
VOLUME 3, AIR OPERATOR TECHNICAL ADMINISTRATOR

CHAPTER 7. AVIATION MULTIMEDIA INFORMATION SYSTEMS**SECTION 4. ENHANCED WEATHER INFORMATION SYSTEMS**

400. GENERAL. Enhanced weather information systems (EWISs) incorporate advanced technical capabilities, as approved by the Federal Aviation Administration (FAA), and provide cockpit holders with certain weather data which permits quick, flexible, and operationally efficient responses to changing meteorological conditions. These systems detect, track, report, and forecast ordinary weather conditions as accurately as they do adverse weather phenomena. An EWIS may report and forecast weather conditions not only useful in controlling daily flight movements, but also to permit short and long term operational planning for enhancing an operator's capability to operate aircraft and to use equipment and personnel with maximum efficiency.

400. CONCEPT OF AN EWIS. The basic concept of an EWIS is to use a weather information system for maximum effectiveness in making, evaluating, reporting and forecasting the presence or absence of adverse weather phenomena. The basic requirement of an EWIS is it must always incorporate a subsystem capable of obtaining, evaluating, and disseminating reports and forecasts of adverse weather phenomena. Adverse weather phenomena, by definition, are directly observable flight operation safety. Consequently an Adverse Weather Phenomena Report and Forecasting subsystem must effectively, rapidly, and reliably process weather information from the time the information is obtained from approved sources and it is used by flightcrews and other operational control personnel in making decisions concerning the control of flight movements.

400. CHARACTERISTIC FUNCTIONS OF AN EWIS. There are three basic functions of an EWIS. These functions are an initial flow of weather information, analysis and evaluation of the information, and an onward flow of the information to an operationally appropriate format. Additional components include a policies and procedures manual, training programs, quality assurance procedures, test facilities, and equipment.

A. An EWIS must include sufficient procedures, personnel, and communication and data processing equipment, to effectively obtain the automated weather data described in section 1 from approved sources. The communication and data processing equipment and procedures must include back up capabilities to provide uninterrupted operation should any single component of the system fail.

B. An EWIS must have the necessary qualified personnel, procedures, and equipment for effective analysis and evaluation of automated weather data and of the effect of changing weather conditions on current and forecast operations. Based on conclusions derived from EWIS data, additional personnel may prepare and issue flight movement forecasts, forecasts of adverse weather phenomena, and other meteorological advisories to control flight operations. Personnel authorized to analyze and evaluate weather data for the purpose of making and issuing forecasts must be trained and qualified in accordance with paragraphs 410 and 420.

C. An EWIS must have the necessary communication systems, data processing equipment, procedures, and personnel to provide rapid, timely, and reliable dissemination of weather information used to make operational decisions. Flight movement forecasts, adverse weather phenomena forecasts, and any other meteorological advisories must be appropriately disseminated to flightcrews during preflight planning and while they are en route. The same information must be provided to other operational control elements within the operator's organization.

400. THE POLICIES COMPONENT OF EWIS. The following are FAA policy statements concerning EWISs used by Title III of the Code of Federal Regulations (49 CFR Parts 121 and 135) Operators.

A. Each EWIS must be approved by the FAA. FAA approval of an EWIS includes approval of an Adverse Weather Phenomena Reporting and Forecasting subsystem and implies cockpit holders

to further objectives.

B. An EWING must provide rapid and reliable dissemination of weather data through communication channels independent of any air traffic communication system.

C. Each EWING includes capabilities that continuously qualify its sensors and its distribution procedures for covering forecasted differences.

D. Except for provisions for quality assurance, any other appropriate part of an EWING may be owned and/or operated by a private weather company, private communication company, or by another U.S. State, ICAO or IIR sponsor.

E. An aviation meteorologist is a dispatcher with PMP authority, and continuously be on duty when any flight operations are in progress.

F. Properly trained and qualified aviation meteorologists and dispatchers with PMP authority who operate an EWING may be authorized to prepare and issue flight instrument forecasts.

G. Flight instrument forecasts are official weather forecasts which cover specific flight operations for a particular space.

H. An automated weather data provided by an EWING satisfies all regulatory requirements for such Part 131 and/or Part 135 certificate holder specifically authorized to use a particular EWING.

1003. EWING POLICIES AND PROCEDURES MANUAL.

A. Responsibility for Preparing an EWING Manual.

A certificate holder or a combination of certificate holders and noncertificated organizations may jointly operate an EWING. The operators or operators of an EWING must develop, prepare, maintain, control an EWING policies and procedures manual.

(1) If an EWING is operated by a single certificate holder, that certificate holder shall be responsible for preparation and currency of an EWING policies and procedures manual. This manual shall be incorporated as part of the manual requirements of section 131.131 or section 135.21.

(2) If an EWING is cooperatively or contractually operated by more than one organization (at least one of which must be a certificate holder authorized to operate under Part 131 or Part 135), the EWING policies and procedures manual must establish who is responsible for preparing and keeping the manual

current. Each cooperating certificate holder must incorporate appropriate provisions of the EWING manual into its manual.

(3) A certificate holder who does not operate an EWING and does not participate with others in a cooperative EWING arrangement may, through commercial arrangements, acquire noncertificated meteorological data from an approved EWING. In this case, the certificate holder must use all the weather products provided by the approved EWING for the conduct of its flight operations. The cooperating certificate holder must incorporate in its manual appropriate provisions of the approved EWING policies and procedures manual. Additionally, the cooperating certificate holder's manual must contain specific instructions on use of forecasts from sources other than the approved EWING.

B. Content of an EWING Manual. An EWING policies and procedures manual must include descriptions of the content of the EWING and how the EWING operates. This manual must provide information concerning the following areas:

(1) Facilities:

(a) The location of the primary meteorological office.

(b) Descriptions of, and instructions for, using communication and data processing equipment.

(2) Weather Sources:

(a) A list of sources for weather reports.

(b) A list of sources for weather forecasts.

(c) Conditions and limitations for use of private weather services or sources for reports and forecasts.

(3) Aircraft:

(a) Qualification methods for dispatchers with PMP authority and aviation meteorologists.

(b) Training requirements for dispatchers with PMP authority and aviation meteorologists.

(c) Staffing requirements for the EWING.

(4) Operating Policies and Procedures:

(a) Detailed procedures for obtaining, evaluating, and disseminating aviation weather.

(b) Procedures for obtaining PMP/Ps/ALP/.

(c) Procedures for operating in areas affected by adverse weather.

(d) A description of the EFBSS interface with dispatch/operational communications.

(e) Normal, abnormal, and emergency procedures.

(f) The identification, authorization, and responsibility of persons permitted to make flight instrument failures.

(5) *Quality Assurance Procedures:*

(a) Procedures to ensure accuracy of the EFBSS cockpit input and outputs.

(b) Procedures to ensure effectiveness of the EFBSS communication capabilities.

(c) Policies and procedures for correcting deficiencies observed within an EFBSS.

1401. OPERATIONAL QUALIFICATION: Activities, meteorological and dispatcher with PWP authority who are part of an EFBSS must meet the following special qualifications:

A. *Aviation Meteorologist:* An aviation meteorologist must have a degree in meteorology (or its equivalent) awarded by an accredited university or college and be certified by his employer as competent to perform aviation forecasting duties. Each EFBSS operator must have a program which ensures that aviation meteorologists understand that their professional actions influence aviation safety, and the required operational and regulatory responsibilities for persons using meteorological forecasts. In addition, aviation meteorologists must receive briefings, as necessary, to obtain current information on changes to the operations controlled by their forecasts. A briefing and training volume for aviation meteorologists must be included in the EFBSS policies and procedures manual. Training can be self-administered, briefings, and/or formal training. It must include information on weather requirements of 14 CFR which require certified weather who use the EFBSS. Traditional types of professional meteorological training are acceptable.

B. *Dispatcher with PWP Authority:* A dispatcher who has satisfactorily completed an approved training program which includes the training specified in paragraph 1405 may be authorized by the employer to make weather flight instrument failures.

1402. TRAINING FOR DISPATCHERS WITH PWP AUTHORITY:

A. *Dispatchers:* shall not be authorized to make and issue flight instrument failures unless they have satisfactorily completed an FAA-approved initial training course in meteorology. In addition, dispatchers with PWP authority must satisfactorily complete an FAA-approved recurrent training course in meteorology at least once every 24 months. Recurrent training modules may be administered as periodic intervals that provide for a complete cycle of recurrent meteorological training every 24 months. Any dispatcher with PWP authority who is also assigned duties in domestic or flag operations under Part 121 must satisfactorily complete the training and qualification requirements specified in Subpart K and F of Part 121 in addition to the meteorological training specified in this paragraph. Any meteorological training required by Subpart K, however, is satisfied by the meteorological training specified in this paragraph.

B. *Approved initial and recurrent meteorological training curriculum systems* must include training in at least the following subjects:

- (1) *Basic Properties of the Atmosphere:*
 - Composition
 - Density
 - Altitude
 - General circulation
 - Barometric
- (2) *Clouds:*
 - Formation
 - Classification
 - Description
 - Use of cloud knowledge in forecasting
 - Stability and instability
- (3) *Air Mass Analysis:*
 - Classification
 - Flying conditions
 - Use of air mass knowledge in forecasting
- (4) *Analysis of Fronts:*
 - Structure and characteristics
 - Cloud sequence patterns

- Establishing positions of towers by cloud type
 - Frost and seasonal variations
 - Flying weather in towers
 - Cyclones and anticyclones
- (6) Fog:
- Types
 - Cause and formation
- (6) Ice:
- Types
 - Cause and formation
- (7) Barometers, Barographs, Barometer:
- Causes
 - Methods of forecasting
 - Structure and complexity of forecast wind
 - Bar (pressure and formation)
- (8) Windflow:
- Sources
 - Reporting
 - Cause
 - Directional techniques
- (9) Sailscreens:
- Determining the correct level of flight
 - Cause
- (10) Interpreting Weather Data:
- Weather reports and symbols
 - Weather map symbols
 - Drawing a weather map
 - Reading a weather map
 - Upper level charts
 - Altimeter charts
 - Wind shift charts
 - Instruments used to gather and record weather data
 - Radio products and usage
 - Satellite products and usage
- (11) Weather Forecasting:
- Extrapolation
 - Movement of fronts and air masses

- Isobars
- Barometric tendency
- Use of altimeter technology in weather forecasting/techniques

(12) Application of Weather Knowledge:

- Planning
- Decisions
- Accuracy of applicability
- Instrumental (if applicable)

1407. APPROVAL OF AN EWING.

A. *Request for Approval.* Parts 121 and 125 operators are not required to use an EWING. Those operators, however, may elect to establish and use an EWING. All EWING must be approved by the FAA. An operator or group of operators choosing to establish an EWING must make a written request for approval. The letter must describe the planned EWING, its sufficient detail to allow the POB (or POB's) to evaluate the proposal. The letter must be accompanied by the proposed EWING policy and procedures, names of any concerned organizations, and names of the key personnel employed by any concerned weather service to be involved in the proposed EWING.

B. *Evaluation and Implications of an EWING.* Before approving an EWING, POB must evaluate the material submitted with the request for approval and conduct inspection of the facilities, equipment, and other components. POB must also verify the professional qualifications and training of critical meteorological and dispatch staff activity who will be used in the EWING. When the POB has determined the proposed EWING has the characteristics functions described in paragraph 1407, and complies with the FAA policy statements in paragraph 1407, and meets the criteria specified in paragraphs 1407, 1408, and 1409, the EWING may be approved.

C. *Approval or Denial of an EWING.*

(1) *Approval.* A certificate holder to use an EWING shall be accomplished by issuing operations specifications Operations Specification (OpsSpec) 2200 with reference to the EWING policy and procedures, intended to be used by the operator. The original form of the EWING manual, and the last revision date, shall also be referenced in OpsSpec 2200. Any continuation of the EWING and/or the EWING manual shall be real-

used and inspected by the FAA as soon as possible, but no later than 90 days after the certificate is made.

(3) If, after evaluation and inspection, the POI determines a proposed EPRM does not meet the requirements of this handbook, all submittals and data shall be returned to the operator with an explanatory letter. This letter must state the proposed EPRM is not approved and clearly explain why. If an EPRM has been approved, and a POI determines later that the

EPRM does not conform to meet the requirements of this handbook, the POI shall immediately inform the certificate holder. If the certificate holder does not take immediate and appropriate corrective action the POI must take action to amend paragraph 4(d)(1) of the operators specifications and suspend approval of the EPRM.

176.12(f) REPEALED.

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