Case Study:

Palembang, Indonesia

Airport Redevelopment Project 2005

MITAS
Automatic Weather Observation System

MTECH Engineers put the finishing touches on the main weather sensor site at PLM/WIPP.

Palembang is at present a large metropolitan city with a population of more than 1.5 million and is also the state capital of south Sumatra.

The Palembang International Airport is a major traffic hub of Indonesia. The steady growth of the local economy necessitated the redevelopment of the transport infrastructure to better meet current and future needs. Problems to be corrected by the work included a new passenger terminal, extension of the runways, new tower, improved communications and upgraded air traffic control facilities. All works on the airport were selected for their adherence to current aviation safety criteria. The Palembang

Airport Development Project was, thus, launched in September, 2003 with the fund of 80% from Japanese Yen loan and 20% from Indonesia's own financial source.

The initial design had estimated that the number of annual passengers would exceed one million in the year 2010. However the total number of passengers in 2004 were recorded at as many as 1.01 million.

The Hazama project management team was aiming for an aggressive timeline for the implementation of the redevelopment project. An end date of September 2005 was set for the airport to be opened by Indonesian President Susilo Bambang Yudhoyono.

Palembang was captured by the Japanese Army during World War II. Sixty years have passed since that time however the landscape still tells of this part of its history.

WW2 machine gun bunker.

The existence of land mines necessitated a mine sweep and bomb removal prior to work starting. A WW2 machine gun emplacement was re-located away from the site due to its recognised historical significance.

AWOS System Design

The MITAS AWOS system installed at Palembang International was customized to meet the local environment and the needs of the customer.

Prevalent weather phenomena at this airport location include lightning strikes, thunderstorms, haze, mist, torrential rain, fog & squalls. The sensor devices were to be installed into a tropical area and needed to be protected against exposure to high levels of heat and also high humidity.

The system design included four panel mount touchscreen displays for the control tower, an AWOS / ATIS

New check-in counter hall.

rack-mount server and AWS sites at the threshold at each end of the runway. One of the AWS locations was to have an extended set of sensors including RVR, Cloud, Rain and Insolation.

Aviation Specific Weather Sensors

The 8000-CHS ceilometer was installed near the middle marker. This device provides information to the controller regarding cloud height and amount. The MTECH 7000 series RVR and background luminance sensor specified for Palembang are high MTBF devices providing a reading of RVR to the ATC operators. The MITAS

system interfaces with all major airfield lighting systems for highly accurate calculation of Runway Visual Range. The 911 series wind sensors used at Palembang have an extremely high MTBF even in the most demanding locations and were perfect for deployment into Palembang's hot and humid environment.

Digital Communications

High speed, high bandwidth xDSL digital communications were installed to provide high QOS in the connection between the weather sensor sites and the central building.

ATIS message recording

ATIS functionality is integrated into the MITAS software. The controller can easily prepare and publish ATIS messages without leaving their position. The ATIS software employs customizable templates which are automatically populated with the most current AWOS data. The controller then has the choice of voice recording the ATIS message or generating the message from prerecorded voice samples. Once approved the message is dispatched via the LAN to the ATIS server for repeat broadcast. The hardware ARAIM (**A**tis **R**adio **A**udio **I**nterface **M**odule) connects the ATIS server with up to seven radios for ATIS broadcast**.**

Central Data Processing and Server

All weather data generated by the AWOS at Palembang airport is collected, processed, communicated and stored by the central AWOS server. This high specification server communicates

high quality real-time weather data to all workstations. System status monitoring and BITS are built into the display. The status screen can be used to monitor, configure and communicate with individual sensors.

Glass walled promenade with airside views.

Weather Satellite Sub-System

Satellite equipment installed at Palembang by MTECH allows for the download of weather imagery from several Asian satellites. This information is stored on the server and can be accessed by all workstations attached to the system.

Training

MTECH trainers were on site for two weeks operator and L1/L2 maintenance training with the customer.

New aero-bridge awaiting the first arrivals.

This ranged from formal classes on the theory behind system operation through to "hands-on" training on the MITAS and inforMET applications.

| 8000-CHS Ceilometer measuring cloud whilst mounted on roof of the equipment room. | Satellite dish and WEFAX antenna installation for weather satellite imagery. Allows a link to Asian weather satellites and delivers weather imagery to all workstations and displays attached to the system. | 7000-100 Runway Visual Range (RVR) sensor with forward scatter meter technology. |

Rapid Deployment

Due to the tight timeframes required by the project deadline the project management team requested for rapid delivery and deployment of the system. MTECH met the challenge. All equipment was pre-wired and tested in the factory. Civil works were pre-prepared by the customer prior to MTECH engineers arriving on site. This allowed for the system to be installed in the quickest time possible. The system was deployed and passed SAT within three days.

On Schedule Completion

The MTECH AWOS system was installed on time and met the project management

President Yudhoyono at the grand opening ceremony.

teams timelines for the completion of the Palembang International airport.

Grand Opening

President Susilo Bambang Yudhoyono officially opened the upgraded Sultan Mahmud Badaruddin International Airport on Tuesday 28th September 2005. "I hope the public will obtain better services from the airport operator and local administration ... " President Susilo said in his speech. He also urged the airport operators to ensure the security and safety of passengers by meticulously examining the condition of aircraft as well as the airport's cargo and passenger facilities.

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