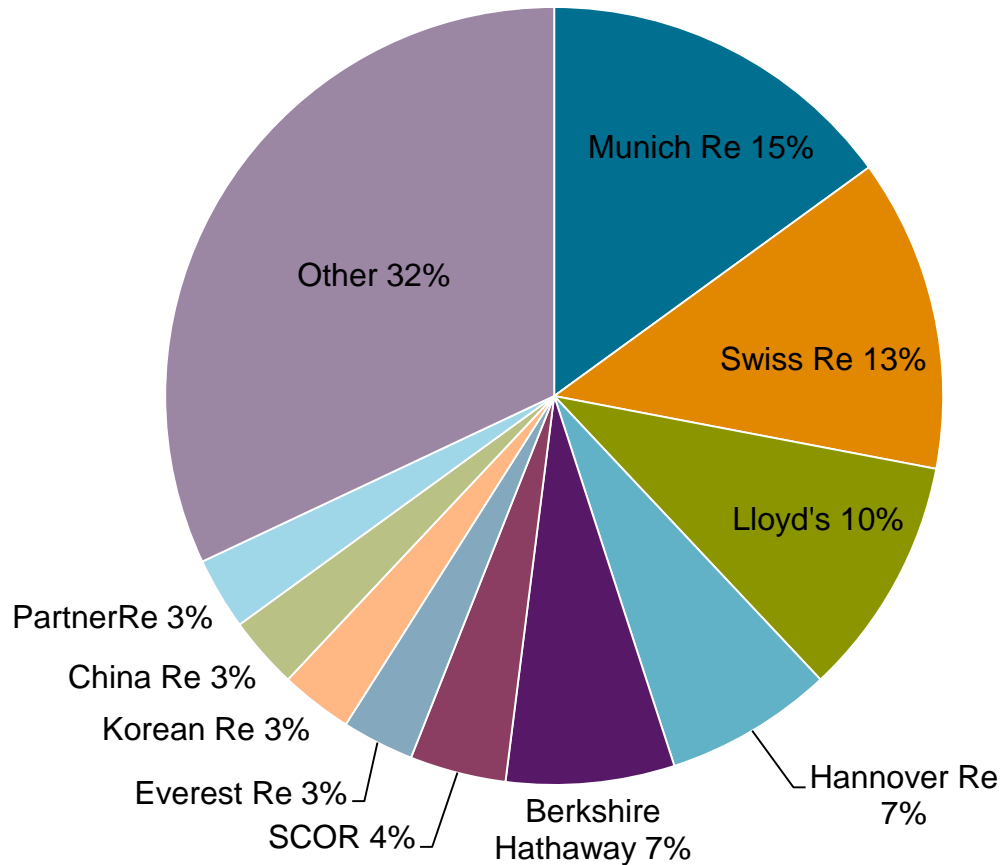




Lloyd's, Reinsurance and Catastrophe Losses

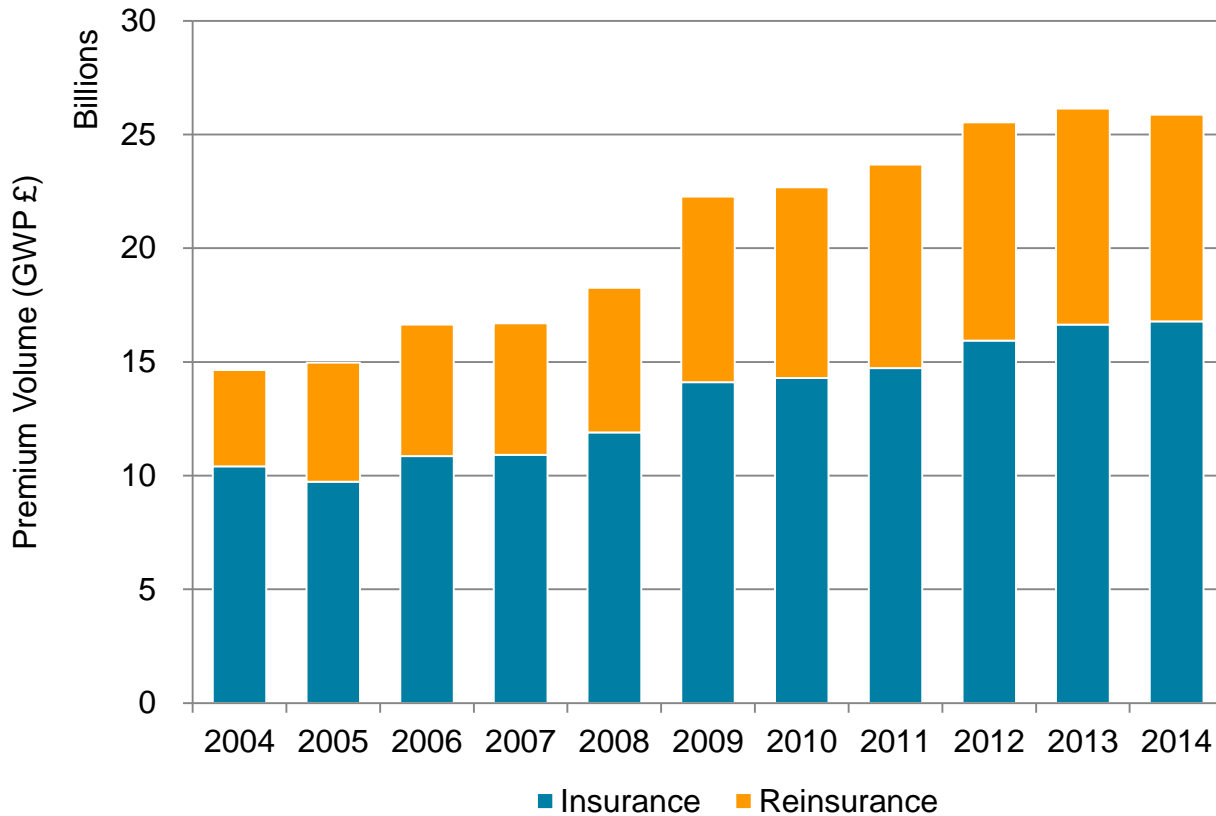
Reinsurance Today: Non-Life Reinsurance Market Share



► The 10 Largest Reinsurers = 68% of the market



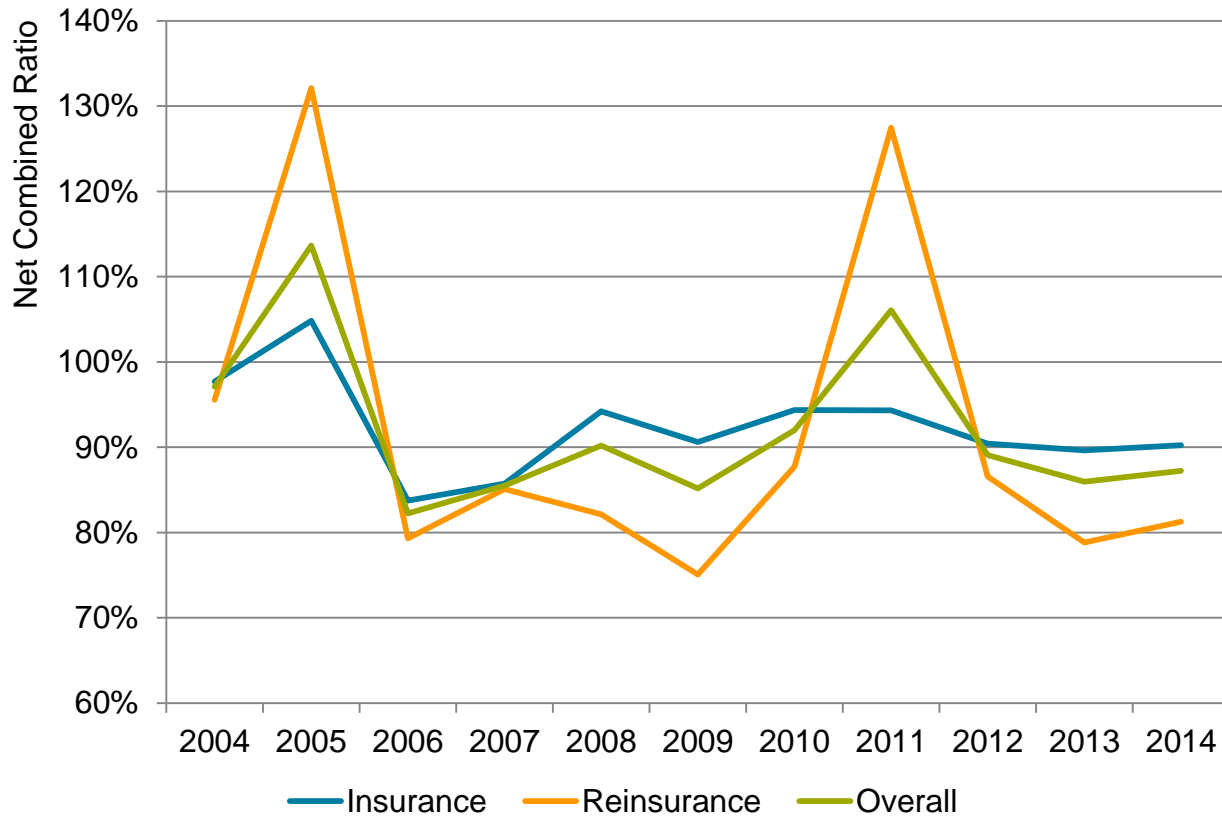
Lloyd's Insurance and Reinsurance



- ▶ Lloyd's premium (GWP) 2014: 35% reinsurance, 65% insurance



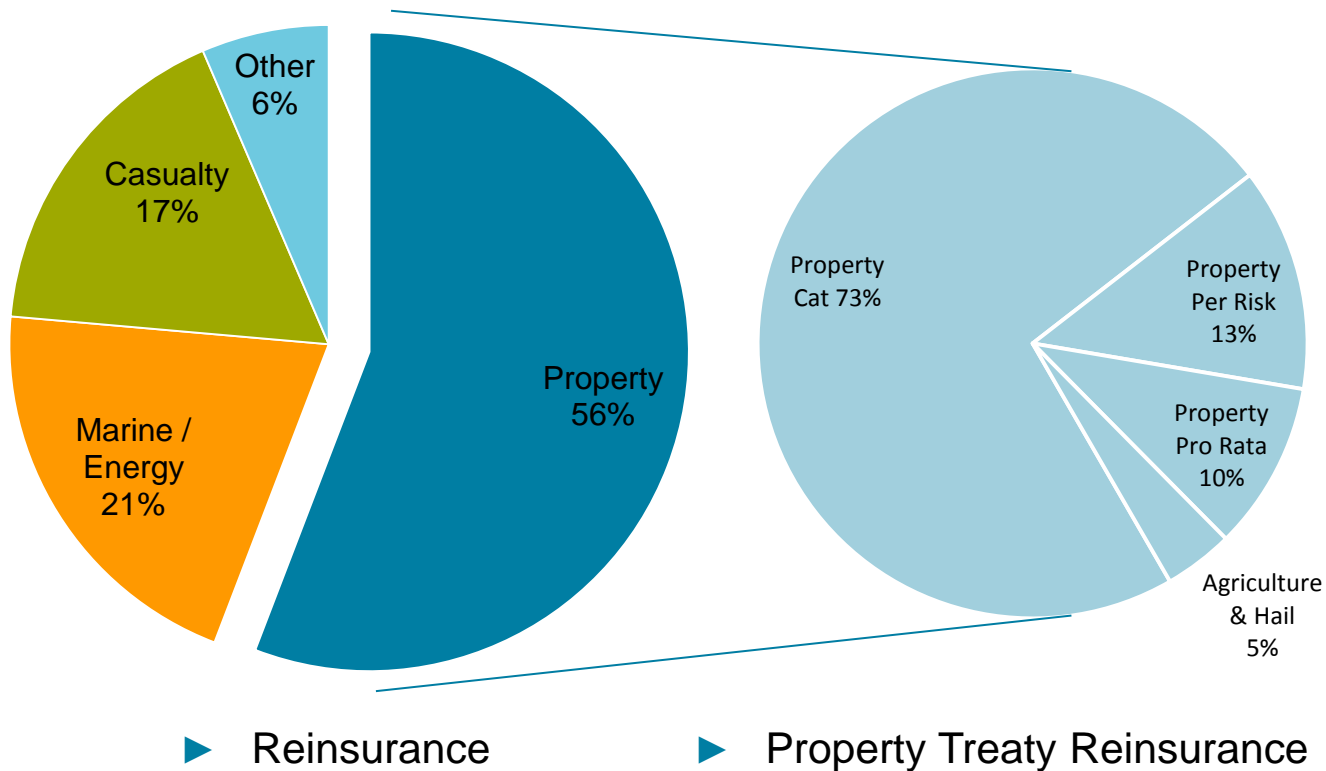
Lloyd's Insurance and Reinsurance



► Reinsurance results more volatile than insurance



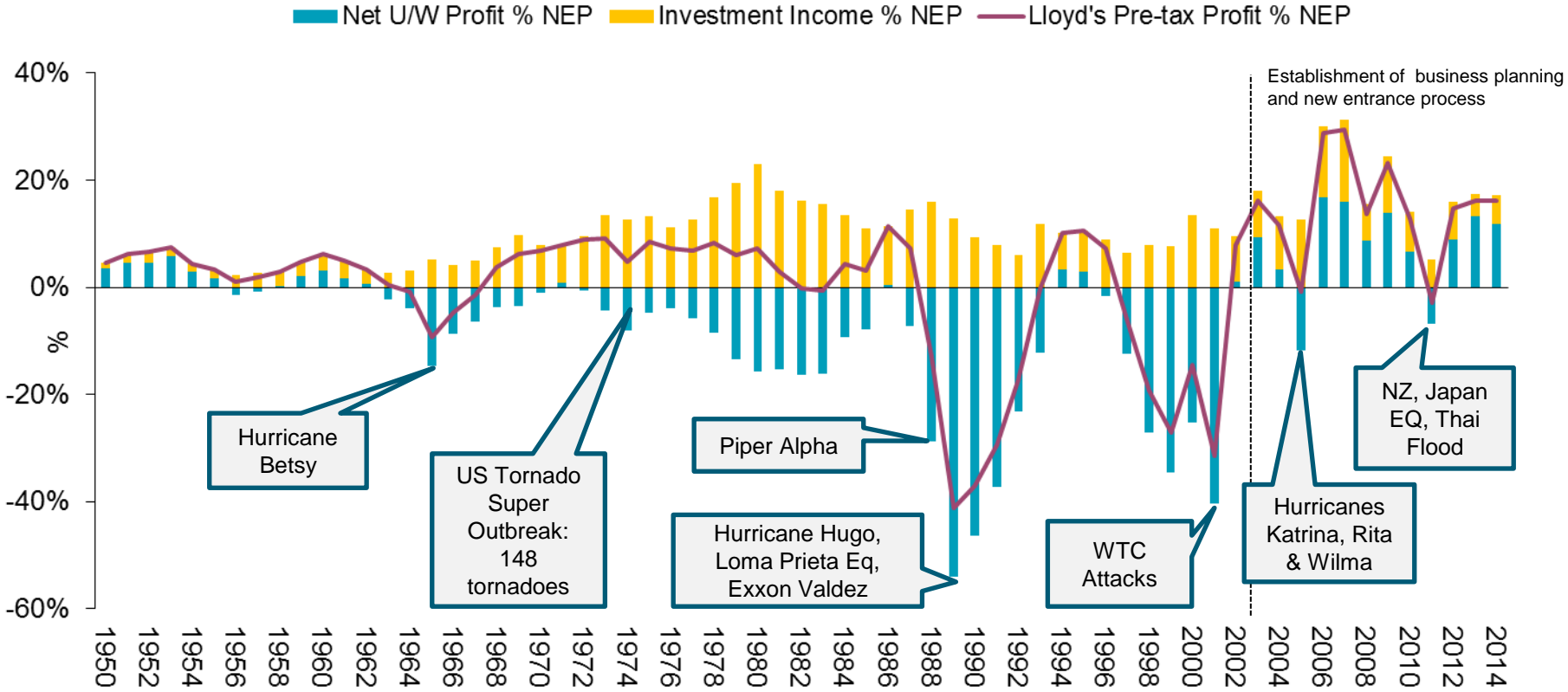
Lloyd's Reinsurance Premium



▶ Overall approximately 14% Property Cat



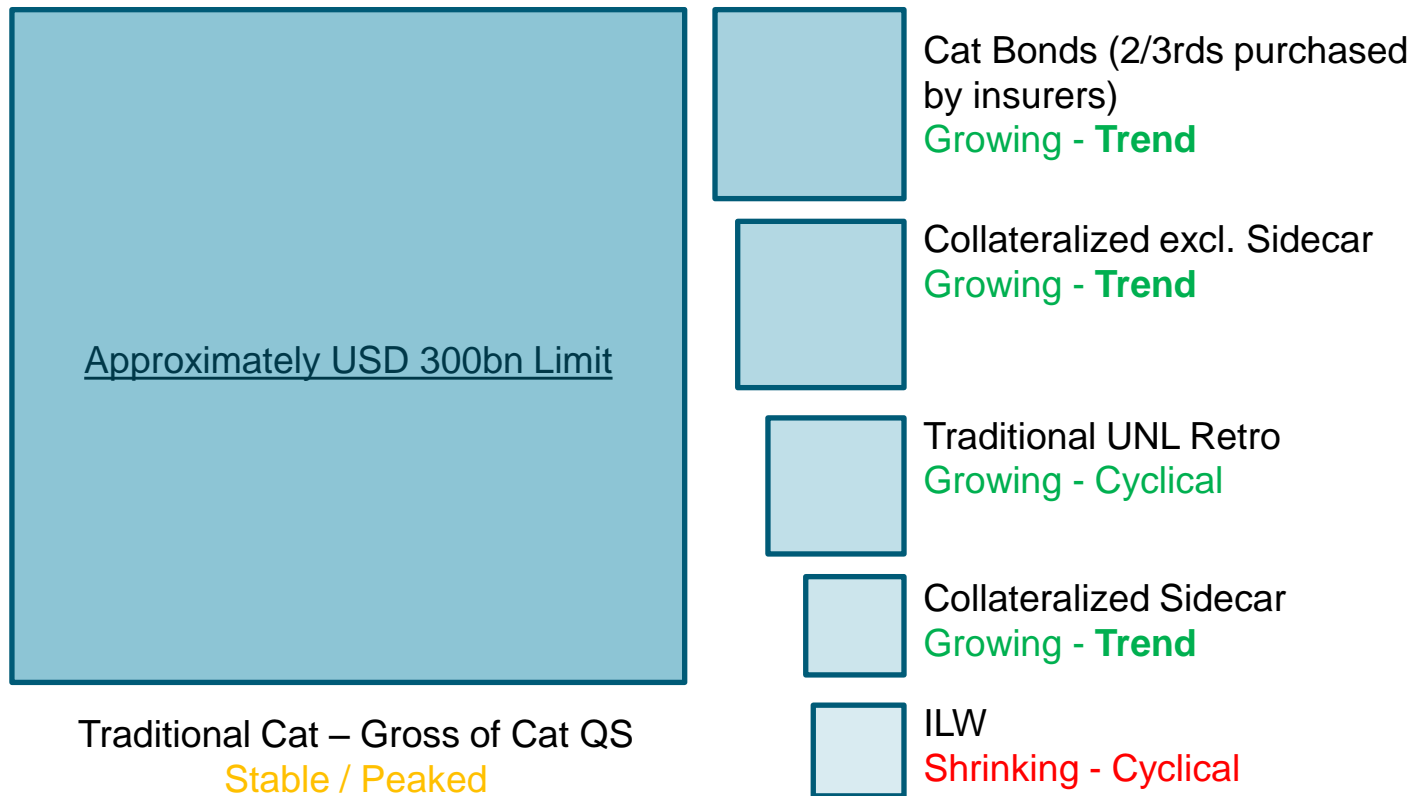
Lloyd's Historical Results 1950 - 2014



Major losses: Hurricane Betsy (1965), Xenia Super Outbreak - Tornadoes (1974), Piper Alpha (1988), Hurricane Hugo (1989), Loma Prieta Earthquake (1989), Exxon Valdez (1989), Northern European Storms (1987 / 1990), Typhoon Mireille (1991), Hurricane Andrew (1992), Northridge Earthquake (1994), WTC (2001), Hurricanes Charlie, Francis, Ivan, Jeanne (2004), Hurricanes Katrina, Rita, Wilma (2005), Chile and New Zealand Earthquakes (2010), New Zealand and Japan / Tohoku Earthquakes, Thailand Flood (2011)

Source: Lloyd's Annual Reports, Statistics relating to Lloyd's 2001; Lloyd's data for 1950 – 1999 on three year accounting (assuming written=earned premium and 18% deductions), and from 2000 onwards on annual accounting basis.

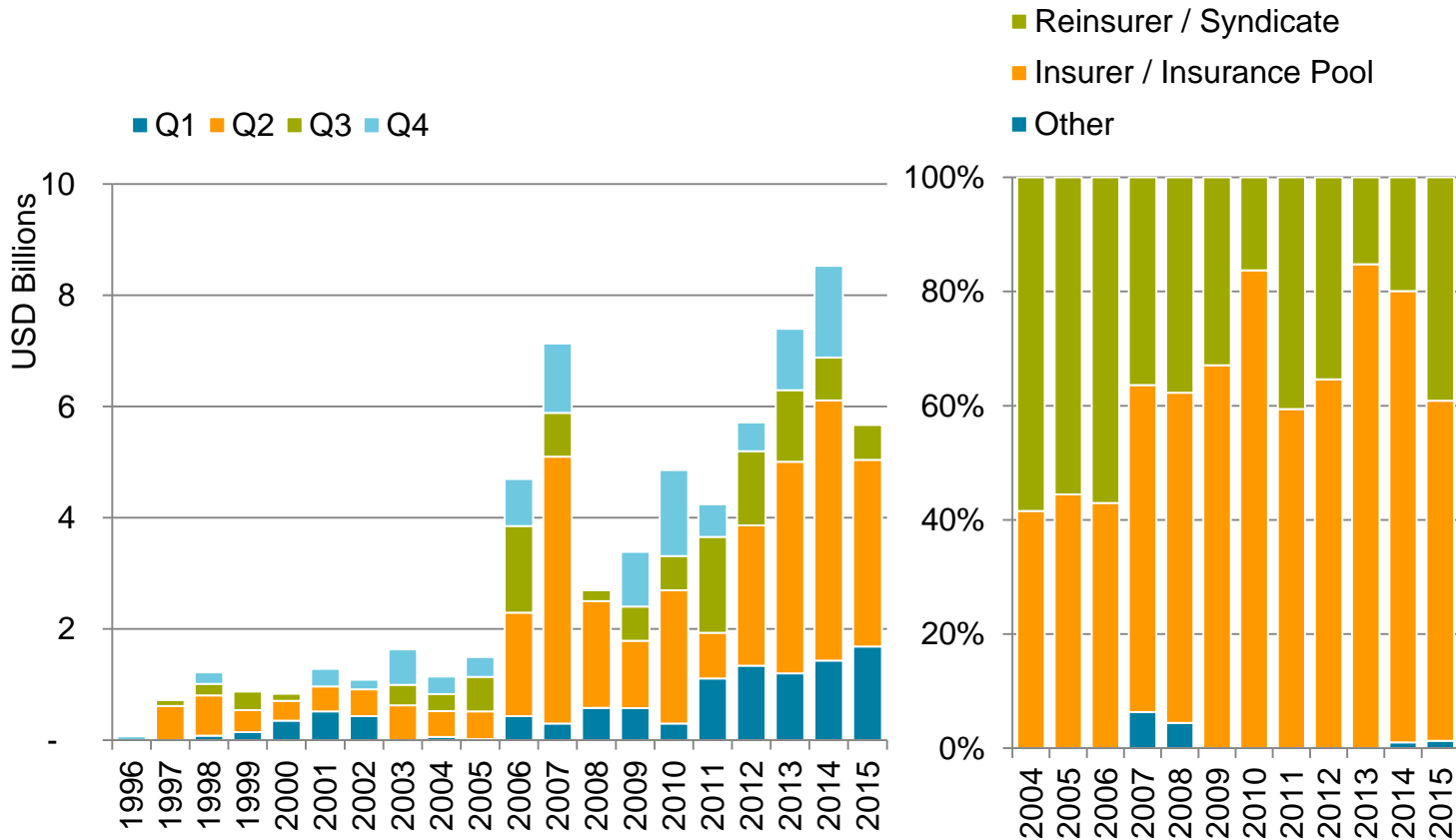
Cat Reinsurance Market Sizes 2015 Sum of Limit Placed / Issued



- ▶ Traditional cat reinsurance dominates, but growth in non traditional alternatives suggests secular change



Cat Bond Issuance through Q3 2015



- ▶ The majority of bonds have been issued mid-year (Q2), insurance company issuance predominates



Catastrophe Market Context

- ▶ Not all cat risk is transferred via cat covers
- ▶ Lloyd's has long been, and remains a leading catastrophe reinsurance market; offering both natural and manmade protection
- ▶ Lloyd's Syndicates and their groups are active participants in the traditional, ILS and collateralized markets
- ▶ All sectors are responding to growing demand, although a number of longer-standing markets have reached maturity
- ▶ Growth in demand follows economic growth
- ▶ Lloyd's is well represented in the mature markets, and looks to establish itself in higher growth economies
- ▶ Today, Lloyd's accesses business in multiple locations worldwide



Recent Industry Events - Context

Earthquake	Victims	Economic Versus Industry Loss Est. US\$ Bn.	Est. Minimum Number Of Claims
Chile / Maule	562	30 v. 8	225,000
New Zealand	185	24.5 v. 18.8	750,000
Japan	19,184	210 v 35	1,000,000



Large Chile Earthquakes - Impact

- ▶ People exposed to shock damage (\geq MMI 6):
 Iquique* M_W 8.2 (2014): 0.8m
 Illapel M_W 8.3 (2015): 0.4m
- ▶ Maule M_W 8.8 (2010): 2010 over 14m people exposed to shock damage

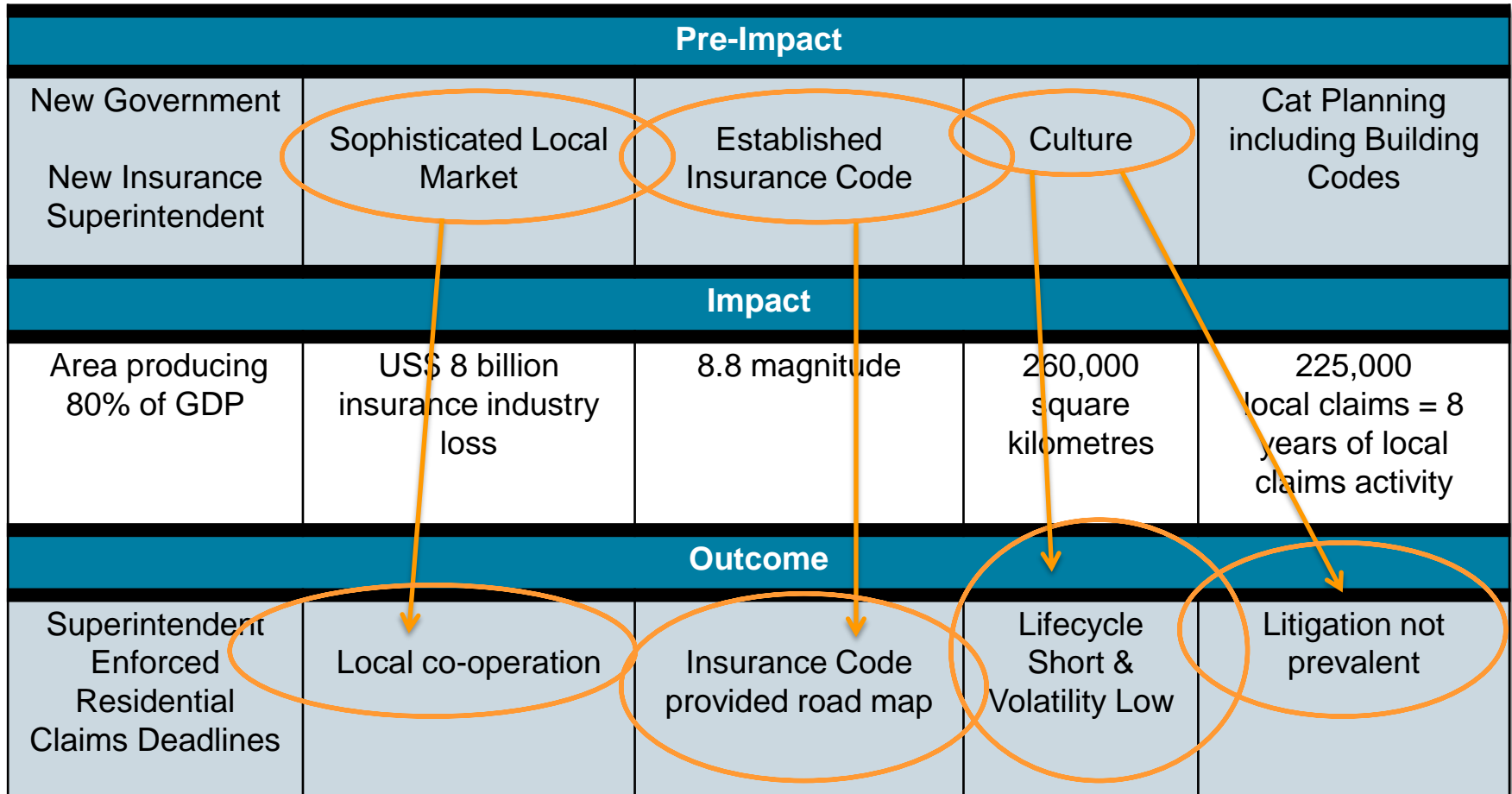
Estimated Population Exposed to Earthquake Shaking

Estimated Modified Mercalli Intensity		I	II-III	IV	V	VI	VII	VIII	IX	X
Est. Population Exposure		—*	—*	630k*	3,169k*	1,831k	11,081k	1,261k	0	0
Perceived Shaking		Not Felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
Potential Structure Damage	Resistant	none	none	none	V. Light	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy
	Vulnerable	none	none	none	Light	Moderate	Moderate/Heavy	Heavy	V. Heavy	V. Heavy

- ▶ The energy released by the Maule event was an order of magnitude greater than the energy released in the 2014 or 2015 events

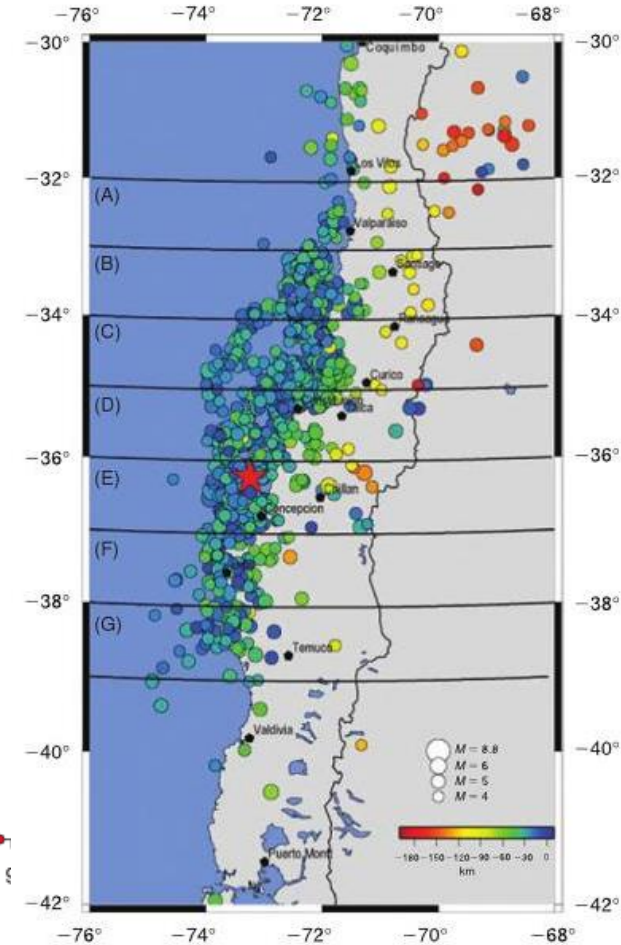
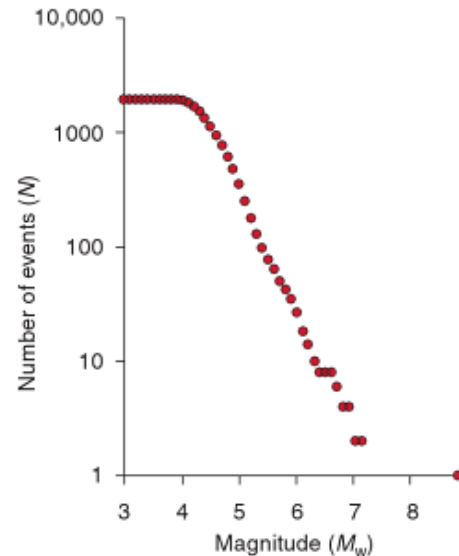
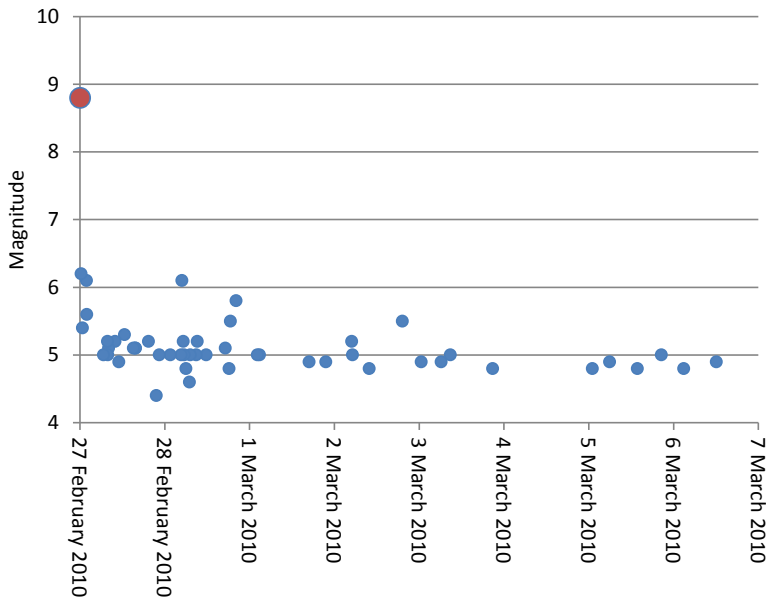


Chile 2010 - Lessons Learned



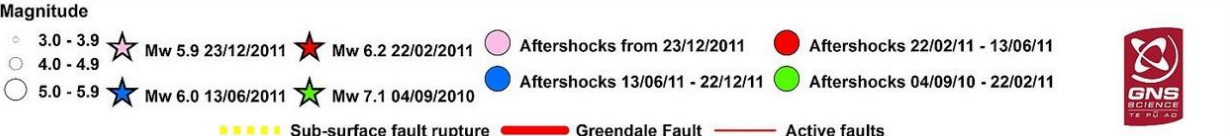
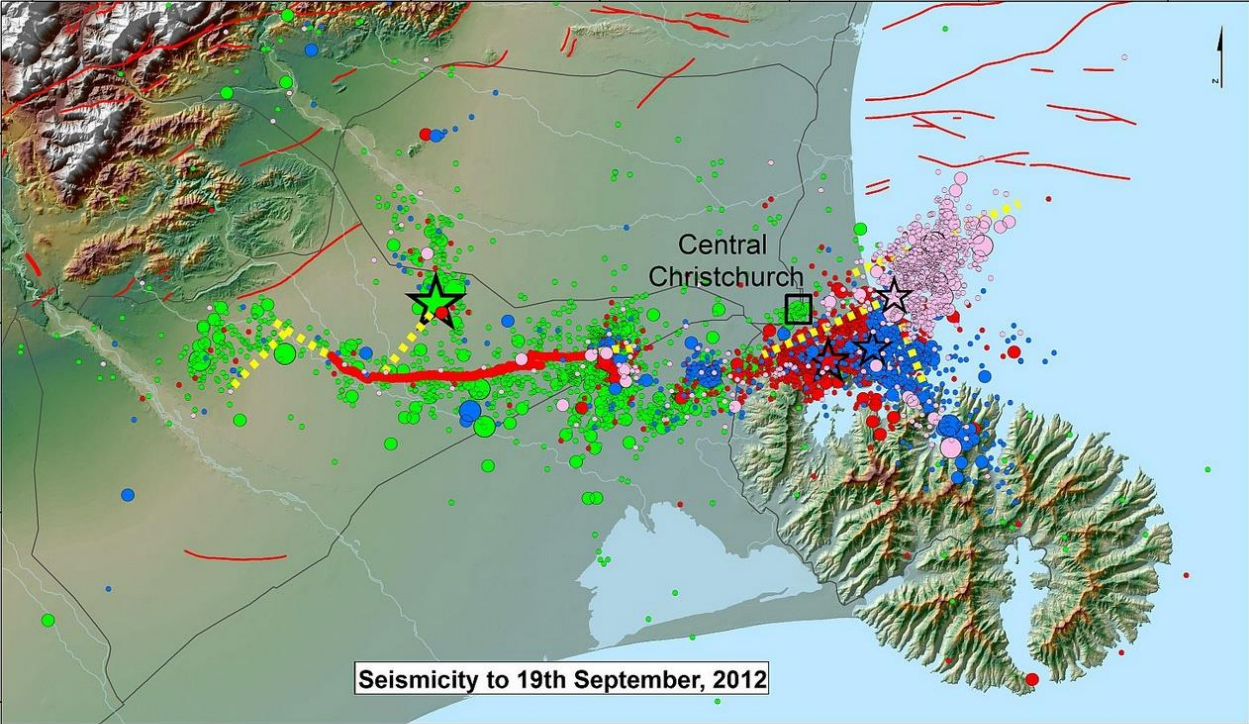
Chile 2010 - Lessons Learned Laws and Model Performance

- ▶ Aftershocks in the area of the main shock
- ▶ Number and size of events decay with time
- ▶ Bath's law applied



Christchurch - Lessons Learned Laws Re-written?

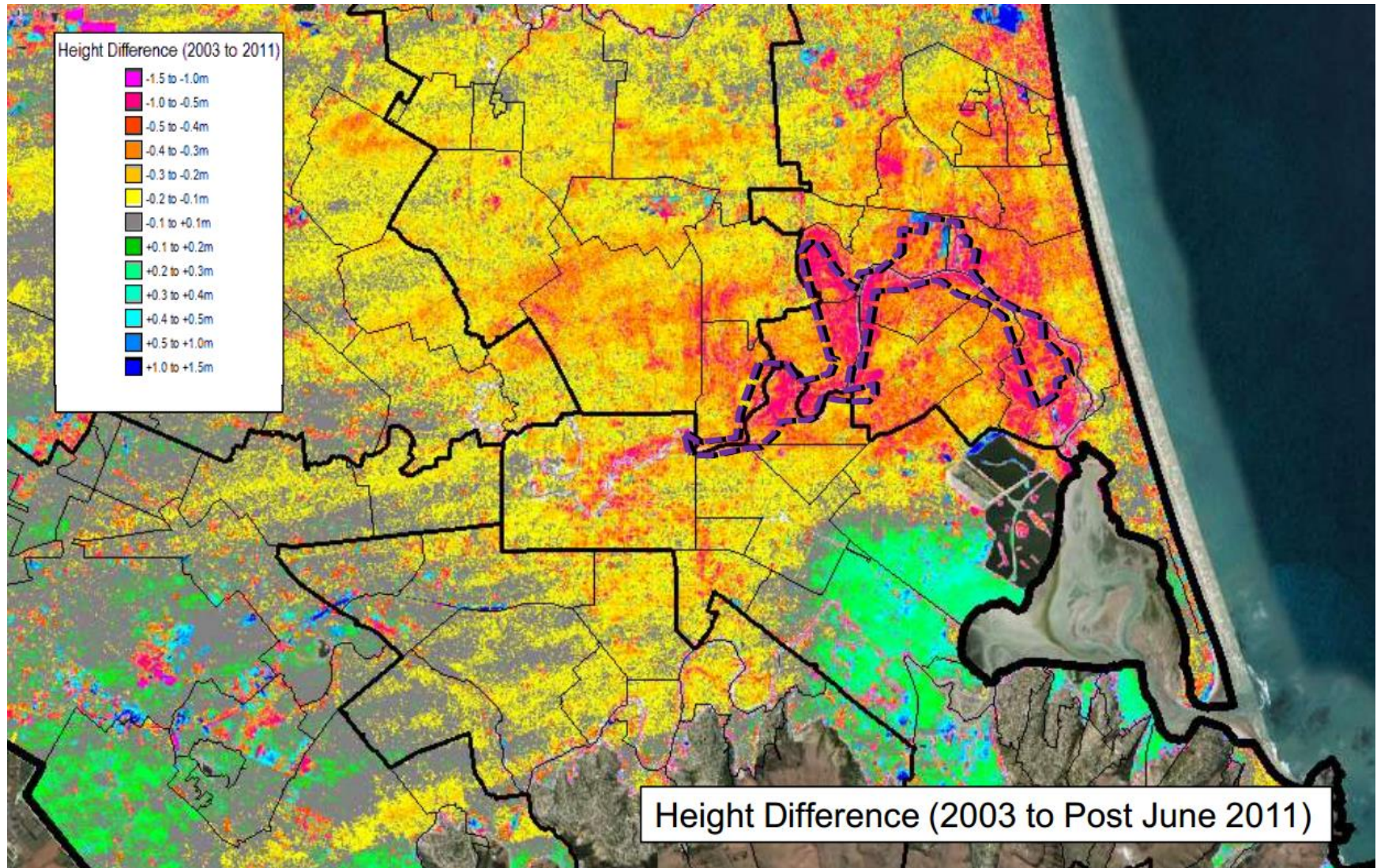
- ▶ ‘Aftershocks’ not restricted to the area of the main shock
- ▶ Number and size of all events do not uniformly decay with time
- ▶ Bath’s law suggests that Lyttelton was not an aftershock



- ▶ Likelihood is that this series was the product of stress transfer / triggering
- ▶ Implications for modeling and risk management

Christchurch - Lessons Learned

Liquefaction



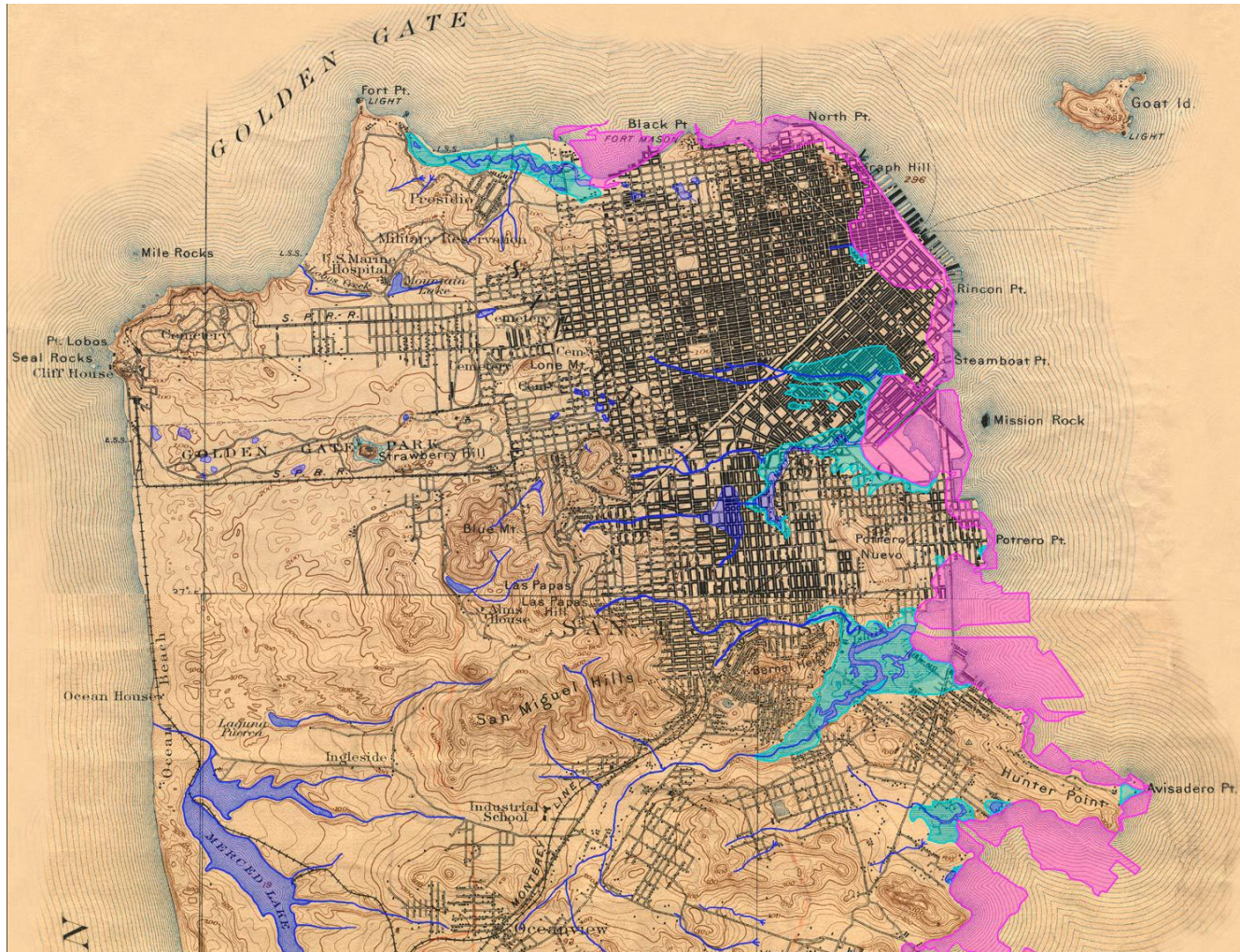
Christchurch – Lessons Learned Flooding Due to Liquefaction



- ▶ Royal New Zealand Air Force P3-K Orion aircraft flyover 22nd February 2011

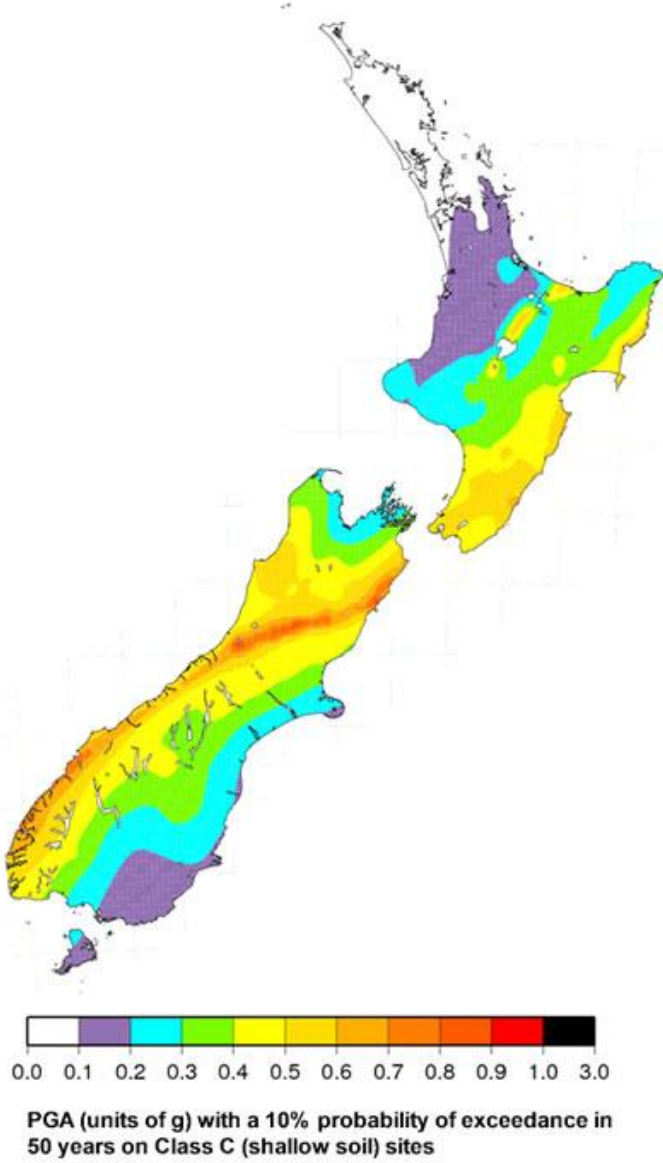
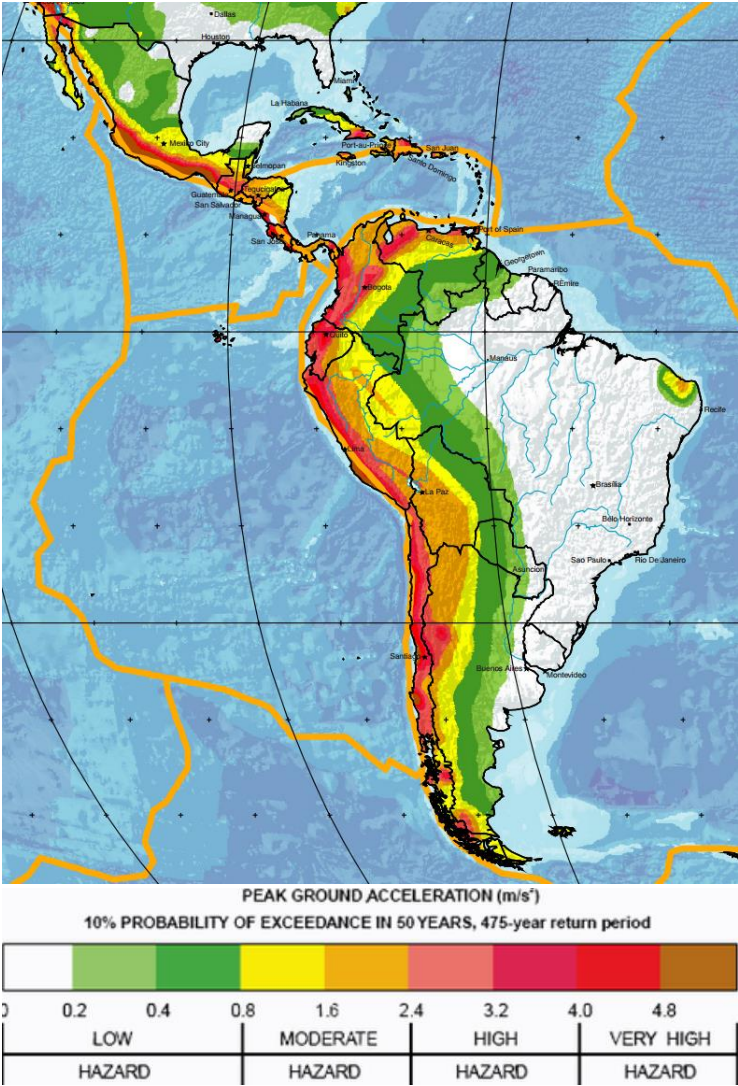


Quake - Exposure and Experience



LLOYD'S

Quake - Exposure and Experience



“The Lloyd’s market played a key and important role in this event, and you and your colleagues’ support allowed the Chilean insurance industry to face this event without any serious issues, being henceforward considered the benchmark in the region for this kind of situation”



