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Büro für Flugunfalluntersuchungen  
Bureau d'enquête sur les accidents d'aviation  
Ufficio d'inchiesta sugli infortuni aeronautici  
Uffizi d'investigaziun per accidents d'aviatica

Aircraft accident investigation bureau

# **Final Report No. 1898 of the Aircraft Accident Investigation Bureau**

**concerning the incident (Airprox)**

between LGL6572 and NAF323

on 3 March 2003

VALOR, Geneva

# FINAL REPORT

## AIR TRAFFIC INCIDENT REPORT (ATIR)

### AIRPROX (NEAR MISS)

This report has been prepared solely for the purpose of accident/incident prevention. The legal assessment of accident/incident causes and circumstances is no concern of the incident investigation (Art. 24 of the Air Navigation Law). The masculine form is used in this report regardless of gender for reasons of data protection.

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**PLACE/DATE/TIME**

VALOR, Geneva, 3 March 2003,  
10:48 UTC.

**AIRCRAFT**

Luxair LGL6572, Fokker 50, LX-LGC,  
From Turin to Luxembourg.

Royal Netherlands Air Force NAF323, four General  
Dynamics F16,  
From Sion to Leeuwarden.

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**ATC UNIT**

Swiss Radar Area West, Terminal Control Geneva

**CONTROLLERS**

INS            Radar controller  
                 Coordinator

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**AIRSPACE**

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## HISTORY

At 10:40 UTC on Monday 3 March 2003, a Fokker 50 of the airline Luxair on scheduled flight LGL6572 from Turin to Luxembourg called sector INS (Terminal Control Geneva Sector INI South) on frequency 125.55 MHz. The radar controller assigned it a transponder code, identified it a few seconds later and cleared it on route MOLUS-PENDU at the previously maintained flight level FL200; the Fokker 50 flight crew did not wish to climb to a higher cruising level.

At the same time, at Sion airport, the leader of a military squadron of four F16 aircraft which were ready for departure on a flight from Sion to Leeuwarden under the common callsign NAF323 asked "Sion GND" about his take-off time. The ground controller informed him that he had just received a time slot which would allow take-off in the following minutes and that he would call him back to issue the departure clearance. At 10:41, formation NAF323 was then cleared to its destination by departure route VALOR BRAVO HIGH PERFORMANCE, flight level FL190. It was then handed over to the Sion control tower frequency.

Before allowing the four F16s to take off, the Sion TWR controller carried out a coordination with the MIZI military radar controller- coordination position within the Dübendorf military control centre. At the end of this coordination, the military airspace was declared totally free for the passage of NAF323.

At 10:45, the squadron was cleared to take off from runway 25 and was requested to report when passing 15,000 feet climbing. At 10:47:50, the controller informed NAF323 that it was 3 miles from point VALOR, which must be passed at FL190. After the readback, it was instructed to contact Swiss Radar on frequency 125.55 MHz (sector INS). At this time (10:48:23), the recording of the skyguide radar plots shows that the leader's aircraft was already 1 NM from VALOR and that since then it had been maintaining FL127 for almost half a minute. Its route was perpendicular to that of LGL6572 and 5 seconds later it crossed 1.8 NM in front of the Fokker 50, climbing at such a high rate that it is only possible to give the average value between its commencement (after 10:48:23) and the first levelling-off recorded at FL188 (between 10:48:23 and 10:48:35): 45,700 feet/minute. At the time of crossing (10:48:28), the level that the F16s were passing in their climb is estimated at FL164. The average ground speeds of the two aircraft were calculated respectively as 483 and 187 knots. The air speed of the F16s was very close to Mach 1.

At 10:48:31, the NAF323 leader announced himself to sector INS simply by the following phrase: "*Radar, Netherlands Air Force three two three.*" The radar controller followed with a simple polite confirmation of contact, to which the leader replied in the same way, without giving any other details. The controller then instructed NAF323 to maintain FL190 and immediately after the readback requested it to confirm its flight level; the recording of the radar plots shows that at this time the short term conflict alert (STCA) indicated a proximity alert. The F16 formation leader replied: "*Yeah, we're... passing now to one niner zero*". The radar controller then asked him to maintain flight level FL190 and informed him that there was traffic above him. During these radio exchanges, which lasted 29 seconds, the radar plots show that the squadron remained for 4 seconds at FL188, that it then climbed to flight level F198 for the following 8 seconds, and finally descended at a rate of the order of 3000 ft/min to the assigned flight level FL190.

In an internal company report, the commander of the Fokker 50 LGL6572 stated that he observed "2 targets" on his traffic collision avoidance system (TCAS) approaching very rapidly and at an enormous rate of climb. Since the bearing of these intruders was from the right, he asked his copilot to look outside and the latter saw three military aircraft. By the

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All times indicated in the report are in UTC (LT – 1 hour)

time the commander made visual contact, he saw that they "... *just passed in front from right to left*"). At 10:49:00, the flight crew of the Fokker 50 LGL6572 inquired from sector INS about the presence of traffic consisting of three aircraft. The radar controller replied that this traffic should have maintained flight level FL190 and that it was currently again at this level.

Subsequently, traffic handling was normal and LGL6572 and NAF323 were handed over in turn to Terminal Control Geneva Sector INI East on 128.9 MHz. Then the F16 formation was sent to Swiss UAC Sector MOLUS3 whilst LGL6572 remained on 128.9 MHz for about a quarter of an hour. On this occasion, the controller informed it that NAF323 had committed an error which led to a critical convergence and that an incident report would be submitted for this reason.

The radar plots show that loss of separation between LGL6572 and NAF323 occurred for a period of 25 seconds, in the course of which the minimum lateral distance between the Fokker 50 and the military aircraft was 1.5 NM and the height difference was close to zero feet. These two limits did not occur at the same time and throughout the duration of the conflict the F16 formation and the Fokker 50 were flying on divergent trajectories

## ANALYSIS

The evolution of the conflict was heavily dependent on the two following contrasting aspects: it took place in civil controlled airspace between a military formation of fighters and an airliner; it involved aircraft types with very different flight characteristics: the performance of an F16 is in fact greatly superior to that of a twin turboprop Fokker 50; in particular, the exceptionally high and unexpected rate of climb of NAF323 rendered the network of collision avoidance safeguards which exist in a civil aviation environment unusable. In this conflict involving jets which were converging at right angles and at high speed on a much slower aircraft, the fact that the loss of separation finally occurred on divergent trajectories was largely due to chance.

### The loss of separation

The technical analysis of the conflict was carried out with the help of recordings of the skyguide radar plots, the refresh rate of which is 4 seconds; they are not representative of the refresh rate of the radar image available to the controller on duty (12 seconds) and are therefore used to determine more accurately values relating to the loss of separation as well as the vertical speed of the F16s. Plots obtained from military radar sources made it possible to determine in detail how NAF323 exceeded its assigned flight level of FL190.

The vertical section produced from the civil radar plots reveals that the time of crossing of the trajectories (10:48:28), the military formation crossed 1.8 NM in front of the Fokker 50, at level FL164, climbing at an average rate of 45,700 feet/min. The loss of separation (less than 5NM lateral distance and 1000 feet height difference) took place 8 seconds later and lasted for a period of about 25 seconds, during which the lateral distance increased from 1.5 to 5 NM and the height difference oscillated between 1000 and zero feet; the trajectories of the conflicting aircraft were therefore diverging.

The more accurate plots of the trajectories of the F16s from a military source show that the FL190 level bust was the consequence of a badly controlled level acquisition, due to the very high rate of climb. According to the statements of the military radar specialist, flight level

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FL200 was reached, and probably even exceeded; this vertical uncertainty is due to radar's inability to resolve such a vertical speed accurately. Moreover, the form of these plots is characteristic of that of aircraft flying in tight formation; a fighter which had established a significant separation would have generated a trace identifiable by the detection system (primary radar).

The rapid climb of NAF323 took place between 10:48:23 and 10:49:04; its actual average speed during this time was very close to Mach 1. The Fokker 50 LGL6572 was cruising at an average ground speed of 187 knots.

### **The cause of the conflict**

The recording of the radar plots shows that the military formation went beyond point VALOR maintaining flight level FL127, which is not in compliance with the altitude restrictions imposed in the VALOR BRAVO HIGH PERFORMANCE procedure. It is possible that the leader of NAF323 took into account only the Minimum Crossing Altitudes (MCA) indicated on the graphic representation of the Standard Instrument Departure (SID) and thus omitted the restriction on passage over point VALOR which is only mentioned in writing on one of the other pages of the departure route. In flight, an indication shown on a map is much easier to read and the value of the MCA given under point VALOR is 10,700 feet ("MCA 10700"). He did not therefore, as instructed, call back the Sion air traffic controller as he passed 15,000 feet in a climb and it was only when the latter reported the proximity of VALOR to him that he and his wingmen activated their afterburners and climbed at an average rate of 45,700 feet/min to level FL190. At such a high vertical speed, it is impossible to guarantee level acquisition as laid down in AIP SWITZERLAND, i.e. at a rate of climb not exceeding 1000 feet/min in the last 1000 feet ("*... aircraft climbing to the cleared flight level, the rate of climb within the last 1000 ft should not exceed 1000 ft/min either*"). Thus the F16s exceeded their assigned flight level, coming into conflict with the Fokker 50 LGL6572 which was cruising at FL200 on a route converging with their own.

Such rates of climb exceed on the one hand the limits of existing technical safety systems (TCAS, STCA) and on the other the ability to react of the controller and the flight crew of the Fokker 50.

### **Loss of the safety nets**

#### Traffic Collision Avoidance System - TCAS

The surveillance performance of TCAS version 7 is limited to aircraft with rates of vertical speed less than or equal to 10000 feet/min; above this value, threat declaration is cancelled.

#### Short Term Conflict Alert - STCA

The recordings of the civil radar plots show that the controller was alerted by the STCA system at 10:48:43, i.e. 7 seconds after the onset of the loss of separation, which, by way of comparison, corresponds to the time required by the military formation to climb from FL127 to FL188. The flight level indication was not displayed on the radar tag of NAF323 on two occasions (10:48:27 and 10:48:39), indicating that the radar surveillance system and consequently the STCA system were not able to follow the evolution of the squadron.

All times indicated in the report are in UTC (LT - 1 hour)

## The limits of human reactions

Instrument flight rules (IFR) were in force at the time of the incident but the meteorological conditions were those of visual flight (VMC); since the sudden climb by the fighters represented a potential danger of collision in civil airspace, it is worth evaluating whether a visual evasive manoeuvre would have been feasible.

### The flight crew of LGL6572

The pilots of the Fokker 50 established visual contact with the formation of F16s thanks to a bearing on their traffic collision avoidance system. The commander's report mentions a formation of three aircraft which he saw passing in front of him from right to left. He also stated that the event occurred too quickly for him to express any opinion on the possibility of a loss of separation. If it had been necessary to carry out a visual avoiding manoeuvre, its chances of success would have been unpredictable, as civil pilots are not trained to do this; correct visual recognition of traffic is hampered by a plethora of factors, notably the relative speed, the (horizontal and vertical) angles of approach, the amount of glare, etc.

### The pilots of NAF323

Because of their profession, fighter pilots have experience of visual manoeuvres. The radiotelephony communications and the report by the leader of NAF323, however, never mention visual contact with the Fokker 50 by any of the squadron members. It should be noted that during the accelerated climb towards level FL190, only the leader would be able to visually scan the airspace, as the attention of the other pilots would have been mainly directed to maintaining the formation. It should also be noted that it was precisely during the level acquisition phase that the leader made contact with the INS control sector; this may have constituted an additional factor diverting his attention from visual surveillance of the airspace and the levelling-off manoeuvre.

### The INS sector radar controller

Throughout the duration of the incident, the air traffic controller did not have any possibility of intervening: at the time of the first radiotelephony call from the leader, the formation was already passing flight level FL190 in a climb; moreover, since the refresh rate of his radar image (12 seconds) was of the same order of magnitude as the duration of NAF323's climb, it was impossible for him to notice or indeed to anticipate a levelling-off error. The recording of the radar plots shows that the radar controller reacted immediately to the STCA alert by asking the leader to confirm his flight level and informing him that there was traffic above him.

Such great variations in altitude are unusual and unexpected in civil airspace; consequently, controllers are not trained and do not have at their disposal appropriate means of control to handle this type of situation.

## Comments

All the temporal events of the incident are of the order of magnitude of the radar image refresh rate (12 seconds): the F16s covered the distance separating them from flight level FL190 in less than 10 seconds, at their ground speed (483 knots) the lateral distance of 1.8

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NM at the point of crossing represents 13 seconds flight time; because of a non standard radio contact about ten seconds were required by the INS controller to take charge of the NAF323 squadron.

As the commander of LGL6572 noted, the vertical speed adopted by the F16 formation was "enormous" and therefore inappropriate in civil airspace. Within one refresh period of the radar image, 9500 feet are crossed at this rate, which is not comparable with the vertical distance currently travelled by civil aircraft (typically, at 2500 feet/min, 500 feet are crossed in 12 seconds). The radar controller was therefore deprived of any possibility of anticipation and intervention. In terms of flight management, with such a steep climb the military pilots were not able to ensure that they could level off at FL190 in accordance with the standards. The flight crew of the Fokker 50, for its part, would not have had the performance available to carry out a visual avoiding manoeuvre. Finally, the operation of the safeguards provided by the TCAS and STCA system was no longer assured.

Under these circumstances, chance played a distinct role in the development of a conflict situation which was completely unforeseeable: some ten seconds earlier or later, the loss of separation could either have been much more critical or it may not have occurred at all. From the same viewpoint, there is the additional fact that a formation of 4 aircraft occupies a larger volume of airspace than a single aircraft, and therefore represents a greater probability of collision with an aircraft on a converging trajectories, the presence of which has not been noticed.

## FINDINGS

The general framework and course of the incident

- The incident took place between 10:48:36 and 10:49:01 approximately 3 NM south of VALOR between flight levels FL190 and FL200, in class C airspace.
- The meteorological conditions were Visual Meteorological Conditions – (VMC).
- At 10:47:50, the Sion controller informed NAF323 that it was 3 miles from point VALOR, which must be passed at FL190.
- The recording of the radar plots shows that the military formation went beyond point VALOR maintaining flight level FL127, which is not in compliance with the altitude restrictions imposed in the VALOR BRAVO HIGH PERFORMANCE procedure.
- At the time of the incident, the leader of formation NAF323 was making radio contact with sector INS, whilst flight LGL6572 was already under the control of this same sector, which had cleared it on route MOLUS-PENDU at flight level FL200.
- At Sion, formation NAF323 had been cleared to its destination by departure route VALOR BRAVO HIGH PERFORMANCE, flight level FL190.
- Radiotelephony communications took place in English.
- The analysis of the civil and military radar plots reveals that at the time of crossing of the trajectories (10:48:28), the military formation passed 1.8 NM in front of the Fokker 50, at level FL164, climbing at an average rate of 45,700 feet/min. The loss of

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separation took place between 10:48:36 and 10:49:01, during which time the lateral distance increased from 1.5 to 5 NM and the height difference oscillated between 1000 and zero feet; the trajectories of the conflicting aircraft were divergent.

- The appearance of the trajectory of the F16s on radar plots from a military source shows that the exceeding of level FL190 is the consequence of a badly controlled level acquisition, due to the very high rate of climb. Flight level FL200 was reached and may even have been exceeded.
- The recordings of the civil radar plots show that the controller was alerted by the STCA system at 10:48:43; at this time NAF323 and LGL6572 were on divergent trajectories with a lateral distance of 2.1 NM and a height difference of 200 feet.

#### Controllers and flight crews

- The radar controller as well as the INS coordinator was in possession of an appropriate licence.
- The commander of LGL6572 stated that he and his copilot had seen three military aircraft pass from right to left in front of them.
- The Terminal Control Geneva Sector INI East controller informed the flight crew of LGL6572 that NAF 323 had committed an error which led to a critical convergence and that an incident report would be submitted for this reason.
- Nothing indicates that the pilots of the NAF323 formation had seen the Fokker 50 LGL6572.

#### Technical aspects

- The Fokker 50 LGL6572 was equipped with a TCAS.
- TCAS version 7 systems are technically unable to declare threats by intruders with rates of vertical speed in excess of 10,000 feet/min.
- During the accelerated climb by the military squadron, the radar plots reveal that the radar tag of NAF323 did not display any flight level indication on two occasions; this indicates that the radar surveillance system and consequently the STCA system were not able to follow the evolution of the formation.

#### Geneva weather at 10:20

Wind: variable, 2 KT  
Visibility: 10 KM  
Cloud: few at 3500 FT,  
Temperature: + 07°C  
QNH 1020 hPa  
NOSIG (no significant change).

Winds at altitude: FL180 340/060, FL240 340/075.

All times indicated in the report are in UTC (LT – 1 hour)

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## CAUSE

The incident is due to the fact that, wishing to comply belatedly with the altitude constraint imposed at point VALOR, the F16s of formation NAF323 adopted an excessive rate of climb and carried out an acquisition of their assigned flight level FL190 which exceeded it by almost 1000 feet, bringing them into conflict with the Fokker LGL6572 which was cruising at FL200 on a route converging with their own.

Factor which may have influenced the incident:

Inadequate flight preparation for departure route VALOR BRAVO HIGH PERFORMANCE on the part of the military pilots.

Berne, 23 March 2006

Aircraft Accident Investigation Bureau

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**TRANSCRIPT OF TELEPHONY  
OR RADIOTELEPHONY COMMUNICATION TAPE-RECORDINGS**

Investigation into the **incident** that occurred on **03 Mars 2003**

- Subject of transcript: **LGL6572 / NAF323**
- Centre concerned: Swiss Radar Area West
- Designation of unit: Terminal Control Geneva Sector INI Sud
- Frequency / Channel: 125.55 MHz MHz
- Date and period (UTC) covered by attached extract: 03 Mars 2003  
10:39 - 11:10 UTC
- Date of transcript: 19 Mars 2003
- Name of official in charge of transcription: Didier Javet

- Certificate by official in charge of transcription:

I hereby certify:

- That the accompanying transcript of the telephony or radiotelephony communication tape-recordings, retained at the present time in the premises of the Analysis Department, has been made, examined and checked by me.
- That no changes have been made to the entries in columns 2, 3 and 4, which contain only clearly understood indications in their original form.

Geneva, 19 Mars 2003

A handwritten signature in blue ink, appearing to read "D. Javet".

Didier Javet

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## Abbreviations

<u>Sector</u>	<u>Designation of sector</u>
INS	- Terminal Control Geneva Sector INI Sud
INE	- Terminal Control Geneva Sector INI Est
MS3	- Swiss UAC Sector MOLUS 3
MNO	- Air Traffic Control Milano
DLT	- Terminal Control Geneva Sector Delta

<u>Aircraft</u>	<u>Callsign</u>	<u>Type of acft</u>	<u>Flight rules</u>	<u>ADEP</u>	<u>ADES</u>
<b>6572</b>	- <b>Luxair 6572</b>	<b>F50</b>	<b>IFR</b>	<b>LIMF</b>	- <b>ELLX</b>
636	- Alitalia 636	B763	IFR	LIMC	- KMIA
302	- Alitalia 302	A321	IFR	LIMC	- LFPG
1115	- Air France 1115	A320	IFR	LIMC	- LFPG
162	- Regional 162	SB20	IFR	LIMC	- LFLC
5039	- City Ireland 5039	B462	IFR	LIRQ	- LFPG
1777	- Turkish 1777	B738	IFR	LTBA	- LSGG
228	- Alitalia 228	A321	IFR	LIMC	- EGLL
559	- Swiss 559	E145	IFR	LFMN	- LSGG
701	- Tunair 701	A320	IFR	LSGG	- DTTA
<b>323</b>	- <b>Netherlands Air Force 323</b>	<b>F16 (4x)</b>	<b>IFR</b>	<b>LSGS</b>	- <b>EHLW</b>
652	- Alitalia 652	B763	IFR	LIMC	- CYYZ

# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323

Date: 03 Mars 2003



To Col.1	From Col.2	Time Col.3	Communications Col.4	Observations Col.5
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## Frequency: 125.55 MHz Terminal Control Geneva Sector INI Sud

INI Sud calls  
LGL6572 twice  
before but no  
reply

INS	6572	10:40:17	Geneva, bonjour, Luxair six five seven two, flight level two hundred maintaining, on course to BANKO.
6572	INS	22	Luxair six five seven two, bonjour, squawk five seven four four.
INS	6572	26	Five seven four four, Luxair six five seven two.
636	INS	30	Alitalia six three six, call us on one two six decimal zero five.
INS	636	34	One two six zero five, Alitalia six three six, ciao.
636	INS	38	Ciao.
302	INS	42	Alitalia three zero two, for further climb, Radar on one two six decimal zero five.
INS	302	48	One two six ... zero five, Alitalia ... three zero two, forza Alinghi.
302	INS	55	XXXXX.
6572	INS	10:41:04	Luxair six five seven two, identified, maintain level two zero zero, MOLUS - PENDU, do you request a higher level?
INS	6572	11	Luxair six five seven two, maintain flight level two hundred, MOLUS - PENDU and we're happy at flight level two hundred.
6572	INS	18	Roger, six five seven two.
INS	1115	22	Swiss, Air France... triple one five, good day, climbing two four zero.
1115	INS	27	Air France triple one five, bonjour, squawk five seven seven five.
INS	1115	31	Five seven seven five coming, Air France... triple one five.

Noise of  
microphone

Signature of person  
in charge of transcription:

# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323

Date: 03 Mars 2003



<u>To</u> <u>Col.1</u>	<u>From</u> <u>Col.2</u>	<u>Time</u> <u>Col.3</u>	<u>Communications</u> <u>Col.4</u>	<u>Observations</u> <u>Col.5</u>
162	INS	10:41:36	Regional cent soixante-deux, communiquez avec... Marseille, cent trente-trois decimal quarante-deux.	
INS	162	41	Avec Marseille, cent trente-trois quarante-deux, cent soixante-deux, au revoir.	
162	INS	45	Au revoir.	
1115	INS	10:42:11	Air France triple one five, identified, climb to flight level two six zero, MOLUS - GALBI - TINIL.	No reply
1115	INS	23	Air France triple one five, Geneva?	
INS	1115	28	Oui..., Air France triple f... one five, go ahead.	
1115	INS	31	Air France triple one five, climb to flight level two six zero, MOLUS - GALBI - TINIL.	
INS	1115	38	Two... six zero..., MOLUS - GALBI - TINIL, Air France triple one five.	
1115	INS	44	Roger, what is your requested level today?	
INS	1115	47	Requested level is three zero zero.	
1115	INS	49	Roger, we'll check if it's available, for the moment two six zero.	
INS	1115	54	And... for... the moment two six zero, Air France triple one five.	
INS	5039	10:43:01	Swiss, bonjour, City-Ireland five zero three nine, level two two zero, direct AOSTA.	
5039	INS	06	City-Ireland five zero three nine, bonjour, squawk five seven five three.	
INS	5039	10	Five seven five three, XXXXX.	Probably "five zero three nine"
1777	INS	15	Turkish one triple seven, call Arrival one three six decimal two five.	
INS	1777	19	One three six two five, Turkish one triple seven, goodbye.	
1777	INS	23	Goodbye.	
1115	INS	27	Air France triple one five, for higher, Radar, one two six decimal zero five.	

Signature of person  
in charge of transcription:

# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323

Date: 03 Mars 2003



<u>Col.1</u>	<u>Col.2</u>	<u>Col.3</u>	<u>Col.4</u>	<u>Col.5</u>
INS	1115	32	Two six zero five, triple one five.	
5039	INS	10:43:50	City-Ireland five zero three nine, identified, maintain flight level two two zero, direct to TINIL.	
INS	5039	55	Two two zero, direct to TINIL, five zero three nine.	
INS	228	10:45:46	Swiss Radar, good morning, Alitalia two two eight, approaching flight level two hundred, inbound AOSTA.	
228	INS	51	Alitalia two two eight, bonjour, squawk five seven four seven.	
INS	228	55	Five seven four seven is coming down!	
559	INS	10:46:09	Swiss five five nine, descend to flight level two zero zero.	
INS	559	13	Level two hundred for Swiss five five nine.	
228	INS	16	Alitalia two two eight, proceed direct to MOLUS then Dijon, climb to flight level two one zero.	
INS	228	21	Up to flight level two one zero, MOLUS - Dijon, Alitalia two two eight.	
701	INS	41	Tunisair seven zero one?	No reply
228	INS	51	Alitalia two two eight, climb now to flight level two six zero.	
INS	228	55	Up to flight level two six zero, Alitalia two two eight.	
228	INS	57	What is your requested level today, two two eight?	
INS	228	10:47:01	Three six zero, Alitalia two two eight.	
228	INS	03	Roger.	
701	INS	10	Tunisair seven zero one?	No reply
701	INS	29	Tunisair seven zero one?	
INS	701	31	Good morning, level one niner zero climbing two... one zero.	
701	INS	36	Tunisair seven zero one, bonjour, climb to flight level two five zero.	
INS	701	41	Copied to climb two five zero, Tunair seven zero one.	
701	INS	44	Roger and what is your heading?	

Signature of person  
in charge of transcription:

# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323



Date: 03 Mars 2003

To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
INS	701		47 Heading one four six, Tunair sev, seven zero one.	
701	INS	10:47:50	Roger, fly heading one six zero and expedite your climb, please.	
INS	701		53 Right heading one six zero, expedite climb.	
228	INS	10:48:02	Alitalia two two eight, call now Radar on... one two six decimal zero five.	
INS	228		06 Two six zero five, Alitalia two two eight, bye-bye.	
228	INS		09 Bye-bye.	
559	INS		15 Swiss five five nine, descend to flight level one nine zero.	
INS	559		18 Level one niner zero, Swiss five five nine.	
559	INS		20 Roger, rate of descent... thousand five hundred or more, please, due to traffic.	
INS	559		25 Wilco, Swiss five five nine.	
<b>INS</b>	<b>323</b>		<b>31 Radar, Netherlands Air Force three two three.</b>	
<b>323</b>	<b>INS</b>		<b>34 Netherlands Air Force three two three, bonjour.</b>	
<b>INS</b>	<b>323</b>		<b>40 Bonjour, Netherlands Air Force three two three.</b>	
<b>323</b>	<b>INS</b>		<b>41 Roger, maintain flight level one nine zero.</b>	
<b>INS</b>	<b>323</b>		<b>44 Three two three, maintaining one niner zero.</b>	
<b>323</b>	<b>INS</b>		<b>46 Roger, confirm your level.</b>	
<b>INS</b>	<b>323</b>		<b>49 Yeah, we're... passing now to one niner zero.</b>	
<b>323</b>	<b>INS</b>		<b>51 Okay, well, maintain flight level one nine zero, we have traffic above.</b>	
<b>INS</b>	<b>323</b>		<b>56 Three two three.</b>	
INS	6572	10:49:00	Heu... Luxair six five seven two, is that normal the traffic ?????? three aircraft?	Unreadable
6572	INS		06 Well, I suppose there's one, should have maintained level one nine zero, ... now it's one nine zero again.	
701	INS		13 Tunisair seven zero one, own navigation to VEVAR, clear of traffic.	2 stations on the same time.

Signature of person in charge of transcription:

# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323

Date: 03 Mars 2003



To Col.1	From Col.2	Time Col.3	Communications Col.4	Observations Col.5
X	X	20	Blocked.	
323	INS	10:49:25	<b>Netherlands Air Force three two three, what is your heading?</b>	
INS	323	28	<b>XXXXX is heading two three five.</b>	Probably "Netherlands Air Force three two three"
323	INS	31	<b>Okay, fly..., fly now heading two seven zero, climb to flight level two zero zero.</b>	
INS	323	38	<b>Netherlands Air Force three two three is heading two seven zero, XXXXX two zero zero.</b>	Could be "to climb level"
323	INS	42	<b>Roger.</b>	
323	INS	58	<b>Netherlands Air Force three two three, climb now to flight level two six zero.</b>	
INS	323	10:50:01	<b>Netherlands Air Force three two three passing one nine five for two six zero.</b>	
323	INS	05	<b>Roger.</b>	
323	INS	16	<b>Netherlands Air Force three two three, turn now right to MOLUS then PENDU, flight level two six zero.</b>	
INS	323	20	<b>Netherlands Air Force three two three, to MOLUS then PENDU, flight level two six zero.</b>	
INS	652	35	Radar, Alitalia six five two.	
652	INS	38	Alitalia six five two, bonjour, squawk five seven zero two.	No reply
INS	652	49	Radar, Alitalia six five two.	
652	INS	52	Alitalia six five two, bonjour, squawk five seven zero two.	No reply
652	INS	59	Alitalia six five two, five seven zero two.	
INS	652	10:51:02	Five seven zero two.	
559	INS	16	Swiss five five nine, proceed direct to PITOM.	
INS	559	19	PITOM for Swiss five five nine, thank you.	
6572	INS	30	<b>Luxair six five seven two, call now Radar, one two eight decimal nine.</b>	

Signature of person  
in charge of transcription:



# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323

Date: 03 Mars 2003



To Col.1	From Col.2	Time Col.3	Communications Col.4	Observations Col.5
INS	6572		34 One two eight decimal niner, Luxair six five seven two, bye-bye.	
6572	INS	10:51:38	Bye-bye.	
559	INS		51 Swiss five five nine, descend to flight level one six zero.	
INS	559		55 One six zero, Swiss five five nine.	
559	INS		57 Roger, call ARRIVAL, one three six decimal two five.	
INS	559	10:52:00	One three six two five for Swiss five five nine.	
652	INS		10 Alitalia six five two, identified, proceed KINES - BALSJ, level two four zero, I call you for climb.	
INS	652		16 KINES - BALSJ, standing by for higher.	
5039	INS		30 City-Ireland five zero three nine, call now Radar on one two eight decimal nine.	
INS	5039		34 One two eight decimal nine, five zero three nine, so long.	
5039	INS		37 So long.	
323	INS		49 <i>Netherlands Air Force three two three, call us now on one two eight decimal nine.</i>	
INS	323		53 <i>Netherlands Air Force three two three, switching push Victor one two eight niner.</i>	

## Frequency: 128.9 MHz Terminal Control Geneva Sector INI Est

(transmissions regarding LGL6572 & NAF323 only)

INE	6572	10:51:43	Geneva Radar, bonjour, Luxair six five seven two, flight level two hundred maintaining.	
6572	INE		48 Bonjour six five seven two, identified, maintain level two zero zero, two hundred.	
INE	6572		53 Luxair six five seven two, maintain flight level two zero zero, ????? due to the wing, we... are interested in lower level.	Unreadable
6572	INE	10:52:06	Heu..., Sir, the problem is: to PENDU minimum level for us will be two hundred otherwise you would have to proceed via Dijon.	

Signature of person  
in charge of transcription:

# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323

Date: 03 Mars 2003



To Col.1	From Col.2	Time Col.3	Communications Col.4	Observations Col.5
INE	6572	16	Luxair six five seven two, roger, we'll maintain flight level two hundred.	
6572	INE	10:52:20	Roger.	
<hr/>				Sector in contact with: TAP5362 BCY5039
INE	323	10:53:05	Netherlands Air Force three two three, check.	
INE	323	09	Swiss Radar, Netherlands Air Force three two three.	
323	INE	11	Bonjour three two three, identified, maintain level two six zero and requested cruising level?	
INE	323	17	Netherlands Air Force three..., maintaining two six zero, request level three four zero.	
323	INE	21	Roger, keep you advised if higher is available.	
INE	323	24	Three two three.	
X	323	45	Three seven two feeding.	No reply
<hr/>				Sector in contact with: DLH5386
323	INE	10:54:56	Netherlands Air Force three two three, climb initially to flight level two eight zero.	
INE	323	10:55:00	Netherlands Air Force three two three, leaving flight level two six zero to two eight zero.	
323	INE	14	Heu... Netherlands Air Force three two three, for further climb clearance, Radar, one two six zero five, good day.	
INE	323	21	Netherlands Air Force three, switching Radar, one two six zero five.	

Signature of person  
in charge of transcription:

# TRANSCRIPT SHEET

Occurrence: LGL6572 / NAF323

Date: 03 Mars 2003



To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
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## Coupled Frequencies: 125.55 MHz & 128.9 MHz TCG Sectors INI Sud & INI Est

(transmissions regarding LGL6572 & NAF323 only)

6572      INS                      11:04:52    Luxair six five seven two?

INS        6572                              57    Six five seven two?

6572      INS                              58    Heu..., will you file a report for this incident before?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sector in contact  
with:  
DAT3192

INS        6572                      11:05:18    And six five seven two, negative unless you request.

6572      INS                              21    Okay well, standby, call you.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Sector in contact  
with:  
SWR1822  
AOV118B  
DAT3192  
MNB520

6572      INS                              11:08:41    Luxair six five seven two?

INS        6572                              44    Six five seven two, go.

6572      INS                              45    Okay well, we will file in a report because the military  
made a... terrible mistake.

INS        6572                              52    Sh... Shall we file one as well or... leave it with you?

6572      INS                              56    It's up to you, I think it was quite close, they should have  
maintain level one nine zero, they confirmed it but  
they..., they climbed higher.

INS        6572                      11:09:08    Okay, what was the altitude they had reported they  
climbed to.

6572      INS                              12    One nine zero, he confirmed and then when I asked his  
actual level he said "descending".

Signature of person  
in charge of transcription:

**TRANSCRIPT SHEET**

**Occurrence: LGL6572 / NAF323**

**Date: 03 Mars 2003**



To <u>Col.1</u>	From <u>Col.2</u>	Time <u>Col.3</u>	Communications <u>Col.4</u>	Observations <u>Col.5</u>
6572	INS	25	Luxair six five seven two, I don't need your report, we can file it, it's up to you, ?????, it's no problem, it was just to inform you.	
INS	6572	32	Okay, thank you, Luxair six five seven two.	
6572	INS	35	Okay, contact now Reims on one three four decimal four.	
INS	6572	39	One three four decimal four, Luxair six five seven two, thank you, bye-bye.	
6572	INS	44	Bye.	
INS	6572	46	Heu... six five seven two, XXXXX for information, we have to file a report when our TCAS is triggered, and now in this case, our TCAS was not triggered, so... we do not need really this report.	Could be "only"
6572	INS	56	Okay, thank you very much, six five seven two.	

**Frequency: 126.05 MHz Swiss UAC Sector MOLUS3**

(transmissions regarding NAF323 only)

<b>MS3</b>	<b>323</b>	<b>10:55:46</b>	<b><i>Netherlands Air Force three two three, check.</i></b>
<b>MS3</b>	<b>323</b>	<b>51</b>	<b><i>Swiss Radar, Netherlands Air Force three two three, levelling off flight level two eight zero.</i></b>
<b>323</b>	<b>MS3</b>	<b>55</b>	<b><i>Netherlands Air Force three two three, maintain level two eight zero.</i></b>
<b>MS3</b>	<b>323</b>	<b>59</b>	<b><i>Netherlands Air Force three two three, maintaining two eight zero.</i></b>

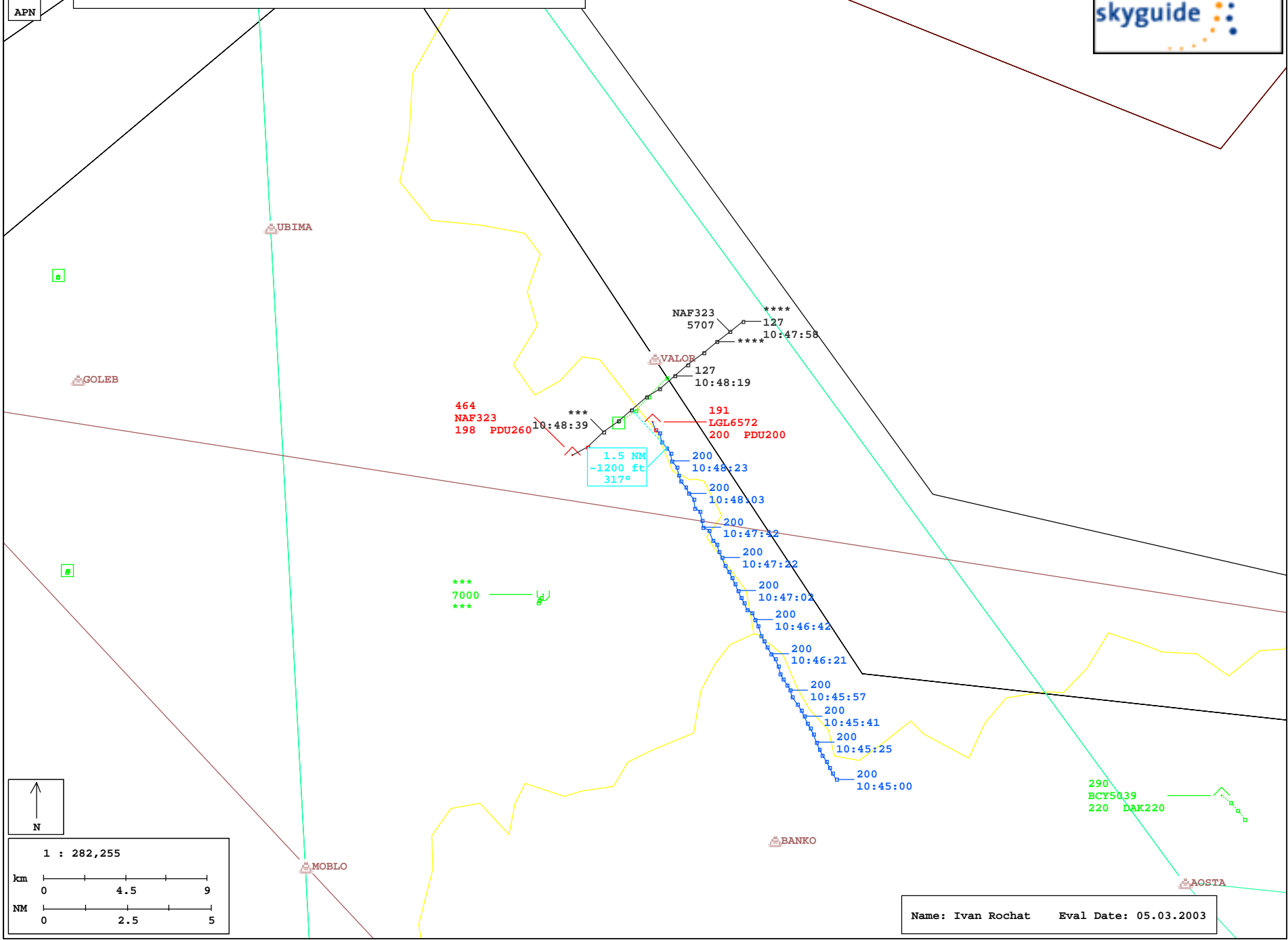
Sector in contact with:  
MSK71W  
AOV118B

<b>323</b>	<b>MS3</b>	<b>10:57:42</b>	<b><i>Netherlands Air Force three two three, contact Reims one three four decimal four, tot ziems.</i></b>
<b>MS3</b>	<b>323</b>	<b>48</b>	<b><i>Netherlands Air Force three two three, switching push one three four four, bye.</i></b>

Signature of person in charge of transcription:

Src  
APP  
APN

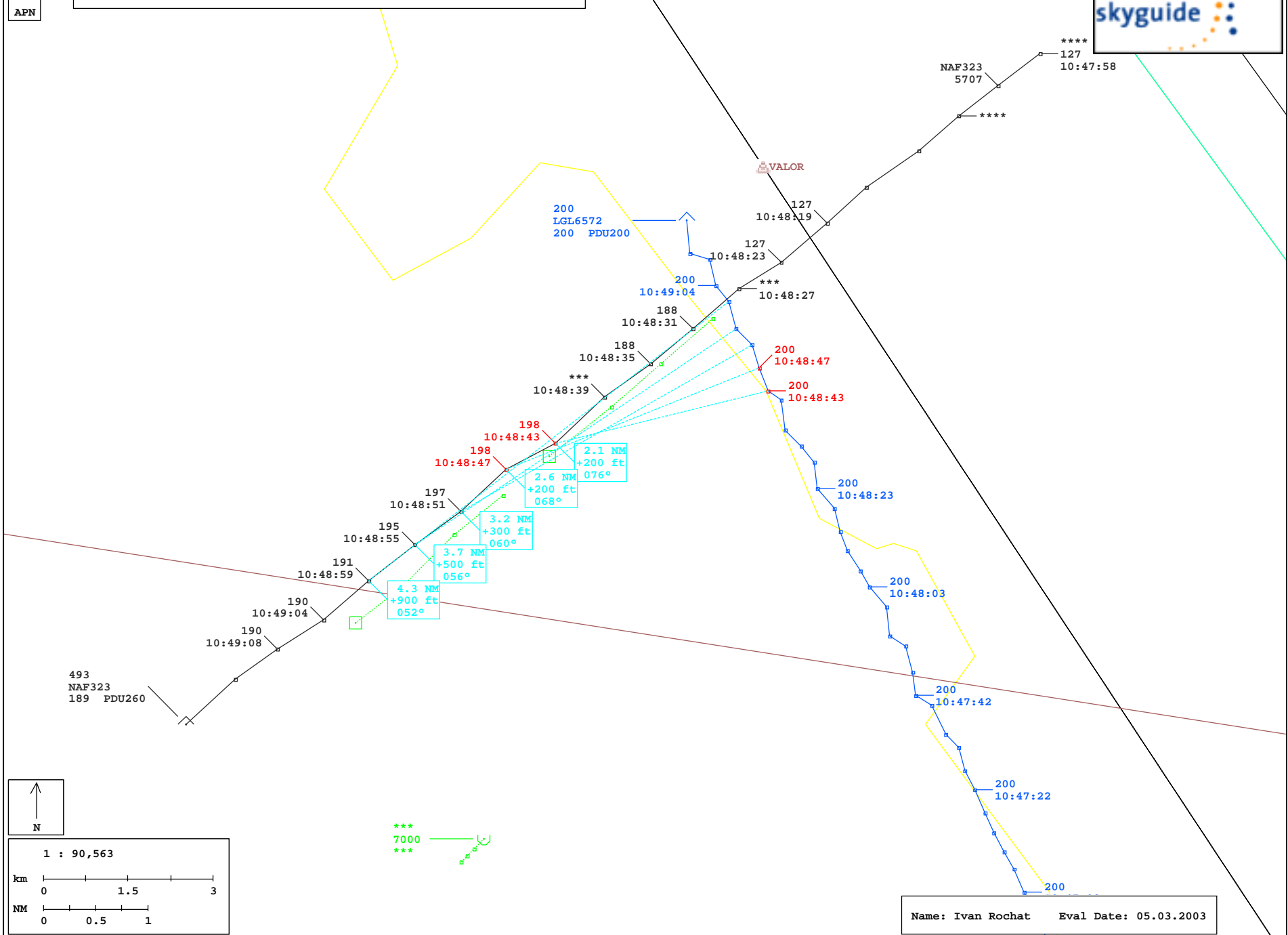
Analysis: Incident LGL6572 / NAF323 Time [UTC]: 03.03.2003 10:48:48



Name: Ivan Rochat Eval Date: 05.03.2003

Src  
APP  
APN

Analysis: Incident LGL6572 / NAF323 Time [UTC]: 03.03.2003 10:49:20



NAF323 5707

\*\*\*\*  
127  
10:47:58

VALOR

127  
10:48:19

127  
10:48:23

200  
10:49:04

188  
10:48:31

188  
10:48:35

\*\*\*  
10:48:39

198  
10:48:43

198  
10:48:47

197  
10:48:51

195  
10:48:55

191  
10:48:59

190  
10:49:04

190  
10:49:08

493  
NAF323  
189 PDU260

200  
10:48:23

200  
10:48:03

200  
10:47:42

200  
10:47:22

200

Name: Ivan Rochat Eval Date: 05.03.2003

