



# DATA MANAGEMENT PLAN I



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# 1. INTRODUCTION

## 1.1. ABOUT THE PREVENT PROJECT

It is widely acknowledged that the Mediterranean region is a hotspot for climate change, experiencing faster warming than the global mean rates and an increased frequency of extreme weather events. Furthermore, climate models often fail to accurately predict these extremes. Given their significant impact on various socio-economic sectors such as human health, agriculture, water resource management, ecology, and tourism, addressing these extremes is crucial. These sectors have a pivotal role in both the macro- and micro-economies of the Mediterranean.

The primary objective of PREVENT is to enhance the predictability of impact-relevant extremes in the Mediterranean region from seasonal to decadal timescales. This will be achieved through the application of state-of-the-art dynamical, statistical and machine learning methods. Additionally, PREVENT aims to encourage collaboration among experts from diverse disciplines and geographical regions to comprehensively study impact-relevant climate extremes in the Mediterranean, with the goal to improve seasonal and decadal predictions amidst a changing climate.

PREVENT is a three-year EU-funded project aiming to:

- Identify local climate extreme hotspots, including major urban centers in the Mediterranean.
- Develop new management tools applicable across various domains, to guide and lead processes, support monitoring activities, and enhance organizational efficiency.
- Promote awareness and build capacities among policymakers, industry stakeholders, farmers, and other producers in order to comprehend, endorse and integrate seasonal and decadal data into their project management practices.

The broader objectives of PREVENT, in alignment with the call are to:

- Improve seasonal and decadal predictions of extremes for the Mediterranean via dynamical and statistical downscaling and bias correction methods.
- Provide high resolution fit-to-purpose seasonal and decadal data for local climate extreme hotspot regions, including major urban centers in the Mediterranean.
- Investigate and understand the atmospheric and local drivers that contribute to extreme weather events in the Mediterranean region.



- Optimize impact modelling for improved preparedness against the adverse effects of extreme events by increasing the spatial resolution and the lead time predictability of the predictions.
- Embed seasonal and decadal predictions as well as impact models outputs into participatory decision-making under uncertainty methods (e.g. decision tree) to facilitate and accelerate short to medium-term decisions and investments in resilience.
- Align PREVENT developments with important application sectors and the broader goals of the European Commission (e.g., Destination Earth).

The consortium behind PREVENT comprises a small and flexible team of experienced colleagues in Mediterranean climate dynamics, extreme event analysis, impact modelling, climate change adaptation and communication. A key aspiration of PREVENT is to promote gender balance in the coordination of EU-funded research programs and empower young researchers to lead work packages by introducing fresh perspectives into the research endeavor.

## 1.2. EXECUTIVE SUMMARY

The PREVENT project includes several work packages (WPs) designed to address different aspects of climate extremes in the Mediterranean. The methodology involves the creation of a comprehensive climate database, tailored for the region, to address limitations in seasonal forecasts and decadal predictions. This includes adjusting extreme indices and identifying climate extreme hotspots. Additionally, dynamical downscaling and statistical downscaling methods are employed to enhance the skill of decadal predictions, while machine learning techniques are used to identify causal pathways leading to extremes. The project utilizes updated climate data to assess various sectors, such as agriculture, water management and tourism, ultimately transforming predictions into applicable decisions for risk reduction. Furthermore, the project's communication and utilization strategies aim to ensure that its outcomes, via a variety of channels, reach to the appropriate stakeholders and decision-makers.

Overall, the PREVENT project aims to significantly impact scientific, societal, and economic aspects related to climate resilience in the Mediterranean region. **Scientifically**, PREVENT advances knowledge on climate extremes and provides free access to fit-for-purpose data, enhancing collaboration across European countries and associated nations. **Societally**, PREVENT seeks to prepare Mediterranean stakeholders for climate disruptions by co-creating tools for adaptation prioritization and enhancing public engagement. **Economically**, PREVENT aims to increase the resilience of various sectors, such as agriculture, water management, forest fires, tourism and health - mortality, by providing reliable seasonal and decadal forecasts. It is intended to help stakeholders make informed decisions, reduce risk and improve pricing and

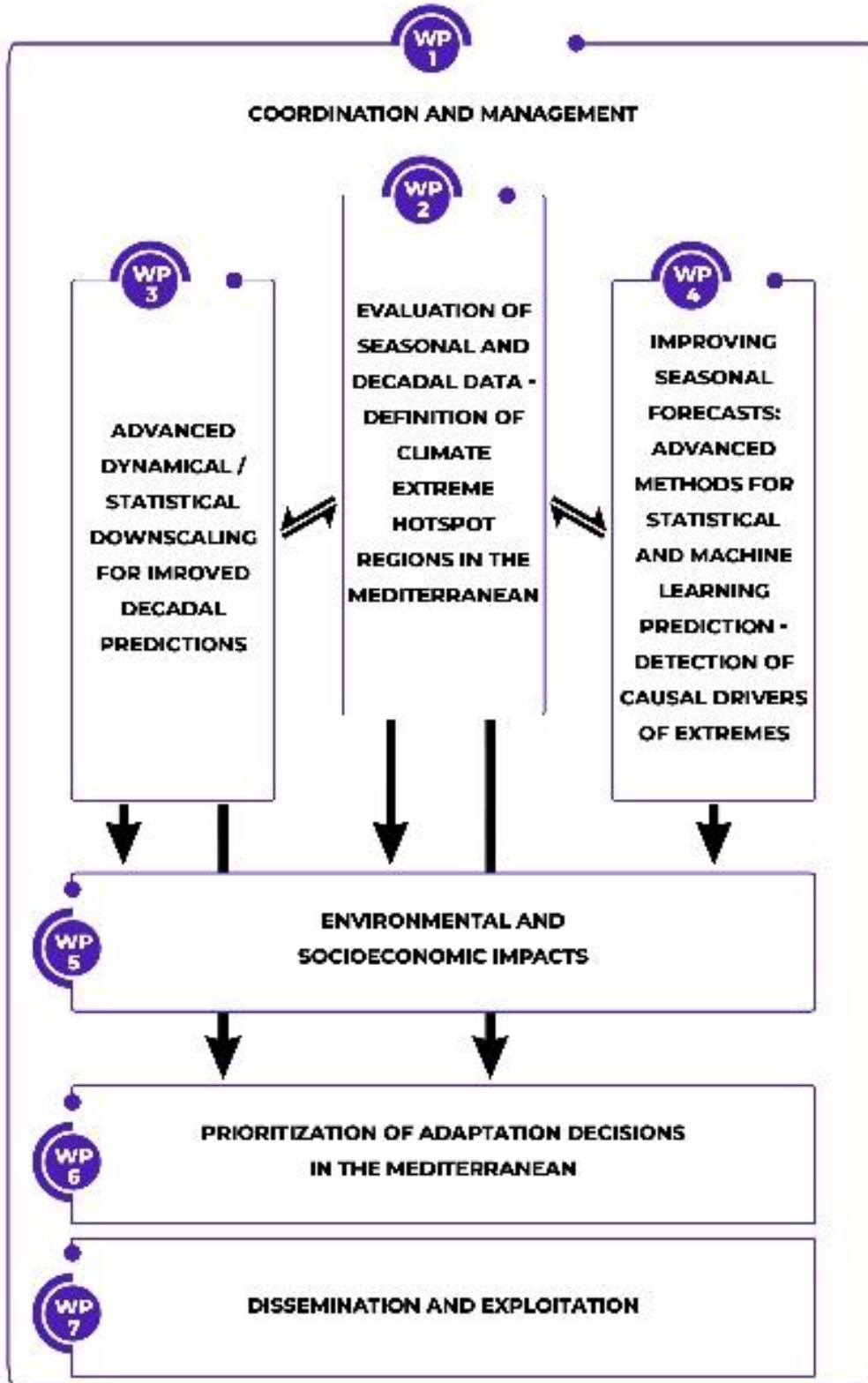
management of climate-related risks. The project targets policymakers, financial institutions, private sector organizations, research organizations, media and influencers to ensure wide dissemination and implementation of its results, ultimately contributing to a climate-resilient Mediterranean society.

### 1.3. LINKS WITH OTHER PROJECT ACTIVITIES

PREVENT project is funded under the EU Horizon Research and Innovation Actions under Grant Agreement 101081276. This initial version of the Data Management Plan (DMP) is the deliverable D1.4 of the PREVENT project and is expected to be delivered at Month 6. The Data Management Plan stands as a pivotal component in effective management practices. It outlines the lifecycle of data throughout the project's duration, from collection and/or generation to processing and final distribution (data availability), aiming to render the PREVENT project data findable, accessible, interoperable and reusable (FAIR). The structure of PREVENT project includes seven (7) interconnected Work Packages (WPs) (Figure 1).

WP1 – which refers to the coordination and management of the PREVENT project – is responsible for the development and management of the Data Management Plan. However, the Data Management Plan is tied with all the Work Packages that are involved in the collection and/or generation of data. Feedback from the data collection during the first six months is incorporated in this first version of the Data Management Plan. Subsequent releases of the Data Management Plan will include additional information regarding the creation/generation of datasets in the various WPs.





*Figure 1.* PREVENT WPs flowchart

## 2. DATA SUMMARY

The Mediterranean stands out as one of Europe's most climate exposed regions, with numerous economic sectors relying heavily on favorable climatic conditions for profitability. The climate impact is intensified by the combination of large internal climate variability and increasingly severe extreme events such as floods, droughts, extreme temperatures, and wildfires. Government entities at various levels (local, national, international) and businesses are becoming increasingly cognizant of the need to factor in the repercussions of climate-related events in their decision-making processes, business planning tools, and assessments. Consequently, there is a rapidly increasing demand for such data, particularly climate forecasts from seasonal and decadal timescales, from both public and private entities.

### 2.1. ORIGIN AND PURPOSE OF DATA

In this section, a description of the origin and purpose of the collected/generated datasets that are utilized by each WP is given. Data formats are summarized in Table 1.

#### **WP1: Coordination and management**

Work Package 1 (WP1) concerns all aspects of project management, coordination, quality assurance, risk management and ethics assessment. It ensures the effective planning, implementation, coordination and achievement of the project activities and success and provides project structure and support to assist decision making, internal and external communication, encourage greater accountability and control, minimize risk, identify, address, and exploit project related opportunities. Furthermore, the WP coordinates the quality control for project output and supports the consortium towards achieving the project objectives.

#### **WP2: Evaluation of seasonal and decadal data – Definition of climate extreme hotspot regions in the Mediterranean**

Work Package 2 (WP2) will create a comprehensive climate database that aspires to be a user-friendly tool (PREVENT eTool) for impact modelers and stakeholders. It will include updated seasonal forecasts and decadal predictions from various open sources (COPERNICUS, WMOLC, ECMWF), as well as the ETCCDI extreme indices (drought, extreme temperature and extreme precipitation, heatwaves) will be adjusted for the Mediterranean region. WP2 will spotlight the climate extreme hotspot regions based on the compound negative impact of extremes in the Mediterranean. The limitation of seasonal forecasts and decadal predictions will be quantified using appropriate performance metrics. Within WP2, the PREVENT eTool will provide maps and statistics from extremes indices and improved seasonal and decadal data, drought and extreme temperature maps, as well as statistical graphs that will be easily



accessible and understandable by end-users and stakeholders. The results of WP2 will provide the reference basis for the activities in the WPs involved in downscaling (WP3), machine learning techniques (WP4), impact models (WP5) and adaptation (WP6).

### **WP3: Advanced dynamical/statistical downscaling for improved decadal predictions**

Work Package 3 (WP3) will apply dynamical downscaling and statistical methods to improve the skill of decadal predictions of climate extremes. For statistical improvement, WP3 combines well established bias correction methods (delta, scaling and empirical and regression quantile mapping) and the new entry TIN-Copula method that is based on two fundamental aspects: Triangular Irregular Networks and Copulas. WP3 will further develop and apply dynamical downscaling using the WRF climate model driven by existing decadal experiments of different ensemble members for the Mediterranean region. The high-resolution WRF dynamical downscaling model will be used to improve the representation of climate extremes over the climate extreme hotspot regions (WP2). Ultimately, the improved decadal data developed within WP3 will allow the use of high-resolution climate data in impact models (WP5) and adaptation plans (WP6).

### **WP4: Improving seasonal forecasts: Advanced methods for statistical and machine learning prediction – Detection of causal drivers of extremes**

Work Package 4 (WP4) will apply and combine methods to identify the physical drivers and pathways leading to extremes using novel machine learning techniques, such as causal discovery algorithms, Self-Organizing Maps (SOMs), simple linear regression, random forests or gradient boosting regression, and copulas, within a causal framework. This way a validation of dynamical models will be carried out based on their skill in representing causal pathways and teleconnections important for Mediterranean extremes. The impact of climate change on the identified drivers will also be assessed to account for non-stationarities. WP4 will further provide a set of machine learning-based seasonal forecast models for Mediterranean extremes. Those will be used as input for the impact and adaptation models in WP5 and WP6 complementary to existing datasets of seasonal forecasting to assess whether extra skill can be gained with the inclusion of such data-driven methods.

### **WP5: Environmental and socioeconomic impacts**

Work Package 5 (WP5) will use standard climate data and improved climate data produced in WP2, 3 and 4 as input for impact models and studies in different regions of the Mediterranean. The impact sectors that we will explore are the most relevant environmental and socioeconomic ones for the Mediterranean, including ecology, agriculture, water management, human health, and tourism. The particular case studies will include estimation of fire risk and identification of atmospheric causal drivers of fire weather; attribution and projection of water balance and hydropower production; seasonal predictions for agriculture and water irrigation needs; improved



near-term predictions of a Holiday Climate Index; and estimation of mortality risk and healthcare costs based on weather and climate extremes. The outcomes of WP5 will be useful for stakeholders and end users and will be also used as input for WP6 on Adaptation. PREVENT aims to extensively use data from other major European Earth Observation programmes apart the Copernicus Climate Change services and the retrieval of climate model output. For example, we plan to use land-use data from Copernicus Land Monitoring Service or consider methodologies that will be compatible with the European Forest Fire Information System (EFFIS) of Copernicus Emergency Management Service (Copernicus EMS).

### **WP6: Prioritization of Adaptation decisions in the Mediterranean climate extreme hotspot regions and case studies**

Work Package 6 (WP6) will enhance the adaptation perspective and the preparedness of Mediterranean countries. Improving the quality of seasonal to decadal predictions is key to supporting farmers adapt to climate variability and change. In this work package, the members of the consortium intend to transform the ensemble of generated predictions into decisions. Considering the dual temporalities (seasonal & decadal), we will investigate two aspects of adaptation that contribute to risk reduction in the selected systems (e.g., forestry for wildfires, agriculture, etc.): (1) building on seasonal forecast, we intend to explore the extent to which the skill of the newly developed models is sufficient to support practitioners in improving seasonal anticipation such as better selecting crops - prior to planting - based on the predicted climatic conditions over the upcoming growing season. (2) building on decision-making under deep uncertainty method and the decadal predictions, the consortium will also investigate the extent to which decision-makers and investors can prioritize their investment in risk reduction measures (e.g., in relation with agriculture: shading, micro-harvesting, soil covering, improved irrigation, etc.). For both aspects, the consortium will conduct consultations with key organizations in the different sectors such as public and private financial institutions in Mediterranean countries, also including a testing and adjusting of the potential solutions to their needs and interests. WP6 will therefore ensure that the seasonal and decadal predictions are streamlined into meaningful adaptive decisions tailored with the latest scientific knowledge and methods in collaboration with and for sectoral stakeholders.

**Table 1.** Summary of data formats

Type of data	Data processing format	Share, reuse and preservation format
<b>Numerical data</b>	ASCII or Comma-separated values (.csv), Apache Parquet (.parquet)	ASCII or Comma-separated values (.csv)
<b>Qualitative text data</b>	Microsoft Word (.doc/.docx)	Microsoft Word (.doc/.docx) or Text (.txt)
<b>Raster data</b>	NetCDF, Grib	NetCDF
<b>Images (maps/graphs)</b>	png, jpeg	png, jpeg

## 2.2. DATA UTILITY

The aim of PREVENT project is to produce improved seasonal and decadal predictions for the Mediterranean, that will potentially benefit the economy of this region. These predictions will be directly applicable to end-users from the academic research, business, investment, and policymaking communities. Additionally, PREVENT’s efforts are also dedicated to impact modelling, tool development for the embedding of the different datasets, and stakeholder engagement, all aimed at maximizing the impact.

The PREVENT project identifies five primary target groups of public and private stakeholders with common interests in decision-making processes. These stakeholders come from both EU and non-EU member countries bordering the Mediterranean, collectively confronting challenges brought by climate variability and change. More specifically, the potential users include:

- a) **Policymakers** from local to national governments as well as European institutions
- b) **Public and private financial institutions** that need to integrate physical climate risks in their investment processes and that could contribute to deploy financial products for resilient technologies and practices
- c) **Private sector umbrella organizations** operating in the targeted sectors (both for-profit and non-for-profit organizations)
- d) **Local and national research organizations** that could externally contribute to the research and its dissemination
- e) **Mainstream media and climate influencers** to facilitate the communication of the key results

## 2.3. DATASETS

In this section, an overview of the collected datasets, as well as of the produced datasets by the PREVENT project, is provided. Each table corresponds to a dataset and consists of specific information about the described data.

**Table 2.** ERA5 hourly dataset description

<b>Status: In Progress</b>	<b>PREVENT – WP2: Evaluation of seasonal and decadal data- Definition of climate extreme hotspot regions in the Mediterranean – Task2.1: Collection of datasets – v.1</b>		
<b>ID (url)</b>	<a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-single-levels?tab=overview">https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-single-levels?tab=overview</a>		
<b>Filename</b>	n/a		
<b>Description</b>	Hourly reanalysis data for the global climate and weather. Reanalysis combines model data with observations (data assimilation). The horizontal resolution of these data is 0.25°x0.25°. 13 parameters are selected		
<b>Purpose of the dataset in relation to the project</b>	Definition of climate extreme hotspot regions		
<b>Partner(s) in charge / Creator(s)</b>	The Cyprus Institute		
<b>Contributor(s)</b>	Aristotle University of Thessaloniki		
<b>Related publications / deliverables</b>	n/a		
<b>Type of data</b>	Primary	Collected	Quantitative
<b>Data format</b>	netCDF		
<b>Data reused for generating the dataset</b>	n/a		
<b>Data volume (<i>in units</i>)</b>	189G		
<b>Metadata info</b>	n/a		

<b>Data access policy / Dissemination level</b>	n/a
<b>Data sharing &amp; reuse</b>	n/a
<b>Data storage</b>	Data will be stored in the High-Performance Computing Facilities of the Cyprus Institute
<b>Data security</b>	n/a
<b>Ethical or legal issues</b>	n/a

**Table 3.** Seasonal forecast dataset description

<b>Status: In Progress</b>	<b>PREVENT – WP2: Evaluation of seasonal and decadal data- Definition of climate extreme hotspot regions in the Mediterranean – Task2.1: Collection of datasets – v.1</b>		
<b>ID (url)</b>	<a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/seasonal-original-single-levels?tab=overview">https://cds.climate.copernicus.eu/cdsapp#!/dataset/seasonal-original-single-levels?tab=overview</a>		
<b>Filename</b>	n/a		
<b>Description</b>	6-hourly seasonal forecast data for various parameters from different members and for different lead-time hours. The horizontal resolution of these data is 1°x1°		
<b>Purpose of the dataset in relation to the project</b>	Evaluation of seasonal and decadal projections		
<b>Partner in charge / Creator</b>	The Cyprus Institute		
<b>Contributors</b>	Aristotle University of Thessaloniki		
<b>Related publications / deliverables</b>	n/a		
<b>Type of data</b>	Primary	Collected	Quantitative
<b>Data format</b>	netCDF		
<b>Data reused for generating the dataset</b>	n/a		

<b>Data volume (in units)</b>	32G
<b>Metadata info</b>	n/a
<b>Data access policy / Dissemination level</b>	n/a
<b>Data sharing &amp; reuse</b>	n/a
<b>Data storage</b>	Data will be stored in the High-Performance Computing Facilities of the Cyprus Institute
<b>Data security</b>	n/a
<b>Ethical or legal issues</b>	n/a

**Table 4.** ERA5 dataset description for WRF model

<b>Status: In Progress</b>	<b>PREVENT – WP3: Advanced dynamical/statistical downscaling for improved decadal predictions – Task3.1: Dynamical downscaling – v.1</b>
<b>ID (url)</b>	<a href="https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-single-levels?tab=overview">https://cds.climate.copernicus.eu/cdsapp#!/dataset/reanalysis-era5-single-levels?tab=overview</a>
<b>Filename</b>	n/a
<b>Description</b>	6-hourly reanalysis data for the global climate and weather. Reanalysis combines model data with observations (data assimilation). The horizontal resolution of these data is 0.25°x0.25°. The parameters are selected according to the WRF manual (24 parameters needed in various levels)
<b>Purpose of the dataset in relation to the project</b>	Input data for the initial and boundary conditions of the Weather Research and Forecasting - WRF model
<b>Partner(s) in charge / Creator(s)</b>	Aristotle University of Thessaloniki
<b>Contributor(s)</b>	n/a
<b>Related publications / deliverables</b>	n/a

<b>Type of data</b>	Primary	Collected	Quantitative
<b>Data format</b>	grib		
<b>Data reused for generating the dataset</b>	n/a		
<b>Data volume (<i>in units</i>)</b>	1.4T		
<b>Metadata info</b>	n/a		
<b>Data access policy / Dissemination level</b>	n/a		
<b>Data sharing &amp; reuse</b>	n/a		
<b>Data storage</b>	Data will be stored in the High-Performance Computing Facilities of the Aristotle University of Thessaloniki		
<b>Data security</b>	n/a		
<b>Ethical or legal issues</b>	n/a		



### 3. FAIR DATA

#### 3.1. MAKING DATA FINDABLE

Upon the publication of project results, each research team will be required to describe the produced research items and assign unique identifiers to the datasets that are deposited in public or institutional repositories. All documents that are related with the description of data collection procedures and analysis will accompany the data, ensuring clarity, reproducibility and validation of the project’s results. Research data of PREVENT project will be structured in datasets, comprising cohesive collections of data units. This Data Management Plan establishes uniform guidelines for dataset nomenclature and versioning in order to make data more visible and easier to discover, to enhance citation practices and make online tracking to endure. Regarding dataset title, each research team is advised to adopt the following recommended format:

*PROJECT ACRONYM – WP<sub>n</sub>: WP title – D<sub>n.n</sub>/Task<sub>n.n</sub>: Deliverable/Task title – Version number (to help identify updated or revised data)*

**Example:** *PREVENT – WP2: Evaluation of seasonal and decadal data-Definition of climate extreme hotspot regions in the Mediterranean – Task2.1: Collection of datasets – Version 1*

In the case of file naming the following rules are recommended to be applied by the research groups:

- Dataset files

*PREVENT\_MODEL<sup>1</sup>\_TYPE<sup>2</sup>\_VARIABLE\_PERIOD\_TIMESTEP<sup>3</sup>\_ver<sub>n</sub>.file extension*

- Documentation for dataset files (in the form of human readable README files)

*README\_PREVENT\_MODEL\_TYPE\_VARIABLE\_PERIOD\_TIMESTEP\_ver<sub>n</sub>.file extension*

where: <sup>1</sup>MODEL (ERA5, WRF, etc.)

<sup>2</sup>TYPE (SEAS = Seasonal, DEC = Decadal, REAL = Reanalysis)

<sup>3</sup>TIMESTEP (D = Daily, M = Monthly, Y = Yearly)

#### 3.2. MAKING DATA ACCESSIBLE

PREVENT will produce two types of improved data and they are, as follows, raw variables of seasonal and decadal climate information (e.g. temperature, precipitation, relative humidity, wind, geopotential height, and SLP) and extreme indices. The final datasets will consist of both daily and monthly timeseries. Seasonal and decadal data for extreme indices will be saved in comma separated values in plain ASCII format, facilitating readability and usability. The finalized datasets, intended for widespread



distribution, will occupy only a few megabits of storage; raw and ancillary data, available upon request, comprise less than 20TB.

The final data product will be released to the public as soon as the estimation of extremes has been completed and the data have been prepared, typically 1 year after the project inception. There is no period of exclusive use by the data collectors. Users can access documentation and final daily and monthly extreme indices via the PREVENT website. The data will also be available via ftp download from Atmosphere & Climate Data Center of Cyl. Raw data (statistical seasonal forecasts) will be maintained on an internally accessible server and made available upon reasonable request without charge to the users. PREVENT databases and software will coordinate with the Destination Earth (DestinE) initiative and European Open Science Cloud (EOSC). In DMP (WP1: D1.4 to D1.6) PREVENT will adapt its communication approach based on the preferences and protocols of DestinE and EOSC as they have specific communication channels. In WP7, PREVENT consortium will subscribe to newsletters and mailing lists provided by DestinE and EOSC to stay updated on the latest news, events, and opportunities. It will explore the possibility of joining or contributing to working groups or initiatives within DestinE and EOSC that align with PREVENT consortium's expertise and interests. Active participation in these groups can facilitate communication, collaboration, and networking with relevant stakeholders. Moreover, PREVENT consortium will try to collaborate with other organizations that are already involved in DestinE or EOSC. These connections can help facilitate introductions and enhance credibility when reaching out to the initiatives.

The databases and accompanying software tools developed within the project will be accessible for educational, research and non-profit purposes. Access will be provided through web-based applications. Data publication will take place throughout the project, if deemed suitable, adhering to standard scientific practices at the end of the project. Research data which document, support, and validate research findings will be released once the main findings from the final research dataset have been accepted for publication.

Given the data formats outlined in Table 1, there will not be a necessity for utilizing specialized software to access the produced datasets, as researchers will convert the data to an open format prior to deposition. In cases where there will be a need for specific software in order to reuse the produced data, detailed instructions and potential code will be included in the data documentation.

### 3.3. MAKING DATA INTEROPERABLE

Collected/produced datasets will be accompanied by comprehensive documentation including user manuals, codebooks, description of data collection practices, processing details (containing relevant software) and data quality

information. This is essential to ensure that the project findings will be comprehensible, reproducible, and validated. The descriptive tables of each dataset will be available in the Data Management Plans in Section 2.3. In case of generation of specific ontologies or vocabularies within the PREVENT project, mappings to other commonly used ontologies will be made available to users.

### 3.4. MAKING DATA REUSABLE

All datasets will be made available according to the FAIR principles. For this, they will be fully described with metadata explaining their content, origin, methods, licensing and citation. To the largest extent possible data will be made available under a creative commons CC-0 or a CC-BY license. PREVENT data will be composed of three formats: NetCDF format for the climate metadata, and ASCII format plus comma separated (CSV) for the indices data. NetCDF format of metadata contains different dimensions (time, latitude, longitude and altitude), variables, and attributes, and it is a common format to climate scientists. ASCII and CSV formats are more user-friendly data for stakeholders and policy makers.

Generally, datasets will be openly accessible to validate research outcomes promptly upon the publication of corresponding peer-reviewed scientific papers. However, certain datasets may be publicly available only by providing a comprehensive description and quality assurance. The full citation of datasets will be included in PREVENT dissemination and exploitation channels for long-term preservation.



## 4. ALLOCATION OF RESOURCES

Throughout the PREVENT project, a user-friendly dashboard (eTool) will be produced to analyze PREVENT products. Through this dashboard, the PREVENT outputs will be presented to stakeholders and end-users in easy-to-understand formats (eg. maps, tables, charts etc.). The PREVENT eTool will be available in the project's website. The development and maintenance cost for the website and the eTool platform will be covered in the WP7 project budget (dissemination plan). WP2 and WP3 budget will cover the costs related to data management, storage (disks and tapes purchase) and documentation.

Each partner will be responsible for the correctness and completeness of their own data documentation. Each partner will be responsible for the creation, storage and backup of their own data. The Coordinator AUTH bears the overall responsibility for updating & implementing this DMP.

## 5. DATA SECURITY

During the project, all research data will be stored in each partner's institutional cluster computing system (in storage disks) and will be accessible only by the members of the team who have an account (username and password) to these infrastructures. Additionally, a regular backup of the research materials will be performed in magnetic-tape data storage and will be available for recovery through the Aristotle University HPC Infrastructure.

Regarding archiving and preservation of data, the short-term plan includes the update of the database every three months. This will reflect updates of climate data, revisions due to bias correction methods, and identification of extreme indices. The date of the update will be included in the data file name. A revision history document will describe the revision made. Additionally, the long-term plan aims to make the high-quality final data – generated by the PREVENT project – available for researchers, policy makers and stakeholders. The data will be available to users via the PREVENT website and also via ftp download from Climate and Atmosphere Research Center (CARE-C) of Cyl.



## 6. ETHICS

PREVENT will only collect public domain personal information to identify people. This includes authors of scientific papers, collectors or constructors of material and copyright holders. This is done to ensure correct authorship attribution or identification authority. For national and international institutions, ethical guidelines will be followed. PREVENT data, to manage copyright and Intellectual Property Rights (IPR) issues, will be made publicly available. All data providers will be asked to provide their data either as CC-0 or CC-BY.

### Use of humans

Participants in winter/ summer schools will be given a project-specific informed consent form that will obtain and clearly document participants' informed consent in advance following GDPR/General Protection Regulation (2016/679/EU). Participants will give their consent in writing (e.g. by signing the informed consent form and information sheets).

### Use of personal data

Under the international, EU and national law (in particular, the GDPR, national data protection laws and other relevant legislation) rules, personal data must be processed in accordance with certain principles and conditions that aim to limit the negative impact on the persons concerned and ensure fairness, transparency and accountability of the data processing, data quality and confidentiality.

### Non-EU Countries

PREVENT will ensure fair access to project resources, and opportunities for researchers from non-EU countries. PREVENT will give ethical considerations to avoid creating or perpetuating research inequalities and to promote collaboration and knowledge exchange that benefit all participants. PREVENT will respect and consider the cultural, social, and religious values of non-EU countries to avoid imposing Western-centric views or values. By incorporating these ethical dimensions into the objectives, methodology, and likely impact of PREVENT in non-EU countries, researchers and stakeholders can foster equitable collaboration, respect local contexts, and contribute to sustainable development and global challenges in an ethically responsible manner.

### Compliance with ethical principles and relevant legislations

PREVENT will maintain integrity, protect the rights and well-being of individuals, and foster responsible and sustainable research and innovation by prioritizing compliance with ethical principles and relevant legislations. PREVENT will obtain informed consent from participants, ensuring their privacy and confidentiality, and minimizing any potential physical or psychological harm for ensuring the



protection of humans. PREVENT will uphold the principles of responsible research and innovation (RRI) ensuring that potential risks and benefits of the project are identified and addressed in a transparent and inclusive manner. PREVENT will promote fair use and dissemination of project outcomes, as well as preventing unauthorized use or infringement of intellectual property for adhering to Intellectual Property Rights IPR regulations.

