DESTINATION RiskScan



Destination Climate RiskScan

First global results

November 2026

TRAVEL FORWARD

Risklayer

CELTH Centre of Expertise leisure, tourism & hospitality

Project team & acknowledgements

Jointly prepared by the RiskScan project team:

Travel Forward

Travel Forward is a global non-profit organisation advancing climate action and equitable, resilient tourism development. It provided strategic oversight and direction, helping ensure the framework reflects tourism industry needs and supports practical application.

Risklayer GmbH

Risklayer specialises in risk and resilience science, including tourism risk modelling. It led the overall methodological development of Destination Climate RiskScan and produced the analytical modelling for the Global Report.

CELTH

The Centre of Expertise Leisure, Tourism and Hospitality brings together Breda University of Applied Sciences, NHL Stenden / European Tourism Futures Institute (ETFI), and Wageningen University & Research. CELTH shaped the methodology's vulnerability, capacity and transition components.

Financial supporters

We gratefully acknowledge the financial support of **The Travel Corporation** and **Las Torres Patagonia**, which helped make this research possible. The methodology, analysis, findings and conclusions have been developed independently by the Destination RiskScan project team. Financial sponsorship does not imply endorsement of the report's content or conclusions by the sponsoring organisations.

The six pilots

We are also grateful to our sponsor organisations, who supported this independent research report for the common good, including our six pilot destinations:

Skirama Dolomiti,
Italy

Colorado Tourism Office,
USA

Destination Queenstown,
New Zealand

Koh Samui,
Thailand

Turismo de Islas Canarias,
Spain

Cook Islands Tourism Corporation

Pro bono contribution

We gratefully acknowledge Risklayer's pro bono contribution to the project: leading the overall methodological development of Destination Climate RiskScan and producing the analytical results presented in Chapter 3.

All results are shown on the Destination RiskScan platform, **www.destinationriskscan.org**, which is developed and operated by Risklayer. The platform is available now for demonstration and early testing ahead of its formal launch in early 2027. Demo requests can be sent to **info@risklayer.com**.

Table of Contents

	Executive Summary	4
1.	Climate Change and Tourism	10
2.	What Destination RiskScan is Designed to Do	13
3.	Global Signals: What is the Emerging Picture?	17
4.	How climate risks affect tourism and destinations	33
5.	Lessons from the Six Pilot Destinations	39
6.	From Risk Intelligence to Building Resilience	47
7.	What comes next	54
	References	57

November 2026

© 2026 Travel Forward, Risklayer and CELTH.

This publication is licensed under a Creative Commons Attribution-Non-commercial 4.0 International Licence (CC BY-NC 4.0).

You are free to share, copy, redistribute and adapt the material for non-commercial purposes, provided that you give appropriate credit to the authors, provide a link to the licence and indicate if changes were made. Commercial use of the material requires prior written permission from the copyright holders.

For more information and permission to reproduce/reprint, please contact: admin@travel-forward.org

Suggested citation:

Travel Forward, Risklayer and CELTH (2026). Destination Climate RiskScan: First global results.

In-text citation: (Travel Forward, Risklayer and CELTH, 2026).

DISCLAIMER: This publication has been prepared for general guidance on matters of interest only and does not constitute professional advice. The authors and distributors accept no liability for any consequences of those acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it.

Cover photo: Michaela / Unsplash



Photo: Ümit Yıldırım / Unsplash

Executive Summary

Climate change is reshaping the geography and economics of tourism. The places, activities and seasons on which tourism depends are changing, bringing growing pressures for destinations, businesses and the communities whose livelihoods depend on them. As these changes accelerate, destinations face important questions about how tourism can remain viable, competitive and beneficial to local communities.

Destination Climate RiskScan provides a globally consistent picture of emerging climate pressures on tourism across 2,588 subnational destinations (first-level administrative units such as states, provinces and regions) in 263 countries and territories. Developed by Risklayer, CELTH and Travel Forward, it combines climate projections with information about where tourism takes place, examining exposure to eight climate hazards and how climatic suitability for tourism activities and seasons could change through to 2080.

These emerging global results reveal significant differences in how climate change could affect tourism destinations around the world.

About these results: The scores measure climate pressure on tourism. They do not rate a destination's quality, safety or competitiveness, and they do not yet include vulnerability or what destinations do to adapt. Climate suitability describes modelled climatic comfort for an activity, not whether the activity remains possible. High emissions (SSP5-8.5) is used as a stress test, not a forecast. The results are a first screening to guide further assessment, not a ranking of destinations.

Five headline findings

1. Climate pressures on tourism are rising almost everywhere, and heat is the main driver.

Between 2010 and 2080, the climate hazard exposure score rises by more than five points in **94%** of destinations under high emissions and in **78%** under moderate emissions. The study uses five points on its 0–100 climate hazard exposure scale as a practical benchmark for flagging larger increases. For context, the global median score rose by about this amount over the three decades from 1980 to 2010, increasing from 52 to 57. Heat is the strongest driver of change, although many destinations face increasing exposure to several hazards, including drought, heavy precipitation and wildfire.

Key takeaway: Many tourism destinations have developed around relatively stable climatic conditions. These conditions are shifting. Planning based on historical averages will increasingly fail to capture the pressures destinations may face. The question is not simply whether climate change will affect tourism, but how quickly conditions are changing and what these changes mean for different destinations.

2. Emissions reductions could substantially limit future climate pressures.

Between 2010 and 2080, the median increase in destinations' climate hazard exposure scores is projected to be **13 points** under high emissions, compared with **seven** under moderate emissions. These figures track each destination's change from its own 2010 baseline, showing that moderate emissions could almost halve the median increase. In the Mediterranean tourism region, the median increase falls from 22 points under high emissions to 12 under moderate emissions. In the Alps, it falls from 11 to four points.

Key takeaway: Further climate change is unavoidable, making adaptation essential. However, emissions reductions can substantially limit the pressures tourism destinations face later this century. Tourism must therefore pursue mitigation and adaptation together, recognising that every increment of warming avoided makes a difference.

3. The fastest-changing destinations are not necessarily those facing the greatest pressure today.

Many tropical destinations, particularly in South and Southeast Asia, Africa and the Caribbean, already face high levels of climate hazard exposure. Among the world's subregions, Southern and Eastern Europe experience the steepest projected increases. Among the 14 tourism regions assessed, the Mediterranean stands out, with the largest projected increase in climate hazard exposure (**+22 points by 2080 under high emissions** and **+12 under moderate emissions**), despite starting from a relatively low level in 2010.

Key takeaway: Destinations face different challenges. Those already experiencing high levels of climate hazard exposure must manage pressures that continue to rise, while others face rapid changes from historically more favourable conditions. Where heat, drought, wildfire and other hazards intensify together, adaptation must address their combined effects rather than considering each hazard in isolation.

4. More than a third of tourism destinations face a combination of rising climate pressures and deteriorating conditions for common tourism activities by mid-century.

Under moderate emissions, **36%** of the assessed destinations (932 of 2,588) are classified as *squeezed by 2050* (62% under high emissions). Squeezed is a classification defined for this report: a destination's climate hazard exposure score rises by at least five points, while climate suitability for common tourism activities falls by at least five points or the suitable season shortens by at least one month. Only 10% are classified as *gaining* under moderate emissions, meaning that conditions for tourism activities improve without a rise of five points or more in hazard exposure; most of these destinations lie at higher latitudes. In Northern Europe and the Nordics, 75% of destinations fall into the gaining category. However, more favourable climatic conditions for some activities do not necessarily mean lower overall climate risk or improved competitiveness.

The analysis also reveals substantial differences between tourism activities. Under high emissions, modelled swimming suitability (scored from 0 to 100) falls by a median of 48 points in Southeast Asia by 2080, while in Northern Europe and the Nordics it increases by 40 points.

Key takeaway: Climate change is altering the conditions that have traditionally supported tourism in different parts of the world. Many destinations face the combined challenge of rising hazard exposure and deteriorating conditions for particular activities. How significant these changes become will depend on local tourism systems, vulnerability and the capacity to adapt. Destinations with limited resources or a high dependence on climate-sensitive tourism may face particularly difficult choices.

5. Climate change is shifting the timing and length of suitable tourism seasons. Year-round destinations could become more seasonal, while some peak summer periods become less favourable.

For example, in Southeast Asia, the median number of months with suitable climatic conditions for beach and swimming activities falls **from eight in 2010 to three** by 2080 under high emissions. In the Caribbean, it falls from ten to six months. In the Alps, the median number of suitable months for natural skiing falls from two in 2010 to none by 2080 under high emissions, and to less than one under moderate emissions, excluding snowmaking and differences in elevation.

Elsewhere, the picture is more mixed. In the Mediterranean, the median change for individual destinations by 2080 is a gain of about two-thirds of a month of suitable swimming conditions, and a loss of two months of suitable sightseeing conditions under high emissions. This suggests that changing conditions may favour different activities and times of year, rather than simply making destinations more or less attractive overall. **A shorter suitable season means less comfortable climatic conditions, not that the activity becomes impossible.**

Key takeaway: Climate change could fundamentally alter the seasonal patterns around which tourism businesses, infrastructure and employment are organised. Destinations and tourism businesses may need to rethink products, operating periods and investment strategies. These results describe changing climatic suitability, not predictions of visitor demand or whether particular activities will remain commercially viable.

What these findings mean for tourism and destinations

Climate change threatens not only individual attractions and activities, but the wider systems on which destinations depend: infrastructure, ecosystems, essential services, workforces and supply chains.

The consequences can include rising operating costs, disrupted visitor experiences, changing demand and investment risks. In tourism-dependent destinations, these effects can extend across the wider economy and community, affecting employment, public revenues, housing, supply chains and essential services. Disruption can also influence workforce availability and migration patterns, with consequences for community wellbeing and the destination's wider resilience.

The six Destination RiskScan pilot assessments, undertaken in the Canary Islands, Cook Islands, Koh Samui, Colorado, the Dolomites and Queenstown, illustrate why understanding these interconnected pressures is important. Island destinations face challenges involving water and energy security, coastal environments and dependence on high carbon

transport modes. Mountain destinations face changing snow conditions alongside pressures on natural assets, infrastructure and seasonal tourism operations.

The pilots also demonstrate why global comparisons must be complemented by local evidence, stakeholder engagement and an understanding of vulnerability and adaptive capacity. National indicators can mask significant differences in the ability of individual destinations to prepare for and respond to climate disruption.

Climate impacts and the capacity to respond are unevenly distributed. Some tourism-dependent destinations face significant pressures despite having contributed relatively little to global emissions and having limited resources to adapt. Tourism development can itself increase vulnerability through construction in exposed areas, pressure on scarce resources and ecosystem degradation. Climate resilience is therefore also a question of equity, livelihoods and development.

From global screening to local decisions

Destination RiskScan provides an evidence-based starting point for destinations, governments, businesses and investors to compare emerging climate pressures and identify priorities for further investigation and action.

The first global results assess climate hazards, tourism exposure, activity suitability and seasonality, but do not provide a complete assessment of climate risk. Important hazards, including sea-level rise and tropical cyclones, are not yet covered, while vulnerability and adaptive capacity are not incorporated into the global scores. These limitations are particularly important when interpreting results for island and coastal destinations. RiskScan should therefore be used as an initial screening tool, not a substitute for detailed local assessments or destination-led decisions.

Making climate resilience a strategic priority

The findings point to a need for fundamental changes in how tourism destinations are planned, developed, managed and financed. Climate risk assessment and monitoring should become routine, informing development and investment decisions rather than being treated as occasional or reactive exercises.

Destinations must move beyond emergency preparedness and incremental measures to protect individual tourism assets. This means investing in the resilience of shared infrastructure, ecosystems, services and communities, while making difficult choices about what to protect, where to adapt, what to diversify and, in some cases, what may need to change fundamentally.

Adaptation and emissions reduction must advance together. Effective action will also require greater access to finance, technical expertise and local capacity, particularly for destinations and communities with limited resources. Climate justice must be central, recognising who is most vulnerable, who pays, who benefits and who gets to decide.

The next phase of Destination RiskScan will strengthen the methodology, extend the hazards and risks assessed and make the findings accessible through a free online platform. The platform, www.destination-riskscan.org, is available now for demonstration and early testing ahead of its formal launch in early 2027. Longer-term ambitions include developing practical resilience-planning tools and quantifying climate-related costs, losses and the benefits of adaptation to help strengthen the case for investment.

Understanding climate risk is only the beginning. The decisions made now will shape not just the future of tourism, but the livelihoods, wellbeing and opportunities of the communities that depend on it.



Photo: Meriç Dağlı / Unsplash

1. Climate Change and Tourism

Climate change is altering the conditions on which tourism depends. Rising temperatures, changing snowfall and rainfall patterns, water scarcity, ecosystem degradation and extreme weather are affecting the attractiveness, accessibility and safety of destinations (TPCC, 2023). These changes have consequences not only for tourism businesses, but also for communities and economies that have come to depend on tourism. As climate hazards intensify, destinations face growing challenges in protecting the assets, infrastructure and services that support tourism and local wellbeing. Looking to the future, some of these places will need development strategies that reduce their dependency on tourism.

Even with rapid emissions reductions, some further climate change is unavoidable. The recent UN Environment Programme's 2026 *Limiting Overshoot* report highlights the growing challenge of limiting the extent and duration of global warming above 1.5°C, and emphasises that mitigation and adaptation, which are mutually reinforcing, must advance together (UNEP, 2026). This makes adaptation an immediate priority for tourism destinations, alongside efforts to reduce tourism emissions. Destinations need to prepare for climate change that is already under way, as well as the further changes that lie ahead. Some

impacts, including sea-level rise, will continue for centuries (IPCC, 2023).

Destinations do not operate in isolation. Tourism depends on interconnected natural, built, social and economic systems: ecosystems and landscapes, water and energy systems, supportive and critical infrastructure, labour markets, public health, governance and public wellbeing. Together, these systems shape whether destinations remain attractive, accessible, safe and capable of functioning over time (Scott et al., 2012).

8-10% of global greenhouse gas emissions are from tourism, and absolute emissions continue to grow, with most emissions heavily concentrated in a few high-income markets and destinations (TPCC, 2023). Climate risk can affect tourism in three connected ways:

- **Physical climate impacts** can damage or degrade the natural and built assets on which tourism depends, including beaches, snow cover, ecosystems, infrastructure and attractions.
- Climate impacts can disrupt the **wider systems** that allow destinations to function, including transport, water and energy supply, public health and business operations.
- Tourism faces **transition risks** associated with the shift towards a lower-carbon economy, including changes in regulation, energy systems, transport costs, investment and market demand.

Together, these pressures raise questions about the long-term viability of tourism in some destinations. The challenge is not simply whether destinations can withstand and recover from climate-related disruption, but whether tourism models can remain economically, socially and environmentally viable as conditions change. Adaptation may have its limits. Rising adaptation and recovery costs, deteriorating assets affecting visitor demand, and increasing difficulties obtaining insurance may mean that some destinations need to rethink how tourism develops and operates.

These pressures are not distributed evenly across destinations. Their significance depends on local climate, geography, infrastructure, resource availability, market profile and the extent to which tourism depends on climate-sensitive assets and activities. The consequences can be especially far-reaching where communities have come to depend heavily on tourism for livelihoods, public revenues and investment. In these places, disruption to tourism can have significant effects on livelihoods and wellbeing, while limited financial or institutional capacity can make adaptation more difficult. For destinations, climate action has important climate justice implications (Bigby et al., 2022), becoming much more than an environmental concern.

Tourism development can itself increase exposure to climate hazards and undermine local resilience, for example by building in vulnerable coastal areas, placing additional pressure on water resources or degrading natural ecosystems that provide protection against climate impacts. Destinations therefore need to make difficult choices about which assets to protect, where to adapt, and where existing tourism models may require diversification or longer-term transition.

Despite increasing urgency for action, climate risk assessment in tourism remains at an early stage, even among frontrunners. Only 21% of the Glasgow Declaration on Climate Action in Tourism signatories with climate action plans currently assess climate risk (World Tourism Organization, 2026).

Where adaptation is taking place, efforts often focus on incremental measures rather than the wider, systemic risks facing destinations. Measures such as shifting visitors into cooler shoulder seasons, diversifying tourism products or investing in technical adaptations can help, but they do not necessarily address

more structural risks related to market and product dependencies. If climate change increases operating costs, undermines insurability, weakens access or resource security, or reduces confidence in long-term destination viability, destinations need a clearer picture of these interconnected pressures and how risk is accumulating across the tourism system.

Yet many destinations still lack this picture. Relevant information is often dispersed across climate projections, infrastructure assessments, environmental data, tourism research and economic analysis. This makes it difficult to determine strategic priorities, such as where deeper assessment is needed, and where limited resources can be put to most effective use. Better climate-risk intelligence can provide a common basis for destinations, businesses, governments and investors to identify emerging pressures and make strategic decisions about climate action in tourism.

Better climate-risk intelligence also supports the wider international climate action agenda. Under the UAE Framework for Global Climate Resilience, countries agreed a target to have up-to-date assessments of climate hazards, impacts, exposure and vulnerability in place by 2030 (UNFCCC, 2026). The Glasgow Declaration on Climate Action in Tourism also calls for climate action planning that addresses both emissions reduction and adaptation.

Destination RiskScan has been developed to help meet this need, bringing tourism-specific evidence into climate action planning and supporting more informed decisions about destination development and investment.



Photo: Martin Woortman / Unsplash

2. What Destination RiskScan is Designed to Do

Destination RiskScan has been developed to help destinations, governments, tourism businesses and investors better understand the climate risks facing tourism, compare emerging pressures across the tourism system, and set strategic priorities for further assessment and action. It provides an evidence-based starting point for four practical questions:

- What climate hazards affect tourism in a destination, and how is that changing?
- How does this compare with other places around the world?
- How vulnerable are tourism and the wider systems on which it depends?
- How well equipped is the destination to cope and adapt?

Existing climate projections provide valuable information about hazards, but do not usually show what these changes mean for tourism. Tourism climate indices describe visitor comfort, but not the water, energy, health and transport systems that keep a destination functioning. Detailed local risk assessments are valuable but costly, slow and rarely comparable from one destination to the next. Destination RiskScan helps bridge this gap by providing a consistent global assessment that can highlight emerging pressures, support comparisons and identify where more detailed local analysis is needed.

Destination RiskScan provides a free-to-access online platform, www.destinationriskscan.org, that offers global analysis at national level, or

subnational level for hazard and exposure scores. The platform is available now for demonstration and early testing ahead of its formal launch in early 2027. The global analysis is based on global datasets, but the methodology can be applied at any level – globally, regionally or locally – with the appropriate level of data inputs. It acts as an initial screening of climate-related pressures to help tourism stakeholders identify priorities for further investigation and action. The framework and results can help surface questions about climate risk in local contexts and provide the basis for conversations about strategic climate action and resilience. More detailed local risk assessments will still be needed to understand specific vulnerabilities, local conditions and the capacities and limits of destinations to act, adapt, or transform.

How Destination RiskScan works

Destination RiskScan is based on the understanding of climate risk used by the Intergovernmental Panel on Climate Change (IPCC). Risk arises from the interaction of three elements:

- climate hazards,
- exposure,
- vulnerability, and the capacity to adapt (Reisinger et al., 2020).

The first global results presented in this report focus on tourism's exposure to eight climate hazards. Vulnerability and adaptive capacity are explored through the pilot assessments but are not yet incorporated into the global scores.

The global analysis presented in this report assesses **eight climate hazards**:

- heat
- heat stress (effects of temperature and humidity on human comfort/health)
- cold
- total precipitation
- extreme precipitation
- short-term drought
- long-term drought
- wildfire

It is important to note that some climate hazards are not yet covered by the global analysis, including sea-level rise, coastal flooding, tropical cyclones and ocean warming. Transition risk, relating to the risks tourism destinations may face as the global economy shifts towards lower-carbon technologies, policies and patterns of consumption, is treated separately and is not included in this report's preliminary findings.

The eight hazards are combined with **tourism exposure**, represented by where tourism activities and assets are concentrated. This draws on global data about accommodation, attractions and tourism's economic footprint. Tourism activity is also understood through four landscape-based tourism types: urban, nature, mountain and coastal. The analysis uses detailed climate data covering locations around the world, with results brought together for each subnational destination (first-level administrative unit). The results are expressed on a scale from 0 to 100 (higher scores indicate greater measured pressure on tourism), allowing climate hazard and exposure to be compared across destinations and over time. The study treats a rise of five points as meaningful: it is about the size of the rise in the global median score between 1980 and 2010. It is a screening threshold, not a test of statistical significance.

The analysis uses 2010 as its baseline, 1980 as a historical reference, and future projections for 2030, 2050 and 2080. It uses two emissions scenarios from the IPCC Sixth Assessment Report: moderate emissions

(SSP2-4.5), representing a pathway with some emissions reductions over time, and high emissions (SSP5-8.5), representing a future in which greenhouse gas emissions remain very high. These allow us to explore how different emissions pathways could affect tourism destinations over time. SSP5-8.5 represents a high emissions future and is used here to examine the potential consequences of more extreme climate change. It should be understood as a high-end stress test, rather than the most likely outcome. The two emissions pathways are particularly useful for understanding longer-term differences, which become more pronounced towards the end of the century.

Alongside the hazard-and-exposure scores, RiskScan provides two complementary assessments of how changing climate conditions may affect tourism activities. *Climate suitability* measures how favourable climate conditions are for four common tourism activities, each assessed in destinations where the related landscape is present:

- Outdoor sightseeing (urban landscapes)
- Beach and swimming activities (coastal landscapes)
- Skiing (mountain landscapes)
- Hiking and camping (nature landscapes)

Suitability is scored from 0 to 100 using defined climatic thresholds, including temperature and precipitation, based on 20-year climate averages rather than day-to-day weather. Higher scores mean more comfortable climatic conditions for the activity; the score is reduced by very hot days, humid heat and heavy rain. The decline in sightseeing suitability, for example, is mainly driven by heat. It does not determine whether an activity is possible, safe or commercially viable. Visitors may continue to undertake activities in conditions assessed as less suitable, depending on their preferences, infrastructure and adaptation measures. For example, beach and swimming suitability considers climatic conditions, including air temperature and humidity, which affect comfort during beach activities. It does not assess sea temperature, water quality or swimming safety.

Seasonality examines how climate suitability for these activities changes month by month, identifying potential shifts in the timing and length of suitable seasons. A month counts as suitable when its average temperature and rainfall fall within the comfort range defined for the activity; the suitable season is the total of those months. It does not predict when visitors will actually travel.

Both assessments use thresholds and calculations that remain subject to scientific review and refinement as the RiskScan methodology develops.

From pilot assessments to global results

Destination RiskScan was initially developed and tested with six pilot destinations, working alongside local partners. These assessments explored climate hazards and tourism exposure alongside **vulnerability and adaptive capacity**, including the infrastructure, resources and services on which tourism depends, and the characteristics of the tourism economy itself (see Chapter 5).

Building on this work, RiskScan now applies a consistent methodology to 2,588 subnational destinations (first-level administrative units) across 263 countries and territories, allowing climate hazards and tourism exposure to be compared globally.

The first global results, presented in Chapter 3, cover climate hazards, tourism exposure, activity suitability and seasonality. Vulnerability and adaptive capacity are not yet incorporated

into these results. Further work is under way to develop their global application and assess transition risk.

The results are shown on a free-to-access online platform, www.destinationriskscan.org, which is available now for demonstration and early testing ahead of its formal launch in early 2027.

What Destination RiskScan can and cannot tell us

Destination RiskScan can...	The global results cannot...
Show how measured climate hazards and tourism exposure vary between destinations and change over time.	Provide a complete assessment of local climate risk, including every hazard, vulnerability and adaptive capacity.
Compare climate-related pressures across destinations using a consistent methodology and scale.	Capture all differences within destinations or replace more detailed assessments using local data.
Show how changing climatic conditions affect the suitability of selected tourism activities and seasons.	Predict visitor behaviour, demand or whether individual tourism activities and businesses will remain viable.
Compare how climate pressures may develop under different emissions scenarios.	Predict which emissions pathway will occur or exactly how climate conditions will develop.
Help identify where further investigation and adaptation planning may be most valuable.	Quantify financial losses, future tourism revenue or the costs and benefits of adaptation measures.

Table 2.1: What the global Destination RiskScan results can and cannot tell us.



Photo: Maksim Shutov / Unsplash

3. Global Signals: What is the Emerging Picture?

This chapter presents the first global results from Destination RiskScan. Drawing on analysis of 2,588 subnational destinations worldwide, it examines exposure to eight climate hazards and identifies emerging patterns of climate pressure relevant to tourism. Five headline findings highlight how these pressures, alongside climate suitability and seasonality, are changing across destinations, activities and seasons, and what this could mean for destination planning and investment.

How to read the results

- **Each destination counts once**, whether it is a small island province or a large state. Destinations are first-level subnational administrative units, such as states, provinces, regions or prefectures.
- **Three geographic terms are used.** Destinations are the 2,588 subnational units assessed. Tourism regions are 14 groupings of destinations used in the figures and in Table 3.1; two pairs overlap (the Alps and the Mediterranean, and the Mediterranean and the Middle East and Gulf) and not every destination belongs to one, so together they cover 1,568 destinations. World subregions are the UN geographic subregions, such as Southern Europe, and are used only where this is stated.
- **Two kinds of median are reported.** The change in the global median compares the middle score across all destinations at two separate dates: it rises from 57 in 2010 to 67 by 2080 under moderate emissions (+10). The median change first measures each destination's own change from 2010 and then takes the middle value (+7). The two summarise the same projections in different ways, so their results need not match. Figures for tourism regions are medians across the destinations in each region.
- **Time horizons differ by measure.** 2010 is the baseline for all changes and 1980 a historical reference. The classification into squeezed, shifting, stable and gaining destinations refers to mid-century (2050); end-of-century results refer to 2080.
- **Squeezed and gaining are report classifications.** A destination is squeezed when its climate hazard exposure score rises by at least five points, together with climate suitability falling by at least five points or the suitable season shortening by at least one month. It is gaining when suitability rises by at least five points or the season lengthens by at least one month, without a rise of five points or more in hazard exposure (see section 4).
- **Two emissions pathways** are compared: moderate (SSP2-4.5) and high (SSP5-8.5). The latter is a high-end stress test, not a forecast. Mid-century squeeze analysis uses the moderate pathway (SSP2-4.5).
- **The hazard exposure scores combine climate hazards and tourism exposure.** Vulnerability and adaptive capacity are not yet included, so these scores describe climate-related pressures on tourism, rather than how well destinations can cope and adapt.
- **The index is shown on a 0–100 scale.** Each hazard is scored against the same thresholds worldwide. Scores are placed into five bands: very low (0–20), low (>20–40), medium (>40–60), high (>60–80) and very high (>80–100). Five points is a screening benchmark for flagging larger increases, not a threshold for statistical significance; for context, the global median score rose by about this amount from 1980 to 2010 (52 to 57). Climate suitability is also scored from 0 to 100.

Sensitivity testing suggests that the main findings are broadly robust to changes in the assumptions used. Adjusting the temperature thresholds that define suitable months changes the precise month counts, but not the overall direction of change. Alternative approaches to weighting destinations affect some regional results, but do not substantially alter the overall patterns identified.

Five headline findings

1. **Climate pressures on tourism are already rising almost everywhere, and heat is the main driver.**
2. **The emissions pathway decides how far climate pressures rise after mid-century.** A moderate pathway almost halves the increase from 2010 to 2080.
3. **The fastest change is not necessarily where climate pressures are highest today.** Among tourism regions, the Mediterranean faces the steepest increase and, among world subregions, Southern and Eastern Europe; tropical destinations start from the highest levels.
4. **More than a third of tourism destinations face a combination of rising climate pressures and deteriorating conditions for common tourism activities by mid-century.** In all, 36% of destinations are "squeezed" by mid-century under moderate emissions, and 62% under high emissions; very few are "gaining", and almost none in Africa, South and Southeast Asia, the Caribbean or the Pacific islands.
5. **Climate change is shifting the timing and length of current tourism seasons.** Year-round destinations risk becoming seasonal, and peak summers are losing out to the shoulder seasons.

1. Climate pressures on tourism are already rising almost everywhere

Climate conditions for tourism have already moved away from those of the late twentieth century. Across all 2,588 destinations, the median climate hazard exposure score rose from 52 in 1980 to 57 in 2010. By 2080, it is projected to reach 67 under moderate emissions and 74 under high emissions. Put differently, the rise in the global median still to come after 2010 (10 points under moderate emissions and 17 under high emissions) is about twice the five-point rise since 1980 under moderate emissions, and more than three times under high emissions. These increases of 10 and 17 points compare the middle score across all destinations in 2010 with the middle score in 2080. The increases of seven and 13 points in the Executive Summary answer a different question: how much does each destination's own score rise? They are found by measuring each destination's change first and then taking the middle value. Because destinations change places in the ranking, the destination in the middle in 2080 is generally not the one that was in the middle in 2010, so the two summaries of the same projections need not match. Looking at mid-century under moderate emissions, the share of destinations with very high climate hazard exposure (>80–100) increases from 3% in 1980 to 14% by 2050.

This illustrates how widespread the increase in measured climate hazard exposure could become, although the scale and nature of that change will vary considerably between destinations.

Between 2010 and 2080, the climate hazard exposure score rises by more than five points in 94% of destinations under high emissions (2,422 of the 2,587 destinations scored) and in 78% under moderate emissions (2,020). From the eight climate hazards assessed, heat

dominates the change. The median heat index rose from 33 in 1980 to 47 in 2010, an increase larger than that of all other studied hazards combined. By 2080, it is projected to have risen by a total of 25 points compared with 1980 under moderate emissions. Heat stress (+10), long-term drought (+8) and extreme precipitation (+6) follow. Cold is the only hazard showing a decline in its median score (-2 points). This may have implications for destinations whose tourism activities depend on particular temperature conditions, including winter sports destinations.

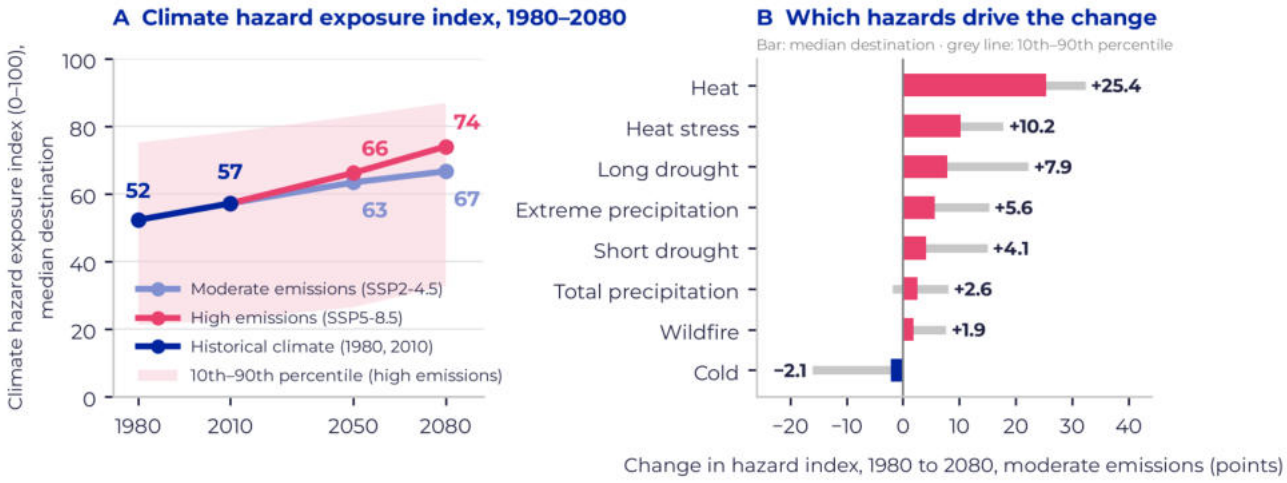


Figure 3.1: Median climate hazard exposure index for all global destinations, 1980–2080, by emissions pathway (A), and median change in each hazard index from 1980 to 2080 under moderate emissions (B). Source: Risklayer, 2026.

Key takeaway: Many tourism destinations can function in their current forms because of stable climate conditions. These conditions are shifting. Planning based on historical averages will increasingly fail to capture these shifts. For many destinations, the question no longer is whether they face climate change impacts: it is about the pace and form of these impacts.

2. The emissions pathway decides how far climate pressures rise after mid-century

Tourism destinations do not face a single future. Between 2010 and 2080, the median increase in climate hazard exposure for individual destinations is projected to be seven points under moderate emissions, compared with 13 points under high emissions. The difference between the two pathways becomes more pronounced over time.

The difference is particularly striking in tourism regions experiencing rapid change (Figure 3.2). In the Mediterranean, the median increase by 2080 is 12 points under moderate emissions, compared with 22 under high emissions. In the Alps, the corresponding increases are 4 and 11 points, and in East and Southern Africa, 9 and 15 points.

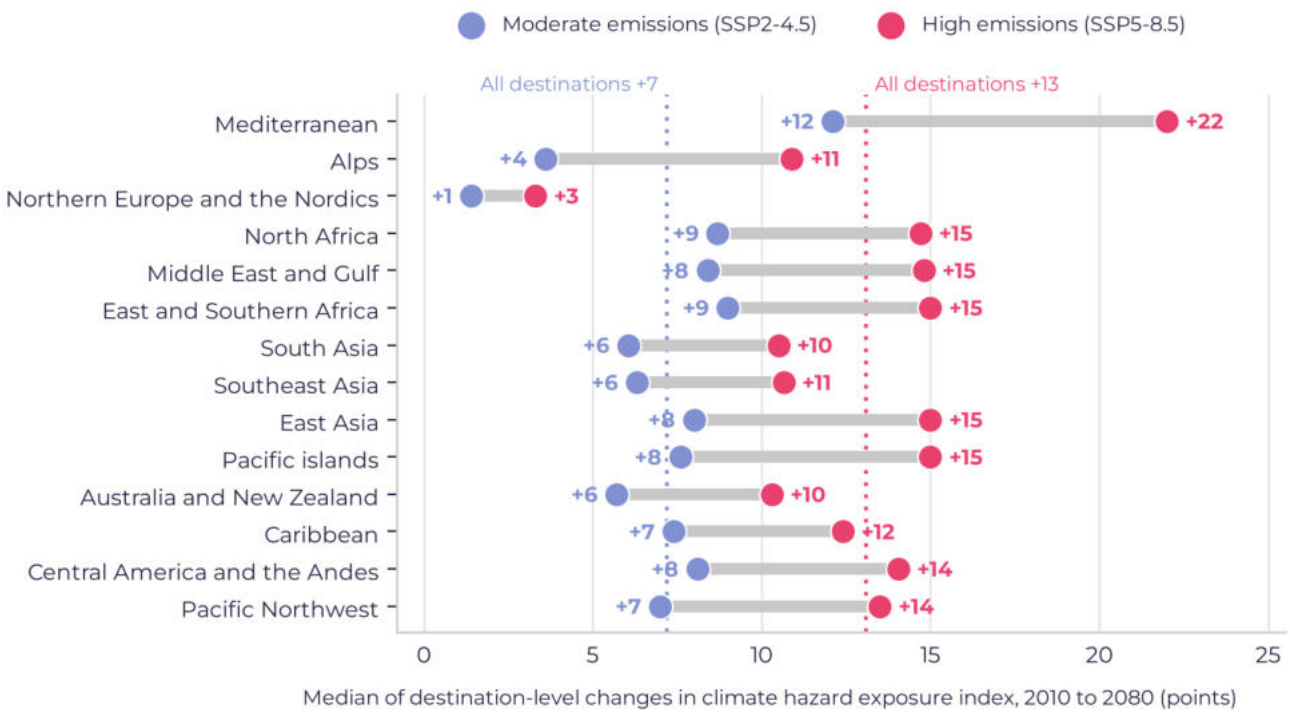


Figure 3.2: Median of destination-level changes in the climate hazard exposure index from 2010 to 2080, under moderate (SSP2-4.5) and high (SSP5-8.5) emissions, by tourism region. Dotted lines show the median change across all destinations. The Pacific Northwest comprises only three destinations (Risklayer, 2026).

Key takeaway: Tourism, alongside other sectors, must take urgent climate action. Further climate change is unavoidable, making adaptation essential, while emissions reductions can substantially limit future climate pressures. Mitigation and adaptation must therefore go hand in hand. Every increment of warming avoided reduces the climate pressures that tourism destinations will face.

3. The fastest change is not necessarily where climate pressures are highest today

Figure 3.3 shows where climate pressure rises fastest. The largest increases are not confined to the hottest places. They run across southern and eastern Europe, the interior of North America, Mexico, central and southern Africa, parts of South America, Indonesia and eastern China.



Figure 3.3: Change in the climate hazard exposure index for each destination, 2010 to 2080, under moderate emissions (SSP2-4.5). Source: Destination RiskScan Platform (Risklayer, 2026).

Comparing today's level of hazard exposure with its future trajectory reveals two distinct challenges (Figure 3.4). Destinations in South and Southeast Asia, the Caribbean and Africa start from the highest levels of hazard exposure, with tourism-region medians of 63 to 74 in 2010, and see further median increases of 6 to 9 points by 2080 under moderate emissions and 10 to 15 points under high emissions. Destinations in the Mediterranean, East Asia and the Alps start from lower levels of climate hazard exposure but change faster. The Mediterranean stands out: from a median of 38 in 2010, the scores of its destinations rise by a median of 12 to 22 points by 2080 under moderate or high emissions, the steepest increase of any tourism region assessed.

Some areas, including parts of sub-Saharan Africa and India, already have high climate hazard exposure scores. Because these scores are approaching the upper end of the scale, further increases may appear relatively small compared with destinations starting from much lower levels.

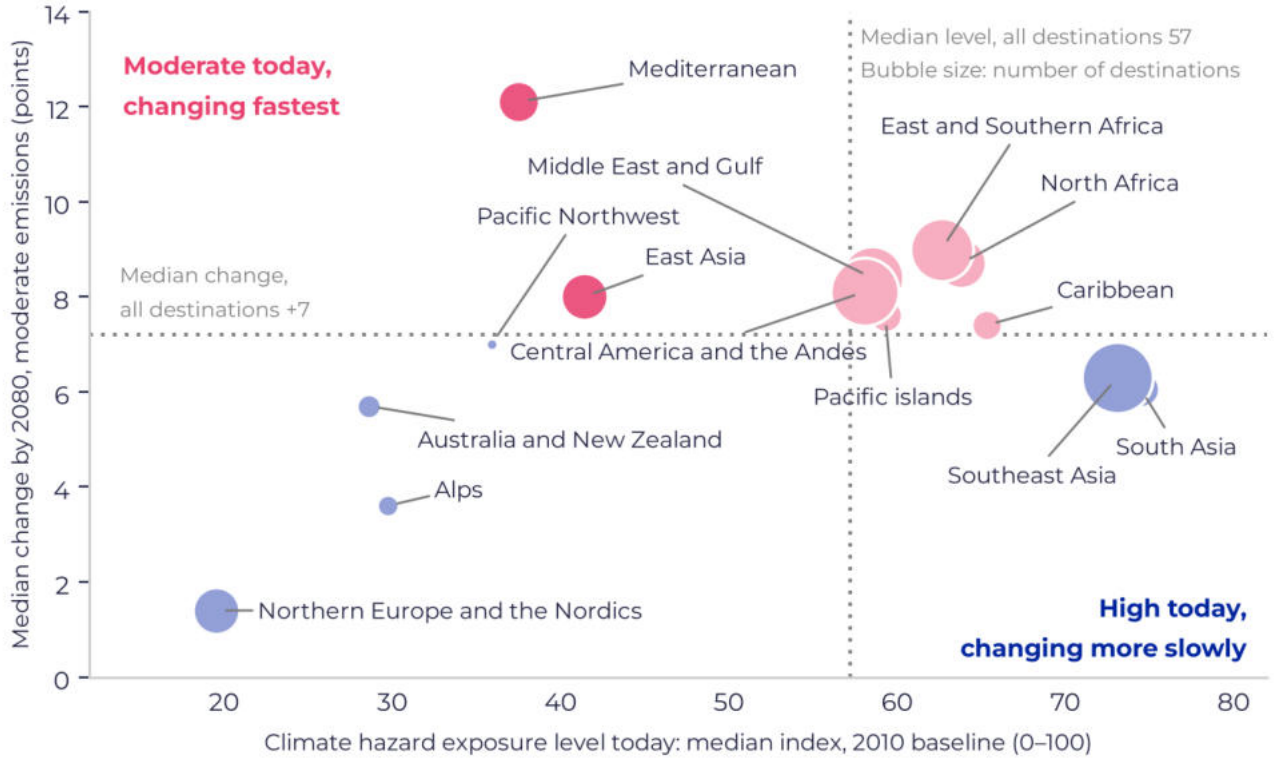


Figure 3.4: Climate hazard exposure level today (median, 2010) against the median of destination-level changes by 2080 under moderate emissions, by tourism region. Bubble size reflects the number of destinations (Risklayer, 2026).

The same pattern appears across the UN geographic subregions. Southern Europe (+23) and Eastern Europe (+22) show the largest increases of any world subregion by 2080 under high emissions, from relatively low starting levels of 33 and 25 in 2010. Western Europe and Northern America (both +14) also rise faster than the median change across all destinations (+13).

The mix of hazards differs from one tourism region to another (Figure 3.5). Heat rises everywhere, by 10 to 17 points under moderate emissions and by 17 to 28 points under high emissions. Beyond heat, the Mediterranean and the Alps face increasing exposure to several hazards, particularly long-term drought (+14 and +12 points respectively under moderate emissions, rising to +26 for both under high emissions). Short-term drought (+7 points in both), heat stress (+11 and +8 points respectively) and wildfire (+4 and +2 points respectively) also increase under moderate emissions, creating a combination of pressures that destinations will need to manage.

South Asia and East and Southern Africa see the largest increases in extreme precipitation (+9 points under moderate emissions, rising to +18 and +16 respectively under high emissions). In East Asia, heat combines with increases in long-term drought (+8 under moderate emissions, +17 under high emissions). In Northern Europe and the Nordics, the main change is a substantial decline in cold exposure (−9 under moderate emissions, −19 under high emissions), alongside more modest increases in other hazards.



Figure 3.5: Median change in each climate hazard exposure score by 2080 under moderate emissions, by tourism region (overall change in the climate hazard exposure index in brackets) (Risklayer, 2026).

Key takeaway: Destinations already facing high levels of climate hazard exposure must manage pressures that are continuing to rise. Others, particularly in mid-latitude regions such as Europe, face rapid changes and may have limited experience of the conditions ahead. Both require adaptation, but their priorities may differ. Where hazards such as heat, drought and wildfire increase together, adaptation must address these compounding pressures rather than individual hazards in isolation.

4. More than a third of tourism destinations face a combination of rising climate pressures and deteriorating conditions for common tourism activities by mid-century.

Destination RiskScan combines changes in climate hazard exposure, climate suitability and season length to classify destinations into four groups by mid-century. Destinations are **squeezed** when their climate hazard exposure score increases by at least 5 points and either climate suitability falls by at least 5 points or the suitable season shortens by a month or more. **Gaining** destinations see climate suitability rise by at least 5 points or the suitable season lengthen by a month or more, without that increase in hazard exposure; **shifting** destinations see suitability fall or the season shorten by the same amounts, without an increase of five points or more in hazard exposure; the remainder are classified as **stable**.

These categories describe changes in measured climate conditions, rather than overall destination competitiveness or viability. They do not account for differences in vulnerability or adaptive capacity, and the classification thresholds remain subject to scientific review and refinement. Hazard exposure and

suitability measure different things: hazard exposure tracks potentially harmful extremes, weighted by where tourism takes place, while suitability tracks how comfortable everyday climate conditions are for a given activity. The same warming often drives both, but they do not always move together, which is why a destination can lose suitability without a five-point rise in hazard exposure.

Squeezed	Climate hazard exposure increases by five points or more, while climate suitability falls by five points or more or the suitable season shortens by at least one month.
Shifting	Climate suitability falls by five points or more or the suitable season shortens by at least one month, without an increase of five points or more in climate hazard exposure.
Stable	Neither of the defining changes occurs
Gaining	Climate suitability rises by five points or more or the suitable season lengthens by at least one month, without an increase of five points or more in climate hazard exposure.



More than a third (36%) of all destinations are ‘squeezed’ by mid-century under moderate emissions, and 62% under high emissions. Under moderate emissions, a further 26% are shifting, 27% are stable and 10% are gaining (Figure 3.6); the remaining 19 destinations (about 1%) could not be classified. The geographical distribution shows a clear trend (Figure 3.7). Squeezed destinations make up 39% of those within 15 degrees of the equator and 51% of those between 30 and 45 degrees, a band that includes the Mediterranean, the southern United States and parts of China and Japan. Above 45 degrees the picture reverses: 39% of destinations between 45 and 60 degrees are gaining, and 63% of those beyond 60 degrees. Japan illustrates why results are read destination by destination: under moderate emissions, 11 of its 47 prefectures are squeezed, 6 are shifting, 29 are stable and 1 is gaining; under high emissions, 34 are squeezed.

Destinations classified as gaining are geographically concentrated. Among tourism regions, Northern Europe and the Nordics (75% of destinations gaining), Australia and New Zealand (52% gaining) and the Alps (33% gaining) stand out, as do most Canadian provinces and territories (9 of 13). By contrast, only one of the 212 destinations in East and Southern Africa, and none in North Africa, South Asia, Southeast Asia, the Caribbean or the Pacific islands, are classified as gaining.

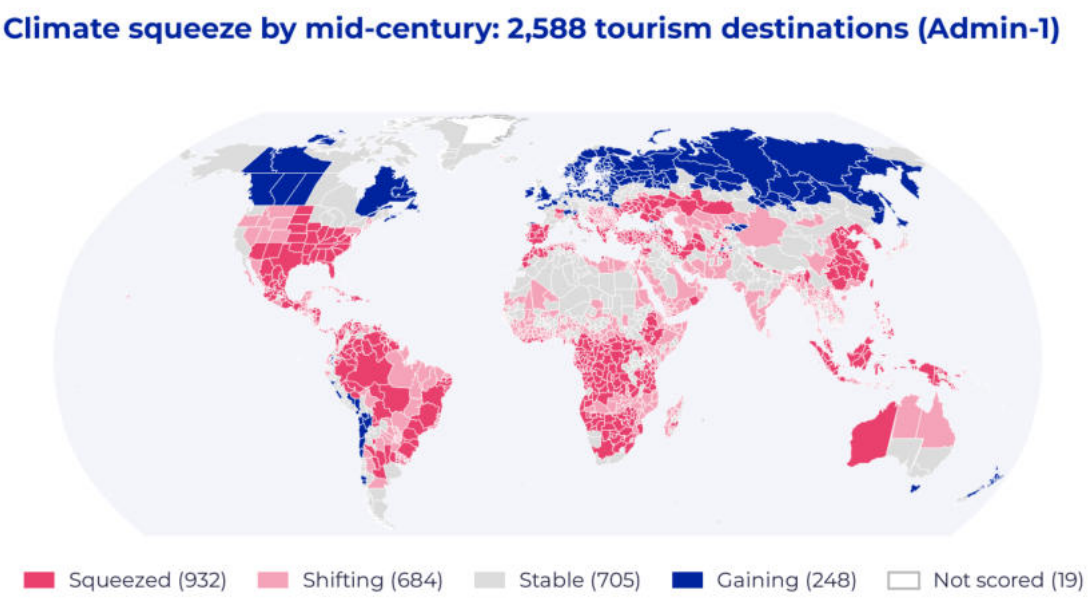


Figure 3.6: Destinations by mid-century climate group: squeezed, shifting, stable or gaining (moderate emissions) (Risklayer, 2026).

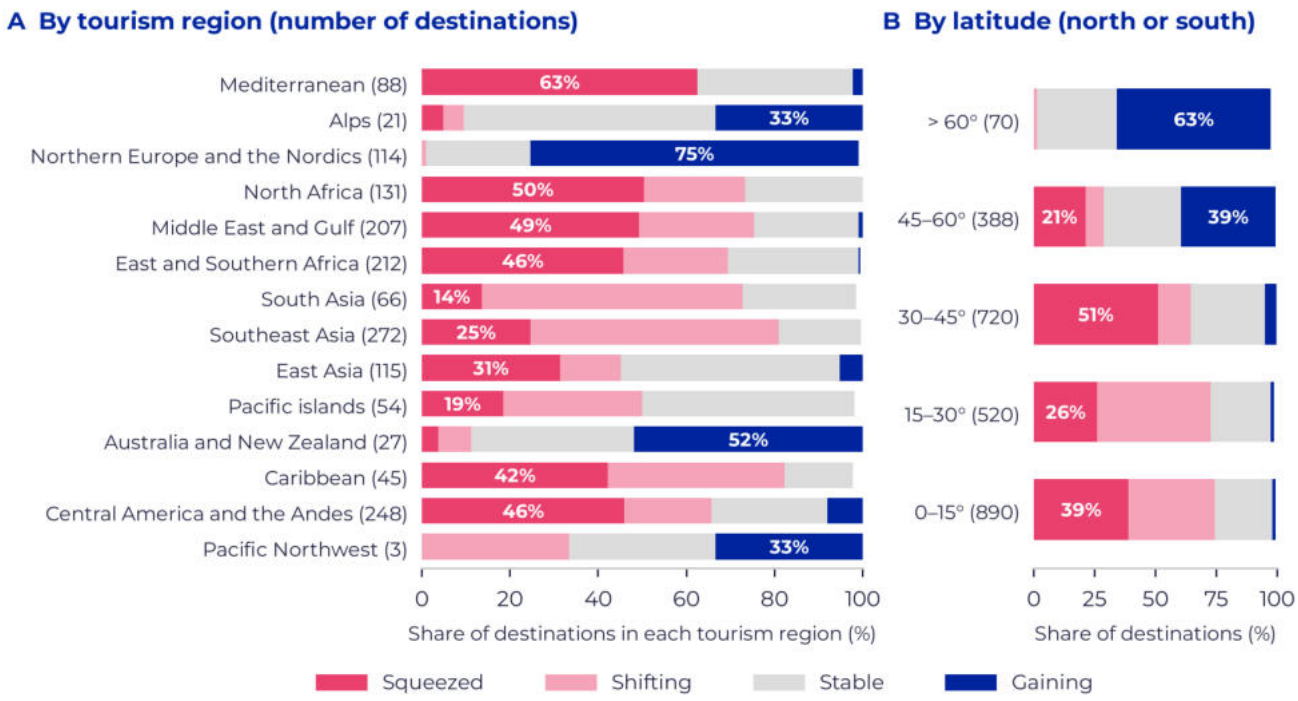


Figure 3.7: Share of destinations in each mid-century climate group under moderate emissions, by tourism region (A) and by latitude band north or south of the equator (B) (Risklayer, 2026).

Gaining does not mean a destination faces lower overall climate risk. These destinations may experience more favourable climatic conditions for some tourism activities or seasons, while still facing other climate hazards. For example, destinations in the Alps and in Northern Europe and the Nordics may gain suitability for some activities while losing natural snow conditions for skiing.

The analysis of individual tourism activities reinforces these geographical differences. Climate suitability is scored from 0 to 100 for each activity in its landscape: sightseeing in urban areas, swimming on coasts, skiing in

mountains, and hiking and camping in nature areas. By 2080 under moderate emissions, the median climate suitability score falls by 16 points for hiking and camping, 11 points for swimming and 10 points for sightseeing compared with 2010, among destinations where the relevant landscape is present.

The largest declines occur in tourism regions where temperatures are already high (Figure 3.8). Swimming suitability falls by 23 to 48 points in Southeast Asia, 21 to 40 points in North Africa and 20 to 41 points in South Asia under moderate and high emissions respectively. Hiking and camping suitability falls by 32 to 53 points in the Caribbean and 21 to 48 points in the Mediterranean. Mediterranean sightseeing suitability falls by 11 to 34 points. At higher latitudes, the pattern reverses: in Northern Europe and the Nordics, swimming suitability increases by 25 to 40 points and hiking and camping by 28 to 38, while Australia and New Zealand see a 16 to 21-point increase in swimming suitability.

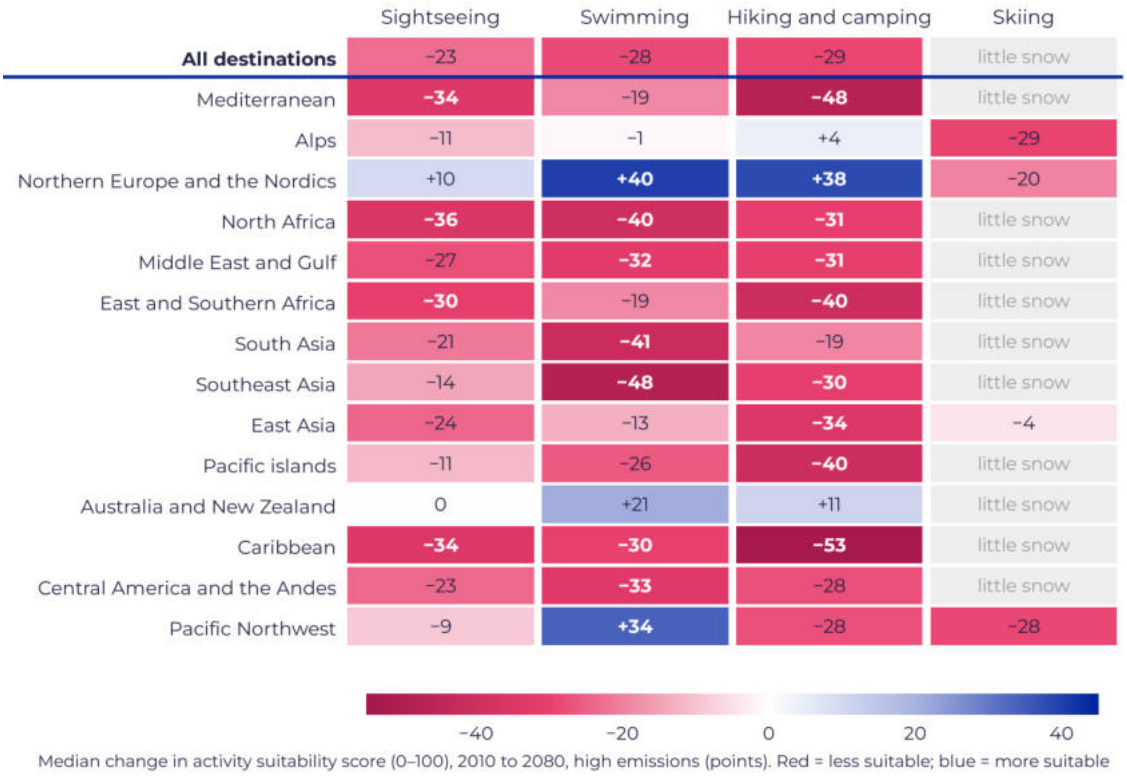


Figure 3.8: Median change in climate suitability for tourism activities by 2080 under high emissions, by tourism region, for destinations where the relevant landscape is present (sightseeing: urban; swimming: coastal; skiing: mountain; hiking and camping: nature). Scores run from 0 to 100. "Little snow" marks tourism regions where today's median skiing score is below 10 (Risklayer, 2026).

For skiing, climate suitability in the Alps falls by 19 points under moderate emissions and 29 points under high emissions by 2080, around three to five times the change observed between 1980 and 2010. In Northern Europe and the Nordics, the corresponding declines are approximately 2 and 20 points. Snowmaking and elevation are not yet modelled, so these figures describe modelled natural snow conditions rather than the future viability of individual ski areas.

Key takeaway: Climate change is altering the conditions that have traditionally supported tourism in different parts of the world. Many destinations face the twin challenge of increasing climate hazard exposure and declining climate suitability for tourism activities. The implications will depend on the nature of tourism in each destination, its vulnerability and capacity to adapt. This raises important questions of equity and development, particularly for destinations that depend heavily on tourism but have limited resources to respond, and underlines the importance of adaptation planning and finance.

Spotlight: Antalya, host of COP31

Antalya province, which hosts the COP31 climate summit, falls into the *squeezed* category by mid-century under moderate emissions. Its climate hazard exposure score rises from 52 in 2010 to 58 by mid-century (2050) under moderate emissions, or 61 under high emissions. By 2080, these scores rise to 62 and 68 respectively. Meanwhile, its overall activity suitability score is projected to decline by 11 points by mid-century (2050) under moderate emissions, or 16 points under high emissions.

Looking at individual months, and further ahead to 2080, reveals changes that the annual scores can obscure (Figure 3.9). By 2080 under high emissions, the climate suitability score for beach and swimming activities in July and August falls to around a third of its 2010 level. April and October become more suitable, while November becomes marginally suitable. For outdoor sightseeing, June and September also fall below the model's suitability threshold, joining July and August. February to May, October and November remain highly suitable.

These findings suggest that Antalya could face less favourable climatic conditions during its peak summer months, while spring and autumn may become relatively more attractive for some tourism activities.

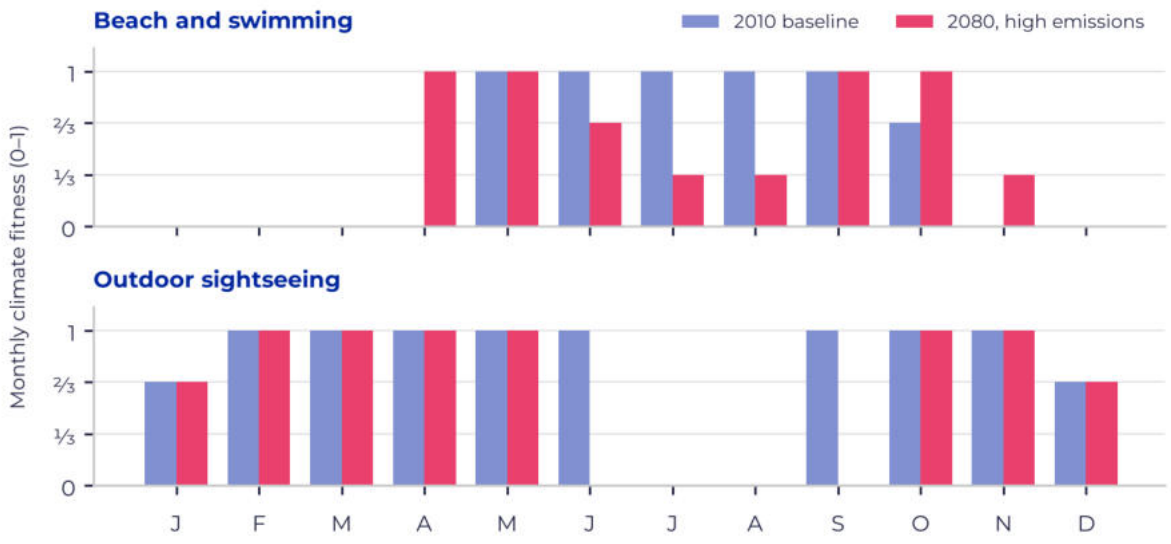


Figure 3.9: Antalya: monthly climate fitness for beach and swimming and for outdoor sightseeing, 2010 baseline and 2080 under high emissions (1 = fully suitable) (Risklayer, 2026).

5. Climate change is shifting the timing and length of suitable tourism seasons

The analysis reveals substantial changes in the number of months when climatic conditions fall within the model's suitability thresholds for different tourism activities (Figure 3.10). Across destinations with coastlines, the median number of suitable swimming months falls from about six and a half in 2010 to six by 2080 under moderate emissions and to under five under high emissions. The largest reductions occur in destinations with year-round suitable conditions today. In Southeast Asia, the median number of suitable months falls from eight in 2010 to three by 2080 under high emissions, or to just under seven under moderate emissions; the median loss for individual destinations is almost two months under moderate emissions and almost six under high emissions. In the Caribbean, the median falls from ten months to six under high emissions; the median loss for individual destinations is less than one month under moderate emissions and almost four months under high emissions. In Central America and the Andes, the median falls from nine months to about six under high emissions, with median losses for individual destinations of none under moderate emissions and just over one month under high emissions.

Elsewhere, the seasonal picture is more mixed. In the Mediterranean, the median swimming season is about five months in both 2010 and 2080, and the median change for individual destinations is a gain of around two-thirds of a month. The median sightseeing season shortens from about ten months in 2010 to just under nine by 2080 under high emissions, a median loss for individual destinations of two months, or just over one month under moderate emissions. This illustrates how changing climate conditions may favour some activities and times of year over others (see the Antalya spotlight above). Fewer suitable months means that conditions more often exceed the comfort range used in the study, not that the activity becomes impossible: visitors can shift activities to cooler times of day or to the shoulder seasons.

For natural skiing, the median number of suitable months in the Alps falls from two in 2010 to less than one by 2080 under moderate emissions and to none under high emissions, while in Northern Europe and the Nordics it falls from four to about three under moderate emissions and to two under high emissions. These figures do not account for snowmaking or elevation and should not be interpreted as predictions of individual ski area viability.

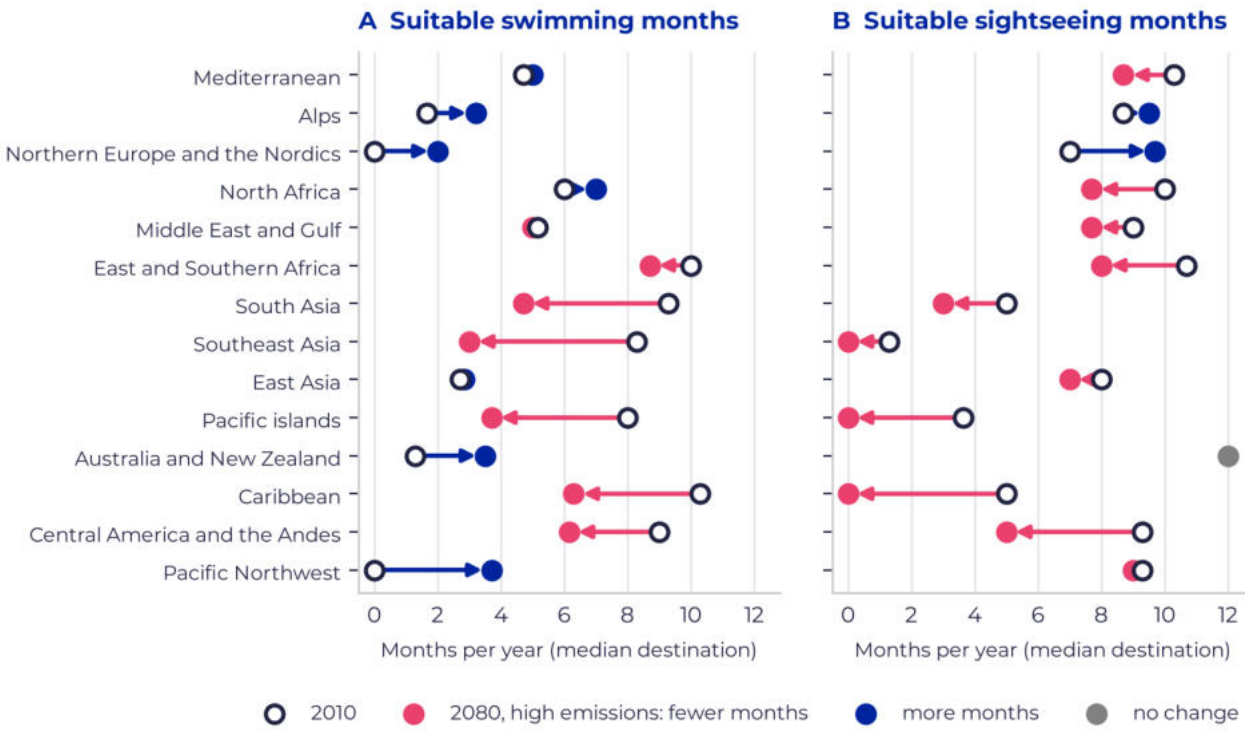


Figure 3.10: Suitable months per year for swimming (A) and outdoor sightseeing (B), 2010 and 2080 under high emissions, by tourism region. Values are the median number of months across the destinations in each tourism region at each date; the median changes for individual destinations quoted in the text can differ (Risklayer, 2026).

Key takeaway: For many tropical destinations, climate conditions that currently support year-round tourism activities are becoming more seasonal. In the Mediterranean and other mid-latitude destinations, the timing of suitable conditions is changing, potentially shifting some activities away from peak summer. These changes could have significant implications for employment, infrastructure, water demand and destination and tour operator strategies.

Regional snapshot

Table 3.1 summarises the headline indicators for each tourism region. It is intended as a reference for readers who wish to locate their own destination within the global picture.

Tourism region (destinations)	Climate hazard exposure level 2010	Change by 2080, moderate	Change by 2080, high	Squeezed by 2050, moderate	Gaining by 2050, moderate	Largest increase in hazard exposure after heat (high emissions, 2080)
Mediterranean (88)	38	+12	+22	63%	2%	Long-term drought (+26)
Alps (21)	30	+4	+11	5%	33%	Long-term drought (+26)
Northern Europe and the Nordics (114)	20	+1	+3	0%	75%	Heat stress (+13)
North Africa (131)	64	+9	+15	50%	0%	Heat stress (+13)
Middle East and Gulf (207)	58	+8	+15	49%	1%	Heat stress (+15)
East and Southern Africa (212)	63	+9	+15	46%	<1%	Extreme precipitation (+16)
South Asia (66)	74	+6	+10	14%	0%	Extreme precipitation (+18)
Southeast Asia (272)	73	+6	+11	25%	0%	Extreme precipitation (+12)
East Asia (115)	41	+8	+15	31%	5%	Long-term drought (+17)
Pacific islands (54)	59	+8	+15	19%	0%	Long-term drought (+12)
Australia and New Zealand (27)	29	+6	+10	4%	52%	Long-term drought (+12)
Caribbean (45)	65	+7	+12	42%	0%	Long-term drought (+14)
Central America and the Andes (248)	58	+8	+14	46%	8%	Heat stress (+13)
Pacific Northwest (3)	36	+7	+14	0%	33%	Heat stress (+18)

Table 3.1: Regional snapshot of climate hazard exposure for tourism on a 0–100 index; changes in index points (median of destination-level changes). Tourism regions overlap in two places: (1) the Alps and the Mediterranean, and (2) the Mediterranean and the Middle East and Gulf (mainly western and southern Türkiye). Together they cover 1,568 of the 2,588 destinations. Source: Risklayer, 2026.

What the first results cannot yet show

The first results capture climate hazard and tourism exposure. Three important dimensions are not yet included.

- **Hazards not yet modelled.** Sea-level rise, coastal flooding and erosion, tropical cyclones and marine temperatures are among the most important climate impacts for island and coastal tourism but are not part of the current hazard set. Conclusions for small islands and beach destinations are therefore incomplete; some island destinations appear stable in the four-group classification despite rising risk.
- **Transition risk.** The transition to a low-carbon economy may affect tourism operating costs, demand and destination competitiveness through changes in energy prices, transport costs, regulation and visitor preferences. Destinations heavily dependent on fossil-fuelled energy or long-haul air travel may face particular challenges. These risks are not captured by the current climate hazard exposure analysis, and a separate transition risk assessment is planned for future versions (Chapter 7).
- **Vulnerability and readiness.** Physical climate risk depends not only on climate hazard exposure, but also on the vulnerability and adaptive capacity of the tourism sector and the wider enabling systems on which it depends, including water, energy, health and transport. These dimensions are being developed as part of the Tourism Vulnerability and Risk Index and are not yet incorporated into the global results presented here. A low or high climate hazard exposure score does not necessarily indicate a correspondingly low or high level of overall physical climate risk.



Photo: Quentin Menini / Unsplash

4. How climate risks affect tourism and destinations

Climate change threatens tourism not only by damaging attractions or making certain activities less appealing, but by undermining the interconnected systems that allow destinations to function. A beach may remain attractive, but become inaccessible. A ski resort may retain its lifts and accommodation, but struggle to operate reliably. A hotel may escape physical damage yet close because its water supply, access road or workforce has been disrupted.

The global RiskScan findings in Chapter 3 provide important context for understanding these challenges. They show widespread increases in climate-related pressure, particularly from heat, alongside significant changes in the climatic suitability of tourism activities and seasons. They also reveal considerable differences between regions, with some facing high levels of pressure already and others experiencing particularly rapid change.

But what do these findings mean in practice for tourism destinations, businesses and communities? This chapter draws on wider literature and real-world examples to explore how changing climatic conditions can affect tourism assets, operations, markets and livelihoods, and what this means for destination planning and investment.

How climate risks become tourism impacts

The global analysis presented in Chapter 3 measures climate hazard exposure, rather than the full extent of climate risk. Understanding how these pressures translate into impacts on tourism also requires consideration of vulnerability and adaptive capacity, drawing on wider research.

The effects of climate change are rarely confined to one part of the tourism system. A physical change can trigger operational disruption, influence visitor choices, increase costs and ultimately affect livelihoods. The scale of these consequences depends on the destination's dependence on particular assets, activities and markets, its wider vulnerabilities and its capacity to respond (Arabadzhyan et al., 2021; Scott et al., 2019a; Gössling & Scott, 2025).

The following examples illustrate how climate hazards and changing climatic conditions can affect tourism through its assets, operations and markets, with wider consequences for destinations and communities. These pathways are drawn from the wider research literature and are not impacts quantified by the current global RiskScan analysis.

Climate-related change	Transmission into tourism	Wider consequences
Declining snow reliability	Shorter or less predictable natural skiing seasons; increased demand for snowmaking, water and energy	Pressure on winter businesses, investment and seasonal employment
Coastal erosion and ecosystem degradation	Reduced beach capacity, damage to reefs and declining quality of nature-based experiences	Increased protection costs; potential impacts on tourism-dependent livelihoods
Extreme heat and water scarcity	Reduced thermal comfort, restrictions on outdoor activities, increased cooling and water costs	Changes in seasonal patterns, operational pressures and potential competition with community needs
Extreme weather	Disruption to transport, utilities, supply chains and essential services	Closures, cancellations, revenue losses, rising insurance costs and potential effects on destination reputation
Changing climate suitability	Changes in the timing and conditions for particular tourism activities	Potential shifts in demand, competitiveness and the need to adapt tourism products and seasons

Table 4.1: Illustrative pathways from climate-related pressures to tourism impacts.

These potential impacts are not inevitable. Effective adaptation and risk management can reduce or prevent them, while weak infrastructure, concentrated tourism dependence or limited financial capacity can amplify their effects.

1. Natural and built assets

Many destinations depend on natural assets that serve both as tourism attractions and as essential ecosystems supporting local communities. Beaches provide recreational space while helping to protect coastal development and communities. Coral reefs support marine tourism and reduce wave energy. Mountain forests, snow cover and glaciers support recreational activities while also influencing water availability, slope stability and ecosystem health. Climate change is increasingly affecting these natural assets.

In the Maldives, a survey of 55 resorts found that around 90% reported beach erosion, while half considered infrastructure damage a moderate to serious climate-related problem (World Bank, 2024). Climate change is not the only driver, but rising sea levels compound the consequences of shoreline development and altered sediment movement. In Catalonia, modelling under a high-emissions scenario suggested that the recreational capacity of beaches could fall by around 70% by 2100 (Romero-Martín et al., 2025). This is a possible future scenario, illustrating how places facing a likely deterioration of human habitat will also lose visitor appeal and capacity as tourism destinations.

Coral reefs provide another example. Some have valued global coral-reef tourism at approximately US$35.8 billion annually (Spalding et al., 2017). Beyond considerable degradation of crucial marine ecosystems, research studying bleaching and cyclone damage on the Great Barrier Reef found declines in visitor satisfaction and the perceived quality of reef experiences, even before an obvious decline in overall visitation (Curnock & Marshall, 2019).

Mountain regions face possible water shortages, glacier collapse, and ecosystem degradation, while declining snow reliability will also threaten their appeal as winter tourism destinations. The effects vary considerably by altitude, latitude, slope orientation and local climate, but warming is expected to shorten reliable operating periods and increase variability, particularly at lower elevations (Pons et al., 2014; François et al., 2023; Mitterwallner et al., 2024).

Built assets are also exposed. Coastal accommodation, ports and roads face flooding, erosion and storms; mountain lifts, access routes and visitor facilities may be affected by heavy precipitation, landslides, wildfire or unstable ground. Damage to these assets can impose substantial costs through repairs, business interruption, rising insurance premiums and the need for protective investment. For example, Hurricane Otis damaged approximately 80% of hotels in Acapulco, Mexico, in 2023, with estimated economic and insured losses of US$12–16 billion across the affected area (Institute and Faculty of Actuaries , 2023).

Climate action strategies must go beyond protecting existing assets and consider how to reduce dependence on those that cannot easily be replaced. The examples and studies discussed above show how relatively modest physical changes can have disproportionate consequences for communities and livelihoods, undermining the very conditions that enabled places to develop as tourism destinations.

2. Operations and enabling systems

Tourism often makes use of local infrastructure and services: transport, water, energy, sanitation, food supplies, healthcare, communications and emergency response. Failures in

these systems can create cascading disruption. Flooding at an electricity substation may interrupt water pumping, communications and payments. A closed airport, port or mountain road can prevent visitors, workers and supplies from reaching businesses. Wastewater failures may force beach closures even where hotels remain undamaged (Arabadzhyan et al., 2021; Glavovic et al., 2022).

Water availability is a particularly important example. Coastal resorts may face high demand during hot, dry periods, while snowmaking in mountain destinations depends on sufficient water, energy and suitable temperatures. Continued warming is likely to make snowmaking increasingly costly and resource-intensive (François et al., 2023). Water shortages, driven by combinations of drought, reduced snowfall and growing demand, create difficult trade-offs. Water used to support tourism operations may also be needed by households, agriculture and ecosystems. Water- and energy-intensive interventions can increase operating costs and make the transition to a low-carbon economy more challenging.

The resilience of destinations also depends on their workforce and supply chains (Šavrič et al., 2026). Some are better placed to withstand and recover from disruption than others. Tourism businesses often depend on seasonal, temporary or migrant workers, who may have limited financial security, access to housing or support when extreme weather interrupts employment. As tourism seasons shorten, become less predictable or shift to different times of year, destinations may also struggle to attract seasonal workers, particularly where the new timings conflict with other employment or no longer provide sufficient income. Remote destinations, particularly small islands, may be heavily dependent on imported food, fuel, equipment and other essential supplies, with limited alternative transport routes or suppliers. These dependencies can prolong disruption and increase recovery costs, even when tourism businesses themselves have escaped physical damage.

Extreme heat adds direct risks to visitors and workers, particularly those involved in outdoor activities, transport, maintenance and hospitality. Businesses may need to change operating hours, provide cooling and shade, strengthen health procedures and adjust itineraries. More frequent disruption also increases the importance of evacuation planning, emergency communications and business continuity.

Climate-related events such as the Cape Town drought demonstrate that operational adaptation can make a difference. Research involving six hotels found that practical water-saving measures and clear guest communication helped reduce anxiety and encourage reported conservation behaviour, although longer-term effects on bookings and profitability were not established (McCarroll et al., 2024).

The wider lesson is that resilience depends on shared systems, not just individual business preparedness. A hotel with backup electricity still depends on functioning transport, healthcare, water supplies and a workforce able to reach work.

3. Markets and competitiveness

Climate change may reshape where, when and how people travel, as the costs, perceived value, and economics of providing tourism products move away from conditions that enabled many world regions to develop sizable visitor economies and become the tourism destinations they are today.

The relationship between climate conditions and demand is complex. Visitors may change

their travel dates, activities or destinations; some may accept deteriorating conditions, which could become the new normal, while others seek alternatives. Destinations may continue recording strong arrivals even as satisfaction, repeat intention or the quality of particular experiences weakens (Arabadzhyan et al., 2021; Gössling & Scott, 2025).

Extreme summer heat could shift some demand towards cooler periods or destinations. Warmer shoulder seasons may create opportunities, but these do not necessarily compensate for declining suitability during traditional peaks. Winter visitors may favour higher-altitude or more snow-reliable resorts, potentially changing the competitive balance between mountain destinations (Scott et al., 2019b; François et al., 2023).

Competitiveness also depends on cost and reliability. Climate change will increasingly impact the agriculture, property, health, and life insurance industries, directly and indirectly affecting tourism (Zhou et al., 2024). Businesses may absorb these costs, pass them on to visitors or reduce investment elsewhere. Higher prices may weaken demand, particularly in price-sensitive markets, creating a dilemma for businesses that need to invest in climate-related measures while remaining competitive.

Investment decisions are therefore central to climate resilience. Tourism assets often have long operating lives, and infrastructure built today may need to remain viable under substantially different climatic conditions. Repeated expenditure on beach nourishment, coastal defences or snowmaking, as well as continued investment in vulnerable forms of tourism, may lock destinations into rising costs, growing dependence on scarce resources or public subsidy, and greater difficulty adapting as conditions change (Glavovic et al., 2022; François et al., 2023). The important distinction is between investment that reduces long-term risk and investment that simply maintains an increasingly vulnerable model.

Insurance, lending and investment conditions may increasingly reflect climate risks. However, evidence of widespread climate-driven withdrawal from coastal or winter tourism investment remains limited. Continued investment in exposed locations does not necessarily demonstrate long-term resilience, just as rising exposure does not automatically mean that investors will retreat (World Bank, 2024). Destinations should therefore monitor more than arrivals and expenditure. Visitor satisfaction, cancellations, changing activity preferences, operating costs, insurance conditions and reinvestment decisions can provide earlier signals of changing competitiveness.

4. Communities and livelihoods

The consequences of climate change extend beyond tourism businesses to the communities and economies that depend on them. In destinations where tourism is a major part of the economy, many livelihoods rely directly or indirectly on visitor spending. A disrupted tourism season or declining visitor experience can therefore have far-reaching consequences for local employment, businesses and public revenues. These impacts may be particularly severe where income is concentrated into a short period. Poor snow conditions during key winter holiday weeks can undermine annual revenues, while repeated coastal disruption may affect businesses dependent on a particular beach, reef or resort area (Corradini et al., 2023; Kutlu et al., 2025).

The costs and opportunities associated with climate impacts are unlikely to be shared equally. Larger resorts may be able to invest in

private water supplies, coastal protection, backup systems or new products. Smaller businesses, seasonal workers and lower-income households often have fewer financial reserves and less access to insurance, technical expertise or affordable finance. Research on coastal hotels in Cambodia found that larger and higher-end establishments generally reported more extensive adaptation measures (Nhep, Schott & Sahli, 2021). However, in some cases very small enterprises may also be more agile, with greater flexibility to change their activities, diversify income or pursue alternative livelihoods.

Climate action can therefore also redistribute risk. A seawall protecting commercial property may increase erosion elsewhere. Diversification towards higher-spending visitors may generate revenue while increasing resource demand or concentrating benefits among fewer businesses. New year-round activities may create employment, but not necessarily for the same workers or at equivalent wages.

The objective should therefore be more than maintaining tourism activity. Climate action must also address fundamental questions of equity and justice, protecting and strengthening the value tourism provides to local people, including secure livelihoods, healthy ecosystems, reliable services and opportunities to participate in decisions about the destination's future.

Implications for destination strategy

The evidence discussed in this chapter points towards a fundamental shift in destination planning: from responding to individual climate hazards towards managing the long-term resilience of the tourism system.

This requires decisions about what to protect, what to adapt, where to invest and, in some cases, what may need to change. Measures might include strengthening shared infrastructure, restoring ecosystems, avoiding new development in exposed locations, diversifying tourism products or preparing for the gradual relocation or repurposing of assets.

Not every destination can, or should, preserve its existing tourism model unchanged. Effective adaptation involves protecting what remains viable while retaining the flexibility to respond as conditions evolve.



Photo: Sam Ferrara / Unsplash

5. Lessons from the Six Pilot Destinations

Destination RiskScan has been developed and tested through six pilot destinations: the Canary Islands, Cook Islands and Koh Samui, representing island tourism destinations; and Colorado, the Dolomites and Queenstown, representing mountain destinations. These assessments explored climate hazards and tourism exposure alongside vulnerability and adaptive capacity, helping to understand how climate risks differ between destinations and what they could mean for tourism activities, operations and markets. The pilot assessments report combined climate risk scores that include vulnerability, adaptive capacity and, where relevant, further hazards such as snow deficit and sea-level rise, so they are not directly comparable with the climate hazard exposure scores in Chapter 3.

5.1 The island destination pilots

The three island pilots share a strong dependence on natural environments, reliable essential services and international transport connections, particularly aviation. Their tourism economies are closely linked to beaches, coastal and marine ecosystems, landscapes and outdoor activities. However, they also illustrate how climate risks and the capacity to

respond can differ significantly between island destinations, depending on their geography, tourism development, infrastructure and wider economic circumstances.

Canary Islands (Spain)

The Canary Islands represent an Atlantic island destination with a large, international tourism economy, linked to the islands' climate, beaches, marine environments, volcanic landscapes, biodiversity and outdoor activities. Its current market position depends on air access, year-round appeal and confidence in the destination's environmental management.

The overall climate risk score is anticipated to remain within the lower band until mid-century, supported by Spain's relatively favourable capacity to adapt and cope with climate disruptions. However, several important pressures stand out: drought and increasing competition for freshwater, seasonal concentrations of tourism demand, and dependence on air travel. These raise questions about the archipelago's fossil fuel-dependent water, energy and transport systems, affordability and long-term competitiveness.

Cook Islands

The Cook Islands is a remote Pacific island destination with an air transport dependent, tourism-centred economy. Pursuing a value over volume tourism model, the Cook Islands' market appeal is strongly linked to beaches, lagoons, coastal landscapes, marine environments, outdoor activities, and island culture and identity.

Sea-level rise is not yet included in the global Destination RiskScan analysis, but was incorporated within the Cook Islands pilot because of its particular importance to low-lying island destinations. This illustrates how assessments can incorporate additional climate hazards and local evidence to provide a more complete picture of the hazard exposure of individual destinations. For the Cook Islands, sea level is projected to rise by approximately 50 cm by 2050 under a conservative climate change pathway (Risklayer, 2026). As parts of the Cook Islands are low-lying, this is highly relevant. Sea level rise will vary by island, elevation, reef condition, sediment dynamics and coastal form, and is most important where it combines with storm surge, strong tides, heavy rainfall, erosion and drainage limits. Beyond sea level rise, overall climate risk is gradually increasing, but anticipated to remain within the lower band to mid-century. Drought and heavy precipitation are the strongest hazard signals, with potential implications for freshwater availability, drainage, infrastructure and overall access.

Koh Samui (Thailand)

Koh Samui is a mature tropical island destination with a tourism system attempting to manage significant development and infrastructural capacity issues. The island's tourism economy is closely linked to beaches, marine environments, island landscapes and outdoor activities, and depends on reliable water and energy, drainage, wastewater and waste systems. Market access depends on ferry connections and air access through the island's privately owned airport.

The pilot assessment identifies increasing exposure to drought, heat stress and heavy precipitation. It also identifies significantly higher sea levels with the potential for coastal impacts where these interact with storm surge and tides, which is not covered by the current global analysis. Thailand provides a potential economic basis for investments in climate adaptation and mitigation, but social and governance-related challenges may hinder their impact.

Existing tourism-related pressures on infrastructure and public services may limit the region's ability to adapt, particularly where rapid tourism development has already stretched local capacity. Smaller businesses, informal workers and lower-income

communities may face greater difficulties in responding to climate impacts. The tourism sector's transition potential is further confined by fossil fuel dependencies, including the reliance on distant, air transport-dependent source markets.

5.2 Implications for island destinations – lessons from the pilots

The island destination pilots illustrate the tensions that emerge when climate change impacts places with sizable tourism economies. Places like the Canaries and Koh Samui are already facing pressures from high visitor volumes and concentrated coastal development on essential services and resources (notably freshwater supply and electricity). At the same time, their dependence on fossil fuel-based energy systems and air travel creates longer-term transition risks. Island destinations have limited alternatives to aviation, leaving them exposed to changes in airfares, emissions policies and demand from distant source markets.

Destination supply and assets

All three island destination pilots face climate conditions that move away from those around which their tourism economies developed. Different climate hazards (particularly drought, ocean warming and sea level rise) will increasingly impact upon beaches, marine ecosystems and transport infrastructure, although hazard exposure can vary considerably over short distances and between places (e.g. different islands of the same archipelago). Tourism facilities (accommodation, restaurants, shops) situated in low-lying areas are particularly exposed. Hazards may interact. For example, as the Cook Islands pilot illustrated, periods of water scarcity occur alongside continued exposure to intense rainfall, runoff and drainage problems. And hazards will likely have cascading effects, as essential services such as electricity, freshwater supply, health and emergency services come under increasing stress. In the Canary Islands, for example, pressure on freshwater and energy supplies illustrates the challenges of balancing the needs of tourism, other sectors such as agriculture, and local communities. Climate change could exacerbate these pressures, particularly when periods of high demand collide with drought.

Tourism operations

The island pilots illustrate how climate hazards can disrupt tourism operations, particularly where essential services and infrastructure are already under strain. In Koh Samui, for example, heat, water scarcity and heavy rainfall raise concerns about business continuity, worker and visitor wellbeing, and transport access. In the Cook Islands, sea-level rise and coastal hazards create additional challenges for maintaining infrastructure and essential services. Many SMEs are already reported to be without insurance due to the costs involved.

The Canary Islands and Koh Samui also illustrate the close relationship between water and energy security. As climate change increases pressure on freshwater resources, destinations may need to invest in additional water supplies, storage and efficiency measures. In the Canary Islands, energy-intensive desalination helps address freshwater scarcity, but also creates cost and decarbonisation challenges, as most electricity generation in the Canary Islands remains dependent on fossil fuels (ISTAC, 2025).

Markets and demand

Cascading effects of hazard exposure may include reputational issues, affecting markets

and demand. The Canary Islands pilot highlights how drought and increasing water stress could affect tourism operations, landscapes and competition for freshwater between tourism, other sectors and residents (Santamarta et al., 2026). Similarly, in Koh Samui, sea level rise and coastal erosion could damage facilities and cause access disruptions. Events like these may affect daily activity patterns and seasonal preferences of visitors. They may also alter the reputation of a destination beyond directly affected areas, affecting the overall visitor experience, visitor confidence, and investors' perceptions over time, before producing a measurable decline in visitor numbers.

Second, all island destination pilots depend on air travel and often distant source markets, increasing vulnerability to geopolitical uncertainty and market shocks. Additionally, air travel's dependence on fossil fuels means high exposure to fluctuating fuel prices and airfares, and the aviation industry's highly uncertain decarbonisation pathways. Source market distance and price competitiveness add to this pressure. At the same time, island destinations often face carbon lock-ins, as many island destinations have limited market transition potential beyond air travel-dependent markets due to their inherent geographical isolation.

5.3 The mountain destination pilots

The three mountain pilots share a dependence on mountain landscapes, outdoor recreation and climate-sensitive tourism activities, particularly winter sports. Changing snow conditions, precipitation patterns and extreme weather present challenges for the reliability of tourism seasons, infrastructure and visitor experiences.

However, the implications of these challenges differ between destinations, depending on their existing tourism offer, climate conditions and capacity to adapt. The pilots also illustrate the opportunities and limits of diversifying mountain tourism beyond traditional winter activities (Steiger et al., 2019).

Colorado (US)

The Colorado pilot focuses on the specific winter and mountain settings of Durango and Mt Crested Butte within the broader geographical context of the US state of Colorado. The visitor economy of this destination is characterised by seasonal travel patterns and a short winter season, with the overall visitor experience relying on mountain landscapes, skiing, and outdoor recreation.

Colorado's combined climate risk score moves from the low band into the medium band by 2050, but also faces stronger individual hazard signals. Wildfire and snow deficit are in the high band; drought and heavy precipitation move from the low to medium band. The US provides a relatively supportive national context for coping with climate-related disruptions and implementing climate action. At the same time, market transition potential is constrained by high costs, and reliance on air travel-dependent, longer-distance (domestic) markets.

Dolomites (Italy)

The Dolomites pilot focuses on Skirama Dolomiti, a consortium of tourism boards and ski lift companies representing different destination regions in the Western part of Trentino, in the Italian Alps. Skirama's overall visitor offer depends on reliable winter conditions, accessible ski areas, and mountain landscapes and culture. While the range of year-round activities on offer is growing, the individual regions combine strong winter tourism infrastructure, high dependence on skiing and snow-based activity. The regions face severe

precipitation-related pressures, a sharp increase in snow deficit, declining cold conditions, and wider questions about snowmaking, water, and seasonality.

The Dolomites overall climate risk score remains in the low band, but this destination faces stronger individual hazard exposure signals, mainly heavy precipitation and snow deficits. These hazards point to mounting pressures on winter reliability, snowmaking, slope and trail management, drainage, access routes, and overall mountain infrastructure. While Italy has a relatively favourable national capacity for coping with climate disruptions and implementing climate action, air travel dependency, source market distance, and issues related to visitor concentration and seasonal demand peaks confine tourism transition potential.

Queenstown (New Zealand)

Queenstown is a mature, high-quality mountain tourism destination in Aotearoa New Zealand. Internationally recognised for its alpine landscapes, adventure tourism, and lake and river environments, Queenstown serves long haul visitor markets while facing significant destination growth pressures related to infrastructure capacity, resident sentiment, and long-haul travel vulnerability.

While Queenstown's combined climate risk score moves from the low band into the medium band by 2050, there are stronger individual hazard signals. Heavy precipitation is in the high band, and snow deficit moves from the low band to the medium band by 2050. New Zealand's national adaptive capacity indicators are relatively strong, although the Climate Change Commission (2026) has identified uneven progress and significant gaps in adaptation planning and implementation. Queenstown also relies heavily on air access, including long-haul source markets, creating potential transition risks associated with aviation decarbonisation and changes in travel costs.

5.4 Implications for mountain destinations – lessons from the pilots

The mountain destination pilots showcase the challenges that come with winter tourism and a dependence on a relatively narrow set of season-specific, climate-sensitive conditions (snow cover, cold temperatures).

Destination supply and assets

In all mountain destinations, snow deficit impacts natural snow accumulation, and the quality and duration of winter landscapes. In the Dolomites and Queenstown, heavy precipitation affects river systems, slopes, lake shores, trails, infrastructure (roads, drainage), and visitor facilities. Additionally, Colorado faces considerable exposure to wildfire and drought. Wildfire may affect forests, trails, parks, scenic landscapes and air quality across areas much larger than the locations directly burned. Drought may affect vegetation, rivers, and reservoirs. Drought, wildfire and heavy precipitation may interact. Dry conditions increase landscape and water pressure and contribute to fire-weather conditions. Intense rain following fire can increase runoff, flooding, erosion and debris-flow risk.

In mountainous terrain, hazard exposure levels are highly location-specific and will therefore vary, with actual exposure levels of tourism-related assets depending on terrain, maintenance and drainage. National-level capacity to cope with climate disruptions and take climate action is relatively strong, but varies locally.

Tourism operations

As all mountain destination pilots illustrated, increasing snow deficit may have cascading effects on the timing and reliability of snow-dependent tourism operations in mountain destinations, with local variations between products and periods, as overall conditions change. Changing snow and winter conditions may affect opening dates, snowmaking demand, and staffing. In mountain destinations with greater reliance on snowmaking, like the Dolomites, water and electricity demand will likely increase. Wildfire may have similar cascading effects, as the Colorado pilot suggested. Wildfire may affect tourism operations through smoke, poor air quality, road closures, evacuation concerns, temporary restrictions, staffing issues, and emergency response demands. Interaction with other hazards (e.g. drought, heavy precipitation) may prolong these disruptions. Water availability constraints may persist, and affect tourism facilities, snowmaking, and water-based recreation.

Operating costs will therefore likely increase, while operating windows will likely narrow. This may drive up visitor prices and affect margins, especially within already expensive and competitive business environments. It may also impact on workforce availability.

Markets and demand

The pilots highlight declining snow reliability as a significant risk to tourism demand in mountain destinations. Snow deficit may shorten booking windows, cause greater demand variability, alter demand for specific tourism activities, and impact overall visitor confidence, particularly during shoulder season winter conditions. Wildfire or heavy precipitation-induced access disruptions constitute additional market-facing risks for mountain destinations. Wildfire may also induce longer-term ecological change that affects the overall landscape quality on which tourism depends. Similarly, drought may impact water levels and overall landscape quality, influencing visitor satisfaction. In sum, events like these may disrupt demand and cause cancellations, affecting the overall reputation of mountain destinations. Additional pressures linked to longer-distance source markets and related air travel dependencies may impact visitor markets sensitive to higher fares and fuel prices, and confine tourism transition potential when it comes to attracting alternative markets.

Lessons from the six pilots

The six pilot assessments have helped demonstrate how globally consistent climate risk information can be made more useful for individual tourism destinations. They also

highlight the importance of combining comparable data with local knowledge, interpretation and stakeholder engagement.

1. Global comparisons help destinations understand and prioritise risks

A consistent global approach allows destinations to compare their exposure to climate hazards with that of other destinations around the world. This provides useful context for understanding which risks are particularly significant and where further investigation may be most valuable. It can also help destinations identify peers facing similar challenges.

2. National data does not always reflect local realities

National indicators provide useful context for understanding vulnerability and adaptive capacity, but they can mask significant differences within countries. The resilience of water supplies, infrastructure, public services and tourism businesses may vary considerably between individual destinations. Overall national vulnerability and adaptive capacity should therefore not be treated as a direct measure of a destination's ability to cope with climate disruptions and implement climate action.

3. Local data and knowledge can strengthen the assessment

Globally available data provides a consistent starting point, but local evidence can reveal important differences and gaps. More detailed information about tourism assets, infrastructure, climate hazards and local conditions, together with qualitative evidence and expert judgement, can improve the relevance of the findings and help identify where global assumptions need refining. Furthermore, local data can fill gaps in global datasets.

4. Climate risk findings need careful interpretation from a destination perspective

A score alone cannot explain what changing climate conditions mean for tourism. The pilots showed the importance of examining individual hazards, considering the particular characteristics of each destination and connecting the findings to tourism activities, operations and markets from the perspective of the examined destination. This helps turn climate risk information into a clearer understanding of potential local and regional consequences and priorities.

5. Stakeholder engagement is essential for turning evidence into action

Climate risks rarely affect tourism businesses in isolation. They involve shared resources, infrastructure and responsibilities, often extending beyond the tourism sector. Engaging destination stakeholders in reviewing and interpreting the findings can help build a shared understanding of risks, identify practical responses and support collaboration on managing climate disruption and taking climate action.

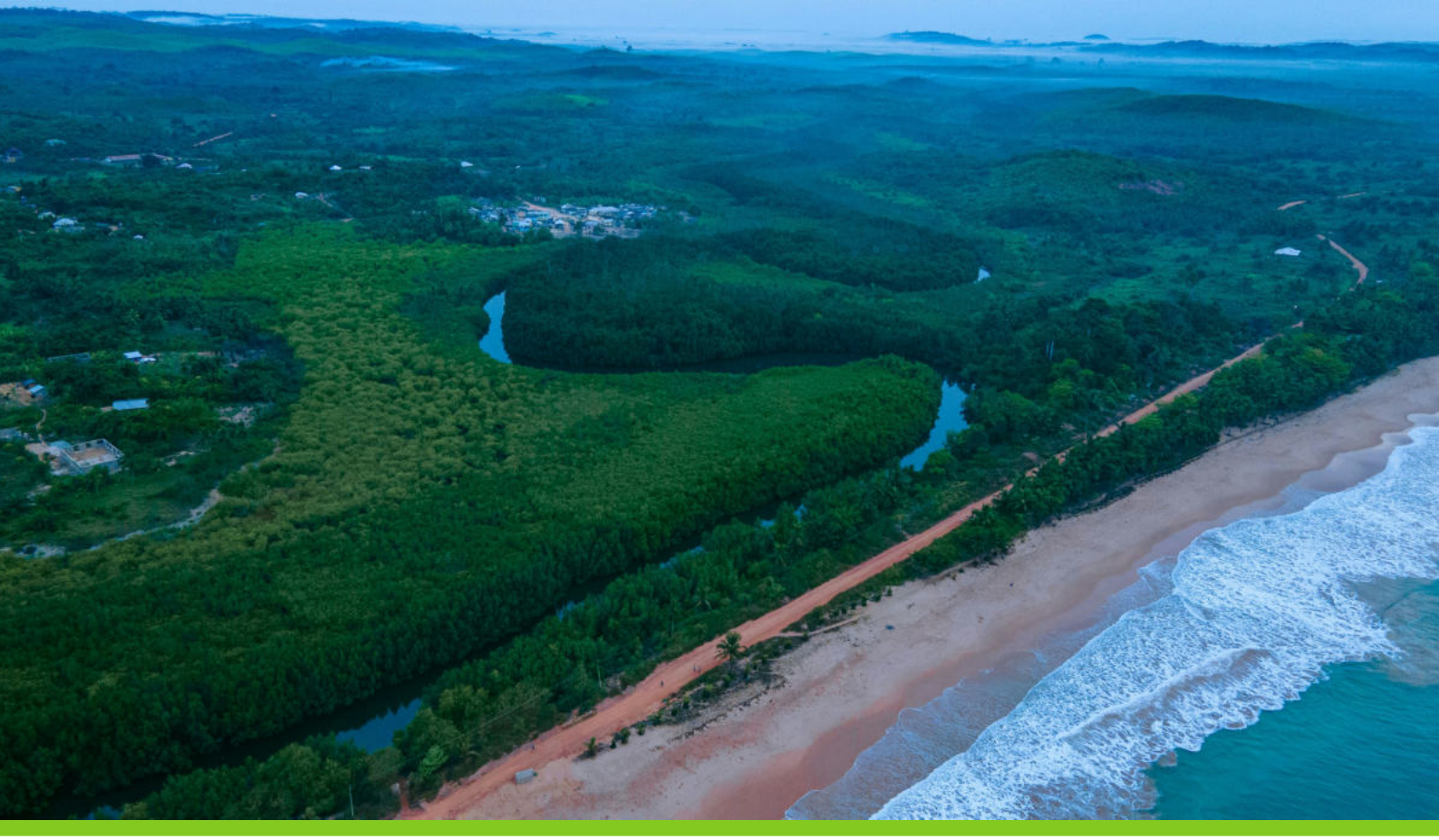


Photo: Ato Aikins / Unsplash

6. From Risk Intelligence to Building Resilience

As the world moves towards an increasingly uncertain future, destinations must assess their vulnerabilities to climate risks and take climate action (Gössling & Scott, 2025). The findings in this report point to a need for fundamental changes in how tourism destinations are planned, developed and managed. Climate change is already altering the conditions on which tourism depends, and the consequences will become more pronounced in the decades ahead. Responding effectively will require more than better emergency preparedness or incremental adaptation measures for the protection of individual tourism assets. It will mean making climate resilience a central strategy consideration in destination policy, investment and development.

Destination RiskScan provides a common evidence base for different parts of the tourism sector. While the information is consistent, the questions it can help answer vary between destination managers, governments, businesses, investors and development partners. Table 6.1 illustrates some of these applications.

User	Typical question	How Destination RiskScan helps
Destination management organisations	What climate risks are growing, and how can we build the case for climate action?	Benchmarking, identifying priorities and providing initial evidence to inform local climate measures, advocacy and discussions about public and private investment.
Governments and tourism ministries	Which destinations need support first?	Comparison across all regions; evidence for national tourism resilience planning
Businesses and tour operators	How might climate change impact existing products, seasons and destinations, and where might new opportunities emerge?	Comparing hazard exposure and seasonal change, activity suitability and seasonality across destinations to inform further investigation of product development and portfolio planning.
Investors, lenders and insurers	What emerging climate pressures should inform further due diligence on this asset?	Hazard trajectories to 2080; a first screen before due diligence
Development partners and funders	Where might more detailed assessment and resilience investment be needed?	Comparable evidence across countries to target finance

Table 6.1: Who can use the Destination RiskScan evidence base, and for what.

Destination RiskScan provides a starting point for understanding emerging climate risk, but risk assessment is only valuable if it informs decisions. The following seven

recommendations set out priorities for destinations, governments and the wider tourism industry.

1. Make climate risk assessment and monitoring routine

Climate risk assessment should become a standard part of destination planning, development and investment decisions, rather than an occasional or reactive exercise. Globally comparable tools such as Destination RiskScan can help identify emerging climate risk and priorities for further investigation. These findings should be complemented by more detailed local assessments that consider vulnerability, adaptive capacity and the characteristics of tourism destinations. This should include identifying the natural assets, infrastructure, services, workforce and supply chains on which tourism depends, and examining how climate change could affect tourism supply, operations, markets and community livelihoods.

Monitoring is equally important. Destinations should track changing climate conditions alongside indicators such as visitor satisfaction, business disruption, operating costs, infrastructure performance and community wellbeing. Regular reviews can help identify when pressures are intensifying, when climate-related measures are no longer sufficient and when plans need to change.

2. Move beyond crisis management towards longer-term strategic climate action

Destinations need effective emergency preparedness, including tested response and recovery plans, clear responsibilities and reliable communications with residents, businesses and visitors.

But responding effectively to a wildfire, flood or heatwave is not the same as reducing vulnerability to future climate change and societal responses. Without longer-term action, destinations risk becoming trapped in a cycle of disruption, recovery and rebuilding, with growing costs and fewer resources available for strategic climate action. Governments and destination leaders should therefore invest in transition preparedness alongside measures that reduce underlying risks, such as strengthening essential infrastructure, improving water security, restoring natural ecosystems and avoiding further development in exposed locations and investment that locks destinations into potentially unviable products and markets. Action should begin now, even where more detailed assessment is still needed to inform longer-term decisions. Destinations should work with businesses, communities and other sectors to identify shared priorities and responsibilities for action.

3. Make difficult strategic choices about tourism development

Climate action should not focus solely on incremental measures to preserve existing tourism activities and assets indefinitely. Destinations need to consider what to protect, what to adapt, where to diversify and, in some cases, what may need to change fundamentally or cease altogether. Repeated investment in coastal protection, snowmaking or other measures to sustain vulnerable tourism activities may be justified in some circumstances, but always comes with inevitable limits and path dependencies, i.e. it can lock destinations into rising costs, growing resource demands and continued hazard exposure.

These decisions require a long-term perspective. A hotel, ski lift or transport network built today may still be operating in the climate of the 2050s or beyond. Planning and investment should therefore consider whether current tourism models and wider regional economic strategies will remain viable, rather than simply assuming that existing activities and patterns of development can continue unchanged (Ausserladscheider, 2024). Where significant transitions may be necessary, destinations should begin planning early, allowing time to develop alternatives and support affected businesses, workers and communities.

4. Integrate adaptation and mitigation

Climate adaptation and emissions reduction must be pursued together (UNEP, 2026). The findings in Chapter 3 show how different emissions pathways can substantially affect the scale of future climate change impacts on tourism. Destinations should seek solutions that strengthen resilience while also reducing emissions. Ecosystem restoration, improved resource efficiency and lower-carbon infrastructure, transport modes and markets can offer benefits for both adaptation and mitigation.

Equally, adaptation measures should be assessed for adverse side effects, i.e. their potential to increase emissions or dependence on fossil fuels. Energy-intensive responses, including some forms of cooling, desalination or snowmaking, may only sustain unviable tourism activities in the short term while creating longer-term environmental, social and economic challenges for countries and regions.

Integrated climate action should therefore consider both the impacts of climate change on tourism and tourism's contribution to the problem.

5. Invest in destination resilience, not just individual businesses

Tourism depends on infrastructure, ecosystems, services and communities that extend well beyond the control of individual tourism businesses. A hotel may be able to invest in backup power or water supplies, but it still depends on functioning transport, healthcare, communications, a reliable workforce and the wider destination's ability to operate. Climate resilience therefore requires investment in the shared systems on which tourism and local communities depend. This calls for closer coordination between tourism authorities, local and national governments, infrastructure providers, businesses and other sectors. Investment priorities should reflect the wider benefits of climate action, including reliable essential services, healthy ecosystems and stronger local economies.

The objective should be to strengthen the resilience of the region as a whole, rather than protecting individual tourism assets while leaving wider vulnerabilities unresolved.

6. Provide the finance and capacity to act

Climate risk assessments can identify where action is needed, but many destinations lack the resources, technical expertise or institutional capacity to translate that evidence into effective climate action. Governments, development partners and the tourism industry should help bridge this gap. This includes supporting destinations to assess adaptation and mitigation options, develop practical plans, evaluate costs and benefits, and prepare projects that can attract investment.

Some interventions will require public funding, particularly where benefits extend across communities and economic sectors. Others may offer opportunities for private investment or shared financing arrangements involving tourism businesses and other beneficiaries.

Funding should not be directed only towards destinations or projects that are already well placed to attract investment. Support is also needed where climate vulnerability is high but the capacity to develop and finance adaptation measures is limited.

Building local skills, institutions and decision-making capacity is therefore as important as financing individual projects.

7. Put climate justice and equity at the centre

Climate risks, responsibility for emissions and the capacity to respond are not shared equally. Tourism emissions are driven disproportionately by more affluent and mobile populations, while many tourism-dependent destinations and communities face significant climate change impacts despite having contributed relatively little to the problem (Sheller, 2021; Sun et al., 2024).

Climate action must therefore consider who is most vulnerable, who pays, who benefits and who gets to decide. Decisions should recognise existing inequalities and power imbalances, including the influence of established tourism industry interests on development choices (Calgaro et al., 2014; Sheller, 2021). Measures designed to protect tourism investment should not transfer risks or costs to local communities or undermine their access to essential resources.

Tourism decision-makers can help put climate justice into practice by:

- **Broadening participation in destination decisions.** Engage residents, community organisations, workers, young people and other groups beyond established tourism stakeholders. Ensure that communities have meaningful influence over decisions about their future, particularly where existing tourism models also do obvious harm or may need to change (Bigby et al., 2022).
- **Applying a justice lens to climate risk assessments.** Look beyond aggregate risk scores to understand who is most exposed, who has the least capacity to adapt and how tourism development affects community resilience. Share findings with communities and involve them in interpreting the evidence and identifying responses (Bigby et al., 2022).
- **Directing finance towards vulnerable destinations and livelihoods.** Recognise the greater responsibility of high-emitting countries and tourism markets to support adaptation and mitigation. Develop funding approaches that reach communities with limited resources, including those facing the possible loss of tourism-dependent livelihoods and needing support to diversify or transition (Bigby et al., 2022; TPCC, 2023).
- **Strengthening climate education and capacity.** Build climate literacy and adaptation skills across the tourism workforce, businesses, destination organisations and local communities, including through vocational training and professional development (TPCC, 2023).

The aim should be more than protecting tourism revenues or maintaining existing activities. Climate action should strengthen local wellbeing, livelihoods and communities' ability to shape their own futures.

From evidence to action

The first global results from Destination RiskScan provide a clearer picture of emerging climate pressures on tourism. But understanding those pressures is only the beginning. Destinations will need to combine better evidence with difficult strategic decisions, sustained investment and cooperation across sectors. The challenge is not simply to keep tourism operating as climate conditions change, but to shape a tourism economy that remains viable, equitable and beneficial to the places and communities that support it.

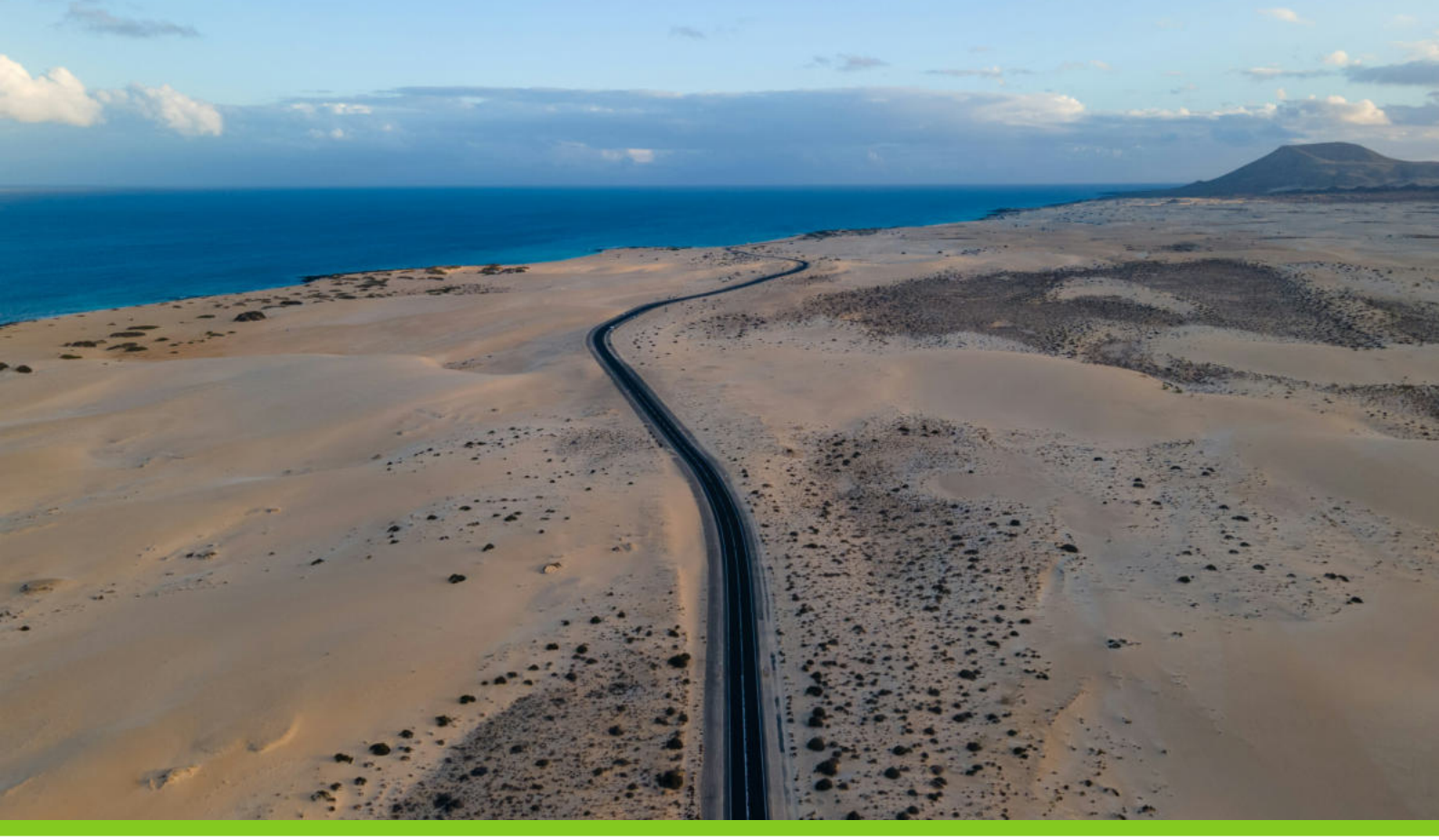


Photo: Axel Antas-Bergkvist / Unsplash

7. What comes next

The first global results are a starting point for Destination RiskScan. The immediate priority is to complete the current phase of development, strengthen the methodology and make the platform available to destinations and other tourism stakeholders.

Completing the current phase

The next steps are to incorporate further feedback from scientific reviewers and pilot destinations, finalise and test the methodology, and complete the online platform. A Scientific Methodology Handbook will document the approach and be made publicly available.

The Destination RiskScan platform, www.destinationriskscan.org, is available now for demonstration and early testing ahead of its formal launch in early 2027. It will be freely accessible, allowing destinations worldwide to explore climate pressures, compare results and identify priorities for further investigation.

Our longer-term ambition

Beyond the current phase, we aim to develop Destination RiskScan in four directions.

1. Continuously improve the methodology

We anticipate that RiskScan will evolve through regular updates and new version releases, incorporating improved climate data, scientific advances and feedback from destinations. Priorities include strengthening the assessment of vulnerability and adaptive capacity, improving local relevance and climate risk pathways to tourism impacts, and extending coverage of important hazards such as sea-level rise and tropical cyclones.

2. Expand the risks assessed

Climate risk is only part of the picture. We want to progressively incorporate other pressures affecting the long-term resilience of tourism destinations, including nature and biodiversity loss, transition risks associated with decarbonisation, and pressures from overtourism.

A proposed Nature RiskScan would be an important step, examining both tourism's dependence on healthy ecosystems and its impacts on nature.

3. Develop practical tools for destinations and businesses

Future development will focus on helping users move from understanding risks to planning responses. This could include more detailed destination assessments, risk registers, resilience action-planning tools and ways for tourism businesses to assess risks across their destination portfolios.

The aim is to help users identify priorities, consider adaptation options and make better decisions about tourism development and investment.

4. Build the economic case for resilience investment

We want to move towards quantifying the financial consequences of climate and other risks for tourism, including potential losses, disruption and changing operating costs.

Combining this with assessments of the costs and benefits of adaptation measures could help destinations and businesses understand the value of acting early, identify investment priorities and build stronger cases for financing resilience.

Building the next phase together

These ambitions will require further research, technical development, destination partnerships and funding. Some work is already under way, while other elements will depend on securing additional support.

Destination RiskScan is a partnership between Travel Forward, Risklayer and CELTH. We will continue working with destinations, tourism businesses, researchers and other partners to develop a shared, accessible resource that supports more informed decisions and investment in destination resilience and transitions.

References

Arabadzhyan, A., Figini, P., García, C., González, M. M., Lam-González, Y. E., & León, C. J. (2021). Climate change, coastal tourism, and impact chains–a literature review. Current Issues in Tourism, 24(16), 2233–2268.

Ausserladscheider, V. (2024). Decoupling climate change: Winter tourism and the maintenance of regional growth. New Political Economy, 29(5), 693–708. https://doi.org/10.1080/13563467.2024.2330486

Bigby, B., Smith, J., & Higgins-Desbiolles, F. (2022). Climate Justice in Tourism: An introductory guide. The Travel Foundation.

Calgaro, E., Dominey-Howes, D., & Lloyd, K. (2014). Application of the Destination Sustainability Framework to explore the drivers of vulnerability and resilience in Thailand following the 2004 Indian Ocean Tsunami. Journal of Sustainable Tourism, 22(3), 361–383.

Climate Change Commission (2026). Progress report: National adaptation plan. Wellington, New Zealand. https://www.climatecommission.govt.nz/reports-and-evidence/publications/2026-progress-report-national-adaptation-plan/

Corradini, P., Omizzolo, A., Rizzari, M., et al. (2023). Report on the Effects of Climate Change on Alpine Space Snow Tourism Destinations. BeyondSnow Project, EU Alpine Space Programme. https://www.alpine-space.eu/project/beyondsnow/

Curnock, M., & Marshall, N. (2019). Changes in the state of Great Barrier Reef tourism from 2013 to 2017: a report from the Social and Economic Long-Term Monitoring Program (SELTMP). Report prepared for the Great Barrier Reef Marine Park Authority. In: CSIRO Land and Water, Townsville.

Forster, P. M., Walsh, T., Smith, C., Lamb, W. F., Lamboll, R., Cassou, C., Hauser, M., Hausfather, Z., Lee, J.-Y., & Palmer, M. D. (2026). Indicators of Global Climate Change 2025: annual update of key indicators of the state of the climate system and human influence. Earth System Science Data Discussions, 2026, 1–87.

François, H., Samacoïts, R., Bird, D. N., Köberl, J., Prettenthaler, F., & Morin, S. (2023). Climate change exacerbates snow-water-energy challenges for European ski tourism. Nature Climate Change, 13(9), 935–942.

Glavovic, B. C., Dawson, R., Chow, W., Garschagen, M., Haasnoot, M., Singh, C., & Thomas, A. (2022). Cross-Chapter Paper 2: Cities and Settlements by the Sea. In Climate Change 2022: Impacts, Adaptation and Vulnerability. Cambridge University Press, pp. 2163–2194. https://doi.org/10.1017/9781009325844.019

Gössling, S., Scott, D., Hall, C. M., Ceron, J.-P., & Dubois, G. (2012). Consumer behaviour and demand response of tourists to climate change. Annals of Tourism Research, 39(1), 36–58. https://doi.org/10.1016/j.annals.2011.11.002

Gössling, S., & Scott, D. (2025). Climate change and tourism geographies. Tourism Geographies, 27(3-4), 642–652.

Higgins-Desbiolles, F. (2022). The ongoingness of imperialism: The problem of tourism dependency and the promise of radical equality. Annals of Tourism Research, 94, 103382.

Institute and Faculty of Actuaries. (2023). Hurricane Otis insured losses set to run into billions. https://www.theactuary.com/2023/11/22/hurricane-otis-insured-losses-set-run-billions

Instituto Canario de Estadística (ISTAC). (2025). Aumentan las energías renovables en Canarias pero la mayoría de la electricidad mantiene su origen en el petróleo. Gobierno de Canarias. https://www.gobiernodecanarias.org/istac/.content/noticias/estadistica-energia-electrica-canarias-produccion-noticia-2024.html

IPCC. (2022). Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. C. U. Press.

Intergovernmental Panel on Climate Change (IPCC). (2023). Climate Change 2023: Synthesis Report. https://doi.org/10.59327/IPCC/AR6-9789291691647

Kutlu, D., Kasalak, M. A., & Bahar, M. (2025). Assessing climate change impacts on outdoor recreation: Insights from visitor and business perspectives. Sustainability, 17(8), 3400.

Lenzen, M., Sun, Y.-Y., Faturay, F., Ting, Y.-P., Geschke, A., & Malik, A. (2018). The carbon footprint of global tourism. Nature Climate Change, 8(6), 522–528.

McCarroll, M. J., LaVanchy, G. T., & Kerwin, M. W. (2024). Tourism resilience to drought and climate shocks: The role of tourist water literacy in hotel management. Annals of Tourism Research Empirical Insights, 5(2), 100147.

Mitterwallner, V., Steinbauer, M., Mathes, G., & Walentowitz, A. (2024). Global reduction of snow cover in ski areas under climate change. PLoS One, 19(3), e0299735.

Nhep, T., Schott, C., & Sahli, M. (2021). Climate change adaptation in Cambodia's coastal hotel sector: An analysis of adaptation measures and hotel characteristics. Tourism Management Perspectives, 40, 100890.

Pons, M., Johnson, P. A., Rosas-Casals, M., & Jover, E. (2014). A georeferenced agent-based model to analyse climate change impacts on ski tourism at a regional scale. International Journal of Geographical Information Science, 28(2), 247–265. https://doi.org/10.1080/13658816.2013.833944

Reisinger, A., Howden, M., Vera, C., et al. (2020). The concept of risk in the IPCC Sixth Assessment Report: A summary of cross-Working Group discussions. Intergovernmental Panel on Climate Change, Geneva. https://www.ipcc.ch/site/assets/uploads/2021/02/Risk-guidance-FINAL_15Feb2021.pdf

Risklayer. (2026). Destination RiskScan platform [online platform]. Risklayer GmbH. Retrieved 17 October 2026, from www.destinationriskscan.org

Romero-Martín, R., Garola, A., Valdemoro, H. I., & Jiménez, J. A. (2025). Adapting beaches to sea level rise: A sediment-based strategy for protecting coastal tourism in Catalonia (NW Mediterranean). Ocean & Coastal Management, 267, 107729.

Santamarta, J. C., García-Gil, A., Clavijo-Núñez, S., & Cruz-Pérez, N. (2026). Island water stress: Analyzing the Canary Islands' hydrological response to climate change. Environmental Monitoring and Assessment, 198, Article 431. https://doi.org/10.1007/s10661-026-15219-y

Šavrič, J., Ladkin, A., Cooper, C., & Turnšek, M. (2026). Climate change and tourism work: A perspective paper. Tourism Review, 81(3), 1040–1044. https://doi.org/10.1108/TR-10-2024-0956

Scott, D., Gössling, S., & Hall, C. M. (2012). International tourism and climate change. Wiley Interdisciplinary Reviews: Climate Change, 3(3), 213–232.

Scott, D., Hall, C. M., & Gössling, S. (2019a). Global tourism vulnerability to climate change. Annals of Tourism Research, 77, 49–61.

Scott, D., Steiger, R., Rutty, M., Pons, M., & Johnson, P. (2019b). The differential futures of ski tourism in Ontario (Canada) under climate change: The limits of snowmaking adaptation. Current Issues in Tourism, 22(11), 1327–1342.

Scott, D., Steiger, R., Rutty, M., Knowles, N., & Rushton, B. (2021). Future climate change risk in the US Midwestern ski industry. Tourism Management Perspectives, 40, 100875.

Sheller, M. (2021). Reconstructing tourism in the Caribbean: connecting pandemic recovery, climate resilience and sustainable tourism through mobility justice. Journal of Sustainable Tourism, 29(9), 1436–1449.

Spalding, M., Burke, L., Wood, S. A., Ashpole, J., Hutchison, J., & Zu Ermgassen, P. (2017). Mapping the global value and distribution of coral reef tourism. Marine Policy, 82, 104–113.

Steiger, R., Demiroglu, O. C., Pons, M., & Salim, E. (2024). Climate and carbon risk of tourism in Europe. Journal of Sustainable Tourism, 32(9), 1893–1923.

Steiger, R., Scott, D., Abegg, B., Pons, M., & Aall, C. (2019). A critical review of climate change risk for ski tourism. Current Issues in Tourism, 22(11), 1343–1379.

Sun, Y.-Y., Faturay, F., Lenzen, M., Gössling, S., & Higham, J. (2024). Drivers of global tourism carbon emissions. Nature Communications, 15(1), 1–10.

TPCC. (2023). Tourism and climate change stocktake 2023. https://tpcc.info/downloads/

UNFCCC. (2026). Global goal on adaptation. https://unfccc.int/documents/655273

United Nations Environment Programme. (2026). Limiting Overshoot: Navigating exceedance of 1.5°C and pathways towards return. Nairobi. https://doi.org/10.59117/20.500.11822/49857

World Bank Group. (2024). Maldives Country Climate and Development Report. http://hdl.handle.net/10986/41729

World Tourism Organization. (2026). Glasgow Declaration Implementation Report 2024 – Advancing Climate Action in Tourism. UN Tourism, Madrid. https://doi.org/10.18111/9789284427192

Zhou, N., Vilar-Zanón, J. L., Garrido, J., & Heras-Martínez, A. J. (2024). Measuring climate change from an actuarial perspective: A survey of insurance applications. Global Policy, 15(S7), 34–46. https://doi.org/10.1111/1758-5899.13465

DESTINATION RiskScan

Explore all results at www.destinationriskscan.org

Destination RiskScan is developed and operated by Risklayer. The platform is available now for demonstration and early testing ahead of its formal launch in early 2027.

Demo requests: **info@risklayer.com**

TRAVEL FORWARD

Risklayer

CELTH Centre of Expertise leisure, tourism & hospitality