

UNITED STATES OF AMERICA
NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: February 4, 1972

Adopted by the NATIONAL TRANSPORTATION SAFETY BOARD
at its office in Washington, D. C.
on the 15th day of December 1971

FORWARDED TO:

Honorable John H. Shaffer)
Administrator)
Federal Aviation Administration)
Washington, D. C. 20591)

SAFETY RECOMMENDATIONS A-72-7 & 8

The National Transportation Safety Board conducted a special study in the Pacific area to review meteorological, communications, and air traffic control facilities and services of the United States, as well as those of other countries.

As a result of that project, we are transmitting to various governmental and nongovernmental agencies a number of safety recommendations for improving operating conditions for all flights. Two of the recommendations transmitted to the Administrator of the National Oceanic and Atmospheric Administration--one dealing with radar at Honolulu and the other with a system for severe turbulence avoidance--involve direct coordination between your two agencies. Accordingly, the two proposals are outlined below.

The lack of radar weather information available to the meteorologists was noted at Honolulu. It would appear that this problem could be solved in a number of ways without the installation of equipment such as a WSR-57 weather radar. It might be feasible to detail meteorological personnel to the Air Route Traffic Control Center to interpret the weather echoes displayed on the ATC radars, or the ATC radar displays could be remoted to the Weather Service offices. In view of the variability of weather conditions and the resultant intermittent need for these data at such a location as Honolulu, and because of the inherent disadvantages of a remoted ATC display, it would appear to be more practical to detail meteorological personnel to the Center.

In Australia, our staff members were provided with a detailed look at the experimental Joint Approach Control Meteorological Advisory Service (JACMAS) system for the avoidance of severe turbulence. As a result of the loss of an aircraft because of structural failure in severe turbulence just after takeoff from Sydney some years ago, the Board of Accident Inquiry recommended that "when thunderstorm activity is present, the air

traffic controller should be provided with the best current weather information pertinent to the assessment of the changing weather pattern." Thereafter, authorities of the Department of Civil Aviation and of the Bureau of Meteorology took joint action to provide a service which would present to the controller, in a manner suitable for immediate use, statements of the areas in which severe convective turbulence may be found within 50 miles of an airport. These statements had to be capable of being amended, when necessary, with a minimum of delay. Such a service, designated as an experimental JACMAS system, was implemented at Brisbane and subsequently at Sydney and Melbourne. It is understood that several evaluations indicated that the system has in fact provided effective storm warning information in the three areas where it was in operation and that there were plans to remove the "experimental" label and possibly expand the service to include other terminal areas.

Following is a brief generalized description of the JACMAS system. Utilizing weather radar, a Storm Warning Forecaster transcribes the likely areas of severe turbulence onto a plexiglass sheet. This information is relayed to Area and Approach Control as well as to Operations (and other positions) by means of closed-circuit TV. Each controller has a small monitor above his ATC radarscope and is alerted to the JACMAS by a special aural signal which is activated whenever the plexiglass sheet is inserted in the closed-circuit TV system. The controllers use this and other available information to advise aircraft of likely turbulence areas and devise clearances which will enable aircraft to avoid these areas. When such clearances cannot be devised because of the extent of a storm system, ATC will close specific portions of the airspace to aircraft movements. Descriptions of the JACMAS areas are also broadcast on the appropriate local VOR's and NDB's.

In view of the success of the latter system in Australia and recognizing the problems associated with congestion around large terminals during periods of thunderstorm activity, it appears to us that traffic flow could be improved and air safety enhanced by a system patterned along the lines of JACMAS. Since it is the government which carries out the dispatch function in Australia rather than the carriers, as in the United States it is recognized that for that and other reasons, there would be many differences between the JACMAS and such a system in this country, but it would appear that the problems would not be insurmountable.

In view of the above, the Safety Board recommends that the Federal Aviation Administration, in coordination with the National Oceanic and Atmospheric Administration, take the following action:

1. Examine the feasibility of detailing meteorological personnel to the Honolulu ARTC Center to interpret


weather echoes displayed on ATC radar when required.

2. Examine the feasibility of developing for United States use, a system similar to the Australian JACMAS system for the avoidance of severe turbulence, at least on an experimental basis at selected locations.

We shall be pleased to make appropriate members of our staff available for consultation, since they have a considerable amount of detailed information on the JACMAS system.

These recommendations will be released to the public on the issue date shown above. No public dissemination of the contents of this document should be made prior to that date.

Reed, Chairman; Laurel, McAdams, Thayer and Burgess, Members, concurred in the above recommendations.


By: John H. Reed
Chairman



POSTAGE AND FEES PAID
NATIONAL TRANSPORTATION
SAFETY BOARD

NATIONAL TRANSPORTATION
SAFETY BOARD
DEPARTMENT OF TRANSPORTATION
Washington, D.C. 20591
Official Business
PENALTY FOR PRIVATE USE, \$300