

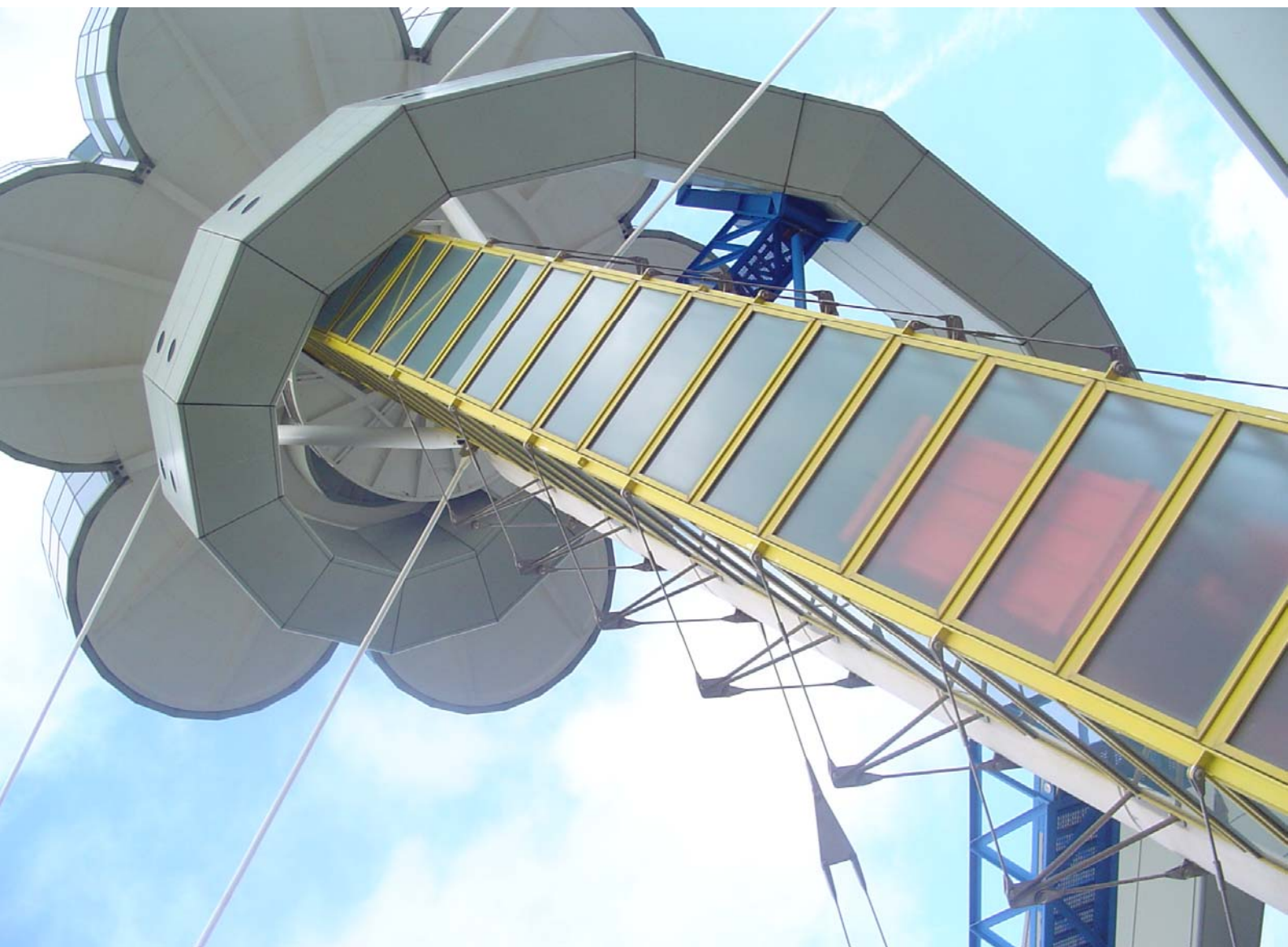
Case Study:



Sydney, Australia

Anemometer Project 1987

**MTECH 900 Series
Automatic Weather Observation System**





MTECH displays assisting an air traffic controller at Sydney International Airport tower.

Sydney Airport, located south of the CBD of Sydney, Australia, is a large international airport that forms the main international gateway to Australia for air travellers.

Declared an official aerodrome on January 20, 1920 the site was chosen for its close proximity to the city centre. By 1924 there were regular air services between the other major Australian cities of Adelaide, Melbourne and Sydney. In 1935 Sydney Airport was declared an international aerodrome.

In 1972 runway 16-34 was extended to being one of the longest runways in the Southern Hemisphere. This extension was partially funded by NASA for

possible use as a Space Shuttle emergency landing facility. On May 3, 1970, HM Queen Elizabeth II officially opened the International Terminal at Sydney. From 1989-1990 planning began for the construction of the parallel third runway, jutting out into Botany Bay.

Sydney's Kingsford Smith airport suffers from frequent major wind shear events. The weather events known locally as the "southerly buster" involves a 180 degree wind shift and increase in wind speed by as much as 30 knots as a cold front hits the airport. This can have a major impact on aircraft operations.

Runways 34L and 34R both project into Botany Bay and there can be significant dif-

ferences between winds experienced at each end of the runways. Further, the airport is frequently hit by thunderstorm cells which produce wind shears including the possibility of microbursts.

For these reasons, MTECH Systems was contracted by the then Department of Civil Aviation to supply a weather monitoring system.

MTECH was contracted to supply a network of wind sensors and a display system for warning air traffic controllers in the tower of actual and impending wind conditions.



This network included sensors at each end of each runway [totalling 6] and one sensor some 6 km south of the runway on Kurnell peninsula. The Kurnell sensor gives warning of an approaching southerly buster, to enable ATC staff to change operational runways.

The environment at the airfield is coastal and industrial and is quite corrosive. In spite of this corrosive atmosphere, the MTECH brass sensors have remained in excellent condition during the 18 years of continuous service in Sydney.

MTECH SYSTEMS pioneered the introduction of the digital wind sensor in 1987. The sensors use an 8 bit digital encoder for very precise measurement. The robust design of the sensors encoder have ensured their continued operation even in the harsh marine environment. The wind speed and direction sensors have been in constant usage at Sydney International since 1987. Service records at the airport show that in most cases the sensors have operated without failure and have only required two routine bearing changes in the last 18 years of operation.

Through our relationship with the team at Sydney airport we have learnt a great deal about the operational performance of the MTECH weather system in place. This has assisted us with the ongoing development of highly reliable weather systems, software and sensors for aviation.

Based upon the performance of the Sydney system a further period contract was placed to supply MTECH weather systems into all other airports in Australia.

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