

# Environmental Bulletin of Santorini Airport (JTR)

## Reference year 2019

Fraport Greece

May 2020







Version Control

Version	Revision	Description of Revision	Date
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## 1. INTRODUCTION

### Location

The airport of Santorini is located at the east part of the Cycladic island of Santorini, near the settlement Monolithos, at a distance of approximately 6km to the south-east of the town of Thira (Fira), the capital of the island.

### Administration

The airport administratively belongs to the Municipal Unit of Thira of the Municipality of Thira of the homonym Regional Unit that belongs to the Region of South Aegean. The airport is within the limits of the Local Communities of Vothonas and Exo Gonia and of the Municipal Communities of Messaria, of the Municipal Unit of Thira.

### Environmental licensing

Approved Environmental Terms	
E.T. Decision Reference number	Ref. No οικ. 51227/25.10.2016
E.T. Amendment Decision Reference number	Ref. No οικ. 1758/23.01.2018

### 1.1. Airport Basic Data

Airport Basic Data					
Airport name IATA / ICAO	JTR / LGSR				
Airport position – Airport Reference Point (ARP)	Latitude: 36° 23' 57" N Longitude: 25° 28' 45" E				
Altitude:	37.5m				
Number of runways	1				
Operation hours (summer)	0:01-24:00				
Operation hours (winter)	Monday/Thursday/Friday 06:45 - 21:40 Tuesday 06:45 - 18:00 Wednesday/Sunday 10:45 - 21:40 Saturday 06:45 - 18:50				
Runways	Length / Width			Code	
Runway	2,125m x 30m			16L/34R	
Full length of parallel taxiway	16R/34L - 2,122m				
Number of taxiways	5				
Apron capacity	A	B	C	D	E
	-	-	4	1	-
Employees	High season (31.8.2019)			Low season (30.11.2019)	
Fraport Greece (FG) employees	42			35	
Employees of other companies	574			364	
Terminal					
➤ Total area (m <sup>2</sup> )	4,700				

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

Parking Areas	
Car parking spaces	260
Bus parking spaces	20
Taxi parking spaces	20

## 1.2. Airport Facilities

### 1.2.1. Fuel Handlers

Number of fuel handler companies	
Number of fuel handler companies operating at the Airport	2

Installations inside the airport		EKO	GISCO	HAFCO
Environmental Management System (EMS)	(YES/NO)	YES	YES	Not operating at the airport

### 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	4	102
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 <sup>1</sup>	21,319
Percent of increase or decrease in relation to the previous year	4.7%
Annual passenger traffic	2,300,408
Percent of increase or decrease in relation to the previous year	2.0%
Annual cargo transferred (tn)	170
Percent of increase or decrease in relation to the previous year	-5.05%

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

<b>Aircraft types</b>	
<b>Prevailing aircraft types for domestic flights</b>	
<b>Aircraft type</b>	<b>No. of flights</b>
AT75	2,188
DH8D	2,090
A320	2,046
B712	1,364
AT72	1,266
B73H	1,175
A321	802
A32A	386
B462	260
AT45	230
Other	1,611
<b>Prevailing aircraft types for international flights</b>	
<b>Aircraft type</b>	<b>No. of flights</b>
A320	1,799
B73H	1,451
A32A	946
B712	842
A319	682
A20N	318
A32B	306
B738	292
B73W	154
C56X	88
Other	1,023

## 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	3,533
Air traffic movements daily average number during the month with highest traffic	114

## 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	354
Air traffic movements daily average number during the month with lowest traffic	11



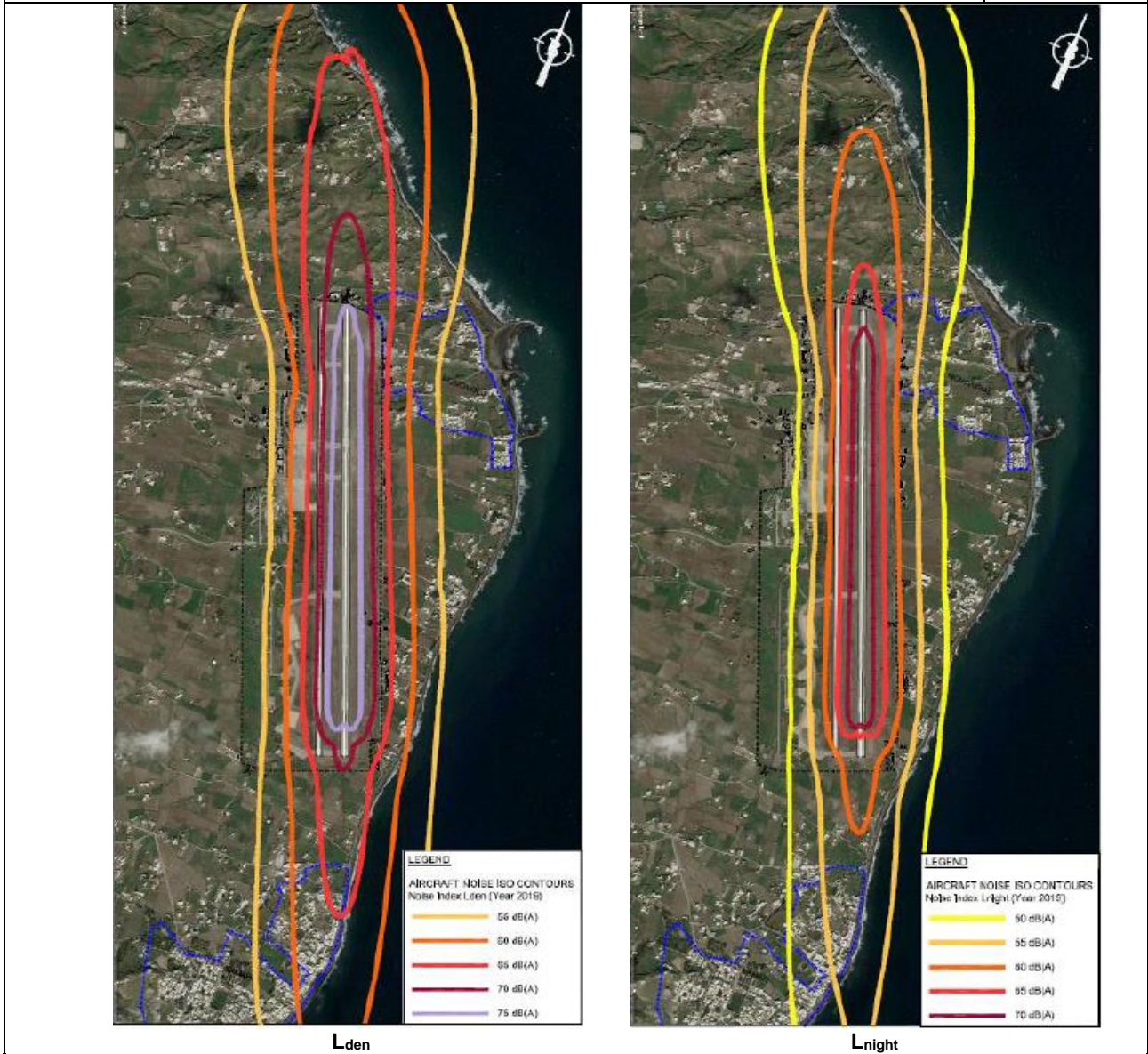
### 3. AIRCRAFT NOISE

#### 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: 36° 23' 00" N 25° 29' 07" E	Kamari area, south of the runway on a hotel roof. Affected by arrivals RWY 34R and departures RWY 16L.	
2) Position: 36° 25' 14" N 25° 28' 11" E	North of the runway on a hotel roof. Affected by arrivals RWY 16L and departures RWY 34R.	
3) Position: 36° 24' 40" N 25° 28' 55" E	Monolithos area, east of the runway in the garden of a hotel. Affected by all flights to and from all directions	
<b>Measurement period</b>	03.08.2019 – 04.08.2019	
<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>	<b>YES</b>
<b>Software used:</b> IMMI Noise Prediction Software (CNOSSOS EU assessment method based on Directive 2015/996/EU)	
<b>Noise indicators and respective contours calculation:</b>	L <sub>den</sub> , L <sub>night</sub>



**Summary of results:**

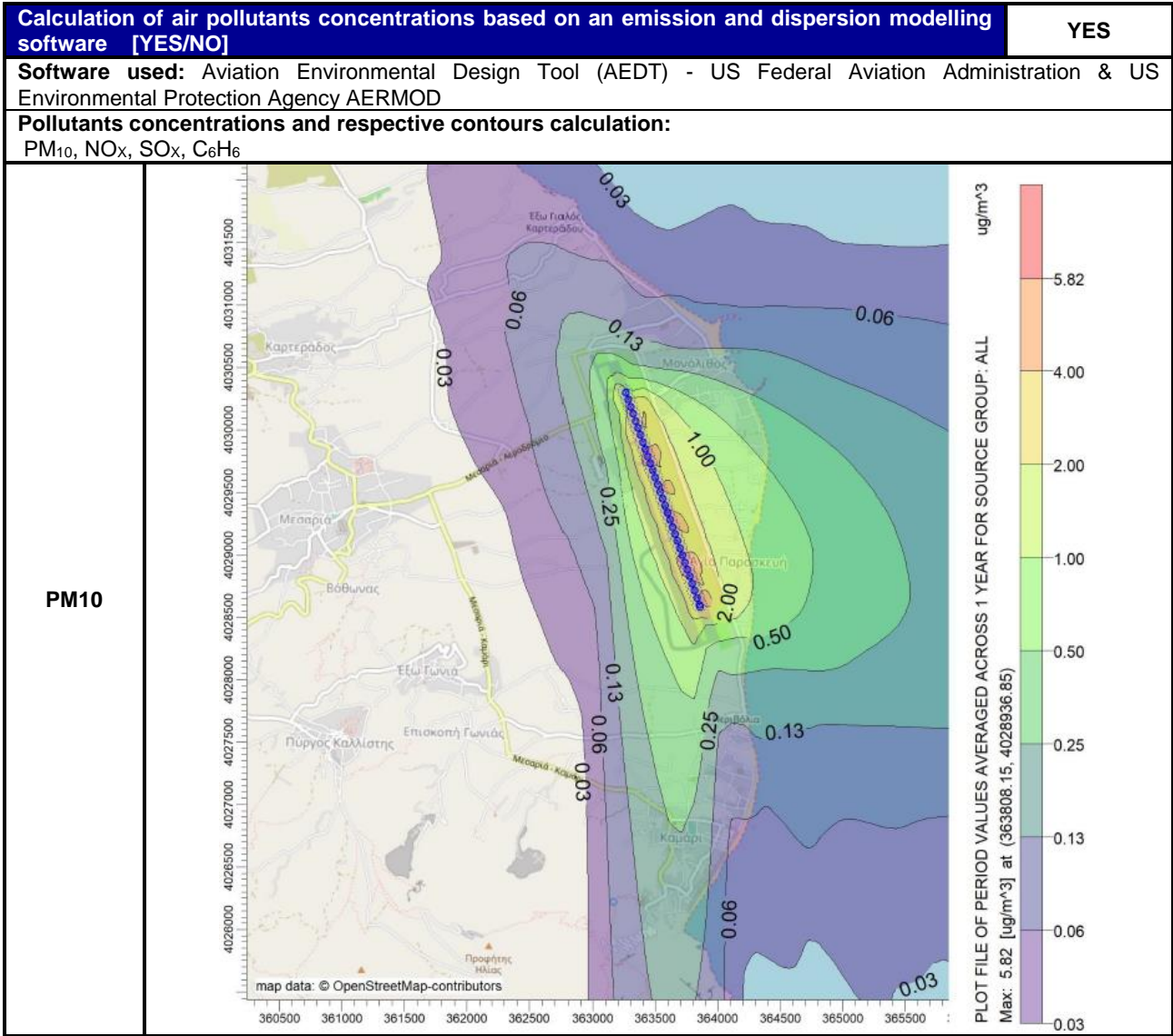
For the year 2019 some residential buildings inside official settlement boundaries in the vicinity of the airport are exposed to noise levels higher than the limit L<sub>night</sub> = 60 dB(A). No exceedance of the L<sub>den</sub> = 70 dB(A) indicator was recorded.

## 4. AIR QUALITY

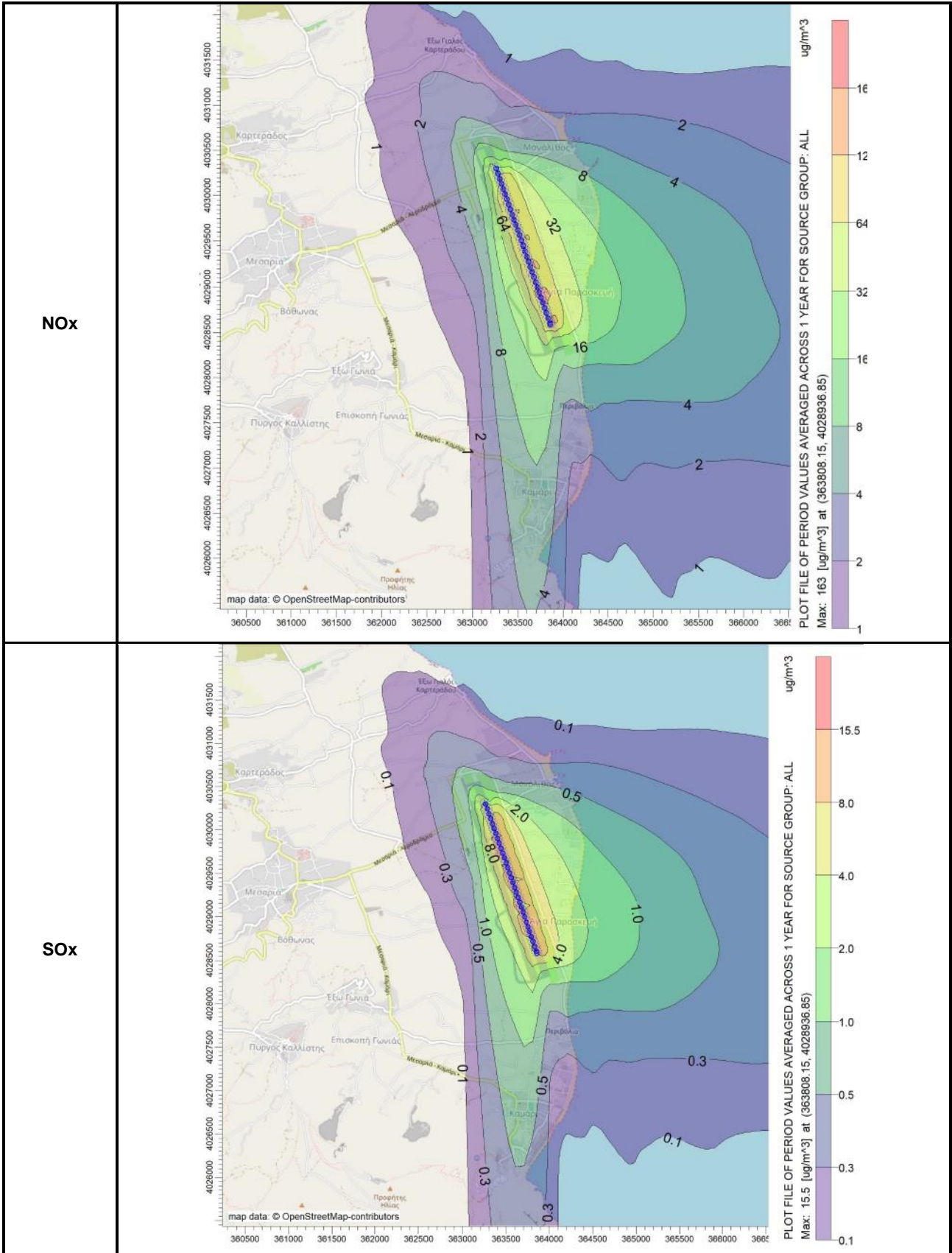
### 4.1. Air quality measurements during the reference year

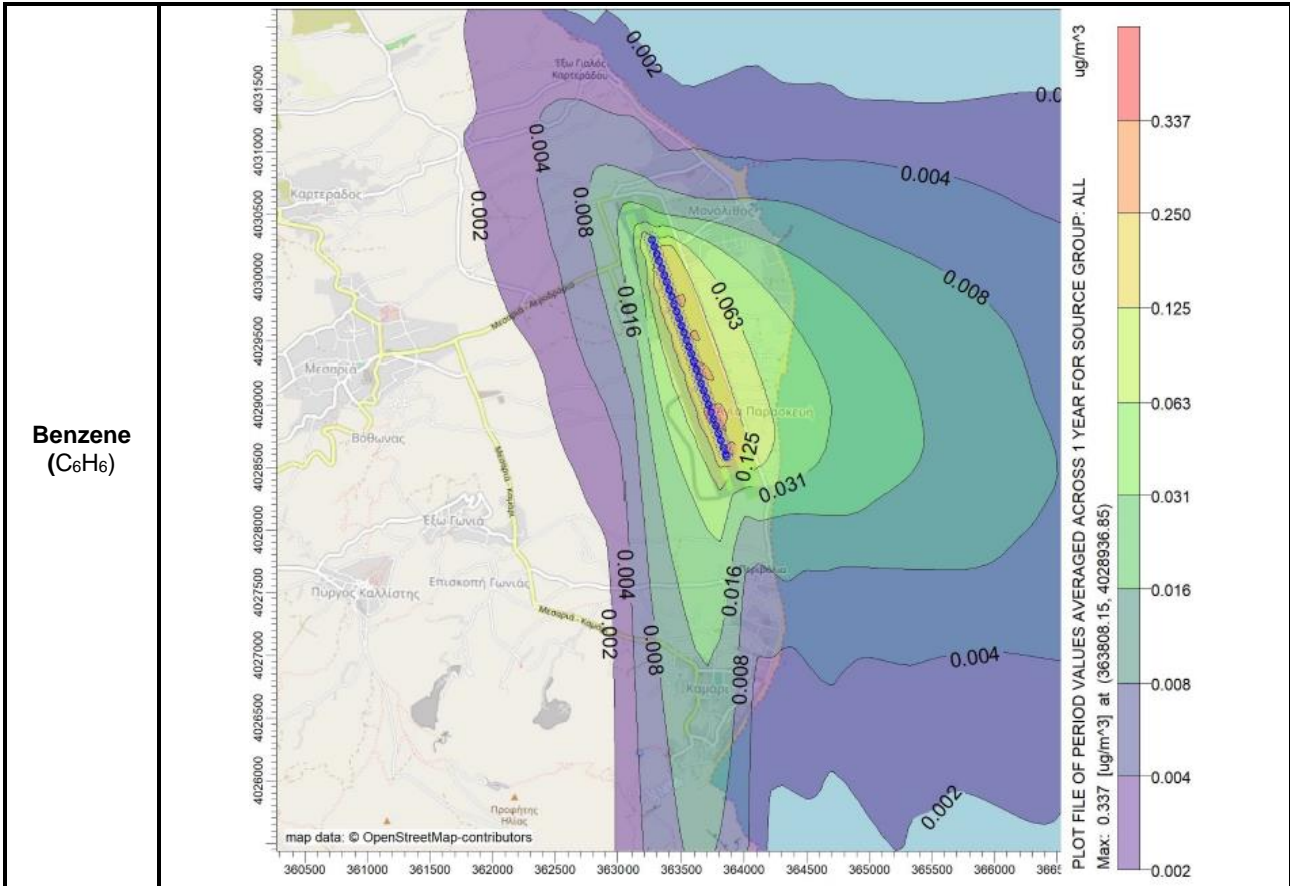
<b>Have air quality measurements at the airport's surrounding area been performed during the reference year? [YES/NO]</b>		<b>NO*</b>
<b>Measurement points</b>		
N/A		
<b>Measurement points coordinates</b>	<b>Measurement points description</b>	
1) Position: --° --' --" N --° --' --" E	N/A	
2) Position:       --°   --'   --" N --° --' --" E	N/A	
<b>Measurement period</b>	N/A	
<b>Pollutants measured: N/A</b>		
<b>Summary of measurement results:</b>		
<p>*Fraport Greece, during the years 2018-2019, has implemented a noise &amp; 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.</p> <p>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.</p> <p>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 &amp; Energy, with proposals for the most suitable in terms of effectiveness, air pollution &amp; noise monitoring program for the years ahead.</p>		

4.2. Air pollutants emission and dispersion modelling









**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 Thira	Disposal at material recovery facility or transshipment for recycling
Residues (Mixed Waste) and Bulky Waste	Collection by the Municipality of Thira (landside) and licensed private company (airside)	Disposal in Santorini landfill

**Σημειώσεις:**

- 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.
- 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

Waste management		
Waste	Collection	Management/Disposal
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	
<b>Flora</b>	
Are there protected zones of vegetation/habitats in the broader airport area? [YES/NO]	NO
(If YES) Short description:	
<b>Fauna</b>	
Are there protected zones of fauna/birds in the broader airport area? [YES/NO]	NO
(If YES) Short description:	

### 6.2. Ecologically fragile areas

The airport is located outside the limits of the protected areas included in the National Protected Areas Network.

The NATURA 2000 network area that is closest to the airport is the area called "Santorini: New and Old Kameni – Profitis Ilias" (GR4220003) at a horizontal distance of approximately 1km to the south of the airport.

## 7. WILDLIFE HAZARD MANAGEMENT

Wildlife hazard management	
Extent of the problem (animal species):	Strikes (%)
<i>Larus michahellis</i> (Yellow-legged gull)	18%
<i>Corvus cornix</i> (Hooded crow)	18%
<i>Falco tinnunculus</i> (Common kestrel)	12%
<i>Columba livia</i> (Pigeon)	12%
<i>Pluvialis apricaria</i> (Golden plover)	6%
<i>Streptopelia decaocto</i> (Collared dove)	6%
<i>Falco subbuteo</i> (Eurasian hobby)	6%

<i>Athene noctua</i> (Little owl)	6%
<i>Burhinus oedicephalus</i> (Eurasian stone-curlew)	6%
<i>Passer domesticus</i> (House sparrow)	6%
<i>Tyto alba</i> (Barn owl)	6%
<b>Adopted measures :</b>	
<ul style="list-style-type: none"> <li>• 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</li> <li>• Systematic grass cutting at the airside</li> <li>• Fence maintenance</li> <li>• 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 &amp; Energy “Monitoring and trapping birds and mammals population at the 14 regional airports operated by Fraport Greece” (Permit: 165654/142, 12/2/2018)</li> <li>• 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</li> <li>• Seminar awareness video on the identification and safe removal of reptiles and information about the snake species at Santorini, under the collaboration with the Lalitsa Non-Profit Association</li> <li>• Awareness video on the safe handling of stray dogs</li> </ul>	
<b>Reference year summary results:</b>	
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.	

## 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
Total annual electric energy consumption (in Kwh)	2,043,396

### 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)	146.44
	Unleaded gasoline (lt)	20,623
	LPG(lt)	309

### 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 cooling is achieved via heat pumps

### 9.4. Water consumption

Water consumption	
Period	Consumption [m <sup>3</sup> ]
Total annual consumption	10,860

## 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)
	2019
Direct emissions from heating fuel (scope 1)	0.0
Direct emissions from fuel used for fleet vehicles (scope 1)	79,0
Direct emissions from fuel used for firefighting vehicles (scope 1)	10,6
Direct emissions from fuel used for generators (scope 1)	24,4
Indirect emissions from electricity consumption (scope 2)	1,303.7
<b>Total (t)</b>	<b>1,417.7</b>
<b>Kilos CO<sub>2</sub>/ passenger</b>	<b>0.62</b>

### Notes:

Fraport Greece B 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)	Airport boreholes
Is sampling of the airport's water network performed? <b>[YES/NO]</b>	YES
<b>(if YES)</b> Sampling frequency:	Quarterly
<p><b>Summary of results:</b> The results of the chemical analyses show that the water supplied from the boreholes of the airport <b>is not potable</b> due to the existence of high concentrations of Sodium and Chlorine (brackish water) and Arsenic (due to volcanic rocks). The rest of 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.</p>	

## 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
<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.		

\*Oil separators installation is planned by the end of Imminent Works

## 13. GROUNDWATER MONITORING PROGRAM

Groundwater quality	
Is sampling of the airport's groundwater performed? [YES/NO]	YES
(if YES) 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> Groundwater quality is monitored according to the airport's monitoring program. The results of the analyses from the airport's borehole indicate that no pollution is present. Due to the high depth of the aquifer it was not possible to take water samples from the fuel handler's monitoring boreholes. According to the fuel handler's environmental monitoring reports and based on the limits set in various European countries in the absence of legislative EU limits and relevant national specifications/limits, the environmental condition of soil-gas is adequate and no remediation 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
<b>Short description:</b>	
<b>Blue water</b>	
<b>Collection and disposal:</b> Collection in septic 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>	
<b>Degree of treatment of airport's WWTP</b>	N/A
<b>Treatment method</b>	N/A
<b>Disposal of treated wastewater</b>	N/A
<b>Sludge disposal</b>	N/A
<b>Sampling frequency of WWTP effluent</b>	N/A
<b>Parameters analysed</b>	N/A
<b>Summary of quality of WWTP effluent</b>	N/A