

CATASTROPHE DATA HUB

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1. DISCLAIMER

The current data are based on a subset of insurance companies. They do not represent the 100% market view. Damages contracts are often multi-risk and cover all or a subset of perils. In some countries extratropical cyclone, flood and wildfire coverages are included in the property fire insurance coverage by market practices or by law. In addition, buildings, content, and business interruption can be covered by a combined policy with the same deductibles and loss limits, while in other cases these risks are insured separately. Different market practices as well as national schemes can explain different level of insurance coverage across countries and perils. Therefore, the estimation of the insurance conditions for the European market can be challenging and the data should be interpreted with care as there may be a risk of underestimation, due to sample and data limitations. Data have been aggregated at NUT2 level to ensure anonymity.

Section 4 of this technical note provides a detailed overview of the data sources currently available in the Data Hub.

2. INTRODUCTION

The dashboard aims at enabling open access to insurance data related to catastrophes and climate change.

SCOPE

The scope includes the countries of the EEA (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Norway, Iceland, and Lichtenstein).

A natural catastrophe is an unexpected event, caused by natural physical perils, such as an earthquake or flood, causing damage, injury or death. Natural catastrophes can be caused either by rapid or slow onset events which can be geophysical (earthquakes, landslides, tsunamis and volcanic activity), hydrological (avalanches and floods), climatological (extreme temperatures, drought and wildfires), meteorological (cyclones and storms/wave surges) or biological (disease epidemics and insect/animal plagues)¹.

In the current dashboard version, EIOPA focuses on the following perils:

Flood: Flood is a hydrological disaster and defined in the EM-DAT² as a general term for the overflow of water from a stream channel onto normally dry land in the floodplain (riverine flooding), higher-than-normal levels along the coast and in lakes or reservoirs (coastal flooding) as well as ponding of water at or near the point where the rain fell (flash floods). The dashboard focuses on (a) riverine (or fluvial) and pluvial flooding (flash floods which can be pluvial or fluvial are included) in the dashboard this will be named flood*.

Windstorm³: The peril “windstorm” has different categories (cyclonic storms and convective storms):

¹ Centre for Research on the Epidemiology of Disasters – CRED Université catholique de Louvain, Belgium <https://www.emdat.be/classification>.

² Centre for Research on the Epidemiology of Disasters – CRED Université catholique de Louvain, Belgium “Emergency Events Database (EM-DAT)”, <https://www.emdat.be/classification>.

³ The definition for Windstorm partly deviate from the definition of the EM-DAT for convective storms. The definition used in this paper was found to be more appropriate.

- Extra-tropical cyclones: Type of low-pressure cyclonic system in the middle and high latitude that primarily gets its energy from the horizontal temperature contrasts in the atmosphere.
- Tropical cyclones: Originates over tropical or subtropical waters⁴. In the dashboard not considered due to the geographical coverage.
- Convective storm: Range of events generated by strong vertical movements in the troposphere, implying fast condensation and release of big amounts of energy. Among its effects are hail, lightning, heavy showers, strong winds and tornadoes.

Wildfire: as per EM-DAT classification, wildfires are climatological disasters. Wildfires are defined as any uncontrolled and non-prescribed combustion or burning of plants in a natural setting such as a forest, grassland, brush land or tundra, which consumes the natural fuels and spreads based on environmental conditions (e.g., wind, topography). Wildfires can be triggered by lightning or human actions. In the dashboard, EIOPA mainly focus on forest fire, which is a type of wildfire in a wooded area.

⁴ Depending on their location, tropical cyclones are referred to as hurricanes (Atlantic, Northeast Pacific), typhoons (Northwest Pacific), or cyclones (South Pacific and Indian Ocean).

3. THE CATASTROPHE DATA HUB

The main purpose of the dashboard is to facilitate the view of European insured exposure and loss data. The raw data are also available as excel file under the dashboard.

THE INSURED EXPOSURE VIEW

Definition: overall value or replacement value of residential and commercial buildings insured.

The insured exposure view allows to select:

- the peril of interest (for the moment flood and windstorm insured exposure data are available).
- the as of date of the data (for the moment only 2020 data are available).

The insured exposure data are shown per country and at regional/NUTS2 level⁵ in a map view.

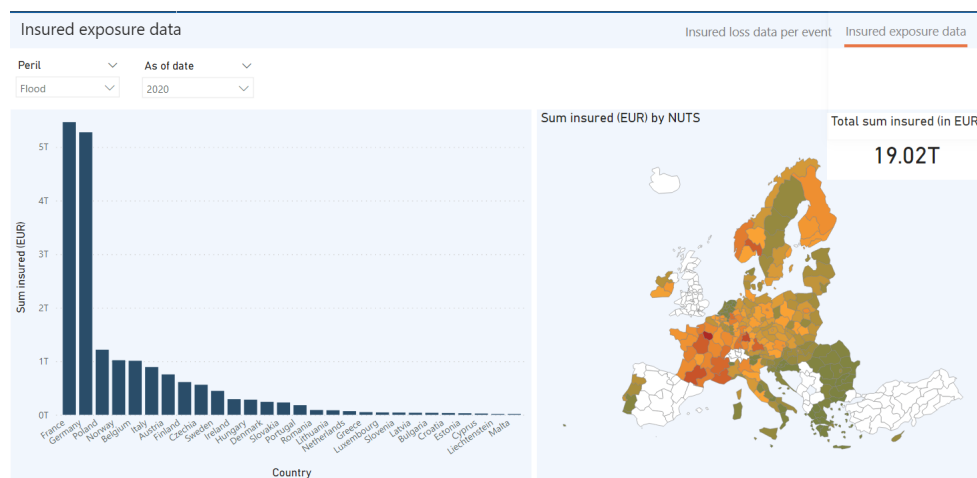


Figure 1: European insured exposure view of the Catastrophe Data Hub.

THE INSURED LOSSES VIEW

⁵ Nomenclature of Territorial Units for Statistics or NUTS refers to the administrative divisions of countries defined by the European Commission for statistical purposes. See: [Postcodes and NUTS - NUTS - Nomenclature of territorial units for statistics - Eurostat \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&code=sdg_11_5_2&plugin=1)

Definition: incurred claims for buildings and other claims reported by the insurance undertakings or groups in the sample.

The insured loss view allows to select:

- the event of interest (for the moment only three events are available).
- the asset type (for the moment only Residential or Commercial data are available).

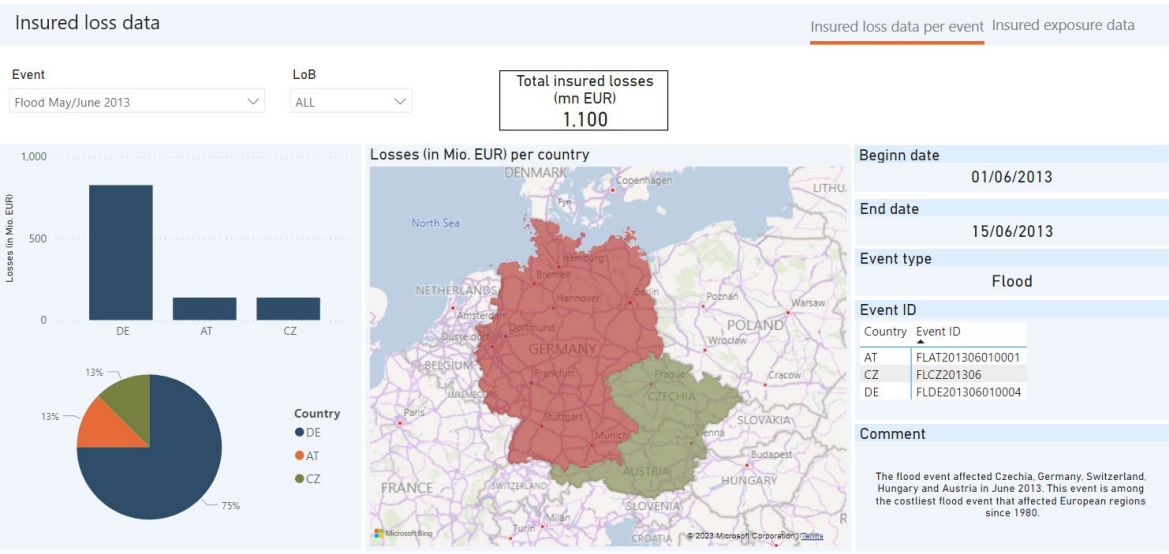


Figure 2: Insured loss view of the Catastrophe Data Hub.

4. DATA USED IN THE CATASTROPHE DATA HUB

The insured exposure and loss data were collected in 2021 to:

- understand the materiality of the European insurance sector exposure to climate-relevant perils and assess the potential impact of physical climate change risk (see⁶);
- help further developing the EIOPA protection gap dashboard⁷.

The sample includes 35 large European groups active in non-life business and 9 non-life and composite solo undertakings with relevant exposure to fire and other damages to property business. The sample comprises of 15 full internal model or partial internal mode users as well as 29 standard formula users. The selection of companies has been based on the annual direct business gross written premiums in 2019 for fire and other damages to property insurance LoB as well as on expert judgment to ensure sufficient sample coverage at country level and encompasses insurers registered in 19 European jurisdictions. Groups and solos in the sample typically write business in multiple countries, thus the selected sample covers all 30 EEA jurisdictions. The selected sample provides (at least) 50% coverage at country level for 24 jurisdictions. On aggregate, the groups and solos in the sample cover approximately 59% of the EEA-wide market in terms of gross premiums (for direct business) written in 2020 for fire and other damage to property insurance LoB.

⁶ [Discussion paper on physical climate change risks \(europa.eu\)](#)

⁷ [Dashboard on insurance protection gap for natural catastrophes \(europa.eu\)](#)

Table 4: Country-specific coverages based on gross written premiums for fire and other damages to property LoB

(% of total GWP for fire and other damages to property LoB)					
AT	52.3%	FI	92.9%	LV	79.0%
BE	58.7%	FR	61.4%	MT	64.1%
BG	61.6%	HR	64.1%	NL	58.1%
CY	55.4%	HU	61.5%	NO	50.8%
CZ	83.2%	IE	48.6%	PL	73.5%
DE	63.6%	IS	57.2%	PT	77.2%
DK	47.9%	IT	62.1%	RO	63.7%
EE	69.5%	LI	8.8%	SE	19.2%
ES	46.2%	LT	75.3%	SI	92.4%
EL	60.1%	LU	43.9%	SK	74.7%
Central Europe		61.1%	Northern Europe		44.9%
Eastern Europe		74.0%	Southern Europe		54.8%
EEA		58.3%			

Source: EIOPA Annual Solo, reference date 2020. Note: Figures are based on solos belonging to a group and solos in the sample. GWP as reported in S.05.01. Corrected for cross-border business under freedom of service and freedom of establishment as reported in S.04.01.

INSURED EXPOSURE DATA

For the non-life property insurance business, the exposure of the insurer is driven by the overall value or replacement value of the buildings insured. Residential refers to buildings that are designed to be lived in. Commercial buildings are much more varied than residential properties. While residential properties are exclusively used for private living quarters, commercial refers to any property used for business activities. For the purpose of this analysis, industrial properties have been included into the figures for commercial buildings. The aggregated monetary replacement value for the buildings net of reinsurance business and coinsurance is called the sum insured. The sum insured data used in this analysis is based on the EIOPA year-end 2020 ad hoc data collected from large European insurance groups and solo undertakings (see sample description). The sum insured against river flood or windstorms risk has been collected at CRESTA low resolution or NUTS3 level (depending on the country and the scheme used in the Solvency II reporting⁸). For the purpose of this analysis the data has been converted to NUTS2 level using the EUROSTAT mapping between NUTS and postcodes.⁹ CRESTA is a geospatial standard established by the insurance and reinsurance

⁸For further information, please see: Publications - NUTS - Nomenclature of territorial units for statistics - Eurostat (europa.eu) and CRESTA.

⁹ Nomenclature of Territorial Units for Statistics or NUTS refers to the administrative divisions of countries defined by the European Commission for statistical purposes. See: [Postcodes and NUTS - NUTS - Nomenclature of territorial units for statistics - Eurostat \(europa.eu\)](https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&plugin=1)

industry to facilitate the technical management of natural catastrophe insurance. The CRESTA zones are usually the first two digit of the postal code.

EXPOSURE DATA FOR SPAIN

The exposure data for Spain for windstorm and flood have been provided by Spanish Insurers to Consorcio de Compensación de Seguros¹⁰ by means of the Surcharge Information System.

INSURED LOSS DATA

Insured loss data for three natural disasters have been collected as a first step. The three events were chosen to ensure a good coverage in terms of perils, regions impacted, magnitude of the event, year of occurrence, insurance penetration of the regions affected and number of countries affected.

1. The first event considered is the windstorm Ciara (also known as Elsa or Sabine, from now on referred to as Ciara) that hit large parts of central Europe in early February 2020. It was among the costliest natural disaster in Europe in 2020 causing an estimated insured loss of EUR 1.6 billion. With winds of up to 200 km/h, it caused business interruption losses due to the cancellation of flights and major events as well as a breakdown of the power supply.

2. Further, data was collected on the catastrophic forest fire that broke out in Portugal in June 2017. This event is considered the deadliest wildfire event in Portugal's history¹¹ and the most severe wildfire event ever occurred in Europe. Estimates for the total economic losses range from EUR 200 million to more than EUR 890 million, while the insured losses are estimated between EUR 200 million (for the entire season, including another severe wildfire in October 2017) and more than EUR 445 million.

3. The last event considered is a flood that affected Czechia, Germany, Switzerland, Hungary and Austria in June 2013. This event is among the costliest flood event that affected European regions since 1980. The losses caused by the flood were estimated between EUR 11.7 billion and EUR 16 billion, of which only EUR 2.4 to 3.8 billion were insured. The heavy rainfall and consequent flooding forced thousands of people from several parts of central Europe to evacuate and disrupted essential services, including telecommunications and electricity.

¹⁰ [Inicio \(consorseguros.es\)](https://www.consorseguros.es)

¹¹ According to the International Federation of Red Cross, more than 60 people were killed and 200 were injured, for further details see: [IB3_Portugal_Spain_forest_fires_29062017.pdf \(ifrc.org\)](#)

The data collected focuses on claims in relation to the events and is split between residential and commercial exposures. Participants were further asked to distinguish the claims incurred by type of coverage, i.e. between coverage for buildings and other claims. It is assumed that coverage for buildings would be typically be the most material type of claim, while other claims could arise from business interruption or content coverage.

To ensure anonymity, each data point shows in the dashboard represents at least three values submitted by companies. This is the reason why for some cases the dashboard does not show the complete split between residential and commercial losses but instead residential and commercial aggregated (RES+COM view).

5. OUTLOOK

EIOPA will work to include more perils and more data in general to the Catastrophe Data Hub in the future.

LIST OF ACRONYMS

EEA	European Economic Area
NUTS	Nomenclature of Territorial Units for Statistics

Countries

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czechia
DE	Germany
DK	Denmark
EE	Estonia
FI	Finland
FR	France
ES	Spain
EL	Greece
HR	Croatia
HU	Hungary
IS	Iceland
IE	Ireland
IT	Italy
LV	Latvia
LI	Liechtenstein
LT	Lithuania
LU	Luxembourg
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SK	Slovakia
SI	Slovenia
SE	Sweden

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