

DCA 84 AA008

Log 1742

SP-20

also see Log 1736

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 25, 1984

Forwarded to:

Honorable Donald D. Engen
Administrator
Federal Aviation Administration
Washington, D.C. 20591

SAFETY RECOMMENDATION(S)

A-84-111 through -115

At 1926, on November 24, 1983, Air Canada Flight 965, a Lockheed L-1011, C-FTNJ, with 154 passengers and 15 crewmembers on board, encountered severe clear air turbulence about 105 miles off the coast of Charleston, South Carolina, while en route to Toronto, Canada, from Port of Spain, Trinidad. One flight attendant and three passengers were seriously injured during the encounter. Two physicians aboard the flight provided immediate medical attention to the injured. The flight continued to its destination and landed without further incident about 1 1/2 hours after the accident. Medical assistance was on hand to provide treatment when the flight arrived at the gate. 1/

At the time of the turbulence encounter, the flight was under the control of the Jacksonville Air Route Traffic Control Center (ARTCC) METTA sector, and a convective SIGMET 2/ was in effect for a large portion of the METTA sector. The METTA controller had been relieved of the responsibility of broadcasting SIGMETs under the terms of the Federal Aviation Administration's Hazardous Inflight Weather Advisory Service (HIWAS). The flightcrew was not aware of the SIGMET.

The FAA disseminated its plan for the HIWAS program within the FAA on July 14, 1981, in FAA Notice N 7110.658. Distribution of the notice was limited to ARTCC sectors, terminal facilities, and Flight Service Stations (FSS) within the Miami and Jacksonville ARTCC areas. It directed that controllers at terminal and en route facilities discontinue broadcasting SIGMET information, and that FSS facilities discontinue broadcasting certain weather advisories. It directed that SIGMET information be broadcast over selected very high frequency omni range (VOR) facilities instead.

1/ For more detailed information read, Aircraft Accident Report: Air Canada Flight 965, Lockheed L-1011, near Charleston, South Carolina, November 24, 1983 (NTSB-AAR-84/13).

2/ Significant Meteorological Information: A weather advisory concerning weather significant to safety or aircraft. Issued for tornadoes, lines of thunderstorms, embedded thunderstorms of any intensity and areas of thunderstorms.

The HIWAS program was implemented in the Miami and Jacksonville ARTCC areas on September 5, 1981, and the aviation-user community was informed of the program in the biweekly Class II NOTAM ^{3/} publication. The Class II NOTAM is the normal means of distributing information to the aviation community when a graphic display is required and/or a length text is involved. Although HIWAS was a trial program, the discontinuance of alternate methods of weather dissemination in the Miami and Jacksonville ARTCC areas after implementation of HIWAS effectively made its use by pilots mandatory:

During the course of the investigation, Safety Board investigators questioned 130 pilot/user-group personnel with regard to their knowledge of and their use of the HIWAS program since its implementation in September 1981. The personnel questioned included air carrier pilots, chief pilots, flight and station managers, corporate and general aviation pilots, and military and FAA pilots. Nine of the air carrier pilots questioned were operating within the METTA sector at the time of the accident. Except for one air carrier pilot, all those questioned stated that they were not familiar with the program. The one exception, a Boeing 757 captain, stated that he had become aware of the program on November 29, 1983, when he read a notice on the subject in his company flight manual.

Additionally, all the individuals questioned regarding HIWAS stated that they expected the controller to provide them with SIGMET information once they were airborne. About half of those interviewed who were employed by 14 CFR Part 121 operators stated that their respective companies had a program to supplement ATC by providing them with SIGMET information through the company radio frequency.

Personnel at FAA headquarters responsible for implementation of the HIWAS program and distribution of program information stated that they disseminated information about the program in a routine and standard manner.

The Safety Board is concerned by the fact that numerous active pilots interviewed were not aware of the HIWAS program. In its printed form, the Class II NOTAM is disseminated to only about 13,000 recipients. The Board believes that the use of a Class II NOTAM, though the prescribed method of dissemination, did not sufficiently inform the intended pilot groups particularly since normal procedures were being suspended by HIWAS. Moreover, with the exception of Canada, the details of the HIWAS program were not disseminated directly to foreign operators.

Transport Canada received the Class II NOTAM regarding HIWAS but it was not widely distributed in Canada. Air Canada pilots received the HIWAS information in the form of an insert for their operations manual. However, the generalized information provided to the pilots by Air Canada gave the impression that the HIWAS program was an optional program rather than one which required the user's participation.

Beyond the inadequate distribution of information about HIWAS, the Safety Board believes that the criteria for selecting VOR facilities to be utilized for broadcasting HIWAS information needs further review by the FAA. The nearest HIWAS VOR facility to Air Canada Flight 965 was at Florence, South Carolina, a location located several miles inland. It is possible that some flights would not be able to receive the selected VOR HIWAS information until they were well within the boundaries of U.S. airspace. The Safety Board believes that the FAA did not adequately consider the existence of heavily traveled offshore routes, preferential jet routes and trans-Atlantic routes entering U.S. domestic airspace in the development of the program. Furthermore, the Safety Board is concerned that it is necessary in order to pick up an off-route HIWAS VOR that

^{3/} Class II NOTAMs are printed in a biweekly publication and distributed through the mail.

flightcrews change navigational frequencies. Moreover, although sophisticated navigational computer equipment such as that on the newest aircraft may allow for the manual selection of a VOR frequency, the need to use the equipment in the manual mode may compromise the accuracy of the Flight Management System (FMS). In fact, the Boeing Commercial Airplane Company has stated that, "FMS accuracy is highest with two navigational receivers," that is, with both navigational receivers dedicated to the FMS en route tracking task.

The Safety Board believes that the concept of the HIWAS program has much merit. It could become to the en route environment what the Automatic Terminal Information Service (ATIS) has become to the terminal environment. Recognizing the limited availability of VHF communications frequencies, the Safety Board urges the FAA to utilize a common (single) VHF communications frequency (118-135 MHz band) for HIWAS broadcasts within each ARTCC facility. Utilizing a single VHF communications frequency, a designated FSS located within the ARTCC's area or the Center Weather Service Unit (CWSU) could prepare and transmit the recorded HIWAS weather information more effectively. Transmitters located at the facility's existing remote radio sites could provide total coverage for all aircraft operating in or near a particular facility's airspace.

In addition, the Safety Board believes the FAA should develop procedures similar to those used in the current ATIS program in the terminal areas so that flightcrews could monitor the individual ARTCC HIWAS advisory frequency and inform the controller on initial contact that the flight had the current HIWAS information. The Board believes that a program similar to the existing ATIS would benefit the ATC system by reducing controller workload in the en route, terminal, and flight service environments. Additionally, it would serve the user better in that it would permit a flightcrew to obtain the latest hazardous weather information for an entire ARTCC's airspace, over a single frequency, from anywhere within the facility's airspace.

The Safety Board is aware that the FAA plans to implement the current HIWAS program/procedures on a nationwide basis at all domestic ARTCC facilities at an early date. However, the Board believes that implementation of the current HIWAS program at additional ARTCC facilities should be postponed until the existing program is modified to correct the problems identified in the Safety Board's investigation of this accident and a program is instituted to insure adequate dissemination of information concerning HIWAS to the aviation community.

The Safety Board supports the objective of the FAA's HIWAS program and believes it can be attained if the foregoing modifications are made. Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administrator:

Postpone nationwide implementation of the Hazardous Inflight Weather Advisory Service Program at Air Traffic Control Centers until the broadcasting procedures are improved and program information is disseminated widely. (Class II, Priority Action) (A-84-111)

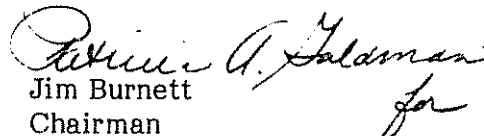
Designate communication frequencies within the 118-135 MHz band for each Air Route Traffic Control Center to broadcast Hazardous Inflight Weather Advisory Service information. (Class II, Priority Action) (A-84-112)

Develop procedures similar to those currently used in terminal areas for Automatic Terminal Information Service, for flightcrews to monitor an individual facility's Hazardous Inflight Weather Advisory Service frequency and to inform the controller/facility on initial contact that the flight has the current HIWAS information. (Class II, Priority Action) (A-84-113)

During a transition period following the further implementation of Hazardous Inflight Weather Advisory Service, require Air Traffic Controllers to advise flightcrews when critical safety information is being made available through HIWAS. For example, ARTCC controllers should be required to advise flights upon initial contact "significant weather information available on HIWAS." (Class II, Priority Action) (A-84-114)

Institute a program to ensure that changes to Air Traffic Control operations and communications procedures, means to disseminate aviation weather information, etc., are published in a manner to directly reach all users of the National Airspace System. (Class II, Priority Action) (A-84-115)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in these recommendations.

By: 
Jim Burnett
Chairman