

EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRES

PROJECT DEVELOPMENT PHASE

SPRINT 3

| | |
|--------------|--|
| Date | 05.11.2022 |
| Team ID | PNT2022TMID53582 |
| Project Name | Emerging Methods For Early Detection Of Forest Fires |
| Team Leader | V.Aanant |
| Team Members | M.Charan S.Guhaneswar G.K.Harish Kumar |

```
In [4]: import matplotlib.pyplot as plt
import numpy as np import pandas
as pd import seaborn as sns
from sklearn import metrics from sklearn.metrics import
classification_report,confusion_matrix
```

```
In [5]: import warnings warnings.filterwarnings(action="ignore")
%matplotlib inline sns.set_style('darkgrid')
pd.set_option("display.max_rows",1000)
pd.set_option("display.max_columns",1000)
```

```
In [6]: fires = pd.read_csv(r"C:\Users\dhine\Downloads\forestfires.csv\forestfires.csv")
#show the first 15 instance of dataset fires.head(15)
```

Out[6]:

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | RH | wind | rain | area |
|----|----|---|-------|-----|------|-------|-------|------|------|----|------|------|------|
| 0 | 75 | | mar | fri | 86.2 | 26.2 | 94.3 | 5.1 | 8.2 | 51 | 6.7 | 0.0 | 0.0 |
| 1 | 7 | 4 | oct | tue | 90.6 | 35.4 | 669.1 | 6.7 | 18.0 | 33 | 0.9 | 0.0 | 0.0 |
| 2 | 74 | | oct | sat | 90.6 | 43.7 | 686.9 | 6.7 | 14.6 | 33 | 1.3 | 0.0 | 0.0 |
| 3 | 8 | 6 | mar | fri | 91.7 | 33.3 | 77.5 | 9.0 | 8.3 | 97 | 4.0 | 0.2 | 0.0 |
| 4 | 86 | | mar | sun | 89.3 | 51.3 | 102.2 | 9.6 | 11.4 | 99 | 1.8 | 0.0 | 0.0 |
| 5 | 8 | 6 | aug | sun | 92.3 | 85.3 | 488.0 | 14.7 | 22.2 | 29 | 5.4 | 0.0 | 0.0 |
| 6 | 86 | | aug | mon | 92.3 | 88.9 | 495.6 | 8.5 | 24.1 | 27 | 3.1 | 0.0 | 0.0 |
| 7 | 8 | 6 | aug | mon | 91.5 | 145.4 | 608.2 | 10.7 | 8.0 | 86 | 2.2 | 0.0 | 0.0 |
| 8 | 86 | | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 13.1 | 63 | 5.4 | 0.0 | 0.0 |
| 9 | 7 | 5 | sep | sat | 92.5 | 88.0 | 698.6 | 7.1 | 22.8 | 40 | 4.0 | 0.0 | 0.0 |
| 10 | 7 | 5 | sep | sat | 92.5 | 88.0 | 698.6 | 7.1 | 17.8 | 51 | 7.2 | 0.0 | 0.0 |
| 11 | 7 | 5 | sep | sat | 92.8 | 73.2 | 713.0 | 22.6 | 19.3 | 38 | 4.0 | 0.0 | 0.0 |
| 12 | 6 | 5 | aug | fri | 63.5 | 70.8 | 665.3 | 0.8 | 17.0 | 72 | 6.7 | 0.0 | 0.0 |
| 13 | 6 | 5 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 21.3 | 42 | 2.2 | 0.0 | 0.0 |
| 14 | 6 | 5 | sep | wed | 92.9 | 133.3 | 699.6 | 9.2 | 26.4 | 21 | 4.5 | 0.0 | 0.0 |

```
In [7]: fires.shape
```

(517, 13)

Out[7]:

```
In [8]: #show the last 10 instances of dataset fires.tail(15)
```

Out[8]:

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | RH | wind | rain | area |
|-----|---|---|-------|-----|------|-------|-------|------|------|----|------|------|-------|
| 502 | 4 | 4 | aug | tue | 96.1 | 181.1 | 671.2 | 14.3 | 20.7 | 69 | 4.9 | 0.4 | 0.00 |
| 503 | 2 | 4 | aug | wed | 94.5 | 139.4 | 689.1 | 20.0 | 29.2 | 30 | 4.9 | 0.0 | 1.95 |
| 504 | 4 | 3 | aug | wed | 94.5 | 139.4 | 689.1 | 20.0 | 28.9 | 29 | 4.9 | 0.0 | 49.59 |
| 505 | 1 | 2 | aug | thu | 91.0 | 163.2 | 744.4 | 10.1 | 26.7 | 35 | 1.8 | 0.0 | 5.80 |
| 506 | 1 | 2 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 18.5 | 73 | 8.5 | 0.0 | 0.00 |
| 507 | 2 | 4 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 25.9 | 41 | 3.6 | 0.0 | 0.00 |
| 508 | 1 | 2 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 25.9 | 41 | 3.6 | 0.0 | 0.00 |
| 509 | 5 | 4 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 21.1 | 71 | 7.6 | 1.4 | 2.17 |
| 510 | 6 | 5 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 18.2 | 62 | 5.4 | 0.0 | 0.43 |
| 511 | 8 | 6 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 27.8 | 35 | 2.7 | 0.0 | 0.00 |
| 512 | 4 | 3 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 27.8 | 32 | 2.7 | 0.0 | 6.44 |
| 513 | 2 | 4 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 21.9 | 71 | 5.8 | 0.0 | 54.29 |
| 514 | 7 | 4 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 21.2 | 70 | 6.7 | 0.0 | 11.16 |
| 515 | 1 | 4 | aug | sat | 94.4 | 146.0 | 614.7 | 11.3 | 25.6 | 42 | 4.0 | 0.0 | 0.00 |
| 516 | 6 | 3 | nov | tue | 79.5 | 3.0 | 106.7 | 1.1 | 11.8 | 31 | 4.5 | 0.0 | 0.00 |

```
In [9]: fires.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 517 entries, 0 to 516 Data
columns (total 13 columns):
# Column Non-Null Count Dtype
-----
0    X  517 non-null int64
1    Y  517 non-null int64
2  month  517 non-null object
3    day  517 non-null object
4  FFMC  517 non-null float64 5  DMC  517 non-null float64
6    DC  517 non-null float64
7    ISI  517 non-null float64
8    temp  517 non-null float64
9    RH  517 non-null int64
10   wind  517 non-null float64
```

```
11 rain 517 non-null float64
12 area 517 non-null float64 dtypes: float64(8), int64(3), object(2) memory usage: 52.6+
KB
```

```
In [10]: #generate descriptive statistics of each attribute fires.describe().T
Out[10]:
count
```

| | | | | | | | | |
|-------------|-------|------------|------------|------|-------|--------|--------|--------|
| X | 517.0 | 4.669246 | 2.313778 | 1.0 | 3.0 | 4.00 | 7.00 | 9.00 |
| Y | 517.0 | 4.299807 | 1.229900 | 2.0 | 4.0 | 4.00 | 5.00 | 9.00 |
| FFMC | 517.0 | 90.644681 | 5.520111 | 18.7 | 90.2 | 91.60 | 92.90 | 96.20 |
| DMC | 517.0 | 110.872340 | 64.046482 | 1.1 | 68.6 | 108.30 | 142.40 | 291.30 |
| DC | 517.0 | 547.940039 | 248.066192 | 7.9 | 437.7 | 664.20 | 713.90 | 860.60 |

```
fires['area'].values[fires['area'].values >0] = 1
#renaming the area attribute to output for clear understanding
fires = fires.rename(columns={'area': 'output'}) fires.head(10)
```

| | | | | | | | | |
|-------------|-------|-----------|-----------|------|------|-------|-------|---------|
| ISI | 517.0 | 9.021663 | 4.559477 | 0.0 | 6.5 | 8.40 | 10.80 | 56.10 |
| temp | 517.0 | 18.889168 | 5.806625 | 2.2 | 15.5 | 19.30 | 22.80 | 33.30 |
| RH | 517.0 | 44.288201 | 16.317469 | 15.0 | 33.0 | 42.00 | 53.00 | 100.00 |
| wind | 517.0 | 4.017602 | 1.791653 | 0.4 | 2.7 | 4.00 | 4.90 | 9.40 |
| rain | 517.0 | 0.021663 | 0.295959 | 0.0 | 0.0 | 0.00 | 0.00 | 6.40 |
| area | 517.0 | 12.847292 | 63.655818 | 0.0 | 0.0 | 0.52 | 6.57 | 1090.84 |

```
In [11]:
```

```
Out[11]:
```

| X | Y | month | day | FFMC | DMC | DC | ISI | temp | RH | wind | rain | output |
|---|---|-------|-----|------|-----|----|-----|------|----|------|------|--------|
|---|---|-------|-----|------|-----|----|-----|------|----|------|------|--------|

| | | | | | | | | | | | | | | |
|---|---|---|-----|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 0 | 7 | 5 | mar | fri | oct | 86.2 | 26.2 | 94.3 | 5.1 | 8.2 | 51 | 6.7 | 0.0 | 0.0 |
| 1 | 7 | 4 | tue | oct | sat | 90.6 | 35.4 | 669.1 | 6.7 | 18.0 | 33 | 0.9 | 0.0 | 0.0 |
| 2 | 7 | 4 | mar | fri | mar | 90.6 | 43.7 | 686.9 | 6.7 | 14.6 | 33 | 1.3 | 0.0 | 0.0 |
| 3 | 8 | 6 | sun | aug | | 91.7 | 33.3 | 77.5 | 9.0 | 8.3 | 97 | 4.0 | 0.2 | 0.0 |
| 4 | 8 | 6 | sun | | | 89.3 | 51.3 | 102.2 | 9.6 | 11.4 | 99 | 1.8 | 0.0 | 0.0 |
| 5 | 8 | 6 | aug | mon | | 92.3 | 85.3 | 488.0 | 14.7 | 22.2 | 29 | 5.4 | 0.0 | 0.0 |
| 6 | 8 | 6 | aug | mon | | 92.3 | 88.9 | 495.6 | 8.5 | 24.1 | 27 | 3.1 | 0.0 | 0.0 |
| 7 | 8 | 6 | sep | tue | | 91.5 | 145.4 | 608.2 | 10.7 | 8.0 | 86 | 2.2 | 0.0 | 0.0 |
| 8 | 8 | 6 | sep | sat | | 91.5 | 145.4 | 608.2 | 10.7 | 8.0 | 86 | 2.2 | 0.0 | 0.0 |
| 9 | 7 | 5 | | | | 92.5 | 88.0 | 698.6 | 7.1 | 22.8 | 40 | 4.0 | 0.0 | 0.0 |

In [12]: fires.corr()

Out[12]:

| X | Y | FFMC | DMC | DC | ISI | temp | RH | wind | | |
|--------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| X | 1.000000 | 0.539548 | -0.021039 | -0.048384 | -0.085916 | 0.006210 | -0.051258 | 0.085223 | 0.018798 | 0.065 |
| Y | 0.539548 | 1.000000 | -0.046308 | 0.007782 | -0.101178 | -0.024488 | -0.024103 | 0.062221 | -0.020341 | 0.033 |
| FFMC | -0.021039 | -0.046308 | 1.000000 | 0.382619 | 0.330512 | 0.531805 | 0.431532 | -0.300995 | -0.028485 | 0.056 |
| DMC | -0.048384 | 0.007782 | 0.382619 | 1.000000 | 0.682192 | 0.305128 | 0.469594 | 0.073795 | -0.105342 | 0.074 |
| DC | -0.085916 | -0.101178 | 0.330512 | 0.682192 | 1.000000 | 0.229154 | 0.496208 | -0.039192 | -0.203466 | 0.035 |
| ISI | 0.006210 | -0.024488 | 0.531805 | 0.305128 | 0.229154 | 1.000000 | 0.394287 | -0.132517 | 0.106826 | 0.067 |
| temp | -0.051258 | -0.024103 | 0.431532 | 0.469594 | 0.496208 | 0.394287 | 1.000000 | -0.527390 | -0.227116 | 0.069 |
| RH | 0.085223 | 0.062221 | -0.300995 | 0.073795 | -0.039192 | -0.132517 | -0.527390 | 1.000000 | 0.069410 | 0.099 |
| wind | 0.018798 | -0.020341 | -0.028485 | -0.105342 | -0.203466 | 0.106826 | -0.227116 | 0.069410 | 1.000000 | 0.061 |
| rain | 0.065387 | 0.033234 | 0.056702 | 0.074790 | 0.035861 | 0.067668 | 0.069491 | 0.099751 | 0.061119 | 1.000 |
| output | 0.062491 | 0.056892 | 0.073823 | 0.062672 | 0.096724 | 0.035663 | 0.076047 | -0.035587 | 0.055702 | 0.025 |

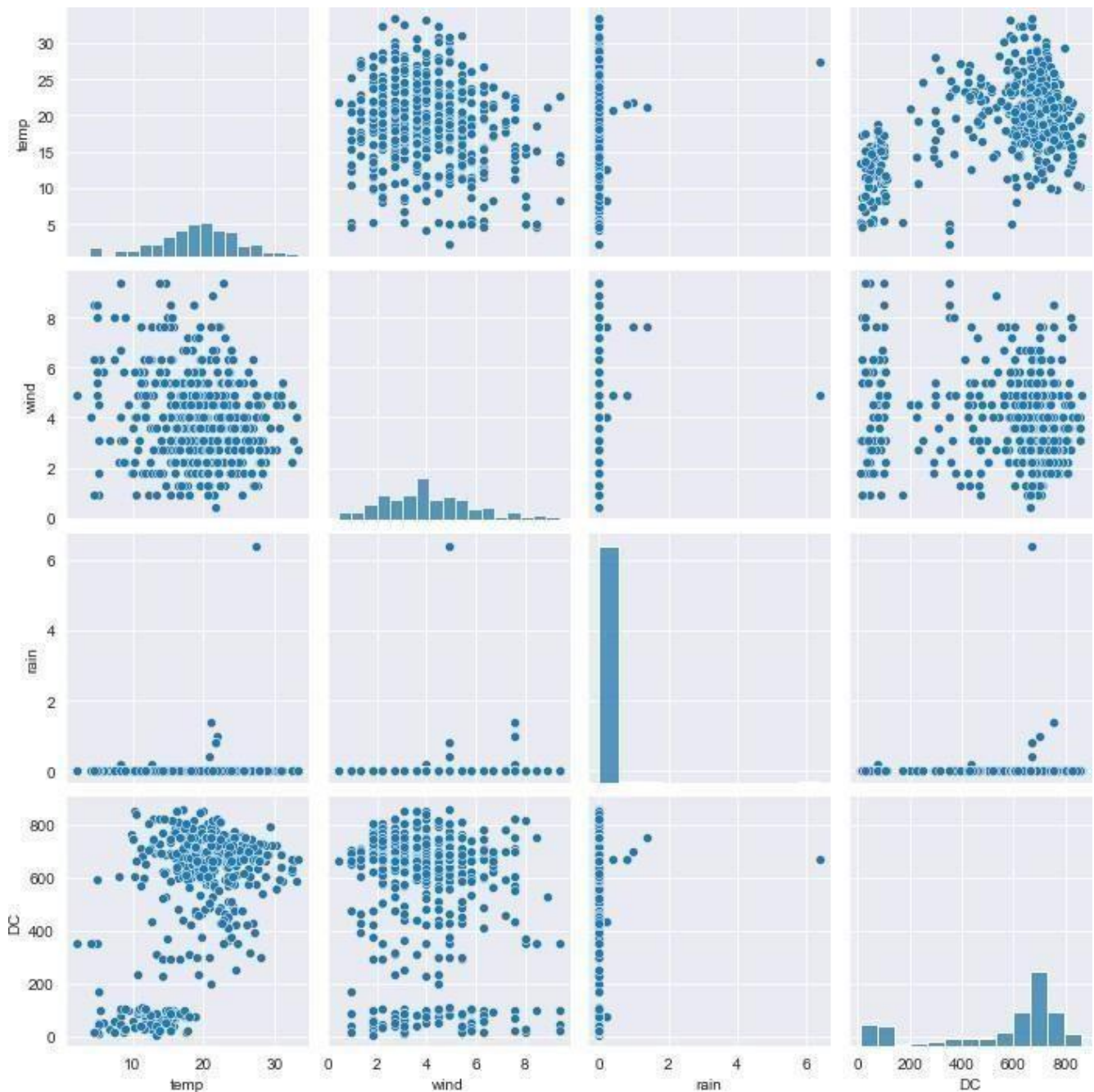
In [15]: numerical_feature = fires.describe(include=["int", "float"]).columns

Print it in list type ..

print(list(numerical_feature))

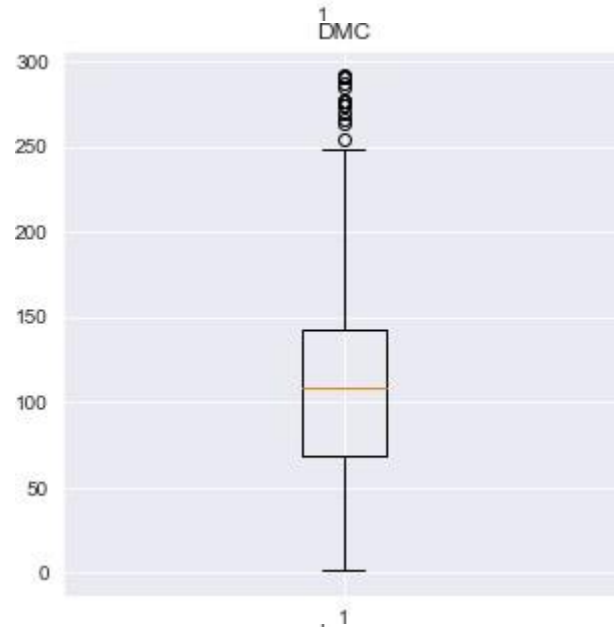
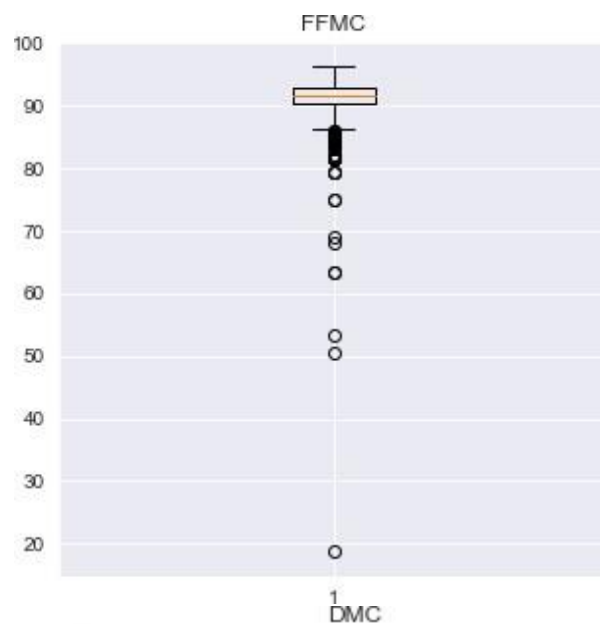
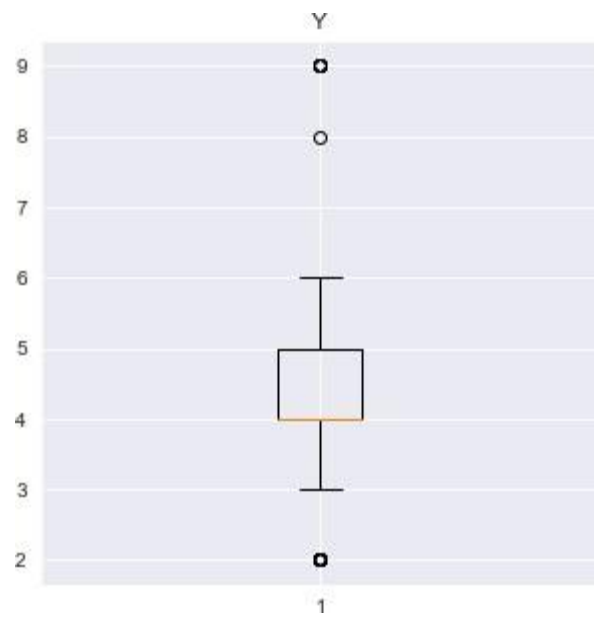
['X', 'Y', 'FFMC', 'DMC', 'DC', 'ISI', 'temp', 'RH', 'wind', 'rain', 'output']

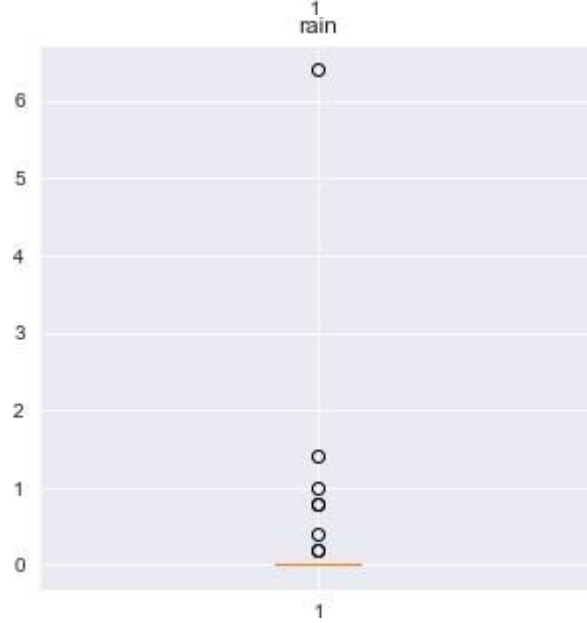
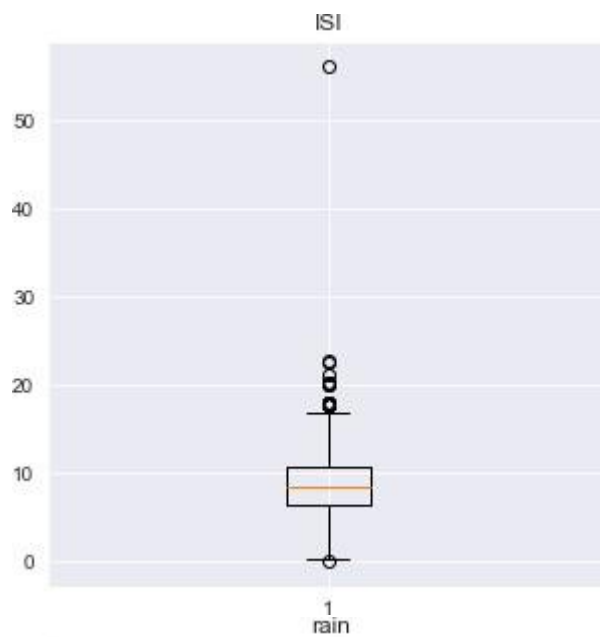
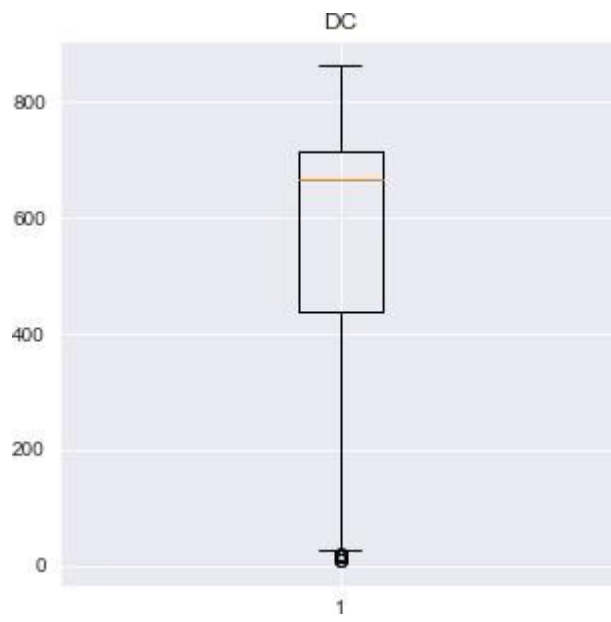
```
In [16]: sns.set_style('darkgrid')
# Find the relation #
plt.subplot(fires)
sns.pairplot(fires[["temp", "wind",
"rain", "DC"]]) plt.show()
```

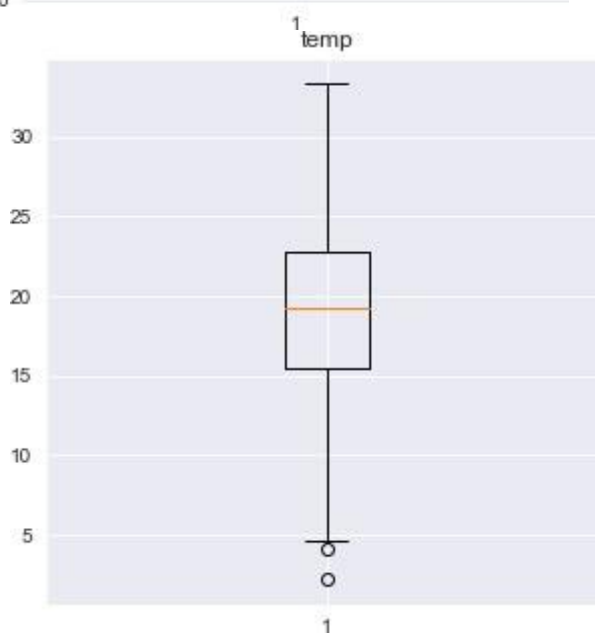
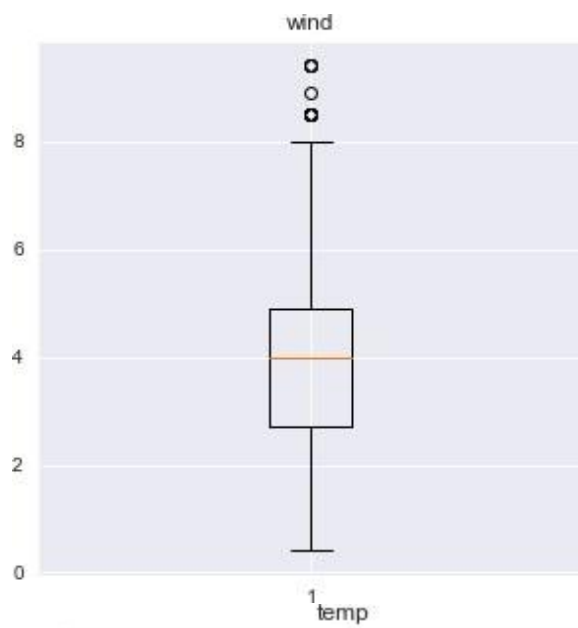
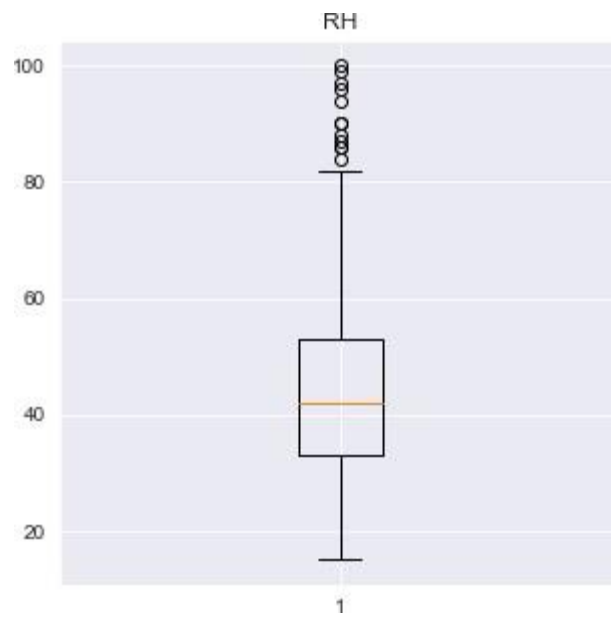


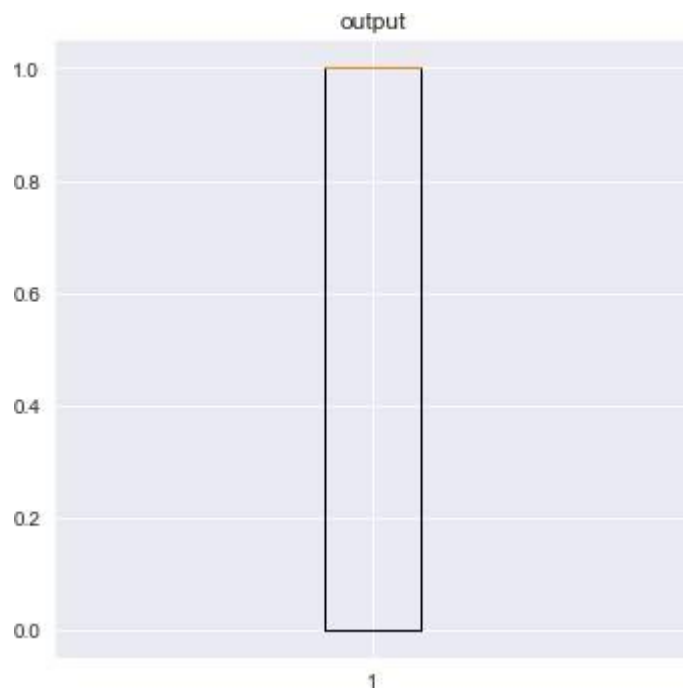
```
In [17]: for idx, col in enumerate(numerical_feature, 1):
plt.figure(figsize=(5,5))

# plt.subplot(len(numerical_feature) // 2, 3, idx) plt.boxplot(fires[col])
plt.title(col)
# plt.hist(fires[col])
plt.tight_layout()
plt.show(plt)
```

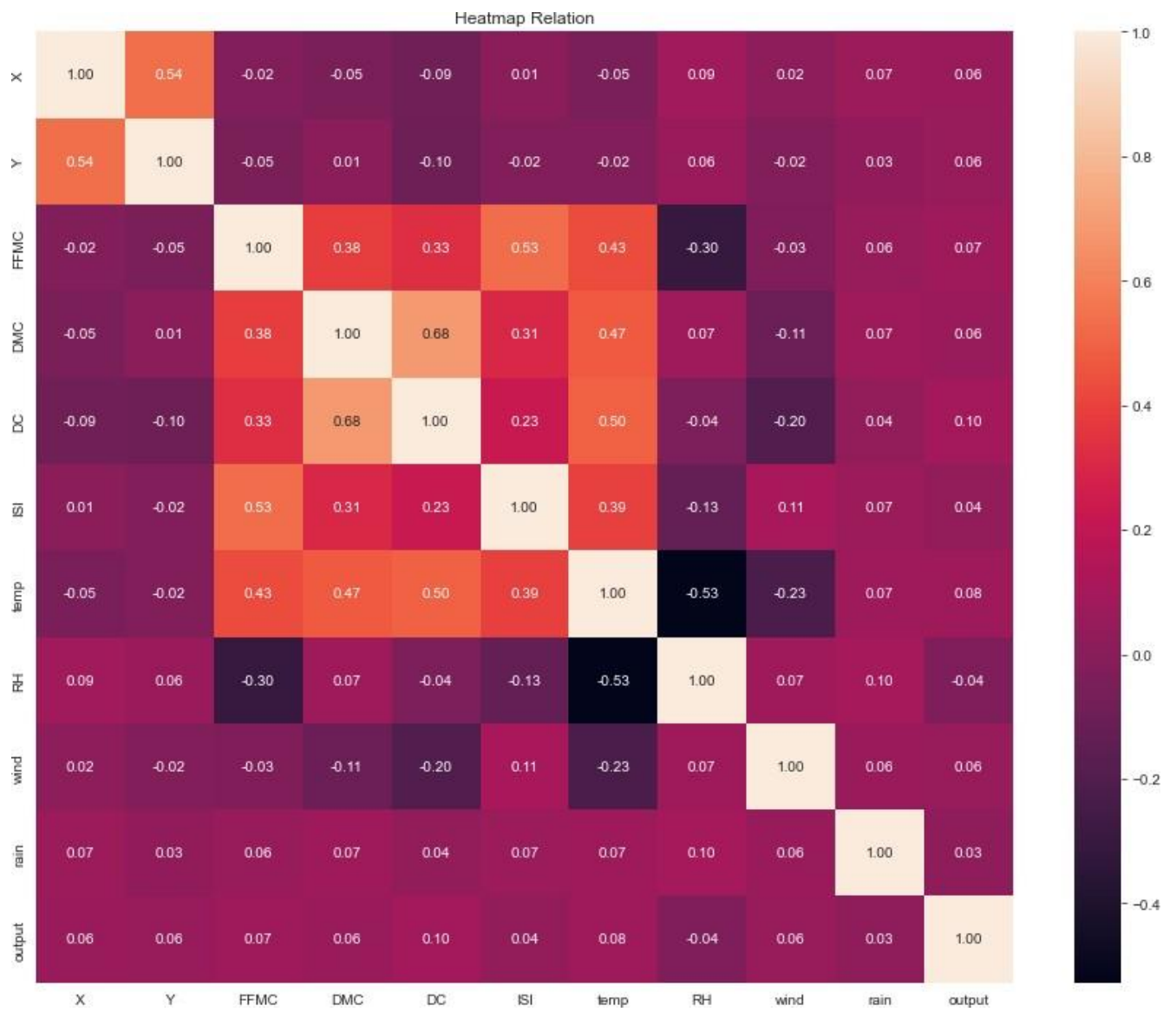








```
In [18]: plt.figure(figsize=(15, 12))    plt.title("Heatmap Relation")
sns.heatmap(fires[numerical_feature].corr(), annot=True, fmt='.2f');
```



```
In [19]: highest_rain = fires.sort_values(by='rain', ascending=False)[['month', 'day', 'rain']].head()
highest_rain
```

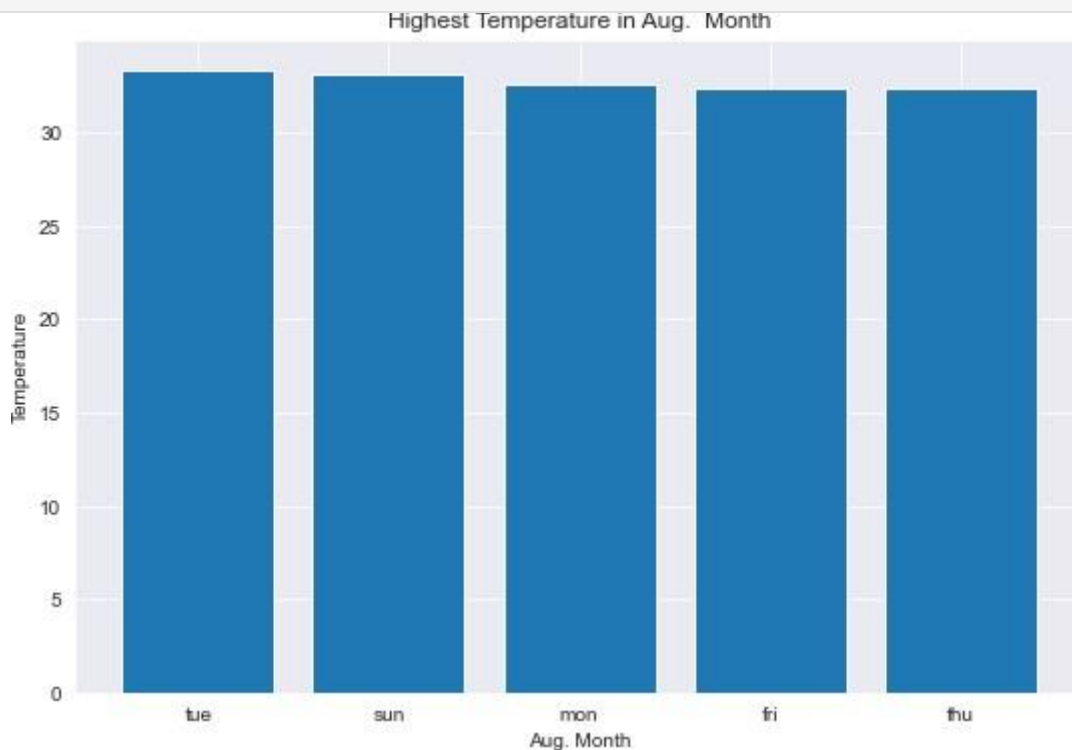
```
Out[19]:
```

| | month | day | rain |
|-----|-------|-----|------|
| 499 | aug | tue | 6.4 |
| 509 | aug | fri | 1.4 |
| 243 | aug | sun | 1.0 |
| 500 | aug | tue | 0.8 |
| 501 | aug | tue | 0.8 |

```
In [20]: highest_temp = fires.sort_values(by='temp', ascending=False)[['month', 'day', 'temp']].head()
plt.figure(figsize=(9, 6))
plt.title("Highest Temperature in Aug. Month")
plt.bar(highest_temp['day'], highest_temp['temp'])

plt.xlabel("Day") plt.xlabel("Aug.
Month")

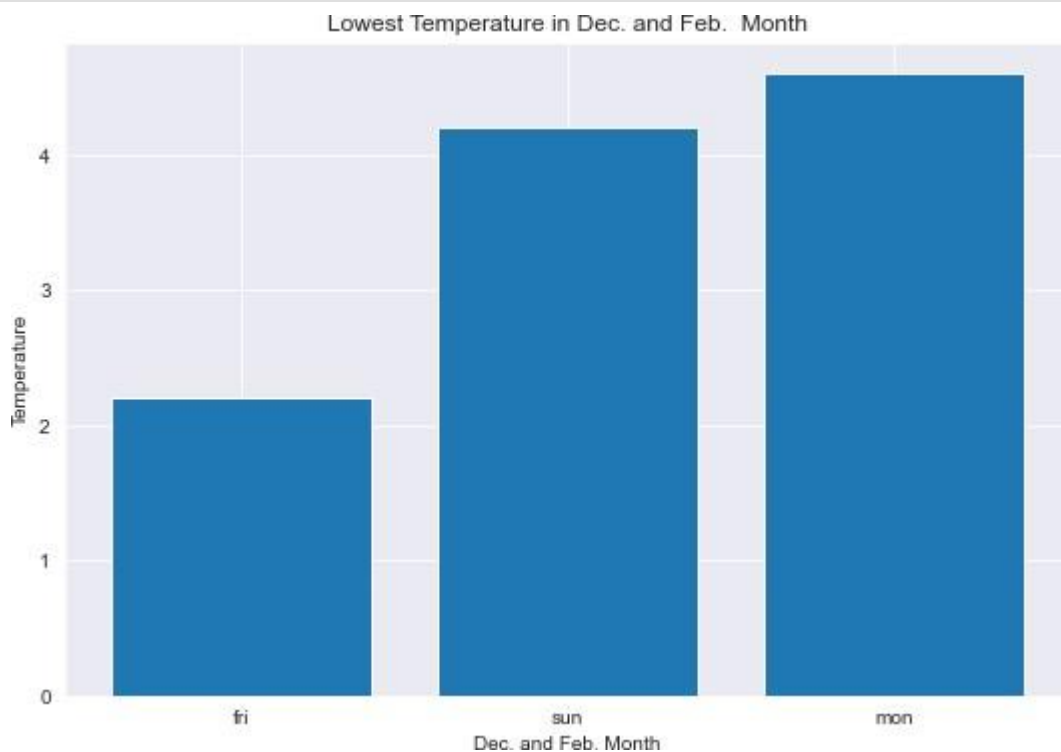
plt.ylabel("Temperature")
plt.show()
```



In [21]:

```
lowest_temp = fires.sort_values(by='temp', ascending=True)[['month', 'day', 'temp']].head()
plt.figure(figsize=(9, 6))
plt.title("Lowest Temperature in Dec. and Feb. Month")
plt.bar(lowest_temp['day'], lowest_temp['temp'])

plt.xlabel("Day")
plt.xlabel("Dec. and Feb. Month")
plt.ylabel("Temperature") plt.show()
```



In [22]:

```
fires
```

Out[22]:

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | | RH | wind | rain | output |
|----|---|---|-------|-----|------|-------|-------|------|------|----|-----|------|------|--------|
| 0 | 7 | 5 | mar | fri | 86.2 | 26.2 | 94.3 | 5.1 | 8.2 | 51 | 6.7 | 0.0 | 0.0 | |
| 1 | 7 | 4 | oct | tue | 90.6 | 35.4 | 669.1 | 6.7 | 18.0 | 33 | 0.9 | 0.0 | 0.0 | |
| 2 | 7 | 4 | oct | sat | 90.6 | 43.7 | 686.9 | 6.7 | 14.6 | 33 | 1.3 | 0.0 | 0.0 | |
| 3 | 8 | 6 | mar | fri | 91.7 | 33.3 | 77.5 | 9.0 | 8.3 | 97 | 4.0 | 0.2 | 0.0 | |
| 4 | 8 | 6 | mar | sun | 89.3 | 51.3 | 102.2 | 9.6 | 11.4 | 99 | 1.8 | 0.0 | 0.0 | |
| 5 | 8 | 6 | aug | sun | 92.3 | 85.3 | 488.0 | 14.7 | 22.2 | 29 | 5.4 | 0.0 | 0.0 | |
| 6 | 8 | 6 | aug | mon | 92.3 | 88.9 | 495.6 | 8.5 | 24.1 | 27 | 3.1 | 0.0 | 0.0 | |
| 7 | 8 | 6 | aug | mon | 91.5 | 145.4 | 608.2 | 10.7 | 8.0 | 86 | 2.2 | 0.0 | 0.0 | |
| 8 | 8 | 6 | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 13.1 | 63 | 5.4 | 0.0 | 0.0 | |
| 9 | 7 | 5 | sep | sat | 92.5 | 88.0 | 698.6 | 7.1 | 22.8 | 40 | 4.0 | 0.0 | 0.0 | |
| 10 | 7 | 5 | sep | sat | 92.5 | 88.0 | 698.6 | 7.1 | 17.8 | 51 | 7.2 | 0.0 | 0.0 | |
| 11 | 7 | 5 | sep | sat | 92.8 | 73.2 | 713.0 | 22.6 | 19.3 | 38 | 4.0 | 0.0 | 0.0 | |
| 12 | 6 | 5 | aug | fri | 63.5 | 70.8 | 665.3 | 0.8 | 17.0 | 72 | 6.7 | 0.0 | 0.0 | |
| 13 | 6 | 5 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 21.3 | 42 | 2.2 | 0.0 | 0.0 | |
| 14 | 6 | 5 | sep | wed | 92.9 | 133.3 | 699.6 | 9.2 | 26.4 | 21 | 4.5 | 0.0 | 0.0 | |
| 15 | 6 | 5 | sep | fri | 93.3 | 141.2 | 713.9 | 13.9 | 22.9 | 44 | 5.4 | 0.0 | 0.0 | |
| 16 | 5 | 5 | mar | sat | 91.7 | 35.8 | 80.8 | 7.8 | 15.1 | 27 | 5.4 | 0.0 | 0.0 | |
| 17 | 8 | 5 | oct | mon | 84.9 | 32.8 | 664.2 | 3.0 | 16.7 | 47 | 4.9 | 0.0 | 0.0 | |
| 18 | 6 | 4 | mar | wed | 89.2 | 27.9 | 70.8 | 6.3 | 15.9 | 35 | 4.0 | 0.0 | 0.0 | |
| 19 | 6 | 4 | apr | sat | 86.3 | 27.4 | 97.1 | 5.1 | 9.3 | 44 | 4.5 | 0.0 | 0.0 | |
| 20 | 6 | 4 | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 18.3 | 40 | 2.7 | 0.0 | 0.0 | |
| 21 | 5 | 4 | sep | mon | 91.8 | 78.5 | 724.3 | 9.2 | 19.1 | 38 | 2.7 | 0.0 | 0.0 | |
| 22 | 7 | 4 | jun | sun | 94.3 | 96.3 | 200.0 | 56.1 | 21.0 | 44 | 4.5 | 0.0 | 0.0 | |
| 23 | 7 | 4 | aug | sat | 90.2 | 110.9 | 537.4 | 6.2 | 19.5 | 43 | 5.8 | 0.0 | 0.0 | |
| 24 | 7 | 4 | aug | sat | 93.5 | 139.4 | 594.2 | 20.3 | 23.7 | 32 | 5.8 | 0.0 | 0.0 | |
| 25 | 7 | 4 | aug | sun | 91.4 | 142.4 | 601.4 | 10.6 | 16.3 | 60 | 5.4 | 0.0 | 0.0 | |
| 26 | 7 | 4 | sep | fri | 92.4 | 117.9 | 668.0 | 12.2 | 19.0 | 34 | 5.8 | 0.0 | 0.0 | |
| 27 | 7 | 4 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 19.4 | 48 | 1.3 | 0.0 | 0.0 | |

0.0

| | | | | | | | | | | | | | |
|-----------|---|---|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 28 | 6 | 3 | sep | sat | 93.4 | 145.4 | 721.4 | 8.1 | 30.2 | 24 | 2.7 | 0.0 | 0.0 |
| 29 | 6 | 3 | sep | sun | 93.5 | 149.3 | 728.6 | 8.1 | 22.8 | 39 | 3.6 | 0.0 | 0.0 |
| 30 | 6 | 3 | sep | fri | 94.3 | 85.1 | 692.3 | 15.9 | 25.4 | 24 | 3.6 | 0.0 | 0.0 |
| 31 | 6 | 3 | sep | mon | 88.6 | 91.8 | 709.9 | 7.1 | 11.2 | 78 | 7.6 | 0.0 | 0.0 |
| 32 | 6 | 3 | sep | fri | 88.6 | 69.7 | 706.8 | 5.8 | 20.6 | 37 | 1.8 | 0.0 | 0.0 |
| 33 | 6 | 3 | sep | sun | 91.7 | 75.6 | 718.3 | 7.8 | 17.7 | 39 | 3.6 | 0.0 | 0.0 |
| 34 | 6 | 3 | sep | mon | 91.8 | 78.5 | 724.3 | 9.2 | 21.2 | 32 | 2.7 | 0.0 | 0.0 |
| 35 | 6 | 3 | sep | tue | 90.3 | 80.7 | 730.2 | 6.3 | 18.2 | 62 | 4.5 | 0.0 | 0.0 |
| 36 | 6 | 3 | oct | tue | 90.6 | 35.4 | 669.1 | 6.7 | 21.7 | 24 | 4.5 | | 0.0 |

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | RH | wind | rain | output |
|-----------|----------|----------|--------------|------------|-------------|------------|-----------|------------|-------------|-----------|-------------|-------------|---------------|
| 37 | 7 | 4 | oct | fri | 90.0 | 41.5 | 682.6 | 8.7 | 11.3 | 60 | 5.4 | 0.0 | 0.0 |
| 38 | 7 | 3 | oct | sat | 90.6 | 43.7 | 686.9 | 6.7 | 17.8 | 27 | 4.0 | 0.0 | 0.0 |
| 39 | 4 | 4 | mar | tue | 88.1 | 25.7 | 67.6 | 3.8 | 14.1 | 43 | 2.7 | 0.0 | 0.0 |
| 40 | 4 | 4 | jul | tue | 79.5 | 60.6 | 366.7 | 1.5 | 23.3 | 37 | 3.1 | 0.0 | 0.0 |
| 41 | 4 | 4 | aug | sat | 90.2 | 96.9 | 624.2 | 8.9 | 18.4 | 42 | 6.7 | 0.0 | 0.0 |
| 42 | 4 | 4 | aug | tue | 94.8 | 108.3 | 647.1 | 17.0 | 16.6 | 54 | 5.4 | 0.0 | 0.0 |
| 43 | 4 | 4 | sep | sat | 92.5 | 88.0 | 698.6 | 7.1 | 19.6 | 48 | 2.7 | 0.0 | 0.0 |
| 44 | 4 | 4 | sep | wed | 90.1 | 82.9 | 735.7 | 6.2 | 12.9 | 74 | 4.9 | 0.0 | 0.0 |
| 45 | 5 | 6 | sep | wed | 94.3 | 85.1 | 692.3 | 15.9 | 25.9 | 24 | 4.0 | 0.0 | 0.0 |
| 46 | 5 | 6 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 14.7 | 70 | 3.6 | 0.0 | 0.0 |
| 47 | 6 | 6 | jul | mon | 94.2 | 62.3 | 442.9 | 11.0 | 23.0 | 36 | 3.1 | 0.0 | 0.0 |
| 48 | 4 | 4 | mar | mon | 87.2 | 23.9 | 64.7 | 4.1 | 11.8 | 35 | 1.8 | 0.0 | 0.0 |
| 49 | 4 | 4 | mar | mon | 87.6 | 52.2 | 103.8 | 5.0 | 11.0 | 46 | 5.8 | 0.0 | 0.0 |
| 50 | 4 | 4 | sep | thu | 92.9 | 137.0 | 706.4 | 9.2 | 20.8 | 17 | 1.3 | 0.0 | 0.0 |
| 51 | 4 | 3 | aug | sun | 90.2 | 99.6 | 631.2 | 6.3 | 21.5 | 34 | 2.2 | 0.0 | 0.0 |
| 52 | 4 | 3 | aug | wed | 92.1 | 111.2 | 654.1 | 9.6 | 20.4 | 42 | 4.9 | 0.0 | 0.0 |
| 53 | 4 | 3 | aug | wed | 92.1 | 111.2 | 654.1 | 9.6 | 20.4 | 42 | 4.9 | 0.0 | 0.0 |
| 54 | 4 | 3 | aug | thu | 91.7 | 114.3 | 661.3 | 6.3 | 17.6 | 45 | 3.6 | 0.0 | 0.0 |
| 55 | 4 | 3 | sep | thu | 92.9 | 137.0 | 706.4 | 9.2 | 27.7 | 24 | 2.2 | 0.0 | 0.0 |
| 56 | 4 | 3 | sep | tue | 90.3 | 80.7 | 730.2 | 6.3 | 17.8 | 63 | 4.9 | 0.0 | 0.0 |
| 57 | 4 | 3 | oct | sun | 92.6 | 46.5 | 691.8 | 8.8 | 13.8 | 50 | 2.7 | 0.0 | 0.0 |

| | | | | | | | | | | | | | |
|----|---|----|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 58 | 2 | 2 | feb | mon | 84.0 | 9.3 | 34.0 | 2.1 | 13.9 | 40 | 5.4 | 0.0 | 0.0 |
| 59 | 2 | 2 | feb | fri | 86.6 | 13.2 | 43.0 | 5.3 | 12.3 | 51 | 0.9 | 0.0 | 0.0 |
| 60 | 2 | 2 | mar | sun | 89.3 | 51.3 | 102.2 | 9.6 | 11.5 | 39 | 5.8 | 0.0 | 0.0 |
| 61 | 2 | 2 | mar | sun | 89.3 | 51.3 | 102.2 | 9.6 | 5.5 | 59 | 6.3 | 0.0 | 0.0 |
| 62 | 2 | 2 | aug | thu | 93.0 | 75.3 | 466.6 | 7.7 | 18.8 | 35 | 4.9 | 0.0 | 0.0 |
| 63 | 2 | 2 | aug | sun | 90.2 | 99.6 | 631.2 | 6.3 | 20.8 | 33 | 2.7 | 0.0 | 0.0 |
| 64 | 2 | 2 | aug | mon | 91.1 | 103.2 | 638.8 | 5.8 | 23.1 | 31 | 3.1 | 0.0 | 0.0 |
| 65 | 2 | 2 | aug | thu | 91.7 | 114.3 | 661.3 | 6.3 | 18.6 | 44 | 4.5 | 0.0 | 0.0 |
| 66 | 2 | 2 | sep | fri | 92.4 | 117.9 | 668.0 | 12.2 | 23.0 | 37 | 4.5 | 0.0 | 0.0 |
| 67 | 2 | 2 | sep | fri | 92.4 | 117.9 | 668.0 | 12.2 | 19.6 | 33 | 5.4 | 0.0 | 0.0 |
| 68 | 2 | 2 | sep | fri | 92.4 | 117.9 | 668.0 | 12.2 | 19.6 | 33 | 6.3 | 0.0 | 0.0 |
| 69 | 4 | 5 | mar | fri | 91.7 | 33.3 | 77.5 | 9.0 | 17.2 | 26 | 4.5 | 0.0 | 0.0 |
| 70 | 4 | 5 | mar | fri | 91.2 | 48.3 | 97.8 | 12.5 | 15.8 | 27 | 7.6 | 0.0 | 0.0 |
| 71 | 4 | 5 | sep | fri | 94.3 | 85.1 | 692.3 | 15.9 | 17.7 | 37 | 3.6 | 0.0 | 0.0 |
| 72 | 5 | 4 | mar | fri | 91.7 | 33.3 | 77.5 | 9.0 | 15.6 | 25 | 6.3 | 0.0 | 0.0 |
| 73 | 5 | 4 | aug | tue | 88.8 | 147.3 | 614.5 | 9.0 | 17.3 | 43 | 4.5 | 0.0 | 0.0 |
| 74 | | 54 | sep | fri | 93.3 | 141.2 | 713.9 | 13.9 | 27.6 | 30 | 1.3 | 0.0 | 0.0 |
| 75 | | 99 | feb | thu | 84.2 | 6.8 | 26.6 | 7.7 | 6.7 | 79 | 3.1 | 0.0 | 0.0 |
| 76 | | 99 | feb | fri | 86.6 | 13.2 | 43.0 | 5.3 | 15.7 | 43 | 3.1 | 0.0 | 0.0 |
| 77 | | 13 | mar | mon | 87.6 | 52.2 | 103.8 | 5.0 | 8.3 | 72 | 3.1 | 0.0 | 0.0 |
| 78 | | 12 | aug | fri | 90.1 | 108.0 | 529.8 | 12.5 | 14.7 | 66 | 2.7 | 0.0 | 0.0 |
| 79 | | 12 | aug | tue | 91.0 | 121.2 | 561.6 | 7.0 | 21.6 | 19 | 6.7 | 0.0 | 0.0 |
| 80 | | 12 | aug | sun | 91.4 | 142.4 | 601.4 | 10.6 | 19.5 | 39 | 6.3 | 0.0 | 0.0 |
| 81 | | 12 | aug | sun | 90.2 | 99.6 | 631.2 | 6.3 | 17.9 | 44 | 2.2 | 0.0 | 0.0 |
| 82 | | 12 | aug | tue | 94.8 | 108.3 | 647.1 | 17.0 | 18.6 | 51 | 4.5 | 0.0 | 0.0 |
| 83 | | 12 | aug | wed | 92.1 | 111.2 | 654.1 | 9.6 | 16.6 | 47 | 0.9 | 0.0 | 0.0 |
| 84 | | 12 | aug | thu | 91.7 | 114.3 | 661.3 | 6.3 | 20.2 | 45 | 3.6 | 0.0 | 0.0 |
| 85 | | 12 | sep | thu | 92.9 | 137.0 | 706.4 | 9.2 | 21.5 | 15 | 0.9 | 0.0 | 0.0 |
| 86 | | 12 | sep | thu | 92.9 | 137.0 | 706.4 | 9.2 | 25.4 | 27 | 2.2 | 0.0 | 0.0 |
| 87 | | 12 | sep | thu | 92.9 | 137.0 | 706.4 | 9.2 | 22.4 | 34 | 2.2 | 0.0 | 0.0 |
| 88 | | 12 | sep | sun | 93.5 | 149.3 | 728.6 | 8.1 | 25.3 | 36 | 3.6 | 0.0 | 0.0 |
| 89 | | 65 | mar | sat | 91.7 | 35.8 | 80.8 | 7.8 | 17.4 | 25 | 4.9 | 0.0 | 0.0 |
| 90 | | 65 | aug | sat | 90.2 | 96.9 | 624.2 | 8.9 | 14.7 | 59 | 5.8 | 0.0 | 0.0 |
| 91 | | 86 | mar | fri | 91.7 | 35.8 | 80.8 | 7.8 | 17.4 | 24 | 5.4 | 0.0 | 0.0 |
| 92 | | 86 | aug | sun | 92.3 | 85.3 | 488.0 | 14.7 | 20.8 | 32 | 6.3 | 0.0 | 0.0 |

0.0

| | | | | | | | | | | | | |
|------------|-----|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 93 | 86 | aug | sun | 91.4 | 142.4 | 601.4 | 10.6 | 18.2 | 43 | 4.9 | 0.0 | 0.0 |
| 94 | 86 | aug | mon | 91.1 | 103.2 | 638.8 | 5.8 | 23.4 | 22 | 2.7 | 0.0 | 0.0 |
| 95 | 44 | sep | sun | 89.7 | 90.0 | 704.4 | 4.8 | 17.8 | 64 | 1.3 | 0.0 | 0.0 |
| 96 | 34 | feb | sat | 83.9 | 8.0 | 30.2 | 2.6 | 12.7 | 48 | 1.8 | 0.0 | 0.0 |
| 97 | 34 | mar | sat | 69.0 | 2.4 | 15.5 | 0.7 | 17.4 | 24 | 5.4 | 0.0 | 0.0 |
| 98 | 34 | aug | sun | 91.4 | 142.4 | 601.4 | 10.6 | 11.6 | 87 | 4.5 | 0.0 | 0.0 |
| 99 | 34 | aug | sun | 91.4 | 142.4 | 601.4 | 10.6 | 19.8 | 39 | 5.4 | 0.0 | 0.0 |
| 100 | 3 4 | aug | sun | 91.4 | 142.4 | 601.4 | 10.6 | 19.8 | 39 | 5.4 | 0.0 | 0.0 |
| 101 | 3 4 | aug | tue | 88.8 | 147.3 | 614.5 | 9.0 | 14.4 | 66 | 5.4 | 0.0 | 0.0 |
| 102 | 2 4 | aug | tue | 94.8 | 108.3 | 647.1 | 17.0 | 20.1 | 40 | 4.0 | 0.0 | 0.0 |
| 103 | 2 4 | sep | sat | 92.5 | 121.1 | 674.4 | 8.6 | 24.1 | 29 | 4.5 | 0.0 | 0.0 |
| 104 | 2 4 | jan | sat | 82.1 | 3.7 | 9.3 | 2.9 | 5.3 | 78 | 3.1 | 0.0 | 0.0 |
| 105 | 4 5 | mar | fri | 85.9 | 19.5 | 57.3 | 2.8 | 12.7 | 52 | 6.3 | 0.0 | 0.0 |
| 106 | 4 5 | mar | thu | 91.4 | 30.7 | 74.3 | 7.5 | 18.2 | 29 | 3.1 | 0.0 | 0.0 |
| 107 | 4 5 | aug | sun | 90.2 | 99.6 | 631.2 | 6.3 | 21.4 | 33 | 3.1 | 0.0 | 0.0 |
| 108 | 4 5 | sep | sat | 92.5 | 88.0 | 698.6 | 7.1 | 20.3 | 45 | 3.1 | 0.0 | 0.0 |
| 109 | 4 5 | sep | mon | 88.6 | 91.8 | 709.9 | 7.1 | 17.4 | 56 | 5.4 | 0.0 | 0.0 |
| 110 | 4 4 | mar | fri | 85.9 | 19.5 | 57.3 | 2.8 | 13.7 | 43 | 5.8 | | 0.0 |

| RH wind rain output | | | | | | | | | | | | | |
|---------------------|---|---|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 111 | 3 | 4 | mar | fri | 91.7 | 33.3 | 77.5 | 9.0 | 18.8 | 18 | 4.5 | 0.0 | 0.0 |
| 112 | 3 | 4 | sep | sun | 89.7 | 90.0 | 704.4 | 4.8 | 22.8 | 39 | 3.6 | 0.0 | 0.0 |
| 113 | 3 | 4 | sep | mon | 91.8 | 78.5 | 724.3 | 9.2 | 18.9 | 35 | 2.7 | 0.0 | 0.0 |
| 114 | 3 | 4 | mar | tue | 88.1 | 25.7 | 67.6 | 3.8 | 15.8 | 27 | 7.6 | 0.0 | 0.0 |
| 115 | 3 | 5 | mar | tue | 88.1 | 25.7 | 67.6 | 3.8 | 15.5 | 27 | 6.3 | 0.0 | 0.0 |
| 116 | 3 | 4 | mar | sat | 91.7 | 35.8 | 80.8 | 7.8 | 11.6 | 30 | 6.3 | 0.0 | 0.0 |
| 117 | 3 | 4 | mar | sat | 91.7 | 35.8 | 80.8 | 7.8 | 15.2 | 27 | 4.9 | 0.0 | 0.0 |
| 118 | 3 | 4 | mar | mon | 90.1 | 39.7 | 86.6 | 6.2 | 10.6 | 30 | 4.0 | 0.0 | 0.0 |
| 119 | 3 | 4 | aug | thu | 93.0 | 75.3 | 466.6 | 7.7 | 19.6 | 36 | 3.1 | 0.0 | 0.0 |
| 120 | 3 | 4 | aug | mon | 91.5 | 145.4 | 608.2 | 10.7 | 10.3 | 74 | 2.2 | 0.0 | 0.0 |
| 121 | 3 | 4 | aug | mon | 91.5 | 145.4 | 608.2 | 10.7 | 17.1 | 43 | 5.4 | 0.0 | 0.0 |
| 122 | 3 | 4 | sep | sun | 92.4 | 124.1 | 680.7 | 8.5 | 22.5 | 42 | 5.4 | 0.0 | 0.0 |
| 123 | 3 | 4 | sep | tue | 84.4 | 73.4 | 671.9 | 3.2 | 17.9 | 45 | 3.1 | 0.0 | 0.0 |
| 124 | 3 | 4 | sep | fri | 94.3 | 85.1 | 692.3 | 15.9 | 19.8 | 50 | 5.4 | 0.0 | 0.0 |
| 125 | 3 | 4 | oct | sun | 92.6 | 46.5 | 691.8 | 8.8 | 20.6 | 24 | 5.4 | 0.0 | 0.0 |
| 126 | 3 | 5 | mar | mon | 87.6 | 52.2 | 103.8 | 5.0 | 9.0 | 49 | 2.2 | 0.0 | 0.0 |
| 127 | 3 | 5 | sep | fri | 93.5 | 149.3 | 728.6 | 8.1 | 17.2 | 43 | 3.1 | 0.0 | 0.0 |
| 128 | 3 | 5 | oct | wed | 91.4 | 37.9 | 673.8 | 5.2 | 15.9 | 46 | 3.6 | 0.0 | 0.0 |
| 129 | 2 | 5 | oct | sun | 92.6 | 46.5 | 691.8 | 8.8 | 15.4 | 35 | 0.9 | 0.0 | 0.0 |
| 130 | 4 | 6 | feb | sat | 68.2 | 21.5 | 87.2 | 0.8 | 15.4 | 40 | 2.7 | 0.0 | 0.0 |
| 131 | 4 | 6 | mar | mon | 87.2 | 23.9 | 64.7 | 4.1 | 14.0 | 39 | 3.1 | 0.0 | 0.0 |
| 132 | 4 | 6 | mar | sun | 89.3 | 51.3 | 102.2 | 9.6 | 10.6 | 46 | 4.9 | 0.0 | 0.0 |
| 133 | 4 | 6 | sep | thu | 93.7 | 80.9 | 685.2 | 17.9 | 17.6 | 42 | 3.1 | 0.0 | 0.0 |
| 134 | 3 | 5 | mar | tue | 88.1 | 25.7 | 67.6 | 3.8 | 14.9 | 38 | 2.7 | 0.0 | 0.0 |
| 135 | 3 | 5 | aug | sat | 93.5 | 139.4 | 594.2 | 20.3 | 17.6 | 52 | 5.8 | 0.0 | 0.0 |
| 136 | 3 | 6 | sep | sun | 92.4 | 124.1 | 680.7 | 8.5 | 17.2 | 58 | 1.3 | 0.0 | 0.0 |
| 137 | 3 | 6 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 15.6 | 66 | 3.1 | 0.0 | 0.0 |
| 138 | 9 | 9 | jul | tue | 85.8 | 48.3 | 313.4 | 3.9 | 18.0 | 42 | 2.7 | 0.0 | 1.0 |
| 139 | 1 | 4 | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 21.7 | 38 | 2.2 | 0.0 | 1.0 |

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | | | | |
|-----|---|---|-------|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 140 | 2 | 5 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 21.9 | 39 | 1.8 | 0.0 | 1.0 |
| 141 | 1 | 2 | aug | wed | 95.5 | 99.9 | 513.3 | 13.2 | 23.3 | 31 | 4.5 | 0.0 | 1.0 |
| 142 | 8 | 6 | aug | fri | 90.1 | 108.0 | 529.8 | 12.5 | 21.2 | 51 | 8.9 | 0.0 | 1.0 |
| 143 | 1 | 2 | jul | sat | 90.0 | 51.3 | 296.3 | 8.7 | 16.6 | 53 | 5.4 | 0.0 | 1.0 |
| 144 | 2 | 5 | aug | wed | 95.5 | 99.9 | 513.3 | 13.2 | 23.8 | 32 | 5.4 | 0.0 | 1.0 |
| 145 | 6 | 5 | aug | thu | 95.2 | 131.7 | 578.8 | 10.4 | 27.4 | 22 | 4.0 | 0.0 | 1.0 |
| 146 | 5 | 4 | mar | mon | 90.1 | 39.7 | 86.6 | 6.2 | 13.2 | 40 | 5.4 | 0.0 | 1.0 |
| 147 | 8 | 3 | sep | tue | 84.4 | 73.4 | 671.9 | 3.2 | 24.2 | 28 | 3.6 | 0.0 | 1.0 |
| 148 | 2 | 2 | aug | tue | 94.8 | 108.3 | 647.1 | 17.0 | 17.4 | 43 | 6.7 | 0.0 | 1.0 |
| 149 | 8 | 6 | sep | thu | 93.7 | 80.9 | 685.2 | 17.9 | 23.7 | 25 | 4.5 | 0.0 | 1.0 |
| 150 | 6 | 5 | jun | fri | 92.5 | 56.4 | 433.3 | 7.1 | 23.2 | 39 | 5.4 | 0.0 | 1.0 |
| 151 | 9 | 9 | jul | sun | 90.1 | 68.6 | 355.2 | 7.2 | 24.8 | 29 | 2.2 | 0.0 | 1.0 |
| 152 | 3 | 4 | jul | sat | 90.1 | 51.2 | 424.1 | 6.2 | 24.6 | 43 | 1.8 | 0.0 | 1.0 |
| 153 | 5 | 4 | sep | fri | 94.3 | 85.1 | 692.3 | 15.9 | 20.1 | 47 | 4.9 | 0.0 | 1.0 |
| 154 | 1 | 5 | sep | sat | 93.4 | 145.4 | 721.4 | 8.1 | 29.6 | 27 | 2.7 | 0.0 | 1.0 |
| 155 | 7 | 4 | aug | sun | 94.8 | 108.3 | 647.1 | 17.0 | 16.4 | 47 | 1.3 | 0.0 | 1.0 |
| 156 | 2 | 4 | sep | sat | 93.4 | 145.4 | 721.4 | 8.1 | 28.6 | 27 | 2.2 | 0.0 | 1.0 |
| 157 | 2 | 2 | aug | wed | 92.1 | 111.2 | 654.1 | 9.6 | 18.4 | 45 | 3.6 | 0.0 | 1.0 |
| 158 | 2 | 4 | aug | wed | 92.1 | 111.2 | 654.1 | 9.6 | 20.5 | 35 | 4.0 | 0.0 | 1.0 |
| 159 | 7 | 4 | sep | fri | 92.4 | 117.9 | 668.0 | 12.2 | 19.0 | 34 | 5.8 | 0.0 | 1.0 |
| 160 | 7 | 4 | mar | mon | 90.1 | 39.7 | 86.6 | 6.2 | 16.1 | 29 | 3.1 | 0.0 | 1.0 |
| 161 | 6 | 4 | aug | thu | 95.2 | 131.7 | 578.8 | 10.4 | 20.3 | 41 | 4.0 | 0.0 | 1.0 |
| 162 | 6 | 3 | mar | sat | 90.6 | 50.1 | 100.4 | 7.8 | 15.2 | 31 | 8.5 | 0.0 | 1.0 |
| 163 | 8 | 6 | sep | sat | 92.5 | 121.1 | 674.4 | 8.6 | 17.8 | 56 | 1.8 | 0.0 | 1.0 |
| 164 | 8 | 5 | sep | sun | 89.7 | 90.0 | 704.4 | 4.8 | 17.8 | 67 | 2.2 | 0.0 | 1.0 |
| 165 | 6 | 5 | mar | thu | 84.9 | 18.2 | 55.0 | 3.0 | 5.3 | 70 | 4.5 | 0.0 | 1.0 |
| 166 | 6 | 5 | aug | wed | 92.1 | 111.2 | 654.1 | 9.6 | 16.6 | 47 | 0.9 | 0.0 | 1.0 |
| 167 | 6 | 5 | aug | wed | 96.0 | 127.1 | 570.5 | 16.5 | 23.4 | 33 | 4.5 | 0.0 | 1.0 |
| 168 | 6 | 5 | mar | fri | 91.2 | 48.3 | 97.8 | 12.5 | 14.6 | 26 | 9.4 | 0.0 | 1.0 |
| 169 | 8 | 6 | aug | thu | 95.2 | 131.7 | 578.8 | 10.4 | 20.7 | 45 | 2.2 | 0.0 | 1.0 |
| 170 | 5 | 4 | sep | wed | 92.9 | 133.3 | 699.6 | 9.2 | 21.9 | 35 | 1.8 | 0.0 | 1.0 |
| 171 | 8 | 6 | aug | wed | 85.6 | 90.4 | 609.6 | 6.6 | 17.4 | 50 | 4.0 | 0.0 | 1.0 |
| 172 | 7 | 4 | aug | sun | 91.4 | 142.4 | 601.4 | 10.6 | 20.1 | 39 | 5.4 | 0.0 | 1.0 |
| 173 | 4 | 4 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 17.7 | 39 | 2.2 | 0.0 | 1.0 |

| | | | | | | | | | | | | | |
|-----|-----|-----|-----|------|------|--------|-------|------|------|----|-----|-----|-----|
| 174 | 1 | 4 | aug | sat | 90.2 | 96.9 | 624.2 | 8.9 | 14.2 | 53 | 1.8 | 0.0 | 1.0 |
| 175 | 1 | 4 | aug | sat | 90.2 | 96.9 | 624.2 | 8.9 | 20.3 | 39 | 4.9 | 0.0 | 1.0 |
| 176 | 6 | 5 | apr | thu | 81.5 | 9.1 | 55.2 | 2.7 | 5.8 | 54 | 5.8 | 0.0 | 1.0 |
| 177 | 2 | 5 | aug | sun | 90.2 | 99.6 | 631.2 | 6.3 | 19.2 | 44 | 2.7 | 0.0 | 1.0 |
| 178 | 2 | 5 | sep | wed | 90.1 | 82.9 | 735.7 | 6.2 | 18.3 | 45 | 2.2 | 0.0 | 1.0 |
| 179 | 8 | 6 | aug | tue | 88.8 | 147.3 | 614.5 | 9.0 | 14.4 | 66 | 5.4 | 0.0 | 1.0 |
| 180 | 1 | 3 | sep | sun | 92.4 | 124.1 | 680.7 | 8.5 | 23.9 | 32 | 6.7 | 0.0 | 1.0 |
| 181 | 8 | 6 | oct | mon | 84.9 | 32.8 | 664.2 | 3.0 | 19.1 | 32 | 4.0 | 0.0 | 1.0 |
| 182 | 5 | 4 | feb | sun | 86.8 | 15.6 | 48.3 | 3.9 | 12.4 | 53 | 2.2 | 0.0 | 1.0 |
| 183 | 7 | 4 | oct | mon | 91.7 | 48.5 | 696.1 | 11.1 | 16.8 | 45 | 4.5 | 0.0 | 1.0 |
| 184 | 8 | 6 | aug | fri | 93.9 | 135.7 | 586.7 | 15.1 | 20.8 | 34 | | | |
| | 4.9 | 1.0 | RH | wind | rain | output | | | | | | | |
| 185 | 2 | 5 | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 17.6 | 46 | 3.1 | 0.0 | 1.0 |
| 186 | 8 | 6 | mar | sun | 89.3 | 51.3 | 102.2 | 9.6 | 11.5 | 39 | 5.8 | 0.0 | 1.0 |
| 187 | 1 | 5 | sep | mon | 90.9 | 126.5 | 686.5 | 7.0 | 21.0 | 42 | 2.2 | 0.0 | 1.0 |
| 188 | 6 | 4 | mar | sat | 90.8 | 41.9 | 89.4 | 7.9 | 13.3 | 42 | 0.9 | 0.0 | 1.0 |
| 189 | 7 | 4 | mar | sun | 90.7 | 44.0 | 92.4 | 5.5 | 11.5 | 60 | 4.0 | 0.0 | 1.0 |
| 190 | 6 | 5 | mar | fri | 91.2 | 48.3 | 97.8 | 12.5 | 11.7 | 33 | 4.0 | 0.0 | 1.0 |
| 191 | 2 | 5 | aug | thu | 95.2 | 131.7 | 578.8 | 10.4 | 24.2 | 28 | 2.7 | 0.0 | 1.0 |
| 192 | 2 | 2 | aug | tue | 94.8 | 108.3 | 647.1 | 17.0 | 24.6 | 22 | 4.5 | 0.0 | 1.0 |
| 193 | 4 | 5 | sep | wed | 92.9 | 133.3 | 699.6 | 9.2 | 24.3 | 25 | 4.0 | 0.0 | 1.0 |
| 194 | 2 | 2 | aug | tue | 94.8 | 108.3 | 647.1 | 17.0 | 24.6 | 22 | 4.5 | 0.0 | 1.0 |
| 195 | 2 | 5 | aug | fri | 93.9 | 135.7 | 586.7 | 15.1 | 23.5 | 36 | 5.4 | 0.0 | 1.0 |
| 196 | 6 | 5 | apr | thu | 81.5 | 9.1 | 55.2 | 2.7 | 5.8 | 54 | 5.8 | 0.0 | 1.0 |
| 197 | 4 | 5 | sep | thu | 92.9 | 137.0 | 706.4 | 9.2 | 21.5 | 15 | 0.9 | 0.0 | 1.0 |
| 198 | 3 | 4 | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 13.9 | 59 | 6.3 | 0.0 | 1.0 |
| 199 | 2 | 4 | sep | mon | 63.5 | 70.8 | 665.3 | 0.8 | 22.6 | 38 | 3.6 | 0.0 | 1.0 |
| 200 | 1 | 5 | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 21.6 | 33 | 2.2 | 0.0 | 1.0 |
| 201 | 6 | 5 | mar | sun | 90.1 | 37.6 | 83.7 | 7.2 | 12.4 | 54 | 3.6 | 0.0 | 1.0 |
| 202 | 7 | 4 | feb | sun | 83.9 | 8.7 | 32.1 | 2.1 | 8.8 | 68 | 2.2 | 0.0 | 1.0 |
| 203 | 8 | 6 | oct | wed | 91.4 | 37.9 | 673.8 | 5.2 | 20.2 | 37 | 2.7 | 0.0 | 1.0 |
| 204 | 5 | 6 | mar | sat | 90.6 | 50.1 | 100.4 | 7.8 | 15.1 | 64 | 4.0 | 0.0 | 1.0 |

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | | | | |
|------------|---|---|-------|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 205 | 4 | 5 | sep | thu | 92.9 | 137.0 | 706.4 | 9.2 | 22.1 | 34 | 1.8 | 0.0 | 1.0 |
| 206 | 2 | 2 | aug | sat | 93.5 | 139.4 | 594.2 | 20.3 | 22.9 | 31 | 7.2 | 0.0 | 1.0 |
| 207 | 7 | 5 | sep | tue | 91.0 | 129.5 | 692.6 | 7.0 | 20.7 | 37 | 2.2 | 0.0 | 1.0 |
| 208 | 6 | 5 | sep | fri | 92.4 | 117.9 | 668.0 | 12.2 | 19.6 | 33 | 6.3 | 0.0 | 1.0 |
| 209 | 8 | 3 | sep | thu | 93.7 | 80.9 | 685.2 | 17.9 | 23.2 | 26 | 4.9 | 0.0 | 1.0 |
| 210 | 4 | 4 | oct | sat | 90.6 | 43.7 | 686.9 | 6.7 | 18.4 | 25 | 3.1 | 0.0 | 1.0 |
| 211 | 7 | 4 | aug | sat | 93.5 | 139.4 | 594.2 | 20.3 | 5.1 | 96 | 5.8 | 0.0 | 1.0 |
| 212 | 7 | 4 | sep | fri | 94.3 | 85.1 | 692.3 | 15.9 | 20.1 | 47 | 4.9 | 0.0 | 1.0 |
| 213 | 7 | 3 | mar | mon | 87.6 | 52.2 | 103.8 | 5.0 | 11.0 | 46 | 5.8 | 0.0 | 1.0 |
| 214 | 4 | 4 | mar | sat | 91.7 | 35.8 | 80.8 | 7.8 | 17.0 | 27 | 4.9 | 0.0 | 1.0 |
| 215 | 4 | 4 | mar | sat | 91.7 | 35.8 | 80.8 | 7.8 | 17.0 | 27 | 4.9 | 0.0 | 1.0 |
| 216 | 4 | 4 | sep | sun | 92.4 | 124.1 | 680.7 | 8.5 | 16.9 | 60 | 1.3 | 0.0 | 1.0 |
| 217 | 1 | 3 | sep | mon | 88.6 | 91.8 | 709.9 | 7.1 | 12.4 | 73 | 6.3 | 0.0 | 1.0 |
| 218 | 4 | 5 | sep | wed | 92.9 | 133.3 | 699.6 | 9.2 | 19.4 | 19 | 1.3 | 0.0 | 1.0 |
| 219 | 6 | 5 | mar | mon | 90.1 | 39.7 | 86.6 | 6.2 | 15.2 | 27 | 3.1 | 0.0 | 1.0 |
| 220 | 8 | 6 | aug | sun | 90.2 | 99.6 | 631.2 | 6.3 | 16.2 | 59 | 3.1 | 0.0 | 1.0 |
| 221 | 3 | 4 | sep | fri | 93.3 | 141.2 | 713.9 | 13.9 | 18.6 | 49 | 3.6 | 0.0 | 1.0 |

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | RH | wind | rain | output |
|------------|---|---|-------|-----|------|-------|-------|------|------|----|------|------|--------|
| 249 | 3 | 4 | aug | wed | 93.1 | 157.3 | 666.7 | 13.5 | 21.7 | 40 | 0.4 | 0.0 | 1.0 |
| 250 | 8 | 5 | aug | wed | 93.1 | 157.3 | 666.7 | 13.5 | 26.8 | 25 | 3.1 | 0.0 | 1.0 |
| 251 | 8 | 5 | aug | wed | 93.1 | 157.3 | 666.7 | 13.5 | 24.0 | 36 | 3.1 | 0.0 | 1.0 |
| 252 | 6 | 5 | aug | wed | 93.1 | 157.3 | 666.7 | 13.5 | 22.1 | 37 | 3.6 | 0.0 | 1.0 |
| 253 | 7 | 4 | aug | thu | 91.9 | 109.2 | 565.5 | 8.0 | 21.4 | 38 | 2.7 | 0.0 | 1.0 |
| 254 | 6 | 3 | aug | thu | 91.6 | 138.1 | 621.7 | 6.3 | 18.9 | 41 | 3.1 | 0.0 | 1.0 |
| 255 | 2 | 5 | aug | thu | 87.5 | 77.0 | 694.8 | 5.0 | 22.3 | 46 | 4.0 | 0.0 | 0.0 |
| 256 | 8 | 6 | aug | sat | 94.2 | 117.2 | 581.1 | 11.0 | 23.9 | 41 | 2.2 | 0.0 | 1.0 |
| 257 | 4 | 3 | aug | sat | 94.2 | 117.2 | 581.1 | 11.0 | 21.4 | 44 | 2.7 | 0.0 | 1.0 |
| 258 | 3 | 4 | aug | | 91.8 | 170.9 | 692.3 | 13.7 | 20.6 | 59 | 0.9 | | 0.0 |
| 259 | 7 | 4 | aug | sat | 91.8 | 170.9 | 692.3 | 13.7 | 23.7 | 40 | 1.8 | 0.0 | 1.0 |
| 260 | 2 | 4 | aug | mon | 93.6 | 97.9 | 542.0 | 14.4 | 28.3 | 32 | 4.0 | 0.0 | 1.0 |
| 261 | 3 | 4 | aug | fri | 91.6 | 112.4 | 573.0 | 8.9 | 11.2 | 84 | 7.6 | 0.0 | 1.0 |
| 262 | 2 | 4 | aug | fri | 91.6 | 112.4 | 573.0 | 8.9 | 21.4 | 42 | 3.1 | 0.0 | 1.0 |
| 263 | 6 | 3 | aug | fri | 91.1 | 141.1 | 629.1 | 7.1 | 19.3 | 39 | 3.6 | 0.0 | 1.0 |
| 264 | 4 | 4 | aug | fri | 94.3 | 167.6 | 684.4 | 13.0 | 21.8 | 53 | 3.1 | 0.0 | 1.0 |
| 265 | 4 | 4 | aug | tue | 93.7 | 102.2 | 550.3 | 14.6 | 22.1 | 54 | 7.6 | 0.0 | 1.0 |
| 266 | 6 | 5 | aug | tue | 94.3 | 131.7 | 607.1 | 22.7 | 19.4 | 55 | 4.0 | 0.0 | 1.0 |
| 267 | 2 | 2 | aug | tue | 92.1 | 152.6 | 658.2 | 14.3 | 23.7 | 24 | 3.1 | 0.0 | 0.0 |
| 268 | 3 | 4 | aug | tue | 92.1 | 152.6 | 658.2 | 14.3 | 21.0 | 32 | 3.1 | 0.0 | 0.0 |
| 269 | 4 | 4 | aug | tue | 92.1 | 152.6 | 658.2 | 14.3 | 19.1 | 53 | 2.7 | 0.0 | 1.0 |
| 270 | 2 | 2 | aug | tue | 92.1 | 152.6 | 658.2 | 14.3 | 21.8 | 56 | 3.1 | 0.0 | 1.0 |
| 271 | 8 | 6 | aug | tue | 92.1 | 152.6 | 658.2 | 14.3 | 20.1 | 58 | 4.5 | 0.0 | 1.0 |
| 272 | 2 | 5 | aug | tue | 92.1 | 152.6 | 658.2 | 14.3 | 20.2 | 47 | 4.0 | 0.0 | 1.0 |
| 273 | 4 | 6 | dec | sun | 84.4 | 27.2 | 353.5 | 6.8 | 4.8 | 57 | 8.5 | 0.0 | 1.0 |
| 274 | 8 | 6 | dec | wed | 84.0 | 27.8 | 354.6 | 5.3 | 5.1 | 61 | 8.0 | 0.0 | 1.0 |
| 275 | 4 | 6 | dec | thu | 84.6 | 26.4 | 352.0 | 2.0 | 5.1 | 61 | 4.9 | 0.0 | 1.0 |

[illegible]

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | RH | wind | rain | output |
|------------|---|---|-------|-----|------|-------|-------|-----|------|----|------|------|--------|
| 303 | 3 | 6 | jun | fri | 91.1 | 94.1 | 232.1 | 7.1 | 19.2 | 38 | 4.5 | 0.0 | 0.0 |
| 304 | 6 | 5 | may | sat | 85.1 | 28.0 | 113.8 | 3.5 | 11.3 | 94 | 4.9 | 0.0 | 0.0 |
| 305 | 1 | 4 | sep | sun | 89.6 | 84.1 | 714.3 | 5.7 | 19.0 | 52 | 2.2 | 0.0 | 0.0 |
| 306 | 7 | 4 | sep | sun | 89.6 | 84.1 | 714.3 | 5.7 | 17.1 | 53 | 5.4 | 0.0 | 1.0 |
| 307 | 3 | 4 | sep | sun | 89.6 | 84.1 | 714.3 | 5.7 | 23.8 | 35 | 3.6 | 0.0 | 1.0 |
| 308 | 2 | 4 | sep | sun | 92.4 | 105.8 | 758.1 | 9.9 | 16.0 | 45 | 1.8 | 0.0 | 0.0 |
| 309 | 2 | 4 | sep | sun | 92.4 | 105.8 | 758.1 | 9.9 | 24.9 | 27 | 2.2 | 0.0 | 0.0 |
| 310 | 7 | 4 | sep | sun | 92.4 | 105.8 | 758.1 | 9.9 | 25.3 | 27 | 2.7 | 0.0 | 0.0 |
| 311 | 6 | 3 | sep | sun | 92.4 | 105.8 | 758.1 | 9.9 | 24.8 | 28 | 1.8 | 0.0 | 1.0 |
| 312 | 2 | 4 | sep | sun | 50.4 | 46.2 | 706.6 | 0.4 | 12.2 | 78 | 6.3 | 0.0 | 0.0 |
| 313 | 6 | 5 | sep | wed | 92.6 | 115.4 | 777.1 | 8.8 | 24.3 | 27 | 4.9 | 0.0 | 0.0 |
| 314 | 4 | 4 | sep | wed | 92.6 | 115.4 | 777.1 | 8.8 | 19.7 | 41 | 1.8 | 0.0 | 1.0 |
| 315 | 3 | 4 | sep | wed | 91.2 | 134.7 | 817.5 | 7.2 | 18.5 | 30 | 2.7 | 0.0 | 0.0 |
| 316 | 4 | 5 | sep | thu | 92.4 | 96.2 | 739.4 | 8.6 | 18.6 | 24 | 5.8 | 0.0 | 0.0 |
| 317 | 4 | 4 | sep | thu | 92.4 | 96.2 | 739.4 | 8.6 | 19.2 | 24 | 4.9 | 0.0 | 1.0 |
| 318 | 6 | 5 | sep | thu | 92.8 | 119.0 | 783.5 | 7.5 | 21.6 | 27 | 2.2 | 0.0 | 0.0 |
| 319 | 5 | 4 | sep | thu | 92.8 | 119.0 | 783.5 | 7.5 | 21.6 | 28 | 6.3 | 0.0 | 1.0 |
| 320 | 6 | 3 | sep | thu | 92.8 | 119.0 | 783.5 | 7.5 | 18.9 | 34 | 7.2 | 0.0 | 1.0 |
| 321 | 1 | 4 | sep | thu | 92.8 | 119.0 | 783.5 | 7.5 | 16.8 | 28 | 4.0 | 0.0 | 1.0 |
| 322 | 6 | 5 | sep | thu | 92.8 | 119.0 | 783.5 | 7.5 | 16.8 | 28 | 4.0 | 0.0 | 1.0 |
| 323 | 3 | 5 | sep | thu | 90.7 | 136.9 | 822.8 | 6.8 | 12.9 | 39 | 2.7 | 0.0 | 1.0 |
| 324 | 6 | 5 | sep | thu | 88.1 | 53.3 | 726.9 | 5.4 | 13.7 | 56 | 1.8 | 0.0 | 1.0 |
| 325 | 1 | 4 | sep | sat | 92.2 | 102.3 | 751.5 | 8.4 | 24.2 | 27 | 3.1 | 0.0 | 0.0 |
| 326 | 5 | 4 | sep | sat | 92.2 | 102.3 | 751.5 | 8.4 | 24.1 | 27 | 3.1 | 0.0 | 0.0 |
| 327 | 6 | 5 | sep | sat | 92.2 | 102.3 | 751.5 | 8.4 | 21.2 | 32 | 2.2 | 0.0 | 0.0 |
| 328 | 6 | 5 | sep | sat | 92.2 | 102.3 | 751.5 | 8.4 | 19.7 | 35 | 1.8 | 0.0 | 0.0 |
| 329 | 4 | 3 | sep | sat | 92.2 | 102.3 | 751.5 | 8.4 | 23.5 | 27 | 4.0 | 0.0 | 1.0 |

[illegible]

| | X | Y | month | day | FFMC | DMC | DC | ISI | temp | RH | wind | rain | output |
|------------|---|---|-------|-----|------|-------|-------|------|------|----|------|------|--------|
| 357 | 6 | 3 | sep | fri | 92.5 | 122.0 | 789.7 | 10.2 | 15.9 | 55 | 3.6 | 0.0 | 0.0 |
| 358 | 6 | 3 | sep | fri | 92.5 | 122.0 | 789.7 | 10.2 | 19.7 | 39 | 2.7 | 0.0 | 0.0 |
| 359 | 1 | 4 | sep | fri | 92.5 | 122.0 | 789.7 | 10.2 | 21.1 | 39 | 2.2 | 0.0 | 1.0 |
| 360 | 6 | 5 | sep | fri | 92.5 | 122.0 | 789.7 | 10.2 | 18.4 | 42 | 2.2 | 0.0 | 1.0 |
| 361 | 4 | 3 | sep | fri | 92.5 | 122.0 | 789.7 | 10.2 | 17.3 | 45 | 4.0 | 0.0 | 1.0 |
| 362 | 7 | 4 | sep | fri | 88.2 | 55.2 | 732.3 | 11.6 | 15.2 | 64 | 3.1 | 0.0 | 1.0 |
| 363 | 4 | 3 | sep | tue | 91.9 | 111.7 | 770.3 | 6.5 | 15.9 | 53 | 2.2 | 0.0 | 1.0 |
| 364 | 6 | 5 | sep | tue | 91.9 | 111.7 | 770.3 | 6.5 | 21.1 | 35 | 2.7 | 0.0 | 1.0 |
| 365 | 6 | 5 | sep | tue | 91.9 | 111.7 | 770.3 | 6.5 | 19.6 | 45 | 3.1 | 0.0 | 1.0 |
| 366 | 4 | 5 | sep | tue | 91.1 | 132.3 | 812.1 | 12.5 | 15.9 | 38 | 5.4 | 0.0 | 1.0 |
| 367 | 4 | 5 | sep | tue | 91.1 | 132.3 | 812.1 | 12.5 | 16.4 | 27 | 3.6 | 0.0 | 0.0 |
| 368 | 6 | 5 | sep | sat | 91.2 | 94.3 | 744.4 | 8.4 | 16.8 | 47 | 4.9 | 0.0 | 1.0 |
| 369 | 4 | 5 | sep | sun | 91.0 | 276.3 | 825.1 | 7.1 | 13.8 | 77 | 7.6 | 0.0 | 0.0 |

| | | | | | | | | | | | | |
|-----|-----|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 396 | 4 3 | sep | sun | 90.5 | 96.7 | 750.5 | 11.4 | 20.4 | 55 | 4.9 | 0.0 | 1.0 |
| 397 | 5 6 | aug | sun | 91.6 | 181.3 | 613.0 | 7.6 | 24.3 | 33 | 3.6 | 0.0 | 1.0 |
| 398 | 1 2 | aug | sat | 93.7 | 231.1 | 715.1 | 8.4 | 25.9 | 32 | 3.1 | 0.0 | 0.0 |
| 399 | 9 5 | jun | wed | 93.3 | 49.5 | 297.7 | 14.0 | 28.0 | 34 | 4.5 | 0.0 | 0.0 |
| 400 | 9 5 | jun | wed | 93.3 | 49.5 | 297.7 | 14.0 | 28.0 | 34 | 4.5 | 0.0 | 1.0 |
| 401 | 3 4 | sep | thu | 91.1 | 88.2 | 731.7 | 8.3 | 22.8 | 46 | 4.0 | 0.0 | 1.0 |
| 402 | 9 9 | aug | fri | 94.8 | 227.0 | 706.7 | 12.0 | 25.0 | 36 | 4.0 | 0.0 | 0.0 |
| 403 | 8 6 | aug | thu | 90.7 | 194.1 | 643.0 | 6.8 | 21.3 | 41 | 3.6 | 0.0 | 0.0 |
| 404 | 2 4 | sep | wed | 87.9 | 84.8 | 725.1 | 3.7 | 21.8 | 34 | 2.2 | 0.0 | 1.0 |
| 405 | 2 2 | aug | tue | 94.6 | 212.1 | 680.9 | 9.5 | 27.9 | 27 | 2.2 | 0.0 | 0.0 |
| 406 | 6 5 | sep | | 87.1 | 291.3 | 860.6 | 4.0 | 17.0 | 67 | 4.9 | 0.0 | |
| 407 | 4 5 | feb | sat | 84.7 | 8.2 | 55.0 | 2.9 | 14.2 | 46 | 4.0 | 0.0 | 0.0 |
| 408 | 4 3 | sep | fri | 90.3 | 290.0 | 855.3 | 7.4 | 19.9 | 44 | 3.1 | 0.0 | 1.0 |
| 409 | 1 4 | jul | tue | 92.3 | 96.2 | 450.2 | 12.1 | 23.4 | 31 | 5.4 | 0.0 | 0.0 |
| 410 | 6 3 | feb | fri | 84.1 | 7.3 | 52.8 | 2.7 | 14.7 | 42 | 2.7 | 0.0 | 0.0 |
| 411 | 7 4 | feb | fri | 84.6 | 3.2 | 43.6 | 3.3 | 8.2 | 53 | 9.4 | 0.0 | 1.0 |
| 412 | 9 4 | jul | mon | 92.3 | 92.1 | 442.1 | 9.8 | 22.8 | 27 | 4.5 | 0.0 | 1.0 |
| 413 | 7 5 | aug | sat | 93.7 | 231.1 | 715.1 | 8.4 | 26.4 | 33 | 3.6 | 0.0 | 0.0 |
| 414 | 5 4 | aug | sun | 93.6 | 235.1 | 723.1 | 10.1 | 24.1 | 50 | 4.0 | 0.0 | 0.0 |
| 415 | 8 6 | aug | thu | 94.8 | 222.4 | 698.6 | 13.9 | 27.5 | 27 | 4.9 | 0.0 | 1.0 |
| 416 | 6 3 | jul | tue | 92.7 | 164.1 | 575.8 | 8.9 | 26.3 | 39 | 3.1 | 0.0 | 1.0 |
| 417 | 6 5 | mar | wed | 93.4 | 17.3 | 28.3 | 9.9 | 13.8 | 24 | 5.8 | 0.0 | 0.0 |
| 418 | 2 4 | aug | sun | 92.0 | 203.2 | 664.5 | 8.1 | 24.9 | 42 | 5.4 | 0.0 | 1.0 |
| 419 | 2 5 | aug | sun | 91.6 | 181.3 | 613.0 | 7.6 | 24.8 | 36 | 4.0 | 0.0 | 1.0 |
| 420 | 8 8 | aug | wed | 91.7 | 191.4 | 635.9 | 7.8 | 26.2 | 36 | 4.5 | 0.0 | 1.0 |
| 421 | 2 4 | aug | wed | 95.2 | 217.7 | 690.0 | 18.0 | 30.8 | 19 | 4.5 | 0.0 | 0.0 |
| 422 | 8 6 | jul | sun | 88.9 | 263.1 | 795.9 | 5.2 | 29.3 | 27 | 3.6 | 0.0 | 1.0 |

| | | | | | | | | | | | | | |
|-----|---|---|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 423 | 1 | 3 | sep | sat | 91.2 | 94.3 | 744.4 | 8.4 | 22.3 | 48 | 4.0 | 0.0 | 1.0 |
| 424 | 8 | 6 | aug | sat | 93.7 | 231.1 | 715.1 | 8.4 | 26.9 | 31 | 3.6 | 0.0 | 1.0 |
| 425 | 2 | 2 | aug | thu | 91.6 | 248.4 | 753.8 | 6.3 | 20.4 | 56 | 2.2 | 0.0 | 0.0 |
| 426 | 8 | 6 | aug | thu | 91.6 | 248.4 | 753.8 | 6.3 | 20.4 | 56 | 2.2 | 0.0 | 0.0 |
| 427 | 2 | 4 | aug | mon | 92.1 | 207.0 | 672.6 | 8.2 | 27.9 | 33 | 2.2 | 0.0 | 1.0 |
| 428 | 1 | 3 | aug | thu | 94.8 | 222.4 | 698.6 | 13.9 | 26.2 | 34 | 5.8 | 0.0 | 0.0 |
| 429 | 3 | 4 | aug | sun | 91.6 | 181.3 | 613.0 | 7.6 | 24.6 | 44 | 4.0 | 0.0 | 1.0 |
| 430 | 7 | 4 | sep | thu | 89.7 | 287.2 | 849.3 | 6.8 | 19.4 | 45 | 3.6 | 0.0 | 0.0 |
| 431 | 1 | 3 | aug | sat | 92.1 | 178.0 | 605.3 | 9.6 | 23.3 | 40 | 4.0 | 0.0 | 1.0 |
| 432 | 8 | 6 | aug | thu | 94.8 | 222.4 | 698.6 | 13.9 | 23.9 | 38 | 6.7 | 0.0 | 0.0 |
| 433 | 2 | 4 | aug | sun | 93.6 | 235.1 | 723.1 | 10.1 | 20.9 | 66 | 4.9 | 0.0 | 1.0 |
| 434 | 1 | 4 | aug | fri | 90.6 | 269.8 | 811.2 | 5.5 | 22.2 | 45 | 3.6 | 0.0 | 0.0 |
| 435 | 2 | 5 | jul | sat | 90.8 | 84.7 | 376.6 | 5.6 | 23.8 | 51 | 1.8 | 0.0 | 0.0 |
| 436 | 8 | 6 | aug | mon | 92.1 | 207.0 | 672.6 | 8.2 | 26.8 | 35 | 1.3 | 0.0 | 1.0 |
| 437 | 8 | 6 | aug | sat | 89.4 | 253.6 | 768.4 | 9.7 | 14.2 | 73 | 2.7 | 0.0 | 0.0 |
| 438 | 2 | 5 | aug | sat | 93.7 | 231.1 | 715.1 | 8.4 | 23.6 | 53 | 4.0 | 0.0 | 1.0 |
| 439 | 1 | 3 | sep | fri | 91.1 | 91.3 | 738.1 | 7.2 | 19.1 | 46 | 2.2 | 0.0 | 1.0 |
| 440 | 5 | 4 | sep | fri | 90.3 | 290.0 | 855.3 | 7.4 | 16.2 | 58 | 3.6 | 0.0 | 0.0 |
| 441 | 8 | 6 | aug | mon | 92.1 | 207.0 | 672.6 | 8.2 | 25.5 | 29 | 1.8 | 0.0 | 1.0 |
| 442 | 6 | 5 | apr | mon | 87.9 | 24.9 | 41.6 | 3.7 | 10.9 | 64 | 3.1 | 0.0 | 1.0 |
| 443 | 1 | 2 | jul | fri | 90.7 | 80.9 | 368.3 | 16.8 | 14.8 | 78 | 8.0 | 0.0 | 0.0 |

X Y month day FFMC DMC DC ISI temp RH
wwinidndrainnaionutpoutput

| | | | | | | | | | | | | | |
|-----|---|---|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 444 | 2 | 5 | sep | fri | 90.3 | 290.0 | 855.3 | 7.4 | 16.2 | 58 | 3.6 | 0.0 | 1.0 |
| 445 | 5 | 5 | aug | sun | 94.0 | 47.9 | 100.7 | 10.7 | 17.3 | 80 | 4.5 | 0.0 | 0.0 |
| 446 | 6 | 5 | aug | sun | 92.0 | 203.2 | 664.5 | 8.1 | 19.1 | 70 | 2.2 | 0.0 | 0.0 |
| 447 | 3 | 4 | mar | wed | 93.4 | 17.3 | 28.3 | 9.9 | 8.9 | 35 | 8.0 | 0.0 | 0.0 |

| | | | | | | | | | | | | |
|-----|-----|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 448 | 7 4 | sep | wed | 89.7 | 284.9 | 844.0 | 10.1 | 10.5 | 77 | 4.0 | 0.0 | 0.0 |
| 449 | 7 4 | aug | sun | 91.6 | 181.3 | 613.0 | 7.6 | 19.3 | 61 | 4.9 | 0.0 | 0.0 |
| 450 | 4 5 | aug | wed | 95.2 | 217.7 | 690.0 | 18.0 | 23.4 | 49 | 5.4 | 0.0 | 1.0 |
| 451 | 1 4 | aug | fri | 90.5 | 196.8 | 649.9 | 16.3 | 11.8 | 88 | 4.9 | 0.0 | 1.0 |
| 452 | 7 4 | aug | mon | 91.5 | 238.2 | 730.6 | 7.5 | 17.7 | 65 | 4.0 | 0.0 | 0.0 |
| 453 | 4 5 | aug | thu | 89.4 | 266.2 | 803.3 | 5.6 | 17.4 | 54 | 3.1 | 0.0 | 0.0 |
| 454 | 3 4 | aug | thu | 91.6 | 248.4 | 753.8 | 6.3 | 16.8 | 56 | 3.1 | 0.0 | 0.0 |
| 455 | 3 4 | jul | mon | 94.6 | 160.0 | 567.2 | 16.7 | 17.9 | 48 | 2.7 | 0.0 | 0.0 |
| 456 | 2 4 | aug | thu | 91.6 | 248.4 | 753.8 | 6.3 | 16.6 | 59 | 2.7 | 0.0 | 0.0 |
| 457 | 1 4 | aug | wed | 91.7 | 191.4 | 635.9 | 7.8 | 19.9 | 50 | 4.0 | 0.0 | 1.0 |
| 458 | 8 6 | aug | sat | 93.7 | 231.1 | 715.1 | 8.4 | 18.9 | 64 | 4.9 | 0.0 | 1.0 |
| 459 | 7 4 | aug | sat | 91.6 | 273.8 | 819.1 | 7.7 | 15.5 | 72 | 8.0 | 0.0 | 1.0 |
| 460 | 2 5 | aug | sat | 93.7 | 231.1 | 715.1 | 8.4 | 18.9 | 64 | 4.9 | 0.0 | 0.0 |
| 461 | 8 6 | aug | sat | 93.7 | 231.1 | 715.1 | 8.4 | 18.9 | 64 | 4.9 | 0.0 | 0.0 |
| 462 | 1 4 | sep | sun | 91.0 | 276.3 | 825.1 | 7.1 | 14.5 | 76 | 7.6 | 0.0 | 1.0 |
| 463 | 6 5 | feb | tue | 75.1 | 4.4 | 16.2 | 1.9 | 4.6 | 82 | 6.3 | 0.0 | 1.0 |
| 464 | 6 4 | feb | tue | 75.1 | 4.4 | 16.2 | 1.9 | 5.1 | 77 | 5.4 | 0.0 | 1.0 |
| 465 | 2 2 | feb | sat | 79.5 | 3.6 | 15.3 | 1.8 | 4.6 | 59 | 0.9 | 0.0 | 1.0 |
| 466 | 6 5 | mar | mon | 87.2 | 15.1 | 36.9 | 7.1 | 10.2 | 45 | 5.8 | 0.0 | 1.0 |
| 467 | 3 4 | mar | wed | 90.2 | 18.5 | 41.1 | 7.3 | 11.2 | 41 | 5.4 | 0.0 | 1.0 |
| 468 | 6 5 | mar | thu | 91.3 | 20.6 | 43.5 | 8.5 | 13.3 | 27 | 3.6 | 0.0 | 1.0 |
| 469 | 6 3 | apr | sun | 91.0 | 14.6 | 25.6 | 12.3 | 13.7 | 33 | 9.4 | 0.0 | 1.0 |
| 470 | 5 4 | apr | sun | 91.0 | 14.6 | 25.6 | 12.3 | 17.6 | 27 | 5.8 | 0.0 | 0.0 |
| 471 | 4 3 | may | fri | 89.6 | 25.4 | 73.7 | 5.7 | 18.0 | 40 | 4.0 | 0.0 | 1.0 |
| 472 | 8 3 | jun | mon | 88.2 | 96.2 | 229.0 | 4.7 | 14.3 | 79 | 4.0 | 0.0 | 1.0 |
| 473 | 9 4 | jun | sat | 90.5 | 61.1 | 252.6 | 9.4 | 24.5 | 50 | 3.1 | 0.0 | 1.0 |
| 474 | 4 3 | jun | thu | 93.0 | 103.8 | 316.7 | 10.8 | 26.4 | 35 | 2.7 | 0.0 | 1.0 |

| | | | | | | | | | | | | |
|-----|-----|-------|-----|------|-------|-------|------|------|----|-----|------|------|
| 475 | 2 5 | jun | thu | 93.7 | 121.7 | 350.2 | 18.0 | 22.7 | 40 | 9.4 | 0.0 | 1.0 |
| 476 | 4 3 | jul | thu | 93.5 | 85.3 | 395.0 | 9.9 | 27.2 | 28 | 1.3 | 0.0 | 1.0 |
| 477 | 4 3 | jul | sun | 93.7 | 101.3 | 423.4 | 14.7 | 26.1 | 45 | 4.0 | 0.0 | 1.0 |
| 478 | 7 4 | jul | sun | 93.7 | 101.3 | 423.4 | 14.7 | 18.2 | 82 | 4.5 | 0.0 | 1.0 |
| 479 | 7 4 | jul | mon | 89.2 | 103.9 | 431.6 | 6.4 | 22.6 | 57 | 4.9 | 0.0 | 1.0 |
| 480 | 9 9 | jul | thu | 93.2 | 114.4 | 560.0 | 9.5 | 30.2 | 25 | 4.5 | 0.0 | |
| | X Y | month | day | FFMC | DMC | DC | ISI | temp | | RH | wind | rain |
| 481 | 4 3 | jul | thu | 93.2 | 114.4 | 560.0 | 9.5 | 30.2 | 22 | 4.9 | 0.0 | 0.0 |
| 482 | 3 4 | aug | sun | 94.9 | 130.3 | 587.1 | 14.1 | 23.4 | 40 | 5.8 | 0.0 | 1.0 |
| 483 | 8 6 | aug | sun | 94.9 | 130.3 | 587.1 | 14.1 | 31.0 | 27 | 5.4 | 0.0 | 0.0 |
| 484 | 2 5 | aug | sun | 94.9 | 130.3 | 587.1 | 14.1 | 33.1 | 25 | 4.0 | 0.0 | 1.0 |
| 485 | 2 4 | aug | mon | 95.0 | 135.5 | 596.3 | 21.3 | 30.6 | 28 | 3.6 | 0.0 | 1.0 |
| 486 | 5 4 | aug | tue | 95.1 | 141.3 | 605.8 | 17.7 | 24.1 | 43 | 6.3 | 0.0 | 1.0 |
| 487 | 5 4 | aug | tue | 95.1 | 141.3 | 605.8 | 17.7 | 26.4 | 34 | 3.6 | 0.0 | 1.0 |
| 488 | 4 4 | aug | tue | 95.1 | 141.3 | 605.8 | 17.7 | 19.4 | 71 | 7.6 | 0.0 | 1.0 |
| 489 | 4 4 | aug | wed | 95.1 | 141.3 | 605.8 | 17.7 | 20.6 | 58 | 1.3 | 0.0 | 0.0 |
| 490 | 4 4 | aug | wed | 95.1 | 141.3 | 605.8 | 17.7 | 28.7 | 33 | 4.0 | 0.0 | 0.0 |
| 491 | 4 4 | aug | thu | 95.8 | 152.0 | 624.1 | 13.8 | 32.4 | 21 | 4.5 | 0.0 | 0.0 |
| 492 | 1 3 | aug | fri | 95.9 | 158.0 | 633.6 | 11.3 | 32.4 | 27 | 2.2 | 0.0 | 0.0 |
| 493 | 1 3 | aug | fri | 95.9 | 158.0 | 633.6 | 11.3 | 27.5 | 29 | 4.5 | 0.0 | 1.0 |
| 494 | 6 6 | aug | sat | 96.0 | 164.0 | 643.0 | 14.0 | 30.8 | 30 | 4.9 | 0.0 | 1.0 |
| 495 | 6 6 | aug | mon | 96.2 | 175.5 | 661.8 | 16.8 | 23.9 | 42 | 2.2 | 0.0 | 0.0 |
| 496 | 4 5 | aug | mon | 96.2 | 175.5 | 661.8 | 16.8 | 32.6 | 26 | 3.1 | 0.0 | 1.0 |
| 497 | 3 4 | aug | tue | 96.1 | 181.1 | 671.2 | 14.3 | 32.3 | 27 | 2.2 | 0.0 | 1.0 |
| 498 | 6 5 | aug | tue | 96.1 | 181.1 | 671.2 | 14.3 | 33.3 | 26 | 2.7 | 0.0 | 1.0 |
| 499 | 7 5 | aug | tue | 96.1 | 181.1 | 671.2 | 14.3 | 27.3 | 63 | 4.9 | 6.4 | 1.0 |
| 500 | 8 6 | aug | tue | 96.1 | 181.1 | 671.2 | 14.3 | 21.6 | 65 | 4.9 | 0.8 | 0.0 |
| 501 | 7 5 | aug | tue | 96.1 | 181.1 | 671.2 | 14.3 | 21.6 | 65 | 4.9 | 0.8 | 0.0 |
| 502 | 4 4 | aug | tue | 96.1 | 181.1 | 671.2 | 14.3 | 20.7 | 69 | 4.9 | 0.4 | 0.0 |

| | | | | | | | | | | | | | |
|------------|---|---|-----|-----|------|-------|-------|------|------|----|-----|-----|-----|
| 503 | 2 | 4 | aug | wed | 94.5 | 139.4 | 689.1 | 20.0 | 29.2 | 30 | 4.9 | 0.0 | 1.0 |
| 504 | 4 | 3 | aug | wed | 94.5 | 139.4 | 689.1 | 20.0 | 28.9 | 29 | 4.9 | 0.0 | 1.0 |
| 505 | 1 | 2 | aug | thu | 91.0 | 163.2 | 744.4 | 10.1 | 26.7 | 35 | 1.8 | 0.0 | 1.0 |
| 506 | 1 | 2 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 18.5 | 73 | 8.5 | 0.0 | 0.0 |
| 507 | 2 | 4 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 25.9 | 41 | 3.6 | 0.0 | 0.0 |
| 508 | 1 | 2 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 25.9 | 41 | 3.6 | 0.0 | 0.0 |
| 509 | 5 | 4 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 21.1 | 71 | 7.6 | 1.4 | 1.0 |
| 510 | 6 | 5 | aug | fri | 91.0 | 166.9 | 752.6 | 7.1 | 18.2 | 62 | 5.4 | 0.0 | 1.0 |
| 511 | 8 | 6 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 27.8 | 35 | 2.7 | 0.0 | 0.0 |
| 512 | 4 | 3 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 27.8 | 32 | 2.7 | 0.0 | 1.0 |
| 513 | 2 | 4 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 21.9 | 71 | 5.8 | 0.0 | 1.0 |
| 514 | 7 | 4 | aug | sun | 81.6 | 56.7 | 665.6 | 1.9 | 21.2 | 70 | 6.7 | 0.0 | 1.0 |
| 515 | 1 | 4 | aug | sat | 94.4 | 146.0 | 614.7 | 11.3 | 25.6 | 42 | 4.0 | 0.0 | 0.0 |
| 516 | 6 | 3 | nov | tue | 79.5 | 3.0 | 106.7 | 1.1 | 11.8 | 31 | 4.5 | 0.0 | 0.0 |

In []:

```
In [1]: import keras from keras.preprocessing.image import
ImageDataGenerator
```

```
In [2]: #Define the parameters/arguments for ImageDataGenerator class
train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,zoom_range
```

```
test_datagen=ImageDataGenerator(rescale=1./255)
```

```
In [3]: #Applying ImageDataGenerator functionality to trainset
x_train=train_datagen.flow_from_directory(r'C:\Users\dhine\Downloads\archive\Dataset\Dataset\
target_size=(128,128),batch_size=32,
class_mode='binary')
```

Found 436 images belonging to 2 classes.

```
In [4]: #Applying ImageDataGenerator functionality to testset
x_test=test_datagen.flow_from_directory(r'C:\Users\dhine\Downloads\archive\Dataset\Dataset\te
target_size=(128,128),batch_size=32,
class_mode='binary')
```

Found 121 images belonging to 2 classes.

```
In [5]: #import model building libraries

#To define Linear initialisation import Sequential from
keras.models import Sequential
#To add layers import Dense from
keras.layers import Dense
#To create Convolution kernel import Convolution2D
from keras.layers import Convolution2D
#import Maxpooling layer from
keras.layers import MaxPooling2D
#import flatten layer from keras.layers
import Flatten import warnings
warnings.filterwarnings('ignore')
```

```
In [7]: #initializing the model model=Sequential()
```

```
In [8]: #add convolutional layer
model.add(Convolution2D(32,(3,3),input_shape=(128,128,3),activation='relu')) #add
maxpooling layer model.add(MaxPooling2D(pool_size=(2,2)))
#add flatten layer model.add(Flatten())
```

```
In [9]: #add hidden layer
In [10]: model.add(Dense(150,activation='relu')) #add output
In [11]: layer model.add(Dense(1,activation='sigmoid'))

#configure the learning process model.compile(loss='binary_crossentropy',optimizer="adam",metrics=["accuracy"])

#Training the model model.fit_generator(x_train,steps_per_epoch=14,epochs=10,validation_data=x_test,validation_st
```

Epoch 1/10

14/14 [=====] - 84s 6s/step - loss: 4.2334 - accuracy: 0.5619 - val_loss: 1.3686 - val_accuracy: 0.5950

Epoch 2/10

14/14 [=====] - 74s 5s/step - loss: 0.5689 - accuracy: 0.7362 - val_loss: 0.2423 - val_accuracy: 0.8926

Epoch 3/10

14/14 [=====] - 123s 9s/step - loss: 0.2231 - accuracy: 0.9197 - val_loss: 0.1323 - val_accuracy: 0.9669

Epoch 4/10

14/14 [=====] - 75s 5s/step - loss: 0.2170 - accuracy: 0.9128 - val_loss: 0.1082 - val_accuracy: 0.9669

Epoch 5/10

14/14 [=====] - 129s 10s/step - loss: 0.1918 - accuracy: 0.9151 - val_loss: 0.1145 - val_accuracy: 0.9669

Epoch 6/10

14/14 [=====] - 111s 8s/step - loss: 0.1938 - accuracy: 0.9037 - val_loss: 0.1030 - val_accuracy: 0.9669

Epoch 7/10

====]

- 88s 6s/step - loss: 0.1756 - accuracy: 0.9312 - val_loss: 0.0831 - val_accuracy: 0.9752

Epoch

14/14 [=====] - 86s 6s/step - loss: 0.1564 - accuracy: 0.9404 - val_loss: 0.0754 - val_accuracy: 0.9835

Epoch 0.1073 - val_accuracy: 0.9669

14/14 [=====]

====] - 77s 6s/step - loss: 0.1480 - accuracy: 0.9427 - val_loss: 0.0754 - val_accuracy: 0.9835

Epoch

[=====]

14/14 [=====]

====]

- 81s 6s/step - loss: 0.1641 - accuracy: 0.9289 - val_loss: 0.0601 - val_accuracy: 0.9835

loss: 0.0601 - val_accuracy: 0.9835

<keras.callbacks.History at 0x2546507bf10> Out[11]:

In [12]: model.save("forest1.h5")

In [13]:

```
#import load_model from keras.model
from keras.models import load_model
#import image
class from keras from tensorflow.keras.preprocessing
import image
#import numpy import
numpy as np
#import cv2 import
```

In [15]: #load the saved model model = load_model("forest1.h5")

In [16]:

```
img=image.load_img(r'C:\Users\dhine\Downloads\archive\Dataset\Dataset\test_set\with  
fire\skynx=image.img_to_array(img) res = cv2.resize(x, dsize=(128, 128), interpolation=cv2.INTER_CUBIC)  
#expand the image shape x=np.expand_dims(res,axis=0)
```

In [17]:

```
pred=model.predict(x)
```

```
1/1 [=====] - 5s 5s/step
```

```
pred
```
