



## Editorial

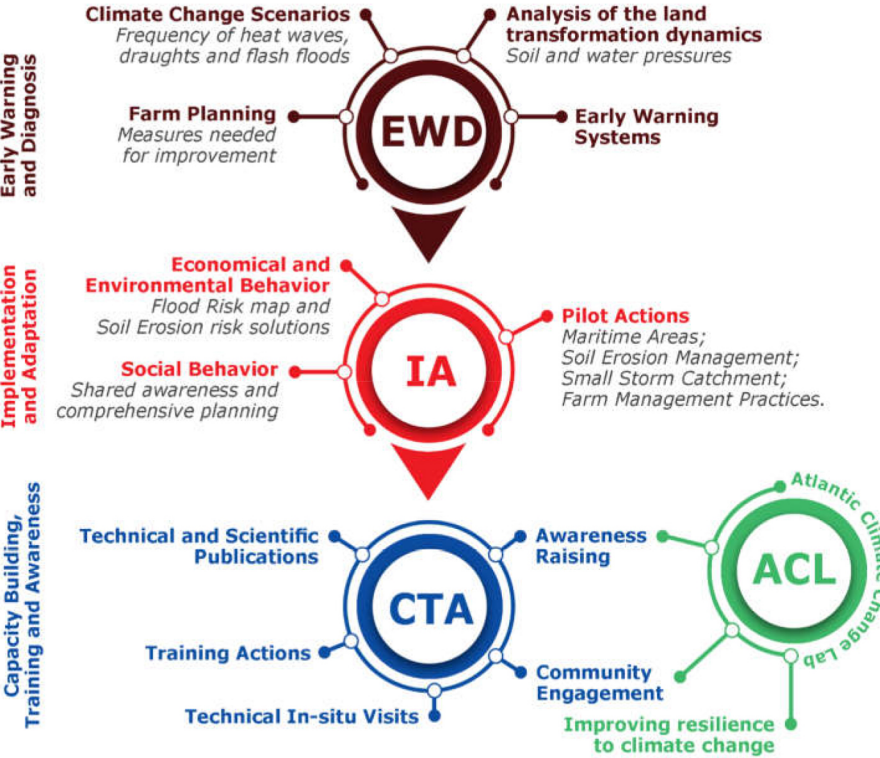
Climatic changes are slow on average, but at the extremes they seem to be becoming more frequent. This slowly changing average prevents us changing proactively, and we end up reacting after disasters, as has happened in 2017 with the fires in Portugal. The principal aim of Risk-AquaSoil (RAS) is to awaken society to the fact that climatological disasters can and will happen during our life. Once awakened, the second purpose of RAS is to propose simpler and more efficient tools and services for managing the more harmful risks in different places of the Atlantic Area of Europe from Ireland to Andalucía. However, it is not enough to just have the solutions, as they have to be understood by the local communities by participating, adopting and applying them. This is why RAS has also a final third objective, to understand what political and local levers can be triggered to allow these new principles of management for a better resilience to climatic changes to be applied in the fields by farmers and rural people.

**Dr. Jean François Berthoumieu**  
(ACMG, Project leader)

## Project description

**RiskAquaSoil** aims to develop a comprehensive plan and joint initiative for an efficient risk management and an enhanced resilience of the Atlantic rural areas. Through transnational cooperation, the project partners will combat the adverse effects of the climate change, especially on agricultural lands.

The project will contribute to a better coordination for the detection, risk management and rehabilitation for rural territories, especially for agricultural purposes, mainly associated to climate change and natural hazards but also to human pressure.



### Contacts

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## Who we are

### Association Climatologique de la Moyenne-Garonne et du Sud-Ouest



Involved in Agrometeorology, climatology since 1959, ACMG works on prevention of weather scourges, irrigation management, water storage in lakes and water tables, satellite remote sensing and climate adaptation. With previous research experience on hail prevention (1993-2003), Interreg Sudoe PRECIRIEG, TELERIEG (scientific leader), Adaptaclima 2 and training of weather services in Chad, Burkina Faso, Libya, India, Tunisia, Morocco.

### Chambre d'Agriculture de la Dordogne

Supporting the rural development of the Dordogne region through farmer's support and training, as well as agricultural development projects, it represents and promotes the interests of the rural sector within the public authorities and the local communities. It has a wide experience in EU transnational cooperation projects, including COREA within the Interreg Atlantic Area, as well as ADAPTACLIMA I and II, EQUUSTUR, EQUUS and MICOSYLVA 1 and 2.



### Agencia Estatal Consejo Superior de Investigaciones Científicas

As the largest public institution dedicated to research in Spain and the third largest in Europe, it's committed to develop innovative soil-water management practices for a more efficient on farm water use and soil conservation.



With a vast experience, the team coordinated 3 FP6/7 projects in the last 6 years (SIRRIMED, IRRIQUAL and OPIRIS), and is currently involved in two JPI WATER projects (IRIDA & DESERT), and two LIFE (IRRIMAN & CLIMATREE).

### Agencia de Medio Ambiente y Agua de Andalucía

Responsible for water and environmental management of the Andalucía region, the agency has both technical and administrative experience in European projects (LIFE, FP7, H2020, Interreg and others), with multidisciplinary teams and specialized media.



Agencia de Medio Ambiente y Agua  
CONSEJERÍA DE MEDIO AMBIENTE  
Y ORDENACIÓN DEL TERRITORIO

### Westcountry Rivers Trust

Working to restore and protect rivers, estuaries and coasts in West of England, WRT's fields of expertise include the monitoring of rivers, facilitating local partnerships, water quality modelling, risk assessment and delivering interventions to resolve both water quality and quantity problems. WRT has had leading experience in Interreg projects (Atlantic Arc IIIB, Atlantic Arc IVB and France (Channel) England), as well as a partner in other 5.





## Laboratório da Paisagem



The Laboratório da Paisagem (Landscape Laboratory), is a private non-profit association dedicated to the Education for Sustainability and Research & Development. It acts on a multi-disciplinary basis, seeking to

add value to the scientific projects and interventions made in Guimarães territory while addressing the challenges posed by civil society, by reflecting on them and finding innovative solutions to contribute to the improvement of the quality of life of the populations.

## Centro de Estudos Sociais Universidade de Coimbra



CES-UC focus in research and advanced training within the Social Sciences and Humanities, through inter and transdisciplinary

approach. The objectives overall are to foster innovative epistemologies and methodologies, contributing to undertake critical analysis of society, stimulating an ecology of knowledges, and supporting the design of public policies through the development of applied research across a wide range of areas with impact on societies.

## National University of Ireland, Galway



NUI is a university with a strong research focus on themes as Biomedical

Science and Engineering, Informatics, both Physical and Computational, Environment, Marine and Energy, Social Science and Public Policy and Humanities in Context. Currently coordinates/partners in 78 Horizon 2020 projects and a further 12 projects involving EU funding programmes.

## What we've been doing

### Remote sensing training action

From the 12th to 15th of March, a training action was organized in Auch, France, for the partners of RiskAquaSoil on remote sensing techniques that will be used in the project. Currently a comparison is being done between radar reflectance and the normalized difference vegetation index and other near infra-red indexes, as well as a working method to measure percent of surface and position of bare fields. Using the RUSSEL algorithm, it's intended to define, in a pilot area, where runoff and erosion occurs, and where infiltration occurs, verifying, at the same time, if temperatures do get higher in eroded areas.

In Galicia, the CSIC team has installed, in two vineyards, soil erosion monitoring traps in order to quantify the benefits for soil protection of innovative vineyard floor management practices



### Implementation and adaptation, Workshop and farmer training

In Dordogne, in March and April, survey addressed to farmers and communities were conducted to identify their knowledge of climate change, and its impact on agriculture in the Dordogne. 35 farmers and 10 communities were investigated. An action plan will be created thanks to the proposals of the investigated.



## What we're doing

### Climate tendencies

ACMG analyzed representative climatic data from multiple Atlantic zones, for the last 30 to 50 years. The proximity to the ocean is noticeable with an average minimum temperature of 5.5°C in Mullingar (Eire), 8.7°C in Agen (France) and 10.4°C in Amareleja (Portugal). An increase in the annual average maximum temperature is distinguishable, from +0.3°C in Valentia (Eire), +0.7°C in South-West Devon (UK), +1.2°C in Agen (France), +0.8°C in Lourian (Galicia Spain) and +1.3°C in Amareleja (Portugal). The precipitation shown no tendency, with zones in Portugal with a 12.8% increase and others in Galicia, Middle-Garonne and Devon with a -0.5% decrease. The average thermal daily amplitude varies in summer from 5.6°C in Valentia (Eire) to 13°C in Amareleja (Portugal) while there is 11.2°C in Bergerac (France). That amplitude is increasing in 7 places (+0.1 to 1°C) and decreases in 1 (-0.4°C) while staying stable in 2.



*Praçais, Pampilhosa da Serra, Portugal*

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### Discrete Choice Experiment

NUI Galway provided training to the other partners on the DCE method in May. To help inform the DCE survey design, NUI Galway also completed a short survey with farmers at the National Sheep Conference in Ireland. Approximately 50 farmers completed the survey. Most farmers indicated they worried about severe weather and they are willing to undertake measures to protect their farm against climate change.

### Westcountry Rivers Trust catchment trials

The Westcountry Rivers Trust has been running three catchment scale trials in Devon. The first is a water quality acid remediation trial reducing the high pH spikes, the second is a water quantity natural flood management trial buffering flows and the third is trailing a new low cost telemetric monitoring probe to assess water quality and quantity.

### Remote Sensing

Using NDVI indexes derived from different platforms including the satellites Sentinel-I and II, it is possible apply the RUSLE equation in the demo areas and determine both the erosion risks and the erosion rates in relation to the soil conservation practices promoted. Drones will be used to monitor erosion rated with very high spatial resolutions.

### Watercourses Monitoring after Wildfires

After the wildfires that affected Portugal in 2017, a watercourses monitoring campaign was initiated in 10 sampling points chosen based on the size and percentage of burnt area of the watershed. These monthly campaigns will detect changes in water and sediment properties in a post-fire scenario, and, if any, establish the persistence of these effects.