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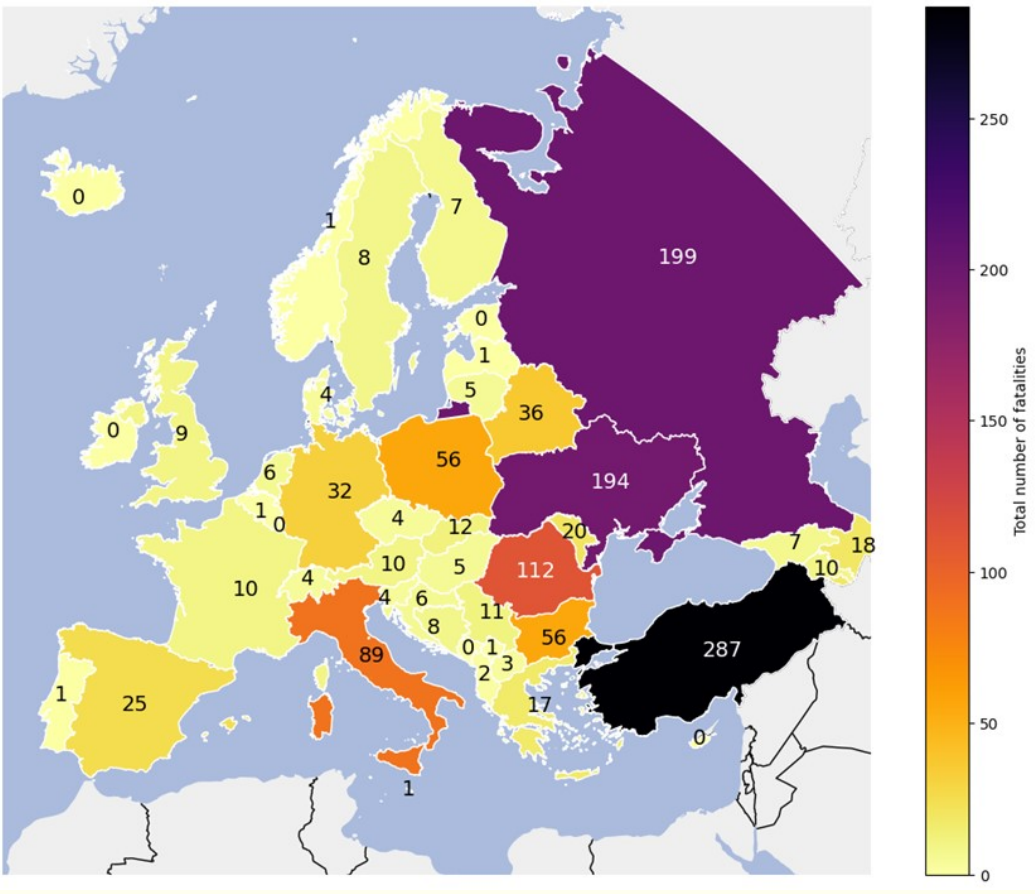
ESSL Newsletter 2025-2

March 2025

Lightning Fatalities in Europe: New Research Reveals Patterns and Risk Factors

Researchers from ESSL have published a comprehensive analysis of lightning fatalities across Europe, documenting **1,282 lightning fatalities that occurred between 2001 and 2020**. Their study, soon to be published in the journal *Weather, Climate, and Society*, represents the first pan-European assessment of lightning fatalities, revealing significant patterns in demographics, geographical distribution, and circumstances of these deadly events. The research team, led by **Thilo Kühne** and including **Bogdan Antonescu**, **Pieter Groenemeijer**, and **Tomáš Púčik**, analyzed

records from the **European Severe Weather Database (ESWD)**. Their findings show that lightning kills an average of 64 people annually across Europe, with striking regional differences in fatality rates. Southeastern European countries show significantly higher fatality rates than northwestern ones, with Bulgaria (0.37 fatalities per million inhabitants per year), Moldova (0.36), and Romania (0.27) experiencing the highest rates. The study also reveals that men comprise 77.8% of all lightning victims, with males aged 10-19 being particularly vulnerable. Most fatalities (89.9%) occurred outdoors, with farming activities accounting for the largest share of work-related deaths. Among leisure activities, hiking and walking were associated with the highest number of casualties.



Total number of lightning fatalities by country between 2001--2020.

Only 1.6% of fatalities occurred indoors, primarily affecting elderly people when lightning caused fires at night. The researchers note a clear east-west divide in the circumstances of lightning fatalities. In eastern Europe, most victims died while working outdoors, particularly in agriculture, while western European fatalities were more commonly associated with recreational activities, especially in mountainous areas like the Alps and High Tatras. The study concludes with recommendations for targeted safety campaigns, suggesting that information should be tailored to different risk groups - farmers and outdoor workers in eastern Europe, and recreational hikers in western European mountain regions.

The complete paper can be accessed here.

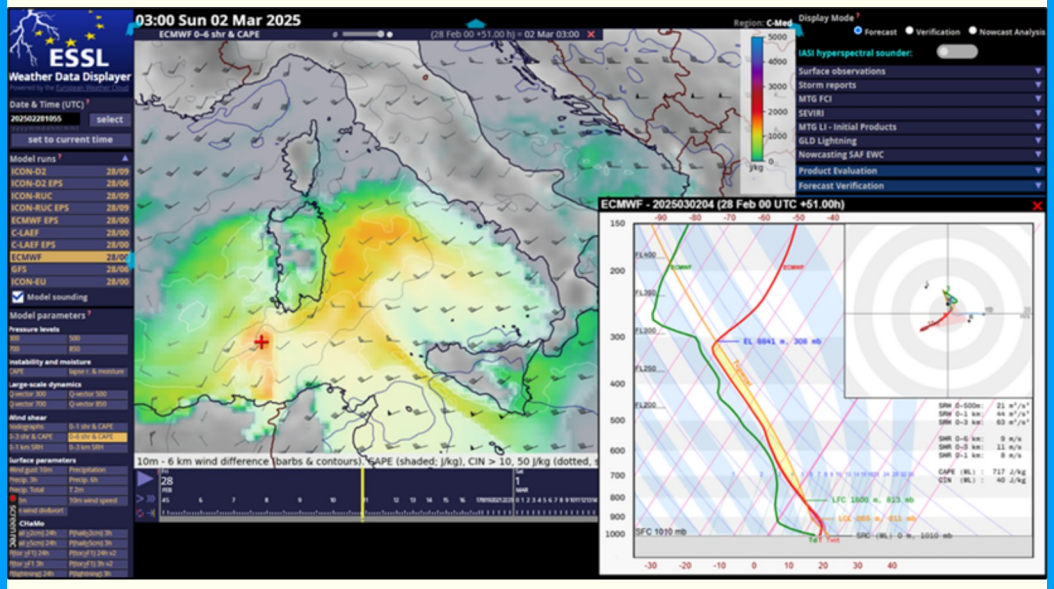
ESSL Weather Data Displayer now available for licensing

The **ESSL Weather Data Displayer** is a browser-based visualization platform for meteorological data, developed by ESSL since 2012. It provides intuitive access to weather model outputs, satellite and radar imagery, surface observations — including **ESWD severe weather reports**— and an interactive sounding tool with hodographs and thermodynamic parameters.

Used by **hundreds of forecasters** across Europe and beyond, the Displayer has proven to be a valuable tool for understanding and forecasting severe convective storms. It has been a key component in numerous ESSL Testbeds and training courses, and over the years, ESSL has repeatedly been asked by national and regional weather services, universities, and international organizations whether the tool could be made available to them.

Now, starting in 2025, the Displayer is ready to be licensed to external institutions. It runs entirely in a web browser—no installation or user maintenance required. While it is not intended for operational use, it is ideal for research, training, and development environments. The platform is preconfigured, though users may propose additional datasets of broader interest.

📩 For more information and to request a license, contact **services@essl.org** or visit essl.org.



Screenshot of the ESSL Weather Data Displayer on 28 February 2025. ECMWF CAPE and 0-6 km shear chosen for C-Med domain and forecast time step 2 March 2025 03:00 UTC. Model sounding tool switched on for location south of Sardegna.

ESSL training calendar 2025

You can find details about all events and registration at

https://www.events.essl.org/

Date	Activity
31 March – 4 April 2025	Course: Forecasting Severe Convective Storms – spring edition
7 – 11 April 2025	Course: Aviation Forecasting of Severe Convective Storms (spring ed.)
5 – 9 May, 12 – 16 May, 2 – 6 June 2025	ESSL-EUMETSAT Forecaster Testbed weeks
23 – 27 June 2025	ESSL Testbed 2025 – expert week
30 June – 4 July 2025	ESSL Testbed 2025 – regular week
1 – 5 September 2025	ESSL-EUMETSAT Forecaster Testbed week
8 - 11 September 2025	NEW Course: Damage assessment of extreme wind events
8 – 12 September 2025	EMS Annual Meeting (co-sponsored by ESSL) Ljubljana, Slovenia
6 – 10 October 2025	Course: Forecasting Severe Convective Storms – autumn edition
13 – 17 October 2025	ESSL-EUMETSAT Forecaster Testbed week
3 - 7 November 2025	Course: Aviation Forecasting of Severe Convective Storms (autumn ed.)
17 – 21 November 2025	12th European Conference on Severe Storms (ECSS2025) Utrecht, The Netherlands
21 November 2025 (afternoon)	ESSL-EUMETSAT Forecaster Workshop on MTG FCI and LI Utrecht, The Netherlands (ECSS venue)

Unsure which course to attend? Try our online quiz!

For further information about the registration for

these events, please contact us at: events@essl.org .

Or approach us for tailored trainings or forecaster training on-the-job.

ESSL
European Severe Storms Laboratory