

KIC 012072666

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 012072666-01 | OBS | No | 0.515364 | 131.905348 | 22.4 | 1.747 | 9.3 | 8.9 | 2.62 | 7351 | 1.44 | 76971.37 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 012072666-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |

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

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

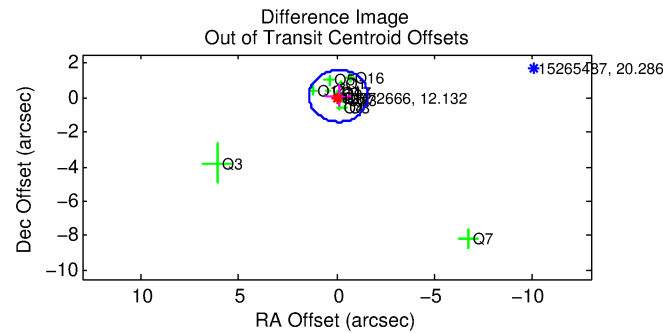
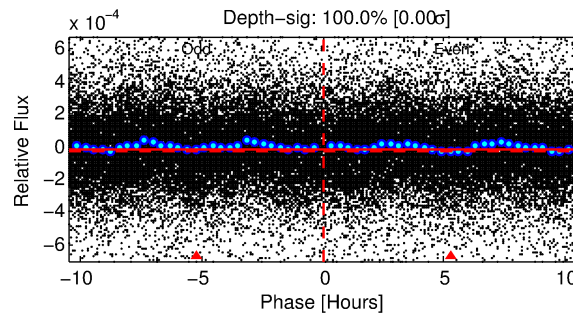
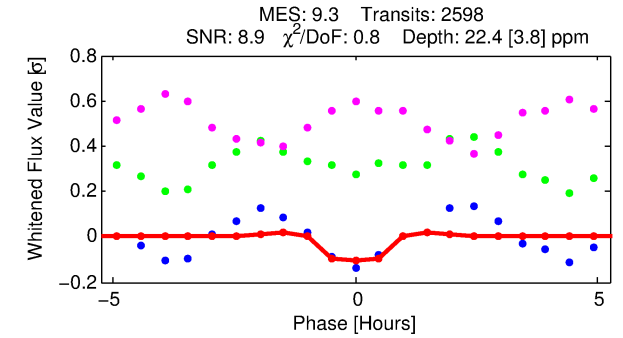
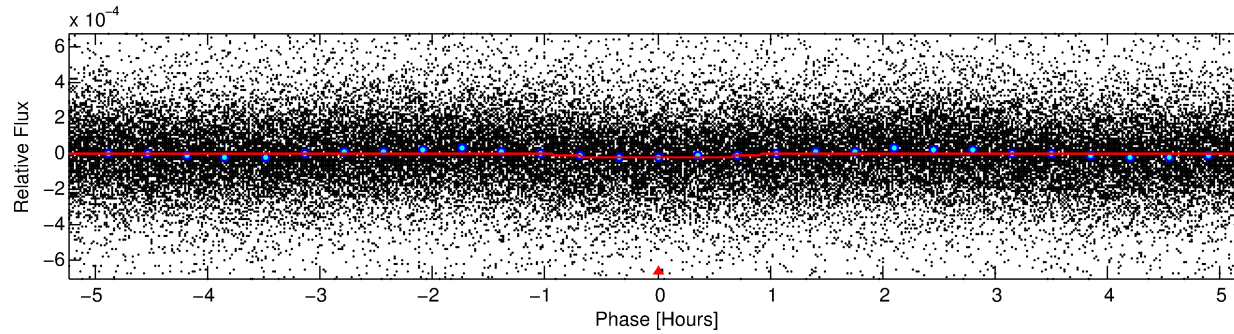
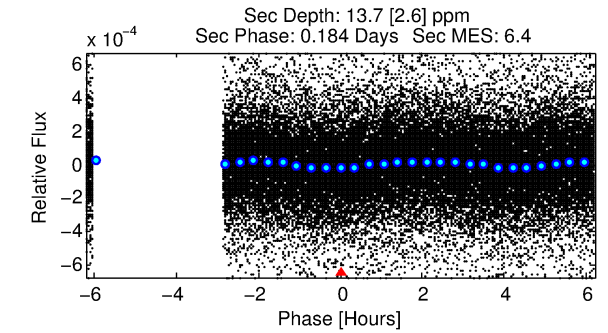
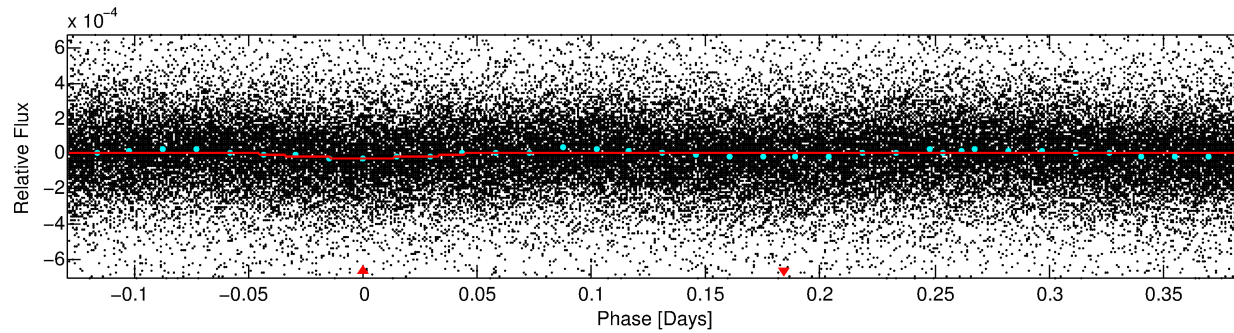
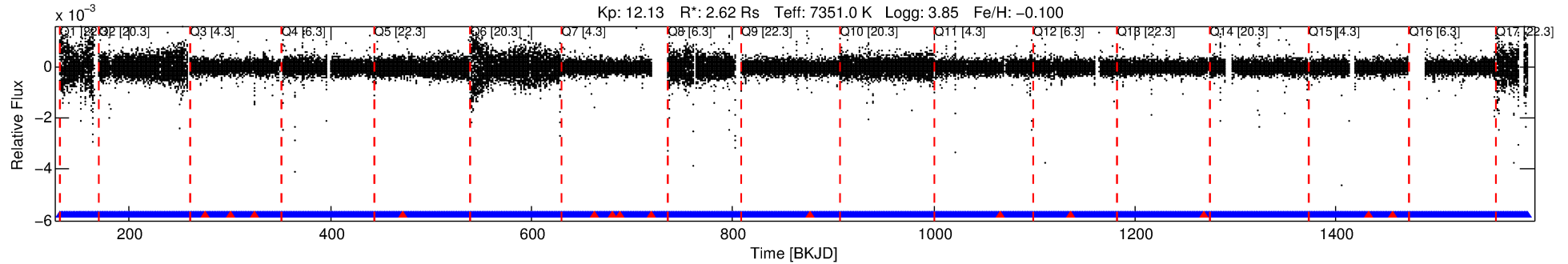
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012072666-01

No Significant Match Found

DV One-Page Summary

KIC: 12072666 Candidate: 1 of 1 Period: 0.515 d



DV Fit Results:

Period = 0.51536 [0.00001] d
Epoch = 131.9053 [0.0021] BKJD
Rp/R* = 0.0050 [0.0013]
a/R* = 1.38 [1.04]
b = 0.90 [0.34]
Seff = 76971.37 [46419.63]
Teq = 4247 [640] K
Rp = 1.44 [0.66] Re
a = 0.0153 [0.0055] AU
Ag = 0.85 [0.67] [-0.23σ]
Teffp = 6300 [907] K [1.85σ]

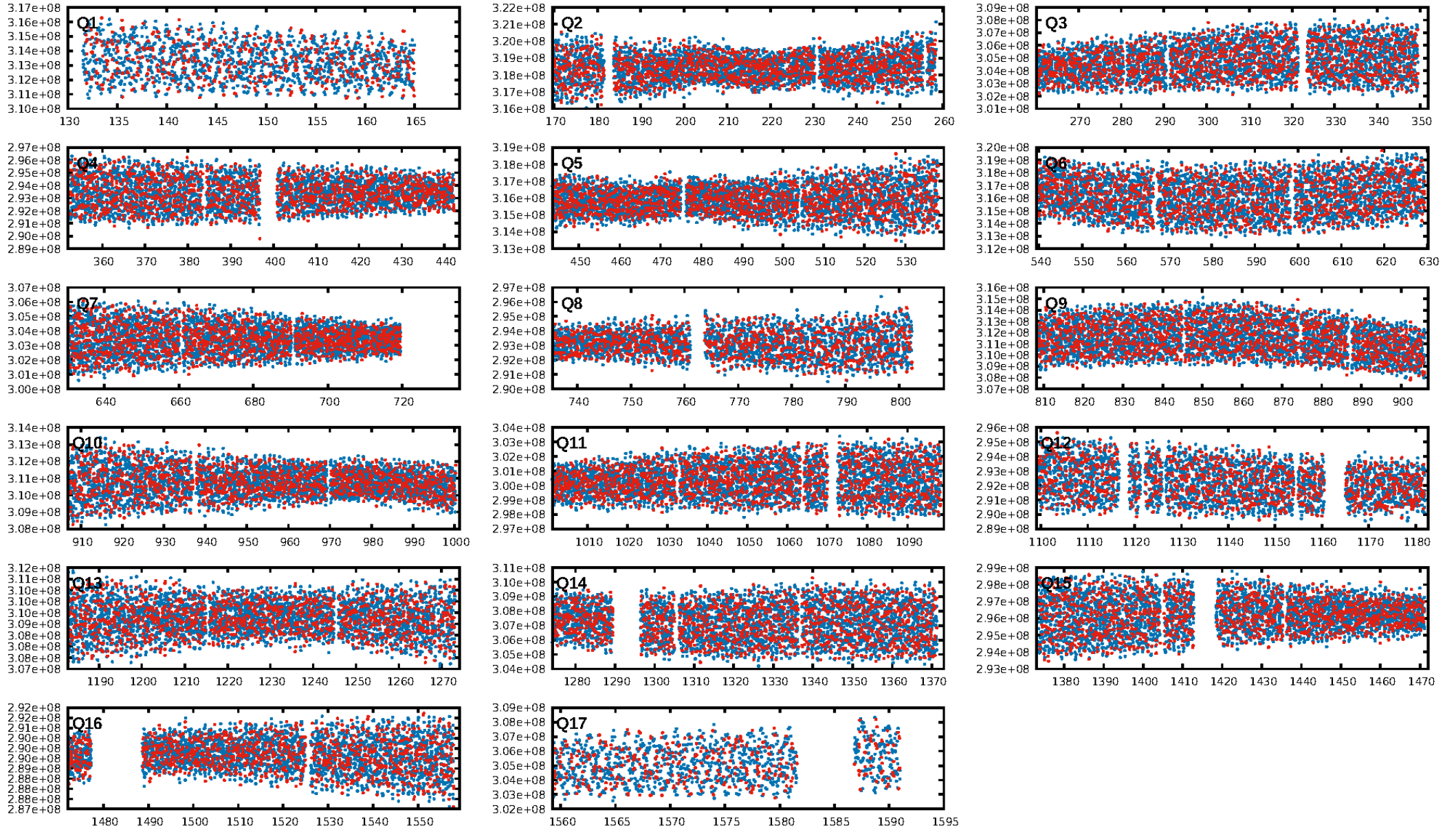
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.04e-15
RollingBand-fgt: 0.99 [2467/2481]
GhostDiagnostic-chr: 12.86
Centroid-sig: 5.7%
Centroid-so: 1.217 arcsec [1.55σ]
OotOffset-rm: 0.136 arcsec [0.27σ]
KicOffset-rm: 0.153 arcsec [0.26σ]
OotOffset-st: 2/3/4/5 [14]
KicOffset-st: 2/3/4/5 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 1.00 [17/17]

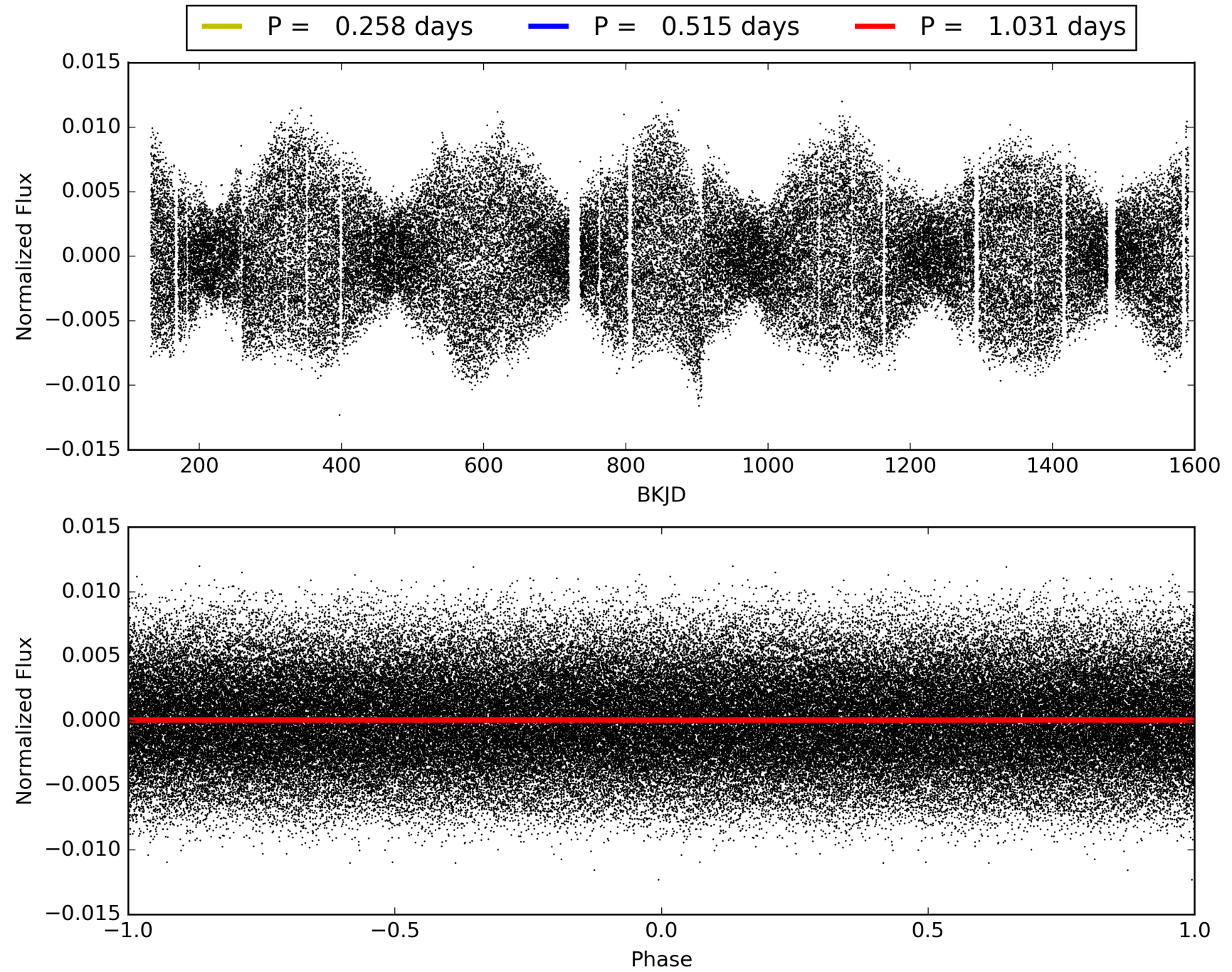
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:24:40 Z

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

TCE 012072666-01, PDC Light Curves

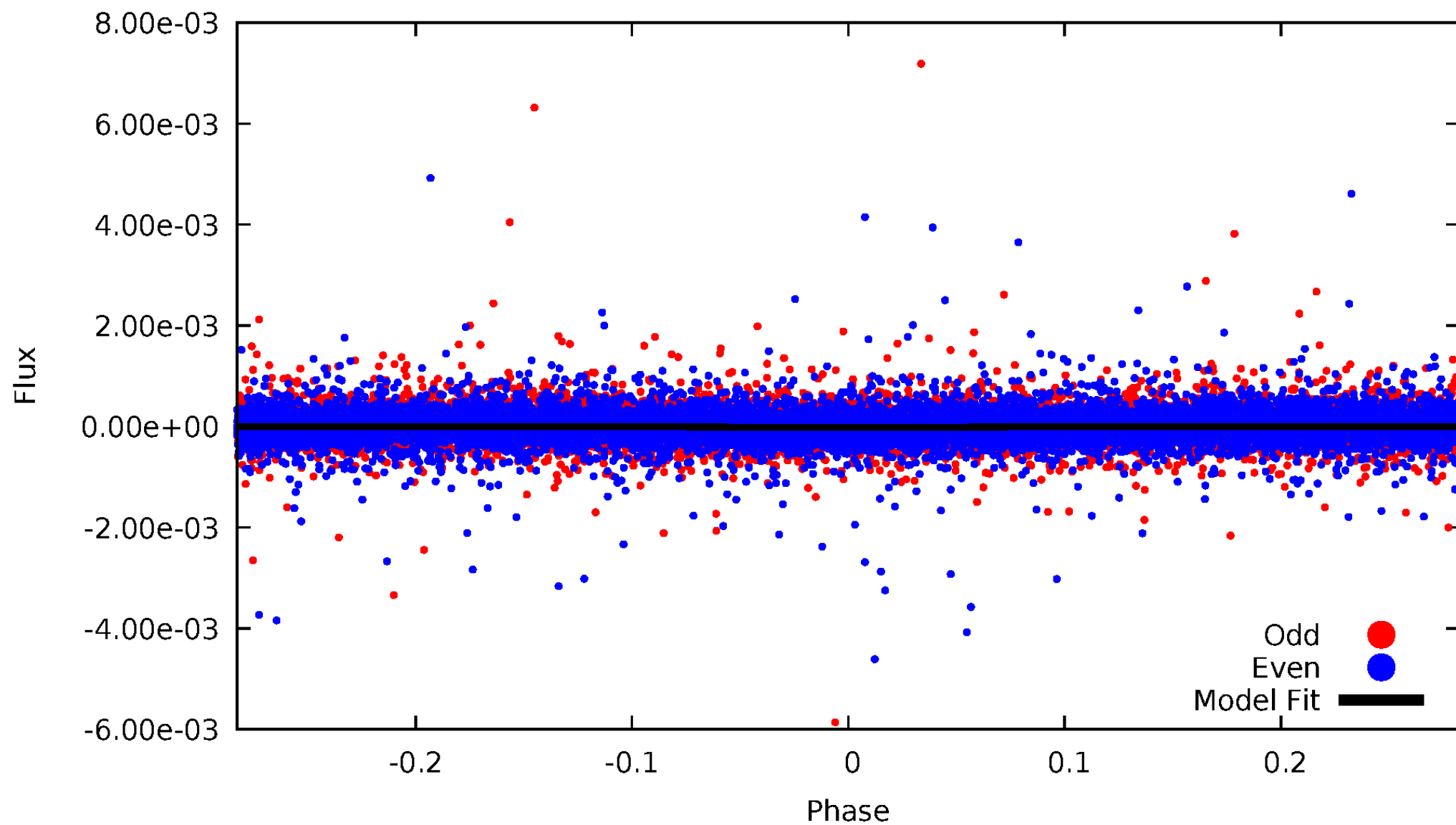


TCE 012072666-01



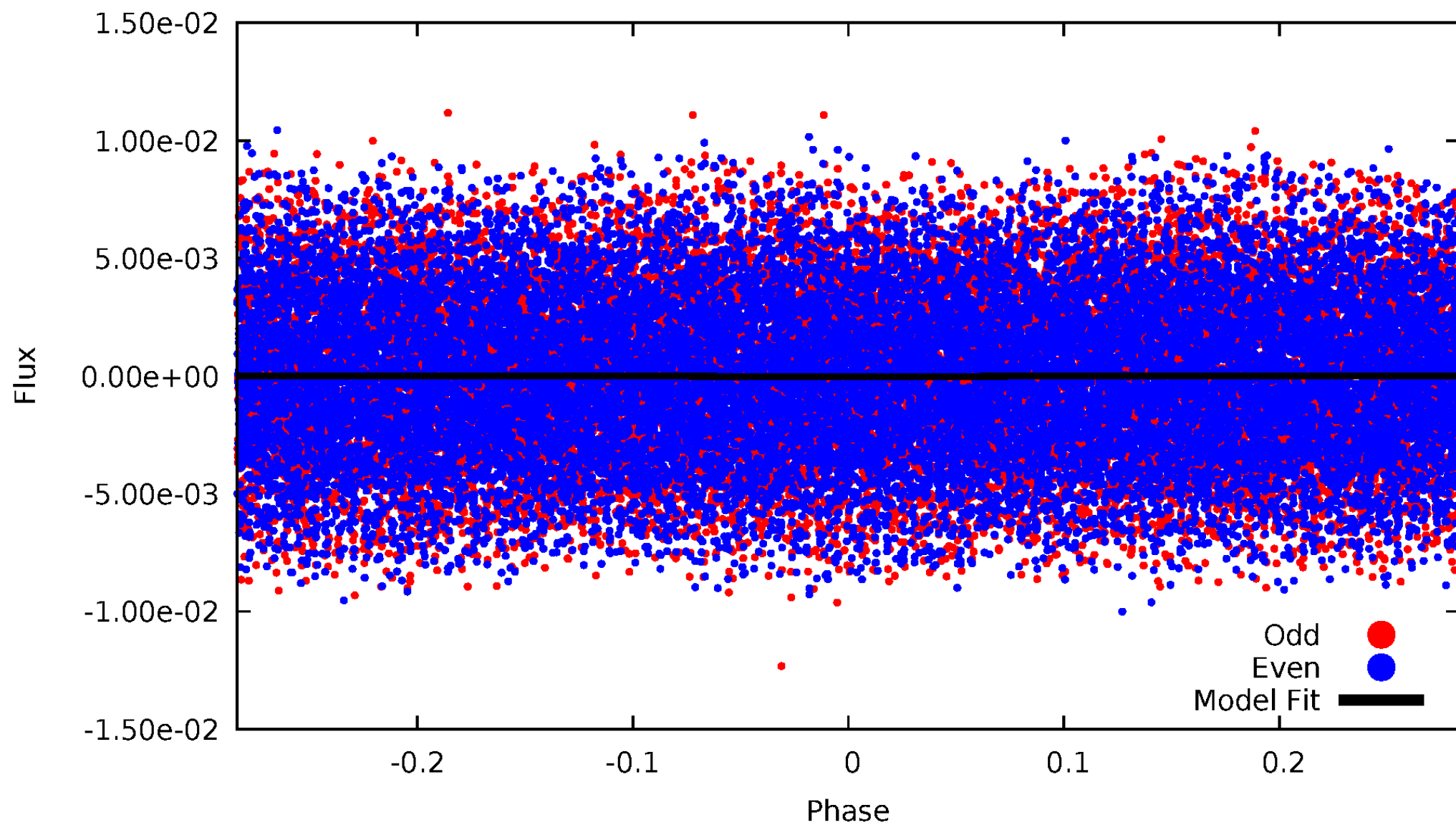
DV Odd/Even

TCE 012072666-01



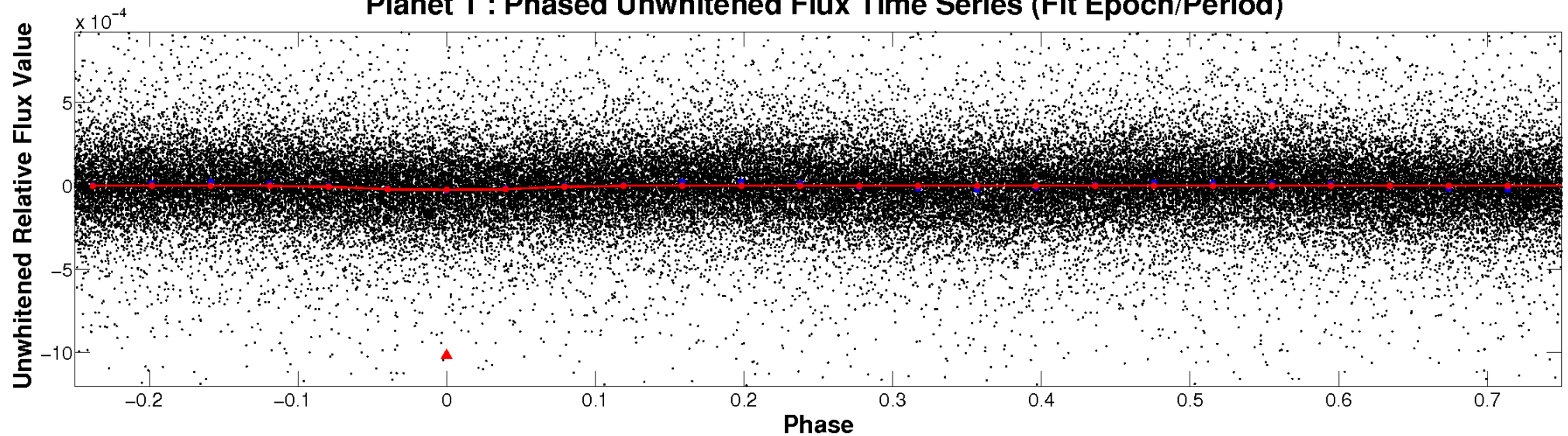
ALT Odd/Even

TCE 012072666-01

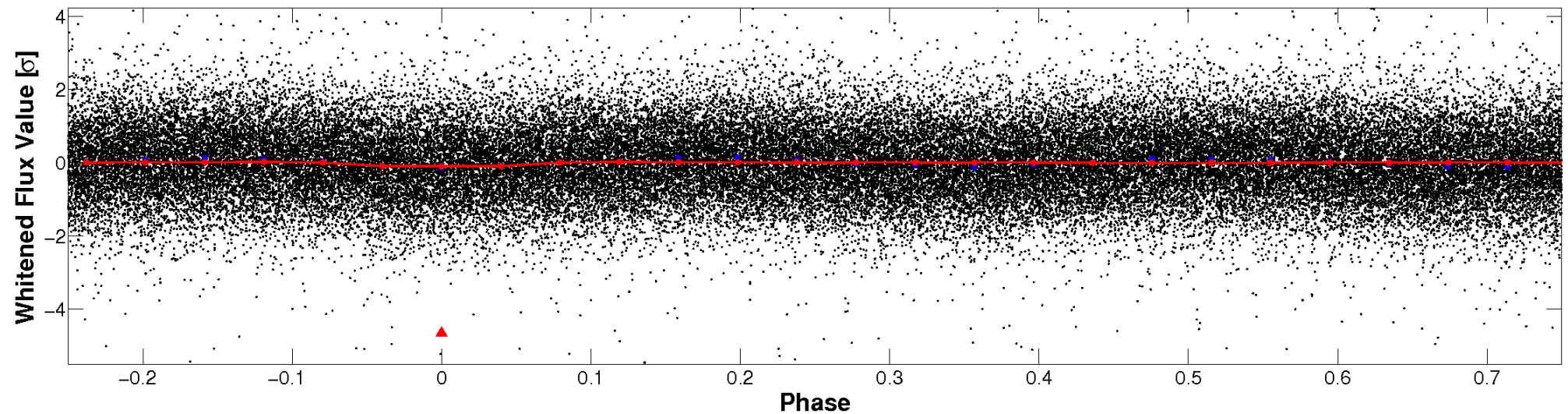


Non-Whitened Vs. Whitened Light Curve

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

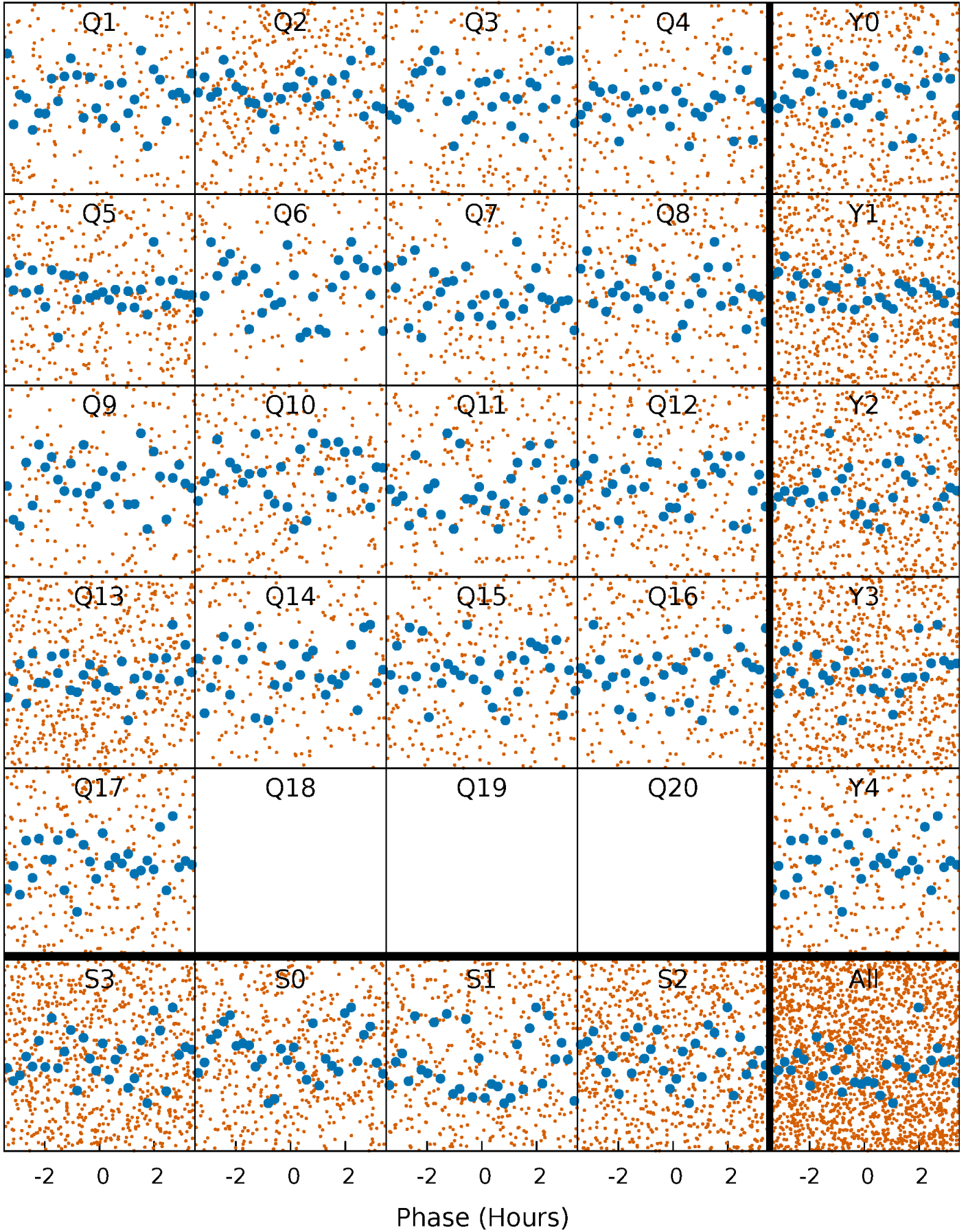


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



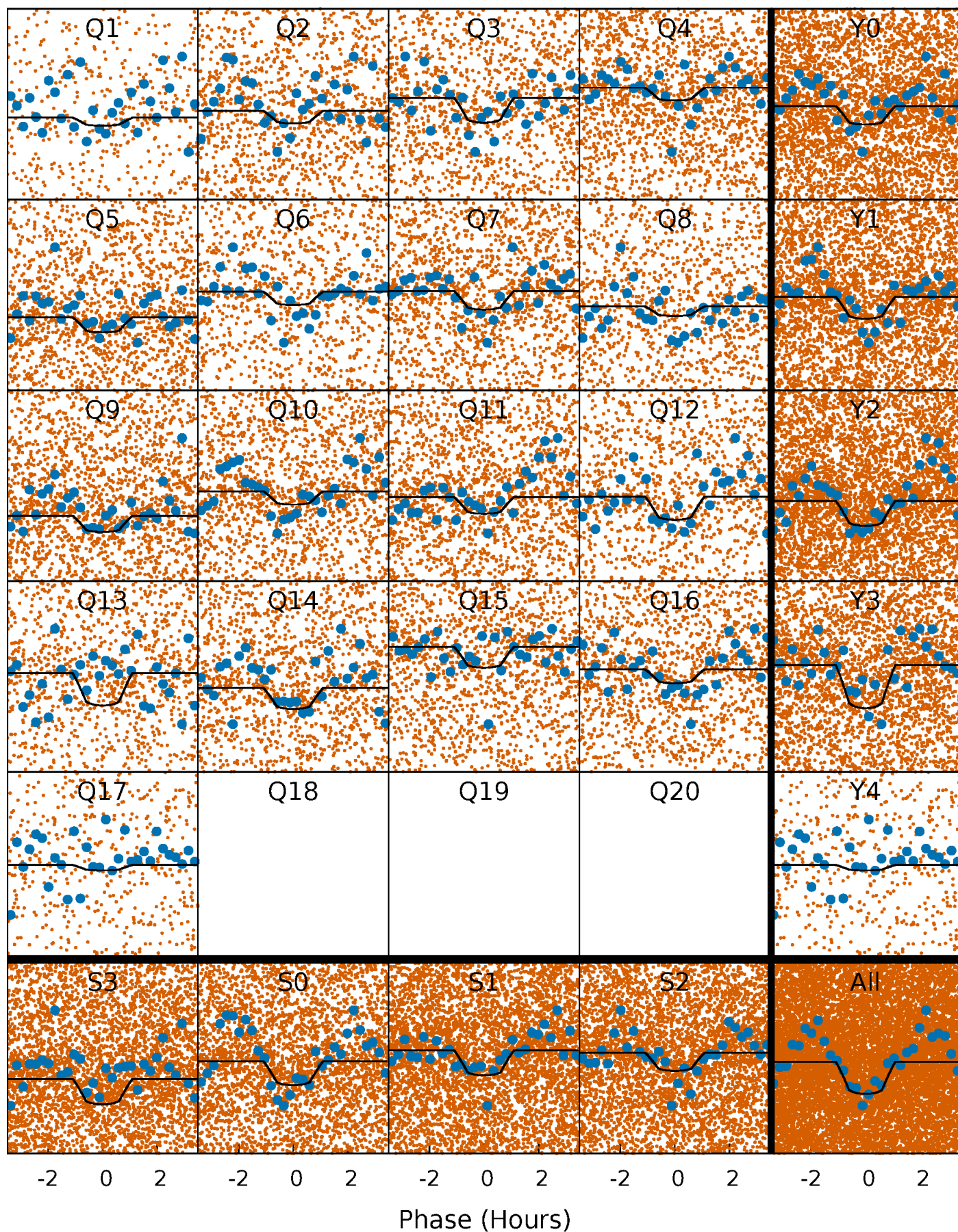
PDC Quarter-Phased Transit Curves

TCE 012072666-01 P= 0.515364 Days $T_0=131.905348$ (BKJD)



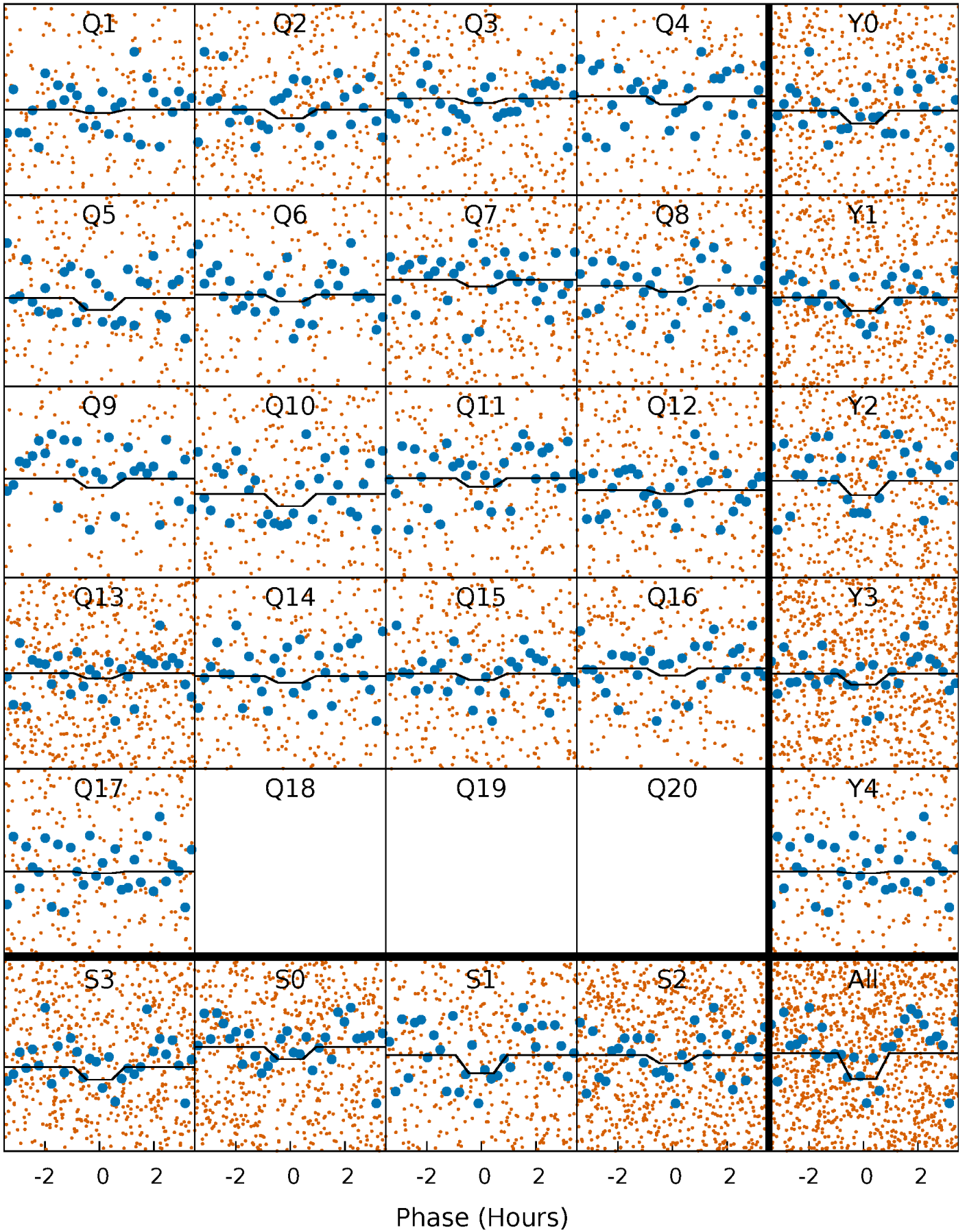
DV Quarter-Phased Transit Curves

TCE 012072666-01 P= 0.515364 Days $T_0=131.905348$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

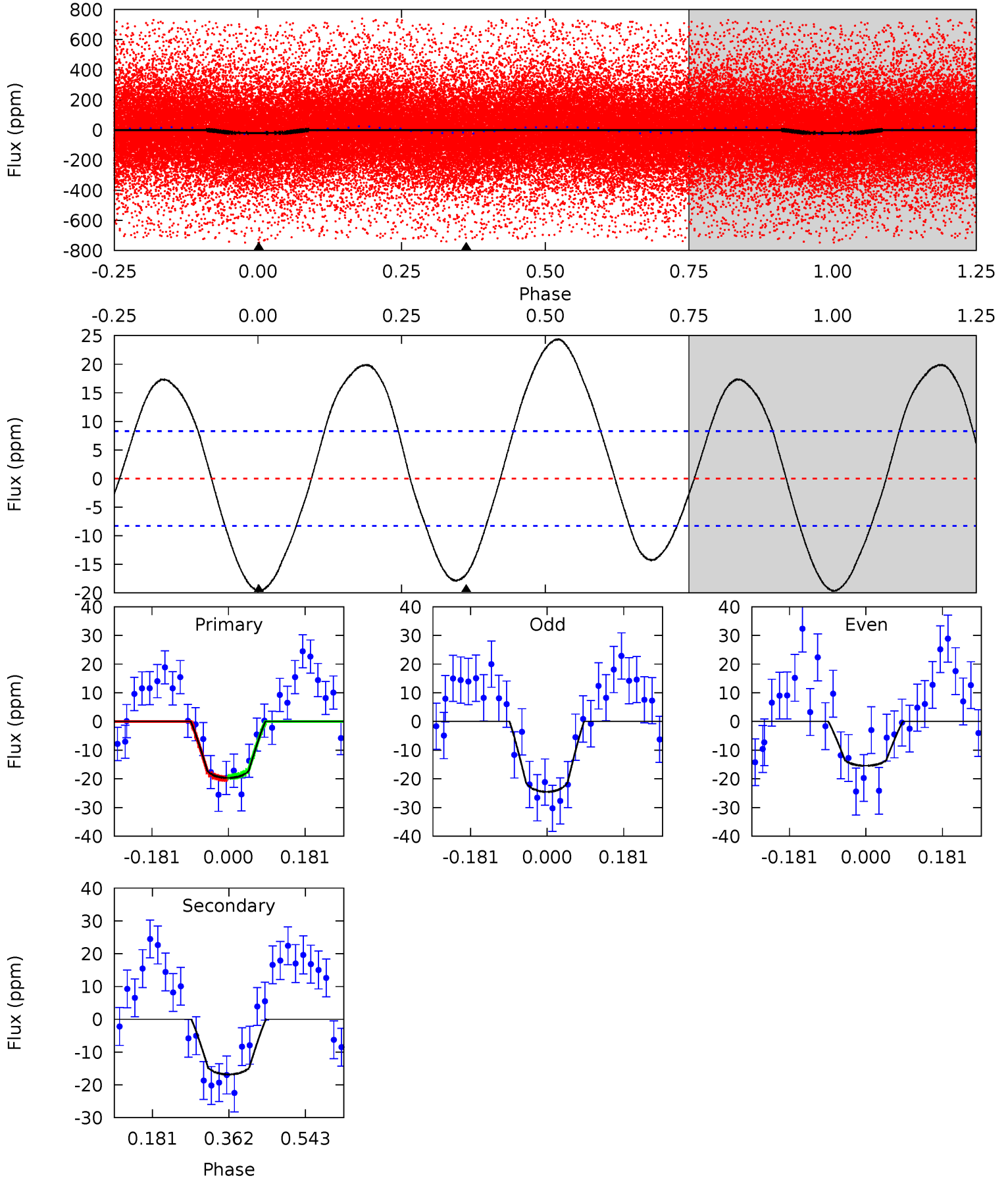
TCE 012072666-01 P= 0.515367 Days $T_0=131.916755$ (BKJD)



DV Model-Shift Uniqueness Test

012072666-01, P = 0.515364 Days, E = 131.389984 Days

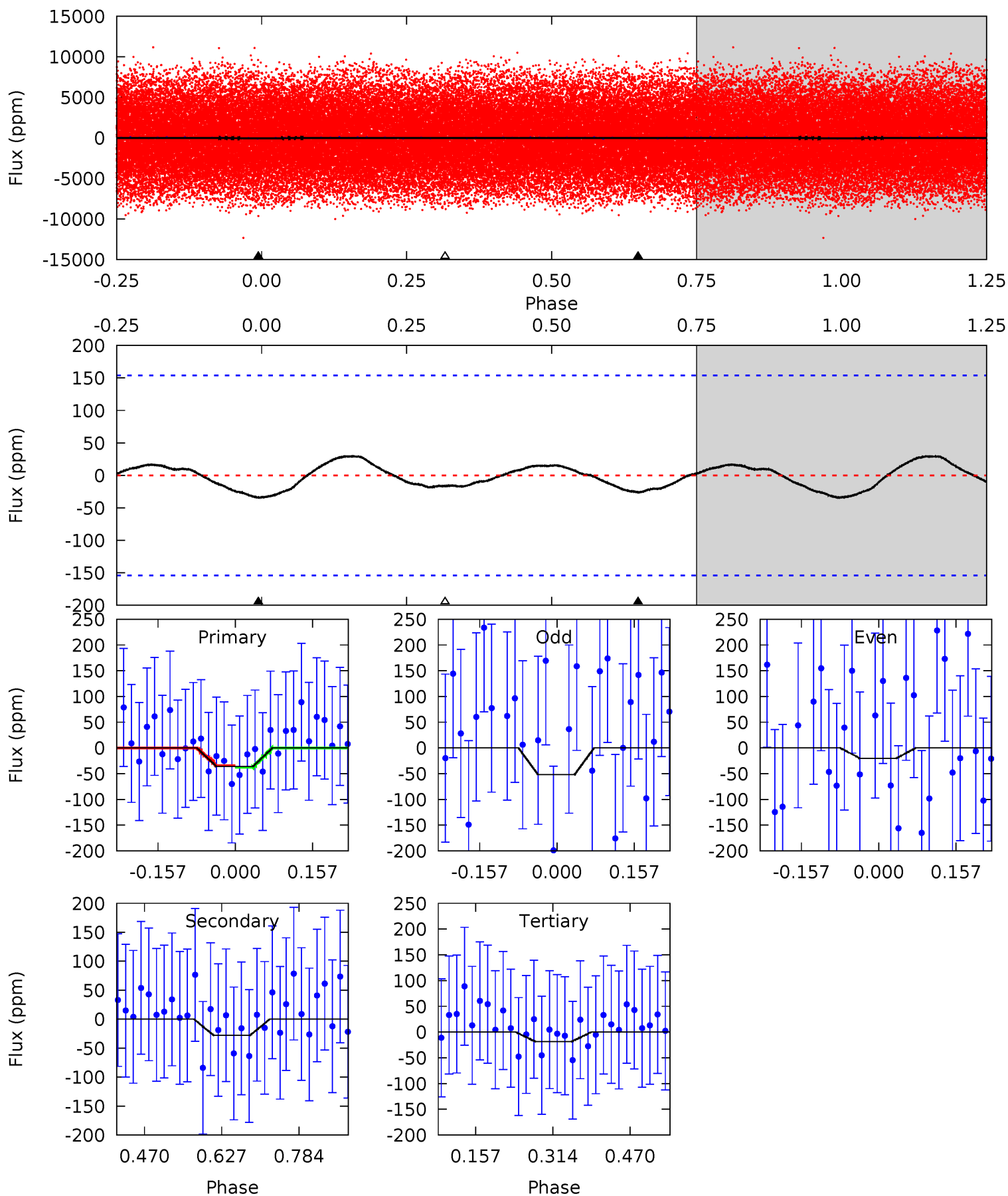
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.6 | 9.01 | 0 | 0 | 4.44 | 1.34 | 6.03 | 10.6 | 10.6 | 9.01 | 9.01 | 2.47 | 0.97 | 0.55 | 0.19 |



Alt Model-Shift Uniqueness Test

012072666-01, P = 0.515367 Days, E = 131.401388 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.05 | 0.81 | 0.53 | 0 | 4.47 | 1.42 | 0.42 | 0.51 | 1.05 | 0.27 | 0.81 | 0.46 | 0.89 | 0.46 | 0.04 |



Stellar Parameters For KIC 012072666

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|--|
| | 7351^{+203}_{-330} | $3.854^{+0.337}_{-0.112}$ | $-0.100^{+0.200}_{-0.350}$ | $2.620^{+0.535}_{-0.993}$ | $1.791^{+0.175}_{-0.409}$ | $0.140^{+0.347}_{-0.047}$ |
| | +3%/-4% | +9%/-3% | +200%/-350% | +20%/-38% | +10%/-23% | +247%/-34% |
| Source | KIC0 | 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 012072666-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|-------------------------|---------------------------|
| DV | -17 ± 2 | $1.33^{+0.46}_{-0.40}$ | 5774^{+439}_{-622} | 6034^{+1378}_{-916} | $1.213^{+1.237}_{-0.542}$ |
| Alt. | -28 ± 34 | $1.63^{+0.49}_{-0.42}$ | 5795^{+371}_{-574} | 6266^{+2360}_{-11882} | $1.250^{+2.310}_{-1.547}$ |

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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

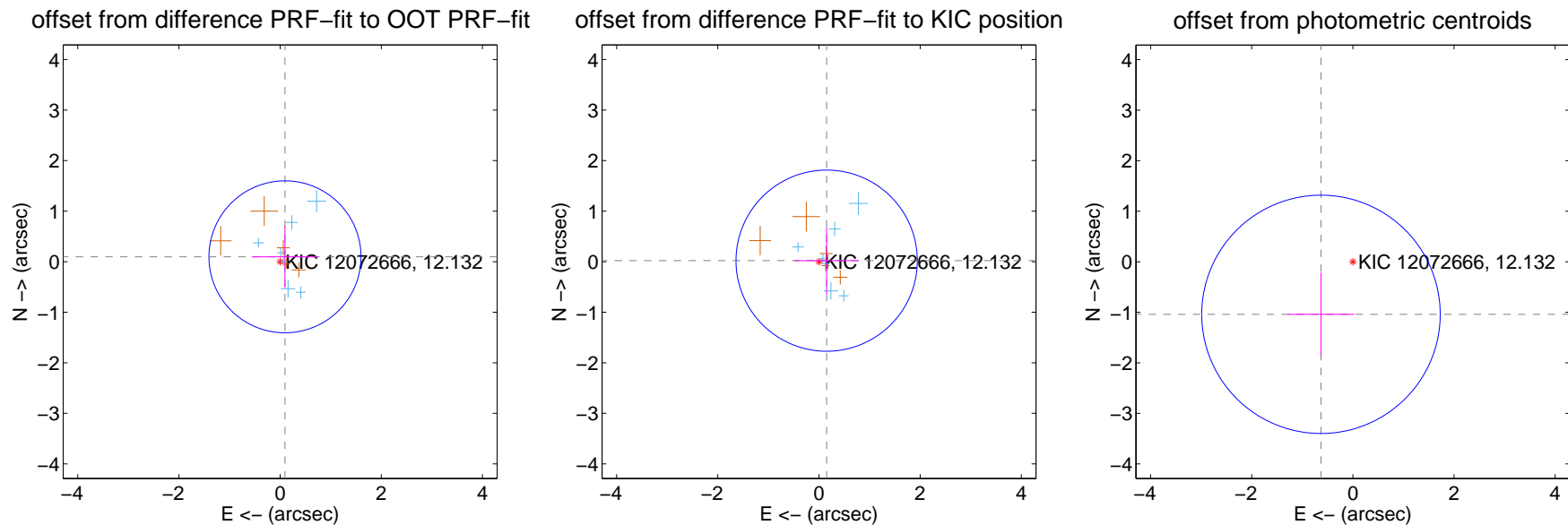
DV Centroid Data

Supplemental centroid analysis for 012072666-01. Kepler magnitude: 12.13. Transit SNR 8.91

There are 7 quarters with good PRF difference image offsets

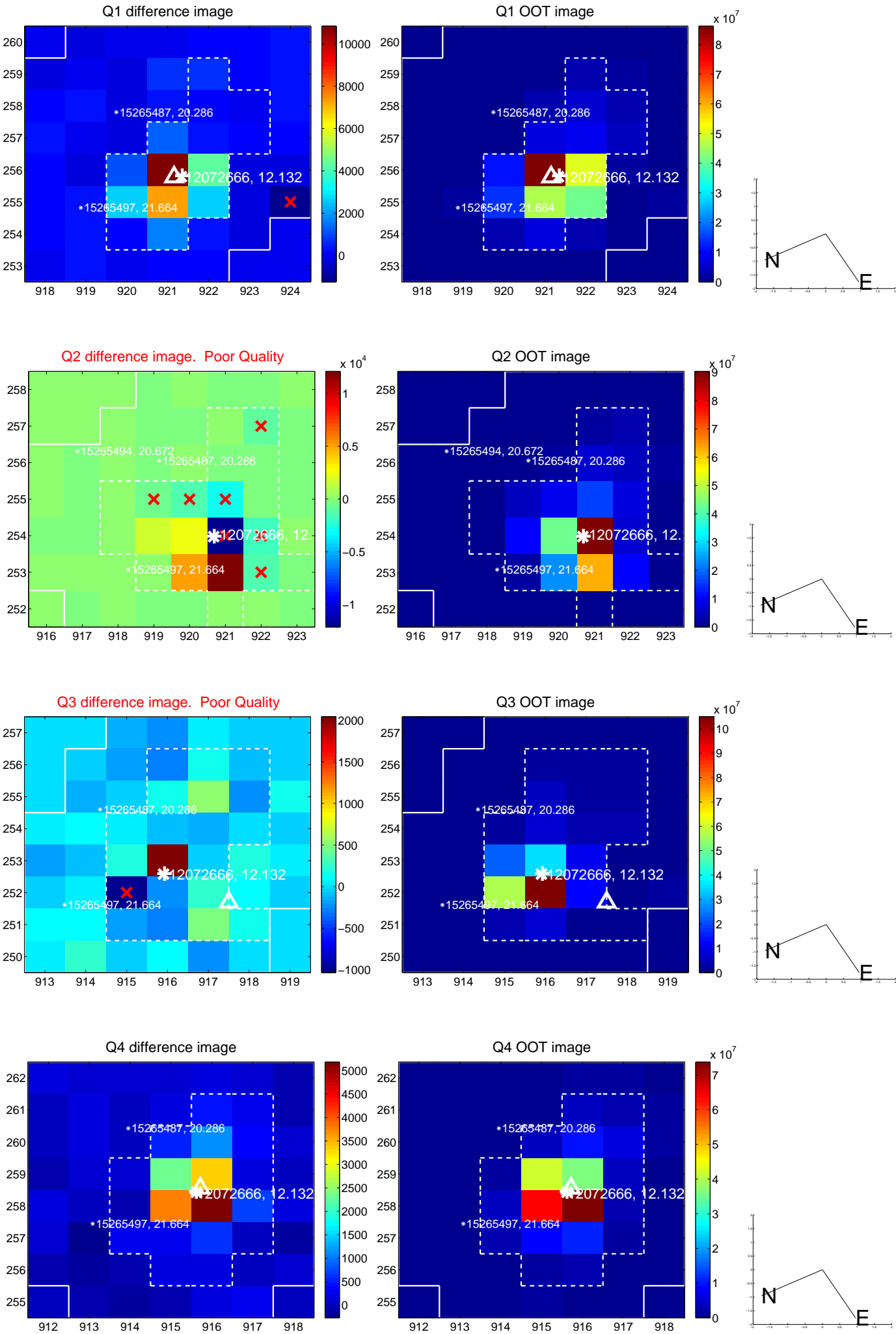
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.136 ± 0.501 | 0.27 | -0.096 ± 0.657 | 0.097 ± 0.613 |
| PRF-fit source offset from KIC position | 0.153 ± 0.597 | 0.26 | -0.152 ± 0.637 | 0.020 ± 0.657 |
| photometric centroid source offset | 1.22 ± 0.79 | 1.55 | 0.63 ± 0.66 | -1.04 ± 0.83 |

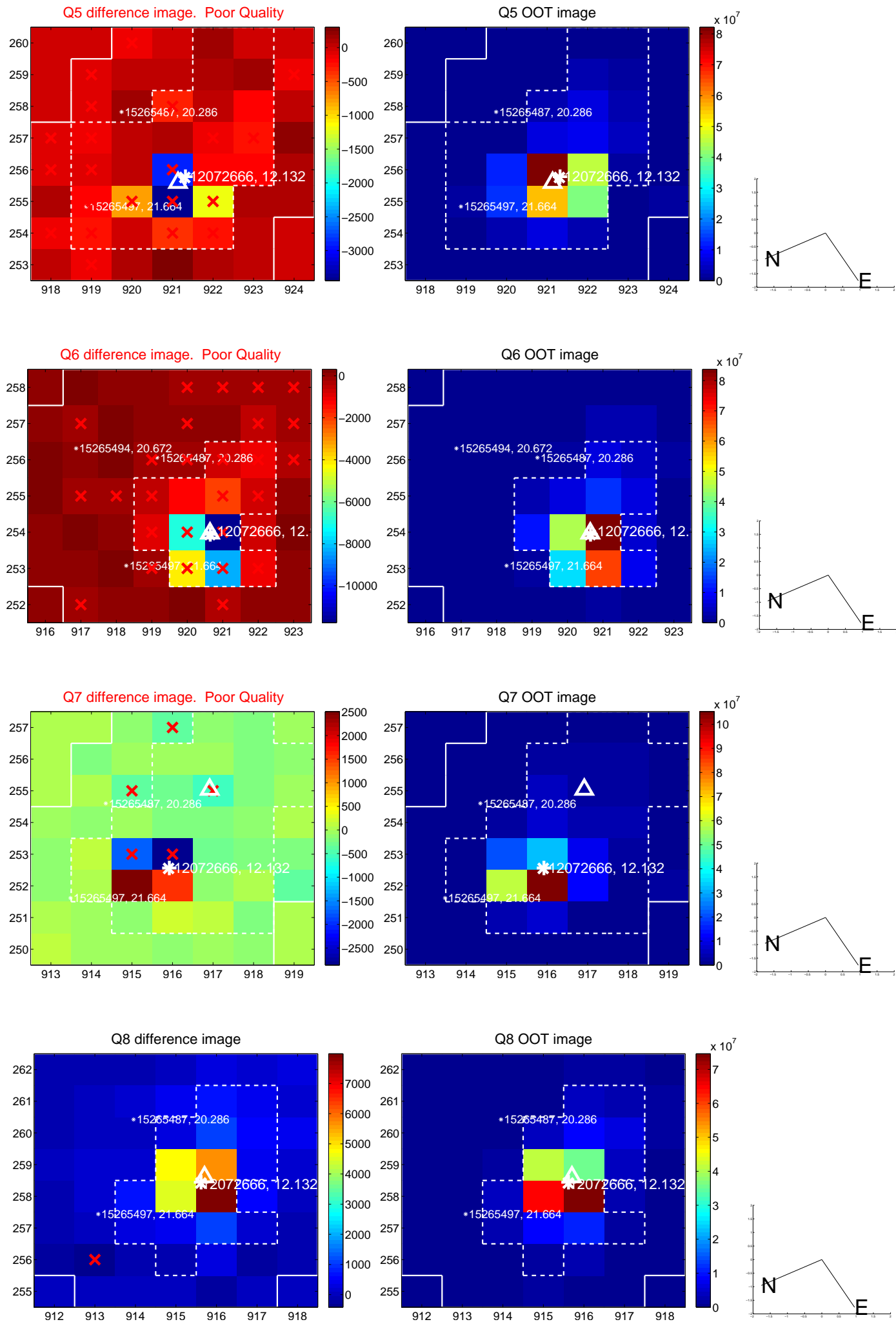


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

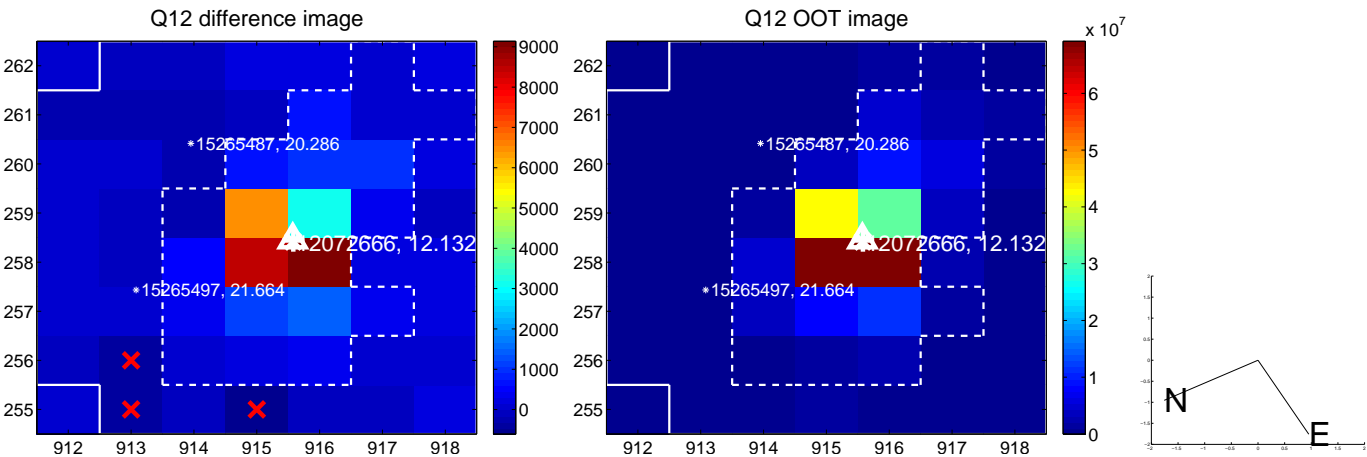
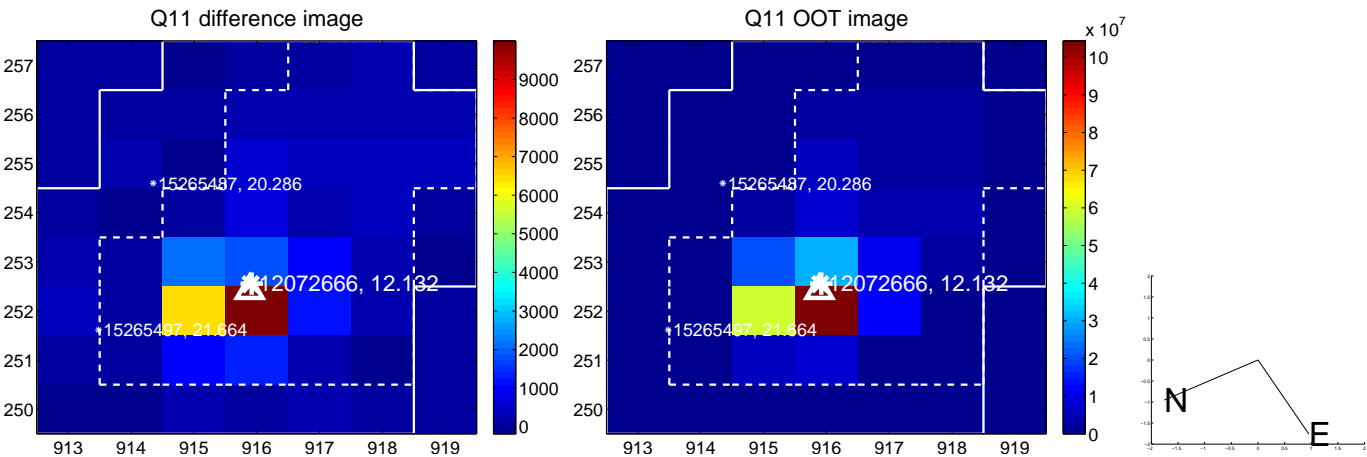
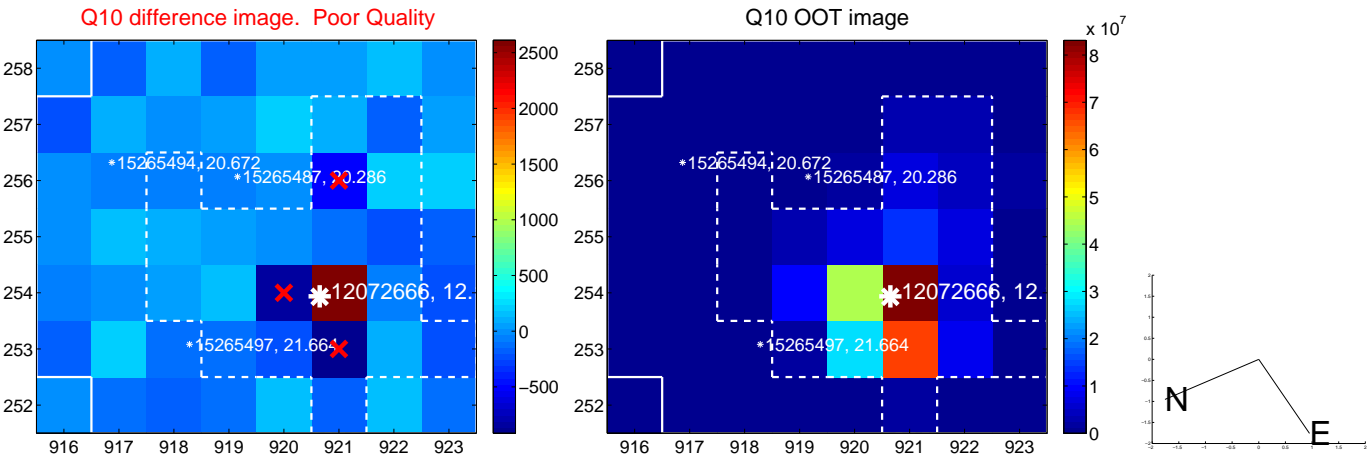
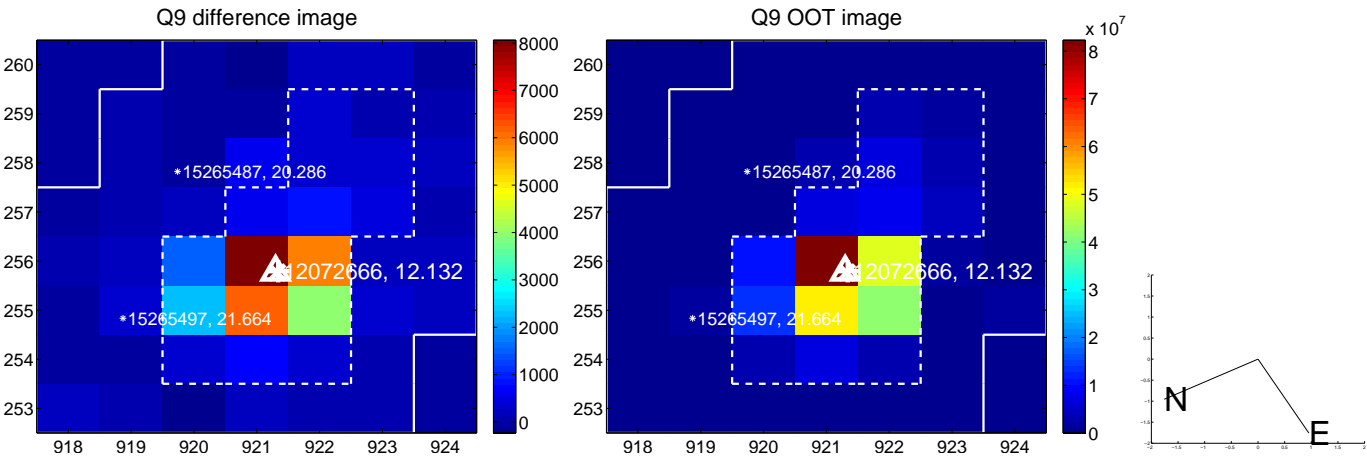
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



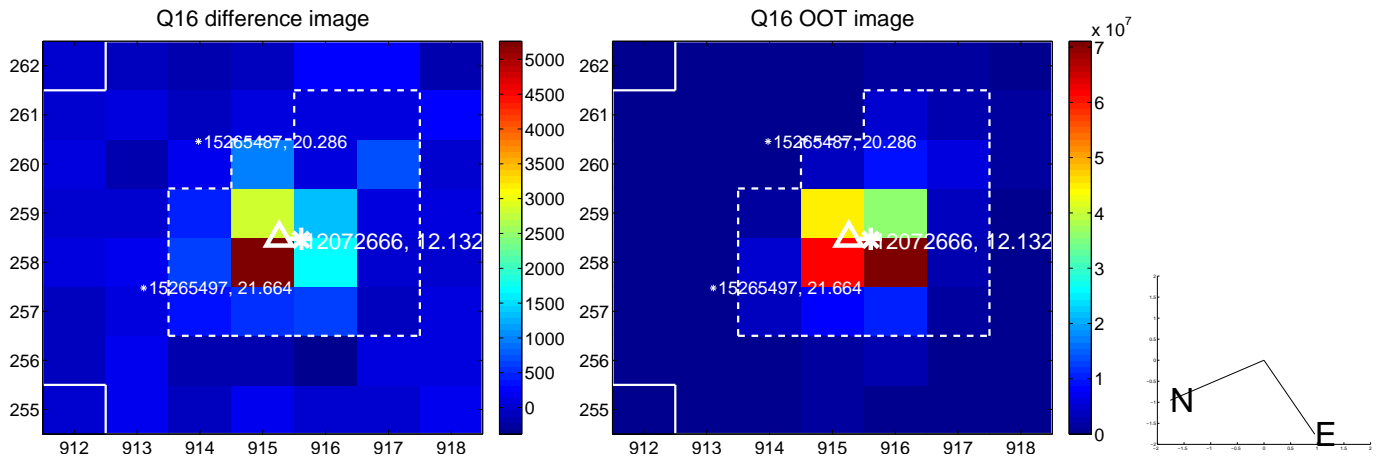
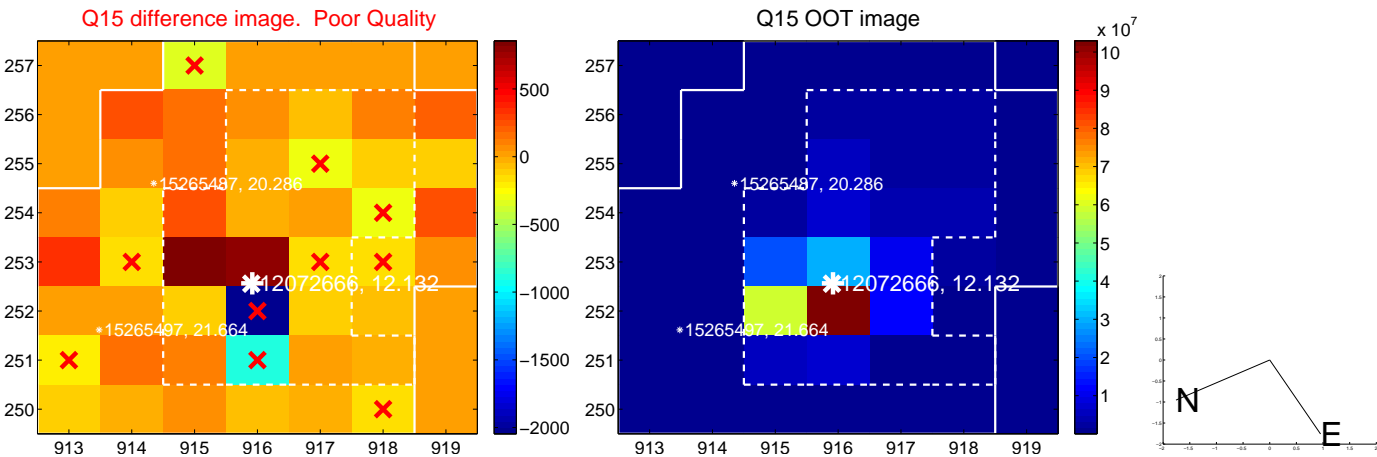
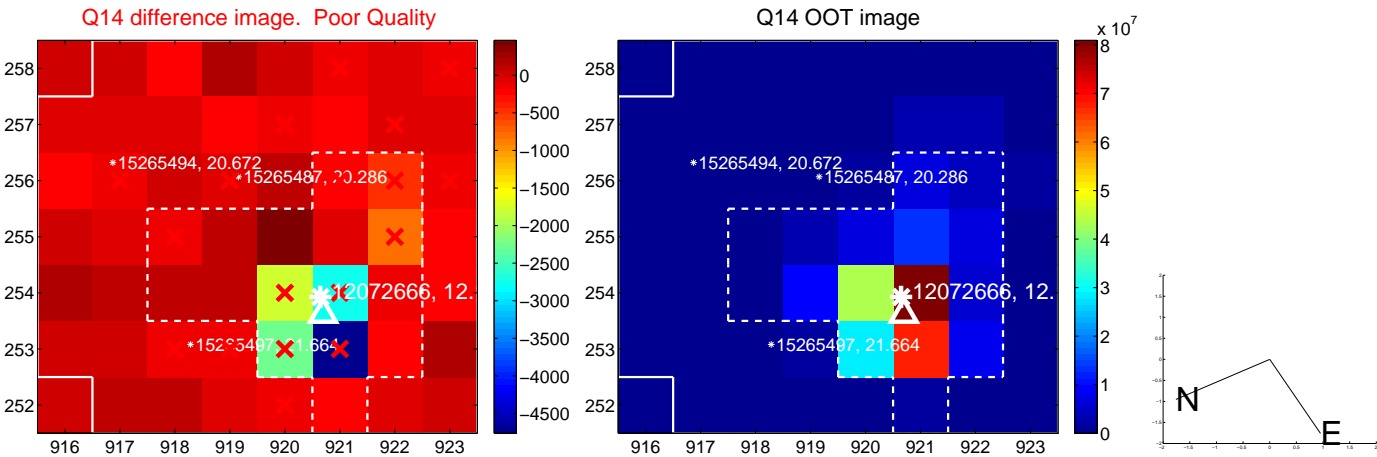
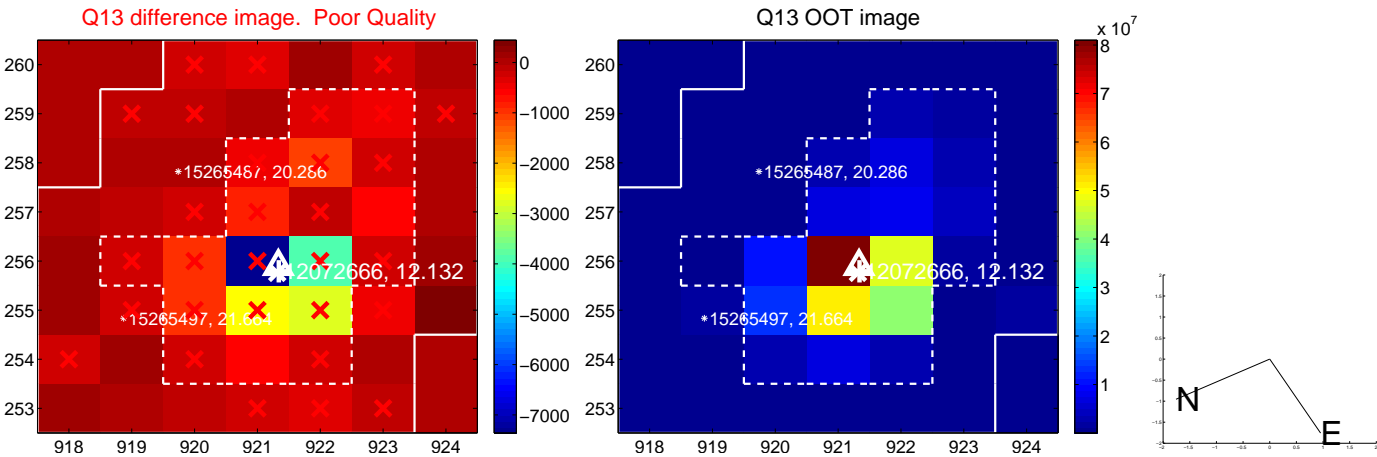
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



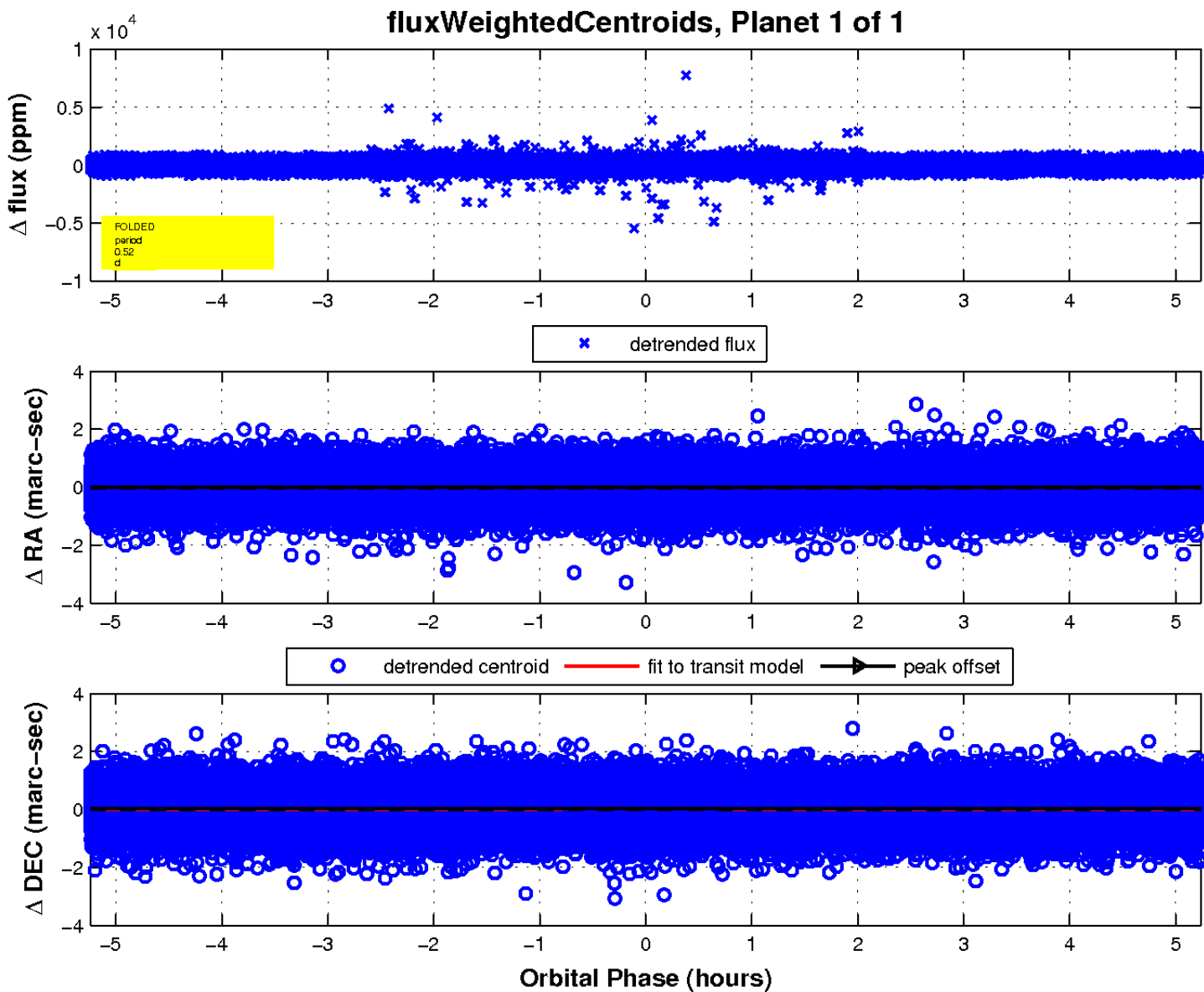
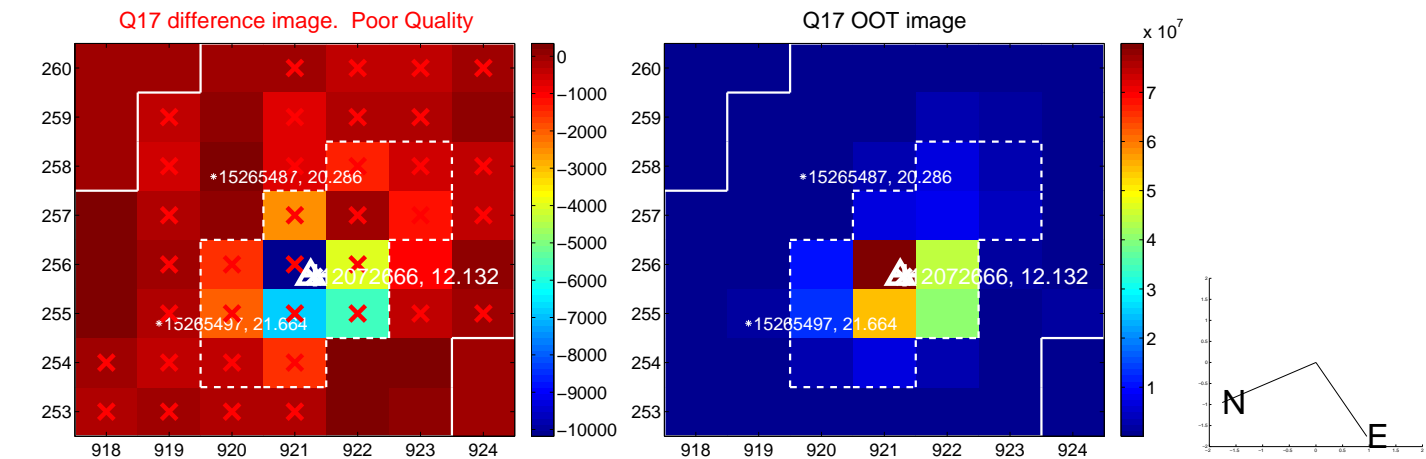
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

