Interreg Euro-MED

Co-funded by the European Union

MedSeaRise

Knowledge and availability on sea level rise projections

Deliverable 1.1.1.

https://medsearise.interreg-euro-med.eu/

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

Work Package 1: Information retrieval, data input and stakeholder awareness

Activity 1.1: Data and scientific information on future scenarios of sea level rise

Dates of production: December 2024

Knowledge and data availability on sea level rise projections

Deliverable 1.1.1

Project partner in charge: ARPA FVG (PP2)

Project partners involved: UoM-IBMK (PP4)
UM (PP6)

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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 information required to analyze the risks related to sea level rise and to harvest data of available simulations on future sea level trends.

Specifically, one of the results expected from the Activity 1.1 is the presentation of the state-of-the-art of knowledge and data availability on sea level rise projections for the Mediterranean area.

To this end a survey on scientific papers and documents on sea level rise projections was carried on during the first project period and consolidated during the second one. The resulting survey benefits by the expertise and competency of the scientific staff belonging to Project Partners bringing academic skills in the project.

In addition, an exploration was conducted on the available dataset storing quantitative information on the future scenarios of sea level. The considered data are those generated through numerical simulations according to the pathways describing the possible future global climates. In this case, in addition to the scientific background required to interpret the surveyed datasets, an important role was played by Project Partners that are familiar with those sets of data and that have a consolidated experience in applying specific computational tools to summarize data content.

In the following, this deliverable reports details on the two MedSeaRise surveys, on scientific literature and datasets, representing the fundamental sources of information on which the project acquires awareness on the state-of-the-art of knowledge and data availability on sea level rise projections for the Mediterranean area.

This deliverable make synergy with deliverables D.1.1.2 and D.1.1.3. [1.1].

2. The survey on scientific literature

A survey on scientific papers and documents on sea level rise projections, for the XXI century over the Mediterranean area has been conducted. Collected documents are organized according to a bibliographic structure supported by metadata letting the search and the comparison of scientific information easier.

ID	Progressive number of 3 digits starting from 000 (e.g. 001)
DATE	Publication date DD/MM/YYYY (e.g. 30/03/2024)
TITLE	Title of the document (e.g. Climate change scenarios)
MAIN AUTHOR	Name Surname (e.g. Virginia Woolf)
OTHER AUTHORS	Name Surname of the other authors separated by commas (e.g. Mario Smith, Victoria Green)
PUBLISHER	Name of the Publisher (e.g. MDPI)
FORMAT	File format of the document (e.g. pdf)
IDENTIFIER	Unambiguous reference to the document (e.g. DOI 10.1256/182, ISSN 2049-3686)
LANGUAGE	Two-letter code of the document's language (e.g. EN)
COPYRIGHT	Information about rights held in and over the document (e.g. CC BY)
KEYWORDS	Comma-separated keywords (e.g. climate change, sea level)
LINK	Link to the document (e.g. https://doi.org/10.1256/182)
NOTES	Name and path of the file containing notes about the document (e.g. path/to/file/id_notes.xxx)

Partners accessed the documentation to improve their awareness on the state-of-the-art of knowledge on sea level rise projections for the Mediterranean area and global ocean in general. All the analyzed papers and documents have been let available to the whole MedSeaRise Partnership in a specific Google Drive Shared Area [2.1].

To make structural the contribution to each partner in the analysis of the documents, for each paper, a file has been opened as part of the activities foreseen in *D.1.1.1 Knowledge and data availability on sea level rise projections* The template ***Act_1.1_MedSeaRise_xxx_notes.docx*** file [2.2]. has been created in order to give the chance to implement comments or further details to the *XXX* article that is listed in the *Act_1.1_MedSeaRise_articles_list.xlsx* file [2.3].

A brief summary of the fields filled in within the DOCX file can be found below:

- **ID**: Input the progressive number of 3 digits identifying the *XXX* document that you want to review, which is written in the *ID* column of the *Act_1.1_MedSeaRise_articles_list.xlsx* file
-
- **TITLE**: Input the title of the *XXX* document that you want to review, which is written in the *TITLE* column of the *Act_1.1_MedSeaRise_articles_list.xlsx* file

- **NOTES & COMMENTS**: Write all notes and comments related to the *XXX* document that you want to review and that is listed in the *Act_1.1_MedSeaRise_articles_list.xlsx* file

The number of papers considered in the survey accounts for 55.

Since the progress in the MedSeaRise activities requires the deepening of the knowledge of the data, especially in applications related to the conduction of the case studies, it is expected that the list of papers and documents together with the comments and notes added by partners will continue up to the project end.

3. The survey on available data

According to the specific project targets, requiring data on the sea level trends for the XXI Century, the public and validated datasets of numerical simulations have been identified. Those datasets refer to climate change scenarios only and they are the result of dynamical models implemented as numerical codes.

No dataset generated with a statistical approach to climate future evolution has been considered, such as weather or climate generators [3.1], [3.2], [3.3]. This choice is pivotal for the general objective of MedSeaRise. In fact, it is expected the methodology for an effective use of sea level rise scenarios in climate change impact risks assessment, which is developed in the frame of the project, supports the stakeholders in the use of data tied with the possible future evolution of the global climate, according to the greenhouse gases emission scenarios.

Those scenarios are output from deterministic atmosphere-ocean models run with inputs based on socioeconomic pathways. Then the possible future climate evolutions are not a statistical perturbation of past climate evolution but the simulation of the behavior of a complex dynamical system experiencing new states, never assumed, at least in the near past of our planet.

This choice is in agreement with the world wide accepted state-of-the-art of climate model performances [3.4].

Since MedSeaRise focuses to define and test a methodology that evaluates the sensitivity of the simulated impacts of the sea level rise, from the hazard input data, the survey on data sources was driven by two guidelines clearly competitive. One is to consider a wider as possible spectra of independent contributions to describe the future scenarios of sea level, allowing to express the uncertainty of the sea level rise hazard with the richest ensemble of model outputs. The other is to reduce as much as possible the time and the computational costs to achieve the mandatory inputs for the case studies the project results are based on.

Finding the equilibrium between these two guidelines the survey has been conducted on the CMIP6 datasets [3.5], [3.6].

The identification of model outputs suitable for scenarios on sea level over the Mediterranean region, with a spatial resolution suitable for MedSeaRise purposes, was made thanks the CMIP6 data access by way of The Earth System Grid Federation (ESGF) [3.7], which is an international collaboration for the software that powers most global climate change research, notably assessments by the Intergovernmental Panel on Climate Change (IPCC).

The sea level long term trend does not require high time resolution model outputs. In fact, tidal and atmospheric forced level anomalies do not contribute to climatic trends because of their intra annual periodical nature. Furthermore, climate deterministic numerical models do not resolve such short term sea level features.

For these reasons, the monthly averages of sea level have been considered. Just to clear out about the limits resulting by this choice, now it is worth to mention that the case studies requiring the contribution of variations of sea level from the climatic average are going to be added to the sea level trends with other sources of information, strictly related to the location where the case study is defined.

Four Shared Socioeconomic Pathways (SSPs) have been considered. SSPs are climate change scenarios of projected socioeconomic global changes up to 2100 as defined in the IPCC Sixth Assessment Report on climate change [3.8]. They are:

- SSP1-2.6,
- SSP2-4.5,
- SSP3-7.0,
- SSP5-8.5,

In addition to the sea level data, accessory data, which have been considered useful to add to the sea level model outputs have been considered. In fact, besides to sea surface height (ZOS), time series of near-surface air temperature (TAS) and precipitation (PRE) are available to describe the climate change scenarios in each Mediterranean area where MedSeaRise case studies are located. Due to the higher spatial resolution of the EURO-CORDEX [3.9] models dataset, the monthly averages of each scenarios have been included in the set of information available for project purposes.

Details of the number of models and their identification are listed in appendix A, together with details on spatial resolution. Appendix B brings details on auxiliary data and in Appendix C there is the list of geographical positions, for which data are available.

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
Documents	1	1	Data available

Comments detail.

The data available for project activities, which have been referred to in this document, are available in the shared Google Drive Data area [4.1]

5. Conclusions

MedSeaRise Activity 1.1 was conducted from the first project period to the third and in the second period delivered this document. This document acts as the deliverable describing the state-of-the-art of knowledge and data availability on sea level rise projections with a survey on scientific papers and documents on sea level rise projections, together with a survey on available data on sea level rise projection in the Mediterranean area.

This deliverable contributes in achieving the goal of the Activity 1.1 which is summarized as providing the project with data and scientific information on future scenarios of sea level rise, including auxiliary data, suitable to conduct case studies on selected classes of impacts, which are consequences of the sea level rise.

6. References and additional material

[1.1] Basecamp Key Production WP1

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

[2.2] The template Act_1.1_MedSeaRise_xxx_notes.docx file created in order to report comments on documents

[2.3] List of the papers and documents considered in this deliverable in the Act_1.1_MedSeaRise_articles_list.xlsx file.

[3.1] Simulation of future climate scenarios with a weather generator (2011) Fatichi S., Ivanov V. Y., Caporali E., Advances in Water Resources Volume 34, Issue 4, April 2011, Pages 448-467 https://doi.org/10.1016/j.advwatres.2010.12.013

[3.2] How Do Different Methods for Generating Future Weather Data Affect Building Performance Simulations? A Comparative Analysis of Southern Europe. Escandón, R.; Calama-González, C.M.; Alonso, A.; Suárez, R.; León-Rodríguez, Á.L. Buildings 2023, 13, 2385. https://doi.org/10.3390/buildings13092385

[3.3] Rodrigues E., Fernandes M. S., Carvalho D., Future weather generator for building performance research: An open-source morphing tool and an application, Building and Environment, Volume 233, 2023, 110104, ISSN 0360-1323, https://doi.org/10.1016/j.buildenv.2023.110104

[3.4] IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2391 pp. TS.1.2.2 Climate Model Performance. https://doi.org/10.1017/9781009157896

[3.5] CMIP6 - Coupled Model Intercomparison Project Phase 6 https://pcmdi.llnl.gov/CMIP6/

[3.6] CMIP6 - Overview of the CMIP6 Experimental Design and Organization https://wcrp-cmip.org/cmip6/

[3.7] The Earth System Grid Federation (ESGF) data access for CIMP6 https://aims2.llnl.gov/search

[3.8] Shared Socioeconomic Pathways (SSPs) as defined in the IPCC AR6 https://en.wikipedia.org/wiki/Shared_Socioeconomic_Pathways

[3.9] EURO-CORDEX - Coordinated Downscaling Experiment - European Domain https://www.euro-cordex.net/

[4.1] The MedSeaRise Google Drive Shared Data area

7. Appendixes

Appendix A: Sea level model outputs data

Here below, details on the sea level model outputs for the chosen scenarios are reported. Data corresponding to model listed in this appendix are available on the MedSeaRise Google Drive shared data area.

Project	Institution ID	Source ID	Experiment ID	Variant Label	Table ID	Variable ID
CMIP6	AWI	AWI-CM-1-1-MR	ssp126	r1i1p1f1	Omon	zos
CMIP6	MOHC	HadGEM3-GC31-MM	ssp126	r1i1p1f3	Omon	zos
CMIP6	CNRM-CERFACS	CNRM-CM6-1-HR	ssp126	r1i1p1f2	Omon	zos
CMIP6	AWI	AWI-CM-1-1-MR	ssp245	r1i1p1f1	Omon	zos
CMIP6	CNRM-CERFACS	CNRM-CM6-1-HR	ssp245	r1i1p1f2	Omon	zos
CMIP6	AWI	AWI-CM-1-1-MR	ssp370	r5i1p1f1	Omon	zos
CMIP6	AWI	AWI-CM-1-1-MR	ssp370	r4i1p1f1	Omon	zos
CMIP6	AWI	AWI-CM-1-1-MR	ssp370	r3i1p1f1	Omon	zos
CMIP6	AWI	AWI-CM-1-1-MR	ssp370	r2i1p1f1	Omon	zos
CMIP6	AWI	AWI-CM-1-1-MR	ssp370	r1i1p1f1	Omon	zos
CMIP6	CNRM-CERFACS	CNRM-CM6-1-HR	ssp370	r1i1p1f2	Omon	zos
CMIP6	NOAA-GFDL	GFDL-CM4	ssp585	r1i1p1f1	Omon	zos
CMIP6	AWI	AWI-CM-1-1-MR	ssp585	r1i1p1f1	Omon	zos
CMIP6	MOHC	HadGEM3-GC31-MM	ssp585	r4i1p1f3	Omon	zos
CMIP6	MOHC	HadGEM3-GC31-MM	ssp585	r1i1p1f3	Omon	zos
CMIP6	MOHC	HadGEM3-GC31-MM	ssp585	r2i1p1f3	Omon	zos
CMIP6	MOHC	HadGEM3-GC31-MM	ssp585	r3i1p1f3	Omon	zos
CMIP6	CNRM-CERFACS	CNRM-CM6-1-HR	ssp585	r1i1p1f2	Omon	zos

Model outputs for sea level (ZOS)

Files of monthly averages, covering the time period ranging from 1850 to 2100 are downloaded for as many simulations as possible, related to the four main SSP scenarios, namely SSP1-2.6, SSP2-4.5, SSP3-7.0 and SSP5-8.5, and their historical part. Those files are in netDCF format and are selected from CMIP6 data sets [3.7] with 25 km of (horizontal) spatial resolution.

From the downloaded files, time series are extracted (nearest neighbor interpolation) for specific geographic locations of interest by each Project Partner (see the PP_XX-locations.csv file in **Appendix C**).

In the MedSeaRise Google Drive shared data area, there is a subfolder for each Project Partner (PP) and therein other subfolders storing time series files of ZOS. There is one netCDF file for each simulation, geographic location and scenario; the time series are composed by monthly average values extending from an historical part (1850 ÷ 2014) to a future RCP scenario (2015 ÷ 2100).

For ZOS only one location has been considered so far for each PP, but further locations could be added upon request of the PP. It is worth noting that for LP1 two locations have been considered, since for a specific scenario (GFDL-CM4_r1i1p1f1) no data close enough to the area of interest were available.

The number of simulations of ZOS for each considered scenario (historical + SSP) is listed below:

- SSP1-2.6, n. simulation outputs: 3
- SSP2-4.5, n. simulation outputs: 2
- SSP3-7.0, n. simulation outputs: 6
- SSP5-8.5, n. simulation outputs: 7

Appendix B: Climate model outputs accessory data

Here below, details on accessory data, which have been considered useful to add to the sea level model outputs are reported. Data corresponding to model listed in this appendix are available on the MedSeaRise Google Drive shared data area.

In addition to sea surface height (ZOS), auxiliary time series of near-surface air temperature (TAS) and precipitation (PRE) are required to describe the climate change scenarios in each Mediterranean area where case studies are located. Here is the list of model outputs considered in the MedSeaRise activities.

Project	Domain	GCM	RCM	Experiment	Ensemble member	Version	Temporal resolution	Variable
CORDEX	EUR-11	CNRM-CERFACS-CNRM-CM5	CNRM-ALADIN63	rcp26	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	CNRM-CERFACS-CNRM-CM5	KNMI-RACMO22E	rcp26	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	CLMcom-CCLM4-8-17	rcp26	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	KNMI-RACMO22E	rcp26	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	SMHI-RCA4	rcp26	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	DMI-HIRHAM5	rcp26	r3i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MOHC-HadGEM2-ES	KNMI-RACMO22E	rcp26	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	MPI-CSC-REMO2009	rcp26	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	SMHI-RCA4	rcp26	r1i1p1	v1a	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	MPI-CSC-REMO2009	rcp26	r2i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	NCC-NorESM1-M	GERICS-REMO2015	rcp26	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	CNRM-CERFACS-CNRM-CM5	CNRM-ALADIN63	rcp45	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	CNRM-CERFACS-CNRM-CM5	KNMI-RACMO22E	rcp45	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	CLMcom-CCLM4-8-17	rcp45	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	KNMI-RACMO22E	rcp45	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	SMHI-RCA4	rcp45	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	DMI-HIRHAM5	rcp45	r3i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	IPSL-IPSL-CM5A-MR	SMHI-RCA4	rcp45	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MOHC-HadGEM2-ES	CLMcom-CCLM4-8-17	rcp45	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MOHC-HadGEM2-ES	KNMI-RACMO22E	rcp45	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	CLMcom-CCLM4-8-17	rcp45	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	MPI-CSC-REMO2009	rcp45	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	SMHI-RCA4	rcp45	r1i1p1	v1a	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	NCC-NorESM1-M	GERICS-REMO2015	rcp45	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	CNRM-CERFACS-CNRM-CM5	CNRM-ALADIN63	rcp85	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	CNRM-CERFACS-CNRM-CM5	KNMI-RACMO22E	rcp85	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	CLMcom-CCLM4-8-17	rcp85	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	KNMI-RACMO22E	rcp85	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	ICHEC-EC-EARTH	SMHI-RCA4	rcp85	r12i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	IPSL-IPSL-CM5A-MR	SMHI-RCA4	rcp85	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MOHC-HadGEM2-ES	CLMcom-CCLM4-8-17	rcp85	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MOHC-HadGEM2-ES	KNMI-RACMO22E	rcp85	r1i1p1	v2	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	CLMcom-CCLM4-8-17	rcp85	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	MPI-CSC-REMO2009	rcp85	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	SMHI-RCA4	rcp85	r1i1p1	v1a	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	MPI-M-MPI-ESM-LR	MPI-CSC-REMO2009	rcp85	r2i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	NCC-NorESM1-M	GERICS-REMO2015	rcp85	r1i1p1	v1	mon	2m air temperature, mean precipitation flux
CORDEX	EUR-11	NCC-NorESM1-M	GERICS-REMO2015	rcp85	r1i1p1	v1	mon	2m air temperature, mean precipitation flux

Precipitation (PRE) and Temperature of the atmosphere (TAS)

Files of monthly averages, covering part of the XX century and the whole XXI century, are downloaded for several simulations, related to the three main RCP scenarios, namely RCP2.6, RCP4.5 and RCP8.5, and their historical part. Those files are in netDCF format and are selected from EURO-CORDEX data sets (CORDEX regional climate model data on single levels).

From the downloaded files, time series are extracted (bilinear interpolation) for specific geographic locations of interest by each Project Partner (see the PP_XX-locations.csv file in **Appendix C**).

In the MedSeaRise Google Drive shared data area there is a subfolder for each Project Partner (PP) and therein other subfolders storing time series files of TAS and PRE. There is one netCDF file for each simulation, geographic location and scenario; the time series are composed by monthly average values extending from an historical part (1951 ÷ 2005 or 1971 ÷ 2005) to a future RCP scenario (2006 ÷ 2100 or 2006 ÷ 2099).

For PRE and TAS only one location is considered for each PP by default, but further locations could be added upon request of the PP.

The number of simulations of TAS for each considered scenario (historical + RCP) is listed below:

- RCP2.6, n. simulation outputs: 11
- RCP4.5, n. simulation outputs: 14
- RCP8.5, n. simulation outputs: 13

The simulations for PRE are the same as those for TAS.

Appendix C: List of geographical locations

Specific geographic locations of interest by each MedSeaRise Project Partner are reported here below. For each location the model output data are available. (see the PP_XX-locations.csv file in Google Drive Shared Data area).

location id	latitude [°N]	longitude [°E]	notes
LP1_00	40.63666	22.94216	Thessaloniki (EL); PRE, TAS
LP1_01	40.41616	22.75137	Point offshore in the Thermaic Gulf; ZOS
LP1_02	40.26243	22.83822	Point offshore in the Aegean Sea; ZOS
PP2_00	45.64325	13.7903	Trieste (IT); PRE, TAS
PP2_01	45.49458	13.15274	Point offshore in the North Adriatic Sea; ZOS
PP3_00	43.70313	7.26608	Nice (FR); PRE, TAS
PP3_01	42.56954	7.34774	Point offshore the Cote d'Azur; ZOS
PP4_00	42.42067	18.76825	Kotor (ME); PRE, TAS
PP4_01	42.16527	18.40141	Point offshore in the South Adriatic Sea; ZOS
PP5_00	41.38879	2.15899	Barcelona (ES); PRE, TAS
PP5_01	41.22654	2.472953	Point offshore in the Balearic Sea; ZOS
PP6_00	35.89972	14.51472	Valletta (MT); PRE, TAS
PP6_01	36.12255	14.73559	Point offshore the coastline of Malta; ZOS