```
min
         0.000000
                    -10.080000
                                -18.630000
                                              -2.500000
25%
                                 -3.935000
         0.000000
                     6.680000
                                               2.045000
50%
         0.000000
                     18.310000
                                  3.680000
                                               2.910000
75%
         1.950000
                     25.880000
                                 11.910000
                                               3.600000
        24.050000
                    34.960000
                                              39,900000
max
                                 26.100000
Check for swapped temperatures complete.....
                                   Min Temp Wind Speed
            Precip
                      Max Temp
count 713.000000 715.000000
                                727.000000 731.000000
         2.072791
                    16.379790
                                               2.904172
mean
                                  3.462948
         4.294424
std
                                  9.852212
                                               1.597814
                    11.278356
min
         0.000000
                                              -2.500000
                   -10.080000
                                -18.630000
25%
                                 -3.935000
         0.000000
                     6.715000
                                               2.045000
50%
                                               2.910000
         0.000000
                     18.360000
                                  3.610000
75%
                     25.930000
         1.950000
                                 11.875000
                                               3.600000
        24.050000
                    34.960000
                                 23.900000
                                              39.900000
max
All processing finished.....
                                   Min Temp Wind Speed
            Precip
                      Max Temp
                   710.000000
                                722.000000 731.000000
count
      713.000000
mean
         2.072791
                     16.296930
                                  3.515904
                                               2.904172
std
         4.294424
                     11.267967
                                  9.852835
                                               1.597814
min
         0.000000
                    -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.670000
                                 -3.922500
                                               2.045000
50%
         0.000000
                     18.185000
                                  3.680000
                                               2.910000
75%
         1.950000
                     25.822500
                                 11.915000
                                               3.600000
        24.050000
max
                    34.960000
                                 23.900000
                                              39.900000
Final changed values counts.....
                      Precip Max Temp
                                        Min Temp
                                                   Wind Speed
1. No Data
                         16
                                   14
                                               2
                                                           0
2. Gross Error
                          0
                                    0
                                               0
                                                           0
3. Replaced Values
                          0
                                    0
                                               0
                                                           0
Failed Checks
                          0
                                    0
                                               0
                                                           0
3. Swapped
                          0
                                    4
                                               4
                                                           0
                                               5
4. Range
                          0
                                    5
                                                           0
In [27]: runfile('/home/aetienne/09-data-quality-checking-aetienne93/program 09.py',
wdir='/home/aetienne/09-data-quality-checking-aetienne93')
Raw data....
            Precip
                       Max Temp
                                   Min Temp Wind Speed
count 731,000000 731,000000
                                731,000000
                                            731,000000
mean
         0.288098
                     14.167227
                                  0.548413
                                               2.904172
std
        53.773216
                     54.738379
                                 53,477046
                                               1.597814
min
      -999.000000 -999.000000
                               -999,000000
                                              -2.500000
25%
         0.000000
                      6.735000
                                 -4.080000
                                               2.045000
50%
         0.000000
                     18.560000
                                  3.610000
                                               2.910000
75%
         2.237500
                     26.195000
                                 11.875000
                                               3,600000
max
       279.000000 194.800000
                                 26.100000
                                              39.900000
Missing values removed.....
            Precip
                       Max Temp
                                   Min Temp
                                              Wind Speed
       729.000000
                   729.000000
                                729.000000
                                            731.000000
count
mean
         3.029630
                     16.946835
                                  3.290658
                                               2.904172
std
        12.191541
                     13.293172
                                 10.740052
                                               1.597814
min
        -3.475000
                    -10.080000
                                -82.600000
                                              -2.500000
25%
         0.00000
                      6.850000
                                 -4.030000
                                               2.045000
50%
         0.00000
                     18.580000
                                  3.680000
                                               2.910000
```

Check for gross errors complete.....

26.200000

194.800000

11.900000

26.100000

3.600000

39.900000

2.275000

279.000000

75%

max

```
Precip
                       Max Temp
                                    Min Temp Wind Speed
count 712.000000
                   715.000000
                                727.000000
                                            731.000000
         2.075702
                     16.329263
                                               2.904172
mean
                                  3.512641
std
         4.296739
                     11.311690
                                  9.879578
                                               1.597814
min
         0.000000
                    -10.080000
                                 -18.630000
                                              -2.500000
25%
                                  -3.935000
         0.000000
                      6.680000
                                               2.045000
50%
                     18.310000
                                               2.910000
         0.000000
                                  3.680000
75%
         1.950000
                     25.880000
                                  11.910000
                                               3.600000
        24.050000
                     34.960000
                                  26.100000
                                              39,900000
max
Check for swapped temperatures complete.....
                                   Min Temp Wind Speed
            Precip
                       Max Temp
                   715.000000
                                727.000000 731.000000
      712.000000
count
         2.075702
mean
                     16.379790
                                  3.462948
                                               2.904172
std
         4.296739
                     11.278356
                                  9.852212
                                               1.597814
min
         0.000000
                    -10.080000
                                 -18.630000
                                              -2.500000
25%
         0.000000
                      6.715000
                                  -3.935000
                                               2.045000
50%
         0.000000
                     18.360000
                                  3.610000
                                               2.910000
75%
         1.950000
                     25.930000
                                  11.875000
                                               3.600000
        24.050000
                     34.960000
max
                                  23.900000
                                              39.900000
All processing finished.....
            Precip
                       Max Temp
                                    Min Temp
                                              Wind Speed
                   710.000000
                                722.000000
                                             731.000000
count
       712.000000
mean
         2.075702
                     16.296930
                                  3.515904
                                               2.904172
std
         4.296739
                     11.267967
                                  9.852835
                                               1.597814
min
         0.000000
                    -10.080000
                                 -18.630000
                                              -2.500000
25%
         0.000000
                      6.670000
                                  -3.922500
                                               2.045000
50%
         0.000000
                     18.185000
                                  3.680000
                                               2.910000
75%
         1.950000
                     25.822500
                                  11.915000
                                               3.600000
max
        24.050000
                     34.960000
                                  23.900000
                                              39.900000
Final changed values counts.....
                                                   Wind Speed
                      Precip Max Temp
                                         Min Temp
1. No Data
                         17
                                    14
                                               2
                                                            0
2. Gross Error
                          0
                                    0
                                               0
                                                            0
3. Replaced Values
                          0
                                    0
                                               0
                                                            0
Failed Checks
                          0
                                    0
                                               0
                                                            0
3. Swapped
                          0
                                     4
                                               4
                                                            0
                                               5
4. Range
                          0
                                     5
                                                            0
In [28]: runfile('/home/aetienne/09-data-quality-checking-aetienne93/program 09.py',
wdir='/home/aetienne/09-data-quality-checking-aetienne93')
Raw data....
            Precip
                       Max Temp
                                    Min Temp Wind Speed
                   731.000000
       731.000000
                                731.000000
                                             731,000000
count
mean
         0.288098
                     14.167227
                                  0.548413
                                               2.904172
std
        53.773216
                     54.738379
                                  53.477046
                                               1.597814
min
      -999.000000 -999.000000
                               -999.000000
                                              -2.500000
25%
                                  -4.080000
         0.00000
                      6.735000
                                               2.045000
50%
         0.00000
                     18.560000
                                  3.610000
                                               2.910000
75%
         2.237500
                     26.195000
                                  11.875000
                                               3.600000
       279.000000
                   194.800000
                                  26.100000
                                              39.900000
max
Missing values removed.....
            Precip
                       Max Temp
                                    Min Temp
                                              Wind Speed
                                729.000000
       729.000000
                    729.000000
                                             731.000000
count
mean
         3.029630
                     16.946835
                                  3.290658
                                               2.904172
std
        12.191541
                     13.293172
                                  10.740052
                                               1.597814
min
        -3.475000
                    -10.080000
                                 -82.600000
                                              -2.500000
25%
         0.00000
                      6.850000
                                  -4.030000
                                               2.045000
```

50%

0.000000

18.580000

3.680000

2.910000

```
75%
                    26.200000
                                 11.900000
                                               3.600000
         2.275000
       279.000000 194.800000
                                 26.100000
                                              39,900000
max
Check for gross errors complete.....
                                   Min Temp Wind Speed
            Precip
                      Max Temp
      712.000000 715.000000
                                727.000000 731.000000
count
         2.075702
                    16.329263
                                  3.512641
                                               2.904172
mean
std
         4.296739
                    11.311690
                                  9.879578
                                               1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.680000
                                 -3.935000
                                               2.045000
50%
         0.000000
                    18.310000
                                  3.680000
                                               2.910000
75%
         1.950000
                    25.880000
                                 11.910000
                                              3,600000
        24.050000
                    34.960000
                                              39,900000
                                 26.100000
max
Check for swapped temperatures complete.....
                                   Min Temp Wind Speed
            Precip
                      Max Temp
                   715.000000
                                727.000000 731.000000
      712.000000
count
         2.075702
mean
                    16.379790
                                  3.462948
                                               2.904172
std
         4.296739
                    11.278356
                                  9.852212
                                               1.597814
         0.000000
min
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.715000
                                 -3.935000
                                               2.045000
50%
         0.000000
                     18.360000
                                  3.610000
                                               2.910000
75%
         1.950000
                    25.930000
                                 11.875000
                                               3.600000
        24.050000
                    34.960000
max
                                 23.900000
                                              39.900000
All processing finished.....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
count
      712.000000
                   710.000000
                                722.000000 731.000000
mean
         2.075702
                    16.296930
                                  3.515904
                                               2.904172
std
         4.296739
                    11.267967
                                  9.852835
                                               1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.670000
                                 -3.922500
                                               2.045000
50%
         0.000000
                     18.185000
                                  3.680000
                                               2.910000
75%
         1.950000
                    25.822500
                                 11.915000
                                               3.600000
        24.050000
max
                    34.960000
                                 23.900000
                                              39.900000
Final changed values counts....
                                        Min Temp
                                                  Wind Speed
                     Precip Max Temp
1. No Data
                         17
                                   14
                                               2
                                                           0
2. Gross Error
                          0
                                    0
                                               0
                                                           0
3. Replaced Values
                          0
                                    0
                                               0
                                                           0
Failed Checks
                          0
                                    0
                                               0
                                                           0
Swapped
                          0
                                    4
                                               4
                                                           0
                                               5
4. Range
                          0
                                    5
                                                           0
In [29]: runfile('/home/aetienne/09-data-quality-checking-aetienne93/program 09.py',
wdir='/home/aetienne/09-data-quality-checking-aetienne93')
Raw data....
            Precip
                       Max Temp
                                   Min Temp Wind Speed
      731.000000
                   731.000000
                                731.000000
                                            731.000000
count
                    14.167227
                                  0.548413
                                               2.904172
mean
         0.288098
                    54.738379
                                 53.477046
std
        53.773216
                                               1.597814
      -999.000000 -999.000000
                               -999.000000
min
                                              -2.500000
                                 -4.080000
25%
         0.00000
                     6.735000
                                               2.045000
50%
                     18.560000
         0.00000
                                  3.610000
                                               2.910000
75%
                                               3.600000
         2.237500
                    26.195000
                                 11.875000
       279.000000 194.800000
                                 26.100000
                                              39.900000
max
Missing values removed.....
```

Precip

729.000000

3.029630

count

mean

Max Temp

729.000000

16.946835

Min Temp

729.000000

3.290658

Wind Speed

2.904172

731.000000

```
std
        12.191541
                    13.293172
                                10.740052
                                              1.597814
min
        -3.475000
                  -10.080000
                               -82.600000
                                             -2.500000
25%
                                 -4.030000
                                              2.045000
         0.000000
                     6.850000
50%
         0.000000
                    18.580000
                                  3.680000
                                              2.910000
75%
         2.275000
                    26.200000
                                 11.900000
                                              3,600000
       279.000000 194.800000
max
                                 26.100000
                                             39,900000
Check for gross errors complete.....
                      Max Temp
                                  Min Temp Wind Speed
            Precip
count 712.000000 715.000000 727.000000 731.000000
         2.075702
                    16.329263
                                              2.904172
mean
                                  3.512641
std
         4.296739
                    11.311690
                                              1.597814
                                  9.879578
         0.000000
                   -10.080000
min
                                -18.630000
                                             -2.500000
25%
         0.000000
                     6.680000
                                 -3.935000
                                              2.045000
50%
                                              2.910000
         0.000000
                    18.310000
                                  3.680000
75%
                    25.880000
                                 11.910000
         1.950000
                                              3.600000
        24.050000
                    34.960000
                                             39.900000
max
                                 26.100000
Check for swapped temperatures complete.....
                                  Min Temp Wind Speed
            Precip
                      Max Temp
                   715.000000
                               727.000000 731.000000
count
      712.000000
mean
         2.075702
                    16.379790
                                  3.462948
                                              2.904172
std
         4.296739
                    11.278356
                                  9.852212
                                              1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                             -2.500000
25%
         0.000000
                     6.715000
                                 -3.935000
                                              2.045000
50%
         0.000000
                    18.360000
                                  3.610000
                                              2.910000
75%
         1.950000
                    25.930000
                                 11.875000
                                              3.600000
max
        24.050000
                    34.960000
                                 23.900000
                                             39.900000
All processing finished.....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
count 712.000000 710.000000 722.000000 731.000000
mean
         2.075702
                    16.296930
                                  3.515904
                                              2.904172
std
         4.296739
                    11.267967
                                  9.852835
                                              1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                             -2.500000
25%
         0.000000
                     6.670000
                                 -3.922500
                                              2.045000
50%
         0.000000
                    18.185000
                                  3.680000
                                              2.910000
75%
         1.950000
                    25.822500
                                 11.915000
                                              3.600000
max
        24.050000
                    34.960000
                                 23.900000
                                             39,900000
Final changed values counts....
                     Precip Max Temp Min Temp Wind Speed
1. No Data
                        17
                                   14
                                              2
                                                          0
2. Gross Error
                         0
                                    0
                                              0
                                                          0
3. Replaced Values
                         0
                                    0
                                              0
                                                          0
Failed Checks
                         0
                                    0
                                              0
                                                          0
Swapped
                         0
                                    4
                                              4
                                                          0
                                              5
4. Range
                         0
                                    5
                                                          0
In [30]: runfile('/home/aetienne/09-data-quality-checking-aetienne93/program 09.py',
wdir='/home/aetienne/09-data-quality-checking-aetienne93')
Raw data....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
                   731.000000
                               731.000000
                                            731.000000
      731.000000
count
                                  0.548413
mean
         0.288098
                    14.167227
                                              2.904172
std
        53.773216
                    54.738379
                                 53.477046
                                              1.597814
min
      -999.000000 -999.000000 -999.000000
                                             -2.500000
25%
         0.000000
                     6.735000
                                 -4.080000
                                              2.045000
50%
         0.000000
                    18.560000
                                  3.610000
                                              2.910000
```

75%

max

2.237500

279.000000 194.800000

26.195000

11.875000

26.100000

3.600000

39.900000

```
Missing values removed.....
                      Max Temp
                                   Min Temp Wind Speed
            Precip
count 729.000000 729.000000 729.000000 731.000000
         3.029630
                    16.946835
                                  3.290658
                                              2.904172
mean
std
        12.191541
                    13.293172
                                 10.740052
                                              1.597814
min
        -3.475000
                   -10.080000
                                -82.600000
                                              -2.500000
25%
         0.000000
                     6.850000
                                 -4.030000
                                              2.045000
50%
                    18.580000
                                  3.680000
                                              2.910000
         0.000000
75%
         2.275000
                    26.200000
                                 11.900000
                                              3,600000
       279.000000 194.800000
                                 26.100000
                                             39.900000
max
Check for gross errors complete.....
                      Max Temp
                                   Min Temp Wind Speed
            Precip
      712.000000 715.000000
                                727.000000 731.000000
count
         2.075702
                    16.329263
mean
                                  3.512641
                                              2.904172
std
         4.296739
                    11.311690
                                  9.879578
                                              1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.680000
                                 -3.935000
                                              2.045000
50%
         0.000000
                    18.310000
                                  3.680000
                                               2.910000
75%
         1.950000
                    25.880000
                                 11.910000
                                              3.600000
        24.050000
                    34.960000
max
                                 26.100000
                                             39.900000
Check for swapped temperatures complete.....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
                                727.000000 731.000000
                   715.000000
count
      712.000000
mean
         2.075702
                    16.379790
                                  3.462948
                                              2.904172
std
         4.296739
                    11.278356
                                  9.852212
                                              1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.715000
                                 -3.935000
                                              2.045000
50%
         0.000000
                     18.360000
                                  3.610000
                                               2.910000
75%
         1.950000
                    25.930000
                                 11.875000
                                              3.600000
max
        24.050000
                    34.960000
                                 23.900000
                                             39.900000
All processing finished.....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
                   710.000000
                                722.000000 731.000000
count
      712.000000
mean
         2.075702
                    16.296930
                                  3.515904
                                              2.904172
std
         4.296739
                    11.267967
                                  9.852835
                                               1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.670000
                                 -3.922500
                                              2.045000
50%
         0.000000
                     18.185000
                                  3.680000
                                               2.910000
75%
         1.950000
                    25.822500
                                 11.915000
                                              3.600000
max
        24.050000
                    34.960000
                                 23.900000
                                             39,900000
Final changed values counts....
                     Precip Max Temp
                                        Min Temp
                                                  Wind Speed
1. No Data
                         17
                                   14
                                              2
                                                           0
2. Gross Error
                         0
                                    0
                                              0
                                                           0
3. Replaced Values
                         0
                                    0
                                              0
                                                           0
Failed Checks
                         0
                                    0
                                              0
                                                           0
3. Swapped
                          0
                                               4
                                                           0
                                    4
4. Range
                          0
                                    5
                                              5
In [31]: runfile('/home/aetienne/09-data-quality-checking-aetienne93/program 09.py',
wdir='/home/aetienne/09-data-quality-checking-aetienne93')
Raw data....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
                                731.000000
      731.000000
                   731.000000
                                            731.000000
count
mean
         0.288098
                    14.167227
                                  0.548413
                                               2.904172
std
        53.773216
                    54.738379
                                 53.477046
                                              1.597814
min
      -999.000000 -999.000000 -999.000000
                                              -2.500000
25%
         0.000000
                     6.735000
                                 -4.080000
                                              2.045000
```

```
50%
                                              2.910000
         0.000000
                    18.560000
                                  3.610000
75%
                                              3.600000
         2.237500
                    26.195000
                                 11.875000
       279.000000 194.800000
                                             39.900000
max
                                 26.100000
Missing values removed.....
                      Max Temp
                                   Min Temp Wind Speed
            Precip
count 729.000000 729.000000 729.000000 731.000000
         3.029630
                    16.946835
                                              2.904172
mean
                                  3.290658
std
        12.191541
                    13.293172
                                 10.740052
                                              1.597814
min
        -3.475000
                   -10.080000
                                -82.600000
                                             -2.500000
25%
                                 -4.030000
                                              2.045000
         0.000000
                     6.850000
50%
                    18.580000
                                              2.910000
         0.000000
                                  3.680000
75%
         2.275000
                    26.200000
                                 11.900000
                                              3.600000
       279.000000 194.800000
                                 26.100000
                                             39.900000
max
Check for gross errors complete.....
                                   Min Temp Wind Speed
            Precip
                      Max Temp
      712.000000 715.000000
                               727.000000 731.000000
count
mean
         2.075702
                    16.329263
                                  3.512641
                                              2.904172
std
         4.296739
                    11.311690
                                  9.879578
                                              1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.680000
                                 -3.935000
                                              2.045000
50%
         0.000000
                    18.310000
                                  3.680000
                                              2.910000
75%
         1.950000
                    25.880000
                                 11.910000
                                              3.600000
        24.050000
                    34.960000
max
                                 26.100000
                                             39.900000
Check for swapped temperatures complete.....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
                               727.000000 731.000000
count
      712.000000
                   715.000000
mean
         2.075702
                    16.379790
                                  3.462948
                                              2.904172
std
         4.296739
                    11.278356
                                  9.852212
                                              1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.715000
                                 -3.935000
                                              2.045000
50%
         0.000000
                     18.360000
                                  3.610000
                                              2.910000
75%
         1.950000
                    25.930000
                                 11.875000
                                              3.600000
max
        24.050000
                    34.960000
                                 23.900000
                                             39.900000
All processing finished.....
            Precip
                      Max Temp
                                   Min Temp Wind Speed
      712.000000 710.000000
count
                               722.000000 731.000000
mean
         2.075702
                    16.296930
                                  3.515904
                                              2.904172
std
         4.296739
                    11.267967
                                  9.852835
                                              1.597814
min
         0.000000
                   -10.080000
                                -18.630000
                                              -2.500000
25%
         0.000000
                     6.670000
                                 -3.922500
                                              2.045000
50%
         0.000000
                     18.185000
                                  3.680000
                                              2.910000
75%
         1.950000
                    25.822500
                                 11.915000
                                              3.600000
max
        24.050000
                    34.960000
                                 23.900000
                                             39,900000
Final changed values counts....
                     Precip Max Temp
                                        Min Temp
                                                  Wind Speed
1. No Data
                                   14
                                              2
                                                           0
                         17
                                    0
                                              0
                                                           0
2. Gross Error
                         0
3. Replaced Values
                         0
                                              0
                                                           0
                                    0
Failed Checks
                         0
                                              0
                                                           0
                                    0
3. Swapped
                          0
                                    4
                                              4
                                                           0
                          0
                                              5
4. Range
```

In [32]: runfile('/home/aetienne/09-data-quality-checking-aetienne93/program\_09.py',
wdir='/home/aetienne/09-data-quality-checking-aetienne93')

Raw data....

Precip Max Temp Min Temp Wind Speed count 731.000000 731.000000 731.000000 731.000000

```
2.904172
         0.288098
                     14.167227
                                   0.548413
mean
std
        53.773216
                     54.738379
                                  53.477046
                                               1.597814
min
      -999.000000 -999.000000 -999.000000
                                               -2.500000
25%
                                  -4.080000
         0.000000
                      6.735000
                                               2.045000
50%
         0.000000
                     18.560000
                                   3.610000
                                               2.910000
75%
                     26.195000
         2.237500
                                  11.875000
                                               3,600000
       279,000000
                   194.800000
                                  26.100000
                                              39,900000
max
Missing values removed.....
                       Max Temp
                                    Min Temp Wind Speed
            Precip
                   729.000000
                                729.000000
      729.000000
                                             731.000000
count
         3.029630
mean
                     16.946835
                                   3.290658
                                                2.904172
std
        12.191541
                     13.293172
                                  10.740052
                                               1.597814
min
        -3.475000
                    -10.080000
                                 -82.600000
                                               -2.500000
25%
         0.000000
                      6.850000
                                  -4.030000
                                               2.045000
50%
         0.000000
                     18.580000
                                   3.680000
                                                2.910000
75%
         2.275000
                     26.200000
                                  11.900000
                                               3.600000
       279.000000 194.800000
max
                                  26.100000
                                              39.900000
Check for gross errors complete.....
            Precip
                       Max Temp
                                    Min Temp
                                             Wind Speed
                   715.000000
count
       712.000000
                                727.000000
                                             731.000000
mean
         2.075702
                     16.329263
                                   3.512641
                                                2.904172
std
         4.296739
                     11.311690
                                   9.879578
                                               1.597814
min
         0.000000
                    -10.080000
                                 -18.630000
                                               -2.500000
25%
         0.000000
                      6.680000
                                  -3.935000
                                               2.045000
50%
         0.000000
                     18.310000
                                   3.680000
                                                2.910000
75%
         1.950000
                     25.880000
                                  11.910000
                                               3.600000
max
        24.050000
                     34.960000
                                  26.100000
                                              39.900000
Check for swapped temperatures complete.....
            Precip
                       Max Temp
                                    Min Temp Wind Speed
                    715.000000
count
       712.000000
                                727.000000 731.000000
mean
         2.075702
                     16.379790
                                   3.462948
                                               2.904172
std
         4.296739
                     11.278356
                                   9.852212
                                                1.597814
min
         0.000000
                    -10.080000
                                 -18.630000
                                               -2.500000
25%
         0.000000
                      6.715000
                                  -3.935000
                                               2.045000
50%
         0.000000
                     18.360000
                                   3.610000
                                                2.910000
75%
         1.950000
                     25.930000
                                  11.875000
                                               3.600000
max
        24.050000
                     34.960000
                                  23.900000
                                              39,900000
All processing finished.....
            Precip
                       Max Temp
                                    Min Temp
                                              Wind Speed
                    710.000000
count
       712.000000
                                722.000000
                                             731,000000
mean
         2.075702
                     16.296930
                                   3.515904
                                                2.904172
std
         4.296739
                     11.267967
                                   9.852835
                                                1.597814
min
         0.000000
                    -10.080000
                                 -18.630000
                                               -2.500000
25%
         0.000000
                      6.670000
                                  -3.922500
                                               2.045000
50%
         0.000000
                     18.185000
                                   3.680000
                                                2.910000
75%
         1.950000
                     25.822500
                                  11.915000
                                               3.600000
        24.050000
                     34.960000
                                  23.900000
                                              39.900000
max
Final changed values counts....
                      Precip
                             Max Temp
                                         Min Temp
                                                   Wind Speed
                                    14
1. No Data
                         17
                                               2
                                                            0
                                               0
                                                            0
2. Gross Error
                          0
                                     0
                          0
                                               0
                                                            0
3. Replaced Values
                                     0
                          0
                                               0
                                                            0
Failed Checks
                                     0
3. Swapped
                          0
                                     4
                                                4
                                                            0
                                                5
4. Range
                                     5
```

In [33]: runfile('/home/aetienne/09-data-quality-checking-aetienne93/program\_09.py',
wdir='/home/aetienne/09-data-quality-checking-aetienne93')

Raw da	ita				
	Precip	Max Temp	Min Temp	Wind Spee	d
count	731.000000	731.000000	731.000000	731.000000	
mean	0.288098	14.167227	0.548413	2.904172	
std	53.773216	54.738379	53.477046	1.597814	
min			-999.000000	-2.500000	
25%	0.000000	6.735000	-4.080000	2.045000	
50%	0.000000	18.560000	3.610000	2.910000	
	2.237500	26.195000	11.875000		
75%				3.600000	
max	279.000000	194.800000	26.100000	39.900000	
Missing values removed					
	Precip	Max Temp		Wind Spee	d
count	729.000000	729.000000	729.000000	731.000000	
mean	3.029630	16.946835 13.293172	3.290658	2.904172	
std			10.740052	1.597814	
min	-3.475000	-10.080000	-82.600000	-2.500000	
25%	0.000000	6.850000	-4.030000	2.045000	
50%	0.000000	18.580000	3.680000	2.910000	
75%	2.275000	26.200000	11.900000	3.600000	
max	279.000000	194.800000	26.100000	39.900000	
Check for gross errors complete					
	Precip		Min Temp	Wind Spee	d
count	712.000000	715.000000	727.000000	731.000000	
mean	2.075702	16.329263	3.512641	2.904172	
std			9.879578	1.597814	
min	0.000000	-10.080000	-18.630000	-2.500000	
25%		6.680000	-3.935000	2.045000	
50%	0.000000	18.310000	3.680000	2.910000	
75%	1.950000	25.880000	11.910000	3.600000	
max	24.050000	34.960000	26.100000	39.900000	
IIIax	24.030000	34.900000	20.100000	39.900000	
Check	for swapped t	temperatures	complete		
	Precip			Wind Spee	d
count	•	715.000000	727.000000		
mean		16.379790	3.462948	2.904172	
std	4.296739	11.278356	9.852212	1.597814	
	0.000000	-10.080000	-18.630000		
min				-2.500000	
25%	0.000000	6.715000	-3.935000	2.045000	
50%	0.000000	18.360000	3.610000	2.910000	
75%		25.930000	11.875000		
max	24.050000	34.960000	23.900000	39.900000	
All processing finished					
	Precip	•	Min Temp		d
count	712.000000		722.000000	731.000000	
mean	2.075702	16.296930	3.515904	2.904172	
std	4.296739	11.267967	9.852835	1.597814	
min	0.000000	-10.080000	-18.630000	-2.500000	
25%		6.670000	-3.922500	2.045000	
50%		18.185000		2.910000	
75%		25.822500		3.600000	
		34.960000		39.900000	
max	24.030000	34.900000	23.900000	39.900000	
Final changed values counts					
	-		ax Temp Min	Temp Wind	Speed
1. No	Data	17	14	2	. 0
	ss Error	0	0	0	0
	laced Values	0	0	0	0
	l Checks	0	0	0	0
3. Swa		0	4	4	0
υ τ τ υ					

4. Range 0 5 5 0

In [34]: