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## a) Geosciences

<https://www.mdpi.com/2076-3263/11/10/424>



Article

### Citizens' Perception of Geohazards in Veneto Region (NE Italy) in the Context of Climate Change

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**Abstract:** Climate-related geohazards, such as landslides, floods, and coastal erosion due to climate change, are increasingly impacting human settlements and activities. This study, part of the European Project RESPONSE (Interreg Italy-Croatia), investigates the perception of climate change as a catalyst of future geohazards among the citizens of the Veneto region (northeastern Italy). A total of 1233 questionnaires were completed by adult citizens and analyzed by means of inferential statistics. The results highlight a widespread perception of climate change as a general threat for the environment, but not directly transposed to the frequency and intensity of future geohazards. Certainly, changes in temperatures and rainfall are widely expected and acknowledged, yet the comprehension related to the hydrogeological effects seems to vary proportionally to the physical proximity to these hazards. Such outcomes underline that there is still a common lack of understanding of the eventual local impact of the climate crisis. For these reasons, it is suggested that decision makers consider directing their efforts to enhance the citizens' knowledge base in order to build a climate-resilient society.

**Keywords:** geohazards; risk perception; climate change; Italy



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#### 1. Introduction

The Earth's changing climate is causing alterations in a vast number of environmental conditions [1–6], that trigger, inter alia, different geological hazards such as floods, landslides and coastal erosion. Such phenomena have been largely studied from a physical point of view, using mathematical models in order to quantify the impact and predict future scenarios [2]. Moreover, because of the alarming speed of ongoing changes, research is also focusing on evaluating the vulnerability to climate change and geohazards considering cultural, social, and economic factors [7–20]. Climate change is indeed a global phenomenon, mitigation for which requires both global and local effort, while adaptation to its impact is mainly feasible by considering specific features at a local scale [21]. Although climate change has been strongly associated to an issue of global governance, even in terms of disaster risk reduction [22], the role of the specific geographical context, at different scales, has been recognized only more recently [23].

As a matter of fact, due to its geographical, physical and geomorphological setting, Italy is severely affected by climate change, even though in a nonuniform manner [24]. For example, a study carried out by Lionello et al. [25] showed that precipitation decreased more in the center and south than in the north, especially in the winter period. Moreover, the frequency and intensity of climate-related geohazards seems consistently related to ongoing local climate change [26–28]. For instance, studies conducted throughout Italy at the regional–local scale show that the projected changes in precipitation patterns are expected, in some cases, to increase [29,30], while, in other cases, to decrease [31,32] the probability of landslides occurrence. Particularly, the Veneto region, located in northeast

## b) Climate Adapt

<https://climate-adapt.eea.europa.eu/metadata/projects/strategies-to-adapt-to-climate-change-in-adriatic-regions>



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Project

### Strategies to adapt to climate change in Adriatic regions (RESPONSE)

**Description:**

The project aims at empowering local policy-makers to enable climate-smart governance approaches and promote sustainable living in Adriatic marine and coastal areas. RESPONSE provides the tools to foster effective policy-making on climate adaptation at the local level and supports strategic decision-making on how best to address the effects of climate change on the coastal areas of the Adriatic basin. Building on the development of tailored climate services tackling the vulnerabilities of the Adriatic region, RESPONSE promotes the engagement of local policy-makers and helps mainstream adaptation planning into policy frameworks.

The main objectives are to:

- Promote sustainable living in Adriatic marine and coastal areas
- Identify the challenges and risks of target areas on the basis of actual climate change trends
- Provide local authorities with context-based tools to foster the uptake of integrated approaches to mainstream climate change adaptation
- Develop innovative participatory planning processes that will enable pilot areas to boost their adaptation potential.

Results achieved:

- Analysis of climatological data to understand climate trends
- Climate change perception survey among public authorities and citizens
- Adaptation actions toolkit for Public Authorities: [climatemenu.eu](http://climatemenu.eu)
- Climate change risk and vulnerability assessment (RVA) for each pilot area
- 17 local events and 1 international conference

**Date of creation:**  
2021

**Keywords:**  
climate services, decision making, good practices, local authorities, mainstreaming, participatory approach

**Duration:**  
2019-2021

**Climate impacts:**  
Extreme Temperatures, Flooding, Sea Level Rise, Storms

**Elements:**  
Adaptation Plans and Strategies, Vulnerability Assessment

**Sectors:**  
Coastal areas

**Geographic characterization:**  
Europe

**Macro-Transnational region:**  
Adriatic-Ionian

**Countries:**  
Croatia, Italy

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**Project information**

**c) Italian society for climate sciences - 9th SISC annual conference "Accelerating climate action - A just transition in a post-covid era" 22/24 Sept 2021, on line - Book of abstracts**

<https://www.sisclima.it/conferenza-annuale-2021/posters-presentations/>

[https://files.sisclima.it/conference/2021/presentations\\_ok/giaiotti2.pdf](https://files.sisclima.it/conference/2021/presentations_ok/giaiotti2.pdf)

7. Predicting climate change in the context of risk and adaptation options

ORAL

**A novel approach in supporting the local authorities to define adaptation actions to climate change**

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**Keywords:** Adaptation actions; impacts; stakeholder; participatory process

*Climate change and its effects are both evident in Friuli Venezia Giulia, proved by data that show trends. In the region, several EU funded projects are tackling these issues, both from a mitigation and from an adaptation perspective. Most of the projects involve comparable activities, such as context analysis, improvement of climate monitoring and modelling systems, existing plans survey, stakeholders mapping and participatory processes.*

*Overlapping of initiatives occur inevitably and this is not a shortcoming, since the complexity of the problem requires a manifold approach. On the other hand, the risk to fall into discrepancies and inconsistencies among methodologies and results is not negligible. Furthermore, currently there are multiple participatory processes underway in the same area, often engaging the same stakeholders' categories and individuals.*

*Sharing this awareness, two INTERREG Italy-Croatia projects, namely AdriaClim [1] and RESPONSe [2], are joining their efforts to support local Public Authorities in Friuli Venezia Giulia coastal and lagoon area to find the way towards harmonized climate actions, focusing especially on planning climate change adaptation at a local scale.*

*A new perspective in the participation of the stakeholders in the climate change adaptation process is applied. According with this approach, the flow of information, from stakeholders to the analysts, is a continuous process as climate change is, so the resources available from the two projects are focused in maintaining open the communication channel, in spite of the typical life time of each project, which is very short in comparison of characteristic adaptation times.*

*To this end, AdriaClim and RESPONSe project partners which are permanently operating on the area, that is ARPA FVG [3], APE FVG [4] and INFORMEST [5], are experimenting a top down and bottom up approach in collecting and analyzing the data on the very local climate change related risks. The continuous flow of information is bidirectional; meanwhile the stakeholders rise the attentions on their*