

PARAMETRIC SOLUTIONS IN INSURANCE

NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS
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Contacts

Roberto Guidotti, Ph.D. (Roberto.Guidotti@guycarp.com)

Guillermo Franco, Ph.D., A.Re. (Guillermo.E.Franco@guycarp.com)

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Parametric Risk Transfer

? What Are Parametric Solutions?



Parametric solutions pay a pre-established amount based on the occurrence of a **physical event with certain characteristics**

? Is Parametric Right for the Client?



Parametric structures can complement traditional indemnity program

When evaluating the benefits of parametric insurance, the positive traits need to be assessed against the cost of negative **basis risk**

? Why Parametric? Why now?



Strategic – Can provide access to alternative sources of capacity, at a price comparable to traditional indemnity



Versatile – Recoveries can be applied to various economic losses; can be used to target problematic accumulations and coverages



Customizable – Offers a range of coverage triggers that adhere to budgetary constraints



Fast – Payments within weeks, not months or years; can provide cash flow in the aftermath of the event



Transparent – Coverage is clear and understood by buyer and seller; not subject to exposure related inflation



Broad Application – Available to reinsurers, corporations and public entities globally

Examples



Using SEISMOMETERS at particular locations:
If the magnitude value exceeds X at location Y,
then the insured receives a payment of \$1m.



Using PLUVIOMETERS at particular locations:
If rainfall exceeds X at location Y,
then the insured receives a payment of \$1m.



Using ANEMOMETERS at particular locations:
If the wind speed exceeds X at location Y,
then the insured receives a payment of \$1m.



Using SATELLITE SYSTEMS:
If the area burnt in the wildfire exceeds X acres,
then the insured receives a payment of \$1m.



Using RULERS at particular locations:
If the hail size exceeds X inches at location Y,
then the insured receives a payment of \$1m.

Traditional Indemnity

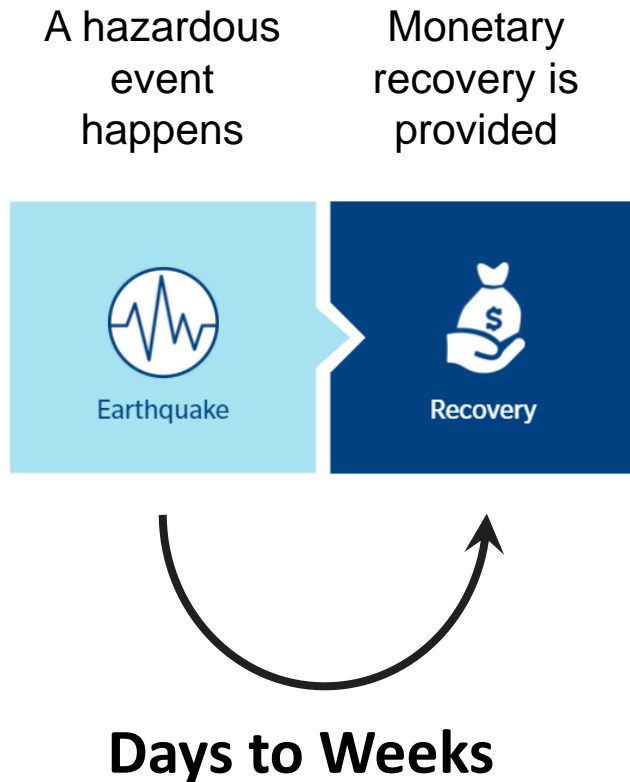


A traditional Indemnity process may take **months to years to settle**

Significant delays in receiving monetary recovery can be considered a form of basis risk

The underwriting/due diligence/product design phase is not depicted in the graphics above

Parametric Solution



The underwriting/due diligence/product design phase is not depicted in the graphics above

Parametric solutions may have **BASIS RISK** (difference between the actual parametric payout and the expected payout based on the losses incurred)

It can be addressed:

- **Upfront**, during the due diligence, underwriting and product design process
- **Post payment loss adjustment**, implementing provisions requiring any payments exceeding actual loss to be returned to the insurer

Traditional Indemnity & Parametric Solution

The underwriting/due diligence/product design and/or the claims adjustment process ensures recoveries approximate experienced losses

	Speed	Transparency	Versatility	Customization	Precision	Basis Risk
Traditional Indemnity					✓	✓
Parametric Solution	✓	✓	✓	✓		✓

Payments are fast as there is no up-front claims adjusting process

Payments are pre-tabulated in the contract and triggering parameters are reported publicly

Flexibility to use proceeds as needed with limited exclusions and specifications

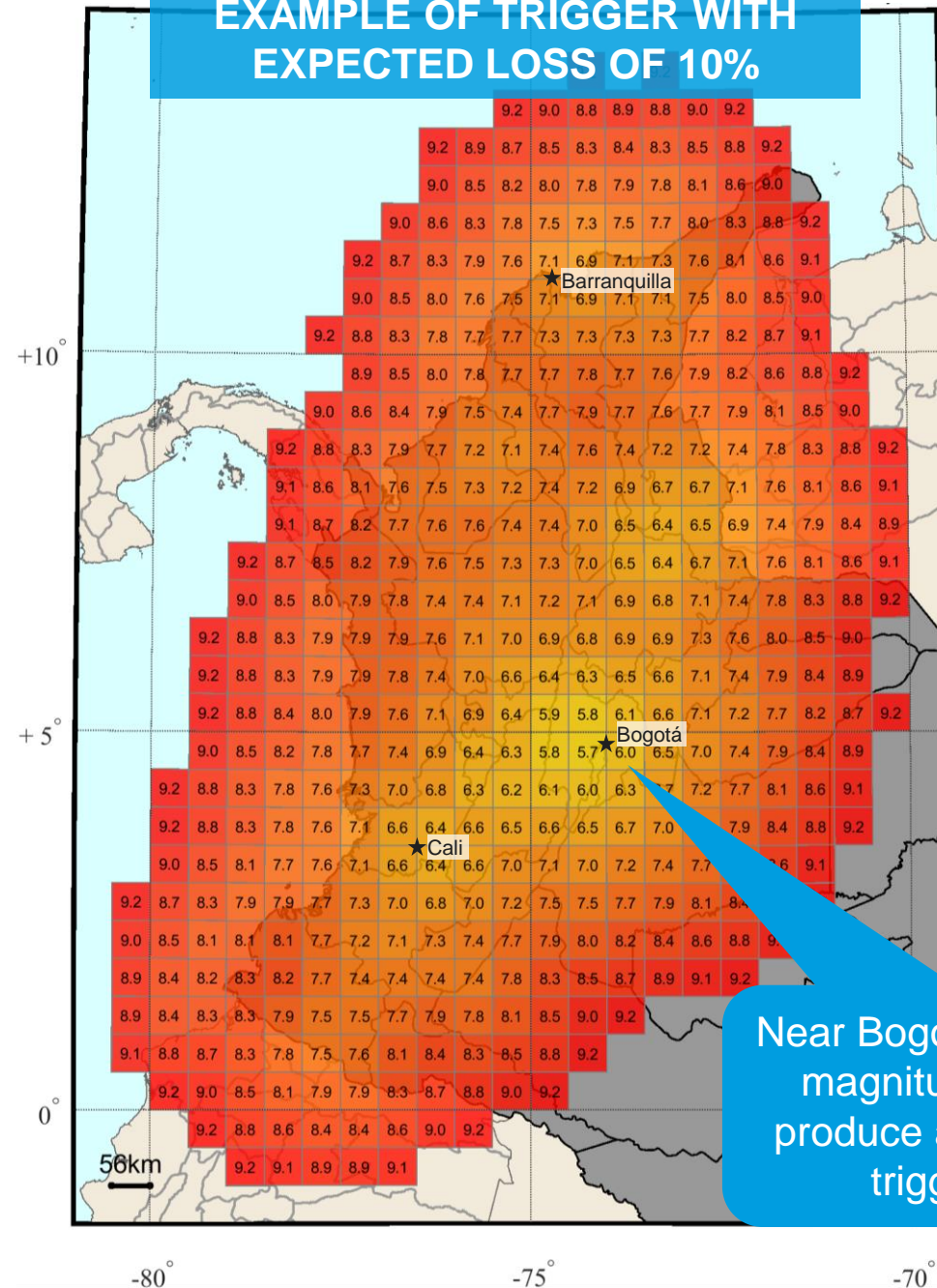
Cover can be designed to guarantee certain levels of payment for desired scenarios

Example of a Cat-in-a-Grid Earthquake Parametric Cover for Colombia

The map divides the region in cubes and assign to them a **magnitude threshold value**

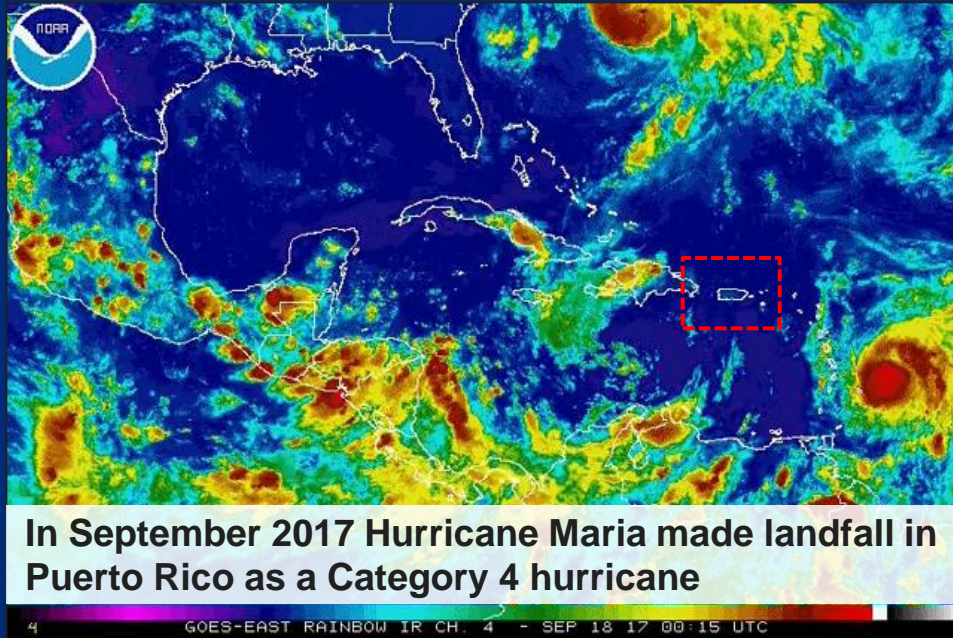
If an event happens in the cube and its magnitude attains or exceeds the magnitude threshold, then a pre-agreed payout is triggered

EXAMPLE OF TRIGGER WITH EXPECTED LOSS OF 10%



Near Bogotá, the minimum magnitude required to produce a payout for this trigger is **M5.7**

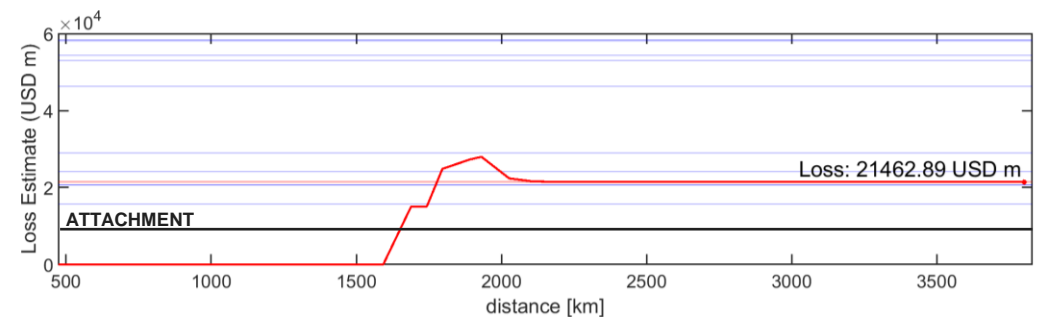
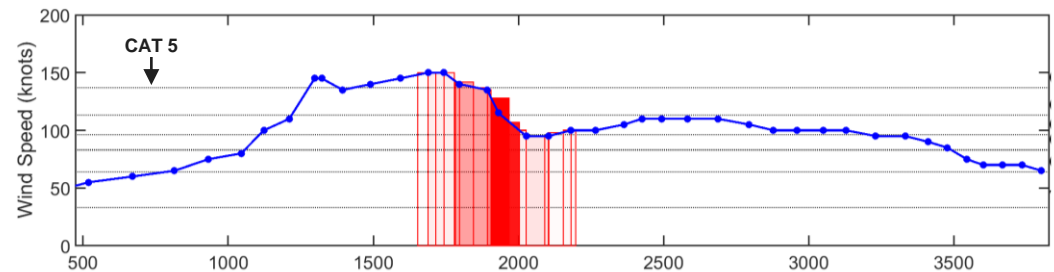
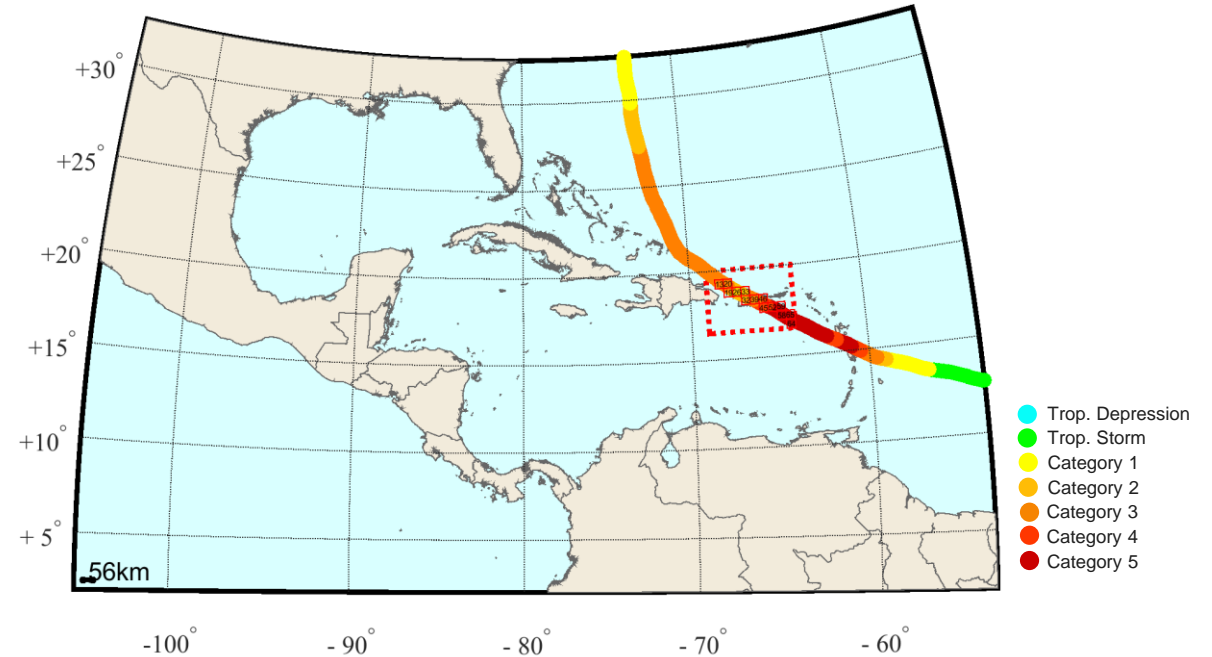
Example of a **Cat-in-a-Grid** Tropical Cyclone Parametric Cover for Puerto Rico



Source: <https://www.ospo.noaa.gov/Organization/History/imagery/Maria/>

Track data, obtained in real-time from **NOAA**, is used to calculate an **index** that dictates payments of the policy

Monitoring Parametric Response in Real-Time using Publically Reported Data



Example of a Wildfire Parametric Solution for Colombia

Wildfire data obtained in near real-time by **NASA FIRMS** (Fire Information for Resources Management System) is used to establish trigger conditions

FIRMS Detection on 11-01-2021



NASA FIRMS detections show daily fire activity in Colombia between the end of 2021 and early 2022, one of the highest wildfire seasons up to date



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State Insurance Regulation and
Parametric Insurance

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Daren Moreira

Partner, Eversheds Sutherland (US) LLP

Topics

- What is Insurance?
- Related Key Legal Issues

What is Insurance?

- **Context matters** – different standards apply under state insurance laws, US commodities laws and US federal tax laws
- The rules under US insurance laws vary by state
 - *any agreement or other transaction whereby one party, the "insurer," is obligated to confer benefit of pecuniary value upon another party, the "insured" or "beneficiary," **dependent upon the happening of a fortuitous event** in which the insured or beneficiary has, or is expected to have at the time of such happening, a **material interest which will be adversely affected** by the happening of such event.*
N.Y. Ins. Law § 1101(a)(1).
 - *a contract whereby **one undertakes to indemnify another** against loss, damage, or liability arising from a contingent or unknown event.*
Cal. Ins. Code § 22.
 - *[w]hether or not a contract is one of insurance depends on its **purpose, effect, contents and import**, and is not determined merely by the terminology used.*
Boyle v. Orkin Exterminating Co., Inc., 578 So.2d 786 (Fla. Dist. Ct. App. 1991)

What is Insurance?

- **Key Elements of Insurance**
 - Assumption of Risk
 - Fortuitous Event
 - Insurable Interest
 - Indemnity for Loss
 - Risk Spreading
- Indemnity for loss by reason of the original insurance contract is an “essential element” of reinsurance risk transfer rules – *SSAP 62R*
- **Key Implications of Being Insurance**
 - Subject to applicable state insurance laws and oversight by state insurance regulators
 - May qualify for “insurance safe harbor” under CFTC and SEC rules governing swap transactions
 - May qualify as “insurance” under US federal tax law

Related Key Legal Issues

- Analyze applicable legal requirements
 - Must consider state insurance laws, rules governing swaps and applicable tax law
 - An evolving area of state insurance law
- Conduct due diligence to address basis risk
 - Both the insurer and insured (or their representative)
- Use the language of insurance – form matters
 - Contract language should reflect that the “principal object and purpose” of the transaction is indemnity
- “True Up” provisions
 - Require the insured to submit proof of loss within a specified period of time
 - Insured must return any claims payments in excess of actual losses incurred



EVERSHEDS
SUTHERLAND

Daren Moreira | Partner

darenmoreira@eversheds-Sutherland.us

212-389-5039

1114 Avenue of the Americas
New York, NY 10036

eversheds-sutherland.com

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