Predict Fload Probability

Channel ID: **1553350**

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Read API Key: 5IO51LL49SUFGC5E

```
clear;
clc;
close;
warning('off','all')
```

Reading Data From Thingspeak

```
readChannelID =  1553350;
data = thingSpeakRead(readChannelID,'NumDays',15,'Fields',[1 2 3 4 5 6]);
water_level = thingSpeakRead(readChannelID,'Fields',1);
rain        = thingSpeakRead(readChannelID,'Fields',2);
temperature = thingSpeakRead(readChannelID,'Fields',3);
humidity    = thingSpeakRead(readChannelID,'Fields',4);
alarm       = thingSpeakRead(readChannelID,'Fields',5);
Water_in_Re = thingSpeakRead(readChannelID,'Fields',6);
```

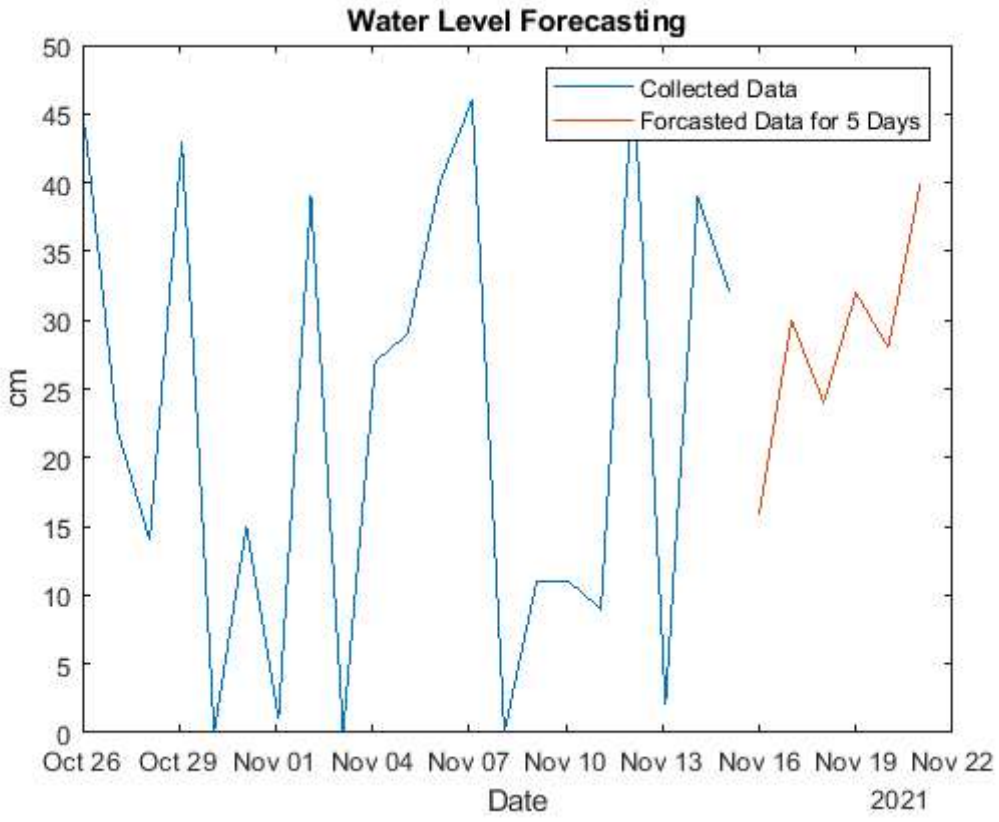
Prediction

Water Level Prediction

```
%for i=1:20

    x=datenum(time);
    t=Water_Level';
    X=x';
    %i
    p = polyfit(X, t, 8);
```

```
Warning: Polynomial is badly conditioned. Add points with distinct X values, reduce the degree of
```

```

    future_time=datetime('2021-11-16') + days(00:5) ;
    future = datenum (future_time);
    forecasted_values = polyval(p, future);

    figure
    plot (time, t, '-')
    hold on
    plot (future_time, forecasted_values)
    hold off
    title ('Water Level Forecasting')
    ylabel('cm')
    xlabel( 'Date')
    legend('Collected Data','Forcasted Data for 5 Days')
```



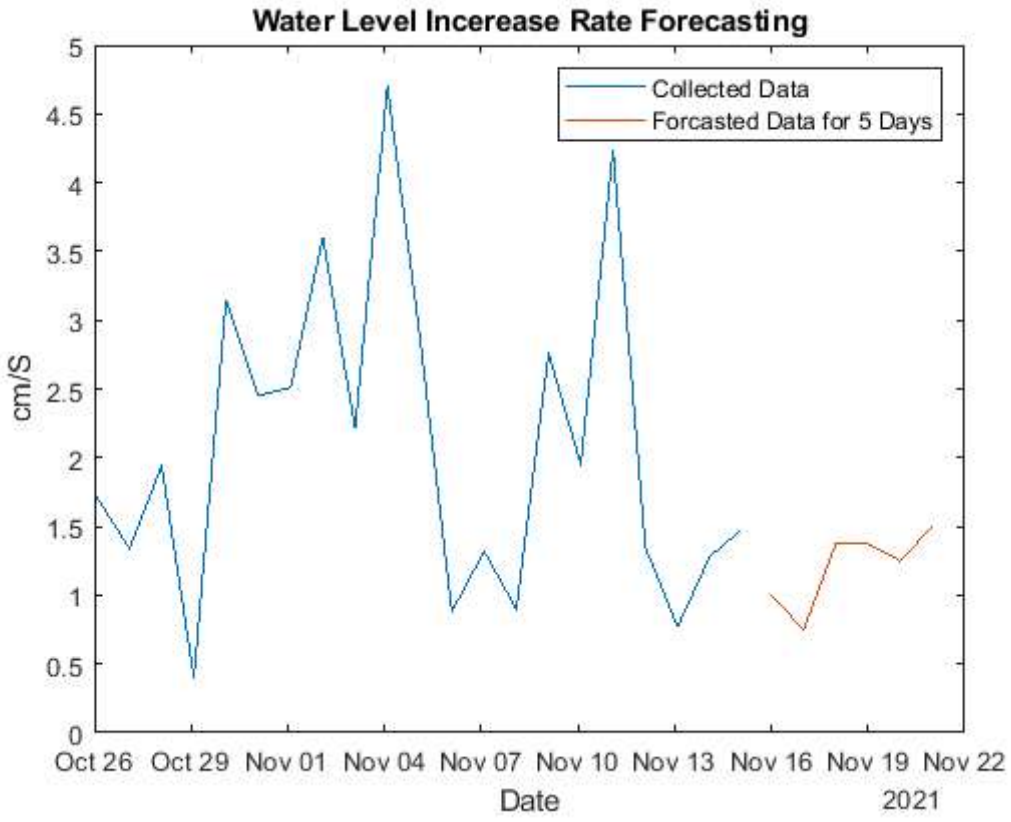

```
%end
```

Water Increase Rate Prediction

```
%for i=1:20

    x=datenum(time);
    t=Water_In_Re';
    X=x';
    %i
    p = polyfit(X, t, 6);
```

```
Warning: Polynomial is badly conditioned. Add points with distinct X values, reduce the degree of
```

```
    future_time=datetime('2021-11-16') + days(00:5) ;
    future = datenum (future_time);
    forecasted_values = polyval(p, future);

    figure
    plot (time, t, '-')
    hold on
    plot (future_time, forecasted_values)
    hold off
    title ('Water Level Incerease Rate Forecasting')
    ylabel('cm/S')
    xlabel( 'Date')
    legend('Collected Data','Forcasted Data for 5 Days')
```



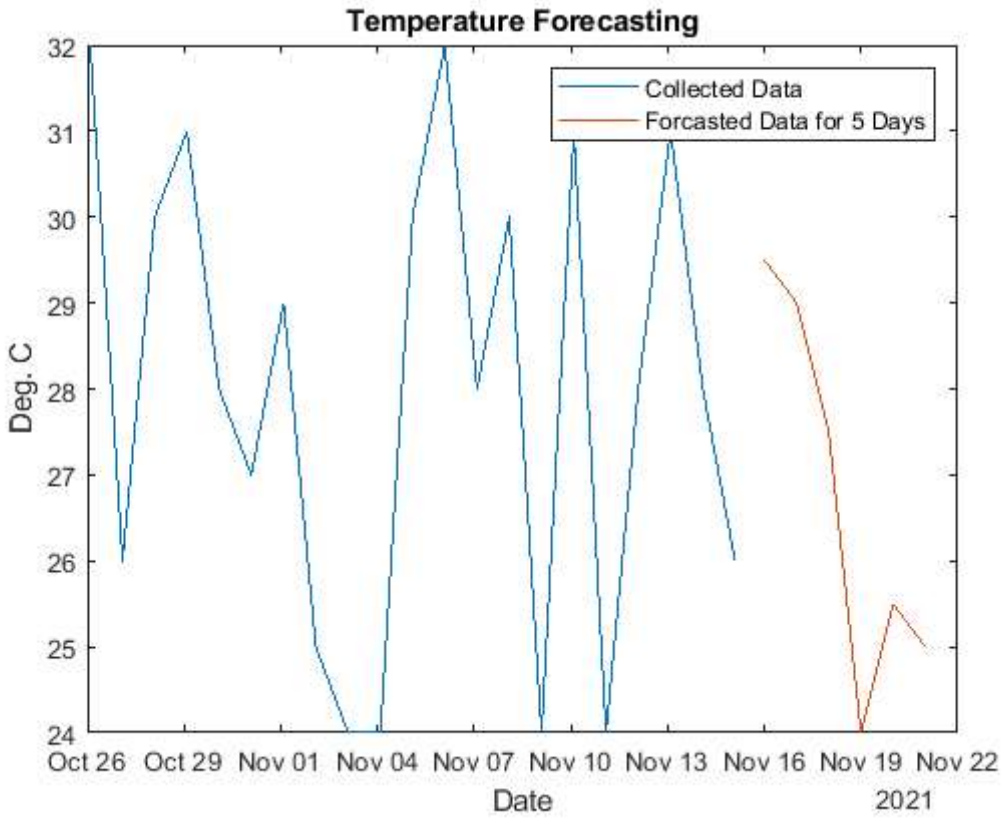

```
%end
```

Temperature Forcasting

```
%for i=1:30

    x=datenum(time);
    t=Temperature';
    X=x';
    %i
    p = polyfit(X, t, 8);
```

```
Warning: Polynomial is badly conditioned. Add points with distinct X values, reduce the degree of
```

```
    future_time=datetime('2021-11-16') + days(00:5) ;
    future = datenum (future_time);
    forecasted_values = polyval(p, future);

    figure
    plot (time, t, '-')
    hold on
    plot (future_time, forecasted_values)
    hold off
    title ('Temperature Forecasting')
    ylabel('Deg. C')
    xlabel( 'Date')
    legend('Collected Data','Forcasted Data for 5 Days')
```



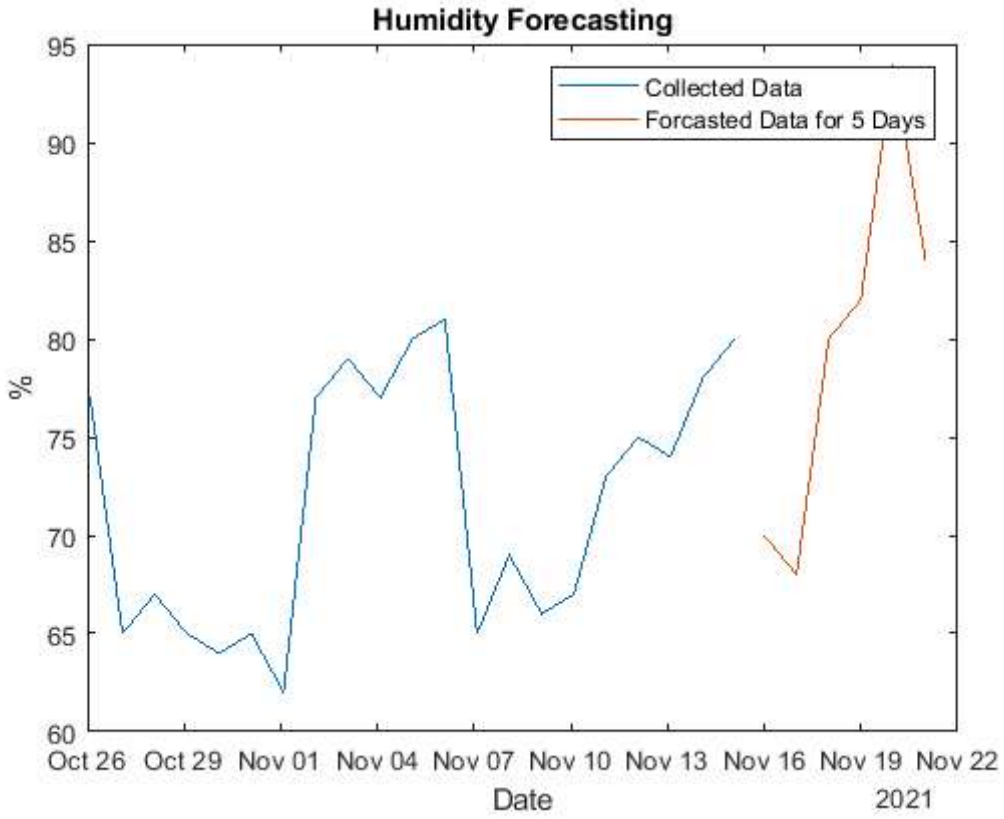

```
%end
```

Humidity Forcasting

```
%for i=1:30

    x=datenum(time);
    t=Humidity';
    X=x';
    %i
    p = polyfit(X, t, 15);
```

```
Warning: Polynomial is badly conditioned. Add points with distinct X values, reduce the degree of
```

```
    future_time=datetime('2021-11-16') + days(00:5) ;
    future = datenum (future_time);
    forecasted_values = polyval(p, future);

    figure
    plot (time, t, '-')
    hold on
    plot (future_time, forecasted_values)
    hold off
    title ('Humidity Forecasting')
    ylabel('%')
    xlabel( 'Date')
    legend('Collected Data','Forcasted Data for 5 Days')
```



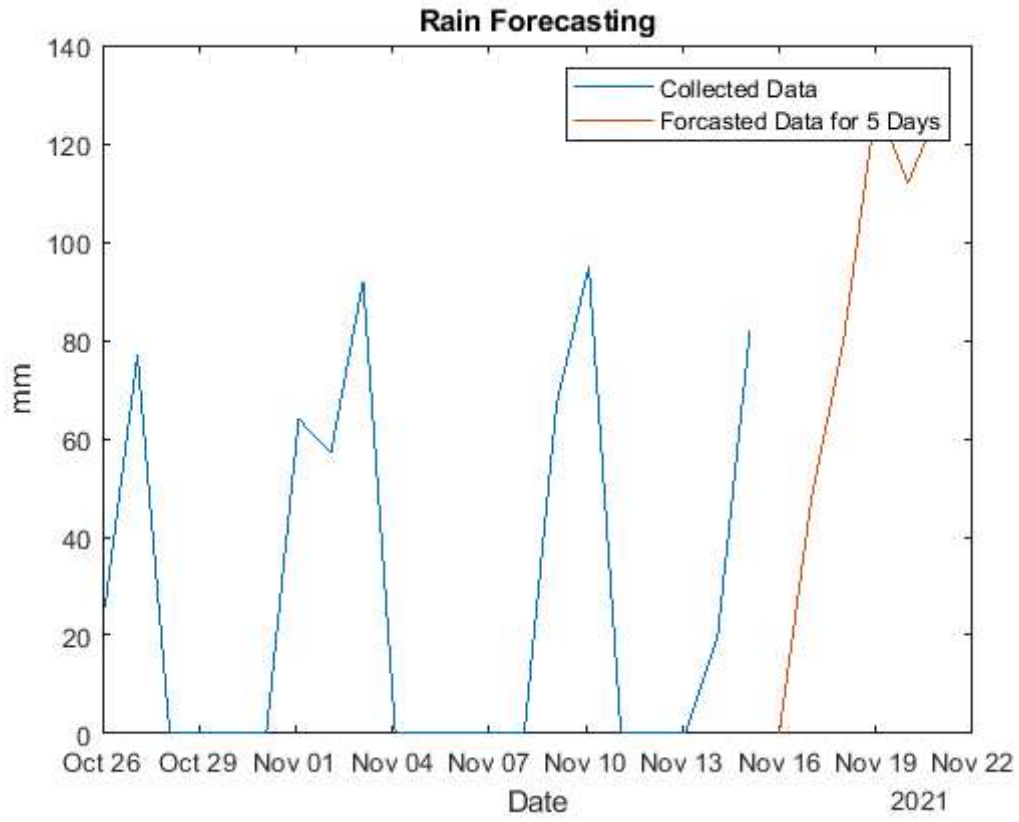

```
%end
```

Rain Forcasting

```
%for i=1:30

    x=datenum(time);
    t=Rain';
    X=x';
    %i
    p = polyfit(X, t, 7);
```

```
Warning: Polynomial is badly conditioned. Add points with distinct X values, reduce the degree of
```

```
    future_time=datetime('2021-11-16') + days(00:5) ;
    future = datenum (future_time);
    forecasted_values = polyval(p, future);

    figure
    plot (time, t, '-')
    hold on
    plot (future_time, forecasted_values)
    hold off
    title ('Rain Forecasting')
    ylabel('mm')
    xlabel( 'Date')
    legend('Collected Data','Forcasted Data for 5 Days')
```


Rain Forecasting
Collected Data
Forcasted Data for 5 Days
mm
Date
2021
0
20
40
60
80
100
120
140
Oct 26
Oct 29
Nov 01
Nov 04
Nov 07
Nov 10
Nov 13
Nov 16
Nov 19
Nov 22

```
%end
```