



Lightning strike location data



The Met Office LEELA (Lightning Electromagnetic Emission Location by Arrival time difference) system is an automatic lightning location network consisting of ten sensors located across Europe. Together they are used to determine the location and time of lightning strokes over a wide geographical area.

Hazardous weather is often associated with thunderstorms and can include intense precipitation, severe icing, wind shear, turbulence and strong wind gusts. LEELA data can be a useful aid in the location of these types of weather, especially in data-sparse areas such as oceans.

The weather associated with thunderstorms can have a high impact on public safety, aviation and other industries. LEELA data can be used to warn of potentially hazardous weather associated with thunderstorms so that mitigation might be made against possible impacts.

The lightning information from LEELA is delivered in Met Office bulletins, 24 hours a day, 365 days a year. LEELA can detect cloud to ground lightning and intra-cloud lightning. However, does not discriminate between these different forms of lightning in its bulletins.

Resolution:

LEELA is optimised for lightning detection within the UK and Europe. LEELA's typical accuracy when compared to ground truths over the UK is 2 km. Comparisons with data from other lightning detection systems over the UK suggest that, as well as detecting around 3-4 times as much lightning as its predecessor system ATDnet, LEELA does so with improved accuracy.

LEELA is recommended for:

- Determining the time and location of lightning strokes.
- Inferring the presence of hazardous weather, especially if used in conjunction with other observations such as satellite imagery, radar and ground-based observations.
- Making short-range forecasts by extrapolating the data, which can be aided by the use of NWP (Numerical Weather Prediction) output.
- Giving information on the location and timing of potentially hazardous weather.
- Verifying model output.

LEELA limitations:

- LEELA does not yet discriminate between different types of lightning e.g. in-cloud/inter-cloud or cloud to ground lightning.
- At large distances > 2000 km outside the interior of the LEELA network detection efficiency drops as the radio wave from the sferic attenuates.
- LEELA only reports the time and location of lightning strokes. It does not yet provide information on intensity, polarity, or other attributes.

Futher Information:

[LEELA - The new Met Office lightning location system](#)

LEELA bulletins are available for various geographical domains of coverage.

Description	Bulletin header	Description	Format	Resolution
European	SFUK57	Europe / Atlantic: 25W to 32E, 34N, 69N	Gzipped CSV	5 min
UK	SFUK37	UK area: 12W to 4.25E, 49N to 62.5N	CSV	5 min
European	ISFX15	Europe / Atlantic: 25W to 32E, 34N, 69N	BUFR	1 min
UK	ISFX17	UK area: 12W to 4.25E, 49N to 62.5N	BUFR	1 min

Please speak to your account manager for pricing information, or contact us using the details below.

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