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Review

A Literature Review of Climate-Related Coastal Risks in the Mediterranean, a Climate Change Hotspot

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Abstract: Direct and indirect impacts of climate change are alarming in the coastal areas of the world, including the Mediterranean coasts. Extreme events (such as marine storms, medicanes, etc.) are likely to increase the coastal risks in the region (e.g., erosion, flooding, and inundation), resulting in a significant socio-economic impact, loss of natural biodiversity and ecosystem services, and damage to cultural heritage along the affected coasts. Therefore, climate-related risk assessment procedures are crucial for the management and sustainable development of coastal areas. The purpose of this paper is to review and analyze the literature on the assessment of both the long- and short- term effects of climate change on coastal Mediterranean areas. It emphasizes methods and techniques to evaluate coastal vulnerability and sea level rise risk. This paper presents an overview of relevant scientific literature on the matter with a focus on approaches used in addressing the issues on climate change, as well as the geographic distribution of papers on the topic, highlighting the main aspects addressed in different Mediterranean countries.

Keywords: coastal geomorphology; coastal hazard; sea level rise; sustainable development

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1. Introduction

Both direct and indirect impacts of climate change are quite evident in the coastal areas of the world, which are prone to the effects of erosion, flooding, inundation, and seawater intrusion processes, with severe consequences on the natural and socio-economic assets [1–5]. The rise in the global mean sea level represents one of the most evident and deeply studied consequences of the ongoing global warming [6,7]. According to the most recent models and considering the worst climate scenarios (expressed in terms of Shared Socioeconomic Pathways—SSP), the global mean sea level (GMSL) may increase by up to 1.10 m by the end of the twenty-first century [8], and this trend is expected to continue in the future. Recently, Nicholls et al. [9] showed that in the last two decades, the GMSL has increased at a rate of 2.5 mm per year and that this rate is four times faster in subsiding coastal areas, with an average relative sea-level rise varying from 7.8 mm to 9.9 mm yr^{-1}. Based on the results obtained from the LISCoAsT tool (Large scale Integrated Sea-level and Coastal Assessment Tool) developed by the Joint Research Centre of the European Commission, Vousdoukas et al. [5] highlighted that a substantial proportion of the world's sandy coastline is already subject to erosion and that almost half of the world's sandy beaches could be considered near to extinction by the end of the century, if no greenhouse gas (GHG) emission mitigation actions are implemented. The outcomes of these studies are in line with previous analyses focused on the evaluation of global historical shoreline evolution [10,11] as well as on the identification of areas prone to inundation [12–14]. Such data highlights that, at the global scale, coastal sectors and related

environments are considered constantly threatened by the intensification of climate- and marine-related coastal processes [5,15]. Recent studies carried out over the Mediterranean region show that, in the case of no coastal protection or adaptation strategies and under the worst-case climate conditions, there will be an increase of 48% of the world's land area at risk of flooding by 2100, threatening 52% of the global population, and 46% of the global assets [15].

According to the IPCC definition [16], "risk" represents "the potential for consequences where something of human value (including humans themselves) is at stake and where the outcome is uncertain". Risk is also defined as "the probability of occurrence of hazardous events or trends multiplied by the consequences if these events occur" [16]. Combining the above two definitions, risk can be expressed as a function of hazards, vulnerability and exposure. Considering the remarkable impacts that climate change has on coastal sectors, risk assessment is a very important topic to be considered in coastal research [17–20]. The primary goal of risk assessment methodologies is to evaluate probable future risks and give information about their temporal and spatial distribution [21].

In this review, we focused our attention on studies related to the assessment of the coastal risks, with special attention to the sea level rise impacts. At a global scale, several reviews have provided a bibliometric analysis on the themes of "disaster management" and "natural hazards" [22–25]. These studies have provided a deep scientific knowledge on the current research trends. Specifically, Barnes et al. [22] have found out that 95% of the reviewed papers focused on natural hazards, concluding that natural hazards are predominant in research rather than anthropogenic hazards. Furthermore, the study pointed out that the most frequent disaster types are climate related events and, in particular, over 70% of these disaster events are storms or floods. Leal et al. [24] focused their analysis on storm surges and related flood impacts under climate change conditions. They found out that the peak in the publication of papers was observed in 2020 and that authors from Germany, Italy, Netherlands, the United Kingdom, and the United States stood out in the number of publications on this topic. In addition, the USA presented the highest number of publications published between January 1991 and February 2021. Similar outcomes were also provided by Fan et al. [23]. In fact, according to their analysis, the USA mainly focuses on climate change and hurricane research; China and Italy focus more on earthquakes and landslides; Japan concentrates on tsunamis. Australia, Germany and the UK pay more attention to climate change issues.

The recent Assessment Report on "Climate and Environmental Change in the Mediterranean basin" published by Guiot et al. [25] highlights that "the Mediterranean is warming 20% faster than the global average and that the region is one of the main climate change hotspots in the world, where 250 million people are projected to be considered 'water poor' within 20 years". The same authors state that "the current changes and future climate scenarios will point to a significant increase in climate-related risks during the next decades". In addition, in the Mediterranean, many coastal sectors are considered prone to be impacted by sea-level rise [26–35] and storm surge [36,37]. Wolff et al. [38] provided an updated database in which 160 parameters on the characteristics of the natural and socio-economic systems can be retrieved, including extreme sea levels, vertical land movement and the number of people exposed to sea-level rise and extreme sea levels. The database contains remarkable information to support coastal impact and adaptation assessments of sea level rise and associated hazards in the Mediterranean. Nevertheless, from a preliminary analysis of the scientific literature, it emerged that, differently from other environmental issues such as micro-plastics, groundwater salinization, flood mitigation, and risk assessment tools [39–45], no literature review on climate-related coastal risks at the Mediterranean scale was available. With the aim of filling this gap, a bibliographic analysis of studies focused on the assessment of both long- and short- term effects of climate change on coastal Mediterranean areas was carried out. Special attention was given to the methods and techniques applied for the evaluation of coastal vulnerability and risk of sea level rise and its associated processes. The results of this study provide insights for assessing trends

and identifying the main issues in coastal risk assessment procedures. Furthermore, by analyzing the geographic distribution of papers published on the topic, the main issues addressed in different Mediterranean countries are highlighted. The proposed literature analysis is also aimed at supporting the development of future studies and initiatives aimed at implementing sustainable coastal risk management actions.

2. Materials and Methods

This study comprised six main steps of analysis (Figure 1). Firstly, the literature databases and search criteria were defined. Secondly, the selected literature databases were inquired based on the selected search criteria. We inquired the "abstract", "keywords", and "title" sections of the databases and the entire text for the chosen publications published in the English language between January 2001 and September 2022, being aware of the limitations in regard to the search field of each literature database. In the third step, all the selected publications were thoroughly reviewed and categorized into subgroups. This was followed by the fourth step in which each publication was manually checked in order to exclude any publications focusing on areas outside the Mediterranean region. A quantitative analysis of all the publications was performed in order to extract the relevant information (fifth step). Finally, in the sixth step, the outputs of the analysis were represented in the form of concise graphs. More details on each step of the proposed review process are provided in the following sub sections.

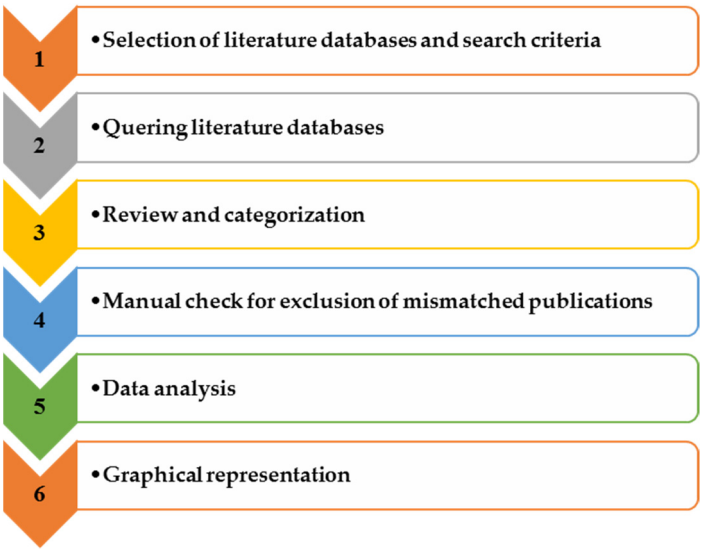

Figure 1. Main steps of the review process.

2.1. Selection of Literature Databases and Searching Strategy (Steps 1 and 2)

In order to create a bibliographic database, the literature databases 'Google Scholar', 'ResearchGate', 'Scopus' and 'Web of Science' were consulted to collect relevant papers. Furthermore, the following searching query was used in the selection process: ('risk' OR 'vulnerability' OR 'coastal adaptation' OR 'model' OR 'index' OR 'multidisciplinary approach to SLR') AND 'Mediterranean'. Considering that the outcomes of the bibliographic research may vary according to the use of different literature databases, studies focusing on comparative research should use such databases with utmost awareness [46]. In this perspective, Falagas et al. [47] remarked "For citation analysis, Scopus offers about 20% more coverage than Web of Science, whereas Google Scholar offers results of inconsistent accuracy" [47]. The same authors also stated "Google Scholar as for the Web in general, can help in the retrieval of even the most obscure information but its use is marred by inadequate, less often updated, citation information" [47]. In this study, all the cited databases were consulted in order to provide a comprehensive overview of the available publications.

2.2. Selection and Classification Strategy (Steps 3 and 4)

Considering the search field limitations and in order to ensure an accurate selection of papers, the 'abstract', 'keywords' and 'title' sections were inquired from Scopus, Web of Science and the entire text from Google Scholar and ResearchGate. All the selected articles were checked for their eligibility and categorized under specific sub-groups, namely: 'coastal adaptation strategy', 'coastal risk assessment', 'coastal vulnerability assessment', 'model-based approach to SLR', 'index-based approach to SLR' and 'multi-disciplinary approach to SLR' (Table 1). Articles matching more than one approach-based criteria were also grouped under the above-mentioned subgroups on the basis of each type of criteria addressed by them. Thus, there exists a repetition of a few articles in some of the subgroups with respect to the criteria included in the concerning article. Moreover, in order to outline the data source among the global climate data platforms, the articles were categorized under three main categories, namely IPCC, COPERNICUS and NASA based on the data platform mainly used in each of the selected articles. After the preliminary categorization of articles, a manual check was performed to exclude those publications which were out of match in regard to the main topics and that were not focused on a Mediterranean coastal risk assessment.

Table 1. Distribution of publications with reference to approach-based criteria and time frame.

Approach Based Criteria	No. of Publications (Total = 143)	Time Frame
Coastal risk assessment	33	2010–2022
Coastal vulnerability assessment	30	2006–2022
Mediterranean sea level rise modelling	30	2005–2022
Index-based approach	22	2010–2022
Coastal adaptation strategy	18	2001–2022
Multi-disciplinary approach	10	2009–2022

2.3. Data Analysis and Graphical Representation (Steps 5 and 6)

Based on the classification of articles, the calculation and graphical representation of the total number of articles under each subgroup, their temporal trends and the number of country-wise publications under each subgroup was obtained using MS Excel. For each of the analyzed articles, the authors, title, year of publication and other relevant information were tabulated and provided in Table S1 as a Supplementary Material for the readers. Finally, the results of the data analysis were represented in the form of graphs. In addition, in order to visualize the most frequent words occurring in the analyzed publications, a word cloud was built using the software, Atlas.ti (version 22.1.5.0 developed by ATLAS.ti Scientific Software Development GmbH, Berlin, Germany) for a qualitative data analysis. The word cloud was implemented considering the abstracts of all the selected papers. It was limited to nouns (not including proper nouns), thus adjectives, verbs and the other parts of speech were excluded. The most frequent word "sea" was also excluded to improve visual clarity, and instead the composite words "sea level rise", and "land-use", were considered as single words. Again, to improve the visual clarity, the noun "maker/s" was excluded from the word cloud since it was less informative than its most frequently associated words that are "policy" and "decision" (these latter words were included in the word cloud).

3. Results and Discussion

A total of 143 publications were selected and analyzed in the reviewal process. Some relevant information about each publication is indicated in the Table S1. In the following subsections, the main outcomes derived from the analysis of the collected publications are illustrated. In detail, Section 3.1 is focused on the analysis of the scientific literature with respect to the main approach-based criteria applied at the Mediterranean scale for the evaluation of the climate-related coastal vulnerability and risks. Section 3.2 illustrates the spatial distribution of the collected papers, highlighting the main aspects addressed at the

country scale. Furthermore, an analysis of the collected papers with respect to the year of their publication is provided. Finally, Section 3.3 is focused on the analysis of the main global data platforms used as data sources for the collection of future sea level projections.

3.1. Approaches Used to Study Climate-Related Coastal Risks with Reference to SLR

The number of publications with reference to the different approaches used and their publication time frame is reported in Table 1. According to these results, most of the collected publications (33) were focused on coastal risk assessment and, thus, highlight the importance of this approach in this field.

Coastal risk assessment has been used as a potential tool for the integrated evaluation of climate change impacts on coastal zones [48]. In this context, Ojeda-Zujar et al. [49] used an inundation risk assessment technique to study inundation risks due to sea level rise in residential cadastral parcels along the Mediterranean Andalusian coast.

Approximately 30 articles were related to coastal vulnerability assessment and another 30 to a model-based approach to sea-level rise respectively, depicting a high contribution of these aspects in assessing the climate-related risk in the Mediterranean coast. This highlights the fact that, in the context of a changing climate and coastal development, coastal vulnerability assessment has become a very popular approach. Faour et al. [50] addressed the risk assessment of physical and economic impacts under different sea level scenarios by using a coastal vulnerability analysis on the eastern Mediterranean region. By way of example, indices for the physical vulnerability to sea level rise and coastal flooding have been designed and applied in the Ravenna province (Italy) [51], an area highly susceptible to coastal flooding and erosion since historic times [52]. Galassi et al. [53] used the glacio-isostatic adjustment models such as ICE-5G (VM2), developed by Peltier et al. [54], and the one developed by Lambeck et al. [55] to assess the regional pattern of sea level variations in the Mediterranean. Apart from research on coastal vulnerability, studies focusing on model-based approaches to depict sea level rise risk also reflect a significantly high number. In addition to this, Galassi et al. [53] assessed the future sea level rise impact for the year 2050 in the Mediterranean by using model-based techniques. Antonioli et al. [26] showed how the morphology of a number of coastal plains in the Mediterranean area would change under the expected relative sea level rise by 2100.

In the bibliographic findings, 18 publications matched research based on coastal adaptation. Noteworthy is the article by Santos et al. [56], focusing on the issue of the impacts and adaptation to climate change in the coastal areas of the Mediterranean through the CIRCLE MED initiative. This research initiative was founded in 2007 under the EU-funded CIRCLE ERA-NET framework with the collaboration of five Mediterranean countries, namely France, Italy, Israel, Portugal and Spain. Twenty-two publications were focused on an index-based approach to sea level rise. From the literature survey, it was observed that the Coastal Susceptibility Index (CSI), Coastal Vulnerability Index (CVI), Coastal Risk Index (CRI), and Socio-Economic Vulnerability Index (SVI) were the most common types of indices used in coastal analysis. Such index-based approaches are one of the simplest and commonly used methods in coastal risk assessment and they have a wide contribution in long-term sustainable coastal planning and management activities [57]. The least number of publications were focused on a multidisciplinary approach (10) which takes into consideration coastal topography, geodesy, GIS and climatic-driven estimates. For example, Anzidei et al. [30] utilized the geodetic data from the global navigation satellite system (GNSS), synthetic aperture radar interferometric measurements (InSAR), and sea-level data from tidal stations in order to study the simultaneous interplay of land subsidence and the SLR along the south eastern coast of Sicily. Similar analyses have also been carried out in other Italian coastal areas [35,37]. Furthermore, Lichter et al. [58] introduced a GIS-based approach to assess the costs of SLR and extreme flooding at a local level. Considering the smaller number of publications focusing on a multi-disciplinary approach, there is a need for exploring this approach to a higher extent with respect to the Mediterranean coastal region.

3.2. Summary and Characteristics of the Reviewed Articles

A very crucial aspect of risk analysis is related to the accurate detection of risk prone areas. This review summarizes, at the Mediterranean scale, the country-wise distribution of the publications with respect to the main approach-based criteria addressed. To this aim, the selected papers were classified on the basis of the location of study areas.

The country-wise distribution of the publications with respect to each criterion and each specific approach to a SLR impact evaluation is shown through a series of pie-charts in Figure 2.

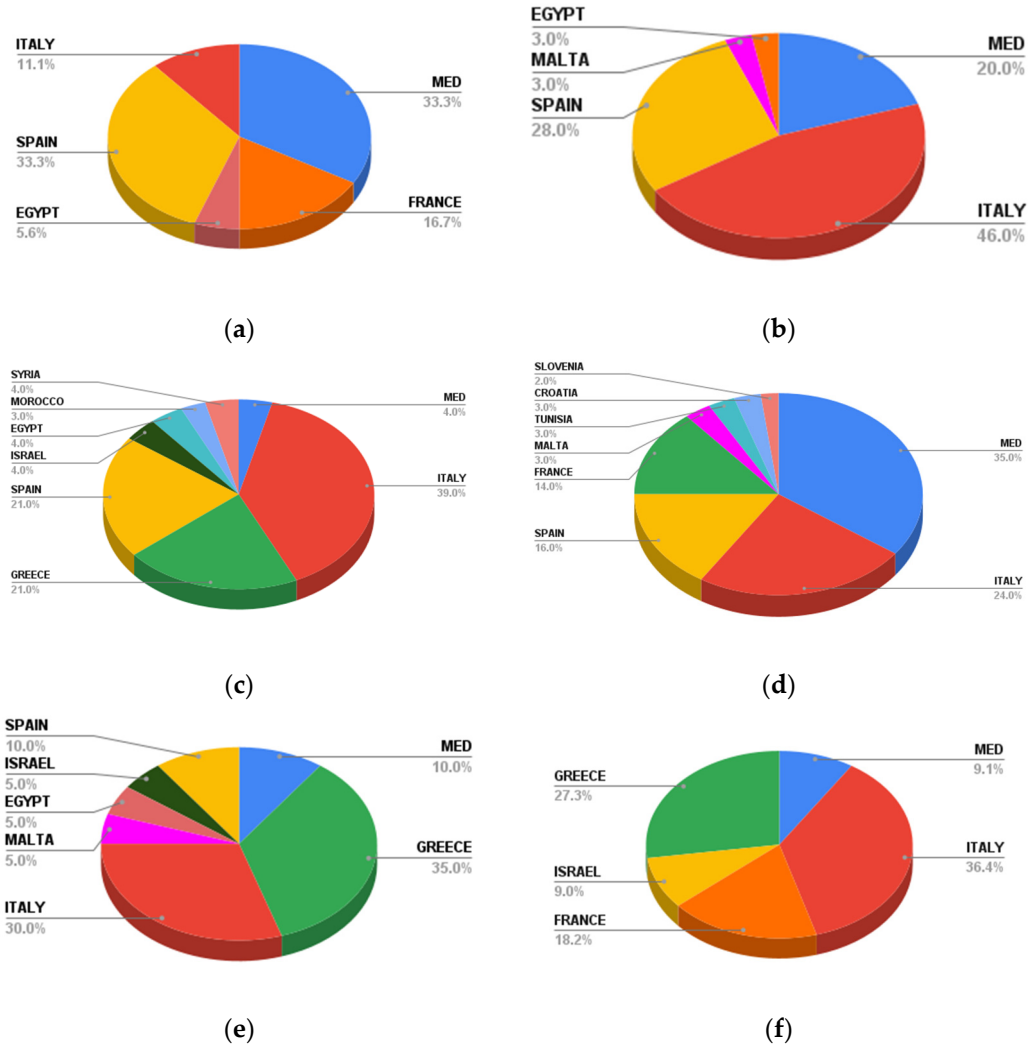

Figure 2. Country-wise distribution of publications with reference to the approach-based criteria: (**a**) coastal adaptation strategy; (**b**) coastal risk assessment; (**c**) coastal vulnerability assessment; (**d**) model-based approach to sea level rise; (**e**) index-based approach to sea level rise; (**f**) multi-disciplinary approach to sea level rise.

The graphical representations include both publications dealing with a specific study area and those focusing on the Mediterranean region as a whole (MED). Some of the published articles depict case studies of coastal areas from more than one Mediterranean country. As inferred by Figure 2b,c,f, the higher number of publications on coastal risk assessment (46%), vulnerability assessment (39%) and multi-disciplinary approach to SLR (36.4%) is centered in Italy. Bonaldo et al. [59] studied the outcomes of multi-disciplinary instruments for understanding coastal dynamics and for assessing the coastal vulnerability to erosion and SLR in Italy. Sekovski et al. [51] developed a coastal vulnerability index using an analytical hierarchy process to assess the coastal vulnerability to SLR in Italy.

Moreover, Spain has a significantly high contribution in studies focusing on adaptation strategies, coastal risk, and vulnerability assessment. For example, Enriquez et al. [52] assessed the vulnerability and erosion risks of an open beach dune system under a projected SLR in Spain. Sanchez et al. [60] dealt with the questions of how to manage vulnerable coastal zones under the changing climate for their sustainable management and what are the probable pathways of adaptation on the Spanish coast. Similarly, Greece occupies a good proportion in studies focusing on coastal vulnerability assessment, index-based approach and multi-disciplinary approach to sea level rise. Publications related to coastal adaptation strategies (33.3%) and model-based approaches to sea level rise (35%) revealed that the Mediterranean region as a whole (MED) has the highest number of publications with respect to such studies (Figure 2a,d). A remarkable highlight to this context is the Coastal Risk Index methodology (CRI-MED) adopted to assess the coastal vulnerability and risk in Mediterranean coastal zones [45]. It has assessed that south eastern Mediterranean coasts are highly susceptible to coastal risks such as flooding and erosion. France, Italy, and Spain also have a significantly high proportion of articles focusing on these topics. Greece has the highest number of publications (35%) as far as an index-based approach to sea level rise is concerned followed by Italy (Figure 2e).

As for the publication trend, the results of this study reveal that, on average, all criteria showed an increasing trend over the years (Figure 3); thus, revealing the increasing interest on climate-related coastal risk assessment and associated issues. The peak number of studies was observed in 2018. This was the time when there was a high number of publications for coastal risk assessment, vulnerability assessment and model-based approach to SLR-related research; however, there was a drop in the field-based studies starting from 2019, probably due to the impact of COVID-19, with the exception of those related model-based approaches to sea level rise and coastal adaptation. Conversely, 2022 appears to show a revival of scientific activity. Figure 3 highlights a remarkable rise over the years, of publications related to coastal risk assessments and index-based approaches to SLR. Furthermore, between 2001 and 2009 there were hardly any publications related to most of the accounted approaches. Hence, through this graphical representation, we show how research on coastal risk assessment has been increasing significantly since 2010. This review has considered the publication date of each paper as the time frame for both the case study-based and review-based papers.

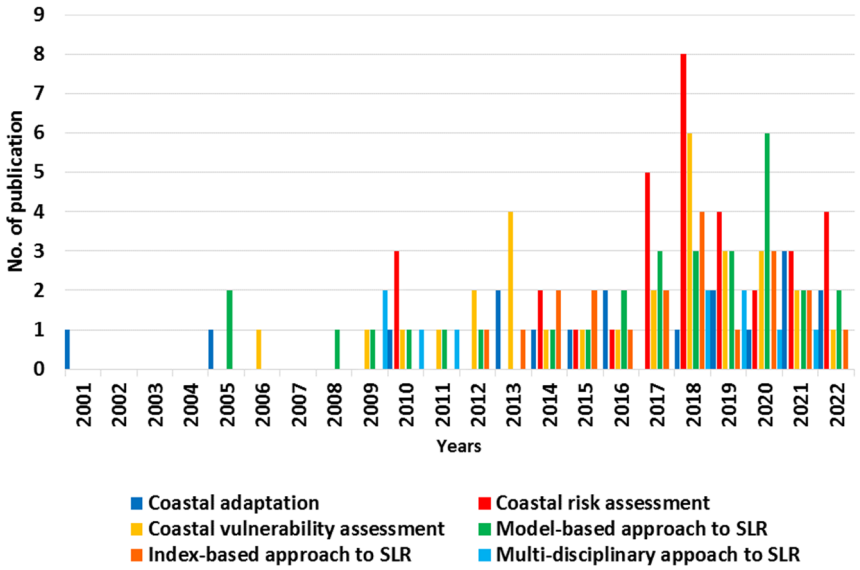

Figure 3. Trend of publications over the years focusing on various approach-based criteria.

The word cloud (Figure 4) provides a visual representation of the most repeated words in the 143 publications analyzed in this review. It shows that the most frequent word

occurring in the abstracts of the analyzed papers was "change" (168 occurrences), referring to climate, sea-level, and coastline/shoreline changes. Other frequent words were risk (144 occurrences), vulnerability (99 occurrences), scenario (97 occurrences) and impact (91 occurrences). The words risk and vulnerability mainly occurred in association with the terms assessment and index. The word scenario was mainly associated with the word climate; among the climate scenarios, the RCP8.5 was the most frequently cited. The word impact, was often addressed as a potential/expected/future impact; this suggests that forecasting coastal impacts is a crucial issue. Moreover, it is notable that, in the analyzed abstracts, the most cited impacts were socio-economic ones.

Figure 4. Word cloud representing the most frequent words in the abstracts of the selected publications.

3.3. Analysis of Data Platforms and Data Products for the Collection of Future Sea Level Projections

As a last analysis, the most common platforms to collect sea level data were taken into account. The results revealed that IPCC assessment reports were the main global data sources used in most of the considered papers (Figure 5). They were followed by the NASA and Copernicus data platforms. IPCC is considered a highly favored tool for conducting scientific coastal research since it provides regular assessments on climate change, its impacts and related risks, and options for adaptation and mitigation. According to Hinkel et al. [61], "the sea-level research contributing to the IPCC scenarios is an essential step towards understanding the Earth system". The graphical representation in Figure 5 confirms that the majority of publications in regard to coastal risk assessment in the Mediterranean region was conducted using IPCC as the main data platform. IPCC provides users with various types of climate-related data for quantitative analysis. In this context, Aucelli et al. [31] used the mean sea level values of the scenarios RCP 2.6 and RCP 8.5, derived from IPCC [62] as the future sea level projections in 2065 and 2100 to assess the risk of coastal inundation due to relative sea level change along the southern coast of Italy. Similarly, in their study regarding susceptibility evaluation and risk assessment in the central Mediterranean area, Rizzo et al. [63] referred to both the global and local sea level projections provided in 2021 [8].

However, as stated by Hinkel et al. [61], from a strict coastal risk management perspective, there are several concerns about using the global mean sea level projections provided by the IPCC. Thus, it is very important to refer to data from different global and European data platforms, such as the NASA and Copernicus platforms, and to use them for the analysis of potential coastal risks.

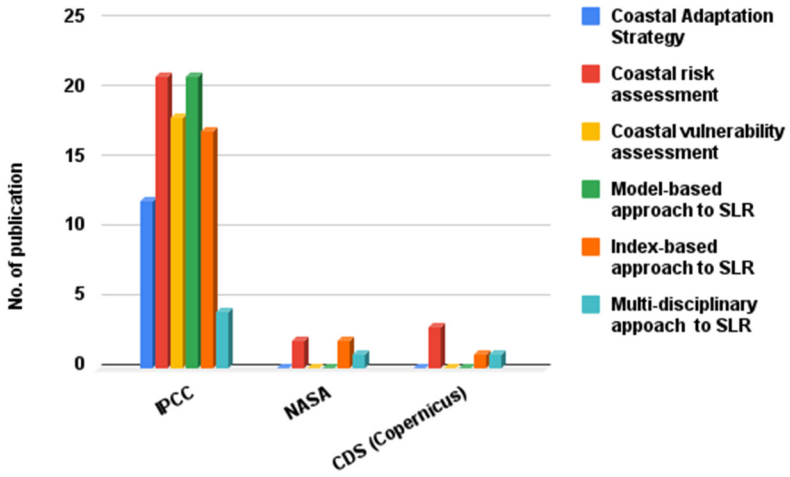

Figure 5. Comparison of relevant data platforms with respect to the approach-based criteria.

From 1993, satellite altimeters have measured the sea level changes from space. In addition, with the introduction of high spatial and temporal resolution remote sensing data, satellite sensors also record the maximum extent reached by storm surges in most of the coastal areas, adding benefits in carrying out post-surge ground-surveys [64]. The NASA has also developed user-friendly tools for providing easy to access sea-level information [65]; however, at the Mediterranean scale, they are still under-exploited since very few studies have used them as a reference to collect sea level change data. On the contrary, Copernicus data platforms such as the Copernicus Marine Environment Monitoring Service (CMEMS) and the Copernicus Climate Change Service (C3S) are used more in comparison to the NASA sea level tool because they provide additional datasets and indicators for various coastal sectors and studies including coastal management. Copernicus products can be considered as the go-to data portals for ocean and coastal data, providing a wide set of satellite and in situ observations [66]. Even if Copernicus data are widely used for different applications (such as the analysis of land use and the creation of a digital elevation model) [27,67], the papers in which Mediterranean sea level data downloaded from the Climate Data Store (CDS platform) are taken into account, are still few.

4. Conclusions

Considering the fact that most of the coastal Mediterranean region is dominated by densely populated areas, increasing urbanization, and a high touristic influx, it is very important to focus attention on the coastal risk assessment of this region. This aspect plays a very significant role in disaster risk reduction, sustainable management of coastal assets, and effective planning of land use. Moreover, coastal risk assessment is one of the components to support proactive adaptation in coastal areas (cf. [68]). In connection to this, the present study shows the outputs of exploring the Mediterranean scientific literature in terms of the different methods, techniques, and data platforms which are useful for coastal risk assessment with some related aspects discussed at a country scale. Among the various types of techniques available, coastal risk assessment, coastal vulnerability assessment, and model-based and index-based approaches to SLR are the most preferred ones. From this review, it has been deciphered that the IPCC reports and related data are widely used as a global data source in research focusing on coastal risk assessment. However, in order to build a comprehensive understanding of coastal management and planned adaptation strategies, it is immensely important to take into consideration the relevant data platforms and products available in the countries or regions where the study areas are located. Sea level rise coupled with extreme events, aggravated by ongoing climate change, is leading to an increase in coastal erosion, flooding, and inundation of urbanized coastal stretches with considerable impacts on socio-economic assets. Although there have been several studies concentrating on different approaches for estimating the SLR and the number of

such publications has been slowly growing over the years, only the last decade has seen a huge increase in such publications within the Google Scholar, ResearchGate, Scopus, and Web of Science indexed journals. The increasing number of such articles published from 2013 shows an exponential growth in research related to Mediterranean coastal risks. This trend is likely to continue in the near future considering the huge impact of SLR on coastal ecosystems, human beings, and the economy. Thus, it is very important to further explore such kinds of studies adopting an interdisciplinary approach [69–71] and integrating terrestrial and marine datasets for a better understanding of coastal hazards and for the suitable planning of sustainable development (cf. [72,73]). In this context, Prampolini et al. [73] listed "Seven good reasons for integrating terrestrial and marine spatial datasets in changing environments". Such an integration would be beneficial for managers and end-users, as a tool for a more sustainable and cost-effective management of coastal assets under climate threat and for building a collective understanding of the improved governance of coastal risks.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su142315994/s1, Table S1. Summary of relevant information regarding the collected publications (listed by type of approach).

Author Contributions: Conceptualization: N.S., V.V., A.R. and M.S.; methodology: N.S., V.V., A.R. and M.S.; formal analysis: N.S., V.V. and A.R.; investigation: M.S., A.R. and V.V.; data curation: N.S. and A.R.; writing original draft preparation: N.S. and A.R.; writing review and editing: N.S., A.R., V.V. and M.S.; visualization: V.V., A.R. and M.S.; supervision: A.R. and M.S.; project administration: M.S.; funding acquisition: M.S. All authors have read and agreed to the published version of the manuscript.

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Data Availability Statement: The original database containing a summary of the relevant information regarding the selected publications (listed by the type of approach) used in the study is made available in the form of an excel file as a Supplementary Material.

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Conflicts of Interest: The authors declare no conflict of interest.

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