ENVIRONMENTAL BULLETIN OF THESSALONIKI "MAKEDONIA" AIRPORT (SKG)

Reference year 2020

Fraport Regional Airports of Greece A S.A.

July 2021

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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 centre 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

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	3,440 m x 50 m			10/28	
Runway	2,410 m x 60 m			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

Employees	High season (31.08.2020)	Low season (30.11.2020)
Fraport Greece (FG) employees	69	67
Employees of other companies	2,965	2,819

Terminal	
➢ Total area (m^2)	60,560

Other buildings and service/storage areas	
➢ RFF Station (m^2)	1,470

Parking Areas	
Car parking spaces	2,000
Bus parking spaces	110
Taxi parking spaces	200

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
Vehicles (total number)	43	53	77
Environmental Management System (EMS)	YES	YES	YES

2. TRAFFIC DATA STATISTICS

2.1. Annual Traffic Data

Annual Traffic Data for the year 2020	
Overall Annual Air Traffic Movements[1]	24,966
Percent of increase or decrease in relation to the previous year	-55.2%
Annual passenger traffic	2,317,380
Percent of increase or decrease in relation to the previous year	-66.4%
Annual cargo transferred (tn)	3,974
Percent of increase or decrease in relation to the previous year	-22.8%

Aircraft types	
Prevailing aircraft types for domestic flights	
Aircraft type	**No. of flights**
A320	4.753
DH8D	1.720
AT75	566
E120	428
A321	406
AT45	358
A319	317
A32A	276
AT72	256
B73H	241
Other	1.595
Prevailing aircraft types for international flights	
Aircraft type	**No. of flights**
A320	3.613
B73H	3.331
B738	1.305
A32A	956
A319	927
A321	768
A20N	392
E195	222
B73P	188
C56X	157
Other	2.191

[1] Military and training flights not included.

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	3,780
Air traffic movements daily average number during the month with highest traffic	122

2.3. Low season traffic data

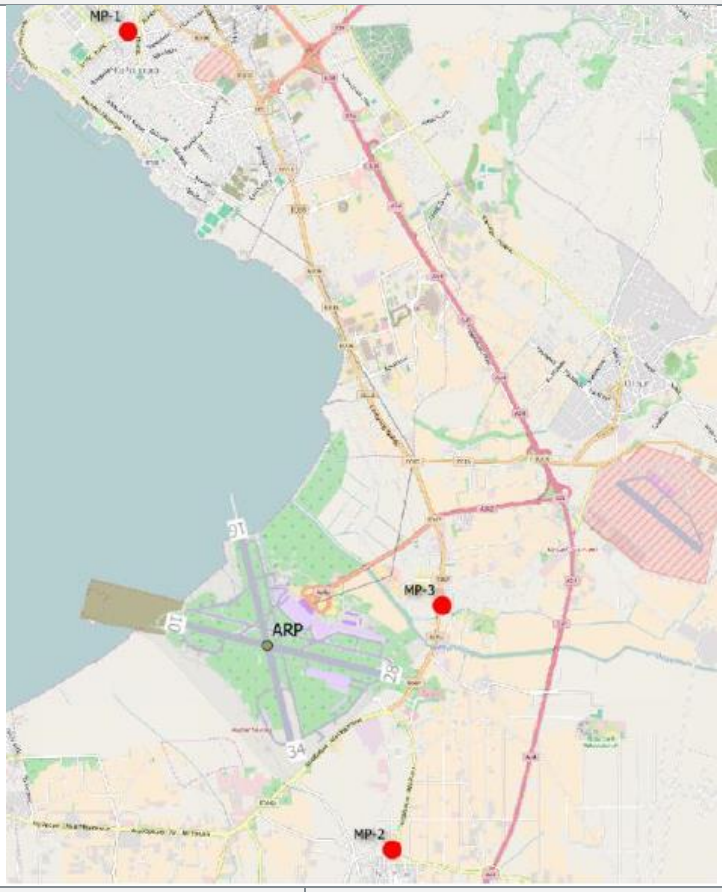
Low season traffic data (October-May)	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	390
Air traffic movements daily average number during the month with lowest traffic	13

3. AIRCRAFT NOISE

3.1. Noise measurements during the reference year

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

Measurement points

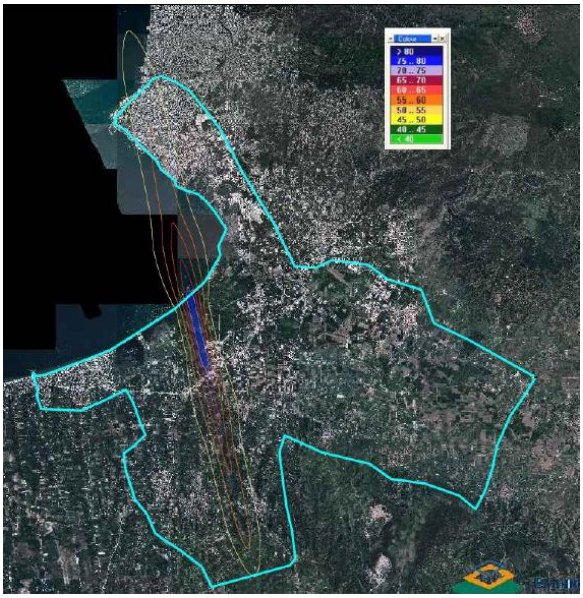


Measurement points coordinates	**Measurement points description**
1) Position: 40° 35' 02" N 22° 57' 06" E	Kalamaria area, to the north of the runway on the roof of a public building. Affected by arrivals in runway 16 and departures from runway 34.
2) Position: 40° 29' 54" N 22° 59' 17" E	Neo Rysio area, to the south-east of runway 16/34 on the roof of a public building. Affected by departures from runway 16 and arrivals in runway 34.
3) Position: 40° 31' 26" N 22° 59' 42" E	On the roof of a school to the east of the runways. Partly affected by all procedures to all directions.
Measurement period	14.07.2020 – 15.07.2020
Noise indicators	Lden, Lnight

Summary of measurement results:
Noise levels are monitored according to the airport's monitoring program. No exceedance of the noise indicators levels Lden = 70 dB (A) and Lnight = 60 dB (A) was observed.

3.2. Noise levels calculation based on noise simulation software

Aircraft noise levels calculation based on noise simulation software	YES*
Software used: IMMI Noise Prediction Software (CNOSSOS EU assessment method based on Directive 2015/996/EU)	
Noise indicators and respective contours calculation: L_{den}, L_{night}	
Noise contours:	



L_{den}

L_{night}

Summary of results:

*During the reference year 2018 the total aircraft movements of Thessaloniki airport exceeded the limit of 50.000 movements, which is set in the legislation in order to be classified as a "major airport", and more specifically they were 56.186 movements. In implementation of articles 7 & 8 of JMD 13586/724/2006 as modified and in force, the Strategic Noise Map and the respective Action Plan for Thessaloniki "Makedonia" Airport was submitted for approval to the Ministry for Environment and Energy (reference number 97123/2146/24.10.2019).

According to the 2018 Strategic Noise Map, the noise limits set in JMD 211773/27-4-2012 are met and no exceedance is recorded. Due to the submission of the Strategic Noise Map and Action Plan there was no requirement for noise levels calculation based on noise simulation software for the reference year.

Based on the results of the Action Plan the exclusive use of the new runway 10/28 the acoustic environment of the area is overall upgraded significantly as depicted from the population and sensitive receptors exposure.

In any case, due to the start of the operational use of the new runway, the Action Plan will be updated when required in relation to the total annual aircraft movements.

4. AIR QUALITY

4.1. Air quality measurements during the reference year

Have air quality measurements at the airport's surrounding area been performed during the reference year?	NO*
Measurement points	
N/A	
Measurement points	**Measurement points description**
N/A	N/A
Measurement period:	N/A
Pollutants measured:	N/A

Summary of measurement results:
*Fraport Greece, during the years 2018-2019, has implemented a noise & air pollution monitoring program, according to the Approved Environmental Terms of the airport. The monitoring program included the implementation of special simulation tools in combination with confirmation measurements, of air pollution and noise, in representative positions around the airport. At the end of the two year period of the program in April 2020, in implementation of the Environmental Terms, a Technical Evaluation Report was submitted to the Directorate for Climate Change and Air Pollution of the Ministry for Environment & Energy, with proposals for the most suitable in terms of effectiveness, air pollution & noise monitoring program for the years ahead (ref. number 39833/833/29.4.2020). Given the situation with the COVID-19 pandemic and the subsequent dramatic decrease of the airport traffic no air pollution measurements were performed during the peak period of the reference year and the competent Ministry for Environment & Energy was informed accordingly.

4.2. Air pollutants emission and dispersion modelling

Calculation of air pollutants concentrations based on an emission and dispersion modelling software	NO*
Software used: N/A	
Pollutants concentrations and respective contours calculation: N/A	
PM_{10}	N/A
NOx	N/A
SOx	N/A
Benzene (C_6H_6)	N/A

Summary of results:
*Fraport Greece, during the years 2018-2019, has implemented a noise & air pollution monitoring program, according to the Approved Environmental Terms of the airport. The monitoring program included the implementation of special simulation tools in combination with confirmation measurements, of air pollution and noise, in representative positions around the airport. At the end of the two year period of the program in April 2020, in implementation of the Environmental Terms, a Technical Evaluation Report was submitted to the Directorate for Climate Change and Air Pollution of the Ministry for Environment & Energy, with proposals for the most suitable in terms of effectiveness, air pollution & noise monitoring program for the years ahead (ref. number 39833/833/29.4.2020). Given the situation with the COVID-19 pandemic and the subsequent dramatic decrease of the airport traffic no air pollution software simulation was performed during the peak period of the reference year and the competent Ministry for Environment & Energy was informed accordingly.

5. WASTE MANAGEMENT

Waste	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 in 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, according to the provisions of the legislation in force.
4. 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 AIRORT

6.1. Flora-Fauna

Flora	
Are there protected zones of vegetation/habitats in the broader airport area?	NO
(if YES) Short description:	
Fauna	
Are there protected species of fauna/birds in the broader airport area?	NO
(if YES) Short description:	

6.2. Ecologically fragile areas

The nearest protected area is the "Lagoon of Aggeloxhori" at a distance of approximately 12km from the airport.

7. WILDLIFE HAZARD MANAGEMENT

Wildlife strikes and wildlife hazard management measures	
Wildlife species that suffered a strike	**Strikes (%)**
Falco tunninculus (Common kestrel)	17%
Glareola pratincola (Collared pratincole)	10%
Larus michahellis (Yellow-legged gull)	10%
Erinaceus europaeus (European hedgehog)	8%
Hirundo rustica (Barn swallow)	7%
Ichthyaetus melanocephalus (Mediterranean gull)	5%
Anas platyrhynchos (Mallard)	4%
Apus apus (Common swift)	4%
Chroicocephalus ridibundus (Black-headed gull)	4%
Columba livia (Pigeon)	4%
Burhinus oedicnemus (Eurasian stone-curlew)	3%
Chiroptera spp. (Bat spp.)	3%
Perdix perdix (Grey partridge)	3%
Athene noctua (Little owl)	2%
Falco naumanni (Lesser kestrel)	2%
Mauremys caspica (Caspian turtle)	2%
Motacilla alba (White wagtail)	2%
Anthus pratensis (Meadow pipit)	1%
Cecropis daurica (Red-rumped swallow)	1%
Falco subbuteo (Eurasian hobby)	1%
Falco vespertinus (Red-footed falcon)	1%
Pica pica (Magpie)	1%
Riparia riparia (Sand martin)	1%
Sturnus vulgaris (Starling)	1%
DNA analysis results pending**	1%
Not identified*	1%

Wildlife strike risk mitigation measures:

- Pyrotechnics application by the use of signal pistols to scare birds away from the manoeuvring area
- Drainage ditches are regularly monitored and when necessary cleaned, to ensure efficient water run-off and, thus, reducing the attractiveness of the airside to the wildlife
- Regular grass cutting at the airside
- Fence maintenance
- Systematic monitoring of bird species populations and their habitat on and off-airport (at a distance of 13km from the airport).
- Seminar awareness video on the identification, conservation and safe relocation of reptiles (snakes), under the collaboration with the Lalitsa Non-Profit Association
- Awareness video on the safe handling and relocation of stray dogs
- Holding of the wildlife strike committee meeting, to raise awareness across the airport users and local authorities about the risk of the wildlife strikes on aircraft and the measures applied to mitigate such a risk.

Reference year summary results:

The Hellenic Civil Aviation Authority (Section D3/B, Wildlife Strike Risk Prevention Office) receives annual reports referring to the risk assessment of the wildlife hazard as well as to the wildlife hazard management at the 12 regional

airports operating by Fraport Greece. Aktion Airport and Chania Airport "Ioannis Daskalogiannis" are excluded, in accordance with the Concession Agreement, Annex 20, paragraph 6.3.3 & 6.3.4.

**"Not identified" refers to birdstrikes evidence (e.g. blood or part of feathers) that does not allow the bird species identification.*

***"DNA analysis results pending" refers to birdstrikes evidence (e.g. blood or part of feathers) that are laboratory analyzed for bird species identification, since an effect on flight was caused.*

8. CULTURAL HERITAGE

Have new cultural heritage properties been discovered during the reporting period?	NO
(if YES) Details provided in the table below:	

Location	Date of discovery	Type of discovery	Additional protection measures taken

9. RESOURCES CONSUMPTION

9.1. Energy consumption

Energy consumption (monthly electric energy consumption, in Kwh)	
Total annual electric energy consumption (in Kwh)	10,288,962

9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	23	
Number of firefighting vehicles at the airport	5	
Total annual fuel consumption	Diesel (lt)	54,294
	Unleaded gasoline (lt)	1,110

9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	17,410
Total annual heating natural gas consumption (m^3)	-

9.4. Water consumption

Water consumption	
Total annual consumption (m^3)	84,886

10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO2 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_2 Emissions (t)
	2020
Direct emissions form heating fuel (scope 1)	553.5
Direct emissions from fuel used for fleet vehicles (scope 1)	125.3
Direct emissions from fuel used for firefighting vehicles (scope 1)	22.2
Direct emissions from fuel used for generators (scope 1)	36.1
Indirect emissions from electricity consumption (scope 2)	6,410.0
Total (t)	**7,147.1**
Kg CO_2 /passenger	**3.08**

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 was certified during the reference year according to ACA (Airport Carbon Accreditation)

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 Γ1 (δ)/ΓΠ οικ. 67322/ GG 3282 B/19-9-2017 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:	Yearly
Parameters analyzed: pH, conductivity,TSS, DO, NO_3, NO_2, Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals,PCBs, 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. According to FG's analyses results and based on the abovementioned specifications, the airport's rainwater environmental condition is adequate and no further treatment measure is necessary	

**Six (6) oil separators were installed in the context of the Imminent Works during the reference year.*

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:	According to the Environmental Terms
Parameters analyzed: TPH, BTEX, MTBE	
Summary of results:	
Groundwater quality is monitored according to the airport's monitoring program. In addition, the fuel handling companies monitor the quality of groundwater according to the environmental terms. According to FG analyses andf the environmental monitoring reports of the fuel handlers, and based on the New Dutch List (20013) which is adopted in the absence of relevant national specifications/limits, the environmental condition of the ground water is found adequate and no decontamination measures are necessary, except from one area identified from the 2017 Environmental Baseline Study, which was under remediation during the reference year. The remediation works of another identified area were successfully completed during the reference year.	

14. SEWAGE TREATMENT AND DISPOSAL

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

Blue water
Collection and disposal: Collection in watertight tank and disposal to the municipal sewage network.

Waste water treatment plant description (where applicable) *Description of characteristics and condition of the airport's WWTP including possible problems. Type and frequency of the effluent quality measurements.*	
Degree of treatment of airport's WWTP	Secondary treatment
Treatment method	Prolonged ventilation
Disposal of treated wastewater	Thermaikos gulf according to the terms of disposal permit no 30/4942οικ./1.10.2001 of the Prefectural Local Administration of Thessaloniki
Sludge disposal	Use in agriculture, based on decision ref. no 12/12177/27.10.2010 of the Prefectural Local Administration of Thessaloniki
Sampling frequency of WWTP effluent	Monthly based on the disposal permit
Parameters analyzed	BOD, COD, SS, TN,TP, T. Coliforms, E.Coli, pH, Residual Cl_2, Oil &grease
Summary of quality of WWTP effluent	The WWTP effluent quality is within the limits set out in the disposal permit no 30/4942οικ./1.10.2001 issued by the Prefectural Administration of Thessaloniki.

**The data given above refer the old WWTP which was in operation until September 2020. Since October 2020 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. The pretreated sewage are disposed to the municipal sewage network according to the ref. no. 13119/16.07.2020 "Approval of sewage disposal permit for urban wastewater and blue water of Thessaloniki "MAKEDONIA" Airport.*