BzCat

September 4, 2018

1 Blazars/non-blazars samples definition: 5BzCat

This note is to define the samples of blazars and non-blazar objects for future data analysis. Eventually, we will have a list of coordinates (RA,Dec), ID and *class* for each sample.

We are going to use the 5BzCat catalog of blazars (~3000 objects) and a list of AGNs from Paolo (~13k objects).

```
In [1]: import matplotlib
        from matplotlib import pyplot as plt
        %matplotlib inline
        import seaborn as sns
        print(sns.__version__)
        import pandas as pd
        print(pd.__version__)
0.9.0
0.23.4
In [2]: %ls
4carlosAll.csv
                             AGNSample_Label_RA_DEC.csv
4carlosAll.csv.BKP
                             AGN_AllColumns.csv
4carlosSeyf.txt
                            All_AGNs.ipynb
4carlosall.txt
                             BzCat.ipynb
5BZCAT.csv*
                             PastedGraphic-1.pdf
5BZCAT.csv.BKP*
                            VOU_Blazars/
5bzcat_label_ra_dec.csv
                             tmp/
AGNSample_AllColumns.csv
                             work/
```

1.1 5BzCat: Blazars sample

```
Out[3]:
                id
                       Source name
                                     RA (J2000.0) Dec (J2000.0) Redshift Rmag \
        538
               539
                    5BZQJ0332-4455
                                                        -44.93250
                                                                     2.679
                                                                            17.1
                                         53.18379
        2450
             2451
                    5BZQJ1506+3730
                                        226.53971
                                                         37.51419
                                                                     0.672 21.2
        3035
              3036
                    5BZQJ1959-4246
                                        299.80579
                                                        -42.76883
                                                                     2.178 19.7
              3051
                                                                     1.325
                                                                           20.3
        3050
                    5BZQJ2007+6607
                                        301.86988
                                                         66.12292
        3307
              3308
                    5BZQJ2228-0753
                                        337.21921
                                                         -7.89628
                                                                     0.638
                                                                            18.0
        3163
              3164
                    5BZQJ2123+0535
                                        320.93550
                                                          5.58947
                                                                     1.941 17.4
        1652
              1653 5BZBJ1112+1751
                                        168.10250
                                                         17.85606
                                                                     0.421
                                                                           18.4
        611
               612 5BZQJ0410-7750
                                         62.67629
                                                        -77.84536
                                                                     2.449
                                                                            18.6
             3379
        3378
                                                                     0.333 17.8
                    5BZBJ2254-2725
                                        343.72175
                                                        -27.41914
             1044 5BZBJ0806+1330
        1043
                                        121.56375
                                                         13.50556
                                                                     0.504 19.7
                 Source classification Flux density 1.4/0.843GHz(mJy)
              QSO RLoud flat radio sp.
        538
                                                                   111.0
              QSO RLoud flat radio sp.
                                                                   938.0
        2450
              QSO RLoud flat radio sp.
        3035
                                                                   163.0
        3050
              QSO RLoud flat radio sp.
                                                                   509.0
              QSO RLoud flat radio sp.
        3307
                                                                   173.0
        3163
              QSO RLoud flat radio sp.
                                                                   794.0
        1652
                                 BL Lac
                                                                    14.0
        611
              QSO RLoud flat radio sp.
                                                                   440.0
        3378
                                 BL Lac
                                                                    53.0
        1043
                                 BL Lac
                                                                    14.0
              Flux density 143GHz(mJy) X-ray flux 0.1-2.4 keV(1.e-12 cgs)
        538
                                      0
                                                                        0.20
        2450
                                    566
                                                                        0.37
        3035
                                                                        0.29
                                    318
        3050
                                    188
                                                                        0.00
        3307
                                      0
                                                                        0.48
        3163
                                    460
                                                                        0.35
        1652
                                      0
                                                                        1.50
                                      0
        611
                                                                        0.00
        3378
                                      0
                                                                        0.00
        1043
                                      0
                                                                        0.00
              Fermi flux 1-100 GeV(ph/cm2/s)
        538
                                 7.000000e-10
        2450
                                 7.000000e-10
                                 2.500000e-09
        3035
        3050
                                 0.000000e+00
        3307
                                 0.000000e+00
        3163
                                 0.000000e+00
        1652
                                 0.000000e+00
        611
                                 0.000000e+00
        3378
                                 0.000000e+00
        1043
                                 0.000000e+00
```

1.1.1 Define the columns of interest

```
In [4]: col = dict(ra = 'RA (J2000.0)',
                   dec = 'Dec (J2000.0)',
                   idn = 'id',
                   name = 'Source name',
                   flux radio = 'Flux density 1.4/0.843GHz(mJy)',
                   klass = 'Source classification',
                   flux_opt = 'Rmag',
                   flux_xray = 'X-ray flux 0.1-2.4 keV(1.e-12 cgs)',
                   redshift = 'Redshift',
In [5]: # Keep only the columns of interest
        bzcat = bzcat[list(col.values())]
        bzcat
Out [5]:
              RA (J2000.0)
                            Dec (J2000.0)
                                              id
                                                     Source name \
        0
                                                  5BZQJ0000-3221
                   0.08496
                                 -32.35028
                                               1
        1
                   0.27208
                                 -15.85194
                                                  5BZQJ0001-1551
        2
                   0.28592
                                  19.24283
                                                  5BZQJ0001+1914
        3
                   0.32504
                                  -7.77408
                                                  5BZBJ0001-0746
        4
                   0.33954
                                 -0.19442
                                               5 5BZBJ0001-0011
        5
                   0.48858
                                 -10.52147
                                               6 5BZGJ0001-1031
        6
                                               7 5BZBJ0002-0024
                   0.73817
                                  -0.41308
        7
                   0.83058
                                  21.49572
                                               8 5BZQJ0003+2129
        8
                   1.02033
                                 -11.81611
                                               9 5BZBJ0004-1148
        9
                   1.06738
                                 46.25506
                                              10
                                                  5BZQJ0004+4615
        10
                   1.14850
                                 -47.60542
                                              11
                                                  5BZQJ0004-4736
                   1.14896
                                 20.32850
        11
                                              12 5BZQJ0004+2019
        12
                   1.32471
                                 -16.80131
                                              13
                                                  5BZQJ0005-1648
        13
                   1.33421
                                  5.40303
                                              14 5BZQJ0005+0524
        14
                   1.48825
                                  38.33756
                                              15 5BZQJ0005+3820
        15
                   1.55788
                                  -6.39311
                                              16 5BZBJ0006-0623
                                 -42.75517
        16
                   1.58221
                                              17
                                                  5BZQJ0006-4245
        17
                   1.58454
                                  10.86436
                                              18
                                                  5BZGJ0006+1051
                   1.70329
                                  24.37681
                                                  5BZQJ0006+2422
        18
                                              19
        19
                   1.83575
                                 -61.21842
                                              20
                                                  5BZQJ0007-6113
        20
                   1.99988
                                  47.20214
                                              21
                                                  5BZBJ0007+4712
                                 -23.65497
        21
                   2.00154
                                              22
                                                  5BZQJ0008-2339
        22
                   2.14742
                                 -23.65772
                                              23
                                                  5BZBJ0008-2339
        23
                   2.15642
                                 -46.32800
                                              24
                                                  5BZQJ0008-4619
        24
                   2.26633
                                              25
                                   6.47261
                                                  5BZBJ0009+0628
        25
                   2.32104
                                   6.43186
                                              26 5BZQJ0009+0625
        26
                   2.34488
                                  50.50794
                                              27
                                                  5BZBJ0009+5030
        27
                   2.61979
                                  20.79725
                                              28 5BZQJ0010+2047
        28
                   2.62917
                                  10.97489
                                              29
                                                  5BZQJ0010+1058
                                  17.40528
        29
                   2.64163
                                              30 5BZQJ0010+1724
```

```
3531
          358.22071
                          -28.43111
                                      3532
                                            5BZQJ2352-2825
                                      3533
3532
          358.29775
                          -27.72378
                                            5BZQJ2353-2743
                          -14.98253
                                      3534
3533
          358.33800
                                            5BZBJ2353-1458
3534
          358.42625
                           55.31131
                                      3535
                                            5BZQJ2353+5518
3535
          358.44775
                          -30.63014
                                      3536
                                            5BZBJ2353-3037
3536
          358.52313
                           -9.96361
                                      3537
                                            5BZQJ2354-0957
3537
         358.53825
                           -0.33000
                                      3538
                                            5BZQJ2354-0019
3538
          358.54633
                          -41.10531
                                      3539
                                            5BZUJ2354-4106
3539
          358.59033
                           45.88450
                                      3540
                                            5BZQJ2354+4553
                                      3541
3540
          358.62583
                          -15.21978
                                            5BZQJ2354-1513
3541
          358.71529
                           -4.08431
                                      3542
                                            5BZUJ2354-0405
3542
                                      3543
          358.85642
                          -33.96592
                                            5BZQJ2355-3357
3543
          359.00283
                          -68.33431
                                      3544
                                            5BZQJ2356-6820
3544
          359.01671
                           -0.39828
                                      3545
                                            5BZBJ2356-0023
                                      3546
3545
          359.05283
                           40.61347
                                            5BZGJ2356+4036
3546
                           81.88117
                                      3547
          359.09542
                                            5BZQJ2356+8152
                                      3548
3547
          359.27783
                            4.81575
                                            5BZQJ2357+0448
                                      3549
3548
          359.34938
                          -24.85089
                                            5BZQJ2357-2451
                                      3550
3549
          359.35475
                           -1.87097
                                            5BZBJ2357-0152
3550
          359.37367
                          -17.30147
                                      3551
                                            5BZBJ2357-1718
3551
          359.38000
                          -11.42756
                                      3552
                                            5BZQJ2357-1125
3552
          359.47196
                          -53.18714
                                      3553
                                            5BZQJ2357-5311
3553
          359.50896
                          -45.92181
                                      3554
                                            5BZQJ2358-4555
                                      3555
3554
         359.54533
                          -10.33572
                                            5BZQJ2358-1020
                                      3556
3555
          359.62021
                            4.50689
                                            5BZQJ2358+0430
3556
          359.69204
                           19.92231
                                      3557
                                            5BZQJ2358+1955
3557
          359.74942
                           39.37453
                                      3558
                                            5BZQJ2358+3922
3558
          359.78296
                          -30.62817
                                      3559
                                            5BZBJ2359-3037
          359.88825
                           38.84508
                                      3560
                                            5BZQJ2359+3850
3559
3560
                                      3561
          359.89788
                          -31.56217
                                            5BZQJ2359-3133
      Flux density 1.4/0.843GHz(mJy)
                                            Source classification
                                                                     Rmag
0
                                         QSO RLoud flat radio sp.
                                  521.0
                                                                     18.2
1
                                         QSO RLoud flat radio sp.
                                  348.0
                                                                     18.1
2
                                 265.0
                                         QSO RLoud flat radio sp.
                                                                     21.6
3
                                 208.0
                                                             BL Lac
                                                                     17.9
4
                                  111.0
                                                             BL Lac
                                                                     19.6
5
                                  41.0
                                          BL Lac-galaxy dominated
                                                                     17.8
                                                             BL Lac
6
                                  178.0
                                                                     19.7
7
                                  83.0
                                         QSO RLoud flat radio sp.
                                                                     20.1
8
                                 459.0
                                                             BL Lac
                                                                     18.8
9
                                  120.0
                                                                     20.4
                                         QSO RLoud flat radio sp.
                                         QSO RLoud flat radio sp.
10
                                  909.0
                                                                     15.9
                                  55.0
                                         QSO RLoud flat radio sp.
                                                                     21.6
11
12
                                 263.0
                                         QSO RLoud flat radio sp.
                                                                     18.4
13
                                  127.0
                                         QSO RLoud flat radio sp.
                                                                     16.2
14
                                  572.0
                                         QSO RLoud flat radio sp.
                                                                     17.6
```

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. . .

| 15 | 2051.0 | BL Lac | 17.9 |
|--------------|--------|---|------|
| 16 | 246.0 | QSO RLoud flat radio sp. | 18.5 |
| 17 | 12.0 | BL Lac-galaxy dominated | 15.6 |
| 18 | 184.0 | QSO RLoud flat radio sp. | 18.8 |
| 19 | 87.0 | QSO RLoud flat radio sp. | 19.3 |
| 20 | 60.0 | BL Lac | 18.2 |
| 21 | 375.0 | QSO RLoud flat radio sp. | 15.8 |
| 22 | 36.0 | BL Lac | 16.8 |
| 23 | 109.0 | QSO RLoud flat radio sp. | 16.6 |
| 24 | 247.0 | BL Lac | 18.9 |
| 25 | 180.0 | QSO RLoud flat radio sp. | 19.0 |
| 26 | 12.0 | BL Lac | 19.4 |
| 27 | 159.0 | QSO RLoud flat radio sp. | 19.3 |
| 28 | 98.0 | QSO RLoud flat radio sp. | 15.8 |
| 29 | 918.0 | QSO RLoud flat radio sp. | 16.7 |
| • • • | | • | |
| 3531 | 79.0 | QSO RLoud flat radio sp. | 19.1 |
| 3532 | 169.0 | QSO RLoud flat radio sp. | 17.9 |
| 3533 | 14.0 | BL Lac Candidate | 19.5 |
| 3534 | 221.0 | QSO RLoud flat radio sp. | 18.3 |
| 3535 | 397.0 | BL Lac | 16.6 |
| 3536 | 199.0 | QSO RLoud flat radio sp. | 21.2 |
| 3537 | 350.0 | QSO RLoud flat radio sp. | 18.0 |
| 3538 | 620.0 | Blazar Uncertain type | 23.2 |
| 3539 | 1872.0 | QSO RLoud flat radio sp. | 19.1 |
| 3540 | 865.0 | QSO RLoud flat radio sp. | 18.2 |
| 3541 | 374.0 | Blazar Uncertain type | 18.1 |
| 3542 | 330.0 | QSO RLoud flat radio sp. | 16.2 |
| 3543 | 1126.0 | QSO RLoud flat radio sp. | 15.9 |
| 3544 | 5.0 | BL Lac | 18.5 |
| 3545 | 25.0 | BL Lac-galaxy dominated | 14.8 |
| 3546 | 521.0 | QSO RLoud flat radio sp. | 18.0 |
| 3547 | 129.0 | QSO RLoud flat radio sp. | 20.8 |
| 3548 | 170.0 | QSO RLoud flat radio sp. | 19.3 |
| 3549 | 233.0 | BL Lac | 19.4 |
| 3550 | 44.0 | BL Lac | 16.9 |
| 3551 | 1814.0 | QSO RLoud flat radio sp. | 18.6 |
| 3552 | 1411.0 | QSO RLoud flat radio sp. | 15.6 |
| 3553 | 209.0 | QSO RLoud flat radio sp. | 18.5 |
| 3554 | 768.0 | QSO RLoud flat radio sp. | 18.7 |
| 3555 | 246.0 | QSO RLoud flat radio sp. | 19.1 |
| | | _ | |
| 3556 3557 | 673.0 | QSO RLoud flat radio sp. | 17.8 |
| 3557 | 421.0 | QSO RLoud flat radio sp. | 19.2 |
| 3558 | 62.0 | BL Lac | 15.8 |
| 3559 | 524.0 | QSO RLoud flat radio sp. | 19.1 |
| 3560 | 347.0 | QSO RLoud flat radio sp. | 19.9 |
| | | | |

X-ray flux 0.1-2.4 keV(1.e-12 cgs) Redshift

| 0 | 0.05 | 1.275 |
|--------------|------|----------------|
| 1 | 0.00 | 2.044 |
| 2 | 0.00 | 3.1 |
| 3 | 0.35 | 0 |
| 4 | 0.00 | 0.462 ? |
| 5 | 0.00 | 0.252 |
| 6 | 0.00 | 0.523 |
| 7 | 0.00 | 0.45 |
| 8 | 0.00 | 0 |
| 9 | 0.00 | 1.81 |
| 10 | 0.85 | 0.884 |
| 11 | 0.00 | 0.677 |
| 12 | 0.44 | 0.78 |
| 13 | 0.26 | 1.9 |
| 14 | 0.75 | 0.229 |
| 15 | 0.82 | 0.347 |
| 16 | 0.00 | 1.77 ? |
| 17 | 1.72 | 0.168 |
| 18 | 0.00 | 1.684 |
| 19 | 0.00 | 0.857 |
| 20 | 0.53 | 0.28 ? |
| 21 | 0.30 | 1.412 |
| 22 | 2.42 | 0.147 |
| 23 | 0.00 | 1.85 |
| 24 | 0.55 | 0 |
| 25 | 0.08 | 2.694 |
| 26 | 0.24 | 0 |
| 27 | 0.51 | 0.6 |
| 28 | 6.14 | 0.089 |
| 29 | 0.65 | 1.601 |
| 0504 | 0.00 | 1 660 |
| 3531 | 0.00 | 1.662 |
| 3532 | 0.34 | 0.889 |
| 3533 | 1.70 | 1 007 |
| 3534 | 0.00 | 1.927 |
| 3535 | 0.22 | 0.737 0.989 |
| 3536 3537 | 0.00 | 0.462 |
| 3538 | 0.00 | 0.402 |
| 3539 | 0.26 | 1.992 |
| 3540 | 0.47 | 2.675 |
| 3541 | 0.28 | 0.72 ? |
| 3542 | 1.14 | 0.72 : |
| 3543 | 0.40 | 1.716 |
| 3544 | 0.29 | 0.283 |
| 3545 | 0.00 | 0.233 |
| 3546 | 0.15 | 1.344 ? |
| 3547 | 0.00 | 1.248 |
| | 0.00 | 1.210 |

```
0.00
                                                      0.812
        3549
        3550
                                             13.50
                                                           0
                                              0.36
                                                        0.96
        3551
        3552
                                              1.55
                                                      1.006
        3553
                                              0.00
                                                      0.444
        3554
                                              0.00
                                                      1.638
        3555
                                              0.00
                                                      2.298
                                              0.31
                                                      1.066
        3556
        3557
                                              0.40
                                                      1.201
                                             40.20
        3558
                                                      0.165
                                              0.51
                                                      2.711
        3559
        3560
                                              0.27
                                                       0.99
        [3561 rows x 9 columns]
In [6]: # Clean the Redshift column from '?'
        bzcat[col['redshift']] = bzcat[col['redshift']].str.replace('\s*\?','')
In [7]: # And let's order our catalog by their Radio flux
        bzcat = bzcat.sort_values(col['flux_radio'], ascending=False).reset_index(drop=True)
        bzcat
Out[7]:
                             Dec (J2000.0)
              RA (J2000.0)
                                               id
                                                      Source name
        0
                  187.27792
                                   2.05239
                                             1923
                                                   5BZQJ1229+0203
        1
                  49.95067
                                  41.51169
                                              508
                                                   5BZUJ0319+4130
        2
                 274.89583
                                 -63.76339
                                             2910
                                                   5BZUJ1819-6345
        3
                  80.74158
                                 -36.45856
                                              759
                                                   5BZUJ0522-3627
        4
                                             2924
                 277.38242
                                  48.74617
                                                   5BZUJ1829+4844
        5
                 291.21275
                                 -29.24169
                                             2991
                                                   5BZQJ1924-2914
        6
                                             3374
                                                   5BZQJ2253+1608
                 343.49063
                                  16.14822
        7
                 278.41638
                                 -21.06103
                                             2930
                                                   5BZQJ1833-2103
        8
                  194.04654
                                  -5.78931
                                             2014
                                                   5BZQJ1256-0547
        9
                  128.72904
                                  55.57278
                                             1137
                                                   5BZGJ0834+5534
        10
                 224.78158
                                  71.67219
                                             2433
                                                   5BZUJ1459+7140
        11
                 336.44692
                                  -4.95039
                                             3304
                                                   5BZQJ2225-0457
        12
                 338.15171
                                  11.73081
                                             3316
                                                   5BZQJ2232+1143
        13
                 250.74504
                                  39.81028
                                             2707
                                                   5BZQJ1642+3948
        14
                                             3258
                 331.54342
                                 -18.59408
                                                   5BZQJ2206-1835
                                 -43.55239
                                              678
                                                   5BZQJ0440-4333
        15
                  70.07158
                                             2579
        16
                 239.24529
                                 -79.23453
                                                   5BZQJ1556-7914
                                                   5BZQJ2038+5119
        17
                 309.65429
                                  51.32019
                                             3105
        18
                 330.68038
                                  42.27778
                                             3252
                                                   5BZBJ2202+4216
                                             2821
        19
                 263.26129
                                 -13.08042
                                                   5BZQJ1733-1304
        20
                                             2116
                 201.36508
                                 -43.01911
                                                   5BZUJ1325-4301
                 115.88171
        21
                                 -67.44042
                                              984
                                                   5BZQJ0743-6726
```

0.00

1.614

3548

```
98.94379
                          -75.27133
                                       879
                                            5BZQJ0635-7516
                                       586
24
          59.87396
                           50.96394
                                            5BZQJ0359+5057
25
         137.38954
                                      1253
                           42.89625
                                            5BZUJ0909+4253
26
          61.39167
                          -13.13714
                                       600
                                            5BZQJ0405-1308
27
          31.21004
                           15.23639
                                       327
                                            5BZUJ0204+1514
28
         244.45533
                          -77.28847
                                      2639
                                            5BZQJ1617-7717
29
         243.42108
                           34.21331
                                      2624
                                            5BZQJ1613+3412
                                       . . .
3531
         202.13983
                           11.75569
                                      2131
                                            5BZBJ1328+1145
                                      2430
3532
         224.61396
                           48.54611
                                            5BZBJ1458+4832
                           50.46964
3533
         266.63487
                                      2850
                                            5BZBJ1746+5028
3534
         195.73058
                           50.93842
                                      2044
                                            5BZBJ1302+5056
3535
         259.27871
                           29.52253
                                      2783
                                            5BZGJ1717+2931
3536
         202.76213
                           56.92828
                                      2142
                                            5BZGJ1331+5655
3537
         260.31913
                           60.06844
                                      2796
                                            5BZBJ1721+6004
3538
         201.38692
                          -30.02864
                                      2118
                                            5BZBJ1325-3001
                                       233
3539
          21.18550
                            9.31369
                                            5BZBJ0124+0918
         118.84629
                                      1025
3540
                           37.43856
                                            5BZBJ0755+3726
                                      1404
3541
         150.42671
                           20.80506
                                            5BZGJ1001+2048
3542
         146.13471
                           57.59336
                                      1350
                                            5BZBJ0944+5735
3543
         259.75975
                           55.40178
                                      2789
                                            5BZBJ1719+5524
3544
         258.68975
                           30.60778
                                      2775
                                            5BZBJ1714+3036
3545
         129.94750
                            2.07614
                                      1156
                                            5BZUJ0839+0204
3546
           5.50396
                            0.11611
                                        64
                                            5BZGJ0022+0006
                                      1918
3547
         187.03808
                           -2.36006
                                            5BZBJ1228-0221
         353.70129
                           -8.57706
                                      3489
                                            5BZBJ2334-0834
3548
3549
         192.10792
                            8.50583
                                      1986
                                            5BZBJ1248+0830
3550
         228.66675
                          -47.80831
                                      2480
                                            5BZQJ1514-4748
         202.25475
                          -56.13406
                                      2132
3551
                                            5BZUJ1329-5608
3552
         356.34317
                          -15.25186
                                      3511
                                            5BZUJ2345-1515
3553
                          -50.74672
                                      2721
         252.56929
                                            5BZUJ1650-5044
3554
         131.45700
                          -55.92408
                                      1171
                                            5BZQJ0845-5555
          98.83712
                          -26.34442
                                       878
                                            5BZBJ0635-2620
3555
                          -53.57661
                                      2083
3556
         198.76738
                                            5BZUJ1315-5334
3557
         160.43600
                          -47.66669
                                      1541
                                            5BZQJ1041-4740
3558
         201.70508
                          -52.93989
                                      2123
                                            5BZBJ1326-5256
                                      2786
3559
         259.39438
                          -51.92556
                                            5BZQJ1717-5155
                                      2598
3560
         241.12925
                          -44.69222
                                            5BZBJ1604-4441
      Flux density 1.4/0.843GHz(mJy)
                                            Source classification Rmag
0
                               54992.0
                                         QSO RLoud flat radio sp.
                                                                     12.9
1
                                            Blazar Uncertain type
                                                                     12.3
                               22830.0
2
                               19532.0
                                            Blazar Uncertain type
                                                                     13.4
3
                                            Blazar Uncertain type
                               15620.0
                                                                     14.6
4
                               13753.0
                                            Blazar Uncertain type
                                                                     16.7
5
                               13387.0
                                         QSO RLoud flat radio sp.
                                                                     17.3
6
                                         QSO RLoud flat radio sp.
                               12657.0
                                                                     13.2
```

22

23

172.52938

-14.82428

1710

5BZQJ1130-1449

| 7 | 10896.0 | QSO RLoud flat radio sp. | 21.0 |
|--------------|------------|-----------------------------------|--------------|
| 8 | 9711.0 | QSO RLoud flat radio sp. | 15.0 |
| 9 | 8283.0 | BL Lac-galaxy dominated | 17.2 |
| 10 | 7468.0 | Blazar Uncertain type | 17.2 |
| 11 | 7412.0 | QSO RLoud flat radio sp. | 17.6 |
| 12 | 7202.0 | QSO RLoud flat radio sp. | 16.7 |
| 13 | 7099.0 | QSO RLoud flat radio sp. | 15.4 |
| 14 | 6399.0 | QSO RLoud flat radio sp. | 18.5 |
| 15 | 6362.0 | QSO RLoud flat radio sp. | 18.2 |
| 16 | 6165.0 | QSO RLoud flat radio sp. | 17.2 |
| 17 | 6081.0 | QSO RLoud flat radio sp. | 18.9 |
| 18 | 6051.0 | BL Lac | 12.5 |
| 19 | 5990.0 | QSO RLoud flat radio sp. | 17.8 |
| 20 | 5700.0 | Blazar Uncertain type | 7.2 |
| 21 | 5638.0 | QSO RLoud flat radio sp. | 15.8 |
| 22 | 5622.0 | QSO RLoud flat radio sp. | 16.0 |
| 23 | 5283.0 | QSO RLoud flat radio sp. | 15.7 |
| 24 | 4297.0 | QSO RLoud flat radio sp. | 18.1 |
| 25 | 4234.0 | Blazar Uncertain type | 18.8 |
| 26 | 4218.0 | QSO RLoud flat radio sp. | 16.6 |
| 27 | 4068.0 | Blazar Uncertain type | 22.0 |
| 28 | 4044.0 | QSO RLoud flat radio sp. | 16.7 |
| 29 | 4024.0 | QSO RLoud flat radio sp. | 17.3 |
| 2504 | | · · · | |
| 3531 | 3.0 | BL Lac | 19.0 |
| 3532 | 3.0 | BL Lac | 19.9 |
| 3533 | 3.0 | BL Lac Candidate | 19.9 |
| 3534 | 3.0 | BL Lac | 19.5 |
| 3535 3536 | 3.0 3.0 | BL Lac-galaxy dominated | 16.7 18.4 |
| 3537 | 3.0 | BL Lac-galaxy dominated BL Lac | 19.6 |
| 3538 | 3.0 | BL Lac Candidate | 20.0 |
| 3539 | 2.0 | BL Lac | 19.1 |
| 3540 | 2.0 | BL Lac | 20.7 |
| 3541 | 2.0 | BL Lac-galaxy dominated | 19.3 |
| 3542 | 2.0 | BL Lac | 19.7 |
| 3543 | 2.0 | BL Lac | 20.8 |
| 3544 | 2.0 | BL Lac | 18.6 |
| 3545 | 2.0 | Blazar Uncertain type | 20.6 |
| 3546 | 2.0 | BL Lac-galaxy dominated | 18.6 |
| 3547 | 1.5 | BL Lac | 19.1 |
| 3548 | 1.0 | BL Lac Candidate | 18.8 |
| 3549 | 0.8 | BL Lac | 19.2 |
| 3550 | 0.0 | QSO RLoud flat radio sp. | 18.4 |
| 3551 | 0.0 | Blazar Uncertain type | 0.0 |
| 3552 | 0.0 | Blazar Uncertain type | 19.4 |
| 3553 | 0.0 | Blazar Uncertain type | 0.0 |
| 3554 | 0.0 | QSO RLoud flat radio sp. | 19.8 |
| | | 1 | |

```
0.0
3555
                                                             BL Lac 19.1
3556
                                    0.0
                                            Blazar Uncertain type
                                                                     18.3
                                    0.0
                                         QSO RLoud flat radio sp.
3557
                                                                     17.2
3558
                                    0.0
                                                             BL Lac
                                                                     15.8
                                         QSO RLoud flat radio sp.
                                    0.0
                                                                     18.3
3559
3560
                                    0.0
                                                             BL Lac
                                                                     20.0
      X-ray flux 0.1-2.4 keV(1.e-12 cgs) Redshift
0
                                      63.10
                                                0.158
1
                                       0.00
                                                0.018
2
                                       1.24
                                                0.063
3
                                      10.40
                                                0.056
4
                                       2.20
                                                0.695
5
                                       2.42
                                                0.353
6
                                       7.80
                                                0.859
7
                                       0.69
                                                2.507
8
                                      20.90
                                                0.536
9
                                       1.21
                                                0.242
10
                                       0.77
                                                 0.91
11
                                       0.89
                                                1.404
12
                                       1.26
                                                1.037
13
                                       2.52
                                                0.593
14
                                       0.08
                                                0.619
15
                                       0.40
                                                2.852
16
                                       0.56
                                                0.152
17
                                       0.28
                                                1.686
                                      10.40
                                                0.069
18
19
                                       1.64
                                                0.902
20
                                       5.43
                                                0.002
21
                                       0.78
                                                1.512
22
                                       1.39
                                                1.184
23
                                       2.84
                                                0.653
24
                                       0.78
                                                1.512
25
                                       0.40
                                                 0.67
26
                                       0.97
                                                0.571
27
                                       0.02
                                                0.833
28
                                       0.55
                                                 1.71
29
                                       0.40
                                                1.397
. . .
                                        . . .
                                                  . . .
                                       2.19
                                                 0.49
3531
3532
                                       3.18
                                                0.541
3533
                                       0.40
                                                    0
3534
                                       4.04
                                                    0
3535
                                       3.29
                                                0.276
3536
                                                0.27
                                       0.47
3537
                                       0.18
                                                0.531
3538
                                       3.68
                                                    0
3539
                                       0.21
                                                0.338
```

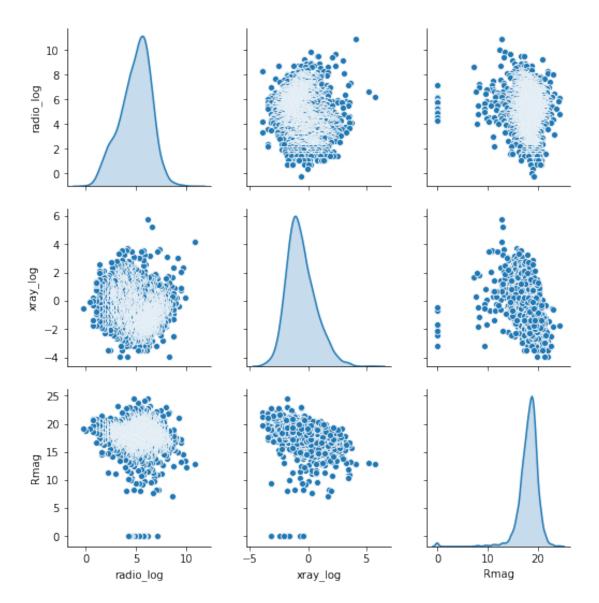
```
0.344
        3541
                                             0.17
        3542
                                             1.27
                                                         0
                                             0.26
                                                     0.626
        3543
                                             0.25
        3544
                                                         0
                                             0.00
                                                         0
        3545
        3546
                                             1.01
                                                     0.306
        3547
                                             0.93
                                                     0.323
                                             0.00
        3548
                                                     0.208
        3549
                                             0.57
                                                      0.43
        3550
                                             0.00
                                                     1.551
                                             0.63
        3551
                                                         0
                                                         0
        3552
                                             0.25
        3553
                                             0.00
                                                         0
        3554
                                             0.00
                                                     0.433
                                             0.00
        3555
                                                         0
        3556
                                             0.00
                                                         0
                                             0.25
                                                     2.558
        3557
                                             0.26
        3558
                                                         0
        3559
                                             0.00
                                                     1.158
        3560
                                             0.44
                                                         0
        [3561 rows x 9 columns]
In [8]: # Let's create two columns with the log of radio/xray fluxes
        import numpy as np
        bzcat['radio_log'] = np.log(bzcat[col['flux_radio']])
        _ind = bzcat[col['flux_radio']] <= 0
        bzcat.loc[_ind,'radio_log'] = None
        bzcat['xray_log'] = np.log(bzcat[col['flux_xray']])
        _ind = bzcat[col['flux_xray']] <= 0
        bzcat.loc[_ind,'xray_log'] = None
        sns.pairplot(bzcat[['radio_log', 'xray_log', col['flux_opt']]], diag_kind='kde', kind='s
/anaconda/envs/pd/lib/python3.6/site-packages/ipykernel_launcher.py:4: RuntimeWarning: divide
  after removing the cwd from sys.path.
/anaconda/envs/pd/lib/python3.6/site-packages/ipykernel_launcher.py:8: RuntimeWarning: divide
/anaconda/envs/pd/lib/python3.6/site-packages/statsmodels/nonparametric/kde.py:448: RuntimeWar
  X = X[np.logical\_and(X > clip[0], X < clip[1])] # won't work for two columns.
/anaconda/envs/pd/lib/python3.6/site-packages/statsmodels/nonparametric/kde.py:448: RuntimeWar
  X = X[np.logical\_and(X > clip[0], X < clip[1])] # won't work for two columns.
```

0.73

0.606

Out[8]: <seaborn.axisgrid.PairGrid at 0x10b51b470>

3540



In [9]: del bzcat['xray_log'],bzcat['radio_log'] In [10]: bzcat['Label'] = bzcat[col['idn']].astype(str) +'_'+ bzcat[col['ra']].astype(str).str In [11]: bzcat Out[11]: RA (J2000.0) Dec (J2000.0) id Source name 0 187.27792 2.05239 1923 5BZQJ1229+0203 49.95067 5BZUJ0319+4130 1 41.51169 508 2 274.89583 -63.76339 5BZUJ1819-6345 2910

759

2924

2991

5BZUJ0522-3627

5BZUJ1829+4844

5BZQJ1924-2914

-36.45856

48.74617

-29.24169

3

4

5

80.74158

277.38242

291.21275

| 6 | 343.49063 | 16.14822 | 3374 | 5BZQJ2253+1608 |
|--|--|--|---|---|
| 7 | 278.41638 | -21.06103 | 2930 | 5BZQJ1833-2103 |
| 8 | 194.04654 | -5.78931 | 2014 | 5BZQJ1256-0547 |
| 9 | 128.72904 | 55.57278 | 1137 | 5BZGJ0834+5534 |
| 10 | 224.78158 | 71.67219 | 2433 | 5BZUJ1459+7140 |
| 11 | 336.44692 | -4.95039 | 3304 | 5BZQJ2225-0457 |
| 12 | 338.15171 | 11.73081 | 3316 | 5BZQJ2232+1143 |
| 13 | 250.74504 | 39.81028 | 2707 | 5BZQJ1642+3948 |
| 14 | 331.54342 | -18.59408 | 3258 | 5BZQJ2206-1835 |
| 15 | 70.07158 | -43.55239 | 678 | 5BZQJ0440-4333 |
| 16 | 239.24529 | -79.23453 | 2579 | 5BZQJ1556-7914 |
| 17 | 309.65429 | 51.32019 | 3105 | 5BZQJ2038+5119 |
| 18 | 330.68038 | 42.27778 | 3252 | 5BZBJ2202+4216 |
| 19 | 263.26129 | -13.08042 | 2821 | 5BZQJ1733-1304 |
| 20 | 201.36508 | -43.01911 | 2116 | 5BZUJ1325-4301 |
| 21 | 115.88171 | -67.44042 | 984 | 5BZQJ0743-6726 |
| 22 | 172.52938 | -14.82428 | 1710 | 5BZQJ1130-1449 |
| 23 | 98.94379 | -75.27133 | 879 | 5BZQJ0635-7516 |
| 24 | 59.87396 | 50.96394 | 586 | 5BZQJ0359+5057 |
| 25 | 137.38954 | 42.89625 | 1253 | 5BZUJ0909+4253 |
| 26 | 61.39167 | -13.13714 | 600 | 5BZQJ0405-1308 |
| 27 | 31.21004 | 15.23639 | 327 | 5BZUJ0204+1514 |
| 28 | 244.45533 | -77.28847 | 2639 | 5BZQJ1617-7717 |
| 29 | 243.42108 | 34.21331 | 2624 | 5BZQJ1613+3412 |
| | _ 10 1 1 1 1 1 0 | | | 022401010 0112 |
| 3531 | | | 0121 | FD7D 14200 - 444F |
| | יוויי דעטצע | 11 75560 | | |
| | 202.13983 | 11.75569 | 2131 | 5BZBJ1328+1145 |
| 3532 | 224.61396 | 48.54611 | 2430 | 5BZBJ1458+4832 |
| 3532 3533 | 224.61396 266.63487 | 48.54611 50.46964 | 2430 2850 | 5BZBJ1458+4832 5BZBJ1746+5028 |
| 3532 3533 3534 | 224.61396 266.63487 195.73058 | 48.54611 50.46964 50.93842 | 2430 2850 2044 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 |
| 3532 3533 3534 3535 | 224.61396 266.63487 195.73058 259.27871 | 48.54611 50.46964 50.93842 29.52253 | 2430 2850 2044 2783 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 |
| 3532 3533 3534 3535 3536 | 224.61396 266.63487 195.73058 259.27871 202.76213 | 48.54611 50.46964 50.93842 29.52253 56.92828 | 2430 2850 2044 2783 2142 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 |
| 3532 3533 3534 3535 3536 3537 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 | 2430 2850 2044 2783 2142 2796 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 |
| 3532 3533 3534 3535 3536 3537 3538 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 | 2430 2850 2044 2783 2142 2796 2118 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 |
| 3532 3533 3534 3535 3536 3537 3538 3539 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 | 2430 2850 2044 2783 2142 2796 2118 233 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 | 2430 2850 2044 2783 2142 2796 2118 233 1025 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 1156 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 1156 64 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 187.03808 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 -2.36006 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 1156 64 1918 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 5BZBJ1228-0221 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 3548 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 187.03808 353.70129 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 -2.36006 -8.57706 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 1156 64 1918 3489 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 5BZBJ1228-0221 5BZBJ2334-0834 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 3548 3549 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 187.03808 353.70129 192.10792 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 -2.36006 -8.57706 8.50583 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 1156 64 1918 3489 1986 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 5BZBJ1228-0221 5BZBJ12334-0834 5BZBJ1248+0830 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 3548 3549 3550 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 187.03808 353.70129 192.10792 228.66675 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 -2.36006 -8.57706 8.50583 -47.80831 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 1156 64 1918 3489 1986 2480 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 5BZBJ1228-0221 5BZBJ12334-0834 5BZBJ1248+0830 5BZQJ1514-4748 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 3548 3549 3550 3551 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 187.03808 353.70129 192.10792 228.66675 202.25475 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 -2.36006 -8.57706 8.50583 -47.80831 -56.13406 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2775 1156 64 1918 3489 1986 2480 2132 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 5BZBJ1228-0221 5BZBJ12334-0834 5BZBJ1248+0830 5BZQJ1514-4748 5BZUJ1329-5608 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 3548 3549 3550 3551 3552 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 187.03808 353.70129 192.10792 228.66675 202.25475 356.34317 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 -2.36006 -8.57706 8.50583 -47.80831 -56.13406 -15.25186 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2789 2775 1156 64 1918 3489 1986 2480 2132 3511 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 5BZBJ1228-0221 5BZBJ12334-0834 5BZBJ1248+0830 5BZUJ1329-5608 5BZUJ1329-5608 5BZUJ2345-1515 |
| 3532 3533 3534 3535 3536 3537 3538 3539 3540 3541 3542 3543 3544 3545 3546 3547 3548 3549 3550 3551 | 224.61396 266.63487 195.73058 259.27871 202.76213 260.31913 201.38692 21.18550 118.84629 150.42671 146.13471 259.75975 258.68975 129.94750 5.50396 187.03808 353.70129 192.10792 228.66675 202.25475 | 48.54611 50.46964 50.93842 29.52253 56.92828 60.06844 -30.02864 9.31369 37.43856 20.80506 57.59336 55.40178 30.60778 2.07614 0.11611 -2.36006 -8.57706 8.50583 -47.80831 -56.13406 | 2430 2850 2044 2783 2142 2796 2118 233 1025 1404 1350 2775 1156 64 1918 3489 1986 2480 2132 | 5BZBJ1458+4832 5BZBJ1746+5028 5BZBJ1302+5056 5BZGJ1717+2931 5BZGJ1331+5655 5BZBJ1721+6004 5BZBJ1325-3001 5BZBJ0124+0918 5BZBJ0755+3726 5BZGJ1001+2048 5BZBJ0944+5735 5BZBJ1719+5524 5BZBJ1714+3036 5BZUJ0839+0204 5BZGJ0022+0006 5BZBJ1228-0221 5BZBJ12334-0834 5BZBJ1248+0830 5BZQJ1514-4748 5BZUJ1329-5608 |

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         131.45700
                         -55.92408 1171
                                           5BZQJ0845-5555
3555
          98.83712
                         -26.34442
                                      878
                                           5BZBJ0635-2620
3556
         198.76738
                         -53.57661
                                     2083
                                           5BZUJ1315-5334
                         -47.66669
3557
         160.43600
                                     1541
                                           5BZQJ1041-4740
3558
         201.70508
                         -52.93989
                                     2123
                                           5BZBJ1326-5256
3559
         259.39438
                                           5BZQJ1717-5155
                         -51.92556
                                     2786
3560
         241.12925
                         -44.69222
                                    2598
                                           5BZBJ1604-4441
      Flux density 1.4/0.843GHz(mJy)
                                           Source classification Rmag
0
                              54992.0
                                        QSO RLoud flat radio sp.
                                                                   12.9
1
                              22830.0
                                           Blazar Uncertain type
                                                                   12.3
2
                              19532.0
                                           Blazar Uncertain type
                                                                   13.4
3
                              15620.0
                                           Blazar Uncertain type
                                                                   14.6
4
                              13753.0
                                           Blazar Uncertain type
                                                                   16.7
5
                              13387.0
                                        QSO RLoud flat radio sp.
                                                                   17.3
6
                                        QSO RLoud flat radio sp.
                              12657.0
                                                                   13.2
7
                              10896.0
                                        QSO RLoud flat radio sp.
                                                                   21.0
8
                               9711.0
                                        QSO RLoud flat radio sp.
                                                                   15.0
9
                               8283.0
                                         BL Lac-galaxy dominated
                                                                   17.2
10
                               7468.0
                                           Blazar Uncertain type
                                                                   17.2
                                        QSO RLoud flat radio sp.
11
                               7412.0
                                                                   17.6
12
                               7202.0
                                        QSO RLoud flat radio sp.
                                                                   16.7
13
                               7099.0
                                        QSO RLoud flat radio sp.
                                                                   15.4
14
                               6399.0
                                        QSO RLoud flat radio sp.
                                                                   18.5
15
                               6362.0
                                        QSO RLoud flat radio sp.
                                                                   18.2
16
                               6165.0
                                        QSO RLoud flat radio sp.
                                                                   17.2
17
                                        QSO RLoud flat radio sp.
                                                                   18.9
                               6081.0
18
                               6051.0
                                                           BL Lac
                                                                   12.5
                                        QSO RLoud flat radio sp.
19
                                5990.0
                                                                   17.8
20
                                5700.0
                                           Blazar Uncertain type
                                                                    7.2
21
                               5638.0
                                        QSO RLoud flat radio sp.
                                                                   15.8
22
                               5622.0
                                        QSO RLoud flat radio sp.
                                                                   16.0
23
                               5283.0
                                        QSO RLoud flat radio sp.
                                                                   15.7
24
                               4297.0
                                        QSO RLoud flat radio sp.
                                                                   18.1
25
                               4234.0
                                           Blazar Uncertain type
                                                                   18.8
26
                               4218.0
                                        QSO RLoud flat radio sp.
                                                                   16.6
27
                               4068.0
                                           Blazar Uncertain type
                                                                   22.0
28
                               4044.0
                                        QSO RLoud flat radio sp.
                                                                   16.7
29
                               4024.0
                                        QSO RLoud flat radio sp.
                                                                   17.3
. . .
                                   . . .
                                                                     . . .
3531
                                   3.0
                                                           BL Lac
                                                                   19.0
                                   3.0
                                                           BL Lac
                                                                   19.9
3532
3533
                                   3.0
                                                BL Lac Candidate
                                                                   19.9
                                   3.0
3534
                                                           BL Lac
                                                                   19.5
3535
                                   3.0
                                         BL Lac-galaxy dominated
                                                                   16.7
3536
                                   3.0
                                         BL Lac-galaxy dominated
                                                                   18.4
3537
                                   3.0
                                                           BL Lac
                                                                   19.6
3538
                                   3.0
                                                BL Lac Candidate
                                                                   20.0
```

```
3539
                                   2.0
                                                            BL Lac 19.1
3540
                                   2.0
                                                                     20.7
                                                            BL Lac
3541
                                   2.0
                                          BL Lac-galaxy dominated
                                                                     19.3
3542
                                   2.0
                                                            BL Lac
                                                                     19.7
3543
                                   2.0
                                                            BL Lac
                                                                     20.8
3544
                                   2.0
                                                            BL Lac
                                                                     18.6
                                            Blazar Uncertain type
3545
                                   2.0
                                                                     20.6
3546
                                   2.0
                                          BL Lac-galaxy dominated
                                                                     18.6
3547
                                   1.5
                                                            BL Lac
                                                                     19.1
3548
                                   1.0
                                                 BL Lac Candidate
                                                                     18.8
3549
                                   0.8
                                                                     19.2
                                                            BL Lac
3550
                                         QSO RLoud flat radio sp.
                                   0.0
                                                                     18.4
3551
                                            Blazar Uncertain type
                                   0.0
                                                                      0.0
3552
                                   0.0
                                            Blazar Uncertain type
                                                                     19.4
3553
                                   0.0
                                            Blazar Uncertain type
                                                                      0.0
3554
                                   0.0
                                         QSO RLoud flat radio sp.
                                                                     19.8
3555
                                   0.0
                                                            BL Lac
                                                                     19.1
                                   0.0
3556
                                            Blazar Uncertain type
                                                                     18.3
3557
                                   0.0
                                         QSO RLoud flat radio sp.
                                                                     17.2
3558
                                   0.0
                                                            BL Lac
                                                                     15.8
3559
                                                                     18.3
                                   0.0
                                         QSO RLoud flat radio sp.
3560
                                   0.0
                                                            BL Lac
                                                                     20.0
      X-ray flux 0.1-2.4 keV(1.e-12 cgs) Redshift \
0
                                      63.10
                                               0.158
1
                                       0.00
                                               0.018
2
                                       1.24
                                               0.063
3
                                      10.40
                                               0.056
                                       2.20
4
                                               0.695
5
                                       2.42
                                               0.353
6
                                       7.80
                                               0.859
7
                                       0.69
                                               2.507
8
                                      20.90
                                               0.536
9
                                       1.21
                                               0.242
10
                                       0.77
                                                0.91
11
                                       0.89
                                               1.404
12
                                       1.26
                                               1.037
13
                                       2.52
                                               0.593
14
                                       0.08
                                               0.619
15
                                       0.40
                                               2.852
16
                                       0.56
                                               0.152
17
                                       0.28
                                               1.686
18
                                      10.40
                                               0.069
19
                                       1.64
                                               0.902
20
                                       5.43
                                               0.002
21
                                       0.78
                                               1.512
22
                                       1.39
                                               1.184
23
                                       2.84
                                               0.653
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| 24 | 0.78 | 1.512 |
|----------|---------------------------------------|-------|
| 25 | 0.40 | 0.67 |
| 26 | 0.97 |).571 |
| 27 | 0.02 | .833 |
| 28 | 0.55 | 1.71 |
| | | |
| 29 | | 1.397 |
| 3531 | 2.19 | 0.49 |
| | | |
| 3532 | |).541 |
| 3533 | 0.40 | 0 |
| 3534 | 4.04 | 0 |
| 3535 | 3.29 |).276 |
| 3536 | 0.47 | 0.27 |
| 3537 | 0.18 | .531 |
| 3538 | 3.68 | 0 |
| 3539 | 0.21 | 338 |
| 3540 | | 0.606 |
| 3541 | | 344 |
| | 1.27 | |
| 3542 | | 0 |
| 3543 | | 0.626 |
| 3544 | 0.25 | 0 |
| 3545 | 0.00 | 0 |
| 3546 | 1.01 | 306 |
| 3547 | 0.93 | .323 |
| 3548 | 0.00 | .208 |
| 3549 | 0.57 | 0.43 |
| 3550 | | L.551 |
| 3551 | 0.63 | 0 |
| 3552 | 0.25 | 0 |
| 3553 | 0.00 | 0 |
| | | |
| 3554 | |).433 |
| 3555 | 0.00 | 0 |
| 3556 | 0.00 | 0 |
| 3557 | 0.25 | 2.558 |
| 3558 | 0.26 | 0 |
| 3559 | 0.00 | L.158 |
| 3560 | 0.44 | 0 |
| | | |
| | I | Label |
| 0 | 1923_187_27792_2_0 |)5239 |
| 1 | 508_49_95067_41_5 | |
| 2 | 2910_274_8958363_7 | |
| 3 | 759_80_7415836_4 | |
| | | |
| 4 | 2924_277_38242_48_7 | |
| 5 | 2991_291_2127529_24169000000 | |
| 6 | 3374_343_4906299999995_16_14822000000 | |
| 7 | 2930_278_4163821_0 | |
| 8 | 2014_194_046545_789309999999 | 99995 |
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22
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                           2624 243 42108 34 21331
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                2775 258 68975 30 60777999999999
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                         2132_202_25475_-56_13406
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                          2721_252_56929_-50_74672
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3556
               2083_198_76738_-53_57660999999999
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                        2123_201_70508_-52_939890000000005
         3558
         3559
                         2786_259_3943799999996_-51_92556
                                  2598_241_12925_-44_69222
         3560
         [3561 rows x 10 columns]
In [12]: bzcat[['Label', col['ra'], col['dec']]].to_csv('5bzcat_Label_Ra_Dec.csv', index=False
In [13]: from subprocess import getoutput
        print(getoutput('head 5bzcat_Label_Ra_Dec.csv'))
Label "RA (J2000.0)" "Dec (J2000.0)"
1923_187_27792_2_05239 187.27792 2.05239
508_49_95067_41_51169 49.95067 41.51169
2910_274_89583_-63_76339 274.89583 -63.76339
759_80_74158_-36_45856 80.74158 -36.45856
2924_277_38242_48_74617 277.38242 48.74617
2991_291_21275_-29_24169000000002 291.21275 -29.24169
3374_343_4906299999995_16_148220000000002 343.49063 16.14822
2930_278_41638_-21_06103 278.41638 -21.06103
2014_194_04654_-5_78930999999999 194.04654 -5.78931
In [14]: cols_reord = bzcat.columns
         cols_reord = [cols_reord[i-1] for i in range(len(cols_reord))]
        bzcat = bzcat[cols_reord]
        bzcat.head()
Out [14]:
                               Label RA (J2000.0) Dec (J2000.0)
                                                                     id \
             1923_187_27792_2_05239
                                                          2.05239 1923
        0
                                         187.27792
         1
               508_49_95067_41_51169
                                          49.95067
                                                         41.51169
                                                                    508
        2 2910_274_89583_-63_76339
                                                        -63.76339 2910
                                         274.89583
        3
            759_80_74158_-36_45856
                                          80.74158
                                                        -36.45856
                                                                    759
            2924_277_38242_48_74617
                                                        48.74617
                                                                   2924
                                         277.38242
               Source name Flux density 1.4/0.843GHz(mJy)
                                                               Source classification \
        0 5BZQJ1229+0203
                                                   54992.0
                                                            QSO RLoud flat radio sp.
         1 5BZUJ0319+4130
                                                               Blazar Uncertain type
                                                   22830.0
                                                               Blazar Uncertain type
         2 5BZUJ1819-6345
                                                   19532.0
         3 5BZUJ0522-3627
                                                               Blazar Uncertain type
                                                   15620.0
         4 5BZUJ1829+4844
                                                   13753.0
                                                               Blazar Uncertain type
                X-ray flux 0.1-2.4 keV(1.e-12 cgs) Redshift
            Rmag
        0 12.9
                                               63.10
                                                        0.158
         1 12.3
                                                0.00
                                                        0.018
        2 13.4
                                                1.24
                                                        0.063
         3 14.6
                                               10.40
                                                        0.056
         4 16.7
                                                2.20
                                                        0.695
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1.2 Spectra retrieval

At this point, the SED of each object (providing one) is built from VOU-Blazars (VOUB hereafter). Results of VOUB are placed in ./work/bzcat/Results, in particular the SEDs go inside SEDtool/in that dir.

In [15]: %ls work/bzcat/Results/

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0_28596_19_24286_sedtool.txt 0_32511_m7_77410_sedtool.txt 0_33950_m0_19442_sedtool.txt 0_48848_m10_52147_sedtool.txt 0_73831_m0_41317_sedtool.txt 0_83054_21_49572_sedtool.txt 100_51762_67_97656_sedtool.txt 100_69579_m61_83575_sedtool.txt 100_86392_42_24256_sedtool.txt 101_10529_m34_99497_sedtool.txt 101_22383_39_24667_sedtool.txt 101_25571_60_41178_sedtool.txt 101_62879_m39_06086_sedtool.txt 101_63371_44_85469_sedtool.txt 102_05438_m43_78728_sedtool.txt 102_05879_m30_73867_sedtool.txt 102_11871_m17_73486_sedtool.txt 102_19846_15_27361_sedtool.txt 102_36921_m59_34128_sedtool.txt 102_63008_60_02906_sedtool.txt 102_69346_25_04992_sedtool.txt 102_70063_56_27625_sedtool.txt 103_49279_37_09461_sedtool.txt 103_59221_50_70653_sedtool.txt 103_59896_45_23983_sedtool.txt 103_68158_42_79972_sedtool.txt 104_04421_42_61711_sedtool.txt 104_04629_m3_38522_sedtool.txt 104_09433_m24_05511_sedtool.txt 104_27367_24_39883_sedtool.txt 104_55742_m58_67433_sedtool.txt 104_95779_m27_75522_sedtool.txt 105_13000_m66_17950_sedtool.txt 105_39325_m46_57678_sedtool.txt 105 63762 85 83117 sedtool.txt 105_67871_m19_85611_sedtool.txt 106_63196_37_74353_sedtool.txt 106_71567_77_69386_sedtool.txt 106_75254_61_16989_sedtool.txt 107_24321_22_69328_sedtool.txt 107_39267_50_18225_sedtool.txt 107_43771_m2_92153_sedtool.txt 107_62568_59_13895_sedtool.txt 107_68475_42_34854_sedtool.txt 107_69210_47_53646_sedtool.txt 108_07903_57_33003_sedtool.txt 108_18208_50_55629_sedtool.txt 108_40904_43_82141_sedtool.txt

230_60621_m29_60703_sedtool.txt 230_65712_m27_50292_sedtool.txt 230_84078_46_11354_sedtool.txt 231_17323_15_35904_sedtool.txt 231 26216 11 12899 sedtool.txt 231_28200_21_89528_sedtool.txt 231_34828_42_02138_sedtool.txt 231_43636_35_74630_sedtool.txt 231_56255_m4_41960_sedtool.txt 231_67867_66_84861_sedtool.txt 231_69303_9_98618_sedtool.txt 231_82804_31_25678_sedtool.txt 232_30652_38_20488_sedtool.txt 232_74242_57_60700_sedtool.txt 232_76031_43_94374_sedtool.txt 232_90445_8_87867_sedtool.txt 232_95250_46_98715_sedtool.txt 233_00934_30_27471_sedtool.txt 233_01071_m27_27719_sedtool.txt 233 13063 m23 17581 sedtool.txt 233_13473_51_50042_sedtool.txt 233_22411_30_34986_sedtool.txt 233_29685_18_90811_sedtool.txt 233_30921_m4_35461_sedtool.txt 233_35105_34_27784_sedtool.txt 233_52021_48_39464_sedtool.txt 233_62945_49_34344_sedtool.txt 233_69669_37_26523_sedtool.txt 233_71853_1_51786_sedtool.txt 233_72783_m35_43986_sedtool.txt 233_73853_58_65654_sedtool.txt 233_75328_53_34369_sedtool.txt 233_81896_19_91425_sedtool.txt 233_87105_39_37964_sedtool.txt 233 96685 49 96092 sedtool.txt 234_11651_37_70193_sedtool.txt 234_19464_1_63327_sedtool.txt 234_22704_m31_85419_sedtool.txt 234_42321_m15_45347_sedtool.txt 234_57775_41_09679_sedtool.txt 234_79000_m6_97861_sedtool.txt 234_81742_31_06881_sedtool.txt 234_85696_42_29114_sedtool.txt 234_91298_27_74396_sedtool.txt 234_96407_41_72377_sedtool.txt 235_06538_81_91822_sedtool.txt 235_20622_14_79614_sedtool.txt 235_63343_49_64519_sedtool.txt

108_48200_19_58381_sedtool.txt 108_60339_35_57769_sedtool.txt 109_46603_45_63429_sedtool.txt 109_68087_m43_33069_sedtool.txt 109 76858 m62 30067 sedtool.txt 109_83089_33_11935_sedtool.txt 10_05625_40_83483_sedtool.txt 10_06850_m27_32006_sedtool.txt 10_10379_m23_66689_sedtool.txt 10_12771_m32_42225_sedtool.txt 10_23847_m1_76804_sedtool.txt 10_50500_m40_51089_sedtool.txt 10_51896_23_33369_sedtool.txt 10_53425_36_68689_sedtool.txt 10_55508_15_15168_sedtool.txt 10_68479_10_16375_sedtool.txt 10_84479_m26_65142_sedtool.txt 10_88629_0_41664_sedtool.txt 10_95371_34_44053_sedtool.txt 110_34954_4_11211_sedtool.txt 110_47125_71_34353_sedtool.txt 110_50525_37_37463_sedtool.txt 110_74896_m7_52647_sedtool.txt 110_80876_58_68892_sedtool.txt 110_91421_m82_79475_sedtool.txt 110_97844_28_99160_sedtool.txt 111_07217_m7_25547_sedtool.txt 111_17804_26_35850_sedtool.txt 111_32000_14_42042_sedtool.txt 111_46117_m0_91611_sedtool.txt 111_55942_21_88889_sedtool.txt 111_60954_m47_48186_sedtool.txt 111_65146_6_61192_sedtool.txt 111_74803_37_57310_sedtool.txt 111_76299_48_73616_sedtool.txt 112_09796_m47_75472_sedtool.txt 112_20679_57_02344_sedtool.txt 112_32450_m13_33397_sedtool.txt 112_57979_m11_68675_sedtool.txt 112_60854_33_12297_sedtool.txt 112_65954_m32_13894_sedtool.txt 112_71390_40_83075_sedtool.txt 112_89058_24_86628_sedtool.txt 112_96974_28_07572_sedtool.txt 113_23450_25_81075_sedtool.txt 113_37325_35_26190_sedtool.txt 113_44500_41_18886_sedtool.txt 113_46886_50_36918_sedtool.txt

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80_57292_1_22547_sedtool.txt 80_59662_m7_42039_sedtool.txt 80_64204_m61_13289_sedtool.txt 80_68600_m16_46456_sedtool.txt 80_74179_m36_45833_sedtool.txt 80_82696_m26_23600_sedtool.txt 81_27579_m33_71794_sedtool.txt 81_27725_m23_63617_sedtool.txt 81_38038_m45_96539_sedtool.txt 81_47871_m43_30033_sedtool.txt 81_56867_m48_51047_sedtool.txt 81_88625_3_52542_sedtool.txt 82_14667_m58_34497_sedtool.txt 82_47300_m5_32822_sedtool.txt 82_53325_m25_05833_sedtool.txt 82_73517_13_53203_sedtool.txt 83_00883_m38_81536_sedtool.txt 83_03129_m3_11861_sedtool.txt 83_16254_7_54542_sedtool.txt 83_31617_48_38136_sedtool.txt 83_40408_m83_40942_sedtool.txt 83_41950_m46_53792_sedtool.txt 83_43450_m72_27317_sedtool.txt 83_57271_m37_79019_sedtool.txt 83_64796_m61_10217_sedtool.txt 83_80108_m2_65200_sedtool.txt 84_11858_m34_01972_sedtool.txt 84_12129_m33_71733_sedtool.txt 84_45321_m57_30803_sedtool.txt 84_54308_m39_14558_sedtool.txt 84_70496_m44_07061_sedtool.txt 84_77271_m34_45317_sedtool.txt 84_88342_m15_84161_sedtool.txt 84_92646_14_56267_sedtool.txt 84_97629_m28_66558_sedtool.txt 85_05971_25_13203_sedtool.txt 85_12488_58_39431_sedtool.txt $85_{18892_m54_30483_sedtool.txt}$ 85_31729_53_20686_sedtool.txt 85_40875_m5_69719_sedtool.txt 85_98671_m55_53442_sedtool.txt 86_03150_m22_68628_sedtool.txt 86_67437_m64_25589_sedtool.txt 86_73650_m22_08214_sedtool.txt 86_95696_m67_46761_sedtool.txt 87_43113_m52_77297_sedtool.txt 87_53883_m57_53981_sedtool.txt 87_66654_m32_27572_sedtool.txt 222_11992_76_01983_sedtool.txt 222_20979_4_03886_sedtool.txt 222_21317_m11_37103_sedtool.txt 222_33630_42_35039_sedtool.txt 222 38644 27 77265 sedtool.txt 222_41650_m21_65686_sedtool.txt 222_51025_0_27486_sedtool.txt 222_56521_m36_32728_sedtool.txt 222_62988_9_17444_sedtool.txt 222_74996_52_01989_sedtool.txt 222_76046_m23_49197_sedtool.txt 222_79882_58_00082_sedtool.txt 222_86557_63_90535_sedtool.txt 222_94708_m1_45638_sedtool.txt 223_25621_10_60478_sedtool.txt 223_32721_35_09428_sedtool.txt 223_43421_m25_37986_sedtool.txt 223_47329_26_80928_sedtool.txt 223_60625_m37_79397_sedtool.txt 223_61277_51_40938_sedtool.txt 223_63465_29_93291_sedtool.txt 223_63708_m40_20903_sedtool.txt 223_69454_m25_08681_sedtool.txt 223_78100_2_84447_sedtool.txt 224_01510_50_80721_sedtool.txt 224_36146_m35_65253_sedtool.txt 224_40888_7_83186_sedtool.txt 224_43575_m28_32239_sedtool.txt 224_60908_48_54419_sedtool.txt 224_68663_37_33933_sedtool.txt 224_74623_4_27413_sedtool.txt 224_78179_71_67219_sedtool.txt 224_86979_m18_17922_sedtool.txt 224_89788_44_70219_sedtool.txt 224 95285 31 68680 sedtool.txt 224_99365_33_61710_sedtool.txt 225 20279 47 85433 sedtool.txt 225_25765_22_63514_sedtool.txt 225_27604_55_46411_sedtool.txt 225_41871_m38_47169_sedtool.txt 225_53692_25_47572_sedtool.txt 225_64155_33_84884_sedtool.txt 225_91950_m15_68828_sedtool.txt 225_94996_47_99194_sedtool.txt 226_03136_m2_80466_sedtool.txt 226_10050_8_22767_sedtool.txt 226_10407_10_49412_sedtool.txt 226_25983_m34_54922_sedtool.txt

87_98025_m19_15583_sedtool.txt 88_38808_m20_57164_sedtool.txt 88_50338_68_96511_sedtool.txt 88_87833_39_81350_sedtool.txt 89 07804 m43 86278 sedtool.txt 89_26963_24_23203_sedtool.txt 89_51058_m13_29478_sedtool.txt 89_52542_m38_64153_sedtool.txt 89_69237_m74_98508_sedtool.txt 89_79767_m45_49375_sedtool.txt 89_80575_58_06761_sedtool.txt 8_13762_m26_82156_sedtool.txt 8_13792_m28_82194_sedtool.txt 8_39304_m19_35936_sedtool.txt 8_68121_27_90714_sedtool.txt 8_81130_15_25111_sedtool.txt 8_96929_59_83489_sedtool.txt 90_13079_m39_61733_sedtool.txt 90_26208_38_64133_sedtool.txt 90 29550 m70 60258 sedtool.txt 90_44729_23_41486_sedtool.txt 90_45296_m27_60611_sedtool.txt 90_47013_m20_07922_sedtool.txt 90_78804_17_70486_sedtool.txt 90_99050_m17_27450_sedtool.txt 91_03592_m48_28986_sedtool.txt 91_10421_m42_42519_sedtool.txt 91_22967_24_49861_sedtool.txt 91_68146_m7_40839_sedtool.txt 91_73962_m0_41597_sedtool.txt 91_80954_m25_31653_sedtool.txt 91_84675_47_66311_sedtool.txt 91_96950_67_34878_sedtool.txt 91_99892_m8_58061_sedtool.txt 92 00629 m15 34358 sedtool.txt 92_24875_m22_33942_sedtool.txt 92_31258_m2_79839_sedtool.txt 92_41642_m6_25161_sedtool.txt 92_42083_m15_71125_sedtool.txt 92_57467_m18_79439_sedtool.txt 92_62575_m60_97678_sedtool.txt 92_66163_m23_02939_sedtool.txt 93_11850_m43_63039_sedtool.txt 93_12338_m31_64922_sedtool.txt 93_21329_41_37706_sedtool.txt 93_43112_71_12422_sedtool.txt 93_49033_13_11269_sedtool.txt 93_57171_m25_61486_sedtool.txt

226_27695_3_44190_sedtool.txt 226_53981_37_51415_sedtool.txt 226_57346_43_57042_sedtool.txt 226_60300_83_32444_sedtool.txt 226 65456 m5 66813 sedtool.txt 226_65517_m40_13328_sedtool.txt 226_68375_49_56550_sedtool.txt 226_68524_8_23349_sedtool.txt 226_71371_42_65580_sedtool.txt 226_72421_2_31790_sedtool.txt 226_77000_m16_87506_sedtool.txt 226_99890_4_25336_sedtool.txt 227_09482_56_07365_sedtool.txt 227_09887_33_78351_sedtool.txt 227_14867_m15_80872_sedtool.txt 227_17542_27_15134_sedtool.txt 227_39817_m43_67533_sedtool.txt 227_44978_55_93813_sedtool.txt 227_51235_57_04545_sedtool.txt 227_67158_33_58458_sedtool.txt 227_72330_m5_71858_sedtool.txt 227_92189_5_30262_sedtool.txt 227_96004_m32_71533_sedtool.txt 228_06390_2_05797_sedtool.txt 228_21058_m9_10025_sedtool.txt 228_34050_m32_15897_sedtool.txt 228_43700_m10_20008_sedtool.txt 228_48738_m21_24931_sedtool.txt 228_64061_19_05544_sedtool.txt 228_65267_44_83446_sedtool.txt 228_66675_m47_80831_sedtool.txt 228_86123_59_58146_sedtool.txt 228_98412_24_43898_sedtool.txt 229_07533_m15_39553_sedtool.txt 229 16752 0 25059 sedtool.txt 229_17330_29_30265_sedtool.txt 229_23660_19_53692_sedtool.txt 229_32146_13_54011_sedtool.txt 229_42438_m24_37222_sedtool.txt 229_44812_65_42322_sedtool.txt 229_66216_40_75003_sedtool.txt 22_03362_49_01844_sedtool.txt 22_17221_44_65500_sedtool.txt 22_53712_m10_31872_sedtool.txt 22_61517_8_71283_sedtool.txt 22_77983_61_34250_sedtool.txt 22_86125_38_57756_sedtool.txt 230_14578_55_71578_sedtool.txt

93_59946_60_77272_sedtool.txt 93_83029_m31_28936_sedtool.txt 94_25862_m22_00783_sedtool.txt 94_32054_57_02131_sedtool.txt 94 39033 m17 25614 sedtool.txt 94_48762_78_26917_sedtool.txt 94_53421_46_33806_sedtool.txt 94_62825_m78_71761_sedtool.txt 94_76704_m11_68181_sedtool.txt 95_13379_m25_25486_sedtool.txt 95_44929_17_79286_sedtool.txt 95_45608_m34_19650_sedtool.txt 95_49013_37_84917_sedtool.txt 95_61892_m19_45506_sedtool.txt 95_71750_33_43631_sedtool.txt 95_78163_m64_60619_sedtool.txt 95_88200_m44_21722_sedtool.txt 95_90821_m52_96583_sedtool.txt 96_07917_38_94686_sedtool.txt 96 18717 m32 51489 sedtool.txt 96_32612_44_66717_sedtool.txt 96_46708_m54_64744_sedtool.txt 97_23883_m62_81239_sedtool.txt 97_34908_m19_98878_sedtool.txt 97_72454_m13_39292_sedtool.txt 97_74788_m24_11258_sedtool.txt 97_79996_m41_90747_sedtool.txt 97_83425_m14_17550_sedtool.txt 97_89467_53_19100_sedtool.txt 97_99950_m54_08522_sedtool.txt 98_02717_m26_23689_sedtool.txt 98_12812_32_01472_sedtool.txt 98_36150_m22_38964_sedtool.txt 98_83708_m26_34442_sedtool.txt 98 93771 m75 27092 sedtool.txt 99_00246_m21_22006_sedtool.txt 99_83704_m33_76669_sedtool.txt 99_84121_73_41619_sedtool.txt 9_02896_m9_54156_sedtool.txt 9_31175_m21_75686_sedtool.txt 9_34804_21_69814_sedtool.txt 9_46192_12_63884_sedtool.txt 9_53533_0_22683_sedtool.txt 9_56142_m24_98389_sedtool.txt 9_58666_m3_49971_sedtool.txt 9_60346_41_61839_sedtool.txt 9_62029_18_93825_sedtool.txt 9_77617_m9_71300_sedtool.txt

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230_16570_42_18658_sedtool.txt 9_88163_m11_18414_sedtool.txt 230_18941_7_54212_sedtool.txt 9_91500_14_19931_sedtool.txt 230_20395_m3_81427_sedtool.txt
```

1.3 Recover results

To read the resulting SEDs, for each object, we may have to do some small processing on the RA/Dec values of each object to properly relate to the data/SED files. The reason is the name convention used used in the output files: *directories in Results/are named after the given/input RA and Dec values; on the other hand, * directories in Results/SEDtool/ are named after the object's (assumed) Radio source position.

To correlate those results to the original table, we may simply parse the (file/directory) in hands and truncate the decimal part to - say - 2 digits.

```
 In ~[17]: ~\#ra\_s1 = bzcat[col['ra']].apply(lambda~x:'\{:.5f\}'.format(x)).str.replace('.','\_') \\
                         ra_s1 = bzcat[col['ra']].astype(str)
                         ra_s1 = [s.split('.') for s in ra_s1]
                         ra_s1 = ['_'.join([1[0],1[1][:3]]) for l in ra_s1]
                          \#dec\_s1 = bzcat[col['dec']].apply(lambda \ x: '\{:.5f\}'.format(x)).str.replace('.', '\_').str.replace('.', '\_'
                          dec_s1 = bzcat[col['dec']].astype(str)
                          dec_s1 = [s.split('.') for s in dec_s1]
                          dec_s1 = ['_'.join([1[0],1[1][:3]]).replace('-','m') for l in dec_s1]
                          ids = bzcat['Label']
In [18]: from os import path
                         from glob import glob
                          seds = [path.basename(p) for p in glob('work/bzcat/Results/SEDtool/*_sedtool.txt')]
                          seds_filename = seds[:]
                          seds = [s.replace('_sedtool.txt','') for s in seds]
                          seds = [s.split('_') for s in seds]
                         ra_s2 = ['_'.join([1[0],1[1][:3]]) for 1 in seds]
                         dec_s2 = ['_'.join([1[2],1[3][:3]])  for 1 in seds]
In [19]: df1 = pd.DataFrame(data={'ra_1':ra_s1, 'dec_1':dec_s1, 'ids':ids})
                         df2 = pd.DataFrame(data={'ra_2':ra_s2, 'dec_2':dec_s2, 'filenames':seds_filename})
In [20]: df1.head()
Out [20]:
                                                                  dec_1
                                           ra_1
                         0 187_277
                                                                  2_052
                                                                                       1923_187_27792_2_05239
                                49_950 41_511
                                                                                           508_49_95067_41_51169
```

```
m63_763
                              2910_274_89583_-63_76339
         2 274_895
             80_741
                     m36_458
                                759_80_74158_-36_45856
         4 277_382
                      48_746
                              2924_277_38242_48_74617
In [21]: df2.head()
Out [21]:
             ra_2
                     dec_2
                                                filenames
         0 0_084
                  m32_349
                            0_08471_m32_34972_sedtool.txt
         1 0_272
                  m15_851
                           0_27204_m15_85194_sedtool.txt
         2 0_285
                            0_28596_19_24286_sedtool.txt
                   19_242
         3 0_325
                    m7_774
                             0_32511_m7_77410_sedtool.txt
         4 0_339
                    m0_194
                             0_33950_m0_19442_sedtool.txt
In [22]: df1['radec1'] = df1.apply(lambda x:'_'.join([x['ra_1'],x['dec_1']]), axis=1)
         # df1.sort_values(['ra_1', 'dec_1'], inplace=True)
In [23]: df2['radec2'] = df2.apply(lambda x:'_'.join([x['ra_2'],x['dec_2']]), axis=1)
         # df2.sort_values(['ra_2', 'dec_2'], inplace=True)
In [24]: df3 = df1.merge(df2, left_on='radec1', right_on='radec2', how='inner')
         df3
                                                                             \
Out [24]:
                                                                         ids
                  ra_1
                          dec_1
         0
                49_950
                         41_511
                                                       508_49_95067_41_51169
         1
                80_741
                       m36_458
                                                      759_80_74158_-36_45856
         2
                         48_746
                                                     2924_277_38242_48_74617
               277_382
         3
                        m29_241
                                          2991_291_21275_-29_241690000000002
               291_212
         4
                                 3374_343_4906299999995_16_148220000000002
               343_490
                         16_{-}148
         5
               278_416
                       m21_061
                                                    2930_278_41638_-21_06103
         6
               224_781
                         71_672
                                                     2433_224_78158_71_67219
         7
                         11_730
               338_151
                                           3316_338_15171000000004_11_73081
         8
               331_543
                       m18_594
                                         3258_331_54342_-18_59407999999999
         9
                        m43_552
                                            678_70_0715800000001_-43_55239
                70_071
         10
               309 654
                         51_320
                                          3105_309_65429_51_320190000000004
                         42_277
         11
               330_680
                                           3252_330_6803799999996_42_27778
         12
               263 261
                        m13 080
                                                    2821_263_26129_-13_08042
         13
               172_529
                        m14_824
                                          1710_172_52938_-14_82427999999998
         14
               137_389
                         42_896
                                           1253_137_3895399999998_42_89625
         15
                61_391
                       m13_137
                                           600_61_39167_-13_13713999999999
         16
                31_210
                         15_236
                                            327_31_21004000000003_15_23639
         17
               243_421
                         34_213
                                                     2624_243_42108_34_21331
         18
               291_952
                         73_967
                                  2999_291_9520799999997_73_9671099999999
         19
               227_723
                         m5_718
                                          2470_227_72329_-5_71871999999999
         20
               116_387
                         10_186
                                           989_116_38775_10_186860000000001
               32_692
                        m51_017
                                                       345_32_6925_-51_01719
         22
                         0_698
               324_160
                                            3187_324_1607899999996_0_69839
         23
               216_984
                        m42_105
                                                    2337_216_98458_-42_10539
         24
                        m47_505
                                         3475_352_32375_-47_505309999999999
               352_323
         25
               329_526
                       m15_019
                                          3242_329_52617000000004_-15_01925
```

```
2590_240_53025_33_44808
26
      240_530
                33_448
27
      135_570
               m14_258
                                 1225_135_57012_-14_25857999999998
28
      141_762
                39_039
                                             1306_141_76254_39_03914
29
                31_760
                         3254_330_81242000000003_31_76064000000002
      330_812
          . . .
                    . . .
                11_487
                                  2130_202_00871_11_487110000000001
2656
      202_008
2657
      155_370
                38 112
                                   1470 155 3702899999999 38 11203
2658
      118_352
                29_358
                         1018_118_35253999999999_29_35885999999996
2659
      111_178
                26_358
                                     939_111_1780800000001_26_3585
2660
      117_937
                39_471
                                             1014_117_93725_39_47156
2661
      128_214
                33_003
                                             1129_128_21442_33_00306
2662
      347_828
                m9_772
                                             3424_347_82825_-9_77289
2663
      242_514
                45_278
                                               2617_242_514_45_27828
2664
      170_549
                43_280
                                   1687_170_54921000000002_43_28047
2665
      143_294
                 0_056
                                              1327_143_29404_0_05653
                11_755
2666
      202_139
                                   2131_202_13983000000002_11_75569
2667
      195_730
                50_938
                                             2044_195_73058_50_93842
2668
      202_762
                56_928
                                   2142_202_76213_56_92828000000001
      260_319
                60_068
2669
                                             2796_260_31913_60_06844
2670
       21 185
                 9_313
                                                 233 21 1855 9 31369
2671
      118_846
                37_438
                                  1025_118_84629_37_438559999999995
2672
                57_593
      146_134
                                             1350_146_13471_57_59336
2673
      129_947
                 2_076
                                               1156_129_9475_2_07614
2674
      187_038
                m2_360
                                             1918_187_03808_-2_36006
2675
      353_701
                m8_577
                                  3489_353_70129_-8_577060000000001
2676
      192_107
                 8_505
                                              1986_192_10792_8_50583
               m47_808
2677
      228_666
                                            2480_228_66675_-47_80831
2678
      202_254
               m56_134
                                           2132_202_25475_-56_13406
2679
               m15_251
      356_343
                                  3511_356_3431700000004_-15_25186
2680
      252_569
               m50_746
                                           2721_252_56929_-50_74672
2681
       98_837
               m26_344
                                             878_98_83712_-26_34442
2682
      198_767
               m53_576
                                 2083_198_76738_-53_57660999999995
2683
      201_705
               m52_939
                                 2123_201_70508_-52_939890000000005
2684
      259_394
               m51_925
                                  2786_259_3943799999996_-51_92556
2685
      241 129
               m44 692
                                            2598 241 12925 -44 69222
               radec1
                                   dec_2
                                                                  filenames
                          ra_2
0
        49_950_41_511
                        49_950
                                  41_511
                                             49_{95067}41_{51169}sedtool.txt
1
       80_741_m36_458
                        80_741
                                 m36_458
                                           80_74179_m36_45833_sedtool.txt
2
       277_382_48_746
                        277_382
                                  48_746
                                           277_38250_48_74631_sedtool.txt
3
      291_212_m29_241
                        291_212
                                 m29_241
                                          291_21296_m29_24194_sedtool.txt
4
       343_490_16_148
                        343_490
                                  16_{-}148
                                           343_49042_16_14817_sedtool.txt
5
                        278_416
                                 m21_061
      278_416_m21_061
                                          278_41658_m21_06108_sedtool.txt
6
       224_781_71_672
                        224_781
                                  71_672
                                           224_78179_71_67219_sedtool.txt
7
                                           338_15162_11_73080_sedtool.txt
       338_151_11_730
                                  11_730
                        338_151
8
      331_543_m18_594
                        331_543
                                 m18_594
                                          331_54304_m18_59417_sedtool.txt
9
       70_071_m43_552
                        70_071
                                 m43_552
                                           70_07112_m43_55250_sedtool.txt
10
       309_654_51_320
                        309_654
                                  51_320
                                           309_65421_51_32031_sedtool.txt
```

```
330_680_42_277
                        330_680
                                  42_277
                                            330_68038_42_27781_sedtool.txt
11
12
      263_261_m13_080
                        263_261
                                 m13_080
                                          263_26108_m13_08031_sedtool.txt
13
                        172_529
                                 m14_824
                                           172_52938_m14_82422_sedtool.txt
      172_529_m14_824
14
       137_389_42_896
                        137_389
                                            137_38957_42_89626_sedtool.txt
                                  42_896
15
       61 391 m13 137
                         61 391
                                 m13_137
                                            61 39142 m13 13733 sedtool.txt
        31_210_15_236
                         31_210
                                  15_236
                                            31_21000_15_23644_sedtool.txt
16
17
       243_421_34_213
                        243 421
                                  34_213
                                            243_42107_34_21329_sedtool.txt
18
       291_952_73_967
                        291_952
                                  73_967
                                            291_95221_73_96725_sedtool.txt
19
       227_723_m5_718
                        227_723
                                  m5_718
                                            227_72330_m5_71858_sedtool.txt
20
       116_387_10_186
                        116_387
                                  10_186
                                            116_38792_10_18692_sedtool.txt
21
       32_692_m51_017
                        32_692
                                 m51_017
                                           32_69200_m51_01728_sedtool.txt
22
                                   0_698
        324_160_0_698
                        324_160
                                             324_16074_0_69843_sedtool.txt
23
                        216_984
                                 m42_105
                                          216_98425_m42_10517_sedtool.txt
      216_984_m42_105
24
      352_323_m47_505
                        352_323
                                 m47 505
                                           352_32392_m47_50533_sedtool.txt
25
      329_526_m15_019
                        329_526
                                 m15_019
                                           329_52625_m15_01919_sedtool.txt
26
       240_530_33_448
                        240_530
                                  33_448
                                           240_53025_33_44808_sedtool.txt
27
      135_570_m14_258
                        135_570
                                 m14_258
                                           135_57021_m14_25844_sedtool.txt
28
       141_762_39_039
                        141_762
                                            141_76260_39_03909_sedtool.txt
                                  39_039
29
       330_812_31_760
                        330_812
                                  31_760
                                           330_81217_31_76075_sedtool.txt
                                     . . .
. . .
                            . . .
                                  11_487
2656
       202 008 11 487
                        202 008
                                            202_00871_11_48715_sedtool.txt
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                        155 370
                                  38_112
                                            155_37038_38_11204_sedtool.txt
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                        118_352
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                                            118_35250_29_35886_sedtool.txt
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                        111_178
                                  26_358
                                            111_17804_26_35850_sedtool.txt
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                        117_937
                                  39_471
                                            117_93725_39_47156_sedtool.txt
2661
       128_214_33_003
                        128_214
                                  33_003
                                            128_21447_33_00301_sedtool.txt
       347_828_m9_772
                                  m9_772
2662
                        347_828
                                            347_82871_m9_77293_sedtool.txt
2663
       242_514_45_278
                        242_514
                                  45_278
                                            242_51416_45_27822_sedtool.txt
2664
                        170_549
                                  43_280
       170_549_43_280
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        143_294_0_056
                        143_294
                                   0_056
                                            143_29406_0_05666_sedtool.txt
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                                  11_755
       202_139_11_755
                        202_139
                                            202_13989_11_75565_sedtool.txt
2667
       195_730_50_938
                        195_730
                                  50_938
                                            195_73080_50_93842_sedtool.txt
2668
       202_762_56_928
                        202_762
                                  56_928
                                            202_76210_56_92836_sedtool.txt
2669
       260_319_60_068
                        260_319
                                  60_068
                                           260_31913_60_06844_sedtool.txt
2670
         21 185 9 313
                         21 185
                                   9 313
                                              21 18550 9 31369 sedtool.txt
2671
       118_846_37_438
                        118_846
                                  37_438
                                            118_84626_37_43839_sedtool.txt
2672
       146_134_57_593
                        146_134
                                  57_593
                                            146_13433_57_59338_sedtool.txt
2673
        129_947_2_076
                        129_947
                                   2_076
                                             129_94746_2_07614_sedtool.txt
2674
       187_038_m2_360
                        187_038
                                  m2_360
                                            187_03812_m2_36030_sedtool.txt
2675
       353_701_m8_577
                        353_701
                                  m8_577
                                           353_70125_m8_57706_sedtool.txt
2676
        192_107_8_505
                                   8_505
                        192_107
                                             192_10792_8_50583_sedtool.txt
                                 m47_{808}
2677
                        228_666
      228_666_m47_808
                                          228_66675_m47_80831_sedtool.txt
2678
      202_254_m56_134
                        202_254
                                 m56_134
                                           202_25475_m56_13406_sedtool.txt
2679
      356_343_m15_251
                        356_343
                                 m15_251
                                          356_34317_m15_25186_sedtool.txt
2680
      252_569_m50_746
                        252_569
                                 m50_746
                                          252_56925_m50_74672_sedtool.txt
2681
       98_837_m26_344
                         98_837
                                 m26_344
                                           98_83708_m26_34442_sedtool.txt
2682
      198_767_m53_576
                        198_767
                                 m53_576
                                          198_76738_m53_57661_sedtool.txt
2683
      201_705_m52_939
                        201_705
                                 m52_939
                                          201_70504_m52_93989_sedtool.txt
```

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2684
      259_394_m51_925
                        259_394
                                 m51_925
                                           259_39438_m51_92556_sedtool.txt
2685
                                           241_12925_m44_69222_sedtool.txt
      241_129_m44_692
                        241_129
                                 m44_692
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0
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       80_741_m36_458
2
       277_382_48_746
      291_212_m29_241
3
4
       343_490_16_148
5
      278_416_m21_061
6
       224_781_71_672
7
       338_151_11_730
8
      331_543_m18_594
9
       70_071_m43_552
10
       309_654_51_320
11
       330_680_42_277
12
      263_261_m13_080
13
      172_529_m14_824
14
       137_389_42_896
15
       61_391_m13_137
16
        31_210_15_236
17
       243_421_34_213
18
       291_952_73_967
19
       227_723_m5_718
20
       116_387_10_186
21
       32_692_m51_017
22
        324_160_0_698
23
      216_984_m42_105
24
      352_323_m47_505
25
      329_526_m15_019
26
       240_530_33_448
27
      135_570_m14_258
28
       141_762_39_039
29
       330_812_31_760
. . .
2656
       202_008_11_487
2657
       155_370_38_112
2658
       118_352_29_358
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       111_178_26_358
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       117_937_39_471
       128_214_33_003
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2662
       347_828_m9_772
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       242_514_45_278
2664
       170_549_43_280
2665
        143_294_0_056
2666
       202_139_11_755
2667
       195_730_50_938
2668
       202_762_56_928
```

```
2669
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2670
         21_185_9_313
2671
       118_846_37_438
2672
       146_134_57_593
2673
        129 947 2 076
2674
       187_038_m2_360
2675
       353_701_m8_577
2676
        192_107_8_505
2677
      228_666_m47_808
2678
      202_254_m56_134
2679
      356_343_m15_251
2680
      252_569_m50_746
2681
       98_837_m26_344
2682
      198_767_m53_576
2683
      201_705_m52_939
2684
      259_394_m51_925
2685
      241_129_m44_692
```

[2686 rows x 8 columns]

```
Out [25]:
                                                             RA (J2000.0)
                                                                            Dec (J2000.0)
                                                      Label
         0
                                     508_49_95067_41_51169
                                                                 49.95067
                                                                                 41.51169
         1
                                    759_80_74158_-36_45856
                                                                 80.74158
                                                                                -36.45856
         2
                                   2924_277_38242_48_74617
                                                                277.38242
                                                                                 48.74617
         3
                        2991_291_21275_-29_241690000000002
                                                                                -29.24169
                                                                291.21275
         4
               3374\_343\_4906299999995\_16\_148220000000002
                                                                343.49063
                                                                                 16.14822
         5
                                  2930_278_41638_-21_06103
                                                                278.41638
                                                                                -21.06103
         6
                                   2433_224_78158_71_67219
                                                                224.78158
                                                                                 71.67219
         7
                          3316_338_15171000000004_11_73081
                                                                338.15171
                                                                                 11.73081
         8
                       3258_331_54342_-18_59407999999999
                                                                331.54342
                                                                                -18.59408
         9
                           678_70_0715800000001_-43_55239
                                                                 70.07158
                                                                                -43.55239
                         3105_309_65429_51_320190000000004
         10
                                                                309.65429
                                                                                 51.32019
         11
                          3252_330_6803799999996_42_27778
                                                                330.68038
                                                                                 42.27778
                                  2821_263_26129_-13_08042
         12
                                                                263.26129
                                                                                -13.08042
         13
                        1710_172_52938_-14_82427999999999
                                                                172.52938
                                                                                -14.82428
         14
                          1253_137_3895399999998_42_89625
                                                                137.38954
                                                                                 42.89625
                          600_61_39167_-13_13713999999999
         15
                                                                 61.39167
                                                                                -13.13714
         16
                           327_31_21004000000003_15_23639
                                                                 31.21004
                                                                                 15.23639
                                   2624_243_42108_34_21331
         17
                                                                243.42108
                                                                                 34.21331
         18
                2999_291_9520799999997_73_9671099999999
                                                                291.95208
                                                                                 73.96711
                         2470_227_72329_-5_71871999999999
         19
                                                                227.72329
                                                                                 -5.71872
         20
                          989_116_38775_10_186860000000001
                                                                116.38775
                                                                                 10.18686
         21
                                     345_32_6925_-51_01719
                                                                 32.69250
                                                                                -51.01719
         22
                           3187_324_1607899999996_0_69839
                                                                                  0.69839
                                                                324.16079
                                  2337_216_98458_-42_10539
                                                                216.98458
         23
                                                                                -42.10539
```

```
24
              3475_352_32375_-47_505309999999994
                                                        352.32375
                                                                       -47.50531
25
               3242_329_52617000000004_-15_01925
                                                        329.52617
                                                                       -15.01925
26
                          2590_240_53025_33_44808
                                                        240.53025
                                                                        33.44808
27
              1225_135_57012_-14_258579999999998
                                                                       -14.25858
                                                        135.57012
                          1306 141 76254 39 03914
28
                                                        141.76254
                                                                         39.03914
29
      3254 330 81242000000003 31 760640000000002
                                                                         31.76064
                                                        330.81242
. . .
2656
               2130_202_00871_11_487110000000001
                                                        202.00871
                                                                         11.48711
                1470 155 3702899999998 38 11203
                                                                         38.11203
2657
                                                        155.37029
      1018_118_35253999999999_29_35885999999996
2658
                                                        118.35254
                                                                         29.35886
                   939_111_1780800000001_26_3585
2659
                                                        111.17808
                                                                         26.35850
                          1014_117_93725_39_47156
2660
                                                        117.93725
                                                                         39.47156
                          1129_128_21442_33_00306
2661
                                                        128.21442
                                                                         33.00306
                          3424_347_82825_-9_77289
2662
                                                        347.82825
                                                                         -9.77289
2663
                            2617_242_514_45_27828
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2669
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                                                                         60.06844
2670
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                                                                         8.50583
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                                                                       -47.80831
2678
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                                                                       -56.13406
2679
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                                                                       -15.25186
2680
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                                                                       -50.74672
2681
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                                                                       -26.34442
2682
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                                                                       -53.57661
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2683
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                                                                       -52.93989
                                                        259.39438
2684
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2685
                         2598 241 12925 -44 69222
                                                                       -44.69222
                                                        241.12925
        id
                             Flux density 1.4/0.843GHz(mJy)
               Source name
0
       508
            5BZUJ0319+4130
                                                     22830.0
1
       759
            5BZUJ0522-3627
                                                     15620.0
2
      2924
            5BZUJ1829+4844
                                                     13753.0
3
      2991
            5BZQJ1924-2914
                                                     13387.0
4
      3374
            5BZQJ2253+1608
                                                     12657.0
5
      2930
            5BZQJ1833-2103
                                                     10896.0
6
      2433
            5BZUJ1459+7140
                                                      7468.0
7
      3316
            5BZQJ2232+1143
                                                      7202.0
8
      3258
            5BZQJ2206-1835
                                                      6399.0
```

| 9 | 678 | 5BZQJ0440-4333 | 6362.0 |
|------|------|----------------|--------|
| 10 | 3105 | 5BZQJ2038+5119 | 6081.0 |
| 11 | 3252 | 5BZBJ2202+4216 | 6051.0 |
| 12 | 2821 | 5BZQJ1733-1304 | 5990.0 |
| 13 | 1710 | 5BZQJ1130-1449 | 5622.0 |
| 14 | 1253 | 5BZUJ0909+4253 | 4234.0 |
| 15 | 600 | 5BZQJ0405-1308 | 4218.0 |
| 16 | 327 | 5BZUJ0204+1514 | 4068.0 |
| 17 | 2624 | 5BZQJ1613+3412 | 4024.0 |
| 18 | 2999 | 5BZQJ1927+7358 | 3950.0 |
| 19 | 2470 | 5BZQJ1510-0543 | 3570.0 |
| 20 | 989 | 5BZQJ0745+1011 | 3506.0 |
| 21 | 345 | 5BZUJ0210-5101 | 3493.0 |
| 22 | 3187 | 5BZQJ2136+0041 | 3473.0 |
| 23 | 2337 | 5BZQJ1427-4206 | 3190.0 |
| 24 | 3475 | 5BZQJ2329-4730 | 3180.0 |
| 25 | 3242 | 5BZQJ2158-1501 | 3021.0 |
| 26 | 2590 | 5BZUJ1602+3326 | 2991.0 |
| 27 | 1225 | 5BZQJ0902-1415 | 2898.0 |
| 28 | 1306 | 5BZQJ0927+3902 | 2885.0 |
| 29 | 3254 | 5BZQJ2203+3145 | 2878.0 |
| | | | • • • |
| 2656 | 2130 | 5BZBJ1328+1129 | 4.0 |
| 2657 | 1470 | 5BZBJ1021+3806 | 4.0 |
| 2658 | 1018 | 5BZGJ0753+2921 | 4.0 |
| 2659 | 939 | 5BZBJ0724+2621 | 4.0 |
| 2660 | 1014 | 5BZBJ0751+3928 | 4.0 |
| 2661 | 1129 | 5BZBJ0832+3300 | 4.0 |
| 2662 | 3424 | 5BZGJ2311-0946 | 4.0 |
| 2663 | 2617 | 5BZBJ1610+4516 | 3.0 |
| 2664 | 1687 | 5BZBJ1122+4316 | 3.0 |
| 2665 | 1327 | 5BZUJ0933+0003 | 3.0 |
| 2666 | 2131 | 5BZBJ1328+1145 | 3.0 |
| 2667 | 2044 | 5BZBJ1302+5056 | 3.0 |
| 2668 | 2142 | 5BZGJ1331+5655 | 3.0 |
| 2669 | 2796 | 5BZBJ1721+6004 | 3.0 |
| 2670 | 233 | 5BZBJ0124+0918 | 2.0 |
| 2671 | 1025 | 5BZBJ0755+3726 | 2.0 |
| 2672 | 1350 | 5BZBJ0944+5735 | 2.0 |
| 2673 | 1156 | 5BZUJ0839+0204 | 2.0 |
| 2674 | 1918 | 5BZBJ1228-0221 | 1.5 |
| 2675 | 3489 | 5BZBJ2334-0834 | 1.0 |
| 2676 | 1986 | 5BZBJ1248+0830 | 0.8 |
| 2677 | 2480 | 5BZQJ1514-4748 | 0.0 |
| 2678 | 2132 | 5BZUJ1329-5608 | 0.0 |
| 2679 | 3511 | 5BZUJ2345-1515 | 0.0 |
| 2680 | 2721 | 5BZUJ1650-5044 | 0.0 |
| 2681 | 878 | 5BZBJ0635-2620 | 0.0 |

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2682
      2083
            5BZUJ1315-5334
                                                          0.0
                                                          0.0
2683
      2123
            5BZBJ1326-5256
2684
      2786
            5BZQJ1717-5155
                                                          0.0
2685
      2598 5BZBJ1604-4441
                                                          0.0
         Source classification Rmag X-ray flux 0.1-2.4 keV(1.e-12 cgs)
0
         Blazar Uncertain type
                                  12.3
1
         Blazar Uncertain type
                                  14.6
                                                                       10.40
2
         Blazar Uncertain type
                                                                        2.20
                                  16.7
3
      QSO RLoud flat radio sp.
                                  17.3
                                                                        2.42
4
                                                                        7.80
      QSO RLoud flat radio sp.
                                  13.2
5
      QSO RLoud flat radio sp.
                                  21.0
                                                                        0.69
6
                                                                        0.77
                                  17.2
         Blazar Uncertain type
7
      QSO RLoud flat radio sp.
                                                                        1.26
8
      QSO RLoud flat radio sp.
                                  18.5
                                                                        0.08
9
      QSO RLoud flat radio sp.
                                                                        0.40
                                  18.2
10
      QSO RLoud flat radio sp.
                                  18.9
                                                                        0.28
11
                                                                       10.40
                         BL Lac
                                 12.5
12
      QSO RLoud flat radio sp.
                                                                        1.64
                                  17.8
13
      QSO RLoud flat radio sp.
                                                                        1.39
                                  16.0
14
         Blazar Uncertain type
                                  18.8
                                                                        0.40
                                                                        0.97
15
      QSO RLoud flat radio sp.
                                  16.6
16
         Blazar Uncertain type
                                  22.0
                                                                        0.02
17
      QSO RLoud flat radio sp.
                                                                        0.40
                                  17.3
18
      QSO RLoud flat radio sp.
                                                                        3.66
                                  15.2
                                                                        0.42
19
      QSO RLoud flat radio sp.
                                  16.9
20
                                                                        0.26
      QSO RLoud flat radio sp.
                                  21.9
21
         Blazar Uncertain type
                                  14.8
                                                                        0.75
22
                                                                        0.98
      QSO RLoud flat radio sp.
                                  16.8
23
      QSO RLoud flat radio sp.
                                                                        0.82
                                  16.6
24
      QSO RLoud flat radio sp.
                                                                        1.84
                                  16.5
25
      QSO RLoud flat radio sp.
                                  17.3
                                                                        0.81
26
         Blazar Uncertain type
                                  23.0
                                                                        0.16
27
      QSO RLoud flat radio sp.
                                                                        0.65
                                  16.4
28
      QSO RLoud flat radio sp.
                                  16.6
                                                                        2.13
29
      QSO RLoud flat radio sp.
                                  14.3
                                                                        3.22
. . .
                             . . .
                                   . . .
                                                                         . . .
2656
                         BL Lac
                                  18.5
                                                                        0.27
                                                                        0.24
2657
                         BL Lac
                                  19.8
2658
       BL Lac-galaxy dominated 17.2
                                                                        1.29
2659
              BL Lac Candidate
                                                                        0.00
                                  17.4
2660
                         BL Lac
                                                                        0.00
                                 20.5
2661
                         BL Lac
                                                                        1.54
                                  20.4
       BL Lac-galaxy dominated
2662
                                                                        0.57
2663
                         BL Lac
                                  20.0
                                                                        0.30
2664
                         BL Lac
                                  19.4
                                                                        0.00
2665
         Blazar Uncertain type
                                  20.7
                                                                        0.61
2666
                         BL Lac
                                 19.0
                                                                        2.19
```

```
2667
                                 19.5
                                                                       4.04
                         BL Lac
                                                                       0.47
2668
       BL Lac-galaxy dominated
                                 18.4
2669
                         BL Lac
                                 19.6
                                                                       0.18
2670
                         BL Lac
                                 19.1
                                                                       0.21
2671
                         BL Lac
                                 20.7
                                                                       0.73
2672
                         BL Lac
                                                                       1.27
                                 19.7
2673
         Blazar Uncertain type
                                 20.6
                                                                       0.00
2674
                         BL Lac
                                 19.1
                                                                       0.93
              BL Lac Candidate
2675
                                 18.8
                                                                       0.00
2676
                         BL Lac
                                 19.2
                                                                       0.57
      QSO RLoud flat radio sp.
2677
                                 18.4
                                                                       0.00
         Blazar Uncertain type
2678
                                  0.0
                                                                       0.63
2679
         Blazar Uncertain type
                                                                       0.25
                                 19.4
         Blazar Uncertain type
2680
                                  0.0
                                                                       0.00
2681
                         BL Lac
                                 19.1
                                                                       0.00
         Blazar Uncertain type
2682
                                                                       0.00
                                 18.3
2683
                         BL Lac
                                 15.8
                                                                       0.26
2684
      QSO RLoud flat radio sp.
                                                                       0.00
                                 18.3
2685
                         BL Lac
                                                                       0.44
                                 20.0
     Redshift
                                                         ids
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                          1470 155 3702899999998 38 11203
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2658
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                         1025 118 84629 37 43855999999999
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2673
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                                  2132_202_25475_-56_13406
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2679
                         3511_356_34317000000004_-15_25186
            0
2680
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2681
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                                    878_98_83712_-26_34442
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2682
                        2083_198_76738_-53_57660999999999
2683
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filenames

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0
        49 95067 41 51169 sedtool.txt
1
       80_74179_m36_45833_sedtool.txt
2
       277_38250_48_74631_sedtool.txt
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      291_21296_m29_24194_sedtool.txt
4
       343_49042_16_14817_sedtool.txt
5
      278_41658_m21_06108_sedtool.txt
6
       224_78179_71_67219_sedtool.txt
7
       338_15162_11_73080_sedtool.txt
8
      331_54304_m18_59417_sedtool.txt
9
       70_07112_m43_55250_sedtool.txt
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       309_65421_51_32031_sedtool.txt
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       330_68038_42_27781_sedtool.txt
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       61_39142_m13_13733_sedtool.txt
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        31 21000 15 23644 sedtool.txt
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       243_42107_34_21329_sedtool.txt
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       291 95221 73 96725 sedtool.txt
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       227_72330_m5_71858_sedtool.txt
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       116_38792_10_18692_sedtool.txt
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      352_32392_m47_50533_sedtool.txt
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      329_52625_m15_01919_sedtool.txt
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       240_53025_33_44808_sedtool.txt
27
      135_57021_m14_25844_sedtool.txt
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       141_76260_39_03909_sedtool.txt
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       330_81217_31_76075_sedtool.txt
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       202 00871 11 48715 sedtool.txt
2657
       155 37038 38 11204 sedtool.txt
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       118 35250 29 35886 sedtool.txt
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       111_17804_26_35850_sedtool.txt
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       117_93725_39_47156_sedtool.txt
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       128_21447_33_00301_sedtool.txt
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       347_82871_m9_77293_sedtool.txt
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       242_51416_45_27822_sedtool.txt
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       170_54926_43_28040_sedtool.txt
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        143_29406_0_05666_sedtool.txt
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       202_13989_11_75565_sedtool.txt
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       195_73080_50_93842_sedtool.txt
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       202_76210_56_92836_sedtool.txt
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       260_31913_60_06844_sedtool.txt
2670
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2671
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      202_25475_m56_13406_sedtool.txt
2679
      356_34317_m15_25186_sedtool.txt
2680
      252_56925_m50_74672_sedtool.txt
2681
       98_83708_m26_34442_sedtool.txt
2682
      198_76738_m53_57661_sedtool.txt
2683
      201_70504_m52_93989_sedtool.txt
2684
      259_39438_m51_92556_sedtool.txt
```

```
2685 241_12925_m44_69222_sedtool.txt
[2686 rows x 12 columns]
```

1.4 Check a SED

49.95067

49.95067

41.51169 |

41.51169

```
In [26]: #pd.set_option('display.max_rows',10000)
In [27]: filename = df3.iloc[0].filenames
         ffname = 'work/bzcat/Results/SEDtool/{!s}'.format(filename)
         %cat $ffname
 49.95067
             41.51169
                         1.400E+09
                                       1.000E+00 |
                                                     3.196E-13 |
                                                                  9.600E-15 |
                                                                                 55000.00
                                                                                               550
 49.95067
             41.51169
                         2.418E+17 |
                                       1.000E+00 |
                                                     1.818E-10 |
                                                                  1.350E-12 |
                                                                                 55000.00 |
                                                                                               550
49.95067
             41.51169
                                       1.000E+00 |
                                                                  9.050E-13 |
                                                                                 55000.00 |
                         2.418E+17 |
                                                     3.932E-11 |
                                                                                               550
 49.95067
             41.51169 |
                         2.418E+17 |
                                       1.000E+00 |
                                                     4.796E-11 |
                                                                  4.350E-13 |
                                                                                 55000.00 |
                                                                                               550
                          2.418E+17 |
                                       1.000E+00 |
                                                                  2.800E-12 |
                                                                                               550
 49.95067
             41.51169
                                                     1.261E-10 |
                                                                                 55000.00 |
49.95067 |
             41.51169 |
                         2.418E+17 |
                                       1.000E+00 |
                                                     3.076E-12 |
                                                                  1.070E-13 |
                                                                                 55000.00 |
                                                                                               550
 49.95067
             41.51169 |
                         4.800E+09
                                       1.000E+00
                                                     2.251E-12 |
                                                                  2.010E-13 |
                                                                                 55000.00 |
                                                                                               550
 49.95067 |
                         4.800E+09 |
                                       1.000E+00 |
                                                     2.034E-12 |
                                                                  2.465E-13 |
                                                                                 55000.00 |
                                                                                               550
             41.51169
 49.95067
             41.51169
                         4.850E+09 |
                                       1.000E+00 |
                                                     2.402E-12 |
                                                                  0.000E+00 |
                                                                                 55000.00 |
                                                                                               550
 49.95067
             41.51169 |
                          1.400E+09 |
                                       1.000E+00 |
                                                     2.968E-13 |
                                                                  0.000E+00 |
                                                                                 55000.00 |
                                                                                               550
 49.95067 |
             41.51169
                         3.650E+07 |
                                       1.000E+00 |
                                                     5.880E-14 |
                                                                  0.000E+00 |
                                                                                 55000.00 |
                                                                                               550
 49.95067
             41.51169 |
                         1.000E+11 |
                                       1.000E+00 |
                                                     1.111E-11 |
                                                                  1.200E-13 |
                                                                                 55000.00 |
                                                                                               550
                          1.430E+11 |
                                       1.000E+00 |
49.95067 |
             41.51169 |
                                                     1.215E-11 |
                                                                  9.500E-14 |
                                                                                 55000.00 |
                                                                                               550
 49.95067
             41.51169
                         4.400E+10 |
                                       1.000E+00
                                                     7.845E-12 |
                                                                  7.550E-14 |
                                                                                 55000.00
                                                                                               550
 49.95067 |
             41.51169 |
                         7.000E+10 |
                                       1.000E+00 |
                                                     1.039E-11 |
                                                                  9.000E-14 |
                                                                                 55000.00 |
                                                                                               550
                          1.200E+12 |
                                       1.000E+00 |
                                                                  6.700E-13 |
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 49.95067
             41.51169
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                                                                                 55000.00
 49.95067
             41.51169 |
                         8.571E+11 |
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                                                     2.290E-11 |
                                                                  5.000E-13 |
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 49.95067
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                         6.000E+11 |
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             41.51169
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                                                     1.565E-10 |
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                                                     1.229E-10 |
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                                                                  1.400E-12 |
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                         6.925E+14 |
                                       1.000E+00 |
                                                     2.514E-10 |
                                                                  2.700E-12 |
                                                                                 55000.00 |
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1.000E+00

1.000E+00

2.123E-10 |

8.296E-11 |

2.550E-12 |

1.095E-12 |

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550

5.550E+14 |

1.138E+15 |

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49.95067
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                                                                                   55000.00 |
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                          1.344E+15 |
                                                      1.190E-10 |
                                                                    1.850E-12 |
49.95067 |
             41.51169 |
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                                                      9.318E-11 |
                                                                    1.065E-12 |
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49.95067 |
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                         8.563E+14 |
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                                                      1.273E-10 |
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                                                      2.105E-10 |
                                                                    2.450E-12 |
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49.95067 |
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                                                      9.530E-11 |
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49.95067 |
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                                                                    1.850E-12 |
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49.95067 |
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                                                      1.258E-10 |
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                          1.138E+15 |
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                                                                    2.900E-13 |
49.95067
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                                                      7.622E-11 |
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49.95067 |
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49.95067 |
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49.95067 |
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49.95067
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                                                      5.728E-11 |
                                                                    4.605E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                          2.026E+17 |
                                        1.000E+00 |
                                                      7.421E-11 |
                                                                    3.430E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                         2.825E+17 |
                                        1.000E+00 |
                                                      9.882E-11 |
                                                                    3.095E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
                         3.939E+17 |
                                        1.000E+00 |
                                                      1.029E-10 |
                                                                    3.485E-12 |
                                                                                   55000.00 |
             41.51169 |
                                                                                                 550
49.95067 |
             41.51169 |
                          5.492E+17 |
                                        1.000E+00 |
                                                      1.049E-10 |
                                                                    4.800E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169
                         7.658E+17
                                        1.000E+00 |
                                                      1.048E-10 |
                                                                    5.425E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067
             41.51169 |
                          1.068E+18 |
                                        1.000E+00 |
                                                      9.938E-11 |
                                                                    6.300E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067
             41.51169 |
                          1.489E+18 |
                                        1.000E+00 |
                                                      9.572E-11 |
                                                                    9.495E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                          1.042E+17 |
                                        1.000E+00 |
                                                      4.020E-11 |
                                                                    4.000E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                          1.453E+17 |
                                        1.000E+00 |
                                                      7.418E-11 |
                                                                    5.020E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                          2.026E+17 |
                                        1.000E+00 |
                                                      8.112E-11 |
                                                                    3.380E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                         2.825E+17 |
                                        1.000E+00 |
                                                      1.009E-10 |
                                                                    3.095E-12 |
                                                                                   55000.00 |
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49.95067 |
                                        1.000E+00 |
                                                                                   55000.00 |
             41.51169 |
                          3.939E+17
                                                      1.056E-10 |
                                                                    3.550E-12 |
                                                                                                 550
49.95067 |
             41.51169 |
                          5.492E+17 |
                                        1.000E+00 |
                                                      1.175E-10 |
                                                                    5.000E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067
             41.51169 |
                         7.658E+17 |
                                        1.000E+00 |
                                                      1.200E-10 |
                                                                    5.800E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                          1.068E+18 |
                                        1.000E+00 |
                                                      1.062E-10 |
                                                                    6.675E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                                        1.000E+00 |
                                                      1.083E-10 |
                                                                                   55000.00 |
                          1.489E+18 |
                                                                    1.035E-11 |
                                                                                                 550
49.95067 |
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                                                      3.007E-11 |
                                                                    3.795E-12 |
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                                                      5.793E-11 |
                                                                    4.520E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                         2.026E+17 |
                                        1.000E+00 |
                                                      7.139E-11 |
                                                                    3.630E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067
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                         2.825E+17 |
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                                                                    3.425E-12 |
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49.95067
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                                                      1.147E-10 |
                                                                    4.050E-12 |
                                                                                   55000.00 |
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49.95067
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49.95067 |
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                         7.658E+17 |
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                                                      1.057E-10 |
                                                                    6.200E-12 |
                                                                                   55000.00 |
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                                                      4.723E-11 |
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                                                                                   55000.00 |
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49.95067 |
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                                                                    4.970E-12 |
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                                                                                                 550
49.95067
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                                                                    4.495E-12 |
                                                                                   55000.00 |
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49.95067 |
             41.51169 |
                         3.939E+17 |
                                        1.000E+00 |
                                                      1.012E-10 |
                                                                    5.080E-12 |
                                                                                   55000.00 |
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                                        1.000E+00 |
49.95067 |
             41.51169 |
                          5.492E+17 |
                                                      1.111E-10 |
                                                                    6.700E-12 |
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49.95067 |
             41.51169 |
                         7.658E+17 |
                                        1.000E+00 |
                                                      8.883E-11 |
                                                                    7.515E-12 |
                                                                                   55000.00 |
                                                                                                 550
49.95067 |
             41.51169 |
                          1.068E+18 |
                                        1.000E+00 |
                                                      9.687E-11 |
                                                                    8.925E-12 |
                                                                                   55000.00 |
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1.016E-12 |
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                                                     3.843E-12 |
                                                                                  55000.00 |
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 49.95067 |
             41.51169 |
                          7.640E+25 |
                                        1.000E+00 |
                                                     9.139E-13 |
                                                                   1.376E-12 |
                                                                                  55000.00 |
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 49.95067
             41.51169 |
                          2.614E+26 |
                                        1.000E+00 |
                                                     9.337E-17 |
                                                                   9.230E-12 |
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 49.95067
             41.51169 |
                          2.418E+23 |
                                        1.000E+00 |
                                                     3.383E-11 |
                                                                   5.950E-13 |
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                                                                                                550
 49.95067
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                                        1.000E+00 |
                                                     3.771E-11 |
                                                                   9.000E-13 |
                                                                                  55000.00 |
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                                        1.000E+00 |
                                                     3.881E-11 |
                                                                   7.450E-13 |
                                                                                  55000.00 |
                                                                                                550
49.95067
             41.51169 |
                          4.835E+23 |
                                        1.000E+00 |
                                                     3.755E-11 |
                                                                   9.700E-13 |
                                                                                  55000.00 |
                                                                                                550
                                        1.000E+00 |
 49.95067
             41.51169 |
                          1.451E+24 |
                                                     3.184E-11 |
                                                                   1.265E-12 |
                                                                                  55000.00 |
                                                                                                550
                          1.451E+25 |
                                                     1.780E-11 |
                                                                                                550
49.95067
             41.51169 |
                                        1.000E+00 |
                                                                   1.495E-12 |
                                                                                  55000.00 |
 49.95067
             41.51169
                          1.209E+25 |
                                        1.000E+00 |
                                                     1.050E-11 |
                                                                   4.950E-13 |
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                                                                                                550
 49.95067
             41.51169 |
                          3.627E+24 |
                                        1.000E+00 |
                                                     3.015E-11 |
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                                                                                  55000.00 |
 49.95067
             41.51169 |
                          8.462E+24 |
                                        1.000E+00 |
                                                     1.462E-11 |
                                                                   1.425E-12 |
                                                                                  55000.00 |
                                                                                                550
 49.95067 |
             41.51169 |
                          2.418E+25 |
                                        1.000E+00 |
                                                     4.176E-12 |
                                                                   1.097E-12 |
                                                                                  55000.00 |
                                                                                                550
 49.95067
             41.51169 |
                          7.253E+25 |
                                        1.000E+00 |
                                                     1.653E-12 |
                                                                   1.186E-12 |
                                                                                  55000.00 |
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 49.95067 |
             41.51169 |
                          2.418E+26 |
                                        1.000E+00 |
                                                     3.562E-17 |
                                                                   7.315E-12 |
                                                                                  55000.00 |
                                                                                                550
 49.95067
             41.51169 |
                          1.209E+23 |
                                        1.000E+00 |
                                                     6.066E-11 |
                                                                   6.500E-13 |
                                                                                  55000.00 |
                                                                                                550
                          1.209E+25 |
                                        1.000E+00 |
 49.95067
             41.51169 |
                                                     3.106E-11 |
                                                                   3.350E-13 |
                                                                                  55000.00 |
                                                                                                550
             41.51169 |
                          1.523E+26 |
                                        1.000E+00 |
                                                     1.863E-13 |
                                                                   0.000E+00 |
                                                                                  55000.00 |
                                                                                                550
 49.95067
 49.95067
             41.51169 |
                          2.418E+26 |
                                        1.000E+00 |
                                                     2.003E-13 |
                                                                   0.000E+00 |
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 49.95067
             41.51169
                          3.869E+26 |
                                        1.000E+00
                                                     4.389E-13 |
                                                                   0.000E+00 |
                                                                                  55000.00 |
                                                                                                550
                                                                   0.000E+00 |
49.95067 |
             41.51169 |
                          6.045E+26 |
                                        1.000E+00 |
                                                     7.911E-13 |
                                                                                  55000.00 |
                                                                                                550
 49.95067 |
             41.51169 |
                          1.523E+26 |
                                        1.000E+00 |
                                                     2.048E-13 |
                                                                   0.000E+00 |
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                                                                                                550
 49.95067
             41.51169
                          2.418E+26 |
                                        1.000E+00 |
                                                     2.211E-13 |
                                                                   0.000E+00 |
                                                                                  55000.00 |
                                        1.000E+00 |
                                                     4.840E-13 |
                                                                                  55000.00 |
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49.95067
             41.51169
                          3.869E+26 |
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49.95067
             41.51169 |
                          6.045E+26
                                        1.000E+00 |
                                                     8.712E-13 |
                                                                   0.000E+00 |
                                                                                  55000.00 |
                                                                                                550
49.95067
             41.51169 |
                          2.189E+25 |
                                        1.000E+00 |
                                                     1.122E-11 |
                                                                   2.462E-12 |
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49.95067
             41.51169 |
                          4.715E+25 |
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                                                     1.272E-12 |
                                                                   7.939E-13 |
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                                                                                                550
 49.95067 |
             41.51169 |
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                                        1.000E+00 |
                                                     7.328E-13 |
                                                                   4.863E-13 |
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                                                     5.907E-12 |
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 49.95067
             41.51169
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 49.95067 |
             41.51169 |
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                                                     1.059E-12 |
                                                                   6.148E-13 |
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 49.95067
             41.51169
                          8.636E+25 |
                                        1.000E+00 |
                                                     5.859E-13 |
                                                                   3.626E-13 |
                                                                                  55000.00 |
                                                                                                550
In [28]: ffname
Out[28]: 'work/bzcat/Results/SEDtool/49_95067_41_51169_sedtool.txt'
In [29]: df_sed = pd.read_csv(ffname, sep='|', names=['ra','dec','freq','dfreq','flux','dflux'
         df_sed
Out [29]:
                              dec
                                            freq
                                                  dfreq
                                                                  flux
                                                                                dflux
                     ra
                                                    1.0
         0
              49.95067
                         41.51169
                                   1.400000e+09
                                                         3.196000e-13
                                                                        9.600000e-15
              49.95067
         1
                         41.51169
                                   2.418000e+17
                                                    1.0
                                                         1.818000e-10
                                                                        1.350000e-12
         2
              49.95067
                         41.51169
                                   2.418000e+17
                                                    1.0
                                                         3.932000e-11
                                                                        9.050000e-13
         3
              49.95067
                         41.51169
                                   2.418000e+17
                                                         4.796000e-11
                                                                        4.350000e-13
                                                    1.0
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49.95067

49.95067 |

41.51169

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1.489E+18 |

1.209E+25

1.000E+00 |

1.000E+00 |

9.878E-11 |

8.053E-12 |

1.383E-11 |

2.055E-12 |

550

550

55000.00 |

55000.00 |

2.418000e+17

1.0 1.261000e-10 2.800000e-12

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     49.95067
               41.51169
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                                                 3.076000e-12
                                                               1.070000e-13
6
     49.95067
                41.51169
                          4.800000e+09
                                            1.0
                                                 2.251000e-12
                                                                2.010000e-13
7
                                                 2.034000e-12
     49.95067
                41.51169
                          4.800000e+09
                                            1.0
                                                                2.465000e-13
8
     49.95067
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                                                                0.000000e+00
9
     49.95067
                41.51169
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                                            1.0
                                                 2.968000e-13
                                                                0.000000e+00
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                                                 5.880000e-14
                                                                0.000000e+00
11
     49.95067
                41.51169
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                                                 1.111000e-11
                                                                1.200000e-13
                                            1.0
12
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                41.51169
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                                                 1.215000e-11
                                                                9.500000e-14
13
     49.95067
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                                            1.0
                                                 7.845000e-12
                                                                7.550000e-14
14
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                                                                9.00000e-14
15
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                                                 3.444000e-11
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17
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                                                                4.750000e-13
18
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22
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23
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                                                                5.450000e-12
25
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                                                                0.00000e+00
29
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                41.51169
470
     49.95067
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                                                 9.139000e-13
                                                                1.376000e-12
471
     49.95067
                41.51169
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                                            1.0
                                                 9.337000e-17
                                                                9.230000e-12
472
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                41.51169
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473
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474
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                                                                7.450000e-13
475
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                                                 3.755000e-11
                                                                9.700000e-13
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476
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                41.51169
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477
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                                            1.0
                                                 1.780000e-11
                                                                1.495000e-12
478
                          1.209000e+25
                                                 1.050000e-11
                                                                4.950000e-13
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                41.51169
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479
     49.95067
                41.51169
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480
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                                            1.0
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                                                                1.425000e-12
481
                          2.418000e+25
                                                 4.176000e-12
                                                                1.097000e-12
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                41.51169
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482
     49.95067
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     49.95067
483
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                          2.418000e+26
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484
     49.95067
                41.51169
                          1.209000e+23
                                            1.0
                                                 6.066000e-11
                                                                6.500000e-13
485
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                41.51169
                          1.209000e+25
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486
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                                            1.0
                                                 2.003000e-13
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488
     49.95067
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                                                 4.389000e-13
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                41.51169
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489
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In [30]: import matplotlib
         %matplotlib inline
         from matplotlib import pyplot as plt
         import numpy as np
         x = np.log10(df_sed['freq'])
         y = np.log10(df_sed['flux'])
         #y = df_sed['flux']
         plt.plot(x, y, 'b*')
         plt.grid(True)
```

