Supplementary Material for

Insurance loss model vs meteorological loss index – How comparable are their loss estimates for European windstorms?

J. Moemken et al.

Correspondence to: J. Moemken (julia.moemken@kit.edu)

Table S1: Historical event set of insured winter windstorms in Aon's IF Euro WS model in the period 1990-2020, including storm name and event date (as yyyy-mm-dd).

STORM	DATE
Daria	1990-01-25
Anatol	1999-12-03
Lothar	1999-12-26
Martin	1999-12-27
Jeanett	2002-10-27
Erwin	2005-01-07
Kyrill	2007-01-16
Emma	2008-03-01
Klaus	2009-01-24
Xynthia	2010-02-27
Tappani	2011-12-26
Christian	2013-10-26
Xaver	2013-12-04
Dirk	2013-12-23
Tini	2014-02-12
ElonFelix	2015-01-08
MikeNiklas	2015-03-31
Thomas	2017-02-23
Zeus	2017-03-06
Xavier(2017)	2017-10-06
Herwart	2017-10-29
Eleanor	2018-01-02
Friederike	2018-01-18
Isaias	2019-02-08
Eberhard	2019-03-10
Sabine	2020-02-09

Table S2: List of top 20 storms from ERA5 for 1979-2019 for Core Europe. Information includes the storm name, storm rank, event period and value of Loss Index (LI). Shown are only the common 20 most extreme storms with ERA-Interim.

Rank	Storm name	Start date	End date	LI
1	**Vivian, Wiebke**	1990-02-26	1990-02-28	769794.9
2	**Kyrill, Lancelot**	2007-01-18	2007-01-20	724570.7
3	**Daria**	1990-01-25	1990-01-28	691602.4
4	**Kurt, Lothar, Martin**	1999-12-23	1999-12-26	639103.5
5	**13 Jan 84, 14 Jan 84**	1984-01-12	1984-01-15	573311.1
6	**Verena**	1993-01-12	1993-01-15	527002.6
7	**Jeanett, Katharina, Lara**	2002-10-25	2002-10-28	503317.0
8	**Nov 84**	1984-11-22	1984-11-24	487979.3
9	**Braer, 13 Jan 93**	1993-01-11	1993-01-14	485094.7
10	**Andrea, Ulli**	2012-01-03	2012-01-05	482571.3
11	**Lore**	1994-01-25	1994-01-28	468993.4
12	**CE1**	1997-02-24	1997-02-26	435918.6
13	**Herta**	1990-02-01	1990-02-04	435159.4
14	**Dec-93**	1993-12-08	1993-12-11	423932.7
15	**Mike, Niklas**	2015-03-29	2015-03-31	423640.9
16	**Franz, Hanno, Gerhard**	2007-01-10	2007-01-13	421784.4
17	**Jan-95**	1995-01-21	1995-01-24	416758.5
18	**Johanna, Kirsten**	2008-03-10	2008-03-12	396952.7
19	**Gernot, Ingmar, Burglind**	2018-01-01	2018-01-03	391770.7
20	**11 Feb 90**	1990-02-11	1990-02-14	390314.1

Table S3: Same as Table S2, but for ERA-Interim.

Rank	Storm name	Start date	End date	LI
1	**Vivian, Wiebke**	1990-02-26	1990-03-01	81503.9
2	**Daria**	1990-01-25	1990-01-28	76591.4
3	**Kyrill, Lancelot**	2007-01-18	2007-01-20	70723.7
4	**Kurt, Lothar, Martin**	1999-12-25	1999-12-27	67481.7
5	**Jeanett, Katharina, Lara**	2002-10-25	2002-10-28	64321.1
6	**13 Jan 84, 14 Jan 84**	1984-01-12	1984-01-15	56511.3
7	**Nov 84**	1984-11-22	1984-11-25	51238.6
8	**Dec-93**	1993-12-08	1993-12-11	50957.0
9	**Mike, Niklas**	2015-03-29	2015-03-31	49616.4
10	**Verena**	1993-01-12	1993-01-15	49027.0
11	**Andrea, Ulli**	2012-01-03	2012-01-06	48946.2
12	**Johanna, Kirsten**	2008-03-10	2008-03-13	47165.6
13	**CE1**	1997-02-24	1997-02-26	47125.3
14	**Lore**	1994-01-25	1994-01-28	46779.8
15	**Jan-95**	1995-01-21	1995-01-24	46234.1
16	**Gernot, Ingmar, Horst, Burglind**	2018-01-01	2018-01-04	45150.2
17	**13 Jan 93**	1993-01-11	1993-01-14	44229.0
18	**Herta**	1990-02-01	1990-02-04	43373.9
19	**11 Feb 90**	1990-02-11	1990-02-14	41585.6
20	**Franz, Hanno, Gerhard**	2007-01-10	2007-01-13	38258.8
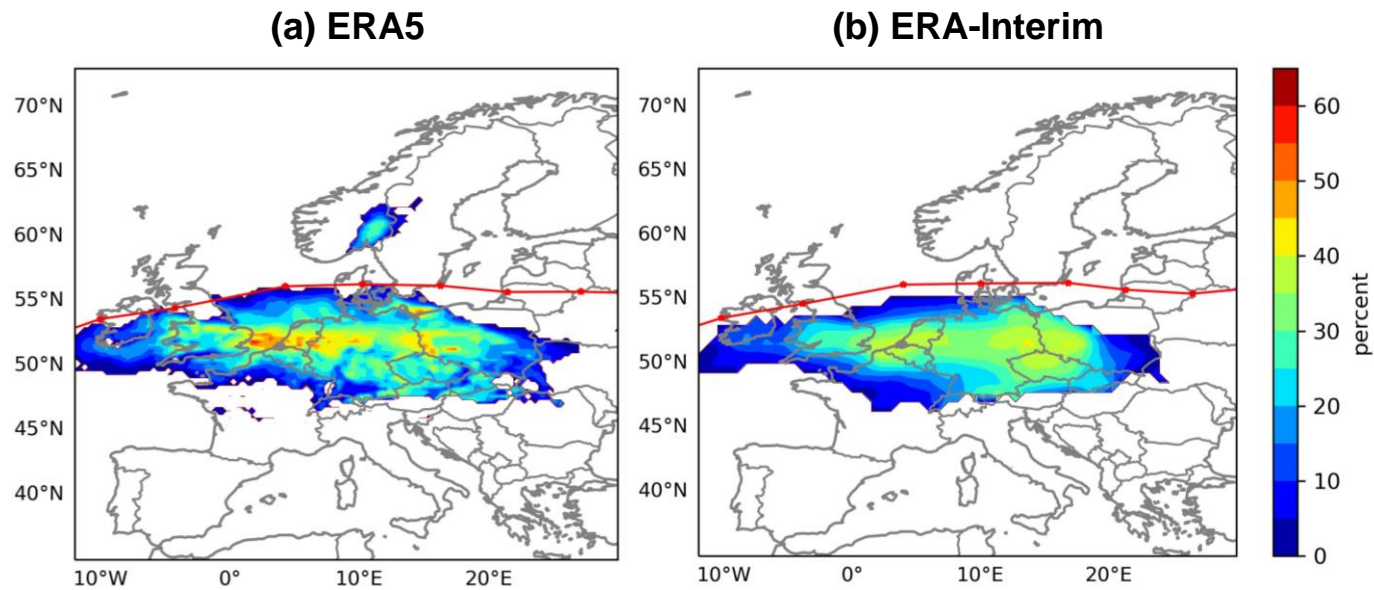
Figure S1: Wind gust footprint for storm Irina in October 2002 based on ERA5 (a) and ERA-Interim (b). Shown is the percentage of the maximum wind gust in 72 hours that exceed the 98th percentile of daily maximum wind gust. The red line and dots denote the cyclone track derived from ERA5 using the tracking algorithm of *Pinto et al. (2005)*.
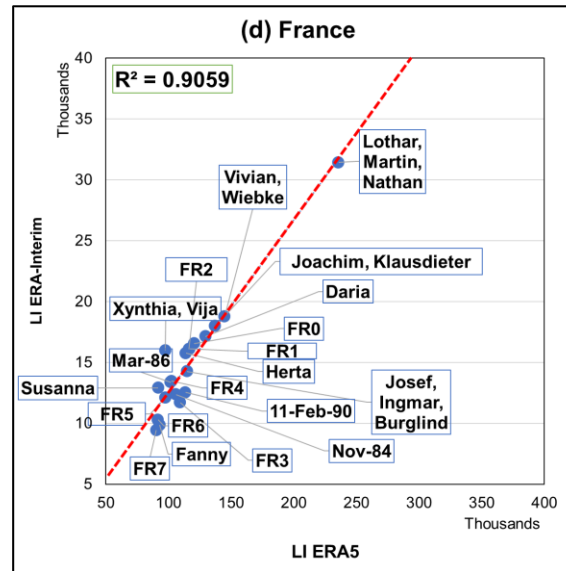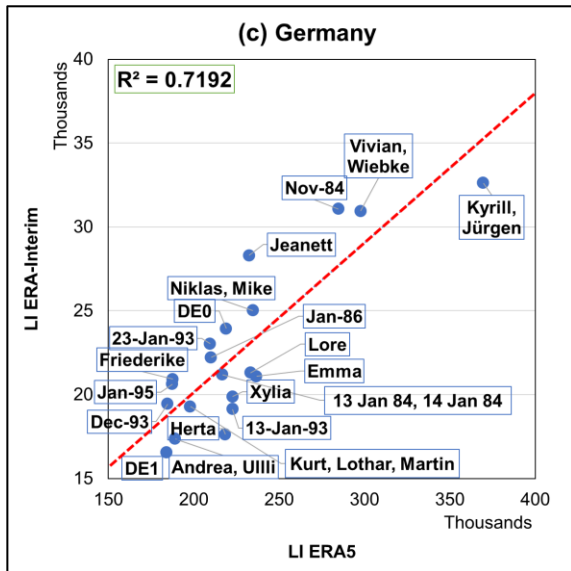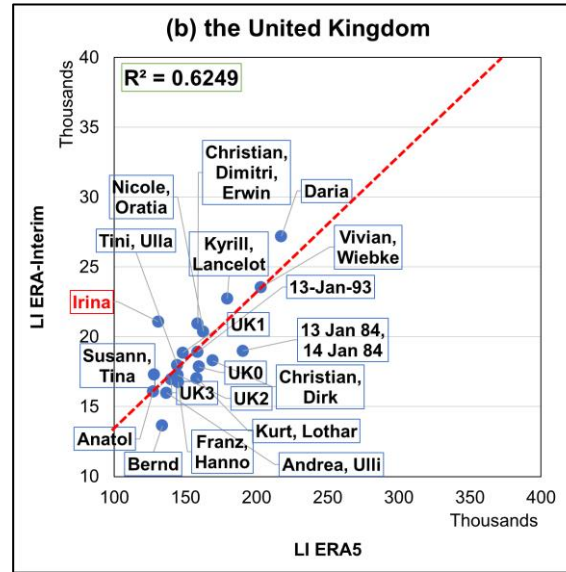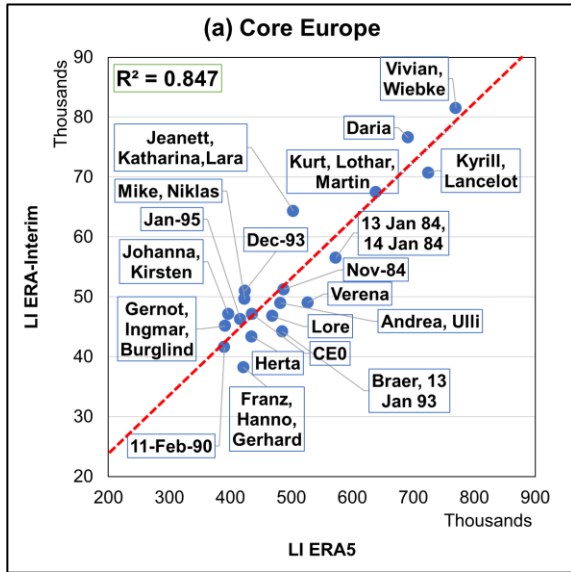
Figure S2: Comparison of loss values (in thousands) based on LI ERA5 (x-axis) and LI ERA-Interim (y-axis). Depicted are the common 20 most extreme storms in the period 1979-2019 for (a) Core Europe, (b) the United Kingdom, (c) Germany, and (d) France. Corresponding storm names to each data point are marked with a blue line. Storms without a formal name are named based on the region (e.g. CE for Core Europe) and the loss value (starting for zero for storm with highest loss). The red dashed line denotes the linear regression line. The correlation between the datasets is given in the upper left corner. Outlier storms based on the IQR method (see section 3.2) are marked in red. Please note the different scales.