

# **Environmental Bulletin of Kavala “Megas Alexandros” Airport (KVA)**

## **Reference year 2018**

**Fraport Greece**

**May 2019**



## Version Control

Version	Revision	Description of Revision	Date
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## 1. INTRODUCTION

### Location

The 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

### 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.

### Environmental licensing

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

### 1.1. Airport Basic Data

Airport Basic Data					
Airport name IATA / ICAO	KVA / LGKV				
Airport position – Airport Reference Point (ARP)	Latitude: 40° 54' 48" N Longitude: 24° 37' 09" E				
Altitude:	5m				
Number of runways	1				
Operation hours (high season)	Monday - Friday & Sunday: 06:00 – 23:00 Saturday: 06:00 – 22:00				
Operation hours (low season)	Monday - Friday 08:00-20:30 Saturday: 08:00 – 17:00 Sunday: 12:00-20:30				
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
Employees	High season			Low season	
Fraport Greece (FG) employees	22			21	
Employees of other companies	22			4	
Terminal					

➤ Total area (m <sup>2</sup> )	8,569.5
<b>Other buildings and service/storage areas</b>	
➤ RFF (m <sup>2</sup> )	734.84
<b>Parking Areas</b>	
Car parking spaces	240
Bus parking spaces	15
Taxi parking spaces	40

## 1.2. Airport Facilities

### 1.2.1. Fuel Handlers

<b>Number of fuel handler companies</b>			
Number of fuel handler companies operating at the Airport			3
<b>Installations inside the airport</b>	<b>EKO</b>	<b>GISCO</b>	<b>HAFCO</b>
Environmental Management System (EMS) (YES/NO)	YES	YES	YES*

\*HAFCO facility was not operating during the reference year

### 1.2.2. Ground Handlers

<b>Ground Handlers</b>			
Number of ground handler companies operating at the airport			3
<b>Installations inside the airport</b>	<b>SKYSERV</b>	<b>SWISSPORT</b>	<b>GOLDAIR</b>
Vehicles (total number)	9	11	42
Environmental Management System (EMS) (YES/NO)	YES	YES	YES

## 2. TRAFFIC DATA STATISTICS

### 2.1. Annual Traffic Data

<b>Annual Traffic Data for the year 2018</b>	
Overall Annual Air Traffic Movements <sup>1</sup>	4,151
Percent of increase or decrease in relation to the previous year	8.3%
Annual passenger traffic	406,949
Percent of increase or decrease in relation to the previous year	20.4%
Annual cargo transferred (tn)	95
Percent of increase or decrease in relation to the previous year	-9.5%

### Aircraft types

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

Prevailing aircraft types for domestic flights	
Aircraft type	No. of flights
DH8D	840
A319	87
A320	75
A32B	58
SW4	48
A321	39
A32A	36
B73H	14
GLF5	13
A109	13
Other	123
Prevailing aircraft types for international flights	
Aircraft type	No. of flights
A320	711
A319	657
B73H	346
B737	166
A32A	160
B738	138
A321	101
A32B	90
B736	76
B75W	44
Other	316

## 2.2. High season traffic data

High season traffic data (June-September)	
Highest traffic month	July
Air traffic movements during the month with highest traffic	593
Air traffic movements daily average number during the month with highest traffic	19

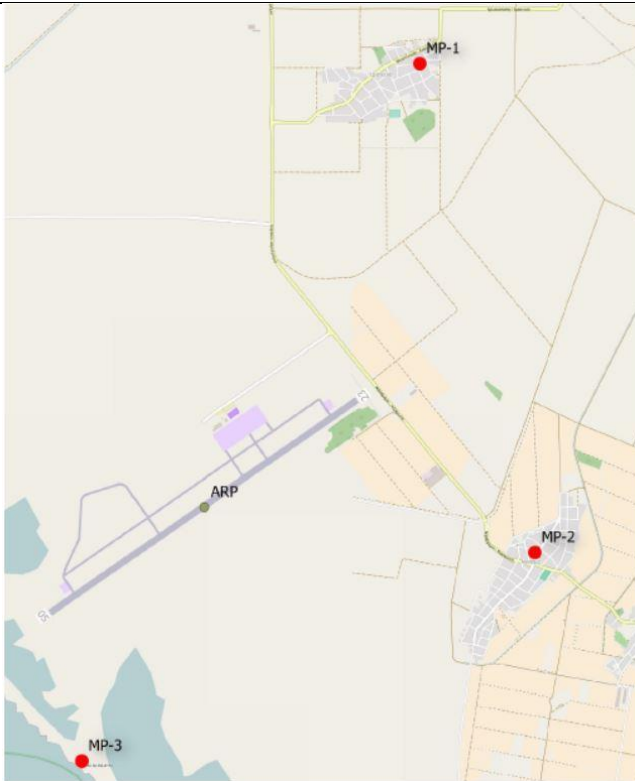
## 2.3. Low season traffic data

Low season traffic data (October-May)	
Lowest traffic month	November
Air traffic movements during the month with lowest traffic	105
Air traffic movements daily average number during the month with lowest traffic	4

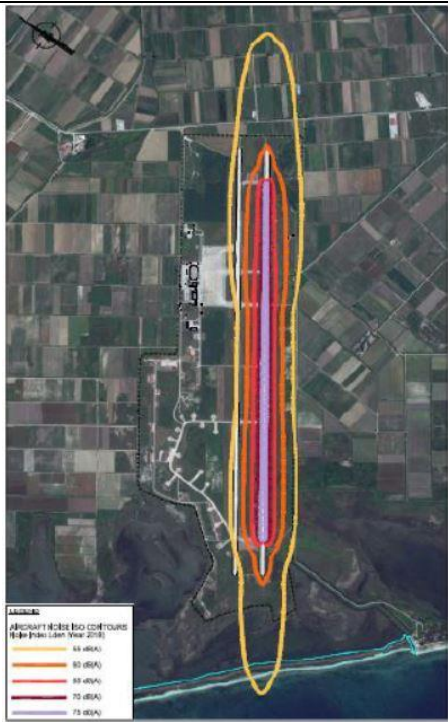
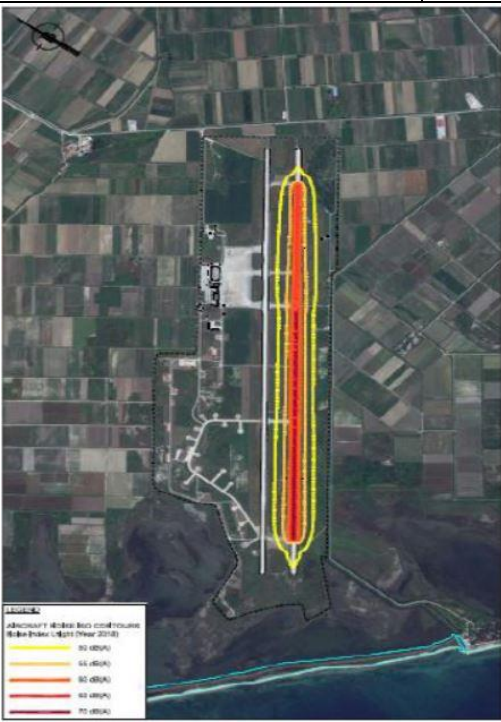


### 3. AIRCRAFT NOISE

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


Have noise measurements at the airport's surrounding area been performed during the reference year? [YES/NO]		YES
<b>Measurement points</b>		
		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: 40° 57' 07" N 24° 38' 39" E	Erateino area, to the north-east of the runway at the yard of a private house	
2) Position: 40° 54' 36" N 24° 39' 26" E	Agiasma area, to the south-east of the runway, at the roof of a private house	
3) Position: 40° 31' 26" N 22° 59' 42" E	Agiasma beach area, to the south of the runway at the yard of a private house	
<b>Measurement period</b>	18.07.2018 -19 07.2018	
<b>Noise indicators</b>	Lden, Lnight	
<b>Summary of measurement results:</b>		
Noise levels are monitored according to the airport's monitoring program. No exceedance of noise indicators levels Lden = 70 dB (A) and Lnight = 60 dB (A) was observed.		

3.2. Noise levels calculation based on noise simulation software

<b>Aircraft noise levels calculation based on simulation software [YES/NO]</b>	YES
<b>Software used:</b> IMMI Noise Prediction Software	
<b>Noise indicators and respective contours calculation:</b>	L <sub>den</sub> , L <sub>night</sub>
 <p style="text-align: center;"><b>L<sub>den</sub></b></p>	 <p style="text-align: center;"><b>L<sub>night</sub></b></p>
<b>Summary of results:</b>	
For the year 2018 no populations or buildings within residential areas were found to be exposed to noise levels higher than the limits L <sub>den</sub> = 70 dB(A) and L <sub>night</sub> = 60 dB(A).	

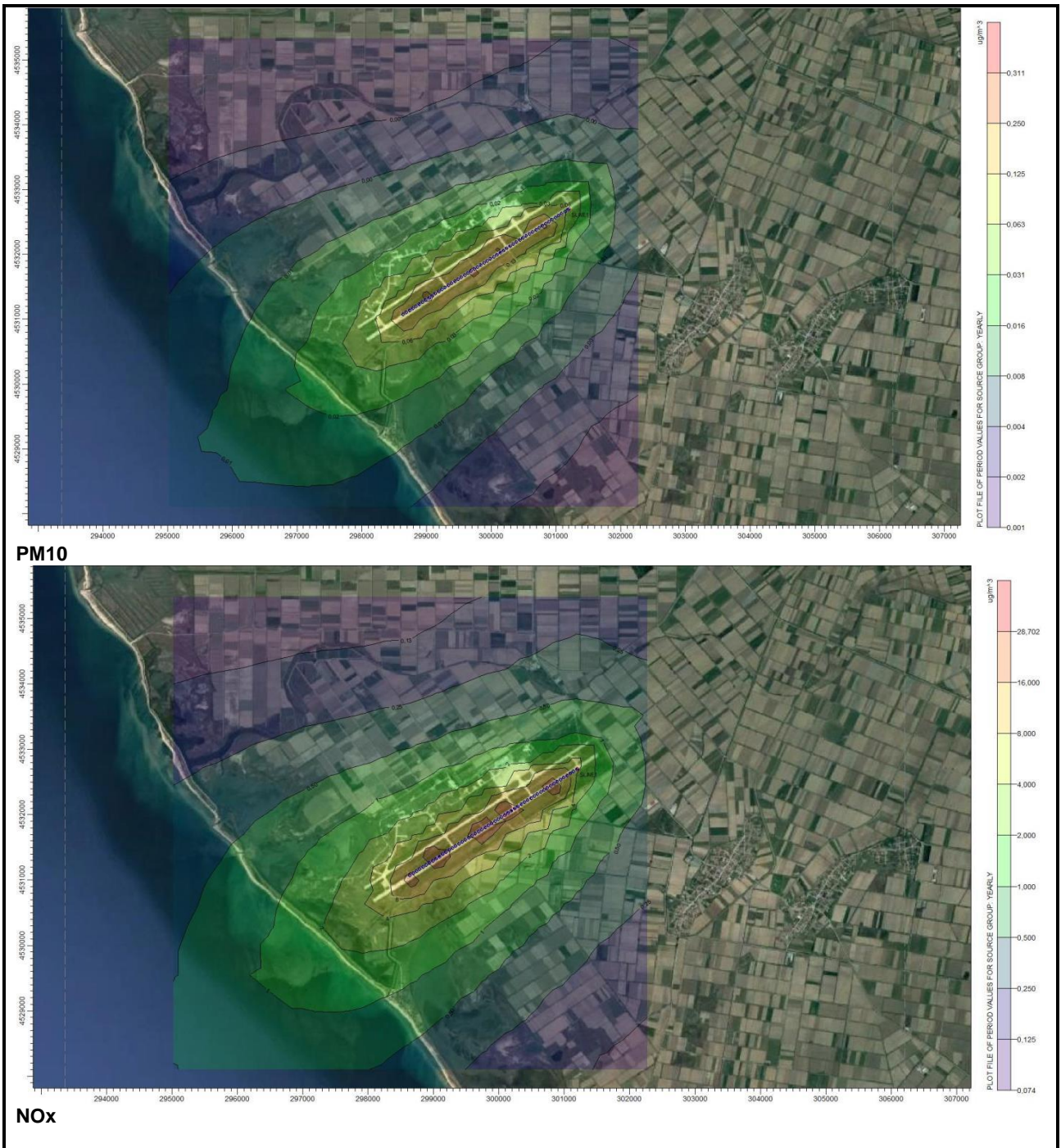
## 4. AIR QUALITY

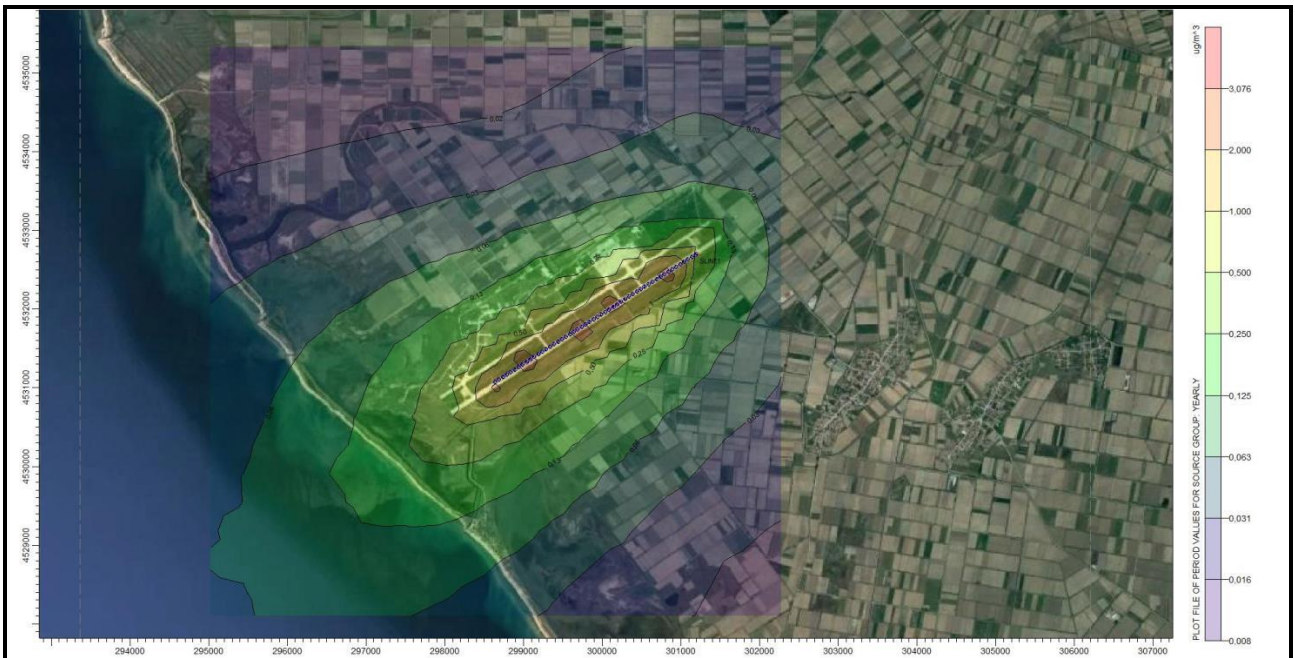
### 4.1. Air quality measurements during the reference year

<b>Have air quality measurements at the airport's surrounding area been performed during the reference year? [YES/NO]</b>		<b>YES</b>
<b>Measurement points</b>		
		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: --° --' --" N --° --' --" E	In the airport parking area.	
2) Position: --° --' --" N --° --' --" E	Agiasma settlement. South-east of the airport at a distance of approximately 2.5 kilometers.	
<b>Measurement period</b>	17.07.2018 - 24 07.2018	
<b>Pollutants measured:</b> PM <sub>10</sub> , PM <sub>2,5</sub> , NO <sub>2</sub> , SO <sub>2</sub> , C <sub>6</sub> H <sub>6</sub> , O <sub>3</sub>		
<b>Summary of measurement results:</b>		
<p>Air quality is monitored according to the airport's monitoring program.                  No exceedance of the air quality limits was observed.                  It is noted that some individual exceedances for the O<sub>3</sub> pollutant mean values were recorded. As a result of its dependency on the solar radiation, ozone does not show a homogenous trend during the year. Increased ozone concentrations are recorded usually at the end of spring and beginning of summer, especially during the days with high sunlight. Therefore these momentary exceedances are considered to be individual occurrences not related to the airport's operation.</p>		

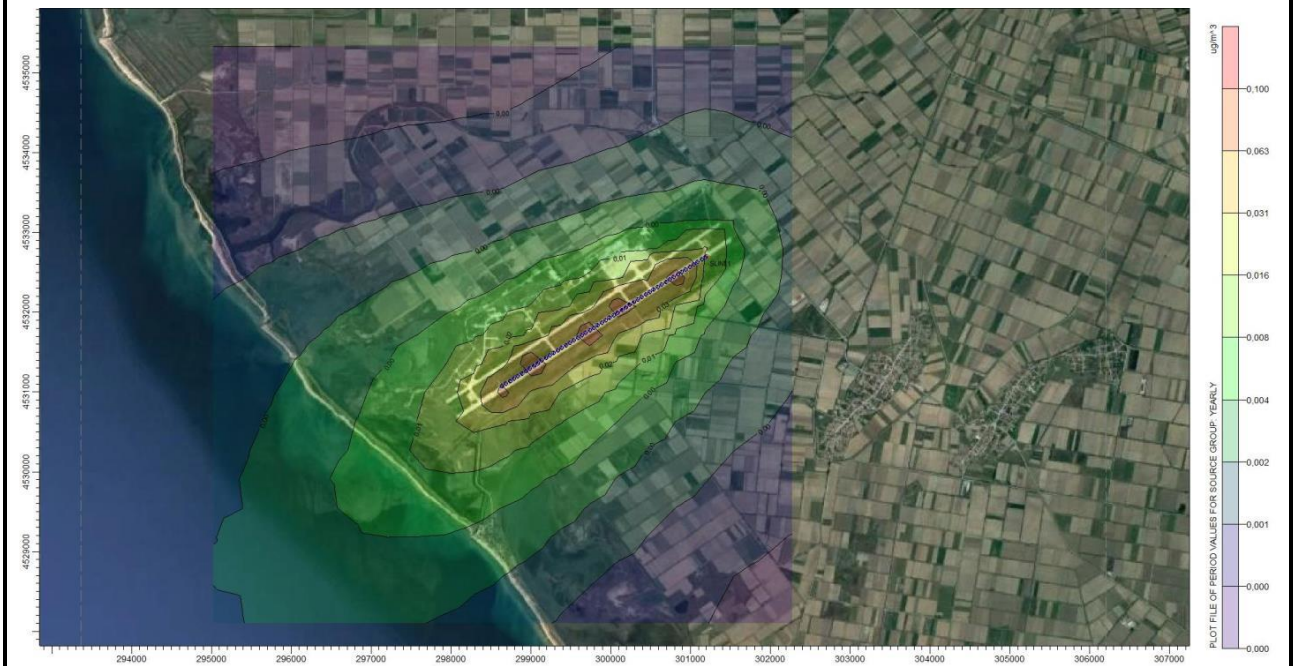
### 4.2. Air pollutants emission and dispersion modelling

<b>Calculation of air pollutants concentrations based on an emission and dispersion modelling software [YES/NO]</b>		<b>YES</b>
<b>Software used:</b> Emissions and Dispersion Modeling System (EDMS) - US Federal Aviation Administration & US EPA AERMOD		
<b>Pollutants concentrations and respective contours calculation:</b> PM <sub>10</sub> , NO <sub>x</sub> , SO <sub>x</sub> , C <sub>6</sub> H <sub>6</sub>		





**SOx**



**Benzene**

**Summary of results:**

Air quality is monitored according to the airport's monitoring program.

No exceedance of the air quality limits was observed.

It is noted that the simulation of the ozone cycle is a difficult procedure the results of which are greatly dependent from the meteorological conditions and solar radiation data used in the photochemical model. The simulation of the specific pollutant is not possible.

## 5. WASTE MANAGEMENT

Waste management		
Waste	Collection	Management/Disposal
Municipal solid waste	Collection and emptying of garbage bins by an FG contractor inside the airport	Collection and management by the Municipality of Nestos
Recyclables	Collection and emptying of garbage bins by an FG contractor inside the airport	Collection and management by the Municipality of Nestos
Used oils	Collection by licensed collector "Cytop S.A."	Collection and management by licensed collector "Cytop S.A."
Electric & electronic waste	Collection by alternative management system "Appliances recycling S.A."	Collection and management by alternative management system "Appliances recycling S.A."
Accumulators	Collection by alternative management system "Re-Battery S.A."	Collection and management by alternative management system "Re-Battery S.A."
Small batteries	Collection in special bins of the company AFIS S.A. inside the airport	Collection and management by alternative management system "AFIS S.A."
Used tires	Collection by alternative management system "ECOELASTIKA S.A."	Collection and management by alternative management system "ECOELASTIKA S.A."

### Notes:

1. Ground handlers and fuel handlers manage all the categories of waste they produce independently
2. The total quantities of the produced waste by category resulting from all activities of the airport are recorded by Fraport Greece A and submitted in the Electronic Waste Registry via the Annual Waste Producer Report as provided for by the applicable legislation.

## 6. ECOSYSTEM AROUND THE AIRPORT

### 6.1. Flora-Fauna

ECOSYSTEM AROUND THE AIRPORT	
<b>Flora</b>	
Are there protected zones of vegetation/habitats in the broader airport area? <b>[YES/NO]</b>	YES
<b>(If YES)</b> Short description: The airport of Kavala is within the limits of the "National Park of Eastern Macedonia & 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".	
<b>Fauna</b>	
Are there protected zones of fauna/birds in the broader airport area? <b>[YES/NO]</b>	YES
<b>(If YES)</b> Short description: A small part of Kavala airport, at its north-north-west end, is located within area GR1150010 "DELTA OF NESTOS & LAGOONS OF KERAMOTI – GENERAL AREA & COASTAL ZONE" as well as within the area GR1150001 "DELTA OF NESTOS & LAGOONS OF KERAMOTI & 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.	
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## 6.2. Ecologically fragile areas

A small part of Kavala airport, at its north - north-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

Wildlife hazard management	
<i>Extent of the problem</i> (bird species):	Birdstrikes
Tyto alba (Owl)	1
Merops apiaster (European bee-eater)	2
Glareola pratincola (collared pratincole)	2
Buteo buteo (Buzzard)	1
Corvus cornix (Crow)	1
Accipitridae spp. (Vultures)	2
Athene noctua (Owl)	1
Ciconia cinonia (White Stork)	3
Hirundinidae spp. (swallow)	1
Larus michahellis (Herring gull)	13
Tyto alba (Owl)	1
Merops apiaster (European bee-eater)	2
<b>Adopted measures :</b>	
The following reports have been submitted to the Department of Airports Operation (D3/B) of the Hellenic Civil Aviation Authority:	
1. “Wildlife hazard risk identification and management, Fraport Regional Airports of Greece A S.A., Reference period: 11 April - 31 December 2017”	
2. “Wildlife hazard risk identification and management, Fraport Regional Airports of Greece B S.A., Reference period: 11 April - 31 December 2017” In these reports, information is included for the following:	
<ul style="list-style-type: none"> <li>• Bird and other animal species management is done by FG in all airports with the exception of Aktion and Chania airports where wildlife hazard management belongs to the Hellenic Air Force</li> <li>• Birdstrikes or other species strikes on aircrafts data refer to the period between April 11-December 31 2017</li> <li>• Birdstrikes or other species strikes on aircraft risk evaluation (strikes indicator is taken under account (birdstrikes number to the total ATMs)</li> <li>• Wildlife hazard management measures</li> </ul>	
<b>Reference year summary results:</b>	
The number of strikes of birds or other animals to aircrafts cannot reduce the population of even endangered species, since only a limited number can be involved in a strike event (stochastic events). The loss of a limited number of animals cannot change the population status of the species.	

## 8. CULTURAL HERITAGE

Have new cultural heritage properties been discovered during the reporting period? [YES/NO]			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)	
MONTH	Kwh
January	120,984.96
February	111,404.88
March	97,303.20
April	82,753.32
May	139,491.36
June	184,378.44
July	225,628.44
August	239,896.56
September	17,643.08
October	122,179.68
November	111,767.16
December	197,124.68
<b>Total annual electric energy consumption (in Kwh)</b>	<b>1,804,555.76</b>

### 9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	14	
Number of firefighting vehicles at the airport	4	
Total annual fuel consumption	Diesel (lt)	15,975.42
	Unleaded gasoline (lt)	136.41



### 9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	19,712
Total annual heating natural gas consumption (m <sup>3</sup> )	N/A

### 9.4. Water consumption

Water consumption	
Period	Consumption [m <sup>3</sup> ]
January – March	2,786
April - June	1,250
July - September	4,783
October - December	2,559
<b>Total annual consumption</b>	<b>11,378 m<sup>3</sup></b>

## 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)
	2018
Direct emissions from heating fuel (scope 1)	52.6
Direct emissions from fuel used for fleet vehicles (scope 1)	32.8
Direct emissions from fuel used for firefighting vehicles (scope 1)	10.2
Direct emissions from fuel used for generators (scope 1)	3.3
Indirect emissions from electricity consumption (scope 2)	1,099.1
<b>Total (t)</b>	<b>1,198.0</b>
<b>Kg CO<sub>2</sub> /passenger</b>	<b>2.94</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 is certified according to ISO 14064 regarding greenhouse gas emission by an independent certification body

## 11. HUMAN CONSUMPTION 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/NO]	YES
(if YES) Sampling frequency:	Quarterly
<b>Summary of results:</b> The results of the microbiological and chemical analyses show that the parameters analysed as regards the airport's water network are <u>within the legislative limits</u> 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)		[YES/NO]
Area	Collection/treatment/disposal	
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

## 13. GROUNDWATER MONITORING PROGRAM

Groundwater quality	
Is sampling of the airport's groundwater performed? [YES/NO]	YES
(if YES) Sampling frequency:	According to the frequency specified by the ETs.
<b>Parameters analysed:</b> pH, Conductivity, DO, TPH, BTEX, Heavy metals,	
<b>Summary of results:</b> Groundwater quality is monitored according to the airport's monitoring program. It is noted that the fuel handler companies monitor the quality of groundwater according to the Environmental terms and based on the data provided by them, no exceedances of the legislative limits occurred (Limits defined by the Ministerial Decision 1811 (G.G. 3322/30.12.2011) and the New Dutch List (2009)).A. 39626/2208/E130 (GG 2075/B'/2009).	

## 14. SEWAGE TREATMENT & DISPOSAL

Sewage	
Sewage network to the municipal waste water treatment plant (WWTP)	Connection is expected
Autonomous airport's waste water treatment plant (WWTP)	NO*
<b>Short description:</b> *The airports waste water is temporarily transported by tank trucks to the WWTP of Nestos Municipality.	

<b>Blue water</b>
<b>Collection and disposal:</b> Collection in tank and transport by tank trucks to the WWTP of Nestos Municipality.

<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 analysed	N/A
Summary of quality of WWTP effluent	N/A