Interreg Italy - Croatia RESPONSe
European Regional Development Fund

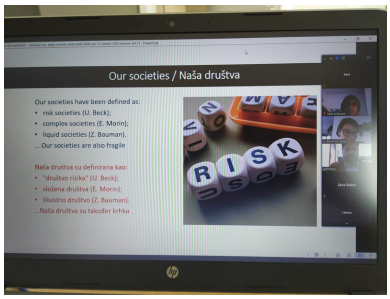
EUROPEAN UNION

Newsletter n°2
December 2020

English | Croatian | Italian

RESPONSe
Strategies to adapt to climate change in Adriatic regions

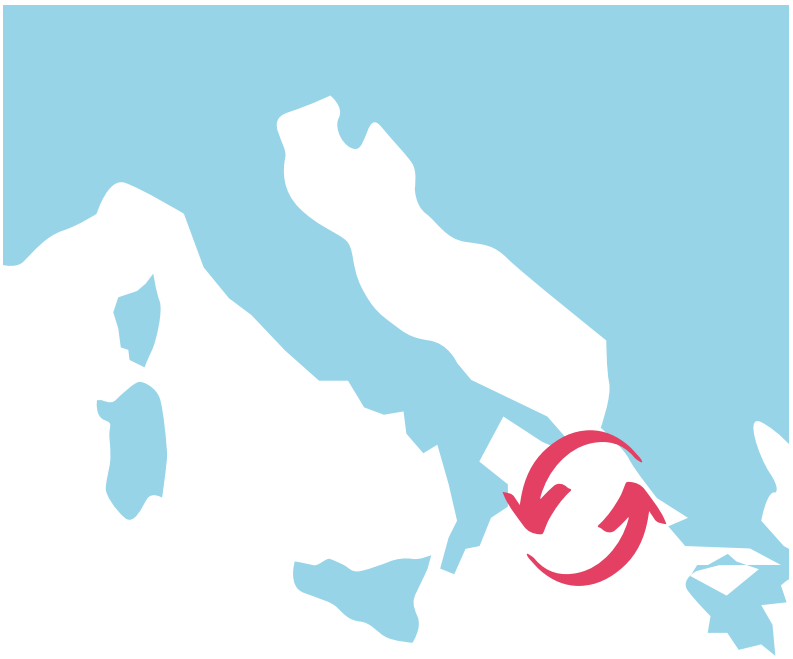
MID-TERM CONFERENCE - Oct 21st, 2020



Are our Adriatic coastal communities adapting to climate change?
This was also the title of the conference and, on the basis of near one hundred participants, we can answer this question saying that Adriatic municipalities are very concerned by the problem and are interested in adaptation strategies.
Since Covid-19 restrictions made impossible to meet in a conference room, the participants met in a virtual room, where, after a few welcome words, project partners introduced the obtained results of the observed and projected climate change over the Adriatic coast.
The experts from National Institute of Oceanography and Applied Geophysics (OGS) traced the climate change influence on the interaction between Adriatic and Ionian Sea.
Further on, four separate breakout groups discussed on different aspects of climate change.
In the following pages you will discover more about the conference themes, or you can watch here the recorded extracts.
Adaptation is also a cultural process, so **let's be reSEAlient!**

INVITED TALKS

Miroslav Gačić (OGS - National Institute of Oceanography and Applied Geophysics)



How Adriatic and Ionian talk to each other?

Two-way dialogue between Adriatic and Ionian includes one million m^3/s of water exchange. As climate conditions over the observed area play an essential role in this interaction, climate change, which will cause certain changes in hydrodynamic conditions of water column, will impact this interaction. These changes may be a trigger or can strengthen other changes, for example, changes in biodiversity.

Vedrana Kovačević (OGS - National Institute of Oceanography and Applied Geophysics)

Adriatic and Ionian in a rotating pool

The aim of the CRoPEx project was to study the connections between the Adriatic dense water outflow into the Ionian and the Ionian upper-layer currents. Simulated interaction of the Adriatic and Ionian in controlled laboratory conditions (13 m wide rotating pool) confirmed the hypothesis that injection of water with varying densities (such as dense Adriatic deep water) can trigger the periodical reversal rotation in the upper layer (such as North Ionian Gyre).

BREAKOUT GROUPS

Adapting to climate change: addressing vulnerabilities in the Adriatic region

Geographical information systems and satellite systems give us a first-hand information on the spots where we need to primarly focus our attention, but this focus depends also on the type of impact we need to address. From this regional view, we can then go down to urban level.

Best practice example: Cavallino Treporti, a town near Venice, lays on a long beach strip and decided to tackle the problem of sea level rising and sea storms' impact; measures have been put in place from 2007 up to now and, although slow, it represents a continuous process of adaptation.

Extreme weather alert systems as a support to local public authorities

Weather forecasts are measures of adaptation to meteorological and hydrological adversities. It is important that citizens and authorities learn to understand them and, if necessary, to react accordingly. Since these are forecasts, possibilities of false alarms must also be taken into account.

A comparison between various temporal scales and dedicated weather prediction and climate projection systems showed that there are different levels of our detection capacity versus understanding capabilities for different extreme weather and climate events. While we have skills in predicting severe weather events, there is still a lot of room left for predicting and disseminating the information about the weather events' impacts.

Participants were presented an overview of the Meteoalarm system and the Veneto Weather Warning System.

How to engage our communities in future climate adaptation?

We have to work hard on the challenging process of active engagement of communities by devoting time, resources and dedicated staff. It's demanding but it is necessary for a successful adaptation strategy.

We also need it to be capillary with all communication channels to reach all parts of the community and all the stakeholders because adaptation is like a civilization jump.

The main challenge is: how to connect science and academic world with daily life? There is not a unique solution, but the most important approach is to make it simple.

How to fund and secure support for the climate change adaptation activities?

Focus for financing climate change adaptation activities has to be on key stakeholders and decision makers in cities/municipalities. The first step in this process is to identify decision makers. We need to introduce climate changes and their impact, possible threats and long-term consequences from climate changes on local communities. Their support is critical in adaptation action preparation phase, acceptance of the prepared measures and insurance that these activities will be included in municipalities' budgets. Since the majority of cities/municipalities does not have funds for adaptation measures, the regional, national and EU funds for co-financing have to be available to secure project implementation.

CLIMATE CHANGES MONITORED & PROJECTED

First activities of the project were focused on:

Analysis of the observed climate change in the atmosphere and Adriatic Sea

Results show that temperature trends during the period 1961-2018 for majority of the temperature related variables and indices are positive and statistically significant over most of the Adriatic region and in all seasons. In parallel, linear trends of precipitation amounts show large variability in terms of the sign (both positive and negative trends are documented) and their amplitudes are rarely statistically significant. Seasonal decomposition of mean monthly sea surface temperature (SST) showed two periods at all stations: a cooling trend prior to 1979 and **substantial warming after 1979, particularly intensified since 2008, with trends as high as 1.56 °C per decade.**

Climate change projections' analysis

In the atmosphere, climate change projections for both climate scenarios analysed (RCP 4.5 and RCP 8.5) show intensification of the already present warming trends in all seasons, while changes in the hydrological cycle are more pronounced from the mid-21st century onwards, with summer drying tendency reaching up to -20% over parts of the domain.
Concerning sea related indices, future climate show an increase of sea surface temperature (SST) with an average between 0.6 and 0.8 °C in the near future for both climate scenarios, while for the mid future (2041 - 2070) SST increase is expected between 1.1 and 1.3 °C for the RCP 4.5, and between 1.6 and 2.0 °C for the RCP 8.5 scenario. Sea surface salinity (SSS) is expected to gradually increase in both, RCP 4.5 and RCP 8.5 scenario, with higher increase in coastal areas that are majorly influenced by the local rivers.

What does RCP mean?

A Representative Concentration Pathway (RCP) are atmospheric greenhouse gas concentration (not emissions) trajectories standardized by the IPCC which allows consistent analyses across climate research groups. RCP 4.5 is described as an intermediate scenario (by employment of a range of technologies and strategies for reducing GHG emissions, the radiative forcing level stabilizes at 4.5 W/m^2 before 2100), while RCP 8.5 is generally taken as the basis for worst case (extreme) climate change scenario (the radiative forcing level reaches 8.5 W/m^2 before 2100).