

NEW EVENT TYPES FOR THE EUROPEAN SEVERE WEATHER DATABASE (ESWD)

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The European Severe Weather Database (ESWD) is a database of severe weather reports for Europe and the Mediterranean Region currently containing over 39 000 individual reports and much more single data entries. The phenomena it contains are primarily associated with severe convective weather: tornadoes, large hail, heavy precipitation, and lesser whirlwinds (gustnadoes and dust devils). Since its start, inclusion of new types of phenomena has been a topic of discussion between the European Severe Storms Laboratory (ESSL), its partners (such as the National Hydro-Meteorological Services and spotter organizations) and other ESWD users. Four new event types are the outcome of the discussion process.

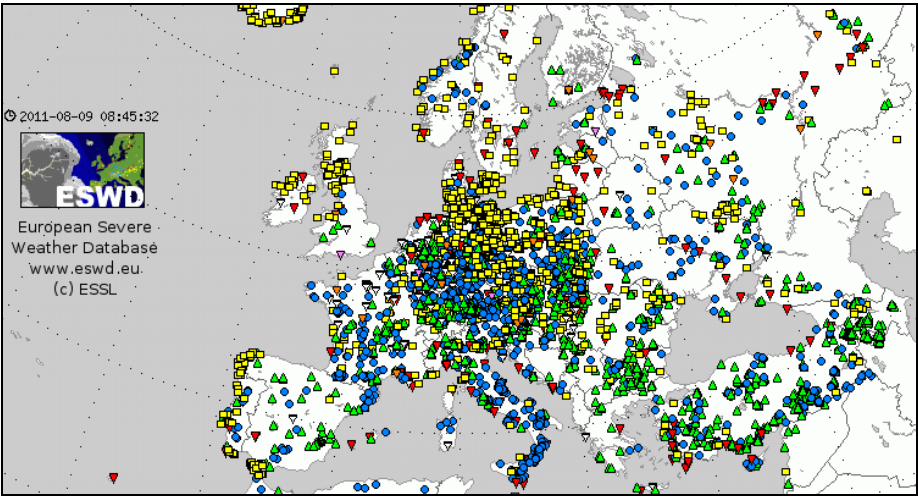


FIG. 1: ESWD reports from 1st of January to 9th of August 2011 (4449 reports in this period).

NEW EVENT TYPES

Recently, within the European Union FP7 Project EWENT (Extreme Weather impacts on European Networks of Transport), an inclusion of new event types has been implemented. These new event types for ESWD reports extend the usability of the ESWD to non-convective severe weather events:

<b>Snow</b>	Snow (or snow grains) and/or snowstorm in an amount that causes - or is capable of causing - important disruptions of daily life and/or considerable material or economical damage.
<b>Icing</b>	Accumulations of ice on the earth's surface and/or objects (such as power lines) in an amount that causes - or is capable of causing - important disruptions of daily life and/or considerable material damage or economical damage, not including ice accumulations resulting primarily from snowfall. Ice accumulations may result from freezing rain, freezing drizzle, freezing fog or from direct deposition of water vapour, resulting in glaze, frost or rime.
<b>Avalanches</b>	A rapid flow of (mainly) snow down a slope.
<b>Lightning</b>	A lightning strike causing important damage to aircraft, vehicles, ships, or injuries / casualties to people or animals.

TAB. 1: Basic definitions of new event types

Requirements for report entries and more detailed event definitions can be found on the ESWD webpage [www.eswd.eu](http://www.eswd.eu). The new ESWD event types open the European Severe Weather Database for a wider use in climatology and near real-time applications – which has been demanded by user groups.

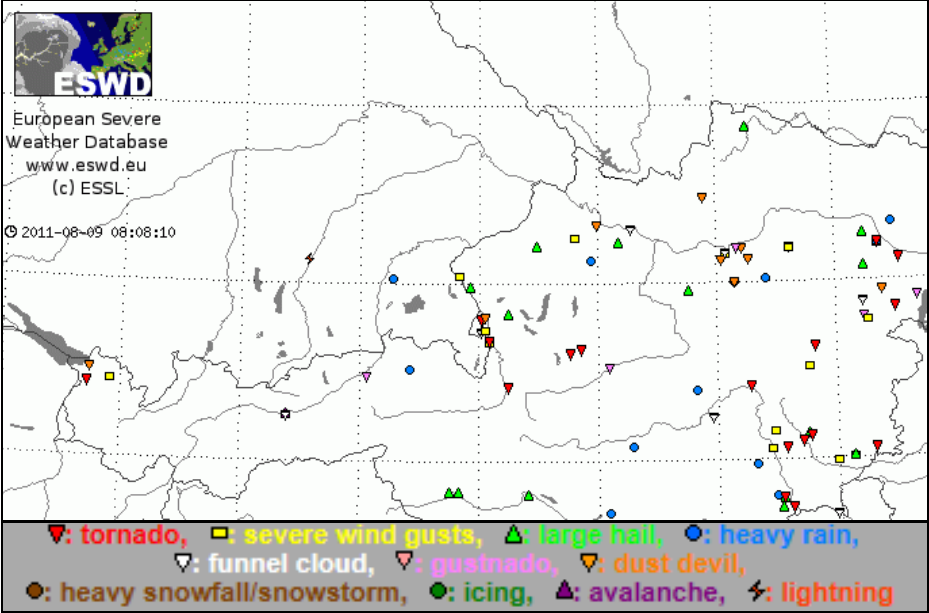


FIG. 2: ESWD display of test reports, showing the now available event type symbols over a central European region.

FURTHER NEW APPLICATIONS AND CONCLUSIONS

The inclusion of the new event types will, together with the existing ones, allow climatologists to use the **ESWD as a one-stop platform and as a provider for most types of extreme weather reports**. This usability was demanded by some National Weather Services and is now available.

Further languages have been added. The ESWD can now be used in 15 different languages. Persons or institutions interested in cooperation are vividly invited to help with the translation into even more languages.

A new partnership with the **METEOPICS platform will allow ESWD data suppliers to upload related photographs** of the event or damages resulting from an event to this professional storage site. ESWD users therefore can expect even more compelling information stored with each report. In return users of METEOPICS will be invited to report their observations to the ESWD. Poster 137 of this ECSS ("Trusted Spotter Network of Austria" by Krennert et al.) also refers to this topic.

In order to allow for the transmittance and storage of personal source identification, in the course of this update, **a new field "Spotter ID" has been introduced into the ESWD**. It allows to uniquely identify spotters by a 10 digit identification code. E.g. AT12345SKY would be spotter no. 12345 from Skywarn Austria. This strategy allows the transmission of IDs without storing personal data. One application for this is the distinction between different quality levels on the side of a National Weather Service, when dealing with near real time data originating from spotter organizations, relevant for sensitive warning decisions.

heavy snowfall/snowstorm 1 revision	Madrid de las Cadenachas Castilla y León Spain (42.77 N, 5.53 W) 2011-06-08 (Wednesday) 09:03 UTC	based on information from a report in scientific literature, a television report status: plausibility check passed (QC0+) contact: ESSL management (e-mail)
icing 1 revision	Copenhagen Denmark Denmark (55.67 N, 12.56 E) 2011-06-08 (Wednesday) 02:03 UTC (+/- 1 hrs.)	based on information from a report by a weather service, a report in test status: report fully verified (QC0+) contact: test (e-mail)
avalanche 1 revision	Súðavík Vestfirði Iceland (66.03 N, 23.00 W) 2011-06-06 (Monday) 13:00 UTC (+/- 15 min.)	based on information from a newspaper report, a report on a website type of avalanche: slab avalanche avalanche distinction: dense flow avalanche avalanche triggering: spontaneous TEST report status: plausibility check passed (QC0+) contact: Thilo Kühne (ESSL management) (e-mail)
lightning 1 revision	Karlsruhe (Kfz) Baden-Württemberg Germany (49.01 N, 8.39 E) 2011-06-06 (Monday) 05:09 UTC (+/- 1 hrs.)	based on information from a report by a weather service, a television report status: plausibility check passed (QC0+) contact: ESSL management (e-mail)
heavy rain (test) 5 revisions (thickens)	Aachen (Aachen) Bayern Germany (48.03 N, 12.28 E) 2011-06-04 (Saturday) 02:05 UTC (+/- 15 min.)	based on information from an eye-witness report, a report in scientific literature this is a test report http://www.meteopics.eu/reportimage/?id=9471&id=36363 http://www.meteopics.eu/reportimage/?id=9471&id=11111 report status: plausibility check passed (QC0+) contact: tester (e-mail)
gustnado 1 revision	L'Honnand Région Aquitaine France (44.08 N, 1.30 E) 2011-06-16 (Monday) 08:17 UTC (+/- 3 hrs.)	based on information from a report on a website, a report in some test status: as received (QC0) contact: test@essl.org (e-mail)
avalanche (test) 1 revision	Innsbruck Tirol Austria (47.27 N, 11.40 E) 2011-05-11 (Wednesday) 12:20 UTC (+/- 1 hrs.)	based on information from a report by a weather service number of people injured: 15 report status: as received (QC0) contact: Alois M. Holzer (e-mail)
tornado 5 revisions	Baden-Baden Baden-Württemberg Germany (48.75 N, 8.25 E) 2011-05-10 (Tuesday) 19:08 UTC (+/- 15 min.)	based on information from a report in scientific literature, a trained accompanying weather: hail >= 2.0 cm in diameter, hail < 0.5 cm diameter report status: plausibility check passed (QC0+) contact: ESSL management (e-mail)
large hail (test) 1 revision	Ried im Innkreis Oberösterreich Austria (48.22 N, 13.50 E) 2011-05-10 (Tuesday) 17:43 UTC	based on information from an eye-witness report event duration at place of observation: 10 mins maximum hail diameter: 4 cm

FIG. 4: Detail of ESWD webpage display - some old and new event types (test entries), marked in different colours, including weblinks to the partner webpage of [www.meteopics.eu](http://www.meteopics.eu) for related event or damage photos.

Together with some other enhancements, the ESWD is herewith ready for many more applications in science, at weather services and at commercial users. Interested parties are invited to contact the ESWD staff via [eswd@essl.org](mailto:eswd@essl.org) and to retrieve free data samples via [www.eswd.eu](http://www.eswd.eu).

ACKNOWLEDGMENTS

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REFERENCES

Dotzek N., Groenemeijer P., Feuerstein B., Holzer A. M., 2009: Overview of ESSL's severe convective storms research using the European Severe Weather Database ESWD. *Atmos. Res.*, 93 575-586.  
Groenemeijer P., Zhongjian L., Feuerstein B., Haeseler S., Holzer A. M., Kühne T., 2011: ESSL Technical Report 2011-01, ESWD data format specification Version 1.50 and 1.50-csv. <http://www.essl.org>.

FIG. 3: Currently the ESWD webpages can be viewed in 15 different languages (see footer with Spanish, Russian and Polish examples).