

Judith Eeckman

PhD in Hydro-climatology

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Curriculum Vitae

Education

- Sept 2014–
Nov 2017 **PhD Student**, *HydroSciences Montpellier – CNRS*, France,
Characterizing hydro-climatic systems at the local scale in the Nepalese Himalayas.
Supervised by Dr. Pierre Chevallier and Dr. Aaron Boone, within the PRESHINE (Pressures on Water and Soil Resources in Nepal Himalaya) project, funded by French National Agency for Research.
- 2013–2014 **Master's degree in Cartography and Environment Management**,
Nantes University, France, first rank grade obtained.
- 2011
(6 months) **Exchange at Swiss Federal Institute of Technology (EPFL)**,
Lausanne, Switzerland, Specialization in numerical solving of environmental flows.
- 2009–2012 **Engineering School in Applied Mathematics and Computer Science**,
Grenoble Institute of Technology – Ensimag, Grenoble, France, obtained with honors; Numerical modelling, optimization, statistics and computer sciences.
- 2006–2009 **Preparatory school for French 'Grandes Ecoles'**,
Lycée Saint Louis, Paris, France.

Courses and trainings

- October 2020 **Characterization of wetlands on the basis of pedological criteria**,
AgroCampus Anger, France.
- June 2016 **Summer School: Uncertainty in environmental modelling**, *Course given by Dr. Keith Beven, Uppala University, Sweden*.
- June 2015 **Alpine Summer School Course XXIII, Land-Atmosphere Interactions: coupling between the energy, water and carbon cycles**, *CNR, Valsavarenche, Italy*.

Experience

- July 2019 -
July 2020 **Post-Doctoral position**, *Institute of Fluids Mechanics - IMFT, Toulouse*,
Taking benefit of remote sensing products to enhance soil moisture simulations using the MARINE model.
Supervised by Dr. Hélène Roux, within the POMME-V STAE project.
- Dec 2017 -
March 2019 **Post-Doctoral position**, *CNRM - Meteo-France, Toulouse*,
Enhancing initial conditions on soil moisture for flash flood simulation in the Mediterranean region.
Supervised by Dr. Béatrice Vincendon and Dr. Véronique Ducrocq.
- 2014 - 2016 **Teaching assistant**, *Montpellier University, France*.
Teaching general hydrology, basic computer sciences (Bachelor level) and fluid mechanics (Master level).

- 2014 **Research Internship**, *National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA)*, Lyon, France, Impact of spatial coherence of precipitation fields on simulated flows for Durance River. Supervised by Dr. Jean-Philippe Vidal.
- 2012 **Research Internship**, *Universidad de Chile, Civil Engineering department*, Santiago, Chile, Numerical modelling of non-Newtonnien.
- 2011 **Research Project**, *Chair of Analysis and Numerical Simulations*, EPFL, Lausanne, Switzerland, Numerical modelling of solid transport in a multiphasic problem.
- 2011 **Research Internship**, *Virginia Bio-Informatic Institute*, USA, Participating to IGEM international synthetic biology competition. Developing a numerical model for fluorescent proteins life cycle. Bronze award obtained.

Languages

French (native), English (fluent), Spanish (fluent), German (basic skills).

Publications

- [1] **Characterizing hydro-climatic systems at the local scale in the Nepalese Himalayas**, PhD thesis.
- [2] **Eeckman, J.**, Chevallier, P., Boone, A., Neppel, L., De Rouw, A., Delclaux, F., and Koirala, D. **Providing a non-deterministic representation of spatial variability of precipitation in the Everest region**, *Hydrol. Earth Syst. Sci.*, 21, 4879-4893, 2017.
- [3] **Eeckman, J.**, Nepal, S., Chevallier, P., Camensuli, G., Delclaux, F., Boone, A., and De Rouw, A. **Comparing the ISBA and J2000 approaches for surface flows modelling at the local scale in the everest region**, *Journal of Hydrology*, 569:705–719, 2019.
- [4] Bouchard, B., **Eeckman, J.**, Dedieu, J. P., Delclaux, F., Chevallier, P., Gascoin, S., and Arnaud, Y., **On the Interest of Optical Remote Sensing for Seasonal Snowmelt Parameterization, Applied to the Everest Region (Nepal)**, *Remote Sensing*, 11(22), 2598, 2019.
- [5] **Eeckman J.**, Roux H., Bonan ., Albergel C., and Douinot A., **A multi-sourced assessment of the spatio-temporal dynamic of soil saturation in the MARINE flash flood model**, *Hydrology and Earth System Sciences Discussions* (2020): 1-31. Under review for final publication.
- [6] Caumont, O., Mandement, M., Bouttier, F., **Eeckman, J.**, Lebeau-pin Brossier, C., Lovat, A. and Laurantin, O. **The heavy precipitation event of 14–15 October 2018 in the Aude catchment: A meteorological study based on operational numerical weather prediction systems and standard and personal observations**, *Natural Hazards and Earth System Sciences Discussions* (2020), 1-38.

Main Talks

An assessment of soil moisture in the MARINE flash flood model using in situ measurements, reanalysis and satellite derived estimates, *EGU2020 Online*, May 2020.

Impacts of high resolution initial soil moisture conditions for flash flood modeling in the Mediterranean region, *Plinius conference on Mediterranean Risks*, Oral presentation, Montpellier, France, October 2018.

Enhancing initial conditions on soil moisture for flash flood simulation in the Mediterranean region, *Hymex annual workshop*, Poster presentation, Lecce, Italy, May 2018.

Characterizing hydro-climatic systems at the local scale in the Nepalese Himalayas, *Oral presentation, PRESHINE restitution workshop*, Kathmandu, Nepal, April 2018.

Comparison of two modelling approaches in the Nepalese Himalayas, *Continental Surfaces Modelling days*, Montpellier, November 2017.

Could snow pack and soil water dynamics explain river flows in unglaciarized Himalayan catchments?, *European Geosciences Union General Assembly*, Oral presentation, Vienna, Austria, April 2016.

Influence of snow pack and sub-surface storages for surface water availability in the Nepalese Himalayas, *French Hydrotechnical Society, Glaciology-Nivology-Mountain hydrology seminar*, Oral presentation, Grenoble, March 2014.

Assessment of the hydrological components in the glacierized Dudh Koshi River basin (Nepal), *International Symposium on Glaciology in High-Mountain Asia 2015*, Team poster presentation, Kathmandu, Nepal, May 2014.

Supervision

- 2017 **Gauthier Camensuli**, *Master student*, co-supervised with Pierre Chevallier, 5 months.
- 2016 **Josephine Cirre and Manon Séguret**, *Bachelor students*, 3 months.
- 2015 **Emmy Rudolph and Léopold Valette**, *Bachelor students*, 3 months.

Interests

Actively involved for scientific mediation.

Water and mountain sports : white water kayaking, climbing.

Arts : ceramics, writing, graphic arts.