

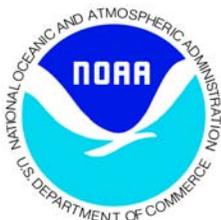
Distance Learning Aviation Course 2:

Producing Customer-Focused TAFs



Winter Weather Simulation Guide: *01/27/2009* Case

Presented by the
Warning Decision Training Branch



Acknowledgments

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Cover photo courtesy of COMET

Ed Mahoney, Chief

Warning Decision Training Branch

Training Division, OCWWS

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Document History

The document history is provided to track updates and changes to the simulation guide. The version number, seen at the bottom of every page, will be updated as each significant change is made to the simulation guide.

Version	Date	Description
1.0	July 1, 2009	This is the third set of aviation simulations in support of COMET's DLAC-2 course.

To provide feedback, comments or ideas related to this document, please visit our web site at: <http://www.wdtb.noaa.gov>

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1: How to Use This Document

I. Introduction

Welcome to the *January 27, 2009 DLAC-2 Winter Weather* Simulation Guide! The purpose of this guide is to provide the training facilitator at a forecast office with case-specific materials needed to prepare and deliver effective simulations in support of the winter weather portion of the Distance Learning Aviation Course 2 (DLAC-2). The general approach for using these simulations is the same as with the simulation associated with the convective and wind shear DLAC-2 modules.

Since this document outlines the “answers” to the challenges of the event, it is specifically meant for the use of the training facilitator only.

In order to create effective simulations with this case, you will need to familiarize yourself with the details of this event. We recommend installing the case first, followed by reading each short section in order. See Table 1-1 for a description of the layout of this document.

Table 1-1: Simulation Guide Layout

1: How to Use This Document
The introduction describes the content of the simulation guide and how to use this document.
2: The January 27, 2009 Event Overview
The event overview provides a summary of the key components of this event.
3: Background Information
Read this section to become familiar with loading an aviation simulation, the data characteristics of this case, and information on WESSL.
4: Simulation Suggestions
Descriptions of each of the two simulations, including the performance objectives and evaluation criteria are contained in this section.

After reviewing the simulation guide and becoming familiar with the details of this event, the training facilitator will be ready to begin loading simulations for

the trainees. The training facilitator will need to understand the performance objectives associated with each simulation, which are directly tied to the DLAC-2 Module 4 training module. You will be able to evaluate a trainee's performance either during each simulation, or afterwards as all TAFs will be archived for each simulation. Each performance objective has a corresponding evaluation criteria to allow you to assess the trainee's performance, all of which are provided in Section 4 of this document.

This set of DLAC-2 simulations contains effective ways of incorporating immediate feedback to the trainee without training facilitator interaction, and it is possible for the trainee to start and complete the training without the training facilitator present. However, training research indicates that one-on-one training, where ***training facilitator and trainee participate together for the optimum learning experience***, is the most effective way to run a simulation. While time consuming, this can insure that:

1. the trainee remains focused on the objectives of the simulation,
2. the trainee receives essential feedback on performance, and
3. the training facilitator develops a solid understanding of how well the trainee comprehends the training and how well the trainee transfers the training to application.

In order to manage a simulation session, the training facilitator must be able to run a simulation as documented with the WES install and testing instructions included with the WES software. The simulations will be much more relevant if local AWIPS and AVNFPS customizations (e.g. preferences, procedures, color tables, etc.) are ported to the WES machine as outlined in the WES installation instructions. For more information on the WES, visit <http://www.wdtb.noaa.gov/tools/wes/index.htm>

2: The *January 27, 2009* Event Overview

The St. Louis CWA, which covers much of eastern Missouri and western Illinois, received a rather lengthy winter weather event that lasted from January 25-28, 2009. Southerly winds brought relatively warm, moist air northward over a fairly shallow cold arctic air mass that was locked in place over the region, thus setting the stage for a prolonged winter storm. The heaviest precipitation fell on Tuesday, January 27th, as an upper level disturbance approached the region along with low pressure developing over the Tennessee Valley. The storm system moved east Tuesday night with the precipitation ending by Wednesday

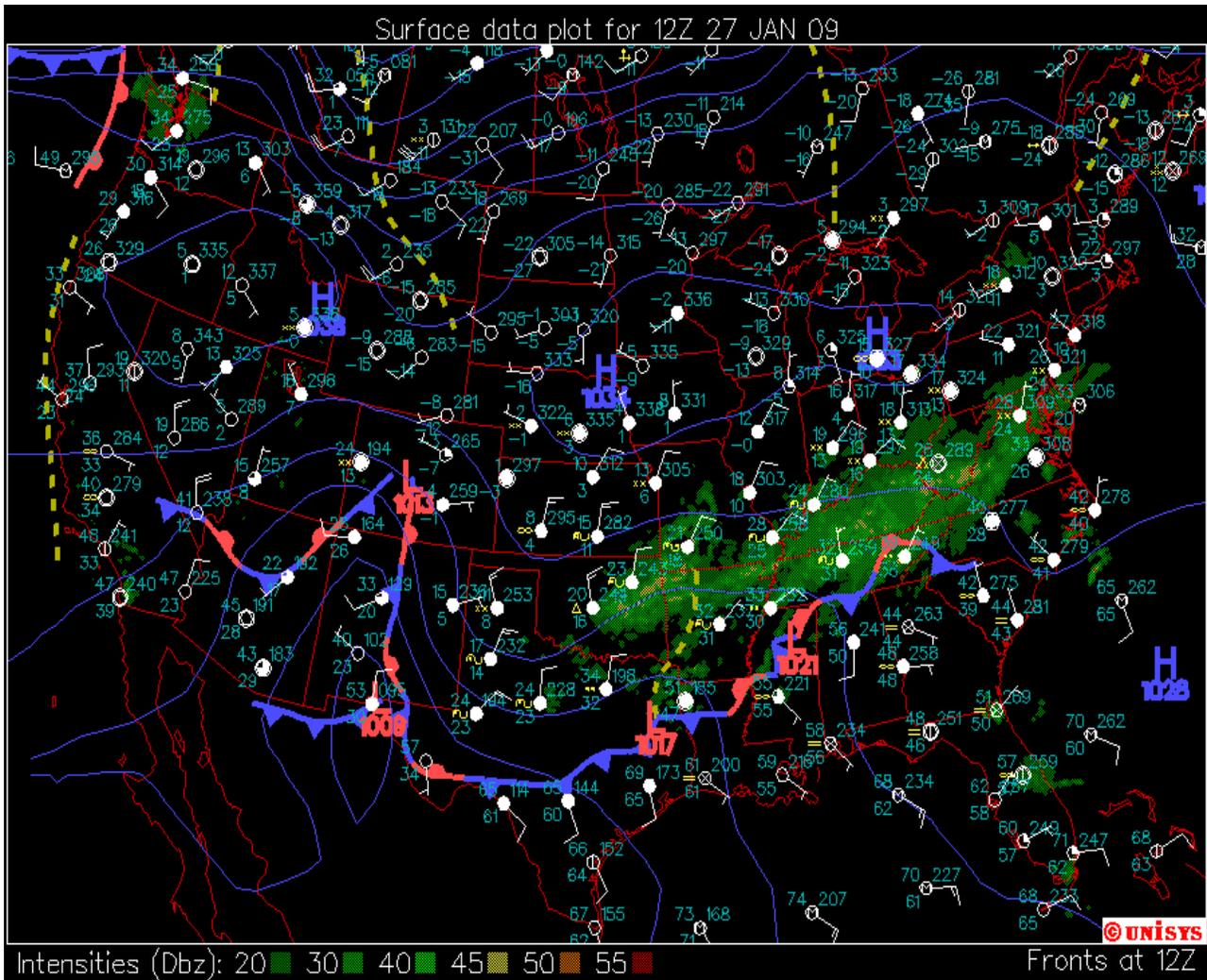


Figure 2-1. Composite map showing surface observations, position of fronts and weather systems, and radar overlay for 12Z on 27 January 2009.

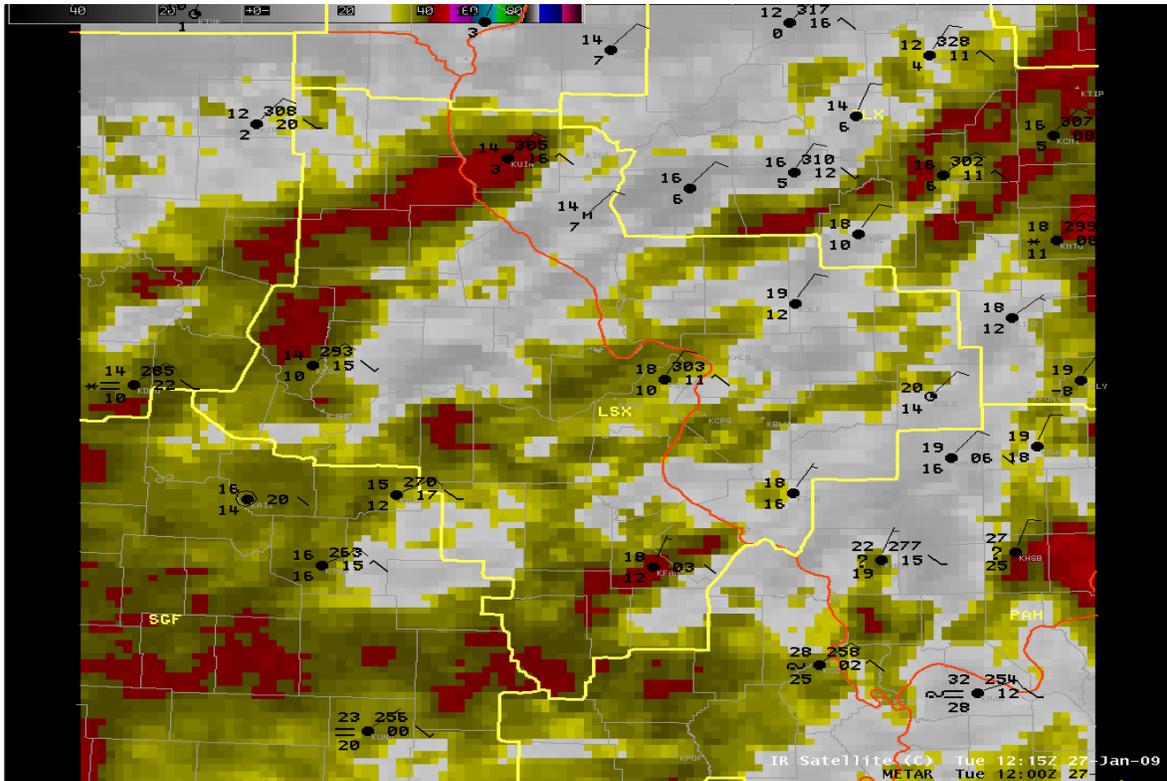


Figure 2-2. Conditions over the CWA at 12Z on 1/27/2009.

morning. Total snow accumulation ranged from around 6 to 8 inches across eastern Missouri to as much as 10 inches in south central Illinois. Snow amounts rapidly tapered off to the west and north with Jefferson City, Missouri only measuring 3 inches of snow and Quincy, Illinois only recording one inch of new snow with this storm system. The trainee will take two simulations toward the end of the event so that he/she will have a chance to forecast when the precipitation will cease to affect each of the TAF sites. Maps are provided to show the nationwide conditions several hours before the precipitation began in the CWA (see Fig. 2-1) and a close-up map of the CWA with satellite and surface obs at the same time (see Fig. 2-2).

The OPSNET Delays Report for Lambert-St. Louis International is also provided (see Fig. 2-3). Based upon the chart, surprisingly no delays occurred at KSTL on the 26th, 27th, or 28th; however, there were many traffic management initiatives implemented at KSTL on the 27th and 28th.

Two simulations, intended to be taken sequentially, are available to the trainee. The first one begins at 17Z on January 27 and the second one begins at 23Z on January 27. In both simulations, the trainee will create an Aviation Forecast Dis-

OPSNET : Delays : Standard Report

From 1/26/2009 To 1/28/2009 | Facility=STL

System Impact Delays									
Date	Total Ops	Total Delays	TMI To	Occurred At Delays				Abn Dest To Delays	
				Dep	Abn	TMI From	Total Occ At		
01/26/2009	606	0	0	0	0	0	0	0	
01/27/2009	489	0	0	0	0	5	5	0	
01/28/2009	559	0	0	0	0	7	7	0	
Total :	1654	0	0	0	0	12	12	0	

System Impact Delays											
Date	By Class				By Cause					Time	
	AC	AT	GA	Mil	Wx	Vol	Equip	Rwy	Other	Avg (Min)	Total (Min)
01/26/2009	0	0	0	0	0	0	0	0	0	0.00	0
01/27/2009	0	0	0	0	0	0	0	0	0	0.00	0
01/28/2009	0	0	0	0	0	0	0	0	0	0.00	0
Total :	0	0									

Figure 2-3. A list of the delays for KSTL for 1/26-28/2009 (UTC-based).

cussion and the accompanying TAFs for the St. Louis CWA. The next section of this guide details how to load the data and run the simulator.

3: Background Information

I. WES9.0 AVNFPS

These simulations require that you have WES9.0 AVNFPS loaded on your WES machine. Do not continue with these simulations until you have successfully installed and tested AVNFPS in a simulation. Full information on this can be found at <http://www.wdtb.noaa.gov/tools/wes/wes90.htm>

II. Loading the Case from DVD

There is an install disc for the January 27, 2009 case that was shipped to each DLAC-2 facilitator. **The case occupies ~ 14GB of disk space when converted to DRT**, so please plan accordingly. For details on how to load the case, see the README on the install discs.

III. AVNFPS Customization

There are several easy ways to customize AVNFPS on your WES machine. Prior to starting these DLAC-2 winter weather simulations, be sure NOT to modify any of the site-specific AVNFPS localization files in /awips/adapt/avnfps/etc. What you can do (and what is recommended) is copy your forecaster IDs file into the /awips/adapt/avnfps/etc directory. This will overwrite a link to the default forecaster ID file, which contains 5 default IDs. Also, you are encouraged to insert your office's AVNFPS preferences into /awips/adapt/avnfps/etc/app-resources directory. All 5 default preference files are identical.

IV. Starting WES-AVNFPS for a Simulation

Starting an aviation simulation is done exactly the same way as any other WES simulation, other than the fact that you need to input a "TAFs directory" (See Fig. 3-1.). Macro files are accessed from the "Load Saved Settings", and should be used for each of the simulations. The simulation suggestions section details which macro goes with a particular simulation. **You must input a TAFs Directory** to be able to launch AVNFPS after starting the simulation, and the TAFs contained in the specified directory will be initialized into AVNFPS. You have two

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The image shows a 'Simulation Entry' dialog box with the following fields and buttons:

- FXA_DATA (i.e. case location): /data/awips/2009Jan27 [Select]
- FXA_INGEST_SITE: LSX [Select]
- Case Start Time: 200901272300 [Select]
- Case End Time: 200901272340 [Select]
- WESSL Script (optional): /data/awips/2009Jan27/wessl/sim2.wessl [Select]
- WESSL Case Flags (optional): [Select]
- GFE Directory: [Select]
- GFE Grid: [Select]
- TAFs Directory: lsx_18z [Select]

Buttons at the bottom: Save Current Settings, Load Saved Settings, OK, Cancel.

Figure 3-1. Simulation Entry window for the 2nd simulation. Pay particular attention to the bottom and “TAFs Directory”. You must select either a directory with default TAFs for the time-frame of the simulation, or a previously run simulation from the same trainee.

options for loading TAFs: Default TAFs and previous simulation forecaster-issued TAFs.

Default TAFs:

Default TAFs are available for both simulations. You **MUST** ensure that a default TAF directory appears when the simulation macro loads so that AVNFPS will have TAFs to process when it starts. The default TAFs for the simulations are located in the following directories in /data/awips/2009Jan27/avn-fps/archived_TAFs:

- lsx_12Z (for simulation #1)
- lsx_18Z (for simulation #2)

Sending TAFs:

Once the trainee has created their TAFs in AVNFPS, you will want to check for Syntax and QC by clicking those respective buttons. Doing so will cause the

TAFs to be highlighted in a yellow-orange color. However, not to worry as the QC results are purely advisory/informational, not indicating anything wrong with the TAFs; it is just merely informing the forecaster or potential impacts to planning/airport operations, like the Fuel-Alternate rule or LIFR conditions, or flagging something climatologically rare.

Once the TAFs are ready, click the “Send” button only; **DO NOT CLICK THE “SAVE” BUTTON.**

TAFs from Previous Simulations:

For the special case when you have the same trainee running back-to-back simulations, just select TAFs Directory as /data/awips/2009Jan27/avn-

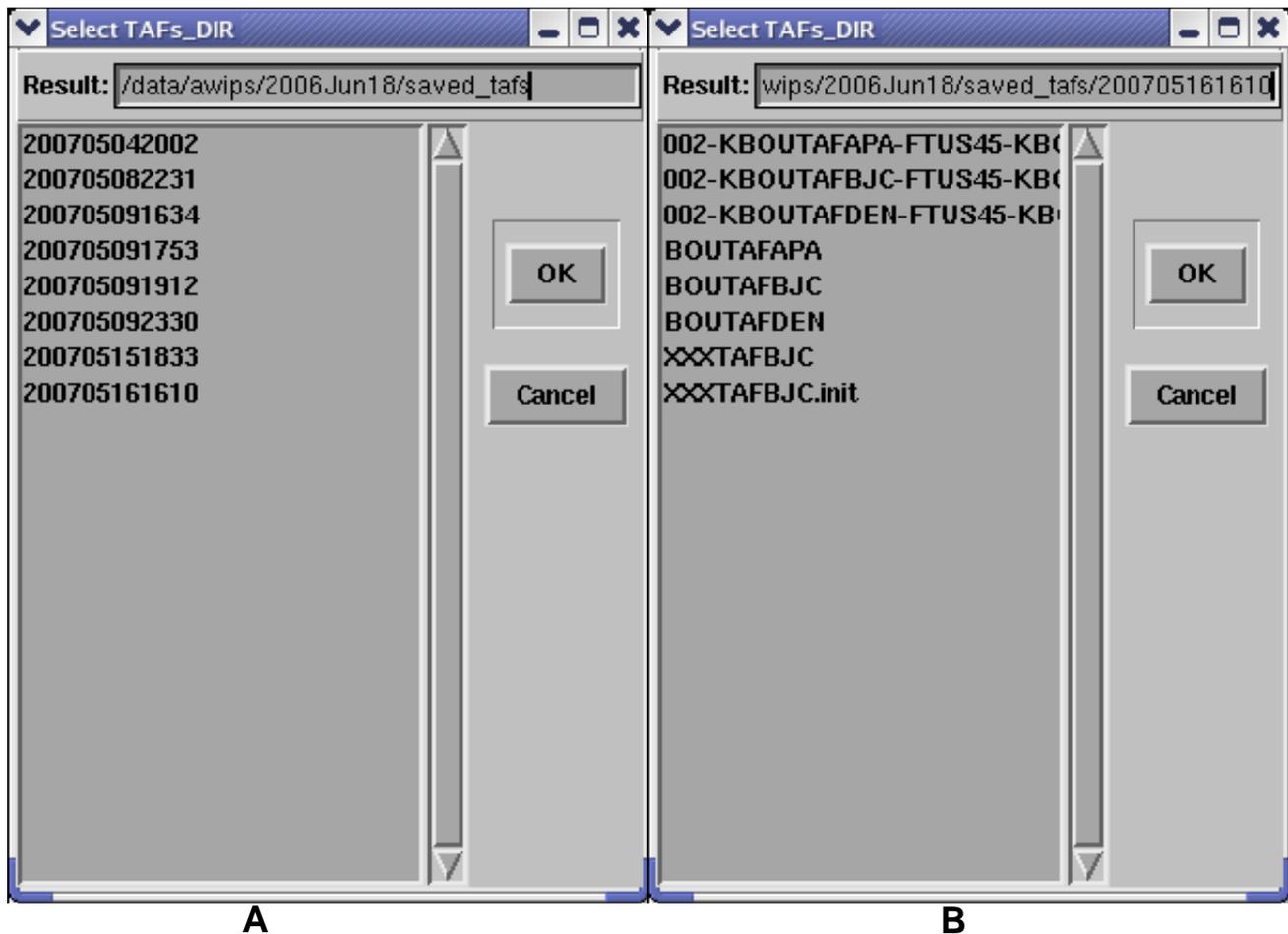


Figure 3-2. The “Select TAFs_DIR” GUI. A) is the location of all saved TAFs from all previous simulations, containing a time-stamped directory of each simulation. B) is the result of clicking on one of the time stamped directories. This is what you want to select as the final input into to the TAFs Directory prior to starting the simulation.

fps/archived_TAFs/previous_simulation. However, if you want to start up a simulation for a particular trainee who was not going through back-to-back sequential simulations, and you wanted to ingest that trainee's TAFs from his or her previous simulation, the following must be done:

- Start by entering the directory /data/awips/2009Jan27/saved_tafs into the selection window (similar to Fig. 3-2-A). If you have previously run a simulation, you'll notice a time stamped directory.
- Next, if you know the date and time of the trainee's previous simulation, select that directory.
- If you are unsure about the date/time of the trainee's previous simulation, click into the directories to check (Fig. 3-2-B). Inside each saved, time-stamped directory are TAFs beginning with a number, which is the forecaster ID number. If you customized the avnfps/etc/forecaster file, you would then be able to match the previous TAFs to the proper trainee. Otherwise, the numbers will be one of the five defaults.

Launching the AVNFPS GUI and D2D

After successfully setting up a simulation, and after clicking "Run Simulation", in a separate window in the monitor of your choosing, you will need to run separate commands to load D2D and to load AVNFPS. You can load from any command line these two separate commands:

- start_awips (this starts D2D)
- start_avnfps (this starts AVNFPS)

When the AVNFPS GUI loads, choose a proper username.

NOTE: If you use default username and configurations for your WES AVNFPS (one of the 5), remind the trainee to remember which default user they select in the AVNFPS startup window. This will allow for quicker identification of their saved TAFs.

V. Localizations:

OB9.0 localizations for LSX are included with the case. We encourage you to customize your WES from your AWIPS. For information on customizing WES, please see the WES users guide available with the WES release.

VI. WESSL:

The WESSL script for each of the two simulations will contain an introductory Articulate presentation that loads immediately after a simulation starts. These presentations provide an overview of the simulation, a list of what is expected from the trainee, a detailed overview of climatology, airport specific criteria, and other bits of important information. The WESSL script will also have many different pop-up windows: some will require a response from the student, some will have useful reports and information, and some will pause the simulation. The NWSSChat pop-up that occurs a few minutes after the simulation starts is optional. After the second simulation, there will be an Articulate debrief of the entire event along with TAFs created by aviation forecasting experts designed to provide instant feedback to the trainee. **Loading the appropriate saved settings macro from the simulation setup window will automatically insert the correct WESSL files for each simulation.**

VII. Data Characteristics

The original data set came from the LSX office archives, and most all data is accessible during the simulations. While there may be some incomplete or missing data due to the archiving process, there is enough data that the trainee should be able to satisfy the learning objectives. The details of the data sets are included below:

Model Data:

The following model data exists in this dataset: GFS40, NAM40, NAM80, RUC13, and RUC40.

Bufkit Data:

Each simulation will have a Bufkit window pop up approximately one minute into the simulation that will contain NAM model data from the most recent run. Verify that the local time is set to Central Standard Time (GMT - 6 hours). If the time needs to be changed, click the "Adjust Time" button at the bottom of the Overview window.

Radar Data:

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8-bit data exists for KLSX and the surrounding radars. However, some elevation angles are missing.

Other Data:

VWPs, wind profilers, and MDCARS are available for this event.

4: Simulation Suggestions

I. Introduction

Two simulation descriptions are included in this section for the January 27, 2009 case, and they are intended to be taken sequentially. Simulation 1 focuses on writing the routine 18Z TAFs for the 27th for all four TAF sites in the LSX CWA and accompanying Aviation Forecast Discussion. Simulation 2 focuses on writing the routine 00Z TAFs for the 28th and accompanying AFD.

WESSL files are provided to help pace each simulation and provide extra data sets. The WESSL file response boxes are also used to document information that can be accessed after the simulation is over.

II. Simulations

Simulation 1 (27 January 1700Z - 1740Z) Issuing 18Z AFD and TAFs

WES Macro: sim1_2009Jan27

*****NOTE: Be aware that the simulation may take several minutes to prepare once the OK button has been clicked in the Simulation Entry window due to the total amount of data.*****

AVNFPS Directory: Make sure the directory lsx_12z is selected as the TAF directory

Summary:

In this simulation, the trainee will be writing the 18Z AFD for the LSX CWA as well as the TAFs for KCOU, KSTL, KSUS, and KUIN. The simulation start time is 1700Z on January 27, 2009, at which time it is necessary to begin looking at model data and other data found in AWIPS to write an AFD for the St. Louis CWA as well as the TAFs.

The simulation occurs in the midst of the winter storm of interest that is affecting the St. Louis CWA.

Simulation 1 is designed to be taken before Simulation 2, therefore at the conclusion of Simulation 1, you are advised not to reveal any information regarding the event beyond 1740Z.

Schedule for trainee:

- 1700 (Pause): Articulate introduction to simulation with objectives and other useful information (approx 5 minutes).
- 1700-1720 (20 min): Become familiar with CWA, evaluate data and respond accordingly to any WESSL pop-ups. The NWSSChat pop-up that occurs a few minutes after the simulation starts is optional.
- 1720 (Pause): Trainee will write an AFD for the St. Louis CWA to be consistent with the criteria given in the simulation. Trainee will resume simulation after writing the AFD.
- 1720-1740 (20 min): Trainee will create TAFs for the TAF sites in the St. Louis CWA. The simulation can be ended as soon as the forecasts are submitted in AVNFPS.
- 1740 (or when trainee is finished): Simulation will automatically end. However, **as soon as trainee issues TAFs, stop simulation and in a new terminal window, load the debrief presentation from the command line using: `firefox file:///data/awips/2009Jan27/wessl/Debrief_Sim1/player.html`.**

Performance Objective 1. Demonstrate the ability to assess potential aviation hazards and their impacts to TAF sites.

Evaluation Criteria 1. The trainee should attempt to properly assess any possible weather threat that will disrupt aviation activity based upon the available data. Feedback will be provided at the end of this simulation on what an “expert” would have written in his/her TAF, and this should be the basis for evaluation of the trainee’s TAFs. As facilitator, you have access to the trainee’s TAFs (located in `/data/awips/2009Jan27/avnfps/archived/_TAFs/previous_simulation` immediately after the simulation has ended). The trainee’s TAFs are also permanently archived in `/data/awips/2009Jan27/saved_tafs/` in the directory time-stamped

with the actual date and time when the trainee completed the simulation. It may be a good idea to go over them with the student at the completion of this first simulation.

Performance Objective 2. Demonstrate the effective use of aviation forecasting tools.

Evaluation Criteria 2. The trainee should be able to effectively use such tools as BUFKIT, AWIPS model soundings, aircraft data, surface observations and analyses, satellite and radar, and local climatology. This objective may be evaluated in person as you monitor which tools the trainee uses during this simulation. Also, the trainee will be writing an aviation forecast discussion where it is appropriate for the trainee to mention the tools used in the forecast preparing process. The trainee's AFD is available in the /data/awips/2009Jan27/wessl/ directory, as a current date/time stamped file with the format sim1.log.YYYYMMDD_HHMM". It is a text file, and the HHMM time stamp is LOCAL TIME that the AFD was issued.

Performance Objective 3. Effectively articulate forecast logic and uncertainty with an Aviation Forecast Discussion.

Evaluation Criteria 3. The trainee will write an AFD in a WESSL window which will be in the same format as one written operationally. For comparison, the debrief Articulate presentation will contain an AFD written by an expert. A saved copy of the trainee's AFD may be retrieved; see Evaluation Criteria 2 above for information on how to do so.

Performance Objective 4. Produce a practically perfect TAF for winter weather and its related hazards:

- Write to the flight categories first, establish trends
- Add specific ceiling and visibility details for the first 6 hours only (the critical TAF period)
- Limit TEMPOs to first 6 hours and avoid use of PROB groups
- Review for consistency and make sure you have addressed the expected flight category changes

Evaluation Criteria 4. This is the most important of the four criteria. The guidelines above will be in the pre-brief for the trainee. The trainee should use these guidelines as much as possible when writing the TAFs. During the Articulate debrief, the PPTAFs written by experts will be shown along with the reasoning for their forecast. As facilitator, you are encouraged to discuss the trainee's TAFs with them, and information on how to retrieve their TAFs is included in Evaluation Criteria 1.

Simulation 1 Debrief

As discussed previously, at the end of the simulation a short Articulate debrief will be launched manually after the TAFs have been sent. From a new terminal window, enter the following command:

firefox file:///data/awips/2009Jan27/wessl/Debrief_Sim1/player.html

The debrief will discuss the expert 18Z TAFs and the aviation forecast discussion. There also will be instructions on how to start Simulation 2.

Simulation 2 (27 January 2300Z - 2340Z) Issuing 00Z AFD and TAFs

WES Macro: `sim2_2009Jan27`

*****NOTE: Be aware that the simulation may take several minutes to prepare once the OK button has been clicked in the Simulation Entry window due to the total amount of data.*****

AVNFPS Directory: Make sure the directory `lsx_18z` is selected as the TAF directory, or select `previous_simulation` or time-stamped directory from same forecaster using the steps previously mentioned on page 3-4.

Summary:

In this simulation, the trainee will be writing the 00Z AFD for the LSX CWA as well as the TAFs for KCOU, KSTL, KSUS, and KUIN. The Simulation 2 start time is 2300Z on January 27, 2009, at which time it is necessary to begin looking at model data and other data found in AWIPS to write an AFD for the St. Louis CWA as well as the TAFs.

The simulation occurs toward the end of the winter storm of interest that is ongoing in the St. Louis CWA.

Schedule for trainee:

- 2300 (Pause): Articulate introduction to simulation with objectives and other useful information (approx 5 minutes).
- 2300-2320 (20 min): Evaluate new data and respond accordingly to any WESSL pop-ups. The NWSChat pop-up that occurs a few minutes after the simulation starts is optional.
- 2320 (Pause): Trainee will write an AFD for the St. Louis CWA to be consistent with the criteria given in the simulation. Trainee will resume simulation after writing the AFD.
- 2320-2340 (20 min): Trainee will create TAFs for the TAF sites in the St. Louis CWA. The simulation can be ended as soon as the forecasts are submitted in AVNFPS.
- 2340 (or when trainee is finished): Simulation will automatically end. However, **as soon as trainee issues TAFs, stop simulation and in a new terminal window, load the debrief presentation from the command line using: [firefox file:///data/awips/2009Jan27/wessl/Debrief_Sim2/player.html](file:///data/awips/2009Jan27/wessl/Debrief_Sim2/player.html).**

Performance Objective 1. Demonstrate the ability to assess potential aviation hazards and their impacts to TAF sites.

Evaluation Criteria 1. The trainee should attempt to properly assess any possible weather threat that will disrupt aviation activity based upon the available data. Feedback will be provided at the end of this simulation on what an “expert” would have written in his/her TAF, and this should be the basis for evaluation of the trainee’s TAFs. As facilitator, you have access to the trainee’s TAFs (located in /data/awips/2009Jan27/avnfps/archived/_TAFs/previous_simulation immediately after the simulation has ended). The trainee’s TAFs are also permanently archived in /data/awips/2009Jan27/saved_tafs/ in the directory time-stamped with the actual date and time when the trainee completed the simulation. It may be a good idea to go over them with the student at the completion of this first simulation.

Performance Objective 2. Demonstrate the effective use of aviation forecasting tools.

Evaluation Criteria 2. The trainee should be able to effectively use such tools as BUFKIT, AWIPS model soundings, aircraft data, surface observations and analyses, satellite and radar, and local climatology. This objective may be evaluated in person as you monitor which tools the trainee uses during this simulation. Also, the trainee will be writing an aviation forecast discussion where it is appropriate for the trainee to mention the tools used in the forecast preparing process. The trainee's AFD is available in the /data/awips/2009Jan27/wessl/ directory, as a current date/time stamped file with the format sim2.log.YYYYMMDD_HHMM". It is a text file, and the HHMM time stamp is LOCAL TIME that the AFD was issued.

Performance Objective 3. Effectively articulate forecast logic and uncertainty with an Aviation Forecast Discussion.

Evaluation Criteria 3. The trainee will write an AFD in a WESSL window and will be in the same format as one written operationally. For comparison, the debrief Articulate presentation will contain an AFD written by an expert. A saved copy of the trainee's AFD may be retrieved; see Evaluation Criteria 2 above for information on how to do so.

Performance Objective 4. Produce a practically perfect TAF for winter weather and its related hazards:

- Write to the flight categories first, establish trends
- Add specific ceiling and visibility details for the first 6 hours only (the critical TAF period)
- Limit TEMPOs to first 6 hours and avoid use of PROB groups
- Review for consistency and make sure you have addressed the expected flight category changes

Evaluation Criteria 4. This is the most important of the four criteria. The guidelines above will be in the pre-brief for the trainee. The trainee should use these guidelines as much as possible when writing the TAFs. During the Articulate debrief, the PPTAFs written by experts will be shown along with the reasoning for their forecast. As facilitator, you are encouraged to discuss the trainee's

TAFs with them, and information on how to retrieve their TAFs is included in Evaluation Criteria 1.

Simulation 2 Debrief

As discussed previously, at the end of the simulation a short Articulate debrief will be launched manually after the TAFs have been sent. From a new terminal window, enter the following command:

`firefox file:///data/awips/2009Jan27/wessl/Debrief_Sim2/player.html`

The debrief will discuss the expert 00Z TAFs, the aviation forecast discussion, and the impacts at Lambert-St. Louis International Airport due to this event.

Appendix A: METAR Observations for TAF sites

METARs for KCOU:

KCOU 271747Z 03008KT 3SM -SN BR FEW013 OVC029 M09/M12 A3029
KCOU 271831Z 04008KT 6SM BR FEW013 OVC029 M09/M12 A3026
KCOU 271909Z 03012KT 9SM FEW013 OVC031 M09/M12 A3021
KCOU 272041Z 02011KT 3SM -SN BR SCT012 BKN025 OVC041 M09/M12 A3018
KCOU 272141Z 03010KT 2 1/2SM -SN BR BKN014 OVC025 M09/M11 A3018
KCOU 272234Z 02007KT 1SM -SN BR BKN011 OVC027 M09/M11 A3018
KCOU 272325Z 02006KT 2SM -SN BR SCT016 OVC055 M09/M11 A3015
KCOU 280050Z 03008KT 1 1/2SM -SN BR OVC015 M09/M11 A3015
KCOU 280137Z 36007KT 1SM -SN BR VV008 M09/M11 A3015
KCOU 280245Z AUTO 36008KT 3SM -SN BR FEW010 OVC070 M10/M12 A3013
KCOU 280254Z AUTO 36008KT 5SM -SN BR OVC070 M10/M12 A3013
KCOU 280354Z AUTO 04006KT 10SM OVC065 M10/M12 A3008
KCOU 280454Z AUTO 35010KT 8SM SCT013 OVC055 M10/M12 A3008
KCOU 280554Z AUTO 36007KT 10SM FEW013 OVC050 M10/M12 A3004
KCOU 280744Z AUTO 32009KT 10SM BKN026 OVC048 M11/M12 A3007
KCOU 280812Z AUTO 32006KT 10SM SCT024 BKN049 OVC060 M11/M12 A3007
KCOU 280947Z AUTO 29007KT 10SM BKN013 OVC060 M11/M12 A3007
KCOU 280954Z AUTO 29006KT 10SM BKN013 OVC055 M11/M12 A3007
KCOU 281122Z AUTO 30006KT 10SM BKN012 OVC060 M11/M13 A3006
KCOU 281154Z AUTO 30007KT 9SM OVC012 M11/M13 A3007

METARs for KSTL:

KSTL 271736Z 02011KT 2 1/2SM +PL OVC022 M08/M11 A3028
KSTL 271848Z 03010G15KT 3SM -SN OVC028 M08/M11 A3023
KSTL 271935Z 36008KT 3SM PL FEW013 OVC026 M08/M11 A3021
KSTL 272016Z 06006KT 3/4SM R30R/4500VP6000FT -SN BR VV009 M08/M10 A3018
KSTL 272141Z 02007KT 1 1/2SM R30R/5500VP6000FT -SN BR BKN011 OVC019
M08/M10 A3019
KSTL 272234Z 02007KT 1 1/2SM -SN BR BKN011 BKN022 OVC035 M08/M10 A3018
KSTL 272312Z 36008KT 3/4SM R30R/4500V5000FT -SN BR VV008 M08/M10 A3017
KSTL 280044Z 34006KT 1SM R30R/6000VP6000FT -SN BR VV003 M08/M10 A3014
KSTL 280051Z 35007KT 1SM R30R/6000VP6000FT -SN BR VV003 M08/M10 A3014
KSTL 280229Z 33007KT 3/4SM R30R/4000V6000FT -SN BR VV003 M08/M10 A3012
KSTL 280331Z 36006KT 3/4SM R30R/5500VP6000FT -SN BR VV006 M08/M11 A3008
KSTL 280443Z 34009KT 1 1/2SM -SN BR OVC010 M08/M11 A3007
KSTL 280540Z 34010KT 3SM -SN BR FEW013 BKN028 OVC050 M08/M11 A3004
KSTL 280633Z 33008KT 2 1/2SM -SN BR SCT022 OVC060 M08/M11 A3001
KSTL 280741Z 34008KT 5SM -SN BR FEW015 OVC060 M09/M11 A3000

Warning Decision Training Branch

KSTL 280847Z 31008KT 1SM R30R/5500VP6000FT -SN BR VV004 M08/M11 A3006
KSTL 280946Z 30008KT 4SM -SN BR FEW003 SCT025 OVC080 M09/M11 A3003
KSTL 280957Z 31008KT 3SM -SN BR BKN014 OVC065 M09/M11 A3003
KSTL 281051Z 31010KT 8SM -SN FEW011 OVC070 M09/M12 A3004
KSTL 281151Z 31009KT 8SM -SN OVC065 M09/M12 A3004
KSTL 281251Z 29007KT 7SM -SN FEW014 OVC060 M09/M12 A3005
KSTL 281351Z 29007KT 6SM HZ FEW015 SCT065 M11/M13 A3007
KSTL 281451Z 29009KT 6SM HZ FEW012 M09/M13 A3010
KSTL 281551Z 28008KT 8SM SCT012 M08/M12 A3011
KSTL 281651Z 25010KT 8SM -SN SCT016 M08/M12 A3012
KSTL 281751Z 26006KT 10SM FEW016 M06/M12 A3010
KSTL 281851Z 26006KT 10SM FEW020 M05/M11 A3008
KSTL 281951Z 28005KT 10SM FEW030 M04/M10 A3005
KSTL 282051Z 26007KT 10SM CLR M04/M10 A3003
KSTL 282151Z 22009KT 10SM FEW250 M03/M10 A3003
KSTL 282251Z 20005KT 10SM FEW200 SCT250 M03/M10 A3000

METARs for KSUS:

KSUS 271754Z 02006KT 3SM BR BKN022 OVC027 M07/M11 A3030
KSUS 271948Z 01008KT 3/4SM -SN VV009 M08/M11 A3021
KSUS 271954Z 01007KT 1/2SM SN VV008 M08/M11 A3021
KSUS 272147Z 02006KT 2SM -SN FEW014 BKN026 OVC037 M07/M11 A3018
KSUS 272252Z 01005KT 3/4SM -SN VV009 M08/M11 A3018
KSUS 272321Z 01006KT 1SM -SN VV005 M08/M11 A3018 RMK AO2 P0001
KSUS 280041Z 01005KT 3/4SM -SN VV003 M08/M11 A3014
KSUS 280054Z 36004KT 3/4SM -SN VV002 M08/M11 A3014
KSUS 280211Z 35004KT 3/4SM -SN VV004 M08/M11 A3013
KSUS 280327Z 01005KT 1SM -SN VV005 M08/M11 A3009
KSUS 280421Z 35005KT 1SM -SN VV005 M08/M11 A3008
KSUS 280538Z 34005KT 4SM -SN OVC028 M08/M12 A3005
KSUS 280621Z AUTO 34006KT 3SM -SN SCT020 OVC065 M08/M12 A3002
KSUS 280654Z AUTO 32005KT 3SM HZ OVC065 M08/M12 A3003
KSUS 280830Z AUTO 31010KT 1SM -SN VV005 M08/M11 A3005
KSUS 280952Z AUTO 31007KT 3SM -SN BKN023 OVC070 M09/M12 A3003
KSUS 280954Z AUTO 30007KT 2 1/2SM -SN BKN023 OVC070 M09/M12 A3005
KSUS 281054Z AUTO 30009KT 10SM FEW013 OVC065 M09/M12 A3005
KSUS 281154Z 29006KT 10SM OVC065 M09/M13 A3006
KSUS 281254Z 28007KT 9SM OVC060 M09/M13 A3007
KSUS 281441Z 27006KT 7SM BKN015 M09/M13 A3011
KSUS 281454Z 29009KT 6SM HZ BKN015 M09/M13 A3010
KSUS 281554Z 26006KT 10SM FEW015 M08/M13 A3012
KSUS 281654Z 24008KT 10SM CLR M07/M12 A3012
KSUS 281754Z 26007KT 10SM CLR M07/M12 A3011
KSUS 281854Z 26009KT 10SM CLR M06/M11 A3007
KSUS 281954Z 25010KT 10SM CLR M05/M11 A3004

KSUS 282054Z 24005KT 10SM CLR M04/M11 A3002
KSUS 282154Z 22006KT 10SM CLR M03/M11 A3002
KSUS 282254Z 00000KT 10SM CLR M03/M11 A3000

METARs for KUIN:

KUIN 271754Z AUTO 02010KT 4SM HZ OVC027 M09/M13 A3033
KUIN 271951Z AUTO 03011KT 2SM -SN OVC019 M09/M13 A3025
KUIN 272036Z AUTO 03009KT 4SM HZ BKN019 M09/M13 A3024
KUIN 272054Z AUTO 03011KT 9SM FEW017 OVC070 M09/M13 A3023
KUIN 272154Z AUTO 03009KT 10SM OVC050 M09/M13 A3022
KUIN 272254Z AUTO 02012KT 10SM OVC045 M09/M14 A3021
KUIN 272354Z AUTO 02011KT 10SM OVC041 M10/M14 A3018
KUIN 280054Z AUTO 02012KT 10SM OVC039 M10/M14 A3018
KUIN 280247Z AUTO 02008KT 2 1/2SM -SN BKN022 OVC029 M11/M14 A3014
KUIN 280306Z AUTO 01009KT 3SM -SN SCT024 BKN046 OVC070 M11/M13 A3013
KUIN 280354Z AUTO 01009KT 10SM OVC070 M11/M13 A3012
KUIN 280454Z AUTO 36009KT 6SM -SN OVC060 M11/M13 A3009
KUIN 280646Z AUTO 34007KT 1 3/4SM -SN BR FEW021 BKN050 OVC075 M11/M13
A3006
KUIN 280746Z AUTO 34008KT 5SM -SN FEW025 OVC065 M11/M13 A3004
KUIN 280844Z AUTO 32008KT 5SM HZ FEW007 OVC070 M11/M13 A3006
KUIN 280926Z AUTO 33007KT 4SM -SN BR SCT029 BKN044 OVC075 M11/M13 A3004
KUIN 281035Z AUTO 30006KT 7SM BKN015 OVC020 M14/M16 A3004
KUIN 281151Z AUTO 29004KT 4SM BR BKN007 M14/M16 A3004
KUIN 281225Z AUTO 29004KT 5SM BR SCT007 M15/M17 A3004
KUIN 281342Z AUTO 26004KT 3SM BR CLR M14/M16 A3006
KUIN 281354Z AUTO 00000KT 4SM BR CLR M14/M16 A3005
KUIN 281454Z AUTO 22004KT 4SM BR CLR M13/M16 A3005
KUIN 281554Z AUTO 23005KT 6SM HZ CLR M11/M14 A3007
KUIN 281654Z AUTO 23009KT 10SM CLR M09/M14 A3007
KUIN 281754Z AUTO 22010KT 10SM CLR M08/M13 A3003
KUIN 281854Z AUTO 22010KT 10SM CLR M07/M12 A3002
KUIN 281954Z AUTO 22008KT 10SM CLR M06/M12 A2997
KUIN 282054Z AUTO 21010KT 10SM CLR M06/M11 A2995
KUIN 282154Z AUTO 21011KT 10SM CLR M05/M11 A2995
KUIN 282254Z AUTO 20009KT 10SM CLR M06/M11 A2994