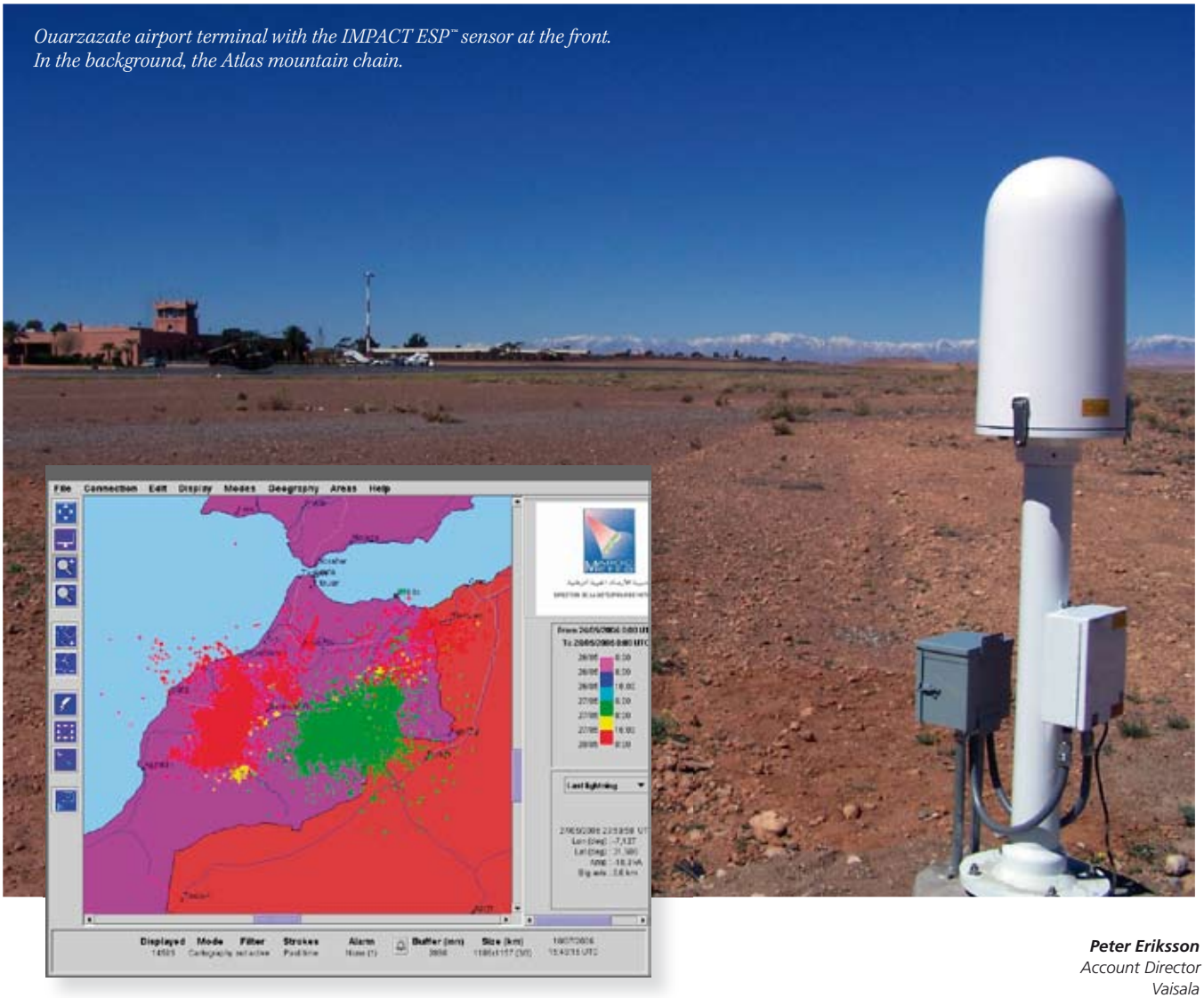

Ouarzazate airport terminal with the IMPACT ESP™ sensor at the front. In the background, the Atlas mountain chain.

A screen shot of real strokes detected by DMN's lightning detection network, and displayed in real-time. The red dots represent a thunderstorm happening on May 26th, the green ones a thunderstorm that happened the day after.

Peter Eriksson
Account Director
Vaisala
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"Casablanca-style"

- Thunderstorm detection in Morocco

The final scene of the famous movie *Casablanca* with Ingrid Bergman and Humphrey Bogart, released in 1942, ends dramatically at an airport in a terrible thunderstorm. The drama is emphasized by the very risky situation for an airplane to take-off. It was very different in those days when meteorological services didn't benefit from modern means to predict or detect severe thunderstorm phenomena.

At the beginning of the 21st century, the Moroccan National Meteorological Service (Direction Météorologique Nationale, DMN) decided to enhance the quality of its services by equipping the northern part of the country with a thunderstorm detection system. DMN chose IMPACT Lightning Sensors, which, through a business acquisition, became part of the Vaisala product range. These were combined with the versatile CATS lightning operating system developed by Météorage, in which Vaisala is a shareholder.

Météorage had a long experience of utilizing the IMPACT sensors in the French national lightning network. The company's experience was fundamental when setting up the system and for optimizing the operational phase, when several sensor sites were changed at the last moment.

Five sensors in use

The five sensors currently in use, covering the northern half of the kingdom, are deployed at the following stations: Oujda in the far north-east, Fès in the north at the feet of the Atlas, Casablanca on the Atlantic coast, Ouarzazate just east of Marrakech in the Atlas mountain chain, and Agadir along the central stretch of coastline. The complete system was installed jointly between Météorage,

From left to right: M. M'Barrak (Processus), Mrs. Laurens (Météorage), M. Webb (Vaisala Tucson), M. Abeljha (Processus), M. Salama (DMN), M. Pedeboy (Météorage).

DMN, Processus from Casablanca and Vaisala.

The central station and data control centre are located at the DMN headquarters in Casablanca, in the vicinity of the old airport where the famous movie ends. Lightning data is collected by the central station via high-speed data communication links and then fed into the CATS system, where various application-specific software process the data. Data is received in real-time and goes through various quality checking procedures before being analyzed and archived for future statistics.

The IMPACT lightning sensors, together with the central computer, detect accurate and homogenous lightning impact information (date, longitude - latitude, intensity polarity, accuracy and time of occurrence).

The CATS services include real-time alarms, observation, surveillance and online information, as well as statistics feeding into the national database, lightning risk-evaluation and counter, plus lightning density compared to the Keraunic level.

Thanks to CATS, the DMN has the necessary tools for the creation of animated images of lightning events on the web for weather forecasters and for the generation of lightning alerts. Therefore it is able to alert local organizations of an approaching thunderstorm event and of the related risks, according to the severity detected. Action can be taken in order to minimize risks.

Surely Humphrey Bogart, alias Rick Blaine, would have also appreciated such tools. ■

John Morrish
Business Unit Manager
Vaisala
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Partnering is key to business success

In many businesses today, the final solution that is delivered to the end user and customer is usually a successful result of a number of professional relationships. The Thunderstorm business is no different in that we rely on key organizations throughout the world to partner with us to bring the complete solution together for the customer.

That is certainly the case with the Thunderstorm Lightning Detection System in Morocco, where Météorage, one of Vaisala's partners, played a significant role in bringing the lightning detection network to life. Météorage is a unique partner of the Thunderstorm Business Unit, in that Vaisala shares joint ownership of the company with Meteo France, and has two Vaisala members attending the Board meetings. The Météorage relationship goes back many years to when Global Atmospherics Inc (acquired 2002). started the relationship with Meteo France.

Météorage, in addition to its CATS software application, also resells Vaisala Thunderstorm's lightning solutions/products and can provide support services to the customer when needed. As our relationship develops, we are finding new ways for Météorage to work with Vaisala and provide customers with the best solutions.

In today's environment, partnering is the key to any business success. Together we can get the job done better. ■