```
Python 3.7.8 (default, Jun 28 2020, 05:20:03)
[GCC 10.2.0 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.

IPython 7.18.0 - An enhanced Interactive Python.

In [1]: runfile('/Users/juanpablorojas/Apogee Rb Target Program MR.py', wdir='/Users/juanpablorojas')
/Users/juanpablorojas/lib/python3.7/site-packages/ipykernel/kernelbase.py:

Index: APOGEE2_TARGETS_DR16 vs APOGEE2_TARGETS

APOGEE2_TARGETS_DR16 shape: (1,)
APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16
APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16
APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16 APOGEE2_TARGETS_DR16
APOGEE2_DR16_BANDG APOGEE2_DR16_BANDH APOGEE2_DR16_BANDJ APOGEE2_DR16_BANDK
APOGEE2_DR16_BANDH0 APOGEE2_DR16_BANDJ0 APOGEE2_DR16_BANDK0 APOGEE2_DR16_NVISITS
APOGEE2_DR16_SNREF APOGEE2_DR16_SNRMED APOGEE2_DR16_SNRMAX APOGEE2_DR16_SNRMIN
APOGEE2_DR16_SNRMED0 APOGEE2_DR16_SNRMAX0 APOGEE2_DR16_SNRMIN0 APOGEE2_DR16_SNRMED1
APOGEE2_DR16_SNRMAX1 APOGEE2_DR16_SNRMIN1 APOGEE2_DR16_SNRMED2 APOGEE2_DR16_SNRMAX2
APOGEE2_DR16_SNRMIN2 APOGEE2_DR16_SNRMED3 APOGEE2_DR16_SNRMAX3 APOGEE2_DR16_SNRMIN3
APOGEE2_DR16_SNRMED4 APOGEE2_DR16_SNRMAX4 APOGEE2_DR16_SNRMIN4 APOGEE2_DR16_SNRMED5
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APOGEE2_DR16_SNRMIN6 APOGEE2_DR16_SNRMED7 APOGEE2_DR16_SNRMAX7 APOGEE2_DR16_SNRMIN7
APOGEE2_DR16_SNRMED8 APOGEE2_DR16_SNRMAX8 APOGEE2_DR16_SNRMIN8 APOGEE2_DR16_SNRMED9
APOGEE2_DR16_SNRMAX9 APOGEE2_DR16_SNRMIN9 APOGEE2_DR16_SNRMED10 APOGEE2_DR16_SNRMAX10
APOGEE2_DR16_SNRMIN10 APOGEE2_DR16_SNRMED11 APOGEE2_DR16_SNRMAX11 APOGEE2_DR16_SNRMIN11
APOGEE2_DR16_SNRMED12 APOGEE2_DR16_SNRMAX12 APOGEE2_DR16_SNRMIN12
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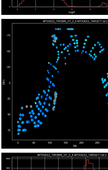

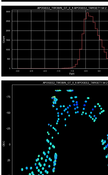

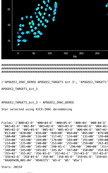


```
==========================================================================
==========================================================================

[~]#PRDSS_DMC_DEMO WPRDSS_TRAMS72 bin 2', WPRDSS_TRAMS72', 1]

WPRDSS_TRAMS72_bin_2

WPRDSS_TRAMS72_bin_2 - WPRDSS_DMC_DEMO

Star selected using RCD:DMC decomposing

Fields: ['DMRG-01' 'DMRG-02' 'DMRG-03' 'DMRG-04' 'DMR-05-01' 'DMR-05-02'
 'DMR-05-03' 'DMR-05-04' 'DMR-05-05' 'DMR-06' 'DMR-07' 'DMR-08-01'
 'DMR-08-02' 'DMR-08-03' 'DMR-08-04' 'DMR-08-05' 'DMR-09' 'DMR-10-01'
 'DMR-10-02' 'DMR-10-03' 'DMR-10-04' 'DMR-10-05' 'DMR-11' 'DMR-12'
 'DMR-13' 'DMR-14' 'DMR-15' 'DCS-01' 'DCS-02' 'DCS-03' 'DCS-04'
 'DCS-05' 'DCS-06' 'DCS-07' 'DCS-08' 'DCS-09' 'DCS-10' 'DCS-11'
 'DCS-12' 'DCS-13' 'DCS-14' 'DCS-15' 'DCS-16' 'DCS-17' 'DCS-18'
 'DCS-19' 'DCS-20' 'DCS-21' 'DCS-22' 'DCS-23' 'DCS-24' 'DCS-25'
 'DCS-26' 'DCS-27' 'DCS-28' 'DCS-29' 'DCS-30' 'DCS-31' 'DCS-32'
 'DCS-33' 'DCS-34' 'DCS-35' 'DCS-36' 'DCS-37' 'DCS-38' 'DCS-39'
 'DCS-40'
```

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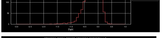
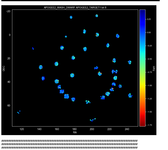


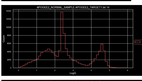

APOGEE2_DR17_PARAM_APOGEE_MASSLOGG
Count
Log10 Count
Log10 Count
Log10

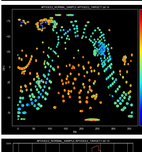
"INCLUD" "TECHNO-1" "TECHNO-2" "TECHNO-3" "TECHNO-4" "TECHNO-5"
"TECHNO-6" "TECHNO-7" "NO" "NO" "NO" "NO" "NO" "NO" "NO" "NO" "NO" "NO"

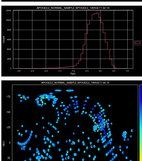
Starts: 2100312

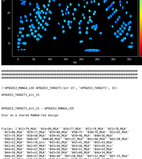
main_sequence: 2100312
hydro0: 2000
hydro1: 2000
rad_flag: 0000
rad_parts: 0
hydro_parts: 0
hydro_flag: 0
rad_flag: 0
Ny: 1000
Nz: 1000
dRay: 0.0750
dTau: 0.0100
Ny: 10014

N_par max: 3025.82









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1 APOGEE2_MAPA_LSS APOGEE2_TARGET1 0x0 (0/, \APOGEE2_TARGET1/, 23)

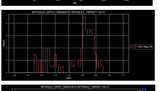
APOGEE2_TARGET1_0x0_23

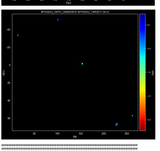
APOGEE2_TARGET1_0x0_23 = APOGEE2_MAPA_LSS

Star on a shared MaPA-led design

Fields: 2'B'2'C'M'M'_M'M' 4'A'A'B'_M'A' 4'A'C'C'_M'A' 4'C'C'B'_M'A' 4'C'C'M'_M'A'
4'C'D'B'_M'A' 4'D'A'B'_M'A' 4'D'A'C'_M'A' 4'D'C'B'_M'A' 4'D'C'M'_M'A' 4'D'D'B'_M'A'
4'D'D'M'_M'A' 4'D'D'M'_M'A' 4'D'D'M'_M'A' 4'D'D'M'_M'A' 4'D'D'M'_M'A' 4'D'D'M

```
'0+2+0+1' '0+0+0+0' '0+1+1+0+0' '0+1+1+0+0' '0+0+0+0' '0+0+0+0'
'0+1
```





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(MPS002_MAGILLAN_NOMAD MPS002_TARGETS bin 22), MPS002_TARGETS, 221

MPS002_TARGETS_bin_22

MPS002_TARGETS_bin_22 = MPS002_MAGILLAN_NOMAD

Selected as overlapped Mag Cloud member

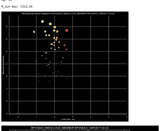
Fields: [''CTS:DS:0' ''CTS:DS:0' ''2009-DS:0' ''2011-DS:0' ''2012-DS:0' ''UPC13' ''UPC14' ''UPC15' ''UPC16' ''UPC17' ''UPC18' ''UPC19' ''UPC20' ''UPC21' ''UPC22' ''UPC23' ''UPC24' ''UPC25' ''UPC26' ''UPC27' ''UPC28' ''UPC29' ''UPC30' ''UPC31' ''UPC32' ''UPC33' ''UPC34' ''UPC35' ''UPC36' ''UPC37' ''UPC38' ''UPC39' ''UPC40' ''UPC41' ''UPC42' ''UPC43' ''UPC44' ''UPC45' ''UPC46' ''UPC47' ''UPC48' ''UPC49' ''UPC50' ''UPC51' ''UPC52' ''UPC53' ''UPC54' ''UPC55' ''UPC56' ''UPC57' ''UPC58' ''UPC59' ''UPC60' ''UPC61' ''UPC62' ''UPC63' ''UPC64' ''UPC65' ''UPC66' ''UPC67' ''UPC68' ''UPC69' ''UPC70' ''UPC71' ''UPC72' ''UPC73' ''UPC74' ''UPC75' ''UPC76' ''UPC77' ''UPC78' ''UPC79' ''UPC80' ''UPC81' ''UPC82' ''UPC83' ''UPC84' ''UPC85' ''UPC86' ''UPC87' ''UPC88' ''UPC89' ''UPC90' ''UPC91' ''UPC92' ''UPC93' ''UPC94' ''UPC95' ''UPC96' ''UPC97' ''UPC98' ''UPC99' ''UPC100' ''UPC101' ''UPC102' ''UPC103' ''UPC104' ''UPC105' ''UPC106' ''UPC107' ''UPC108' ''UPC109' ''UPC110' ''UPC111' ''UPC112' ''UPC113' ''UPC114' ''UPC115' ''UPC116' ''UPC117' ''UPC118' ''UPC119' ''UPC120' ''UPC121' ''UPC122' ''UPC123' ''UPC124' ''UPC125' ''UPC126' ''UPC127' ''UPC128' ''UPC129' ''UPC130' ''UPC131' ''UPC132' ''UPC133' ''UPC134' ''UPC135' ''UPC136' ''UPC137' ''UPC138' ''UPC139' ''UPC140' ''UPC141' ''UPC142']

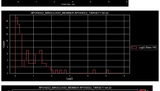
Shape: 145

main_sequence: 2
subgroup: 0
subgroup2: 0
num_points: 145
red_points: 145
red_points / num_clump: 142

Min: 0
Max: 0
Mean: 0
Std: 0
Max - Mn: 0

N_cor_max: 1313.38





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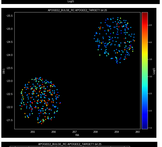
(MPS002_MAGILLAN_AMBIGNOTE MPS002_TARGETS bin 23), MPS002_TARGETS, 231

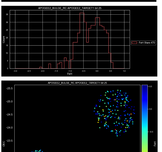
MPS002_TARGETS_bin_23

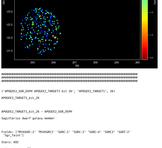
MPS002_TARGETS_bin_23 = MPS002_MAGILLAN_AMBIGNOTE

Selected as potential Mag Cloud member (based on photometry)

Fields: [''CTS:DS:0' ''CTS:DS:0.5'] ''2009-DS:0.5'] ''2011-DS:0.5'] ''2012-DS:0.5'] ''UPC13' ''UPC14' ''UPC15' ''UPC16' ''UPC17' ''UPC18' ''UPC19' ''UPC20' ''UPC21' ''UPC22' ''UPC23' ''UPC24' ''UPC25' ''UPC26' ''UPC27' ''UPC28' ''UPC29' ''UPC30' ''UPC31' ''UPC32' ''UPC33' ''UPC34' ''UPC35' ''UPC36' ''UPC37' ''UPC38' ''UPC39' ''UPC40' ''UPC41' ''UPC42' ''UPC43' ''UPC44' ''UPC45' ''UPC46' ''UPC47' ''UPC48' ''UPC49' ''UPC50' ''UPC51' ''UPC52'





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##############################################################
##############################################################

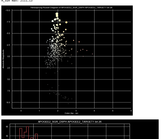
1 WPRDD51_SUM_DUPR-WPRDD51_TARGETS 6:51 20', 'WPRDD51_TARGETS', 203

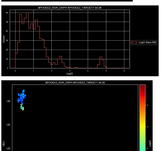
WPRDD51_TARGETS_6:51_20

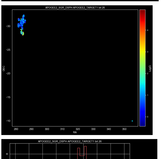
WPRDD51_TARGETS_6:51_20 - WPRDD51_SUM_DUPR
Supplirtion doesn't getaway member

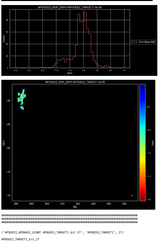
Fields: ['PRIORITY', 'MESHSUBX', 'SUBX:X', 'SUBX:Y', 'SUBX:W', 'SUBX:H', 'SUBX:Z',
'Mag', 'MESH']
Shape: (203, 8)
mesh_composites: 27
hailsubX: 0
hailsubY: 0
rotd_clumps: 203
rotd_tracks: 0
rotd_points: rotd_clumps: 844
Min: 0
Max: 0
Mean: 0
Std: 0.0
Min: 10
Max: 70

R_sum_max: 2111.72
```







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##############################################################
##############################################################

1 WPRDD51_APPANAE_DUNAP-WPRDD51_TARGETS 6:51 20', 'WPRDD51_TARGETS', 215

WPRDD51_TARGETS_6:51_20

WPRDD51_TARGETS_6:51_20 - WPRDD51_APPANAE_DUNAP
Selected as part of WPRDD51 "Giant" cemeln

Fields: ['SEQ_NEXT1', 'SEQ_NEXT2', 'SEQ_NEXT3', 'SEQ_NEXT4', 'SEQ_NEXT5', 'SEQ_DUR:CA',
'SEQ_DUR:CL', 'SEQ_DUR:CT', 'SEQ_DUR:CW', 'SEQ_DUR:CZ', 'SEQ_DUR:CH',
'SEQ_DUR:CD', 'SEQ_DUR:CS', 'SEQ_DUR:CR', 'SEQ_DUR:WT', 'SEQ_DUR:WH',
'SEQ_DUR:WD', 'SEQ_DUR:WS', 'SEQ_DUR:WR', 'SEQ_DUR:MT', 'SEQ_DUR:MH',
'SEQ_DUR:MD', 'SEQ_DUR:MS', 'SEQ_DUR:MR', 'SEQ_DUR:LT', 'SEQ_DUR:LH',
'SEQ_DUR:LD', 'SEQ_DUR:LS', 'SEQ_DUR:LR', 'SEQ_DUR:HT', 'SEQ_DUR:HH',
'SEQ_DUR:HD', 'SEQ_DUR:HS', 'SEQ_DUR:HR', 'SEQ_DUR:VT', 'SEQ_DUR:VH',
'SEQ_DUR:VD', 'SEQ_DUR:VS', 'SEQ_DUR:VR', 'SEQ_DUR:A', 'SEQ_DUR:T', 'SEQ_DUR:D',
'SEQ_DUR:DH', 'SEQ_DUR:DS', 'SEQ_DUR:DR', 'SEQ_DUR:S', 'SEQ_DUR:SH', 'SEQ_DUR:SD',
'SEQ_DUR:SS', 'SEQ_DUR:SR', 'SEQ_DUR:R', 'SEQ_DUR:RH', 'SEQ_DUR:RD', 'SEQ_DUR:RS',
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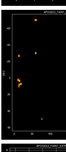
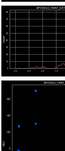
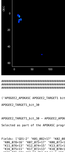






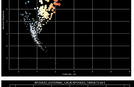
```
================================================================================

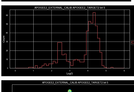
> SPM0001_APMAGE APMAGE(TARGETS bit 10', 'APMAGE(TARGETS', 30)
SPM0001_TARGETS_bit_10

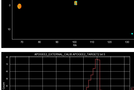
SPM0001_TARGETS_bit_10 - APMAGE(APMAGE)

Selected as part of the APMAGE program (incl. secondaries targets and others, both the Cygnus Field and K2)

Fields: ['C1011-2' 'NGC_6819-V1' 'NGC_6819-V2' 'NGC_6819-V3' 'NGC_6819-V4'
 'NGC_6819-V5' 'NGC_6819-V6' 'NGC_6819-V7' 'NGC_6819-V8' 'NGC_6819-V9'
 'K2_A7A4-1' 'K2_A7A4-2' 'K2_A7A4-3' 'K2_A7A4-4' 'K2_A7A4-5' 'K2_A7A4-6'
 'K2_A7A4-7' 'K2_A7A4-8' 'K2_A7A4-9' 'K2_A7A4-10' 'K2_A7A4-11' 'K2_A7A4-12'
 'K2_A7A4-13' 'K2_A7A4-14' 'K2_A7A4-15' 'K2_A7A4-16' 'K2_A7A4-17'
 'K2_A7A4-18' 'K2_A7A4-19' 'K2_A7A4-20' 'K2_A7A4-21' 'K2_A7A4-22'
 'K2_A7A4-23' 'K2_A7A4-24' 'K2_A7A4-25' 'K2_A7A4-26' 'K2_A7A4-27'
 'K2_A7A4-28' 'K2_A7A4-29' 'K2_A7A4-30' 'K2_A7A4-31' 'K2_A7A4-32'
 'K2_A7A4-33' 'K2_A7A4-34' 'K2_A7A4-35' 'K2_A7A4-36' 'K2_A7A4-37'
 'K2_A7A4-38' 'K2_A7A4-39' 'K2_A7A4-40'
```








```
==========================================================================
==========================================================================
[ 1] APOGEE2_DETERMN_CALIB APOGEE2_TARGET2 bit 0 , "APOGEE2_TARGET1", 0:

APOGEE2_TARGET1_bit_0 = APOGEE2_DETERMN_CALIB

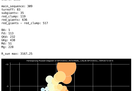
Internal survey calibration target

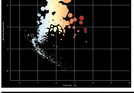
Plate: [7001,8[ "8001-7" "8001-7" "8001-7" "8010-8" "8010-8" "8010-8" "8010" "8010" "8040DRC-2" "8040DRC2" "8077 - 8080" "8079" "8079-2" "8079-2" "Sep_Plate-1"

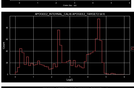
Stars: 2883

mean_sumsnrsq: 80
sumsnrsq: 81
sumsnrsq_rms: 0
sum_flags: 0
sum_flags_rms: 0
sum_flags - sum_flag: 517

Ms: 0
Mg: 0
Mh: 158
Mj: 158
Mk: 158
Mv: 158
Mz: 0
N_sum_max: 2167.25




==========================================================================
==========================================================================
[ 2] APOGEE2_DETERMN_CALIB APOGEE2_TARGET2 bit 1 , "APOGEE2_TARGET1", 1:

APOGEE2_TARGET1_bit_1

APOGEE2_TARGET1_bit_1 = APOGEE2_DECK_SUBSTRATE_MEMBER

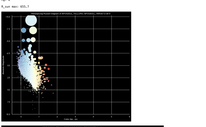
Bright time extension outer disk substructure (Fields, GAS), and H33 members

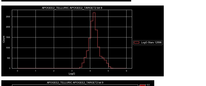
Plate: [7001,8[ "1200-10.dat" "1200-11.dat" "1200-12.dat" "1200-13.dat" "1200-14.dat" "1200-15.dat" "1200-16.dat" "1200-17.dat" "1200-18.dat" "1200-19.dat" "1200-20.dat" "1200-21.dat" "1200-22.dat" "1200-23.dat" "1200-24.dat" "1200-25.dat" "1200-26.dat" "1200-27.dat" "1200-28.dat" "1200-29.dat" "1200-30.dat" "1200-31.dat" "1200-32.dat" "1200-33.dat" "1200-34.dat" "1200-35.dat" "1200-36.dat" "1200-37.dat" "1200-38.dat" "1200-39.dat" "1200-40.dat" "1200-41.dat" "1200-42.dat" "1200-43.dat" "1200-44.dat" "1200-45.dat" "1200-46.dat" "1200-47.dat" "1200-48.dat" "1200-49.dat"
```

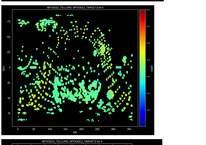
Shard: 12896

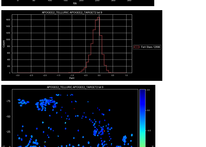
```
main_sequence: 0572
turboFit: 0703
subgiants: 0
red_clump: 0
rejected: 0
red_giants: red_flag: 148

Dec: 2015
Ebv: 0.000
Age: 9.00
Mass: 1.00
Met: 0.00
Mv: 4.
R_sun Dec: 015.7
```









Selected as calibration Cluster member:

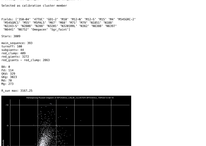
```
APOGEE2_TARGET2_A4_1B - APOGEE2_CALIB_CLUSTER

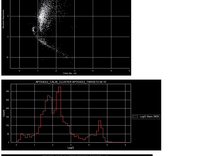
Fields: ['2M-AM' 'ATTW' 'GOLD' 'MOW' 'RG1-M' 'RG1-N' 'RG1-S' 'M-MOAB1-2'
 'M-MOAB2' 'M31' 'M34B1' 'M67' 'M92' 'M3' 'M13' 'M15' 'M53' 'M71'
 'M92' 'M92-1' 'M92-2' 'M92-3' 'M92-4' 'M92-5' 'M92-6' 'M92-7'
 'M92-8' 'M92-9' 'Omegacen' 'Ngc2419']

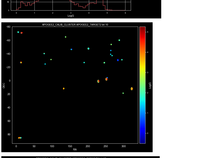
Stars: 3889

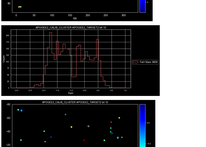
main_sequence: 003
turboFit: 0
subgiants: 0
red_clump: 0
rejected: 0
red_giants: red_flag: 2883

Dec: 0
Ebv: 0.000
Age: 9.00
Mass: 1.00
Met: 0.00
Mv: 0.
R_sun Dec: 2147.25
```










```
APOGEE2_LITERATURE_CALIB APOGEE2_TARGET2 A4- 1F_, APOGEE2_TARGET2_, 1B)

APOGEE2_TARGET2_A4_1F

APOGEE2_TARGET2_A4_1F - APOGEE2_LITERATURE_CALIB

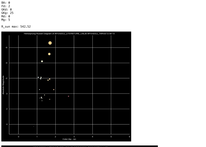
Overlap with high-resolution literature studies

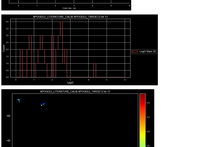
Fields: ['1M1A' '1M5A' '1M7A' 'M10' 'M67' 'N362' 'SMC1']

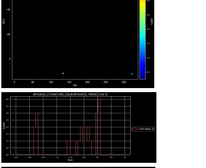
Stars: 12

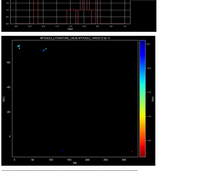
main_sequence: 1
turboFit: 0
subgiants: 0
red_clump: 0
rejected: 0
red_giants: red_flag: 34

Dec: 0
Ebv: 0
Age: 0
Mass: 0
Met: 0
Mv: 0
R_sun Dec: 345.32
```










```
( APOGEE2_DARK_BR_DERPLAM APOGEE2_TARGET2 4x3 1F_, APOGEE2_TARGET2_, 1F)

APOGEE2_TARGET2_A4_1F

APOGEE2_TARGET2_A4_1F - APOGEE2_DARK_BR_DERPLAM

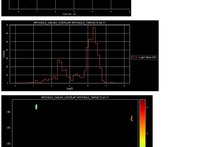
Overlap with DARK

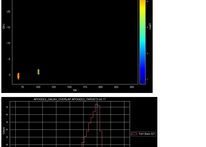
Fields: ['2M-DR' '1DWD72' '1DWD74' '1DWD74A' 'K2_C2_Dim13_Ext' 'N2243-1']

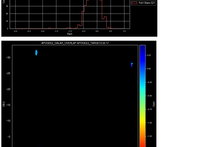
Stars: 131

main_sequence: 200
turboFit: 0
subgiants: 0
red_clump: 0
rejected: 0
red_giants: red_flag: 326

Dec: 20
Ebv: 0.000
Age: 9.00
Mass: 1.00
Met: 0.00
Mv: 0.
R_sun Dec: 243.50
```







```
==========================================================================

'/APOGEE2_COMMISSIONING/DATA_SPRC/APOGEE2_TARGETS fcs1 20', 'APOGEE2_TARGETS', 20)

APOGEE2_TARGETS_fcs1_20

APOGEE2_TARGETS_fcs1_20 = APOGEE2_COMMISS_DATA_SPRC

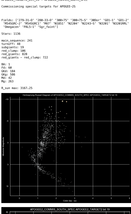
Commissioning special targets for APOGEE-2S

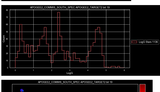
Plates: '2-27b-fcs1-20' '2MA-fcs1-20' '2MAm-fcs1-20' '2MAmr-fcs1-20' 'LR1-7'
'2MAmr2' '2MAmr3' '2MAmr4' '2MAmr5' 'M1mm' 'M1mm-fcs1' 'M1mm2' 'M1mm3'
'M1mm4' 'M1mm5' 'M1mm6' 'M1mm7'

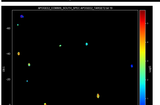
Stars: 1138

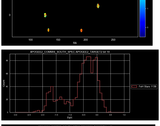
main_sequence: 241
turnoff: 38
subgiant: 0
giant: 859
red_giants: 0
red_giants + red_clump: 722

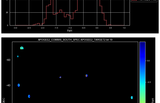
Ra: 0
Dec: 0
Glon: 0
Glat: 180
Mag: 0
Mu: 0
Ra_cent Dec: 0.00 20

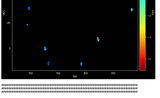
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'/APOGEE2_MAIN_REMNER/APOGEE2_TARGETS kin 20', 'APOGEE2_TARGETS', 20)

APOGEE2_TARGETS_kin_20

APOGEE2_TARGETS_kin_20 = APOGEE2_MAIN_REMNER

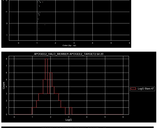
Bright time extension: kain member

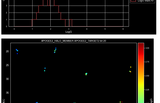
Plates: '2-kin01.dat' '2-kin02.dat' '2-kin02.plus' '2MAm-kin.dat' '2MAm-kin2.dat'
'2MAm-kin3.dat' '2MAm-kin4.dat' '2MAm-kin5.dat' '2MAm-kin6.dat' '2MAm-kin7.dat'
'2MAm-kin8.dat' '2-kin-10' '2-kin-11' '2-kin-12' '2-kin-13.dat'

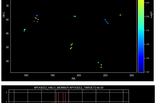
Stars: 47

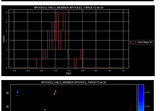
main_sequence: 0
turnoff: 0
subgiant: 0
giant: 0
red_giants: 0
red_giants + red_clump: 43

Ra: 0
Dec: 0
Glon: 0
Glat: 0
Mag: 0
Mu: 0
Ra_cent Dec: 342.00

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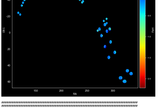
'/APOGEE2_MAIN_CANDIDATE/APOGEE2_TARGETS bin 20', 'APOGEE2_TARGETS', 20)

APOGEE2_TARGETS_bin_20

APOGEE2_TARGETS_bin_20 = APOGEE2_MAIN_CANDIDATE

Bright time extension: halo candidate

Plates: '2-bin-01.dat' '2-bin-02.dat' '2-bin-03.dat' '2-bin-04.dat' '2MAm-01.dat'
'2MAm-02.dat' '2MAm-03.dat' '2MAm-04.dat' '2MAm-05.dat' '2MAm-06.dat' '2MAm-07.dat'
'2MAm-08.dat' '2MAm-09.dat' '2MAm-10.dat' '2MAm-11.dat' '2MAm-12.dat'
'2MAm-13.dat' '2MAm-14.dat' '2MAm-15.dat' '2MAm-16.dat' '2MAm-17.dat' '2MAm-18.dat'
'2MAm-19.dat' '2MAm-20.dat' '2MAm-21.dat' '2MAm-22.dat' '2MAm-23.dat' '2MAm-24.dat'
'2MAm-25.dat' '2MAm-26.dat' '2MAm-27.dat' '2MAm-28.dat' '2MAm-29.dat' '2MAm-30.dat'
'2MAm-31.dat' '2MAm-32.dat' '2MAm-33.dat' '2MAm-34.dat' '2MAm-35.dat' '2MAm-36.dat'
'2MAm-37.dat' '2MAm-38.dat' '2MAm-39.dat' '2MAm-40.dat'
```



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( WPHOEN12_CIS #PHOEN12_TMPOT3 bin 24", "WPHOEN12_TMPOT3", 24)

WPHOEN12_TMPOT3_bin_24

WPHOEN12_TMPOT3_bin_24 - WPHOEN12_CIS

Carnegie program target

Fields: ['BMW-001-0' 'BMW-001-0' 'BMW-001-0' 'BMW-001-0' 'BMW-001' 'BMW-B9-0'
 'MWS-001' 'MWS-001' 'MWS-001' 'MWS-001' 'MWS-01' 'MWS-01' 'MWS-01'
 'MWS-01' 'MWS-01' 'MWS-01' 'MWS-01' 'MWS-01' 'MWS-01' 'MWS-01'
 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0'
 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0'
 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0'
 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0' 'MWS-01-0'
 'MWS-01-0' 'MWS-01-0' 'CCN-001' 'CCN-001-0' 'CCS-01-0' 'CCS-01-0'
 'CCS-01-0' 'CCS-01-0' 'CCS-01-0' 'CCS-01
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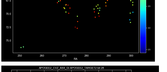

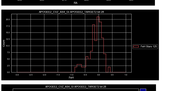

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> APOGEE2_DR16_FIELD_TYS APOGEE2_TARGETS bit 29', 'APOGEE2_TARGETS', 29)
APOGEE2_TARGETS_bit_29

APOGEE2_TARGETS_bit_29 = APOGEE2_FIELD_TYS

Filter fit_star selected from the TYS input catalog

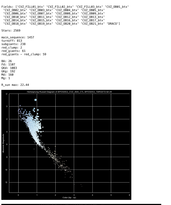
Fields: ['2CE_FIELD_001.fits' '2CE_FIELD_002.fits' '2CE_FIELD_003.fits' '2CE_DR16_004.fits'
 '2CE_DR16_005.fits' '2CE_DR16_006.fits' '2CE_DR16_007.fits' '2CE_DR16_008.fits'
 '2CE_DR16_009.fits' '2CE_DR16_010.fits' '2CE_DR16_011.fits' '2CE_DR16_012.fits'
 '2CE_DR16_013.fits' '2CE_DR16_014.fits' '2CE_DR16_015.fits' '2CE_DR16_016.fits'
 '2CE_DR16_017.fits' '2CE_DR16_018.fits' '2CE_DR16_019.fits' '2CE_DR16_020.fits'
 '2CE_DR16_021.fits' '2CE_DR16_022.fits' '2CE_DR16_023.fits' '2CE_DR16_024.fits'
 '2MASS']

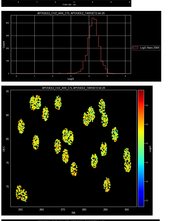
Stars: 2988

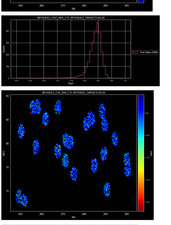
main_sequence: 1857
turnoff: 1131
subgiants: 0
red_clump: 0
red_giants: 0
red_giants - red_clump: 50

Ra: 0
Dec: 0
Ra: 1983
Dec: 1983
Ra: 360
Dec: 360

N_sim max: 23.84
```







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> APOGEE2_DR16_FIELD APOGEE2_TARGETS bit 30', 'APOGEE2_TARGETS', 30)
APOGEE2_TARGETS_bit_30

APOGEE2_TARGETS_bit_30 = APOGEE2_FIELD_SLOWRT

Filter fit_star selected with SLOWRT

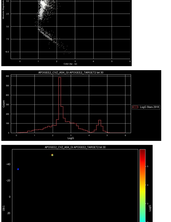
Fields: ['APOGEE2_DR16_SLOWRT' '2CE_FIELD_001.fits' '2CE_FIELD_002.fits'
 '2CE_FIELD_003.fits' '2CE_DR16_004.fits' '2CE_DR16_005.fits'
 '2CE_DR16_006.fits' '2CE_DR16_007.fits' '2CE_DR16_008.fits'
 '2CE_DR16_009.fits' '2CE_DR16_010.fits' '2CE_DR16_011.fits'
 '2CE_DR16_012.fits' '2CE_DR16_013.fits' '2CE_DR16_014.fits'
 '2CE_DR16_015.fits' '2CE_DR16_016.fits' '2CE_DR16_017.fits'
 '2CE_DR16_018.fits' '2CE_DR16_019.fits' '2CE_DR16_020.fits'
 '2MASS']

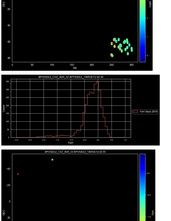
Stars: 2988

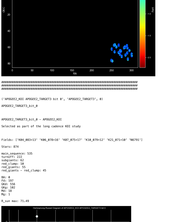
main_sequence: 1868
turnoff: 1120
subgiants: 0
red_clump: 0
red_giants: 1730

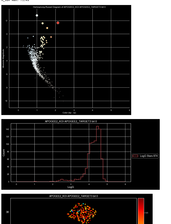
Ra: 0
Dec: 0
Ra: 1983
Dec: 1983
Ra: 360
Dec: 360

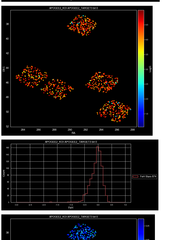
N_sim max: 300.00
```









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> APOGEE2_RED APOGEE2_TARGETS bit 8', 'APOGEE2_TARGETS', 8)
APOGEE2_TARGETS_bit_8

APOGEE2_TARGETS_bit_8 = APOGEE2_RED

Selected as part of the long cadence RED study

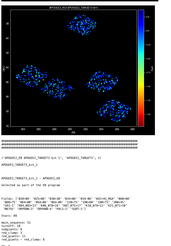
Fields: ['DWB_BDR1017' 'WAR_BTR107' 'KGB_BTR117' 'KGB_BTR118' 'BWT01']

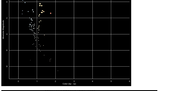
Stars: 876

main_sequence: 515
turnoff: 361
subgiants: 0
red_clump: 0
red_giants: 0
red_giants - red_clump: 45

Ra: 0
Dec: 0
Ra: 983
Dec: 983
Ra: 360
Dec: 360

N_sim max: 71.49
```



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> APOGEE2_DR16 APOGEE2_TARGETS bit 1', 'APOGEE2_TARGETS', 1)
APOGEE2_TARGETS_bit_1

APOGEE2_TARGETS_bit_1 = APOGEE2_DR

Selected as part of the DR 20 program

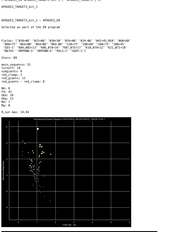
Fields: ['DJB+BAR' 'DJB+BAR' 'DJB+CAR' 'DJB+HAR' 'DJB+HAR' 'DJB+LAR_BLAC' 'DWB+DRP'
 'DWB+DRP' 'DWB+DRP' 'DWB+DRP' 'DWB+DRP' 'DWB+DRP' 'DWB+DRP' 'DWB+DRP'
 'DWB+DRP' 'DWB+DRP' 'KGB+BTR107' 'KGB+BTR107' 'KGB+BTR107' 'KGB+BTR107'
 'KGB+BTR107' 'KGB+BTR117' 'KGB+BTR117' 'KGB+BTR117' 'KGB+BTR117' 'KGB+BTR118'
 'KGB+BTR118' 'KGB+BTR118' 'KGB+BTR118' 'KGB+BTR118' 'KGB+BTR118']

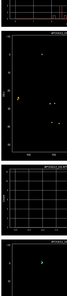
Stars: 88

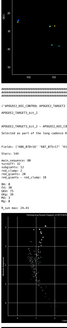
main_sequence: 51
turnoff: 34
subgiants: 0
red_clump: 0
red_giants: 0
red_giants - red_clump: 0

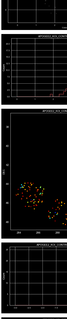
Ra: 0
Dec: 0
Ra: 983
Dec: 983
Ra: 360
Dec: 360

N_sim max: 36.84
```







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> APOGEE2_DEC_CENTRAL APOGEE2_TARGETS bit 2', 'APOGEE2_TARGETS', 2)

APOGEE2_TARGETS_bit_2 -- APOGEE2_DEC_CENTRAL

Selected as part of the long-cadence DEC "control sample"

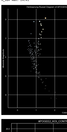
Fields: ['KIC_RA', 'KIC_DEC', 'KEP_RA', 'KEP_DEC', 'KLR_RA', 'KLR_DEC', 'K2_RA', 'K2_DEC']

Stars: 100

main_sequence: 80
turnoff: 31
giants: 69
red_clump: 0
rc_dist: 0.0
red_giants - red_clump: 10

Ok: 0
Bad: 0
Warn: 0
Ok: 0
No: 0
No: 0

N_sat Ave: 24.41
```



1'-SPRAGUE1_RUNNING_CLUSTER APOGEE2_TARGETS b1 b', 'APOGEE2_TARGETS', 51

APOGEE2_TARGETS_b1_b

Selected as part of the young cluster study (Bu-ONAC)

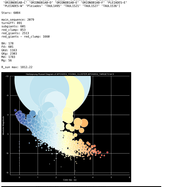
Fields: 1'-SPR-001 -0.5750000' 1'-SPR0000-001 -0.5750000' 1'-SPR0000-002 -0.5750000' 1'-SPR0000-003 -0.5750000' 1'-SPR0000-004 -0.5750000' 1'-SPR0000-005 -0.5750000' 1'-SPR0000-006 -0.5750000' 1'-SPR0000-007 -0.5750000' 1'-SPR0000-008 -0.5750000' 1'-SPR0000-009 -0.5750000' 1'-SPR0000-010 -0.5750000' 1'-SPR0000-011 -0.5750000' 1'-SPR0000-012 -0.5750000' 1'-SPR0000-013 -0.5750000' 1'-SPR0000-014 -0.5750000' 1'-SPR0000-015 -0.5750000' 1'-SPR0000-016 -0.5750000' 1'-SPR0000-017 -0.5750000' 1'-SPR0000-018 -0.5750000' 1'-SPR0000-019 -0.5750000' 1'-SPR0000-020 -0.5750000' 1'-SPR0000-021 -0.5750000' 1'-SPR0000-022 -0.5750000' 1'-SPR0000-023 -0.5750000' 1'-SPR0000-024 -0.5750000' 1'-SPR0000-025 -0.5750000' 1'-SPR0000-026 -0.5750000' 1'-SPR0000-027 -0.5750000' 1'-SPR0000-028 -0.5750000' 1'-SPR0000-029 -0.5750000' 1'-SPR0000-030 -0.5750000' 1'-SPR0000-031 -0.5750000' 1'-SPR0000-032 -0.5750000' 1'-SPR0000-033 -0.5750000' 1'-SPR0000-034 -0.5750000' 1'-SPR0000-035 -0.5750000' 1'-SPR0000-036 -0.5750000' 1'-SPR0000-037 -0.5750000' 1'-SPR0000-038 -0.5750000' 1'-SPR0000-039 -0.5750000' 1'-SPR0000-040 -0.5750000' 1'-SPR0000-041 -0.5750000' 1'-SPR0000-042 -0.5750000' 1'-SPR0000-043 -0.5750000' 1'-SPR0000-044 -0.5750000' 1'-SPR0000-045 -0.5750000' 1'-SPR0000-046 -0.5750000' 1'-SPR0000-047 -0.5750000' 1'-SPR0000-048 -0.5750000' 1'-SPR0000-049 -0.5750000' 1'-SPR0000-050 -0.5750000' 1'-SPR0000-051 -0.5750000' 1'-SPR0000-052 -0.5750000' 1'-SPR0000-053 -0.5750000' 1'-SPR0000-054 -0.5750000' 1'-SPR0000-055 -0.5750000' 1'-SPR0000-056 -0.5750000' 1'-SPR0000-057 -0.5750000' 1'-SPR0000-058 -0.5750000' 1'-SPR0000-059 -0.5750000' 1'-SPR0000-060 -0.5750000' 1'-SPR0000-061 -0.5750000' 1'-SPR0000-062 -0.5750000' 1'-SPR0000-063 -0.5750000' 1'-SPR0000-064 -0.5750000' 1'-SPR0000-065 -0.5750000' 1'-SPR0000-066 -0.5750000' 1'-SPR0000-067 -0.5750000' 1'-SPR0000-068 -0.5750000' 1'-SPR0000-069 -0.5750000' 1'-SPR0000-070 -0.5750000' 1'-SPR0000-071 -0.5750000' 1'-SPR0000-072 -0.5750000' 1'-SPR0000-073 -0.5750000' 1'-SPR0000-074 -0.5750000' 1'-SPR0000-075 -0.5750000' 1'-SPR0000-076 -0.5750000' 1'-SPR0000-077 -0.5750000' 1'-SPR0000-078 -0.5750000' 1'-SPR0000-079 -0.5750000' 1'-SPR0000-080 -0.5750000' 1'-SPR0000-081 -0.5750000' 1'-SPR0000-082 -0.5750000' 1'-SPR0000-083 -0.5750000' 1'-SPR0000-084 -0.5750000' 1'-SPR0000-085 -0.5750000' 1'-SPR0000-086 -0.5750000' 1'-SPR0000-087 -0.5750000' 1'-SPR0000-088 -0.5750000' 1'-SPR0000-089 -0.5750000' 1'-SPR0000-090 -0.5750000' 1'-SPR0000-091 -0.5750000' 1'-SPR0000-092 -0.5750000' 1'-SPR0000-093 -0.5750000' 1'-SPR0000-094 -0.5750000' 1'-SPR0000-095 -0.5750000' 1'-SPR0000-096 -0.5750000' 1'-SPR0000-097 -0.5750000' 1'-SPR0000-098 -0.5750000' 1'-SPR0000-099 -0.5750000' 1'-SPR0000-100 -0.5750000'

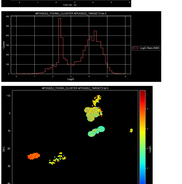
Stars: 4000

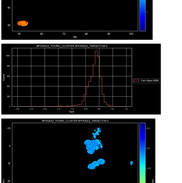
Main_sequence: 2870
Giants: 1130
subgiants: 0
RC: 0
RGB: 0
AGB: 0
HeB: 0
RR: 0
Mira: 0
red_giant: -log(Lum): 5000

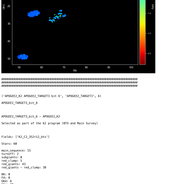
Dec: 15
Gal_b: 0
Gal_l: 163
Mag: 12.5
Mag_err: 0.05
Mass: 1.0

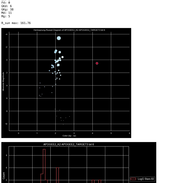
N_per_deg: 1653.22











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1'-SPRAGUE1_K3 APOGEE2_TARGETS b1 b', 'APOGEE2_TARGETS', 41

APOGEE2_TARGETS_b1_b

APOGEE2_TARGETS_b1_b - APOGEE2_K3

Selected as part of the K3 program (DFS and Mann Survey)

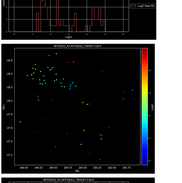
Fields: 1'K3_II_DS+C13_dir 1

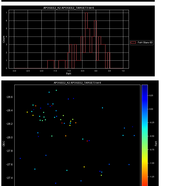
Stars: 4000

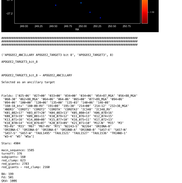
main_sequence: 15
Giants: 4000
subgiants: 0
RC_clumps: 0
red_giants: 0
red_giants: -log(Lum): 30

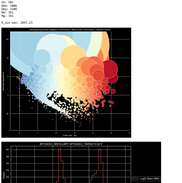
Dec: 0
Gal_b: 0
Gal_l: 0
Mag: 10
Mag_err: 0.05
Mass: 1.0

N_per_deg: 101.76









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1'-SPRAGUE1_BACLLAR1 APOGEE2_TARGETS b1 b', 'APOGEE2_TARGETS', 82

APOGEE2_TARGETS_b1_b

APOGEE2_TARGETS_b1_b - APOGEE2_BACLLAR1

Selected as an ancillary target

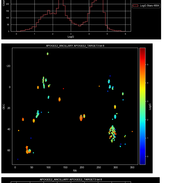
Fields: 1'BCD-001 -0.5750000' 1'BCD-002 -0.5750000' 1'BCD-003 -0.5750000' 1'BCD-004 -0.5750000' 1'BCD-005 -0.5750000' 1'BCD-006 -0.5750000' 1'BCD-007 -0.5750000' 1'BCD-008 -0.5750000' 1'BCD-009 -0.5750000' 1'BCD-010 -0.5750000' 1'BCD-011 -0.5750000' 1'BCD-012 -0.5750000' 1'BCD-013 -0.5750000' 1'BCD-014 -0.5750000' 1'BCD-015 -0.5750000' 1'BCD-016 -0.5750000' 1'BCD-017 -0.5750000' 1'BCD-018 -0.5750000' 1'BCD-019 -0.5750000' 1'BCD-020 -0.5750000' 1'BCD-021 -0.5750000' 1'BCD-022 -0.5750000' 1'BCD-023 -0.5750000' 1'BCD-024 -0.5750000' 1'BCD-025 -0.5750000' 1'BCD-026 -0.5750000' 1'BCD-027 -0.5750000' 1'BCD-028 -0.5750000' 1'BCD-029 -0.5750000' 1'BCD-030 -0.5750000' 1'BCD-031 -0.5750000' 1'BCD-032 -0.5750000' 1'BCD-033 -0.5750000' 1'BCD-034 -0.5750000' 1'BCD-035 -0.5750000' 1'BCD-036 -0.5750000' 1'BCD-037 -0.5750000' 1'BCD-038 -0.5750000' 1'BCD-039 -0.5750000' 1'BCD-040 -0.5750000' 1'BCD-041 -0.5750000' 1'BCD-042 -0.5750000' 1'BCD-043 -0.5750000' 1'BCD-044 -0.5750000' 1'BCD-045 -0.5750000' 1'BCD-046 -0.5750000' 1'BCD-047 -0.5750000' 1'BCD-048 -0.5750000' 1'BCD-049 -0.5750000' 1'BCD-050 -0.5750000' 1'BCD-051 -0.5750000' 1'BCD-052 -0.5750000' 1'BCD-053 -0.5750000' 1'BCD-054 -0.5750000' 1'BCD-055 -0.5750000' 1'BCD-056 -0.5750000' 1'BCD-057 -0.5750000' 1'BCD-058 -0.5750000' 1'BCD-059 -0.5750000' 1'BCD-060 -0.5750000' 1'BCD-061 -0.5750000' 1'BCD-062 -0.5750000' 1'BCD-063 -0.5750000' 1'BCD-064 -0.5750000' 1'BCD-065 -0.5750000' 1'BCD-066 -0.5750000' 1'BCD-067 -0.5750000' 1'BCD-068 -0.5750000' 1'BCD-069 -0.5750000' 1'BCD-070 -0.5750000' 1'BCD-071 -0.5750000' 1'BCD-072 -0.5750000' 1'BCD-073 -0.5750000' 1'BCD-074 -0.5750000' 1'BCD-075 -0.5750000' 1'BCD-076 -0.5750000' 1'BCD-077 -0.5750000' 1'BCD-078 -0.5750000' 1'BCD-079 -0.5750000' 1'BCD-080 -0.5750000' 1'BCD-081 -0.5750000' 1'BCD-082 -0.5750000'

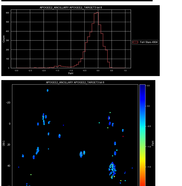
Stars: 4000

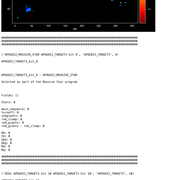
main_sequence: 2585
Giants: 1415
subgiants: 0
RC: 0
RGB: 0
red_giants: 2160

Dec: 15
Gal_b: 0
Gal_l: 163
Mag: 12.5
Mag_err: 0.05
Mass: 1.0

N_per_deg: 2047.23







==========

1'-APOGEE2_MASSIVE_STAR APOGEE2_TARGETS b1 b', 'APOGEE2_TARGETS', 81

APOGEE2_TARGETS_b1_b

APOGEE2_TARGETS_b1_b - APOGEE2_MASSIVE_STAR

Selected as part of the Massive Star program

Fields: 1'

Stars: 0

main_sequence: 0
Giants: 0
subgiants: 0
RC: 0
red_giants: 0

Dec: 15
Gal_b: 0
Gal_l: 163
Mag: 0
Mag_err: 0
Mass: 0

N_per_deg: 0

==========

1'SDSS APOGEE2_TARGETS b1 b' APOGEE2_TARGETS b1 b', 'APOGEE2_TARGETS', 10:

APOGEE2_TARGETS_b1_b' - APOGEE2_SDSS

Ancillary SDSS program

Stars 10

Fields: 1'Ophiuchi -5.0000000'
A collection of high-redshift quasars (z>2.0) to detect HI-IGGIES emission shifted into the near-IR.
Starting with DR7,SDSS quasars of the SDSS-III/BOSS-ORIGS catalog.
Selected from the DR7 catalog of SDSS quasars with redshifts and redshift in the range 2.06 z z 2.36.
Quasars in the redshift range 2.06 z z 2.36 have their Ly-alpha emission redshifted into the H-Mag.
For the remaining ones, we checked the correlation between BOSS Mineral Measurements.
For the remaining ones, we checked the correlation between BOSS Mineral Measurements.
Quasars with a good correlation between the two measurements are kept for future observations.
Quasars with a bad correlation between the two measurements are rejected.
Ancillary science case is to search for Lyman-alpha emitters in the redshift range 2.06 z z 2.36 with SDSS measurements to be
confirmed.
In the end, we obtain a sample of 63,875 quasars. The APOGEE-2N Halo Fields contain 873 quasars.
Targets are prioritized by Mineral magnitude.

Fields: 1'

Stars: 0

main_sequence: 0
Giants: 0
subgiants: 0
RC: 0
red_giants: 0

Dec: 0
Gal_b: 0
Gal_l: 0
Mag: 0
Mag_err: 0
Mass: 0

N_per_deg: 0

==========

1'Cepheus APOGEE2_TARGETS b1 b', 'APOGEE2_TARGETS', 11:

APOGEE2_TARGETS_b1_b'

APOGEE2_TARGETS_b1_b' - APOGEE2_CEPHEID

Ancillary Cepheid spectra targets

Stars 11

RV, Galactic, [Fe/H]-Cepheid Stars
A set of Galactic Cepheids throughout the disk, to obtain multi-species abundances.
Cepheids are a key tracer of Galactic chemical evolution and Galactic structure. Cepheids are
known as all-ABundant, sensitive to those stars of varied Galactic and metallicities.
Cepheids are also a key tracer of Galactic structure and Galactic kinematics.
The RVS Cepheid sampling is further restricted to those stars with R magnitudes between 8.5 and 12.
Cepheids are known to be variable, and the RVS observations will be taken at random epochs (different phases).
Cepheids have very wide period range from some days and expected to show a RVS-color sensitivity relationship.
Cepheids with periods longer than some days were included in the target selection to increase overlap with the Gaia-ESO and
ARCHES, GBES.
Cepheids with periods longer than 10 days were included in the target selection to increase overlap with the Gaia-ESO and
ARCHES, GBES.

Fields: 1'RCD-001 'RCD001'

Stars: 2

main_sequence: 0
Giants: 2
subgiants: 0
RC: 0
RGB: 0
red_giants: 0

Dec: 0
Gal_b: 0
Gal_l: 0
Mag: 0
Mag_err: 0
Mass: 0

N_per_deg: 0

==========

1'Lyn Extinction Disk APOGEE2_TARGETS b1 b', 'APOGEE2_TARGETS', 121

APOGEE2_TARGETS_b1_b'

APOGEE2_TARGETS_b1_b' - APOGEE2_LYN_NC_NONRAND

Ancillary Deep Drill search - Lyn_Extinction_Disk

Stars 500

Lyn Extinction Chemistry of Perseus
A study of Chemical gradient in low-extinction windows, to sample the far reaches of the Milky-Way's disk.
For each pointing, targets are selected in the region of the field for which 0mag < J-Ks < 1.4 mag.
Stars with J-Ks > 1.4 mag are rejected, to avoid the inclusion of giants, which are known to have a distance and
extinction independent J-Ks color.
Stars with J-Ks < 0 mag are rejected from the DR16 catalog using the same 2MASS quality cuts and RJCE dereddening as the
standard APOGEE disk targets.
Stars with J-Ks > 1.4 mag are accepted by selecting stars with (J - H)0 > 0.6 mag and (J - Ks) > 1.5 mag.
Stars with J-Ks < 0 mag are accepted if they are in the top 10 of the sort already observed as part of the regular disk
targeting.
Fig. 4 and 1 in Ardelan Fields are flagged, but not re-observed.

Generated by Cassandra of Geneva

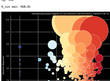
Pulsar 'J1746-0118' 'B1746-0118' 'B1746+0'

Stars: 1

main_sequence: 0
turnoff: 0
subgiants: 0
giants: 0
red_giants: 0
red_clump: 0
red_giants + red_clump: 500

Mu: 0
Mv: 0
Omy: 0
Omz: 0.14
Mz: 0
Mr: 0

N_sun mass: 998.95



Cumulative Distribution Function, Total=12,146,16
Full Data (12M)

{'M Dwarfs in Harder APOGEE_TARGETS bit 21', 'APOGEE_TARGETS', 21}

APOGEE_TARGETS_bit_21

APOGEE_TARGETS_bit_21 = APOGEE2_EXTRA_MDWARF_MED

Description:M Dwarf targets - M dwarfs in Harder

Stars: 24

RV: 24, Dwarfs: 24, Giants: 0
Metallicity: 24
Alpha: 24
Age: 0
Mass: 24
Distance: 24
Carbon: 24
Nitrogen: 24

Total Count: 85,28

Fields: {'2401,8711+30', '2401,8711+30', '2401,8711+30', '2401,8711+31', '2401,8711+31', '2401,8711+31', '2401,8711+32', '2401,8711+32', '2401,8711+32', '2401,8711+33', '2401,8711+33', '2401,8711+33'}

Stars: 24

mean_separation: 31
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
red_giants: 0, red_clump: 0

Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0

N_per_deg: 85,28

{'Red Star APOGEE_TARGETS bit 22', 'APOGEE_TARGETS', 22}

APOGEE_TARGETS_bit_22

APOGEE_TARGETS_bit_22 = APOGEE2_RGB

Description:APOGEE RGB sample - RGB Stars

Stars: 24

RV: 24, Dwarfs: 24, Giants: 0
A study of the chemical abundances of a sample of galactic carbon-rich asymptotic giant branch (AGB) stars, post-AGB stars, and post-red giant branch (RGB) stars.
The targets were selected using four different samples:(1) the sample of Lloyd Evans (1991) of AGB stars;(2) the sample of Jorissen et al. (1997) of post-AGB stars;(3) the sample of Van Winckel & Reyniers (2000) of post-RGB stars;(4) the Hipparcos/ESA Catalogue of Galactic Planetary Nebulae (Acker et al. 1992).
The AGB stars are from the DENIS Survey of Southern Galactic Plane (Epchtein et al. 1997), and the post-AGB stars of Reyniers & Van Winckel (2001, unpublished).

A cross-match with the APOGEE-DR Fields was performed, finally selecting the targets with 2MASS H-band magnitude 7.0 < H < 13.5 mag.

Fields: {'0000+00', '004+00', '006+00', '120+00', '120+00', '120+00', '120+00', '120+00', '120+00', '121+00'}

Stars: 24

mean_separation: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
red_giants: 0, red_clump: 12

Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0

N_per_deg: 146,85

{'M93 Star Clusters APOGEE_TARGETS bit 22', 'APOGEE_TARGETS', 23}

APOGEE_TARGETS_bit_23

APOGEE_TARGETS_bit_23 = APOGEE2_M93

Description:M93 Program Unguided - M93 Star Clusters

Stars: 24

Dr. Sten Hasselquist (University of Virginia)
M93 has young and old Galactic clusters (Salaris, spanning from 1 to 12 Gyr (Chaboyer et al. 2000; Beasley et al. 2001). Its metallicity is [Fe/H] = -0.15 (Carretta et al. 2009), spanning from -0.3 to +0.1 (Carretta et al. 2009). Its stratigraphic(?) has been studied by Sarah Martell astronomically because many have high integrated [Na/Fe] (Martell et al. 2008; Martell et al. 2011).
The integrated [Na/Fe] enhancement is thought to be related to the formation process of these clusters.
Stars with high [Na/Fe] are also more likely to host planets (Adamow et al. 2012; Kepler Mission).

Scientifically, abundance variations have not been observed in young intermediate-age MW Star Clusters (Li et al. 2013). This we propose a detailed APOGEE IR integrated-light spectra analysis on young and old (1 vs M67) M-rich this hypothesis.

Fields: {'M93'}

Stars: 24

mean_separation: 35
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
red_giants: 0, red_clump: 0

Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0

N_per_deg: 1,16

{'Lowest Mass Stars & Brown Dwarfs APOGEE_TARGETS bit 24', 'APOGEE_TARGETS', 24}

APOGEE_TARGETS_bit_24

APOGEE_TARGETS_bit_24 = APOGEE2_BROWN

Description:Lowest Mass Stars & Brown Dwarfs - Stars 9

Lowest Mass Stars & Brown Dwarfs

Dr. Jennifer Cash (University of California-San Diego)
This proposal seeks to obtain APOGEE-based spectral library for Lateb M and L dwarf stars.
These are low-mass(?) dwarfs.
Spectral type, metallicity, gravity and rotational broadening(?) for the nearby population.
Stars with high-resolution optical spectroscopy have been observed with Keck/HIRES and Magellan/MIKE.
Spectral type and metallicity are known for these stars and are used as the comparison to the APOGEE data.
The desired scientific outcome is improved spectral models which the Hydrogen-burning limit, which is a key boundary in the classification of substellar objects and has numerous astrophysical impact systems.

Fields: {'2151+04,M67'}

Stars: 1

mean_separation: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
red_giants: 0, red_clump: 0

Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0

N_per_deg: 0

{'Distant Main Giants APOGEE_TARGETS bit 25', 'APOGEE_TARGETS', 25}

APOGEE_TARGETS_bit_25

APOGEE_TARGETS_bit_25 = APOGEE2_DISTANT_GIANT_COMETS

Description:APOGEE Distant Giants Program (Marburg) - Distant Main Giants

Stars: 0

Dr. K. Marding (Case Western Reserve University)
Note that the strategy and targets for this program were absorbed into and expanded upon for the Bright Time Extension sub-program with the same name.

Fields: {}

Stars: 0

mean_separation: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
red_giants: 0, red_clump: 0

N_per_deg: 0

{'Mapping the Inner Galaxy APOGEE_TARGETS bit 26', 'APOGEE_TARGETS', 26}

APOGEE_TARGETS_bit_26

APOGEE_TARGETS_bit_26 = APOGEE2_INNER_MAPPING

Description:Mapping Inner Galaxy - Mapping the Inner Galaxy

Stars: 24

Dr. G. Zasowski (Johns Hopkins University)
Goals: Mapping the Inner Galaxy will provide a comprehensive map of Cepheids throughout the Galaxy, both to understand better the galactic radial gradients, and to make a map of the "young" stellar disk, which is thought to be dynamically distinct from the older stellar populations. Cepheids are ideal for this, due to an extremely accurate and simplified
Cepheids are thought to be the detected chemical composition of the young galactic disk with abundance-dependent Cepheids.

Fields: {'0010,M7','0010,M7'}

Stars: 2

mean_separation: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
sumgalmb: 0
red_giants: 0, red_clump: 1

Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0
Dec: 0

('Selected Area 57 APOGEE2_TARGET1 bit 27', 'APOGEE2_TARGET1', 27)

APOGEE2_TARGET1_bit_27

APOGEE2_TARGET1_bit_27 - APOGEE2_SA57

Ancillary SA57 Kapteyn Field Program (MacDonald) - Selected Area 57

Stars 991

PI: N. MacDonald (University of Virginia)
Selected Area 57 (SA57) is the nearest of Kapteyn's Selected Areas to the North Galactic Pole. SA57. is a well-studied field that has been observed in many different wavelength regimes and its data products can easily be accessed. Because of its minimal stellar foreground, SA57 has traditionally played a significant role in a variety of extragalactic studies.
Tracing the vertical density laws of the Galactic stellar populations to deep studies of galaxies and quasars. SA57 has been observed extensively in wavelengths ranging extension photometry, astrometry, and spectroscopy.
To date, no high-resolution spectroscopy exists.
The APOGEE observations here are intended to lie state-of-the-art chemistry of giant stars in this direction
The SA57 field is also observed as part of the APOGEE-2 "Galactic Halo" program.
So the rich legacy of previous observations on this field
will be augmented by APOGEE-2 data in the future. Providing three cohorts in a "wedding-cake" arrangement.
First, 3-visit "short cohort" stars to R = 12.2 mag.
Second, 6-visit "medium cohort" stars to R = 13.8 mag to areas where two plates overlap.
Lastly, 12-visit "long cohort" stars that span R = 13.8-14.0 mag for the central area where all four plates overlap.

---

fields: ['0544+57_NGA', '0554+60_MGA', '0612+60_MGA', '0734+58_MGA', 'SA57-E', 'SA57-N', 'SA57-S']

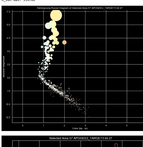
Stars 623

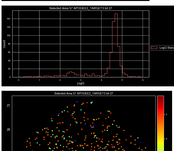
---

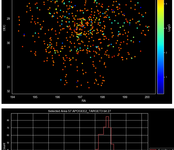
main_sequences: 496
giants: 127
subgiants: 12
red_clumps: 10
rc_candidates: 12
red_giants = rc_clumps: 89

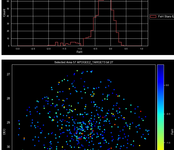
DEC: 0
GLAT: 0
GLON: 180
Mag: 14.5
Mag: 13.5
Mag: 0

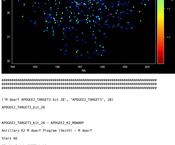
N_exp max: 154.00











##
##

('M dwarf APOGEE2_TARGET1 bit 28', 'APOGEE2_TARGET1', 28)

APOGEE2_TARGET1_bit_28

APOGEE2_TARGET1_bit_28 - APOGEE2_AS1_MDWARF

Ancillary AS1 M dwarf Program (Smith) - M dwarf

Stars 66

PI: G. Smith (MPIA Lab)
The targets for this program were absorbed into the AS1 Science Program in the Bright Time Extension.

---

fields: ['KS_CI_2SD+52.6Hr']

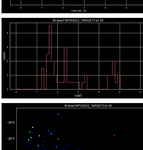
Stars 51

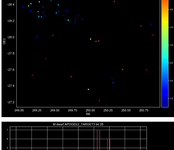
---

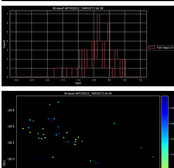
main_sequences: 11
giants: 40
subgiants: 0
red_clumps: 0
rc_candidates: 0
red_giants = rc_clumps: 35

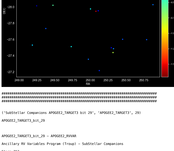
DEC: 0
GLAT: 0
GLON: 0
Mag: 13
Mag: 11
Mag: 0

N_exp max: 203.76









##
##

('Subdtellar Companions APOGEE2_TARGET1 bit 29', 'APOGEE2_TARGET1', 29)

APOGEE2_TARGET1_bit_29

APOGEE2_TARGET1_bit_29 - APOGEE2_MVHAR

Ancillary MV Variables Program (Troup) - Subdtellar Companions

---

Stars 982

PI: N. Troup (Salisbury University)
This ancillary program expands upon the APOGEE Subdtellar Companion goal science program.
The Subdtellar Companion program is acquiring MV observations over a long temporal baseline for field stars.
The goal of this program is to detect and characterize low-mass companions, substellar objects, brown dwarfs, and stellar variability and stellar density as a function of the stellar environment plays in the formation and evolution of stellar systems.
Additionally, this program extended the temporal baseline for targets observed in APOGEE-1 and increased the number of MV measurements.
to enable robust orbital fits.

---

fields: ['300-GD_64', '2136B', '2136_RV', 'M3-RV', 'M67', 'M67-RV']

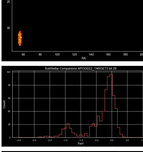
Stars 979

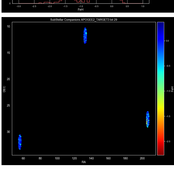
---

main_sequences: 419
giants: 421
subgiants: 21
red_clumps: 10
rc_candidates: 10
red_giants = rc_clumps: 138

DEC: 0
GLAT: 0
GLON: 180
Mag: 14.5
Mag: 13.5
Mag: 0

N_exp max: 2845.23





##
##

('M31 Integrated Starlight APOGEE2_TARGET1 bit 30', 'APOGEE2_TARGET1', 30)

APOGEE2_TARGET1_bit_30

Ancillary M31 Program (Zasowski) - M31 Integrated Starlight

Stars 16

PI: A. Zasowski (University of Utah)
We aim to understand the chemistry of the M*s history that has resulted in the (alpha/Fe)-(Fe/H) patterns seen in its disk stars.
We are obtaining integrated light spectra of numerous positions on M31's disk.
APOGEE-2 employ new methods to extract information about the chemical and dynamical complexity in our nearest large galactic neighbor.

---

fields: ['M60FS']

Stars: 3

---

main_sequences: 2
giants: 1
subgiants: 0
red_clumps: 0
rc_candidates: 0
red_giants = rc_clumps: 0

DEC: 0
GLAT: 0
GLON: 0
Mag: 0
Mag: 0

No exception has occurred, use 'sys.to.see the full traceback.

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SystemExit
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(2)

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(1)

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(0)