

SUMMARY REPORT OF THE
GENERAL SERVICES COMMITTEE

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Members of the General Services Committee were:

John H. Enders (Chairman), FAA
Robert Curry, HQ Air Weather Service, USAF
Rodger Flynn, Air Transport Association of America
William W. Vaughan, NASA/Marshall Space Flight
Center
N. A. Lieurance, Alden Electronics

Terms of Reference

The frame of reference for operation of the General Services Committee encompassed the broad area of meteorological services to aviation. The discussions addressed meteorological services in terms of: 1) Assessment of adequacies of present services; 2) Acquisition and processing of data not now available, but deemed vital to improvement of the aviation system; and 3) Delivery of an adequate meteorological service to various users within the National Aviation System (NAS), yet responsive to changing system requirements.

Discussions began in an informal manner during each session, allowing anecdotal information to stimulate interest in topical areas of concern to the assembled participants within the context of effectively transmitting meteorological information within the NAS. A list of questions provided in a handout was covered in its entirety, though not by each and every floating committee. Problem areas surfacing

consistently throughout the four workshop sessions centered about three areas: Information, Training, and Research.

Each of these three areas was explored through discussion in terms of:

- Adequacy of current effort or service
- Availability and accessibility of information
- Quality of information
- Effectiveness of current training
- Utilization of research results
- Usefulness of on-going research
- Dissemination of raw and processed data
- Automatic or manual handling of data
- Diverse needs of aviation community (i.e., general aviation, air carriers, military)

Information

Meteorological information available within the present system was examined and the general feelings expressed by the participants indicated that, though considerable improvements could be made in quality and content, nowhere near all of the information existing was being used, nor was some of it accessible to the operator, especially the private pilot. This situation appeared to be due to several possibilities, including: overcrowding of work schedules with limited manpower; lack of trained manpower; limitations of data transmission speeds; and location of Flight Service Stations (FSS) and weather offices remote from pilots' departure of flight planning locations.

The credibility of meteorology information in the eyes of the aviator is vital to its use. The receptiveness of the pilot to weather information is, in part, a function of the aviator's experience with actual weather encounters **and** with accuracies of past weather briefings.

The dependability of available and accessible data was criticized. As an example, the ATIS report being broadcast during the Eastern 66 accident at JFK was several hours old and did not contain information on the severe weather transiting the airport. Other viewpoints expressed support for the generally "good" weather system (acknowledging rare insufficiencies), noting that substantial further improvements would cost disproportionately more to upgrade the information quality.

Problems of 'comprehending, in functional terms, the meaning of probabalistic forecasts, both long and short term, were expressed. The value of a particular forecast will vary according to the different uses of the same data. The value is also phenomena-dependent. It was questioned whether a probabalistic forecast was of any real use to tightly-scheduled operations, and line pilot members of the group felt it to be of use largely in establishing mental concepts of trends in the synoptic and local situations.

There was some concern raised as to the adequacy and timeliness of s'evere weather information furnished to airport ground support'operations, where snow forecasts, freezing rain forecasts, or severe wind and hail forecasts carelessly done could unnecessarily cause large expenditures of scarce resources or conversely delay timely action to protect ground equipment.

Dissemination of information within the National Weather Service (NWS) was discussed in terms of speed and timeliness problems. While the present situation presents longer-than-desired delays, it was believed that when the AFOS (Automated Field Operations and Services) system goes "on line" these delays will be reduced and services will be improved.

An observation, endorsed by several participants, that accurate low level (<3000 ft.) wind forecasts were lacking in

the system, was contested by NWS staff representatives. While NWS is strictly correct in its position on this question, several users of currently-available low level forecasts expressed feelings that since air carrier operations are now conducted at higher jet altitudes, the attention given to accurate forecasting emphasizes the higher altitudes at the expense of surface and low altitude wind forecasts. The disagreement seemed to stem from conflicting definitions of what was accurate or effective, and seemed to typify many of the interface communications problems identified at this workshop.

Satellite-furnished information is generally regarded at this time as "nice to have," but expensive in terms of the true value of data presently available, with one exception: long-range overwater flights, where a good interpretive picture can help to identify areas of severe weather not detectable by other means.

Discussions also centered around the proper role of NWS and FAA in dissemination of weather data in a timely and efficient manner to both air carrier and general aviation users, keeping in mind pilots.' problems in applying the weather information furnished to them. There appeared to be a general feeling that the links between NWS and FAA need to be closer in order that the dissemination of data can be improved.

Training and Personnel

At a symposium on severe weather held in February at Scott AFB, it had been pointed out that a great deal of training continued to take place during routine forecaster-to-pilot briefings prior to flight. This point was reemphasized during the workshop, with the additional observation that as plans for further automation are implemented, pilot

contact with forecasters will decrease with an unknown, but likely detrimental, effect on the effectiveness of information transfer to the pilot. As ADP is phased in, it is imperative that trained forecasters monitor the quality of the data furnished to the operator, in order to ensure the credibility of the data.

Present initial meteorological training of aviators was criticized, with the point strongly made that satisfactory accomplishment of the weather portion of the written pilot certification exam should be a license requirement, which is not the present case.

Strong impressions from civil and military participants are that younger pilots in the system today do not have strong weather training, nor appreciation of weather vagaries. The AOPA/FAA flight safety workshops were praised for their effectiveness and should be encouraged to continue and increase a stressing of weather training.

The absolute necessity for attention to a common, non-ambiguous vocabulary in simple, plain language is essential to maintaining pilot interest in meteorology briefings, whether personal or automatic.

The biennial flight check for general aviation pilots should include a verbal or written weather refresher, and some attention should be given to development of a vital, regularly-updated weather training program, either for class or self-study use.

Research Needs and Responsibilities

Considerable discussion of this topic resulted in few clear ideas suitable for development. At least eleven different Federal agencies were identified as having legitimate aviation weather research interests. BOB Circular No. 13 was discussed, and it is evident that it has effectively

diluted coordinative action by directing each agency with aviation meteorology needs to fund its own research and met services. The job of Federal Coordinator for Meteorology was established in 1969 to coordinate met research, but has not effectively functioned in this role of late.

Research needs identified were for:

- Dependable wind shear detection and reporting
- Dependable fog forecasting and dispersal
- Finer-scale forecasting of critical weather
(e.g., snow/rain; freezing level; thunderstorms,
etc.)
- Structure of thunderstorms
- Better understanding of electrical structuring of
the atmosphere at altitude and its effect on
weather systems and aircraft

Conclusions

The overriding considerations of Information, Training, and Research are that they must serve their intended purpose; that of providing the user with the information needed to perform a task in non-ambiguous, efficient, and timely fashion. If this purpose is not served, then all of the discussion, training, automation, information handling, and research is of little use, and this thought must be uppermost in our minds as we set out to improve the system.

The Committee members were unanimous in their opinions that this workshop was of high value and that subsequent workshops should become regular events. The unique aspect distinguishing this workshop from others was the diversity of the participants and the achievement of finally communicating across the interface boundaries between pilots, meteorologists, airplane designers, researchers, as well as between military, civil, general aviation and commercial interests.