

## **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 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 sample fire behavior models for planning purposes. The product is called the Fire Weather Point Forecast Matrix (PFW) and is 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). PFW's can 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 PFW 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 PFW can be seen at:

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

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

b. Product Type: Fire Weather Point Forecast Matrix

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 PFW's are available to customers from standardized web pages. The PFW's have a standardized basic format, but may include extra local parameters based on customer need.

F. 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										38					62					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					31					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					S					S																			
TSTMS											S										C					C																													
LAL	1										2										3					1					1					1																			
HAINES	3										3										2					2					4					4																			
DSI											1																				2																								
MIX HGT	500										400										1200					2700					3600					3700					3800					4200					2400				
T WIND DIR	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					20					10					10					10					10									
RAIN SHWRS						S					S					S					S					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 PFW is produced by running a modified PFM formatter that uses the local digital forecast data base (DFD). The ADI and LVORI indices are 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 is minimal in that the product is almost completely automated utilizing fields already created in the local DFD.