

KIC 006527016

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006527016-01 | OBS | 7783.01 | 0.542634 | 131.959048 | 56.1 | 1.368 | 12.6 | 12.9 | 1.63 | 5277 | 1.48 | 11832.89 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------------|
| 006527016-01 | OBS | FP | 0.00 | 0 | 0 | 1 | 0 | CENT_RESOLVED_OFFSET |

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

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

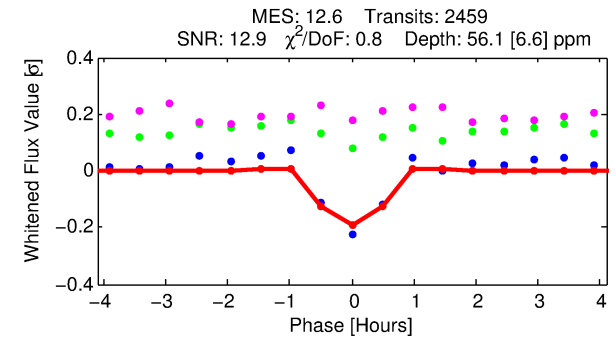
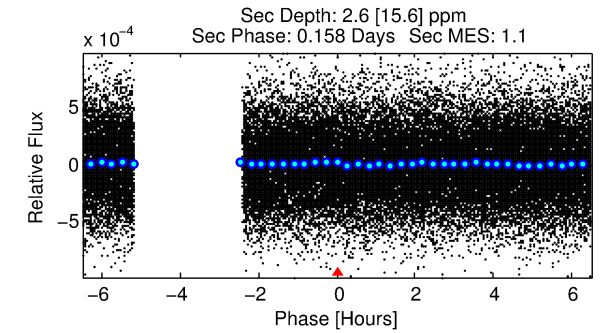
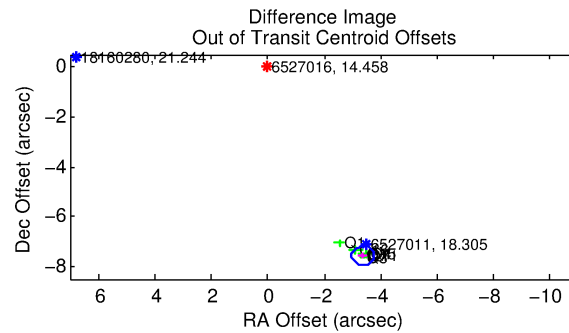
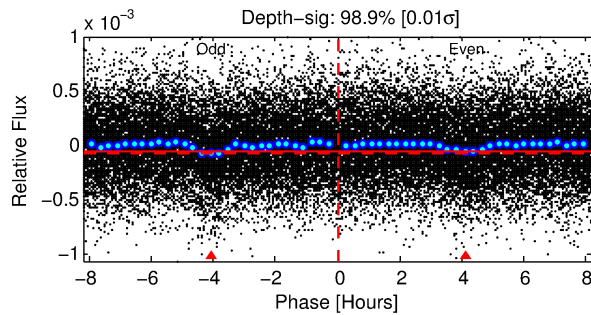
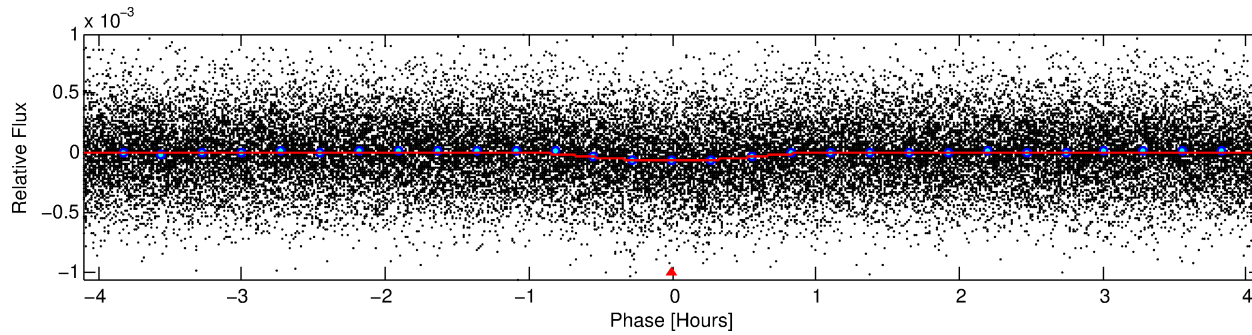
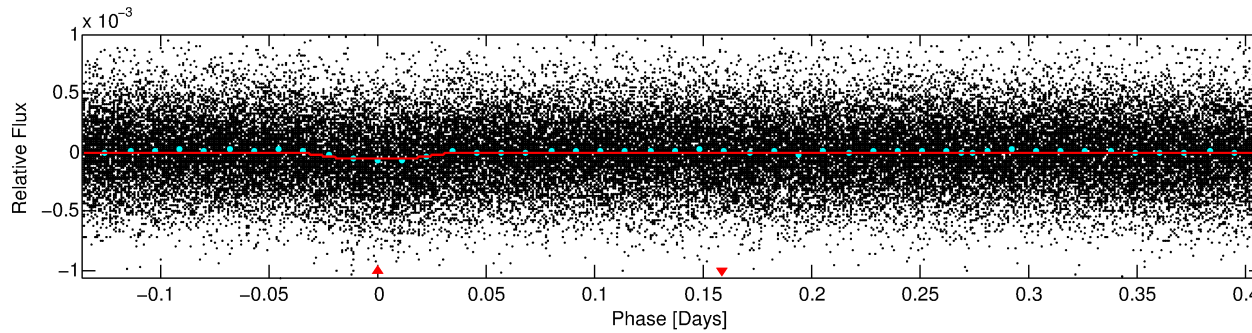
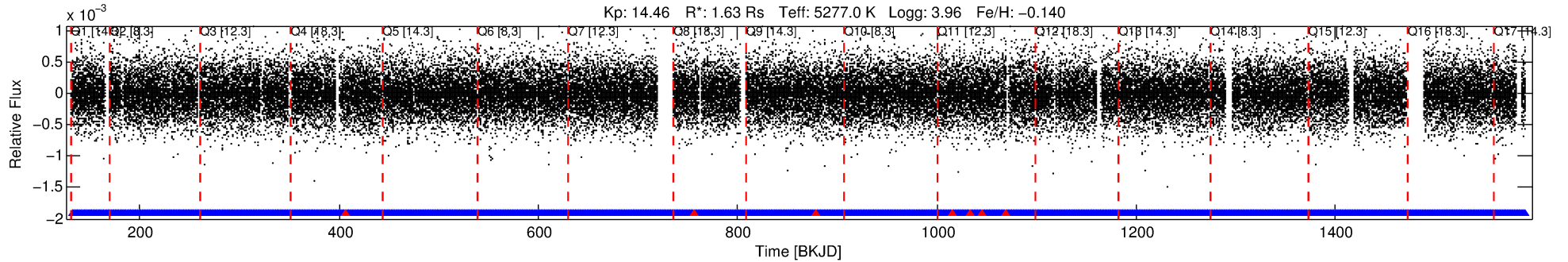
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006527016-01

No Significant Match Found

DV One-Page Summary

KIC: 6527016 Candidate: 1 of 1 Period: 0.543 d



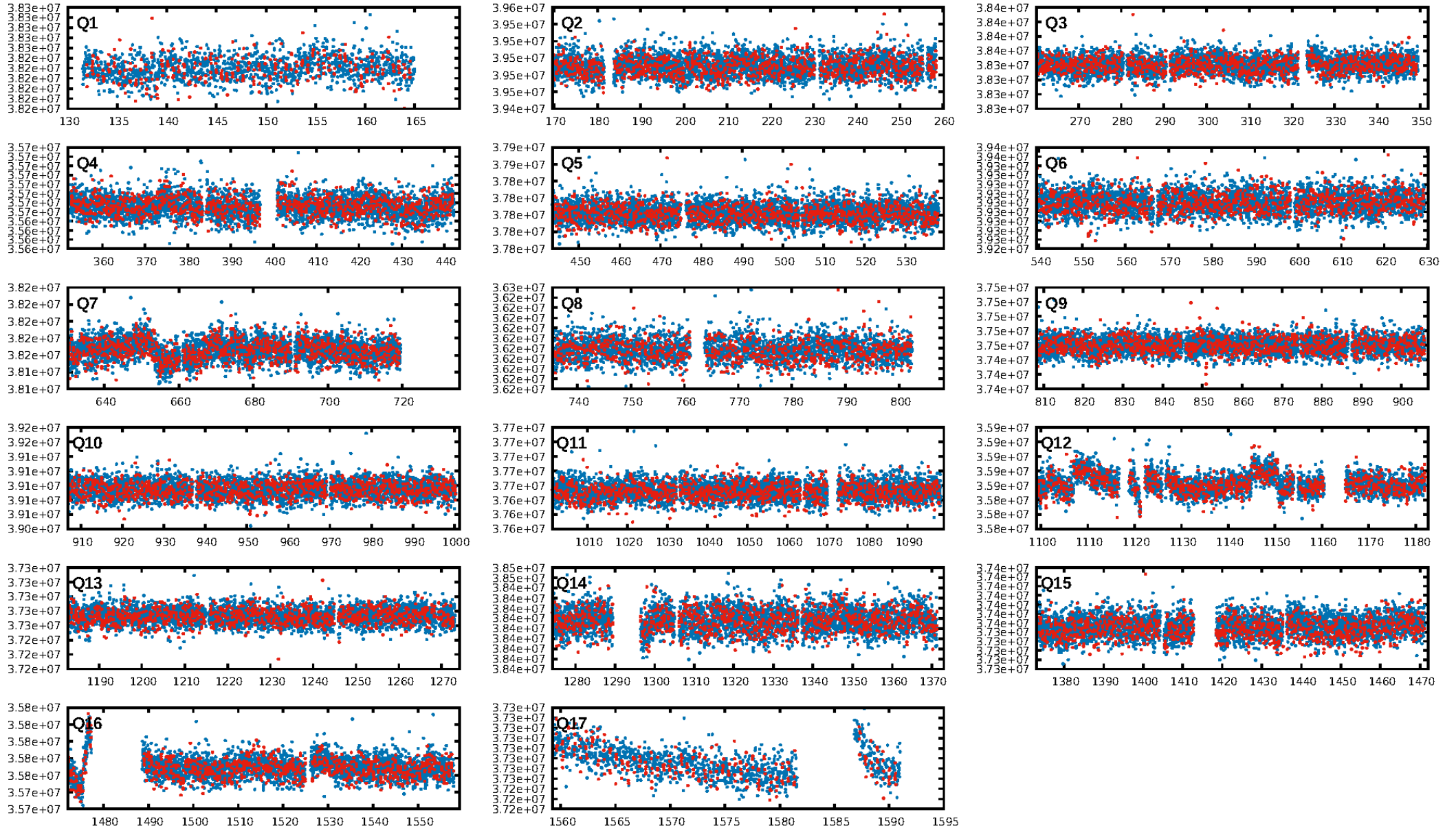
DV Fit Results:

Period = 0.54263 [0.00001] d
Epoch = 131.9590 [0.0015] BKJD
Rp/R* = 0.0083 [0.0048]
a/R* = 1.67 [2.63]
b = 0.90 [0.54]
Seff = 11832.89 [11509.23]
Teq = 2659 [647] K
Rp = 1.48 [1.16] Re
a = 0.0125 [0.0072] AU
Ag = 0.10 [0.63] [-1.42σ]
Teffp = 2322 [3577] K [-0.09σ]

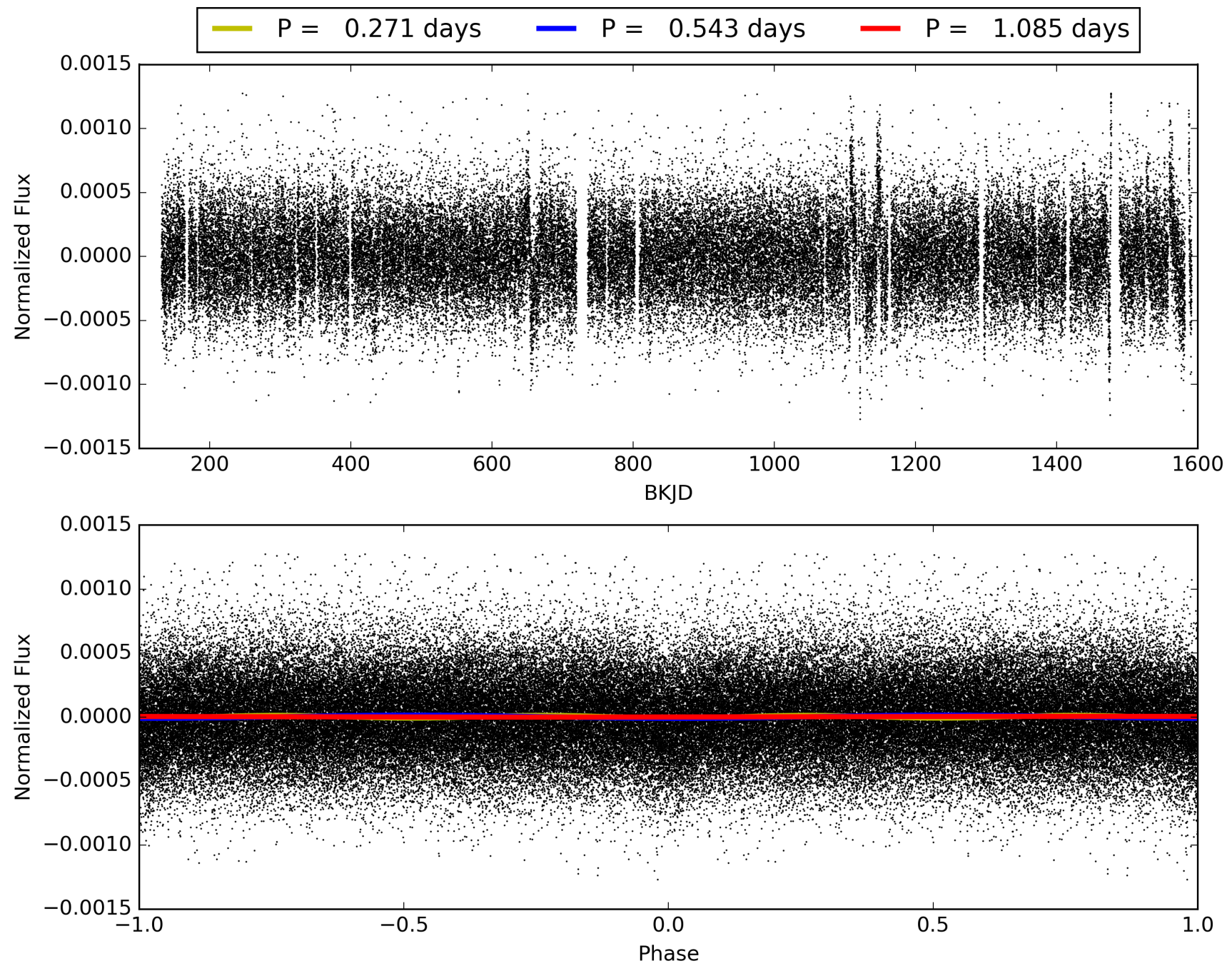
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.47e-33
RollingBand-fgt: 1.00 [2343/2350]
GhostDiagnostic-chr: -1.103
Centroid-sig: 0.0%
Centroid-so: 13.004 arcsec [15.12σ]
OotOffset-rm: 8.282 arcsec [65.02σ]
KicOffset-rm: 8.305 arcsec [56.28σ]
OotOffset-st: 0/4/2/1 [7]
KicOffset-st: 0/4/2/1 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 006527016-01, PDC Light Curves

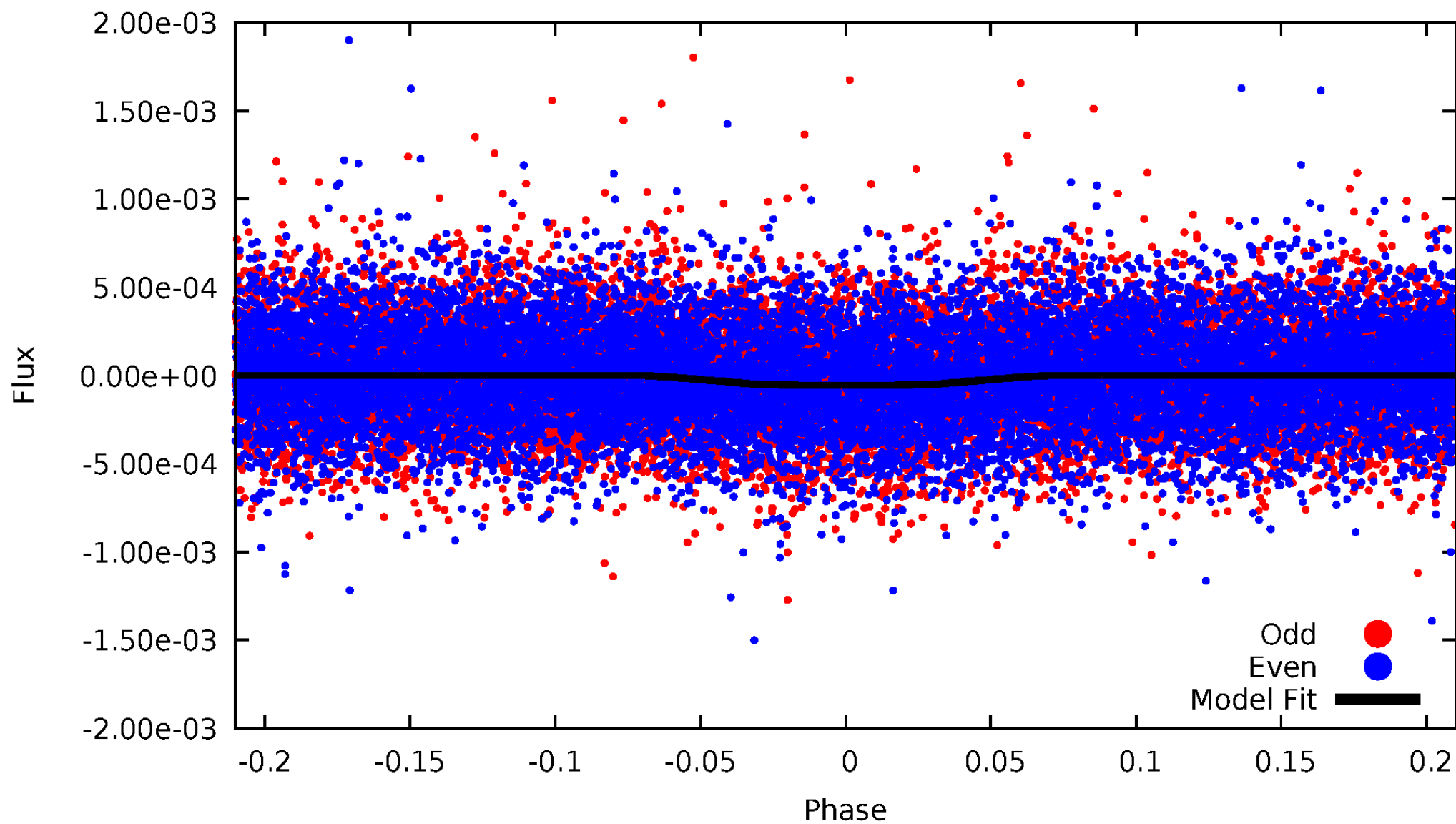


TCE 006527016-01



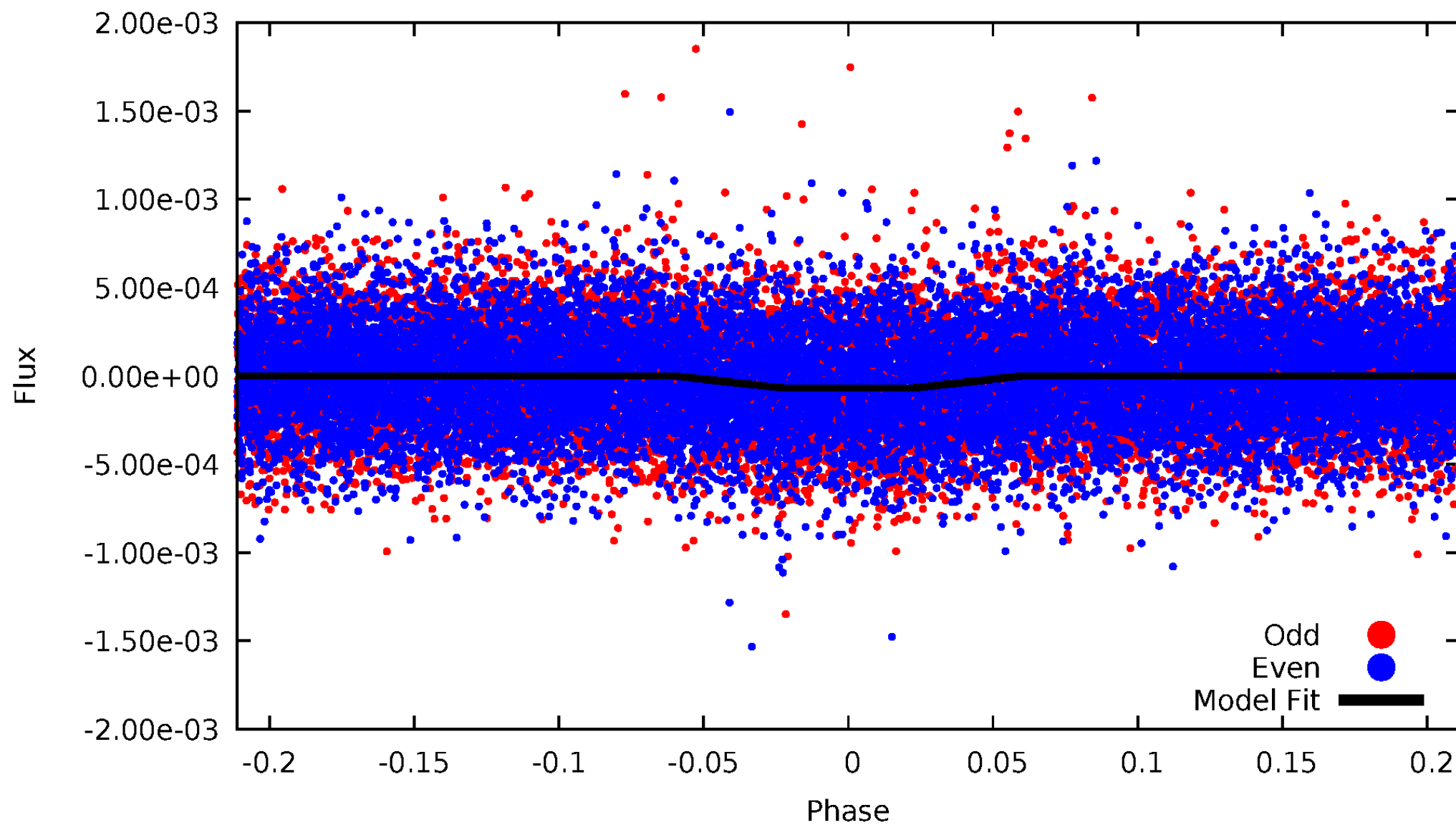
DV Odd/Even

TCE 006527016-01



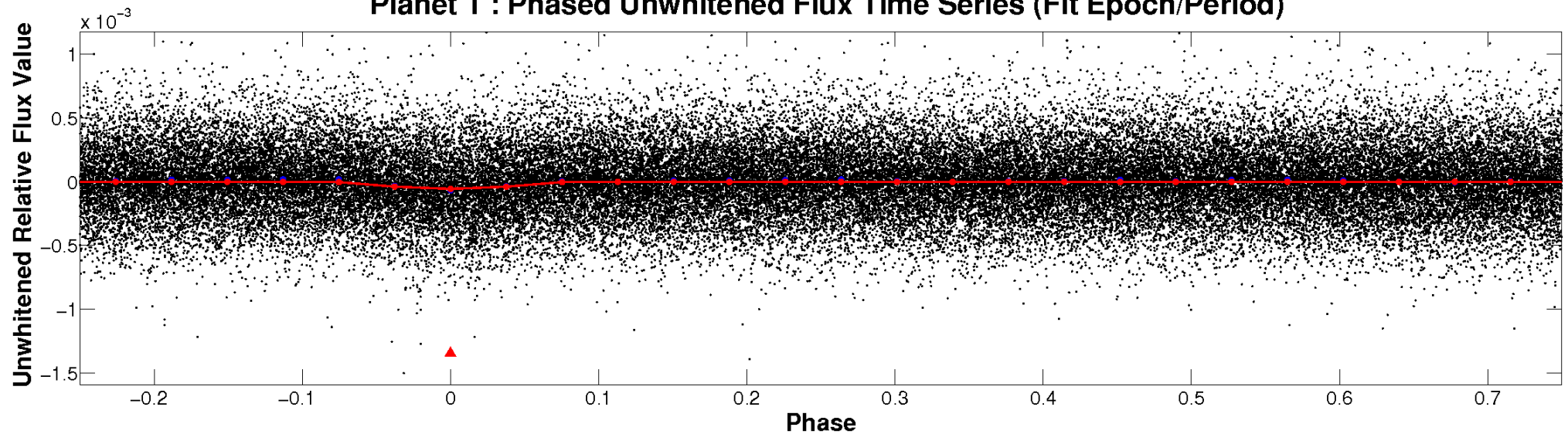
ALT Odd/Even

TCE 006527016-01

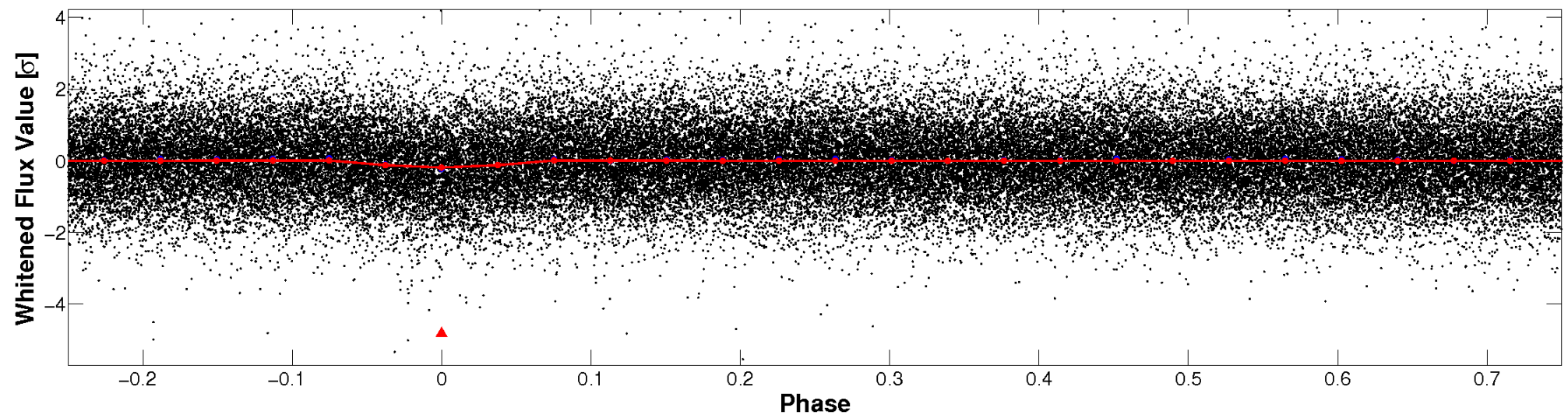


Non-Whitened Vs. Whitened Light Curve

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

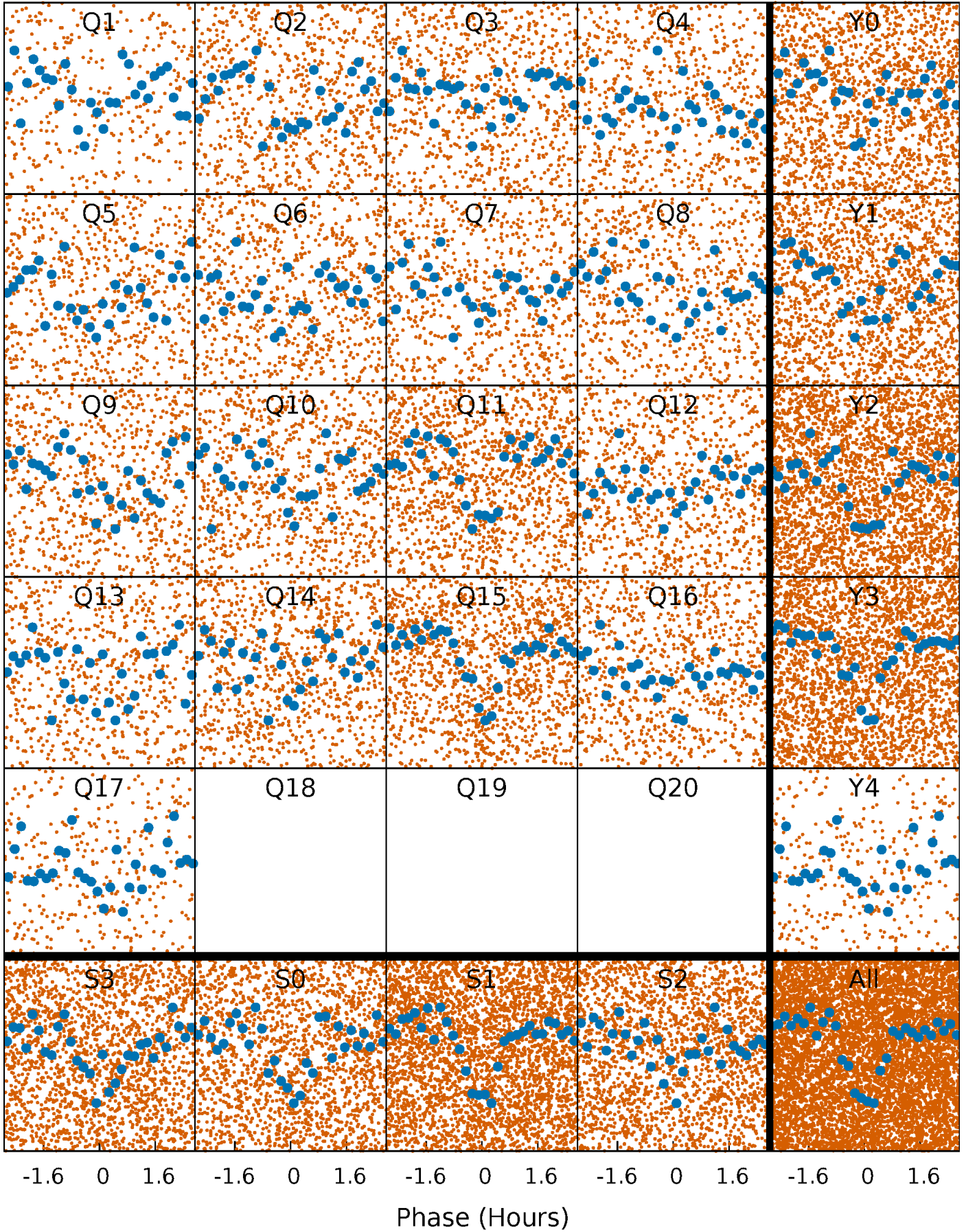


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



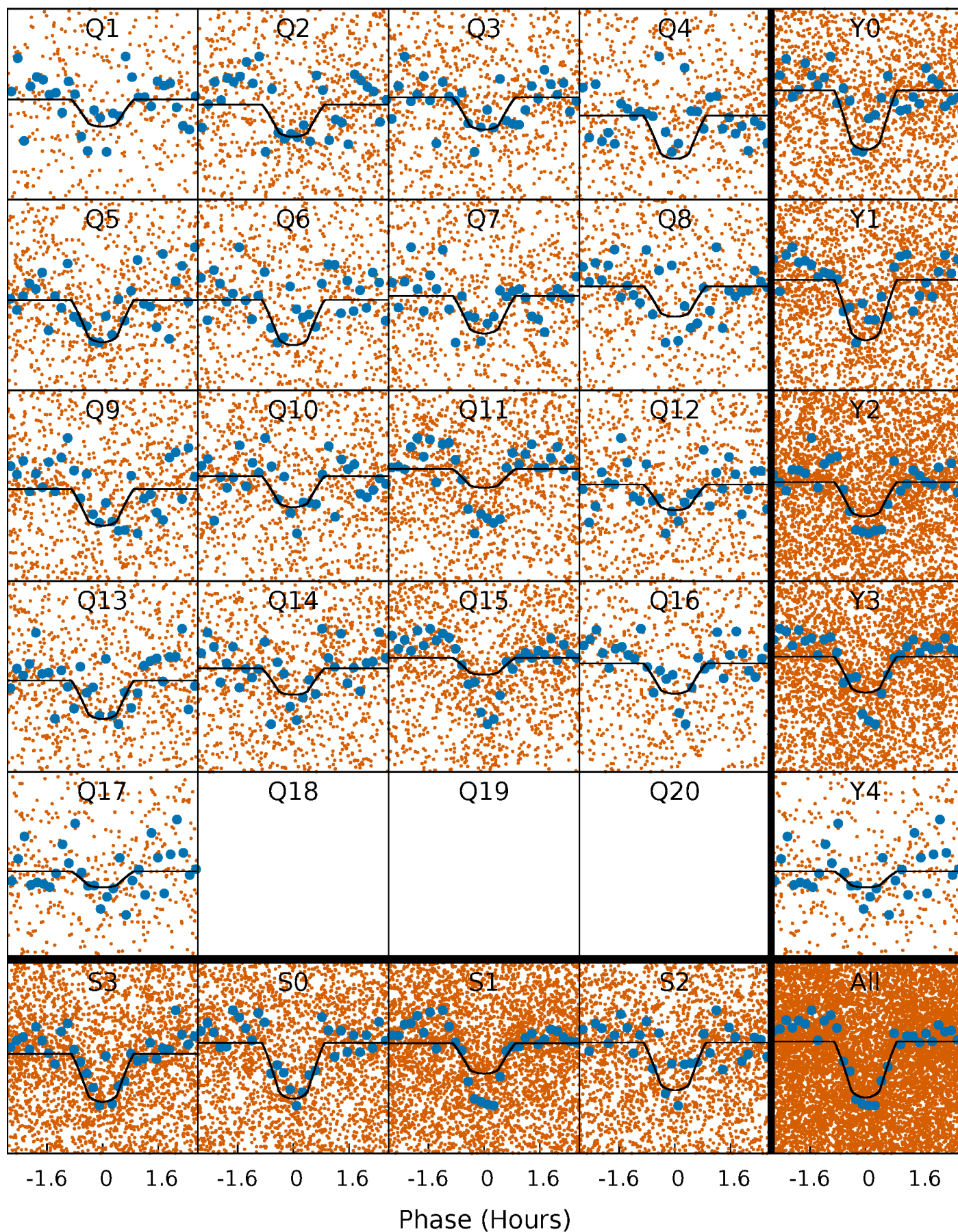
PDC Quarter-Phased Transit Curves

TCE 006527016-01 P= 0.542634 Days $T_0=131.959048$ (BKJD)



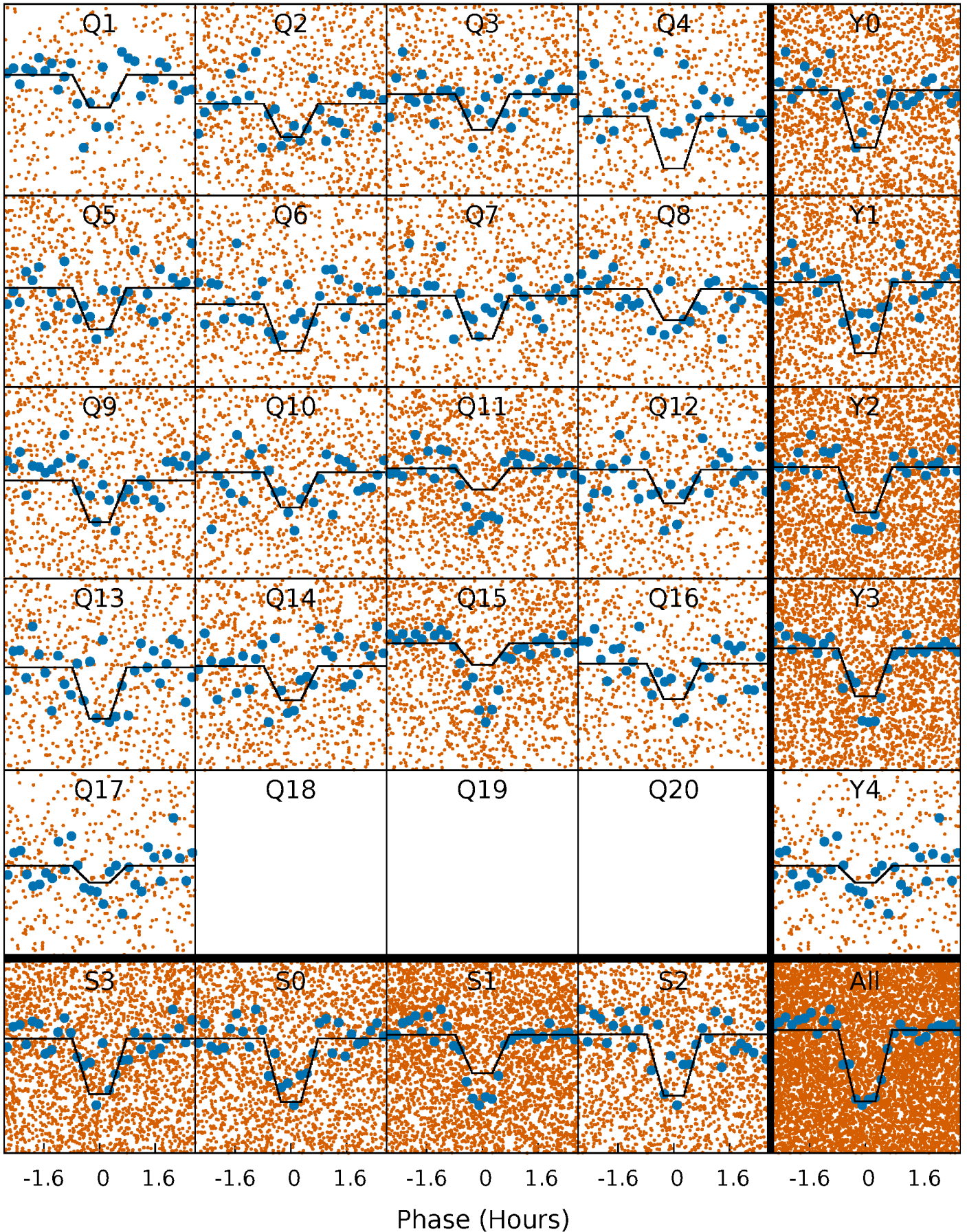
DV Quarter-Phased Transit Curves

TCE 006527016-01 P= 0.542634 Days $T_0=131.959048$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

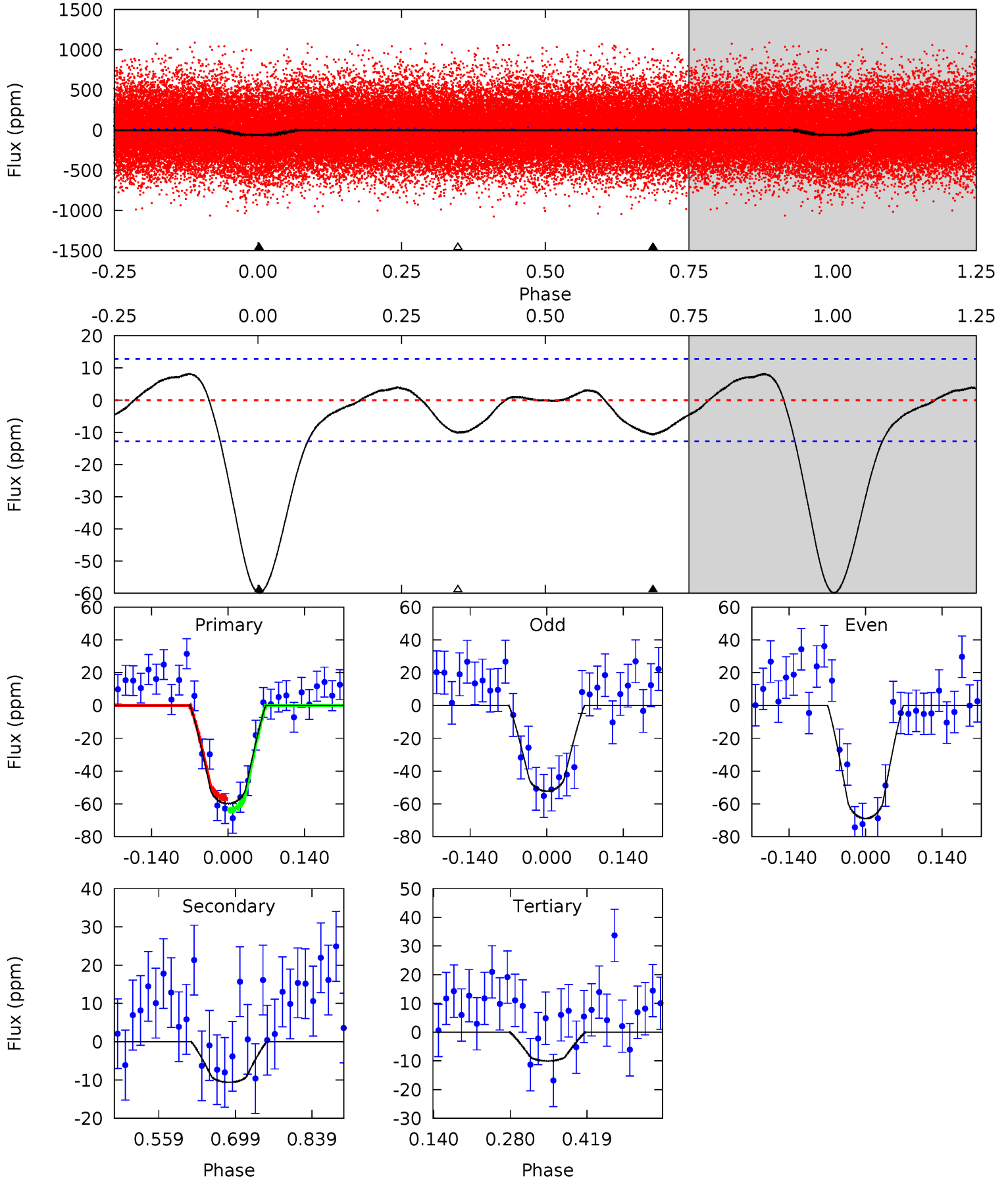
TCE 006527016-01 P= 0.542634 Days $T_0=131.959085$ (BKJD)



DV Model-Shift Uniqueness Test

006527016-01, P = 0.542634 Days, E = 131.416414 Days

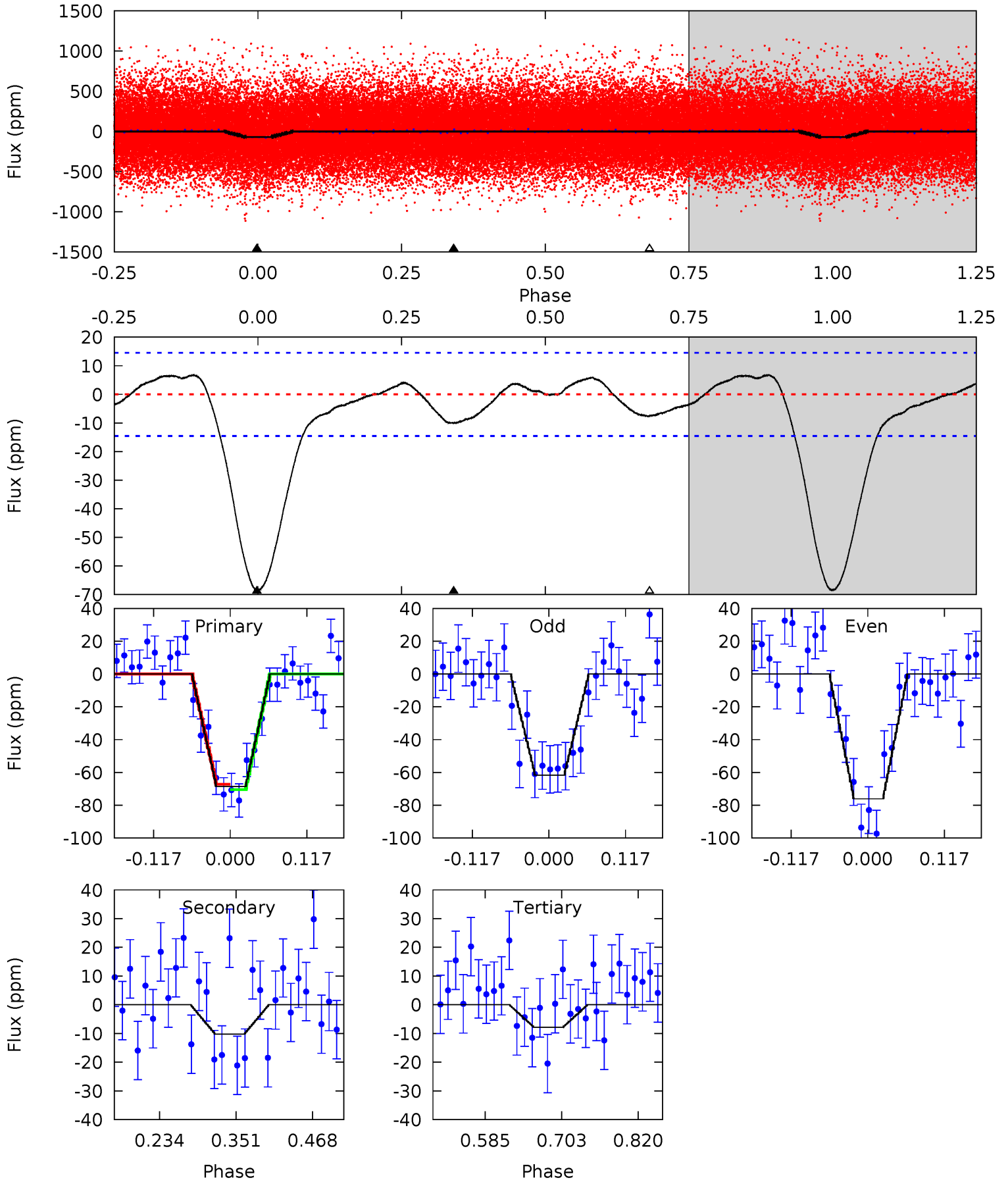
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.0 | 3.72 | 3.52 | 0 | 4.49 | 1.48 | 1.60 | 17.5 | 21.0 | 0.20 | 3.72 | 2.93 | 1.04 | 0.12 | 1.30 |



Alt Model-Shift Uniqueness Test

006527016-01, P = 0.542634 Days, E = 131.416451 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.4 | 3.19 | 2.44 | 0 | 4.53 | 1.57 | 1.34 | 19.0 | 21.4 | 0.76 | 3.19 | 2.24 | 1.02 | 0.09 | 0.50 |



Stellar Parameters For KIC 006527016

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | $M(M_{\odot})$ | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5277^{+158}_{-158} | $3.960^{+0.585}_{-0.270}$ | $-0.140^{+0.300}_{-0.300}$ | $1.633^{+0.867}_{-0.867}$ | $0.888^{+0.078}_{-0.123}$ | $0.287^{+2.228}_{-0.209}$ |
| | +3%/-3% | +15%/-7% | +214%/-214% | +53%/-53% | +9%/-14% | +776%/-73% |
| 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 006527016-01 / KOI 7783.01

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -11 ± 3 | $1.40^{+1.05}_{-0.80}$ | 3631^{+514}_{-540} | 3012^{+1574}_{-6259} | $0.455^{+1.918}_{-0.310}$ |
| Alt. | -10 ± 3 | $1.43^{+0.92}_{-0.79}$ | 3630^{+473}_{-511} | 2952^{+1411}_{-6176} | $0.409^{+1.808}_{-0.270}$ |

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 $A_{obs} \gg 1.0$

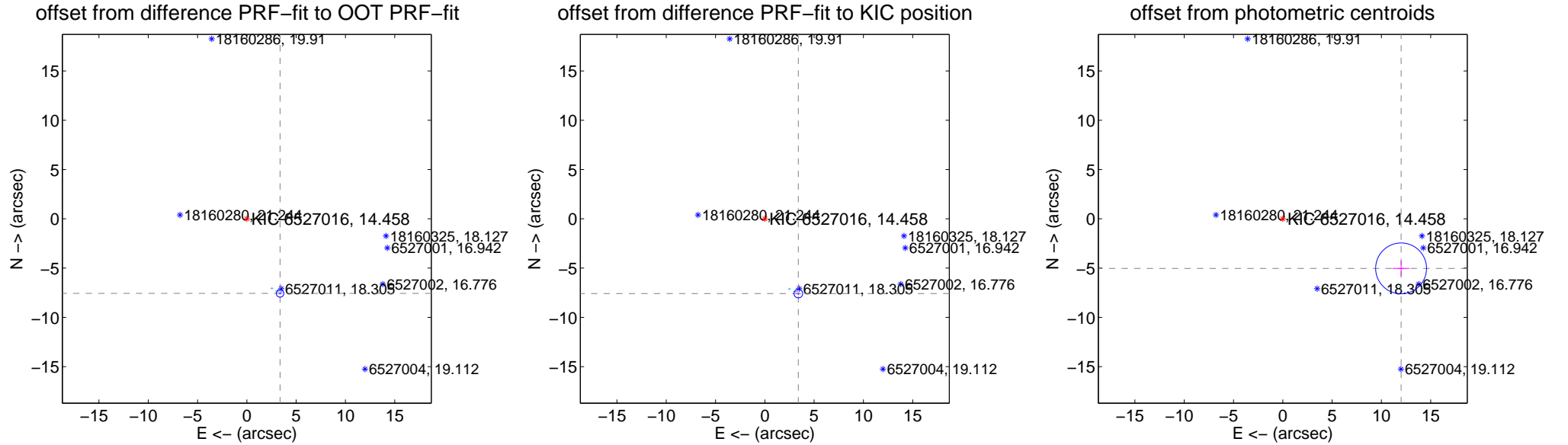
DV Centroid Data

Supplemental centroid analysis for 006527016-01. Kepler magnitude: 14.46. Transit SNR 12.87

There are 7 quarters with good PRF difference image offsets

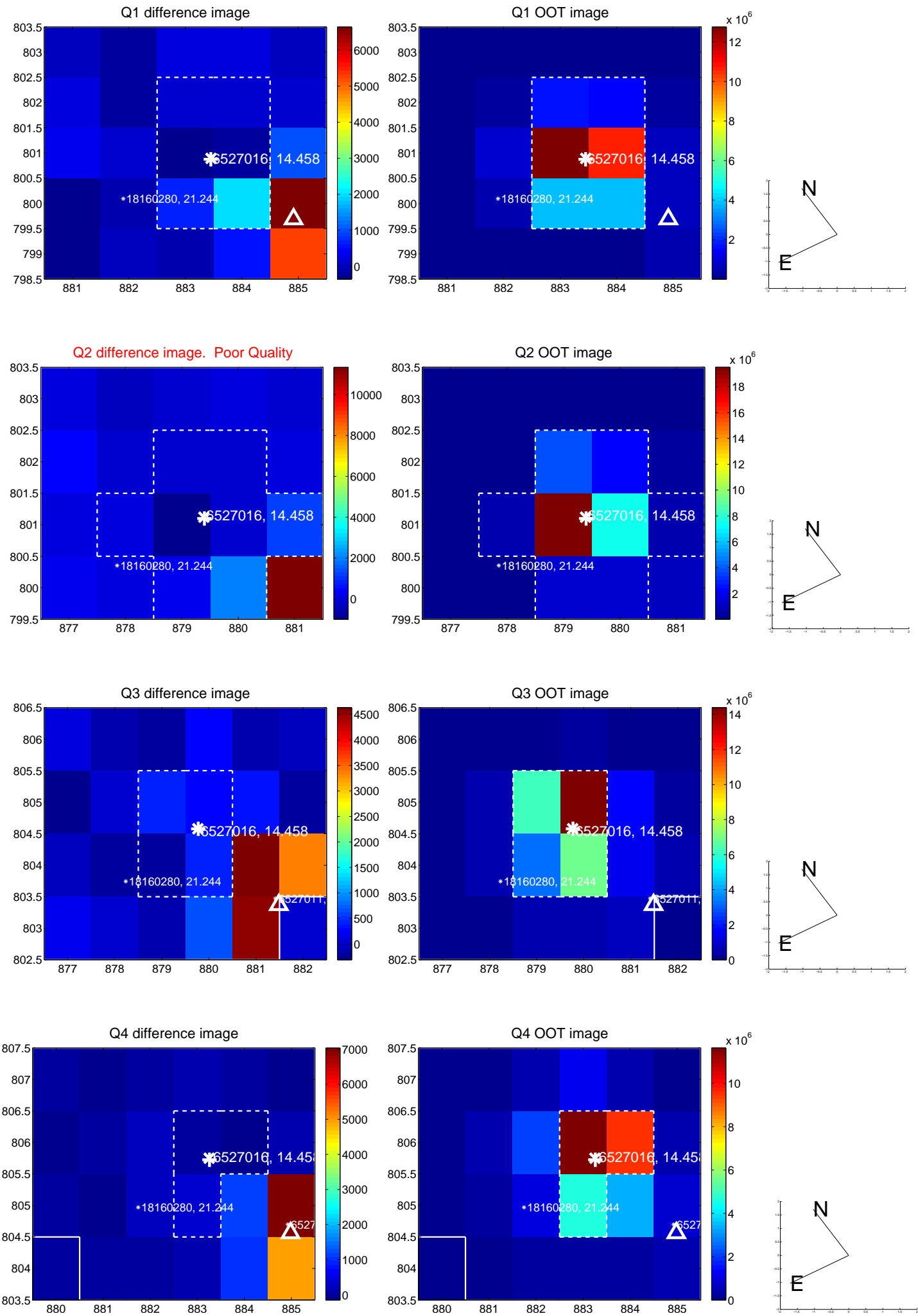
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 8.282 ± 0.127 | 65.02 | -3.369 ± 0.130 | -7.566 ± 0.097 |
| PRF-fit source offset from KIC position | 8.305 ± 0.148 | 56.28 | -3.397 ± 0.160 | -7.579 ± 0.104 |
| photometric centroid source offset | 13.00 ± 0.86 | 15.12 | -11.99 ± 0.87 | -5.03 ± 0.78 |

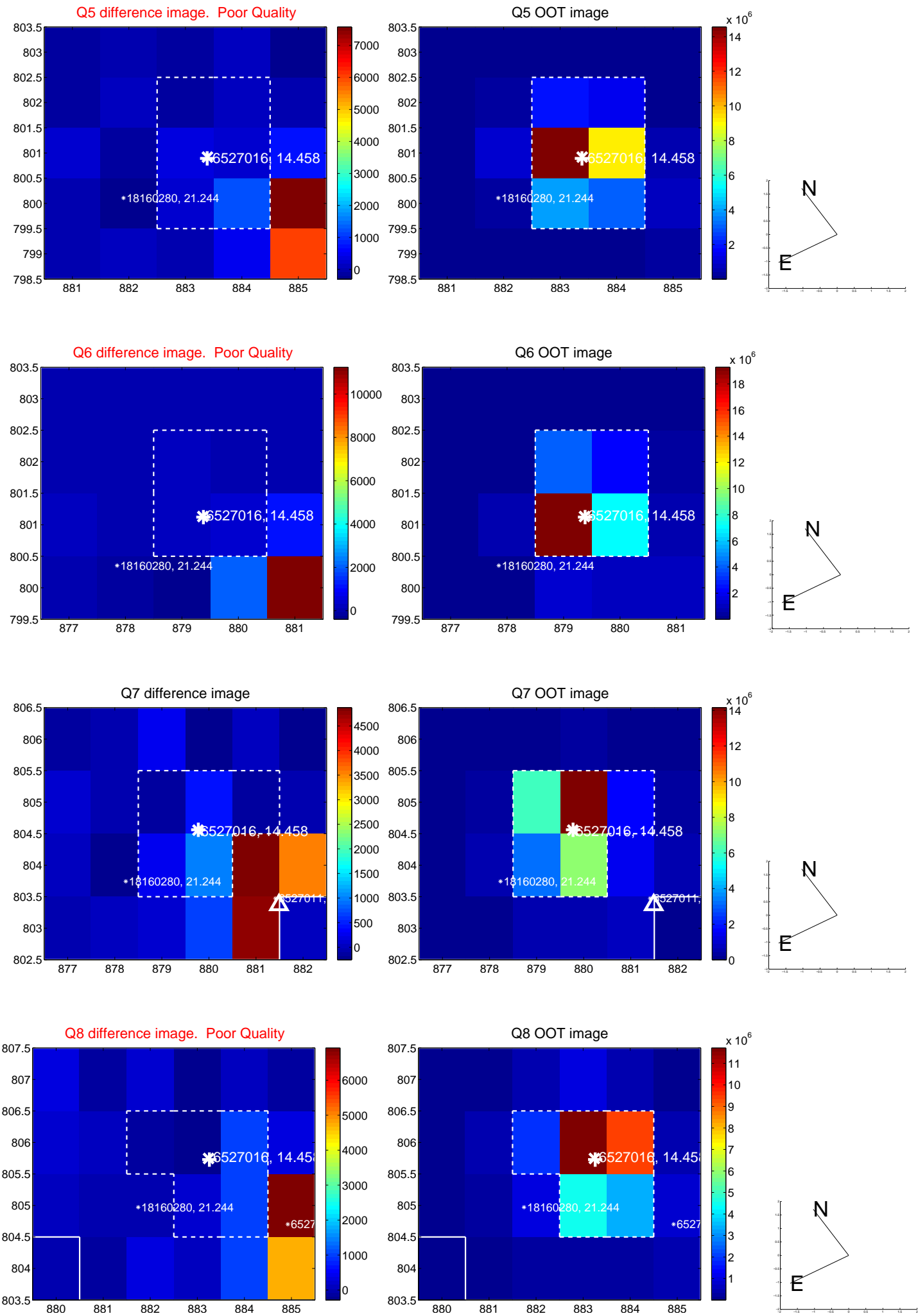


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

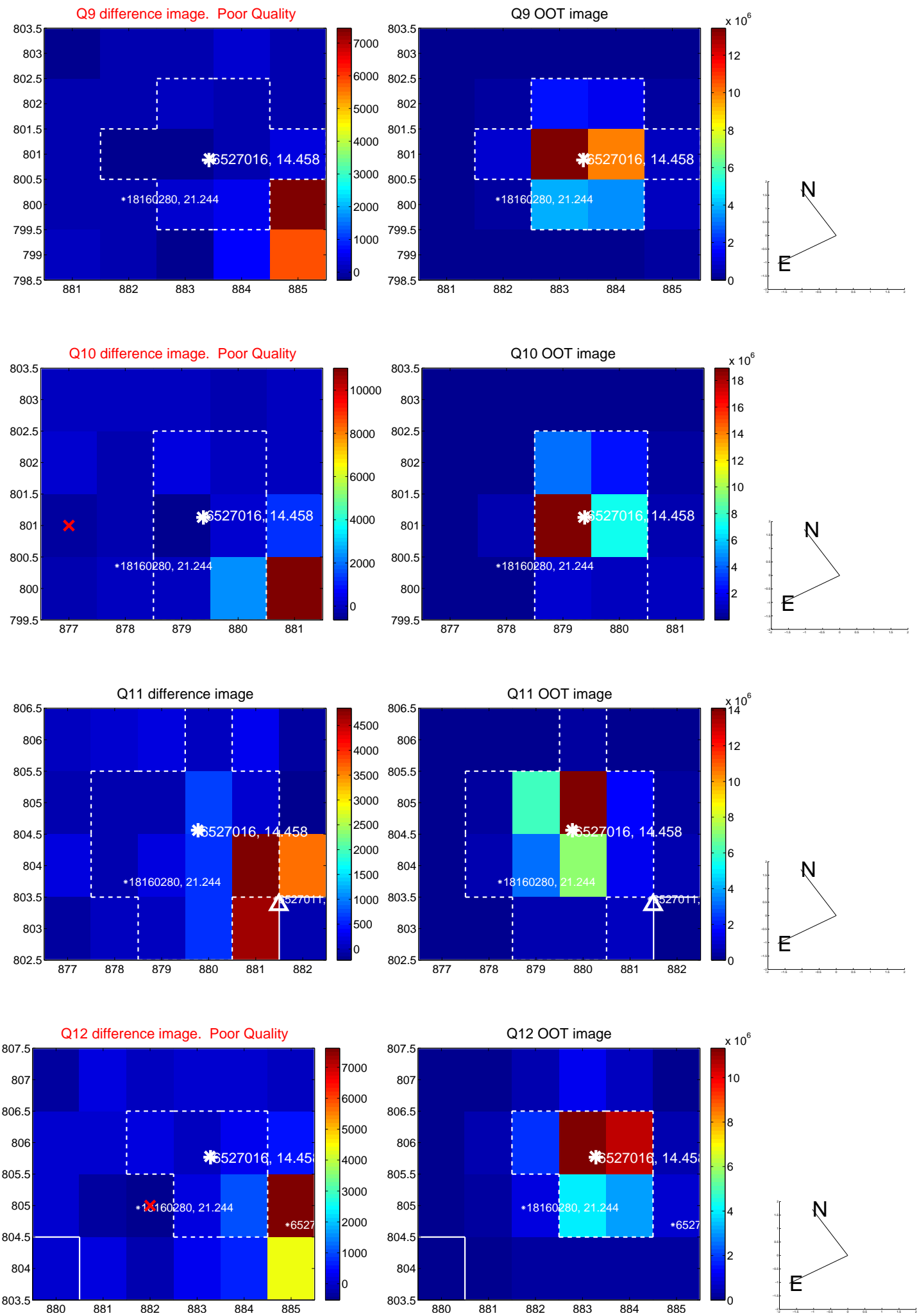
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



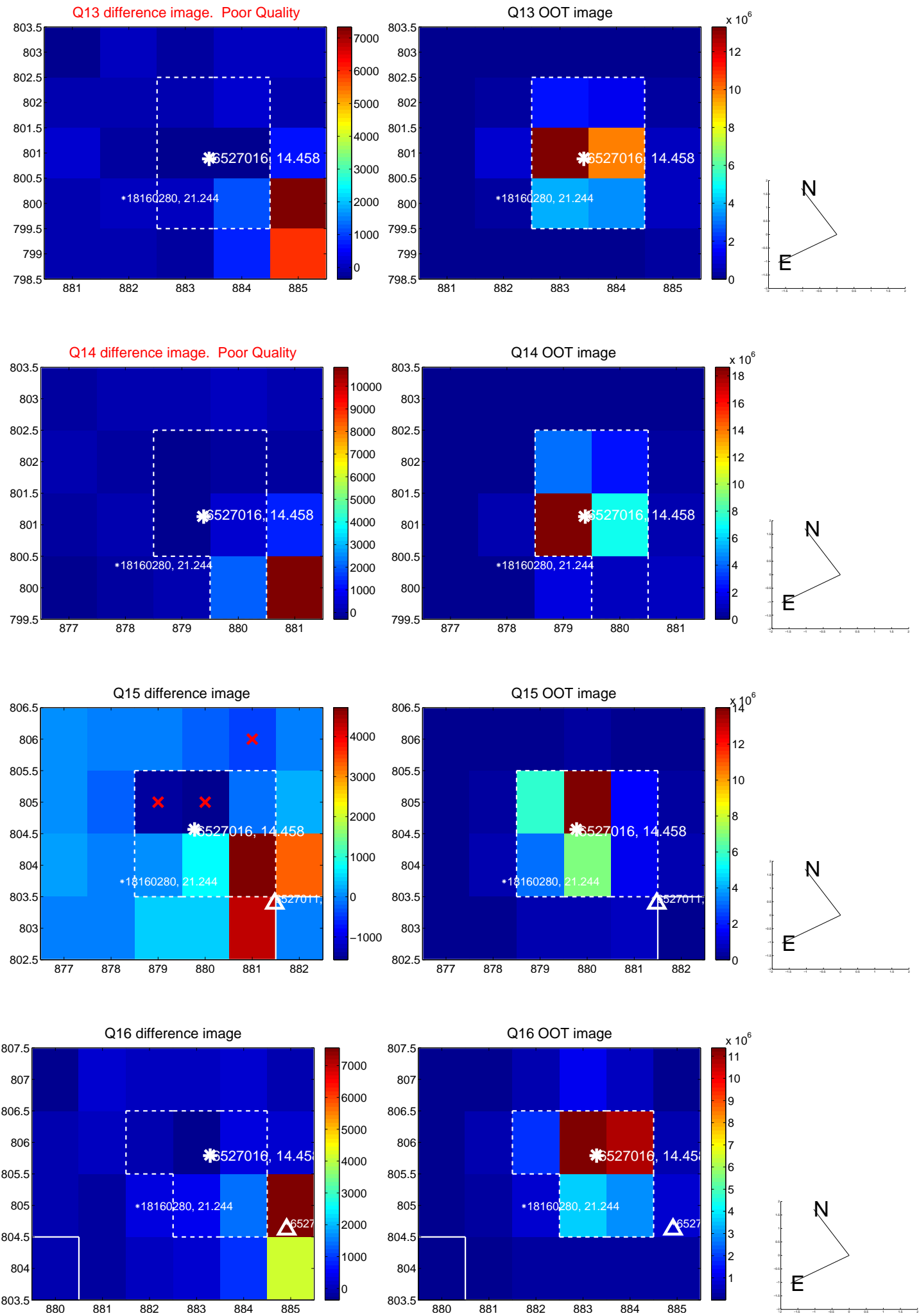
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



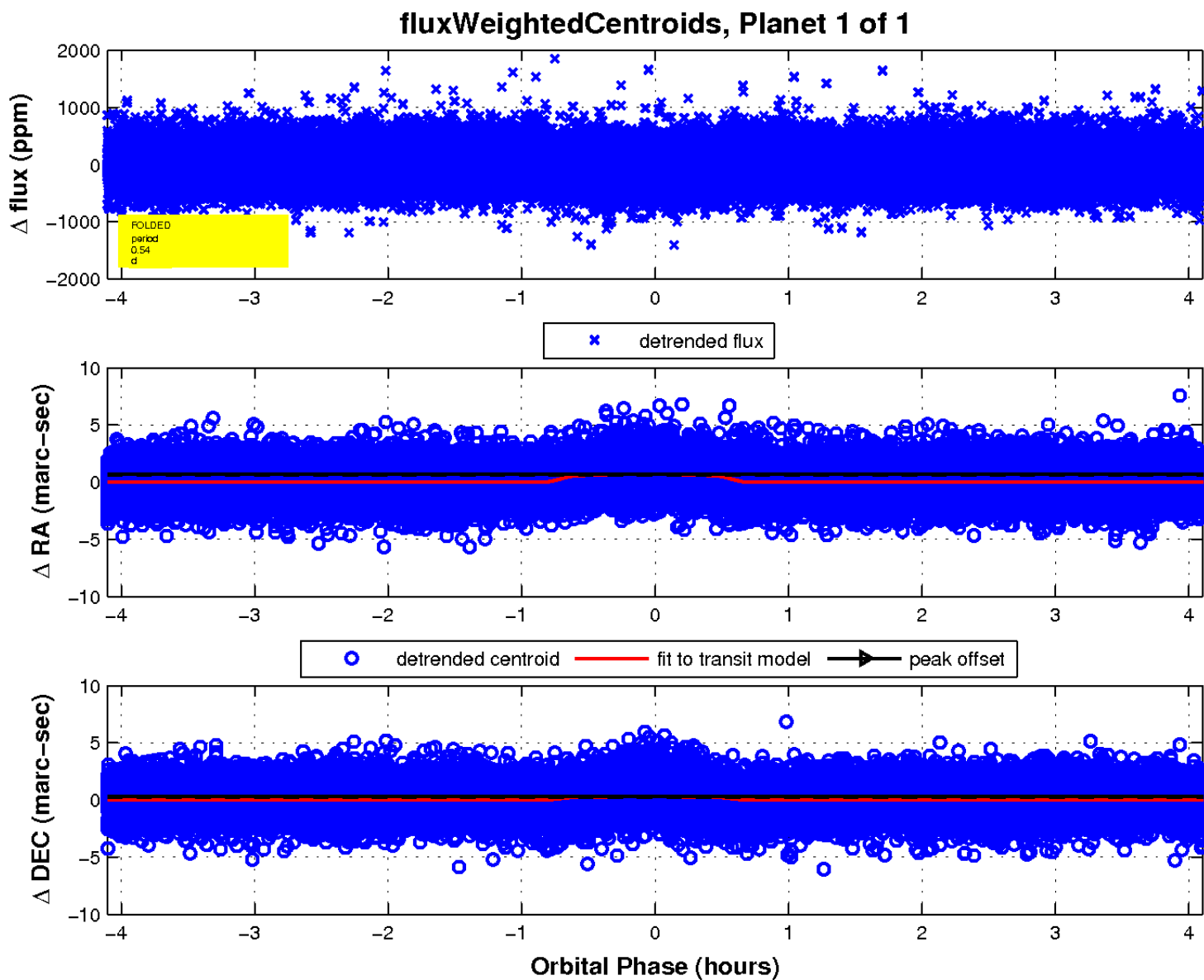
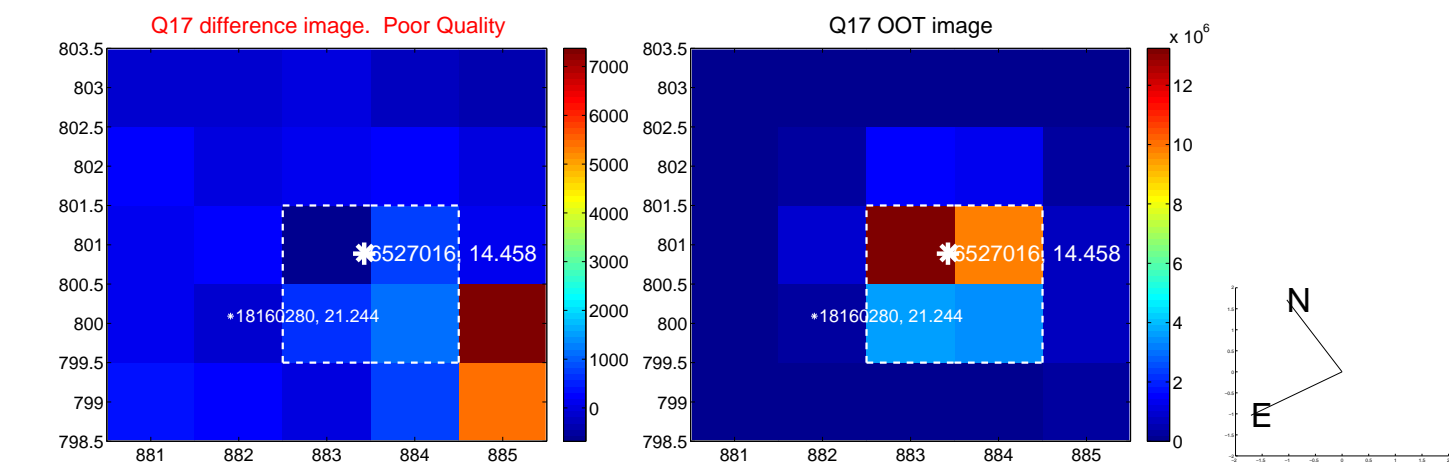
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

