# KIC 009203154

## 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) | $R_p$ ($R_\oplus$) | $S_p$ ($S_\oplus$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 009203154-01 | OBS | 7144.01 | 0.839900 | 131.696634 | 91.6 | 1.235 | 8.7 | 8.9 | 0.85 | 5120 | 1.00 | 1715.16 |

## Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|---|---|---|---|---|---|---|---|---|
| 009203154-01 | OBS | PC | 1.00 | 0 | 0 | 0 | 0 | NO_COMMENT |

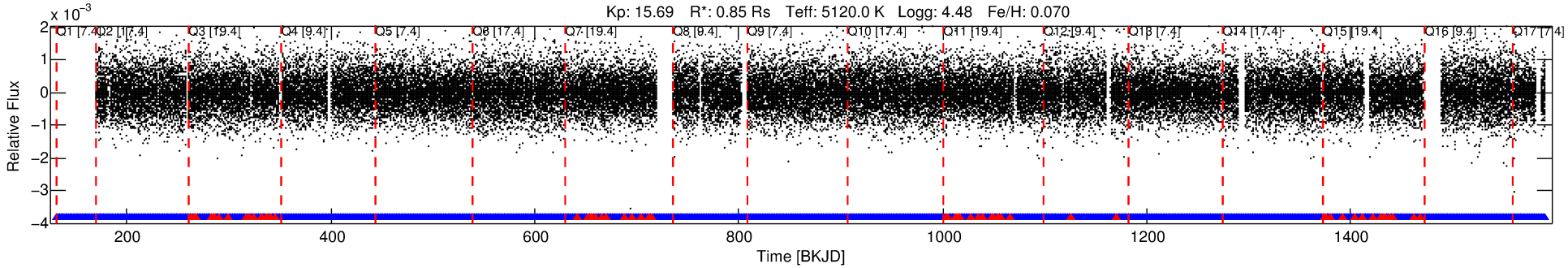
**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

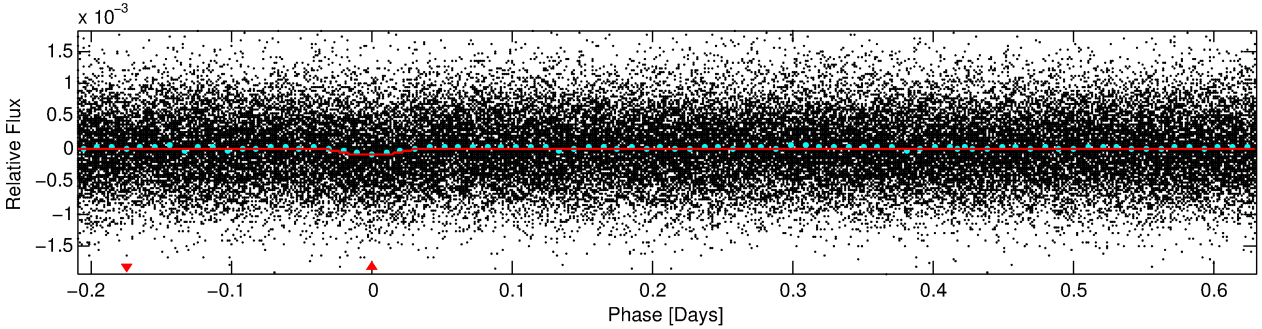
## Ephemeris Match Information For 009203154-01

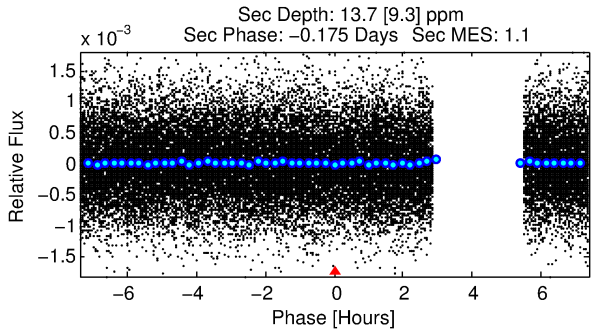
No Significant Match Found

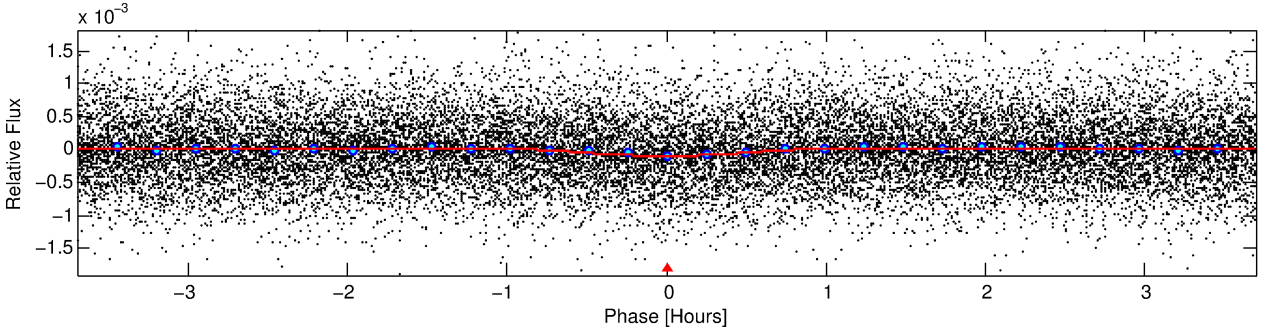
# DV One-Page Summary

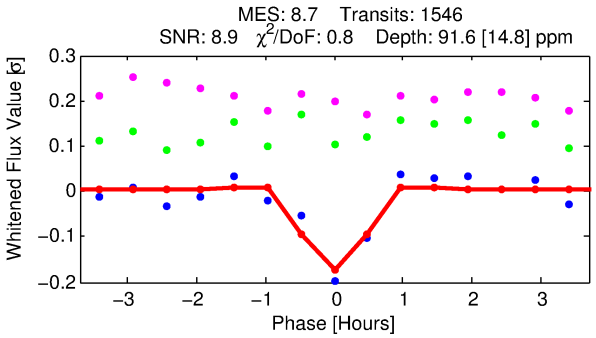
**KIC: 9203154 Candidate: 1 of 1 Period: 0.840 d**
**KOI: K07144.01 Corr: 0.967**

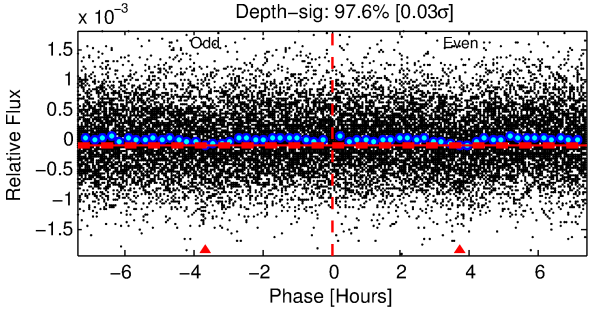


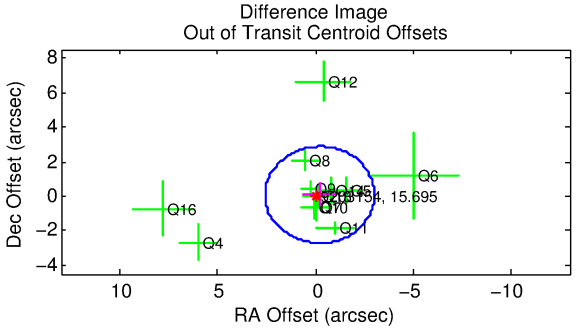




DV Fit Results:

Period = 0.83990 [0.00001] d
Epoch = 131.6966 [0.0021] BKJD
Rp/R* = 0.0107 [0.0119]
a/R* = 2.57 [9.85]
b = 0.90 [0.99]

Seff = 1715.16 [393.96]
Teq = 1641 [94] K
Rp = 1.00 [1.11] Re
a = 0.0162 [0.0019] AU

Ag = 1.98 [4.61] [0.21σ]
Teffp = 3011 [1747] K [0.78σ]

DV Diagnostic Results:

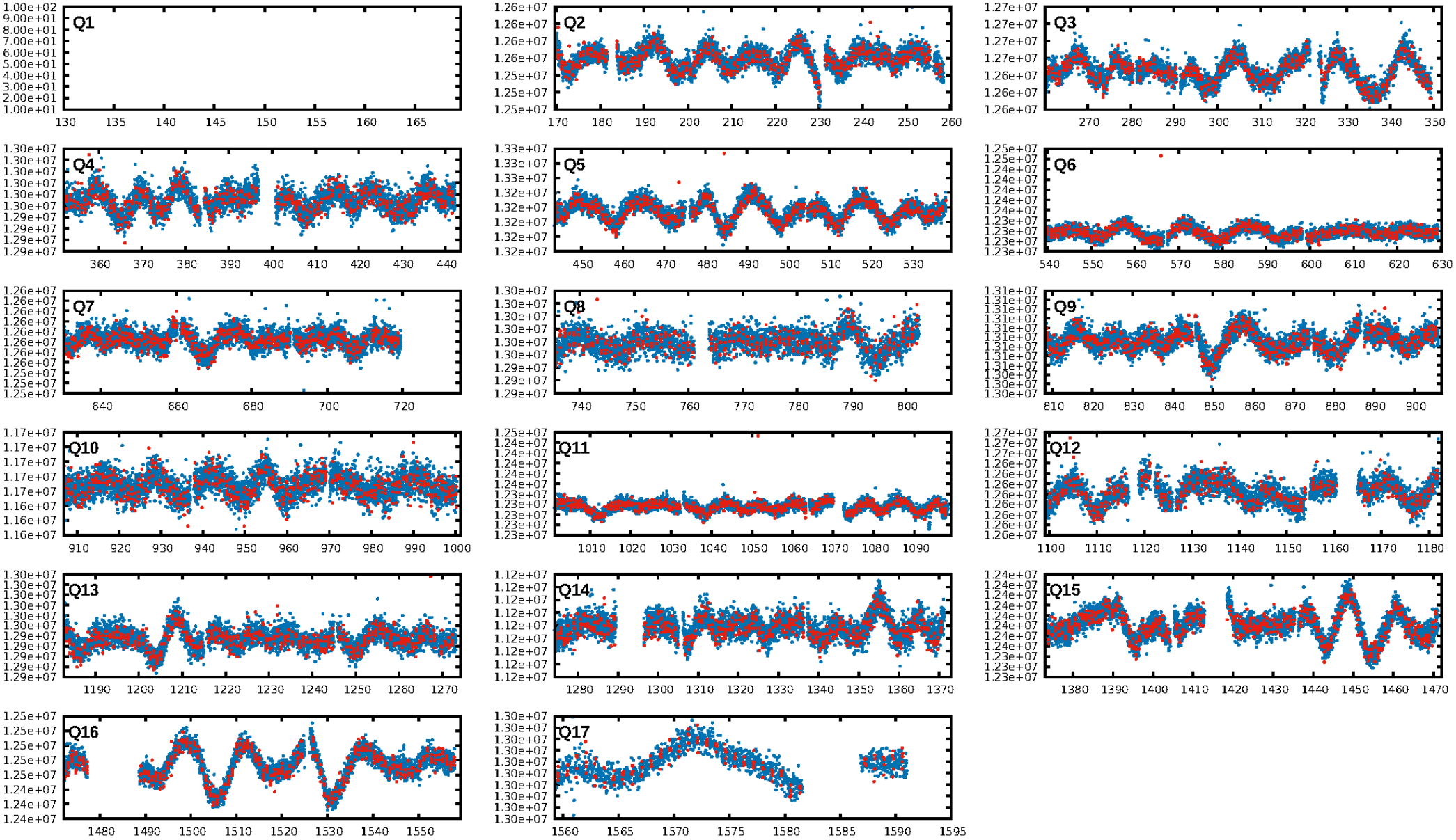
ShortPeriod−sig: N/A
LongPeriod−sig: N/A
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 3.55e−18
RollingBand−fgt: 0.96 [1455/1514]
GhostDiagnostic−chr: 111.6

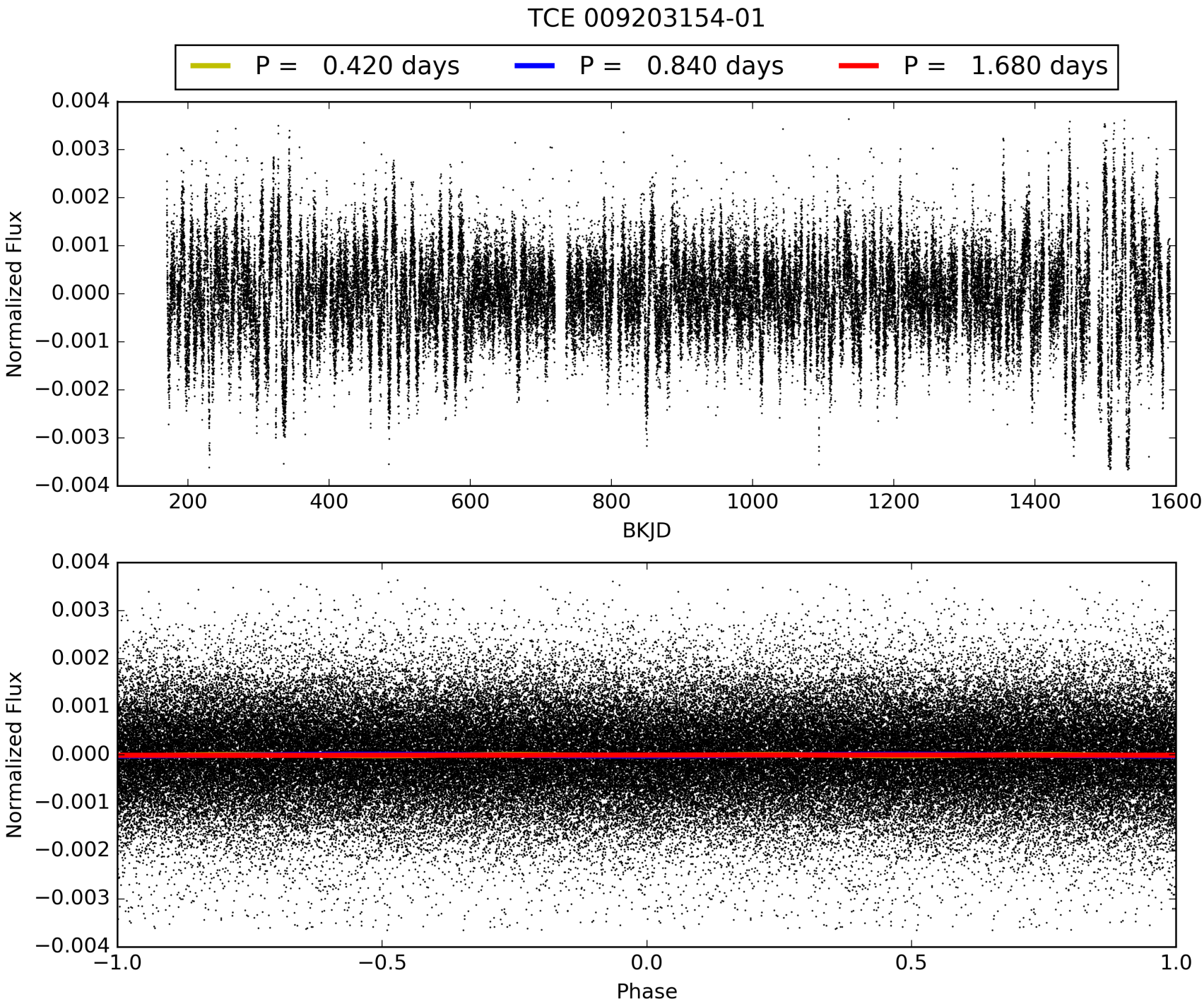
Centroid−sig: 0.3%
Centroid−so: 3.540 arcsec [2.20σ]
OotOffset−rm: 0.231 arcsec [0.25σ]
KicOffset−rm: 0.286 arcsec [0.34σ]
OotOffset−st: 3/2/4/3 [12]
KicOffset−st: 3/2/4/3 [12]
DiffImageQuality−fgm: 0.67 [8/12]
DiffImageOverlap−fno: 0.00 [16/16]

**Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 03:09:41 Z**

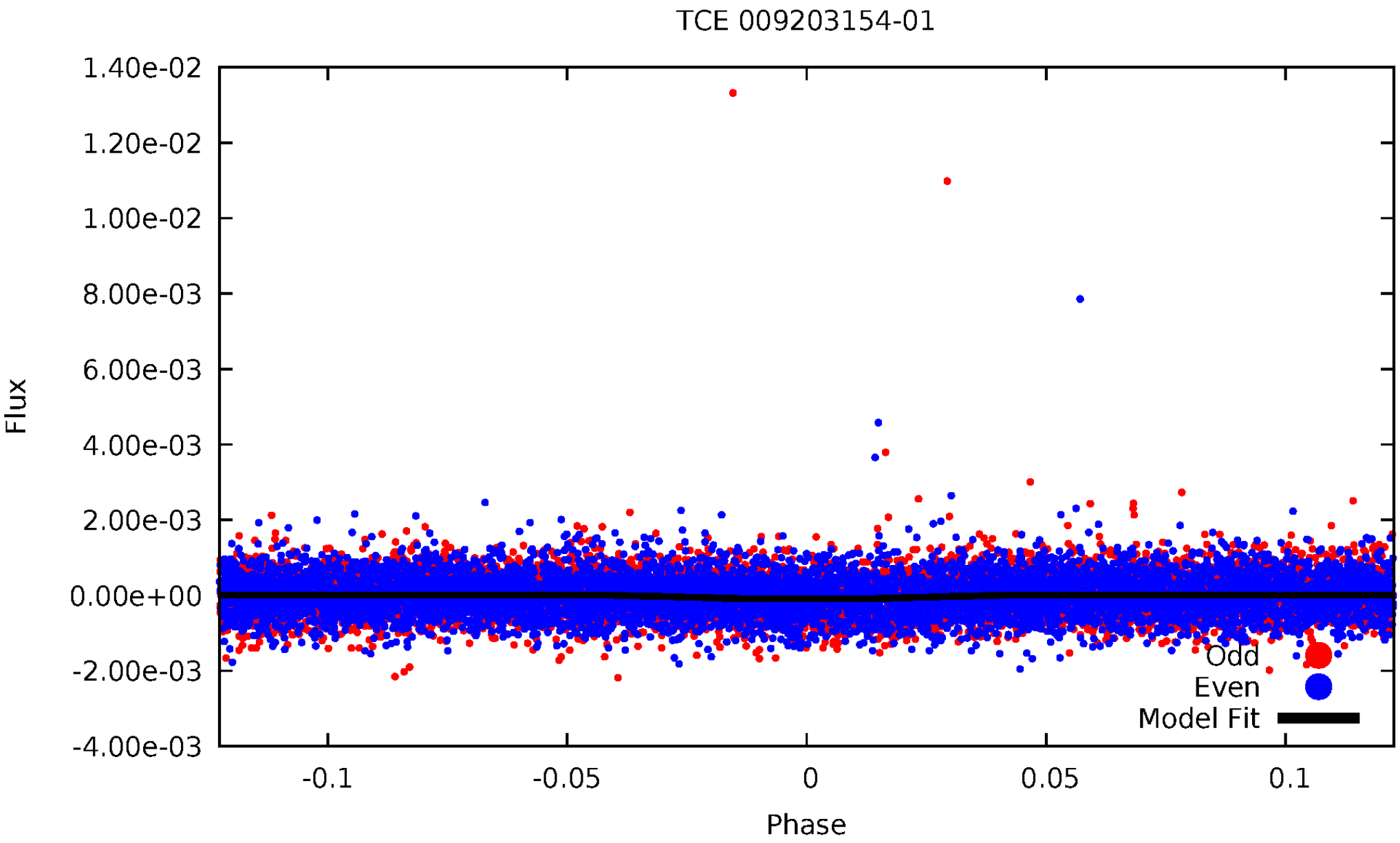
**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 009203154-01, PDC Light Curves

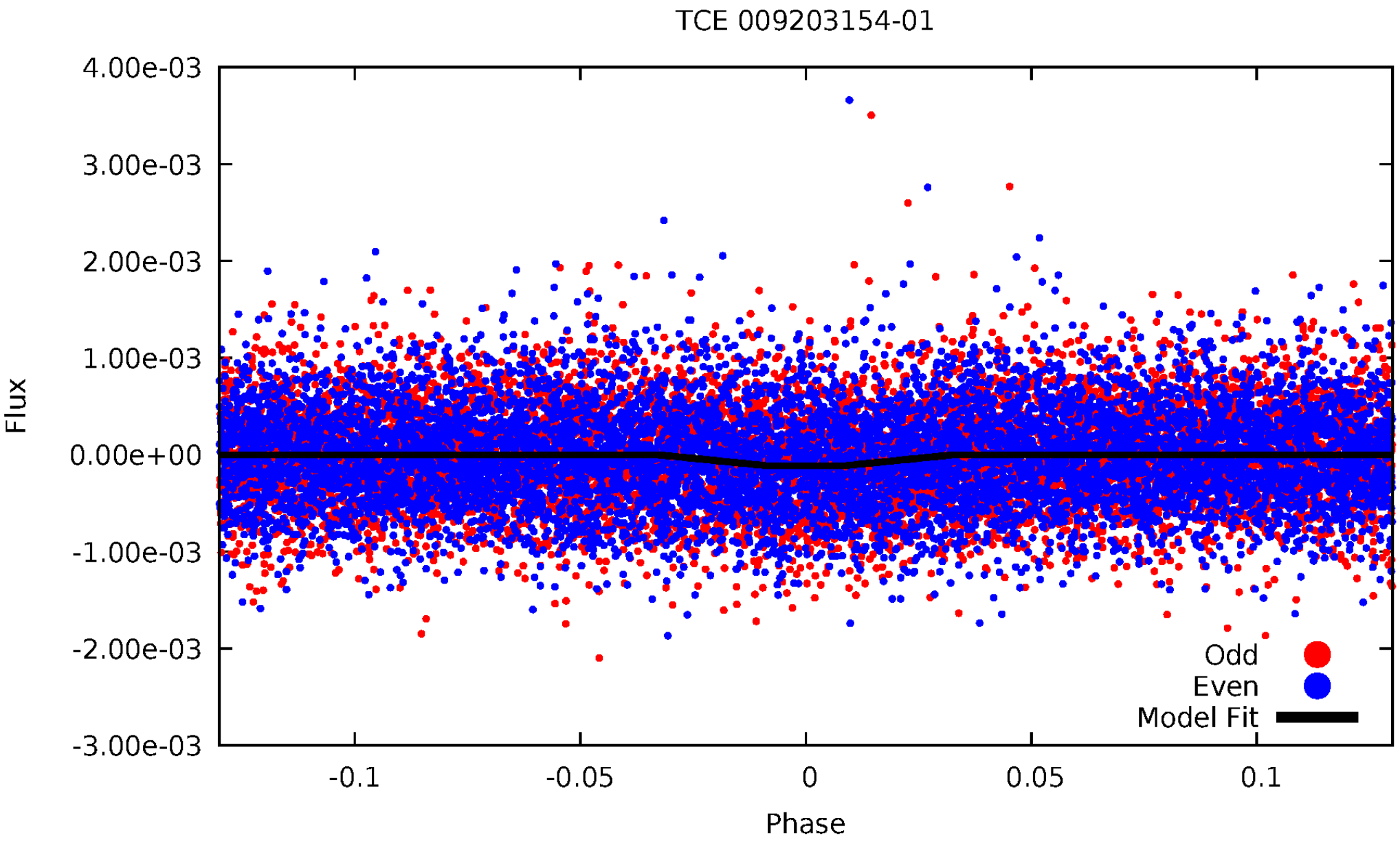



TCE 009203154-01
P = 0.420 days
P = 0.840 days
P = 1.680 days
Normalized Flux
BKJD
Normalized Flux
Phase

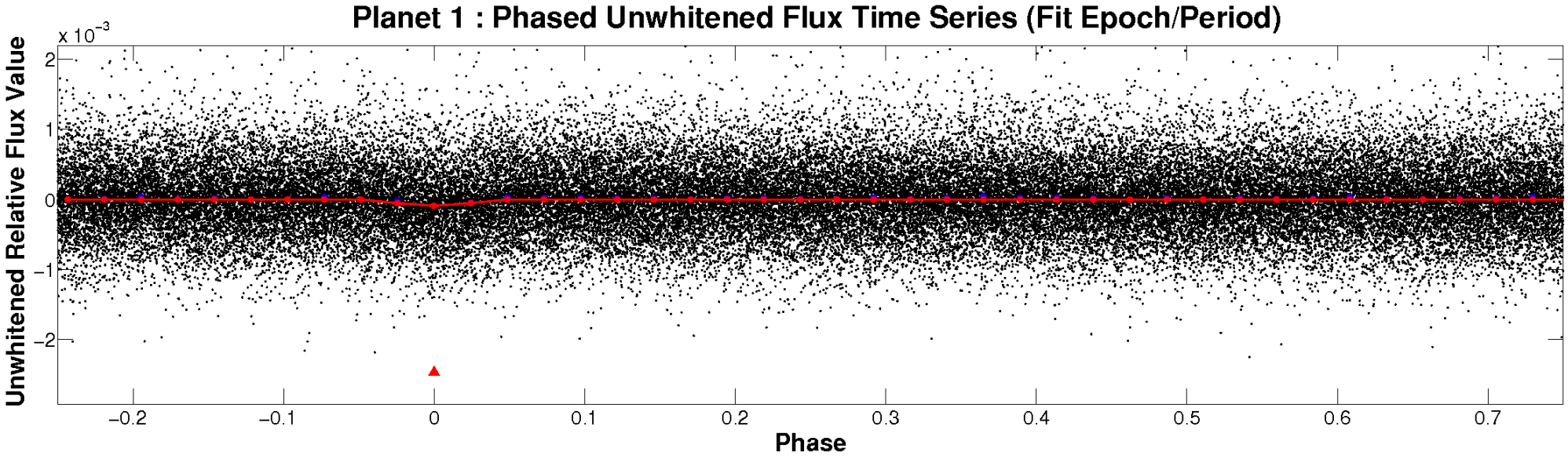
# DV Odd/Even

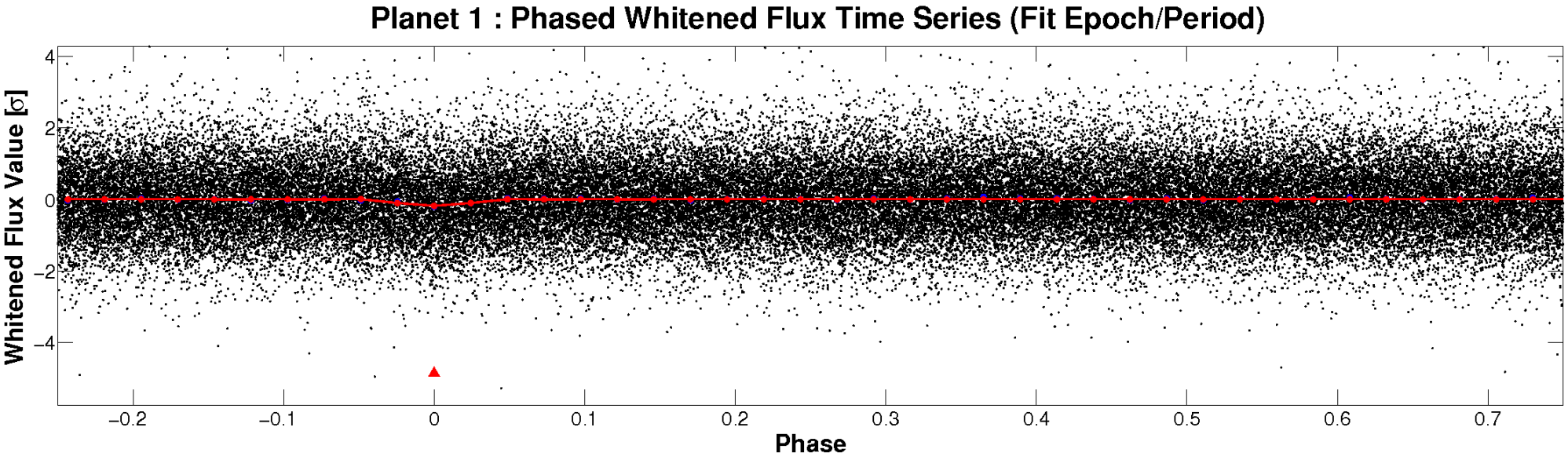

TCE 009203154-01
1.40e-02
1.20e-02
1.00e-02
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

**ALT Odd/Even**


TCE 009203154-01
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
Flux
-0.1
-0.05
0
0.05
0.1
Phase
Odd
Even
Model Fit

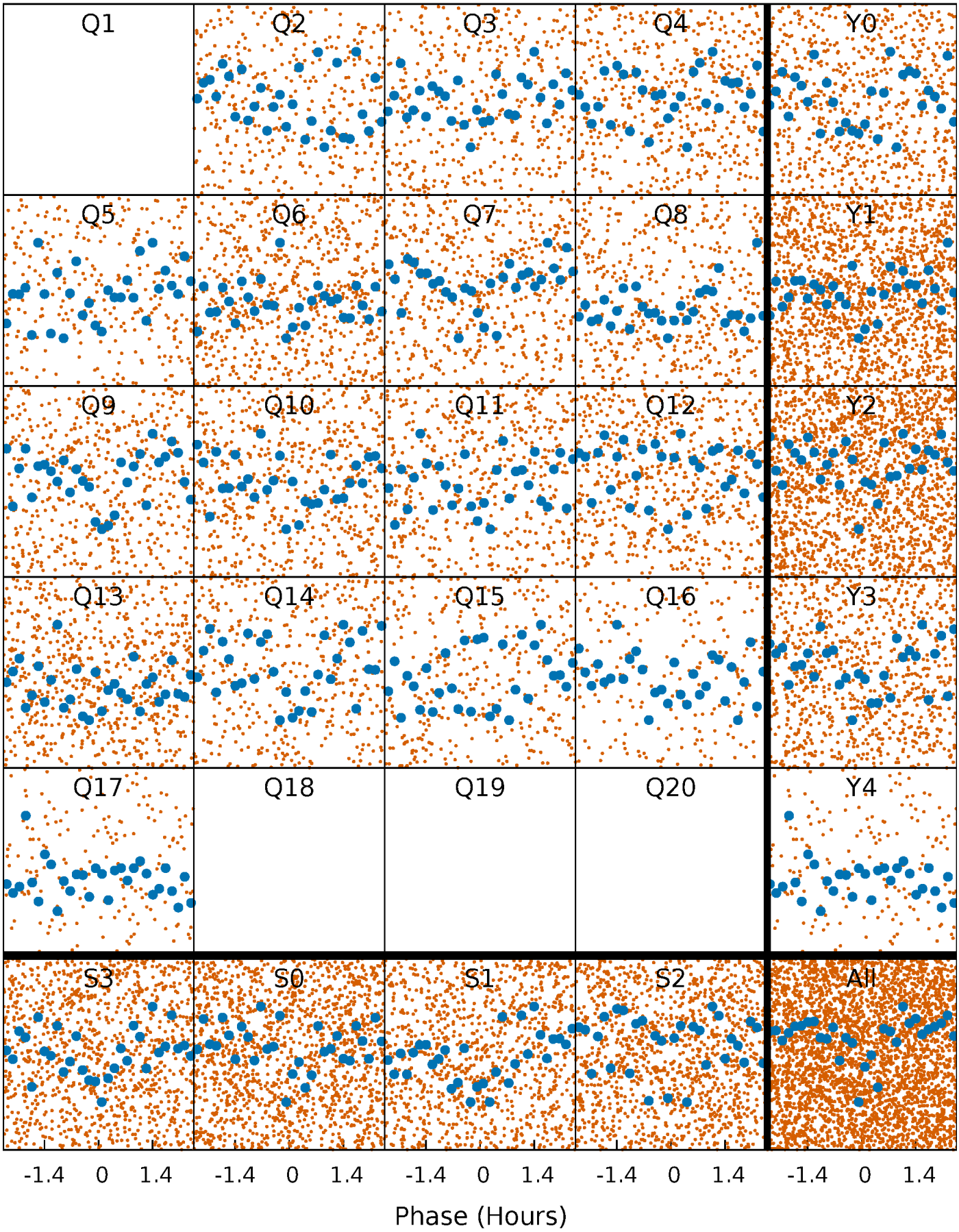
# Non-Whitened Vs. Whitened Light Curve



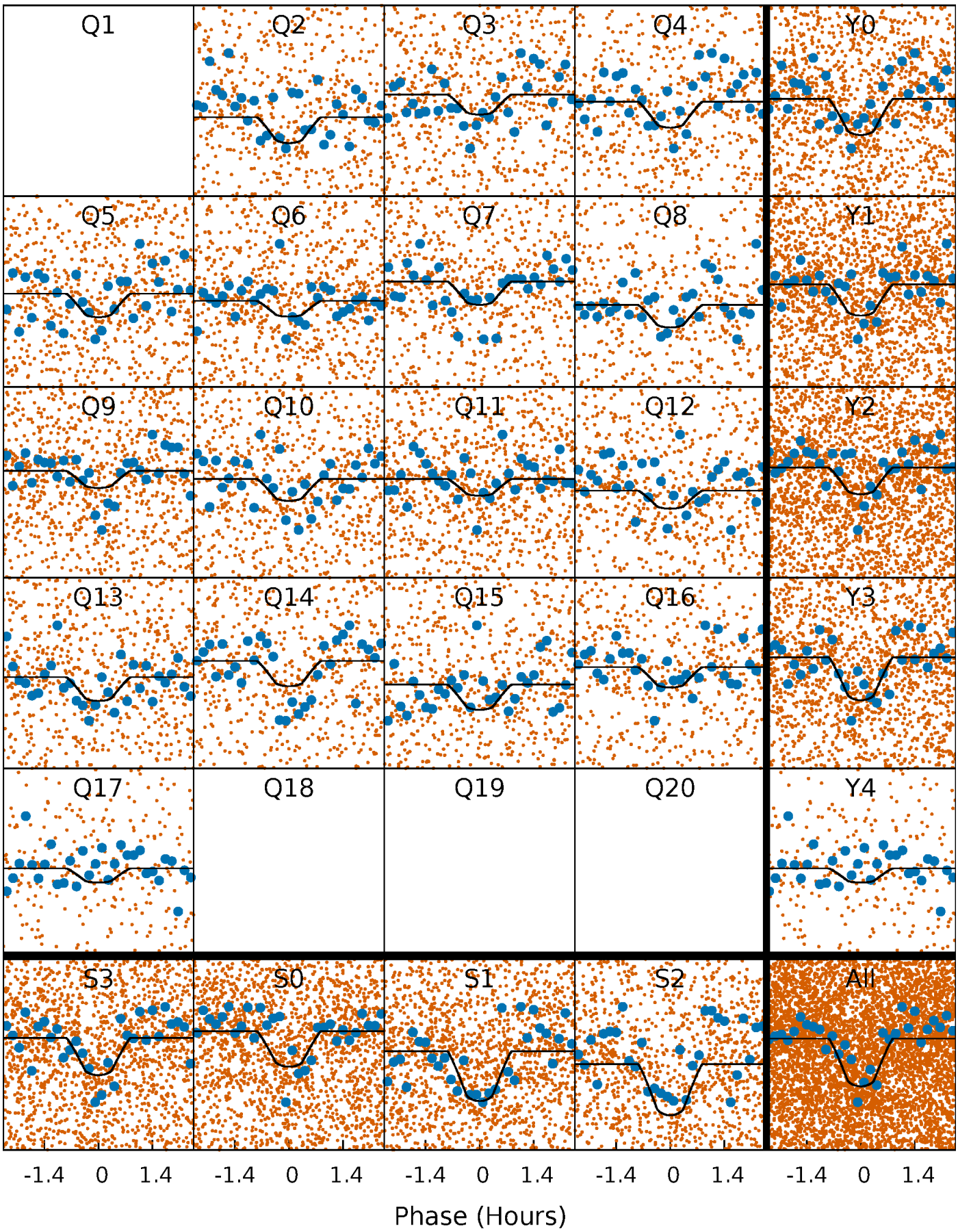
# PDC Quarter-Phased Transit Curves

TCE 009203154-01 P= 0.839900 Days $T_0$=131.696634 (BKJD)



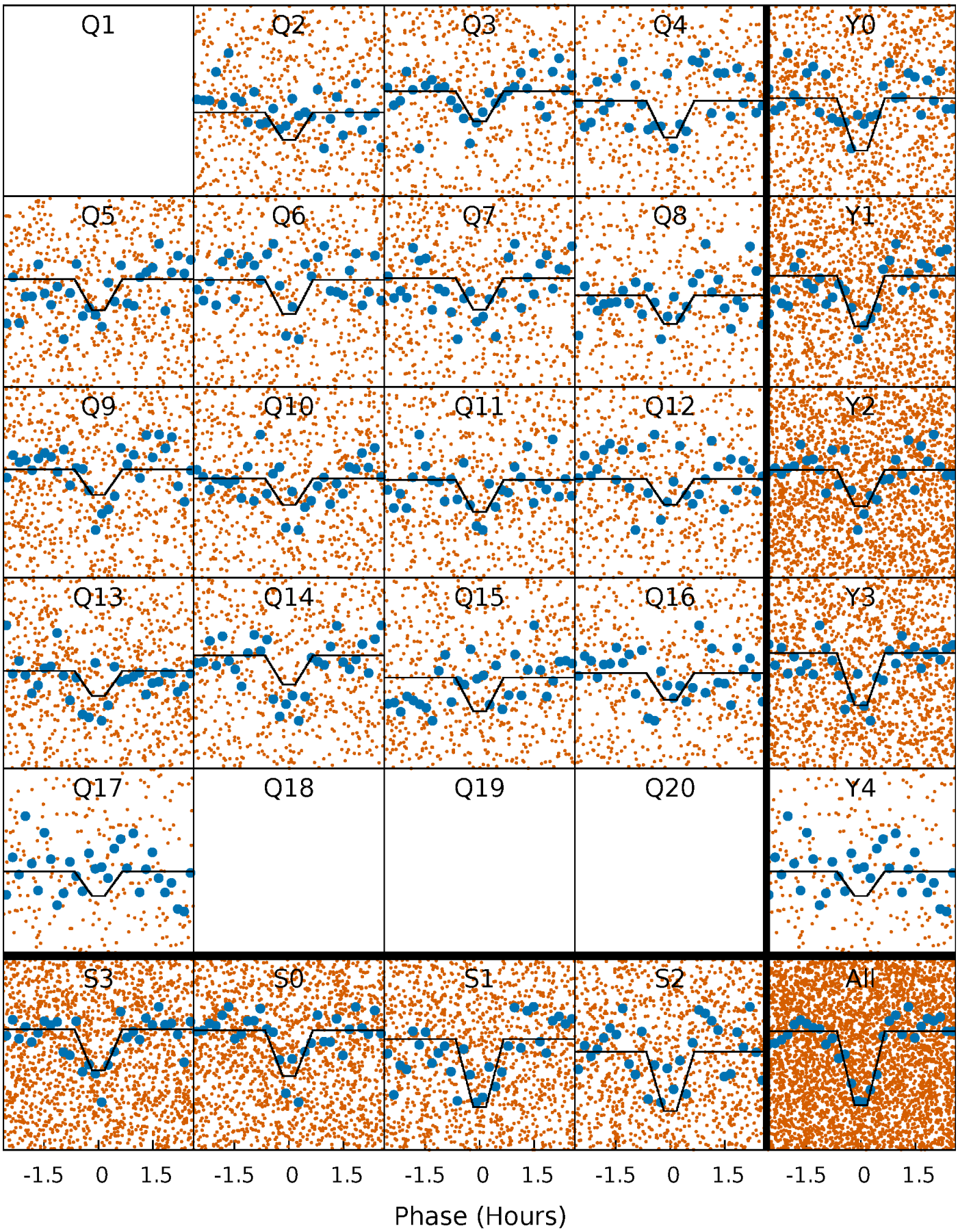
# DV Quarter-Phased Transit Curves

TCE 009203154-01 P= 0.839900 Days $T_0$=131.696634 (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

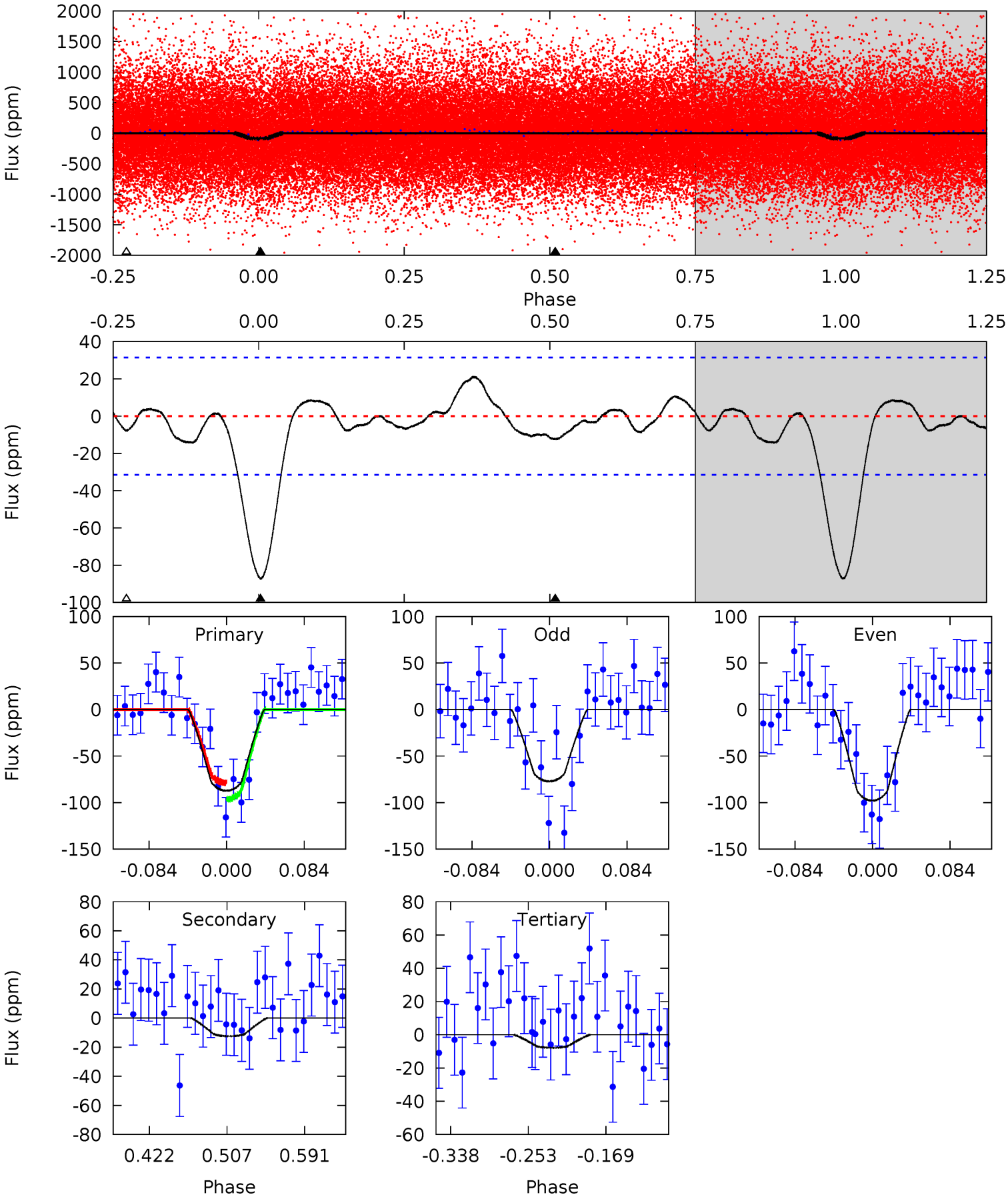
TCE 009203154-01 P= 0.839903 Days $T_0$=131.697088 (BKJD)



# DV Model-Shift Uniqueness Test

009203154-01, P = 0.839900 Days, E = 131.696634 Days

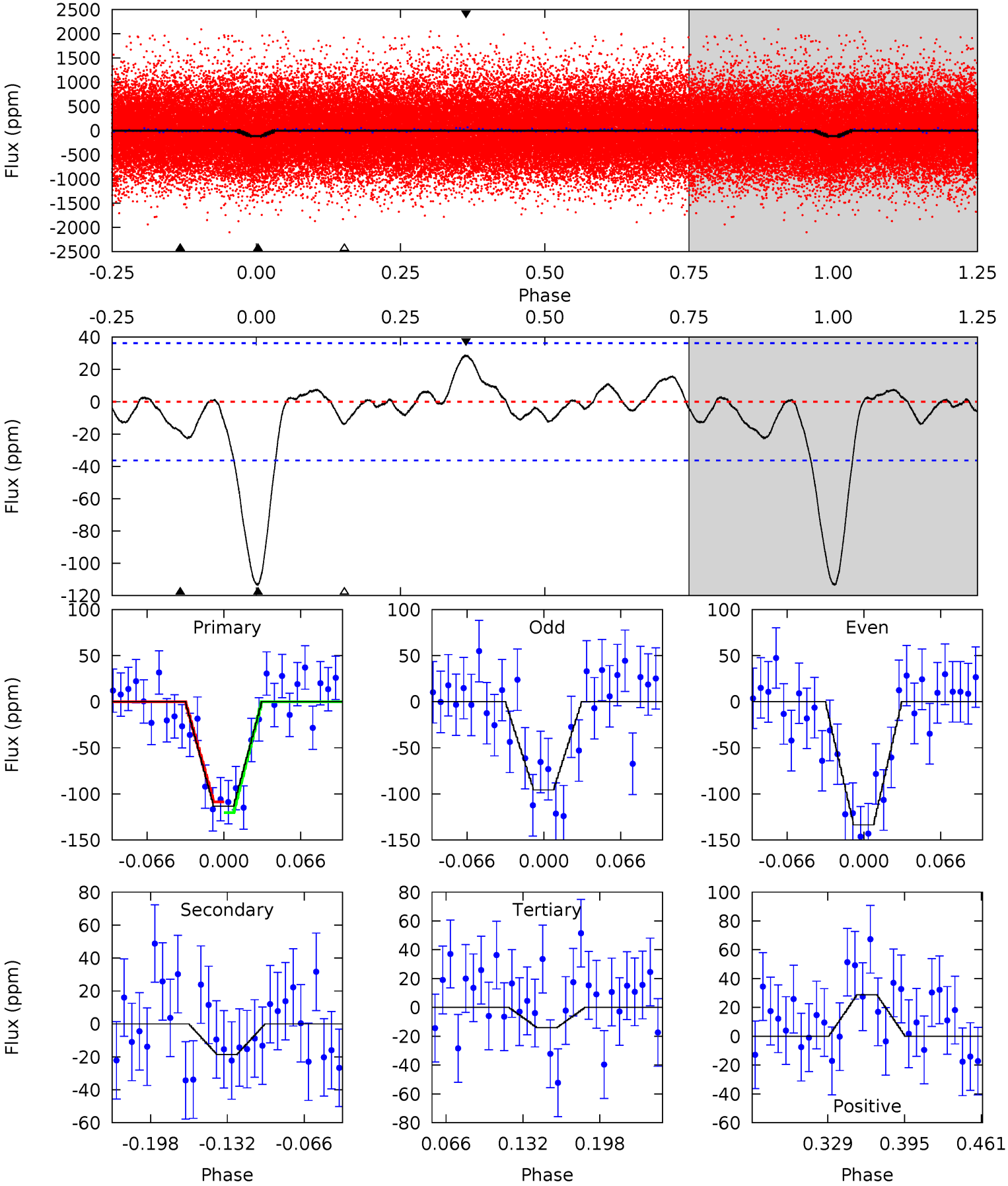
| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.8 | 1.82 | 1.15 | 0 | 4.60 | 1.73 | 1.13 | 11.6 | 12.8 | 0.67 | 1.82 | 1.52 | 0.82 | 0.19 | 1.31 |



# Alt Model-Shift Uniqueness Test

009203154-01, P = 0.839903 Days, E = 131.697088 Days

| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14.5 | 2.39 | 1.80 | 3.69 | 4.65 | 1.84 | 1.16 | 12.7 | 10.9 | 0.59 | -1.30 | 2.43 | 0.90 | 0.20 | 0.75 |



Stellar Parameters For KIC 009203154

| | $T_{\rm eff}(K)$ | $\log(g)$ | [Fe/H] | $R$ ($R_\odot$) | $M(M_\odot)$ | $p_\star$ (g·cm$^{-3}$) |
|---|---|---|---|---|---|---|
| | $5120^{+170}_{-154}$ | $4.478^{+0.099}_{-0.110}$ | $0.070^{+0.250}_{-0.300}$ | $0.853^{+0.104}_{-0.104}$ | $0.797^{+0.088}_{-0.064}$ | $1.808^{+0.762}_{-0.534}$ |
| | +3%/-3% | +2%/-2% | +357%/-429% | +12%/-12% | +11%/-8% | +42%/-30% |
| 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 009203154-01 / KOI 7144.01

| Detrend | Depth (ppm) | $R_p$ ($R_\oplus$) | $T_{max}$ (K) | $T_{obs}$ (K) | $A_{obs}$ |
|---|---|---|---|---|---|
| DV | -12±7 | $1.25^{+1.04}_{-0.79}$ | $2301^{+111}_{-102}$ | $2970^{+1326}_{-5190}$ | $0.984^{+6.449}_{-0.746}$ |
| Alt. | -19±8 | $1.31^{+1.00}_{-0.85}$ | $2299^{+115}_{-102}$ | $3186^{+1570}_{-798}$ | $1.410^{+10.203}_{-0.991}$ |

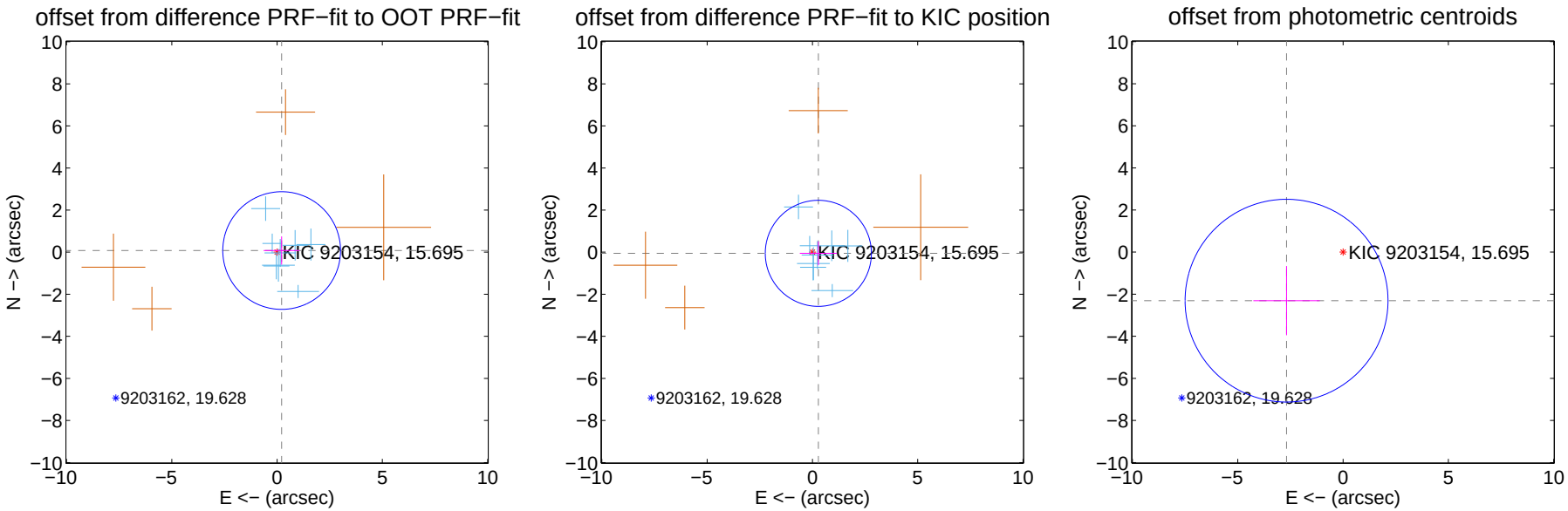
$T_{max}$ = Theoretical Maximum Planetary Temperature
$T_{obs}$ = Observed Planetary Temperature (Assuming A=0.3)
$A_{obs}$ = Observed Albedo (Assuming T=0)

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

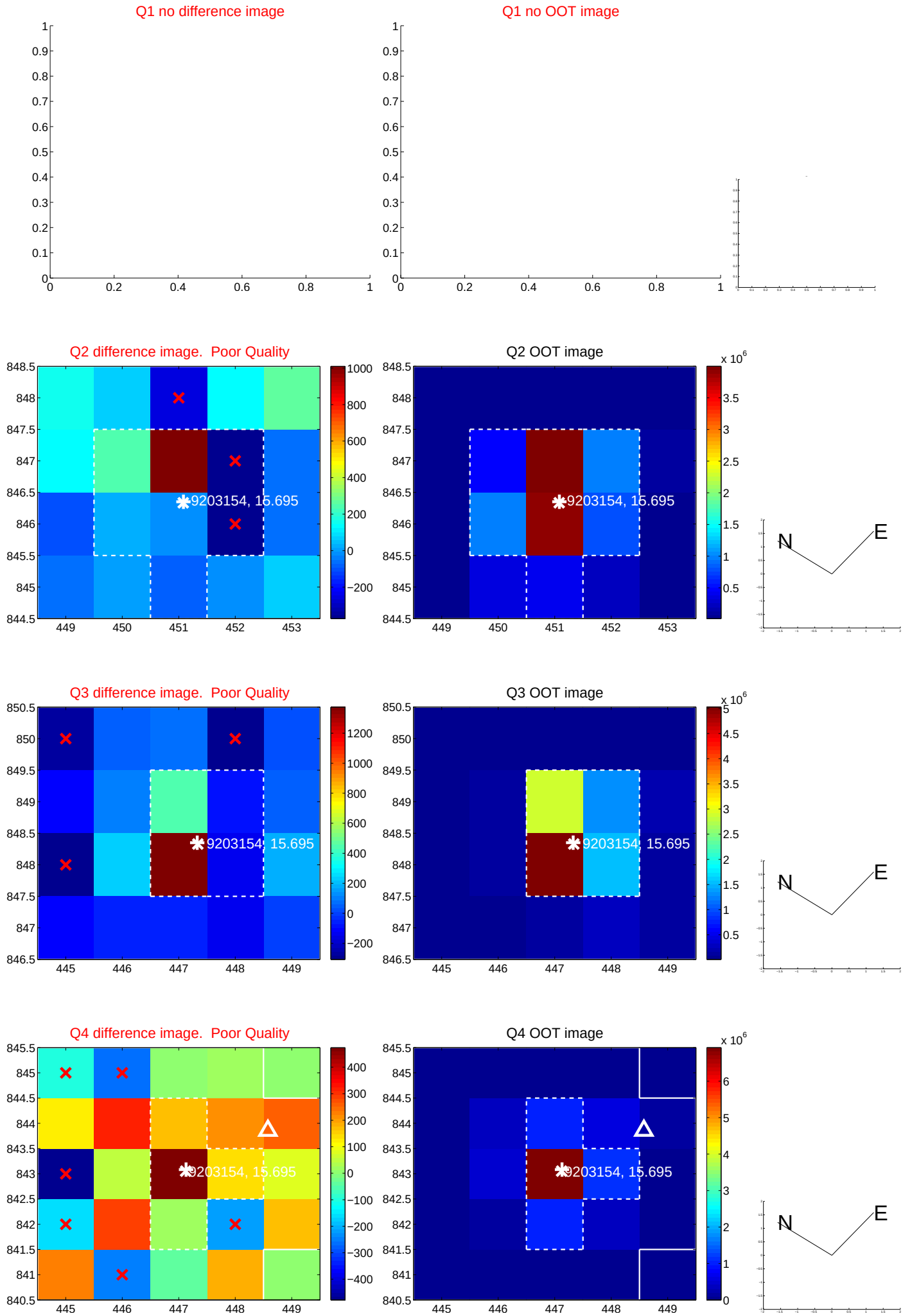
Supplemental centroid analysis for 009203154-01. Kepler magnitude: 15.70. Transit SNR 8.88
There are 8 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA | $\Delta$ Dec |
|---|---|---|---|---|
| PRF-fit source offset from OOT | 0.231 ± 0.932 | 0.25 | -0.218 ± 0.854 | 0.077 ± 0.670 |
| PRF-fit source offset from KIC position | 0.286 ± 0.840 | 0.34 | -0.280 ± 0.881 | -0.055 ± 0.564 |
| photometric centroid source offset | 3.54 ± 1.61 | 2.20 | 2.68 ± 1.58 | -2.31 ± 1.65 |

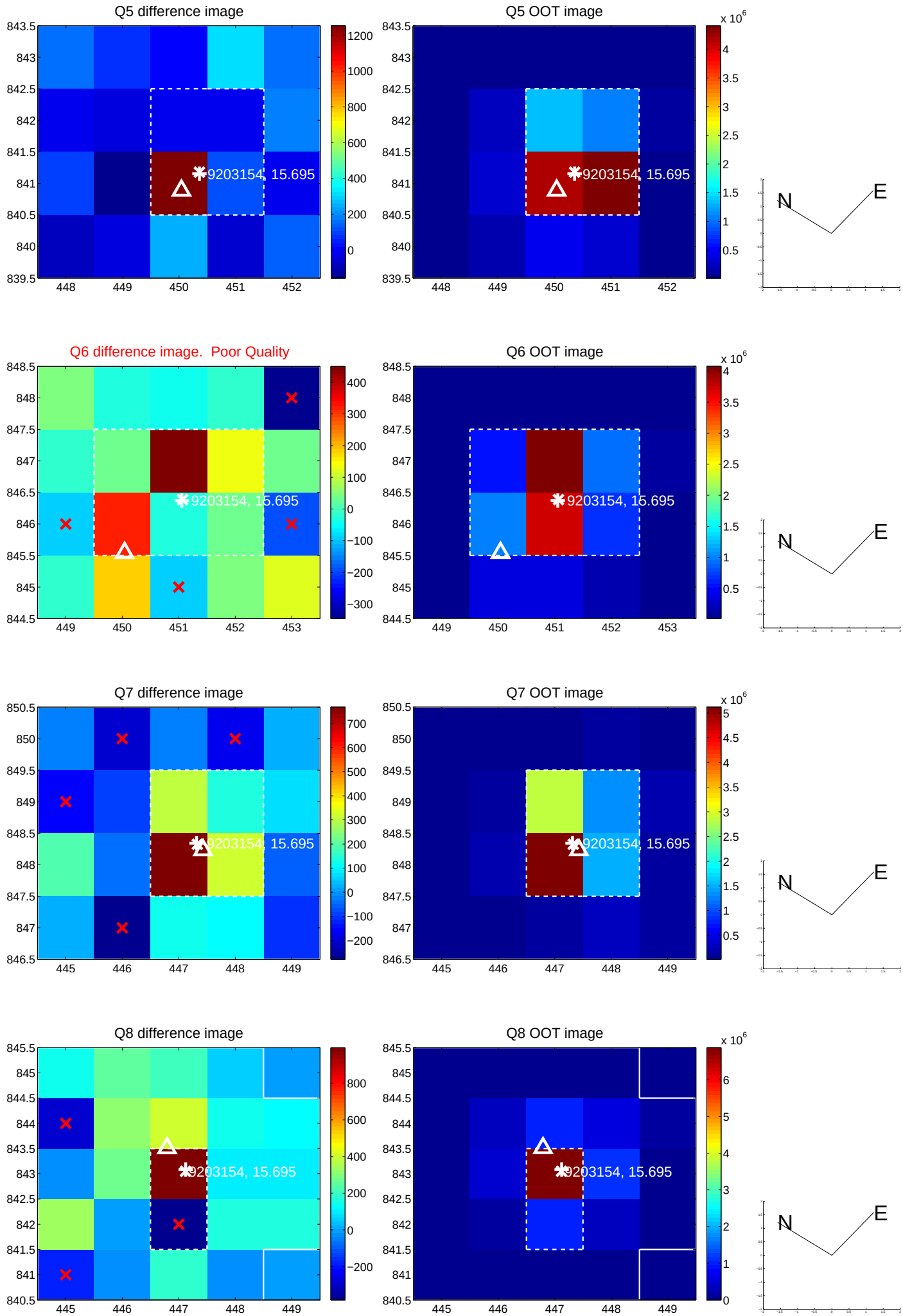



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-$\sigma$ uncertainty. Blue circle: three-$\sigma$.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

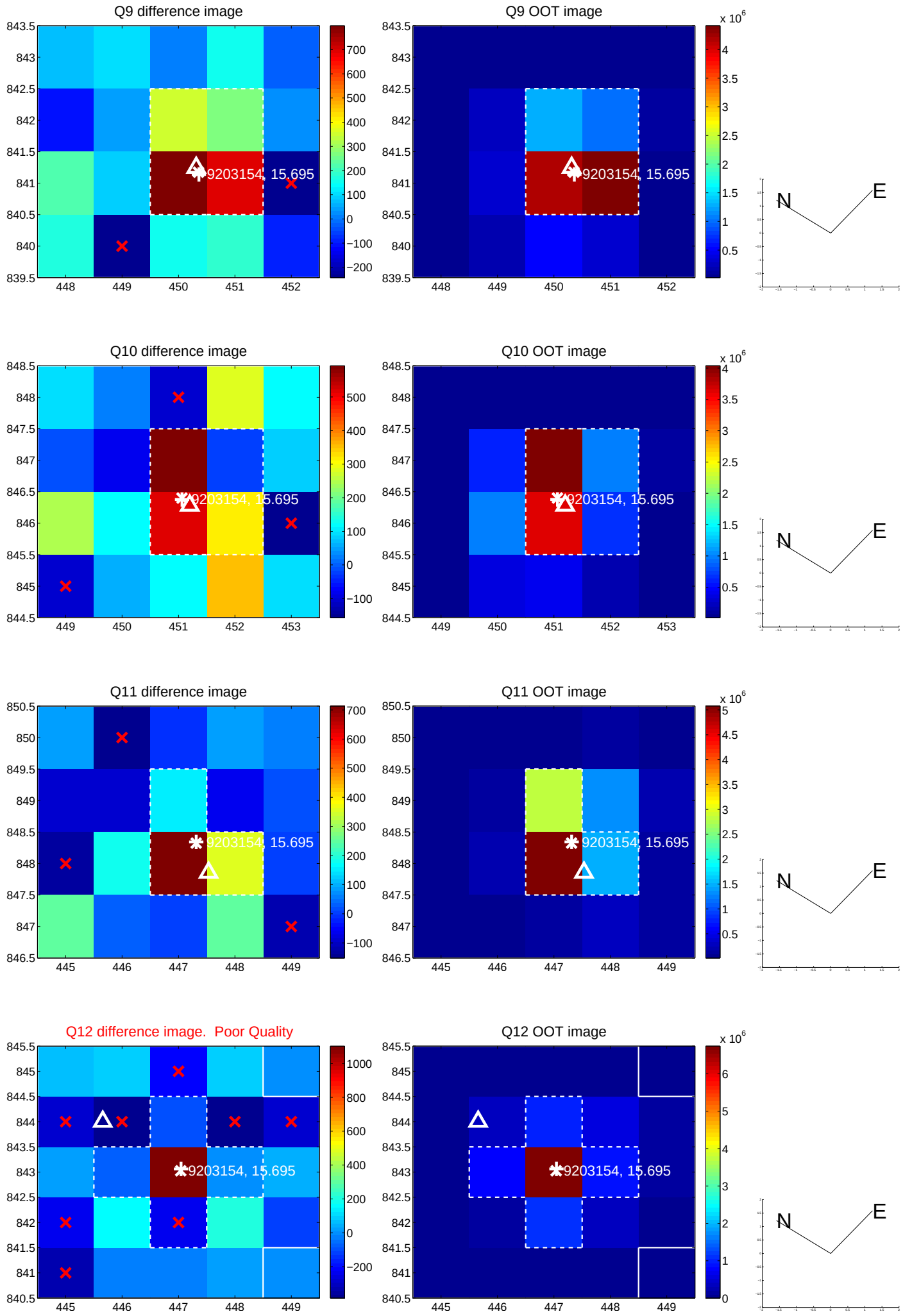
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



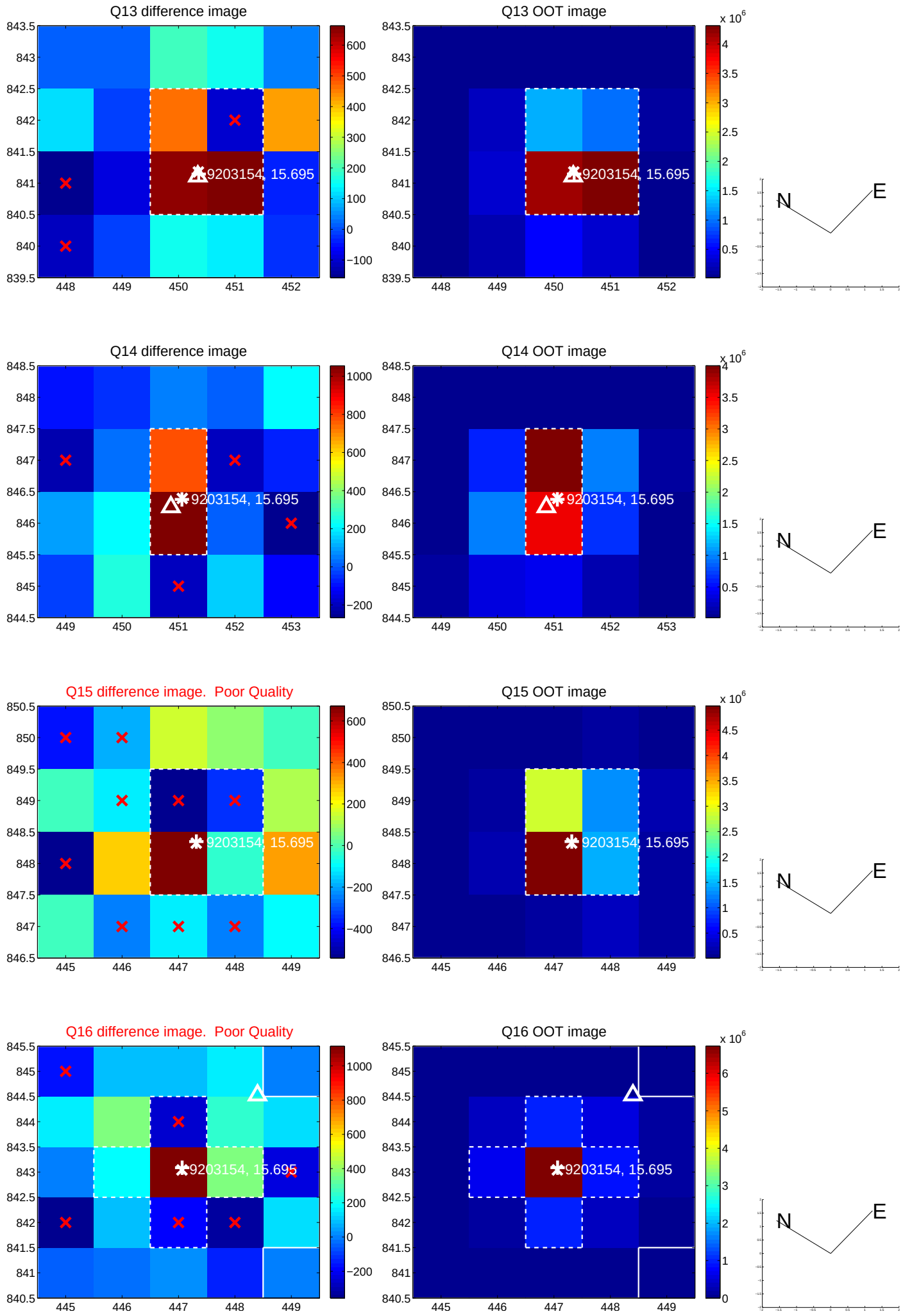
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



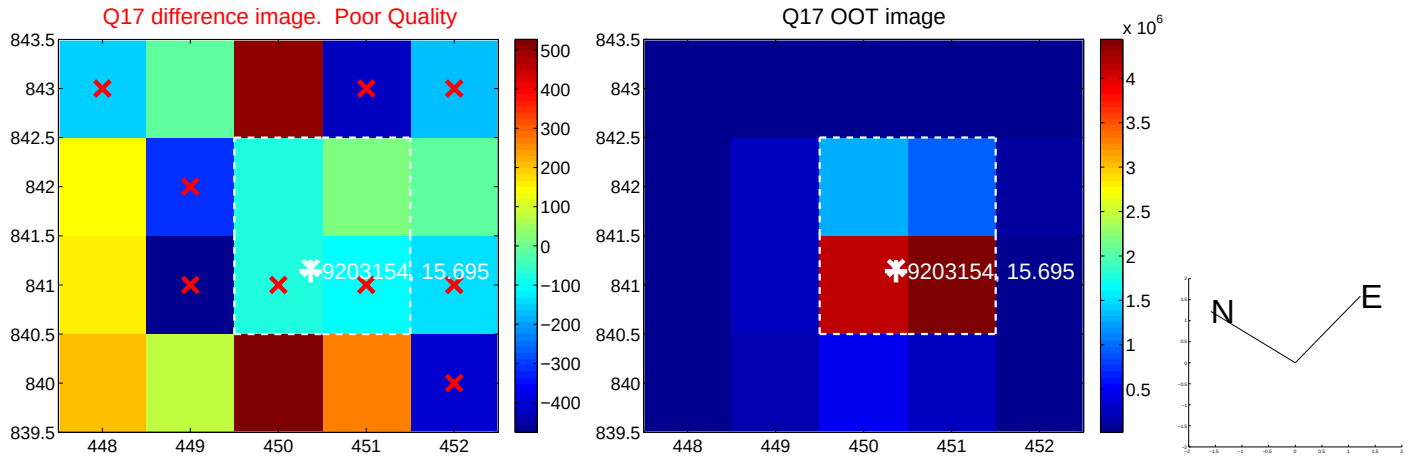
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

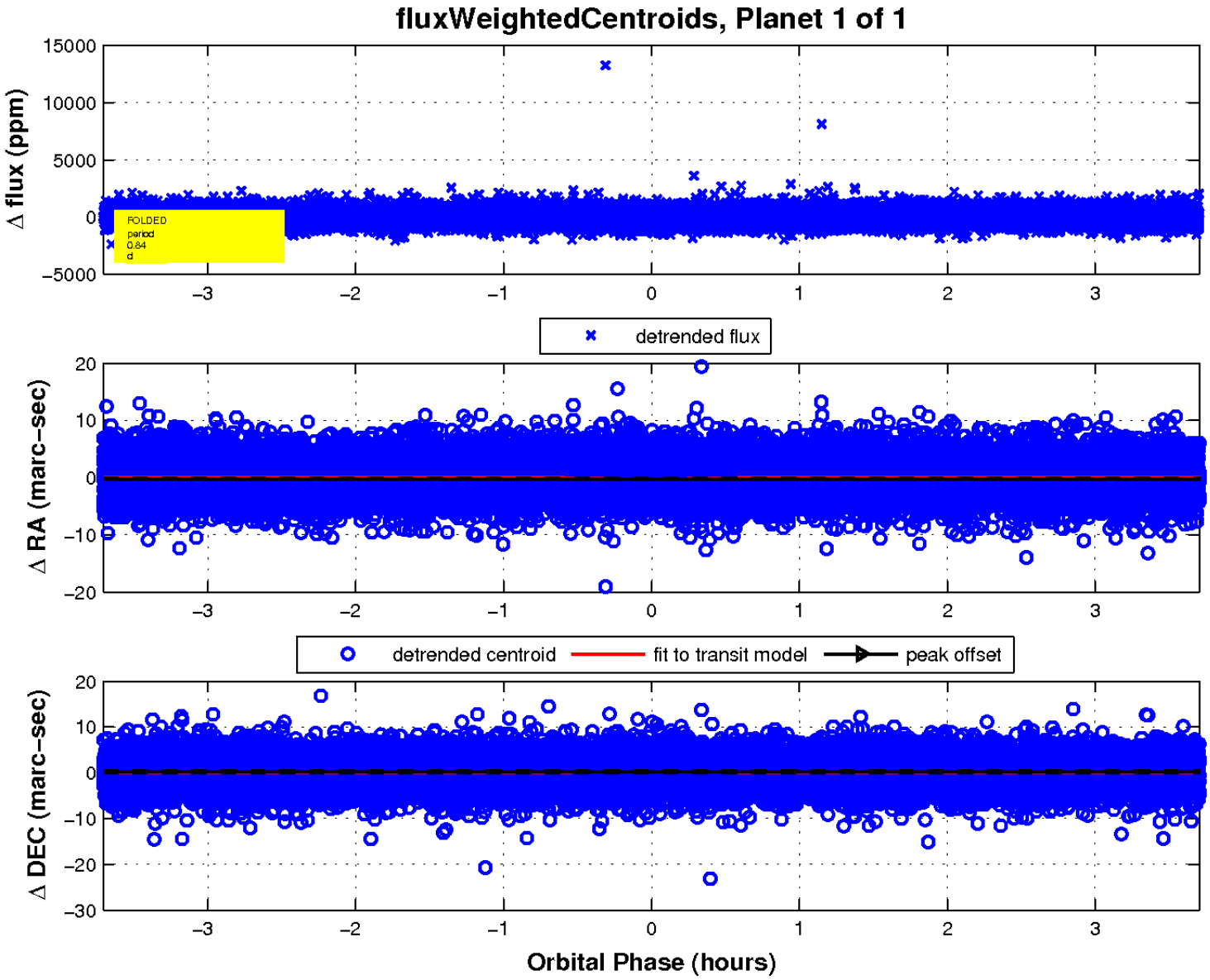


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

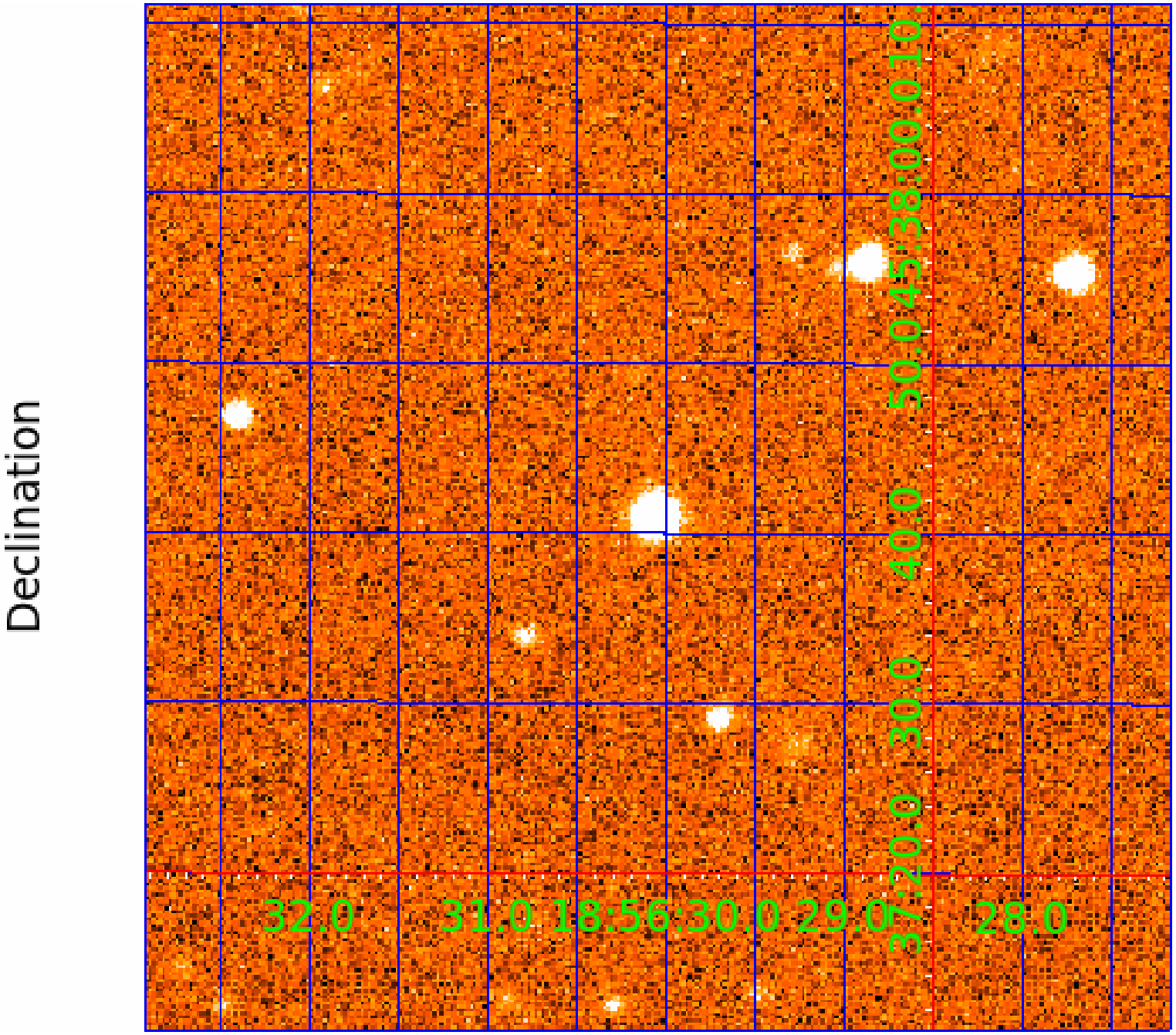


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



**UKIRT Image**


Declination
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40.0
50.0
45:38:00.0
10: