

Future opportunities – earthquake risks and the modelling thereof

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Agenda

1. Our EQ modelling capabilities
2. Our EQ model landscape
3. Our EQ performance

Swiss Re's Nat Cat expertise: how it translates into UW decisions (focus on EQ)



Dedicated Cat Perils Unit with strong Earthquake expertise

- ~50 full time scientists - 8 working on EQ models
- Extensive knowledge built up over 40 years
- Collaboration with Global Earthquake Model (GEM) provides access to latest hazard and risk views
- Market and claims experience ensures our models are accurate
- Global coverage with insight driven update cycles



Swiss Re's proprietary risk model "MultiSNAP"

- Server-based set-up ensuring consistent modelling practices across all underwriting desks
- Models calibrated with Swiss Re's proprietary business data
- Fast turnaround from scientific evidence and post-event learnings to new model release
- Seamless integration of risk quantification and portfolio steering

1) Global model landscape

Worldwide coverage of earthquake risk with models of adapted level of sophistication.



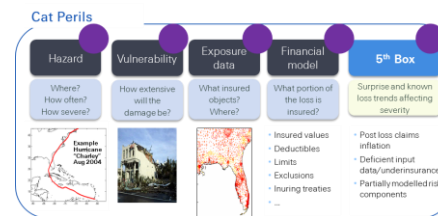
2) Leading edge earthquake risk data

Collaboration with GEM – the global hub initiated by OECD for earthquake risk research



3) State-of-the-art risk assessment

Proprietary probabilistic models in line with state-of-the-art industry approaches



4) Learning from risk taking experience

Proprietary models calibrated with long term global and regional loss experience



5) Adaptive model update cycle

Update cycles of models driven by scientific advances, loss experience and business relevance

Recent developments:

- EQ California (2021)
- EQ Middle East, incl. Turkey and Israel (2022)
- EQ China (2022)

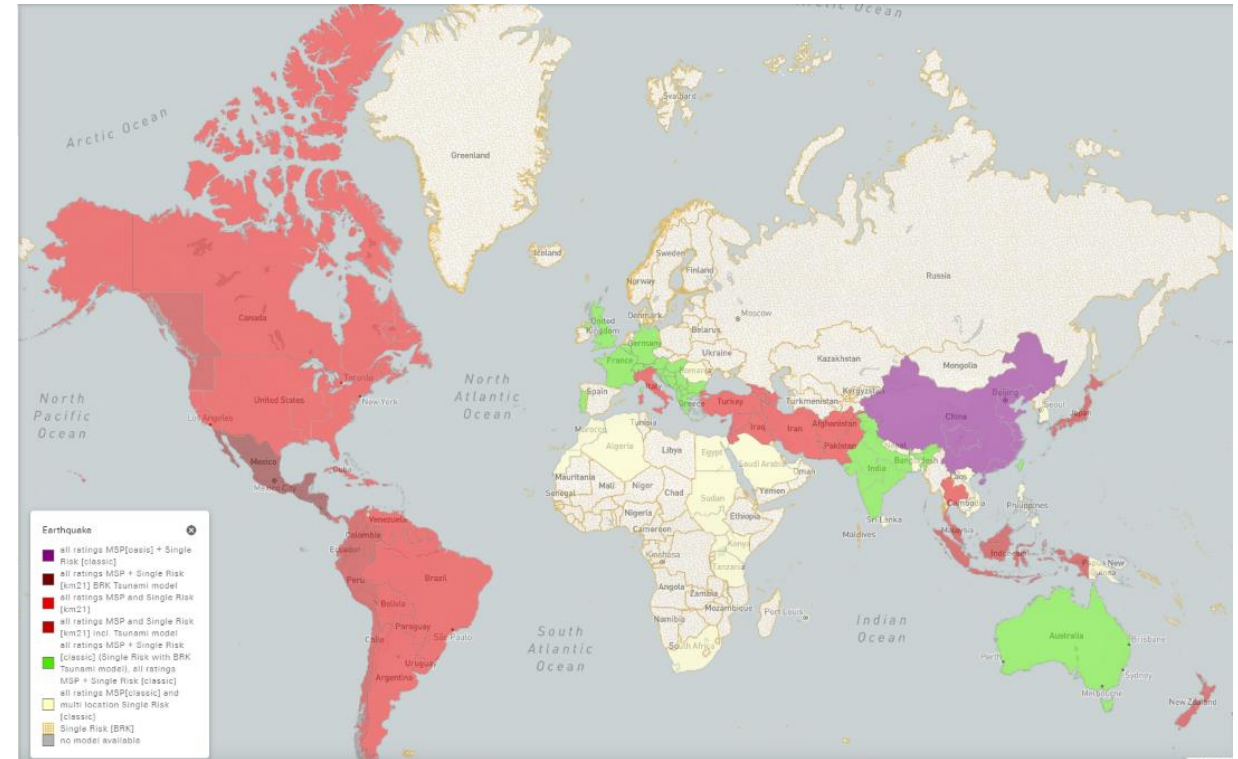
ongoing:

- EQ Europe (planned release 2024)

Earthquake model landscape

Model landscape

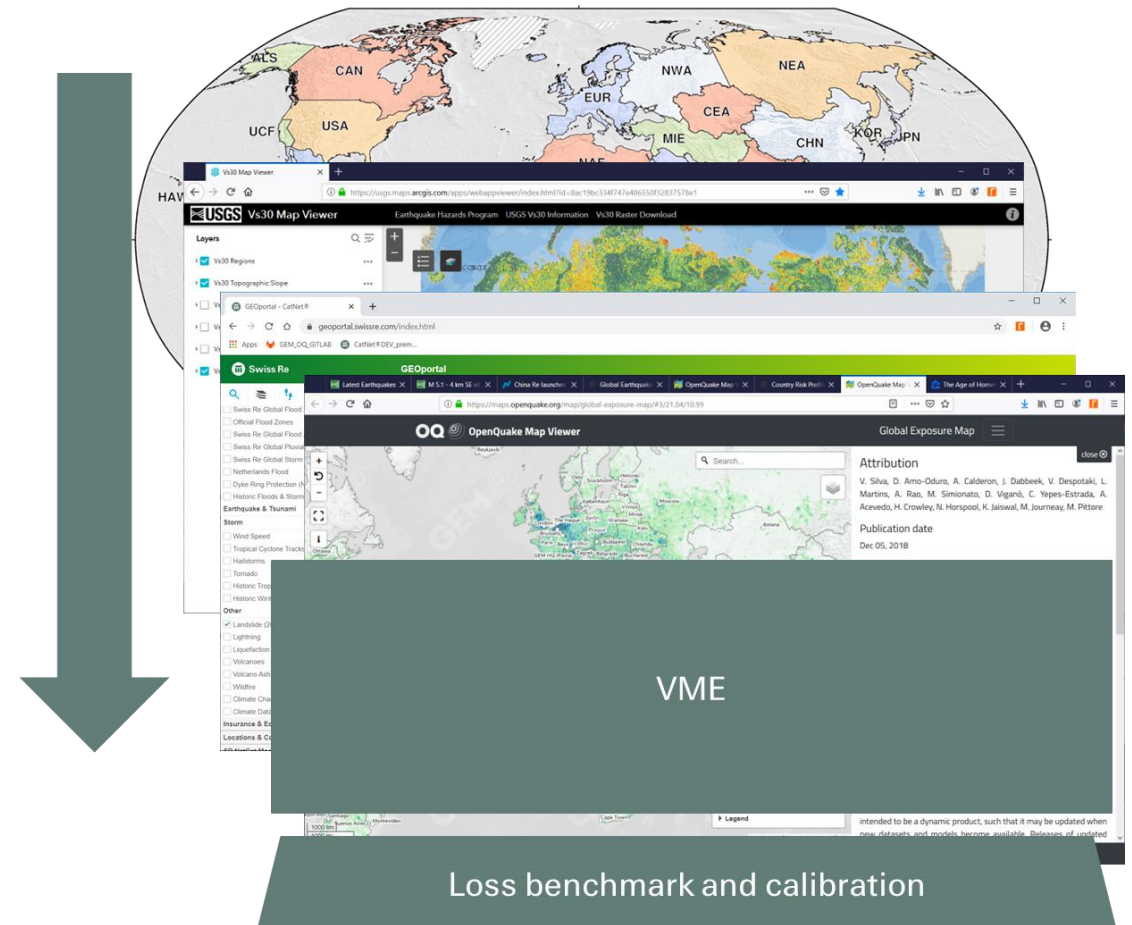
- Model mosaic covering all EQ exposed regions globally
- Most of the important markets covered with (regional) km21 models (US, Japan, NZ, South America, Central America, Middle East). Our first OASIS model productive for EQ China
- With the New EQ Europe model another important market will be covered with state-of-the-art earthquake modeling
- Earthquake models in the circum-pacific region contain an event-based tsunami model allowing to model correlation of losses from shake and tsunami
- Relevant sub-perils covered: Liquefaction, Landslide and Fire Following Earthquake
- Industry standard PLA (post loss amplification) model accounts for effects of demand surge, claims inflation and super cat effects



Earthquake model update strategy

Our update strategy follows regional focus:

- Identification of update candidates based on:
 - business relevance
 - scientific advances
 - loss experience
- Development of regional models based on globally unified approaches and datasets
- Leverage our collaboration with GEM for immediate access to latest exposure, hazard and vulnerability models
- Add value by focusing on our core expertise (insured exposure, market portfolios and losses, claims analysis, model calibration)
- International harmonization of seismic design codes allow using loss data on a global scale



EQ Europe – staying ahead of the game

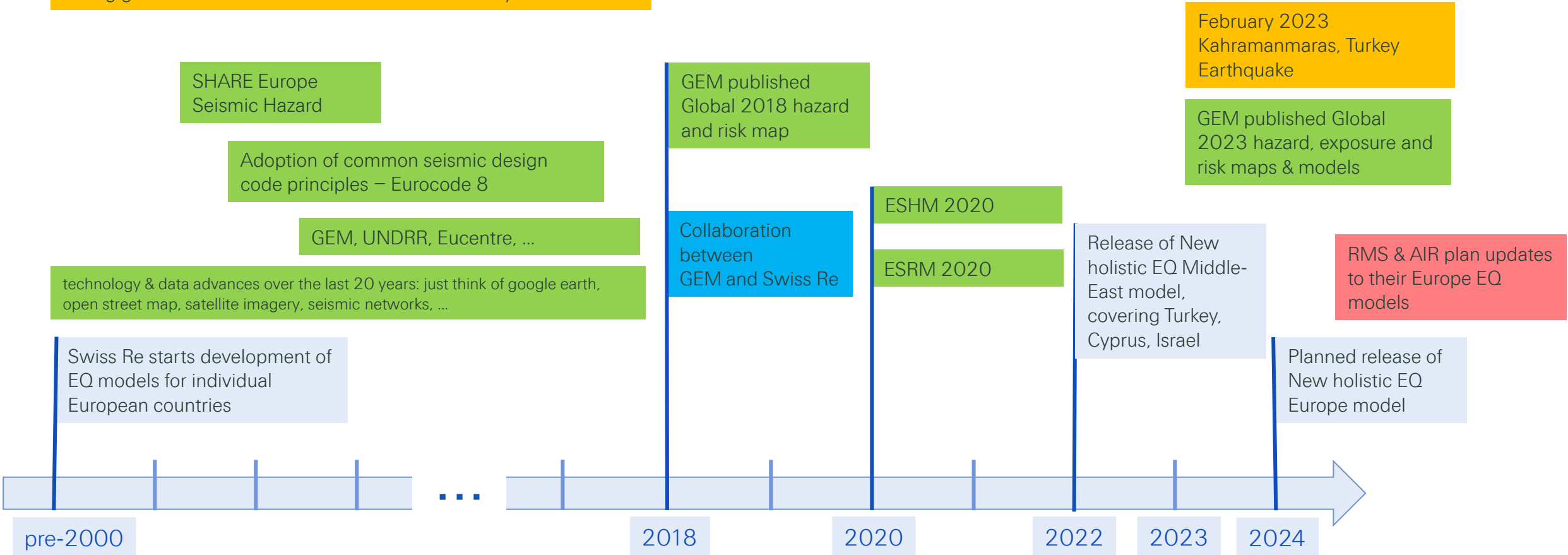
Incorporate state-of-the-art knowledge since development of old model

Scientific Advances



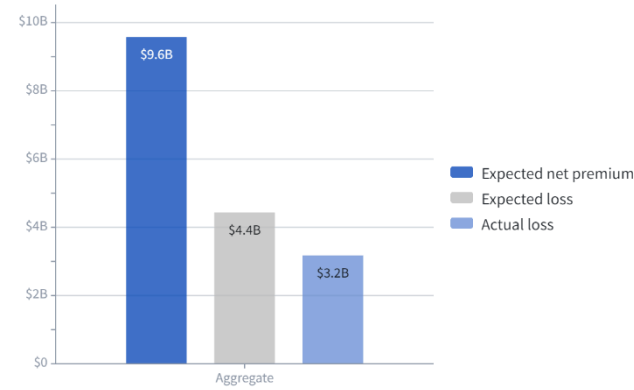
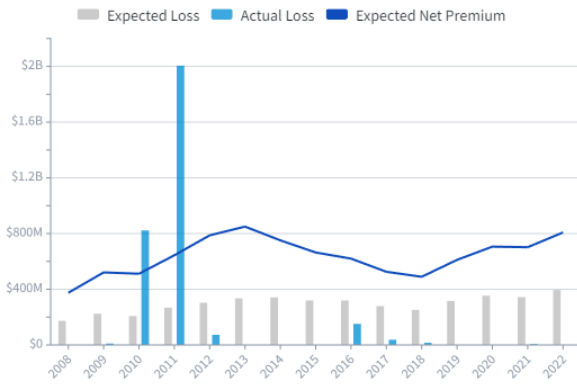
Loss data and key learnings from global events from the past 20 years

Global EQ events: Italy, New Zealand, Chile, Japan, Croatia, ... strong ground motion and loss database increased by a factor of 10

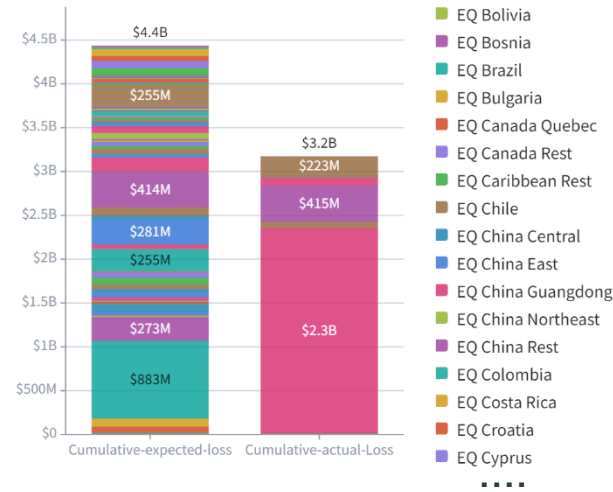


Robust performance of our EQ Property Reinsurance Treaty portfolio, keeping volatility in mind

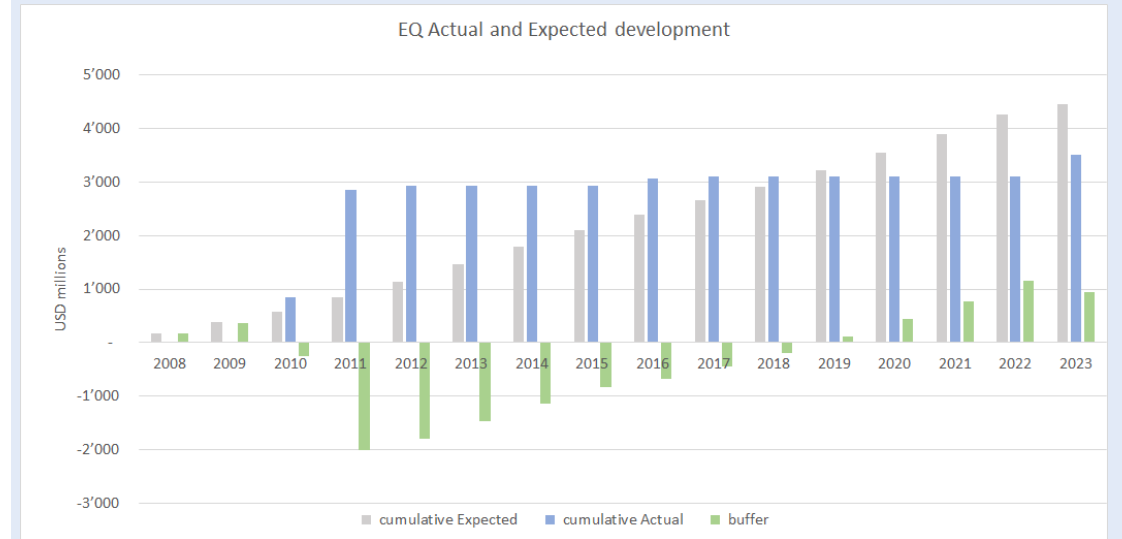
Overall no costing gap, USD 5bn margin generated since 2008



NZ South Island Rest scenario indicates the large loss potential from earthquake



Buffer needed for future earthquakes, costing discipline is key





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