

# KIC 007977047

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 007977047-01 | OBS      | No   | 3.312769      | 134.110810   | 46.1        | 26.003           | 8.7 | 9.0 | 11.59                       | 6926            | 7.99                   | 63677.10               |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------|
| 007977047-01 | OBS      | FP   | 0.00  | 1 | 0 | 0 | 0 | LPP_DV   |

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

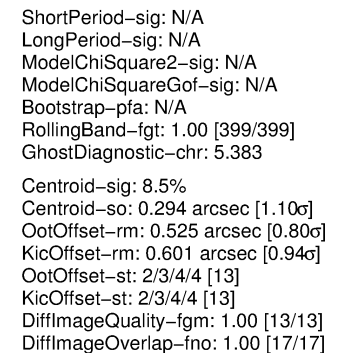
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

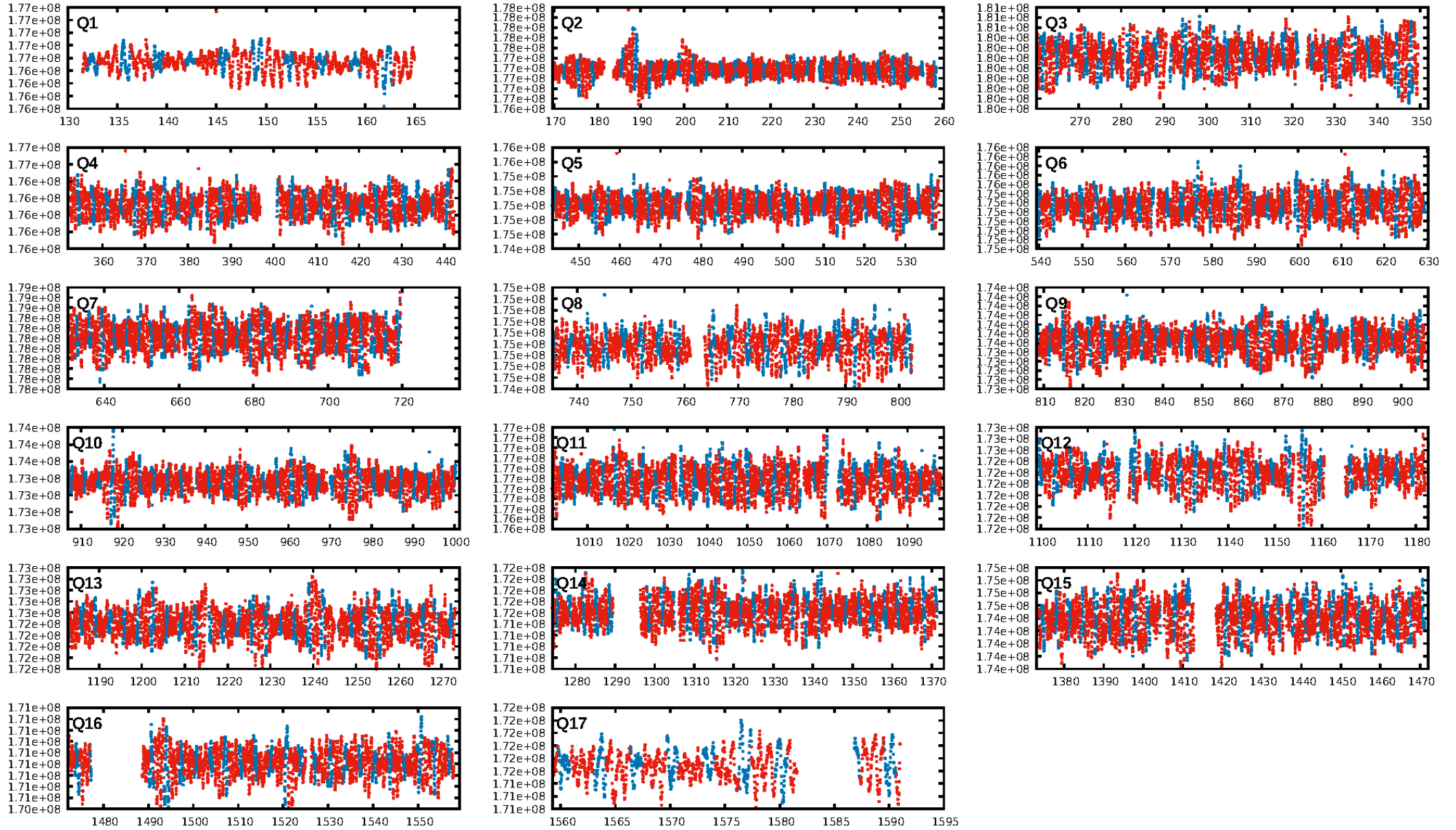
## Ephemeris Match Information For 007977047-01

No Significant Match Found

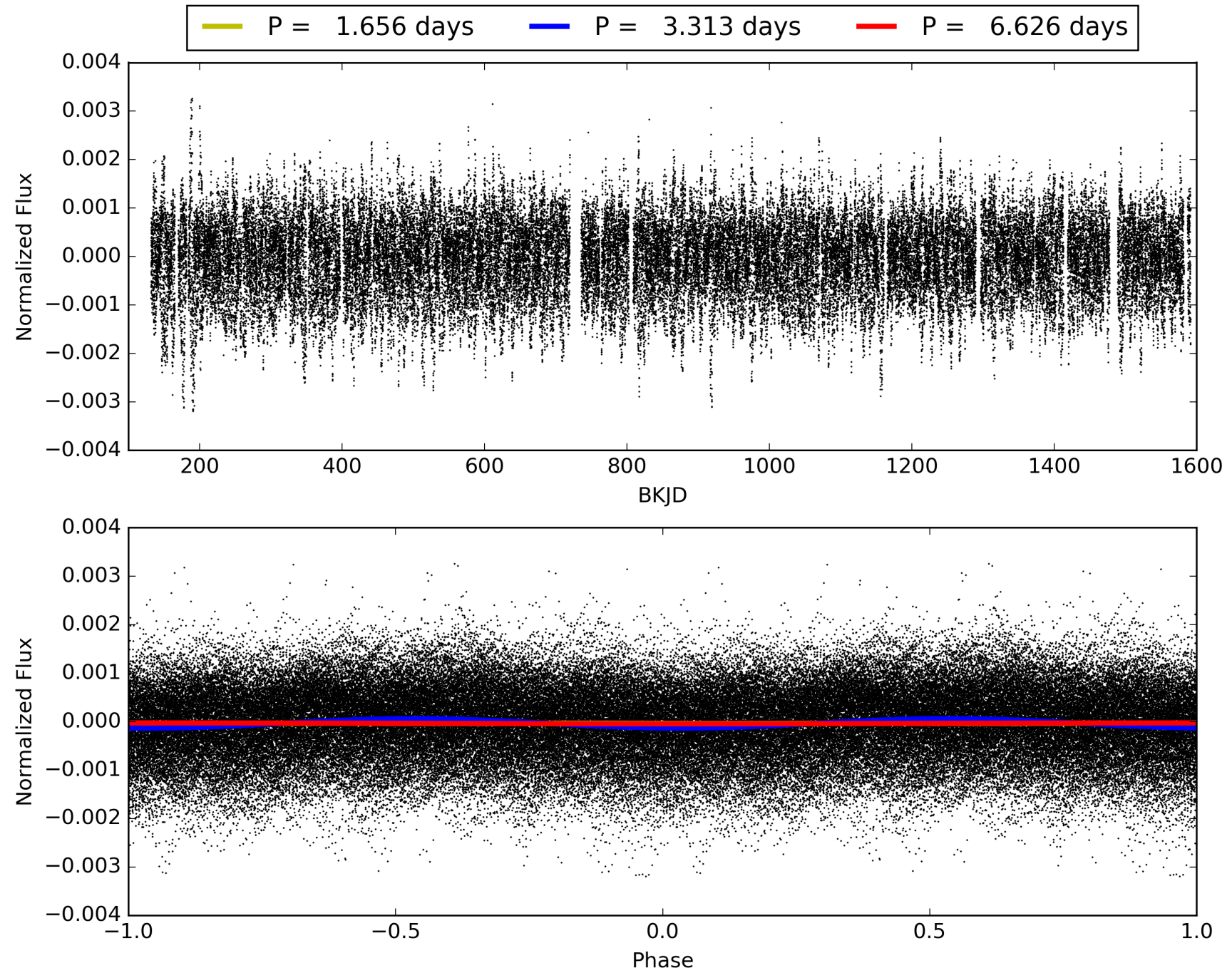
## KIC: 7977047    Candidate: 1 of 1    Period: 3.313 d



# TCE 007977047-01, PDC Light Curves



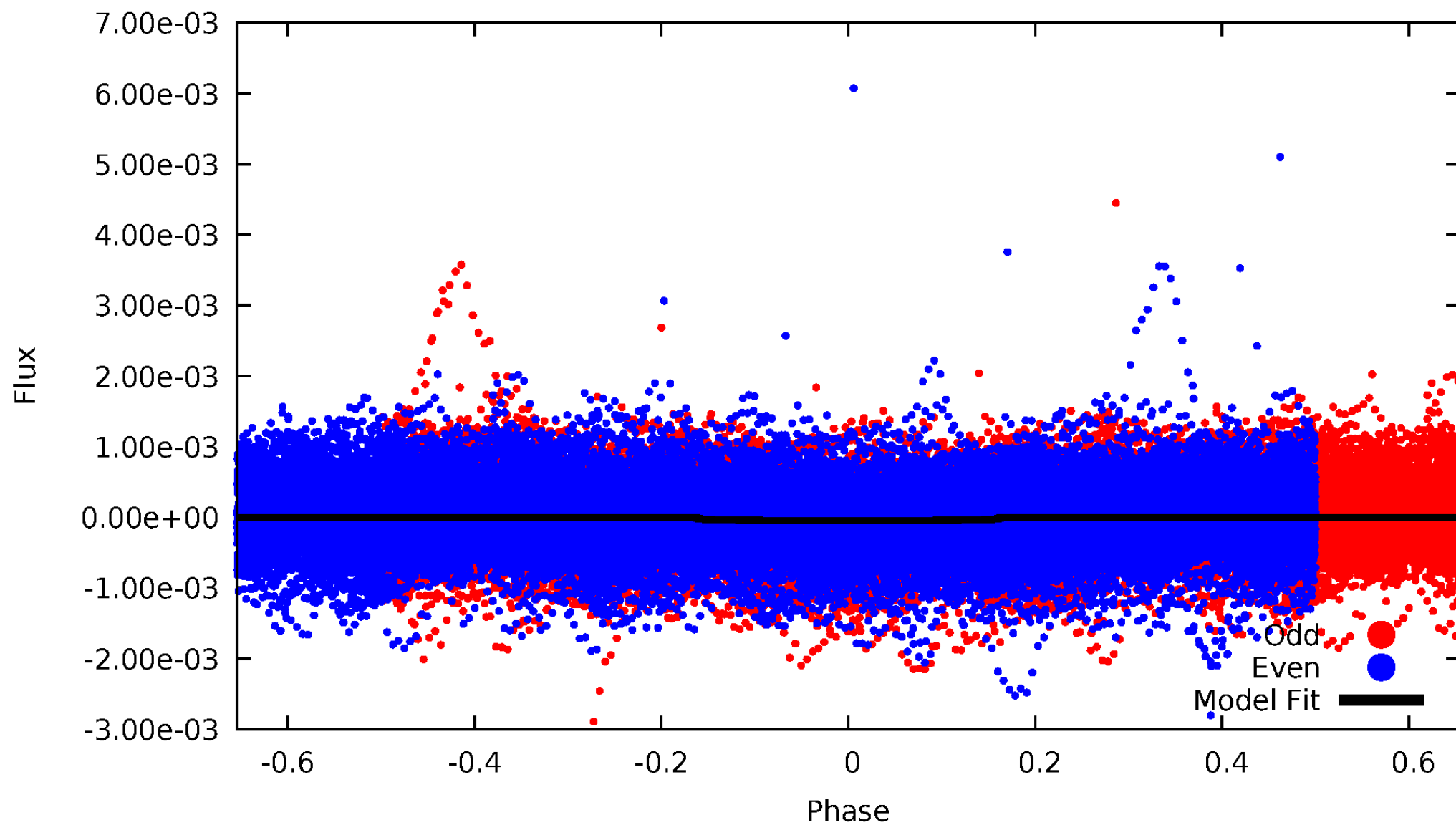
TCE 007977047-01





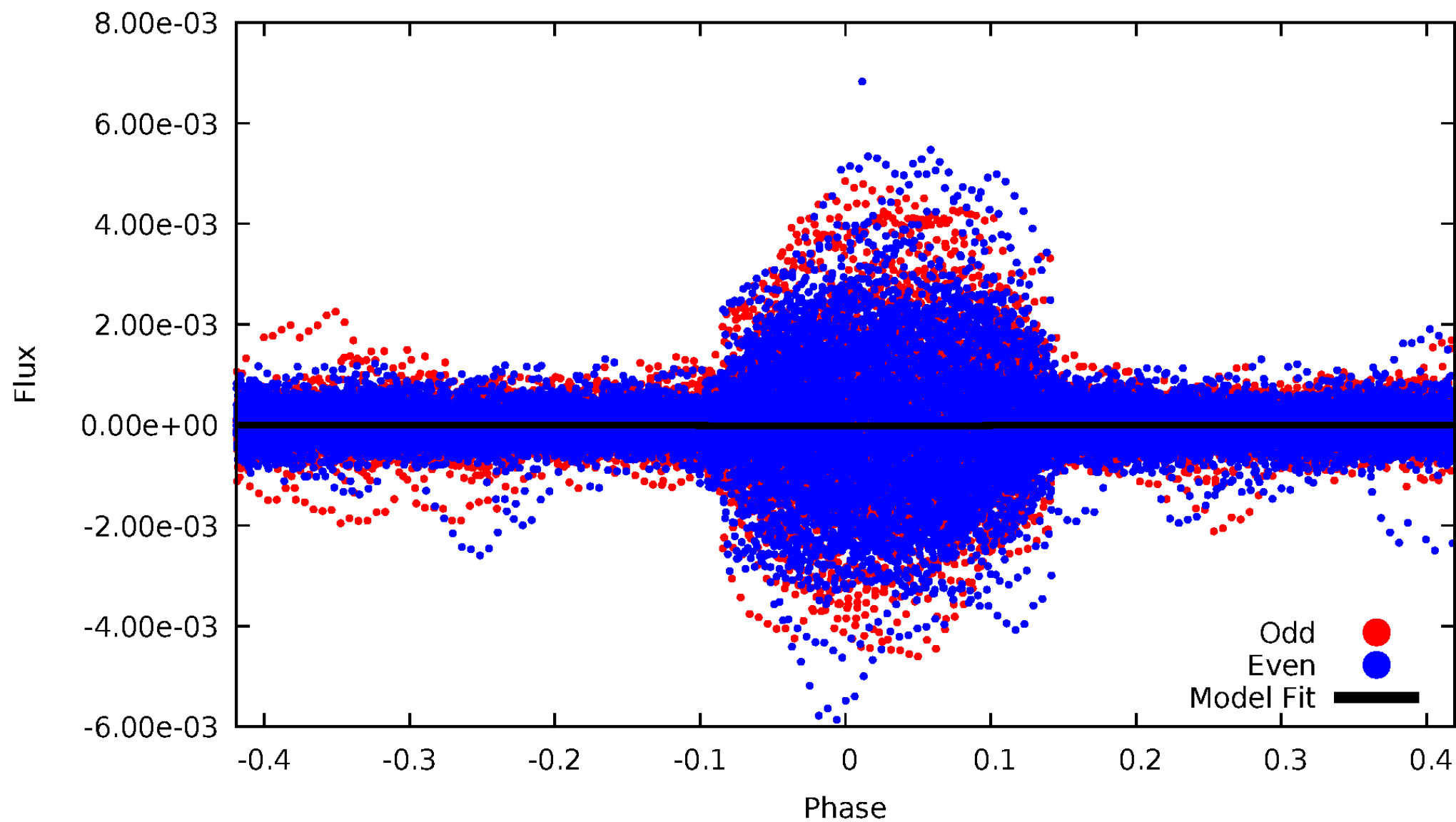
# DV Odd/Even

TCE 007977047-01



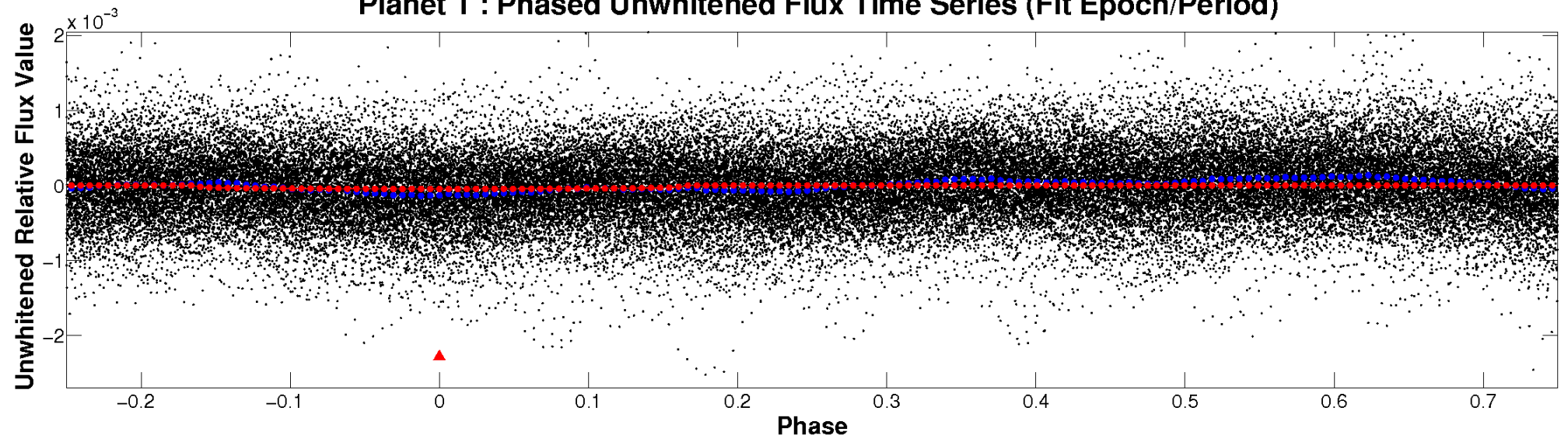
# ALT Odd/Even

TCE 007977047-01

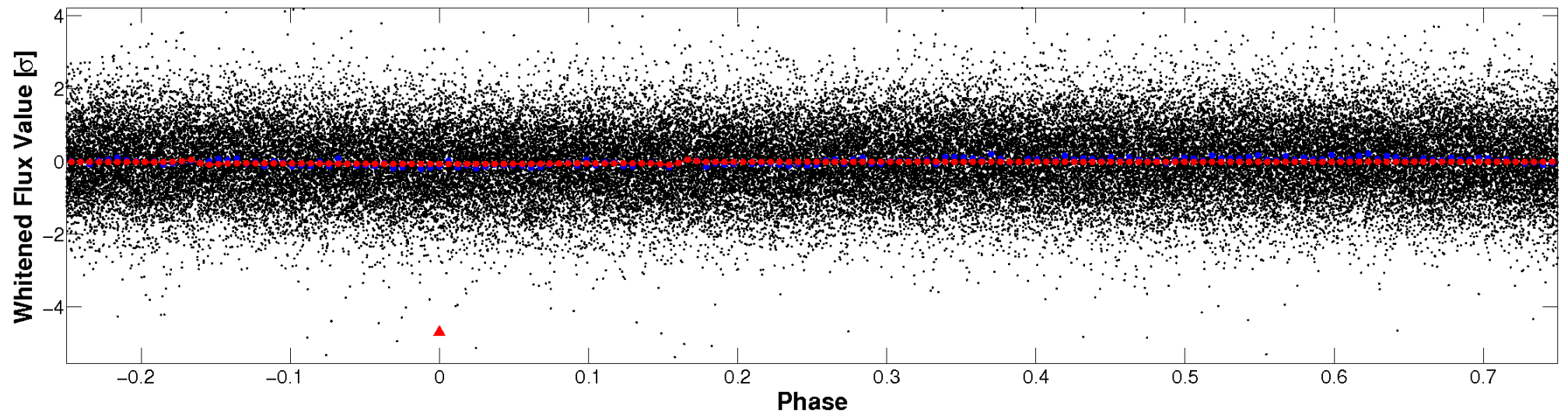


# Non-Whitened Vs. Whitened Light Curve

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

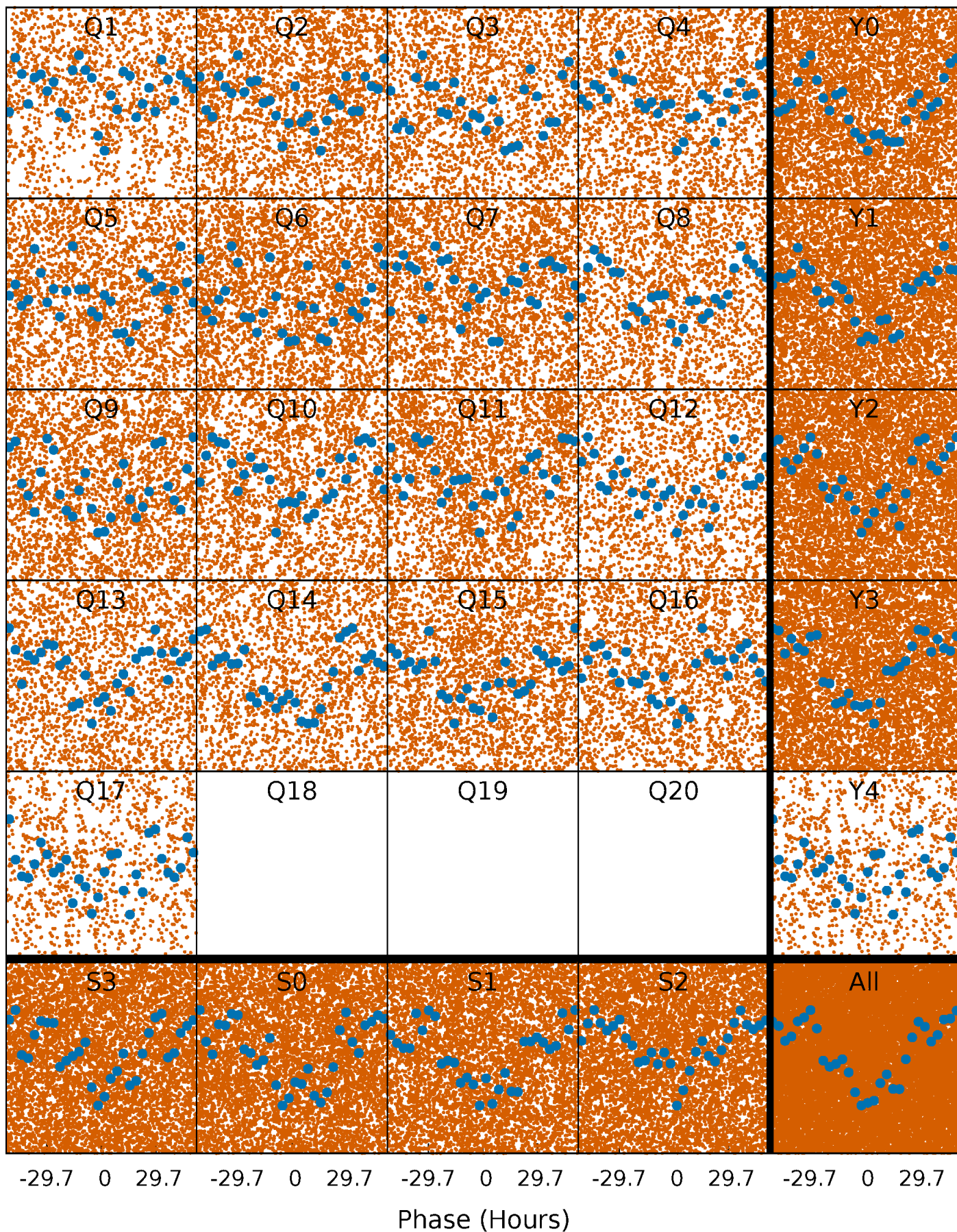


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

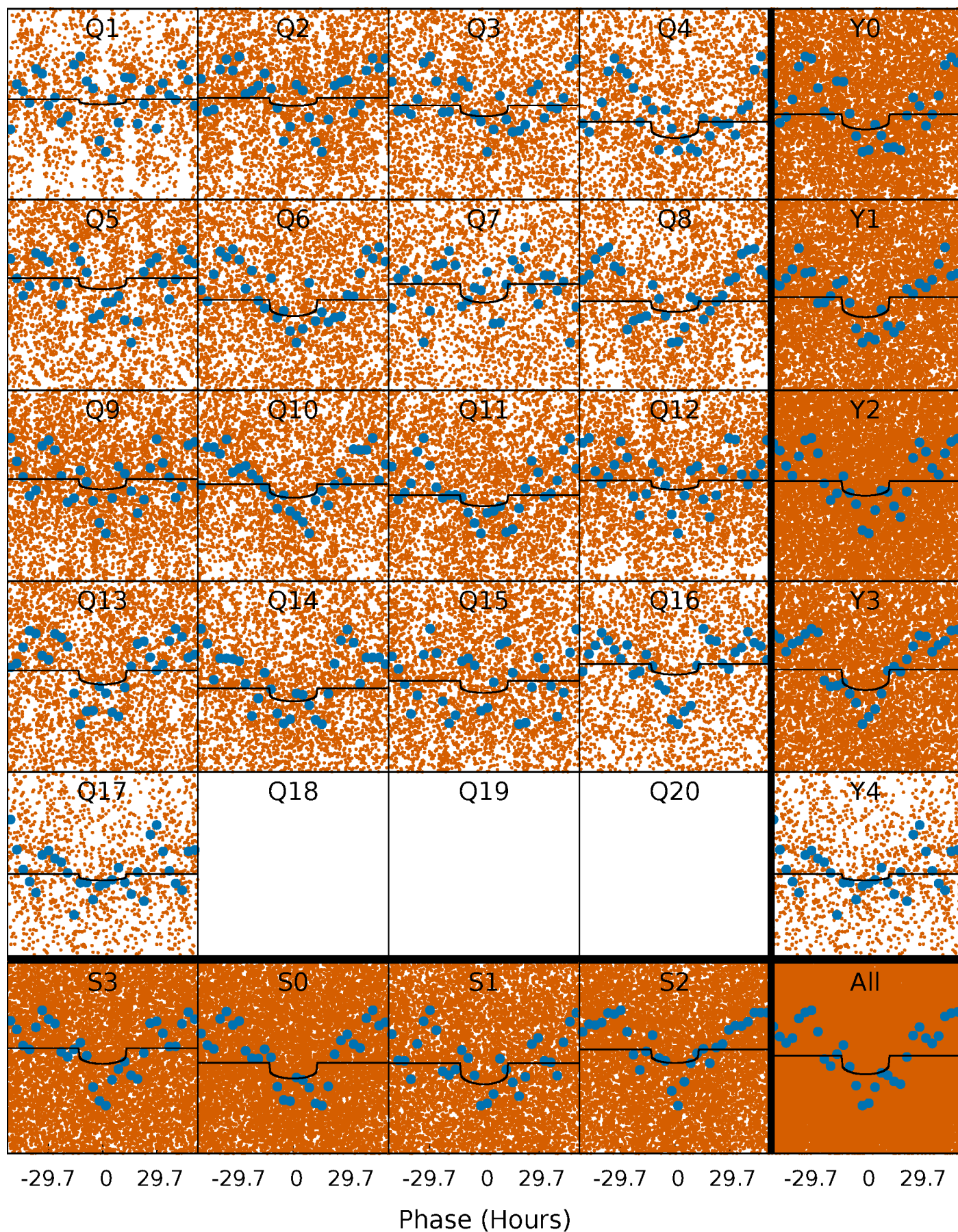
TCE 007977047-01 P= 3.312770 Days  $T_0=134.110810$  (BKJD)





# DV Quarter-Phased Transit Curves

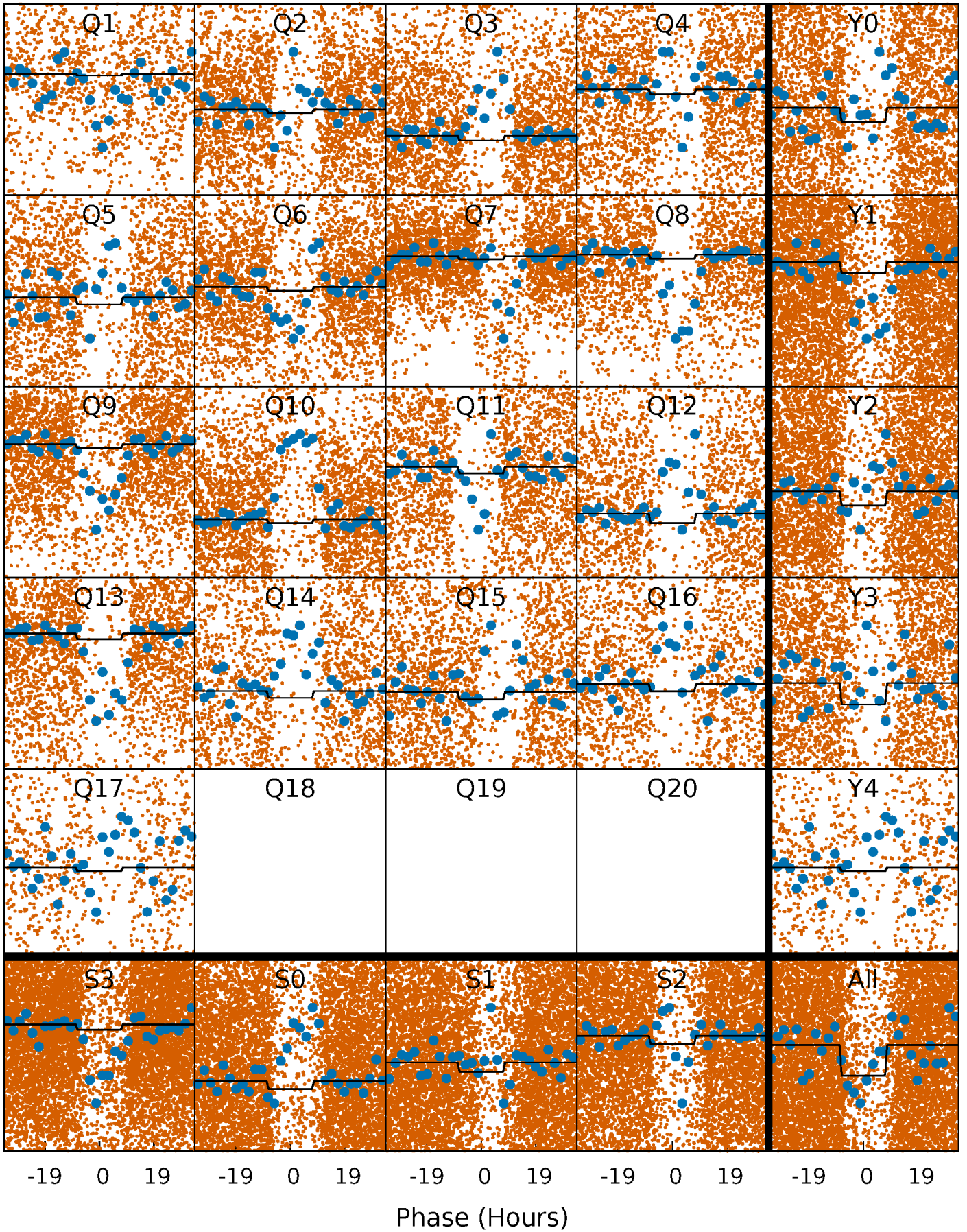
TCE 007977047-01 P= 3.312770 Days  $T_0=134.110810$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

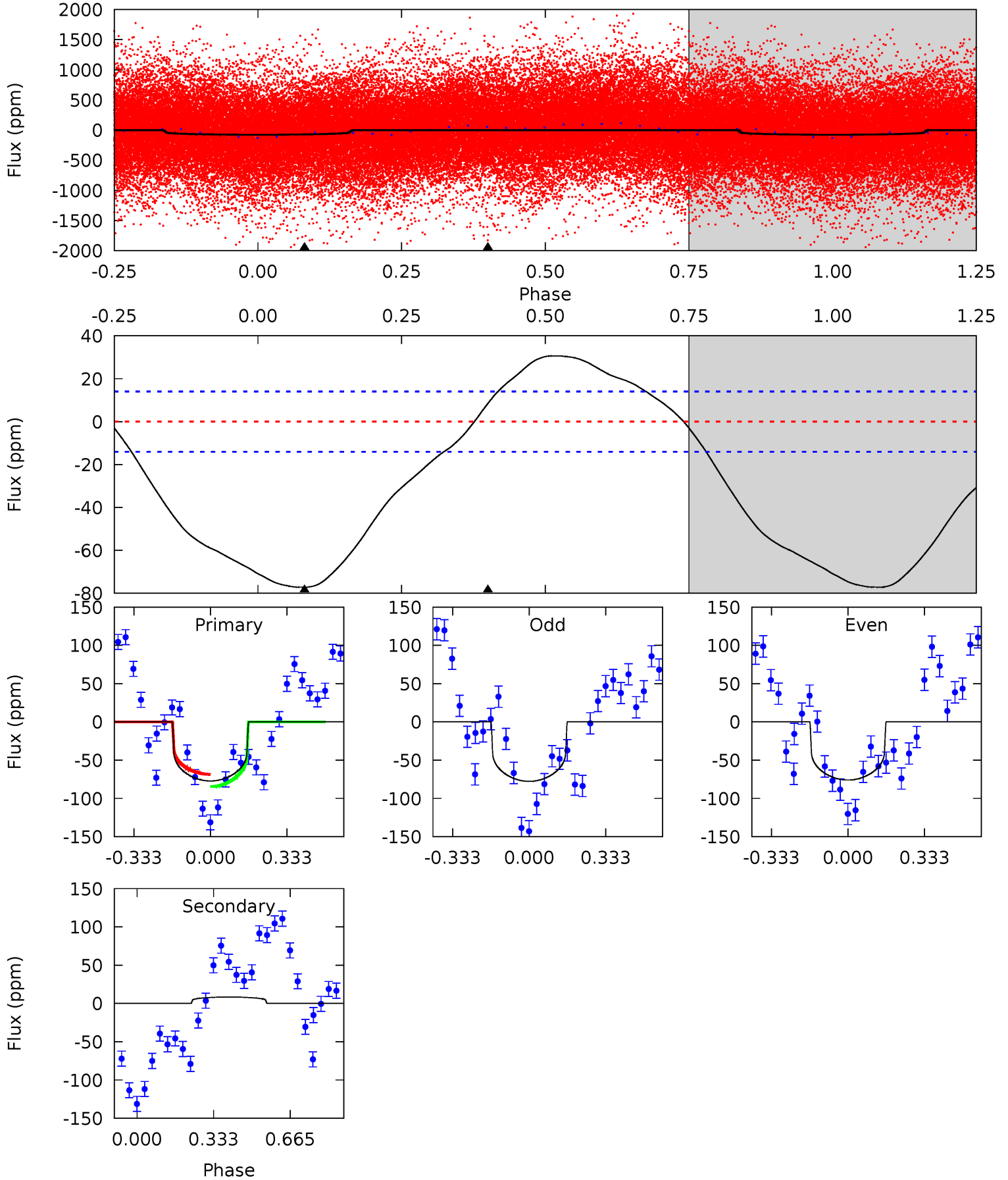
TCE 007977047-01 P= 3.312635 Days  $T_0=134.093742$  (BKJD)



# DV Model-Shift Uniqueness Test

007977047-01, P = 3.312770 Days, E = 130.798040 Days

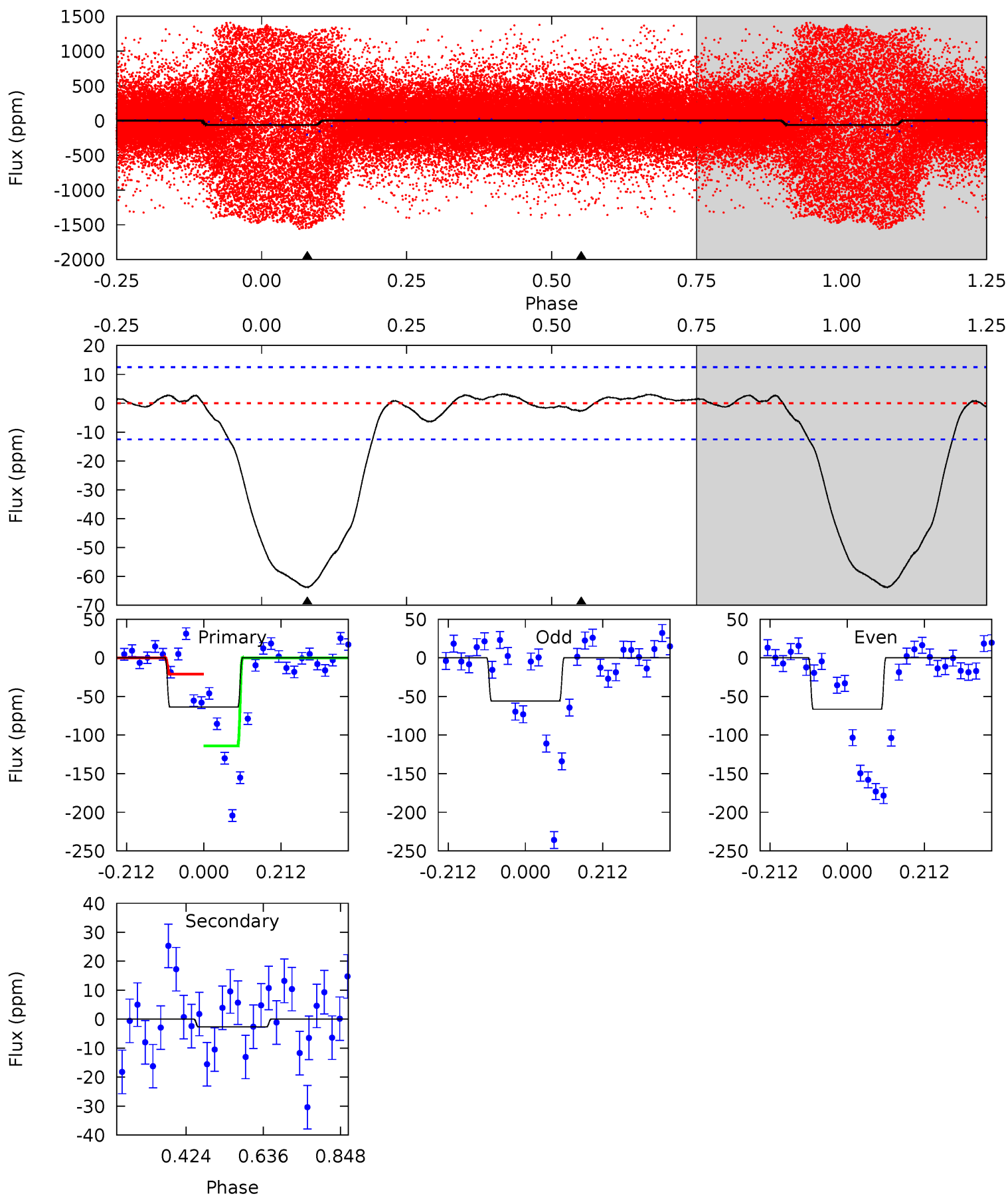
| Pri  | Sec   | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 23.6 | -2.57 | 0   | 0   | 4.31            | 0.97            | 2.71             | 23.6    | 23.6    | -2.57   | -2.57   | 0.27    | 0.94 | 0.28  | 2.52 |



# Alt Model-Shift Uniqueness Test

007977047-01, P = 3.312635 Days, E = 130.781107 Days

| Pri  | Sec  | Ter | Pos | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 22.4 | 0.94 | 0   | 0   | 4.40            | 1.25            | 0.83             | 22.4    | 22.4    | 0.94    | 0.94    | 1.86    | 0.34 | 0.05  | 16.0 |





### Stellar Parameters For KIC 007977047

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                    | $R (R_{\odot})$            | $M(M_{\odot})$            | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|----------------------------|---------------------------|---|
|        | $6926^{+207}_{-207}$ | $2.852^{+0.333}_{-0.037}$ | $0.070^{+0.250}_{-0.550}$ | $11.591^{+0.516}_{-4.903}$ | $3.479^{+0.070}_{-0.911}$ | $0.003^{+0.008}_{-0.001}$                 |
|        | +3%/-3%              | +12%/-1%                  | +357%/-786%               | +4%/-42%                   | +2%/-26%                  | +267%/-19%                                |
| Source | PHO1                 | FLK73                     | 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 007977047-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$     | $T_{max} (K)$        | $T_{obs} (K)$           | $A_{obs}$                  |
|---------|-------------|------------------------|----------------------|-------------------------|----------------------------|
| DV      | $8 \pm 3$   | $7.29^{+3.07}_{-2.84}$ | $5524^{+270}_{-540}$ | $-5418^{+442}_{-862}$   | $-0.345^{+0.197}_{-0.671}$ |
| Alt.    | $-3 \pm 3$  | $4.75^{+2.94}_{-2.36}$ | $5543^{+261}_{-540}$ | $-3687^{+9048}_{-1018}$ | $0.207^{+0.821}_{-0.223}$  |

$T_{max}$  = 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

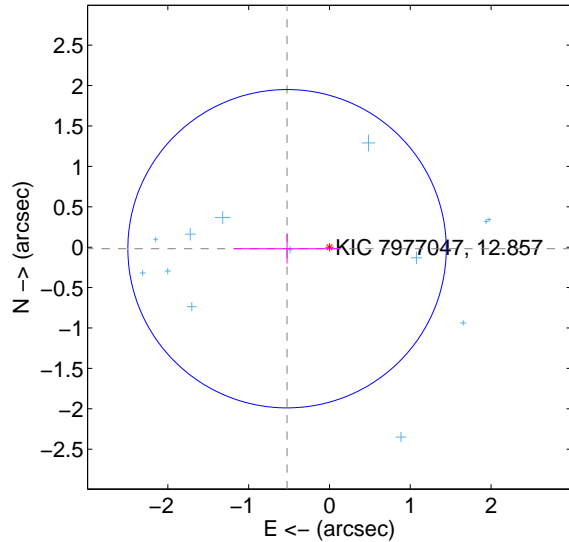
Supplemental centroid analysis for 007977047-01. Kepler magnitude: 12.86. Transit SNR 9.00

There are 13 quarters with good PRF difference image offsets

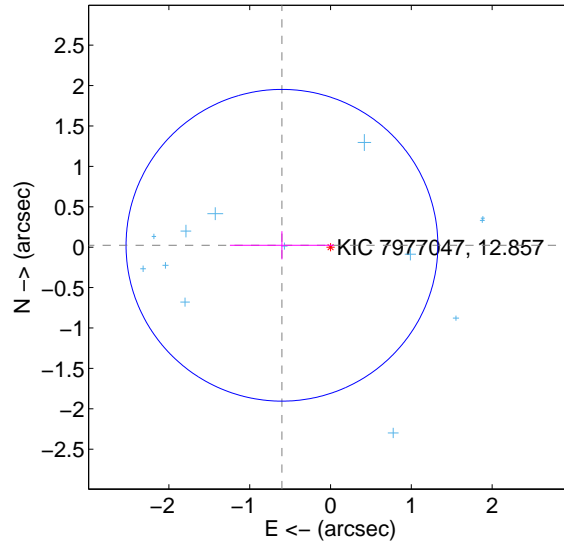
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA       | $\Delta$ Dec       |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT          | $0.525 \pm 0.656$  | 0.80                | $0.525 \pm 0.657$ | $-0.019 \pm 0.182$ |
| PRF-fit source offset from KIC position | $0.601 \pm 0.643$  | 0.94                | $0.601 \pm 0.643$ | $0.024 \pm 0.174$  |
| photometric centroid source offset      | $0.29 \pm 0.27$    | 1.10                | $0.11 \pm 0.25$   | $-0.27 \pm 0.27$   |

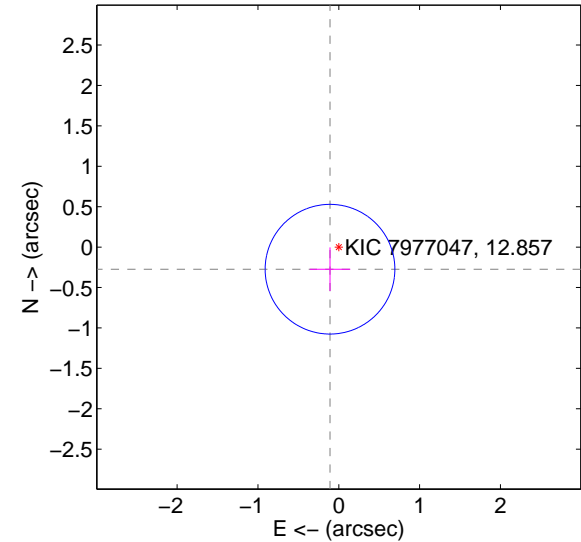
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

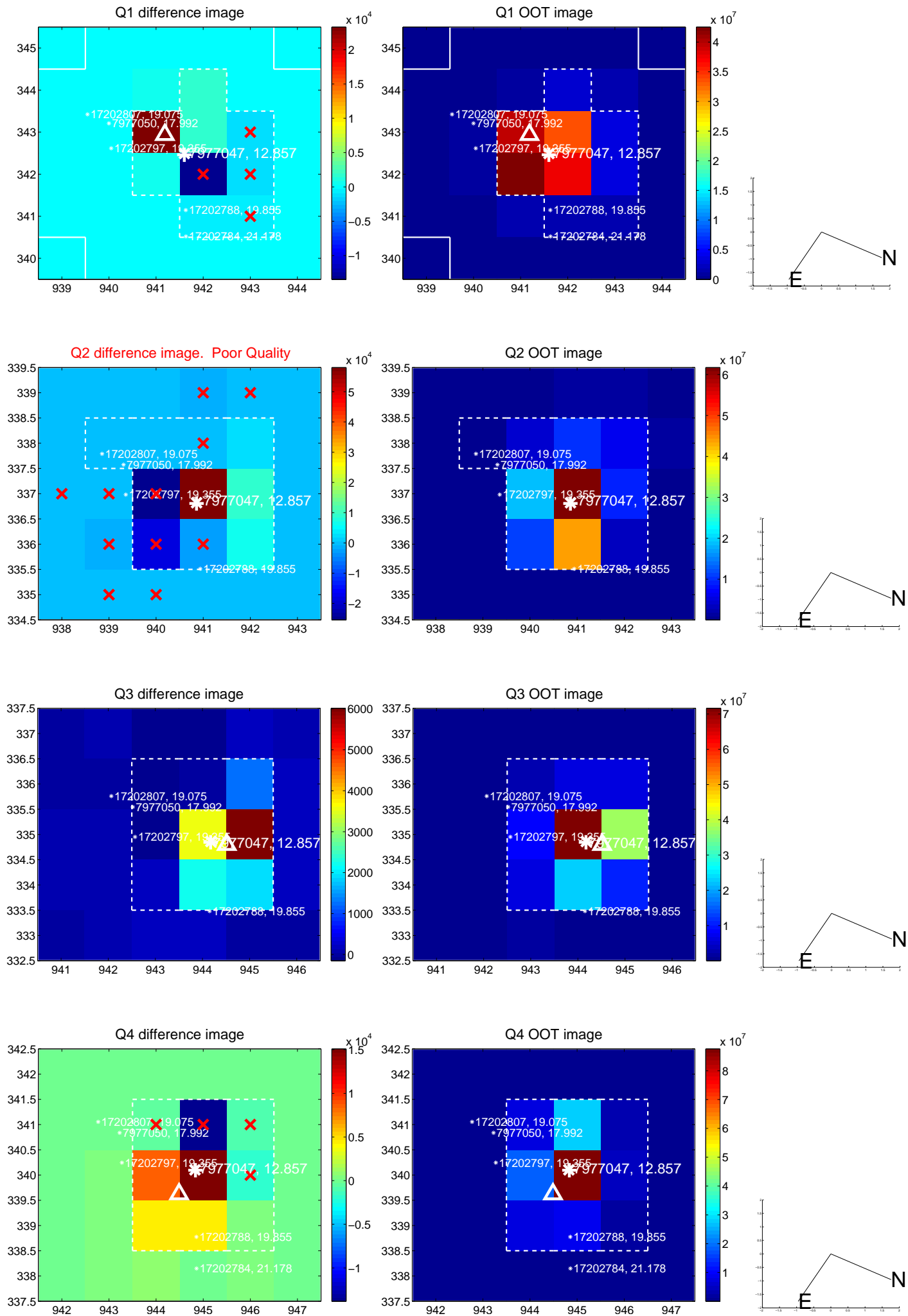


offset from photometric centroids

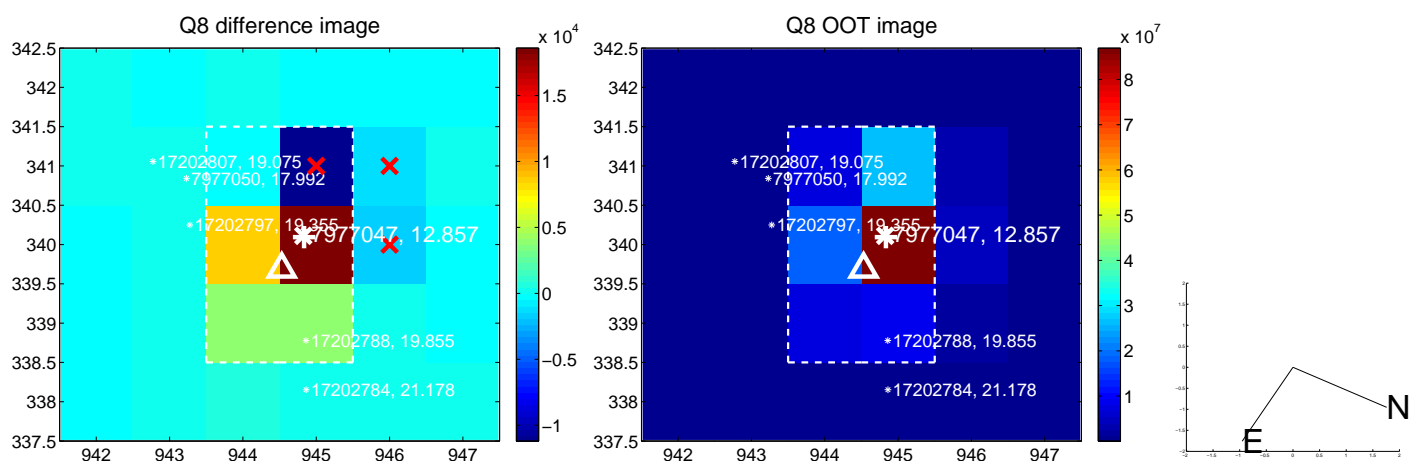
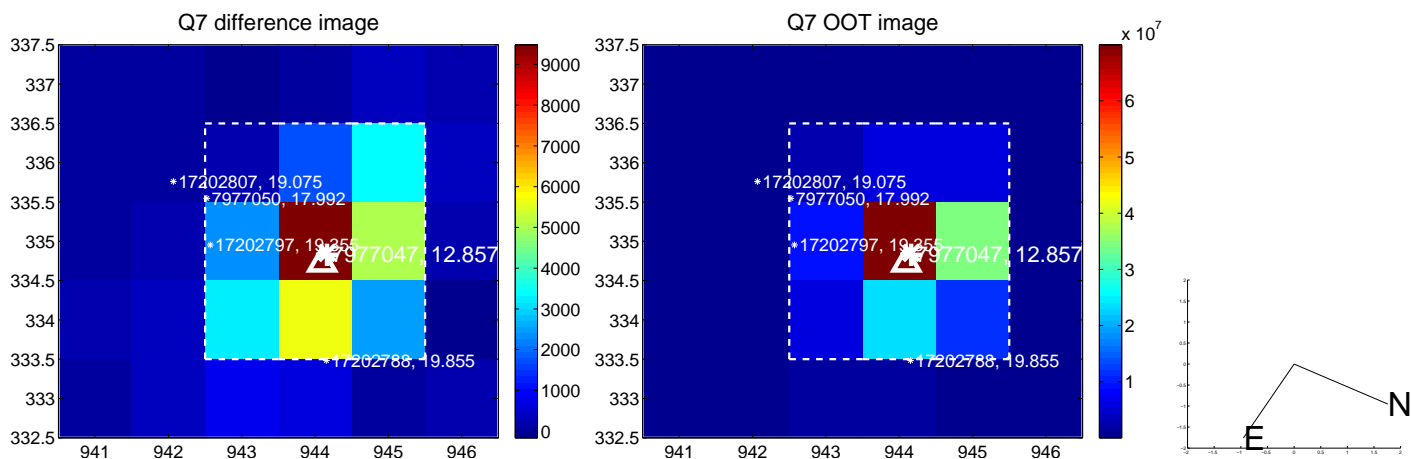
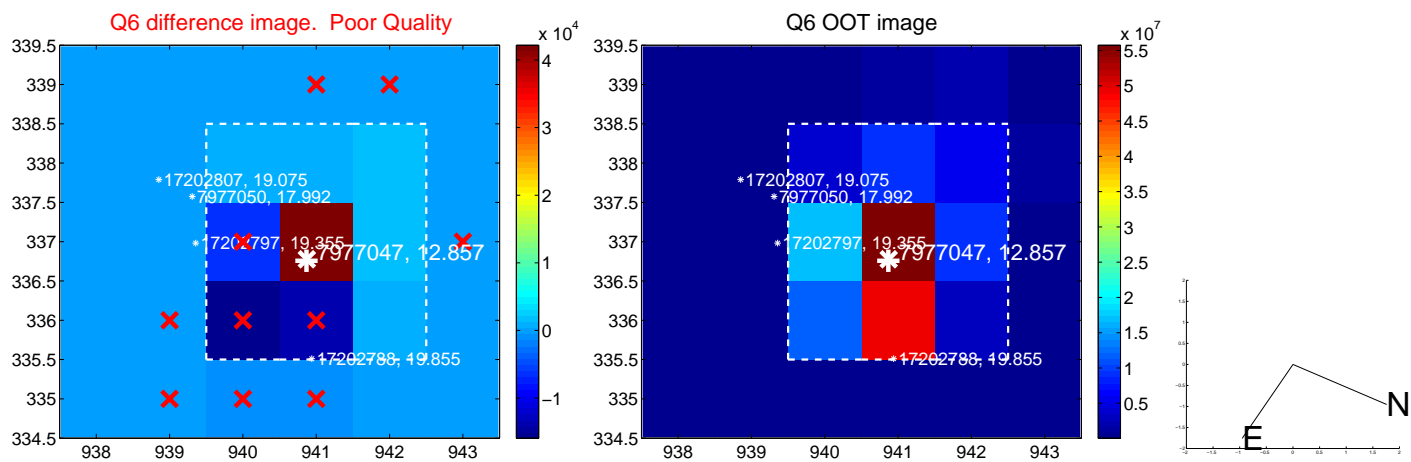
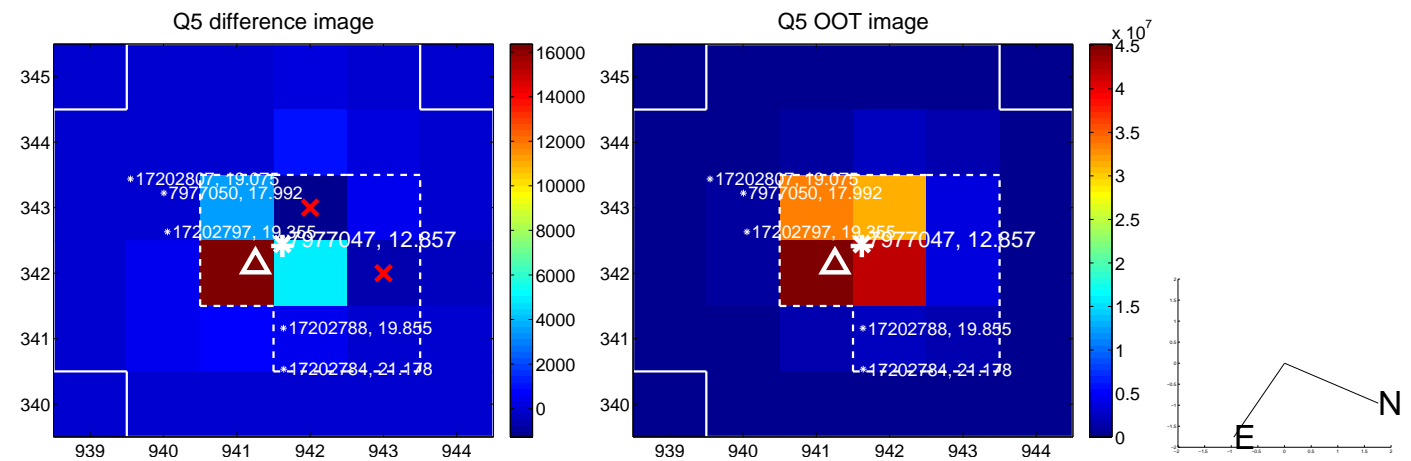


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

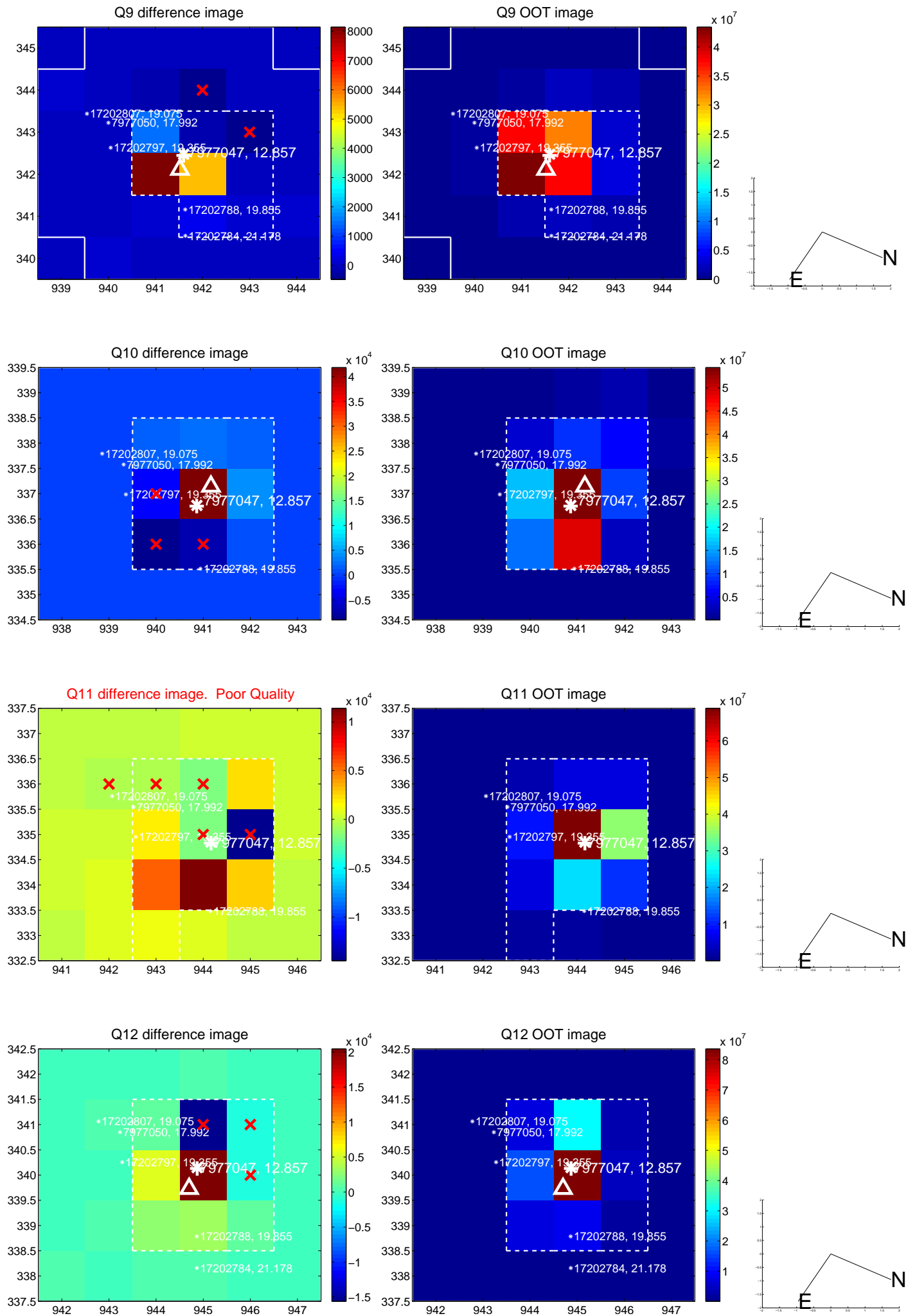


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

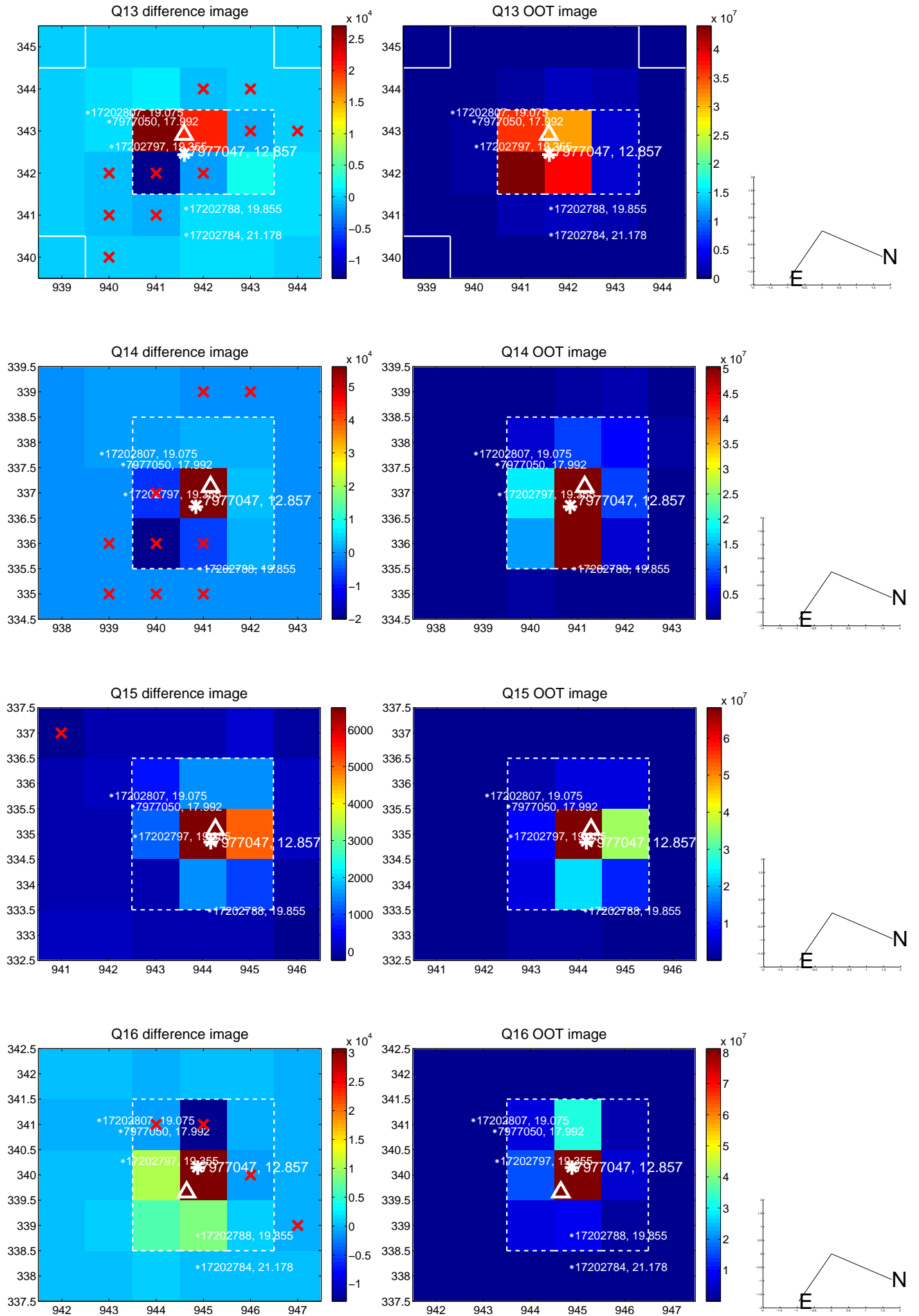




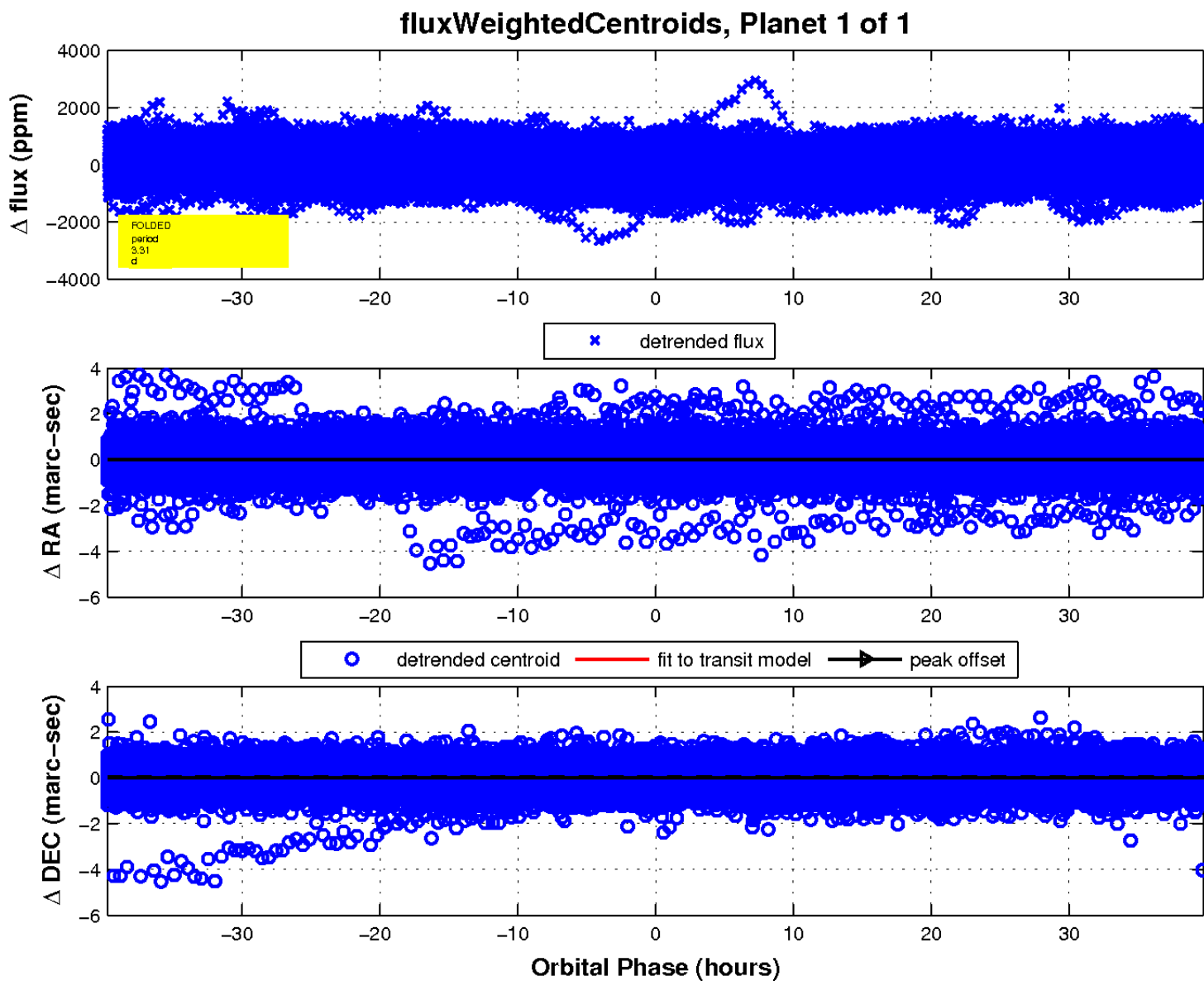
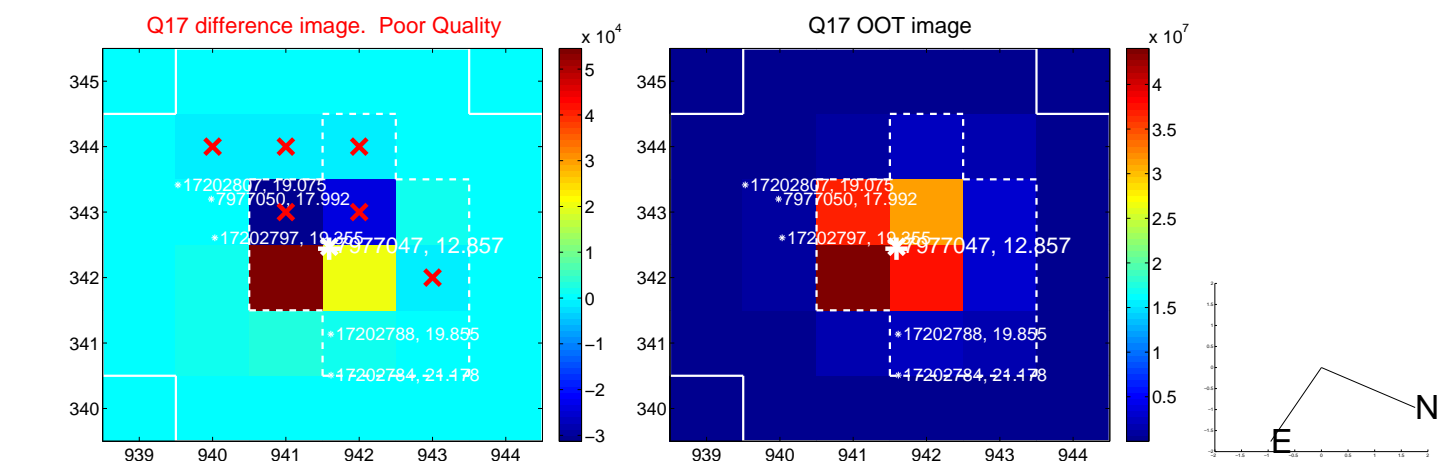
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : 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

