SHEAR SCOUT®

Low Level Wind Shear Alert System

SELEX
Sistemi Integrati

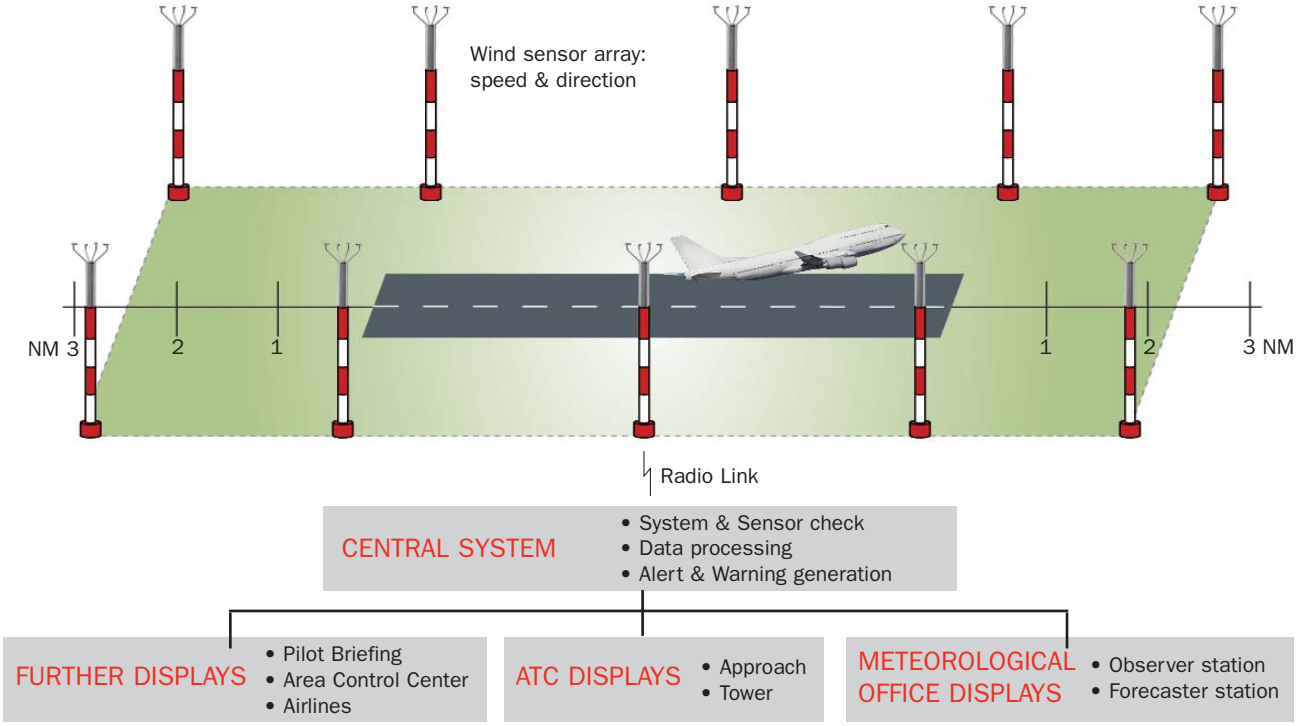
SAFETY FIRST

Low level wind shear and microbursts pose a serious threat to aircraft during take-off and landing. With the implementation of Shear Scout® air traffic control staff can warn pilots of low altitude wind shear events occurring within the runway corridor and protect against sudden and dangerous deviations from the intended flight path.

Shear Scout® is a ground-based LLWAS system designed to contribute strongly towards the safety, regularity and efficiency of air navigation in changing wind conditions. Shear Scout® automatically:

- detects low altitude wind shear events and microbursts within the take-off and approach sectors
- calculates location and strength of airport wind shifts
- sends immediate visual and acoustic alerts when dangerous low level wind shear conditions and microbursts exist

In delivering critical and timely wind shear alerts, Shear Scout® helps ATC staff organize take-off and landing queues safely, reduce or prevent weather related delays and manage airport capacity effectively. Wind data from Shear Scout® can be easily integrated with wind data from complementary meteorological sensors such as terminal weather radar and LIDAR to provide airports with a complete wind shear alert solution for all weather conditions.



DATA CAPTURE

Shear Scout® captures wind data from a series of ultrasonic wind sensors located along the runway and glide slope. Sensor location and number is determined by terrain, number of runways and obstructions present at the individual airport. Site selection is conducted in accordance with recognized US Federal Aviation Authority (FAA) guidelines. Shear Scout® is fully scalable so additional sensors can be installed at any time.

DATA PROCESSING: THE PHASE-3 LLWAS ALGORITHM

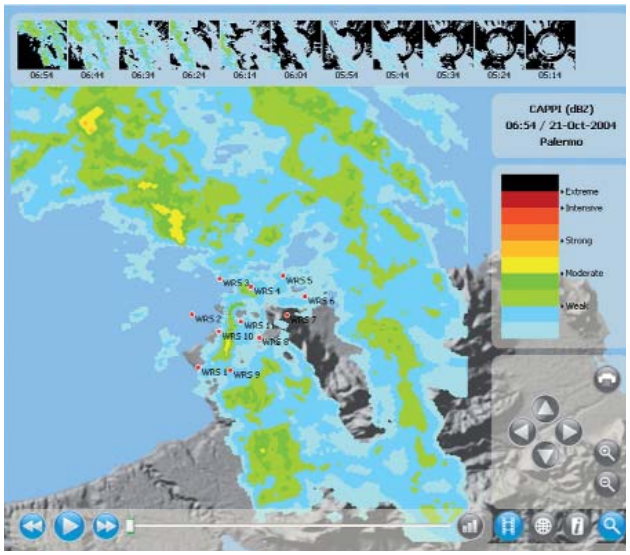
Shear Scout® transfers wind data to a dual hot-backup server by radio link, where it is processed using the Phase-3 wind shear algorithm. The algorithm was developed for the FAA by the US National Center for Atmospheric Research (NCAR) to have a:

- Detection probability of 90% or greater
- False alarm rate of 10% or less

The intellectual property for the Phase-3 LLWAS algorithm is owned by NCAR's parent organization University Corporation for Atmospheric Research (UCAR) and currently serves over 100 airports in the US, Europe and Asia. SELEX Sistemi Integrati is a UCAR licensed company.

DATA DISTRIBUTION

If the intensity of the airport wind shift exceeds 15 knots, Shear Scout® passes on simple visual and acoustic alerts to air traffic controllers and aeronautical MET staff. The alerts are displayed both graphically, and in easy-to-read alpha-numerical form. Alert messages contain: type and intensity of alert, strength of wind speed difference and location of wind shear event.



SAFETY IN NUMBERS: SHEAR SCOUT® INTEGRATED

Low level wind shear can be detected by various complementary meteorological sensors, many of which already exist at a large number of airports. SELEX Sistemi Integrati is the leader in integrated meteorological solutions. Our best-in-class software platform Rainbow® 5 intelligently integrates wind data from Shear Scout® and all other relevant meteorological sensors to provide a complete solution for low level wind shear detection.

PERFORMANCE INDICATORS OF KEY WIND SHEAR SENSOR SYSTEMS

	Shear Scout® (LLWAS)	TDWR & Other Radar (e.g. METEOR)	LIDAR	NEXRAD
Dry weather wind shear detection	●	Limited	●	Limited
Wet weather wind shear detection	●	●	None	●
Update rate	10 sec	1 min[1]	1 min	6 min
Area of detection	Immediate runway corridor	Wide-area surveillance	Runway corridor to 12KM	Wide-area surveillance

[1] 1 minute for wind shear losses. Rises to 6 minutes for gust front products

ADDED VALUE: BENEFITS OF INTEGRATION

Combining the strengths of a number of meteorological sensors in a fully integrated low level wind shear detection system supports the safety, regularity and efficiency of air navigation by ensuring:

ALL WEATHER DETECTION Integration eliminates the shortfalls in low level wind shear detection caused to single sensors by wet and dry weather conditions.

GAPLESS, ALL LEVEL DETECTION Integration overcomes gaps in coverage of single sensors caused by blockage, clutter, lack of sensitivity or inability to monitor both low and high altitudes.

SIMPLICITY In an already information-rich ATC environment, integration reduces the complexity of interpreting data from a number of sources by combining the most accurate data in a single, easy-to-read display.

RELIABILITY Integration increases the probability of low level wind shear detection and reduces false alarm rates.

BACK-UP CAPABILITIES In an integrated low level wind shear alert system each sensor can operate independently. If a single sensor fails the other sensors offer back-up.

PINPOINT ACCURACY Integration exploits the pinpoint accuracy and rapid update rate of Shear Scout® to identify wind shear penetrating the runway corridor.

EARLY WARNING Integration harnesses the wide-area predictive capabilities of TDWR to provide early warning of wind shear events approaching the airport area. With over 40 years experience in radar meteorology, SELEX Sistemi Integrati is the only LLWAS supplier capable of integrating wind shear data from all third party weather radar manufacturers including: NEXRAD, TDWR, EEC and Vaisala etc.

COMPANY PROFILE

SELEX Sistemi Integrati is a leading provider of weather radar systems, meteorological sensors and integrated system solutions. With its METEOR product line, SELEX Sistemi Integrati spearheads the weather radar industry, serving a wide base of international customers including aviation authorities, national weather services, military services, hydrological institutions and research agencies. The company focuses on providing customised system and turnkey solutions that reflect a deep concern for the individual customer. More than 40 years of experience, reliability and a highly professional approach to challenges have contributed to the company's excellent reputation among experts in the meteorological field.

The company's commitment to quality is embodied in its comprehensive range of support services, which encompasses international maintenance and spare-part management, extensive after-sales support, consulting, financing and professional project management. SELEX Sistemi Integrati is a Finmeccanica company. Finmeccanica is the main Italian industrial group operating globally in the aerospace, defence and security sectors, and is one of the world's leading groups in the fields of helicopters and defence electronics.

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