```
Python 3.7.8 (default, Jun 24 2020, 07:20:10)
[GCC 4.8.5 20150623 (Red Hat 4.8.5-44)] on linux2
Type "help", "copyright", "credits" or "license" for more information.
IPython 7.2.0 -- An enhanced Interactive Python.

In [1]: runfile('/Users/jonathanrosie/Appgen By ProgramGenes 3.py', wdir='/Users/jonathanrosie')
/Users/jonathanrosie/anaconda3/lib/python

Class 1: 12
Class 2: 12
Class 3: 2160
Class 4: 5248
Class 5: 2160
Class 6: 2160
Class 7: 2160
Class 8: 2160
Class 9: 1920
Class 10: 12

Fit: 42212
Wrong: 5788
Accuracy: 0.8
Mean: 0.8
Dev: 0.0011

Wrong: 5788

Mg_p: Stars 5238
Mg_s: Stars 5238
Mg_d: Stars 5238
Mg_g: Stars 5238
Mg_r: Stars 5238

SiM_p: Stars 20004
SiM_s: Stars 20004
SiM_d: Stars 20004
SiM_g: Stars 12053

Ca_p: Stars 5238
Ca_s: Stars 5238
Ca_d: Stars 5238
Ca_g: Stars 5238
Ca_r: Stars 5238

Ti_p: Stars 7920
Ti_s: Stars 7920
Ti_d: Stars 7920
Ti_g: Stars 7920

Mn_p: Stars 12288
Mn_s: Stars 12288
Mn_d: Stars 12288
Mn_g: Stars 12288

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dwarfs: 0
red_giants: 2852

ccc_pos: 8361
mem_sequence: 1887
turnoff: 961
subgiants: 0
red_giants: 5129

Mn1n: 17614
mem_sequence: 4476
turnoff: 2052
subgiants: 0
red_giants: 5238

Mn1n_2MS: 2852
mem_sequence: 1962
turnoff: 890
subgiants: 0
red_giants: 1580

Mn1n_dwarf: 1747
mem_sequence: 1747
turnoff: 0
subgiants: 0
red_giants: 1411

Mn1n_sitheam: 7739
mem_sequence: 2500
turnoff: 1239
subgiants: 0
red_giants: 3423

Mn1n_dwarf: 1747
mem_sequence: 1236
turnoff: 511
subgiants: 0
red_giants: 1071

Mn1n_sitheam: 7739
mem_sequence: 3514
turnoff: 1239
subgiants: 0
red_giants: 4275

Ni1n: 30211
mem_sequence: 7984
turnoff: 3000
subgiants: 37
red_giants: 4948

omicron: 18878
mem_sequence: 2888
turnoff: 1239
subgiants: 0
red_giants: 1649

Ng1: 1273
mem_sequence: 53
turnoff: 0
subgiants: 0
red_giants: 53

ng1_clump: 283
mem_sequence: 75
turnoff: 0
subgiants: 0
red_giants: 111

cluster_gc: 5490
mem_sequence: 2192
turnoff: 992
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red_giants: 4270

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red_giants: 1146

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mem_sequence: 1146
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magellanic: 7431
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m1: 1146
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m1_dsc: 204
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turnoff: 1301
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mem_sequence: 1346
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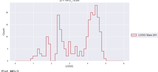

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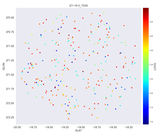

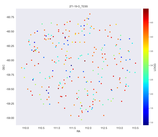

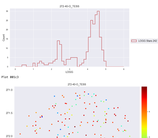

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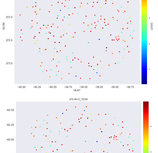

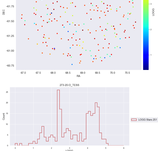

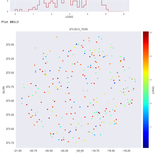

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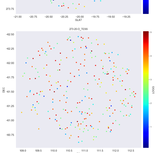

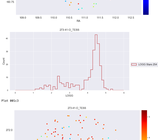

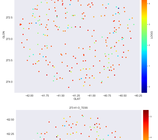

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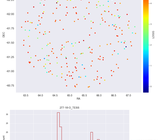

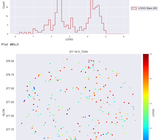

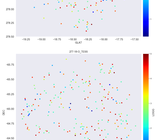

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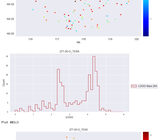

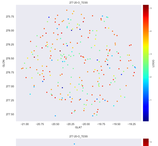

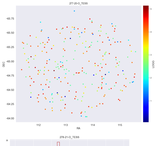

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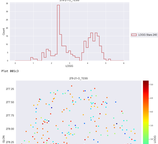

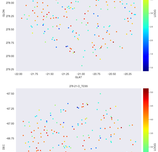

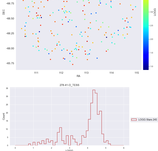

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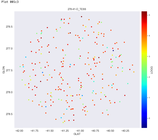
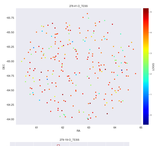
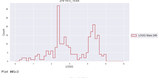
Plot 88LO







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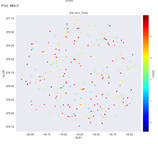

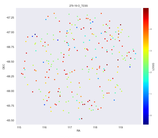

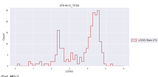

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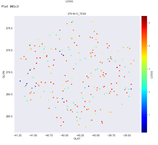

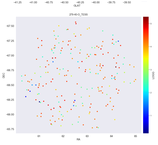

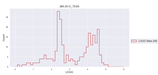

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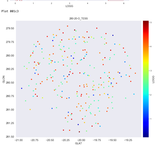

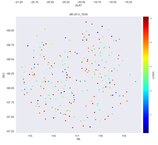

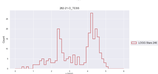

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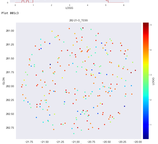

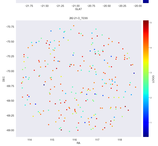

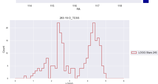

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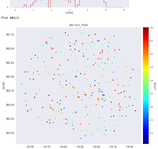

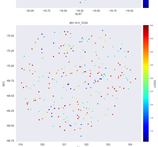

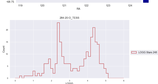

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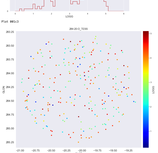

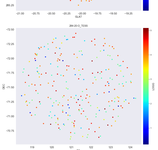

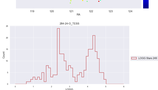

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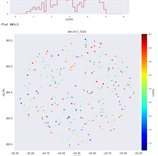
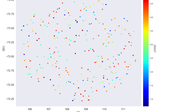
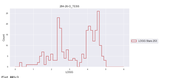


Plot 88LO

Plot 88LO





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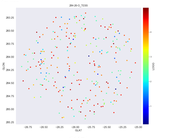

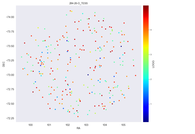

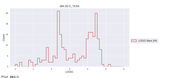

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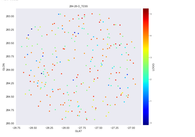

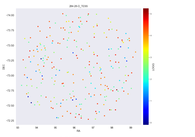

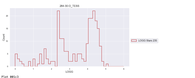

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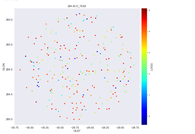

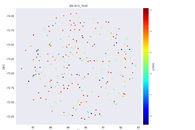

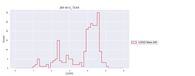

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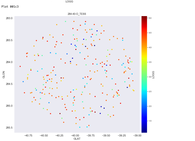

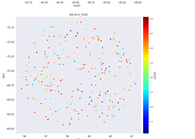

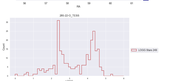

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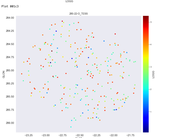

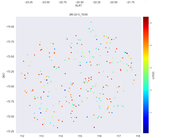

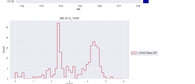

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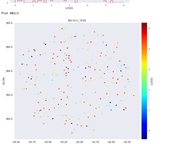

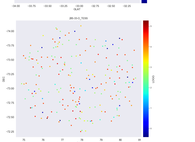

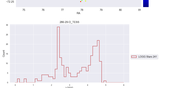

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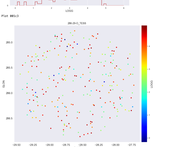

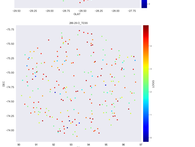

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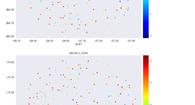

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Plot 86LO

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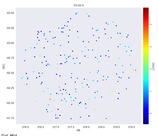

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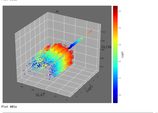

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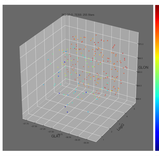

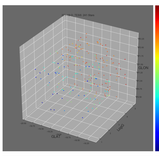

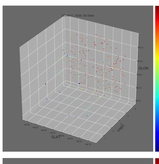

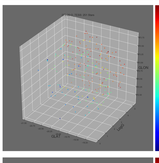

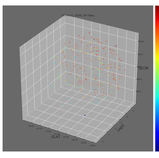

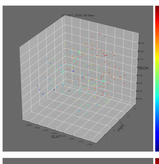

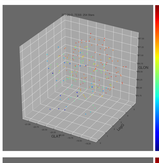

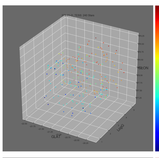

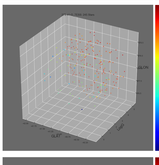

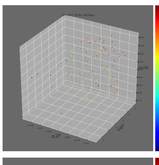

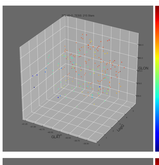

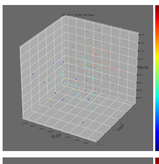

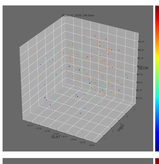

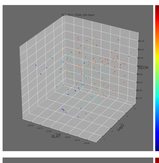

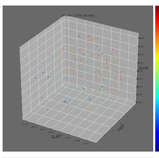

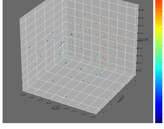
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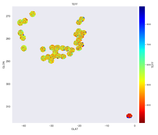
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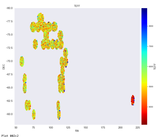
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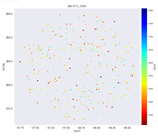
Fig. 10.2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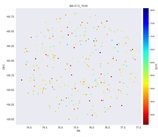
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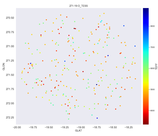
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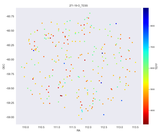
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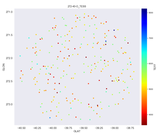
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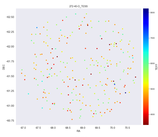
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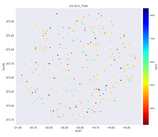
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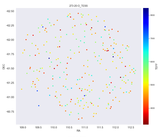
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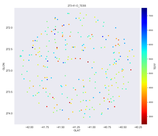
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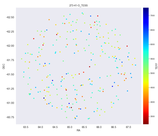
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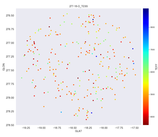
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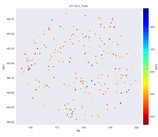
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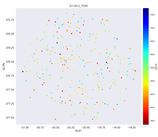
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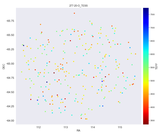
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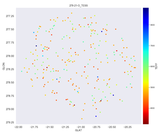
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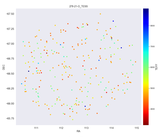
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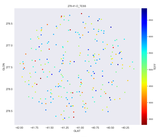
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17-0-0_1000
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17-0-1_1000
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16-0-0_1000
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15-0-1_1000
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RA

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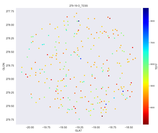
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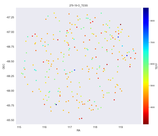
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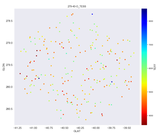
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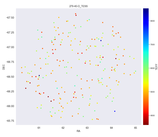
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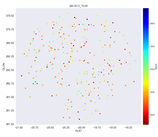
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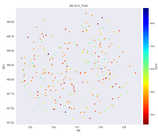
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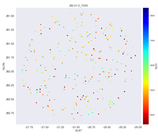
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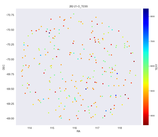
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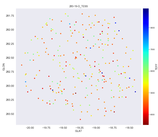
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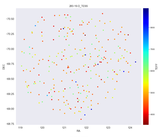
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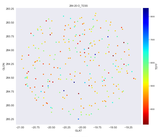
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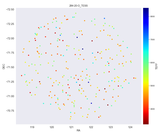
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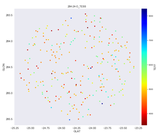
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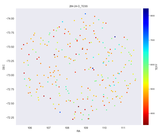
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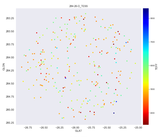
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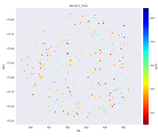
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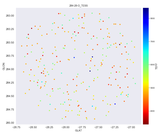
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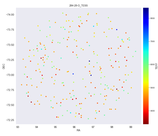
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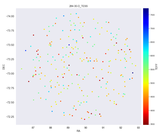
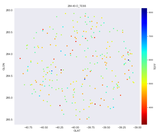
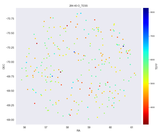
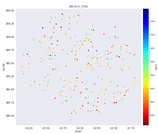
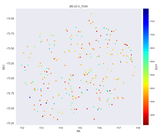
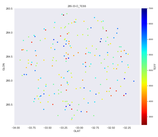
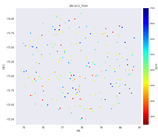
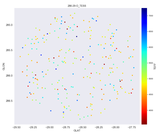
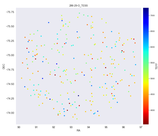
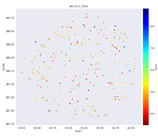
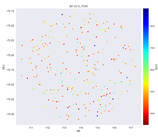
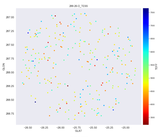
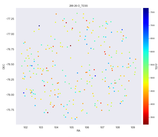
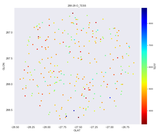
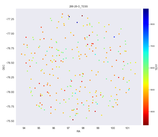
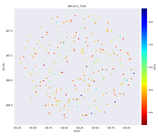
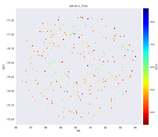
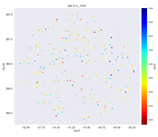
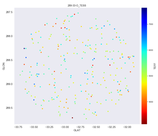
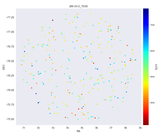
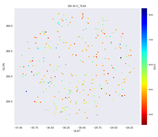
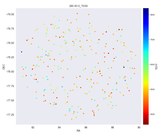
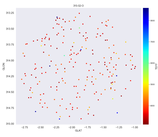



















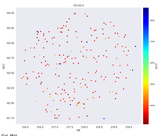




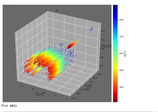




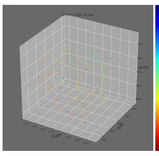


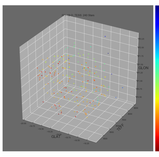


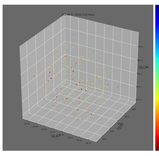
Plot MM3

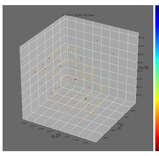


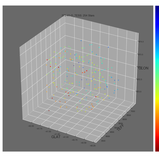
Plot MM4

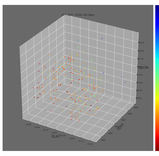


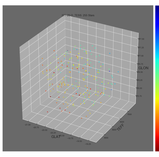


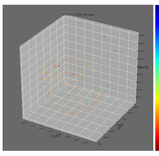


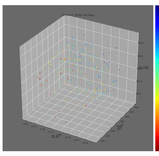


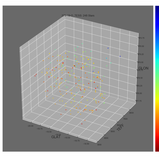


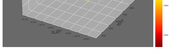
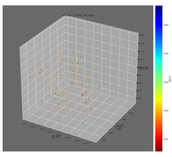
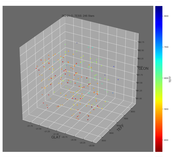
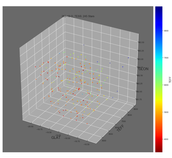
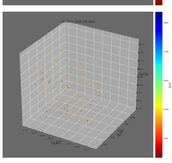
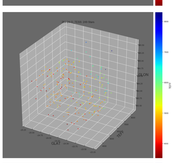
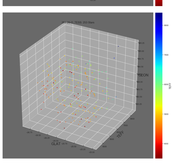
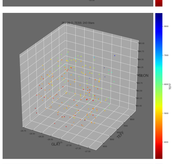
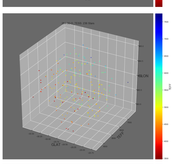
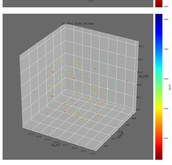
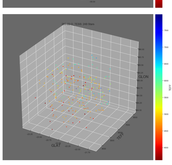
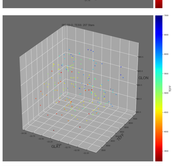
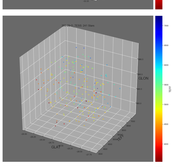
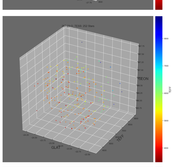
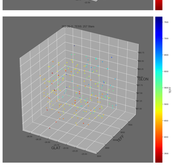
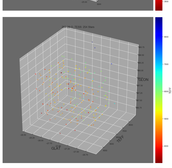
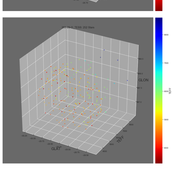
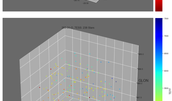


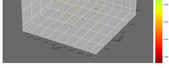


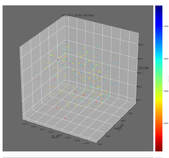


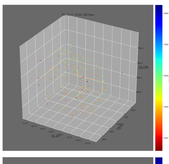


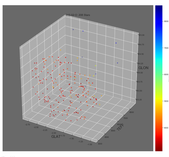










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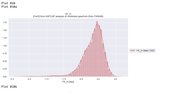
Plot #19b:



Plot #20:

Plot #21:

Plot #22
Plot #22b:

Plot #23

Plot #23b:

Plot #24:

Plot #24b:

Plot #25:

Plot #25b:

Plot #26:

Plot #26b:

Plot #27:

Plot #27b:

Plot #28:

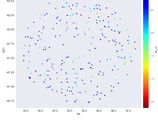
Plot #28b:

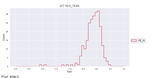
Plot #29:

Plot #29b:

Plot #30:

Plot #30b:





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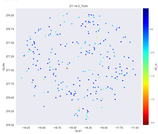

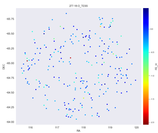

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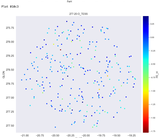

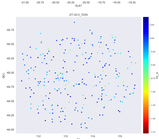

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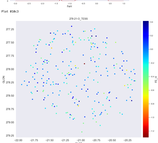

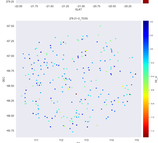

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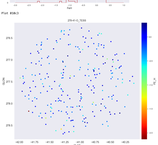

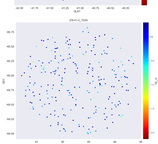

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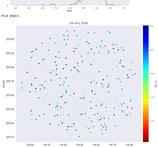

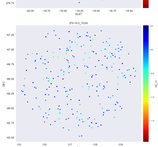

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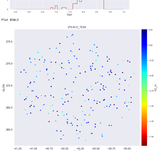

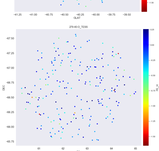

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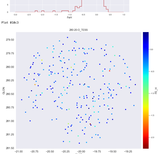

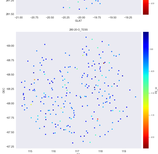

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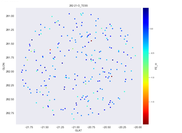

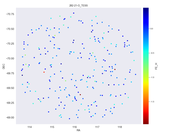

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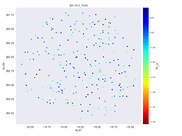

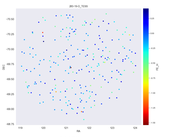

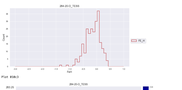

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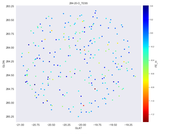

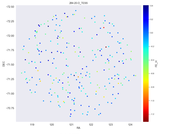

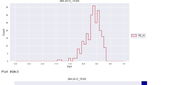

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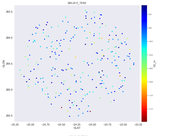

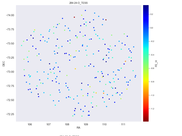

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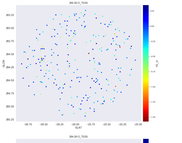

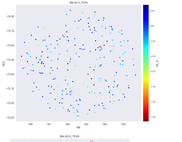

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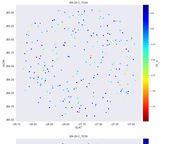

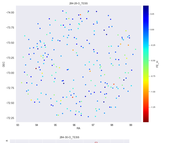

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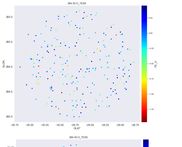

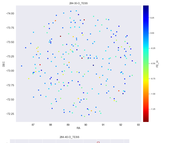

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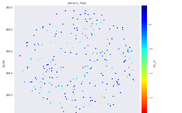

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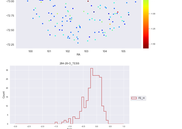

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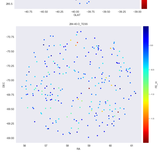
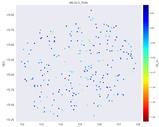


Plot #08/3



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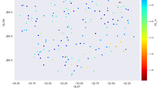

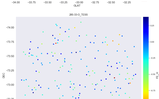

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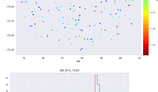

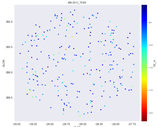

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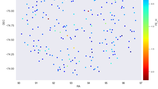

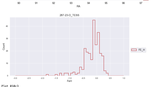

Plot #08/3

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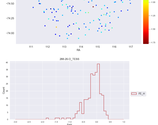

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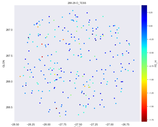

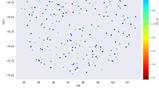

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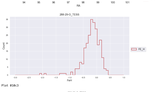

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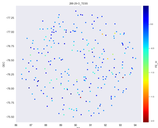

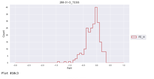

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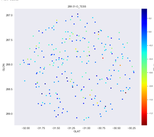

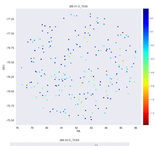

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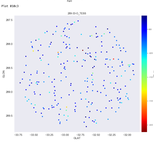

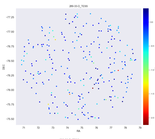

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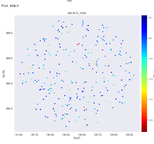

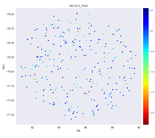

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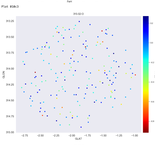

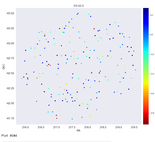

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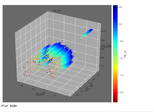

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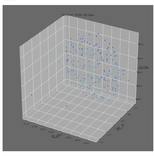

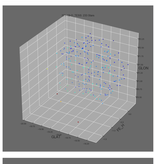

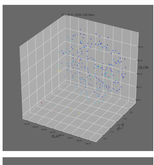

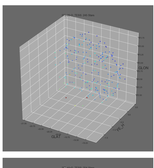

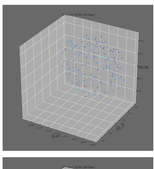

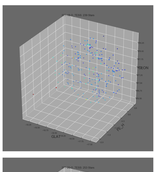

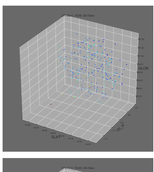

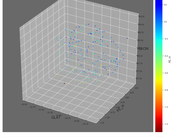
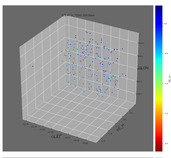
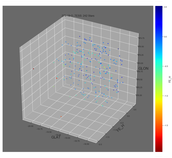
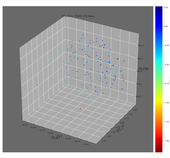
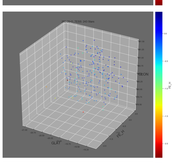
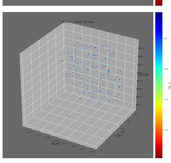
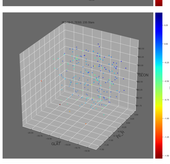
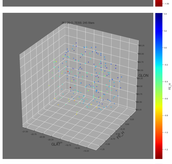
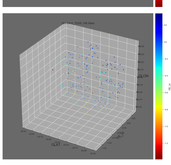
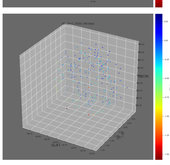
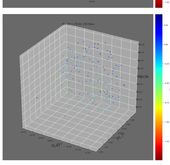
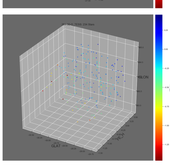
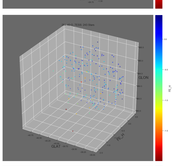
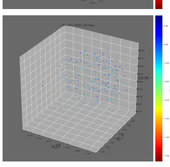
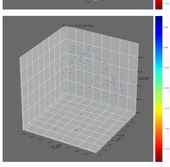
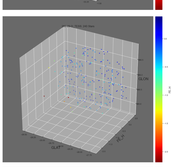
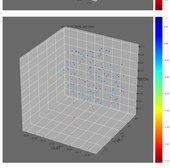

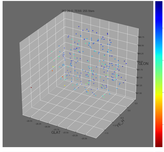
Fast Cards
Program Characteristics, Tau Chemical Abundance
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3.0
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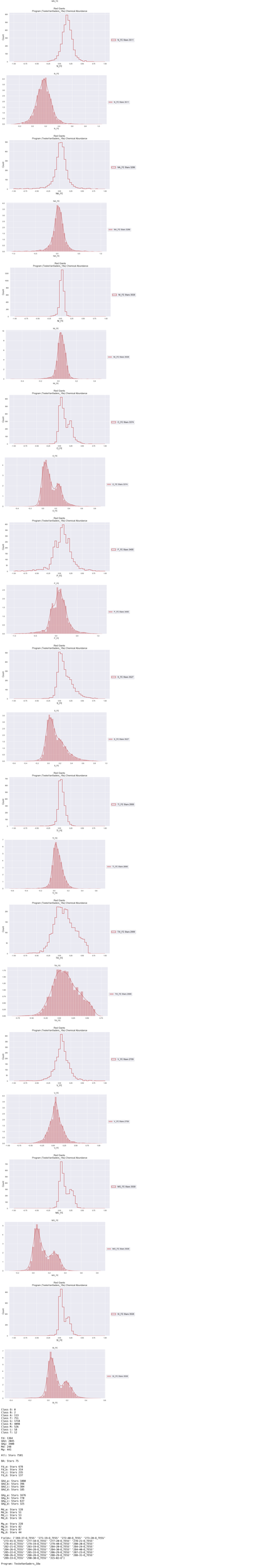
3.4
3.5
3.6
3.7
3.8
3.9

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Class O: 0
Class B: 1
Class A: 111
Class F: 751
Class G: 5718
Class K: 9158
Class M: 526
Class L: 18
Class C: 0

Ca: 1404
Ti: 1404
Mn: 1404
Co: 1404
Mg: 845

Al: Stars 7581

Na: Stars 75

Fe,a: Stars 678
Fe,b: Stars 215
Fe,c: Stars 215
Fe,d: Stars 537

OH,a: Stars 1404
OH,b: Stars 396
OH,c: Stars 396
OH,d: Stars 385

CN,a: Stars 1676
CN,b: Stars 778
CN,c: Stars 637
CN,d: Stars 325

Mg,a: Stars 128
Mg,b: Stars 82
Mg,c: Stars 51
Mg,d: Stars 36

Na,a: Stars 228
Na,b: Stars 82
Na,c: Stars 51
Na,d: Stars 44

Fields: ['200-37-0_TESS' '271-10-0_TESS' '272-40-0_TESS' '273-20-0_TESS'
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Program: TeskeVanSaders_18a

TeskeVanSaders,18a (OCIS)
PI: J. Teske (OCIS), J. van Saders (University of Hawaii), and R. Beaton (Princeton/OCIS)
We propose to collect APOGEE-2S spectra of bright (7 < H <11 mag) stars that fall within the 450 deg
Kepler/K2 Campaign 19 field. This proposal will complement existing APOGEE-2S observations to increase coverage
in this region of the sky. These APOGEE data will be used to measure stellar parameters and chemical abundances.
When combined with the precise TESS photometric light curves, these data enable investigations of open questions
about exoplanets, stellar astrophysics, and distance ladder calibration.

Q2:
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