

DERECHOS IN EUROPE

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I. INTRODUCTION

In the United States, widespread convectively induced windstorms are called derechos (Johns and Hirt, 1987). In Europe this term was not used to classify these events, although they did likely occur. Recently, five derechos have been classified and were published in the scientific literature: Three in Germany, one in Finland, and one in Spain (e.g. Gatzen, 2004). Three of them occurred in the warm season, two in the cold season. Four were associated with strongly-forced synoptic situations and one was a “hybrid” case. Two derechos affected a single country, while the others swept across more than one country.

II. DATA AND METHODOLOGY

Together with a study about bow echoes, a 15- year data set (summer seasons 1997-2011) of maximum wind gust measurements of the WMO network in Germany was checked for the occurrence of wind gusts in excess of 26 m/s. At the time and location of the wind gust observations, radar images archived every 15 minutes at a 2x2 km horizontal resolution were analysed to classify the events as convective.

Cold-season (October-March) severe wind gusts were not included in this work. Most severe wind gusts that occurred in the winter were related to synoptic-scale pressure systems rather than organized deep moist convection.

III. RESULTS

16 events have been analysed as possible derechos with a path length between 400 and more than 1000 km. Mostly all possible derechos were associated with classic bow echoes or bow echo complexes. The seasonal distribution indicates a clear maximum in July. In April and September, derechos were not found.

A average size of the derecho events was 180 km, the average duration was about 10 hours, and the average path length was 600 km.

Most of the derechos occurred in the southwest, south, or east of the country. In the north and west, only a few events were analysed.

IV. ACKNOWLEDGMENTS

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V. REFERENCES

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