



# PARAMETRIC SOLUTIONS: A GLOBAL PERSPECTIVE

2020



There is an increasing awareness of the potential for parametric solutions to help solve some of the challenges for many areas of the world that remain exposed through lack of insurance and catastrophic disasters, creating an insurance gap of up to 96% in some countries. Global Parametrics was set up in 2016 with support from the UK and German governments and today is providing the tools, analytics and innovative coverage for disaster financing around the world.

InsTech London hosted an event, chaired by Matthew Grant, to talk to the Global Parametrics leadership team and their partners about real-life case studies and the analytics, support and indices the company is now making available to organisations looking for innovative ways to structure protection. This live digital event coincided with the launch of the InsTech London report [Parametric Insurance – 2021 outlook and the companies to watch](#).

Over 500 people have viewed the event. The following is a highlight of the main themes discussed. The full event is available to watch, or listen to, from the [InsTech London Events Page](#). More information about Global Parametrics is [available here](#).

Matthew Grant  
InsTech London Partner

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## Speakers



**Global Parametrics**

Hector Ibarra  
CEO



**Global Parametrics**

Jerry Skees  
Chief Strategy Officer  
and Director



**Global Parametrics**

Alin Radu  
Senior Risk Modelling/  
Structuring Specialist



**Berkshire Hathaway  
Specialty Insurance**

Akshay Gupta  
SVP, Head - Catastrophe  
Analytics and Engineering



**Hannover Re**

Leif Heimfarth  
Senior Underwriter



**Instech London**

Matthew Grant  
Partner

### What is Parametric Insurance?

Kate Stillwell, founder of Jumpstart, defined parametric insurance in a recent [InsTech London podcast](#). "Parametric Insurance is a lump of money that is transferred immediately after the occurrence of an event that has a specific metric, thus, parametric". Parametric Insurance relies on harnessing increasing amounts of data, technology, analytics and capital to be able to provide new ways to provide protection to communities not well served by traditional insurance models.

**"Parametric Insurance is a lump of money that is transferred immediately after the occurrence of an event that has a specific metric."**

- Kate Stillwell

## **Hector, what is the role of Global Parametrics and why does it exist?**

HI: Global Parametrics was founded to be a specialist fund manager for parametric risk transfer products. It operates with three core functions: firstly Global Parametrics role is to help emerging economies with risk financing after disasters using event triggers; secondly Global Parametrics is as manager of a fund provided by governments and investors, one of the largest available to deploy into emerging economies in this way; and finally Global Parametrics has had to develop its own tools and models, and partner with others, giving it access to one of the broadest sets of catastrophe models and data.

## **How big is the fund and what is the range of funding?**

HI: Global Parametrics' first fund, the Natural Disaster Fund (NDF) has been created to structure and originate innovative risk transfer in emerging markets. The fund draws on capital provided by the British and German governments, providing the original seed capitalization, and now, in addition, is supported by a quota share agreement with Hannover Re. It currently has a total underwriting capacity of US\$100m, with a limit of US\$20m per transaction.

The company wants risk transfer to support the organisations that are looking to scale normal operations and build resilience. It's not a traditional insurance player, but a financial actor that is looking to mobilise capital and to allow organisations to have better management of their capital exposure be able to perform their function better.

## **Who decides on how the money is allocated to projects?**

HI: The fund operates on a fully private basis, so the fund's investors are not required to approve each individual risk deal. A development committee assesses and ensures the social impact of transactions and an investment committee ensures that transactions are sustainable and priced appropriately in order to provide the required coverage and to attract further capital to support the funds in play.

The Global Parametrics' Natural Disaster Fund has a flexible mandate to provide innovation incubation for new firms, data sources, data sets and analytical models. This enables it to be able to offer alternative risk transfer options to areas of the world where traditional insurance models are not a viable option for insurers or insureds. The fund can also support structures that support investments in infrastructure, financial intermediation and social resilience.

Global Parametrics is an asset manager, not an insurer. It operates a model of indirect risk transfer that uses science, data and professional expertise to provide risk structuring and financing in emerging markets. While providing risk financing, it also offers a way to develop and refine the science and risk structuring offerings. The fund supports the operations of organisations working for meaningful impact in vulnerable communities. Existing and potential clients could be microfinanciers, investors, NGOs, IFIs, or any organization that might have a contingent capital or contingent liability, or a need to provide funds in case of disasters.

## **How do you collaborate with partners such as brokers and insurers on projects?**

HI: Global Parametrics works with partners to develop and incorporate data and science into its offering and is keen to expand this network. We also partner with traditional insurance players such as brokers, insurers and reinsurers which are interested in originating parametric products in emerging and target markets.

We can demonstrate that the fund has low marginal costs, making smaller transactions, such as those below US\$10m, attractive. This helps our insurance partners grow their presence and share in emerging markets.

Brokers work with Global Parametrics for a number of reasons. They can obtain quotes for existing risk transfer requirements, use the company as a marketplace to help to source and execute deals and get help structuring deals when the broker does not have the correct models or expertise. In addition Global Parametrics can provide capacity for brokers in their own emerging markets; use and promote parametric models as an option for their Insurers and clients and increasingly, to participate in pitches to large clients such as governments, municipalities and sovereigns to provide structuring expertise.

**Leif, Hannover Re is well known as having a long history of innovation. What was it that attracted the company to supporting the Global Parametrics fund?**

LH: Since Hannover Re's founding in 1966, it has grown to be a leading global reinsurer and that innovation has always been in its DNA, Hannover Re's first transfer of risk to capital markets was in 1994, growing across property, casualty and life lines. The largest transfer started in 2008 via Insurance Linked Securities, to catastrophe bond solutions with client collateralised fronting.

Through this experience Hannover Re understands the benefits of parametric index-based insurance instruments and how it fits with Hannover Re's sustainability strategy. Global Parametrics is a valuable partner and we are pleased to be able to assist the fund with larger capacity, and to serve the poor and vulnerable around the world.

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- Leif Heimfarth

**At Hannover Re you have a lot of inhouse technical expertise when building and using models. Are you also partnering in that respect with GP? Presumably your team reviewed the models?**

LH: The openness of data sources and modelling approaches is essential to ensure that there is transparency and expertise at every stage of parametric modelling and structuring, to ensure fit for clients', capital providers' and fund managers' needs.

Hannover Re has implemented parametric solutions internally, through a process of change management where staff are introduced to the models and technologies, gain confidence in them and socialize this knowledge with regional teams to spread and apply the technology locally. As confidence grows and the offering becomes more competitive, so ambition grows and larger projects/risks can be addressed.

The overall perspective on parametric insurance is not that it will replace traditional instruments in the long run. The biggest benefits for this kind of technology are the area and risks where the typical traditional insurance cannot be accomplished, especially in developing and emerging countries which have weak data sources or lack of an insurance infrastructure to provide cover for them. When we talk about closing this protection gap or the power of parametric solutions, it's not the only piece which we have to keep in mind. Other measures in public-private partnerships, or government support such as premium subsidies, also have an impact. When new technologies are embedded into these comprehensive packages, I think it's the biggest anchor which we can provide for the most vulnerable worldwide.

**Jerry, you had the original vision for Global Parametrics as a concept. What was your original vision on what you would offer to communities and how has this evolved over time?**

JS: The original view was that reliable data was at the heart of making parametric risk transfer successful and this has not changed. Global Parametrics has been launched after years of development work. While the analytical technologies have improved significantly over the last few years, parametric solutions still cannot exist without reliable data. In order to offer alternative cover in markets like Vietnam, Peru, Indonesia and Mongolia, there first had to be an investment in data, and this was one of the motivations for founding the company.

**The data sources and indices you use, are these mostly open source around the world like USGS in the US, or do you have to install sensor networks for example in developing countries?**

JS: Governmental, supra-governmental and academic institutions, catastrophe modellers and sources such as GEM, the Global Earthquake Model, can be used to create or supplement models, providing additional dimensions and coverage options. Open, peer-reviewed models and data sets are essential. While the focus is currently on emerging markets, the techniques and models can be applied to any part of the world and can be used to inform traditional insurance underwriting as well.

Global Parametrics has modelled drought in India by combining our Global Water Balance model. This looks at water inflow (precipitation) and outflow (evapotranspiration) in the atmosphere, combined with Earth observations from vegetative indices. A transaction using this structure is about to go live soon, pending investment committee review. By building relatively straightforward hazard-based indices, the next step is to standardize these to be readily available for requests from anywhere in the world, to combine with local data sets and expertise to structure risk transfer.

The growth of global data sets over the decades has greatly helped to understand risk across spatial and temporal dimensions for both hazards and exposure. Significant effort has gone into creating and analysing exposure data sets. One example is earth observations to determine where arable land is being used for farming. Global circulation models are being used for weather events. It is the maturing of these models, and the wider availability of data, that enables parametric solutions.

**“Dealing with natural catastrophes, we have to embrace the volatility, but the one thing that we can't control is the uncertainty”**

**- Akshay Gupta**

**Alin, As I understand you are not trying to be the leaders in modeling, but you do want to find the “best”, and if you can't find the tools you build them. What is the balance between the models you build and the ones you partner with?**

AR: We do not claim to be a modelling company, but we do build our own models. What we're trying to lead in is in the application of these models. We are an incubator of science.

Global Parametrics brings together its in-house models, for earthquakes, tropical cyclones and weather risks, with those from risk modelling agencies from the public and private arenas, to create ever more robust stochastic models. Other partners include REASK, and ERN in Mexico.



**You have a couple of examples of your projects, such as storm forecasting in the Philippines and excess wind in Tristan da Cunha. Can you tell us more about these?**

AR: A project was undertaken by Global Parametrics in the Philippines using a tropical cyclones index-based solution. This was created in conjunction with Oxfam and a consortium called B-Ready. This is an example of forecast-based financing, that is payments are made pre-emptively based on a weather forecast trigger. A payout was issued in December 2019 to the programme participants in a small municipality in Eastern Samar, Philippines before a tropical cyclone made landfall on Christmas Eve.

Tristan da Cunha is a small island in the South Atlantic. Here, the client required coverage against windstorm damage for its lobster farms, which accounts for 80% of the region's economy. By taking the global wind models and combining it with local data, Global Parametrics created coverage that now provides this client with coverage for their asset and the reassurance that they will receive a payout very soon after a wind event.

**Akshay, most people are aware of Berkshire Hathaway, a company that has been successful by using the best analytics, can you talk briefly about your background and role?**

AG: I'm a structural earthquake engineer. I have been associated with the insurance world, catastrophe modelling and natural catastrophe risk evaluation for over 20 years and the perspective has always been the same, that of wanting to always bring good science and engineering and technology to location level risk understanding.

Dealing with natural catastrophes, we have to embrace the volatility, but the one thing that we can't control is the uncertainty. The focus of bringing the science, the engineering through parametric products, or traditional indemnity products is really trying to see how can we reduce or quantify the uncertainty such that the products that are built or used, whether it be a parametric structure or an indemnity product, is the best product with a clearest understanding that we can provide to the customer.

**Some of Global Parametrics partners will often not be able to understand the full technical depth of the models they use and rely on third parties to assess them. You've got to know the company well, what is your view on what they are building?**

AG: My experience with the people at Global Parametrics goes back over 10 years. What drew me to helping out Global Parametrics was that their vision of using science, engineering and data aligned with what we are trying to do as well. It's about bringing good science engineering, in a technical setting, and being able to develop indices products and put them into the global market really quickly. Their mandate of social impact and evaluating their impact by the products that they put out and their focus on science and engineering is what has drawn me to it.

To the second part of your question, how do you assess models?. I have four observations. One, you start with the people. You see the experience of the people, and you see the motivation of the people. The second is the team has brought on advisors like myself. Thirdly, there's a very open discussion on what data sets they are using. They are open about the potential pitfalls and don't try to cover them up, but acknowledging that there are shortcomings and take account of these. Finally, they are open to feedback. Once you put a product out into the market, the market has a stabilising mechanism. It will tell you if your product is reasonable, or it is not.

Also a key difference between traditional insurance and parametric coverage is that of basis risk, where traditional insurance pays out against losses incurred whereas parametric pays out against a trigger event, regardless of the value of loss. This is a key distinction which needs to be understood by those participating in, or assessing options for coverage. For those who are inexperienced in financial services products, though, the parametric model may well seem simpler to understand, and less prone to complications from administrative burden to dishonesty.

People need to consider how much basis risk is actually carried in their indemnity policies and is transparent to the buyer, whereas and parametric insurance makes it absolutely clear what the basis risk is to the buyer, arguing that it is a conversation to be had with the buyer to understand their coverage from a new angle.

**Hector, you found support from two government agencies. Looking ahead are you seeing more governments and more agencies looking to be more creative in how they deploy their funding?**

HI: We see a lot of interest. What we see is that donors and international organisations have ideas about how they want to deploy programmes and how they want to manage their finance. They're not insurance experts, so they're looking for knowledge about how they can manage capital and risk management but they're not looking for an insurance product per se. What they're looking for is a new structure to add value to the efficiency of the problem. So it's about framing the product in the context of the problem, more like a CFO type of mentality used when dealing with different financial instruments.

Looking ahead we see some big opportunities. We know, for example, that the World Bank would like to have a famine bond, they have ambitions for cover up to \$3 billion. Technically it is difficult to find an index that can forecast famine, but we have the people, data and tools to take on new challenges like this.

**“Open, peer-reviewed models  
and data sets are essential”**

- Jerry Skees

## More Information

[Parametrics 2021: Future outlook and models to watch](#)

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