Environmental Bulletin of Kavala

"Megas Alexandros" Airport (KVA)

Reference year 2019

Fraport Greece

May 2020

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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 (summer)	07:30-23:00				
Operation hours (winter)	Monday - Friday 07:30 - 20:30 Saturday: 07:30 - 17:00 Sunday: 10:45 - 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 (MARS)
Employees	**High season (31.8.2019)**			**Low season (30.11.2019)**	
Fraport Greece (FG) employees	29			24	
Employees of other companies	587			446	

Terminal	
➢ Total area **(m^2)**	8,569.5
Other buildings and service/storage areas	
➢ RFF **(m^2)**	734.84
Parking Areas	
Car parking spaces	240
Bus parking spaces	15
Taxi parking spaces	40

1.2. Airport Facilities

1.2.1. Fuel Handlers

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

*HAFCO facility was not operating during the reference year

1.2.2. Ground Handlers

Ground Handlers			
Number of ground handler companies operating at the airport			**3**
Installations inside the airport	**SKYSERV**	**SWISSPORT**	**GOLDAIR**
Vehicles *(total number)*	6	11	11
Environmental Management System (EMS) ***(YES/NO)***	YES	YES	YES

2. TRAFFIC DATA STATISTICS

2.1. Annual Traffic Data

Annual Traffic Data for the year 2019	
Overall Annual Air Traffic Movements[1]	3,465
Percent of increase or decrease in relation to the previous year	-16.5%
Annual passenger traffic	323,310
Percent of increase or decrease in relation to the previous year	-20.6%
Annual cargo transferred (tn)	99
Percent of increase or decrease in relation to the previous year	3.9%

[1] Military and training flights not included.

Aircraft types	
Prevailing aircraft types for domestic flights	
Aircraft type	**No. of flights**
DH8D	996
P28	64
A32B	50
A321	45
C172	36
A320	35
DA40	19
DA42	14
A319	10
D62	10
Other	124
Prevailing aircraft types for international flights	
Aircraft type	**No. of flights**
A320	543
A319	336
B73H	329
A321	159
B73W	102
A32A	77
A32B	68
7S8	54
B738	53
B737	46
Other	295

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	590
Air traffic movements daily average number during the month with highest traffic	19

2.3. Low season traffic data

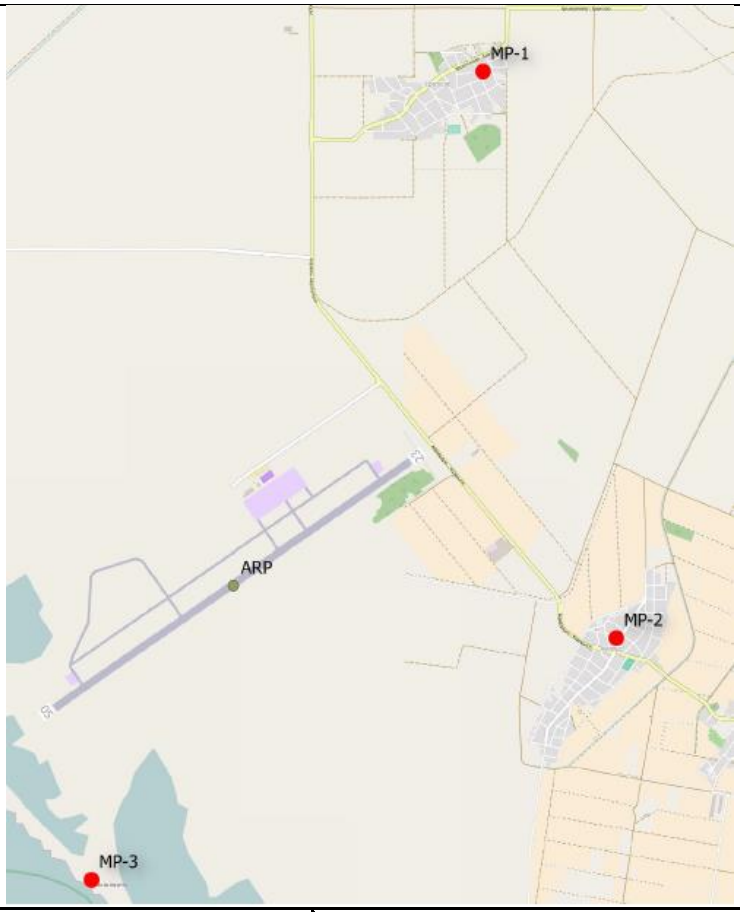
Low season traffic data (October-May)	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	94
Air traffic movements daily average number during the month with lowest traffic	3

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

Measurement points



Measurement points coordinates	**Measurement points description**
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. Affected by arrivals in runway 23 and departures from runway 05.
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. Affected by arrivals in runway 23 and departures from runway 05.
3) Position: 40° 53' 32" N 24° 36' 21" E	Agiasma beach area, to the south of the runway at the yard of a private house. Affected by departures from runway 23 and arrivals in runway 05.
Measurement period	28.06.2019 -29.06.2019
Noise indicators	Lden, Lnight

Summary of measurement results:

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

Aircraft noise levels calculation based on simulation software [YES/NO]	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}

L_{den}

L_{night}

Summary of results:

For the year 2019 no populations or buildings inside official settlement boundaries were found to be exposed to noise levels higher than the limits Lden = 70 dB(A) and Lnight = 60 dB(A).

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? [YES/NO]	**NO***
Measurement points	
N/A	

Measurement points coordinates	**Measurement points description**
1) Position: --° --' --" N --° --' --" E	N/A
2) Position: --° --' --" N --° --' --" E	N/A
Measurement period	N/A

Pollutants measured: N/A

Summary of measurement results:

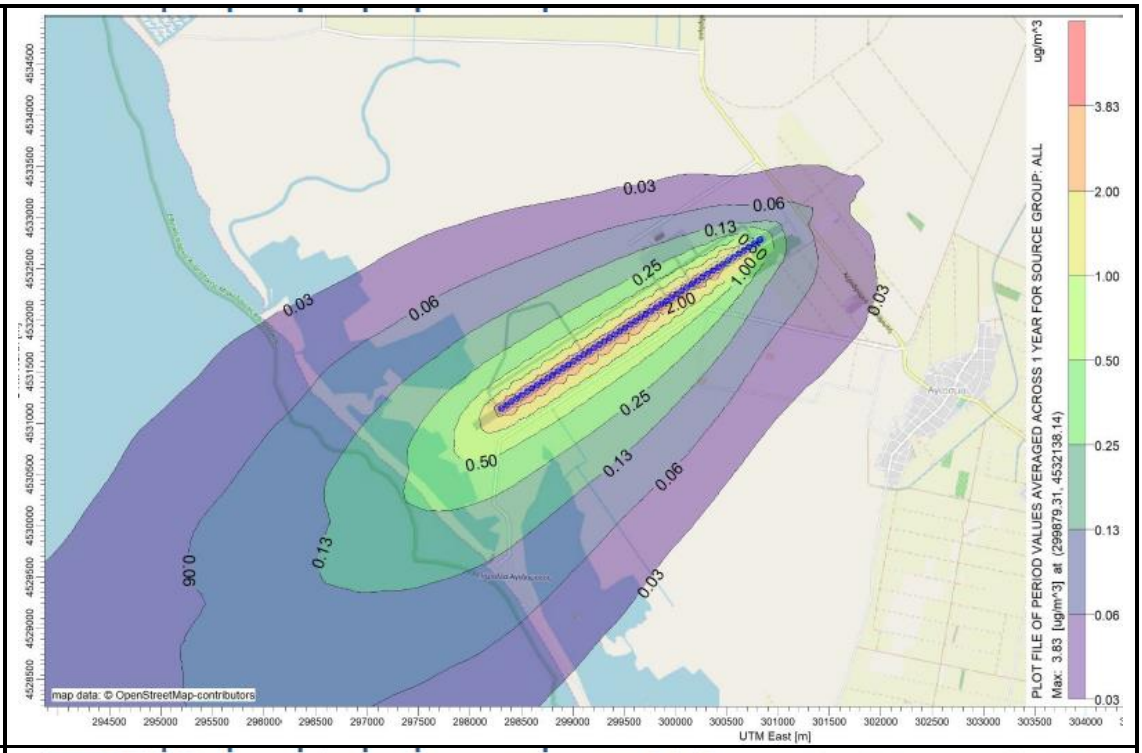
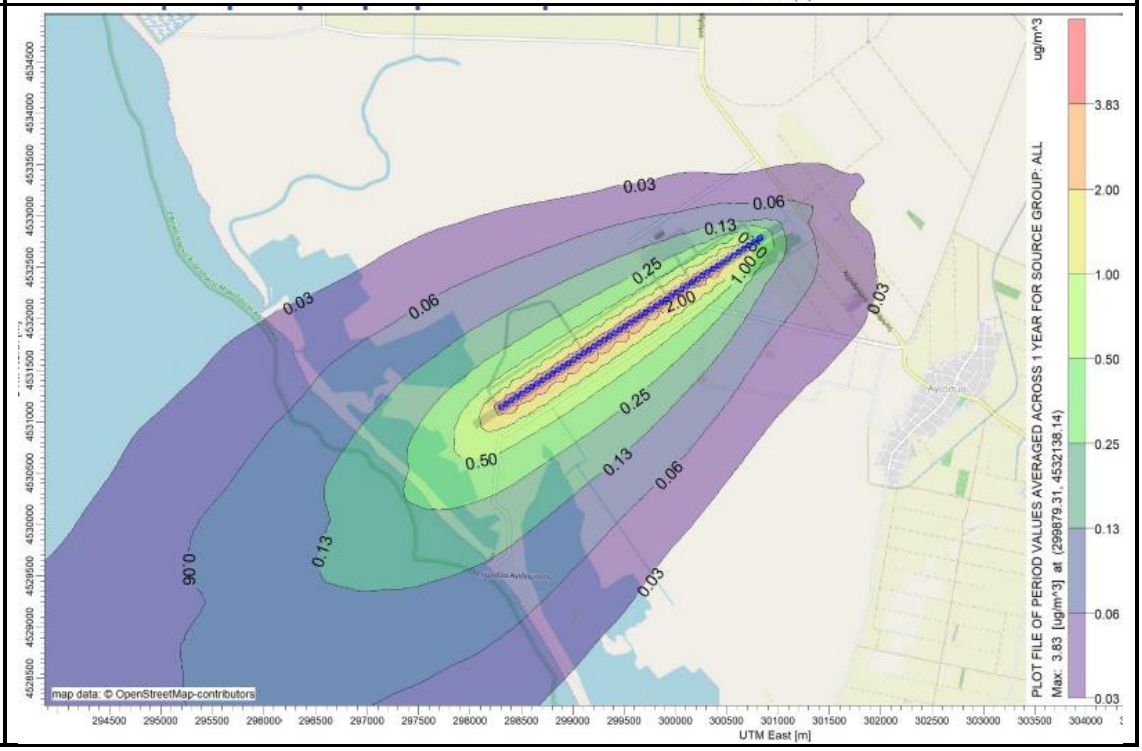
*Fraport Greece, during the years 2018-2019, has implemented a noise & air pollution monitoring program, according to the Approved Environmental Terms of the airport. The monitoring program included the implementation of special simulation tools in combination with confirmation measurements, of air pollution and noise, in representative positions around the airport.

According to the abovementioned monitoring program, which is an annex of the approved Environmental Impact Assessment Study, and based on the results of the measurements for 2018, no air pollution measurements were programmed for the year 2019 at the airport. Instead, a computational approach with the use of air pollution simulation software was planned, the results of which are presented in paragraph 4.2. The results of the 2018 air pollution measurement are available at the respective environmental bulletin, which is published at the company's website.

At the end of the two year period of the program, in May 2020, 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.

4.2. Air pollutants emission and dispersion modelling

Calculation of air pollutants concentrations based on an emission and dispersion modelling software [YES/NO]	**YES**
Software used: Aviation Environmental Design Tool (AEDT) - US Federal Aviation Administration & US Environmental Protection Agency AERMOD	
Pollutants concentrations and respective contours calculation: PM_{10}, NO_X, SO_X, C_6H_6	

PM10	
NOx	

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map data: © OpenStreetMap-contributors
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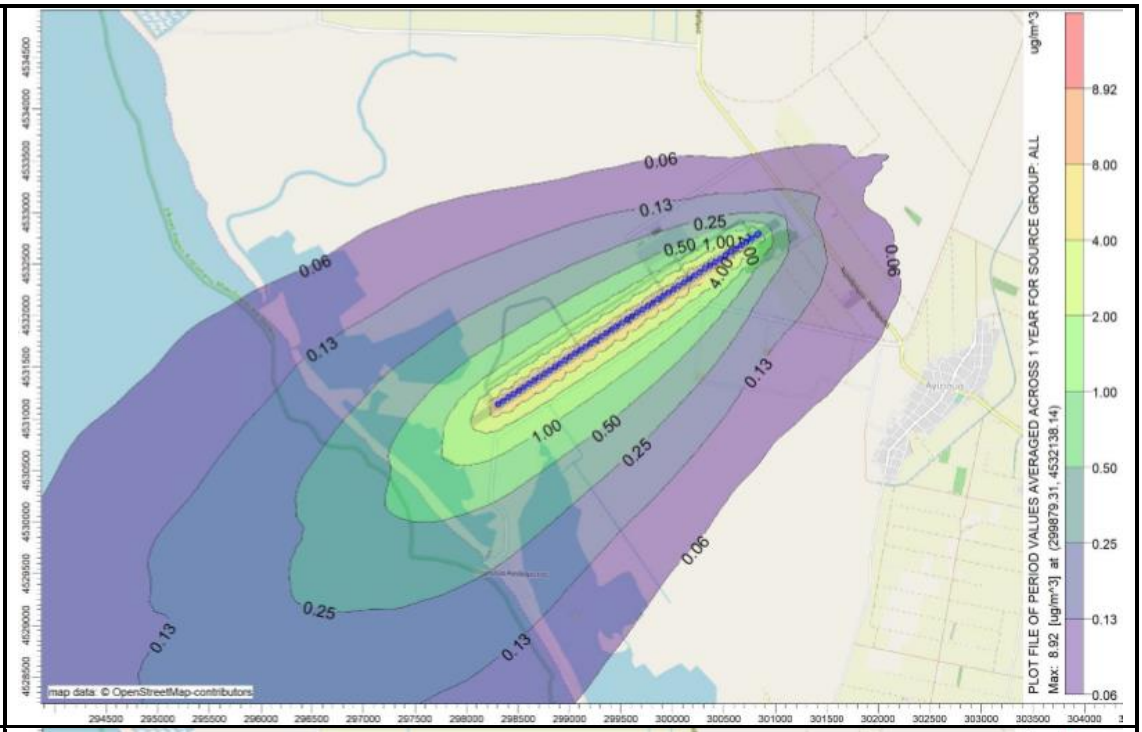
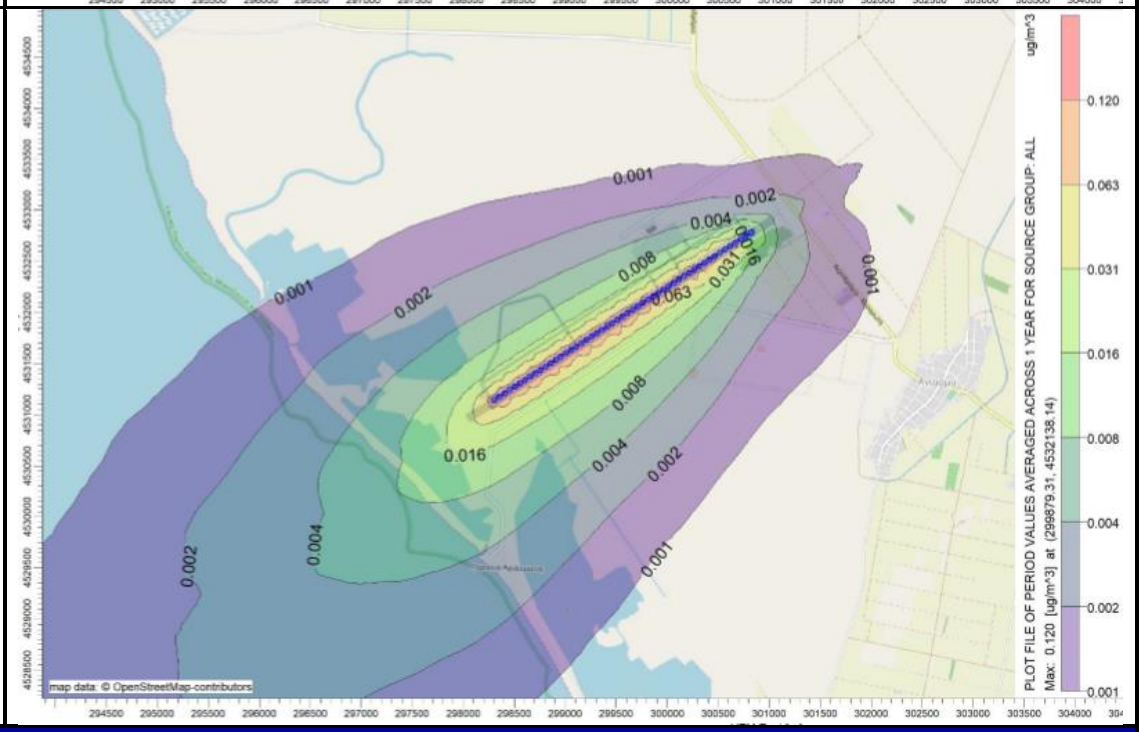
SOx	
Benzene (C6H6)	
Summary of results:	
Air quality is monitored according to the airport's monitoring program. No exceedance of the air quality limits was observed.	

5. WASTE MANAGEMENT

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

Σημειώσεις:

1. Regarding the different categories of the MSW (recyclables, mixed waste), Airport Users handle their waste autonomously. The implementation of a central system by Fraport Greece 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 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	
Flora	
Are there protected zones of vegetation/habitats in the broader airport area? ***[YES/NO]***	YES
(If YES) 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".	
Fauna	
Are there protected zones of fauna/birds in the broader airport area? ***[YES/NO]***	YES
(If YES) 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.	

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	
Extent of the problem (animal species):	**Strikes (%)**
Falco tinnunculus (Common kestrel)	37%
Larus michahellis (Yellow-legged gull)	16%
Merops apiaster (Bee-eater)	16%
Falco subbuteo (Eurasian hobby)	5%
Corvus monedula (Jackdaw)	5%
Motacilla flava (Yellow-wagtail)	5%
Athene noctua (Little owl)	5%
Corvus cornix (Hooded crow)	5%
*Not identified**	5%

Adopted measures :

- Pyrotechnics application by the use of signal pistols, as an additional short-term measure to disperse birds from the manoeuvring area
- Drainage ditches are periodically checked and if necessary cleaned, to ensure efficient water run-off and, thus, reducing the attractiveness of the airside to the wildlife
- Systematic grass cutting at the airside
- Fence maintenance
- Trapping of mammals (mainly stray cats and dogs) that may be found at the manoeuvring area by the use of trap and under the permit received by the ministry of Environment & Energy "*Monitoring and trapping birds and mammals population at the 14 regional airports operated by Fraport Greece*" (Permit: 165654/142, 12/2/2018)
- Systematic monitoring and census of bird species populations on and off-airport (in a distance of 13km from the airport) and mapping of their habitat and the areas that are attractive to birds
- Seminar awareness video on the identification and safe removal of reptiles and information about the snake species at Kavala, under the collaboration with the Lalitsa Non-Profit Association
- Awareness video on the safe handling of stray dogs
- In collaboration with the Hellenic Electricity Distribution Network Operator special equipment was placed at an electricity supply pole to avoid the nesting of the White storks at the Landside
- Holding of the wildlife strike committee, to raise awareness across the airport users and local authorities about the risk of the wildlife strikes on aircraft and the measures obtained to eliminate such a risk

Reference year summary results:
Hellenic Civil Aviation Authority 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*

8. CULTURAL HERITAGE

Have new cultural heritage properties been discovered during the reporting period? [YES/NO]	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)	
MONTH	Kwh
Total annual electric energy consumption (in Kwh)	2,170,223

9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	14	
Number of firefighting vehicles at the airport	5	
Total annual fuel consumption	Diesel (lt)	19,088
	Unleaded gasoline (lt)	111

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^3)	N/A

*Heating and cooling is achieved via heat pumps

9.4. Water consumption

Water consumption	
Period	***Consumption*** **[m^3]**
Total annual consumption	4,183

10. GREENHOUSE GAS EMMISIONS & CARBON FOOTPRINT

Greenhouse gas emissions that were included in the carbon footprint calculation are the CO_2 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)
	2019
Direct emissions form heating fuel (scope 1)	0.0
Direct emissions from fuel used for fleet vehicles (scope 1)	32.8
Direct emissions from fuel used for firefighting vehicles (scope 1)	18.4
Direct emissions from fuel used for generators (scope 1)	6.2
Indirect emissions from electricity consumption (scope 2)	1,384.6
Total (t)	**1,442.0**
Kg CO2 /passenger	4.46

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. 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
Summary of results: The results of the microbiological and chemical analyses show that the parameters analysed 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)		[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*

Rainwater quality	
Is sampling of the airport's rainwater performed? **[YES/NO]**	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 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.	

13. GROUNDWATER MONITORING PROGRAM

Groundwater quality	
Is sampling of the airport's groundwater performed? **[YES/NO]**	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: 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's analyses results,, the environmental monitoring reports of the fuel handlers, and based on the New Dutch List (2009) 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.	

14. SEWAGE TREATMENT & DISPOSAL

Sewage	
Sewage network to the municipal waste water treatment plant (WWTP)	YES
Autonomous airport's waste water treatment plant (WWTP)	NO
Short description:	
Blue water	
Collection and disposal: Collection in tank and diposesd to the municipal 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	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