

KIC 009181091

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 009181091-01 | OBS | No | 497.151818 | 507.684046 | 576.7 | 8.647 | 7.5 | 5.7 | 0.73 | 5350 | 1.86 | 0.33 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 009181091-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS |

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

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

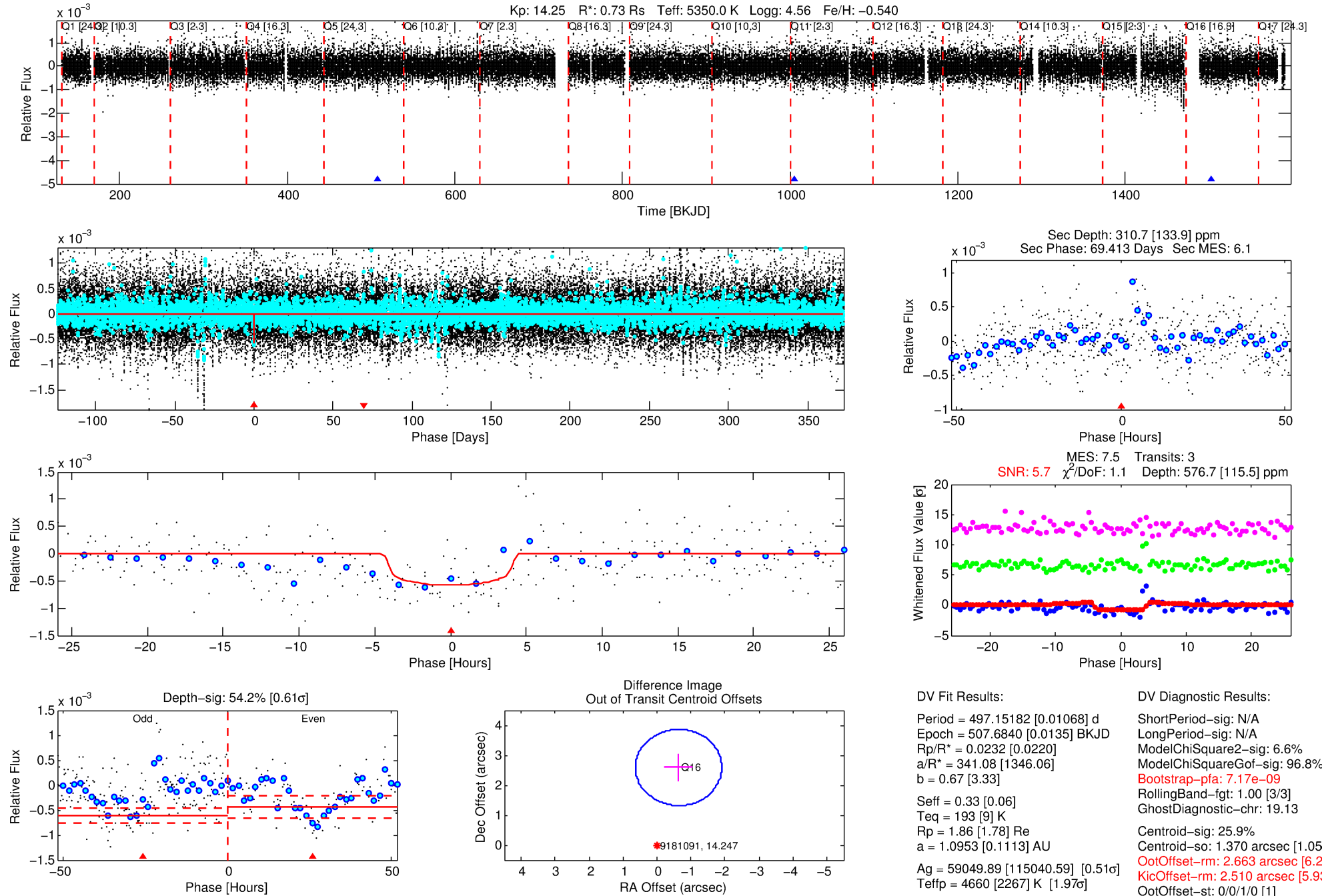
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009181091-01

No Significant Match Found

DV One-Page Summary

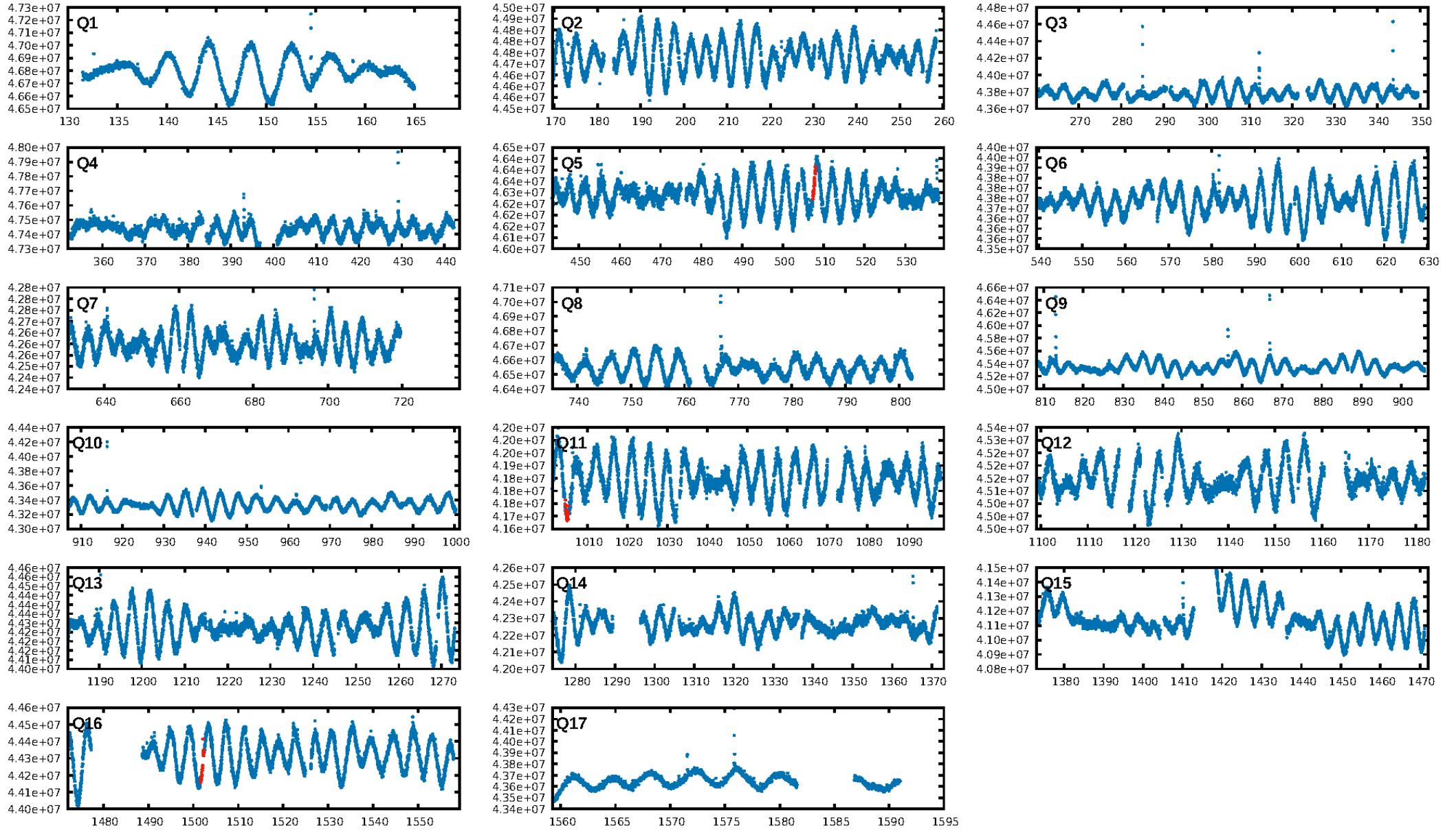
KIC: 9181091 Candidate: 1 of 1 Period: 497.152 d



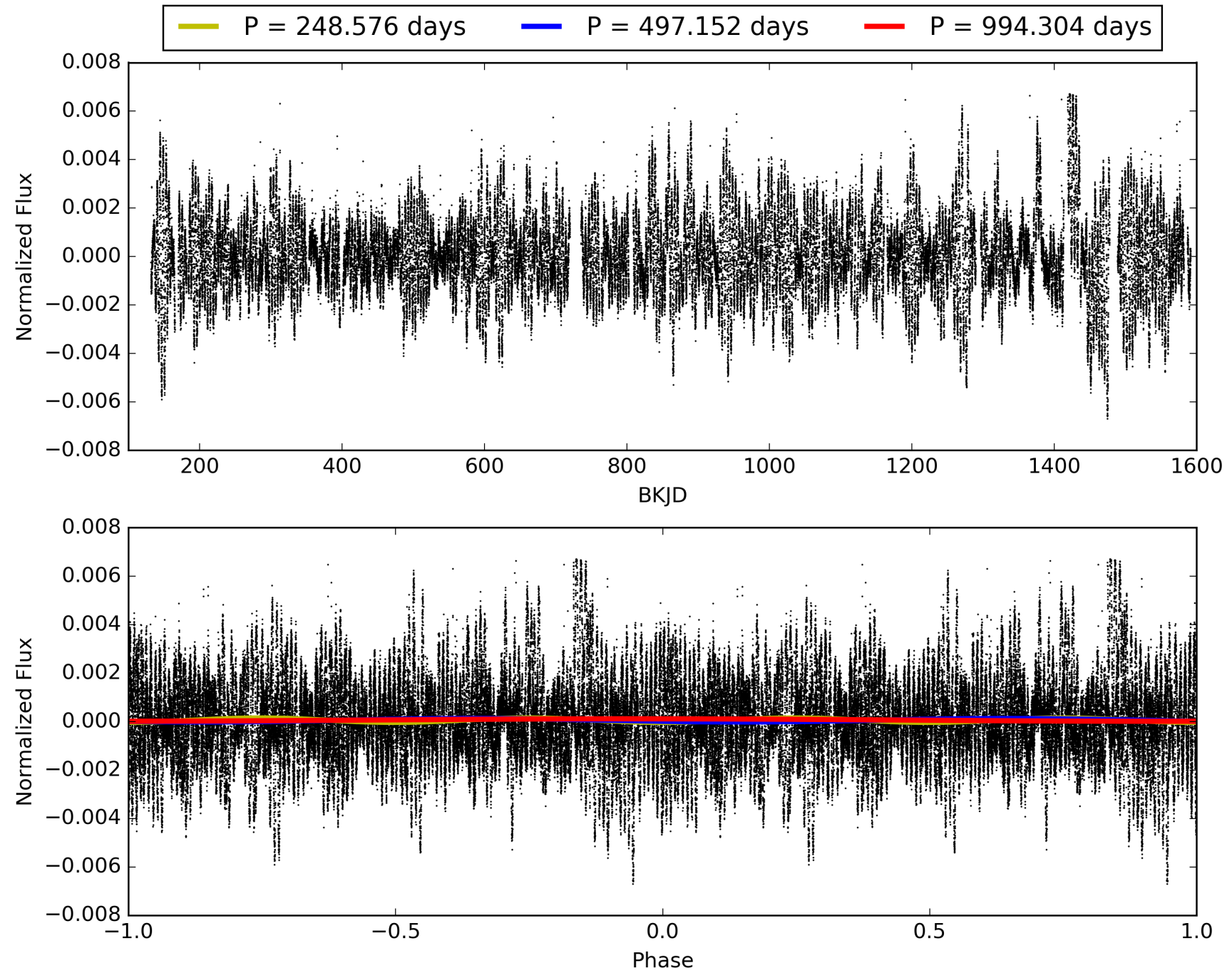
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:22:50 Z

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

TCE 009181091-01, PDC Light Curves

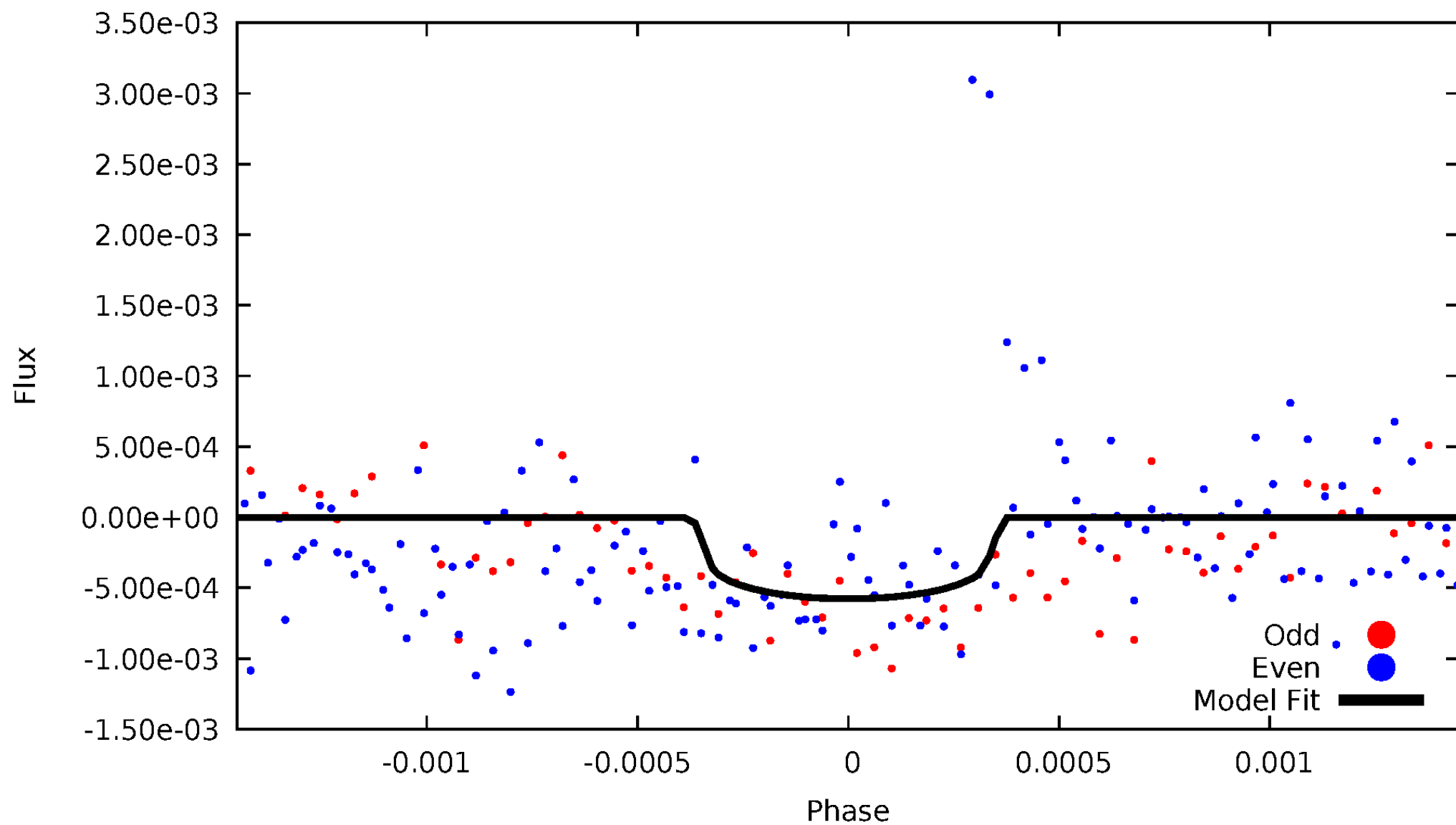


TCE 009181091-01



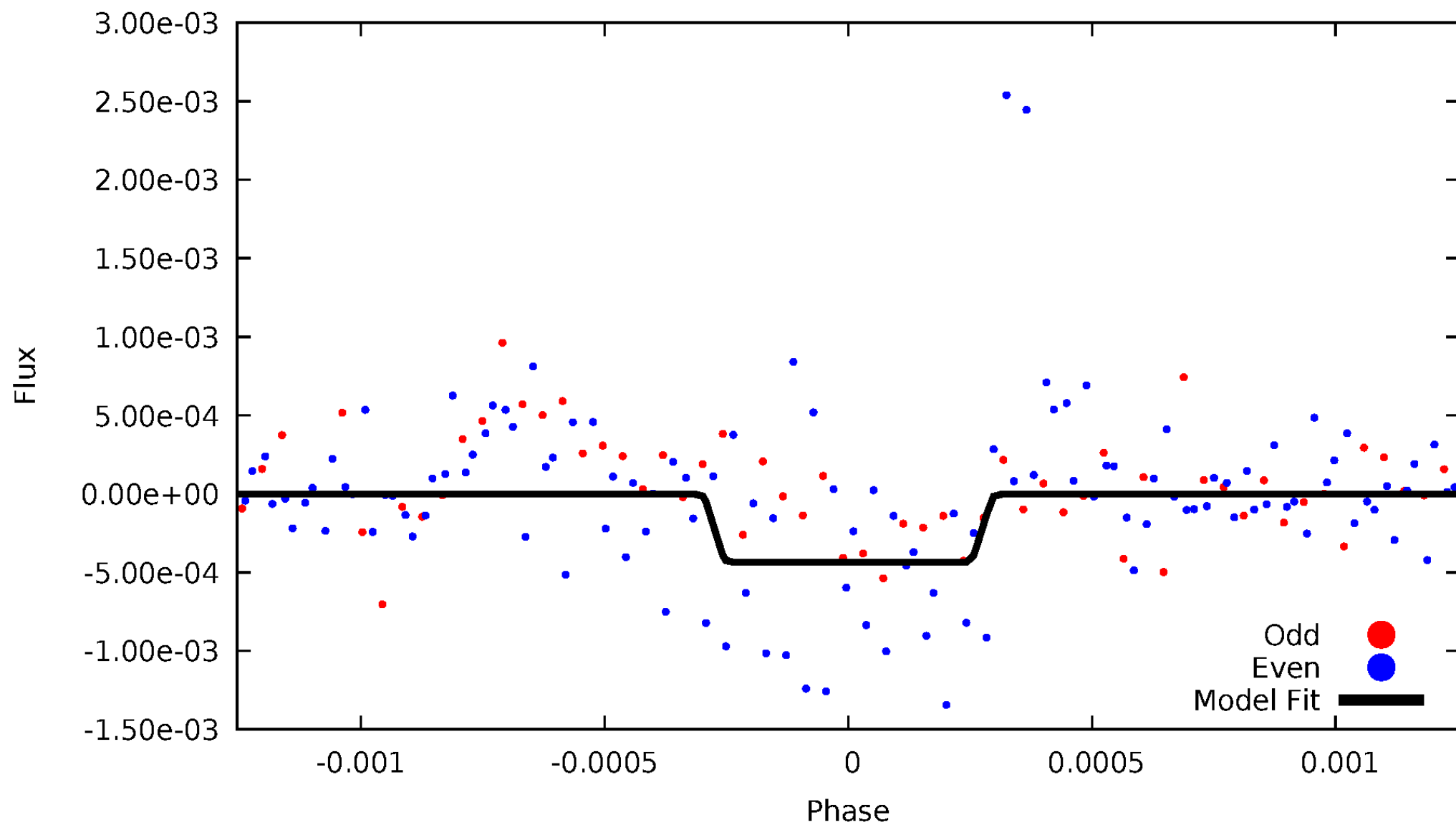
DV Odd/Even

TCE 009181091-01



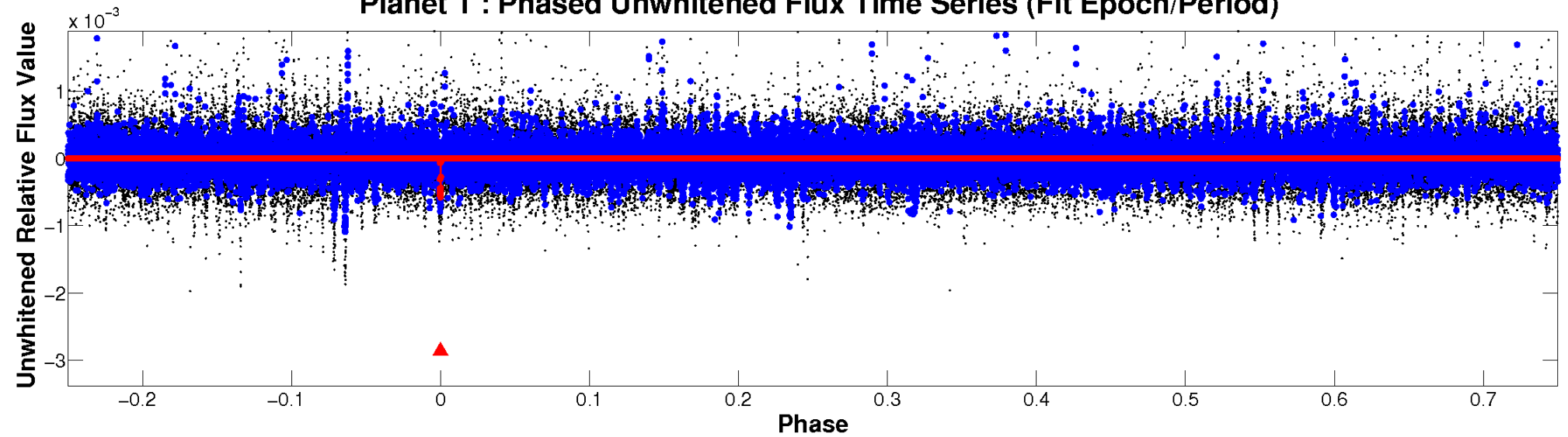
ALT Odd/Even

TCE 009181091-01

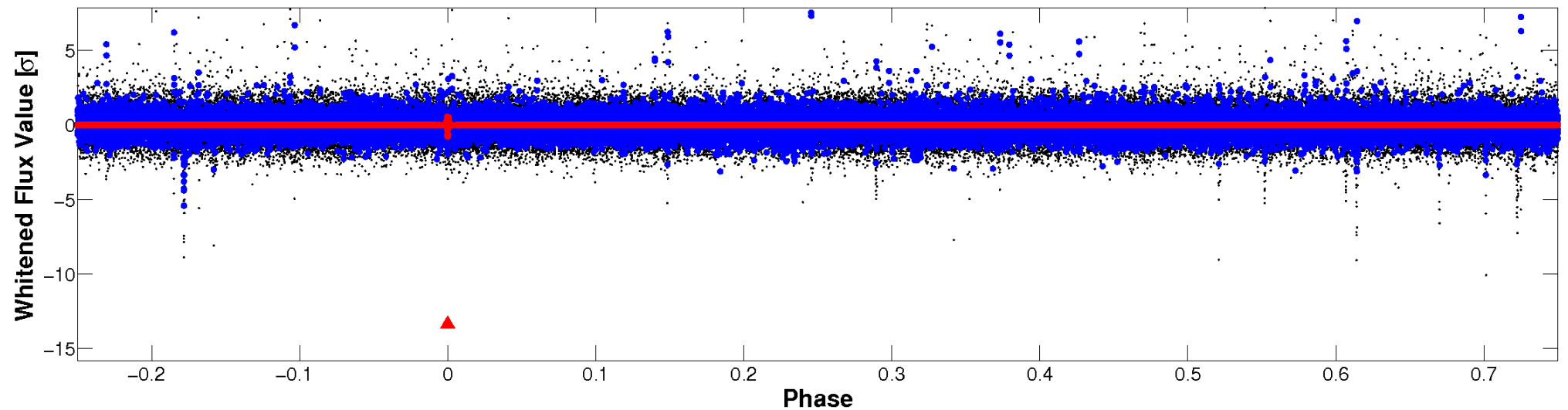


Non-Whitened Vs. Whitened Light Curve

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

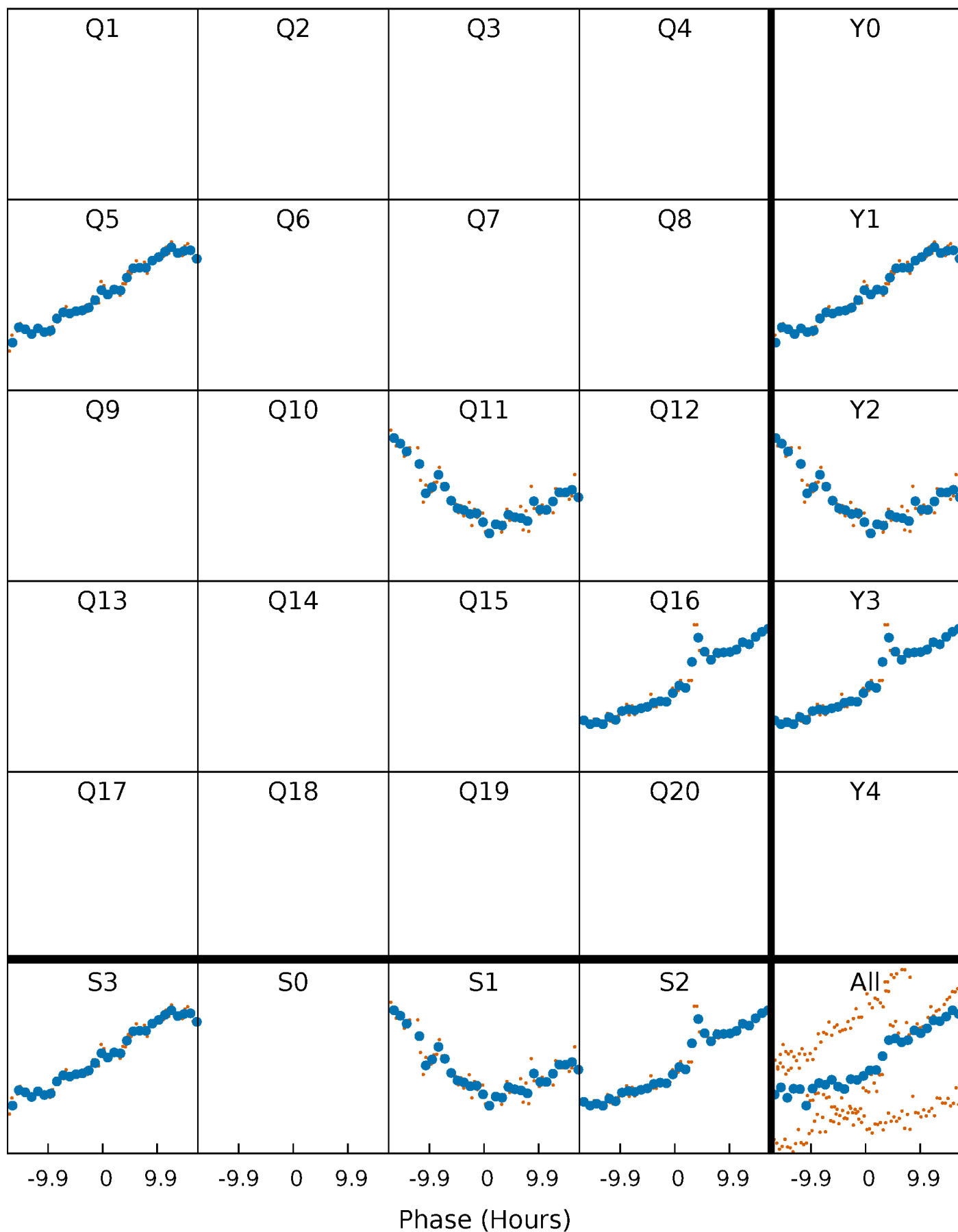


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



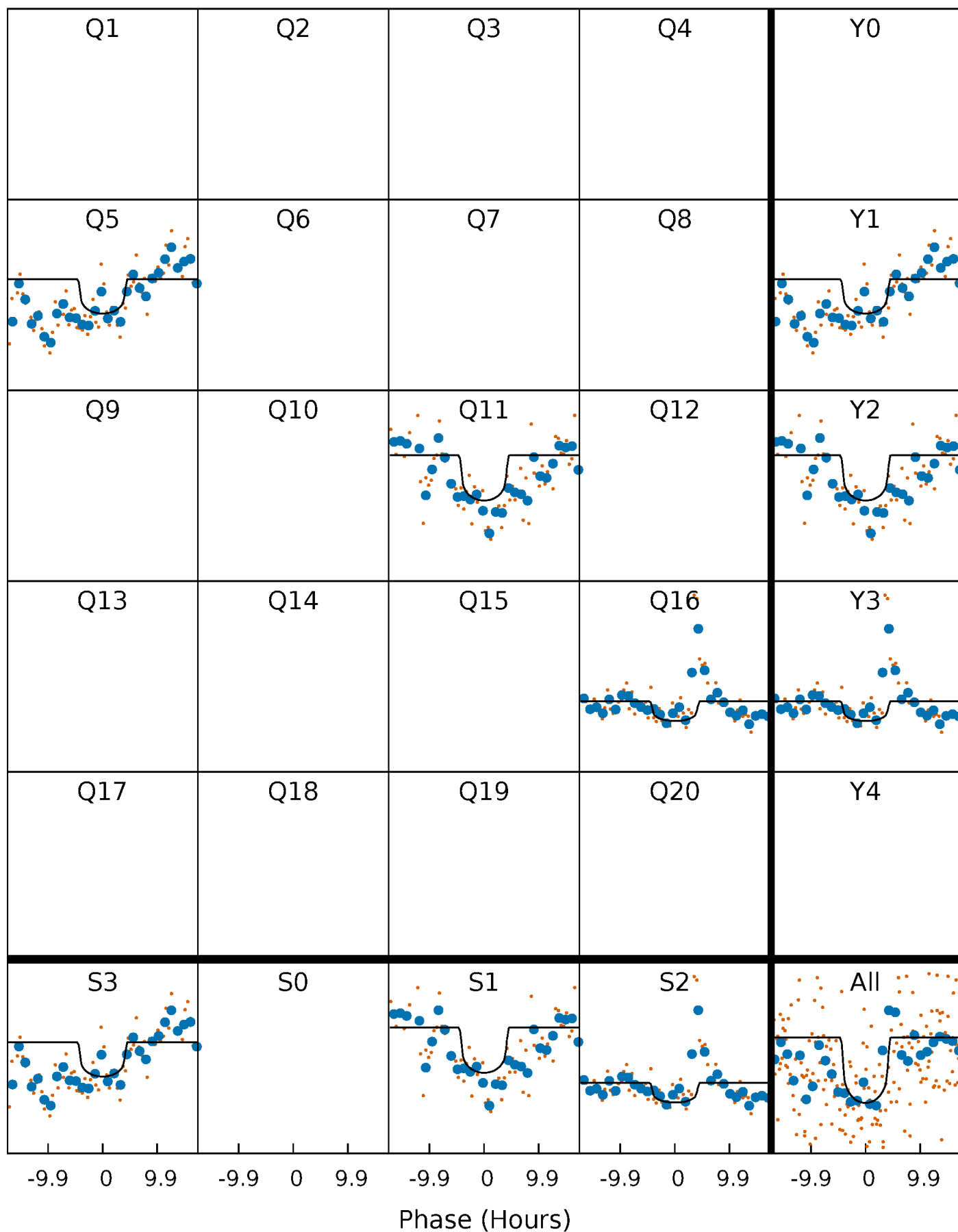
PDC Quarter-Phased Transit Curves

TCE 009181091-01 P=497.151818 Days $T_0=507.684046$ (BKJD)



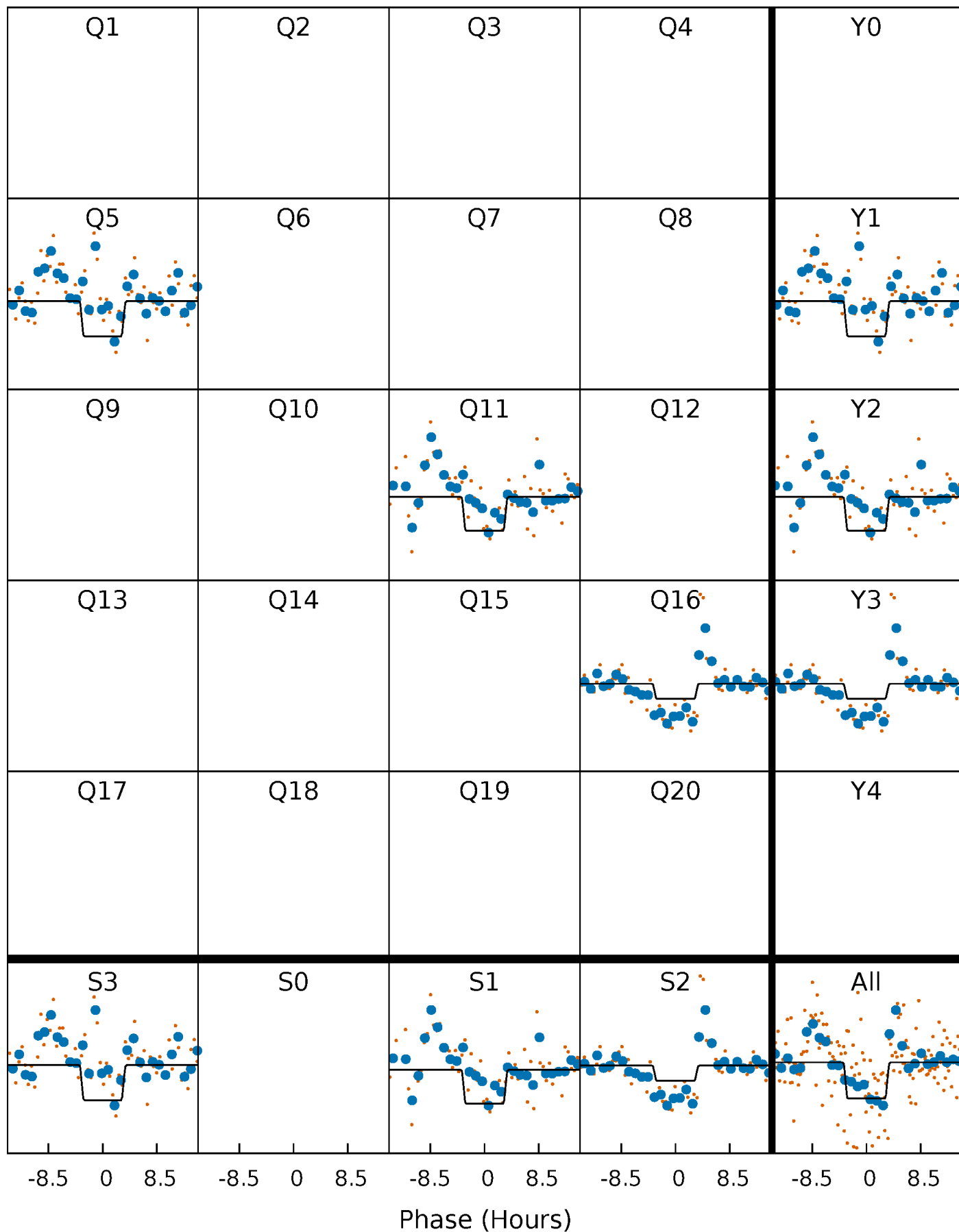
DV Quarter-Phased Transit Curves

TCE 009181091-01 P=497.151818 Days $T_0=507.684046$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

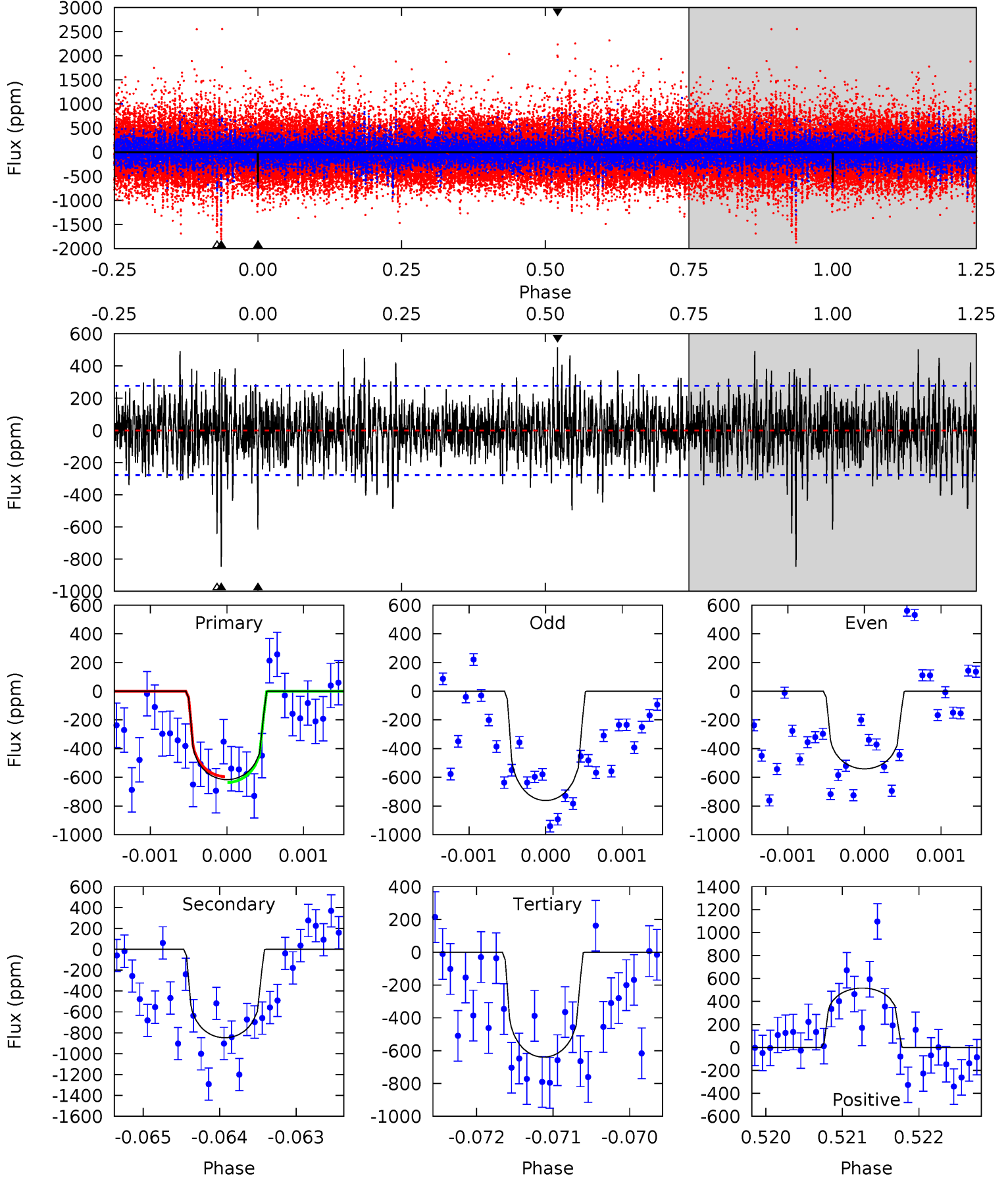
TCE 009181091-01 P=497.121270 Days $T_0=507.730101$ (BKJD)



DV Model-Shift Uniqueness Test

009181091-01, P = 497.151818 Days, E = 10.532228 Days

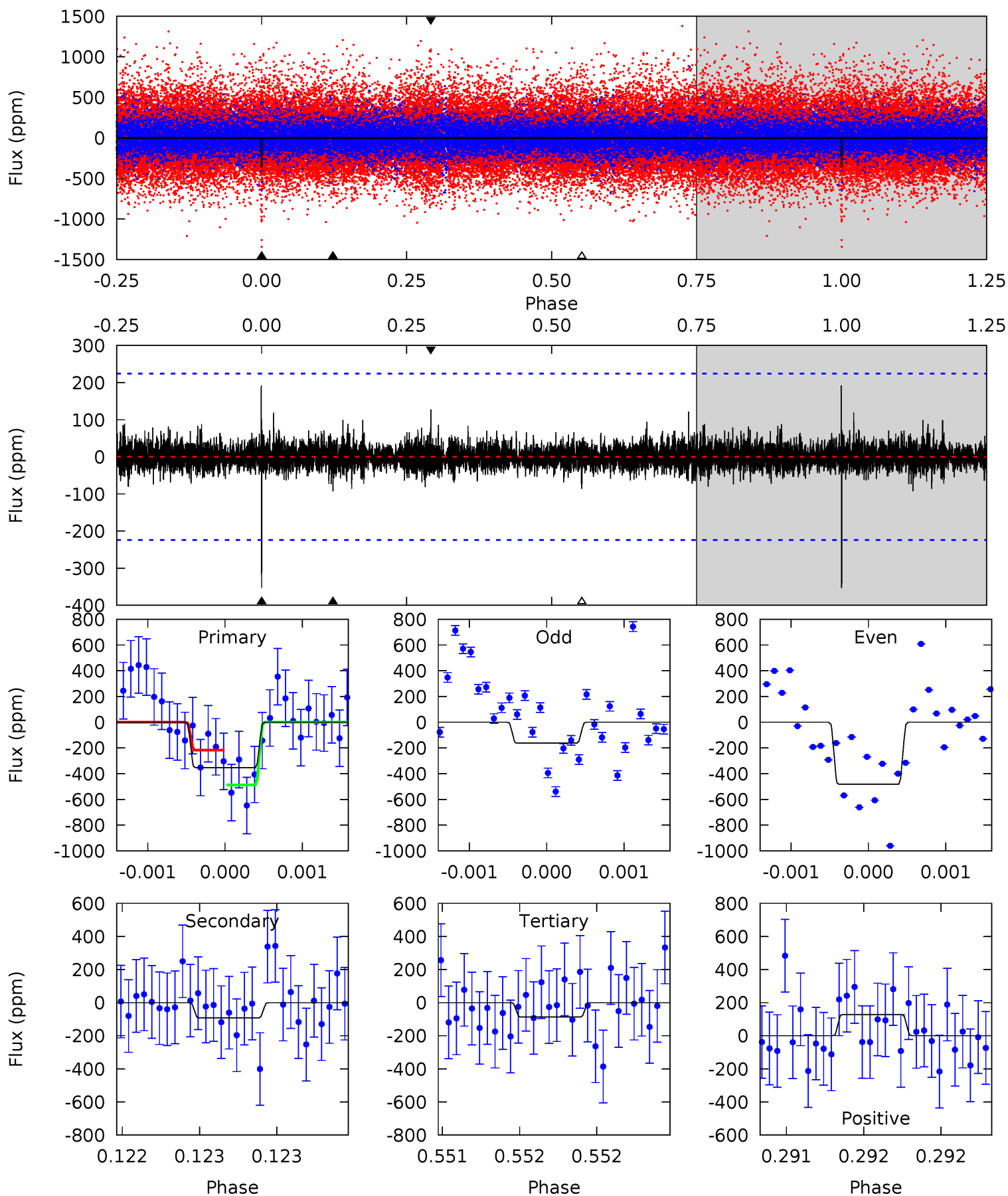
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.3 | 16.9 | 12.7 | 10.3 | 5.51 | 3.38 | 2.51 | -0.46 | 1.98 | 4.14 | 6.58 | 1.83 | 0.81 | 0.38 | 0.40 |



Alt Model-Shift Uniqueness Test

009181091-01, P = 497.121270 Days, E = 10.608831 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.71 | 2.28 | 2.13 | 3.15 | 5.54 | 3.42 | 0.53 | 6.58 | 5.56 | 0.15 | -0.87 | 3.74 | 2.31 | 0.35 | 3.33 |



Stellar Parameters For KIC 009181091

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5350^{+160}_{-144} | $4.556^{+0.082}_{-0.067}$ | $-0.540^{+0.350}_{-0.300}$ | $0.735^{+0.088}_{-0.080}$ | $0.709^{+0.090}_{-0.045}$ | $2.510^{+0.838}_{-0.573}$ |
| | +3%/-3% | +2%/-1% | +65%/-56% | +12%/-11% | +13%/-6% | +33%/-23% |
| 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 009181091-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|-------------------|------------------------|-----------------------------|
| DV | -848 ± 50 | $2.29^{+1.55}_{-1.52}$ | 271^{+11}_{-10} | 5447^{+4373}_{-1086} | $110027^{+804271}_{-71233}$ |
| Alt. | -93 ± 41 | $2.02^{+1.65}_{-1.20}$ | 269^{+11}_{-10} | 3660^{+1618}_{-644} | 14560^{+79834}_{-10509} |

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

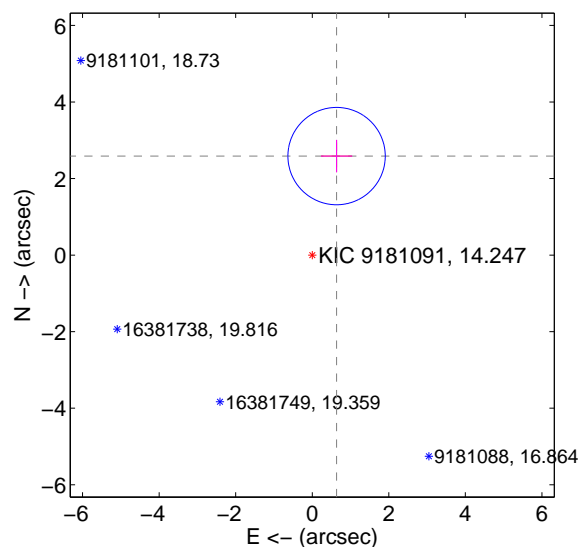
Supplemental centroid analysis for 009181091-01. Kepler magnitude: 14.25. Transit SNR 5.69

There are 0 quarters with good PRF difference image offsets

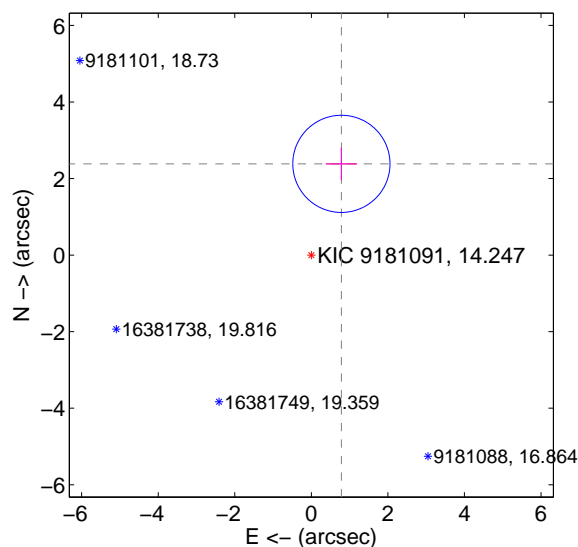
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 2.663 ± 0.424 | 6.28 | -0.636 ± 0.409 | 2.586 ± 0.425 |
| PRF-fit source offset from KIC position | 2.510 ± 0.423 | 5.93 | -0.786 ± 0.409 | 2.384 ± 0.425 |
| photometric centroid source offset | 1.37 ± 1.30 | 1.05 | -1.16 ± 1.29 | -0.74 ± 1.33 |

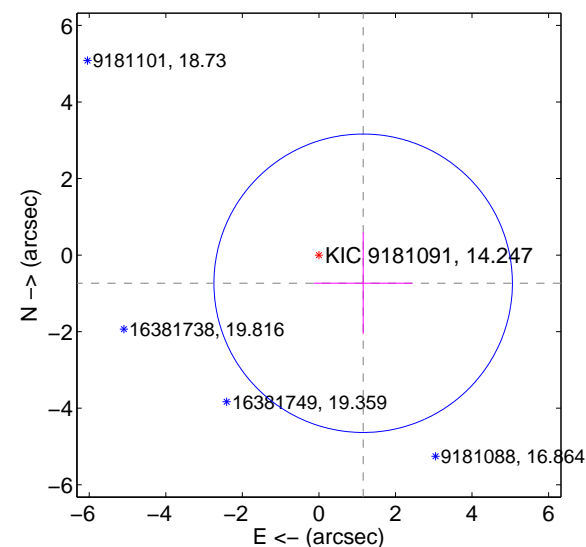
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

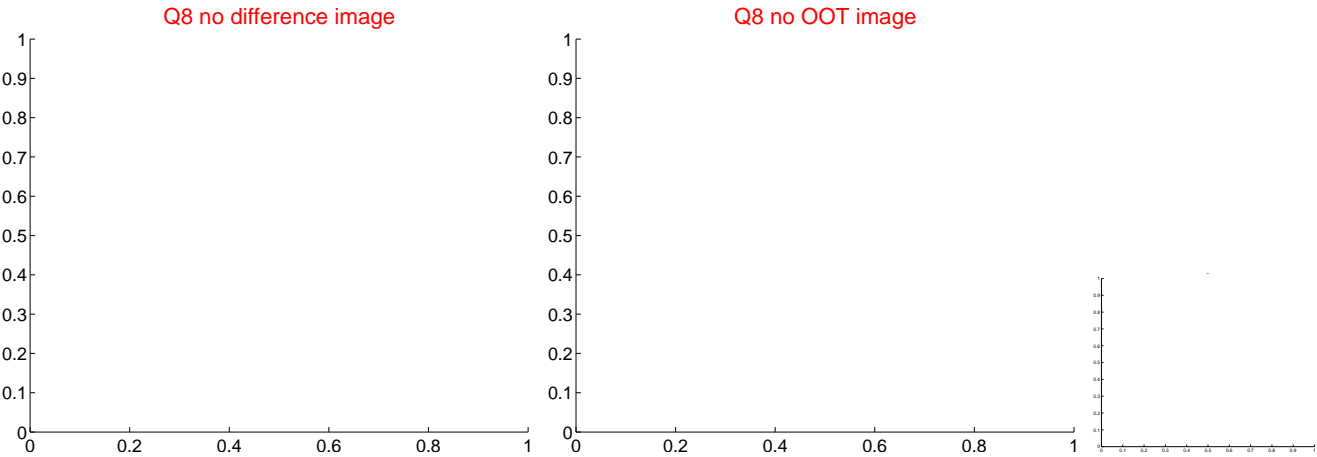
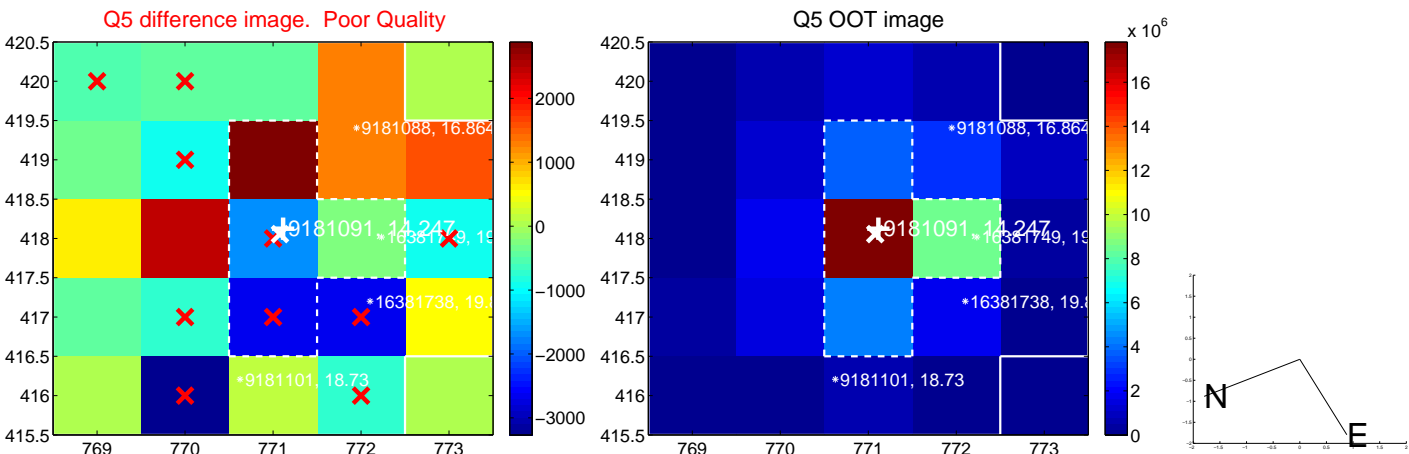


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



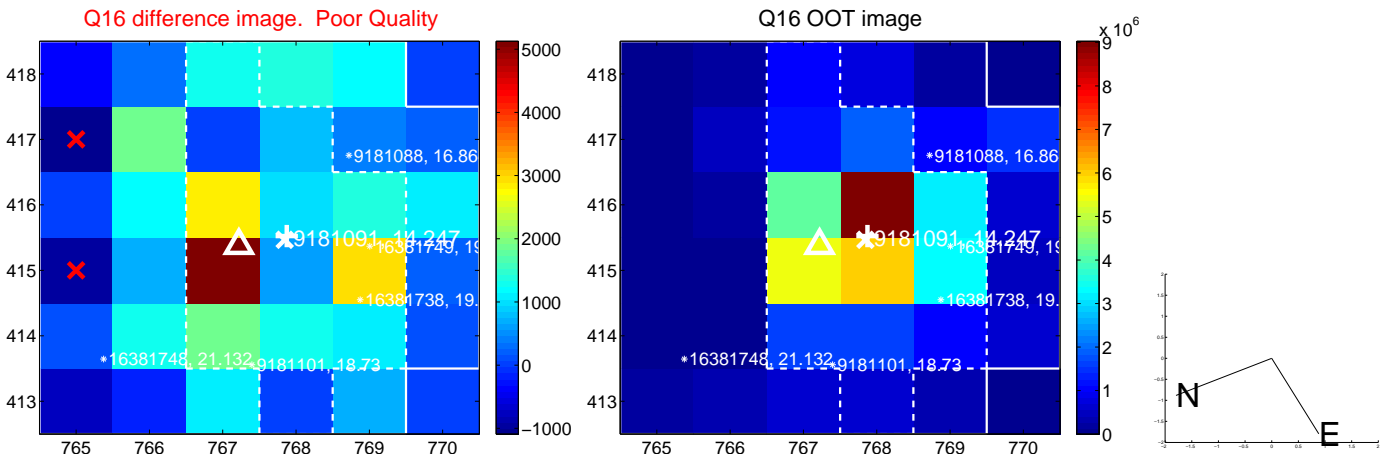
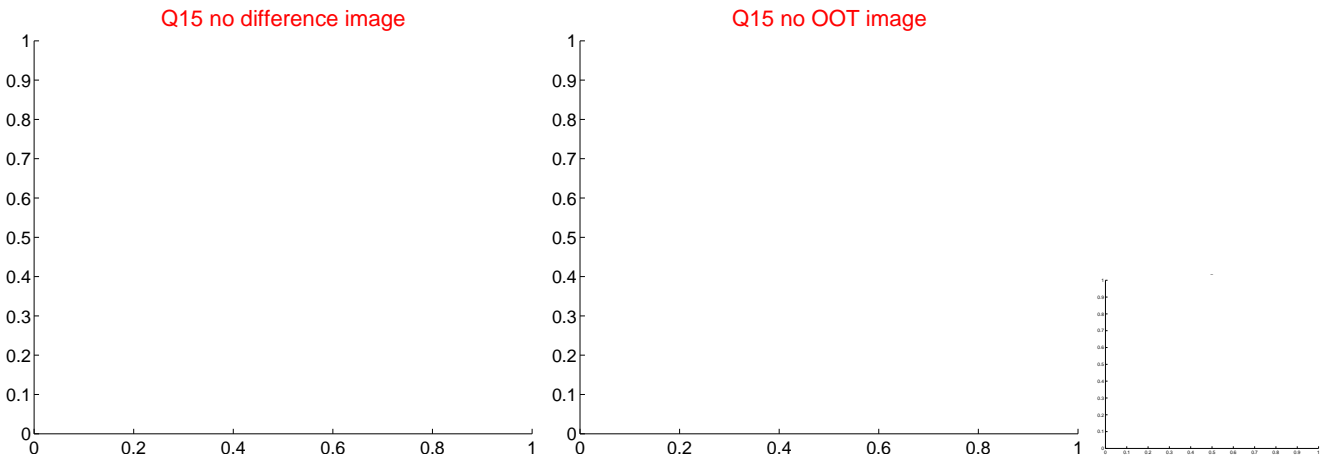
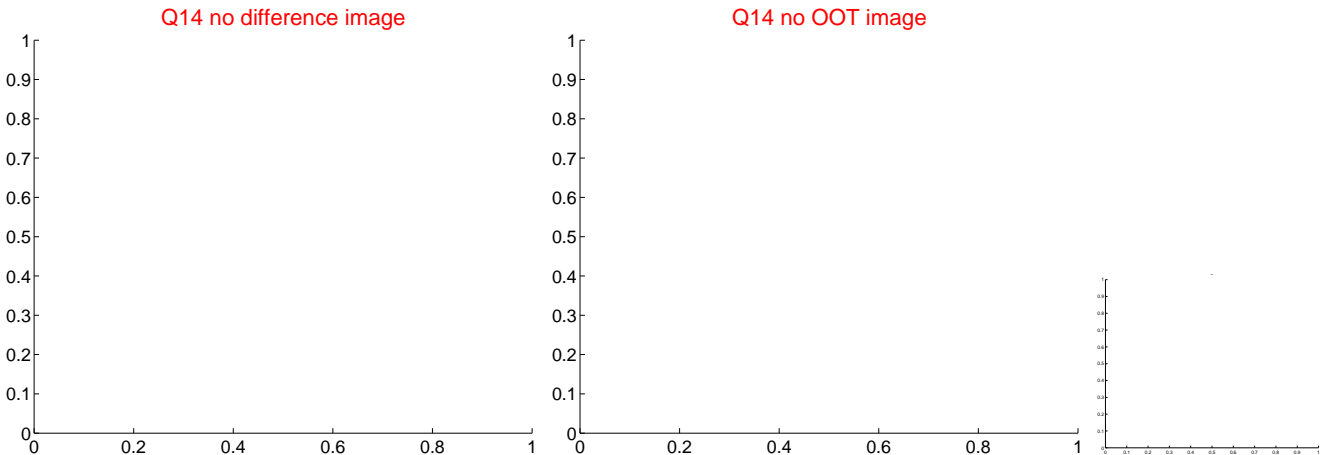
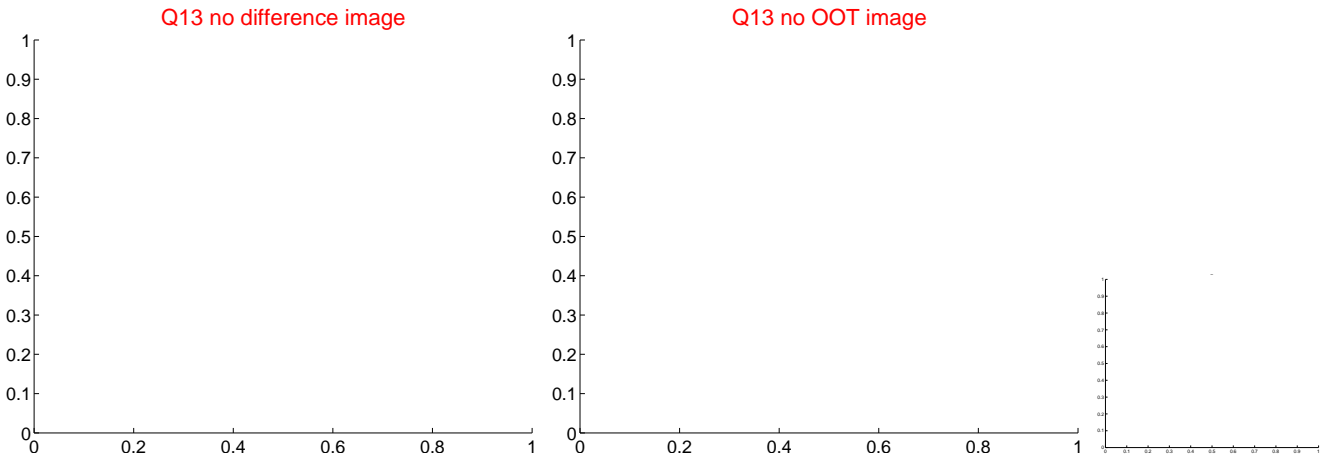
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



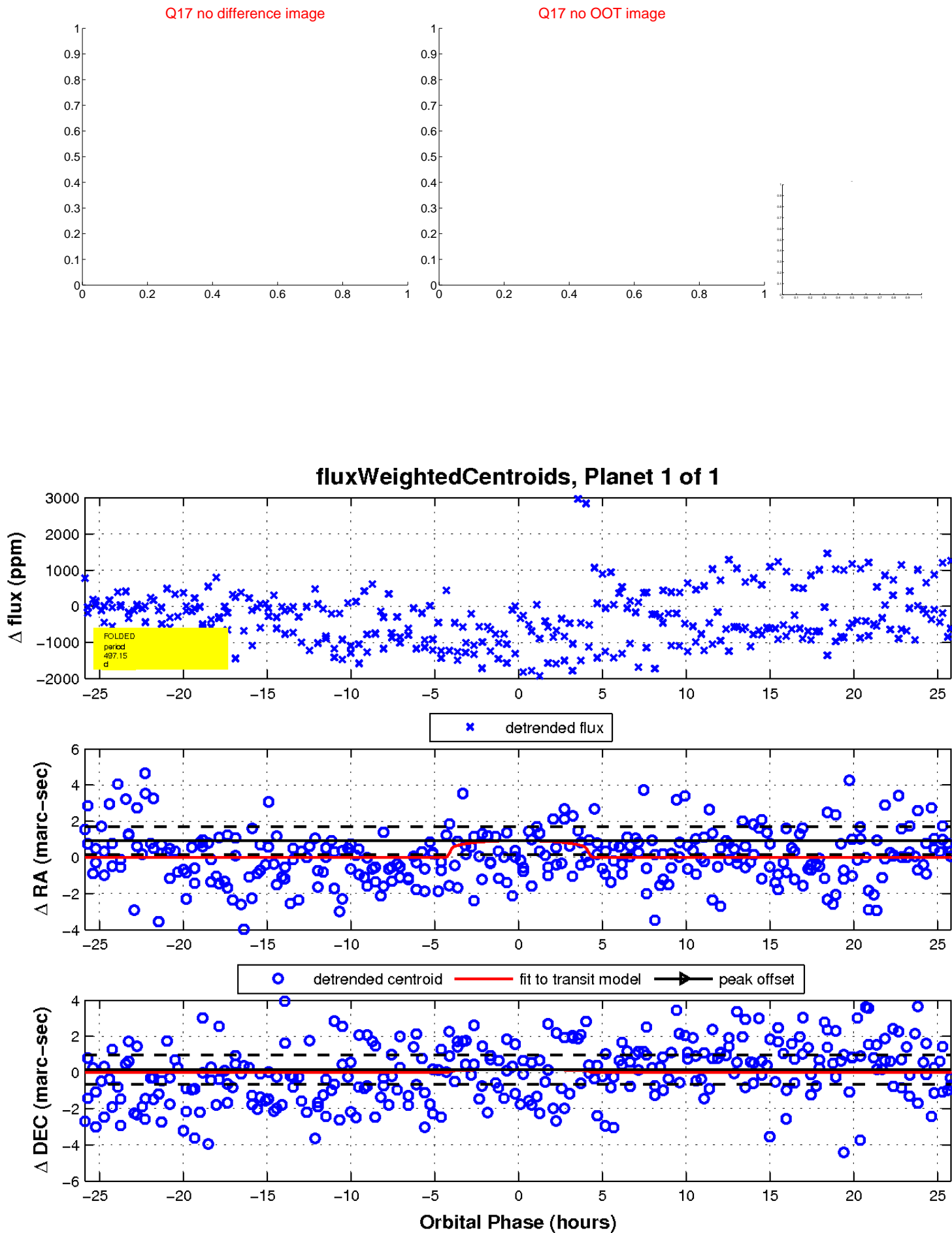
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UKIRT Image

Declination

