

Lightning flash report

2025

Europe / Ireland

Discover Meteorage's analysis of thunderstorm and electrical activity over the year.



Thunderstorms are the silent witnesses of climate change.

Their frequency, intensity and movement are all signals that alert us to the ongoing evolution of our climate.

Understanding these phenomena is no longer an option — it is a necessity in order to anticipate risks and protect our territories.

For nearly 40 years, the lightning detection network operated by Meteorage has been monitoring thunderstorm activity in France, and for more than 10 years at the European scale. This continuity of observation provides a unique data source, enabling long-term trend analysis and the delivery of reliable insights to public and private stakeholders.

The report presented here is based on these observations and highlights the thunderstorm activity recorded in 2025.

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Beyond the figures, it illustrates the importance of having high-performance monitoring tools to support the climate transition and strengthen resilience in the face of extreme events. Observe, understand, act: this is the mission we pursue with determination, in the service of people's safety, infrastructure protection and territorial resilience.

I invite you to explore the key characteristics and specific features of the thunderstorm activity observed in 2025 by the Meteorage lightning detection network.

— *Stéphane Pedeboy, President, Meteorage*



European lightning
detection network

100 m

Location accuracy

> 98 %

Detection efficiency

[Learn more
about our expertise](#)

This report is based on data recorded since 1989 by the Meteorage lightning detection network, which detects more than **98% of cloud-to-ground lightning flashes** with a **location accuracy of around 100 metres**. It covers all cloud-to-ground lightning flashes detected between 1 January and 31 December 2025.

[Definitions of the terms used are provided at the end of the report.](#)

2025 stands out as a year with historically few thunderstorms, marked by generally low electrical activity across Europe, but punctuated by locally intense episodes.





A CONTRASTED ACTIVITY WITH SIGNIFICANT LOCALISED RISKS

With around 1.226 million cloud-to-ground lightning flashes detected in Europe, 2025 stands out for its thunderstorm activity below the climate normals, making it the year with the fewest lightning flashes observed to date by our Meteorage records. Although the atmospheric conditions limited the development of thunderstorms, some favourable situations nevertheless gave rise to intense, localised episodes, with more marked activity around the Mediterranean basin and on higher ground.

Beyond this report and the spatial distribution observed in 2025, analyses covering the past twenty years highlight a gradual northward shift of the thunderstorm belt, as well as a lengthening of the thunderstorm season, marked by earlier episodes in spring and later occurrences in autumn. These regional disparities are a reminder that lightning is never uniformly distributed and that, even in years when there is little activity, the issues of prevention, surveillance and lightning risk management remain fully relevant.

2025

KEY FIGURES

Meteorage network & services

1,226 million

cloud-to-ground lightning flashes detected in Europe
The year with the fewest lightning flashes
since Meteorage began recording data

2154

cloud-to-ground lightning flashes detected in Ireland
*a year in line with climate normals
since Meteorage began recording data*

284,200

cloud-to-ground lightning flashes detected in Europe
in June, the most active month
in Europe.

660

cloud-to-ground lightning flashes
detected in July in Ireland
around a third of annual activity.

64 %

European storm activity
concentrated
between June and August

115 597

Meteorage thunderstorm warnings sent in Europe
enabling our customers to take action to secure their activities
more than 20 million people protected from
lightning-related risks on every thunderstorm day.

These values contrast with 2024, when more than
1,967,112 cloud-to-ground lightning flashes were
detected in Europe, including **3,424** in the Ireland,
reflecting activity in line with climate normals.

Whereas 2024 was marked by a number of widespread,
structured thunderstorms, 2025 was characterised by
more sporadic episodes, but which sometimes proved
to be locally intense.



THE EXPERT'S VIEW

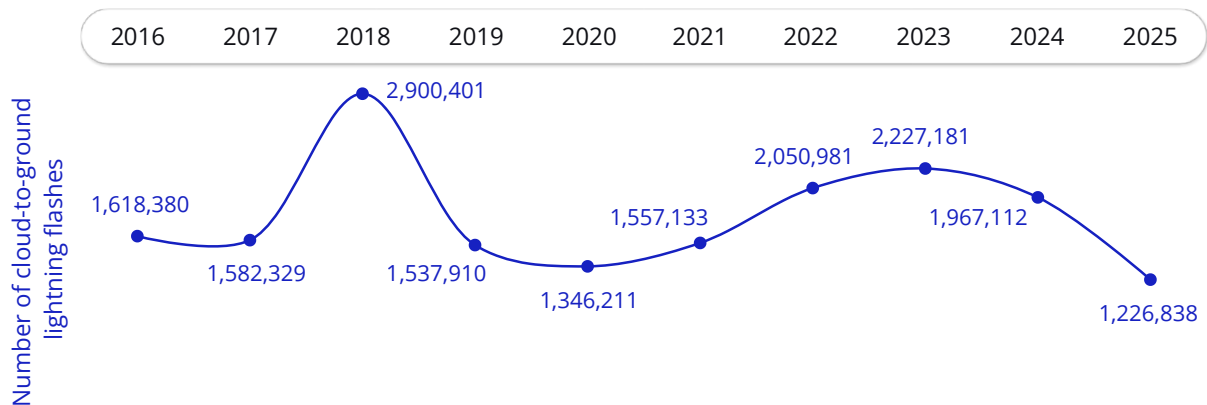
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The number of lightning
flashes from one year to
the next does not in itself
reflect the level of danger.
In 2025, there were fewer
thunderstorms in Europe,
but they were just as
intense in some cases,
and the risk to exposed
activities could appear at
any time.

— Stéphane Schmitt,
Lightning Application Expert
Meteorage

LIGHTNING ACTIVITY IN EUROPE

2025, a calm year, despite marked activity around the Mediterranean



Evolution of cloud-to-ground lightning flashes in Europe (2016–2025)

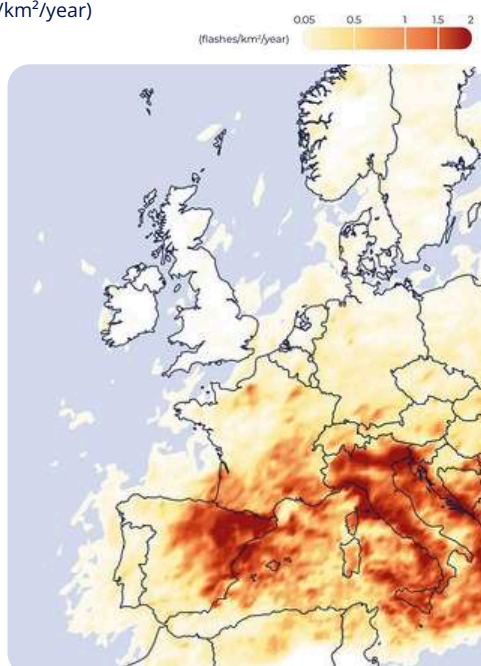
Although lightning flash activity in 2025 was below historical averages, the high interannual variability of thunderstorm activity does not yet allow a robust statistical trend to be identified.

Most of the storm activity was concentrated between June and August, when unstable conditions were most favourable, with a marked peak in June and almost **284,200** cloud-to-ground lightning flashes recorded across the continent, illustrating a sometimes early thunderstorm season.

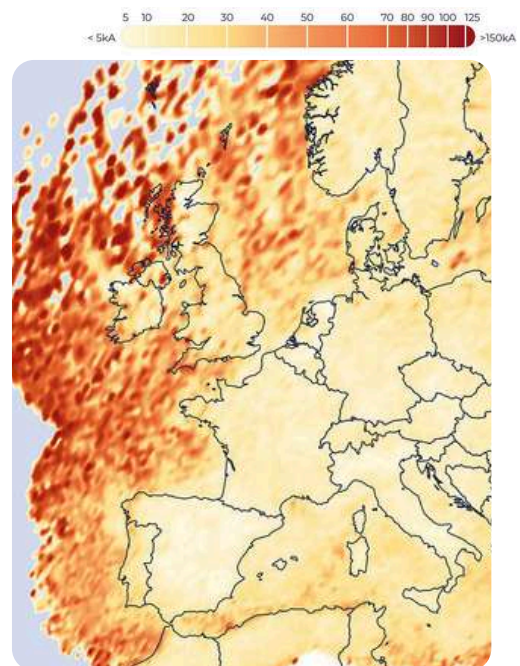
Lightning Report – Europe 2025



Average CG flash density
(flashes/km²/year)



Average CG flash peak current
(kA)





did you know?

Every day, an average of 7 million lightning flashes are detected around the world, 10% of which strike the ground. To understand how thunderstorms form and find out more about the risks, read our guide.

[⚡ Understanding thunderstorms and lightning](#)

SEASONAL ANALYSIS

360 days
with thunderstorms

Spring 2025 *contrasted activity*

The spring season totalled **233,316** cloud-to-ground lightning flashes, with very heterogeneous geographical distribution: Little activity over the northern half of Europe, which remained largely under the influence of persistent anticyclonic conditions, greatly limiting the development of thunderstorms. Conversely, there was more regular activity in the south of the continent, particularly around the Mediterranean basin

During this period, Spain was the country most affected, with **97,219** cloud-to-ground lightning flashes.

Summer 2025 *the period with most thunderstorm activity*

Summer saw **775,394** cloud-to-ground lightning flashes, representing more than half of the annual activity.

Although the thunderstorms developed mainly along the classic Spain - France - Germany axis, Italy also saw significant activity, becoming the country most struck by lightning in Europe during this season.

Autumn 2025 *activity focused on Mediterranean coastal areas*

In the autumn, thunderstorms continued mainly:

- over the seas,
- over Mediterranean coastal regions (eastern Spain, southern France, Italy).

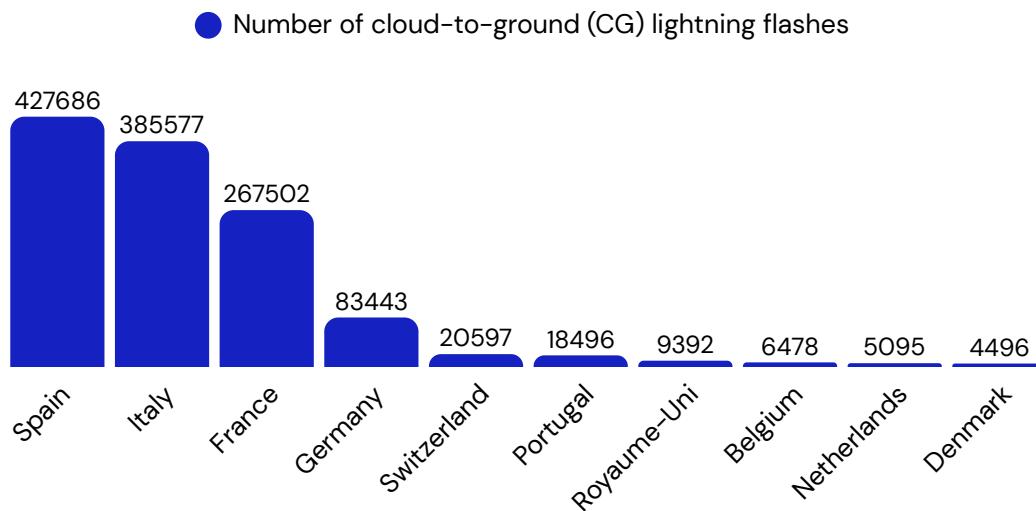
This local intensification is explained by the persistence of warm surface waters, while the lower continental layers cooled more rapidly. This vertical temperature contrast favoured convection, making thunderstorms sometimes intense and very rainy, depending on the passage of low-pressure systems.



LIGHTNING ACTIVITY IN EUROPE

2025, a calm year, despite marked activity around the Mediterranean

TOP 10 MOST LIGHTNING-STRUCK COUNTRIES IN EUROPE IN 2025



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THE EXPERT'S VIEW

In 2025, atmospheric circulation at European level favoured a concentration of convective activity around the Mediterranean.

The recurrent presence of high geopotentials over central and northern Europe limited the advance of unstable systems towards the north of the continent.



As a result, low-pressure circulations and dynamic forcing remained at low latitudes, interacting with warmer, more humid air masses around the Mediterranean, creating an environment more favourable to electrical activity.

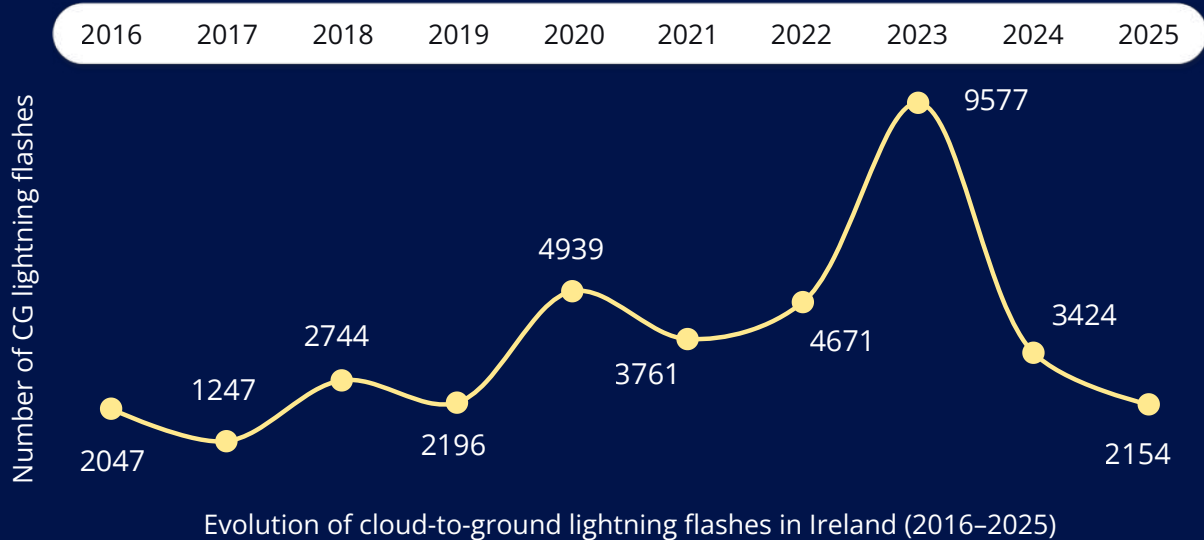
— Joris Royet, Weather Project Manager, Meteorage

LIGHTNING ACTIVITY IN IRELAND

2025, a classic year

In 2025, Ireland recorded **2,154** cloud-to-ground lightning flashes, a total in line with climate normals, but with an upward trend over the last decade.

Thunderstorm activity was mainly concentrated between May and July, with the latter month totalling **660** cloud-to-ground lightning flashes, around a third of annual activity.



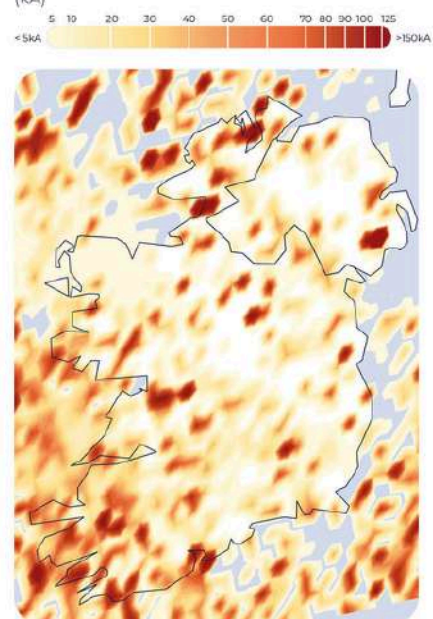
Lightning Report – Ireland 2025



Average CG flash density
(flashes/km²/year)



Average CG flash peak current
(kA)



LIGHTNING ACTIVITY IN IRELAND

2025, a classic year



TOP 10 MOST LIGHTNING-STRUCK COUNTIES IN IRELAND IN 2025

● Number of cloud-to-ground (CG) lightning flashes

COUNTY MAYO	419
COUNTY TIPPERARY	280
COUNTY KERRY	264
COUNTY CORK	255
COUNTY LIMERICK	149
COUNTY GALWAY	112
COUNTY CLARE	85
COUNTY KILKENNY	71
COUNTY DONEGAL	60
COUNTY WEXFORD	57



Spring 2025

sustained activity

Spring, and the month of May in particular, was one of the stormiest since Meteorage began recording data, with **630** cloud-to-ground lightning flashes detected. This level is still below the record set in spring 2024 (1,678 cloud-to-ground lightning flashes). The episodes of 19 and 20 May alone accounted for a quarter of the year's activity, underlining the scale of a few very marked periods of bad weather during the season.

Autumn 2025

a calm autumn, with no major bad weather

The autumn brought a number of sporadic storms, with **154** cloud-to-ground lightning flashes over the course of the season, putting autumn 2025 within normal climatic values for this time of year.

Summer 2025

a quiet summer season

The summer was relatively calm, far from record levels, due to persistent anticyclonic conditions. In total, **1,142** cloud-to-ground lightning flashes were detected in June, July and August, reflecting moderate summer activity.

76

days with thunderstorms





20 May 2025

a significant thunderstorm episode

CASE STUDY

2025

378 cloud-to-ground lightning flashes were detected in Ireland on 20 May 2025. Activity was particularly concentrated in County Tipperary, which alone recorded 104 cloud-to-ground lightning flashes, almost a third of the national total.

On 20 May 2025, Ireland was situated between two high-pressure systems, one positioned towards Iceland and the other towards the Azores.

- A low-pressure system was circulating over the Atlantic and another, less dynamic one between France and Ireland. These low pressures were associated with instability in the country, resulting in a high CAPE of around 1000 J/kg, favouring convective developments.

Although dynamism during the thunderstorm was relatively weak, 20 May was the day with the second-highest number of lightning flashes of the year.

Timeline

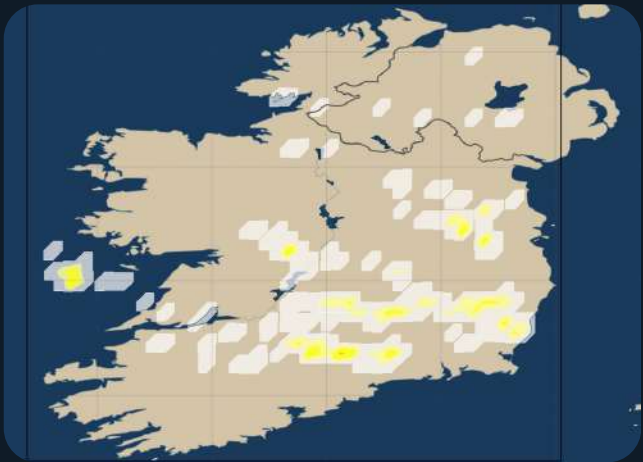
The thunderstorms observed during this day developed in the absence of any marked dynamic forcing. They were triggered mainly by the instability generated by daytime heating.

Convective activity starts in the late morning, reaches its peak between midday and mid-afternoon, then declines in the early evening.

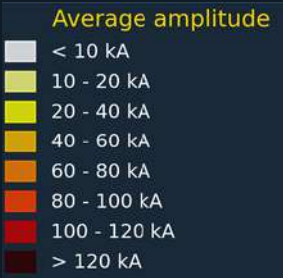
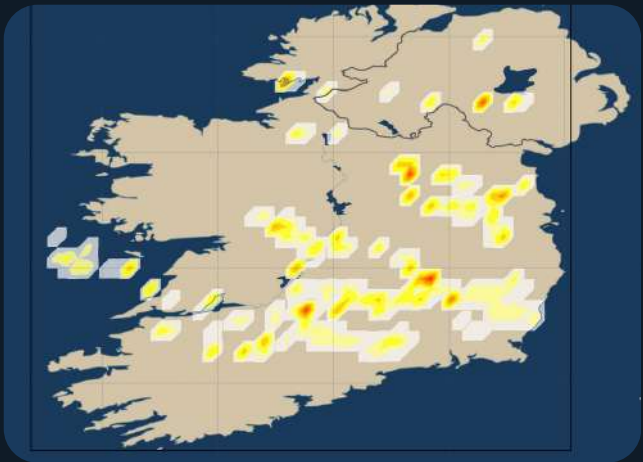




AVERAGE CG FLASH DENSITY
20 May 2025 - Ireland



AVERAGE CG FLASH PEAK CURRENT
20 May 2025 - Ireland





METEORAGE

Anticipate. Monitor. Decide.
facing lightning and thunderstorm risks





2025, A QUIET YEAR, BUT REAL IMPACTS.

LOW ACTIVITY ≠ LOW RISK

Although 2025 was less stormy than normal at European level, the risk from lightning remained very real. The fall in the total number of lightning flashes does not automatically reduce exposure, which affects many sectors of activity.

Behind the lower overall statistics, each thunderstorm episode continued to have a tangible, sometimes major, impact on critical infrastructures, economic activities, the environment and personal safety.

Every thunderstorm day,
decisions made with
Meteorage help protect over
20 million people across
Europe.

Any thunderstorm, even a moderate one, can cause major and sometimes unexpected damage, including business stoppages, damage to sensitive equipment, economic losses or human risks.

Lightning remains a hazard with a high impact potential which is often underestimated when storm activity appears low.



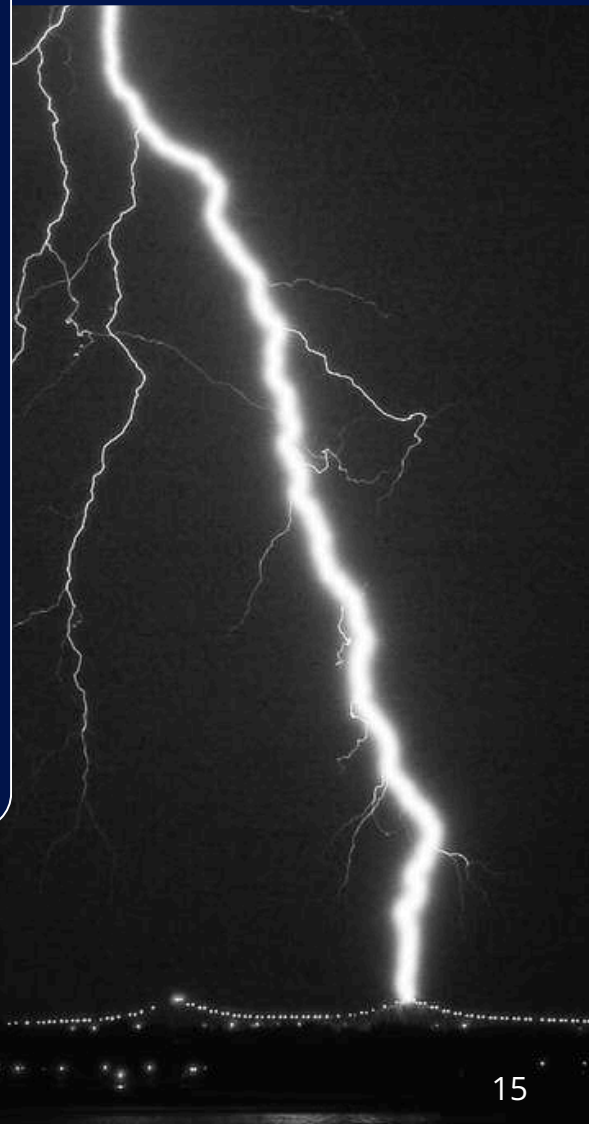
A PERMANENT RISK, WITHOUT BORDERS OR SEASONS

An analysis of the accidents which occurred in 2025 confirms that the consequences of lightning are not limited to extreme situations or to the summer period alone. The events recorded are spread throughout the year, demonstrating that the risk is permanent, even for phenomena considered minor. It is crucial to remember that the majority of serious accidents occur on days with a yellow weather warning, or even without any particular warning.

The accident at La Barben zoo (France) which occurred on a stormy but far from exceptional day, is a striking illustration of this. This underlines the need for constant vigilance, even during episodes described as “moderate”.

Major accidents in 2025

- **Energy** : wind turbines damaged or destroyed by lightning in the Netherlands, Spain and France, causing fires and major economic losses.
- **Transport** : delays and interruptions to air travel (Orly and CDG airports) and rail travel in France, Germany and the UK following strikes on signalling systems.
- **Industry** : business stoppages and damage to property following direct strikes on industrial sites (distillery in Charente, workshops in Eure) and leisure infrastructures (cable car in Italy).
- **Agriculture** : mortality of sometimes entire herds in Spain and Ireland
- **Environment**: at least two major forest fires were started by lightning, in Switzerland (Ticino) and Portugal (Coimbra district)



PREVENTION FOR BETTER PROTECTION

In response to this widespread risk, adopting appropriate preventive measures is essential with regard to raising awareness, the organisation of outdoor activities, protecting infrastructures and disseminating best practice to exposed teams.

With this in mind, Meteorage helps its customers and partners to protect themselves better, with training, lightning data, and warning, analysis and decision-making services.

This expertise is also part of a wider mission to disseminate a risk culture through our commitment to standardisation, our international studies and publications, as well as educational initiatives and prevention messages accessible to all.



At Meteorage, experts in lightning detection for nearly 40 years and operators of a European reference network, we help our customers anticipate, monitor and manage thunderstorm risks with solutions tailored to each sector of activity.

Every day, our data enables our customers to schedule planned stoppages, protect their on-site teams, ensure continuity of service and secure their priority operations.

By transforming the measurements from our sensors into concrete operational decisions, we help decision-makers turn lightning into a tool for action and prevention.

THE EXPERT'S VIEW



Lightning is a risk that is often underestimated - even a seemingly harmless storm can cause serious accidents. The danger lies in thinking that there is no risk because the situation does not seem exceptional, or in assuming that the risk is limited to the summer period. By understanding and anticipating this risk, you can better protect yourself and significantly reduce disruption and downtime in your business.

Keep this message in mind in your daily life too, and share it with those around you: When you hear a storm, don't stick around!

— Stéphane Schmitt,
Lightning Application
Expert, Meteorage



OUR THUNDERSTORM WARNINGS IN EUROPE

- every thunderstorm detected in real time enables you to react more effectively to the risk.

Thunderstorms and lightning flashes can threaten your teams and disrupt operations. Our real-time alerts help you anticipate risk and ensure continuity.

Alerts tailored to your activities

Whether for one or multiple sites, construction sites, mobile teams, or one-off events, wherever they are, our warning systems help you: protect, pause, restart, secure, and make fast decisions.

- Switch to backup generators
- Stop a production line
- Evacuate an outdoor area
- Secure a team
- Protect sensitive equipment
- ...

- **4,000 subscribers**
to our lightning services in Europe
- **115,597 warnings**
sent in Europe in 2025



GLOSSARY

Lightning flash

All the current discharges and electrical impulses during a thunderstorm. Lightning flash can occur within a cloud (intra-cloud flash), between a cloud and the ground (CG - cloud-to-ground flash) or between clouds. Lightning can consist of one or more strokes, which are current impulses.

Cloud-to-ground lightning flash (CG)

Current discharge of a certain intensity circulating between a cloud and the ground. CG stands for Cloud-to-Ground.

Lightning density

The best current representation of storm activity is lightning density, which is the number of cloud-to-ground (CG) lightning flashes per km² per year.

CAPE (Convective Available Potential Energy) : amount of energy available to accelerate a parcel of air warmer than its surroundings, reflecting thunderstorm potential and intensity.

Supercellule : convective structure associated with strong vertical wind shear, often linked to severe phenomena (hail, gusts, tornadoes).

Cold drop : isolated upper-level cold depression.

Thalweg : extension of a depression, not isolated.

Thunderstorm day : Day on which at least one lightning flash was detected in the area under consideration.

Wind shear : variation in wind speed and/or direction with altitude, playing a key role in storm organization, lifespan, and severity.





METEORAGE

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Any questions? Specific needs?

Our teams are here to support you.

☞ [Contact us](#)



www.meteorage.com

