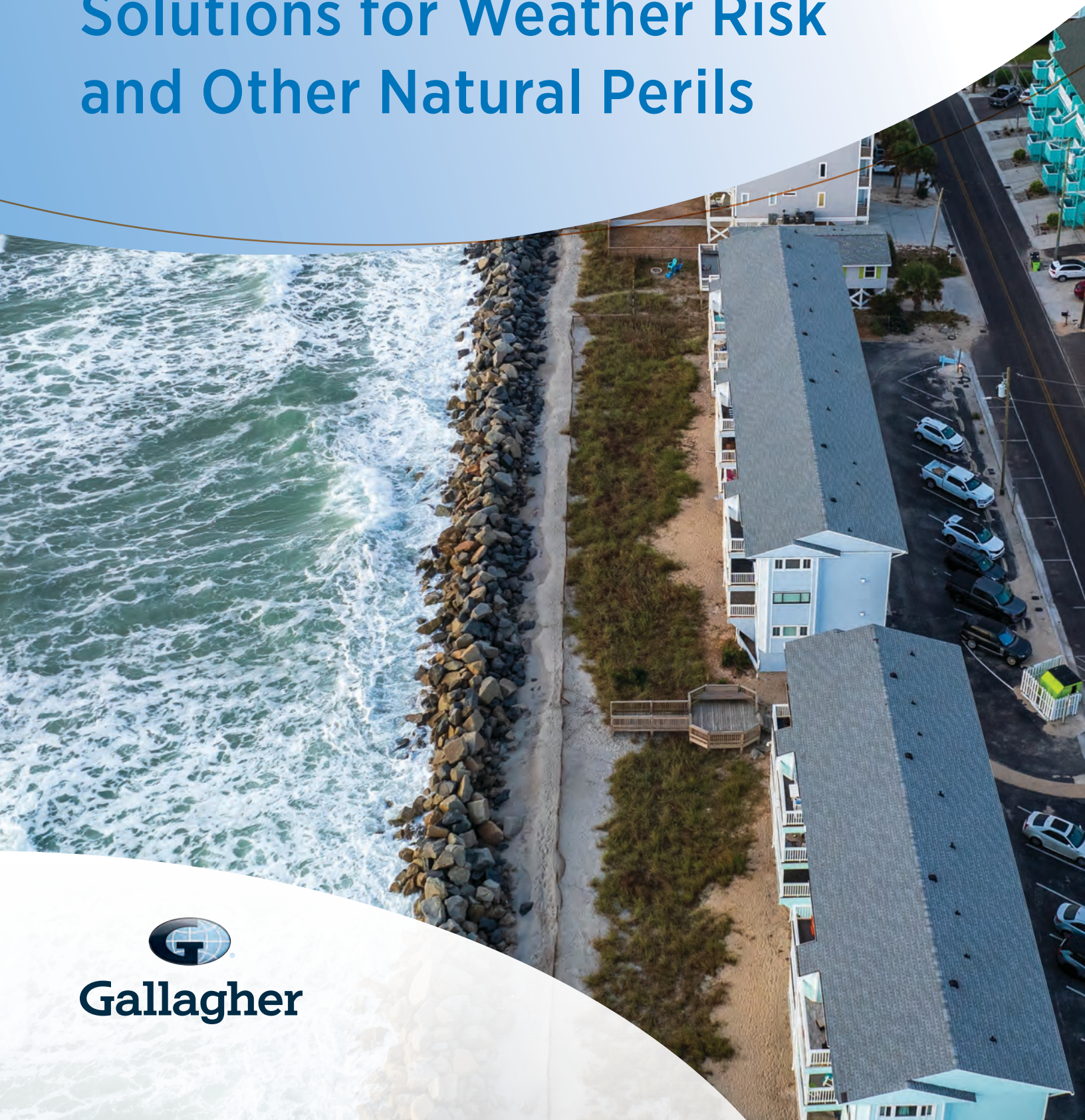
PARAMETRIC INSURANCE:

Liquidity and Volatility Solutions for Weather Risk and Other Natural Perils



Gallagher

In recent years, parametric insurance has gained prominence as a powerful tool for managing retained risk particularly during the recent property insurance market hardening cycle. As traditional carriers reduced capacity and aggressively managed aggregation to catastrophe exposures, insureds faced significant challenges in securing adequate limits and desired attachment points. During that cycle, parametric insurance did exactly what it is designed to do: Fill gaps where the traditional risk transfer solutions fall short. During the hard market, this was simply exacerbated, making it seem like parametric capacity was a replacement of not a complement to traditional property insurance.

As the property insurance market begins to soften and traditional capacity returns, the role of parametric insurance hasn't changed — it is still there to manage exposure and risk that the traditional markets are not or cannot efficiently address insureds are still faced with policies containing sublimits, exclusions, and deductibles and at times uncoverable risks. Parametric insurance addresses these retained risks by providing targeted, event-contingent capital that can be used flexibly to manage financial volatility within those retentions injecting liquidity at the times insureds need it most. Parametric structure can fill this niche role due to some unique characteristics:

- No requirement for physical damage
- Broad use of claims dollars
- Predictable, rapid and transparent claims process
- No occupancy, industry or risk quality exclusions

Nature is unlikely to suddenly slow down and parametric insurance is a great way to help alleviate volatility and increase financial resiliency to this ever-present risk. With budgets freeing up due to the retreating property insurance markets, now is the ideal time for insureds to explore your options.

Sample of Insurable Parametric Perils

Catastrophe		Weather		Non-Climate	
Named storm	Hail	Temperature	Solar irradiation	Disease spread/epidemic	Shipping delay
Earthquake	Tornado	Wind speed	Soil moisture	Power outage	Cloud downtime
Flood	Wildfire	Precipitation	River/pool height	Insurance industry losses	
Storm surge		Crop yield			

Example Use Cases

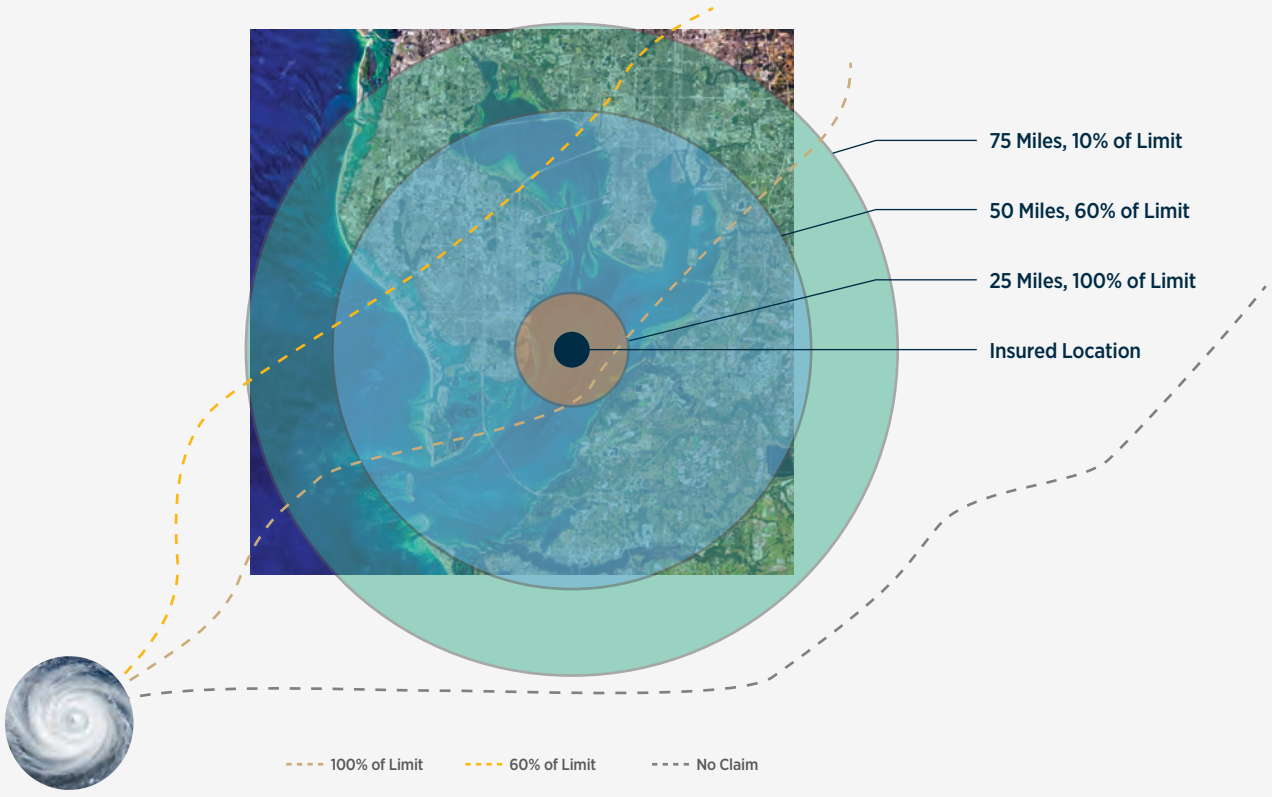
Non-Damage Loss	Deductibles and Retained Loss	Limited Traditional Insurance Recovery
Loss of market or supply without physical damage triggers.	Funding fixed dollar or percentage deductibles.	Sublimits for supply chain disruptions or outdoor property.
Business interruption without physical damage.	Self-insured retentions subjected to frequency or CAT losses.	Geographies or risk quality concerns with limited options.
Ingress/egress, delays or increased operational costs without physical damage.	Captives seeking reserve protection.	Crop in field exclusions.
Disaster response funding.		

Illustrations of Parametric Structures

Named storm

Example triggers:

- **Wind speed:** Payouts increase with higher modeled wind speeds (e.g., one-minute sustained winds).
- **Storm path and proximity:** Payouts scale based on storm intensity (wind speed, NHC rating and central pressure) and proximity to insured locations.
- **Extreme rainfall:** Separate or combined triggers for rainfall accumulation.



Note: Graphics are for illustrative purposes only. Actual structures will include intensity scaling.

Gridded, modeled 1-minute sustained wind speed

Peak 1-Minute Sustained Wind Speed (Gridded)	Claim % of Limit
<74	0%
74-80	45%
90-85	50%
85-90	55%
90-95	60%
95-100	65%
100-105	70%
105-110	75%
110-115	80%
115-120	85%
120-125	90%
125+	100%

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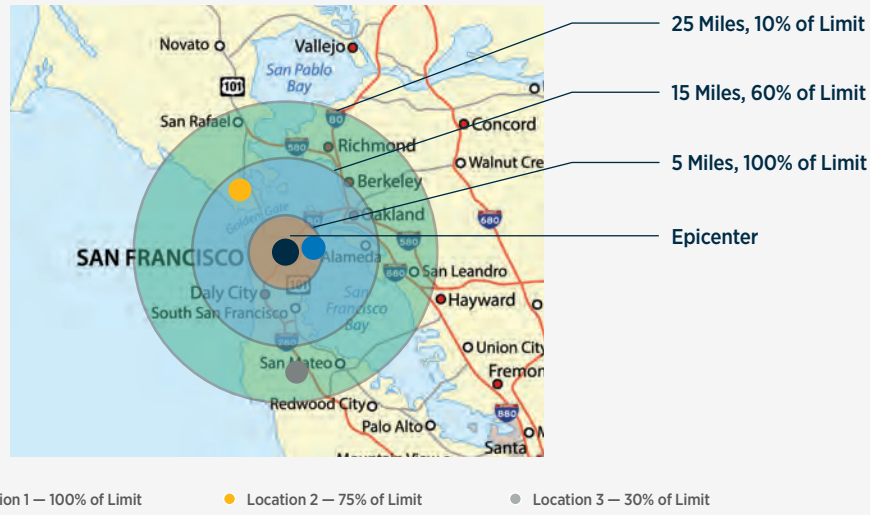
Earthquake

Example triggers: Peak ground acceleration/velocity, shake index, magnitude/proximity and sensor-based shake intensity.

- Typically purchased to manage deductible and retention funding in high-hazard zones.
- Can be rated and priced across portfolios of assets to manage accumulation of percentage deductibles.

Earthquake — Proximity Coverage



For illustration only. Actual structures will include intensity scaling.

Earthquake — Shake Index at Location

● Insured location

Claim % of Limit	Intensity	Shaking
0%	I	Not felt
0%	II	Weak
2.5%	III	Weak
5%	IV	Light
12.5%	V	Moderate
25%	VI	Strong
60.00%	VII	Very Strong
85%	VIII	Severe
100%	IX	Violent
	X	Extreme

For illustration purposes only. Actual indexes and settlement methodologies will vary.

Severe convective storm

- **Example triggers:** Tornado path/intensity/damage rating, hail diameter and maximum sustained wind speed.
- Settlement using third-party hail reporting, on-site radar/lidar and government damage assessments.
- Used to manage retentions and deductible risks primarily related to hail and tornadoes and, in some circumstances, as a capacity backfill where traditional markets are constrained (i.e., data centers).
- Straight-line winds, while insurable, become more difficult for buyers to trust due to hyper-localized wind speeds and microbursts driving losses and the lack of available data sources that track wind speed at that level of granularity.

Claim Scenarios: Trigger: % of Limit Claims

- Tornado damage reports: EF2: 20%, EF3: 65%, EF4+: 100%
- Hail diameter detection: 1.75": 25%, 2.5": 50%, 3": 100%

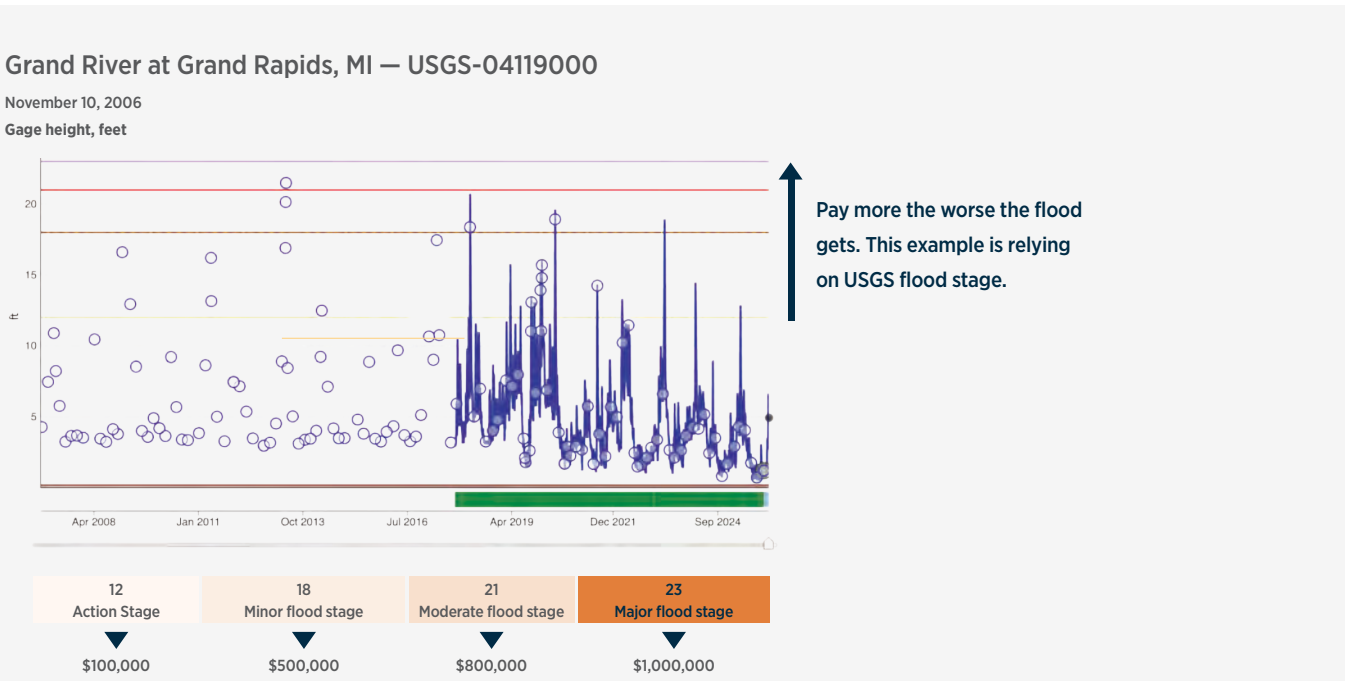
Flood

- **Example triggers:** Sensor-based measurements, satellite-detected inundation (depth and area covered), river height, excess rainfall or surge height.
- Used where traditional capacity is difficult to find and/or secure, as well as to fill in gaps for lack of business interruption coverage within NFIP policies, non-damage loss and where sublimits restrain loss recovery due to flood.

Sensor based flood height illustration

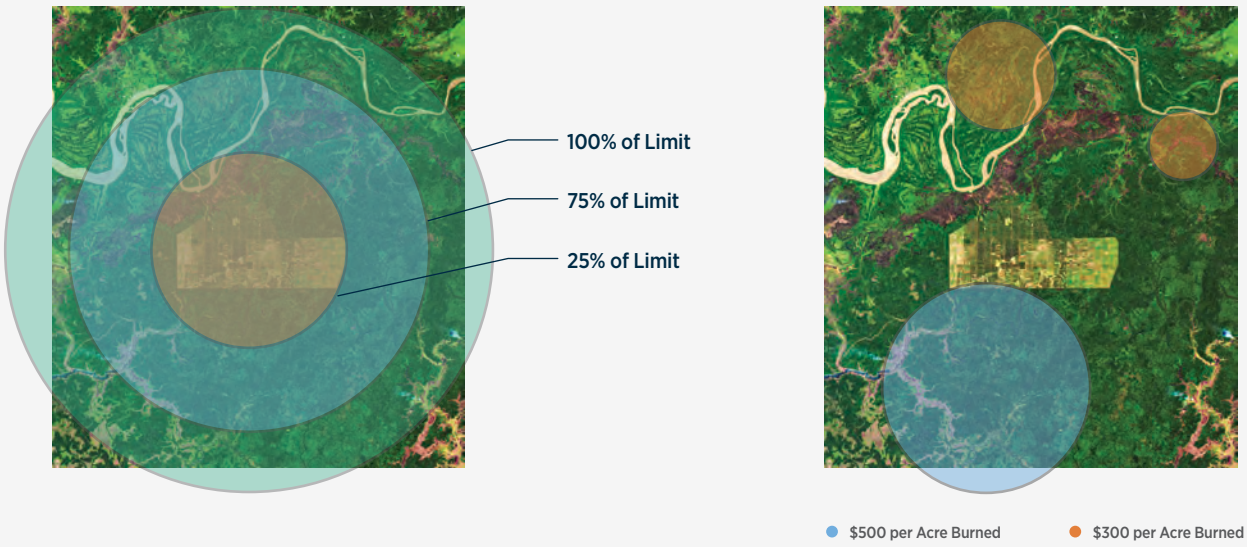
Claim structure:
1': $10,000
2': $50,000
3': $150,000

Remote Water Height Sensor



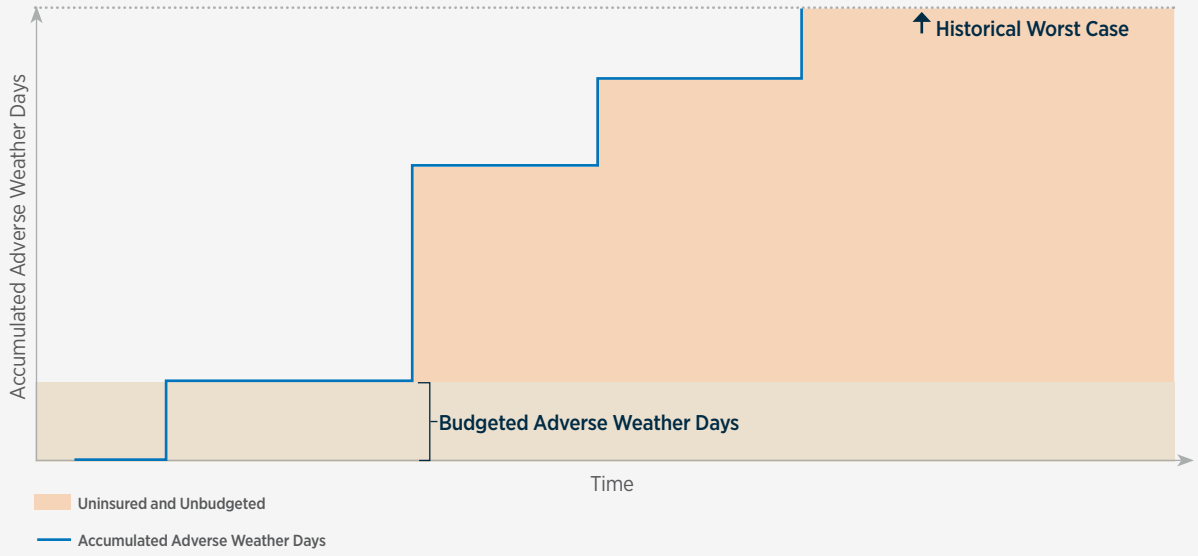
Wildfire

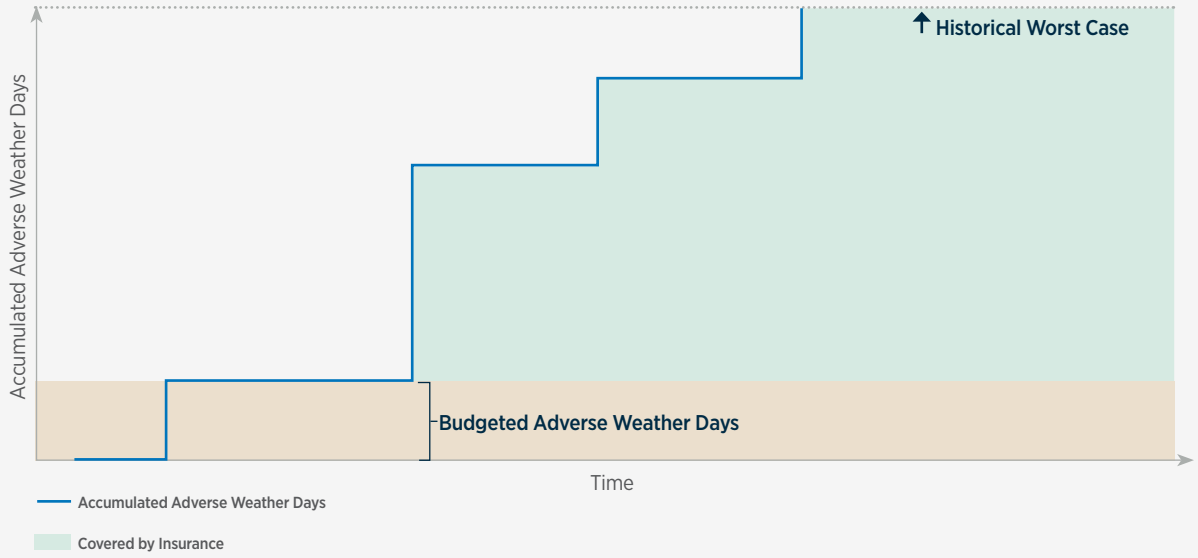
- **Example triggers:** Defined area burned, paying claims on fixed dollars per acre or proximity of fire to insured locations.
- Typically settled based on government fire map boundaries or satellite detection.
- Provides the ability to manage wildfire risk across large land areas as well as accumulation of assets in specific geography or targeted single locations.



General weather

- **Example triggers:** Excess/lack of precipitation, temperature and derivations of temperature (growing/heating/cooling degree days), soil moisture content, solar irradiation, wind speed, adverse weather days (e.g., multi-peril general weather), low/high water (rivers/lakes), lack of or excess wind.
- Coverage can be annual, seasonal or day-specific and indexed to frequency, intensity or both.
- Market appetite for individual perils and structures varies.
- Use cases are nearly as broad as you might imagine — delay risks, supply/demand shortfalls, volumetric power or energy swings, and applicable across a variety of agricultural scenarios where traditional crop insurance cannot be purchased or does not provide adequate cover.





Considerations When Evaluating Parametric Insurance

Identify and prioritize risks

Assess specific threats (e.g., hurricanes, floods, supply chain disruptions) and understand historical, modeled, and potential losses and correlations to intensity and proximity to your asset or geography.

Evaluate current coverage and gaps

Identify limitations in traditional policies, such as high deductibles, exclusions or sublimits. Ensure parametric policies complement existing coverage without coordination issues.

Assess correlation and liquidity needs

Determine correlation (qualitatively or quantitatively) if rapid access to funds is critical for recovery and the amount necessary in those events. Parametric policies provide quick payouts, but those payouts also need to be appropriately correlated and indexed to loss potential and data sources need to provide settlement windows that align with your liquidity needs. While perfect matches are unlikely.

Ensure reliable data sources

Verify that triggers rely on objective, consistent and independently verifiable data by trusted third parties. Understand and ask the carrier/broker about nuances within different data sets such as settlement timeframes of the data set in question and back-up settlement triggers in the event the measurement tool goes offline (USGS/NWS weather stations).

Understand and manage basis risk

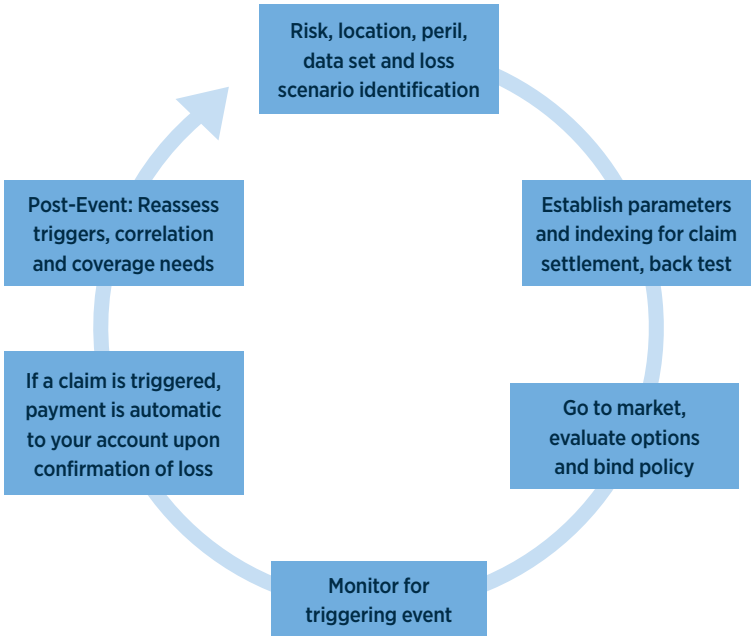
It is unlikely that a parametric policy will perfectly follow your actual loss experience. Both under- and overpayment risks exist, but underpayment is relatively low given the nearly unrestricted use of claims dollars. Insureds should be mindful of not over-buying limits that cannot be utilized. If this becomes a worry for a buyer, it may be advisable that they seek a derivative option versus insurance. It is important to ensure that all stakeholders are properly informed about basis risk and provide input to establish the best expectations in a loss scenario. Remember that "close" does not count and your actual loss does not influence a claim trigger.

Evaluate cost-effectiveness

Compare premiums and benefits with traditional options. Use synthetic loss histories to assess long-term net costs. The spread between historic premiums and claim payments is the actual cost of risk transfer in a simple evaluation.

Understand your new retained risk

Recognize that parametric policies shift retained risk to intensity, frequency or proximity thresholds. Your new "deductible" moves from dollars to storm intensity, earthquake magnitude or the amount of rainfall in 24 hours.



The Current Market and Future Trends

While still small compared to the traditional property carrier marketplace, the parametric insurance market has grown significantly in recent years, increasing capacity and peril appetite. The market continues to see capital interest given its predictability and short tail which make it easier for capital markets to absorb.

Carrier appetite varies by peril, structure and underlying data source for settlement. Carrier distribution channels range broadly. Certain programs and products may only be available via select wholesale or MGAs. For global market access beyond US retail accessible markets, your Gallagher team utilizes dedicated parametric specialists in the London wholesale markets and Gallagher Re for direct reinsurance capacity. We continue to see new entrants and interest from the carrier marketplace and expect that to continue for the foreseeable future. Beyond the markets, we see the product expanding and evolving as competition increases and capacity seeks distribution and uptake:

- **Automation and digitization:** Streamlined quoting and structuring processes to increase accessibility and scale of distribution at the carrier, MGA and broker levels.
- **Embedded insurance:** Whether embedded in all-risk property cover or at the point of sale for things such as event tickets, travel or direct consumer markets, these consumer, small businesses could see increasing options for coverage based on weather and parametric coverage.
- **Pushing beyond weather:** In today's connected world, we are creating more data than ever. We expect the combination of data providers, capacity providers, brokers and MGA's to push new and likely non-weather/climate-related triggers. Early signs of this happening are already in the market such as cloud downtime and shipping delay coverage. Even when triggered by an weather event, some policies now can settle claims based on satellite confirmation of percentage of damaged area.

In summary, parametric insurance offers a fast, flexible solution to manage financial volatility and liquidity in the face of growing weather-related and natural perils. By providing rapid payouts based on predefined triggers, it is a great complement to traditional insurance with a broad range of use cases and applicability spanning industry, occupancy and risk quality.

With Gallagher's expertise, insureds can effectively leverage these innovative solutions, becoming a more resilient organization in the face of an ever-changing weather and natural catastrophe landscape. **Contact us today to learn more.**

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Matt has over a decade of experience in parametric insurance, supporting Gallagher teams and clients with market access, structure and trigger selection. He has broad experience across perils, industry and deal size and is passionate about expanding the parametric and weather risk management marketplace.