

# KIC 005953028

## Q1-17 DR25 TCE Parameters

| TCE          | Run Type | KOI? | Period (Days) | Epoch (BKJD) | Depth (ppm) | Duration (Hours) | MES | SNR | $R_{\star}$ ( $R_{\odot}$ ) | $T_{\star}$ (K) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 005953028-01 | OBS      | No   | 1.210017      | 132.701960   | 13.7        | 4.427            | 7.7 | 7.2 | 1.15                        | 6024            | 0.49                   | 3215.51                |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 005953028-01 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | LPP_DV—LPP_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST |

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

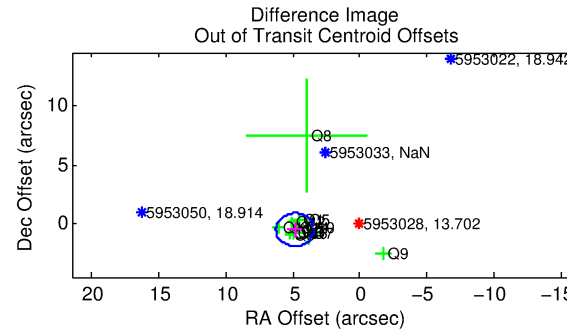
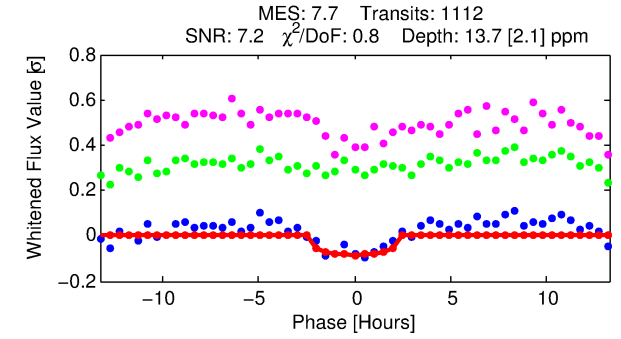
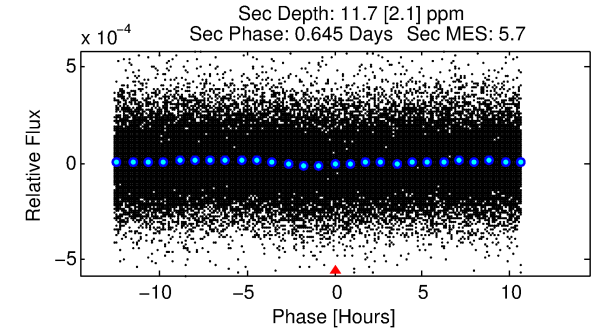
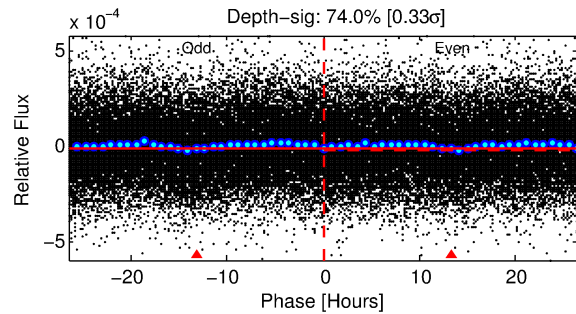
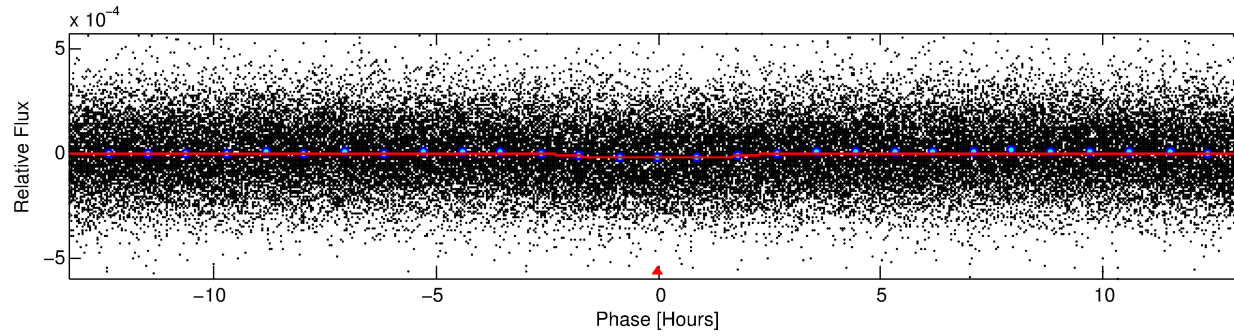
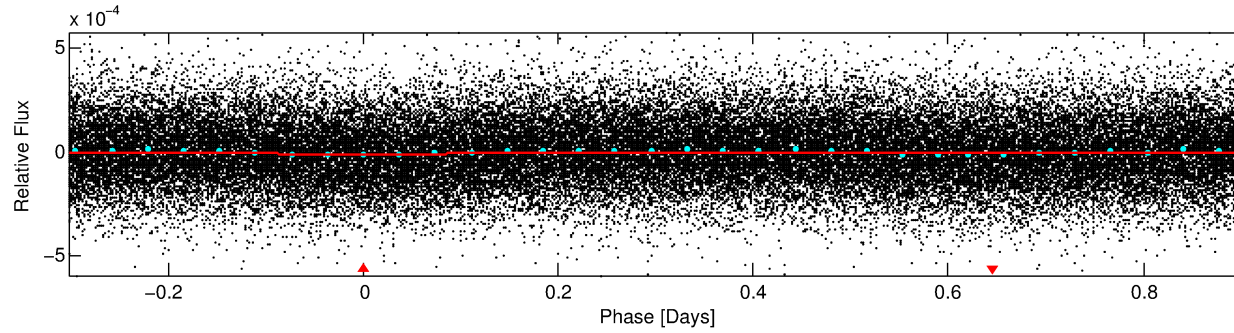
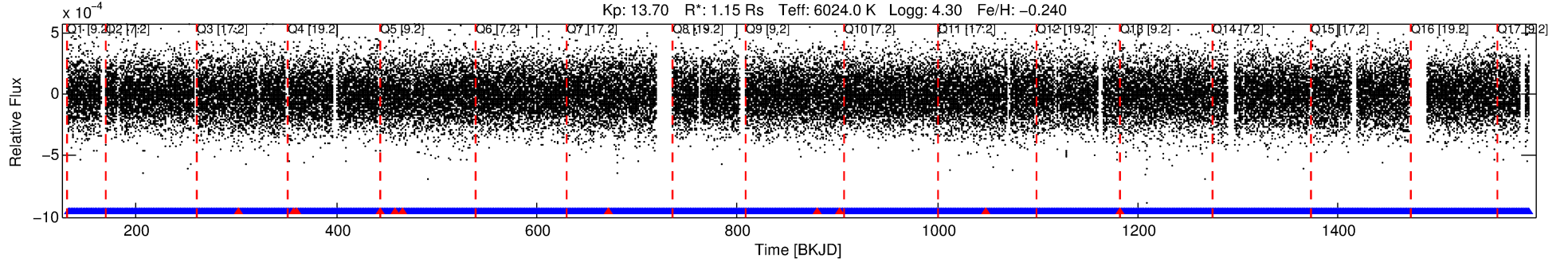
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005953028-01

No Significant Match Found

# DV One-Page Summary

KIC: 5953028 Candidate: 1 of 1 Period: 1.210 d



## DV Fit Results:

Period = 1.21002 [0.00002] d  
Epoch = 132.7020 [0.0072] BKJD  
Rp/R\* = 0.0039 [0.0017]  
a/R\* = 1.36 [1.37]  
b = 0.88 [0.55]  
Seff = 3215.51 [791.82]  
Teq = 1920 [118] K  
Rp = 0.49 [0.22] Re  
a = 0.0219 [0.0032] AU  
Ag = 12.77 [11.43] [1.03 $\sigma$ ]  
Teffp = 5612 [1212] K [3.03 $\sigma$ ]

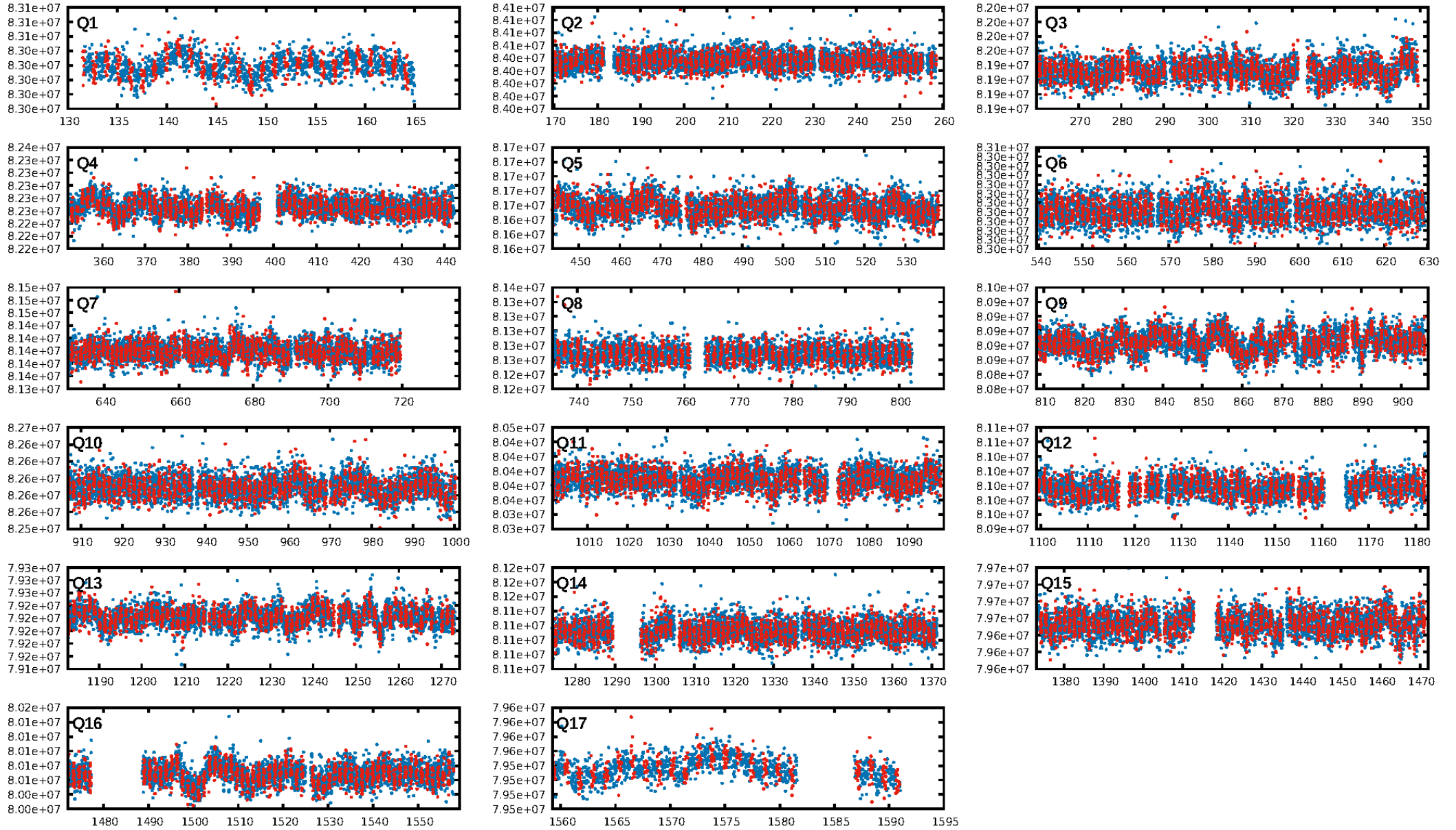
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.23e-13  
RollingBand-fgt: 0.99 [1050/1061]  
GhostDiagnostic-chr: 0.06697  
Centroid-sig: 0.0%  
Centroid-so: 6.385 arcsec [3.18 $\sigma$ ]  
OotOffset-rm: 4.896 arcsec [10.42 $\sigma$ ]  
KicOffset-rm: 4.940 arcsec [11.18 $\sigma$ ]  
OotOffset-st: 4/4/3/3 [14]  
KicOffset-st: 4/4/3/3 [14]  
DiffImageQuality-fgm: 0.57 [8/14]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 20:04:02 Z

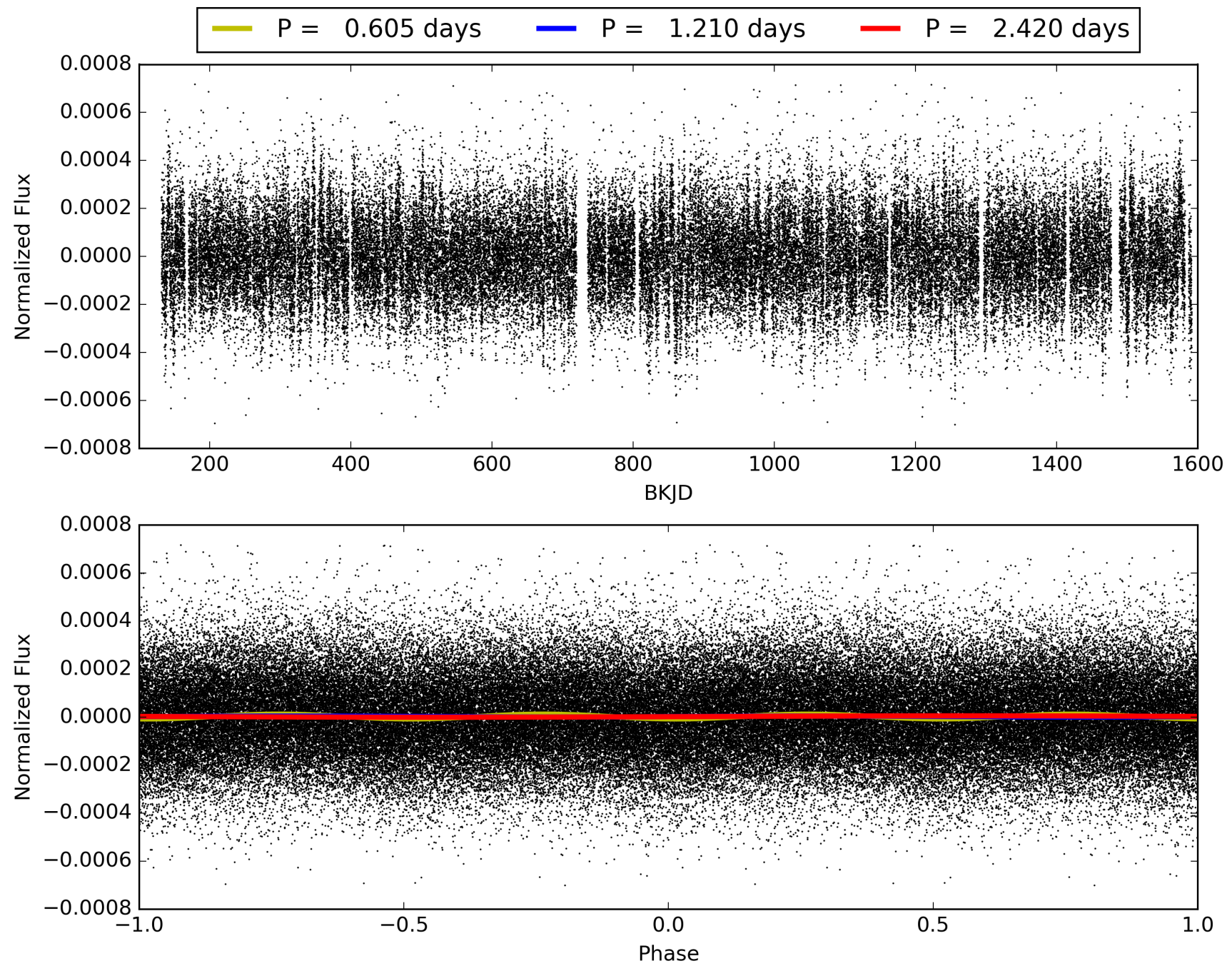
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005953028-01, PDC Light Curves



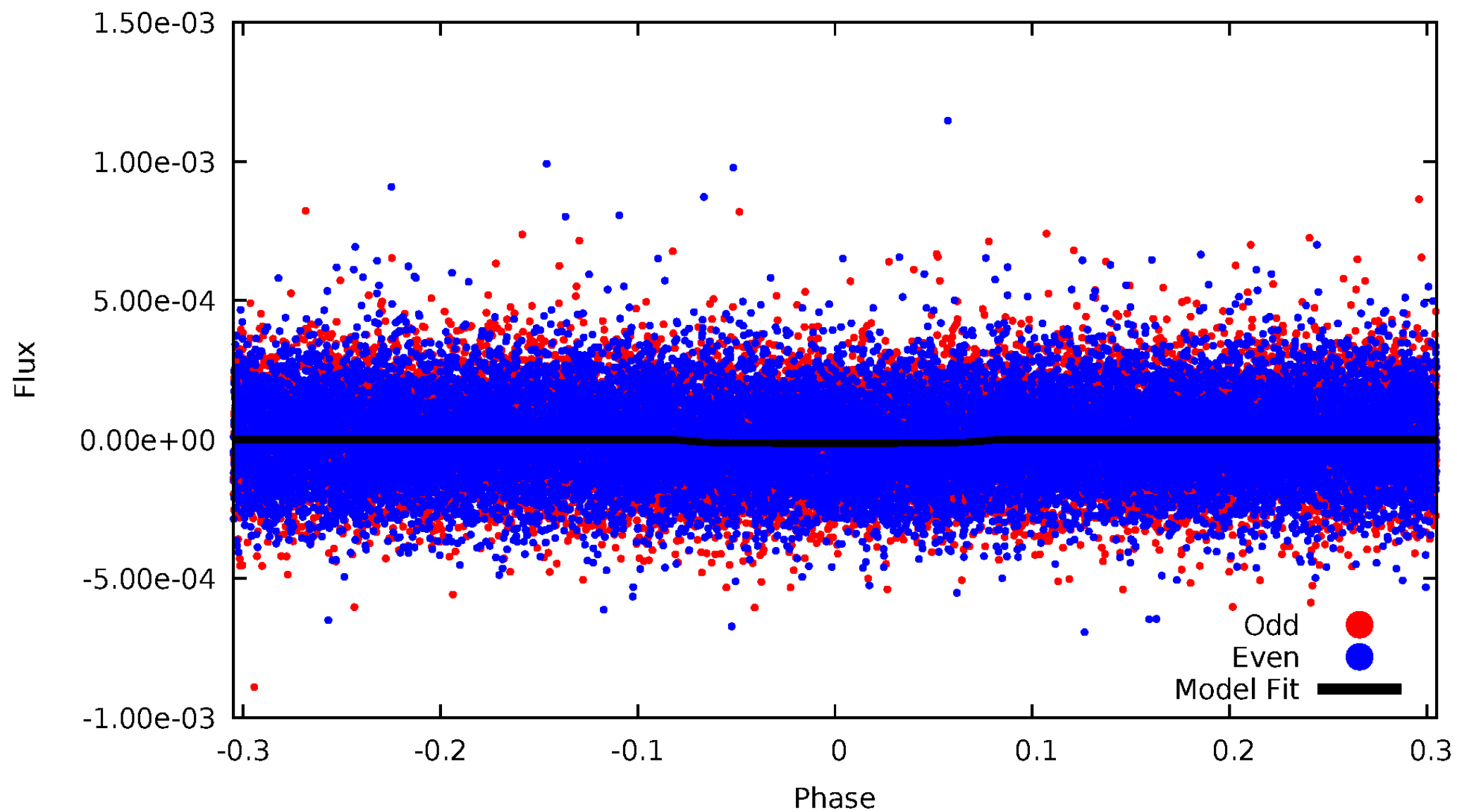


TCE 005953028-01



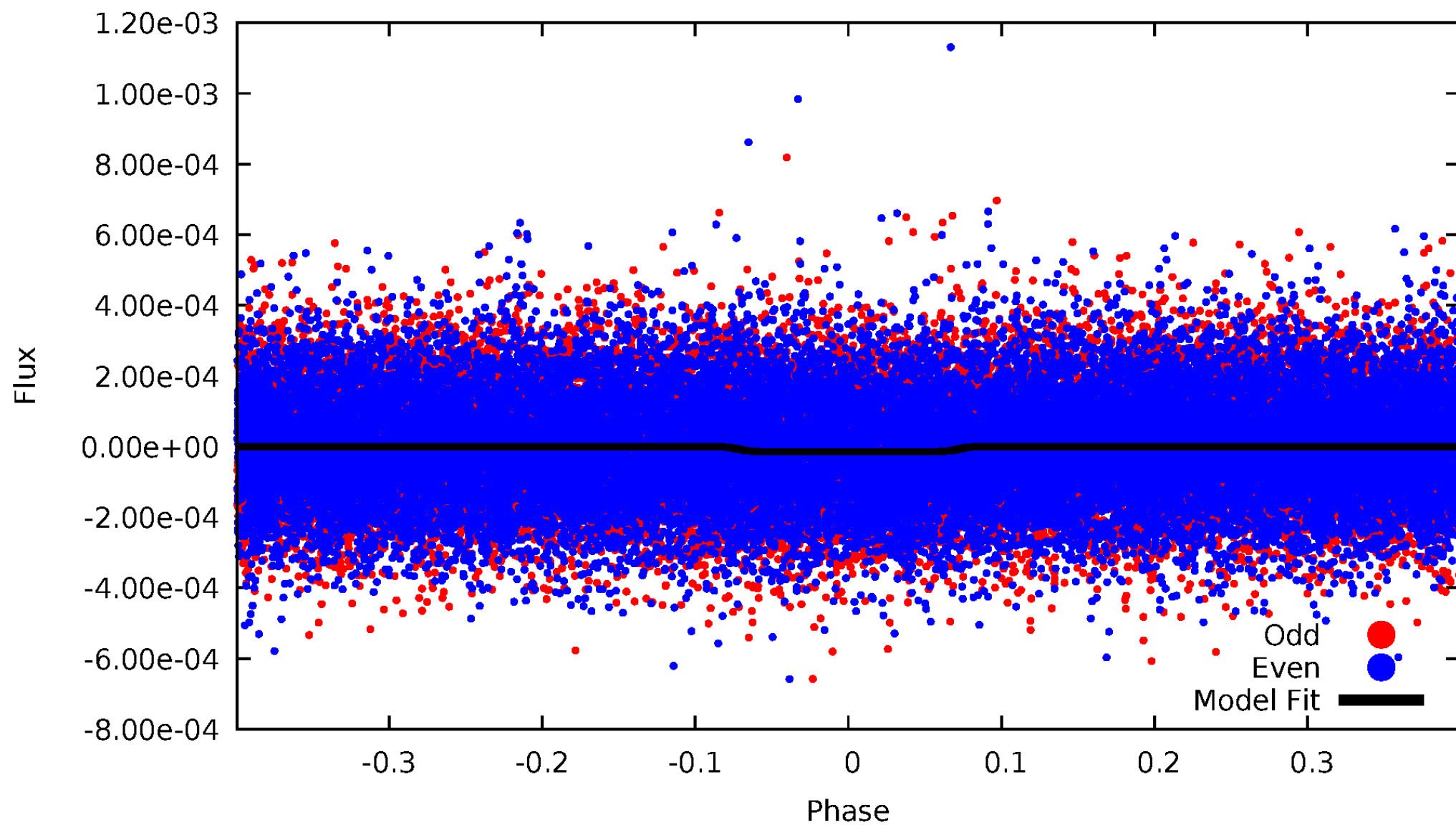
# DV Odd/Even

TCE 005953028-01



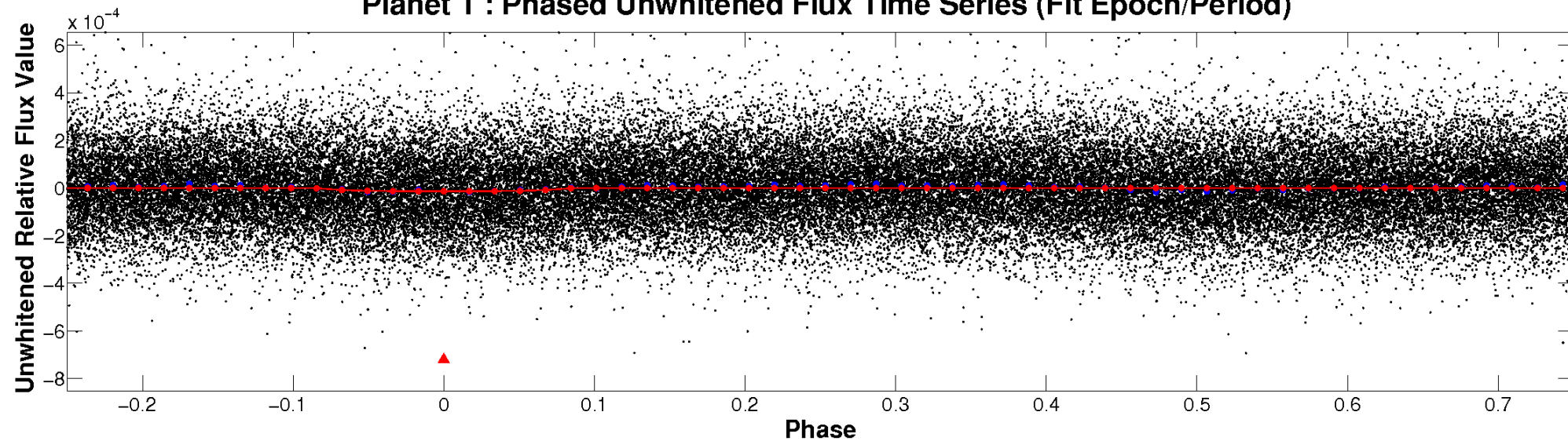
# ALT Odd/Even

TCE 005953028-01

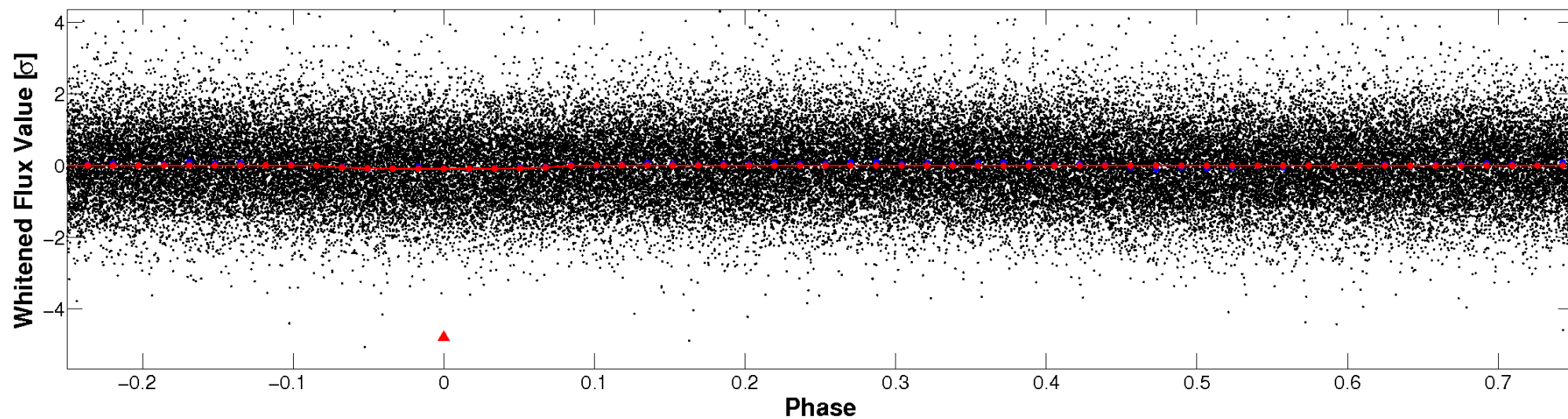


# Non-Whitened Vs. Whitened Light Curve

## Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



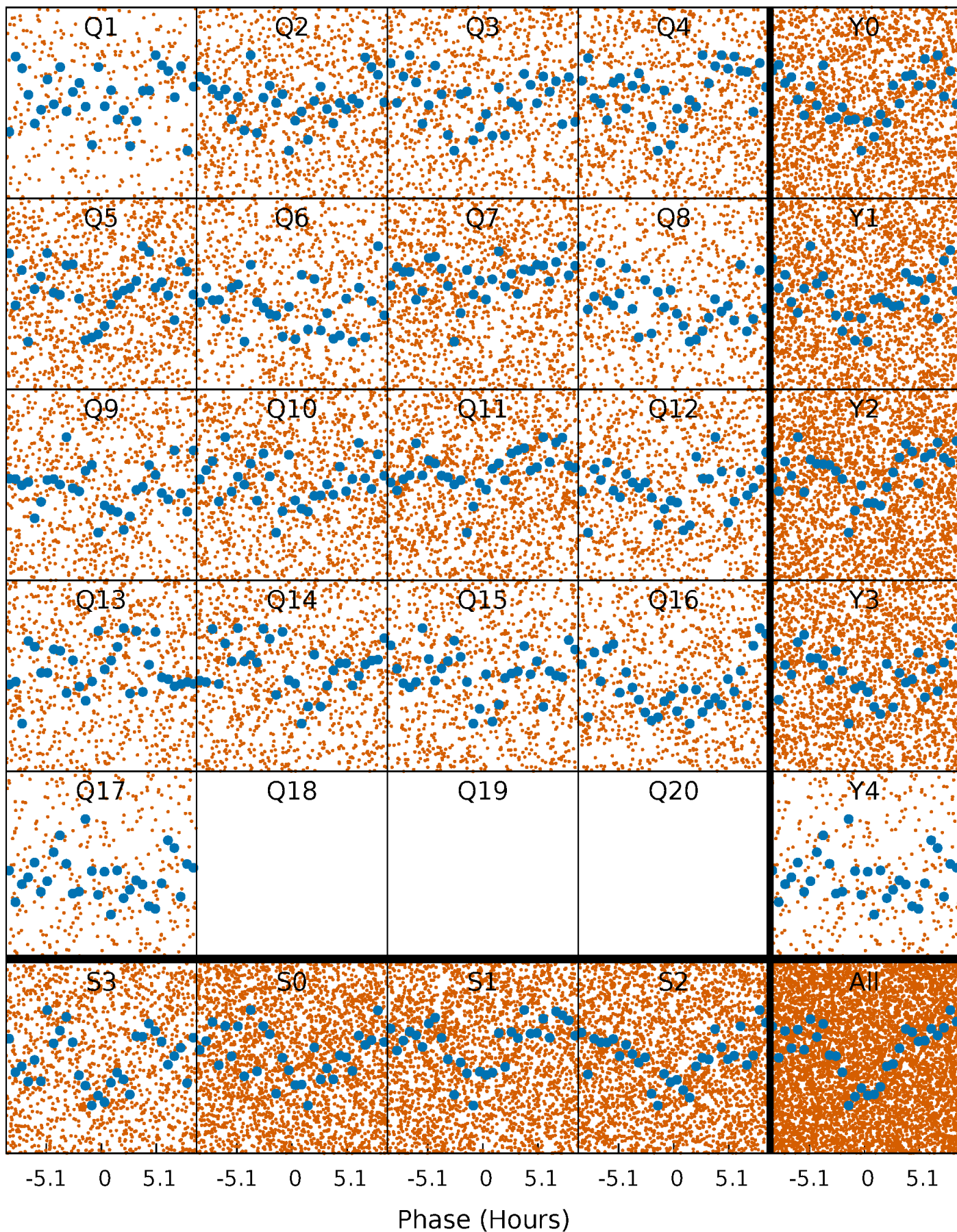
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

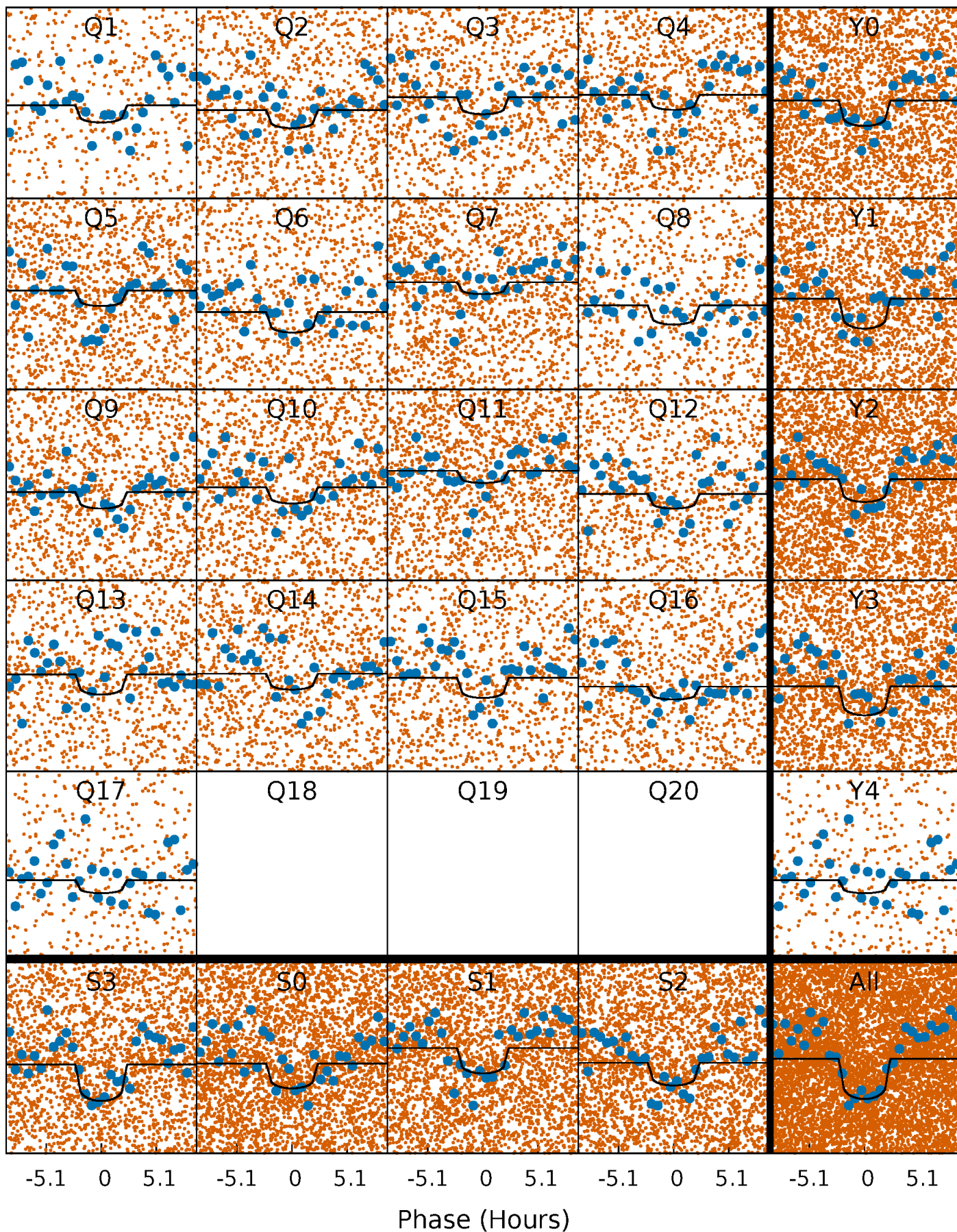
TCE 005953028-01 P= 1.210017 Days  $T_0=132.701960$  (BKJD)





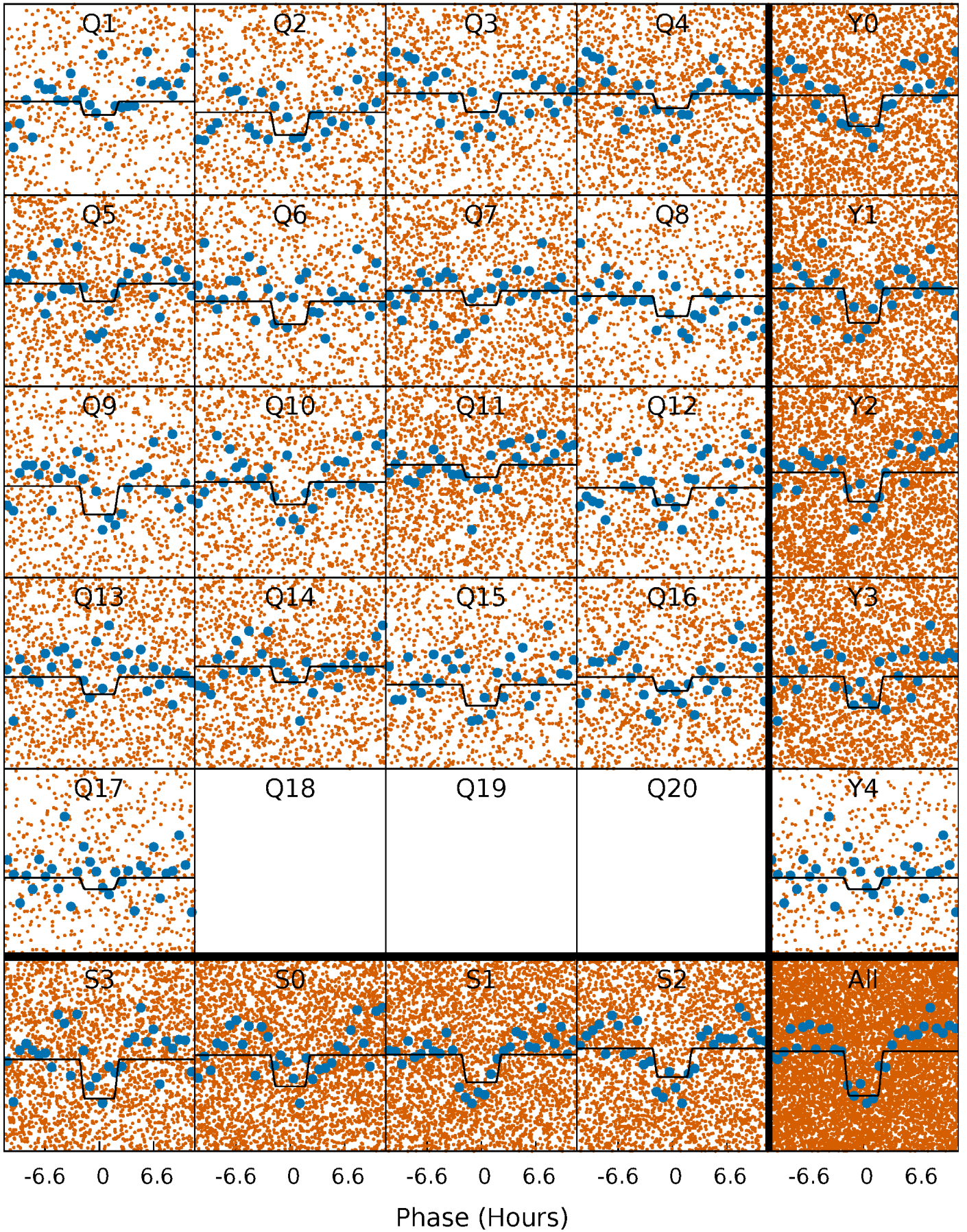
# DV Quarter-Phased Transit Curves

TCE 005953028-01 P= 1.210017 Days  $T_0=132.701960$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005953028-01 P= 1.210045 Days  $T_0=132.677997$  (BKJD)

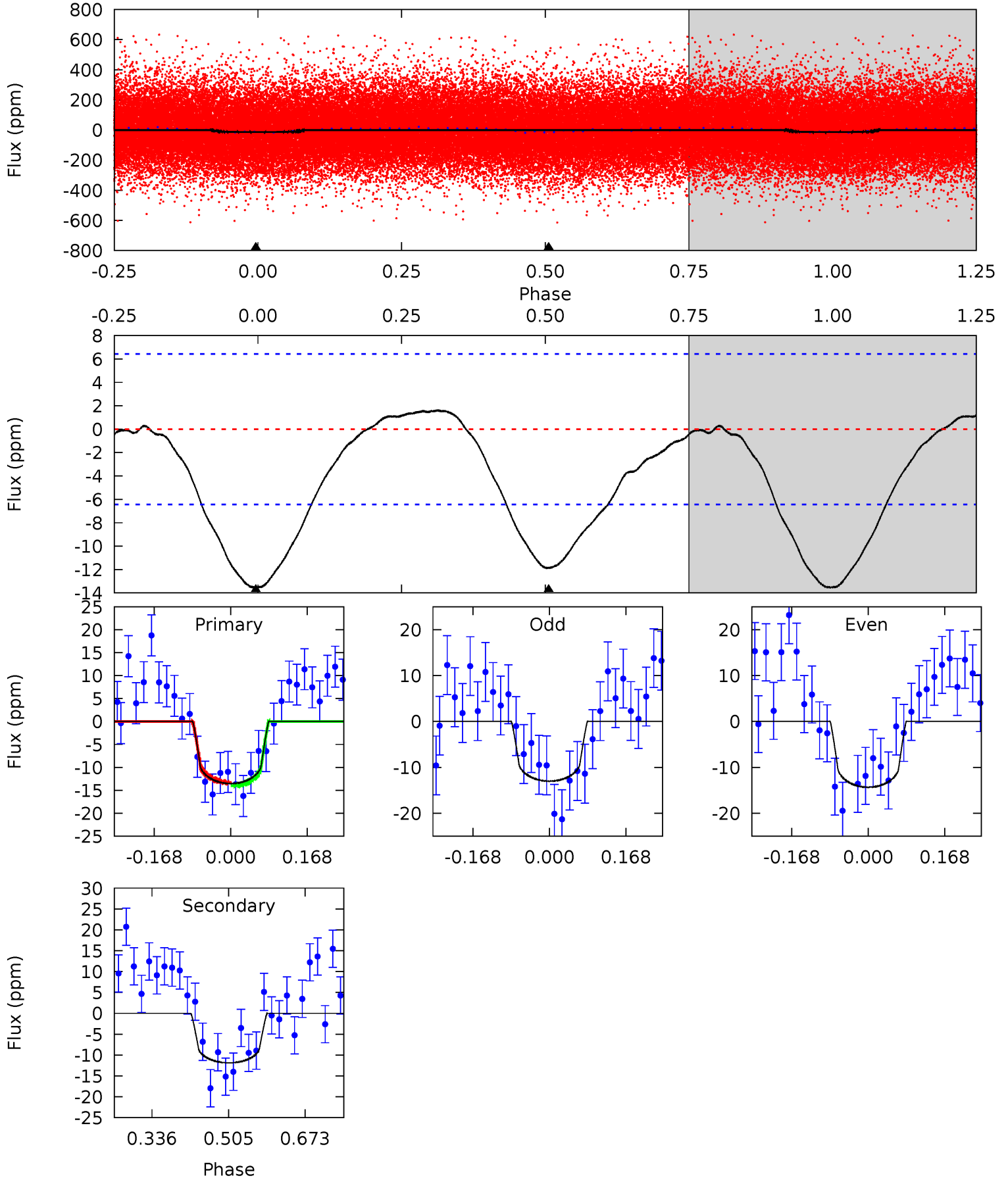




# DV Model-Shift Uniqueness Test

005953028-01, P = 1.210017 Days, E = 131.491943 Days

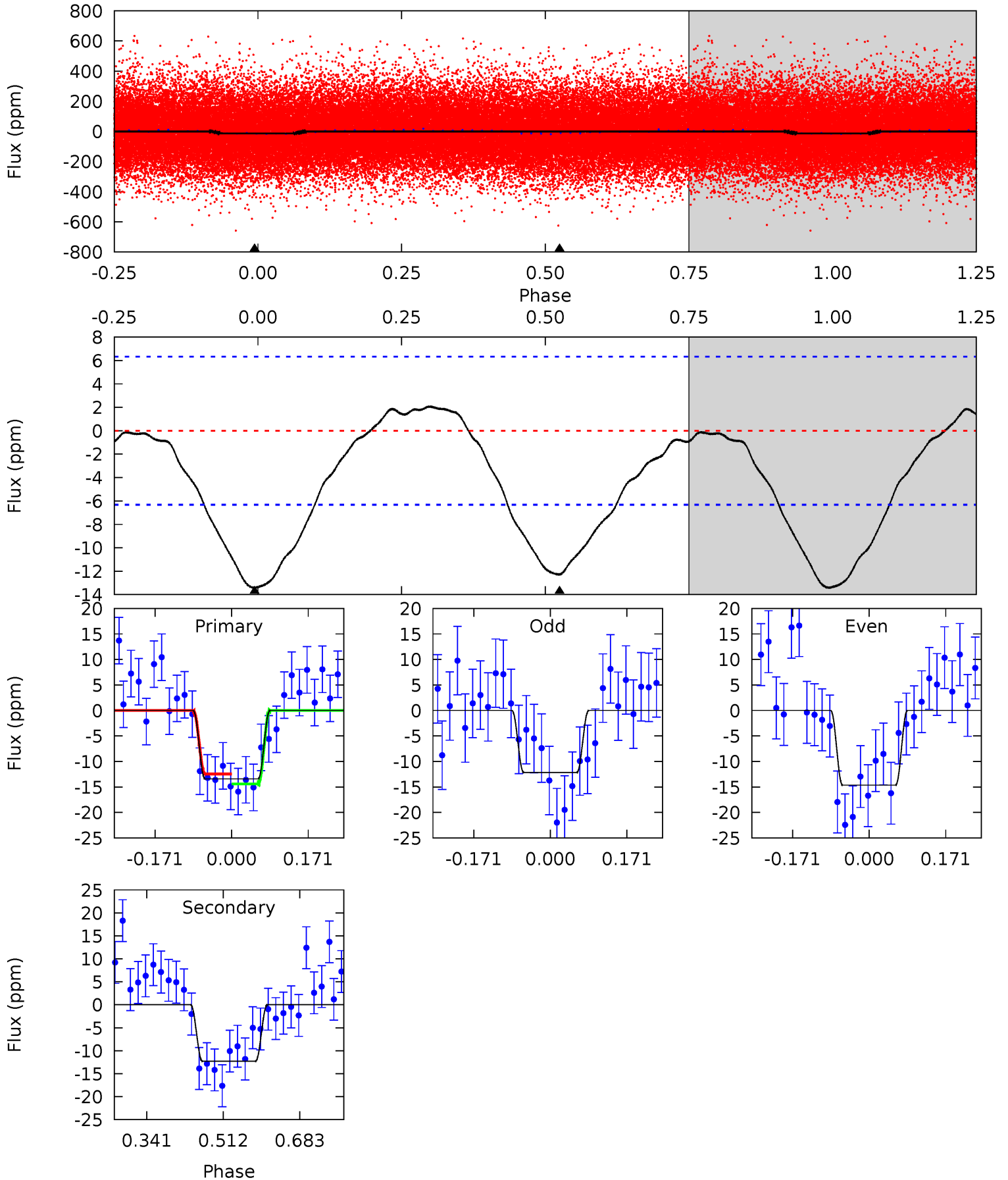
| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.37 | 8.22 | 0   | 0   | 4.45            | 1.38            | 0.83             | 9.37    | 9.37    | 8.22    | 8.22    | 0.46    | 1.17 | 0.11  | 0.24 |



# Alt Model-Shift Uniqueness Test

005953028-01, P = 1.210045 Days, E = 131.467952 Days

| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.45 | 8.65 | 0   | 0   | 4.45            | 1.37            | 0.87             | 9.45    | 9.45    | 8.65    | 8.65    | 0.87    | 1.14 | 0.13  | 0.68 |





### Stellar Parameters For KIC 005953028

|        | $T_{\text{eff}}(K)$ | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|---------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $6024^{+78}_{-84}$  | $4.303^{+0.143}_{-0.104}$ | $-0.240^{+0.150}_{-0.150}$ | $1.145^{+0.166}_{-0.166}$ | $0.961^{+0.066}_{-0.060}$ | $0.902^{+0.588}_{-0.306}$                     |
|        | +1%/-1%             | +3%/-2%                   | +62%/-62%                  | +14%/-14%                 | +7%/-6%                   | +65%/-34%                                     |
| Source | SPE68               | SPE68                     | SPE68                      | DSEP                      |                           |   |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005953028-01 / KOI

| Detrend | Depth (ppm) | $R_p$ ( $R_{\oplus}$ ) | $T_{max}$ (K)        | $T_{obs}$ (K)         | $A_{obs}$       |
|---------|-------------|------------------------|----------------------|-----------------------|-----------------|
| DV      | $-12 \pm 1$ | $0.48^{+0.22}_{-0.18}$ | $2677^{+117}_{-122}$ | $5633^{+1727}_{-852}$ | $14^{+23}_{-7}$ |
| Alt.    | $-12 \pm 1$ | $0.45^{+0.21}_{-0.21}$ | $2678^{+109}_{-122}$ | $5833^{+2458}_{-912}$ | $16^{+42}_{-8}$ |

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

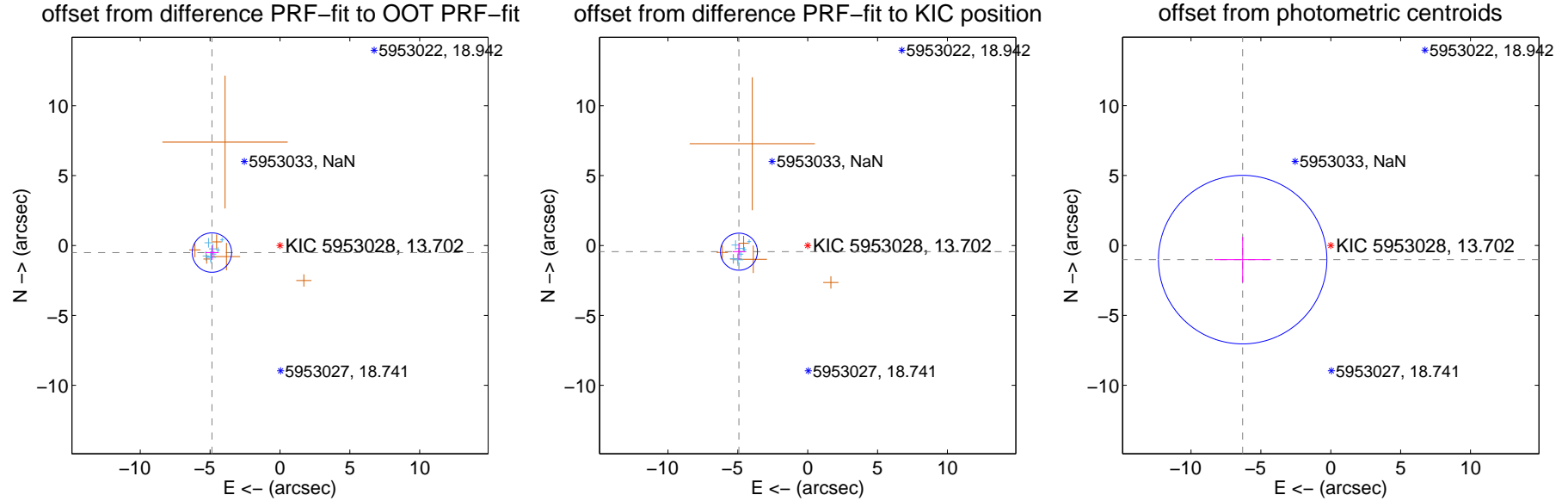
## DV Centroid Data

Supplemental centroid analysis for 005953028-01. Kepler magnitude: 13.70. Transit SNR 7.24

There are 8 quarters with good PRF difference image offsets

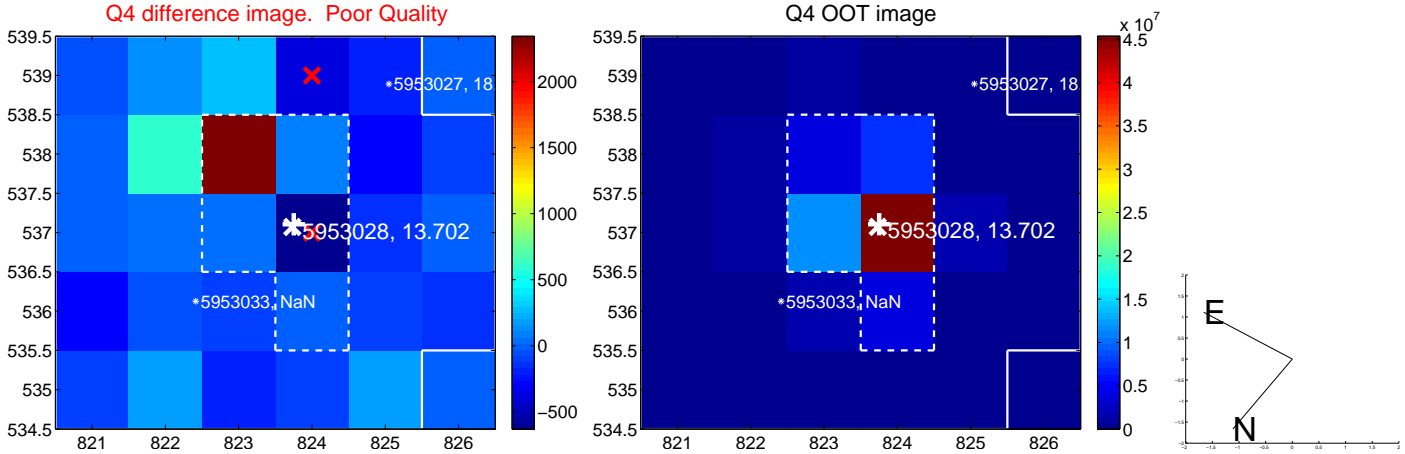
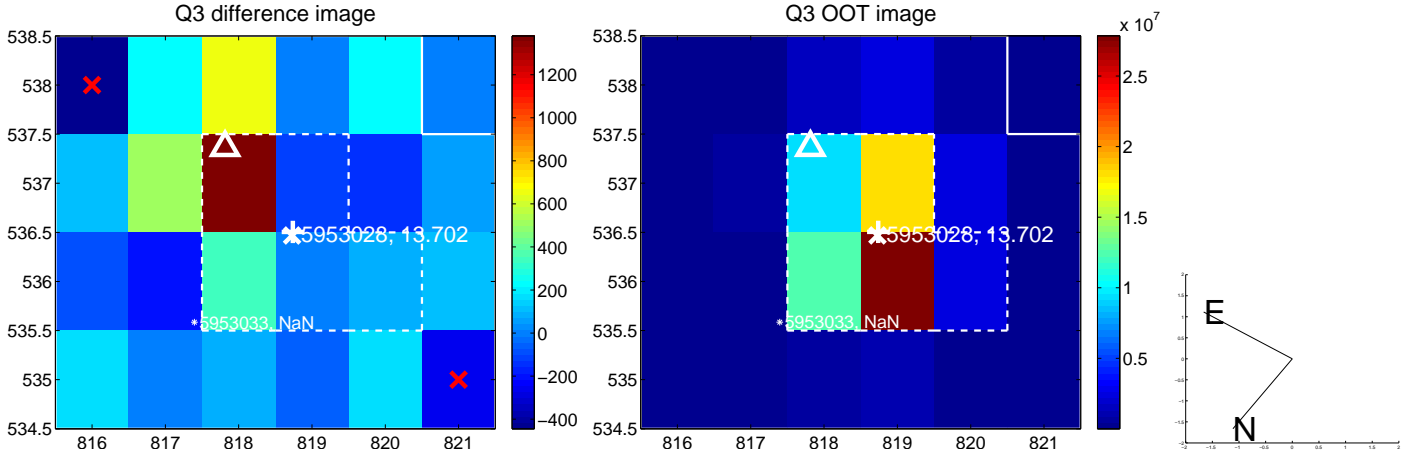
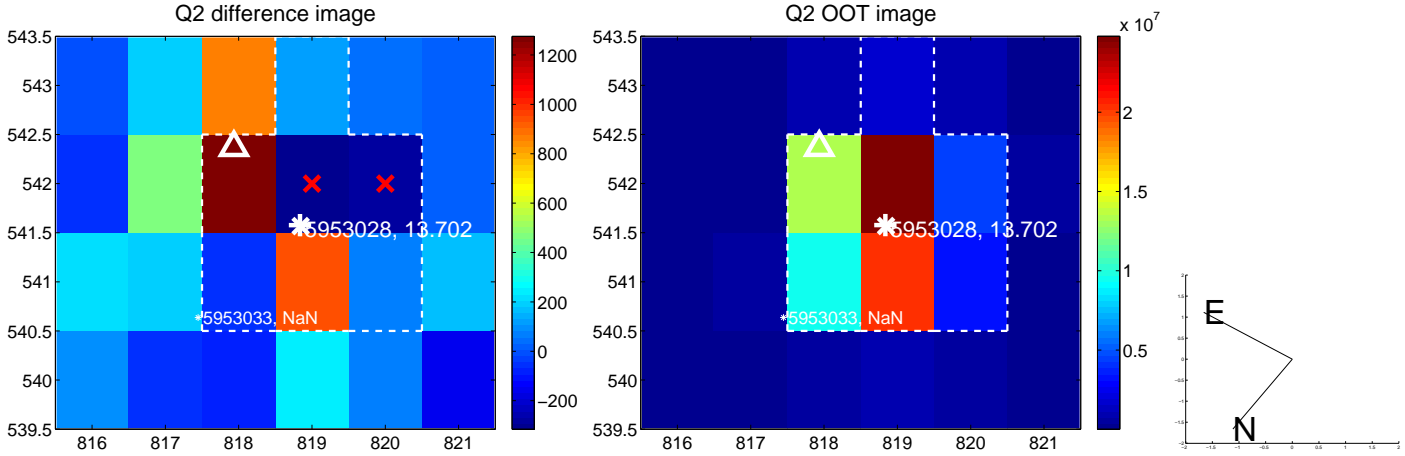
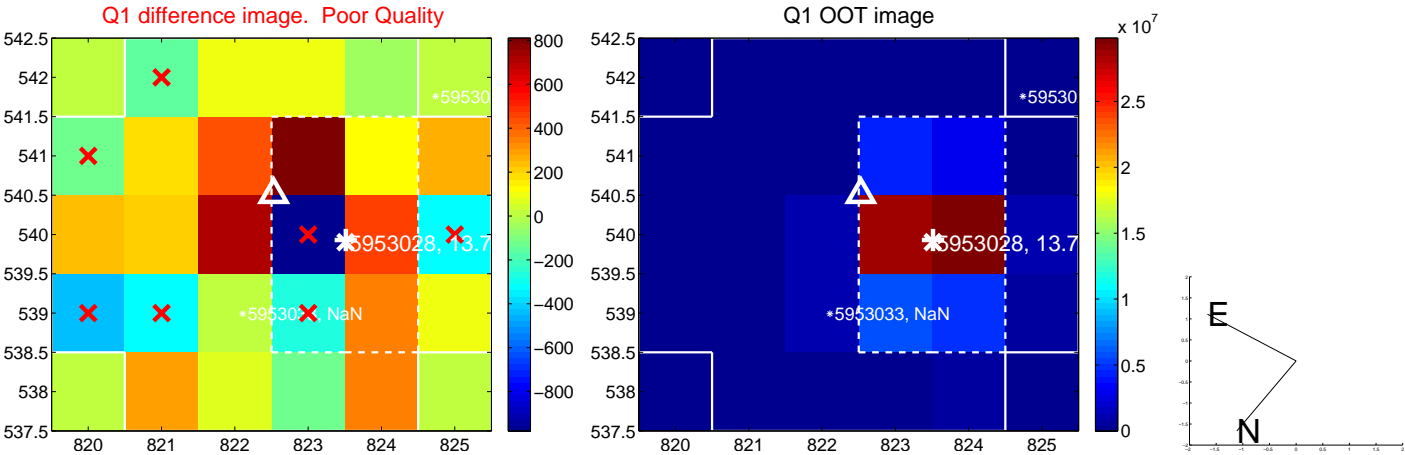
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $4.896 \pm 0.470$  | 10.42               | $4.869 \pm 0.477$ | $-0.508 \pm 0.526$ |
| PRF-fit source offset from KIC position | $4.940 \pm 0.442$  | 11.18               | $4.920 \pm 0.449$ | $-0.444 \pm 0.588$ |
| photometric centroid source offset      | $6.39 \pm 2.01$    | 3.18                | $6.30 \pm 2.02$   | $-1.02 \pm 1.63$   |

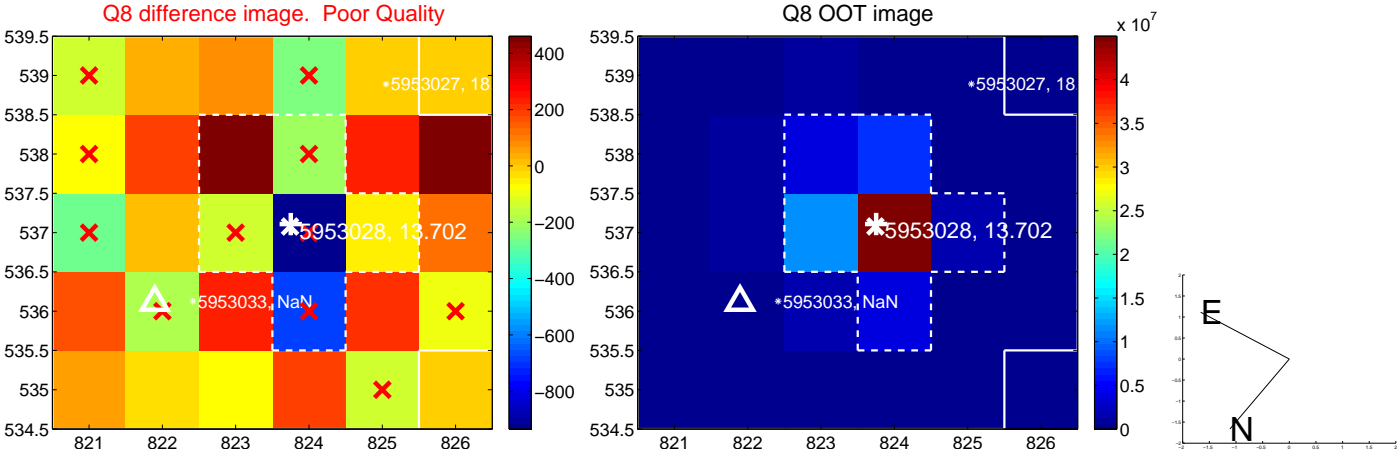
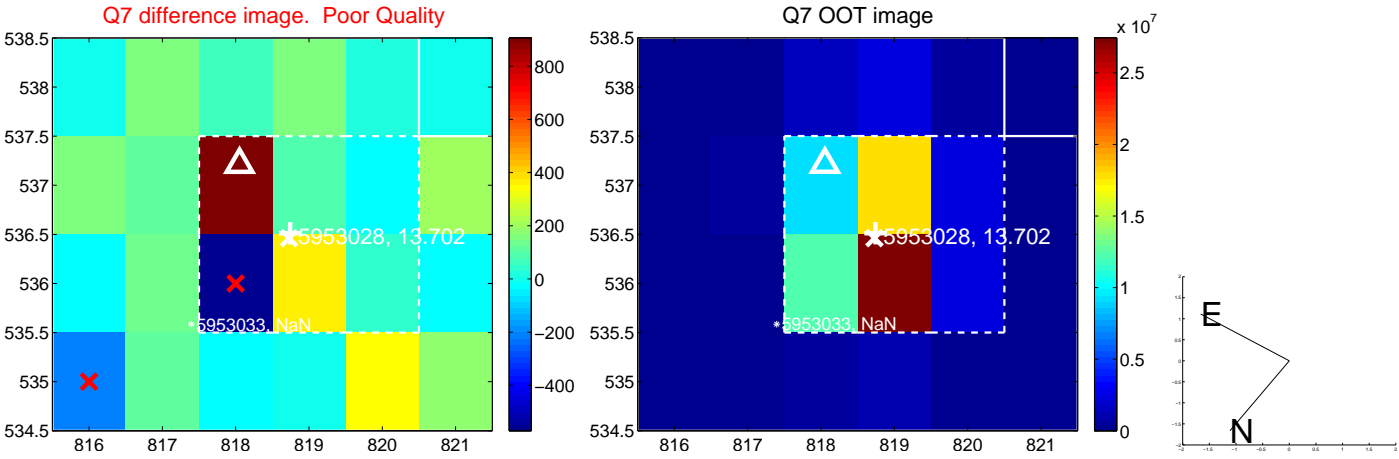
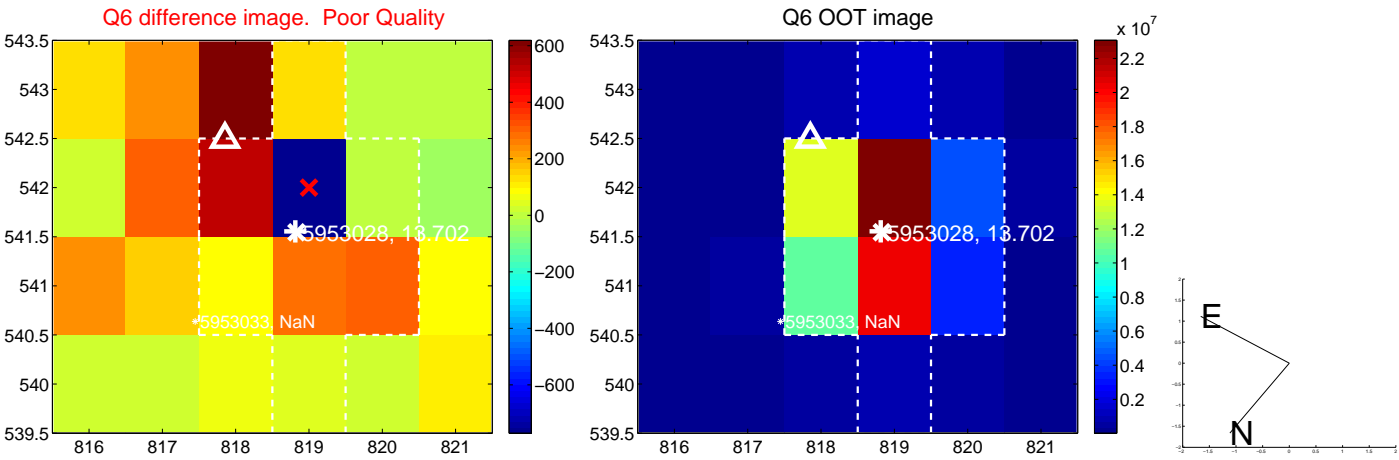
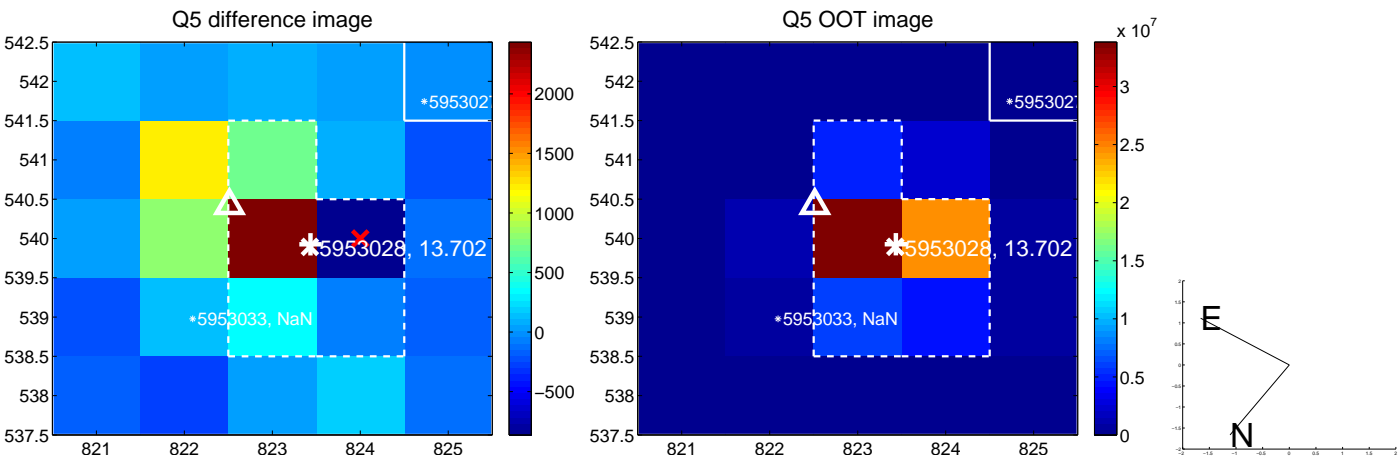


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

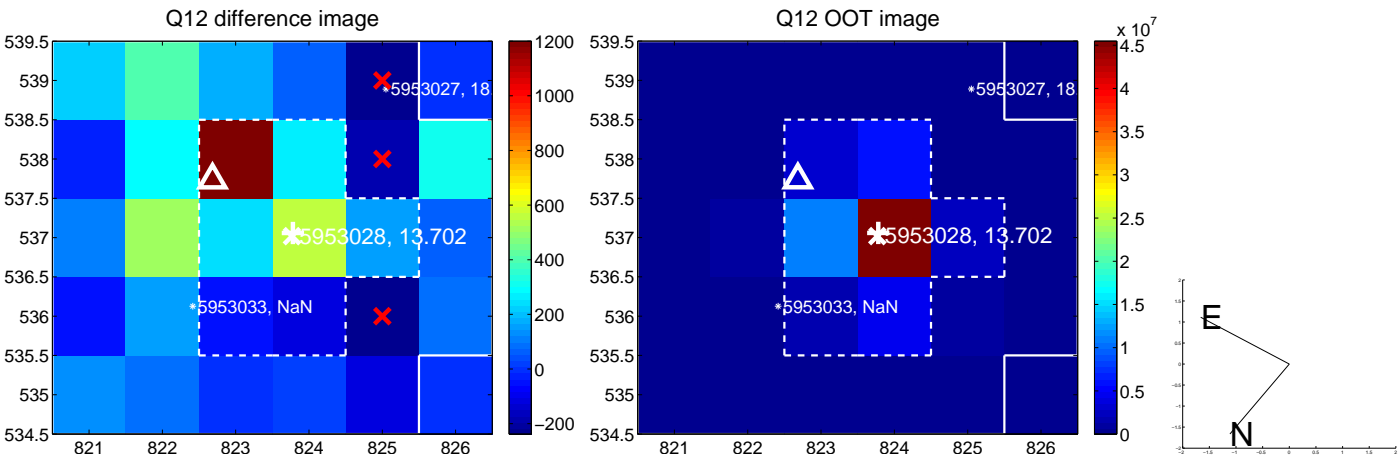
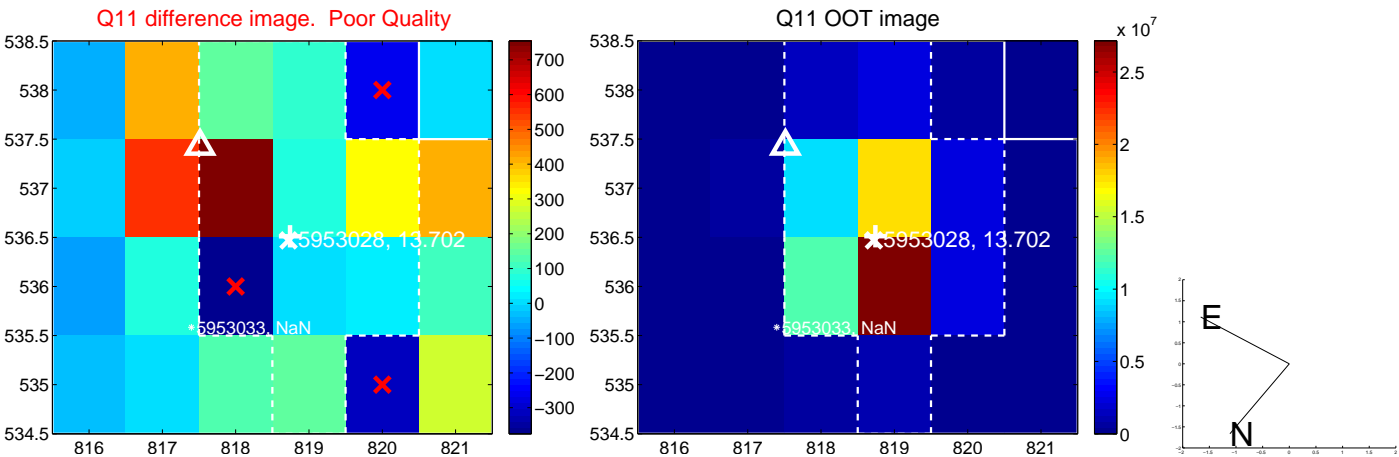
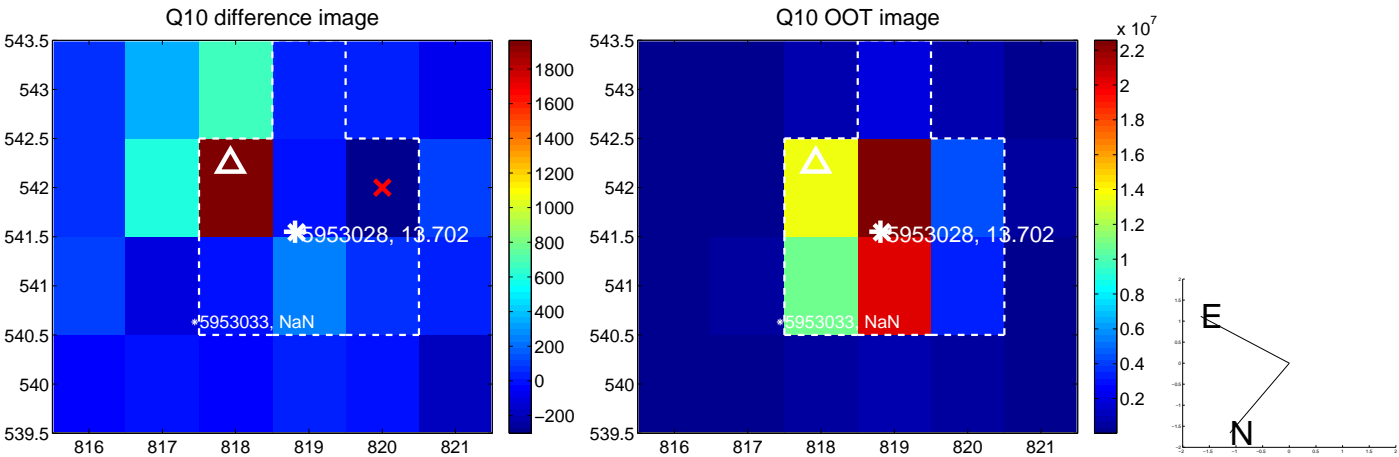
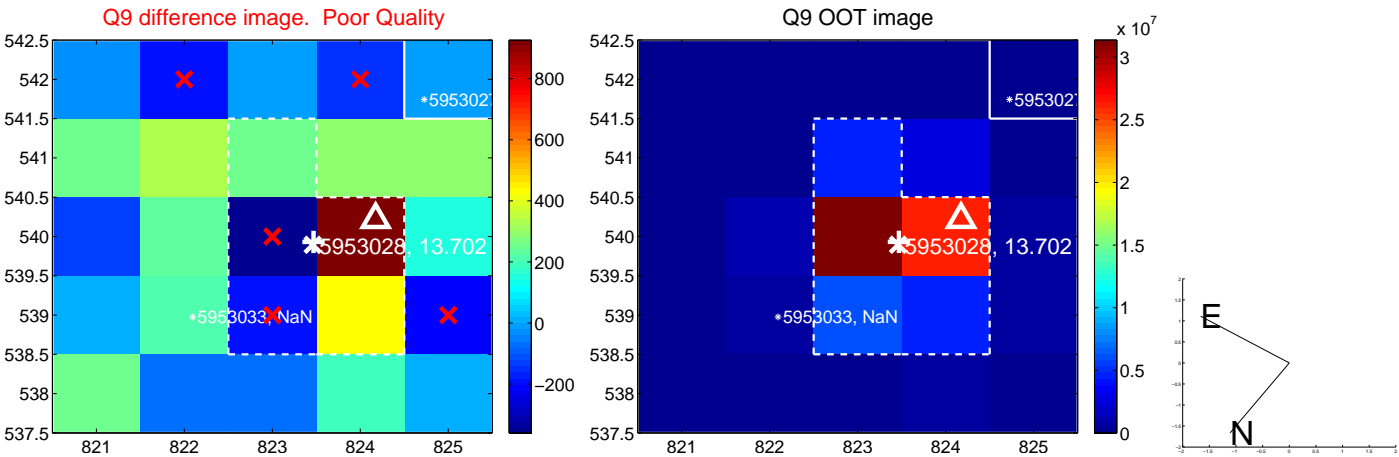


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

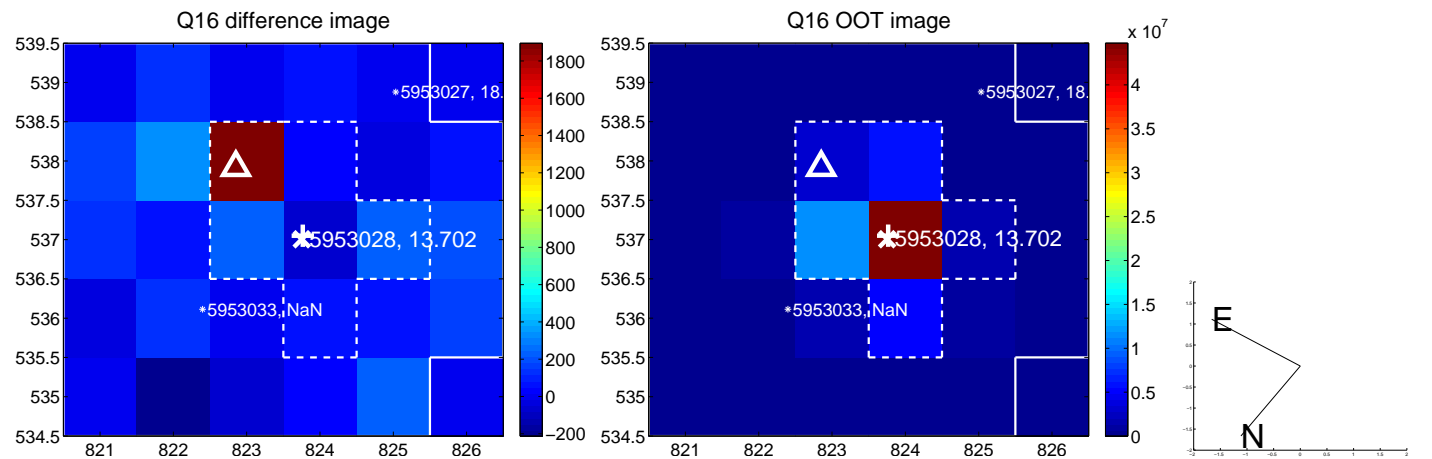
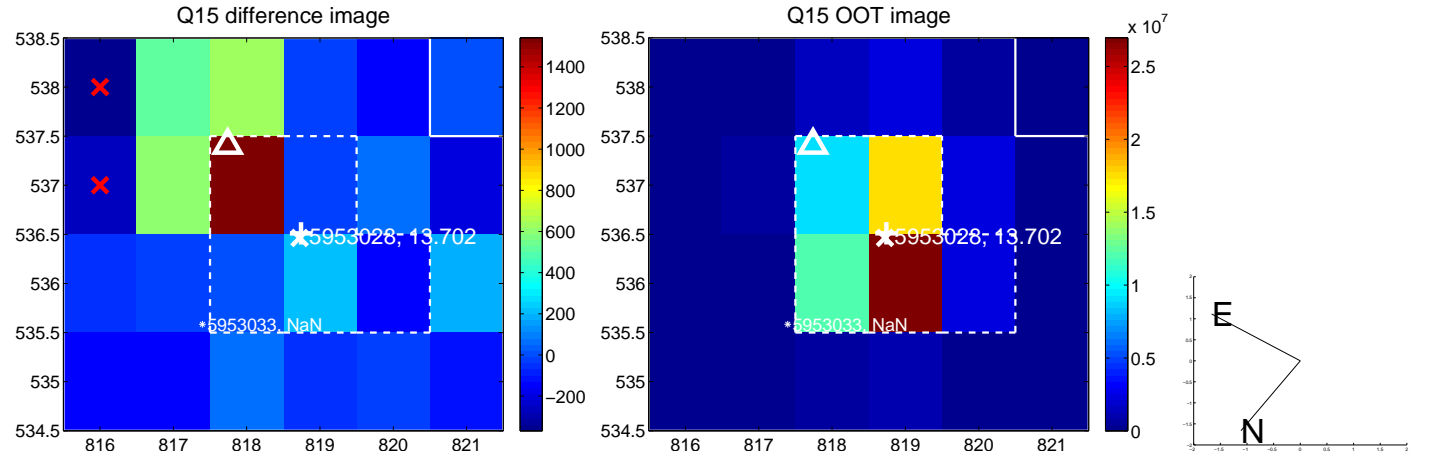
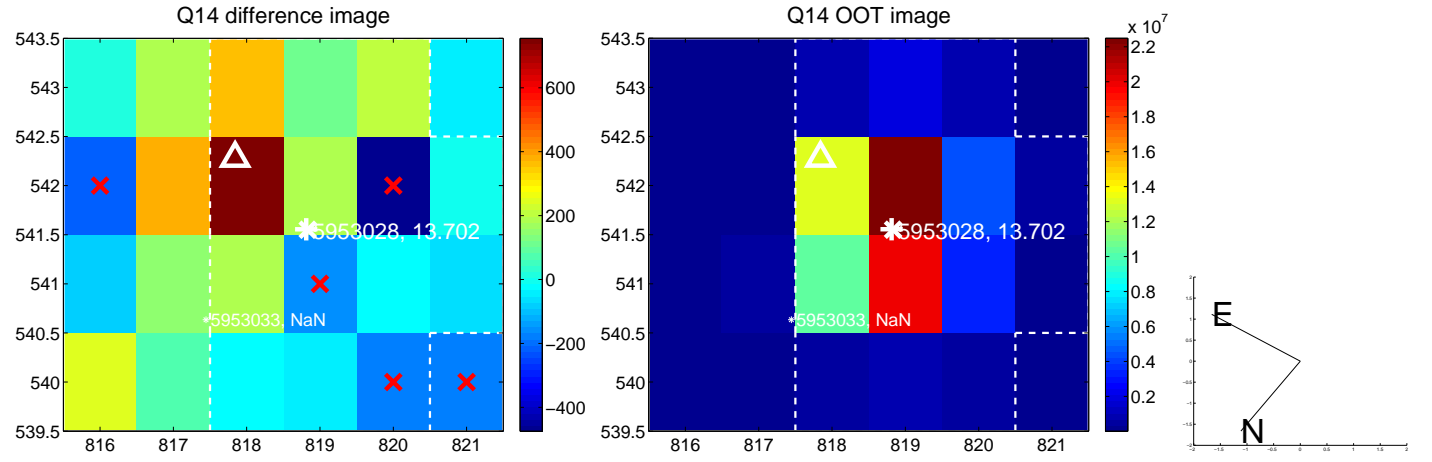
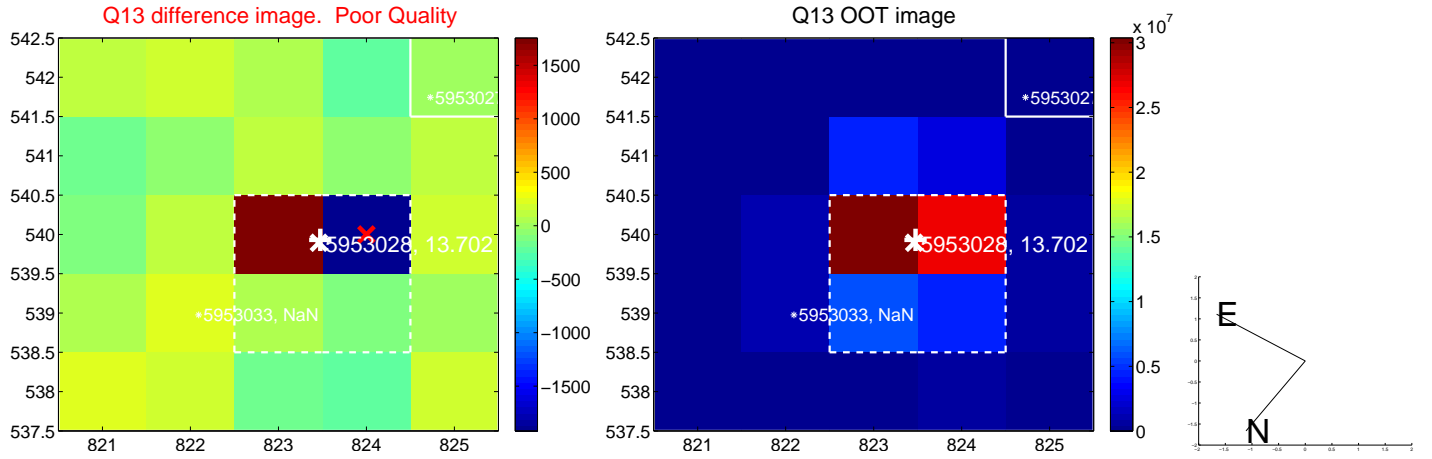




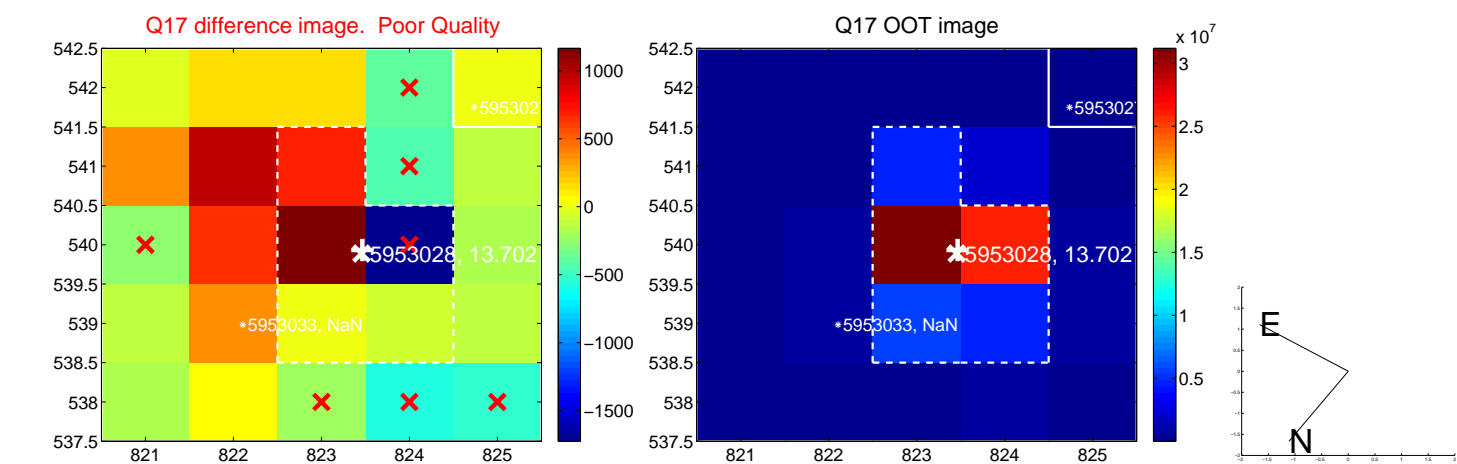
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



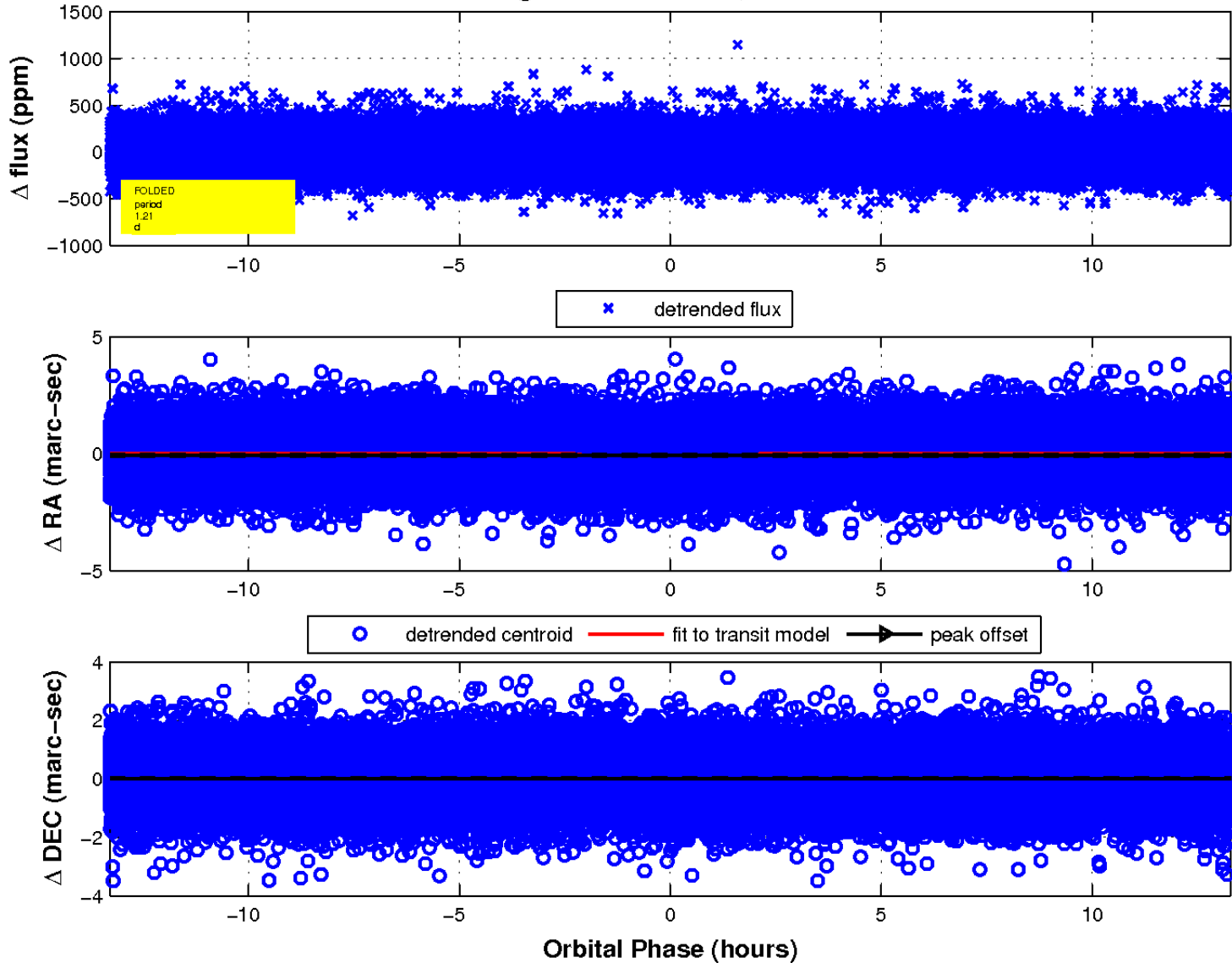
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

