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Dear Reader,

Since our last newsletter, we have been busy capturing the event loss data from windstorms Elon-Felix and Mike-Niklas and these are now available on a CRESTA and Property LoB level. The data contribute to the ongoing population of our Exposure & Event Loss Database which further enhances our overall understanding of European windstorm risk.

On the transaction front, where PERILS data are being used as triggers for industry loss-based risk transfer, we have observed a continuing decline in the amount of PERILS-based limits. This is primarily a function of the current market dynamics and to quote Warren Buffet, "there is nothing we can do about it". But as the term "market dynamics" implies, the situation will change at some stage in the future. More on this topic on page 5.

Our special section of this newsletter focuses on Wind-Jeannie, our new windstorm loss forecasting service. The service was built using the PERILS Industry Exposure & Loss Database.

In addition to its innovative approach, Wind-Jeannie also further demonstrates the usefulness and consistency of our data. However, for those of you who may be asking whether we have now entered the modelling arena, the answer is clearly "No". Our motivation for building Wind-Jeannie was purely to show what can be achieved with our data (anyone who has access to our database can build their own Wind-Jeannie), and secondly as a means of showing our gratitude to our clients and data providers by offering them this useful tool.

We hope you enjoy reading this newsletter and welcome any feedback.

Luzi Hitz
CEO PERILS AG

Figures & Facts

> 60	PERILS overall market coverage as measured in % of property premium
13 (+1)	number of countries covered: AT, BE, CH, DE, DK, FR, IE, IT, LU, NL, NO, SE, UK, plus a new major country to be added soon
3	number of perils covered: wind, flood and earthquake
6	number of industry exposure databases released since 1 Jan 2010
17	number of captured events in the PERILS loss database
>170	number of PERILS-based transactions placed since 1 Jan 2010
20	number of PERILS-based transactions at risk per 30 Sep 2015
USD 11.2bn	total of PERILS-based capacity placed since 1 Jan 2010
USD 2.7bn	PERILS-based capacity at risk per 30 Sep 2015

Cat Events

The 2014/2015 European winter season was characterised by an above-average North Atlantic Oscillation index, accompanied by an above-average frequency of winter storms. But only two events, Elon-Felix and Mike-Niklas, were qualifying windstorms and PERILS initiated loss collections from data-providing insurance companies. Germany was the country most affected by both storm events.

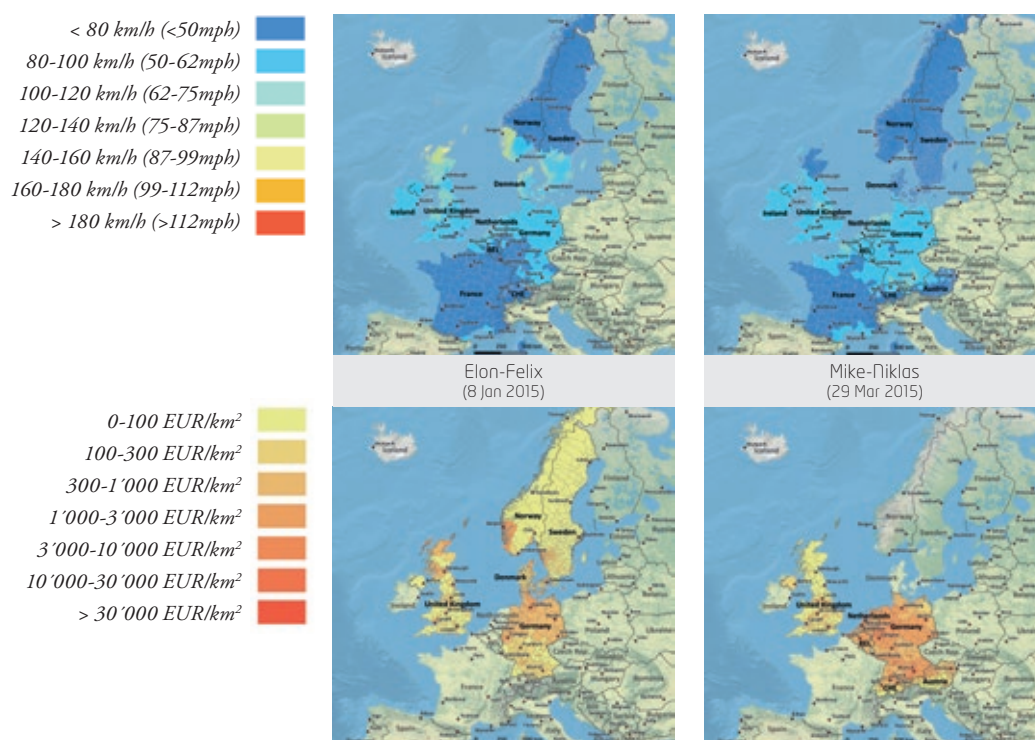


Figure 1: Elon-Felix and Mike-Niklas from the winter 2014/2015.

The maps show maximum gust values (source: DWD) and insured property market losses (third loss reports) per CRESTA zone and km² for storms Elon-Felix (maps on the left, total market loss of EUR 328m) and Mike-Niklas (maps on the right, EUR 826m).

During the 2014/2015 European winter season, PERILS investigated five storm events, but concluded that only two had exceeded the PERILS market loss threshold of EUR 200m: Elon-Felix (8 Jan 2015) and Mike-Niklas (29 Mar 2015).

Germany was the country most affected by both events, bearing 51% and 78% respectively of the total market loss amounts

(Figures 1 and 2). Detailed loss reports were made available to subscribers in accordance with the PERILS loss reporting schedule, exactly 6 months after the respective occurrence dates.

Occurring during the last days of March, Mike-Niklas happened unusually late in the winter season. Niklas followed Mike within less than 48 hours and was by far the

stronger storm, affecting almost all parts of Germany with the highest gust value of 192km/h recorded on the Zugspitze Mountain (2962m a.s.l.). As a result, almost 80% of the insured market property loss of EUR 826m stemmed from Germany. This makes Mike-Niklas the costliest winter storm in Germany since Kyrill (18 Jan 2007).

The market loss forecasts for Elon-Felix and Mike-Niklas generated by PERILS' new loss-forecasting website Wind-Jeannie were very close to the actual losses. This is remarkable given that both events can be viewed as real test cases for Wind-Jeannie as neither of them was used for calibration purposes. More about Wind-Jeannie can be found in the Special section beginning on page 7.

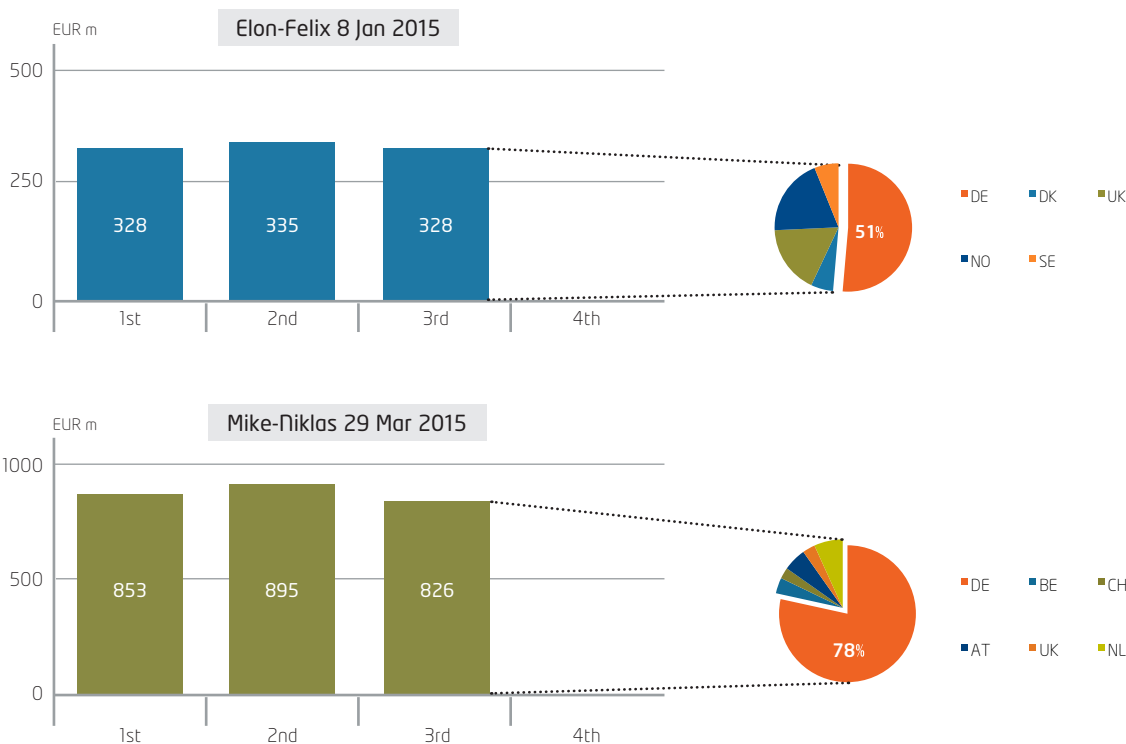


Figure 2: Loss details for Elon-Felix and Mike-Niklas: The bars show the three market-wide property loss estimates released by PERILS for the respective events, the pie charts show the country % distribution of the third loss estimates. For both events, Germany carried more than half of the entire market loss.

Business Update

At end September 2015, the total of PERILS-based capacity placed since 1 Jan 2010 amounted to USD 11.2bn, while the PERILS-based limits at risk totalled USD 2.7bn. The two loss reports recently released for Elon-Felix and Mike-Niklas contain very valuable CRESTA zone vulnerability data.

Transaction statistics

PERILS-based limits at risk as at 30 September 2015 were USD 2.7bn. This figure is down 28% on the 30 September 2014 figure of USD 3.7bn (Figure 3). This decrease in industry loss-based transaction volume is attributable to two factors. Firstly, it reflects the intense competition the industry loss risk transfer market is facing from indemnity-based covers, both in the traditional and

the Cat Bond markets. Secondly, it reflects the growing amount of excess capital in the re/insurance industry which is resulting in higher risk retention. This diminishes the need for insurers to buy reinsurance and for reinsurers to buy retrocession. The latter particularly affects PERILS-based Cat Bonds, which are predominantly bought for retrocession purposes (of the PERILS-based limits currently at risk, 82% are issued for retrocession purposes).

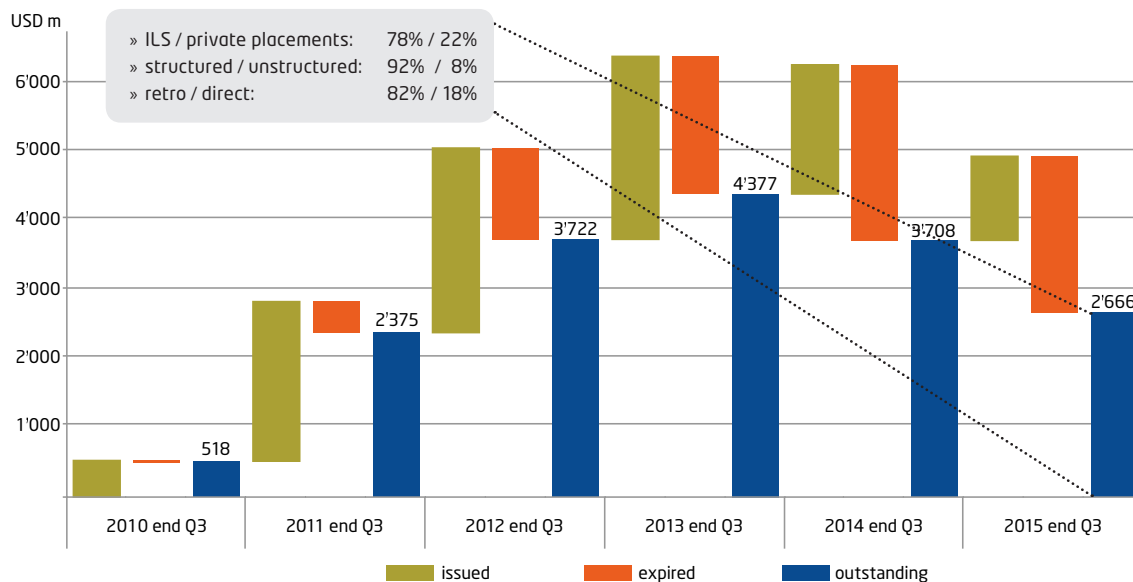


Figure 3: PERILS-based limits at risk. As at 30 September 2015, USD 2.7bn of PERILS-based limits were at risk. The graph shows the amounts of limits issued and expired during the 12 month-periods indicated, as well as the outstanding limits as at 30 September.

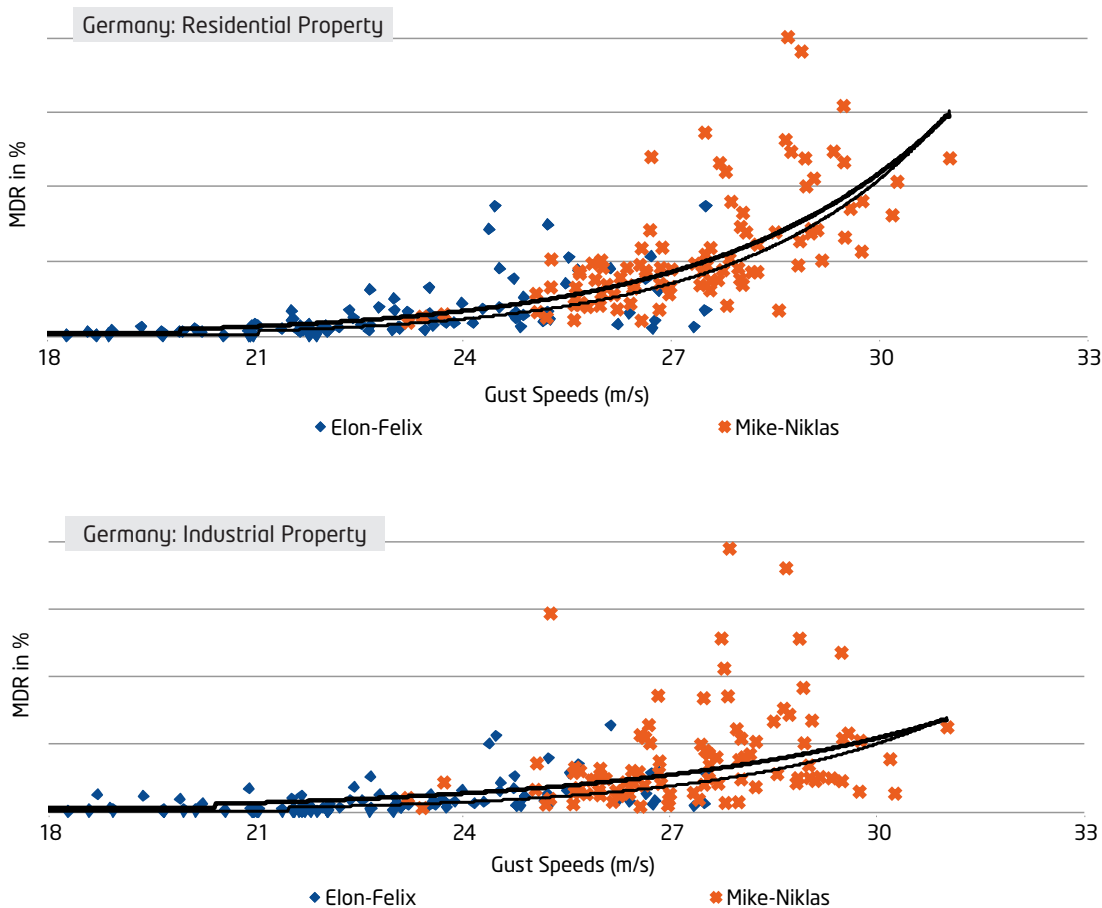


Figure 4: New vulnerability market data: Based on market data for storms Elon-Felix and Mike-Niklas and on gust values (source: DWD), vulnerability functions can be derived per market and per LoB. The graphs show examples for residential and industrial property business in Germany. It can be observed that the two events reflect complementary ranges of gust values with higher wind speeds occurring for Mike-Niklas.

New loss data

The third loss reports issued for Elon-Felix and Mike-Niklas contain detailed loss data which further enhances the value of the PERILS Industry Exposure and Loss Database. In addition, the reports contain, for the first time, maximum gust values per CRESTA zone from the UK Met Office. Going forward, the CRESTA-based loss reports

will contain gust values from three different sources: Germany's National Meteorological Service (DWD), EuroTempest and the UK Met Office. Combining market exposures, market losses and gust values means that vulnerability functions per market and/or per Property LoB can be derived. Such vulnerability functions, based on real data, are a requisite component of any model validation exercise (see examples in Figure 4).

Wind-Jeannie – Live Loss Forecasting

Wind-Jeannie is a new service providing live industry loss forecasts for European windstorms.

Wind-Jeannie provides live industry loss forecasts for European windstorms. Loss forecasts are updated twice a day, at 06:00 and 18:00 CET. Wind-Jeannie runs on desktops, tablets and smartphones. Access is free for PERILS data providers and PERILS Database subscribers.



When a natural catastrophe strikes, one of the industries most likely to be affected is the insurance industry. Losses can run into the billions depending on how many houses, shops and factories are insured in the areas impacted. For insurers, it is therefore vital to know as quickly as possible the likely impact of such an event on their clients.

Experience and comparisons of past events provide one way to get to grips with the potential fall-out from an event. Computer models which simulate the effect of natural catastrophes on a given portfolio of insured values offer another valuable means of assessing the impact. Such models are commonly used in the insurance industry. They are fed with measured data on the physical intensity of an event (e.g. wind speeds or water depth) and calculate the resulting potential insured losses. The general extent of a natural catastrophe in terms of the insured losses is

therefore known fairly quickly post-event, allowing insurance companies, reinsurers, and investors to count the costs to their business.

Preparation is everything

In Europe, a large windstorm has the potential to generate insured losses of several billion Euros. The average claim per policy is however rather modest and generally ranges from between EUR 1'000 to EUR 2'000. Multi-billion industry losses therefore represent several hundred thousands of individual claims.

These losses happen more or less at the same time and thus represent an extraordinary challenge for insurance companies in terms of claims handling and maintaining client service levels. Given this, a system which could predict the loss extent of an approaching storm would therefore be highly benefi-

Wind-Jeannie at a Glance

- » Live industry loss forecasts for European Windstorms for the forthcoming 72 hrs
- » Updated twice a day at 06:00 and 18:00 CET
- » Forecasts for Europe, 12 individual countries and 938 CRESTA zones
- » Downloadable gust and loss footprints for each forecast in map and table formats
- » Based on PERILS Industry Exposure & Loss Database and gust forecasts by German Weather Service
- » Runs on desktops, tablets and smartphones
- » Free access for PERILS data providers and PERILS DB subscribers

Go to www.wind-jeannie.org to find out more

cial. It would allow insurance companies to prepare for the event, for example by alerting additional claims handling resources or by setting up special event-hotlines to answer calls from concerned policy holders. So instead of being an overwhelming experience, a large storm could actually become an opportunity to demonstrate competence and provide excellent client services.

Meet Wind-Jeannie

Regularly in our discussions with insurance companies, they have highlighted the desire for pre-event loss forecasting capabilities. We have taken these comments onboard and

over the last two years have developed Wind-Jeannie, a system providing live industry loss estimates before a storm actually hits.

Wind-Jeannie is a web-based service which can be accessed at www.wind-jeannie.org. It makes available insured property market loss forecasts for windstorm events across Europe for the forthcoming 72-hour period. In addition to a Europe-wide forecast, predicted losses are broken down by individual countries, twelve in total: Austria, Belgium, Denmark, France, Germany, Ireland, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom. A further breakdown is available for each fore-

cast in a downloadable Excel file. This shows the forecasted maximum gust speeds as well as the forecasted loss and number of claims distributions by CRESTA zone (Figure 5).

The loss forecasts in Wind-Jeannie are updated every 12 hours, at 06:00 and 18:00 Central European Time (CET). To keep track of the development of forecasted losses, a link is provided showing the loss predictions that have been generated for the previous five days. This helps the user to check how stable the loss forecasts have so far been and to make their own judgements as to the overall credibility of the projected figures. In addition, Wind-Jeannie also offers a gust forecast movie which provides an effective visual impression of the winds to come.

All this information is readily available on your desktop, tablet or smartphone at www.wind-jeannie.org. The website's design and navigation is similar to a standard weather forecast site and requires no specialist knowledge. It takes less than 15 seconds to get an overview of the current situation, making it easy to check on a daily basis and keeping the user fully up-to-speed on any potential losses to come.

Forecasts are difficult, especially those concerning the future

It goes without saying that loss forecasting for European windstorms is no easy task. On the one hand, there are inherent uncertainties in scenario loss modelling. On the other, significant uncertainties also exist when it comes to gust forecasting. It would therefore be unwise to take Wind-Jeannie industry loss forecasts at face value, because the reality might be very different.

Back-testing of Wind-Jeannie loss forecasts, i.e. comparing forecasted event losses with actual industry losses, nevertheless has shown that the system is capable of predicting Europe-wide industry losses with a relatively high degree of accuracy. Out of the six events

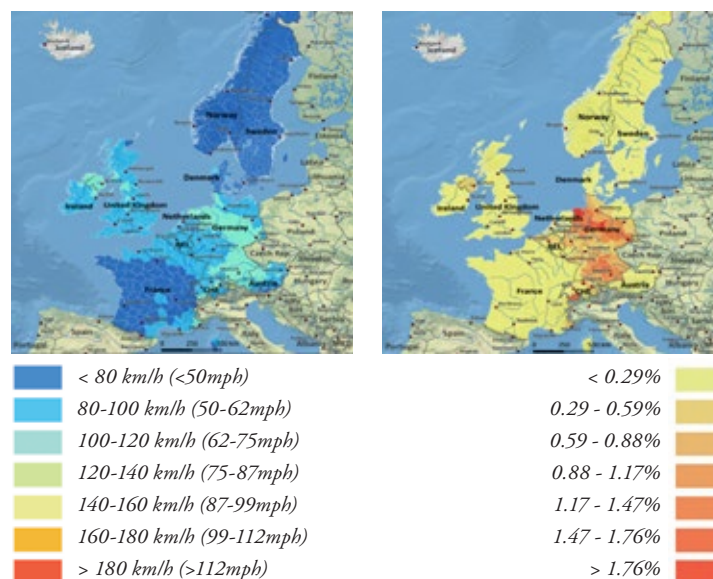


Figure 5: Gust footprint (left) and loss footprint (right) from the Wind-Jeannie forecast of 31 March 2015, 06:00 CET. The area predicted to be affected by Windstorm Niklas is clearly visible. Wind-Jeannie provides this geo-information with every forecast, twice a day at 06:00 and 18:00 CET. In addition, forecasted gust and loss data are also available in Excel table format.

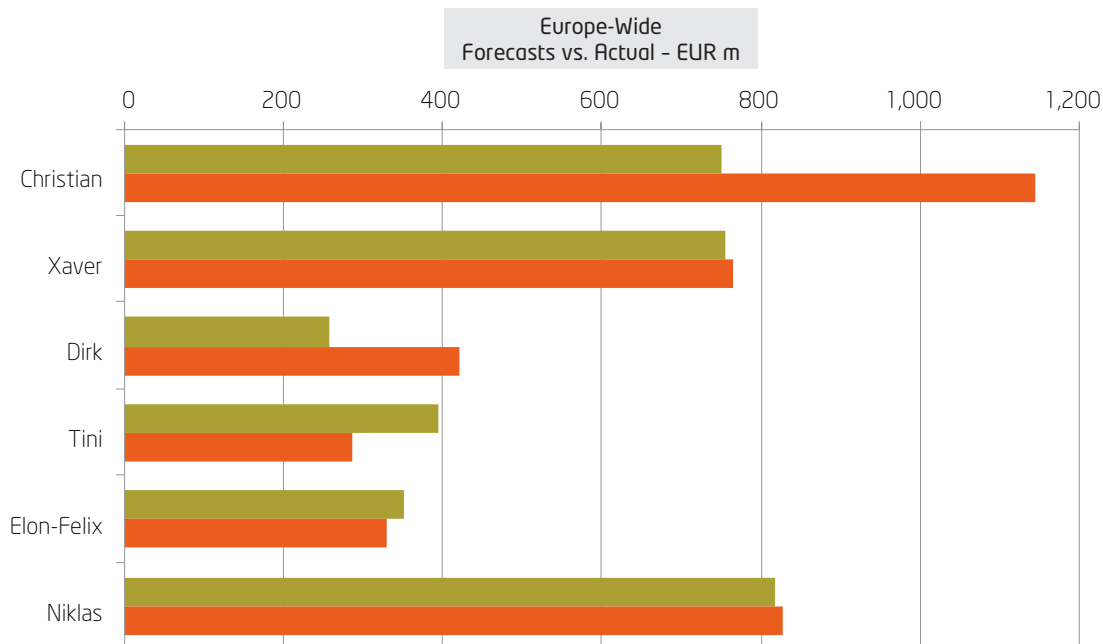


Figure 6: Back-testing of Wind-Jeannie loss forecasts for six European windstorms. The green bars show the average of the two loss forecasts closest in time to the actual event. The orange bars show the actual industry event loss as collected by PERILS. The comparison shows that on a Europe-wide basis Wind-Jeannie was able to capture the order of magnitude of the event losses in most cases.

tested, three were within 20% of the actual loss and none of them were more than a factor of two away from the actual loss (Figure 6). Admittedly, this might be pure beginner's luck and it remains to be seen whether Wind-Jeannie can maintain this strong performance. It should also be stressed that on a more granular level, differences between the forecast and the reality can be much larger. They depend a lot on the accuracy of the predicted gust field in terms of intensity and geographical location which means that smaller areas are generally more prone to inaccurate forecasts.

Another important aspect to keep in mind is that predicted loss amounts can vary greatly from one forecast to the next. As a general rule, forecasts become more reliable the closer in time they are to the peak of an actual windstorm event. For example, if a storm reaches its peak in a given country overnight, the loss forecast made at 18:00 the previous evening will usually be more accurate than earlier forecasts (Figure 7). It should also be acknowledged that some forecasts can simply be wrong. Niels Bohr's statement that forecasts are difficult, especially those concerning the future, also applies to Wind-Jeannie!

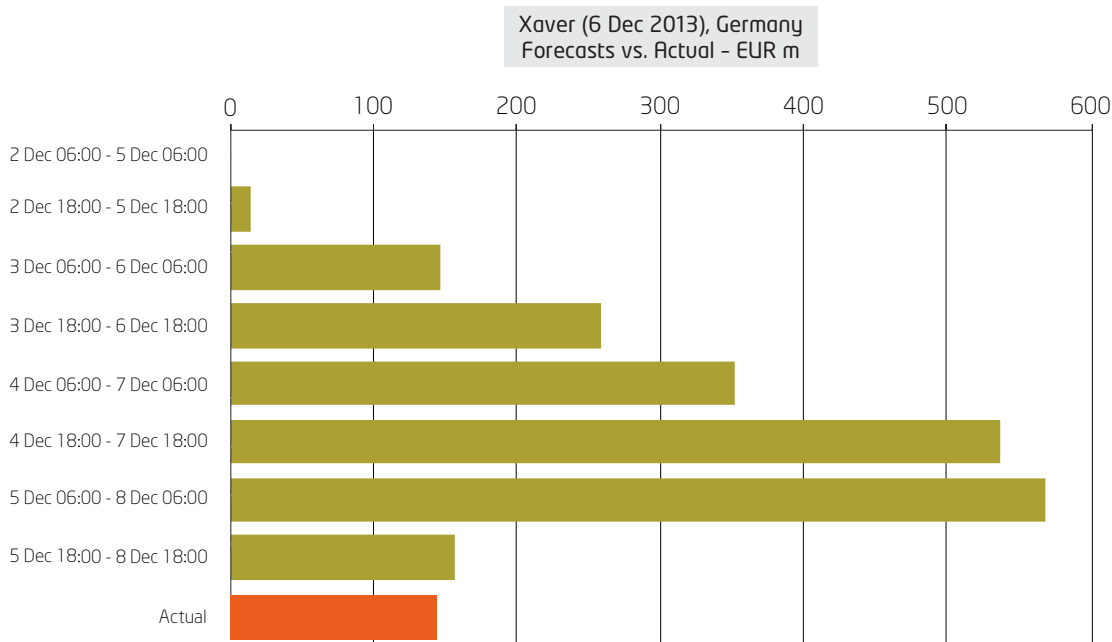


Figure 7: Development of loss forecast over time using the example of Windstorm Xaver in Germany. The green bars show successive loss forecasts over time. The orange bar shows the actual industry event loss as collected by PERILS. It can be clearly seen how the loss predictions increased with every forecast as we moved closer in time to the actual event, only to reduce drastically in the last forecast immediately preceding the actual event.

Always moving forward

A loss model is never finished – it is always a work in progress. This very much applies to Wind-Jeannie and its loss forecasting capabilities, which are based on the PERILS Industry Exposure & Loss Database and on gust forecasts provided by the German Weather Service (DWD). As a result, further data collection by PERILS will likely enhance the reliability of the loss forecasting, as will improvements in numerical weather prediction.

Another important factor in improving Wind-Jeannie is your feedback. We are very keen to hear about your experiences with the forecasted windstorm losses. This will help us to better achieve our vision of making short-term European windstorm loss forecasting as common as daily weather forecasts. Only a joint effort will help us move closer to this vision.

Outlook

We are eager to closely monitor the performance of Wind-Jeannie over the ongoing winter season. Every additional qualifying event for which we capture loss data will give new insights and will further improve the quality of the Wind-Jeannie loss forecasting.

In the past, we have often mentioned PERILS' capability and willingness to expand our market coverage into new territories. We have done this recently with our addition of Austria to the PERILS market coverage, and we will very soon be able to "walk the talk" again with the addition of a new and exciting market! We look forward to sharing more details on this development with you in our next Newsletter.

With our very best regards,

Your PERILS Team

Zurich, November 2015



The PERILS Team, from left to right: Georg Andrea, Catherine Weber, Luzi Hitz, Edina Gallos, Eduard Held.