



8th International
Conference on
BIG DATA
& Data Science for Official Statistics

BILBAO 2024

Informing Climate Change and
Sustainable Development Policies
with Integrated Data

BILBAO. SPAIN | **10-14 JUNE 2024** | **#UNBigData2024**

Insurance loss data as climate information source: the Spanish case

Francisco ESPEJO GIL

Consorcio de Compensación de Seguros

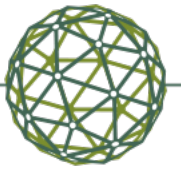




Insurance is considered to be a source of loss data from catastrophic hazards. This role is underlined by all international organizations and frameworks, thus locating insurance at the avant-garde of climate-related data.

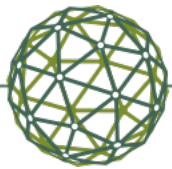
Insurance loss data provide an assessed diagnosis of hazard levels, useful:

- To evaluate cost options of risk-reduction measures.
- To fine-tune impact based early warnings.
- To establish a baseline for the assessment of future climate scenarios impacts.



Nevertheless, this theory is many times far from reality:

- Loss data come from compilations from insurance and reinsurance companies, and are much biased by their own market penetrations (that vary between and within countries).
- Companies have reservations with sharing these data for concurrence issues.
- Loss data come from modelling from the said sources or model providers.
- Big events with great repercussion can mask the mass of small events that many times are an amount comparable to the former (which can be as well exaggerated by initial estimates or other interests).
- There are issues with event classification.
- The total insured amount (the insured penetration share) is only partially known.
- The uninsured value and the uninsured loss is generally unknown (insurmountable problem in every case).



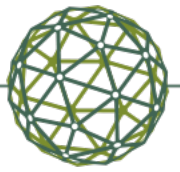
To overcome at least part of these issues, several efforts are being made from:

- Independent institutions.
- Insurance regulators:
 - Trying to normalize hazards and loss accounting.
 - Developing ways for data disclosure from insurers.

The screenshot shows the EIOPA website home page. At the top left is the EIOPA logo (European Insurance and Occupational Pensions Authority) and a search bar. Below the logo is a navigation menu with items: Home, About, Browse by topic, For consumers, Tools and data, Document Library, and Media. The main heading is 'Catastrophe Data Hub'. Below this is a section titled 'Insured exposure and loss data' with a brief description and a list of users who can access the data: Policy makers, Insurance supervisors, The insurance sector, and Academics.

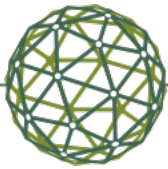
The screenshot shows the 'CATASTROPHE DATA HUB' interface. It displays 'Insured exposure data' for 'Windstorm' in '2020', with a total of '34,19 bill.' (trillion EUR). A bar chart shows the 'Sum insured (EUR) by Country' for various European countries, with Germany having the highest exposure. A map of Europe shows the 'Sum insured (EUR) by NUTS' regions, with higher exposure in the north and west. A note at the bottom states: 'NB: The sum insured have been collected only for residential and commercial areas. The sample is based on a subset of insurance companies. They do not represent a 100% market view. Please see more information in the Technical description document. Source: EIOPA Reference 2020. The data for Spain have been provided by the Consorcio de Compensación de Seguros.'

Country	Sum insured (EUR)
Germany	~8.5
Spain	~6.5
France	~5.5
Italy	~2.5
Norway	~1.5
Netherlands	~1.2
Poland	~1.1
Finland	~1.0
Belgium	~0.9
Austria	~0.8
Denmark	~0.7
Czechia	~0.6
Sweden	~0.5
Ireland	~0.4
Portugal	~0.3
Stoekholm	~0.2
Hungary	~0.1
Slovenia	~0.1
Lithuania	~0.1
Luxembourg	~0.1
Romania	~0.1
Estonia	~0.1
Croatia	~0.1
Greece	~0.1
Latvia	~0.1
Iceland	~0.1
Cyprus	~0.1
Bulgaria	~0.1
Malta	~0.1

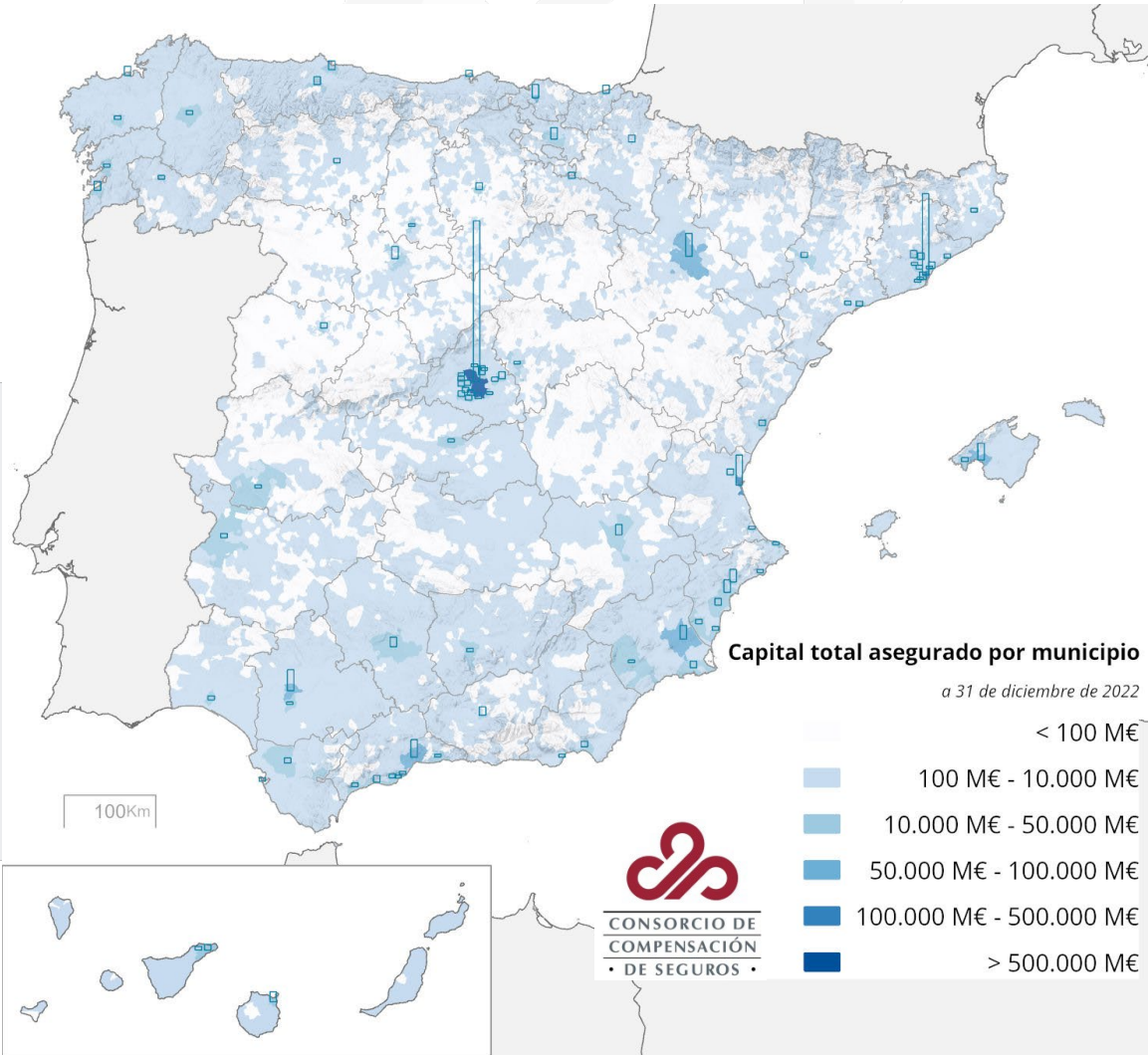


The situation in Spain is somewhat better because:

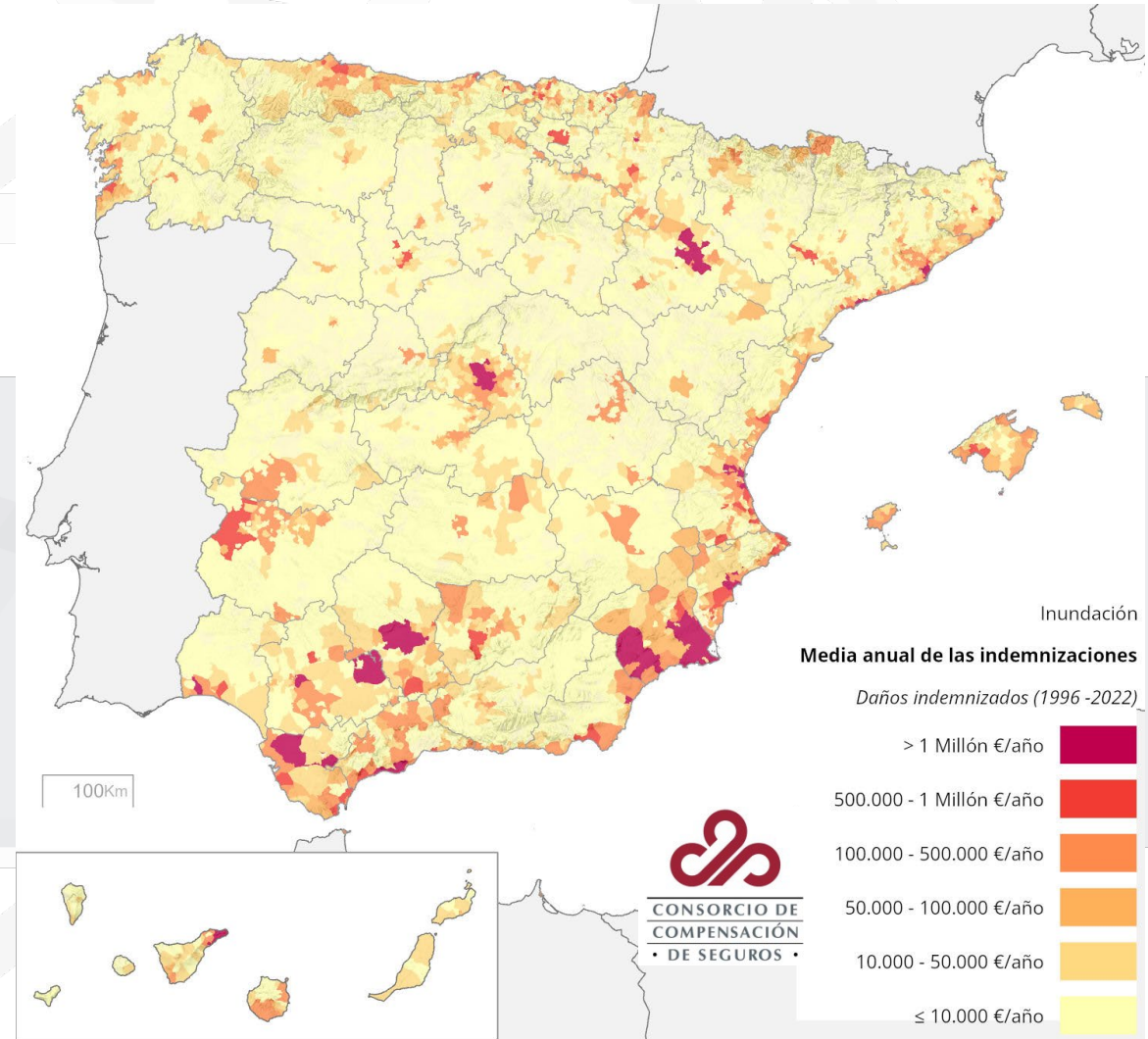
- By Law, most policies must have included the cover for some potentially catastrophic ‘Extraordinary’ hazards: flood, windstorm, earthquake, etc.
- When an insured property is affected by any of the listed hazards, cover is provided by a public insurer “Consortio de Compensación de Seguros” (CCS).
Therefore:
 - The total amount of insurance loss is completely known for these hazards.
 - The total insured value (exposure) is known, as the system works for all insurance policies in the country.



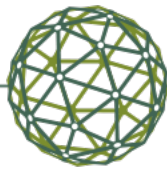
Examples from CCS own data (flood case)



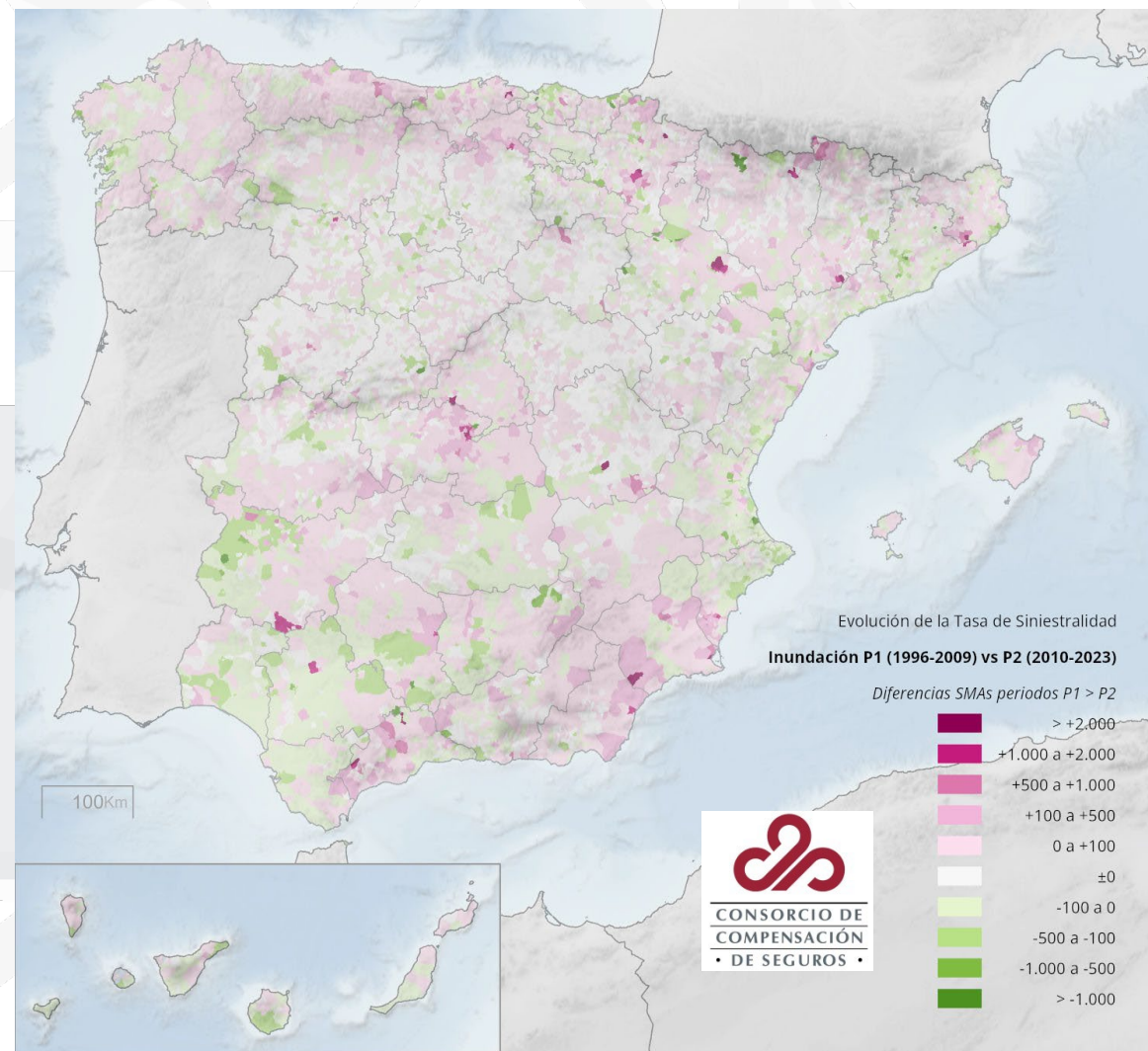
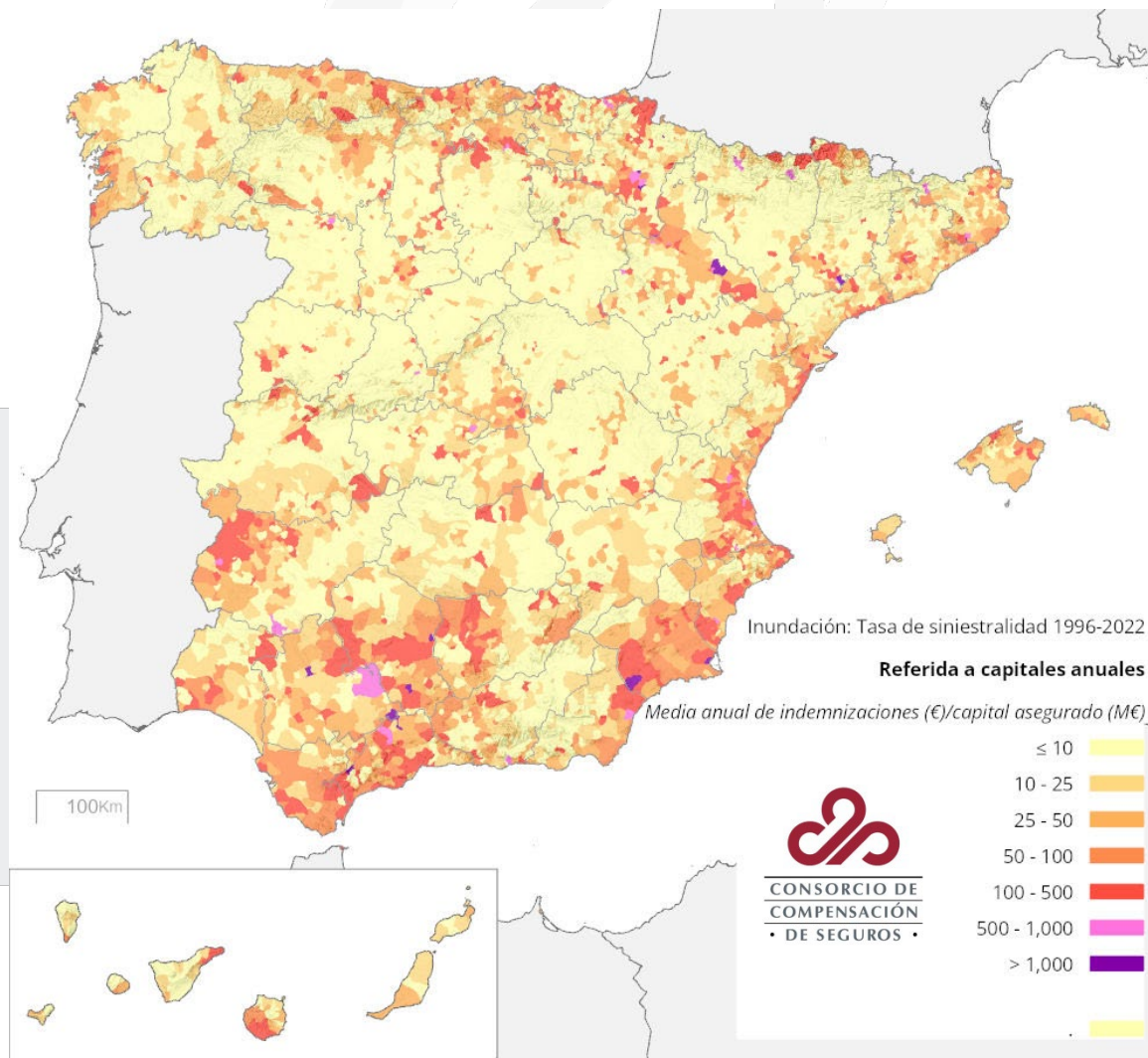
Insured capital (2022) at township level



Mean yearly flood loss (1996-2022) at township level

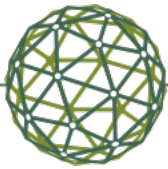


Examples from CCS own data (flood case)

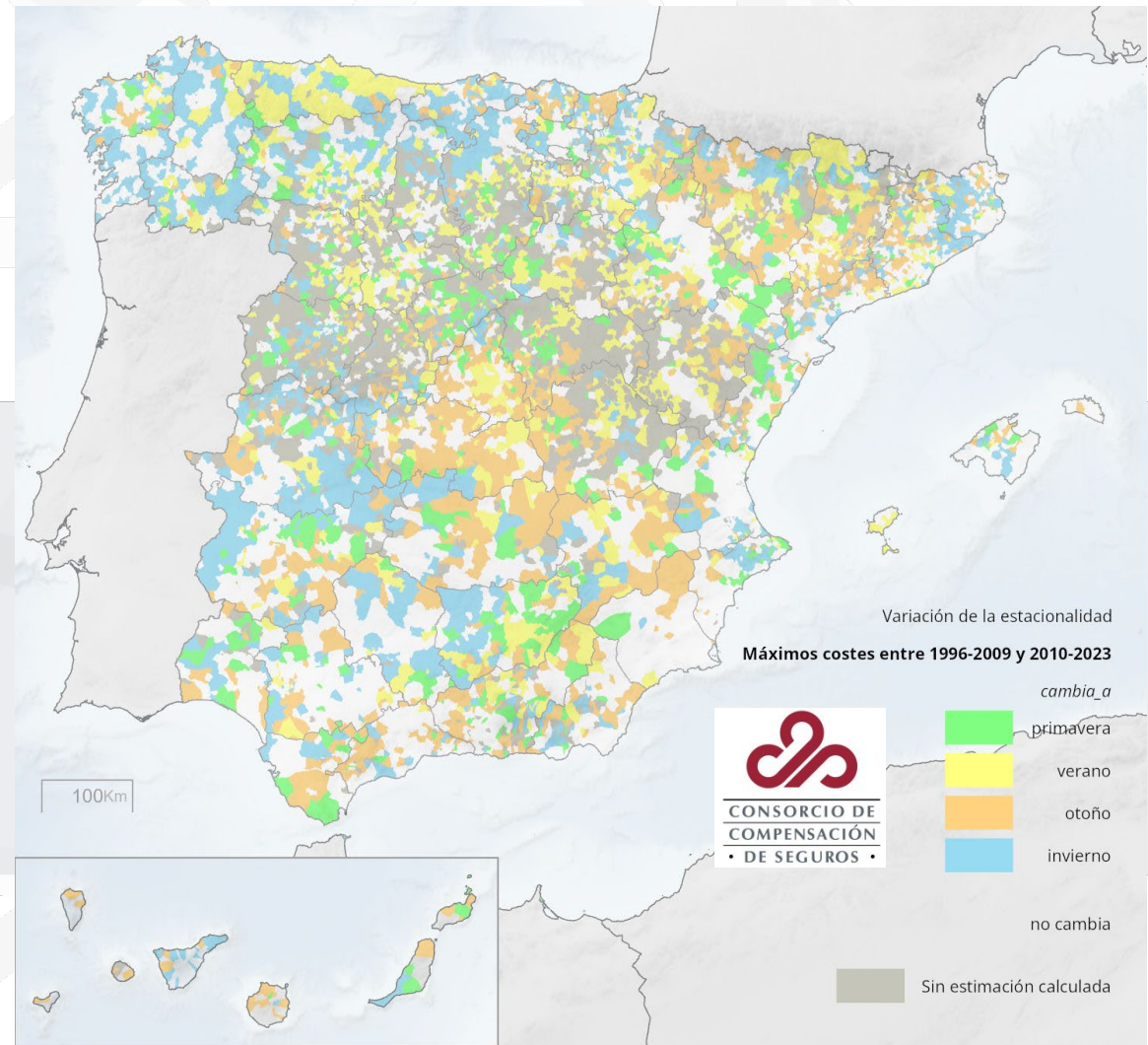
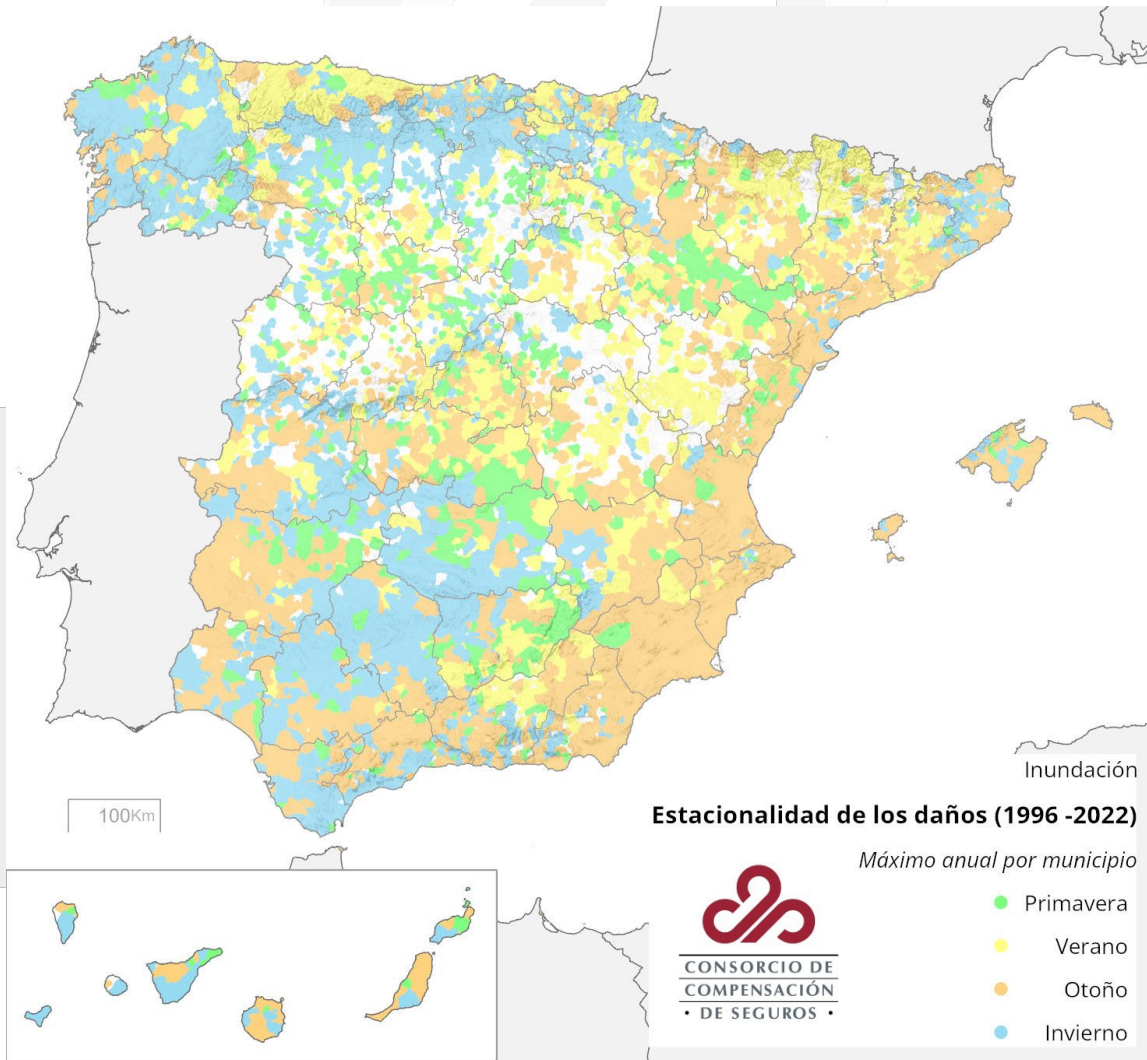


Mean yearly flood loss ratio (loss/exposed capital) at township level

Loss ratio variation between 1996-2009 and 2010-2023 at township level

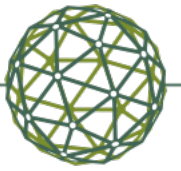


Examples from CCS own data (flood case)



Flood seasonality (max frequency of losses in the 1996-2022 period) at township level

Flood seasonality changes between 1996-2009 and 2010-2023 at township level



As a way of conclusion:

Insurance loss data are essential to assess climate impacts, climate change effects and adaptation alternatives.

Nevertheless, efforts must be made to guarantee the completeness, quality and representativeness of these data.



Thanks for your attention