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Happy after Larry?

A comparison of modelled losses and insurance payouts

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3rd July 2007





- Insurance/Reinsurance
- Catastrophe Modelling
- Cyclone Larry
- Claims Statistics
- Modelled Losses

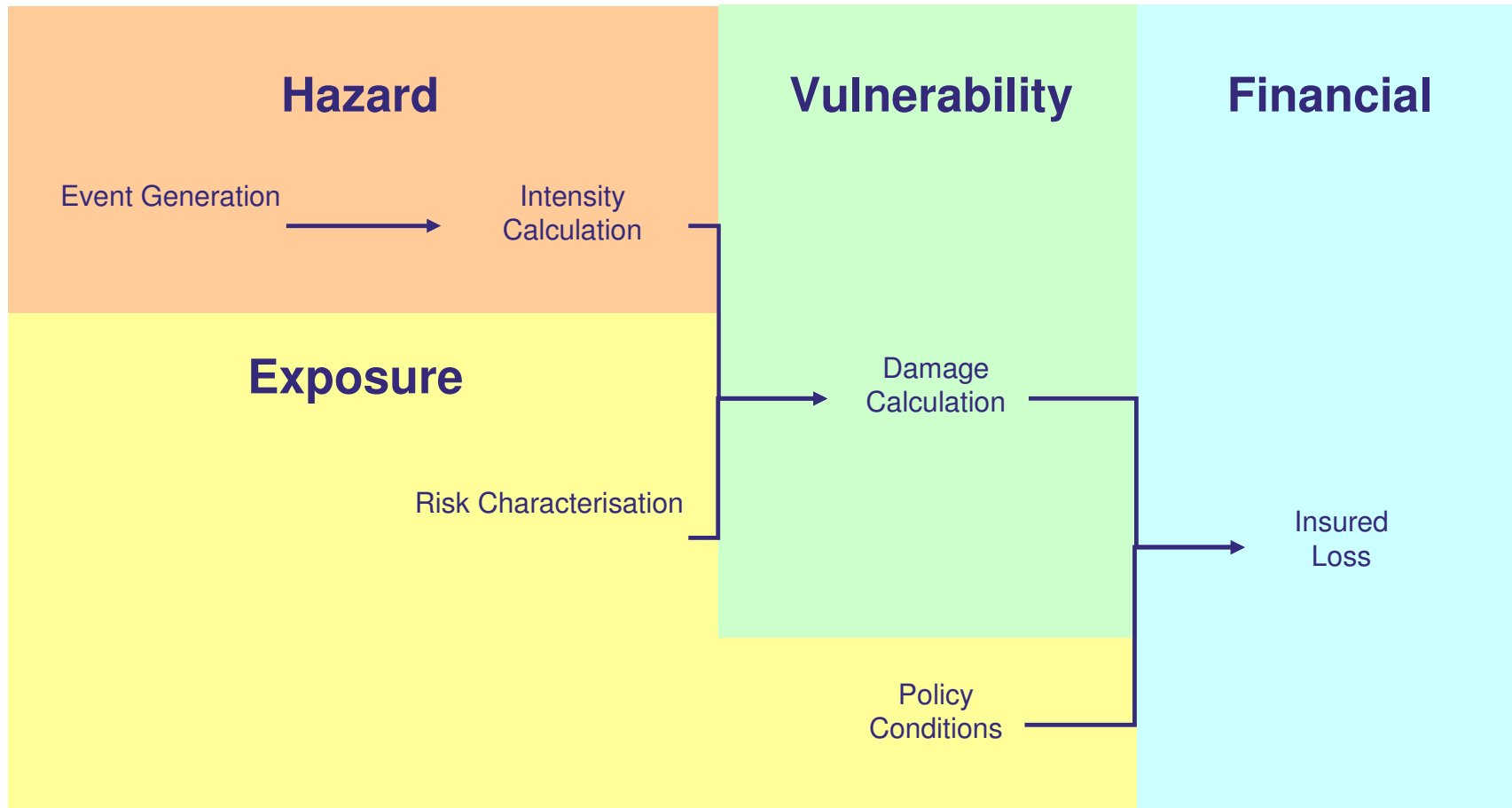


- Reinsurance is insurance for insurance companies
- To determine reinsurance needs an insurer must estimate their potential losses
- Catastrophe models allow us to determine:
 - Potential losses
 - How much reinsurance is needed
 - How much premium is required



Catastrophe Modelling

The Anatomy Of A Catastrophe Model





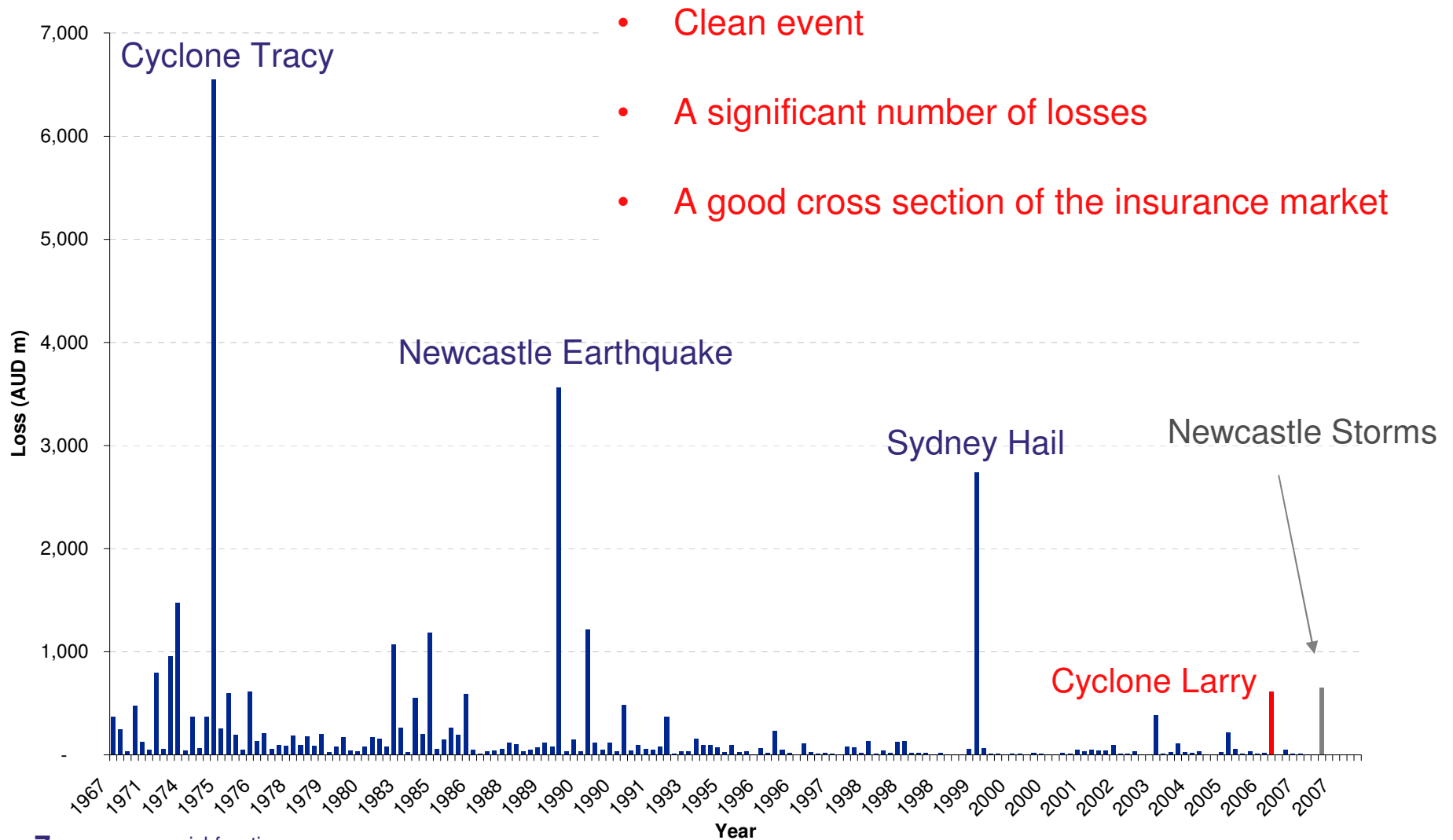
Address	1 Station Street	3 Brick Court
Coverage	Building	Contents
Premium	\$250	\$200
Exposure	\$168,826	\$45,000
Deductible	\$300	\$100
Suburb	LETHBRIDGE PARK	CURRUMBIN WATERS
Postcode	2770	4223
State	NSW	QLD
Longitude	150.798	153.456
Latitude	-33.7354	-28.1492
Construction	Fibro	Brick Veneer
Roof	Tiles	Iron Sheeting
Count	1	1
Year	1970	1994
Occupancy	Residential	Residential



- Different types of catastrophe models are employed by the market:
 - Proprietary
 - Commercial
- The results from these different models require that a decision be made on which model to choose
- How is a decision made
 - Gut feel
 - Scientific validity
 - Ground testing



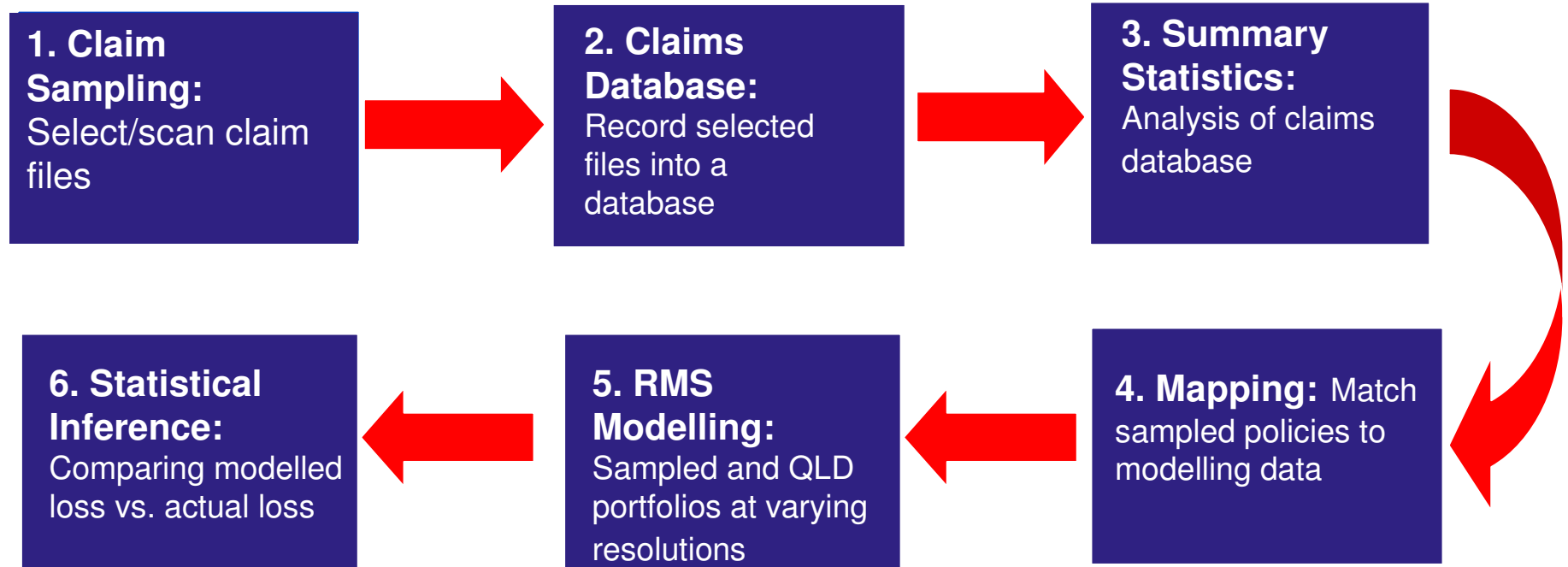
Cyclone Larry



- Clean event
- A significant number of losses
- A good cross section of the insurance market



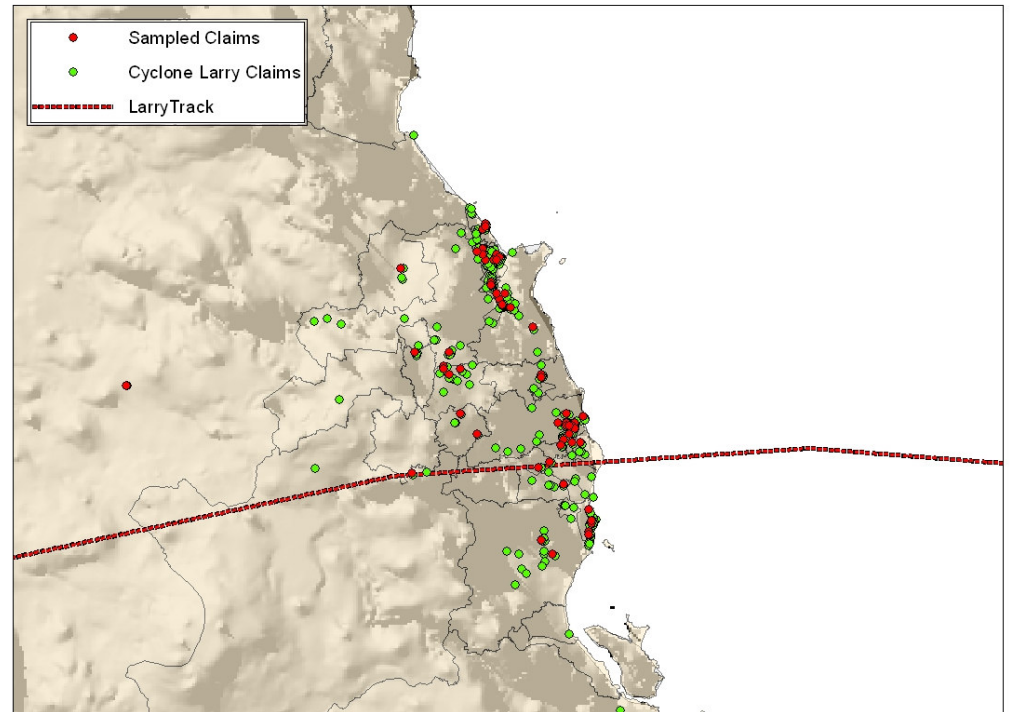
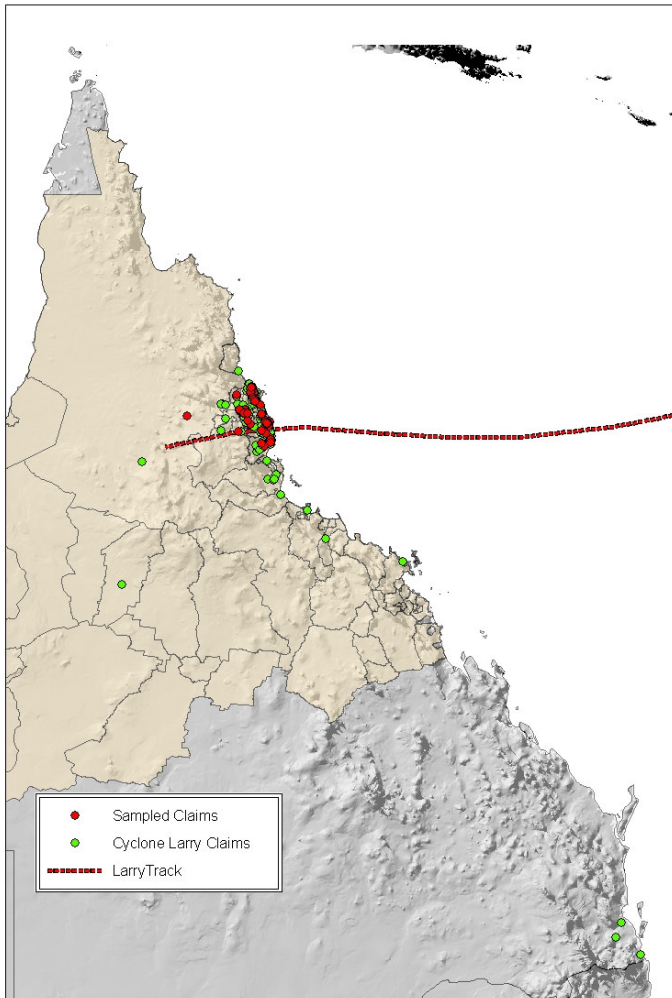
Cyclone Larry Claims Analysis





Selecting The Claims

Queensland Affected Region





Claims Database Screenshot



Address ID <input type="text" value="AutoNumber"/> Street Number <input type="text"/> Street Name <input type="text"/> Thoroughfare <input type="text" value=""/> Suburb <input type="text"/> Postcode <input type="text"/> BSI <input type="text"/> CSI <input type="text"/> BSI <input type="text"/> Loss Assessor <input type="text"/> Excess <input type="text"/> Total Loss <input type="text" value="\$0"/> Initial Estimate <input type="text"/>			Claim Number <input type="text"/> Insurer <input type="text"/> Event Name <input type="text" value="Cyclone Larry"/> Event Date <input type="text" value="20/03/2006"/> Date Reported <input type="text"/> Date Closed <input type="text"/> Date Reopened <input type="text"/> Date of Repair <input type="text"/>		
Cause % Lightning/Power <input type="text"/> Rainwater/Gutters <input type="text"/> Runoff/Drain overflow <input type="text"/> Wind <input type="text"/>		Construction Flood <input type="text"/> Tree fall <input type="text"/> Seepage <input type="text"/> Impact <input type="text"/> Construction type <input type="text" value=""/> Roof type <input type="text" value=""/> Year <input type="text"/>			
Building Damage Fdn <input type="text"/> External Walls <input type="text"/> Doors <input type="text"/> Windows <input type="text"/> Roof <input type="text"/> Ceiling <input type="text"/> Internal Walls <input type="text"/> Painting <input type="text"/> Floors <input type="text"/> Tiling <input type="text"/> Carpets <input type="text"/> Carpentry/Joinery <input type="text"/> Electrical <input type="text"/> Plumbing <input type="text"/> A/C <input type="text"/> Engineering Works <input type="text"/> General Cleaning <input type="text"/> Pool <input type="text"/> Garden <input type="text"/> Other <input type="text"/> Total Building <input type="text"/> Calculated Bldg total: <input type="text" value="\$0"/>			Contents Damage CD1 description <input type="text"/> category <input type="text" value=""/> CD1 \$ <input type="text"/> CD2 description <input type="text"/> category <input type="text" value=""/> CD2 \$ <input type="text"/> CD3 description <input type="text"/> category <input type="text" value=""/> CD3 \$ <input type="text"/> CD4 description <input type="text"/> category <input type="text" value=""/> CD4 \$ <input type="text"/> CD5 description <input type="text"/> category <input type="text" value=""/> CD5 \$ <input type="text"/> CD6 description <input type="text"/> category <input type="text" value=""/> CD6 \$ <input type="text"/> CD7 description <input type="text"/> category <input type="text" value=""/> CD7 \$ <input type="text"/> CD8 description <input type="text"/> category <input type="text" value=""/> CD8 \$ <input type="text"/> CD9 description <input type="text"/> category <input type="text" value=""/> CD9 \$ <input type="text"/> CD10 description <input type="text"/> category <input type="text" value=""/> CD10 \$ <input type="text"/> Total Contents <input type="text"/> Calculated Contents <input type="text" value="\$0"/>		
Interruption Loss BI Loss <input type="text"/> Interruption (weeks) <input type="text"/> Normal Weekly Income <input type="text"/> Average Weekly Income <input type="text"/>		Other Costs Assessors Fee <input type="text"/> Builders Fee <input type="text"/> Architects Fee <input type="text"/> Other Fees <input type="text"/> Total Fees <input type="text" value="\$0"/>		General Comment <div style="border: 1px solid black; height: 100px; width: 100%;"></div>	



- All sampled claims were closed at time of analysis
- Information was recorded in our database at policy level
- Information captured included: account details, coverage, building/contents/business interruption (BI) losses, location, dates, construction types and fees
- Selected sample of 16% of policies from the entire claims database
- Total loss equating to 13% from total Cyclone Larry losses

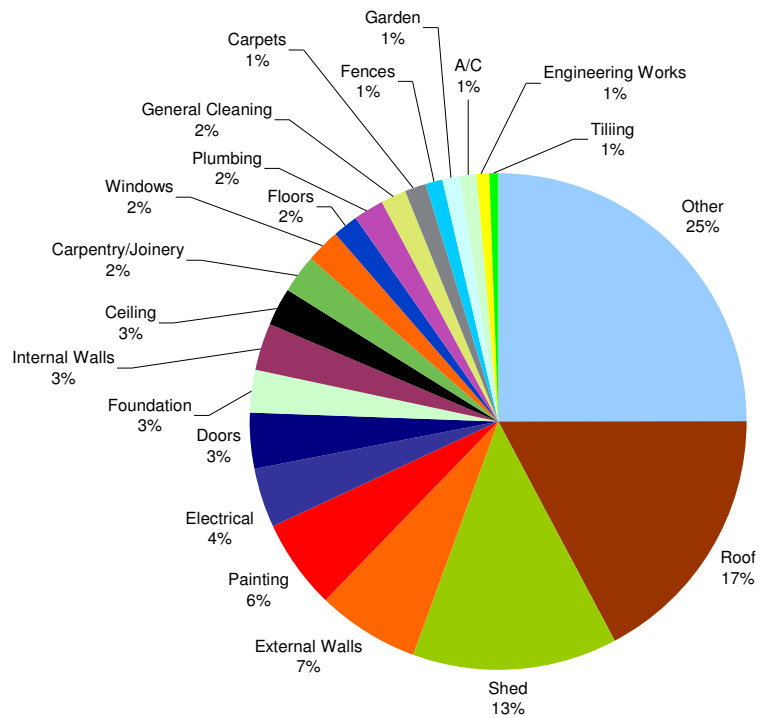


Claims Statistics

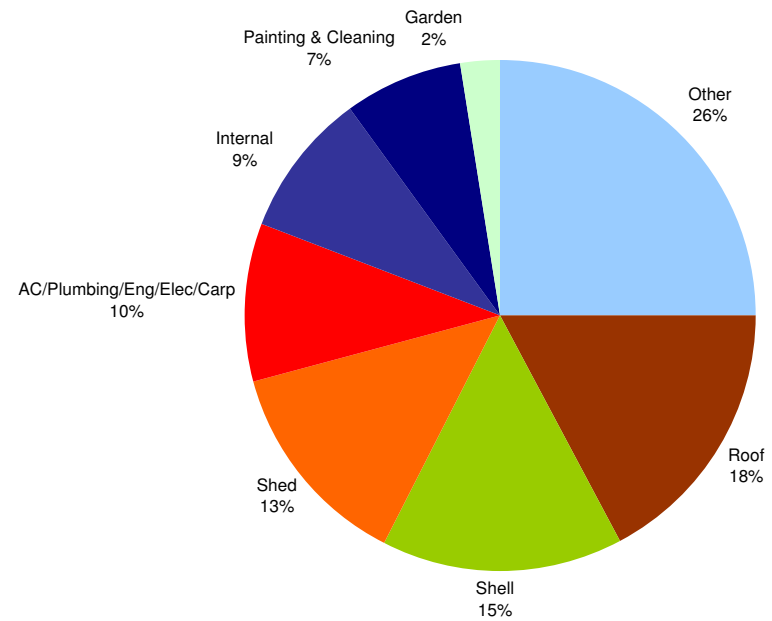
Building Damage Components



All Loss Components



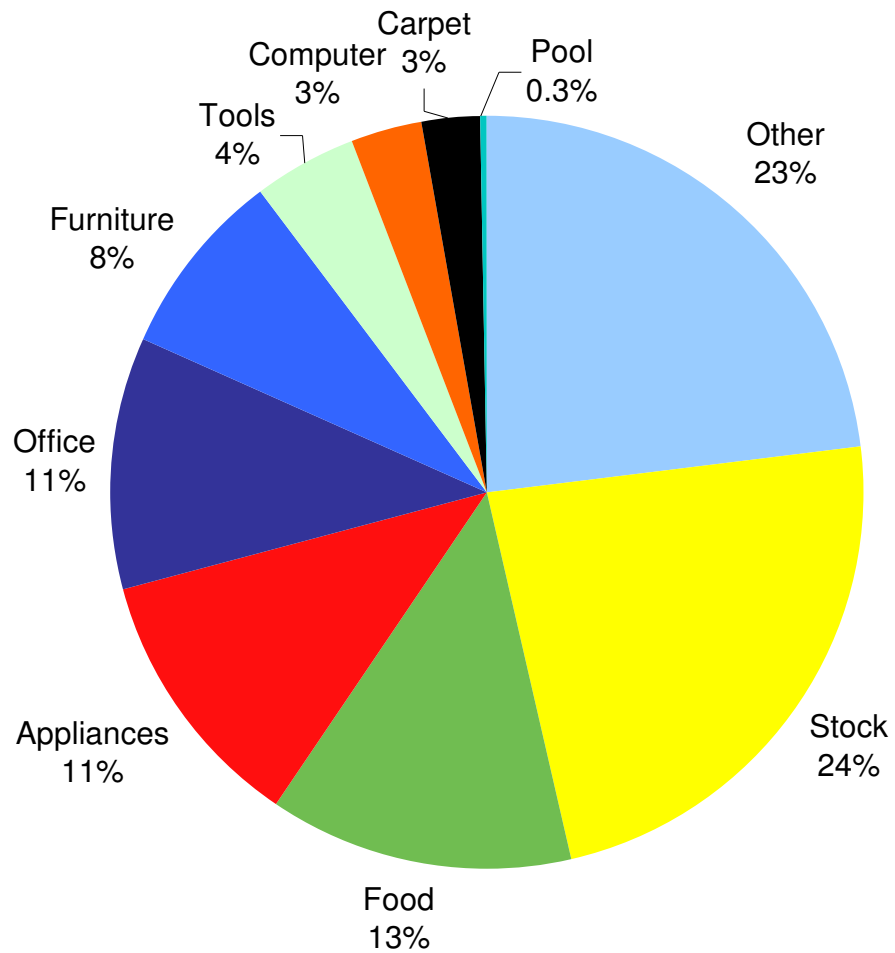
Consolidated Loss Components





Claims Statistics

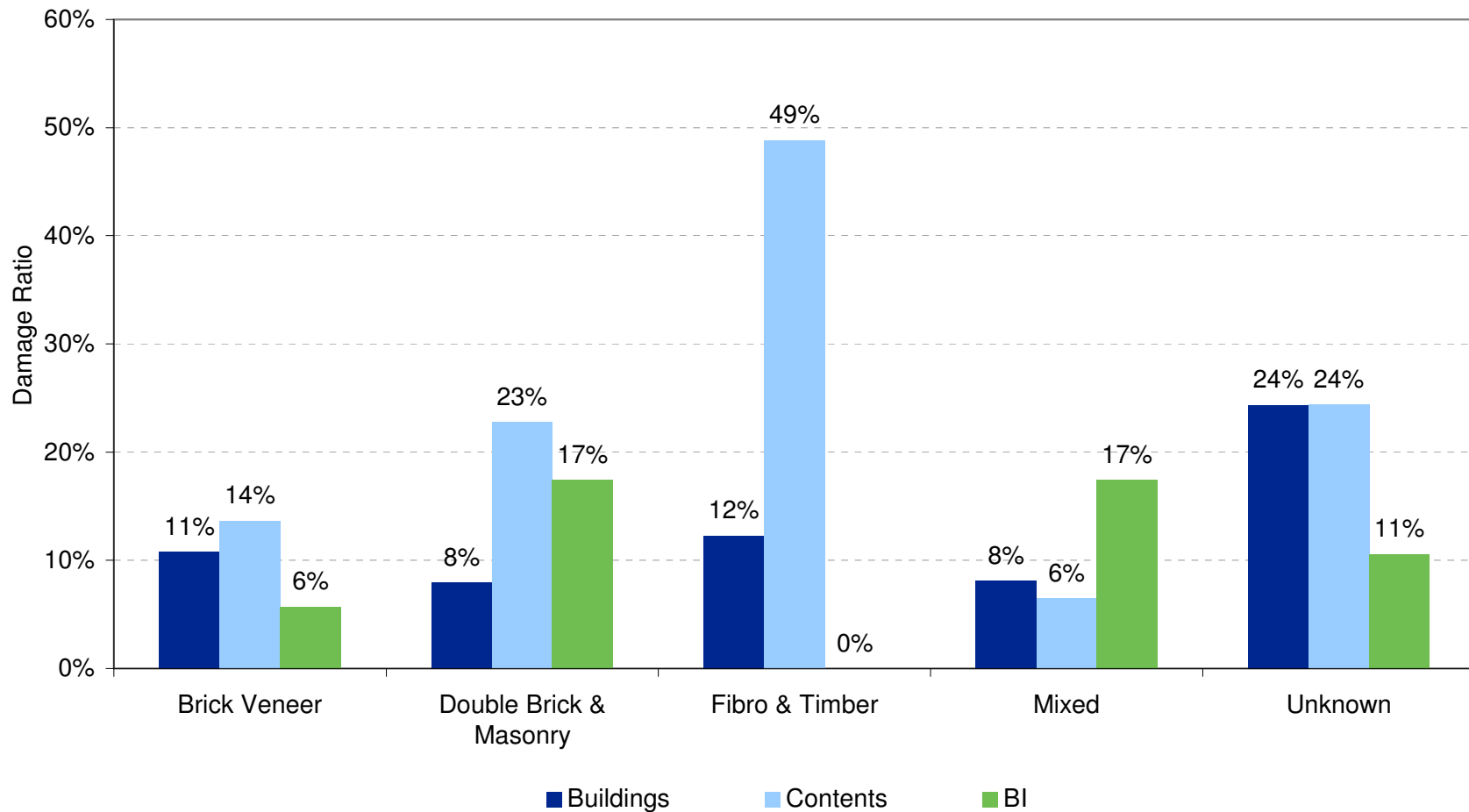
Contents Damage Components





Claims Statistics

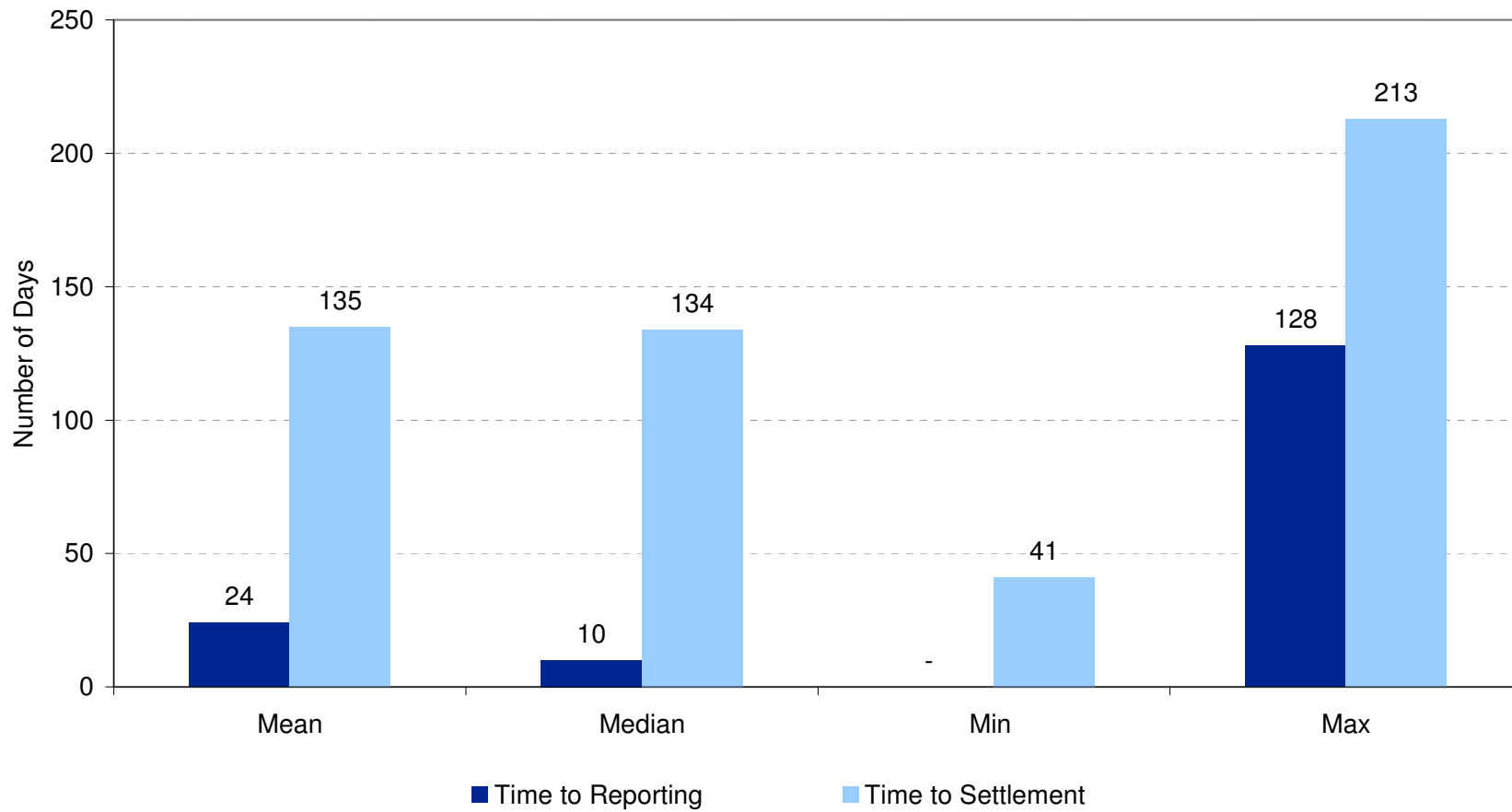
Construction Type Damage Ratios





Claims Statistics

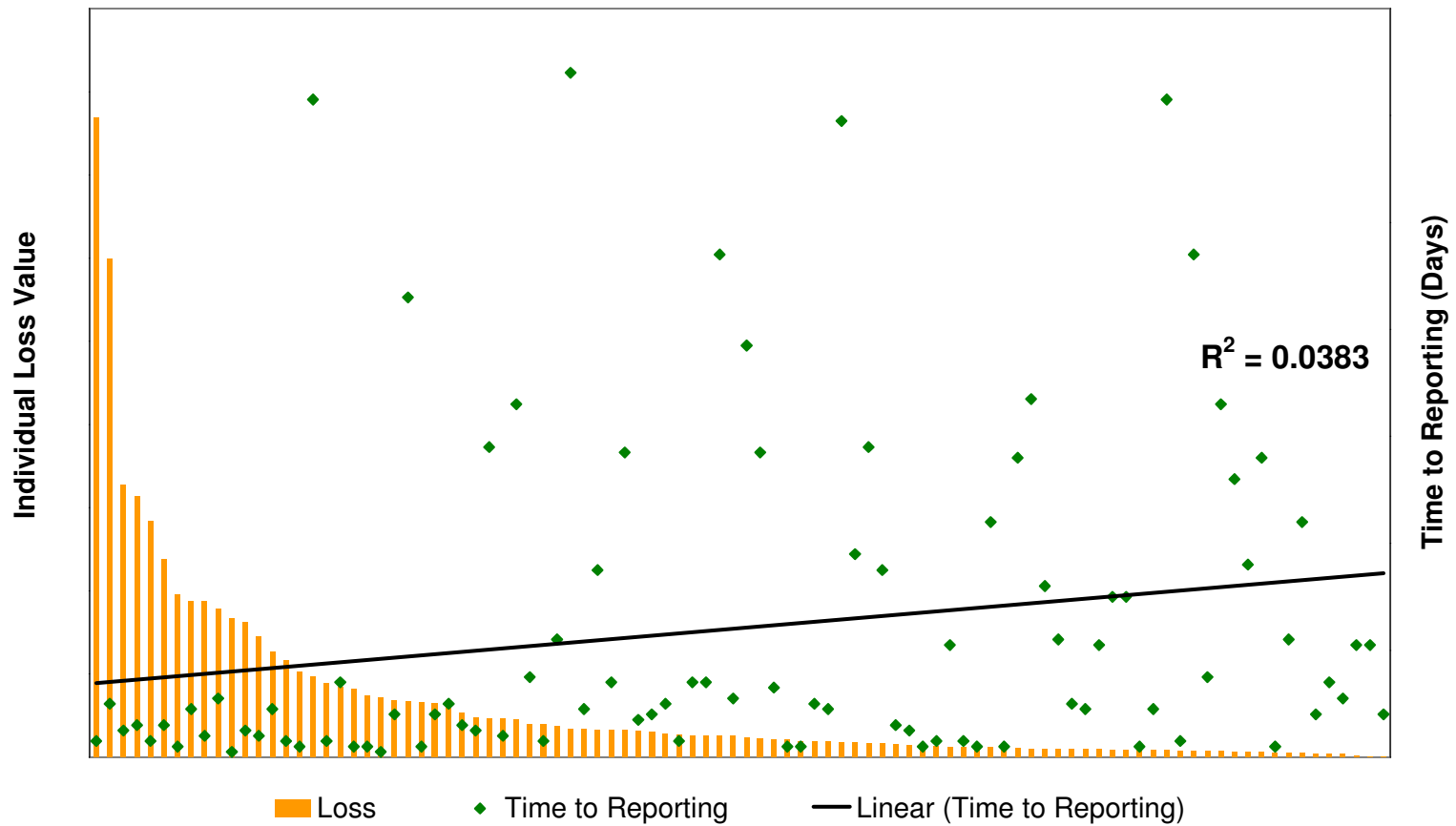
Time Statistics





Claims Statistics

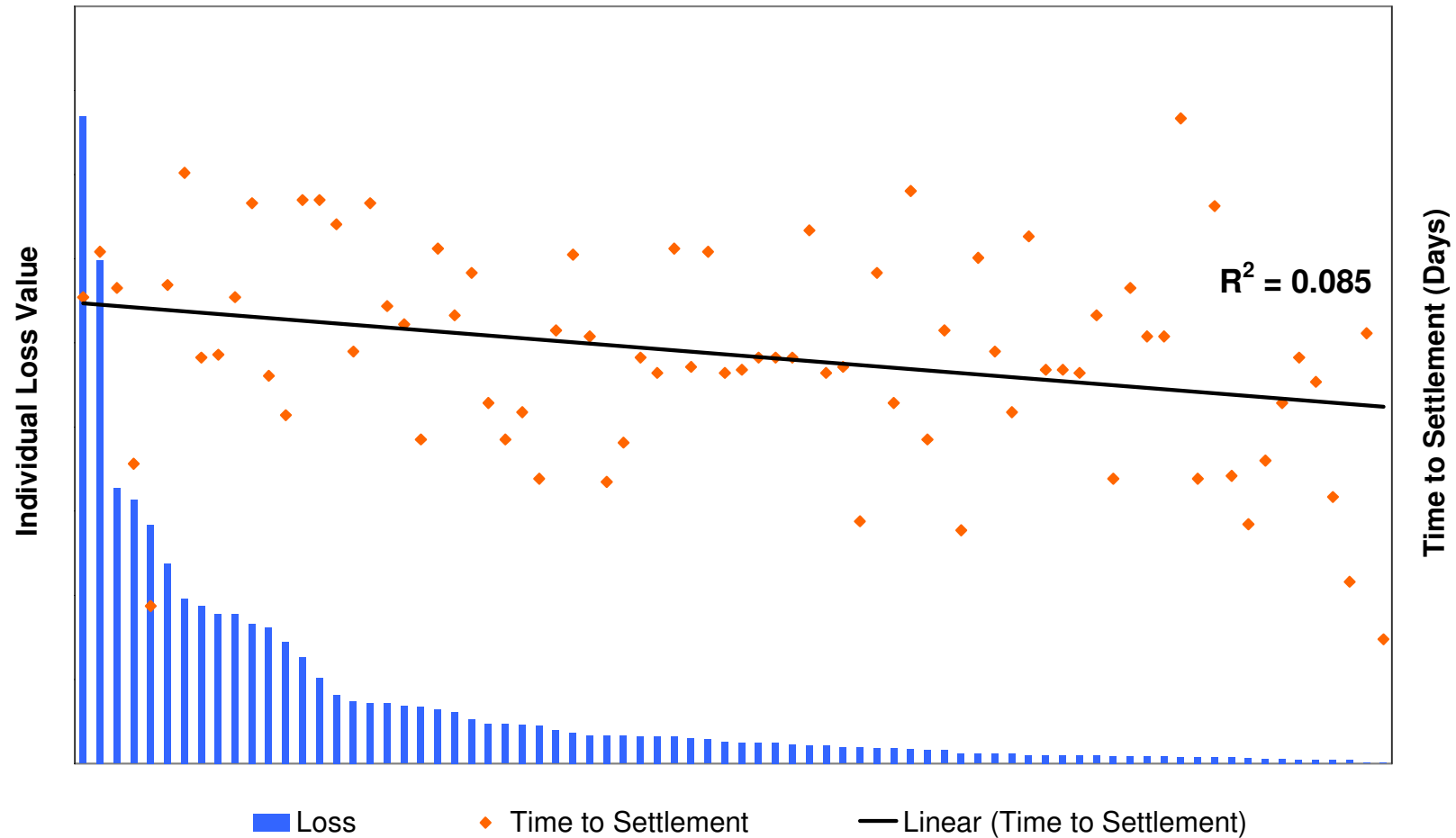
Loss Size & Time to Reporting Correlation





Claims Statistics

Loss Size & Time to Settlement Correlation





Replicating Larry in RMS

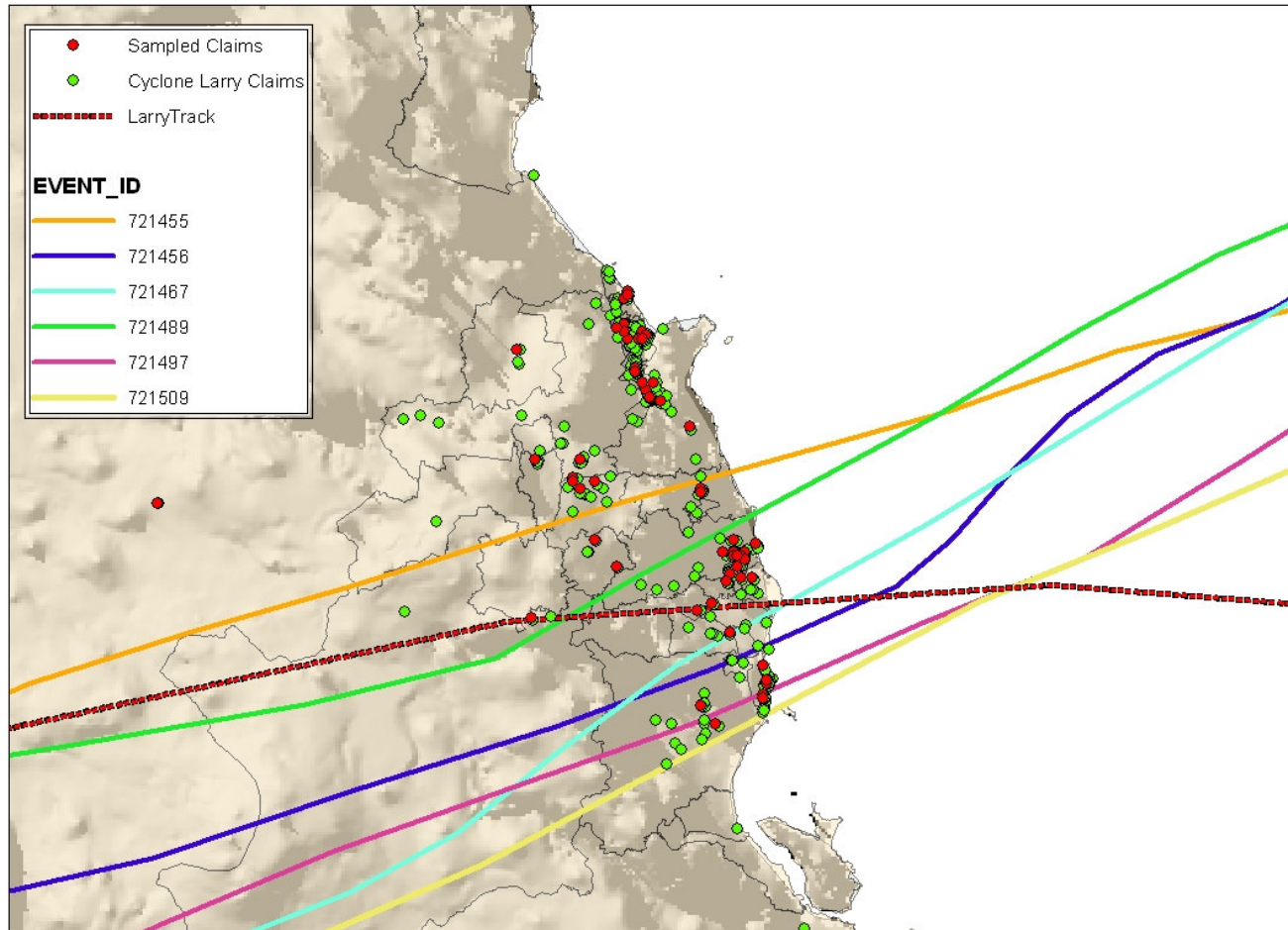


- Modelling results comparison conducted using RMS v6.0
- Six events were selected within RMS with similar characteristics to Cyclone Larry



RMS Modelling Approach

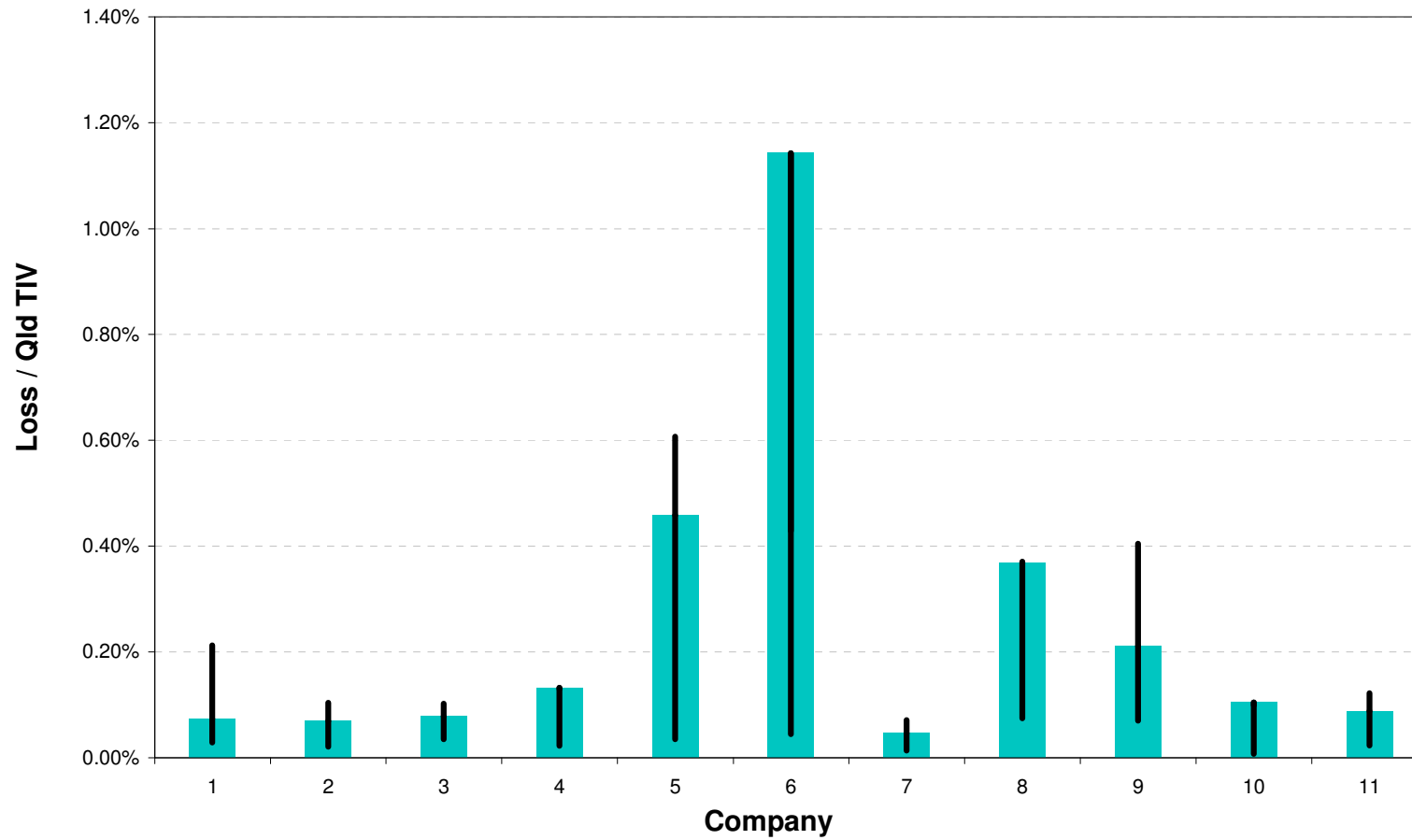
Selected Cyclone Tracks





RMS Modelling Results

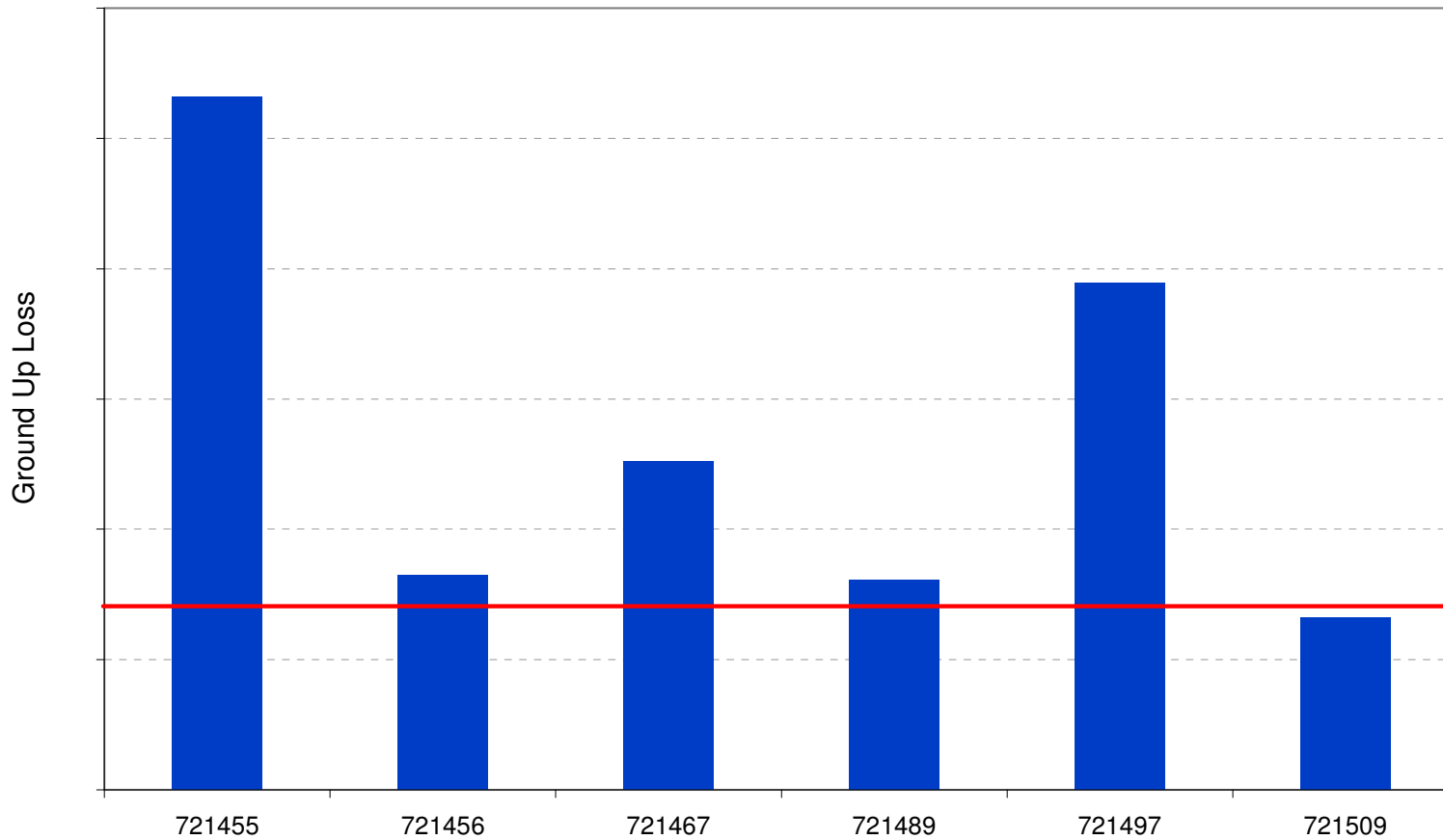
Company Level





RMS Modelling Results

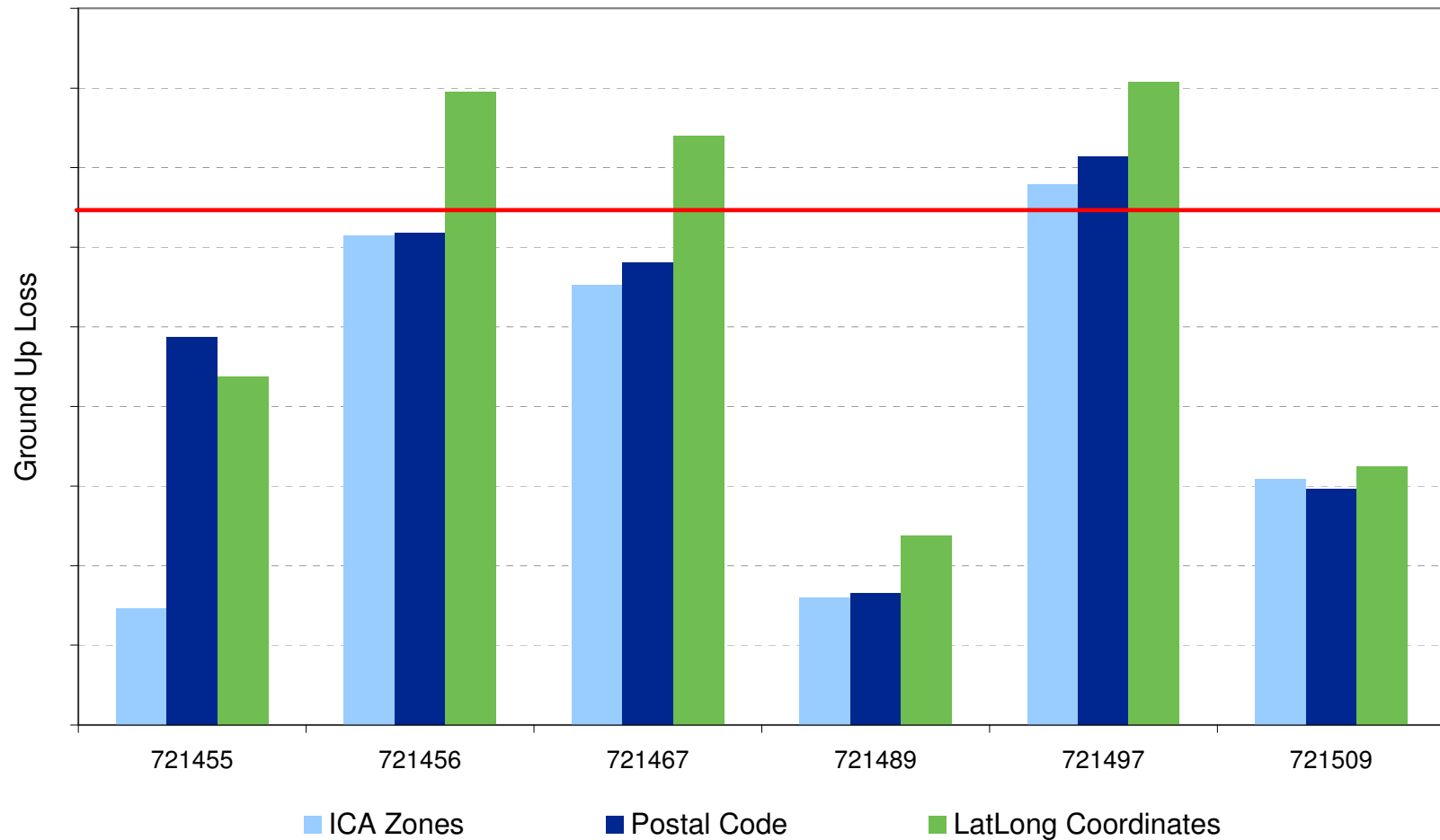
Queensland Scaled Loss modelled at Lat/Long





RMS Modelling Results

Larry Events: Sampled Portfolio Losses

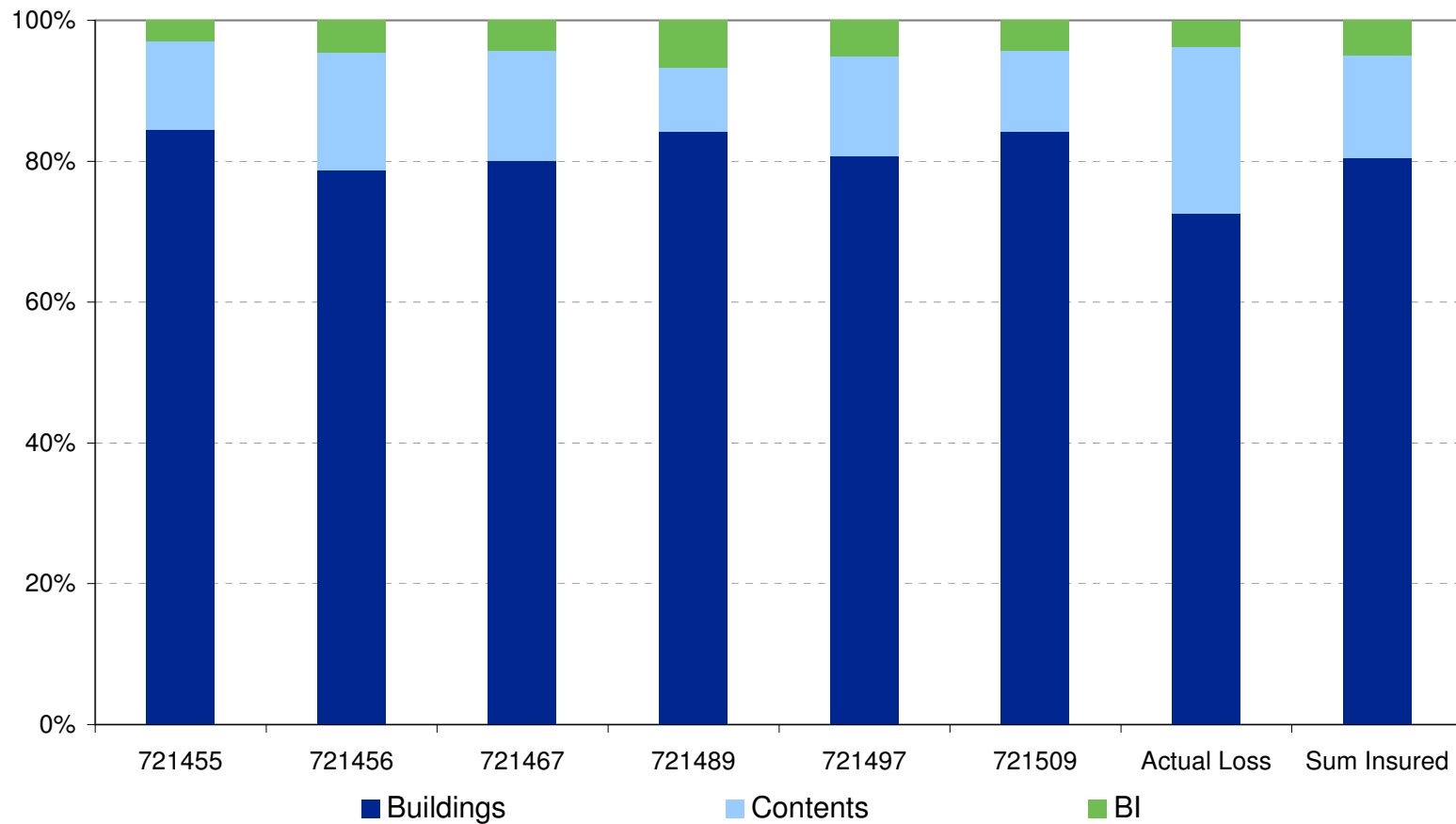




RMS Modelling Results

Larry Events: Sampled Lat/Long Portfolio Coverage Spilt

BENFIELD



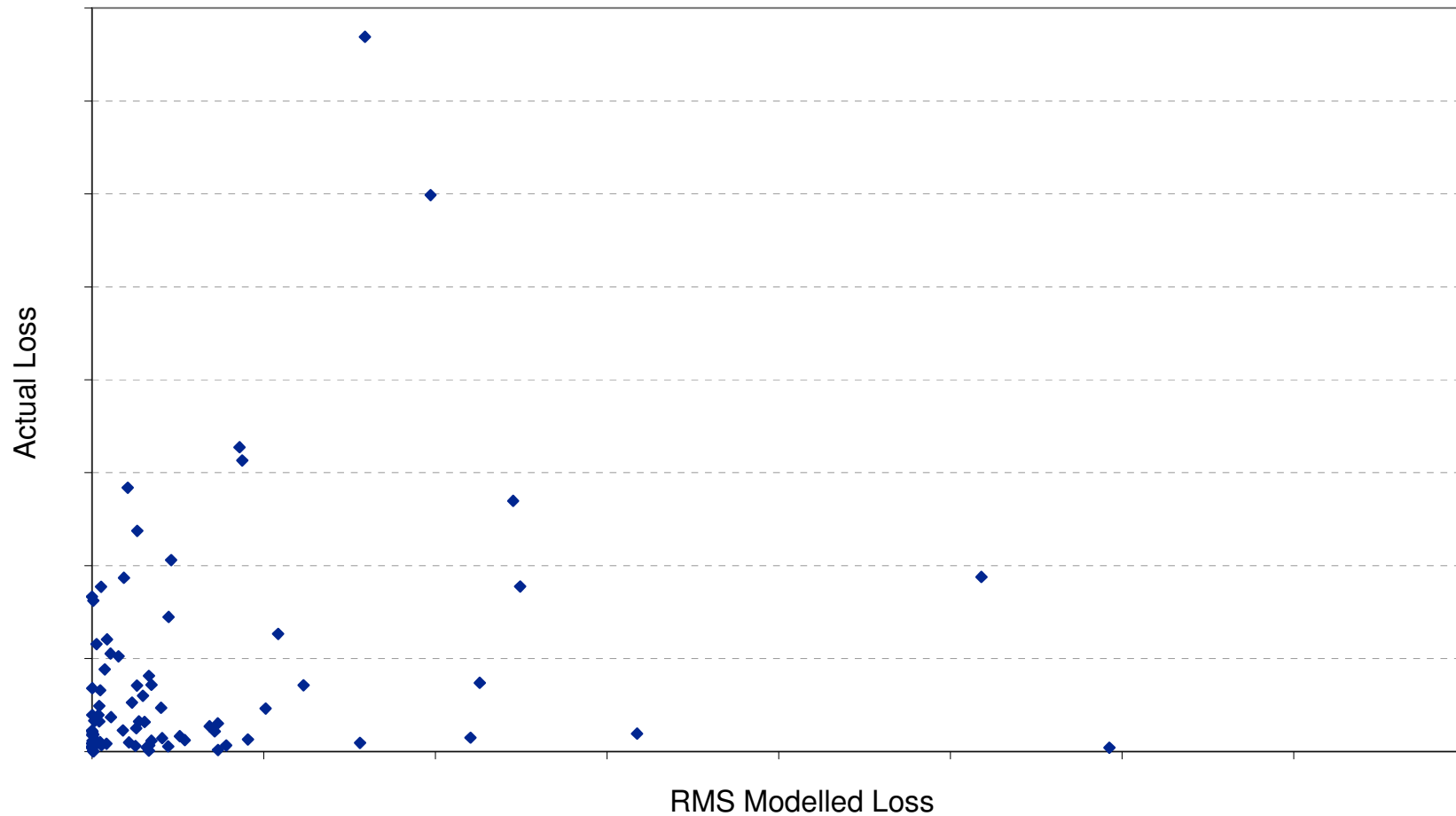


RMS Modelling Results

Actual vs. Modelled Losses for Individual Accounts



Actual vs Modelled Loss





Conclusions



- From an aggregate risk/portfolio level the model produces losses that are similar to those experienced from Cyclone Larry
- This similarity is encouraging given the complexity of the losses generated by the event and the simplicity of the data used for modelling