Application Note

WindObserver used at airports worldwide

Reference: AN0047



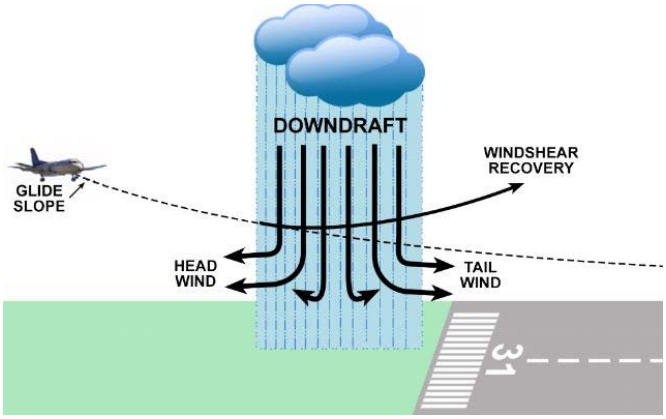
Introduction

With over 100,000 flights per day all around the world, safety of the millions of passengers is of paramount concern to every airport and airline. Therefore all airports are required to monitor weather parameters, however, most airports will require their own unique set-up of sensors with regard to monitoring weather parameters as they can be subject to location unique and severe weather conditions. Wind is just one of the many parameters that are monitored as it can have a phenomenal effect on aircraft and therefore airport operations.

Weather conditions that makes aircraft operations difficult or often impossible with regard to landing includes wind, rain, and fog. Some airports are more prone to these kinds of events, which can include airports near mountain ranges, buildings or coastal regions due to these fast changing wind conditions. These conditions cannot be avoided, so increasing our understanding of the weather around the airport can therefore increase safety during periods where restricted operations should keep the length of any disruptions to a minimum.

Low-level Wind Shear

Operating aircraft during volatile wind shifts are critical environmental factors to successfully navigating a safe landing or take off. A strong headwind causes the pilot to push the nose of the aircraft down to effect the proper slope on final approach. When under wind shear or microburst conditions, in an instant that headwind can switch to an equally strong tail wind causing a dangerous loss of air speed.



During a year wind shear occurs thousands of times at airports all over the world, and can often affect the arrival / departure of aircraft as both inbound and outbound traffic are held until it is safe to continue operations.



Measurement

The main way to measure low-level wind shear is to use wind sensors mounted in different locations around the airfield. The wind sensors are installed on either side of the runway path and also beyond the end of each runway. The wind sensors send data to the airport's weather observation system (AWOS*), The AWOS* is equipped with software running the wind shear (LLWAS) algorithm. This is then able to make air traffic controllers fully aware of the wind conditions and this can be forwarded to the pilots along with details to take appropriate actions to remain safe.

References

The WindObserver70 has been accepted for service by both the FAA Federal Aviation Administration (USA) and the CAA Civil Aviation Authority (UK) for the observation and reporting of surface wind. This WindObserver meets the requirements of Annex 3 to the Convention on International Civil Aviation Organization (ICAO) when supplied as part of a suitable AWOS*.

WindObserver is extensively used at airports worldwide including:

London Heathrow, UK

London Gatwick, UK

Schiphol, Netherlands

South East Asia, Taiwan & China

South Africa

USA

Sweden





WindObserver is also an integral part of the All Weather Inc. AWOS 30001:

http://www.allweatherinc.com/wp-content/uploads/FAA-Certification_AWOS-30001.pdf

*Accepted by the FAA & CAA for the observation and reporting of surface wind as part of a suitable AWOS (Automatic Weather Observing System)