iPresas
Risk Analysis

DR. IGNACIO ESCUDER BUENO

Founding partner

iescuder@hma.upv.es

Ignacio Escuder Bueno has his **doctorate's degree inCivil Engineering** from Universidad Politécnica de Valencia (UPV), holds a **Master's degree of Science in Civil Engineering** from the University of Wisconsin-Milwaukee (UWM), and he has been a member of the Spanish Institution of Civil Engineers since 1996.

He is **professor in Hydraulic works at UPV** and **founder and senior partner of iPresas** (a technology based SPIN-OFF company from UPV). He has been a **visiting professor** at the University of Maryland (USA, 2014), at Utah State University (USA, 2006) and teaching assistant at the University of Wisconsin-Milwakee (USA, 1995-1996).

He is **President of the Spanish National Committee on Large Dams (SPANCOLD)** since October 2017, and also is member of the Spanish Commission of Legal Codes for Large Dams since 2016.

He has been **Chairman of the International Committee of Dams Computational Aspects of the International Commission of Large Dams (ICOLD)** from 2011 to 2017 and **Secretary-General of ICOLD European Club** from 2010 to 2017. He has also been a **member of the Spanish National Committee of Large Dams (SPANCOLD)** since 2007.

He has been **principal researcher of multiple research projects on dam safety and flood risk management** at a Spanish and European level. He has organized international forums and congresses on the subject-matter, for example the "International Week on Risk Analysis, Dam Safety, Dam Security and Critical Infrastructure Management" that took place in 2005, 2008 and 2011.

He is the author or co-author of **more than 150 publications** and he has lectured in **over 30 conferences** hosted in several countries. Among others, he has been the coordinator and co-author of the **SPANCOLD's Guideline N.8.**, T.1 "Risk analysis applied to dam and reservoir safety management (2012)" and co-author of the **ICOLD bulletin 155** "Guidelines for use of numerical models in dam Engineering" (2011). He is the co-developer of the **iPresas software** for dam safety risk analysis and management.

He has **25 years' experience** as a **consultant** in multiple projects related with safety studies, design and risk analysis of **more than 100 dams** (hydroelectric, supply, irrigation, etc.). Some examples among many others are; Bajo Caroní dam in Venezuela, Drini river dam in Albania, Cerros Colorados dam in Argentina and the "Confederación Hidrográfica del Duero" dam in Spain.

He often works as a consultant for the **design of strategies for governance of natural risks**, critical infrastructures and security of dams for private operators, government agencies and multilateral organizations such as the **World Bank** or the **Inter-American Development Bank**; which he currently supports in the development and application of its disaster risk management policy.

He serves as a member of the Independent Expert Panel of reviewers for the dam safety program of the **US Army Corps of Engineers** (USACE, USA, **2016 and 2021**). He has been Team Leader of the World Bank DRIP project (Dam Rehabilitation and Improvement Project) in India in 2018 and 2020 and he has coordinated the preparation of the Risk Assessment and Management Guide Associated with Dams for the **Central Water Commission of the Government of India** published in February 2019.

UNIVERSITAT POLITÈCNICA DE VALÈNCIA

iPresas Risk Analysis spin-off upv

CNEGP SPANCOLD

CIGB ICOLD

After completing his Master's Thesis titled "Review of dam safety protocols" in 1996 at UWM, he studied the impact of the North American dam safety program during the 80s and 90s. In the late 90s he dedicated himself to the in-depth study of the behavior and safety of these infrastructures.

In 2001 he presented his doctoral thesis "Evaluation of stress-strain behavior of flood embankments by numerical simulations formulated in finite difference method and calibrated with nstrumentation outcomes", whose main contributions were made in FLAC (ITASCA software).

At the same time, using FLAC code, he developed a dynamic calculation of routines in the time domain of application to liquefiable materials, which were applied to the evaluation of the new Tous Dam in Spain.

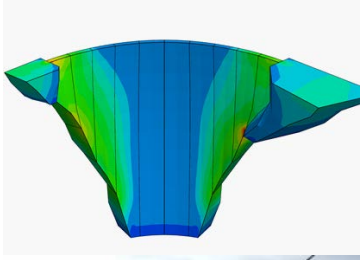
In the first decade of the 21st century, he worked extensively in the general assessment for the safety and behavior of around 30 large dams (Turia river basin, Guadiana, Guadalquivir, Duero and Ebro rivers in Spain, fundamentally), including the numerical modeling of its structural behavior and the statistical modeling of surveillance records. In some cases, he also developed hydraulic models to support the development of Operating Rules and Emergency Action Plans.

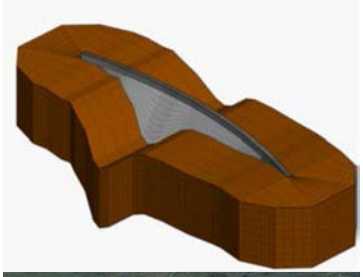
In addition, he participated in the design and calculation of the Terrateig dam, as well as the imperviòus screen of the Escalona dam and the stabilization of the Arenós reservoir slope (Júcar Hydrographic Confederation).

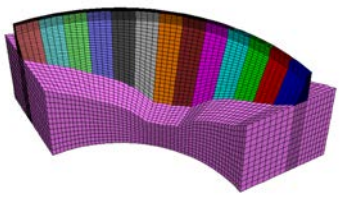
Starting in 2005, he began to develop methodologies and practical applications of risk analysis to relevant dams such as Macagua (EDELCA, Venezuela), WolfCreek (USACE, USA), Hällby (E.On, Sweden) and to the group of 27 large dams owned by the Duero River Basin Authority (Spain), consolidating this activity from 2011 to today with more than 40 complete practical cases of application of quantitative risk analysis to large dams in countries spanning over three continents (Albania, Argentina, Spain, India and Uruguay fundamentally).

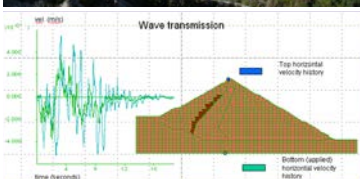
In the last three years he has been responsible for the elaboration of complete numerical models for evaluating the behavior of dams (e.g. the Soria dam, a 120-meter-high double-courvature arch dam in the Canary Islands), as well as the implementation of integral programs of safety assessment and risk management in dams (e.g. for ORSEP in Argentina and the "Junta de Extremadura" in Spain), and integral flood risk management systems (e.g. for the city of Tegucigalpa, Honduras).

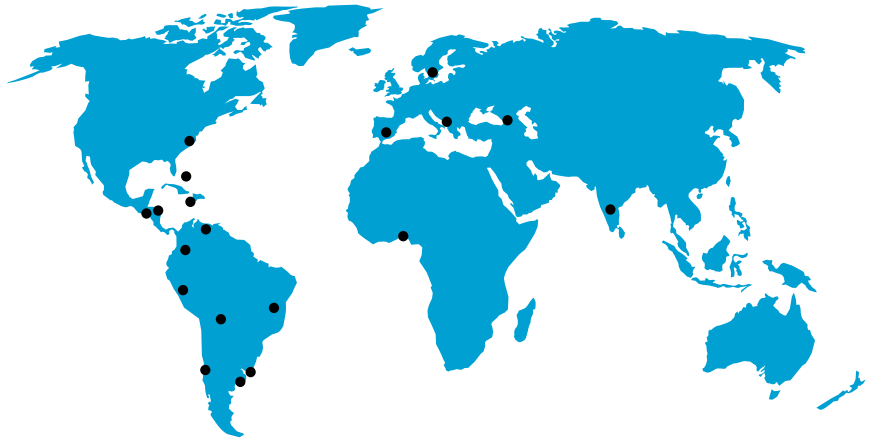
In summary, for more than two decades he has done extensive professional work and research activity in the field of behavior assessment and dam safety. He has also contributed in all aspects of risk governance of these and other hydraulic infrastructures, including design of policies, processes and capacity building for private operators, government agencies and multilateral organizations.











MAIN PROJECTS

- Independent External Expert for reviewing US Army Corps of Engineers Dam Safety Program
  US Army Corps of Engineers (USACE)
- Proposal of a Technical Regulatory Framework for Dam Safety in Argentina. Chapter A: Reservoirs and diversion dams
  Development Bank of Latin America (CAF)
- Study to enhance the resilience of the energy system in The Bahamas after Hurrican Dorian
  Inter-American Development Bank (IDB)
- Qualitative Disaster and Climate Change Risk Analysis for roads (Perú)
  Inter-American Development Bank (IDB)

2021

- Numerical modelling of six dams of the Insular Water Council of Gran Canaria
  Insular Water Council of Gran Canaria (Spain)
- Review and definition of flood control works at Ulua and Chamelecón rivers (Honduras) after Hurrican IOTA
  Inter-American Development Bank (IDB)
- Comprehensive safety review and Risk Analysis of dams of Salvajina, Alto Anchicayá and Prado (Colombia)
  Celsia Colombia
- Technical report on recommendations to integrate Disaster Risk Management and Climate Change Adaptation into the Public Investment
  Inter-American Development Bank (IDB)
- Intermediate safety review of dams of Quebradona and El Buey (Colombia)
  EPM (Medellin Public Company)
- Risk analysis of Rio Hondo, Escaba and Batiruana Dams (Argentina)
  Dam Safety Regulatory Agency of Argentina (ORSEP)
- Review and update of the designs for flood control at Walter Thilo Deininger park (El Salvador)
  Inter-American Development Bank (IDB)
- Technical inspection and development of risk-based screening tool for dams in Bolivia
  Inter-American Development Bank (IDB)

2020

- Panel of experts for the review of the works of hydroelectric project of Condor Cliff (Argentina)
  China Gezhouba Group Company Limited - Electroingenieria S.A. – Hidrocuyo S.A.
- Intermediate safety review of dams of Porce II, Porce III, Santa Rita and Playas (Colombia)
  EPM (Medellin Public Company)
- Analysis of risk reduction measures for Valencian ports against climate change
  AVI (Valencian Agency for Innovation) in collaboration with UPV
- Support to develop a dam safety program for EPSAS (Bolivia)
  EPSAS (urban water supply company for La Paz)
- Technical support to implement risk analysis in Salto Grande dam (Uruguay – Argentina)
  Inter-American Development Bank (IDB) in collaboration with ORSEP and CHSG
- Dam break analysis and monitoring system review for Mtkvari HPP (Georgia)
  Mtkvari HPP

2019

- Comprehensive safety review of hydropower dams of ISAGEN (Colombia)
  ISAGEN
- Risk-informed quality control of flood protection measures under the programme "Argentina: resilient to natural risks"
  Inter-American Development Bank (IDB)
- Development on Guidelines for Assessing and Managing Risks Associated with Dams
  EGIS EAU (under a contract for CWC, Ministry of Water Resources of India)

LEGEND

- Projects related to risk analysis
- Projects related to dam safety, modelling, design and governance
- Research projects (main researcher)

2018

Failure modes identification and risk analysis of road RN5 (Haiti) considering climate change
Inter-American Development Bank (IDB)

Technical assistance for numerical modelling of Chira and Soria dams
Insular Water Council of Gran Canaria (Spain)

Review and strengthening of the risk analysis methodology for adressing natural hazards and climate change in IDB projects
Inter-American Development Bank (IDB)

Risk-informed dam safety management of Pretura del Molino, Carrascalejo and las Majadillas dams
Regional Government of Extremadura (Spain)

Project DAMSAFE: Enhancing Dam Safety and Water Management in Karnataka (India)
Netherlands Enterprise Agency (project leaded by Deltares)

Support to dam safety and risk management in Brazil
Gas Natural Fenosa (under a contract for the Brazilian Ministry of National Integration)

Technical assistance to introduce risk analysis techniques as a tool to support dam safety management in Argentina
Dam Safety Regulatory Agency of Argentina (ORSEP)

2017

Risk analysis of San Marcos dam
Regional Government of Extremadura (Spain)

Independent External Expert for reviewing US Army Corps of Engineers Dam safety Program
Schnabel (under a contract for US Army Corps of Engineers)

Quality control from a risk analysis perspective of the flood risk control measures at the Choluteca river in Tegucigalpa (Honduras)
Inter-American Development Bank (IDB)

Risk analysis of Paso Severino dam (owned by OSE). "Water for Uruguay" Programme. Pillar 3: Regulatory framework for Dam Safety in Uruguay
World Bank

Pilot project to define procedures for quantitative estimation of spillway gate functionality and evaluate its impact on dam safety risk management
Gas Natural Fenosa (Spain)

Local action plan against Flood Risk for the city of Oliva (Valencia)
Oliva City Council

Coordinator of activities for developing a Pre-Investment Guide for the Hydropower Sector including disaster risk criteria in Bolivia
Inter-American Development Bank (IDB)

2016

Risk analysis of Jaime Ozores dam
Regional Government of Extremadura (Spain)

Risk analysis consultancy services for the portfolio of dams owned by Grupo Gas Natural Fenosa
Gas Natural Fenosa (Spain)

Impact evaluation of “Project on concrete rehabilitation Phase IV. La Minilla dam” on sliding stability through advanced numerical modelling.
EMASESA

Local action plan against Flood Risk for the city of Benaguasil (Valencia)
Benaguasil City Council

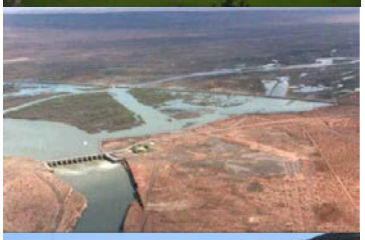
Risk analysis study for supporting safety management in "El Vado" dam
Canal de Isabel II (Spain)

Recommendations to improve the regulatory and institutional framework, and the development of dam safety management tools. Water Management and Infrastructure Development in Chile
World Bank

2015

Risk analysis of Membrío dam
Regional Government of Extremadura (Spain)

INICIA project: Methodology for evaluating investments in water cycle infrastructures based on risk and energy efficiency indicators
Spanish Ministry of Economy and Competitiveness (MINECO)





2014

Risk analysis for Fierze, Komani and Vau I Dejes dams (Albania), including quantitative risk modelling and prioritization of risk reduction actions
Gas Natural Fenosa (under a contract for KESH, Albanian Power Company)

Risk analysis of "El Horcajo" dam
Regional Government of Extremadura (Spain)

2013

E2STORMED project: Improvement of energy efficiency in the water cycle by the use of innovative storm water management in smart Mediterranean cities (www.e2stormed.eu)
MED Programme European Union

Comprehensive and quantitative risk analysis for Hällby dam: A case study in Sweden
ELFORSK (Sweden)

IPRESARA project: Incorporating manmade threats into dam safety risk management
Spanish Ministry of Science and Innovation (MICINN)

Numerical modelling of La Aceña dam behaviour
Canal de Isabel II (Spain)

2012

Protection plan for a water treatment plant in Spain
Aguas de Valencia (Spain)

Risk analysis of a portfolio of 27 dams owned by the Duero River Authority in Spain, including evaluation and prioritization of investments for risk reduction
Ofiteco (under a contract for the Duero River Authority in Spain)

2011

Risk analysis and evaluation for Castrovido dam (under construction and owned by the Duero River Authority)
FCC

Comprehensive and quantitative risk analysis model for St. Ponç dam, including evaluation and prioritization of safety measures
Agencia Catalana del Agua (Catalan Water Agency, Spain)

2010

SUFRI project: Sustainable strategies for Urban Flood RIsk management to cope with the residual risk
CRUE ERA-Net and Spanish Ministry of Education and Science

Research project: Risk-based hydrologic dam safety management
Spanish Ministry of Agriculture, Food and Environment (former MMA)

2009

Comprehensive and quantitative risk analysis model for a dam owned by Iberdrola, including evaluation and prioritization of safety measures
Iberdrola

Dam safety analysis, evaluation and management of dams at the Caroní river (Venezuela)
CVG Electrificación del Caroni C.A.

2008

Monitoring and analysis of dam behaviour for 10 dams owned by the Ebro River Authority
Ofiteco (for the Ebro River Authority)

DAMSE project: A European Methodology for the Security Assessment of Dams
European Commision. Directorate General Justice, Freedom and Security

Design of impervious screen works of Escalona dam
Ofiteco

Application of risk analysis to dam safety maintenance, monitoring, rehabilitation and management programmes
Spanish Ministry of Science and Technology

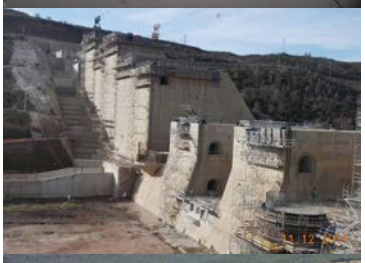
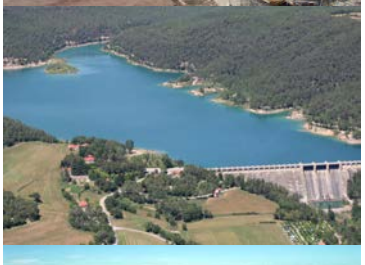
Risk analysis models for Wolf Creek and Center Hill dams (Tennessee, US Army Corps of Engineers)
UTAH State University

Analysis of the influence of dam failure risk reduction on potential increase of unsatisfied demands in water resource systems
Spanish Ministry of Science and Technology

Design and calculation of Terrateig dam
Ofiteco

Landslide protection project for Arenós dam
Júcar River Basin Authority




Studies related to dam behaviour analysis, including safety reviews of more than 20 large dams in Spain, including structural numerical modelling (Chanza, Jarrama, Piedras, Machos and Corumbel dams in Guadiana river basin; La Breña, Sierra Boyera, Yegüas and Puente Nuevo in Guadalquivir; Tous in Júcar river basin; Arquillo de San Blas, Benagéber and Loriguilla in Turia river basin; Compuerto, Camporredondo, Cervera, Requejada and Aguilar de Campoo in Duero river basin, and Regato in Nervión river), including statistical modelling of monitoring data, also for Limonero dam (upstream the city of Málaga) and Gorostiza (upstream the city of Bilbao), and hydraulic models to support the development of operating rules and emergency actions plans for the three dams in Turia river basin.

Ofiteco

Land Transformation For Rice Crop On The River Volta (Ghana) and Rice Crop Experimental Project

Agricultural Resources Africa Limited (Ara Ltd)

Supervision, instrumentation and numerical modelling of a 103 meters high floodable embankment in Contreras reservoir (Spain)

GESTESE SL (under a contract for Spanish Ministry of Civil Works)

Special civil works plan for Gandia (Spain)

PROYEX Valencia (under a grant of the European Investment Bank)

1996

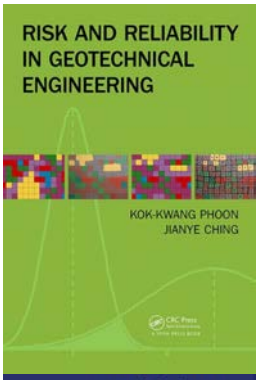
RESEARCH AND PROFESSIONAL SKILLS

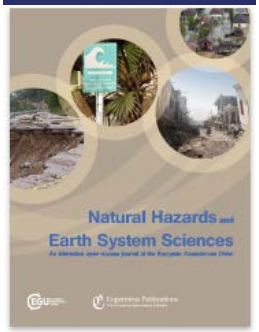
Dam safety management	●●●●●	Numerical modelling	●●●●●
Risk analysis	●●●●●	Software development	●●●●○
Critical infrastructure governance	●●●●●	Hydraulic modelling	●●●●○
Urban flood risk analysis	●●●●●	Green infrastructures	●●●○○

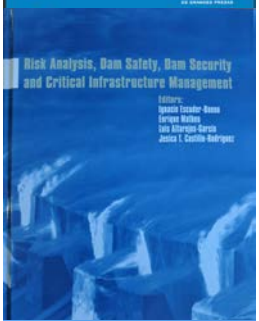
SELECTED PUBLICATIONS

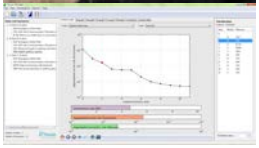
- Participation in the development of Guidelines for Classifying the Hazard Potential of Dams. Central Water Commission. Ministry of Water Resources, Government of India. 2020.
- Fluixá-Sanmartín, J., Escuder-Bueno, I., Morales-Torres, A. and Castillo-Rodríguez, J.T. Comprehensive decision-making approach for managing time dependent dam risks. Reliability Engineering and System Safety 203 (November). Elsevier. 2020. https://www.sciencedirect.com/science/article/pii/S0951832020306013
- Coordinator of Guidelines for assessing and managing dams associated with dams. Central Water Commission. Ministry of Water Resources, Government of India. 2019.
- Morales-Torres, A., Escuder-Bueno, I., Serrano-Lombillo, A. and Castillo-Rodríguez, J.T. Dealing with Epistemic Uncertainty in Risk-Informed Decision Making for Dam Safety Management. Reliability Engineering and System Safety 191 (November). Elsevier. 2019. https://doi.org/10.1016/j.ress.2019.106562.
- Fluixá-Sanmartín, J., Morales-Torres, A., Escuder-Bueno, I. and Paredes-Arquiola, J. 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 19 (10):2117–39. 2019. https://doi.org/10.5194/nhess-19-2117-2019.
- Fluixá-Sanmartín, J., Altarejos-García, L., Morales-Torres, A. and Escuder-Bueno, I.: Review article: Climate change impacts on dam safety, Nat. Hazards Earth Syst. Sci., 18, 2471-2488, DOI: 10.5194/NHESS-18-2471-2018, 2018.
- Fluixá-Sanmartín, J., Altarejos-García, L., Morales-Torres, A. and Escuder-Bueno, I.: Empirical Tool for the Assessment of Annual Overtopping Probabilities of Dams, American Society of Civil Engineers, DOI: 10.1061/(ASCE)WR.1943-5452.0001017, 2018.
- A combined risk analysis approach for complex dam–levee systems. Castillo-Rodríguez, J.T., Needham, J., Morales-Torres, A. & Escuder-Bueno, I. Structure and Infrastructure Engineering. 2017.
- Overcoming failure root causes in infrastructure risk governance implementation: large dams case. Halpin, E. & Escuder-Bueno, I. Journal of Risk Research. 2016.
- Computational Aspects of Dam Risk Analysis: Findings and Challenges. Escuder-Bueno, I., Mazzà, G., Morales-Torres, A., & Castillo-Rodríguez, J. T. Engineering 2 (3), 319–324. 2016..
- A new risk reduction indicator for dam safety management combining efficiency and equity principles. Serrano-Lombillo, A., Morales-Torres, A., Escuder-Bueno, I., & Altarejos-García, L. Structure and Infrastructure Engineering. 2016.
- Decision Support Tool for energy-efficient, sustainable and integrated urban stormwater management. Morales-Torres, A., Escuder-Bueno, I., Andrés-Doménech, I. & Perales-Momparler, S. Environmental Modelling & Software. 2016.

- Enhancing local action planning through quantitative flood risk analysis: a case study in Spain. Castillo-Rodríguez, J.T., Escuder-Bueno, I., Perales-Momparler, S. & Porta-Sancho, J.R. Natural Hazards and Earth System Sciences, 16(7), 1699-1718. 2016.
- The suitability of risk reduction indicators to inform dam safety management. Morales-Torres, A., Serrano-Lombillo, A., Escuder-Bueno, I., & Altarejos-García, L. Structure and Infrastructure Engineering. 2016.
- Building fragility curves of sliding failure of concrete gravity dams integrating natural and epistemic uncertainties. Morales-Torres, A., Escuder-Bueno, I., Altarejos-García, L., & Serrano-Lombillo, A. Engineering Structures, 125(2016), 227-235. 2016.
- Advances on the Failure Analysis of the Dam—Foundation Interface of Concrete Dams. Altarejos-García, L., Escuder-Bueno, I., & Morales-Torres, A. Materials, 8(12), 8255–8278. 2015.
- Practical risk assessment for embankments, dams, and slopes. Altarejos-García, L., Silva-Tulla, F., Escuder-Bueno, I., & Morales-Torres, A. Cap. de Risk and Reliability in Geotechnical Eng., 437–469. CRC Press. 2015.
- The value of integrating information from multiple hazards for flood risk analysis and management. Castillo-Rodríguez, J.T., Escuder-Bueno, I., Altarejos-García, L., & Serrano-Lombillo, A. Natural Hazards and Earth System Sciences, 14, 379-400. 2014.
- Metodología para la evaluación del riesgo hidrológico de presas y priorización de medidas correctoras. Ed: Altarejos-García, L., & Escuder-Bueno, I. Autor de Capítulos 2, 3 y 4. Colegio de Ingenieros de Caminos, Canales y Puertos. 2014.
- Need of Transient Thermal Models, with Daily Inputs, to Explain the Displacements of Arch-Gravity Dams. Serrano-Lombillo, A., Galán-Martín, D., Escuder-Bueno, I. Congreso de Métodos Numéricos en Ingeniería CMN. Ed. CIMNE. 2013.
- A quantitative flood risk analysis methodology for urban areas with integration of social research data. Escuder-Bueno, I., Castillo-Rodríguez, J.T., Zechner, S., Jöbstl, C., Perales-Momparler, S., & Petaccia, G. Natural Hazards and Earth System Sciences, 12, 2843-2863. 2012.
- Assessing the impact of uncertainty on flood risk estimates with reliability analysis using 1-D and 2-D hydraulic models. Altarejos-García, L., Martínez-Chenoll, M.L., Escuder-Bueno, I.,& Serrano-Lombillo, A. Hydrology and Earth System Science, 16, 1985-1994. 2012.
- Risk Analysis, Dam Safety, Dam Security and Critical Infrastructure Management. Escuder-Bueno, I., Matheu, E., Altarejos-García, L., & Castillo-Rodríguez, J.T. Eds. Leiden: CRC Press, 2012.
- Methodology for estimating the probability of failure by sliding in concrete gravity dams in the context of risk analysis. Altarejos-García, L., Escuder-Bueno, I., Serrano-Lombillo, A., & de Membrillera-Ortuño, M.G. Structural Safety, 34 (1). 2012.
- Coordinador y coautor de la Guía Técnica Número 8, Tomo 1 de SPANCOLD: Análisis de riesgos aplicado a la gestión de seguridad de presas y embalses. 2012.
- Coauthor of ICOLD Bulletin 155: Guidelines for use of numerical models in dam Engineering. 2011.
- Methodology for the calculation of annualized incremental risks in systems of dams. Serrano, A., Escuder, I., Membrillera, M.,& Altarejos, L. Risk Analysis, 31. 2011.
- Analysis of the elastic behaviour of an arch gravity dam. Escuder, I., Blázquez, F. International Journal on Hydropower and Dams. Vol 30, Issue 5, Pages 76-84. 2007.
- Reliability assessment of granular filters in embankment dams. Mínguez, R., Delgado, F., Escuder, I., G. de Membrillera, M. Internacional Journal for Numerical and Analytical Methods in Geomechanics. 2006.
- Evaluation of the behaviour and safety of the new Tous rockfill dam. Escuder, I., Utrillas,J.L., Fleitz, J. International Journal on Hydropower and Dams. 2006.
- Aplicación del Análisis de Riesgos a la Seguridad de Presas. Membrillera, M.G., Escuder, I., González, J., & Altarejos, L. Editorial Universidad Politécnica de Valencia (UPV). 2005.
- An Analysis of stress-strain behaviour of quarried rock shells. Escuder, I., Andreu, J., Rechea, M. Canadian Geotechnical Journal. Vol. 42. 51-60. 2005.
- Estudio del comportamiento tenso-deformacional de pedraplenes inundables mediante simulaciones numéricas formuladas en diferencias finitas y calibradas con lecturas de instrumentación. Escuder Bueno, I.. Ed. Chadwyck-Healey. ISBN 0 493 11796 2. 2001.









MAIN COURSES AND LECTURES

- Tutor of the course: Disaster Risk Analysis and Climate Change in infrastructure projects, both in the 5 SPOC (Private Online Course) and the MOOC (Open Online Course) editions. Organised by the Inter-American Development Bank (IDB). 2020.
- Lecturer and coordinator of courses on dams, hydraulic infrastructures, and risk analysis at the Civil Engineering Faculty at the Polytechnic University of Valencia (UPV).
- SPOC Course on Natural hazards and climate change Risk Assessment for infrastructure projects. Inter-American Development Bank. 2020.
- Course on Risk Analysis tecniques for Dam Safety Management organized by Ministry of Environment and Water of Bolivia and CAF. 2019.
- Methods to compute natural disasters risk (indluing climate change effects) organized by the Inter-american Development Bank. 2016 and 2017.
- Course on Risk Analysis applied to Dam Safety Management organized by the Argentinian National Committee on Large Dams (CAP). 2016.
- 1st edition of the Course on Risk Analysis applied to Dam Safety Management - Advanced Level, organized by the Spanish National Committee on Large Dams (SPANCOLD). 2016.
- Course on "Urban stormwater management using Sustainable Drainage Systems", organized by the Polytechnic University of Valencia. 2016.
- Practical course: E²STORMED software for the multi-criteria evaluation of urban drainage solutions. Organised by the Polytechnic University of Valencia. 2015.
- Seminar titled "Smart governance and community resilience with an application to dams" at the Princeton University (New Jersey). 2014.
- 4 editions of the Course on Risk Analysis applied to Dam Safety Management - Basic Level, conducted in English and Spanish, organized by the Spanish National Committee on Large Dams (SPANCOLD). 2013-2016.
- Since 2011, lecturer of Dam Safety Management, International Master on Dam Safety and Operation, organized by SPANCOLD.
- Course on Risk Analysis applied to Dam Safety Mangement, organized by the Swedish National Committee on Large Dams (SWEDCOLD). 2010.

OTHER MERITS AND ACTIVITIES

- President of the Spanish National Committee on Large Dams (SPANCOLD) since 2017.
- Elected member of Spanish National Committee on Large Dams (SPANCOLD) Board since 2016.
- Member of the Spanish Commission for Legal Codes for Design and Safety of Dams in Spain since 2016.
- From 2011 until 2017, Chairman of ICOLD International Committee on Computational Aspects of Dams.
- From 2010 until 2017, Secretary General of the ICOLD European Club.
- From 2007, elected member of the Spanish National Committee on Large Dams (SPANCOLD).
- Member of the Organizing Committee of the Spanish Conference on Dams in 2008, 2010 and 2015, organized by SPANCOLD.
- Formulator of 3 themes related to risk analysis for the last editions of the ICOLD International Benchmark Workshop on Numerical Analysis of Dams, in Valencia (2011), Graz (2013) and Lausanne (2015).
- Chairman of session "Innovation in the use of dams and reservoirs", during the XXV ICOLD Congress, in Stavanger (Norway). 2015.
- Invited speaker at HydroVision International Conference (Nashville, Tennessee) with title "Risk Assessment: What in this world are we doing?". 2014.
- Visiting professor at Utah State University (2006) and University of Maryland (2014), and Assistant Professor at the University of Wisconsin-Milwaukee (1995-1996).
- Chairman of the Organizing Committee of the 3rd International Forum on Risk Analysis, Dam Safety, Dam Security and Critical Infrastructure Management, organized at the UPV, Valencia. 2011.
- BANCAJA Entreprenuers 2010 Award, iPresas Business Plan.
- Chairman of the Organizing and Scientific Committee of the 3 editions of the International Week on Risk Analysis, Dam Safety, Dam Security and Critical Infrastructure Management, Valencia, 2005-2008-2011.
- Co-developer of iPresas software for risk analysis of dams using event tree modelling.