



5 answers to 5 challenges of ATM

ERA installed system at honeymoon island Jeju in South Korea



→ Page 2

AWACS experts talked the best practise with ERA operators



→ Page 6

ERA exhibited within Singapore airshow at Changi airport



THE ERA SYSTEM ON THE KOREAN "HONEYMOON ISLAND" JEJU HAS GONE OPERATIONAL

ERA COMPANY IS PROUD TO ANNOUNCE THAT ITS SURVEILLANCE SYSTEM INSTALLED AT JEJU INTERNATIONAL AIRPORT ON THE VOLCANIC ISLAND JEJU, THE SECOND BUSIEST AIRPORT IN SOUTH KOREA, IS FULLY FUNCTIONAL. ERA MLAT SYSTEM NEO WILL ENHANCE THE SAFETY OF AIR TRAFFIC, THE DENSITY OF WHICH IS CONSTANTLY INCREASING DUE TO THE POPULARITY OF THIS HOLIDAY DESTINATION. THE CONTRACT WAS ASSIGNED BY THE END USER KOREA AIRPORT CORPORATION.

ERA won the tender due to its previous experience with projects at Incheon airport in the capital Seoul and at Yangyang. ERA provides the MLAT part of the A-SMGCS system at Jeju, which should cover not only the airport area but also 60 nautical miles of TMA. The company cooperated on the project with its trusted partners: Korean consortium HIST (Hanjin Information Systems and Telecommunications Co.), responsible for infrastructure and INDRA Navia, providing data fusion.

ERA used its NEO system, an enhanced version of the ERA traditional product MSS (multilateration surveillance system); the actual installation consists of several ground stations based on distributed time and using multilateration and ADS-B technologies. The system is complemented by 30 SQUID squitter beacons serving as the vehicle tracking system. Both systems will help to increase the sit-



uational awareness especially in the low visibility conditions caused there by tropical humidity. The ERA systems were also chosen for the so-called Korean Hawaii thanks to their ability to endure extreme weather such as typhoon and corrosion causing salt fog.

The greatest challenge of the project for ERA was the installation of ground stations on the island's volcanic spongy surface. Despite this and the difficulties of the covid era, illustrated by closed borders, it took only 16 months to get it operational. The entire newly installed A-SMGCS system is part of the broaden modernization including a new control tower as an answer to the ever increasing traffic intensity caused by the growing number of business and vacation trips plus the fact that Jeju has become a stopover locale for airlines to Japan.

ERA WILL PROVIDE MLAT FOR MÁLAGA AIRPORT IN SPAIN

ERA Company was recently awarded a contract for the surface and WAM multilateration system at the Málaga–Costa del Sol Airport in Andalucía. The contract was assigned by ENAIRE, the Spanish ANS provider, in January 2022. A brand-new version of ERA MLAT system MSS-5 will replace the on-site multilateration



system. The company will cooperate on the project with its tried and tested Spanish partner SEAIRTECH as the prime contractor, who will be responsible for the actual installation.

The Málaga project is an important milestone in ERA technological development due to its pioneering use of the recently introduced MSS-5 system, an enhanced version of the ERA traditional product MSS (Multilateration Surveillance System). ERA will install the net of ground stations (GS), which is intended to provide an extension of coverage for a second runway. It should cover not only the airport surface area but also the flying corridors in its vicinity – thanks to GS located on the surrounding hills. The proposed MSS-5 system is designed according to newly applied ATM standards.

The implementation of ERA system will be applied within the full function of an existing MLAT system until the final acceptance by the customer, thus providing the seamless transition between both systems for end user.

A GREAT COMEBACK TO PALMA DE MALLORCA

ERA HAS BEEN ENJOYING A BIT OF A SENTIMENTAL COMEBACK TO MALLORCA AFTER ALMOST 20 YEARS. THE SURFACE SYSTEM PROVIDING SURVEILLANCE AT THE AIRPORT IN THE POPULAR SUMMER DESTINATION OF PALMA DE MALLORCA WAS THE FIRST EVER SYSTEM INSTALLED BY ERA IN SPAIN IN 2003. MOREOVER, IT WAS THE FIRST MULTILATERATION SYSTEM DEPLOYED IN A FOREIGN COUNTRY.

As part of the project to prolong the functioning of the system ERA, together with its partner SEAIRTECH, is extending the net of 20 ground stations of its proven system MSS (Multilateration Surveillance System) with some new ones. ERA technicians will also upgrade the central processing station, use new sets of soft-ware and provide 5 brand new interrogators



ERA IS ABOUT TO ENHANCE ITS MLAT SYSTEM DEPLOYED AT BUDAPEST AIRPORT IN HUNGARY

ERA HAS BEEN AWARDED A CONTRACT TO MODERNIZE AND EXTEND ITS MULTILATERATION SURFACE SYSTEM AT FERENC LISZT INTERNATIONAL AIRPORT IN THE HUNGARIAN CAPITAL BUDAPEST. THE CONTRACT WAS ASSIGNED BY HUNGAROCONTROL IN DECEMBER 2021.

The current installation of ERA MLAT system (originally deployed in 2006) was a mandatory component for A-SMGCS systems as an integral part of a 'virtual' tower implementation project that HungaroControl launched in 2014. There are also 129 pieces of squitter beacons SQUID serving as the vehicle tracking system at Budapest airport since 2008.

ERA will now provide HungaroControl with a completely new NEO system as a replacement for the older MSS system (Multilateration Surveillance System) including its extension. The modernization is supposed to enhance the surface coverage of key parts of the critical area under surveillance. The enhancement of the system's hardware demonstrates a good example of prolongation of MLAT systems' life cycle in general.

NEO systems have been delivered to major international airports such as: Daxing Beijing, Pudong Shanghai, Jeju South Korea, Chisinau Moldova, Gassim Airport Saudi Arabia and many other hubs of air transportation. plus the addition of two RMTR stations, which will enhance the system integrity. Using an ecological approach, the reuse of some hardware parts from the Santiago de Compostela project was applied.

The main goal of the ongoing modernization is to provide SW unification of all the systems ERA has in Spain: the surface MLAT and Wide Area Multilateration system in Asturias Airport's outskirts, the surface MLAT system at the Madrid - Barajas International Airport (the second largest of its kind in the world) and the surface MLAT system at Tenerife North, the most visited island of the Canaries. The system of Palma de Mallorca is the last one of these systems to be modernized, despite the fact it is the oldest, thanks to being in nonstop use without any troubles for 18 years.

ERA will be once again cooperating with its local partner, SEAIRTECH company, which is the Contractor with AENA. SEAIRTECH provides engineering services with an international presence, specializing in the Aeronautical, Maritime and Defense markets.



5 ANSWERS TO 5 CHALLENGES OF ATM FOR THE 21ST CENTURY: MSS-5

ERA LATEST NOVELTY MSS-5 IS THE 5TH GENERATION OF THE MULTILATERATION SURVEILLANCE SYSTEM (MSS) TAILORED FOR AIR TRAFFIC MANAGEMENT COMBINING PROVEN MULTILATERATION AND ADS-B TECHNOLOGIES. **MSS-5 RESPONDS TO THE 5 MAIN CHALLENGES** OF AIR TRAFFIC NOWADAYS: TRAFFIC DENSITY. DEPLOYABILITY. TIME SYNCHRONIZATION. SAFETY AND SECURITY. ERA PRESENT IT AS A PREMIERE WITHIN WATM MADRID IN 2021.

MSS-5 system provides accurate real-time localization, tracking and identification of all objects equipped with transponder at the airport surface, in the terminal manoeuvring area and en-route and thus serves as a "gate to gate" solution for air traffic surveillance.

MSS-5 is the successor of the well-known and proven systems MSS and NEO (the 3rd and 4th generation ERA systems) deployed in 67 countries worldwide. MSS-5 is ready to face the challenges of the 21st century thanks to its 5 new features: 2 modules solution, dual station data output, 2020+ standards readiness, small, light and compact design for mast up deployment, GNSS synchronization (GPS. GLONASS. GALILEO. BEIDOU).



The MSS-5 architecture can be configured for specific applications: surface multialteration (MLAT) as part of A-SMGCS and vehicle tracking system (VTS) for any airport; airport approach surveillance, Precision Runway Monitoring (PRM), Wide Area Multilateration (WAM) / Automatic Dependent Surveillance Broadcast (ADS-B) for TMA /en-route and not the least Height Measurement Unit (HMU).

The reliable performance of MSS-5 is based on 60 years of the unique Czech tradition of research and development in the field of passive radiolocation (e.g. multialteration) plus 18 years of ERA experience obtained thanks to 130+ operational multilateration systems. The system withstands all weather conditions and is suitable for any terrain profiles on 5 continents.

ERIS-DART AND ERIS-COMMS = ERA INFORMATION SYSTEMS

ERIS-DART



ERIS-DART is a validation tool used for data analysis and evaluation of surveillance system performance against conformity of EUROCAE specification. This information system can be used for continuous sensor performance validation, real coverage analysis or single track analysis based on the data archives.

It provides an interactive and advanced multi-level surveillance data analysis, i.e. from packets to decoded ASTERIX message inspector, to trajectories. The data are continuously recorded and archived, so they can be easily obtained for the analysis as needed. The results of evaluation are then exported to commonly supported formats.

ERIS-COMMS

ERIS-COMMS is an information system designed for SW data routing and advanced data dissemination to transfer data between surveillance sensors, communication nodes, FIRs within the data communication networks.

Providing an advanced data communication management, ERIS-COMMS can be deployed both at sensor sites as well as at remote locations of the communica-

tion networks. The data transferred by ERIS-COMMS may be filtered based on parameters or geographic areas, subjected to selective information suppression, converted to another data format or recorded for later analysis.



LIFE OF ERA COMMUNITY IN PHOTOS



The visit of the Latvian National Armed Forces was devoted to the ERA military product portfolio with an accent on its contribution to air defence, related to passive surveillance technology.



ERA presented the possibilities of passive systems to contribute to air defence and EW at the trade show Black Sea Defence & Aerospace in Bucharest.





ERA introduced the newest abilities of PET system VERA for GBAD at Air Defence Conference in Brno.

ERA hosted the delegation of Burkina Faso. Focus was on its experience with development of passive systems and projects at African continent: in Egypt, South Africa and Namibia.

PHOTOGALLERY C.



ERA has obtained an award by the magazine Czech Defence Industry and Security Review.

ERA on regular basis. subsidizes the competitions for students of local schools to motivate them to study technical disciplines.

NATO AWACS EXPERTS EXCHANGED THEIR EXPERIENCE WITH ERA EW OPERATORS



or some period of time now, experts from the Czech Armed **F** Forces and the NATO group E3A, e.g. specialists in AWACS, have cooperated in arranging the best possible training for ESM (Electronic Support Measure) systems operators. Regular visits of different NATO working groups and agencies have been part of it. ERA, thanks to its long-term cooperation with the Czech Army in

the EW field, has been asked to prepare a workshop for the E3A group from the NATO airbase Geilenkirchen (https://awacs.nato. int) in its R&D centre in Pardubice.

The workshop was held in November and organised by the ERA EWOS (Electronic Warfare Operational Support) department. Its members introduced the capabilities of ERA products and their operators, with a focus on real obtained results, to colleagues from the E3A group. As part of the schooling, the participants appreciated the expertise provided by EWOS and the opportunity to see proven systems such as PET (Passive ESM Tracker) VERA-NG and other systems currently being developed in ERA. There was also a beneficial discussion on data mining and its processing using the similar experiences AWACS and EWOS operators have had. A further exchange of knowledge contributed to the idea of broadening of collaboration of NATO AWACS and ERA systems PET and PLESS (Passive Long-range ESM Surveillance System).

ON AWACS

AWACS (abbreviation for Airborne Warning And Control System), is a mobile, long-range radar surveillance and control centre for air defence. The system, as developed by the U.S. Air Force, is mounted in a specially modified Boeing 707 aircraft.

ERA EXPLAINED THE CAPABILITY OF PET FOR DEFENCE AT SERA COURSE



RA Commercial LDirector Jakub Thomas presented the suitability of ground-based passive surveillance systems for current programmes of modernization in the defence and security field in Europe to the participants in the SERA (European Session for Armament Officials) course in Prague. The given categories of the passive surveil-

lance systems were presented during the course, starting with the well-known and respected Passive ESM Tracker (PET) with the corresponding product name VERA-NG, to the recently introduced category of Passive Long-range ESM Surveillance Systems (PLESS), which is capable of passive Over-the-Horizon surveillance.

URUGUAYAN AIR FORCE DELEGATION VISITED ERA HQ

Official delegation of the Uruguayan Air Force (Fuerza Aérea Uruguaya, FAU) visited ERA headquarters in mid-April. ERA expert presented the company's product portfolio to Brigadier General (Aviator) Luis Heber de Leon Pepelescov and his FAU entourage, focused mainly on ERA passive surveillance systems PET and MSPSR and their abilities to track unmanned aerial vehicles. Experience, which ERA obtained in South America, was also mentioned: in 2016, ERA developed a feasibility study of WAM system implementation to cover part of Uruguayan airspace.



SINGAPORE AIRSHOW – OPPORTUNITY FOR ERA TO BECOME MORE REMARKABLE IN SOUTHEAST ASIA

ERA EXHIBITED ITS TECHNOLOGIES AS PART OF SINGAPORE AIRSHOW HELD AT CHANGI EXHIBITION CENTRE, SINGAPORE ON 15 - 18 FEBRUARY 2022.

RA successfully presented its military and ATM systems, **L**focused on Deployable Passive ESM Tracker VERA-NG tailored for air, maritime and land target surveillance and reconnaissance for defence and electronic warfare purposes. An ERA representative, Head of Sales, met with numerous industry influencers, military officials and government delegations to discuss the system and its newly introduced counter-UAS abilities.

ERA has had a long-term relationship with CAAS (Civil Aviation Authority of Singapore). ERA technologies have been in use at Changi Airport since 2009 and another fruitful cooperation regarding new projects is on the way.

Singapore Airshow is organised every two years. This last one attracted 30,000 trade attendees from 110 countries and regions and 930 participating companies from 45 countries.

ERA EXHIBITED ITS EW SOLUTIONS AT AOC EUROPE MONTPELLIER



RA took action at yet another AOC Europe event, this year Lat Parc des Expositions in Montpellier, France, on 10 – 12 May 2022. ERA experts held presentations to demonstrate their

FRA TOOK PART IN THE WORLD DEFENCE SHOW IN RIYADH

The World Defence Show, a brand-new defence and security exhibition in the region of the Middle East, was held in Riyadh, the capital of Saudi Arabia, on 6 - 9 March 2022. ERA representatives took this opportunity to strengthen the company's market position in this part of the world and held numerous meetings with current and potential customers as well as the end users of its systems within the show. They discussed ERA ongoing projects in SA and

EVENTS CC2



long-term experience with EW data management, analysis and distribution. The focus was on the newest ground-based passive ESM (Electronic Support Measure) OTH (Over The Horizon) system PLESS by ERA and field-proven Passive ESM Tracker (PET) VERA-NG. Both systems use advanced techniques to conduct cross-border long-term and long-range surveillance without alerting neighbouring nations.

ERA representatives from Sales, Strategy and EWOS (Electronic Warfare Operation Support) departments continue to meet with industry influencers, military officials and government bodies to make new acquaintances and deepen the relations ERA has already obtained among EW specialists.

The format of the AOC Europe event, organized by the Association of Old Crows, attracts an ever more expanding number of exhibitors and visitors from numerous countries providing them with great opportunities to explore novelties in the EW field.

neighbouring countries and presented the ERA portfolio of solutions for defence purposes and thus new opportunities for cooperation.

ERA is a well-known partner and ATM technology supplier in this region. Its systems have been in use in, for example, Saudi Arabia, United Arab Emirates, Oman, Egypt and Iraq. The exhibition consisted of 15 national pavilions of an exhibition area of 900 thousand square metres and attracted over 600 exhibitors from 45 countries.



ABOUT ERA:

ERA is a leading company in multilateration, multistatic surveillance, and reconnaissance technology. We develop, manufacture and implement mission-critical systems for military and civil purposes. Over last 2 decades, ERA has reached number of more than 130 installations, deployed in 65 countries on 5 continents with 24/7 operations fulfilling demanding customer requirements. ERA has developed unique passive surveillance system VERA-NG tailored for air, maritime and land target surveillance and reconnaissance for defence and electronic warfare purposes. In parallel, ERA made air traffic control history when deploying the first multilateration system and introducing gate-to-gate surveillance.

