VAISALA / SUCCESS STORY

AIRPORTS SEPTEMBER 2009

New Bangkok airport receives world class AWOS

The Second Bangkok International Airport (SBIA) opened on September 28, 2006. Located 30 kilometers east of Bangkok, the airport handled more than 40 million passengers in 2007. One of the world's largest airports, SBIA is also home to one of the world's most sophisticated automated weather observing systems (AWOS).

World class AWOS

The Thai Meteorological Department (TMD) was responsible for developing the airport's weather observation network. The project was undertaken in accordance with World Meteorological Organization (WMO) and International Civil Aviation Organization (ICAO) standards. The crucial task of building a state of the art AWOS was important not only in order to provide accurate and reliable weather data for airlines and ground service providers, but also for public services outside of the airport vicinity. It was designed not only to maintain safety of operations but also for effectiveness through automatic observations.

Data availability ensured

In large-scale weather systems like this one, the most important components are duplicated. Systems must run continuously without interruption – even during normal maintenance. This is possible due to the AWOS' modular design and flexibility: data can be selected from a primary or backup source at any time, and in most cases selection is performed automatically.

"For the SBIA project, we are glad that Vaisala is the winning contractor since we are aware that Vaisala produces some of the highest quality and most reliable meteorological equipment available."

Suparerk Tansriratanawong, Director General of the Thai Meteorological Department.

Challenge

- Thai Meteorological Department needed a reliable, accurate and automated meteorological system for the new airport to guarantee safety and efficiency and to support increased air traffic
- The meteorological system needed to provide accurate and reliable data in a timely manner and according to WMO and ICAO standards
- System downtime and maintenance had to be minimized

Solution

- A Vaisala AWOS, a wind shear alert system and a thunderstorm warning system were installed at SBIA
- The most critical components were duplicated to guarantee maximum safety and operability
- A solid maintenance plan and easy access to sensor sites made maintenance easy while minimizing downtime

Benefits

- Reliable and accurate weather measurement throughout the SBIA to support airport operations, airliners, ground crew and travellers
- Vaisala's scalable and modular solution architecture allows easy expansion and integration of new elements

Comprehensive visibility and wind measurements

Prevailing visibility measurement is a challenge for large airports like SBIA where the observation area is vast and ringed with tall buildings. Visibility is automatically observed in the vicinity of the meteorological station as well as on both runways, with the use of transmissometers and forward scatter sensors. Five separate visibility sensors were installed for each runway while cloud data is gathered at the ends of both runways. Cloud height, amount and coverage are based on the latest 20-minute history.

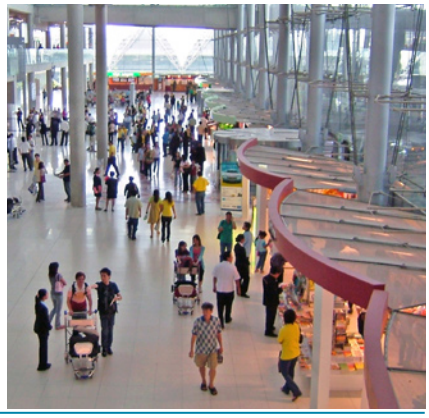
In addition to sophisticated visibility measurement, SBIA boasts comprehensive wind and windshear alert systems. The two main runways are equipped with an extensive set of redundant wind sensors in the middle as well as at both ends. Wind is measured in 19 different locations around the airport to promote safe take-offs and landings. The project also included a full scale Phase 3 windshear alert system, on license to Vaisala from the US National Center of Atmospheric Research.

Lightning detection to improve ground safety

To protect against the numerous thunderstorms that occur during the May-October wet season, a four-sensor Vaisala lightning detection network was installed in the vicinity of SBIA in 2005. A Vaisala Thunderstorm Warning System is in use at the airport's operations center. It combines data from the lightning detection network and electric field mills, which are used to monitor the potential for lightning. The raw data is transformed into a comprehensive solution designed to improve ground safety and operational efficiency in baggage handling, refueling and flight operations.

Plans for expansion

Although SBIA is already one of the biggest airports in the world, it is operating close to capacity and ambitious expansion plans have been set in motion. The expansion involves building a midfield terminal and a third runway, expected to begin by the end of 2009. Vaisala's scalable and modular solution architecture allows easy expansion and integration of new elements when needed.



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