

3. Cloud-height measuring equipment should be provided at all aviation weather observing stations. The practice of estimating cloud heights is simply not conducive to providing accurate information or to safe aircraft operations.

4. Additional efforts should be made to standardize the location of weather instruments at airports. We have in mind particularly, standard locations for representative measurements of wind and cloud height over the airport and cloud information from that area along the approach path where "decision height" is involved.

5. Methods should be developed for measuring and forecasting low-level wind shear in the terminal area.

6. In order to insure more accurate visibility observations, adequate visibility reference markers (particularly nighttime markers) should be provided for the guidance of observers. A survey of copies of visibility reference marker charts should reveal those locations where inadequacies exist, and corrective action should be taken thereafter. These inadequacies have been revealed on numerous occasions during aircraft accident investigations such as at Freeland, Mich., Barnes Airport, Westfield, Mass., Miles City, Mont., Ardmore, Okla., and Cincinnati, Ohio.

7. Continued efforts should be made to expand the upper air observing network and to increase the number of rawinsonde ascents to four per day. Gaps in the network are numerous and two ascents per day are certainly not optimum for aviation purposes.

8. The weather radar network should be expanded, particularly west of approximately 100° west longitude, and weak, obsolete, war-surplus equipment should be replaced with up-to-date, long-range weather radar sets.

9. It is recognized that it is generally impractical to base a staffing plan on the "bad weather" situation. It appears, however, that some revisions or expansions are required, so that a continuous weather watch could be maintained and improved pilot briefing services provided at those locations manned by one person during certain hours. There are many locations where a single person is faced with a mountainous workload during bad weather, and making aviation weather observations in an accurate and timely manner may have to take a lower priority than other assigned duties.

10. Continue the expansion of the runway visual range (RVR) program including the multiple installation of transmissometers. When more than one transmissometer is installed along an instrument runway, appropriate procedures will be required to standardize the extent and type of RVR information to be provided to the pilot; for example, information from the touchdown zone, rollout area; and/or center of the runway complex. It is also clear that in the low-visibility ranges, additional research is required into the means to adequately assess RVR.

11. A means of measuring slant visibility or slant visual range which a pilot would experience on an approach to landing would certainly enhance air safety.

12. In view of the enthusiastic support by the users of the pilot-to-forecaster experimental programs at Kansas City and Washington, it is suggested that serious consideration be given to establishing an operational program on a national basis.

13. The transcribed weather broadcasts (TWEB) network should be expanded to provide coast-to-coast coverage.

14. The pilots automatic telephone weather answering service (PATWAS) should be greatly expanded to provide its service to many additional areas, particularly those areas where live weather briefing may not now be available.

15. There is a need for more pilot weather briefing facilities.

16. Substantial improvements in weather briefings could be realized by the provision of facsimile equipment for all weather briefing facilities. This would also assist in the desired standardization of pilot weather briefing procedures.

17. Additional efforts should be made to improve and standardize weather briefing displays.

18. Provisions should be made for additional telephone lines to weather briefing facilities. In this connection, arrangements could be made for the caller to receive (when the briefers are occupied) a recorded announcement to stand by for a briefing. Receipt of such an announcement would certainly be an improvement over a busy signal and in many cases would lead to a pilot receiving a slightly delayed briefing instead of being tempted to depart with no information.

19. In order to assist the Safety Board in accident investigations and for ESSA/FAA quality control purposes, audio recording of pilot weather briefings is advocated.