

KIC 009770983

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 009770983-01 | OBS | 7961.01 | 7.029383 | 134.656243 | 88.7 | 2.985 | 8.1 | 9.0 | 1.02 | 5977 | 1.10 | 213.09 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|----------------------|
| 009770983-01 | OBS | FP | 0.38 | 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.

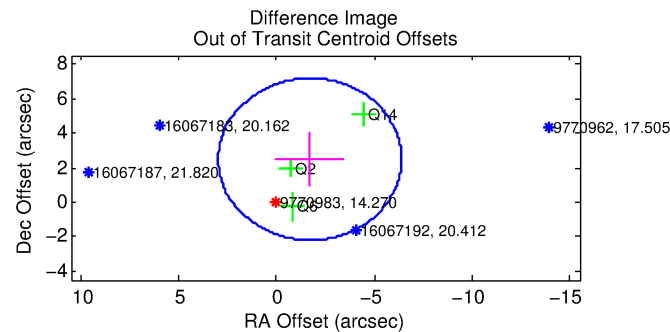
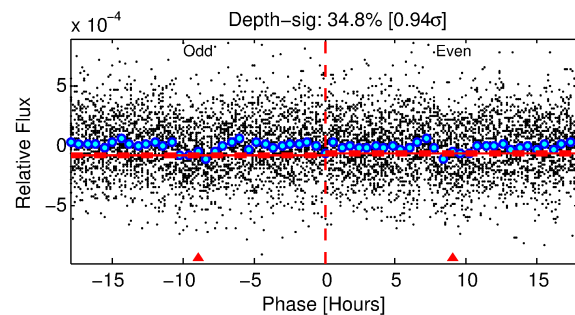
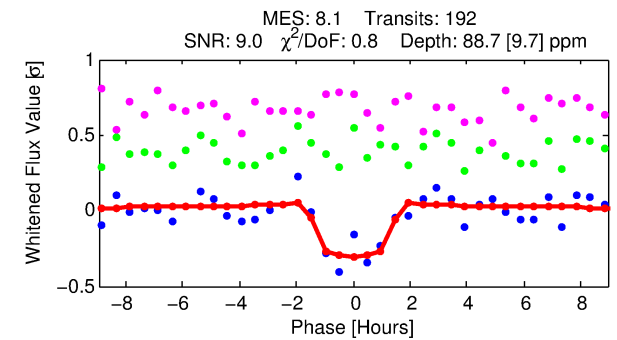
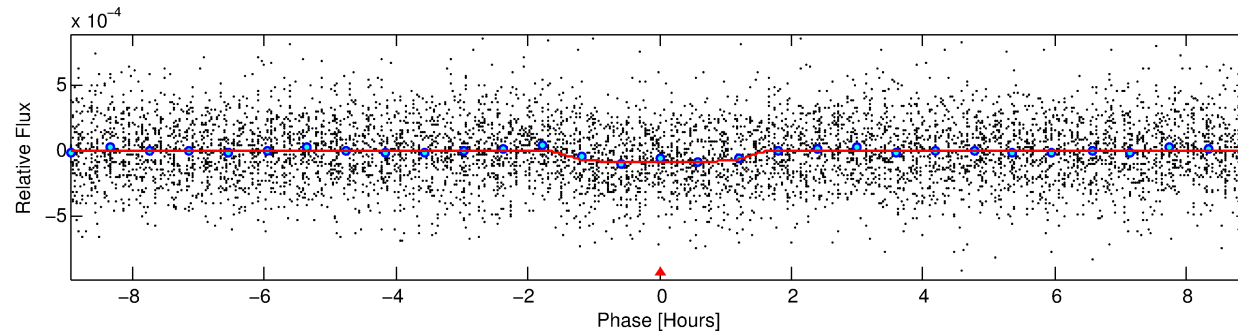
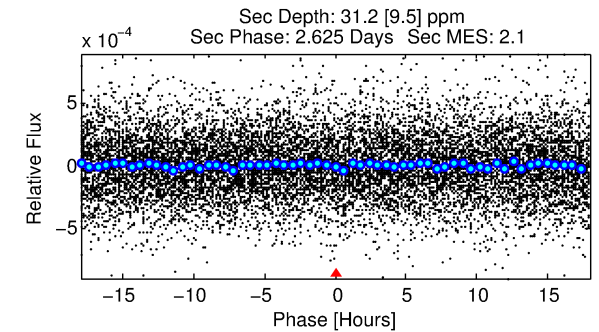
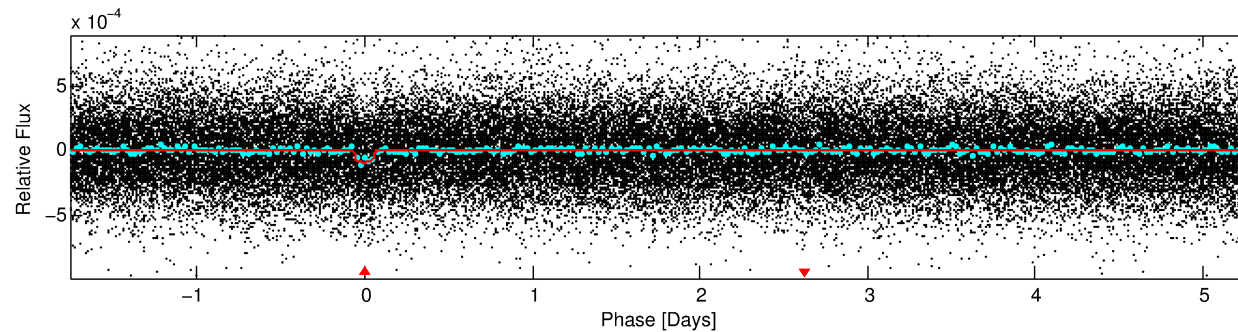
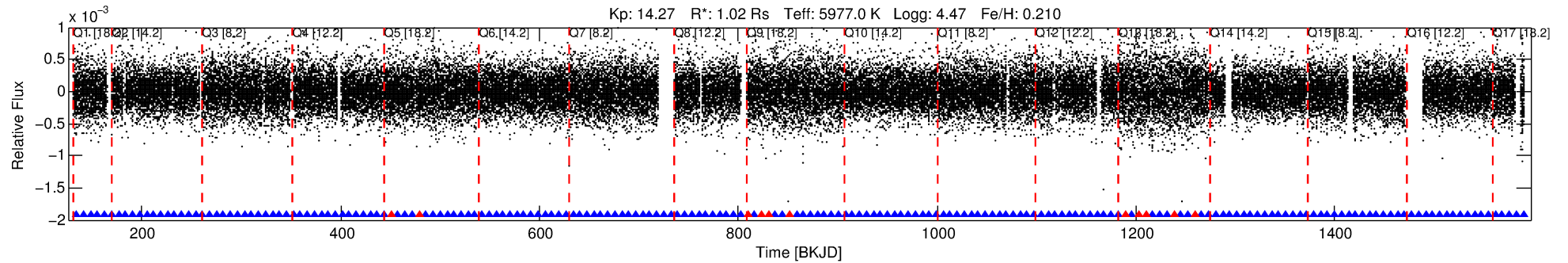
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009770983-01

No Significant Match Found

DV One-Page Summary

KIC: 9770983 Candidate: 1 of 1 Period: 7.029 d



DV Fit Results:

Period = 7.02938 [0.00005] d
Epoch = 134.6562 [0.0055] BKJD
Rp/R* = 0.0099 [0.0070]
a/R* = 9.71 [32.17]
b = 0.86 [1.07]
Seff = 213.09 [78.70]
Teff = 974 [90] K
Rp = 1.10 [0.83] Re
a = 0.0749 [0.0171] AU
Ag = 79.30 [117.30] [0.67σ]
Teffp = 4495 [1627] K [2.16σ]

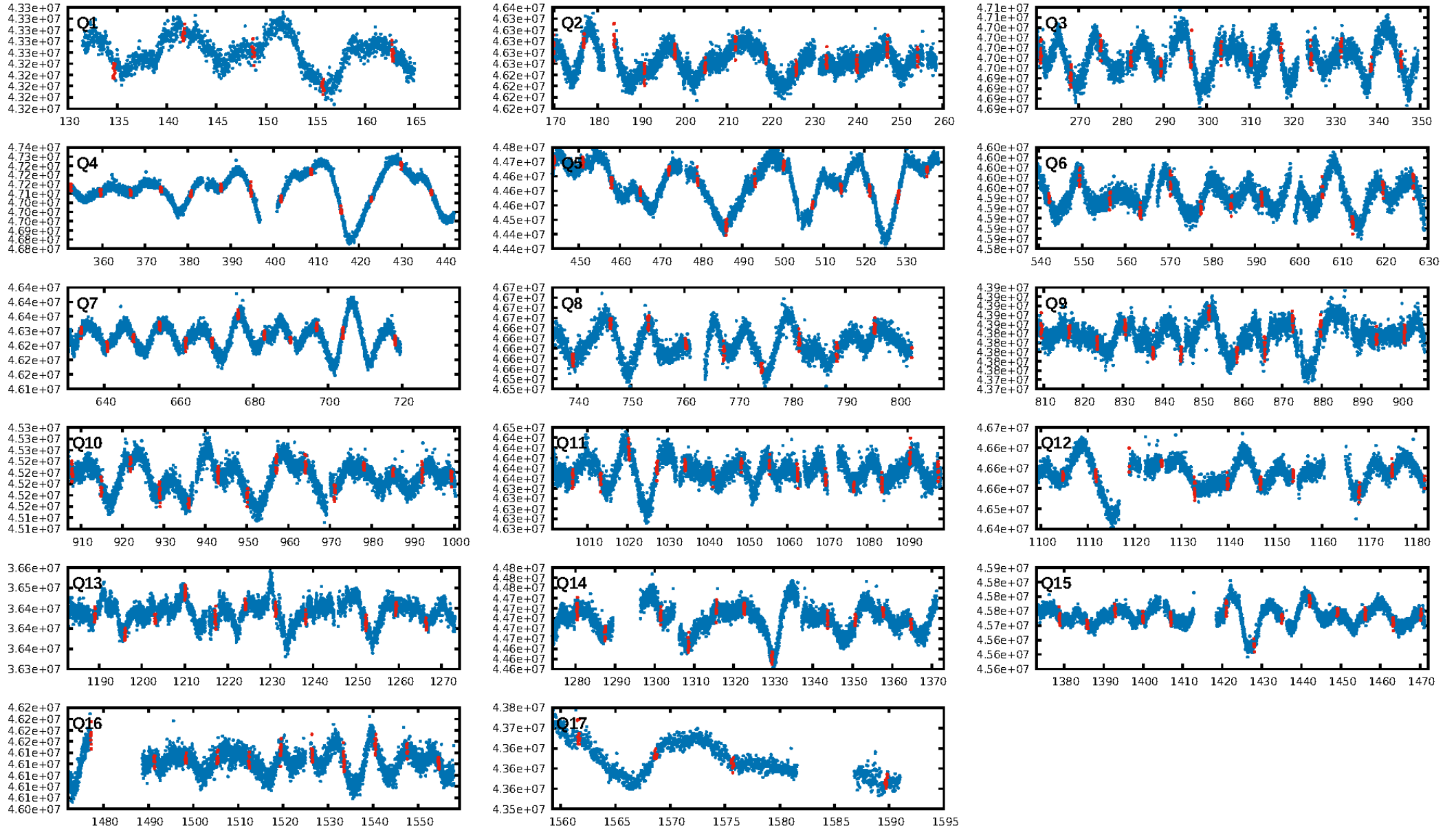
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.62e-15
RollingBand-fgt: 0.94 [172/183]
GhostDiagnostic-chr: -441.4
Centroid-sig: 7.5%
Centroid-so: 2.071 arcsec [0.84σ]
OotOffset-rm: 3.017 arcsec [1.93σ]
KicOffset-rm: 2.898 arcsec [2.17σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/1/0/0 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [17/17]

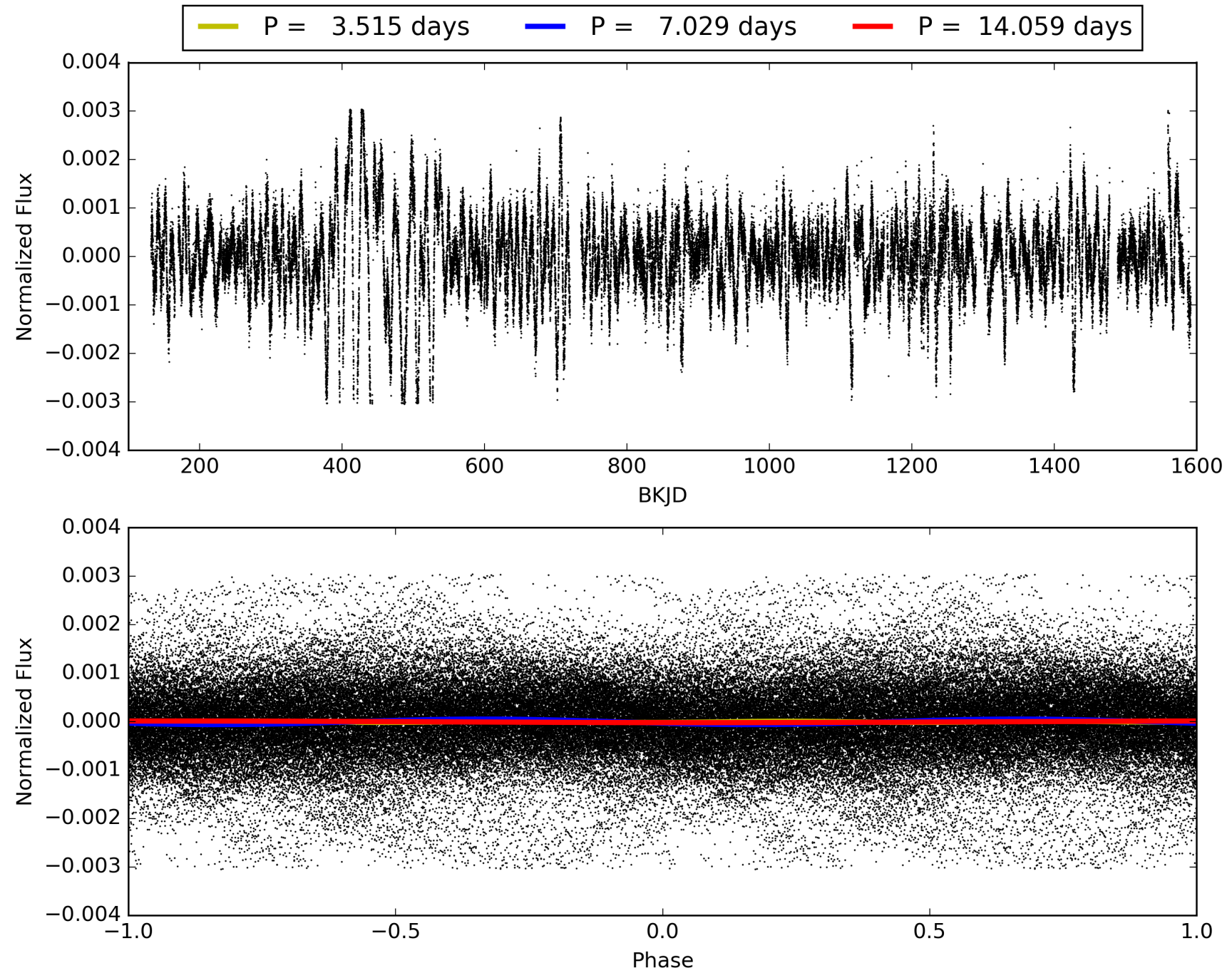
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:16:03 Z

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

TCE 009770983-01, PDC Light Curves

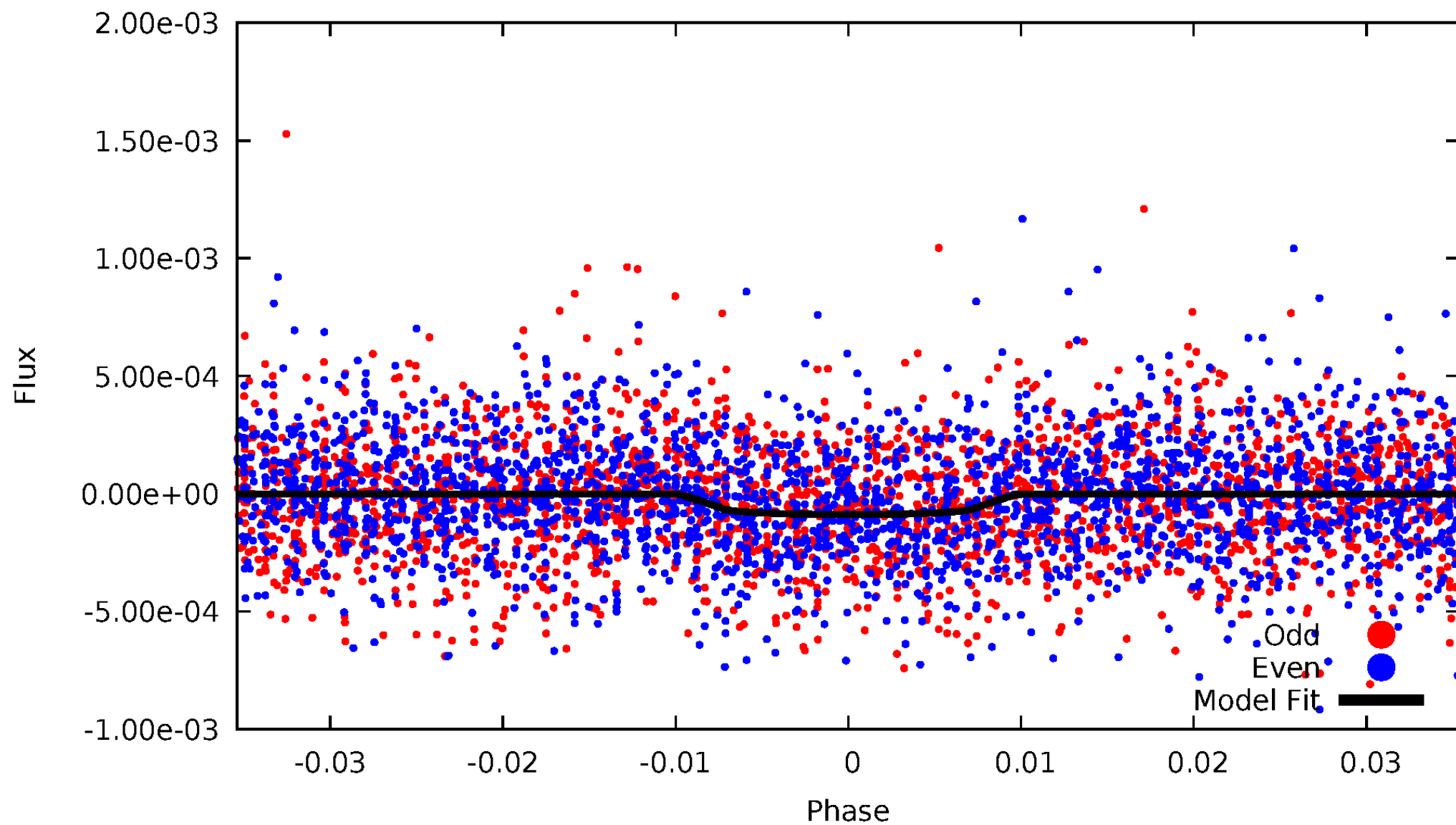


TCE 009770983-01



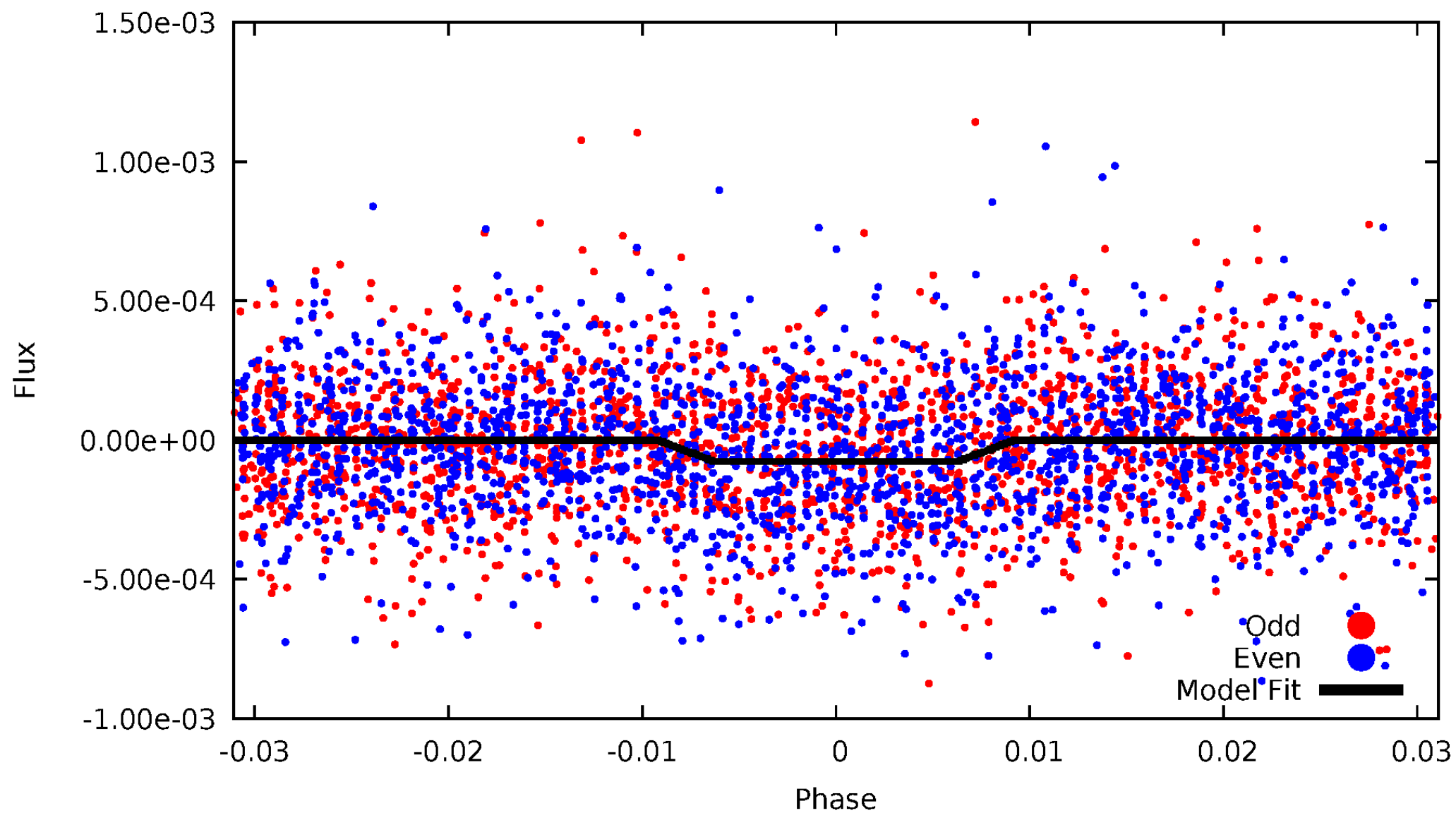
DV Odd/Even

TCE 009770983-01



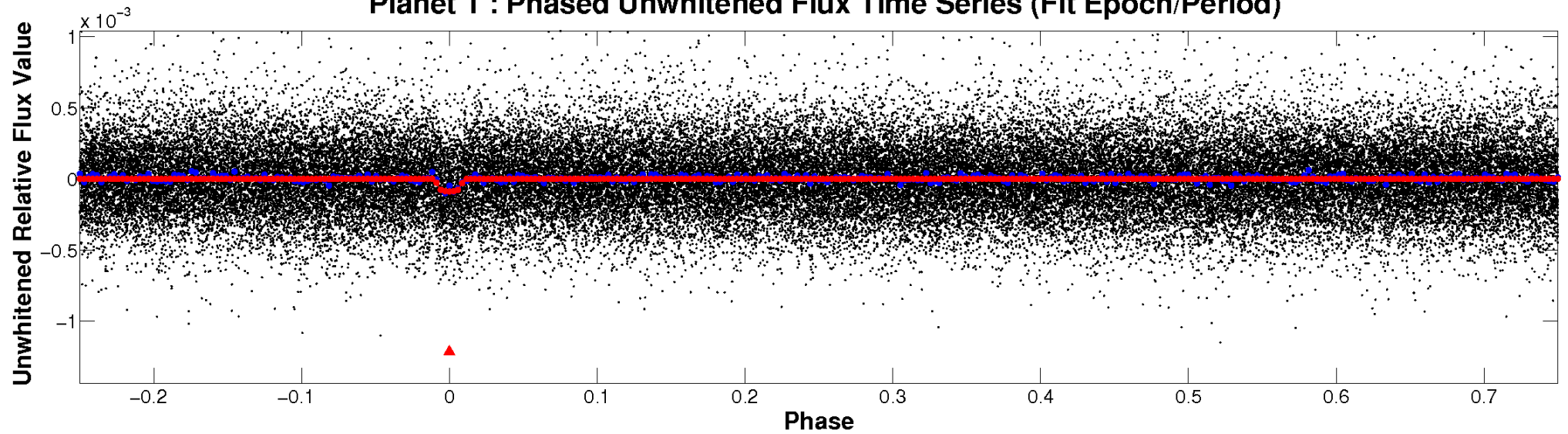
ALT Odd/Even

TCE 009770983-01

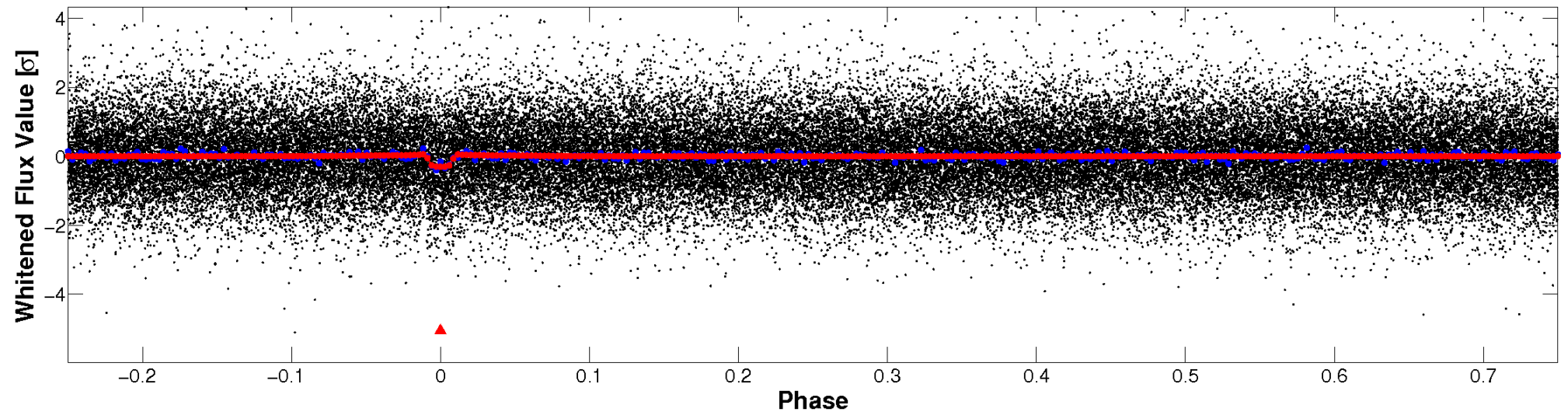


Non-Whitened Vs. Whitened Light Curve

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

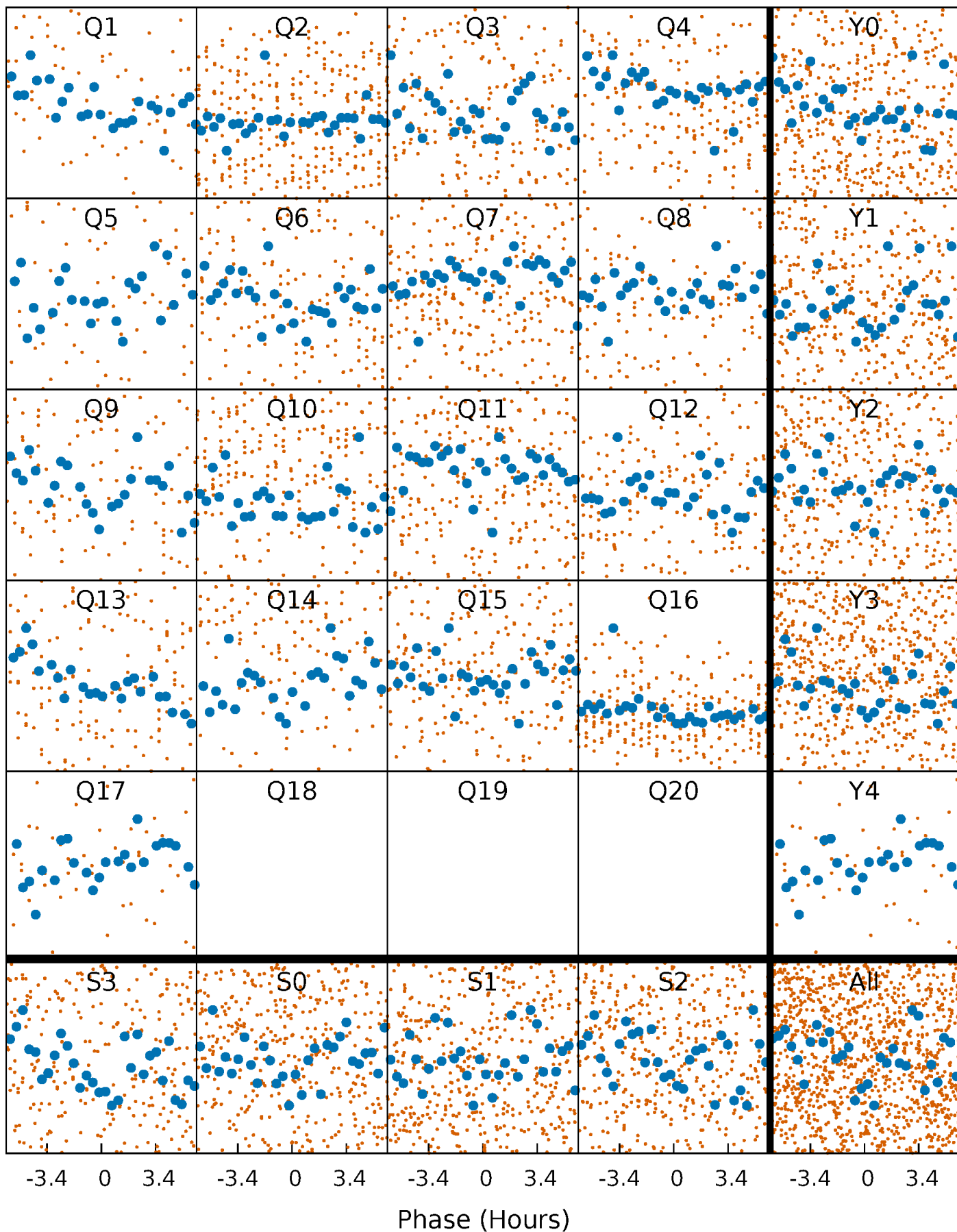


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



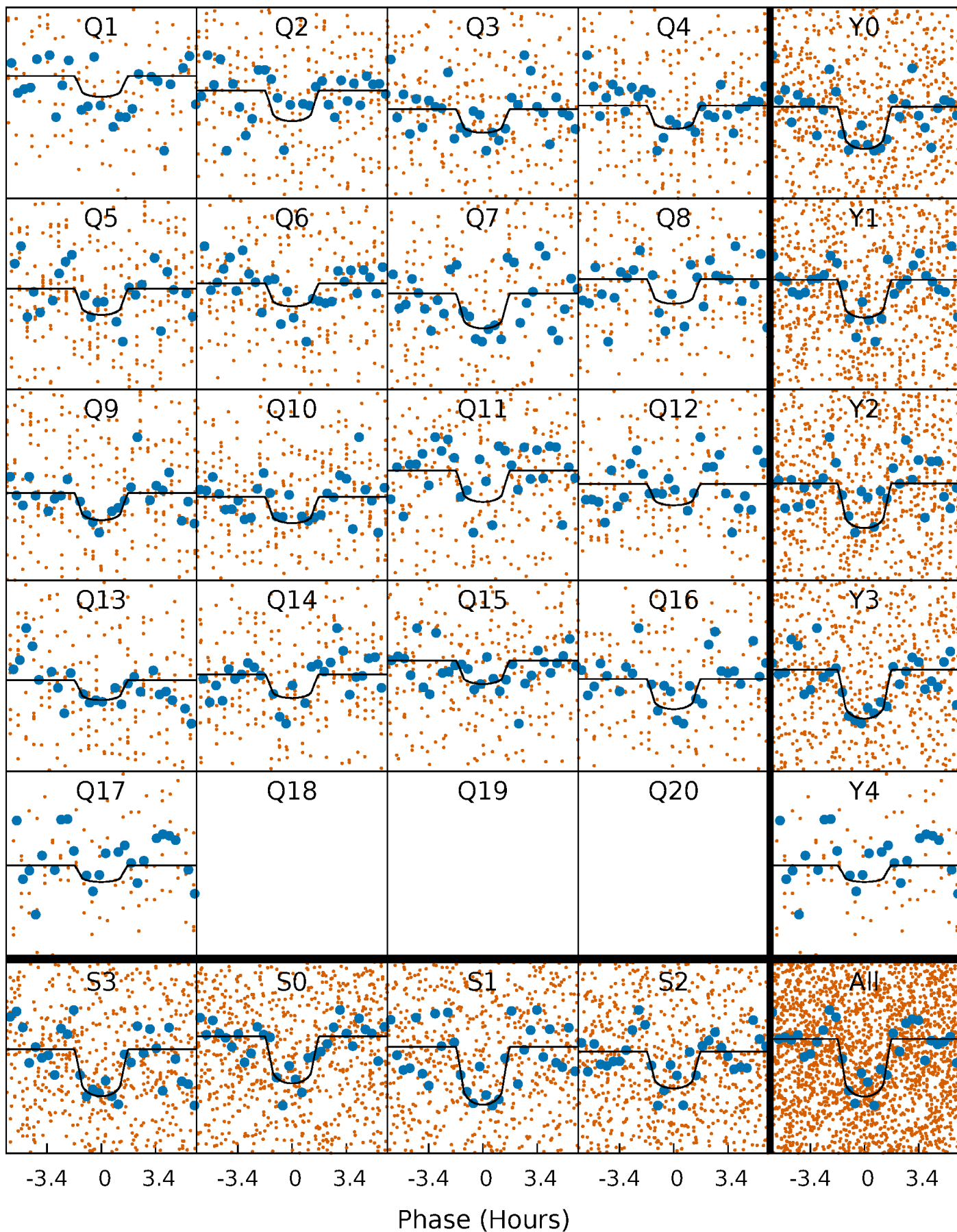
PDC Quarter-Phased Transit Curves

TCE 009770983-01 P= 7.029383 Days $T_0=134.656243$ (BKJD)



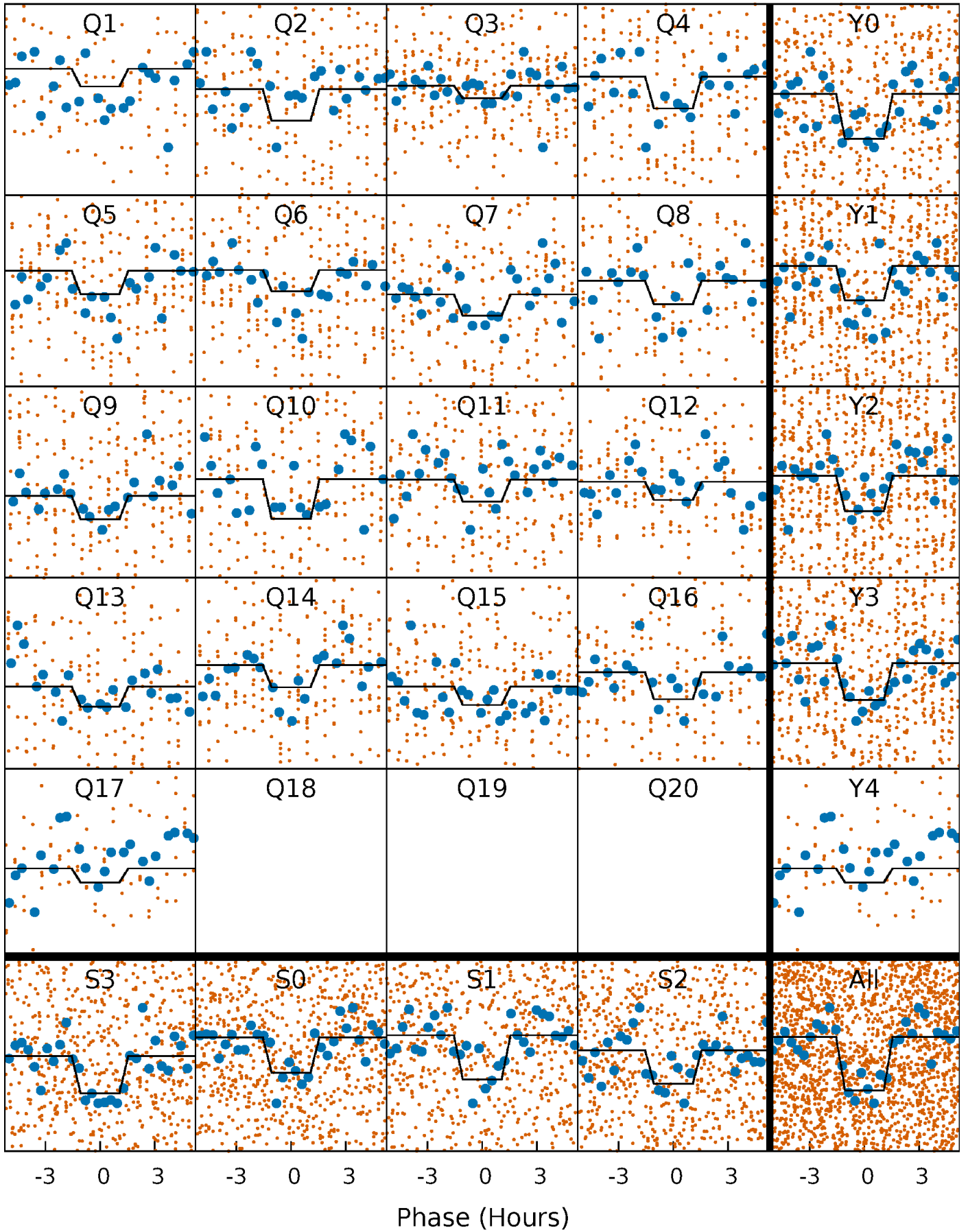
DV Quarter-Phased Transit Curves

TCE 009770983-01 P= 7.029383 Days $T_0=134.656243$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

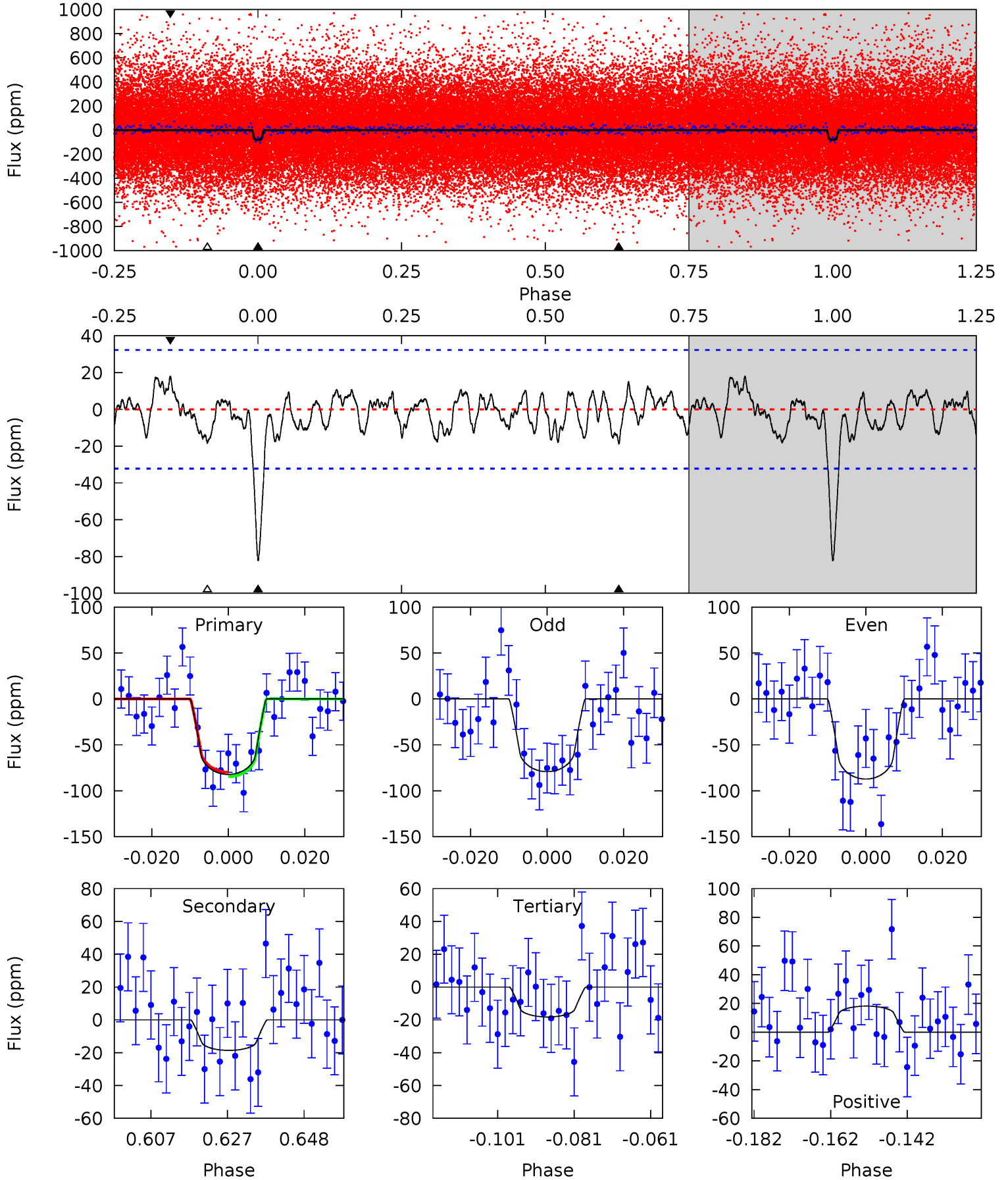
TCE 009770983-01 P= 7.029247 Days $T_0=134.670107$ (BKJD)



DV Model-Shift Uniqueness Test

009770983-01, P = 7.029383 Days, E = 127.626860 Days

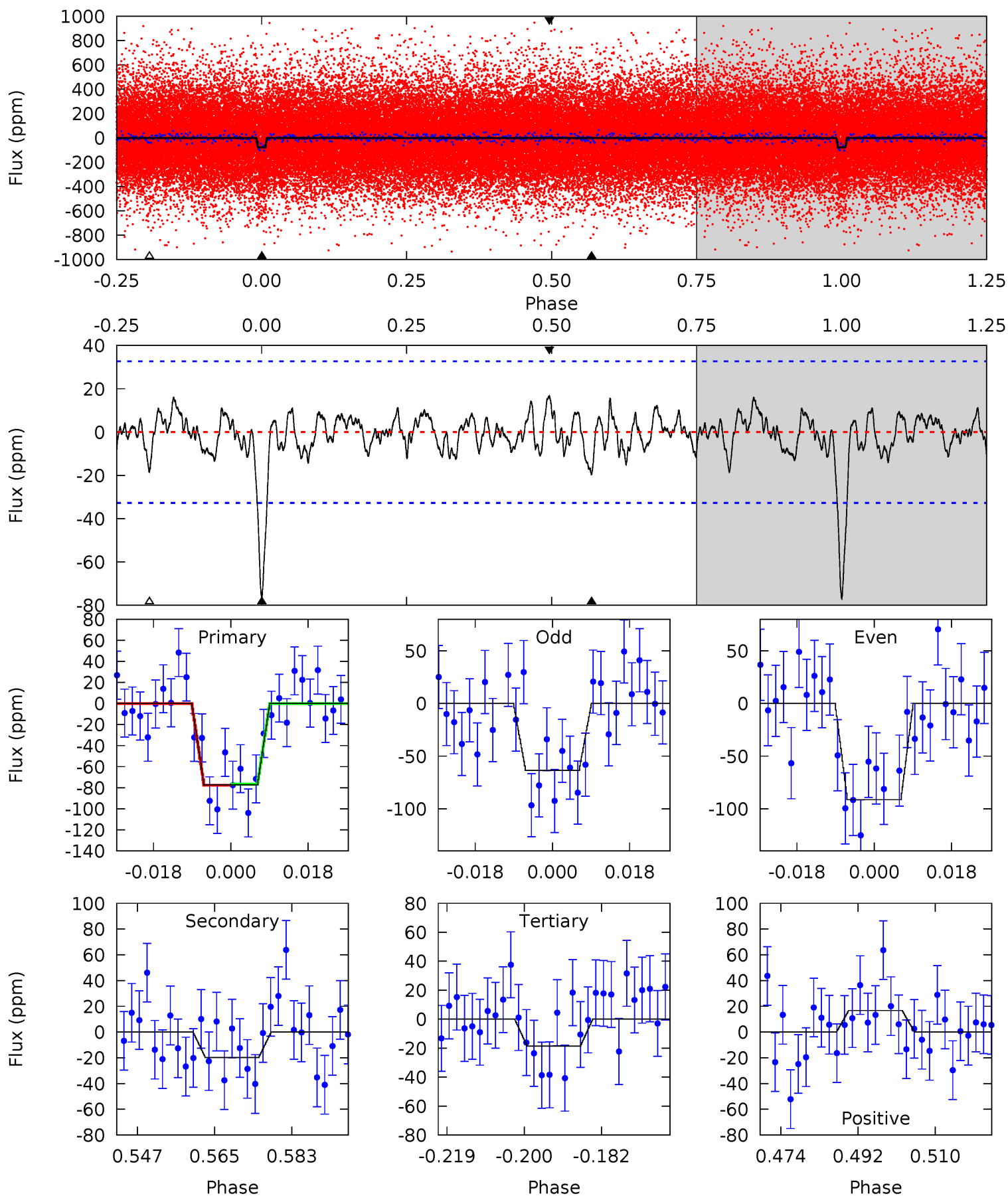
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.5 | 2.82 | 2.77 | 2.75 | 4.89 | 2.32 | 1.18 | 9.70 | 9.71 | 0.06 | 0.07 | 0.61 | 0.92 | 0.18 | 0.36 |



Alt Model-Shift Uniqueness Test

009770983-01, P = 7.029247 Days, E = 127.640860 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.6 | 2.97 | 2.79 | 2.51 | 4.91 | 2.36 | 0.98 | 8.79 | 9.07 | 0.18 | 0.46 | 2.10 | 0.89 | 0.18 | 0.08 |



Stellar Parameters For KIC 009770983

| | $T_{\text{eff}} (K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M (M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 5977^{+182}_{-223} | $4.473^{+0.044}_{-0.187}$ | $0.210^{+0.200}_{-0.300}$ | $1.022^{+0.273}_{-0.091}$ | $1.133^{+0.112}_{-0.137}$ | $1.493^{+0.356}_{-0.708}$ |
| | +3%/-4% | +1%/-4% | +95%/-143% | +27%/-9% | +10%/-12% | +24%/-47% |
| 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 009770983-01 / KOI 7961.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|-----------------------|-------------------|
| DV | -19 ± 7 | $1.20^{+0.83}_{-0.74}$ | 1386^{+90}_{-63} | 4144^{+1898}_{-764} | 39^{+205}_{-27} |
| Alt. | -20 ± 7 | $1.08^{+0.80}_{-0.64}$ | 1389^{+85}_{-69} | 4315^{+2032}_{-815} | 48^{+225}_{-33} |

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

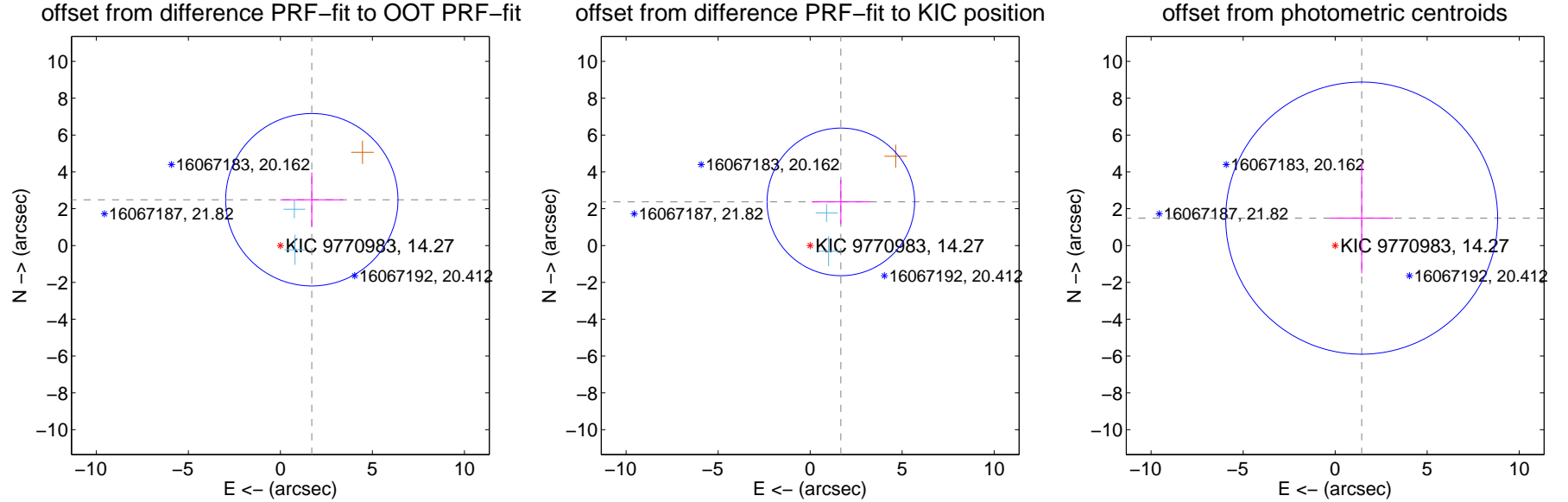
DV Centroid Data

Supplemental centroid analysis for 009770983-01. Kepler magnitude: 14.27. Transit SNR 9.04

There are 2 quarters with good PRF difference image offsets

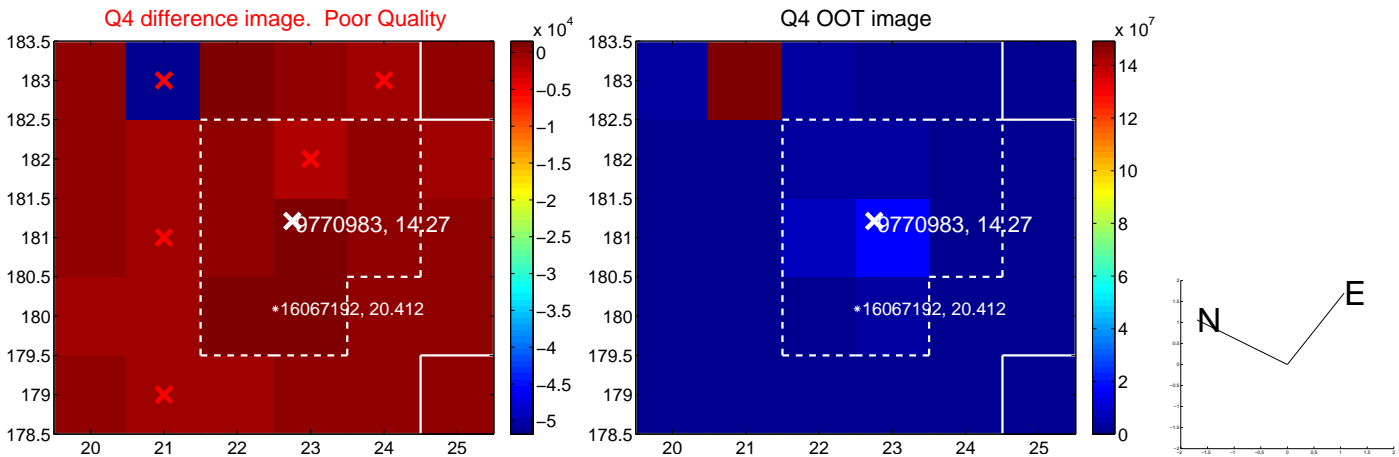
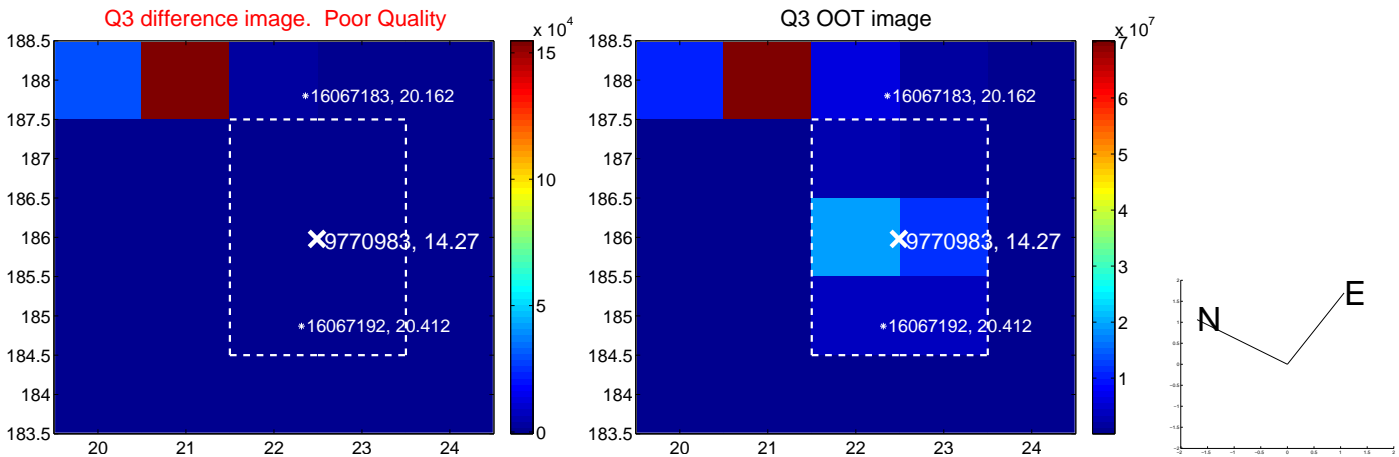
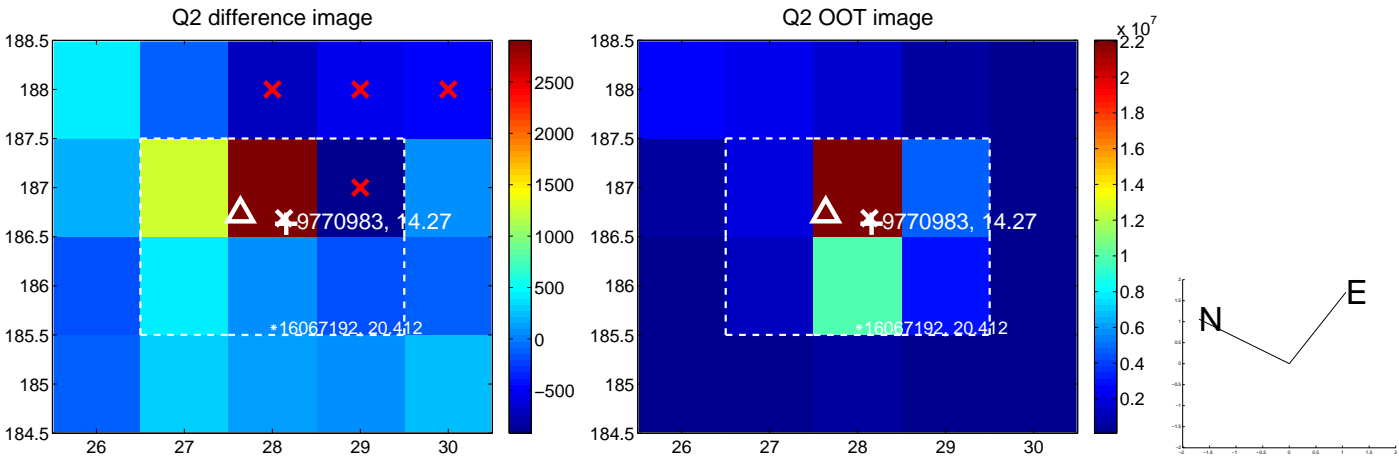
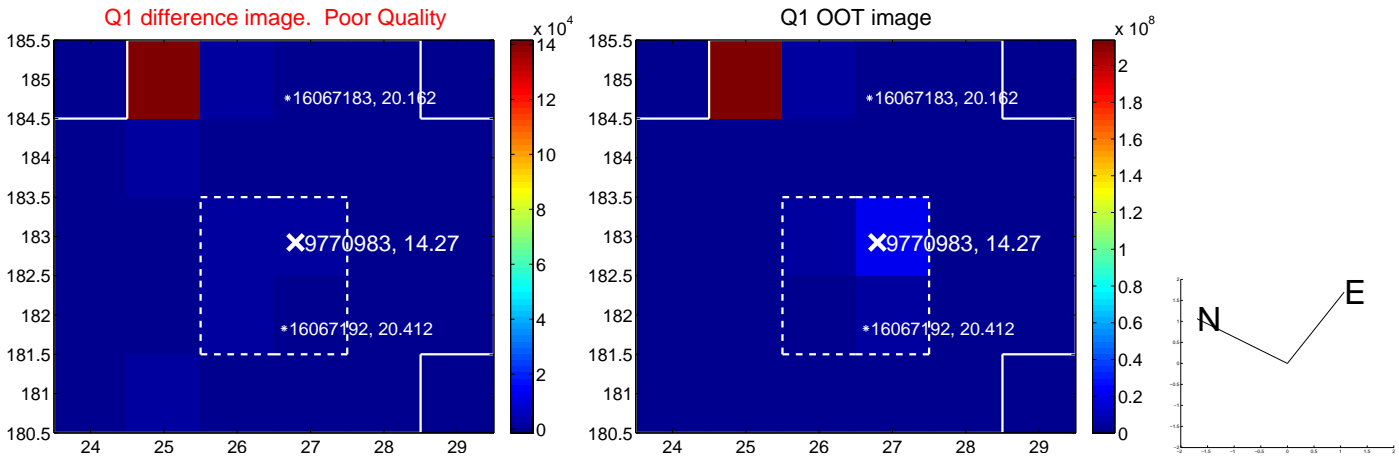
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 3.017 ± 1.560 | 1.93 | -1.708 ± 1.704 | 2.487 ± 1.488 |
| PRF-fit source offset from KIC position | 2.898 ± 1.336 | 2.17 | -1.668 ± 1.582 | 2.370 ± 1.196 |
| photometric centroid source offset | 2.07 ± 2.46 | 0.84 | -1.44 ± 1.71 | 1.49 ± 3.00 |

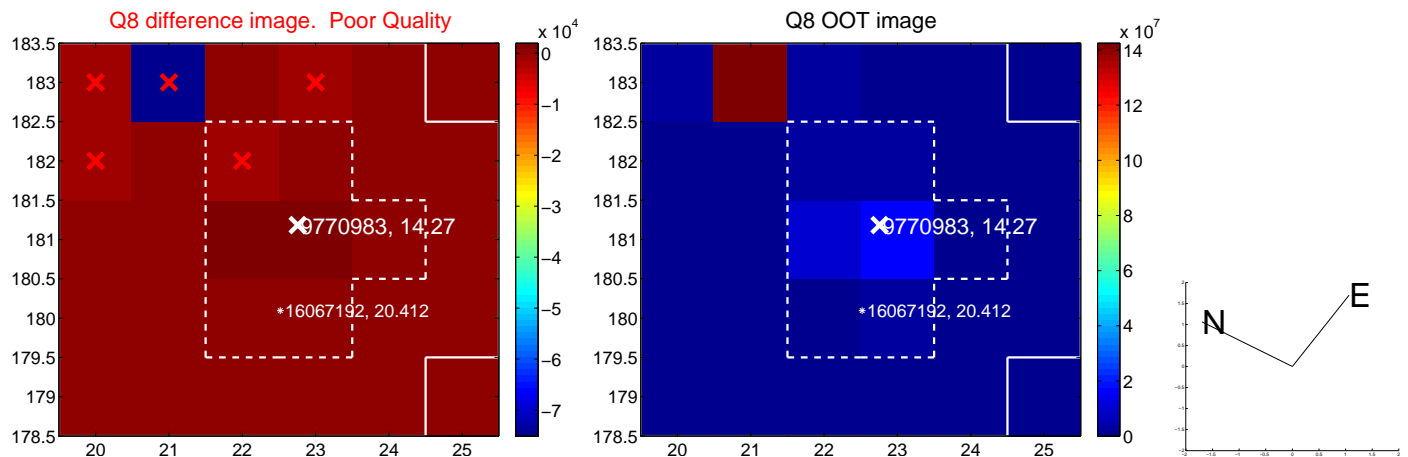
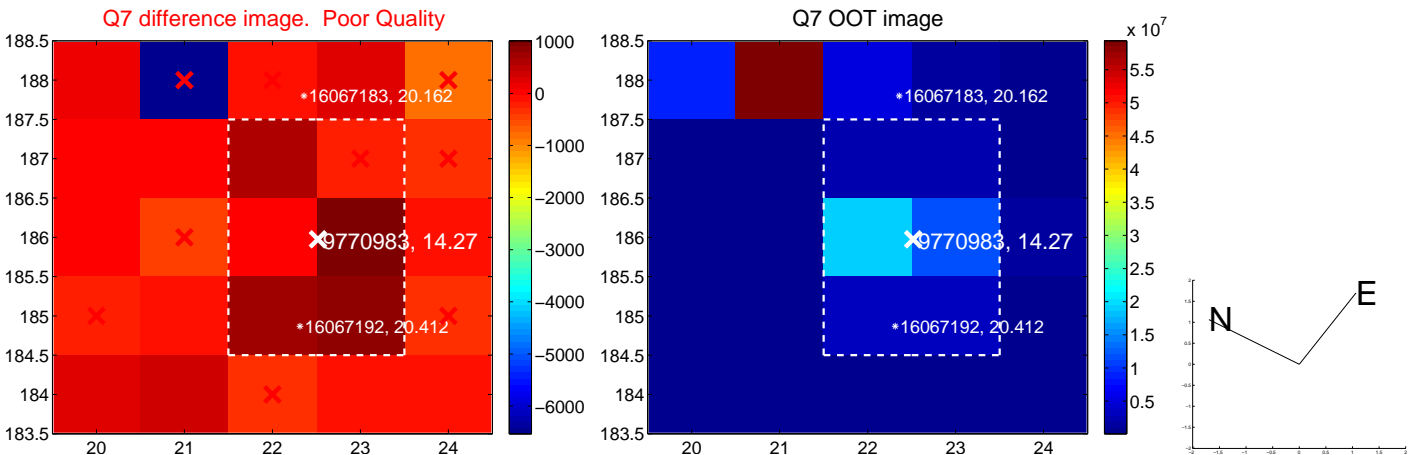
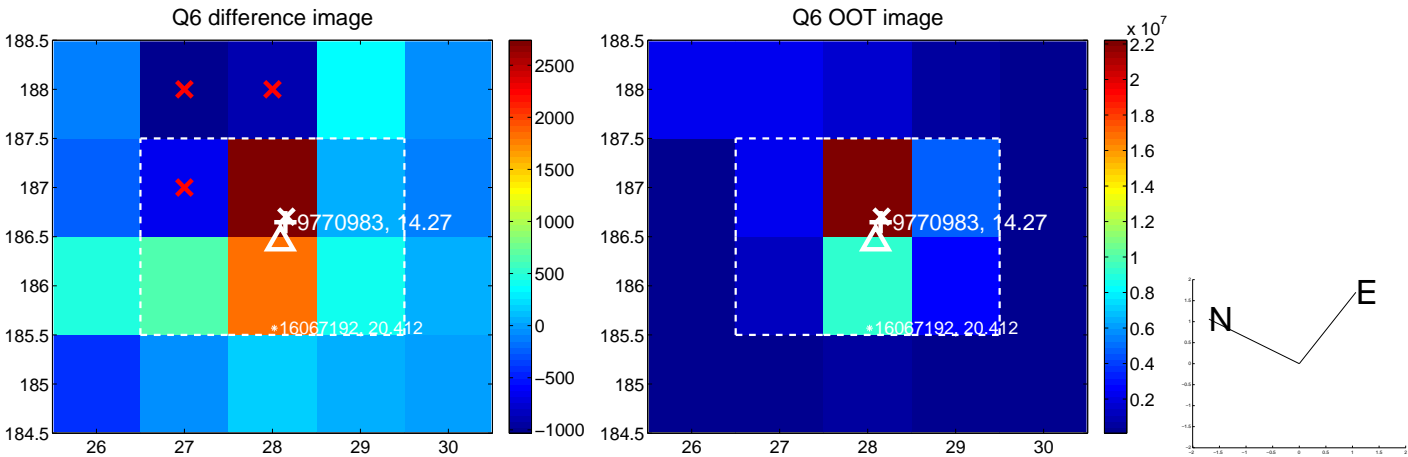
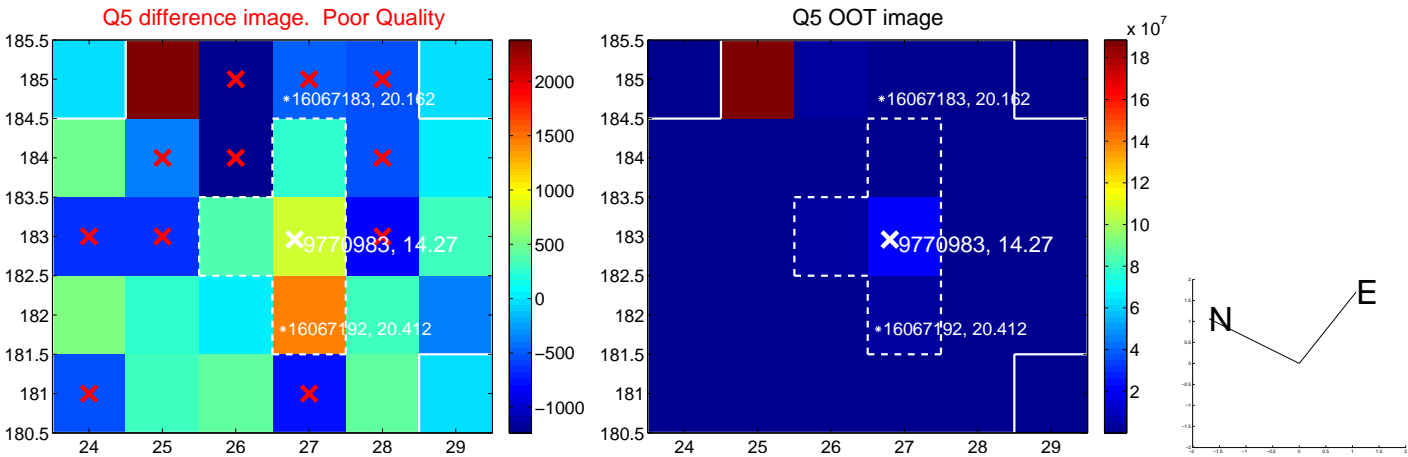


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

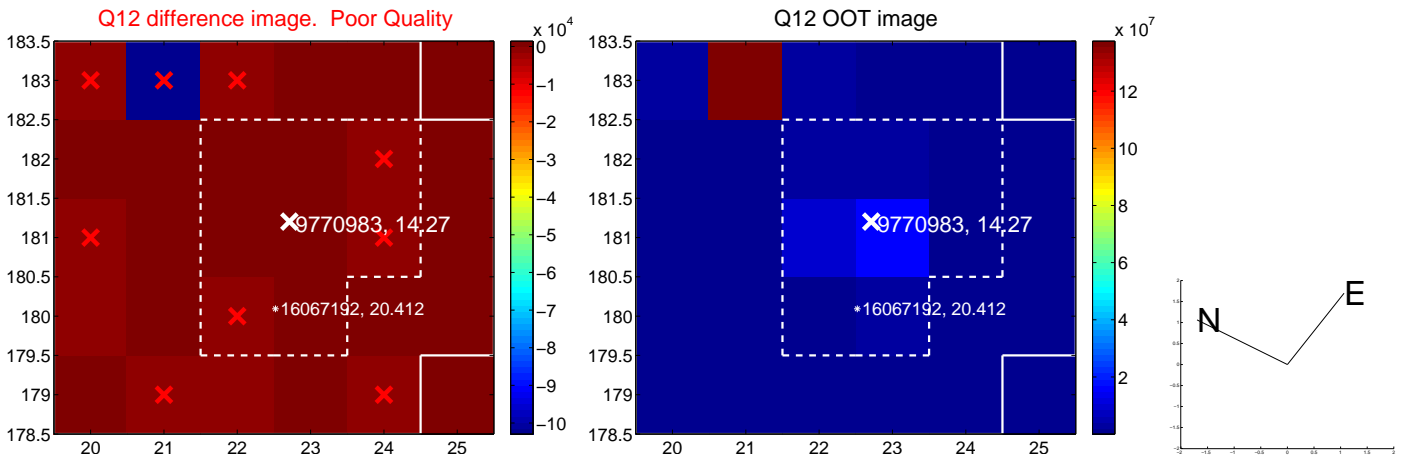
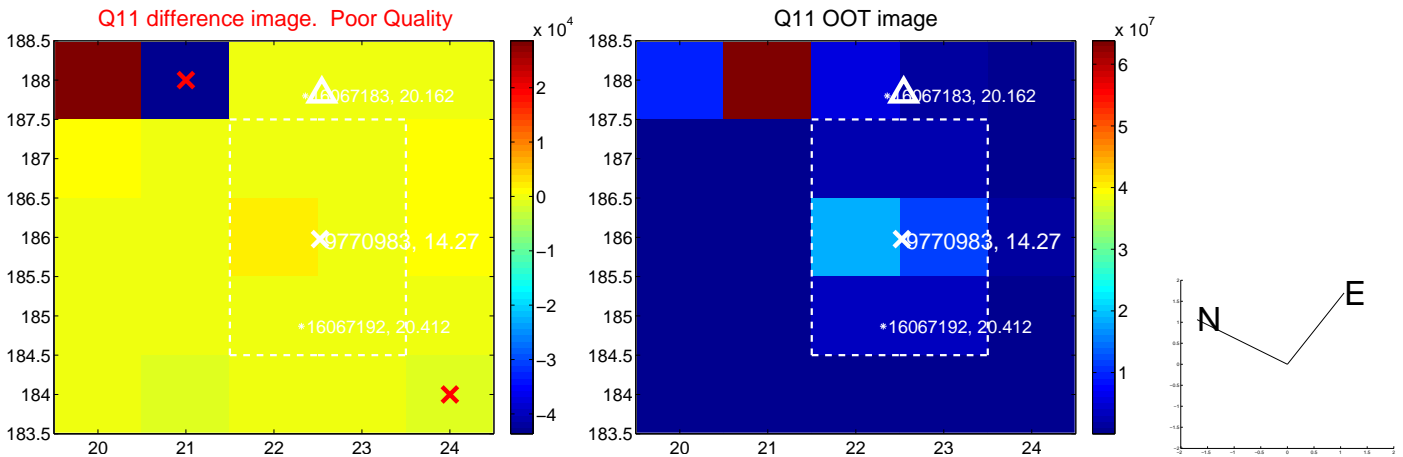
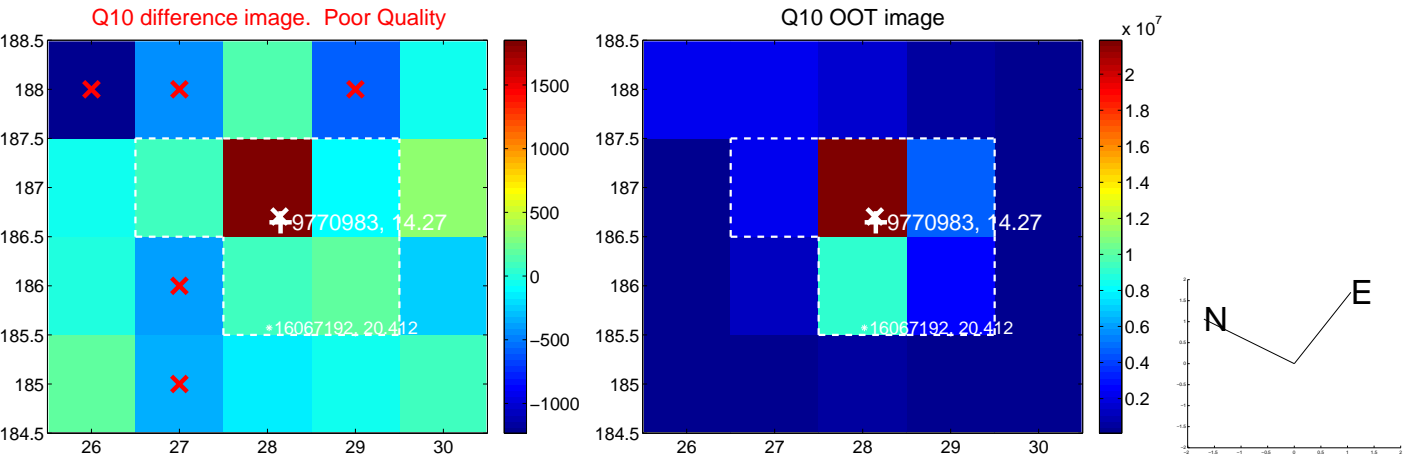
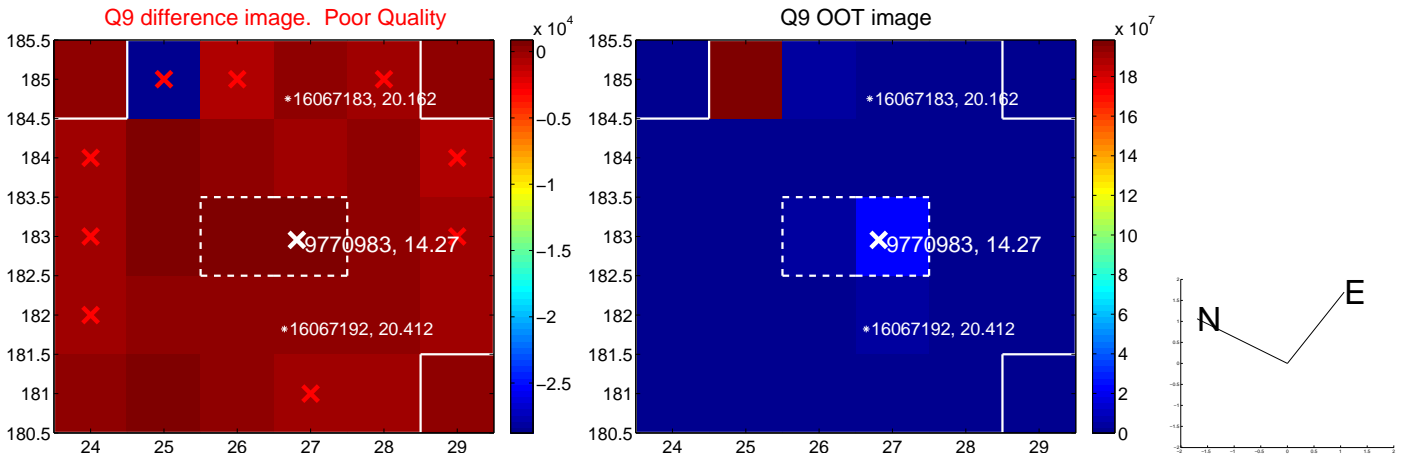
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



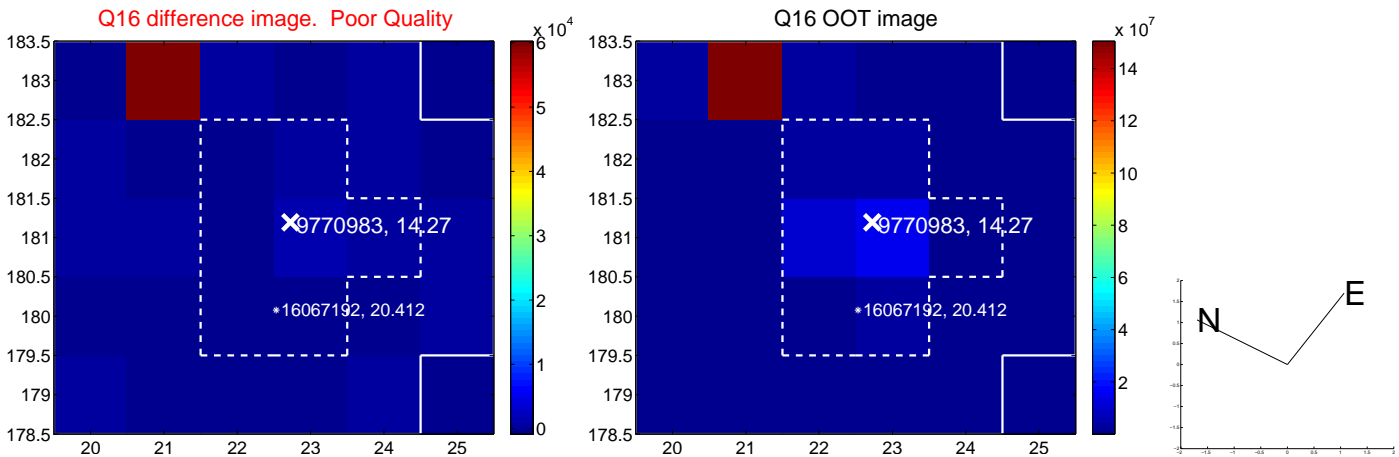
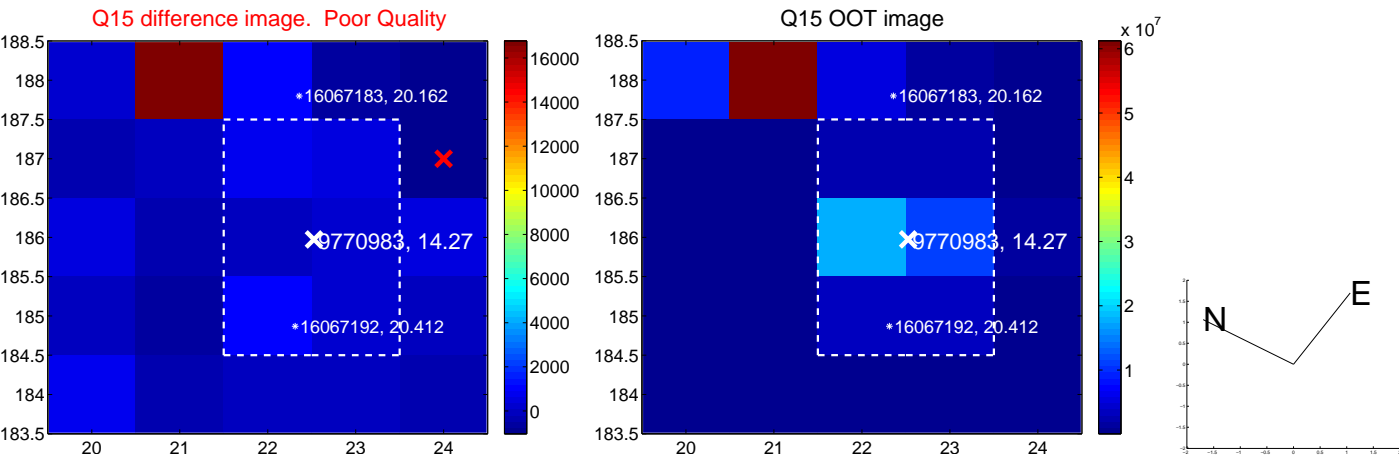
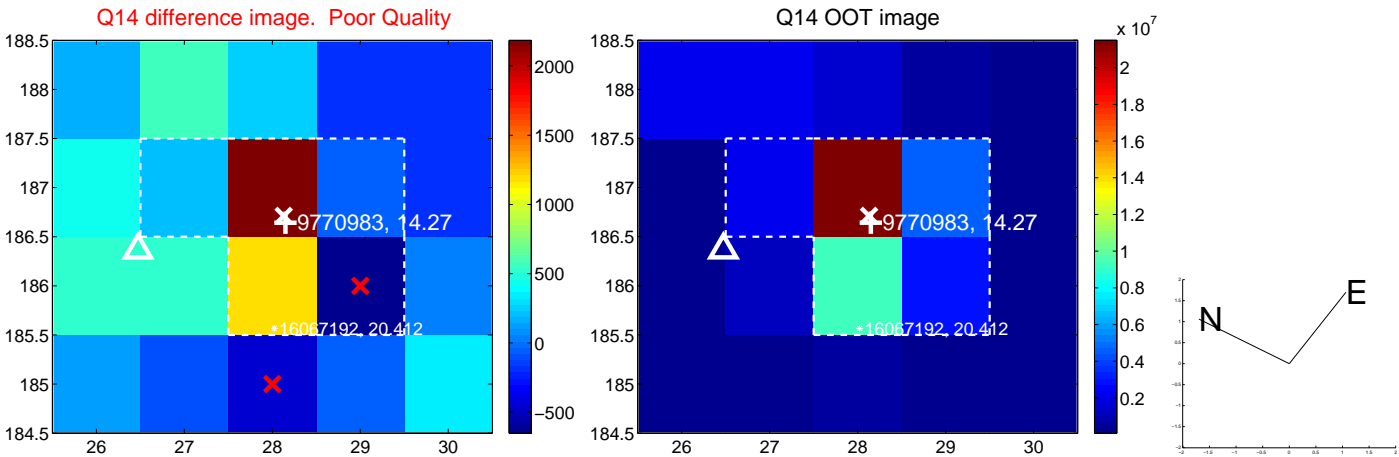
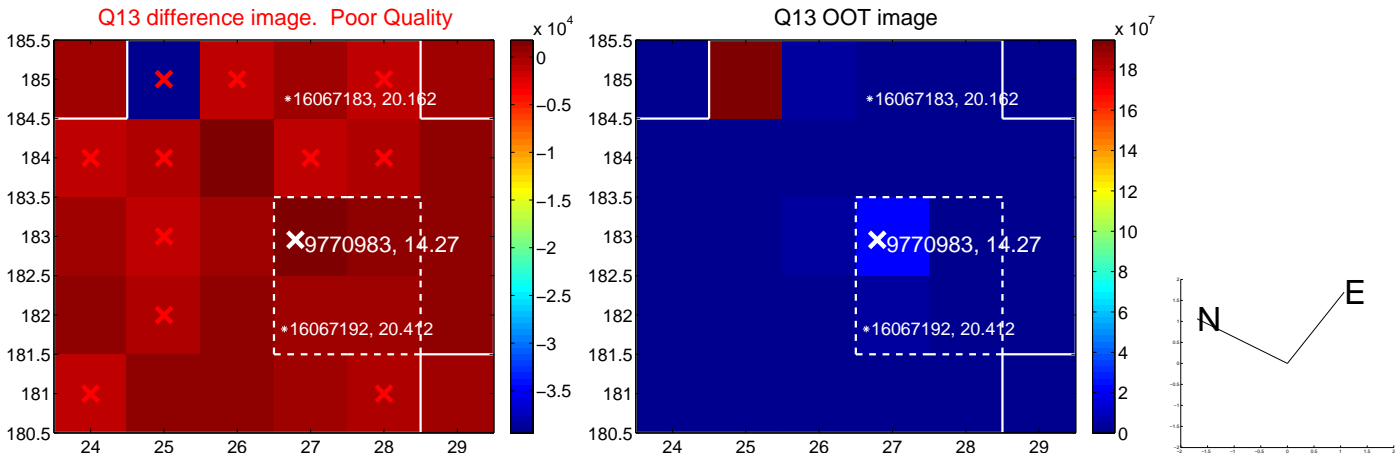
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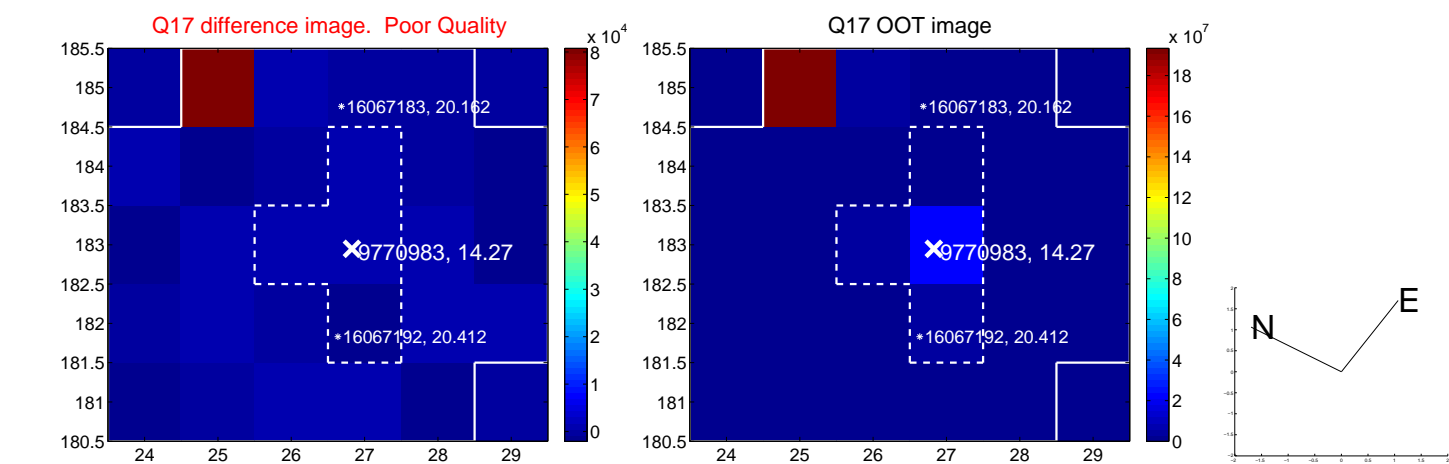
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



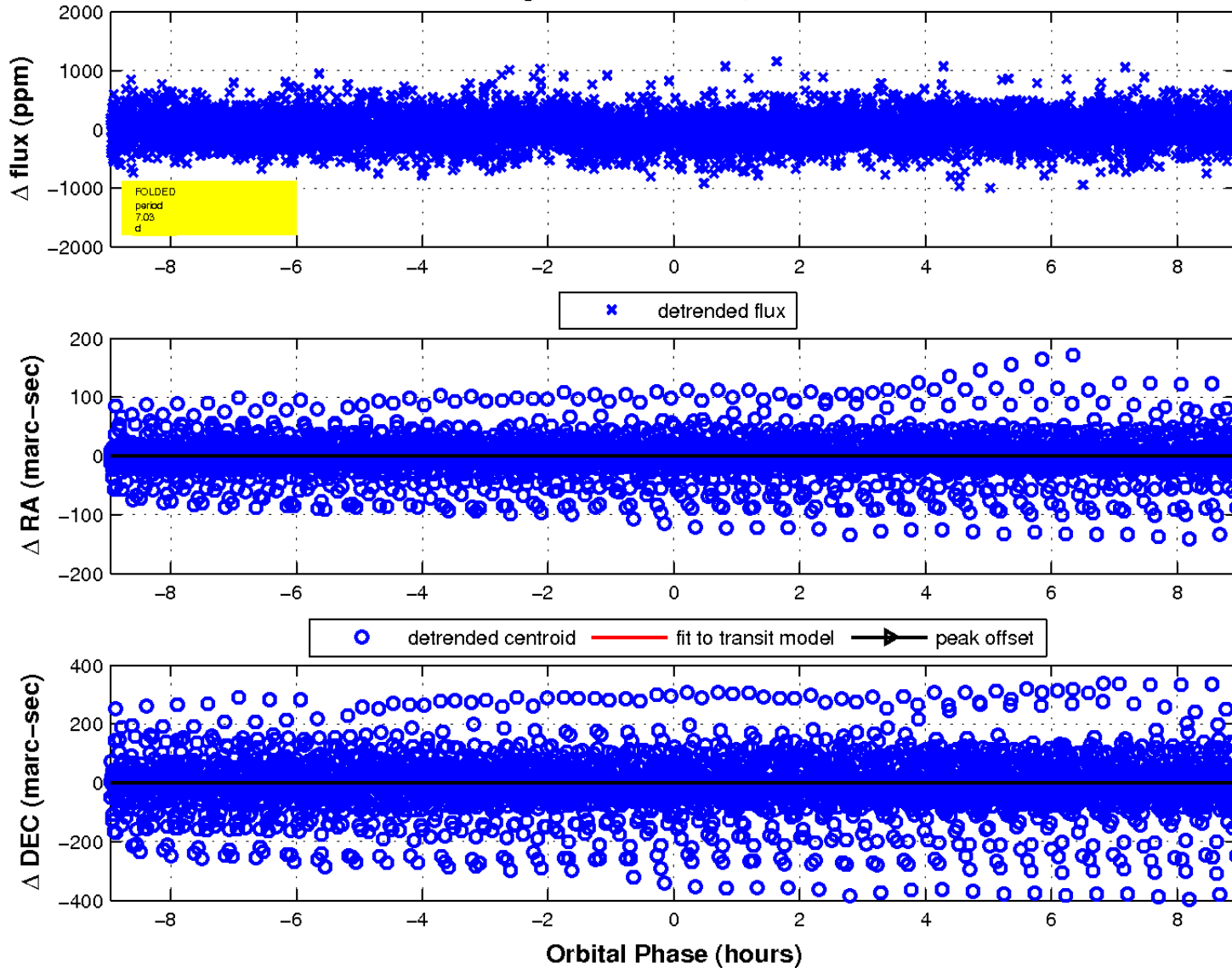
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

