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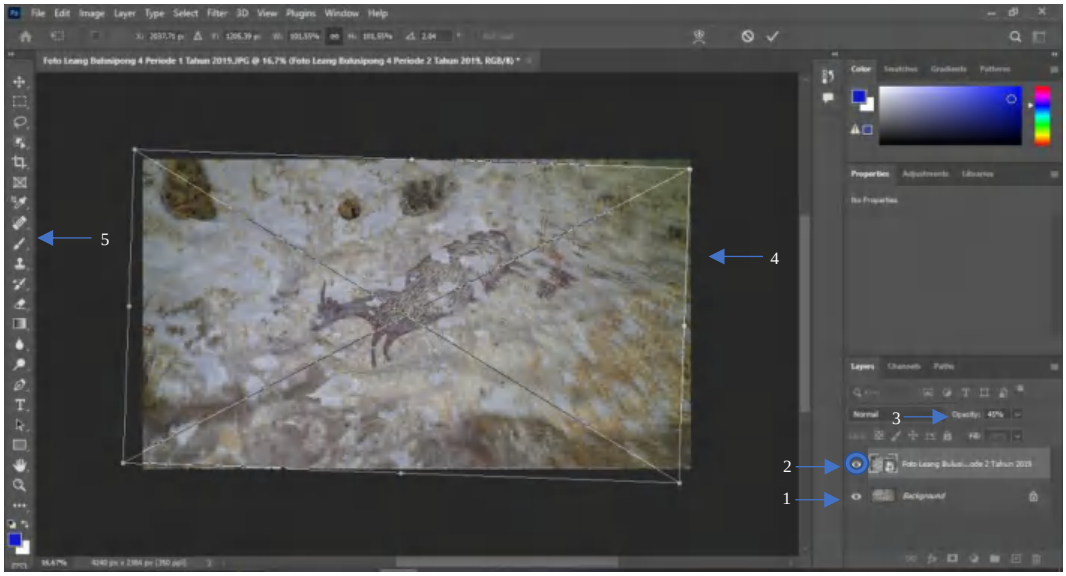
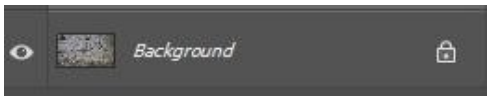
LAMPIRAN

Lampiran 1. Tahap Pengolahan Citra

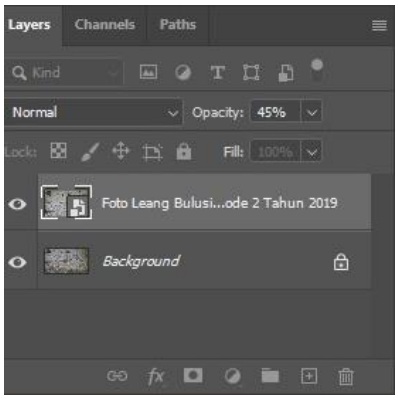


Langkah-langkah pembuatan poligon menggunakan *Adobe Photoshop* adalah sebagai berikut:

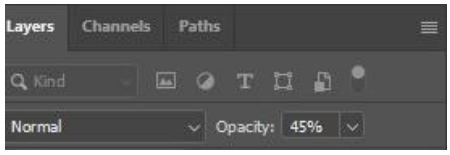
1. Masukkan gambar periode sebelumnya sebagai *background*



2. Masukkan gambar periode berikutnya sebagai *layer*



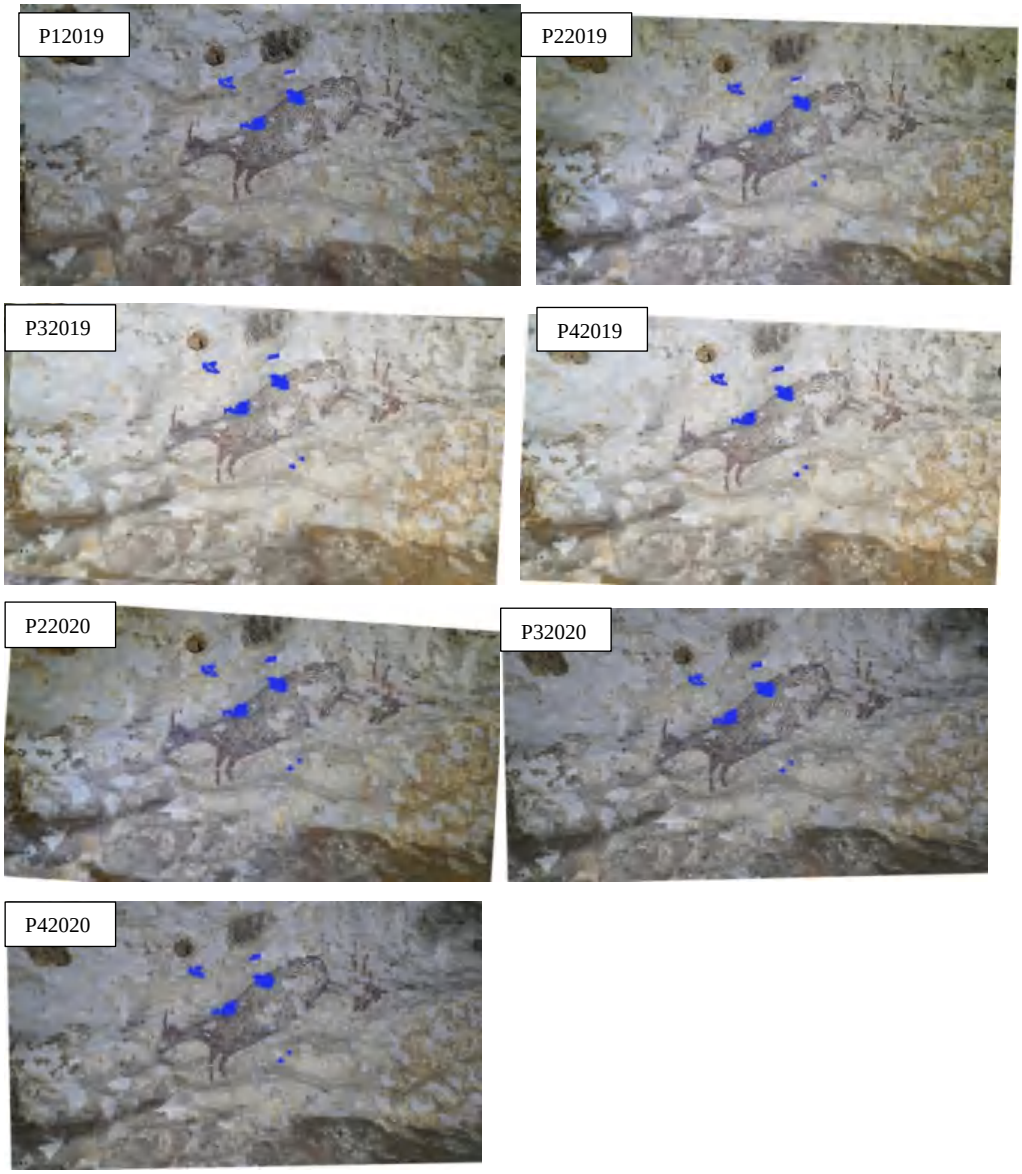
3. Kurangi *opacity* gambar periode berikutnya yang telah ditumpuk pada *background* untuk memudahkan dalam penyesuaian *layer*

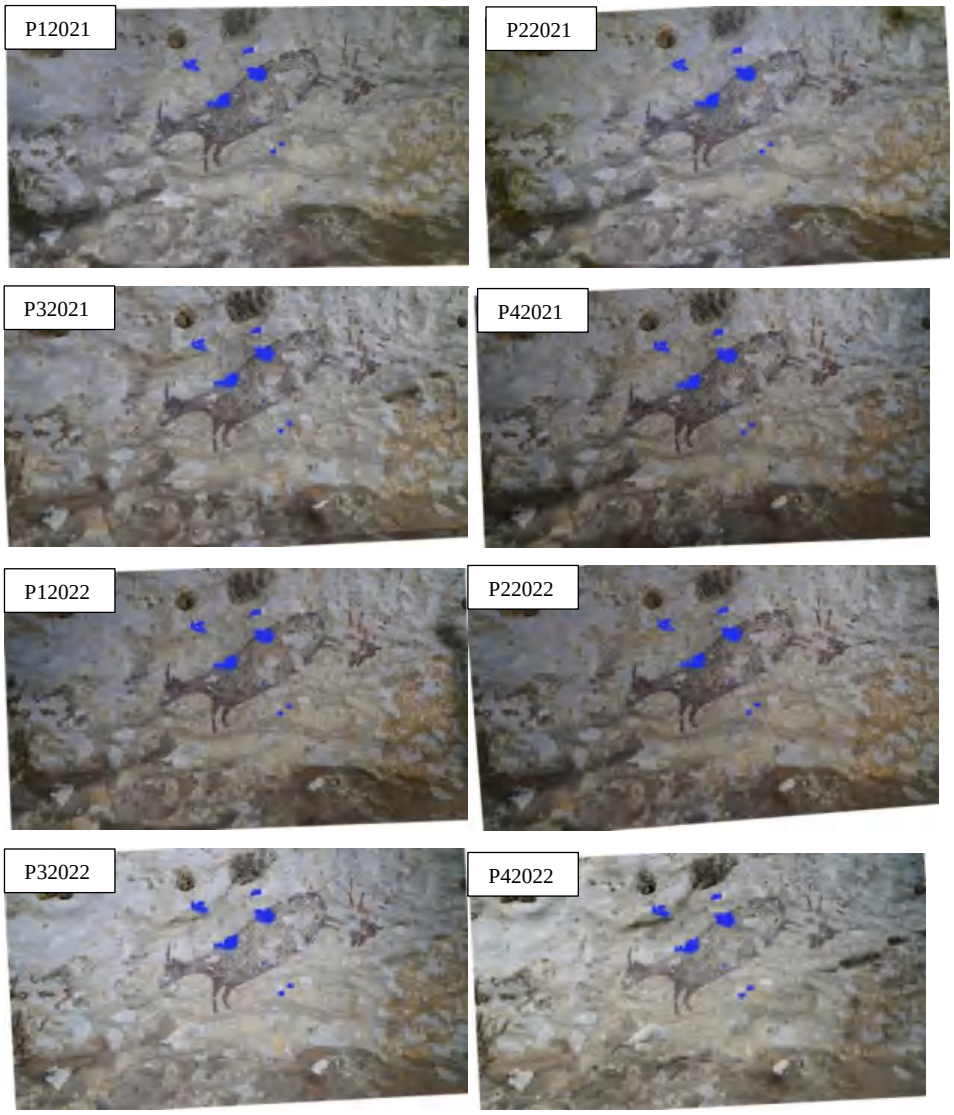


4. Atur posisi gambar hingga sama dengan *background*

5. Gunakan *tools brush* untuk memberi warna pada daerah yang mengalami kerusakan, tekan *icon eye* pada bagian *layers* untuk melihat perubahannya

Lampiran 2. Gambar Hasil Poligon





Lampiran 3. Data Excel Persentase Kerusakan, Laju Kerusakan dan Variabel Cuaca

Date	Lapses	Exfoliation (%)	Exfoliation rates (%/days)	Range_T	Range_Rh	Range_W
21-Nov-2018	0	0.2729	0	2,93	16,25	4,3896
23-Mar-2019	122	0.4214	8,45E-03	3,94	17,12	4,0640
21-Jun-2019	90	0.4583	2,85E-03	5,17	25,94	4,3406
9-Oct-2019	111	0.4848	1,66E-03	7,95	41,56	5,3027
18-Dec-2019	71	0.5018	1,66E-03	4,53	18,38	4,8372
4-Sep-2020	272	0.5093	1,91E-04	6,53	33,87	6,3253
9-Nov-2020	67	0.5361	2,78E-03	6,02	34,07	5,0831
22-Dec-2020	44	0.5451	1,42E-03	2,06	13	7,4967
20-Mar-2021	89	0.5481	2,34E-04	2,26	12,19	5,6952
25-Jun-2021	98	0.5512	2,20E-04	3,87	20,13	5,7331
30-Sep-2021	98	0.5553	2,91E-04	6,13	33,13	5,5614
23-Dec-2021	85	0.5611	4,74E-04	1,47	12,12	5,3158
24-Mar-2022	91	0.5616	3,82E-05	4,36	26,31	3,6159
26-Jun-2022	95	0.5644	2,05E-04	3,67	19,19	3,8757
21-Oct-2022	118	0.5766	7,18E-04	4,22	19,81	3,9568
26-Dec-2022	66	0.5966	2,10E-03	0,88	4,37	6,7703

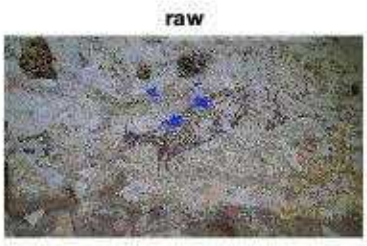
Mean_T	Mean_Rh	Mean_W	Std_T	Std_Rh	Std_W
28,0453	79,86	1,5553	1,1499	6,3077	1,5806
27,6221	83,2067	2,0754	1,1531	6,4010	1,6361
27,25	77,4471	1,1099	1,8695	9,3658	1,2483
28,7021	64,1858	2,2605	2,8784	13,9046	1,6212
28,1288	79,7771	2,0039	1,3233	7,1445	1,3089
28,0871	74,8229	2,7340	2,4190	12,7795	1,9983
28,5938	74,2554	1,7182	2,1307	11,3924	1,6526
26,5088	85,4592	2,5002	0,6332	3,6669	2,1432
[illegible]	85,6508	2,1114	0,7718	4,1354	1,7449
[illegible]	79,5188	1,5403	1,4457	7,2045	1,5395
[illegible]	74,2163	2,4761	2,2593	12,9136	1,8108
[illegible]	87,5254	2,0939	0,5444	2,7576	1,4461
[illegible]	73,7892	1,0859	1,4877	7,3332	0,9902
[illegible]	82,5496	1,5687	1,2881	7,3125	1,2498
[illegible]	80,1013	1,1739	1,1787	5,7906	1,1540
[illegible]	88,0670	4,1131	0,2954	1,2169	2,1338

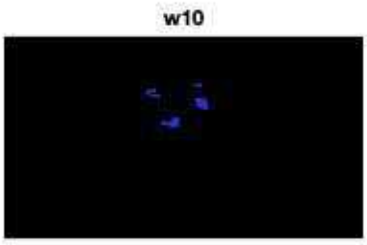
Lampiran 4. Data TXT Persentase Kerusakan, Laju Kerusakan dan Variabel Cuaca

0.2729	0	2.93	16.25	4.3896	28.0453	79.86	1.5553	1.1499	6.3077	1.5806
0.4214	8.45E-03	3.94	17.12	4.0640	27.6221	83.2067	2.0754	1.1531	6.4010	1.6361
0.4583	2.85E-03	5.17	25.94	4.3406	27.25	77.4471	1.1099	1.8695	9.3658	1.2483
0.4848	1.66E-03	7.95	41.56	5.3027	28.7021	64.1858	2.2605	2.8784	13.9046	1.6212
0.5018	1.66E-03	4.53	18.38	4.8372	28.1288	79.7771	2.0039	1.3233	7.1445	1.3089
0.5093	1.91E-04	6.53	33.87	6.3253	28.0871	74.8229	2.7340	2.4190	12.7795	1.9983
0.5361	2.78E-03	6.02	34.07	5.0831	28.5938	74.2554	1.7182	2.1307	11.3924	1.6526
0.5451	1.42E-03	2.06	13	7.4967	26.5088	85.4592	2.5002	0.6332	3.6669	2.1432
0.5481	2.34E-04	2.26	12.19	5.6952	26.9771	85.6508	2.1114	0.7718	4.1354	1.7449
0.5512	2.20E-04	3.87	20.13	5.7331	28.0263	79.5188	1.5403	1.4457	7.2045	1.5395
0.5553	2.91E-04	6.13	33.13	5.5614	28.8238	74.2163	2.4761	2.2593	12.9136	1.8108
0.5611	4.74E-04	1.47	12.12	5.3158	26.5229	87.5254	2.0939	0.5444	2.7576	1.4461
0.5616	3.82E-05	4.36	26.31	3.6159	28.0558	73.7892	1.0859	1.4877	7.3332	0.9902
0.5644	2.05E-04	3.67	19.19	3.8757	27.3275	82.5496	1.5687	1.2881	7.3125	1.2498
0.5766	7.18E-04	4.22	19.81	3.9568	28.2579	80.1013	1.1739	1.1787	5.7906	1.1540
0.5966	2.10E-03	0.88	4.37	6.7703	26.1683	88.0670	4.1131	0.2954	1.2169	2.1338

Lampiran 5. Pengolahan Data Image Processing

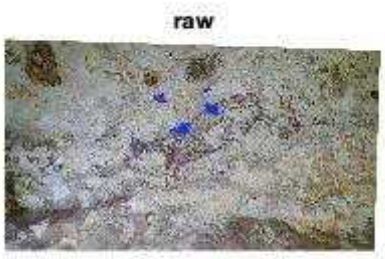
```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP12019.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP12019.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

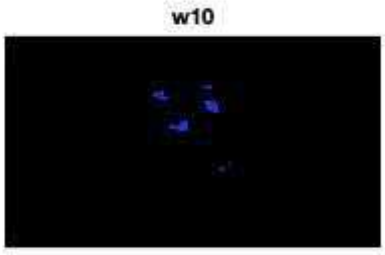





```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP22019.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
    ɔx' pr'];
    scii BSp22019.txt hasil

    f('Image has %d w8 pixels\n',sum(sum(w8Points)))
    ('Image is %.2f percent w8\n',percentw8)
    f('Image has %d w10 pixels\n',sum(sum(w10Points)))
```

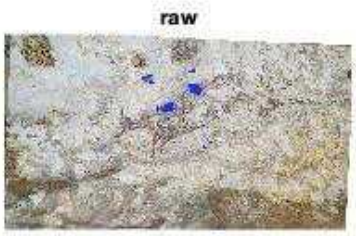
```
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

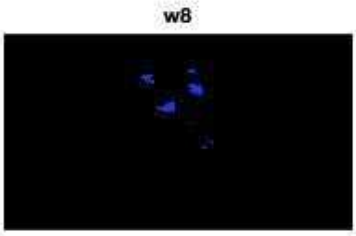


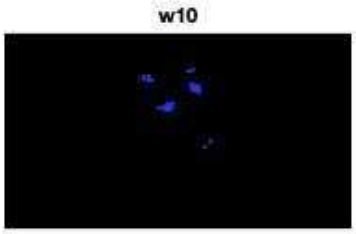



```
n menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
 Halide
idrometeorologi, Dept. Geofisika, FMIPA Unhas
Jurul Islami

ll;close all;clf
```

```
A=imread('BSP32019.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP32019.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

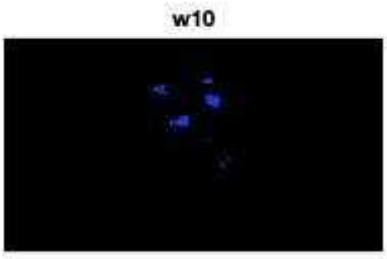







```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP42019.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP42019.txt hasil

f('Image has %d w8 pixels\n',sum(sum(w8Points)))
('Image is %.2f percent w8\n',percentw8)
f('Image has %d w10 pixels\n',sum(sum(w10Points)))
('Image is %.2f percent w10\n',percentw10)
```

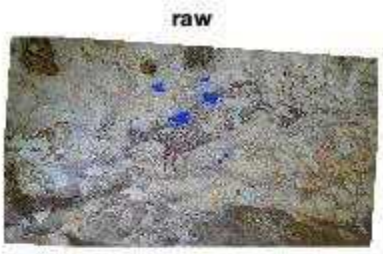
```
%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

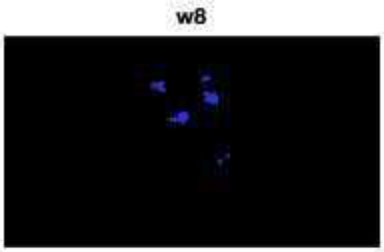


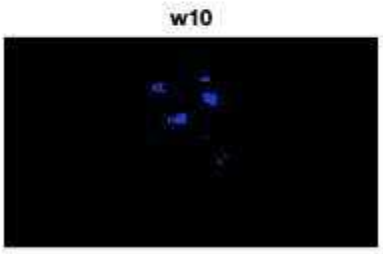

```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP22020.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru
```

```
ize(rgb,1)*size(rgb,2) %10108160
v8 = 100*(sum(sum(w8Points))/(total));
v10 = 100*(sum(sum(w10Points))/(total));

n(sum(w8Points));prw8=percentw8;
```

```
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP22020.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

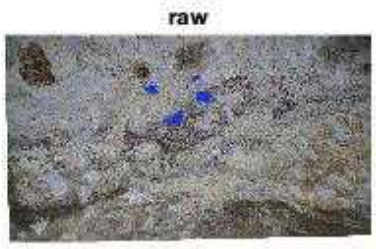


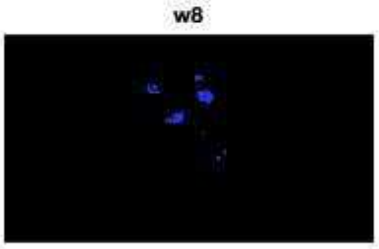


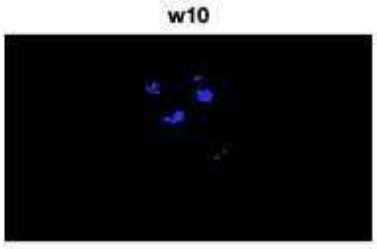



```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
      Halide
idrometeorologi, Dept. Geofisika, FMIPA Unhas
Jurul Islami

ll;close all;clf
ɪ('BSP32020.jpg');
```

```
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP32020.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

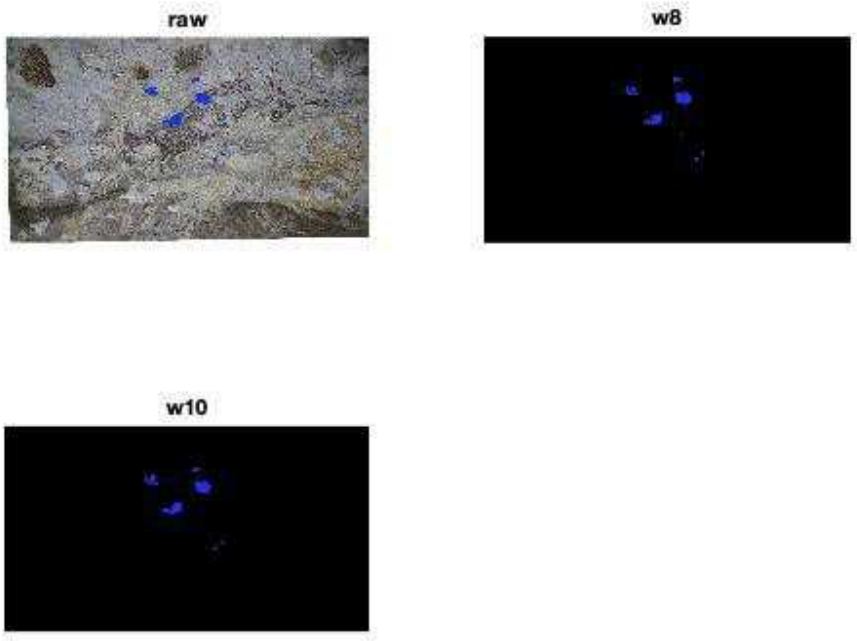






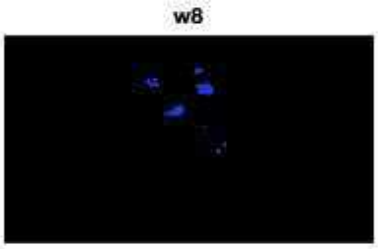

```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP42020.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
    ɔx' pr'];
    ɜcii BSP42020.txt hasil

    ɛ('Image has %d w8 pixels\n',sum(sum(w8Points)))
    ('Image is %.2f percent w8\n',percentw8)
    ɛ('Image has %d w10 pixels\n',sum(sum(w10Points)))
```

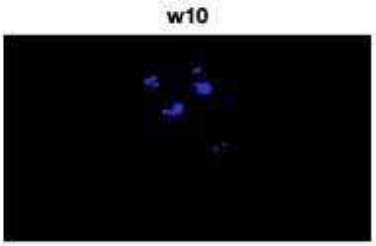
```
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```




```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP12021.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%

    :s = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%


    ize(rgb,1)*size(rgb,2) %10108160
    v8 = 100*(sum(sum(w8Points))/(total));
```

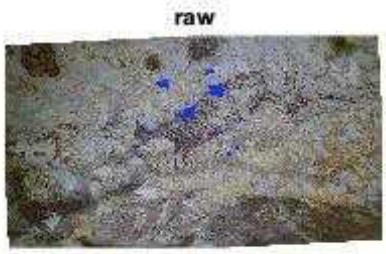
```
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP12021.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

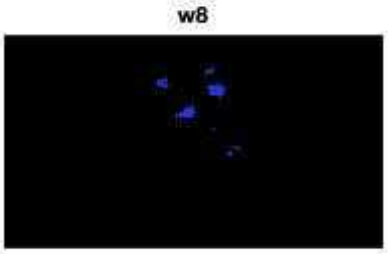


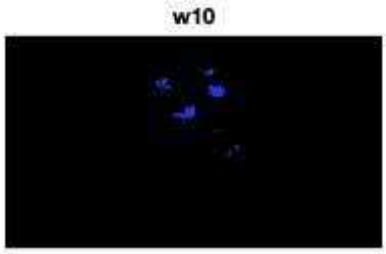


n menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
Halide

```
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP22021.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP22021.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

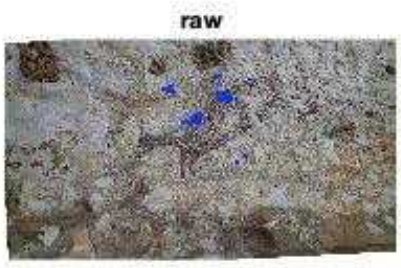


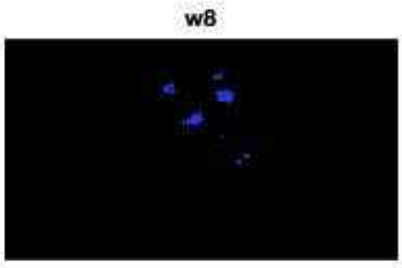


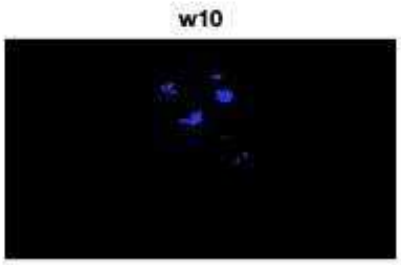



```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP32021.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
    3 prw10]; %0.42 0.41
    ox' pr'];
    scii BSP32021.txt hasil

    f('Image has %d w8 pixels\n',sum(sum(w8Points)))
    ('Image is %.2f percent w8\n',percentw8)
```

```
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

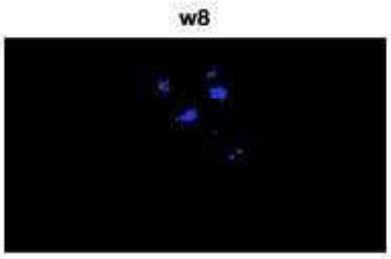


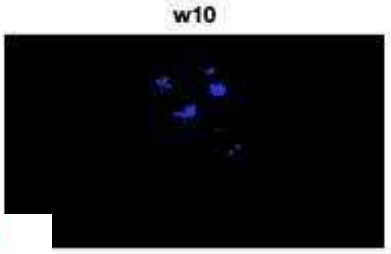




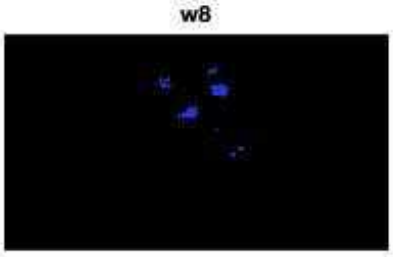

```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP42021.jpg');
rgb=A;
s = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%

cs = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%


ize(rgb,1)*size(rgb,2) %10108160
```

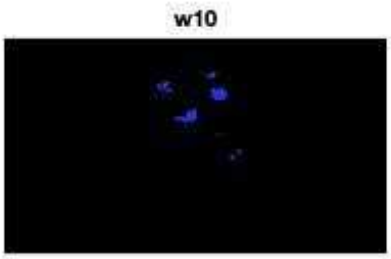
```
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP42021.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```





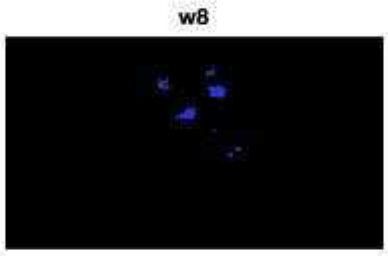
```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP12022.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP12022.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

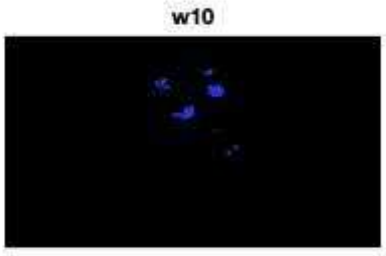





```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP22022.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
    3 prw10]; %0.42 0.41
    ox' pr'];
    scii BSP22022.txt hasil

    f('Image has %d w8 pixels\n',sum(sum(w8Points)))
    ('Image is %.2f percent w8\n',percentw8)
```

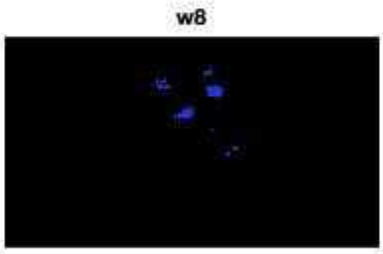
```
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```

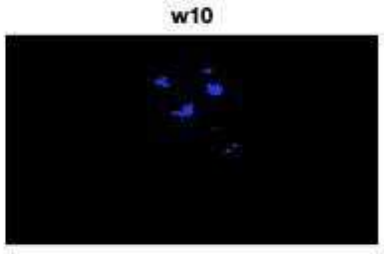





```
%Program menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
%Halmar Halide
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP32022.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
    :s = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%


    ize(rgb,1)*size(rgb,2) %10108160
```

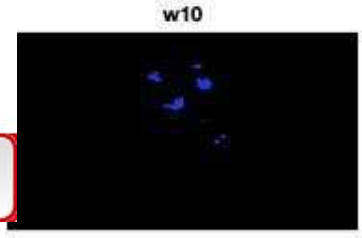
```
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP32022.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```





n menghitung jumlah piksel eksfoliasi Bulusipong 2019-2022
Halide

```
%Lab. Hidrometeorologi, Dept. Geofisika, FMIPA Unhas
%Fadia Nurul Islami

clear all;close all;clf
A=imread('BSP42022.jpg');
rgb=A;
w8Points = rgb(:,:,1)<=80 & rgb(:,:,2)<=91 & rgb(:,:,3)>=166;%
biru
w10Points = rgb(:,:,1)<=94 & rgb(:,:,2)<=60 & rgb(:,:,3)>=108;%
biru

total=size(rgb,1)*size(rgb,2) %10108160
percentw8 = 100*(sum(sum(w8Points))/(total));
percentw10 = 100*(sum(sum(w10Points))/(total));

pxw8=sum(sum(w8Points));prw8=percentw8;
pxw10=sum(sum(w10Points));prw10=percentw10;
kel=1:24;
px=[pxw8 pxw10];
pr=[prw8 prw10]; %0.42 0.41
hasil=[px' pr'];
save -ascii BSP42022.txt hasil

%fprintf('Image has %d w8 pixels\n',sum(sum(w8Points)))
fprintf('Image is %.2f percent w8\n',percentw8)
%fprintf('Image has %d w10 pixels\n',sum(sum(w10Points)))
fprintf('Image is %.2f percent w10\n',percentw10)

%exitt
rgbw8 = uint8(cat(3,w8Points,w8Points,w8Points)).*rgb;
rgbw10 = uint8(cat(3,w10Points,w10Points,w10Points)).*rgb;

subplot(2,2,1),imshow(rgb),title('raw');hold  on
subplot(2,2,2),imshow(rgbw8),title('w8');hold off
subplot(2,2,3),imshow(rgbw10),title('w10');hold off
exitt
clf
```



Lampiran 6. Pengolahan Data Analisis Regresi Menggunakan Matlab

```
%Pengolahan data eskfoliasi
clc; clear; close all; warning off;

% Load data from 'BULUSIPONG.txt'
load BULUSIPONG.txt % [Ekfoliasi, Laju Eksfoliasi, Range
Temperatur, Range Kelembaban, Range Angin, Mean Temperatur, Mean
Kelembaban, Mean Angin, Standar Deviasi Temperatur, Standar
Deviasi Kelembaban, Standar Deviasi Angin]
dmg = BULUSIPONG(:, 1);
rod = BULUSIPONG (:, 2);
rT = BULUSIPONG (:, 3);
rRh = BULUSIPONG (:, 4);
rW = BULUSIPONG (:, 5);
mT = BULUSIPONG (:, 6);
mRh = BULUSIPONG (:, 7);
mW = BULUSIPONG (:, 8);
sT = BULUSIPONG (:, 9);
sRh = BULUSIPONG (:, 10);
sW = BULUSIPONG (:, 11);

y1 = dmg;
y2 = rod;
X1 = [ones(size(rod)) mT rT mRh rRh];
X2 = [ones(size(dmg)) mT rT mRh rRh mT.*rT mT.*mRh mT.*rRh mRh.*rT
mRh.*rRh];
X3 = [ones(size(rod)) mT rT mRh rRh mW rW ] ;
X4 = [ones(size(dmg)) mT rT mRh rRh mW rW mT.*rT mT.*mRh mT.*rRh
mT.*mW mT.*rW mRh.*rT mRh.*rRh mRh.*mW];
% Perform regression
b1 = regress(y1, X1);
out1 = X1 * b1;
b2 = regress(y1, X2);
out2 = X2 * b2;
b3 = regress(y1, X3);
out3 = X3 * b3;
b4 = regress(y1, X4);
out4 = X4 * b4; % Perbaikan di sini
t = 1:16;

% Calculate correlation and RMSE
R1 = corr(y1, out1);
RMSE1 = sqrt(mean((y1 - out1).^2));
R2 = corr(y1, out2);
RMSE2 = sqrt(mean((y1 - out2).^2));
R3 = corr(y1, out3);
RMSE3 = sqrt(mean((y1 - out3).^2));
      rr(y1, out4);
       sqrt(mean((y1 - out4).^2));


      oilkan rumus persamaan matematis Model 1
      ('Rumus Persamaan Matematis Model 1:\n');
```

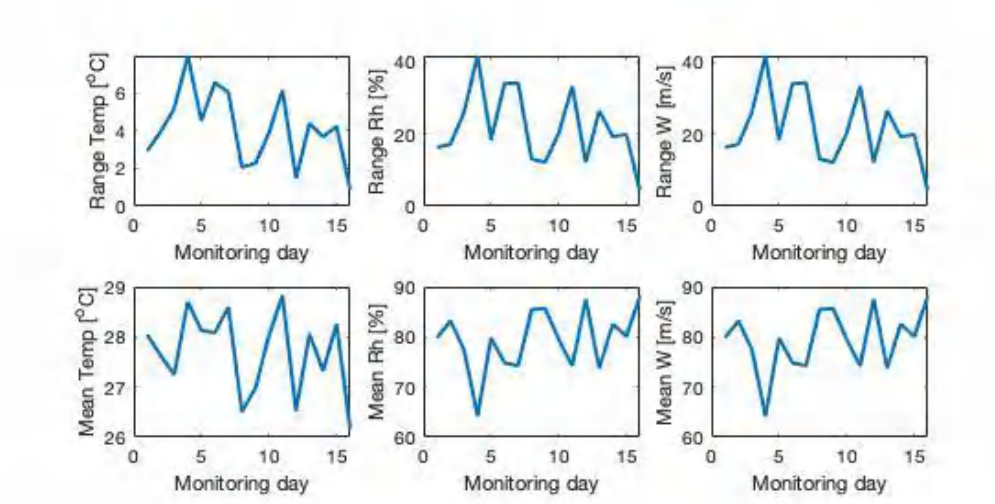
```
equation1 = 'y1 = ';
for i = 1:numel(b1)
    if i > 1
        equation1 = [equation1 ' + '];
    end
    equation1 = [equation1 num2str(b1(i), '%.4f')];

    if i <= 2
        equation1 = [equation1 ' * rT'];
    elseif i <= 3
        equation1 = [equation1 ' * rRh'];
    elseif i <= 4
        equation1 = [equation1 ' * mT'];
    else
        equation1 = [equation1 ' * mRh'];
    end
end
fprintf('%s\n', equation1);

% Menampilkan rumus persamaan matematis Model 2
fprintf('Rumus Persamaan Matematis Model 2:\n');
equation2 = 'y1 = ';
for i = 1:numel(b2)
    if i > 1
        equation2 = [equation2 ' + '];
    end
    equation2 = [equation2 num2str(b2(i), '%.4f')];

    if i <= 2
        equation2 = [equation2 ' * (mT * mRh)'];
    elseif i <= 3
        equation2 = [equation2 ' * (mT * rT)'];
    elseif i <= 4
        equation2 = [equation2 ' * mRh'];
    elseif i == 5
        equation2 = [equation2 ' * rT'];
    end
end
fprintf('%s\n', equation2);

% Menampilkan rumus persamaan matematis Model 3
fprintf('Rumus Persamaan Matematis Model 3:\n');
equation3 = 'y1 = ';
for i = 1:numel(b3)
    if i > 1
        equation3 = [equation3 ' + '];
    end
    equation3 = [equation3 num2str(b3(i), '%.4f')];

    if i <= 2
        equation3 = [equation3 ' * rT'];
    elseif i <= 3
        equation3 = [equation3 ' * rRh'];
    elseif i <= 4
        equation3 = [equation3 ' * mT'];
```

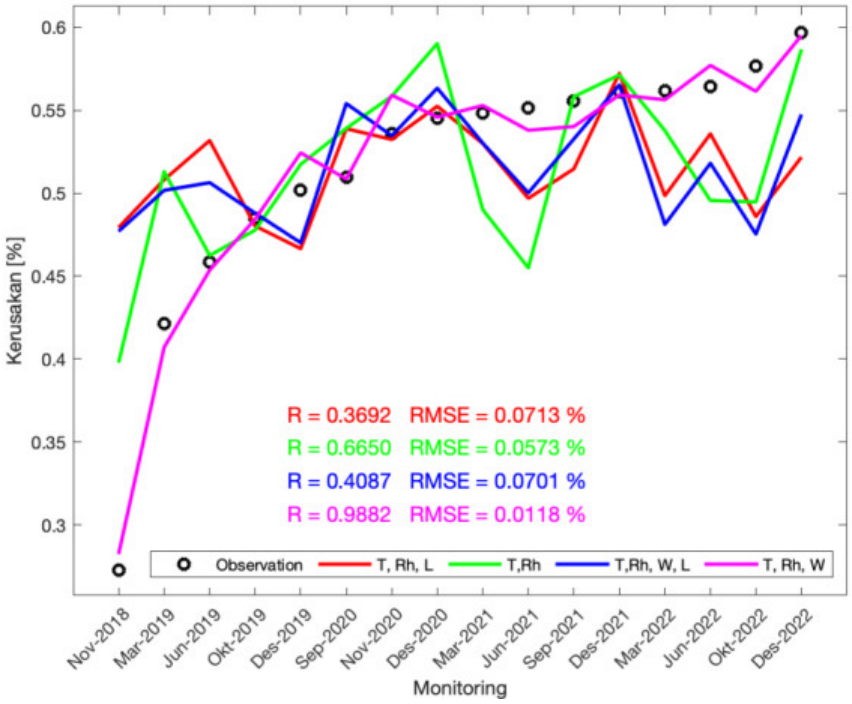
```
        elseif i <= 5
            equation3 = [equation3 ' * mRh'];
        elseif i <= 6
            equation3 = [equation3 ' * mW'];
        else
            equation3 = [equation3 ' * rW'];
        end
    end
    fprintf('%s\n', equation3);

    % Menampilkan rumus persamaan matematis Model 4
    fprintf('Rumus Persamaan Matematis Model 4:\n');
    equation4 = 'y1 = ';
    for i = 1:numel(b4)
        if i > 1
            equation4 = [equation4 ' + '];
        end
        equation4 = [equation4 num2str(b4(i), '%.4f')];

        if i <= 2
            equation4 = [equation4 ' * (mT * mRh)'];
        elseif i <= 3
            equation4 = [equation4 ' * (mT * mW)'];
        elseif i <= 4
            equation4 = [equation4 ' * (mT * rT)'];
        elseif i <= 5
            equation4 = [equation4 ' * (mT * rRh)'];
        elseif i <= 6
            equation4 = [equation4 ' * (mT * rW)'];
        elseif i <= 7
            equation4 = [equation4 ' * (mRh * rT)'];
        elseif i <= 8
            equation4 = [equation4 ' * (mRh * rRh)'];
        elseif i <= 9
            equation4 = [equation4 ' * (mRh * rW)'];
        elseif i <= 10
            equation4 = [equation4 ' * rT'];
        elseif i <= 11
            equation4 = [equation4 ' * rRh'];
        elseif i <= 12
            equation4 = [equation4 ' * rW'];
        end
    end
    fprintf('%s\n', equation4);
    % Menampilkan nilai koefisien Model 1
    fprintf('Nilai Koefisien Model 1:\n');
    for i = 1:numel(b1)
        fprintf('b%d = %.4f\n', i - 1, b1(i));
    end

        ilkan nilai koefisien Model 2
        ('Nilai Koefisien Model 2:\n');
         1:numel(b2)
        intf('b%d = %.4f\n', i - 1, b2(i));
```

```
% Menampilkan nilai setiap koefisien Model 3 dan Model 4
fprintf('Nilai koefisien Model 3:\n');
for i = 1:numel(b3)
    fprintf('b%d = %.4f\n', i - 1, b3(i));
end
% Menampilkan nilai setiap koefisien Model 4
fprintf('Nilai koefisien Model 4:\n');
for i = 1:numel(b4)
    fprintf('b%d = %.4f\n', i - 1, b4(i));
end

% Create Figure 1
figure(1);
subplot(3, 3, 1);
plot(t, rT, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range Temp [^oC]');

subplot(3, 3, 2);
plot(t, rRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range Rh [%]');

subplot(3, 3, 3);
plot(t, rRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range W [m/s]');

subplot(3, 3, 4);
plot(t, mT, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Temp [^oC]');

subplot(3, 3, 5);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Rh [%]');

subplot(3, 3, 6);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean W [m/s]');

% Provided dates
dates = {'Nov-2018','Mar-2019','Jun-2019','Okt-2019','Des-
2019','Sep-2020',...
    'Nov-2020','Des-2020','Mar-2021','Jun-2021','Sep-2021','Des-
2021',...
    'Mar-2022','Jun-2022','Okt-2022','Des-2022'};

    e Figure 2
    2);
     max([y1; out1; out2; out3; out4]); % Nilai maksimum dari
    ng ditampilkan
```

```
min_y = min([y1; out1; out2; out3; out4]); % Nilai minimum dari
data yang ditampilkan
extra_space = 0.07 * (max_y - min_y); % Menambahkan 5% dari
rentang data sebagai ruang ekstra di atas dan di bawah
plot(t, y1, 'ok', t, out1, '-r', t, out2, '-g', t, out3, '-b', t,
out4, 'm', 'LineWidth', 2); % Tambahkan tebal garis

% Set y-axis limits
ylim([min_y - 0.7*extra_space, max_y + 0.7*extra_space]); %
Menyesuaikan batas sumbu y dengan ruang tambahan

legend('Observation', 'T, Rh, L', 'T,Rh', 'T,Rh, W, L', 'T, Rh,
W', 'location', 'southeast', 'orientation', 'horizontal');
legend boxon;
xlabel('Monitoring');
ylabel('Kerusakan [%]');

% Set x-axis ticks and labels
xticks(t);
xticklabels(dates);
% Rotate x-axis tick labels
xtickangle(45); % You can adjust the angle as needed
% Set x-axis limits
xlim([0, 17]);

% Tambahkan teks "R" dan "RMSE" ke tengah berjejer ke samping
dengan ukuran font yang lebih besar
fontSize = 12; % Ganti ukuran font sesuai keinginan
str1 = {sprintf('R = %.4f', R1), sprintf('RMSE = %.4f %%',
RMSE1)};
str2 = {sprintf('R = %.4f', R2), sprintf('RMSE = %.4f %%',
RMSE2)};
str3 = {sprintf('R = %.4f', R3), sprintf('RMSE = %.4f %%',
RMSE3)};
str4 = {sprintf('R = %.4f', R4), sprintf('RMSE = %.4f %%',
RMSE4)};

text(max(t) / 2, max(y1) / 1 - 0.23, [str1{1} '    ' str1{2}],
'Color', 'r', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y1) / 1 - 0.25, [str2{1} '    ' str2{2}],
'Color', 'g', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y1) / 1 - 0.27, [str3{1} '    ' str3{2}],
'Color', 'b', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y1) / 1 - 0.29, [str4{1} '    ' str4{2}],
'Color', 'm', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
```

```
figure 2 as a PNG file
2);
gcf, 'ExfoRange.png');

igure 2 saved as ExfoRange.png');
```





efisien Model 1:

81

264

b2 = -0.0192

b3 = 0.0085

b4 = 0.0098

Nilai Koefisien Model 2:

b0 = 14.5115

b1 = -0.4878

b2 = -8.4721

b3 = -0.0885

b4 = 1.2952

b5 = 0.2216

b6 = 0.0029

b7 = -0.0322

b8 = 0.0292

b9 = -0.0049

Nilai koefisien Model 3:

b0 = 0.0290

b1 = -0.0129

b2 = -0.0214

b3 = 0.0084

b4 = 0.0096

b5 = 0.0126

b6 = 0.0065

Nilai koefisien Model 4:

b0 = 337.3032

b1 = -12.1123

b2 = -32.4168

b3 = -3.0888

b4 = 2.8250

871

910

49

b8 = 0.1114

b9 = -0.0475

b10 = -0.2704

b11 = 0.1750

b12 = 0.1167

b13 = -0.0194

b14 = -0.0754

Rumus Persamaan Matematis Model 1:

y1 = 0.4381 * rT + -0.0264 * rT + -0.0192 * rRh + 0.0085 * mT + 0.0098 * mRh

Rumus Persamaan Matematis Model 2:

y1 = 14.5115 * (mT * mRh) + -0.4878 * (mT * mRh) + -8.4721 * (mT * rT) + -0.0885 * mRh + 1.2952 * rT + 0.2216 + 0.0029 + -0.0322 + 0.0292 + -0.0049

Rumus Persamaan Matematis Model 3:

y1 = 0.0290 * rT + -0.0129 * rT + -0.0214 * rRh + 0.0084 * mT + 0.0096 * mRh + 0.0126 * mW + 0.0065 * rW

Rumus Persamaan Matematis Model 4:

y1 = 337.3032 * (mT * mRh) + -12.1123 * (mT * mRh) + -32.4168 * (mT * mW) + -3.0888 * (mT * rT) + 2.8250 * (mT * rRh) + 13.1871 * (mT * rW) + -4.7910 * (mRh * rT) + 0.8349 * (mRh * rRh) + 0.1114 * (mRh * rW) + -0.0475 * rT + -0.2704 * rRh + 0.1750 * rW + 0.1167 + -0.0194 + -0.0754

```
%Pengolahan data eskfoliasi
clc; clear; close all; warning off;

% Load data from 'BULUSIPONG.txt'
load BULUSIPONG.txt % [Ekfoliasi, Laju Eksfoliasi, Range
Temperatur, Range Kelembaban, Range Angin, Mean Temperatur, Mean
Kelembaban, Mean Angin, Standar Deviasi Temperatur, Standar
Deviasi Kelembaban, Standar Deviasi Angin]
dmg = BULUSIPONG(:, 1);
rod = BULUSIPONG (:, 2);
rT = BULUSIPONG (:, 3);
rRh = BULUSIPONG (:, 4);
rW = BULUSIPONG (:, 5);
     LUSIPONG (:, 6);
     JLUSIPONG (:, 7);
     LUSIPONG (:, 8);
     LUSIPONG (:, 9);
     JLUSIPONG (:, 10);
     LUSIPONG (:, 11);
```

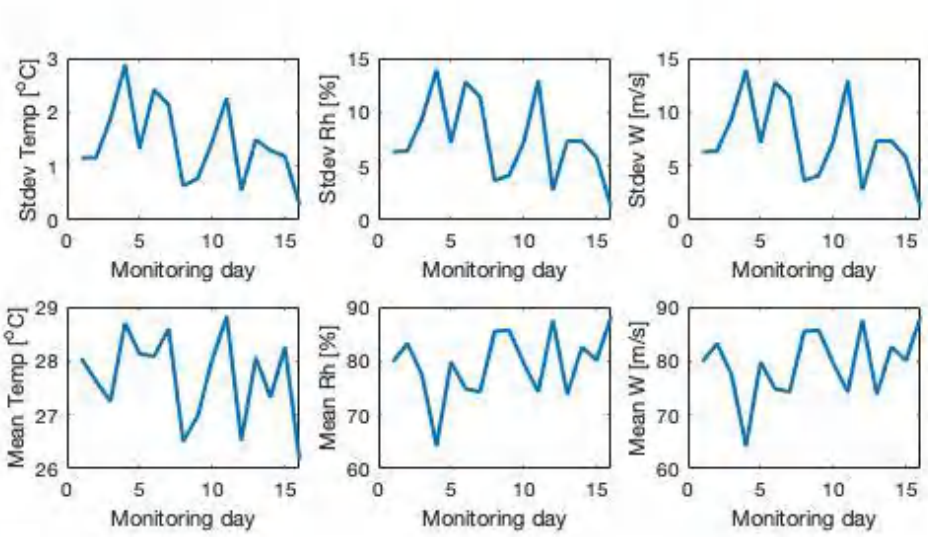
```
y1 = dmg;
y2 = rod;
X1 = [ones(size(rod)) mT sT mRh sRh];
X2 = [ones(size(dmg)) mT sT mRh sRh mT.*sT mT.*mRh mT.*sRh
sRh.*sT];
X3 = [ones(size(rod)) mT sT mRh sRh mW sW ] ;
X4 = [ones(size(dmg)) mT sT mRh sRh mW sW mT.*sT mT.*mRh mT.*sRh
mT.*mW mT.*sW mRh.*sT mRh.*sRh];
% Perform regression
b1 = regress(y1, X1);
out1 = X1 * b1;
b2 = regress(y1, X2);
out2 = X2 * b2;
b3 = regress(y1, X3);
out3 = X3 * b3;
b4 = regress(y1, X4);
out4 = X4 * b4; % Perbaikan di sini
t = 1:16;

% Calculate correlation and RMSE
R1 = corr(y1, out1);
RMSE1 = sqrt(mean((y1 - out1).^2));
R2 = corr(y1, out2);
RMSE2 = sqrt(mean((y1 - out2).^2));
R3 = corr(y1, out3);
RMSE3 = sqrt(mean((y1 - out3).^2));
R4 = corr(y1, out4);
RMSE4 = sqrt(mean((y1 - out4).^2));

% Menampilkan rumus persamaan matematis Model 1
fprintf('Rumus Persamaan Matematis Model 1:\n');
equation1 = 'y1 = ';
for i = 1:numel(b1)
    if i > 1
        equation1 = [equation1 ' + '];
    end
    equation1 = [equation1 num2str(b1(i), '%.4f')];

    if i <= 2
        equation1 = [equation1 ' * rT'];
    elseif i <= 3
        equation1 = [equation1 ' * rRh'];
    elseif i <= 4
        equation1 = [equation1 ' * mT'];
    else
        equation1 = [equation1 ' * mRh'];
    end
end
fprintf('%s\n', equation1);

    ɔilkan rumus persamaan matematis Model 2
    ('Rumus Persamaan Matematis Model 2:\n');
    ı2 = 'y1 = ';
     1:numel(b2)
```

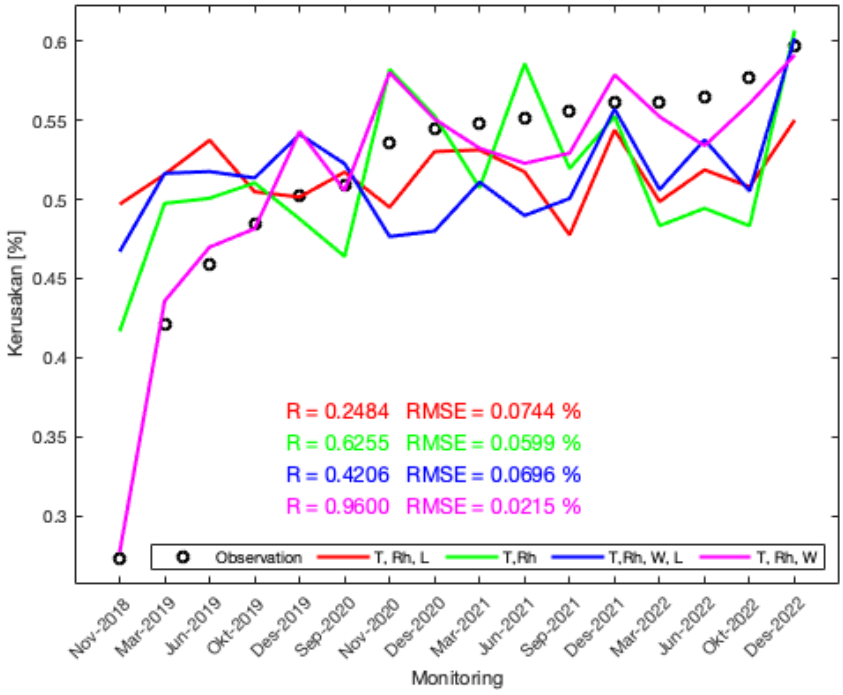
```
        if i > 1
            equation2 = [equation2 ' + '];
        end
        equation2 = [equation2 num2str(b2(i), '%.4f')];

        if i <= 2
            equation2 = [equation2 ' * (mT * mRh)'];
        elseif i <= 3
            equation2 = [equation2 ' * (mT * rT)'];
        elseif i <= 4
            equation2 = [equation2 ' * mRh'];
        elseif i == 5
            equation2 = [equation2 ' * rT'];
        end
    end
    fprintf('%s\n', equation2);

    % Menampilkan rumus persamaan matematis Model 3
    fprintf('Rumus Persamaan Matematis Model 3:\n');
    equation3 = 'y1 = ';
    for i = 1:numel(b3)
        if i > 1
            equation3 = [equation3 ' + '];
        end
        equation3 = [equation3 num2str(b3(i), '%.4f')];

        if i <= 2
            equation3 = [equation3 ' * rT'];
        elseif i <= 3
            equation3 = [equation3 ' * rRh'];
        elseif i <= 4
            equation3 = [equation3 ' * mT'];
        elseif i <= 5
            equation3 = [equation3 ' * mRh'];
        elseif i <= 6
            equation3 = [equation3 ' * mW'];
        else
            equation3 = [equation3 ' * rW'];
        end
    end
    fprintf('%s\n', equation3);

    % Menampilkan rumus persamaan matematis Model 4
    fprintf('Rumus Persamaan Matematis Model 4:\n');
    equation4 = 'y1 = ';
    for i = 1:numel(b4)
        if i > 1
            equation4 = [equation4 ' + '];
        end
        equation4 = [equation4 num2str(b4(i), '%.4f')];

        if i <= 2
            equation4 = [equation4 ' * (mT * mRh)'];
        elseif i <= 3
            equation4 = [equation4 ' * (mT * mW)'];
```

```
        elseif i <= 4
            equation4 = [equation4 ' * (mT * rT)'];
        elseif i <= 5
            equation4 = [equation4 ' * (mT * rRh)'];
        elseif i <= 6
            equation4 = [equation4 ' * (mT * rW)'];
        elseif i <= 7
            equation4 = [equation4 ' * (mRh * rT)'];
        elseif i <= 8
            equation4 = [equation4 ' * (mRh * rRh)'];
        elseif i <= 9
            equation4 = [equation4 ' * (mRh * rW)'];
        elseif i <= 10
            equation4 = [equation4 ' * rT'];
        elseif i <= 11
            equation4 = [equation4 ' * rRh'];
        elseif i <= 12
            equation4 = [equation4 ' * rW'];
        end
    end
    fprintf('%s\n', equation4);
    % Menampilkan nilai koefisien Model 1
    fprintf('Nilai Koefisien Model 1:\n');
    for i = 1:numel(b1)
        fprintf('b%d = %.4f\n', i - 1, b1(i));
    end

    % Menampilkan nilai koefisien Model 2
    fprintf('Nilai Koefisien Model 2:\n');
    for i = 1:numel(b2)
        fprintf('b%d = %.4f\n', i - 1, b2(i));
    end

    % Menampilkan nilai setiap koefisien Model 3 dan Model 4
    fprintf('Nilai koefisien Model 3:\n');
    for i = 1:numel(b3)
        fprintf('b%d = %.4f\n', i - 1, b3(i));
    end
    % Menampilkan nilai setiap koefisien Model 4
    fprintf('Nilai koefisien Model 4:\n');
    for i = 1:numel(b4)
        fprintf('b%d = %.4f\n', i - 1, b4(i));
    end

    % Create Figure 1
    figure(1);
    subplot(3, 3, 1);
    plot(t, rT, 'LineWidth', 2); % Tambahkan tebal garis
    xlabel('Monitoring day');
    ylabel('Range Temp [^oC]');

        (3, 3, 2);
         rRh, 'LineWidth', 2); % Tambahkan tebal garis
        'Monitoring day');
        'Range Rh [%]');
```

```
subplot(3, 3, 3);
plot(t, rRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range W [m/s]');

subplot(3, 3, 4);
plot(t, mT, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Temp [^oC]');

subplot(3, 3, 5);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Rh [%]');

subplot(3, 3, 6);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean W [m/s]');

% Provided dates
dates = {'Nov-2018','Mar-2019','Jun-2019','Okt-2019','Des-
2019','Sep-2020',...
    'Nov-2020','Des-2020','Mar-2021','Jun-2021','Sep-2021','Des-
2021',...
    'Mar-2022','Jun-2022','Okt-2022','Des-2022'};

% Create Figure 2
figure(2);
max_y = max([y1; out1; out2; out3; out4]); % Nilai maksimum dari
data yang ditampilkan
min_y = min([y1; out1; out2; out3; out4]); % Nilai minimum dari
data yang ditampilkan
extra_space = 0.07 * (max_y - min_y); % Menambahkan 5% dari
rentang data sebagai ruang ekstra di atas dan di bawah
plot(t, y1, 'ok', t, out1, '-r', t, out2, '-g', t, out3, '-b', t,
out4, 'm', 'LineWidth', 2); % Tambahkan tebal garis

% Set y-axis limits
ylim([min_y - 0.7*extra_space, max_y + 0.7*extra_space]); %
Menyesuaikan batas sumbu y dengan ruang tambahan

legend('Observation', 'T, Rh, L', 'T,Rh', 'T,Rh, W, L', 'T, Rh,
W', 'location', 'southeast', 'orientation', 'horizontal');
legend boxon;
xlabel('Monitoring');
ylabel('Kerusakan [%]');

-axis ticks and labels
:);
)els(dates);
e x-axis tick labels
gle(45); % You can adjust the angle as needed
-axis limits
```

```
xlim([0, 17]);

% Tambahkan teks "R" dan "RMSE" ke tengah berjejer ke samping
dengan ukuran font yang lebih besar
fontSize = 12; % Ganti ukuran font sesuai keinginan
str1 = {sprintf('R = %.4f', R1), sprintf('RMSE = %.4f %%',
RMSE1)};
str2 = {sprintf('R = %.4f', R2), sprintf('RMSE = %.4f %%',
RMSE2)};
str3 = {sprintf('R = %.4f', R3), sprintf('RMSE = %.4f %%',
RMSE3)};
str4 = {sprintf('R = %.4f', R4), sprintf('RMSE = %.4f %%',
RMSE4)};

text(max(t) / 2, max(y1) / 1 - 0.23, [str1{1} '    ' str1{2}],
'Color', 'r', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y1) / 1 - 0.25, [str2{1} '    ' str2{2}],
'Color', 'g', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y1) / 1 - 0.27, [str3{1} '    ' str3{2}],
'Color', 'b', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y1) / 1 - 0.29, [str4{1} '    ' str4{2}],
'Color', 'm', 'FontSize', fontSize, 'HorizontalAlignment',
'center');

% Save Figure 2 as a PNG file
figure(2);
saveas(gcf, 'ExfoStdev.png');

disp('Figure 2 saved as ExfoStdev.png');
```





Nilai Koefisien Model 1:

b0 = 0.6959

b1 = -0.0186

b2 = 0.1321

b3 = 0.0037

b4 = -0.0198

Nilai Koefisien Model 2:

b0 = 54.0914

b1 = -2.0064

b2 = -11.2370

b3 = -0.4844

b4 = 0.1475

b5 = 0.4457

80

065

519

Nilai koefisien Model 3:

b0 = 0.4707

b1 = -0.0123

b2 = 0.1000

b3 = 0.0050

b4 = -0.0108

b5 = 0.0687

b6 = -0.1347

Nilai koefisien Model 4:

b0 = -524.3939

b1 = 18.9911

b2 = 6.9959

b3 = 5.7986

b4 = 3.4377

b5 = -3.6399

b6 = 15.0023

b7 = -0.6873

b8 = -0.2104

b9 = -0.0767

b10 = 0.1363

b11 = -0.5452

b12 = 0.1716

b13 = -0.0186

Rumus Persamaan Matematis Model 1:

y1 = 0.6959 * sT + -0.0186 * sT + 0.1321 * sRh + 0.0037 * mT + -0.0198 * mRh

Rumus Persamaan Matematis Model 2:

y1 = 54.0914 * (mT * mRh) + -2.0064 * (mT * mRh) + -11.2370 * (mT * sT) + -0.4844 * mRh + 0.1475 * sT + 0.4457 + 0.0180 + -0.0065 + -0.0519

ersamaan Matematis Model 3:

'07 * sT + -0.0123 * sT + 0.1000 * sRh + 0.0050 * mT + -0.0108 * mRh * mW + -0.1347 * sW

Rumus Persamaan Matematis Model 4:

y1 = -524.3939 * (mT * mRh) + 18.9911 * (mT * mRh) + 6.9959 * (mT * mW) + 5.7986 * (mT * sT) + 3.4377 * (mT * sRh) + -3.6399 * (mT * sW) + 15.0023 * (mRh * sT) + -0.6873 * (mRh * sRh) + -0.2104 * (mRh * sW) + -0.0767 * sT + 0.1363 * sRh + -0.5452 * sW + 0.1716 + -0.0186

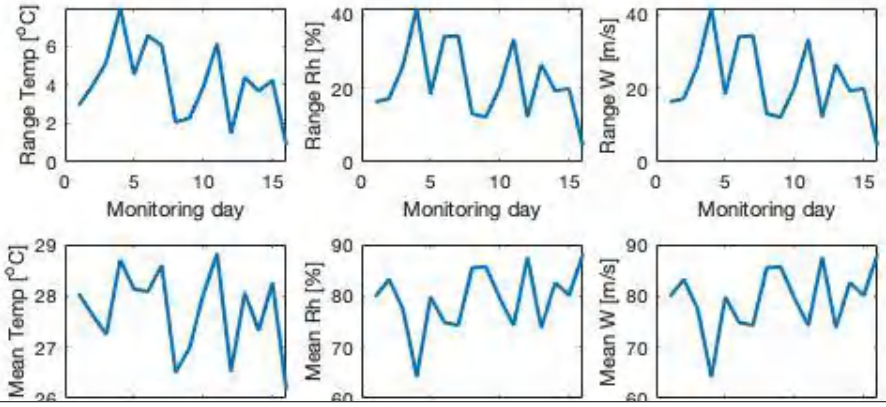
```
%Pengolahan data laju eskfoliasi
clc; clear; close all; warning off;

% Load data from 'BULUSIPONG.txt'
load BULUSIPONG.txt % [Ekfoliasi, Laju Eksfoliasi, Range
Temperatur, Range Kelembaban, Range Angin, Mean Temperatur, Mean
Kelembaban, Mean Angin, Standar Deviasi Temperatur, Standar
Deviasi Kelembaban, Standar Deviasi Angin]
dmg = BULUSIPONG(:, 1);
rod = BULUSIPONG (:, 2);
rT = BULUSIPONG (:, 3);
rRh = BULUSIPONG (:, 4);
rW = BULUSIPONG (:, 5);
mT = BULUSIPONG (:, 6);
mRh = BULUSIPONG (:, 7);
mW = BULUSIPONG (:, 8);
sT = BULUSIPONG (:, 9);
sRh = BULUSIPONG (:, 10);
sW = BULUSIPONG (:, 11);

y1 = dmg;
y2 = rod;
X1 = [ones(size(rod)) mT rT mRh rRh];
X2 = [ones(size(dmg)) mT rT mRh rRh mT.*rT mT.*mRh mT.*rRh
mRh.*rT];
X3 = [ones(size(rod)) mT rT mRh rRh mW rW ] ;
X4 = [ones(size(dmg)) mT rT mRh rRh mW rW mT.*rT mT.*mRh mT.*rRh
mT.*mW mT.*rW mRh.*rT mRh.*mW mW.*rRh];
% Perform regression
b1 = regress(y2, X1);
out1 = X1 * b1;
b2 = regress(y2, X2);
out2 = X2 * b2;
b3 = regress(y2, X3);
out3 = X3 * b3;
b4 = regress(y2, X4);
out4 = X4 * b4;
t = 1:16;

late correlation and RMSE
r(y2, out1);
 sqrt(mean((y2 - out1).^2));
r(y2, out2);
 sqrt(mean((y2 - out2).^2));
r(y2, out3);
```

```
RMSE3 = sqrt(mean((y2 - out3).^2));
R4 = corr(y2, out4);
RMSE4 = sqrt(mean((y2 - out4).^2));

% Menampilkan rumus persamaan matematis Model 1
fprintf('Rumus Persamaan Matematis Model 1:\n');
equation1 = 'y2 = ';
for i = 1:numel(b1)
    if i > 1
        equation1 = [equation1 ' + '];
    end
    equation1 = [equation1 num2str(b1(i), '%.4f')];

    if i <= 2
        equation1 = [equation1 ' * rT'];
    elseif i <= 3
        equation1 = [equation1 ' * rRh'];
    elseif i <= 4
        equation1 = [equation1 ' * mT'];
    else
        equation1 = [equation1 ' * mRh'];
    end
end
fprintf('%s\n', equation1);

% Menampilkan rumus persamaan matematis Model 2
fprintf('Rumus Persamaan Matematis Model 2:\n');
equation2 = 'y2 = ';
for i = 1:numel(b2)
    if i > 1
        equation2 = [equation2 ' + '];
    end
    equation2 = [equation2 num2str(b2(i), '%.4f')];

    if i <= 2
        equation2 = [equation2 ' * (mT * mRh)'];
    elseif i <= 3
        equation2 = [equation2 ' * (mT * rT)'];
    elseif i <= 4
        equation2 = [equation2 ' * mRh'];
    elseif i == 5
        equation2 = [equation2 ' * rT'];
    end
end
fprintf('%s\n', equation2);

% Menampilkan rumus persamaan matematis Model 3
fprintf('Rumus Persamaan Matematis Model 3:\n');
equation3 = 'y2 = ';
    1:numel(b3)
   i > 1
    equation3 = [equation3 ' + '];

   ation3 = [equation3 num2str(b3(i), '%.4f')];
```

```
        if i <= 2
            equation3 = [equation3 ' * rT'];
        elseif i <= 3
            equation3 = [equation3 ' * rRh'];
        elseif i <= 4
            equation3 = [equation3 ' * mT'];
        elseif i <= 5
            equation3 = [equation3 ' * mRh'];
        elseif i <= 6
            equation3 = [equation3 ' * mW'];
        else
            equation3 = [equation3 ' * rW'];
        end
    end
    fprintf('%s\n', equation3);

    % Menampilkan rumus persamaan matematis Model 4
    fprintf('Rumus Persamaan Matematis Model 4:\n');
    equation4 = 'y2 = ';
    for i = 1:numel(b4)
        if i > 1
            equation4 = [equation4 ' + '];
        end
        equation4 = [equation4 num2str(b4(i), '%.4f')];

        if i <= 2
            equation4 = [equation4 ' * (mT * mRh)'];
        elseif i <= 3
            equation4 = [equation4 ' * (mT * mW)'];
        elseif i <= 4
            equation4 = [equation4 ' * (mT * rT)'];
        elseif i <= 5
            equation4 = [equation4 ' * (mT * rRh)'];
        elseif i <= 6
            equation4 = [equation4 ' * (mT * rW)'];
        elseif i <= 7
            equation4 = [equation4 ' * (mRh * rT)'];
        elseif i <= 8
            equation4 = [equation4 ' * (mRh * rRh)'];
        elseif i <= 9
            equation4 = [equation4 ' * (mRh * rW)'];
        elseif i <= 10
            equation4 = [equation4 ' * rT'];
        elseif i <= 11
            equation4 = [equation4 ' * rRh'];
        elseif i <= 12
            equation4 = [equation4 ' * rW'];
        end
    end
    fprintf('%s\n', equation4);

    ilkan nilai koefisien Model 1
    ('Nilai Koefisien Model 1:\n');
     1:numel(b1)
    intf('b%d = %.4f\n', i - 1, b1(i));
```

```
% Menampilkan nilai koefisien Model 2
fprintf('Nilai Koefisien Model 2:\n');
for i = 1:numel(b2)
    fprintf('b%d = %.4f\n', i - 1, b2(i));
end

% Menampilkan nilai setiap koefisien Model 3 dan Model 4
fprintf('Nilai koefisien Model 3:\n');
for i = 1:numel(b3)
    fprintf('b%d = %.4f\n', i - 1, b3(i));
end

% Menampilkan nilai setiap koefisien Model 4
fprintf('Nilai koefisien Model 4:\n');
for i = 1:numel(b4)
    fprintf('b%d = %.4f\n', i - 1, b4(i));
end
% Create Figure 1
figure(1);
subplot(3, 3, 1);
plot(t, rT, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range Temp [^oC]');

subplot(3, 3, 2);
plot(t, rRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range Rh [%]');

subplot(3, 3, 3);
plot(t, rRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range W [m/s]');

subplot(3, 3, 4);
plot(t, mT, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Temp [^oC]');

subplot(3, 3, 5);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Rh [%]');

subplot(3, 3, 6);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean W [m/s]');

ded dates
 {'Nov-2018','Mar-2019','Jun-2019','Okt-2019','Des-
Sep-2020',...
-2020','Des-2020','Mar-2021','Jun-2021','Sep-2021','Des-
..
```

```
    'Mar-2022','Jun-2022','Okt-2022','Des-2022'};

% Create Figure 2
figure(2);
plot(t, y2, 'ok', t, out1, '-r', t, out2, '-g', t, out3, '-b', t,
out4, 'm', 'LineWidth', 2); % Tambahkan tebal garis
legend('Observation', 'T, Rh, L', 'T,Rh', 'T,Rh, W, L', 'T, Rh,
W', 'location', 'southeast', 'orientation', 'horizontal');
legend boxon;
xlabel('Monitoring');
ylabel('Laju Kerusakan [%/Days]');

% Set x-axis ticks and labels
xticks(t);
xticklabels(dates);
% Rotate x-axis tick labels
xtickangle(45); % You can adjust the angle as needed
% Set x-axis limits
xlim([0, 17]);

% Menambahkan teks "R" dan "RMSE"
fontSize = 12; % Ganti ukuran font sesuai keinginan
str1 = {sprintf('R = %.4f', R1), sprintf('RMSE = %.4f %%/Days',
RMSE1)};
str2 = {sprintf('R = %.4f', R2), sprintf('RMSE = %.4f %%/Days',
RMSE2)};
str3 = {sprintf('R = %.4f', R3), sprintf('RMSE = %.4f %%/Days',
RMSE3)};
str4 = {sprintf('R = %.4f', R4), sprintf('RMSE = %.4f %%/Days',
RMSE4)};

text(max(t) / 2, max(y2) / 1 - 0.001, [str1{1} '    ' str1{2}],
'Color', 'r', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y2) / 1 - 0.002, [str2{1} '    ' str2{2}],
'Color', 'g', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y2) / 1 - 0.003, [str3{1} '    ' str3{2}],
'Color', 'b', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y2) / 1 - 0.004, [str4{1} '    ' str4{2}],
'Color', 'm', 'FontSize', fontSize, 'HorizontalAlignment',
'center');

% Save Figure 2 as a PNG file
figure(2);
saveas(gcf, 'ExforatesRange.png');

disp('Figure 2 saved as ExforatesRange.png');
```



efisien Model 1:

299

02

b2 = 0.0047

b3 = 0.0003

b4 = -0.0006

Nilai Koefisien Model 2:

b0 = 3.3265

b1 = -0.1191

b2 = 1.6071

b3 = -0.0352

b4 = -0.4034

b5 = -0.0313

b6 = 0.0013

b7 = 0.0089

b8 = -0.0090

b9 = 0.0019

Nilai koefisien Model 3:

b0 = -0.0351

b1 = 0.0004

b2 = 0.0051

b3 = 0.0003

b4 = -0.0006

b5 = 0.0002

b6 = 0.0001

Nilai koefisien Model 4:

b0 = 45.9122

b1 = -1.6546

b2 = -5.8476

b3 = -0.5017

b4 = 0.6049

242

528

95

b8 = 0.0181

b9 = -0.0201

b10 = 0.0145

b11 = 0.0193

b12 = -0.0039

b13 = -0.0005

b14 = 0.0040

Rumus Persamaan Matematis Model 1:

y2 = -0.0299 * sT + 0.0002 * sT + 0.0047 * sRh + 0.0003 * mT + -0.0006 * mRh

Rumus Persamaan Matematis Model 2:

y2 = 3.3265 * (mT * mRh) + -0.1191 * (mT * mRh) + 1.6071 * (mT * sT) + -0.0352 * mRh + -0.4034 * sT + -0.0313 + 0.0013 + 0.0089 + -0.0090 + 0.0019

Rumus Persamaan Matematis Model 3:

y2 = -0.0351 * sT + 0.0004 * sT + 0.0051 * sRh + 0.0003 * mT + -0.0006 * mRh + 0.0002 * mW + 0.0001 * sW

Rumus Persamaan Matematis Model 4:

y2 = 45.9122 * (mT * mRh) + -1.6546 * (mT * mRh) + -5.8476 * (mT * mW) + -0.5017 * (mT * sT) + 0.6049 * (mT * sRh) + -0.7242 * (mT * sW) + -0.5528 * (mRh * sT) + 0.2195 * (mRh * sRh) + 0.0181 * (mRh * sW) + -0.0201 * sT + 0.0145 * sRh + 0.0193 * sW + -0.0039 + -0.0005 + 0.0040

```
%Pengolahan data laju eskfoliasi
clc; clear; close all; warning off;

% Load data from 'BULUSIPONG.txt'
load BULUSIPONG.txt % [Ekfoliasi, Laju Eksfoliasi, Range
Temperatur, Range Kelembaban, Range Angin, Mean Temperatur, Mean
Kelembaban, Mean Angin, Standar Deviasi Temperatur, Standar
Deviasi Kelembaban, Standar Deviasi Angin]
dmg = BULUSIPONG(:, 1);
rod = BULUSIPONG (:, 2);
rT = BULUSIPONG (:, 3);
rRh = BULUSIPONG (:, 4);
rW = BULUSIPONG (:, 5);
mT = BULUSIPONG (:, 6);
     JLUSIPONG (:, 7);
     LUSIPONG (:, 8);
     LUSIPONG (:, 9);
     JLUSIPONG (:, 10);
     LUSIPONG (:, 11);
```

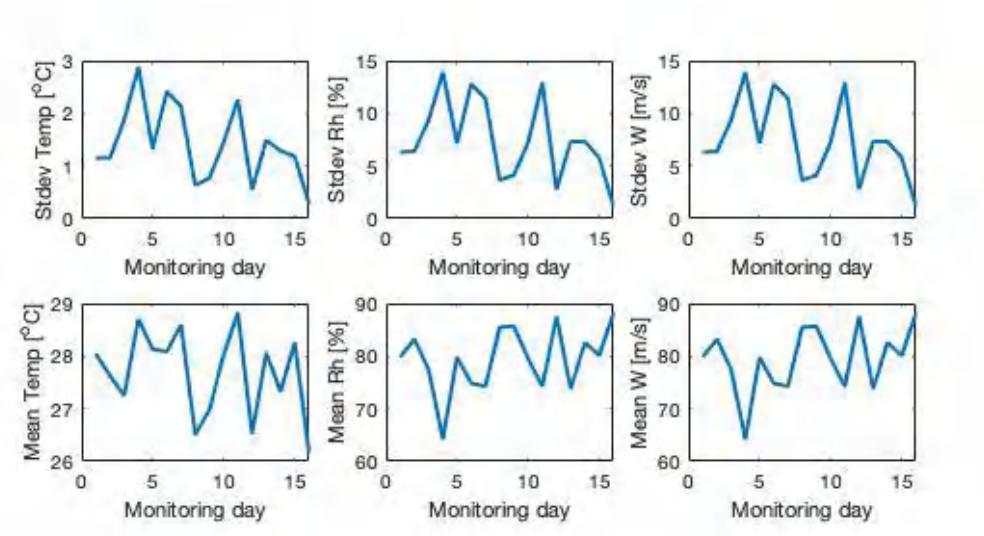
```
y1 = dmg;
y2 = rod;
X1 = [ones(size(rod)) mT sT mRh sRh];
X2 = [ones(size(dmg)) mT sT mRh sRh mT.*sT mT.*mRh mT.*sRh mRh.*sT
mRh.*sRh];
X3 = [ones(size(rod)) mT sT mRh sRh mW sW] ;
X4 = [ones(size(dmg)) mT sT mRh sRh mW sW mT.*sT mT.*mRh mT.*sRh
mT.*mW mT.*sW mRh.*sT mRh.*sRh mRh.*mW];
% Perform regression
b1 = regress(y2, X1);
out1 = X1 * b1;
b2 = regress(y2, X2);
out2 = X2 * b2;
b3 = regress(y2, X3);
out3 = X3 * b3;
b4 = regress(y2, X4);
out4 = X4 * b4; % Perbaikan di sini
t = 1:16;

% Calculate correlation and RMSE
R1 = corr(y2, out1);
RMSE1 = sqrt(mean((y2 - out1).^2));
R2 = corr(y2, out2);
RMSE2 = sqrt(mean((y2 - out2).^2));
R3 = corr(y2, out3);
RMSE3 = sqrt(mean((y2 - out3).^2));
R4 = corr(y2, out4);
RMSE4 = sqrt(mean((y2 - out4).^2));

% Menampilkan rumus persamaan matematis Model 1
fprintf('Rumus Persamaan Matematis Model 1:\n');
equation1 = 'y2 = ';
for i = 1:numel(b1)
    if i > 1
        equation1 = [equation1 ' + '];
    end
    equation1 = [equation1 num2str(b1(i), '%.4f')];

    if i <= 2
        equation1 = [equation1 ' * rT'];
    elseif i <= 3
        equation1 = [equation1 ' * rRh'];
    elseif i <= 4
        equation1 = [equation1 ' * mT'];
    else
        equation1 = [equation1 ' * mRh'];
    end
end
fprintf('%s\n', equation1);

    ɔilkan rumus persamaan matematis Model 2
    ('Rumus Persamaan Matematis Model 2:\n');
    ı2 = 'y2 = ';
     1:numel(b2)
```

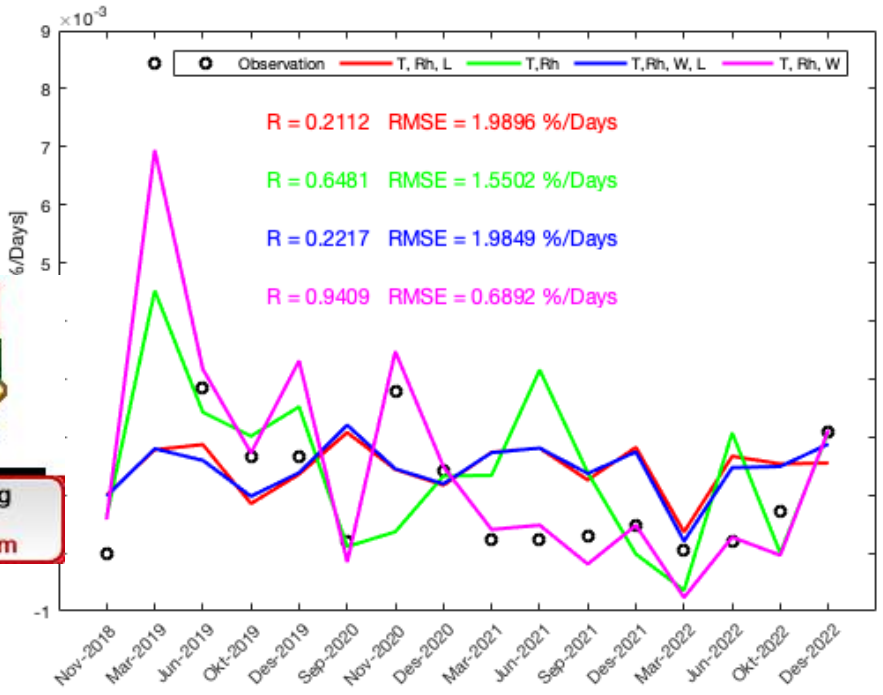
```
    if i > 1
        equation2 = [equation2 ' + '];
    end
    equation2 = [equation2 num2str(b2(i), '%.4f')];

    if i <= 2
        equation2 = [equation2 ' * (mT * mRh)'];
    elseif i <= 3
        equation2 = [equation2 ' * (mT * rT)'];
    elseif i <= 4
        equation2 = [equation2 ' * mRh'];
    elseif i == 5
        equation2 = [equation2 ' * rT'];
    end
end
fprintf('%s\n', equation2);

% Menampilkan rumus persamaan matematis Model 3
fprintf('Rumus Persamaan Matematis Model 3:\n');
equation3 = 'y2 = ';
for i = 1:numel(b3)
    if i > 1
        equation3 = [equation3 ' + '];
    end
    equation3 = [equation3 num2str(b3(i), '%.4f')];

    if i <= 2
        equation3 = [equation3 ' * rT'];
    elseif i <= 3
        equation3 = [equation3 ' * rRh'];
    elseif i <= 4
        equation3 = [equation3 ' * mT'];
    elseif i <= 5
        equation3 = [equation3 ' * mRh'];
    elseif i <= 6
        equation3 = [equation3 ' * mW'];
    else
        equation3 = [equation3 ' * rW'];
    end
end
fprintf('%s\n', equation3);

% Menampilkan rumus persamaan matematis Model 4
fprintf('Rumus Persamaan Matematis Model 4:\n');
equation4 = 'y2 = ';
for i = 1:numel(b4)
    if i > 1
        equation4 = [equation4 ' + '];
    end
    equation4 = [equation4 num2str(b4(i), '%.4f')];

    if i <= 2
        equation4 = [equation4 ' * (mT * mRh)'];
    elseif i <= 3
        equation4 = [equation4 ' * (mT * mW)'];
```

```
        elseif i <= 4
            equation4 = [equation4 ' * (mT * rT)'];
        elseif i <= 5
            equation4 = [equation4 ' * (mT * rRh)'];
        elseif i <= 6
            equation4 = [equation4 ' * (mT * rW)'];
        elseif i <= 7
            equation4 = [equation4 ' * (mRh * rT)'];
        elseif i <= 8
            equation4 = [equation4 ' * (mRh * rRh)'];
        elseif i <= 9
            equation4 = [equation4 ' * (mRh * rW)'];
        elseif i <= 10
            equation4 = [equation4 ' * rT'];
        elseif i <= 11
            equation4 = [equation4 ' * rRh'];
        elseif i <= 12
            equation4 = [equation4 ' * rW'];
        end
    end
    fprintf('%s\n', equation4);

    %Menampilkan nilai koefisien Model 1
    fprintf('Nilai Koefisien Model 1:\n');
    for i = 1:numel(b1)
        fprintf('b%d = %.4f\n', i - 1, b1(i));
    end

    % Menampilkan nilai koefisien Model 2
    fprintf('Nilai Koefisien Model 2:\n');
    for i = 1:numel(b2)
        fprintf('b%d = %.4f\n', i - 1, b2(i));
    end

    % Menampilkan nilai setiap koefisien Model 3 dan Model 4
    fprintf('Nilai koefisien Model 3:\n');
    for i = 1:numel(b3)
        fprintf('b%d = %.4f\n', i - 1, b3(i));
    end

    % Menampilkan nilai setiap koefisien Model 4
    fprintf('Nilai koefisien Model 4:\n');
    for i = 1:numel(b4)
        fprintf('b%d = %.4f\n', i - 1, b4(i));
    end
    % Create Figure 1
    figure(1);
    subplot(3, 3, 1);
    plot(t, rT, 'LineWidth', 2); % Tambahkan tebal garis
    xlabel('Monitoring day');
        'Range Temp [^oC]');

        (3, 3, 2);
         rRh, 'LineWidth', 2); % Tambahkan tebal garis
        'Monitoring day');
```

```
ylabel('Range Rh [%]');

subplot(3, 3, 3);
plot(t, rRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Range W [m/s]');

subplot(3, 3, 4);
plot(t, mT, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Temp [^oC]');

subplot(3, 3, 5);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean Rh [%]');

subplot(3, 3, 6);
plot(t, mRh, 'LineWidth', 2); % Tambahkan tebal garis
xlabel('Monitoring day');
ylabel('Mean W [m/s]');

% Provided dates
dates = {'Nov-2018','Mar-2019','Jun-2019','Okt-2019','Des-
2019','Sep-2020',...
    'Nov-2020','Des-2020','Mar-2021','Jun-2021','Sep-2021','Des-
2021',...
    'Mar-2022','Jun-2022','Okt-2022','Des-2022'};

% Create Figure 2
figure(2);
plot(t, y2, 'ok', t, out1, '-r', t, out2, '-g', t, out3, '-b', t,
out4, 'm', 'LineWidth', 2); % Tambahkan tebal garis
legend('Observation', 'T, Rh, L', 'T,Rh', 'T,Rh, W, L', 'T, Rh,
W', 'location', 'southeast', 'orientation', 'horizontal');
legend boxon;
xlabel('Monitoring');
ylabel('Laju Kerusakan [%/Days]');

% Set x-axis ticks and labels
xticks(t);
xticklabels(dates);
% Rotate x-axis tick labels
xtickangle(45); % You can adjust the angle as needed
% Set x-axis limits
xlim([0, 17]);

% Menambahkan teks "R" dan "RMSE"
fontSize = 12; % Ganti ukuran font sesuai keinginan
    {sprintf('R = %.4f', R1), sprintf('RMSE = %.4f %%/Days',
    :
    {sprintf('R = %.4f', R2), sprintf('RMSE = %.4f %%/Days',
    :
    {sprintf('R = %.4f', R3), sprintf('RMSE = %.4f %%/Days',
    :
```

```
str4 = {sprintf('R = %.4f', R4), sprintf('RMSE = %.4f %%/Days',
RMSE4)};

text(max(t) / 2, max(y2) / 1 - 0.001, [str1{1} '    ' str1{2}],
'Color', 'r', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y2) / 1 - 0.002, [str2{1} '    ' str2{2}],
'Color', 'g', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y2) / 1 - 0.003, [str3{1} '    ' str3{2}],
'Color', 'b', 'FontSize', fontSize, 'HorizontalAlignment',
'center');
text(max(t) / 2, max(y2) / 1 - 0.004, [str4{1} '    ' str4{2}],
'Color', 'm', 'FontSize', fontSize, 'HorizontalAlignment',
'center');

% Save Figure 2 as a PNG file
figure(2);
saveas(gcf, 'ExforatesStdev.png');

disp('Figure 2 saved as ExforatesStdev.png');
```





Nilai Koefisien Model 1:

b0 = 0.0109

b1 = -0.0009

b2 = 0.0024

b3 = 0.0002

b4 = -0.0003

Nilai Koefisien Model 2:

b0 = -4.5542

b1 = 0.1647

b2 = 0.1460

b3 = 0.0521

b4 = -0.0110

b5 = -0.0057

b6 = -0.0019

b7 = 0.0004

b8 = 0.0002

Nilai koefisien Model 3:

b0 = 0.0152

b1 = -0.0011

b2 = 0.0021

b3 = 0.0002

002

09

009

Nilai koefisien Model 4:

b0 = -8.3718

b1 = 0.2919

b2 = 0.2656

b3 = 0.0794

b4 = 0.0346

b5 = -0.2801

b6 = 0.0868

b7 = -0.0082

b8 = -0.0028

b9 = -0.0012

b10 = 0.0070

b11 = -0.0031

b12 = -0.0005

b13 = 0.0013

b14 = -0.0005

Rumus Persamaan Matematis Model 1:

y2 = 0.0109 * rT + -0.0009 * rT + 0.0024 * rRh + 0.0002 * mT + -0.0003 * mRh

Rumus Persamaan Matematis Model 2:

y2 = -4.5542 * (mT * mRh) + 0.1647 * (mT * mRh) + 0.1460 * (mT * rT) + 0.0521 * mRh + -0.0110 * rT + -0.0057 + -0.0019 + 0.0004 + 0.0002

Rumus Persamaan Matematis Model 3:

y2 = 0.0152 * rT + -0.0011 * rT + 0.0021 * rRh + 0.0002 * mT + -0.0002 * mRh + 0.0009 * mW + -0.0009 * rW

Rumus Persamaan Matematis Model 4:

y2 = -8.3718 * (mT * mRh) + 0.2919 * (mT * mRh) + 0.2656 * (mT * mW) + 0.0794 * (mT * rT) + 0.0346 * (mT * rRh) + -0.2801 * (mT * rW) + 0.0868 * (mRh * rT) + -0.0082 * (mRh * rRh) + -0.0028 * (mRh * rW) + -0.0012 * rT + 0.0070 *

0031 * rW + -0.0005 + 0.0013 + -0.0005