

# ENVIRONMENTAL BULLETIN OF KAVALA “MEGAS ALEXANDROS” AIRPORT (KVA)

## Reference year 2021

Fraport Regional Airports of Greece A S.A.

Issue year: 2022

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## 1. INTRODUCTION

### 1.1. Location

Kavala “Megas Alexandros” airport is located at the east part of the Regional Unit of Kavala, at a distance of approximately 31 Km to the south-east of the city of Kavala and of approximately 7.5 Km to the south-west of Chrysoupoli settlement. The airport occupies an area of approximately 988 acres

### 1.2. Administration

The Airport administratively belongs to the Municipality of Nestos and more specifically to the Municipal Unit of Keramoti and the Municipal Unit of Chrysoupoli in the area Agiasma Kavalas.

### 1.3. Environmental licensing

Approved Environmental Terms	
<b>E.T. Decision Reference number</b>	84821/95/08.07.1996
<b>E.T. Amendment Decision Reference Number</b>	105624/14.11.2006
	200818/23.07.2012
	172044/09.04.2014
	24353/19.05.2017
	37774/20.12.2017

### 1.4. Airport Basic Data

<b>Airport name IATA / ICAO</b>	KVA / LGKV
<b>Airport location – Airport Reference Point (ARP)</b>	Latitude: 40° 54' 48" N Longitude: 24° 37' 09" E
<b>Altitude</b>	5m
<b>Number of runways</b>	1
<b>Operation hours (summer)</b>	07:15 – 23:15
<b>Operation hours (winter)</b>	Monday /Tuesday /Wednesday 07:30 – 18:30 Thursday /Friday 09:00 – 20:00 Saturday /Sunday 13:00 – 20:00

Runways	Length/Width				Code
Runway	3,000 m x 45 m				05R/23L
Full length of parallel taxiway	3,000m				
Number of taxiways	5				
Apron capacity	A	B	C	D	E
	-	-	5	-	1 (MARS)

Employees	High season (31.08.2021)	Low season (30.11.2021)
Fraport Greece (FG) employees	26	20
Employees of other companies	513* <i>*148 students EGNANTIA</i>	473* <i>*38 students EGNANTIA</i>

Terminal	
➤ Total area (m <sup>2</sup> )	8.569

Other buildings and service/storage areas	
➤ RFF Station (m <sup>2</sup> )	1.288

Parking Areas	
Car parking spaces	245
Bus parking spaces	15
Taxi parking spaces	32

## 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*

*\*HAFCO facility was not operating during the reference year*

### 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 2021	
Overall Annual Air Traffic Movements <sup>1</sup>	1.941
Percent of increase or decrease in relation to the previous year	70%
Annual passenger traffic	149.146
Percent of increase or decrease in relation to the previous year	105,2%
Annual cargo transferred (tn)	47
Percent of increase or decrease in relation to the previous year	+23,7%

Aircraft types	
<b>Prevailing aircraft types for domestic flights</b>	
Aircraft type	No. of flights
DH8D	498
A320	38
A32A	26
GLF5	22
B06	22
A319	16
GLEX	15
AT46	10
GLF6	9
E35L	8
Other	161
<b>Prevailing aircraft types for international flights</b>	
Aircraft type	No. of flights
A319	220
A320	205
A32A	156
B73H	85
B738	62
A321	56
7M8	44
7S8	40
B753	24
B73J	22
Other	202

<sup>1</sup> Military and training flights not included.

## 2.2. High season traffic data

<b>High season traffic data (June-September)</b>	
Highest traffic month	August
Air traffic movements during the month with highest traffic	444
Air traffic movements daily average number during the month with highest traffic	14

## 2.3. Low season traffic data

<b>Low season traffic data (October-May)</b>	
Lowest traffic month	January
Air traffic movements during the month with lowest traffic	34
Air traffic movements daily average number during the month with lowest traffic	1



### 3. AIRCRAFT NOISE

#### 3.1. Noise measurements during the reference year

<b>Have noise measurements at the airport’s surrounding area been performed during the reference year?</b>		NO*
<b>Measurement points</b>		
N/A		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
N/A	N/A	
<b>Measurement period</b>	N/A	
<b>Noise indicators</b>	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).  
According to the program, which is also an appendix in approved Environmental Impact Study, in 2021 noise measurements are not foreseen.

#### 3.2. Noise levels calculation based on noise simulation software

<b>Aircraft noise levels calculation based on noise simulation software</b>	NO*
<b>Software used:</b> N/A	
<b>Noise indicators and respective contours calculation:</b> N/A	
<b>Noise contours:</b> 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).  
According to the program, which is also an appendix in approved Environmental Impact Study, in 2021 noise modeling was not foreseen.

## 4. AIR QUALITY

### 4.1. Air quality measurements during the reference year

<b>Have air quality measurements at the airport’s surrounding area been performed during the reference year?</b>		NO*
<b>Measurement points</b>		
N/A		
<b>Measurement points</b>	<b>Measurement points description</b>	
N/A	N/A	
<b>Measurement period:</b>	N/A	
<b>Pollutants measured:</b>	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). According to the program, which is also an appendix in approved Environmental Impact Study, in 2021 air pollution measurements are not foreseen.

### 4.2. Air pollutants emission and dispersion modelling

<b>Calculation of air pollutants concentrations based on an emission and dispersion modelling software</b>		NO*
<b>Software used:</b> N/A		
<b>Pollutants concentrations and respective contours calculation:</b> N/A		
<b>PM<sub>10</sub></b>	N/A	
<b>NO<sub>x</sub></b>	N/A	
<b>SO<sub>x</sub></b>	N/A	
<b>Benzene (C<sub>6</sub>H<sub>6</sub>)</b>	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). According to the program, which is also an appendix in approved Environmental Impact Study, in 2021 the air pollution simulation was not foreseen.

## 5. WASTE MANAGEMENT

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

### Notes:

- Regarding the different categories of the MSW (recyclables, mixed waste, bulky waste), the Airport Users handle their waste together with Fraport Greece A (central management).
- Regarding the “alternative management” waste categories (Waste lubricant oil WLO, WEEE, etc.):
  - Waste Lubricant Oil (WLO): Collection and management by authorized collector “CYTOP S.A.”
  - Waste Electrical & Electronic Equipment (WEEE): Collection and management by alternative management system “Appliances Recycling S.A.”
  - Accumulators: Collection and management by alternative management system “Re-Battery S.A.”
  - Small batteries: Collection and management by alternative management system “AFIS S.A.”
  - Used tires: Collection and management by alternative management system “ECOELASTIKA S.A.”
- 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.
- 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
<p><b>(if YES)</b> Short description: The airport of Kavala is within the limits of the “National Park of Eastern Macedonia &amp; Thrace” (NPEMT). The airport of Kavala is entirely located within Zone C1 of the NPEMT, which is listed as “Ecodevelopment Area” and within delimited Zones A1 to A5, which constitute “nature protection areas” of the NPEMT. Based on Joint Ministerial Decision 44549 (Government Gazette 497/Δ/17-10-2008), within Zone C1 of the NPEMT, the following is permitted among others: “... The preservation, conservation, modernisation of the airport zone, .... , based on the applicable provisions”.</p>	
Fauna	
Are there protected species of fauna/birds in the broader airport area?	YES
<p><b>(if YES)</b> Short description: A small part of Kavala airport, at its south south-west end, is located within area GR1150010 “DELTA OF NESTOS &amp; LAGOONS OF KERAMOTI – GENERAL AREA &amp; COASTAL ZONE” as well as within the area GR1150001 “DELTA OF NESTOS &amp; LAGOONS OF KERAMOTI &amp; THASOPOULA ISLAND”. The area GR1150010, is listed as Site of Community Importance (SCI), based on Directive 92/43/EC and as Special Area of Conservation (SAC), based on L. 3937/2011. The area GR1150001, is listed as Special Protection Area (SPA), based on Directive 2009/147/EC.</p> <p>The protected bird species that have been observed at Kavala airport since April 2017 are presented below: <i>Collared pratincole (Glareola pratincola)</i>, <i>Eurasian skylark (Alauda arvensis)</i>, <i>Eurasian spoonbill (Platalea leucorodia)</i>, <i>Eurasian stone-curlew (Burhinus oedicephalus)</i>, <i>European roller (Coracias garrulous)</i>, <i>Glossy ibis (Plegadis falcinellus)</i>, <i>Great egret (Casmerodius albus)</i>, <i>Lapwing (Vanellus vanellus)</i>, <i>Lesser grey shrike (Lanius minor)</i>, <i>Lesser kestrel (Falco naumanni)</i>, <i>Little tern (Sterna albifrons)</i>, <i>Long-legged buzzard (Buteo rufinus)</i>, <i>Marsh harrier (Circus aeruginosus)</i>, <i>Mediterranean gull (Larus melanocephalus)</i>, <i>Montagu’s harrier (Circus pygargus)</i>, <i>Pallid harrier (Circus macrourus)</i>, <i>Red-footed falcon (Falco vespertinus)</i>, <i>Slender billed gull (Larus genei)</i>, <i>Shelduck (Tadorna tadorna)</i>, <i>Spur-winged lapwing (Vanellus spinosus)</i>, <i>White stork (Ciconia ciconia)</i></p> <p>Other protected animal species observed at Kavala airport: <i>Golden Jackal (Canis aureus)</i></p>	

### 6.2. Ecologically fragile areas

A small part of Kavala airport, at its south south-west end, is located within area GR1150010 “DELTA OF NESTOS & LAGOONS OF KERAMOTI – GENERAL AREA & COASTAL ZONE” as well as within area GR1150001 “DELTA OF NESTOS & LAGOONS OF KERAMOTI & THASOPOULA ISLAND”. Moreover, the airport of Kavala is located in its totality within Zone C1 of the “National Park of Eastern Macedonia & Thrace” (NPEMT).

## 7. WILDLIFE HAZARD MANAGEMENT

<b>Wildlife strikes and wildlife hazard management measures</b>	
<b>Wildlife species that suffered a strike</b>	<b>Strikes (%)</b>
Common kestrel ( <i>Falco tinninulus</i> )	30%
European bee-eater ( <i>Merops apiaster</i> )	20%
Barn swallow ( <i>Hirundo rustica</i> )	10%
Golden jackal ( <i>Canis aureus</i> )	10%
Marsh harrier ( <i>Circus aeruginosus</i> )	10%
White stork ( <i>Ciconia ciconia</i> )	10%
Yellow-legged gull ( <i>Larus michahellis</i> )	10%
<b>Wildlife strike risk mitigation measures:</b>	
<ul style="list-style-type: none"> <li>• Inspections of the manoeuvring area for wildlife monitoring and control at regular intervals</li> <li>• Pyrotechnics application by the use of signal pistols to scare birds away from the manoeuvring area</li> <li>• 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</li> <li>• Regular grass cutting at the airside</li> <li>• Fence maintenance</li> <li>• Systematic monitoring of bird species populations and their habitat on and off-airport (at a distance of 13km from the airport)</li> <li>• 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</li> </ul>	
<b>Reference year summary results:</b>	
<p>Hellenic Civil Aviation Authority (Safety and occurrence management division) 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 &amp; 6.3.4.</p>	

## 8. CULTURAL HERITAGE

<b>Have new cultural heritage properties been discovered during the reporting period?</b>	NO
<i>(if YES)</i> 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)	1.895.000

### 9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	8	
Number of firefighting vehicles at the airport	4	
Total annual fuel consumption	Diesel (lt)	20.150,04
	Unleaded gasoline (lt)	213,65

### 9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	-*
Total annual heating natural gas consumption (m <sup>3</sup> )	N/A

*\*Heating and air conditioning is performed via heat pumps*

### 9.4. Fuel consumption for generator

Water consumption	
Total annual consumption (lt)	1.898

### 9.5. Water consumption

Water consumption	
Total annual consumption (m <sup>3</sup> )	1.859

## 10. GREENHOUSE GAS EMISSIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO<sub>2</sub> 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 <sub>2</sub> Emissions (t)
	2021
Direct emissions form heating fuel (scope 1)	0,0
Direct emissions from fuel used for fleet vehicles (scope 1)	32,6
Direct emissions from fuel used for firefighting vehicles (scope 1)	21,7
Direct emissions from fuel used for generators (scope 1)	5,1
Indirect emissions from electricity consumption (scope 2)	920,1
<b>Total (t)</b>	<b>979,5</b>
<b>Kg CO<sub>2</sub> /passenger</b>	<b>6,57</b>

### 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 ISO 14064 regarding greenhouse gas emission by an independent certification body



## 11. ELECTROMAGNETIC RADIATION

A radar of HNMS is installed in "Megas Alexandros" Airport. The radar antenna is located at the top of a metal structure about 30m high. The radar transmits at the frequency of 5,6GHz with a peak power of 250 kW and a horizontal beam width of 1°.

	Power Density P (%) - Measurements		
	1 <sup>st</sup> floor	4 <sup>th</sup> floor	Access road
Maximum	0,51	0,12	0,53
Number of bundle	10	2,4	11
Average	0,028	0,0067	0,031
Peak	0,028	370	1700

### Notes:

- The values for the average power density P (W/m<sup>2</sup>) are from 3200 to 15000 times lower than limits in the current legislation for the frequency of 5,6 GHz (6 W/m<sup>2</sup>)
- The peak values of the power density P (W/m<sup>2</sup>) show values from 59 to 270 times smaller than the 1000-frame limit (6000 W/m<sup>2</sup>).

## 12. HUMAN COMSUMPTION WATER MONITORING PROGRAM

Human consumption water quality	
Water supply (public water network or airport's boreholes)	Municipal Water & Sewage Company (DEYA) of Nestos
Is sampling of the airport's water network performed?	YES
<i>(if YES)</i> Sampling frequency:	Quarterly
<p><b>Summary of results:</b> The results of the microbiological and chemical analyses show that the parameters analyzed as regards the airport's water network are <b><u>within the legislative limits</u></b> defined by the Ministerial Decision Γ1 (δ)/ΓΠ οικ. 67322/ GG 3282 B/19-9-2017 regarding the quality of human consumption water.</p>	

### 13. RAINWATER

<b>RAINWATER (collection, treatment disposal and recipient)</b>		
<b>Area</b>	<b>Collection/treatment/disposal</b>	<b>[YES/NO]</b>
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		NO

<b>Rainwater quality</b>	
Is sampling of the airport's rainwater performed?	YES
<b>(if YES)</b> Sampling frequency:	Yearly
<b>Parameters analyzed:</b> pH, conductivity, TSS, DO, NO <sub>3</sub> , NO <sub>2</sub> , Oil & grease, BOD, COD, Total Petroleum Hydrocarbons (TPH), PAHs, BTEX, Heavy metals, PCBs, Detergents	
<b>Summary of results:</b>	
Surface rainwater quality is monitored according to the airport's monitoring program. Due to the absence of designated recipients and relevant national quality limits for surface rainwater, 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.	

## 14. 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
<b>(if YES)</b> Sampling frequency:	According to the Environmental Terms
<b>Parameters analyzed:</b> TPH, BTEX, MTBE	
<b>Summary of results:</b>	
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 the environmental monitoring reports of the fuel handlers, and based on the New Dutch List (2013) 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.	

## 15. SEWAGE TREATMENT AND DISPOSAL

<b>Sewage</b>	
Sewage network to the municipal waste water treatment plant (WWTP)	YES
Autonomous airport’s waste water treatment plant (WWTP)	NO

<b>Blue water</b>
<b>Collection and disposal:</b> Collection in watertight tank and disposal to the municipal sewage network.

<b>Waste water treatment plant description (where applicable)</b> <i>Description of characteristics and condition of the airport’s WWTP including possible problems. Type and frequency of the effluent quality measurements.</i>	
Degree of treatment of airport’s WWTP	N/A
Treatment method	N/A
Disposal of treated wastewater	N/A
Sludge disposal	N/A
Sampling frequency of WWTP effluent	N/A
Parameters analyzed	N/A
Summary of quality of WWTP effluent	N/A