

# **FIRE WEATHER**



## **Florida Operating Plan**

# **Operating Plan for Fire Weather Services in Florida**

**November 2009**

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## I. Introduction and General Program Information

Despite ongoing land development, Florida remains composed of a large segment of forests and undeveloped land. Preserves, parks, refuges and other publicly and privately owned land is found throughout the state from the panhandle to the Florida Keys. Proper management of this land and its resources is vital to the economy of the state and the preservation of the health and ecological balance of the environment.

With a goal of protecting life, property and economic interests, land management agencies are concerned with the control of wildfire, as well as the use of fire as a management tool. Critical to this mission is access to timely and accurate weather information in decision making for wildfire prevention, fire control, prescribed burning, and smoke management. This operating plan will be reviewed annually and revised as needed.

This will be the governing document for fire weather procedures and cooperation among the following agencies:

National Weather Service	U.S. Forest Service
U.S. Fish and Wildlife Service	National Park Service
Department of Defense	Florida Division of Forestry
Florida Park Service	USDA Natural Resource Conservation Service
Bureau of Indian Affairs	

This Plan conforms to the Interagency Agreement for Meteorological Services, July 21, 2008.

### **The National Weather Service Fire Weather Program**

The objective of the National Weather Service fire weather services program is to provide fire weather products and services to the fire and land management community for the protection of life and property, promotion of firefighter safety, resource allocation, and stewardship of America's public lands.

Under the supervision of the meteorologist-in-charge at National Weather Service offices, forecasters are provided training in fire weather meteorology. Forecast support is provided 24 hours year round. A meteorologist at each National Weather Service office is designated fire weather program leader, responsible for inter-agency liaison and NWS contact concerning land management agency meteorological needs within each weather offices county area of responsibility. A designated program leader will maintain the Florida Fire Weather Operations Plan. The annual operating plan will be reviewed annually in concert with the land management agencies and revised as needed.

*See pages 10 through 17 for forecast office locations, telephone contact and facsimile numbers, internet addresses, and the names of meteorologists-in-charge, warning coordination meteorologists, and designated program leaders.*

## II. Service Area and Organizational Directory

### Forecast area

Fire weather forecasts are provided for the state of Florida through the year. Florida is partitioned into numerous forecast zones (see page 9). Seven national weather forecast offices provide local forecast support for designated zones, or specified land management entities within the state (pp 7-8). These offices are located at Miami, Key West, Melbourne, Ruskin (Tampa Bay), Jacksonville, Tallahassee, and Mobile, Alabama.

Most designated zones are counties. But some counties have two or more forecast zones to better forecast prevalent differences particularly between inland and coastal areas. Typically zones are grouped differently from day to day dependent upon ongoing or the timing of forecast weather. Site specific point forecasts are provided daily for at least one location in each of Florida's 67 counties. These forecasts are a component of the National Fire Danger Rating System (NFDRS) to compute fuel moisture and burning indices to assess wildland fire danger. *(for NFDRS forecast format see pages 30-33).*

NWS forecast offices at Jacksonville, Tallahassee, and Mobile also have additional forecast areas of responsibility for areas bordering Florida into Georgia, Alabama, and Mississippi.

The NWS Fire Weather Program Leaders (FWPLs) along with the Meteorologist-In-Charge (MIC) or other WFO management team member will identify fire weather users within the WFO area of fire weather responsibility. MICs should ensure an updated list of users and points of contact are included in the WFO station duty manual or other appropriate reference. WFO FWPLs, along with other designated staff, should lead the fire weather outreach and coordination efforts and thus are the "user service representatives" for the NWS fire weather program at the local level. These representatives must maintain regular contact with fire and land management agencies, helping them assess meteorological needs and informing them of NWS products and services available to meet their needs. Fire and land management personnel should be encouraged to visit the WFO to become familiar with all NWS office personnel and operations. Likewise, WFO staff should take advantage of opportunities to visit land management agencies and operational sites (prescribed burns, Remote Automated Weather Station (RAWS) platforms, etc.).

**National Weather Service county zone assignments for Florida fire weather forecasts . (see map page 9)**

Counties of NWS forecast office responsibility and corresponding zone number

**Mobile, AL**

inland Escambia 1  
coastal Escambia 2  
inland Santa Rosa 3  
coastal Santa Rosa 4  
inland Okaloosa 5  
coastal Okaloosa 6 (including Eglin AFB Okaloosa portion)

**Tallahassee**

inland Walton 7  
coastal Walton 8 (including Eglin AFB Walton portion)  
Holmes 9  
Washington 10  
Jackson 11  
Bay 12  
Calhoun 13  
Gulf 14  
Franklin 15  
Gadsden 16  
Leon 17  
Jefferson 18  
Madison 19  
Liberty 26  
Wakulla 27  
Taylor 28  
Lafayette 29  
Dixie 34 (including all of Apalachicola National Forest)

**Jacksonville**

Hamilton 20  
Suwannee 21  
Columbia 22  
Baker 23  
Nassau 24  
Duval 25  
Union 30  
Bradford 31  
Clay 32  
St Johns 33  
Gilchrist 35  
Alachua 36  
Putnam 37  
Flagler 38  
Marion 40  
(including all of Osceola and Ocala National Forests)

**Key West**

Monroe upper keys 76  
Monroe middle keys 77

Counties of NWS forecast office responsibility and corresponding zone number

**Melbourne**

interior Volusia	41
coastal Volusia	141
north Lake (except Ocala NF)	44
south Lake	144
Orange	45
Seminole	46
north Brevard	147
south Brevard	47
Osceola	53
Indian River	54
Okeechobee	58
St Lucie	59
Martin	64

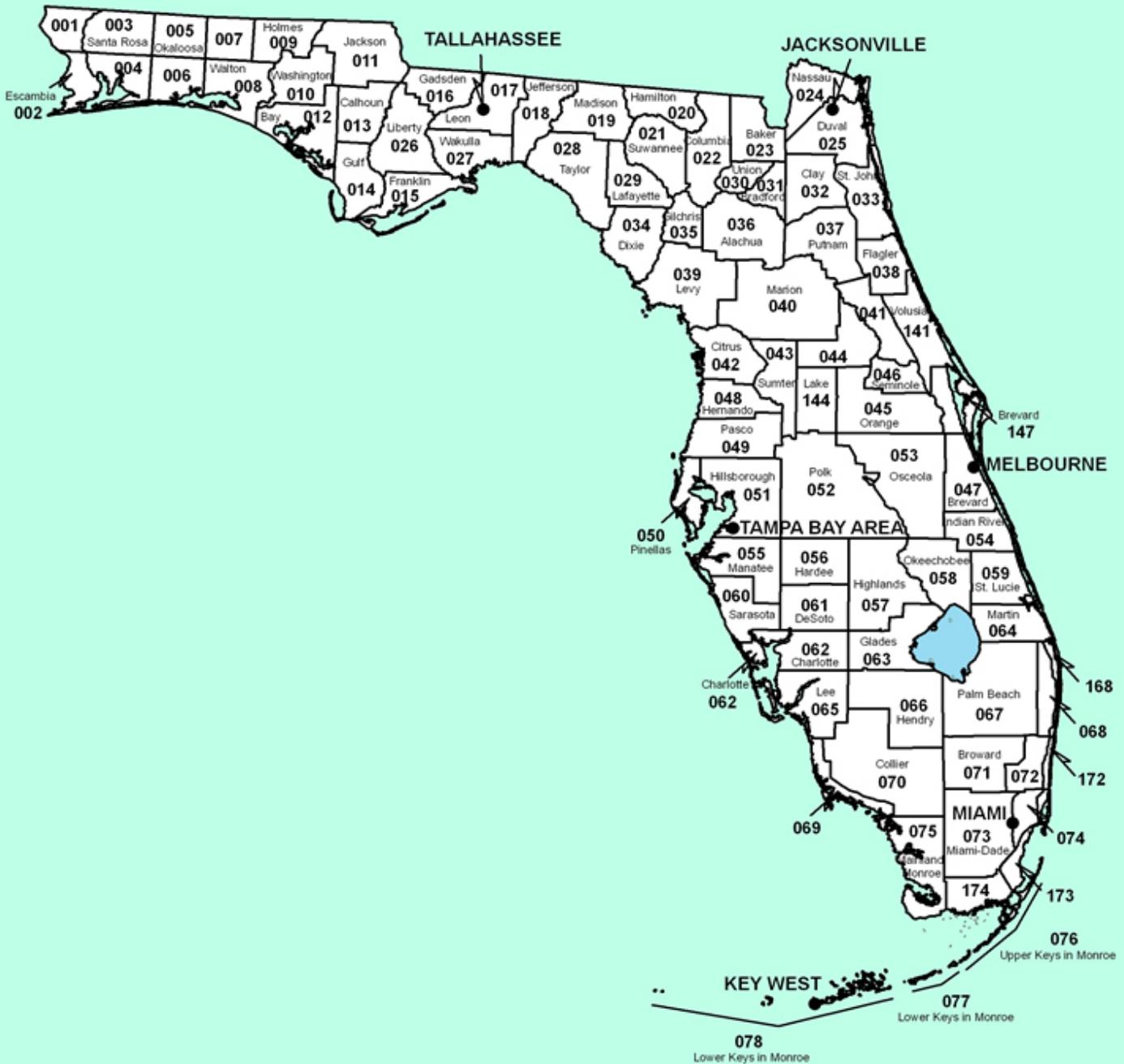
**Tampa Bay Ruskin**

Levy	39
Citrus	42
Sumter	43
Hernando	48
Pasco	49
Pinellas	50
Hillsborough	51
Polk	52
Manatee	55
Hardee	56
Highlands	57
Sarasota	60
Desoto	61
Charlotte	62
Lee	65

**Miami**

Glades	63
Hendry	66
inland Palm Beach	67
metro Palm Beach	68
coastal Collier	69
inland Collier	70
inland Broward	71
metro Broward	72
inland Miami Dade	73
metro Miami Dade	74
mainland Monroe	75
(including all of Everglades National Park and Big Cypress National Preserve)	
coastal Palm Beach	168
coastal Broward	172
coastal Miami Dade	173
far south Miami Dade	174

# FLORIDA PUBLIC FORECAST ZONE BOUNDARIES



## NATIONAL WEATHER SERVICE SOUTHERN REGION

- Weather Forecast Office
- County Boundary
- Forecast Zone Boundary

NOVEMBER 2008  
MIRS GIS GROUP

## **Southern Region Headquarters National Weather Service**

**Mailing Address: NWS - Southern Region  
Headquarters Fire Weather Program Leader**

**Paul Witsaman W/SR11x2 819  
Taylor Street Room 10A06 Fort  
Worth, TX 76102**

**Telephone Number: 817- 978-1100 X116 8AM - 4PM CST Mon-Fri (Except Federal  
Holidays) paul.witsaman@noaa.gov**

**Internet home page:**

[www.srh.noaa.gov/](http://www.srh.noaa.gov/)

### **Meteorologists:**

**Paul Witsaman Regional Fire Weather Program Leader**

## Mobile/Pensacola National Weather Service

**Mailing Address: National Weather Service 8400  
Airport Blvd. Bldg 11**

**Mobile, AL 36608**

**Telephone: 251-633-6443 8AM - 4PM CST Mon-Fri (Except Federal Holidays) 251-  
607-9773 Fax**

**Internet Page:**

[www.srh.noaa.gov/mob](http://www.srh.noaa.gov/mob)

### **Meteorologists:**

**Dave McShane Meteorologist In Charge**

**Don Faulkner Fire Weather Program Leader**

**Jeff Garmon Warning Coordination Meteorologist**

### **Counties of Responsibility:**

**Florida:** Escambia, Okaloosa, Santa Rosa, Eglin Air  
Force Base (Okaloosa)

**Alabama:** Baldwin, Butler, Choctaw, Clarke, Conecuh, Covington, Crenshaw, Escambia  
Mobile, Monroe, Washington, Wilcox

**Mississippi:** George, Greene, Perry, Stone, Wayne

# Tallahassee National Weather Service

**Mailing Address:**

National Weather Service Love Building  
Florida State University

Tallahassee, FL 32306-4509

Telephone: 850-942-8833  
24 Hour 850-942-8850 Fax

**Internet Page:**

[www.srh.noaa.gov/tlh](http://www.srh.noaa.gov/tlh)

**Meteorologists:**

Paul Duval Meteorologist in Charge  
Tim Barry Fire Weather Program Leader  
Bob Goree Warning Coordination Meteorologist

**Counties of Responsibility:**

**Florida:** Bay, Calhoun, Dixie, Franklin, Gadsen, Gulf, Holmes, Jackson, Jefferson, Lafayette, Leon, Liberty, Madison, Taylor, Wakulla, Walton, Washington, All Apalachicola National Forest, Eglin AFB (Walton).

**Georgia:** Baker, Ben Hill, Berrien, Brooks, Calhoun, Clay, Colquitt, Cook, Decatur, Dougherty, Early, Grady, Irwin, Lanier, Lee, Lowndes, Miller, Mitchell, Quitman, Randolph, Seminole, Terrell, Thomas, Tift, Turner, Worth

**Alabama:** Coffee, Dale, Geneva, Houston, Henry

# Jacksonville National Weather Service

## Mailing address:

National Weather Service  
13701 Fang Drive Jacksonville, FL 32218

## Telephone:

904-741-4370 8AM-4PM EST Mon-Fri (Except Federal Holidays) 904-  
741-0078 Fax

## Internet Page:

[www.srh.noaa.gov/jax](http://www.srh.noaa.gov/jax)

## Meteorologists:

Steve Letro	Meteorologist in Charge
Marie Trabert	Fire Weather Program Leader
Al Sandrik	Warning Coordination Meteorologist

## Counties of Responsibility:

**Florida:** Alachua, Columbia, Hamilton, St Johns, Baker, Duval, Marion, Suwannee, Bradford, Flagler, Nassau, Union, Clay, Gilchrist, Putnam, Osceola and Ocala National Forests

**Georgia:** Appling, Camden, Echols, Ware, Atkinson, Charlton, Glynn, Wayne, Bacon, Clinch, Jeff Davis, Brantley, Coffee, Pierce, Okefenokee National Wildlife Refuge

# Tampa Bay Area - Ruskin National Weather Service

## Mailing Address:

National Weather Service  
2525 14th Avenue SE Ruskin, FL 33570

## Telephone:

813-645-2323 8AM-4PM EST Mon-Fri (Except Federal Holidays) 813-  
641-2619 Fax

## Internet Page:

[www.srh.noaa.gov/tbw](http://www.srh.noaa.gov/tbw)

## Meteorologists

Brian Lamarre	Meteorologist In Charge
Rick Davis	Fire Weather Program Leader (Incident Meteorologist)
Dan Noah	Warning Coordination Meteorologist
Todd Barron	(IMET Trainee)

## Counties of Responsibility:

**Florida:** Charlotte, Citrus, Desoto, Hardee, Hernando, Highlands, Hillsborough, Lee, Levy, Manatee, Pasco, Pinellas, Polk, Sarasota, Sumter

# Melbourne National Weather Service

## Mailing Address:

National Weather Service  
421 Croton Rd. Melbourne, FL 32935

## Telephone:

321-255-0212 8AM-4PM EST MON-FRI (Except Federal Holidays) 321-  
255-0791 Fax

Internet: [www.srh.noaa.gov/mlb](http://www.srh.noaa.gov/mlb)

## Meteorologists

Bart Hagemeyer	Meteorologist In Charge
John Pendergrast	Fire Weather Program Leader (Incident Meteorologist)
Scott Spratt	Warning Coordination Meteorologist
Tim Sedlock	IMET trainee

## Counties of Responsibility:

**Florida:** Lake (Outside Ocala NF), Volusia, Seminole, Orange, Brevard, Osceola,  
Indian River, Saint Lucie, Martin, Okeechobee

# Miami National Weather Service

## Mailing Address:

National Weather Service  
11691 SW 17th street  
Miami, FL 33165-2149

## Telephone numbers:

305-229-4525 24 hour access  
305-229-4553 facsimile

## Internet Page:

[www.srh.noaa.gov/mfl](http://www.srh.noaa.gov/mfl)

## Meteorologists

Rusty Pfost	Meteorologist In Charge
Joel Rothfuss	Fire Weather Program Leader (Incident Meteorologist)
Rob Molleda	Warning Coordination Meteorologist

## Counties of Responsibility:

**FLORIDA:** Broward, Collier, Miami Dade, Glades, Hendry, Monroe (Mainland), Palm Beach, Everglades National Park, Big Cypress National Preserve

# Key West National Weather Service

**Mailing address:**

National Weather Service  
1315 White Street

Key West, FL 33040

**Telephone numbers:**

305-295-1316 24 hour 305-  
293-9987 facsimile

**Internet home page:**

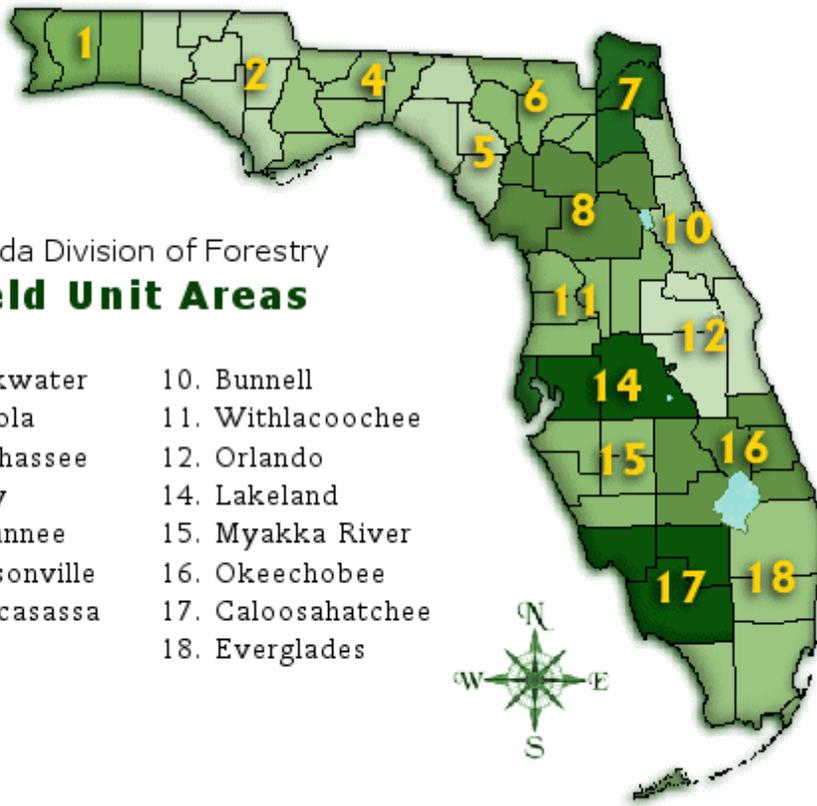
[www.srh.noaa.gov/eyw](http://www.srh.noaa.gov/eyw)

**Meteorologists:**

Matt Strahan	Meteorologist In Charge
Jon Rizzo	Warning Coordination Meteorologist
Alan Albanese	Fire Weather Program Leader

**Counties of Responsibility:**

FLORIDA: Monroe Keys



[http://www.fl-dof.com/field\\_operations/index.html](http://www.fl-dof.com/field_operations/index.html)

1- <u>Blackwater</u>	850/ 957-6140
2- <u>Chipola</u>	850/ 872-4175
4- <u>Tallahassee</u>	850/ 488-1871
5- <u>Perry</u>	850/ 838-2299
6- <u>Suwannee</u>	386/ 758-5700
7- <u>Jacksonville</u>	904/ 266-5001
8- <u>Waccasassa</u>	352/ 955-2005
10- <u>Bunnell</u>	386/ 446-6785
11- <u>Withlacoochee</u>	352/ 754-6777
12- <u>Orlando</u>	407/ 856-6512
14- <u>Lakeland</u>	863/ 648-3163
15- <u>Myakka River</u>	941/ 751-7627
16- <u>Okeechobee</u>	863/ 462-5160
17- <u>Caloosahatchee</u>	239/ 690-3500
18- <u>Everglades</u>	954/ 475-4120

### **III. Services Provided by the National Weather Service**

#### **Florida seasonal fire weather concerns:**

The primary fire weather season for Florida prevails during January through May when fuel moistures are lowest, Winter frosts kill herbaceous fuels, and gusty winds with lower relative humidity often occur. However critical fire conditions can occur throughout the year, most notably during lengthy periods without rain.

Lightning during the spring is also a wildfire ignition problem when fuel and soil moistures are low. Seasonally high dispersion values are present on many spring afternoons due to higher sun angles and wind across dry fuels.

Summer into early autumn is normally a lower wildfire threat period as fuel moistures are high during and immediately following the Summer "rainy" season.

#### **Routine fire weather forecasts**

The objective of the National Weather Service fire weather services program is to provide fire weather products and services to the fire and land management community for the protection of life and property, promotion of firefighter safety, and stewardship of America's public wildlands.

Florida National Weather Service forecast offices will issue a core suite of fire products consisting of the following for their fire weather service area.

- A. Fire weather forecasts (fire weather zones)
- B. Dispersion Index Update (SMF)
- C. National Fire Danger Rating System forecasts (NFDRS) (FWM)
- D. Spot Forecasts (FWS)
- E. Fire Weather Watches (RFW)
- F. Red Flag Warnings (RFW)

The National Weather Service Fire Weather Forecasts are a zone-type product providing meteorological information used by land management personnel primarily for input in decision-making related to managing resources, pre-suppression operations, smoke management and other planning. The decisions impact firefighter safety, protection of the public and property, and resource allocation.

Zone forecasts provide for an average of expected 36 to 48 hour weather conditions throughout the zone. Zones are typically grouped based upon similarity of weather, with day to day grouping variations dependent upon ongoing weather or the timing of forecast weather. During daylight hours, forecasted elements should reflect conditions expected for periods of highest fire ignition potential, typically during the mid to late afternoon hours.

The National Fire Danger Rating System (NFDRS) measures wildland fire danger at observation sites throughout the contiguous United States. The National Weather Service role in NFDRS is forecasting weather input which, combined with user input, allows the NFDRS software to predict the next day's fire danger indices. These indices impact agency resource management decisions, firefighter safety, and protection of the public and property.

The site specific (Spot Forecasts) are issued by National Weather Service offices in support of wildfire suppression and natural resource management. These forecasts aid the land management and fire control agencies in protecting life and property during wildland fires, hazardous fuels reduction, and rehabilitation and restoration of natural resources. Spot forecasts may also be issued for hazardous materials incidents and other threats to public safety. See page 35 for specific instructions on spot forecasts.

Florida National Weather Service forecast offices will issue Fire Weather Watches/Red Flag Warnings when weather conditions support extreme fire danger. These conditions alert land management agencies to the potential for widespread new ignitions or control problems with existing fires, both of which could pose a threat to life and property.

### **Forecast issuances**

Forecasts are issued daily throughout the year.

- The early morning Fire Weather Forecast (FWF) is the 36 hour (today/tonight/tomorrow) tabular planning forecast for forecast zones with a headline, weather synopsis, and five to seven day extended forecast outlook. Scheduled issuance is no later than 0730 am Eastern time (0630 am Central).
- The Dispersion Index Forecast (SMF) is the 12 hour (Tonight) Tabular Dispersion Index Smoke Management index update for the forecast zones. Scheduled issuance no later than 12 noon Eastern and Central Local time.
- The mid afternoon Fire Weather Forecast is a 48 hour (tonight/tomorrow/tomorrow night/following day) tabular planning forecast for forecast zones with a headline, weather synopsis, and five to seven day extended forecast outlook. Scheduled issuance is no later than 1545 pm Eastern time (1445 pm Central).
- The National Fire Danger Ratings System (NFDRS) forecast (FWM) is a 24 hour site specific digital forecast for numerous locations around the state (see appendix for locations) Scheduled issuance is no later than 1600 pm Eastern time (1500 pm Central).
- The unscheduled site specific (Spot Forecast) (FWS) is a user requested incremental tabular forecast with a headline and weather discussion followed by a 12 and 24 hour narrative outlook. Spot Forecasts are non routine and issuance times will vary according to user requests.

The Fire Weather Watch/ Red Flag Warning product (RFW) will be issued when weather conditions support extreme fire danger while informing users of the status of any ongoing Fire Weather Watches or Red Flag Warnings for a specific zone. This product will be issued when necessary and define the affected zones or portions of a zone and include a headline and short weather synopsis.

### **Forecast updates**

The RFW and Fire Weather Forecasts (FWF) will be updated when a Fire Weather Watch or Red Flag Warning is issued/cancelled or errors occur within the product text.

**Forecast dissemination****Federal agencies:**

Scheduled forecasts are distributed to federal land management agencies through the Internet and/or the Weather Information Management System (WIMS), with agency logon and password at:

<http://fam.nwcg.gov/fam-web/wims/jsp/wims.htm>

**For all other agencies**

Forecast distribution is via the Internet. One such Internet address is through the Florida DOF at:

[http://www.fl-dof.com/fire\\_weather/forecasts.html](http://www.fl-dof.com/fire_weather/forecasts.html)

A user agency alternate internet site for forecast access is available at address:

<http://weather.gov/fire>

**Forecast distribution backup****Federal users:**

If WIMS and or Internet is down or inoperative, call your local NWS forecast office and have them fax a transmission of the fire weather forecast. Federal users can also contact the internet address of each NWS homepage for local fire weather forecasts. See pages 11 through 17 for web site addresses.

## A. Fire Weather Forecast (FWF)

This is a tabular planning forecast for 15 different weather parameters and narrative extending outlook. A forecast is made for all National Weather Service zones.

The schedule issuance for availability to the users for the morning forecast is no later than 730 am eastern local time (0630 am central) and for the afternoon forecast is no later than 330 pm eastern local time (0230 pm central). These forecasts are issued daily throughout the year.

The morning forecast is for three 12 hour periods (today, tonight, and tomorrow), beginning 6 am local time on day of forecast preparation. Forecast periods are defined as:

Today: 6am to 6 pm  
Tonight: 6 pm to 6 am  
Tomorrow 6 am to 6 pm

The afternoon forecast is for four 12 hour periods (tonight, tomorrow, tomorrow night, and the following day), beginning 6 pm local time on day of forecast preparation. Forecast periods are defined as:

Tonight: 6 pm to 6 am  
Tomorrow 6 am to 6 pm  
Tomorrow night 6 pm to 6 am  
The following day 6 am to 6 pm

**.The headline** an overview headline, before the synopsis, is required when red flag warnings and/or fire weather watches are in effect. The headline(s) will include the warning type, location, brief reason for issuance, and effective time period. A blank line will separate such headlines from the body of the synopsis. Also, headlines will be included above in each appropriate zone grouping.

### **.The weather discussion**

This synopsis is a brief plain language narrative of the weather pattern as it pertains to Florida with special emphasis on the first period forecast through 48 hours. Weather elements which can not be adequately addressed in the tabular format can be discussed within the synopsis. Such elements may include the passage of cold fronts, tropical disturbances, the onset of sea breezes, likelihood for freezes or frosts, and thunderstorm wind gusts, etc.

### **.Forecast zone numbers/counties names:**

Each of the forecast zones may be grouped together, or have a separate forecast. Forecasts zone numbers will be followed by a county name that corresponds to that particular zone number. A brief fire weather watch/red flag warning headline will precede each affected zone grouping.

### **. Extended forecast**

Public text forecast for general weather conditions for days 5 or up to 7 days will be appended to each zone grouping...with wind forecast for each day.

**Forecast parameters:**

Each of the 15 forecast weather parameters will be defined by element wording down the left margin of each zone grouping. Use the descriptor that would best describe the 12 hour period. Weather parameters are defined as follows:

**Cloud cover:** (value descriptions may be abbreviated)

Clear, mostly cloudy, mostly clear, cloudy, partly cloudy

**Weather type:** (value descriptions may be abbreviated)

None, freezing rain, fog, drizzle, rain, snow/rain showers, snow, thunderstorms

**Definitions of weather type...**

**Fog** - large mass of water vapor condensed to fine particles, at or near the ground, obscuring visibility.

**Drizzle** - mist-very small water droplets that appear to float when falling.

**Rain** - steadily falling small to medium sized water droplets

**Shower** - medium to large water droplets that seem to begin or end abruptly. No thunder is heard.

**Thunderstorm** - heavy or violent downpour of large water drops accompanied with lightning and most often with gusty winds or possibly hail.

**Freezing rain** - liquid precipitation that freezes upon contact with ground surfaces or vegetation.

**Snow/rain** - rain changing to snow or snow changing to rain.

**Snow** -flakes of frozen crystalline precipitation.

**Chance of precipitation**

Chance of precipitation for the 12 hour period. The probability of measurable (0.01 inch or more) of water equivalent at any point in a particular zone having no relationship to the amount of precipitation to occur. With summertime shower and thunderstorm situations the value can be thought of as an expected areal coverage of precipitation across a zone grouping.

Chance of precipitation values

None use of 10 percent restricted to isolated events 10 percent through 100 percent

**Temperature (Maximum Minimum)**

The dry bulb (ambient air) temperature measured at a standard five feet above the ground in degrees fahrenheit. Daylight temperatures are measured in the shade.

Maximum temperature defined as the \*highest\* value expected within a forecast zone, usually occurring during the mid afternoon.

Minimum temperature defined as the \*average\* lowest value expected within a forecast zone, usually occurring just prior to sunrise.

Forecasted temperatures can vary 5 to 10 degrees within a zone due to localized vegetative cover, terrain, soil type, or proximity to lakes and coastal marine areas. Users are advised to adapt forecasts to local conditions.

Temperature less than zero is preceded by a minus sign.

**Relative Humidity (Maximum Minimum)**

Relative humidity is the ratio (percent) of the amount of moisture in the air compared to the amount of moisture the air could hold at saturation for a particular temperature. Usually the lowest humidity occurs near the time of the maximum temperature, and the highest humidity occurs near the time of the minimum temperature. Humidity values run from 0 to 100 percent.

**Wind speed and direction (AM and PM) (20 feet)**

The prevailing or average direction and speed from which the wind is blowing at the 20 feet level above the open ground or twenty feet above the vegetation surface. Wind speed is reported in miles an hour and is a one minute average. Direction will be restricted to **eight compass directions**. The exceptions are for variable or calm situations.. Variable means a changeable wind direction occurring most often within light wind situations 3 mph or less. Wind direction changes, such as frontal passages or for the onset of coastal sea breezes, can be discussed in the synopsis.

**Precipitation**

Amounts pertain to an average precipitation expected. But for showery situations, particularly during the summer months, local amounts can vary considerably.

None  
trace to 0.25 inch  
0.25 to 0.50  
0.50 to 1.00  
1.00 to 2.00 inches  
2.00 to 4.00 inches  
4.00 to 6.00 inches  
6.00 inches or more

### **Precipitation Duration**

Maximum duration in hours that precipitation is expected to occur within the twelve hour period.

Range of values from 0 to 12 (blank indicates no precipitation)

**1** means one second up to one hour duration

**2** means two hour duration etc.

### **Timing of Precipitation (local time)**

This parameter will indicate the period of time within which precipitation is expected to begin and end. These values will be in local time. Example: blank indicates no precipitation, continue, 1 am, 3 pm, etc.

### **Lightning Activity Level (LAL)**

Cloud and storm development code

1 - No Thunderstorms

2- Isolated Thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five minute period.

3 - Widely Scattered Thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.

4 - Scattered Thunderstorms. Moderate rain is commonly produced lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.

5- Numerous Thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.

6 - Dry Lightning (not used in Florida).

### **Mixing Height**

The height above the ground at which atmospheric stability is sufficient to inhibit vigorous vertical mixing of air (or air particulate i.e. smoke). This height can imply an inversion level. Forecast digit value is in feet above the ground. Value defines a maximum mixing height expected above the average ground surface (AGL) typically during the mid afternoon.

### **Transport Wind Direction and Speed**

The average wind direction through the mixing layer from the surface up to the mixing height. Directions are limited to the eight compass directions with the exceptions of variable or calm conditions (see **wind direction and speed 20 feet**)

Average of the wind speed within the mixing layer from the surface up to the mixing height. It generally refers to the rate at which smoke emissions will be horizontally transported from one area to another. (values are in miles an hour).

**Dispersion Index - DI**

An index computed from forecasted wind speed, mixing height, transport wind, cloud cover, and ceiling height used as a guide for atmospheric instability and smoke management. (ref see page 61)

	DOF	CONTACT NUMBER	FAX NUMBER
<b>Primary DOF I</b>			
NWS			
MOBILE	BLACKWATER	850-957-6140	850-957-6143
TALLAHASSEE	TALLAHASSEE	850-488-1871	850-922-2107
JACKSONVILLE	JACKSONVILLE	904-266-5001	904-266-5019
MELBOURNE	ORLANDO	407-856-6512	407-856-6514

**The Low Visibility Occurrence Risk Index - LVORI**

This index is a measure of the risk of low visibility occurring. The risk dramatically increases when RH is high and DI is low. This index is useful in qualitatively estimating the likelihood of a vehicle accident occurring under a given set of conditions. This index can be ascertained by using the predicted nighttime DI, maximum RH, wind and the LVORI table.

**Remarks**

Appropriate remarks to add value and mark significant or pertinent weather changes or information. Insert 'none' if none.

For example of the morning fire weather forecast **page 27**

For example of the afternoon fire weather forecast **page 28**

Example: Morning Fire Weather Forecast (FWF)

FNUS52 KMLB 060759  
FWFMLB

FIRE WEATHER PLANNING FORECAST FOR EAST CENTRAL FLORIDA  
NATIONAL WEATHER SERVICE OFFICE MELBOURNE FL  
359 AM EDT TUE OCT 6 2009

.DISCUSSION...WEAK HIGH PRESSURE WILL REMAIN OVER THE AREA THROUGH  
MID WEEK BEFORE A WEAK FRONTAL BOUNDARY SAGS DOWN THE PENINSULA.  
WINDS WILL BE RELATIVELY LIGHT...ALLOWING THE EAST COAST SEA BREEZE  
WILL DEVELOP EACH AFTERNOON.

NO LOW RH CONCERNS AS DEWPOINTS WILL REMAIN ELEVATED. WARM TEMPERATURES  
CONTINUE FOR THE NEXT SEVERAL DAYS. SCATTERED SHOWERS AND STORMS  
TODAY...THEN CHANCES GRADUALLY DECREASING TO ISOLATED BY LATE WEEK  
INTO THE WEEKEND.

FLZ041-044-144-062115-  
INLAND VOLUSIA-NORTHERN LAKE-SOUTHERN LAKE-  
INCLUDING THE CITIES OF...DE LAND...LEESBURG...CLERMONT  
359 AM EDT TUE OCT 6 2009

	TODAY	TONIGHT	WED
CLOUD COVER	PCLDY	PCLDY	PCLDY
CHANCE PRECIP (%)	40	20	20
PRECIP TYPE	TSTMS	TSTMS	TSTMS
TEMP	90	72	92
RH %	54	100	51
20FT WND MPH (AM)	LGT/VAR		LGT/VAR
20FT WND MPH (PM)	W 6	LGT/VAR	W 6
PRECIP DURATION	1	1	0
PRECIP BEGIN	8 AM	CONTINUING	2 PM
PRECIP END	CONTINUING	11 PM	CONTINUING
PRECIP AMOUNT	0.12	0.04	0.02
LAL	3	2	3
MIXING HGT (FT-AGL)	4800	300	4900
TRANSPORT WIND (MPH)	W 9	SW 8	W 10
DISPERSION INDEX	30	4	62
MAX LVORI		9	

REMARKS...NONE.

.FORECAST FOR DAYS 3 THROUGH 5...

.THURSDAY...PARTLY CLOUDY. A SLIGHT CHANCE OF SHOWERS AND  
THUNDERSTORMS. LOWS IN THE MID 70S. HIGHS IN THE LOWER 90S. NORTH  
WINDS AROUND 5 MPH.

.FRIDAY...PARTLY CLOUDY WITH A SLIGHT CHANCE OF SHOWERS AND  
THUNDERSTORMS. LOWS IN THE LOWER 70S. HIGHS IN THE LOWER 90S.  
SOUTHEAST WINDS AROUND 5 MPH.

.SATURDAY...PARTLY CLOUDY. A SLIGHT CHANCE OF SHOWERS AND  
THUNDERSTORMS. LOWS IN THE MID 70S. HIGHS AROUND 90. SOUTH WINDS  
AROUND 5 MPH.

\$\$

Example: Afternoon Fire Weather Forecast (FWF)

000  
 FNUS52 KTBW 061719  
 FWFTBW

FIRE WEATHER PLANNING FORECAST FOR WEST CENTRAL AND SOUTHWEST FLORIDA  
 NATIONAL WEATHER SERVICE TAMPA BAY AREA - RUSKIN FL  
 119 PM EDT TUE OCT 6 2009

.DISCUSSION...HIGH PRESSURE WILL CONTINUE OVER THE AREA FOR THE REST  
 OF THE WEEK AND INTO THE WEEKEND. LOW LEVEL MOISTURE WILL REMAIN HIGH  
 AS TEMPERATURES WARM TO NEAR RECORD LEVELS. THERE WILL ONLY BE AROUND  
 A SLIGHT CHANCE OF SHOWERS AND THUNDERSTORMS MAINLY ALONG SEA BREEZE  
 INTERACTIONS EACH AFTERNOON AND INTO THE EVENINGS.

FLZ039-070830-  
 LEVY-  
 119 PM EDT TUE OCT 6 2009

	TONIGHT	WED	WED NIGHT	THU
CLOUD COVER	PCLDY	PCLDY	PCLDY	PCLDY
CHANCE PRECIP (%)	20	30	20	20
WEATHER TYPE	TSTMS	TSTMS	TSTMS	TSTMS
TEMP	71	91	70	92
RH %	100	54	100	52
20FT WIND MPH(AM)		W 8		NE 4
20FT WIND MPH(PM)	W 3	W 8	W 3	NE 3
PRECIP DURATION	0	1	0	1
PRECIP BEGIN	8 PM	2 PM	CONTINUING	2 PM
PRECIP END	12 AM	CONTINUING	12 AM	8 PM
PRECIP AMOUNT	T-.25	T-.25	T-.25	T-.25
LAL	2	3	2	2
MIXING HGT(FT-AGL)	300	5000	300	5000
TRANSPORT WIND (MPH)	W 7	W 13	W 7	N 6
DISPERSION INDEX	8	77	6	42
MAX LVORI	9		9	

REMARKS...NONE.

.FORECAST FOR DAYS 3 THROUGH 5...

.FRIDAY...PARTLY CLOUDY WITH A 20 PERCENT CHANCE OF SHOWERS AND  
 THUNDERSTORMS. LOWS IN THE LOWER 70S. HIGHS IN THE LOWER 90S.  
 SOUTH WINDS 5 TO 10 MPH.

.SATURDAY...PARTLY CLOUDY WITH A 20 PERCENT CHANCE OF SHOWERS AND  
 THUNDERSTORMS. LOWS IN THE LOWER 70S. HIGHS IN THE UPPER 80S.  
 WEST WINDS AROUND 5 MPH.

.SUNDAY...PARTLY CLOUDY WITH A 30 PERCENT CHANCE OF SHOWERS AND  
 THUNDERSTORMS. LOWS IN THE LOWER 70S. HIGHS IN THE UPPER 80S.  
 SOUTH WINDS AROUND 5 MPH.

\$\$

## **B. Smoke Dispersion Index Forecast (SMF)**

A daily zone forecast update of the smoke dispersion index for smoke management  
For the tonight period only will be provided between 11am and noon local time.  
Forecast parameters are defined as follows:

**Cloud amount:** (value descriptions may be abbreviated)

Clear  
Mostly cloudy  
Mostly clear  
cloudy  
Partly cloudy  
fog

Use the terms that would best describe the overnight period.

### **Ceiling height**

The expected height above the ground level (agl) for cloud bases. Forecast values  
Are in feet. I.e. 200, 1500, 3000 etc. None indicates no ceiling. For a ceiling, 6/10th or more  
Of sky must be cloud covered.

### **Mixing height**

The height above the ground at which airmass stability is sufficient to inhibit  
Vigorous vertical mixing of air (or air particulate such as smoke). This height can  
Imply an inversion level. Forecast digit values are in feet above the ground  
And define a maximum mixing height expected that night.

Wind speed (20 foot)  
Wind speed in miles an hour (one minute average)

20 foot wind is defined as the average wind twenty feet above the open ground or  
Twenty feet above the vegetation surface. Use of calm restricted to no wind or wind  
Speed zero. Variable means a changeable wind direction occurring most often within  
Light wind situations.

### **Transport wind speed**

Average of the wind speed within the mixing layer from the surface up to the mixing  
Height. It generally refers to the rate at which smoke emissions will be  
Horizontally transported from one area to another. Values are in miles an hour.

### **Dispersion Index - DI** (ref see page 61)

An index computed from forecasted wind speed, mixing height, transport wind, cloud  
Cover, and ceiling height used as a guide for atmospheric instability and smoke  
management.

Dispersion FL DOF nighttime  
Index values descriptor:

Greater than 8 very good  
5-8 good  
3-4 poor to fair  
0-2 poor

### **The Low Visibility Occurrence Risk Index - LVORI**

This index is a measure of the risk of low visibility occurring. The risk dramatically  
Increases when RH is high and DI is low. This index is useful in qualitatively  
Estimating the likelihood of a vehicle accident occurring under a given set of  
Conditions. This index can be ascertained by using the predicted nighttime DI and  
Maximum RH, and the LVORI table.

**C. The National Fire Danger Rating System (NFDRS) (FWM)**

This forecast is a National Fire Danger Rating System (NFDRS) specific location point forecast. Forecasts are for 24 hours (1400 to 1400 LST). Deadline for these forecasts to be available (via WIMS) into the NFDRS system is 1600 LST. This forecast is utilized as weather input for computation of NFDRS fuel moisture, burning and fire rate of spread indices.

**Examples: NFDRS point forecast (FWM)**

~~~~~  
FNUS82 KMFL 302015 FWMMFL

FCST,086401,060501,13,1,86,36,1,1,NNE,06, ,86,56,100,36,0,0,N  
FCST,086402,060501,13,1,86,37,1,1,NNE,06, ,86,55,100,37,0,0,N  
FCST,086403,060501,13,1,85,39,1,1,N,06, ,85,57,100,39,0,0,N  
FCST,086404,060501,13,1,85,38,1,1,NNE,06, ,85,55,100,37,0,0,N  
FCST,086702,060501,13,1,84,41,1,1,NE,09, ,84,58,100,41,0,0,N  
FCST,086703,060501,13,1,83,40,1,1,NNE,06, ,83,60,93,40,0,0,N  
FCST,086704,060501,13,1,83,41,1,1,NE,08, ,83,62,90,41,0,0,N

FNUS82 KTAE 301851  
FWMTAE

FCST,082201,060501,14,2,79,36,2,1,E,05,M,79,54,87,36,0,0,N  
FCST,080802,060501,14,2,80,33,2,1,E,04,M,80,52,87,33,0,0,N  
FCST,082001,060501,14,2,79,41,2,1,ESE,05,M,79,55,80,40,0,0,N  
FCST,082002,060501,14,2,78,45,2,1,ESE,06,M,78,57,82,45,0,0,N

FNUS82 KJAX 301820  
FWMJAX

FCST,081301,060501,13,1,77,39,1,1,NNE,08,M,77,52,100,39,0,0,N  
FCST,081302,060501,13,1,76,36,1,1,NNE,08,M,76,51,100,36,0,0,N  
FCST,083501,060501,13,1,80,40,1,1,NE,11,M,80,57,96,40,0,0,N  
FCST,083502,060501,13,1,80,40,1,1,NE,10,M,80,56,97,40,0,0,N

Below are quick reference definitions of NFDRS parameters.

**A B C WX T RH AL TL DD FF F TX TN RX RN P1 P2 WF**  
Fcst,086702,030216,13, 2, 81, 66, 1, 3, s, 13, m, 83, 66, 98, 64, 0, 0, n

**A:** Station id  
**B:** Date for forecast tomorrow  
**C:** Local time to verify 2 pm tomorrow **wx:** state of weather 2 pm tomorrow  
**T:** Temperature 2 pm tomorrow **RH:** relative humidity 2 pm tomorrow **AL:** lightning activity level 2 pm to midnht tonight **TL:** lightning activity level midnht tonight to midnht tomorrow night **DD:** wind direction 20 foot 2 pm tomorrow **FF:** wind speed 20 foot 2 pm tomorrow

**F:** fuel stick (not forecast) **TX:** max temperature 24 hr 2 pm today to 2 pm tomorrow **TN:** min temperature 24 hr 2 pm today to 2 pm tomorrow **RX:** max humidity 24 hr 2 pm today to 2 pm tomorrow **RN:** min humidity 24 hr 2 pm today to 2 pm tomorrow **P1:** precipitation 1<sup>st</sup> period 2 pm today to 6 am tomorrow **P2:** precipitation 2<sup>nd</sup> period 6 am tomorrow to 2 pm tomorrow **WF:** wet flag (y/n) .10 inch 2 pm today to 2 pm tomorrow

**NFDRS digital point forecast**

- A:** station number - six digits
- Refers to federal observing sites
  - First 2 digits are state code (Florida--08)
  - Second 2 digits are USFS county id
  - Third 2 digits are site number
- B:** date - six digits (year, month, day)
- C:** valid time - two digits, 01 to 24
- valid time of forecast (LST)
  - normally this is 14 (1400). (WIMS valid tomorrows date)
- Wx:** State of weather - single digit, 0 to 9
- State of weather valid at 1400 tomorrow
  - Select from among the following codes:

Code state of weather **0** clear (less than 1/10 cloud cover) **1** scattered clouds (1/10 to 5/10) **2** broken clouds (6/10 to 9/10) **3** overcast (more than 9/10 clouds) **4** fog **5** drizzle **6** rain **7** snow or sleet **8** showers **9** thunderstorm

(use code 5-7 only if pop is 70 percent or higher)

**T:** Temperature - one to four digits (-100 to 136)  
- Temperature (F) at 1400 LST tomorrow

**RH:** Relative Humidity - one to three digits (1 to 100)  
- Relative Humidity (%) at 1400 LST tomorrow

**AL:** Today's lightning - one digit (1 to 5) for the period 1400 activity level today to 2400 tonight

**TL:** Tomorrow's lightning - one digit (1 to 5) for the 24 hr period activity level 2400 tonight until 2400 tomorrow night

### Lightning Activity Level

LAL cloud and storm development code

1 - No thunderstorms

2 - Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five minute period.

3 - Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.

4 - Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.

5 - Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.

6 - Dry lightning (Not used in Florida)

**DD:** wind direction - one to three alphabetic characters (N, NW, NNW, etc.)  
- wind direction at 1400 LST tomorrow

**FF:** wind speed - one or two digits (i to 99)  
 Forest canopy wind speed in mph, at 1400 tomorrow  
 Normally about 70 percent of the value used in the zone forecast

**F:** 10 hr t/l - 10-hour time lag fuel moisture index  
 Either one or two digits (1 to 99) or **m** (missing)  
 Normally coded as M (missing) since computation is made by WIMS computer for DSPW and DSPI products

**TX:** maximum temperature - one to four digits (t value up to 136)  
- 24 hr maximum temperature (f) for the period 1400 today to 1400 tomorrow  
(may not be less than 1400 t value)

**TN:** minimum temperature - one to four digits (-100 up to t value).  
- 24 hr minimum temperature (f) for the period 1400 today until 1400 tomorrow  
(may not exceed 1400 t value)

**RX:** max relative humidity - one to three digits (observed RH to 100)  
24 hr maximum relative humidity (%) for the period 1400 today to 1400 tomorrow

Reserve for rain areal coverage of 70 percent or higher

**P2:** precip duration - one or two digits in hours (00 to 08)

Duration of precipitation expected from 0600 until 1400 tomorrow.  
reserve for rain areal coverage of 70 percent or higher.

**WF:** wet flag - coded yes or no. If fuels expected to be wet at forecast valid time (1400) tomorrow, code as **y**. If fuels are dry, code as **n**. Reserve **y** for greater than 70 percent areal coverage of wetting rain in amounts greater than one tenth inch, otherwise **y** resets fire danger indices to zero.

#### **D. The Spot Weather Forecast (FWS)**

The National Weather Service will provide upon request, specialized site specific spot forecasts for wildfires, prescribed burns, particulate dispersal or aerial spray projects, hazardous materials incidents and other treats to public safety. A request may be made at any time and are for site specific locations. Spot forecasts provide a more detailed breakdown of weather forecasted elements into one or two hour segments of time. Spot forecasts are initially made for a 12 hour period with a 12 to 24 hour outlook.

**The National Weather Service will provide spot forecast support and service upon request of any federal, state, tribal, or local official who represents the spot forecast is required to support a wildfire.**

**For non-wildfire purposes**, resources permitting, the National Weather Service will provide spot forecast support and service under the following circumstances and conditions:

**A.** Upon the request of any federal official who represents that the spot forecast is required under the terms of the Interagency Agreement for Meteorological Services.

**B.** Upon request of any state, tribal, or local official who represents that the spot forecast is required to carry out their wildland fire management responsibilities in coordination with any federal land management agency participating in the Interagency Agreement for Meteorological Services.

**C.** Upon request of any public official who represent the spot forecast is essential to public safety, e.g. due to the proximity of population centers or critical infrastructure. A “public safety official” is an employee or contract agent of a government agency at any level (federal, state, local, tribal, etc.) charged with protecting the public from hazards including wildland fires and/or other hazards influenced by weather conditions such as hazardous material releases.

the Internet based NWS Spot program is used for requesting and issuing spot forecasts and should be used when possible. In times when Internet access is hindered or not possible, spot forecasts may be requested and disseminated by telephone or fax. See **pages 8 through 16** for NWS spot forecast support contact telephone numbers.

Spot forecasts should normally be available within 30 minutes of request with typically no more than a 45 minute deadline. However under adverse weather conditions, spot forecast requests will be processed within a myriad of ongoing weather concerns. If the spot request is for wildfire, the forecaster should assign a higher priority for forecast preparation. For the safety of fire crews and operations, a spot request for wildfire will be prioritized similar to the expediency given severe weather.

**The requesting agency can aid the forecaster by providing at a minimum the following information:**

Nature or reason of fire (wildfire or prescribed burn)

Name of fire

Name and phone number of control agency and/or representative

Location of the fire (lat/long in degrees/minutes/seconds format or township and range)

Size of fire or project

Recent weather observation near the fire site

The submission of at least one recent accurate weather observation from near the fire site is encouraged with each spot forecast request. For prescribed burns, a planned ignition time is recommended as well. Any additional information which would help the forecaster prioritize the request such as a threat to structures, the public, fire operations, or unusual fire behavior.

Constructive critique of spot forecasts by users is also encouraged, preferably directly to the forecaster and substantiated by on-site observations. If the forecast does not reasonably match observed conditions, call the forecaster to discuss the situation or to request an updated spot forecast.

#### **Spot Forecast agency support (Florida Division of Forestry)**

Site specific spot forecasts are also available from the Florida Division of Forestry's spot forecast web page. To process and receive automated spot forecasts access the internet address:

[http://www.fl-dof.com/fire\\_weather/spot/](http://www.fl-dof.com/fire_weather/spot/)

#### **NWS Spot Forecast content:**

Spot forecast for name of incident  
issuing National Weather Service office  
Time and date of spot forecast issuance

A headline...only for watch/warning criteria weather discussion

Weather parameters for the first 12 hours will include a 1 to 2 hour time incremental breakup of:

Sky  
Weather  
Chance of precipitation  
Temperature  
RH  
20 foot wind  
(optional elements may be forecast such as mixing height...transport winds...smoke dispersion...etc).

Next 12 hour outlook period...typically overnight with abbreviated weather information.

Outlook for next day typically with abbreviated weather information.

Example: Spot Weather Forecast (FWS)

000  
FNUS72 KMLB 301020  
FWSMLB

SPOT FORECAST FOR JDSP E1...FLORIDA PARK SERVICE  
NATIONAL WEATHER SERVICE MELBOURNE FL  
620 AM EDT WED SEP 30 2009

FORECAST IS BASED ON IGNITION TIME OF 0930 EDT ON SEPTEMBER 30.  
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER  
SERVICE.

.DISCUSSION...A RATHER UNCERTAIN FORECAST TODAY. A WEAK COOL FRONT OVER  
SOUTH FLORIDA WILL STALL SOUTH OF MARTIN COUNTY TODAY. SHOWERS ACROSS  
SOUTHWESTERN FLORIDA ARE FORECAST TO PASS SOUTH OF MARTIN COUNTY AND  
THE BURN SITE...BUT CLOSE ENOUGH SUCH THAT ANY APPRECIABLE NORTHWARD  
SHIFT OF THE PRECIPITATION BAND WOULD LEAD TO A REVISED FORECAST TO  
INTRODUCE RAIN CHANCES. WE WILL MONITOR RADAR TRENDS CLOSELY AND WOULD  
ADVISE THAT YOU DO AS WELL.

ALSO...THE WIND FORECAST WILL ALSO BE TRICKY. THERE IS THE POTENTIAL FOR  
A DIFFUSE SEA BREEZE TO TURN WINDS SLIGHTLY EAST OF DUE NORTH DURING THE  
AFTERNOON...AND WIND DIRECTION MAY BEGIN TO VARY BETWEEN NORTH AND  
NORTHEAST.

IT WOULD BE A GOOD IDEA TO CHECK IN WITH THE DAY SHIFT TODAY AS FORECAST  
CONFIDENCE IS RATHER LOW GIVEN THE EXPECTED PROXIMITY OF THE STALLED  
FRONT TO THE BURN SITE.

.TODAY...

SKY/WEATHER.....PARTLY SUNNY.  
MAX TEMPERATURE.....AROUND 86.  
MIN HUMIDITY.....63 PERCENT.  
WIND (20 FT).....NORTH WINDS 7 TO 9 MPH...VARYING BETWEEN NORTH AND  
NORTHEAST THIS AFTERNOON.  
CHANCE OF PCPN.....10 PERCENT.  
LAL.....1.  
MIXING HEIGHT.....600-1800 FT AGL INCREASING TO 3300-4100 FT AGL  
LATE IN THE MORNING.  
TRANSPORT WINDS.....NORTHWEST 8 TO 12 MPH.  
DISPERSION INDEX....35.  
LVORI.....0.

| TIME (EDT)      | 9AM | 10A | 11A | 12P | 1PM | 2PM | 3PM | 4PM | 5PM | 6PM | 7PM | 8PM |
|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| SKY (%)         | PC  | MCR |
| WEATHER COV     |     |     |     |     |     |     |     |     |     |     |     |     |
| WEATHER TYPE    |     |     |     |     |     |     |     |     |     |     |     |     |
| TEMP            | 79  | 82  | 82  | 83  | 84  | 84  | 84  | 84  | 83  | 82  | 80  | 79  |
| RH              | 94  | 82  | 74  | 77  | 77  | 72  | 70  | 65  | 67  | 72  | 72  | 68  |
| 20 FT WIND DIR  | NW  | NW  | N   | N   | N   | N   | NNE | NNE | NNE | NNE | N   | N   |
| 20 FT WIND SPD  | 7   | 8   | 8   | 9   | 9   | 9   | 10  | 10  | 10  | 10  | 8   | 7   |
| 20 FT WIND GUST |     | 10  | 10  | 10  | 10  | 10  | 12  | 12  | 12  | 12  | 10  | 9   |



### **E. Fire Weather Watches and Red Flag Warnings:**

The Fire Weather Watch and Red Flag Warning programs are a means by which the weather forecaster informs the land management agencies of critical weather factors, combined with dry fuels, which could support extreme fire danger and/or fire behavior which may lead to extensive wildfire occurrence or control problems with existing fires. Forecasts are headlined with fire weather watches or red flag warnings as issued.

A Fire Weather Watch or Red Flag Warning is issued for weather situations, combined with dry fuels, which may represent a threat to life and property, by adversely impacting fire fighting resources or personnel. Therefore the identification of red flag events is a prime responsibility of the fire weather forecaster.

Weather and fuel definition for the issuance of red flag events is coordinated in advance with land management agencies and users within the state of Florida. Fire weather watches and red flag warnings are issued solely for the purpose of advising agencies of critical fire weather conditions. Critically dry fuels in Florida are highly dependent on one hour fuel moisture, which is directly determined by relative humidity, therefore critically dry relative humidity is equivalent to critically dry fuels.

#### **Red Flag Warning:**

A Red Flag Warning is issued to warn of an impending or ongoing red flag event. A Red Flag Warning will be issued immediately when red flag conditions are either imminent, occurring, or when there is a high level of confidence that the conditions will develop within the next 24 hours.

In coordination with land management agencies, any area of Florida will be considered to be experiencing a Red Flag event whenever any one of the following criteria are met:

#### **Minimum Florida Red Flag criteria**

- 1. Relative humidity less than 35 percent for four consecutive hours or more.**
- 2. Relative humidity less than 35 percent with sustained 20 foot wind speeds of 15 mph or more.**
- 3. Relative humidity less than 35 percent with a dispersion index value of 75 or more.**

#### **Fire Weather Watch:**

A Fire Weather Watch is issued to alert the users to the possible development of a Red Flag event as defined above. A fire weather watch is not allowed within the initial 12 hours of forecast issuance. A watch is issued if forecaster confidence is reasonably higher that an event will occur in the period greater than 24 hours in advance of forecast issuance. A watch will not be issued more than 96 hours in advance of an expected event. Although it is desirable to have a fire weather watch precede a red flag event by at least 12 hours...a watch is in no way a mandatory prerequisite for an unforeseen warning to be issued.

A fire weather watch shall remain in effect until the forecaster determines that either the red flag event will not develop or that the watch should be upgraded to a red flag warning. If the fire weather forecaster determines that the potential red flag event will not occur, the fire weather watch will be canceled.

When a fire weather watch or red flag warning is issued, the event shall be headlined on **all** subsequent fire weather forecasts until the event expires or is canceled. (exception: headlines are omitted from National Fire Danger Rating System -NFDRS- point forecasts). Unscheduled spot forecast will only contain an event headline if the spot forecast site is within a watch or warned area.

#### **Watch/warning forecast updates**

Whenever unforeseen red flag conditions develop, a Red Flag Warning product (RFW) will be issued. An updated fire weather forecast with appropriate watch or warning headlines should be issued. Headlines should include the effective onset time, zones affected, valid period of the watch or warning, and reasons for issuance update. Notify the DOF and affected federal agency dispatch offices within amended warned areas.

#### **RFW content**

The fire weather watch and red flag warning format will include segmented forecast information, and may contain an overview section.

#### **.Overview Section**

This section is optional. If included, it should contain at least one of the following items:

Overview headline(s) - general headline statement(s) that summarizes the fire weather threat, time of devolvement, reason for issuance, and area affected.

General discussion - a brief, non technical discussion of the expected fire weather event.

#### **.Segmented forecast information**

Each segment of the fire weather watch/red flag warning will include:

UCG and geographic description of zones and/or zone numbers.

A headline describing the state of the fire weather watch or red flag warning (issued, continues, canceled), the effective time of the event, the critical weather element(s) causing the event, and a description of the affected area.

Discussion section which describes the adverse weather conditions. In the initial issuance of the watch or warning, including the following phrase to begin the discussion: the National Weather Service in (WFO or location) has issued a (Red Flag Warning or Fire Weather Watch) for

#### **.Order of Segments**

- (1) Watch/Warning cancellation
- (2) Warnings
- (3) Watches

#### **.Order of Headlines**

If multiple headlines are required in a single segment, the order of headlines will follow the order of segments.

#### **.Updates and Corrections**

A fire weather watch will remain in effect until the watch: 1) is canceled, 2) is upgraded to a Red Flag Warning, or 3) expires.

A Red Flag Warning will remain in effect until the warning: 1) is canceled, or 2) expires.

Use the same product identifier (RFW) for issuing, updating, and canceling Fire Weather Watches and Red Flag Warnings. Forecasters will also update the FWF product when a RFW product is issued, updated, or canceled.

The RFW will be corrected when a typographical/format error is detected.

**.Other Dissemination of Red Flag information**

Forecasters will place headlines for Fire Weather Watches/Red Flag Warnings at the beginning of the routine FWF and in the appropriate zone sections.

Forecasts should include the RFW highlights in the appropriate list of highlights in the area forecasts discussion.

**EXAMPLE: RED FLAG WARNING OR FIRE WEATHER WATCH (RFW)**

WWUS84 KMOB 301020  
RFWMOB

RED FLAG WARNING  
NATIONAL WEATHER SERVICE MOBILE AL  
520 AM CDT FRI JUN 30 2009

...A RED FLAG WARNING IS IN EFFECT FROM LATE MORNING THROUGH THE AFTERNOON HOURS FOR THE WESTERN FLORIDA PANHANDLE DUE TO THE FORECAST OF LONG DURATIONS OF CRITICALLY LOW RELATIVE DAYTIME HUMIDITY BELOW 35 PERCENT...

...A FIRE WEATHER WATCH IS IN EFFECT SATURDAY AFTERNOON FOR THE INTERIOR OF THE WESTERN FLORIDA PANHANDLE DUE TO THE POTENTIAL OF LONG DURATIONS OF LOW DAYTIME RELATIVE HUMIDITY... A DRY AIRMASS PERSISTS OVER THE CENTRAL GULF COAST REGION FOR THE NEXT COUPLE DAYS. AFTERNOON RELATIVE HUMIDITY VALUES WILL DROP BELOW 35 PERCENT FOR SEVERAL HOURS TODAY AND POSSIBLY AGAIN ON SATURDAY.

FLZ001-003-005-302000- /O.CON.KMOB.FW.W.0055.060630T1600Z-  
060701T0000Z/ /O.CON.KMOB.FW.A.0048.060701T1800Z-060702T0000Z/  
INLAND ESCAMBIA-INLAND SANTA ROSA-INLAND OKALOOSA- 520  
AM CDT FRI JUN 30 2009

...RED FLAG WARNING REMAINS IN EFFECT FROM 11 AM THIS MORNING TO 7 PM CDT THIS EVENING... FIRE WEATHER WATCH REMAINS IN EFFECT FROM SATURDAY AFTERNOON THROUGH SATURDAY EVENING...

A RED FLAG WARNING REMAINS IN EFFECT FROM 11 AM THIS MORNING TO 7 PM CDT THIS EVENING. A FIRE WEATHER WATCH REMAINS IN EFFECT FROM SATURDAY AFTERNOON THROUGH SATURDAY EVENING.

...A FIRE WEATHER WATCH IS IN EFFECT SATURDAY AFTERNOON FOR THE INTERIOR OF THE WESTERN FLORIDA PANHANDLE DUE TO THE POTENTIAL OF LONG DURATIONS OF LOW DAYTIME RELATIVE HUMIDITY...

LOWEST DAYTIME HUMIDITIES ARE FORECAST TO AVERAGE AROUND 25 PERCENT FOR SEVERAL HOURS FROM MID DAY THROUGH THE LATE AFTERNOON.

A RED FLAG WARNING MEANS THAT CRITICAL FIRE WEATHER CONDITIONS ARE FORECAST. HOT TEMPERATURES ALONG WITH DRIER AIR...SETS UP LOW RELATIVE HUMIDITY VALUES CREATING THE CONDITIONS FOR EXPLOSIVE FIRE GROWTH POTENTIAL.

\$\$

FLZ002-004-006-008-302000- /O.CON.KMOB.FW.W.0055.060630T1600Z-060701T0000Z/ COASTAL  
ESCAMBIA-COASTAL SANTA ROSA-COASTAL OKALOOSA- COASTAL WALTON- 520 AM CDT FRI  
JUN 30 2006

...RED FLAG WARNING REMAINS IN EFFECT FROM 11 AM THIS MORNING TO 7 PM CDT THIS EVENING...

A RED FLAG WARNING MEANS THAT CRITICAL FIRE WEATHER CONDITIONS ARE FORECAST. HOT TEMPERATURES ALONG WITH DRIER AIR...SETS UP LOW RELATIVE HUMIDITY VALUES CREATING THE CONDITIONS FOR EXPLOSIVE FIRE GROWTH POTENTIAL.

\$\$

FORECASTER NWS MOB

## ON SITE SUPPORT RESPONSIBILITIES

At designated forecast offices, an Incident Meteorologist (IMET) will be All Hazards Meteorological Response System (AMRS) qualified for on-site deployment to major wildfires or major all hazards incidents within or out of state for incident forecast support. IMET deployments are dispatched through the NWS National Fire Weather Operations Coordinator (NFWOC) at the National Interagency Fire Center (NIFC) in Boise, ID. The IMET will work in support of the Fire Behavior Analyst, overall hazmat team and Incident Commander under the National Incident Command System Structure.

### Training responsibilities

NWS fire weather program leaders will at times be requested to provide training within basic meteorology in support to land management agency schools or seminars. Instruction topics can include the impact of weather upon fire and wildland fuels, smoke management, or the use of national weather service products and services.

User agencies will reimburse the NWS for all costs associated with IMET mobilizations set forth in the National Agreement. Reimbursable expenses include overtime, per diem, travel, equipment maintenance, and transportation of the IMET and equipment.

Other specialized services include course development work, instruction in observation procedures, and maintaining the Florida Fire Weather Operations Plan. Specific information can be found in the Interagency Agreement for Meteorological and Technical Services in the appendix (NWS Agreement 0-02 FedFireWeather 2008).

### IMET/AMRS support

**IMET Coordination and Conference calls** (ref: NWSI 10-402 Sec 4.2)

**On-site meteorological services (IMET/AMRS)** ref: Interagency Agreement (Appendix)

Specially trained Incident Meteorologists (IMET), equipped with AMRS provide on-site weather support to personnel working prescribed burns, control of large wildfires, major all hazards incidents, or other significant weather sensitive incidents.

### IMET Support Laptop PC's

An AMRS is a modularized mobile forecasting unit designed to be easily transported and assembled on site. The modules contain a Laptop computer, satellite system for high speed data transfer to the laptop, belt weather kit, and assorted supplies.

NWS fire weather laptop computers are national resources to support incident meteorologists during out of office assignments. The laptops have been setup with a standardized software configuration. The standardized software should not be modified. Laptops utilize a windows operating system.

A request for an IMET meteorologist should be placed through the Florida Interagency Coordination Center (FICC) in Tallahassee. FICC will forward the request to appropriate channels for IMET dispatch, day and night. The requesting agency is responsible for coordinating transportation of the IMET to and from the incident site.

All IMETs will have access to laptop PC's to support a satellite interface, data acquisition, and a printer. Specified IMETs will be assigned an NWS owned laptop PC at their home duty office. Within Florida, laptop PC's are cached at the Tampa Bay area office in Ruskin, Melbourne and Miami.

IMETs are responsible for obtaining the following information upon dispatch:

All IMETs are responsible for the care and transport of the laptops to and from incident sites or the laptop cache site.

- Name of agency requesting support
- Name and telephone number of person requesting support
- Incident name and location
- Resource order numbers for the IMET
- Directions to fire camp or incident location
- Type of incident team including the Incident Commander, Planning section chief and Fire Behavior Analyst, or hazmat personnel if available.

The requesting agency is responsible for transporting the IMET to and from an incident. Additionally the user agency is responsible for providing adequate shelter for meteorologist and equipment to function efficiently. This would include a location free of excessive dust, heat and moisture, protection from wind and other elements, and a table and chair. Transportation and shelter arrangements should be made at the time of the request. The AMRS requires 120 volt AC power and the laptop needs a quality Internet access. An outside area with a clearing to the south, allowing visibility to within 40 degrees of the horizon, should be provided to allow the IMET access to a satellite. Charges to or from incident should be charged to the incident. While in possession of the laptop, the IMET meteorologist is also responsible for checking the laptop PC and restocking any support supplies, batteries, software, forms, etc (to ensure dispatch readiness

**Coordination on Incidents.**

The IMET and local NWS Weather Forecast Office (WFO) should coordinate at least on a daily basis. The local WFO will coordinate with, or at least notify, the IMET of any significant weather threatening the site, and of any watches or warnings they plan to issue that include the incident or nearby areas. If the IMET is located at an incident without phone communication, the WFO should notify the local dispatch office of these types of critical conditions or forecasts, and the dispatch office should be encouraged to then notify the incident and/or IMET.

In cases of watch or warning issuances by the local WFO, the IMET should defer to the local office. However, in the absence of a watch or warning from the local WFO, the IMET has discretion to issue a watch or warning for the incident only. The IMET will coordinate with the local WFO, or in the absence of time, will notify the local WFO of any such issuances as soon as is practicable. In instances of multiple IMETs dispatched to a single WFO fire weather service area, the Regions and the NFWOC should coordinate and determine the necessity for regularly scheduled conference calls. If conference calls are considered necessary, the Regions should assist the WFO MIC in setting up the calls. The calls should include the WFO forecasters, the IMETs, and the NFWOC. Other nearby WFOs and any IMETs in that WFO's service area may also be included in the call.

### **IMET Accounting Procedures**

As soon as possible after each IMET deployment, weather service form **D-21**, *fire weather mobile unit operation report*, (or ATMU Report) should be completed with copies forwarded to NWS Southern Region Headquarters, and to the NFWOC. This report documents any logistic, equipment, or accounting problems which may have occurred in support of an incident.

A RRE form, *Report of Reimbursable Expenses*, for each incident should also be forwarded to the appropriate NWS regional headquarters. This form will itemize the expenses which may be charged to the appropriate land management agency responsible for fire costs. Reimbursable expenses as per the national agreement include overtime, per diem, travel, maintenance of damaged equipment and expenses resulting from duty activities.

### **IMET duties**

Individual IMET deployments to an incident can vary and can range up to one or two weeks, but will not exceed 14 days. The IMET works within the structure of the incident management team, in concert with the fire behavior analyst under the supervision of the plans section chief. IMET duties include daily forecast coordination and compositions, spot forecasts as requested, daily weather briefings, weather observations, weather records, daily log of duties and contacts, and ensuring the functionality of the AMRS equipment.

### **IMET Forecasts**

Daily planning forecasts are prepared along with supplemental spot forecasts, including updates as necessary. Planning forecasts are composed within the guidelines of an fire weather forecast form (**page 45**).

**☐ WEATHER FORECAST**

**FORECAST NO:** 3

**NAME OF FIRE:** Mustang Corner

**PREDICTION FOR:** Day & Evening Ops

**UNIT:** National Park Service

**SHIFT DATE:** Monday 05/19/08

**SIGNED:** *John Pendergrast*

**TIME AND DATE** 1700

**Incident Meteorologist**

**FORECAST ISSUED:** 05/18/08

**WEATHER DISCUSSION:** A stalled frontal boundary near Lake Okeechobee will dissipate today. An upper level wave moving across the Southeast US will increase our winds this afternoon. Expect gusty southwest winds by mid day with a slight chance of showers. Overall moisture levels will increase tonight and into Monday.

The **main concerns are:**

1. Gusty afternoon winds. Continued dry with less than 20 percent chance of rain.
2. Dense smoke advisory until 10 am near and west of the Miami metro area.

-----  
**WEATHER FORECAST DAY SHIFT MONDAY:**

*...Continued Hot and breezy...*

**WEATHER:** Partly cloudy. Hot. Areas of dense morning smoke and haze.

**MAX TEMPERATURES:** 92-94 (24 hour trend ~ same)

**MIN HUMIDITY:** 40-45%, (24 hour trend ~ 5% higher)

**20 FT WINDS:** West 2 to 4 mph early becoming Southwest 9 to 14 mph with gusts to 21 mph in the afternoon.

**STABILITY/INVERSION:** Inversion around 500 ft dissipating by 1000. Mixing heights around 5000 ft. Dispersion index around 78. Haines Index 5.

-----  
**WEATHER FORECAST NIGHT SHIFT MONDAY NIGHT:**

**WEATHER:** Partly Cloudy. Areas of smoke, locally dense.

**MIN TEMPERATURES:** 67-70.

**MAX HUMIDITY:** Recovery 90 to 95 percent.

**20 FT WINDS:** Southwest 3 to 5 mph.

**STABILITY/INVERSION:** Inversion around 600 ft beginning to develop after 2300. Dispersion index 2.

-----  
**OUTLOOK FOR TUESDAY:**

Partly sunny. A slight chance of thunderstorms. High temperatures 88-91. Minimum RH values 40 to 45 percent. Southwest winds 4 to 8 mph with gusts to 15 mph, increasing to 9 to 13 mph with gusts to 20 mph early afternoon. Chance of rain 20 percent.

-----  
**EXTENDED...WEDNESDAY THROUGH SATURDAY:**

TUESDAY...PARTLY CLOUDY WITH SLIGHT CHANCE OF THUNDERSTORMS. HIGHS IN THE LOWER 90S. SOUTHWEST WINDS 5 TO 10 MPH. CHANCE OF RAIN 20 PERCENT.

WEDNESDAY...MOSTLY CLEAR IN THE MORNING THEN BECOMING PARTLY CLOUDY. HIGHS IN THE LOWER 90S. SOUTHWEST WINDS 5 TO 10 MPH BECOMING SOUTHEAST.

THURSDAY...MOSTLY CLEAR IN THE MORNING THEN BECOMING PARTLY CLOUDY.

HIGHS IN THE LOWER 90S. SOUTH WINDS 5 TO 10 MPH BECOMING SOUTHEAST.

## Other Special Support Services

NWS fire weather meteorologists are available to assist land management agencies with fire training courses (i.e. S-290, RX-450, Florida interagency prescribed burn course, etc.) Requests for assistance should be made through the local NWS program leader. Requests should be made as far in advance of the training dates as possible to allow for scheduling. Ancillary expenses incurred by the NWS while providing training should be reimbursed by the requesting agency.

Other meteorological services are available under the direction of the Interagency Agreement for Meteorological Services. These include but are not necessarily limited to...

- ~ Observation site visitation course development work
- ~ Training of weather observers agency observation
- ~ Quality control

Forecaster travel is encouraged for liaison, meetings, or participation in training activities or seminars. Forecasters should experience as many varied types of fire and forestry operations as possible to become acquainted with agency operations and the local influences of weather on fire behavior. Reciprocal visits by agency personnel should likewise be made available. As resources are available, forecasters should attend NWS or land agency sponsored training, workshops, or refresher seminars.

### Fire Weather Operation Plans (AOP)

*(ref: National Weather Service Instruction 10-404)*

This Florida Fire Weather Operations Plan shall be maintained, reviewed, and updated as necessary. The annual review and revision (if required) may be rotated among the Florida NWS offices. Each NWS office shall also maintain an in-house fire weather forecasting manual inclusive of this plan and any other local agency contacts, and forecast procedures or preparation guidelines.

### Fire Weather Annual Report *(ref: National Weather Service Instruction 10-404)*

Every WFO that issues non-routine fire weather products during their fire weather season (e.g., spot forecasts, Fire Weather Watches, Red Flag Warnings) will produce an annual report summarizing fire support in their area of responsibility.

WFOs should disseminate the Annual Report to the same entities as the AOP. Annual Reports should summarize the calendar year activities. The NWS Regional Headquarters will determine the due date of the Annual Report, and the regional statistics are due March 1st

### Conference Calls, GoTo Meeting and Webinars:

During periods of intense or prolonged wildfire activity conference calls may be organized between land management agencies, state and federal emergency officials, state water management districts, and the National Weather Service. Topics of discussion would include, but not be limited to, current drought and/or indices relating to drought, available surface and fuel moisture, any ongoing wildfire activity, status of control operations, public and property safety issues, preparedness actions, and the outlook for future planning and logistics. Participating NWS offices may schedule routine web-based conferences with partners in their areas especially during occurrences of critical fire weather conditions.

### FARSITE Meteorological Data

Farsite is a fire behavior and growth simulator program used by Fire Behavior Analysts. FARSITE is designed for use by trained, professional wildland fire planners and managers familiar with fuels, weather, topography, wildfire situations. ASCII formatted files containing *daily* summaries of temperature, relative humidity and precipitation, and *hourly* data of wind speed, wind direction, and cloud cover are available from participating WFO's. The weather files can be used with FARSITE to predict the likely behavior of a wildfire up to 72 hours into the future. Please contact your local WFO for more information about FARSITE

**The Area Forecast Discussion** is a NWS issued product where information on wildfire related weather effects may be included. Typically issued up to four times daily, the product serves as an excellent forum for coordinating meteorological reasoning among weather offices. Technical terms may be used, but the brief discussion should focus on weather effects and not fire behavior. As a coordination tool and ledger of ongoing NWS watch and warning issuances, use of the terms Red Flag Warning and Fire Weather Watch is permitted.

### **Civil Emergency Messages (CEM)**

Special messages that contain information on events that would require protective actions on the part of the public are transmitted by the NWS in conjunction with the Florida Division of Emergency Management and Department of Homeland Security via the Internet and broadcast on NOAA Weather Radio when requested by authorities. Emergency situations requiring civil emergency messages may include wildfires threatening life and property, including the health hazard of excessive dense smoke. Such messages may include pending or ongoing evacuation orders.

Request and authentication of CEM messages would come from the office of the state of Florida, Division of Emergency Management, or law/fire enforcement officials through the ESATCOM, the state's emergency communications system. Text of the requested CEM should be faxed to the appropriate NWS office with receipt confirmed to the sender. CEM messages should be same/tone alerted on NOAA weather radio.

### **Example of Civil Emergency Message (CEM)**

BULLETIN-EAS ACTIVATION REQUESTED CIVIL EMERGENCY  
MESSAGE NATIONAL WEATHER SERVICE TAMPA BAY AREA-  
RUSKIN FL 330 PM EST FRI MAR 19 2009

THE FOLLOWING MESSAGE IS BEING TRANSMITTED AT THE REQUEST OF THE LEE COUNTY  
EMERGENCY MANAGEMENT OFFICE.

A WILDFIRE AT LEHIGH ACRES COUNTRY CLUB HAS CONSUMED SEVERAL HUNDRED ACRES OF GRASS AND WAS SPREADING WEST TOWARD DENSELY POPULATED AREAS OF EAST LEHIGH ACRES. STRONG WINDS FROM THE EAST COUPLED WITH LOW HUMIDITY ARE EXPECTED TO PUSH WILDFIRES RAPIDLY WEST ACROSS LEHIGH ACRES OVER THE NEXT 3 HOURS.

EMERGENCY MANAGEMENT OFFICIALS HAVE ORDERED A MANDATORY EVACUATION, EFFECTIVE IMMEDIATELY, NORTH OF STATE ROAD 884 TO SOUTH OF 8TH AVENUE, AND WEST TO THE ORANGE RIVER CANAL.

LISTEN TO NOAA WEATHER RADIO, LOCAL TELEVISION, OR RADIO FOR ADDITIONAL INFORMATION ON THE LOCAL CIVIL EMERGENCY.

### **Dense Smoke Advisory (NPW)**

A Dense Smoke Advisory is issued by local NWS offices for persisting local or widespread dense smoke reducing visibilities to ¼ mile or less over a portion or all of a forecast zone. Issuance of Dense Smoke advisories are typically pre-coordinated with authorities (DOF, FHP and/or other law enforcement authorities) who typically monitor the scope of smoke emissions in the area of existing fires.

### NWS Hazardous Weather Outlooks (HWO)

The NWS Hazardous Weather Outlook is a publicly disseminated discussion of any and all potentially hazardous weather that may affect a forecast area.

The HWO is an excellent product through which weather information related to a fire/smoke threat can be communicated to the public. The reality is that fire does often threaten populated areas and at that point, becomes a serious emergency management issue. Critical information then needs to be communicated through whatever outlets the NWS has at its disposal.

The intent is two-fold: to provide the public with a sufficient level of awareness as to minimize the occurrence of accidental fire starts; and encourage a rapid and appropriate response should fire threaten life and/or property.

NWS offices should consider providing fire weather information in the HWO when any of the following are met within an offices area of responsibility:

- 1 Red flag warning in effect
- 2 Significant wildfire activity exists
- 3 Smoke is expected to be a serious obstruction to visibility and/or an air quality hazard to the public
- 4 Severe drought conditions exist

Keetch-Byram indices in excess of 600 along with gusty surface winds of 15-20 mph may warrant mention as a short term fire weather hazard in absence of Red Flag Warnings.

In mentioning the fire threat in the HWO, avoid use of **fire weather watch** or **red flag warning** as the public may not be familiar with these terms which could result in public misinterpretation. Also avoid using terms as high or extreme fire danger, or fire alert since these terms carry official definitions of land management agencies.

Suggested text guidelines include:

- 1 Address only the weather effects on the fire threat.
- 2 Avoid assessing fire activity or fire behavior
- 3 Stress safety with fire sources but avoid recommending courses of action.

## **Iv. Fire agency operational support and services**

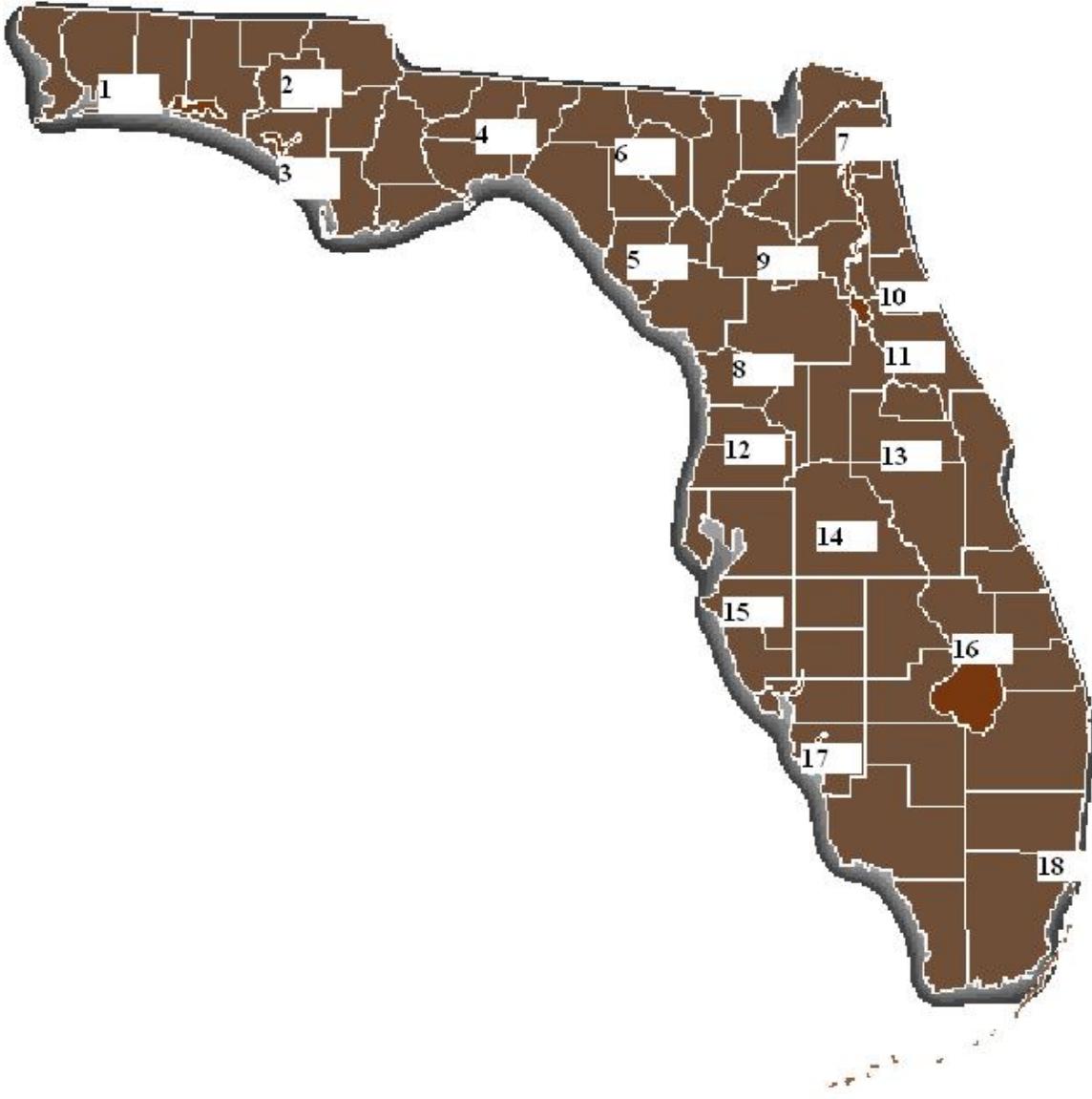
### **Florida Fire Weather Observations**

Routine fire weather observations are meant to reflect the most volatile fire weather conditions of the day, so observations are taken during the mid afternoon at the time of maximum heating. Observations provide needed site weather information for forecast issuances and the verification of prior forecasts. Observations as well as forecasts provide the needed weather input for land management decision making for operations planning, staffing, and issuance of burn permits. To provide input for the preparation of afternoon planning forecasts, observations are taken daily at 2 pm eastern time (1pm central time).

### **Florida Division of Forestry Observations**

Deadline for DOF observations to be available is 2:30 pm eastern time. The majority of the observations are from Florida DOF district offices. DOF observations are accessible via the internet at address:

[Http://flame.fl-dof.com/cgi-bin/weather/weather.ksh/](http://flame.fl-dof.com/cgi-bin/weather/weather.ksh/)



**FLORIDA DIVISION OF FORESTRY OBSERVATION SITES**  
**(see next page for names)**

| <b>Dst</b> | <b>Date</b> | <b>Location</b>                      |
|------------|-------------|--------------------------------------|
| <b>1</b>   | 10/06       | Blackwater Fc,<br>Milton             |
| <b>2</b>   | 10/06       | Chiploa River<br>Com Ctr,<br>Bonifay |
| <b>2</b>   | 10/06       | Chipola River<br>Do, Panama<br>City  |
| <b>4</b>   | 10/06       | Tallahassee<br>District Office       |
| <b>5</b>   | 10/06       | Perry District<br>Office             |
| <b>6</b>   | 10/06       | Suwannee<br>District Office          |
| <b>7</b>   | 10/06       | Jacksonville<br>District Office      |
| <b>8</b>   | 10/06       | Usher Work<br>Center                 |
| <b>8</b>   | 10/06       | Waccasassa Fc,<br>Gainesville        |
| <b>10</b>  | 10/06       | Bunnell District<br>Office           |
| <b>10</b>  | 10/06       | Deleon Forestry<br>Station (Comp)    |
| <b>11</b>  | 10/06       | Withlacoochee<br>Fc, Brooksville     |
| <b>12</b>  | 10/06       | Orlando District<br>Office           |
| <b>14</b>  | 10/06       | Lakeland<br>District Office          |
| <b>15</b>  | 10/06       | Myakka River<br>Do, Bradenton        |
| <b>16</b>  | 10/06       | Okeechobee<br>District Office        |
| <b>17</b>  | 10/06       | Caloosahatchee<br>Do, Fort Myers     |
| <b>18</b>  | 10/06       | Everglades Do,<br>Davie              |

## **WIMS (NFDRS) Observations**

NFDRS site forecasts must be entered into WIMS no later than 1455 local time. WIMS collectives of observations (NMCFWOXXX) are available between 300 pm and 400 pm daily. WIMS observations are collectively grouped into zones by forecast office for calculation of zone site observation averages.

Observation sites are assigned a six digit NWS station identification number. The first two digits indicate the state, the second two digits the county, and the last two digits are the consecutively assigned station numbers within a county. The local NWS office must be contacted for assignment of a six digit number for any new permanent stations, or for changes in location made to existing stations already assigned a number. Several sites are also assigned a national environmental satellite (NESDIS) data platform ID's for automated interrogation.

### **DECODE FEDERAL WIMS/RAWS/NFDRS OBSERVATIONS:**

**ST NME** – STATION NAME

**STAT'N** – 6-DIGIT NWS STATION IDENTIFICATION

**DATE** -- YYMMDD (YEAR, MONTH, DAY)

**HR** -- HOUR OF OBSERVATION

**T** – OBSERVATION TYPE (**O**) (**F** FOR FORECAST COLLECTIVE)

**W** – STATE OF WEATHER AT OBSERVATION TIME:

**0** - CLEAR, LESS THAN 1/10 CLOUD COVER   **5** - DRIZZLE \* **1** - SCATTERED CLOUDS, 1/10 - 5/10  
CLOUD COVER   **6** - RAIN \* **2** - BROKEN CLOUDS, 6/10 - 9/10 CLOUD COVER   **7** - SNOW OR SLEET \* **3**  
- OVERCAST, MORE THAN 9/10 CLOUD COVER   **8** - SHOWERS **4** - FOG   **9** - THUNDERSTORMS

\* – These entries, if entered as a forecast, will reset fire danger indices to zero.

**DBT** – DRY BULB (AIR) TEMPERATURE

**DPT** – DEW POINT TEMPERATURE

**RH** – RELATIVE HUMIDITY   **Y** – YESTERDAY'S LIGHTNING ACTIVITY LEVEL (LAL). (Midnight to Midnight)

**M** – MORNING LIGHTNING ACTIVITY LEVEL. (Midnight to Observation time)

**DIR** – WIND DIRECTION (FROM WHICH THE WIND IS BLOWING). (Reported in whole degrees)

**WS** – WIND SPEED (10 Minute average)

**10** – TEN HOUR TIME LAG FUEL MOISTURE

**TMX** -- MAXIMUM TEMPERATURE DURING LAST 24 HOURS. (2PM-2PM) Value cannot be less than DBT.

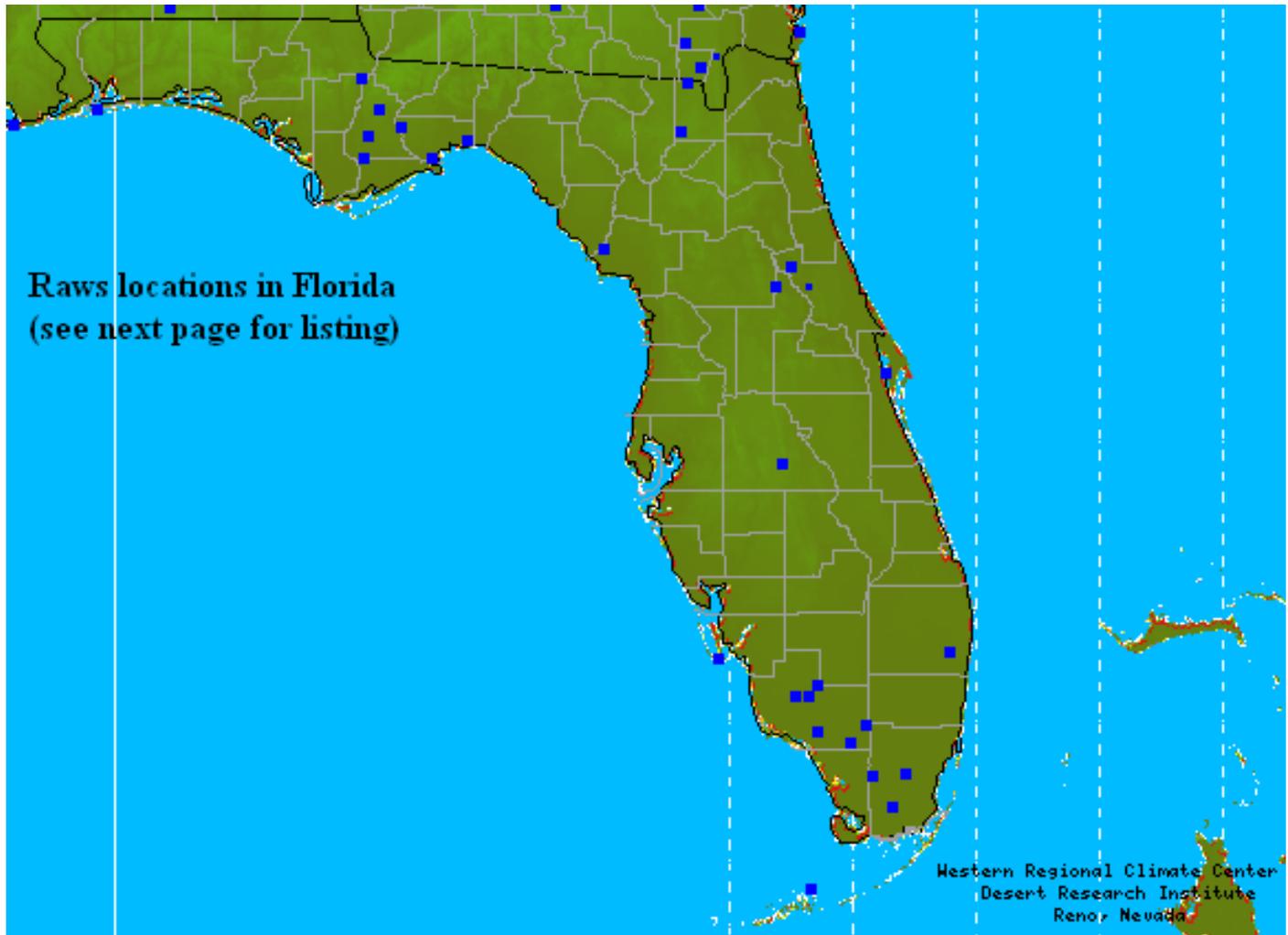
**TMN** -- MINIMUM TEMPERATURE DURING LAST 24 HOURS. (2PM-2PM) Value cannot be more than DBT)

**HMX** – MAXIMUM RELATIVE HUMIDITY DURING LAST 24 HOURS. (2PM-2PM)

**HMN** – MINIMUM RELATIVE HUMIDITY DURING LAST 24 HOURS. (2PM-2PM)

**PD** -- PRECIPITATION DURATION. (Enter total time in hours—cumulative number of minutes converted to hours—that precipitation occurred in the past 24 hours. If none, enter a **0 (zero)**. A minus sign is used to indicated wet fuels at time of observation).

**PPAMT** – PRECIPITATION AMOUNT. (Total accumulation past 24 hours. If none, enter **0 (zero)**; If a trace, enter **T**. If at least **T** entered then duration must be at least **1**).



**RAWS Locations Listed by County Location and Elevation (above sea level)**

**Baker County**

[EDDY TOWER](#) 131 ft

[OLUSTEE](#) 175 ft

**Brevard County**

[MERRITT ISLAND](#) 30 ft

**Collier County**

[MILES CITY RAWS](#) 15 ft

[OASIS](#) 8 ft

[OCHOPEE RAWS](#) 7 ft

[PANTHER EAST](#) 15 ft

[PANTHER WEST](#) 15 ft

[RACCOON POINT RA](#) 7 ft

**Miami Dade County**

[CACHE](#) 5 ft

[CHEKIKA](#) 5 ft

[TENRAW](#) 5 ft

**Highlands County**

[LAKE WALES](#) 141 ft

**Lake County**

[CENTRAL](#) 61 ft

**Lee County**

[DING DARLING NWR](#)

**Leon County**

[BLOXHAM](#) 100 ft

**Levy County**

[LOWER SUWANNEE](#)

**Liberty County**

[SUMATRA](#) 60 ft

[WILMA](#) 50 ft

**Marion County**

[LAKE GEORGE](#) 87 ft

**Palm Beach County**

[LOXAHATCHEE](#) 17 ft

**Santa Rosa County**

[NAVAL LIVE OAKS](#) 15 ft

**Volusia County**

[LAKE WOODRUFF QD](#) 60 ft

**Wakulla County**

[SANDBORN](#) 50 ft

[ST. MARKS \(EAST\)](#) 15 ft

[ST. MARKS \(WEST\)](#) 50 ft

### Call For Special Observations

The National Weather Service requests the assistance of the land management agencies in providing much needed reports of significant weather events. In spite of ever-advancing technology, the collection of timely reports from reliable observers will always be of critical importance to the weather forecaster.

Timely reports of ongoing severe weather can greatly aid the meteorologist in his mission of protecting life and property. Even reports on a delayed basis assist the meteorologist in evaluating and verifying warning events.

Reports can be made anytime directly to National Weather Service offices or local law enforcement officials with a request to relay the report to the local National Weather Service.

Among the significant events that would be of value to the forecaster:

- 1 Funnel clouds or tornado touching the ground
- 2 Hail one half inch or larger
- 3 Measured wind gusts in excess of 50 mph
- 4 Uprooting of trees or weather damage to structures
- 5 Any weather related event with possible impact to life or property
- 6 Flooding rains of 2 inches per hour or 4 inches per day.

Please report:

- 1 The time of the event (beginning/end)
- 2 Location (section of county or road intersection)
- 3 Movement (if known)
- 4 Name of agency making report

# MAP OF STATE PARKS AND REGIONS UNDER STATE LAND MANAGEMENT



- |                      |                      |                       |
|----------------------|----------------------|-----------------------|
| 1. Belmore +         | 13. Indian Lake +    | 25. Point Washington  |
| 2. Big Shoals        | 14. Jennings         | 26. Ralph E. Simmons  |
| 3. Blackwater River  | 15. John M. Bethea   | 27. Ross Prairie +    |
| 4. Carl D Moore +    | 16. Lake George      | 28. Seminole          |
| 5. Cary              | 17. Lake Talquin     | 29. Tate's Hell       |
| 6. Charles Bronson + | 18. Lake Wales Ridge | 30. Tiger Bay         |
| 7. Cottage Hill +    | 19. Little-Big Econ  | 31. Twin Rivers       |
| 8. Deep Creek* +     | 20. Matanzas         | 32. Wakulla           |
| 9. Etoniah Creek     | 21. Myakka           | 33. Watson Island * + |
| 10. Four Creeks      | 22. Okaloacoochee    | 34. Welaka            |
| 11. Goethe           | 23. Picayune Strand  | 35. Withlacoochee     |
| 12. Holopaw * +      | 24. Pine Log         |                       |

\* no public access

<http://www.floridastateparks.org/images/DistMapAll.cfm>

[http://www.dep.state.fl.us/Parks/planning/forms/State\\_parks\\_b&w\\_8X11.pdf](http://www.dep.state.fl.us/Parks/planning/forms/State_parks_b&w_8X11.pdf)

# MAP OF LAND ENTITIES UNDER FEDERAL MANAGEMENT



[http://www.lib.utexas.edu/maps/united\\_states/fed\\_lands\\_2003/florida\\_2003.pdf](http://www.lib.utexas.edu/maps/united_states/fed_lands_2003/florida_2003.pdf)

### **Lavdas Dispersion Index**

This dispersion index offers a means of allocating prescribed fire emissions within an area, according to prevailing weather conditions, to avoid regional smoke overload. In other words, this index refers to those processes within the atmosphere which mix and transport particulate (smoke) away from a source both horizontally via the wind and vertically via stability.

The dispersion index is predominately weighted to, and directly proportional to values of the mixing height and transport wind. The index also incorporates factors of seasonal solar elevation angle (net radiation), total opaque cloud cover, ceiling height, and surface wind speed, with these additional elements approximating an overall atmospheric stability class.

Much of the range of good dispersion of pollutants overlaps the range of weather conditions utilized for good burning conditions, so with good management, neither smoke nor fire will be a hazard. High index values imply an extremely unstable atmosphere, contributing to increased incidence of wildfire. Much as low values of the index imply poor dispersion of smoke, high values of the index may imply conditions for potentially large fire growth.

In agreement with the land management agencies within Florida, high values of the dispersion index (75 or greater) initiate additional criteria for the issuance of fire weather watches and red flag warnings within the state.

Both day and nighttime dispersion index values are calculated within issuances of the morning and afternoon planning forecasts.

Reference: Lavdas, Leonidas g.; *An Atmospheric Dispersion Index for Prescribed Burning*; U.S. Department of Agriculture, Forest Service, research paper SE-256, October 1986.

### **Keetch-Byram Drought Index**

The Keetch-Byram Drought Index (KBDI) evaluates the effects of long-term meteorological drought as it relates to the gain or loss from the duff layer down through an eight inch depth of soil. Therefore the index is based on the available moisture in the upper soil layers that can be used by vegetation for evapotranspiration.

The index measure is in hundredths of an inch of water, and has a range of zero through 800, with zero being saturated and 800 representing the worst drought condition. A KBDI of 250 means there is a deficit of 2.5 inches of ground water available to vegetation. Subsequently as drought progresses, there is more available fuel that can contribute to fire intensity.

Evaluation of approximate index range values:

**Zero to 200** -- soil moisture and large class fuel moisture are high and do not contribute much to fire intensity.

**200 to 400** -- a near normal range but lower litter and duff layers are drying and beginning to contribute to fire intensity.

**400 to 600** -- lower litter and duff layers activity contribute to fire intensity and will burn actively.

**600 to 800** -- often associated with more severe drought with increased wildfire occurrence. Intense deep burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn activity at these levels.

Reference: Keetch, John J. And Byram, George M., *A Drought Index For Forest Fire Control*; U.S. Department of Agriculture, Forest Service, research paper SE-38, November 1968.

### **The Low Visibility Occurrence Risk Index - LVORI**

This index is useful in qualitatively estimating the likelihood of a vehicle accident occurring under a given set of conditions. This index can be ascertained by using the predicted nighttime DI and maximum RH, and the LVORI table. For reference see the following website::

[http://www.erh.noaa.gov/gsp/fire/ADI\\_LVORI/ADI\\_LVORI.html](http://www.erh.noaa.gov/gsp/fire/ADI_LVORI/ADI_LVORI.html)

FORESTRY INTERNET LINKS:

NWS NATIONAL FIRE WEATHER PAGE

<http://www.weather.gov/fire>

NWS SOUTHERN REGION HDQTRS FIRE WEATHER PAGE

<http://www.srh.noaa.gov/srh/cwwd/msd/firewx/index.htm>

ROMAN RAWS OBS

<http://raws.wrh.noaa.gov/roman>

NATIONAL INTERAGENCY FIRE CTR

<http://www.nifc.gov/>

USFS SOUTHERN REGION

<http://www.fs.fed.us/r8/>

GEOGRAPHIC AREA COORDINATION CENTER

<http://www.nifc.gov>

SOUTHERN AREA COORDINATION CENTER

<http://gacc.nifc.gov/sacc/>

FLORIDA DIVISION OF FORESTRY HOME PAGE

<http://www.fl-dof.com/>

FLORIDA DIVISION OF FORESTRY FORECAST ACCESS

[http://www.fl-dof.com/fire\\_weather/forecasts.html](http://www.fl-dof.com/fire_weather/forecasts.html)

WEATHER INFORMATION MANAGEMENT SYSTEM

<http://fam.nwcg.gov/fam-web/>

WILDLAND FIRE ASSESSMENT SYSTEM

<http://www.wfas.net/>

GEORGIA FORESTRY COMMISSION

<http://www.gfc.state.ga.us>

ALABAMA FORESTRY COMMISSION

<http://www.forestry.state.al.us>

MISSISSIPPI FORESTRY COMMISSION

<http://www.mfc.state.gov>

NWS STORM PREDICTION CENTER

<http://www.spc.noaa.gov/fire>

(Fire Weather Outlooks)

NWS CLIMATE PREDICTION CENTER

<http://www.cpc.ncep.noaa.gov/index.html>

(Long term weather outlooks)

NATIONAL WILDFIRE COORDINATING GROUP

<http://www.nwcg.gov>

## WIMS NFDRS Observation and Forecast points Florida

| <i>ID</i>              | <i>Elev</i> | <i>Lat</i> | <i>Long</i> |
|------------------------|-------------|------------|-------------|
| 80802 BLOXHAM          | 100         | 30.3       | 84.6        |
| 81301 OLUSTEE          | 150         | 30.2       | 82.4        |
| 81302 EDDY TOWER       | 150         | 30.5       | 82.3        |
| 82001 WILMA            | 50          | 30.1       | 84.9        |
| 82002 SUMATRA          | 60          | 30.0       | 84.9        |
| 82201 SANBORN          | 74          | 30.0       | 84.5        |
| 83501 CENTRAL          | 61          | 29.1       | 81.6        |
| 83502 LAKE GEORGE      | 61          | 29.3       | 81.8        |
| 83702 LAKE WOODRUFF    | 32          | 29.1       | -81.3       |
| 84802 LAKE WALES RIDGE | 144         | 27.4       | 81.3        |
| 89901 BREVARD          | 14          | 28.2       | -80.7       |
| 89902 FLAGLER          | 16          | 29.4       | -81.3       |
| 89903 MONROE           | 3           | 25.4       | -80.9       |
| 89904 ORANGE           | 83          | 28.5       | -81.3       |
| 89905 ST. JOHNS        | 25          | 29.8       | -81.4       |
| 89906 SEMINOLE         | 32          | 28.7       | -81.2       |
| 89907 VOLUSIA          | 29          | 29.0       | -81.1       |
| 89908 ESCAMBIA         | 126         | 30.7       | -87.3       |
| 89909 FRANKLIN         | 6           | 29.8       | -84.8       |
| 89910 HOLMES           | 128         | 30.8       | -85.8       |
| 89911 LIBERTY          | 91          | 30.2       | -84.8       |
| 89912 OKALOOSA         | 163         | 30.7       | -86.5       |
| 89913 SANTA ROSA       | 121         | 30.7       | -87.0       |
| 89914 WAKULLA          | 5           | 30.1       | -84.4       |
| 89915 WALTON           | 201         | 30.6       | -86.1       |
| 89916 WASHINGTON       | 118         | 30.6       | -85.6       |
| 89917 BAY              | 45          | 30.2       | -85.6       |
| 89918 CALHOUN          | 115         | 30.4       | -85.1       |
| 89919 GADSDEN          | 159         | 30.5       | -84.6       |
| 89920 GULF             | 16          | 29.9       | -85.2       |
| 89921 JACKSON          | 131         | 30.7       | -85.2       |
| 89922 CLAY             | 65          | 29.9       | -81.8       |
| 89923 DIXIE            | 28          | 29.6       | -83.1       |
| 89924 DUVAL            | 13          | 30.3       | -81.6       |
| 89925 LAKE             | 113         | 28.7       | -81.7       |
| 89926 NASSAU           | 18          | 30.6       | -81.8       |
| 89927 SUMTER           | 30          | 28.7       | -82.0       |
| 89928 JEFFERSON        | 114         | 30.4       | -83.8       |
| 89929 LAFAYETTE        | 38          | 29.9       | -83.1       |
| 89930 LEON             | 121         | 30.4       | -84.2       |
| 89931 MADISON          | 104         | 30.4       | -83.4       |
| 89932 TAYLOR           | 73          | 30.0       | -83.5       |
| 89933 BAKER            | 116         | 30.3       | -82.2       |
| 89934 BRADFORD         | 99          | 29.9       | -82.1       |
| 89935 COLUMBIA         | 134         | 30.2       | -82.6       |
| 89936 HAMILTON         | 103         | 30.4       | -82.9       |
| 89937 SUWANNEE         | 105         | 30.2       | -82.9       |
| 89938 UNION            | 127         | 30.0       | -82.3       |

|                    |                |
|--------------------|----------------|
| 89939 ALACHUA      | 153 29.6 -82.3 |
| 89940 CITRUS       | 88 28.8 -82.4  |
| 89941 GILCHRIST    | 86 29.7 -82.7  |
| 89942 HERNANDO     | 90 28.5 -82.4  |
| 89943 LEVY         | 32 29.3 -82.7  |
| 89944 MARION       | 72 29.2 -82.0  |
| 89945 PASCO        | 74 28.3 -82.3  |
| 89946 PUTNAM       | 19 29.6 -81.7  |
| 89947 CHARLOTTE    | 27 26.9 -81.8  |
| 89948 DESOTO       | 52 27.1 -81.8  |
| 89949 HARDEE       | 82 27.4 -81.8  |
| 89950 HILLSBOROUGH | 68 27.9 -82.3  |
| 89951 LEE          | 13 26.5 -81.7  |
| 89952 MANATEE      | 68 27.4 -82.2  |
| 89953 PINELLAS     | 23 27.9 -82.7  |
| 89954 POLK         | 107 27.9 -81.6 |
| 89955 SARASOTA     | 18 27.1 -82.3  |
| 89956 BROWARD      | 9 26.1 -80.4   |
| 89957 COLLIER      | 10 26.1 -81.3  |
| 89958 HENDRY       | 26 26.5 -81.1  |
| 89959 MIAMI-DADE   | 3 25.6 -80.5   |
| 89960 PALM BEACH   | 12 26.6 -80.4  |
| 89961 GLADES       | 24 26.9 -81.1  |
| 89962 HIGHLANDS    | 76 27.3 -81.3  |
| 89963 INDIAN RIVER | 19 27.6 -80.6  |
| 89964 MARTIN       | 29 27.0 -80.4  |
| 89965 OKEECHOBEE   | 51 27.3 -80.8  |
| 89966 OSCEOLA      | 65 28.0 -81.1  |
| 89967 ST. LUCIE    | 20 27.3 -80.4  |

## WIMS NFDRS Zone designators for Florida



**INTERAGENCY AGREEMENT**  
for  
**METEOROLOGICAL and OTHER TECHNICAL SERVICES**  
among the  
**Bureau of Land Management**  
**Bureau of Indian Affairs**  
**Fish and Wildlife Service**  
**National Park Service**  
of the  
United States Department of the Interior  
and the  
**Forest Service**  
of the  
United States Department of Agriculture  
and the  
**National Weather Service**  
of the  
National Oceanic and Atmospheric Administration  
United States Department of Commerce

BLM Agreement No. 1422RAI080003  
BIA Agreement No. RS08K42F01  
FWS Agreement No. 982108K001  
FS Agreement No. 08-IA-11130206-010  
NPS Agreement No. F956080028  
NWS Agreement No. 0-02 FedFireWeather 2008

**I. INTRODUCTION.**

Fire management and suppression in the Nation's wildlands is an on-going concern to the American public and to the Department of the Interior's Bureau of Land Management, Bureau of Indian Affairs, Fish and Wildlife Service, and National Park Service, and the Department of Agriculture, Forest Service, as well as to the Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service (NWS). Considerable cooperation and coordination among these agencies exists, which is critical to the success of fire management, suppression and safety. This agreement will refer to the National Weather Service, herein after referred to as "NWS," and the federal wildland fire management agencies, hereinafter referred to collectively as the "Wildland Fire Agencies."

The NWS is legally mandated to issue weather forecasts and warnings for the protection of life and property. In accordance with this mandate, the NWS will make a strong commitment to maintain a cadre of trained Incident Meteorologists (IMET) to meet the needs of the Wildland Fire Agencies under the terms of this agreement. The Wildland Fire Agencies recognize this mandated function of the NWS and the critical importance of the IMET's role in the incident command structure. The NWS IMET program has a long history of being a integral component to Wildland Fire Agencies'

incident operations and planning, and the agencies anticipate there will be increasing demand for NWS IMET services in the future due to the increasing numbers of complex fire events and natural disasters. The Wildland Fire Agencies are responsible for the stewardship and/or protection of lands owned or held in trust by the United States or under the jurisdiction of state agencies.

The Wildland Fire Agencies are also responsible to ensure incident command team position qualifications and practices are consistent, standardized and reviewed in terms of currency and relevance. An interagency alliance involving essential aspects of fire weather products and services is crucial to the success of the Wildland Fire Agencies' missions.

## **II. AUTHORITIES.**

- A. Economy Act of June 30, 1932, as amended (31 U.S.C. 1535).
- B. Organic Act of 1890 (15 U.S.C. 313).
- C. National Climate Program Act (15 U.S.C. 2901 *et seq.*).
- D. Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 *et seq.*).
- E. National Park Service Organic Act of August 1916 (16 U.S.C. 1).
- F. National Wildlife Refuge Administration Act of June 27, 1998 (16 U.S.C. 668dd).
- G. National Indian Forest Resources Management Act of 1990 (25 U.S.C. 3101 *et seq.*).
- H. Cooperative Forestry Assistance Act of 1978 (16 U.S.C. § 2101 *et seq.*).
- I. Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (42 U.S.C. 5121 *et seq.*).

## **III. PURPOSE.**

The purpose of this Interagency Agreement is to identify products and services that are exchanged between the NWS and Wildland Fire Agencies. These products and services are designed to meet the needs of the public and all agencies for the protection of life, property, cost containment and efficiency to enhance ecosystem health. It is also the purpose of this Agreement to set forth the terms and conditions under which services are requested by the Wildland Fire Agencies. Accurate and timely meteorological and fire danger information is required to manage resources effectively and efficiently.

## **IV. OBJECTIVES.**

The objectives of this Agreement are:

- A. Identify those products and services to be exchanged between the NWS and Wildland Fire Agencies;
- B. Continue and maintain interagency relationships; and
- C. Define roles and responsibilities of the NWS and Wildland Fire Agencies.

## V. RESPONSIBILITIES.

The responsibilities and services listed are not all-inclusive, but are meant to provide the overall scope of products, services and activities exchanged or requested by the respective agencies. All services undertaken by the NWS and Wildland Fire Agencies under this Agreement are subject to the availability of appropriated funds and are further defined in the Annual Operating Plan.

### A. The NWS agrees to provide:

1. Basic meteorological services.
2. Non-routine services include, but are not limited to on-site meteorological support consultations and technical advice.
3. Wildland fire suppression-related support activities.
4. Other special fire management services including, but not limited to support for landscape scale prescribed wildland fires, Burned Area Emergency Rehabilitation (BAER) Teams, forecasting support for Long Term Fire Analyst (LTAN) input on wildland fires, and other technical support staff on Incidents. Special provision can be made to supply other technical services staff who meet interagency position standards during critical events of national significance and/or during national Planning Level (PL) 4 or 5. Supply of other technical services staff must have the approval of the applicable NWS Region and will be ordered via normal resource ordering process.

### B. Wildland Fire Agencies agree to provide:

1. Operational support.
2. Wildland fire weather program management.
3. Research, development and application.
4. Reimbursement to the NWS for the following activities associated with on-site meteorological support:
  - a. Costs incurred by the NWS IMET duty station.
  - b. Costs above base salary including overtime incurred by the NWS IMET or compensatory time in lieu of overtime.
  - c. Administrative leave for NWS IMETs and the NWS IMET duty station, immediately effective following the release/travel date on the applicable Resource Order and return to the IMET's duty station, as appropriate. The determination of eligibility must be consistent with the policies in the Interagency Incident Business Management Handbook, <http://www.nwccg.gov/pms/pubs/iibmh>, for federal employees. This assists with maintaining proper work-rest periods
  - d. Costs for logistical and weather observation support required by NWS personnel at on-site operations.
  - e. Telecommunication services costs will be computed annually based on the average prorated percentage rate of use, as applicable, and/or otherwise attributable to the Wildland Fire Agencies and further defined in the National AOP. The Wildland Fire

Agencies will split the prorated cost annually according to the National Wildfire Coordination Group (NWCG) cost distribution rate, and billings/payments will be obligated and administered at the national level.

- f. Hardware replacement for items that are damaged or fail due to on-site incident conditions.
- g. All travel costs and lodging expenses are authorized as consistent with the policies in the Interagency Incident Business Management Handbook for federal employees, <http://www.nwcg.gov/pms/pubs/iibmh>. Rental vehicles, or privately owned vehicle (POV) mileage, are authorized for IMETs due to the substantial amount of equipment they are required to bring with them to an incident.
- h. Miscellaneous office supplies necessary to accomplish on-site support.

## **VI. JOINT RESPONSIBILITIES:**

NWS and Wildland Fire Agencies shall jointly prepare, as warranted, National and Geographic Area specific Annual Operating Plans (AOP) for Fire Weather Services separate from this Agreement that will set procedures and establish costs at Geographical Area Coordination Centers (GACC), National Interagency Fire Center (NIFC), or forecast office level. AOPs developed at the National, GACC and/or local levels shall not conflict with the terms of this Agreement or the procedures of the Mobilization Guides, and shall include:

- A. Shared responsibilities of all participants includes, but are not limited to weather briefings, training, research, product/service verification as outlined in Geographic Area specific AOPs.
- B. Procedures for documenting, monitoring and evaluating fire weather products, briefings and services delivered.
- D. Provision for monitoring and evaluating advances in science and technology.
- E. Provision for efficient means for technology transfer.
- F. Provision for participation in fire weather research, development and application activities.
- G. Provision that the NWS and Interagency Wildland Fire Agencies will work together at the National level to review IMET qualifications and standards annually, and will include changes, as appropriate, in the National Annual Operating Plan.
- H. Provision that NWS and Wildland Fire Agencies will work together to ensure fire agency decision makers receive consistent products and services.
- I. Provision that the NWS and Wildland Fire Agencies will jointly develop and share meteorological methodologies and procedures.
- J. Participation in weather briefings and conference calls with GACCs, NIFC, Multi-Agency Coordination Groups, NWS offices and IMETs as outlined in Annual Operating Plans.
- K. Provision of fire weather expertise in accident/incident investigations.
- L. Provision that the NWS forecast offices and Wildland Fire Agencies' websites establish specific links to both NWS and Predictive Services products.

M. Participation in Interagency groups

1. **Pre-season:**

- a. Ensure that appropriate levels of communication are taking place prior to start of fire season.
- b. Make updates to and disseminate (agency) points of contact list separate from this agreement and as warranted.
- c. Address training needs and scheduling classes, as needed.
- d. Update operational procedures documents, as needed and appropriate.

2. **Post-season:**

Conduct a post season meeting either on site or by teleconferencing or by other means to review the coordinated actions of the prior season and share any “lessons learned” and suggested improvements to the overall process.

N. Participation in a meeting or teleconference annually to review the status of the current year operations and determine necessary changes. This shall include estimating the costs for such changes and determining the recommended services and responsibilities among the partnering agencies in the development of the AOP.

O. Maintenance of procedures for obtaining services, on-site support, other non-routine services and payment can be found in the Geographical Area and National Mobilization Guides. An electronic copy of the *National Mobilization Guide (aka “Red Book”)* can be viewed via [www.nifc.gov](http://www.nifc.gov) by selecting “National Interagency Coordination Center.” Then select the “Policy” and “Reference Material” links to National Mobilization Guide.

P. Establishment of separate agreements or other appropriate arrangements between the requesting and servicing entities for requesting participation and providing reimbursement for NWS employees to serve as instructors in National Wildfire Coordinating Group (NWCG) and other courses. Reference the National Annual Operating Plan for additional information.

## VII. AVAILABILITY OF APPROPRIATED FUNDS.

The signatory agencies enter into this Agreement under the authority of the Economy Act (31 U.S.C. §1535), and their respective organic and appropriation acts.

The ability of the parties to carry out their responsibilities under this Interagency Agreement is subject to their respective funding procedures and the availability of appropriated funds. Should any party encounter budgetary shortfalls which may affect the activities to be carried out under this Interagency Agreement, that party will provide timely notification to the other party in writing. The Wildland Fire Agencies’ funding is identified as no-year funding.

The signatory agencies recognize that, given the current administrative process for payments for fire suppression activities, it is not feasible to obligate the full amount of funds that may be required pursuant to this Agreement, because this Interagency Agreement does not constitute a binding obligation under 31 U.S.C. § 1501 and since it cannot anticipate the specific goods or services for which payment will be requested, the individual payment amounts, or the responsible jurisdictional wildland fire management agency in each future case. This information can only be provided by Resource Orders executed when the goods or services are requested. At the same time, the signatory agencies recognize that Resource Orders are insufficient to constitute a binding obligation under the

statute because there is no evidence of intent to be bound, no authorized signatures are present, and no legal authorities are cited, however, these requirements are satisfied by this Interagency Agreement. The two documents, when taken together, contain all the elements required for an obligation under the statute. Hence, the signatory agencies agree that this Interagency Agreement shall automatically be incorporated by reference into any Resource Orders issued under it for IMET services and products, and that an obligation of funds will occur by the responsible agency at the time the NWS presents a copy of this Agreement and the Resource Orders for payment.

## VIII. STATEMENT OF WORK.

Procedures for notification of and obtaining services from the NWS will be prepared and specified in the AOPs and/or in the Memoranda of Understanding (MOU) for the Geographic Area Coordinating Centers, and in the Geographical Area and National Mobilization Guides. An electronic copy of the *National Mobilization Guide* can be viewed via [www.nifc.gov](http://www.nifc.gov) by selecting "National Interagency Coordination Center," then selecting the "Policy" and "Reference Material" links to the National Mobilization Guide.

## IX. TRANSFER OF FUNDS.

- A. Billing and collection procedures will follow the Intra-governmental Payment and Collection (IPAC) system process.
- B. Wildland Fire Suppression Activities: Obligation of funds and reimbursement of expenditures under this subsection are under the Economy Act (31 U.S.C. 1535). This Agreement is automatically incorporated by reference into any Resource Order that is issued under it, constituting a binding obligation. The Wildland Fire Agencies warrant that they will ensure the funds will be available when the obligations are recorded. The recording of the obligations will occur upon the receipt of the billing/IMET Reimbursable Expense Report package that includes the Fire Weather Billing spreadsheet by the applicable Wildland Fire Agency from the NWS. Each NWS' billing/expenditures invoice will be endorsed, reference the Resource Order, confirm the dates of services, include the amount billed, and include data elements required under Treasury Financial Manual, Vol.1, Bulletin 2007-03: each party's Treasury Account Symbol (TAS)--also called appropriation code, Business Partner Network Number--also called DUNS number, and Business Event Type Code (BETC). The billing/expense report package, inclusive of copies of this Agreement or reference to its applicable document number(s), the Resource Order(s) copy, and expenditure documentation, will define the specific services, supplied goods and costs for each order, and subsequent obligation and payment by the applicable jurisdictional Wildland Fire Agency.
  1. Reimbursement payments for suppression-related activities will be accomplished submission of billing invoices by NWS, which are inclusive of copies of the Resource Orders that define the requested services and goods, and the expenditure back-up documentation to the responsible jurisdictional wildland fire agency. The NWS will not charge an administrative surcharge/indirect cost rate or any other expenditure that is not authorized under the Wildland Fire Agencies' Mobilization Guides, Handbooks and fully executed AOPs as identified in this Agreement and related to these activities. Items to be included are listed as follows.
    - a. The fire name, jurisdictional unit, and incident number (The copy of the Resource Order generally includes this information as does the IMET Reimbursement Expense Form);
    - b. Applicable support documentation requirements and required agency data elements ;

- c. A copy of this Interagency Agreement complete with signatures, or the agency's agreement document number for subsequent billings;
  - d. Identification (name and phone number) of NWS financial contact; and
  - e. IPAC billings are to be submitted to the appropriate payment center by the NWS within sixty (60)-days of completion of service.
2. It is the responsibility of the requesting agency/office to develop and process a unilaterally signed funding document, or as otherwise authorized through the individual agencies' policies, to obligate funds. It is also the responsibility of the requesting agency/office to:
    - a. Conduct any required verification of costs, authorization of expenditures and reconciliation of payment;
    - b. Provide the document number of the funding obligation, required agency data elements and billing instructions to the NWS office that provided the service; and
    - c. Provide information to NWS regarding which payment center to send the billings for processing;
- C. Non-Wildland Fire Suppression Activities: Activities requested under this heading are limited to unusual circumstances that require an on-site IMET and/or other technical support personnel to support landscape scale prescribed wildland fires, Burned Area Emergency Rehabilitation (BAER) Teams, and forecasting support for Long Term Fire Analyst (LTAN) input on wildland fires. The IMET must be requested through the Resource Order process. The obligation of funds, billings and payment functions will be accomplished pursuant to the process outlined above in Item B. of this Section and the Economy Act. The majority of IMET and/or other technical support to these activities is accomplished through Spot Weather Forecasts, which are provided by NWS without cost to the requesting agency.
- D. All-Hazard Emergency Incident Activities: Shall be accomplished pursuant to the National Response Plan and the applicable Emergency Support Function (ESF) policies and procedures. The Forest Service is the primary agency coordinator for the Wildland Fire Management Agencies, except for the operations that occur in the State of Alaska where the Bureau of Land Management is the operational lead. Related obligation of funds, billings and payments are to be accomplished separate from this Agreement and pursuant to the National Response Plan. As a Support Agency listed under the ESF #4 and in accordance with the policies and procedures, the Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service will bill the Department of Homeland Security, Federal Emergency Management Administration (FEMA) directly for all related costs for this activity.

## **X. TERM OF AGREEMENT.**

The effective date of this Agreement will commence upon full execution of the final signature by the identified signatory agencies, and will include appropriate accrued costs for continuation of service effective October 01, 2007, and shall remain in effect through September 30, 2012, or until such time as the Interagency Agreement is terminated by mutual agreement. The Agreement shall be reviewed by all participants to determine its suitability for renewal, revision, or termination in accordance with Section XI. If this Agreement is extended, the extension must be in writing, and approved and signed by authorized signatories for the agencies.

**XI. TERMINATION AND SEVERABILITY.**

Any signatory may terminate their participation in this Interagency Agreement by written notice to all other signatories at any time before the date of expiration upon thirty (30) days written notice of such termination. Full credit shall be allowed for each affected party’s expense and all non-cancelable obligations properly incurred up to the effective date of termination. The remaining signatories may continue the provisions of this Interagency Agreement as long as the NWS remains a signatory.

Nothing herein is intended to conflict with current DOC, USDA or DOI directives. If the terms of this Interagency Agreement are inconsistent with existing directives of either of the agencies entering into this Interagency Agreement, then those portions of the Interagency Agreement that are determined to be inconsistent shall be invalid but the remaining terms and conditions not affected by the inconsistency shall remain in full force and effect. At the first opportunity for review of the Interagency Agreement, all necessary changes will be accomplished either by an amendment to this Interagency Agreement or by entering into a new agreement, whichever is deemed expedient to the interest of all Parties.

**XII. RESOLUTION OF DISAGREEMENT.**

Should disagreement arise on the interpretation of the provisions or implementation of this agreement, the dispute shall be resolved pursuant to the Business Rules for Intragovernmental Transactions delineated in the Treasury Financial Manual, Vol.1, Bulletin 2007-03, Section VII (Resolving Intra-governmental Disputes and Major Differences).

**XIII. MODIFYING THE AGREEMENT.**

Any signatory agency may initiate the modification of this Interagency Agreement to incorporate any changes that are mutually agreed to by the participants. Such modifications shall be in writing and shall identify the specific activities, the total amount of funds applicable to the modification, as appropriate, and any other pertinent details of the modification. The BLM is designated as the agency responsible for all administrative oversight and preparation of modifications to this agreement. The modification(s) shall not take effect until documented and signed by authorized signatories for the agencies.

**XIV. PRINCIPAL CONTACTS.**

The Points of Contact are responsible for coordinating an annual review of the currency and adequacy of this Agreement among the signatories, and/or their designees. Changes to the Points of Contact can be made by written notification to the participating agencies.

National Weather Service:

National Fire Weather Program Manager  
Heath Hockenberry  
National Weather Service  
3833 South Development Ave.  
Boise, ID 83705  
208/334-9862 – Office  
heath.hockenberry@noaa.gov

Interagency Wildland Fire Agencies:

NIFC Fire Weather Program Manager  
Rick Ochoa  
National Interagency Fire Center  
3833 South Development Ave.  
Boise, ID 83705  
208/387-5451- Office  
rick\_ochoa@nifc.blm.gov

**XV. DEFINITIONS.**

See NWCG Glossary of Fire Weather Terminology ([www.nwcg.gov/pms/pubs/glossary](http://www.nwcg.gov/pms/pubs/glossary))

**XVI. SIGNATORY.**

This Agreement shall be effective with and upon full execution of the final signature by the identified signatory agencies, and it will remain in effect through September 30, 2012.

\_\_\_\_\_  
David Caldwell, Director  
Office of Climate, Water and Weather Services  
DOC, NOAA, National Weather Service  
Date \_\_\_\_\_

\_\_\_\_\_  
Timothy M. Murphy, Deputy Assistant Director  
Fire and Aviation (Boise)  
DOI, Bureau of Land Management  
Date \_\_\_\_\_

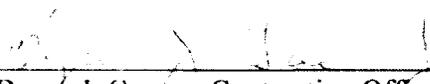
\_\_\_\_\_  
Julie Whaley, Supervisory Procurement Analyst  
Bureau of Land Management - Fire and Aviation (Boise)  
Date \_\_\_\_\_

\_\_\_\_\_  
Brian McManus, Chief  
Branch of Fire Management  
DOI, Fish and Wildlife Services  
Date \_\_\_\_\_

*Nedra Stallone*  
\_\_\_\_\_  
Nedra Stallone, Contracting Officer  
Fish and Wildlife Services – Division of Contracts and  
Facilities Management  
Date 6/27/08

\_\_\_\_\_  
Lyle Carlile, Director  
Branch of Fire Management  
DOI, Bureau of Indian Affairs

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Byron J. Greene, Contracting Officer  
Bureau of Indian Affairs - Division of Acquisition

  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Tom Nichols, Acting Chief  
Branch of Wildland Fire  
DOI, National Park Service

\_\_\_\_\_  
Date

\_\_\_\_\_  
Mary Ray, Contracting Specialist  
National Park Service – Washington Office

\_\_\_\_\_  
Date

\_\_\_\_\_  
Karyn L. Wood, Assistant Director, Operations  
Fire and Aviation Management  
USDA, Forest Service

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Cheryl Molis, Administrative Manager  
USDA, Forest Service- Fire and Aviation Management

\_\_\_\_\_  
Date