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Dear Reader,

On 1 April 2015, as part of PERILS' annual update of the Industry Exposure and Loss Database, we were able to include market data for Austria Wind for the first time. This was possible thanks to the support of the majority of the Austrian insurance market who agreed to provide us with their data, for which we are very grateful.

During the last winter season, we investigated five European windstorm events. The insured market loss of two of these events exceeded the PERILS reporting threshold of EUR 200m and as a result they are fully captured. This increases the content of our database with additional CRESTA and LoB loss data, adding further value for our subscribers. You can read more about the five storm events investigated and how PERILS tackles the question of event definition on page 3 of this Newsletter.

Over the last 18 months, we have observed a decrease in the amount of limits at risk from PERILS-based transactions. There are two primary reasons for this. Firstly, excess capital diminishes the need for reinsurers to buy retrocession; and secondly, a soft market environment

coupled with abundant capacity changes the supply-demand balance for indemnity-based transactions. Transaction statistics are shown in the Business Update section on page 6.

Our special feature in this issue provides a brief overview of the previous winter storm season. It also includes analysis of the NAO index during this period, which shows that once again the majority of the winter 2014/2015 period was characterised by an above average air pressure gradient. Further, the analysis confirms that there is an intrinsically high correlation between pressure difference and storm activity. Based on this, an increased ability for long-term NAO index forecasting would potentially provide a sound basis for long-term forecasting of storm activity in Europe.

We hope you enjoy reading this issue.

Edi Held  
Head Products PERILS AG

# Figures & Facts

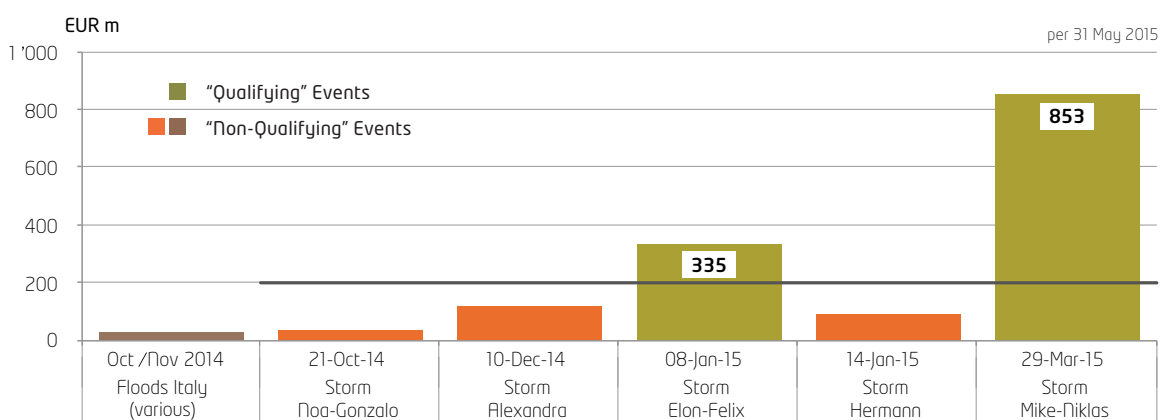
> 60	PERILS market coverage as measured in % of property premium
13	number of countries covered: A, B, CH, D, DK, F, I, IRL, L, N, NL, S, UK
3	number of perils covered: wind, flood and earthquake
+3.0%	increase of total sums insured exposed to Wind Europe 2015 vs. 2014
4	minimum number of PERILS loss reports for qualifying events
17	number of captured events in the PERILS loss database
> 160	number of PERILS-based transactions placed since 1 Jan 2010
33	number of PERILS-based transactions at risk per 31 Mar 2015
USD 10.7bn	total of PERILS-based capacity placed since 1 Jan 2010
USD 3.7bn	PERILS-based capacity at risk as at 31 Mar 2015

# Cat Events

The European winter storm season 2014/2015 resulted in two qualifying events. PERILS' loss aggregation for European winter storm events is based on the storm names assigned by the Free University of Berlin and on the ability of the data providing companies to distinguish losses caused by different storms.

During the period October 2014 through to end March 2015, PERILS investigated a series of floods in Italy as well as five windstorm

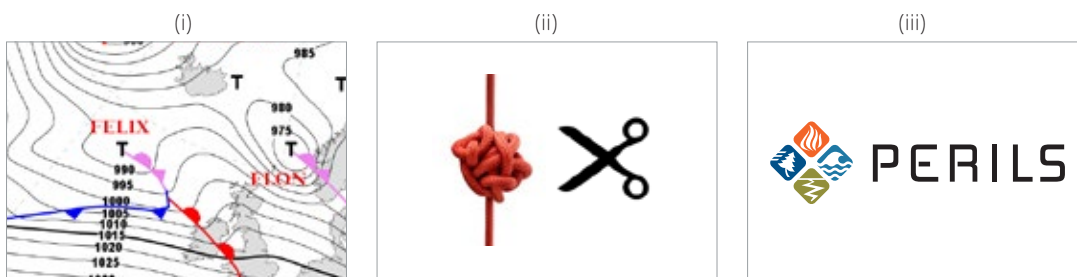
events for their potential to result in a market-wide insured property loss exceeding the PERILS loss-capturing thresholds (Figure 1).



**Figure 1: Industry event loss estimates for the European flood and windstorm season 2014/15.** Storms Elon-Felix and Mike-Niklas were captured by PERILS. Together they caused an insured market-wide property loss of EUR 1.2bn. Both will populate PERILS' Industry Database with market event loss details per CRESTA and property LoB following PERILS' standard loss reporting schedule.

Two pairs of windstorm events – Elon-Felix and Mike-Niklas – exceeded the EUR 200m loss threshold and were fully captured (Figure 3). Each pair consisted of two individually-named depression systems which occurred in rapid succession and affected similar regions within a period of less than 36 hours (Figure 3). As a consequence, a number of insurance companies providing loss data were

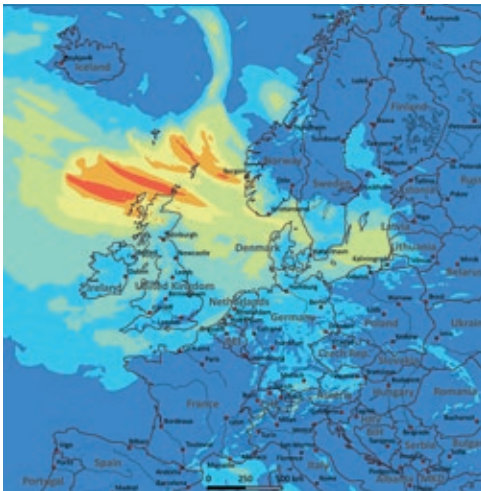
not able to allocate losses to each individual depression system, but instead reported the losses on a combined basis. PERILS therefore classified each pair as one loss event and reported the respective event losses on a combined basis. Three other storm events were investigated: Noa-Gonzalo, Alexandra and Hermann (Figure 4), but they were all considered non-qualifying events.



**Figure 2: PERILS' event definition for European winter storms.**

In terms of European windstorm events, PERILS typically aggregates insured loss data by reference to the names assigned to each storm by the Institute of Meteorology at the Free University of Berlin (i). In determining whether one or more events have occurred, PERILS will also consider factors such as the ability or inability

on the part of insurance companies to distinguish the damage caused by the various storms (ii). If the data providing companies are not able to separate the losses, PERILS will follow and report losses on a combined basis (iii). For each loss event PERILS assigns an event ID, and start and end dates (Figure 2).



**Figure 3: Storms Elon-Felix and Mike-Niklas, maximum gusts.**

From 8 to 11 January 2015, two extra-tropical cyclones caused significant damage across parts of Western and Northern Europe. They were named Elon (Dagmar in Denmark) and Felix (Egon in Denmark and Sweden, Nina in Norway). The two storm systems occurred in rapid succession, striking almost identical parts of Europe within a 24-hour period.

In the UK, winds of over 140km/h were recorded across large parts of Scotland. In Germany, wind speeds were generally lower with the highest gusts recorded along the North Sea coast (e.g. 151km/h at the Alte Weser Lighthouse). In Denmark, the region of northern Jutland was most affected by the storms, with winds typically ranging from 120 to 140km/h. In Norway, the counties of Hordaland and Rogaland in the west of the country were particularly badly hit.

**ELON-FELIX**

8 to 11 January 2015, total insured loss of EUR 335m (per 31 May 2015).

Countries most affected: Denmark, Germany, Norway, Sweden and the United Kingdom.



From 29 March to 1 April 2015, two extra-tropical cyclones – Mike and Niklas (Lentestorm in the Netherlands) – caused significant damage across parts of Western and Central Europe, with Niklas being by far the stronger storm. The two storm systems occurred in rapid succession and hit similar regions within a 36-hour period, with Germany the most badly affected country, accounting for 80% of the total loss.

In the UK, wind gusts above 80 km/h were wide-spread, except for in Scotland. The highest recorded gust value reached 156km/h in Capel Curig in North Wales. In Belgium and the Netherlands, gusts above 80km/h were registered throughout the entire country. Germany recorded its highest gust of 192km/h at the Zugspitze Mountain (2962m a.s.l). In the lower regions, damaging gusts in excess of 80km/h were experienced virtually throughout the whole country, with the southern state of Bavaria particularly badly affected. Such an all-encompassing field of damaging winds was last experienced during windstorm Kyrill in January 2007.

**MIKE-NIKLAS**

29 March to 1 April 2015, total insured loss of EUR 853m (per 31 May 2015).

Countries most affected: Austria, Belgium, Germany, Netherlands, Switzerland and the United Kingdom.

**Maximum gust speeds**

- < 80 km/h (<22m/s; <50mph)
- 80-100 km/h (<22-28m/s; 50-62mph)
- 100-120 km/h (28-33m/s; 62-75mph)
- 120-140 km/h (33-39m/s; 75-87mph)
- 140-160 km/h (39-44m/s; 87-99mph)
- 160-180 km/h (44-50m/s; 99-112mph)
- > 180 km/h (>50m/s; >112mph)

**NOA-GONZALO**

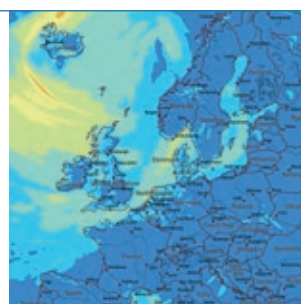
21 to 23 October 2014,  
total insured loss < EUR 200m (non-qualifying).

Countries most affected: United Kingdom, Germany and Switzerland.

*Figure 4: Storms Noa-Gonzalo, Alexandra and Hermann, maximum gusts.*

**ALEXANDRA**

10 to 12 December 2014,  
total insured loss < EUR 200m (non-qualifying).  
Countries most affected: United Kingdom, Belgium,  
Netherlands, Germany, Norway and Sweden.

**HERMANN**

14 to 15 January 2015,  
total insured loss < EUR 200m (non-qualifying).  
Countries most affected: Ireland, United Kingdom,  
Norway, Sweden, Belgium and France.

## Business Update

Release of the updated PERILS Industry Exposure Database for 2015.  
Decrease in use of PERILS data in risk transfer products.

### Update of the PERILS Industry Exposure Database for 2015

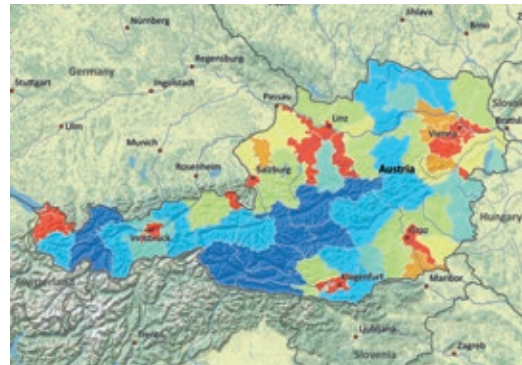
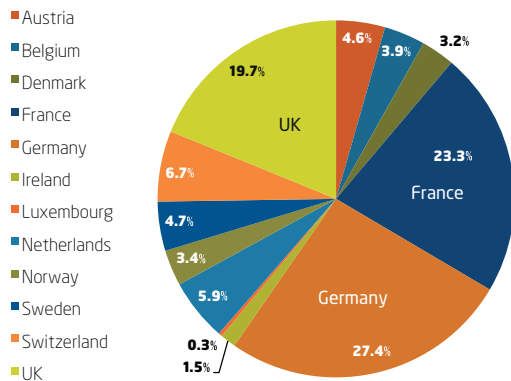
On 1 April 2015, PERILS released the Industry Exposure Database for 2015. It contains updated market-wide property sums insured exposed to Windstorm Europe, Flood Italy and UK and Earthquake Italy. The in-force date of the sums insured is 1 January 2015. The data are available at CRESTA zone, occupancy type (residential, commercial, industrial and agricultural) and cover type (building, content, business interruption)

resolution. For the first time, the database also contains windstorm-exposed property sums insured for Austria (Figure 5).

The industry exposure database is based on data directly collected from insurance companies writing property business in the territories covered, and which represent over 60% of the overall market in terms of property premium. The data are useful for a number of applications, including TSI market share analysis and the modelling of industry loss EP curves. In addition, the

combination of the PERILS exposure with the PERILS event loss data – both of which are based on identical sources and methodology – enables users to validate natural catastrophe risk models, and to perform market exposure and loss benchmarking.

For insurance risk transactions based on industry losses, the database facilitates the definition of custom-made triggers resulting in reduced basis risk for protection buyers. It can also be used to carry out the risk assessment of such transactions, thereby ensuring consistency with the trigger definition.

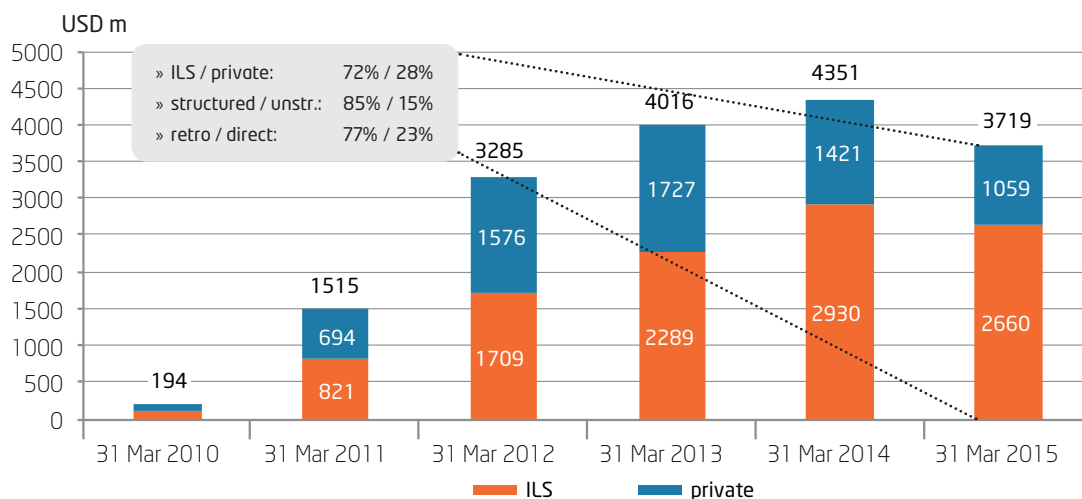


**Figure 5: PERILS Industry Exposure Database 2015.** On 1 April 2015, PERILS issued the update of its exposure database. The chart on the left shows the share of windstorm sums insured for all covered markets. The chart on the right shows the windstorm sums insured distribution in Austria. This was the first time that such data were included in the PERILS Exposure Database.

### Decrease in the use of PERILS loss data as trigger in industry-loss-based risk transfer

As at 31 March 2015, there were USD 3.7bn of PERILS-based limits at risk, a reduction of 15% compared to 31 March 2014. Of this, USD 2.7bn (72%) related to 144A ILS transactions and USD 1.1bn (28%) to private transactions. Some 85% of the total capacity used PERILS data for structured industry loss triggers (e.g. country- or CRESTA-weighted) and more than 75% was acquired for retrocession purposes (Figure 6).

Two major market trends are the most likely reasons for the decrease in PERILS-triggered limits. The first trend is the growing amount of excess capital currently in the reinsurance industry. This diminishes the need for reinsurers to buy retrocession. The second is the current soft market environment which, coupled with the abundant supply of capacity, changes the supply-demand balance for indemnity-based transactions. Based on past experience, however, these trends can change moving forward. When this happens and the extent of that change is of course not something which can be predicted.



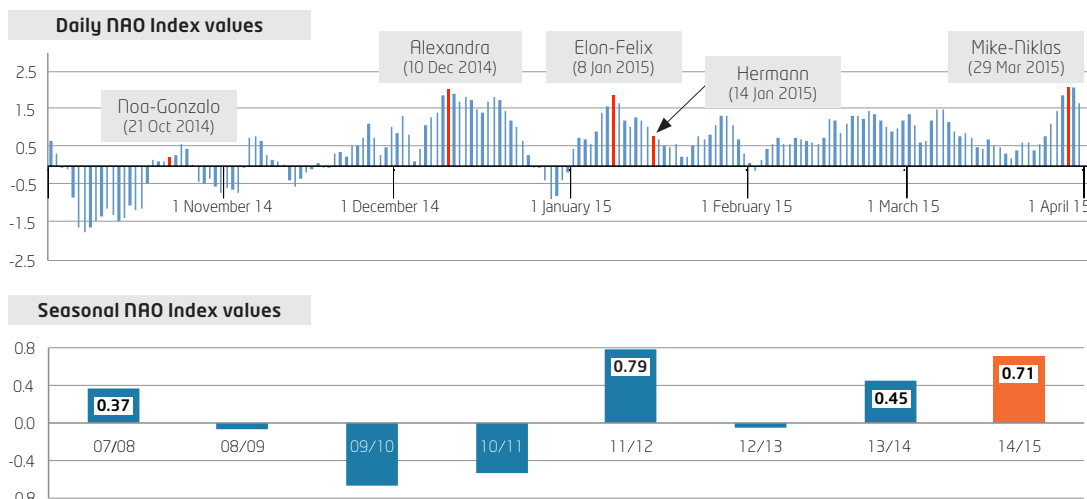
**Figure 6: PERILS-based limits at risk.** As at 31 March 2015, a total of USD 3.7bn of PERILS-based limits was at risk. The cumulated total of limits issued since 1 Jan 2010 amounts to USD 10.7bn.

# Winter Season 2014/2015

The 2014/2015 winter storm season was dominated by Mike-Niklas, but otherwise was generally benign. However, in terms of the North Atlantic Oscillation (NAO) Index, once again this was above average.

In comparison to the European winter 2013/2014, for which we estimated total weather-related insurance losses of approximately EUR 3.6bn, the 2014/2015 season was much more benign. Mike-Niklas was the defining storm of the season, not just because of its significant cost but also because it occurred late in the season. The remainder of the

season witnessed an active period in December and January, which produced a series of storms, including Elon-Felix. However, the storm intensities were rather moderate and the overall impact was comparatively minor. With an estimated total of less than EUR 2bn, the windstorm bill for 2014/2015 is therefore considerably lower than in the previous season.



Source NAO values: National Oceanic and Atmospheric Administration

**Figure 7: Daily and seasonal NAO indices.** The NAO index is a measure of the pressure variation between the Azores high and the Icelandic low (high NAO Index = strong jet stream). The upper chart shows the high degree of correlation between high daily NAO index values and single storm events. The lower chart compares the seasonal average NAO index value November to February for the winter 2014/2015 with previous winters. The average seasonal NAO index for the period Nov 2014 to Feb 2015 was the 2nd highest in the last two decades.

The European windstorm season is generally understood to occur from October to March, with the peak occurring in January. From a meteorological point of view, the occurrence of windstorm Mike-Niklas at the end of March 2015 was therefore not a surprise. The force of the combined storm at this late stage of the season was however unusual. It serves as a reminder that the intensity and monthly frequency of European windstorms do not go hand in hand and that a big event can happen very late in the season. In addition, if Mike-Niklas had occurred just a few days later in April, this could have put at risk short-term wind re/insurance protection which covered the 'normal' six-month season. It might be that if such a situation occurred recoveries against such types of protection would not be possible.

The source of energy for European winter storms comes from temperature and pressure differences between sub-polar and sub-tropical zones. The North Atlantic Oscillation (NAO) Index quantifies such pressure gradients. It represents the variation in sea level pressure between a point in the South, such as Ponta Delgada (Azores, Portugal), and a point in the North, such as Reykjavik in Iceland. The NAO Index could be used as a possible measure for the potential severity of winter storm activity in Europe, with a high value being linked to strong storm activity in Western and Northern Europe. Such a link was demonstrated by the activity in the winter 2014/2015 season (see Figure 7).

# Outlook

The expansion of the PERILS Industry Exposure & Loss Database to Austria demonstrates our continued commitment to strengthening our overall market coverage, and adding new perils and geographies where we have generated sufficient market support.

For the second half of 2015, our focus will be on adding further new geographies and perils to our market database, as well as developing new products. By continuing to do so, we maintain our commitment to the mission of PERILS, which is to increase the availability of Cat-related insurance data, improving the assessment and facilitating the transfer of natural catastrophe risk.

With our very best regards,

**Your PERILS Team**

Zurich, June 2015



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