



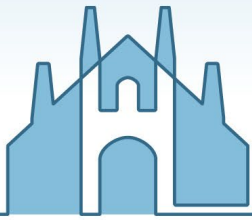
XIV
CONGRESSO
NAZIONALE
DEGLI
ATTUARI

L'ATTUARIO GLOBALE
PER UN MONDO
SOSTENIBILE
TRA TRADIZIONE,
INNOVAZIONE
E RISCHI EMERGENTI

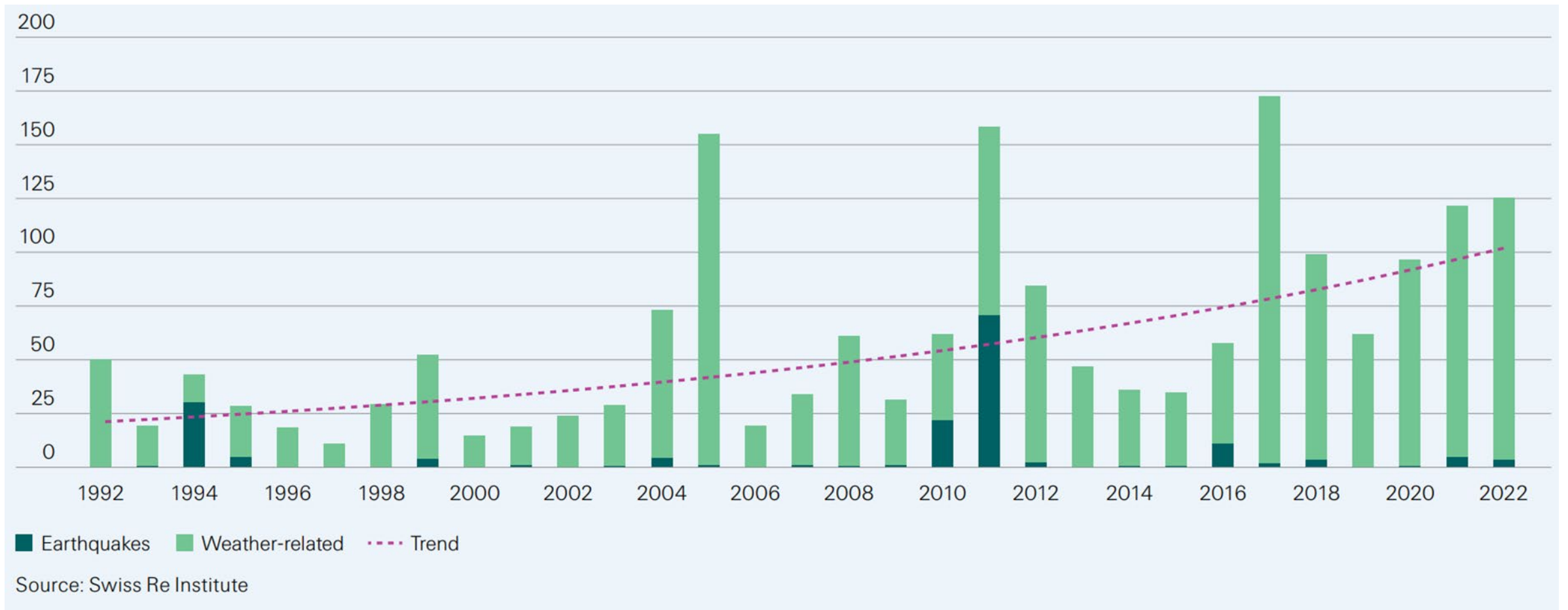
MILANO
15-17 Novembre 2023
Hotel Quark

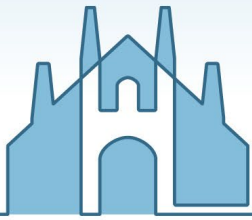
Eventi atmosferici: *climate change* e nuove sfide

Gianluca Mussetti, PhD
Nat Cat Specialist, Swiss Re



Growth in global natural catastrophe insured losses (in USD billion, 2022 prices)





Loss drivers



Economic development

Growing property values, insurance penetration



Concentration in exposed areas

Urbanisation, population growth



Changing vulnerability

Sealing of surfaces, flood protection



Climate change

Natural variability, anthropogenic change

Importance until 2050

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Shanghai

1992

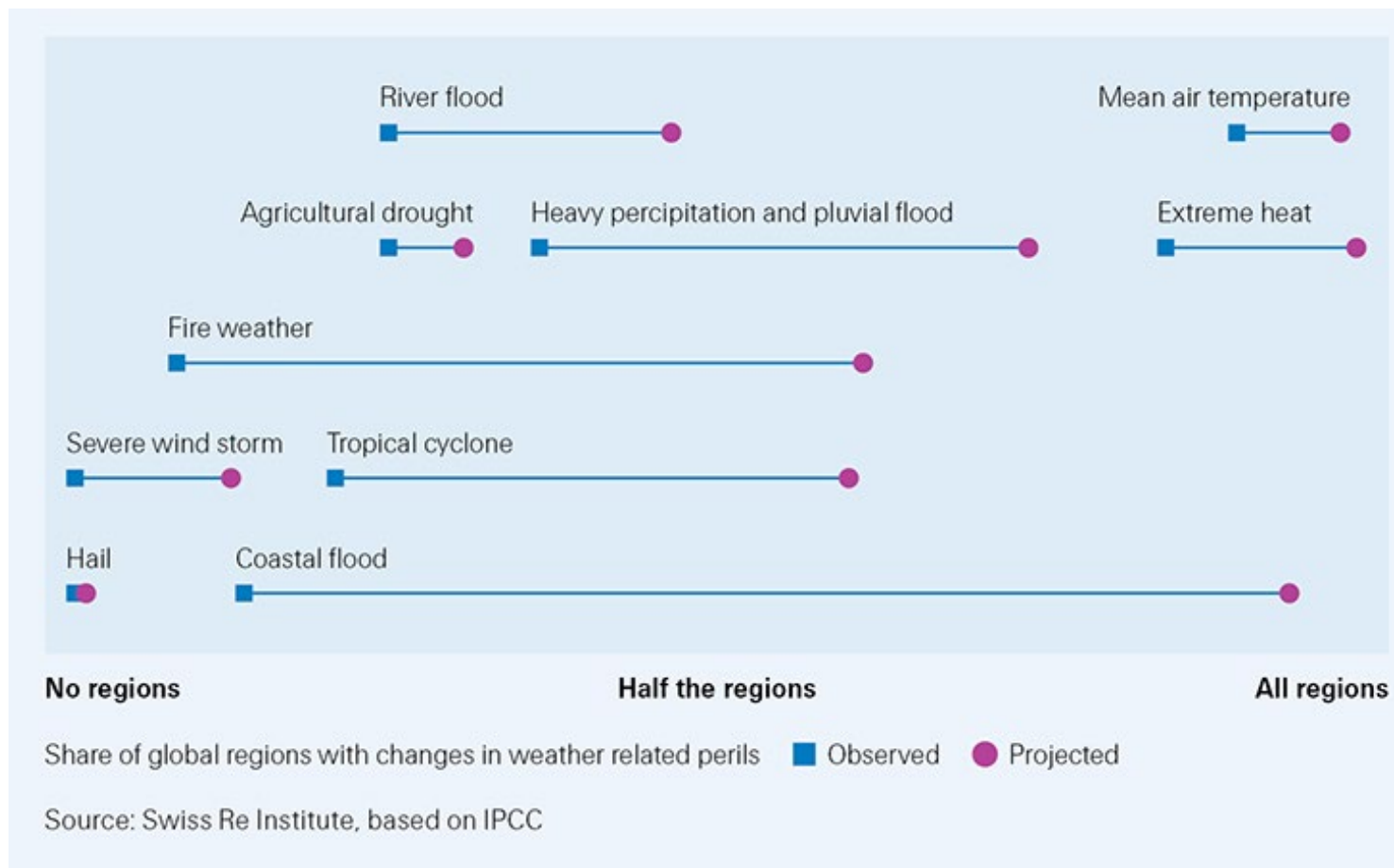


2020





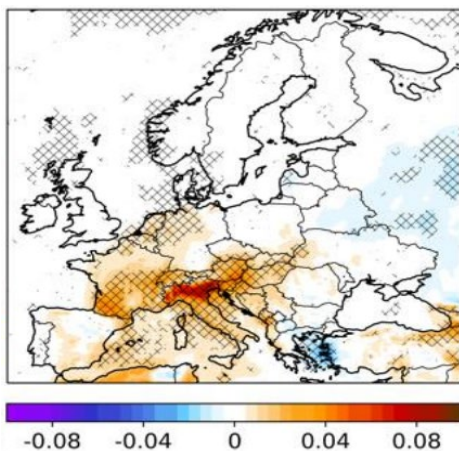
Extent of observed and projected changes due to climate change in weather related perils



- Climate change effects likely play a role in increasing losses.
- Most widespread changes in extreme heat, heavy precipitation and drought
- Less consistent trends for other perils (wind, hail)



Emerging risk trends – the case of hail risk in Italy

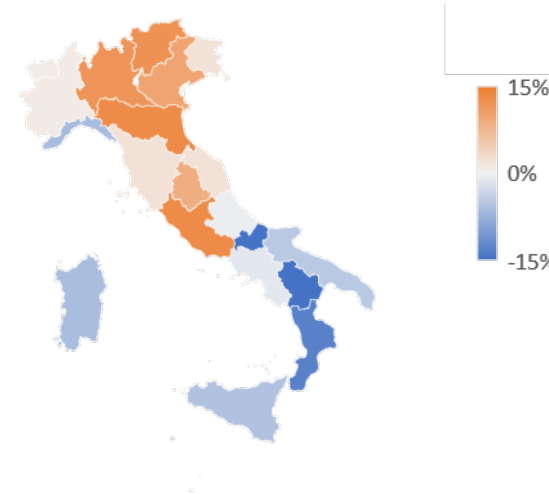


Climate change & variability

Trend in hail ≥ 2 cm

+8% per decade
(1950-2022) in
Po valley

Source: European Severe
Storm Laboratory (Battaglioli
et al., 2023)



Urbanisation

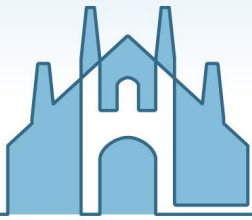
Population growth
(2000-2023)

Source: Eurostat



Vulnerability

Growth in rooftop
PV systems



Natural catastrophe modelling

1

Hazard

How probable are events of a certain intensity?



2

Vulnerability

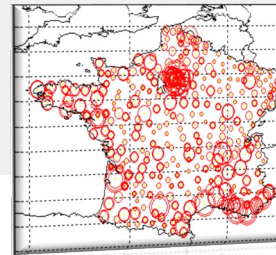
How much damage does that intensity cause?



3

Exposure

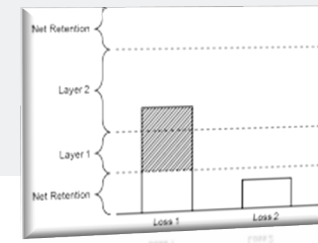
Which risks can be affected?



4

Financial

How is the loss covered?





4 ingredients for a future-proof risk assessment

