

# 2018 AIR TRAFFIC REPORT





## F O R E W O R D

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**Jahangir Askerov**

President  
"Azerbaijan Airlines" CJSC

As a result of successful and consistent policy pursued by the President of the Republic of Azerbaijan, Mr. Ilham Aliyev, 2018 has been a year in which we recorded the great results and achievements. High quality, sustainability and safety remained the main components of our solid development.

One of the important events of the Civil Aviation of Azerbaijan was that, in 2018 the international air transport rating organization Skytrax confirmed the prestigious 5-Star Airport Rating for the Heydar Aliyev International Airport in Baku, Azerbaijan, which is the highest mark of quality distinction in the airport environment. The 5-Star rating demonstrates that Heydar Aliyev International Airport is at the forefront in terms of service quality and consistency, together with product quality across the airport. Another great achievement was that the capital of Azerbaijan has been chosen

as a host city of one of the most prestigious events in the field of civil aviation, 2020 CANSO Global ATM Summit and 24th Annual General Meeting. It is for the first time in the history of Azerbaijan's Civil Aviation when such a large-scale and important summit to be held in Baku and we are fully prepared to take on such a responsibility.

In 2018 Azerbaijan has celebrated the 80th anniversary of its Civil Aviation. It was a historical date for "Azeraeronavigation" ATD as an integral part of the civil aviation of the country. For 80 years Azerbaijani aviation has come a long way, the results and accomplishments of which are unbelievable. All these great achievements and significant work that has been done, today inspire and motivate us to work harder, increase our capacity and productivity in order to ensure solid progress and sustainable development of our country.

In this regard 2018 was an outstanding year for "Azeraeronavigation" ATD with some remarkable achievements and great results aimed at the development of the air navigation regionally and globally. We are consciously preparing for the continuous and ever changing challenges of the aviation industry and are committed to shape its future in most efficient, sustainable and safe way. With all the achievements of 2018 we are proud to meet 2019 with new goals and enthusiastic plans.

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R E P O R T O N

A I R T R A F F I C

OVER THE YEARS,  
SUCCESSFULLY  
AND DYNAMICALLY  
PROGRESSING AZERBAIJAN  
YET IS FULLY CONSISTENT  
WITH THE PACE OF  
DYNAMIC MODERN WORLD  
AND DEVELOPMENT IN ALL  
AREAS, AS WELL AS IN THE  
AVIATION INDUSTRY.

With a total FIR area of 165.4 km<sup>2</sup>, an attractive geographical location at the junction of Europe and Asia and well-established image of a state with high level of security and credibility, the role of Azerbaijan as a transit state has significantly increased. Today there are eight operating ATC Towers and one ACC center equipped with the full range of facilities and the qualified working staff to provide high level services of eight airports, six of which are international. Always striving for high quality, productivity, efficiency and safety in the services we are providing, we are constantly committed to innovation and progress in order to meet the challenges of the air traffic growth and respond to the demands of the aviation industry.

All of the above-mentioned, enabled Azerbaijan's air navigation services provider (ANSP) – "Azeraeronavigation" Air Traffic Department (ATD) of "Azerbaijan Airlines" Closed Joint Stock Company (CJSC) - to become a leading air navigation services provider in the area. Active participation in all regional projects,

the introduction of modern navigation equipment, technologies, procedures and recommendations of the best ICAO practice and the advanced training of highly qualified specialists noticeably increased the attractiveness of Azerbaijan airspace. Today, "Azeraeronavigation" ATD serves 150 thousand flights a year, 95 thousand of which are transit flights over the territory of Azerbaijan Republic. Aiming at the strengthening of international cooperation and coordination among the stakeholders we continued to participate in all important civil aviation events of ICAO, CANSO and EUROCONTROL, signing new agreements and promoting innovations.

In a state of inexorable growth of air traffic all over the world we are committed to maximize benefits for every airspace user and to put all the efforts to achieve our goals relying on our professional, motivated and committed workforce.

**Farhan Guliyev**  
Director  
ATD "Azeraeronavigation"



O P E R A T I O N S

1. Airspace Supervision and Efficiency Center (ASEC)



This futuristic project was designed using experience in implementing THALES ATM and ATFM systems, as well as the unique expertise in European R&D activities through SESAR and cooperation with EUROCONTROL. The project paves the way to the implementation of new collaborative concepts such as currently demonstrated in the EUROPEAN project SESAR TOPLINK project, enabling a fully cooperative interaction between ANSPs, Airlines (IATA members) and Airport operators, aiming at a joint optimization of the operations of each stakeholder. Innovative experience and latest developments are used in the sphere of aeronautical data exchange at the Azerbaijan Airspace Supervision & Efficiency Centre (ASEC) that could be a key connecting point in the planning of air traffic flows with the NM of EUROCONTROL. Thanks to the ASEC, Azerbaijan will play the role of a strategic partner of both EUROCONTROL and the Asian air flow planning center.

The Center generally performs the following functions:

- development of route networks at the regional level;
- planning and management of air traffic flows and airspace capacity;
- coordination with EUROCONTROL on air traffic flow directions with the aim of efficient congestion and increase of capacity;
- monitoring, analysis, preparation of statistical data and reports on airspace utilization;
- analysis of airspace congestion;
- airspace simulation with the aim of timely response to changes in air traffic flows;
- research of the market of the Azerbaijani airspace's potential users and their attraction;
- control of implementation of international standards;
- risk assessment throughout all business domains.

What-If Analysis:

- testing regulation on traffic volumes;
- testing sector merge/split;
- testing airspace/sector configuration change;
- comparing routing alternatives.

Sophisticated fast-time simulation, which enables to model designs to precisely meet our customer's needs, including:

- capacity tests;
- assessment of implementation of changes in route network structure, new SIDs/STARs, new\updated ATC procedures;
- assessment of separation minima for arrivals, departures and en-route;
- weather effect on air traffic;
- innovative concepts for descents.

ASEC has carried out a number of successful airspace simulations in cooperation with DFS, testing and evaluating the new ideas, concepts and technologies, which allowed each development step to be continuously reviewed, from the initial idea down to the testing and implementation.

One of the first customers of ASEC was Kazakhstan. With the aim of assessment of safety and efficiency, the Fast-time Simulation of new R-NAV SIDs/STARs and approach procedures implementation was conducted for Astana and Almaty airports.

ASEC offers airlines around the world a range of safe, efficient and innovative en-route services in Azerbaijan airspace through:

Air Traffic Flow and Capacity Management:

- monitoring the current Air Traffic Flow situation;
- monitoring Demand and Capacity potential issues;
- early decision support in order to mitigate the identified issues.

Tactical and pre-tactical forecast of Air Traffic Flow situation:

- aircraft Trajectories;
- airspace entry counts and Occupancy;
- airspace Controller Workload.

## 2. Quality Management System (QMS)

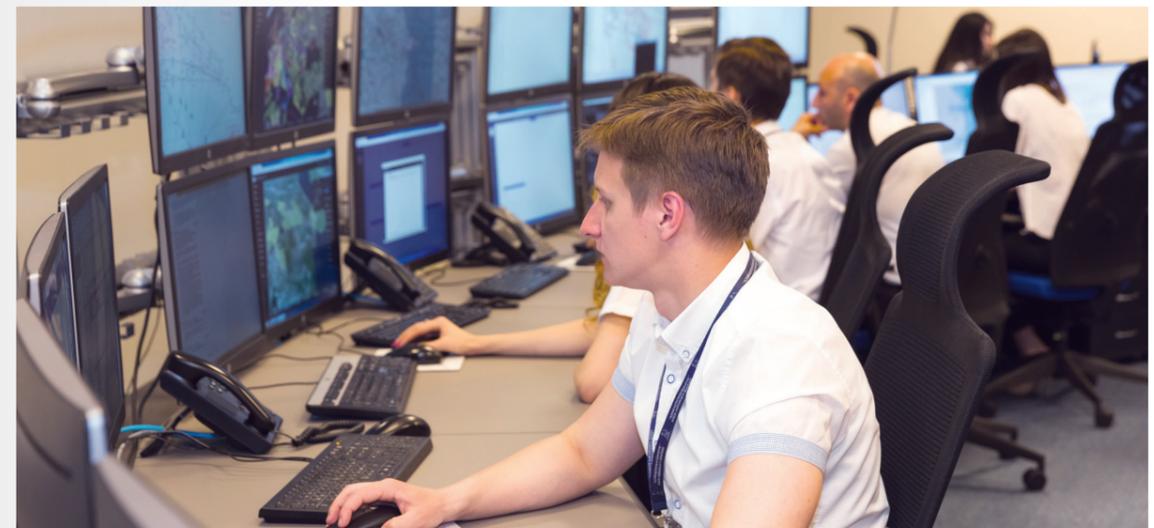


In the first quarter of 2018, by the joint efforts of "Azeraeronavigation" ATD units and the Standardization and Quality Management System Group, a new version of the ISO 9001: 2015 Quality Management System international standard has been implemented. This stage required the improvement of the organization's Quality Management System (QMS), the development and revision of AZANS internal regulatory procedures, implementation of the risk oriented thinking and performance based approach in management. Thus, "Azeraeronavigation" ATD units were fully prepared for re-certification, so that in June 2018 successfully passed the external audit and were certified by the German certification body DQS (Deutsche Gesellschaft für Qualität) and the International Certification Network IQ NET in accordance with the standard ISO 9001: 2015. Hereby, "Azeraeronavigation" ATD became one of the first organizations in Azerbaijan that received the certificate of the new version of ISO 9001: 2015 standard.

## 3. AIS to AIM



"Azeraeronavigation" ATD has completed the process of implementation of the integrated Aeronautical Information Management system - AIM. The transition of Aeronautical Information Services (AIS) to the modern method of Aeronautical Information Management- AIM, was implemented with the support of "Azerbaijan Airlines" CJSC. The introduction of advanced technologies has allowed organizing a continuous flow of aeronautical information from the originators to the end users in digital form that will improve the quality of services in providing aeronautical data, speeding up the processing and providing important information for ensuring safety, regularity and efficiency of flights. The new system reflects the System Wide Information Management (SWIM) concept in accordance with the global concept of air traffic management and is a part of the ICAO roadmap. SWIM supports the exchange of aviation, airport, flight, meteorological information, as well as information on the air traffic flows and airspace capacity. This approach allows ensuring end-to-end information exchange between all providers and users of information while organizing the air traffic. Mastering the new technologies, AIM of Azerbaijan accepts the challenge of technology development and is ready to implement ideas that in the recent past seemed unattainable.



## 4. METEO

Aviation Meteorological Center has successfully passed the certification audit and was certified in accordance with ISO 9001: 2015 QMS standard. Documents reflecting the relevant procedures for the collection and publication of OPMET (METAR/SPECI, TAF) information, which is one of the main issues of meteorological services, have been developed and approved. In order to receive satellite information from the EUTELSAT 8 West satellite, in accordance with the requirements of European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), the relevant contract regarding the purchase of TECHNAVIA system was signed. Currently, projects for the introduction of advanced technologies in the field of 4D weather forecasting, digital broadcasting D-ATIS, DVOLMET are being implemented.

## 5. Training

Aviation is a dynamic and constantly evolving industry with growing demands for properly selected and trained professionals. In order to meet existing international and national standards, AZANS has designed and implemented a comprehensive competency based assessment and training system, allowing to identify in timely manner any existing gaps in qualification of its personnel and to successfully deliver tailor-made and specifically targeted specialized training programs for all levels of aviation professionals. The implemented system is aimed to develop both hard and soft skills through a combination of theoretical and practical training sessions.

In 2018 "Azeraeronavigation" ATD training experts in cooperation with the National Aviation Academy and recognized international training centers such as SENASA, DFS Academy, CANI, IANS, LGS and others designed and successfully provided training programs in different formats for 568 specialists from different centers and departments.

## 6. Air Navigation Department of the National Aviation Academy



After the reconstruction, the Air Navigation Department was launched at the National Aviation Academy. With the support of the "Azerbaijan Airlines" CJSC and the "Azaeronavigation" ATD, the department was completely modernized in accordance with the up-to-date requirements. The new interfaces and technologies necessary for the efficient educational process were introduced. The curriculum of the department is adapted to international standards and reflects the guiding requirements of the ICAO Doc.10056 (Manual on air traffic controller competency-based training and assessment), of European Aviation Safety Agency (EASA), in particular, of the Implementing Regulation No. 2015/340 (requirements to ATC training organization).

With the support of the DFS Academy-German Academy of Air Navigation, the DFS E-Learning system was put into operation. The distance learning program provided by the DFS-Academy is based on 12 subjects and is carried out online directly through the DFS-Academy database.



## 7. Unmanned Aircraft System Traffic Management (UTM)

Considering the growing demand and use of unmanned aerial vehicles (UAV) it's inevitable that drones will soon become a part of our daily lives. For those of us in the aviation industry, we need to work collectively to find the safest way to integrate these platforms into our airspace management system. The UTM is separate from but complementary to the Air Traffic Management (ATM) system. The UTM development will ultimately identify services, roles/responsibilities, information architecture, data exchange protocols, software functions, infrastructure, and performance requirements for enabling the management of low-altitude uncontrolled UAS operations.

Being an Air Navigation Service Provider (ANSP) we are looking for the ways of development as a safe integration of unmanned aircraft into controlled airspace, deploying UTM by analyzing market, suppliers, technology and innovations with the priority which is to ensure that by embracing innovation, we don't compromise the safety of traditional manned-aviation operations.

## 8. Memorandum of Understanding between "Azaeronavigation" ATD and Abraham Technology Limited and Ehang Intelligent Equipment companies

Due to the frequent incidents of unauthorized flights of unmanned aerial vehicles (UAVs) near the airports, an urgent need arose throughout the world to create an appropriate system for protecting these strategic facilities. For this purpose the delegation of representatives of the high-tech companies in the sphere of innovative projects and technologies from the Guangzhou city led by Managing Director of Abraham Technology Limited Corporation Mr. Stanislav Kochkin and Vice President of Ehang Intelligent Equipment Mr. Cora Tang, had an official visit to Baku on September 18, 2018. The opportunities for Chinese high-tech companies' participation in the development of services and technologies for unmanned aerial vehicles (UAVs) in civilian spheres, particularly in commercial transportation, cartography, environmental assessment, civil infrastructure monitoring and etc. was discussed at the meeting. As a result of the visit, the memorandum of understanding was signed between the "Azaeronavigation" ATD and Abraham Technology Limited and Ehang Intelligent Equipment companies. The main objective of the signed memorandum is collaboration in establishment of Command Control Centre at the Heydar Aliyev International Airport in order to control flights of civil UAVs after their registration and certification by relevant authorities in Azerbaijan.



## 9. Overhaul of the radio engineering campus at the Heydar Aliyev International Airport

The opening of a radio engineering flight support camp located at the territory of the Heydar Aliyev International Airport, where a major overhaul had been started in February-march 2018, was held on December 7, 2018 by the President of "Azerbaijan Hava Yollari" CJSC, Mr. Jahangir Askerov.

The radio engineering flight support camp of the Heydar Aliyev International Airport is an important and strategic object of the "Azaeronavigation" ATD. On the area of 3.08 hectares, the most important aeronavigation means meeting all the ICAO requirements, such as route and airfield radars, Air-Ground communications, meteorological observation and forecasting systems, satellite communication and navigation systems were installed manned-aviation operations.

## 10. CVOR/DME Zagatala

CVOR/DME type equipment was stationary installed at Zagatala airport in compliance with all ICAO standards and requirements and since February, 5, its operation was launched. The CVOR ensures precise navigation during the entire flight and contributes to optimized utilization of the airspace. The VOR products are ground-based radio navigation aids which enable an aircraft to determine its bearing relative to the location of the system and support approach and en route guidance.

The DME product family contains a state-of-the-art digital receiver with improved sensitivity and high capacity to manage over 200 aircraft interrogators simultaneously.

The DME ground-based navaid for enroute and terminal guidance enables an aircraft to determine its distance relatively to the location of the beacon. Designed for logistical efficiency and support commonality, the DME distinguishes with high commonality of modules for the best flexibility, safety and maintenance.

## 11. Virtual Tower

The work on the implementation of Gabala Virtual Tower in the framework of the ASEC Phase 2 project, that aims to be able to provide Air Traffic Services in Gabala remotely from Baku ATM AI Center building was started. The building of the camera system tower has been constructed at Gabala International airport and all the documentary work has been finalized.

## 12. NETTY 2018

The ceremony of the 14th National Internet Award of Azerbaijan - NETTY 2018 was held in Baku, on June 2018. The NETTY Award was founded in 2004. This is the first professional award in the field of information technology, created to promote the development of the national segment of the World Wide Web and the IT market as a whole.

In a formal setting, NETTY academics named the best national websites, social pages, applications and projects among those participating in the competition this year.

At the final awards ceremony "Azeraeronavigation" ATD with its AIS to AIM project was named the winner of the National Award of Azerbaijan NETTY 2018 in the nomination - IT Event of the 2018: "Application of an innovative system in the "Azeraeronavigation" Air Traffic Department of "Azerbaijan Hava Yolları" CJSC".

# INTERNATIONAL COOPERATION

Collaboration, exchange of information, experience and global interoperability among all stakeholders are key factors in order to operate efficiently and overcome obstacles and challenges that the future of aviation industry puts in front of us. We are constantly making efforts to improve flight safety, increase capacity, enhance environmental protection and - as an ANSP- provide essential support to industry partners and maximize benefits for every airspace users.

## 2. HungaroControl-AZANS Memorandum of Cooperation

On October 9, 2018, there was signed a Memorandum of Cooperation between AZANS and HungaroControl aiming to develop bilateral relations between two organizations for the benefit of each other and international civil aviation as a whole. The main areas of joint cooperation are R&D, environment, airspace simulation and validation, UTM, concept for remote TWR solution and its human relevancies, training and authority approval and etc.

## 1. IATA



In a framework of World ATM Congress, there was signed a Memorandum of Understanding (MoU) between AZANS and IATA with the intention to develop and enhance the cooperation in the field of air traffic management. In the context of agreement, there are negotiations on the mutually acceptable accreditation status of the "Azeraeronavigation" ATD as a training organization of IATA. The cooperation in the air traffic control and air traffic management, training of personnel, development of PANS / OPS procedures, airspace fast-time simulation and etc. has been covered in the Memorandum. The MoU will contribute to ensuring safe and efficient air traffic service in the region.



## 3. DHMI-AZANS

Cooperation between "Azeraeronavigation" ATD and DHMI (Turkey) is a continuation of the strategic policy of the state, pursued by Ilham Aliyev, the President of Azerbaijan. The Memorandum of Cooperation, signed in 2017 by the air navigation services providers of both states is an evidence of this. In this regard, in order to determine the direction for the implementation of the memorandum and to extend the areas of mutual cooperation, the appropriate work was performed in 2018.

#### 4. CANSO Europe



AZANS is playing a proactive role in regional and international co-operation in the sphere of Air Traffic Management. In addition to ICAO and ECAC membership, Azerbaijan is a full member of Civil Air Navigation Services Organization (CANSO). As a result of deepening relationship and cooperation, "Azeraeronavigation" ATD has become a member of CANSO Europe. AZANS was elected to CANSO Europe Executive Committee in Brussels and is going to participate closely in the development of European Airspace Strategy. Thus, AZANS together with other Members will be able to support the delivery of safe, efficient and sustainable air traffic management system across Europe and strengthen regional ATM performance.

#### 5. CANSO Working Groups

As a result of continuous work, using the best practices and latest developments another positive step in terms of strengthening and deepening relationships with CANSO is the election of two AZANS specialists as the chairmen of CANSO working groups and participation of AZANS experts in most of CANSO global working groups. We understand the importance of working together towards a safe, efficient, environment friendly and performance-based air traffic management system and seek to achieve the outcomes that benefit not only our organization but the industry as a whole.

#### 6. DFS Academy Visit to AZANS



**DFS Deutsche Flugsicherung**

On April 24-25, 2018 the delegation of the DFS Academy headed by the director, Mr. Otto Fischer, made an official visit to "Azeraeronavigation" ATD and to the National Aviation Academy. The main purpose of the visit was to discussing the cooperation between "Azeraeronavigation" ATD, the National Aviation Academy and the DFS Academy in the field ATC personnel training. As a result of meetings and negotiations, there were reached the agreements on the main areas of cooperation, such as attraction of experts from the DFS Academy to the joint work on the professional training for "Azeraeronavigation" ATD personnel.



#### 7. EUROCONTROL Visit to Baku



AZANS extends close coordination with EUROCONTROL in air traffic management by establishing an international flight planning system, using the best practices and latest developments of EUROCONTROL and exchange of the data. In this regard, the delegation from EUROCONTROL headed by Mr. Joe Sultana, the Director Network Manager, had a working visit to Baku on May 16, 2018. During the visit, the guests got acquainted with Azerbaijani civil aviation facilities, including "Azeraeronavigation" ATD, the structure and achievements of the organization in the field of air navigation, and the new Airspace Supervision and Efficiency Center (ASEC). ASEC, which is the key point in the air traffic flow management planning aroused great interest of the guests.

#### 8. Baku hosts CANSO 2020 Global ATM Summit and 24th AGM

The capital of Azerbaijan was chosen as the host and venue respectively for the CANSO Global ATM Summit and 24th Annual General Meeting in June, 2020. The candidacy of Baku was unanimously elected at the meeting of the CANSO Executive Committee in Bangkok. The annual Global ATM Summit is one of the most prestigious events in the field of civil aviation and over 250 participants from more than 100 countries take part at the summit every year. In this regard, a delegation of the senior management of CANSO, headed by the Director General, Mr. Jeff Poole, visited Baku. The guests got acquainted with Azerbaijan's civil aviation facilities, including "Azeraeronavigation" ATD, Airspace Supervision & Efficiency Center and the new airport complex of the Heydar Aliyev International Airport. At the meeting with AZAL President, Mr. Jahangir Asgarov, the agreement on host of the Global ATM Summit in Baku was signed, as well as, the prospects for cooperation between AZANS and CANSO were discussed. The industry as a whole.

**9. 35th Meeting of EURASIA Coordination Council**



On 08-11 October, 2018, Azerbaijan's capital hosted the 35th joint meeting of "Coordination Council and Coordination Expert Group Eurasia" which brought together the national air navigation services providers of CIS countries. Considering the strategic and geopolitical location of the Eurasia countries and the need in air traffic growth, the harmonization of air navigation services and the long-term joint airspace management planning among these countries are of a high importance. The meeting was attended by over than 90 participants from 15 countries, including general directors of national ANSPs of CIS countries - Azerbaijan, Russia, Kazakhstan, Belarus, Kyrgyzstan, Tajikistan, Uzbekistan, as well as by the representatives of international aviation organizations like ICAO, IATA, Interstate Aviation Committee and etc. During the meeting there were made the presentations by the national ANSPs' representatives of Eurasia member states about their air navigation systems and future development plans.

**10. International ATCO Proficiency Competition of Air Navigation Service Providers - Members of Eurasia Coordination Council**

St. Petersburg State University of Civil Aviation hosted the International ATCO Proficiency Competition of Air Navigation Service Providers – the Members of Eurasia Coordination Council- from 26 of February to 2 of March, 2018. The delegation of "Azeraeronavigation" ATD was represented by the highly qualified Air Traffic Controllers who demonstrated their professionalism, concentration and outstanding skills during the Competition. As a result of AZANS's ATCOs remarkable performance, "Azeraeronavigation" ATD became the winner in the "Practical ATC Simulator operation" category. system and seek to achieve the outcomes that benefit not only our organization but the industry as a whole.



D E V E L O P M E N T I N 2 0 1 9

The following developments are planned for 2019:

**1. ASEC Phase 2**

As a continuation of the ambitious ASEC project that supposes to become a key research, development and simulation center of the region, on February 22, 2018 there was signed a 2nd amendment to the general ASEC Contract called ASEC, Phase 2. In 2019 the main goals of the

**Phase 2 are the following:**

- Implementation of the ATC Contingency Centre in Baku ASEC building;
- Provision of the additional features to enrich the TopSky-ATFM deployed during Phase 1.

**2. Virtual Tower**

As a next step of the implementation of the Virtual Tower, the installation of all necessary equipment is planned for March, 2019.

**3. Nakhchivan**

Modernization and upgrade of the existing CNS infrastructure at Nakhchivan International airports as well as the implementation of Nakhchivan - Igdir air route and update of SID/STAR structure are expected in 2019.

In Nakhchivan region the

**4. VSAT**

Connection of AZANS to the Black Sea VSAT Network.

**5. Feasibility Study**

Feasibility study of the existing Air Traffic Management / Communication, Navigation, Surveillance (ATM/CNS) infrastructure efficiency and effectiveness of the Azerbaijani air navigation system

**6. Professional Development**

Further professional development of the AZANS staff through both local facilities such as AZANS and National Aviation Academy and international training centers like SENASA, DFS Academy, CANI and etc.

**7. Briefing**

Introduction of the advanced International Group Briefing Center at the Heydar Aliyev International Airport.

**8. PENS**

Connection to the PENS (Pan European Network Services).

**9. Digital Services**

Introduction of such digital services as:

- DCL
- DVOLMET
- DATIS
- CPDLC

**10. TECNAVIA Skyceiver Systems**

The system is aimed for interpretation and visualization of cloud fields, wind and temperature maps world-wide.

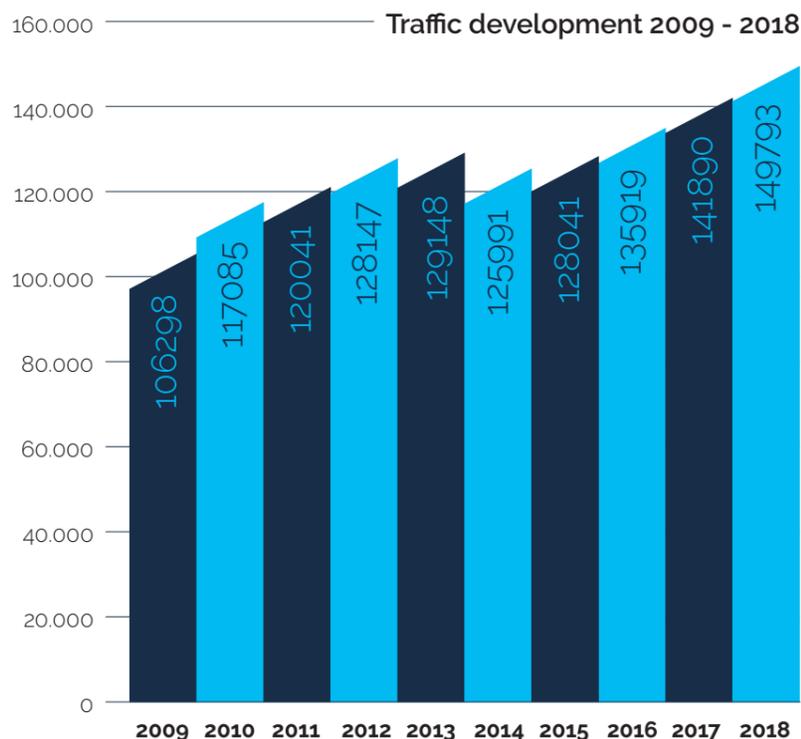


**THE AIRSPACE OF THE REPUBLIC OF AZERBAIJAN.**

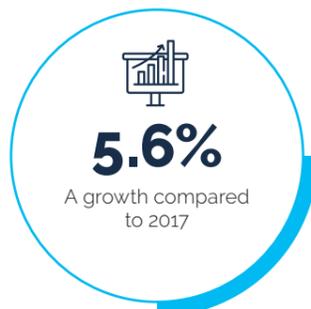
Baku Flight Information Region (UBBA FIR).

**1.1 Traffic development**

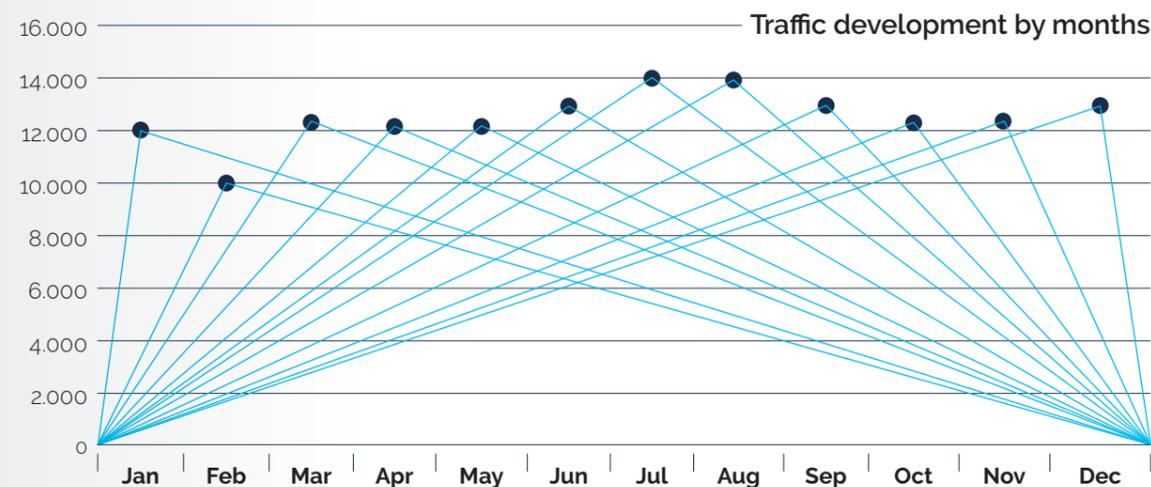
In Azerbaijan, the number of flights under instrument flight rules (IFR) recorded in 2018 increased to a total of 149793 and it is a growth of 5.6% compared to 2017. Growth of both types of traffic, movements at the aerodromes and transit flights, has been recorded. Average number of IFR flights in Baku FIR has reached 410 aircraft per day.



Picture 1.1 | Baku FIR traffic development by year.



Most month traffic was recorded in July (14143 IFR flights) and peak day was recorded on June 29, 2018 (501 IFR flights).



Picture 1.2 | Baku FIR traffic development by months of the year.

**1.2 Traffic segments**

In 2018, 64% of the flights in Baku FIR was overflights, 4% was domestic flights within Azerbaijan and the remaining 32% was international flights, arriving at or departing from airports of the Republic of Azerbaijan. Share of overflight traffic has been increased by 1% compared with 2017, when decline of 1% has been recorded of share of movements at the aerodromes of the Republic of Azerbaijan (share of domestic flights is remained the same and share of international flights is decreased by 1%)



**64%**  
Overflights

**4%**  
Domestic flights

**32%**  
International aerodrome movements

### 1.3 Capacity vs traffic

AZANS launched the operation of Azerbaijan Airspace Supervision and Efficiency Centre (ASEC) from February 08th 2018

AZANS did not have the opportunity to provide capacity assessment of ATC Units/Sectors of Baku FIR by itself before the creation of the ASEC.

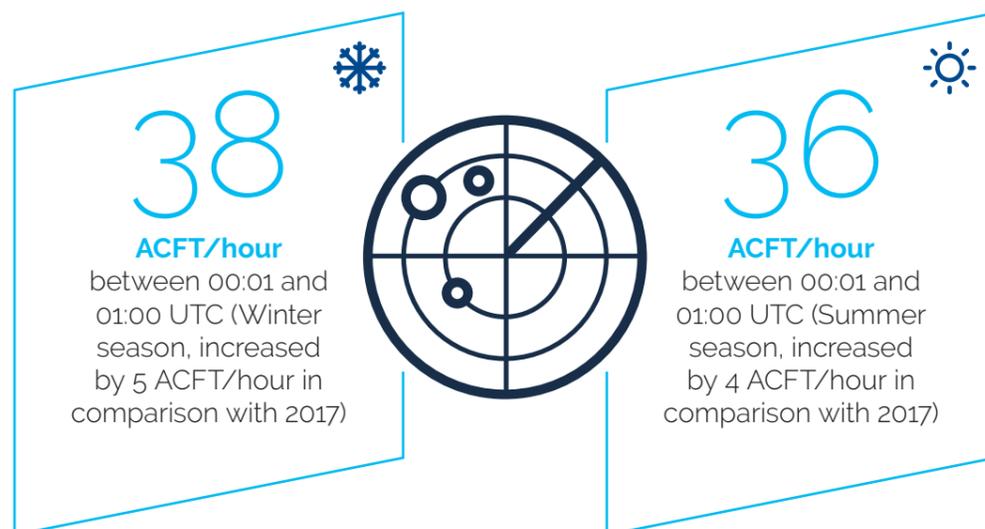
The new Airspace Supervision and Efficiency Center carried out fast-time simulation and capacity assessment of ATC Units/Sectors of FIR Baku in 2018.

Based on the simulation results, the following criteria of the capacity for ATC sectors were established:

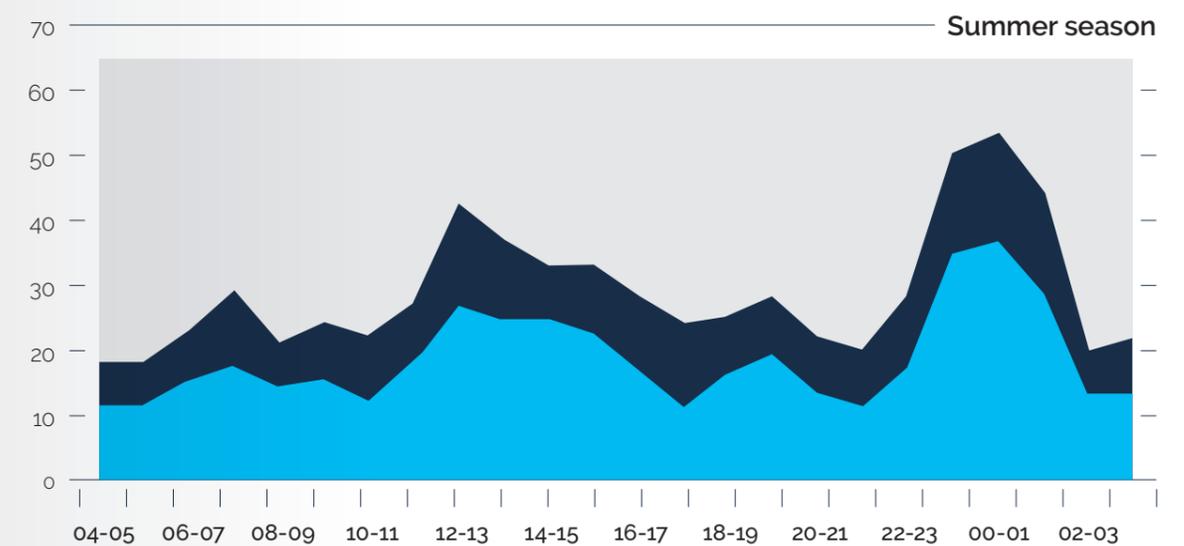
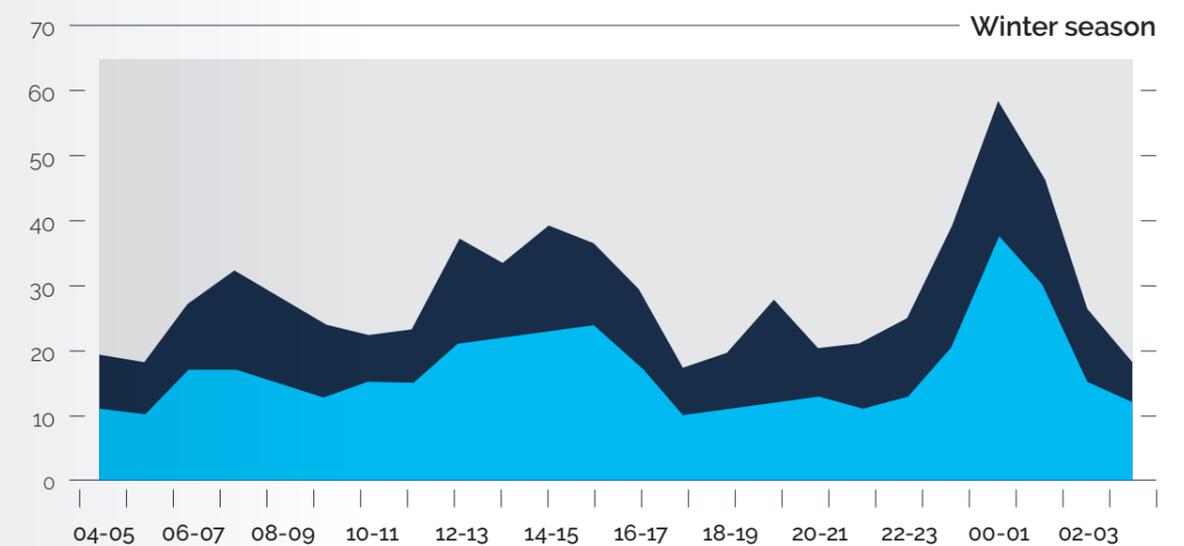
ATC Unit/Sector	Capacity ACFT/Hour
Baku ACC West	41
Baku ACC East	47
Baku ACC sector "SOUTH"	15
Baku APP	27
Baku Tower	27
Ganja APP	15
Nakhchivan TWR	7
Gabala TWR	6
Lenkaran TWR	3
Zagatala TWR	4
Yevlakh TWR	4

Capacity of FIR Baku is 65 ACFT/hour and published in LSSIP Azerbaijan. Existing capacity meets traffic demand. The highest traffic volume of 58 ACFT/hour were recorded on February 14, 2018 between 00:01 and 01:00 UTC and it is the highest traffic volume per hour ever recorded in Baku FIR.

The most congested peak hours (average data) are:



The following picture reflects the average traffic by hour vs capacity of Baku FIR.

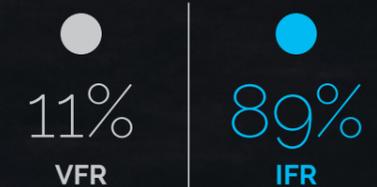
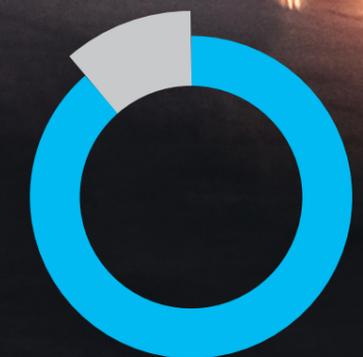
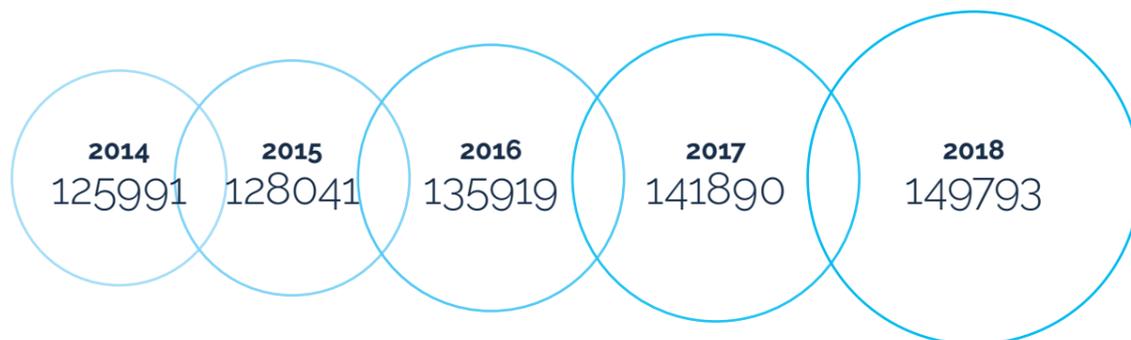
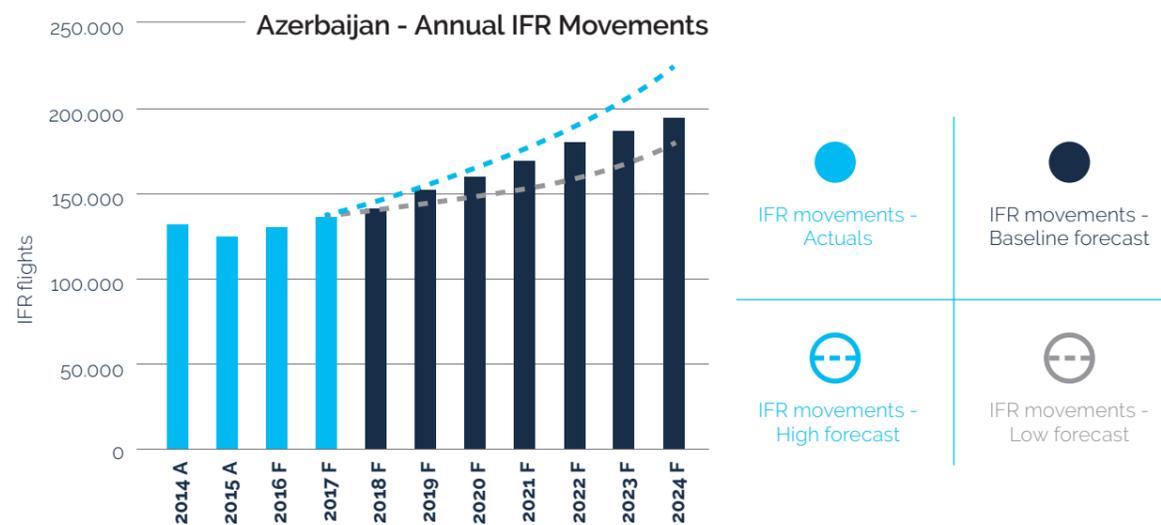


● Average hourly traffic demand  
● Recorded peaks  
● Capacity

Picture 1.4 | Hourly traffic volume vs Baku FIR capacity

1.4 THE EUROCONTROL SEVEN-YEAR FORECAST PREDICTS AN AVERAGE ANNUAL TRAFFIC GROWTH BETWEEN 3.0% AND 7.5%, WITH AN AVERAGE BASELINE GROWTH OF 5.0% THROUGHOUT THE PLANNING CYCLE 2019 - 2024.

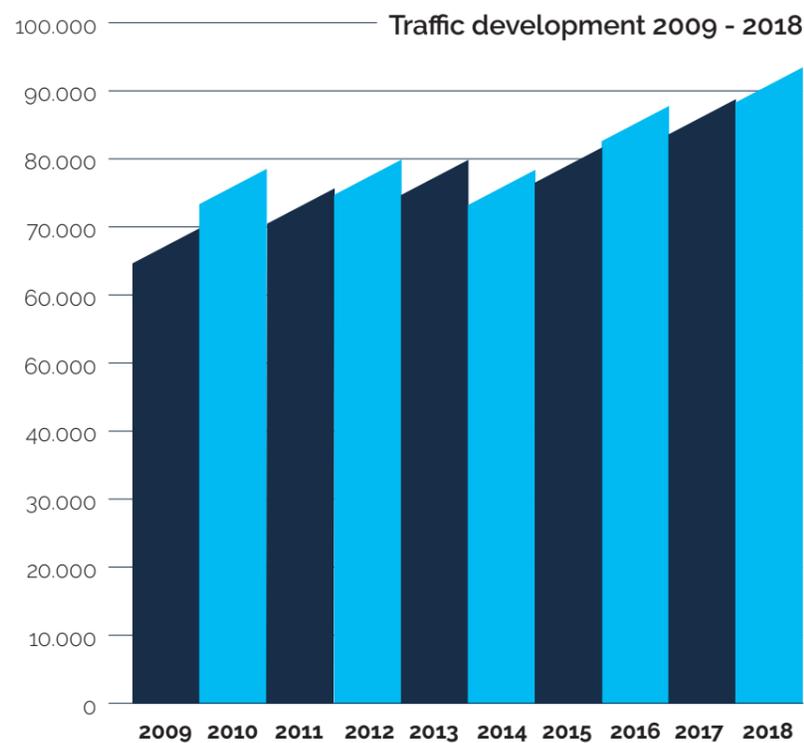
1.5 The total number of flights recorded in 2018 is **169117** where **149793** flights are under instrument flight rules (IFR) and **19324** flights are under visual flights rules (VFR). Average number of flights in Baku FIR is **464** aircraft per day. It is a growth of **6.6%** compared to 2017. Shares of IFR and VFR have been remained the same.



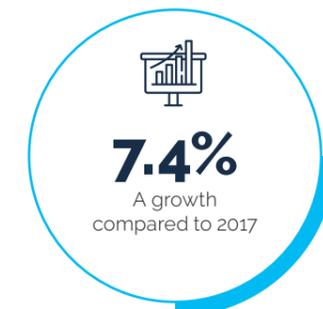
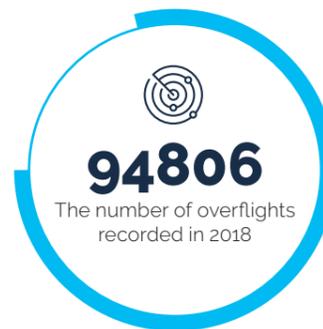
## 2. OVERFLIGHT

### 2.1 Traffic development

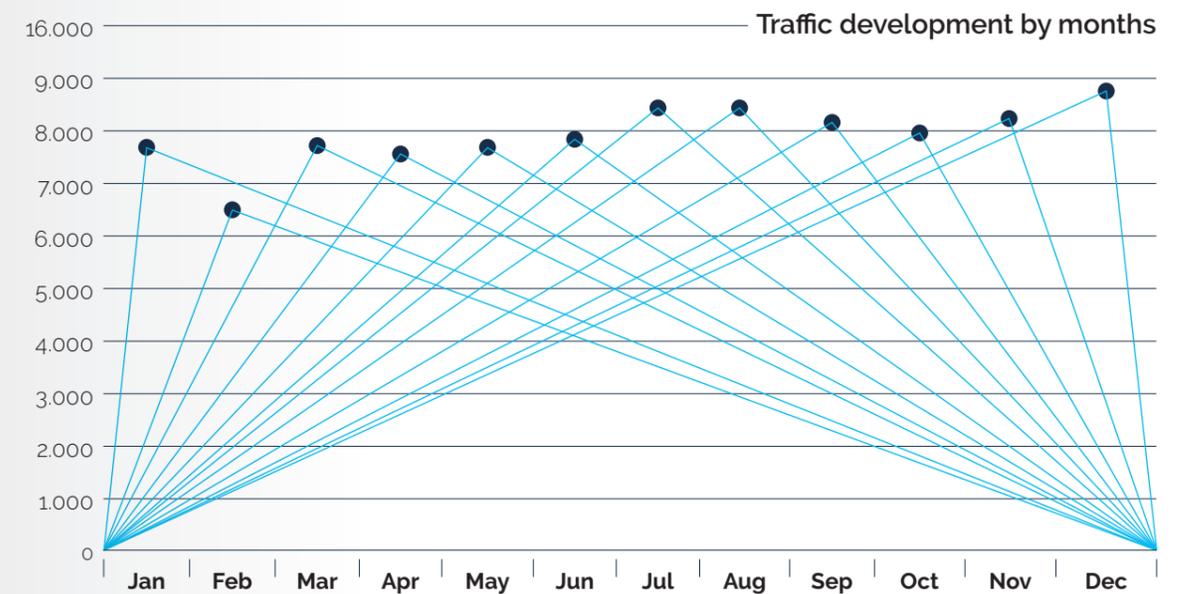
The number of overflights recorded in 2018 increased to a total of 94806 and it is a growth of 7.4% compared to 2017. Average figure of a number of overflights in Baku FIR in 2018 is 260 aircraft per day.



Picture 2.1 | Overflight traffic development by year



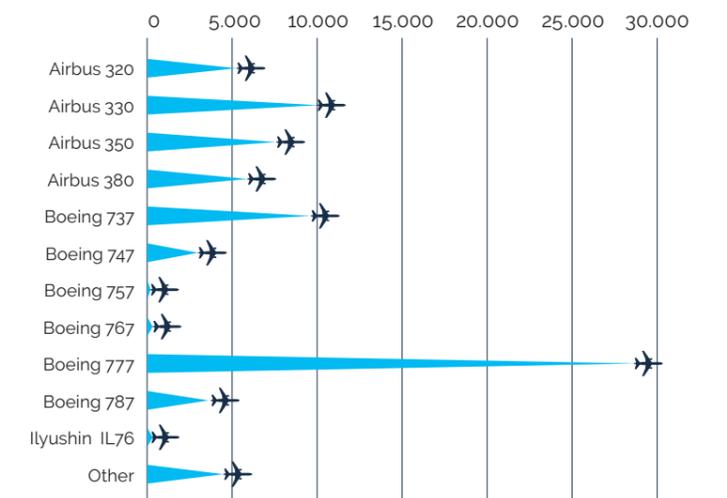
Most month traffic was recorded in December (8643 ACFT) and peak day was recorded on December 21, 2018 (346 ACFT).



Picture 2.2 | Overflight traffic development by months of the year

### 2.2 Aircraft types

More than 80% of aircraft of the overflight traffic is wide-body long-distance aircraft.



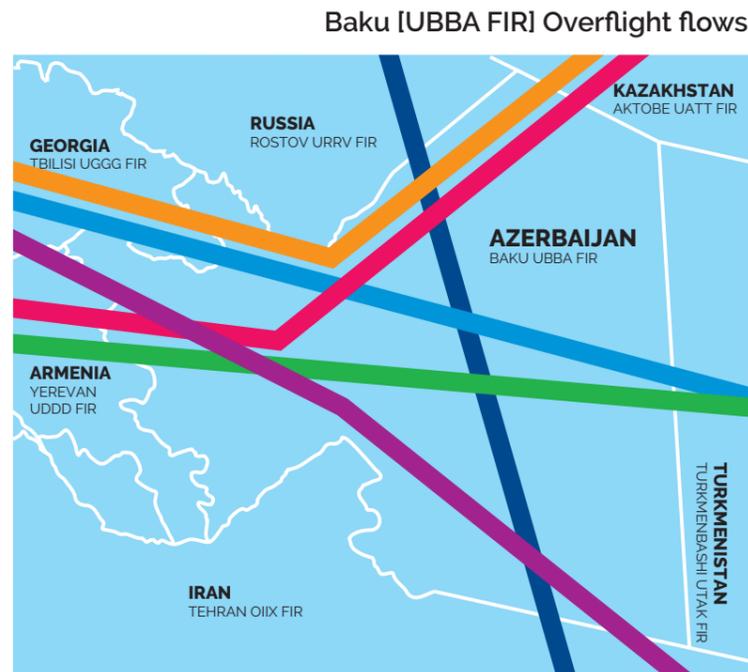
Picture 2.3 | Types of aircraft of the overflight traffic

### 2.3 Traffic flows

Complicated political processes in a number of neighboring regions are still existed.

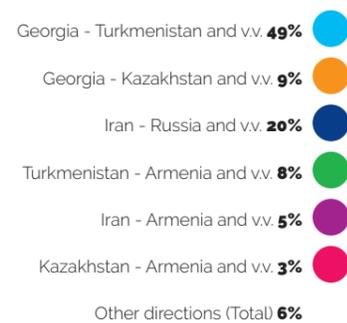
Aircraft operators still had to avoid the airspaces of eastern Ukraine, Iraq and Syria. These restrictions impacted to the direction of traffic flows through the airspace of the Republic of Azerbaijan.

The main traffic flows over Azerbaijan in 2018 are shown in the picture below. The main flows run in East - West and v.v. direction. Traffic flow Turkmenistan - Russia is completely disappeared as a consequence of limitation of availability of part of the Ukrainian airspace since 2014. Portion of this flow has been rerouted in the direction from Turkmenistan to Georgia and v.v. Traffic flow Armenia - Kazakhstan and v.v. also presented in the picture and it shares 3% of a total traffic, AWY N61 PEMAN - GASBI was heavily loaded during summer 2018 because of effects of seasonal holiday period, flights from/to the Turkish resorts.



Baku [UBBA FIR] Overflight flows

Picture 2.4 | Main overflight traffic flows

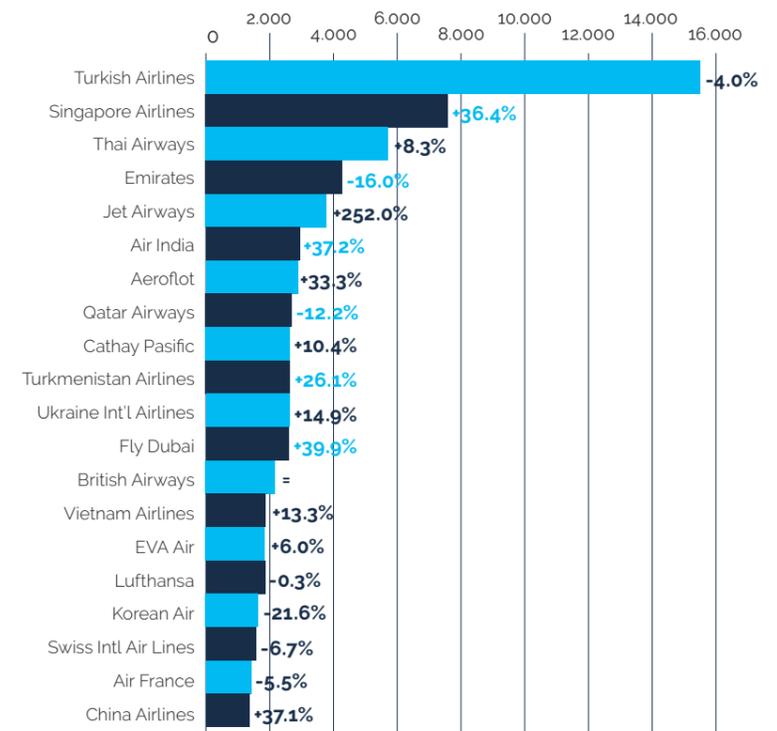


Airlines use this AWY for avoidance of the airspace of south of Turkey (border between Turkey and Syria). Another seasonal flow is Armenia - Kazakhstan and v.v. also presented in the picture and it shares 3% of a total traffic, AWY N61 PEMAN - GASBI was heavily loaded during summer 2018 because of effects of seasonal holiday period, flights from/to the Turkish resorts.

ABOUT 100 DIFFERENT AIRLINES (PASSENGER AND CARGO) MAKE SCHEDULED FLIGHTS THROUGH THE AIRSPACE OF THE REPUBLIC OF AZERBAIJAN. SCHEDULED FLIGHTS FORM 95% OF THE TOTAL NUMBER OF TRANSIT FLIGHTS.

### 2.4 Airspace users

There are some changes in the list of "Top 20 Airlines" when compare with 2017. Significant increase of number Jet Airways flights was recorded as a consequence of avoidance of the airspace of south of Turkey (border between Turkey and Syria). Decrease of number of flights of airlines from the Middle East (Emirates, Qatar Airways, Etihad Airways) was recorded as they recovered the utilization of Iraqi airspace for flights to North America and Scandinavia.



Picture 2.5 | Top 20 airspace users

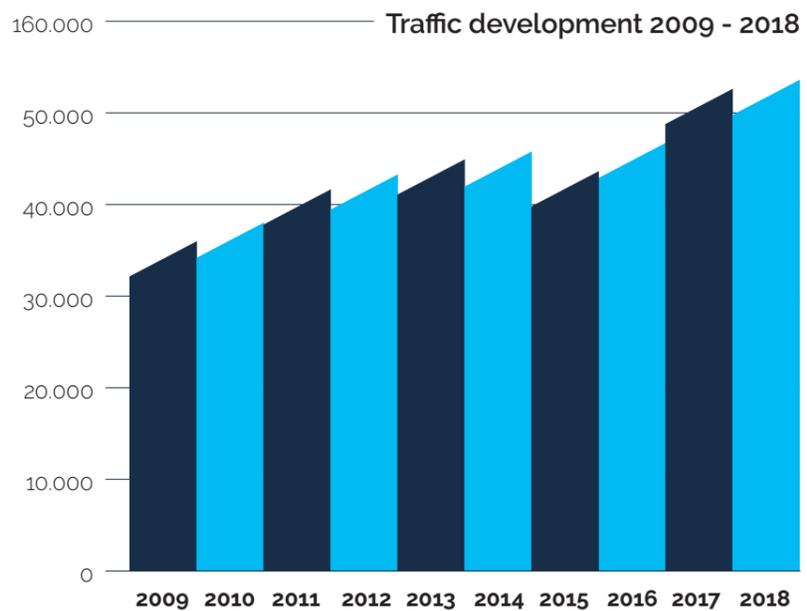
**BAKU/HEYDAR ALIYEV INTERNATIONAL AIRPORT.**

(IATA: GYD, ICAO: UBBB)

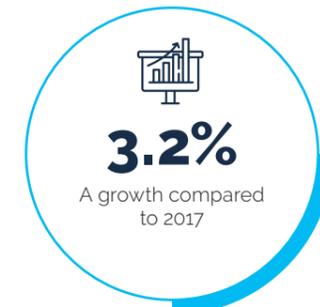
**3.1 Traffic development**

Baku/Heydar Aliyev International airport is the air gate of the capital of the Republic of Azerbaijan. It is the busiest airport in Azerbaijan and in the Caucasus region.

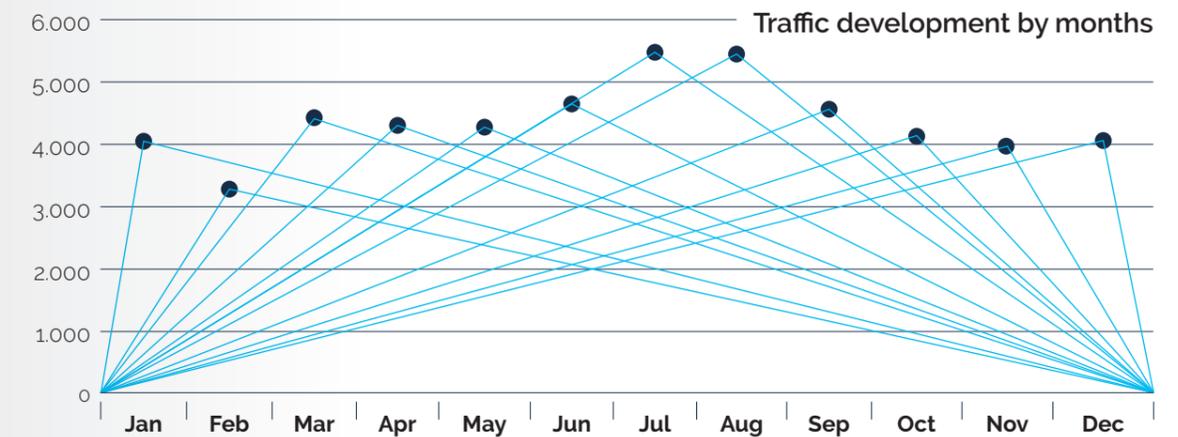
Total number of aerodrome movements recorded in 2018 is 53229 aircraft. Traffic increased by 3.2% compared to 2017. Average figure of number of aerodrome movements at the Baku/Heydar Aliyev International airport is 146 aircraft per day.



Picture 3.1 | Baku/Heydar Aliyev International airport traffic development by year



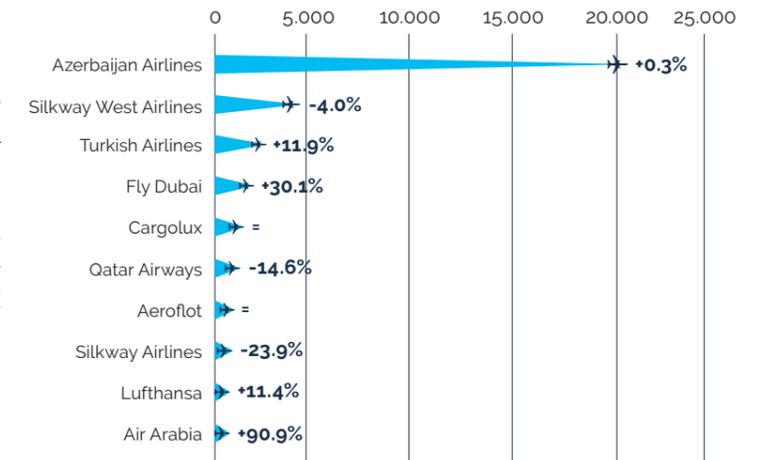
July - August is the most congested period time. Most month traffic was recorded in July (5541 movements) and peak day was recorded on July 12, 2018 (195 movements).



Picture 3.2 | Baku/Heydar Aliyev International airport traffic development by months

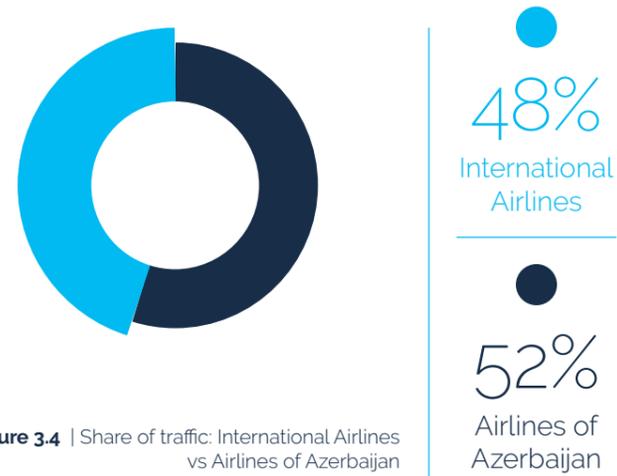
**3.2 Airlines**

Baku/Heydar Aliyev International airport is the home base for "Azerbaijan Airlines" national carrier of Azerbaijan and air-companies of "Silkway Group". More than 20 different airlines (passenger and cargo) make scheduled flights to Baku: Turk Hava Yollari, CARGOLUX, Qatar Airways, Lufthansa, Aeroflot, Fly Dubai etc.



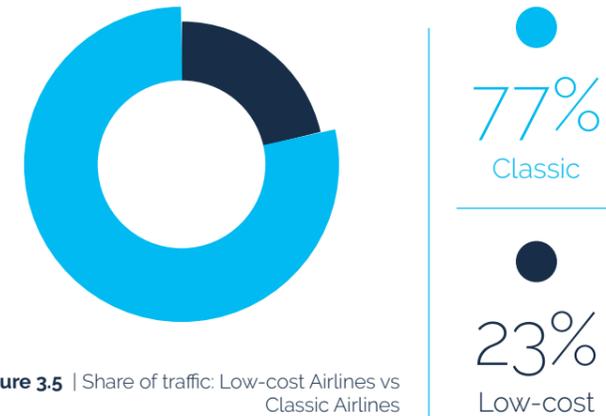
Picture 3.3 | Top 10 airspace users.

Share of international airlines increased by 3% compared with 2017 (some airlines launched scheduled operations to Baku/Heydar Aliyev International airport (Etihad Airways, Gulf Air, Flynas, Israil, Salam Air and Aekia Airlines)), when the decline of 3% was recorded of share of airlines of Azerbaijan.



Picture 3.4 | Share of traffic: International Airlines vs Airlines of Azerbaijan

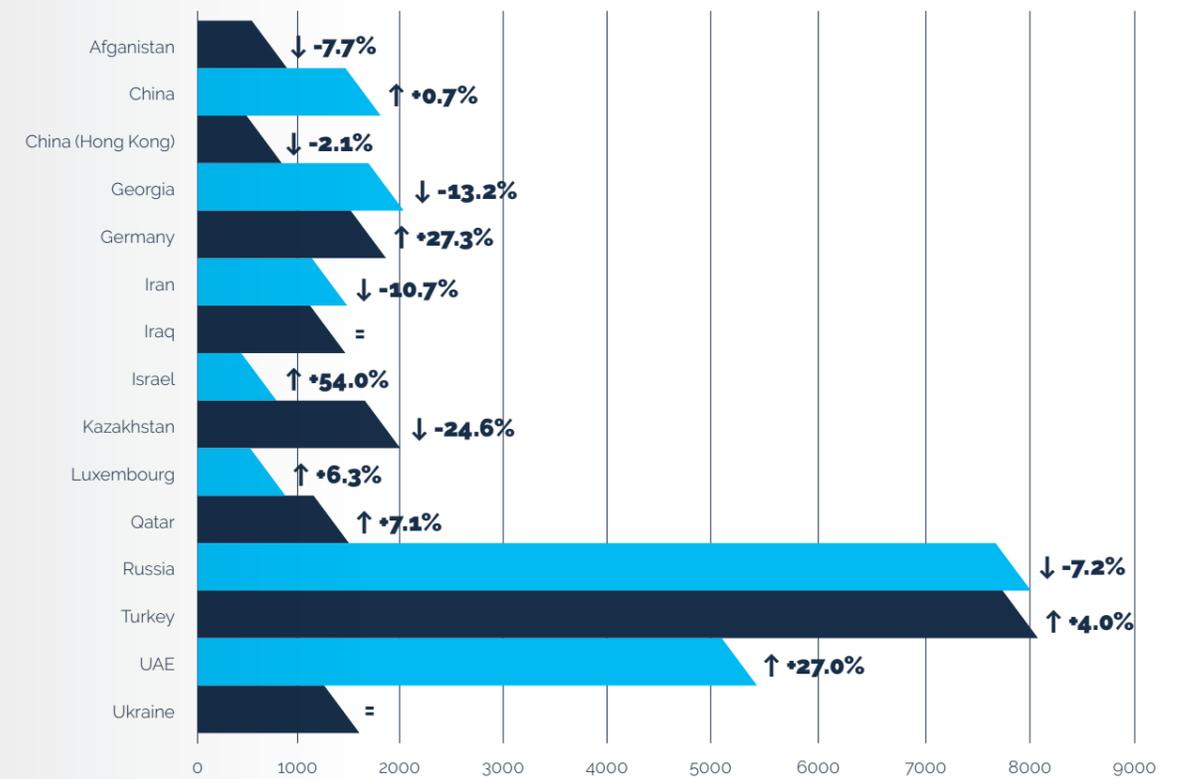
The share of low-cost airlines has been increased in 2018 and reached 23%. Total number of low-cost airlines has achieved to 7 (seven) (Buta Airways, Fly Dubai, Wizz Air, Jazeera Airways, Air Arabia, Flynas and Salam Air).



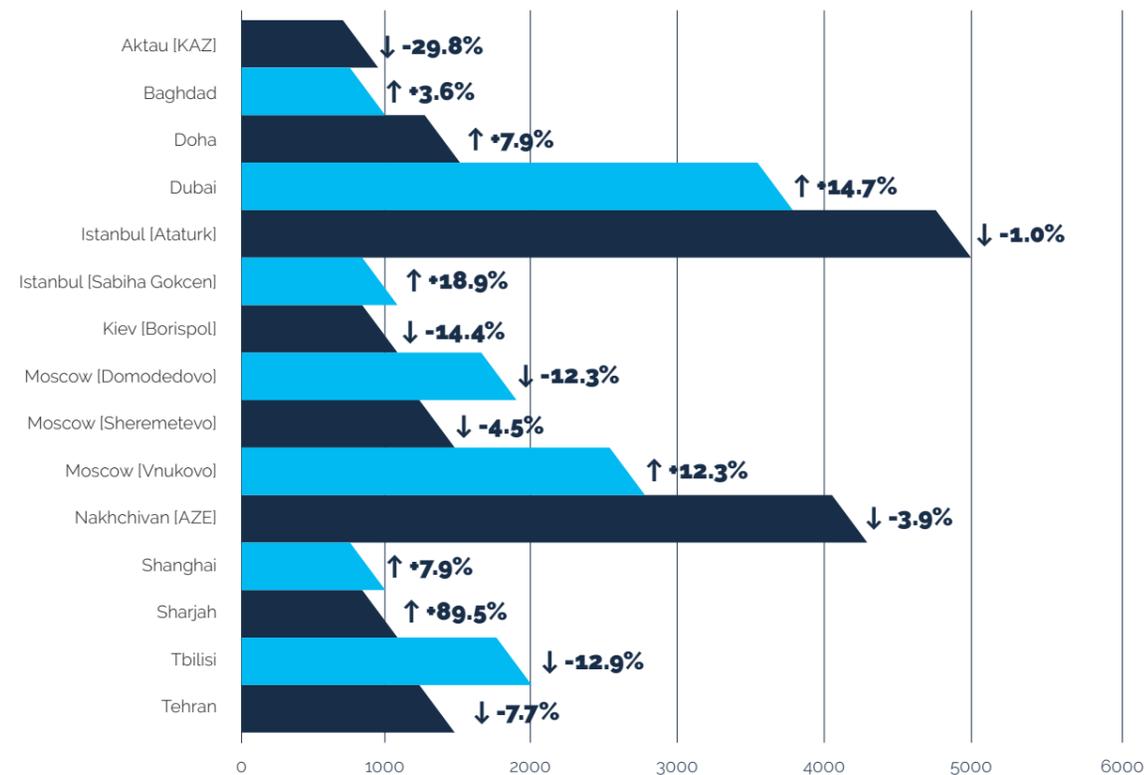
Picture 3.5 | Share of traffic: Low-cost Airlines vs Classic Airlines

### 3.3 Destinations

Scheduled flights are performed from Baku to more than 20 countries and to more than 50 destinations.



Picture 3.6 | Top destinations by country. Comparison with 2017



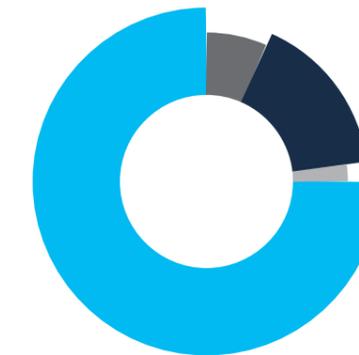
Picture 3.7 | Top destinations by airport. Comparison with 2017

### 3.4 Type of flights

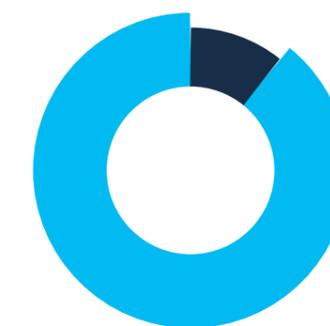
Infrastructure of the International airport Heydar Aliyev allows to provide service to all types of flight. Two passenger terminals ensures capacity of 6 million passenger per year. Separate terminal and apron are allocated for business aviation. Baku Cargo Terminal is one of the biggest and most technically advanced cargo terminals in CIS. The technical base of the terminal provides storage and processing of all kinds of cargoes in conformity to the world standards.

Growth of share of passenger flights by 2% is recorded when shares of business aviation and cargo flights are decreased by 1% compared with 2017.

Share of traffic: international flights vs domestic flights has slightly changed when compared with 2017. Share of domestic flights decreased by 1% when share of international flights increased by 1%.



Picture 3.8 | Share of traffic: types of flight

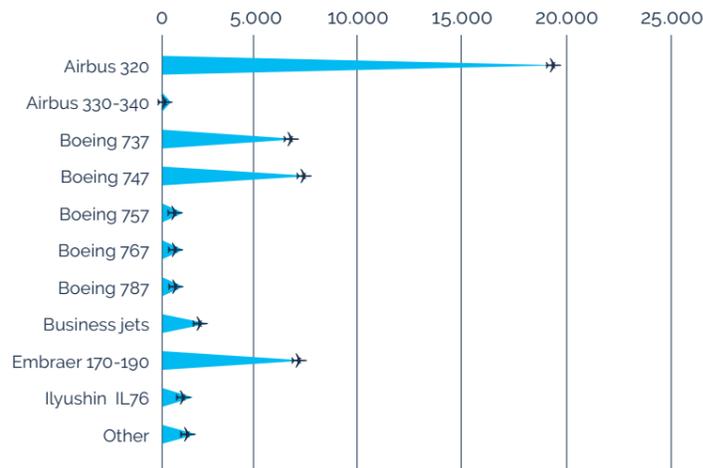


Picture 3.9 | Share of traffic: international flights vs domestic flights



### 3.5 Types of aircraft

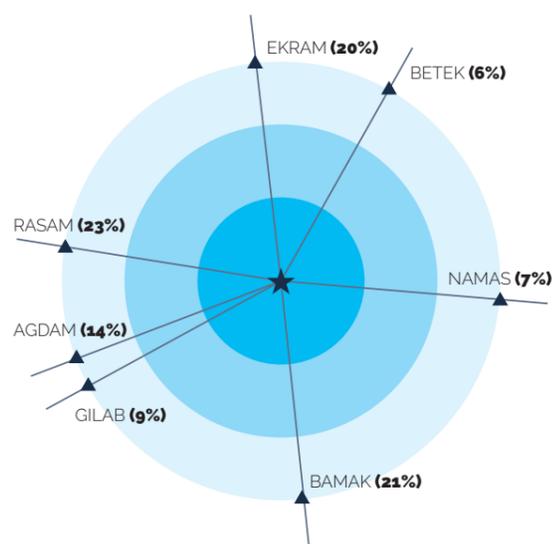
International airport Heydar Aliyev is capable to provide services to all types of aircraft, including Airbus 380 and Antonov 225 "Mriya".



Picture 3.10 | Types of aircraft

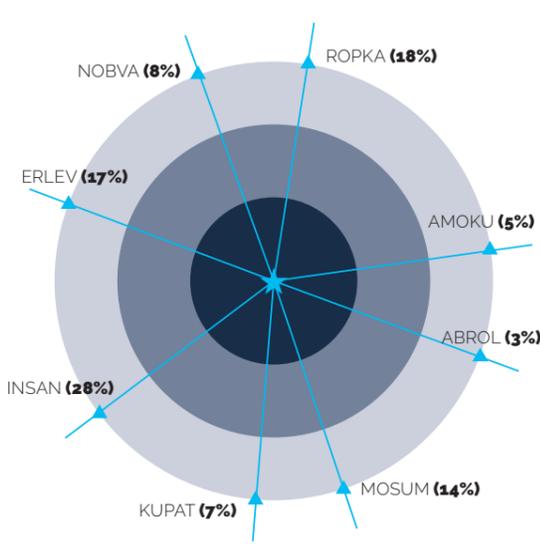
### 3.6 Load of SID and STAR

#### BAKU/HEYDAR ALIYEV DEPARTURE FLOWS



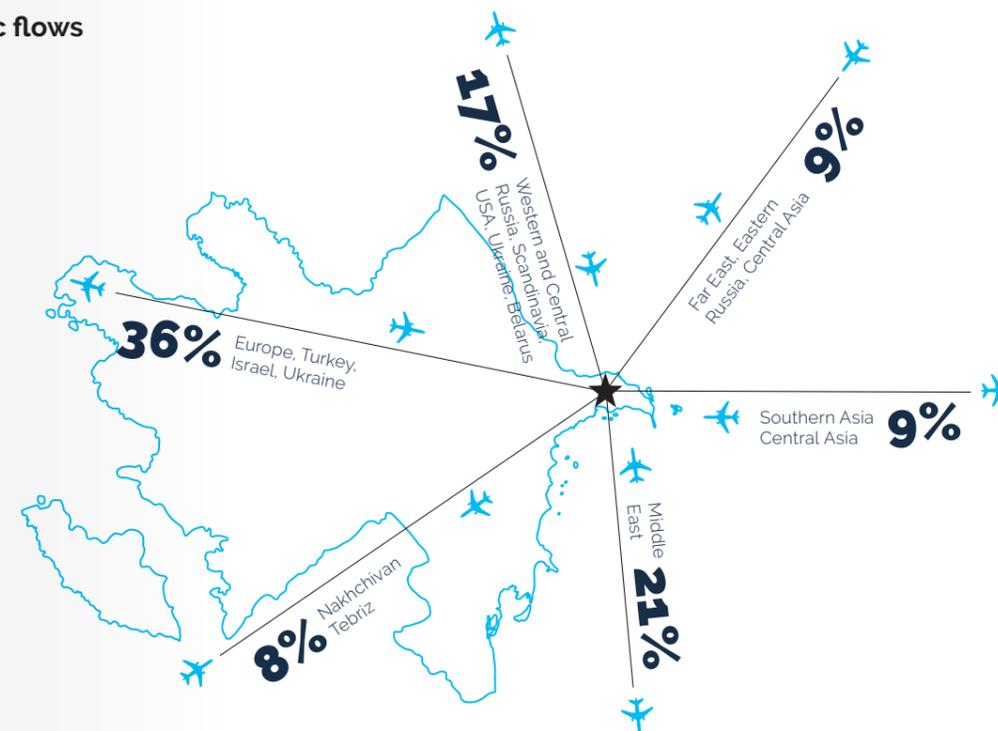
Picture 3.10 | Load of SID (standard departure)

#### BAKU/HEYDAR ALIYEV ARRIVAL FLOWS

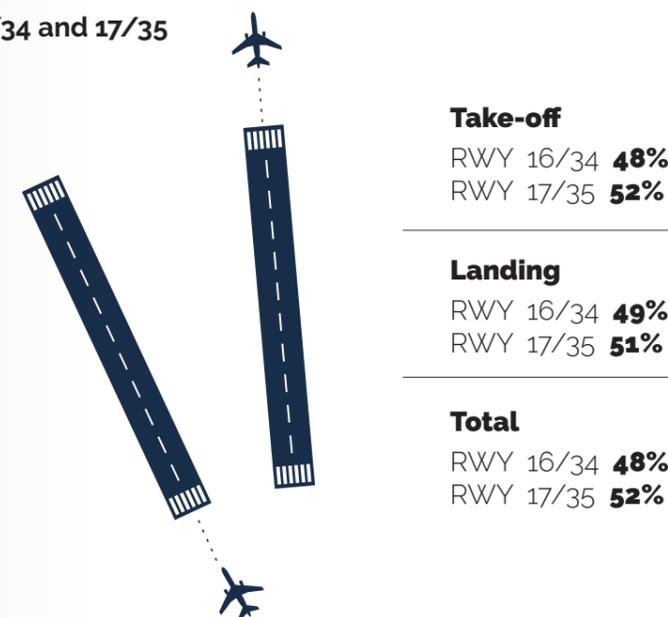


Picture 3.11 | Load of STAR (standard arrival)

### 3.7 Traffic flows



### 3.8 Use of RWY 16/34 and 17/35



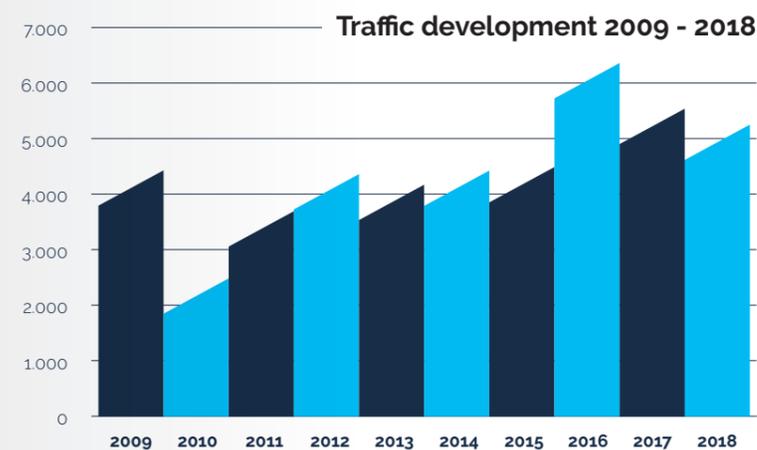
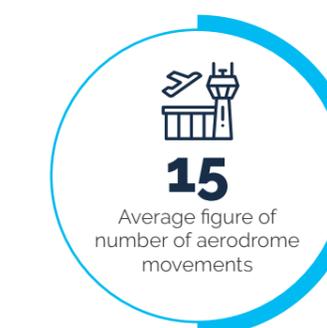
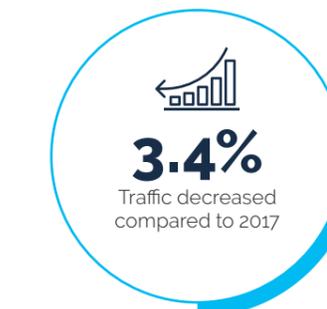
# REGIONAL AERODROMES

THERE ARE 5 INTERNATIONAL AIRPORTS (GANJA, NAKHCHIVAN, GABALA, LENKARAN, ZAQATALA) AND 2 DOMESTIC AIRPORTS (YEVLAKH AND BAKU (ZABRAT)) IN AZERBAIJAN.

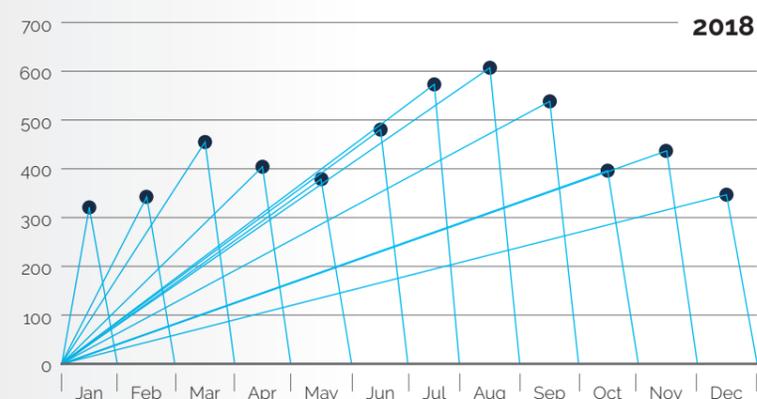
## 4.1 Nakhchivan International airport (ICAO: UBBN)

Nakhchivan International airport is the only air gateway of the Nakhchivan Autonomous Republic, a landlocked exclave of Azerbaijan. It was built in 1976 and completely reconstructed in 2002-2004. Scheduled flights to Baku, Istanbul and Moscow are performed from Nakhchivan.

Total number of IFR movements in 2018 is 5354 aircraft. Traffic decreased by 3.4% compared to 2017. Average figure of number of aerodrome movements at the Nakhchivan International airport in 2018 is 15 aircraft per day.



Picture 4.1 | Nakhchivan International airport traffic development by years

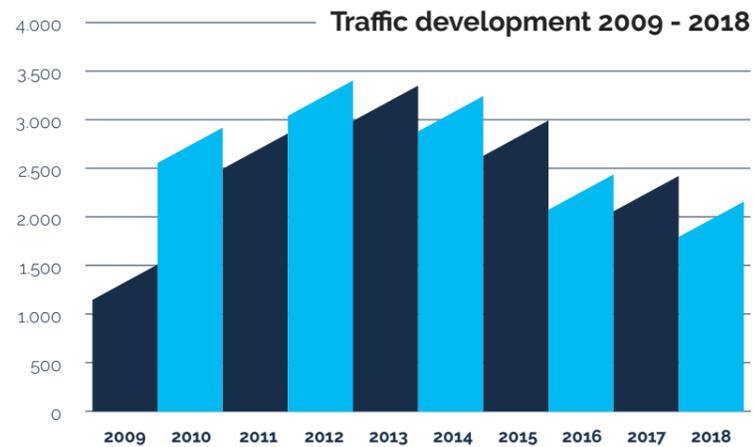


Picture 4.2 | Nakhchivan International airport traffic development by months of the year

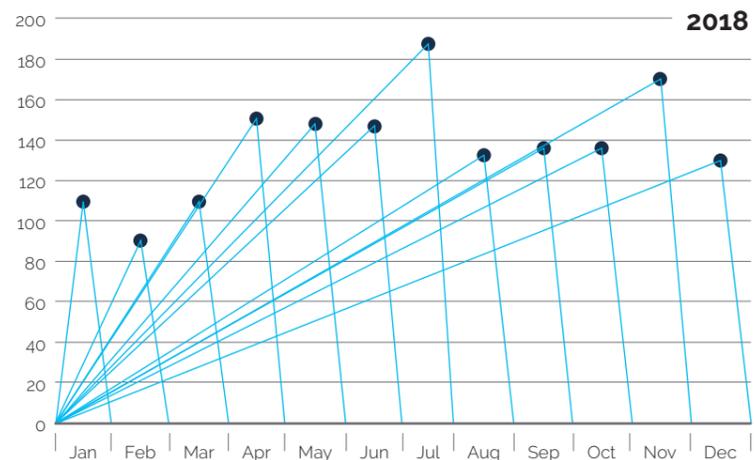
### 4.2 Ganja International airport (ICAO: UBBG)

Ganja International airport is an airport serving Ganja, the second largest city in Azerbaijan. It was reconstructed in 2006. Scheduled flights from Baku, Nakhchivan, Istanbul, Moscow, St. Petersburg are performed to Ganja.

Total number of IFR movements in 2018 is 1670 aircraft. Traffic decreased by 11.7% compared to 2017. Average figure of number of aerodrome movements at the Ganja International airport in 2018 is 5 aircraft per day.



Picture 4.3 | Ganja International airport traffic development by years



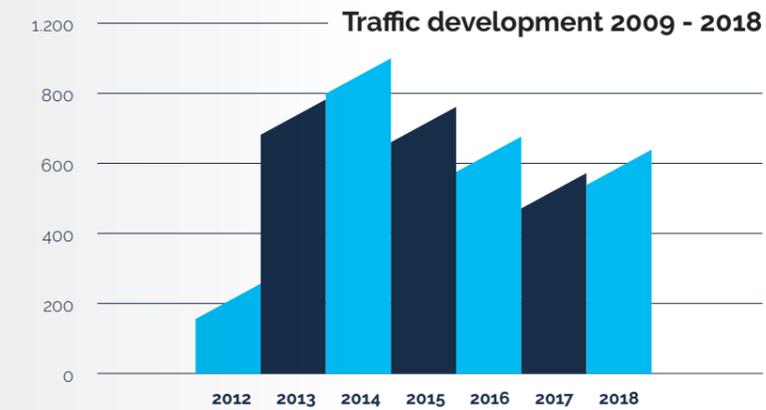
Picture 4.4 | Ganja International airport traffic development by months of the year



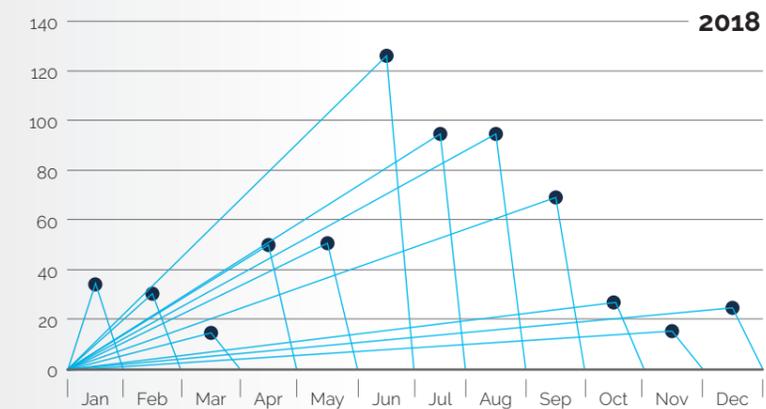
### 4.3 Gabala International airport (ICAO: UBBQ)

Gabala International airport is an airport of Gabala city located in the north-west of Azerbaijan. Construction of Gabala airport started in 2011 and was inaugurated by the President of the Republic of Azerbaijan, Ilham Aliyev on 17 November 2011.

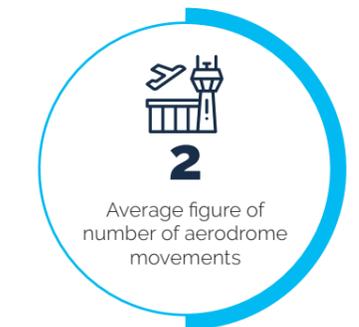
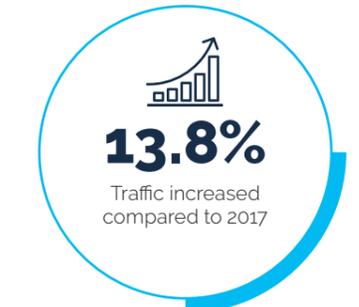
Total number of IFR movements in 2018 is 642 aircraft. Traffic increased by 13.8% compared to 2017. Average figure of number of aerodrome movements at the Gabala International airport in 2018 is 2 aircraft per day.



Picture 4.5 | Gabala International airport traffic development by years



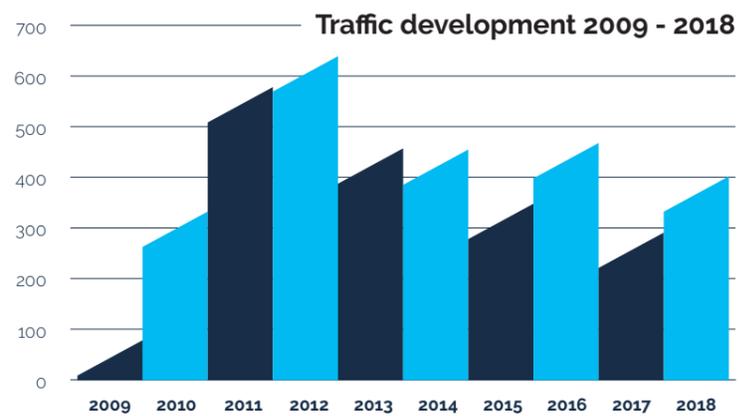
Picture 4.6 | Gabala International airport and helipads traffic development by months of the year



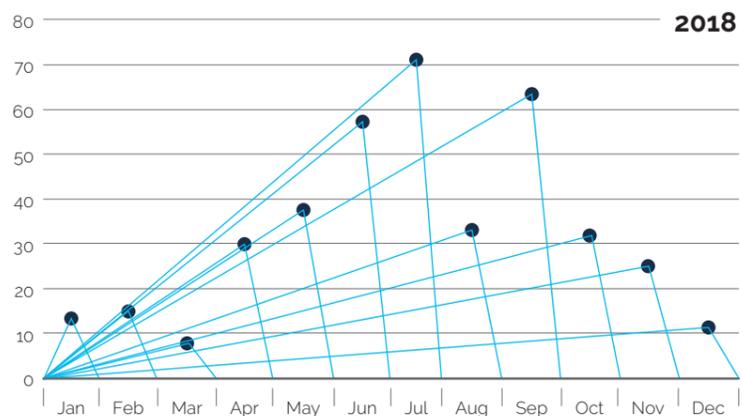
#### 4.4 Lenkaran International airport (ICAO: UBBL)

Lenkaran International airport is an airport in the town of Lenkaran in the south-east of Azerbaijan. Reconstruction of the Lenkaran airport was started in 2005 and was finished in 2008. Scheduled flights to Moscow are performed from Lenkaran.

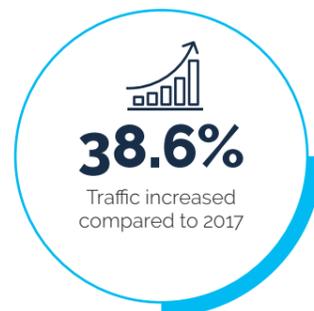
Total number of IFR movements in 2018 is 402 aircraft. Traffic increased by 38.6% compared to 2017. Average figure of number of aerodrome movements at the Lenkaran International airport in 2018 is 2 aircraft per day.



Picture 4.7 | Lenkaran International airport traffic development by years



Picture 4.8 | Lenkaran International airport traffic development by months of the year



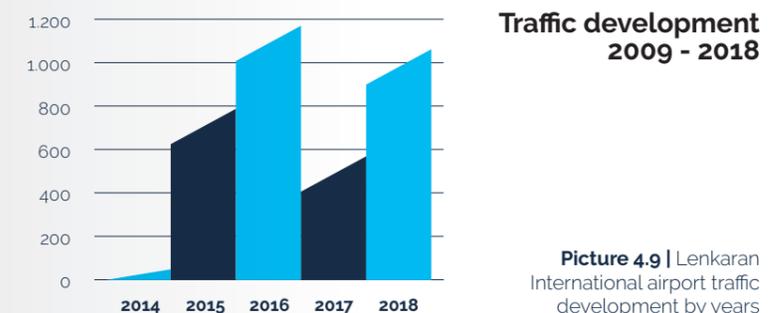
#### 4.5 Zagatala International airport (ICAO: UBBY)

Zagatala International airport is an airport serving Zagatala city. It is located at the southern foot of the Main Caucasus range. The latest reconstruction of the airport terminal was completed in 2008, after which the airport received an international status. Zagatala International airport was closed since March 2014 due to reconstruction works on the runway and has been reopened in October 2018.

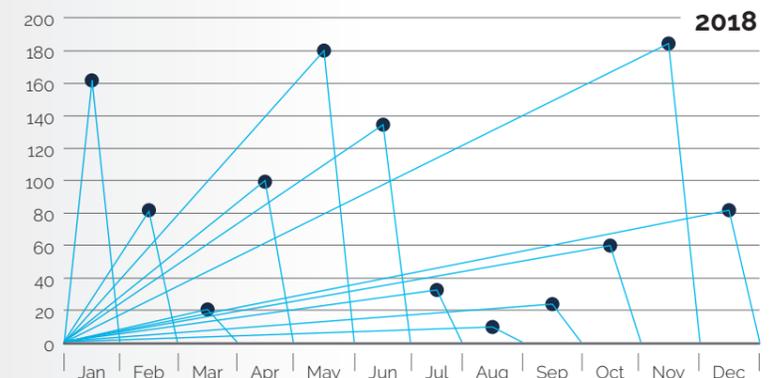
#### 4.6 Yevlakh airport (ICAO: UBEE)

Yevlakh airport is an airport serving the city of Yevlakh. Complete reconstruction of Yevlakh airport was finished in September 2013. Yevlakh airport does not have status of "international airport". No regular flights are performed to/from Yevlakh airport.

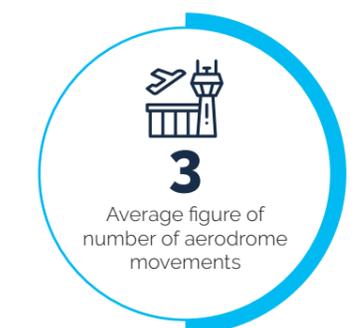
Total number of aerodrome movements in 2018 is 1074 aircraft. Traffic increased by 88.8% compared to 2017. Average figure of number of aerodrome movements at the Yevlakh airport in 2018 is 3 aircraft per day.



Picture 4.9 | Lenkaran International airport traffic development by years



Picture 4.10 | Yevlakh airport traffic development by months of the year



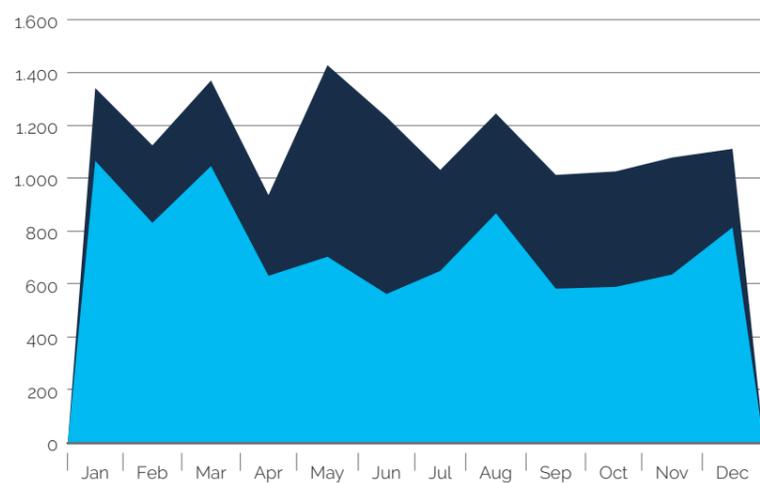
#### 4.7 Baku/Zabrat airport (ICAO: UBTT)

Baku/Zabrat airport is home base airport of "Silk Way Helicopter Services"(SWHS) company. Fleet of SWHS consists of the following types of aircraft: Augusta Westland AW139, MI171, Sikorsky S92, Eurocopter Super Puma AS332, Eurocopter Dauphin EC155 and Cessna 172. Main objective of SWHS is the provision of services for and support of the oil industry of the Republic of Azerbaijan (flights to ships and offshore drilling rigs, air patrolling and monitoring of oil and gas pipelines). In addition to this SWHS provides the following services:

- Transportation of passengers, VIP flights;
- Transportation of cargo;
- Medical Evacuation (Medivac);
- Emergency Medical Service (EMS);
- Search and Rescue operations (SAR)

Baku/Zabrat airport is also base for training of student-pilots of National Aviation Academy. Training program includes en-route flights, take-off, landing and go around maneuvers on Cessna-172.

Total number of aerodrome movements in 2018 is 13905 aircraft. Traffic increased by 27.9% compared to 2017. Average figure of number of aerodrome movements at Baku/Zabrat airport in 2018 is 39 aircraft per day.

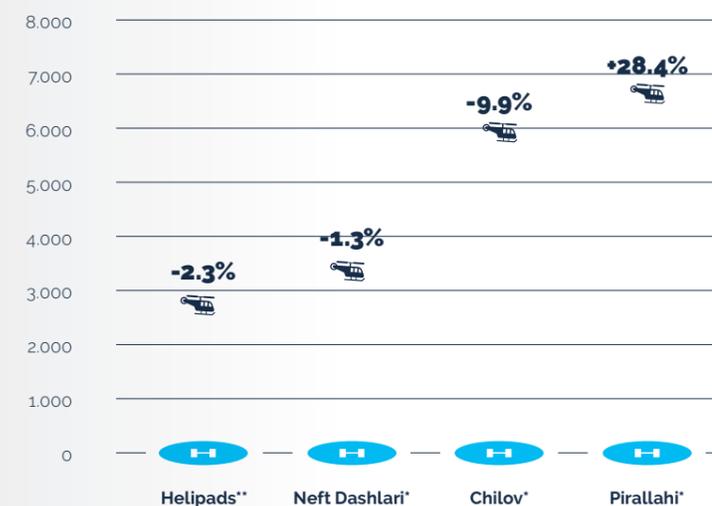


Picture 4.11 | Baku/Zabrat airport traffic development by months of the year



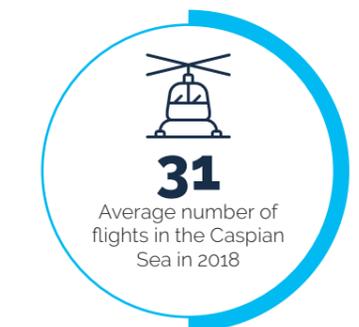
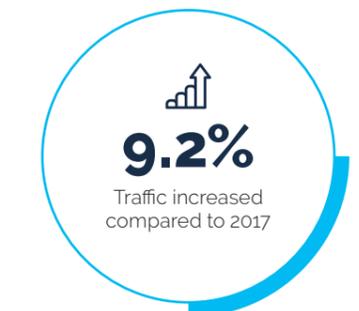
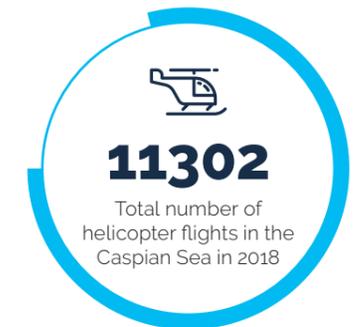
ATC staff of Baku/Zabrat airport is also responsible for ATS provision for helicopter flights in the Caspian Sea. The Sea is divided on the sectors where Chilov, Neft Dashlari and Pirallahi TWRs are providing ATS according to their area of responsibility.

Total number of helicopter flights in the Caspian Sea in 2018 is 11302 helicopters. Traffic increased by 9.2% compared to 2017. Average number of flights in the Caspian Sea in 2018 is 31 helicopters per day.



\* Heliport  
\*\* Helipads on the ships and offshore drilling rigs

Picture 4.12 | Helicopter flights to/from heliports and helipads in the Caspian Sea



C H A P T E R 5

This chapter presents Key Performance Indicators (KPI) that assess the performance of the "Azeraeronavigation" ATD in the provision of air traffic services.

5.1 KPI – Productivity

«KPI – Productivity» is calculated by the formula: the value "number of aircraft served" is divided by the value "number of ATCOs".

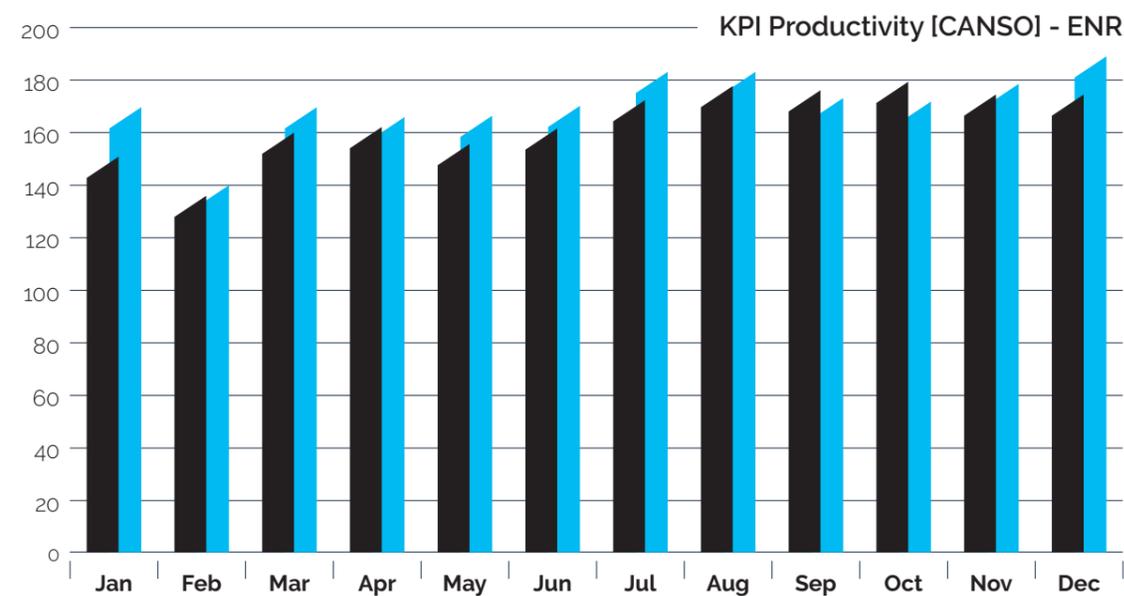
$$\text{Productivity} = \frac{\text{Number of ACFT}}{\text{Number of ATCOs}}$$

5.1.1 KPI – Productivity Baku ACC (ENR)

Only the transit air traffic data is used when calculating "KPI - Productivity Baku ACC".

KPI ENR 2018 – 172 ACFT/ATCO.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ENR	169	142	169	166	167	172	183	183	176	169	179	188

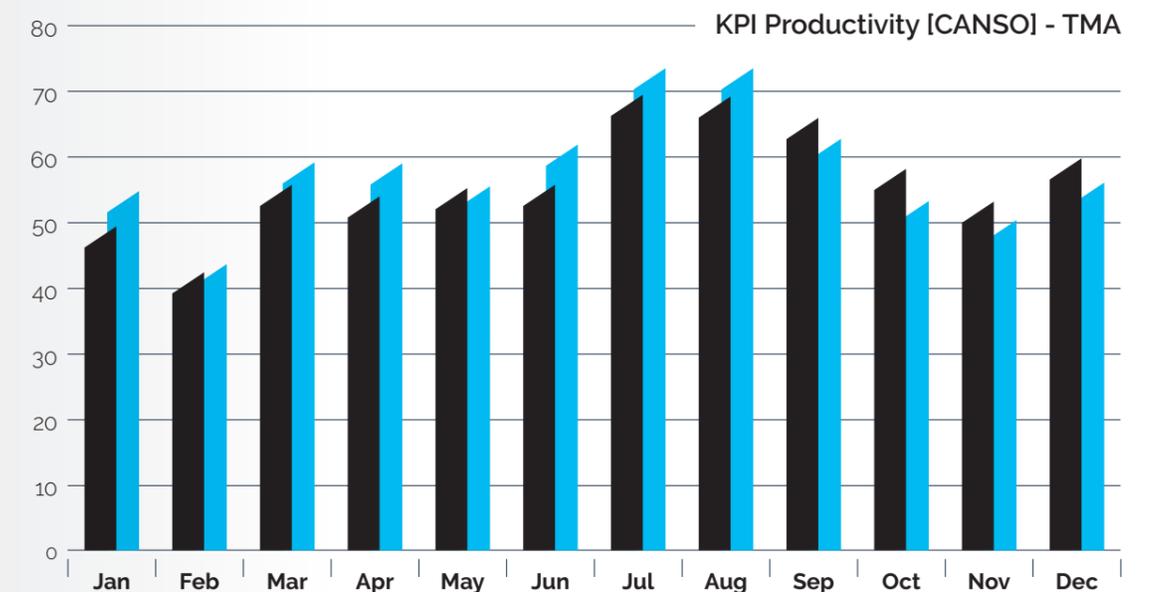


5.1.2 KPI – Productivity Baku ACC (ENR)

Air traffic data at Baku / Heydar Aliyev is used when calculating "KPI - Productivity Baku TMA".

KPI TMA 2018 – 59 ACFT/ATCO.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TMA	54	44	59	57	56	62	73	72	62	56	53	54



2017 2018

2017 2018

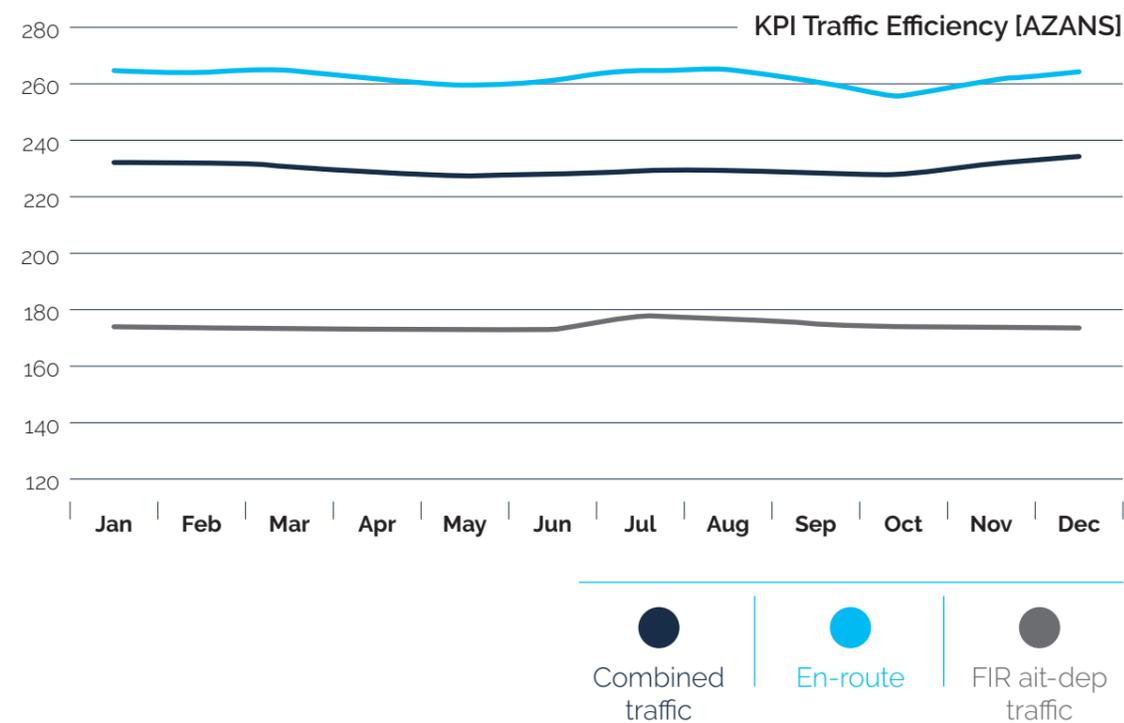
### 5.2 KPI – Traffic Efficiency.

"KPI - Traffic Efficiency" is calculated by the formula: the value of "total distance flown (NM / nautical mile)" is divided by the value of "total number of aircraft served."

$$\text{Efficiency} = \frac{\text{Total Distance}}{\text{Total Number of ACFT}}$$

KPI Efficiency 2018 (FIR) 231 NM/ACFT.  
 KPI Efficiency 2018 (ENR) 263 NM/ACFT.  
 KPI Efficiency 2018 (AD) 176 NM/ACFT.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>FIR</b>	234	234	232	230	229	229	231	230	230	229	233	235
<b>ENR</b>	266	265	266	263	260	263	266	265	262	258	262	265
<b>AD</b>	175	175	175	174	174	175	179	178	176	175	175	175



### 5.3 KPI – ATCO's Workload.

"KPI - ATCO's Workload" is calculated by the formula: the value "total flight duration (hours)" is divided by the value "number of ATCOs".

$$\text{ATCO's Workload} = \frac{\text{Total Flight Duration}}{\text{Number of ATCOs}}$$

KPI ATCO's Workload 2018 – 54 Hour/ATCO.

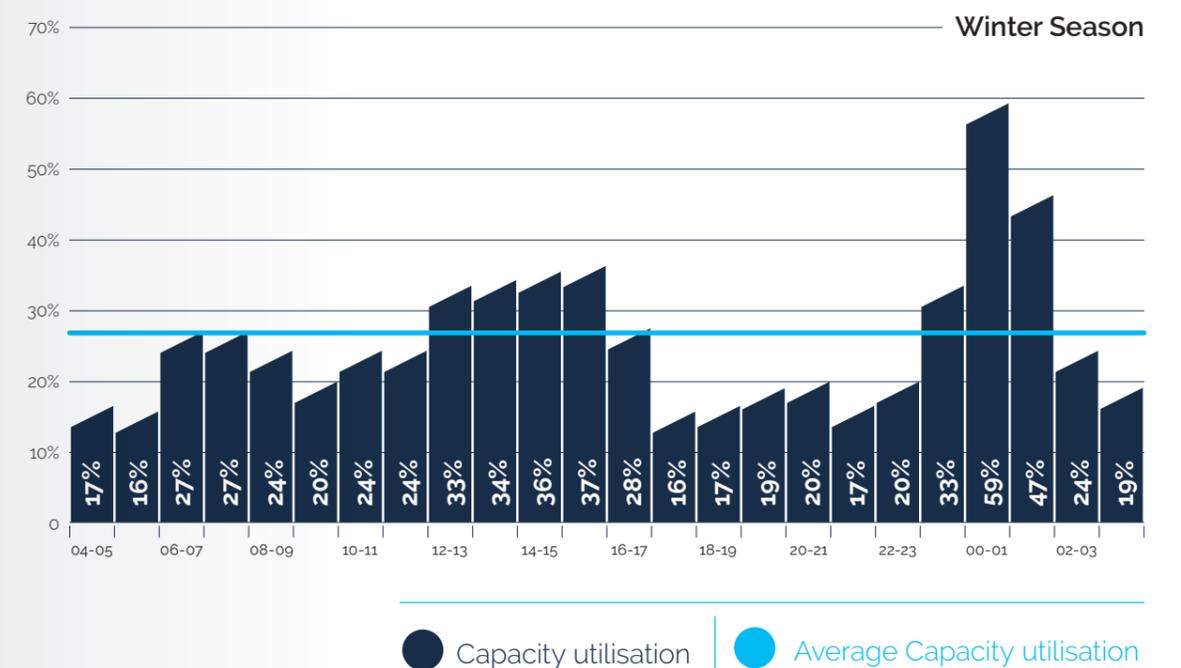
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>KPI</b>	53	44	54	52	51	54	60	60	55	52	54	57

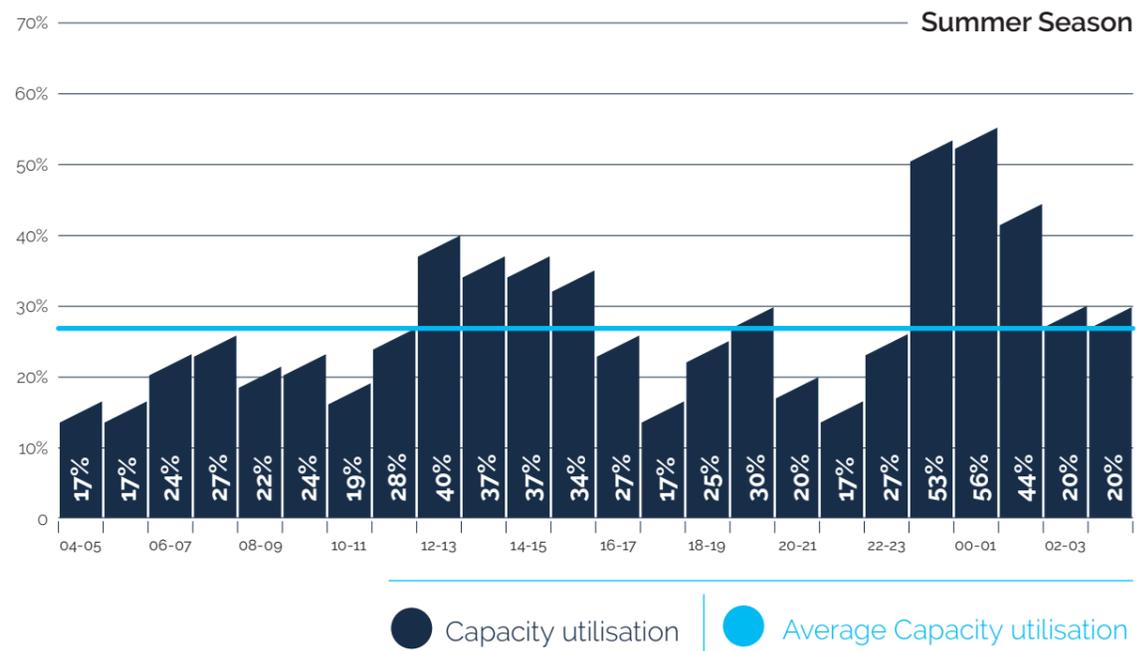
### 5.4 KPI – Capacity Utilisation.

Capacity utilisation KPI assesses how effectively capacity is managed by the ANSP. It is a measure of accommodated demand, compared to the available capacity of the facility. The performance indicator is calculated by dividing the actual demand by the available capacity.

$$\text{Capacity Utilisation} = \frac{\text{Traffic Demand}}{\text{Capacity}}$$

The available capacity of Baku FIR is rated to 65 ACFT/hour.

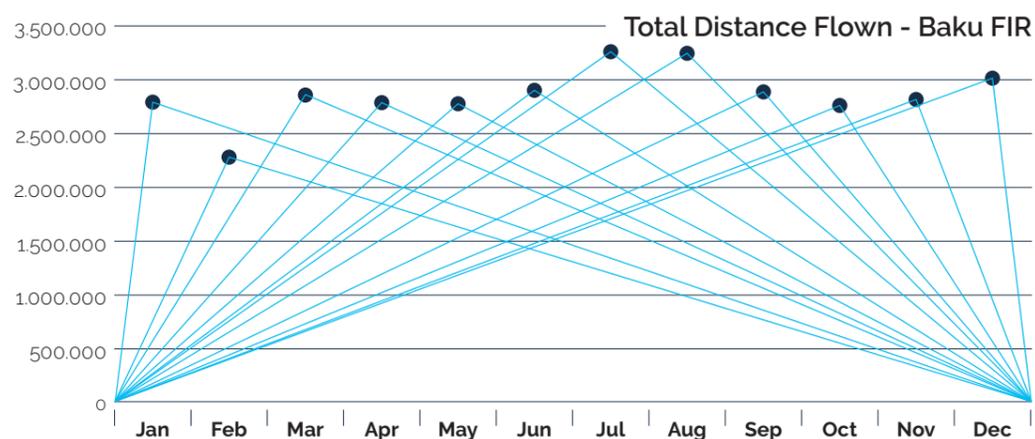




5.5 KPI – Airspace Utilisation.

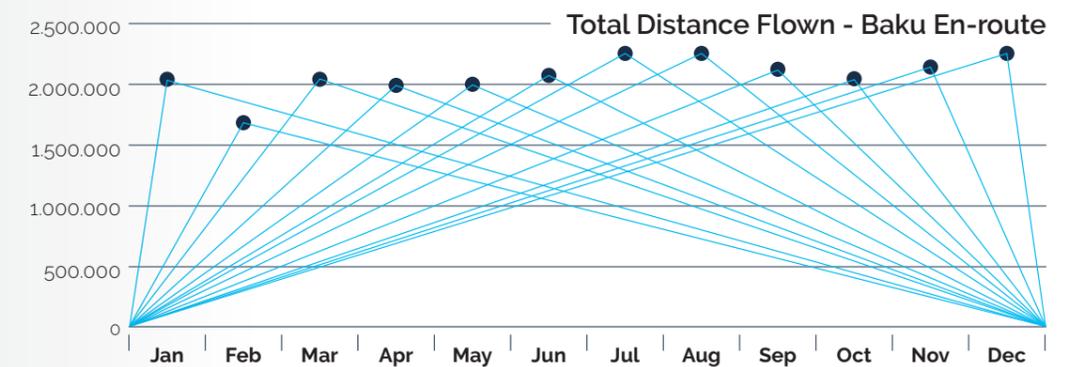
5.5.1 Baku FIR (combined traffic).

	Jan	Feb	Mar	Apr	May	Jun
Distance (NM)	2 794 338	2 325 529	2 857 910	2 769 701	2 756 163	2 915 986
	Jul	Aug	Sep	Oct	Nov	Dec
Distance (NM)	3 253 265	3 237 756	2 956 823	2 788 775	2 881 501	3 024 431



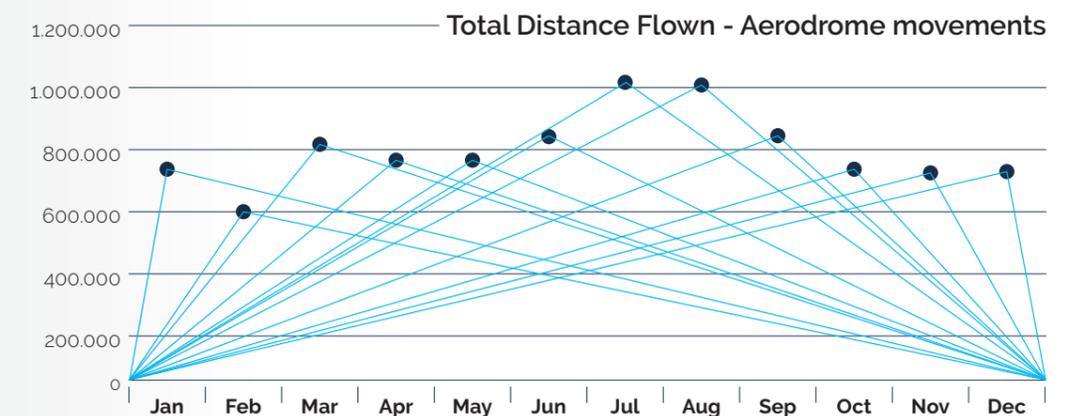
5.5.2 Baku ACC (ENR).

	Jan	Feb	Mar	Apr	May	Jun
Distance (NM)	2 056 428	1 721 235	2 053 638	1 996 111	1 989 962	2 062 855
	Jul	Aug	Sep	Oct	Nov	Dec
Distance (NM)	2 228 301	2 225 975	2 107 940	2 040 705	2 155 292	2 282 575



5.5.3 Aerodrome movements (AD).

	Jan	Feb	Mar	Apr	May	Jun
Distance (NM)	737 910	604 294	804 272	773 590	776 201	853 131
	Jul	Aug	Sep	Oct	Nov	Dec
Distance (NM)	1 024 964	1 011 781	848 883	748 070	726 209	741 856



International cooperation



ANSP Partners



Training partners



Industrial partners



Airspace users

The following airlines have been awarded in nomination "Overflights" as the most frequent users of the airspace of the Republic of Azerbaijan.

No1



15 227 flights

No2



7 385 flights

No3



5 326 flights





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**AZERAERONAVIGATION**

Heydar Aliyev International Airport |  
AZ1044-Baku | Azerbaijan