

KIC 005769403

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 005769403-02 | OBS | No | 584.574266 | 197.294772 | 6966.7 | 18.108 | 14.4 | 12.6 | 0.70 | 4881 | 7.33 | 0.16 |
| 005769403-04 | OBS | No | 367.960737 | 191.142933 | 11302.1 | 3.500 | 15.4 | -1.0 | 0.70 | 4881 | 7.18 | 0.30 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 005769403-02 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 005769403-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS |

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

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

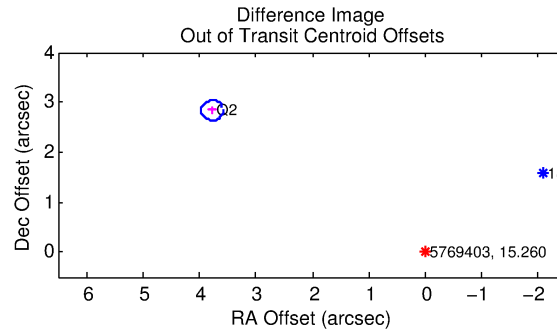
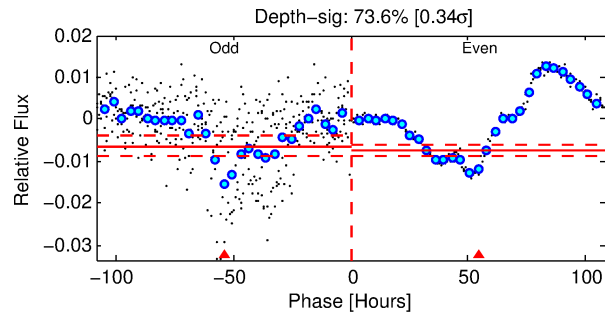
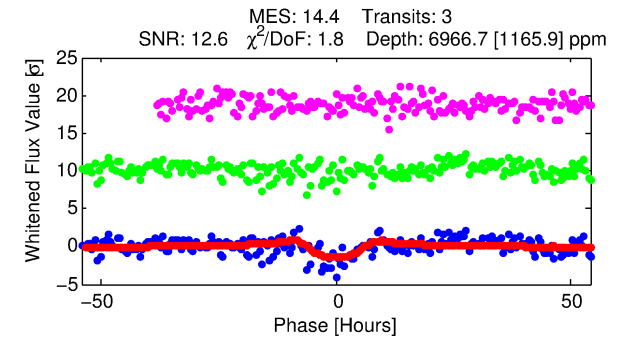
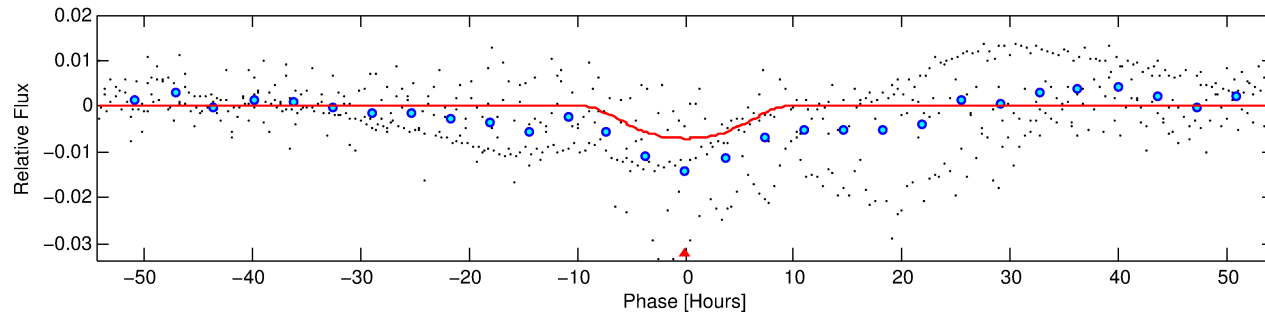
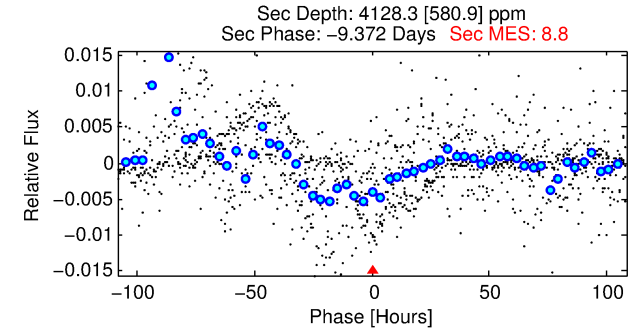
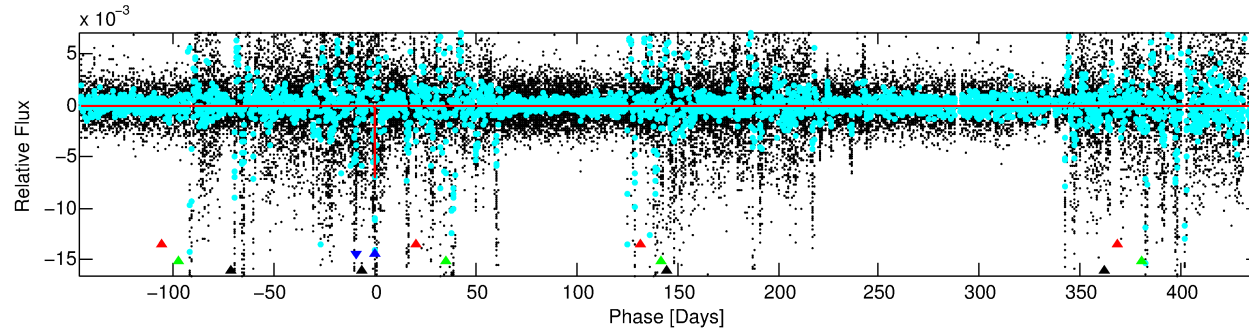
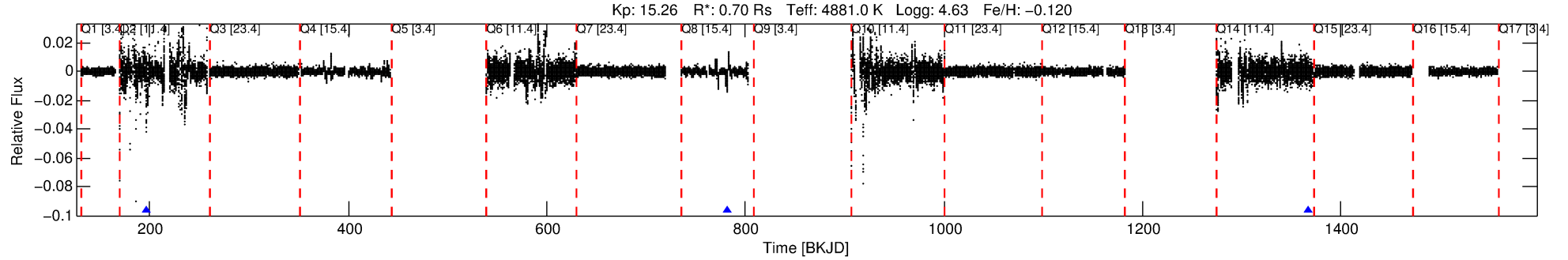
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005769403-02

No Significant Match Found

DV One-Page Summary

KIC: 5769403 Candidate: 2 of 4 Period: 584.574 d



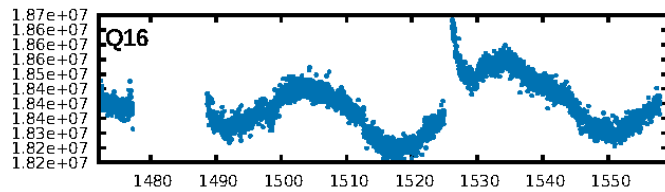
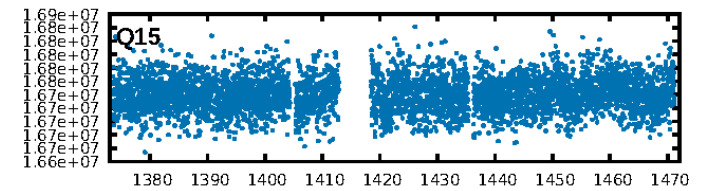
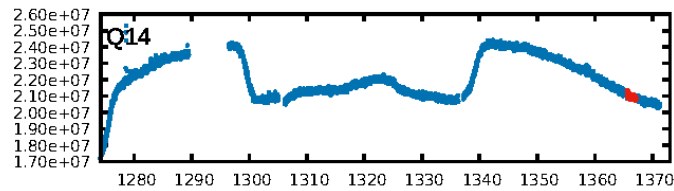
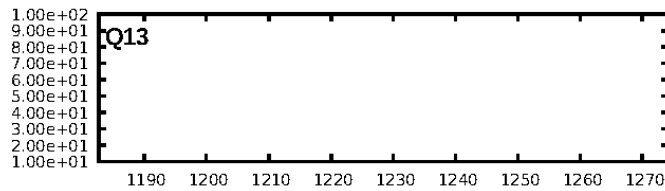
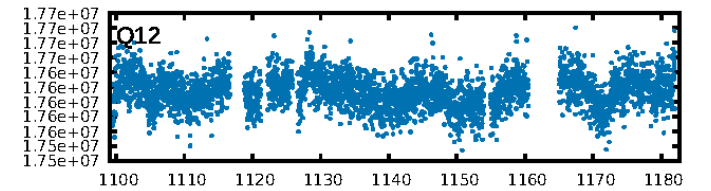
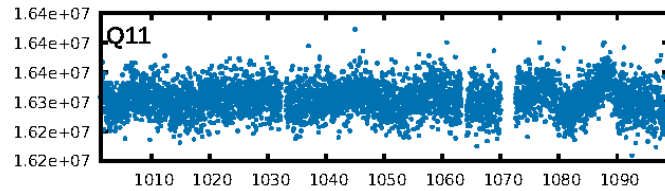
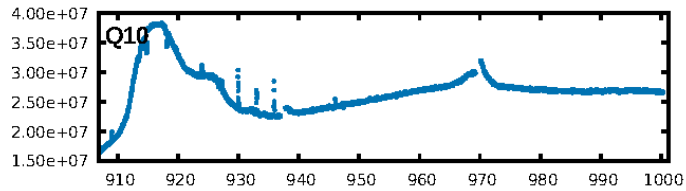
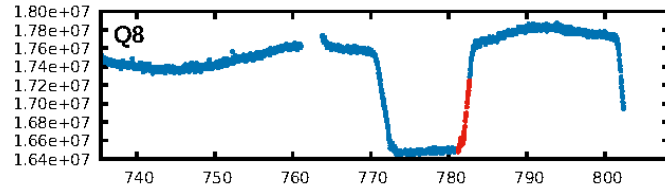
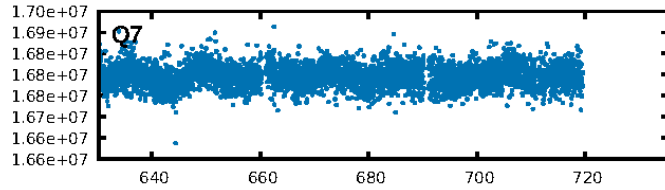
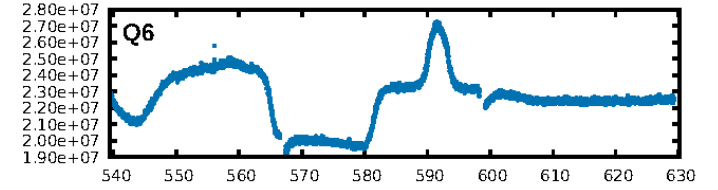
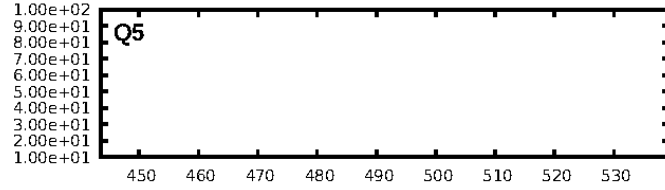
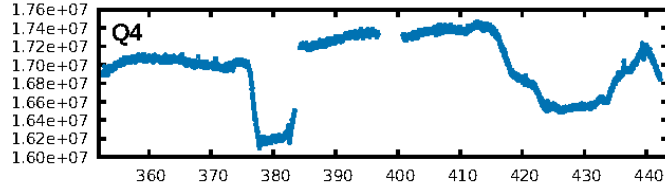
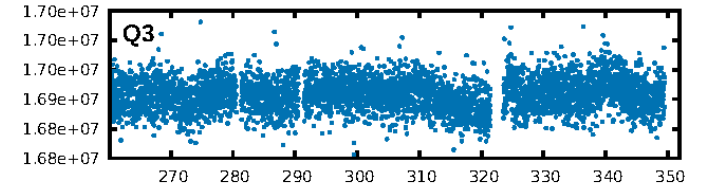
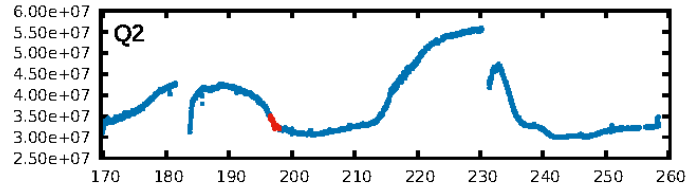
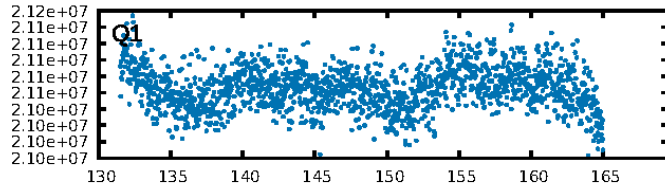
DV Fit Results:

Period = 584.57427 [0.04128] d
Epoch = 197.2948 [0.0463] BKJD
Rp/R* = 0.0962 [0.0191]
a/R* = 150.88 [23.61]
b = 0.91 [0.06]
Seff = 0.16 [0.03]
Teq = 161 [7] K
Rp = 7.33 [1.66] Re
a = 1.2450 [0.1055] AU
Ag = 65544.95 [28667.60] [2.29 σ]
Teffp = 3989 [437] K [8.75 σ]

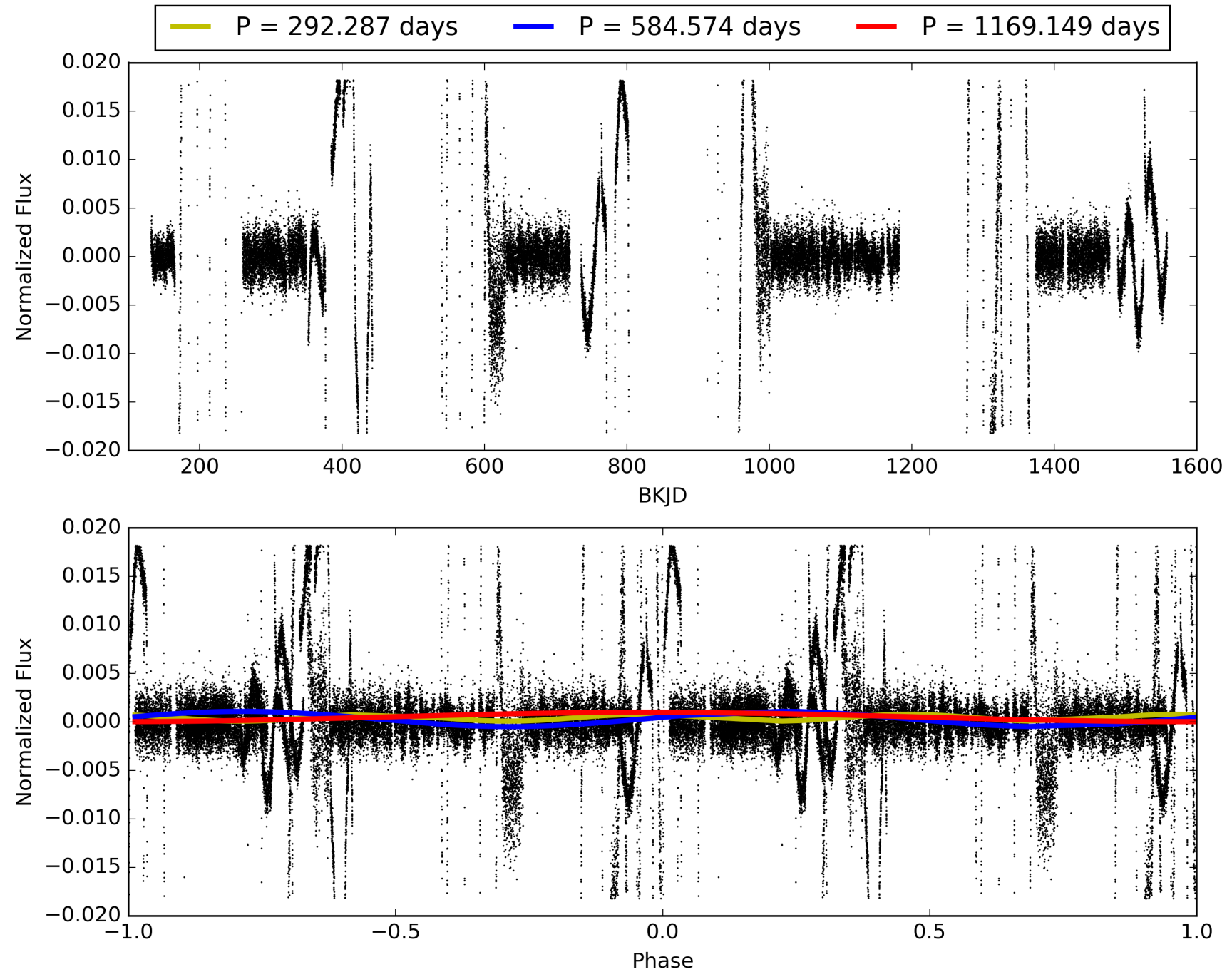
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [281.88 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 4.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.1427
Centroid-sig: N/A
Centroid-so: 14.659 arcsec [1.09 σ]
OotOffset-rm: 4.726 arcsec [70.86 σ]
KicOffset-rm: 4.875 arcsec [73.09 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 005769403-02, PDC Light Curves

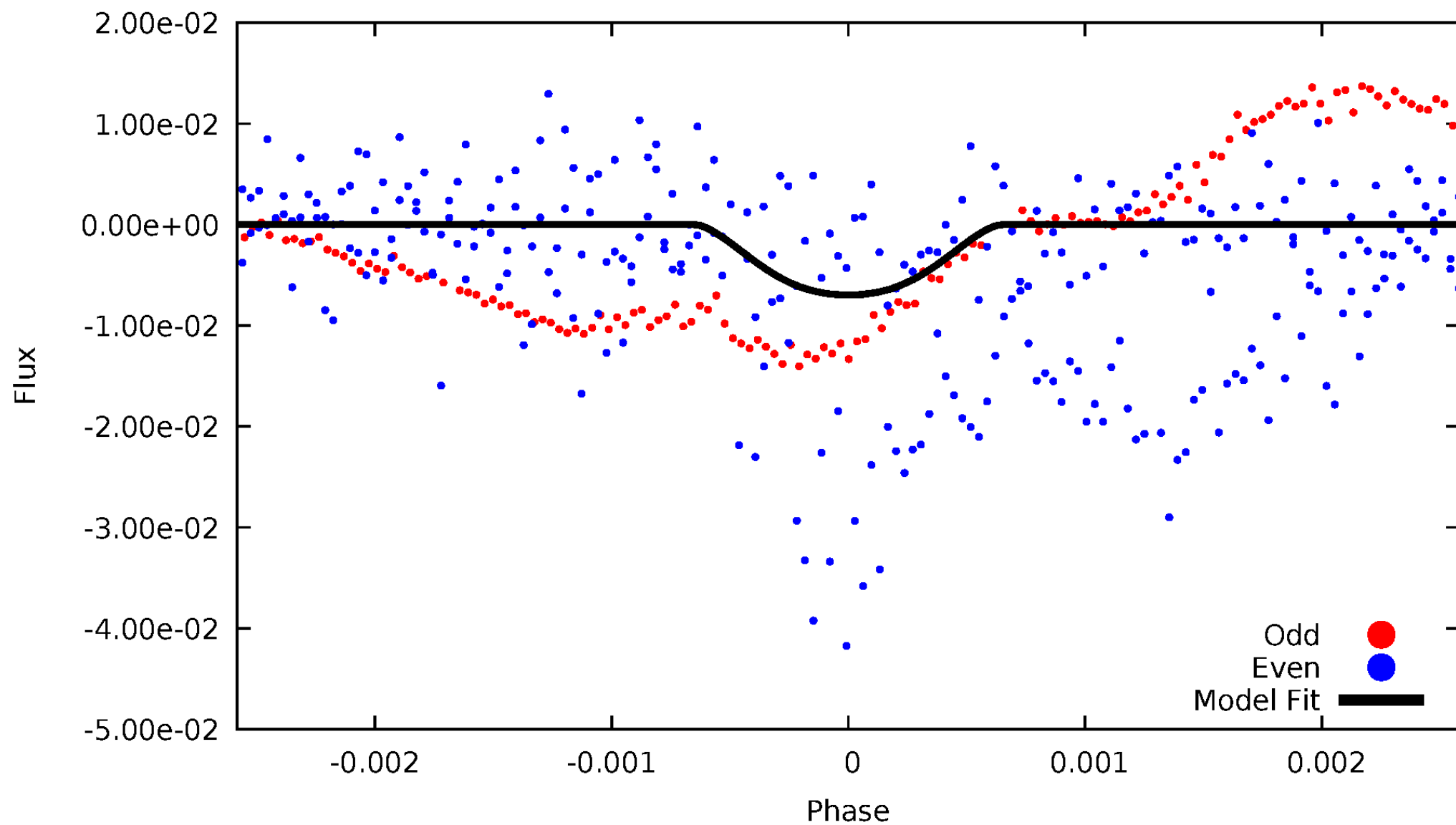


TCE 005769403-02



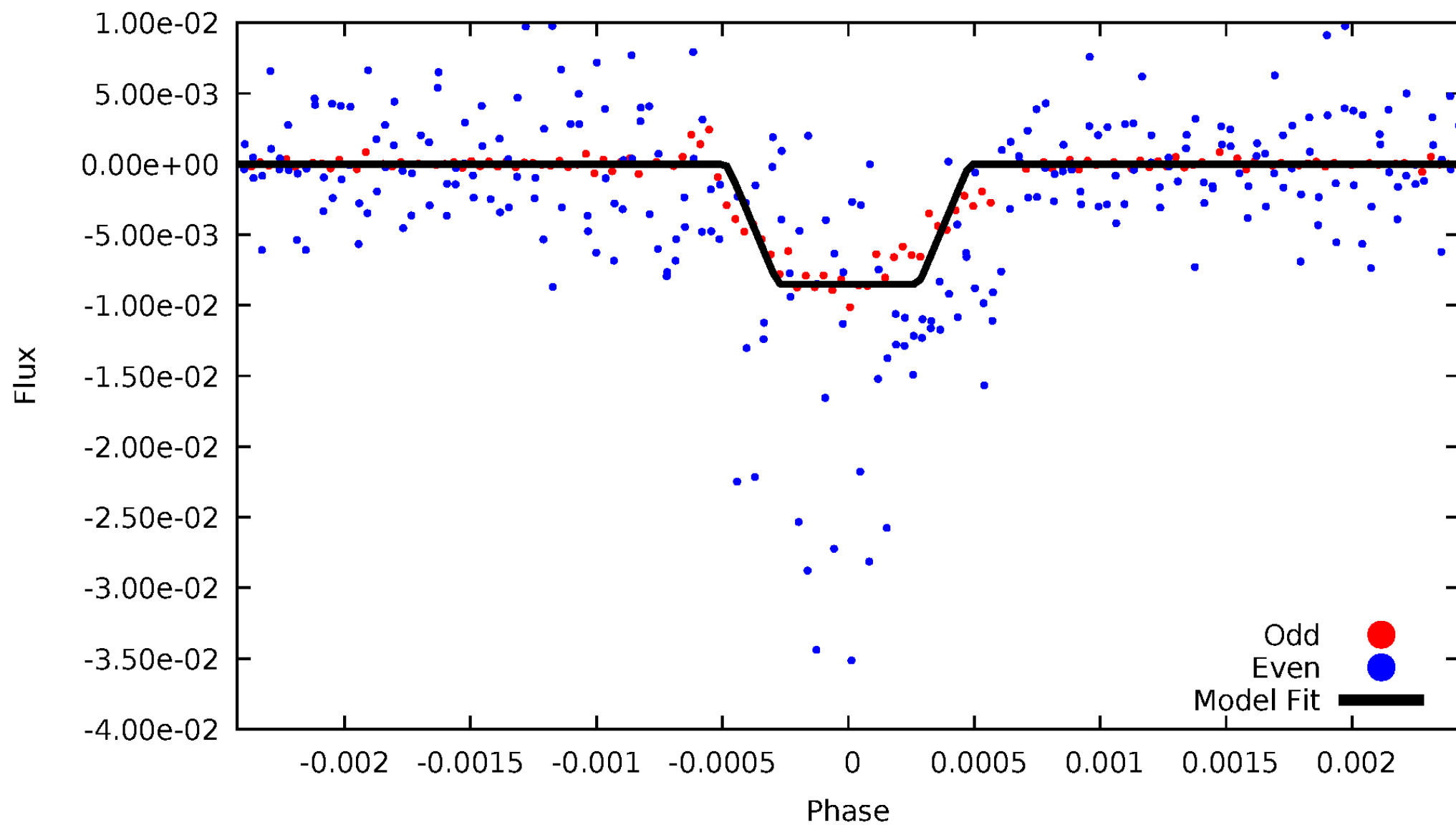
DV Odd/Even

TCE 005769403-02



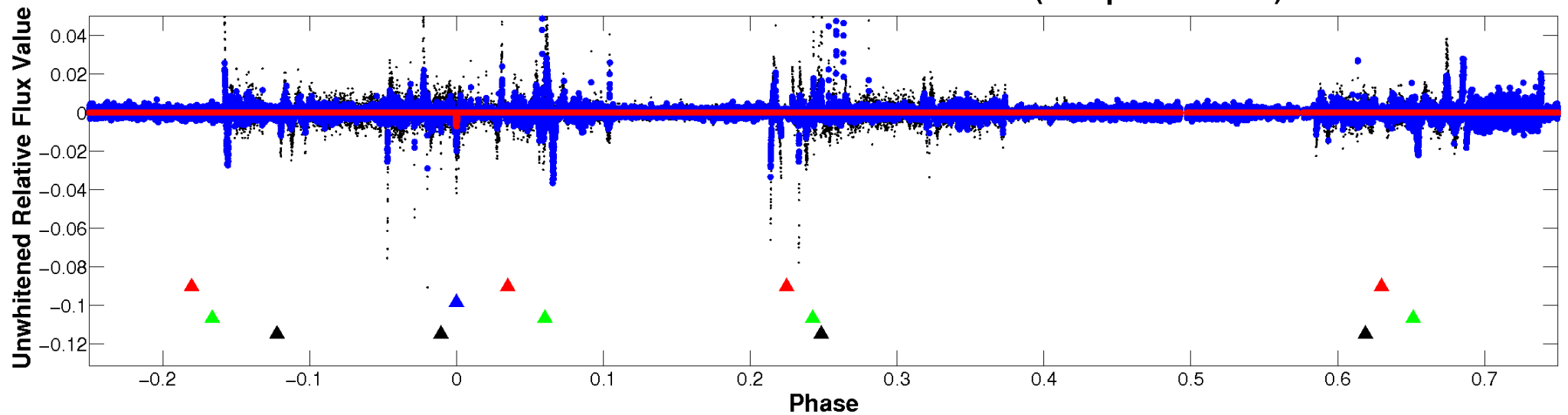
ALT Odd/Even

TCE 005769403-02

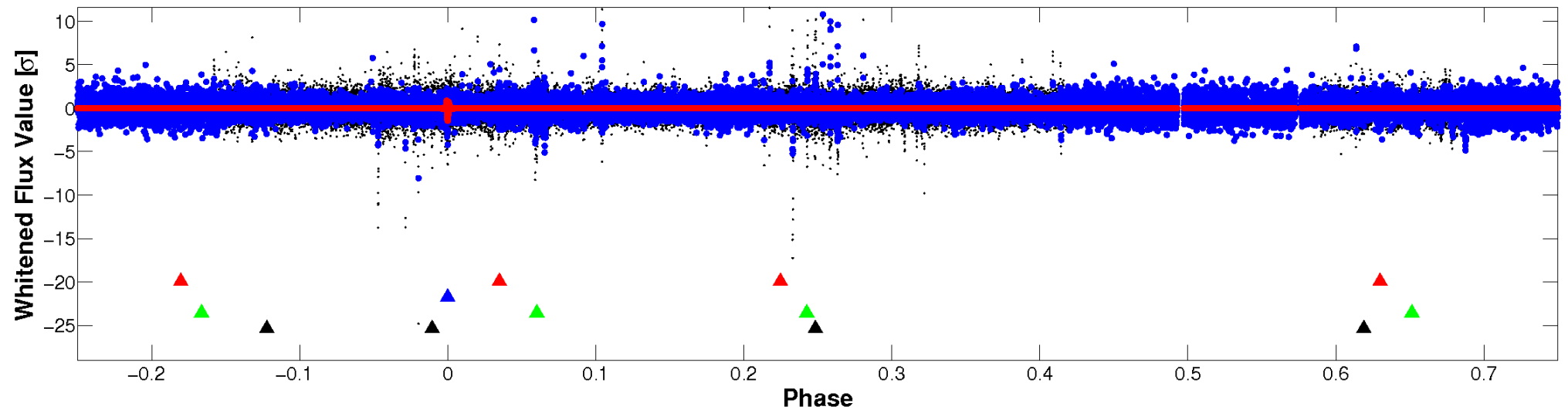


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

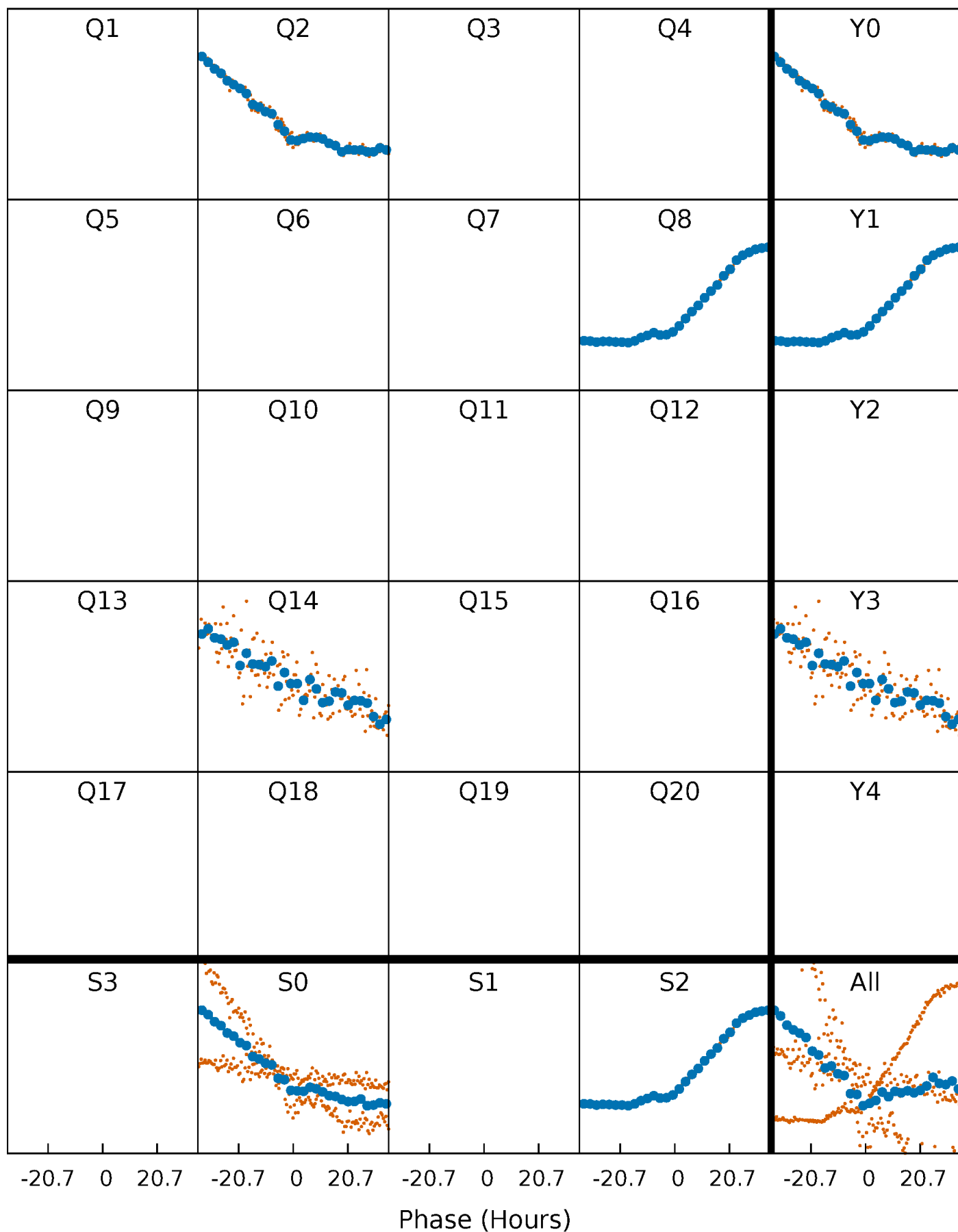


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



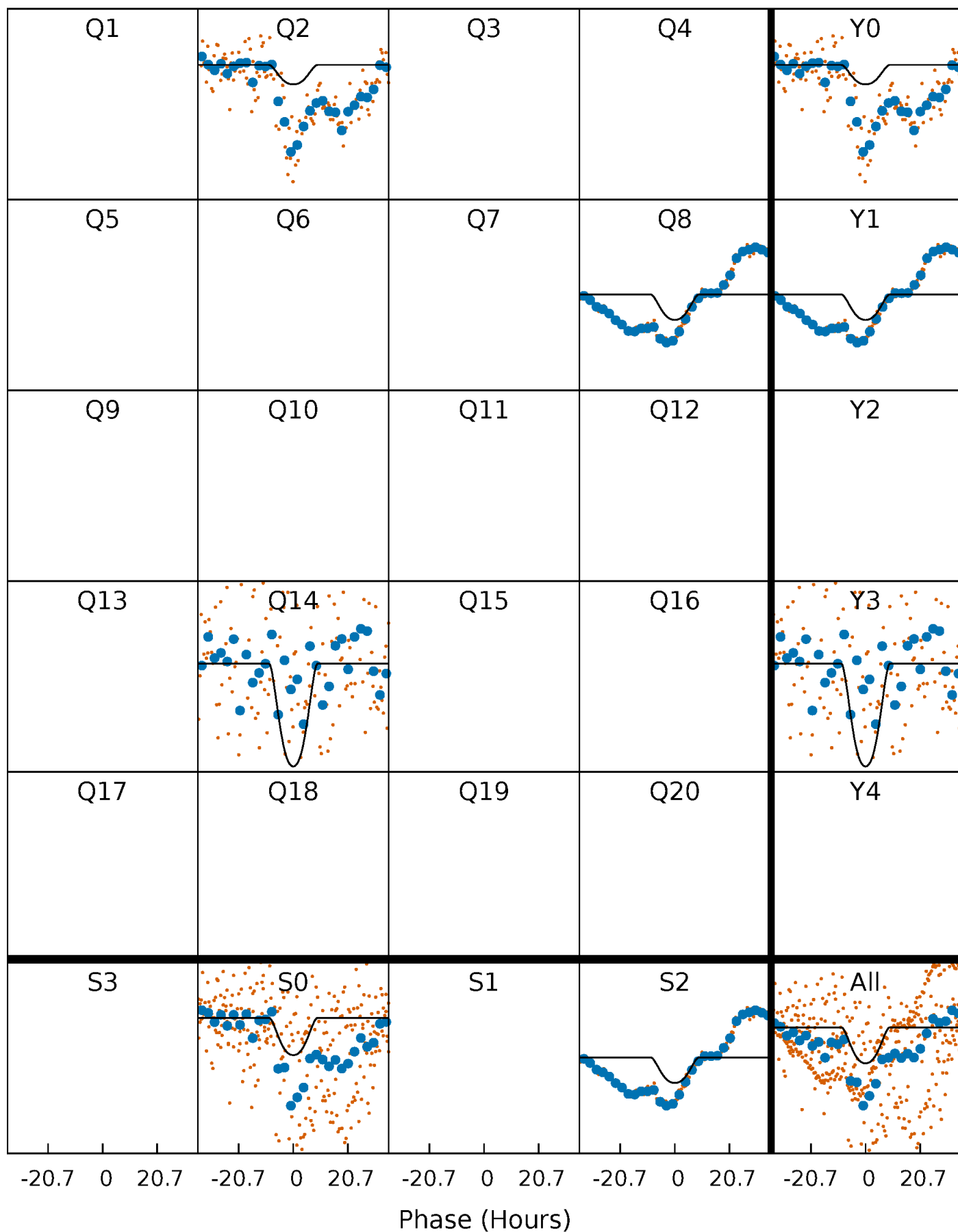
PDC Quarter-Phased Transit Curves

TCE 005769403-02 P=584.574266 Days $T_0=197.294772$ (BKJD)



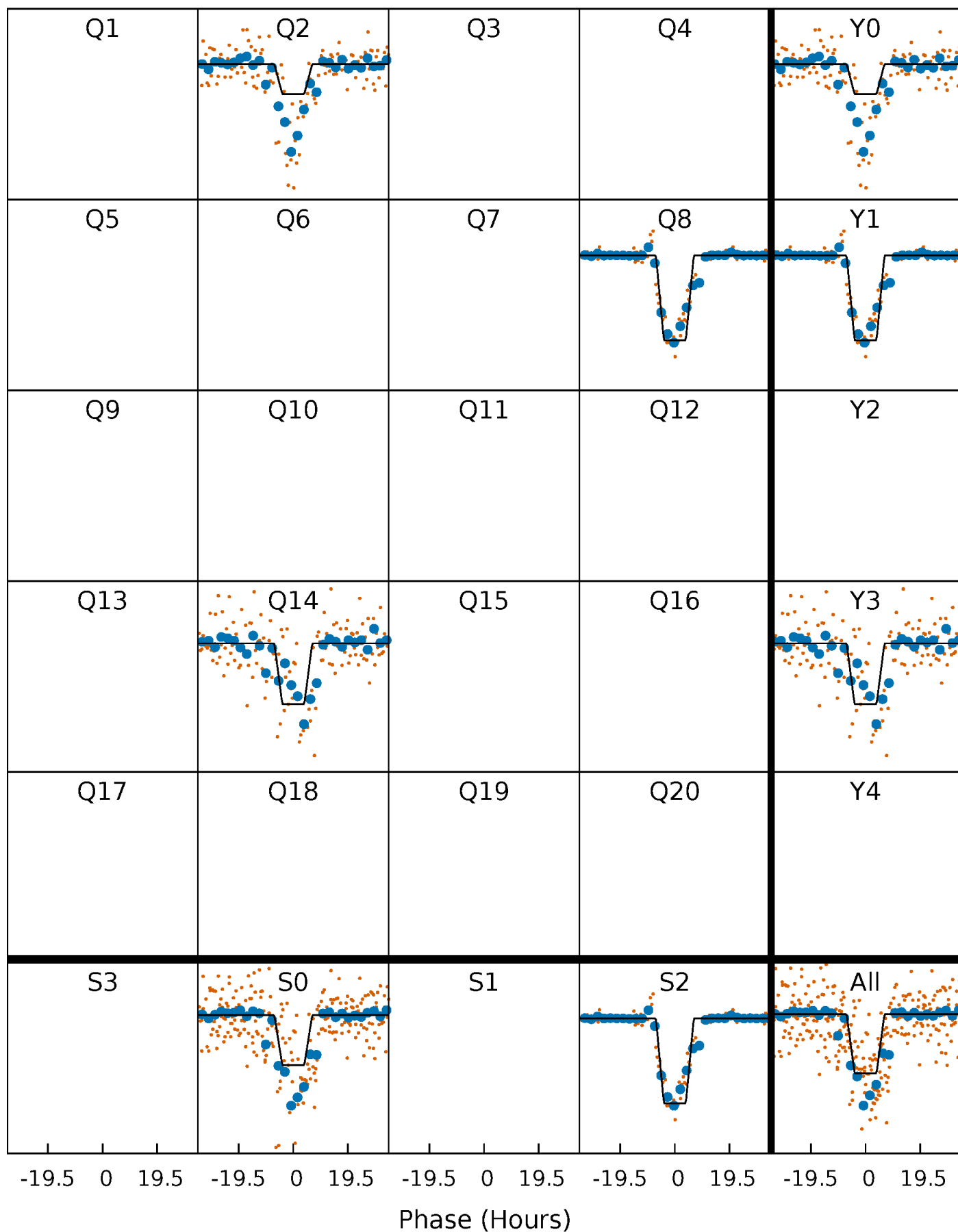
DV Quarter-Phased Transit Curves

TCE 005769403-02 P=584.574266 Days $T_0=197.294772$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

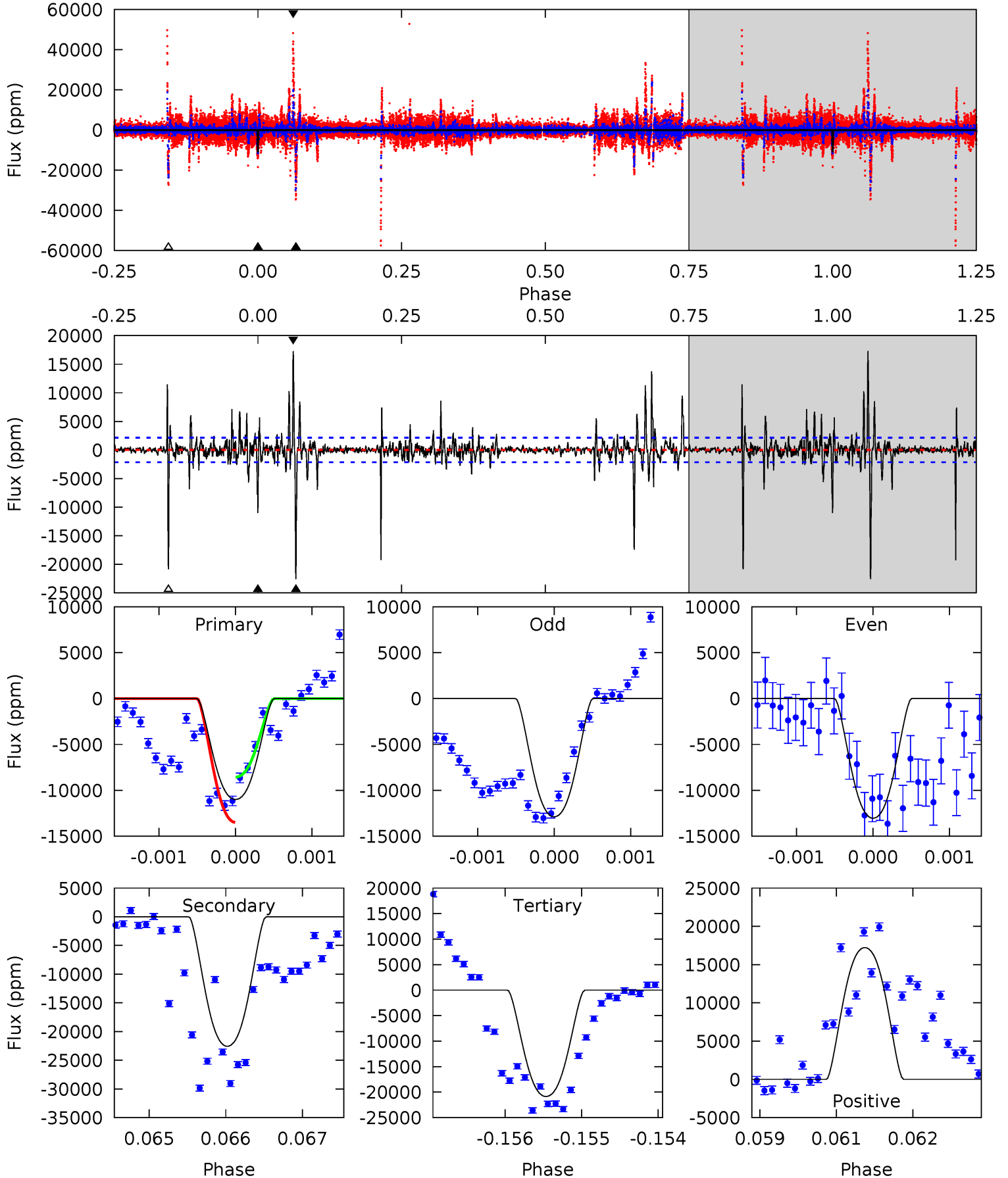
TCE 005769403-02 P=584.583718 Days $T_0=197.282650$ (BKJD)



DV Model-Shift Uniqueness Test

005769403-02, P = 584.574266 Days, E = 197.294772 Days

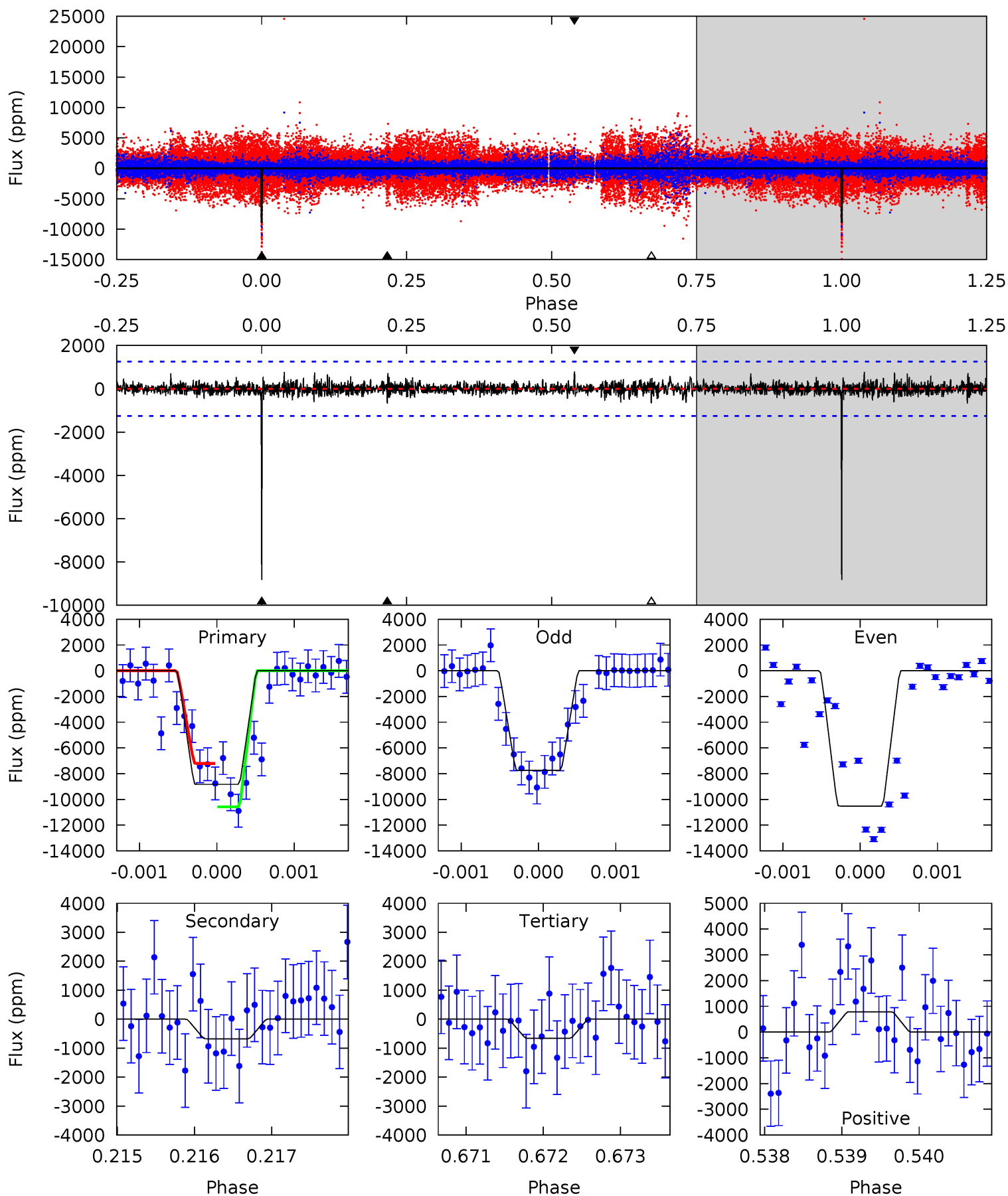
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|-----|
| 27.9 | 57.2 | 52.8 | 43.6 | 5.41 | 3.22 | 4.90 | -25.0 | -15.8 | 4.34 | 13.5 | 0.16 | 1.14 | 0.43 | 0 |



Alt Model-Shift Uniqueness Test

005769403-02, P = 584.583718 Days, E = 197.282650 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 38.4 | 2.94 | 2.87 | 3.43 | 5.46 | 3.31 | 0.70 | 35.5 | 35.0 | 0.07 | -0.49 | 5.53 | 1.46 | 0.08 | 7.05 |



Stellar Parameters For KIC 005769403

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4881^{+146}_{-146} | $4.627^{+0.027}_{-0.059}$ | $-0.120^{+0.300}_{-0.300}$ | $0.698^{+0.075}_{-0.048}$ | $0.771^{+0.054}_{-0.081}$ | $3.189^{+0.469}_{-0.717}$ |
| | +3%/-3% | +1%/-1% | +250%/-250% | +11%/-7% | +7%/-11% | +15%/-22% |
| 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 005769403-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|------------------|------------------------|----------------------|----------------------|------------------------------|
| DV | -22573 ± 395 | $7.51^{+1.63}_{-1.49}$ | 228^{+8}_{-8} | 6016^{+749}_{-570} | $352624^{+194652}_{-112368}$ |
| Alt. | -676 ± 230 | $7.20^{+1.47}_{-1.49}$ | 227^{+8}_{-8} | 3127^{+288}_{-244} | 11064^{+7757}_{-4924} |

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 $A_{\text{obs}} \gg 1.0$

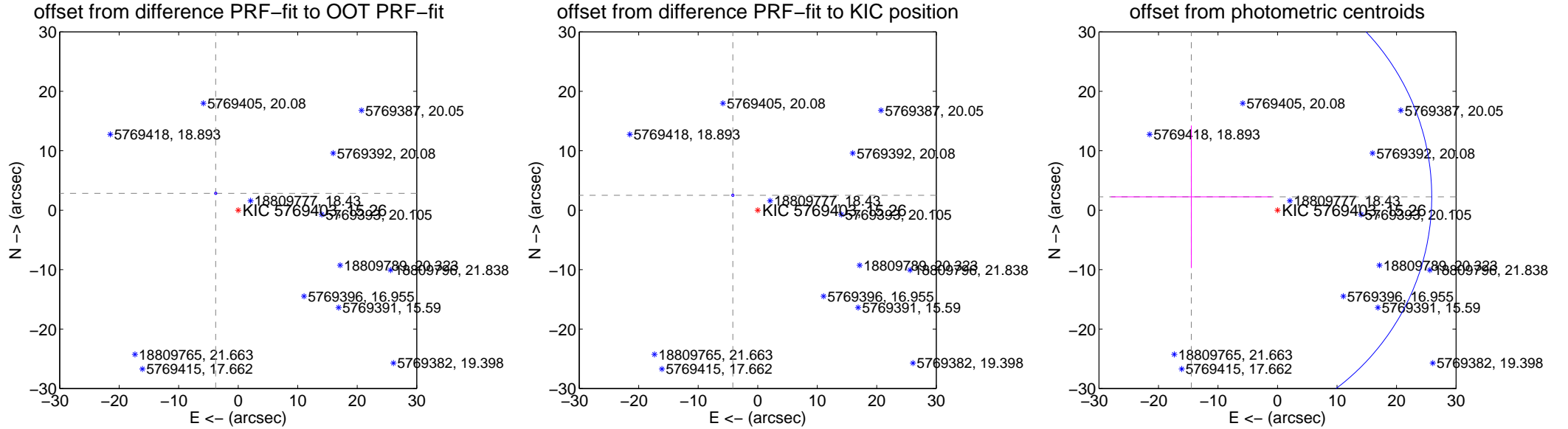
DV Centroid Data

Supplemental centroid analysis for 005769403-02. Kepler magnitude: 15.26. Transit SNR 12.58

There are 1 quarters with good PRF difference image offsets

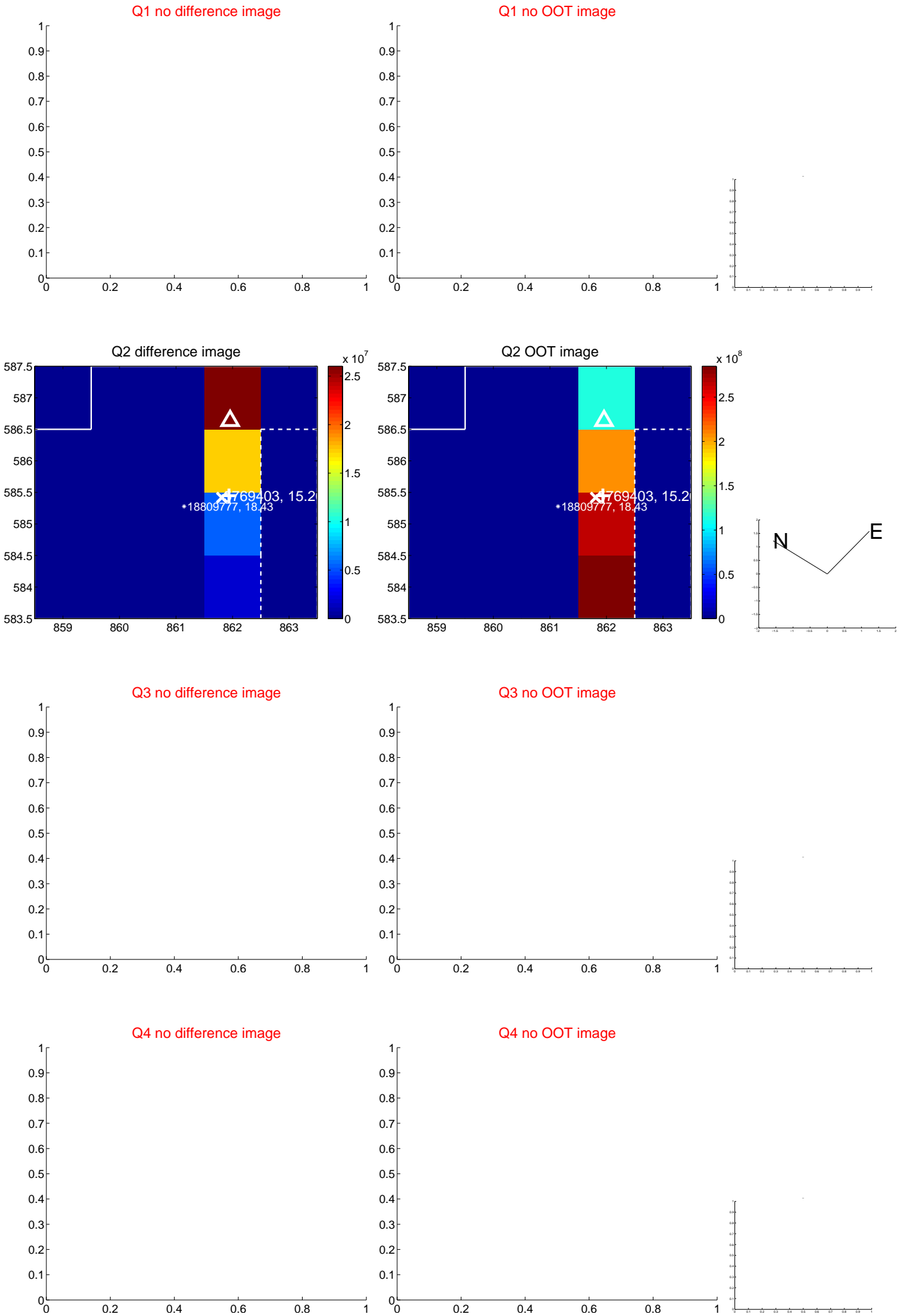
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 4.726 \pm 0.067 | 70.86 | 3.780 \pm 0.067 | 2.838 \pm 0.067 |
| PRF-fit source offset from KIC position | 4.875 \pm 0.067 | 73.09 | 4.178 \pm 0.067 | 2.512 \pm 0.067 |
| photometric centroid source offset | 14.66 \pm 13.47 | 1.09 | 14.48 \pm 13.50 | 2.25 \pm 11.99 |

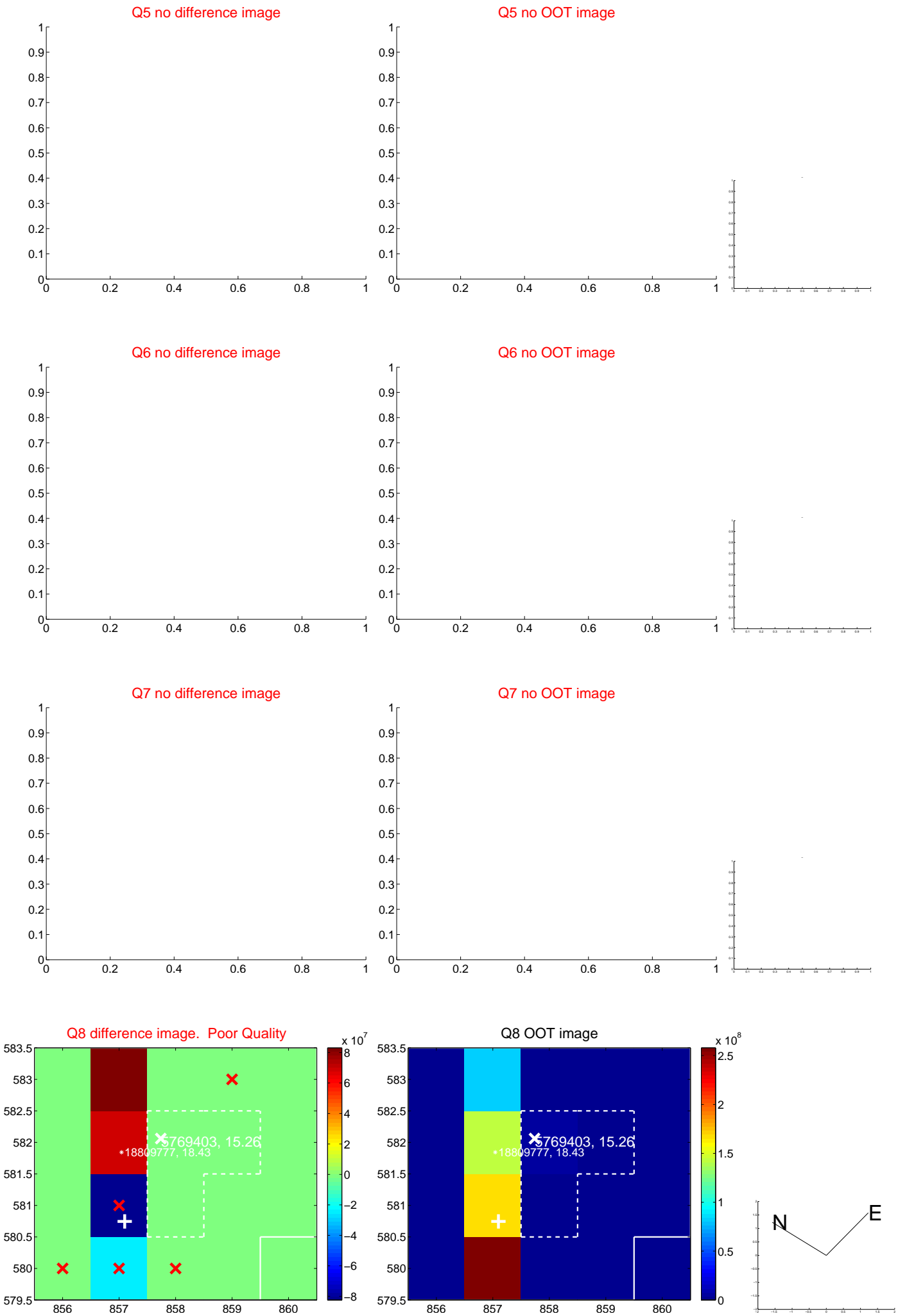


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



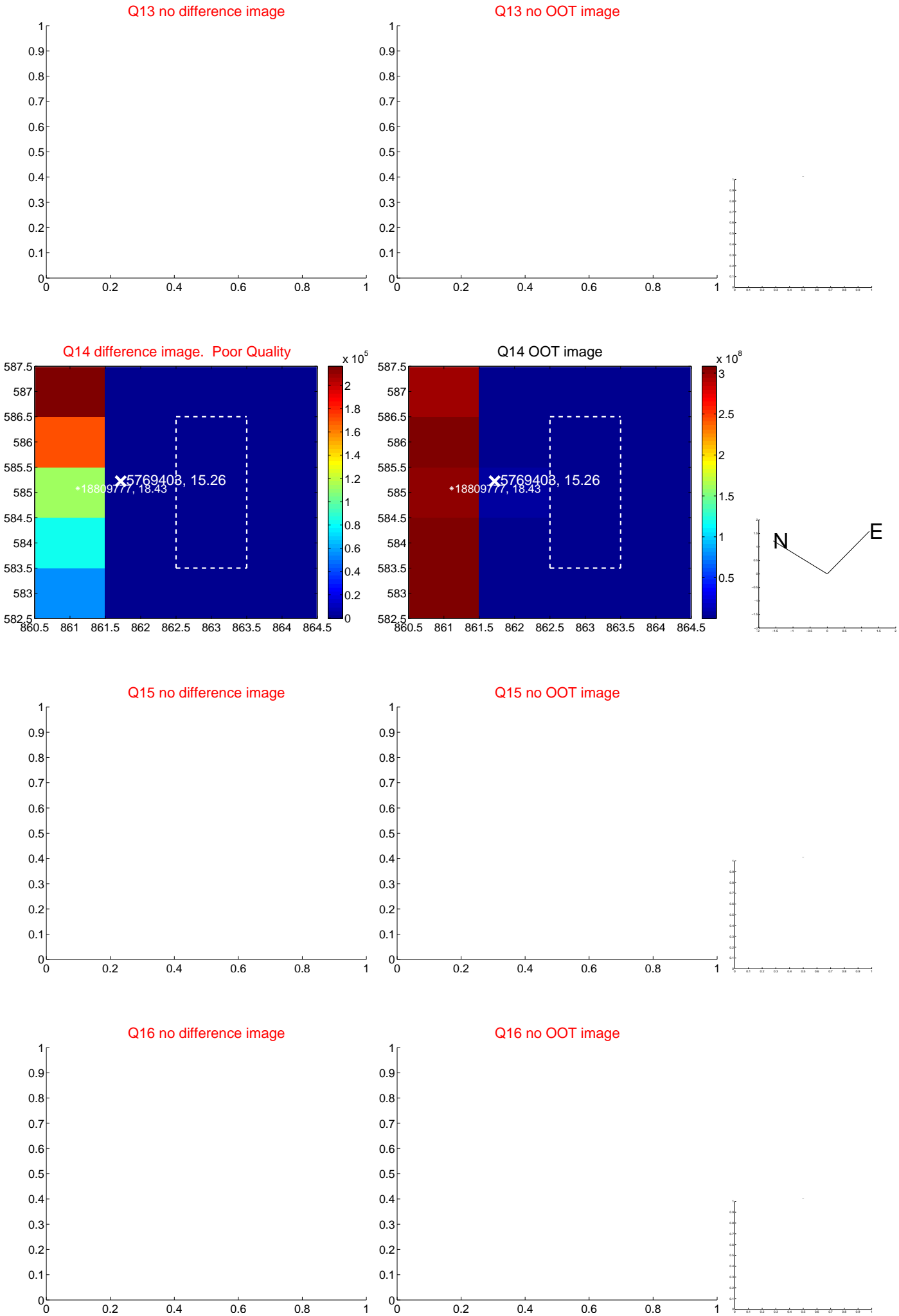
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



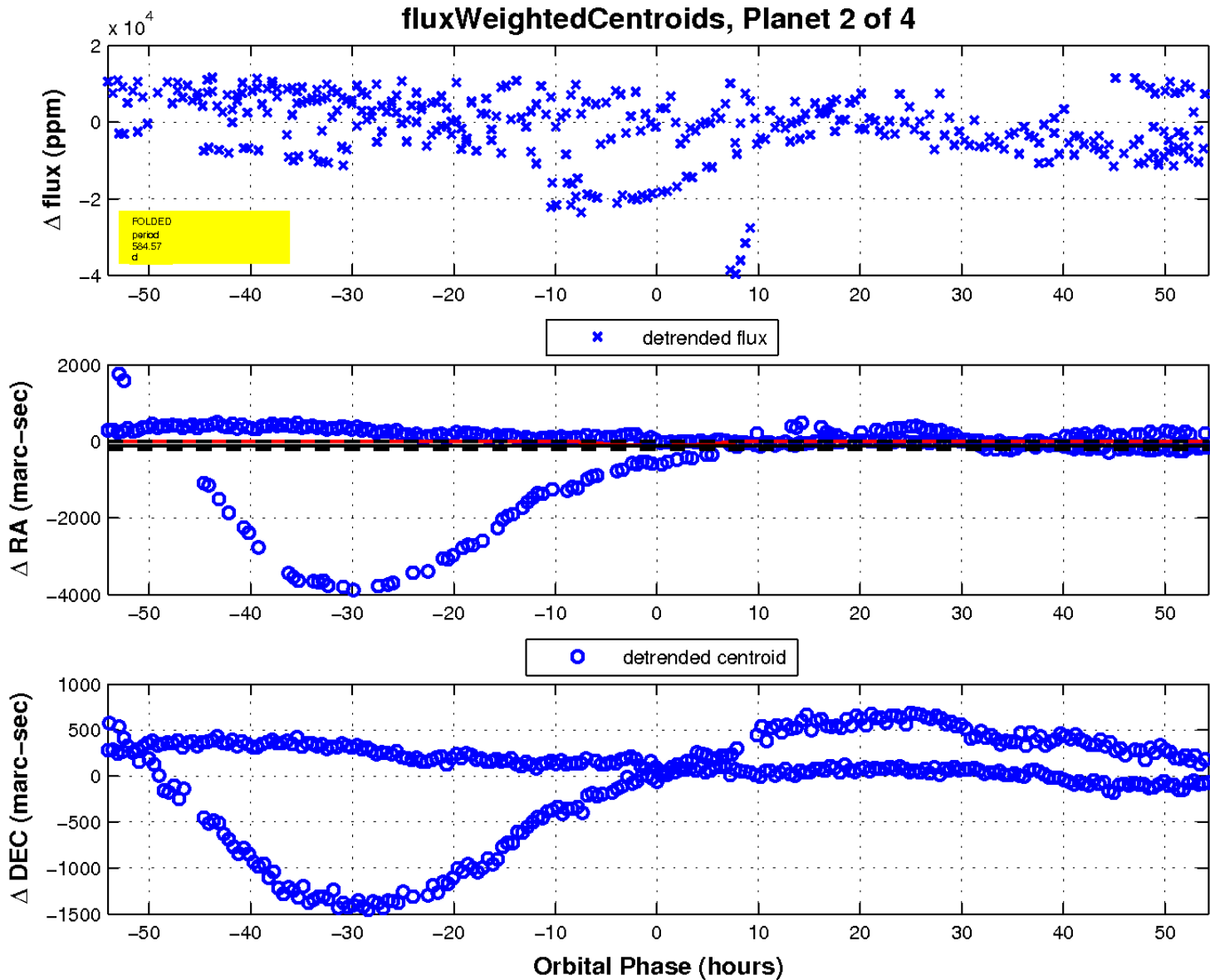
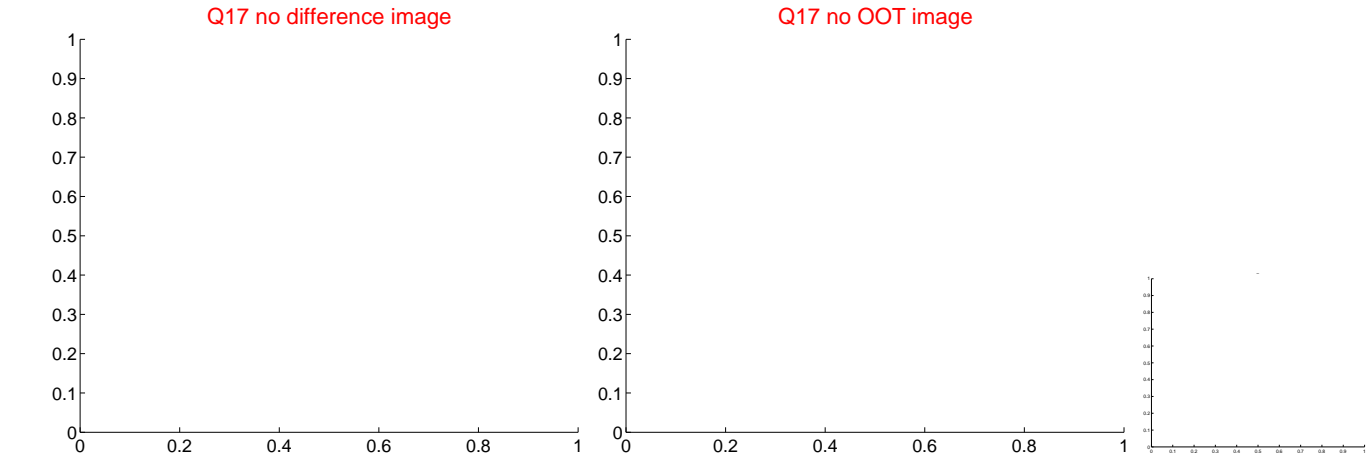
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

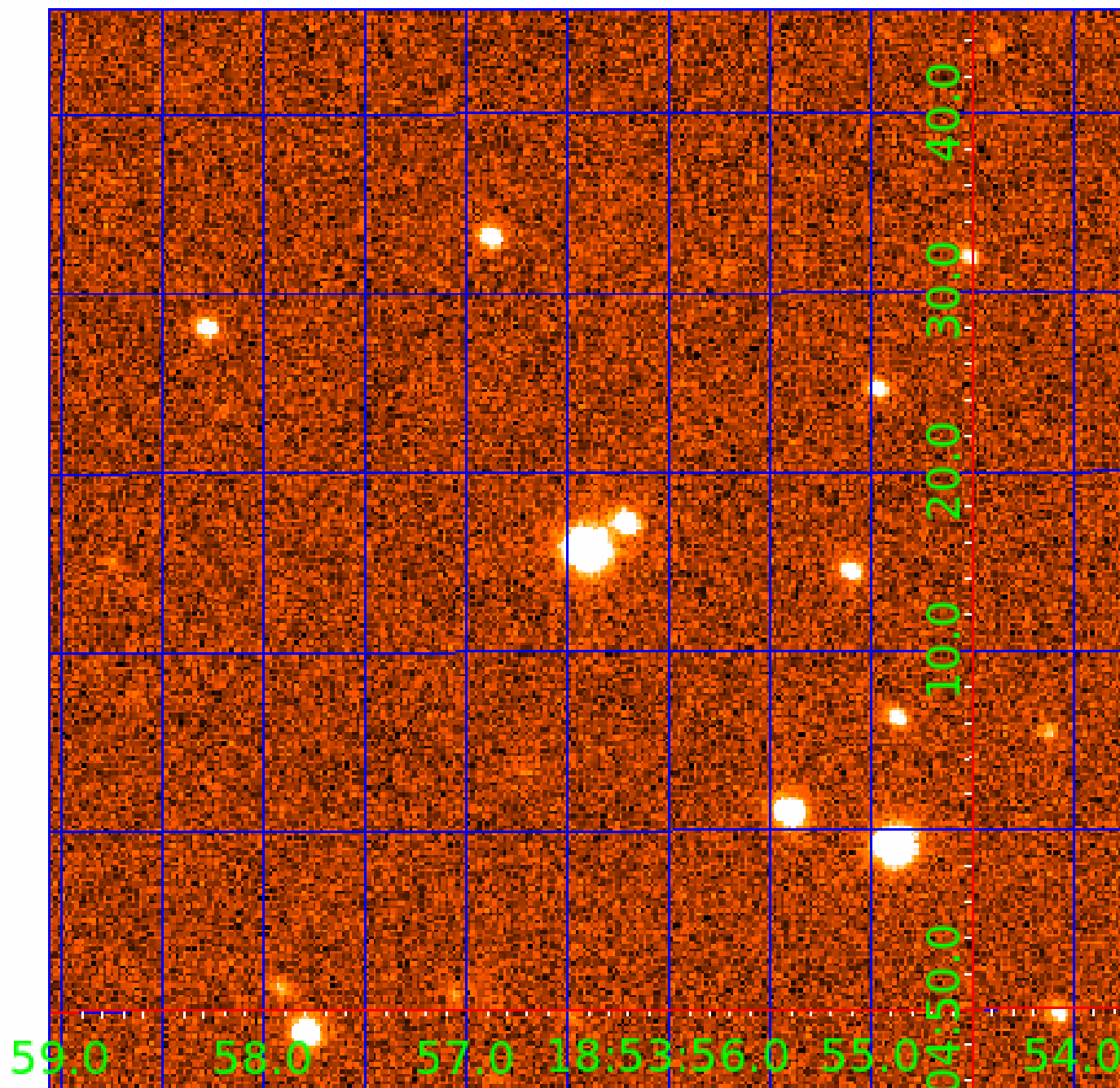


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005769403

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}) |
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| 005769403-04 | OBS | No | 367.960737 | 191.142933 | 11302.1 | 3.500 | 15.4 | -1.0 | 0.70 | 4881 | 7.18 | 0.30 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 005769403-02 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |
| 005769403-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS |

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

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

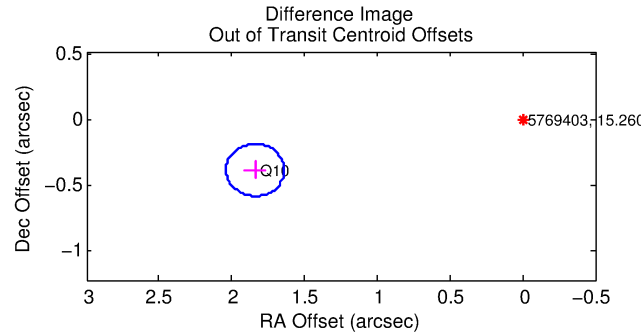
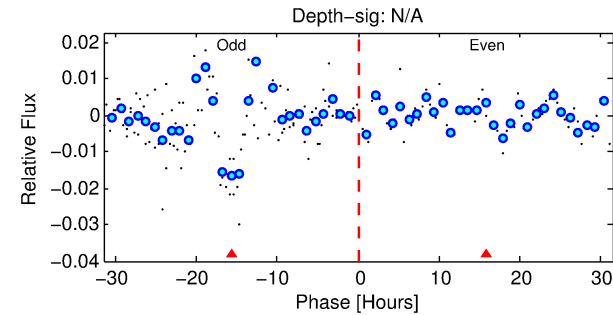
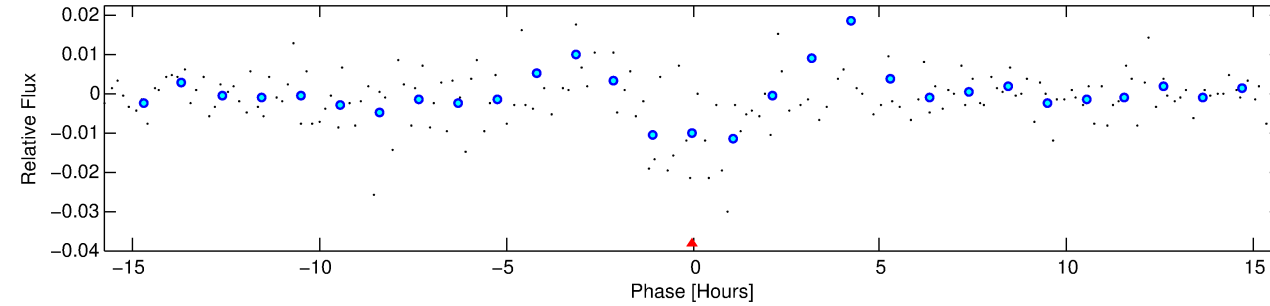
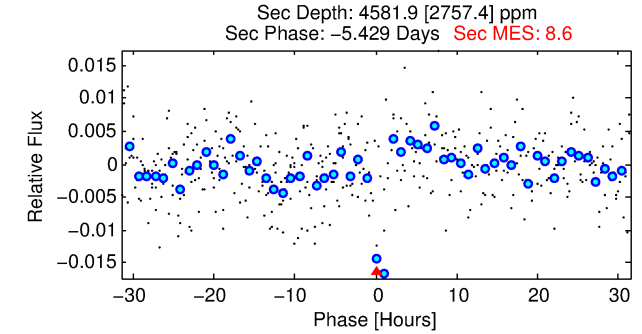
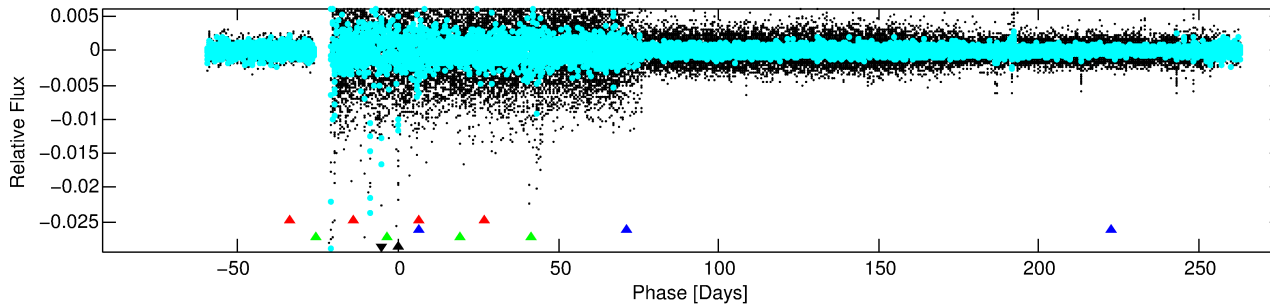
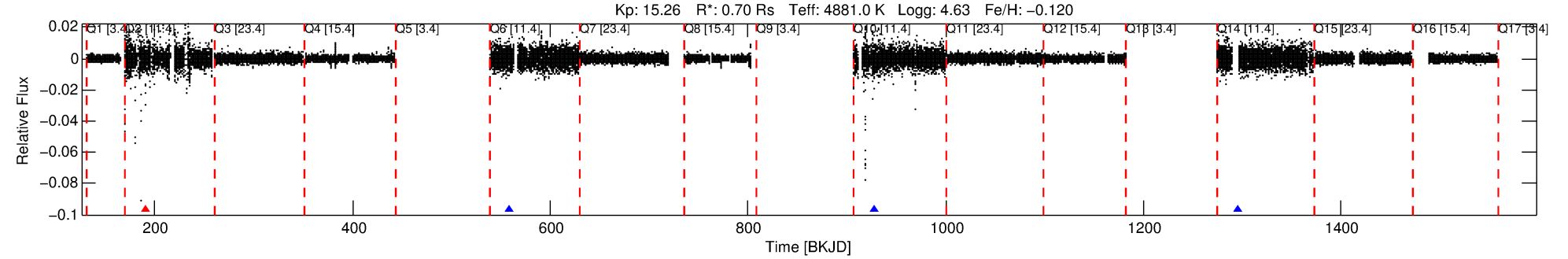
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005769403-04

No Significant Match Found

DV One-Page Summary

KIC: 5769403 Candidate: 4 of 4 Period: 367.961 d



TPS TCE Results:

Period = 367.96074 d
Epoch = 191.1429 BKJD

DV fit results are unavailable

DV Diagnostic Results:

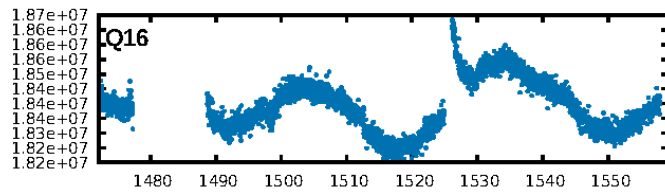
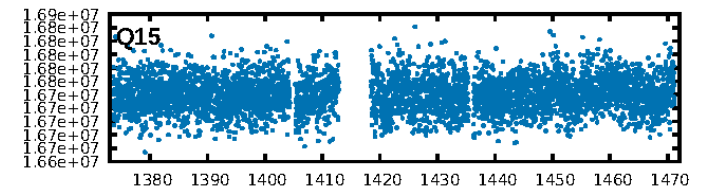
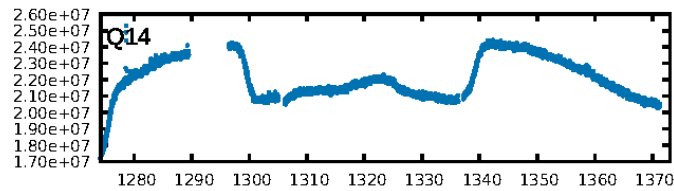
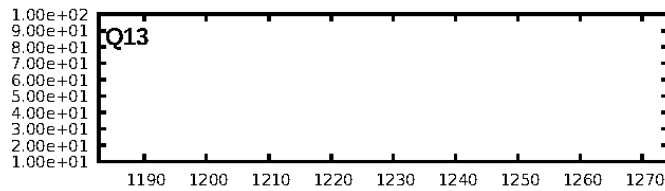
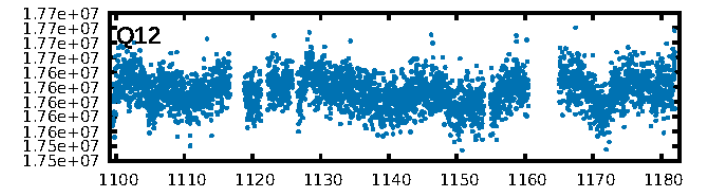
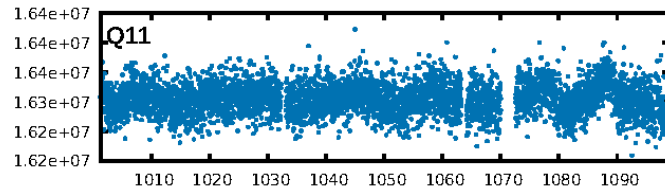
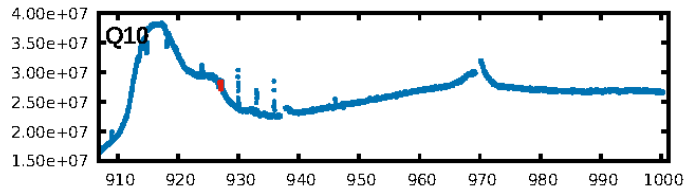
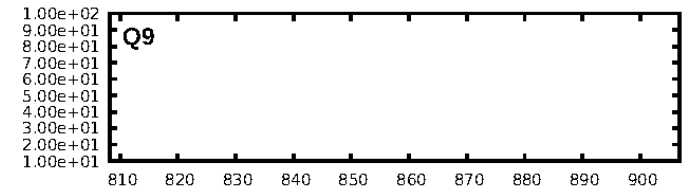
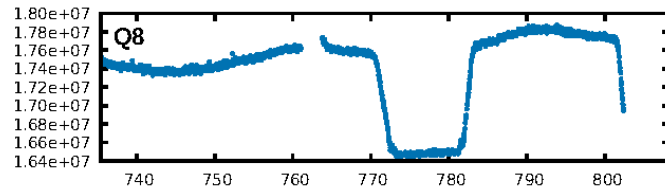
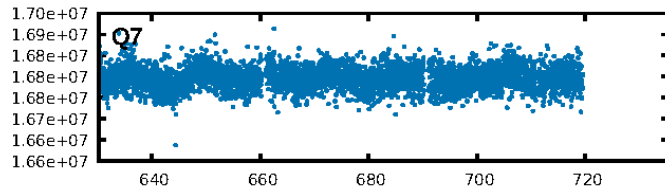
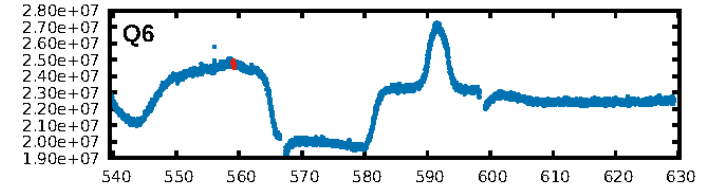
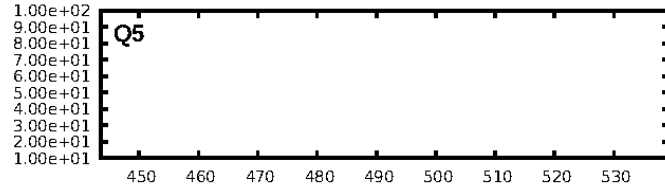
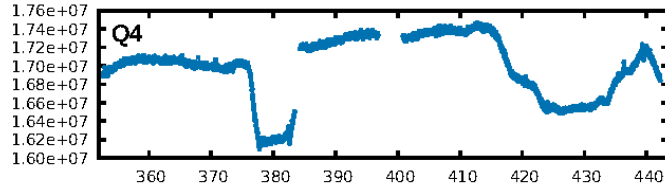
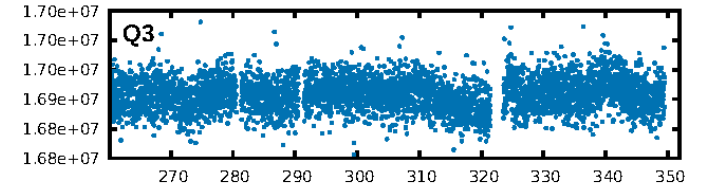
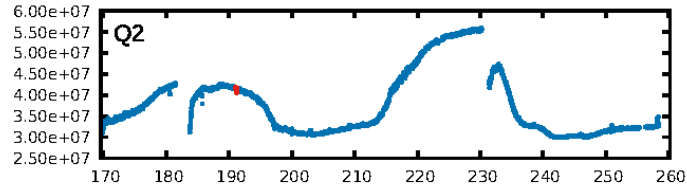
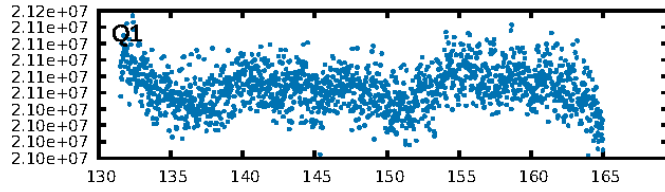
ShortPeriod-sig: 100.0% [13.94 σ]
LongPeriod-sig: 100.0% [281.88 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: -1.266

Centroid-sig: N/A
Centroid-so: 38.995 arcsec [14.31 σ]
OotOffset-rm: 1.880 arcsec [28.18 σ]
KicOffset-rm: 3.013 arcsec [45.15 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [3/3]

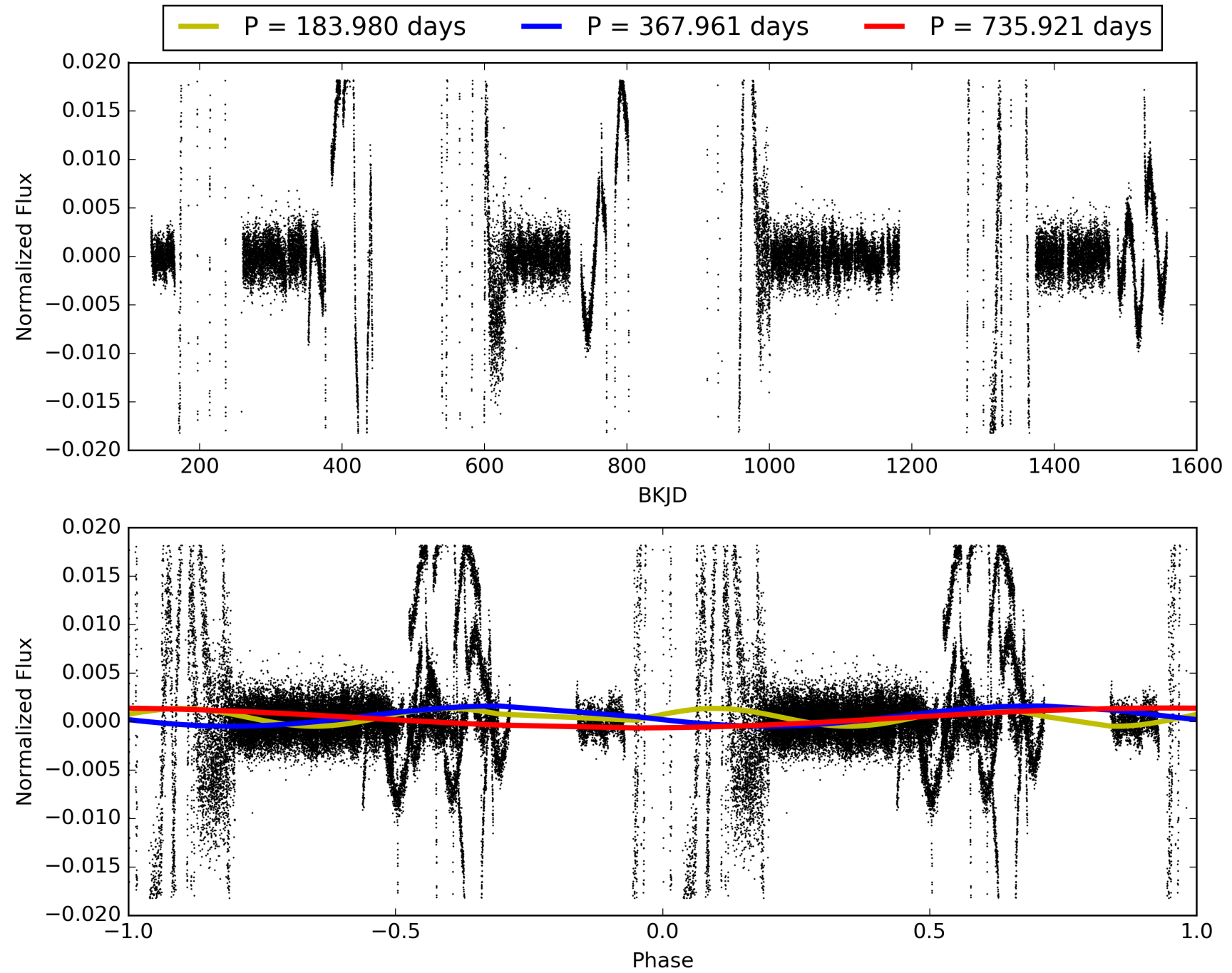
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:55:41 Z

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

TCE 005769403-04, PDC Light Curves

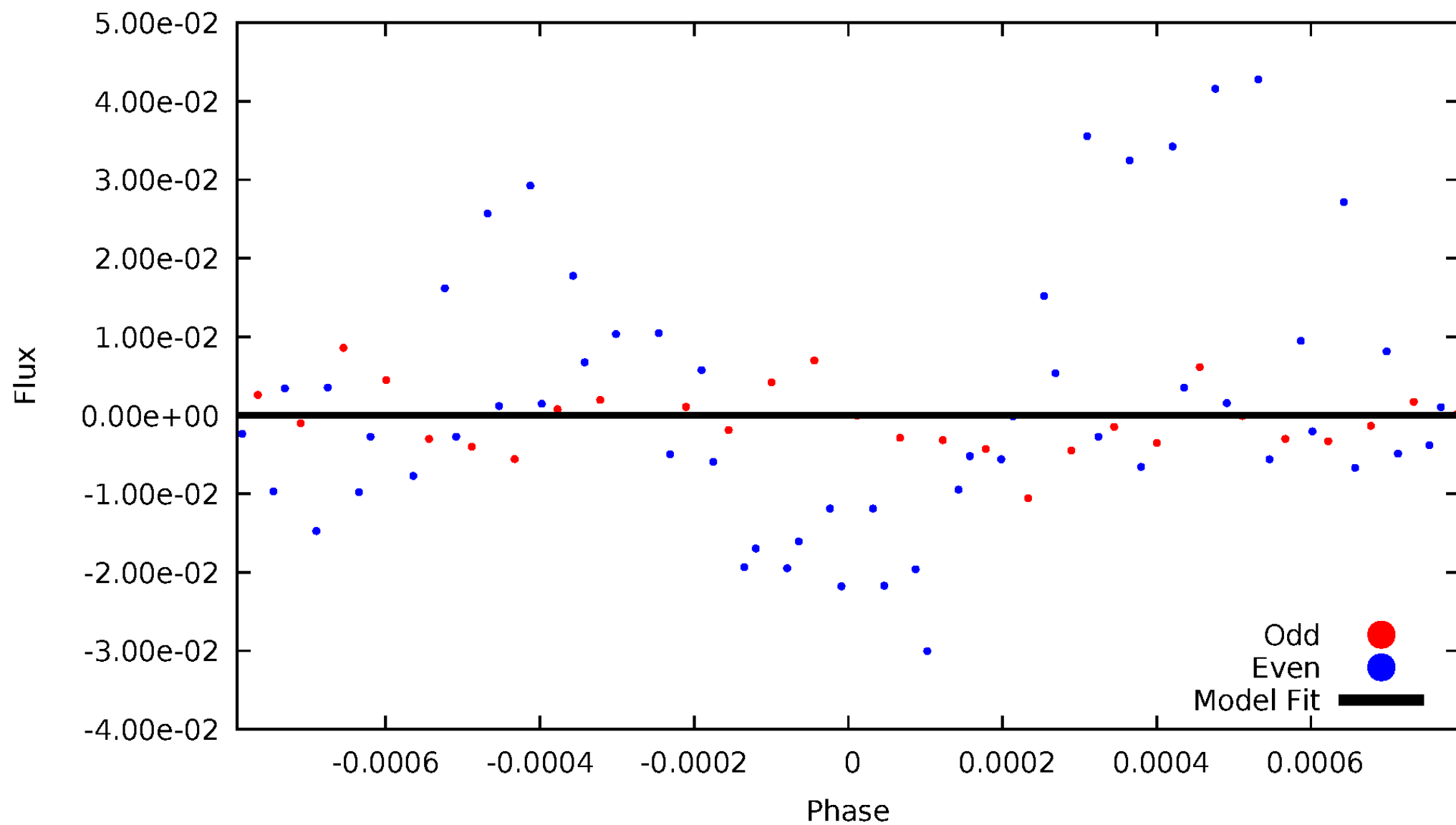


TCE 005769403-04



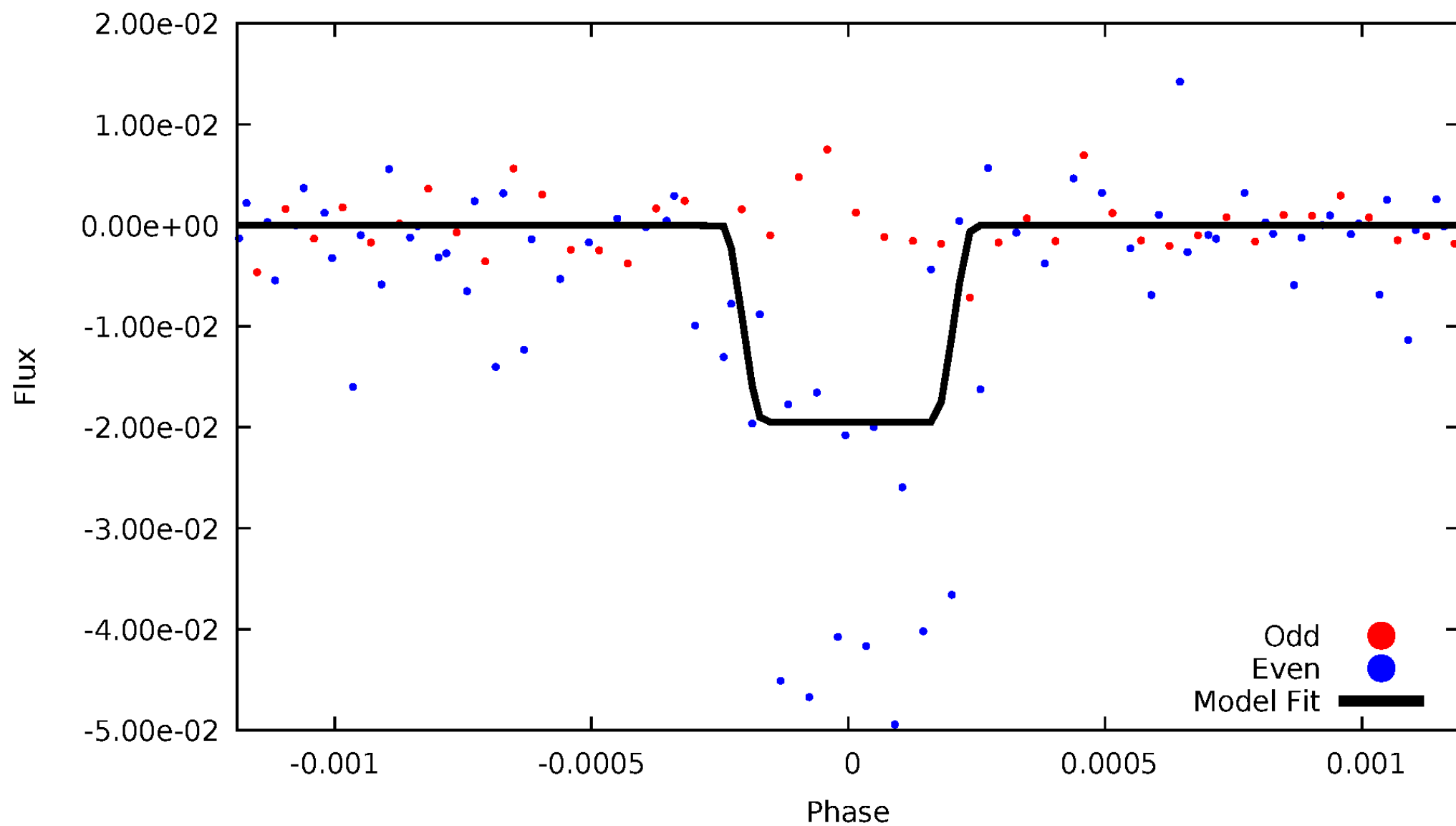
DV Odd/Even

TCE 005769403-04



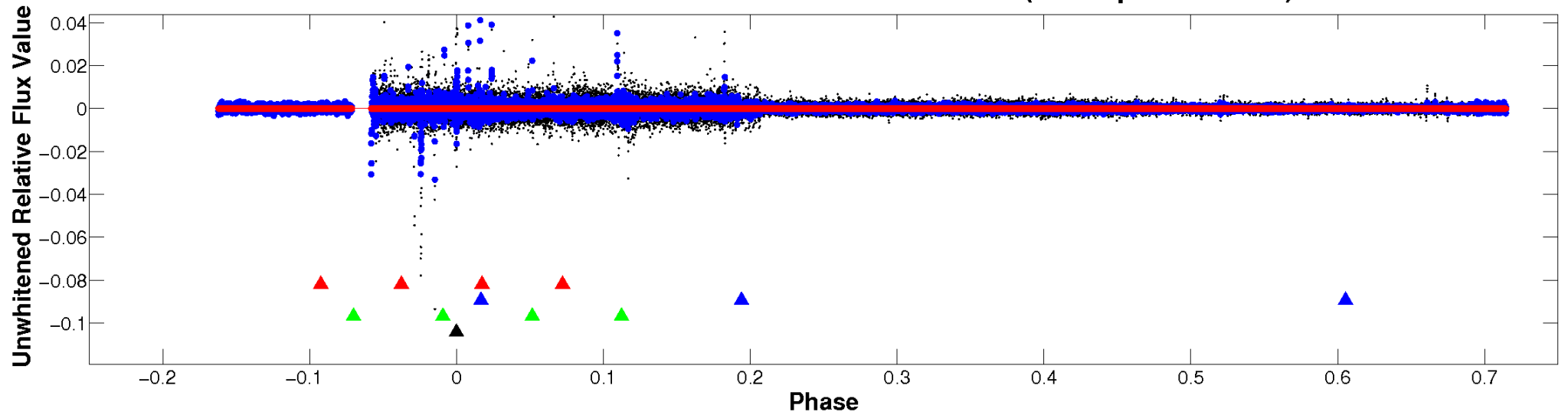
ALT Odd/Even

TCE 005769403-04



Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

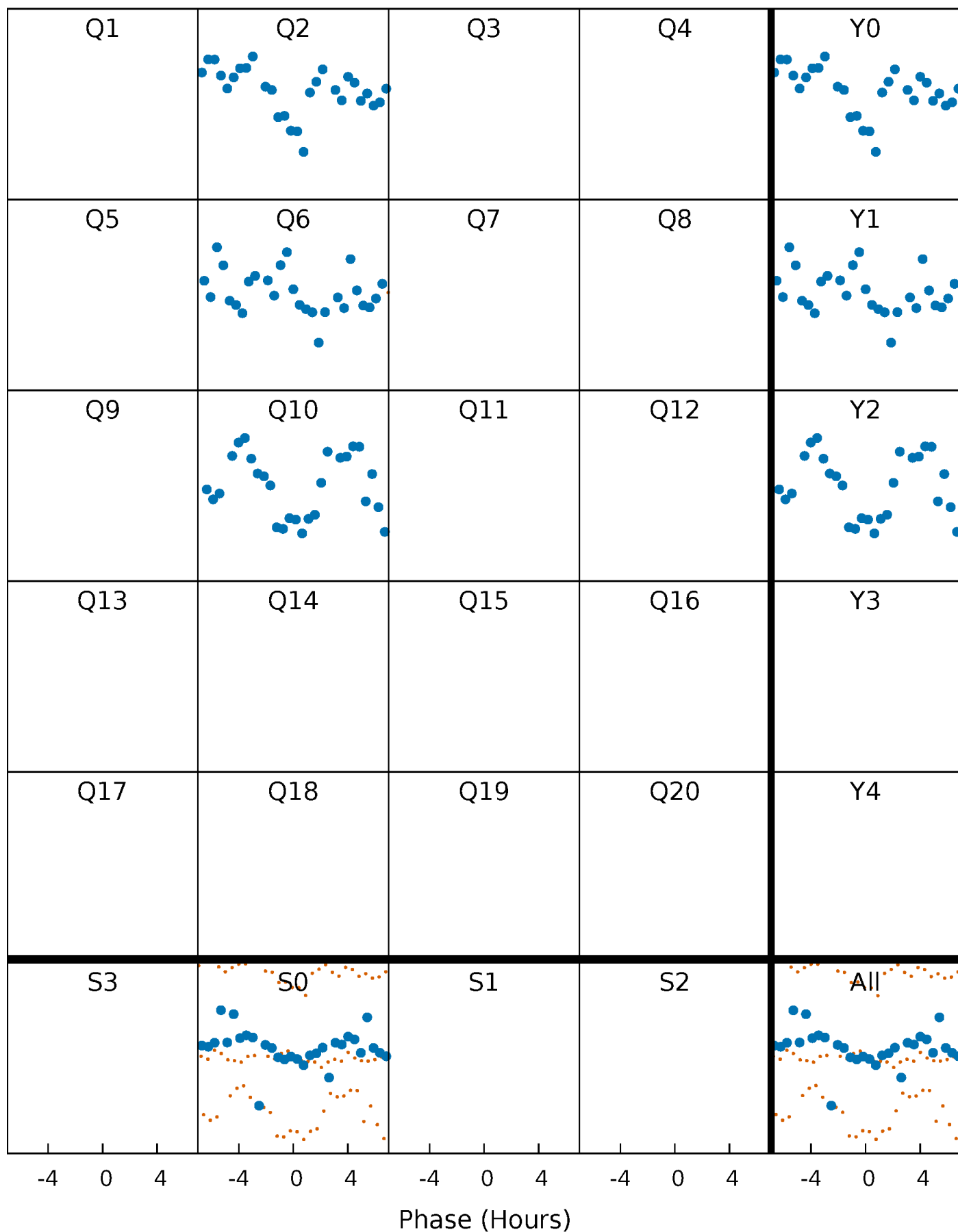


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



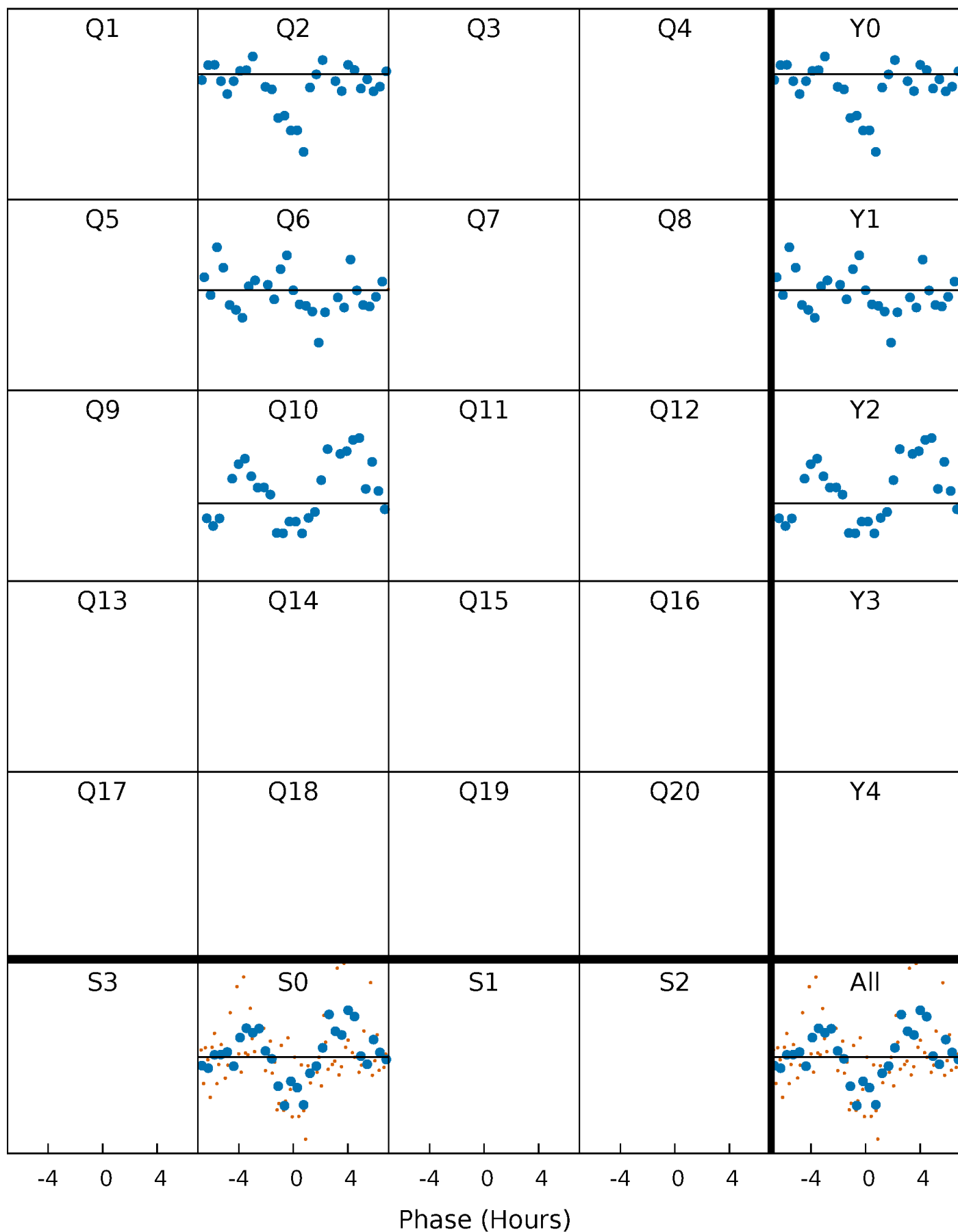
PDC Quarter-Phased Transit Curves

TCE 005769403-04 $P=367.960737$ Days $T_0=191.142933$ (BKJD)



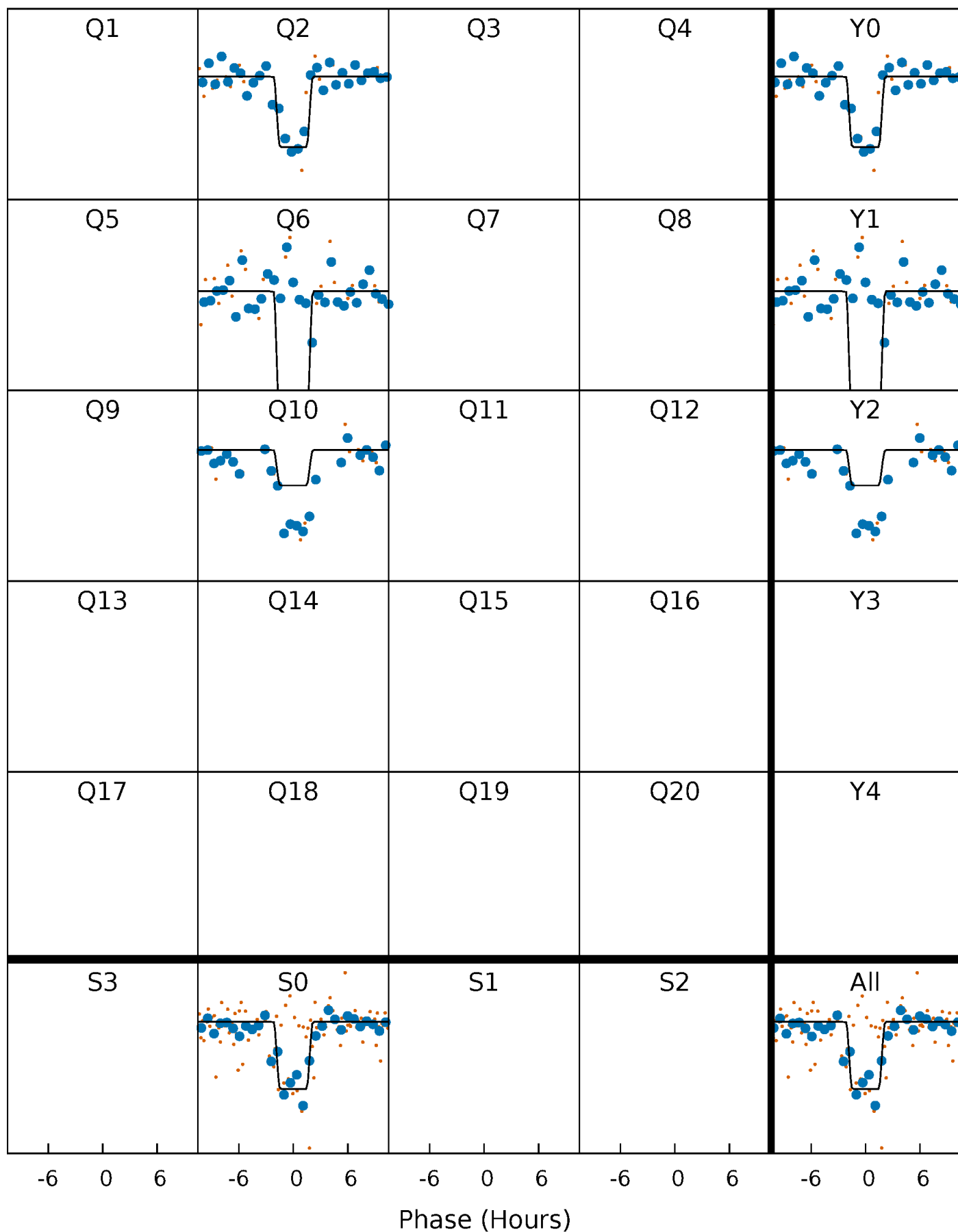
DV Quarter-Phased Transit Curves

TCE 005769403-04 P=367.960737 Days $T_0=191.142933$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

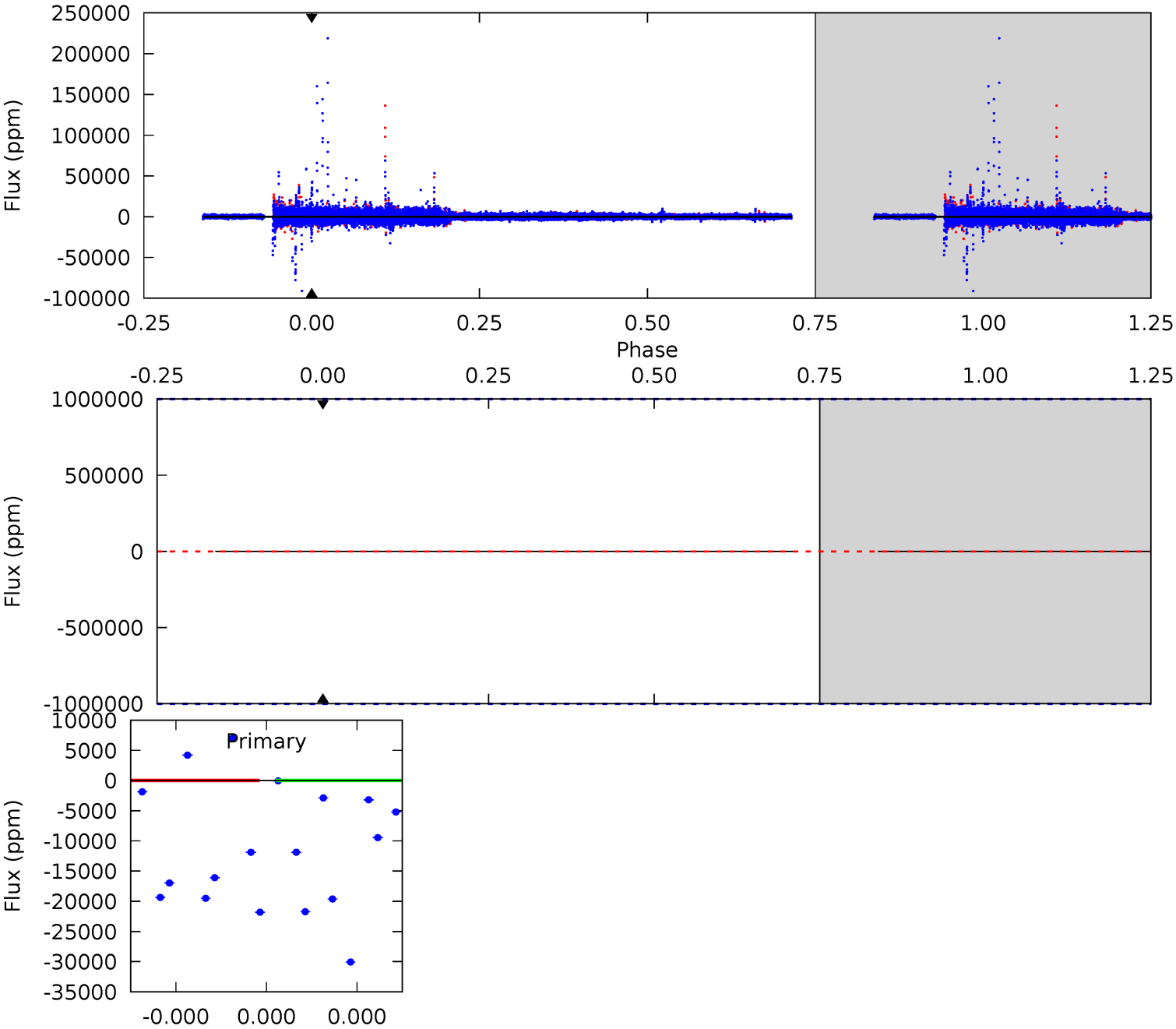
TCE 005769403-04 P=367.960737 Days $T_0=191.141784$ (BKJD)



DV Model-Shift Uniqueness Test

005769403-04, P = 367.960737 Days, E = 191.142933 Days

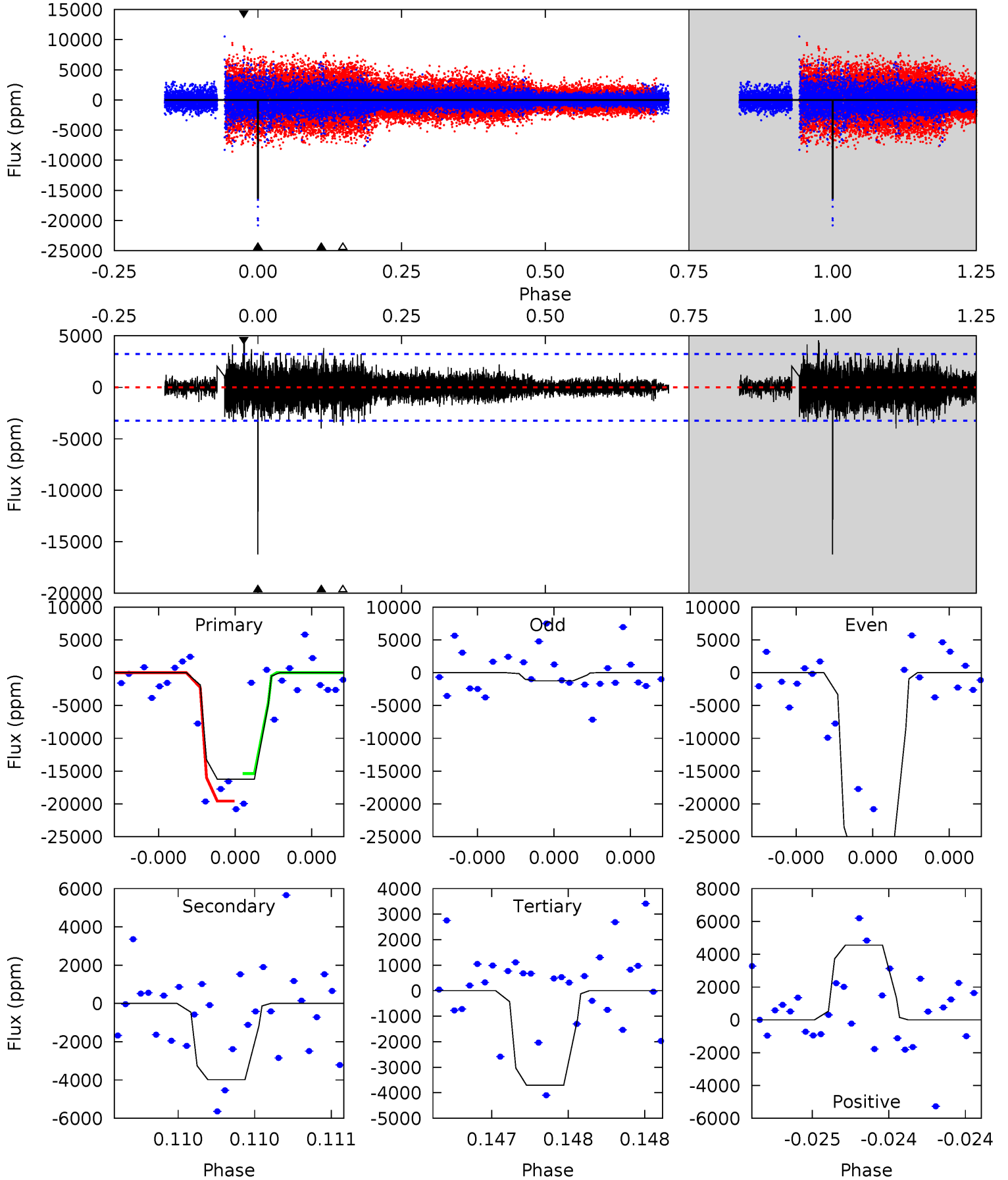
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00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



Alt Model-Shift Uniqueness Test

005769403-04, P = 367.960737 Days, E = 191.141784 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 27.9 | 6.86 | 6.38 | 7.84 | 5.57 | 3.48 | 1.18 | 21.6 | 20.1 | 0.47 | -0.99 | 32.7 | 1.19 | 0.22 | 3.97 |



Stellar Parameters For KIC 005769403

| | $T_{\text{eff}} (K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 4881^{+146}_{-146} | $4.627^{+0.027}_{-0.059}$ | $-0.120^{+0.300}_{-0.300}$ | $0.698^{+0.075}_{-0.048}$ | $0.771^{+0.054}_{-0.081}$ | $3.189^{+0.469}_{-0.717}$ |
| | +3%/-3% | +1%/-1% | +250%/-250% | +11%/-7% | +7%/-11% | +15%/-22% |
| 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 005769403-04 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-----------------|-------------------------|----------------------|--------------------------|---|
| DV | 0 ± 1000000 | $9.60^{+6.23}_{-6.04}$ | 265^{+10}_{-9} | -2931^{+12551}_{-5492} | $-3288.313^{+979907.657}_{-624101.772}$ |
| Alt. | -3981 ± 581 | $11.90^{+6.49}_{-6.74}$ | 266^{+9}_{-10} | 3529^{+1218}_{-451} | 12659^{+52505}_{-7474} |

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 $A_{\text{obs}} \gg 1.0$

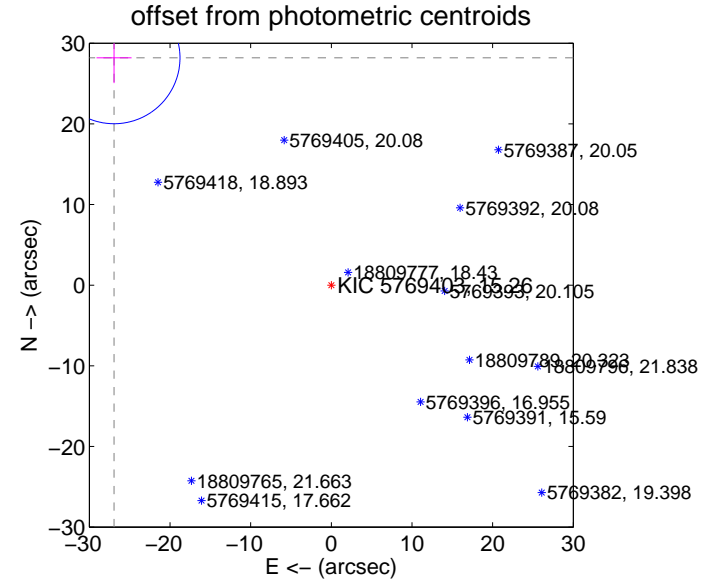
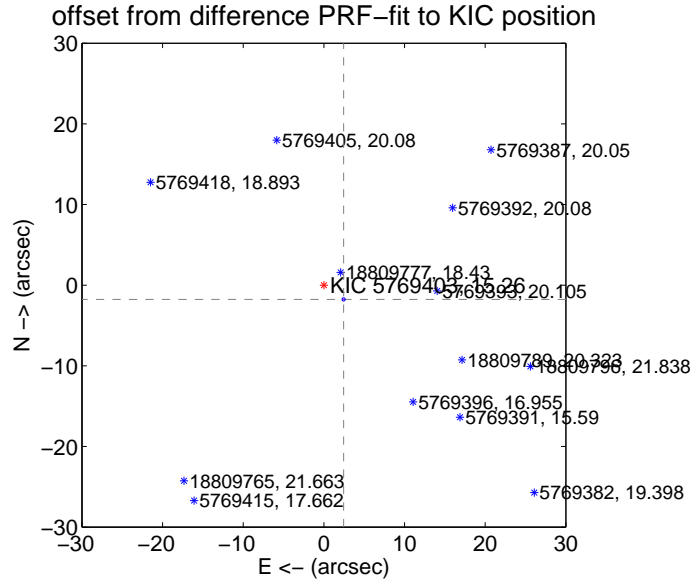
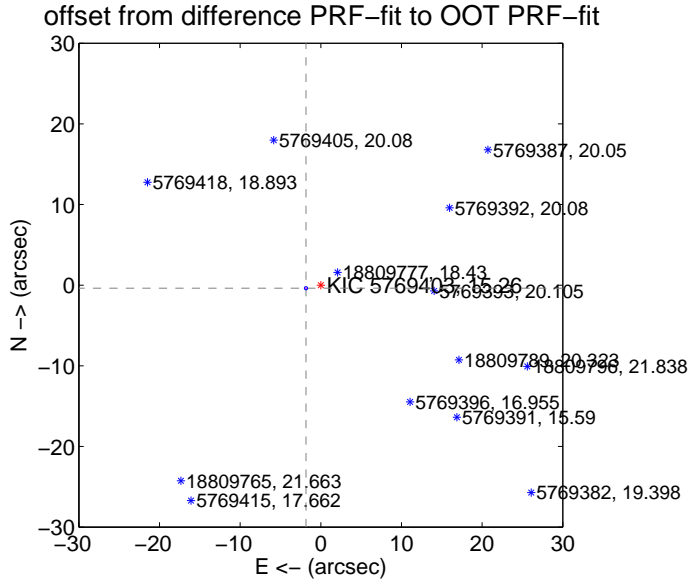
DV Centroid Data

Supplemental centroid analysis for 005769403-04. Kepler magnitude: 15.26. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

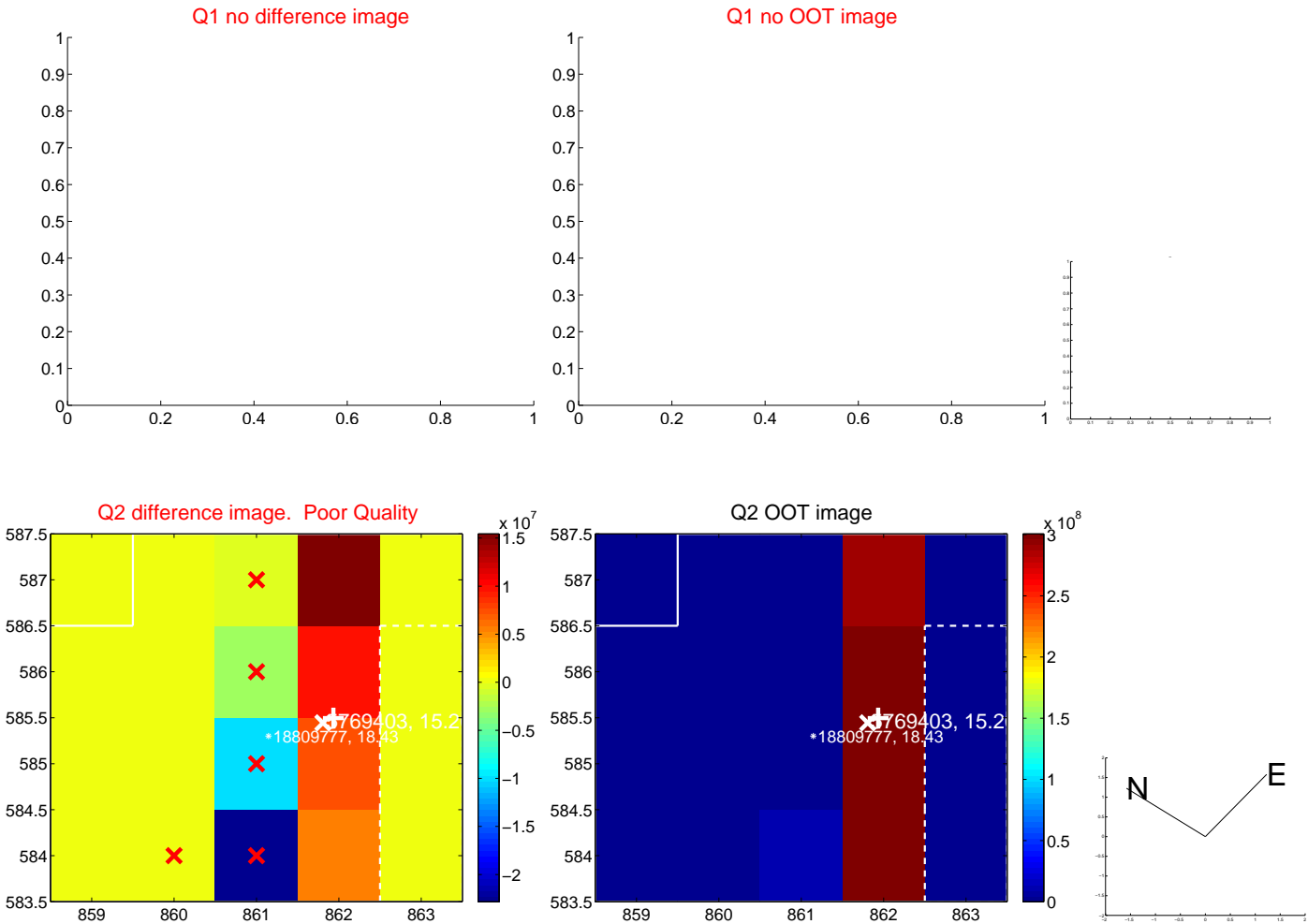
The OOT PRF centroid is offset from the target star catalog position by about 4.50 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 1.880 ± 0.067 | 28.18 | 1.841 ± 0.067 | -0.383 ± 0.067 |
| PRF-fit source offset from KIC position | 3.013 ± 0.067 | 45.15 | -2.443 ± 0.067 | -1.763 ± 0.067 |
| photometric centroid source offset | 38.99 ± 2.72 | 14.31 | 26.94 ± 2.17 | 28.19 ± 3.15 |

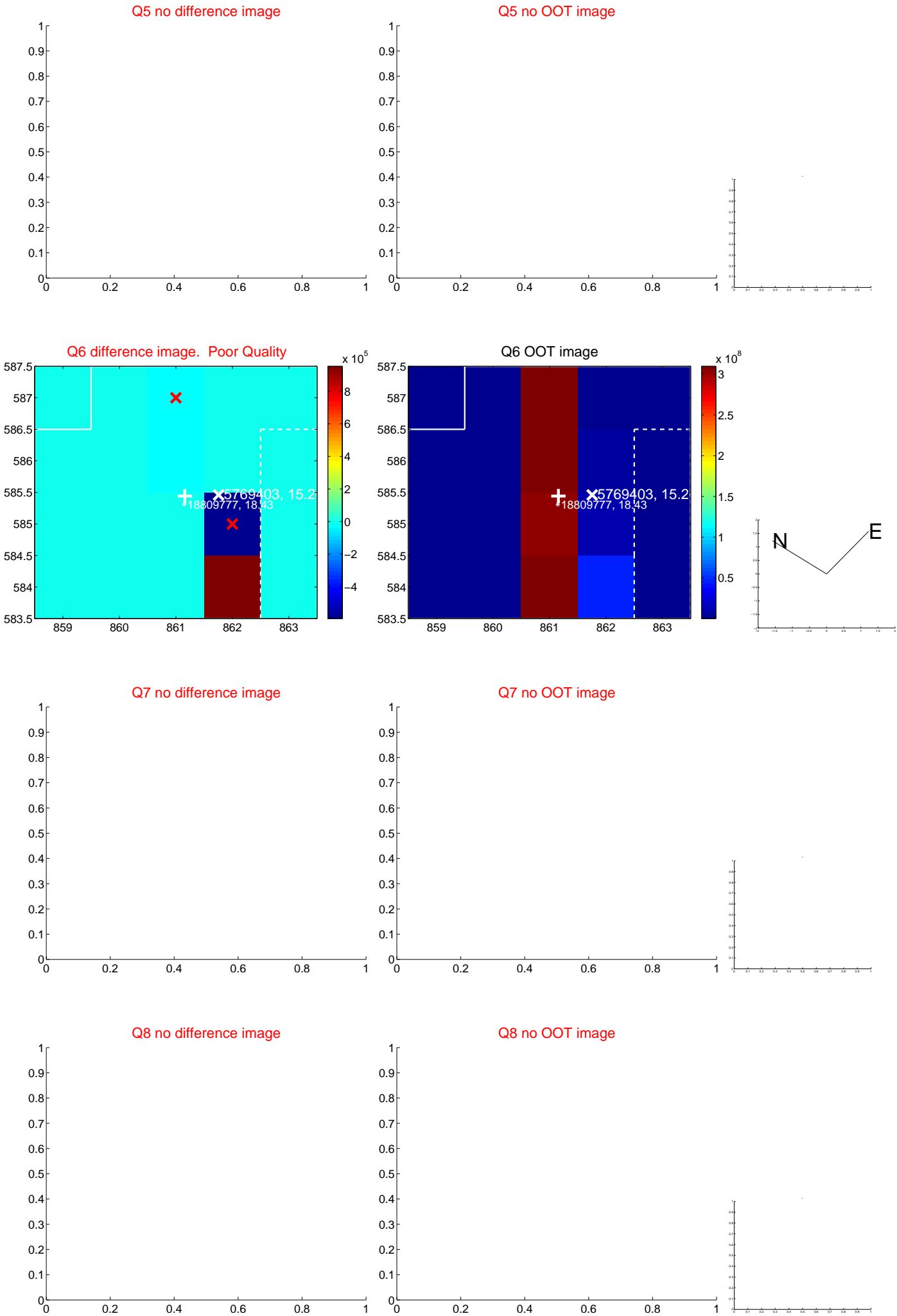


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

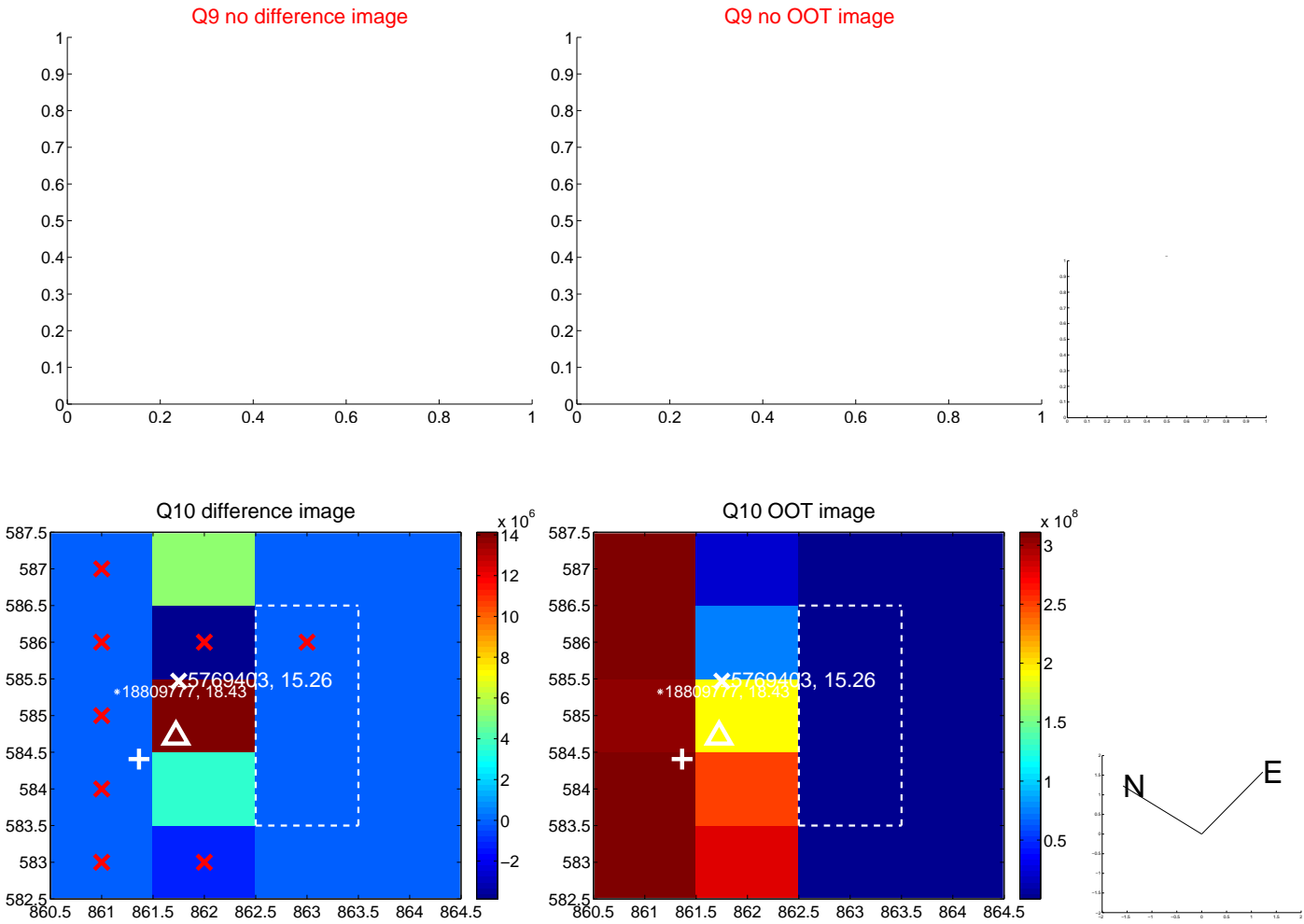
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



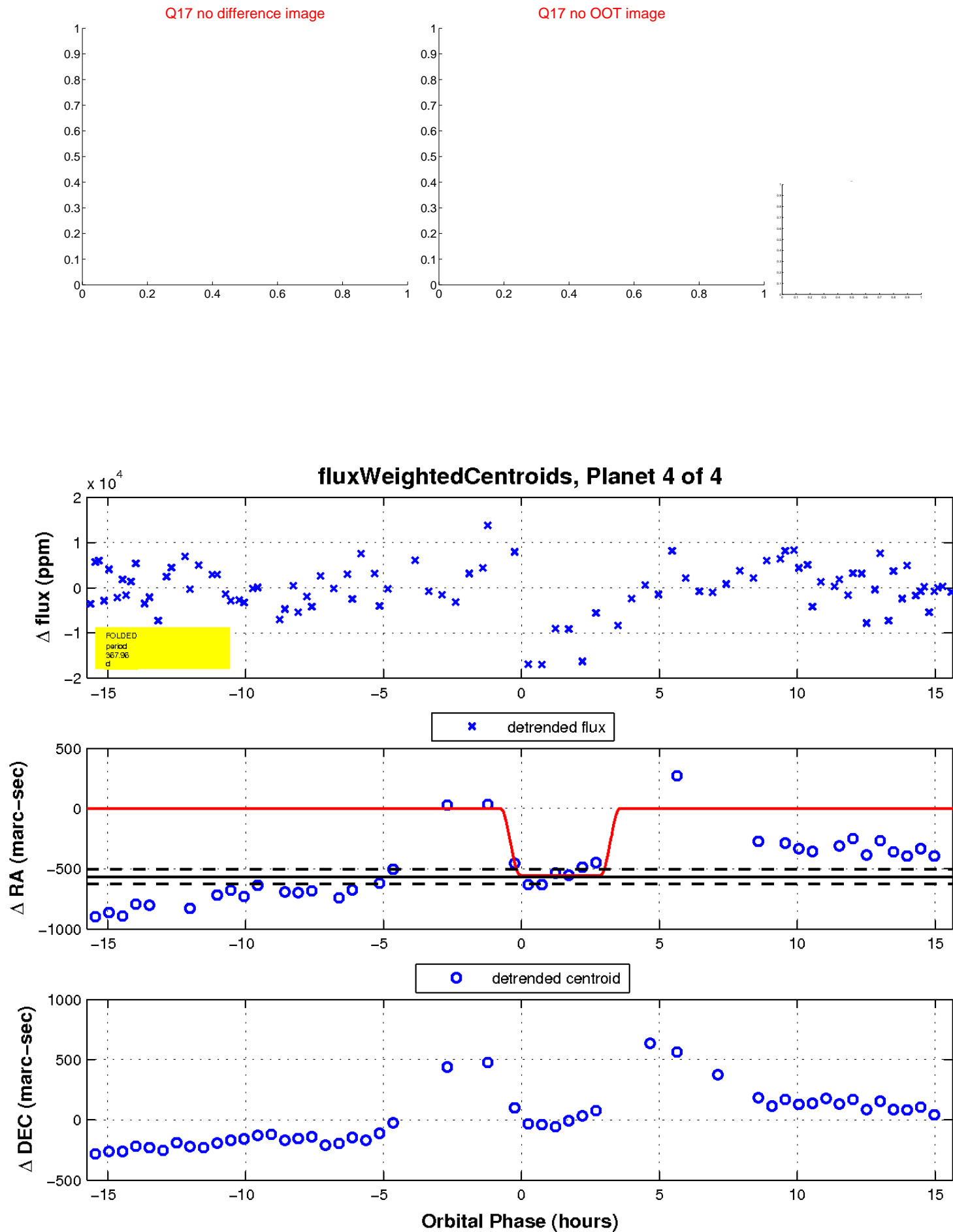
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

