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COMISIÓN DE
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AVIACIÓN **C**IVIL

Report A-018/2011

Accident involving
a CESSNA 182 T aircraft,
registration SP-CFM,
at the Asturias airport,
on 6 June 2011



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DE ESPAÑA

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SUBSECRETARÍA

COMISIÓN DE INVESTIGACIÓN
DE ACCIDENTES E INCIDENTES
DE AVIACIÓN CIVIL

Edita: Centro de Publicaciones
Secretaría General Técnica
Ministerio de Fomento ©

NIPO: 161-12-120-1

Diseño y maquetación: Phoenix comunicación gráfica, S. L.

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Foreword

This report is a technical document that reflects the point of view of the Civil Aviation Accident and Incident Investigation Commission (CIAIAC) regarding the circumstances of the accident object of the investigation, and its probable causes and consequences.

In accordance with the provisions in Article 5.4.1 of Annex 13 of the International Civil Aviation Convention; and with articles 5.5 of Regulation (UE) n.º 996/2010, of the European Parliament and the Council, of 20 October 2010; Article 15 of Law 21/2003 on Air Safety and articles 1., 4. and 21.2 of Regulation 389/1998, this investigation is exclusively of a technical nature, and its objective is the prevention of future civil aviation accidents and incidents by issuing, if necessary, safety recommendations to prevent from their reoccurrence. The investigation is not pointed to establish blame or liability whatsoever, and it's not prejudging the possible decision taken by the judicial authorities. Therefore, and according to above norms and regulations, the investigation was carried out using procedures not necessarily subject to the guarantees and rights usually used for the evidences in a judicial process.

Consequently, any use of this report for purposes other than that of preventing future accidents may lead to erroneous conclusions or interpretations.

This report was originally issued in Spanish. This English translation is provided for information purposes only.

Table of contents

Abbreviations	vi
Synopsis	vii
1. Factual information	1
1.1. History of the flight	1
1.2. Injuries to persons	3
1.3. Damage to aircraft	3
1.4. Other damage	3
1.5. Personnel information	4
1.6. Aircraft information	4
1.7. Meteorological information	4
1.8. Aids to navigation	6
1.9. Communications	6
1.10. Aerodrome information	9
1.11. Wreckage and impact information	11
1.12. Medical and pathological information	15
1.13. Organizational and management information	15
2. Analysis	17
2.1. History of the operation	17
2.2. Organizational and management aspects	18
3. Conclusions	19
3.1. Findings	19
3.2. Causes	20
4. Safety recommendations	21
Appendix	23
Appendix A. SCAA Comments	25

Abbreviations

00°	Degrees of latitude/longitude
00 °C	Degrees centigrade
ACC	Air Control Center
AEMET	Agencia Estatal de Meteorología (National Weather Office)
AENA	Aeropuertos Españoles y Navegación Aérea
AGL	Above Ground Level
AMSC	Above Mean Sea Level
APCH	Approach
ATC	Air Traffic Control
ATS	Air Traffic Service
CIAIAC	Comisión de Investigación de Accidentes e Incidentes de Aviación Civil
CTR	Control Traffic Region
E	East
ELT	Emergency Locator Transmitter
ft	Feet
HVAC	Heating, Ventilation and Air Conditioning
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument landing System
IMC	Instrument Meteorological Conditions
km	Kilometer(s)
kt	Knots
LEAS	ICAO location indicator for the Asturias Airport
LEBB	ICAO location indicator for the Bilbao Airport
LCA	ILS Localizer Critical Area
LECO	ICAO location indicator for the La Coruña Airport
LESO	ICAO location indicator for the San Sebastian Airport
LEXJ	ICAO location indicator for the Santander Airport
LVP	Low Visibility Procedure
LPVL	ICAO location indicator for the Maia (Portugal) Airport
LSA	Loss of Situational Awareness
m	Meter(s)
mb	Millibar(s)
MCP	Main Command Post
METAR	METEorological Aerodrome Report
MHz	Megahertz
N	North
NE	North-East
NM	Nautical Miles
PPL(A)	Private Pilot License (Airplane)
QNH	Barometric pressure adjusted to sea level
RVR	Runway Visual Range
SAR	Search and Rescue
SCAAI	State Commission on Aircraft Accidents Investigation (Poland)
TDZ	Touchdown Zone
TMA	Terminal Area
UTC	Coordinated Universal Time
VFR	Visual Flight Rules
VHF	Very High Frequency
VOR	VHF Omnidirectional Range
W	West

Synopsis

Owner and operator:	Private
Aircraft:	CESSNA 182 T
Date and time of accident:	6 June 2011; 14:00 ¹ (local time)
Site of accident:	Asturias Airport
Persons onboard:	2, killed (pilot and passenger)
Type of flight:	General Aviation. Private
Date of approval:	19 September 2012

Summary of accident

The CESSNA 182 aircraft, registration SP-CFM, had left from the San Sebastian Airport (LESO) at 12:26 en route to the Maia Airport (LPVL), located in Vilar da Luz (Portugal). It was flying under visual flight rules (VFR) and was using the coast as a reference. Its alternate airports were listed as Santander (LEXJ) and La Coruña (LECO). The flight plan filed included another CESSNA 182 aircraft, registration SP-CUT, which took off two minutes later and followed SP-CFM. Along with these two aircraft there was another airplane, a CIRRUS SR22, registration SP-AVD, that had taken off two minutes earlier.

At 13:51 they were in the vicinity of the Asturias Airport (LEAS), whose Low Visibility Procedure (LVP) had been in effect since 08:38 due to fog. The LVP was lifted at 18:10. At 13:57, the tower made contact with aircraft SP-CFM, reported a QNH of 1,009 and asked it to confirm that they were flying along the coastline at 2,000 ft. The aircraft reported that it was flying at 1,800 ft and descending to point VES. The tower requested it to report passing north of the airfield and not to fly over the airport's VOR.

At 13:57:16, the tower made contact with aircraft SP-CFM, and two minutes later it informed SP-CFM that the airport was in low visibility conditions (IMC).

At 14:00, the tower called both aircraft, first SP-AVD and then SP-CFM, without receiving a reply from either.

At 14:01, the tower told the airport firefighters that there had been an accident on the apron. It then told aircraft SP-CUT to return to Santander.

¹ Unless otherwise specified, all times in this report are local. To obtain UTC, subtract two hours from local time.

Moments later the firefighters confirmed that aircraft SP-CFM had in fact crashed at the airport and that its two occupants had been killed on impact.

The investigation concluded that the cause of the accident was the aircraft entering IMC without its occupants being rated for IFR flight, resulting in spatial disorientation due to a lack of visibility.

1. FACTUAL INFORMATION

1.1. History of the flight

The CESSNA 182 aircraft, registration SP-CFM, had taken off from the San Sebastian Airport (LESO) at 12:26 en route to the Maia Airport (LPVL), located in Vilar da Luz (Portugal). It was flying under visual flight rules (VFR) using the coast as a reference. The alternate airports were Santander (LEXJ) and La Coruña (LECO). The flight plan filed included another CESSNA 182 aircraft, registration SP-CUT, which took off two minutes later and followed SP-CFM. Along with these two aircraft there was another airplane, a CIRRUS SR22, registration SP-AVD, that had taken off two minutes earlier.

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At 14:00, the tower called both aircraft, first SP-AVD and then SP-CFM, without receiving a reply from either.

At 14:01 the tower told the airport firefighters that there had been an accident on the apron. It then told aircraft SP-CUT to climb and return to Santander.

Moments later the firefighters confirmed that aircraft SP-CFM had in fact crashed at the airport and that its two occupants had been killed on impact.

At 14:08 the Asturias Airport called the emergency number (112) to report that a small airplane had crashed at the airport. By the time the Asturias firefighters arrived at the airport, the airport firefighters were already on the scene.

The airport has an emergency plan that was last revised on 15 October 2008. The plan envisages situations involving aircraft in or near the airport (on land or in the water).

This plan was activated at 14:01, when the accident of the aircraft was reported. The Main Command Post (MCP) was dispatched to the location of the airplane. One minute later, the MCP notified Civil Guard and National Police personnel stationed at the airport, the airport's medical services and the 112 emergency telephone number.

By 14:18 the airport's maneuvering area had been checked and deemed operable.

At 14:57, the MCP was informed by Santander Airport Operations of the return of aircraft SP-CUT.

Airport operations resumed at 15:50.

The emergency plan was lifted at 16:16.

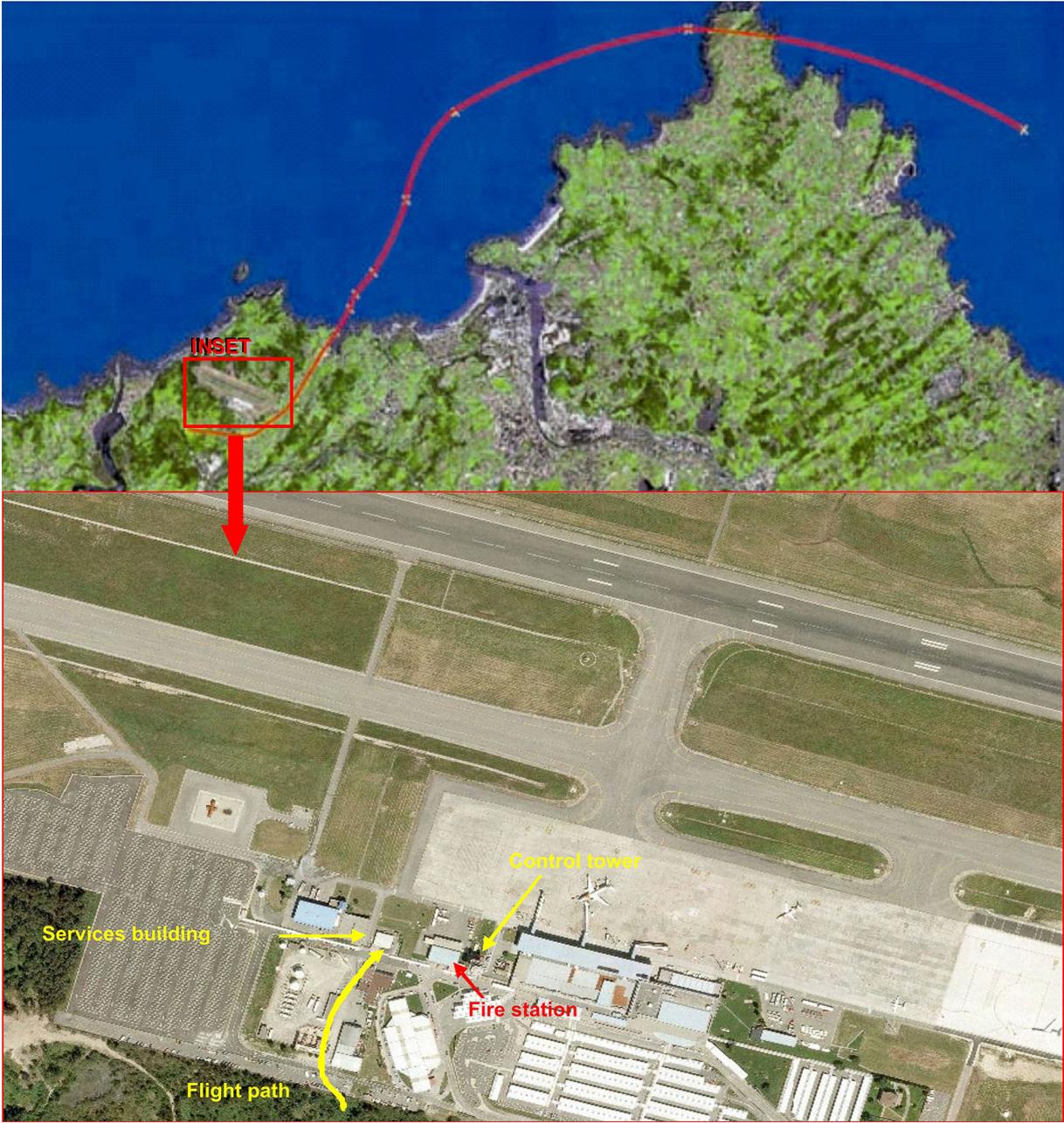


Figure 1. Radar track and last moments of the aircraft trajectory

1.2. Injuries to persons

Injuries	Crew	Passengers	Total in the aircraft	Others
Fatal	1	1	2	
Serious				
Minor				Not applicable
None				Not applicable
TOTAL	1	1	2	

1.3. Damage to aircraft

The aircraft was destroyed on impact. It broke into three parts, the tail cone, wings and fuselage, which were thrown forward, forming a triangular shape.

1.4. Other damage

The aircraft struck the HVAC equipment of the airport's services building, tearing it away from its support structure (figure 2).

It also struck the edge of the roof, breaking the wall and the sheet metal covering it. Part of the HVAC equipment fell on the lawn located next to the building's entrance.

Following the initial impact, the airplane continued moving and damaged patches of grass in the lawn next to the airport apron. On the apron itself were several marks left by the wing and the fuselage.



Figure 2. Photograph of damage to the services building roof

1.5 Personnel information

The pilot, age 49, had a private pilot license (PPL(A)), a linguistic competency certificate and a medical certificate, all of them valid and issued by Poland's aviation Authority.

He had a total of 486 flight hours, of which 33 had been on the type.

The passenger, age 64, had a private pilot license (PPL(A)), a linguistic competency certificate and a medical certificate, all of them valid and issued by Poland's aviation Authority.

He had a total of 1,407 flight hours, of which 187 had been on the type.

Neither one was rated for instrument flight.

1.6. Aircraft information

The CESSNA 182 T, registration SP-CFM and serial number 18282007, was outfitted with a Lycoming Textrom IO-540-AB1A5 engine and a McCauley B3D36C propeller.

It had a valid airworthiness certificate issued by Poland's aviation Authority and it had passed all of its maintenance inspections.

The aircraft was equipped for instrument flight.

1.7. Meteorological information

The national weather agency (AEMET) reported that the most likely weather at the accident site was light winds on the surface from the north-northwest in Asturias and from the west-northwest in Cantabria and the Basque Country.

There was instability aloft (500-mb isobar) over almost the entire peninsula except in the northeast. On the surface, a mass of cold air moved in gradually from Galicia to the east over the course of the day.

As a consequence of this situation, there was considerable instability at the Asturias Airport, which worsened as the day progressed due to cold air moving in from the west and to ocean winds in the area. This resulted in a layer of low clouds and persistent drizzle that gave rise to low visibility and even fog, reducing visibility below 1 km in places. At the time of the accident the wind was from 340° at 8 kt. The temperature was 14 °C and the dew point was 14 °C.

In Cantabria and the Basque Country the instability was greater throughout the day, with precipitation at various times in the morning and afternoon, but not constant as in Asturias. Visibility conditions were also better at the airports of Santander (in excess of 3 km), Bilbao (in excess of 6 km) and San Sebastian (from 4 to 8 km).

The graph in figure 3 shows the cloud ceiling present at the various airports along the aircraft's path from 06:00 (UTC) until 16:00 (UTC).

The graph in figure 4 shows the visibility at those airports for the same time period.

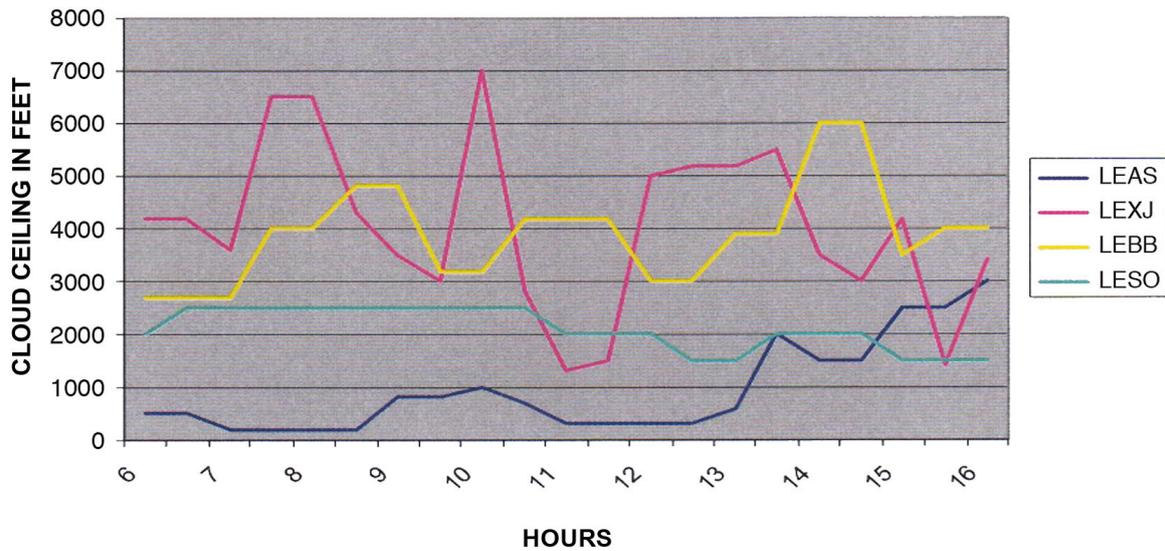


Figure 3. Cloud ceiling at the various airports

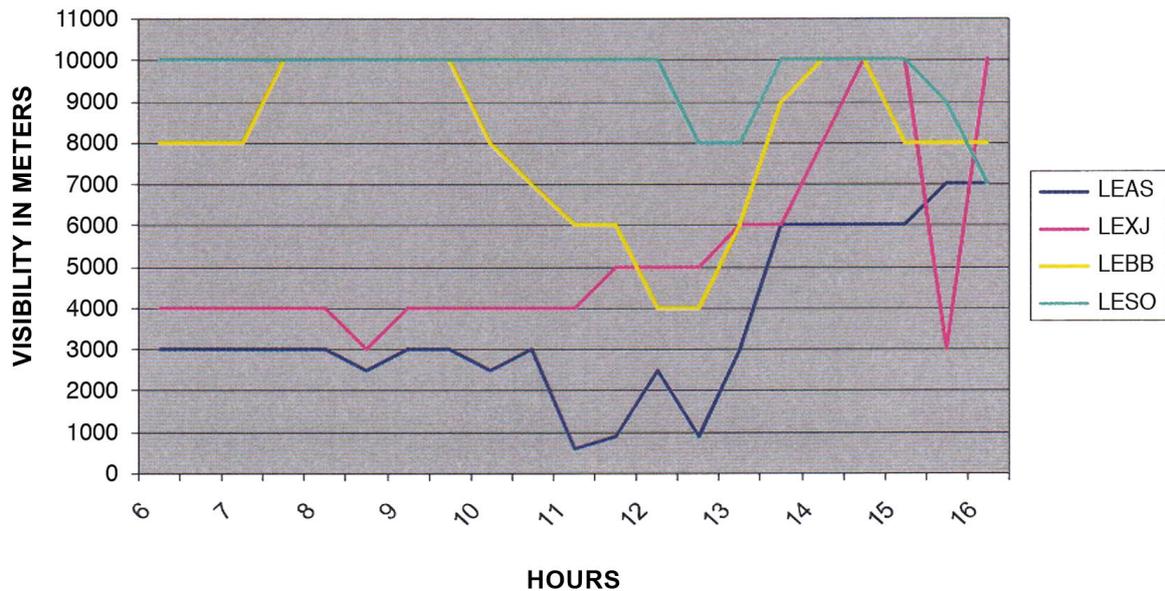


Figure 4. Visibility at the various airports

The METAR reports for the Asturias Airport issued between 13:30 and 14:30 contained the following information:

At 13:30

Wind from 330° at 10 kt gusting to 20 kt, varying in direction between 280° and 020°. Horizontal visibility 600 m. Local visibility on runway 29 varying between 900 and 1,500 m. Local visibility on runway 11 255 m, no change. Fog. Rain. Scattered clouds at 200 ft. Very cloudy skies at 300 ft. Temperature 15 °C, dew point 15 °C. QNH 1,009. Fluctuating visibility at 2,000 m and light rain.

At 14:00 h

Wind from 340° at 8 kt varying in direction between 270° and 030°. Horizontal visibility 800 m. Local visibility on runway 11 200 m., no change. Mist. Rain. Fog over part of the aerodrome. Scattered clouds at 200 ft. Cloudy skies at 300 ft. Temperature 14 °C, dew point 14 °C. QNH 1,009. Fluctuating visibility at 2,000 m and light rain.

At 14:30

Wind from 360° at 5 kt varying in direction between 260° and 060°. Horizontal visibility 900 m. Local visibility on runway 29 varying between 900 and 1,600 m. Local visibility on runway 11 varying between 250 m and 350 m, no change. Rain. Scattered clouds at 200 ft. Cloudy skies at 300 ft. Temperature 15 °C, dew point 15 °C. QNH 1,009. Fluctuating visibility at 2,000 m and light rain.

1.8. Aids to navigation

The flight took place under visual flight rules (VFR), and the crew was not rated for instrument flight. There is no reason to believe that they made use of any of the available aids.

The flight was not under ATC control, meaning that ATC only provided flight information. ATC did have radar information on the flight, however, which allowed it to track the aircraft.

1.9. Communications

The following table shows a summary, in chronological order, of the most relevant communications between various ATC stations and the three aircraft.

Time	Frequency	Station	Message
12:24:16 12:26:43 12:28:53	119.85 MHz	LESO, SP-AVD, SP-CFM and SP-CUT	Respective takeoff clearances.
12:31:34	119.85 MHz	SP-AVD, SP-CFM and LESO	At ATC's request, both aircraft confirm they are flying along the coastline.
12:33:33	Telephone	LESO and LEBB	San Sebastian ATC calls Bilbao ATC to report that the three aircraft are en route to Portugal along the coastline and SP-CFM is replying for itself and for SP-CUT. Bilbao ATC is surprised to hear of the flights given the weather conditions (<i>"What are they doing flying in this pea soup?"</i>)
12:39:47	120.7 MHz	SP-AVD, SP-CFM and LEBB Approach	SP-AVD replies to ATC's questions and confirms it is flying along the coastline. ATC reports QNH 1008 and winds calm.
12:41:03	120.7 MHz	SP-CFM, and LEBB Approach	SP-CFM replies to ATC's questions and confirms it is flying along the coastline. ATC reports QNH 1,008 and tells the pilot the frequency for contacting Santander is 118.37 Mhz. ATC then calls SP-AVD to inform them of Santander's frequency.
12:47:48	Telephone	LEBB and LEXJ	Bilbao ATC informs Santander ATC that the three airplane are flying along the coast and that they will have to fly below 2,000 ft due to clouds.
12:59:00	118.37 MHz	SP-AVD and LEXJ	SP-AVD checks in and confirms it is flying along the coastline at 1,500 ft. ATC reports QNH 1,008 and runway in use is 11.
13:00:40	118.37 MHz	SP-AVD and LEXJ	ATC reports QNH 1,008 and runway in use is 11. SP-AVD requests weather for Asturias.
13:02:07	118.37 MHz	SP-AVD and LEXJ	ATC reports calm winds, visibility 3,400 m, fog west of runway 11, scattered clouds at 2,000 ft and broken at 3,000 ft. Temperature 15 °C, dew point 15 °C and QNH 1,009 with rain. AP-AVD requests weather for La Coruña.
13:02:50	118.37 MHz	SP-AVD and LEXJ	ATC reports winds from the north at 10 kt, visibility 3,700 m, fog, few clouds at 100 ft, broken at 300 ft and at 1,300 ft, temperature 14 °C, dew point 14 °C and QNH 1,001. SP-AVD replies: <i>"Oh! That means it's horrible!"</i>
13:03:42	118.37 MHz	SP-CFM and LEXJ	SP-CFM checks in and confirms it is continuing with its visual flight plan. ATC replies, confirms radar contact and instructs it to continue flying along the coastline and to report at various points.
13:15:37	118.37 MHz	SP-CUT and LEXJ	SP-CUT contacts ATC, which instructs it to continue flying along the coastline. ATC asks to report at various points.
13:21:02	Telephone	LEXJ and ACC Madrid	LEXJ Tower reports that there are three airplanes crossing to the west at 1,500 ft or less and asks about transferring them to the Asturias Tower. Madrid ACC replies to keep them on their frequency.

Report A-018/2011

Time	Frequency	Station	Message
13:38:45	Telephone	LEAS and ACC Madrid	Madrid ACC calls Asturias ATC to report two incoming aircraft, registrations SP-AVD and SP-CFM, flying at 1,500 ft and 1,800 ft. Asturias ACC says that weather conditions are very bad and that they do not think they can go through there, except maybe along the coastline.
13:43:36	118.15 MHz	TGM161K and LEAS	TGM161K reports to Asturias ATC that the clouds are at 6,500 ft, after being asked by ATC.
13:44:20	126.675 MHz	LEAS and ACC Madrid	Asturias ACC calls Madrid ACC in order them to inform the "two planes" that the clouds start at 6,500 ft and extend all the way down.
13:51:03	118.15 MHz	SP-AVD and LEAS	SP-AVD contacts the Asturias Tower to report its position 10 NM E of the field, requests weather information, runway in use and wind data. It then reports that there are two aircraft behind it, SP-CFM and SP-CUT. ATC provides the information requested as well as the QNH, and explicitly informs that the airport is under low visibility conditions. It also asks if they are flying along the coast and requests that they report passing north of the airfield.
13:54:23	118.15 MHz	SP-AVD and LEAS	SP-AVD reports being over point N.
13:56:35	118.15 MHz	SP-AVD and LEAS	SP-AVD requests QNH information.
13:57:13	118.15 MHz	SP-CFM and LEAS	ATC reports QNH 1,009 and requests confirmation that it is flying along the coastline at 2,000 ft. SP-CFM reports it is flying at 1,800 ft descending to point VES. ATC asks that it report passing north of the airfield and not to fly over the airport's VOR.
13:59:16	118.15 MHz	SP-CFM and LEAS	The airport reports low visibility conditions.
13:59:26	118.15 MHz	SP-CUT and LEAS	ATC contacts SP-CUT and requests its altitude. SP-CUT replies 1,500 ft. ATC confirms the low visibility conditions at the airport.
14:00:37	Telephone	LEAS and Airport Operations	The tower informs airport Operations that they heard a noise and that SP-CFM may have crashed in the airport. It asks that they call emergency services and anyone else as required. Operations informs the tower that the airplane is on the apron.
14:00:55	118.15 MHz	LEAS	ATC calls SP-AVD and receives no reply.
14:01:01	118.15 MHz	LEAS	ATC calls SP-CFM and receives no reply.
14:01:07	118.15 MHz	LEAS	LEAS informs the airport firefighters that <i>"Yes, it's here on the apron"</i> .
14:01:23	121.7 MHz	Airport firefighters	The firefighters confirm that <i>"Yes, it's here in a corner of the apron, in parking stand 1"</i> .

Time	Frequency	Station	Message
14:01:32	118.15 MHz	SP-CUT and LEAS	LEAS tells them to "maintain altitude and not to enter the airport". SP-CUT replies that it is maintaining 1,500 ft. LEAS asks if it can return to Santander, and SP-CUT confirms that it is returning to Santander.
14:02:25	118.15 MHz	LEAS	ATC calls SP-AVD and receives no reply.
14:03:06	Telephone	LEAS and Airport Operations	The tower informs airport Operations that an airplane has disappeared to the southwest, that it must be around Ranón.
14:03:39	118.15 MHz	LEAS	ATC calls SP-AVD and receives no reply.
14:04:55	121.7 MHz	LEAS	Asks the signalman to check the runway.
14:05:02	118.15 MHz	SP-CUT and LEAS	SP-CUT confirms it is returning to Santander and asks about the weather conditions in La Coruña and Santander before confirming again that it is returning to Santander.
From 14:07:14 to 14:14:31	118.15 MHz	SP-CUT and LEAS	SP-CUT asks ATC several times if it is in contact with SP-CFM, to which ATC replies no.
14:14:54	Telephone	LEAS and SAR	SAR informs the tower that an emergency beacon signal has been detected from 43° 33' 55.38" N - 6° 3' 7.98" W, and confirms that it is from airplane SP-AVD. The tower then calls emergency personnel (112) and reports the coordinates of the ELT signal.
14:17:41	Telephone	LEAS and Airport Operations	The Tower informs Operations of the coordinates of the ELT signal and that it corresponds to airplane SP-AVD.
14:22:34	121.7 MHz	Airport firefighters	Airport firefighters inform the tower that the registration of the airplane on the apron is SP-CFM.

1.10. Aerodrome information

The reference point of the Asturias Airport is at coordinates 43° 33' 49" N – 06° 02' 05" W, at an elevation of 416 ft (127 m).

It has one 2,200 m long runway in an 11-29 orientation (figure 5).

The airport has the following low-visibility procedure (LVP):

1. GENERAL

- 1.1. Runway 11/29 may be used for reduced visibility takeoffs. Runway 29 is equipped with a CAT III ILS and may be used for CAT III approaches.
- 1.2. In addition to the general procedures, the Low-Visibility Procedures shall be applicable in the following circumstances.



Figure 5. Aerial view of the airport

- When the RVR value of any transmissometer is less than or equal to 600 m or the same visibility value if the transmissometers are not in service.
 - When the cloud ceiling is at or below 75 m (250 ft).
 - As required by rapidly degrading weather conditions.
- 1.3. Pilots shall be informed via radio that the LVP are in effect. Any changes that are reported or detected that could affect the LVP shall be reported immediately to affected aircraft and ATC stations.
- 1.4. ATC stations shall directly supply the runway visual range values according to the following:
- RVR ALPHA: Range associated with the Touchdown Zone.
RVR BRAVO: Range at the runway halfway point.
RVR CHARLIE: Range at the end of the runway.
- 1.5. The clearance to land shall not be given once the aircraft is 2 NM away from the TDZ. If this is not possible, instructions shall be given to the aircraft to go around. For ILS approaches, permission to land shall only be given when the sensitive and critical ILS areas (LSA and LCA) are clear.
- 1.6. The LVP shall be lifted when all of the following are present:
- RVR values in excess of 800 m at every transmissometer or the same visibility value if they are out of service.
 - Cloud ceiling at 90 m (300 ft).
 - Steadily improving weather conditions.

The Asturias Airport TMA extends above 600 m (AGL or AMSL, as appropriate) to a distance of 30 NM and above 300 m (AGL or AMSL, as appropriate) to a distance of 20 NM. The airport control zone (CTR) includes all of the airspace below the TMA out to 20 NM. The airspace between the TMA and the CTR is classified at type D airspace, based on the classification found in ICAO Annex 11. In this type of airspace, VFR flights receive flight information and information on other transiting aircraft. VFR flights en route to the airport must proceed along designated points and request permission to enter the CTR. If accessing via the coastline from the north, the last point is designated "N", and is located some 11 NM away from the runway in a NE direction. Once past this point, VFR flights must fly below 1,000 ft AGL.

The airport also has special protection zones (APCH FINAL) along the extension of both runways from their respective thresholds that must not be crossed at any time without permission from the tower.

1.11. Wreckage and impact information

The airplane departed from its flight path along the coastline and flew over the aerodrome, cutting across the runway 11 extension from the northeast to the southwest.

It flew over the passenger terminal, leaving the control tower to its right, and then made a turn around the tower of just over 180°.

As it flew over the airport services building, near the tower, it struck and broke off the climate control equipment installed atop the building, first with the left wing brace and then with the horizontal stabilizer.

The accident airplane crossed the runway 11 extension from the northeast to the southwest, perpendicular to the runway centerline. It then made a turn of just over 180° around the control tower, leaving it to its right, before finally hitting the accessible platform of the airport services building, which is near the tower (figure 1).

The airplane struck and broke off the climate control equipment, first with left wing and then with the horizontal stabilizer.

After this initial impact, the airplane struck the edge of the building and broke into three pieces: the tail assembly, the fuselage and wings.

The rear of the fuselage, along with the tail assembly, were ejected forward along the flight path and fell on the grass at the foot of the building.

The rest of the fuselage was also ejected forward and impacted another section of grass alongside the airport's apron. It then continued sliding until it came to a stop on the apron, 20 m away from the runway.

The wing, which was also expelled forward, followed a path that formed a 45° angle with that of the fuselage. The top of the wing hit the same patch of grass as the fuselage and continued sliding until it too came to a rest on the apron, 60 m behind the fuselage.

Along its path it also struck the wall around the platform, breaking a piece off. After this impact, the airplane broke into three pieces: the rear section of the fuselage and the tail assembly, the front section of the fuselage and the wing.

The rear section of the fuselage tore starting on its left side and detached, along with the tail assembly, falling on a patch of grass in front of the building's main entrance.

The rest of the fuselage, which included the cockpit, was thrown forward and impacted another patch of grass next to the apron. It continued sliding, coming to rest on the apron, 20 m away from the runway.

Several smaller pieces were ejected in various directions and scattered in a 100 m radius. The rear section of the fuselage, which remained attached to the tail assembly, had a gash on its left side. The right side was less affected. Part of the climate control equipment was found next to the tail cone, as shown in the right picture of figure 8.

The wing was torn off in one piece and fell on the same section of grass as the above section, sliding on its top side to the apron, where it stopped. It was not badly damaged and had almost all of its components, except for the tip of the left aileron, which detached and was found 20 m further forward.

The rest of the aircraft also struck the same patch of grass and the slid onto the apron, coming to a stop 20 m from the runway. Many of its components detached and scattered along the way.

The entire assembly was heavily damaged. The front part, which housed the engine, was upside down and detached from the cockpit area.

Almost all of the engine's components were still in place. The propeller's blades were bent significantly and exhibited clear drag marks.

The cockpit was completely destroyed, making it difficult to ascertain the positions of the controls. The throttle controls, propeller pitch and mixture were not in the full forward position.

The flaps lever was in the retracted position, consistent with the position of the flaps observed on the wings.

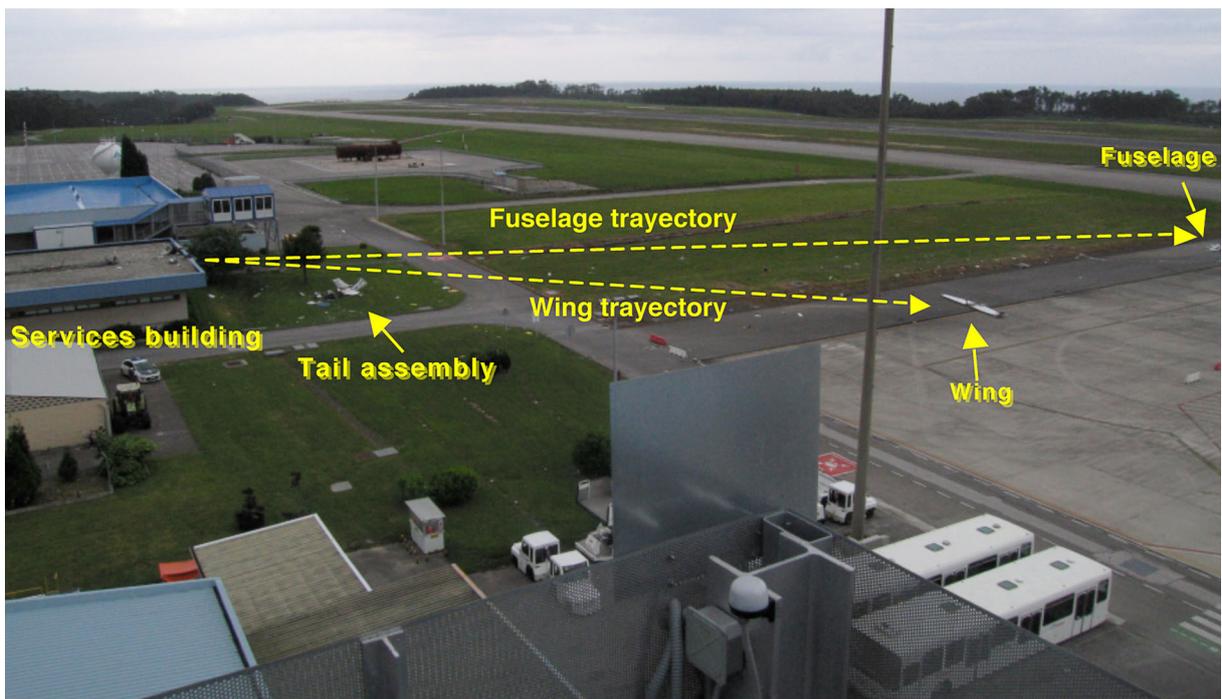


Figure 6. Photograph of wreckage taken from the tower



Figure 7. Photograph of wreckage taken from the runway



Figure 8. Photographs of tail assembly



Figure 9. Photographs of the wing



Figure 10. Front part of the airplane

1.12. Medical and pathological information

The pilot's body was found on a patch of grass next to the aircraft, and the passenger's body on the runway, also near the aircraft.

The autopsies showed that in both cases the injuries exhibited were consistent with a violent death of an accidental nature. The immediate cause of death was the destruction of vital nerve centers, with the main cause being multiple and severe trauma.

1.13. Organizational and management information

At the time of the accident there were two controllers on duty in the airport tower, handling Tower control of flights in the vicinity of the airport and of taxiing aircraft on the ground at the airport.

Communications with aircraft took place on a frequency of 118.15 MHz, while communications with vehicles on the ground took place on 121.7 MHz. ATC personnel had at their disposal a radar unit.

These three services were normally handled by a single controller, though on the day of the accident there were two controllers on duty as part of the day shift crew at the Asturias control tower. They had over 20 years of experience in various locations. One was handling radio communications and the other was there in a support role. The two controllers were later joined by the swing shift controller.

The controller who was handling communications at the time of the accident was relieved ten minutes after the accident by the other controller who was on support duty, in compliance with the Aena Air Navigation Office's "Aircraft Emergencies and Special Situation Procedure", S41-02-GUI-001-3.1, dated 25 March 2011², which recommends, if possible, the "Relief of the Controller" as a priority in the event of an accident.

The controllers on duty reported that the accident aircraft did not declare an emergency, nor request assistance or permission to enter the aerodrome circuit or land.

² This procedure is adapted from the document "Controller Training in the Handling of Unusual Incidents", published by Eurocontrol, the European Organization for the Safety of Air Navigation.

2. ANALYSIS

2.1. History of the operation

During the investigation it was noted that the pilot was aware of the weather conditions present along their planned route. It was not possible to ascertain, however, if the pilot obtained the information prior to departing or what that information consisted of. The information available in the hours prior to the flight already showed that the weather was not conducive to visual flight, particularly in and around the Asturias Airport. What is known is that during the flight the pilot received sufficient information from ATC to know that conditions were unfavorable and detrimental to visual flight.

It is not known why exactly the pilot decided to continue with the flight. What is known is that when they reached the vicinity of the Asturias Airport, they were flying under VFR along the coast, as they had been since the start of the flight, at which point they entered into IMC, either unexpectedly or in an effort to regain the visual references they had lost moments earlier.

When, at 13:57:13, the aircraft reported approaching the airport's VOR, the controller asked them to confirm that they were flying with the ground in sight and requested that they report flying to the north of the field, explicitly prohibiting them from flying over the VOR or the airport. As with the preceding aircraft, he provided them with the QNH to give them an accurate altimeter setting, essential to maintaining a safe altitude in reduced visibility.

These instructions indicated ATC's conformity with regard to having the flight continue to the north of the airport, which made it possible for the aircraft to continue to have available the essential reference provided by the coastline. It also indicates that despite the previous communication from the aircraft, the controller at no time believed that the aircraft was planning to land on the runway in use, which was in the opposite direction, which would also have meant a change to the flight plan.

Despite having received this information, at around 13:59 the aircraft crossed over the coastline some 1.3 NM away from the airport in the direction of the airport. A few seconds later the controller informed the aircraft that the airport was in low visibility conditions (making a visual landing impossible). There was no apparent reaction from the aircraft, which continued to descend until it finally impacted the ground within the airport complex.

The way in which the impact occurred revealed that the airplane was flying straight and level, meaning in controlled flight. This, along with the path taken crossing the airfield and flying next to the control tower, indicates that the crew did not know where it was and was looking for some type of external reference.

After the initial impact the airplane lost its integrity and the pilot was unable to do anything.

The fact that they were ejected could indicate that they were not wearing their safety harnesses. Although wearing them in this case could not have prevented the fatal consequences, given the force of the impact, the importance of using this safety device in every phase of flight should be emphasized, as in the majority of cases they can either save the occupants' lives or at least prevent serious injury.

2.2. Organizational and management aspects

The investigation revealed that all of the stations involved along the route expressed serious reservations regarding whether the crews were aware of the risk they were taking by flying in such adverse weather conditions, in some cases even wondering if the crews had properly understood and assimilated the indications they had been given. This is clearly evident in the conversation that took place at 12:33:33 between San Sebastián ATC and Bilbao ATC, in which the controller expressed his surprise at the fact that they were flying in those weather conditions (*"What are they doing flying in this pea soup?"*).

At 12:47:48, Bilbao ATC informed Santander ATC that the three airplanes were flying along the coastline and that they had to fly below 2,000 ft because it was very cloudy. Concern over the dangers of flying in those conditions was also manifested by Asturias ATC when, after being informed by the Madrid ACC that there were three airplanes flying toward the area in VFR, replied that the weather conditions were very bad and it was unlikely they would be able to transit through there. This concern led them to ask the pilot of an airplane that was doing an IFR approach about the altitude of the cloud layer from above, information that they quickly relayed to the Madrid ACC for it to pass to the three airplanes flying under VFR.

Since the Asturias Airport TMA and CTR are classified as type D airspace, VFR flights are allowed at the discretion of the air traffic control service, which provides transit information on all other flights. ATS were in contact with the aircraft and supplied the information requested, consistent with the airspace classification.

The concerns manifested by the ATS stations calls into question whether more direct actions could have been taken by the controllers that would have succeeded in making the pilots reconsider the advisability of flying in those conditions and turn around, as was done by the third airplane following the other two accidents. As regards the Asturias Airport control tower, the short time that elapsed between the two accident airplanes deviating from their flight paths along the coast and the impact (about 1 minute and 30 seconds in the case of SP-CFM), and the fact that the pilots neither requested help nor clearly stated their intentions, were undoubtedly crucial factors that impeded a better evaluation of the situation by controllers and kept them from taking additional measures.

3. CONCLUSION

3.1. Findings

- The CESSNA 182 T aircraft, registration SP-CFM, took off from the San Sebastian Airport (LESO) at 12:26 local time en route to the Maia Airport (LPVL), located in Vilar da Luz (Portugal).
- It was flying under visual flight rules (VFR), using the coast as a reference. Its alternate airports were Santander (LEXJ) and La Coruña (LECO).
- The flight plan filed included another CESSNA 182 aircraft, registration SP-CUT, that took off two minutes later and was flying behind it.
- Flying with them was another airplane, a CIRRUS SR22, registration SP-AVD, that had taken off two minutes earlier.
- At 13:51, they were in the vicinity of the Asturias Airport (LEAS), where the Low Visibility Procedure (LVP) had been in effect since 08:38 due to fog. The LVP was lifted at 18:10.
- At 13:57, while flying along the coastline some 8 NM away from the airport, the aircraft reported that it was approaching the airport's VOR. The controller requested confirmation that they were flying with the ground in sight and that they report passing to the north of the airfield, explicitly prohibiting the aircraft from flying over the VOR or the airport.
- At 13:59, approximately 1 minute and 30 seconds before the impact, the aircraft crossed inland over the coastline en route to the airport at about 1,000 ft over the runway.
- The tower then informed aircraft SP-CFM that the airport was under low visibility conditions (LVP).
- The aircraft continued toward the airport and descending. ATC did not establish contact with the aircraft again or provide more information to the pilot.
- At 14:00, the tower called both aircraft, SP-AVD first and then SP-CFM, and received no reply from either.
- At 14:01, the tower reported to the airport's firefighters that an airplane had crashed on the apron. It then asked aircraft SP-CUT to climb and return to Santander.
- Shortly thereafter the firefighters confirmed that the aircraft with registration SP-CFM had crashed at the airport and that its two occupants had died as a result of the impact.
- In the time between the aircraft's last message to the tower and its being found by emergency crews, the airplane had crossed the extension of runway 11 from the northeast to the southwest, perpendicular to the runway centerline. It then made a turn of just over 180° and impacted in controlled flight the accessible platform atop the airport services building, near the tower.
- As a result of the impact the airplane broke into three pieces, the tail assembly, fuselage and wing, which were ejected forward.
- The occupants, who died on impact, were expelled from the airplane and found next to it on the ground.

3.2. Causes

The accident was caused by the crew's entering into IMC despite not having an IFR rating, leading to spatial disorientation due to the low visibility.

4. SAFETY RECOMMENDATIONS

None.

APPENDIX

APPENDIX A

SCAAI Comments



**Ministry of Transport, Construction and Maritime Economy
State Commission on Aircraft Accidents Investigation**



Dear CIAIAC Colleagues,

The sole objective of the SCAAI comments is improve the level of safety flight operation in order to prevent accidents and incidents in the future. In Poland we had several occurrences when the ATS personnel, even while an ATS services did not to be under an obligation to do something, had taken action which prevent disasters. As a result of the investigations of the occurrences were been formulated safety recommendations to make modification in operational procedures of ATS units in order to improved safety flights operations by the SCCAI.

The SCAAI can tell without any speculations that we known the facts of the accidents that the ATS service which was equipped in working order radar, suitable trained and experienced stuff did not take any action providing advice and information useful for the safe and efficient conduct of flights to prevent the pilots from doing mistakes as result of there were disasters.

The Asturias ATS did not take any action within their responsibility controlled airspace TMA and CTR when the pilots not complied with flight plans, infringement the controlled airspace boundary and the departure and approach area of RWY11/29 and were getting progressively close to the unsafe altitude/high and next descended below. The ATS stuff had knowledge about poor weather conditions and lots of time to take any action. We can not also agree with your statement that “The ATS service actuated as soon as they had suspicions of anomalous situation” because any action was taken after the ATS stuff to became aware about disaster.

In this connection mentioned above and the SCAAI comments (sent earlier) we can not agree with CIAIAC statement that actions taken by ATS stuff were correct.

The SCAAI ask for placing our comments as the integral part of the Final Reports in order AENA stuff and “aviation society” can possibility to learn “the lessons” from their review.

Your Sincerely,

Accredited Representative

CZŁONEK
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Badania Wypadków Lotniczych
Maciej Lasek
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**Ministry of Transport, Construction and Maritime Economy
State Commission on Aircraft Accidents Investigation**



Dear CIAIAC Colleagues,

The sole objective of the SCAAI comments is improve the level of safety flight operation in order to prevent accidents and incidents in the future.

According to the already gathered facts which were available in drafts of final reports: A-015/2011 to A-018/2011, as well as to previous email's and conversations in your office, we would like to express our point of view and opinion of SCAAI what is missing in the content of reports.

Main facts:

1. ATCOs had the information about the poor weather conditions at airport (IMC, LVP);
2. ATCOs had the information about the VFR flights of: SP-AVD, SP-CFM and SP-CUT.
3. ATCOs had possibility of using surveillance radar for aerodrome service.
4. ATCOs were suitable trained and experienced.
5. ATCOs were handling communication with the pilots.
6. ATCOs had enough time to took some action when the pilots infringement the controlled airspace boundary, departure and approach special protected zone of RWY11/29 and were getting progressively close to the unsafe altitude/high and next descended below.
7. The pilots of a/c SP-AVD and SP-CFM were called by ATCOs shortly after the impact of SP-CFM happened. The a/c SP-AVD had accident approximately 40 seconds before SP-CFM.

SCAAI can not agree with CIAIAC statements that actions taken by ATCOs were fully correct.

SCAAI considers that on the basis of the above main facts in the reports is the lack of full description of ATCOs actions. SCAAI is of the opinion that following fact should be taken into account the lack of action of the ATCOs when the pilots:

- were deviating from flight plans routes,
- were an infringement the controlled airspace boundary and the departure and approach zone of RWY11/29,
- were getting progressively close to the unsafe altitude/high and next descended below.

In opinion of SCAAI the ATCOs had enough time to took some action when pilots were deviating from flight paths and infringement the controlled airspace boundary.

Your Sincerely,

Accredited Representative

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L.dz. 2383/12