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**OPERATING PLAN
FOR
FIRE WEATHER SERVICE
IN
SOUTH CAROLINA**



FEBRUARY 1972

OPERATING PLAN
FOR
FIRE-WEATHER SERVICE
IN
SOUTH CAROLINA

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Columbia, South Carolina

in cooperation with

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INTRODUCTION

In July 1965, the National Weather Service Office in Columbia, S. C. assumed the responsibility of providing specialized fire weather service for South Carolina. This service is administered by the Weather Service in close cooperation with federal, state, and private forestry interests.

Purpose of the Operating Plan for Fire Weather Service in South Carolina:

1. The Operating Plan for Fire Weather Service is prepared to inform forestry interests in South Carolina of the Fire Weather Service, its operation, and the methods of obtaining service.
2. The Operating Plan is issued in lieu of a formal Memorandum of Understanding between the National Weather Service, the S. C. Commission of Forestry, and the U. S. Forest Service in South Carolina.

Objectives of the Fire Weather Service in South Carolina:

1. To help protect life, strengthen the economies of the State, and reduce resource losses by providing weather service to forestry interests in the State.
2. To issue daily fire weather forecasts, outlooks, emergency warnings, and advisory weather service in sufficient detail to guide qualified forestry personnel in making operational decisions in fire prevention, pre-suppression, suppression, and forest management activities.
3. To provide Special or Spot Forecasts for prescribed burning or going wild fires.
4. To provide assistance and consultation in any forest planning and management programs where weather or climate is a factor.
5. To improve the fire weather service by developing special forecast techniques, making case histories of large fires, and preparing special climatic studies.
6. To keep abreast of the needs and problems of all forestry interests and to annually review and possibly amend the Operating Plan for Fire Weather Service to assure its usefulness.

FIRE WEATHER SERVICES

1. REGULAR DAILY FIRE WEATHER FORECASTS.
2. SPECIAL FIRE WEATHER FORECASTS FOR PRESCRIBED BURNING, GOING FIRES, AND OTHER FOREST MANAGEMENT ACTIVITIES.
3. FIRE WEATHER FORECAST REVISION.
4. FIRE WEATHER WARNINGS.
5. ADVISORY WEATHER INFORMATION/BRIEFINGS DURING CRITICAL FIRE WEATHER.
6. FOREST FIRE AND FIRE WEATHER STATEMENTS TO PUBLIC/NEWS MEDIA.
7. ASSISTANCE AND CONSULTATION.
8. AIR STAGNATION ADVISORY.

I. REGULAR DAILY FIRE WEATHER FORECASTS

During fire season, a daily fire weather forecast will be made for twelve separate areas in South Carolina on Monday through Friday and on weekends when requested or the weather is critical. Fire season normally extends from October through the first part of May; however, the beginning and ending of fire season is determined by the S. C. Commission of Forestry and the U. S. Forest Service. Fire season may also be started and ended during the summer by request of either of the above two agencies.

The twelve areas for which regular daily fire weather forecasts are issued are the seven districts of the South Carolina Commission of Forestry, the three areas of the National Forest in South Carolina, Savannah River Plant of the Atomic Energy Commission, and Fort Jackson. See map (page 23) for forecast areas.

When the weather conditions are the same over two or more forecast areas, these areas or districts will be grouped into one forecast.

It must be emphasized that the regular daily forecasts will pertain to average conditions over each of several forecast areas. When more precise information is needed for a specific location, it will be furnished in the form of a Special Forecast Request. See Special Fire Weather Forecasts (page 12).

The seven forecast areas of the State Commission of Forestry will be referred to as District 1, District 2, etc. in the forecast. The three areas of the National Forests will be referred to as the Coastal-Witherbee and Wambaw Ranger Districts/Piedmont-Enoree, Long Cane, Edgefield and Tyger Ranger Districts/Mountains-Andrew Pickens Ranger District. Below is a list of the

Forecast Areas and times of issuance of daily forecasts.

Time of Issuance of Daily Forecasts

<u>Area</u>	<u>Agency</u>	<u>Time of Issuance</u>
District 1	(SCFC)	10:30 a.m. LST
District 2	(SCFC)	10:30 a.m. LST
District 3	(SCFC)	10:30 a.m. LST
District 4	(SCFC)	10:30 a.m. LST
District 5	(SCFC)	10:30 a.m. LST
District 6	(SCFC)	10:30 a.m. LST
District 7	(SCFC)	10:30 a.m. LST
Coastal	(USFS)	3:30 p.m. LST
Piedmont	(USFS)	3:30 p.m. LST
Mountains	(USFS)	3:30 p.m. LST
Savannah River Plant	(A.E.C.)	10:30 a.m. LST
Fort Jackson	(ARMY)	10:30 a.m. LST

See last page for map for forecast areas.

Check-Off Type Forecast Format (SC FW Form 5)

Most of the commonly used fire weather terms are printed on one sheet in a check-off type format (next page). The person receiving the forecast may simply check off the forecast terms or write in numbers as they are received by radio or phone. This form was designed solely for the purpose of rapid copying or relay of the forecast received by radio or telephone. At times when the fire weather forecaster feels that the terms on this sheet do not fully describe the weather situation, he may vary from the terminology on this sheet. It is expected, however, that the times it will be necessary to vary from this terminology will be infrequent.

Included on the Regular Daily Fire Weather Forecast Form (SC FW Form 5) on page 4 are all the weather variables that are needed to enter the National Fire Danger Rating System and develop a forecast of Spread Index and Class of Fire Day or Fire Danger.

Revised 2/14/72

FIRE WEATHER FORECAST FOR

SOUTH CAROLINA

S. C. Form 5

Date _____ Time _____

A. Weather Synopsis/Remarks _____

Today	Tonight	Tomorrow
B. Significant Weather	B. Significant Weather	B. Significant Weather
1 <u> </u> Clear	1 <u> </u> Clear	1 <u> </u> Clear
2 <u> </u> Partly Cloudy	2 <u> </u> Partly Cloudy	2 <u> </u> Partly Cloudy
3 <u> </u> Cloudy	3 <u> </u> Cloudy	3 <u> </u> Cloudy
4 <u> </u> Increasing	4 <u> </u> Increasing	4 <u> </u> Increasing
5 <u> </u> Decreasing	5 <u> </u> Decreasing	5 <u> </u> Decreasing
6 <u> </u> Isolated	6 <u> </u> Isolated	6 <u> </u> Isolated
7 <u> </u> Widely Scattered	7 <u> </u> Widely Scattered	7 <u> </u> Widely Scattered
8 <u> </u> Scattered	8 <u> </u> Scattered	8 <u> </u> Scattered
9 <u> </u> Numerous	9 <u> </u> Numerous	9 <u> </u> Numerous
10 <u> </u> General	10 <u> </u> General	10 <u> </u> General
11 <u> </u> Occasional	11 <u> </u> Occasional	11 <u> </u> Occasional
12 <u> </u> Continuous	12 <u> </u> Continuous	12 <u> </u> Continuous
13 <u> </u> Showers	13 <u> </u> Showers	13 <u> </u> Showers
14 <u> </u> Thundershowers	14 <u> </u> Thundershowers	14 <u> </u> Thundershowers
15 <u> </u> Rain	15 <u> </u> Rain	15 <u> </u> Rain
16 <u> </u> Drizzle	16 <u> </u> Drizzle	16 <u> </u> Drizzle
17 <u> </u> Freezing Rain	17 <u> </u> Freezing Rain	17 <u> </u> Freezing Rain
18 <u> </u> Snow	18 <u> </u> Snow	18 <u> </u> Snow
19 <u> </u> Sleet	19 <u> </u> Sleet	19 <u> </u> Sleet

Isolated .. 1-15% Widely Scattered .. 16-30% Scattered..31-45% Numerous..46-75% General, Occasional, and Continuous..76-100%

C. High Temperature _____ C. Low Temperature _____ C. High Temperature _____

D. Low Relative Humidity _____ Wet Bulb Temperature _____ D. Low Relative Humidity _____ Wet Bulb Temperature _____ D. Low Relative Humidity _____ Wet Bulb Temperature _____

WINDS

E. Direction 9 Variable

1 NE 3 SE 5 SW 7 NW

2 E 4 S 6 W 8 N

or Shifting to at Time _____

F. Speed

Average _____

Maximum _____ or Gusts _____

G. Afternoon Stability (Circle)

1 2 3 4

G. Dew Intensity None Lgt Mdt Hvy

Drying off by _____

G. Estimated 24-Hour Precipitation (Circle)

none T .10 .15 .25 .40 .60

.80 1.00 1.50 2.00 2.50 2.50+

H. Visibility _____

I. Extended Outlook _____

II. SPECIAL FIRE WEATHER FORECASTS FOR PRESCRIBED BURNING, GOING FIRES, AND OTHER FOREST MANAGEMENT ACTIVITIES

Fire Weather Special or Spot Forecasts are more detailed forecasts both in weather and time for a small area, and are intended to be used for prescribed burning, going fires, and other forest management activities. In contrast, the regular daily fire weather forecast is for a large area and is intended to be used for forest planning activities, pre-suppression, suppression, and mop-up of small fires, and computation of fire danger or class of fire day.

Special Forecasts are made at any time but only upon request. See below and also under Methods of Obtaining Fire Weather Service.

At times someone must be called back on duty to prepare a Special Forecast and maintain a weather watch. Therefore, it is requested that the caller or requestor of a Special Forecast:

1. Give the Fire Weather Office as much advance notice as possible.
2. Give as much detail as possible about location of project, terrain, and weather conditions that would adversely affect your project. (Example: On a prescribed burn, there might be a main highway or different property ownership to the northwest and you need to know of any possibility of a southeast wind or of any change in the wind to the southeast during the period of the burn.)
3. Give approximate times that project is to be carried out and the period of time the forecast is needed.
4. Give the type of weather information requested and the amount of detail in which it is wanted.
5. Give his name and number so that the Fire Weather Office can call him back collect with the forecast and also with a forecast revision or warning if necessary.
6. Give the Fire Weather Forecaster any other information that he needs to fill out circled items on Fire Weather Special Forecast Request Form as shown on the next page.

III. FIRE WEATHER FORECAST REVISION

A. Regular Daily Fire Weather Forecast Revision

During fire season when the BUI is greater than 25 and the 1 p.m. Fire Tower humidity is or is expected to be below 40 percent:

1. The 10:30 a.m. forecast is revised by 2 p.m.
2. The 3:30 p.m. forecast is revised by 10:15 a.m. the following day.

IF.....

- a. The prevailing wind direction is off or is expected to be off by 90 degrees or more from the previous forecast if the wind speed is or is expected to be 6 mph. or greater (Fire Danger Station Speed).
- b. The wind speed increases or is expected to increase by 5 mph. or greater (~~4~~10 minute Fire Danger Station observation - not airport station observation) from the previous forecast.
- c. The 1 p.m. relative humidity is off or is expected to be off by more than 5 percent.
- d. See "Fire Weather Warnings Section" for warnings.

B. Special Forecast Requests for Prescribed Burns and Going Fires

Same criteria as 1 through 4 above and any special criteria that is set up at the time Special Forecast is requested.

Only one attempt will be made by the Fire Weather Office to notify the requestor of a Special Forecast of any revisions. Therefore, the requestor should be sure to give the Fire Weather Forecaster a number where he may be contacted or the revision relayed.

IV. FIRE WEATHER WARNINGS

A. During Fire Season

At all times during fire season when the BUI is 25 or higher and the relative humidity is or is expected to be below 40%, Fire Weather Warnings are issued IF.....

1. A wind shift of greater than 45 degrees is expected to move across the area and was not previously forecast.
2. Wind speeds reach or are expected to reach 12 mph. or higher (Fire Danger Station) - 16 knots or higher. (Airport Station) and were not previously forecast.
3. Erratic fire behavior is expected such as blow fires, fire whirlwinds, or winds that would cause significant spotting on the flanks.

The following forestry interests are notified:

1. The S. C. State Commission of Forestry Ph. 758-2261
2. U. S. Forest Service Ph. 765-5222
on weekends...Coastal Ph. 1 899-2704
Piedmont Ph. 1 694-3763
Mountains Ph. 1 638-3546 or 1 647-2231
3. Atomic Energy Commission Ph. FTS 642-2413
4. Fort Jackson Forestry Department Ph. 751-4622 or
751-5172
5. Westvaco Coastal Areas...only when conditions I and II
exist or are expected together. Ph. 1 873-1220

B. Warnings on Special Forecast Requests for Prescribed Burning

The requestor of a Special Forecast Request (WB Form D-1) for prescribed burning will be warned under the following conditions:

1. Same as I, II, and III above.
2. The requestor of the Special Forecast will give the Fire Weather Forecaster the weather conditions that will cause the prescribed burn to get out of control.

Only one attempt will be made to warn the requestor of 1 and 2 above; therefore, the requestor of a Special Fire Weather Forecast should be sure to give the Fire Weather Office a number where he may be contacted or the warning relayed.

V. ADVISORY WEATHER INFORMATION/BRIEFINGS DURING CRITICAL FIRE WEATHER

During periods of critical fire weather and high fire occurrence, advisory weather information or briefings will be provided every 2 hours to the State Commission of Forestry Headquarters and to the Supervisor's Office of the U. S. Forest Service. This advisory weather information will be relayed to the affected areas in the state as necessary by the State Commission of Forestry and the U. S. Forest Service.

VI. FOREST FIRE AND FIRE WEATHER STATEMENTS TO PUBLIC/NEWS MEDIA

During critical fire weather and/or high fire occurrence, the Weather Service and/or the State Commission of Forestry will initiate a "Forest Fire and Fire Weather Statement". The Commission of Forestry or the Fire Weather Office may initiate the statement...that is the Commission of Forestry may ask the Fire Weather Office to issue a statement on NOAA Weather Wire Service or the Weather Office may feel that a statement is necessary and initiate a statement. In all cases the Fire Weather Office will go over the wording of all statements with the Forestry Commission and issue statements only with their approval.

A daily fire report will be obtained by the Fire Weather Office between 10:30 and 11:15 a.m. when there is a significant number or size of fires. The Forest Fire and Fire Weather Statement will then be prepared and sent on NOAA Weather Wire Service between 11:30 and 11:45 a.m. in time for the noon news. However, statements may be issued at any time that is necessary or conditions change.

Some examples of statements are on the following page. Accepted phrases and sentences as shown in the booklet on Forest Fire and Fire Weather Statements will be used as a guide.

.....SPECIAL STATEMENT.....

FOREST FIRE AND FIRE WEATHER STATEMENT

S. C. STATE COMMISSION OF FORESTRY AND NATIONAL WEATHER SERVICE IN COLUMBIA, S.C.
1:50 P.M., APRIL 2, 1966. WBAS COLUMBIA, S. C.

EXTREMELY CRITICAL FIRE WEATHER CONDITIONS CONTINUE TO PREVAIL OVER THE STATE OF SOUTH CAROLINA. UNDER PRESENT CONDITIONS THE SLIGHTEST SPARK CAN CAUSE A FIRE WHICH CAN BURN OUT OF CONTROL WITHIN MINUTES. EVERYONE IS URGED TO BE EXTREMELY CAUTIOUS DURING THIS PERIOD OF DRY WINDY WEATHER.

ON MARCH 31, 1966, THE GOVERNOR OF THE STATE OF SOUTH CAROLINA PROCLAIMED THAT THE USE OF ANY FIRE ON OR ADJACENT TO ANY FOREST, WOODLANDS, BRUSHLANDS, OR GRASSLANDS OF THE STATE SHALL BE PROHIBITED BEYOND THE LIMITS OF ANY INCORPORATED MUNICIPALITY.

THIS MORNING THE S. C. STATE COMMISSION OF FORESTRY CLOSED ALL STATE PARKS AS A FIRE PREVENTION MEASURE. IN THE STATE YESTERDAY AN ESTIMATED 25 TO 30 THOUSAND ACRES OF VALUABLE LAND WAS BURNED BY WILDFIRES. HOWEVER, A COMPLETE EVALUATION OF THE DAMAGE CANNOT BE MADE AT THIS TIME.

FOREST FIRE AND FIRE WEATHER STATEMENT

S. C. STATE COMMISSION OF FORESTRY AND NATIONAL WEATHER SERVICE IN COLUMBIA, S. C.
DECEMBER 29, 1965 2:15 P.M.

FIFTY-THREE FIRES BURNED 468 ACRES OF LAND IN SOUTH CAROLINA YESTERDAY. FIFTY-ONE OF THESE FIRES OCCURRED IN THE SOUTHEASTERN TWO-THIRDS OF THE STATE. OVER ONE-THIRD OF THE TOTAL NUMBER OF FIRES OCCURRED IN THE THREE COUNTIES OF MARLBORO, HORRY AND FLORENCE. THREE FIRES IN MARLBORO BURNED 100 ACRES; SIX FIRES IN HORRY BURNED 55 ACRES; AND TEN FIRES IN FLORENCE BURNED 3,848 ACRES.

OVER ALL EXCEPT THE NORTHWESTERN THIRD OF THE STATE AND THE EXTREME SOUTHERN PORTIONS...THE CLASS OF FIRE DAY EXPECTED TODAY IS THREE OR HIGH FIRE DANGER. UNDER THESE CONDITIONS, FUELS IGNITE READILY AND BURN HOT. CONTROL OF FIRES CAN BE DIFFICULT. BURNING OF TRASH AND BRUSH OR FIELDS SHOULD BE POSTPONED UNTIL AFTER SOME RAIN. CAMPERS AND SMOKERS SHOULD TAKE EVERY PRECAUTION TO SEE THAT THE MATCH THEY STRIKE IS NOT THE BEGINNING OF A FOREST FIRE. MAKE IT YOUR BUSINESS TO KNOW YOUR STATE AND LOCAL FIRE LAWS.

BE CAREFUL ALTHOUGH WINDS ARE LIGHT TODAY; THE GRASS AND WOODS ARE DRY IN MOST SECTIONS AND ANY INCREASE IN WIND WILL MAKE ANY FIRES SPREAD RAPIDLY. HUMIDITIES OVER THE STATE THIS AFTERNOON ARE IN THE 30 PERCENT RANGE EXCEPT ALONG THE COAST AND THE EXTREME SOUTHERN PORTIONS OF THE STATE WHERE HUMIDITIES WILL BE IN THE 40 PERCENT RANGE.

VII. ASSISTANCE AND CONSULTATION

The S. C. Fire Weather Office in Columbia will give assistance and consultation in any forest planning and management programs where weather or climate is a factor depending on the time available for this service.

VIII. AIR STAGNATION ADVISORY (A.S.A.)

An Air Stagnation Advisory is a forecast of meteorological conditions over an extensive area that will result in poor dispersion of pollutants (smoke, chemicals, etc.) for a period of 24 hours or greater.

While it would probably not be wise to carry out a prescribed burn when an Air Stagnation Advisory is in effect, there will be many more times when an A.S.A. is not in effect that it would be unwise to burn. The reason being that an A.S.A. covers a large area and not a small or local area such as a prescribed burn. An A.S.A. also is for a period of 24 hours or longer while a prescribed burn usually covers a span of less than 10 hours. Therefore, an A.S.A. should be used for exactly what it is meant to be used for, an Advisory of the meteorological conditions over a scale of 50-300 miles that would be encountered for any air pollution source.

The Fire Weather Office will notify the S. C. Commission of Forestry and the U. S. Forest Service in S. C. when an Air Stagnation Advisory is issued. Also, in the "Remarks" part of the forecast a statement will be made to the effect: An Air Stagnation Advisory is in effect through (time) p.m. or a.m. (day) .

METHODS OF OBTAINING FIRE WEATHER SERVICE

It is the present policy of the National Weather Service that the office or individual receiving the regular forecast, Special Forecast or other weather information will pay for the cost of transmission of the information. The Weather Service pays for the cost of receiving the fire weather observations that are necessary in preparing the fire weather forecasts.

I. Regular Daily Fire Weather Forecasts

A. South Carolina Commission of Forestry Personnel:

The South Carolina Commission of Forestry has radio communications that will reach all points in the state. This allows the Fire Weather Office in Columbia to make a local telephone call to the Commission of Forestry Headquarters and give them the fire weather forecasts for the seven districts of the state. The Forestry Commission will distribute the forecasts by radio to their field offices and towers in the areas for which the forecasts apply. The fire weather forecasts will then be available at each State Forestry District Office and also certain look-out towers.

B. National Forests in South Carolina:

The Fire Weather Office will telephone the daily fire weather forecasts for Coastal, Piedmont, and Mountain areas to the U. S. Forest Service Supervisor's Office in Columbia. The Supervisor's Office will in turn distribute the forecasts by FTS (Federal Telecommunications System) to their District Ranger Offices.

C. Savannah River Plant, Atomic Energy Commission:

Fire Control Section of Savannah River Plant will call the Columbia Fire Weather Office by FTS between 10:30 and 11:30 a.m. for daily fire weather forecast.

D. Fort Jackson:

Fort Jackson Forestry will call the Columbia Fire Weather Office between 10:30 and 11:30 a.m. for daily fire weather forecast.

E. Other Forestry Interests:

Other forestry interests may obtain regular fire weather forecasts by one of the following methods:

1. By telephoning the S. C. Fire Weather Office in Columbia. Remember that under present policy, the toll call will have to be at the expense of the caller. A separate telephone line is installed in the Weather Service Fire Weather Office for fire weather use. This number is Columbia 794-5134, Area Code 803. It is very important that this line remain open for fire weather communications, and it is requested that the number not be given to the general public.

2. By telephoning the State Forestry District Office in your area, or the nearest dispatching tower.
3. By copying the forecast when it is transmitted by radio (between 10:30 and 11:30 a.m. Monday through Friday) from the State Commission of Forestry Headquarters in Columbia. This method will be available only to interests who have a radio on the same frequency as the State Commission of Forestry.

II. Special Fire Weather Forecasts

A. South Carolina State Commission of Forestry:

When Special Forecasts are needed for prescribed burning, going fires, or other forest management activities, the District Forester, fire boss or one of his representatives will call the S. C. Fire Weather Office (794-5134 Columbia). The fire weather forecaster may be able to give the information requested at that time or he may have to prepare a forecast and call back collect at a later time.

B. National Forests in South Carolina:

When Special Forecasts are needed for prescribed burning, going fires, or other forest management activities, the District Ranger, fire boss or one of his representatives will call the S. C. Fire Weather Office (794-5134 Columbia). The fire weather forecaster may be able to give the information requested at that time or he may have to prepare a forecast and call back collect at a later time.

C. Savannah River Plant (A.E.C.) Fire Control and U. S. Forest Service:

When personnel of these two organizations need Special Forecasts for prescribed burning, going fires, or other forest management activities, they will call S. C. Fire Weather Office direct (794-5134 Columbia) or use FTS.

D. Fort Jackson Forestry:

When personnel of this organization need Special Forecast Service, they may call the Fire Weather Office as a local call (794-5134).

- E. Other forestry interests may obtain Special Fire Weather Forecasts for prescribed burning, going fires, and other forest management activities by calling the Fire Weather Office in Columbia 794-5134. Remember that under present policy the toll call will have to be at the expense of the caller.

III. Other Fire Weather Service

Other fire weather service will be obtained by the same methods under II Special Fire Weather Forecasts above.

DEFINITIONS OF FIRE WEATHER FORECAST TERMS

In order that you may make the best use of the fire weather forecast, it is

necessary to understand the meanings of the words used. The most commonly used terms are printed on the Regular Daily Fire Weather Forecast Check-Off Form (page 4). The explanation of these terms appear below in the order that they appear on the forecast check-off form.

A. Weather Synopsis/Remarks

This section of the forecast will consist of short statements about:

1. Weather systems that will affect fire weather in the state.
2. Adverse wind profiles.
3. Low level winds, if applicable.
4. Fire behavior.
5. Steadiness in wind expected for prescribed burning if general conditions exist for most of state.
6. Air Stagnation Advisories.

This section of the forecast will also be used to explain or expand on parts of the forecast that cannot be covered in the check-off type format.

B. Significant Weather

1. Clear - 2/10 or less of sky covered by clouds.
2. Partly cloudy - 3/10 to 7/10 of sky covered by clouds.
3. Cloudy - 8/10 or more of sky covered by clouds.
4. Increasing - Clouds increasing in amount or density during the forecast period.
5. Decreasing - Clouds decreasing in amount or density during the forecast period.

NOTE: By request from Forestry Interests in South Carolina, no precipitation is forecast during periods of dry weather when probability of precipitation is less than 50 percent.

6. Isolated - 1 to 15% of the forecast area expected to receive precipitation.
7. Widely scattered - 16 to 30% of the forecast area expected to receive precipitation.
8. Scattered - 31 to 45% of the forecast area expected to receive precipitation.
9. Numerous - 46 to 75% of forecast area expected to receive precipitation.
10. General - 76 to 100% of the forecast area expected to receive precipitation.

The following two terms are understood to cover 76 to 100% of the area with precipitation and are used mainly to describe the variation of precipitation with time.

11. Occasional - Precipitation occurring now and then; occurring at irregular intervals; the periods of precipitation are relatively short.

12. Intermittent - Precipitation of more or less prolonged character, but frequently interrupted for short periods.
13. Showers - Fall of precipitation of short duration and varying intensity, with periods of no precipitation between showers.
14. Thundershowers - A shower accompanied by thunder. This term is used for the majority of convective type showers with thunder.
15. Rain - A more or less steady type of precipitation that does not vary much in intensity.
16. Drizzle - Precipitation which consists of numerous tiny droplets which appear to float or fall slowly.
17. Freezing Rain - Rain that falls in a liquid form but freezes upon contact with a cold surface such as power lines, trees, etc. This type of precipitation, if continuous, could be very damaging to trees.
18. Snow - Frozen precipitation of comparatively long duration (half or more of the forecast period).
19. Sleet - Precipitation in the form of frozen rain or partly frozen rain.

C. Temperature

The forecast temperature is that value for the highest 1 p.m. temperature expected in the District, and the lowest expected at any time during the night, usually near dawn.

D. Relative Humidity and Wet Bulb Temperature

Relative Humidity - the forecast humidity is that value expected for the lowest 1 p.m. humidity in the District. If significantly lower humidities are expected later in the afternoon, this will be mentioned in the "Remarks" part of the forecast.

Wet Bulb Temperature - The wet bulb temperature in the today and tomorrow part of the forecast will be the value expected at the time of the forecast 1 p.m. temperature. The wet bulb temperature in the tonight part of the forecast will be the value expected at the time of the lowest temperature which usually occurs near dawn.

E. Wind Direction

Wind direction, as given in the forecast, is the direction from which the wind is blowing on an 8 point compass (i.e., north, northeast, east, etc.) When the wind speeds are strong, the direction is usually quite uniform over large areas, but when speeds are light, the direction usually varies from place to place and from one hour to the next. One reason for this is that when wind speeds are light, the direction is affected more by local conditions, such as

hills, lakes, open area, etc. During times of light winds, the direction may be forecast as variable. Also, when winds are expected to be variable, but blowing from a certain direction most of the forecast time, the direction will be forecast variable, but mostly _____. In all cases, the forecast wind direction will pertain to the direction most likely to prevail over most of the District. When an abrupt shift in wind direction is expected, the direction before and after the shift will be given, along with the approximate time of the wind shift.

In the Special Forecast the steadiness of the wind direction is also forecast by time periods.

F. Wind Speed

Average Speed - This value will be in miles per hour and will pertain to the average 4-10 minute wind speed as would be observed at a Fire Danger Station. When the forecast is for the daytime, the average speed will pertain to the wind speed expected during the afternoon hours, since this is the time of maximum fire danger. For the nighttime period, the average speed will pertain to the wind speed averaged through the night. Using these values in the National Fire Danger & Rating System Tables will give the average fire danger expected during the forecast period over the District.

Maximum Speed - This value will be in miles per hour and will pertain to maximum wind speed that can be expected at any one location in the district during the forecast period. Using this value in the National Fire Danger Tables will give the maximum fire danger that can be expected during the forecast period. If gusty winds are expected, the maximum wind speed will be left blank and the peak wind gusts that can be expected in any one location will be given.

Note - The Maximum speed or gusts will not refer to the strong, down drafts that would be expected near thundershowers or thunderstorms.

G. Atmospheric Stability

Atmospheric stability as used here is based on a study "Atmospheric Stability and Fire Control" by Rollo T. Davis, Forestry Meteorologist - National Weather Service. See Fire Control Notes, Summer 1969/Vol. 30, No. 3 for results of this study.

Atmospheric stability in the layer between surface and 5,000 feet is categorized as follows:

1. Stable - Temperatures aloft decreasing with increase in altitude at a rate of about 3.5°F. or less per 1,000 feet.
2. Conditionally Unstable - Temperature decrease with increase in altitude at a rate of 3.5°F. to 5.4°F. per 1,000 feet. (Conditionally unstable air tends to become unstable if forced to rise. Additional heat supplied at the surface is sufficient to produce the needed rise.)

3. Unstable - Temperature decrease with increase in altitude of 5.5°F. per 1,000 feet.
4. Absolutely Unstable - Temperature decrease with increase in altitude greater than 5.5°F. per 1,000 feet.

Stability forecasts will refer only to the afternoon hours of the day.

Dew Intensity

None - No dew. Grass feels dry.

Light - No dew visible, but grass feels moist to touch.

Moderate - Some dew visible, both small droplets and a few large droplets.

Heavy - Definitely a heavy dew. Grass covered with many large droplets.

Drying off times will be that time when the dew is expected to dry off to the none category.

Estimated 24 Hour Precipitation Amounts

The amounts used in the daily forecast are average amounts expected in the percentage of the district that is expected to receive precipitation as indicated in the "Significant Weather" part of the check-off form. If isolated showers are expected with 0.25" or rain forecast, then 1-15% of the district should expect to receive 0.25" of rain with no rain in the rest of the district. In this case 75% or more of the district would receive no rain. It is very important that the precipitation amounts be used in conjunction with the "Significant Weather" part of the forecast.

The amount of precipitation forecast is that amount that is expected for a 24 hour period from 1 p.m. today to 1 p.m. tomorrow.

The specific values that were used on the check-off form are generally the mid-points of the precipitation range as used in the National Fire Danger Rating System. This makes it convenient to enter the National Fire Danger Rating System and come up with a forecast of BUI Recovery.

H. Visibility

The maximum distance that a smoke column of specified size and density can be seen and recognized as a smoke by the unaided eye. Visibility increments will be in statute miles and will refer only to the afternoon hours.

I. Extended Outlook

This will be a general outlook or forecast of weather conditions with emphasis on winds and humidities for as long a time as is feasible, usually 4 to 5 days.

FIRE WEATHER STUDIES

As you probably know, the science of meteorology has not advanced to the point where forecasts are one-hundred percent perfect. The field of forestry meteorology is slowly advancing through local studies and national research, and improvements are gradually being made. Since weather forecasts for forestry are generally very detailed forecasts both in time and weather elements, it is especially important that the fire weather meteorologist make objective studies of weather elements that influence forestry in his area of responsibility.

The purpose of objective studies for South Carolina will be to:

1. Provide more accurate fire weather forecasts.
2. Develop methods or aids in forecasting weather elements important to fire control and forest management activities.
3. Prepare case histories of large fires.

FIRE WEATHER OBSERVATIONS

Fire Danger and Fire Weather Observations are provided to the National Weather Service Fire Weather Office by the S. C. Commission of Forestry and the U. S. Forest Service for 17 Stations (14 State and 3 USFS) in South Carolina. See map (page 23) for location of stations. Detailed fire danger and fire weather reports of 1 p.m. conditions are taken daily throughout the year and are transmitted to the Fire Weather Office on each day that regular daily weather forecasts are issued. These reports are very important in preparing and revising the daily fire weather forecasts and also in improving fire weather service through studies that are made.

The 10 Day Fire Danger and Fire Weather Record (page 18) is used by the above 17 key stations to prepare and enter 1 p.m. fire danger observations. These forms are mailed to the Fire Weather Office in Columbia either every 10 days or every month as instructed. After these forms are retained locally for 1-2 years, they are mailed to the National Climatic Center in Asheville, N.C. It is planned that these forms will eventually be punched up on punch cards and will be available for computer studies in fire weather and forestry.

Reporting 1 p.m. Fire Weather and Fire Danger Observations

The State Commission of Forestry Stations will place the prepared plastic overlays on the 10 Day Fire Danger and Fire Weather Record and will report only that information that appears in the punched out holes. This information will be relayed to the State Commission of Forestry Headquarters by radio between 1 and 2 p.m. The State Headquarters Office will enter this information on Form FC-20C (page 19) and relay it to the Fire Weather Office in Columbia by telephone between 1:30 and 2:30 p.m.

The U. S. Forest Service Stations will use the same procedures as above except that the Columbia Fire Weather Office will call the individual stations around 1:45 p.m. to obtain the 1 p.m. information.

WB FORM D-9
(REV. 10-69)

U.S. DEPARTMENT OF COMMERCE
ESSA
WEATHER BUREAU

AGENCY

UNIT

STATION NAME

STATION NUMBER

10 - DAY
FIRE DANGER AND FIRE WEATHER RECORD

STATION ELEVATION

PSYCHROMETRIC TABLE
USED

BASIC OBSERVATION TIME (Local standard time)

PERIOD OF RECORD (Month, dates and year)

Fl.

In.

FROM

TO

DAY OF THE MONTH	STATE OF WEA- THER	FINE FUEL MOISTURE							BUILDUP INDEX				SPREAD INDEX																
		HERB. STAGE	TEMPERATURE				REL. HUM.	FINE FUEL MOIS- TURE	BUILDUP YESTER- DAY OR CORRECTED	DRY- ING FAC- TOR	BUILDUP INDEX TODAY	WIND		ADJUST- ED FUEL MOISTURE	SPREAD INDEX														
			DRY BULB	WET BULB	WET BULB DE- PRES- SION	DEW POINT						DIR.	SPE- ED		TIMBER	FINE FUEL													
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
0																													
31																													
SUMS	XX	XX	XX							XX	XX			XX															
MEANS	XX	XX								XX	XX																		

DAILY (24-HOUR) DATA (Recorded at Basic Observation Time)

DATE	TEMPERATURE		HUMIDITY		PRECIPITATION			THUNDERSTORM		AVG. CLOUD COVER	REMARKS										
	MAX- IMUM	MINI- MUM	MAX- IMUM	MINI- MUM	KIND	TIME		AMOUNT	TIME												
						BEGAN	ENDED		BEGAN												ENDED
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50				
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
0																					
31																					
SUMS						XX	XX	XX			XX	XX									
MEANS						XX	XX	XX			XX	XX									

1 P. M. WEATHER SUMMARY
SOUTH CAROLINA FIRE-WEATHER OFFICE

DATE

	STATE OF WEATHER	DRY BULB	WET BULB	RELATIVE HUMIDITY	FINE FUEL MOISTURE	BUILDUP INDEX	WIND DIRECTION	WIND SPEED	SPREAD INDEX	24-HOUR PRECIPITATION	VISIBILITY
STATE PARK											
CAMDEN											
TIMMONSVILLE											
BENNETTSVILLE											
MEAD											
COOPER											
SILVERSTREET											
CHESTER											
EDGEFIELD											
ROWESVILLE											
DUNCAN											
OAKWAY											
STOKES											
OKEETEE											
STUMPHOUSE											
WHITMIRE											
WITHERBEE											

Reports of Forest Fires and Acreage Burned

During periods of dry weather or high fire occurrence, the number of fires and acreage burned for the previous day will be obtained by the Fire Weather Office between 10:30 and 11:30 a.m. from the State Commission of Forestry. This information will be entered by District and by county on a prepared form as shown on page 21. Forest Fire and Fire Weather Statements to the public will be prepared from this information.

Supplies

For those stations reporting and/or recording information for the Fire Weather Office, the Weather Service will furnish:

1. 10 Day Fire Danger and Fire Weather Record Forms.
2. Plastic overlays for the 10 Day Fire Danger and Fire Weather Record Forms.
3. Pre-addressed stamped envelopes for mailing forms.
4. Carbon paper.
5. Psychrometric Tables (Relative Humidity and Dew Point Tables).
6. Psychrometers.
7. Wicking for Wet Bulb Thermometers.
8. Rain gauge sticks.

DIST.	COUNTY				
1	Chesterfield				
	Kershaw				
	Lancaster				
	Lee				
	Richland				
	Sumter				
	TOTAL				
2	Darlington				
	Dillon				
	Florence				
	Horry				
	Marion				
	Marlboro				
TOTAL					
3	Berkeley				
	Clarendon				
	Georgetown				
	Williamsburg				
TOTAL					
4	Abbeville				
	Chester				
	Edgefield				
	Fairfield				
	Greenwood				
	Laurens				
	McCormick				
	Newberry				
	Saluda				
TOTAL					
5	Aiken				
	Allendale				
	Bamberg				
	Barnwell				
	Calhoun				
	Lexington				
	Orangeburg				
TOTAL					
6	Anderson				
	Cherokee				
	Greenville				
	Oconee				
	Pickens				
	Spartanburg				
	Union				
	York				
TOTAL					
7	Beaufort				
	Charleston				
	Colleton				
	Dorchester				
	Hampton				
	Jasper				
TOTAL					
	STATE TOTAL				

MAILING ADDRESS FOR CORRESPONDENCE OR SUPPLIES

All correspondence and supply requests should be made to:

WEATHER SERVICE FORECAST OFFICE
COLUMBIA METROPOLITAN AIRPORT
WEST COLUMBIA, SOUTH CAROLINA 29169

ATTENTION: FIRE WEATHER OFFICE

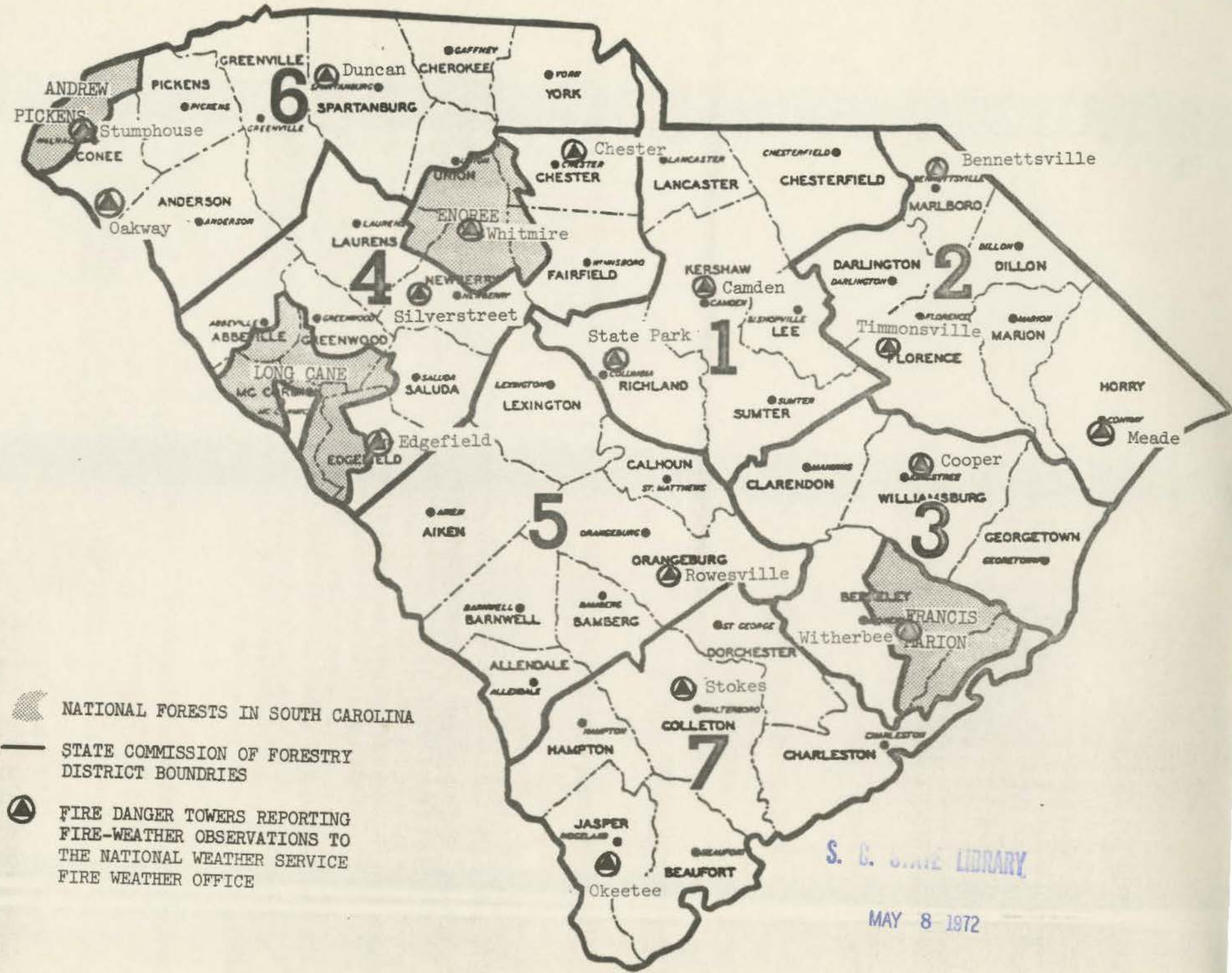
PHONE NUMBERS OF FIRE WEATHER OFFICE AND RESIDENCE PHONE NUMBERS OF FIRE WEATHER FORECASTERS


FOR ALL FIRE WEATHER SERVICE PLEASE CALL 794-5134 COLUMBIA


This is an unlisted number for fire weather use, so please do not hand this number out or give to other individuals for weather service other than fire weather.


Residence phone numbers of Fire Weather Personnel:

Jerry D. Kanupp (Regular Fire Weather Forecaster).....772-0239
John C. Purvis (Meteorologist in Charge of Weather Service Office).....796-2180



 NATIONAL FORESTS IN SOUTH CAROLINA

 STATE COMMISSION OF FORESTRY DISTRICT BOUNDRIES

 FIRE DANGER TOWERS REPORTING FIRE-WEATHER OBSERVATIONS TO THE NATIONAL WEATHER SERVICE FIRE WEATHER OFFICE

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MAY 8 1972