

Aviation Winter Weather Experiment

Forecast Desk Instruction Guide

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Aviation Weather Testbed

Aviation Weather Center

Kansas City, Missouri

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FA SIERRA (Ceiling/Visibility) Desk -

Instructions

This forecast desk is tasked with creating a C&V GAIRMET and Mountain Obscuration forecast for 21Z for forecast hours 0, 3, 6, 9 and 12. It is also responsible for creating an abbreviated test FA write up.

GAIRMET Instructions

1. Load experimental SPFs and custom SPFs as desired. See **Appendix A SIERRA Experimental SPF Loop List**. Be patient as the hi-res loops may be slow to load.
2. Open the PG Palette and set the cycle time to current day and 21Z issuance.
3. Open the PG Palette->Select Open Prod->Select FA
4. Open the 21Z_gairmet.lpf
5. Open the Filter tool on the PG Palette to flip through forecast times.
6. Open MET->GFA' and select either C&V or MTNOBS. Only work on one variable at a time as we need to save the vgfs separately.
7. Create your forecast polygons, the tags and regions do not matter as we will not be merging or froming into an AIRMET. However, make sure to select the options for the polygon for IFR based on precipitation, fog, etc.
8. When you are done with your first C&V or MTNOBS package (whichever you decide to do first) save it. **In the PG Palette choose "save as" and save each layer in the "local" directory with the following naming convention:**
 - a. c&v as YYYYMMDD_21Z_ifr.vgf
 - b. mt_obsc as YYYYMMDD_21Z_mtn.vgf
9. Using delete all button on the PG Palette clear your forecast before beginning a new variable, we do not want to save 2 GAIRMETs under one file name.
10. Fill out the survey, especially for any experimental products used.

http://testbed.aviationweather.gov/page/public?name=2013_Winter_Experiment

Select any link from the Evaluation Forms for products you wish to comment on.
(password: wwe2013)

Text FA Creation

Goal: Evaluate the usefulness of the experimental products including the FA Guidance tool (<http://testbed.aviationweather.gov/faauto>) in generating the text FA product.

1. Create a brief text FA. Pick a region of interest, BOS, MIA, CHI, DFW, SLC, or SFO and fill out as many states as you like (suggest 4-6).
2. Open AWCedit on the second monitor. Select the region you decided to work on (BOS, MIA, etc).
3. Click StartFA to begin the FA editor. If any errors pop up just hit okay and move on. Select the Afternoon timeframe and the standard time option. Do not worry about replacing the XX with the correct numeric dates.
4. Open up the FA Guidance Web Page in Firefox on the left most monitor.
<http://testbed.aviationweather.gov/faauto> There is a guide with details and instructions on the page.
5. Write the FA using standard rules using any tool set you choose. Do not worry about a synopsis. Just fill in 4-6 states or as many as you like.
6. **Save the text FA. Do not use the standard saveFA button. Use the “save as” option in the file drop down menu and save in the “local” directory with the following naming convention: YYYYMMDD_21Z_fa.txt**
7. Please help us by completing the survey! Visit http://testbed.aviationweather.gov/page/public?name=2013_Winter_Experiment and visit the links under the “Evaluation Forms” section.

Notes:

*Most of the high resolution products are only issued at 00Z.

*Some hi-res products are not preloaded (SPCWRF/SSEO)

*NCVA is an analysis field and the time slider should be moved all the way to the right for the newest NCVA fields.

FA TANGO (Turbulence, Winds) Desk - Instructions

This desk is tasked with creating a TURB-HI GAIRMET and TURB-LO GAIRMET suite for 21Z for forecast hours 0, 3, 6, 9 and 12. You may do winds and low-level wind shear if desired. (Save as _wind.vgf or _llws.vgf->see below)

GAIRMET Instructions

1. Load experimental SPFs and custom SPFs as desired. See **Appendix B TANGO Experimental SPF Loop List**. Be patient as hi-res loops may be slow to load.
2. Open the PG Palette and set the cycle time to current day and 21Z issuance.
3. Open the PG Palette->Select Open Prod->Select FA
4. Open the 21Z_gairmet.lpf
5. Open the Filter tool on the PG Palette to flip through forecast times.
6. Open MET->GFA' and select either TURBLO or TURBHI. Only work on one variable at a time as we need to save the vgfs separately.
7. Create your forecast polygons, the tags and regions do not matter as we will not be merging or froming into an AIRMET. However, make sure to give valid altitude ranges.
8. When you are done with your first TURB package (which ever you decide to do first) save it. **In the PG Palette choose saveas and save each layer in the "local" directory with the following naming convention:**
 - a. turb-hi as YYYYMMDD_21Z_turbhi.vgf
 - b. turb-lo as YYYYMMDD_21Z_turblo.vgf
 - c. sfc_wnd as YYYYMMDD_21Z_wind.vgf
 - d. llws as YYYYMMDD_21Z_llws.vgf
9. Using delete all button on the PG Palette clear your forecast before beginning a new variable, we do not want to save 2 GAIRMETs under one file name.
10. Fill out the survey, especially for any experimental products used.

http://testbed.aviationweather.gov/page/public?name=2013_Winter_Experiment

Select any link from the Evaluation Forms for products you wish to comment on.

(password: ww2013)

Notes:

- If a SIGMET is warranted please issue it and assume it is valid for 4-h after issuance. Save it in the local directory as you would the GAIRMET above. Use the following naming convention: YYYYMMDD_HHMMZ_turb_sig.vgf
- Most of the high resolution products are only issued at 00Z.
- GTG based on the RAP is only valid out to lead-time 12-h. Eventually we will have it run to 18-h like the FIP but for now try and use it in the first 3 forecast periods (0,3,6).

FA ZULU (Icing) Desk - Instructions

This desk is tasked with creating an Icing GAIRMET suite for 21Z for forecast hours 0, 3, 6, 9 and 12.

GAIRMET Instructions

1. Load experimental SPFs and custom SPFs as desired. See **Appendix C ZULU Experimental SPF Loop List**. Be patient as hi-res loops may be slow to load.
2. Open NTRANS to view RAP icing variants (A, B, and AB)
3. Open the PG Palette and set the cycle time to current day and 21Z issuance.
4. Open the PG Palette->Select Open Prod->Select FA
5. Open the 21Z_gairmet.lpf
6. Open the Filter tool on the PG Palette to flip through forecast times.
7. Open MET->GFA' and select ICE.
8. Create your forecast polygons, the tags and regions do not matter as we will not be merging or froming into an AIRMET. However, make sure to give valid altitude ranges.
9. When you are done with your ICE save it. **In the PG Palette choose saveas and save each layer in the "local" directory with the following naming convention:**
 - a. ice as YYYYMMDD_21Z_ice.vgf
10. Fill out the survey, especially for any experimental products used.
http://testbed.aviationweather.gov/page/public?name=2013_Winter_Experiment
Select any link from the Evaluation Forms for products you wish to comment on.
(password: wwe2013)

Notes:

- If a SIGMET is warranted please issue it and assume it is valid for 4-h after issuance. Save it in the local directory as you would the GAIRMET above. Use the following naming convention: YYYYMMDD_HHMMZ_ice_sig.vgf
- Most of the high resolution products are only issued at 00Z.

- FIP based on the RAP is valid out to lead-time 18-h instead of just 12-h. It goes out to the end of the forecast period beginning at the 15Z cycle.

Global Graphics North (GGN) Desk- Instructions

This desk is tasked with creating Mid-level global graphics suite for 12Z and 18Z over the North Atlantic domain.

Instructions

1. Load experimental spfs and a personal spf if desired. See **Appendix D GGNorth Mid-level Experimental SPF Loop List**. Be patient as hi-res loops may be slow to load.
2. Open the PG Palette->Select Open Prod->Select GGNORTH
3. Open either the 12Z or 18Z.lpf, which ever product time you are creating
4. Create JETS,TROPO,TURB,CONV, and CICT products
5. Create your forecast using the standard line and text types.
6. When you are done with your first variable save it. **In the PG Palette choose saveas and save it in the "local" directory with the following naming convention:**
 - a. JETS as YYYYMMDD_12Z_jets.vgf or YYYYMMDD_18Z_jets.vgf
 - b. TROPO as YYYYMMDD_12Z_tropo.vgf or YYYYMMDD_18Z_tropo.vgf
 - c. TURB as YYYYMMDD_12Z_turb.vgf or YYYYMMDD_18Z_turb.vgf
 - d. CONV as YYYYMMDD_12Z_conv.vgf or YYYYMMDD_18Z_conv.vgf
 - e. CICT as YYYYMMDD_12Z_cict.vgf or YYYYMMDD_18Z_cict.vgf

where YYYYMMDD = forecast issue date

7. Repeat steps 1-6 and create the 18Z graphics package.
8. Fill out the survey, especially for any experimental products used.

http://testbed.aviationweather.gov/page/public?name=2013_Winter_Experiment

Select any link from the Evaluation Forms for products you wish to comment on.

(password: wwe2013)

NAM Desk- Instructions

This desk is tasked with creating a winter weather Aviation Weather Statement (AWS) if necessary, evaluating experimental C&V products, and collaborating with the other experiment desks. During the first week of the experiment the NAM desk will also be required to create a one image graphic depicting aviation hazards in an area of interest chosen earlier in the day by 1:30PM CST that will be used to give an oral briefing in conjunction with the HPC winter weather experiment.

Instructions for HPC collaboration

1. Call Faye Barthold at HPC (301)-683-0746 between 8:30-9:30am CST to get the region of interest, the projection used (Lambert Conformal, etc), and the time period of interest (either day 1 or day 2).
2. Open up the Aviation Winter Weather Dashboard on the windows VM.
<http://testbed.aviationweather.gov/winterdashboard> . This gives good information on thresholds of impact for snowfall and freezing rain for various airports (for example you can see that DFW has a lot lower tolerance for snowfall than MSP).
3. Some longer range precipitation type, icing, flight rule, and turbulence guidance should help (some SREF products available under AWT_SPF (NAM_HPC_AWT_WE13.spf).
4. Open up the PG Palette tool on monitor 2 (second from left) (drawing must be done on monitor 2 or PG Palette will crash). Use any drawing tools you like and make sure to use text boxes to convey hazard type, timing, intensity, and uncertainty. Consider precipitation, flight rules, icing (deicing criteria), turbulence, and wind speed. This is free form, the graphics are up to the NAM desk forecasters. Have fun with it!
5. **Save the graphic by 1:30pm CST.** When you are done with your graphic, save the vgf file. **In the PG Palette choose saveas and save it in the local directory with the following naming convention: YYYYMMDD_dayX_hpc_brief.vgf**
6. **Email the graphic to yourself on your Windows screen or to whoever is logged into the ADMIN PC so it can be briefed in GoToMeeting.**

7. Prepare to give an oral briefing in the afternoon. Oral Briefing Guidance: Make sure to speak about the timing and movement of the weather system combined with the potential hazards during the time and region of interest in an aviation context. Make sure to hint at uncertainty with specific terms (possible is not a very useful term), potential diversion airports that may be open or close, deicing routines, plowing routines, visibility/ceiling concerns.
8. At 2:00PM CST: Dial into the telcon and login to the gotomeeting on the Windows screen or on the administrative PC.
 - a. <https://www1.gotomeeting.com/join/153479497>
 - b. Meeting ID: 153-479-497
 - c. 1-866-763-1213 Passcode: 524234#

Instructions for AWS issuance

1. If situation is warranted, prepare for a non-routine issuance of an Aviation Weather Statement. The aviation weather statement is made up of a graphic image and a text statement. The operational AWSs can be found here:
<http://testbed.aviationweather.gov/aws/index>
2. The second monitor (or the 24-bit VM monitor should be used) as PG Palette will not work on the 8-bit version. Logon as awtnam and begin. You may load any products you wish or personal spfs.
3. It is encouraged to collaborate with the FA desks and FOs for potential impacts throughout the day, especially the C&V desk for flight rule issues. Open NWS chat live and login with your chat account. There is a special room for the experiment:
avn_wx_testbed
4. To begin to make the graphic do that following: Open Prod-> NAM-> NAM.lpf
5. Open the PG-Palette and use any drawing tools you see fit.
6. **Save the graphic using the saves button on the Palette in the following format to the "local" directory: YYYYMMDD_HHMMZ_aws.vgf**
7. You may issue as many AWS products as needed throughout the day.
8. Fill out the survey, especially for any experimental products used.

http://testbed.aviationweather.gov/page/public?name=2013_Winter_Experiment

Select any link from the Evaluation Forms for products you wish to comment on.

(password: wwe2013)

Appendix A. SIERRA Experimental SPF Loop List

SIERRA_AWT_WE13

New products blended with some legacy products.

- 1) 2-km Visible Sat with flight rule station plots
- 2) 2-km IR Sat with flight rule station plots
- 3) Radar (RALA) with flight rule station plots with weather type
- 4) GOES-R Probability of IFR with flight rule station plots
- 5) NCVA with flight rule station plot
- 6) NAM boundary layer RH/winds with TAF All AFC
- 7) RAP boundary layer RH/winds with TAF All AFC
- 8) NAM 950mb RH
- 9) RAP 950mb RH
- 10) Unused
- 11) LAMP IFR
- 12) AFWA Probability of flight rules
- 13) SREF 16km Probability of flight rules
- 14) SREF 40km Probability of Mountain Obscuration
- 15) NAM 875mb RH
- 16) NAM 3-h Precip + SREF 40km Spaghetti Plots of Precip >.10in

SIERRA_EXP_AWT_WE13

*Only experimental products.

- 1) GOES-R Probability of IFR with flight rule station plots
- 2) Radar (RALA) with flight rule station plots with weather type
- 3) NCVA with flight rule station plot
- 4) AFWA Probability of flight rules
- 5) SREF 16km Probability of flight rules
- 6) LAMP IFR
- 7) SREF 40km Probability of Mountain Obscuration
- 8) Nam 3-h Precip + SREF 40km Spaghetti Plots of Precip >.10in
- 9) LAMP Ceiling
- 10) LAMP Visibility

- 11) Unused
- 12) Unused
- 13) AFWA Probability of Cloud Cover >80%
- 14) AFWA Probability of Ceiling <1000ft
- 15) AFWA Probability of Ceiling <3mi
- 16) Unused

SIERRA_EXP_HIRES_AWT_WE13

High resolution products.

- 1) AFWA Probability of Cloud Cover >80%
- 2) AFWA Probability of Ceiling <1000ft
- 3) AFWA Probability of Visibility <3mi
- 4) AFWA Probability of Flight Rule
- 5) NSSL 4-km WRF Ceiling
- 6) NSSL 4-km WRF Visibility
- 7) NAM-Nest Visibility
- 8) Hires ARW Visibility
- 9) Hires NMM Visibility
- 10) SREF 16-km Probability of Ceiling <1000ft
- 11) SREF 16-km Probability of Visibility <3mi
- 12) SREF 16-km Probability of Flight Rule
- 13) SPC WRF ceiling
- 14) SPC WRF visibility
- 15) Unused
- 16) Unused

Appendix B. TANGO Experimental SPF Loop List

TANGO_AWT_WE13

New products and some legacy products.

- 1) 2-km Water Vapor/EDR/MOG Pireps above FL180
- 2) GOES-R Trop Fold/EDR/MOG Pireps above FL180
- 3) 2-km Water Vapor/EDR/MOG Pireps below FL180
- 4) 2-km Water Vapor/EDR/MSOG Pireps
- 5) NAM TKE
- 6) NAM Ellrod
- 7) GTG Composite with RAP Ellrod
- 8) GTG Composite with RAP TKE
- 9) Global GTG with NAM Ellrod
- 10) Unused
- 11) GTG Bases
- 12) GTG Tops
- 13) SREF 3-h Thunder Probability
- 14) NAM Low-level aviation
- 15) AFWA 000-050 Probability of Turbulence
- 16) AFWA Probability Low-level wind shear

TANGO_EXP_AWT_WE13

New products only.

- 1) GOES-R Trop Fold/EDR/MOG Pireps above FL180
- 2) 2-km Water Vapor/EDR/MOG Pireps below FL180
- 3) GOES-R Trop Fold/EDR/MSOG Pireps
- 4) GTG Composite
- 5) GTG above FL180
- 6) GTG base
- 7) GTG top
- 8) Global GTG with NAM Ellrod
- 9) SREF 40-km TKE <500mb ~FL180
- 10) SREF 40-km TKE >500mb ~FL180

- 11) SREF Base <500mb
- 12) SREF Top >500mb
- 13) AFWA 000-050FL Probability of Turbulence
- 14) AFWA 050-100FL Probability of Turbulence
- 15) AFWA 100-150FL Probability of Turbulence
- 16) AFWA Probability Low-level wind shear

Appendix C. ZULU Experimental SPF Loop List

ZULU_AWT_WE13

New and legacy products.

- 1) 2-km IR/MOG Pireps
- 2) GOES-R Icing/MOG Pireps
- 3) Radar (RALA)/MOG Pireps
- 4) NAM RAP Icing <10kft
- 5) NAM RAP Icing 10-18kft
- 6) NAM Icing Layers with Omega
- 7) RAP RAP Icing <10kft
- 8) RAP RAP icing 10-18kft
- 9) RAP Icing Layers with Omega
- 10) Unused
- 11) SREF 3-h Thunder Probability
- 12) FIP <10kft out to 18-h
- 13) FIP 10-18kft out to 18-h
- 14) FIP top out to 18-h
- 15) FIP bottom out to 18-h
- 16) GFIP (mid-level)

ZULU_EXP_AWT_WE13

New products only.

- 1) GOES-R Icing/MOG Pireps
- 2) 2-km IR/MOG Pireps
- 3) FIP <10kft

- 4) FIP 10-18kft
- 5) FIP >18kft
- 6) FIP Base
- 7) FIP Top
- 8) GFIP 10-18kft
- 9) GFIP 18-24kft
- 10) SREF Probability of Icing (Mixing Ratio Method)
- 11) SREF Icing Base (Mixing Ratio Method)
- 12) SREF Icing Top (Mixing Ratio Method)
- 13) SREF RAP Icing Composite
- 14) SREF RAP Icing Top
- 15) SREF RAP Icing Bottom
- 16) AFWA Severe Icing Product

ZULU_RAP_AWT_WE13

RAP Icing Variants Only- RAP RAP Icing variants are also available

- 1) NAM RAP Icing Low-level A (Subsidence Included)
- 2) NAM RAP Icing Low-level B (Temperature to -25C)
- 3) NAM RAP Icing Low-level AB (Combines A&B)
- 4) NAM RAP Icing Low-level Legacy
- 5) GFS RAP Icing Low-level A
- 6) GFS RAP Icing Low-level B
- 7) GFS RAP Icing Low-level AB
- 8) GFS RAP Icing Legacy
- 9) NAM RAP Icing Mid-level A
- 10) NAM RAP Icing Mid-level B
- 11) NAM RAP Icing Mid-level AB
- 12) NAM RAP Icing Mid-level Legacy
- 13) GFS RAP Icing Mid-level A
- 14) GFS RAP Icing Mid-level B
- 15) GFS RAP Icing Mid-level AB
- 16) GFS RAP Icing Mid-level Legacy

Appendix D. GGNorth Mid-level Experimental SPF Loop

List

GFS legacy and GEFS experimental products

Midlvl_AWT_WE13

- 1) GFS Jetstream Plots
- 2) GFS Tropopause Plots
- 3) GFS Turbulence Plots (Ellrod/Ellrod Knox)
- 4) GFS/ECMWF Convective Tools (LI, Kindex, etc.)
- 5) GFS RAP Icing Guidance
- 6) nps-45w-ir12km - centered on NAT
- 7) Unused
- 8) Unused
- 9) GEFS Jetstream Plots
- 10) GEFS Tropopause Plots
- 11) Global GTG
- 12) GEFS total precipitation field
- 13) Global FIP/GEF experimental icing
- 14) GOES-R Synthetic Satellite IR w/ ICE curve
- 15) Unused
- 16) Unused

Appendix E. NAM Experimental SPF Loop List

GFS legacy and GEFS experimental products

NAM_HPC_AWT_WE13

Set the domain and projection for all loops from HPC for coordination using MAP tool

- 1) SREF Probability Precip Type Snow and Mean Precipitation
- 2) SREF Probability Precip Type Rain and Mean Precipitation
- 3) SREF Probability Precip Type Freezing Rain and Mean Precipitation
- 4) SREF Probability Rain Changing to Freezing Rain (Important for Plane Deicing)
- 5) SREF Mean 850mb Wind
- 6) SREF Probability of LLWS >30kts
- 7) SREF Mean 250mb Wind
- 8) SREF Probability of TKE >500mb
- 9) SREF Probability of TKE <500mb
- 10) SREF Probability of Icing (Mixing Ratio Method)
- 11) Global GTG
- 12) GEFS total precipitation field
- 13) Global FIP Mid-level
- 14) Unused
- 15) Unused
- 16) Unused