



POLSKA AGENCJA ŻEGLUGI POWIETRZNEJ
POLISH AIR NAVIGATION SERVICES AGENCY
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#business**PANSA**

PRODUCTS AND SERVICES



POLISH AIR NAVIGATION SERVICES AGENCY

Every day the Polish Air Navigation Services Agency ensures safety of passengers in almost 3,000 flights over Poland. We have one of the biggest airspace in Europe: over 334,000 km². Almost one million overflights, approaches, take-offs and landings in 2019 were supervised by nearly 600 air traffic controllers trained and employed by the Polish Air Navigation Services Agency, as well as almost 260,000 General Aviation flights under watch of the Flight Information Service (FIS). Every day there are almost half a million passengers on board of all planes flying over Poland.

Only in 2019 air traffic growth in Poland amounted to 5%, compared to 1% in the whole European network.

Our air traffic controllers are supported by advanced technology. Over 200 devices located throughout Poland guaranteeing safety of air traffic within the Polish airspace: air-ground communication systems, RNAV systems, ILS – DME systems supporting smooth and precise landing in low visibility, radars. We are responsible for advanced aviation infrastructure – we build and develop it.

We are a part of aviation world which grows dynamically, and we grow together with it. Due to specific geographical location of Poland, the Polish Air Navigation Services Agency in cooperation with domestic and European institutions becomes a bridge between Europe and the East in the services provision. We are the Gateway to Europe and the Gateway to the East.



On behalf of PANSA I have the pleasure to present a commercial catalogue of our products and services. From innovative ATM solutions, through developing U-space and UTM environment, together with Flight Inspection Services, as well as Training and Consulting services – I believe that our constantly developed offer will meet your expectations and encourage you to cooperate with PANSA.

Janusz Janiszewski
Acting President of the Polish Air Navigation Services Agency





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COMMON AIRSPACE TOOL (CAT)

The Polish Air Navigation Services Agency (PANSa) ensures air traffic safety. PANSa's key tasks include airspace management, which is the direct responsibility of PANSa's Airspace Management Cell (AMC). The AMC receives requests to reserve airspace structures for purposes of training flights, air shows or military exercises. These requests can be submitted by any type of user, either civilian or military one. AMC operations personnel analyses the requests thoroughly, in which they are supported by Common Airspace Tool (CAT) system, designed by PANSa and now operational and offered in 2.0 version.

CAT system is used for receiving and verifying structure reservations while improving the process of creation and publication of the Airspace Use Plan (AUP), one of the key aeronautical documents used by sky users. CAT system provides for efficient management of airspace structures in accordance with the Advanced Flexible Use of Airspace (AFUA) concept, on a pre-tactical level and in real time by activating and deactivating the structures, and by changing altitude parameters. CAT system closely cooperates with Network Manager, the European air traffic management system. Thanks to a connection with the B2B Web Services, it automatically exchanges all information on activities of the structures included in the AUP.

CAT is a significant support to airspace managers and users. Thanks to the system's modern and publicly accessible Collaboration Human Machine (web) Interface, every user can view at PANSa's website, in the form of a map, all current and planned structures (event those planned in long term), and obtain information about them.

CAT system is a solution that is safe, complete, flexible, coherent and open to exchange of data with other systems. It is used operationally by air traffic services, including air traffic controllers (ATC) and the Flight Information Service (FIS) and, beginning in 2005, by PANSa's AMC. CAT system has been in service with the Polish Air Force since 2008.

As a system designed and operated by an airspace manager, CAT is a (cyber)secure and modular solution meant for civilian and military entities, especially from countries that are characterised by strong air traffic and significant diversification of airspace structures. The architecture of CAT system allows it to be deployed fully or partially, depending on the current or future needs and requirements of its users, and to customise it to meet specific language needs and changing legal requirements (e.g. different national laws). At the same time, CAT system is compliant with applicable personal data protection laws (e.g. GDPR) and compatible with the existing air traffic management solutions in service with civilian and military airspace and air traffic managers (e.g. PANDORA for aeronautical information display and PansaUTM for UAV flights coordination and flight plans management).



For military users, an important attribute of CAT system is its reliability, which has been proven throughout eleven years of nearly flawless operation. The most important advantage of CAT system comes in up-to-date display of airspace elements used and planned to be used by the Armed Forces. It increases the effectiveness of airspace utilisation and, most importantly, improves the safety of flight operations in the Polish airspace.

Col Andrzej Cholewa,
Military Air Traffic Service Office of the Polish Armed Forces



CAT system is particularly useful to those civilian and military entities which are responsible for managing complex airspaces combined with strong air traffic.

Jacek Wyrwich,
Head of the Airspace Management Unit,
20 years of experience at PANSA



For detailed information on CAT system, please visit www.pansa.pl/cat and www.airspace.pansa.pl



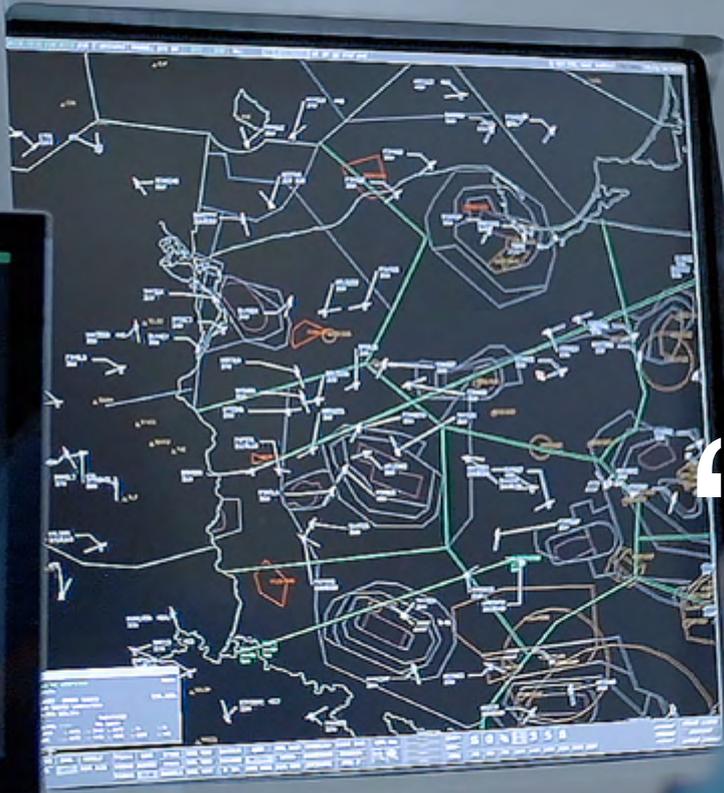
PANDORA

The Polish Air Navigation Services Agency (PANSAs) is among Europe's largest institutions that employ civilian air traffic controllers. As an organisation with strategic targets oriented to safety, effectiveness and development, PANSAs perfectly understands the current needs and requirements of air traffic controllers and other operations personnel. Challenges related to digitalisation as well as easy and quick access to various types of information, and consequently maintenance of high level of safety and reduction of delays, require new technological solutions. The need to meet these challenges and adapt to the changing environment have made PANSAs design and implement its own proprietary Information Display System PANDORA.

Displaying aeronautical information such as maps, meteorological data, frequencies, photographs, aircraft technical data and other documents, PANDORA system supports air traffic controllers and other operations personnel. PANDORA system provides information in real time relying on its own internal database while enabling cooperation with other systems and use of their external sources of information.

As a system that has been designed and operated by an airspace manager, PANDORA is a (cyber)secure and modular solution meant for civilian and military airspace managers. The architecture of PANDORA system allows it to be deployed fully or partially, depending on the current or future needs and requirements of its users. PANDORA system can be customised to meet specific language needs and changing requirements (e.g. SESAR Programme). At the same time, PANDORA system is compliant with applicable personal data protection laws (e.g. GDPR) and compatible with the existing air traffic management solutions in service with civilian and military airspace and air traffic managers (e.g. CAT for airspace structure management in real time and PansaUTM for UAV flights coordination and flight plans management).

PANDORA system is a safe, complete, flexible, coherent and open solution. PANDORA system is centrally managed and operationally used by all air traffic services, specifically by air traffic controllers (ATC), Flight Information Service (FIS) and PANSAs Airspace Management Cell (AMC).



PANDORA system is a result of work of air traffic controllers and IT engineers. Designed to facilitate ATC operations, the tool has proven its worth so successfully that its user base is even larger now.

Grzegorz Koślacz,
ATM Project Specialist,
25 years of experience at PANSa



For detailed information on PANDORA, please visit www.pansa.pl/pandora



A-CDM TERMINUS

The Polish Air Navigation Services Agency (PANSa) has been cooperating with airports and domestic and international air carriers for 60 years. As an organisation that is strategically oriented to safety, effectiveness and development, PANSa perfectly understands the current needs and requirements of the aviation market. Challenges related to reducing delays, lower air operation noise levels, cutting down fuel consumption and consequently to the protection of the environment, require new technological solutions. In collaboration with other entities, PANSa has designed, deployed and is developing its original Advanced-Collaborative Decision Making system - A-CDM TERMINUS.

A-CDM TERMINUS system provides important data for planning and managing of airport traffic situations in advance. A-CDM, as a concept, and TERMINUS, as a TSAT (Target Startup Approval Time) generator for a better engine start-up planning, enable prediction and flow of information on aircraft handling within the airport (landing, completion of ground handling, take off). Close cooperation of all stakeholders, supported with that information, contributes to the entire process improvement, and results in operational, financial and environmental gains.

A-CDM means cooperation of all key stakeholders in managing air operations within the airport. It includes such stages as ground handling and joint prediction, planning and setting up the optimal times when aircraft can start their engines. TSAT is then fed into the European air traffic management system Network Manager B2B Web Services, with which A-CDM TERMINUS is connected. Correct data input on the current and predicted traffic situation improves appropriate management and control of air traffic flows from and to the airport.

A-CDM TERMINUS system is a safe, complete, flexible, coherent and open solution that has been deployed at Poland's largest airport - the Frederic Chopin Airport in Warsaw.

A-CDM has a positive impact on reducing delays, lowering noise levels and cutting down fuel consumption, which results into tangible benefits for airspace managers, airports, air carriers and cooperating entities.

Designed in collaboration with the Frederic Chopin Airport in Warsaw, A-CDM TERMINUS is a system being developed by PANSAs, as an airspace manager, which provides a (cyber)secure and modular solution also to other stakeholders involved. The architecture of the TERMINUS generator provides for either its full implementation as a part of the A-CDM system or a partial deployment as an Advanced ATC Tower system to meet the present and future needs and requirements of the users, as well as for adapting it to operate at airports of any manoeuvring area configurations. At the same time, A-CDM TERMINUS system is compatible with air traffic management solutions now used by civil airspace and air traffic managers, e.g. Electronic Flight progREss Strips (EFES) system, Arrival Manager (AMAN) system for managing aircraft arrivals in the approach control, PANDORA aeronautical Information Display System and Common Airspace Tool (CAT) for airspace structure management in real time).



Efficient Advanced-Collaborative Decision Making (A-CDM) systems are becoming increasingly important, particularly at airports whose traffic capacities are nearly close to limits.

Grzegorz Kořlacz,
ATM Project Specialist,
25 years of experience at PANSAs



For detailed information on A-CDM TERMINUS, please visit www.pansa.pl/terminus



PansaUTM

The Polish Air Navigation Services Agency (PANSA) perfectly understands changes that are taking place in the modern day airspace. One of these changes involves the dynamic development of the sector of unmanned aerial vehicles (UAVs), popularly known as drones. PANSA's strategic objectives include creation of an appropriate environment for the further development of the UAV service market in Poland and Europe, which is reflected in the U-space concept that assumes safe and effective integration of drone operations with manned air traffic. The foundation of this objective and the key element to reach it is the system for UAV flights coordination and flight plans management.

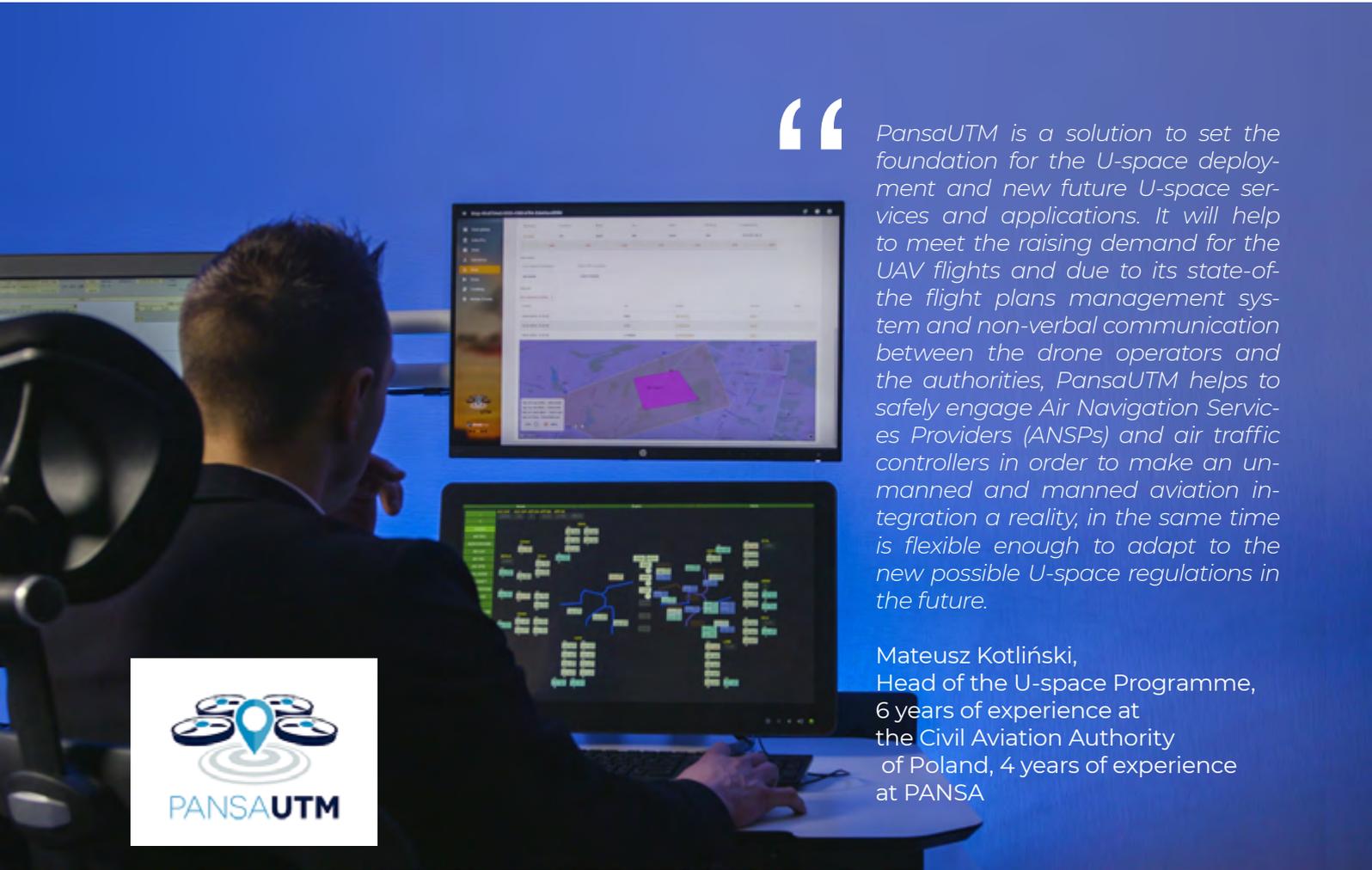
PansaUTM is a digitalised and automated UAV flight coordination and flight plans management concept which is comprised of PANSA's own operating solutions and the system part integrated with Droneradar, the most popular mobile application among drone operators in Poland.

PansaUTM system serves as the source of primary information and aeronautical data. The system facilitates the flight coordination process, providing the information on operators, their licences and registered drones if needed to assess the UAV flight requests. PansaUTM system with the dFPL (drone Flight Plan) functionality (i.e. UAV flight plans) provides also for electronic creation of BVLOS (Beyond Visual Line of Sight) and VLOS (Visual Line of Sight) missions in accordance with applicable regulations taking into account terrain and air conditions such as airspace structure occupation, operational limitations, and weather. A mission thus created primarily in controlled zones are analysed by the system in order to issue digitalised permission for specific UAV flights at the pre-tactical stage. The process takes place fully electronically and in real time detecting potential conflicts in the airspace at the strategic level and improving the planning, verification and approval of UAV missions. The most important element of the system is the air traffic control interface and support of the safe air navigation services provision.

PansaUTM includes also the functionalities of real-time e-identification and location of a drone (provided it uses any of the selected tracking methods), dynamic geo-fencing that allows selected UAV operators to order the drone to land, and direct two-way non-verbal communication between air traffic services and UAV operator through the so-called CDDLC (Controller-Drone Data Link Communication), which contributes to deconfliction at the strategic level. The system decreases the workload of air traffic services simultaneously preparing for expected increase in the number of UAV operations in the future. The system is designed to ensure the existing level of safety of other airspace users.

PansaUTM is a unique system which can be operated by an airspace manager responsible for controlled airspace volumes. The modular architecture of PansaUTM allows the system to be deployed either fully or partially, depending on the current or future needs and requirements of its users, and to customise it to meet specific language needs and changing legal requirements (e.g. different national laws or common European regulations and the supporting U1-U4 U-space services). At the same time, PansaUTM is compliant with applicable personal data protection laws (e.g. GDPR) and compatible with the existing air traffic management solutions in service with civilian and military airspace and manned air traffic managers. Within PANSA, PansaUTM is integrated with PANDORA aeronautical Information Display System and CAT system for airspace structure management in real-time. PansaUTM provides also for integration with other U-space service providers, e.g. local DTM (Drone Traffic Management) systems, through open API interfaces.

PansaUTM is a safe, complete, flexible, coherent and open solution. PansaUTM system has successfully passed the accreditation process conducted by PANSA and supervised by the Civil Aviation Authority of Poland in March 2020. From March till July 2020 PANSA implemented PansaUTM system for operational use in controlled zones (CTRs) of airports in Bydgoszcz, Gdansk, Katowice, Krakow, Lublin, Lodz, Modlin, Olsztyn, Poznan, Rzeszow, Szczecin, Wroclaw and Zielona Gora, as well as FIS sectors of Gdansk, Krakow, Olsztyn, Poznan and Warsaw. It means that whole Poland is already covered by the services of PansaUTM system.



PansaUTM is a solution to set the foundation for the U-space deployment and new future U-space services and applications. It will help to meet the raising demand for the UAV flights and due to its state-of-the-flight plans management system and non-verbal communication between the drone operators and the authorities, PansaUTM helps to safely engage Air Navigation Services Providers (ANSPs) and air traffic controllers in order to make an unmanned and manned aviation integration a reality, in the same time is flexible enough to adapt to the new possible U-space regulations in the future.

Mateusz Kotliński,
 Head of the U-space Programme,
 6 years of experience at
 the Civil Aviation Authority
 of Poland, 4 years of experience
 at PANSA



For detailed information on PansaUTM, please visit www.pansa.pl/en/pansautm/ and www.pansa.pl/en/u-space/



TRAFFIC

The Polish Air Navigation Services Agency (PANSA) is very much experienced how crucial is accurate and timely processing flight plans data for today's airspace managers. These days air traffic management systems are required to operate with data from multiple sources, both civil and military. Additionally, all these data must be processed without any error or delay. To meet these modern criteria PANSA created its original TRack Adviser for Flight Information Concerns system – TRAFFIC.

The purpose of TRAFFIC system is to deliver information from flight plans along with their subsequent changes and complementary messages, that are verified based on operational and legal requirements, as well as synthetic and semantic ones.

TRAFFIC system is solely responsible for processing and validating flight plans data before the information is sent to ATM systems. This process occurs both on pre-tactical and tactical phases of flight plans processing. Whenever it is possible, data from external sources is incorporated in the background, without any input from the user.

TRAFFIC system a safe, complete, flexible, coherent and open solution that enabled PANSA to meet the challenges of the ever growing air traffic volume in a seamless and user-friendly manner. At the same time TRAFFIC system is compatible with air traffic management solutions now used by airspace and air traffic managers, e.g. Common Airspace Tool (CAT) for airspace structure management in real time



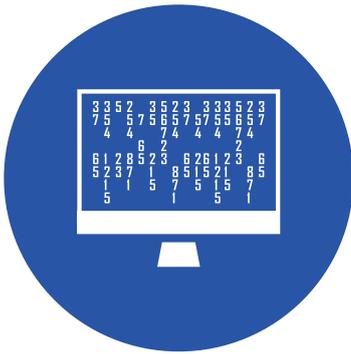
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Accurate, timely, seamless and thus user-friendly processing flight plans data is crucial for modern airspace managers.

Sławomir Kruk,
Head of Aeronautical Data Processing Unit,
31 years of experience at PANSA

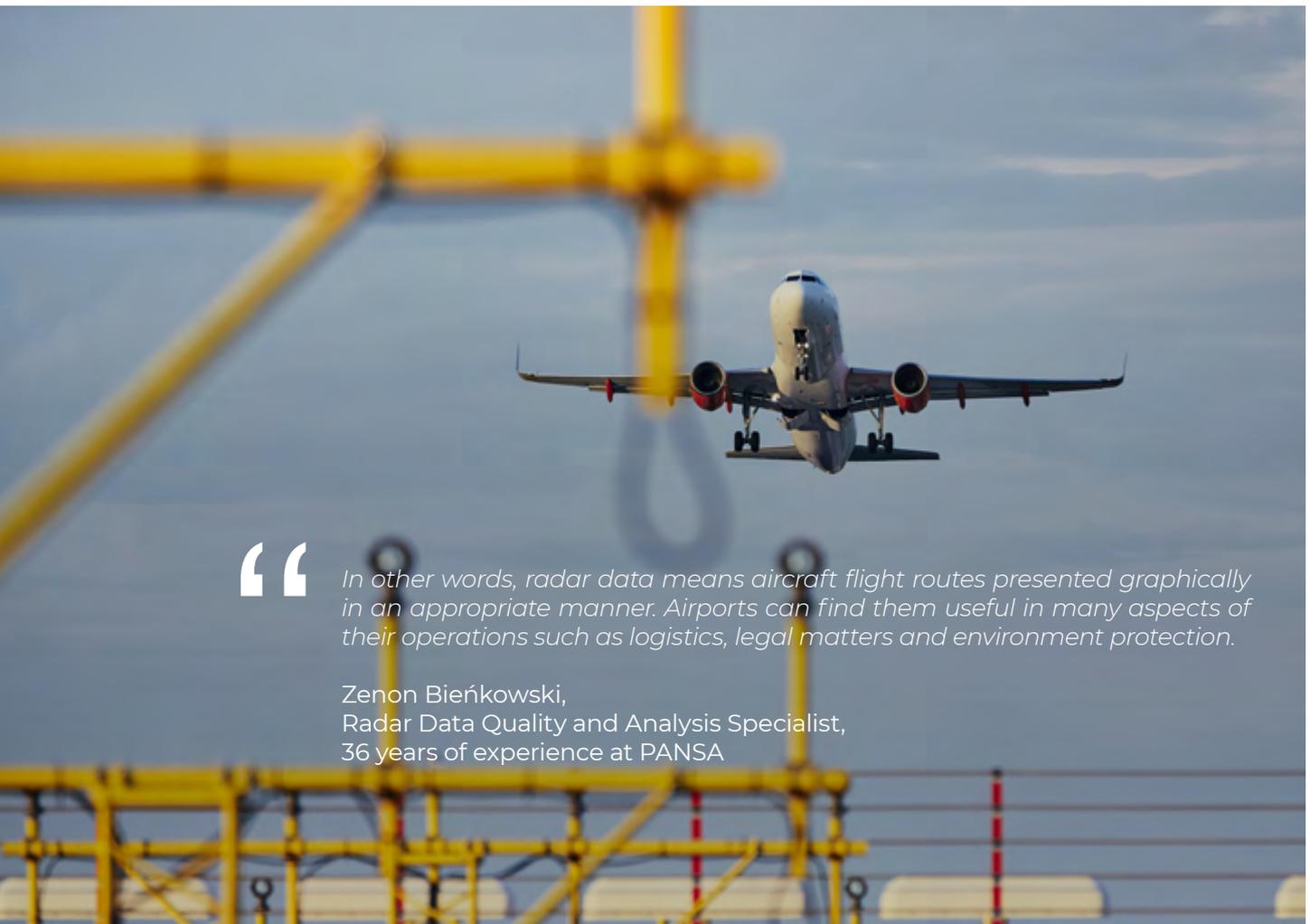


For detailed information on TRAFFIC, please visit www.pansa.pl/traffic



DATA

The Polish Air Navigation Services Agency (PANSa) has sizeable resources of data that can have commercial value for airports, research and development (R&D) centres and private businesses.



In other words, radar data means aircraft flight routes presented graphically in an appropriate manner. Airports can find them useful in many aspects of their operations such as logistics, legal matters and environment protection.

Zenon Bieńkowski,
Radar Data Quality and Analysis Specialist,
36 years of experience at PANSa



Radar data

Providing the surveillance service, PANSa carries out continuous monitoring of aircraft traffic in the Polish airspace. Based on information recorded by primary surveillance radars (PSR and SMR), secondary surveillance radars (MSSR, MSSR Mode S), hyperbolic positioning systems (WAM, MLAT) and systems dependent on information from aircraft (ADS-B) complete with data from flight plans, air traffic services have a full picture of the traffic situation in the Polish sky.



Meteorological data

PANSa is the owner and operator of the Automated Weather Observing System (AWOS) deployed at the Frederic Chopin Airport in Warsaw. The system carries out real-time monitoring of such parameters as RVR, cloud base altitude, wind, pressure and temperature. Furthermore, PANSa has archived weather data for selected regional airports which can be used e.g. for the purpose of climate studies.

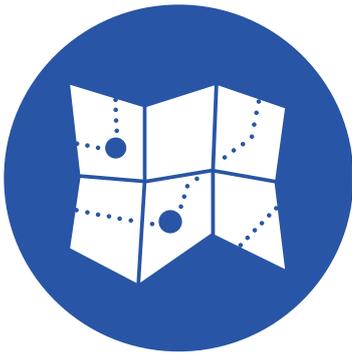
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Aeronautical data

Based on information recorded by its IT systems, PANSa can generate data and statistics for flight operations executed in the Polish airspace and the country's airports.



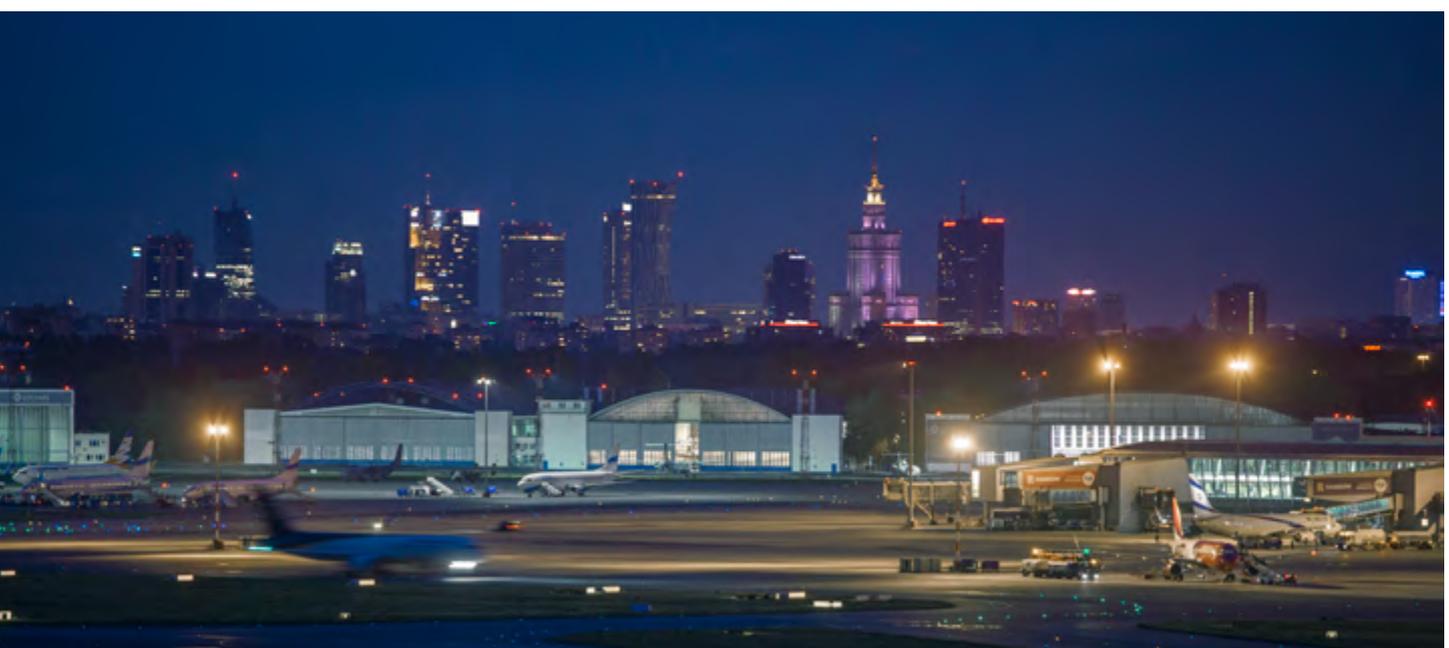
For detailed information on PANSa's data, please visit www.pansa.pl/data



AERONAUTICAL PUBLICATIONS

The Aeronautical Information Service (AIS Poland) is a unit of the Polish Air Navigation Services Agency (PANSa) designated for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation within the Warszawa FIR. AIS Poland provides therefore aeronautical information products which comprise:

- Aeronautical Information Publication (AIP), including Amendments and Supplements,
- Aeronautical Information Circular (AIC),
- Aeronautical charts,
- NOTAM, and
- Digital data sets.



Through its order form, PANSA offers the following publications:



AIP POLAND, AIP VFR POLAND and MIL AIP POLAND



AIRSPACE CHART - 1:500 000



AERONAUTICAL CHART OF POLAND - ICAO 1:500 000



AIM DATABASE ON DVD

AIP

**AIP POLAND,
AIP VFR POLAND
and MIL AIP POLAND**

AIP Poland

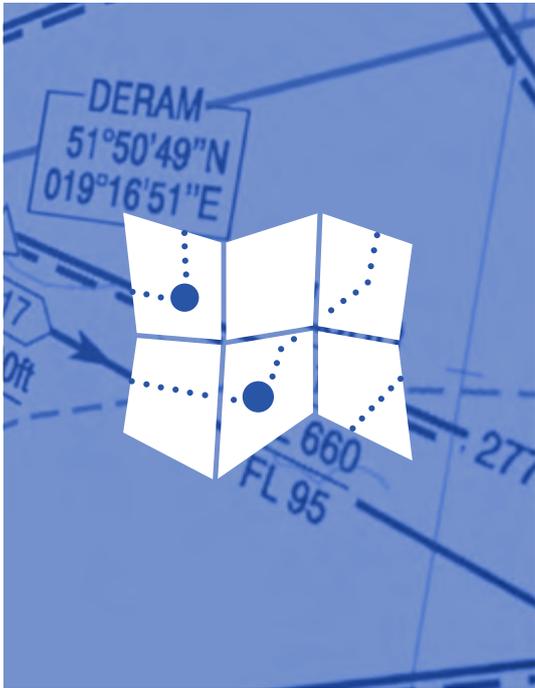
is prepared in accordance with the Standards and Recommended Practices (SARPs) set forth in Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services. This publication contains information on flight rules, airspace structure and aerodromes within the Warszawa FIR. Amendments to AIP Poland are published as required in accordance with the AIRAC cycle schedule.

AIP VFR

contains information on rules and procedures applicable to VFR flights within the Warszawa FIR as set forth in the Regulation of the Ministry of Infrastructure on Aeronautical Information Services. Amendments and Supplements to the AIP VFR are published separately. All amendments and updates are published in accordance with the AIRAC cycle.

MIL AIP

is published by PANSA in cooperation with the Military Air Traffic Service Office of the Polish Armed Forces. The Aeronautical Publications and Procedures Section of the Military Air Traffic Service Office of the Polish Armed Forces is responsible for collecting aeronautical data related to military aerodromes and providing them to PANSA. The MIL AIP contains general information on regulations and flight rules applicable to military aviation. Amendments and Supplements to the MIL AIP are published separately. All amendments and updates are published in accordance with the AIRAC cycle.

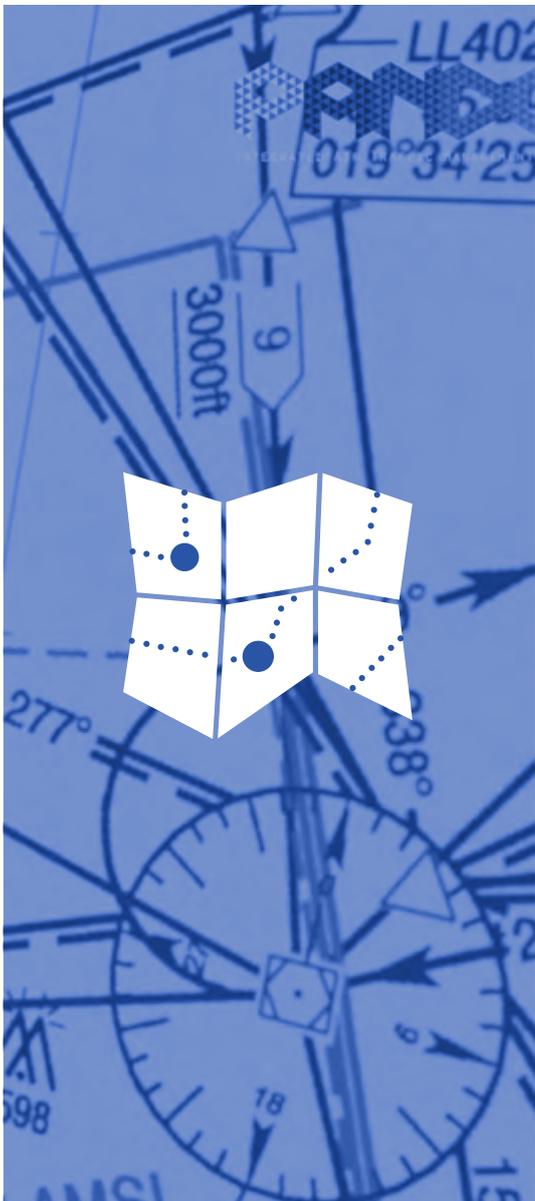


AIRSPACE CHART - 1:500 000

The Airspace Chart shows all airspace structures from GND to FL 660:

- airways,
- terminal control areas (TMAs),
- control zones (CTRs),
- aerodrome traffic zones (ATZs),
- military control zones (MCTRs),
- military routes (MRTs),
- temporary segregated areas (TSAs),
- temporary reserved areas (TRAs),
- TSA/TRA feeding routes (TFRs),
- prohibited (P), restricted (R) and danger (D) areas,
- reporting points for VFR flights,
- reporting points on the FIR boundary.

All heights/altitudes are provided in feet.



AERONAUTICAL CHART OF POLAND - ICAO 1:500 000

The Aeronautical Chart of Poland – ICAO is commonly known as the VFR Chart. The complete set consists of 6 separate laminated sheets (Gdańsk, Olsztyn, Poznań, Warsaw, Wrocław, Kraków). The chart contains aeronautical information from GND to FL 095. Colours of the chart have been extensively consulted with users of the Polish airspace. The views provided by users have been taken into account in the current edition. In addition, hypsometry instead of shading has been applied for illustration of topography which improved clarity of the chart.

The chart contains:

- terminal control areas (TMAs),
- military terminal control areas (MTMAs),
- control zones (CTRs),
- aerodrome traffic zones (ATZs),
- military control zones (MCTRs),
- military routes (MRTs),
- temporary segregated areas (TSAs),
- temporary reserved areas (TRAs),
- TSA/TRA feeding routes (TFRs),
- prohibited (P), restricted (R) and danger (D) areas,
- air defence identification zones (ADIZs),
- maximum elevation figures (MEFs),
- reporting points for VFR flights,
- reporting points on the FIR boundary,
- areas of sporting and recreational activities, with pictograms indicating types of activities,
- radio navigation aids.

All heights/altitudes are provided in feet. The reverse side of each sheet has, among other elements, the chart key, AIRMET sectors, Morse code table, MRTs and altimeter setting regions. The chart is available on paper or laminated paper. It can also be purchased in the form of a wall chart on plain or photographic paper.

AIM

AIM DATABASE ON DVD

The AIM Database on DVD contains all aeronautical data that are included in the AIS database and published in AIP Poland, AIP VFR Poland and MIL AIP Poland, including all spaces, obstacles, radio navigation aids as well as route and VFR points. The data is presented in the XML format compliant with AIXM 4.5 (optionally also available in AIXM 5.1 format).



AIS operations are not limited to products only. Days and months are spent on preparing the data to be exported cyclically (AIRAC) to systems used by ATC services (Pegasus_21, Traffic, CAT). The service offers also quality (ADQ) and software handling (PLX) trainings for providers of data to aeronautical information products. The trainings are conducted by a small group of highly experienced specialists. Finally, it means tremendous responsibility, for the safety of airspace users depends on the quality of the products and services.

Julita Szenk-Zielińska,
Head of the Aeronautical Information Management Unit,
18 years of experience at PANSА

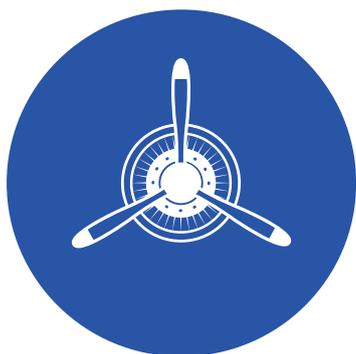


All important information in one place and clear form.

AIP Poland User



For detailed information on PANSА's aeronautical publications, please visit www.pansa.pl/publications
Orders can be placed online via the order form at https://ais.pansa.pl/form/order/orderform_en.htm



FLIGHT INSPECTION SERVICES

The Polish Air Navigation Services Agency (PANSa) is the most important institution responsible for the correct operation of some 150 ground-based air traffic aids and validation of instrument flight procedures in Poland. In service since 1963, PANSa's Flight Inspection Service offers the following services:

1963 The Flight Inspection Service has been operating as part of PANSa since that year



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Our work does not involve only verification of correct functioning of ground-based light and radio aids. Thanks to our experienced measurement inspectors, pilots, aircraft engineers and support personnel, we are able to pre-emptively advise our Clients - airport managers on any required changes or needs to replace their equipment.

Grzegorz Hlebowicz,
Business Development Promotion Specialist,
15 years of experience at PANSa



Inspection of aerodrome ground equipment

PANSA's Flight Inspection Service performs commissioning, periodic, ad hoc and categorising inspections and measurements of CNS infrastructure: instrument landing systems (ILS CAT I, II, III), omnidirectional range equipment (VOR and DVOR) and non-directional beacons (NDB), distance measuring equipment (DME), light navigation aids (approach light systems, or ALS, and runway light systems), precision approach path indicators (PAPI) and air traffic control radars.

PANSA's Flight Inspection Service plays a very important role, for the sole on-ground supervision of radio navigation aids, most of which are managed by PANSA, and light systems, managed by individual airports and aeroclubs, does not give a 100% guarantee that the radio and light signals received by aircraft instruments are correct and within the required tolerances.



Validation of instrument flight procedures

PANSA's Flight Inspection Service is the only entity in Poland that validates newly established and existing instrument flight procedures - conventional and area navigation (RNAV) procedures based on DME-DME distance measuring equipment and on global navigation satellite systems (GNSS). To cater for the progressing Europe-wide implementation of ground based augmentation systems (GBAS) used for satellite-based support of precision landing of aircraft, flight inspection services will be provided to check these types of systems and validate the related flight procedures.

Validation flights for RNAV instrument flight procedures (RNAV LPV) are particularly important. It turns out in practice that possible FAS DATA BLOCK errors can be detected prior to the final publication of the flight procedure, during preparations for a validation flight or during the validation flight based on a test database in the Flight Management System (FMS). The test database is a dedicated flight procedure database provided by the avionics manufacturer on order from PANSA's Flight Inspection Service.



Testing of counter-drone/UAV systems

PANSA's Flight Inspection Service is the only entity in Europe that investigates the impact of counter-drone/UAV systems on CNS infrastructure. Tests of counter-drone/UAV systems conducted by end users – e.g. airports, aeroclubs, law enforcement and security services, critical infrastructure facilities and counter-drone/UAV manufacturers - are essential to ensure the highest level of safety.

PANSA's Flight Inspection Service provides its services in accordance with guidelines of the International Civil Aviation Organisation (ICAO), including DOC ICAO 8071 Annex 10 and 14 and DOC ICAO 9906, as well as regulations issued by the Ministry of Infrastructure and the Polish Civil Aviation Authority. The process results in the issue of relevant protocols.

To fulfil its validation and measurement functions, PANSA's Flight Inspection Service operates two aircraft, Beechcraft King Air 350 and L-410 UVP-E 15 "Turbolet", nicknamed "Parrots", which are equipped with AD-AFIS-130 real-time analysis systems manufactured by German Aerodata, the global leader in designing and manufacturing of testing and measuring devices. The services of PANSA's Flight Inspection Service are provided by an experienced staff of measurement inspectors, pilots, aircraft engineers and support personnel who have many years of experience in working for PANSA and other aviation institutions.

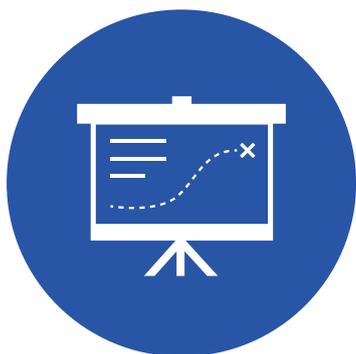


Since when I can remember, the functioning of our approach light systems, runway light systems or precision approach path indicators has been verified by PANSA's measurement and testing aircraft. Poland's oldest airport holds a high opinion of the work performed by PANSA's Flight Inspection Service.

Mariusz Wiatrowski
President of Poznań-Ławica Airport



For detailed information on PANSA's Flight Inspection Service, please visit www.pansa.pl/flight_inspection



TRAINING

The Polish Air Navigation Services Agency (PANSAs) with its headquarters in Warsaw is one of Europe's best institutions preparing civilian air traffic controllers (ATC), employees of and candidates to work in air traffic services and providing training to employees of and persons willing to work in the aviation sector. The scope of services offered by PANSAs is very wide and addressed to, among others, airline flying and ground personnel, employees of airports, aeroclubs, aviation institutions and state authorities, including the Ministry of Infrastructure, the Civil Aviation Authority (CAA) of Poland and the State Commission for Aircraft Accidents Investigation, as well as drone/UAV operators, instructors and examiners, and aviation enthusiasts.

PANSAs's structures include PANSAs's own Air Traffic Services Personnel Training Centre "OSPA" which dates back to the beginning of the second half of the 20th century. At present, "OSPA" offers the following trainings and courses:

Aeronautical Data Quality (ADQ)

A 5 or 3-day on-site training for providers of data to aeronautical information products, covering AIS/AIM and ADQ-related subjects.

Planning eXtensions (PLX)

A 1-day remote training for providers of data to aeronautical information products, covering operation of the PLanning eXtensions 2.8 version software, plus a month-long access to the PLX test platform.

SNOWTAM

COMING SOON!

A training for Airport Operations Duty Officers, flying personnel, civilian and military air traffic services (e.g. AFISO), aeroclubs and aviation institutions, covering the new SNOWTAM form scheduled for introduction on 5 November 2020.

Basic Familiarisation Course (BFC)

COMING SOON!

A familiarisation training for persons interested in working in air traffic services (ATS) and all aviation enthusiasts, covering basic aviation terms and subjects.

Drone (UAV) Workshops

COMING SOON!

A training for commercial and recreational operators of drones/UAVs and training organisations that issue qualification certificates to operators of UAVs used for purposes other than sports or recreation (UAVO), covering aviation law, structure of the Polish airspace, aeronautical information, air traffic services, flight planning and reporting, and operations manuals.

Training programmes can be customised to meet the needs of specific clients - civilian and military airspace managers, airports, aeroclubs, law enforcement and security services, critical infrastructure facilities, law firms - regarding prevention of threats related to hostile use of drones/UAVs and utilisation of counter-drone/UAV systems (law and technology).

Aviation English (AE)

COMING SOON!

A course for persons interested in working in air traffic services (ATS) and all aviation enthusiasts, covering vocabulary and terms, application and pronunciation of aviation English (the duration depends on the client's language level and needs).

Air Traffic Control (ATC)

Licence courses, basic and refresher training for flight simulation and operation stations training instructors and assessment staff as well as preparatory training for state exams for student air traffic controllers, air traffic controllers and flight information service/radar information service (FIS/RIS) officers.

Other training - customised

Depending on the Client's needs.

Most PANSAs trainings and courses is compulsory and compliant with the guidelines of the International Civil Aviation Organisation (ICAO), European Union regulations and rules of the Polish Civil Aviation Authority. They end with the issue of relevant attestations.

PANSAs trainings and courses are conducted in small workshop groups by experienced instructor staff – theoreticians and practitioners with many years of experience in teaching and working for PANSAs and other aviation institutions.

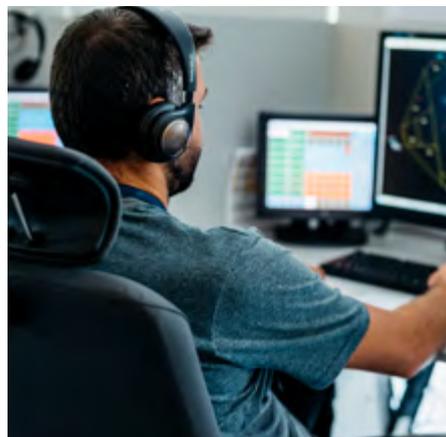
PANSAs trainees can use a modern building (completed in 2017) with advanced learning aids and multimedia rooms, including MicroNav Best air traffic control simulators and the PEGASUS_21 test platform with 24 double operations stations and 5 airport control tower stations (including TWR 360°). The trainees have access to sports facilities (swimming pool, sauna, fitness room, gymnasium) and eating facilities (restaurant).

PANSAs assists international trainees in obtaining visas, air ticket and hotel bookings, and it provides basic healthcare services for the duration of trainings and courses.

“

The name “Drone Workshops” itself is obliging, and the training is at a very high level indeed. The instructor focused strongly on the flight safety, operator awareness and practical use of the knowledge he passed on to us during the workshops.

A Trainee of the Drone (UAV) Workshops



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PANSAs ATS Personnel Training Centre’s modern lecture rooms, simulators for all ATC services and experienced theoretical and practical training instructors with unique knowledge and skills represent assets that help organise all types of trainings for candidates and air traffic controllers and FIS officers.

Klaudiusz Dybowski,
Head of the Training Documentation Preparation and
Standardisation Team,
40 years of experience at PANSAs



For detailed information on PANSAs trainings and courses, please visit www.pansa.pl/training



CONSULTING

The Polish Air Navigation Services Agency (PANSa) has been managing air traffic in the Polish sky for 50 years. PANSa ensures flight operation safety in the Polish airspace, which is the sixth largest in Europe.

As an organisation that is strategically oriented to safety, effectiveness and development, PANSa perfectly understands the current needs and requirements of the aviation market. The challenges related to ensuring smooth air traffic and effective airspace management, including matters of sustainable development and innovation, put PANSa in a position of competence and experience to offer the following consulting services:

Airspace design

A consulting service in the area of airspace design addressed to civilian and military airspace managers using the latest Traffic Complexity Tool.

PANSa is responsible for ensuring the safety of more than 2,500 flights per day over the area of 334,000 km².

Design and validation of instrument flight procedures

A consulting service addressed to uncontrolled aerodromes, aeroclubs etc. covering design, validation and operational maintenance of new and existing instrument flight procedures – conventional (based on ILS, VOR and NDB) and area navigation (RNAV).

PANSa has designed and maintains operationally flight procedures for 15 controlled airports across Poland.

Drone (UAV) Workshops

A consulting service addressed to entities that either operate or are interested in operating UAVs, covering possibilities for the use of UAVs, aviation law, structure of the Polish airspace, aeronautical information and air traffic services as well as planning and reporting of flights, including operations manuals.

A consulting service addressed to training organisations that issue qualification certificates to operators of UAVs used for purposes other than sport or recreation (UAVO), covering conduct of training courses, preparation of customised training programmes, preparation of training materials and training of personnel.

PANSA conducts own training in aviation law, structure of the Polish airspace, aeronautical information, air traffic services as well as planning and reporting of flights, including operations manuals.

Integration and management of drones/UAVs

A consulting service addressed to civilian and military airspace managers, airports, aeroclubs, law enforcement and security services, critical infrastructure facilities, local governments and law firms, covering airspace organisation in the context of dynamic and effective UAV flight management in controlled zones (CTR).

Together with its technological partners, PANSA is responsible for, among other things, the world's pioneering PansaUTM system designed for UAV flights coordination and flight plans management. For 6 years PANSA has been introducing increasingly more refined procedures for air traffic services and UAV operators that enable them to dynamically and effectively coordinate the parallel use of airspace by manned and unmanned aviation.

Counter-drone/UAV systems - law and technology

A consulting service addressed to civilian and military airspace managers, airports, aeroclubs, law enforcement and security services, critical infrastructure facilities and law firms, covering prevention of threats related to hostile use of UAVs and utilisation of counter-UAV systems (law and technology).

PANSA defines operating procedures and vulnerable zones related to hostile use of UAVs for all controlled airports in Poland.

Preparation of aerodrome "Master Plans"

A consulting service addressed to airports, covering joint preparation of aerodrome "Master Plans" using the latest Traffic Complexity Tool.

PANSA is taking part in joint preparation of the "Master Plan" for the Solidarity Transport Hub Poland.

Other services - customised

Depending on the Client's needs.



The Krosno Airport would like to order preparation of a GNSS procedure at PANSA. I like the professionalism of that institution and its ability to adapt the process to the budget realities of a small local government unit like Krosno.

Katarzyna Bęben,
President of the Management Board of Krosno Airport



PANSA is the right consulting destination for entities that wish to employ the fast growing UAV industry in their business operations.

Maciej Włodarczyk,
Head of the UAV Operations Management Unit,
11 years of experience at PANSA



PANSA's consulting services are customised to the Clients needs and provided by experienced specialists with many years of experience in working for PANSA and other aviation institutions. The catalogue of PANSA's consulting services is continuously expanded to successfully perform tasks and achieve targets assumed by our Clients.

PANSA cooperates also with other companies, law firms and individuals providing consulting services.



For detailed information on PANSA's consulting services, please visit www.pansa.pl/consulting



INFRASTRUCTURE

Infrastructure is one of the pillars on which the Polish Air Navigation Services Agency (PANSa) relies in providing air navigation services. From land plots and buildings located at 15 airports across Poland to technologically advanced communication, navigation and surveillance (CNS) systems, PANSa has numerous infrastructure assets which can be leased/rented by private businesses without any detriment to the PANSa's primary activities:



Rent of spaces



Lease of land and buildings



Lease of machinery and equipment



Provision of utilities



Telecommunications and teletechnical services



Other



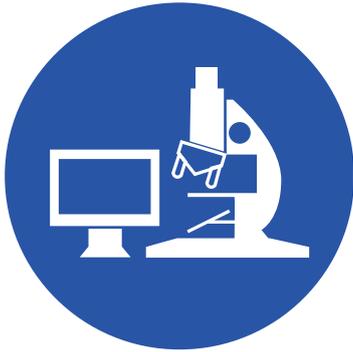
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PANSA has not only properties at 15 controlled airports in largest cities of Poland, it also operates radio location and radio communications centres evenly spread across the country, also in small towns. PANSA-managed facilities can be found all the way from Nowy Targ through Gąbin to Trzebielino. They include masts that dominate their neighbourhoods which can be used as e.g. base stations by mobile telephony operators or other entities that use wireless communications systems.

Jacek Staroszczyk,
Business Development Senior Specialist,
10 years of experience at PANSA



For detailed information on PANSA's infrastructure, please visit www.pansa.pl/infrastructure



RESEARCH AND DEVELOPMENT

As an institution that relies on large volumes of various aeronautical information and operational data, the Polish Air Navigation Services Agency (PANSa) perfectly understands changes which are now taking place in the aviation industry, and more broadly in transport and economy. At the same time, PANSa dynamically responds to the changing market needs and trends by flexibly adapting to them. The digitalisation, virtualisation and automation of operations that lead to the so-called Fourth Industrial Revolution are introducing such new technologies as the Internet of Things (IoT), Cloud Computing (CC), Augmented Reality (AR), Machine Learning (ML) and Artificial Intelligence (AI) also to aviation and air navigation. Being part of the ongoing changes, PANSa is actively involved in research and development (R&D) activities for the new generation of aviation - Aviation 4.0.





SESAR R&D

PANSA creates aviation of the future by, among other activities, implementing tasks that arise from the Single European Sky (SES) initiative. It is actively involved in research programmes, including the Single European Sky ATM Research (SESAR) - the SES's technological component. The key objectives of the SESAR programme include reduction of delays in air traffic, limitation of flight costs, increase in airport and airspace capacities and reduction of the negative impact of aviation on the environment.

As part of the related R&D work, PANSA is involved in planning, developing and implementing common technologies and solutions to support and modernise air traffic management in Europe. The solutions are subsequently implemented at the deployment stage, including SESAR Deployment.

SESAR initiatives are financed from the European Union Framework Programme Horizon 2020, the largest research and innovation programme in the EU's history.

As part of the Horizon 2020, PANSA develops and validates its own concepts as well as ones proposed by domestic and international partners. The resulting solutions (Industrial Research and Validation, or IR&V, projects) are meant to be deployed and used operationally by both PANSA and Baltic FAB, which shall translate into increased efficiency of the European ATM system.

NaviHub

As an institution whose competences and resources are unique in Poland, PANSA consolidates them in the area of aviation by initiating and co-creating NaviHub - a project which is comprised of a network of organisations, sites and equipment (Centre of Competence) as well as data, knowledge and experience (LabHub) and infrastructure (NaviSpot). NaviHub represents cooperation of people and institutions that provides for designing, deploying and testing innovative aviation projects in field conditions.



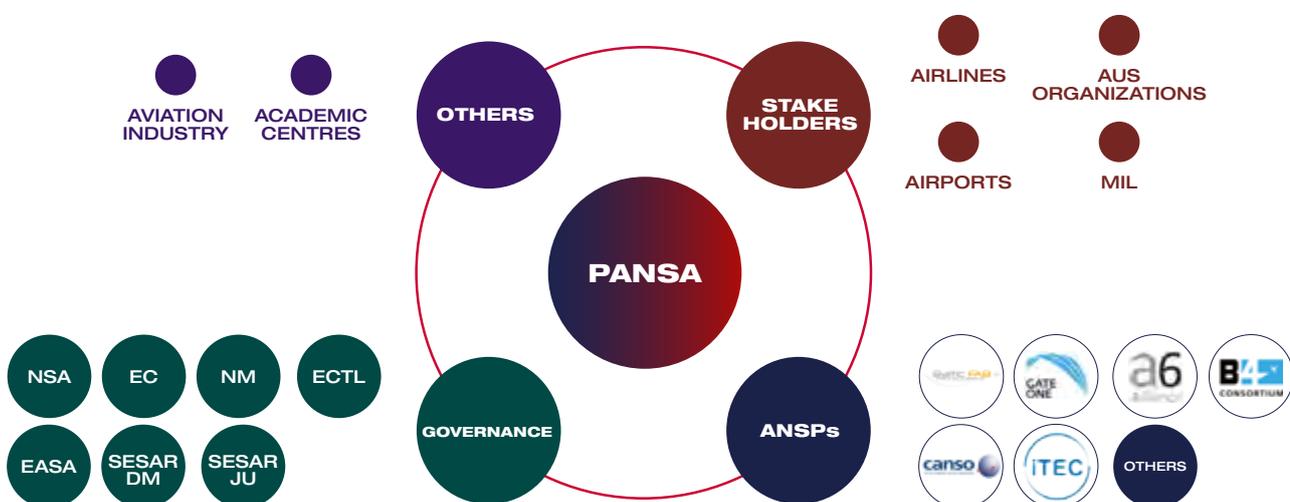
For detailed information on PANSA's research and development activities please visit www.pansa.pl/research_development



INTERNATIONAL AFFAIRS

The Polish Air Navigation Services Agency's (PANSA) international cooperation is aimed primarily at achieving its strategic, operational and developmental objectives by active involvement in activities conducted by various international groups, initiatives and associations.

Thanks to its membership in such leading international organisations as ICAO, EASA, CANSO and EUROCONTROL, active cooperation with the European Commission and Network Manager, involvement in efforts to develop the Single European Sky, participation in SESAR Deployment Manager and SESAR Joint Undertaking projects, participation in key initiatives undertaken by air traffic managers like A6 Alliance, GATE ONE, B4 Consortium, as well as extensive bilateral contacts, PANSA actively shapes the current and future air traffic management sector in Europe.



PANSA closely cooperates with its Lithuanian counterpart Oro Navigacija, with whom it makes up the functional airspace block BalticFAB. Similarly to other European FABs, BalticFAB has been established under EU law. PANSA joins forces with Oro Navigacija to pursue operational, technical and communications cooperation with the adjacent countries and other European functional airspace blocks as part of the InterFAB initiative.



For detailed information on PANSA's international affairs, please visit www.pansa.pl/international_affairs



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