

II International Congress on Water and Sustainability

TERRASSA - BARCELONA
24-25-26 MARCH



OmniaScience

UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
DEPARTAMENT D'ENGINYERIA DE
ENGINYERIA DE



intexter

Book of Abstracts

II International Conference on Water and Sustainability

Universitat Politècnica de Catalunya

Terrassa, Barcelona, March 24-26th, 2021



Book of abstracts: II International Conference on Water and Sustainability

Editors: Beatriz Amante García, Francisco Belzagui Elder, Valentina Buscio Olivera, Lluç Canals Casals

1st edition © 2021 OmniaScience (Omnia Publisher SL)

www.omniascience.com

DOI: <https://doi.org/10.3926/icws2021>

ISBN: 978-84-123480-0-2

Cover design: Editors - OmniaScience

Welcome,

This Conference is the consequence of the conjunction of the results and progress of the ongoing research on the water treatment ENMA group at the University and the particular social and political moment that water management is facing in Catalonia and, particularly in the city of Terrassa, that locates the INTEXTER (Institute for Textile Research and Industrial Cooperation of Terrassa), venue of the Conference.

This congress aims to give space for a scientific debate and reflection on water and its importance with regards to the environment and wider society.

We hope that this initiative will consolidate the entire educational, scientific and professional community to respond to the prospective challenges that the development and implementation of new technologies brings together with their impacts in relation to water.

Please, enjoy the presentations, posters, sessions and the whole event activities.

Water footprint in the water cycle of the Canary Islands

Noelia Cruz-Pérez*

Departamento de Ingeniería Agraria, Náutica, Civil y Marítima.
Universidad de La Laguna (ULL), Tenerife, Spain.

Jesica Rodríguez-Martín

Departamento Técnicas y Proyectos en Ingeniería y Arquitectura.
Universidad de La Laguna (ULL), Tenerife, Spain

Maite M. Aldaya

Water Observatory of the Botin Foundation, Complutense
University of Madrid and Consultant UNEP, Spain.

Alejandro García Gil

Department of Geological Resources Research. Geological Survey
of Spain (IGME), Madrid, Spain.

Juan C. Santamarta

Departamento de Ingeniería Agraria, Náutica, Civil y Marítima.
Universidad de La Laguna (ULL), Tenerife, Spain.

*Corresponding author: * ncruzper@ull.edu.es;

phone: +34 922316502

Abstract

Islands are territories with limitations when it comes to exploiting their natural resources, due to the quantity of these resources and the possible vulnerability that can be caused to the ecosystem if this is not done in a sustainable manner. The Canary Islands are an archipelago in the Atlantic Ocean, belonging to Spain, with a high demand for water resources mainly due to urban, tourist and agricultural use. The orographic characteristics of the islands and their capacity to capture the trade winds determine the greater or lesser aridity of the islands, which means that each island has its own water model, where in some there is a greater contribution of desalinated water and in others a greater contribution of groundwater. This article presents a study of the water footprint of the different drinking water collection and wastewater treatment facilities in the Canary Islands, in order to determine the blue, green and grey water in each case. The results confirm that water galleries are environmentally friendly facilities in terms of both water and energy, while water treatment plants have a greater impact on discharges into the natural environment, as well as desalination plants, which are very common in the archipelago.

Keywords: Water cycle, water footprint, desalination, climate change, Canary Islands.

Water governance in Spain's Archipelagos

Juan C. Santamarta*

Departamento de Ingeniería Agraria, Náutica, Civil y Marítima.
Universidad de La Laguna (ULL), Tenerife, Spain.

Celso García, Pablo Rodríguez-Lozano

Department of Geography. University of the Balearic Islands.
Palma, Spain.

Jesica Rodríguez-Martín

Departamento Técnicas y Proyectos en Ingeniería y Arquitectura.
Universidad de La Laguna (ULL), Tenerife, Spain.

Noelia Cruz-Pérez

Departamento de Ingeniería Agraria, Náutica, Civil y Marítima.
Universidad de La Laguna (ULL), Tenerife, Spain.

*Corresponding author: icsanta@ull.es; phone: +34 922316502

Abstract

The islands, due to their geographic condition of limited territory, are also limited in the resources available to them for the development of normal life. In Spain there are two archipelagos, the Balearic Islands and the Canary Islands, both have similar characteristics due to their richness in groundwater, few surface water resources and the use of desalination to support the water demand, which rises mainly due to agriculture and the tourism sector, so important in both archipelagos. In addition, both also suffer from similar situations such as marine intrusion in the wells that exploit the