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Utilization of Lightning Data for Recognition and Nowcasting of Severe Thunderstorms

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Technological disasters and hazardous natural threats are often correlated or even caused by severe thunderstorms. In particular, when a disaster has happened and subsequent human actions of various kinds are activated, it may be helpful to become aware of severe thunderstorms in the area concerned. For example, airports become closed and squadrons working in the open air are called back when lightning threats are expected or do occur. Although thunderstorm recognition and short-term prediction is not considered as a one of the primary subjects in connection with technological dis-asters, it represents background information that should be available in any case, and with high reliability.

The present contribution summarizes the status of storm detection and demonstrates the features of the largest lightning location network in Europe (LINET), developed by the Physics Department of the University of Munich, and operated by nowcast GmbH in Munich. Some of the outstanding features of LINET are briefly highlighted. Further-more, it is explained how nowcasting of storms is achieved with the use of only light-ning data, and in combination with radar and other meteorological data sources. Re-sults of co-operations with other research groups, mainly with DLR (Deutsche Luft- und Raumfahrt), and within the project RegioExAKT, funded by the German Government in order to improve nowcasting at airports, are detailed.