



Engaging approaches and services for meaningful climate actions - ClearClimate

MSCA– Staff Exchanges workshop University of Belgrade, 12/12/2023





The aim of ClearClimate is to create an International and Intersectoral and Interdisciplinary network to facilitate the exchange of staff to progress developments in Climate Information Services (CIS) in the area where those services do not exist or are very limited – South East Europe.

The focus of the project is to **develop staff and beneficiary/partner skills** in the areas of **human centred design** and **neuroscience** coupled with improved computational techniques for the research in **climate change and climate extremes** which in turn will offer more appropriate and efficacious CIS.

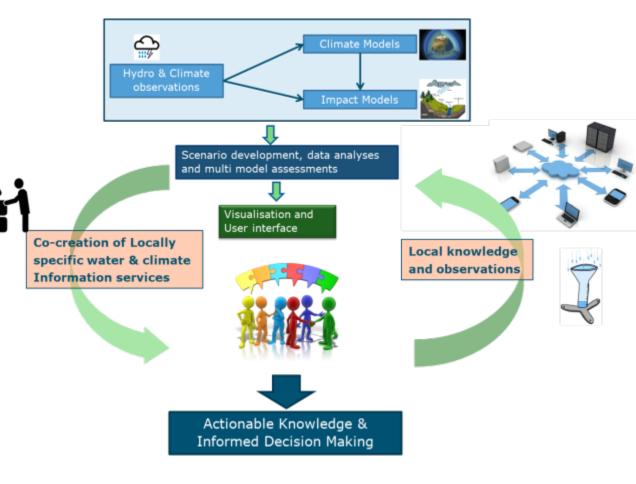






What are CIS?

CIS involves the provision of climate information in a way that assists decision making by individuals and organizations. CIS supports users to anticipate and manage the risks of a changing climate. It involves a 🔬 knowledge cycle of access to, interpretation, communication and use of relevant, accurate and reliable climate information by user communities and their targeted feedback on how the information is used.



Second-generation climate information services



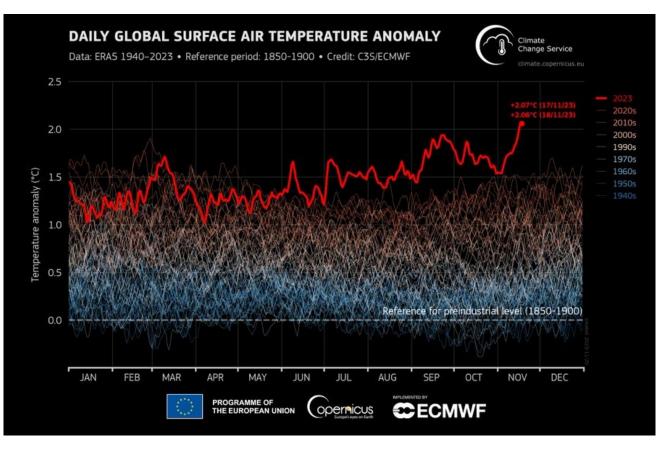


Motivation behind ClearClimate

The tell-tale signs and impacts of climate change are becoming more dramatic.



Zbog poplava vanredna situacija u 52 lokalne samouprave u Srbiji, evakuisano 295 ljudi











Why is this important?

FAQ 11.2: Will climate change cause unprecedented extremes?

> Yes, in a changing climate, extreme events may be unprecedented when they occur with...



Increased frequency

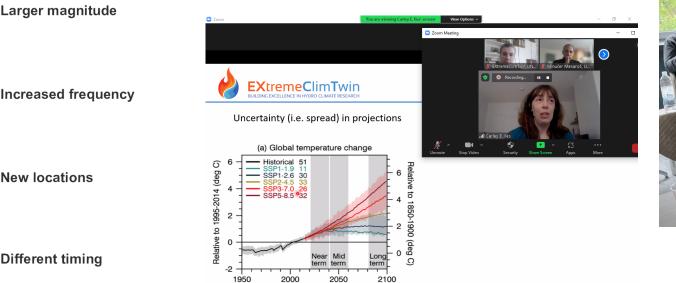


New locations



Different timing





Year

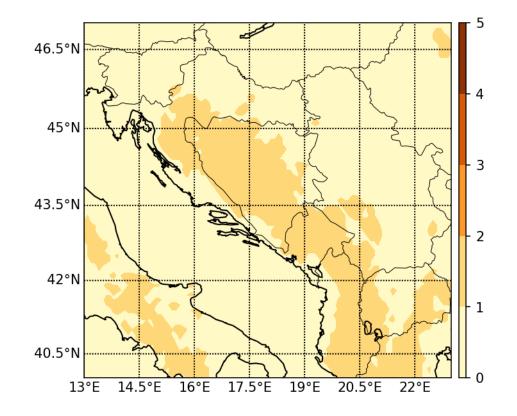


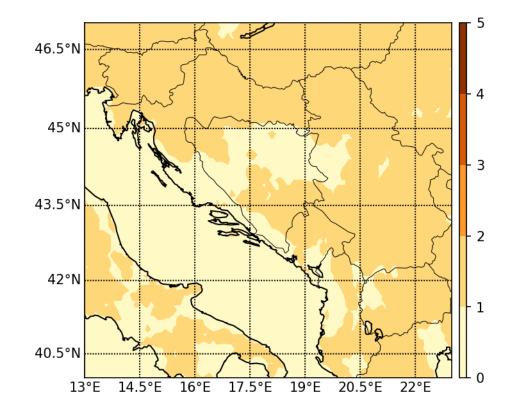






Decadal frequency of heat waves in Western Balkan

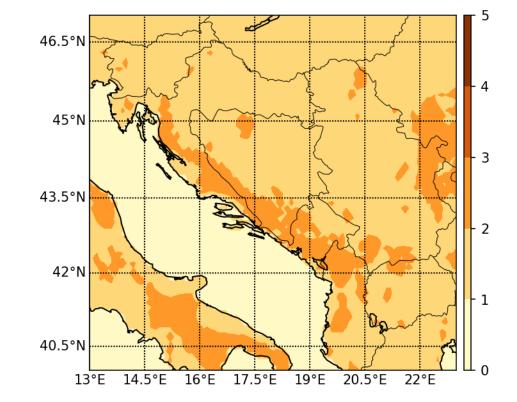


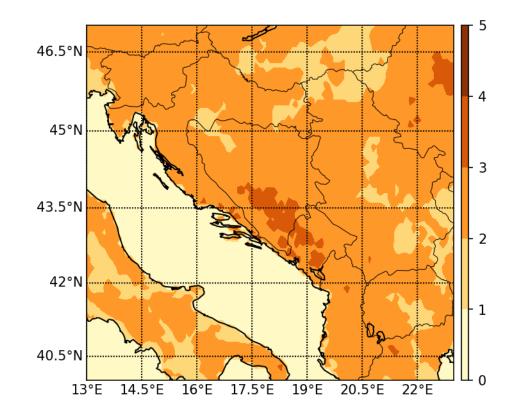








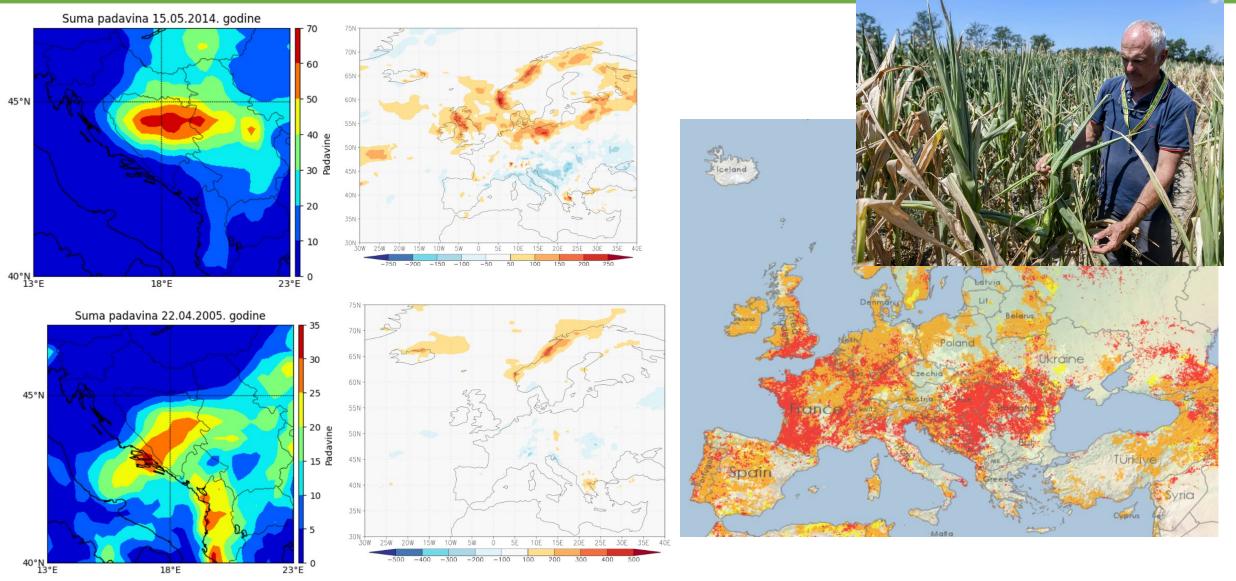












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Thus, the climate service movement represents a fundamental attempt to reconfigure how climate science is produced and used, and the relationships between science and society.

The importance of climate services in the context of climate adaptation has been widely recognized, but there has been limited progress in demonstrating the value that tailored climate information brings to users.











Climate services are not successfully reaching the end users and supporting adaptation planning.

This has led to calls for a **shift away from** science-driven climate services to userdriven, science-informed services.

Climate services have shown to be insufficient in terms of inclusive development, as their ability to ultimately enable adaptation for vulnerable people and communities is questioned



ClearClimate

will close the biggest gaps identified as the greatest barriers for the uptake of CIS





HOW?

ClearClimate will build on and complement recent and ongoing European efforts in production of CIS to seek, measure, track and fully understand not only the framework needed for effective CIS but also the motivations and barriers to large-scale behavioural change underpinning the processes of uptake of CIS products.

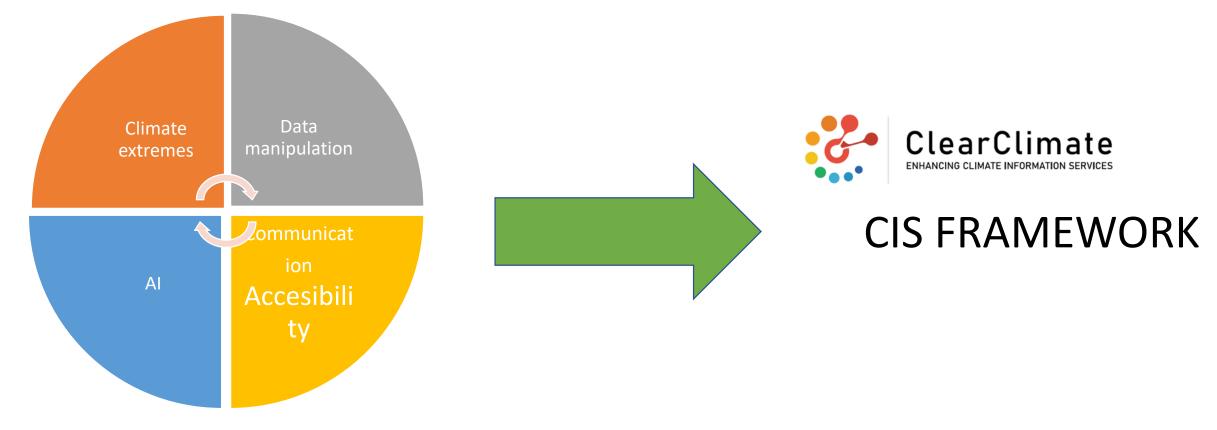






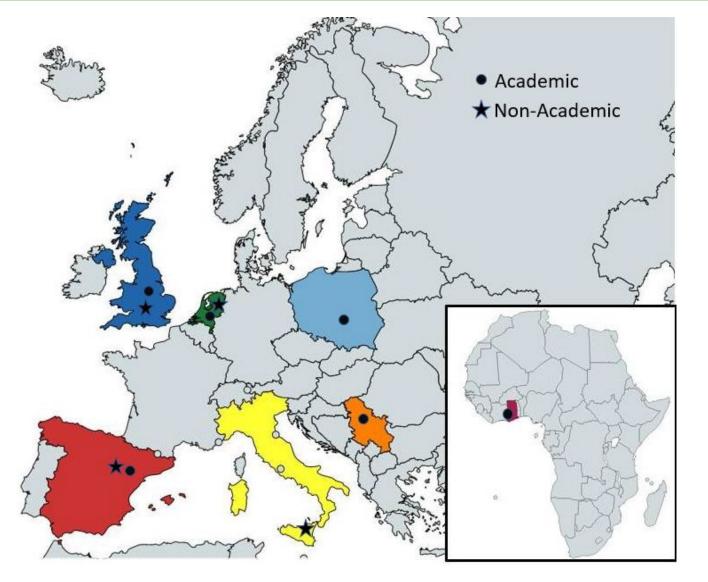
Why is ClearClimate different?

The main domains of interest of the ClearClimate project lie in the areas of **climate change**, **statistics**, **accessibility**, **design**, **artificial intelligence** and **communication**.









6 Academic partners4 Industrial partners

- 3 partners from third countries
- Ghana and UK





ClearClimate partners with diverse expertise



Coordinator – Climate change, climate extremes



Climate change, Climate information services

UAB Universitat Autònoma de Barcelona

Media accessibility, ethics, multilingual communication



Climate change, Statistical and temporal downscaling





ClearClimate partners with diverse expertise



Cognitive research and human-computer interactions



Big Data and AI for climate modelling



Impact modelling and temporal downscaling



Social innovation and media accessibility



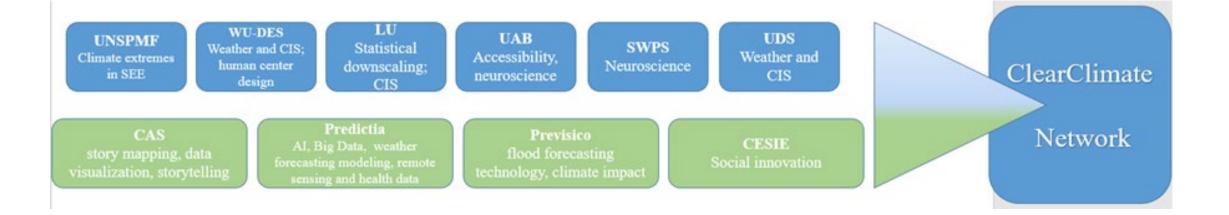




Data visualisation and storytelling



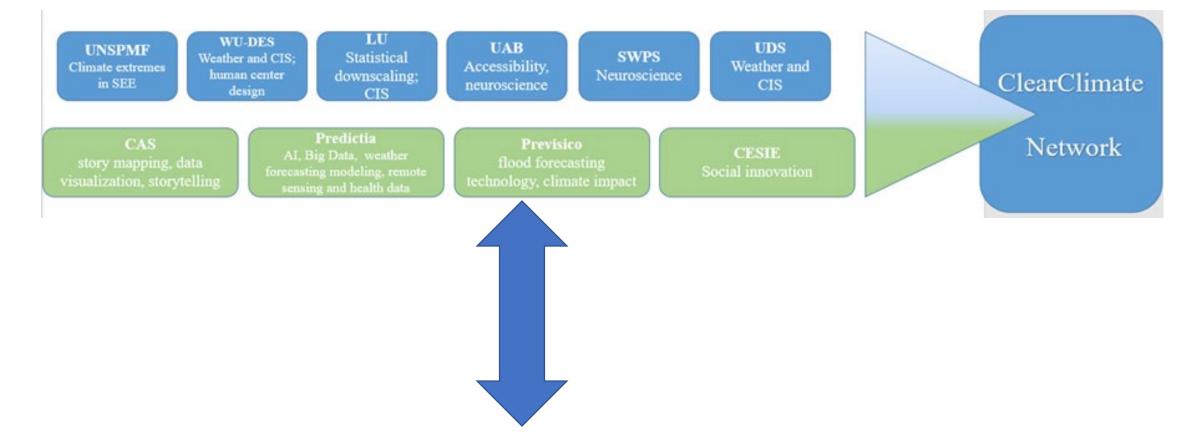
Climate data services, accessibility





ClearClimate ENHANCING CLIMATE INFORMATION SERVICES





International, Interdisciplinary and Intersectoral ("3-i") opportunities





The overarching objective of ClearClimate is **to push forward** the current research in climate information services development and **to co-develop**, **co-create and co-disseminate** the interventions, artefacts and strategies **for promoting the uptake of CIS** products in SEE and thus **adapt to climate change negative effects.**

SO1 To unleash the power of co-creation, co-design, co-development for human-Centred Framework to deliver CIS that will be standardised with recommendations (e.g. Climateurope2's (GA No 101056933)) for quality-assured climate services.

SO2 To empower CIS with the supremacy of human-centred XAI and to upscale CIS with a cutting-edge system that prioritizes human understanding.

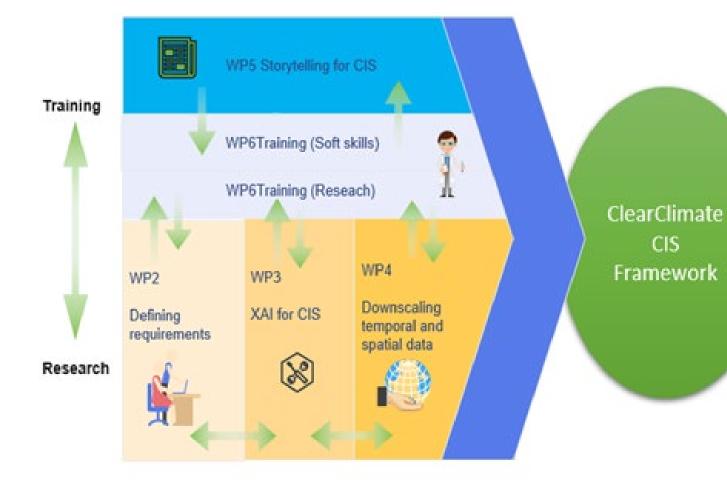
SO3 To use human centred XAI based on the framework developed in O1 to provide explanations of the factors that are most important in determining the patterns at the fine-resolution location, such as topography, land-use, and meteorological conditions.

SO4 To effectively communicate the impacts of climate change and the potential risks associated with extreme weather events in the framework of CIS.

SO5 To train researchers to enhance their potential and improve their career prospect through highly interdisciplinary and intersectoral secondments.



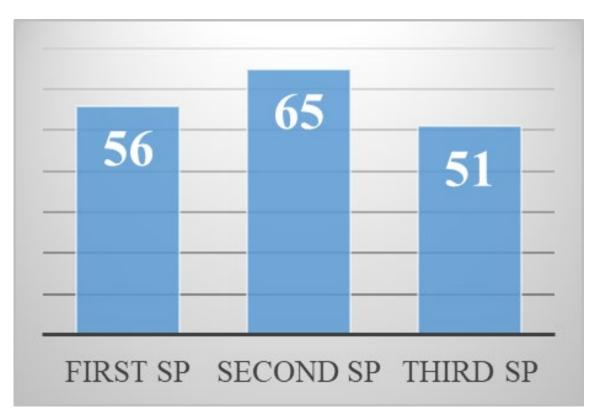




The objectives of the ClearClimate will be reached through activities done during the secondments.







It is foreseen three secondment periods, each followed by the reintegration phase. The length of secondments varies from one month to 12 months depending on the task and whether the researcher is ER or ESR. For this purpose, the researchers will be seconded in three secondment periods (SP) (M4-M15; M16-M30; M31-M44).







Twenty-eight researchers and fourteen ERSs will go on 172 different secondments.

This transfer of knowledge through exchanges and secondments will be supplemented with a range of workshops seminars, summer schools and conference presentations.

Twenty-eight researchers and fourteen ERSs will spend 313 PM on different secondments.



ClearClimate INFORMATION SERVICES



Comion										Insti	tution									
Carrier Development				A	cademic	beneficia	ies							non-a	academic				Third	countries
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ClearClimate	ER	ESR	ER	ESR	ER	ESR	ER	ESR	ER	ESR	ER	ESR	ER	ESR	ER	ESR	ER	ESR	ER	ESR
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	UD1	SD5	SD3	UD2	CE1	UD1	CE3	BCN1	UD5	SD3	UD2		CE2	SD5	BCN1	SD2	BCN2	BCN4	CE3	UD2
	UD2	CE2	UD4	UD3	CE2	CE2	UD5	UD1	CE2		UD3		CE3	UD3	SD1	SD4	BCN3		UD3	BCN3
Priority areas	CE3	BCN1	CE2	SD2	SD1	CE3	BCN3	BCN3	SD5	CE3	SD3		UD3		CE5	CE1	CE5	UD1	UD4	UD1
for	SD3	BCN2	UD2	CE3	BCN4	BCN3	SD1	UD2	CE5	UD4	CE1		BCN1	CE3	UD1	CE5	UD1	UD3	BCN3	
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	SD2	SD1			SD5		UD5		UD1		BCN4		SD3	SD1	BCN4				UD5	

Hum	an centred design
UD1	Eye tracking research
UD1	Needs assesment
UD3	User driven
UD4	Visual attention
UD5	Accessibility

	Climate	e extremes and CIS
C	E1	AI and statistical
C	E2	Data visualization
С	E3	Story mapping
C	E4	Qualitative
		Comparative
C	E5	decision sciences

Beh	avioural change and
BCN1	Human-computer
BCN2	Virtual and mixed reality
BCN3	Multimedia in education
BCN4	Accessibility of media

Sof	t skills development
SD1	Ethics
SD2	Responsible research
SD3	Enterpreuneral thinking
SD4	IPR management
SD5	Innovation and market
202	management





ClearClimate has defined specific training and networking objectives (TO) to be reached through "3-I" aspects of the project.

TO1: To provide industrial, academic and public sector employers with researchers which have a broad range of skills, and ability of interaction across disciplines and sectors;

TO2: To train researchers with a proven ability to transform research ideas and results into actionable outcomes with excellent transferable skills of life-long use across sectors.

TO3: To create an active, lifelong network of researchers across sectors whose personal contacts, support and expertise will help Europe to extract meaningful information and impact behavioural changes;

TO4: To cascade expertise and spread good practice throughout Europe by pooling complementary academic and industrial expertise- in climate and communication science to establish new ground-breaking CIS framework









Table 1.3.2. Main networking events - Research

WS1 User research and empathy mapping (hybrid; Lead: WU-DES, SWPS; Due: M6)

WS will focus on the importance of user research in product design and development with examples of successful past research. It will also explain the importance of empathy mapping and review its main components. The theoretical part will be followed with practical exercises. WS1 will contribute to the WP2 objectives and the ClearClimate specific objective 1.

WS2 Decision support systems that integrate climate information, risk assessment, and adaptation planning (online; Lead: LU, UDS; Due: M15)

Researchers will gain a deep understanding of the latest research and tools for building climate-resilient decision support systems, and how to apply them in their own organizations and communities. They will leave with a network of colleagues and contacts from around the world, and a renewed sense of urgency and commitment to climate action. WS2 will contribute to the WP2 objectives and the ClearClimate specific objective 1.

WS3 Human-centred XAI design and ethics (hybrid; Lead: UAB; Due: M12)

Researchers will broaden their knowledge on the different types of XAI techniques, such as rule-based systems, decision trees, and neural networks, and how to design them to be explainable and transparent to users. They will also explore ethical considerations in XAI design, such as fairness, accountability, and transparency, to address these issues in the design process³¹. WS3 will contribute to the WP3 objectives and the ClearClimate specific objective 2.

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Subtask 6.2.1				1	WS1		WS7	7		WS3		WS2		N	VS4		WS	8		WS5			WS6			WS9			WS10				1									יך





Soft Skills Trainings develop a set of skills not directly connected to usual academic training, but valuable for the ERs as well as ESRs to become industrial or academic leaders in their future. This training will be delivered through a set of tailor-made training workshops. These events will be organised with WSs, the list of SST

includes: SST1 "Ethics & Scientific Conduct" (Organiser: UAB, duration: two days; Due 6)

It will cover following subjects: 1) Being a scientist; ethical principles (Responsibility, Accountability and Conduct); 2) Consequences of scientific misconduct / Scientific research in Academic and Industrial environment; 3) Gender issues in line with EU Gender Equality Strategy for 2020-2025³²; and 4) raising awareness of adoption of AI techniques in climate related research and practice.

SST2: "Innovative Proposals & Products" (Organizer: CESIE, duration: two days; Due 15)

It will comprise: 1) Introduction to proposal writing and to product development; 2) Participants think of a challenging idea for a scientific project/industrial product; 3) Presentations. Participants achieving sufficient quality level will be encouraged to submit proposals or develop products.

SST3 "Decision Making: Crucial Factors, Processes and Approaches" (Organiser: SWDS, duration: two days, Due 34)

The aim of the training is to reflect on one's own decision-making processes and principles and to prepare participants for future self-confidence, self-efficacy and accountable decision making.

SST4 "Entrepreneurship and New Business Development" (Organiser: Previsico, duration: two days, Due 28)

The main aim of the course is to give a practical orientation to entrepreneurship through the development of the personal capabilities, leadership and the supply of operational and conceptual tools for the launching of an entrepreneurial innovative venture.

SST5 "Management and Information Technology" (Organiser: CESIE, duration: two days, Due 9)

Focus is on the use of IT for management purposes. The course helps the future manager (in industry, service





The Initial Orientation Workshop (IOW) - contributing to TO3 and TO4) and will cover an introduction to the organization of ClearClimate and its management.

	Day 2: 19 December 2023 (Tuesday)	
	Session 3: Management and Administrative Issues	
	The Initial Orientation Workshop	
10:00-11:00	Discussion on preliminary: Data Management Plan Project Handbook IPR management strategy Strategy for Ethical management Dissemination, Communication and Exploitation plan	SWPS, WU, CESIE, UAB
11:00-11:30	Discussion on specific risks and initial Risk management plan	All partners
11:30-13:00	Organisation of ATM1 and SST1 (M6) Lectures given by ClearClimate experts and selected invited speakers 	WU-DES, SWPS; UAB; All partners
13:00-14:00	Lunch break	
14:00 - 14:30	Appointments of Executive board members Research Committee Data Management Committee Exploitation Committee 	All partners



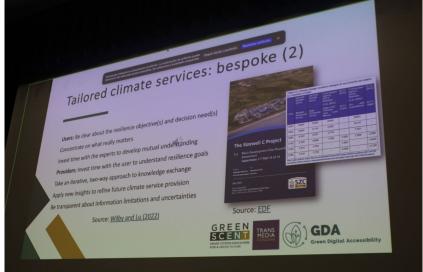


ClearClimate Conference will contribute to achieving TO1-4 and is part of joint research training and networking as well as soft skill training.

Every year **ClearClimate** will have a panel in the conference GDA organised by UAB in December.







Barcelona, 1 December 2023





Criterion 1 - Excellence

Score: 5.00 (Threshold: 0 / 5.00, Weight: 50.00%)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:

• Quality and pertinence of the project's research and innovation objectives (and the extent to which they are ambitious, and go beyond the state of the art).

• Soundness of the proposed methodology (including interdisciplinary approaches, consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality and appropriateness of open science practices).

• Quality of the proposed interaction between the participating organisations in light of the research and innovation objectives.

Strengths:

- The relevance of developments in Climate Information Services in South Eastern Europe is well pointed out. The proposed research presents a set of significant research objectives that are reasonably achievable.

- The state of the art is well presented. The proposed research incorporates several innovative technical components.

- The proposed methodology, including the concepts and training activities, is very detailed. The research challenges are precisely identified and the proposed solutions are credible.

- The proposal shows a substantial balance between the academic and non-academic sectors, and the activities carried out by the participating organisations highlight a good intersectoral and multidisciplinary approach.

- The proposal convincingly addresses the gender dimension in delivering climate-relevant products and information services through well-specified pathways to develop gender-sensitive communication channels.

- Open science practices are clearly articulated for the purposes required by the Programme. Public repositories for publications and data are adequately considered.

- The organisational measures envisaged will ensure the quality of data management in compliance with the FAIR principles.

- AI will be used with the help of XAI (Explainable Artificial Intelligence) methodologies. The contribution of these techniques is indispensable for the development of the proposed research and the choice is well thought out and supported by specific skills and responsible use.

- The role of the participating institutions in the planned activities and interaction between the consortium members is clearly presented.

- The proposal provides a very good description of the planned networking activities, which are aimed at achieving the research objectives.





What is ClearClimate set to achieve?

Academic bene	ficiaries
Target Collaborations	Support mechanism beyond ClearClimate
	possible supervision of joint PhD students. Funding schemes to be targeted include: MSCA Doctoral Networks; MSCA Staff Exchanges, contribute to Horizon Europe Mission "Adaptation to climate change, including societal transformation", Pilar II Cluster 5, Erasmus+
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communication approaches for all citizens on climate change research and progress accessibility solutions with all partners.	



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	licti	Establish research collaborations with Previsico on the usage of ML techniques for climate data processing. Development of CIS solutions with UNSPMF and Previsico.		high in at
		AI, machine learning, user-centred design, climate change monitoring, and easy communication to citizens.	CESIE collaborates with UNIPA, the Municipality of Palermo, and companies like Engineering Ingegneria Informatica Spa. They create synergies between EU initiatives and collaborate with UNIPA's Centre for Sustainability and Ecological Transition for Horizon Europe and Erasmus+ programs.	func Hori
	sico		Previsico is a research-driven spinout company. We were funded multiple times by Innovate UK. We also invest heavily in R&I and support collaboration with academic and non-academic organisations.	

ClearClimate

consortium, as an established "3-i" community, will be highly competitive in attracting future funding from Horizon Europe. ClearClimate INFORMATION SERVICES



Our researchers and their future careers will have an impact on some of the core challenges of modern society: human climate interaction, climate risk mitigation, energy production and sustainable development.



The career perspectives of staff members will benefit from different professional skills such as:

- Development of inter-disciplinary research expertise
- Development of cross-disciplinary and inter-sectorial research skills
- Development of inter-sectorial industrial skills and experience
- Enlargement of collaboration framework in the ClearClimate domain





Criterion 2 - Impact

Score: 4.70 (Threshold: 0 / 5.00, Weight: 30.00%)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme: • Developing new and lasting research collaborations, achieving transfer of knowledge between participating organisations and contribution to improving research and innovation potential at the European and global level.

• Credibility of the measures to enhance the career perspectives of staff members and contribution to their skills development.

• Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities.

• The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts.

Strengths:

Weaknesse

- The proposed research convincingly presents how new and lasting collaborations will be developed. The carefully planned activities, exploiting the complementarities of the participants, will consolidate the existing collaborations between participating organisations.

- Different networking activities and soft skill training will enhance the scientific profile of the staff members and generate a fruitful knowledge transfer between the participating organisations.

- The proposed research will promote the competitiveness and design of climate-relevant products aimed at achieving the UN Sustainable Development Goals, enhancing the innovation potential in Europe, with the possibility of also making a contribution in Africa.

- The possibilities for career development and improvement of researchers offered by the proposed research were outlined, also in view of the planned training and networking activities.

- An appropriate scientific dissemination strategy is planned.

- The strategy for the management of the intellectual property is convincingly discussed.

- The mix between the study of extreme climate events and communication sciences to be applied to Climate Information Services will have a major impact on the quality of European researchers.

- The proposed research will give a considerable economic advantage over the costs induced by extreme and compound events and on sales of climate research products.

- The social impact is considerable with regard to raising awareness of climate change impacts, reducing disaster risks.

A description of the exploitable products is not adequately provided.
 Target audiences have not been sufficiently identified.







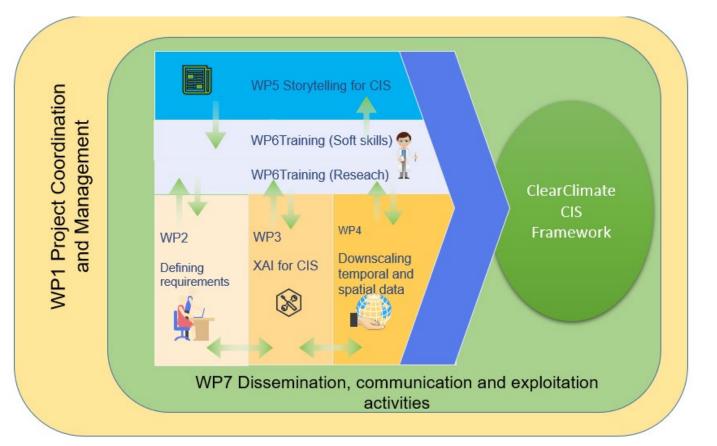
The exploitable results will be identified at the start of the project (D7.2) but the preliminary list include the D2.3, D3.2, D4.3, D5.2. The preliminary plans for exploitation activities are presented in the table.

	± / ± J
Exploitable result	Proposed method of exploitation
User preferences and user centered design Support Tool (D2.3)	Utilize the User Preferences and User-Centred Design Support Tool for an iterative design process, including prototyping and gathering user feedback. Document and share design guidelines, principles, and best practices. Create a repository of user preferences, personas, and design patterns for consistent user-centric development.
Evaluation of indicators and methodology for XAI techniques (D3.2)	The methodology will support further research in XAI techniques assessment. It will be publicly available alongside related variables and indicators from WP3. Exploitation activities include: developing commercial climate services for risk assessments, impact studies, and decision support; offering training and consultancy services for applying XAI techniques to climate emulators, ensuring stakeholders understand the limitations and interpretation of results.
Temporal Downscaling Support Tool (D4.3)	Exploitable activities include: Targeting industries like agriculture, renewable energy, transportation, or outdoor events with accurate and timely hourly weather forecasts; Offering consulting and advisory services to identify case studies based on local knowledge, user needs, historical data, and high-resolution climate datasets; Providing guidance on selecting variables, spatial scales, and temporal resolutions for the case studies; Offering data analysis and interpretation services for understanding local climate dynamics and their implications.
Storytelling framework (D5.2)	Exploit developed narrative arc techniques for commercial storytelling services targeting marketing, advertising, entertainment, and education. Provide insights to craft compelling narratives capturing audience attention. Utilize understanding of visual attention patterns to optimize UX design, guiding users to critical information. Offer UX consulting services for improved visual communication. Use emotional data to create resonant messaging and visuals, driving engagement and influencing decision-making processes.





How will ClearClimate achieve this ambitious goal?

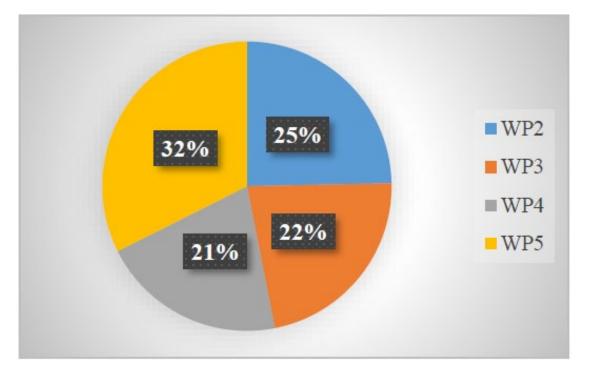


The level of effort for each WP is in line with the amount of work involved to reach the overall and the specific objectives of the project. To each partner ClearClimate has allocated PM so that can upgrade their research skill as well as to acquire new knowledge to be use in the future.





Distribution of PM per WP

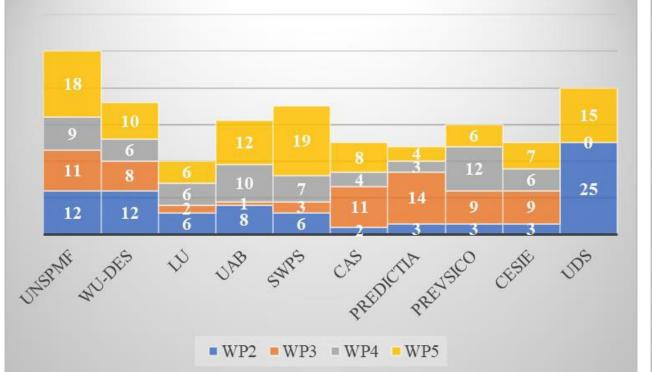


The distribution of the secondments is balanced throughout the years of project implementation in order to reach the objectives of every WP. During the secondments WSs and SSPs will be organised as hybrid events thus gaining greater outreach and inviting people outside the consortium.





Distribution of PM per WP per beneficiary







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Criterion 3 - Quality and efficiency of the implementation

Strengths:

- The work plan is based on a credible structure of work packages aligned with the proposed objectives.
 The planned secondments are justified, both in terms of activities and content.
 Tasks are specifically assigned to participating organisations and deliverables are linked to planned activities.
 The proposal properly demonstrates the availability of staff in terms of profiles and numbers for the implementation of the secondments.
 The participating organisations have the capacity and infrastructure to carry out the action.
 The consortium brings a variety of complementary skills and experience to the project.
 The track record of participating organisation in open science achievements is adequately documented.









Thank you for your attention