Environmental Bulletin of Thessaloniki Airport "Makedonia" (SKG)

Reference year 2023

Thessaloniki Airport Makedonia

Issue Year: 2024

Fraport Regional Airports of Greece A S.A.

Contents

1. Introduction

1.1 Location

"Makedonia" airport of Thessaloniki (SKG) is located in the coastal area of Mikra, to the south east, and at a distance of 16 Km from the center of the city of Thessaloniki. It is 2 km away from the old National Road Thessaloniki - Chalkidiki, in the broader area that is known as "Livadi". The airport occupies approximately 1408 acres (5,700 stremmas) and is surrounded to the north-east by the Anthemoundas stream, to the south - south east by the National Road Thessaloniki - Michaniona, to the west - south west by areas of rural and semi-urban use and finally to the north - north west by the sea.

1.2 Administration

The airport administratively belongs to the Municipality of Thermi of the Regional Unit of Thessaloniki and more specifically to the community of Neo Rysio of the Department of Thessaloniki.

1.3 Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	105214/17.11.2000
E.T. Amendment Decision Reference Number	125887/08.05.2007
	204012/05.10.2011
	12763/10.03.2016
	9322/9.05.2018
	80002/5297/30.08.2021
	82165/5432/01.08.2023

1.4 Airport Basic Data

Airport name IATA / ICAO	SKG / LGTS
Airport location – Airport Reference Point (ARP)	Latitude: 40° 31' 11" N Longitude: 22° 58' 15" E
Altitude	7m
Number of runways	2
Operation hours (summer & winter)	0:01-24:00

Runways	***Length/Width***	***Code***
Runway	3,440m x 50m	10/28
Runway	2,410m x 60m	16/34
Full length of parallel taxiway	(ALPHA) 2,410 m, (FOXTROT) 2,440 m	
Number of taxiways	12	

Apron capacity	A	B	C	D	E
	-	-	16	2	1

Terminal	
Total area (m^2)	60.680

Other buildings and service/storage areas	
RFF Station (m^2)	1.470

Parking Areas	
Car parking spaces	2.062
Bus parking spaces	107
Taxi parking spaces	185

Employees	***High season (31.08.2023)***	***Low season (30.11.2023)***
Fraport Greece (FG) employees	95	114
Employees of other companies	2.620	3.080

1.5 Airport facilities

1.5.1 Fuel Handlers

Number of fuel handler companies	
Number of fuel handler companies operating at the Airport	3

Installations inside the airport	***EKO***	***GISSCO***	***HAFCO***
Environmental Management System (EMS)	YES	YES	YES

1.5.2 Ground Handlers

Number of ground handler companies	
Number of ground handler companies operating at the Airport	3

Installations inside the airport	***SKYSERV***	***SWISSPORT***	***GOLDAIR***
Environmental Management System (EMS)	YES	YES	YES

2. Traffic data statistics

2.1 Annual Traffic Data

Annual Traffic Data for the year 2023

Overall Annual Air Traffic Movements[1] **54.656**	Percent of increase or decrease in relation to the previous year	**11,5%**
Annual passenger traffic **7.029.957**		**18,7%**
Annual cargo transferred (tn) **4.735**		**0%**

[1] Military and training flights not included.

Aircraft types	
Prevailing aircraft types for domestic flights	
Aircraft type	No. of flights
A320	5.856
A20N	5.591
AT76	3.671
A21N	986
B738	775
AT72	682
SW4	530
E120	465
AT75	282
A321	271
Other	2.080
Prevailing aircraft types for international flights	
Aircraft type	No. of flights
B738	12.312
A320	7.240
A20N	3.651
A21N	3.003
A319	1.603
A321	1.289
BCS3	516
AT76	405
B739	357
C56X	297
Other	2.794

2.2 High season traffic data

High season traffic data (June-September)	
Highest traffic month	August
Air traffic movements during the month with highest traffic	6.541
Air traffic movements daily average number during the month with highest traffic	211

2.3 Low season traffic data

Low season traffic data (October-May)	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	2.764
Air traffic movements daily average number during the month with lowest traffic	98

3. Aircraft noise

3.1 Noise measurements during the reference year

Measurement points

Have noise measurements at the airport's surrounding area been performed during the reference year?	*YES*

Measurement points coordinates	*Measurement points description*
MP01: 40° 30' 35.51'' N 22° 59' 27.86'' E	Gym Hall Neo Rysio area
MP02: 40° 51' 54.10" N 23° 00' 5.48" E	Skafotechniki
MP03: 40° 29' 37.10'' N 22° 59' 17.32'' E	Cultural center Neo Rysio area
MP04: 40° 34' 22.18" N 22° 58' 13.57" E	Cleaning building Municipality Kalamaria
Measurement period	17.01.2023 – 31.12.2023
Noise indicators	L_{den}, L_{night}

Noise complaints: 1

Due to necessary maintenance works on RW 16/34 all flights were performed in RW 10/28. Complaint from a resident for aircraft noise was received. There are no exceedances in noise limits.

Summary of measurement results

Noise levels are monitored according to the airport's monitoring program.
No exceedance of the noise indicators levels L_{den}=70 dB(A) and L_{night}= 60 dB(A) was observed.
MP01: L_{den}=53,7 dB(A) & L_{night}=45,5 dB(A)
MP02: L_{den}=52,9 dB(A) & L_{night}=43,5 dB(A)
MP03: L_{den}=47,1 dB(A) & L_{night}=38,7 dB(A)
MP04: L_{den}=32,4 dB(A) & L_{night}=24,5 dB(A)

3.2 Noise levels calculation based on noise simulation software

Aircraft noise levels calculation based on noise simulation software	***NO***

Summary of results

According to EU & GR legislation, Strategic Noise Map is performed every 5 years therefore it was not conducted for 2023.

3.3 Vibration measurements during the reference year

Measurement points

Have noise measurements at the airport's surrounding area been performed during the reference year?	***YES***

Measurement points	***Measurement points description***
Position 1	Archaeological site "Toumba Livadaki". It is located in the south of the Airport and east of runway 16-34.
Measurement period	24.10.2023 – 31.10.2023 03.12.2023 – 12.12.2023
Ρύποι που μετρήθηκαν: V_v	

Summary of measurement results

The values are considering the aircraft landings and takeoffs on runway 16–34 because these processes cause the greatest impact on the archaeological site. The maximum value due to takeoff is 0.27mm/sec at 16.5Hz and 0.42mm/sec at 63Hz. For landings, the maximum value is 0.06mm/sec at 16.5Hz and 0.07mm/sec at 63Hz. These values are considerably lower than the regulatory limits of 6mm/sec and 8mm/sec, respectively.

4. Air quality

4.1 Air quality measurements during the reference year

Measurement points

Have air quality measurements at the airport's surrounding area been performed during the reference year?	***YES***

Measurement points	***Measurement points description***
Position: 40° 30' 35.7'' N 22° 59' 28'' E	Gym Hall Neo Rysio area
Measurement period	01.01.2023 - 31.12.2023
Pollutants measured	PM_{10}, $PM_{2,5}$, NO_2, SO_2, C_6H_6, O_3

Summary of measurement results

Air quality is monitored according to the airport's monitoring program.
No exceedance of the air quality limits was observed.

4.2 Air pollutants emission and dispersion modelling

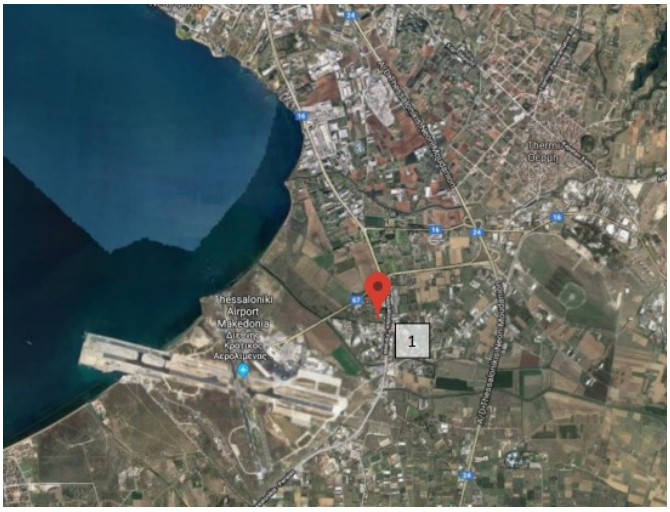
Calculation of air pollutants concentrations based on an emission and dispersion modelling software	***NO***

Summary of measurement results

According to approved environmental terms, there is no obligation for emission and dispersion modeling for this year.

4.3 Air quality measurements during the reference year

Measurement points



Have air quality measurements at the airport's surrounding area been performed during the reference year?	***YES***

Measurement points	***Measurement points description***
Position: 40° 30' 35.7'' N 22° 59' 28'' E	Parking area, around 2 km away from the airport
Measurement period	08.09.2023 – 15.09.2023 19.12.2023 – 26.12.2023
Pollutants measured	PM_{10}, $PM_{2,5}$, NO_2, SO_2, C_6H_6, O_3, CO

Summary of measurement results

Air quality is monitored according to the airport's monitoring program and new approved environmental terms.
No exceedance of the air quality limits was observed.

5. Waste management

Waste stream	*Collection*	*Management/Disposal*
Recyclables (paper, plastic, metals, glass)	Separate collection by the Municipality of Thermi	Disposal at material recovery facility or transshipment for recycling
Residues (Mixed Waste) and Bulky Waste	Collection by the Municipality of Thermi	Disposal at landfill

Notes:

1. Regarding the different categories of the MSW (recyclables, mixed waste, bulky waste), the Airport Users handle their waste together with Fraport Greece A in most cases (central management), while in a few other cases they handled them autonomously. The implementation of a fully central system by Fraport Greece A is expected.
2. Regarding the "alternative management' waste categories (Waste lubricant oil WLO, WEEE, etc.):
i. Waste Lubricant Oil (WLO): Collection and management by authorized collector "CYTOP S.A."
ii. Waste Electrical & Electronic Equipment (WEEE): Collection and management by alternative management system "Appliances Recycling S.A."
iii. Accumulators: Collection and management by alternative management system "Re-Battery S.A."
iv. Small batteries: Collection and management by alternative management system "AFIS S.A."
v. Used tires: Collection and management by alternative management system "ECOELASTIKA S.A."
3. The total quantities of the hazardous waste further to the above-mentioned and produced at the airport, are managed by licensed private companies which have a contract with Fraport Greece A, after a Tender process according to the provisions of the legislation in force.
4. In the year 2023 Fraport Greece A managed a total of 148.48 tons of Hazardous waste (FG A 64.33 tn, third parties 84.15 tn).
5. The total quantities of the produced waste by category resulting from all activities of the airport, the collectors and final recipients, are recorded by Fraport Greece A and submitted in the Electronic Waste Registry of the Ministry for Environment and Energy via the Annual Waste Producer Report according to the provisions of the legislation in force.

6. Ecosystem around the airport

6.1 Flora – Fauna

Flora

Are there protected zones of vegetation/habitats in the broader airport area?	YES

(if YES) Short description: Thessaloniki Airport "Makedonia" is close to the Natura 2000 site:
- GR1220002 Delta Axiou - Loudia - Aliakmona - Evryteri Periochi - Axioupoli (Area: 41,495.69ha)

Fauna

Are there protected species of fauna/birds in the broader airport area?	YES

(if YES) Short description: Thessaloniki Airport "Makedonia" is near to the Important Bird Areas:
- GR029: Gallikos estuary and Kalochori lagoon (Area: 1848.48ha)
- GR028: Axios, Loudias and Aliakmonas rivers' deltas (Area: 17911.12ha)
- GR032: Lakes Volvi, Koroneia and Rentina Gorge (Area: 43019.35ha)

TThe protected bird species that have been observed at Thessaloniki airport since April 2017 are presented below:
Black-crowned night heron (Nycticorax nycticorax), Black stork (Ciconia nigra), Collared pratincole (Glareola pratincola), Common gull billed tern (Gelochelidon nilotica), Dalmatian pelican (Pelecanus crispus), Eurasian bittern (Botaurus stellaris), Eurasian curlew (Numenius arquata), Eurasian spoonbill (Platalea leucorodia) Eurasian stone-curlew (Burhinus oedicnemus), Eurasian skylark (Alauda arvensis), European roller (Coracias garrulous), European turtle-dove (Streptopelia turtur), Gadwall (Anas strepera), Garganey (Anas querquedula), Glossy ibis (Plegadis falcinellus), Great egret (Casmerodius albus), Great white pelican (Pelecanus onocrotalus), Grey partridge (Perdix perdix), Lapwing (Vanellus vanellus), Lesser grey shrike (Lanius minor), Lesser kestrel (Falco naumanni), Little tern (Sterna albifrons),Little bustard (Tetrax tetrax) Long –legged buzzard (Buteo rufinus), Marsh harrier (Circus aeruginosus), Mediterranean gull (Larus melanocephalus), Montagu's harrier (Circus pygargus), Pied avocet (Recurvirostra avosetta), Purple heron (Ardea purpurea), Red-footed falcon (Falco vespertinus), Shelduck (Tadorna tadorna), Short-toed snake eagle (Circaetus gallicus), Slender billed gull (Larus genei), Spur-winged lapwing (Vanellus spinosus), Squacco heron (Ardeola ralloides), White stork (Ciconia ciconia), Yelkouan shearwater (Puffinus yelkouan)

7. Wildlife hazard management

Wildlife strikes and wildlife hazard management measures

Wildlife species that suffered a strike	Strikes (%)
Small passerines	49%
Birds of prey, Owls	18%
Pigeons, Partridges	16%
Herons, Waders	11%
Gulls	6%

Wildlife strike prevention measures

The presence and behavior of wildlife species at Thessaloniki airport is monitored in regular intervals, daily, from dawn to dusk. Some of the wildlife control methods applied at Thessaloniki airport are: distress calls (bioacoustics), digital sounds, anti-bird laser, pyrotechnics, etc. Preventive long-term actions that are mainly related to habitat management measures (e.g. grass cutting, water body management) are also taken to further reduce the presence of species constituting a risk to flight safety. In addition, a NOTAM is published and regularly updated.

8. Cultural heritage

Have new cultural heritage properties been discovered during the reporting period?	***NO***

9. Resources consumption

9.1 Energy consumption

Energy consumption (monthly electric energy consumption, in Kwh)	
Total annual electric energy consumption (in Kwh)	14.903.348,8*

*Third parties' consumption is excluded

9.2 Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	32	
Total annual fuel consumption	Diesel (lt)	77.465,74
	Unleaded gasoline (lt)	5.894,83

9.3 Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	0,00
Total annual heating natural gas consumption (m^3)	2.195,5

9.4 Fuel consumption for generator

Fuel consumption	
Total annual consumption (lt)	15.670,31

9.5 Water consumption

Water consumption	
Total annual consumption (m^3)	120.265,00

10. Greenhouse gas emissions & carbon footprint

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO_2, CH_4 & N_2O emissions included in scope 1 & 2 of the GHG protocol:

- Scope 1: Direct GHG emissions that occur from sources that are owned and/or controlled by the airport,
- Scope 2: Indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling consumed by the airport.

Source Flows	*Total CO_2e (t) Emissions (t)*
	2023
Direct emissions form heating fuel (scope 1)	440,5
Direct emissions from fuel used for fleet vehicles (scope 1)	220,0
Direct emissions from fuel from refrigerants (scope 1)	0,0
Direct emissions from fuel used for generators (scope 1)	41,3
Indirect emissions from electricity consumption (scope 2)	7.959,8
Total (t)	8.661,7
Kg CO_2e /passenger	1,23

Notes

Fraport Greece A is committed to the monitoring, management and reduction of its airports carbon footprint.
In order for this target to be achieved:

- Direct and indirect carbon emissions from all the emission sources in the airports' boundaries are calculated and reported, based on the GHG Protocol (scope 1 & 2)
- The airport is certified according to ACA (Airport Carbon Accreditation), Level-1

11. Human comsumption water monitoring program

Human consumption water quality	
Water supply (public water network or airport's boreholes)	Airport boreholes
Is sampling of the airport's water network performed?	YES
(if YES) Sampling frequency:	Monthly

Summary of results

The results of the microbiological and chemical analyses show that the parameters analyzed as regards the airport's water network are within the legislative limits defined by the Ministerial Decision Δ1 (δ)/ ΓΠ οικ. 27829/2023 (GG 3525/B` 25.5.2023) regarding the quality of human consumption water.

12. Rainwater

Rainwater (collection, treatment disposal and recipient)

Area	Collection/treatment/disposal	[YES/NO]
Apron and manoeuvring area	Collected in drainage ditches leading to the sea	YES
Other runoffs (runway etc.)	Collected in drainage ditches leading to the sea	YES
Treatment of rainwater by oil-separator		YES

Rainwater quality

Is sampling of the airport's rainwater performed?	YES
(if YES) Sampling frequency	Every 4 months (at sampling points set 1) and every 6 months (at sampling points set 2)
Parameters analyzed: pH, conductivity, TSS, DO, NO_3, NO_2, Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals, Detergents	

Summary of results

Surface rainwater quality is monitored according to the airport's monitoring program. Due to the absence of relevant national quality limits for surface rainwater, the specifications of ref. num. 30/4942οικ./1.10.2001 treated wastewater disposal permit issued by the Prefectural Authority of Thessaloniki and the Environmental Health & Safety Guidelines of the International Finance Corporation (IFC) are adopted. For the year 2023, the monitoring program was performed. According to FG's analyses results and based on the abovementioned specifications, the airport's rainwater environmental condition will be further investigated, as there is recorded presence of pathogens and hydrocarbons (C_{10}-C_{40}) (μg/lt).

13. Groundwater and/or soil and/or soil gas monitoring

Groundwater and/or soil and/or soil gas quality	
Is sampling of the airport's groundwater and/or soil and/or soil gas performed?	YES
(if YES) Sampling frequency:	Annual
Parameters analyzed: TPH, BTEX, MTBE	

Summary of results

Groundwater monitoring within airport boundary - Fraport Greece
Groundwater and soil quality is monitored according to the airport's monitoring program in boreholes managed by Fraport Greece. Groundwater and soil monitoring for 2023 was performed. The results show no exceedances.

Groundwater and/or soil and/or soil gas monitoring at fuel farms– Fuel Handlers
According to the approved environmental terms, groundwater, air and soil from the Fuel Handlers for reference year 2023 was performed by EKO, GISSCO and HAFCO. Groundwater, soil and underground air tested showed no exceedances.

14. Sewage treatment and disposal

Sewage

Sewage network to the municipal waste water treatment plant (WWTP)	YES*
Autonomous airport's waste water treatment plant (WWTP)	NO

*The Airport has been connected to the sewage network of EYATH S.A. and the disposal of the treated effluent to Thermaikos gulf has ceased.

Note:
In the context of the monitoring of the pretreatment unit's effluent quality parameters before its disposal to the EYATH network, the following exceedances were observed:
- 6 TN exceedances from 102 - 134mg/l (TN limit = 100mg/l).
- 4 TSS exceedances from 380-510mg/l (TSS limit = 350mg/l).
- 2 BOD5 exceedances from 410-718mg/l (BOD5 limit = 350mg/l).
- 1 COD exceeding 1810mg/l (CODlimit = 1000mg/l).

during January, February, May, September and December. Regarding these exceedances, all the necessary corrective actions were taken to restore the unit to operating within limits.

Blue water

Collection and disposal:
Collection in watertight tank and disposal for pretreatment along with other airport's sewerage in the airport's pretreatment unit. Then the wastewater disposed to the municipal sewage network.

Contact

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