The impact of climate change on property lines

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ARIAS U.S.

Rising insured costs from natural disasters

Insured catastrophe losses have increased dramatically in recent decades

2020: USD 81 bn insured natural catastrophe losses; 5th costliest since 1970

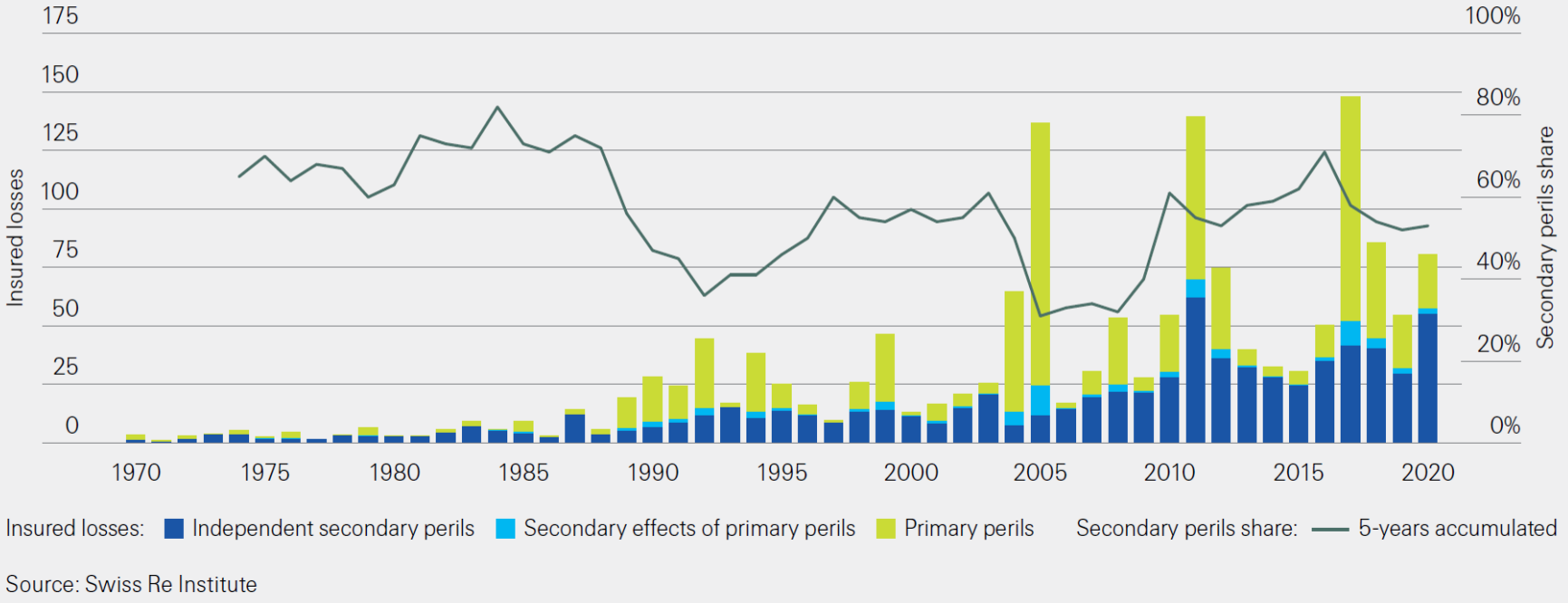
Secondary perils >70% of 2020 weather-related losses (mainly wildfire and SCS)

Each of the last five years (except 2019) secondary peril events have caused insured losses of USD 5Bn or more. Prior to 2011, severity of this nature was unheard of.

In 2021, first year two secondary peril events each generated losses in excess of USD 10Bn (winter storms in US and flooding in Europe)

Figure 1

Annual primary and secondary peril insured losses since 1970 (USD billion) at 2020 prices, and share of secondary peril in total insured losses (five-years accumulated)



Source: Swiss Re Institute

Source: Swiss Re Sigma: **Natural catastrophes in 2021: the floodgates are open.**

Primary vs Secondary Perils

Table 1

Distinction between primary and secondary perils, according to the event typology and monitoring in the re/insurance market.

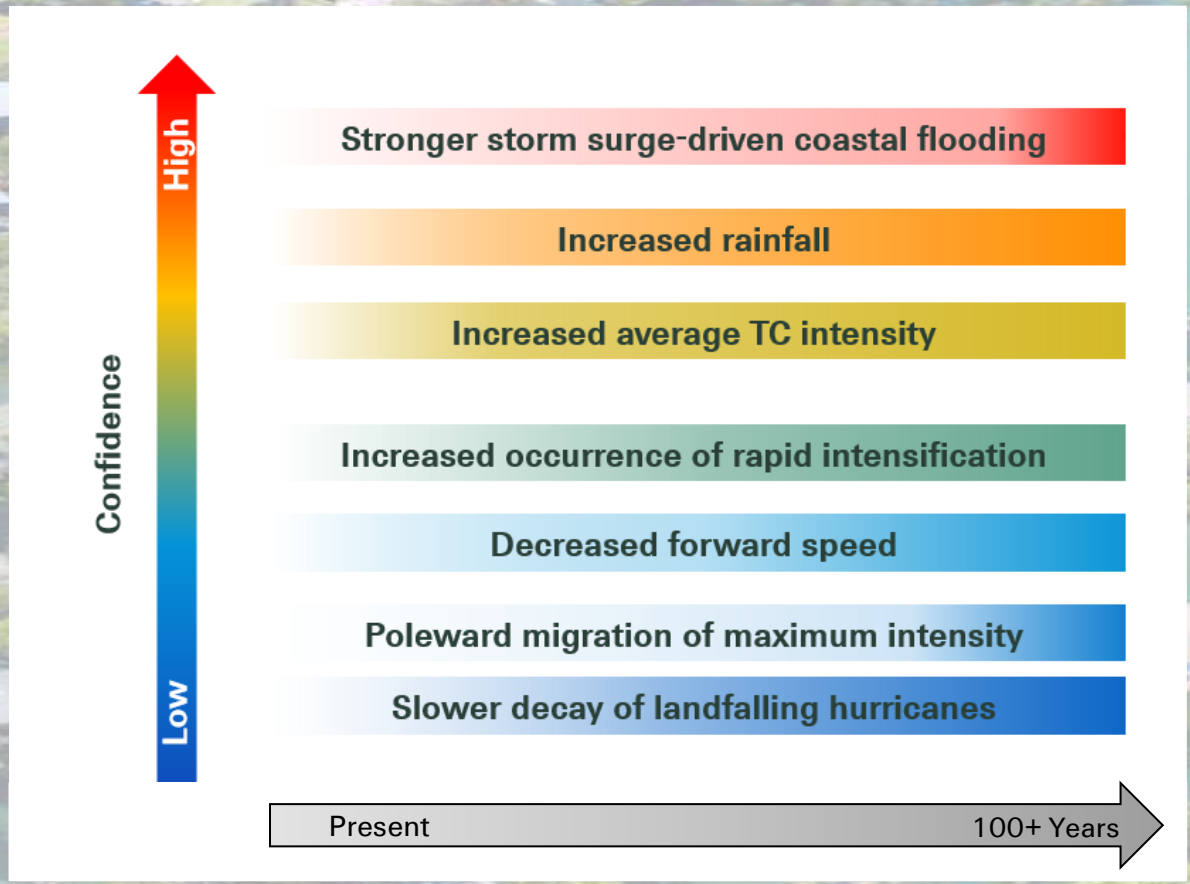
	Event type	Re/insurance industry status	Examples
Primary perils	Natural catastrophes that tend to happen less frequently, but with high loss potential.	Traditionally well-monitored and managed risks in developed re/insurance markets.	Tropical cyclones, earthquakes, winter storms in Europe.
Secondary perils	Natural catastrophes that can happen relatively frequently, and *typically* generate low to medium sized losses.	**Independent secondary perils.** Less rigour in industry monitoring and modelling than for primary perils. Weaker exposure data capture and claims tracking.	Severe convective storms (including thunderstorms, hail and tornadoes), floods, droughts, wildfires, landslides, snow, freeze.
		Secondary-effects of primary perils. Not always explicitly modelled alongside the originating primary peril, less rigorous monitoring.	Tropical cyclone-induced inland flooding and storm surge; tsunamis, liquefaction and fire following earthquakes.

Source: Swiss Re Institute

Climate change impact on Hurricanes

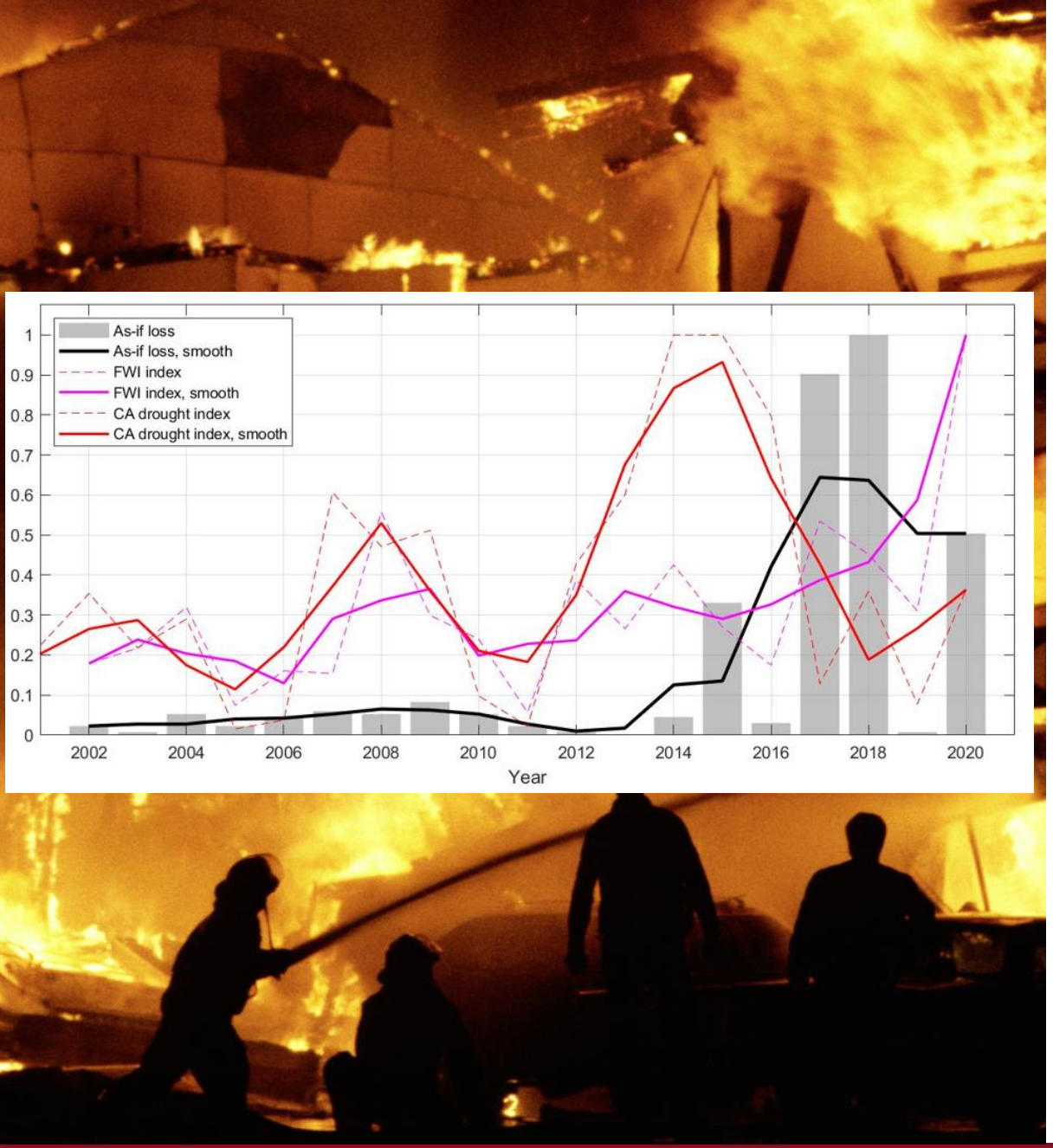
	1900-2020	1995-2020	Near-term change
Hurricanes	5.77	7.88	+36%
Major hurricanes	2.21	3.58	+62%

Annual occurrence rates of North Atlantic hurricanes and major hurricanes between 1900-2020 (long-term history) and 1995-2020 (near-term history)



Historical Hurricane activity is <u>not</u> representative of current/future Hurricane activity

Climate change impact on Wildfire



- In 2020, California had highest record for burned acreage in a single season. Five of the six largest fires in state history.
- More than **129 million trees died** from water shortage and bark beetles during the **2012-2016 drought** (USDA)
- **Fire Weather Index:** Number of days with extreme fire weather in California has **more than doubled since the early 1980s** and is projected to **increase throughout the remainder of the century** (Goss et al., 2020)
- Wildfire is not a risks just to California but to other states – Colorado, Oregon, New Mexico, Arizona, etc. Yet to see whether the severity can be as high as California.
- Man creates 4 out of 5 wildfires in CA
- Wildfire models are in their infancy and influence of humans on this peril creates model challenges.

Is Climate Change impacting other perils?

Flood

- Most common catastrophes in US includes storm surge, inland flooding, and increased rainfall from hurricanes
- FEMA paid 2.9Bn in average on floods between 2007 and 2017*
- Nation's flood plans expected to grow by ~45% by end of century*
- Rain intensity increases by seven percent for every degree Celsius of temperature rise

Tornado/Hail

- US insured losses increased by **6.4% per year since 2000** (inflation adjusted)
- Over 50% of increase explained by **exposure growth** and **urbanization**

Potential Climate factors:

- Increase in # of twisters in a single event
- Shift of severe events across central and eastern US
- Hail may be influenced by warmer temps

Source: Swiss Re Sigma: **Natural catastrophes in 2021: the floodgates are open.** *Flooding and Climate Change: Everything You Need to Know | NRDC

Underwriting in changing environment from climate change

Individual Risk Approach

- Continued rate increases YoY
- Risks moving from standard market to E&S (Eg CA Homeowners)
- Changing deductibles and/or introducing and reducing sublimits

Exiting Business

- Industry moving away from heavy carbon producing risks (Oil/Gas, coal, etc) for both P&C
- Pulling out of states such as CA or FL

Better Accumulation Management

- Greater focus of tracking accumulation across all perils (Zip code, square mile)
- Model development for secondary perils
- Continued evolution on model for primary perils

New Opportunities

- Parametric products creating new opportunities around these perils
- Closing the protection gap with new uptake in products (eg personal flood)
- Targeting renewable energy risks as an opportunity