



# Dr. Javier FLUIXA SANMARTIN

HYDROLOGY AND HYDRAULICS EXPERT



Sion, Switzerland

+41 27 607 11 78

Nationality: Spanish (Permit C)



[javierfluixa@gmail.com](mailto:javierfluixa@gmail.com)



[LinkedIn](#)



[climatechangedamsafety.com](http://climatechangedamsafety.com)

*Civil Engineer and PhD in Hydraulic Engineering with over 10 years of national and international experience in hydrology and hydraulic modeling, dam risk management and climate change adaptation. Motivated, proactive and responsible, interested in water resources and disaster risk management.*

## EDUCATION

- 2016-2020**     **PhD in Hydraulic Engineering and Environment.** Polytechnic University of Valencia, Spain. Thesis: *Adaptation strategies of dam safety management to new climate change scenarios informed by risk indicators*. More information: [climatechangedamsafety.com](http://climatechangedamsafety.com)
- 2009-2012**     **MSc in Hydraulic Engineering and Environment.** Polytechnic University of Valencia, Spain. Specialty in Water Resources. Master's project: *Development of a tool for estimating dam overtopping probability in the context of risk analysis*.
- 2002-2009**     **Degree in Civil Engineering.** Polytechnic University of Valencia, Spain. Project: *Evaluation of hydrologic-hydraulic safety of Aguilar dam belonging to River Duero Authority*.

## SKILLS

- Expertise**     Hydrology – Risk management – Dam safety – Climate change adaptation – Natural resources – Hydraulic modelling – Programming – Statistical analysis – Communication and dissemination
- Modelling**     RS MINERVE, HEC-HMS, HEC-RAS, MIKE 11), 2D (IBER), 3D (ANSYS), Aquatool
- GIS tools**     QGIS
- Design**     Inkscape, Adobe InDesign
- Programming**     R (advanced), VBS, Python (beginner)
- Web**     WordPress
- Languages**     **Spanish:** Mother tongue  
 **English:** Excellent  
 **French:** Excellent  
 **Italian:** Basic

## EMPLOYMENT HISTORY

2014-today

### Hydrology and Hydraulics Expert



*Centre de recherche sur l'environnement alpin (CREALP), Switzerland*

As a member of the Natural Hazards group at CREALP, I lead projects at national and international level in the fields of flood management, water resources assessment and climate change adaptation. I am currently responsible for the development and maintenance of the flood forecasting system for the Canton of Valais (Switzerland).

I have managed projects in Cameroon, China, Ecuador, Peru and Spain in the field of risk management. I set up a flood forecasting system for the Peruvian (SENAMHI) and Ecuadorian (INAMHI) National Hydrological Services and participated in the development of early warning systems.

Another important part of my job is the development of computer tools for data processing and analysis.

Since 2018, I am also the head of the Communication group at CREALP where I manage and carry out communication and dissemination tasks such as seminars and courses on hydrological and hydraulic modeling for universities, research centers or public institutions.

#### Major projects:

- *Management of the MINERVE operational flood forecasting system in Valais, Switzerland (Canton of Valais).*
- *Building Capacity for Resilient Urban Development and Integrating Climate and Disaster Risk Considerations into Urban Planning, Cameroun (World Bank)*
- *Glaciares+ Risk management and productive use of water from melting glaciers, Peru (Swiss Cooperation).*
- *Jinsha River Basin: Integrated water resources and risk management under changing climate, China (Swiss Cooperation).*
- *Climate change adaptation and disaster risk reduction in Laguna 513 in the Cordillera Blanca and in Santa Teresa in Cusco, Peru (Swiss Cooperation).*

2014 (6 months)

### Engineer in Sustainable Urban Drainage Systems (SuDS)



Climate-KIC

*Pioneers Into Practice program (Climate-KIC), Spain & Poland*

As a participant of the Pioneers Into Practice (Climate-KIC) program, my job consisted of working with different entities for the implementation of Sustainable Urban Drainage Systems fitting the highest standards in efficiency, environmental impact and social acceptance.

I collaborated with the City Council of Benaguasil (Valencia, Spain) and MPWiK (water management company in Wroclaw, Poland) for the implementation of sustainable techniques aimed at using low-carbon technologies and for dissemination and communication tasks.

2013-2014

**R&D&I Consultant for the elaboration of national and international research proposals**



UNIVERSITAT  
POLITÈCNICA  
DE VALÈNCIA

*Polytechnic University of Valencia (UPV), Spain*

My main job was to identify national and international funding opportunities (Horizon 2020, National Plan, Water JPI...) and to prepare and submit research proposals in line with the research expertise of the UPV. Moreover, this job required the coordination and dialogue with research structures, companies, public bodies, etc. to allow preparing joint projects.

2009-2013

**Researcher in Hydraulic Engineering and Dam Safety**



UNIVERSITAT  
POLITÈCNICA  
DE VALÈNCIA

*Polytechnic University of Valencia (UPV), Spain*

As a member of a leading research group on dam safety research, my work at the UPV consisted on developing and applying methodologies to assess the risk of critical water infrastructures and propose efficient risk reduction measures. The team I was part of applied these methodologies to real cases in Spain and abroad, and developed documents and guides related to dam safety management.

Among other tasks, I was in charge of carrying out the hydrological and hydraulic studies on which the rest of the procedures were based. For this, I had to use and apply a variety of hydrological and hydraulic modeling software, and I helped develop specific software on dam risk analysis.

Another part of my job was to perform dissemination tasks such as publishing research results in conferences or organizing congresses and courses.

Major projects:

- *SUFRI: Sustainable Strategies of Urban Flood Risk Management to Cope with Residual Risk* (Ministry of Science and Innovation).
- *Assessment of the hydrological safety of dams based on risk*, Spain (Ministry of Environment).
- *Application of risk analysis to conservation, maintenance, rehabilitation and safety management programs for dams and reservoirs*, Spain (Ministry of Science and Technology).

## RELEVANT PUBLICATIONS

### *Peer-reviewed papers*

- 2021** **Fluixá-Sanmartín, J.**, Escuder-Bueno, I., Morales-Torres, A., and Castillo-Rodríguez, J. T. (2021). Accounting for climate change uncertainty in long-term dam risk management. *Journal of Water Resources Planning and Management*. [doi:10.1061/\(ASCE\)WR.1943-5452.0001355](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001355).
- 2020** **Fluixá-Sanmartín, J.**, Escuder-Bueno, I., Morales-Torres, A., and Castillo-Rodríguez, J. (2020). Comprehensive decision-making approach for managing time dependent dam risks. *Reliability Engineering & System Safety*, [doi:10.1016/j.ress.2020.107100](https://doi.org/10.1016/j.ress.2020.107100).
- 2019** **Fluixá-Sanmartín, J.**, Morales-Torres, A., Escuder-Bueno, I., and Paredes-Arquiola, J. (2019). Quantification of climate change impact on dam failure risk under hydrological scenarios: a case study from a Spanish dam, *Natural Hazards and Earth System Sciences Discussions*, <https://doi.org/10.5194/nhess-2019-141>, in review, 2019.

**Fluixá-Sanmartín, J.**, Altarejos-García, L., Morales-Torres, A. and Escuder-Bueno, I. (2019). Empirical Tool for the Assessment of Annual Overtopping Probabilities of Dams, *Journal of Water Resources Planning and Management*, 145(1), 04018083, [doi:10.1061/\(ASCE\)WR.1943-5452.0001017](https://doi.org/10.1061/(ASCE)WR.1943-5452.0001017).


**2018** **Fluixá-Sanmartín, J.**, Altarejos-García, L., Morales-Torres, A., and Escuder-Bueno, I. (2018). Review article: Climate change impacts on dam safety, *Natural Hazards and Earth System Sciences*, 18, 2471-2488, <https://doi.org/10.5194/nhess-18-2471-2018>.

**Fluixá-Sanmartín, J.**, Pan, D., Fischer, L., Orlowsky, B., García-Hernández, J., Jordan, F., Haemmig, C., Zhang, F., and Xu, J. (2018). Searching for the optimal drought index and timescale combination to detect drought: a case study from the lower Jinsha River basin, China, *Hydrology and Earth System Sciences*, 22, 889-910, <https://doi.org/10.5194/hess-22-889-2018>.

### Book chapters

**2020** Huggel, C., Cochachin, A., Drenkhan, F., **Fluixá-Sanmartín, J.**, Frey, H., García Hernández, J., Jurt, C., Muñoz, R., Price, K., Vicuña, L. (2020). Glacier Lake 513, Peru: Lessons for early warning service development. *WMO Bull.* 69, 45–52.

**2018** **Fluixá-Sanmartín, J.**, García Hernández, J., Huggel, C., Frey, H., Cochachin Rapre, A., Gonzales Alfaro, C.A., Román, L.M., Masías Chacón, P.A. (2018). Highlights and Lessons from the Implementation of an Early Warning System for Glacier Lake Outburst Floods in Carhuaz, Peru, in: Hostettler, S., Najih Besson, S., Bolay, J.-C. (Eds.), *Technologies for Development*. Springer International Publishing, Cham, pp. 187–200. [https://doi.org/10.1007/978-3-319-91068-0\\_16](https://doi.org/10.1007/978-3-319-91068-0_16).

 Complete list of publications in my ORCID account: <https://orcid.org/0000-0002-7123-0765>

## REFERENCES

- |                                |   |
|--------------------------------|---|
| <b>Ignacio ESCUDER BUENO</b>   | Professor in Hydraulic Engineering at Polytechnic University of Valencia, Spain. Tel: +34 680 56 00 67. Email: <a href="mailto:iescuder@hma.upv.es">iescuder@hma.upv.es</a> |
| <b>Adrián MORALES TORRES</b>   | CTO iPresas Risk Analysis, Spain. Tel: +34 637 21 14 65. Email: <a href="mailto:adrian.morales@ipresas.com">adrian.morales@ipresas.com</a>                                  |
| <b>Javier GARCIA HERNANDEZ</b> | Scientific collaborator at Canton of Valais, Switzerland. Tel: +41 79 137 16 27. Email: <a href="mailto:javier.garcia@admin.vs.ch">javier.garcia@admin.vs.ch</a>            |

## MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS

- **PROHIMET:** Ibero-American Network for the monitoring and forecasting of hydrometeorological phenomena. Member since 2015.
- **Swiss Committee on Dams:** non-profit association that encourages and contributes to the development of knowledge for design, construction, operation, maintenance, monitoring and safety assessment of dams. Member since 2021.
- **Swiss Society for Hydrology and Limnology (SSHL):** Swiss professional association dedicated to hydrology and limnology, promoting to exchange experiences, advise and support each other. Member since 2021.