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European Severe Storms Laboratory
Newsletter 2018-1

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ESWD summary of 2017

The European Severe Weather Database (ESWD) was expanded by 22,101 reports for the year 2017 (numbers as of April 9 2018). This is again a new record of added records per year. The annual number of entries added to the ESWD has risen continuously since 2006. This leads to an overall number of ESWD reports of 145,785.

The 2017 reports are distributed over the following extreme weather event categories and levels of quality control:

Category	*Absolute numbers*	*Percentage*
Dust, sand or steam devils	79	0.35
Funnel clouds (omitted)	0	0
Gustnadoes	7	0.03
Large hail	2,597	11.75
Heavy rain	2,485	11.24
Tornadoes	621	2.80
Severe wind gusts	14,650	66.28
Heavy snowfall/snowstorms	924	4.18
Ice accumulation	23	0.10
Avalanches	110	0.49
Damaging lightning strikes	605	2.73
Total	22,101	100

Table 1: List of 2017 ESWD reports per weather category as of April 9 2018

Quality control level	*Absolute numbers*	*Percentage*
As received (QC0)	0	0
Plausibility check passed (QC0+)	1298	5.87
Report confirmed (QC1)	20465	92.59
Event fully verified (QC2)	338	1.52
Total	22101	100

Table 2: List of 2017 ESWD reports per quality control level as of April 9 2018.

All ESWD reports for 2017 have been checked for plausibility. Furthermore, 94 % of all 2017 reports have been either confirmed or have been fully verified. The local distribution of all reports are shown in Figure 1.

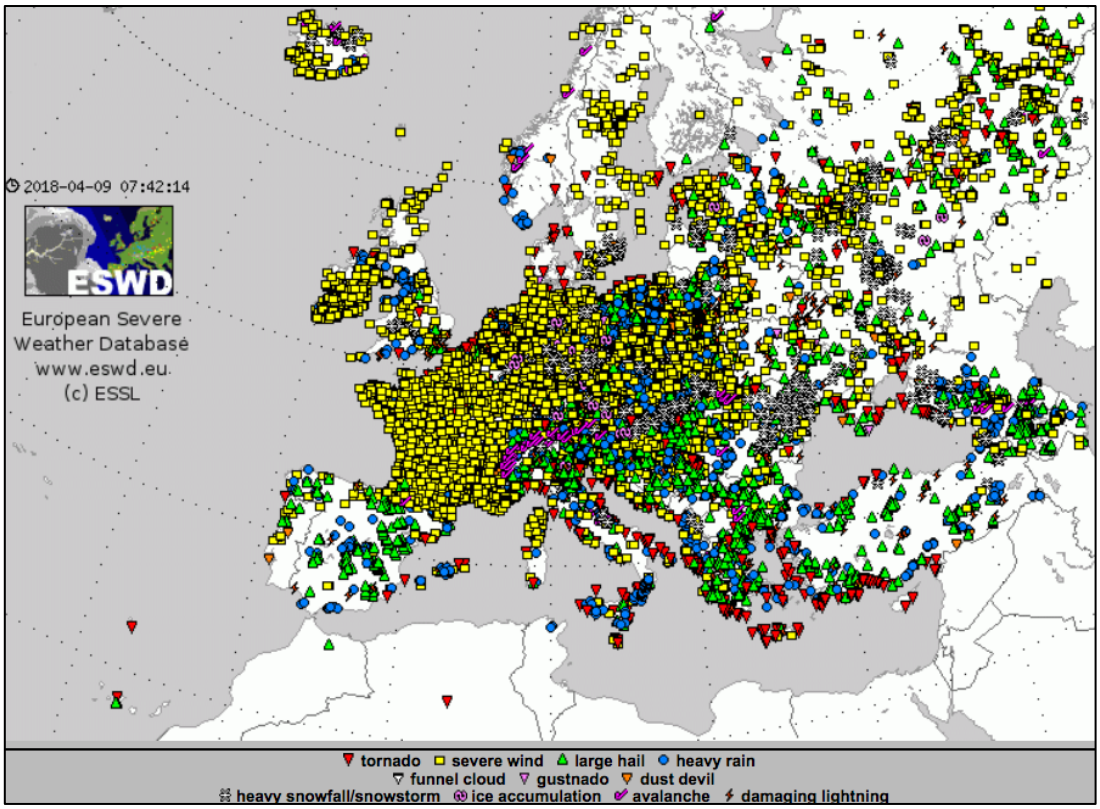

Figure 1: Local distribution of 2017 ESWD reports as of April 9 2018.

Figure 2 (see next page) shows the local and seasonal distribution of the following four categories which represent about 92% of the total reports: severe wind gusts (66.3%), large hail (11.8%), heavy rain (11.2%) and tornadoes (2.8%).

New peer-reviewed ESSL publications

Five peer-reviewed research articles have been published or are already in print this year.

Alois M. Holzer, Thomas M. E. Schreiner, and Tomáš Púčik, 2018:
A forensic re-analysis of one of the deadliest European tornadoes
Natural Hazards and Earth System Sciences, 18, 1555-1565:
https://doi.org/10.5194/nhess-18-1555-2018

Bogdan Antonescu, and F. Cărbunaru, 2018:
Lightning-Related Fatalities in Romania from 1999 to 2015.
Weather, Climate, and Society, **10**, 241–252. https://doi.org/10.1175/WCAS-D-17-0091.1

Bogdan Antonescu, Jonathan G. Fairman Jr., and David M. Schultz, 2018:
What's the Worst That Could Happen? Re-examining the 24–25 June 1967 Tornado Outbreak Over Western Europe. *Weather, Climate, and Society, in print: doi:10.1175/WCAS-D-17-0076.1*
http://dx.doi.org/10.1175/WCAS-D-17-0076.1

Anja Rädler, Pieter Groenemeijer, Eberhard Faust and Robert Sausen, 2018:
Detecting severe weather trends using an Additive Regressive Convective Hazard Model (AR-CHaMo)
Journal of Applied Meteorology and Climatology, in print, doi: 10.1175/JAMC-D-17-0132.1
http://dx.doi.org/10.1175/JAMC-D-17-0132.1

Maria Nogal, Alan O'Connor, Pieter Groenemeijer, Peter Prak, Maria Luskova, Milenko Halat, Pieter van Gelder and Kenneth Gavin, 2018: Assessment of the impacts of extreme weather events upon the pan-European infrastructure to the optimal mitigation of the consequences
Transportation Research Procedia, **15***, in print.*

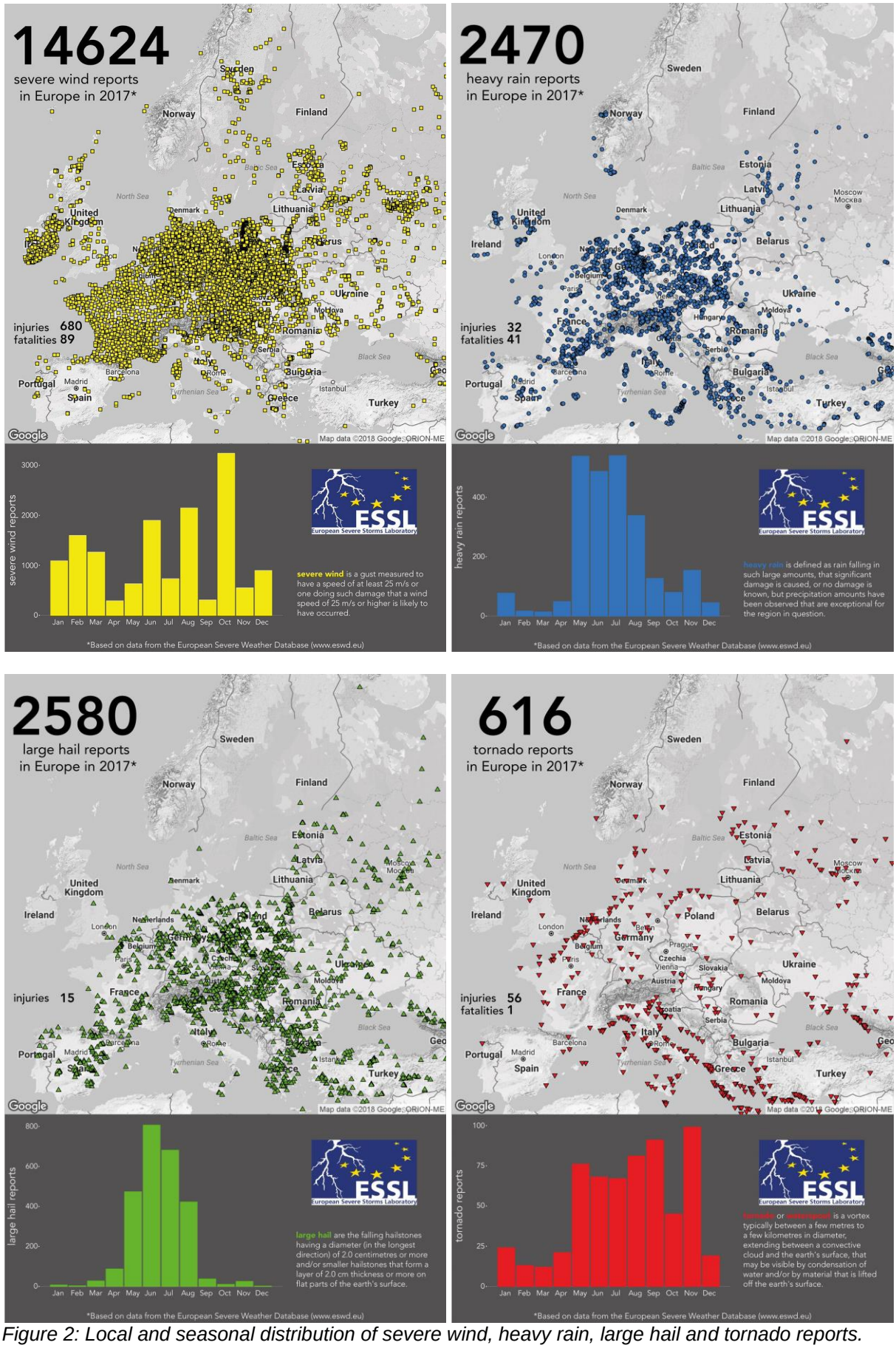

Figure 2: Local and seasonal distribution of severe wind, heavy rain, large hail and tornado reports.

Upcoming Activities

A number of exciting new training events have been fixed very recently:

In the week 11 to 15 March 2019 **Prof. Yvette Richardson** from Penn State University will teach the seminar “Dynamics and Prediction of Severe Storms”.

Additional **new trainings** will focus on **forecasting for aviation**. During two seminar weeks (the first in spring, the second in autumn) we will be translating leading-edge science and forecasting concepts to the practical needs for aviation meteorology:

- Ingredients-based probabilistic forecasting of severe convective gusts (both from gust fronts and downbursts), large hail, and tornadoes.
- Forecasting storm coverage and storm top height.
- Forecasting the predominant convective mode (storm type), and anticipating the related predominant hazards.
- Anticipating severe turbulence in the presence of AACPs (Above-Anvil Cirrus Plumes) above and downstream of overshooting cumulonimbus clouds.
- Nowcasting of convection, including dealing with convective developments where numerical model guidance is poor.

Figure 3: Tornado (and also very large hail) close to Vienna International Airport on 10 July 2017. Photo (c) Robert Gallina.

From 18 to 22 February 2019, Dr. Tomáš Púčik and Dr. Pieter Groenemeijer will give a seminar “Forecasting and Climatology of Convective Windstorms and Hail” with topics including **forecasting, risk analysis,** and **climate change**.

In addition, ESSL offers two additional training formats:

- Tailored seminars based on your special needs, also on-site at partner institutions
- Individual training on-the-job for your most important forecasters

The full current calendar can always be found on the website: www.essl.org

For more information, feel free to contact us at events@essl.org

Elections at recent ESSL General Assembly

LRDir. Thomas Kratzsch, head of basic forecasts at DWD, was unanimously elected as a member of the ESSL Advisory Council for the period 2019 - 2022.

Dr. Charles A. Doswell III, retired severe weather researcher and long-term supporter of ESSL, was unanimously elected as an Honorary Member of ESSL.

The elections took place at the ESSL General Assembly in Wiener Neustadt on 14 June 2018, as a side-meeting of the ESSL Testbed.