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Multi-level lightning detection cooperation in France

Vaisala and Météorage work together on multiple fronts to better serve their customers in France. Upgrade of the French Lightning Detection Network improves its performance and secures the continuity and compatibility of data, while a demonstration network around Paris highlights the value of VHF/LF total lightning mapping for various fields of applications.

For more than 20 years, Météorage, the operator of the French Lightning Detection Network, has been one of Europe's leading companies in the field of lightning. To sustain its business development and to ensure a continuous improvement in its quality of service, Météorage decided to upgrade the network to improve its performance and to secure the continuity and compatibility of the data it produces.

The upgrade started in early 2009, when nineteen new lightning detection sensors were deployed through the French mainland territory. Vaisala LS7001 sensors were chosen, because they were considered the best in terms of data quality and reliability. Moreover, they provide full data compatibility with archives and neighboring European networks, and enable the use of existing sensor sites. A network operator and/or owner can therefore progressively upgrade its technology from elder generations, while reutilizing the existing infrastructure. These elements were all part of Météorage's criteria for choosing Vaisala's LS series sensors for the network.

In addition to the new sensors, Météorage's Operating Centre was also upgraded to use the VMware virtualization platform and NetApp storage solutions.

Now enjoying the full advantages of the new technology, the Network's detection efficiency is above 95 percent and the average accuracy of localisation is around 500 meters with a very good homogeneity over the whole territory.

Lightning detection demonstration network to be built around Paris

Frequent exchanges between Vaisala and Météorage also led to the decision to jointly establish an operational VHF/LF total (cloud plus cloud-to-ground) lightning mapping network for testing and demonstrations for potential customers using a realistic operational scale.

The network is scheduled to be installed and operational by the



Installation of new LS7001 sensor at Aire sur Adour in the South West of France

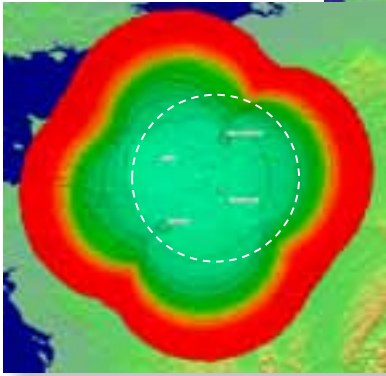
2010 lightning season. It is intended to demonstrate the value of VHF/LF total lightning mapping for various fields of applications. The network will be monitored by Météorage, who will assure the processing and display of the observations and processed lightning information.

The network will serve as a full-scale demonstration tool for illustrating the performance and benefits of the LS8000 sensor technology to customers. The network will also help in creating interest in cloud-to-ground and cloud lightning in central Europe, and support scientific experimentation in the field of total lightning cartography.

Demonstration network built on the latest technology

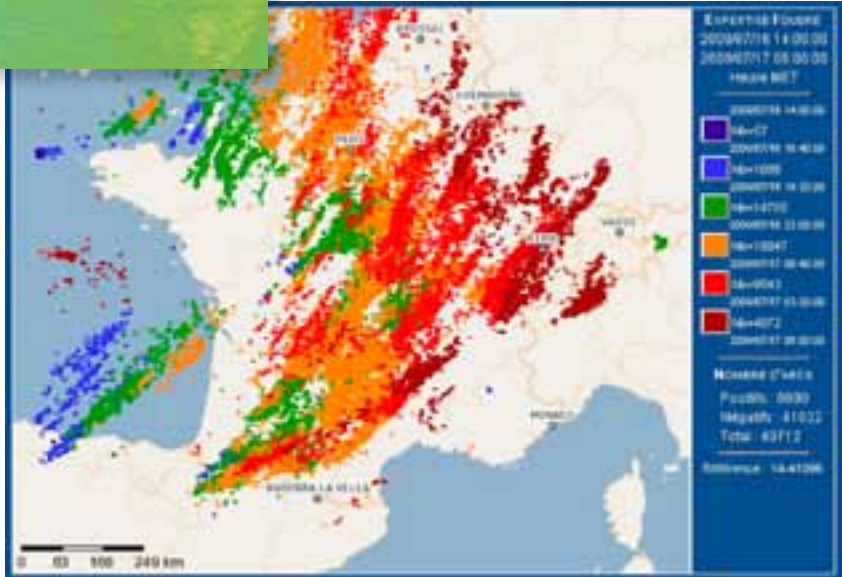
In the initial stage, the network will consist of three Vaisala LS8000

Detection capacity



Geometry of the network

Lightning activity over France during the night of July 17th, 2009



sensors in carefully chosen sites, providing the latest technological advances in location accuracy and detection efficiency. The sensors will be connected to Vaisala's Total Lightning Processor™ software, which enables advanced features such as optimized triangulation algorithm.

To ensure good redundancy, the fully deployed network will include four sensors, located 120-190 kilometers apart from each other. The data will be available on demand via a web-based service.

Total lightning information includes a combination of VHF flash mapping and LF cloud-to-ground flashes. The information is complemented by electrical characteristics, such as cloud-to-ground polarity and peak current.

Each detected VHF source is located and called an event, which are grouped into flashes according to temporal and spatial criteria. The information provided on events and flashes include date and time (to about 100 ns), location, number of detecting sensors and quality parameters, such as confidence ellipse, chi square and degrees of freedom.

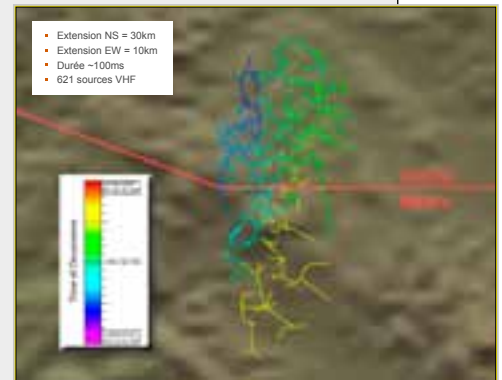
Since LS8000 sensors include both VHF and LF lightning detection capabilities, this network will also enhance the density of the national LF network around Paris, thus improving its performance.

For more detailed information on the network's technical capabilities, customers are welcome to visit the processing center at Météorage in Pau.

LS8000 network in Tucson, Arizona

The network around Paris is expected to show comparable results to its American cousin. Vaisala installed a network of LS8000 sensors around Tucson in 2007 to improve airport and air base cloud-to-ground lightning warnings.

During the 2007-2009 monsoon seasons in Arizona, the system identified and tracked all thunderstorms in the Tucson area, including numerous severe storms that produced high winds, hail, and flooding. Through comparisons with Vaisala's US National Lightning Detection Network (NLDN), it was shown that the Tucson demonstration network met the expectations that were initially provided by Vaisala's performance modelling software.



Météorage

Created in 1987, Météorage S.A.S is a joint venture between Météo France, the French National Institute of Meteorology (65%) and Vaisala (35%). It is based in the South-West of France in Pau, and it serves more than 500 customers in a wide diversity of different fields.

Météorage was granted the ISO 9001 Quality Standard in 2003, and it is member of EUCLID, the association of the main European Network operators.