

Final Report of the Aircraft Accident Investigation Bureau

concerning the incident (Airprox)

between DLH5746 and DLH5856

on 19 May 2003

Zurich ACC, 16 NM E/NE Friedrichshafen

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 of names also refers where appropriate to the feminine form.

PLACE/DATE/TIME Zurich ACC, 16 NM E/NE Friedrichshafen, 19 May 2003,
13:22 UTC

AIRCRAFT DLH5746, Canadair Regional Jet 700ER (CL600-2C10),
D-ACPE, Lufthansa CityLine GmbH
Munich (EDDM) – Marseille (LFML)

DLH5856, Canadair Regional Jet 100LR (CL600-2B19),
D-ACLJ, Lufthansa CityLine GmbH
Munich (EDDM) – Madrid (LEMD)

ATC UNIT Zurich Area Control Centre

AIR TRAFFIC RE – U1
CONTROLLERS RP – U1 (Coach)
RP – U1 (Trainee)

AIRSPACE C

HISTORY

On Monday 19 May 2003 two Lufthansa aircraft took off one shortly after the other: DLH5856 at 13:04 on a scheduled flight to Madrid and DLH5746 a little later, destination Marseilles.

After several course corrections, the crew of DLH5856 was instructed by Munich radar to climb to FL270 and one minute later there followed a request to fly direct to waypoint NEGRA. When asked by the air traffic controller (ATCO) about the current rate of climb, the commander (CMD), who was acting as pilot not flying, replied that their aircraft was climbing at 1000 ft/min at that moment. The ATCO instructed him to maintain this rate of climb until reaching FL270.

The crew of DLH5746 was instructed by the ATCO to climb to FL260 at a rate of climb of 1000 ft/min or less and also to fly direct to waypoint NEGRA.

A short time later, DLH5856 received clearance from Munich Radar to continue climbing to FL280 on condition that it reached this altitude 10 NM before flying over waypoint NEGRA.

At 13:19:09, DLH5746 was requested to switch to Swiss Radar frequency 133.050 MHz. At this time the aircraft was just about to fly over beacon Kempton (KPT DVOR/DME) and was passing FL240 in a climb.

Approximately one minute later, DLH5856, which was just passing FL270 in a climb, was also instructed by Munich radar to contact Swiss Radar on frequency 133.050 MHz.

At 13:19:21 the CMD of DLH5746 acting as PNF, made contact with the Radar Executive Sector Upper 1 (RE-U1) in Zurich and informed the latter that they were climbing to FL260, heading direction NEGRA. After the crew had set transponder code 7514 for identification, the RE instructed them to fly via route NEGRA – TRA – BENOT. The ATCO also asked the CMD what was its requested cruising altitude (confirm requested level?). The latter answered FL320 (requested level is er...320, DLH5746), on which the RE informed him that FL320 was a non-standard flight level and offered him FL310 or FL330 (okay, that's non-standard, 31 or -33?). The CMD decided on FL330. To the ATCO's question as to whether he would also be able to accept a higher FL, the CMD answered in the affirmative.

On completing this radio conversation, the CMD of DLH5856 made contact for the first time with RE-U1 and informed him that they were just reaching FL280. The ATCO assigned transponder code 2756 to the aircraft and asked the CMD for the requested cruising level. The latter answered FL310 and at the same time he informed the RE that they were not able to climb higher than FL310.

At 13:22:22, the CMD of DLH5856 made contact again and informed the RE that another aircraft was climbing through their flight level: "we have one climbing through our level at one mile to our left".

This aircraft was DLH5746, which at that time was 1.6 NM to the left of DLH 5856 and was climbing through its flight level.

All times in this report are in UTC format (Local time -2 hours)

FINDINGS

- DLH5856 and DLH5746 had taken off from Munich one minute and 40 seconds apart and were both flying in the direction of waypoint NEGRA.
- DLH5856 had received clearance from Munich Radar to climb to FL280 at a rate of climb of 1000 ft/min.
- DLH5746 was instructed by Munich Radar to climb to FL260 at a rate of climb of 1000 ft/min or less.
- Both RE-U1 Zurich and the flight crew of DLH5746 failed to use standard phraseology in regard to the desired cruising altitude.
- After reaching FL260, DLH5746 continued its climb without clearance.
- RE-U1 instructed DLH5746 to stop climbing at FL290.
- The pilots of both aircraft had each observed the other aircraft on their Traffic Alert and Collision Avoidance System (TCAS) already some time before the incident and had visual contact with each other.
- No TCAS alert was triggered in either aircraft.
- On this flight, the FO of DLH5856 had to complete a route introduction with a training captain as part of his training.
A second FO was sitting in the observer's seat as back-up on this route introduction.
- In the Klotten region and to the south-west of it there were storm clouds (cumulonimbus - CB), which several aircraft had to avoid.
- RE-U1 was having to handle an average to heavy volume of traffic of high complexity.
- The Radar Planner (RP) as Coach was having to supervise a trainee.
- The FO in the observer's seat of DLH5856 observed on the TCAS display that another aircraft was climbing out of FL270 below him. He immediately informed the other members of the cockpit crew.
- The CMD of DLH5856 was able to establish visual contact with the climbing DLH5746 at an early stage.
- The FO of DLH5856, acting as PF, later expressed the opinion that the chain of errors which could have led to an accident was already well advanced.
- The Short Term Conflict Alert (STCA) system triggered an STCA alert at 13:21:46 in Sector U1.
- The RE and RP had not noticed that, after reaching FL260, DLH5746 was continuing to climb.
- Neither the RE nor the RP had noticed the visual STCA alert on their radar monitors nor heard the acoustic STCA alert.
- At 13:22:28 the two aircraft were 16 NM E/NE of Friedrichshafen on a westerly and converging heading, direction NEGRA. DLH5746 climbed though DLH5856's FL280 to the south of the latter.
- The incident took place in Munich's area of responsibility.

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ANALYSIS

Munich radar

DLH5746 had taken off from Munich shortly after DLH5856. According to the flight plan, the routes of both aircraft, after passing KPT DVOR/DME, followed the airway UL856 via NEGRA to TRA DVOR/DME.

By mutual agreement between Munich and Zurich, Munich Radar was authorised to allow departing aircraft in a westerly direction to climb to maximum FL280.

Since the ATCO in Munich realised that DLH5746 would soon catch up with the aircraft flying in front of it, he decided on vertical separation.

He cleared DLH5856 to climb to FL280 and DLH5746, which had taken off after it, to FL260. In order to ensure the minimum vertical separation between the two aircraft until they reached their cleared flight level, the ATCO assigned a rate of climb to both crews. They received clearance to fly heading NEGRA direct.

When DLH5746 was passing FL240, it was instructed by Munich Radar to switch to Swiss Radar frequency 133.050 MHz. One minute later, when DLH5856 was passing FL270, it too was instructed to make contact with Swiss Radar 133.050 MHz.

Zurich Sector U1

The air traffic controllers in sector U1 in Zurich were responsible for airspace between FL246 and FL305. The Radar Executive (RE) had a medium to high traffic load to handle, whilst Radar Planning (RP) additionally had to monitor a trainee.

In the Kloten region and to the south-west there were isolated areas of thunderstorm activity (cumulonimbus - CB). Because of these CB, various aircraft were having to fly evasive manoeuvres. This considerably increased the workload and the complexity of traffic handling for the entire sector team.

Radar Executive

The RE was forced to deal more intensively with those aircraft which were entering his airspace from Milan and Geneva, as these aircraft wished to fly around the CB areas ahead of them. As a result of these aircraft deviating from their planned routes, various new conflict situations developed for the RE and he had to pay them greater attention.

On the basis of internal procedures, aircraft in sector U1 which requested a cruising altitude higher than FL300 were as a rule instructed to climb to the highest possible flight level in this sector, which was FL300. For continuing the climb, the transfer to the next higher sector U2 then took place without prior consultation (a silent transfer).

The RE was aware that according to its flight plan DLH5746 wanted a cruising altitude of FL390 and that DLH5856 wanted FL330. From experience, however, he knew that crews in flight often requested a cruising altitude which differed from the one specified by their company representative when the flight plan was submitted before take-off.

When DLH5746 was the first of the two aircraft to make contact with sector U1 in Zurich at 13:19:21, the aircraft was still in Munich's area of responsibility. The RE therefore had to wait before issuing an instruction to climb. In addition, FL300 was already occupied by another aircraft, so this transfer flight level was not yet available to the RE for a silent transfer of DLH5746 to sector U2.

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The RE also noted that a new conflict might possibly arise in the region of TRA between another Lufthansa aircraft (DLH5517/A320), which was flying from Geneva to Frankfurt via TRA DVOR/DME and which had to remain at FL260 because of traffic problems, and DLH5746.

He therefore began to plan the further climb of the two CL-600 aircraft and asked the crews for their desired cruising altitudes. The CMD of DLH5746 finally decided on FL330 with the option of climbing to a higher level if necessary. The CMD of DLH5856 was only able to accept FL310.

At this time the two aircraft were approximately 25 NM east of waypoint NEGRA. DLH5856 was just reaching FL280. DLH5746, which had in the meantime closed on DLH5856, was approximately 3 NM south of the latter and was passing FL258.

The two aircraft were now flying alongside each other on a converging heading direction waypoint NEGRA.

Since the RE had guaranteed separation between these two aircraft, he turned his concentration back to other traffic. In the period from 13:21:11 to 13:21:35 he was busy with two aircraft in the Zurich/Milan border zone. Immediately afterwards, DLH5517 in the Fribourg region (FRI VOR/DME) at FL260 called him for the first time at 13:21:36. Because of the CB ahead of him, the pilot requested a left turn onto heading 045° instead of the standard route direction KUDES. The RE accepted this deviation from the route and instructed the pilot to turn right again after passing the CB and to fly direct to KUDES. The ATCO also informed him that no higher flight level was available for his aircraft because of the traffic situation and that he would therefore have to remain at FL260. The radio conversations with DLH5517 lasted from 13:21:36 to 13:22:15.

During the time the RE was concentrating on the two aircraft in the Zurich/Milan border zone and was subsequently called by DLH5517 in the Fribourg/Berne region, DLH5746 climbed through FL260 at 13:21:16 to the east of Friedrichshafen and was finally passing FL280, which was occupied by DLH5856, at 13:22:28. The RE failed to notice this continuous climb by DLH5746, which was surprising, and the resulting STCA alert.

Immediately after the end of the radio conversations between DLH5517 and RE U1, at 13:22:22 the CMD of DLH5856 reported that another aircraft to the left of him was climbing though his flight level. The RE immediately realised that this was DLH5746. Since he did not know how high the aircraft would climb, he stopped it at FL290 as another Lufthansa aircraft was flying from south to north at FL300 to the east of Kloten. The RE then informed the crew of DLH5746 that they had not received clearance to continue climbing. He had merely asked them for their desired cruising altitude.

Radar Planning

The RP sitting next to the RE, as a coach, was having to monitor a trainee who was in the initial phase of air traffic control training. In view of this fact and the various CB areas which were making traffic handling more difficult, he had to discuss various problems with his trainee and conduct numerous coordination conversations. In addition, he knew that DLH5746 and DLH5856 were vertically separated by 2000 ft and so at that moment needed no further observation.

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According to his statements, because of the CB situation the RP was concentrating primarily on the traffic situation in the Berne region. He additionally had to constantly monitor the correct handling of the control strips by the trainee. Because of these circumstances, he also failed to notice that DLH5746 was continuing its climb. The RP later stated that he only noticed the visual STCA alert when the pilot of DLH5856 asked about the other aircraft. He had not heard the acoustic STCA alert.

He was not able to make any further contribution to resolving the problem, as the RE reacted immediately and stopped DLH5746's climb at FL290.

TCAS

Both aircraft were equipped with TCAS II software version 7.0. Software version 7.0 was specially developed with regard to the introduction of reduced vertical separation minima (RVSM), but it also remedied a number of acknowledged weaknesses of the preceding version 6.04a.

TCAS II can trigger two forms of alert:

- traffic advisories (TAs), to prepare the crew for a possible resolution advisory and help them to establish visual contact with the intruder.
- resolution advisories (RAs), which transmit instructions to crews for evasive manoeuvres in the vertical plane.

The TCAS II logic is based on two concepts:

- the warning time, which is based on the time (not the distance!) to the closest point of approach (CPA),
- and the sensitivity level, which is a function of altitude and which provides for greater minimum separations as the flight level increases.

To ensure that alerts are triggered only in cases of actual existing collision risks and thereby ensure cockpit crews' continuing high confidence in the TCAS system, various test subroutines were built into software version 7.0. In the process, special attention was paid to situations in which two aircraft are converging at a very acute (small) angle, as was the case of the incident involving the two Lufthansa aircraft.

In such a case, the 'closest point of approach' (CPA) is very far away because of the small angle between the two flight path projections, and this would delay the triggering of a traffic advisory (48 seconds to CPA) and a resolution advisory (35 seconds to CPA) respectively until the aircraft would be flying almost "wing to wing" at a minimum lateral separation.

In order to prevent this, in addition to calculating the CPA, which in the case of the two Lufthansa regional jets was far away and therefore did not trigger an alert, TCAS II Version 7.0 carries out further comparisons on the basis of which a TA or RA can be issued.

These are two tests, both of which must be positive for an alert to be issued:

1. a range test
2. an altitude test

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Range test

For the range test, TCAS II Version 7.0 software draws an imaginary horizontal circle around its own aircraft. If an intruder closes to a distance of 1.3 to 1.2 NM, a TA is triggered. If the intruder closes to a distance of 1.1 NM or less, the TCAS triggers an RA.

The lateral separation between the two aircraft at the time DLH5746 was climbing through FL280 was approx. 1.6 NM. So in the present case the range test was negative, preventing the triggering of a TA or an RA.

Altitude test

For the altitude test the TCAS computer, on the basis of the rate(s) of climb, calculates the time until the two aircraft will be at the same altitude (time-to-go to co-altitude). The threshold value for triggering a TA is set at 48 seconds, and the time for triggering an RA is set at 35 seconds. For the TCAS of an aircraft in level flight (like DLH5856 at FL280) this time is actually reduced to 25 seconds, in order to determine a possible transition of the intruder aircraft to level flight (level-off), until an alert is triggered.

The altitude test in the present case should have been positive, but this alone was not sufficient to trigger a TA or an RA, because at the same time the range test was negative.

Flight crews

DLH5856

The FO in the observer's seat of DLH5856 was the first to notice on the TCAS display that an aircraft was leaving FL270 below him and continuing its climb. He immediately informed the other members of the cockpit crew.

The FO, in his function as PF, indicated that he had subsequently observed on his TCAS how the other aircraft was continuing its climb bottom left to top right in the direction of their flight path. The CMD for his part informed RE-U1 that another aircraft was flying through his flight level at a distance of approximately 1 NM.

According to the CMD's statement, he had not followed the preceding radiocommunication between DLH5746 and RE-U1. However, he had observed DLH5746 on his TCAS display throughout the climb and was able to establish visual contact with the aircraft in good time. There was no danger of a collision.

The PF of DLH5856, however, was of the opinion that the chain of errors which could have led to an accident was already well advanced and was only broken by the attentiveness of the FO in the observer's seat.

DLH5746

The flight crew of DLH5746 was aware that one of its own airline's Cityliners was flying ahead of it. Even before they switched to the Swiss Radar frequency the flight crew was able to establish visual contact with this aircraft. According to the FO's information, the latter was on a parallel heading at approximately 10 NM in the 2 o'clock position and was flying somewhat higher.

The two pilots of DLH5746 had agreed at an early stage that they would choose FL320 as their cruising altitude. However, after the frequency change to Zurich RE-U1 informed them that FL320 was a non-standard flight level and offered them FL310 or FL330.

Both the CMD and the FO confirmed in a later comment that they had understood RE-U1's radio conversation about whether they wanted a cruising altitude of FL310 or FL330 as a question, which the CMD then answered with FL330.

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However, both pilots were of the opinion that they had subsequently also received a clearance from RE-U1 to climb to FL330.

According to the radio recording, this was not the case.

The FO, acting as PF, later stated that he had checked the flight route after receiving it. On the basis of the presumed clearance to continue the climb, he then entered FL330 in the Flight Control Panel (FCP) and the assigned flight route in the Flight Management System (FMS). In addition, the CMD, while he was still answering RE-U1 to the effect that they were able to climb even higher, gave him a nod in confirmation, when he saw that as PF he had entered FL330 in the FCP.

The FO further stated that because of this input activity he had not realised that their aircraft was on a converging heading with DLH5856. Only when the CMD of DLH5856 called the RE and informed him of the other aircraft did he look to the right and see DLH5856, which at that time was already below them, in the 4 o'clock position and a distance of approximately 1.5 NM.

The FO later expressed the assumption that because of their (the CMD's and FO's) earlier discussion on the desired cruising altitude he had obviously formed a mental image of the future progress of their flight. This image would have been based on the knowledge that their aircraft was on the one hand faster and that on the other hand the aircraft flying ahead of them was approximately 10 NM to the side of them. Thus they would be able to pass the latter during the climb without any problems.

CAUSE

The incident is attributable to the fact that the flight crew of DLH5746, because of the incorrect application of radiocommunication rules (issuing and confirming of instructions), interpreted the desired cruising altitude about which the air traffic controller had enquired as clearance for this level and as a result wanted to continue climbing to FL330 instead of climbing to FL260 as instructed.

Reciprocal surveillance (closed loop) was unable to prevent the incident, because both crew members made this mistake.

The following factors contributed to this:

- the communication (closed loop) on the occasion of the clearance presumed to have been received and its entry into the Flight Control Panel by the FO of DLH5746 took place only in the form of a "nod of the head" by the CMD; this does not correspond to the model of communication currently customary in a multi-person crew,
- during their climb, the flight crew of DLH5746 failed to observe the other air traffic in their immediate vicinity on the TCAS. Such an observation would have enabled them to detect the impending separation violation in good time,
- the air traffic controllers had not noticed either the visual or the acoustic STCA alert.

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SAFETY RECOMMENDATION NO. 354**Safety deficit**

During an unauthorised climb by a CL600 through the flight level of another aircraft, the Short Term Conflict Alert (STCA) on the console of the sector concerned triggered an alert. The three air traffic controllers in this sector did not notice either the acoustic or the visual alert. On the day in question there was thunderstorm activity in the area to the west and southwest of Kloten. Consequently, the air traffic controllers were busy with requests from various aircraft to fly around CB cloud and were therefore distracted from the visual display of the two aircraft.

Safety recommendation

The FOCA should arrange for the acoustic STCA alert at the air traffic controllers' workstations to be set so that it can be perceived under all circumstances and at any time.

Berne, 30 March 2005

Aircraft Accident Investigation Bureau

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

Investigation into the **incident** that occurred on **19 May 2003**

- Subject of transcript: **DLH5746 / DLH5856**
- Centre concerned: **Swiss Radar Area East**
- Designation of unit: **ACC ZRH**
- Frequency / Channel: **133.05 MHz**
- Date and period (UTC) covered by attached extract: **19 May 2003
13:19 - 13:27 UTC**
- Date of transcript: **11 June 2003**
- Name of official in charge of transcription: **Bettina Comte**

- 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.

Zürich, 11 June 2003

Bettina Comte

Abbreviations

Sector Designation of sector
U1 RE - Zurich UPPER 1 Sector Radar Executive
-

<u>Aircraft</u>		<u>Callsign</u>		<u>Type of act</u>	<u>Flight rules</u>	<u>ADEP</u>	-	<u>ADES</u>
5746	-	DLH5746	Lufthansa	CRJ7	IFR	EDDM	-	LFML
5999	-	EEZ5999	Eurofly (Italy)	MD82	IFR	LFPG	-	LIML
3799	-	DLH3799	Lufthansa	A320	IFR	LIMC	-	EDDF
5ZY	-	EZY5ZY	Easyjet	B737	IFR	EGKK	-	LIML
5856	-	DLH5856	Lufthansa	CRJ2	IFR	EDDM	-	LEMD
5653	-	DLH5653	Lufthansa	RJ85	IFR	LIRQ	-	EDDF
5517	-	DLH5517	Lufthansa	A320	IFR	LSGG	-	EDDF
21C	-	DAT21C	Dat (SN Brussels)	RJ1H	IFR	EBBR	-	LIPE
5422	-	TRA5422	Transavia	B737	IFR	LIRP	-	EHAM
1650	-	AEF1650	Aero Lloyd	A320	IFR	EDNY	-	GCFV

TRANSCRIPT SHEET

Occurrence: DLH5746 / DLH5856

skyguide



Date: 19 May 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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Frequency: 133.050 Zurich UPPER 1 Sector

U1 RE	5746	13:19:21	Swiss Radar "grüezi", DLH5746, climbing level 260, on course NEGRA	
5746	U1 RE	:26	DLH5746 "grüezi", squawk 7514	
U1 RE	5746	:32	7514, DLH5746	
5999	U1 RE	:42	EEZ five triple nine, report your speed?	
U1 RE	5999	:45	our speed is 290, EEZ five nine double nine	
5999	U1 RE	:49	roger, maintain	
U1 RE	5999	:50	maintaining 290 knots, EEZ five nine double nine	
3799	U1 RE	:57	DLH3799, identified, routing ABESI - KUDES then NELLI, and I call you for further climb after ABESI	
U1 RE	3799	:20:06	DLH3799, ABESI - KUDES - NELLI	
U1 RE	5ZY	:11	Radar "guten Tag", EZY5ZY, descending flight level 310, to ODINA	
5ZY	U1 RE	:16	EZY5ZY good afternoon, identified, descend level 250 to cross ODINA with a...at level 250 with a speed of 290 knots or less	
U1 RE	5ZY	:26	cleared down to level 250, to cross ODINA at 250, two ninety knots or less, EZY5ZY	
5ZY	U1 RE	:33	thank you	
5746	U1 RE	:34	DLH5746, radar contact, route NEGRA - TRASADINGEN - BENOT, and confirm requested level?	
U1 RE	5746	:42	NEGRA - TRASA - BENOT and requested level is äh...320, DLH5746	
5746	U1 RE	:47	okay, that's non-standard, 31 or 33?	
U1 RE	5746	:50	*.....33, DLH5746	*unreadable
5746	U1 RE	:52	roger, if necessary able for higher?	
U1 RE	5746	:55	yes	

Signature of person in charge of transcription:

TRANSCRIPT SHEET

Occurrence: DLH5746 / DLH5856

skyguide



Date: 19 May 2003

<u>Col.1</u>	<u>Col.2</u>	<u>Col.3</u>	<u>Col.4</u>	<u>Col.5</u>
To	From	Time	Communications	Observations
5746	U1 RE	13:20:56	okay	
U1 RE	5856	:57	Swiss "grüezi", DLH5856, approaching level 280	
5856	U1 RE	:21:01	DLH5856 "grüezi", squawk 2756 and confirm requested level	
U1 RE	5856	:06	2756, level 310 and unable for higher	
5856	U1 RE	:10	"danke"	
U1 RE	5653	:11	"grüezi" Swiss, DLH5653, level 280, to ABES	
5653	U1 RE	:16	DLH5653 "grüezi", squawk 2750	
U1 RE	5653	:21	5653 squawk 2750, and we stand-by for 320	
5653	U1 RE	:26	that's copied	
5999	U1 RE	:28	EEZ five triple nine, call Milano 127 45, "ciào"	
U1 RE	5999	:32	27 45, EEZ five nine double 9, "ciào"	
U1 RE	5517	:36	"grüss Gott" the DLH5517, passing 251 climbing level 260	
5517	U1 RE	:40	DLH5517 "guete Tag", identified, BERSU - DITON - KUDES - LADOL - NELLI	
U1 RE	5517	:47	BERSU - DITON - KUDES - LADOL - NELLI, and äh...just a build-up overhead äh...BERSU, request heading 045	
5517	U1 RE	:56	5517, heading is approved, when clear of weather direct to KUDES	
U1 RE	5517	:22:01	roger, on heading 045, when clear of weather call you back for a direct KUDES, DLH5517	
5517	U1 RE	:08	roger 5517, and due traffic level 260 final level	
U1 RE	5517	:12	thank you, level 260 final, 5517	
U1 RE	5856	:22	and Swiss, DLH5856, we have one climb through our level in about one mile, is that right?	
5856	U1 RE	:28	sorry, say that again, please?	
U1 RE	5856	:29	we have one climbing through our level at one mile to our left	

TRANSCRIPT SHEET

Occurrence: DLH5746 / DLH5856

skyguide



Date: 19 May 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>
5856 5746	U1 RE U1 RE	13:22:33	ah.. stand-by;... ...DLH5746?	
U1 RE	5856	:37	575 äh..5856	
5856 5746	U1 RE U1 RE	:39	"ja, ja;... DLH5746?	
U1 RE	5746	:42	5746?	
5746	U1 RE	:44	"ja" stop your climb level 290	
U1 RE	5746	:47	stopping climb 290, 5746	
5746	U1 RE	:49	5746, you never got a clearance to climb, it was just a..a question what was your requested level	
U1 RE	5746	:58	call you back	
5746	U1 RE	:23:00	"ja" maintain 290	
U1 RE	5746	:01	at 290 now, 5746	
3799	U1 RE	:05	DLH3799, climb level three hundred	
U1 RE	3799	:08	DLH3799, climb flight level three hundred	
U1 RE	21C	:12	and 21C, ten degrees left to avoid?	
21C	U1 RE	:14	"ja" is approved	
U1 RE	21C	:15	thank you	
U1 RE	5422	:20	Swiss Radar "bonjour" TRA5422, level 300 requesting higher	
5422	U1 RE	:25	TRA5422, squawk 2761	
U1 RE	5422	:29	3..2761, TRA5422	
5746	U1 RE	:34	DLH5746, climb to level 290 and maintain now	
U1 RE	5746	:39	oh, we have level 290, DLH5746	
5746	U1 RE	:42	"ja" mode CHARLIE readout shows level 288	
U1 RE	5746	:45	*.....at	*unreadable
5746 5609	U1 RE U1 RE	:47	okay -5609 DLH, call Rhine 132 405, good-bye	

Signature of person
in charge of transcription:

[Handwritten signature]

TRANSCRIPT SHEET

Occurrence: DLH5746 / DLH5856

skyguide



Date: 19 May 2003

<u>Col.1</u>	<u>Col.2</u>	<u>Col.3</u>	<u>Col.4</u>	<u>Col.5</u>
To	From	Time	Communications	Observations
U1 RE	5609	13:23:53	DLH5609, 134 605, bye	
5746	U1 RE	:24:10	DLH5746, now climb level 300	
U1 RE	5746	:14	climbing level three hundred, DLH5746	
5746	U1 RE	:17	roger, and I have to file a report about that	
U1 RE	5746	:22	okay, we do the same, 5746	
5746	U1 RE	:24	okay	
U1 RE	1650	:28	Swiss "grüezi", AEF1650, passing 222 climbing level 240	
1650	U1 RE	:33	AEF1650 "grüezi", climb to maintain level 250	
U1 RE	1650	:37	level 250, AEF1650	
5653	U1 RE	:40	DLH5653, climb to flight level three hundred, that's final level due traffic	
U1 RE	5653	:44	DLH5653, leaving 280 climbing level three hundred, "danke schön"	
5ZY	U1 RE	:49	EZY5 äh..ZY, call Milan 127 45, good-bye	
U1 RE	5ZY	:53	EZY5ZY, 127 45, "tschüss"	
5856	U1 RE	:57	DLH5856, climb level 290	
U1 RE	5856	:25:00	climbing now level 290, DLH5856	
5856	U1 RE	:03	"ja, sprechen Sie Deutsch?"	
5856	U1 RE	:07	DLH5856, "sprechen Sie Deutsch?"	
U1 RE	5856	:09	"ja"	
5856	U1 RE	:10	"ja, ich habe Ihren Kollegen, der Sie da links überholt hat, gefragt nach seinem 'requested level', er hat das offenbar als 'climb clearance' verstanden"	
U1 RE	5856	:17	okay, "kein Problem, wir haben ihn ja die ganze Zeit gesehen"	
5856	U1 RE	:19	"ja, also ich muss es mindestens bei uns in's Logbuch eintragen"	

TRANSCRIPT SHEET

Occurrence: DLH5746 / DLH5856

skyguide

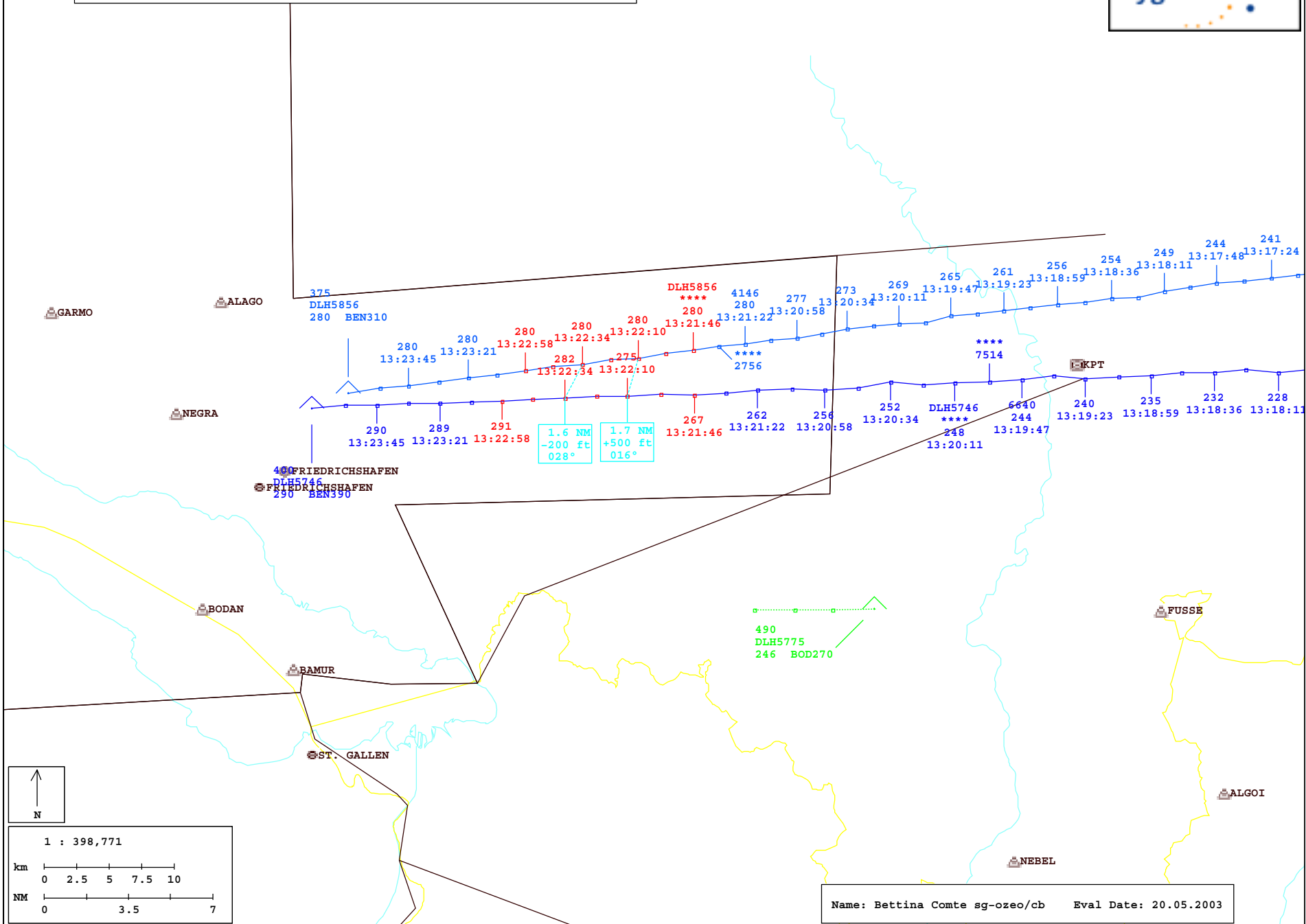


Date: 19 May 2003

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>
U1 RE	5856	13:25:23	okay, "kein Problem für uns"	
5746	U1 RE	:25	DLH5746?	
U1 RE	5746	:27	"ja, fünf sieben vier sechs, wir sprechen auch Deutsch, wir haben den Kollegen ebenfalls gesehen, und äh... also wir haben die 'climb clearance' glaub ich zurückgelesen und deshalb wohl auch so verstanden, 'sorry', aber wir haben den Kollegen auch gesehen"	
5746	U1 RE	:36	okay, "können Sie mich nach der Landung mal anrufen hier?"	
U1 RE	5746	:43	"ehm...mal sehen, ja?"	
5746	U1 RE	:45	"ja, oder, von mir aus auch wenn Sie wieder zu Hause sind; ich werd mal das Band abhören; ich muss es mindestens in's Logbuch muss ich's eintragen"	
U1 RE	5746	:53	"ja, geben Sie mir doch mal eine Telefonnummer, von München aus, wenn wir wieder zurück sind, mach ich das"	
5746	U1 RE	:56	"ja, ich geb Ihnen meine Handynummer, das ist	
U1 RE	5746	:26:07		
5746	U1 RE	:10	okay, "dann" for further climb radar 134 605, good luck	
U1 RE	5746	:15	34 605, "fünf" äh.. 5746, "und wir rufen zurück, tschüss"	
5746	U1 RE	:19	"tschüss"	
5422	U1 RE	:21	TRA5422, radar contact, proceed ABESI - KUDES - ROMIR TANGO	
U1 RE	5422	:27	roger, proceeding ABESI and then KUDES, TRA5422, and requesting higher	
5422	U1 RE	:32	yes, 5422, for further climb radar 134 605, good-bye	
U1 RE	5422	:36	34 605, good-bye	

Src
ACN

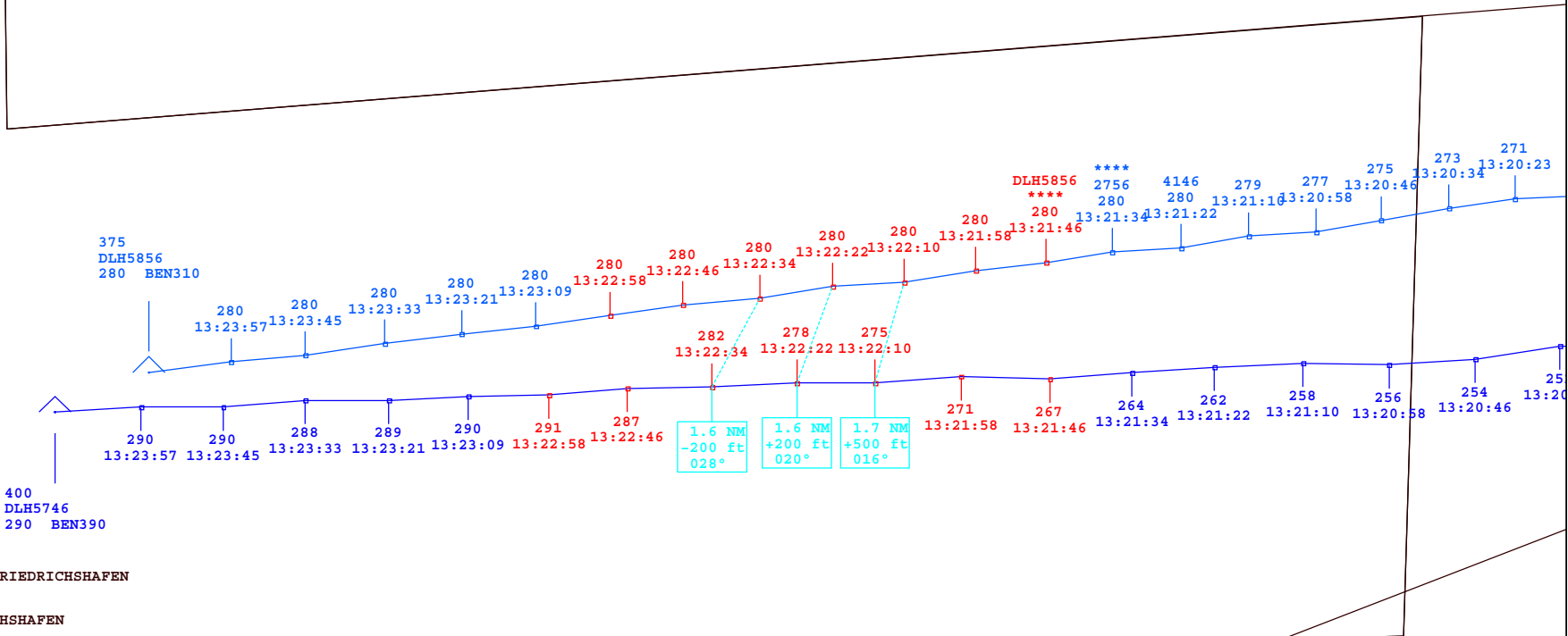
Analysis: AIRPROX DLH5746 of May 19, 2003 Time [UTC]: 19.05.2003 13:24:19
level bust



Name: Bettina Comte sg-ozeo/cb Eval Date: 20.05.2003

Src
ACN

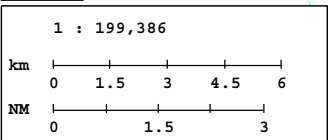
Analysis: AIRPROX DLH5746 of May 19, 2003 Time [UTC]: 19.05.2003 13:24:19
level bust



400
DLH5746
290 BEN390

FRIEDRICHSHAFEN

FRIEDRICHSHAFEN



490
DLH5775
246 BOD270

Name: Bettina Comte sg-ozzo/cb Eval Date: 20.05.2003