

2nd MEETING OF THE DOCTORAL PROGRAM IN CIVIL ENGINEERING

TITLE

HYDROLOGICAL MODELLING OF URBAN CATCHMENTS UNDER CLIMATE CHANGE SCENARIOS FOR THE DESIGN OF A GIS-BASED DECISION SUPPORT METHODOLOGY TO IMPROVE FLOOD MANAGEMENT USING PERVIOUS PAVEMENTS

SPEAKER

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SUPERVISORS



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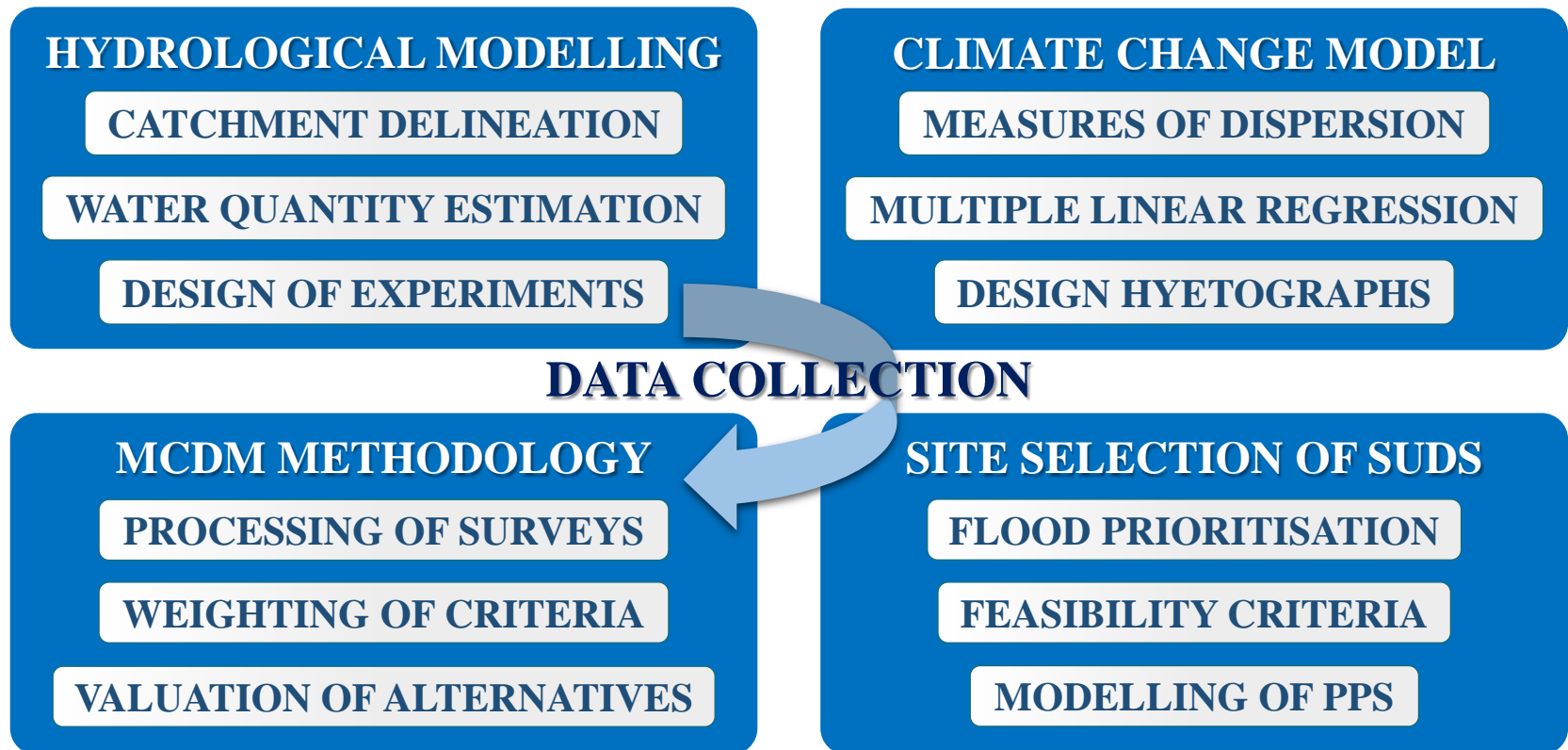
SUSANNE M. CHARLESWORTH

Escuela
de **Doctorado**





The **general aim** of this **PhD** is to develop a methodology for the **hydrological modelling** of **urban catchments** under **Climate Change** scenarios and the design of a **spatial decision support system** to improve **flood management** through the implementation of **pervious pavements**.





ISI JOURNAL PUBLICATIONS

Daniel Jato-Espino, Susanne M. Charlesworth, Joseba R. Bayon, Frank Warwick (2016): *Rainfall-runoff simulations to assess the potential of SuDS for mitigating flooding in urban catchments*. International Journal of Environmental Research and Public Health. **Impact factor: 2.063 (Q1)**.

Daniel Jato-Espino, Elena Blanco-Fernandez, Jaime Carpio-García, Daniel Castro-Fresno (2016): *Decision aid system founded on nonlinear valuation, dispersion-based weighting and correlative aggregation for wire rope selection in slope stability cable nets*. Expert Systems with Applications. **Impact factor : 2.240 (Q1)**.

Joseba R. Bayon, Daniel Jato-Espino, Elena Blanco-Fernandez, Daniel Castro-Fresno (2015): *Behaviour of geotextiles designed for pervious pavement as a support for biofilm development*. Geotextiles and Geomembranes; 43(2): 139-147. **Impact factor: 2.376 (Q1)**.

Daniel Jato-Espino, Jorge Rodriguez-Hernandez, Valerio Carlos Andrés-Valeri, Francisco Ballester-Muñoz (2014): *A fuzzy stochastic multi-criteria model for the selection of urban pervious pavements*. Expert Systems with Applications; 41(15): 6807-6817. **Impact factor: 1.965 (Q1)**.



ISI JOURNAL PUBLICATIONS

Daniel Jato-Espino, Elena Castillo-Lopez, Jorge Rodriguez-Hernandez, Juan Carlos Canteras-Jordana (2014): *A review of application of multi-criteria decision making methods in construction*. Automation in Construction; 45: 151-162. **Impact factor: 1.822 (Q1)**.

OTHER JOURNAL PUBLICATIONS

László Gáspár, Zsolt Bencze, Daniel Jato-Espino (2016): *Döntéstámogató modell nagy nehézforgalmú utak aszfalt kopóréteg-típusának kiválasztásához*. Ütügyi Lapok; 7.

INTERNATIONAL PATENTS

Elena Blanco-Fernandez, Franciso Ballester-Muñoz, Daniel Jato-Espino, Carlos Real-Gutiérrez, José Pedro Mery-García, Daniel Castro Fresno (2015): *Wire rope net and method for producing a wire rope net*. Applicants: NV Bekaert S.A. and Inchalam S.A. Application number: PCT/EP2015/052620. Publication number: WO2015128177 A1.

CONFERENCE PAPERS

Daniel Jato-Espino, Valerio Carlos Andrés-Valeri, Luis Angel Sañudo-Fontaneda, Daniel Castro-Fresno, Jorge Rodriguez-Hernandez, Susanne M. Charleswoth (2016): *Analysis and implementation of sustainable drainage practices under Spain's oceanic climate conditions*. Water Efficiency Conference 2016, Coventry (U.K.).

Daniel Jato-Espino, Elena Castillo-Lopez, Susanne M. Charlesworth, Frank Warwick (2016): *Site selection for sustainable drainage in flood-sensitive highly urbanised catchments using hydrologic and geometric variables*. 9th International Conference NOVATECH - Planning & technologies for sustainable urban water management, Lyon (France).

Daniel Jato-Espino, Susanne M. Charlesworth, Joseba R. Bayon, Frank Warwick (2015): *Rainfall-runoff simulations to assess the potential of different SUDS for mitigating surface water flow in urban watersheds*. SUDSnet International Conference 2015, Coventry (U.K.).

Daniel Jato-Espino, Elena Castillo-Lopez, Susanne M. Charlesworth, Jorge Rodriguez-Hernandez (2015): *Air quality modelling in Barcelona from the analysis of climate, territorial and traffic variables*. International Conference on Civil and Environmental Engineering (ICOCEE), Cappadocia (Turkey).



CONFERENCE PAPERS

Daniel Jato-Espino, Iñaki Tejero-Monzón, Daniel Castro-Fresno, Javier Temprano-González, Amaya Lobo-García de Cortázar (2014): *Análisis multicriterio integral para optimizar la gestión de residuos sólidos municipales*. 7º Encuentro de Expertos en Residuos Sólidos y 3er Foro Nacional de Ingeniería y Medio Ambiente, Instituto Tecnológico de Toluca, Metepec (Mexico).

CONFERENCE POSTERS

Luis Angel Sañudo-Fontaneda, **Daniel Jato-Espino**, Craig Lashford, Steve Coupe (2016): *Investigation of the design considerations for Highway Filter Drains through the comparison of stormwater management tools with laboratory simulation experiments*. 9th International Conference NOVATECH - Planning & technologies for sustainable urban water management, Lyon (France).

László Gáspár, Daniel Castro-Fresno, **Daniel Jato-Espino**, Irune Indacoechea-Vega, Ilze Paeglitis, Pablo Pascual-Muñoz, Viktors Haritonovs, Raquel Casado Barrasa, Zsolt Bencze, Jose Diez (2016): *Complex Optimization of Heavy Duty Asphalt Pavement Types in DURABROADS Project*. 6th European Research Transport Conference, Warsaw (Poland).



MOBILITY

3-month internship at the **Centre for Agroecology, Water and Resilience (CAWR)** at Coventry University (U.K.). September 1 to November 30, 2015.

TRAINING COURSES

EDUC Basic and Advanced Training Courses (2016). Duration: 80 hours. Organiser: Doctoral School of the University of Cantabria.

Statistics for research in construction engineering I and II (2016). Duration: 20 hours. Organiser: Construction Technology Applied Research Group (GITECO).

Introduction to Sustainable Construction (2015). Duration: 20 hours. Organiser: University of Cantabria.

Green Stormwater Infrastructure in the USA (2015). Duration: 10 hours. Organiser: Centre for Agroecology, Water and Resilience (CAWR).

Innovative Stormwater Management (2015). Duration: 10 hours. Organiser: Polytechnic University of Valencia.

Basic competences	Science and Technique	Technology	Training courses	Results	SWOT analysis	Workplan	Mobility	Funding	Ethics
CB11	✓	✓	✓						
CB12				✓		✓	✓		
CB13				✓					
CB14					✓				
CB15				✓			✓		
CB16				✓					✓

Capacities and personal skills	Science and Technique	Technology	Training courses	Results	SWOT analysis	Workplan	Mobility	Funding	Ethics
CA01	✓	✓	✓						
CA02				✓					
CA03						✓		✓	
CA04			✓				✓		
CA05	✓	✓	✓						
CA06					✓				



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