



Academia

- The Risk Prediction Initiative ([RPI2.0](#)) was founded in 1995 by a group of Bermudian insurers and reinsurers and the Bermuda Institute of Ocean Science (BIOS). The RPI aims to be a centre of excellence in (re)insurance-relevant research in Bermuda. It seeks to expand its academic links, international network of world-class scientists, and industry members and associations.
- In 2014, Swiss Re published a Sigma report on [Natural catastrophes and man-made disasters in 2013: large losses from floods and hail; Haiyan hits the Philippines](#). The report stresses that, along with local prevention and mitigation measures, insurance is a powerful measure to strengthen resilience against catastrophe events. The wide gap between economic and insured losses caused by natural disasters places a significant burden on the public sector and, ultimately, uninsured individuals and businesses. By pricing risk and thus incentivising investments in prevention measures, the (re)insurance industry can help reduce the economic and social costs of catastrophes. In 2016, Swiss Re published its report on [Natural catastrophes and man-made disasters in 2015: Asia suffers substantial losses](#).

Apps

Several insurers have developed apps to inform consumers of extreme weather events or if their properties are under potential risk from such events.

- The Austrian Association of Insurers (VVO) has developed the HORA app for flood warnings. It helps to determine while outdoors whether there is an impending risk of flooding or other natural hazards. An important additional category that will soon be incorporated is a presentation of current weather data on floods, such as current water levels of more than 250 gauges, earthquakes, storms, hail, lightning and snow.
- To educate the public and industry alike about the increased risk of natural catastrophes posed by climate change, Swiss Re released its Flood Risk App in August 2012. The app gives a general understanding of flood risks and explains how to manage and insure them. It also explores different types of flooding and the challenges involved in making them insurable. It highlights the importance of adapting to climate change and shows how reliable flood information can strengthen flood preparedness.

Assessment

- Bermudian insurer Aspen is heavily invested in research initiatives on natural hazards and climate. These include not only an in-house research and development team established in 2008 but also support for the Risk Prediction Initiative (RPI) in Bermuda and the US Institute for Business and Home Safety (IBHS). In-house research includes the consideration of climate change and climate variability in catastrophe modelling, eg by developing Aspen's own medium-term rates for the hurricane model created by catastrophe risk modeller RMS for the Atlantic basin.
- In Switzerland, an open-source economics of climate adaptation assessment model called [Climada](#) has been developed. Climada uses state-of-the-art probabilistic modelling to estimate the expected economic damage, the incremental increase from economic growth and the further incremental increase of damage resulting from climate change. The economics of climate adaptation methodology, as implemented in Climada, provides decision-makers with a fact base for understanding the impact of climate on their economies and for identifying actions to minimise that impact at the lowest cost to society, allowing them to manage total climate risk.

Awareness

The insurance industry plays an important role in raising risk awareness, based on the expertise it has gained through extensive research and long experience. Insurers also contribute to awareness-raising via their underwriting policies (eg risk-based insurance premiums, excesses or deductibles, required prevention measures, terms and conditions).

When individuals and companies finance solutions themselves, they are more aware of the risks and financial consequences they face. This encourages them to limit their exposure by taking preventive measures and helps mitigate the human, economic and financial costs resulting from a disaster.

- Awareness raising campaigns are currently conducted in seven German federal states. These natural risk awareness campaigns are undertaken thanks to cooperation between the federal states, consumer protection organisations, the German insurance industry and architects, among others. These institutions share a common goal: to raise awareness about the effects of climate change, natural hazards, loss prevention, best practices for natural catastrophe-resilient buildings or insurance. Thanks to the high level of risk awareness in Germany, the insurance penetration rate for natural perils such as storm or hail is more than 90%.
- The French insurance industry takes part in public risk-awareness and preparedness information campaigns organised by regional authorities. It also cooperates closely with other trade associations and flood-plain management authorities on risk awareness-raising activities.

Certificate

- In Austria, work is currently being undertaken in order to establish a national certificate for buildings. In addition to their geographical risk location, this certificate will provide information on how the means of construction provides resilience against natural perils such as hail, storm, floods, landslides, etc. In its final version, this certificate will have a similar function to the existing energy performance certificates for buildings.

Commitment

- The American International Group (AIG) was the first US-based insurer to adopt a public statement on the environment and climate change, recognising the scientific consensus that climate change is a reality and is in large part the result of human activities that have led to increasing concentrations of greenhouse gases in the earth's atmosphere. Climate change is seen as a serious global environmental problem with risks to the world economy and ecology, and to human health and wellbeing, and AIG supports market-based environmental policies to address the problem.
- By the end of 2015, US insurer The Hartford achieved the U.S. Department of Energy "Better Buildings Challenge" goal of reducing its per-occupant energy use by 21% from a 2013 baseline, achieving the goal of 20% by 2023 for fully managed buildings, earning public White House public

praise as an “Early Achiever.” Energy savings have been achieved through consolidating staff in fewer buildings and mechanical upgrades such as LED lighting with occupancy sensors, elevator upgrades, building automation, and higher efficiency HVAC systems.

Consumer

The insurance industry develops risk-based terms and conditions and provides advice to consumers on how to adapt to climate change. Insurers also use underwriting to motivate policyholders to invest in adaptation and prevention measures or green/energy-efficient alternatives.

- Members of the Association of British Insurers (ABI) have taken action to ensure that customers are informed about climate risk, providing support and information tools, encouraging climate-change adaptation and a reduction in customer greenhouse-gas emissions through insurance products and premiums where possible, and seeking to increase their number of sustainable claims.
 - Examples include emails and microsites offering practical guidance to customers, text and radio alerts warning of extreme weather events, and motor insurance initiatives offering bikes as an alternative to rental cars.
- The Dutch insurance association provides general information and tips on weather-related damage and how to prevent damage on their [consumer website](#).

Cover

- The enterprise risk management and catastrophe teams of US insurer W.R. Berkley investigate the possibility of “model miss” within vendor catastrophe models: this includes a comparison of modelled industry losses against revalued historic losses, investigation of individual subcomponents within the model and “stress testing” of model frequency and severity assumptions.
- Like most European insurers, Finnish insurance companies have developed a comprehensive natural disaster cover for household insurance.
- American International Group (AIG) offers products to low-income populations whose livelihoods and small businesses are most vulnerable to natural catastrophe risks. The availability of microinsurance contributes to communities by supporting the growth of small businesses and the financial stability of individuals.
 - [Blue Marble \(microinsurance venture incubator\)](#): During the World Economic Forum in January 2015, AIG joined with seven other insurance organisations to launch a microinsurance venture incubator. This is a collaborative, first-of-its-kind, for-profit organisation. The goal is to bring collective experience and expertise to help develop the microinsurance market.
- The developing world will be adversely affected by climate change, yet in many cases the insurance options to reduce risk, that many take for granted in the developed world, are not available. This is one of the reasons why [eight Lloyd’s syndicates](#) joined forces to develop solutions to help developing economies tackle underinsurance and improve their resilience against the economic impact of natural catastrophes.

Damage

- The Nordic insurance associations have worked together on a report on [Weather related damage in the Nordic countries from an insurance perspective](#) to show the similarities and differences between the Nordic countries as regards insurance coverage, legal issues and climate activities.

Mission Risques Naturelles (FR) and French construction experts association Agence Qualite Construction (AQC) worked together on a [study](#) on the components and contributing factors of damage to buildings caused by weather-related factors. The data used came from reports from the loss adjusters.

Data-sharing

- The Federation of Finnish Financial Services (Finanssialan Keskusliitto) has a joint flood insurance data-sharing initiative with the Finnish Environment Institute.

Expertise

The (re)insurance industry has been accumulating and sharing expertise on climate risks for many years. Assessing and managing these risks is part of its core business. Insurers share their expertise with the public authorities, which have the means to implement the required prevention and adaptation measures.

- In 2007, US insurer The Hartford created an Environment Committee as part of its public commitments on climate change. The Committee is made up of 17 business leaders across the group, including risk management, service operations, representatives of the group's three main business lines (consumer markets, commercial markets and wealth management), its investment company, human resources, marketing and communications, and government affairs.

Flexibility

- American Insurance Group (AIG) in the US has noted that climate-related developments may affect 1) reputational risk (ie the potential impact of any negative perceptions of the public, suppliers or customers of AIG's carbon performance) and 2) societal or consumer behaviour (ie climate change-induced changes in customer preferences for products and services).

Flood

- Norwegian insurers and the national authorities cooperated on a [flood damage survey](#) after major floods in Norway in 2013. The final report outlined the benefits for flood risk management of including flood parameters in future damage surveys.
- In France, the National Strategy for Flood Risk Management ([SNGRI](#)) takes a holistic approach to the implementation of the Flood Risk Directive, focusing on its objectives, the role of the different stakeholders and the priorities in allocating financing resources for action.

Green

- In the US, German insurer Allianz offers its retail and commercial customers a growing range of green products and services, supporting a low-carbon economy, protecting the environment and helping clients prepare for the negative effects of climate change and/or mitigate the associated risks.
- A coalition of leading Norwegian businesses, amongst them Sparebank1 — an insurance and financial institution — is collaborating to realise the opportunities presented by the low-carbon transition. The '[Norway 203040](#)' project was initiated following an announcement by the Norwegian government in February 2015 that the country would reduce its emissions by 40 per cent from 1990 levels, and it has now embarked on its second phase. In the first phase of the project, 10 businesses and three supporting organisations identified opportunity areas; spheres in which Norway could, with bold and concerted collaboration between business and government, unlock new competitive positions. These areas were: high-tech industry, electric mobility, and the bio-economy, with finance highlighted as a key enabler.

Greenhouse gas

- The Nordic insurance associations have cooperated on assessing the climate impact of fire and water damage, which are the most common and costly types of damage to property. The damage is also costly in terms of the CO₂ emissions that are released. Reducing such damage will therefore not only have an impact on costs and insurance premiums, it will also have an effect on climate change. Its report on "[CO₂ emissions associated with the management of water and fire damage in the Nordic countries](#)" estimates the CO₂ emissions of different types of property damage.
- Lloyd's has been tracking its greenhouse gas emissions since 2008. It works with Carbon Smart, its environmental consultants, to calculate the emissions from its global operations. These are

published each year in Lloyd's annual report and a full inventory for 2015, including Carbon Smart's public opinion statement, can be found [here](#).

- By the end of 2015, American insurer The Hartford met its third voluntary goal to reduce greenhouse gases another 19%, using 2013 as base year. The company has reduced emissions every year since measurement began in 2007. The cumulative decrease between 2007 and 2015 is 57%.

Guidelines

- In 2013, the Nordic insurance industry undertook a survey to view the development in climate awareness, knowledge and action among Nordic insurers following the production of a [Nordic Best Practice guideline for insurers](#) in 2009. Its report showed the status of the insurance industry's risk assessment and measures related to climate change. The aim was to bring social and environmental responsibility into focus and for the industry to set new and ambitious goals to tackle future challenges.

Impact

- Members of the Association of British Insurers (ABI) take into account the environmental impact of their business. They screen potential suppliers against environmental criteria (including climate change), and prioritise suppliers that have established environmental policies and management systems. For their own operations, common areas of work include increasing renewable energy use, carbon offsetting, energy and water efficiency measures, and recycling initiatives.

Information

The insurance industry plays a key role in informing policymakers by speaking out on issues of common interest and participating in debates on policy issues. It is vital to promote risk awareness — particularly in some countries — and to better inform citizens about the measures they themselves can take to mitigate against and adapt to climate change.

- Insurance Sweden (Svensk Försäkring) recently published a [report](#) on how homeowners can protect their houses from damage resulting from backflow in the sewage system.
- The Dutch insurance association (VVN) raises awareness by organising themed events and publishing press releases, articles and presentations on climate change.
- Insurer Lloyd's works to improve the analysis and quantification of less or non-modelled regions and risks, including climate and environmental issues. As the climate changes, catastrophe models will have an increasingly important role to play — the ability to tap into multiple sources of expertise will be invaluable. In 2014, Lloyd's released a report on [Catastrophe Modelling and Climate Change](#). Lloyd's continues to promote it and to generate interest in the findings.

Insurability

In several countries, insurance coverage for natural hazards is difficult to provide because of the potential size of the risk and the limited pool of policyholders. Active public-private partnerships can help to ensure that the conditions of insurability are met or improved, thus allowing cover to be provided at a reasonable price.

- The French natcat insurance system has been operating for over 35 years. It is a public-private partnership between insurers and national authorities offering insurance for both personal and commercial lines. This allows for extended coverage against mostly non-insurable weather-related risks. The Bureau Central de Tarification acts as a safety net for those who have been denied insurance, eg due to multiple claims, violation of land-use planning or for not having implemented prevention measures.

Investment

The insurance industry is one of the largest institutional investors, and insurance investment in low and no-carbon technologies is becoming more common.

- Members of the Association of British Insurers (ABI) provide their investment teams with responsible investment policies, which use research and analysis across investment portfolios, including work on stranded assets, the economic impact of climate change, the factoring of environmental risks into bond prices and the energy performance of property investments. British insurers are also increasingly taking opportunities for innovation in investment and they have a growing interest in green bonds.
- The German move towards greater use of sources of renewable energy is currently one of the most important economic and technical projects in Germany. Insurers facilitate the expansion of renewable energies by providing their expertise and innovative financial solutions. Furthermore, insurers not only support the energy transition as risk-bearers but — provided the framework conditions are suitable — also as investors in energy parks and infrastructure projects. Through investment in renewable energies, predictable income can be earned through quantifiable sales volumes and minimum price guarantees. Insurers can thus provide part of the capital needed to transform the energy supply and the expansion of energy grids. More information on the German insurance industry's views on this energy transition can be found [here](#).
- In France, part of a natcat surcharge on premiums goes to a public fund for investments (around €200m). This investment goes towards:
 - Implementation of risk-reduction measures for insureds, as per the requirements set out in their local risk prevention plan;
 - Local authorities, so they may act as climatic/flood risk prevention project managers at river basin level (eg Programmes d'Action pour la Prevention des Inondations, [PAPI](#)).
- Canadian insurer Manulife has been a leading arranger and provider of financing to renewable energy projects in Canada, helping the transition to a lower carbon economy. Since 2002, it has provided \$9.4bn in financing to renewable energy and energy-efficiency projects worldwide.
- US insurer The Hartford's investment arm, Hartford Investment Management Company started a programme of investing in energy in ESPCs (Energy Savings and Performance Contracts) that are aimed at reducing energy usage that results in savings for the US government. They entail investing in energy-saving modifications to US government buildings. Specifically, The Hartford is the sole financier of the energy efficiency upgrades at the US Capitol, Supreme Court and Library of Congress.

Loss

- The Norwegian insurance sector and the Norwegian authorities cooperated on a public-private pilot project on how insurance disaster loss data can help municipalities in risk-assessment planning. The aim was to assess whether having access to the local damage data from the insurance companies could strengthen municipalities' capacity to prevent future climate-related natural hazards. The project recommends that municipalities and government authorities work together to enable municipalities to have access to insurance loss data on a more permanent basis.
- Mission Risques Naturelles in France is implementing a loss database aggregated at municipal level and per event.

Mapping

- The Portuguese Association of Insurers (APS) and the Foundation of the Faculty of Science of the University of Lisbon have developed a project called Maps of Floods and Risk in Climate Change Scenarios (CIRAC). This project is set to be the point of reference for the flood risk analysis in mainland Portugal. More information can be found [here](#) and [here](#).
- Norwegian Tryg Insurance sponsors [HORDAKLIM](#), a research project led by Uni Research, whose primary objective is to provide climate projections in a form that is relevant for the municipalities

in Hordaland, on the Norwegian West coast. Current climate models produce data with coarse resolution that does not take into account local differences. HORDAKLIM will downscale climate models and tailor climate data to selected municipalities, making it easier for them to adapt to climate change and thereby help to ensure sustainable communities in the future. This also gives insurers useful information for their prevention efforts.

Municipalities

- Insurance Sweden (Svensk Försäkring) has published a document ranking the climate adaptation measures of the municipalities in Sweden, based on the European Commission's climate adaptation platform tool. It intends to follow up on municipalities' future progress on adaptation.

NatCat

- In 2010, the Slovenian Insurance Association (SZZ) published a [brochure](#) on the natural catastrophes that occurred in 2008 and 2009, which were the most catastrophic years recorded by Slovenian insurance companies in recent decades. The brochure also gives a review of natural catastrophe (nat cat) insurance in Slovenia and available natcat cover.
- The German Insurance Association (GDV) has organised several high-level conferences on natural catastrophes. For example, its June 2014 event attracted prominent experts from politics, consumer protection and the water and insurance industries to take stock of the most recent flood events in Germany. In close cooperation, all the stakeholders discussed how the population can be protected and secured against future disasters.

Partnership

Adaptation measures are crucial for increasing sustainability. However, these measures cannot be promoted by the insurance industry alone, as the insurer's role is geared towards risk financing and risk management. Public authorities need to encourage a societal move towards more preventive behaviour and promote adaptation measures, eg by regulating housing zoning or developing flood defences.

Public authorities should also maintain a dialogue with insurers, who can provide specialised knowledge through productive partnerships. Insurers help policymakers identify the appropriate areas in which public-private cooperation can be beneficial by providing research, encouraging prevention measures, delivering financial solutions and applying their expertise to track trends and define problems posed by climate change.

- The German insurance industry maintains an active dialogue with politicians. It contributed to the efforts of the joint federal government and state Working Group on Water (Bund/Länder-Arbeitsgemeinschaft Wasser ([LAWA](#))) to find ways to increase natural-catastrophe insurance penetration.
- Devastating natural disasters in 2010 prompted France to better coordinate and monitor its disaster risk reduction (DRR) policies. Its National Observatory for Natural Risks ([ONRN](#)) is a nationwide, risk data sharing, public-private platform to improve participative governance of DRR in France. It was initiated by the French insurance industry, which still plays a major role through its dedicated association [Mission Risques Naturels \(MRN\)](#) and its reinsurance partner, the Caisse Centrale de Réassurance (CCR).
 - The French insurance association (FFA) and the MRN actively participated in the design and implementation of the National Strategy for Flood Risk Management ([SNGRI](#)) both at national and regional level. In particular, at national level, the Commission Mixte Inondation ([CMI](#)) evaluates and validates projects submitted by the local authorities in charge of managing subsidies (see also examples under "Investment").
- Dutch company Achmea cooperated with the municipality of Amsterdam analysing and comparing data after a heavy rainstorm in 2014.

- The Dutch insurance association (VVD) participates in public-private knowledge sharing groups and research partnerships. It shared information on damages and claims-handling with the national and local governments after the extreme weather-related events of the summer of 2016.

Platform

Public-private partnerships, where national administrations work together not only with insurers but also with other private sectors, are fundamental to meeting the goal of adapting to climate change. In recent years, public authorities and the insurance sector have come together to fight the effects of climate change and encourage a societal move towards more preventive behaviour.

- The Finnish insurance sector constantly cooperates with the authorities. The Federation of Finnish Financial Services (Finanssialan Keskusliitto) has a representative at the national Flood Centre and in a flood risk coordination working group within the Ministry of Agriculture and Forestry. Finnish insurers also take part in the national programme for the mitigation of natural disasters, which is coordinated by the Finnish Ministry of the Interior.

Prevention

Prevention is the cornerstone of any insurance scheme. It is embedded in the practices of the private insurance sector, which has gained much expertise in this area over the years. This is especially true for extreme weather-related disasters which, without any prevention measures in place, would be very difficult to insure.

Public authorities need to encourage a move towards more preventive behaviour and to introduce mandatory measures such as land-use planning for citizens and businesses that might otherwise consider the required investment too costly.

- UK insurers carry out a range of activities to support national and regional forecasting of future weather and catastrophe patterns. They use these outputs to inform their business practices, including pricing decisions and risk-based capital assessments. The UK insurance sector also uses such modelling in its dialogue with policymakers, and has lobbied for robust action on climate change from the government.
- French insurers actively participate in crisis management exercises. For example, in March 2016 both insurance company and trade association representatives took part in [SEQUANA](#), a flood preparedness exercise for the rising of the river Seine.

Projects

- In order to ascertain “best practices on climate work”, the Nordic insurance associations have made assessments of how far the Nordic insurance industry has come regarding awareness and participation in reducing environmental gases. The method is based on the same model as [ClimateWise](#). Surveys were conducted to review developments in [2009](#) and [2013](#).
- The main objective of Norwegian initiative [SUPER](#) (SUB-daily Precipitation Extremes in highly-populated Regions) is to quantify the influence of anthropogenic activity on extreme precipitation in highly populated regions. The project is strongly linked to regional modelling projects, to international efforts on understanding precipitation change and their extremes, and to business partners through If Insurance. SUPER will deal with topics relevant to four of the World Climate Research Programme (WCRP) [Grand Challenges](#): climate extremes; clouds, circulations and climate sensitivity; regional climate information; and water availability.

Renewable

- In 2010, US insurer The Hartford launched The Hartford Renewable Energy Practice to insure the wind, solar and fuel-cell industries. This was done in recognition of the growing opportunities for insurers to offer products and services that help their commercial and individual policyholders move towards renewable energy and reduce their greenhouse emissions.

- American Insurance Group (AIG) has been investing in renewable energy projects for over 30 years. The company is also a leading investor in green energy projects, such as waste-to-energy, fuel-cell, transmission, and distributed generation. AIG has invested over \$2bn in wind, solar, geothermal, and hydroelectric projects worldwide.

Risk-analysis

Owing to their business model, risk-analysis is a core element of insurers' expertise. This expertise proves useful in the analysis of potential harms from climate change-related events.

- In the US, Munich Re Group adopts a multidisciplinary approach to climate change risks, using and combining the experience/expertise of scientists, specialist underwriters, lawyers, economists and actuaries in a company-wide risk management process.

Solutions

- In March 2015, the Association of British Insurers (ABI) held a climate change [conference](#) at which it launched a letter signed by the ABI, Axa, Aviva, ClimateWise, Friends of the Earth and others calling for measurable and time-bound agreements to be made at the COP21 Paris Climate Conference in December 2015, supported by a strong legal framework.
- In 2011, Swiss Re published [Closing the financial gap: New partnerships between the public and private sectors to finance disaster risks](#). The report focuses on new forms of public-private partnerships, which can help countries absorb the financial consequences of catastrophic events and make them more resilient.
- [Klima 2050](#) is a Centre for Research-based Innovation ([SFI](#)) financed by the Research Council of Norway and consortium partners. The SFI enables long-term research in close collaboration with trade and industry, as well as other research partners. Finance Norway is a partner (sponsor and active participator) in Klima2050's four working packages. The aim of Klima 2050 is to reduce the societal risks associated with climate changes and greater precipitation and flood water exposure within the built environment. The Centre will strengthen companies' capacity for innovation through a focus on long-term research and will facilitate close cooperation between companies that carry out research and development and prominent research groups.

Strategy

- The German Insurance Association (GDV) has published a booklet on "Indicators for environmental and climate balances in insurance companies. A practical guide for the detection and optimization of environmental impact in insurance companies". The GDV's aim is to enable companies to formulate ambitious environmental practices. The booklet showcases a number of options for targeted environmental management: from planning first steps to eventually reaching CO₂ neutrality.
- As an over-arching project, Insurance Sweden (Svensk Försäkring) is currently developing an insurance industry strategy in order to reach a common view on how the industry can still provide adequate insurance cover despite the effects of climate change, as well as what society as a whole needs to do to prevent climate change-related damage.
- Since 2008, Lloyd's has used BOM, which engages those companies in which Lloyd's Central Fund invests in order to exercise their voting rights in pursuit of environmental, social and governance issues. BOM seeks to encourage positive action on climate change and the long-term value protection this brings. This typically includes asking for better management of emissions and for the development of enhanced climate change strategies.

Sustainability

- The German Insurance Association (GDV) has conducted a climate change project in cooperation with leading climate scientists. The project aimed to link the weather-driven losses of the past decades with various climate models to gain, for the first time, concrete future loss scenarios. Through this project, the German insurance industry has gained a unique insight into the future,

which has resulted in a report on challenges with answers from the German insurance sector. The Climate Change Challenge can be accessed [here](#).

- The Federation of Finnish Financial Services (Finansialan Keskusliitto), alongside the Finnish Motor Insurers' Centre and Transport Safety Agency, has signed a [commitment to sustainable development](#). Furthermore, they have developed a new [digital vehicle registration system](#), which enables the simultaneous registration and insuring of vehicles and significantly reduces the carbon footprint of registration.

Tools

The insurance industry supports land-use planning and the raising of risk awareness by developing improved risk-mapping and zoning tools. In several countries, the (re)insurance industry has already developed or disseminated risk and hazard maps and zoning tools, sometimes together with the public authorities.

- The German insurance sector has developed the [Kompass Naturgefahren](#) online tool. Four federal states have contributed so far with data for a public graphic information system on natural catastrophe hazards. With one mouse click, every citizen can check the degree to which their home is endangered by floods, lightning, earthquake or storms. It is quick and easy to understand, it provides the information for exact addresses free of charge and it does not require registration.
- The HORA (Natural Hazard Overview and Risk Assessment Austria) digital risk map is a joint project between the Austrian Ministry of Agriculture and the Austrian Association of Insurers (VVO). HORA allows the general public to identify whether their property is at risk by entering their address. At www.hora.gv.at everyone can file internet enquiries, click through to the digital risk map and, using different zoom resolutions, see if their property or plot of land is at risk.
- Swedish insurers have developed [VisAdapt](#), a tool designed to guide homeowners on how to decrease the risk of weather-related events affecting their houses.
- The Norwegian Natural Perils Pools has developed [ClimRes](#), a map-based online interface to the data on insurance compensation payments. It provides three modes: a straightforward map display; an interactive dashboard; and a participatory tool where users can be actively engaged in a debate on factors that make a place more resilient.
- There are several tools available in France that help insurers assess the risks their customers face. For example:
 - The [CERES](#) online tool is accessible through the [CCR \(Caisse Central de Réassurance\) website](#) by its member insurance companies. The tool is used to benchmark their geolocalised loss records with those of the market.
 - The website of the [MRN](#) (Mission Risques Naturelles) offers a tool, the MRN-GIS, for commercial lines insurers to help them analyse their customers' and prospects' exposure to the different categories of natural hazards.
 - The French National Observatory for Natural Risks ([ONRN](#)) website provides an [open source geographic interface](#) with access to indicators on exposure, claims data and prevention developments. The indicators can be seen at municipal or departmental level for different climatic risks (eg flood, storm or drought).

Transparency

- British insurers disclose their greenhouse-gas emissions, typically according to the guidelines of the UK Department for Environment, Food and Rural Affairs or the global Greenhouse Gas Protocol.

Zoning

- In Germany, ZÜRS Geo (Zonierungssystem für Überschwemmungsrisiko und Einschätzung von Umweltrisiken) provides an online risk assessment tool for the insurance industry to assess flood risk and offer risk-related premiums. This zoning system for flood, backwater and heavy rain is a geographic information system that German insurers use to calculate flood risk as accurately as

possible. In 2008 ZÜRS Geo was awarded the international prize for geographic information systems — the ESRI award — from the Environmental Systems Research Institute.

- In Mexico there are regulatory modelling tools used to estimate probable maximum loss (PML) and premiums as a way for insurers to achieve reserve sufficiency and meet capital requirements. These models are defined to work for:
 - Agriculture: Mexico is divided into zones and, depending on the crop, thousands of climate simulations are run on each company's insurance policy to estimate growth for each crop.
 - Hydro-meteorological perils: several hurricane and climate patterns simulations are run on insurance policies by zone to estimate flood risks and wind damage.