

Siemens' 2020 lightning atlas: Wolfsburg is the German city with the most lightning strikes

- **Siemens' lightning information service recorded about 399,000 lightning strikes in Germany – 21 percent more than in 2019**
- **City of Wolfsburg in Lower Saxony was Germany's 2020 "lightning capital"**
- **Germany's lowest lightning densities measured in Coburg, Bamberg and Mainz**
- **Hamburg was the German state with the most lightning activity in 2020; Munich topped list of state capitals**
- **June 13 was the day in 2020 with the most lightning strikes in Germany – over 89,000**
- **At the European level, Trieste and the surrounding areas top the ranking in Siemens' 2020 lightning atlas**

The city of Wolfsburg in Lower Saxony was Germany's "lightning capital" in 2020. Siemens' lightning information service BLIDS (which stands for Blitz-Informationssdienst von Siemens) detected just under 5.8 lightning strikes per square kilometer there in 2020. The towns of Kempten in the Allgäu region and Miesbach in the region of Upper Bavaria took second and third places with 5.1 and 4.7 ground flashes per square kilometer, respectively. BLIDS recorded the lowest lightning density in the Bavarian cities of Coburg and Bamberg, where considerably fewer than 0.1 lightning strikes per square kilometer were recorded in each case. Mainz, which is the capital city of the state of Rhineland-Palatinate was also at the bottom of the list, recording just under 0.1 lightning discharges per square kilometer. With a lightning density of just under 2.3, Munich led the country's list of state capitals, followed by Hamburg (1.9). With this figure, the Hanseatic City of Hamburg, which has the status of a federal state, also recorded the highest lightning density among the German states. The state with the highest number of ground flashes detected in

2020 was Bavaria, which accounted for a quarter of all strikes measured. Overall, at 399,000 strikes, BLIDS recorded another increase in lightning activity in Germany, up around 21 percent compared to 2019.

“What was remarkable about the lightning activities in 2020 was that the storm fronts mainly arose in the north and south of Germany, leaving central Germany virtually unaffected,” said Stephan Thern, head of Siemens’ lightning information service. “It’s only been in recent years that areas in northern Germany have increasingly been taking the lead.” In total, there were 11 days with more than 10,000 strikes in Germany in 2020, said Thern. “It only took three thunderstorms for this high lightning density to be recorded in Wolfsburg,” the expert continued. “For the urban and rural districts in the top 10, most of which are in Bavaria, the proximity to the edge of the Alps certainly plays a major role.”

In 2020, the main months for thunderstorm activity in Germany were June and August. The highest number of strikes measured in that country on a single day – 89,517 – was on June 13, 2020. Lower Saxony and Brandenburg were the German states most affected, followed by Mecklenburg Western-Pomerania. BLIDS recorded the highest number of measured ground flashes in a German state on a single day – more than 27,000 – in Lower Saxony on June 13, 2020, followed by Bavaria with 17,000 on the same date. Among the German states, Hamburg took the lead with 1.9 flashes per square kilometer, Bavaria followed with 1.6 flashes and Lower Saxony with 1.4. The city state of Bremen was last on the list with only 0.5 flashes per square meter. Topping the list of Germany’s state capitals was Munich (2.3), followed by Hamburg (1.9) and Magdeburg (1.6). Mainz, with a lightning density below 0.1, and Düsseldorf (0.4) were the two German state capitals with the lowest number of lightning strikes in 2020. In the two Bavarian cities with the lowest lightning densities, lightning struck only once in Coburg and twice in Bamberg in the whole of 2020.

An average of 1.1 lightning strikes per square kilometer was registered in Germany in 2020. In 2021, the average was still 0.9. Compared to its neighbors, the country was in the middle of the pack. Measured lightning densities across Europe range from 0.03 in Ireland and Scotland to highs of 8 to 10 in and around Trieste, a city in the tri-border region of Italy, Slovenia and Croatia. In 2020, the countries bordering

the Adriatic Sea and the Italian Riviera were among the continent's most active thunderstorm regions. Various lightning information service providers in the individual countries contribute to the European results. "Thanks to the excellent cooperation and coordination among the various weather and measurement services all across Europe, a homogeneous European measurement network can be made available although standards differ from country to country," said Stephan Thern. "As a result, it's possible to provide customers and users with measurement data in consistent quality."

Siemens' lightning information service uses around 160 connected measurement stations in Europe and supports the measurement network in Germany, Switzerland, the United Kingdom, the Benelux countries, the Czech Republic, Slovakia and Hungary. Due to the system's precise measurement technology, its sensors can be set up without difficulty at intervals of 350 kilometers, keeping down the cost of installation, operation and maintenance. "With the latest software, we can detect – to an accuracy of 50 meters – where exactly lightning has just struck," said Thern.

Since 1991, Siemens has been analyzing detected lightning strikes and immediately sending warning notices to its thunderstorm alarm customers – to protect people, animals, technology and infrastructure. Customers of Siemens' lightning information service are meteorological services, insurance providers, and industrial companies across all sectors as well as power grid operators, (sports) facilities and fire departments. Service providers that offer thunderstorm warning notices, such as a siren manufacturer in Cologne, also use the data from BLIDS. In Germany, lightning strikes cause damage in the three-digit million euro range every year. "We can help determine whether a strike of lightning has caused damage or an outage," said Stephan Thern. Lightning strikes cause a great deal of damage to electrical appliances and to complex facilities, such as sports facilities. The highly sensitive electronics usually found in televisions, satellite receivers, washing machines and industrial control systems, for example, can even be damaged when lightning strikes a great distance away. Having proof of such strikes results in a cost saving for consumers and end users because lightning strikes are usually covered by insurance. The city of Munich's fire protection authorities also use BLIDS to systematically inspect the lightning protection systems at the more than 1,200 municipally managed properties.

Thanks to advancing digitalization and the rapid increase in computing and storage capacities, BLIDS transmits data at increasingly higher speeds and levels of precision – now less than ten seconds after a lightning strike. The lightning information service also provides cloud-based solutions to enable customers to have lightning information on their computers and mobile devices.

Private individuals and customers can quickly find out about lightning strikes in much of Europe with the free BLIDS spy at www.blids.de (in German only).

This press release as well as press pictures are available at <https://sie.ag/2UYZM2z>

Further information on the lightning atlas is available at www.siemens.com/presse/blids (in German only).

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In fiscal 2020, which ended on September 30, 2020, the Siemens Group generated revenue of €55.3 billion and net income of €4.2 billion. As of September 30, 2020, the company had around 293,000 employees worldwide. Further information is available on the Internet at www.siemens.com