EXECUTIVE SUMMARY

The July 2000 Aviation Weather User Forum and the Tier 3/4 process highlighted the need for improved aviation weather training for users and providers of aviation weather information. To facilitate progress towards improved training, the Office of the Federal Coordinator for Meteorology, as mentioned in the April 16, 2001 Tier 3/4 Baseline Report, is working with appropriate federal agencies, industry partners, and universities to address the training issue. Our primary objectives are to coordinate development and implementation of comprehensive aviation weather training programs, to improve awareness of and access to aviation weather training, and, ultimately, to improve the practical skills of users and providers of aviation weather services.

As the first step, we gathered training information for the programs[1] identified in the Tier 3/4 Baseline Report. This information supplements the information gathered during last year's Tier 3/4 effort and gives a better indication of training objectives and requirements, designated trainees, and levels of training for new products. The information was gathered from agency, industry, and university points of contact including program managers, training experts, and others. The information is divided into three sections and within each section are various parameters for consideration by responders. The parameters include such things as training status, intended trainees, level of training, and method of training.

The purpose of this report is to provide an analysis of training parameters for emerging and recently implemented aviation weather programs. The report will also serve as a reference for aviation weather training to help foster leveraging and collaboration, and constitute the first step in addressing aviation weather training across the aviation weather community. The three parts of this report include an overall analysis of program and training parameters; a reassessment of the Tier 2 training initiatives; and an assessment of training issues identified during the Aviation Weather User Forum.

The first part of the report looks at both program and training parameters. During analysis of the parameters, consideration is given to the both *program type* and *program status* as well as the *training status*. The analysis indicates that a majority of Tier 3/4 programs appear to consider training as an integral part of both program development and implementation. Analysis of the *designated trainee* and *level of training* parameters indicates that most sectors of the aviation weather community are being considered for training and that training is being geared to different experience levels. However, there are some functional areas such as ground operations where more emphasis may be required to ensure the availability of appropriate training.

An assessment of the *training method* parameter indicates that a variety of training methods are being used, including on-the-job training, distance learning, computer-based training, self-study, and classroom-laboratory training. Computer-based instruction, in

---

[1] The word program is used in a general sense throughout the report to include programs, projects, and work elements within projects.

conjunction with operational products and systems, is the most often used *training delivery resource* while special training systems, prototypes, simulators, and test bed systems are used less often.

For the *training provider* parameter, federal agencies are cited most often. However, industry, contractors, and non-government entities are also cited. Testing, a form of *training measurement,* is the most commonly used method of determining successful accomplishment of training objectives. It can also be an effective method of learning when reviewed and critiqued properly. However, from our analysis, it appears that a relatively high percentage of training is not measured. We recommend that training managers consider training measurement as a standard part of all training.

Analysis of the *training reference* parameter shows that a variety of training references are being used which helps to maintain training validity and currency. The purpose of the training *documentation* parameter is to record completed training; however, the results show that nearly a quarter of the Tier 3/4 training has no completion documentation. We recommend that completion documentation, of some sort, be implemented as a standard for all training. Finally, the analysis of *training length, group size, and instructor to student ratio* indicates that a balance between training quality, effectiveness, and training costs is being maintained.

The second part of the report deals with the Tier 2 training initiatives. Tier 2 initiatives are the service area initiatives contained in the *National Aviation Weather Initiatives* published in 1999. The additional training information gathered during this effort made it possible to reevaluate the five Tier 2 training initiatives to see how well they are being met. Two of the five initiatives, dealing with ground de-icing and in-flight icing hazards training for air traffic control personnel, had no training identified in the April 2001 Baseline Report. However, information gathered during this effort identified training associated with other Tier 3/4 programs that could be leveraged to support not only these two initiatives but other Tier 2 training initiatives as well.

The third part of this report deals with issues raised during the July 2000 Aviation Weather User Forum.

The first area deals with *training considerations during program development* and also the part training plays during *the transition of new technologies to operation.* The Tier 3/4 training status summary provides an indication of the extent to which training is being considered during program development and the program transition to operations. This summary shows that eighty percent of programs have either implemented training or have training under development. From this it appears that training is being considered as an essential part of the process to achieve full implementation of aviation weather programs.

The next area deals with *tailoring training to meet the unique needs* of various users and providers of weather information. Based on the analyses of several training parameters including *designated trainees, skill level, level of training*, and *delivery resources* it appears that training developers are considering the unique needs of the various training audiences.

The final area deals with *finding and facilitating opportunities for leveraging and collaboration of training among the federal, private, and academic sectors.* In the reassessment of the Tier 2 training initiatives it appears that opportunities for leveraging exist and probably exist for other programs as well.