

Datasets y visualizacion

Importar con readtable y readmatrix

```
%readmatrix
```

```
area_mm=readmatrix("../ClonRepositorioAldo/Utils4SP/Datasets/areaMM.txt", 'Delimiter',
```

```
area_mm = 1x181
```

```
340.4277 324.3750 308.9114 293.6813 277.8073 261.0772 245.9019 232.8705 ...
```

```
%readtable
```

```
PSD_bands=readtable("../ClonRepositorioAldo/Utils4SP/Datasets/2021.10.04_Intensidad...")
```

```
PSD_bands = 630x13 table
```

	Dist_cm_	PSD_B1	PSD_B2	PSD_B3	PSD_B4	PSD_B5	PSD_B6	PSD_B7
1	0.5000	0.5480	0.0129	0.0052	0.0046	0.0205	1.1388	0.0107
2	0.5000	0.5042	0.0017	0.0022	0.0024	0.0057	0.5872	0.0015
3	0.5000	0.4539	0.0061	0.0016	0.0049	0.0121	0.5663	0.0060
4	0.5000	0.3205	0.0055	0.0052	0.0017	0.0082	0.6285	0.0053
5	0.5000	0.3859	0.0032	0.0026	0.0024	0.0066	0.5744	0.0035
6	0.5000	0.8591	0.0051	0.0020	0.0019	0.0073	0.6579	0.0061
7	0.5000	0.5021	0.0044	0.0020	0.0018	0.0075	0.5880	0.0027
8	0.5000	0.3402	0.0063	0.0067	0.0062	0.0097	0.5597	0.0118
9	0.5000	0.3661	0.0046	0.0020	0.0049	0.0085	0.5586	0.0043
10	0.5000	0.5464	0.0037	0.0016	0.0024	0.0075	0.5924	0.0011
11	0.5000	0.8342	0.0094	0.0025	0.0071	0.0063	0.9233	0.0042
12	0.5000	0.3870	0.0050	0.0017	0.0033	0.0124	1.1173	0.0029
13	0.5000	0.4425	0.0021	0.0005	0.0013	0.0038	0.6084	0.0020
14	0.5000	0.4923	0.0034	0.0009	0.0022	0.0069	0.5943	0.0012
15	0.5000	0.4754	0.0075	0.0031	0.0016	0.0057	0.6152	0.0041
16	0.5000	0.8079	0.0093	0.0061	0.0068	0.0129	0.5341	0.0059
17	0.5000	0.5346	0.0051	0.0023	0.0059	0.0127	1.1668	0.0032
18	0.5000	0.5067	0.0043	0.0012	0.0030	0.0106	0.5533	0.0025
19	0.5000	0.8112	0.0069	0.0026	0.0027	0.0089	1.0308	0.0035
20	0.5000	0.3734	0.0105	0.0032	0.0030	0.0104	0.5804	0.0105
21	0.5000	0.8587	0.0058	0.0016	0.0038	0.0091	0.5660	0.0061
22	0.5000	0.4835	0.0057	0.0019	0.0041	0.0094	1.1545	0.0046
23	0.5000	0.8285	0.0040	0.0012	0.0015	0.0032	0.6117	0.0010

	Dist_cm_	PSD_B1	PSD_B2	PSD_B3	PSD_B4	PSD_B5	PSD_B6	PSD_B7
24	0.5000	0.3315	0.0088	0.0024	0.0045	0.0142	0.5920	0.0092
25	0.5000	0.3778	0.0022	0.0028	0.0028	0.0095	0.5773	0.0039
26	0.5000	0.8786	0.0069	0.0030	0.0015	0.0057	0.5947	0.0021
27	0.5000	0.3387	0.0133	0.0038	0.0030	0.0119	1.1238	0.0079
28	0.5000	0.3665	0.0025	0.0020	0.0027	0.0069	0.5948	0.0029
29	0.5000	0.4544	0.0034	0.0014	0.0023	0.0062	0.5773	0.0021
30	0.5000	0.4900	0.0041	0.0018	0.0017	0.0069	0.5792	0.0037
31	1	0.2387	0.0014	0.0009	0.0011	0.0017	0.2785	0.0009
32	1	0.2504	0.0021	0.0007	0.0008	0.0035	0.2713	0.0009
33	1	0.1724	0.0040	0.0022	0.0030	0.0066	0.2501	0.0055
34	1	0.1677	0.0011	0.0014	0.0016	0.0042	0.2514	0.0012
35	1	0.2057	0.0011	0.0016	0.0015	0.0040	0.2621	0.0008
36	1	0.2314	0.0013	0.0011	0.0012	0.0034	0.2647	0.0010
37	1	0.1701	0.0088	0.0019	0.0021	0.0092	0.5130	0.0034
38	1	0.1603	0.0028	0.0016	0.0033	0.0030	0.2530	0.0031
39	1	0.1963	0.0016	0.0011	0.0017	0.0030	0.2707	0.0018
40	1	0.2290	0.0011	0.0013	0.0009	0.0018	0.2797	0.0012
41	1	0.3656	0.0020	0.0012	0.0009	0.0034	0.2679	0.0009
42	1	0.3659	0.0026	0.0014	0.0022	0.0062	0.5110	0.0017
43	1	0.2240	0.0018	0.0008	0.0017	0.0035	0.3988	0.0024
44	1	0.2277	0.0014	0.0011	0.0015	0.0030	0.2608	0.0010
45	1	0.2343	0.0016	0.0009	0.0019	0.0019	0.2597	0.0024
46	1	0.1665	0.0036	0.0025	0.0018	0.0038	0.2443	0.0053
47	1	0.3936	0.0029	0.0020	0.0015	0.0039	0.2721	0.0029
48	1	0.2194	0.0043	0.0017	0.0022	0.0063	0.5222	0.0027
49	1	0.1574	0.0043	0.0031	0.0017	0.0042	0.2535	0.0020
50	1	0.3545	0.0027	0.0018	0.0030	0.0050	0.5417	0.0013
51	1	0.1749	0.0029	0.0015	0.0024	0.0042	0.2704	0.0015
52	1	0.4112	0.0031	0.0020	0.0011	0.0029	0.2712	0.0025
53	1	0.1711	0.0081	0.0028	0.0059	0.0072	0.5122	0.0035
54	1	0.1674	0.0013	0.0013	0.0015	0.0035	0.2569	0.0038
55	1	0.2030	0.0009	0.0012	0.0012	0.0033	0.2683	0.0012
56	1	0.2181	0.0012	0.0012	0.0011	0.0026	0.2769	0.0009

	Dist_cm_	PSD_B1	PSD_B2	PSD_B3	PSD_B4	PSD_B5	PSD_B6	PSD_B7
57	1	0.3756	0.0020	0.0007	0.0017	0.0024	0.2707	0.0019
58	1	0.3148	0.0051	0.0017	0.0022	0.0068	0.5535	0.0038
59	1	0.2341	0.0018	0.0021	0.0050	0.0047	0.3379	0.0020
60	1	0.2213	0.0016	0.0013	0.0017	0.0027	0.2913	0.0012
61	2	0.0810	0.0006	0.0011	0.0013	0.0026	0.1160	0.0007
62	2	0.0966	0.0007	0.0007	0.0011	0.0017	0.1379	0.0007
63	2	0.1720	0.0018	0.0015	0.0013	0.0016	0.1063	0.0017
64	2	0.0728	0.0024	0.0012	0.0021	0.0041	0.2147	0.0026
65	2	0.0689	0.0011	0.0012	0.0007	0.0020	0.1132	0.0015
66	2	0.0801	0.0011	0.0008	0.0009	0.0009	0.1078	0.0006
67	2	0.0877	0.0016	0.0007	0.0008	0.0014	0.1149	0.0009
68	2	0.1692	0.0014	0.0007	0.0011	0.0023	0.1131	0.0012
69	2	0.1421	0.0012	0.0011	0.0011	0.0055	0.2270	0.0017
70	2	0.0902	0.0016	0.0009	0.0017	0.0019	0.1504	0.0011
71	2	0.1028	0.0010	0.0009	0.0004	0.0010	0.1181	0.0005
72	2	0.0760	0.0024	0.0012	0.0016	0.0037	0.2117	0.0019
73	2	0.1751	0.0018	0.0009	0.0015	0.0032	0.1133	0.0018
74	2	0.1134	0.0028	0.0007	0.0026	0.0038	0.2193	0.0015
75	2	0.0970	0.0008	0.0008	0.0007	0.0021	0.1172	0.0005
76	2	0.1652	0.0019	0.0015	0.0006	0.0017	0.1403	0.0017
77	2	0.0942	0.0016	0.0009	0.0017	0.0018	0.1218	0.0015
78	2	0.1653	0.0018	0.0007	0.0012	0.0026	0.1150	0.0018
79	2	0.0749	0.0010	0.0006	0.0013	0.0019	0.1139	0.0008
80	2	0.0919	0.0008	0.0013	0.0010	0.0022	0.1018	0.0014
81	2	0.0983	0.0016	0.0012	0.0017	0.0019	0.1269	0.0010
82	2	0.0862	0.0011	0.0008	0.0005	0.0016	0.1159	0.0006
83	2	0.0644	0.0019	0.0009	0.0008	0.0021	0.1134	0.0021
84	2	0.0897	0.0012	0.0014	0.0014	0.0036	0.1824	0.0019
85	2	0.0995	0.0012	0.0010	0.0007	0.0022	0.1161	0.0005
86	2	0.1048	0.0010	0.0010	0.0009	0.0023	0.1094	0.0009
87	2	0.0674	0.0029	0.0015	0.0012	0.0048	0.1114	0.0021
88	2	0.1447	0.0015	0.0013	0.0015	0.0034	0.2079	0.0020
89	2	0.0980	0.0012	0.0011	0.0013	0.0027	0.1431	0.0019

	Dist_cm_	PSD_B1	PSD_B2	PSD_B3	PSD_B4	PSD_B5	PSD_B6	PSD_B7
90	2	0.1030	0.0007	0.0010	0.0007	0.0014	0.1137	0.0006
91	3	0.0625	0.0009	0.0007	0.0014	0.0022	0.0681	0.0012
92	3	0.0449	0.0017	0.0010	0.0015	0.0020	0.0666	0.0012
93	3	0.0376	0.0010	0.0014	0.0008	0.0016	0.0637	0.0020
94	3	0.0472	0.0008	0.0013	0.0011	0.0010	0.0639	0.0008
95	3	0.0927	0.0019	0.0008	0.0011	0.0011	0.0772	0.0016
96	3	0.0548	0.0006	0.0008	0.0009	0.0019	0.0633	0.0010
97	3	0.0355	0.0020	0.0012	0.0007	0.0015	0.0638	0.0018
98	3	0.0429	0.0013	0.0012	0.0011	0.0021	0.0606	0.0013
99	3	0.0639	0.0011	0.0008	0.0007	0.0011	0.0666	0.0006
100	3	0.0547	0.0007	0.0009	0.0007	0.0010	0.0666	0.0009

:

Funcion custom de Import File

```
%Pasa sonido cassini
Cassini=importfile_Cassini('.../.../ClonRepositorioAldo/Utils4SP/Datasets/05358_mrdcd_sd')
```

Importar audio

```
[buho, fs_buho]=audioread(".../.../ClonRepositorioAldo/Utils4SP/Datasets/Owl.wav");
%escuchar
%sound(buho,fs_buho)
```

Datastore

```
% %Le indicamos que una carpeta es un DataStore
%
% ds=datastore(".../.../ClonRepositorioAldo/Utils4SP/Datasets/AtmosferaLogger_V2/");
% ds.VariableNames=["Fecha" "Hora" "Pres_kpa" "Temp_C" "Hum_perc" "Bat_V" ];
% ds.TextscanFormats=["%s" "%s" "%f" "%f" "%f" "%f"]
%
% %leer todas las entradas
% atmosfera=readall(ds)
% %Parche por si la tabla ya se importo
% %atmosfera.Properties.VariableNames=["Fecha" "Hora" "Pres_kpa" "Temp_C" "Hum_perc" "Bat_V"]
```

Primeras lecturas Atmosfericas

```
ds=datastore(".../.../ClonRepositorioAldo/Utils4SP/Datasets/AtmosferaLogger/");
```

```
ds.VariableNames=["Fecha" "Hora" "Pres_kpa" "Temp_C" "Hum_perc"];
ds.TextscanFormats=[ "%s" "%s" "%f" "%f" "%f" ]
```

```
ds =
TabularTextDatastore with properties:

    Files: {
        ' .../ClonRepositorioAldo/Utils4SP/Datasets/AtmosferaLogger/210425.txt';
        ' .../ClonRepositorioAldo/Utils4SP/Datasets/AtmosferaLogger/210426.TXT';
        ' .../ClonRepositorioAldo/Utils4SP/Datasets/AtmosferaLogger/210427.TXT'
        ... and 35 more
    }
    Folders: {
        ' .../Desktop/ClonRepositorioAldo/Utils4SP/Datasets/AtmosferaLogger'
    }
    FileEncoding: 'UTF-8'
    AlternateFileSystemRoots: {}
    VariableNamingRule: 'modify'
    ReadVariableNames: false
    VariableNames: {'Fecha', 'Hora', 'Pres_kpa' ... and 2 more}
    DatetimeLocale: en_US

Text Format Properties:
    NumHeaderLines: 0
    Delimiter: {' ', '\t'}
    RowDelimiter: '\r\n'
    TreatAsMissing: ''
    MissingValue: NaN

Advanced Text Format Properties:
    TextscanFormats: {'%s', '%s', '%f' ... and 2 more}
    TextType: 'char'
    ExponentCharacters: 'eEdD'
    CommentStyle: ''
    Whitespace: '\b'
    MultipleDelimitersAsOne: true

Properties that control the table returned by preview, read, readall:
    SelectedVariableNames: {'Fecha', 'Hora', 'Pres_kpa' ... and 2 more}
    SelectedFormats: {'%s', '%s', '%f' ... and 2 more}
    ReadSize: 20000 rows
    OutputType: 'table'
    RowTimes: []

Write-specific Properties:
    SupportedOutputFormats: ["txt"     "csv"     "xlsx"     "xls"     "parquet"     "parq"]
    DefaultOutputFormat: "txt"
```

```
atmosfera=readall(ds)
```

```
atmosfera = 546110×5 table
```

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc
1	'210425'	'21:03:51'	78.0500	28.7900	33.5200
2	'210425'	'21:03:56'	78.0500	29.1200	33.1200
3	'210425'	'21:04:01'	78.0500	29.1600	33.0900
4	'210425'	'21:04:06'	78.0500	29.2000	36.5800
5	'210425'	'21:04:11'	78.0500	29.3000	35.6800
6	'210425'	'21:04:16'	78.0500	29.3700	34.4800

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc
7	'210425'	'21:04:22'	78.0500	29.4300	33.9900
8	'210425'	'21:04:27'	78.0500	29.5000	34
9	'210425'	'21:04:32'	78.0500	29.5700	34.2100
10	'210425'	'21:04:37'	78.0500	29.6300	33.8100
11	'210425'	'21:04:42'	78.0500	29.6900	34.0100
12	'210425'	'21:04:47'	78.0500	29.7600	33.6200
13	'210425'	'21:04:52'	78.0500	29.8200	33.8200
14	'210425'	'21:04:57'	78.0500	29.8700	33.4100
15	'210425'	'21:05:02'	78.0500	29.9100	33.8300
16	'210425'	'21:05:07'	78.0500	29.9500	33.1400
17	'210425'	'21:05:12'	78.0500	29.9900	33.2600
18	'210425'	'21:05:17'	78.0500	30.0200	33.2300
19	'210425'	'21:05:22'	78.0500	30.0700	33.3800
20	'210425'	'21:05:27'	78.0500	30.1000	33.1900
21	'210425'	'21:05:32'	78.0500	30.1300	33.1500
22	'210425'	'21:05:37'	78.0500	30.1500	32.2900
23	'210425'	'21:05:42'	78.0500	30.1700	32.5300
24	'210425'	'21:05:47'	78.0500	30.2000	32.7900
25	'210425'	'21:05:52'	78.0500	30.2300	32.6800
26	'210425'	'21:05:57'	78.0500	30.2600	32.4600
27	'210425'	'21:06:02'	78.0500	30.3000	32.8600
28	'210425'	'21:06:07'	78.0500	30.3300	32.7600
29	'210425'	'21:06:12'	78.0500	30.3400	32.1100
30	'210425'	'21:06:17'	78.0500	30.3700	32.0100
31	'210425'	'21:06:22'	78.0500	30.3900	32.2800
32	'210425'	'21:06:27'	78.0500	30.4200	32.1800
33	'210425'	'21:06:32'	78.0500	30.4500	31.9800
34	'210425'	'21:06:37'	78.0500	30.4600	32.1600
35	'210425'	'21:06:42'	78.0500	30.4600	31.9100
36	'210425'	'21:06:47'	78.0500	30.4800	32
37	'210425'	'21:06:52'	78.0500	30.5100	32.1000
38	'210425'	'21:06:57'	78.0500	30.5400	32.6400
39	'210425'	'21:07:02'	78.0500	30.5500	32.1200

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc
40	'210425'	'21:07:07'	78.0500	30.5900	32.8300
41	'210425'	'21:07:12'	78.0500	30.5400	31.6400
42	'210425'	'21:07:17'	78.0500	30.4700	31.0500
43	'210425'	'21:07:22'	78.0500	30.3800	30.8800
44	'210425'	'21:07:27'	78.0500	30.3200	30.9800
45	'210425'	'21:07:32'	78.0500	30.2700	31.0300
46	'210425'	'21:07:38'	78.0500	30.2300	31.0900
47	'210425'	'21:07:43'	78.0500	30.1800	31.1300
48	'210425'	'21:07:48'	78.0500	30.1300	31.1500
49	'210425'	'21:07:53'	78.0500	30.0800	31.2000
50	'210425'	'21:08:00'	78.0500	29.9800	31.3200
51	'210425'	'21:08:05'	78.0500	29.9700	31.3700
52	'210425'	'21:08:10'	78.0500	29.8700	31.5000
53	'210425'	'21:08:15'	78.0500	29.8000	31.7900
54	'210425'	'21:08:20'	78.0500	29.7400	31.8200
55	'210425'	'21:08:25'	78.0500	29.7200	31.8200
56	'210425'	'21:08:30'	78.0500	29.7000	31.8700
57	'210425'	'21:08:35'	78.0500	29.6800	31.8900
58	'210425'	'21:08:40'	78.0500	29.6700	31.9100
59	'210425'	'21:08:45'	78.0500	29.6500	31.9600
60	'210425'	'21:08:50'	78.0500	29.6300	31.9700
61	'210425'	'21:08:55'	78.0500	29.6200	31.9600
62	'210425'	'21:09:00'	78.0500	29.6000	31.9900
63	'210425'	'21:09:05'	78.0500	29.6000	32.0100
64	'210425'	'21:09:10'	78.0500	29.5800	32.0300
65	'210425'	'21:09:15'	78.0500	29.5700	32.0100
66	'210425'	'21:09:20'	78.0500	29.5700	32.1300
67	'210425'	'21:09:25'	78.0500	29.5500	32.1700
68	'210425'	'21:09:30'	78.0500	29.5500	32.1700
69	'210425'	'21:09:35'	78.0500	29.5400	32.1500
70	'210425'	'21:09:40'	78.0500	29.5900	34.6600
71	'210425'	'21:09:45'	78.0500	29.7500	36.4900
72	'210425'	'21:09:50'	78.0500	29.8100	37.3400

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc
73	'210425'	'21:09:55'	78.0500	29.9300	38.4900
74	'210425'	'21:10:00'	78.0500	30.0500	38.5400
75	'210425'	'21:10:05'	78.0500	30.1100	36.5100
76	'210425'	'21:10:10'	78.0500	30.1900	39.6000
77	'210425'	'21:10:16'	78.0500	30.2500	38.1200
78	'210425'	'21:10:21'	78.0500	30.3400	38.0900
79	'210425'	'21:10:26'	78.0500	30.2200	33.0600
80	'210425'	'21:10:31'	78.0500	30.1700	32.7600
81	'210425'	'21:10:36'	78.0500	30.1500	33.1000
82	'210425'	'21:10:41'	78.0600	30.1200	32.4500
83	'210425'	'21:10:46'	78.0500	30.0600	31.7200
84	'210425'	'21:10:51'	78.0500	30.0100	32.0400
85	'210425'	'21:10:56'	78.0500	30.0400	33.9900
86	'210425'	'21:11:01'	78.0600	30.0400	32.7200
87	'210425'	'21:11:06'	78.0500	30.0400	32.8200
88	'210425'	'21:11:11'	78.0500	30.0500	33.4300
89	'210425'	'21:11:16'	78.0500	30.0500	32.3600
90	'210425'	'21:11:21'	78.0500	30.0600	32.3600
91	'210425'	'21:11:26'	78.0500	30.0900	33.1900
92	'210425'	'21:11:31'	78.0500	30.0700	32.0800
93	'210425'	'21:11:36'	78.0500	30.0800	32.1300
94	'210425'	'21:11:41'	78.0500	30.0700	31.6700
95	'210425'	'21:11:46'	78.0600	30.0700	31.8100
96	'210425'	'21:11:51'	78.0500	30.0700	31.8100
97	'210425'	'21:11:56'	78.0500	30.0700	31.5800
98	'210425'	'21:12:01'	78.0500	30.0700	31.8300
99	'210425'	'21:12:06'	78.0600	30.0800	32
100	'210425'	'21:12:11'	78.0500	30.0800	32.2700
		:			

Corrigiendo

```
%solo si importa fecha y hora en dos columnas
atmosfera.Datetime=string(atmosfera.Fecha)+" "+string(atmosfera.Hora);
% Pasar de texto a hora
```

```
atmosfera.Datetime=datetime(atmosfera.Datetime,"Format","yyyyMMdd HH:mm:ss")
```

atmosfera = 5461x6 table

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc	Datetime
1	'210425'	'21:03:51'	78.0500	28.7900	33.5200	20210425 21:03:51
2	'210425'	'21:03:56'	78.0500	29.1200	33.1200	20210425 21:03:56
3	'210425'	'21:04:01'	78.0500	29.1600	33.0900	20210425 21:04:01
4	'210425'	'21:04:06'	78.0500	29.2000	36.5800	20210425 21:04:06
5	'210425'	'21:04:11'	78.0500	29.3000	35.6800	20210425 21:04:11
6	'210425'	'21:04:16'	78.0500	29.3700	34.4800	20210425 21:04:16
7	'210425'	'21:04:22'	78.0500	29.4300	33.9900	20210425 21:04:22
8	'210425'	'21:04:27'	78.0500	29.5000	34	20210425 21:04:27
9	'210425'	'21:04:32'	78.0500	29.5700	34.2100	20210425 21:04:32
10	'210425'	'21:04:37'	78.0500	29.6300	33.8100	20210425 21:04:37
11	'210425'	'21:04:42'	78.0500	29.6900	34.0100	20210425 21:04:42
12	'210425'	'21:04:47'	78.0500	29.7600	33.6200	20210425 21:04:47
13	'210425'	'21:04:52'	78.0500	29.8200	33.8200	20210425 21:04:52
14	'210425'	'21:04:57'	78.0500	29.8700	33.4100	20210425 21:04:57
15	'210425'	'21:05:02'	78.0500	29.9100	33.8300	20210425 21:05:02
16	'210425'	'21:05:07'	78.0500	29.9500	33.1400	20210425 21:05:07
17	'210425'	'21:05:12'	78.0500	29.9900	33.2600	20210425 21:05:12
18	'210425'	'21:05:17'	78.0500	30.0200	33.2300	20210425 21:05:17
19	'210425'	'21:05:22'	78.0500	30.0700	33.3800	20210425 21:05:22
20	'210425'	'21:05:27'	78.0500	30.1000	33.1900	20210425 21:05:27
21	'210425'	'21:05:32'	78.0500	30.1300	33.1500	20210425 21:05:32
22	'210425'	'21:05:37'	78.0500	30.1500	32.2900	20210425 21:05:37
23	'210425'	'21:05:42'	78.0500	30.1700	32.5300	20210425 21:05:42
24	'210425'	'21:05:47'	78.0500	30.2000	32.7900	20210425 21:05:47
25	'210425'	'21:05:52'	78.0500	30.2300	32.6800	20210425 21:05:52
26	'210425'	'21:05:57'	78.0500	30.2600	32.4600	20210425 21:05:57
27	'210425'	'21:06:02'	78.0500	30.3000	32.8600	20210425 21:06:02
28	'210425'	'21:06:07'	78.0500	30.3300	32.7600	20210425 21:06:07
29	'210425'	'21:06:12'	78.0500	30.3400	32.1100	20210425 21:06:12
30	'210425'	'21:06:17'	78.0500	30.3700	32.0100	20210425 21:06:17
31	'210425'	'21:06:22'	78.0500	30.3900	32.2800	20210425 21:06:22
32	'210425'	'21:06:27'	78.0500	30.4200	32.1800	20210425 21:06:27

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc	Datetime
33	'210425'	'21:06:32'	78.0500	30.4500	31.9800	20210425 21:...
34	'210425'	'21:06:37'	78.0500	30.4600	32.1600	20210425 21:...
35	'210425'	'21:06:42'	78.0500	30.4600	31.9100	20210425 21:...
36	'210425'	'21:06:47'	78.0500	30.4800	32	20210425 21:...
37	'210425'	'21:06:52'	78.0500	30.5100	32.1000	20210425 21:...
38	'210425'	'21:06:57'	78.0500	30.5400	32.6400	20210425 21:...
39	'210425'	'21:07:02'	78.0500	30.5500	32.1200	20210425 21:...
40	'210425'	'21:07:07'	78.0500	30.5900	32.8300	20210425 21:...
41	'210425'	'21:07:12'	78.0500	30.5400	31.6400	20210425 21:...
42	'210425'	'21:07:17'	78.0500	30.4700	31.0500	20210425 21:...
43	'210425'	'21:07:22'	78.0500	30.3800	30.8800	20210425 21:...
44	'210425'	'21:07:27'	78.0500	30.3200	30.9800	20210425 21:...
45	'210425'	'21:07:32'	78.0500	30.2700	31.0300	20210425 21:...
46	'210425'	'21:07:38'	78.0500	30.2300	31.0900	20210425 21:...
47	'210425'	'21:07:43'	78.0500	30.1800	31.1300	20210425 21:...
48	'210425'	'21:07:48'	78.0500	30.1300	31.1500	20210425 21:...
49	'210425'	'21:07:53'	78.0500	30.0800	31.2000	20210425 21:...
50	'210425'	'21:08:00'	78.0500	29.9800	31.3200	20210425 21:...
51	'210425'	'21:08:05'	78.0500	29.9700	31.3700	20210425 21:...
52	'210425'	'21:08:10'	78.0500	29.8700	31.5000	20210425 21:...
53	'210425'	'21:08:15'	78.0500	29.8000	31.7900	20210425 21:...
54	'210425'	'21:08:20'	78.0500	29.7400	31.8200	20210425 21:...
55	'210425'	'21:08:25'	78.0500	29.7200	31.8200	20210425 21:...
56	'210425'	'21:08:30'	78.0500	29.7000	31.8700	20210425 21:...
57	'210425'	'21:08:35'	78.0500	29.6800	31.8900	20210425 21:...
58	'210425'	'21:08:40'	78.0500	29.6700	31.9100	20210425 21:...
59	'210425'	'21:08:45'	78.0500	29.6500	31.9600	20210425 21:...
60	'210425'	'21:08:50'	78.0500	29.6300	31.9700	20210425 21:...
61	'210425'	'21:08:55'	78.0500	29.6200	31.9600	20210425 21:...
62	'210425'	'21:09:00'	78.0500	29.6000	31.9900	20210425 21:...
63	'210425'	'21:09:05'	78.0500	29.6000	32.0100	20210425 21:...
64	'210425'	'21:09:10'	78.0500	29.5800	32.0300	20210425 21:...
65	'210425'	'21:09:15'	78.0500	29.5700	32.0100	20210425 21:...

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc	Datetime
66	'210425'	'21:09:20'	78.0500	29.5700	32.1300	20210425 21:09:20
67	'210425'	'21:09:25'	78.0500	29.5500	32.1700	20210425 21:09:25
68	'210425'	'21:09:30'	78.0500	29.5500	32.1700	20210425 21:09:30
69	'210425'	'21:09:35'	78.0500	29.5400	32.1500	20210425 21:09:35
70	'210425'	'21:09:40'	78.0500	29.5900	34.6600	20210425 21:09:40
71	'210425'	'21:09:45'	78.0500	29.7500	36.4900	20210425 21:09:45
72	'210425'	'21:09:50'	78.0500	29.8100	37.3400	20210425 21:09:50
73	'210425'	'21:09:55'	78.0500	29.9300	38.4900	20210425 21:09:55
74	'210425'	'21:10:00'	78.0500	30.0500	38.5400	20210425 21:10:00
75	'210425'	'21:10:05'	78.0500	30.1100	36.5100	20210425 21:10:05
76	'210425'	'21:10:10'	78.0500	30.1900	39.6000	20210425 21:10:10
77	'210425'	'21:10:16'	78.0500	30.2500	38.1200	20210425 21:10:16
78	'210425'	'21:10:21'	78.0500	30.3400	38.0900	20210425 21:10:21
79	'210425'	'21:10:26'	78.0500	30.2200	33.0600	20210425 21:10:26
80	'210425'	'21:10:31'	78.0500	30.1700	32.7600	20210425 21:10:31
81	'210425'	'21:10:36'	78.0500	30.1500	33.1000	20210425 21:10:36
82	'210425'	'21:10:41'	78.0600	30.1200	32.4500	20210425 21:10:41
83	'210425'	'21:10:46'	78.0500	30.0600	31.7200	20210425 21:10:46
84	'210425'	'21:10:51'	78.0500	30.0100	32.0400	20210425 21:10:51
85	'210425'	'21:10:56'	78.0500	30.0400	33.9900	20210425 21:10:56
86	'210425'	'21:11:01'	78.0600	30.0400	32.7200	20210425 21:11:01
87	'210425'	'21:11:06'	78.0500	30.0400	32.8200	20210425 21:11:06
88	'210425'	'21:11:11'	78.0500	30.0500	33.4300	20210425 21:11:11
89	'210425'	'21:11:16'	78.0500	30.0500	32.3600	20210425 21:11:16
90	'210425'	'21:11:21'	78.0500	30.0600	32.3600	20210425 21:11:21
91	'210425'	'21:11:26'	78.0500	30.0900	33.1900	20210425 21:11:26
92	'210425'	'21:11:31'	78.0500	30.0700	32.0800	20210425 21:11:31
93	'210425'	'21:11:36'	78.0500	30.0800	32.1300	20210425 21:11:36
94	'210425'	'21:11:41'	78.0500	30.0700	31.6700	20210425 21:11:41
95	'210425'	'21:11:46'	78.0600	30.0700	31.8100	20210425 21:11:46
96	'210425'	'21:11:51'	78.0500	30.0700	31.8100	20210425 21:11:51
97	'210425'	'21:11:56'	78.0500	30.0700	31.5800	20210425 21:11:56
98	'210425'	'21:12:01'	78.0500	30.0700	31.8300	20210425 21:12:01

	Fecha	Hora	Pres_kpa	Temp_C	Hum_perc	Datetime
99	'210425'	'21:12:06'	78.0600	30.0800	32	20210425 21:06:00
100	'210425'	'21:12:11'	78.0500	30.0800	32.2700	20210425 21:11:00

Selección de Datos

Tomaremos los datos entre el 18 al 26 de mayo a las 6AM

```
%Puntos en el tiempo donde inicia y finaliza
T1=datetime(2021,05,18,6,0,0)
```

```
T1 = datetime
18-May-2021 06:00:00
```

```
T2=datetime(2021,05,26,6,0,0)
```

```
T2 = datetime
26-May-2021 06:00:00
```

```
%% Creando datos de selección de datos
index= atmosfera.Datetime>T1 & atmosfera.Datetime<T2;
% Probando
% index = T1<atmosfera.Datetime<T2
atmosfera_part=atmosfera(index,:);
```

Limpieza de NAN's

```
sum(ismissing(atmosfera_part))
```

```
ans = 1×6
 0     0     0    11    61     0
```

```
summary(atmosfera_part)
```

Variables:

Fecha: 137522×1 cell array of character vectors

Hora: 137522×1 cell array of character vectors

Pres_kpa: 137522×1 double

Values:

Min	77.55
Median	78.06
Max	78.46

Temp_C: 137522×1 double

Values:

Min	13.38
Median	21.01
Max	100
NumMissing	11

Hum_perc: 137522×1 double

Values:

Min	15.27
Median	50.16
Max	99.97
NumMissing	61

Datetime: 137522×1 datetime

Values:

Min	20210518 06:00:03
Median	20210522 05:59:48
Max	20210526 05:59:55

```
%Remover filas con NAN's
Atmosfera_NoNANs=rmmissing(atmosfera_part);
summary(Atmosfera_NoNANs)
```

Variables:

Fecha: 137450×1 cell array of character vectors

Hora: 137450×1 cell array of character vectors

Pres_kpa: 137450×1 double

Values:

Min	77.55
Median	78.06
Max	78.46

Temp_C: 137450×1 double

Values:

Min	13.38
Median	21.01
Max	46.86

Hum_perc: 137450×1 double

Values:

Min	15.27
Median	50.155
Max	99.97

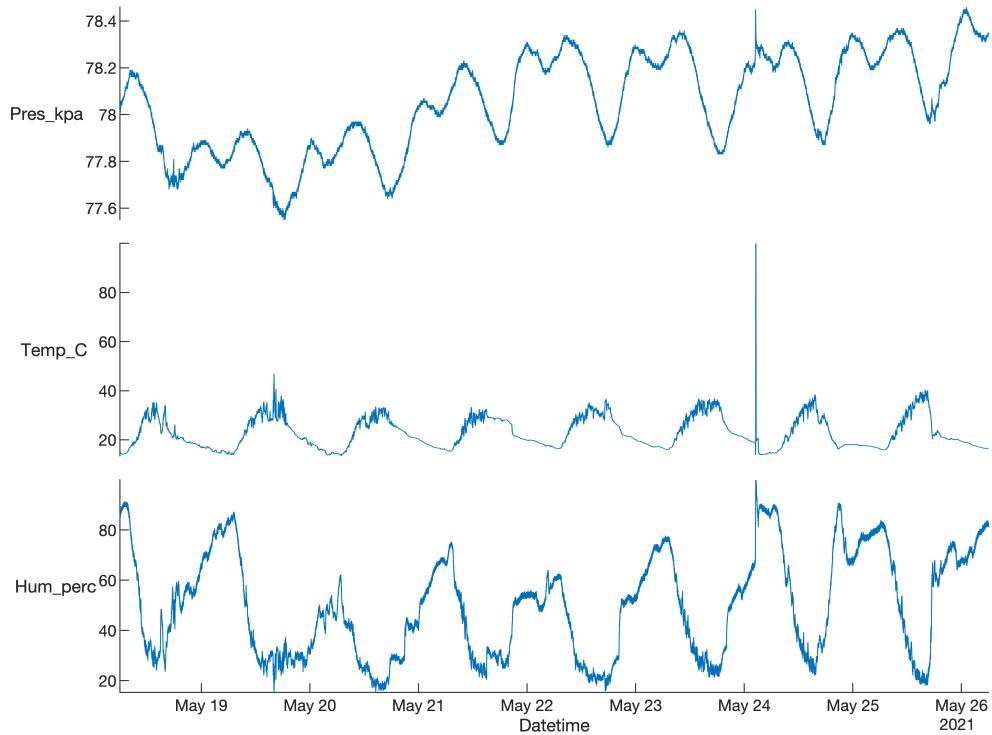
Datetime: 137450×1 datetime

Values:

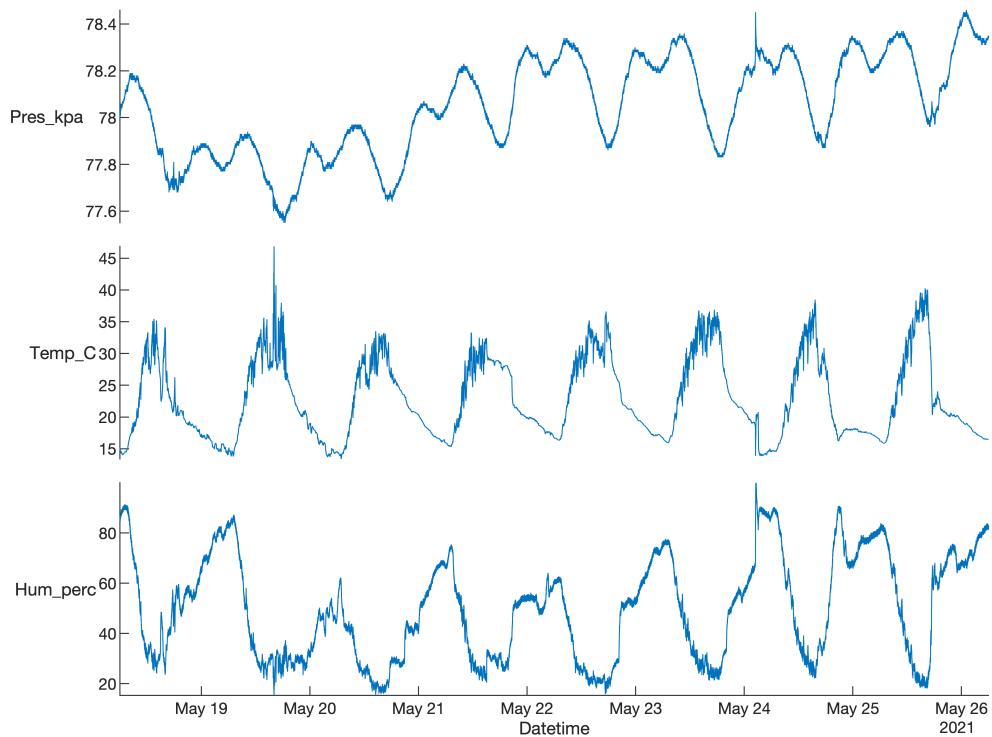
```
Min      20210518 06:00:03  
Median   20210522 05:57:17  
Max      20210526 05:59:55
```

Ploteo exploratorio

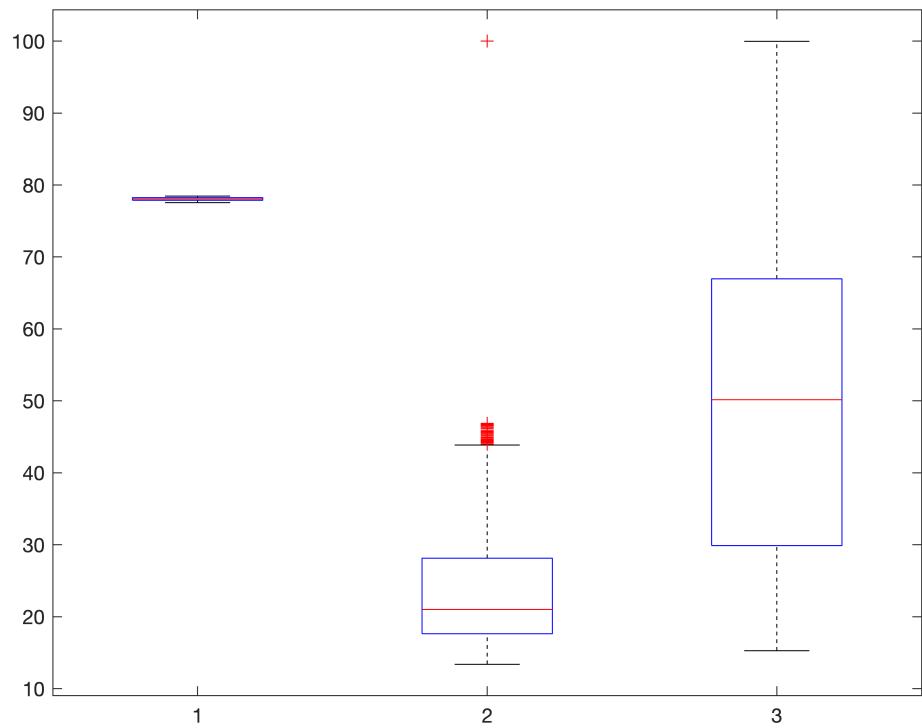
```
figure  
stackedplot(atmosfera_part,"XVariable","Datetime")
```

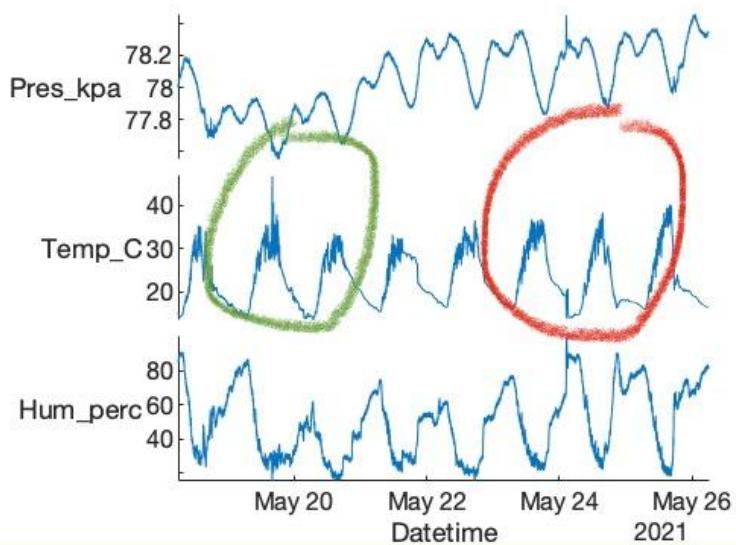
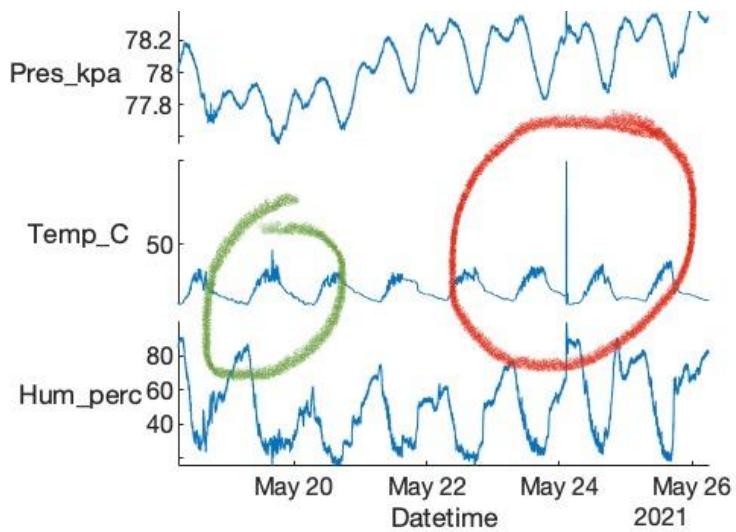


```
figure  
stackedplot(Atmosfera_NoNANs,"XVariable","Datetime")
```



```
figure  
boxplot(atmosfera_part{:, ["Pres_kpa" "Temp_C" "Hum_perc"]})
```

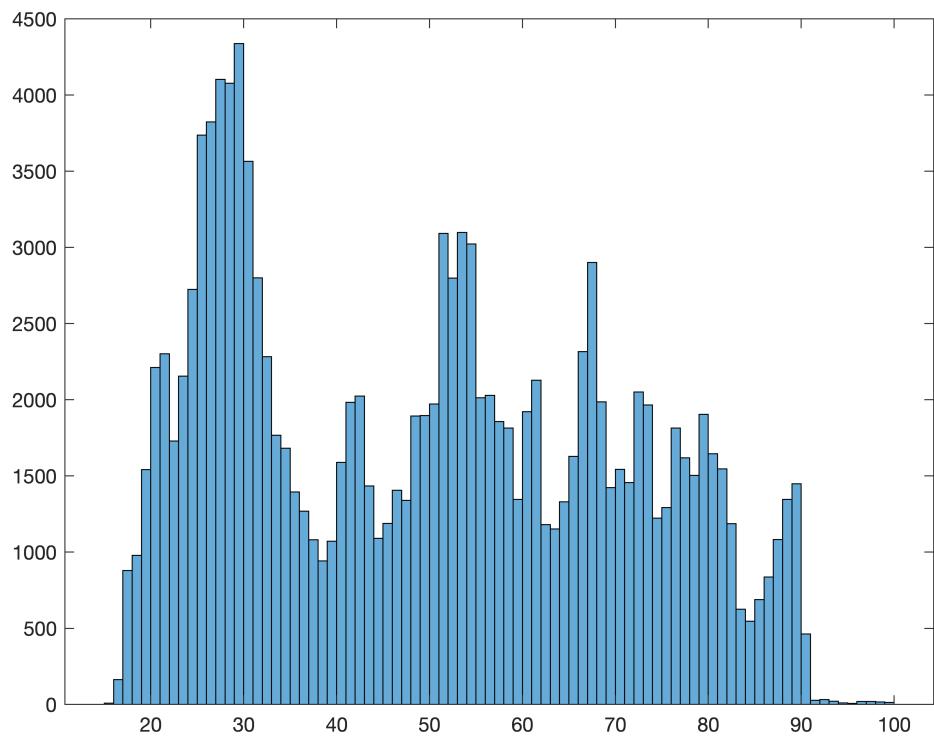




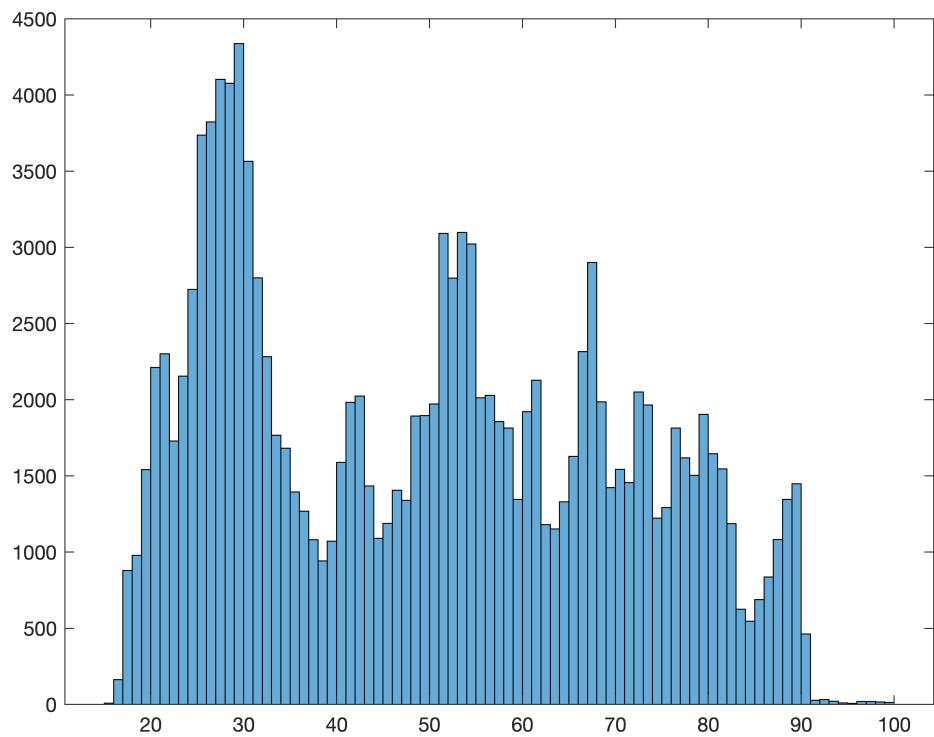
Con NaNs/ Sin NaNs (cambios a simple vista)

Histogramma

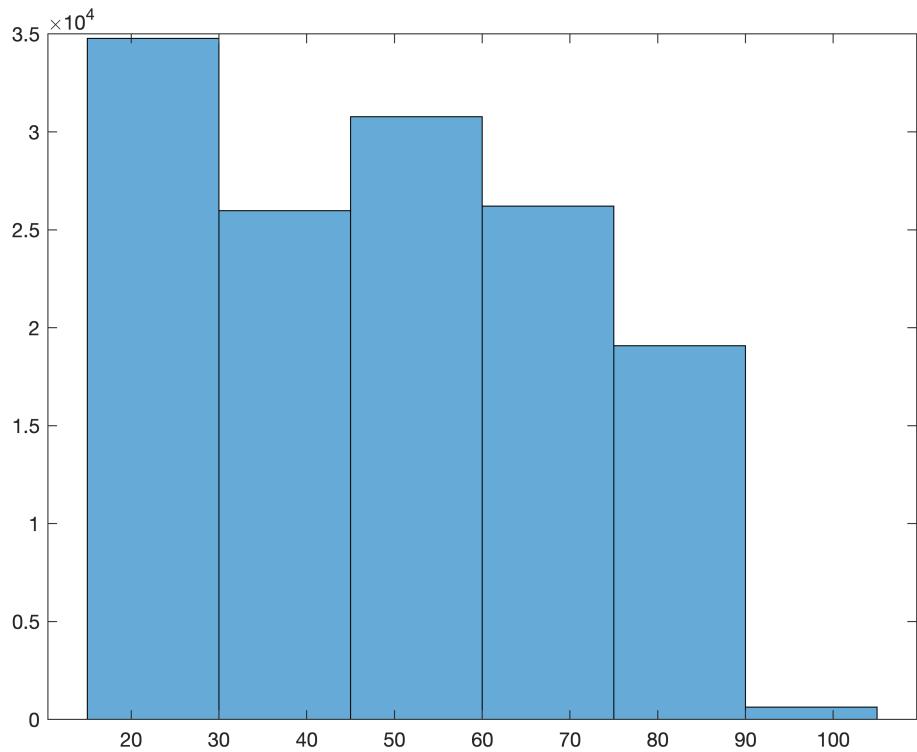
```
figure
histogram(atmosfera_part.Hum_perc)
```



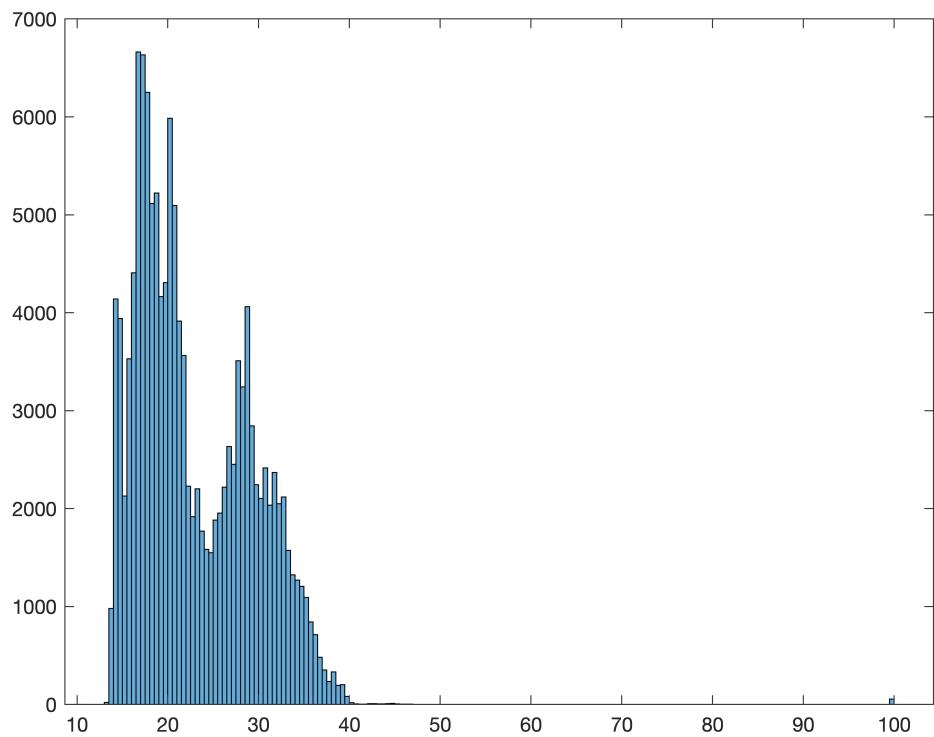
```
figure  
histogram(atmosfera_part.Hum_perc,"BinWidth",1)
```



```
figure  
histogram(atmosfera_part.Hum_perc,"BinWidth",15)
```

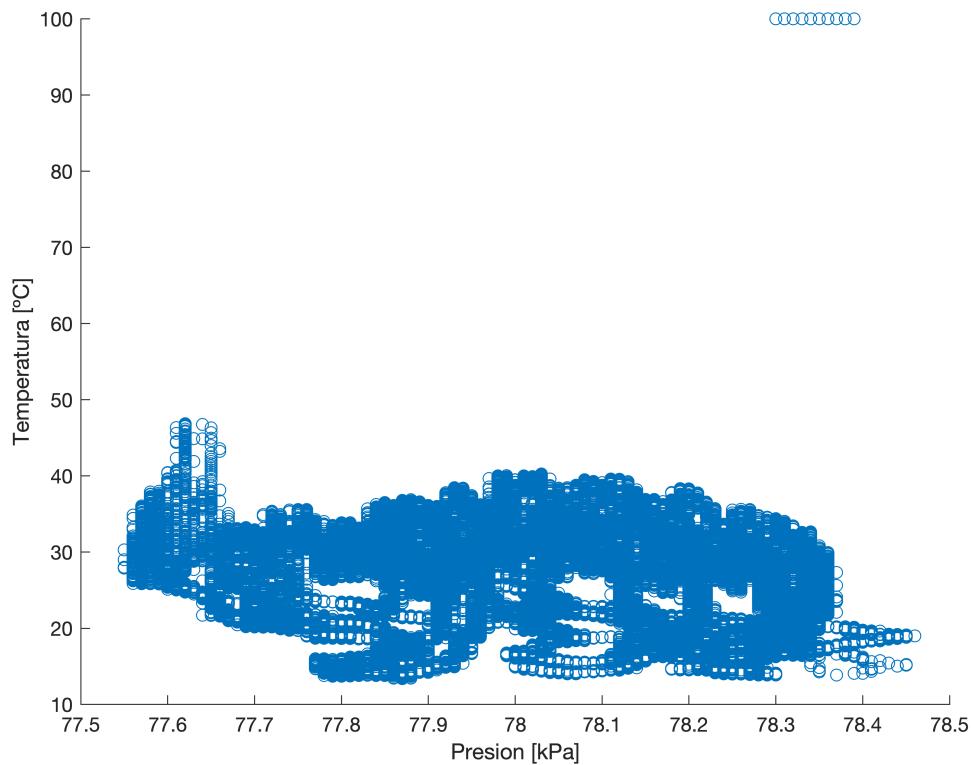


```
figure  
histogram(atmosfera_part.Temp_C,"BinWidth",0.5)
```

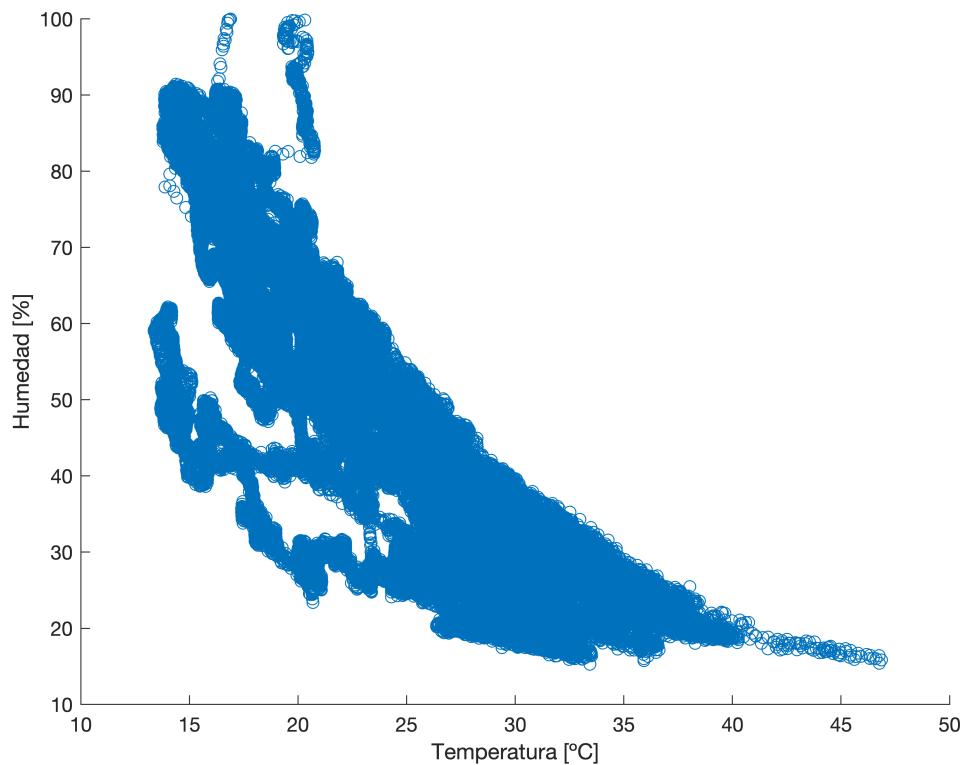


Dispersion

```
scatter(atmosfera_part.Pres_kpa,atmosfera_part.Temp_C)
xlabel("Presion [kPa]")
ylabel("Temperatura [°C]")
```

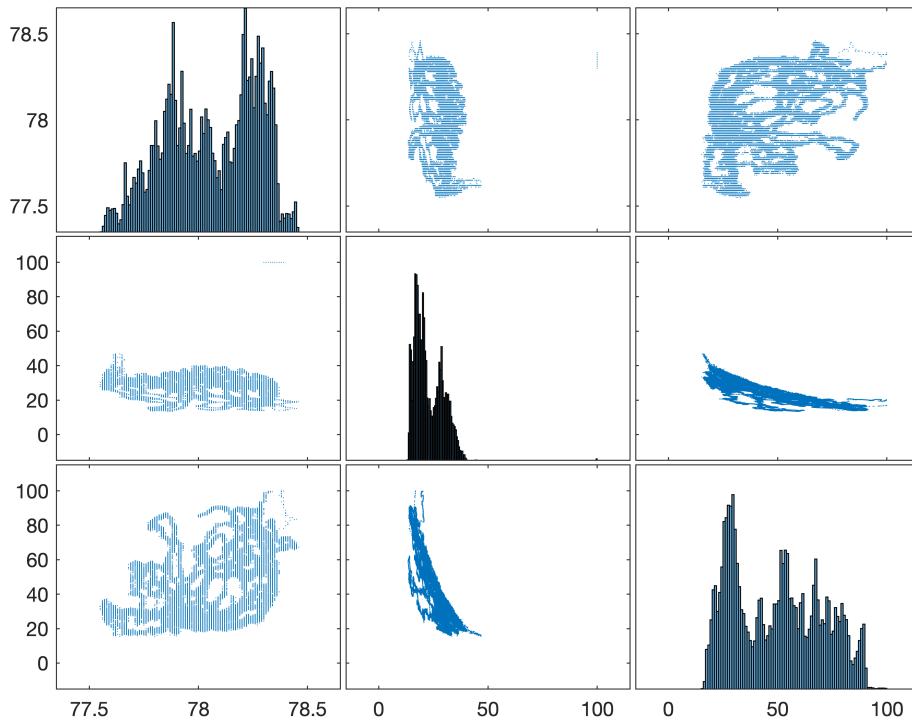


```
scatter(atmosfera_part.Temp_C,atmosfera_part.Hum_perc)
xlabel("Temperatura [°C]")
ylabel("Humedad [%]")
```



Plot Matrix

```
figure  
plotmatrix(atmosfera_part{:, ["Pres_kpa" "Temp_C" "Hum_perc"]})
```

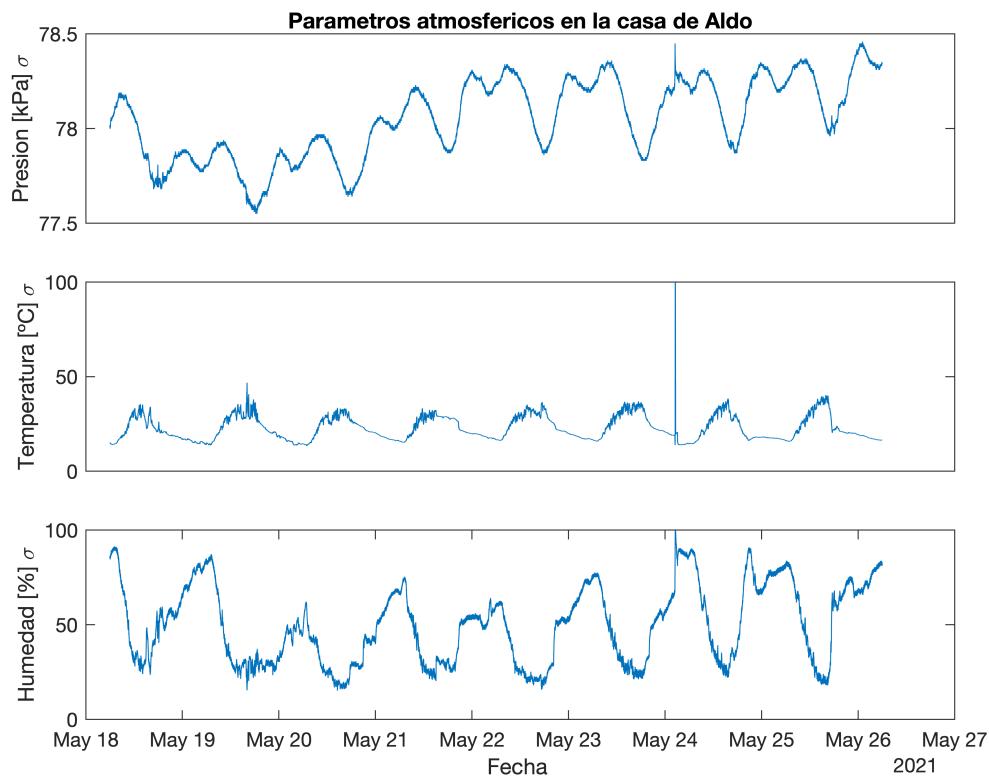


TiledLayout

```
%tiledlayout("flow")
tiledlayout(3,1)
nexttile
plot(atmosfera_part.Datetime, atmosfera_part.Pres_kpa)
ylabel("Presion [kPa] \sigma")
% xlabel("Fecha ")
title("Parametros atmosfericos en la casa de Aldo")
set(gca,"xtick",[])

nexttile
plot(atmosfera_part.Datetime, atmosfera_part.Temp_C)
ylabel("Temperatura [°C] \sigma")
% xlabel("Fecha ")
set(gca,"xtick",[])

nexttile
plot(atmosfera_part.Datetime, atmosfera_part.Hum_perc)
ylabel("Humedad [%] \sigma")
% xlabel("Fecha ")
```



Agrupacion y orden

```
% Vamos a darle categorias a temperatura
% Fronteras de las categorias
edges=[-30 15 20 55]
```

```
edges = 1x4
-30    15    20    55
```

```
% categorias
categorias=["Frio" "Templado" "Caliente"]
```

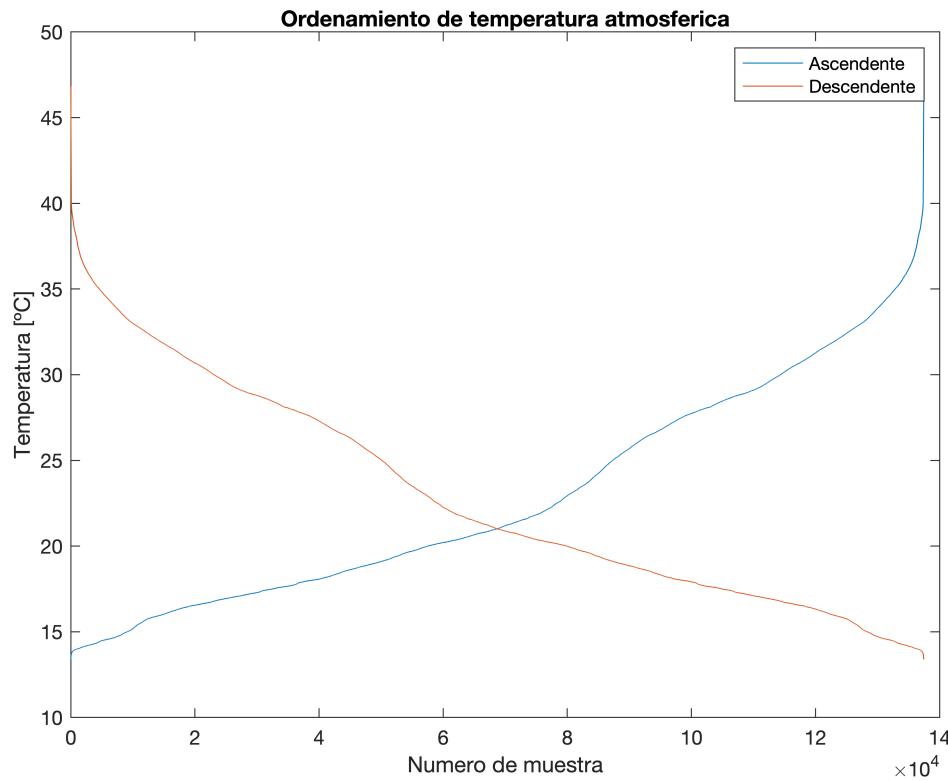
```
categorias = 1x3 string
"Frio"      "Templado"   "Caliente"
```

```
% Se clasificaron las temperaturas
temp_cats=discretize(Atmosfera_NoNANs.Temp_C,edges,"categorical",categorias);
% Se agrego a la tabla original
Atmosfera_NoNANs.temp_cats=temp_cats;
```

```
% Se ordenan (funcion sort)
temp_Descend=sort(Atmosfera_NoNANs.Temp_C,"descend");
temp_Ascend=sort(Atmosfera_NoNANs.Temp_C,"ascend");
```

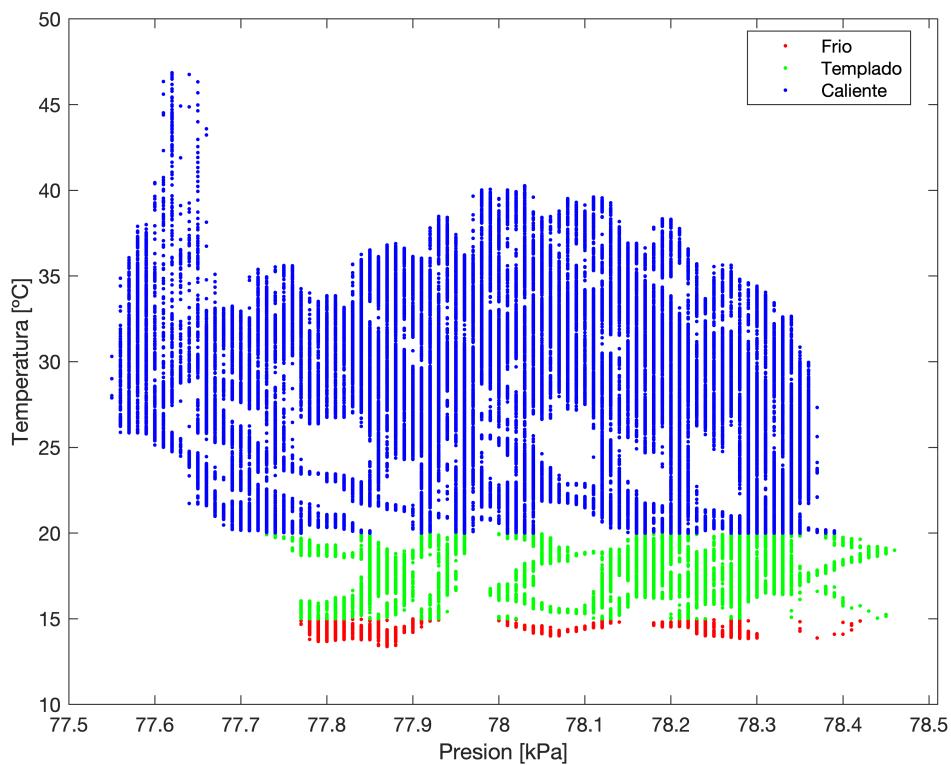
```
figure
plot([temp_Ascend temp_Descend ])
ylabel("Temperatura [°C]")
xlabel("Numero de muestra")
```

```
legend("Ascendente", "Descendente")
title("Ordenamiento de temperatura atmosferica")
```

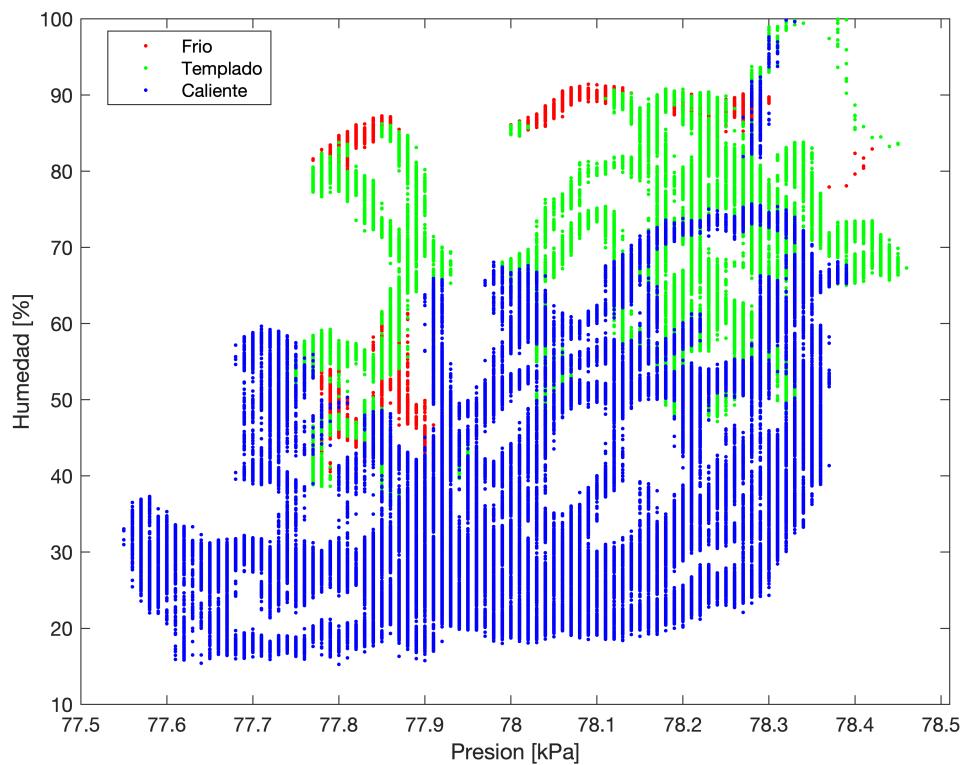


G scatter y pareto chart

```
%sirve para comparar datos o variables que no apareceria en los ejes de las
%variables
figure
gscatter(Atmosfera_NoNANs.Pres_kpa,Atmosfera_NoNANs.Temp_C,Atmosfera_NoNANs.temp_cats)
xlabel("Presion [kPa]")
ylabel("Temperatura [°C]")
```

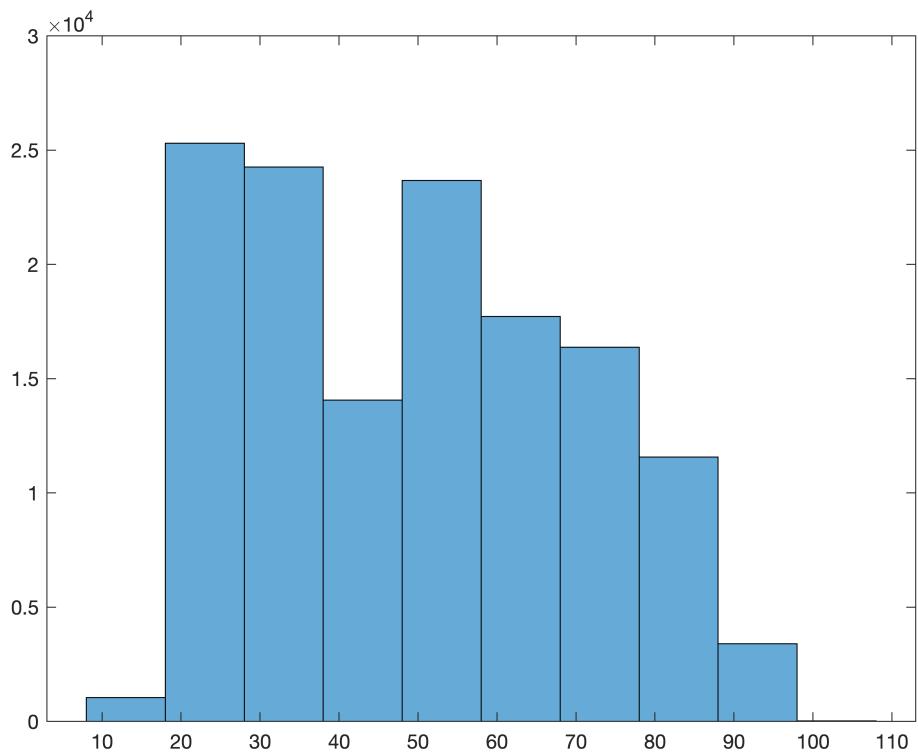


```
%%buen ejemplo, se ve la temperatura, humedad y presion en la misma grafica
figure
gscatter(Atmosfera_NoNANs.Pres_kpa,Atmosfera_NoNANs.Hum_perc,Atmosfera_NoNANs.temp_cat
xlabel("Presion [kPa]")
ylabel("Humedad [%]")
```



Pareto

```
h=histogram(Atmosfera_NoNANs.Hum_perc,10);
```



```
cuentas=h.BinCounts;  
figure  
pareto(cuentas)
```

