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FINAL REPORT

Aircraft Accident

An-2
Registration mark HA-MKK

11.01.2008 at 11:28 UTC
Javor pri Sveti Planini nad Trbovljami, Republic of Slovenia

TABLE OF CONTENTS

INTRODUCTION **5**
COMPOSITION OF THE ACCIDENT INVESTIGATION COMMISSION **6**
SYNOPSIS **7**
1. FACTUAL INFORMATION **8**
1.1 HISTORY OF THE FLIGHT 8
1.2 INJURIES TO PERSONS 9
1.3 DAMAGE TO AIRCRAFT 10
1.4 OTHER DAMAGE 10
1.5 PERSONNEL INFORMATION 10
1.5.1 Pilot – aircraft commander 10
1.6 AIRCRAFT INFORMATION 13
1.7 METEOROLOGICAL INFORMATION 14
1.7.1 General synoptic situation 14
1.7.2 Dangerous weather conditions on 11 January 2008 between 08:00 UTC(*) and 14:00 UTC(*) 17
1.7.3 GAFOR forecast 18
1.7.4 METAR information 18
1.7.5 Weather conditions on ŠENTVID pri Stični airfield between 11:00 UTC(*) and 12:00 UTC(*) 18
1.7.6 Weather conditions at Ptuj Airport (LJPT) 19
1.7.7 Weather conditions in the area of Mount Javor near Sveta Planina between 11:00 UTC(*) and 12:00 UTC(*) 19
1.8 AIDS TO NAVIGATIONS 19
1.9 COMMUNICATIONS 19
1.10 AERODROME INFORMATION 20
1.11 FLIGHT RECORDERS 20
1.12 WRECKAGE AND IMPACT INFORMATION 20
1.13 MEDICAL AND PATHOLOGICAL INFORMATION 20
1.14 FIRE 20
1.15 SURVIVAL ASPECTS 21
1.16 TESTS AND RESEARCH 21
1.17 DATA ON THE AIRCRAFT OPERATOR 21

1.18 OTHER INFORMATION 22
1.19 USED INVESTIGATION TECHNIQUES 22

2. ANALYSIS 23

2.1 FLIGHT PREPARATION 23
2.2 WEATHER CONDITIONS ON THE AIR ROUTE 24
2.3 COURSE OF FLIGHT 24
2.4 LOCATION OF THE ACCIDENT 25
2.5 HUMAN FACTORS 25
2.6 TECHNICAL ASPECTS 26

3. CONCLUSIONS 27

3.1 FINDINGS 27
3.2 CAUSE OF THE ACCIDENT 28

4. SAFETY RECOMMENDATIONS 29

APPENDICES 30

APPENDIX A: FLIGHT ROUTE 31
APPENDIX B: RADAR IMAGE RECORDING 32
APPENDIX C: TRANSCRIPT OF VOICE COMMUNICATION 34
APPENDIX D: METEOROLOGICAL SITUATION AND MESSAGES 38
APPENDIX E: PHOTOGRAPHS OF THE LOCATION OF ACCIDENT 58
APPENDIX F: PHOTOGRAPHS OF THE TECHNICAL INVESTIGATION OF THE AIRCRAFT WRECKAGE 61

INTRODUCTION

This final aircraft accident investigation report contains facts, analysis, reasons and safety recommendations established by the aircraft accident investigation commission with regard to the circumstances in which the accident happened.

In accordance with Annex No. 13 to the Chicago Convention and pursuant to the fourth paragraph of Article 137 of the Aviation Act (Uradni list RS [Official Gazette of the Republic of Slovenia] No. 113/06 UPB-1) and the Decree on the investigation of aircraft accidents, serious incidents and incidents (Uradni list RS, No. 72/03 and 110/05) the purpose of the final aircraft accident investigation report is not to establish guilt or individual and collective responsibility. The basic objective of the final report is to prevent aircraft accidents and reduce risks in the future.

The final aircraft accident investigation report must without doubt be in the interest of flight safety.

It is important that the final report be used for preventing further aircraft accidents. The use of this report for other purposes can lead to misinterpretation.

In case of any divergence of interpretation of the text, the Slovene version shall prevail.

COMPOSITION OF THE ACCIDENT INVESTIGATION COMMISSION

Pursuant to the third paragraph of Article 138 of the Aviation Act (Uradni list RS, No. 113/06– UPB1) and pursuant to Article 7 of the Decree on the investigation of aircraft accidents, serious incidents and incidents (Uradni list RS No. 72/03 and 110/05), the head of the Aircraft Accident and Incident Investigation Division at the Ministry of Transport of the Republic of Slovenia has appointed, by Decision No. 37200-2/2008/1-0010132 of 11 January 2008, a commission for the investigation of general aviation aircraft type An-2, registration mark HA-MKK, with the purpose of investigating the circumstances in which the accident happened, establishing the reasons for the aircraft accident and preparing safety recommendations for the prevention of aircraft accidents in the future.

Composition of the Commission:

1. **Roman ROVANŠEK**, Ministry of Transport, Aircraft Accident and Incident Investigation Division, **Investigator-In-Charge**

2. **Matija ŠKRLEC**, pilot and flight instructor for An-2 aircraft, specialist in aviation, **Member of the Commission**

3. **Nebojša KRIČAK**, aviation technician with an An-2 aircraft-maintenance licence, **Member of the Commission**

4. **Frenk KRIŠTOFELC**, medical practitioner authorised to perform medical examinations of flight crews and other professional staff, **Member of the Commission**

SYNOPSIS

1. Date and time of accident: 11 January 2008 at 11:28:00 UTC(*)

2. Aircraft: An-2 S/H

3. Registration mark: HA-MKK

4. Location of accident: Mount Javor near Sveta Planina (Trbovlje), Republic of Slovenia

5. Type of flight: VFR en route

6. Owner: Zavod ŠOLT, Cesta 27. aprila 31/7, 1000 Ljubljana, SLOVENIA

7. Operator: AVIA-RENT Kft., HUNGARY 1118 Budapest, Rétköz ut.4

8. Consequences:

8.1 Injuries to persons:

Injuries	*Crew*	*Passengers*	*Others:*
Fatal	**1**	**-**	**-**
Serious	**-**	**1**	**-**
Minor/None	**-**	**-**	

8.2 Damage to aircraft: completely destroyed

8.3 Damage to equipment: completely destroyed

(*) *In this report Co-ordinated Universal Time (UTC) is used.*

On the day of the accident, one hour must be added on account of Slovenian local time (UTC + 1).

1. FACTUAL INFORMATION

1.1 History of the flight

On 11 January 2008 at 10.31:00 UTC(*), the pilot submitted to the Air Traffic Services Reporting Office ATS/ARO (LJLJ) a flight plan for a flight to be performed according to general Visual Flight Rules (VFR) under Visual Meteorological Conditions (VMC). The pilot planned to fly through Class G uncontrolled airspace of the Republic of Slovenia, from ŠENTVID airfield N45° 56' 39" E 14° 51' 18" in Šentvid pri Stični to Maribor Airport (LJMB) with a type An-2 general aviation aircraft, registration mark HA-MKK. In the flight plan, the pilot declared two persons and a total estimated flight time of 27 minutes.

From Maribor Airport (LJMB), the pilot and his passenger intended to continue the flight on the same day to the Republic of Hungary, first to Sármallék (LHSM) and then to Kaposvár (LHKV), where an authorised maintenance organisation was scheduled to carry out a regular 200-hour maintenance check of the aircraft and replace the canvas on the wings.

On 11 January 2008, there was low cloud and fog, which remained in some of the area of the plains and basins of the Prekmurje and Dolenjska region. Western Slovenia and the Ljubljana Basin were covered by a homogeneous layer of low Stratocumulus clouds. Over the Dolenjska region, the Celje Basin and the Savinja Valley, there was low cloud consisting of Stratocumulus and Cumulus clouds of total 3/8 to 7/8 coverage. Over the Štajerska and Dolenjska regions, there was 3/8 to 7/8 Cumulus and Stratocumulus cloud coverage. The cloud base ranged from 4,000 ft (1,219 m) to 5,000 ft (1,524 m) above sea level. In western and central Slovenia, peaks exceeding 1,000 m (3,281 ft) were mostly covered by cloud.

Given the low cloud in the morning hours and the forecast coverage of hills in western and central Slovenia during the day, the duty meteorologist of the general Aviation Forecast (GAFOR) decided to forecast for most air routes that there would be no weather conditions for flights under Visual Flight Rules. The first morning General Aviation Forecast (GAFOR) at 05:00:00 UTC(*) forecast a slight improvement of conditions in eastern Slovenia; however, with regard to the development of the weather, the duty meteorologist appropriately corrected the forecast and left all air routes (issued at 08:00:00 UTC(*) and 11:00:00 UTC(*)) practically closed for flights under Visual Flight Rules (VFR).

At 11:02:54 UTC(*), the pilot took off from the ŠENTVID airfield. At 11:05:54 UTC(*), he reported for the first time to the Flight Information Service of the Area Air Traffic Control Centre (ATCC) Ljubljana via radio contact on the 118.475 MHz frequency. The operator of the Flight Information Service gave the pilot instructions for further performance of the flight under Visual Flight Rules, QNH data, the reporting point MS2 (Slovenske Konjice) and the transponder code confirmation squawk 2000. The pilot confirmed receipt of the instructions and continued his flight toward reporting point MS2.

Due to bad weather conditions on the route in the flight direction toward reporting point MS2, the pilot directed the aircraft in the opposite direction, towards the airport of departure, ŠENTVID airfield. At 11:19:23 UTC(*), the aircraft was above Litija at an altitude of 3,200 ft (975 m). Due to the change in the flight direction and flight towards CTR Ljubljana, the operator of the Flight Information Service asked the pilot about his intentions. The pilot informed the operator that he was avoiding the clouds because of visual meteorological conditions. Since the pilot had already entered CTR Ljubljana, the operator gave him instructions that he was not allowed to fly further westbound and that he should stay at an altitude below 3,500 ft (1,067 m) due to Instrument Flight Rules of aircraft arrivals to Ljubljana Airport (LJLJ). The pilot confirmed receipt of these instructions and at 11:21:51 UTC(*) directed his aircraft eastbound to radial 060° VALLU. At 11:23:06 UTC(*), the pilot had a last voice exchange with the operator of the Flight Information Service of the Area Air Traffic Control Centre (ATCC) Ljubljana. At 11:27:49 UTC(*), the aircraft disappeared from the radar screen. At 11:28:00 UTC(*), the aircraft crashed at an altitude of 1,075 m above sea level into Mount Javor (1,133m) N 46°10.816' E 015° 00.908' near Sveta Planina (Trbovlje). In the crash, the entire quantity of fuel spilled from the fuel tanks, and the aircraft caught fire and was completely destroyed. The pilot suffered fatal injuries, while his passenger was seriously injured.

1.2 Injuries to persons

Injuries	*Crew*	*Passenger*	*Others:*
Fatal	**1**	**-**	**-**
Serious	**-**	**1**	**-**
Minor/None	**-**	**-**	

1.3 Damage to aircraft

The aircraft and its equipment were completely destroyed in the crash and later in the fire.

1.4 Other damage

First, the aircraft crashed into the highest branches of trees on the slope of Mount Javor. In the crash, 16 trees and some forest undergrowth at the fire scene were destroyed. There was no other damage.

1.5 Personnel information

1.5.1 Pilot – aircraft commander

Pilot:	Male, 51 years of age
Nationality:	Slovene
Aircraft licence:	**CPL (A) NATIONAL**
	Commercial Pilot Licence
	Date of issue: 26 August 1998
	Valid until: 29 August 2008
	Special authorisations / ratings:
	SEP (LAND) Single Engine Piston
	Date of issue: 26 August1998
	Last renewal: 15 July 2006
	Valid until: 26 August 2008
	AN-2
	Date of issue: 30 November 1998
	Last renewal: 12 August 2007
	Valid until: 25 August 2009
CPL Licence validation:	Validated by Hungarian authorities on 13 June 2007
Total flying time with AN-2:	No data – pilot's logbook was destroyed during the accident
Other licences of the pilot:	**PPL** – Private Pilot Licence
	Date of issue: 11 July 1994
	Last renewal: 30 July 2001
	Valid until: 30 June 2002
	Total flying time at the time of the last renewal:
	923 hours, 28 minutes

GPL – Glider Pilot Licence

Date of issue: 15 September 1993

Last renewal: 30 July 2007

Valid until: 30 July 2009

Total flying time at the time of the last renewal:

315 hours, 56 minutes

HGPL – Hang-Glider Pilot Licence

Date of issue: 30 July 1999

Valid until: Unlimited validity

PHGPL – Powered Hang-Glider Pilot Licence

Date of issue: 1 June 1992

Last renewal: 30 July 1997

Valid until: Unlimited validity

Total flying time at the time of the last renewal:

813 hours, 35 minutes

Special authorisations / ratings:

Powered hang gliding flight instructor

Date of issue: 29 May 1992

ULA – ULA Pilot Licence

Date of issue: 5 November1996

Last renewal: 30 July 2005

Valid until: 30 July 2009

Total hours of flying at the time of renewal on 30 July 1997:

2020 hours, 22 minutes

Special authorisations / ratings:

UL Airplane

Date of issue: 13 May 1994

Instructor:

Date of issue: 15 January 1996

Powered Hang Glider

Date of issue: 29 May 1992

Instructor:

Date of issue: 29 May 1992

	UL Test pilot
	Date of issue: 30 July 1995
Medical Certificate:	**Medical Certificate Class 1**
	Last general medical examination: 27 July 2007
	General medical examination valid until: 6 February 2008
Aircraft technical licence:	**Part-66 Aircraft Maintenance Licence**
	Date of issue: 6 December 2006
	Valid until: 6 December 2011
	Type / Ratings:
	AN-2
	Category: B1 from 31 May 2005
	JAK-52
	Category: B1 from: 31 May 2005
	PIPER SEP ENGINE- METAL STRUCTURE
	Category: B1 from: 31 May 2005
	CESSNA SEP ENGINE-METAL STRUCTURE
	Category: B1 from: 31 May 2005
	EMBRAER EMB 120 (PWC 118)
	Category B1 from: 6 December 2006
	National privilege beyond the scope of application of Part 66
	Gliders
	BLANIK L13, from: 8 December 2006
	BLANIK L23, from: 8 December 2006
Other technical licences:	**LSO** – work permit for aviation expert staff
	Date of issue: 10 April 1997
	Valid until: 30 July 2002
	Special authorisations / Ratings:
	Signalman and parker, from 15 March 1997
	Loader/Driver, from 15 March 1997
	Fuel and lubricant manipulator, from 15 March 1997

1.6 Aircraft information

All documents in the aircraft burnt in the fire. From the documents received from the owner of the aircraft, the Civil Aviation Directorate at the Ministry of Transport of the Republic of Slovenia and the Hungarian aviation authority, the Hungary National Transport Authority, Directorate for Air Transport, the following data are evident:

- Aircraft: ANTONOV
- Type of aircraft: An-2 S/H
- Number of type certificate: L.1/2835/1986
- Serial number: 1G17853
- Year of manufacture: 1978
- Maximum Takeoff Mass (MTOM): 5,500 kg
- Manufacturer: WSK PZL MIELEC, Poland
- Registration mark: HA-MKK
- Country of registration: Republic of Hungary
- Owner: Zavod ŠOLT, Cesta 27 aprila 31/7,1000 Ljubljana
- Certificate of aircraft registration: Issued on 31 May 2007
- Airworthiness Certificate: Issued on 31 May 2007, valid until 19 April 2008
- Last maintenance check of aircraft: 23 September 2007, 50-hour check after a total flight time of the aircraft of 7,491 hours and 3,905 cycles
- Type of engine: AS-621 R/16
- Serial number: K1631322
- Last maintenance check: 23 September 2007, 50-hour check
- Propeller type: AV-2-SER-02-000PS
- Serial number: 024340111
- Last maintenance check: 23 September 2007, 50-hour check
- Type of fuel in use: Motor gasoline Eurosuper 95
- Date of last refuelling: 26 December 2007
- Quantity of refuelled gasoline: 600 litres
- Total quantity of fuel before the last flight: approximately 800 litres

1.7 Meteorological information

The commission obtained meteorological data on weather conditions on the day of the accident from the Aviation Meteorology Division at the Environmental Agency of the Republic of Slovenia.

1.7.1 General synoptic situation

There was an extensive valley of low atmospheric pressure over Western Europe and a region of high atmospheric pressure over the Eastern Mediterranean.

Weather conditions in Slovenia:

- *Wind*

Over Slovenia, moderate southeasterly winds prevailed. At an altitude of FL050 to FL100, the wind speed calculated according to the ALADIN meteorological model was 25 knots. Over central Slovenia, the wind speed at the altitude around FL050 was approximately 20 knots with gusts of up to 30 knots. In lower areas, at the altitude of FL030 (Lisca 943 m), wind was 12 knots with gusts to 25 knots, whereas at the altitude of FL020 (Vnajnarje 630 m), wind was 5 knots with gusts to 10 knots. At all altitudes, the wind was southwesterly. In the valleys and basins, surface wind blew only in some parts.

- *Cloud*

The satellite image showed low cloud and fog in some parts of the Prekmurje and Dolenjska valleys and basins. Eastern Slovenia and the Ljubljana Basin were covered by a layer of compact Stratocumulus clouds. Over Dolenjska, the Celje Basin and the Savinja Valley, there was low cloud consisting of Stratocumulus and Cumulus clouds of total 3/8 to 7/8 cloud coverage. Over the Štajerska and Dolenjska regions there was from 3/8 to 7/8 low Cumulus and Stratocumulus cloudiness. The cloud base ranged from 4,000 ft (1,219 m) to 5,000 ft (1,524 m) above sea level. In western and central Slovenia, peaks exceeding 1,000 metres were mostly covered by fog.

Meteorological stations recorded the following cloud observations:

Hour	Lisca	Celje	Cerklje ob Krki Airport
08 UTC(*)	Total cloudiness 6/8 Low cloudiness 6/8 6/8 Sc base 4,500 ft	At 08 UTC(*) no observations	Fog
09 UTC(*)	Total cloudiness 4/8 Low cloudiness 4/8 2/8 Sc base 4,500 ft 2/8 Cu base 4,400 ft	At 09 UTC(*) no observations	Fog
10 UTC(*)	**Total cloudiness 6/8** **Low cloudiness 5/8** **2/8 Sc base 4,500 ft** **3/8 Cu base 4,400 ft**	**At 10 UTC(*) no observations**	**Fog**
11 UTC(*)	**Total cloudiness 6/8** **Low cloudiness 5/8** **3/8 Sc base 4,500 ft** **3/8 Cu base 4,400 ft**	**At 11 UTC(*) no observations**	**Fog**
12 UTC(*)	**Total cloudiness 7/8** **Low cloudiness 6/8** **3/8 Sc base 4,500 ft** **3/8 Cu base 4,400 ft**	**Total cloudiness 6/8** **Low cloudiness 6/8** **2/8 Sc base 4700 ft** **5/8 Cu base 5000 ft**	**Fog**
13 UTC(*)	Total cloudiness 7/8 Low cloudiness 6/8 3/8 Sc base 4,500 ft 3/8 Cu base 4,400 ft	Total cloudiness 7/8 Low cloudiness 7/8 1/8 Sc base 3,800 ft 7/8 Cu base 4,800 ft	SCT002 BKN040 (SCT009 BKN047 Altitude relative to MSL)
14 UTC(*)	Total cloudiness 7/8 Low cloudiness 6/8 3/8 Sc base 4,500 ft 3/8 Cu base 4,400 ft	At 14 UTC(*) no observations	SCT005 BKN035 (SCT012 BKN053 Altitude relative to MSL)

Meteorological stations recorded the following cloud observations:

Hour	Ljubljana	Maribor Airport	Cerklje ob Krki Airport
08 UTC(*)	Total cloudiness 8/8 Low cloudiness 8/8 8/8 Sc base 4,900 ft	Fog	Fog
09 UTC(*)	Total cloudiness 8/8 Low cloudiness 8/8 4/8 Sc base 3,500 ft 8/8 Sc base 5,000 ft	Fog	Fog
10 UTC(*)	**Total cloudiness 8/8** **Low cloudiness 8/8** **5/8 Sc base 3,500 ft** **8/8 Sc base 5,000 ft**	**Total cloudiness 0/8** **Fog with visible sky**	**Fog**
11 UTC(*)	**Total cloudiness 8/8** **Low cloudiness 8/8** **2/8 Sc base 3,500 ft** **8/8 Sc base 5,000 ft**	**Total cloudiness 3/8** **Low cloudiness 3/8** **3/8 Sc base 4,900 ft**	**Fog**
12 UTC(*)	**Total cloudiness 8/8** **Low cloudiness 8/8** **5/8 Sc base 3,500 ft** **8/8 Sc base 5,000 ft**	**Total cloudiness 8/8** **Low cloudiness 3/8** **3/8 Sc base 3,900 ft**	**Fog**
13 UTC(*)	Total cloudiness 8/8 Low cloudiness 8/8 3/8 Sc base 3,500 ft 3/8 Cu base 5,000 ft	Total cloudiness 2/8 Low cloudiness 1/8 1/8 Sc base 3,900 ft	Fog
14 UTC(*)	Total cloudiness 8/8 Low cloudiness 8/8 5/8 Sc base 3,500 ft 8/8 Su base 5,000 ft	Total cloudiness 2/8 Low cloudiness 2/8 2/8 Sc base 3,900 ft	At 14 UTC(*) no observations

- *Precipitation*

Western Slovenia experienced precipitation and the snow level was at FL060. Precipitation was light and not observable by radar. There was no precipitation in central Slovenia.

- *Visibility*

Fog in the lowlands and basins disappeared during the day. In the Celje Basin and around Maribor, it disappeared around noon, and later on in the afternoon also in the Dolenjska and Prekmurje regions. In the Ljubljana Basin, visibility was around 8 km, while in other parts of central Slovenia it exceeded 10 km.

Meteorological station	08 UTC(*)	09 UTC(*)	**10 UTC(*)**	**11 UTC(*)**	**12 UTC(*)**	13 UTC(*)	14 UTC(*)
Lisca	20,000 m	20,000 m	**20,000 m**	**20,000 m**	**20,000 m**	20,000 m	20,000 m
Novo mesto	100 m	50 m	**50 m**	**50 m**	**50 m**	200 m	/
Ljubljana	8,000 m	8,000 m	**8,000 m**	**8,000 m**	**8,000 m**	7,000 m	7,000 m
Maribor	200 m	50 m	**200 m**	**10,000 m**	**20,000 m**	20,000 m	20,000 m
Celje	/	/	**/**	**/**	**20,000 m**	10,000 m	/
Cerklje ob Krki	200 m	300 m	**250 m**	**200 m**	**300 m**	800 m	4,000 m

Observed visibility at meteorological stations

1.7.2 Dangerous weather conditions on 11 January 2008 between 08:00 UTC(*) and 14:00 UTC(*)

- *Turbulence*

Over northern Slovenia, moderate turbulence was expected above FL030 and light turbulence at the flight level between FL020 and FL030. Two AIRMET warnings were issued on the expected intensity of the turbulence.

LJLA AIRMET 3 VALID 110900/111200 LJLJLJLA
LJUBLJANA FIR MOD TURB FCST ABV FL030 STNR NC=
and
LJLA AIRMET 5 VALID 111200/111600 LJLJLJLA
LJUBLJANA FIR MOD TURB FCST ABV FL030 STNR NC=

- *Icing*

Over western Slovenia moderate icing was expected above FL060. An AIRMET warning for moderate icing was issued.

LJLA AIRMET 4 VALID 111115/111500 LJLJ-
LJLA LJUBLJANA FIR MOD ICE FCST W OF E01430 ABV FL060 STNR NC=

1.7.3 GAFOR forecast

With regard to the presence of low-level cloudiness in the morning and the expected coverage of the hills in western and central Slovenia during the day, the duty meteorologist decided to forecast that for most air routes that there would be no suitable weather conditions for flying under Visual Flight Rules. The first morning GAFOR was issued at 05:00:00 UTC(*), in which a slight improvement of conditions over eastern Slovenia was expected; however, with regard to the weather development, the duty meteorologist appropriately corrected the forecast and left practically all air routes (note: issued at 08:00:00 UTC(*) and 11:00:00 UTC(*)) closed for flying under Visual Flight Rules.

1.7.4 METAR information

Weather report for Ljubljana Airport (LJLJ):

LJLJ 111200Z 00000KT 9999 FEW003 BKN028 02/02 Q1020 NOSIG=
LJLJ 111230Z VRB01KT 9999 FEW003 BKN028 02/02 Q1020 NOSIG=

Weather report for Maribor Airport (LJMB):

LJMB 111200Z 19013KT 9999 SCT030 07/04 Q1018=
LJMB 111230Z 20013KT 180V250 9999 SCT030 10/06 Q1017=

Weather report for Celje Airport (LJCE):

LJCE 111200Z 00000KT 0300 FG VV001 00/00 Q1021 RMK RED=
LJCE 111230Z VRB01KT 0300 FG VV001 00/00 Q1020 RMK RED=

1.7.5 Weather conditions on ŠENTVID pri Stični airfield between 11:00 UTC(*) and 12:00 UTC(*)

The Šentvid pri Stični airfield was outside the area of Stratus and fog coverage. Visibility exceeded 10 km. There was weak westerly wind reaching a speed of up to 5 knots. The sky

was covered by low Stratocumulus clouds with total coverage between 4/8 and 7/8 and cloud base at an altitude between FL040 and FL050. There was no precipitation.

1.7.6 Weather conditions at Ptuj Airport (LJPT)

Toward noon, the fog in the airport area slowly disappeared so that visibility improved from 200 m to 10 km. A south-western wind started to blow at a speed of up to 12 knots. In the afternoon, there was 3/8 Stratocumulus cloud coverage with a cloud base at FL040.

1.7.7 Weather conditions in the area of Mount Javor near Sveta Planina between 11:00 UTC(*) and 12:00 UTC(*)

In the area of Javor near Sveta Planina, there was a westerly wind of 21 knots with gusts of up to 25 knots. There was moderate turbulence above FL030 and weak turbulence between FL020 and FL030. Visibility exceeded 10 km. Stratocumulus clouds covered from 5/8 to 7/8 of the sky with a cloud base at a flight level between FL040 and FL050. The peaks of the individual highest hills in the surrounding area were covered by cloud. Above FL060, light icing was present within the cloud layers.

1.8 Aids to navigations

The aircraft was equipped with basic instruments, an airspeed indicator, an altimeter and a compass, which was sufficient for the flight under visual meteorological conditions (VMC). Additionally, a "GPS" (note: non-aircraft) device was installed in the aircraft for easier navigation guidance; the device is not supported by data on terrain altitude, but provides data on the location in space and the distance between points.

1.9 Communications

The pilot flew in Class G airspace (uncontrolled) of the Republic of Slovenia, in which flights without radio communication are permitted. The pilot established radio contact with the Flight Information Service of the Area Air Traffic Control Centre Ljubljana (ATTC LJUBLJANA) on the 118.475 MHz frequency. Through study of the recording of the conversation between the pilot and the Flight Information Service, it has been established that voice communication was undisturbed through the entire flight period and took place in compliance with the applicable regulations.

1.10 Aerodrome information

Since the accident happened en route, aerodrome data is not relevant.

1.11 Flight recorders

The aircraft was not equipped with flight recorders as regulations for the aircraft category do not require such devices.

1.12 Wreckage and impact information

The aircraft crashed into Mount Javor (1,133m) near Sveta Planina (Trbovlje) at an altitude of 1,075 m. The geographical co-ordinates of the crash site are N 46°10.816' E 015° 00.908'. At the location of the accident, it was discovered that the aircraft first crashed into the highest branches of trees with its propeller blades, then with wings and the fuselage until it finally crashed on the earth. After the crash, the entire quantity of fuel in the aircraft spilled from the fuel tanks. This resulted in a fire over the entire aircraft. Firefighters extinguished the fire completely and the location of the accident was protected by the police. The passenger suffered severe burns and was taken to the University Medical Centre Ljubljana prior to the arrival of the chief investigator. The aircraft wreckage was concentrated on the crash site and the typical curvature of the propeller blades proved that at the time of the crash, the engine had been working at cruising power.

1.13 Medical and pathological information

On the basis of the report of the competent Institute of Forensic Medicine, it has been established that the pilot lost his life as a result of the aircraft accident. At the time of the accident, the pilot was not under the influence of alcohol and had consumed no medication. The passenger survived the accident with severe burns.

1.14 Fire

In the crash, the fuel tanks and fuel installations on the engine were damaged, which caused the spillage of the entire quantity of fuel from the fuel tanks along with the fire. The fire caught over the engine and over the entire aircraft wreckage, which was concentrated on the crash site. The fire was extinguished by firefighters.

1.15 Survival aspects

/

1.16 Tests and research

- On 11 January 2008, the chief investigator inspected the location of the accident. Also present were the police, the duty investigating judge and the district public prosecutor. Because of very bad weather conditions – strong wind, light rain, bad visibility due to thick fog and darkness – after the basic inspection, the survey of the location of the accident was interrupted. The location of the accident was protected by the police.
- On 12 January 2008, the aircraft accident investigation commission continued its inspection of the location of the accident. Representatives of the Hungarian aviation authority, the Hungary National Transport Authority, Directorate for Air Transport, also arrived at the location of the accident; they inspected the location of the accident and the wreckage and submitted aircraft documentation to the chief investigator.
- On 13 January 2008, the wreckage of the aircraft was removed from the location of the accident and taken to a protected place for further investigation.
- On 29 January 2008, a site survey was carried out on the location of the accident by representatives of the Slovenian Forest Service, Regional Unit Ljubljana, which was followed by assessment of the damaged trees.
- On 11 February 2008 a preliminary accident report was issued.
- On 15 January 2010 a draft final report in the Slovenian language was issued.
- On 17 March 2010 a draft final report in the English language was issued.

1.17 Data on the aircraft operator

The operator of the aircraft, AVIA-RENT Kft., HUNGARY 1118 Budapest, Rétköz ut.4, had a valid licence for the performance of aircraft operations with the An-2 S/H aircraft, registration mark HA-MKK. The licence was issued to the operator by the Hungarian aviation authority, the Hungary National Transport Authority, Directorate for Air Transport, and was valid until 31 December 2009. The operator of the aircraft, AVIA-RENT Kft., HUNGARY 1118 Budapest, Rétköz ut.4, and the owner of the aircraft, the Zavod ŠOLT, Cesta 27 aprila 31/7, 1000 Ljubljana, Slovenia, concluded an agreement for aircraft operations with the An-2 S/H aircraft, registration mark HA-MKK. The Aircraft Operating Agreement stipulates that aircraft operations with the aircraft concerned shall be performed by the owner of the aircraft, the Zavod ŠOLT, Cesta 27 aprila 31/7, 1000 Ljubljana, Slovenia, in accordance with the

Agreement. The owner of the aircraft had a valid aircraft operating licence, issued by the Ministry of Transport of the Republic of Slovenia, containing the following operational provisions:

A) Type of operations	A9 – Parachute flights
B) Type of aircraft	ANTONOV, An-2 S/H
C) Territory of operation	Slovenia
D) Special limitations	D1 – VFR day only, D4 – Non-commercial parachute flights (only for members of the ŠOLT Organisation)
E) Special authorisations/licences	E104 – parachute jumps outside the aerodrome zone
F) Aircraft registration mark	HA-MKK

1.18 Other information

The owner of the aircraft, the Zavod ŠOLT, Cesta 27 aprila 31/7, 1000 Ljubljana, Slovenia, took out insurance in accordance with Regulation EC 785/2004 for the period from 5 April 2007 to 1 February 2008.

1.19 Used investigation techniques

Classical investigation techniques were used. The commission carried out the investigation using a photographic documentation technique in investigating the location of the accident, a technical investigation of the engine, the propeller and structural parts, meteorological data analysis, an analysis of the obtained documentation of the pilot and the aircraft, and an analysis of the radar image and the voice communication between the pilot and the FIS operator.

2. ANALYSIS

2.1 Flight Preparation

The pilot planned to fly in Class G uncontrolled airspace of the Republic of Slovenia from ŠENTVID airfield N45° 56' 39" E 14° 51' 18", Šentvid pri Stični, to Maribor Airport (LJMB). In class G airspace in Slovenia, flights are permitted without radio communication and without a flight permit. In class G airspace in Slovenia, a Flight Information Service (FIS) is available to pilots. Since the pilot planned to fly to Maribor Airport (LJMB), where there is an organised air traffic control service, he sent to the Air Traffic Services Reporting Office AIS/ARO (LJLJ) a flight plan for a flight under Visual Flight Rules in Visual Meteorological Conditions in accordance with the general flight rules. In analysing weather conditions and the data obtained from the satellite image, it could be established that on the day of the accident there was low cloud and fog; the latter still remained in a number of areas in the plains and basins of the Prekmurje and Dolenjska regions. Western Slovenia and the Ljubljana Basin were covered by a homogeneous layer of low Stratocumulus cloud. Over the Dolenjska region, the Celje Basin and the Savinja Valley there was low cloud consisting of Stratocumulus and Cumulus clouds with a total coverage of 3/8 to 7/8. Over the Štajerska and Dolenjska regions, there was 3/8 to 7/8 low Cumulus and Stratocumulus cloud coverage. The cloud base ranged from 4,000 ft (1,219 m) to 5,000 ft (1524 m) above sea level. In western and central Slovenia, peaks exceeding 1,000 metres were mostly covered by cloud. Given the presence of low cloud in the morning and expected cloud coverage of hills in western and central Slovenia during the day, the duty meteorologist decided to forecast that for most airways there would be no weather conditions for VFR flights. The first morning General Aviation Forecast (GAFOR) at 05:00:00 UTC(*) forecast a slight improvement of conditions in eastern Slovenia; however with regard to the development of the weather, the duty meteorologist appropriately corrected the forecast (issued at 08:00:00 UTC(*) and 11:00:00 UTC(*) and left all air routes practically closed for flights under Visual Flight Rules.

From the weather condition information and the forecast for 11 January 2008, it can be assumed that for the meteorological briefing within pre-flight preparations, the pilot probably only took into account the report on weather conditions and the weather forecast for Maribor Airport (LJMB) (airport of arrival) and the report on weather conditions and the weather forecast for Ptuj Airport (alternative airport); however, he did not take into account the weather conditions on the air route in the flight plan.

2.2 Weather conditions on the air route

In the area where the accident happened, there was a southwesterly wind of 12 knots with gusts of up to 25 knots. There was also moderate turbulence above FL030 and weak turbulence at the flight level between FL020 and FL 030. Visibility exceeded 10 km. Stratocumulus cloud covered from 5/8 to 7/8 of the sky with a cloud base at the flight level between FL040 and FL050. The peaks of the highest hills in the surrounding area were covered by clouds. Above FL060, there was light icing present within the cloud layers. Very poor visibility prevailed. This established condition was also confirmed by the passenger (note: the passenger is a pilot in possession of a ULN pilot licence and a sport pilot licence), who was sitting next to the pilot in the cockpit. In his statement, the passenger stated that the aircraft had no problems in the air, that the engine was running smoothly, and that at the time of the accident the aircraft was at an altitude of approximately 1,500 ft (475 m) (note: it is assumed that this altitude is the atmospheric pressure at aerodrome elevation QFE), which was for that area and the extremely poor visibility clearly far too low and thus they could not see Mount Javor (1,133 m) N 46°10.816' E 015° 00.908' near Sveta Planina (Trbovlje) in front of them. Due to the weather on the air route, it was only possible to fly under Instrument Flight Rules.

2.3 Course of flight

At 11:02:54 UTC(*) the pilot took off from ŠENTVID airfield. At 11:05:54 UTC(*) he reported for the first time via radio on the 118.475 MHz frequency to the Flight Information Service of the Area Air Traffic Control Centre in Ljubljana (ATCC Ljubljana).The Flight Information Service operator gave the pilot instructions for further performance of the flight under Visual Flight Rules, informed him of QNH and the reporting point MS2 (Slovenske Konjice) and confirmed the transponder code squawk 2000. The pilot confirmed receipt of the operator’s instructions and continued his flight towards reporting point MS2 (Slovenske Konjice). Due to poor visibility conditions on the air route in the direction towards reporting point MS2, the pilot directed the aircraft back towards the airport of departure, ŠENTVID airfield. At 11:19:23 UTC(*), the aircraft was located over Litija at an altitude of 3,200 ft (975 m). Due to the change in the flight direction and flight towards CTR Ljubljana, the Flight Information Service operator asked the pilot about his intentions. The pilot informed the operator that he was avoiding the clouds due to visual meteorological conditions. As the pilot had already entered CTR Ljubljana, the operator instructed him that he was not allowed to fly further westwards and that he should stay below 3,500 ft (1067 m) due to arrivals of aircraft

to Ljubljana Airport (LJLJ) under Instrument Flight Rules. The pilot confirmed receipt of the operator's instructions and at 11:21:51 UTC(*) directed his aircraft eastward to radial 060° VALLU. At 11:23:06 UTC(*) the pilot had a last voice exchange with the operator of the Flight Information Service of the Area Air Traffic Control Centre (ATCC Ljubljana). At 11:27:49 UTC(*), the aircraft disappeared from the radar screen and at 11:28:00 UTC(*) it crashed into Mount Javor (1,133 m) near Sveta Planina (Trbovlje) at an altitude of 1,075 m N 46°10.816' E 015° 00.908'. The pilot attempted to keep visual contact with the ground by reducing the flight level on the air route several times, including the change of flight direction and was successful until the direct approach to Mount Javor (1,133 m) N 46°10.816' E 015° 00.908' near Sveta Planina (Trbovlje), where the aircraft was at an altitude 1,075 m, which was, given the altitude of Mount Javor of 1,133 m, too low above the terrain.

2.4 Location of the accident

The aircraft crashed into Mount Javor (1,133 m) near Sveta Planina (Trbovlje) at an altitude of 1,075 m. The aircraft first crashed into the highest branches of trees with its propeller blades, then with wings and fuselage until it finally crashed on the earth. After the crash, the entire quantity of fuel in the aircraft spilled from the fuel tanks. This resulted in a fire over the entire aircraft. In the crash of the propeller blades against a tree, the engine was torn from the engine compartment. The aircraft wreckage was concentrated on the crash site and the typical curvature of the propeller blades proved that at the time of the crash, the engine had been working at cruising power; the speed of the aircraft immediately before the aircraft disappeared from the radar screen was 125 knots.

2.5 Human factors

The aircraft commander – a pilot with a professional pilot licence – had appropriate licences to command aircraft An-2 and a valid class I medical certificate. From the documentation obtained by the commission, it was established that during the accident the pilot was not under the influence of alcohol or other substances. The pilot's health condition had no impact on the accident. The pilot appropriately declared his flight. From the obtained weather documentation, it was evident that weather conditions for the planned flight were bad, but the pilot nevertheless decided to perform the flight. From the available radar image, it can also be seen that the pilot tried to perform the flight with the Global Positioning System. The radar record of the flight complies with the planned flight direction; however, the weather conditions (low cloud

base and poor horizontal visibility) were too bad for performance of the flight, which resulted in the mountain crash. These findings were also confirmed by the passenger.

2.6 Technical aspects

The aircraft was registered and had a valid airworthiness certificate. During the technical investigation of the aircraft, the engine and the propeller, it was established that the engine was operating in the horizontal flight regime. The aircraft had no technical problems with the engine, propeller and other systems and equipment. Prior to the crash there was no fire in the engine. These findings of the commission were also confirmed by the statement of the passenger.

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3. CONCLUSIONS

3.1 Findings

- In the meteorological briefing within pre-flight preparations, the pilot probably only took into account the weather report and the weather forecast for Maribor Airport (LJMB) (landing airport) and the weather report and the weather forecast for Ptuj Airport (alternative airport); however, he did not take into account the conditions on the air route in the flight plan.

- The pilot appropriately declared his flight.

- With regard to circumstances on the route, only flying under Instrument Flight Rules (IFR) was possible. The pilot tried to keep visual contact with the ground by reducing the flight level on the air route several times, including the change of the flight direction, and was successful until the aircraft's direct approach to Mount Javor (1,133 m) N 46°10.816' E 015° 00.908' near Sveta Planina (Trbovlje), where the aircraft was at an altitude 1,075 m, which was, given the altitude of Mount Javor of 1,133 m, too low above the terrain.

- The wreckage of the aircraft was concentrated on the crash site and the typical curvature of the propeller blades proved that at the time of the crash the engine was working at cruising power; the speed of the aircraft immediately before the aircraft disappeared from the radar screen was 125 knots.

- The aircraft commander – a pilot with a professional pilot licence – had appropriate licences to command aircraft AN-2 and a valid class I medical certificate.

- The pilot's health condition had no impact on the accident.

- From the obtained weather documentation, it was evident that weather conditions for the planned flight were bad, but the pilot nevertheless decided to perform the flight.

- From the available radar image, it can also be seen that the pilot tried to perform the flight with the aid of a Global Positioning System.

- The radar record of the flight complies with the planned flight direction, however, the weather conditions (low cloud base and poor horizontal visibility) were too bad for performance of the flight, which resulted in the mountain crash. These findings were also confirmed by the statement given by the passenger who survived the accident.

- The engine operated in the horizontal flight regime. The aircraft had no technical problems with the engine, propeller and other systems and equipment. There was no fire in the engine before the crash. The findings of the commission were confirmed by the statement given by the passenger who survived the accident.

3.2 Cause of the accident

Bad weather conditions on the route and in the vicinity of Mount Javor (1,133 m) N 46°10.816' E 015° 00.908' near Sveta Planina (Trbovlje) with a low cloud base and poor visibility were the reason that the pilot lost his visual contact with the ground. Due to the current conditions set for the flight, the flight was to be performed under Visual Flight Rules. The pilot tried to keep visual contact with the ground by reducing the altitude, which he succeeded in doing at the beginning of the flight. In approaching Mount Javor (1,133 m) N 46°10.816' E 015° 00.908' near Sveta Planina (Trbovlje), the aircraft was at an altitude 1,075 m, which was too low above the terrain.

The cause of the accident was controlled flight into terrain (CFIT).

4. SAFETY RECOMMENDATIONS

- **We recommend that the Ministry of Transport, Civil Aviation Directorate, notify all flight schools and private pilots on the importance of thorough pre-flight preparation and elaboration of a flight plan as laid down in the relevant regulations.**
- **We recommend that in the event of inappropriate weather conditions for flying under Visual Flight Rules, Air Traffic Control informs the pilot on the route thereof, on condition that there is voice communication established between Air Traffic Control and the pilot.**

APPENDICES

APPENDIX A: Flight route

APPENDIX B: Radar image recording

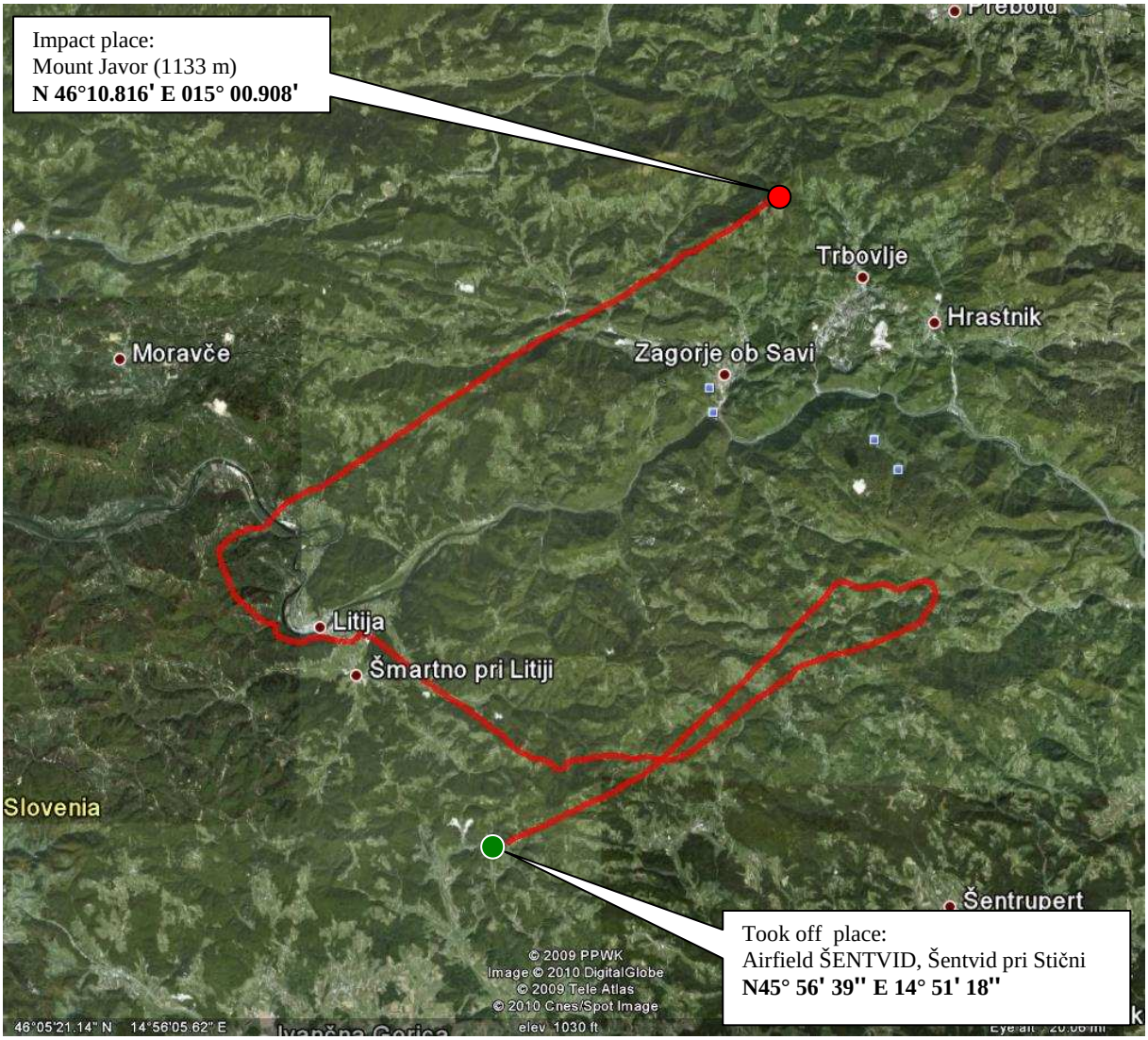
APPENDIX C: Transcript of voice communication

APPENDIX D: Meteorological situation and messages

APPENDIX E: Photographs of the location of accident

APPENDIX F: Photographs of the technical investigation of the aircraft wreckage

APPENDIX A: Flight route



Flight route the aircraft HA-MKK

APPENDIX B: Radar image recording

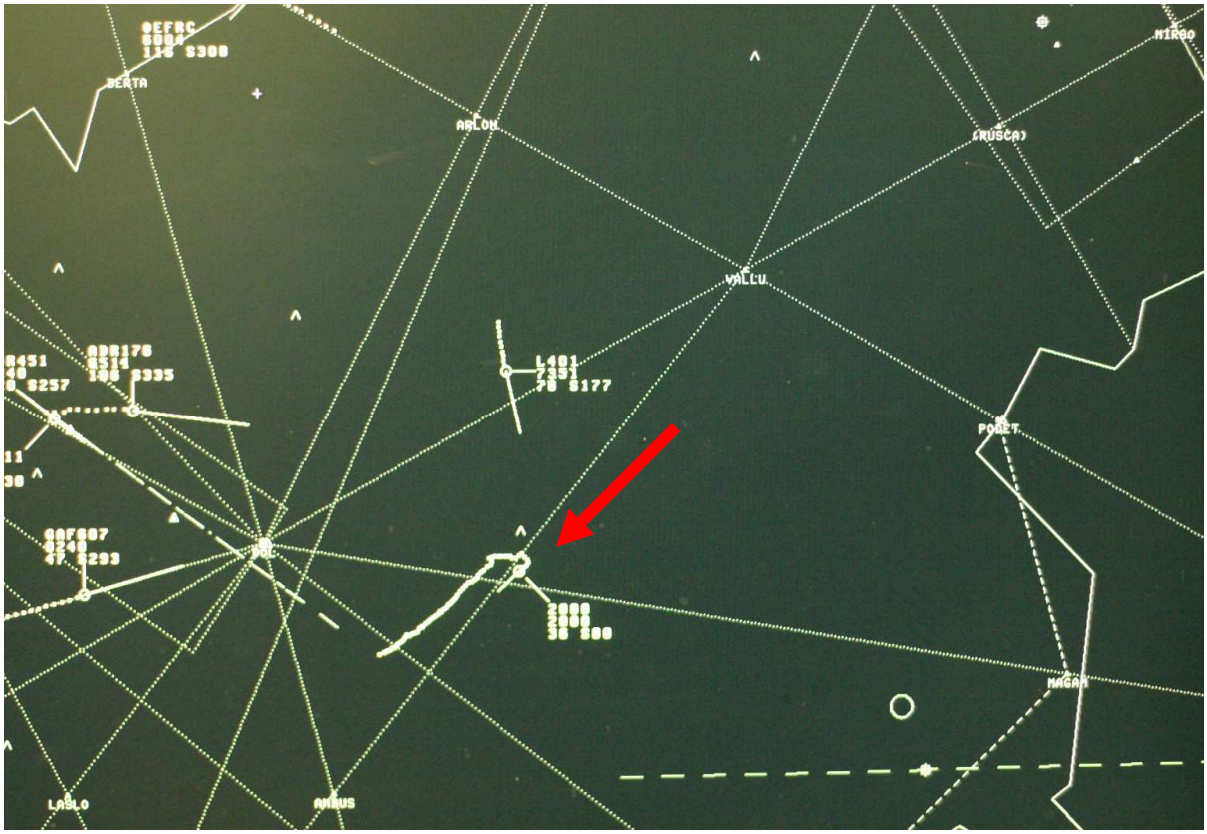


Image 1: Change the direction

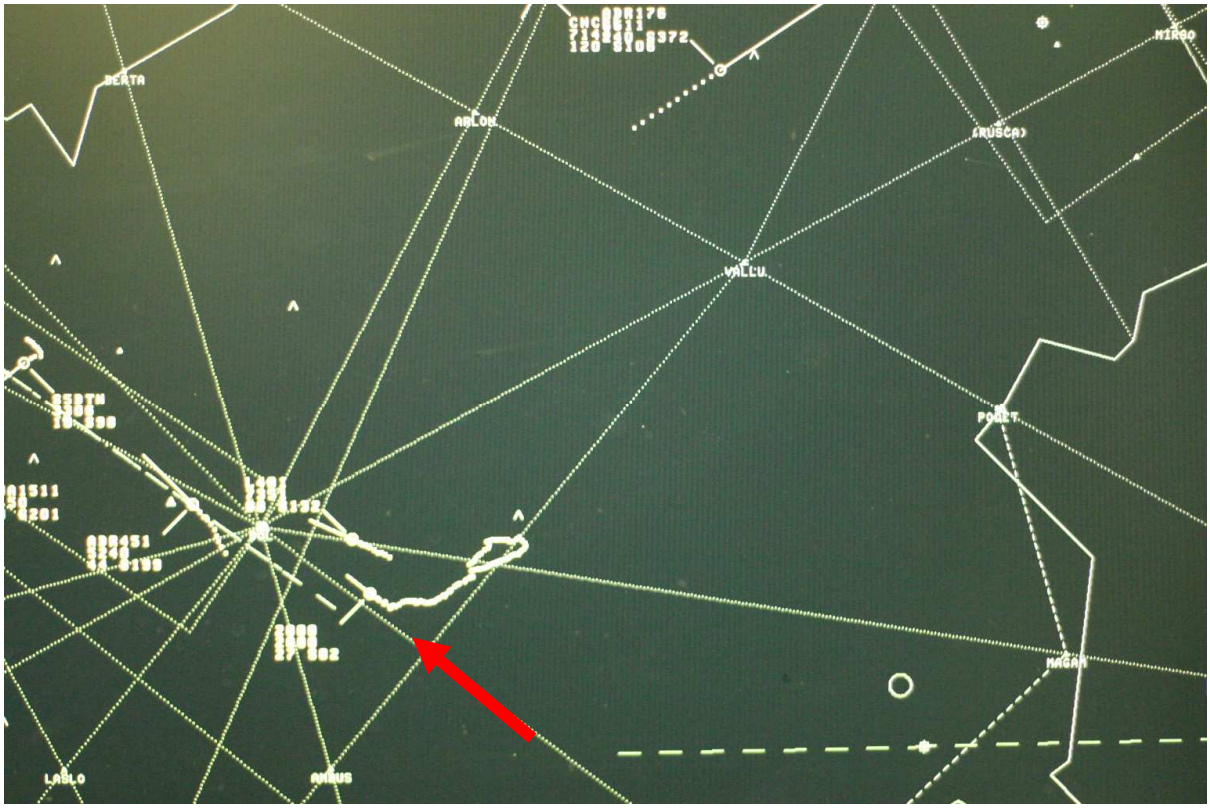


Image 2: Direction toward CTR Ljubljana

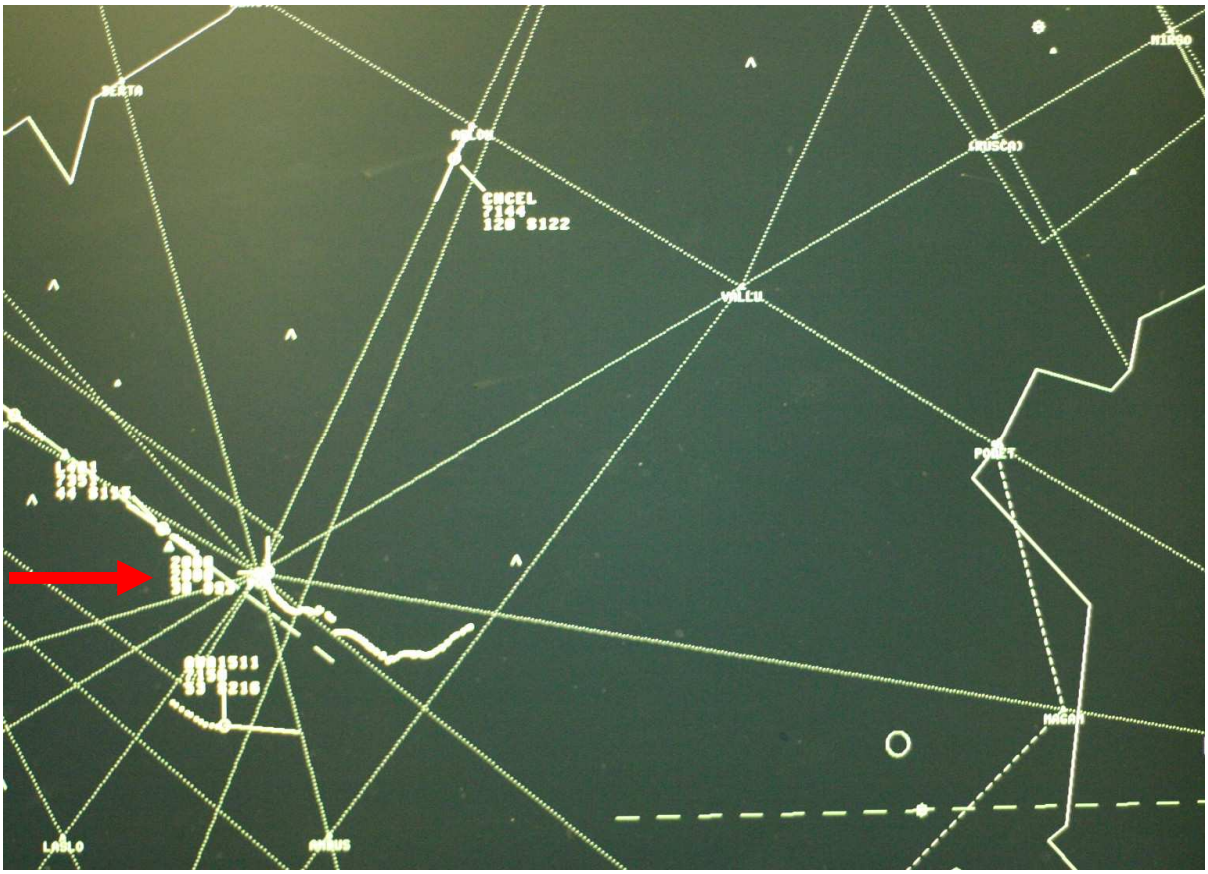


Image 3: Above Litija on altitude 3,200 ft (975.36m)

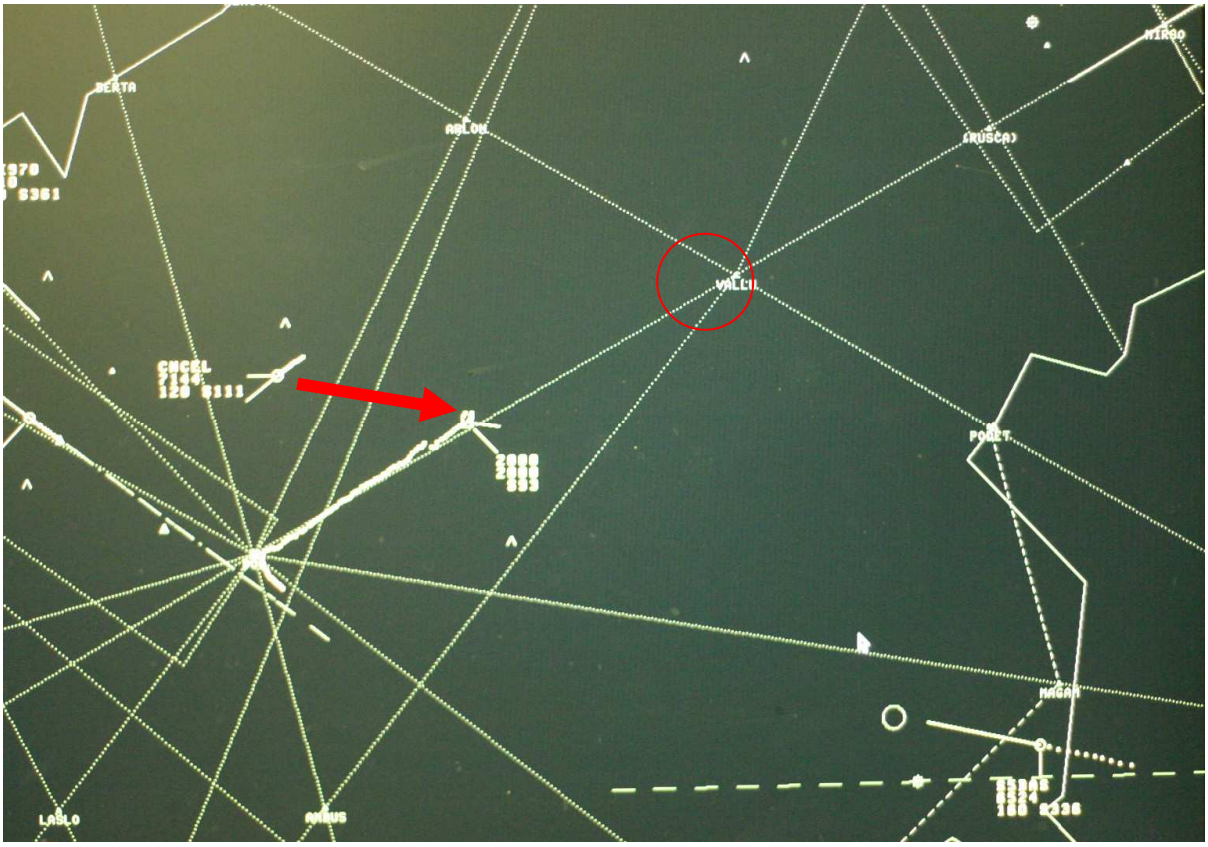


Image 4: Position when aircraft disappeared from the radar screen

APPENDIX C: Transcript of voice communication

Frequency: 118,475 MHz

Interval: 1100 – 1400 UTC

Occurrence Date:11.01.2008

Occurrence Time:1128 UTC

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:05:54	HAMKK	Ljubljana information HAMKK dober dan	First call HAMKK on frequency
	FIS	HAMKK Ljubljana information dober dan go ahead	
	HAMKK	HAMKK via flight plan from Šentvid destination Maribor departed before three minutes altitude one.. two thousand HKK	
	FIS	HKK continue VFR QNH 1021 report MS2	
	HAMKK	Call you MS2 HKK QNH 1021	
	FIS	QNH is 1021	
	HAMKK	QNH 1021 HKK	
11:06:41			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:11.36	OEXLE	Ljubljana information OEXLE dober dan	
	FIS	OEXLE Ljubljana information dober dan go ahead	
11:11:46			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:11:52	FIS	OEXLE Ljubljana information good day go ahead	
	OEXLE	OEXLE on VFR flight from Maribor to Zagorje overhead ME …MS2 estimating Celje at 25 Zagorje next	
	FIS	OLE continue VFR QNH 1021 report before changing to local frequency	
	OEXLE	continue VFR QNH 1021 wilco OEXLE	
11:12:33			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:19:09	FIS	HKK Ljubljana	
11:19:13			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:19:23	FIS	HKK Ljubljana information	
	HAMKK	Go ahead HKK	
	FIS	Report intentions	
	HAMKK	Via flight planed route to Maribor but avoiding direc Dolsko to mantain VMC now overhead Litija three thousand two hundred feet	
	FIS	HKK roger stay clear of CTR Ljubljana and remain below three thousand five hundred feet due IFR arrivals to Ljubljana	
	HAMKK	Remaining below three thousand five hundred avoiding CTR Ljubljana	
11:20:00			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:21:28	FIS	HKK že vstopate v CTR bolj zahodno ne smete	
11:20:00			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:21:44	FIS	HKK	
	HAMKK	…. Affirmative roger HKK	
11:21:51			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:22:21	FIS	OLE report position	
11:22:25			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:22:29	FIS	OLE report position	
	OEXLE	OLE abeam Celje	
	FIS	OLE roger possible traffic antonov two overhead Litija inbound MS2 at 3000 feet	
	OEXLE	Looking out OLE	
	FIS	HKK possible traffic light helikopter abeam Celje inbound Zagorje thousand above ground	
	HAMKK	Received information HKK looking out	
11:23:06			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:33:21	OEXLE	Ljubljana information OLE three minutes before landing Zagorje	
	FIS	OLE roger contact local frequency adijo	
	OEXLE	Contact local frequency hvala adijo	
11:33:39			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:51:30	FIS	HKK report position	
11:51:36			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:51:49	FIS	HKK Ljubljana information do you read	
11:51:53			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
11:52:01	FIS	HKK Ljubljana information do you read	
11:52:05			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
12:00:04	FIS	HAMKK Ljubljana information	
12:00:10			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
12:00:19	FIS	HAMKK Ljubljana information	
12:00:25			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
12:00:41	FIS	HAMKK Ljubljana information	
12:00:47			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
12:01:22	FIS	HAMKK Ljubljana information	
12:01:26			End of voice exchange

TIME hh:mm:ss	SOURCE	TRANSCRIPT	NOTE
12:18:51	FIS	HAMKK Ljubljana information	
12:18:55			End of voice exchange

APPENDIX D: Meteorological situation and messages

Weather conditions in Slovenia:

- *Wind*

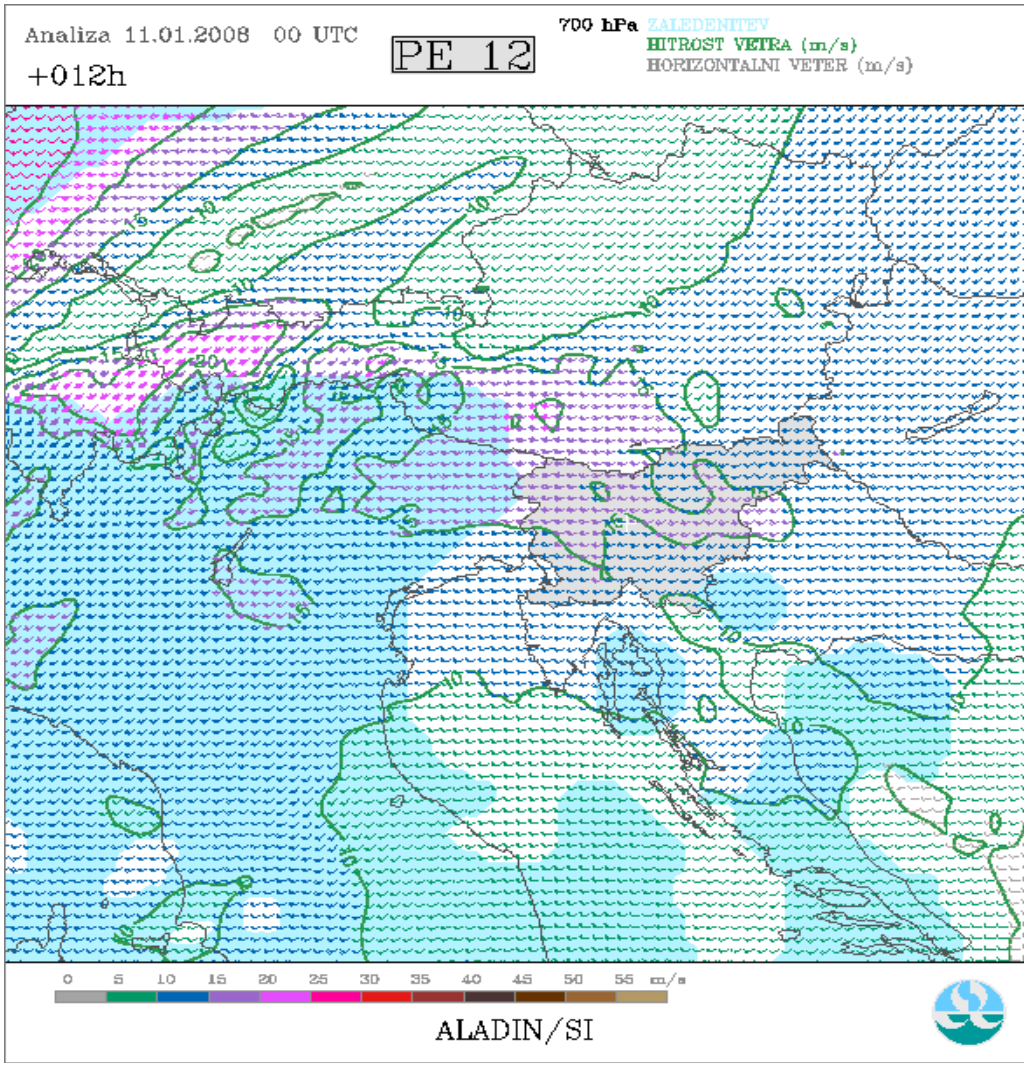


Image1: ALADIN of 11.01.2008 at 12 UTC(*) – FL100

Over Slovenia, moderate southeasterly winds prevailed. At an altitude of FL050 to FL100, the wind speed calculated according to the ALADIN meteorological model was 25 knots. Over central Slovenia, the wind speed at the altitude around FL050 was approximately 20 knots with gusts of up to 30 knots. At all altitudes, the wind was southwesterly. In the valleys and basins, surface wind blew only in some parts.

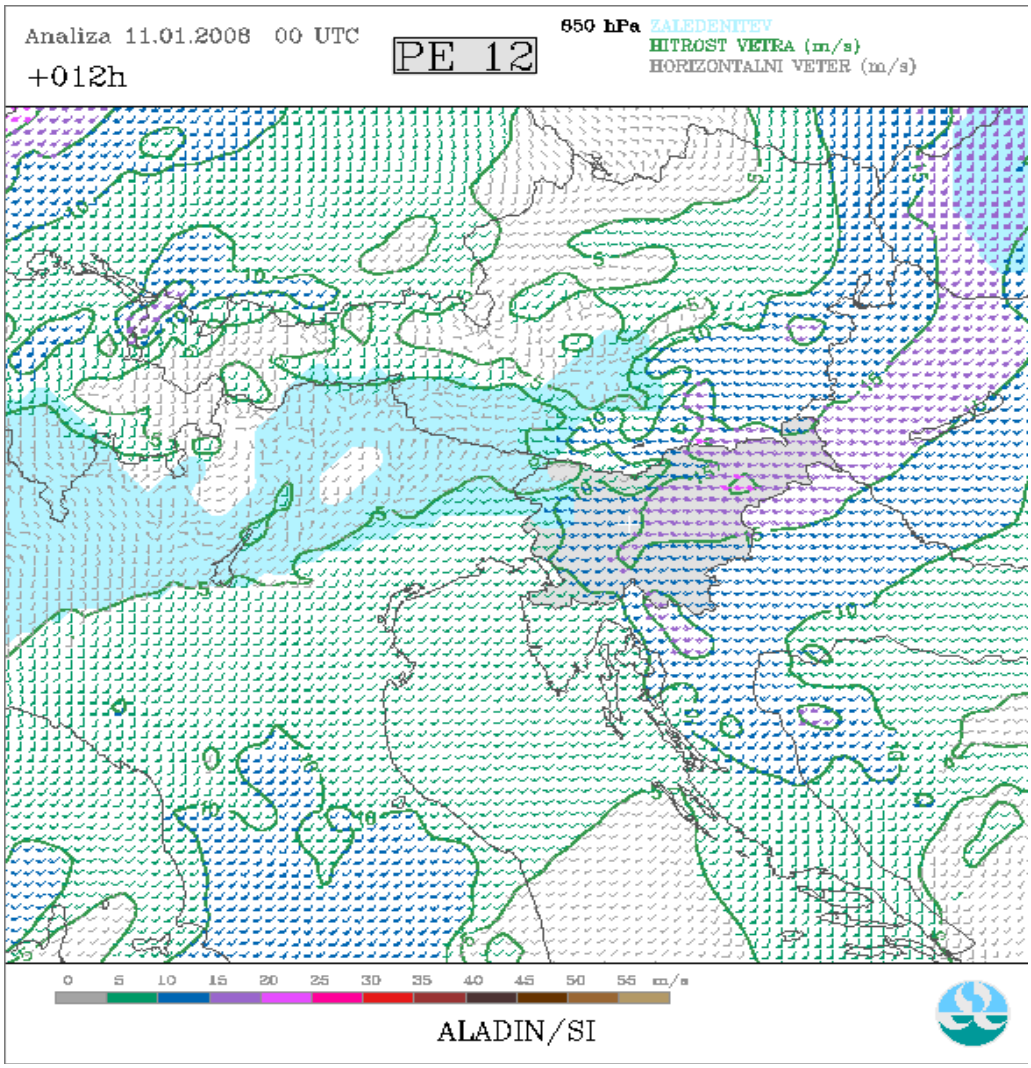
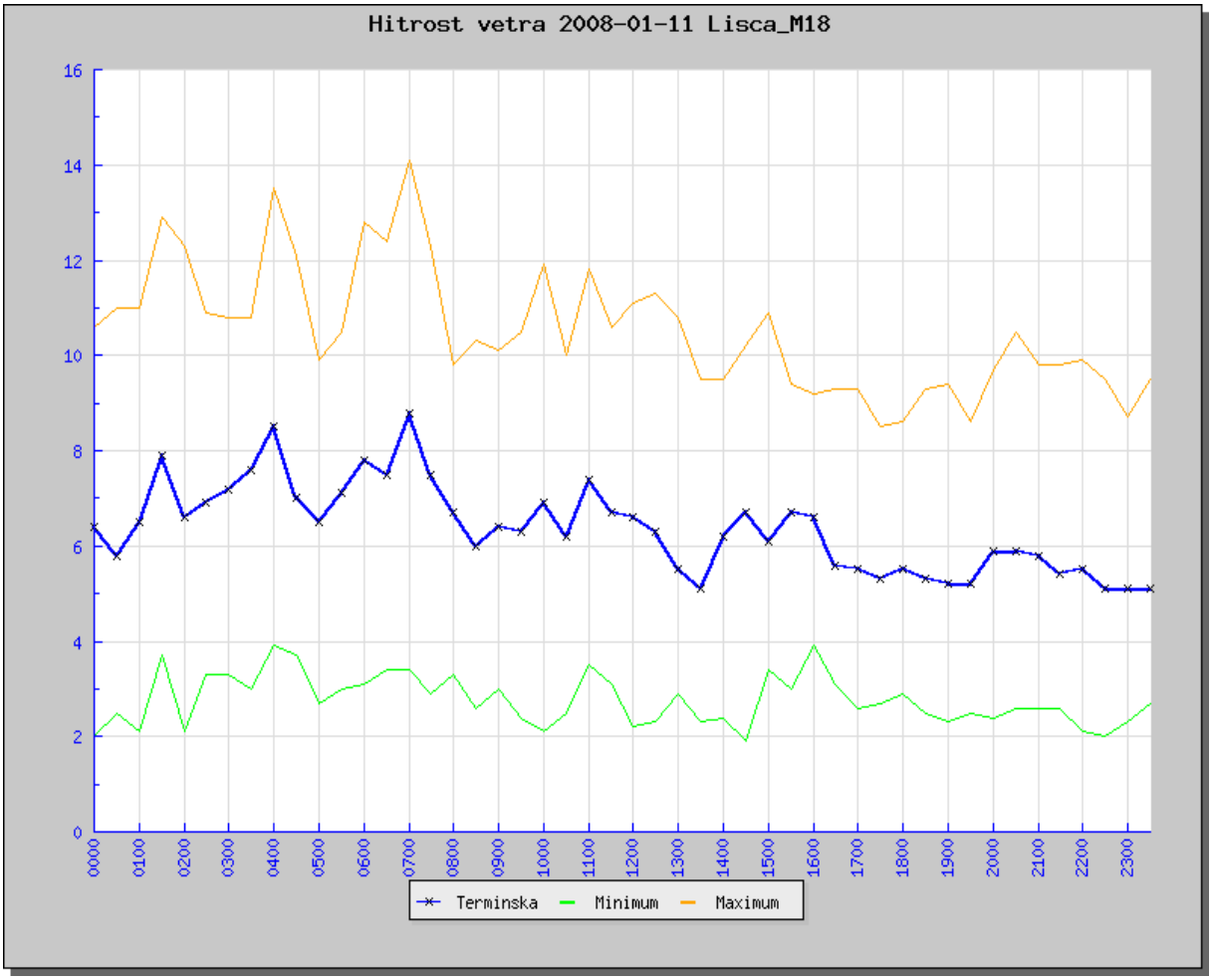


Image 2: ALADIN of 11.01.2008 at 12 UTC(*) – FL050

Measurements of automatic weather stations:

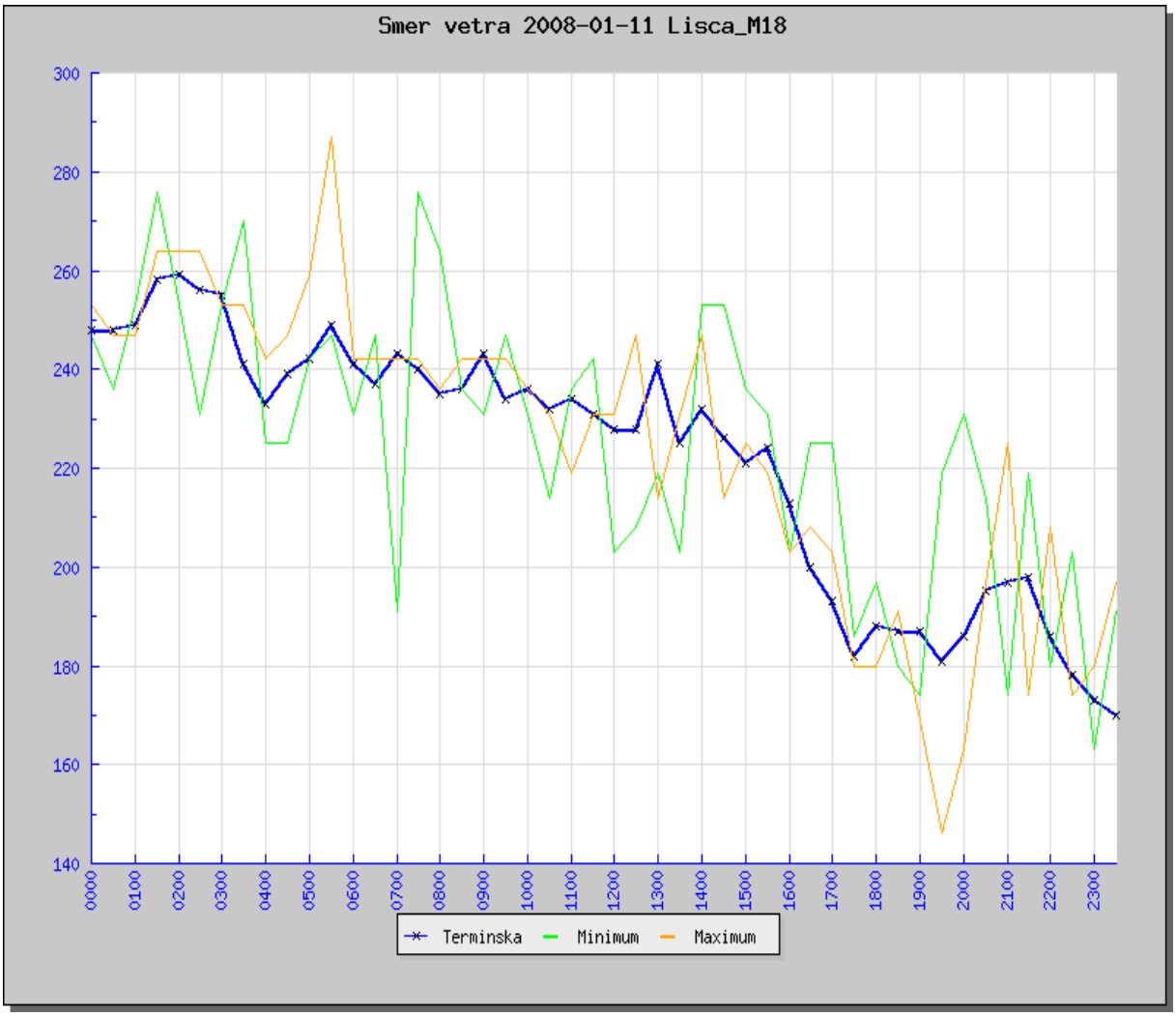
Lisca: Wind speed



Wind speed 2008-01-11 Lisca_M18

In lower areas, at the altitude of FL030 (Lisca 943 m), wind was 12 knots with gusts to 25 knots.

Lisca: Wind direction



Wind direction 2008-01-11Lisca_M18

Celje: Wind speed

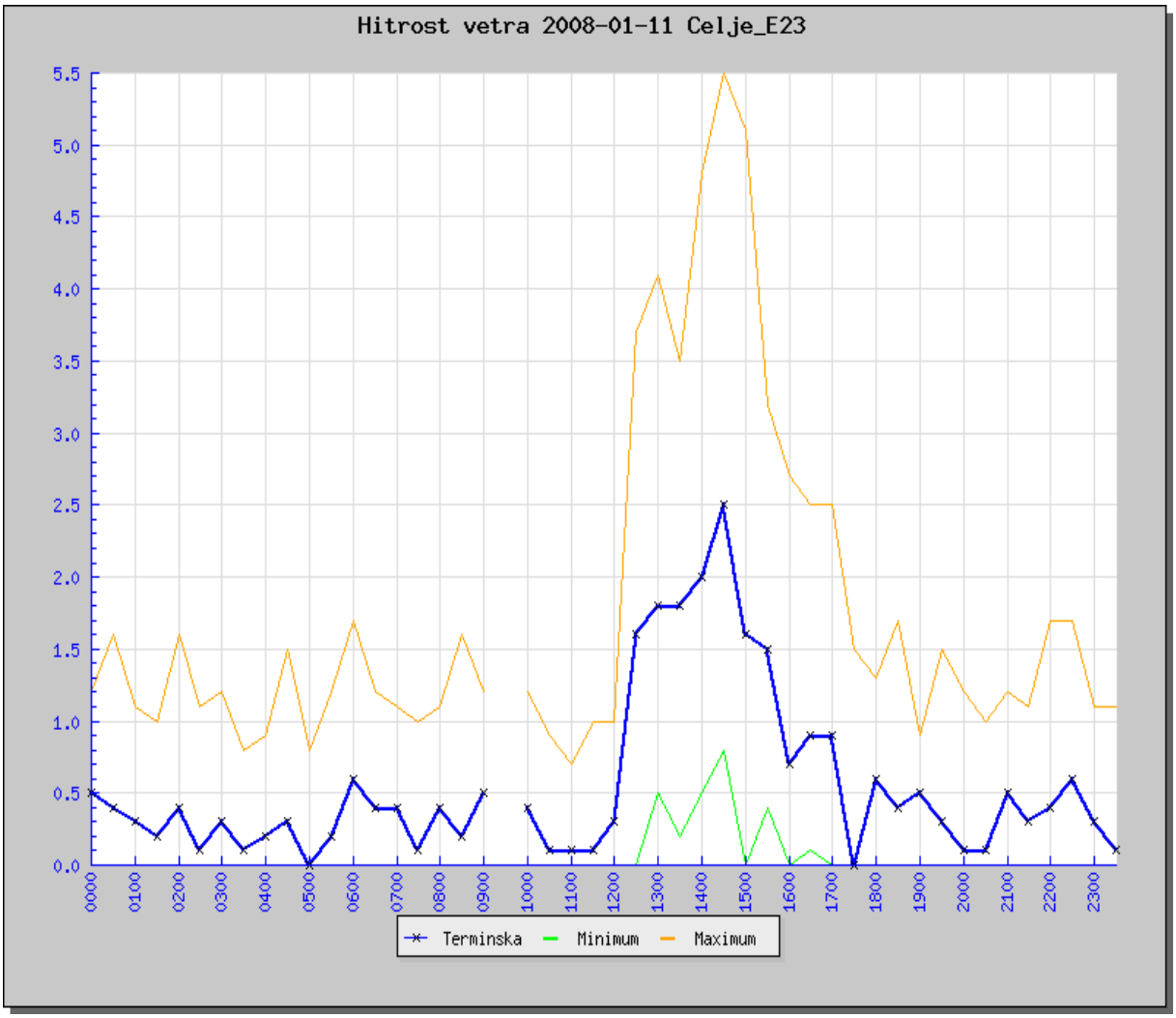
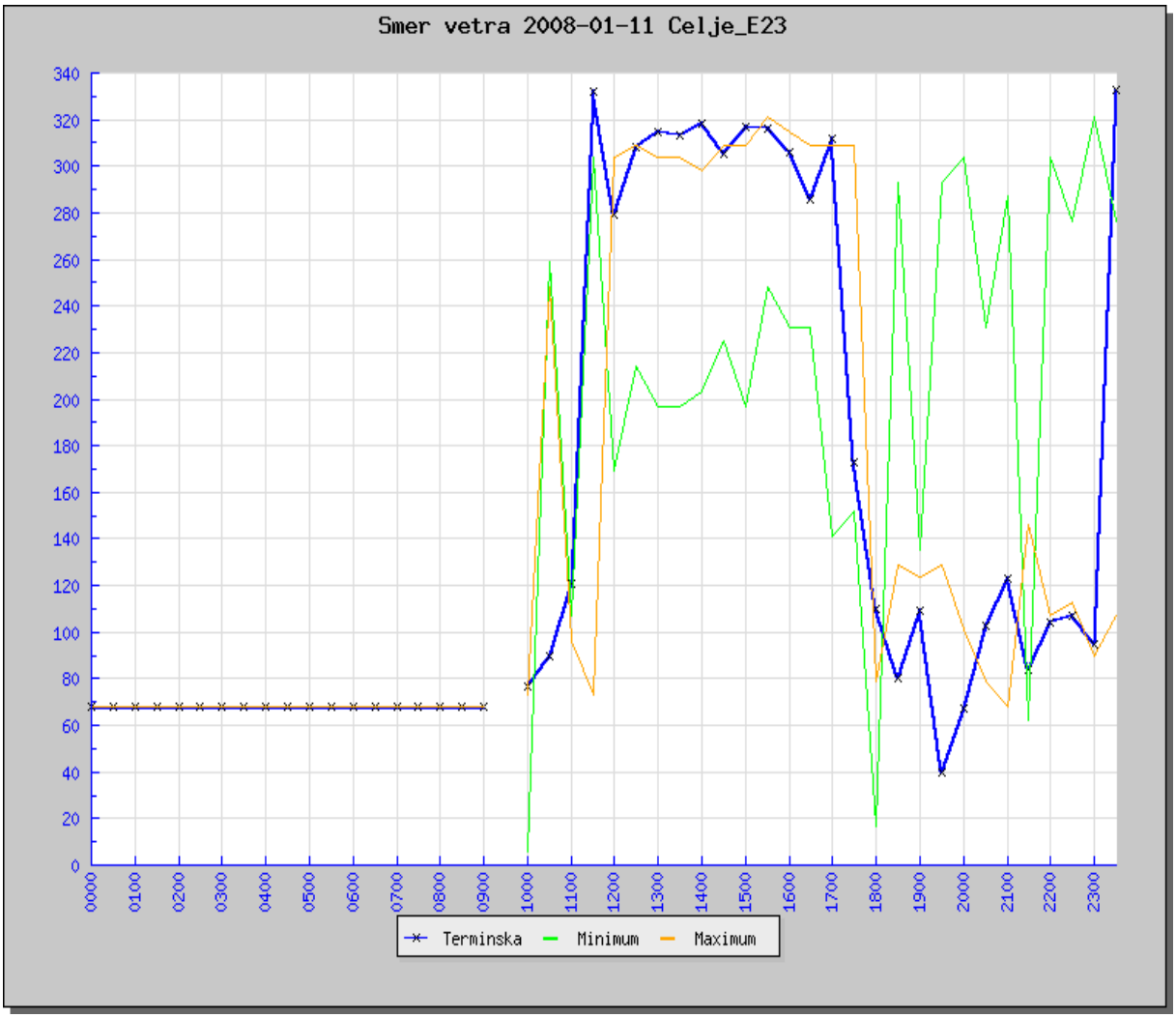


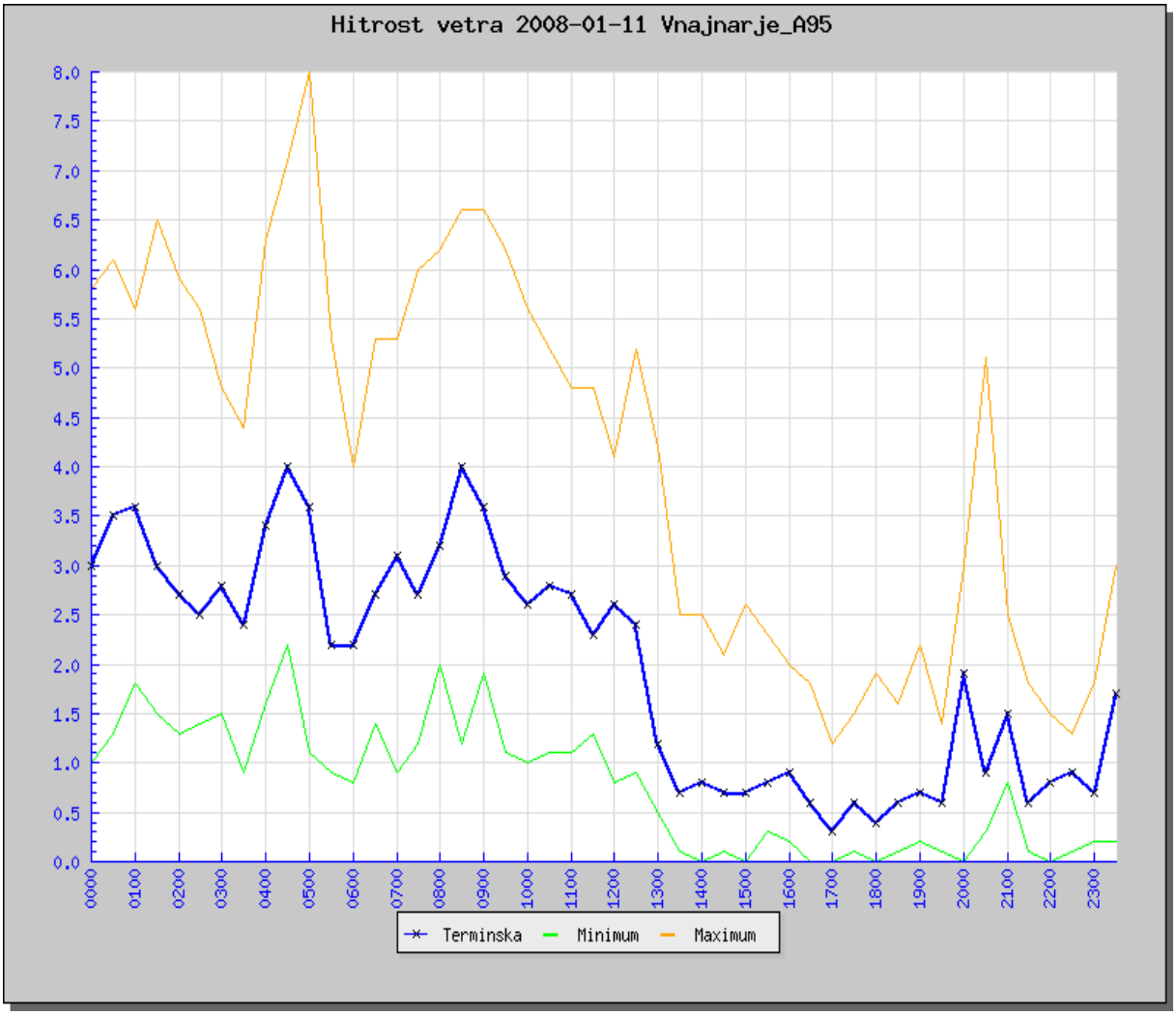
Image 1: Wind speed 2008-01-11 Celje_E23

Celje: Wind direction



Wind direction 2008-01-11Celje_E23

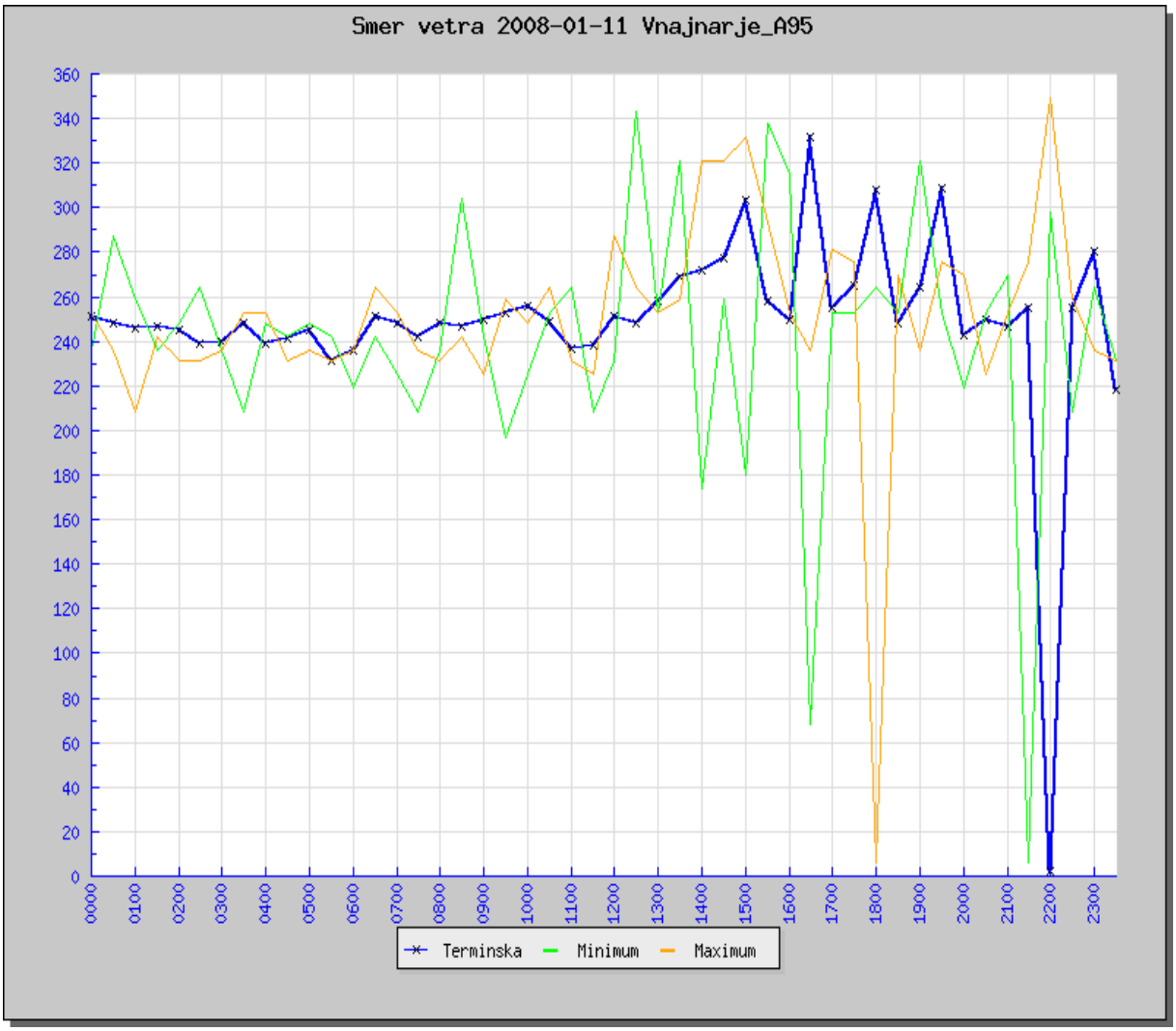
Vnajnarje: (20 km Eastwards from Ljubljana) Wind speed



Wind speed 2008-01-11Vnajnarje_A95

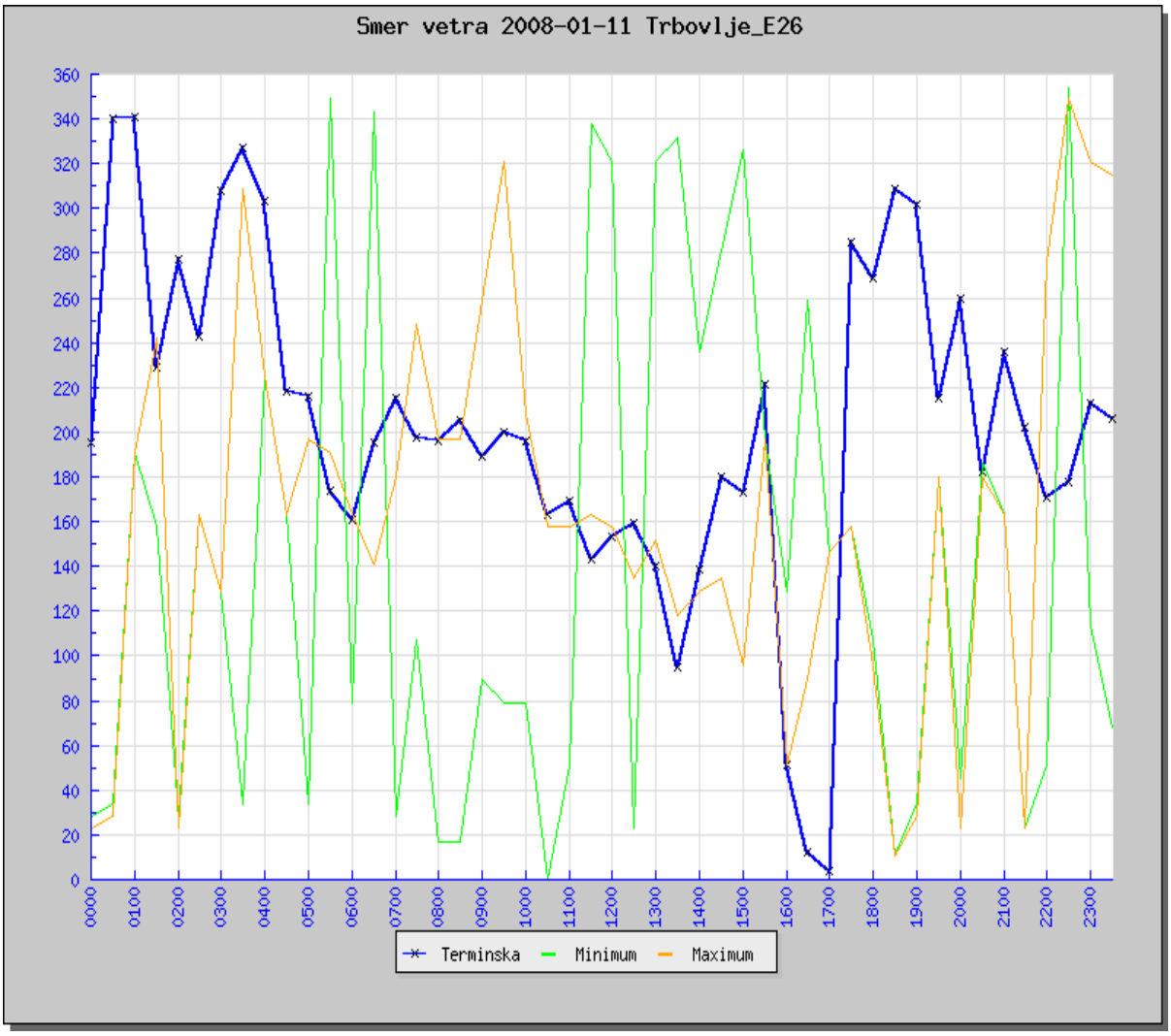
On the altitude of FL020 (Vnajnarje 630 m), wind was 5 knots with gusts to 10 knots.

Vnajnarje: (20 km Eastwards from Ljubljana) Wind direction



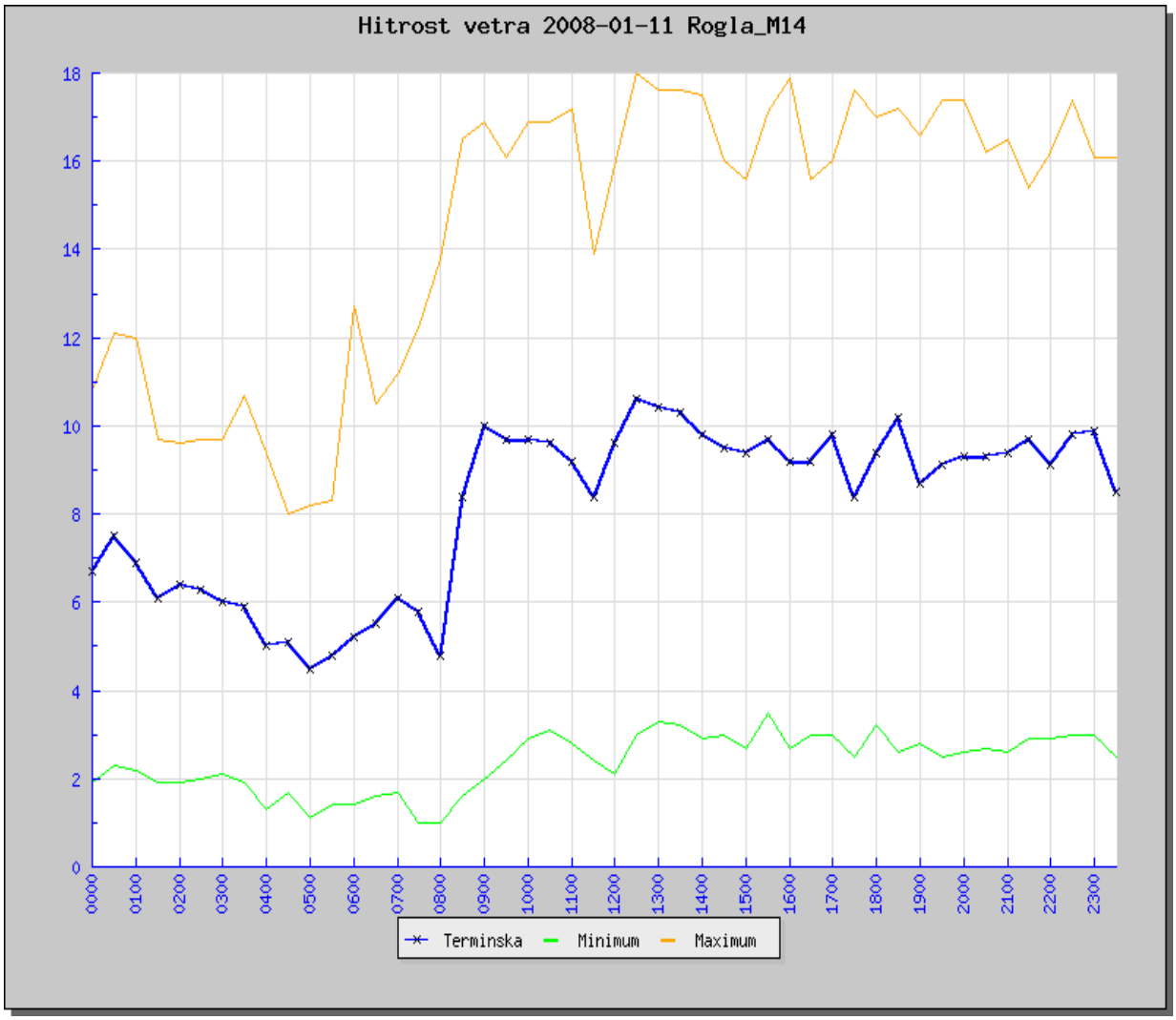
Wind direction 2008-01-11 Vnajnarje_A95

Trbovlje: Wind direction



Wind direction 2008-01-11 Trbovlje_E26

Rogla: Wind speed



Wind speed 2008-01-11 Rogla_M14

Rogla: Wind direction

Wind direction 2008-01-11 Rogla_M14

Cloud:

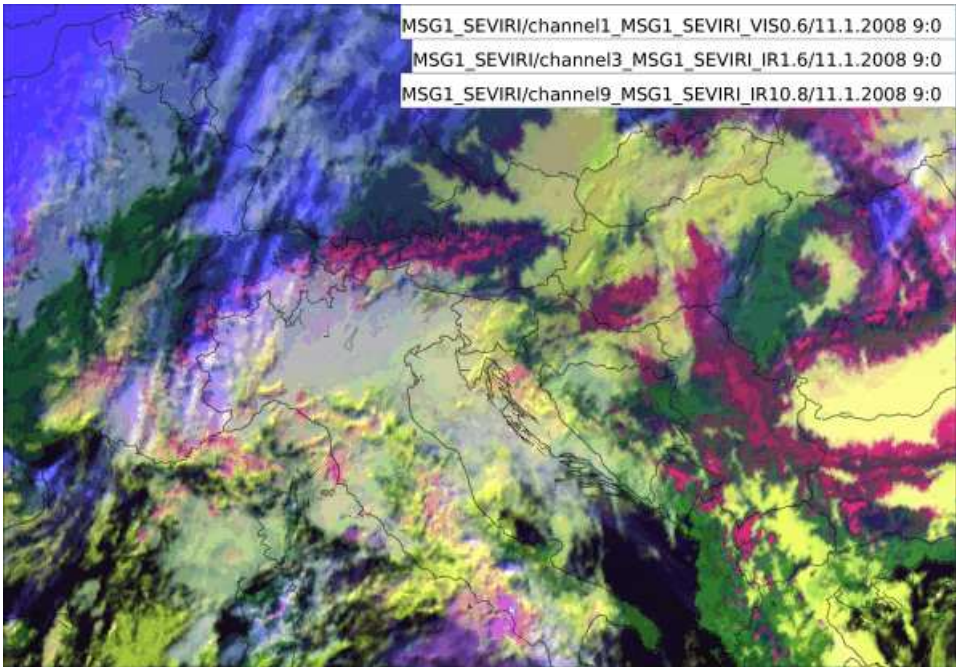


Image 1: Satellite image 11.01.2008 at 09 UTC(*)

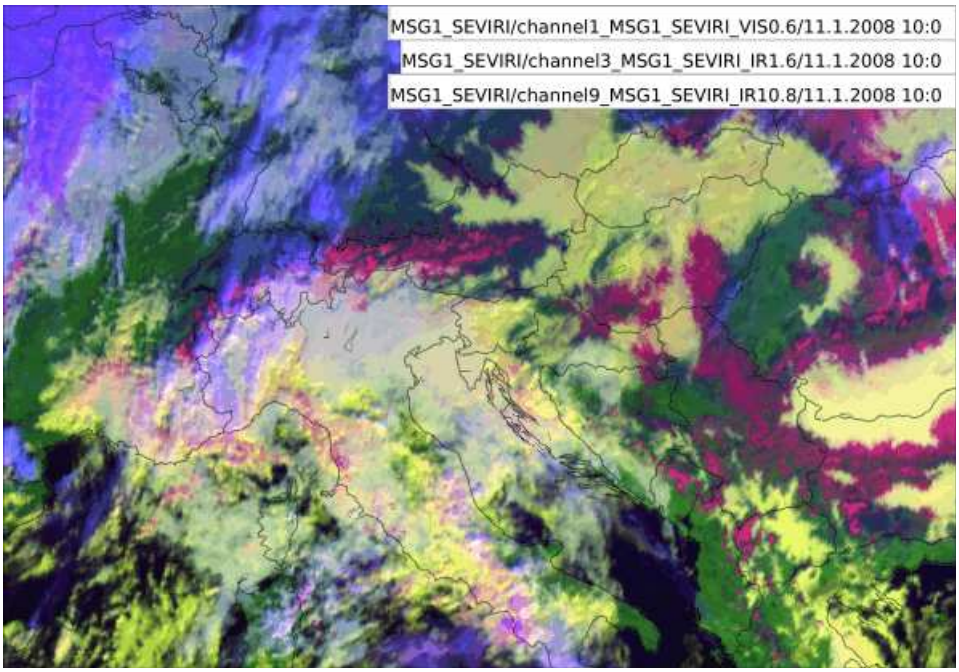


Image 2: Satellite image 11.01.2008 at 10 UTC(*)

Cloud:

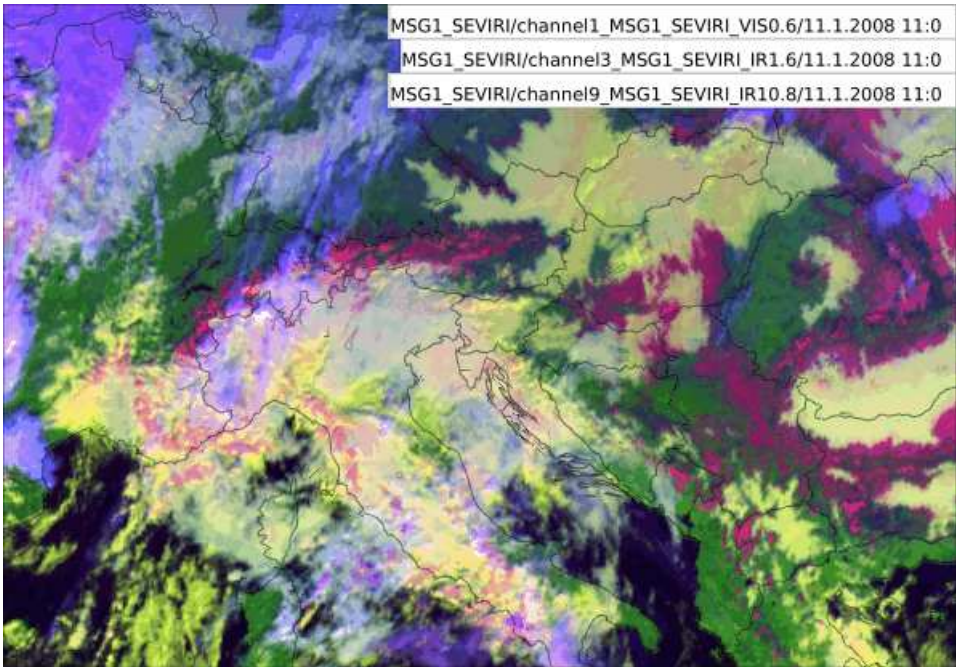


Image 3: Satellite image 11.01.2008 at 11 UTC(*)

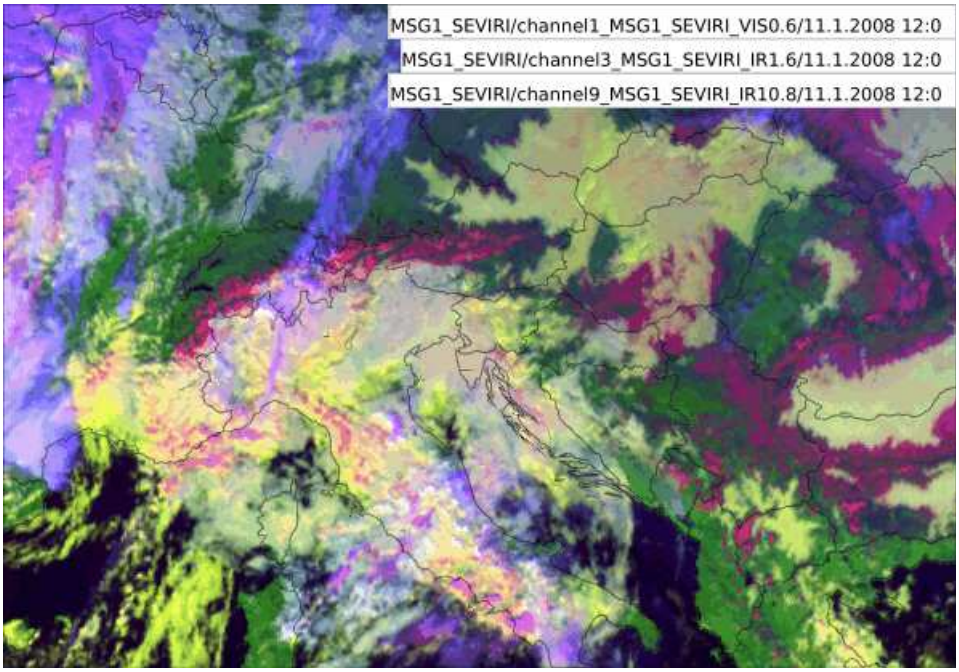


Image 4: Satellite image 11.01.2008 at 12 UTC(*)

Cloud:

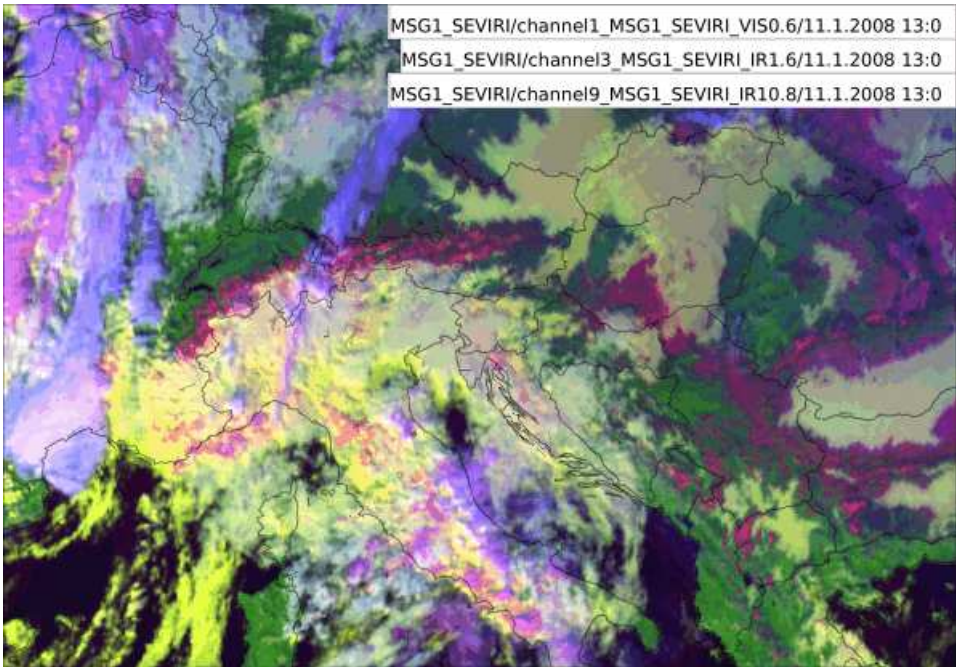


Image 5: Satellite image 11.01.2008 at 13 UTC(*)

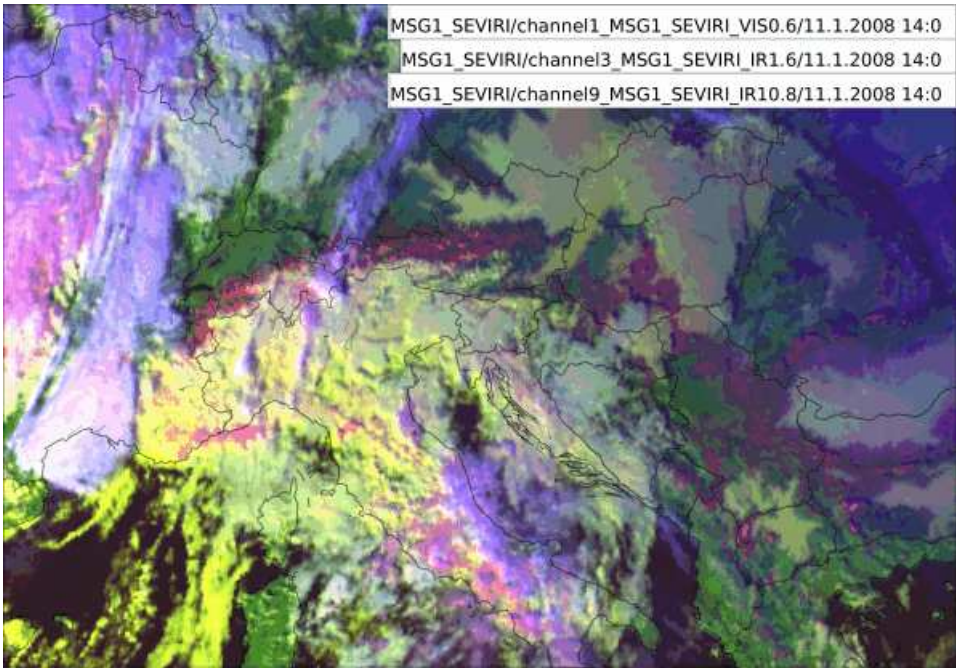
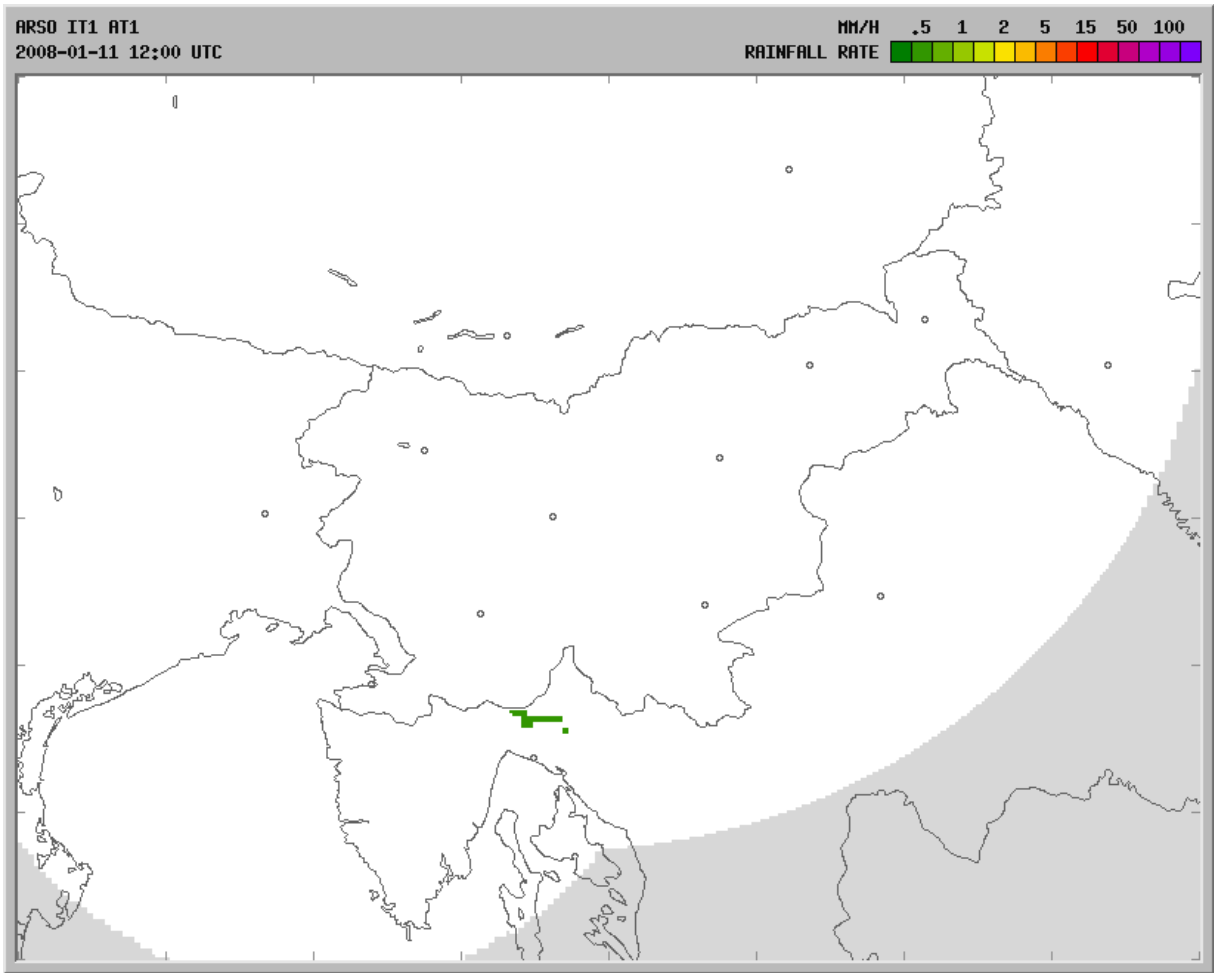


Image 6: Satellite image 11.01.2008 at 14 UTC(*)

Precipitation:



Radar image 11.01.2008 at 12 UTC(*)

Western Slovenia experienced precipitation and the snow level was at FL060. Precipitation was light and not observable by radar. There was no precipitation in central Slovenia.

Dangerous weather conditions on 11 January 2008 between 08:00 UTC(*) and 14:00 UTC(*)

Turbulence

Over northern Slovenia, moderate turbulence was expected above FL030 and light turbulence at the flight level between FL020 and FL030. Two AIRMET warnings were issued on the expected intensity of the turbulence.

LJLA AIRMET 3 VALID 110900/111200 LJLJLJLA
LJUBLJANA FIR MOD TURB FCST ABV FL030 STNR NC=
and
LJLA AIRMET 5 VALID 111200/111600 LJLJLJLA
LJUBLJANA FIR MOD TURB FCST ABV FL030 STNR NC=

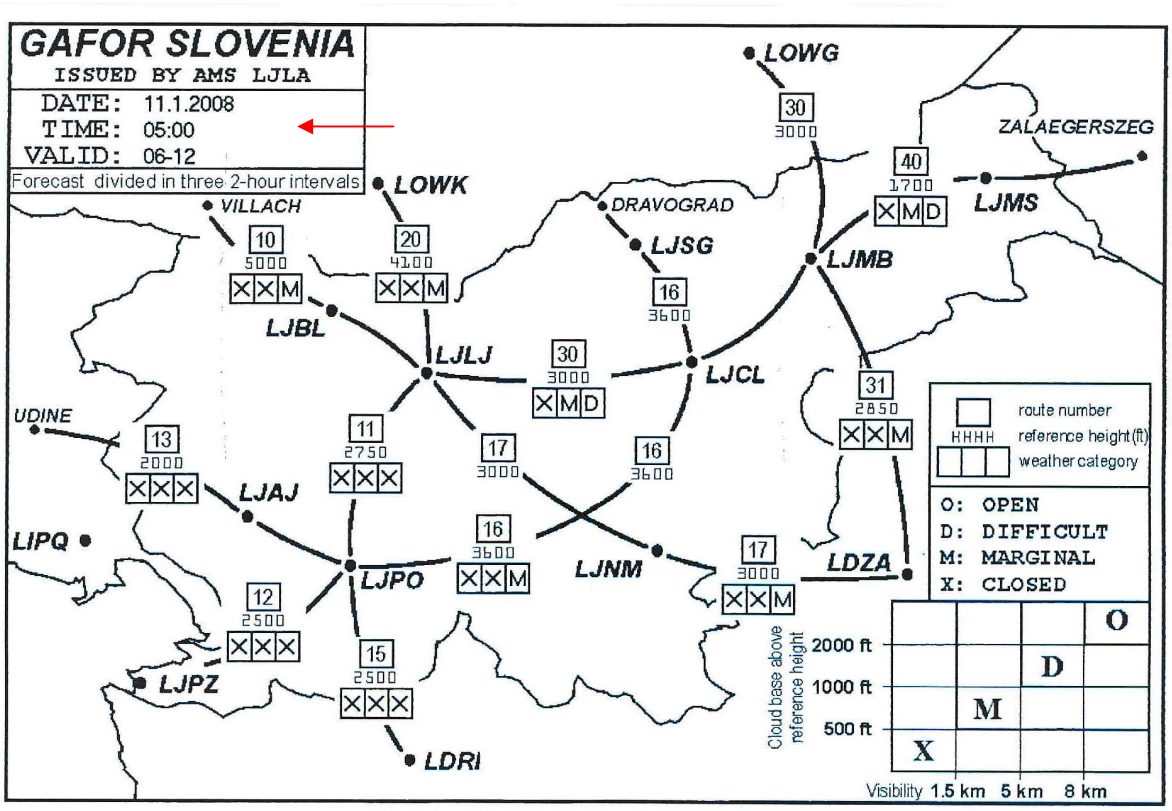
Icing

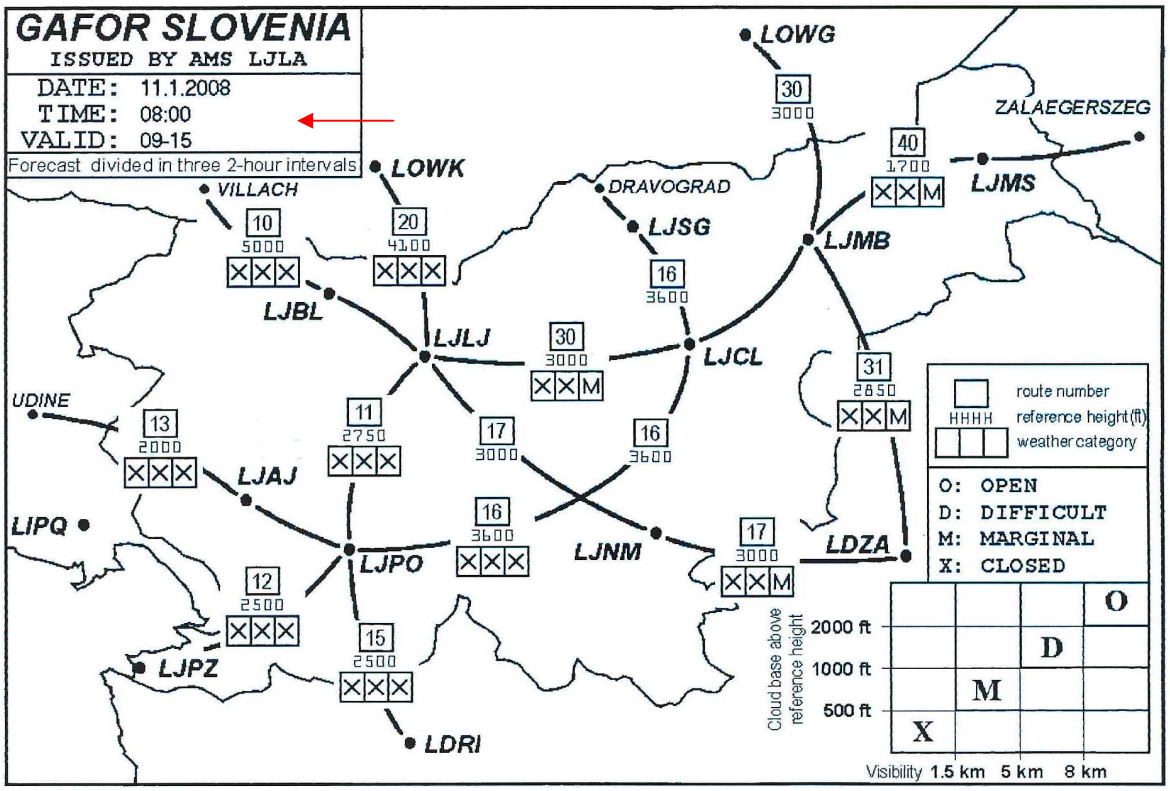
Over western Slovenia moderate icing was expected above FL060. An AIRMET warning for moderate icing was issued.

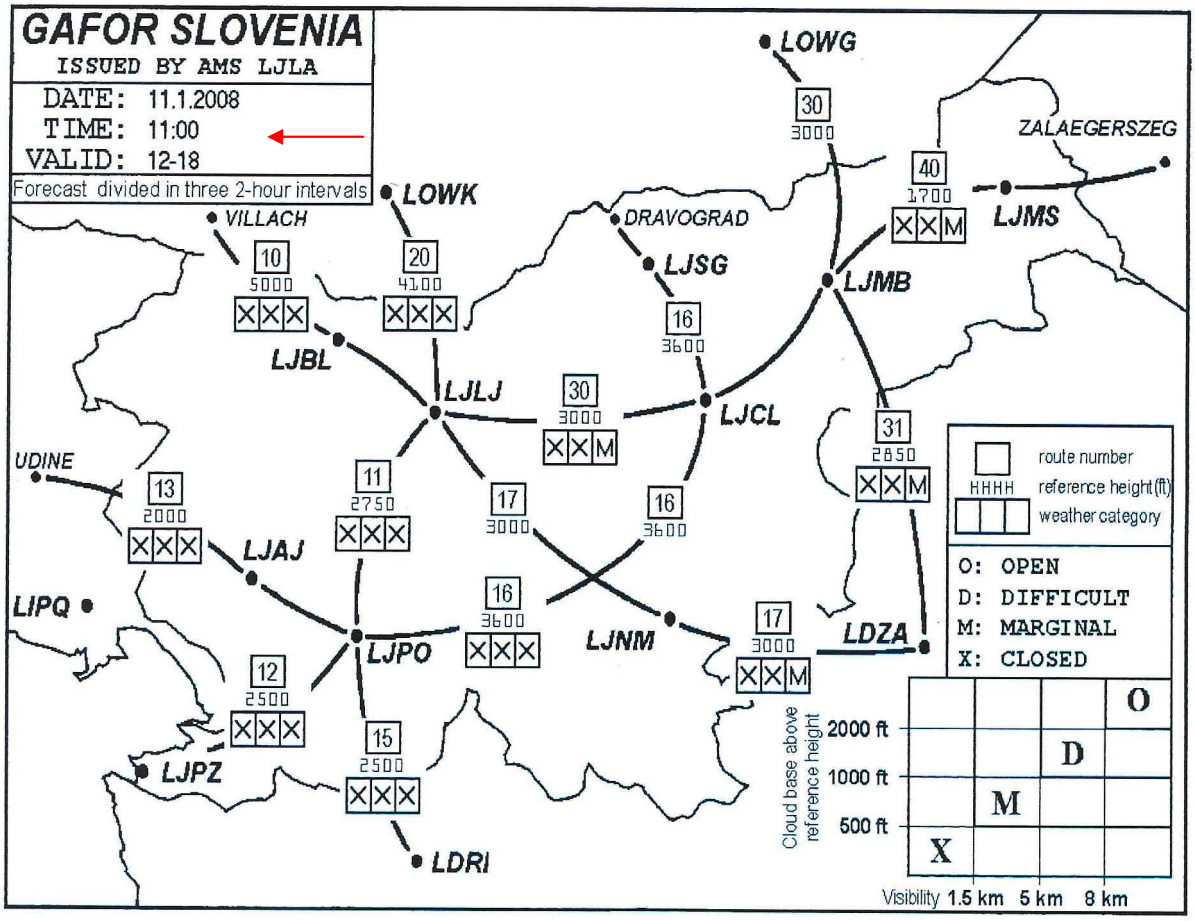
LJLA AIRMET 4 VALID 111115/111500 LJLJ-
LJLA LJUBLJANA FIR MOD ICE FCST W OF E01430 ABV FL060 STNR NC=

GAFOR Forecast 11 January 2008

Time: 05:00 UTC(*), 08:00 UTC(*), 11:00 UTC(*)






GAFOR SLOVENIA
ISSUED BY AMS LJLA
DATE: 11.1.2008
TIME: 11:00
VALID: 12-18
Forecast divided in three 2-hour intervals
LOWG
30
3000
ZALAEGERSZEG
40
1700
XXM
LJMS
LOWK
VILLACH
DRAVOGRAD
LJSG
LJMB
10
5000
XXX
20
4100
XXX
16
3600
LJBL
LJLJ
30
3000
XXM
LJCL
31
2850
XXM
UDINE
13
2000
XXX
11
2750
XXX
17
3000
16
3600
LJAJ
LIPQ
16
3600
XXX
LJPO
LJNM
17
3000
XXM
LDZA
12
2500
XXX
15
2500
XXX
LJPZ
LDRI
route number
HHHH reference height (ft)
weather category
O: OPEN
D: DIFFICULT
M: MARGINAL
X: CLOSED
Cloud base above reference height
2000 ft
1000 ft
500 ft
O
D
M
X
Visibility 1.5 km 5 km 8 km

METAR information

```
LJLJ 110800Z VRB01KT 9999 BKN040 M01/M01 Q1022 NOSIG=
LJLJ 110830Z 00000KT 9999 FEW003 BKN037 M01/M01 Q1022 NOSIG=
LJLJ 110900Z 00000KT 9999 FEW003 BKN030 M00/M00 Q1022 NOSIG=
LJLJ 110930Z VRB02KT 9999 FEW003 OVC025 01/01 Q1022 NOSIG=
LJLJ 111000Z VRB01KT 9999 FEW003 OVC025 01/01 Q1022 NOSIG=
LJLJ 111030Z VRB01KT 9999 FEW003 OVC025 01/01 Q1021 NOSIG=
LJLJ 111100Z VRB02KT 9999 FEW003 OVC025 01/01 Q1021 NOSIG=
LJLJ 111130Z 00000KT 9999 FEW003 BKN025 02/02 Q1021 NOSIG=
LJLJ 111200Z 00000KT 9999 FEW003 BKN028 02/02 Q1020 NOSIG=
LJLJ 111230Z VRB01KT 9999 FEW003 BKN028 02/02 Q1020 NOSIG=
LJLJ 111300Z 27003KT 210V290 9999 -RA MIFG FEW020 BKN035 03/03 Q1019 NOSIG=
LJLJ 111330Z VRB01KT 7000 -RA MIFG FEW020 BKN035 03/03 Q1019 NOSIG=
LJLJ 111400Z 30004KT 7000 -RA MIFG FEW020 BKN035 04/04 Q1019 NOSIG=
LJMB 110800Z 32003KT 310V030 0200 R33/0450N FZFG VV001
LJMB 110830Z 34005KT 360V070 0200 R33/0450N FZFG VV001
LJMB 110900Z VRB01KT 0300 R33/0400V0600U FZFG VV001 M01/M02 Q1020 33190095=
LJMB 110930Z VRB05KT 0200 R33/0350N FZFG VV001 M01/M01 Q1020=
LJMB 111000Z 05003KT 300V100 0200 R33/0250V0500N FG NSC 00/M00 Q1020=
LJMB 111030Z 30002KT 1500 BR FEW001 SCT020 00/M00 Q1019=
LJMB 111100Z 21013KT 170V250 9999 SCT040 07/06 Q1019=
LJMB 111130Z 19011KT 160V220 9999 SCT040 07/04 Q1019=
LJMB 111200Z 19013KT 9999 SCT030 07/04 Q1018=
LJMB 111230Z 20013KT 180V250 9999 SCT030 10/06 Q1017=
LJMB 111300Z 21015KT 190V250 9999 FEW030 10/06 Q1017=
LJMB 111330Z 20014KT 180V260 9999 FEW030 10/06 Q1017=
LJMB 111400Z 20015KT 9999 FEW030 09/06 Q1017=
LJCE 110800Z VRB02KT 0200 FZFG VV001 M02/M02 Q1023 RMK RED=
LJCE 110830Z 00000KT 0300 FZFG VV002 M02/M02 Q1023 RMK RED=
LJCE 110900Z VRB01KT 0300 FZFG VV002 M02/M02 Q1023 RMK RED=
LJCE 110930Z 26001KT 0200 FZFG VV002 M01/M01 Q1023 RMK RED=
LJCE 111000Z VRB01KT 0250 FZFG VV002 M01/M01 Q1023 RMK RED=
LJCE 111030Z VRB01KT 0300 FZFG VV002 M00/M00 Q1022 RMK RED=
LJCE 111100Z 00000KT 0200 FZFG VV001 M00/M00 Q1022 RMK RED=
LJCE 111130Z VRB01KT 0200 FZFG VV001 M00/M00 Q1021 RMK RED=
LJCE 111200Z 00000KT 0300 FG VV001 00/00 Q1021 RMK RED=
LJCE 111230Z VRB01KT 0300 FG VV001 00/00 Q1020 RMK RED=
LJCE 111300Z 18001KT 0800 FG SCT002 BKN040 01/01 Q1020 RMK AMB=
LJCE 111330Z VRB01KT 2500 BR SCT002 BKN035 01/01 Q1020 RMK YLO=
LJCE 111400Z 00000KT 4000 BR SCT005 BKN035 02/02 Q1020 RMK GRN=
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Data of system for automatic intervention of weather information's ATIS:

ATIS Record

LOG FILE: C:\ATIS\log\2008\01\11\102048.html

Date: 2008.01.11 Time: 10:20:48

LJUBLJANA ATIS INFORMATION SIERRA.

AT TIME 1020.

EXPECT I.L.S APPROACH.

RUNWAY 31.

TRANSITION LEVEL 110.

WIND VARIABLE 2 KNOTS.

VISIBILITY 10 KILOMETRES OR MORE.

CLOUD FEW 3 HUNDRED FEET. OVERCAST 2 THOUSAND 5 HUNDRED FEET.

TEMPERATURE 01.

DEWPOINT 01.

Q.N.H 1021.

NOSIG.

FOR START-UP AND PUSH BACK CONTACT TOWER 118 DECIMAL 0. .

END OF LJUBLJANA ATIS INFORMATION SIERRA.

APPENDIX E: Photographs of the location of accident

Photo No.1: Wreckage on crash site 11.01.2008

Photo No.2: Wreckage on crash site 11.01.2008

Photo No. 3: Wreckage on crash site 12.01.2008

Photo No. 4: Wreckage concentrated on the crash site

Photo No. 5: Trees destroyed in impact direction

Photo No. 6: Piece of wing on the tree in impact direction

APPENDIX F: Photographs of the technical investigation of the aircraft wreckage

Photo No. 1: Engine investigation

Photo No. 2: Engine parts investigation

Photo No. 3: Investigation the Speed Governor

Photo No. 4: The Speed Governor was in cruise position

Photo No. 5: Propeller investigation

Photo No. 6: Propeller blades investigation

Photo No. 7: Fuel tanks and wing investigation

Photo No. 8: Metric altimeter indicator