

Experimental Fire Weather Point Forecast Matrix (PFW) Product Description Document (PDD)

Part I – Mission Connection

a. Product Description – Land management agencies in Georgia and North Carolina have expressed a need for easily accessible tabular forecast data that is tailored toward fire behavior applications. A fire weather version of the Point Forecast Matrix (PFM) table fits this need well because it allows agency specialists to quickly run simple fire behavior models for planning purposes. The experimental product will be called the Fire Weather Point Forecast Matrix (PFW) and will be generated routinely for the National Fire Danger Rating System (NFDRS) sites or other areas as determined by the users. This additional data will help land management agencies to ensure the safety of fire crews as well as better plan prescribed burns and other projects in a cost and resource effective manner. Also, land managers have expressed a need for better tools to predict and manage smoke dispersion. They have also requested that the NWS include an Atmospheric Dispersion Index (ADI) and Low Visibility Occurrence Risk Index (LVORI) in the PFW product.

WFO Fire Weather PFW's are generated for the Remote Automated Weather Station (RAWS)/NFDRS sites using an edited version of the standard PFM formatter. This formatter produces needed fire weather parameters from the local WFO's Digital Forecast Database (DFD). Although experimental PFW's have been well-received by local WFO customers, there has been no attempt to standardize either the product or a web-based delivery method. Experimental PFW's could be generated for any grid point in a DFD based upon user request. The web delivery of the product for fire weather customers will include a disclaimer at the top of the page stating *"This experimental product is for planning and review purposes only and is not to be substituted for an official fire weather spot forecast. The data displayed are calculated from a 5.0 by 5.0 km digital database and only approximates weather conditions in highly varying terrain. Please relay any comments you have to your local NWS office.*

An example of the experimental PFW can be seen at:

<http://www.srh.noaa.gov/productview.php?pil=GSPPFWGSP>.

The experimental PFW can also include the ADI/LAVORI indices or any other locally defined index.

b. Product Type: experimental

c. Purpose – Based on recent fire agency request, WFO Greenville-Spartanburg will generate PFW's for 19 NFDRS sites within their forecast area and post the product on the GSP website.

d. Audience – For fire weather, all land management and fire agencies in Georgia, North Carolina and South Carolina from the local to the state and federal level.

e. Presentation Format – The experimental PFW’s will be available to customers from standardized web pages. The experimental PFW’s will have a standardized basic format, but may include extra local parameters based on customer need.

f. Feedback Method – Experimental PFW’s will be formally tested with customers from April 1, 2008 to October 1, 2008. The MIC at WFO GSP will gather customer comments during this period to determine the success of the experimental products.

National Weather Service
 Weather Forecast Office, NOAA
 Greenville-Spartanburg Airport
 1549 GSP Drive
 Greer, South Carolina 29651

Attention: Larry Gabric, Meteorologist in Charge
 (864) 848-9970

ERH MSD will determine if the experimental PFW should be tested nationally.

G. Example:

FOUS54 KGSP 032003
 PFWGSP

FIRE WEATHER POINT FORECAST MATRICES
 NATIONAL WEATHER SERVICE GREENVILLE-SPARTANBURG SC
 303 PM EST MON MAR 3 2008

GAZ017-040915-
 CHATTOOGA #1-HABERSHAM GA-ELEV 1500 FT
 36.64N 83.52W
 303 PM EST MON MAR 3 2008

DATE	TUE 03/04/08											WED 03/05/08											THU
UTC 3HRLY	20	23	02	05	08	11	14	17	20	23	02	05	08	11	14	17	20	23	02	05	08	11	
EST 3HRLY	15	18	21	00	03	06	09	12	15	18	21	00	03	06	09	12	15	18	21	00	03	06	
MIN/MAX						52					60											33	
TEMP	66	62	58	55	53	52	56	59	60	53	47	43	40	38	49	58	61	53	45	40	36	34	
DEWPT	46	46	47	48	50	52	53	53	50	45	41	38	35	32	30	30	31	31	31	30	30	32	
MAX/MIN RH						97					67			84								92	
RH	49	56	68	75	89	97	89	80	70	73	81	84	82	78	49	34	32	43	58	68	80	92	
WIND DIR	S	S	SE	SE	SE	SE	SE	SE	S	SW	W	W	W	W	W	W	W	W	W	NW	NW	N	
WIND DIR DEG	16	16	15	14	14	15	15	15	17	23	25	27	28	29	29	29	29	29	29	30	32	00	
WIND SPD	13	10	9	8	8	9	11	13	14	14	14	14	12	10	10	10	8	5	5	5	3	3	
CLOUDS	B1	B2	B2	B2	B2	OV	OV	OV	OV	B2	B2	B1	SC	SC	SC	FW	FW	FW	FW	FW	FW	SC	
CLOUDS(%)	59	74	79	80	85	95	97	100	93	79	71	58	49	35	27	16	13	10	14	21	24	29	
POP 12HR						70					100			100					5			5	
QPF 12HR						0.12					0.80			0.13					0			0	
RAIN SHWRS						L	L	D	D	D	D	S	S										
TSTMS								S	S	C	C												
LAL				1		1			2		3		1	1		1		1					
HAINES				3		3		3		3		2	2	4									
DSI											1											2	
MIX HGT				500		400		1200		2700		3600		3700		3800		4200		2400			
T WIND DIR				S		S		S		S		SW		W		NW		W		W			
T WIND SPD				36		43		47		49		39		36		31		20		16			

DATE	03/06/08			FRI 03/07/08			SAT 03/08/08			SUN 03/09/08			MON 03/10/08					
UTC 6HRLY	17	23	05	11	17	23	05	11	17	23	05	11	17	23	05	11	17	23
EST 6HRLY	12	18	00	06	12	18	00	06	12	18	00	06	12	18	00	06	12	18

MAX/MIN	62	37	57	32	49	28	56	32	57
TEMP	57 54 42	37 53 49 37	32 46 43 32	28 52 49 38	32 53 51				
DEWPT	34 33 35	34 30 29 26	26 24 21 23	24 24 24 27	29 31 32				
MIN/MAX RH	36	89	36	78	35	85	29	86	40
RH	41 45 75	88 41 45 64	78 41 41 68	85 33 37 65	86 43 49				
WIND DIR	S SW NW	NW N N NW	NW NW NW NW	N W SW W	W W W				
WIND SPD	5 5 5	5 9 5 3	3 8 10 6	5 4 4 5	4 8 6				
AVG CLOUDS	SC B1 B2	B1 B1 B1 B1	B1 B1 SC FW	FW FW FW SC	SC SC FW				
POP 12HR	10	20	30	30	20	10	10	10	10
RAIN SHWRS		S S S C S	S S						
SNOWSHWRS			S						

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BELOW IS A WEATHER ELEMENT KEY FOR THIS PRODUCT.
(NOTE...WINDS DO NOT REFLECT LOCAL TERRAIN EFFECTS.)

DAY 1 THROUGH 3...

MAX/MIN TEMP OR MIN/MAX TEMP(F).....MAXIMUM/MINIMUM AIR TEMPERATURE
TEMP(F).....AIR TEMPERATURE
DEWPT(F).....DEW POINT TEMPERATURE
MIN/MAX RH OR MAX/MIN RH(%).....MAXIMUM/MINIMUM HUMIDITY
RH(%).....RELATIVE HUMIDITY
WIND DIR(8 POINT COMPASS).....20 FT. WIND DIRECTION
WIND DIR DEG(DEGREES).....20 FT. WIND DIRECTION IN TENS OF DEGREES
RELATIVE TO DUE NORTH.

EXAMPLE: 09 = 90 DEGREES = EAST; 18 = 180 DEGREES = SOUTH;
27 = 270 DEGREES = WEST; 36 = 360 DEGREES = NORTH

WIND SPD(MPH).....20 FT. WIND SPEED
WIND GUST(MPH).....20 FT. WIND GUST
WIND CHILL.....WIND CHILL TEMPERATURE
HEAT INDX.....HEAT INDEX
CLOUDS(CAT).....CLOUD COVER CATEGORY
EXAMPLE: CL = CLEAR; FW = FEW; SC = SCATTERED;
B1 = MOSTLY CLOUDY; B2 = CONSIDERABLE CLOUDS; OV = OVERCAST
CLOUDS(%).....CLOUD COVER AS A PERCENTAGE
POP 12HR(%).....PROBABILITY FOR ACCUMULATING PRECIPITATION
QPF 12HR(IN).....LIQUID EQUIVALENT PRECIPITATION AMOUNT
WEATHER...

TYPE...
RAIN.....RAIN
RAIN SHWRS.....RAIN SHOWERS
TSTMS.....THUNDERSTORMS
DRIZZLE.....DRIZZLE
SNOW.....SNOW
SNOWSHWRS.....SNOW SHOWERS
SLEET.....SLEET
FLURRIES.....FLURRIES
FRZG RAIN.....FREEZING RAIN
FRZG DRZL.....FREEZING DRIZZLE

COVERAGE...
S.....SLIGHT CHANCE
C.....CHANCE
L.....LIKELY
O.....OCCASIONAL
D.....DEFINITE
AR.....AREAS
PA.....PATCHY

OBVIS.....OBSTRUCTION TO VISIBILITY
TYPE...
F.....FOG
PF.....PATCHY FOG
F+.....DENSE FOG
H.....HAZE
BS.....BLOWING SNOW
K.....SMOKE
BD.....BLOWING DUST
AF.....VOLCANIC ASHFALL

LAL(CAT).....LIGHTNING ACTIVITY LEVEL

HAINES(CAT).....HAINES INDEX
DSI (CAT).....DAVIS STABILITY INDEX
MIX HGT(FT AGL).....MIXING HEIGHT
T WIND DIR(8 POINT COMPASS).....TRANSPORT WIND DIRECTION
T WIND SPD(MPH).....TRANSPORT WIND SPEED
WATCH/WARNING/ADVISORY...
EXAMPLE: W = WARNING; Y = ADVISORY; A = WATCH
IN EFFECT FOR THE INDICATED HOUR

DAY 4 THROUGH 7...
MAX/MIN TEMP OR MIN/MAX TEMP(F)....MAXIMUM/MINIMUM AIR TEMPERATURE
TEMP(F).....AIR TEMPERATURE
DEWPT(F).....DEW POINT TEMPERATURE
RH(%).....RELATIVE HUMIDITY
WIND DIR.....20 FT. WIND DIRECTION
WIND SPD(MPH).....20 FT. WIND SPEED
AVG CLOUDS(CAT).....AVERAGE CLOUD COVER CATEGORY
POP 12HR(%).....PROBABILITY FOR ACCUMULATING PRECIPITATION
WEATHER...
SEE DAY 1 THROUGH 3 WEATHER DESCRIPTIONS

Part II. Technical Description

a. Format and Science Basis: The experimental PFW is produced by running a modified PFM formatter that uses the local digital forecast data base (DFD). The ADI and LVORI indices will be generated from local GFE smart tools and will be generated via the fire weather procedures in GFE. The PFW after generation will be transmitted through the GFE format launcher and then posted automatically on the WFO web page.

Product Availability: The PFW's will be generated twice a day in conjunction with the routine fire weather forecast. Workload for forecasters will be minimal in that the product will be almost completely automated utilizing fields already created in the local DFD.