



THE **NEXT PHASE** IN CATASTROPHE

MODELS AND MODELING

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MORE THAN 2
DECADES OF
MODEL USE IN
PERSPECTIVE

1989

-

2012

- Models were introduced over twenty years ago
- The software has undergone significant improvements
- Models have become much more sophisticated
- Coverage has expanded by region and by peril
- Their use is now embedded into business practices
- In short, they have become important and valuable tools

THE LAST 2 YEARS IN PERSPECTIVE

Natural catastrophe events of unexpected magnitudes

Major model releases for North American hurricane and European windstorm

Have strained the current paradigm of model release and model reliance



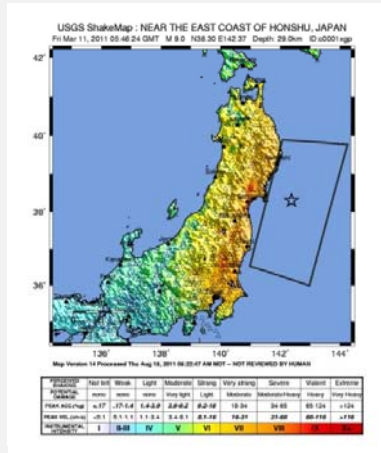
NZ EQ: ULTRA LIQUEFACTION



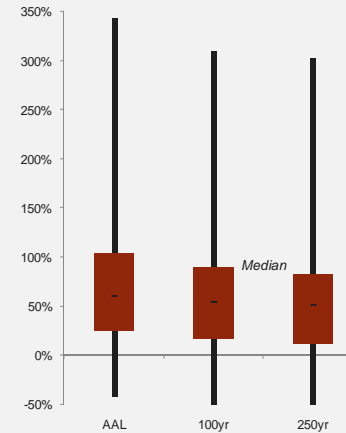
THAI FLOODS: NON-MODELED HIGH TECH ACCUMULATIONS IN RIVER DELTAS



TSUNAMI: A GLOBAL NON-MODELED LOSS POTENTIAL



JAPAN EQ: EXCEEDED THEORETICAL MAXIMUM MAGNITUDE



V11 MODEL CHANGES IN RESULTS

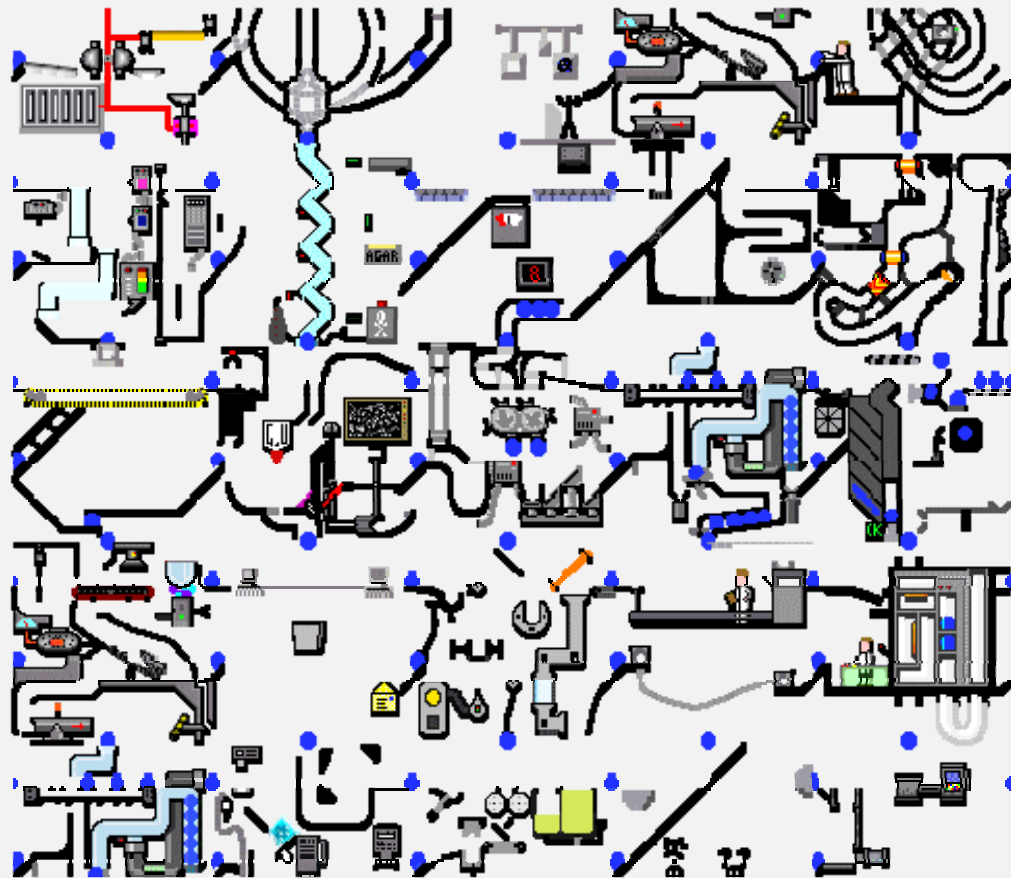
ACCIDENTAL ECOSYSTEM

The current modeling ecosystem

From development and release of models

To how insurers and reinsurers use them

May appear as a somewhat accidental, over-engineered and creaky machine



courtesy enterarena.blogspot.com



THE FUTURE? AN IMPROVED “ECOSYSTEM”

Accidental Ecosystem

- × Performance bound
- × Opaque models
- × Uncertainty hidden
- × Point metrics
- × Workarounds common



Problems when
models are “wrong”

Resilient Modeling

- ✓ Fast, Nimble
- ✓ High Definition
- ✓ Transparent calculations
- ✓ Multi-view
- ✓ Adaptable to the Business



Fewer surprises,
Milder Consequences

RESILIENT RISK MANAGEMENT

Maximize return –
optimize to top of a
pinnacle?

Minimise regret
- search out stable
plateaus?



WILL I FALL OFF
A CLIFF?

ONE SIZE DOES NOT FIT ALL

Understanding of
uncertainty & sensitivity
Complete picture
Tuned to fit the business
Plugged into decisions



An Emerging Requirement: **Build an Own View of Risk**

AGENDA

Panel Member Comments

- Robert Muir-Wood – Chief Research Officer, RMS
- Jim Maher – North American CRO, Platinum Underwriters Re
- John Aquino – EVP, Willis Re
- Richard Attanasio – VP P&C Ratings, AM Best

Q&A

- Model Building & Validation
- Model Reliance with Model Uncertainty

Discussion

- The Actuary's Role in Resilient Risk Management