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"Near-term" Natural Catastrophe Risk Management and Risk Hedging in a Changing Climate

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Competing with analytics - Can the insurance market take advantage of seasonal or “near-term” forecasting and temporal changes in risk? Natural perils (re)insurance has been based on models following climatology i.e. the long-term “historical” average. This is opposed to considering the “near-term” and forecasting hazard and risk for the seasons or years to come. Variability and short-term changes in risk are deemed abundant for almost all perils. In addition to hydrometeorological perils whose changes are vastly discussed, earthquake activity might also change over various time-scales affected by earlier local (or even global) events, regional changes in the distribution of stresses and strains and more. Only recently has insurance risk modeling of (stochastic) hurricane-years or extratropical-storm-years started considering our ability to forecast climate variability herewith taking advantage of apparent correlations between climate indicators and the activity of storm events. Once some of these “near-term measures” were in the market, rating agencies and regulators swiftly adopted these concepts demanding companies to deploy a selection of more conservative “time-dependent” models. This was despite the fact that the ultimate effect of some of these measures on insurance risk was not well understood.

Apparent short-term success over the last years in near-term seasonal hurricane forecasting was brought to a halt in 2013 when these models failed to forecast the exceptional shortage of hurricanes herewith contradicting an active-year forecast. The focus of earthquake forecasting has in addition been mostly on high rather than low temporal and regional activity despite the fact that avoiding losses does not by itself create a product.

This presentation sheds light on new risk management concepts for over-regional and global (re)insurance portfolios that take advantage of forecasting changes in risk. The presentation focuses on the “upside” and on new opportunities in risk-taking rather than the “downside” and the general notion that catastrophes will get worse. The focus will be on the industry’s ability to hedge and optimize risk more efficiently in a changing environment.