



International Civil Aviation Organization

MIDANPIRG AIM Sub-Group

Third Meeting (AIM SG/3)
(Cairo, Egypt, 15 - 18 May 2017)

Agenda Item 4: AIM Planning and Implementation in the MID Region

AIM-RELATED ACCIDENTS AND INCIDENTS

(Presented by the Secretariat)

SUMMARY

This information paper presents AIM-related contributory factors and recommendations related to some of accidents and incidents.

Action by the meeting is at paragraph 3.

REFERENCES

- EUROCONTROL

1. INTRODUCTION

1.1 For the sake of safety promotion and continuing on the experience, this thread is created by the EUROCONTROL to share the incident/accident reports where the aeronautical data and/or aeronautical information products (e.g. AIP, charts, NOTAM, etc.) were considered among the findings, contributory factors and/or safety recommendations.

2. DISCUSSION

2.1 Some of AIM-related contributing factors and recommendations of accidents/incidents are as follows:

[A333, Kathmandu Nepal, 2015](#)

- Use of resolution and rounding in publication and calculation of runway threshold coordinates
- Use of AIRAC for publication/cancellation of AIP SUP
- Coordination between aeronautical information services and aerodrome authorities
- Provision of raw aeronautical information/data by the aerodrome authorities in accordance with the accuracy and integrity requirements

[SW4, Sanikiluaq Nunavut Canada, 2012](#)

- The lack of required flight documents, such as instrument approach charts, compromised thoroughness and placed pressure on the Captain to find a work-around solution during flight planning. It also negatively affected the crew's situational awareness during the approaches at Sanikiluaq.

CL60, Lexington KY USA, 2006

- Because of an ongoing construction project, the taxiway identifiers represented in the airport chart available to the flight crew were inaccurate, and the information contained in a local NOTAM about the closure of taxiway was not made available to the crew via ATIS broadcast or the flight release paperwork.
- 'Inaccurate Airport Chart' and 'NOTAM missing in dispatch release'

Gulfstream III, Aspen, CO USA, 2001

- unclear wording of the Notice to Airmen regarding the night time restriction for the VOR/DME-C approach to the airport and the failure to communicate this restriction to the tower

American Airlines Flight 965

- The flight crew's failure to adequately plan and execute the approach to runway 19 at SKCL and their inadequate use of automation.
- Failure of the flightcrew to discontinue the approach into Cali, despite numerous cues alerting them of the inadvisability of continuing the approach.
- The lack of situational awareness of the flightcrew regarding vertical navigation, proximity to terrain, and the relative location of critical radio aids.
- Failure of the flightcrew to revert to basic radio navigation at the time when the FMS-assisted navigation became confusing and demanded an excessive workload in a critical phase of the flight.
- FMS-generated navigational information that used a different naming convention from that published in navigational charts.

MD87 / C525, Milan Linate, 2001

- Markings that currently existed on TWY R6, indicating S4 and S5 positions and on TWY R5 indicating S1 and S2 positions and a further marking entering the North apron from TWY R5 indicating an S5 position, were not duly reported on AIP Italy. Consequently this was not reflected in Jeppesen and SAS Flight Support documentation.
- White flashing lights, positioned at TWY R6 intersection with RWY 18L/36R, described on AIP Italy official charts (...) had been deactivated in 1992 and substituted by unidirectional alternate green/yellow (...) lead lights to guide exit from RWY36R and entrance to TWY R6 (...). Official documentation showed none of these changes.
- official documentation failing to report the presence of unpublished markings (S4, S5, etc) that were unknown to air traffic controllers, thus preventing the ATC controller from interpreting the unambiguous information from the Cessna crew, a position report mentioning S4;
- The national competent Authority, to ensure that all required information to operate safely is contained in the AIP Italy and updated as needed.
- The state of airport Visual Aids of all domestic airports as well as the published taxi procedures shall be checked and found to be in accordance to published AIP.

B752, vicinity Cali Colombia, 1995

- pilots operating FMS equipped aircraft to have open and easily accessible the navigation charts applicable to each phase of flight before each phase is reached
- approach charts to airports that do not have radar coverage available at the time of the publication of the chart prominently state, on the chart, that radar coverage is unavailable
- inconsistencies between FMS-generated navigation displays and paper chart information

- inadequate criteria governing the portrayal of terrain on charts and maps supplied commercially

Piper PA-32RT, W. Columbia, SC USA, 2000

- The inadequate wording of the NOTAM for failure to identify that the usable width of the runway was reduced

Collision of two Aircraft on the Airport of Mailand-Linate, 2002

- the Cessna crew was not aided properly with correct publications (AIP Italy - Jeppesen), lights (red bar lights and taxiway lights), markings (in deformity with standard format and unpublished, S4) and signs (non existing, TWY R6) to enhance their situational awareness;
- official documentation failing to report the presence of unpublished markings (S4, S5, etc) that were unknown to air traffic controllers, thus preventing the ATC controllers from interpreting the unambiguous information from the Cessna crew, a position report mentioning S4;

Investigation report of an accident with a Saab 2000 on Werneuchen airfield, 2012

- If the user is to obtain rapid and precise situational awareness, the information on an aviation chart must be clear, understandable, comprehensive and correct. In the opinion of the BFU, the Werneuchen Aerodrome Chart published in the Aeronautical Information Publication - Luftfahrthandbuch (AIP) VFR ('Air Pilot') – did not meet these criteria. The chart was incomplete and there was no systematic use of the standardised symbols required by ICAO Annex 4. The aerodrome chart made no reference to closed runway markings on the disused sections of the old runway. Further, the aerodrome chart bore no markings denoting the displaced threshold to runway 08.
- Insufficient information about Werneuchen Special Airfield due to inadequate chart illustration, plus absence of and misunderstood communications

Interim Report of an Accident with a Cessna 750 near Egelsbach

On 19 March 2012 the German Federal Bureau of Aircraft Accident Investigation has issued the following safety recommendations as immediate measures and to prevent future accidents:

- Recommendation no.: 11/2012 The Regierungspräsidium Darmstadt (regional council), the approval and oversight authority for Frankfurt-Egelsbach Airfield, should suspend the approval to conduct flights according to Visual Flight Rules Night (VFRN) for so-called High Performance Aircraft until the safety recommendations No 12/2012, 13/2012 and 14/2012 have been implemented Note: This recommendation has been (partially) implemented by the Regierungspräsidium Darmstadt.
- Recommendation no.: 12/2012 The Regierungspräsidium Darmstadt (regional council) should revise the procedures for the conduct of flights according to Visual Flight Rules (VFR) to and from Frankfurt-Egelsbach Airfield in cooperation and coordination with the Deutsche Flugsicherung GmbH (German air traffic service provider, DFS) and the Bundesaufsichtsamt für Flugsicherung (Federal Supervisory Authority for Air Navigation Services, BAF). The description of the procedures should be simple, comprehensible and free of contradictions and should be published in the AIP. This is also true for the visual approach charts.
- Recommendation no.: 13/2012 In the scope of the process planning the Deutsche Flugsicherung GmbH (German air traffic service provider, DFS) originally determined the definition of the so-called High Performance Aircraft (HPA). The definition should be amended by the speed parameter V_{ref} . It should be ensured that the stipulated approach and departure routes for the

airfield including the traffic circuit can be safely flown with the Vref value determined in the definition with so-called High Performance Aircraft.

- Recommendation no.: 14/2012 In the visual approach chart for Frankfurt-Egelsbach Airfield it should be clearly visible that due to the obstacle situation the final approach has to be flown with an approach angle of 4.4°. In the approach charts the wooded hill range east of the airfield should be depicted as an obstacle.

[B738, Ireland West Airport, Knock, 2006](#)

- AIP Supplement was not available to the pilots at the critical flight planning stage. It is the responsibility of the Operator to provide such information. This was a systemic failure.
- The DAT Provider had been routinely copied by the IAA, both electronically and by hard copy, of AIP Supplement. However, no relevant Chart NOTAM was issued to their Airways Manual. This was a systemic failure.
- Contributing to this serious incident was the systemic failure of both the Operator and DATP to provide current information on AIS published procedures/restrictions on Ireland West Airport Knock to the pilots.
- The Operator should review the procedures and responsibilities in Route Manual of its Operations Manual, to ensure that all current charts, plates and other pertinent information are available to aircrew
- The DATP should review its procedures in relation to the processing of AIP Supplements where the content of an AIP Supplement affects data previously published by DATP, so that timely and appropriate Chart NOTAMS are issued.

[Cavalese cable car disaster \(1998\)](#)

The Cavalese cable car disaster of 1998, also called the Strage del Cermis ("Massacre at Cermis") occurred on 3 February 1998, near the Italian town of Cavalese, a ski resort in the Dolomites some 40 km (25 mi) northeast of Trento. Twenty people died when a United States Marine Corps EA-6B Prowler aircraft, while flying lower than regulations allowed in order for the pilots to "have fun" and "take videos of the scenery", cut a cable supporting a gondola of an aerial tramway, causing it to plunge 260 feet to the ground.^[1]

[The Geometry Of the Fatal Flight](#)

The Marines will not explain why the Italian charts with the ski lift on it were not used. American military flights generally use American maps, mostly because Pentagon officials trust American map-makers more than the agencies that draw local maps. Italian officials say that they give Italian charts to NATO officials but that they are poorly distributed.

Defense Department officials in Washington said that at least two American military maps of the region do not include the ski lift because its towers are too low. The tallest towers on the lift rise only 65 feet, and obstacles need not be shown unless they reach approximately 100 feet, said Mark E. Schultz, associate director for geospatial imagery at the National Imagery and Mapping Agency. The maps cover towers, not cables, he said, despite the fact that the cables at Cavalese are more than 100 feet above the ground.

"Without putting surveyors on the ground to look at features like that, we would have no way of knowing what the height was," he said.

But the Pentagon charts are generally used by planes passing over the area at much higher altitudes. For low-level flying, a document called the Aeronautical Publication 2 tells pilots that the minimum safe altitude over the Cavalese ski lift is 750 feet above the ground.

[AT72, vicinity Stockholm Bromma Sweden, 2010](#)

Description: ATR72-200 was radar vectored close to some parachutists which had just been dropped from a helicopter as part of an air show. AIS/AIM relevant details of investigation:

- NAK holding pattern is published in AIP, in the chapter Airports under the tab

Stockholm/Arlanda, Holding Procedures. Under the tab Stockholm/Bromma there is a reference to Stockholm/Arlanda, ESSA 4-3, regarding holding patterns that are established for Bromma airport.

- The crew used maps from the US company Jeppesen as navigation data. In these maps the NAK holding pattern was published in the Stockholm/Bromma tab that is used for approaches from the north. It was not possible to find the holding pattern under the Stockholm/Arlanda tab in this manual.
- It was noted that in respect of the hold at 'NAK' for which the aircraft had originally been cleared was depicted differently at the Arlanda ACC and on the Jeppesen Chart provided to the ATR72 crew. Both showed a left hand hold but the ACC (and AIP charts) had an inbound track of 209° whereas the Jeppesen Chart showed one of 283°.

Safety recommendation:

- The Swedish Transport Agency is recommended to ensure that the holding patterns belonging to a specific airport will be published in their entirety under the heading for that airport.

C750, Frankfurt-Egelsbach, Germany, 2012

- Recommendation no.: 14/2012: In the visual approach chart for Frankfurt-Egelsbach Airfield it should be clearly visible that due to the obstacle situation the final approach has to be flown with an approach angle of 4.4°. In the approach charts the wooded hill range east of the airfield should be depicted as an obstacle.

Sikorsky S-92A, Black Rock, Co. Mayo, Ireland, 2017 (preliminary report)

Description: The Irish Coast Guard rescue helicopter crashed off after commencing an approach to refuel when it struck terrain. eTOD relevant details of preliminary investigation:

- Enhanced Ground Proximity Warning System (EGPWS)

Interim safety recommendations:

- (Operator) should review/re-evaluate all route guides in use by its SAR helicopters in Ireland, with a view to enhancing the information provided on obstacle heights and positions, terrain clearance, vertical profile, the positions of waypoints in relation to obstacles and EGPWS database terrain and obstacle limitations.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to note the information provided in the Information Paper.