

KIC 007220320

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|--------|------|-----------------------------|-----------------|------------------------|------------------------|
| 007220320-01 | OBS | 3775.01 | 0.752152 | 131.796610 | 17792.9 | 2.000 | 1295.2 | -1.0 | 2.22 | 5770 | 29.45 | 16052.98 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------------------------|
| 007220320-01 | OBS | FP | 0.00 | 0 | 1 | 0 | 0 | SWEET_EB—MOD_SEC_ALT—CENT_NOFITS |

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.

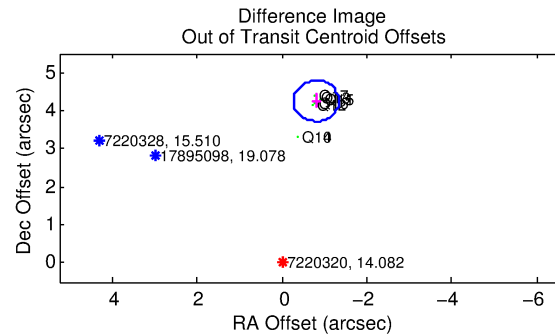
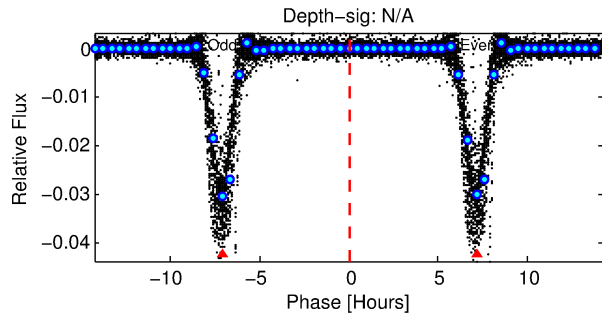
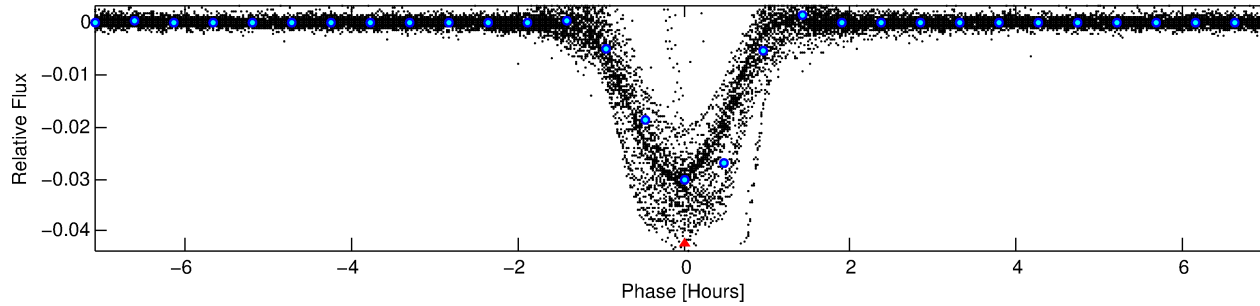
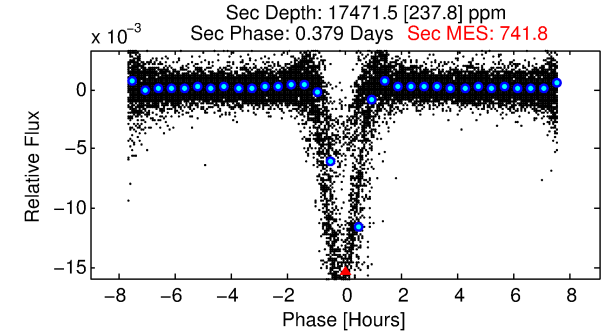
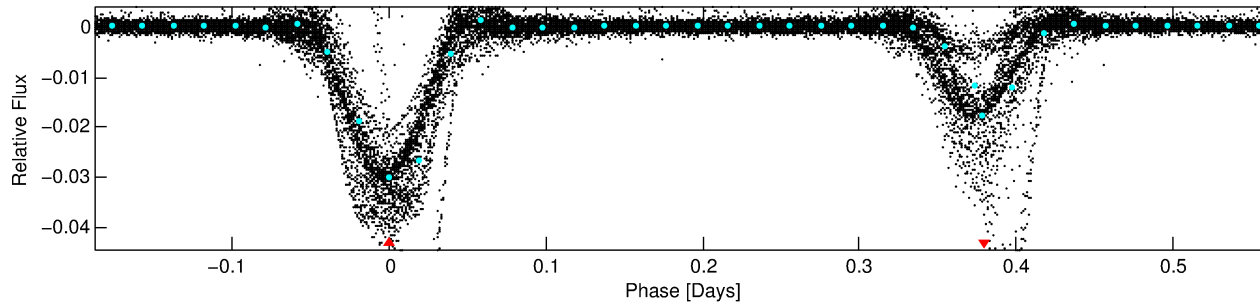
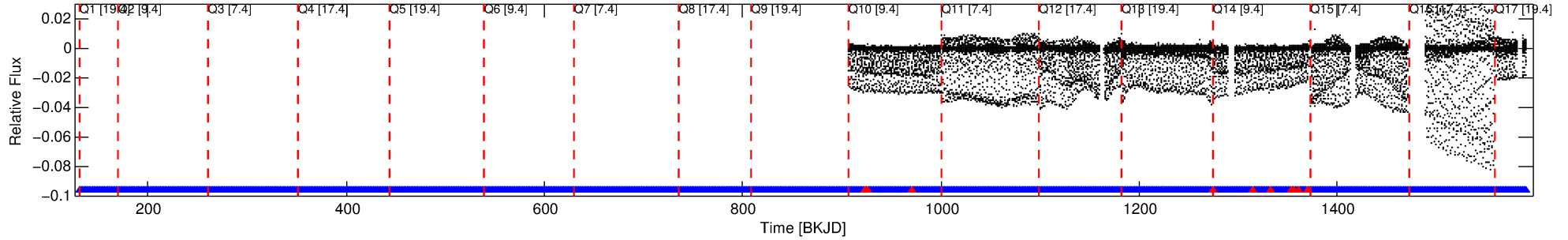
Ephemeris Match Information For 007220320-01

No Significant Match Found

DV One-Page Summary

KIC: 7220320 Candidate: 1 of 1 Period: 0.752 d
KOI: K03775.01 Corr: 0.906

Kp: 14.08 R*: 2.22 Rs Teff: 5770.0 K Logg: 3.84 Fe/H: 0.040



TPS TCE Results:

Period = 0.75215 d
Epoch = 131.7966 BKJD

DV fit results are unavailable

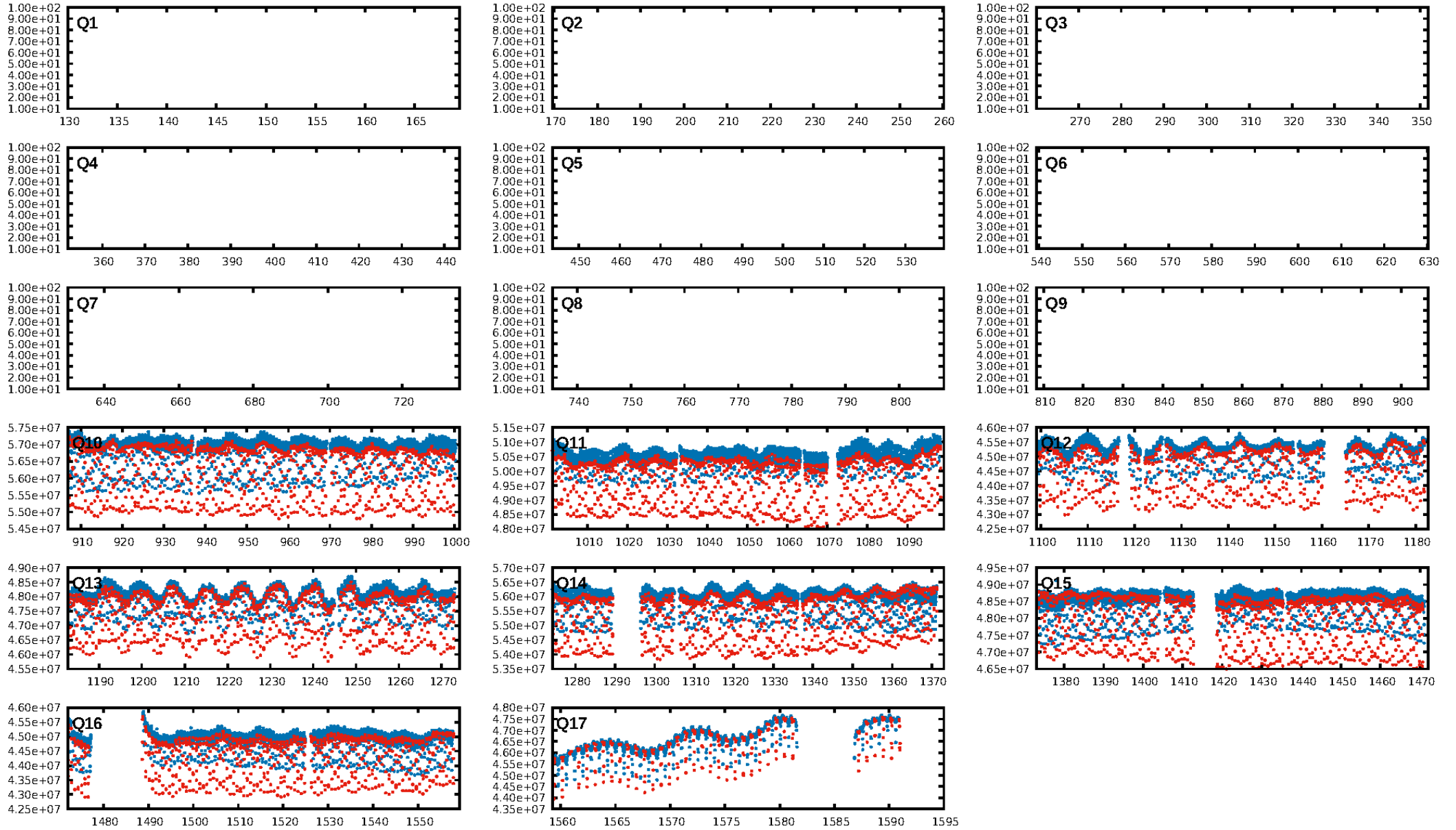
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [779/789]
GhostDiagnostic-chr: 6.686
Centroid-sig: 0.0%
Centroid-so: 2.575 arcsec [1776.94σ]
OotOffset-rm: 4.333 arcsec [24.21σ]
KicOffset-rm: 0.198 arcsec [2.91σ]
OotOffset-st: 2/2/2 [8]
KicOffset-st: 2/2/2 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

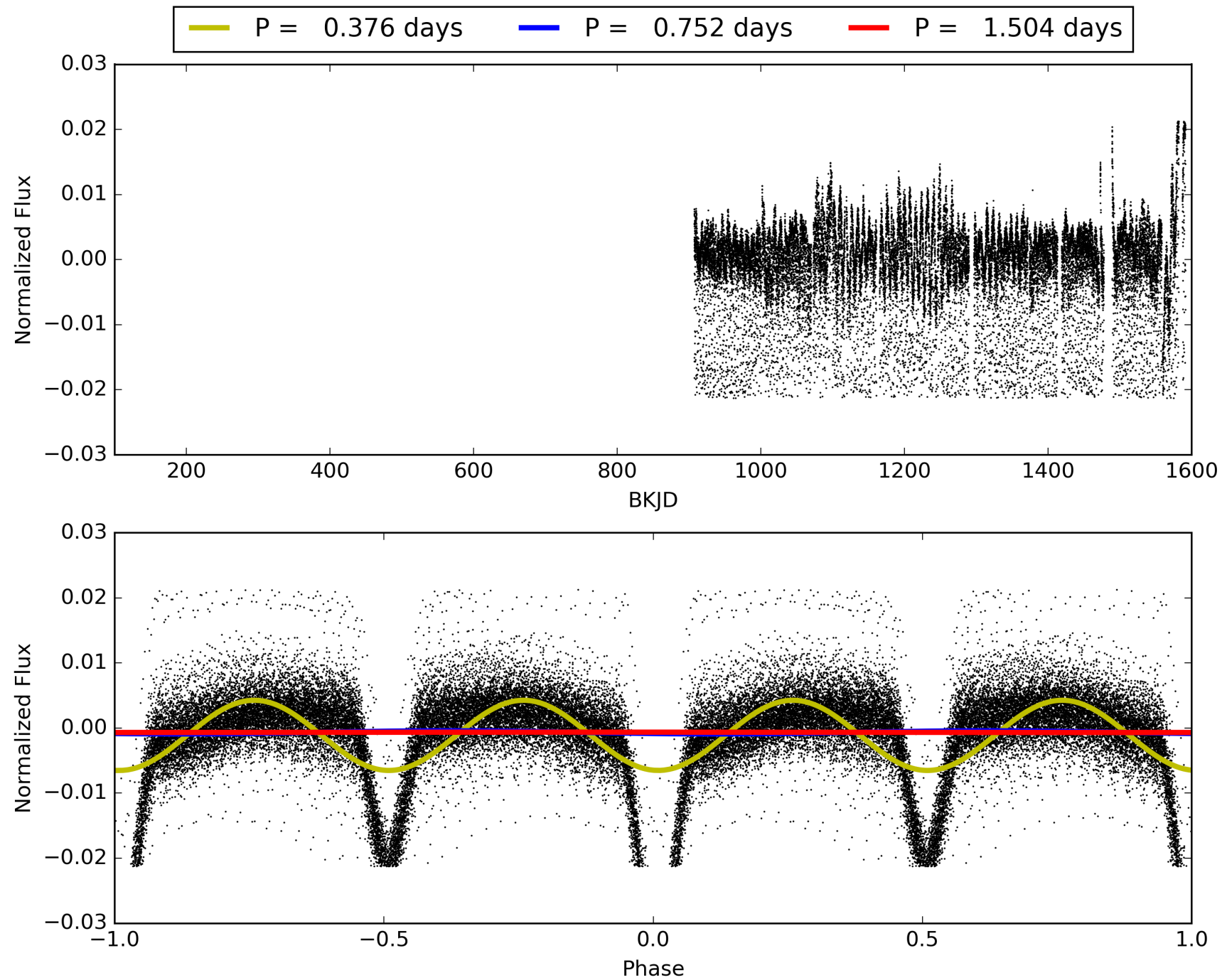
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:14:50 Z

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

TCE 007220320-01, PDC Light Curves

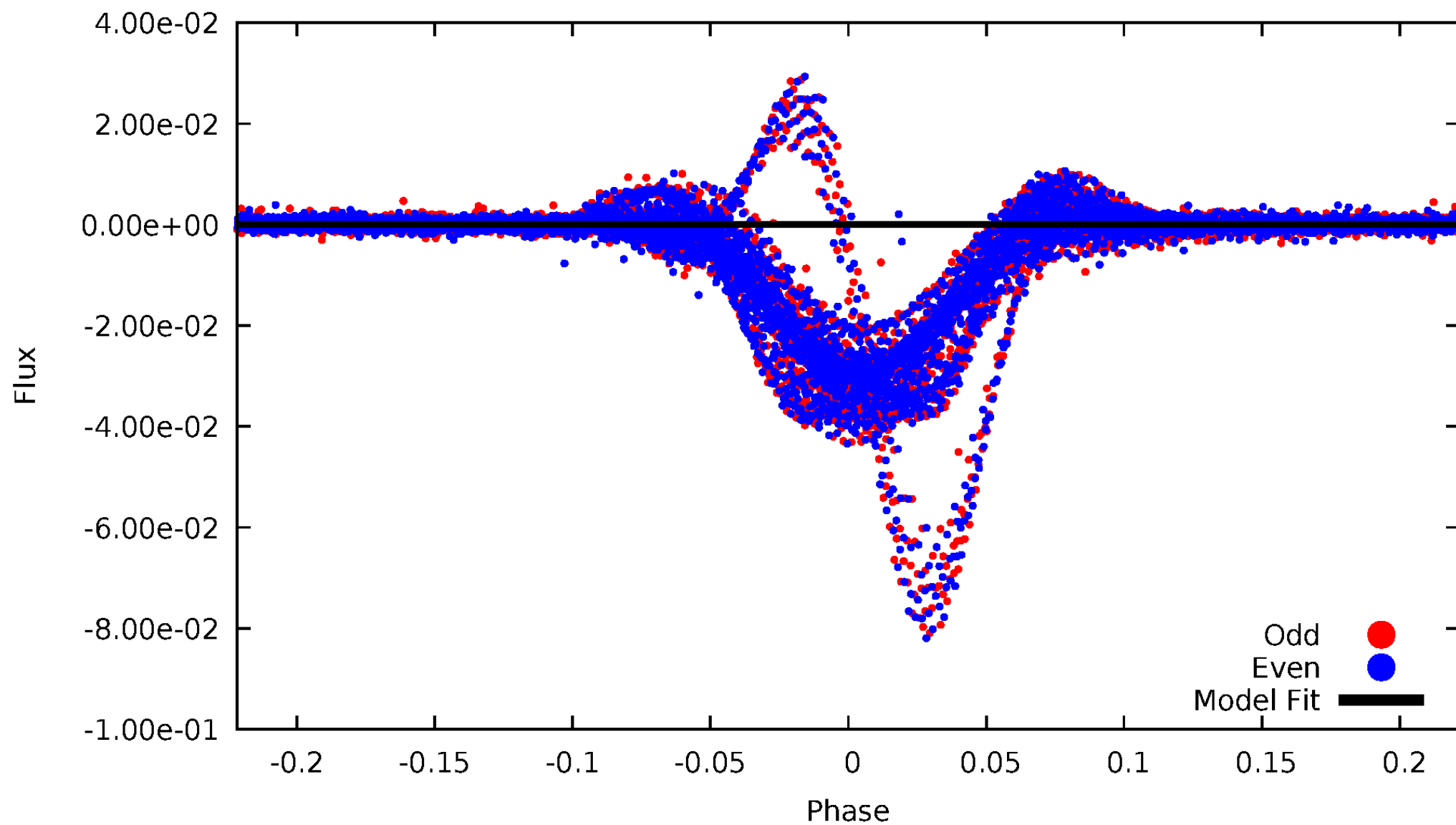


TCE 007220320-01



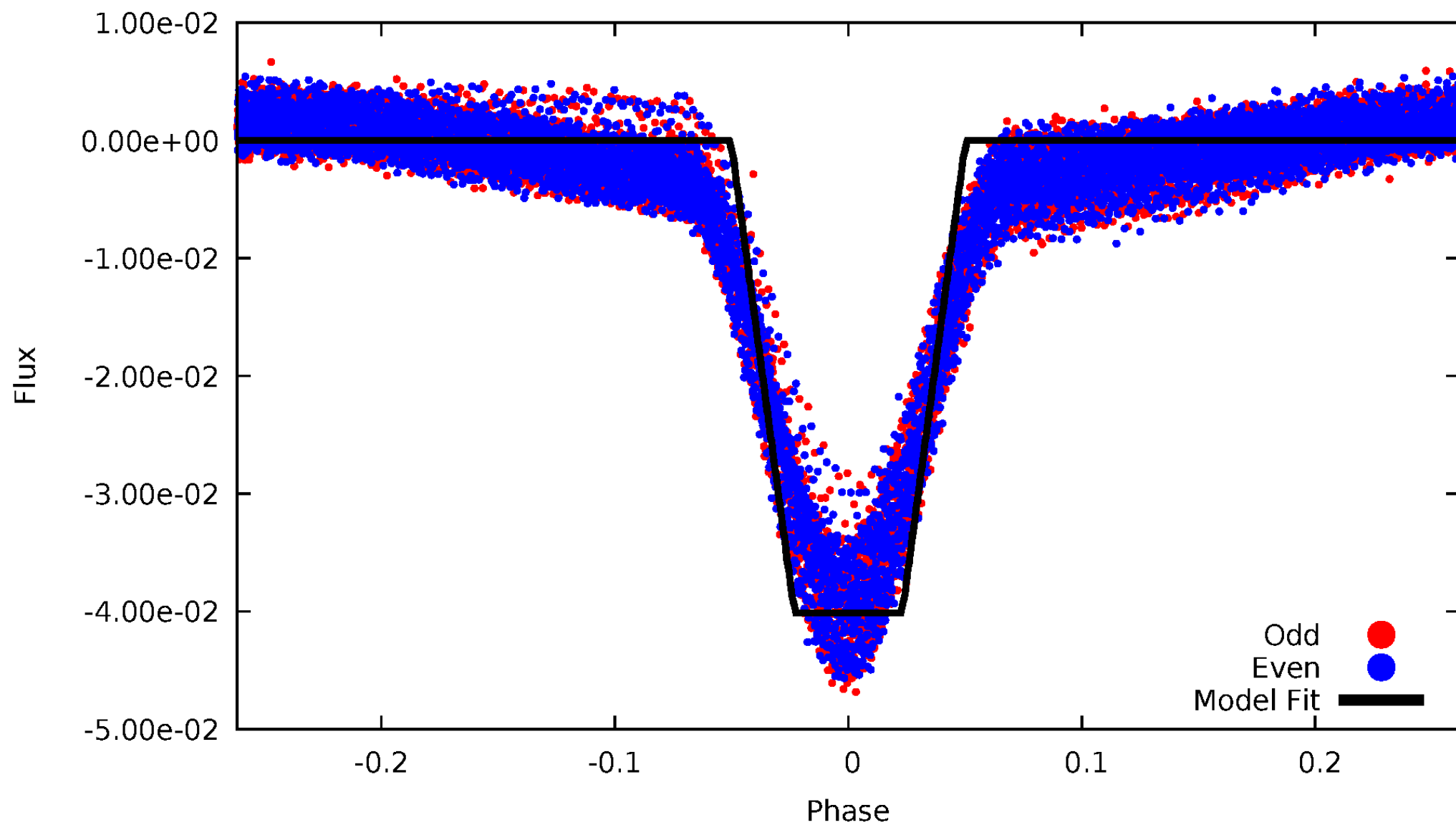
DV Odd/Even

TCE 007220320-01



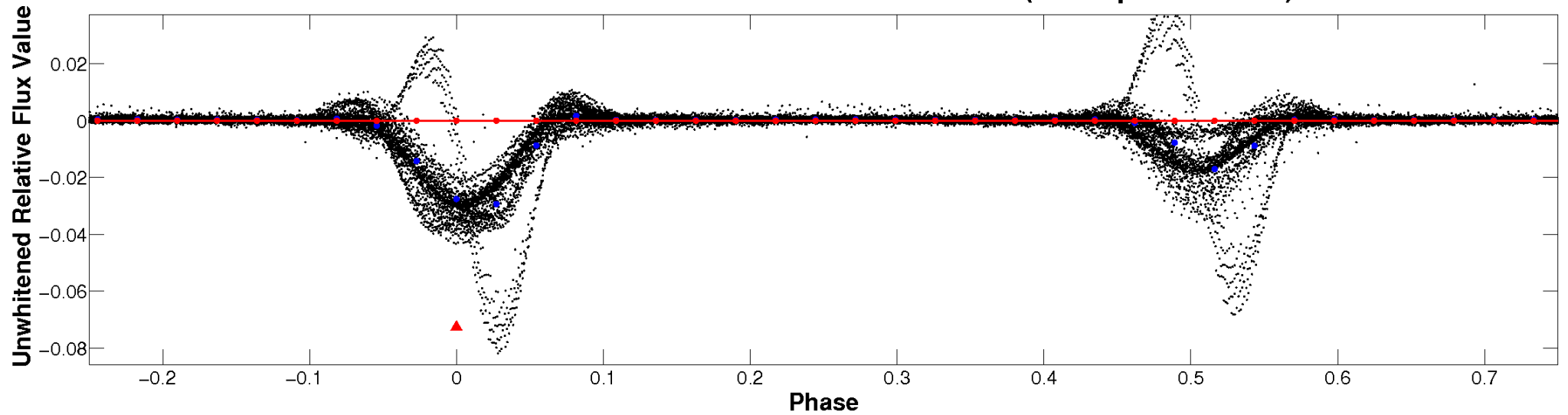
ALT Odd/Even

TCE 007220320-01



Non-Whitened Vs. Whitened Light Curve

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

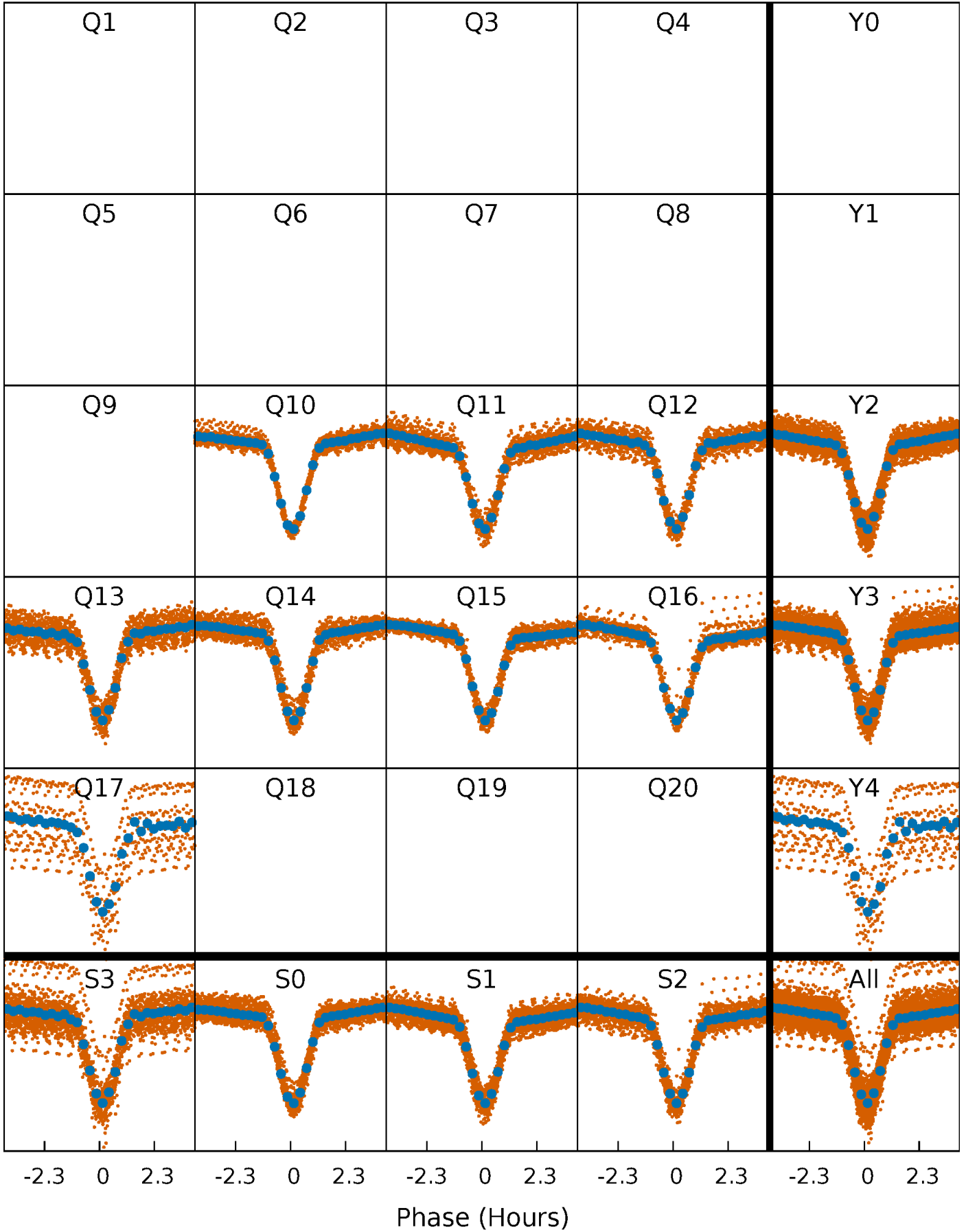


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



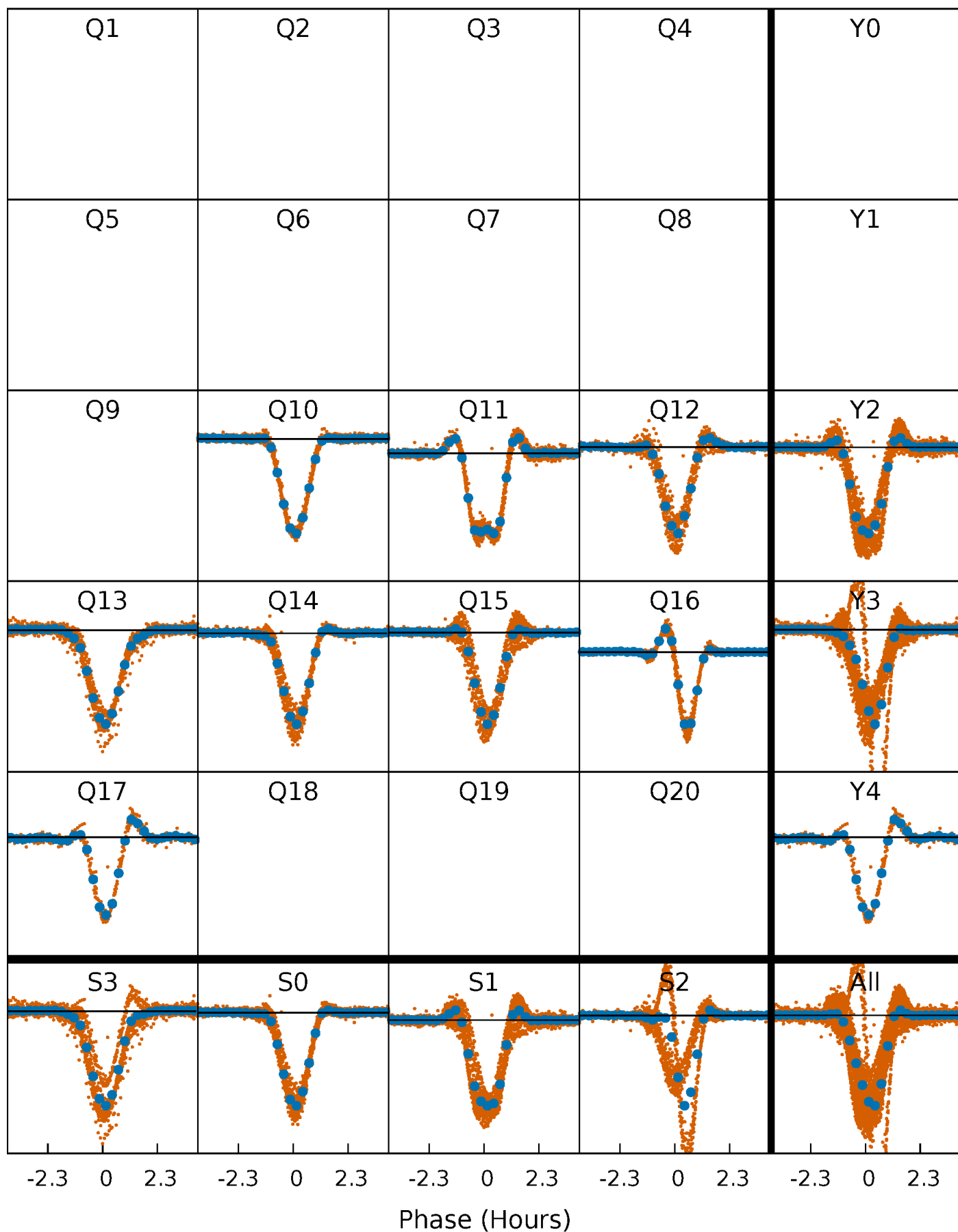
PDC Quarter-Phased Transit Curves

TCE 007220320-01 P= 0.752152 Days $T_0=131.796610$ (BKJD)



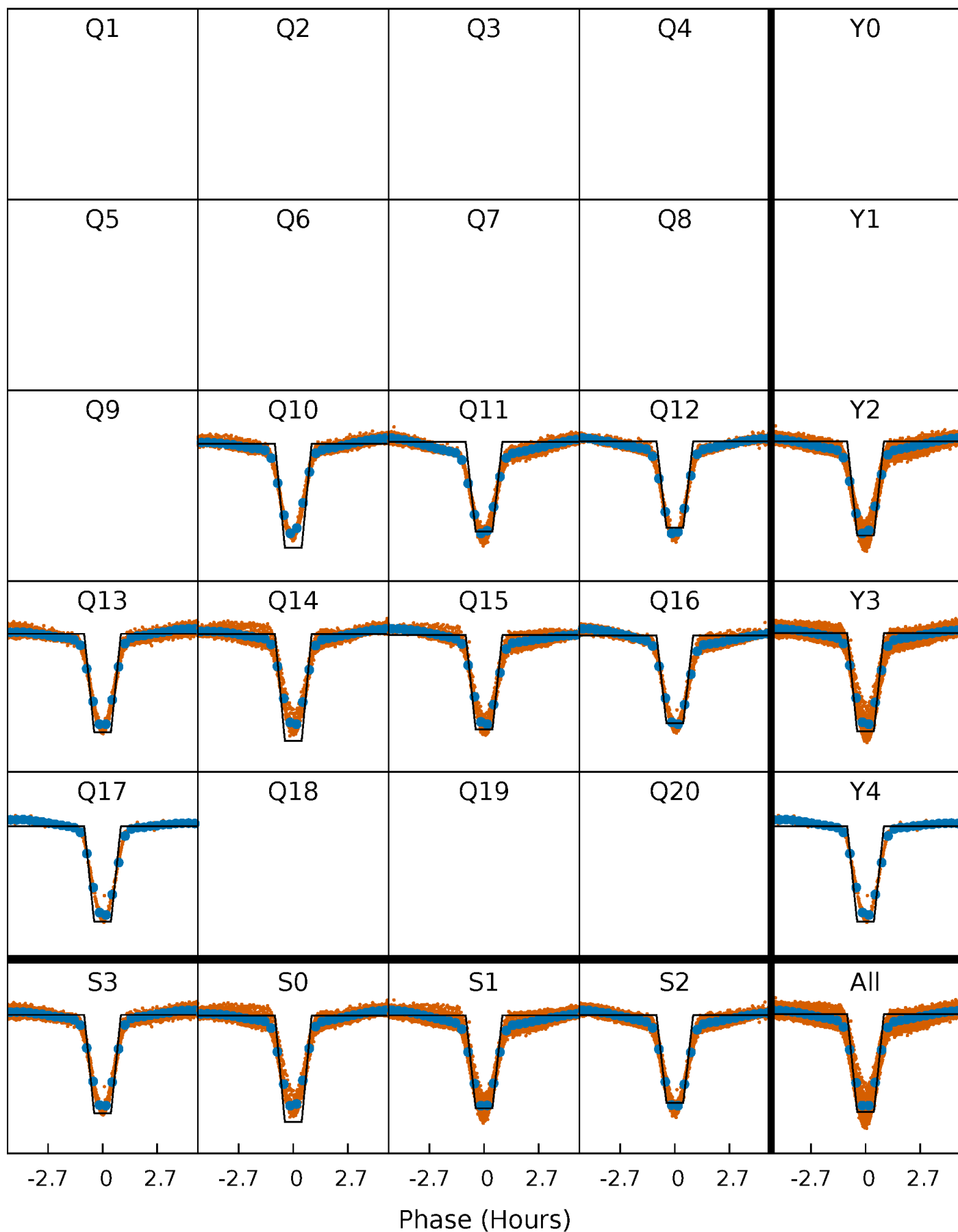
DV Quarter-Phased Transit Curves

TCE 007220320-01 P= 0.752152 Days $T_0=131.796610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

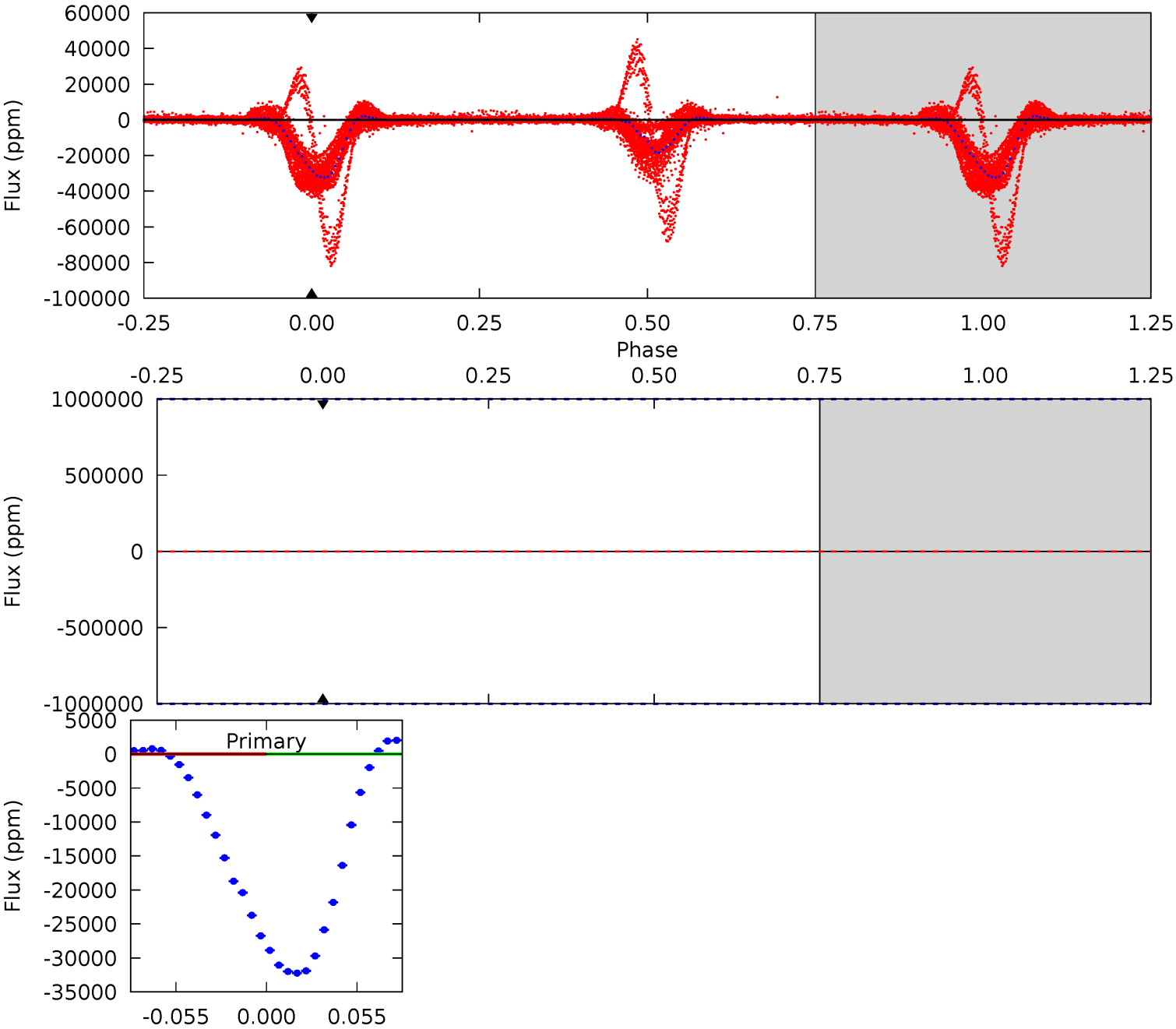
TCE 007220320-01 $P = 0.752152$ Days $T_0 = 131.801760$ (BKJD)



DV Model-Shift Uniqueness Test

007220320-01, P = 0.752152 Days, E = 131.796610 Days

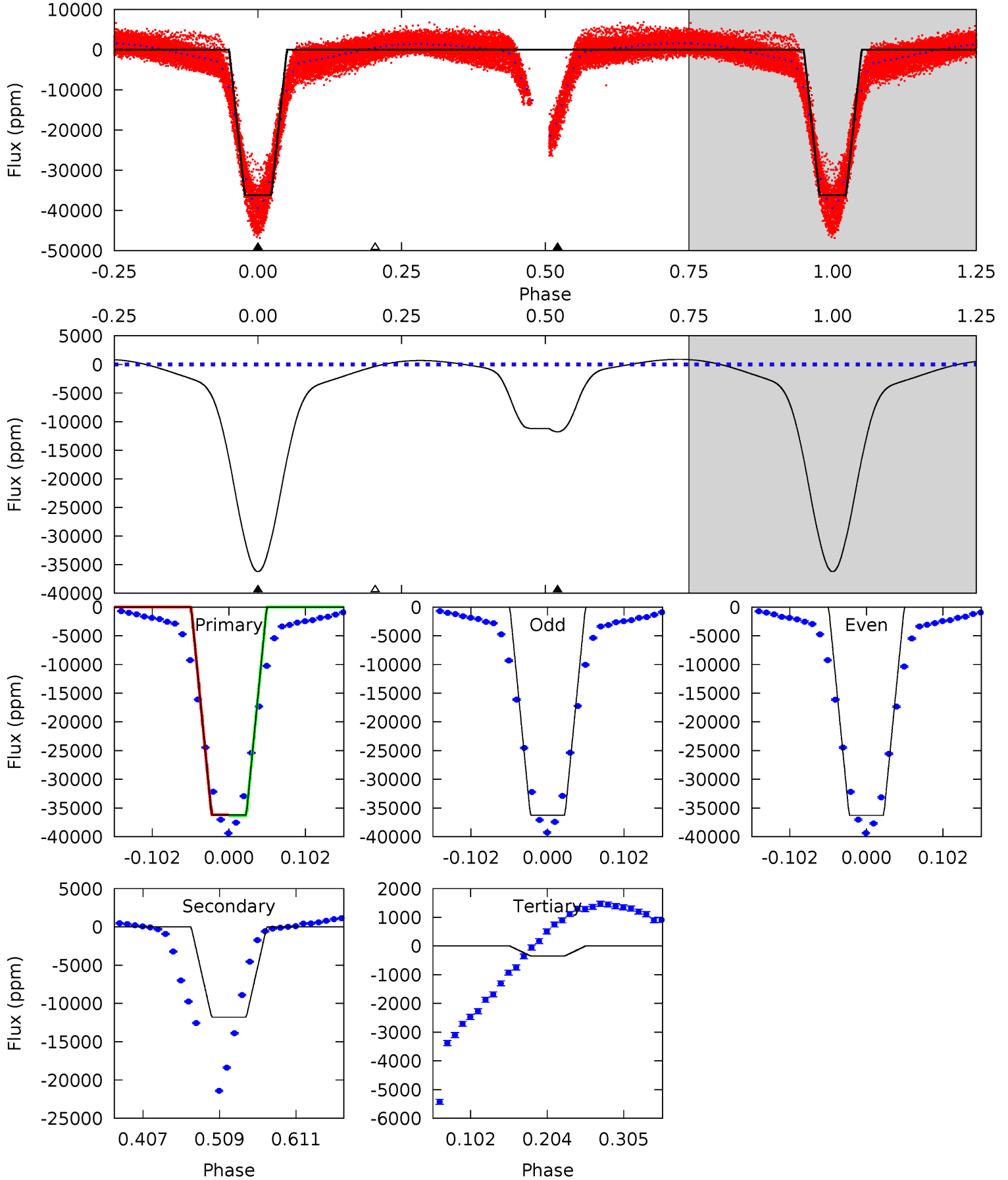
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Alt Model-Shift Uniqueness Test

007220320-01, P = 0.752152 Days, E = 131.801760 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-------|-------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 972.4 | 316.5 | 9.20 | 0 | 4.56 | 1.64 | 31.2 | 963.2 | 972.4 | 307.3 | 316.5 | 0.41 | 1.00 | 0.02 | 1.50 |



Stellar Parameters For KIC 007220320

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5770^{+175}_{-175} | $3.844^{+0.528}_{-0.132}$ | $0.040^{+0.250}_{-0.300}$ | $2.221^{+0.496}_{-1.158}$ | $1.255^{+0.163}_{-0.303}$ | $0.161^{+0.984}_{-0.062}$ |
| | +3%/-3% | +14%/-3% | +625%/-750% | +22%/-52% | +13%/-24% | +610%/-38% |
| 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 007220320-01 / KOI 3775.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|---------------------------|----------------------|--------------------------|------------------------------|
| DV | 0 ± 1000000 | $28.23^{+25.79}_{-16.62}$ | 3911^{+327}_{-543} | -4432^{+15784}_{-5942} | $-0.592^{+32.858}_{-27.157}$ |
| Alt. | -11790 ± 37 | $43.67^{+23.90}_{-21.80}$ | 3906^{+321}_{-516} | 4162^{+1514}_{-937} | $1.053^{+3.158}_{-0.605}$ |

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 $A_{obs} \gg 1.0$

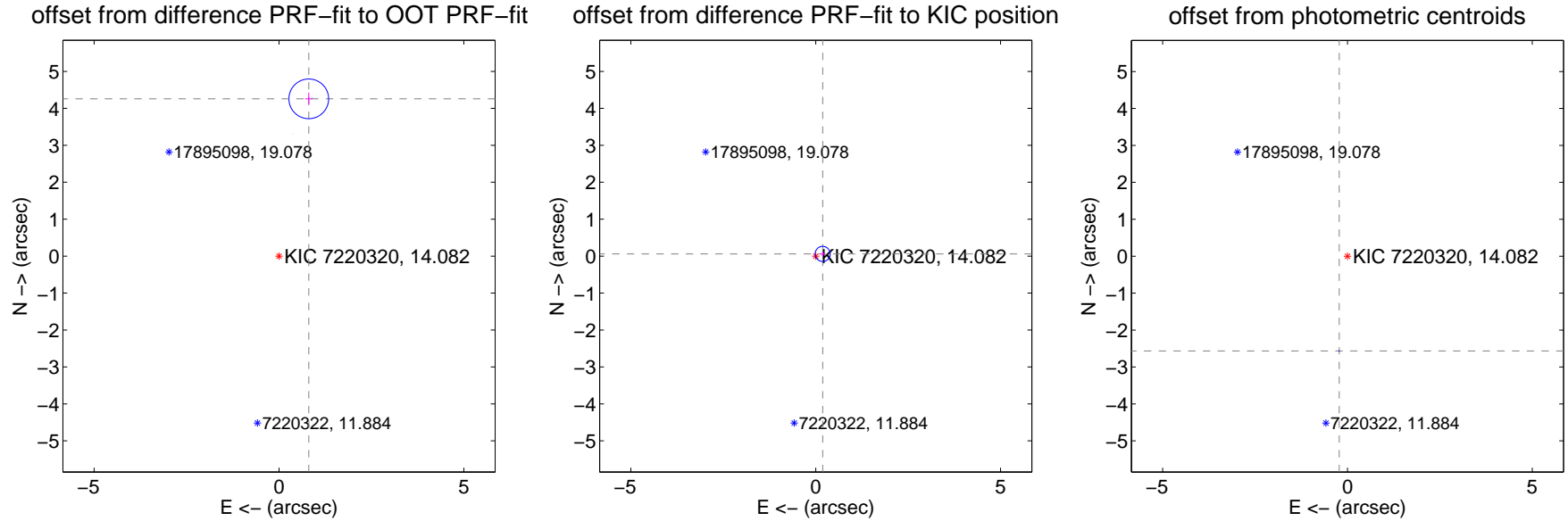
DV Centroid Data

Supplemental centroid analysis for 007220320-01. Kepler magnitude: 14.08. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 4.30 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 4.333 \pm 0.179 | 24.21 | -0.805 \pm 0.097 | 4.258 \pm 0.170 |
| PRF-fit source offset from KIC position | 0.198 \pm 0.068 | 2.91 | -0.188 \pm 0.067 | 0.060 \pm 0.070 |
| photometric centroid source offset | 2.58 \pm 0.00 | 1776.94 | 0.22 \pm 0.00 | -2.57 \pm 0.00 |



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.

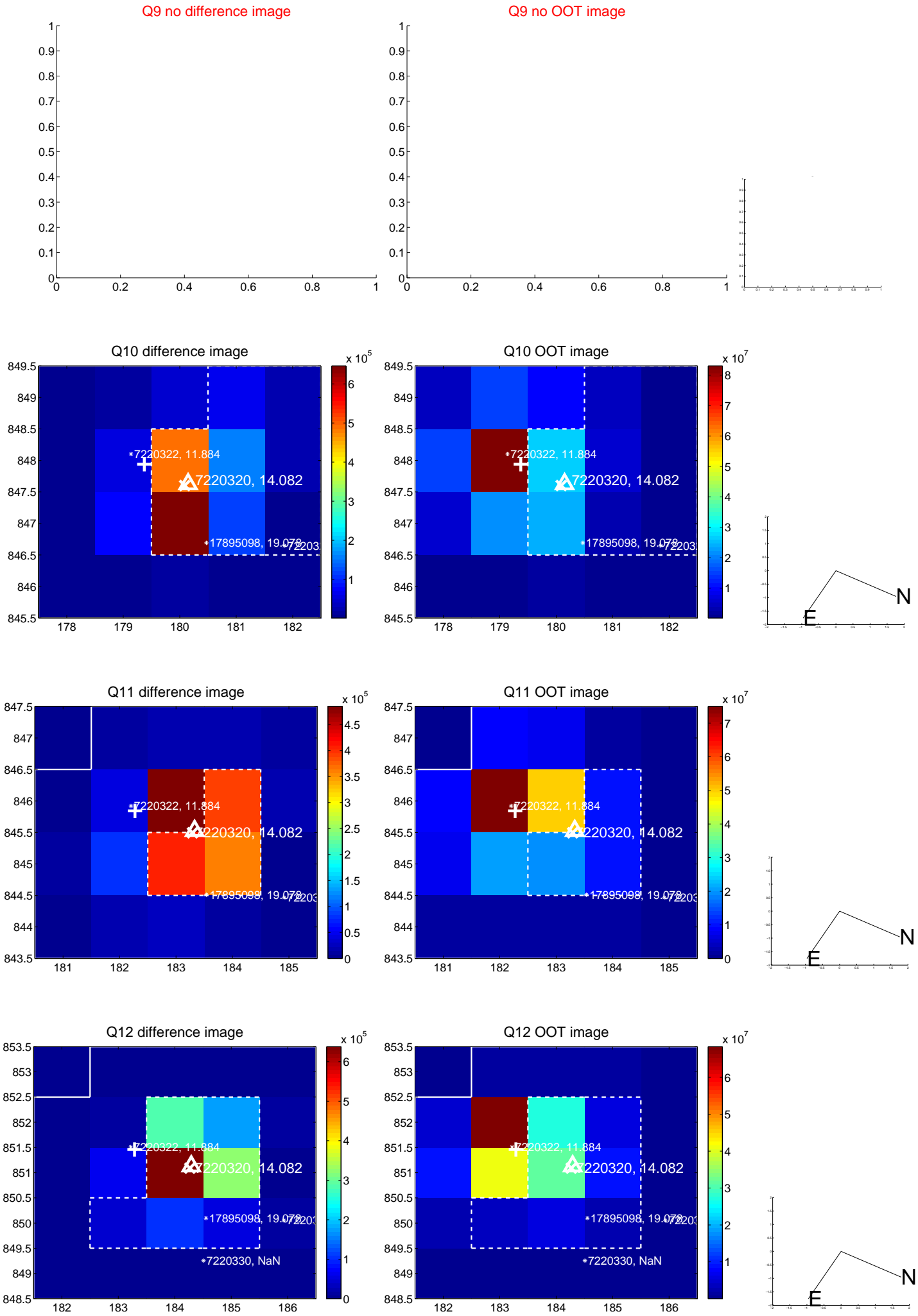
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



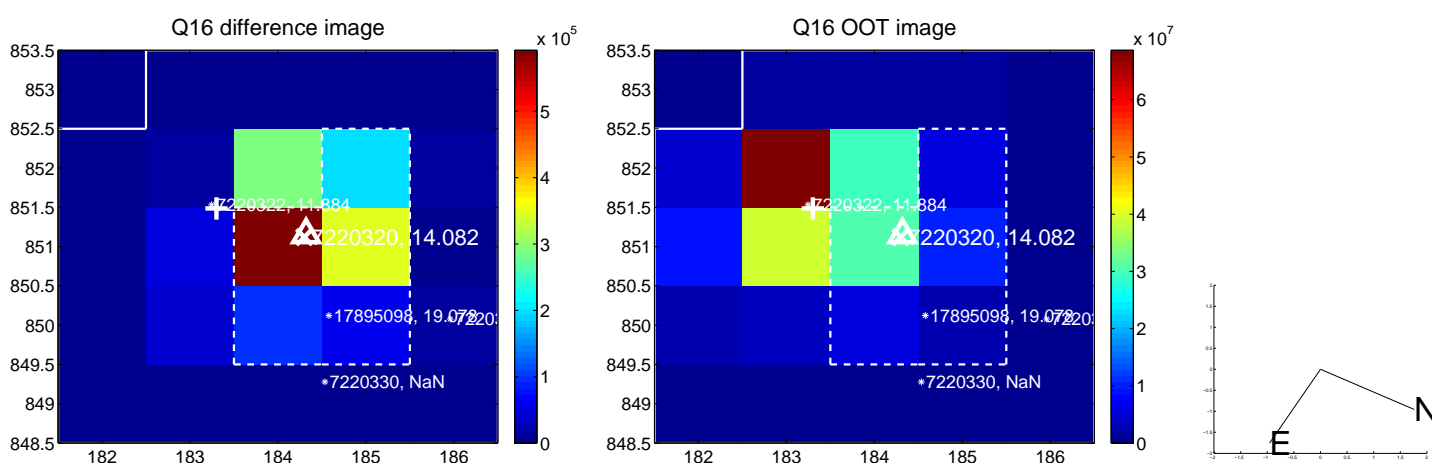
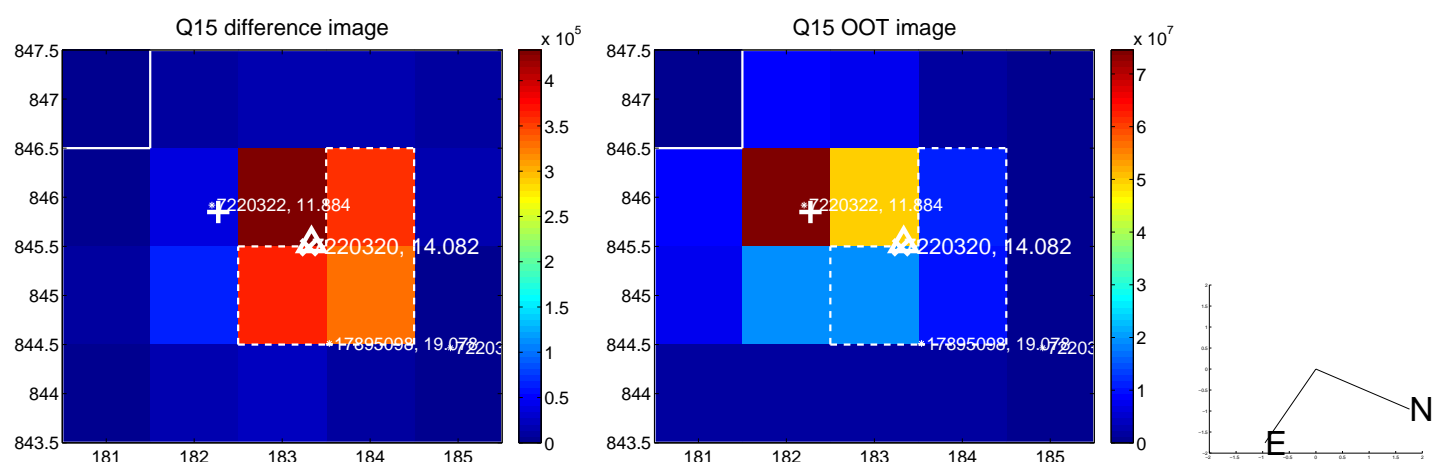
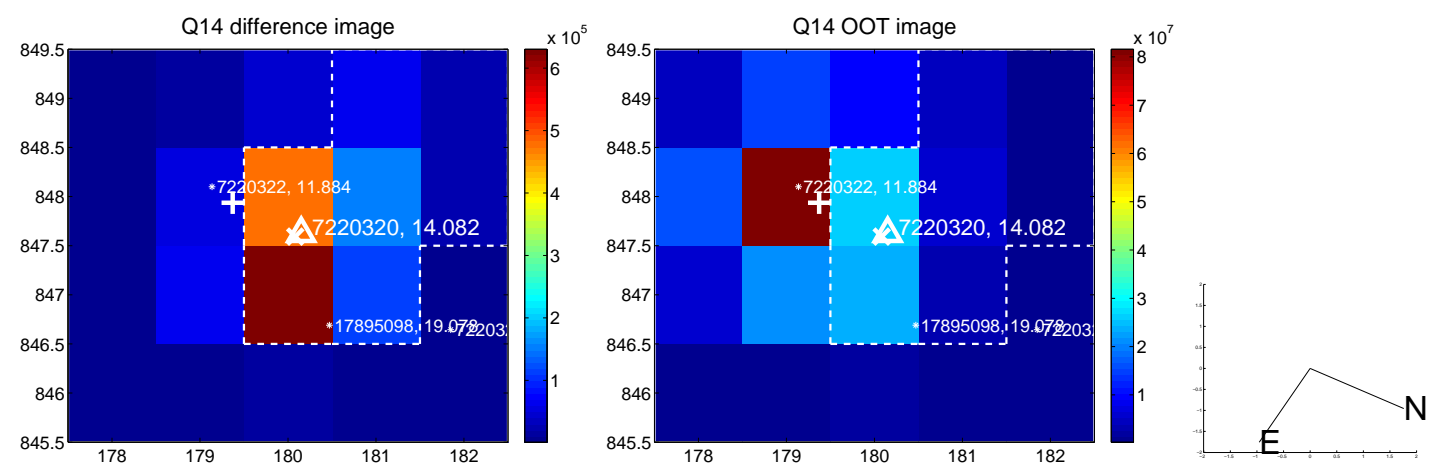
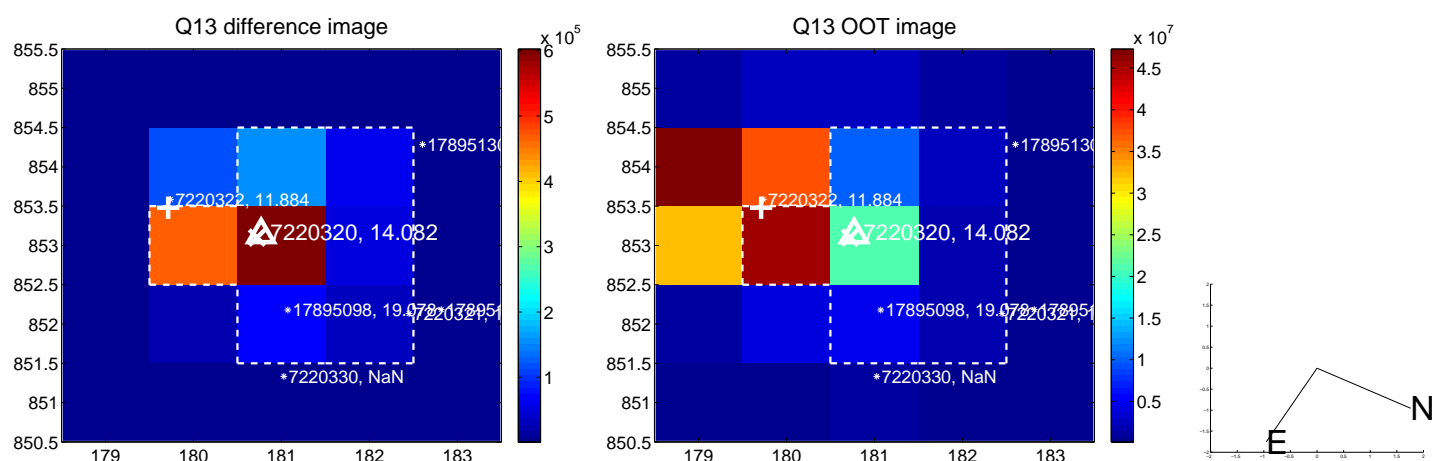
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



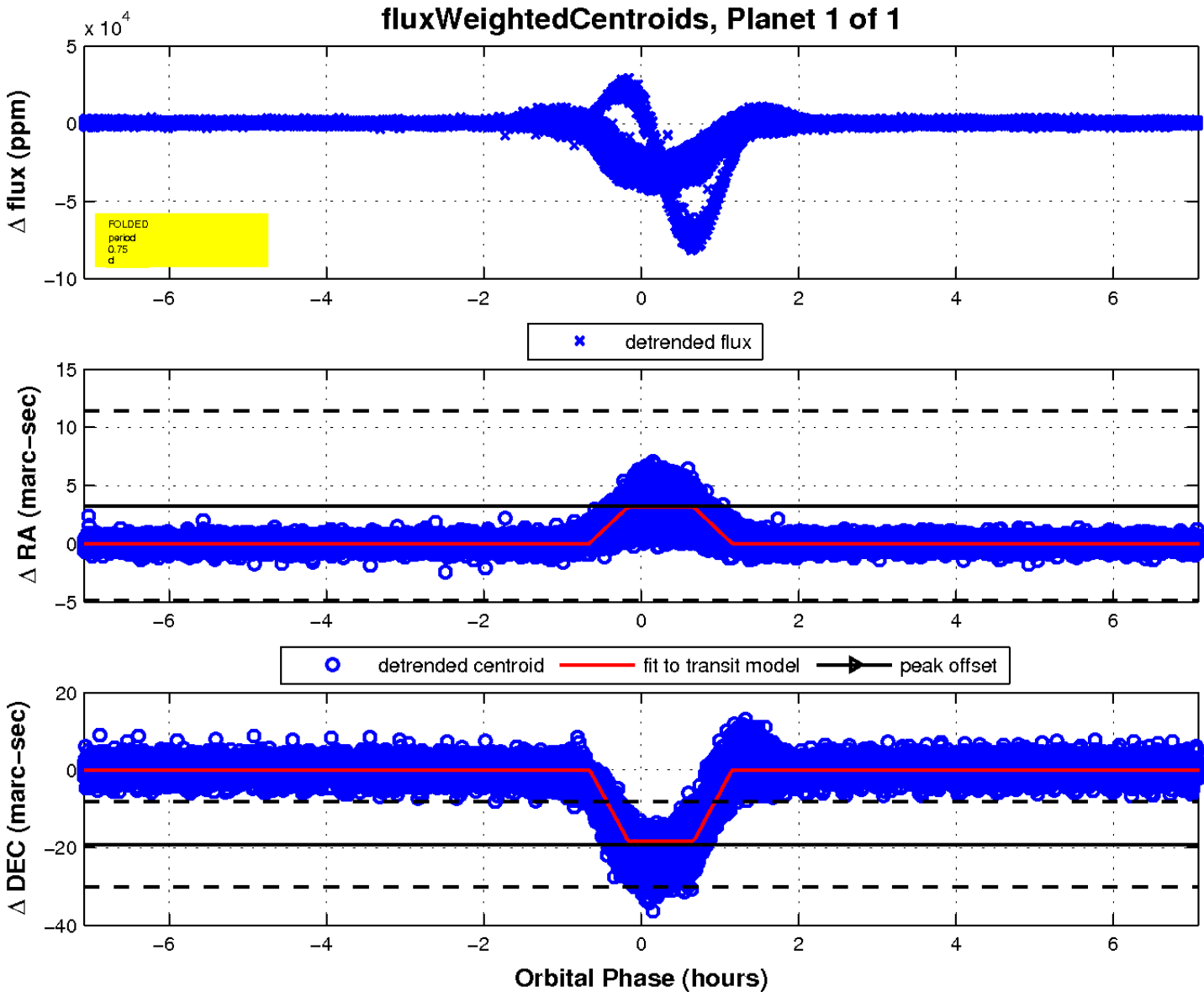
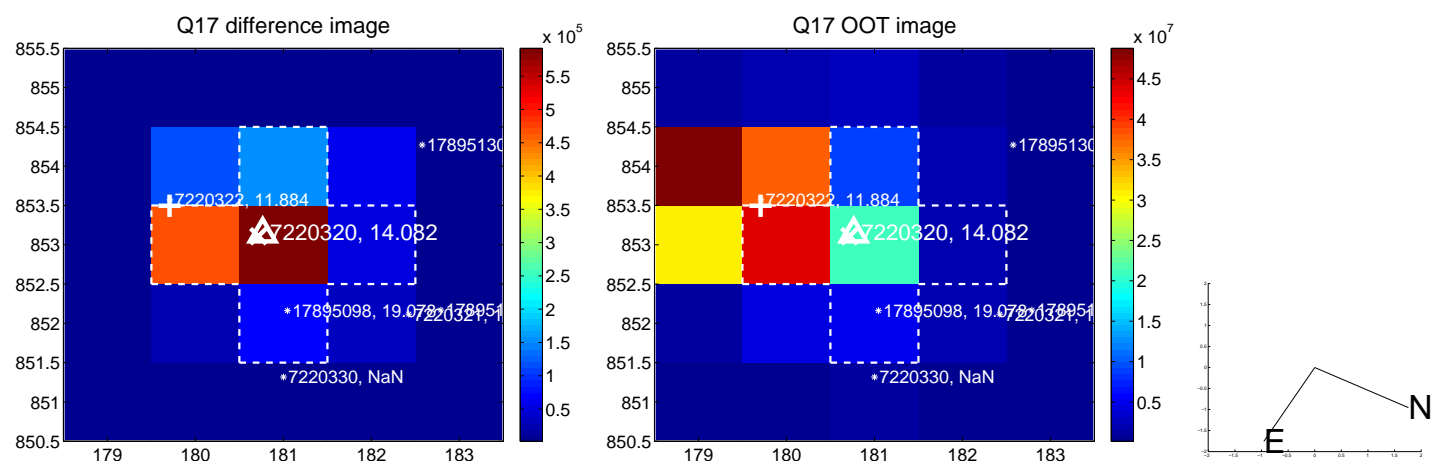
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UKIRT Image

Declination

