

# KIC 010937749

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|------|-----------------------------|-----------------|------------------------|------------------------|
| 010937749-01 | OBS      | 4499.01 | 5.198983      | 133.049774   | 128.4       | 2.573            | 9.9 | 10.7 | 0.87                        | 6058            | 1.12                   | 271.85                 |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|------------|
| 010937749-01 | OBS      | PC   | 1.00  | 0 | 0 | 0 | 0 | NO_COMMENT |

**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.

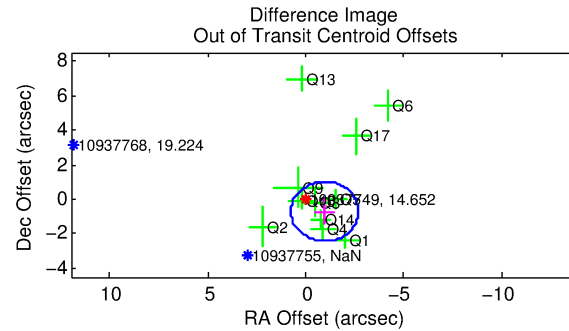
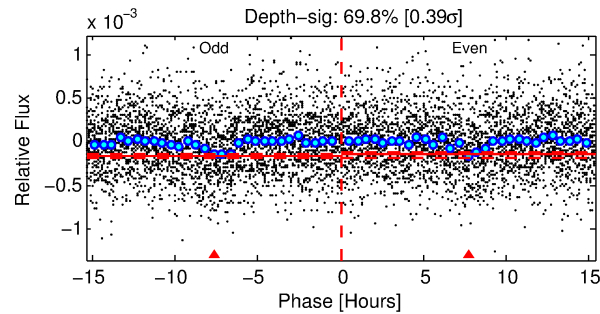
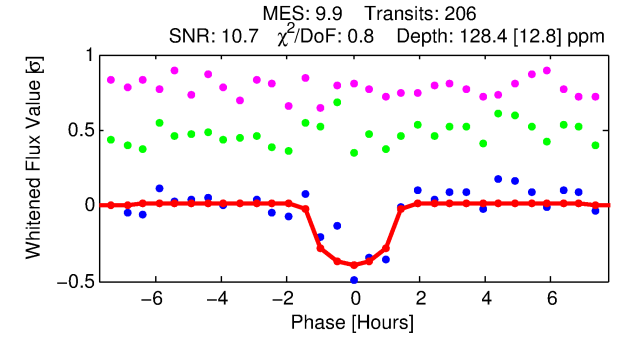
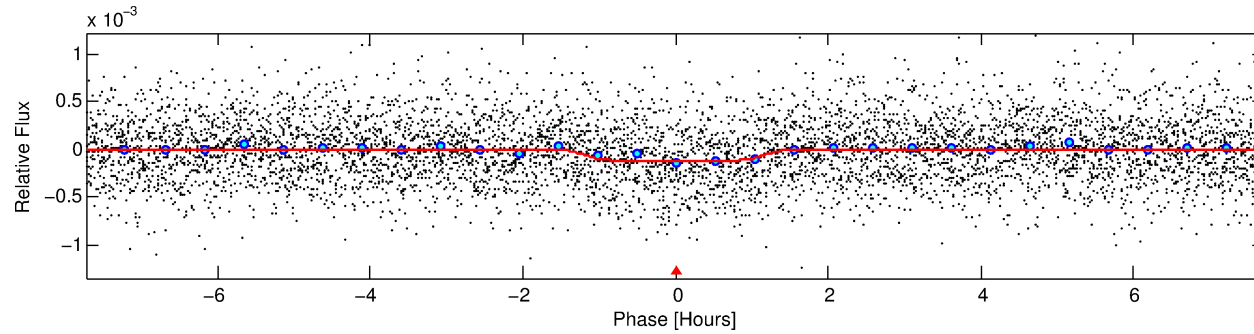
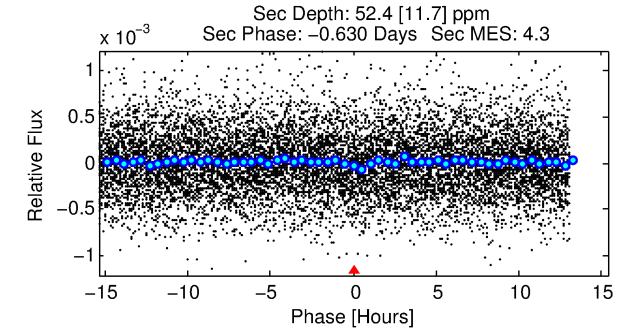
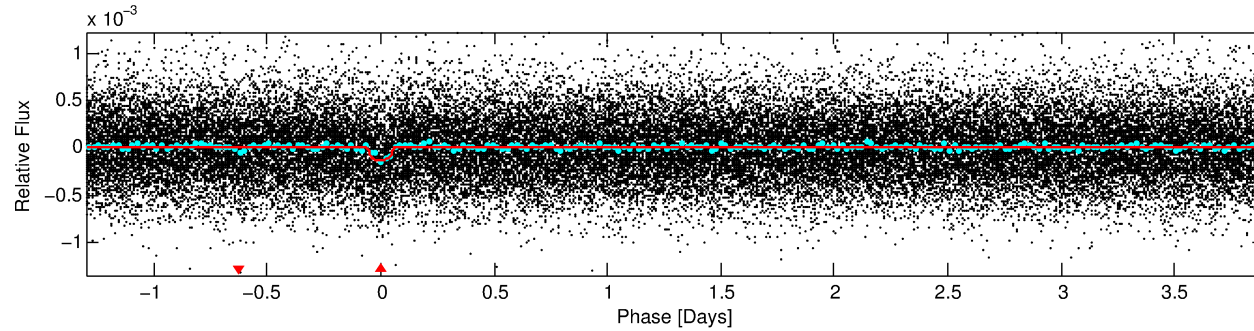
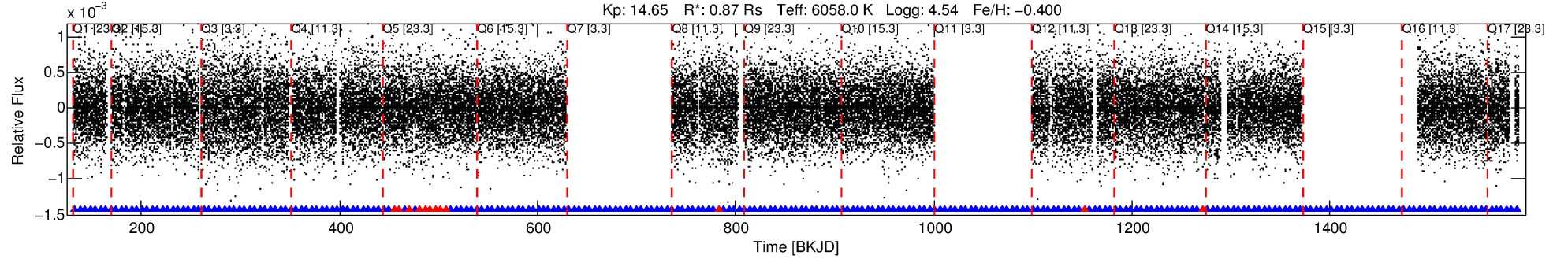
## Ephemeris Match Information For 010937749-01

No Significant Match Found

# DV One-Page Summary

KIC: 10937749 Candidate: 1 of 1 Period: 5.199 d

KOI: K04499.01 Corr: 0.983



## DV Fit Results:

Period = 5.19898 [0.00003] d  
Epoch = 133.0498 [0.0044] BKJD  
Rp/R\* = 0.0118 [0.0085]  
a/R\* = 8.46 [31.58]  
b = 0.85 [1.23]  
Seff = 271.85 [105.80]  
Teff = 1035 [101] K  
Rp = 1.12 [0.86] Re  
a = 0.0578 [0.0142] AU  
Ag = 77.19 [115.52] [0.66σ]  
Teffp = 4745 [1729] K [2.14σ]

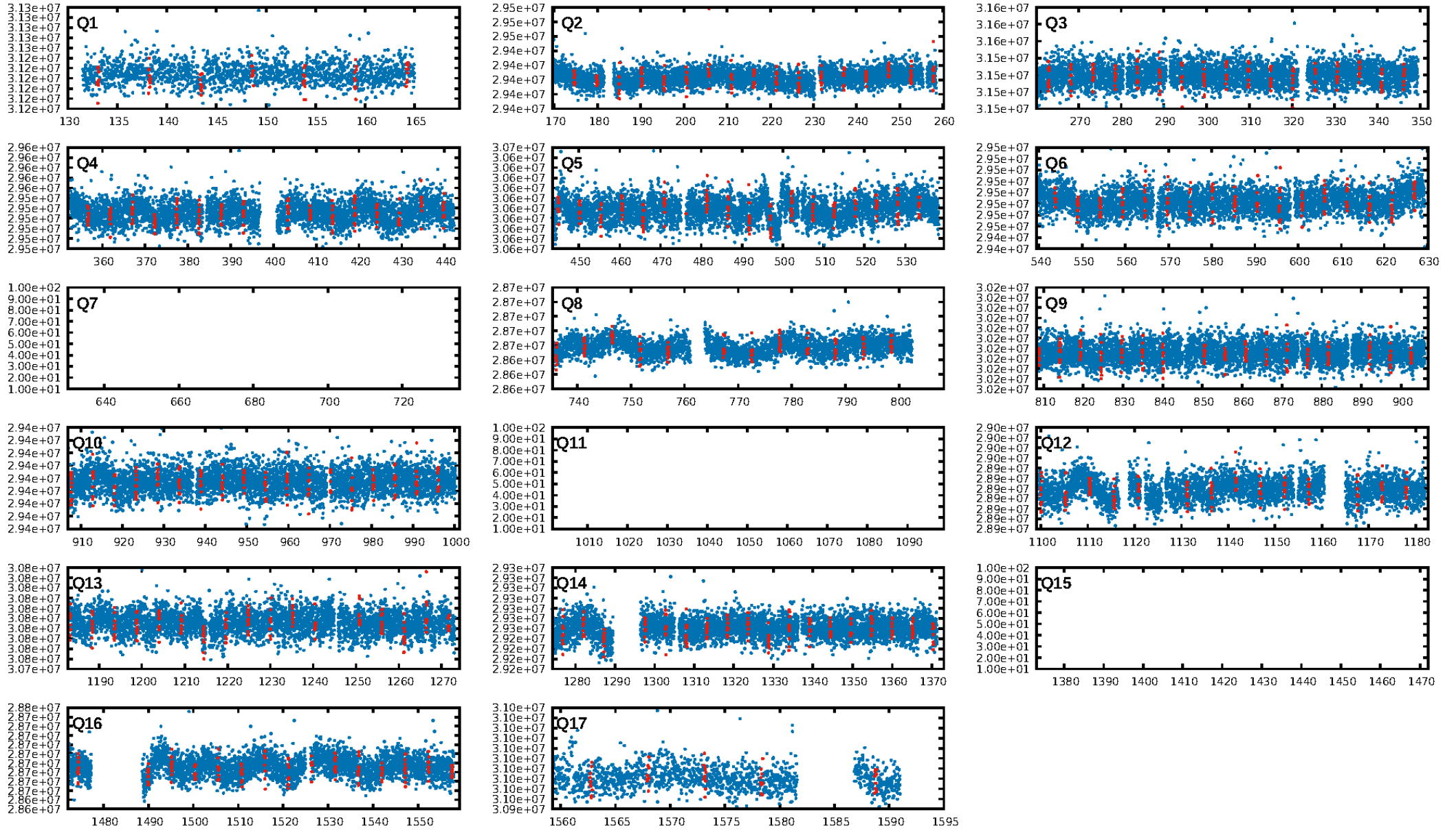
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.61e-23  
RollingBand-fgt: 0.94 [182/194]  
GhostDiagnostic-chr: 1.263  
Centroid-sig: 54.2%  
Centroid-so: 0.699 arcsec [0.54σ]  
OotOffset-rm: 1.190 arcsec [2.07σ]  
KicOffset-rm: 1.123 arcsec [1.61σ]  
OotOffset-st: 4/1/1/5 [11]  
KicOffset-st: 4/1/1/5 [11]  
DiffImageQuality-fgm: 0.64 [7/11]  
DiffImageOverlap-fno: 1.00 [14/14]

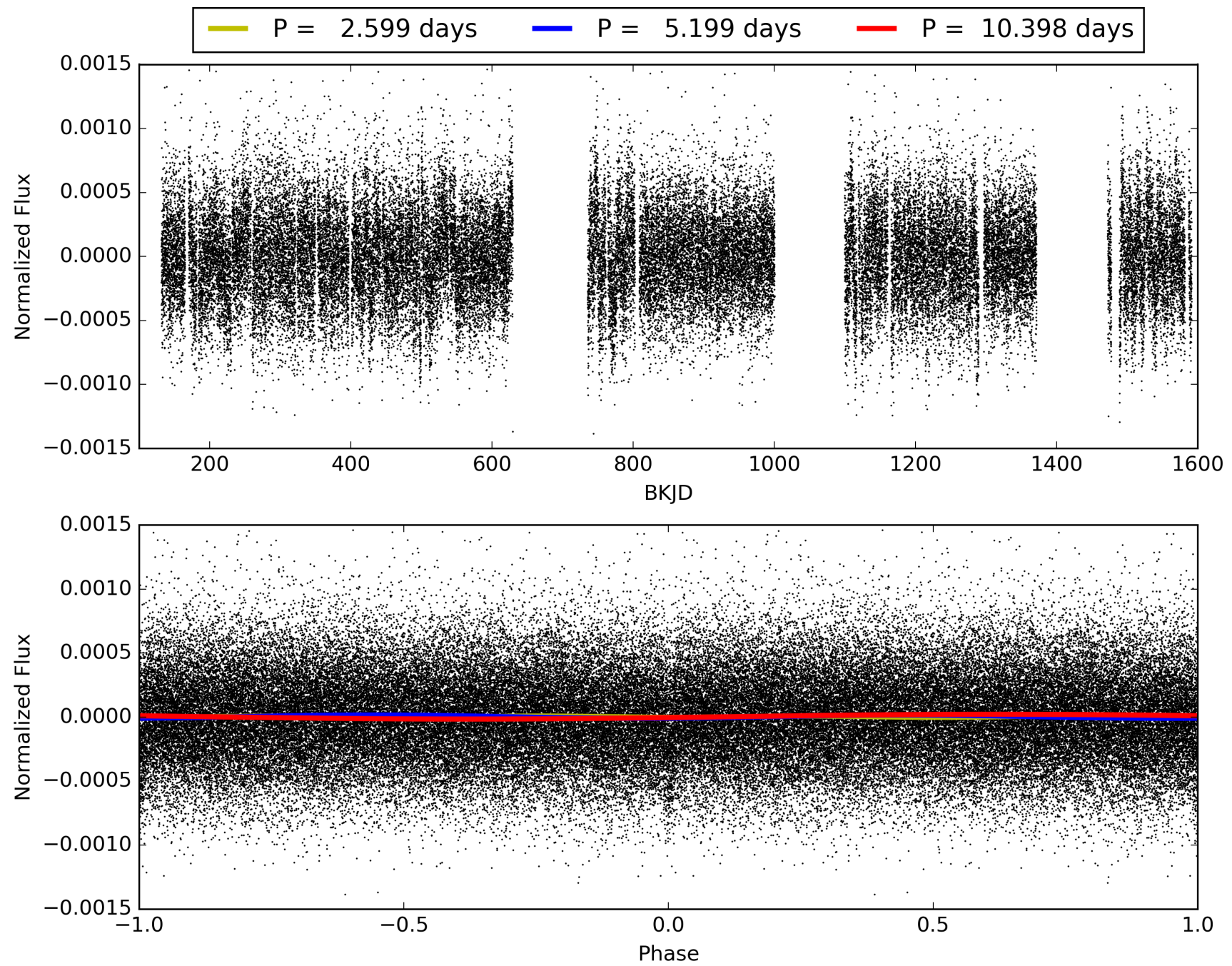
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:39:10 Z

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

# TCE 010937749-01, PDC Light Curves



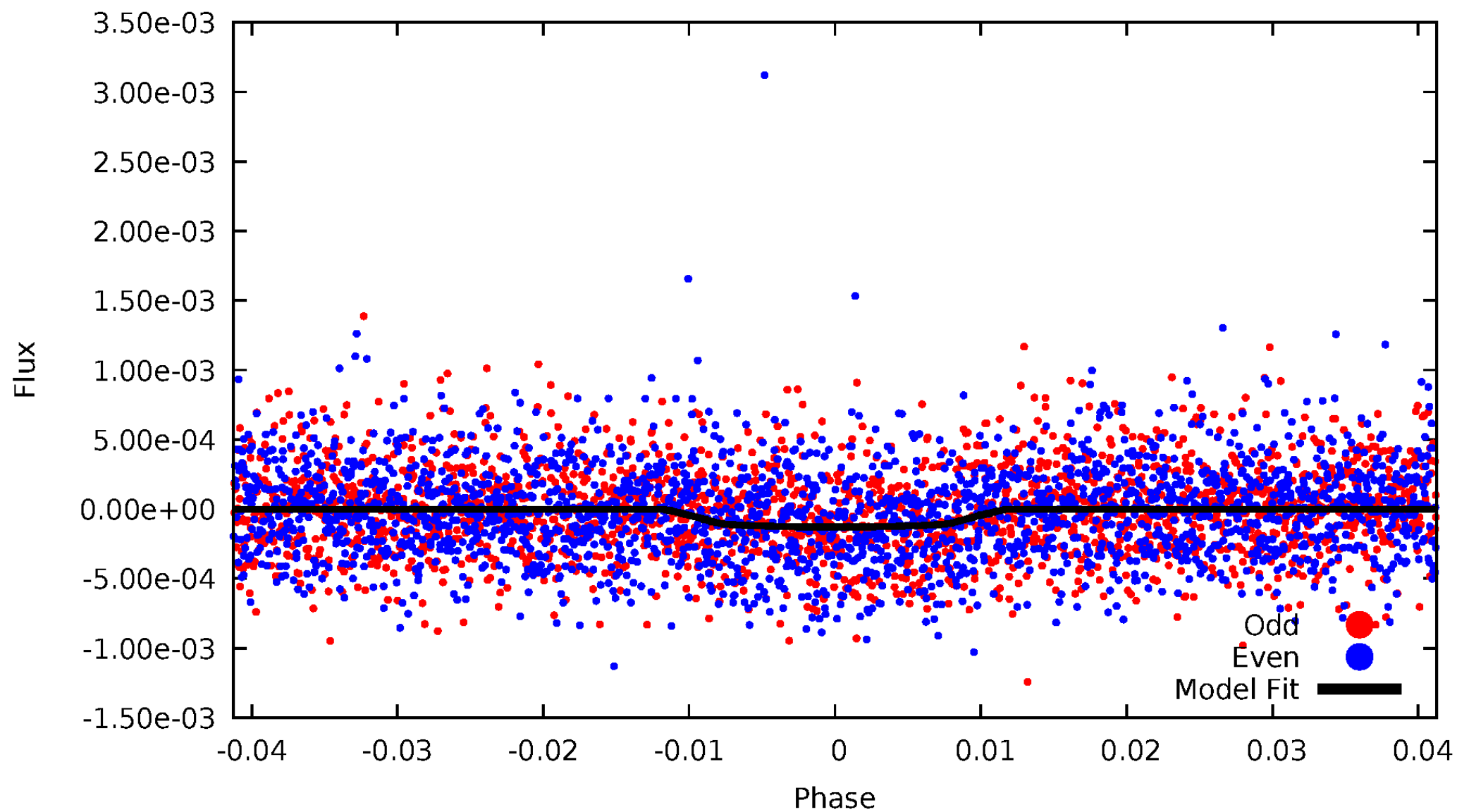
TCE 010937749-01





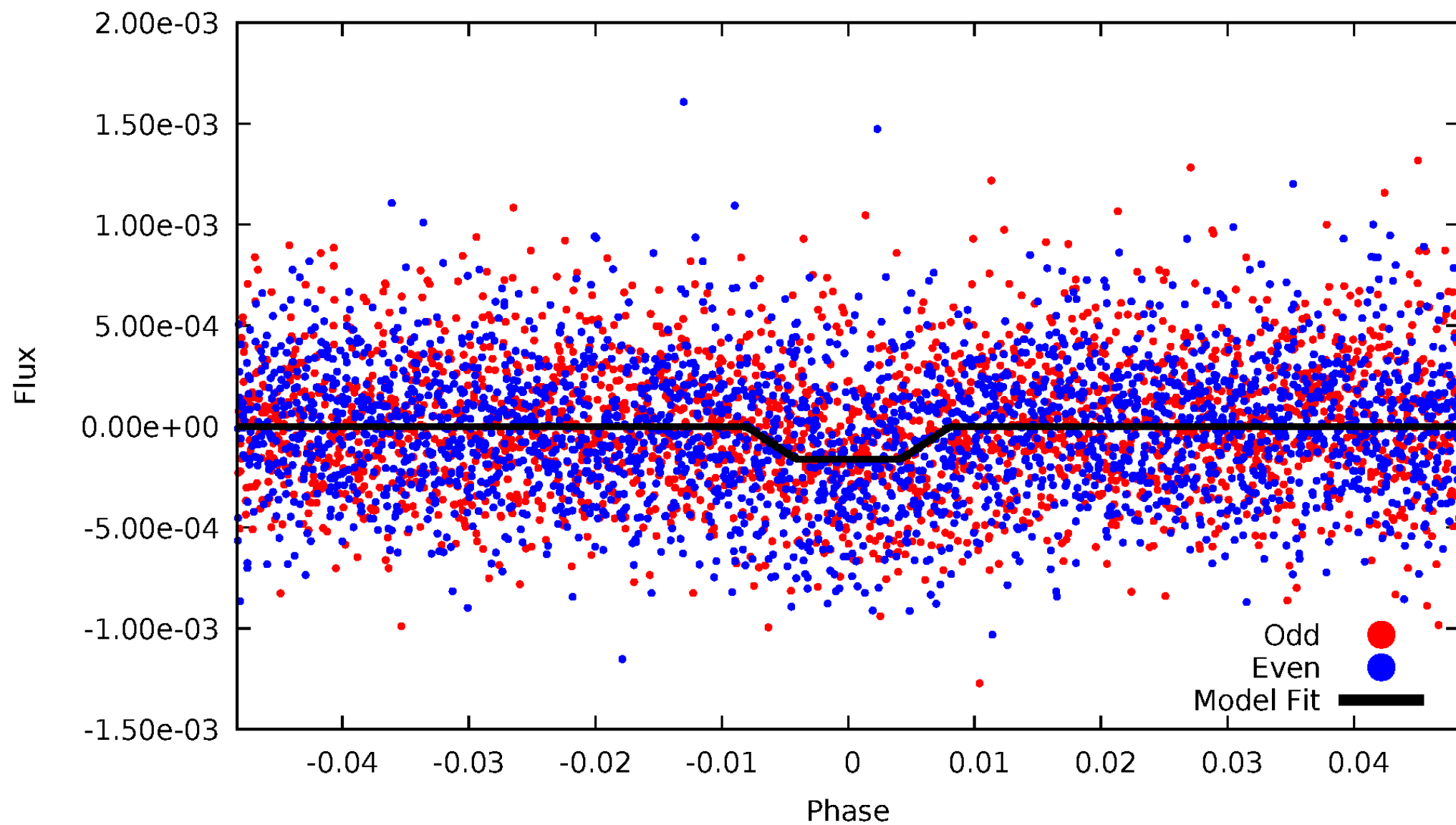
# DV Odd/Even

TCE 010937749-01



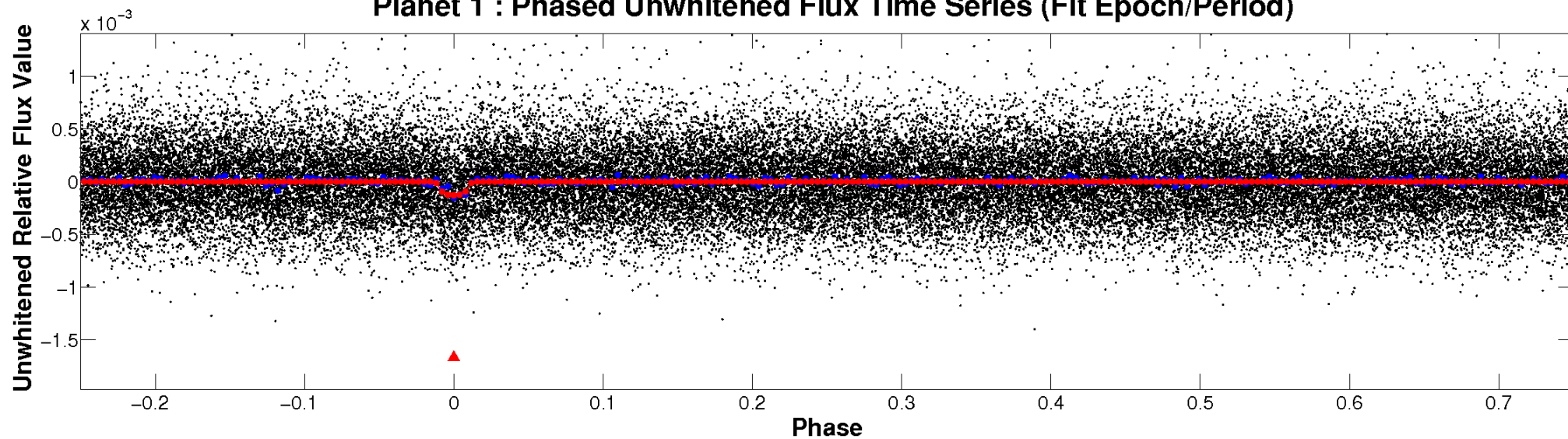
# ALT Odd/Even

TCE 010937749-01

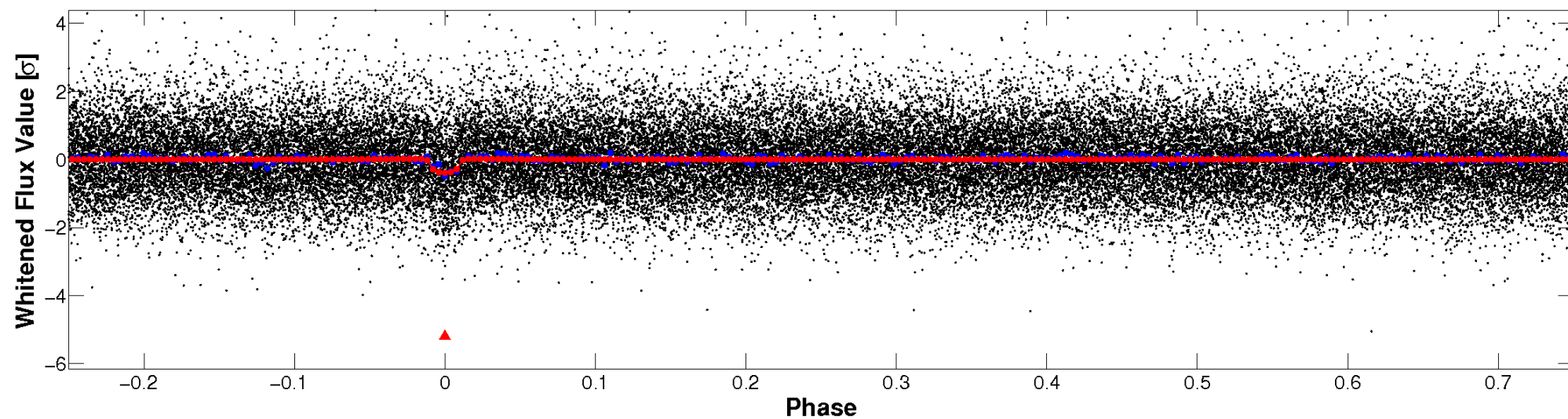


# Non-Whitened Vs. Whitened Light Curve

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

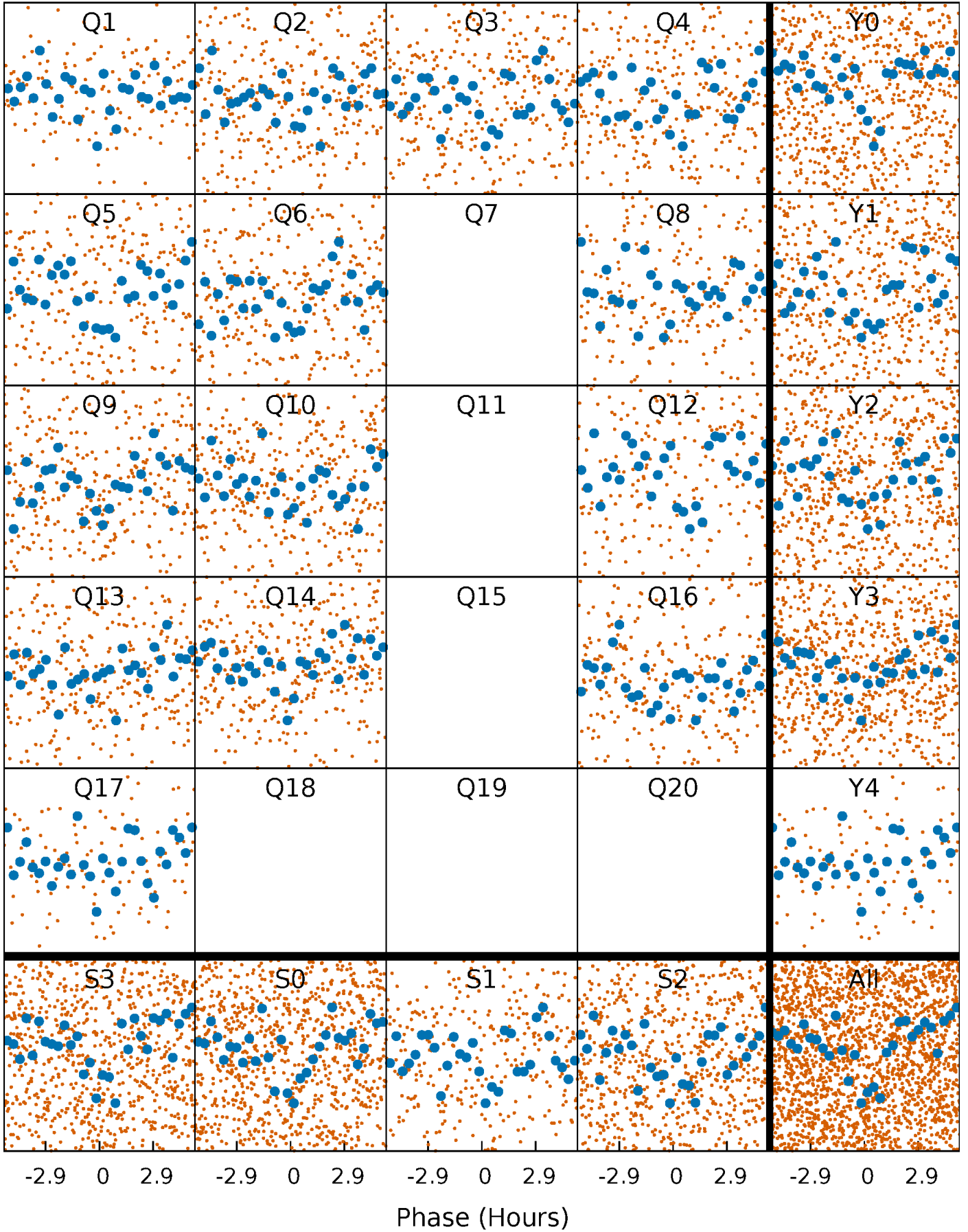


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

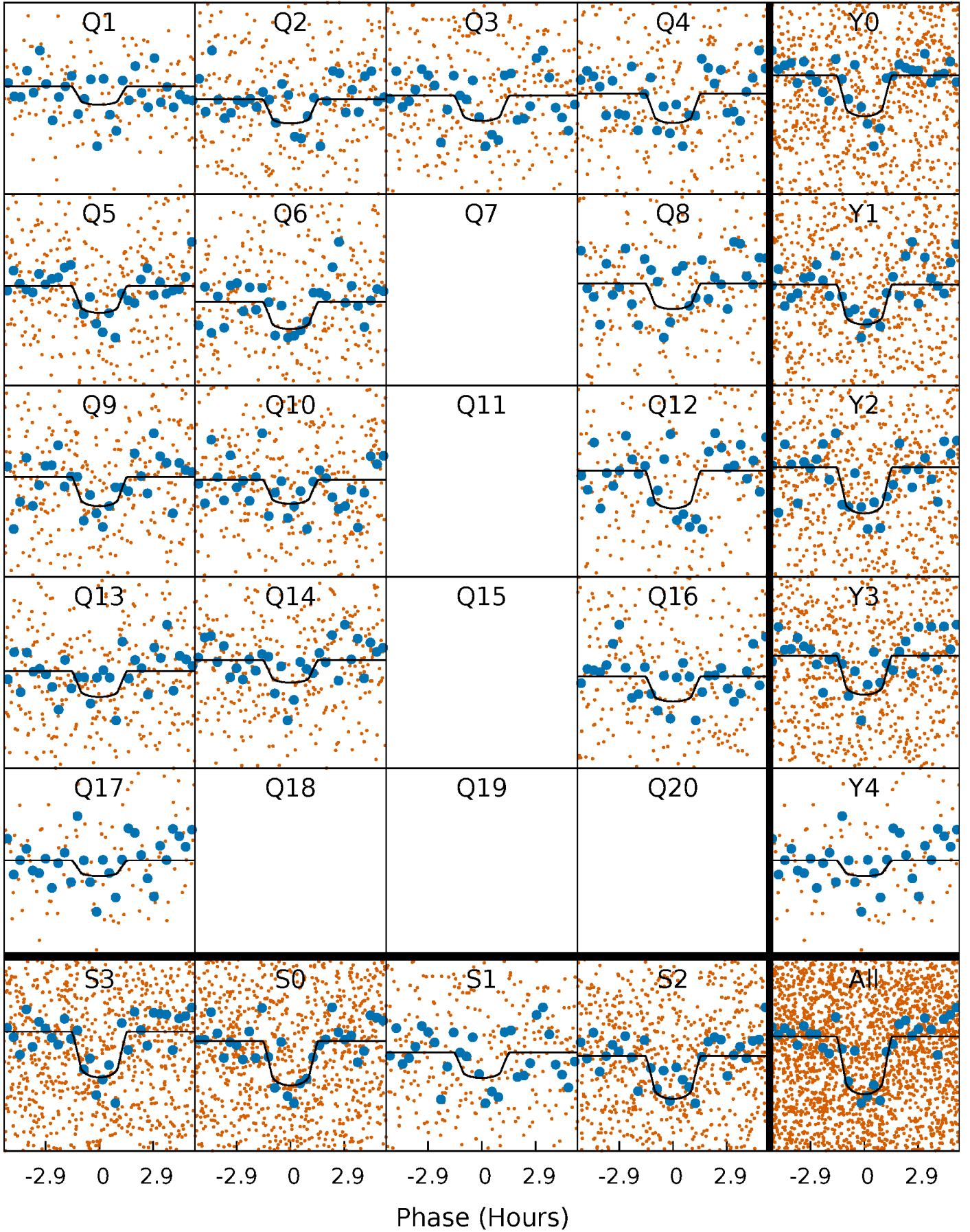
TCE 010937749-01   P= 5.198983 Days    $T_0=133.049774$  (BKJD)





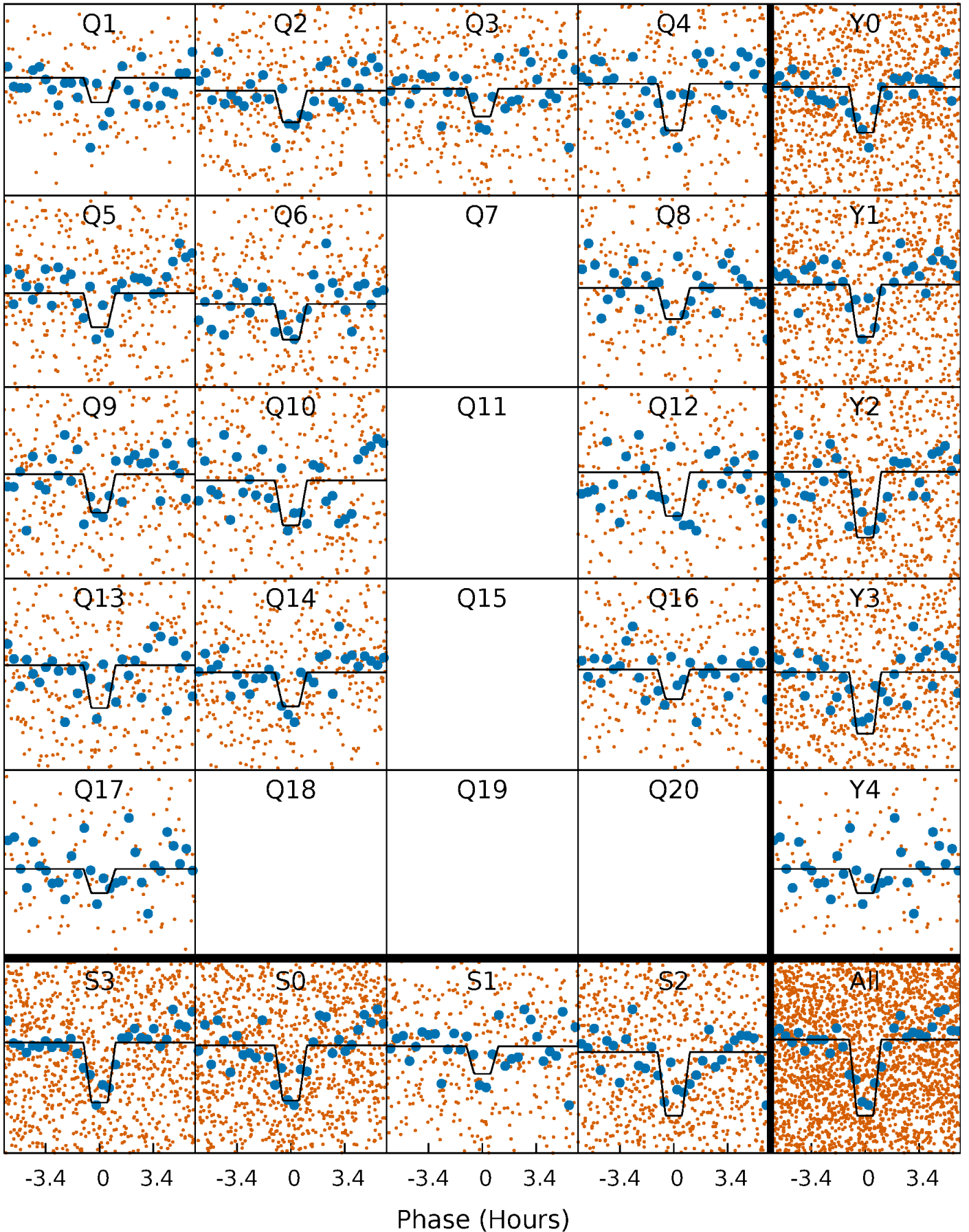
# DV Quarter-Phased Transit Curves

TCE 010937749-01 P= 5.198983 Days  $T_0=133.049774$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

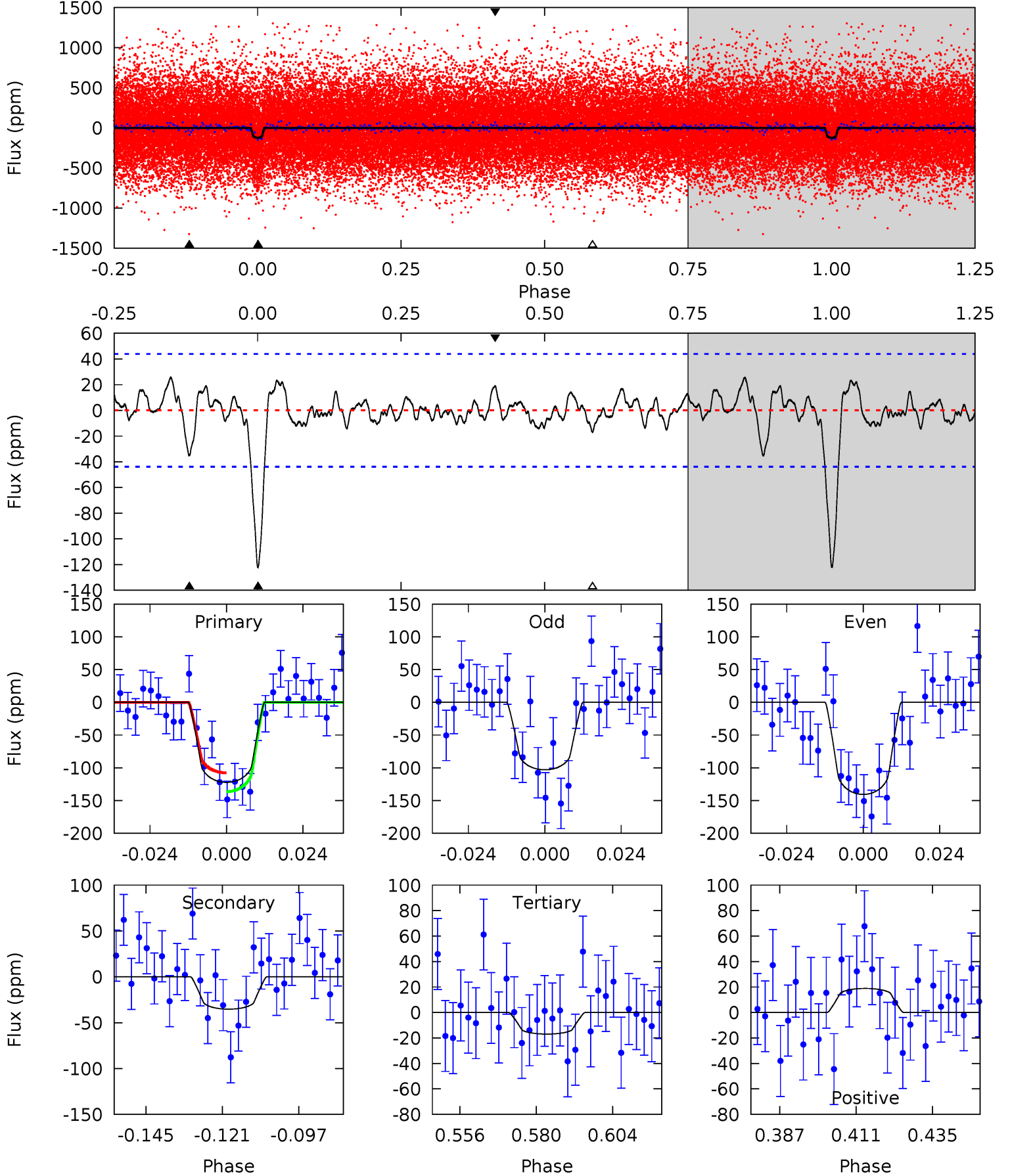
TCE 010937749-01 P= 5.198879 Days  $T_0=133.067685$  (BKJD)



# DV Model-Shift Uniqueness Test

010937749-01, P = 5.198983 Days, E = 127.850791 Days

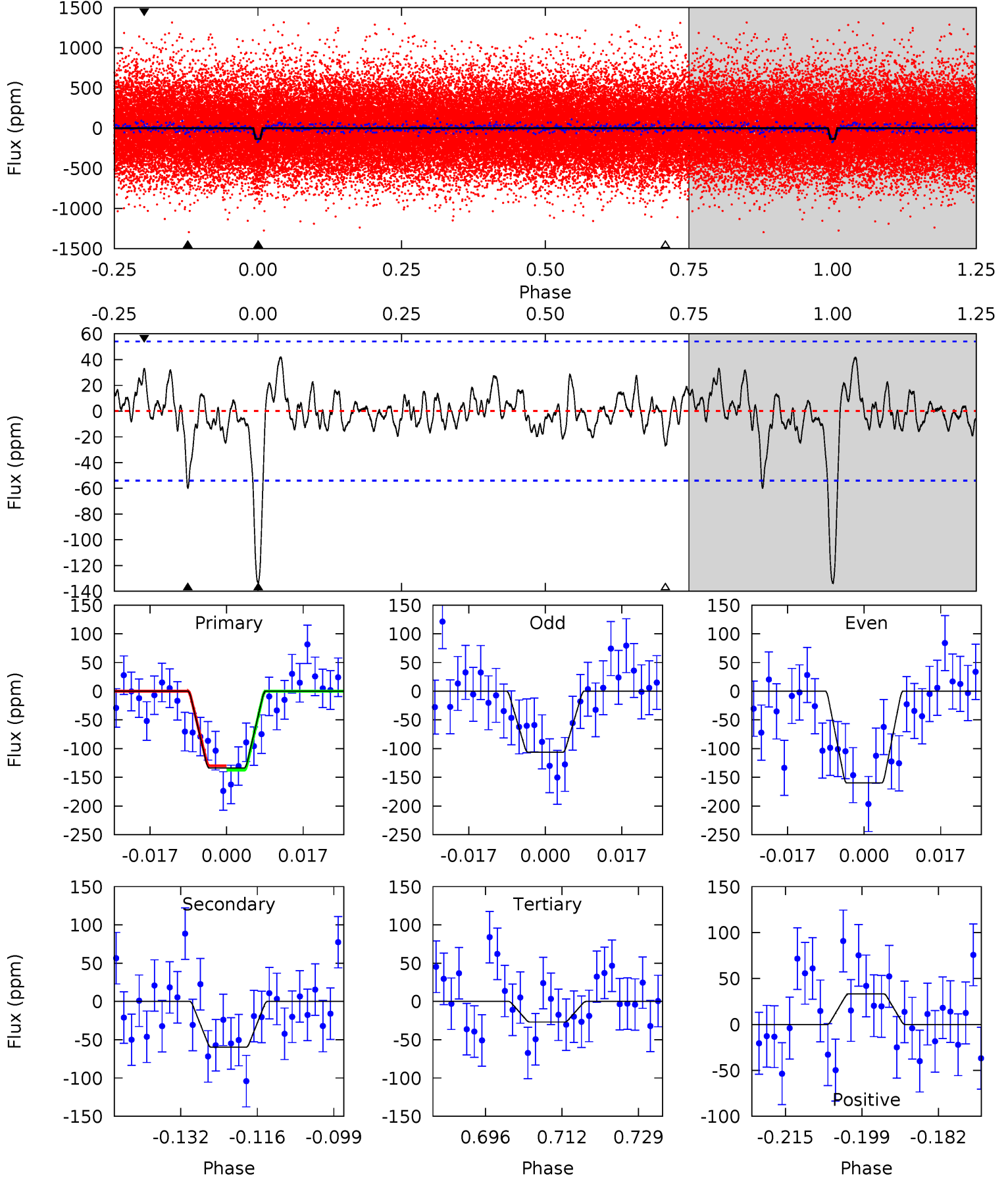
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.5 | 3.90 | 1.87 | 2.09 | 4.85            | 2.25            | 0.90             | 11.6    | 11.4    | 2.02    | 1.81    | 2.09    | 0.99 | 0.17  | 1.59 |



# Alt Model-Shift Uniqueness Test

010937749-01, P = 5.198879 Days, E = 127.868806 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.2 | 5.45 | 2.45 | 3.03 | 4.93            | 2.40            | 1.07             | 9.75    | 9.16    | 3.00    | 2.42    | 2.44    | 0.87 | 0.24  | 0.34 |





### Stellar Parameters For KIC 010937749

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R (R_{\odot})$           | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
|        | $6058^{+164}_{-201}$ | $4.540^{+0.048}_{-0.204}$ | $-0.400^{+0.300}_{-0.300}$ | $0.867^{+0.246}_{-0.082}$ | $0.950^{+0.108}_{-0.119}$ | $2.052^{+0.407}_{-1.061}$                 |
|        | +3%/-3%              | +1%/-4%                   | +75%/-75%                  | +28%/-9%                  | +11%/-13%                 | +20%/-52%                                 |
| Source | PHO1                 | KIC0                      | KIC0                       | DSEP                      |                           |                                           |

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

### Secondary Eclipse Parameters for KIC 010937749-01 / KOI 4499.01

| Detrend | Depth (ppm)  | $R_p (R_{\oplus})$     | $T_{max} (K)$       | $T_{obs} (K)$         | $A_{obs}$         |
|---------|--------------|------------------------|---------------------|-----------------------|-------------------|
| DV      | $-35 \pm 9$  | $1.24^{+0.85}_{-0.75}$ | $1474^{+96}_{-69}$  | $4359^{+2203}_{-722}$ | $40^{+224}_{-26}$ |
| Alt.    | $-60 \pm 11$ | $1.38^{+0.80}_{-0.80}$ | $1477^{+101}_{-70}$ | $4640^{+2384}_{-736}$ | $55^{+259}_{-33}$ |

$T_{max}$  = 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  $A_{obs} \gg 1.0$

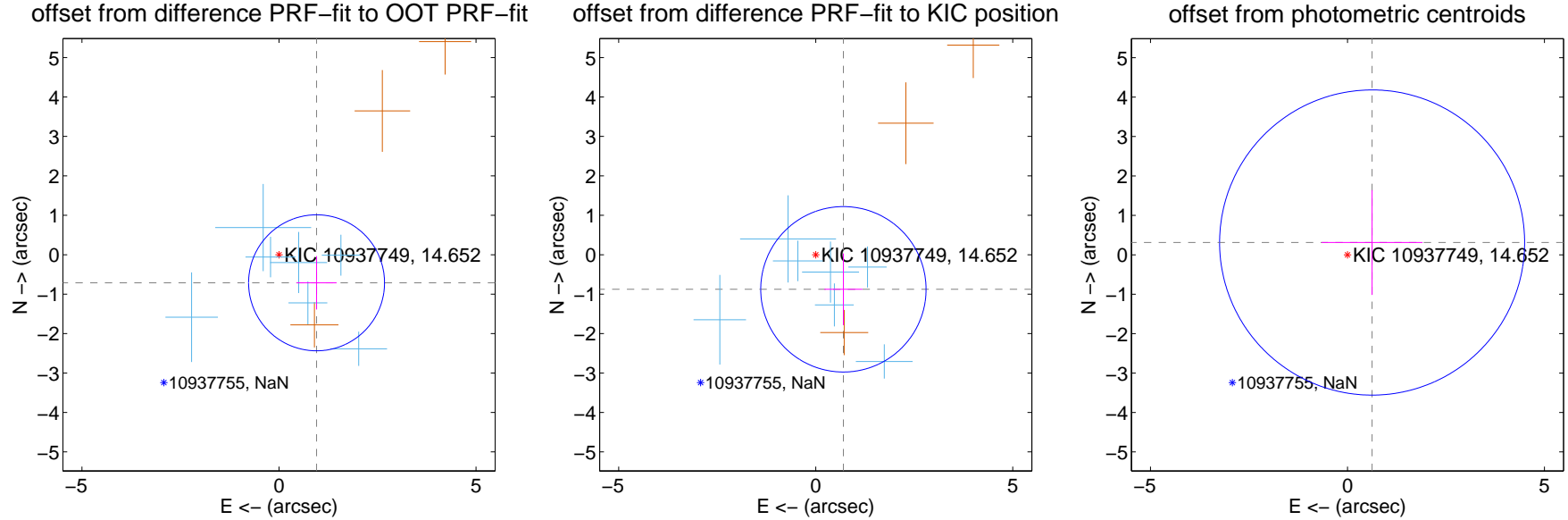
## DV Centroid Data

Supplemental centroid analysis for 010937749-01. Kepler magnitude: 14.65. Transit SNR 10.71

There are 7 quarters with good PRF difference image offsets

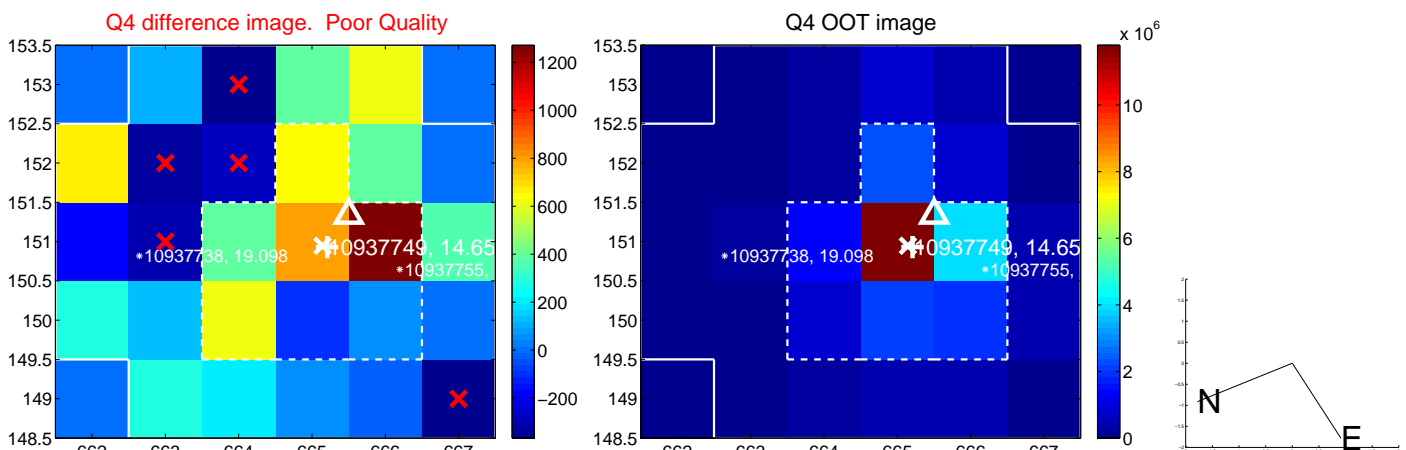
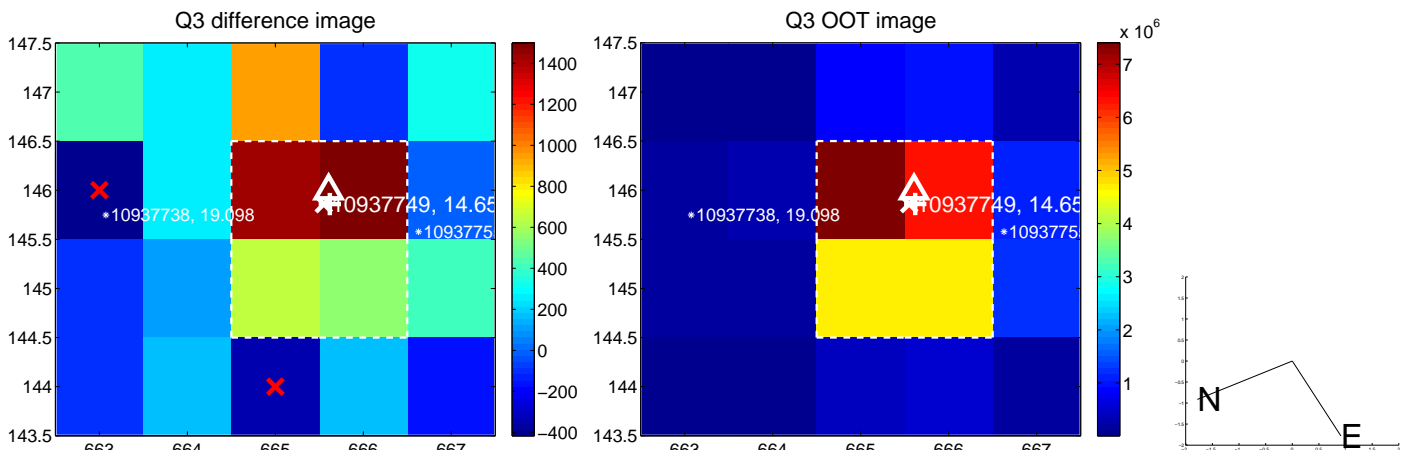
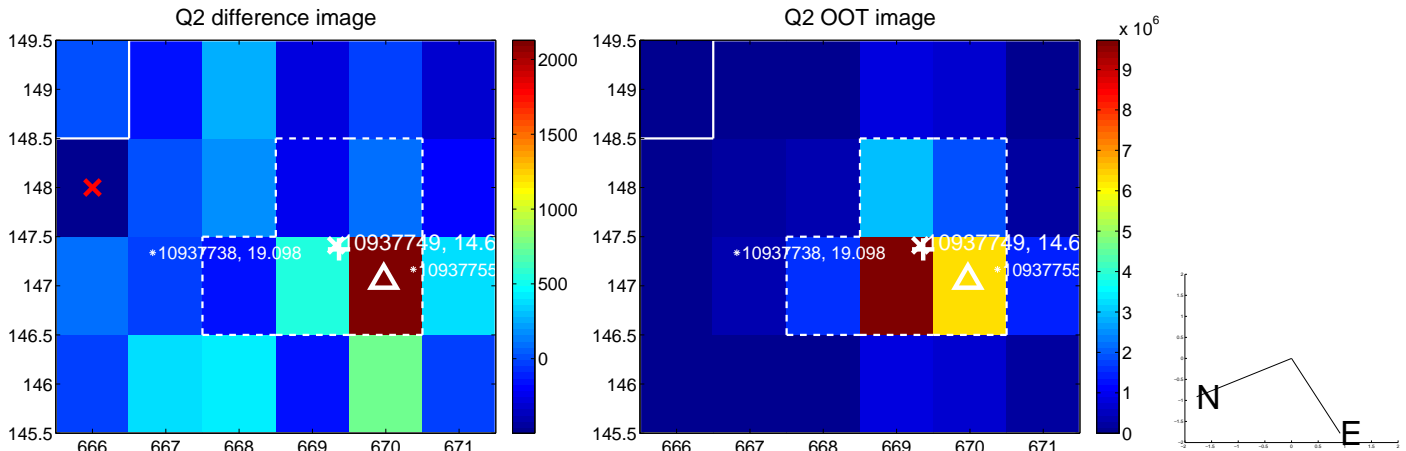
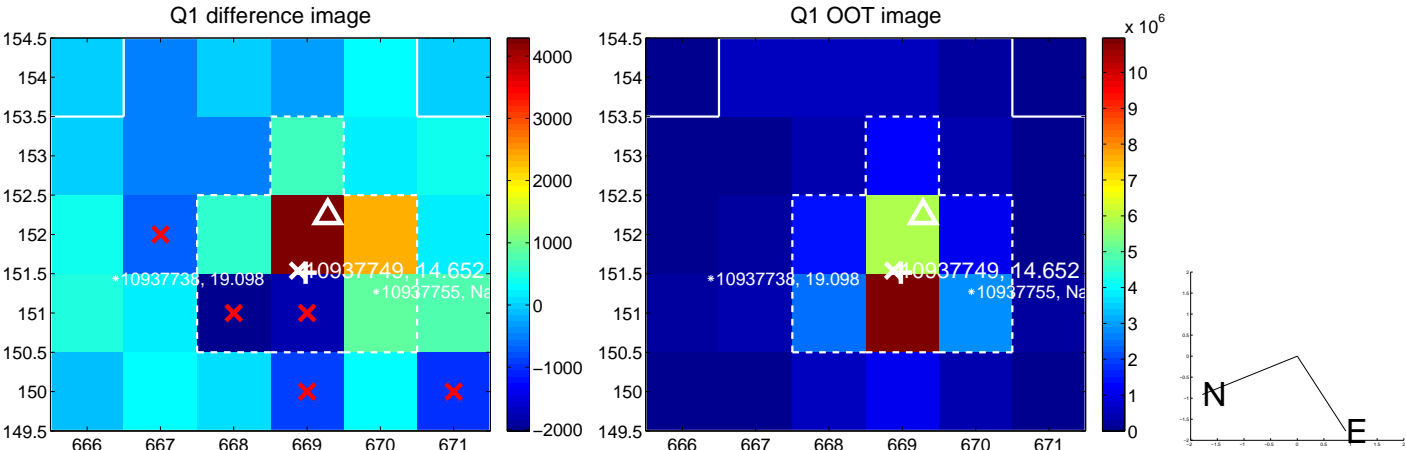
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

|                                         | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|-----------------------------------------|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $1.190 \pm 0.575$  | 2.07                | $-0.953 \pm 0.508$ | $-0.712 \pm 0.678$ |
| PRF-fit source offset from KIC position | $1.123 \pm 0.699$  | 1.61                | $-0.702 \pm 0.482$ | $-0.877 \pm 0.909$ |
| photometric centroid source offset      | $0.70 \pm 1.29$    | 0.54                | $-0.63 \pm 1.28$   | $0.31 \pm 1.33$    |

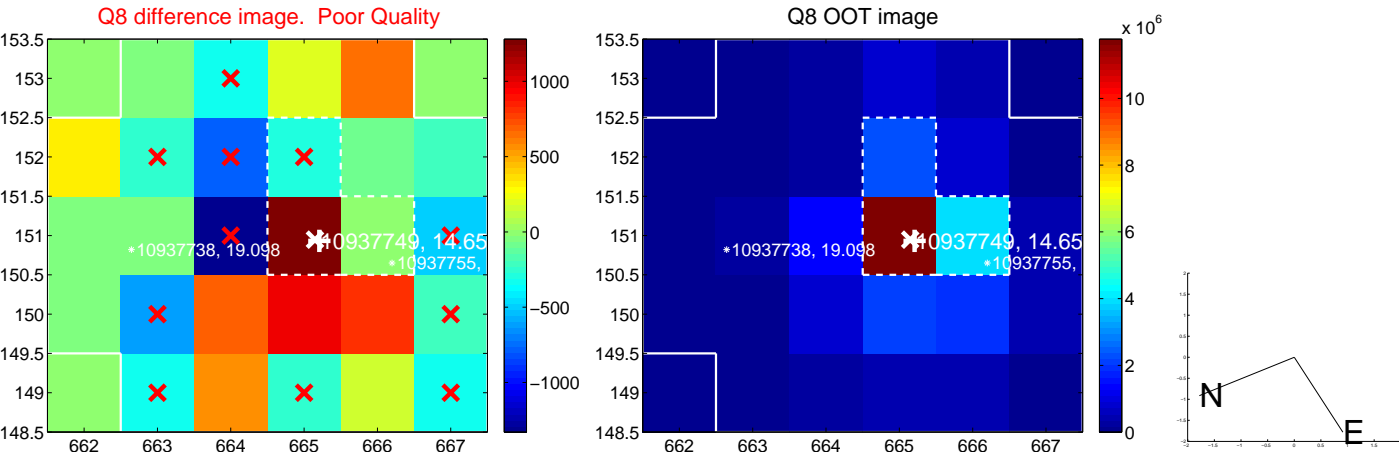
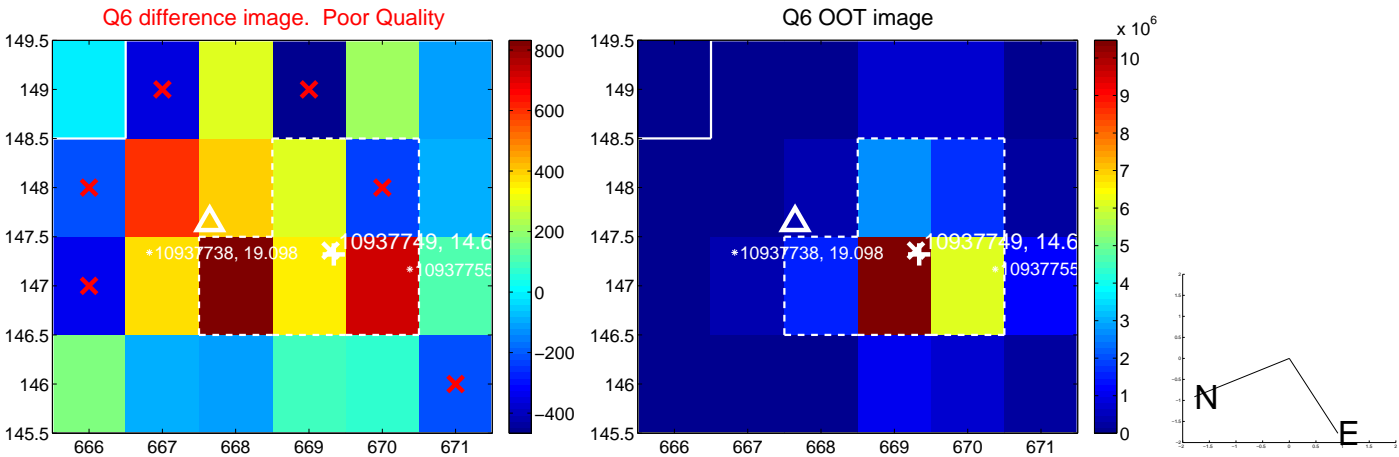
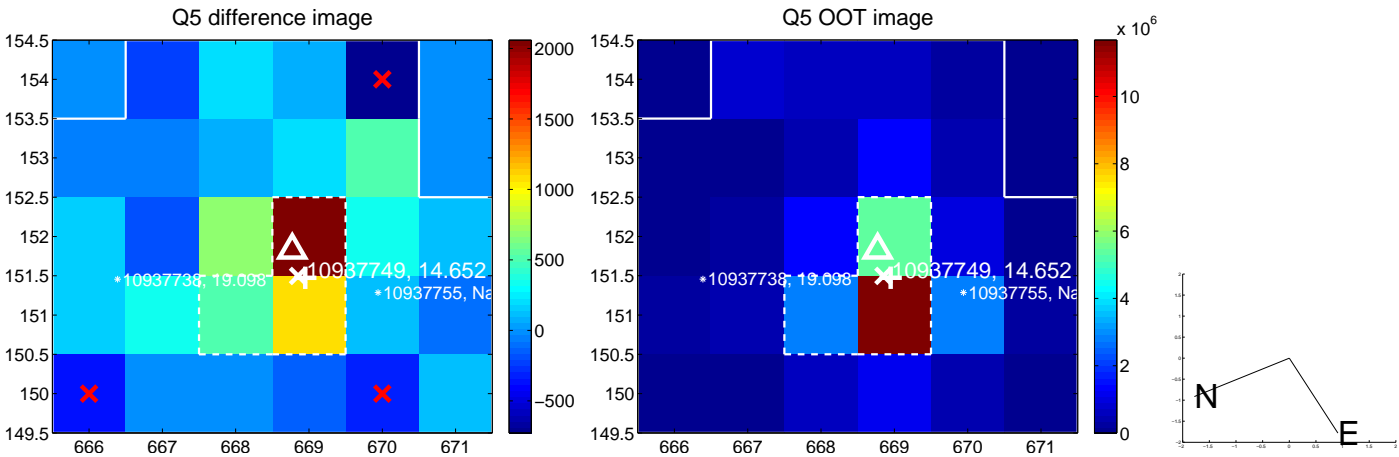


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: 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.

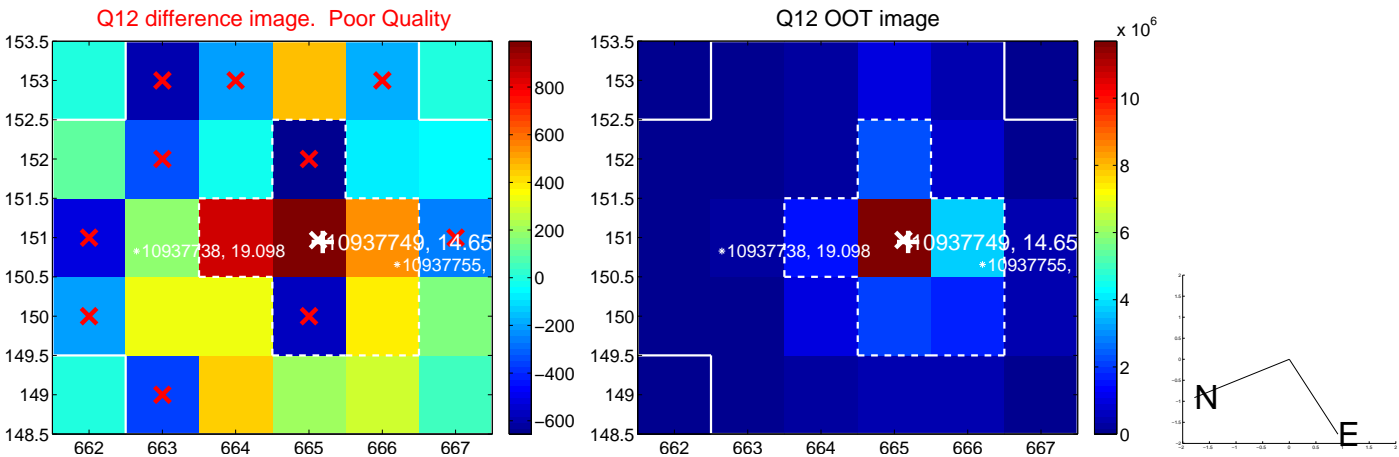
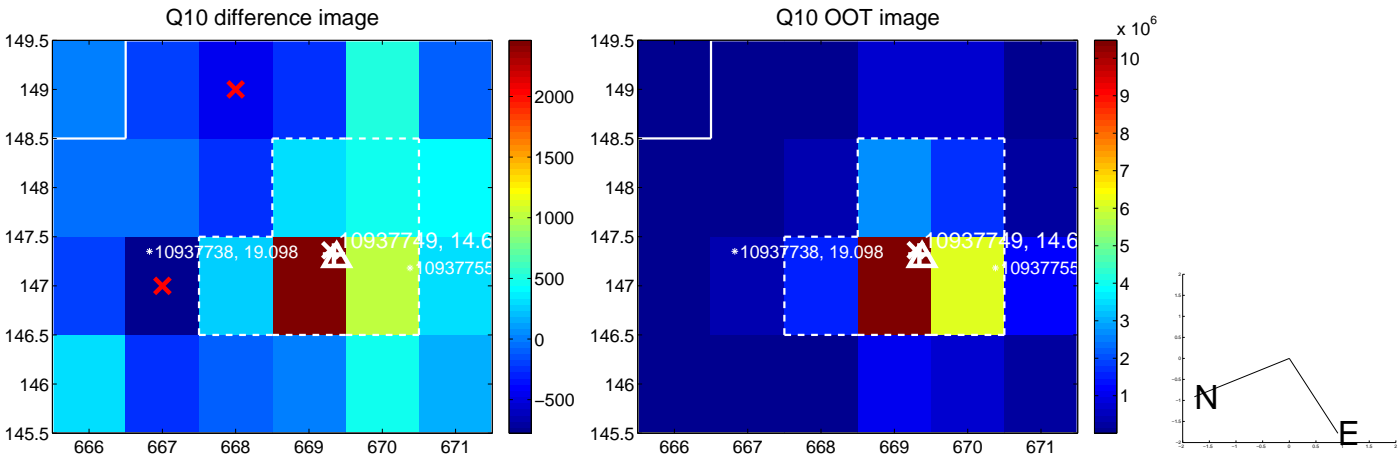
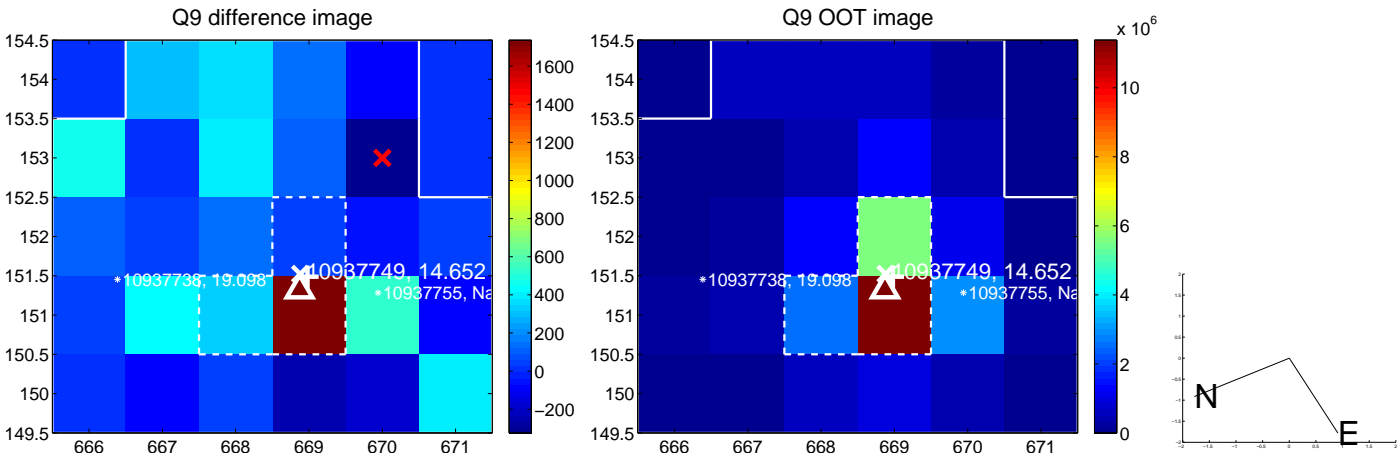


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

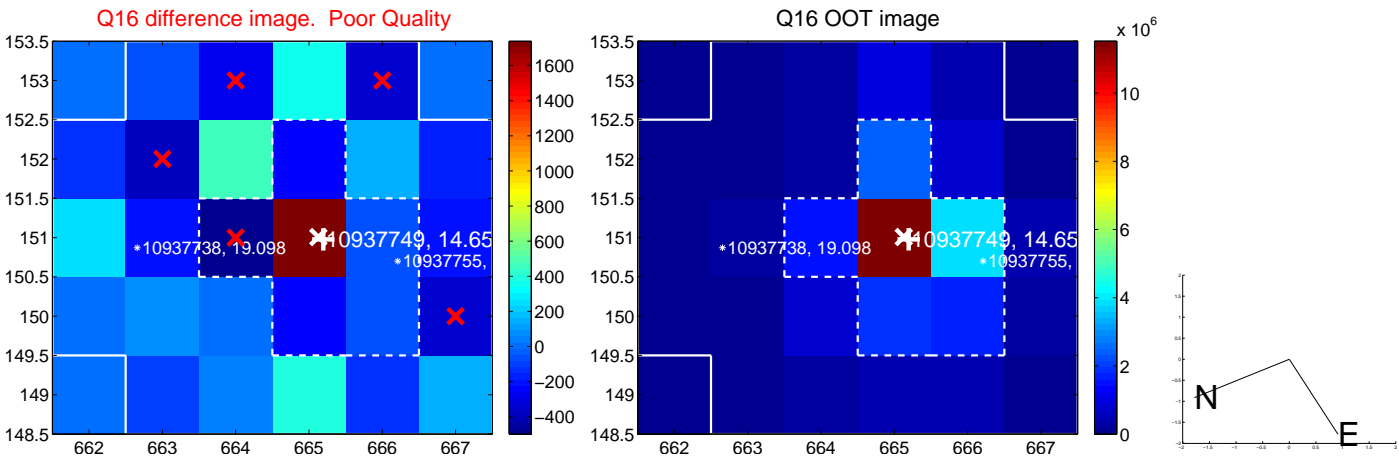
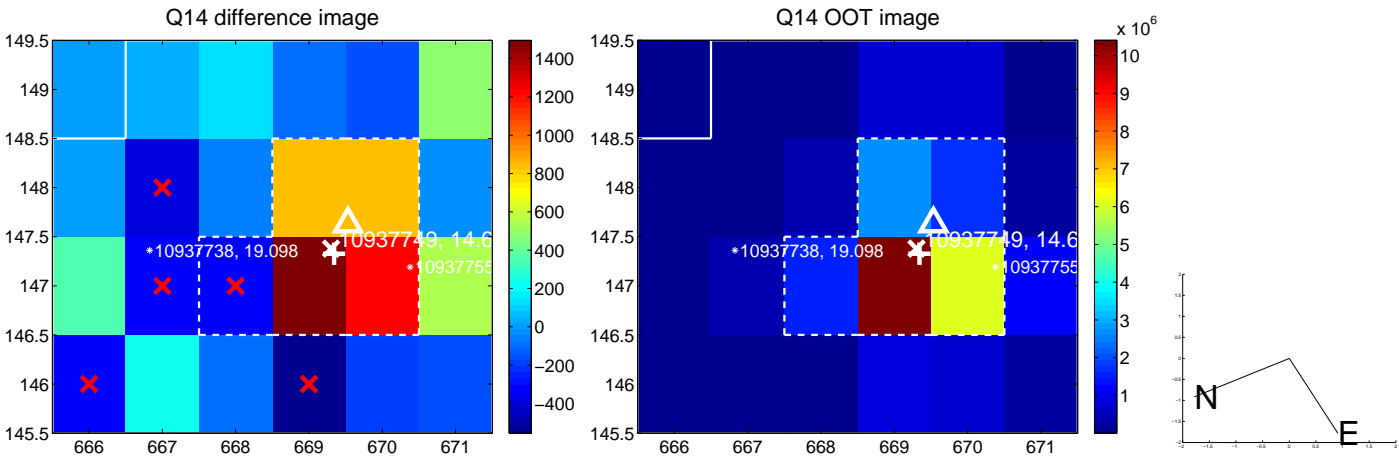
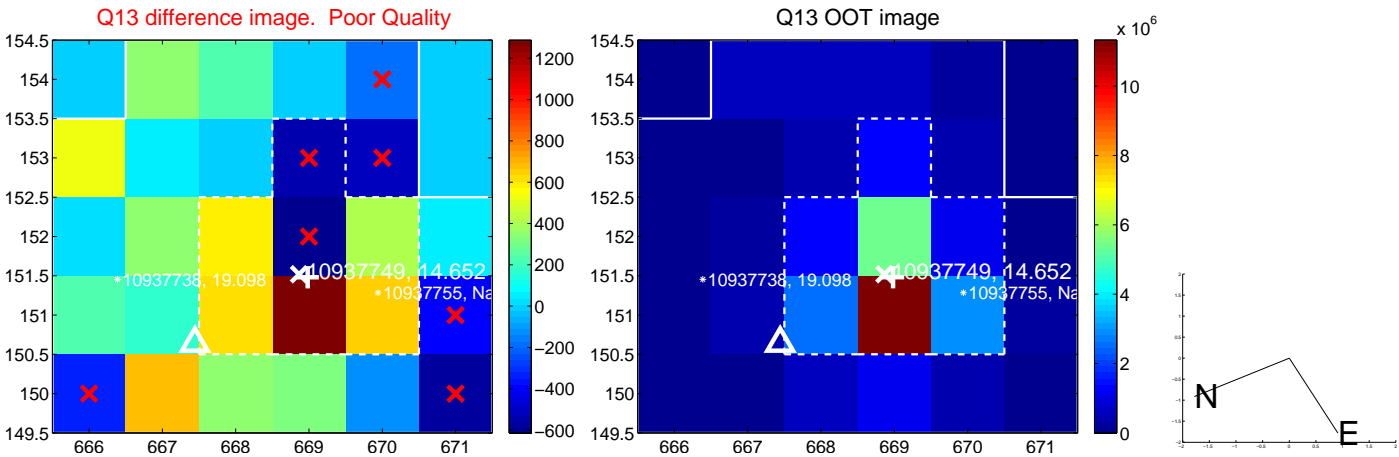




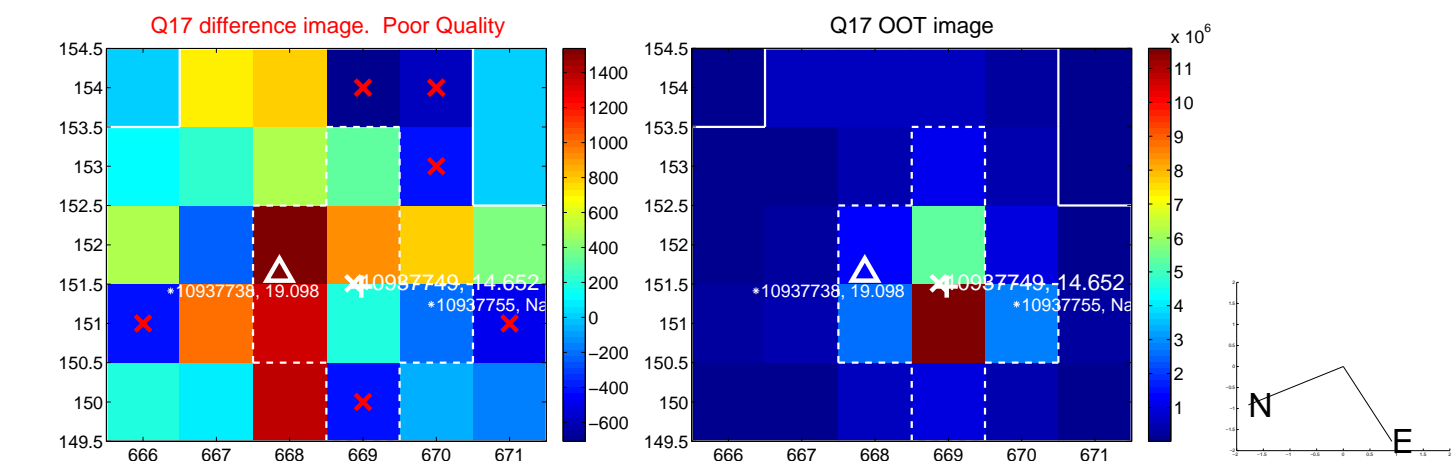
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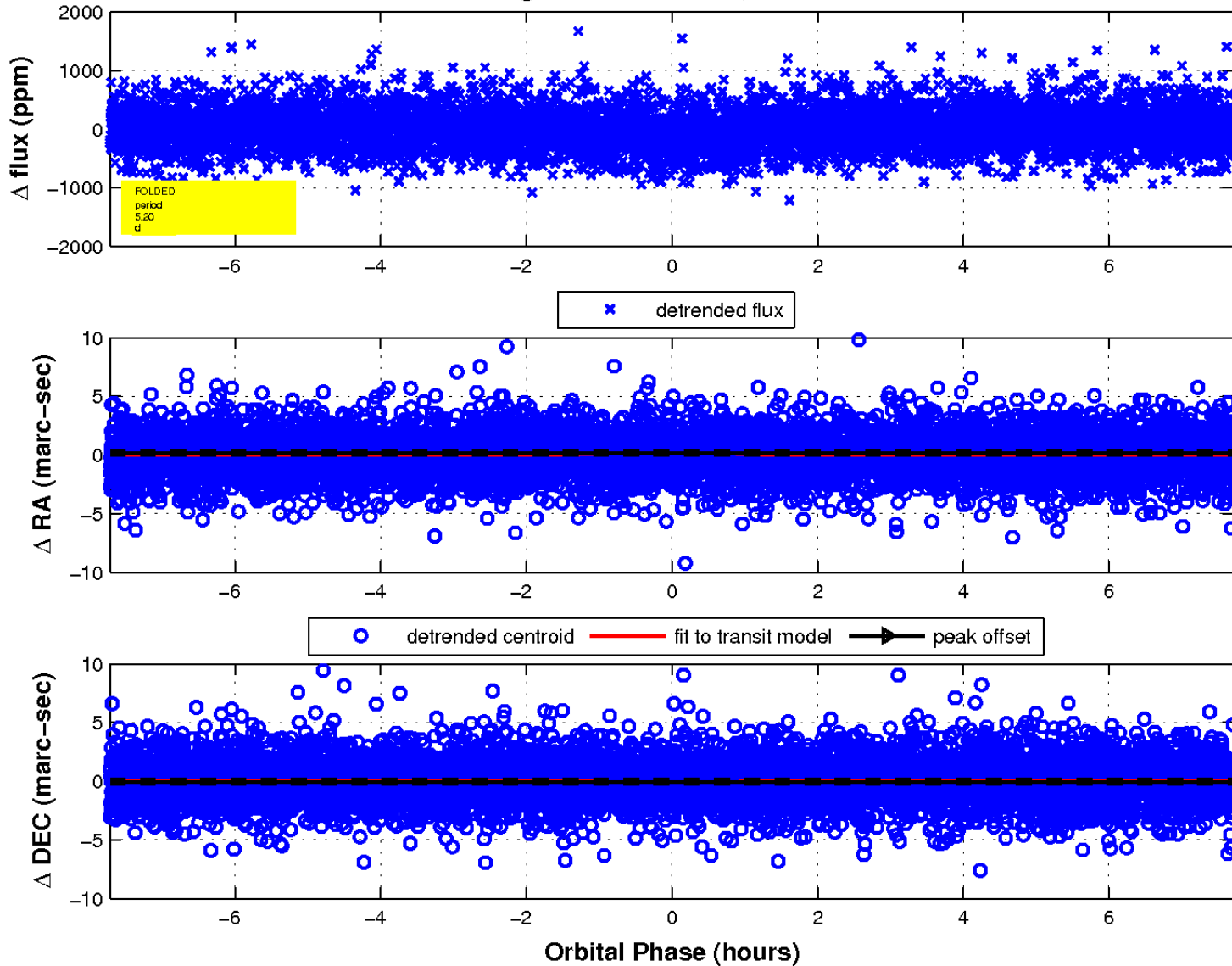
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

