

# AIR TRAFFIC REPORT

# 2022







# Foreword

For AZANS, as a part of the global aviation network, 2022 has become a transition and challenging year in overcoming the dire consequences of the Covid 19 pandemic and political disorders and conflicts. There are lessons to be learned from these dramatic and unique experiences of the last two years. A successful response to dramatic changes in the amount of traffic, both sharp declines and sharp rises highlighted the importance of ANSP's resilience and adaptability and its important role in aviation transport sustainability. Despite the challenges of COVID impact, ANSPs around the world continued to provide safe access to the skies.

Nevertheless, the main challenge for air traffic management (ATM) is still the growth in air traffic. Without effective management and investment, this can lead to congestion, capacity constraints, and delays. Therefore, it is vital that we find ways to continue to meet this demand and build a strong sustainable industry for the future.

The last year has become remarkable due to the conflict in Ukraine and the subsequent closure of the Ukrainian, Russian, and Belorussian airspace for most of the European operators. This has had several significant effects, affecting overflight in nearby countries and causing re-routings and longer flight times, especially in the Europe-Asia direction. Azerbaijani airspace became a vital way out for many airspace users in this hopple situation.

AZANS has handled all the changes quickly and efficiently ensuring uninterrupted traffic flow. Since the beginning of the Ukraine-Russia crisis, the growth of transit traffic in the airspace of Azerbaijan has averaged +134.1% compared to the previous year, reaching +260 % in peak months. Thanks to the timely measures taken by AZANS, the airspace users flying from Europe to Asia were able to adapt to bypass routes and crisis circumstances in the region in a short time. Thus, AZANS has played a great active role in ensuring a safe and reliable air corridor for Europe since the conflict started in February 2022.

Another critical challenge of the aviation industry was the achievement of ambitious sustainability goals. In October 2022, at the ICAO Assembly, it was collectively agreed to cooperate on a Long-Term Aspirational Goal for aviation to achieve net-zero carbon emissions by 2050; a target that the aviation industry had already committed to the previous year. Achieving this challenging goal will require a collective effort to maximize the use of all the solutions available such as technology, alternative fuels, improvements to operations and infrastructure, and out-of-sector measures such as carbon capture and offsetting.

While new technologies and procedures are helping to reduce the environmental impact of aviation, the ATM industry also needs the support of ICAO and States to deliver far-reaching improvements and ensure that the industry is fit for a sustainable future.

As a main direction to overcome challenges in sustainable aviation of the future AZANS set main goals which are digitalization and implementation of advanced performance management and control systems using big data. Digitization and efficient ATM will be vital, contributing to an effective environmental improvement of the sector and helping ANSPs to be more resilient and better prepared to handle increasing traffic in the future.



News

Zangilan International airport opened its gate for international flights



In record terms, Zangilan International Airport, the second one in the de-occupied territories, was commissioned in October 2022. The construction of three International airports and restoration of the aeronavigation infrastructure are important components of the "I State Program on the Great Return to the liberated territories of the Republic of Azerbaijan", approved by the President of Azerbaijan in 2022. The AZANS team, having once again shown the highest professionalism and dedication, made a significant contribution to the execution of this task. The new airport was equipped with the latest PSR/SSR Surveillance , CVOR \DME, ILS ICAO CAT I , AFL , AWOS, ATC TWR, ATC and Communication systems. The licensed ATC and ATSEP personnel were appropriately planned and trained. Safety and risks assessment helped to identify hazards of the project and changes in the functional ATC system and timely take mitigation actions.

Zangilan airport, has been envisaged as a hub in Azerbaijan's "Zangezur Corridor" project. It is considered to be the part of the multimodal transportation network that Azerbaijan sees as connecting to Türkiye and beyond. The runway of the new airport is 3,000 long and 60 meters wide, allowing it to receive all aircraft types, including wide-body heavy cargo aircraft.

According to the I State Program on the Great Return, Zangilan, Lachin, Fuzuli and Khojavand districts are considered to become tourism centers and measures will be implemented to make the region a competitive tourist destination. Thus, another important goal set in the Program for the next two years, that will require AZANS involvement and the highest resilience in overcoming local, climatic, and terrain difficulties is the construction and implementation of Lachin International Airport.

AZAL and DHMI strengthen cooperation for the promotion and development of air navigation services



On April 12, 2022, a meeting of delegations of "Azerbaijan Airlines" CJSC and the General Directorate of State Airports Authority of Türkiye (DHMI) led by Mr. Farhan Guliyev, the Director of "Azeraeronavigation" Air Traffic Department (AZANS), and Mr. Huseyin Keskin, the General Director of DHMI, took place in Ankara.

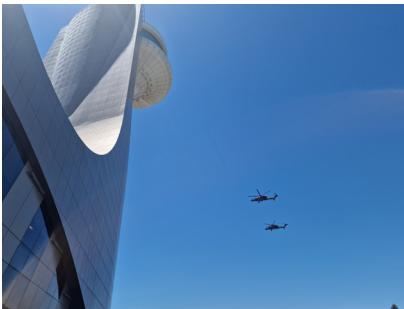
At the meeting, the implementation of the draft strategy for use of airspace and the development of air navigation in the region were discussed. This strategy will allow countries to jointly implement international requirements in the field of air navigation services and efficient use of airspace.

On May, 26, in frames of TEKNOFEST Azerbaijan, the Memorandum of Cooperation was signed in order to strengthen joint efforts in routes network and regional airspace strategy development, exchange knowledge and experience, training of personnel, etc.

In the frames of the collaboration, AZANS ATCOs have already participated in Emergency training in Ankara arranged by DHMI and the procurement of "Çare" backup ATC systems for three Azerbaijan airports.

This cooperation is a clear example of the mutual support of two fraternal states in the field of ensuring flight safety, improving the quality of air navigation services, and providing the efficient use of airspace.

AZANS supports TEKNOFEST Azerbaijan in provision of flights safety



In May, 2022, TEKNOFEST – Türkiye's largest aviation, space, and technology festival was successfully hosted by Azerbaijan. The entertainment program of the festival included exemplary aerobatic flights of the Azerbaijani Air Force, as well as Turkish aerobatic teams Turkish Stars and Solo Turk. Thanks to the well-coordinated teamwork, the effective use of airspace and the safety of flights during the air show were ensured by AZANS professional team within all three festival days.

The organizers of the festival were the Turkish Technology Team Foundation (T3), the Ministry of Digital Development and Transport of the Republic of Azerbaijan, and the Ministry of Industry and Technology of Türkiye. Within the framework of Teknofest Azerbaijan, technological competitions in 8 nominations, the Smart Karabakh hackathon, the Take Off Azerbaijani startup summit, and Rocket League eSports European Cup were held. The exhibition part of the event included products and solutions from partner institutions, prototypes, and STEM projects developed by young people, as well as an exhibition of unmanned aerial vehicles and helicopters was expanded in an open static area.

Aerion data service will be deployed for the provision of ATS in Azerbaijan



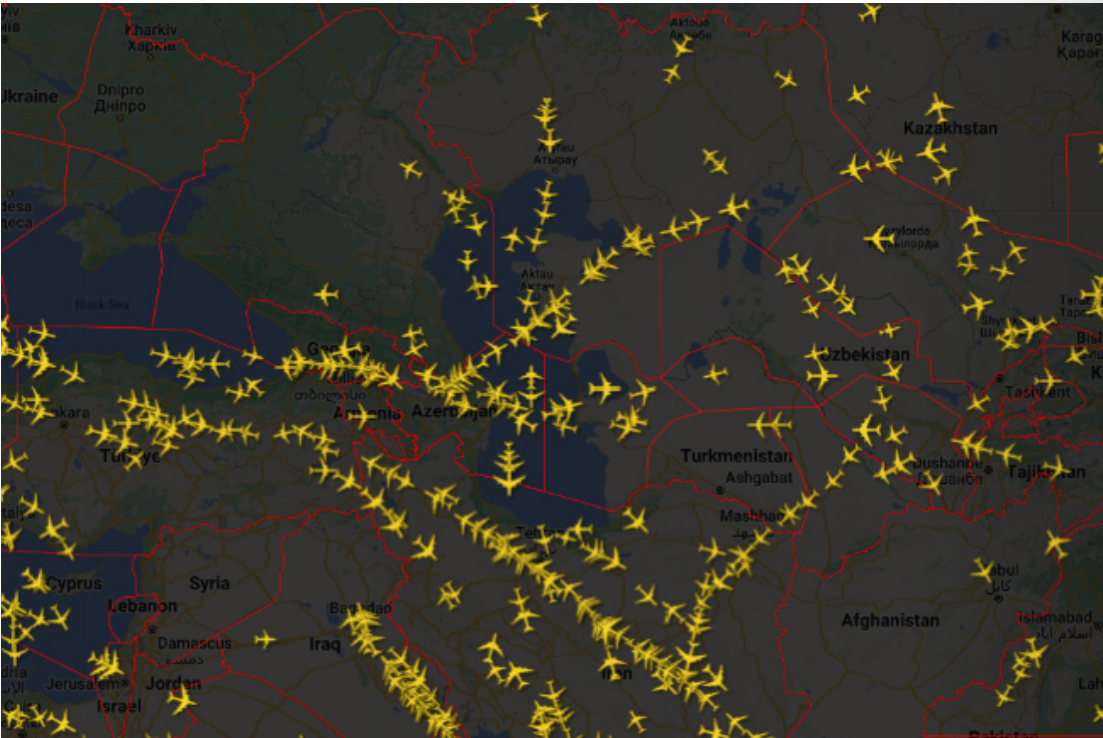
Azeraeronavigation has selected Aireon to provide its trusted and proven space-based Automatic Dependent Surveillance-Broadcast (ADS-B) data for air traffic surveillance in Azerbaijan airspace. The Aireon ADS-B data will complement ground surveillance to cover the complete Baku FIR in Azerbaijan, at all altitudes.

"AZANS has taken a leadership role in improving the safety and efficiency of air travel in the region. Building on Azerbaijan's commitment to lead the development of space technologies in the region, AZANS has taken a major technological step forward by agreeing to implement Aireon space-based ADS-B surveillance data in their airspace. Aireon data will give AZANS a complete view of Azerbaijan airspace, providing their controllers with state-of-the-art capability to navigate aircraft efficiently, safely, and in the most environmentally friendly manner," said Don Thoma, Aireon CEO

Implementation of this system in Azerbaijan will allow AZANS to take full advantage of innovative technologies in the framework of the global processes of evolution in the aerospace sector. In addition to a significant contribution to flight safety, this system will also help to improve the economic efficiency and environmental safety of routes in the airspace of Azerbaijan.



Improving coordination and flight safety measures on the consequences of the Ukrainian crisis



Due to the current geopolitical situation in the region since February 2022 caused by the closure of the airspace of Ukraine, Belarus, and Russia and subsequent restrictions on flights through Russian Airspace, an unpredictable situation arose with the need to quickly respond to it, ensuring the safe air flows between Europe and Asia. In order to provide efficient service to the influx of airspace users who were forced to change their usual flight routes, AZANS has taken immediate safety measures, including:

- coordination with airspace users
- maintaining continuous communication and negotiations with NM EUROCONTROL
- coordination of actions with adjacent ATC centers
- warnings and consultations with airspace users with proposals for alternative routes

Moreover, since the beginning of the crisis, AZANS has performed an in-depth analysis to determine the impact of this dramatic air traffic volume increase on flight safety and defined the goals for optimizing its activities, which included:

- flight safety risk assessment
  - fast time simulation of different potential scenarios
  - optimization and staffing of ATC personnel
  - an action plan development and execution
- Thanks to the timely measures taken by AZANS, the airspace users flying from Europe to Asia were able to adapt to bypass routes and crisis circumstances in the region in a short time. Thus, AZANS has played a great active role in ensuring a safe and reliable air corridor for Europe since the conflict started in February 2022.
- Since the beginning of the Ukraine-Russia crisis, the growth of transit traffic in the airspace of Azerbaijan has averaged +134.1% compared to the previous year, reaching +260 % in peak months.
- For the prompt response to the crisis situation and the significant contribution to ensuring flight safety while a dramatic traffic increase within Azerbaijani airspace, AZANS was nominated and shortlisted for CANSO GLOBAL SAFETY ACHIEVEMENT AWARD 2022.



AZANS nomination for CANSO GLOBAL SAFETY ACHIEVEMENT AWARD 2022.

The CANSO GLOBAL SAFETY ACHIEVEMENT AWARD recognizes those individuals, teams, or companies that have made a significant contribution to aviation safety in the past 12 months.

AZANS was nominated and shortlisted for this award for timely measures that have been taken for the provision of Air Traffic service to users flying from Europe to Asia. Thanks to these measures the airlines were able to adapt to bypass routes and crisis circumstances in the region around Ukraine in a short time. Thus, AZANS has played an active role in ensuring a safe and reliable air corridor for Europe since the crisis started in February 2022. The growth of transit traffic in the airspace of Azerbaijan has averaged 134.1 percent compared to the previous year, reaching 260 percent in peak months.

Safety and Quality Management

In the first half of 2022, a risk and safety assessment related to the launch of the provision of air traffic services at the new Zangilan International Airport- the second international airport opened on the de-occupied territories of Karabakh - was carried out by a group of AZANS safety experts.

Moreover, throughout 2022, special attention was paid to the risks and mitigation actions associated with the increase of traffic caused by the closure of airspace due to the Russian-Ukrainian conflict.

In June 2022, the next surveillance audit of the DQS certifying body was successfully passed by AZANS, confirming the high level of compliance with the quality standard ISO 9001:2015 of meteorological information service, aeronautical information service, and training of ATCOs on the integrated ATC simulator provided by AZANS.

AZANS participated in the business transformation project

In 2022 “Azerbaijan Airlines” CJSC launched a transformation project together with McKinsey & Company international consulting company. Transformation project aimed at identifying and improving weak areas in the company’s performance, as well as the introduction of advanced procedures and tools in the organization of its operation. Following through analysis with the guidance of McKinsey & Company AZAL verified Strategic Development Plan for 2023-2030 that covered 19 initially identified improvement initiatives including revenue maximization, network optimization/fleet utilization, sales, and marketing etc. 3 out of 19 initiatives were applied to enhance AZANS performance:

- Pro-active airspace user attraction,
- Non-commercial aeronautical revenue and
- ATC operation improvement.



# Way Forward 2023

## **The development of National Airspace Strategy of Azerbaijan Republic**

to provide comprehensive solutions for the effective use of airspace, optimization of the route network, advancing operational procedures and regulatory framework, and development of ATM Master plan

## **Innovative solutions and tools for ATM performance and efficiency analyses**

to improve performance analyses, implementation of new operational analytics tools, including environmental impact assessment tool (CO2 emissions), automatic post-ops analysis and forecasting.

## **AIREON Implementation will be started**

to take full advantage of innovative technologies in the framework of the global processes of evolution in the aerospace sector. In addition to a significant contribution to flight safety, this system will also help to improve the economic efficiency and environmental safety of routes in the airspace of Azerbaijan.

## **AZANS will implement the IWXXM format for MET data exchange**

to achieve the compliance with international standard format for the exchange of meteorological information represented the start of a significant change from the provision and exchange of textual OPMET data towards a digital environment, in support of the ICAO Global Air Navigation Plan (GANP) and a transition towards a SWIM environment

## **Advanced ATCOs initial training program and integrated ATC TWR and Radar Control simulation systems**

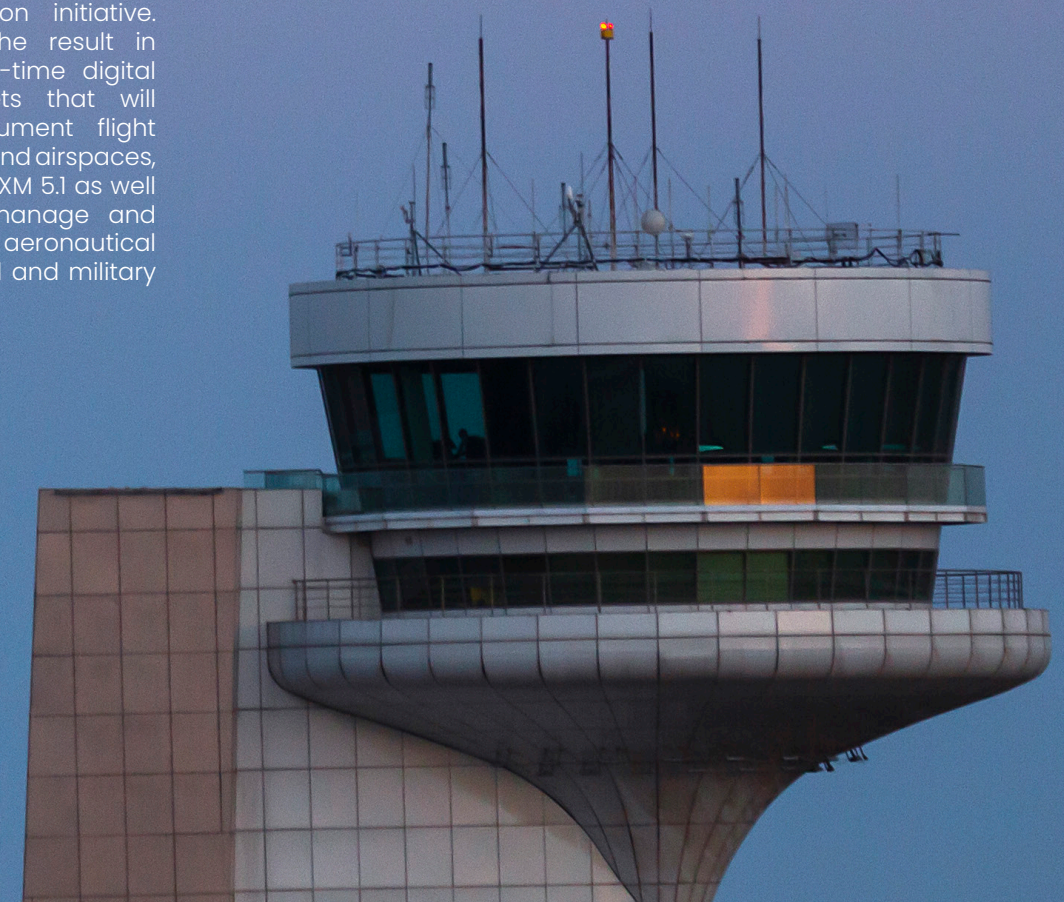
to bring the initial ATCOs training program in compliance with the requirements of the national legislation AAR - 006 - Air Traffic Controller Licensing, as well as with the international requirements stated in EU Commission Regulation 2015\340 for Air Traffic Controllers Licenses and Certificates.

## **AZANS' ATCOs licensing and rostering processes to be automated and optimized**

to introduce a new automated system that will improve the efficiency of the processes related to ATC personnel licensing and rostering, supporting the process of maintaining the competence of the AZANS air traffic controllers, OJTIs, and Assessors.

## **AZANS is planning to introduce the new Airspace Management tool**

to ensure the digital transition of the aeronautical information initiative. AZANS is expecting the result in the availability of real-time digital aeronautical data sets that will include airports, instrument flight procedures, obstacles, and airspaces, all available in native AIXM 5.1 as well as comprehensively manage and distribute high-quality aeronautical data to all relevant civil and military aviation stakeholders.





# 1 The airspace of the Republic of Azerbaijan Baku Flight Information Region (UBBA FIR)

## 1.1 Traffic development



169 181

(IFR) recorded in 2022



109.2%

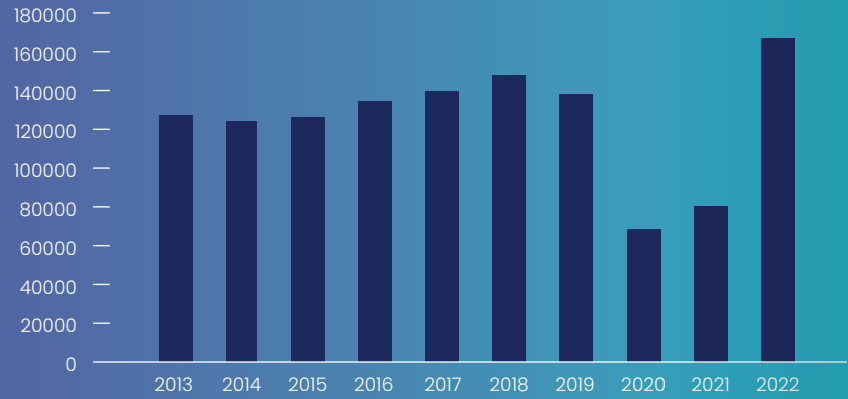
growth compared to 2021



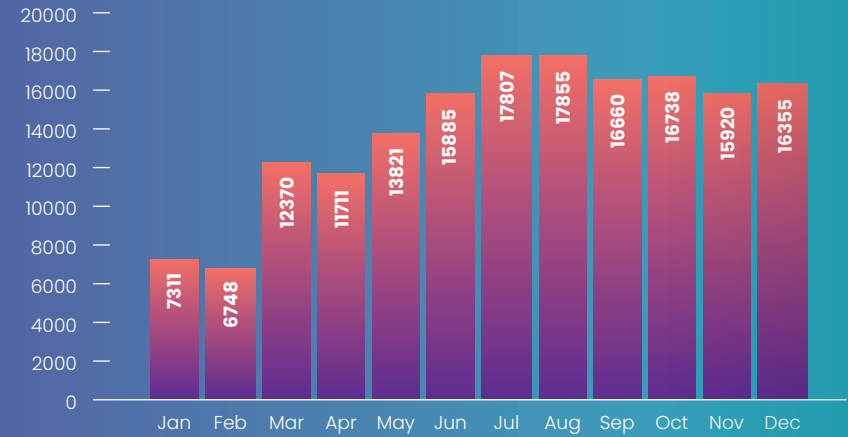
464 acft

Baku FIR per day

In Azerbaijan, the number of flights under instrument flight rules (IFR) recorded in 2022 is 169 181 and growth compared to 2021 is 109.2%. Average number of IFR flights in Baku FIR has reached 464 aircraft per day.



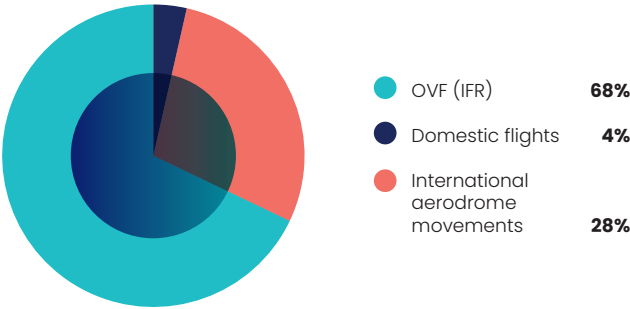
Picture 1.1 Baku FIR traffic development



Picture 1.2 Baku FIR traffic development by months of the year

## 1.2 Traffic segments

In 2022, 68 % of the flights in Baku FIR was overflight, 4% was domestic flights within Azerbaijan and the remaining 28 % was international flights, arriving at or departing from airports of the Republic of Azerbaijan.



## 1.3 Capacity vs traffic

Capacity of FIR Baku is 65 ACFT/hour and published in LSSIP Azerbaijan. Existing capacity meets traffic demand. The highest traffic volume of 49 ACFT/hour was recorded on December 02, 2022 between 00:00-01:00 UTC.

The most congested peak hours (average data) are:

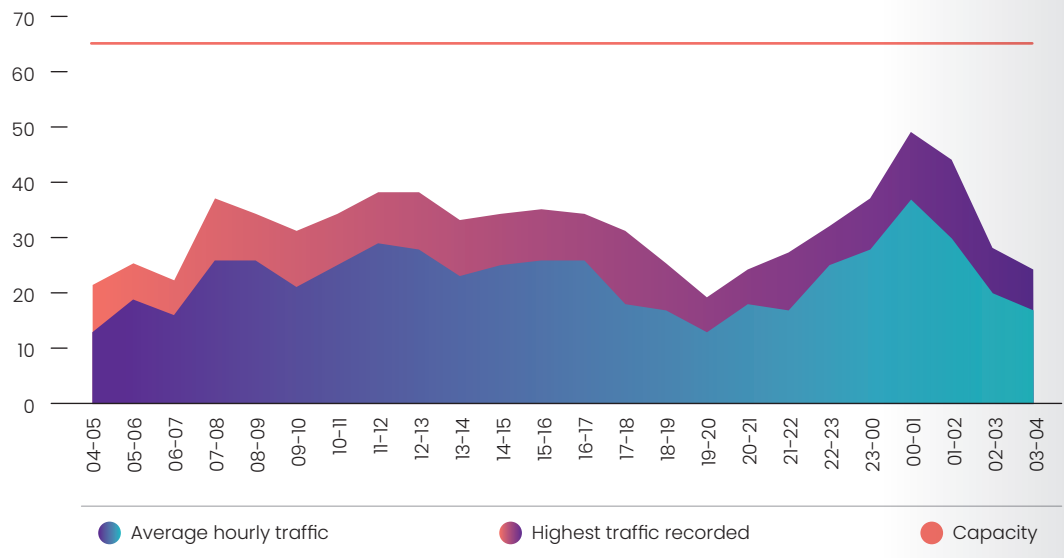
### Winter Season:

Peak hours (Winter average data):	
00:00-01:00	37 ACFT
01:00-02:00	30 ACFT
11:00-12:00	29 ACFT
12:00-13:00	28 ACFT
23:00-00:00	28 ACFT

### Summer Season:

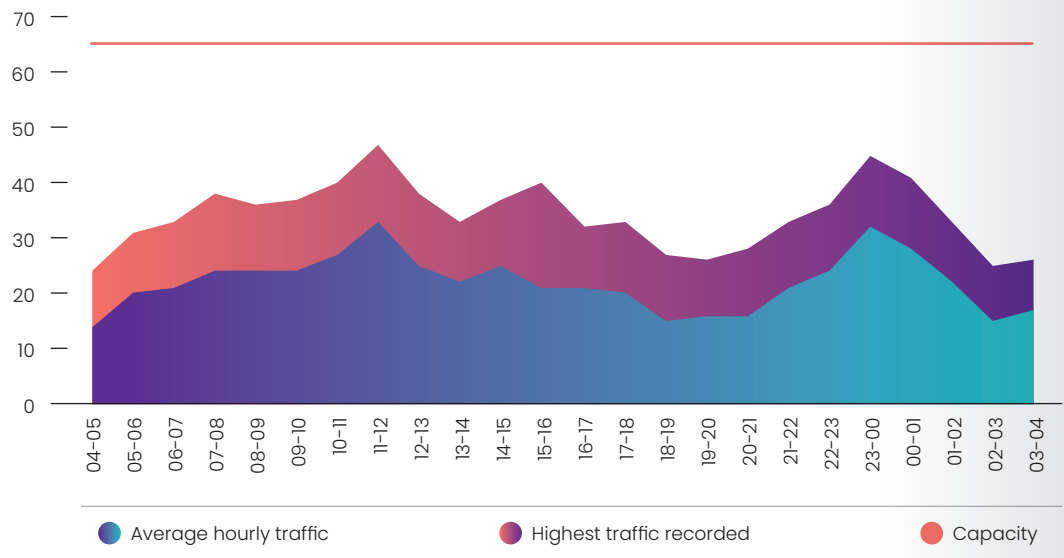
Peak hours (Summer average data):	
11:00-12:00	33 ACFT
23:00-00:00	32 ACFT
00:00-01:00	28 ACFT
10:00-11:00	27 ACFT

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



Picture 1.3 Hourly traffic volume vs Baku FIR capacity (WINTER)

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



Picture 1.4 Hourly traffic volume vs Baku FIR capacity (SUMMER)

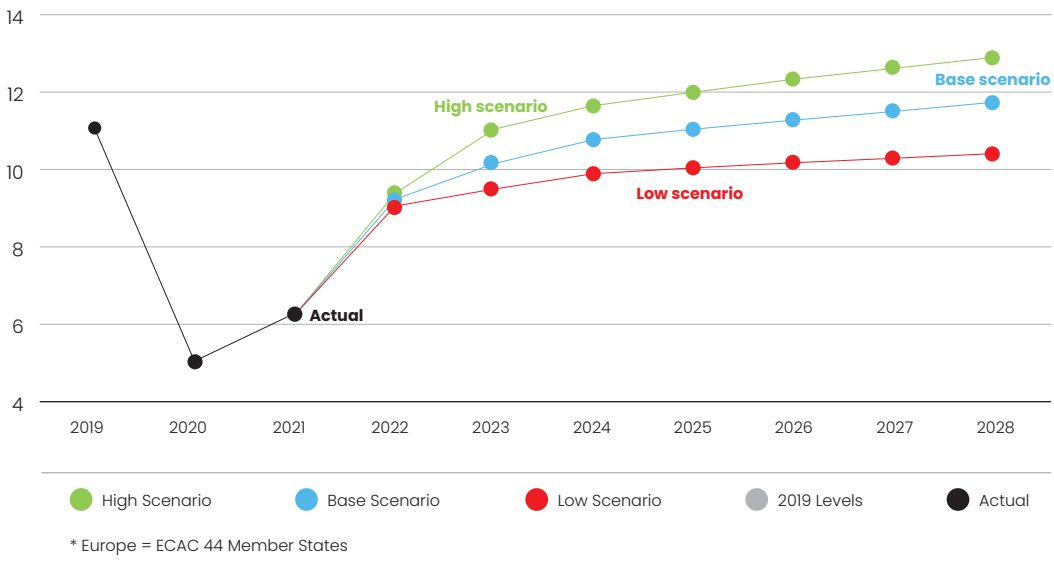
### 1.4 Forecast 2022-2028

The forecast is based on "Eurocontrol's seven years forecast 2022-2028. The chart below illustrates three different scenarios "High", "Base" and "Low".

Based on High scenario Eurocontrol predict 270 000 flights, for Base scenario numbers illustrate 247 000 and finally for Low scenario 224 000 flights for Azerbaijan in 2028.

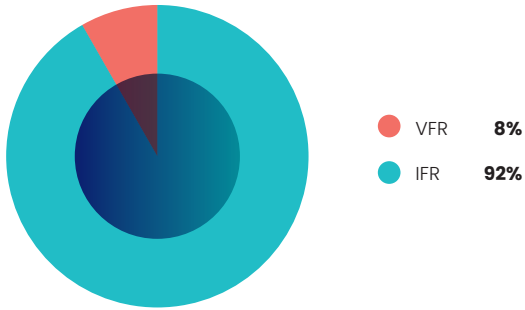
#### EUROCONTROL 7-YEAR FORECAST for \*Europe 2022-2028

Actual and future, % traffic compared to 2019



Picture 1.5 Eurocontrol's forecast

**1.5** The total number of flights recorded in 2022 was 184 454 where 169 181 were under Instrument Flight rules (IFR) and 15 273 flights were Visual Flights Rules (VFR). Shares of IFR flights has been increased by 5 % while share of VFR flights decreased by 5 % compared to 2021.

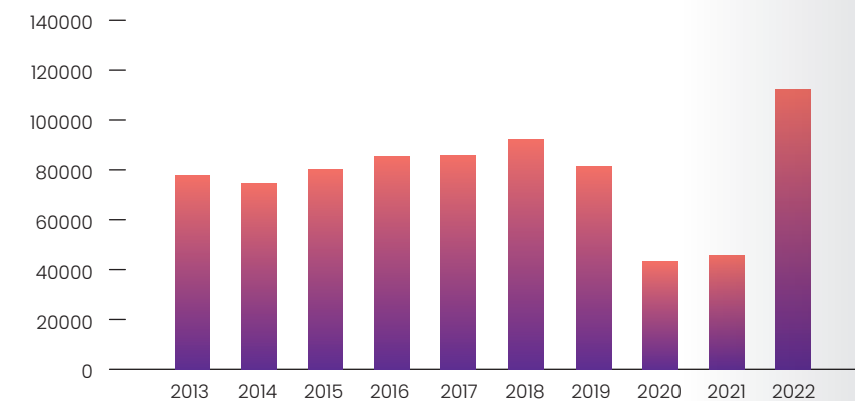


## 2 Overflight

### 2.1 Traffic development

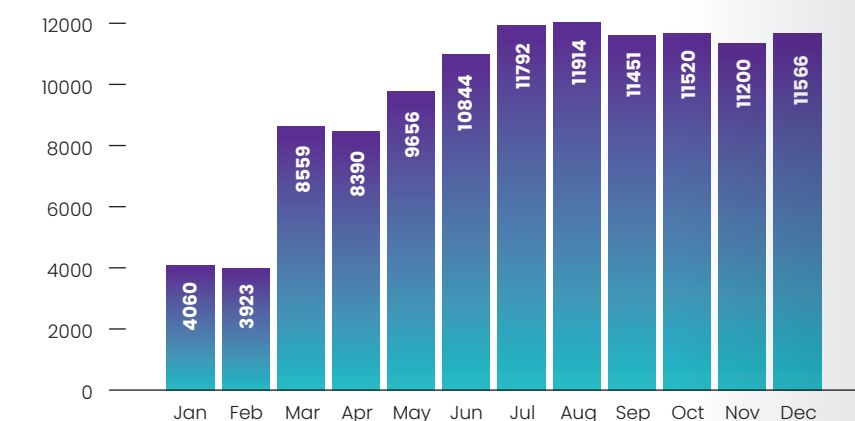
The number of overflights recorded in 2022 is 114 875 flights and compared to 2021 the growth is 144.1%. Average number of daily overflights via Baku FIR in 2022 is 315 aircraft per day.

In 2022, traffic development of Azerbaijan airspace was affected by COVID-19 pandemic, Ukraine and Afghanistan crises. Despite the fact that impact of Afghanistan and COVID-19 decreased amount of traffic, the non-availability the Ukrainian airspace increased traffic up to 21% compared to pre-pandemic period (2019), as far as, under these circumstances, the shortest corridor for flights connecting Europe and Far-East Asia is laying down via Azerbaijan airspace. Overflight flows Europe-South and South-East Asia have significantly changed, due to the closure of Afghanistan's airspace since August 16, 2021. Historically, this flow crosses the South Caucasus region and every day up to 70 flights are forced to fly via alternative routes that by-pass Baku FIR.



Picture 2.1 Yearly overflight traffic development

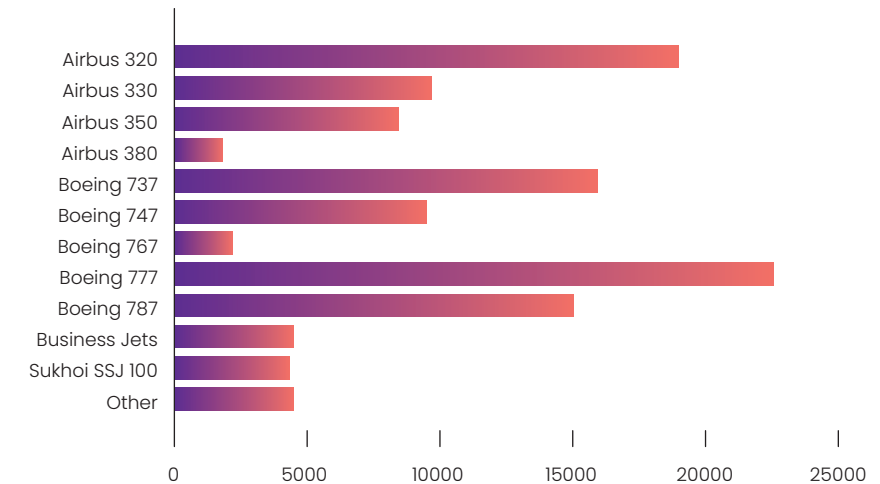
Most monthly traffic was recorded in August (11914 ACFT) and peak day was recorded on September 06, 2022 (420 ACFT).



Picture 2.2 Overflight traffic development by month

### 2.2 Aircraft types

More than 60% of aircraft of the overflight traffic is wide-body long-range aircraft and it is a decline of 10% of its share in comparison with 2021. The chart below illustrates top 12 types of aircraft overflying within the Azerbaijan airspace.



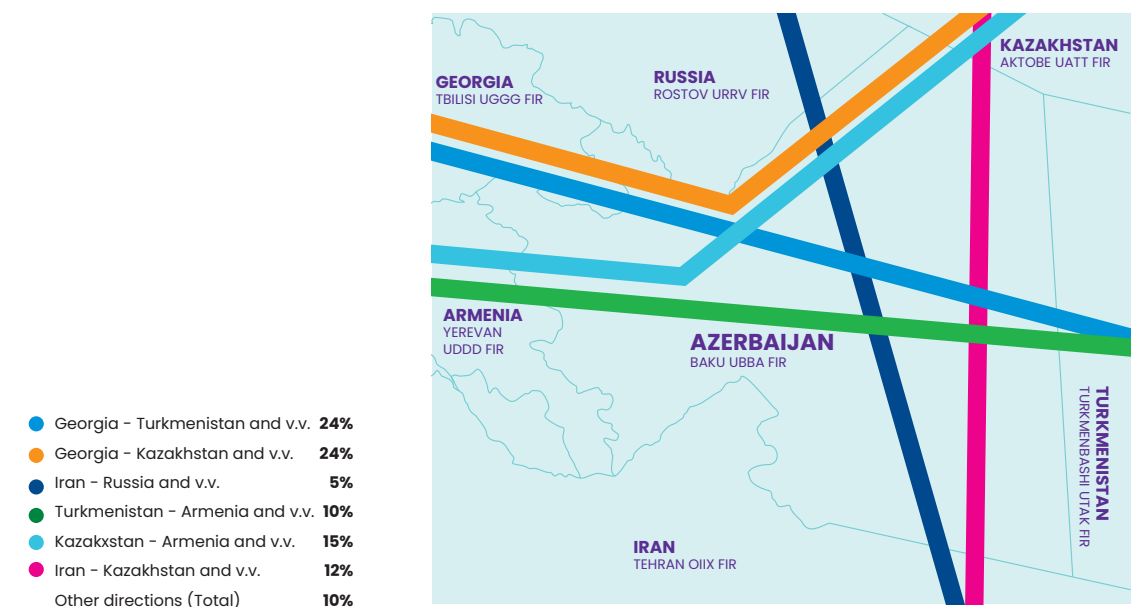
Picture 2.3 Top 12 types of aircraft of the overflight traffic

### 2.3 Traffic flows

Complicated political processes in a number of neighboring regions are still existed. ICAO, IATA, EASA and/or National Civil aviation authorities issued notifications and recommendations to avoid the airspaces of Russia, Iraq, Syria, Iran and airspaces of Ukraine and Afghanistan are closed.

These restrictions impacted the direction of traffic flows through the airspace of the Republic of Azerbaijan. Particularly, the closure of the Afghan airspace has led to impoverishment of overflight flows Europe-South and South-East Asia when closure of the Ukrainian airspace has created a new flow of flights connecting Europe and Far-East Asia via Azerbaijan airspace.

The main traffic flows over Azerbaijan in 2022 are shown in the picture below.



Picture 2.4 Main traffic flows over Azerbaijan airspace



2.4 Airspace users

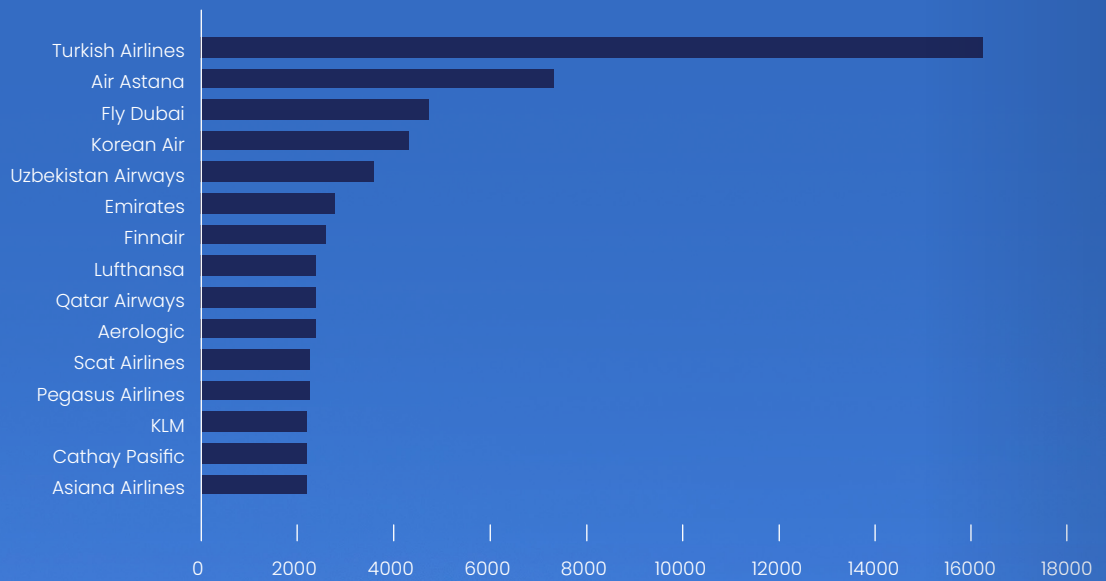
Approximately 70 international airlines that belong to passenger and cargo segments carry out scheduled flights on the daily basis via airspace of the Republic of Azerbaijan. Scheduled flights form 85% of the total number of transit flights.

Whole aviation industry continued to recovery from COVID-19 pandemic in 2022 but the figures do not illustrate pre-pandemic records which means recovery has not been in full volume.

Operation of all airlines that carry out flights from Europe to South-East and South Asia and vice versa still were affected by closure of the Afghanistan airspace due to the fact that they were forced to fly via alternative routes.

In addition, the Ukraine crisis affected to the aviation industry. Almost every airline started to avoid Russian airspace due the restrictions and NOTAMs. As a consequence of this actions number of airlines started to use Azerbaijan airspace as an alternative route.

List of new airlines: Mongolian Airlines, Sichuan Airlines, Hainan Airlines, All Nippon Airways, Japan Airlines, Southwind Airlines, Aero Mongolia and others.



Picture 2.5 Top 15 airspace users



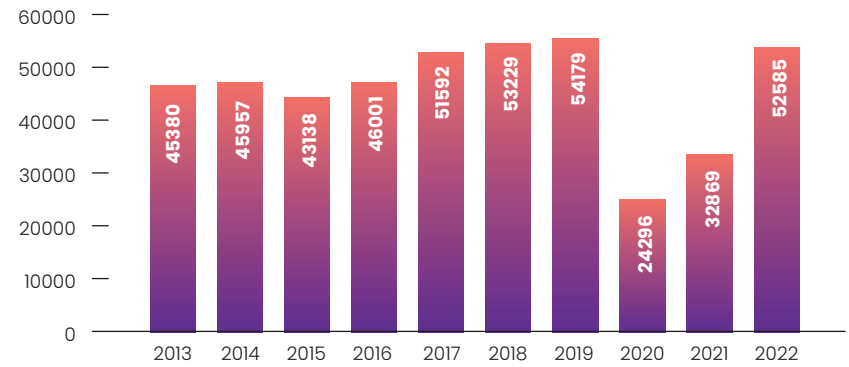
3 Baku/Heydar Aliyev International airport

3.1 Traffic development



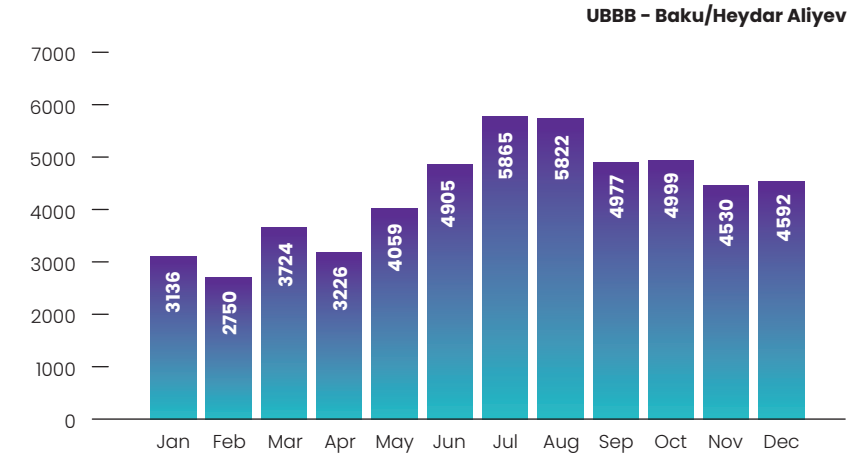
Baku/Heydar Aliyev International airport is the air gate of the capital of the Republic of Azerbaijan. It is the busiest airport in Azerbaijan and in the Caucasus region.

Total number of aerodrome movements recorded in 2022 was 52585 aircraft. Traffic increased by 60.0% compared with 2021. Average figure of number of aerodrome movements at the Baku/Heydar Aliyev International airport is 144 aircraft per day. The impact of the COVID-19 pandemic on the aviation industry has been remained and the decrease of traffic at Baku/Heydar Aliyev International airport is -3% compared to the pre-pandemic 2019.



Picture 3.1 Baku/Heydar Aliyev International airport annual traffic development

July-August was the most congested time period. Most month traffic was recorded in July (5865 movements) and peak day was recorded on August 28, 2023 (213 ACFT).

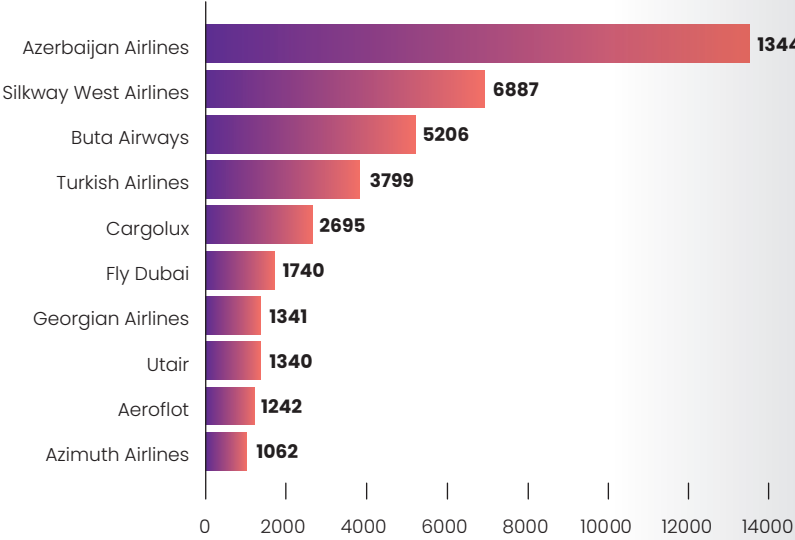


Picture 3.2 Baku/Heydar Aliyev International airport traffic development by month



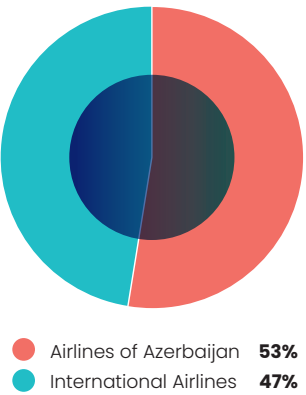
3.2 Airlines

Baku/Heydar Aliyev International airport is the home base for “Azerbaijan Airlines” which is national carrier of Azerbaijan and air companies of “Silkway Group”. More than 30 different airlines (passenger and cargo) carry out schedule flights to Baku city: Turk Hava Yollari, CARGOLUX, Qatar Airways, Lufthansa, Aeroflot, Fly Dubai, Kuwait Airlines, Air Arabia, Wizz Air, Flynas, Air Astana, Uzbekistan Airways, etc.



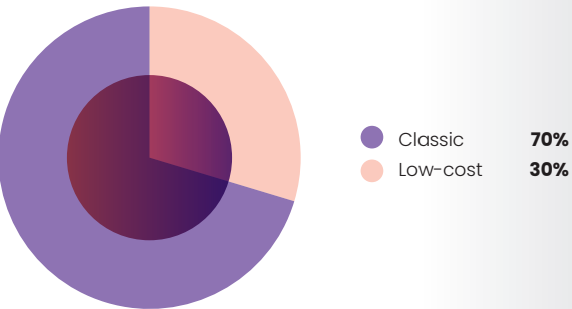
Picture 3.3 Top 10 airspace users

In comparison with 2021, the share of Azerbaijan airlines decreased by 4% while International Airlines increased by 4%.



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

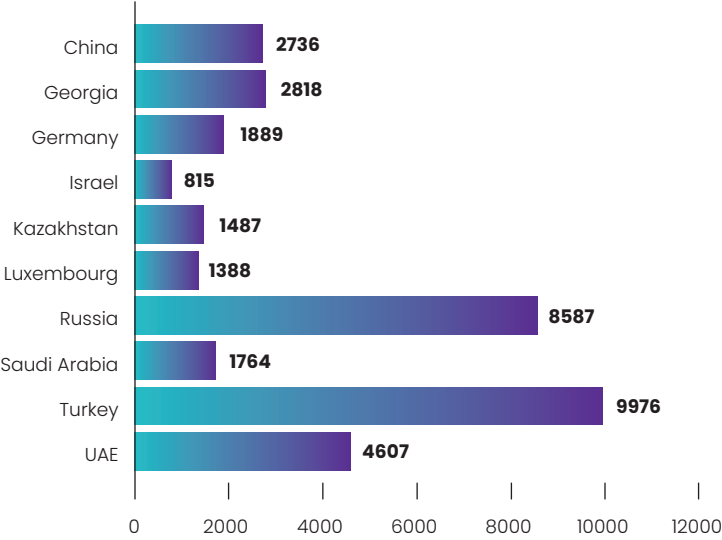
Total number of low-cost airlines in 2022 is 10 airlines (Buta airways, Fly Dubai, Wizz Air/Wizz Air Abu Dhabi, Jazeera Airways, Air Arabia, Flynas, Skyup , FlyAdeal, Salamair, FlyAristan and Pegasus). The share of low-cost airlines flights from the total share of scheduled passenger operation is significantly increased and achieved 30%.



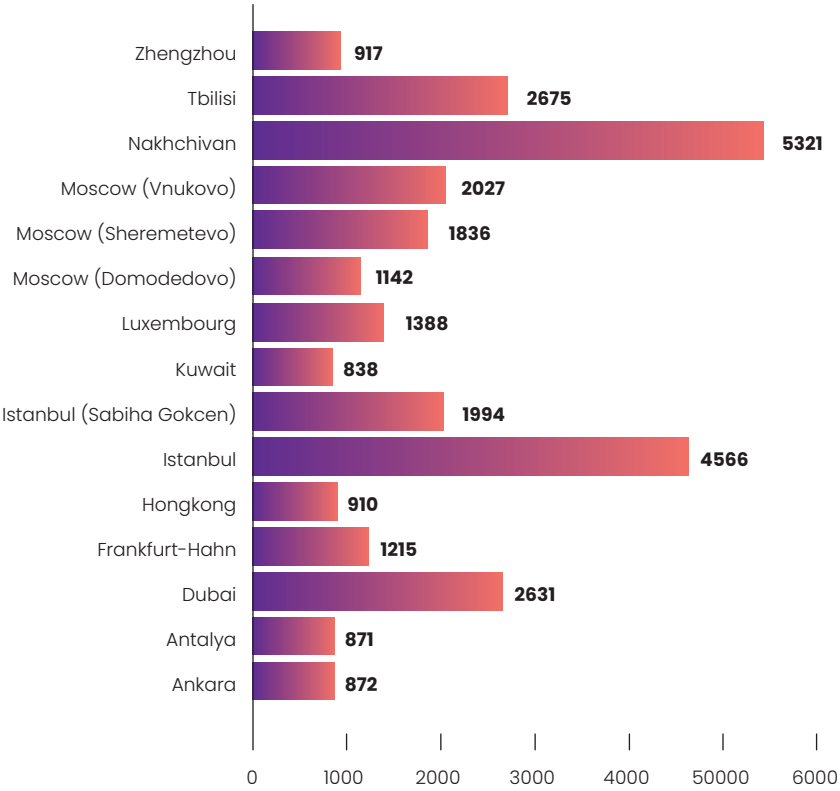
Picture 3.5 Share of traffic: Low-cost Airlines vs Classic Airlines

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



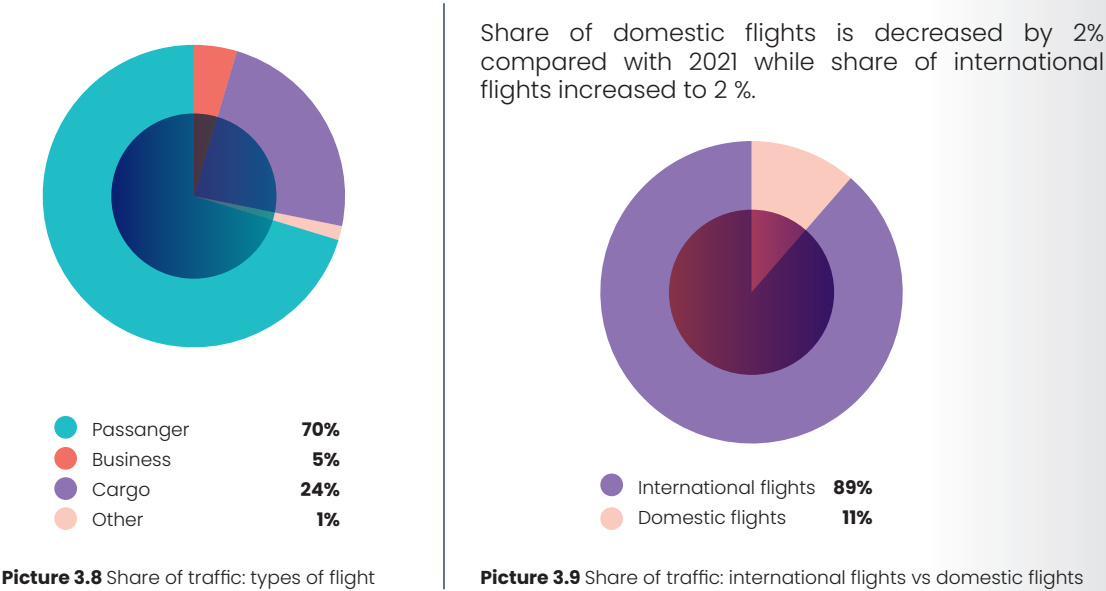
Picture 3.7 Top destinations by airport



3.4 Type of flights

Infrastructure of International airport Heydar Aliyev allows to provide service to all types of flight. Two passenger terminals ensure 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.

General (business) aviation segment share decreased from 7 % to 5 %, cargo flights share decreased from 36% to 24% when share of passenger flights share increased from 55% to 70% compared with 2021.

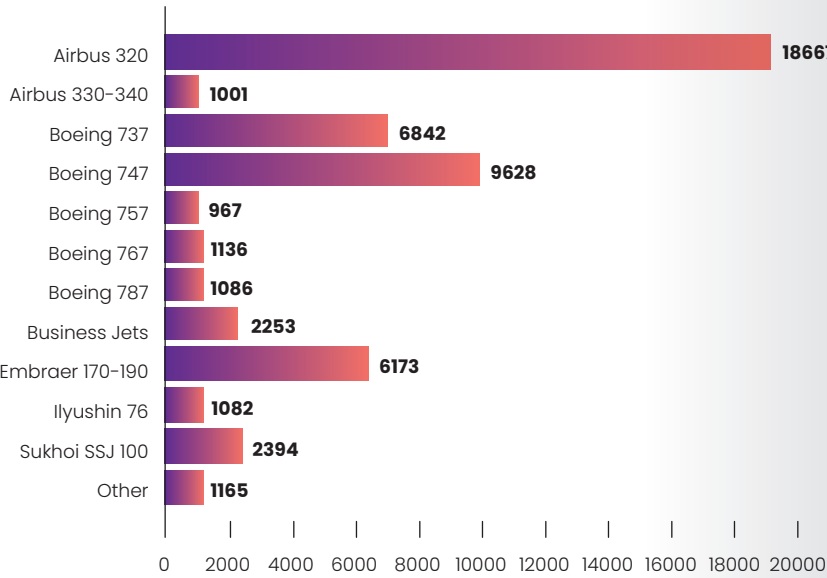


Picture 3.8 Share of traffic: types of flight

Picture 3.9 Share of traffic: international flights vs domestic flights

3.5 Types of aircraft

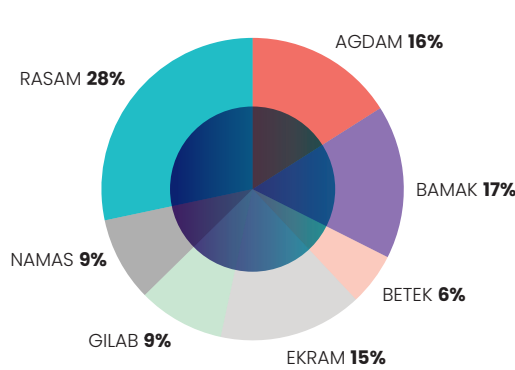
International airport Heydar Aliyev is capable to provide services to all types of aircraft, including Airbus 380 and Antonov 225 “Mriya”.



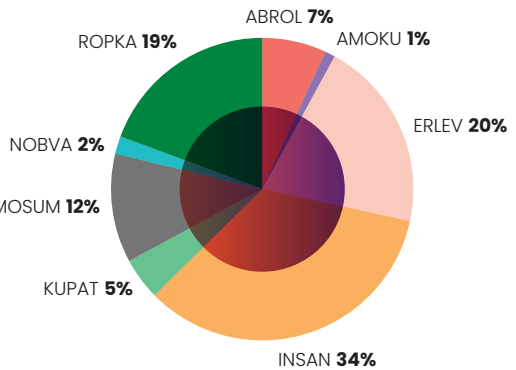
Picture 3.10 Types of aircraft

3.6 Load of SID and STAR

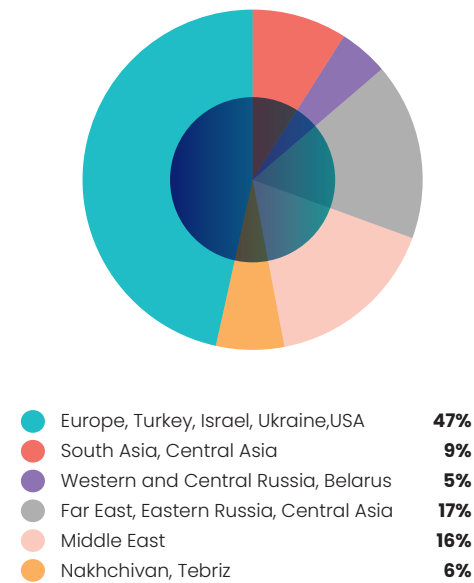
Baku/Heydar Aliyev Departure Flows



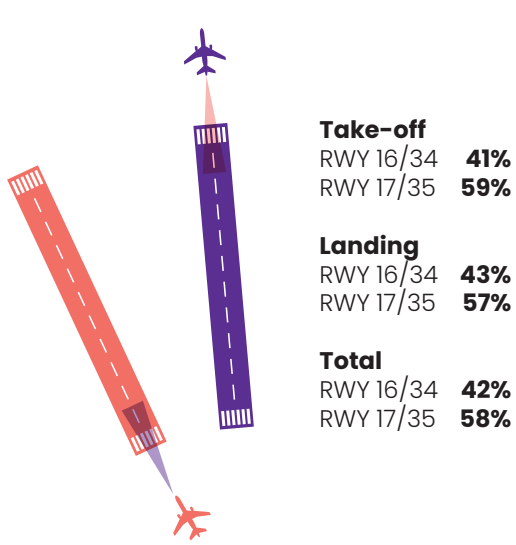
Baku/Heydar Aliyev Arrival Flows



3.7 Traffic flows



3.8 Use of RWY 16/34 and 17/35

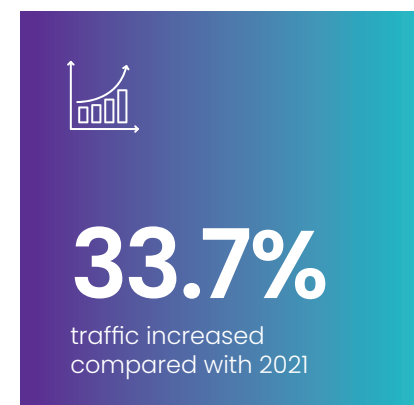




## 4 Regional aerodromes

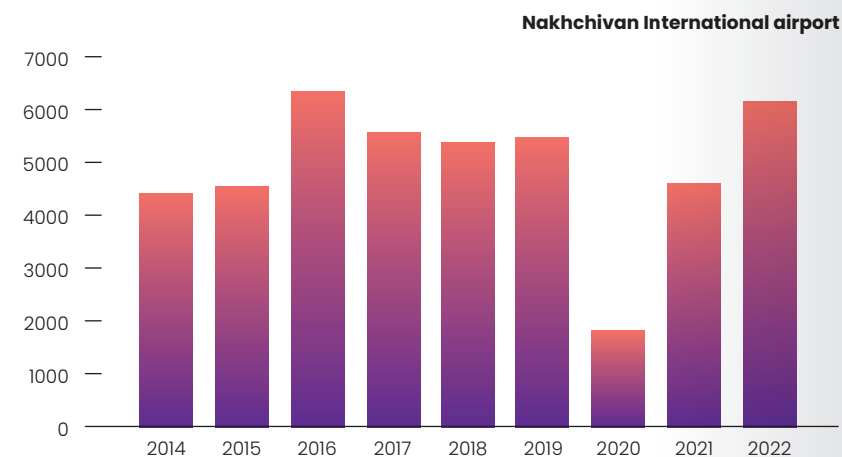
There are seven international airports (Ganja, Nakhchivan, Fuzuli, Gabala, Lankaran, Zaqatala, Zangilan) and two domestic airports (Yevlakh and Baku (Zabrat)) in Azerbaijan.

### 4.1 Nakhchivan International airport (ICAO: UBBN)

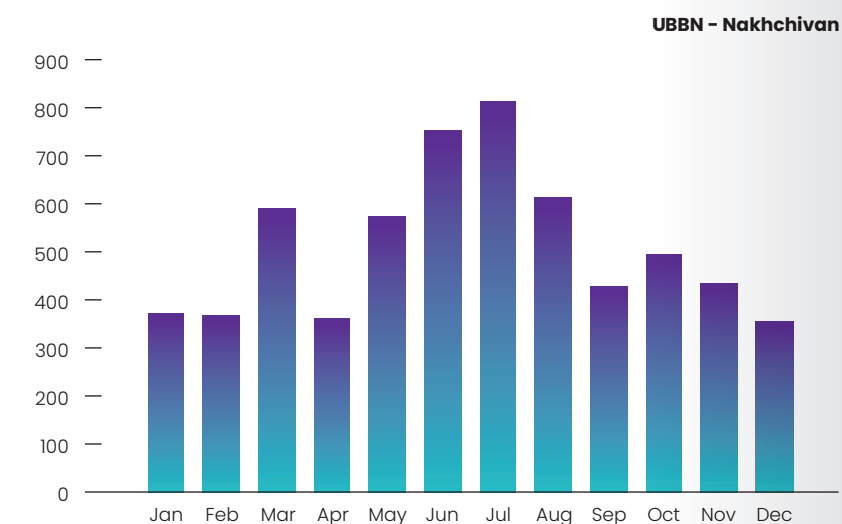


Nakhchivan International airport is the only air gateway of the Nakhchivan Autonomous Republic, a landlocked exclave of Azerbaijan. It was built in 1976 and completely reconstructed in 2002-2004.

Total number of aerodrome movements in 2022 is 6132 aircraft and it is a growth of 33.7% in comparison with 2021. Regular passenger flights to Baku, Ganja, Istanbul and Moscow are operated from Nakhchivan. Average figure of number of aerodrome movements at the Nakhchivan International airport in 2022 is 17 aircraft per day.

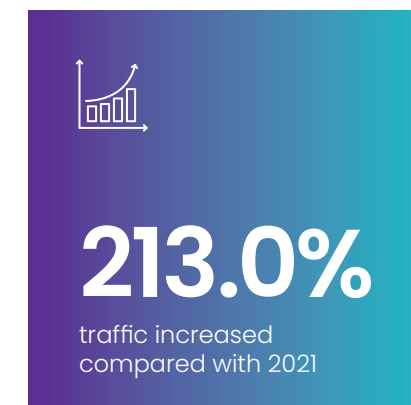


Picture 4.1 Annual traffic development at Nakhchivan International airport



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

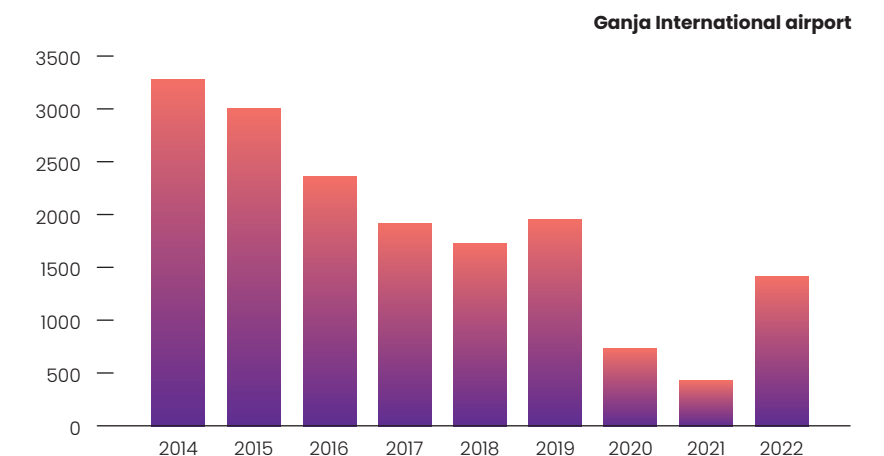
### 4.2 Ganja International airport (ICAO: UBBG)



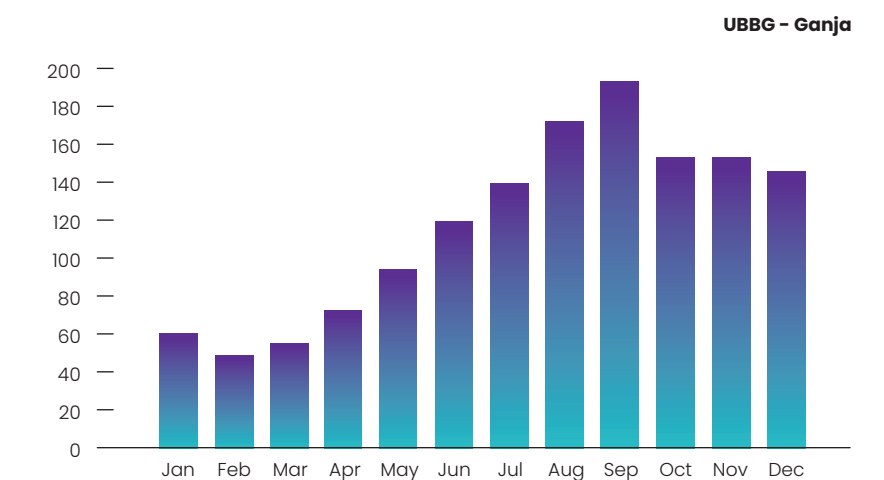
Ganja International airport is an airport serving Ganja, the second largest city in Azerbaijan. It was reconstructed in 2006.

Regular operations to Ganja were cancelled in April 2020 due to COVID-19 pandemic and re-launched in May 2021 with a limited volume of pre-pandemic schedule. Regular passenger flights to Nakhchivan, Istanbul and Moscow are operated from Ganja.

Total number of aerodrome movements in 2022 is 1393 aircraft. Traffic increased by 213.0% compared to 2021. Average figure of number of aerodrome movements at the Ganja International airport in 2022 is 4 aircraft per day.



Picture 4.3 Annual traffic development at Ganja International airport



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 airport was inaugurated by the President of the Republic of Azerbaijan, Ilham Aliyev on 17 November 2011.

Total number of aerodrome movements in 2022 is 301 aircraft and it is a growth of 63.6% in comparison with 2021.

No schedule flights were operated in 2022.

4.4 Lenkoran International airport (ICAO: UBBL)

Lenkoran International airport is located in the town of Lenkoran in the south-east of Azerbaijan. Reconstruction of the Lenkoran airport was started in 2005 and was finished in 2008.

Total number of aerodrome movements in 2022 is 326 aircraft and it is a growth of 63.6% in comparison with 2021.

Regular flights to Lenkoran were cancelled in April 2020 due to COVID-19 pandemic and have been recovered since June 2021. Scheduled flights to Moscow are operated from Lenkoran.

4.5 Fuzuli International airport (ICAO: UBBF)

Fuzuli International airport is an airport in the city of Fuzuli and an air gateway to the territories liberated from occupation. The airport was built in 2021 within 8 months on an aerodrome that has been abandoned for almost 30 years and was surrounded by former minefields. Fuzuli International Airport was officially inaugurated by the President of the Republic of Azerbaijan, Ilham Aliyev and President of Turkey, Recep Tayyip Erdogan on October 26, 2021.

Total number of aerodrome movements in 2022 is 198 aircraft. No scheduled flights were operated in 2021.

4.6 Zangilan International airport (ICAO: UBBZ)

Zangilan International airport is an airport in the city of Zangilan and the second airport built in the liberated territories. The airport is built in 2022 and was officially inaugurated by the President of the Republic of Azerbaijan, Ilham Aliyev and President of Turkey, Recep Tayyip Erdogan on October 20, 2022.

Total number of aerodrome movements in 2022 is 160 aircraft. No scheduled flights were operated in 2022.

4.7 Zagatala International airport (ICAO: UBBY)

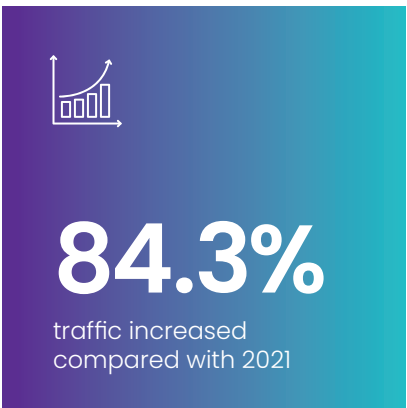
Zagatala International airport is an airport serving Zagatala city. It is located at the southern foot of the Main Caucasus range. The latest reconstruction of the airport terminal was completed in 2008, after which airport received an international status. Zagatala International airport was closed since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

Total number of aerodrome movements in 2022 is 98 aircraft. No schedule flights were operated in 2022.

4.8 Yevlakh airport (ICAO: UBEE)

Yevlakh airport is an airport serving the city of Yevlakh. Complete reconstruction of Yevlakh airport was completed in September 2013. Yevlakh airport does not have status of "international airport".

Total number of aerodrome movements in 2022 is 10 aircraft. No schedule flights were operated in 2022.



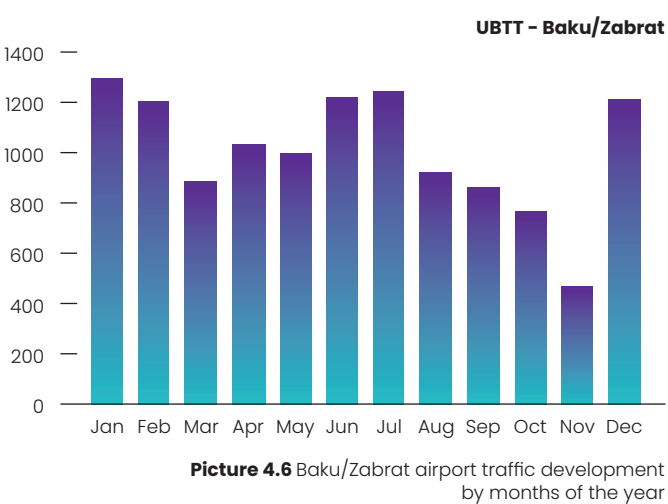
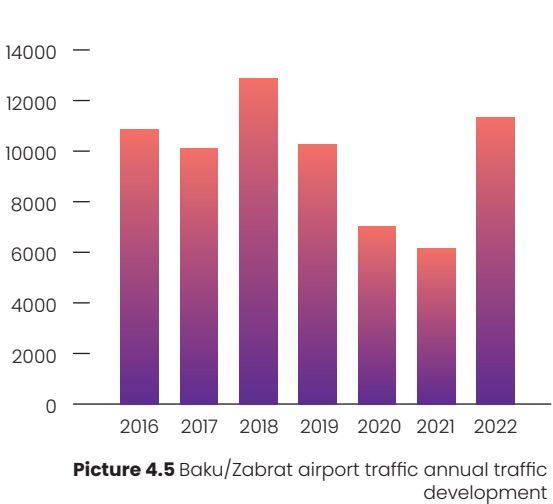
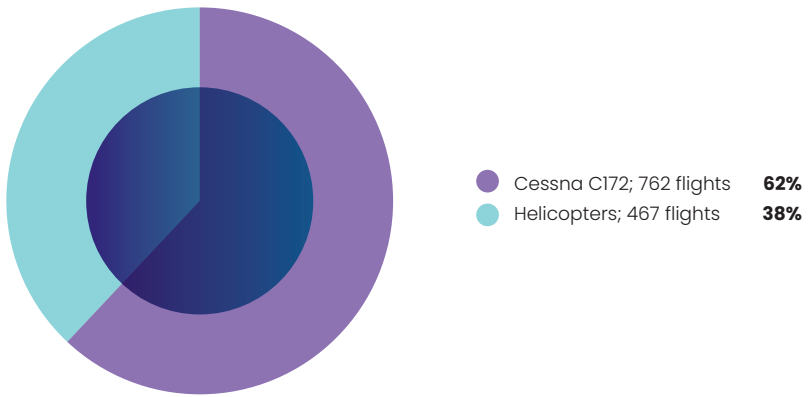
4.9 Baku/Zabrat airport (ICAO: UBTT)

Baku/Zabrat airport is home base airport of "Silk Way Helicopter Service" (SWHS) company. Fleet of SWHS consists of the following types of aircraft: Augusta Westland AW139, Mil171, Sikorsky S92, Eurocopter Super Puma AS332, Eurocopter Dauphin EC155 and Cessna 172. Main objective of SWHS is the provision of services 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.

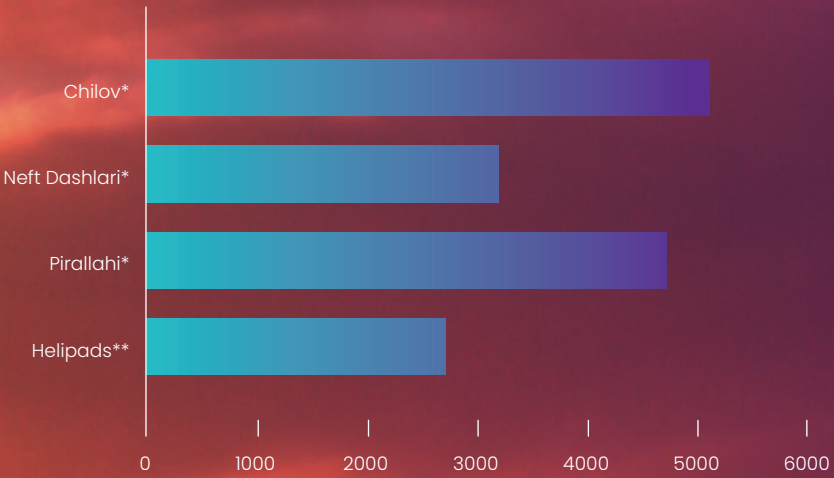
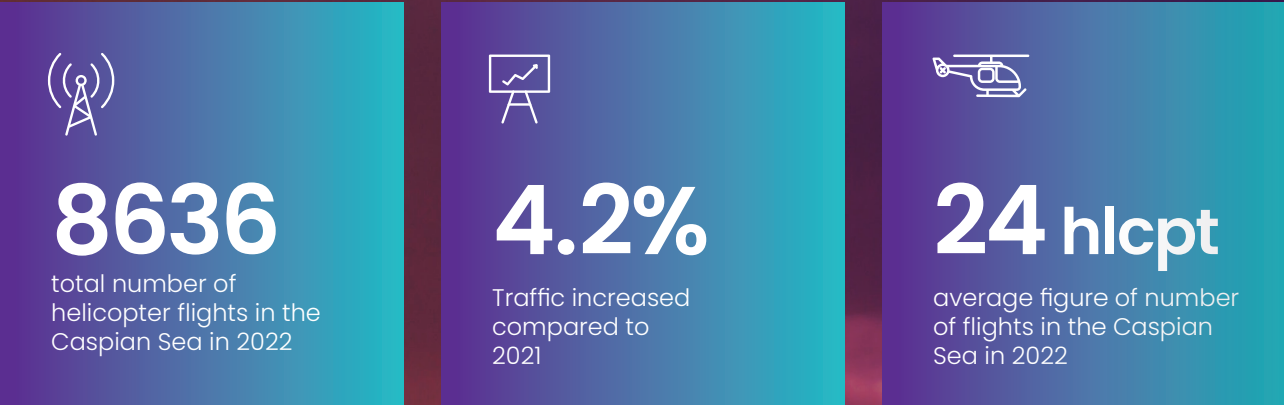
Total number of aerodrome movements in 2022 is 12 317 aircraft and it is a growth of 84.3% in comparison with 2021. Average number of traffic is 34 aircraft per day.





ATC staff of Baku/Zabrat airport is also responsible for ATS provision for helicopter flights in Caspian Sea. The Sea is divided to 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 2022 is 8636 helicopters. Traffic increased by 4.2% compared to 2021. Average figure of number of flights in the Caspian Sea in 2022 is 24 helicopters per day.



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

Picture 4.7 Helicopter flights to/from heliports and helipads in the Caspian Sea



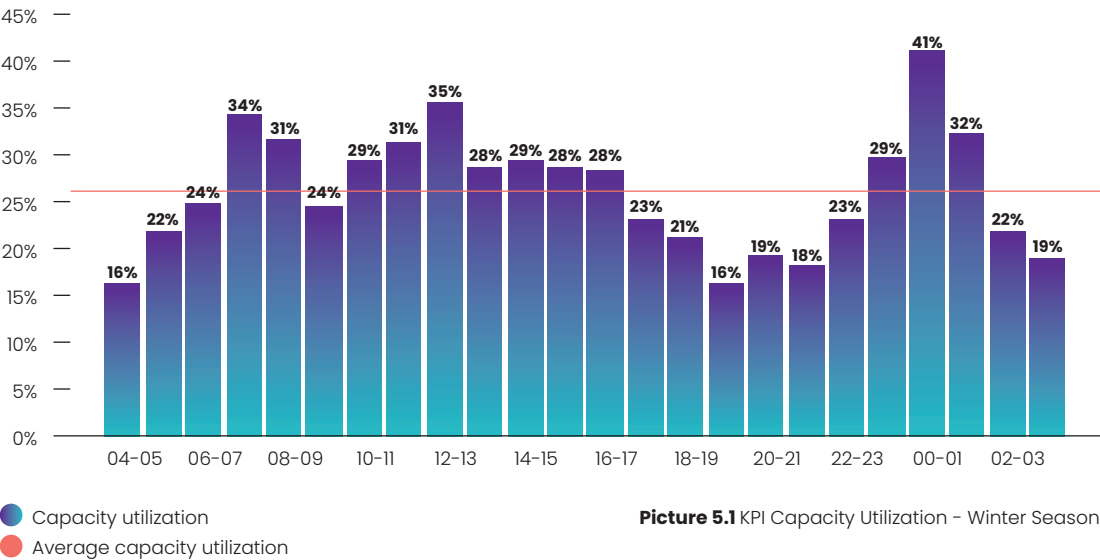
## 5 | Key Performance Indicators

### 5.1 KPI-Capacity Utilization

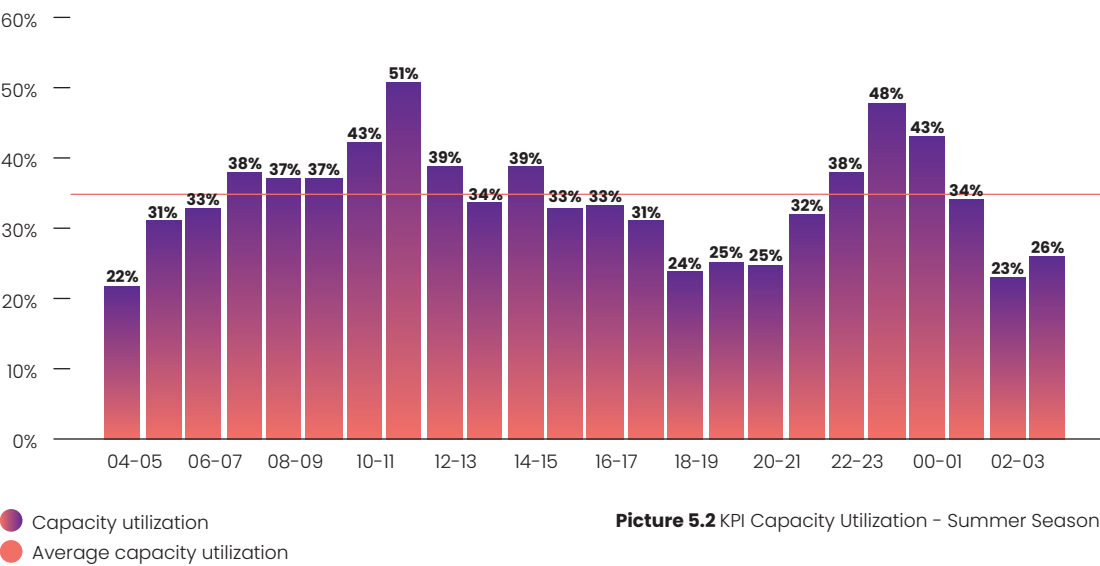
Capacity utilization assesses how effectively capacity is managed. It is a measure of accommodated demand, compared to the available capacity of Baku FIR.AZANS has declared capacity of Baku FIR of 65 ACFT/Hour.

KPI-Capacity utilization is calculated by the formula: the value of “accommodated demand” is divided by the value of the “capacity” and multiplied to 100%.

KPI Y2022	32%
KPI Winter Season	26%
KPI Summer Season	35%



Picture 5.1 KPI Capacity Utilization - Winter Season



Picture 5.2 KPI Capacity Utilization - Summer Season



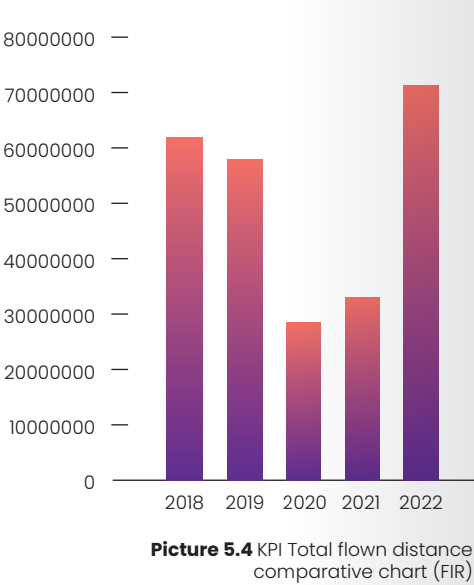
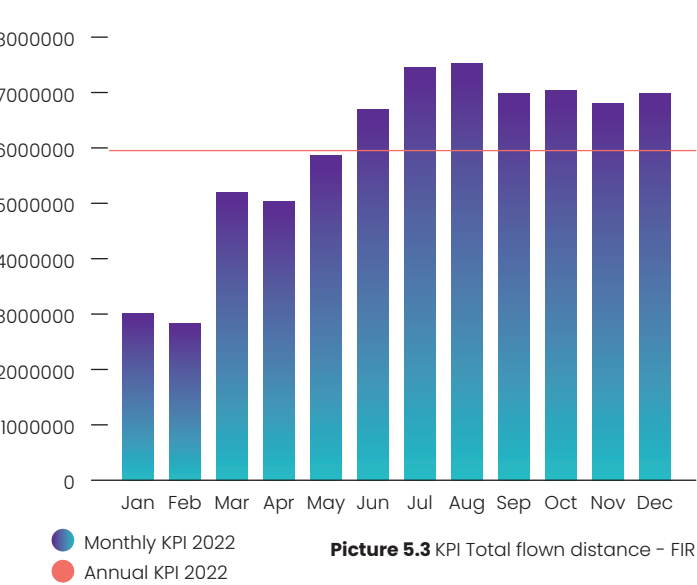
5.2 KPI –Total flown distance

KPI-Flown distance is a total flown distance. KPI is km.

5.2.1 Total flown distance–FIR Baku

All the traffic data of Baku FIR (overflight and aerodrome movements) is used for calculation of KPI – Total flown distance (FIR).

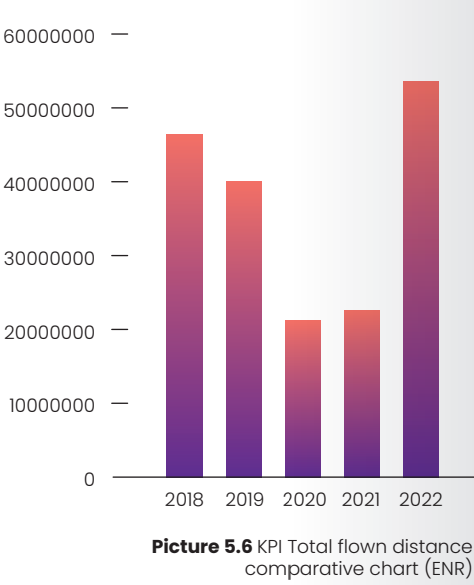
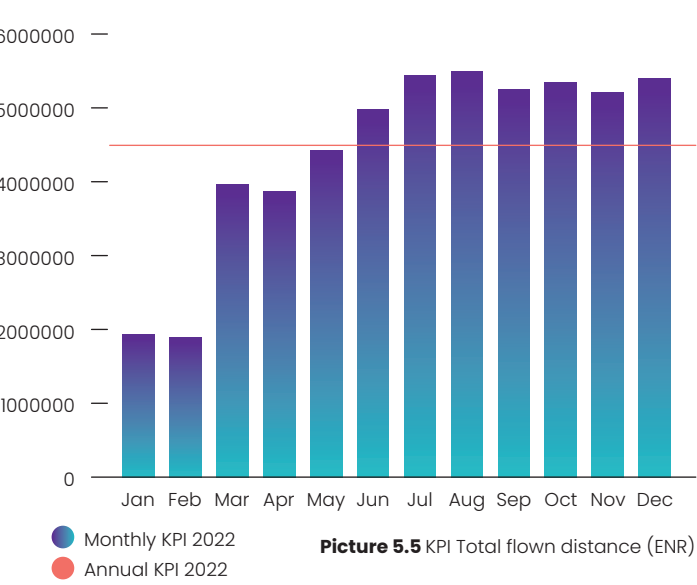
KPI – Total flown distance (FIR)– 71 606 748 km  
KPI – Total flown distance (FIR)– 5 967 229 km (monthly average)



5.2.2 Total flown distance–En-route

Only overflight traffic data is used for calculation of Total flown distance (ENR).

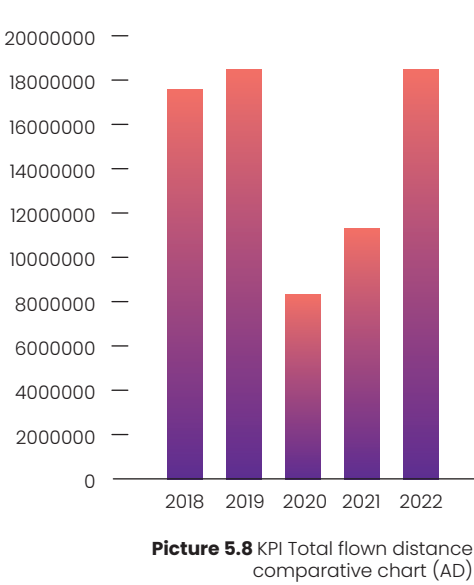
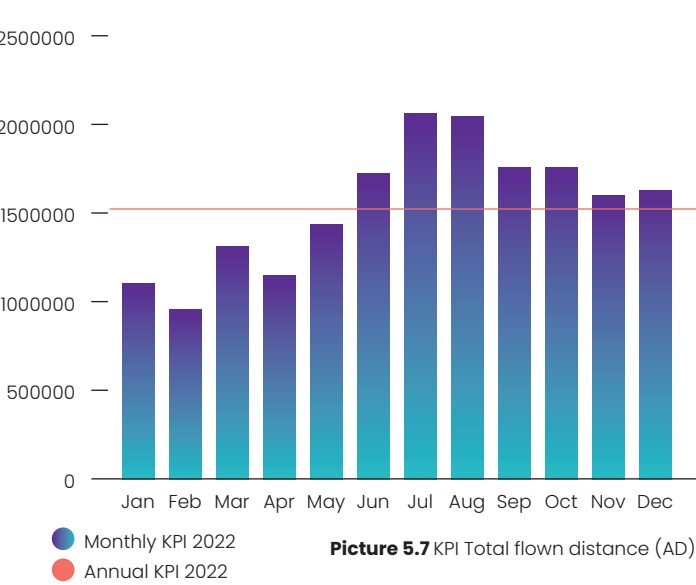
KPI – Total flown distance (ENR)– 53 263 227 km  
KPI – Total flown distance (ENR)– 4 438 602 km (monthly average)



5.2.3 Total flown distance–Aerodrome movements

Only aerodrome movements data is used for calculation of Total flown distance (AD).

KPI – Total flown distance (AD)– 18 343 521 km  
KPI – Total flown distance (AD)– 1 528 627 km (monthly average)



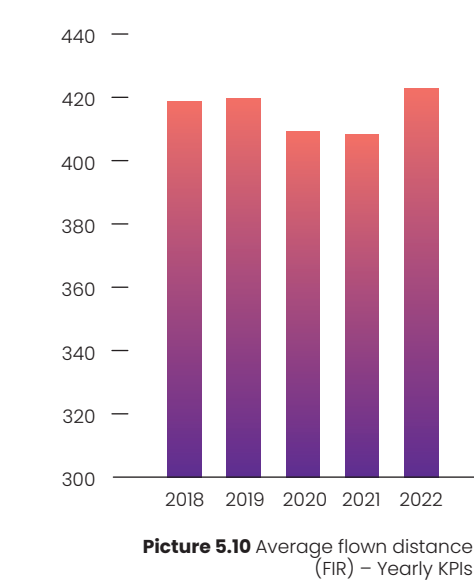
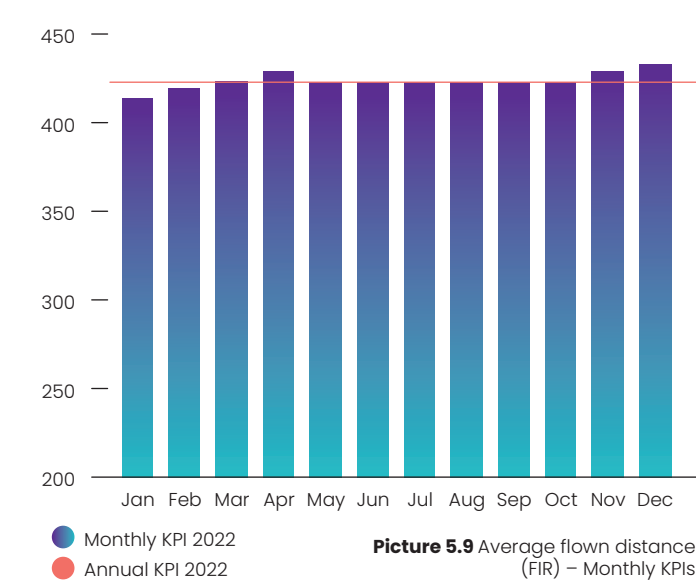
5.3 Average flown distance per ACFT

KPI- Average flown distance per ACFT is calculation of average distance flown by ACFT by the following formula: the value of "total flown distance in kilometers" is divided by the value of "number of ACFT". KPI is km/ACFT.

5.3.1 KPI – Average flown distance (FIR)

All the traffic data of Baku FIR (overflight and aerodrome movements) is used for calculation of Traffic efficiency (FIR).

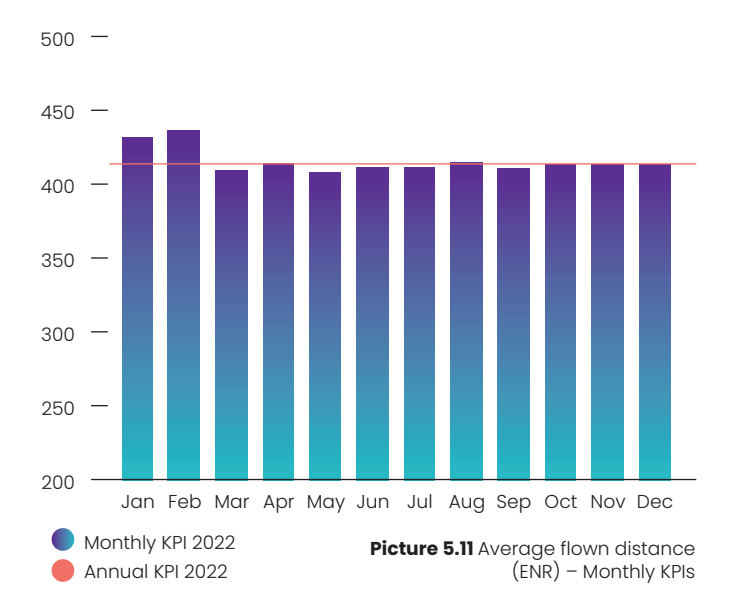
KPI – Average flown distance (FIR) – 423 km/ACFT



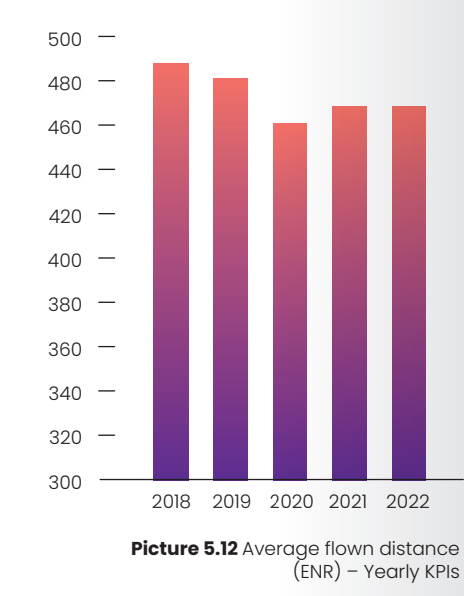


5.3.2 KPI – Average flown distance (ENR)

Only overflight traffic data is used for calculation of KPI – Average flown distance (ENR).  
KPI – Average flown distance (ENR) – 465 km/ACFT.



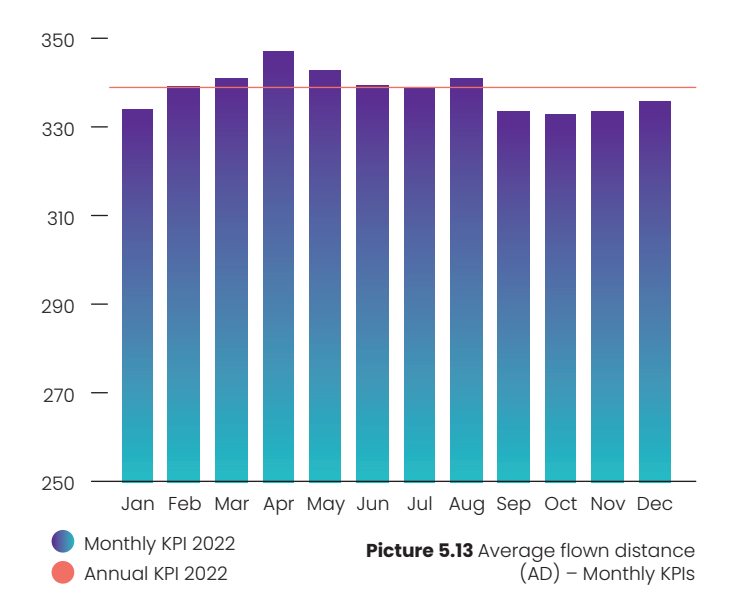
Picture 5.11 Average flown distance (ENR) – Monthly KPIs



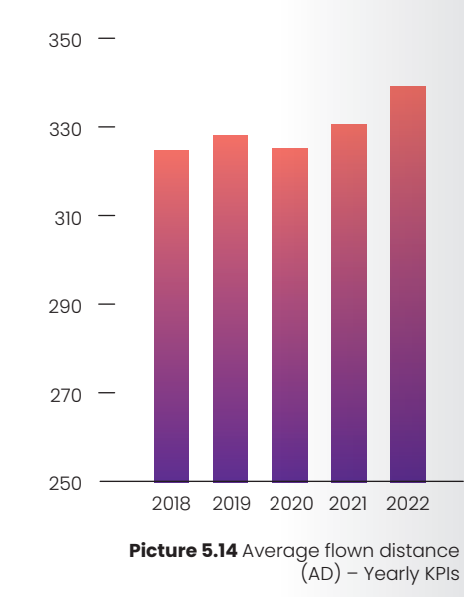
Picture 5.12 Average flown distance (ENR) – Yearly KPIs

5.3.3 KPI- Average flown distance (AD)

Only aerodrome movements data is used for calculation of Average flown distance (AD).  
KPI – Average flown distance (AD)-338 km/ACFT



Picture 5.13 Average flown distance (AD) – Monthly KPIs



Picture 5.14 Average flown distance (AD) – Yearly KPIs

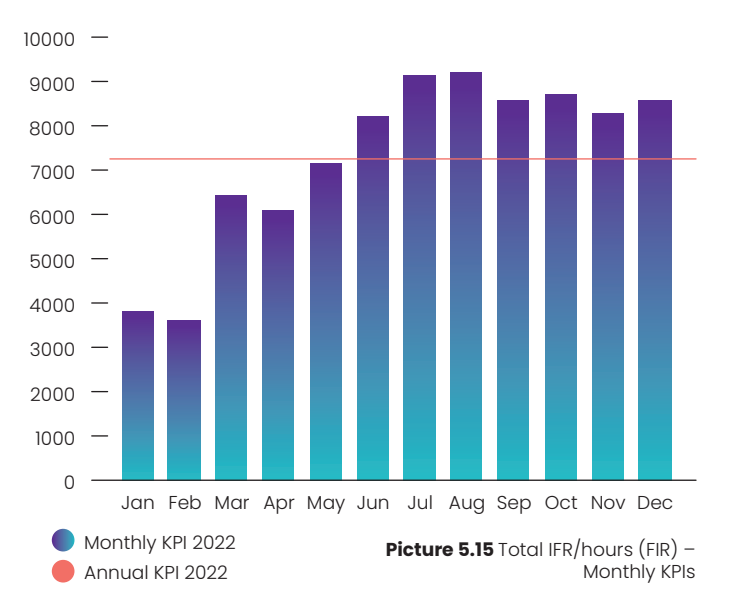
5.4 KPI –Total IFR/hours

KPI- IFR/hours is a total flown IFR/hours. KPI is IFR/hours.

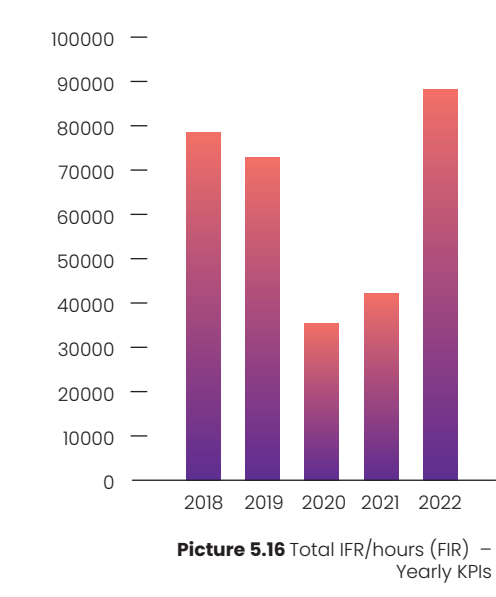
5.4.1 Total IFR/hours –FIR Baku

All the traffic data of Baku FIR (overflight and aerodrome movements) is used for calculation of KPI – IFR/hours (FIR).

KPI – Total IFR/hours (FIR)- 88 357 IFR/hours  
KPI – Total IFR/hours (FIR)- 7 363 IFR/hours (monthly average)



Picture 5.15 Total IFR/hours (FIR) – Monthly KPIs

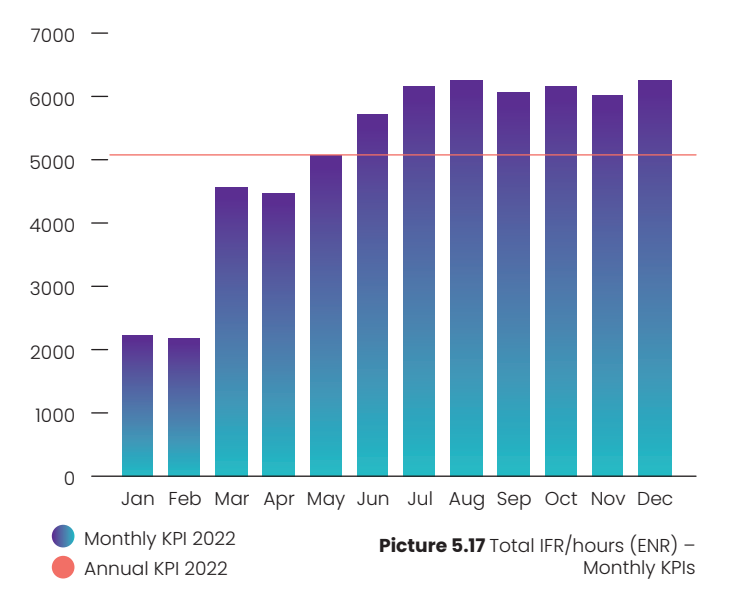


Picture 5.16 Total IFR/hours (FIR) – Yearly KPIs

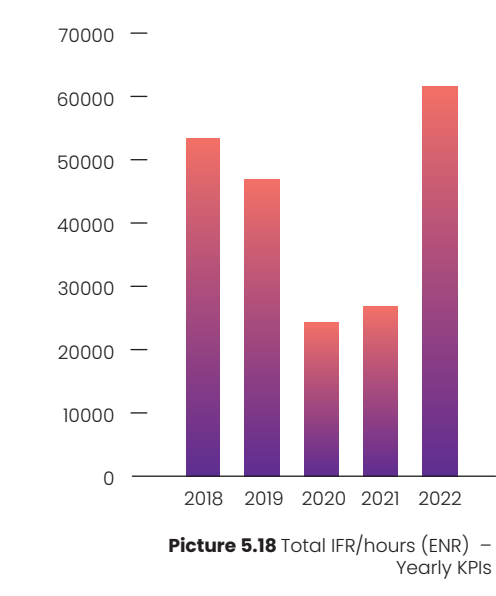
5.4.2 Total IFR/hours –Enroute

Only overflight traffic data is used for calculation of KPI – IFR/hours (FIR).

KPI – Total IFR/hours (ENR)- 61 299 IFR/hours  
KPI – Total IFR/hours (ENR)- 5 108 IFR/hours (monthly average)



Picture 5.17 Total IFR/hours (ENR) – Monthly KPIs



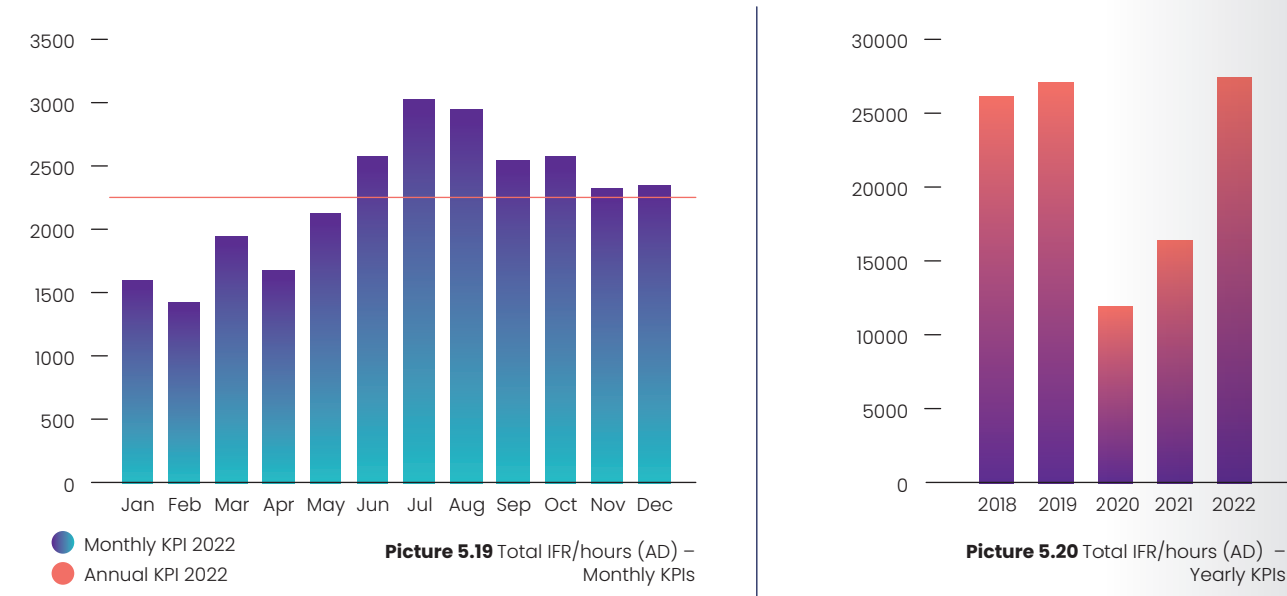
Picture 5.18 Total IFR/hours (ENR) – Yearly KPIs



5.4.3 Total IFR/hours –Aerodrome movements

Only aerodrome movements data is used for calculation of KPI – IFR/hours (FIR).

KPI – Total IFR/hours (AD)- 27 062 IFR/hours  
KPI – Total IFR/hours (AD)- 2 255 IFR/hours (monthly average)



5.5 CANSO Productivity KPIs

The key indicator of ANS productivity is IFR flight hours per ATCO in OPS hour, often described as “ATCO in OPS productivity”.

Although generally reflective of ANSPs’ performance, factors beyond the control of the ANSP can cause low levels of productivity—for example a geopolitical event that alter traffic demand. ATCO in OPS productivity is driven by traffic levels and an ANSP’s ability to utilize its ATCOs in operations (OPS) resources. Although they cannot affect traffic demand, ANSPs may improve productivity by utilizing flexible rostering and adapting airspace configuration to open and close sectors according to evolving traffic patterns.

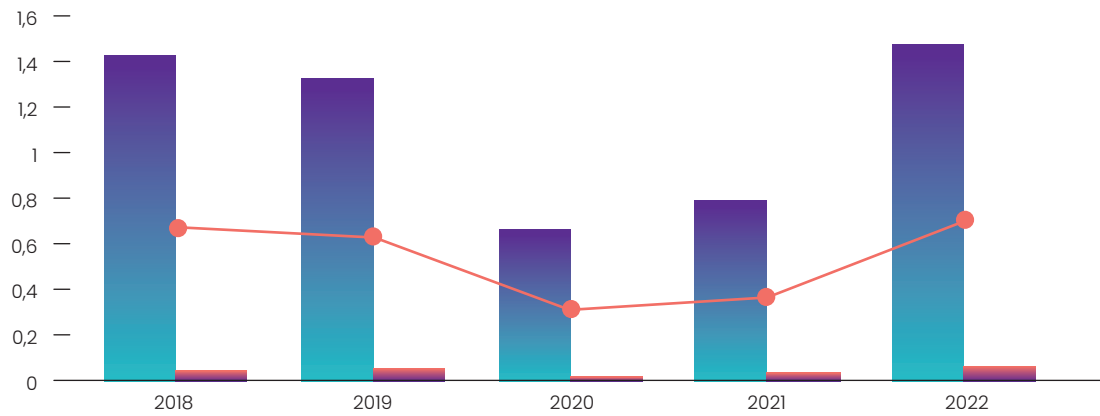
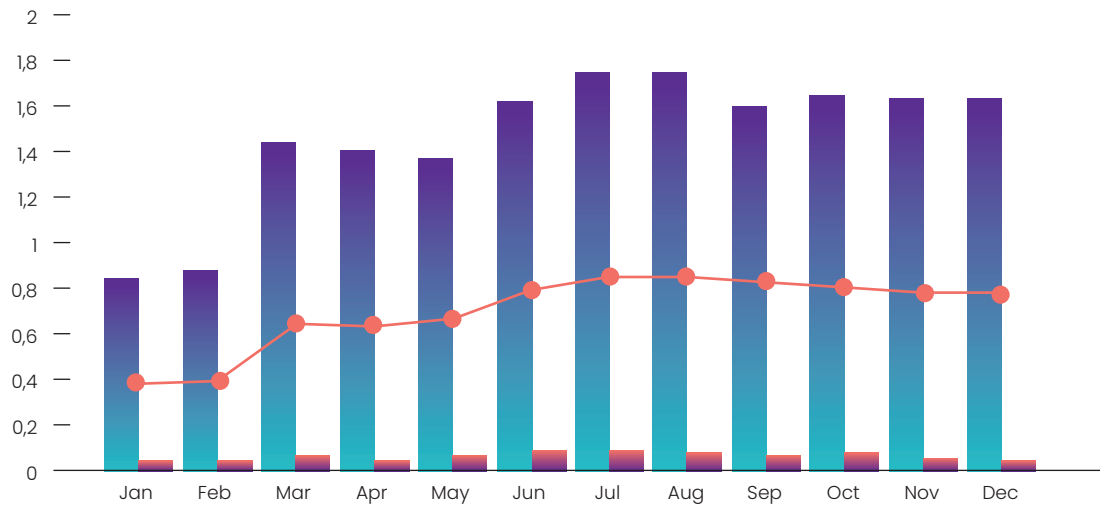
Furthermore, advances in technology are now focusing more than ever on reducing the workload of ATCOs in OPS to enable them to safely manage higher levels of traffic in a given volume of airspace. Training associated with the introduction of technology, however, can lead to short-term reductions in productivity.

Airspace complexity also affects ATCO in OPS productivity. Lower airspace will typically have lower levels of ATCO in OPS productivity than upper airspace where aircraft are flying at more consistent altitudes and on non-crossing routes. Therefore, an ANSP operating a high proportion of sectors in lower airspace, or with numerous busy airports with complex approach sectors, is likely to have lower ATCO in OPS productivity than an ANSP with more overflights at higher altitude.

5.5.1 ATCO in OPS hour productivity (CANSO KPI 2B)

KPI “ATCO in OPS hour productivity” is calculated by formula “IFR flight hours” divided by “ATCOs in OPS hours”

ATCO in OPS hour productivity (AZANS)	0.708
ATCO in OPS hour productivity (Baku ATCC)	1.473
ATCO in OPS hour productivity (Regional ATCCs)	0.068



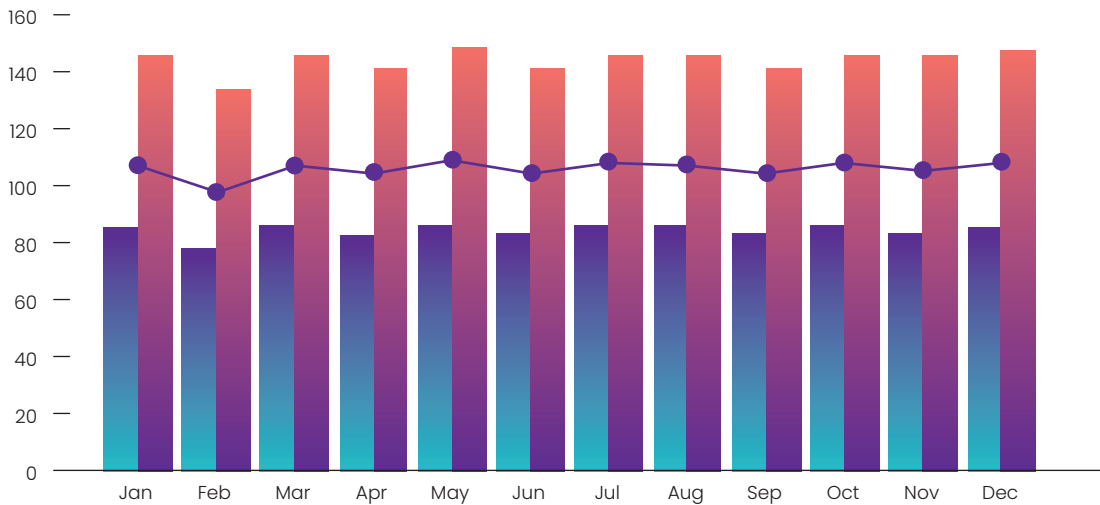
● Baku ATCC  
● Regional ATCCs  
● AZANS



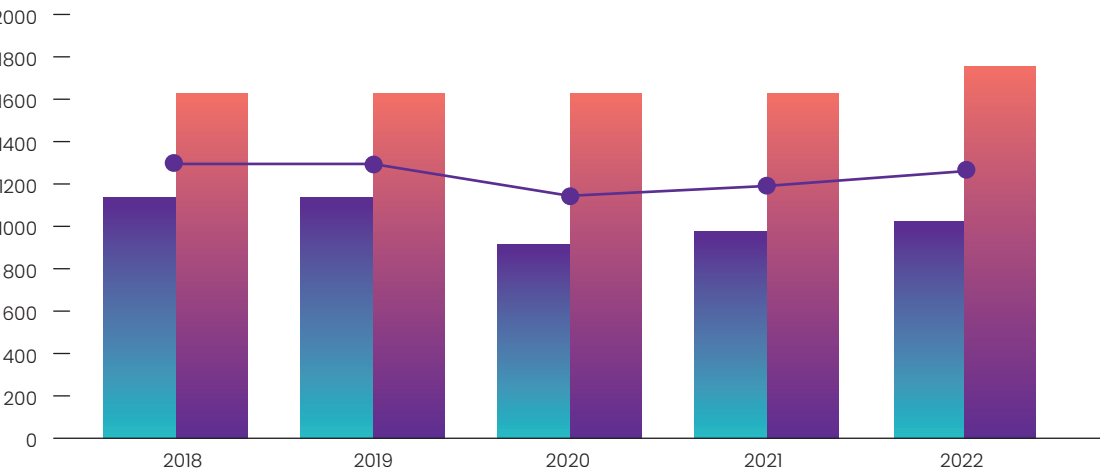
5.5.2 Working hours per ATCO in OPS (CANSO KPI 3B)

KPI “Working hours per ATCO in OPS” is calculated by formula “ATCO in OPS hours” divided “No of ATCO in OPS”

Annual working hours per ATCO in OPS (AZANS)	1247
Annual working hours per ATCO in OPS (Baku ATCC)	1015
Annual working hours per ATCO in OPS (Regional ATCCs)	1730



Picture 5.23 KPI monthly working hours per ATCO in OPS



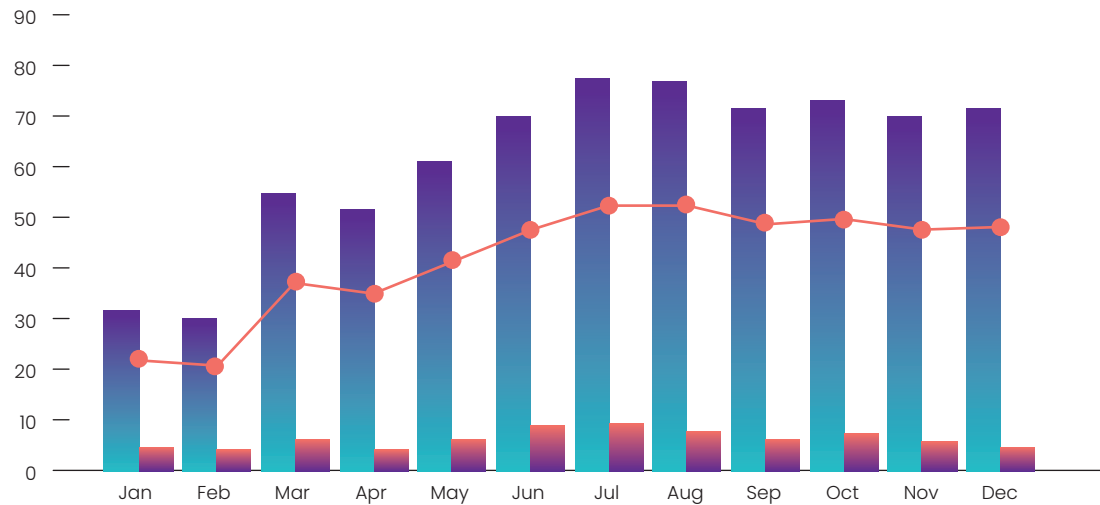
Picture 5.24 KPI Annual working hours per ATCO in OPS 2018-2022

- Baku ATCC
- Regional ATCCs
- AZANS

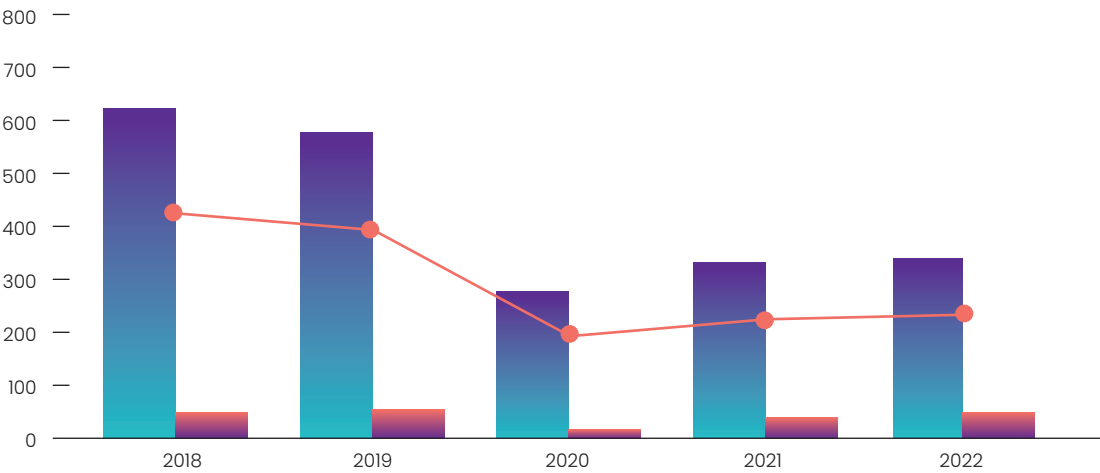
5.5.3 IFR hours per ATCO in OPS (CANSO KPI 3C)

KPI “IFR hours per ATCO in OPS” is calculated by formula “IFR flight hours” divided by “No of ATCO in OPS”

Annual IFR hour per ATCO in OPS (AZANS)	230
Annual IFR hour per ATCO in OPS (Baku ATCC)	338
Annual IFR hour per ATCO in OPS (Regional ATCCs)	44



Picture 5.25 KPI Monthly IFR hours per ATCO in OPS



Picture 5.26 KPI Annual IFR hours per ATCO in OPS comparative chart 2018-2022

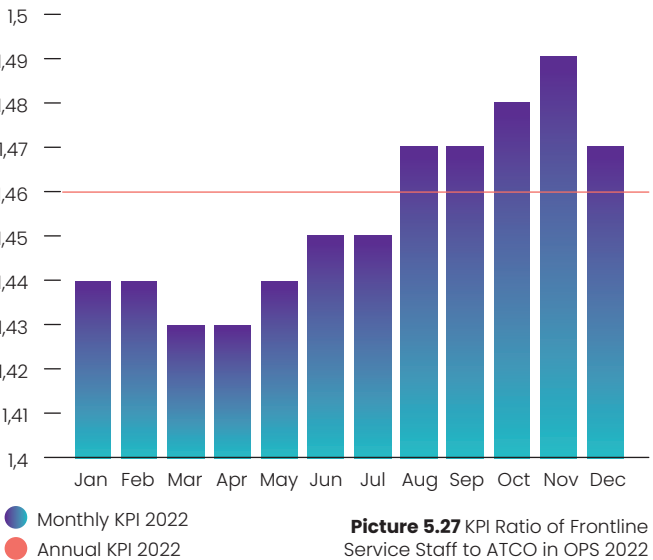
- Baku ATCC
- Regional ATCCs
- AZANS



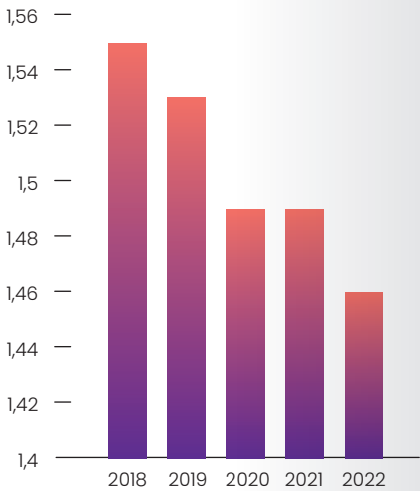
5.5.4 Ratio of Frontline Service Staff to ATCO in OPS (CANSO KPI 3D)

KPI "Ratio of Frontline Service Staff to ATCO in OPS" is calculated by formula "No. Frontline Service Support Staff" divided by "No of ATCO in OPS"

Ratio of Frontline Service Staff to ATCO in OPS-1.46



Picture 5.27 KPI Ratio of Frontline Service Staff to ATCO in OPS 2022

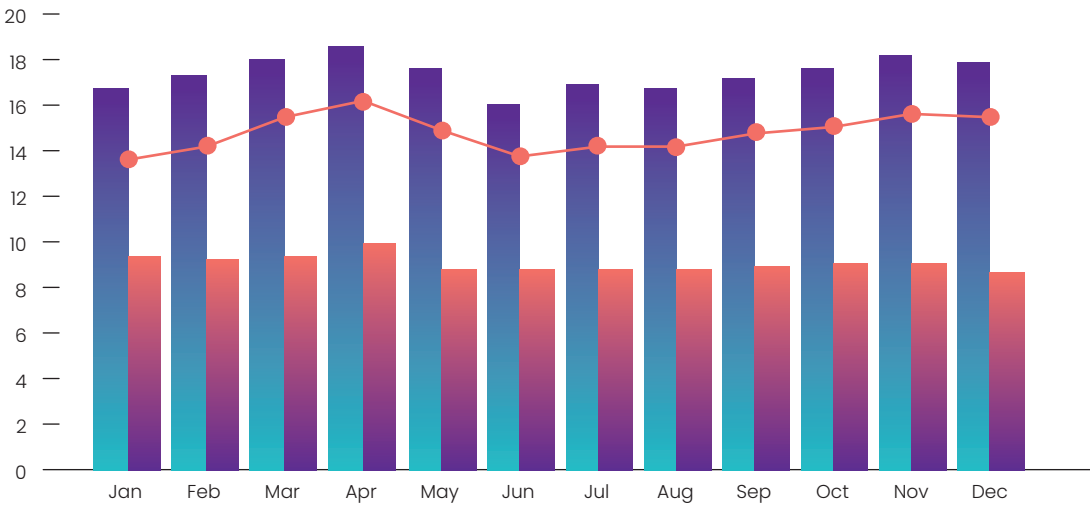


Picture 5.28 KPI Ratio of Frontline Service Staff to ATCO in OPS. Comparative chart 2018-2022

5.6.2 CO2 emissions per a flight hour

CO2 emissions per a flight hour (FIR)  
CO2 emissions per a flight hour (ENR)  
CO2 emissions per a flight hour (LTO)

14.8 ton/hour  
17.4 ton/hour  
9.1 ton/hour



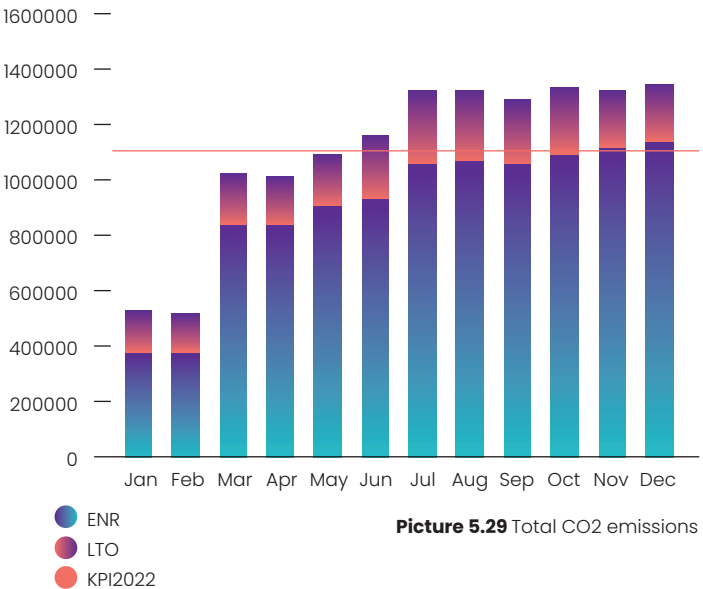
Picture 5.31 CO2 emissions per a flight hour

5.6 CO2 emissions

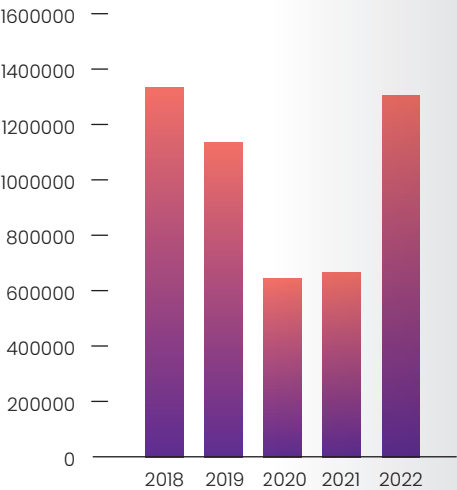
All the KPI's for CO2 emissions are calculated for FIR, En-route (ENR) and Landing-take-off Operations (LTO).

5.6.1 Total CO2 emissions

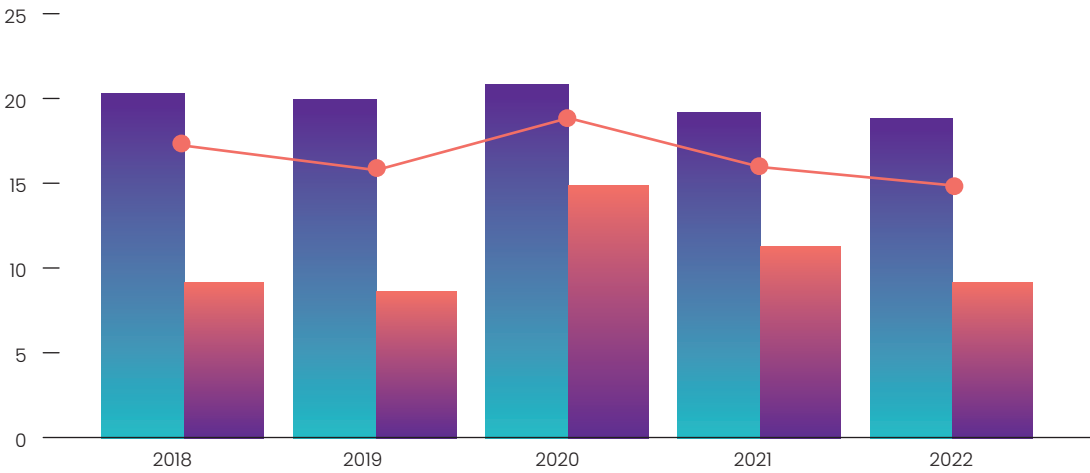
Total CO2 emissions (FIR) 1 313 829 tons  
Total CO2 emissions (ENR) 1 0691 20 tons  
Total CO2 emissions (LTO) 244 709 tons  
KPI - Total CO2 emissions 109 486 tons (monthly average)



Picture 5.29 Total CO2 emissions



Picture 5.30 Total CO2 emissions. Comparative chart 2018-2022

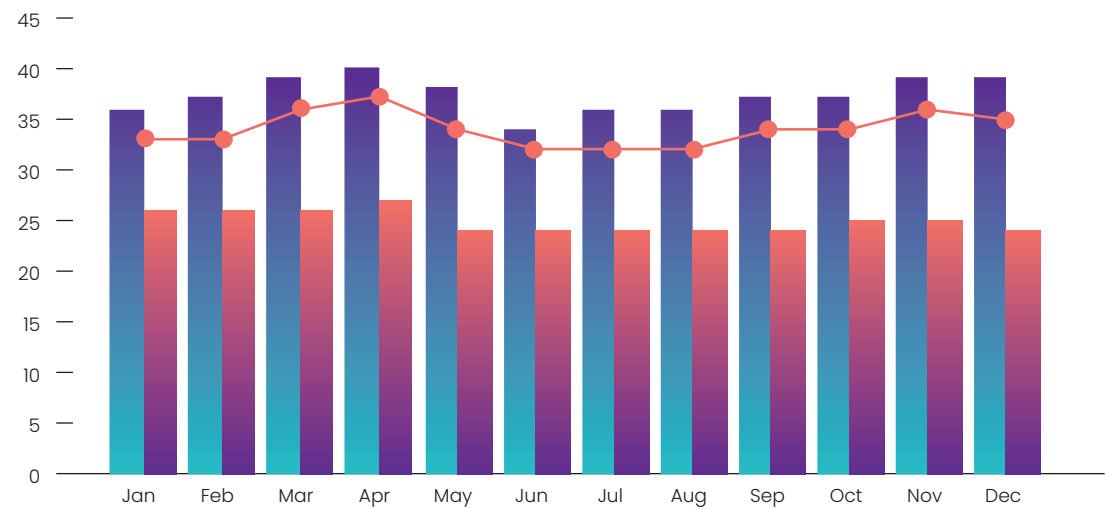


Picture 5.32 CO2 emissions per a flight hour. Comparative chart 2018-2022

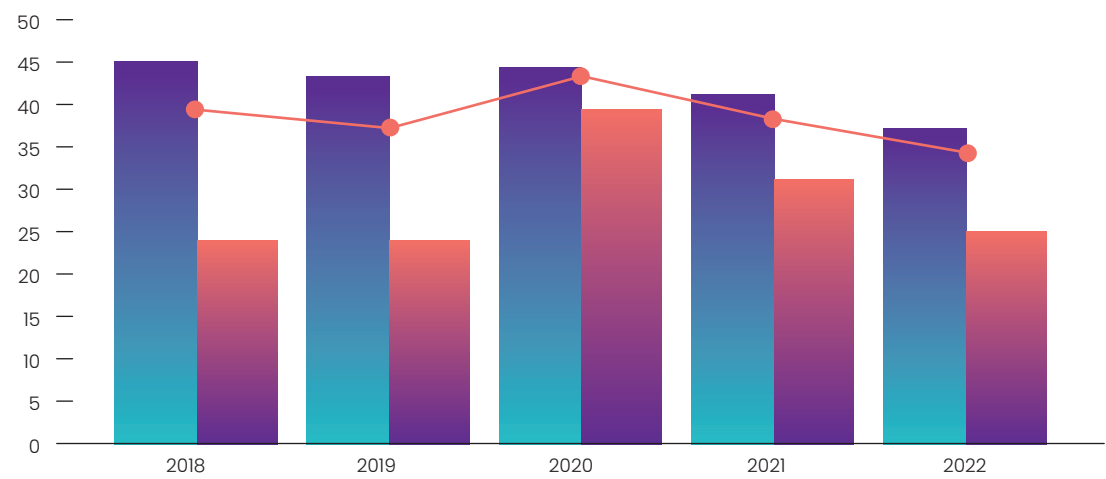
● ENR  
● LTO  
● FIR

5.6.3 CO2 emissions per a nautical mile flight distance

CO2 emissions per a nautical mile flight distance (FIR)	34 kg/NM
CO2 emissions per a nautical mile flight distance (ENR)	37 kg/NM
CO2 emissions per a nautical mile flight distance (LTO)	25 kg/NM



Picture 5.33 CO2 emissions per a nautical mile flight distance

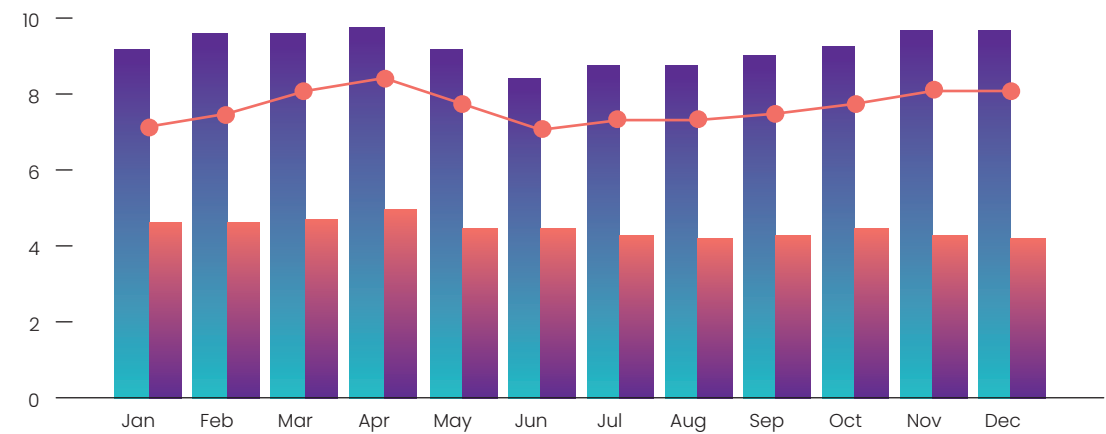


Picture 5.34 CO2 emissions per a nautical mile flight distance. Comparative chart 2018-2022

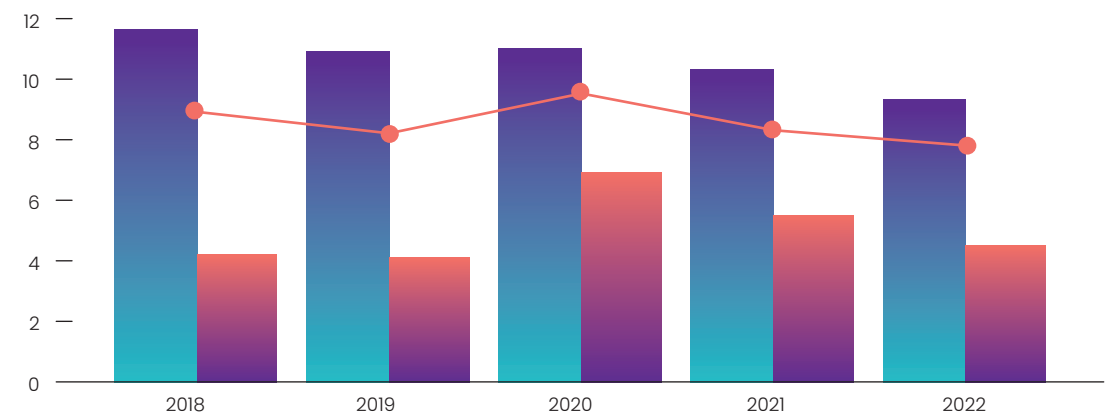
ENR  
LTO  
FIR

5.6.4 CO2 emissions per a flight

CO2 emissions per a flight (FIR)	7.8 ton/flight
CO2 emissions per a flight (ENR)	9.3 ton/flight
CO2 emissions per a flight (AD)	4.5 ton/flight



Picture 5.35 CO2 emissions per a flight



Picture 5.36 CO2 emissions per a flight. Comparative chart 2018-2022

ENR  
LTO  
FIR



## 5.7 KPI-CNS

### 5.7.1 ATC Automated System

KPI-“ATC System Reliability” is calculated by the formula: the value of “total hours of ATC system operation without failure” is divided by the value of “total number of hours” and is multiplied by 100%.

KPI “ATC Systems reliability”-92,8% (target indicator is 100%)

### 5.7.2 Surveillance Systems

KPI-“Surveillance systems Reliability” is calculated by the formula: the value of “total hours of SUR systems operation without failure” is divided by the value of “total number of hours” and is multiplied by 100%.

KPI “SUR System reliability”-99,3% (target indicator is 100%)

### 5.7.3 Communication Systems

KPI-“COM systems Reliability” is calculated by the formula the value of “total hours of COM systems operation without failure” is divided by the value of “total number of hours” and is multiplied by 100%.

KPI- “COM systems Reliability”-100% (target indicator is 100%)

### 5.7.4 Navigation

KPI-“NAV systems Reliability” is calculated by the formula: the value of “total hours of NAV systems operation without failure” is divided by the value of “total number of hours” and is multiplied by 100%.

KPI- “NAV systems Reliability”-100% (target indicator is 100%)

## 5.8 Aeronautical Information Service

### 5.8.1 KPI “Timeliness of preparation, issue and publication of aeronautical information”

KPI-“Timeliness of preparation, issue and publication of aeronautical information” is calculated by the formula: 100% minus (the value of “the number of NOTAM. AIP amendments and other aeronautical information prepared, issued and published with delay” is divided by the value of “total number of NOTAMs, AIP amendments and other aeronautical information prepared, issued and published” and is multiplied by 100%

KPI “Timeliness of preparation, issue and publication of aeronautical information”- 100% (target indicator is 100%)

### 5.8.2 KPI “accuracy and integrity of aeronautical information provided”

KPI “accuracy and integrity of aeronautical information provided” is calculated by the formula: 100% minus (the value of “the number of NOTAMs, AIP

amendments and other aeronautical information prepared, issued and published with errors and omissions” is divided by the value of “total number of NOTAMs, AIP amendments and other aeronautical information prepared, issued and published” and is multiplied by 100%)

KPI “accuracy and integrity of aeronautical information provided-98,9% (target indicator is 100%).

### 5.8.3 KPI Timeliness of aeronautical calculations performed

KPI “Timeliness of aeronautical calculations performed” is calculated by the formula: 100% minus (the value of “aeronautical calculations performed and published with delay” is divided by the value of “total number of aeronautical calculations performed” and is multiplied by 100%).

KPI-Timeliness of aeronautical calculations performed- 100% (target indicator is 100%)

## 5.9 KPI Provision of Meteo Services

### 5.9.1 KPI “Baku/Heydar Aliyev Intl. airport Forecast (TAF) accuracy”

KPI “Aerodrome Forecast (TAF) accuracy for Baku/Heydar Aliyev Intl. airport” is calculated by the formula: the value of “the average number of TAF elements forecasted accurately and verified” is divided by the value of “the average number of TAF elements forecasted and verified”, and is multiplied by 100%.

KPI “Baku/Heydar Aliyev Intl. airport Forecast (TAF) accuracy”- 96,2% (target indicator according to ICAO is 80-90%)

**AIR TRAFFIC DEPARTMENT**  
**AZERAERONAVIGATION**

Heydar Aliyev International Airport  
AZ1044-Baku | Azerbaijan

