Interreg Euro-MED

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MedSeaRise

MedSeaRise - Supporting Adaptation to Mediterranean Sea Level Rise

Mission: Protecting, restoring and valorising the natural environment and heritage

RSO2.4: Promoting climate change adaptation and disaster risk prevention, resilience, taking into account eco-system based approaches

Stakeholders information on scientific knowledge on sea level rise future scenarios

Deliverable 1.2.3

Project partner in charge: ARPA FVG (PP2)

Project partners involved: ANATOLIKI S.A. (LP1)
CCINCA (PP3)
UoM-IBMK (PP4)
BCC (PP5)
UM (PP6)

Table of contents

1. Introduction and Objectives

This document presents a specific contribution in the achievement of the general MedSeaRise WP1 objective, namely the identification and the collection of the information required to analyze the risks related to sea level rise, according to the impacts which are mostly felt by stakeholders. Furthermore, WP1 foresees that the stakeholder has to be informed on the project objective and about its essential role in contributing to information collection.

Specifically, one of the results expected from the Activity 1.2 is the participation of the stakeholders to the project activities, including also informational events on the actual scientific knowledge on the Mediterranean Sea level trends. Thus, thanks to MedSeaRise, it is expected to increase the stakeholder's awareness on sea level rise hazard, which will facilitate cooperation in the risks prevention too.

To this end, each Project Partner organized a series of events dedicated to inform the stakeholders on the causes of the sea level rise due to climate change, the evidences of climate change in the Mediterranean area and the uncertainties in the future projections

In the following, this deliverable reports a summary of the information activity carried on by Project Partners while the details of each one is accessible as Annexes.

This deliverable make synergy with deliverables D.1.1.2, D.1.2.1 and D.1.2.2 [1.1].

2. Preparation of the information

Since the beginning of the project, all the Project Partners agreed to prepare a common set of scientific information summary suitable to support the communication of the sea level rise evidence to the stakeholders.

Furthermore, the information material has included the basic concept of future climate scenarios, as they are defined in the frame of the most recent international reports on climate change [2.1]. In particular, all the information on climate change has been reported with reference to the Representative Concentration Pathways (RCPs) and the Global Warming Levels (See the definitions here below).

There were meetings in which Project Partners discussed and defined the supporting material to be used to inform stakeholders on the state-of-the-art of the present knowledge of nowadays climate change on the seas.

Since it was considered useful to describe the sea level rise evolution in the frame of a wider knowledge of the climate change, the partnership decided to include the scenarios of precipitation and air temperature in the set of information used to inform the stakeholders

A preliminary analysis was conducted on which kind of summary documentation to present to the stakeholders, to generate an easy to read material, to be accessible to a wide spectra of people without a specific education in climate change topics. The result was clear and straightforward: plots.

So, starting from the data harvested, according to the project dedicated activities, namely Activity 1.1, plots of time series have been generated of sea level anomalies, temperature anomalies and precipitation relative anomalies, for each of the Mediterranean sub areas where Project Partners operates. All the graphics are included in this deliverable in the Annex A. Here below are reports just some examples.

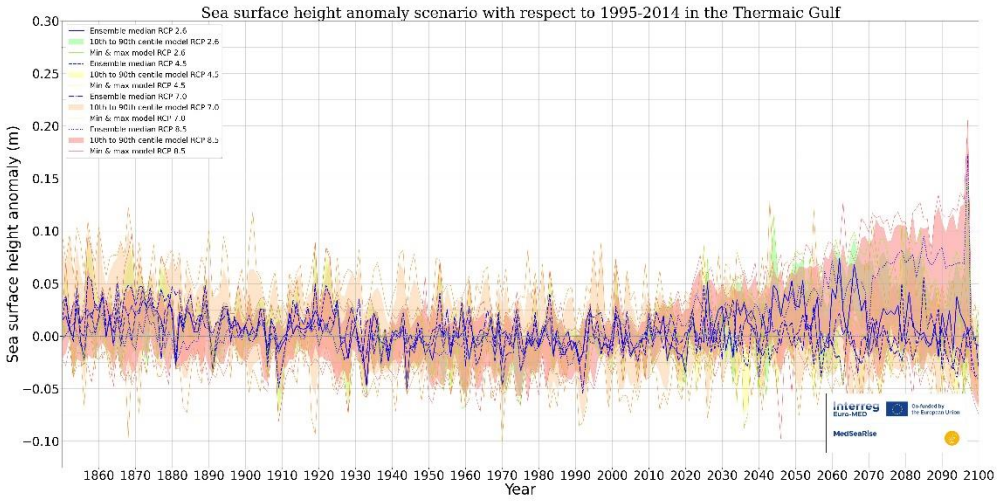

Figure 2.1: time series of the sea level anomalies in the area where LP1 is conducts the interaction with the stakeholders.

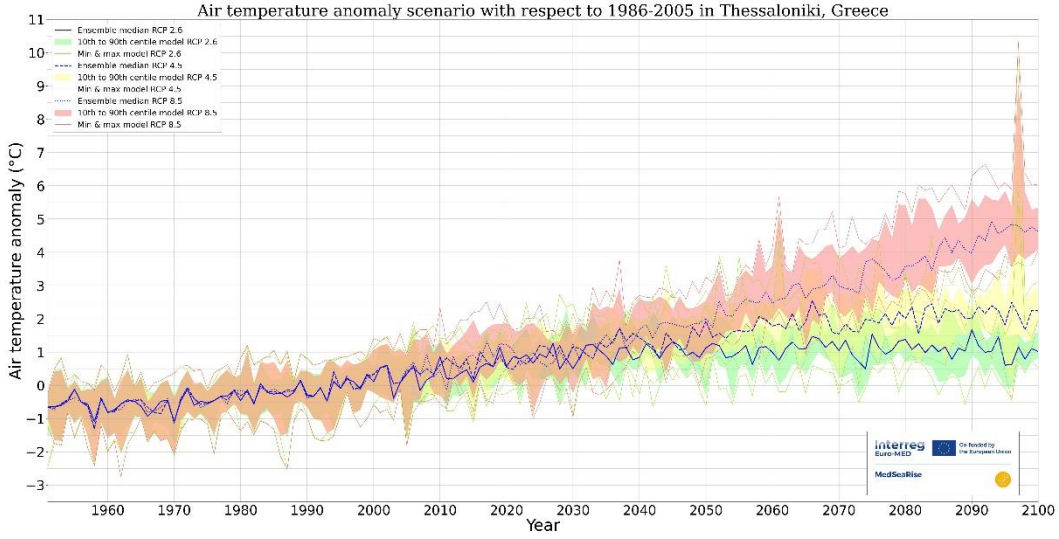

Figure 2.2: time series of the air temperature anomalies in the area where LP1 is conducts the interaction with the stakeholders.

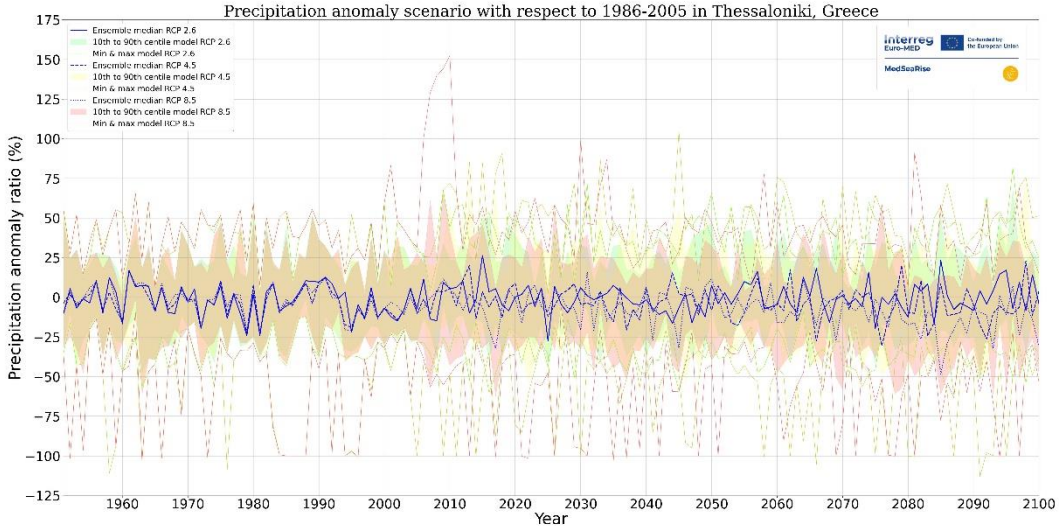

Figure 2.3: time series of the precipitation anomalies in the area where LP1 is conducts the interaction with the stakeholders.

Definition of RCPs and SSPs

The simulation of the evolution of the near future Earth climate is strictly dependent from the greenhouse gases emissions in the atmosphere. So several scenarios of global scale emissions have been studied in detail and classified. Each scenario is identified with an SSP and an RCP identification code, which have been introduced by IPCC [2.1].

SSP-based scenarios are referred to as SSPx-y, where 'SSPx' refers to the Shared Socioeconomic Pathway describing the socioeconomic trends underlying the scenarios, and 'y' refers to the level of radiative forcing (RCP in Watts per square meter, or W m^{-2}) resulting from the scenario in the year

2100 [2.2]. The SSP scenarios cover the range of possible future development of anthropogenic drivers of climate change found in the literature. High and very high greenhouse gases (GHG) emissions scenarios (SSP3-7.0 and SSP5-8.522) have CO_2 emissions that roughly double from current levels, by 2100 and 2050, respectively. The intermediate GHG emissions scenario (SSP2-4.5) has CO_2 emissions remaining around current levels until the middle of the century. The very low and low GHG emissions scenarios (SSP1-1.9 and SSP1-2.6) have CO_2 emissions declining to net zero around 2050 and 2070, respectively, followed by varying levels of net negative CO_2 emissions.

In addition, Representative Concentration Pathways (RCPs) are used to assess global and regional climate changes. Pathways were categorized based on their assessed global warming over the 21st century.

Definition of GWLs

The IPCC (Intergovernmental Panel on Climate Change) defines global warming levels in terms of projected 20-year averages of global surface temperature increase relative to pre-industrial levels (1850-1900) [2.1]. These levels are policy-relevant [2.2] and they are used to assess the impacts of different warming scenarios.

Global warming levels (GWLs) relative to 1850–1900 are used to integrate the assessment of climate change and related impacts and risks since patterns of changes for many variables at a given GWL are common to all scenarios considered and independent of timing when that level is reached [2.3].

The widely considered GWSL are 1.5°C, 2°C, 3°C, and 4°C.

For a fruitful use and clear understanding of the results achieved by MedSeaRise, it was mandatory the stakeholders understand clearly the meaning of the GWL. In fact, the results of the case studies, the Project Partners conducted summarize the results classifying them as a function of the GLW.

3. Results of the activity

All Project Partners have met the stakeholders several times during the first and second project period. In those meetings, according to the Methodology for stakeholder engagement and information harvesting that was specifically developed for project purposes (see Deliverables D.1.2.1 [3.1]and D.1.2.2 [3.2]), PPs have presented and recalled the basic concepts of climate change and specifically the evidences of the connection between the current global climate evolution and the increase of the mean sea level.

Meetings were in presence and online according to the availability of the audience to move, the agendas and to keep at minimum the carbon footprint on the project.

The fundamental issues characterizing the information events ranged from the quite trivial question “Are you aware of global climate change?” to a

more specific analysis of the evidence of global warming with focus on the progressive increase of sea level.

On average Project Partners have brought information on climate change to their stakeholders 3 times, considering the first three project periods.

Details of the meetings between the Project Partners and the stakeholders are available in the Annex B.

4. Deliverable indicators

This deliverable is summarized by means of the indicators reported here below. For each of them the expected indicator value and the actual one are presented. In addition, comments are reported too, if any.

Indicator	Expected value	Actual value	Comments
Info days	6	19	None

Comments details.

Information available in Google Drive Data area [4.1]

5. Conclusions

MedSeaRise Activity 1.2 was conducted from the first project period to the third and in this last period delivered this document.

This deliverable contributes in achieving the goal of the Activity 1.2 which is summarized as providing the project stakeholders with the required awareness on the actual climate change situation and the possible climate evolutions, along the XXI century.

Such information activity was extremely beneficial for the project progress, because it has educated the stakeholders to approach the consequences of the progressive sea level rise adopting a rational approach. Furthermore, the awareness achieved by stakeholders stimulated them to identify the classes of sea level rise impacts to be considered to select case studies.

6. References to additional material

[1.1] Basecamp Key Production WP1

[2.1] AR6 Synthesis Report: Climate Change 2023 (IPCC AR6)

[2.2] IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

[2.3] IPCC, 2023: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the

Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, 184 pp., doi: 10.59327/IPCC/AR6-9789291691647

[3.1] Stakeholders of risks affecting anthropic activities Deliverable 1.2.1

[3.2] Stakeholders of risks affecting ecosystems Deliverable 1.2.2

[4.1] Google Drive MedSeaRise shred area (MedSeaRise_Interreg Euro-MED)

7. Appendixes

Appendix A:

Full set of graphical information material generated in the frame of MedSeaRise project to inform the stakeholders on climate change evidences and future scenarios; file:

Act_1.2_D.1.2.2_info_2_stakeholders_all_PPs_Appendix_A.zip

Appendix B:

Full archive of the documentation collected by MedSeaRise PPs during the meetings with the stakeholders. The list of all stakeholders engaged is available too; file:

Act_1.2_D.1.2.3_info_2_stakeholders_all_PPs_Appendix_B.zip