmental Geochemistry and Health - European Section (SEGH2014)*, Newcastle, UK
- Voutchkova, D.D.**, Kristensen, S.M., Hansen, B., Ernstsens, V. Spatial variation of iodine in drinking water and groundwater in Denmark, **2015**. Abstract and oral presentation, *9th annual meeting of Danish Water Forum (DWF2015)*, Copenhagen, Denmark.
- Hansen, B., Schullehner, J., **Voutchkova, D.D.**, Kristiansen, S.M., Pedersen, C.B., Sigsgaard, T. Exposure of geogenic elements in drinking water and public health; Study possibilities in Denmark, **2015**. Abstract, *6th International Conference on Medical Geology (MEDGEO 2015)*, Aveiro, Portugal
- Voutchkova, D.D.**, Kristiansen, S.M., Hansen, B.2, Ernstsens, V. Governing factors and implications of spatially varying drinking-water iodine concentrations, **2015**. Abstract and oral presentation, *6th International Conference on Medical Geology (MEDGEO 2015)*, Aveiro, Portugal
- Voutchkova, D.D.**, Miller S.N. Characterization of Wyoming snow-water equivalent variability based on historical SNOTEL data, **2016** Abstract and poster presentation, *2016 CUAHSI Biennial Symposium: Finding Your Place in Big Data: Using Observations to Understand Hydrologic Processes for Predicting a Changing World*, Shepherdstown, WV, US

Voutchkova, D.D., Miller S.N. Retrospective analysis of low flows at headwater watersheds in Wyoming, **2016**. Abstract and poster presentation, *AGU Fall meeting 2016*, San Francisco, US

AWARDS, GRANTS, AND INTERNATIONAL RELATIONS

WyCEHG financial support to attend & present at AGU Fall Meeting 2016

Wyoming Women in Science and Engineering (WWISE) travelling grant from EPSCoR Wyoming (**2016**) to attend and present research at AGU Fall Meeting (1000\$)

CUAHSI travelling grant (2016) to attend and present research at 2016 CUAHSI BIENNIAL SYMPOSIUM: Finding Your Place in Big Data: Using Observations to Understand Hydrologic Processes for Predicting a Changing World (500\$)

Wyoming Women in Science and Engineering (WWISE) travelling grant from EPSCoR Wyoming (**2016**) to attend and present research at 2016 CUAHSI BIENNIAL SYMPOSIUM: Finding Your Place in Big Data: Using Observations to Understand Hydrologic Processes for Predicting a Changing World (750\$)

Student Travel Award (2013) from the International Medical Geology Association (IMGA) for attending the 5th International Conference on Medical Geology in USA (1000\$)

IMGA Gardner Research Grant (2013) from the International Registry of Pathology (2000\$ awarded for research grant application “Geographical distribution of drinking water iodine in Denmark as important factor for recognising population groups with low iodine intake”)

International relations: member of the Danish chapter of International Medical Geology Association (IMGA); research collaborations with scientists from Denmark (Aarhus University, University of Southern Denmark, Geological Survey of Denmark and Greenland) and Ireland (National University of Ireland, Galway);

UNSUCCESSFUL GRANT APPLICATIONS

“*Groundwater resources and unconventional oil and gas development*”, funding body: Danish Council for Independent Research (DFF), instruments: DFF-mobilex and DFF individual post-doc funding (submitted April **2015, rejected**); applicant: Denitza D. Voutchkova, Denmark-Wyoming post-doc project with UWyo and GEUS (Denmark)

“*Inorganic Trace Elements in Drinking Water and Implication for Public Health*” application for post-doctoral scholarship, funding body: Carlsberg foundation (October **2014, rejected**); applicant: Birgitte Hansen (GEUS, Denmark); my involvement: application preparation, 2y post-doc position (continuation of PhD work)

“*DanskVand: Surveillance of Quality, Health & Economy Related to Danish Drinking Water*”, funding body: Programkomiteen for Bæredygtig Energi og Miljø (Denmark), instrument: Strategic research projects (submitted September **2014, rejected**); applicant: Torben Sigsgaard (AU, Denmark), 5 work packages with different PIs; my involvement: application preparation, 2y post-doc position in work package 1&2 (50:50%)