

KIC 004772953

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 004772953-01 | OBS | No | 398.603632 | 311.340490 | 64.8 | 15.907 | 9.3 | 6.3 | 1.98 | 9610 | 1.74 | 15.53 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 004772953-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED |

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

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

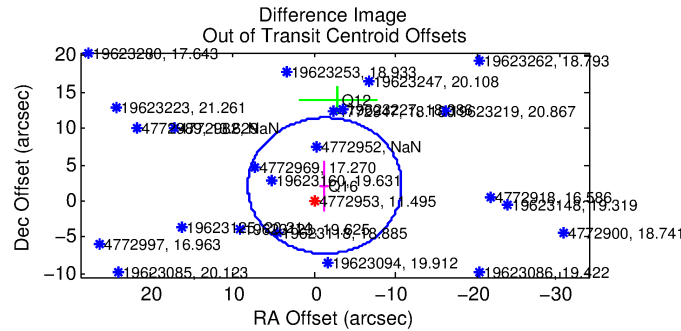
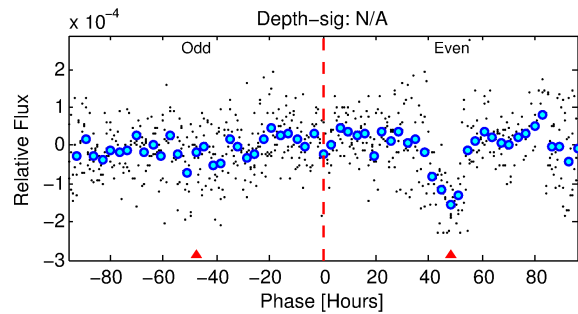
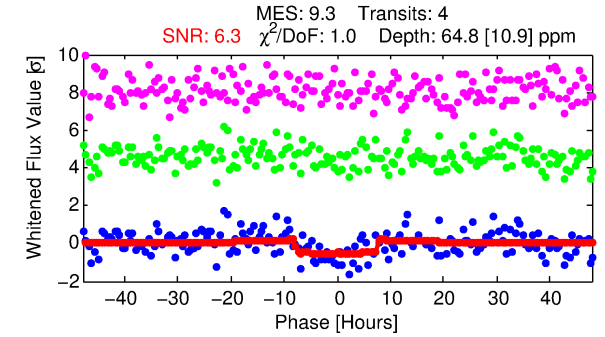
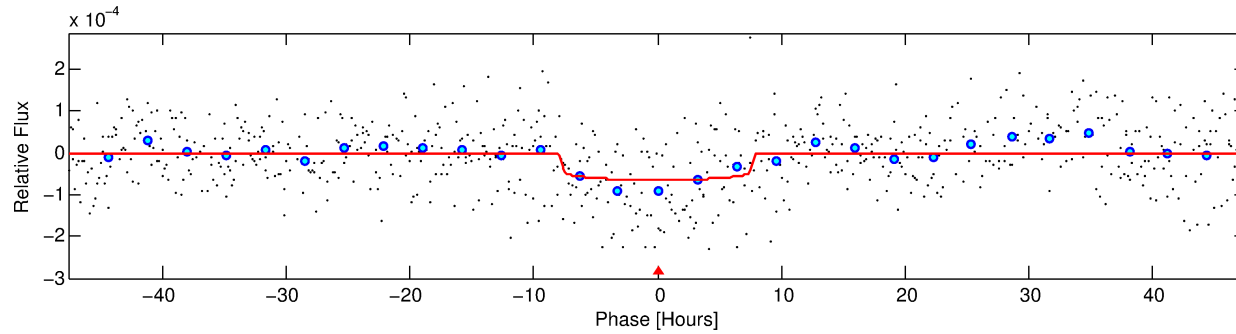
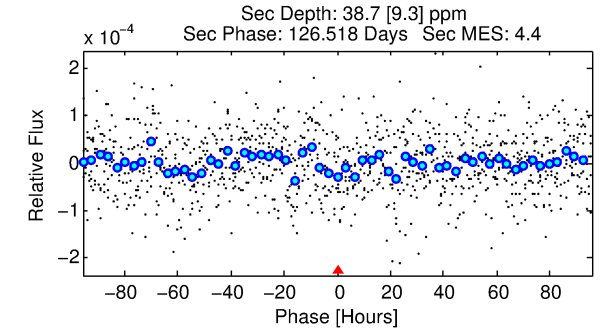
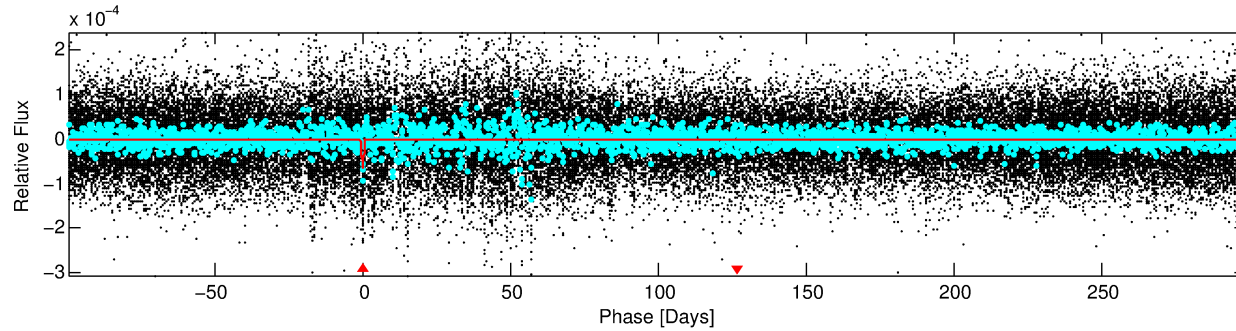
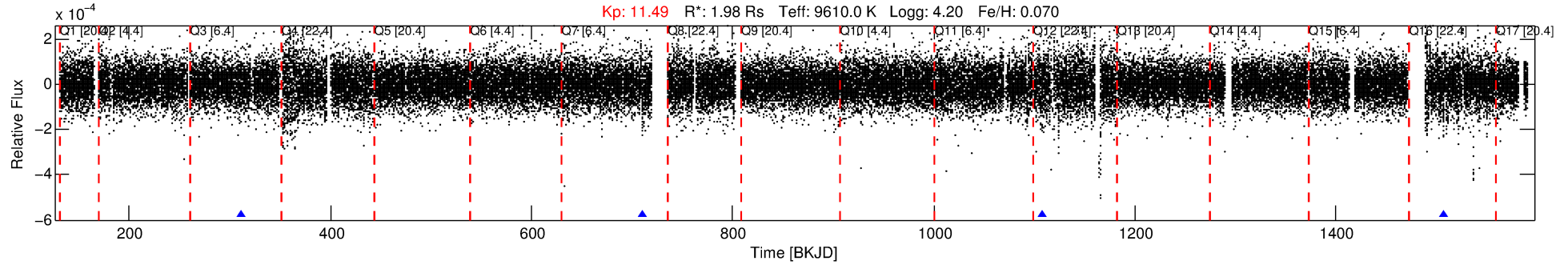
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004772953-01

No Significant Match Found

DV One-Page Summary

KIC: 4772953 Candidate: 1 of 1 Period: 398.604 d



DV Fit Results:

Period = 398.60363 [0.01020] d
Epoch = 311.3405 [0.0187] BKJD
Rp/R* = 0.0081 [0.0018]
a/R* = 122.01 [182.76]
b = 0.78 [0.75]
Seff = 15.53 [7.48]
Teq = 506 [61] K
Rp = 1.74 [0.85] Re
a = 1.3870 [0.4665] AU
Ag = 13492.21 [9165.36] [1.47σ]
Teffp = 8434 [1141] K [6.94σ]

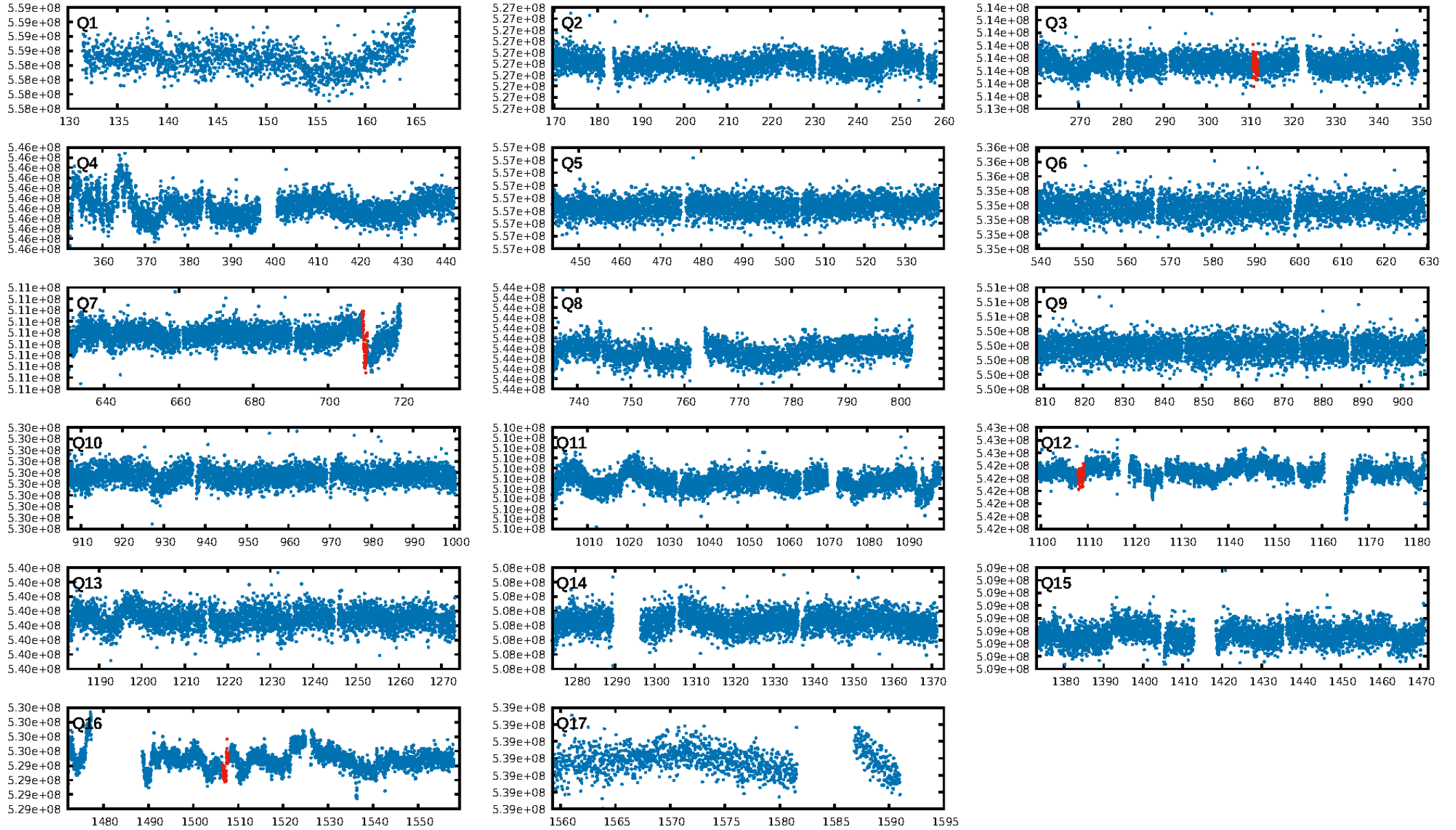
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 91.1%
Bootstrap-pfa: 3.76e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.475
Centroid-sig: 1.7%
Centroid-so: 3.917 arcsec [1.74σ]
OotOffset-rm: 2.490 arcsec [0.80σ]
KicOffset-rm: 2.636 arcsec [1.86σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

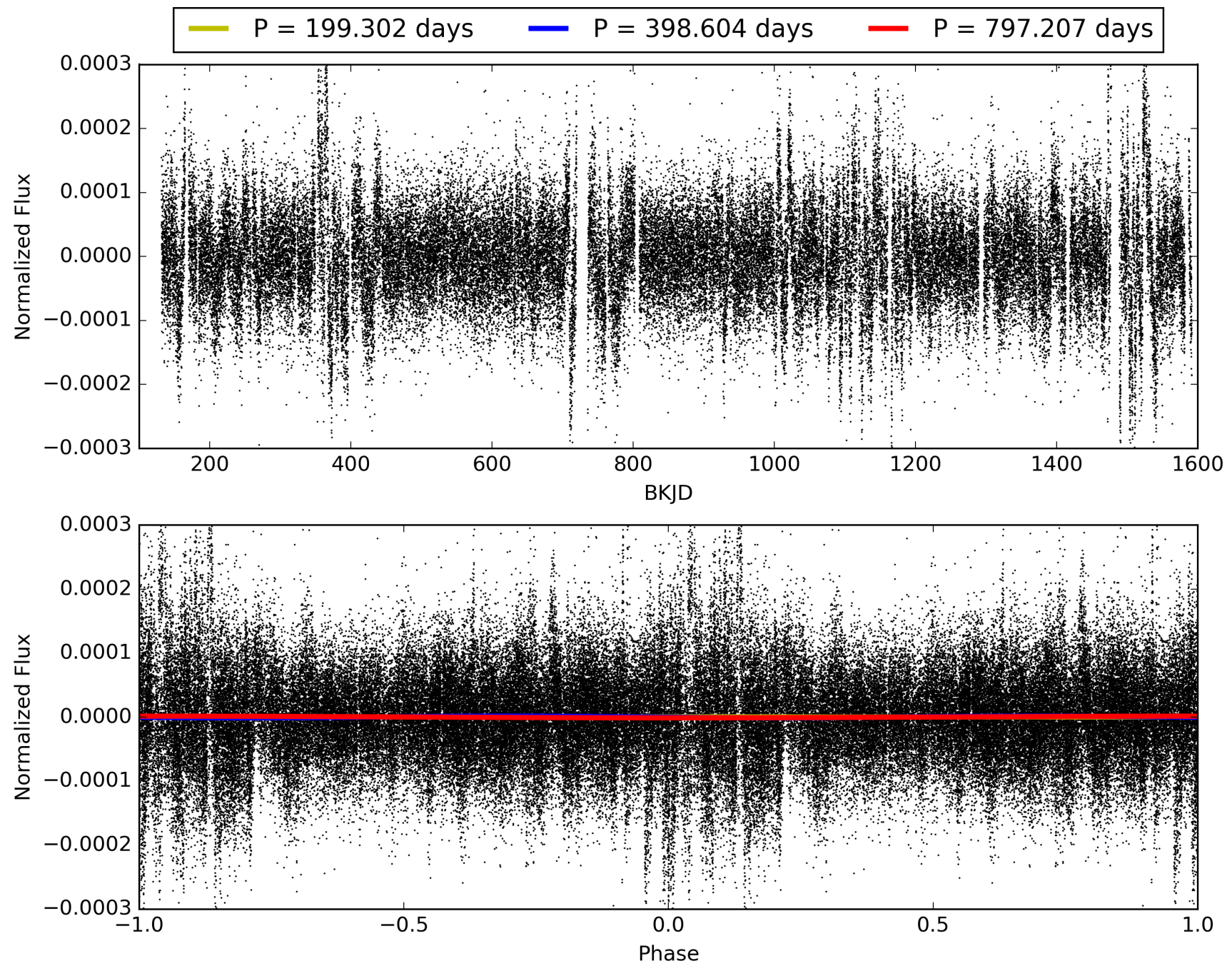
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:18:41 Z

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

TCE 004772953-01, PDC Light Curves

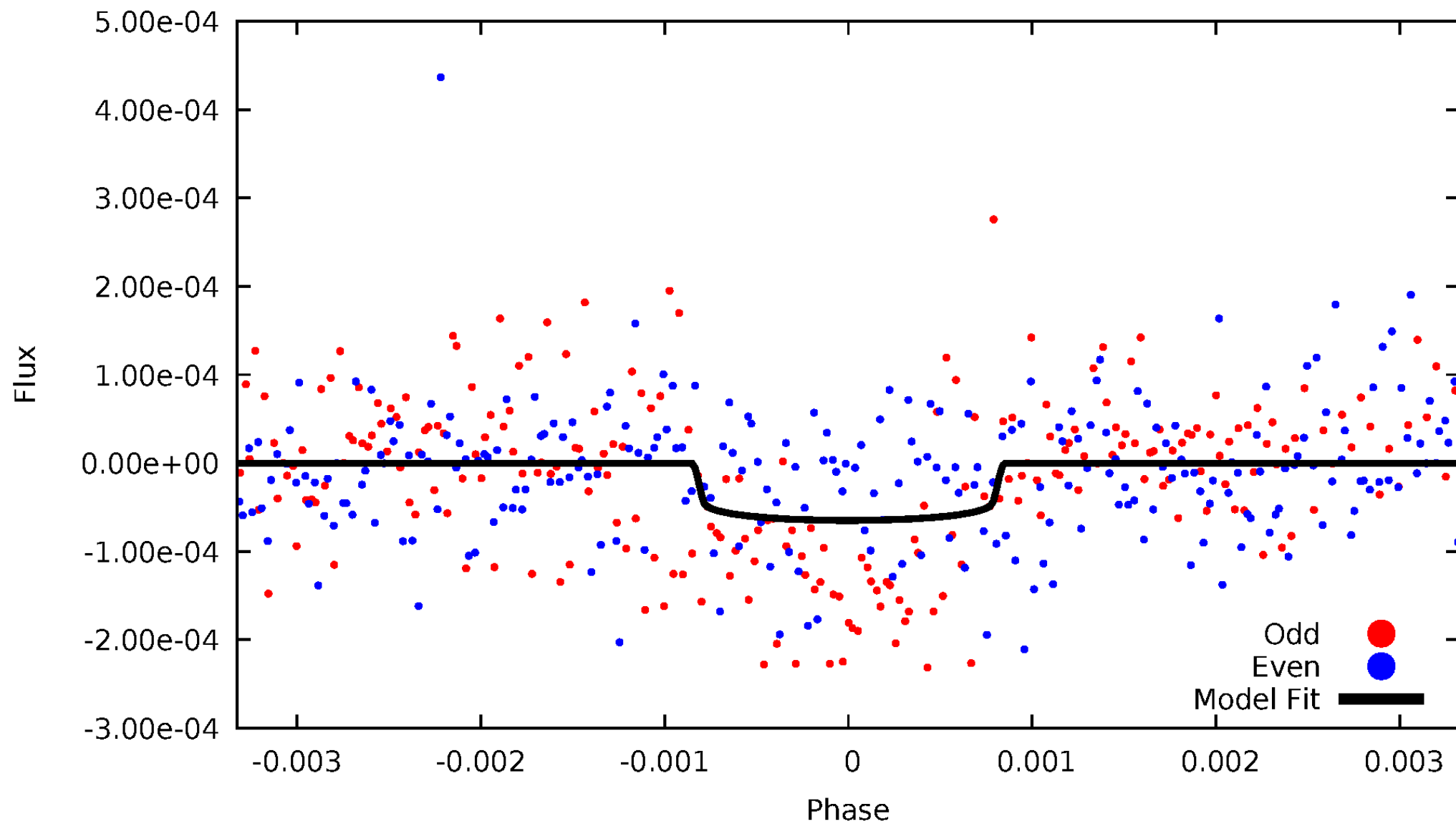


TCE 004772953-01



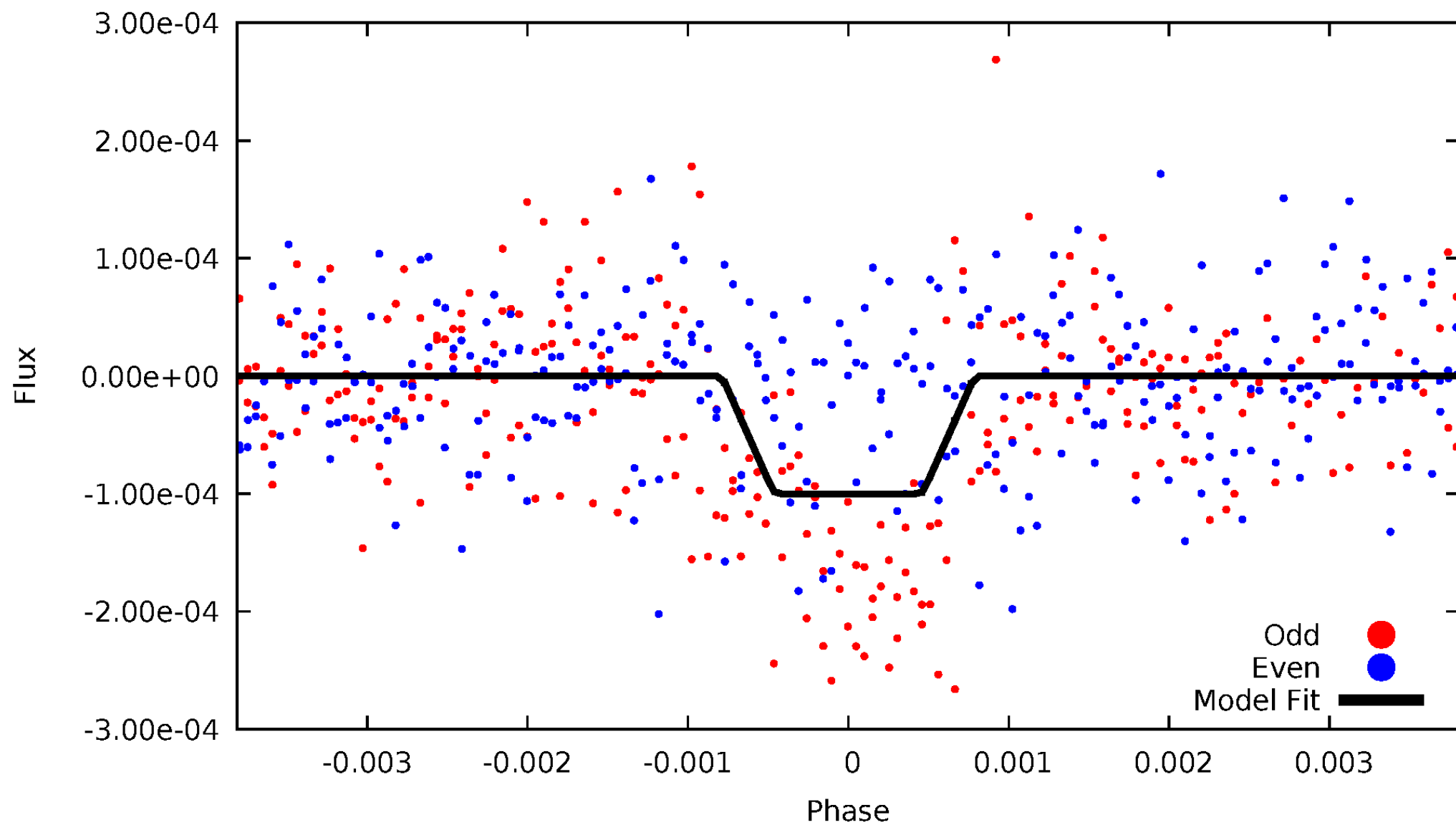
DV Odd/Even

TCE 004772953-01



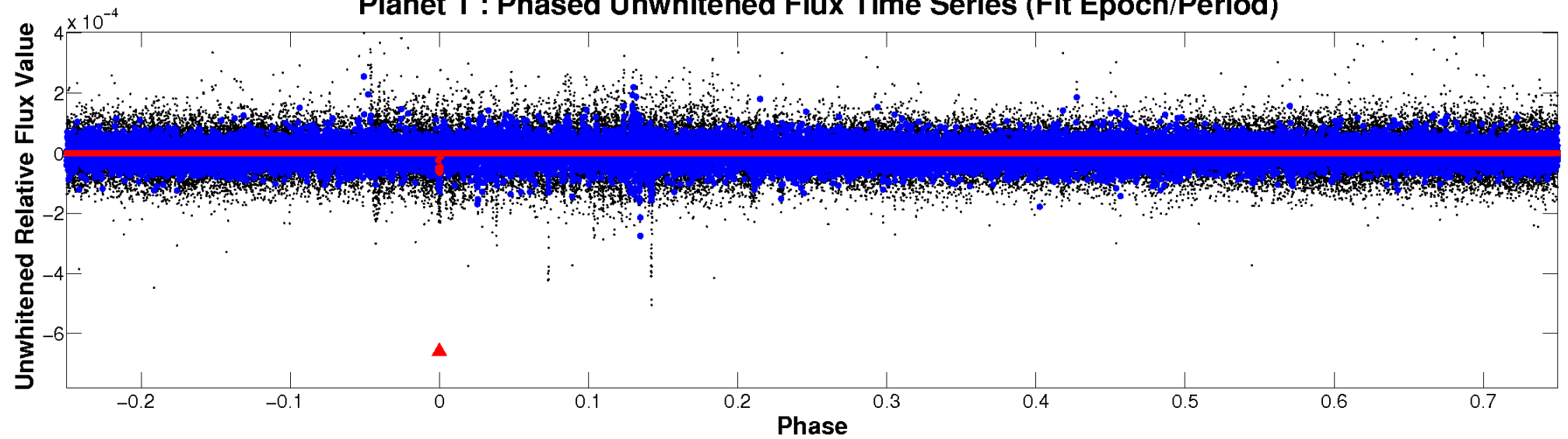
ALT Odd/Even

TCE 004772953-01

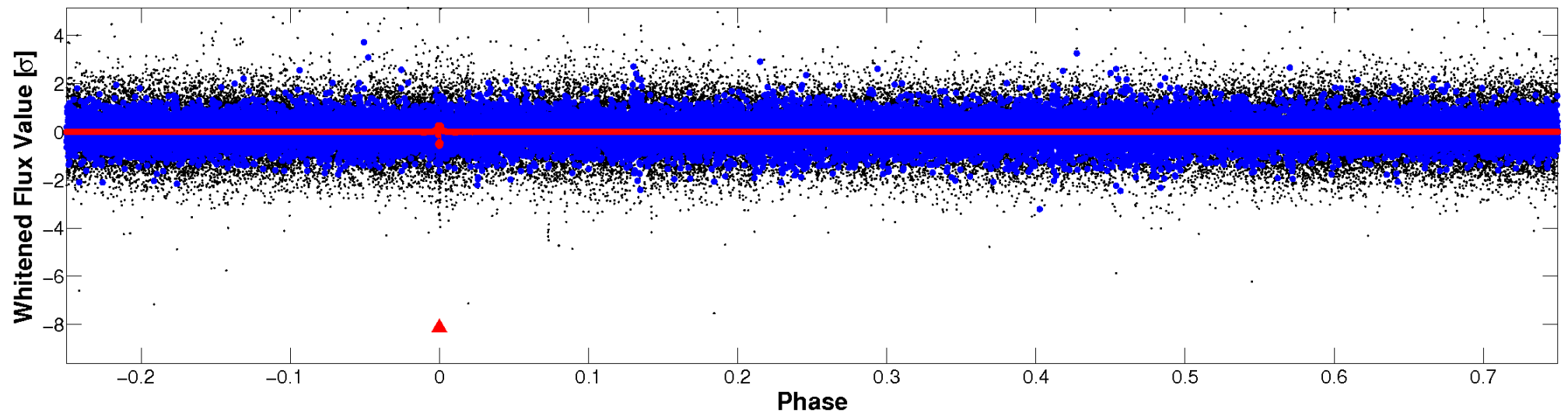


Non-Whitened Vs. Whitened Light Curve

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



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



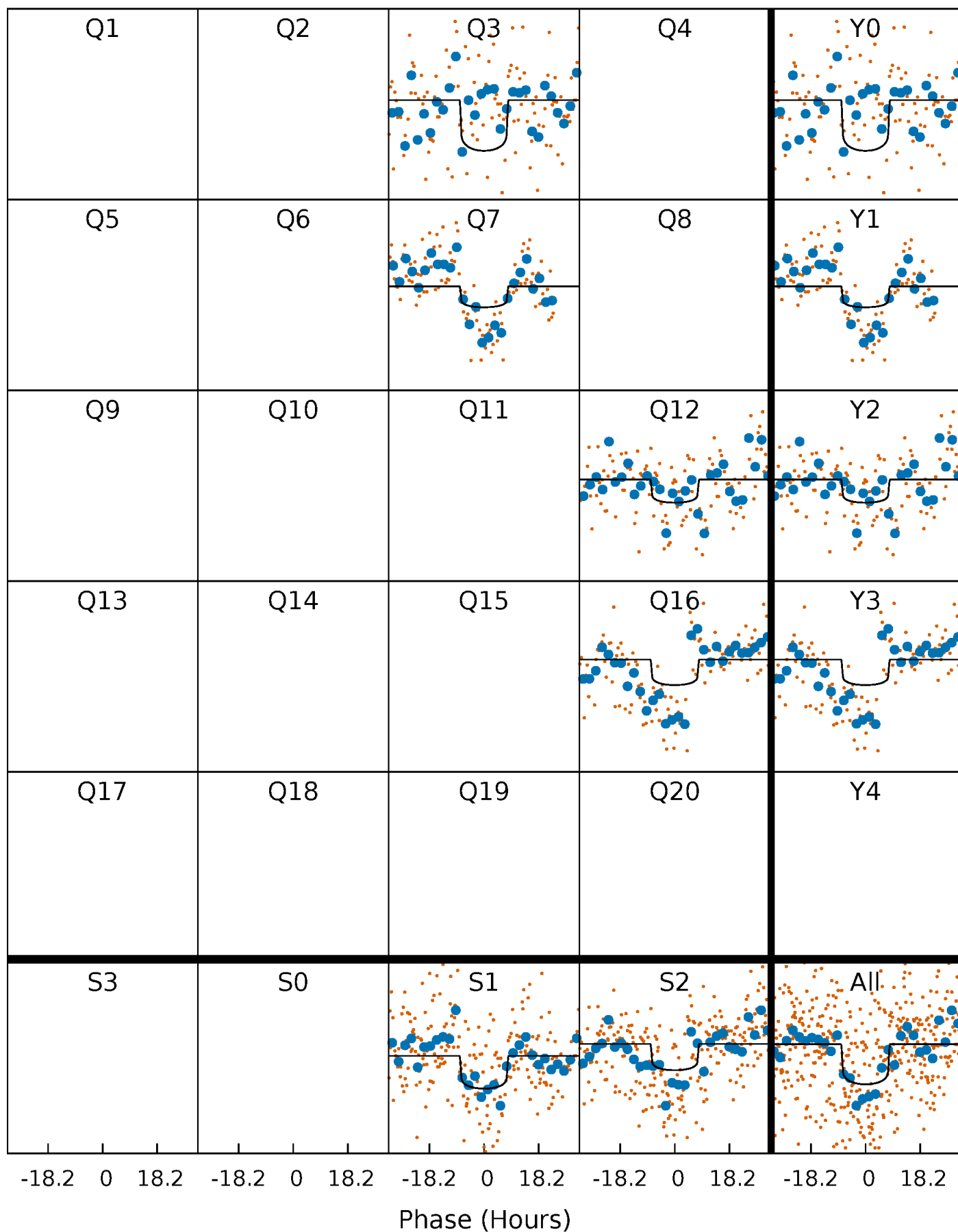
PDC Quarter-Phased Transit Curves

TCE 004772953-01 P=398.603632 Days $T_0=311.340490$ (BKJD)



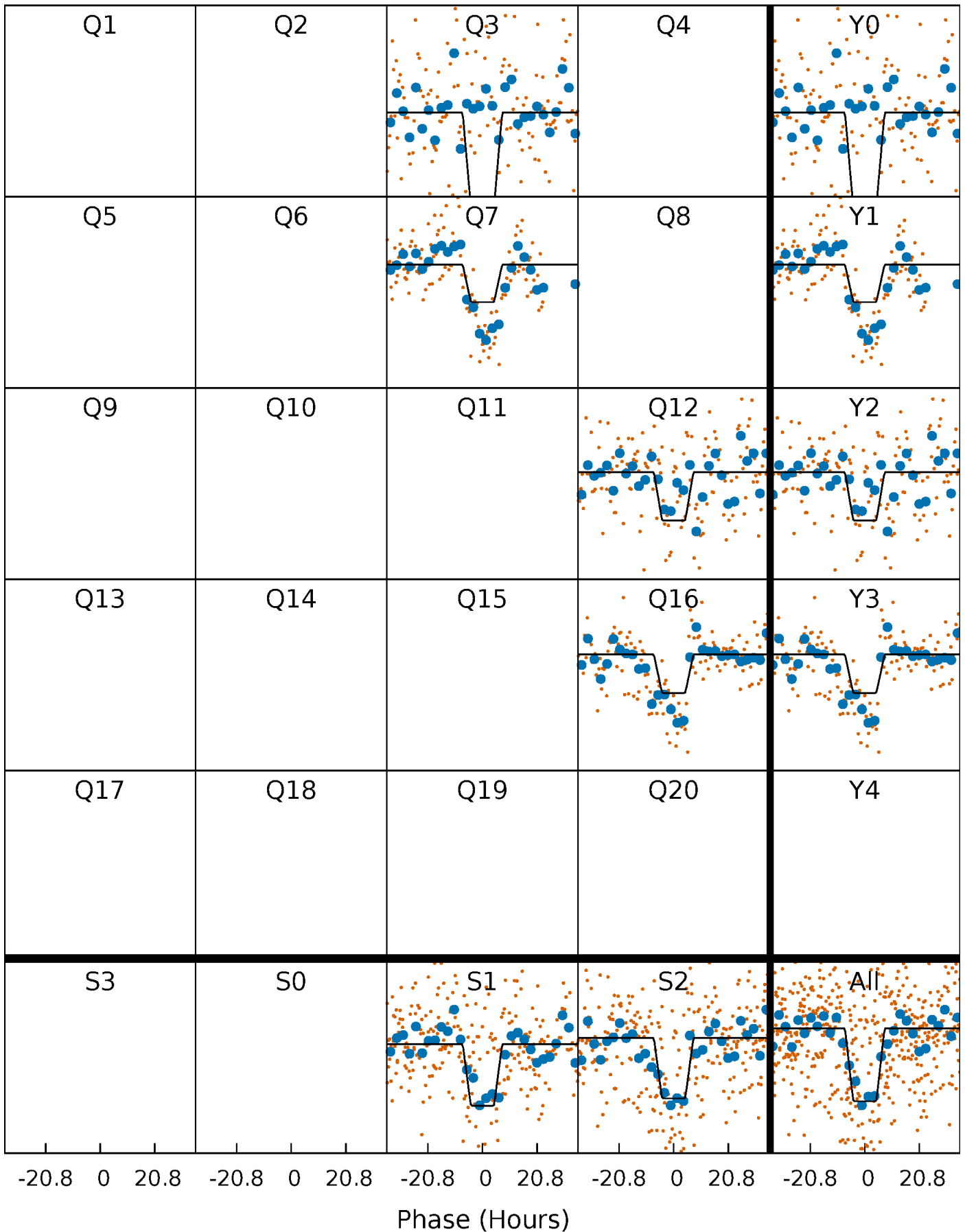
DV Quarter-Phased Transit Curves

TCE 004772953-01 P=398.603632 Days $T_0=311.340490$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

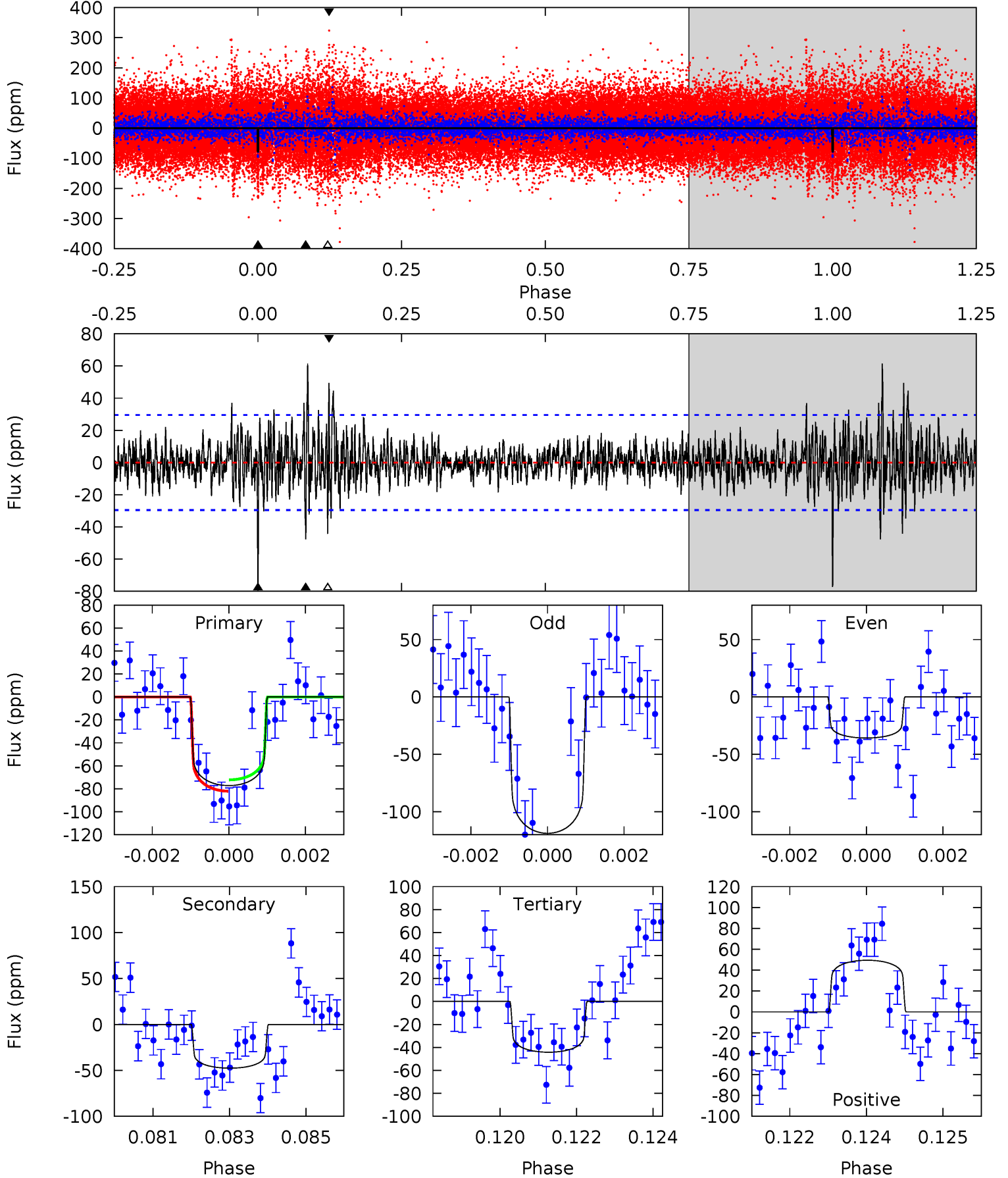
TCE 004772953-01 P=398.577021 Days $T_0=311.368756$ (BKJD)



DV Model-Shift Uniqueness Test

004772953-01, P = 398.603632 Days, E = 311.340490 Days

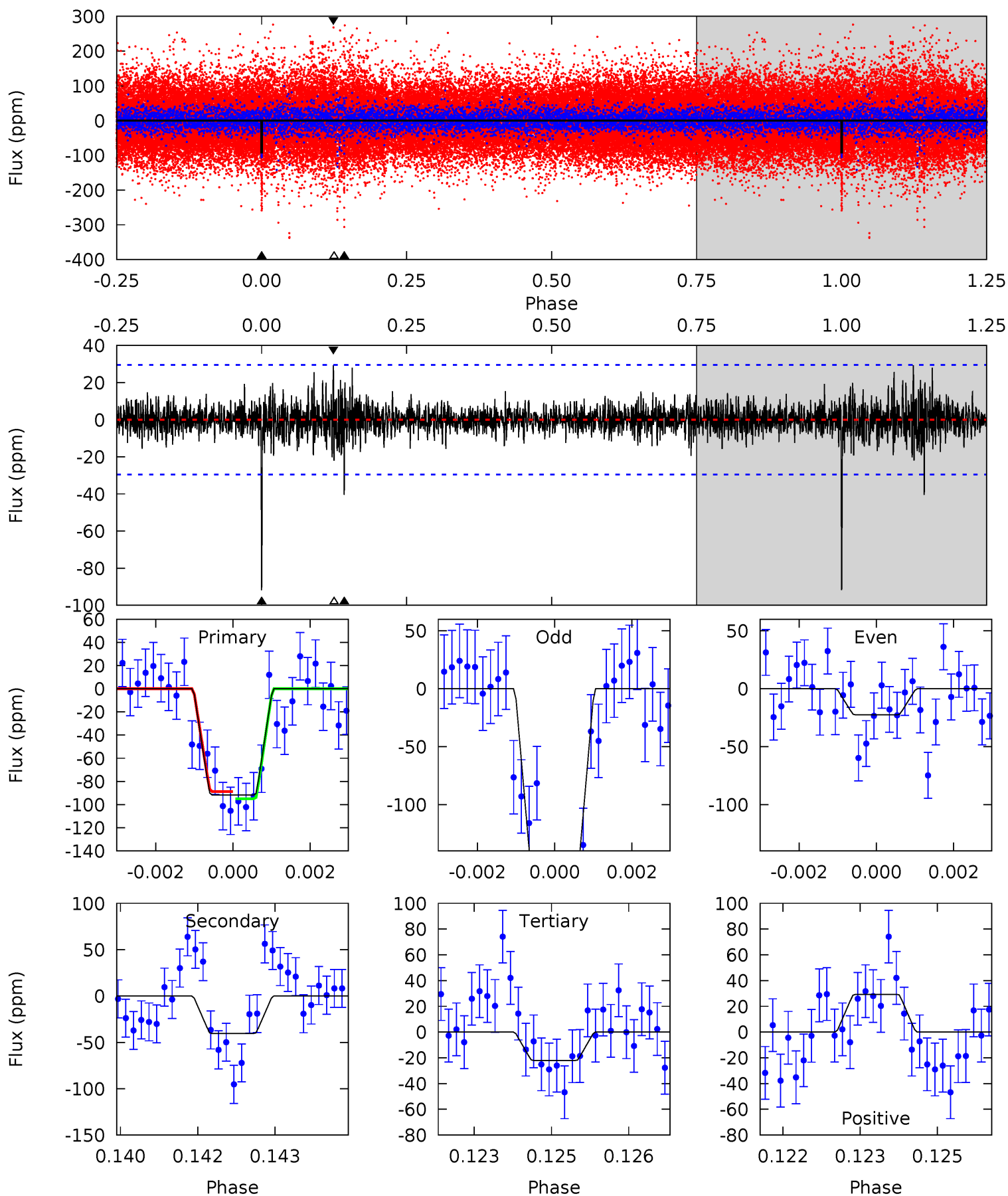
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.0 | 8.64 | 8.02 | 8.97 | 5.36 | 3.14 | 1.71 | 5.99 | 5.04 | 0.62 | -0.34 | 7.52 | 0.94 | 0.44 | 0.89 |



Alt Model-Shift Uniqueness Test

004772953-01, P = 398.577021 Days, E = 311.368756 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.7 | 7.36 | 4.02 | 5.32 | 5.37 | 3.17 | 1.03 | 12.7 | 11.4 | 3.34 | 2.04 | 12.7 | 0.93 | 0.24 | 0.57 |



Stellar Parameters For KIC 004772953

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 9610^{+272}_{-428} | $4.196^{+0.148}_{-0.222}$ | $0.070^{+0.150}_{-0.700}$ | $1.977^{+0.860}_{-0.463}$ | $2.238^{+0.445}_{-0.544}$ | $0.408^{+0.328}_{-0.242}$ |
| | +3%/-4% | +4%/-5% | +214%/-1000% | +44%/-23% | +20%/-24% | +80%/-59% |
| 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 004772953-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|-------------------|------------------------|--------------------------|
| DV | -48 ± 6 | $1.76^{+0.53}_{-0.47}$ | 710^{+70}_{-53} | 8553^{+1603}_{-1048} | 15710^{+12870}_{-6523} |
| Alt. | -40 ± 5 | $2.18^{+0.56}_{-0.50}$ | 709^{+58}_{-51} | 7203^{+983}_{-726} | 8882^{+5763}_{-3389} |

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

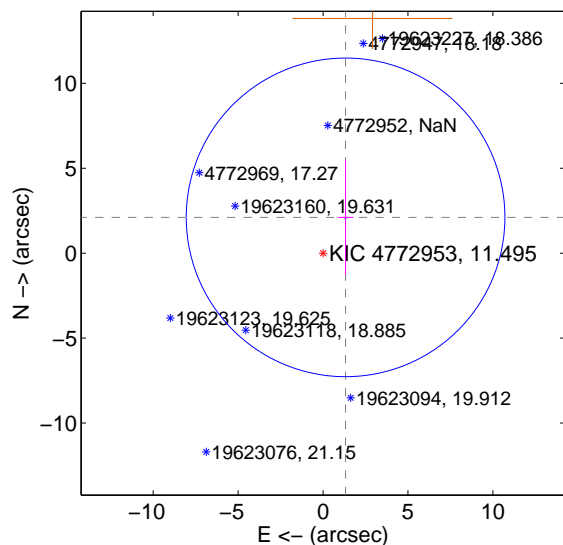
Supplemental centroid analysis for 004772953-01. **Kepler magnitude: 11.49.** Transit SNR 6.27

There are 1 quarters with good PRF difference image offsets

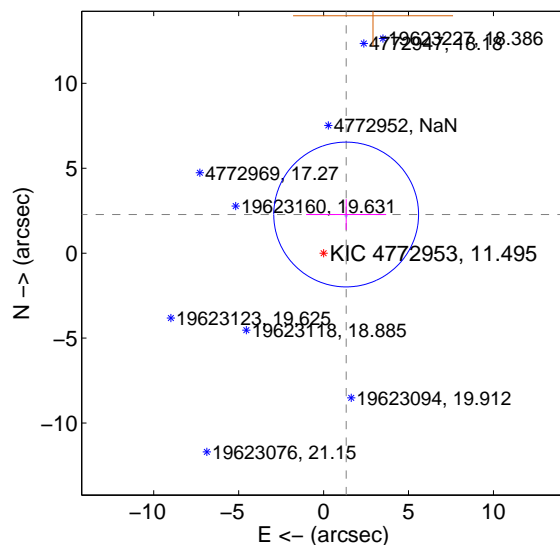
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 2.490 ± 3.126 | 0.80 | -1.327 ± 0.463 | 2.108 ± 3.405 |
| PRF-fit source offset from KIC position | 2.636 ± 1.421 | 1.86 | -1.329 ± 2.355 | 2.277 ± 0.904 |
| photometric centroid source offset | 3.92 ± 2.25 | 1.74 | -3.06 ± 2.12 | -2.44 ± 2.43 |

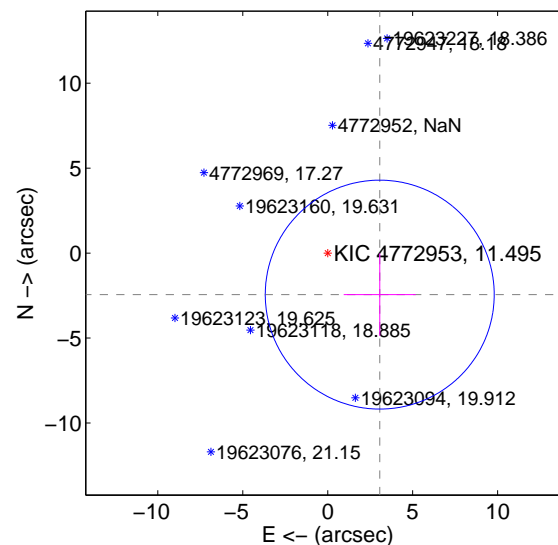
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



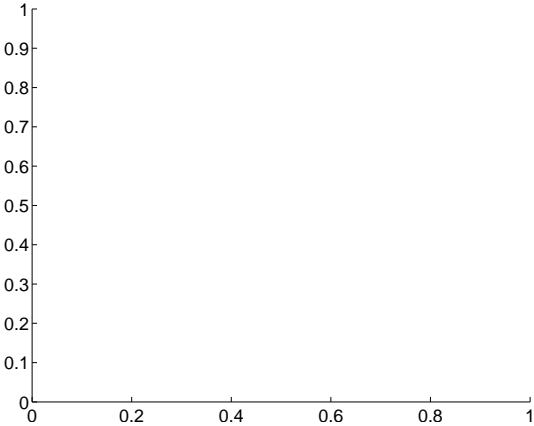
offset from photometric centroids



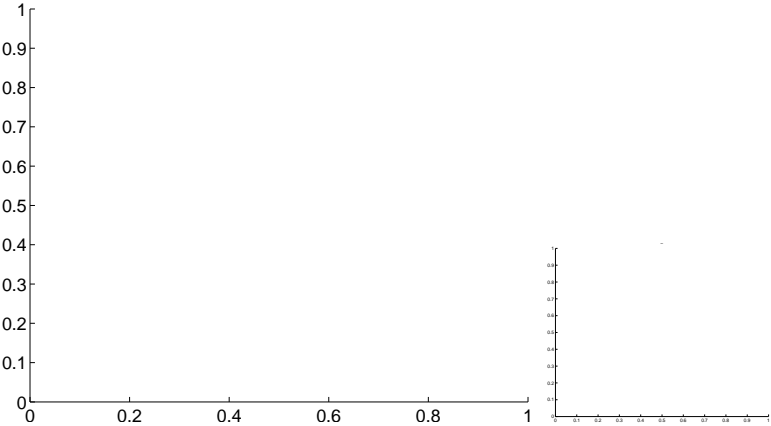
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

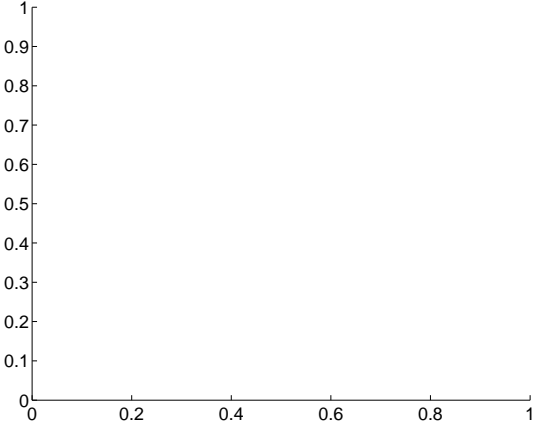
Q1 no difference image



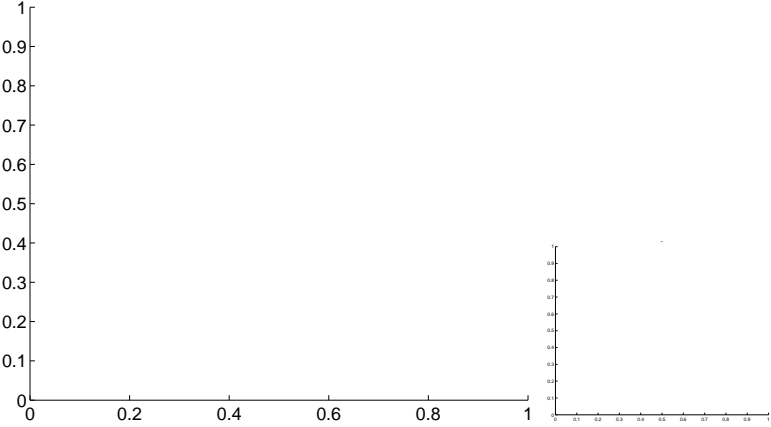
Q1 no OOT image



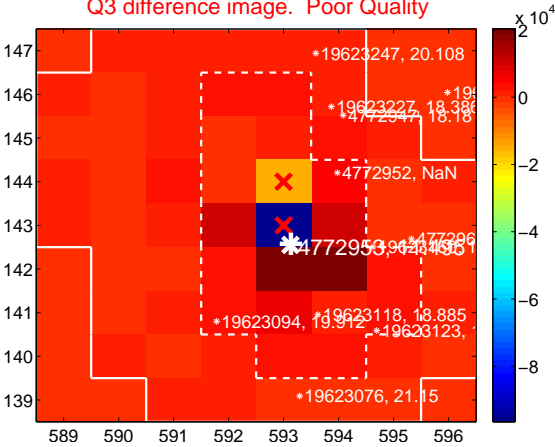
Q2 no difference image



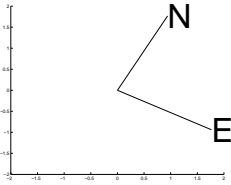
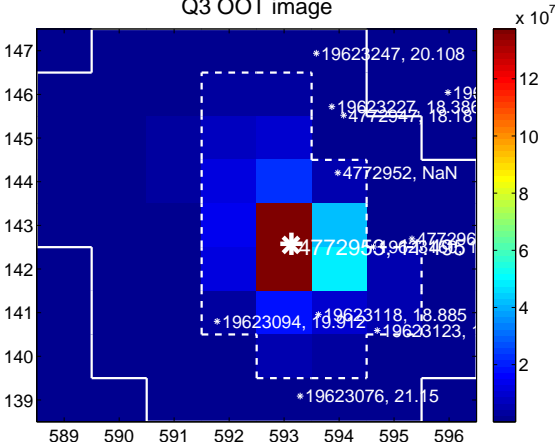
Q2 no OOT image



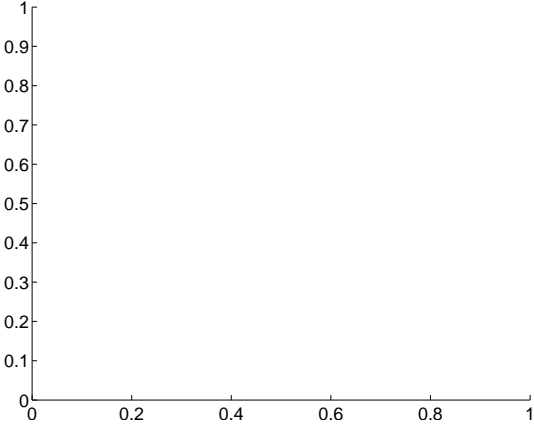
Q3 difference image. Poor Quality



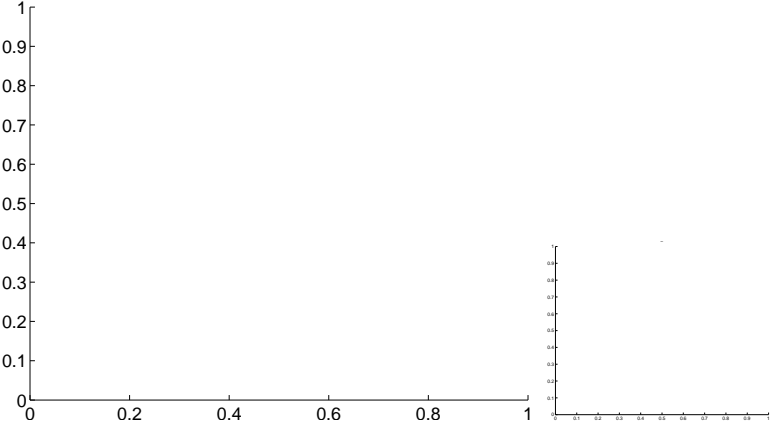
Q3 OOT image



Q4 no difference image



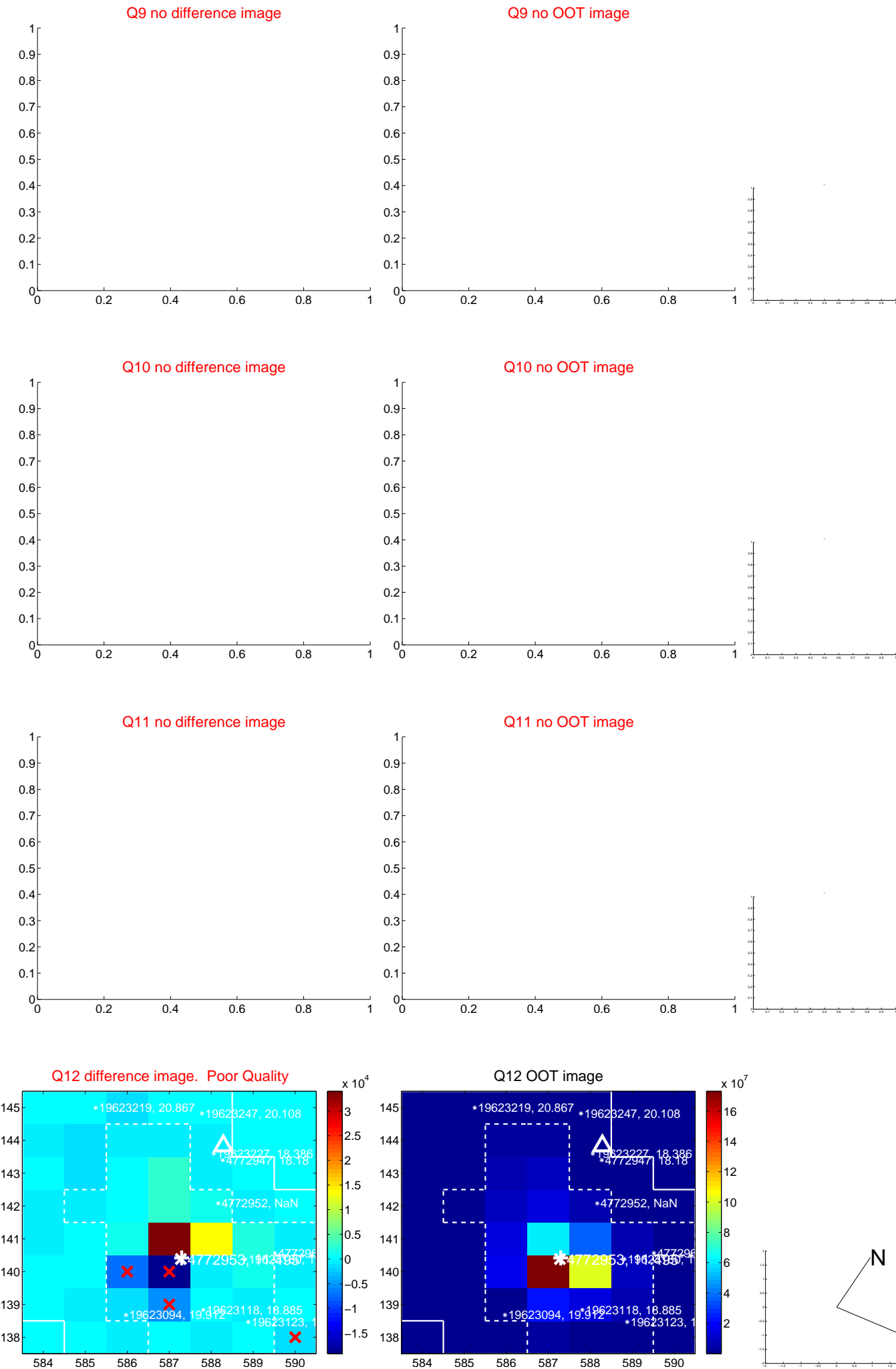
Q4 no OOT image



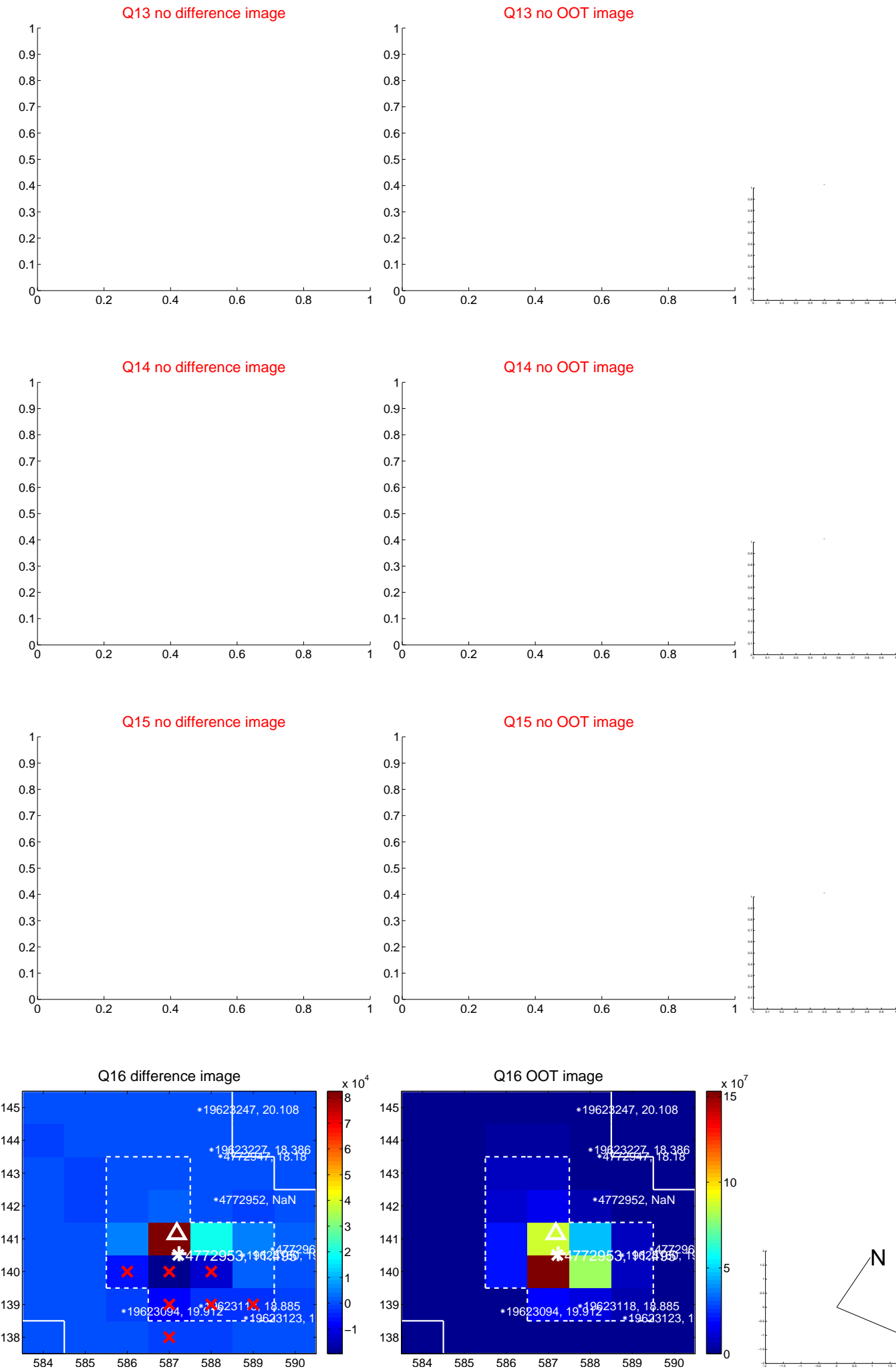
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



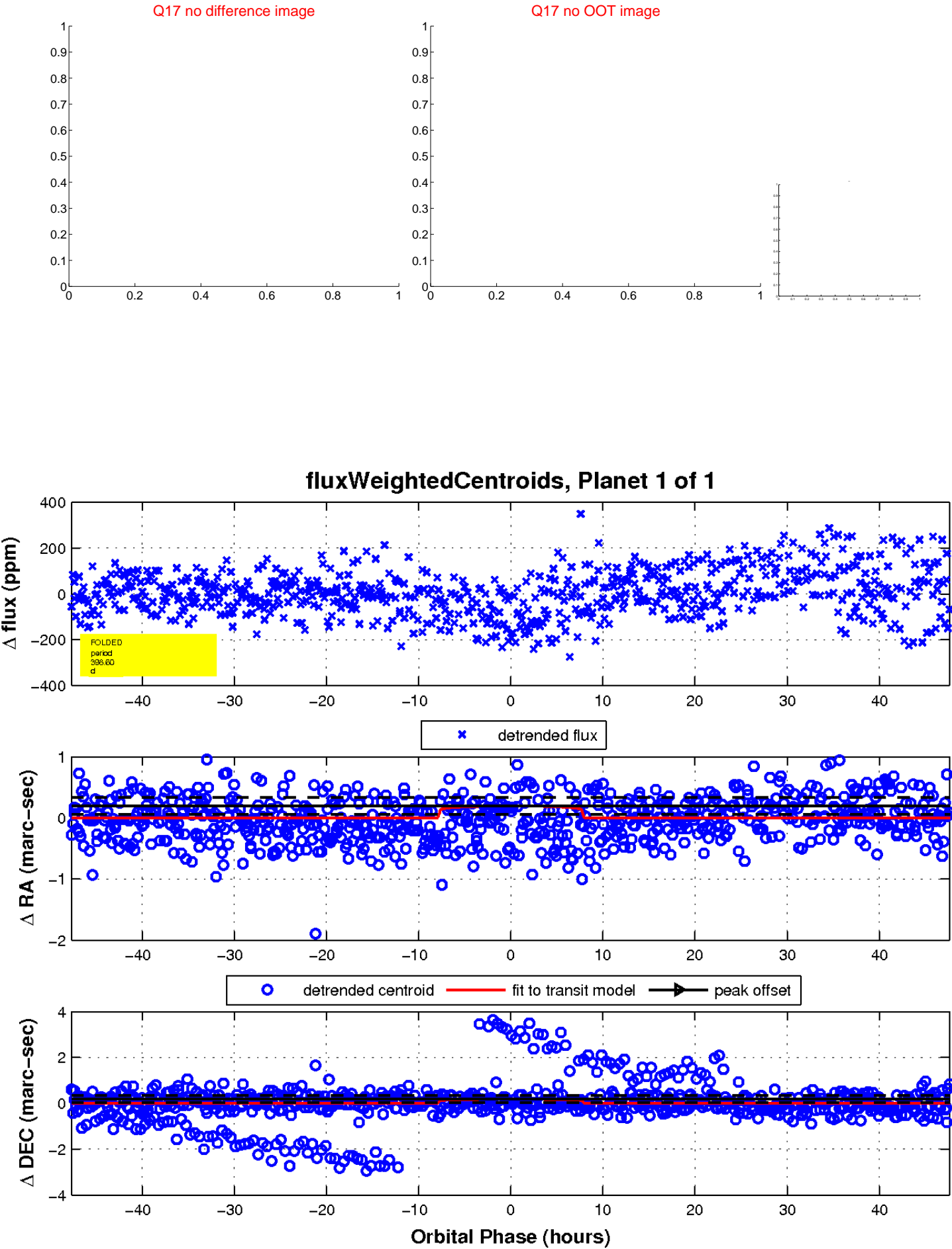
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

