# KIC 009269042

## 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) | $R_p$ ($R_\oplus$) | $S_p$ ($S_\oplus$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 009269042-01 | OBS | 2397.01 | 12.000981 | 142.040058 | 401.8 | 3.558 | 17.2 | 18.2 | 0.69 | 5195 | 1.60 | 37.86 |

## Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|---|---|---|---|---|---|---|---|---|
| 009269042-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |

**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.

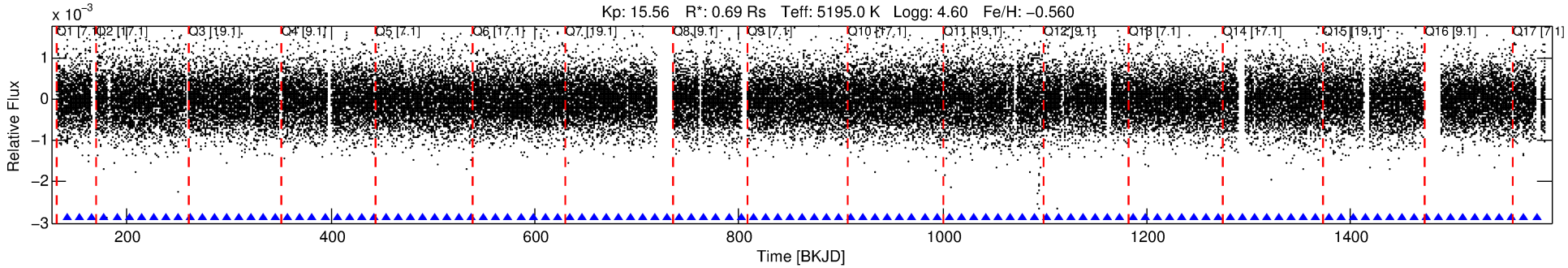
## Ephemeris Match Information For 009269042-01

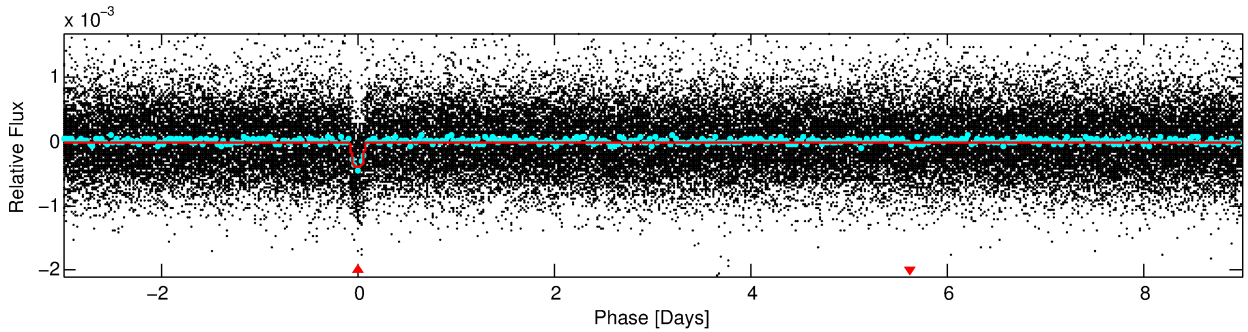
No Significant Match Found

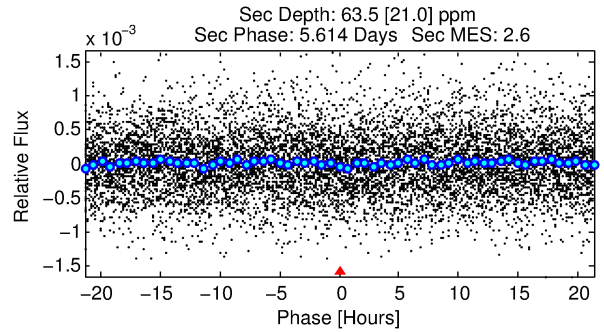
# DV One-Page Summary

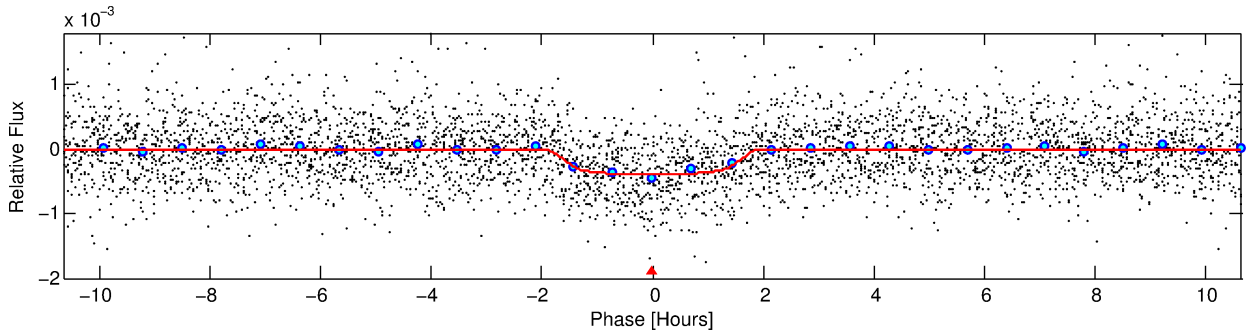
**KIC: 9269042 Candidate: 1 of 1 Period: 12.001 d**
**KOI: K02397.01 Corr: 0.982**

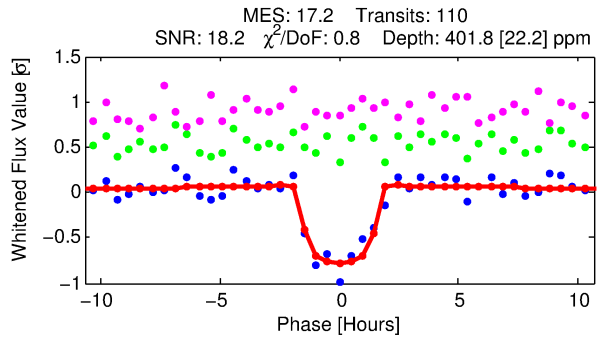
Kp: 15.56 R*: 0.69 Rs Teff: 5195.0 K Logg: 4.60 Fe/H: −0.560

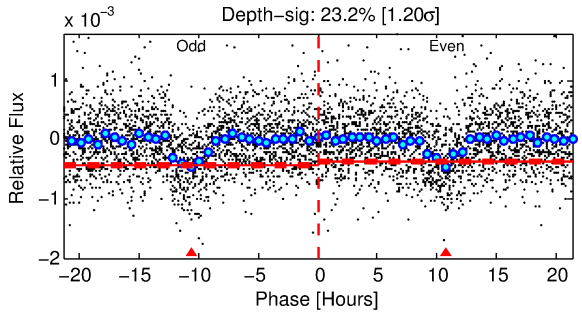


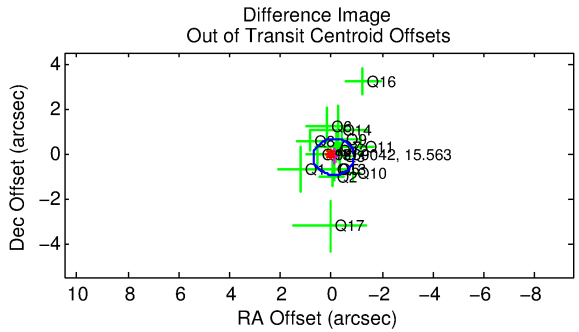




DV Fit Results:

Period = 12.00098 [0.00006] d
Epoch = 142.0401 [0.0040] BKJD
Rp/R* = 0.0212 [0.0065]
a/R* = 14.28 [18.01]
b = 0.86 [0.40]

Seff = 37.86 [6.39]
Teq = 633 [27] K
Rp = 1.60 [0.52] Re
a = 0.0906 [0.0077] AU

Ag = 112.00 [78.80] [1.41σ]
Teffp = 3181 [560] K [4.55σ]

DV Diagnostic Results:

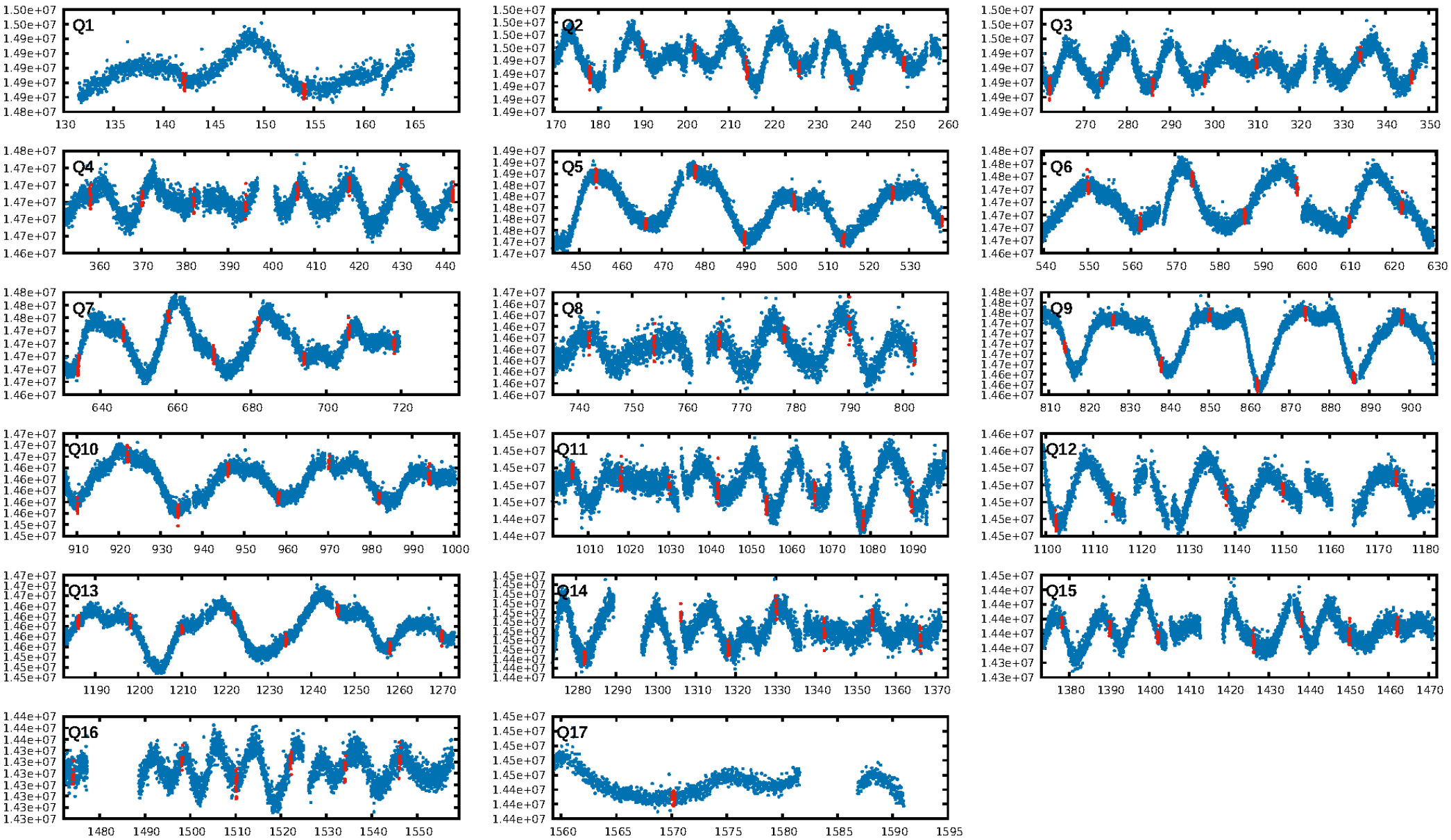
ShortPeriod−sig: N/A
LongPeriod−sig: N/A
ModelChiSquare2−sig: 98.9%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 2.27e−64
RollingBand−fgt: 1.00 [107/107]
GhostDiagnostic−chr: 2.092

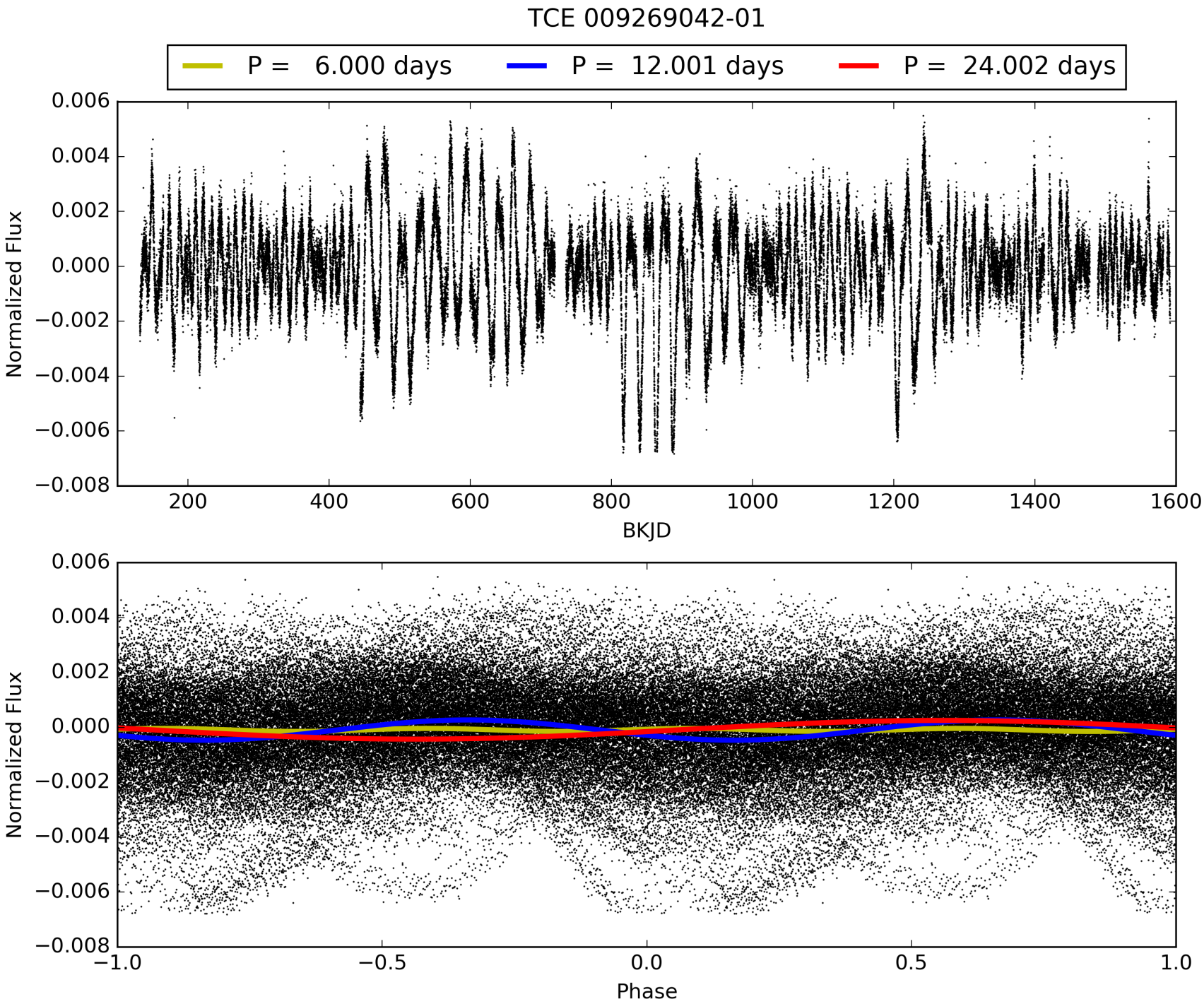
Centroid−sig: 11.3%
Centroid−so: 0.785 arcsec [1.03σ]
OotOffset−rm: 0.173 arcsec [0.64σ]
KicOffset−rm: 0.234 arcsec [0.85σ]
OotOffset−st: 4/4/3/5 [16]
KicOffset−st: 4/4/3/5 [16]
DiffImageQuality−fgm: 0.88 [14/16]
DiffImageOverlap−fno: 1.00 [17/17]

**Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28−Jan−2016 20:23:24 Z**

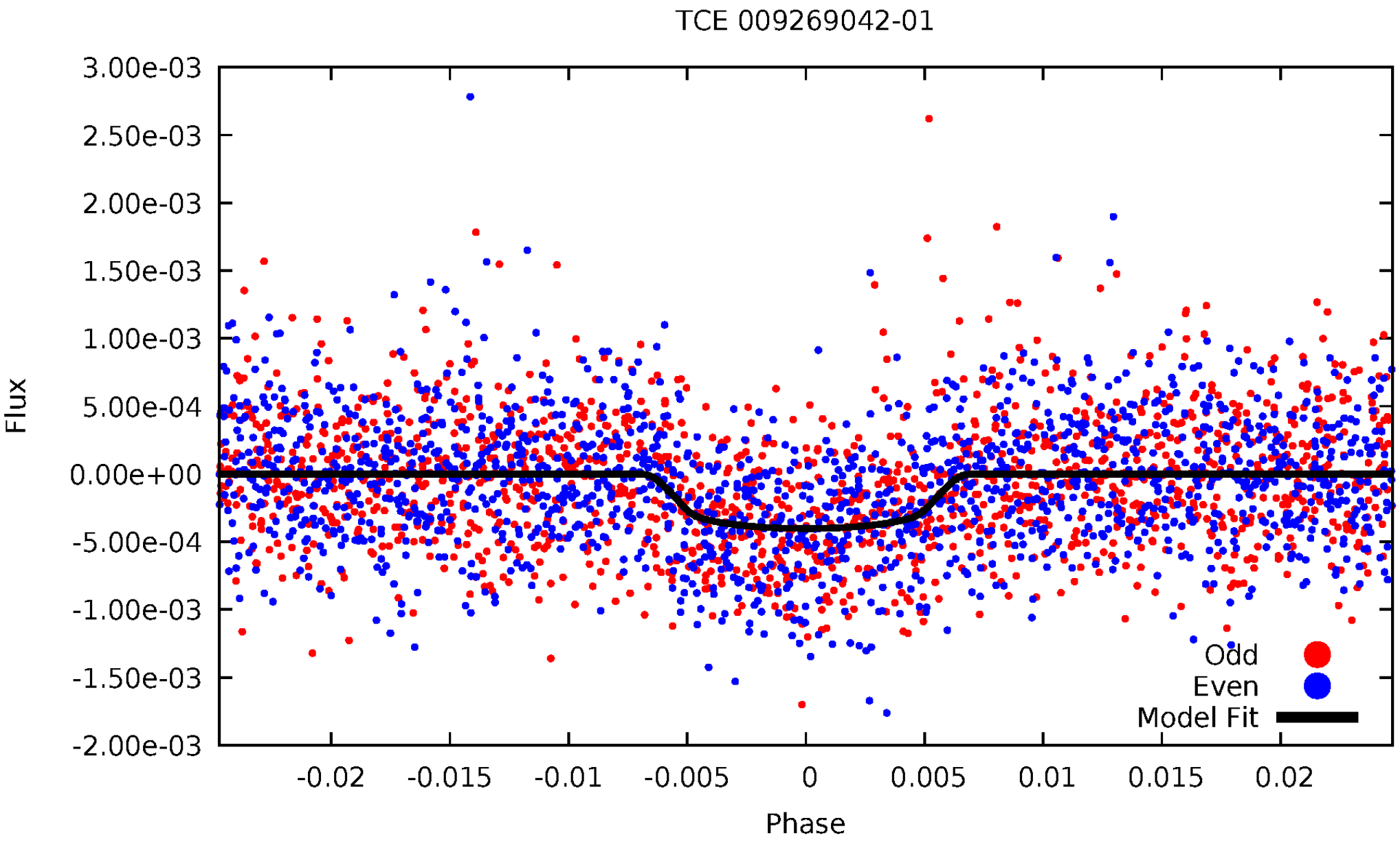
**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 009269042-01, PDC Light Curves

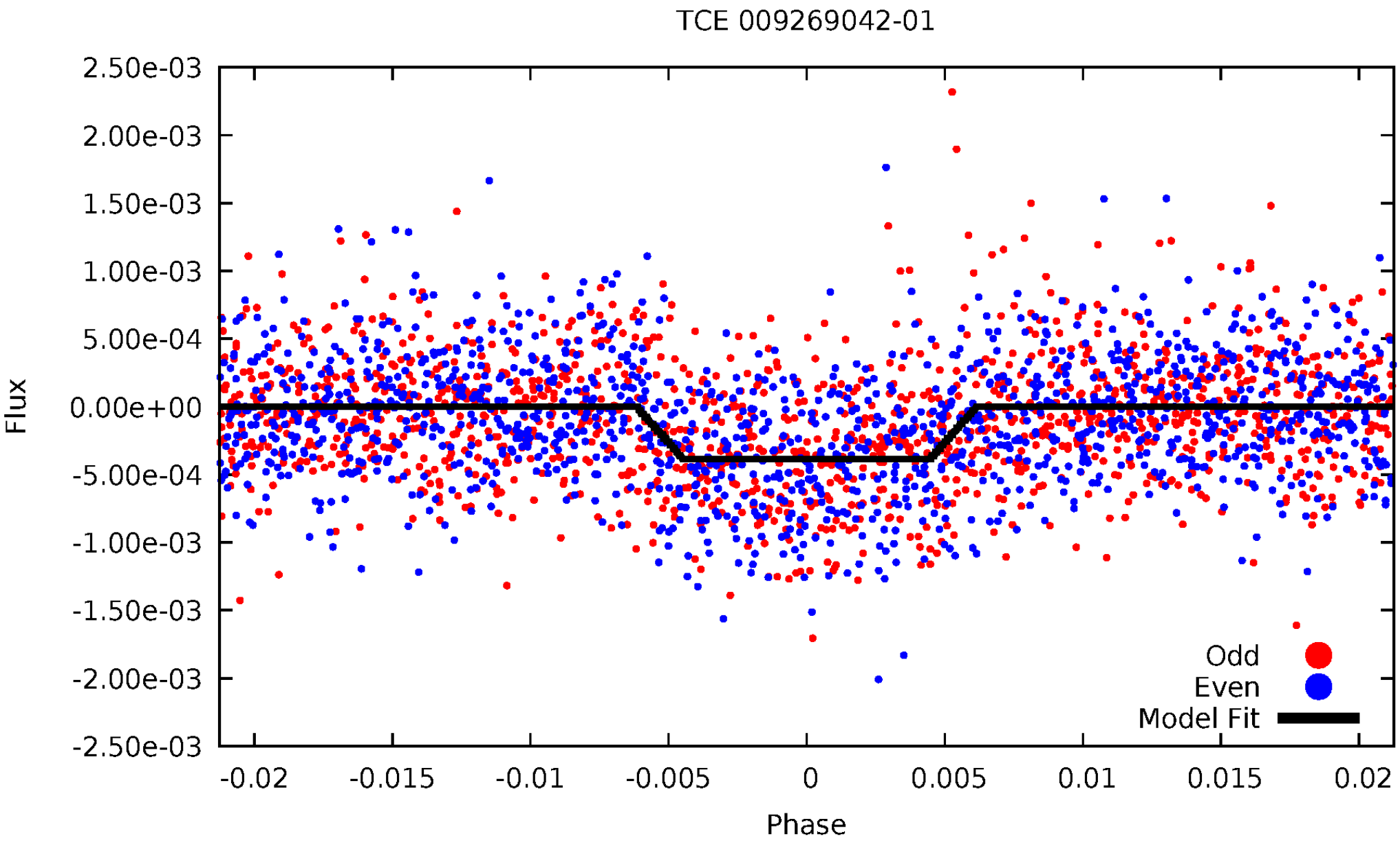



TCE 009269042-01
P = 6.000 days
P = 12.001 days
P = 24.002 days
Normalized Flux
BKJD
Normalized Flux
Phase

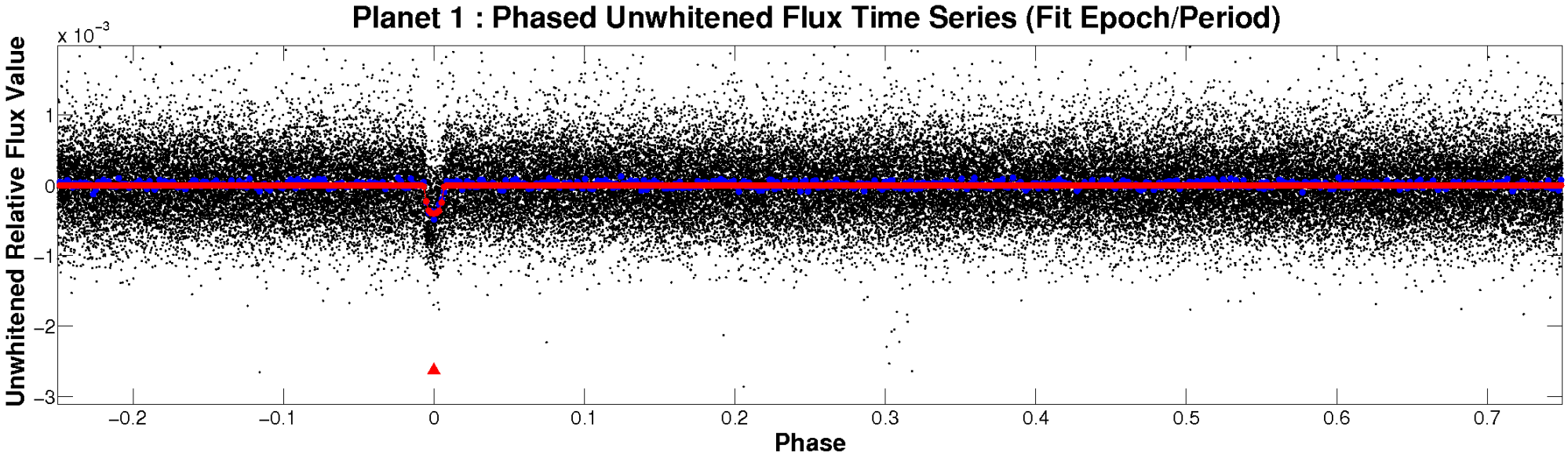
# DV Odd/Even

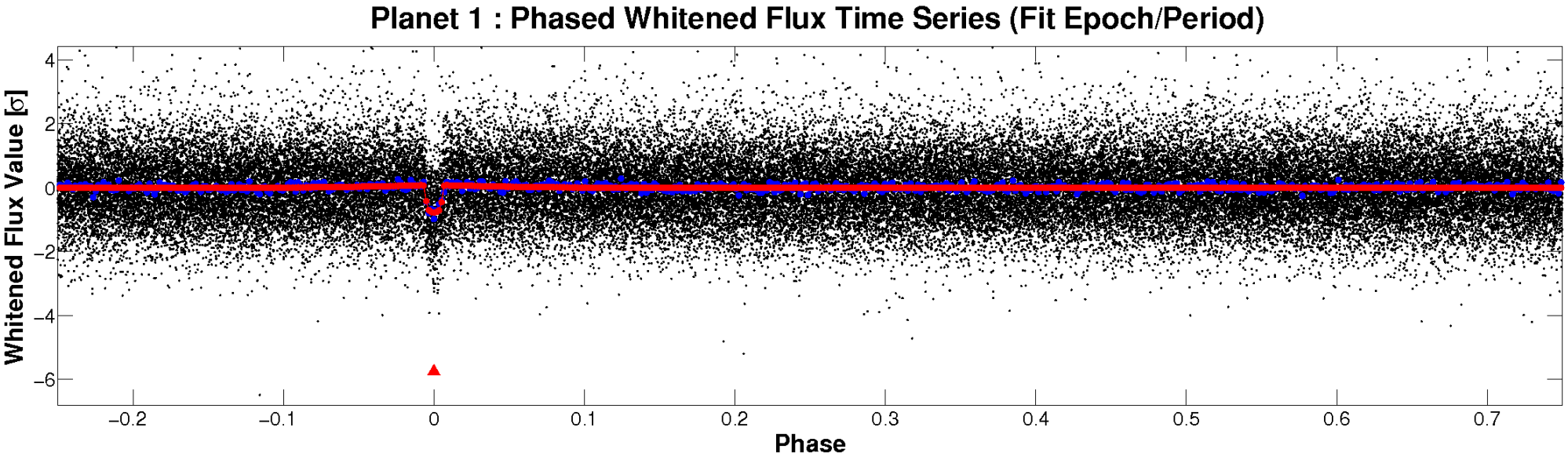

TCE 009269042-01
3.00e-03
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.02
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
0.02
Phase
Odd
Even
Model Fit

**ALT Odd/Even**


TCE 009269042-01
2.50e-03
2.00e-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
-2.50e-03
Flux
-0.02
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
0.02
Phase
Odd
Even
Model Fit

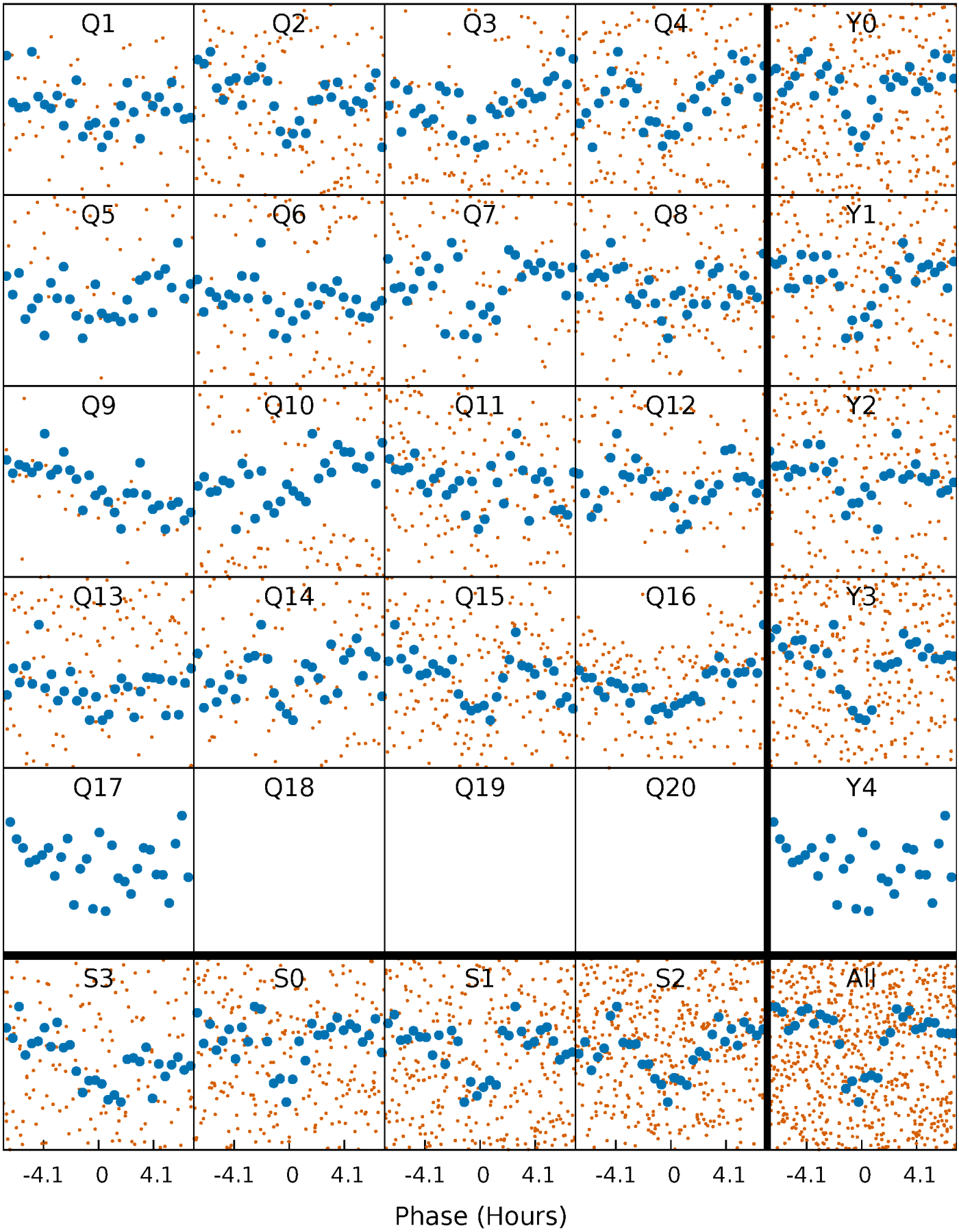
# Non-Whitened Vs. Whitened Light Curve



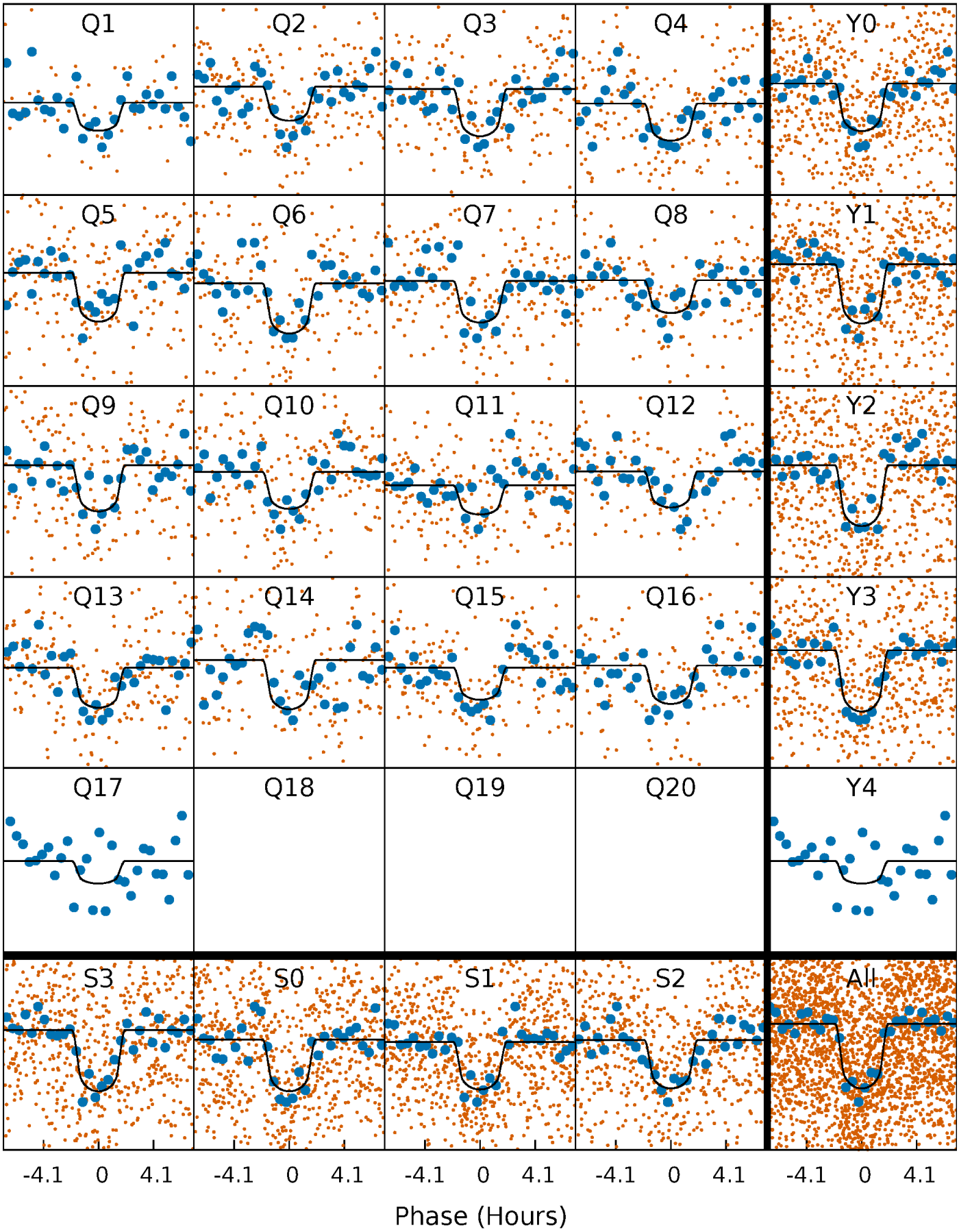
# PDC Quarter-Phased Transit Curves

TCE 009269042-01 P= 12.000981 Days $T_0$=142.040058 (BKJD)



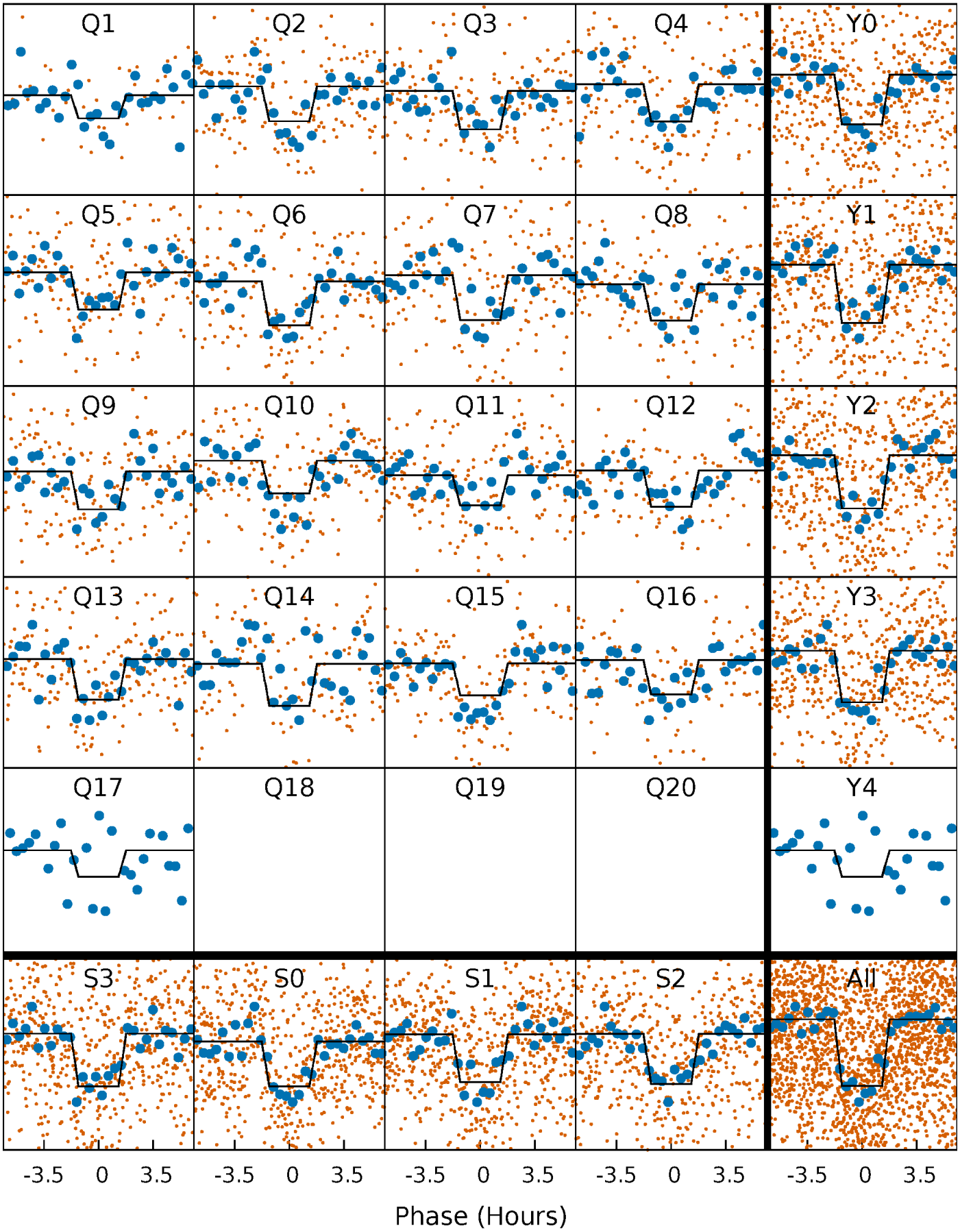
# DV Quarter-Phased Transit Curves

TCE 009269042-01 P= 12.000981 Days $T_0$=142.040058 (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

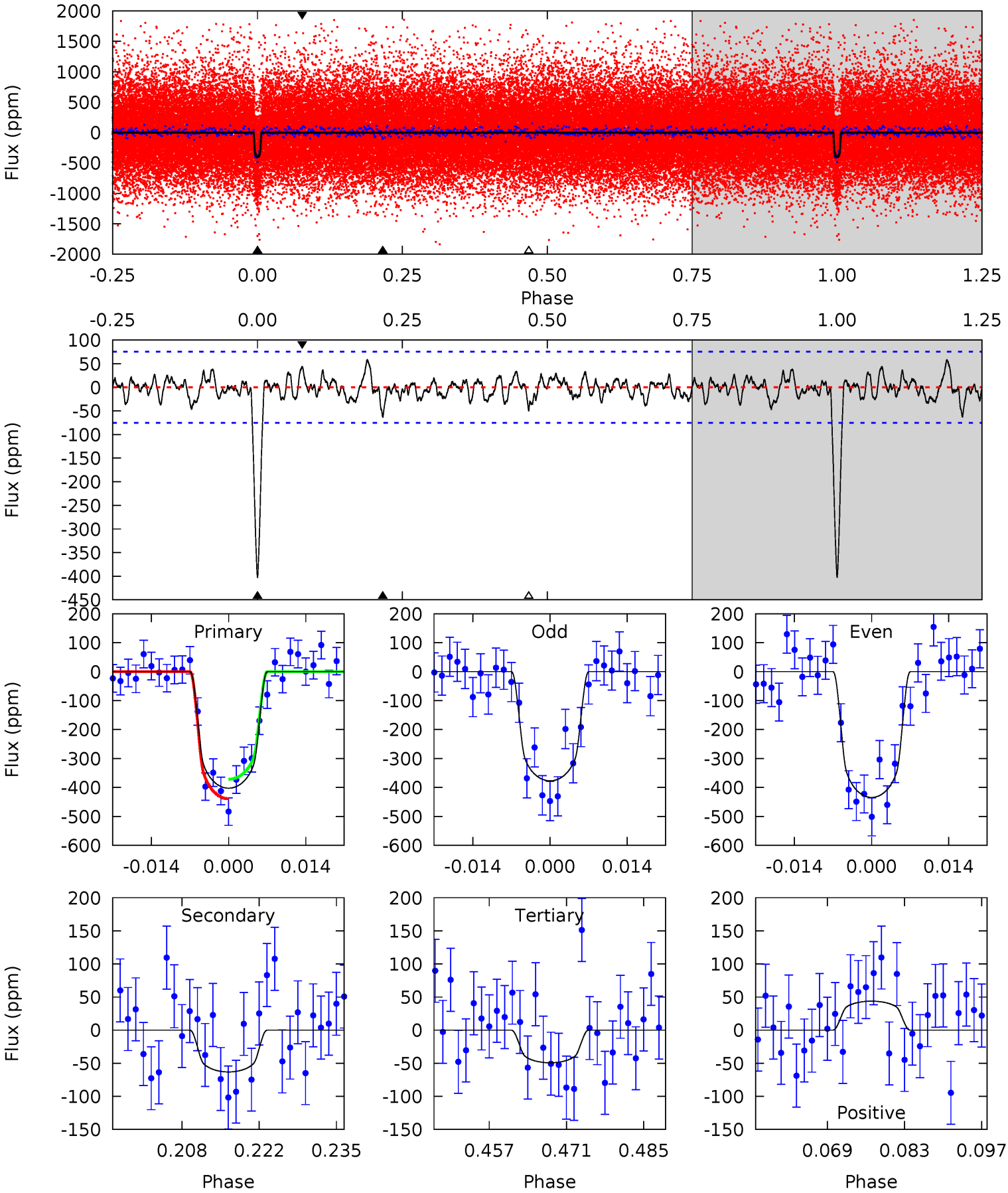
TCE 009269042-01 P= 12.001033 Days $T_0$=142.035334 (BKJD)



# DV Model-Shift Uniqueness Test

009269042-01, P = 12.000981 Days, E = 130.039077 Days

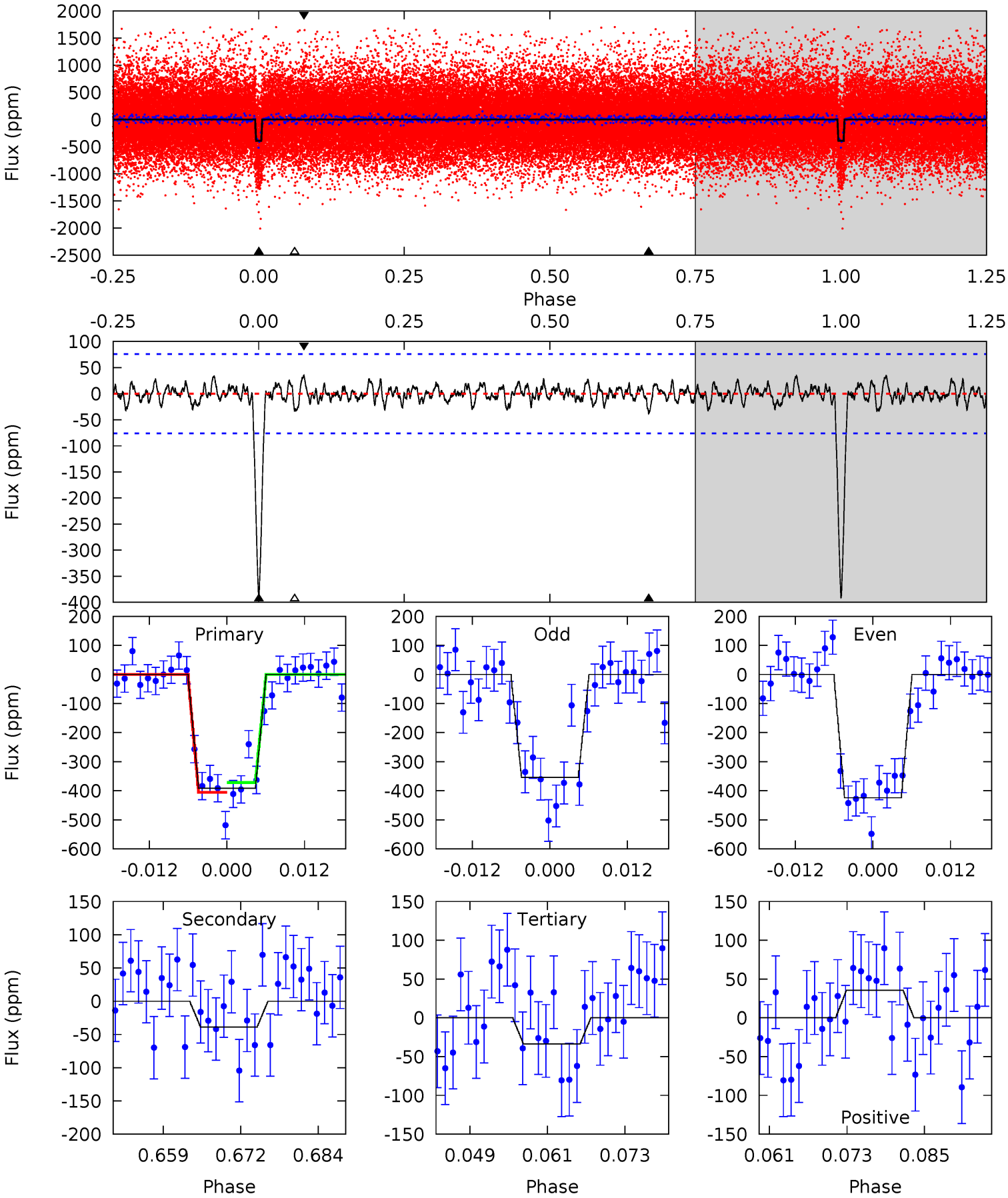
| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26.5 | 4.16 | 3.25 | 2.88 | 4.96 | 2.46 | 1.13 | 23.3 | 23.6 | 0.92 | 1.28 | 1.89 | 1.01 | 0.13 | 2.23 |



# Alt Model-Shift Uniqueness Test

009269042-01, P = 12.001033 Days, E = 130.034301 Days

| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.7 | 2.54 | 2.21 | 2.33 | 4.99 | 2.51 | 0.80 | 23.5 | 23.4 | 0.33 | 0.21 | 2.29 | 0.98 | 0.08 | 1.10 |



Stellar Parameters For KIC 009269042

| | $T_{\rm eff}(K)$ | $\log(g)$ | [Fe/H] | $R$ ($R_\odot$) | $M(M_\odot)$ | $p_\star$ (g·cm$^{-3}$) |
|---|---|---|---|---|---|---|
| | $5195^{+157}_{-141}$ | $4.598^{+0.061}_{-0.055}$ | $-0.560^{+0.350}_{-0.300}$ | $0.690^{+0.074}_{-0.059}$ | $0.688^{+0.082}_{-0.044}$ | $2.945^{+0.771}_{-0.612}$ |
| | +3%/-3% | +1%/-1% | +62%/-54% | +11%/-9% | +12%/-6% | +26%/-21% |
| 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 009269042-01 / KOI 2397.01

| Detrend | Depth (ppm) | $R_p$ ($R_\oplus$) | $T_{max}$ (K) | $T_{obs}$ (K) | $A_{obs}$ |
|---|---|---|---|---|---|
| DV | -63±15 | $1.60^{+0.51}_{-0.50}$ | $885^{+32}_{-32}$ | $3581^{+491}_{-315}$ | $107^{+127}_{-47}$ |
| Alt. | -39±15 | $1.50^{+0.51}_{-0.52}$ | $886^{+31}_{-33}$ | $3387^{+563}_{-370}$ | $79^{+117}_{-43}$ |

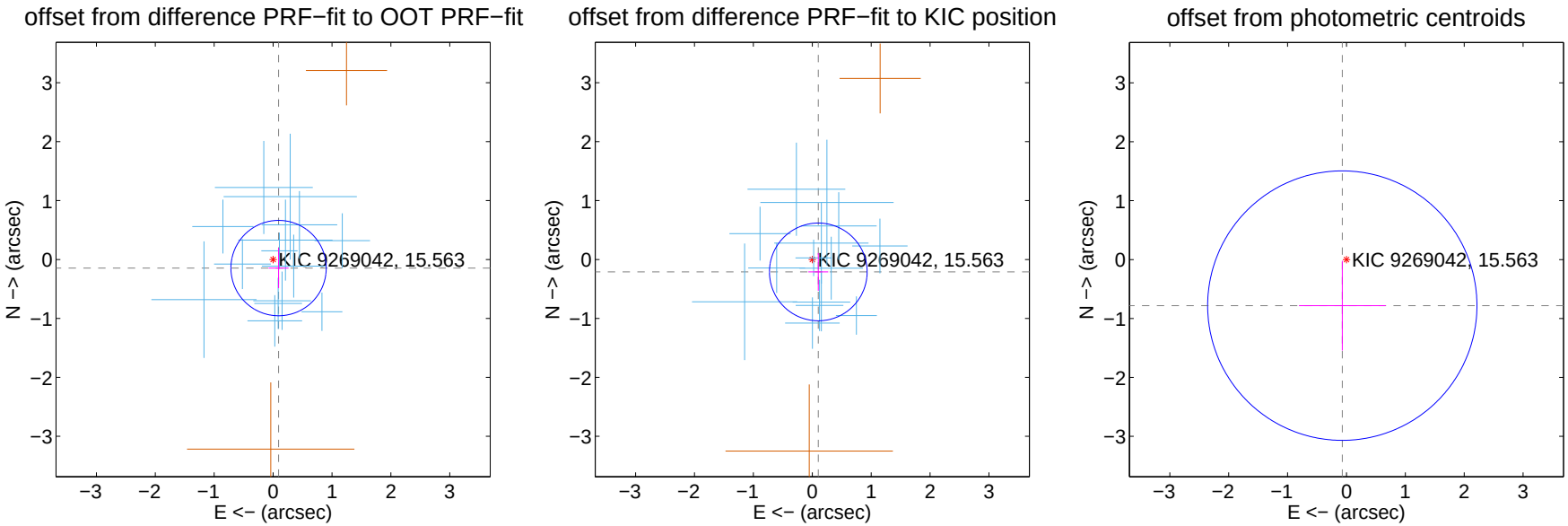
$T_{max}$ = Theoretical Maximum Planetary Temperature
$T_{obs}$ = Observed Planetary Temperature (Assuming A=0.3)
$A_{obs}$ = Observed Albedo (Assuming T=0)

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

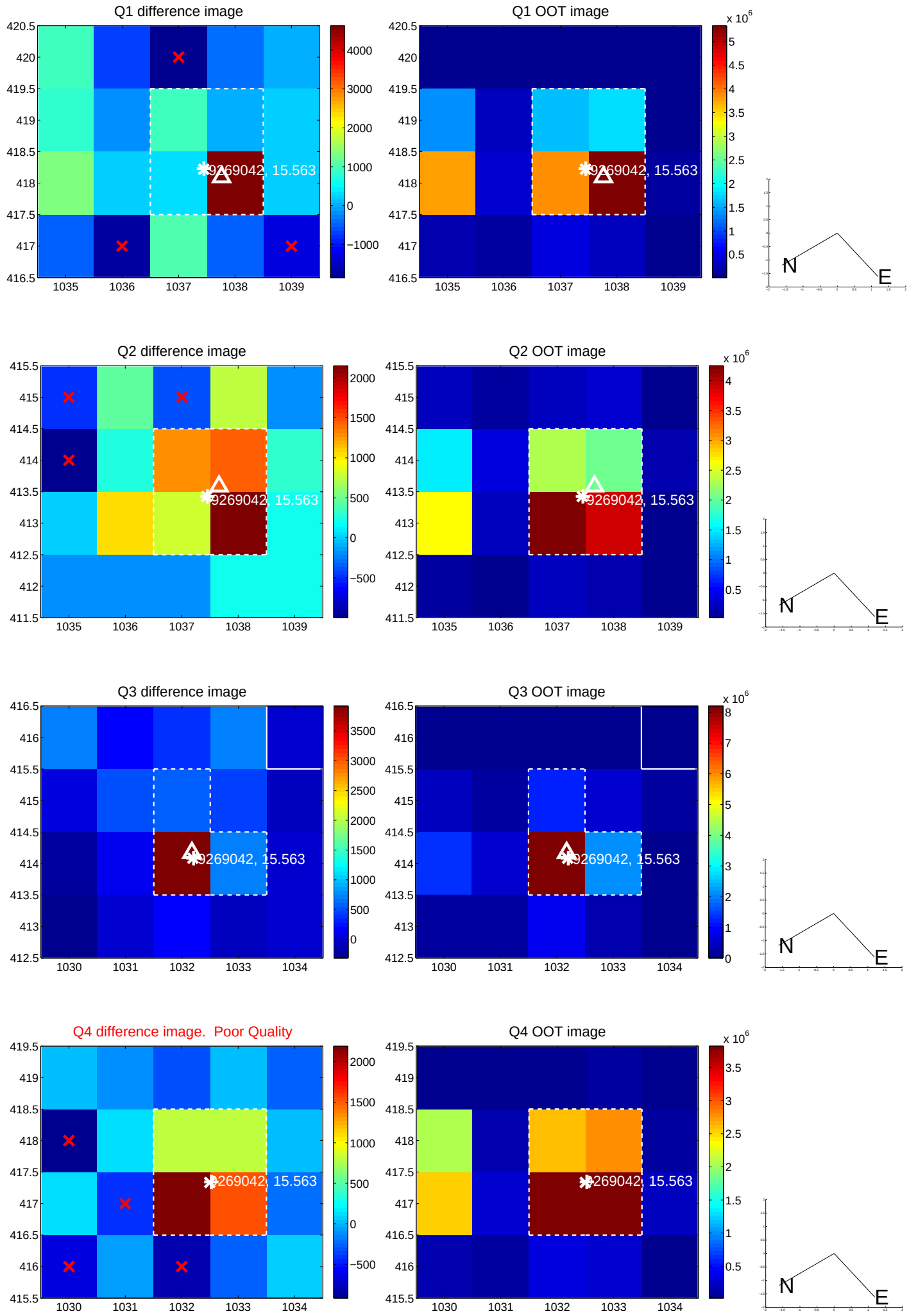
Supplemental centroid analysis for 009269042-01. Kepler magnitude: 15.56. Transit SNR 18.17
There are 14 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

| | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA | $\Delta$ Dec |
|---|---|---|---|---|
| PRF-fit source offset from OOT | 0.173 ± 0.270 | 0.64 | -0.093 ± 0.169 | -0.146 ± 0.340 |
| PRF-fit source offset from KIC position | 0.234 ± 0.276 | 0.85 | -0.102 ± 0.169 | -0.211 ± 0.320 |
| photometric centroid source offset | 0.78 ± 0.76 | 1.03 | 0.07 ± 0.74 | -0.78 ± 0.76 |

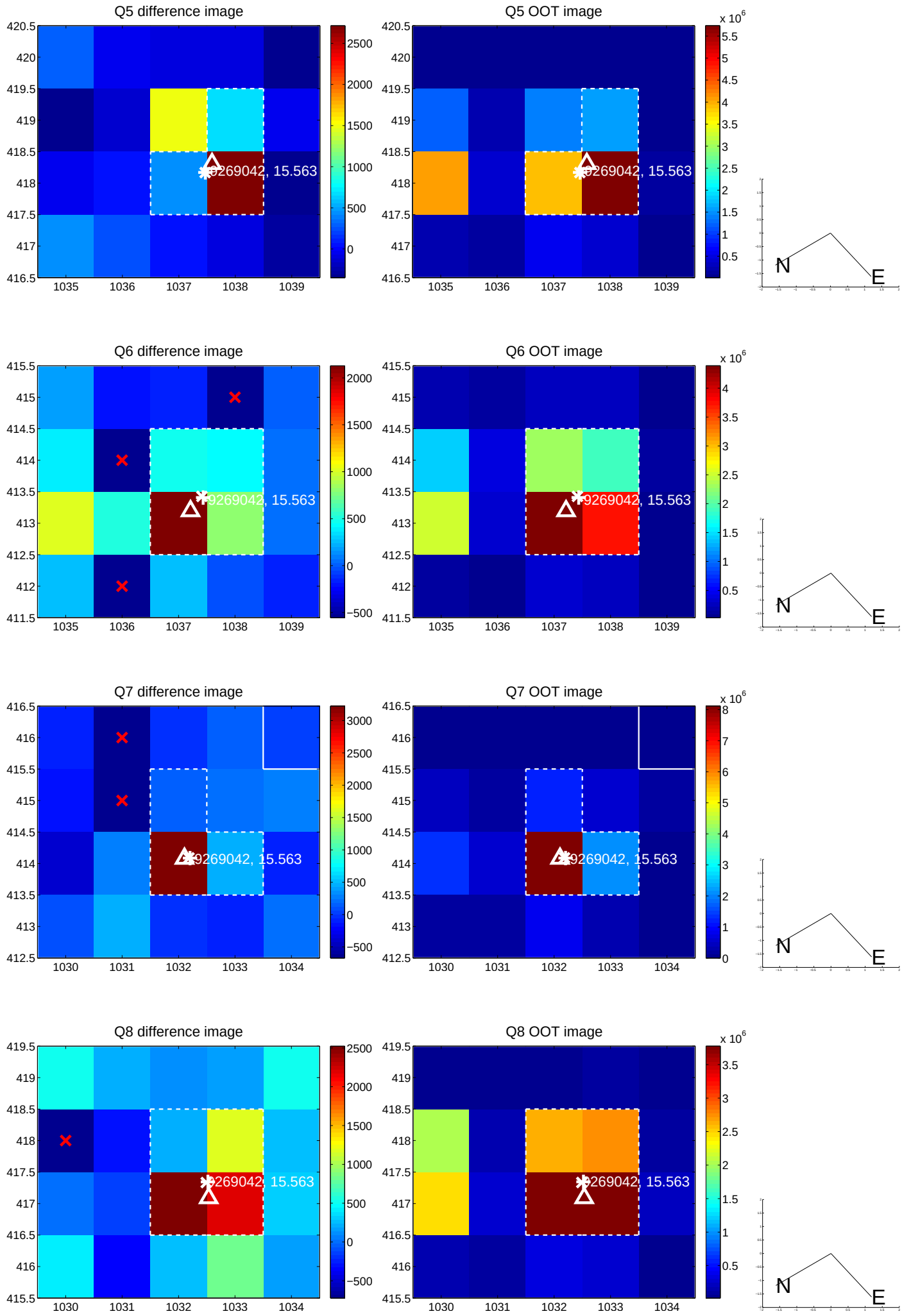



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-$\sigma$ uncertainty. Blue circle: three-$\sigma$.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

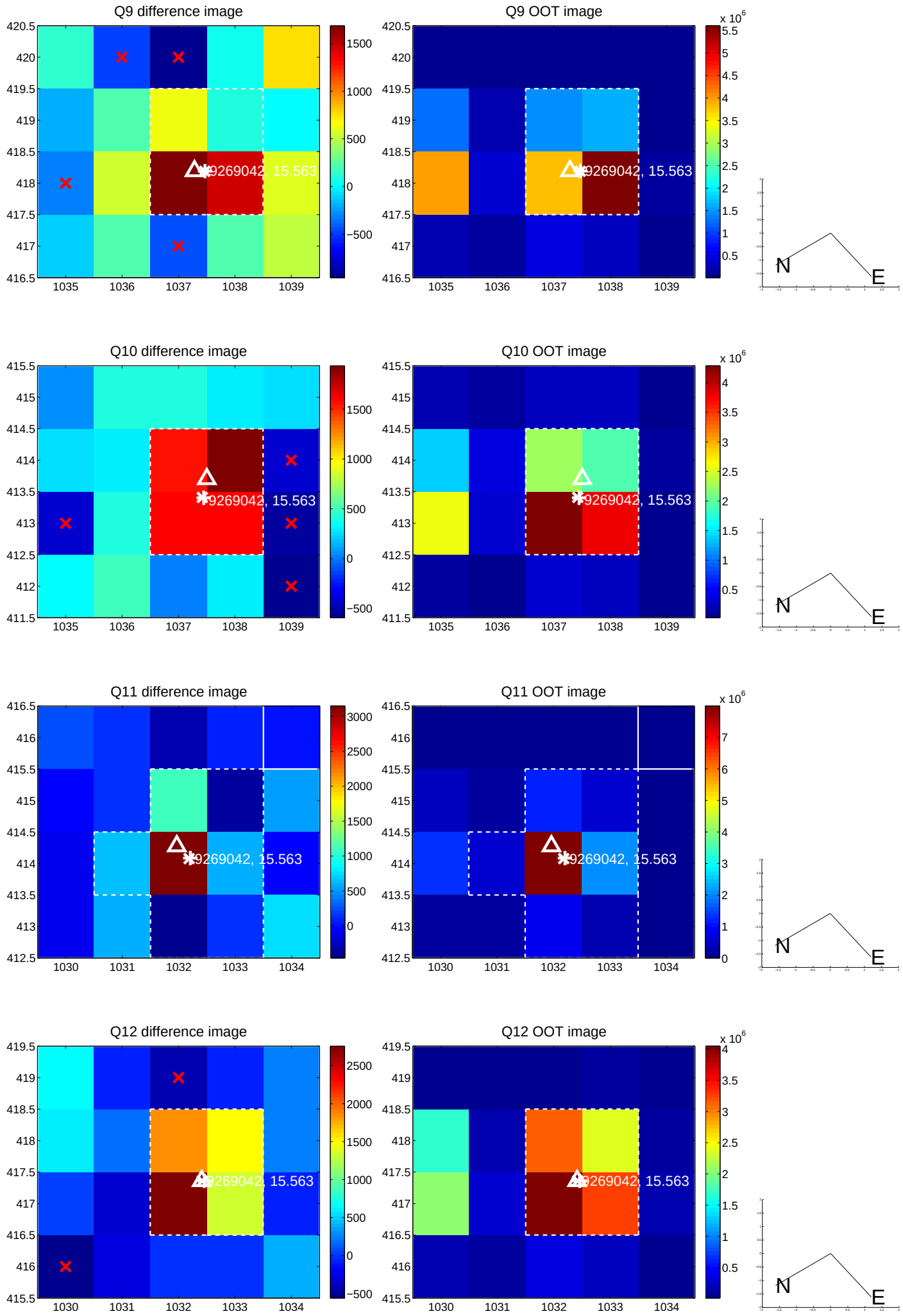
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



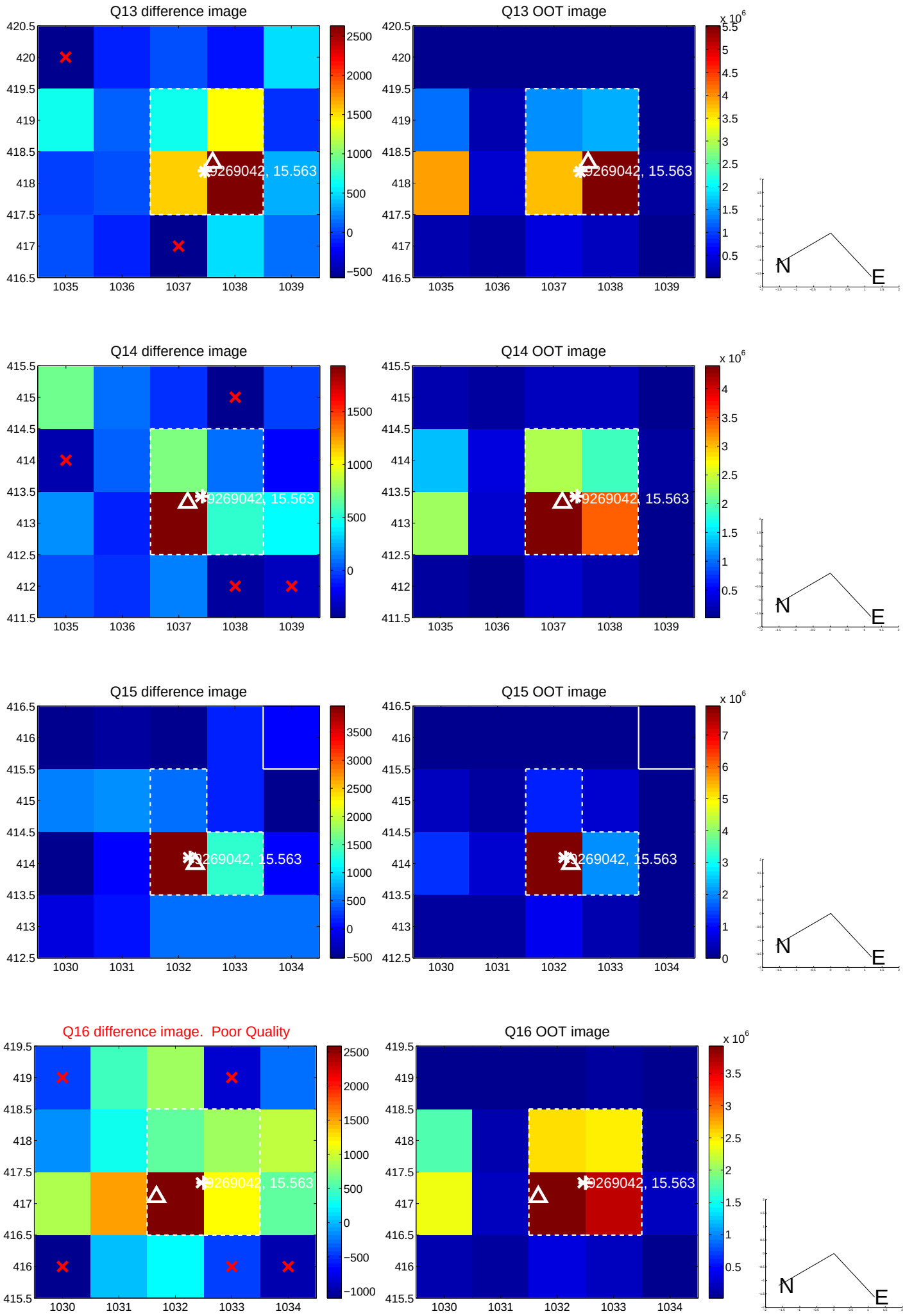
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



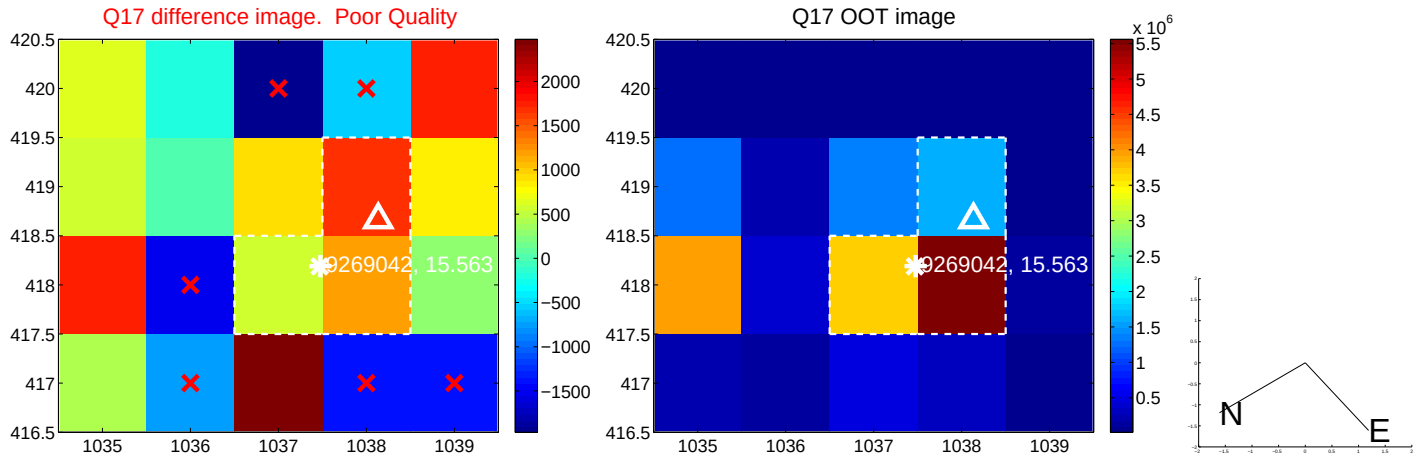
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

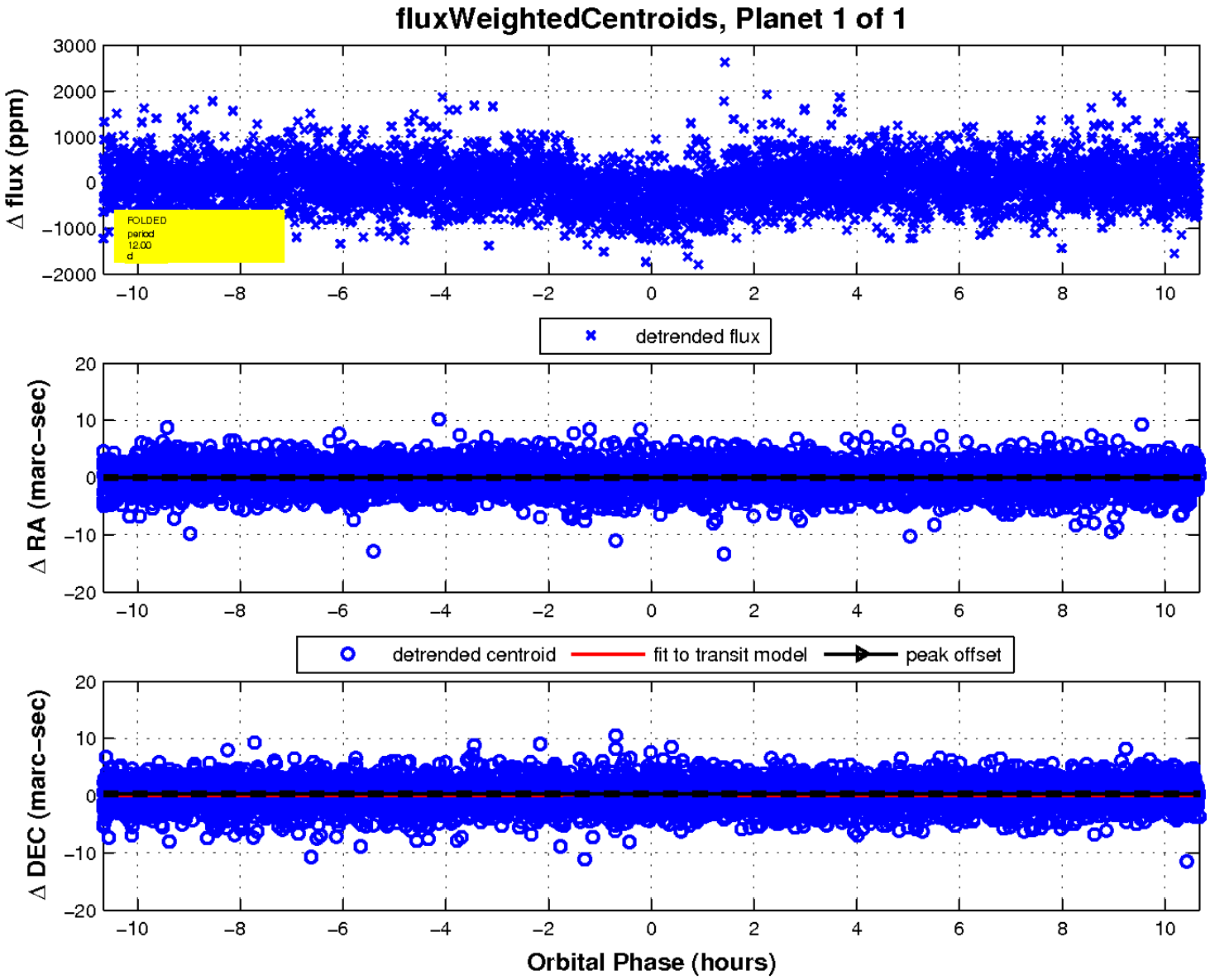


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

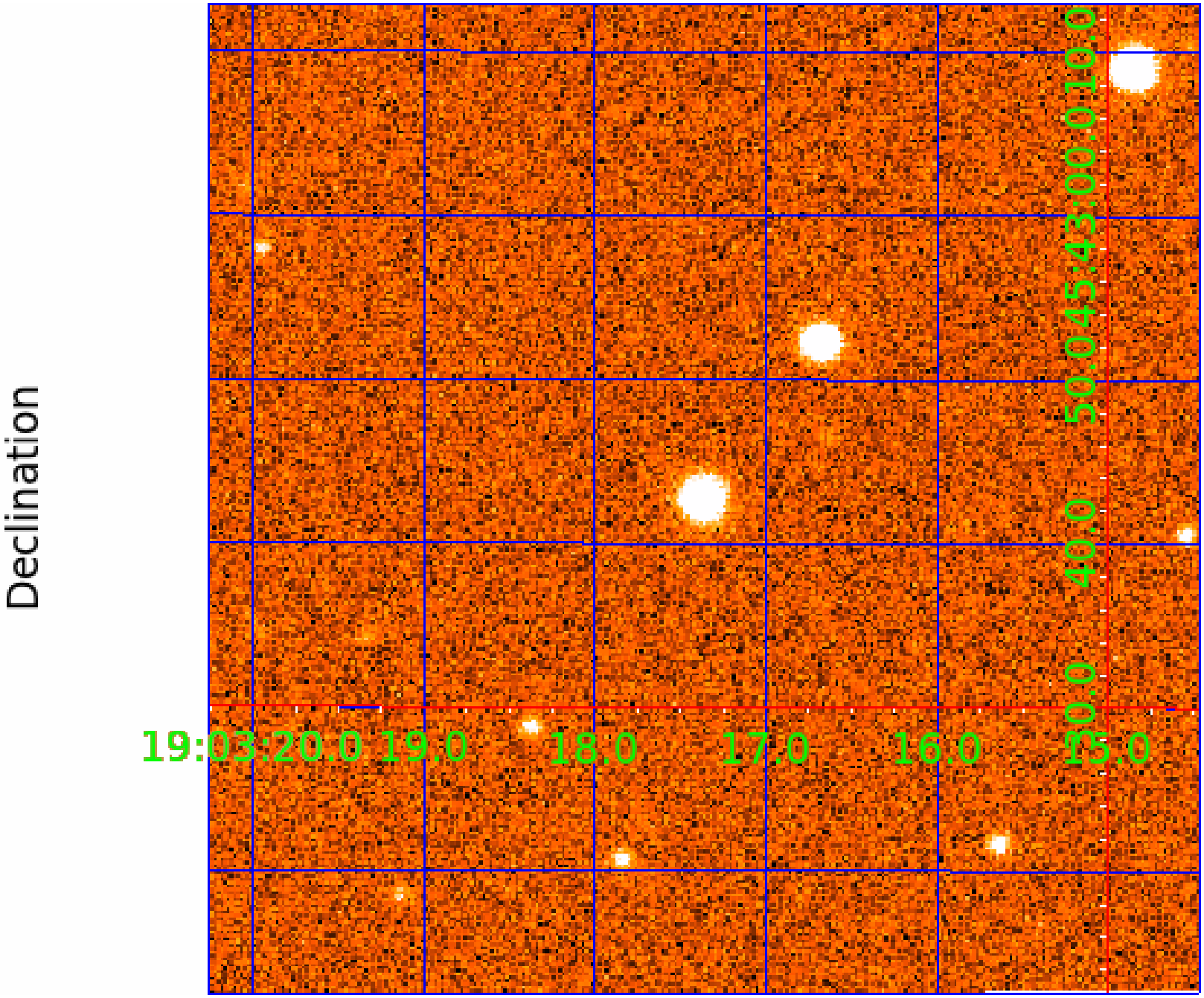


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



**UKIRT Image**


Declination
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19.0
18.0
17.0
16.0
15.0
50.0
45.0
43:00.0
40.0
10.0