

EVOLVING EUROPEAN FLOOD RISK AND REGULATION IN A CHANGING CLIMATE

November 2025

Understanding the impact of climate change on key perils such as European flood is critical for effective risk management and responding to regulation. (Re)insurers can avoid unexpected losses–and help achieve long-term growth and profitability–by quantifying their exposure to the physical risk of climate change.

This briefing examines how climate change affects physical risks posed to insurers with flood exposure in Europe and the evolution of regulation associated with this risk.

Covered Topics

Introduction	Regulation	Evolving Risk Landscape
Climate Change Impact by Peril	Quantifying Your Climate Change Physical Risk	Conclusion

Key Takeaways

- In April 2021, the European Insurance and Occupational Pensions Authority (EIOPA) set out expectations on the supervision of the integration of climate change risk scenarios by insurers in their Own Risk and Solvency Assessment (ORSA). Updates to the Solvency II Directive now reflect this and will become part of national laws by 2027.
- National regulators have been asking for climate change analysis in ORSA submissions and are increasingly focusing on climate-related disclosures and risk management with an emphasis on quantification of impacts.
- The key principles of physics that warm air can hold more moisture provide some confidence that flooding in general is projected to increase in frequency and severity.
- Changes in river flooding are regionally dependent and uncertain, with increases in some regions, such as parts of the UK, and decreases expected in other regions, such as parts of southern and eastern Europe.
- Flash (or surface water) flooding is expected to increase in most regions due to an increase in extreme precipitation.
- Coastal flooding (including storm surge) is likely to increase with rising sea levels and the potential for increased extreme rainfall coinciding with high tide.
- The complexity and uncertainty surrounding regional flood projections underscore the importance of ongoing research, adaptive planning and risk quantification.
- An improved understanding of how perils are changing, the fact that an increasing number of regulators are requesting climate-related disclosures, and the increasing impacts of climate change on insurance business decisions mean quantifying your climate change risk has never been more important.

Introduction

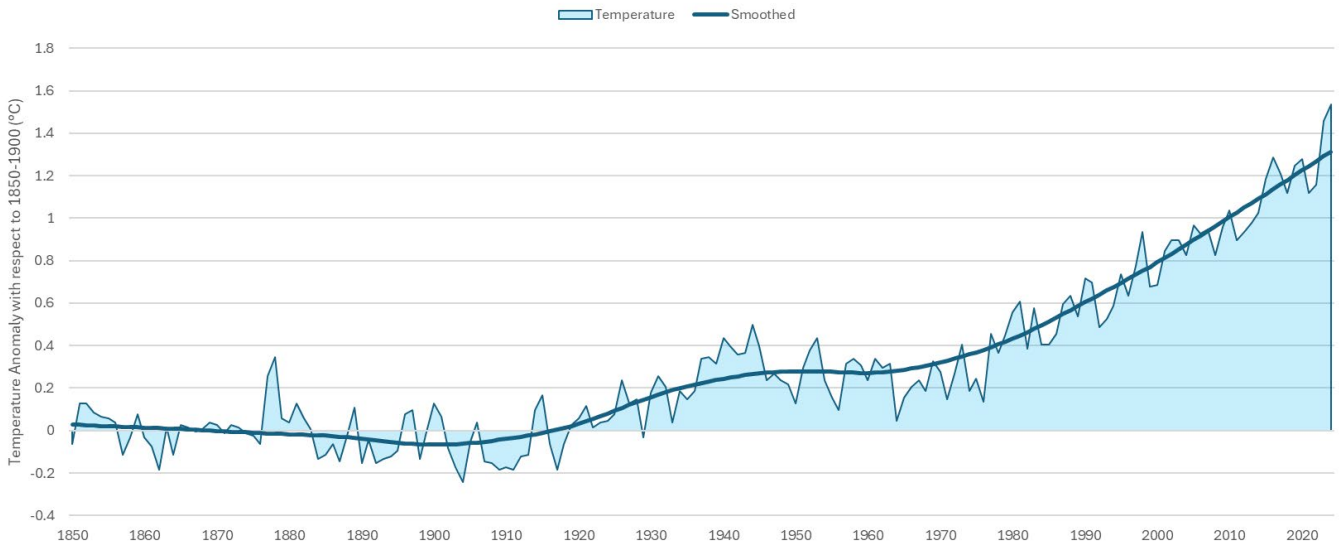
There is increasing pressure on insurers to understand the impacts of climate change on damaging weather. The Copernicus Climate Change Service (C3S) reported that 2024 was the warmest year on record, with the global average surface temperature more than 1.5°C warmer than pre-industrial times.[1] (Figure 1)

The increase in global temperature is projected to reach a longer-term average (over about 20 to 30 years) of 1.5°C (as set out in the Paris Agreement) by 2030, without a radical reduction in emissions. These seemingly small temperature increases can have a large non-linear impact on a wide range of perils. If there are no reductions in emissions in the medium term, then at least 3°C of warming is likely before the end of the century, which would bring more severe consequences.

Recent events, such as heavy rainfall in eastern Spain (2024) and flooding in central Europe (2024) and in Germany, Belgium and surrounding areas (2021), have been partially attributed to climate change. (Re)insurers can avoid unexpected losses—and help achieve long-term growth and profitability—by quantifying their exposure to the physical risk of climate change.

[1] "Copernicus: 2024 is the first year to exceed 1.5°C above pre-industrial level." https://climate.copernicus.eu/copernicus-2024-first-year-exceed-15degc-above-pre-industrial-level

Figure 1–Land-Ocean Global Surface Temperature Anomaly



Source: HadCRUT5, Met Office, https://climate.metoffice.cloud/temperature.html#datasets
Morice, C. P., Kennedy, J. J., Rayner, N. A., Winn, J. P., Hogan, E., Killick, R. E., et al. (2021). "An updated assessment of near-surface temperature change from 1850: the HadCRUT5 data set." *Journal of Geophysical Research: Atmospheres*, 126, e2019JD032361. https://doi.org/10.1029/2019JD032361

Regulation

Climate change presents 2 key forms of financial risk: those associated with a transition to a lower-carbon economy, and those related to the physical impacts of climate change. The physical impacts can be assessed and reported as either chronic or acute. Chronic physical risks are gradual changes in weather patterns, such as rising sea levels, droughts and extreme temperatures. Acute physical risks are sudden and severe events that can cause significant damage to property and infrastructure, such as hurricanes, floods, wildfires and storms.

Mandatory measuring and reporting of these risks has come into effect throughout Europe through a series of sustainable finance regulations, including the Corporate Sustainability Reporting Directive (CSRD), EU Taxonomy and the Sustainable Finance Disclosure Regulation (SFDR). Scenario analysis has also emerged as the critical forward-looking tool to assess and disclose the potential impact of climate risks.

The proposals under the "Omnibus" packages may reduce the complexity of EU requirements across sustainable finance reporting, sustainability due diligence, EU Taxonomy, carbon border adjustment mechanism and European investment programmes. While certain companies have been granted delays in implementation, the long-term expectations remain unchanged. Companies in the UK will follow similar standards to those proposed by the International Sustainability Standards Board.

At a supervisory level, the European Insurance and Occupational Pensions Authority (EIOPA) set out expectations in April 2021 on the supervision of the integration of climate change risk scenarios by insurers in their own risk and solvency assessment (ORSA). EIOPA's key areas of activity on sustainable finance now cover managing sustainability risks (including prudential treatment of sustainable assets and liabilities as well as application guidance on climate change materiality assessment and scenario analysis for ORSA reporting), addressing protection gaps, fostering sustainable behaviour and sharing expertise and data on catastrophe (cat) risks.

Recent reassessment of natural cat risk parameters within the Solvency II framework brought significant attention to flood risk across Europe, particularly in light of updated models and the likely effects of climate change. Flood is the peril for which (re)assessment of parameterisation has been conducted for the greatest number of countries. The Netherlands, Ireland and Scandinavian countries are among the regions to be assessed for the first time. Updates to the Solvency II directive also include mandatory integration of climate scenario analysis in the ORSA, which must be transposed into national regulations by 2027.

At a national level, several regulators have also included

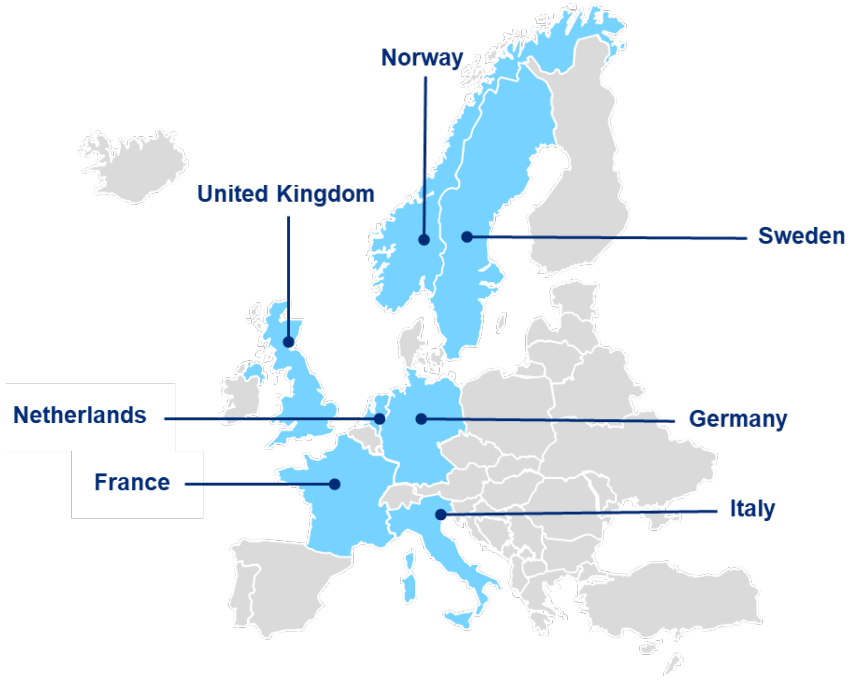
specific guidance on expectations around the inclusion of climate change in the ORSA. Insurers are expected to evolve the sophistication of their scenario analyses, taking into account the size, nature, and complexity of their climate change risk exposures. Some examples of expectations and analyses conducted by European (re)insurance regulators are highlighted in Table 1 on the next page.

National regulators are asking insurers to assess the impacts of climate change on their business processes and risk management, with an increasing emphasis on quantifying the risk. This includes the impact on underwriting, reserving, and capital management, for example:

- Stress testing financial results for the change in frequency and severity of floods.
- Assessing the appropriateness of models for the current climate and representing recent events in cat models.

The visualization and table below provide an overview of some of the expectations and analyses conducted by (re)insurance regulators across Europe.

Figure 2 – Examples of Expectations and Analyses Conducted by European (Re)insurance Regulators



Source: Guy Carpenter

Table 1 – Expectations and Analyses Conducted by (Re)insurance Regulators

Country	Regulator	Expectations
France	ACPR (Autorité de contrôle prudentiel et de résolution)	• The 2024 climate stress test involved a short-term scenario focused on a sequence of severe weather events and long-term scenarios based on the work of the Network for Greening the Financial System (NGFS) • ACPR found that insurers are significantly exposed to natural disasters, with geographical disparity for drought, subsidence and flooding risks • Insurers have made progress since the first stress test in 2020 but the ACPR encourages insurers to continue their efforts towards integration of climate risk in their strategy, governance and internal models

Country	Regulator	Expectations
Germany	BaFin (Bundesanstalt für Finanzdienstleistungsaufsicht)	• BaFin will continue to focus on the integration of physical risks into risk frameworks in 2025 • BaFin will analyse how selected supervised entities deal with physical and transition risks in their risk inventory, as well as the role that adaptation to climate change and environmental risks plays for companies (including the loss of biodiversity)
Italy	IVASS (Istituto per la Vigilanza sulle Assicurazioni)	• Since 2022, IVASS has been requiring insurers to provide quantitative and qualitative information on their exposures to climate change-related events and how they manage their portfolio, in line with the commitment made by the regulator during the Finance Day of the UN Climate Change Conference-COP26 (November 2021) • There are additional requirements for incorporating sustainability in insurers' governance and investment strategies
Netherlands	DNB (De Nederlandsche Bank)	• Since the results of a survey by the DNB of 127 Dutch financial institutions in 2021, which concluded that most institutions do not yet sufficiently incorporate sustainability risks in their risk management, there has been a series of stress tests, particularly around flood, cloudburst, and hailstorm, as well as guidance around managing climate and environmental risks • Climate stress testing remains a key tool employed by DNB to comprehensively assess climate risk from a macroeconomic perspective
Norway	FSA (Finanstilsynet)	• In 2024, the FSA mapped the assessment of climate risk in the ORSA in 31 insurance companies and determined that most companies need to further develop their analyses of climate risk to align with recommendations and expectations regarding quantification and preparation of long-term risk assessments • Assessment of future climate risk should be a priority, and the FSA will monitor developments as part of its ongoing supervisory activities
Sweden	FI (Finansinspektionen)	• In 2024, FI analysed how several non-life insurance companies included sustainability risks in their ORSA reports and concluded that the companies will need to improve their reporting of climate change risks ahead of new requirements being introduced in Swedish legislation at the beginning of 2027 • FI highlighted that materiality assessments and scenarios with a long-term perspective are areas for improvement
United Kingdom	FCA (Financial Conduct Authority) and PRA (Prudential Regulation Authority)	• In 2021, the UK Climate Biennial Exploratory Scenario (CBES) highlighted key areas for improvement in climate risk management • Consultation Paper 10/25, which closed in July 2025, set out proposals by the PRA to update supervisory expectations for banks and insurers on management of climate-related risks • The PRA has warned that insurers' current management of climate-related financial risks remains insufficient

Evolving Risk Landscape

The frequency and severity of natural disasters are expected to increase due to climate change. The subsequent impact on insured loss is highly dependent on the peril and region of interest and is described in the section "Climate Change Impact by Peril."

Climate change is not the only factor influencing how the catastrophic financial risk to (re)insurers changes from year to year. Climate change generally changes the risk gradually over time, although the financial impact may be realised only when a significant event occurs. In contrast, other factors can lead to more abrupt changes in risk, such as the impact of inflation on rebuilding costs or the implementation and maintenance of flood defences. Behavioural effects such as building new properties in flood-prone areas, and urbanisation resulting in the concentration of risk and strain on drainage systems, can also significantly impact financial losses. These other factors will often have a larger impact than climate change, and we compare examples of them and climate change in Table 2.

In addition to the direct impact on property and financial loss, climate change and human factors can affect biodiversity and ecosystems. These can have a knock-on effect on susceptibility to natural disasters and natural resources for societies and economies.

Table 2 – Examples of Factors Influencing Insured Catastrophic Risk

Factor	Example
Climate Change	Warming air can hold more moisture, resulting in increased flash flooding
Natural Variability	Large-scale circulation patterns, such as the North Atlantic Oscillation (NAO), can influence storm activity and associated rainfall or storm surge
Population Growth	Increases in the number and the concentration of insured properties increases the exposure at risk of loss
Population Migration	Urbanisation–increases the proportion of people living in coastal regions, increasing exposure to the risk of loss
Adaptation	Improved flood defences–updated building codes. Generally, reduces damageability and loss, but if not properly implemented and maintained, they can have the opposite effect
Insured Value	New buildings–increases in insurance penetration. Increasing exposure at risk of loss
Economic Conditions	Inflation in rebuilding costs. Increasing the value of exposure at risk of loss

SCENARIO ANALYSIS HAS EMERGED AS A KEY FORWARD-LOOKING TOOL TO ASSESS AND DISCLOSE THE POTENTIAL IMPACT OF CLIMATE RISKS

Climate Change Impact by Peril

We evaluate the impact of climate change on a peril based on observations, climate models, and our understanding of physical drivers. In cases where we have a consistent view–a long observational record, high-resolution climate model output, and a good understanding of the physical drivers–we will then have high confidence in our assessment. Conversely, there are many reasons why we would have lower confidence. For example, if an observational record is short or unreliable, if climate model outputs have low resolution, or if there is disagreement between different climate models.

Here, we summarise the climate change impact on temperature, flash (surface or pluvial) flooding, river (or fluvial) flooding, and storm surge. Note that climate change has a significant impact on a wide range of other perils, which are covered in separate briefing notes.

Figure 3 – Summary of Climate Change Impacts Per Peril

Peril	Direction of Change	Scientific Confidence
Temperature	▲	High
Flash Flooding	▲	High
River Flooding	▲▼	Low to Moderate
Storm Surge	▲	High

*Upward-facing arrow indicates an increase, downwards-facing arrow indicates a decrease.

Source: Guy Carpenter

Climate Change Impacts on Temperature

Global average temperatures (averaged over a 5-year period) have increased by approximately 1.3°C to 1.4°C between pre-industrial times (1850 to 1900) and 2024. Europe has warmed faster, with temperatures rising by approximately 2.4°C over this period.[2] Polar regions have experienced the fastest global warming rates (commonly referred to as Arctic amplification) (Previdi et al., 2021). Numerous factors cause Arctic amplification, but one of the most important drivers of the accelerated warming of northern latitudes is the melting of highly reflective surfaces.

Table 3 – Climate Change Impacts on Temperature

Characteristic	Climate Change Impact	Scientific Confidence	Impact on Loss
Average Temperatures	• Europe has warmed faster than the global average, with global temperatures rising by approximately 1.3°C to 1.4°C between pre-industrial times (1850 to 1900) and 2024 • Projections from the Coupled Model Intercomparison Project 6 (CMIP6) initiative suggest that temperatures across European land areas will continue to increase throughout this century at a higher rate than the global average • Median ensemble outputs for the Shared Socio-Economic Pathway (SSP) 1-2.6 low emissions scenario indicate that by 2100, temperatures across Europe may increase by 1.2 to 3.4°C relative to 1981-2010, while the high emissions SSP5-8.5 scenario may increase temperatures by 4.1 to 8.5°C[3] • The highest level of warming is projected across northeastern Europe, northern Scandinavia, and inland areas of Mediterranean countries. The lowest warming is expected in western Europe, for example, in the UK, Ireland, western France, the Benelux countries and Denmark	High confidence	Increasing temperatures are expected to amplify risk

[2] "Climate Indicators: Temperature." https://climate.copernicus.eu/climate-indicators/temperature

[3] "Global and European temperatures." *European Environment Agency*. https://www.eea.europa.eu/en/analysis/indicators/global-and-european-temperatures#:~:text=Land%20temperatures%20in%20Europe%20are,compared%20to%201981%2D2010

Climate Change Impacts on Flash Flooding

Intense rainfall has a relatively direct link to surface water flooding, and therefore, the climate change impact is generally well understood, with a warming climate expected to lead to increased extreme rainfall. The magnitude of change is less well understood, since coarse-resolution global climate models do not accurately capture rainfall, particularly local-scale intense rainfall. In addition, the ability of the ground and drainage systems to cope with heavy rain can influence the resulting impact.

The likelihood of Europe experiencing drought or flooding is linked to whether low pressure or high pressure is dominating at any given time. Low-pressure systems bring storminess and precipitation, while high-pressure systems bring clear skies and increased surface evaporation. In addition, small-scale thunderstorms can bring intense rainfall, particularly in the spring, summer and autumn. These features can be highly variable and difficult to predict and model. Despite this, there is emerging evidence that recent events have been partially attributed to climate change.

Eastern Spain was affected by intense rainfall from 29 to 30 October 2024, which resulted in more than 200 deaths, the highest number due to a flood in Europe since 1967.[4] Scientists have recently developed methods for establishing the role of climate change in the occurrence of significant events. These studies provide estimates of the attribution and should only be interpreted in this light. An attribution study by the World Weather Attribution[5] found that 1-day rainfall events as intense as the one experienced during October 2024 are about 12% more intense and twice as likely at the level of warming in 2024 compared to the pre-industrial climate.

Heavy rainfall associated with low-pressure system Bernd caused severe flooding in Germany, Belgium, Luxembourg, and the Netherlands in July 2021. Impacts were exacerbated by already saturated soil and local terrain. The total insured industry loss for this event for Europe was estimated at EUR 11.3B as of 13 October 2022 by PERILS, with most of the loss in Germany, followed by Belgium. It is estimated that the 1-day rainfall was 3-19% more intense than it would have been without global warming, and the likelihood of such an event has increased by a factor of 1.2 to 9.[6]

Table 4 – Summary of Climate Change Impacts on Flash Flood

Flood Characteristic	Climate Change Impact	Scientific Confidence	Impact on Loss
Flash flooding—intense rainfall	• An increase in the moisture-holding capacity of the atmosphere leads to increases in extreme rainfall of ~7%/˚C and above. Increases in frequency and intensity • Past and future projected increases in heavy precipitation across Europe, with the highest confidence in these changes under high future emissions scenarios • Maximum 1-day precipitation events that are currently expected to occur once in 10 or 50 years on average are projected to become up to twice as frequent under 3˚C of warming relative to today's climate (2022), with the largest increases projected for northern Europe	High confidence	Significant increase in surface water flood losses for most regions This changing risk is particularly acute in urban areas due to urban sprawl, increasing property values in urban areas, surface water run-off, and, in some cases, insufficient drainage

[4] "More than 200 killed in Valencia floods as torrential rain hits another Spain region." *BBC News*. https://www.bbc.co.uk/news/live/cgk1m7g73ydt
[5] "Extreme downpours increasing in southeastern Spain as fossil fuel emissions heat the climate." *World Weather Attribution.* https://www.worldweatherattribution.org/extreme-downpours-increasing-in-southern-spain-as-fossil-fuel-emissions-heat-the-climate/
[6] https://www.worldweatherattribution.org/heavy-rainfall-which-led-to-severe-flooding-in-western-europe-made-more-likely-by-climate-change/

Climate Change Impacts on River Flooding

The response of riverine flooding to climate change is dependent on multiple factors, including annual and extreme rainfall, soil moisture, temperature, snowmelt and catchment characteristics. In addition, human factors such as flood defences, dams and reservoir management have a significant impact on river flooding risk. As a result, the impact of climate change on river flooding is complex, difficult to predict and highly regional.

While the atmosphere is getting warmer and can hold more moisture, leading to more extreme rainfall in general, regional rainfall patterns vary. The amount of precipitation falling as snow during the winter is expected to decrease in the regions where the winter temperatures do not constantly remain below the freezing point, along with an earlier snowmelt in spring. River floods due to snowmelt are therefore expected to decrease in some of the regions where snowmelt is a dominant flood generation mechanism (e.g., Nordic and Alpine regions).

There is variability across Europe projected in all studies, with the flood hazard decreasing in some regions and increasing in others. Some regions show robust, consistent changes across studies (e.g., the Nordic and Atlantic regions), while others show diverging tendencies (e.g., southern and eastern Europe).

Any observed trends or projections are highly dependent on the geographical resolution at which these changes are analysed. Due to the very localised nature of flooding and regional rainfall patterns, in addition to the many other factors affecting river flooding on a local scale, vastly different results may be obtained at an individual location level compared to at a catchment, country or continent level.

Observed Trends

Although increases in extreme precipitation have been observed in many European locations, impacting both the frequency and the severity of extreme precipitation (Kundzewicz et al., 2017), no clear consensus has been observed for river discharge variations across all of Europe. This lack of consensus on river discharge changes is likely due to the large number of competing factors influencing river discharge, including changes in flood defences, land use, catchment characteristics, local effects and natural variability. Mudelsee et al. (2003), Kundzewicz et al. (2005), and Madsen et al. (2014) found no uniform upward trend for peak discharges, but rather highly spatially dependent variations. Blöschl et al. (2017) found some evidence of changing river discharge trends. Regional flood discharge trends in Europe range from an increase of +11% per decade to a decrease of -23% (Blöschl et al., 2017).

There is some evidence for a shift in timing. Blöschl et al. (2017) analysed 4,262 river gauge stations in Europe and found clear patterns of change in flood timing. Warmer temperatures have led to earlier spring snowmelt floods throughout northeastern Europe – delayed winter storms associated with polar warming have led to later winter floods around the North Sea and some sectors of the Mediterranean coast; and earlier soil-moisture maxima have led to earlier winter floods in Western Europe (Blöschl et al., 2017).

Overall, Blöschl et al. (2017) observed 3 key trends in European river flooding:

- Increasing autumn and winter temperatures have led to increasing floods in northwestern Europe.
- Decreasing precipitation and increasing evaporation have led to decreasing floods in medium and large catchments in southern Europe.
- Decreasing snow cover and snowmelt because of warmer temperatures have led to decreasing floods in Eastern Europe.

Human factors, such as flood adaptation and management measures, can have a more significant impact than changing the hazard. A large region of Central Europe experienced flooding during September 2024, including Poland, the Czech Republic, Austria, Romania, Hungary, Germany and Slovakia. The Czech Republic, Poland, and Austria were the worst affected. However, improvements in flood forecasting, flood defences, and management since the floods of 2002 and 1997 have reduced the damage and number of fatalities significantly.

Future Projections

There is consensus that extreme flood hazard will decrease in Nordic countries in the spring due to increased temperatures altering snow dynamics (Rojas et al., 2012; Alfieri et al., 2015; Roudier et al., 2016; Donnelly et al., 2017; Thober et al., 2018). Decreases in snowpack will lead to less spring snowmelt and a reduction of spring floods (Thober et al., 2018). For the same physical reasons, predictions for the Alpine regions in Central Europe show a similar downward trend of peak discharges (Brunner et al. 2019).

Western Europe and the British Isles are another region where predictions show robust results but with an upward trend due to increased precipitation extremes (Kay et al. 2021). This part of Europe is strongly influenced by the Atlantic meteorological regime.

Different signs of change are reported in Central and Eastern Europe (except for the Alpine region, as described previously). Projections by Rojas et al. (2012) and Alfieri et al. (2015) show considerable differences for much of Poland, the eastern part of

Germany, and parts of Romania and Bulgaria (Kundzewicz et al., 2017). Thober et al. (2018) report an overall decrease for continental Europe, but with contrasting trends within the region. Roudier et al. (2016) present a strong increase in flood magnitudes except for some parts of Bulgaria, the Czech Republic and Poland.

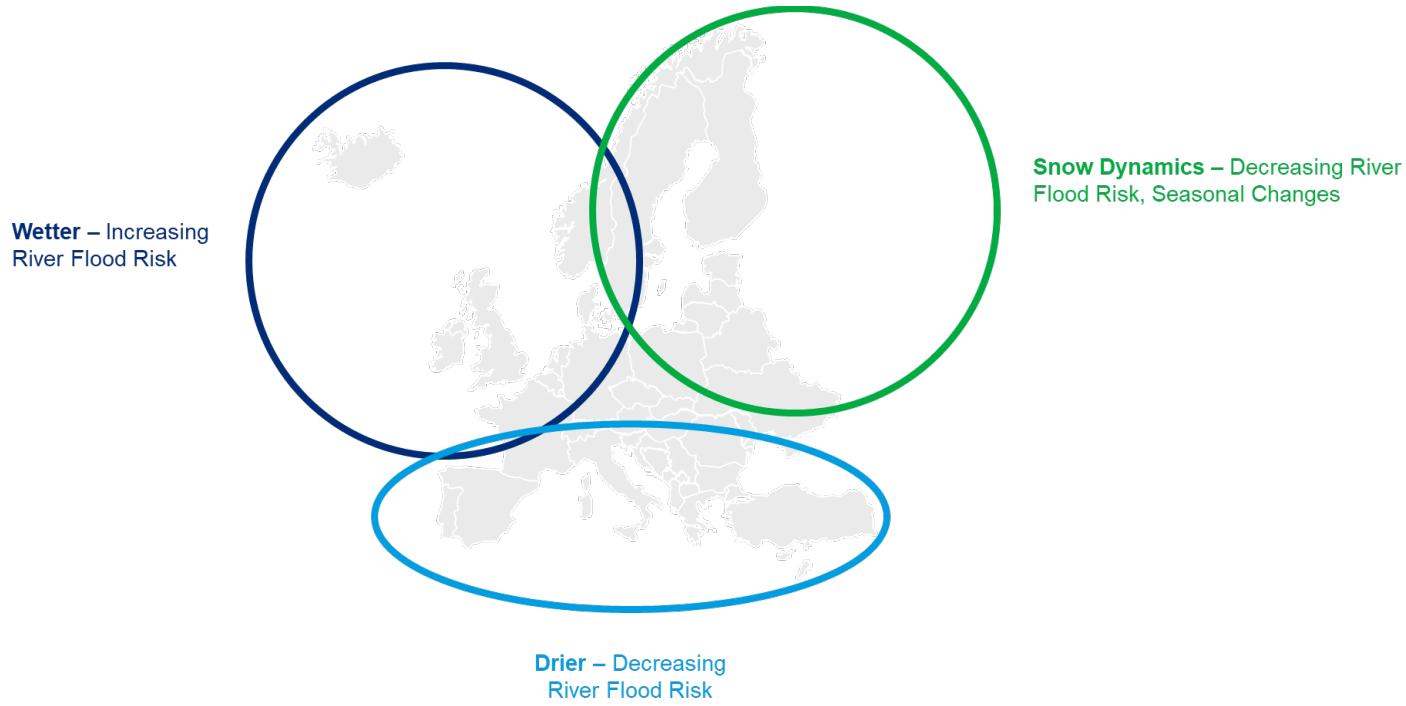
According to Mentaschi et al (2020), 100-year return level river discharge is projected to increase under 1.5°C and 2°C warming in most parts of Europe by up to 30%, except for southern Spain, parts of Norway and Finland. However, there is great uncertainty in the model projections.

It should be noted that while surface processes are considered in hydrological models that convert precipitation into runoff, all European-scale studies incorporate hydrological models calibrated against historical discharges. Typically, changes in defences, land use, or land cover are not taken into account when making projections for future conditions, as they are highly uncertain, policy-driven parameters. The assumption that the model parameters calibrated on current conditions will remain constant in a future climate is not necessarily true (Merz et al., 2011).

Table 5 – Summary of Climate Change Impacts on River Flooding

Flood Characteristic	Climate Change Impact	Scientific Confidence	Impact on Loss
Riverine flooding– total rainfall and evapotranspiration.	• Intensification of the hydrological cycle results in a global increase of rainfall of 2%/°C to 3%/°C • Wetter regions (northern Europe) are generally becoming wetter, and drier regions (southern Europe) are becoming drier • Increasing flood risk in parts of western Europe, the UK, and Ireland due to increased rainfall • Decreased snowfall and earlier snowmelt are expected to reduce flood risk in some Nordic countries and parts of northeastern Europe and Alpine regions • Evaporation is expected to increase, resulting in lower soil moisture levels and decreased flooding in parts of southern Europe	• High confidence in a global increase in rainfall • Low to moderate confidence is associated with regional impacts	• Highly regional changes are expected, with both increases and decreases in river flood • Losses are heavily impacted by changing flood defences, the location of the property, and urbanisation

Figure 4 – Regional Indicative Impacts of Climate Change on River Flooding



Source: Guy Carpenter

Climate Change Impacts on Storm Surge

Storm surge is affected by the storm wind field and the state of the sea, for example, tides, waves and sea level. The mean sea level has been rising and is expected to continue to do so, due to the melting of glacial ice and the thermal expansion of water. There is some evidence of a future increase in storminess in northwestern Europe, but the magnitude of change is small, and there is a large amount of uncertainty in these projections. The primary mechanism by which storm surge will increase in severity and frequency in the future is through rising mean sea level, with wind-driven changes expected to be small. Even relatively small changes in sea level can have a significant impact on storm surge severity and frequency.

Table 6 – Summary of Climate Change Impacts on Storm Surge

Storm Surge Characteristic	Climate Change Impact	Scientific Confidence	Impact on Loss
Storm Surge	Rising sea levels are likely to result in increased frequency and severity of storm surges.	High confidence	Higher losses for any storm surge-exposed region, and the possibility of new areas at risk

Conclusions

As scientific understanding of how climate-related perils are evolving continues to advance, along with an increasing number of regulators emphasizing climate-related disclosures, quantifying climate change risks has become more critical than ever. Accurate risk assessment can help insurers and stakeholders anticipate and mitigate unexpected losses from shifting flood patterns. However, it is essential to recognize that climate change may not be the sole or primary driver of changes in loss experience – factors such as natural variability, inflation, and socio-economic development also play significant roles. A comprehensive approach that integrates these elements is vital for effective risk management, pricing, and capital allocation in an era of evolving flood risks in Europe.

Quantifying Your Climate Change Physical Risk

There is a growing number of reasons for quantifying your climate change risk:

- Responding to regulatory requests
- Representation of risk to third parties, for example, credit rating agencies, investors, or (re)insurers
- Incorporating climate change into risk management, pricing, and capital decisions

The type of risk assessment to implement is dependent on the use case. Important questions to consider before making any climate change assessment include the following:

Key Questions to Consider

- Is the qualitative or quantitative assessment required?
- What scenarios are of interest? This could be a specific emissions pathway and time horizon, for example, RCP-4.5 in 2050, or instead a global warming level scenario, for example, 1.5°C.
- Do you require an assessment on whether existing climate change is adequately represented in your current view of risk?
- What form of data is required to embed the climate change assessment in your existing decision-making processes?

How Guy Carpenter Can Help

Guy Carpenter is helping our clients address these questions and quantify their climate change physical risk through a variety of methods. For the quantification of risk, Guy Carpenter has developed proprietary tools ranging from underwriting and accumulation layers to adjustments to third-party cat models and in-house probabilistic models developed for climate change. Furthermore, we have a broad overview of market practices that can help clients benchmark their activities.

Contacts

Guy Carpenter combines deep scientific expertise, strong market and regulatory relationships, and analytical capabilities to support insurers' understanding, quantifying, and risk reporting.

If you are interested in learning more about any of our offerings, please contact the following specialists.

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