

# **Environmental Bulletin of Kefalonia “Anna Pollatou” Airport (EFL)**

## **Reference year 2018**

Fraport Greece

May 2019



## Version Control

Version	Revision	Description of Revision	Date
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## 1. INTRODUCTION

### Location

The “Anna Pollatou” Kefalonia Airport (EFL) is located in the south part of the island of Kefalonia, south to Argostoli town, at a road distance of approximately 8 km from the centre of the town. The airport’s area is approximately 202 acres.

### Administration

The airport administratively belongs to the Municipal Unit of Argostoli of the Municipality of Kefalonia, in the Regional Unit of Kefalonia, Region of Ionian Islands, the seat of which is in Corfu.

### Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	32647/09.05.1995
E.T. Amendment Decision Reference number	106586/08.08.2006
	24341/19.05.2017
	39772/26.09.2017
	36368/20.12.2017
	85360/3423/07.03.2019

### 1.1. Airport Basic Data

Airport Basic Data	
Airport name IATA / ICAO	EFL / LGKF
Airport position – Airport Reference Point (ARP)	Latitude: 38° 07' 12" N Longitude: 20° 30' 01" E
Altitude:	18m
Number of runways	1
Operation hours (high season)	06:00-24:00
Operation hours (low season)	Monday - Wednesday: 08:30-15:00 Thursday/Saturday: 08:30-18:00 Friday/Sunday: 14:30-20:30

Runways	Length/Width					Code
Runway	2,436m x 45 m					14/32
Full length of parallel taxiway	N/A					
Number of taxiways	2					
Apron capacity	A	B	C	D	E	
	-	-	2	1	-	
Employees	High season			Low season		
Fraport Greece (FG) employees	25			25		
Employees of other companies	45			21		
Terminal						

➤ Total area (m <sup>2</sup> )	6,800
<b>Other buildings and service/storage areas</b>	
➤ RFF (m <sup>2</sup> )	Temporarily housed in ISOBOX until completion of new RFF

<b>Parking Areas</b>	
Car parking spaces	130
Bus parking spaces	20
Taxi parking spaces	30

## 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			2
<b>Installations inside the airport</b>	<b>EKO</b>	<b>GISCO</b>	<b>HAFCO</b>
Environmental Management System (EMS) (YES/NO)	YES	YES	Not operating at the airport

### 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)	62	15	62
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>	7,167
Percent of increase or decrease in relation to the previous year	21.5%
Annual passenger traffic	761,647
Percent of increase or decrease in relation to the previous year	21.0%
Annual cargo transferred (tn)	1
Percent of increase or decrease in relation to the previous year	-100.0%

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

Aircraft types	
Prevailing aircraft types for domestic flights	
Aircraft type	No. of flights
AT45	736
DH8D	376
JS41	314
A320	248
A32A	57
AT75	36
AT46	36
AT43	32
AT72	31
B73H	26
Other	291
Prevailing aircraft types for international flights	
Aircraft type	No. of flights
B73H	1682
A320	538
A32A	381
B738	298
A321	203
B75W	166
A32B	158
B733	132
B737	126
E175	84
Other	1216

## 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	1,619
Air traffic movements daily average number during the month with highest traffic	52

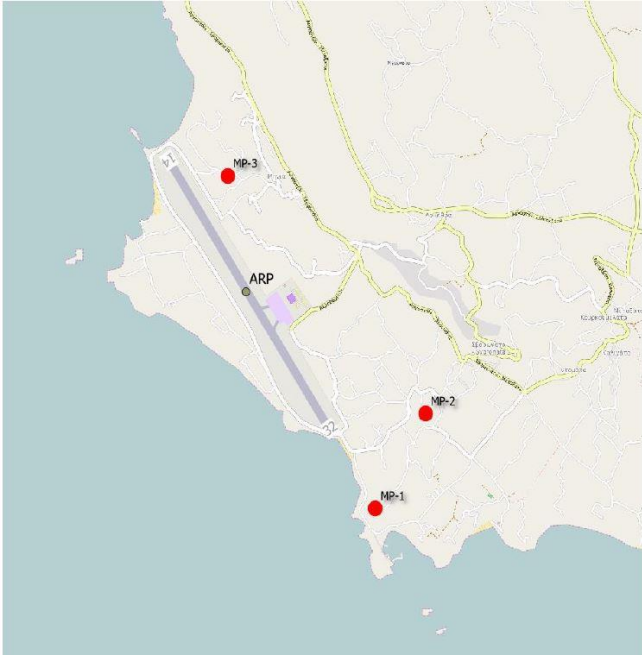
## 2.3. Low season traffic data

Low season traffic data (October-May)	
Lowest traffic month	February
Air traffic movements during the month with lowest traffic	75
Air traffic movements daily average number during the month with lowest traffic	3





### 3. AIRCRAFT NOISE

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

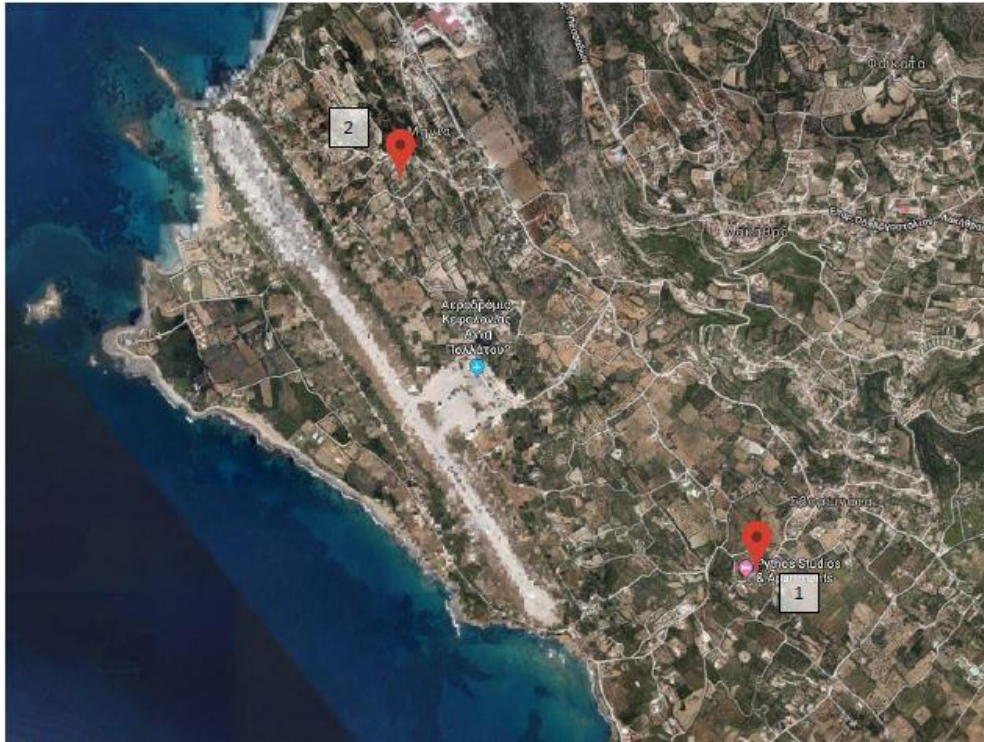
Have noise measurements at the airport's surrounding area been performed during the reference year? [YES/NO]		YES
<b>Measurement points</b>		
		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: 38° 06' 18" N 20° 30' 46" E	Ammes beach area, south of the runway in a hotel garden.	
2) Position: 38° 06' 41" N 20° 31' 04" E	Livathou area, south-east of the runway in the garden of a hotel	
3) Position: 38° 07' 41" N 20° 29' 56" E	Minies area, to the east of the runway, at the yard of a private house.	
<b>Measurement period</b>	03.09.2018 -04 09.2018	
<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

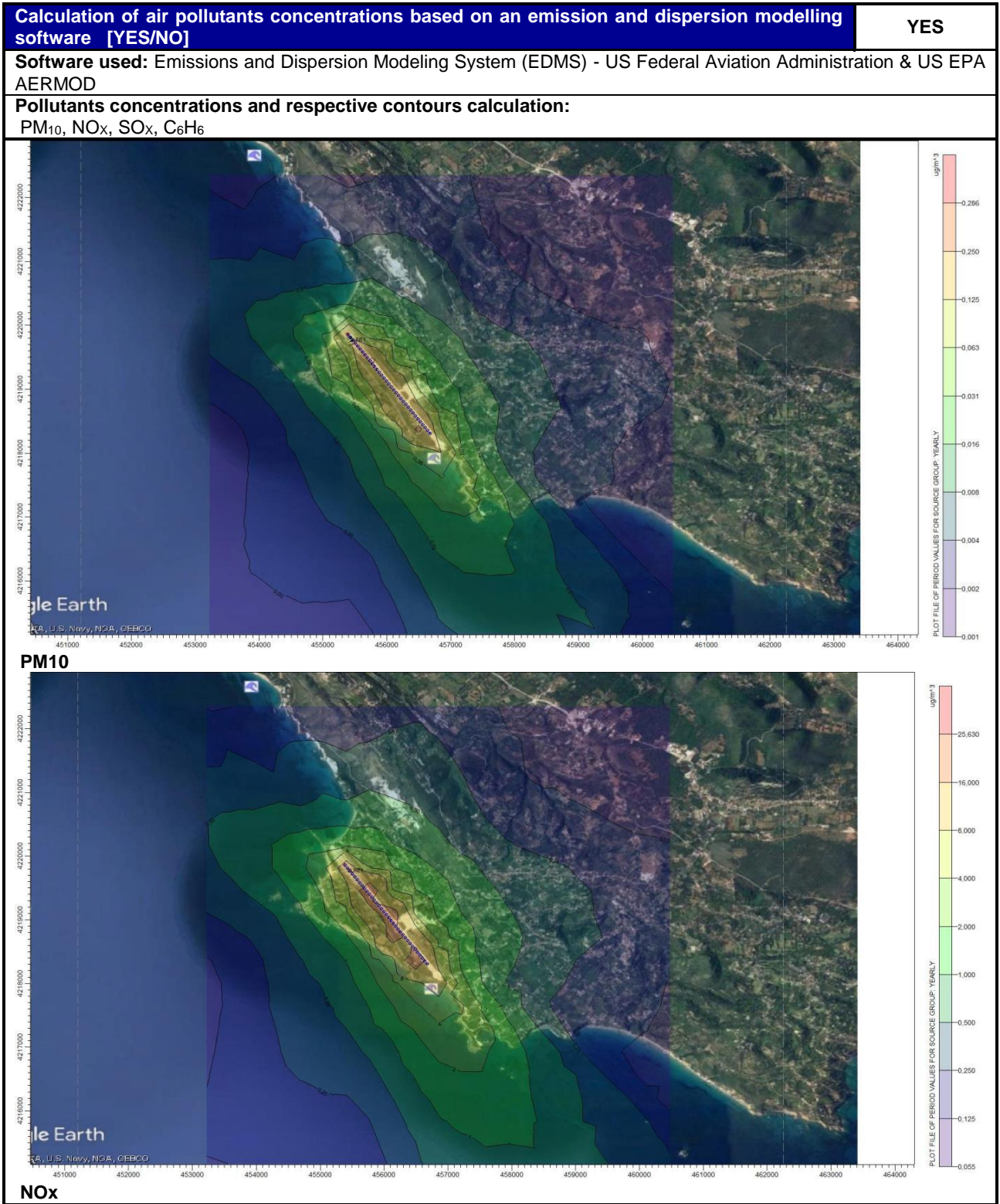
<b>Aircraft noise levels calculation based on simulation software [YES/NO]</b>		YES
<b>Software used:</b> IMMI Noise Prediction Software		
<b>Noise indicators and respective contours calculation:</b>		Lden, Lnight
 <p style="text-align: center;"><b>Lden</b></p>	 <p style="text-align: center;"><b>Lnight</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 Lden = 70 dB(A) and Lnight = 60 dB(A).		

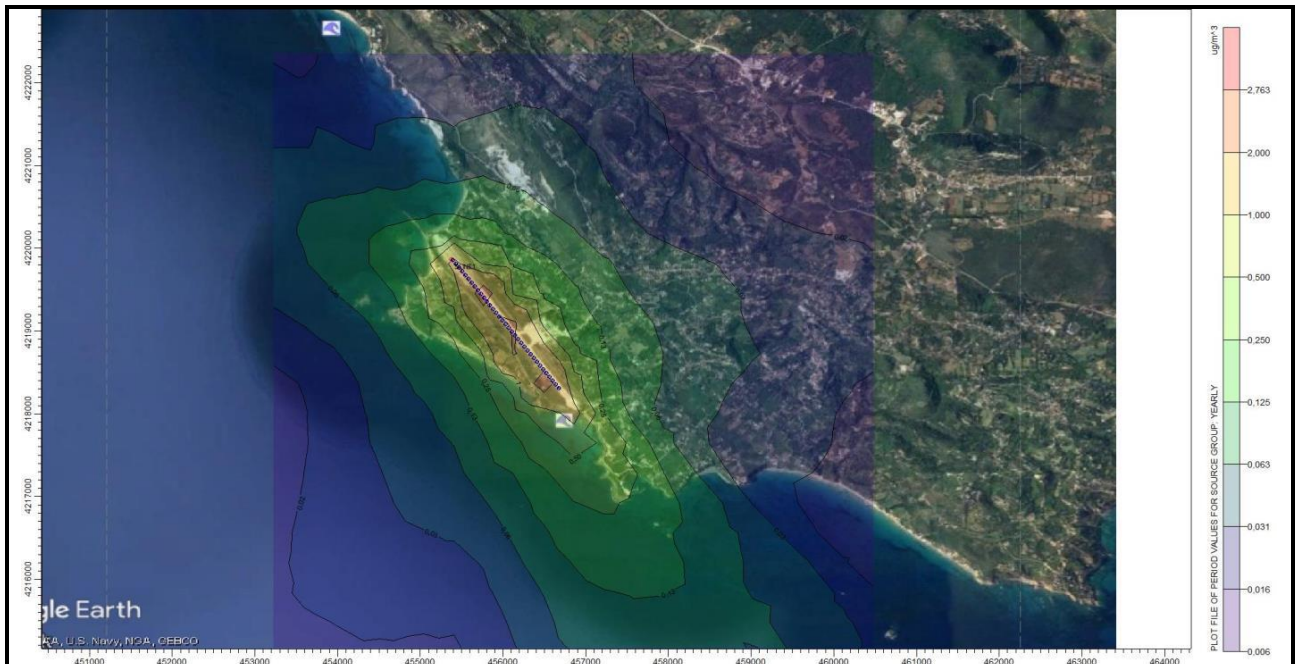
## 4. AIR QUALITY

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

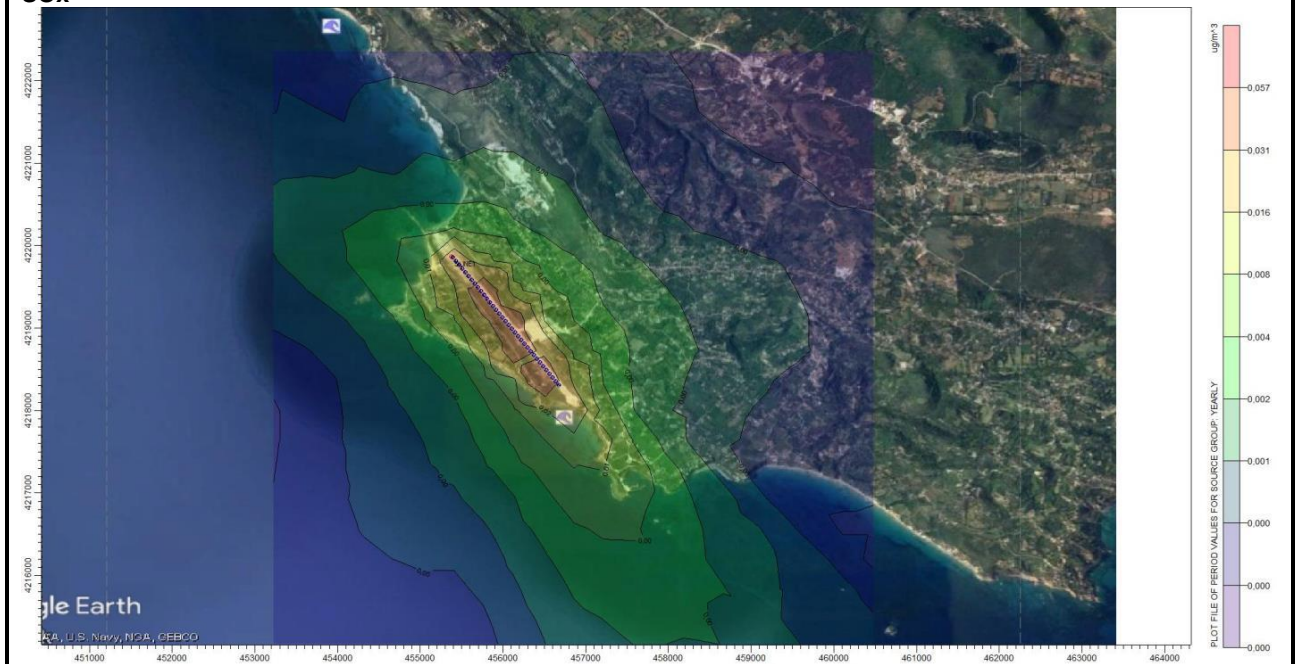
Have air quality measurements at the airport's surrounding area been performed during the reference year? [YES/NO]		YES
<b>Measurement points</b>		
		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: --° --' --" N --° --' --" E	At a distance of approximately 1 km, in the parking area of Pythos Studios & Apartments	
2) Position: --° --' --" N --° --' --" E	Minia settlement at a distance of approximately 500 meters from the airport.	
<b>Measurement period</b>	15.09.2018 - 22 09.2018	
<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





**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 Waste Management Company of Kefalonia and Ithaca (EDA-KI) S.A. Local Government Organizations
Recyclables	Collection and emptying of garbage bins by an FG contractor inside the airport	Collection and management by the Waste Management Company of Kefalonia and Ithaca (EDA-KI) S.A. Local Government Organizations
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 Kefalonia airport is located outside protected areas as per L. 3937/2011. However, its south part is adjacent to the coastal Special Area of Conservation (SAC) GR2220004 "Coastal marine zone from Argostoli to Vlachata (Kefalonia) and Mounda bay" of the Natura 2000 network.	
<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: The Kefalonia airport is adjacent to the coastal Special Area of Conservation (SAC) GR2220004 "Coastal marine zone from Argostoli to Vlachata (Kefalonia) and Mounda bay" of the Natura 2000 network, where individuals of monk seal, of a dolphin species and of the Caretta caretta turtle are found.	

## 6.2. Ecologically fragile areas

The Kefalonia airport is adjacent to the coastal Special Area of Conservation (SAC) GR2220004 “Coastal marine zone from Argostoli to Vlachata (Kefalonia) and Mounda bay” of the Natura 2000 network.

## 7. WILDLIFE HAZARD MANAGEMENT

Wildlife hazard management	
<b>Extent of the problem</b> (bird species):	<b>Birdstrikes</b>
Asio flammeus (short-eared owl)	1
Passer domesticus (house sparrow)	1
Hirundinidae spp. (swallow)	4
<b>Adopted measures :</b>	
<p>The following reports have been submitted to the Department of Airports Operation (D3/B) of the Hellenic Civil Aviation Authority:</p> <ol style="list-style-type: none"> <li>1. “Wildlife hazard risk identification and management, Fraport Regional Airports of Greece A S.A., Reference period: 11 April - 31 December 2017”</li> <li>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> </li> </ol>	
<b>Reference year summary results:</b>	
<p>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.</p>	

## 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	46,743.60
February	41,393.10
March	42,942.60
April	66,639.60
May	118,203.90
June	140,442.30
July	159,147.00
August	165,450.90
September	143,904.30
October	101,339.10
November	59,720.40
December	56,234.10
<b>Total annual electric energy consumption (in Kwh)</b>	<b>1,142,160.90</b>

### 9.2. Fuel consumption

Fuel consumption		
Number of FG vehicles at the airport	10	
Number of firefighting vehicles at the airport	3	
Total annual fuel consumption	Diesel (lt)	7701.21
	Unleaded gasoline (lt)	284.32

### 9.3. Heating oil or natural gas consumption

Heating oil or natural gas consumption	
Total annual heating oil consumption (lt)	15,004
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 - April	20,879
May - August	6,453
September - December	10,000*
<b>Total annual consumption</b>	<b>37,332* m<sup>3</sup></b>

\*Estimation



## 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)	40.0
Direct emissions from fuel used for fleet vehicles (scope 1)	11.5
Direct emissions from fuel used for firefighting vehicles (scope 1)	9.8
Direct emissions from fuel used for generators (scope 1)	0.2
Indirect emissions from electricity consumption (scope 2)	695.6
<b>Total (t)</b>	<b>757.1</b>
<b>Kg CO<sub>2</sub> /passenger</b>	<b>0.99</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
- The airport is planned to be certified according to ACA (Airport Carbon Accreditation)

## 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 Kefalonia
Is sampling of the airport's water network performed? <b>[YES/NO]</b>	YES
<b>(if YES)</b> 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 <b>within the legislative limits</b> 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
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### 13. GROUNDWATER MONITORING PROGRAM

Groundwater quality	
Is sampling of the airport's groundwater performed? <b>[YES/NO]</b>	YES
<b>(if YES)</b> 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)).	

### 14. SEWAGE TREATMENT & DISPOSAL

Sewage	
Sewage network to the municipal waste water treatment plant (WWTP)	NO
Autonomous airport's waste water treatment plant (WWTP)	YES
<b>Short description:</b>	
Blue water	
<b>Collection and disposal:</b> Collection in a tank and disposal for further treatment to the airport's WWTP	

Waste water treatment plant description (where applicable)	
<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	Secondary treatment
Treatment method	Prolonged ventilation
Disposal of treated wastewater	Irrigation in a tree-planted area
Sludge disposal	Landfill
Sampling frequency of WWTP effluent	Monthly
Parameters analysed	BOD, COD, SS, TN, TP, T. Coliforms, E.Coli, pH, residual Cl2
Summary of quality of WWTP effluent	The WWTP effluent observes the limits set out in JMD 145116/2001 and particularly Table 1 of the annex of limited irrigation