

Valentin Mansanarez

Hydrologist/Statistician

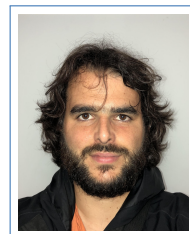
Born on 3 February, 1988

Paris, France

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International mobility, French B driving licence



Work Experience

- Since Oct. 2019 **Researcher/Hydrologist**, University of Pau and the Pays de l'Adour, France.
Postdoctoral researcher/lecturer in statistical hydrology.
- hosted by the Irstea of Antony, the National Research Institute of Science and Technology for Environment and Agriculture.
 - Work on accounting of tidal backwater effect in hydrological modelling.
- Mar-May 2019 **Statistical consultant (400h)**, Stockholm University (Physical Geography), Sweden.
Statistical analysis of time series to get better automatic QA insurance in HMS. Project funded by the Svensk Kärnbränslehantering AB (SKB).
- Teacher assistant**, *Bolin Centre for Climate Research*, Stockholm University, Sweden.
Introduction to R
- 2017-2018 **Researcher/Hydrologist**, *Postdoctoral position*, Stockholm University (Physical Geography), Sweden.
A framework for improving water resources data using hydraulic modelling. Co-supervised by Steve Lyon (Stockholm University) and Ida Westerberg (IVL, Swedish Environmental Research Institute).
- Implementation of the Rating curve Uncertainty estimation using Hydraulic Modelling framework for rapid reliable streamflow time series assessment using just a few observations.
 - Cost-effective streamflow estimation of gauging strategies for reducing uncertainty in research, water management design and decision-making.
 - Theoretical and technical expertise in the fields of Hydrology, Hydrometry and Statistics.
 - Involvement in an international workgroup on rating curves methods. Field measurements, communications in international meetings.
- Nov-Dec 2016 **Hydrological engineer**, *Irstea, National Research Institute of Science and Technology for Environment and Agriculture*, Lyon/Villeurbanne, France.
Streamflow time series assessment of complex stage-discharge relations. ADCP field work.
- Nov 2013 - Oct 2016 **Doctoral student**, *Irstea, National Research Institute of Science and Technology for Environment and Agriculture*, Lyon/Villeurbanne, France.
Non-unique stage-discharge relations: Bayesian analysis of complex rating curves and their uncertainties
- Bayesian and MCMC technics, physically-based methods, complex rating curves, uncertainty assessment.
 - Study of hydraulic effects on rating curves: Hysteresis due to transient flows, Variable backwater influence and Net rating changes due to morphological changes. Impact of hydraulic knowledge on rating curves results through sensitivity analysis.
 - Software development with the associated user guides and training sessions.
 - Theoretical and technical expertise in the fields of Hydrology, Hydrometry and Statistics.
 - Involvement in an international workgroup on rating curves methods.
 - International work with the NIWA (National Institute of Water and Atmospheric Research) in New Zeland (3-month stay)
 - Monitoring of field measurement campaigns. Oral communications in international meetings, reports writing.
- Apr 2013 - Sept 2013 **Statistician (internship)**, *LNE (French acronym for National Laboratory of Metrology and Testing)*, Trappes, France.
Programming a Matlab application for conformity assessment. Supervisor Nicolas Fischer.

Education

2013-2016 **PhD in Hydrology**, *Non unique stage-discharge relations: Bayesian analysis of complex rating curves and their uncertainties*, Doctoral School of Earth, Planetary and Environmental Sciences, University Grenoble Alpes Community, France, *Supervisors*: Michel Lang, Jérôme Le Coz and Benjamin Renard (Irstea).

External examiners: Prof. Giuliano Di Baldassarre (Uppsala University) and Prof. Jan Seibert (University of Zurich).

Jury: Prof. Jean-Luc Bertrand-Krajewski (INSA Lyon), Prof. Anne-Catherine Favre (G-INP/ENSE3), Arnaud Belleville (EDF-DTG). Guest: Gilles Pierrefeu (CNR).

PhD half funded by a French electricity generation company, la Compagnie Nationale du Rhône (CNR) and followed by French government services, le Service central d'hydrométéorologie et d'appui à la prévision des inondations (Schapi).

- Trainings: Fluvial Hydraulics, gauging techniques, Geostatistics and advanced sensitivity analyses
- Bayesian inference, MCMC techniques, Numerical and hydraulic modelling, Fortran, R

2011-2013 **Master's degree with honours in Mathematics and Applied Mathematics, speciality: mathematical engineering, option: Probability and Statistics**, University of Nantes, France.

Regressions analyses, Bayesian inference and MCMC techniques, Data Mining in sensory analysis and Chemometrics, Database, Learning techniques, Numerical computing, Optimisation, Fortran, R, MATLAB, C/C++, Java

Special Skills

Languages French (native language), English (full professional proficiency)

Communication

- Good communication skills gained through oral communication in international meetings and presentation at conferences
- Team work: presentations, collaborations and training sessions with laboratories and companies

Job-related

- Technical expertise in the physical water-related disciplines (focus on hydrometry, hydraulics and uncertainty assessment)
- Technical expertise in Applied Mathematics (through Statistics and numerical computing), programming and statistical modelling

Computer

- Proficient with Microsoft Office programmes, L^AT_EX environment, different programming languages (Fortran, R and MATLAB)
- Competent with C/C++, BUGS, JAGS and Java

Driving licence French B driving licence

Extracurricular activities

Sports Gaelic football (player and men's club officer), Basket ball, gym training

References

Ida Westerberg (IVL Svenska Miljöinstitutet), ida.westerberg@ivl.se

Steve Lyon (The Ohio State University), lyon.248@osu.edu

Jérôme Le Coz (Irstea), jerome.lecoz@irstea.fr

Benjamin Renard (Irstea), benjamin.renard@irstea.fr

Michel Lang (Irstea), michel.lang@irstea.fr

Publications and communications

Publications

2019 **Mansanarez, V.**, Le Coz, J., Renard, B. and Lang, M., *Bayesian analysis of stage-discharge hysteresis due to transient flow*, (In preparation, to be submitted by September 2019).

2019 Westerberg, I. K., **Mansanarez, V.** and Lyon, S. W., *Cost-effective streamflow estimation for reduction of uncertainty in water management design and decision-making*, (In preparation, to be submitted by August 2019).

2019 **Mansanarez, V.**, Westerberg, I. K., Lam, N. and Lyon, S. W., *Rapid Stage-Discharge Rating Curve Assessment Using Hydraulic Modeling in an Uncertainty Framework*, Water Resour. Res., (Accepted).

- 2019 **Mansanarez, V.**, Le Coz, J., Renard, B., Lang, M., and Darienzo, M., *Shift happens! Adjusting stage-discharge rating curves to riverbed morphological changes at known times*, Water Resour. Res., 55(4), 2876-2899, <https://doi.org/10.1029/2018WR023389>.
- 2019 Lyon, S. W., **Mansanarez, V.**, and Westerberg, I. K., *Can we predict river flows from just a few observations?*, Eos, 100, published on 15 February 2019, <https://doi.org/10.1029/2019E0116351>.
- 2018 Kiang, J. E., Gazoorian, C., McMillan H., Coxon, G., Le Coz, J., Westerberg, I. K., Belleville, A., Sevez, D., Sikorska, A. E., Petersen-Øverleir, A., Reitan, T., Freer, J., Renard, B., **Mansanarez, V.** and Mason, R., *A Comparison of Methods for Streamflow Uncertainty Estimation*, Water Resour. Res., 54(10), 7149-7176, <https://doi.org/10.1029/2018WR022708>. **2018 WRR Editors' Choice Award**.
- 2018 Le Coz, J., Smart, G., Hicks, M., **Mansanarez, V.**, Renard, B., Camenen, B. and Lang, M., *Estimating the long-term evolution of river bed levels using hydrometric data*. River Flow 2018: 9th International Conference on Fluvial Hydraulics, Sep 2018, Lyon, France. E3S Web Conf, 8p., <https://doi.org/10.1051/e3sconf/20184006003>.
- 2018 **Mansanarez, V.**, Westerberg, I. K., Lyon, S. W. and Lam, N., *Estimating uncertainties in hydraulically-modelled rating curves for discharge time series assessment*. River Flow 2018: 9th International Conference on Fluvial Hydraulics, Sep 2018, Lyon, France. E3S Web Conf, 9p., <https://doi.org/10.1051/e3sconf/20184006013>
- 2017 Le Coz, J., **Mansanarez, V.**, Renard, B., Horner, I. and Lang, M., *Vers une gestion en temps réel des courbes de tarage instables [Towards the real-time management of unstable rating curves]*. Congrès SHF: Hydrométrie 2017, Mar. 2017, Lyon, France, 12p. (In French).
- 2017 **Mansanarez, V.**, Le Boursicaud, R., Le Coz, J., Renard, B., Lang, M., Horner, I., Pierrefeu, G. and Pobanz, K., *BaRatin-SFD, analyse bayésienne des courbes de tarage à double échelle et de leurs incertitudes [BaRatin-SFD, Bayesian analysis of rating curves at twin-gauge stations and their uncertainties]*. Congrès SHF: Hydrométrie 2017, Mar. 2017, Lyon, France, 8p. (In French).
- 2016 **Mansanarez, V.**, Le Coz, J., Renard, B., Lang, M., Pierrefeu, G. and Vauchel, P., *Bayesian analysis of stage-fall-discharge rating curves and their uncertainties*. Water Resour. Res., 52, 7424-7443, <https://doi.org/10.1002/2016WR018916>.
- 2016 Le Coz, J., **Mansanarez, V.**, Renard, B., Lang, M., Pierrefeu, G., Pobanz, K. and Le Boursicaud, R., *Bayesian analysis of rating curves at twin gauge stations*. River Flow 2016: 8th International Conference on Fluvial Hydraulics, July 2016, St Louis, USA, 7p.
- Oral communications**
- 2018 **Mansanarez, V.**, Westerberg, I. K., Lyon, S. W. and Lam, N., *Estimating uncertainties in hydraulically-modelled rating curves for discharge time series assessment*. River Flow 2018: 9th International Conference on Fluvial Hydraulics. Lyon, France. 5-8 September 2018.
- 2017 **Mansanarez, V.**, Westerberg, I. K., Lyon, S. W. and Lam, N., *A Novel Uncertainty Framework for Improving Discharge Data Quality Using Hydraulic Modelling*. American Geosciences Union 2017. New Orleans, USA. 11-15 December 2017.
- 2015 **Mansanarez, V.**, Le Coz, J., Renard, B., Lang, M. and Birgand, F., *Bayesian analysis of stage-discharge relationships affected by hysteresis and quantification of the associated uncertainties*. European Geosciences Union 2015. Vienna, Austria. 12-17 April 2015. EGU2015-5808, <http://meetingorganizer.copernicus.org/EGU2015/orals/18250>
- Posters**
- 2018 **Mansanarez, V.**, Westerberg, I. K., Lyon, S. W. and Lam, N. (PICO presentation), *Estimating rating curves and their uncertainty via hydraulic modelling and Bayesian inference*. European Geosciences Union 2018. Vienna, Austria. 8-13 April 2018. EGU2018-9653, <http://meetingorganizer.copernicus.org/EGU2018/EGU2018-9653>
- 2016 **Mansanarez, V.**, Le Coz, J., Renard, B., Lang, M., Pierrefeu, G., Le Boursicaud, R. and Pobanz, K. (PICO presentation), *Bayesian analysis of stage-fall-discharge rating curves and their uncertainties*. European Geosciences Union 2016. Vienna, Austria. 12-17 April 2015. EGU2016-7263, <http://meetingorganizer.copernicus.org/EGU2016/pico/21069>
- 2016 Kiang, J., Gazoorian, C., Mason, R., Le Coz, J., Renard, B., **Mansanarez, V.**, McMillan, H., Westerberg, I., Petersen-Øverleir, A., Reitan, T., Sikorska, A., Siebert, J., Coxon, G., Freer, J., Belleville, A. and Hauet, A. (PICO presentation), *Uncertainty in streamflow records – a comparison of multiple estimation methods*. European Geosciences Union 2016. Vienna, Austria. 12-17 April 2015. EGU2016-10955, <http://meetingorganizer.copernicus.org/EGU2016/pico/21069>

- 2015 Le Coz, J., Renard, B., Bonnifait, L., Branger, F., Le Boursicaud, R., Horner, I., **Mansanarez, V.**, Lang, M. and Vigneau, S., *Quantifying the uncertainty in discharge data using hydraulic knowledge and uncertain gaugings: a Bayesian method named BaRatin*. European Geosciences Union 2015. Vienna, Austria. 12-17 April 2015. EGU2015-5417, <http://meetingorganizer.copernicus.org/EGU2015/posters/18250>
- 2015 Jacob, E., Thollet, F., Camenen, B., Le Coz, J., **Mansanarez, V.**, Dramais, G. and Gautheron, A., *Uncertainty in stream discharges measured with the index velocity method in an alpine river with unstable bed*. EGU2015-6366, European Geosciences Union 2015. Vienna, Austria. 12-17 April 2015, <http://meetingorganizer.copernicus.org/EGU2015/posters/18250>
- 2014 Renard, B., Le Coz, J., Bonnifait, L., Branger, F., Le Boursicaud, R., Horner, I., **Mansanarez, V.** and Lang, M., *Quantifying the Uncertainty in Discharge Data Using Hydraulic Knowledge and Uncertain Gaugings*. American Geophysical Union 2014 Fall Meeting. San Francisco, USA. 15-19 December 2014. <https://agu.confex.com/agu/fm14/meetingapp.cgi/Paper/15384>