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SUPPORT TO AIR TRAFFIC CONTROL FACILITIES

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Signed

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Date

<u>Table of Contents</u>	<u>Page</u>
1. Purpose.....	3
2. General.....	3
3. Mission and Responsibilities.....	3
3.1 Responsibilities of the Meteorologist-in-Charge (MIC).....	3
3.2 Responsibilities of Meteorologists.....	4
3.3 Organizational Alignment.....	5
3.4 Forecast Collaboration.....	6
3.5 Off-duty/Backup Support.....	6
3.5.1 Off-duty Support (overnight hours).....	6
3.5.2 Backup Support (during normal hours of operations).....	6
4. Air Traffic Facilities.....	7
5. Products and Services.....	7
5.1 Briefings.....	7
5.1.1 Quality Assurance for Briefings.....	8
5.2 Center Weather Advisory (CWA).....	8
5.2.1 CWA Issuance Criteria.....	8
5.2.2 CWA Product Preparation.....	9
5.2.3 CWA Collaboration with Other Offices.....	10
5.2.4 CWA Cancellations.....	10
5.2.5 Quality Assurance for CWAs.....	10
5.3 Meteorological Impact Statement (MIS).....	10
5.3.1 Quality Assurance for MIS.....	11
5.4 Traffic Flow Management (TFM) Convective Forecast (TCF).....	11
5.5 TRACON Approach and Departure Gate Forecasts.....	12
5.6 Graphical Weather Impact Products.....	12
5.7 Weather Outlooks.....	13
5.8 Weather Training.....	13
5.9 Quality Assessment.....	13
5.10 PIREP Solicitation.....	14
5.11 Non-Accident Aircraft Weather Incidents Reporting.....	14
5.12 TAF Collaboration.....	15
6. Operational Records.....	15
6.1 Retention.....	15
6.2 Protection of Records.....	15
6.3 Statements.....	16
Appendix A – Support Facility Locations.....	17
Appendix B – CWSU Back-Up Pairings.....	18
Appendix C – CWA Format and Examples.....	19
Appendix D – MIS Format and Examples.....	24
Appendix E – TRACON Approach and Departure Gate Forecasts Format and Examples.....	26
Appendix F – Collaborative Core Product Format and Examples.....	28
Appendix G – Plotting Point Map.....	29

1. Purpose

Provide instruction for National Weather Service (NWS) decision support services to Federal Aviation Administration (FAA) personnel at the Air Traffic Control System Command Center (ATCSCC), Air Route Traffic Control Centers (ARTCC), Terminal Radar Approach Control Facilities (TRACON), and Air Traffic Control Towers (ATCT) within the National Airspace System (NAS).

2. General

Adverse weather impacting aviation operations creates demands for FAA decisions to facilitate the safe and efficient use of the NAS. The National Oceanic and Atmospheric Administration's (NOAA) NWS provides decision support services to the FAA at the ATCSCC and ARTCCs for any weather event that has a potential impact on air traffic operations and safety of flight. The NWS provides decision support services using all available meteorological data necessary to closely monitor both current and forecast conditions affecting the NAS. The NWS CWSUs provide routine decision support services 16 hours per day/seven days per week at 21 ARTCCs. CWSUs will expand hours of operations through coordination with the FAA during high impact events. The Aviation Weather Center (AWC) provides decision support services 16 hours per day/seven days per week at the ATCSCC, with ability to surge as needed up to 24 hours per day/seven days per week as coordinated with the FAA Contract Officer Representative (COR). The NWS meteorologists advise FAA air traffic personnel of aviation weather conditions, with special emphasis on conditions that would be hazardous to aviation or impede the flow of air traffic in the NAS.

3. Mission and Responsibilities

The NWS staffs National Aviation Meteorologists (NAM) at the ATCSCC and Center Weather Service Unit (CWSU) meteorologists at ARTCCs to detect and predict weather conditions hazardous to aviation and disseminate this information to the appropriate positions and Air Traffic Facilities within the Centers' area of responsibility. The primary function of these units is to provide meteorological consultation, forecasting, and advice regarding weather that may have potential impacts on air traffic operations.

The lines of authority for these units are described in Section 3.3. The NWS hours of services are typically between 0500 to 2100, local time, and may be adjusted by local agreement between facility management and the Meteorologist-In-Charge (MIC).

3.1 Responsibilities of the Meteorologist-in-Charge (MIC)

As the operational supervisor of the assigned meteorologists, the MIC is responsible to:

1. Assign duties for staff meteorologists and establish time and attendance procedures in accordance with interagency and collective bargaining agreements.
 - a. The FAA Air Traffic Facility management provides requests for permanent changes in writing to the MIC. The MIC obtains approval for permanent changes from the parent office and National/Regional Headquarters (See Section 3.3). The headquarters office

ensures changes are appropriately coordinated with the Chief Operating Officer (COO) and the Analyze, Forecast, and Support Office Director.

- b. The FAA Air Traffic Facility management requests for temporary changes are coordinated directly with the MIC. The MIC ensures appropriate approvals are provided by the parent and/or headquarters office.
 - c. The MIC ensures changes that impact cost, schedule or performance are only made according to the terms of the Interagency Agreement.
2. Ensure the NWS meets the center's weather support requirements.
 3. Serve as liaison between local FAA facilities and NWS offices.
 4. Ensure NWS meteorologists are properly trained (including backup responsibilities) as defined in NWS Instruction 10-815 *Aviation Meteorologist Training and Competencies*.
 5. Perform quality control and verification of products and services delivered to the FAA.
 6. Develop and lead weather familiarization training for FAA personnel as requested by the FAA.
 7. Develop and execute budgets for training, travel, equipment and supplies.

3.2 Responsibilities of Meteorologists

1. Provide timely, relevant, accurate, and consistent meteorological support to FAA facilities to help ensure safe and efficient operations within the NAS. Analyze and interpret available meteorological data to produce aviation weather forecasts. Identify and communicate anticipated weather impacts on the NAS to FAA personnel. This information includes but is not limited to the timing, intensity, location, duration and/or movement of:
 - Thunderstorms (including echo tops)
 - Precipitation (area and type)
 - Clouds
 - Icing
 - Turbulence
 - Mountain Waves
 - Winds
 - Compression
 - Temperature
 - Low level wind shear
 - Reduced visibility and/or lowered ceilings
 - Significant pressure change
 - Volcanic ash
 - Space Weather
2. Perform meteorological watch and collaborate with other NWS units as needed on hazardous weather that impacts the NAS.
3. The duties and responsibilities described herein are not all inclusive. The FAA ensures comprehensive local orders and procedures for operations are developed. Local orders are

documented in the NWS Station Duty Manual (see NWSI 10-1608 *Station Duty Manual*) to include a prioritized listing of duties and responsibilities.

3.3 Organizational Alignment

The Director/MIC of the supporting NWS Office (see Appendix A – Support Facility Locations) is the first line supervisor of the NAM/CWSU MIC and is responsible for supporting the operations of the NAM/CWSU, respectively. The supporting NWS office manager coordinates with the FAA Traffic Management Officer (TMO) or designee. The Director/MIC of the supporting NWS Office reports to the Director of National Centers for Environmental Prediction (NCEP) or NWS Regional Headquarters who report to the NWS Chief Operating Officer (COO).

The Director of the AWC is the NWS “Single Point of Contact” (SPoC) for the FAA and airlines stakeholders to raise issues with operational NWS Aviation Weather Services. When delegated by the AWC Director, the NAM will work with the appropriate regional or national headquarters office to address issues with any operational NWS Aviation Weather product, data or service; including those from National Centers, CWSUs, Weather Forecast Offices (WFO), and the Alaska Aviation Weather Unit (AAWU).

The SPoC will provide FAA and airlines the capability to quickly resolve any operational issues surrounding NWS Aviation Weather products and services.

The FAA COR and Aviation and Space Weather Services Branch (AFS24) Chief are responsible for the technical administration of the Interagency Agreement (IA) between the FAA and NWS for Decision Support Services for Air Traffic Management. The AFS24 Chief reports to the Analyze, Forecast, and Support (AFS) Forecast Services Division Chief who reports to the AFS Office Director. The AFS Office Director reports to the NWS COO.

The FAA COR and AFS24 Chief are not authorized to make any changes that impact the cost, schedule or performance of the IA. To make these changes FAA must obtain the written consent of the FAA Contracting Officer and NOAA/NWS must obtain written consent of the NOAA/NWS Chief Financial Officer/Chief Administrative Officer (CFO/CAO).

The NWS COO and CFO/CAO report to the NOAA Assistant Administrator for Weather Services (NWS Director).

Supporting NWS Offices (i.e., AAWU, AWC, and supporting WFOs) provide collaborative and technical expertise. During hours the NAM and/or CWSU are closed, these offices provide direct meteorological support to the FAA Air Traffic Facilities. Support consists of:

1. Assistance during in-flight emergencies;
2. Forecast services and critical weather updates as needed during hours the NAM and/or CWSU is closed;
3. Information Technology (IT) and IT security support.
4. Provide administrative support (including, but not limited to, procurement of goods, supplies and services using the Government Purchase Card Program, serve as the

Property Custodian and provide travel support).

The NCEP and NWS Regional Headquarters may provide IT and administrative support.

3.4 Forecast Collaboration

Forecast products often address the same spatial and temporal events. Through collaboration, aviation meteorologists ensure forecasts, advisories, and information they provide are consistent with other NWS forecast information. To maintain consistency meteorologists are encouraged to use NWS enterprise collaboration tools (e.g., NWSChat) whenever possible. Collaboration prevents or minimizes confusion to end users and reduces impacts to aviation safety. The issuing office is responsible for ensuring consistency of information provided. When significant forecast differences between aviation information persist, the supervisors of the various offices resolve the inconsistency.

3.5 Off-duty/Backup Support

3.5.1 Off-duty Support (overnight hours)

In the absence of a NWS meteorologist at the ATCSCC or ARTCC, off-duty services may be obtained by contacting the AWC Lead Meteorologist (CONUS) and AAWU Lead Meteorologist (Alaska) or the parent WFO for verbal consultations.

3.5.2 Backup Support (during normal hours of operations)

Service Backup during normal hours of operations should be rare and reserved for emergency situations. When on-site decision support service is not possible, Service Backup is provided by an adjacent ARTCC (see Appendix B).

In the absence of a NAM at the ATCSCC, backup services will be provided by the AWC. In the absence of a NWS meteorologist at an ARTCC, backup services will be provided by an adjacent ARTCC (see Appendix B) or as arranged with another CWSU. The parent WFO, AWC, or AAWU cannot provide all the services of a CWSU, but may be considered resources for the ARTCC in the event the backup CWSU is unavailable. If backup support is not able to be arranged, the reason will be logged.

When the office requires backup, it will inform its back-up office, FAA manager, parent NWS office, and AWC (CONUS) or AAWU (Alaska) Lead Forecaster. Backup CWSUs will contact the NAM when they have assumed responsibility for the affected CWSU. If possible, the closing CWSU should issue a Meteorological Impact Statement (MIS) specifying which CWSU has backup responsibility, any expected significant aviation weather, the closing time, and reopening time if known (See Appendix D).

Offices perform a backup exercise at least once per year. This exercise should be coordinated with the parent office and primary backup office (see Appendix B). The exercise at a minimum should consist of issuing the office's operational publically available products and checking all phone numbers to make sure they are current.

4. Air Traffic Facilities

1. Air Traffic Control System Command Center (ATCSCC). The ATCSCC balances air traffic demand with system capacity and ensures safe and efficient operation of the NAS. The ATCSCC manages air routes and traffic management initiatives impacting traffic between two or more ARTCCs, but does not directly control aircraft. ATCSCC personnel develop daily plans for the management of the NAS and work closely with industry partners.
2. Air Route Traffic Control Center (ARTCC). The ARTCCs provide Air Traffic Control (ATC) service to aircraft operating on Instrument Flight Rules (IFR) flight plans within controlled airspace, principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory and assistance services may also be provided to Visual Flight Rules (VFR) aircraft.
3. Traffic Management Unit (TMU). The TMU in an ARTCC is responsible for the management of facility air traffic. The TMU is usually under the direct supervision of the Traffic Management Officer (TMO). The TMO, or designee per interagency agreement, of each ARTCC has operational responsibility for the embedded CWSU. The TMO, or designee per interagency agreement, oversees CWSU operations and brings any special local weather support requirements to the attention of the CWSU MIC.
4. Air Traffic Control Tower (ATCT). The ATCT is an airport terminal facility which uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport. The ATCT authorizes aircraft to land or take off at the airport it controls or to transit the associated airspace regardless of flight plan or weather conditions. An ATCT may also provide approach control services (radar or non-radar). The ATCT typically sets the runway configuration for the terminal.
5. TRACON. Terminal Radar Approach Control (TRACON) is a terminal ATC facility usually located within the vicinity of an airport. The TRACON controls approaching and departing aircraft to terminals in its underlying airspace, and sets the arrival/departure rates of major terminal facilities.
6. Automated Flight Service Station (AFSS) and Flight Service Station (FSS). The AFSS and FSS provide information, services and weather to pilots in preflight briefings and during en route travel. Typically information covered by AFSS/FSS will be notice-to-airmen (NOTAMs), the filing, opening, and closing of flight plans, monitoring navigational aids (NAVAIDs) for operational use and disseminating pilot reports.

5. Products and Services

Information provided by the NWS is developed through analysis and interpretation of available weather data. This information is presented in forms such as:

5.1 Briefings

Scheduled (and unscheduled) briefings consist of current and expected weather conditions that are anticipated to impact air traffic operations at the supported FAA facility. NWS units provide scheduled and on-demand briefings as required by agreement between the NWS MIC and the ATM, TMO, or delegate. The contents of the briefings agreed upon will be documented in the

NWS Station Duty Manual. Consider using the list in section 3.2 as a guide for briefing inclusion.

CWSUs provide recorded pre-duty weather briefings with voice and graphic displays for each ARTCC's airspace, and includes key terminal areas within the underlying airspace. Briefings will be no longer than three (3) minutes in length and created three times daily at designated times as determined in coordination with each facility's ATM. The briefings will consist of an overview of current and forecast weather (for the next 12 hours) of en route winds, convection, icing, turbulence, low ceiling and visibility. The briefings will also indicate areas where pilot report (PIREP) solicitation is required and/or forecasted.

Per FAA Joint Order 7110.10 series, upon request, assist FAA in providing en route aircraft with timely and pertinent weather data tailored to a specific altitude and route using the most current available sources of aviation meteorological information.

5.1.1 Quality Assurance for Briefings

MICs will report the number of stand-up briefings missed by their unit during the month, and provide a reason the briefing was not performed. This information is reported monthly on a shared spreadsheet by each MIC no later than the 15th of the following month. The RAM and AWC ensures the accuracy and timeliness of the input from their units. AFS24 compiles the reports and sends to the FAA at least quarterly.

5.2 Center Weather Advisory (CWA)

The CWA is an unscheduled aviation weather warning, issued by the CWSU, addressing current or future conditions that meet or approach in-flight advisory criteria important to assisting the safe flow of air traffic. A CWA is issued for hazardous weather when there is no existing AWC or AAWU advisory in effect. A CWA may also be issued to supplement an advisory that has already been issued by AWC or AAWU. If a CWA is issued to supplement another NWS product, the information should be consistent (See Appendix C – CWA Format and Examples).

5.2.1 CWA Issuance Criteria

A CWA should be issued when each of the following conditions exist:

1. There is no existing AWC or AAWU advisory in effect.
2. Any of the following condition occur:
 - Conditions meeting Convective Significant Meteorological Information (SIGMET) criteria (See NWSI 10-811).
 - Icing – moderate or greater.
 - Turbulence – moderate or greater.
 - Mountain waves which cause a significant change in altitude and/or significant change in air speed.
 - Heavy and extreme precipitation.
 - Freezing precipitation.

- Conditions at or approaching Low IFR (See NWSI 10-813).
 - Surface wind gust at or above 30 knots.
 - Low Level Wind Shear (Surface – 2000 feet AGL. See NWSI 10-813).
 - Volcanic ash, dust storms or sandstorms.
 - When a hazard has grown significantly outside of the boundary defined by the AWC or AAWU advisory.
 - To upgrade/supplement a thunderstorm advisory to include severe thunderstorms.
 - To upgrade/supplement an AIRMET to include isolated severe turbulence or icing (If greater than isolated severe turbulence or icing is occurring, then a new (non-supplementary) CWA should be issued.
 - To define a line of thunderstorms within a larger area covered by an AWC or AAWU advisory.
 - To better define hazards at a major terminal already within an AWC or AAWU advisory.
3. Anything that in the judgment of the forecaster will add value to an existing advisory.
 4. In the forecaster's judgment, any other condition that adversely impacts the safe flow of air traffic.

5.2.2 CWA Product Preparation

CWAs are typically issued for the domain of the ARTCC. A CWA may be issued to include portions of an adjoining ARTCC airspace after collaboration. A CWA may be issued for international areas.

Reference points used in CWAs to describe the location will be the same as those used in SIGMETs and AIRMETs (See NWSI 10-811 *En-route Forecasts and Advisories*), or distance in nautical miles (NM) from these points. To describe the area clearly and accurately, a minimum number of CWA points are used. Points outside the ARTCC area are collaborated with the adjoining CWSUs.

The Miami CWSU uses the following reference points for CWAs, or the associated latitude and longitude coordinates, issued for the Bahama Islands: ZBV (Bimini Island), ZFP (Freeport on Grand Bahama Island), ZQA (Nassau on New Providence Island), ZLS (Stella Maris on Long Island), ZIN (Matthew Town on Great Inagua Island), and GTK (Grand Turk Island).

International Civil Aviation Organization (ICAO) contractions will be used. If an ICAO contraction conflicts with a 3-letter station identifier, then the FAA, NWS or general-use contraction are acceptable. If an ICAO contraction is not available, then either the word should be spelled out or an FAA, NWS, or general-use contraction will be used. Only valid contractions may be used and are listed at:

<http://www.faa.gov/documentLibrary/media/Order/CNT.pdf>.

5.2.3 CWA Collaboration with Other Offices

1. AWC/AAWU. Coordination with AWC/AAWU should take place before issuing a CWA to avoid a duplicate advisory being issued simultaneously by AWC/AAWU. Coordination may be done via chat or by telephone. If there is no AWC response using chat, then a telephone call should be initiated if time permits. If AWC/AAWU - CWSU coordination was unable to occur the CWSU product is issued at the CWSU's discretion.
2. Neighboring CWSUs. When your CWA may impact another CWSU's airspace, then the CWA will be coordinated with the impacted CWSU. Coordination may be done via "NWSChat" or by phone. If CWSU to CWSU coordination was unable to occur, the CWSU who wants to issue the product may issue the product. However, the issuing CWSU needs to make an effort to avoid issuing the product for any airspace beyond their ARTCC boundaries.

5.2.4 CWA Cancellations

When issuing CWAs for thunderstorms, it is good practice to have the CWA expire at the top of the hour. If a Convective SIGMET is issued it will then replace the CWA as it expires. If a SIGMET or Convective SIGMET is issued for the same hazard where an existing CWA is still valid, then the CWA should be cancelled. The CWA does not need to be cancelled if it has less than 15 minutes until it expires, or if it contains additional more specific information than the AWC advisory. To cancel a CWA, issue another CWA using the next higher number in sequence. For example, if CWA 201 is in effect, cancel it by issuing CWA 202. The expiration time for the new CWA should be 15 minutes after the issuance time. The cancellation CWA may contain information referring to other advisories that are replacing the CWA, such as a new Convective SIGMET.

5.2.5 Quality Assurance for CWAs

The CWSU MIC reports CWA errors as the number of CWAs with formatting error(s) out of the total number of CWAs issued. The reports are generated by each CWSU MIC evaluating each CWA for proper format, time (beginning and ending), and content. This information is reported on a shared spreadsheet monthly by each CWSU MIC no later than the 15th of the following month. The RAM ensures the accuracy and timeliness of the input from their region. AFS24 compiles and sends reports to FAA no less often than quarterly.

5.3 Meteorological Impact Statement (MIS)

The MIS is a brief non-technical discussion of meteorological events causing or expecting to cause a hazard and impact to the safe flow of air traffic, including specifics describing the hazard: area, altitudes, and movement. The MIS valid times are determined according to local policy. The MIS is limited to not exceed a 48 hour valid period. When the forecast is no longer descriptive of expected conditions the MIS is either updated or cancelled. The MIS may refer to an on-line graphic, especially for complex situations, using a specific web address and provide a brief description of the weather that is included in the text MIS. (See Appendix D – MIS Format and Examples.)

5.3.1 Quality Assurance for MIS

CWSU MICs report MIS errors as the number of MISs with error(s) out of the total number of MISs. The reports are generated by each CWSU MIC evaluating each MIS for proper format, time (beginning and ending), and content. This information is reported on a shared spreadsheet monthly by each CWSU MIC no later than the 15th of the following month. The RAM ensures the accuracy and timeliness of the input from their region to AFS24. AFS24 compiles the reports and sends to FAA no less often than quarterly.

5.4 Traffic Flow Management (TFM) Convective Forecast (TCF)

The TCF is a high confidence graphical representation of forecasted convection meeting specific criteria of coverage, intensity, and echo top height. The TCF graphics are produced through a collaborative forecast process every 2 hours and valid at 4-, 6-, and 8-hours after issuance time.

Government and airline industry Air Traffic Management (ATM) decision makers need timely delivery of high-confidence, high-relevance forecasts of convection across the Continental United States and adjacent coastal waters. These forecasts will allow ATM decision makers to proactively and collaboratively initiate, amend, or terminate planned or active TFM initiatives, resulting in safe and efficient use of the National Airspace System (NAS). Specifically, the TCF requirements are designed to address three major purposes:

1. To provide an accurate representation of the convection of most significance for strategic decisions of air traffic flow management;
2. To provide a common forecast baseline, as consistent as possible, shared and collaborated among all meteorological organizations responsible for providing forecasts of convection to ATM within the FAA/Industry Collaborative Decision Making (CDM) processes and/or within commercial aviation organizations; and
3. To use as the authoritative source of convective weather forecast information for TFM strategic planning and decisions which are collaborated between the government and industry.

The TCF is used by ATM decision-makers in support of convective weather mitigation strategies within the NAS. It is designed to meet the needs of TFM decision makers at the FAA Air Traffic Control System Command Center (ATCSCC), FAA Air Route Traffic Control Center (ARTCC) Traffic Management Units (TMU), and airline and corporate Flight Operations Centers (FOC).

From March through October the TCF is collaboratively produced by meteorologists at the AWC in Kansas City, Missouri and embedded at the FAA ATCSCC in Warrenton, Virginia, at the CWSU embedded at the FAA's ARTCCs, at various airlines, and by other authorized participants. Automated routines will continue to make the TCF available from November through February. The TCF is issued 24 hours a day seven days a week at 30 minutes prior to the indicated issuance time. The issuance time supports the FAA's Strategic Planning (SP) Webinar which occur 15 minutes following odd hours Eastern Time. The Canadian portion of the forecast is available from April 1st through September 30th. However, Nav Canada may request the issuance of each forecast as early as March 1st and as late as October 31st. All available

Canadian forecasts are incorporated into the TCF. During times the forecasts are not available for Canadian airspace, the TCF graphics will be annotated with “No Canadian TCF.”

Areas of convection in the TCF include any area of convective cells containing (at a minimum):

1. Composite radar reflectivity of at least 40 dBZ;
2. Echo tops at or above FL250;
3. Coverage (radar reflectivity and echo tops) of at least 25% of the polygon area;
4. Forecaster confidence of at least 50% (High) that criteria (radar reflectivity, echo tops, and coverage) will be met.

Lines of convection in the TCF include any lines of convective cells:

1. Composite radar reflectivity of at least 40 dBZ having a length of at least 100 nautical miles (NM); and
2. Having a linear coverage of 75% or greater; and
3. Having echo tops at or above FL250.
4. Forecaster confidence of at least 50% (High) that criteria (radar reflectivity, echo tops, and linear coverage) will be met.

All four of the threshold criteria listed above for both areas and lines of convection are required for inclusion in the TCF. This is defined as the minimum TCF criteria. The TCF domain includes the Flight Information Regions (FIR) covering the 48 contiguous states and adjacent coastal waters. The TCF domain also includes the Canadian airspace south of a line from Thunder Bay, Ontario to Quebec City, Quebec.

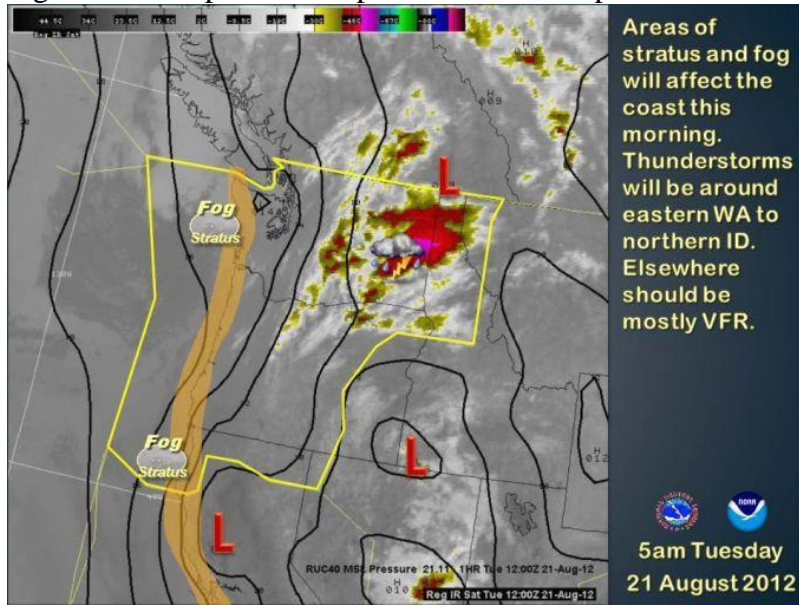
5.5 TRACON Gate Forecasts

The TRACON Gate Forecasts complement the Traffic Flow Management Convective Forecast (TCF) and provide greater detail of convective occurrence. The TRACON Approach and Departure Gate Forecasts are required for the Atlanta, Chicago, Dallas/ Fort Worth, Denver, Houston, Miami, New York and Potomac TRACONs but may also be created per local request as long as the product is displayed in accordance with this directive. The TRACON Approach and Departure Gate Forecasts provide users a graphical product for planning air traffic flow safely and efficiently around convection into and out of the TRACON area. The target audience for this graphical product includes the ATCSCC, ARTCC TMU and TRACONs. The TRACON Gate Forecast Product is issued each morning, afternoon and evening. Times of issuance should be no later than within 15 minutes of 0700L, 1300L and 1900L (at a minimum). If product is valid during a time the CWSU is closed, the product needs to have disclaimer citing the product will not be updated until the CWSU opens. (See Appendix E.)

5.6 Graphical Weather Impact Products

Graphical Weather Impact products may be developed and used to provide a quick reference, or augment the official alphanumeric MIS products with specific details as locally determined. A Graphical Weather Impact Product should depict significant hazards with clearly defined boundaries. (See Figure 1.)

Figure 1. Example of a Graphical Weather Impact Product.



5.7 Weather Outlooks

The NAM provides extended weather impact outlooks for strategic planning, highlighting significant impacts to the NAS. During high profile events (e.g., major events, holidays, tropical storms/hurricanes, etc.) outlooks may extend out to Day 8. The NAM typically transmits the Weather Outlook no later than 0930 Local.

5.8 Weather Training

The NWS meteorologists are a resource for providing local training to FAA personnel on weather phenomena as requested by the ATM/TMO or delegate. Seasonal refresher training is typically conducted twice annually, at a minimum.

5.9 Quality Assessment

The NAMs will serve as the NWS Aviation Weather Services QA focal point for FAA, working with the ATCSCC QA office to assess NWS aviation specific products and services upon request and for potential integration into the National System Review (NSR).

The QA focal point will participate in joint NWS-FAA initiatives to base NWS Aviation Weather Services on specific performance requirements.

The CWSUs verify the quality of services to the ARTCC, TRACON(s), and Tower(s) for decision support. These decision support forecasts are provided in person, via the internet, telephone or FAA systems and directly impact operational decisions.

The CWSUs measure decision support services using the Forecast Accuracy Matrix maintained by AFS24. All CWSUs select one (1) core airport to monitor forecast accuracy and service

delivery. In the event that a CWSU does not have a core airport within their area of responsibility, another locally important airport is used.

CWSU MICs ensure tracking of all operationally significant wind shifts. At a minimum CWSU MICs track the following monthly metrics on operationally significant wind shifts: number of wind shifts, Probability of Detection, False Alarm Ratio, and lead time. This information is reported by each CWSU MIC to the RAM on a monthly basis by the 15th of the following month. The RAM ensures the accuracy and timeliness of the reports from their region to AFS24. AFS24 compiles all the reports and sends to FAA on at least a quarterly basis. For the purpose of this directive, operationally significant wind shifts are defined as a shift in wind speed, direction or combination of that would normally require a runway change. A wind shift is significant if it occurs during peak demand times. It is recommended that peak demand times be determined on a local basis by the CWSU MIC with input from the TMO as these times vary greatly by ARTCC.

CWSUs work with their TMO/TMU to select two additional locally driven metrics that are tracked and reported monthly to the RAM and AFS24.

CWSU MICs report the total number of hours the CWSU is closed and receiving back-up services from another CWSU and the reason back-up service was needed (emergency sick leave, short staffing, etc.). This information is reported on a shared spreadsheet monthly by each CWSU MIC by the 15th of the following month. The RAM ensures the accuracy and timeliness of the reports from their region to AFS24. AFS24 compiles the reports and sends to FAA on a quarterly basis.

5.10 PIREP Solicitation

The CWSUs inform local FAA management and ATC of weather conditions defined in FAA 7110.65, section 2-6-3 at least once per shift.

5.11 Non-Accident Aircraft Weather Incidents Reporting

This procedure describes the steps to be taken in the event of an en route weather-related aircraft incident. For reporting purposes, a weather incident is defined when an aircraft encounters weather conditions where emergency procedures were implemented and the event is expected to garner public attention. (See NWSI 10-1603 and NWSPD 10-20.)

Upon receipt of a report of an incident, the associated CWSU will gather as much of the following information as possible:

- Type of incident
- Aircraft type involved, and airline if applicable
- Details of the incident
- Number of injuries or fatalities if known
- Valid weather product(s) at/near the time of incident (AIRMETs, SIGMETs, PIREPs, CWAs, etc.) as applicable

This information is then sent to their Regional Operations Center for distribution.

The AWC or AAWU will send reports to the NWS Operations Center for distribution and coordinate with the appropriate CWSU.

5.12 TAF Collaboration

The TAF for the core airports (http://aspmhelp.faa.gov/index.php/Core_30) is an important part in determining air traffic flow at the terminal and throughout the NAS. Consistency between the TAF and the information provided by the CWSU meteorologist is paramount in providing the FAA with the needed weather information to aid in their decision-making process. The CWSU and WFO (and in some cases the NAM) meteorologists collaborate on the TAF for each core airport. The collaboration can be conducted using any method available to the meteorologist (e.g. telephone, chat, etc.) and includes the collaborative core product described below. Regardless of the coordination method, the CWSU Meteorologist logs the coordination in his/her shift log.

During the CWSU operational hours, the CWSU meteorologist and WFO TAF writers collaborate at least once prior to each scheduled TAF issuance (see NWSI 10-813 *Terminal Aerodrome Forecasts* for TAF issuance times). The CWSU meteorologists provide airport-specific operations information for each of the core airports in their area of responsibility to the WFO issuing the TAF. Other airports may be added to this requirement in collaboration with the local WFO. This information may be provided in the form of a text product on the AWIPS Remote Display, telephone, or NWSChat as long as the airport operational impacts are provided.

6. Operational Records

The MIC is responsible for ensuring shift logs are maintained. Information logs include, but are not limited to, weather discussions, unscheduled briefings, non-routine products, and equipment functionality. Each entry has the time, the name or initials of the individual providing the information, and a brief description of the discussion or product issued.

Electronically displayed products generated on AWIPS or any other computerized system should not be printed solely for retention purposes. Worksheets used to update briefings or to supplement other products need not be retained. If the FAA requires the daily operations log or its equivalent as part of a facility record, the MIC ensures a copy of the log is provided.

6.1 Retention

Shift logs are retained in accordance with NOAA policies and practices as stated in NWSI 10-2003 *Records Retention*. Retain texts of written weather briefings and hard copy graphic records, and copies of the Daily Record of Facility Operation Log (FAA Form 7230-4) or its equivalent for 5 years.

6.2 Protection of Records

All requests for copies of weather exhibits or written records prepared by NWS meteorologists are handled in accordance with applicable NWS Directives. In the event of an aircraft mishap or accident within the supported facility's area of responsibility, product retention procedures are followed. In the event of a major accident, all relevant products prepared by NWS meteorologists, including available observations, charts, and forecasts are collected together. If

space is limited in the work area, the records may be forwarded to the appropriate office. These records should be protected and retained for at least 30 days, allowing time to determine:

- a. To what extent weather was a factor, and/or
- b. What weather information is required for investigation purposes.

After 30 days, follow normal retention procedures unless the Forensic Services Program Lead requests otherwise (See NWSI 10-2003).

6.3 Statements

Refer to NWSI 10-2005 and 10-2006 for detailed instructions for handling requests for information, including forecaster statements. NWS meteorologists do not provide written statements concerning a system incident, or an aircraft incident or accident to any government or public offices, agencies, organizations, or individuals outside of NWS without the approval of the Forensic Services Program Lead at NWS Headquarters.

There is no requirement to allow anyone that is not part of a government investigation team to question or interview personnel in connection with an aircraft accident, whether in person or over the phone. Refer requests for interviews to the NWS Forensic Services Program Lead.

Appendix A – Support Facility Locations

FAA Facility

Supporting NWS Office

DCC	FAA Command Center	AWC
ZAB	Albuquerque Center	WFO Albuquerque, NM
ZAN	Anchorage Center	AAWU
ZTL	Atlanta Center	WFO Peachtree, GA
ZBW	Boston Center	WFO Boston/Taunton, MA
ZAU	Chicago Center	WFO Chicago, IL
ZOB	Cleveland Center	WFO Cleveland, OH
ZDV	Denver Center	WFO Denver-Boulder, CO
ZFW	Fort Worth Center	WFO Fort Worth, TX
ZHU	Houston Center	WFO Houston/Galveston, TX
ZID	Indianapolis Center	WFO Indianapolis, IN
ZJX	Jacksonville Center	WFO Jacksonville, FL
ZKC	Kansas City Center	WFO Kansas City/Pleasant Hill, MO
ZLA	Los Angeles Center	WFO Los Angeles/Oxnard, CA
ZME	Memphis Center	WFO Memphis, TN
ZMA	Miami Center	WFO Miami-South Florida, FL
ZMP	Minneapolis Center	WFO Chanhassen, MN
ZNY	New York Center	WFO Upton, NY
ZOA	Oakland Center	WFO San Francisco/Monterey, CA
ZLC	Salt Lake City Center	WFO Salt Lake City, UT
ZSE	Seattle Center	WFO Seattle, WA
ZDC	Washington Center	WFO Baltimore/Washington Sterling, VA

Appendix B – Back-Up Pairings

Station Needing Backup	Station Doing Backup
DCC	AWC Domestic Operations
ZAB	ZDV
ZAN	AAWU
ZTL	ZME
ZBW	ZOB
ZAU	ZID
ZDV	ZAB
ZFW	ZHU
ZHU	ZFW
ZOB	ZBW
ZID	ZAU
ZJX	ZMA
ZKC	ZMP
ZLA	ZOA
ZME	ZTL
ZMA	ZJX
ZMP	ZKC
ZNY	ZDC
ZOA	ZLA
ZLC	ZSE
ZSE	ZLC
ZDC	ZNY

Appendix C – CWA Format and Examples

The first line of each CWA's FAA communications system header is an ARTCC identifier immediately followed by a phenomenon number (1-6). The phenomenon numbers assigned to each unique hazard sequentially and reset each local calendar day. Once all six phenomenon numbers have been used, then the next CWA issuance would return to phenomenon number 1.

The issuance time is on the first line. The issuance time is when the CWA becomes valid. When a CWA is issued with some lead time on the event, the time entered is the issuance time. The CWA is valid from the issuance time until the expiration time.

The product identifier is a three digit number on the second line of the product after the issuance time. The first digit of the product identifier is the phenomenon number. The second two digits are an issuance number. Issuance numbers are issued sequentially beginning with 01 and followed by the VALID UNTIL time. CWAs are limited to not exceed two (2) hours. Conditions continuing beyond the expiration time may be provided in a remark. (e.g., COND CONT BYD 2030Z).

The third line contains the location of the hazard and starts with the word "FROM" except when the location is defined by a single point. Three-letter In Flight Advisory (IFA) points (Appendix G – Plotting Point Map) are used to define the location of the hazard. For lines and polygon defined areas, up to five IFA points may be used.

Each IFA point can further be defined by using a direction and distance (in nautical miles) from the IFA point. The direction may be any of the commonly used 16 points of the compass. For most lines and polygons, the forecaster may round to the nearest 5 miles for IFA points. For single point IFAs, the forecaster may use his or her best judgment in determining whether to round to the nearest 5 miles, or use an exact distance to the point. IFA points will be separated by dashes. Do not use a period or any other punctuation to end the line. For all hazards defined by two or more points, start with the northernmost point and proceed clockwise with additional points. For lines, define north to south or west to east. For polygon areas, end with the same IFA point you started with. Use the closest IFA points when defining a hazard. For example, use "20S COU" instead of "90WSW STL".

The fourth line is the text line.

1. Lines: NWSI 10-811 Section 6.2.1 defines a line of thunderstorms as being at least 60 miles long with thunderstorms affecting at least 40 percent of its length. When defining a line hazard, begin with either "LINE" or "DVLPG LINE". If the line does not meet the definition of at least 60 miles long and 40 percent coverage, then use "DVLPG LINE" if you expect the line to build. Do not use phrases such as "LINE OF ISOL TS" or "LINE OF SCT SEV TS" as this may be confusing to the user. Use nautical miles when describing the width of a line (e.g., DVLPG LINE TS . . . 15NM WIDE). If the line is greater than 20NM wide, then define it as an AREA instead of a line. After the width report line movement followed by tops. After tops additional remarks may be included.

2. Areas: NWSI 10-811 Section 6.2.1 defines an area as active thunderstorms judged to have a significant impact on the safety of aircraft operations covering at least 40 percent of the area concerned. When defining an area, begin with either "AREA" or "DVLPG AREA". If coverage is less than 40 percent coverage, then use "DVLPG AREA". If the area was defined using only two points, then a width may be included using nautical miles (e.g., AREA TS . . . 30NM WIDE). Next report the movement of the area followed by the tops. After tops additional remarks may be included. Do not use phrases such as "AREA OF ISOL TS" that may be confusing to the user.
3. Isolated: Use "ISOL" followed by a diameter when using a single point to define a hazard. Use "DIAM" and the distance across the hazard in nautical miles (e.g., ISOL SEV TS DIAM 10NM). Next report the movement of the area followed by the tops. As a general rule for isolated thunderstorms, only issue a CWA for an isolated severe thunderstorm. Isolated general thunderstorms should not require a CWA unless they are located near a major terminal, an arrival/departure gatepost, or any other location where it may significantly impact air traffic operations.
4. Embedded Thunderstorms: Thunderstorms occurring within a larger area of layered cloudiness, haze, or stratiform precipitation are considered embedded (EMBD). Use the procedures above to define a LINE, an AREA, or ISOL EMBD TS.
5. Defining Movement: Movement should be in the same format as the SIGMET and Convective SIGMET (NWSI 10-811 Section 6.2.4.6) (e.g., MOV FROM 26030KT).
6. Reporting Tops: Use the same reporting procedures as for Convective SIGMETs (NWSI 10-811 Section 6.2.4.7). Tops from 18,000 to 45,000 feet are reported in thousands of feet and include "FL" e.g., TOPS TO FL180, TOPS TO FL450). Tops below 18,000 feet should use a three digit number without the "FL" designator (e.g., TOPS 060, TOPS 170). Tops above 45,000 feet are reported as "TOPS ABV FL450".
7. Trends: On the last line of each CWA, the forecaster may briefly describe what is expected to occur during the duration of the advisory and beyond if necessary. (Examples: "CONDS EXPECTED TO LAST TIL 13Z THEN IMPROVE TO VFR BY 14Z"; "TS COVERAGE EXPECTED TO INCREASE THRU 18Z".)
8. For IFR, icing, and turbulence CWAs, define the location as an "AREA". Do not define the location as a LINE, ISOL, or EMBD. Define the location as an AREA where reports of hazardous conditions have been received or are expected during the valid time of the CWA. This also goes for defining altitudes. Altitude ranges should be kept as small as necessary. Large altitudes range limit CWA effectiveness.
9. CWSUs with an over-water component in the CWA may use latitude and longitude coordinates as defined in NWSI 10-811 *En route Forecasts and Advisories*. References to latitude and longitude will be in degrees and minutes as follows: Nnn[nn] or Snn[nn], Wnnn[nn] or Ennn[nn]. Note: a space is placed between latitude and longitude values and

a space-hyphen-space between successive points (e.g., N4030 W10530 - N3800 W10400 - N3700 W10700 - N4030 W10530).

10. VTEC coding appends latitude and longitude information to the end of the text portion of a CWA. Certain CWA composition programs incorporate VTEC coding based on the IFA points used in the CWA. Other CWA composition methods do not use VTEC coding. Until VTEC coding becomes widely used in all CWA composition methods, the addition of VTEC coded latitude and longitude information in CWAs is considered optional.
11. When describing levels of precipitation, follow terms in FAA Administrative Order 7110.10. These terms are applied only to intensity of precipitation; other terms may be applied in modification of icing, turbulence, or thunderstorms.

When including thunderstorms in a CWA or MIS, precipitation may also be included by using only those modifiers listed in the above paragraph. The type of precipitation associated with the thunderstorm (TS) follows the symbol TS.

The symbol TS may be preceded by only one modifier, SEV. If a thunderstorm does not meet the criteria for SEV no modifier should be placed in front of the symbol.

Examples of CWA for Line of Thunderstorms:

```
ZKC1 CWA 011915
ZKC CWA 101 VALID UNTIL 012000
FROM 65N MCI-30W BUM-45SE ICT
DVLPG LINE TS 10NM WIDE MOV FROM 25030KT TOPS TO FL410. MOD TO HVY
PCPN IS EXPECTED.
```

```
ZKC1 CWA 012000
ZKC CWA 102 VALID UNTIL 012100
FROM 70NNE MCI-20W BUM-60W OSW
LINE SEV TS 15NM WIDE MOV FROM 25025KT TOPS ABV FL450. HAIL 1 INCH
REP. TS VC KMCI THRU 21Z. THIS IS ADDN INFO TO CONVECTIVE SIGMET 55C.
```

Examples of CWA for Area of Thunderstorms:

```
ZFW2 CWA 021210
ZFW CWA 202 VALID UNTIL 021300
FROM 75W OKC-15S CDS
AREA TS 40NM WIDE MOV FROM 19015KT TOPS TO FL370.
```

```
ZFW1 CWA 181227
ZFW CWA 101 VALID UNTIL 181300
FROM 45W ADM -55SW ADM -ABI -40SSE CDS -60E CDS - 45W ADM
AREA TSRA MOV FROM 27020KT TOPS TO FL380. MOD TO HVY PCPN.
```

Examples of CWA for Isolated Thunderstorms:

ZDV3 CWA 172115
ZDV CWA 301 VALID UNTIL 172200
15NW DEN
ISOL TS. DIAM 10NM. MOV FROM 32025KT. TOP FL350. TS VC KDEN THRU 22Z.
MICROBURSTS. WIND GUST TO 45KT POSS. THIS IS ADDN INFO TO CONVECTIVE
SIGMET 70C.

ZAU3 CWA 181405
ZAU CWA 301 VALID UNTIL 181500
45SW ORD
ISOL SEV TS DIAM 15NM MOV FROM 21025KT TOP FL430. HAIL TO 1 INCH WIND
GUST 50KT POSS.

Example of CWA for Embedded Thunderstorms:

ZMA4 CWA 181410
ZMA CWA 402 VALID UNTIL 181500
15SSW MIA
ISOL EMBD TS DIAM 10NM MOV FROM 21025KT TOP FL370. TS VC KMIA THRU 15Z
WIND GUST 35KT POSS.

Examples of CWA for Cancelled CWA:

ZFW5 CWA 181305
ZFW CWA 502 VALID UNTIL 181320
CANCEL ZFW CWA 501. SEE CONVECTIVE SIGMET 83C.

ZOB5 CWA 202100
ZOB CWA 503 VALID UNTIL 202115
CANCEL ZOB CWA 502. ICING CONDS HAVE IMPR WITH SEV ICE NO LONGER
EXPECTED. SEE AIRMET ZULU.

Examples of CWA for Turbulence:

ZID6 CWA 210100
ZID CWA 601 VALID UNTIL 210300
FROM FWA-CVG-PXV-TTH-FWA
AREA OCNL MOD ISOL SEV TURB FL290-350. CONDS MOV NE AND CONT BYD 03Z.
THIS IS ADDN INFO TO AIRMET TANGO. NO UPDATES AVBL AFT 02Z.

ZOA1 CWA 221400
ZOA CWA 101 VALID UNTIL 221600
FROM RBL-30E FMG-50S CZQ-OAK-RBL
AREA FRQ MOD OCNL SEV TURB FL180-230. CONDS MOV SE AND CONT BYD 16Z.
THIS IS ADDN INFO TO AIRMET TANGO.

ZNY2 CWA 232100
ZNY CWA 203 VALID UNTIL 232300
FROM HNK-JFK-HAR-HNK
AREA OCNL MOD ISOL SEV TURB BLW 060 AND LLWS. CONDS ENDING BY 23Z.

Examples of CWA for Icing:

ZMP3 CWA 240010
ZMP CWA 301 VALID UNTIL 240210
FROM INL-EAU-RWF-INL
AREA OCNL MOD ISOL SEV RIME/MX ICE 100-FL180. CONDS MOV E AND CONT BYD
0210Z. THIS IS ADDN INFO TO AIRMET ZULU. NO UPDATES
AVBL AFT 0200Z.

ZLC4 CWA 251420
ZLC CWA 401 VALID UNTIL 251620
FROM GGW-SHR-GTF-GGW
AREA OCNL SEV MX/CLR ICE 120-170. CONDS IMPR TO LGT ISOL MOD RIME/MX
ICE BY 1620Z. THIS IS ADDN INFO TO SIGMET QUEBEC.

Examples of CWA for IFR/LIFR:

ZLA5 CWA 261415
ZLA CWA 501 VALID UNTIL 261615
FROM HEC-MZB-50SW LAX-HEC
AREA CIGS BLW 010 VIS BLW 3SM -DZ BR. CONDS CONT BYD 1615Z.

ZDC6 CWA 271500
ZDC CWA 603 VALID UNTIL 271700
FROM ORF-75E ILM-RDU-ORF
AREA OCNL CIGS BLW 005/VIS AOB 1/2SM FG. CONDS ENDING BY 17Z.
THIS IS ADDN INFO TO AIRMET SIERRA.

Appendix D – MIS Format and Examples

MIS products are numbered sequentially beginning at midnight local time each day. The MIS is disseminated and stored as a “replaceable product”. If the expiration time of the MIS is after the closing time of the CWSU, then a “NO UPDATES AVAILABLE AFTER ddhhmmZ” message should be included at the end of the MIS text, where dd = date, hh = hour, mm = minutes.

MIS Format. The MIS format consists of an FAA header line, the words “FOR ATC PLANNING PURPOSES ONLY”, and the text.

Header Line: Zxx MIS ii Valid ddtttt-ddtttt

Zzz is the ARTCC identification e.g., ZJX), MIS is the product type, ii is the 2-digit sequential issuance number, and ddtttt is the valid beginning and ending date/time UTC.

The line immediately below the header line reads “. . .FOR ATC PLANNING PURPOSES ONLY. . .”.

The maximum length of the text MIS is 4 lines if disseminated via FAA systems (e.g., AISR).

```
ZKC MIS 01 VALID 281415-291200
...FOR ATC PLANNING PURPOSES ONLY...
AN UPPER-LVL DISTURBANCE OVER COLORADO IS FCST TO MOVE EAST INTO WRN
KS BY 00Z. AS THE DISTURBANCE APCHS WRN KS...TS ARE FCST TO DVLP ALG A
DRYLINE EXTENDING FROM WRN KS TO THE TEXAS PANHANDLE. SCT TS FCST TO
DVLP 18Z-20Z OVER ZKC W HYS-MMB LINE.
```

```
ZAB MIS 02 VALID 281300-290300
...FOR ATC PLANNING PURPOSES ONLY...
AN UPPER-LVL DISTURBANCE OVER COLORADO COMBINED WITH A STRONG JET
STREAM MOVING ACROSS THE SWRN U.S. IS FCST TO PRODUCE AREAS OF
TURBULENCE ACROSS PORTIONS OF ZAB. THE TURBULENCE IS FCST TO SUBSIDE
AFT 00Z AS THE DISTURBANCE AND JETSTREAM MOVE FURTHER EAST.
```

```
ZBW MIS 03 VALID 302100-311200
...FOR ATC PLANNING PURPOSES ONLY...
A COLD FRONT IS BECMG STNR FROM WRN PA TO SRN NJ WITH A MOIST NE LOW-
LVL FLOW PRODUCING AREAS OF LOW CLOUDS AND FOG. AS THE COLDER AIR
DEEPENS AREAS OF ICING ARE FCST TO DVLP. OVER ZBW E BGR-CMK LINE...LGT
OCNL MOD RIME ICE DVLPG 00Z-03Z BTN 020 AND 080.
```


MIS Example for CWSU Backup Operations:

FAUS20 KZDV 092112
ZDV MIS 01 VALID 070200-070400
...FOR ATC PLANNING PURPOSES ONLY...
ZDV CWSU WILL CLOSE 07/0200Z DUE TO SHORT STAFFING. ZAB CWSU WILL
ASSUME SERVICE BACKUP. ZDV CWSU WILL REOPEN 071230Z.

MIS Example for Cancelled MIS:

FAAK20 KZAN 061336
ZAN MIS VALID 061346
...FOR ATC PLANNING PURPOSES ONLY...
CANCEL ZAN MIS 01
CANCEL MIS 01 FOR LLWS. CONDITIONS HAVE WKND.

Appendix E – TRACON Gate Forecasts Format and Examples

Use any appropriate graphical creation software and then upload to the web. See Figure E.1.

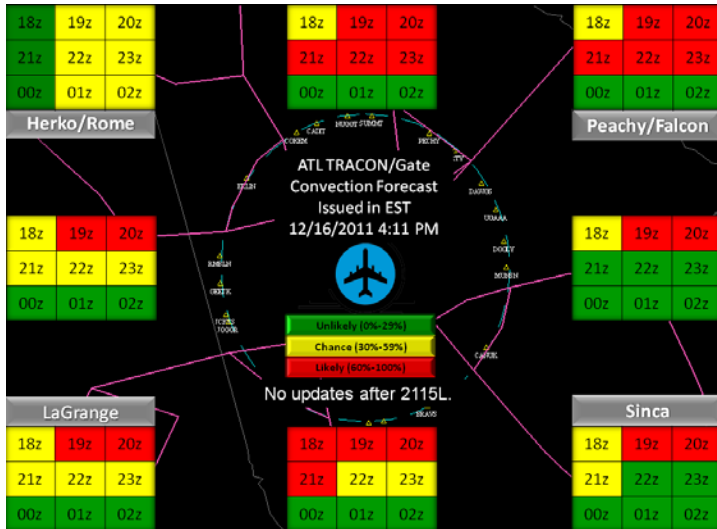


Figure E.1. TRACON Gate Forecasts Display Example.

The TRACON Gate Forecasts are issued by the required CWSUs daily for the likelihood of convection affecting the air traffic control sectors associated with arrival and departure gates. Convection is defined as moderate or greater precipitation and tops equal to or exceeding FL250. Use the following values and colors to indicate the likelihood of convection affecting the sector.

Unlikely (0%-29%)	Green	R=0 G=155 B=0
Chance (30%-59%)	Yellow	R=255 G=255 B=0
Likely (60%-100%)	Red	R=255 G=0 B=0

Figure E.2. RGB values for the colors used in the TRACON Gate Forecast Display.

Strive for consistency between this forecast and other convective forecasts. This product needs to be consistent in design, format and content before issuance.

Forecasts are in 1 hour intervals for a minimum of 3 hours and a maximum of 12 hours. Each interval has a color associated with the likelihood of convection affecting the sector. See Figure E.2.

1. A forecast of no convection may be issued when no (0% chance) convection is forecasted in the area for extended periods of time (e.g., winter, strong ridging). This product is a single forecast that can be used to alleviate the workload of the forecaster during times of no convection and should state that the TRACON Gate Forecast will be updated when convection is once again expected. See Figure E.3.

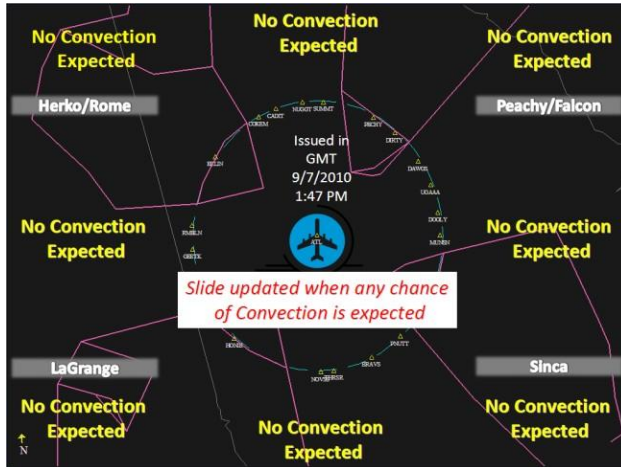


Figure E.3. Example of no convection forecasted.

2. The background for the forecast may be generated from the FAA’s Performance Data Analysis and Reporting System (PDARS) available at each ARTCC, or other graphics software. The map background is black to reduce controller eye strain in dark control rooms and to provide product consistency.
3. Automated TRACON Gate forecasts may be developed and derived from meteorological models or gridded data produced at the parent WFO, but should follow the same standards as the manually developed products stated above.

Product Availability. The TRACON Gate Forecast Product is issued each morning, afternoon and evening. Times of issuance should be within 15 minutes of 0700L, 1300L and 1900L (at a minimum). If product is valid during a time the CWSU is closed, the product needs to have disclaimer citing product will not be updated until CWSU opens.

Appendix F – Collaborative Core Product Format and Examples

OEPZFW

CONCERNS...WIND TREND CDFROPA. CDFRNT CRRNTLY NR A ADM-XBP-BKD
 LN...CONTS TO MOV SEWRD THIS AM. 18Z STILL LUKS GOOD FOR CDFROPA AT
 THE DFW TERM. VFR CONDS AHD AND BHND THE FNT WL PRVL THRU THE AFTN/EVE
 HRS. ONLY CLDS TO MENTION DURG THIS PD WL BE SCT/BKN CI. AFT 06Z THUR
 XPECTG TO SEE BKN-OVC MVFR CIGS DVLP AS ISNETRPC LIFT AT 295K BGNS TO
 SATURATE THE LWR LYRS PER NMM.

ADDITIONAL/OPTIONAL ELEMENTS

DFW AIRPORT ACCEPTANCE RATE...S FLOW 126. DFW WX DELAYS/ACFT...NONE.

IMPORTANT NUMBERS FOR DFW (Timing of onset/ending very important)

CIGS	VSBY	ARRIVALS/HR	IMPACT (AAR)
>4000 >6		120+	No ARTCC problems
1000-4000	3-6	112-114	Limited or no vis approaches (NO VAPS)
200-900	1/2-3	96	In-trail spacing needed (MIT)
<200	<1/4	78-84	Significant delays (MIT GDP)
TSRA		0+	Variable delays (MIT GDP GS)
FZRA/FZDZ			Major delays for de-icing (MIT
GDP GS)			
WINDSHIFTS			Up to 30 minutes of ground/airborne delays to switch rwys.
CROSSWINDS			
20-24KT		114-84	MIT
>25KT < 78			MIT GDP

Miles in Trail (MIT) Ground Delay Program (GDP) Ground Stop (GS)

Appendix G – Plotting Point Map

