# KIC 006586052

## 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) | $R_p$ ($R_\oplus$) | $S_p$ ($S_\oplus$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | No | 0.597750 | 132.002259 | 63.6 | 4.288 | 11.3 | 13.8 | 2.07 | 7751 | 1.78 | 48528.79 |
| 006586052-02 | OBS | No | 23.116596 | 152.971340 | 668.5 | 4.572 | 10.2 | 12.6 | 2.07 | 7751 | 10.01 | 371.07 |
| 006586052-03 | OBS | No | 10.468215 | 139.047083 | 114.5 | 2.797 | 10.8 | 3.4 | 2.07 | 7751 | 2.35 | 1067.08 |
| 006586052-04 | OBS | No | 6.431826 | 131.579024 | 111.6 | 4.468 | 11.6 | 4.8 | 2.07 | 7751 | 2.34 | 2042.90 |

## Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—CENT_SATURATED |
| 006586052-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |

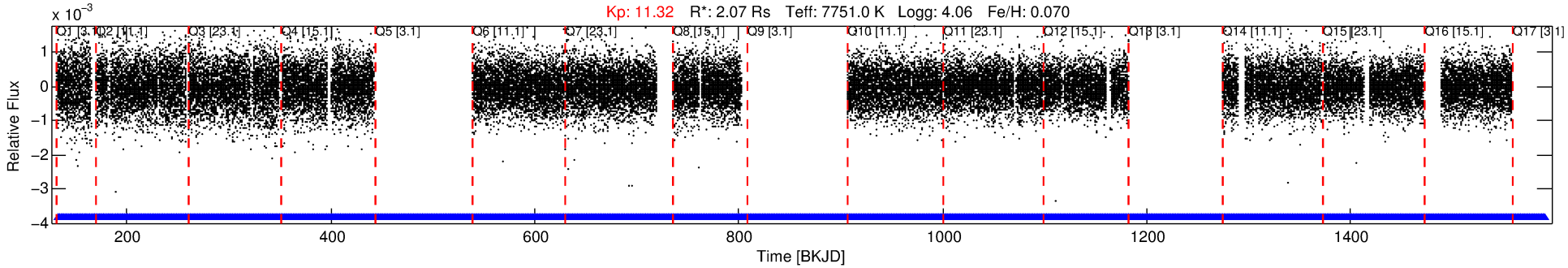
**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

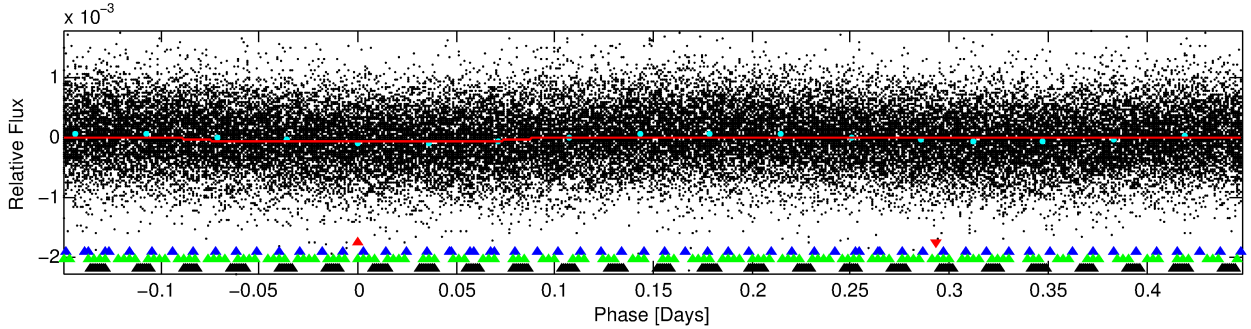
## Ephemeris Match Information For 006586052-01

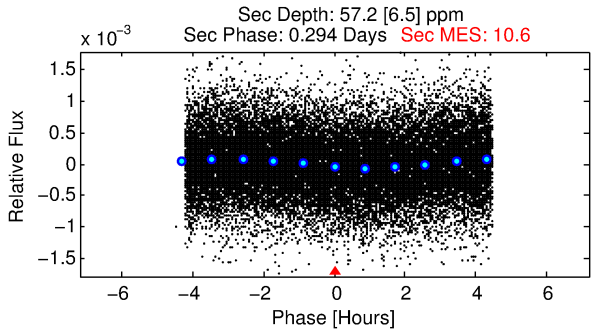
No Significant Match Found

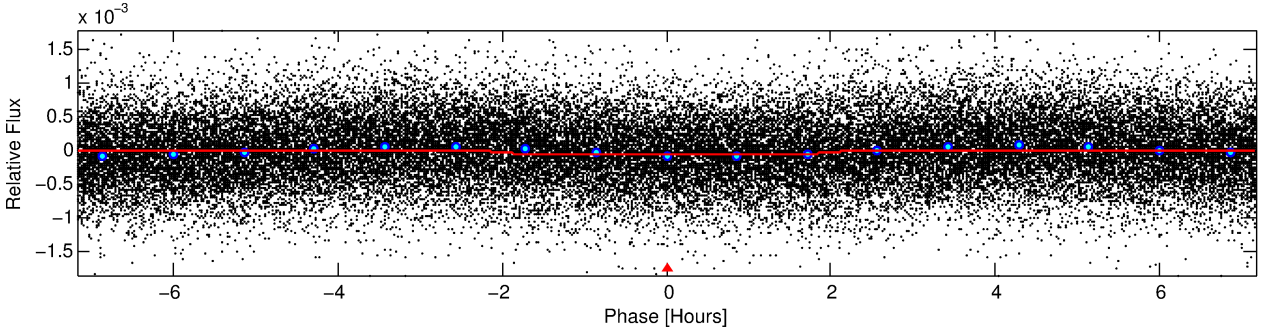
# DV One-Page Summary

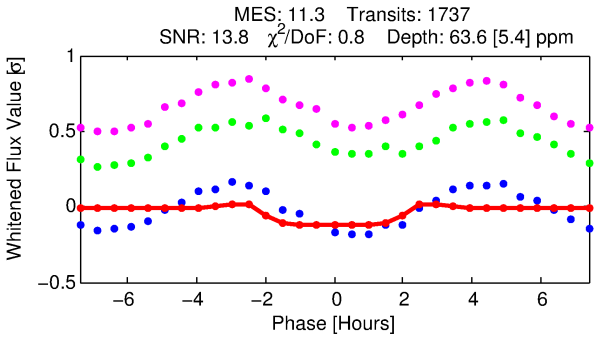
**KIC: 6586052 Candidate: 1 of 4 Period: 0.598 d**

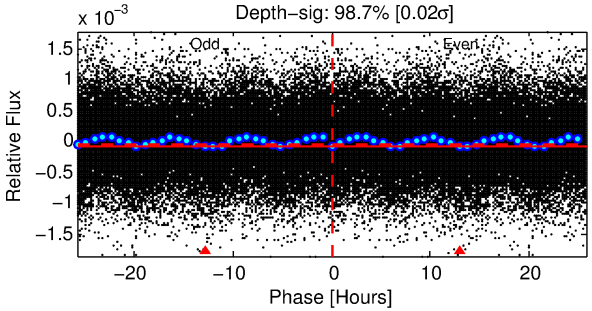


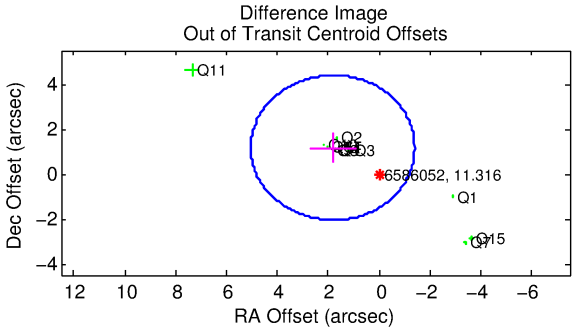




DV Fit Results:

Period = 0.59775 [0.00001] d
Epoch = 132.0023 [0.0030] BKJD
Rp/R* = 0.0079 [0.0052]
a/R* = 1.13 [1.04]
b = 0.72 [2.86]

Seff = 48528.79 [16710.70]
Teq = 3785 [326] K
Rp = 1.78 [1.27] Re
a = 0.0169 [0.0035] AU

Ag = 2.84 [3.89] [0.47σ]
Teffp = 7599 [2558] K [1.48σ]

DV Diagnostic Results:

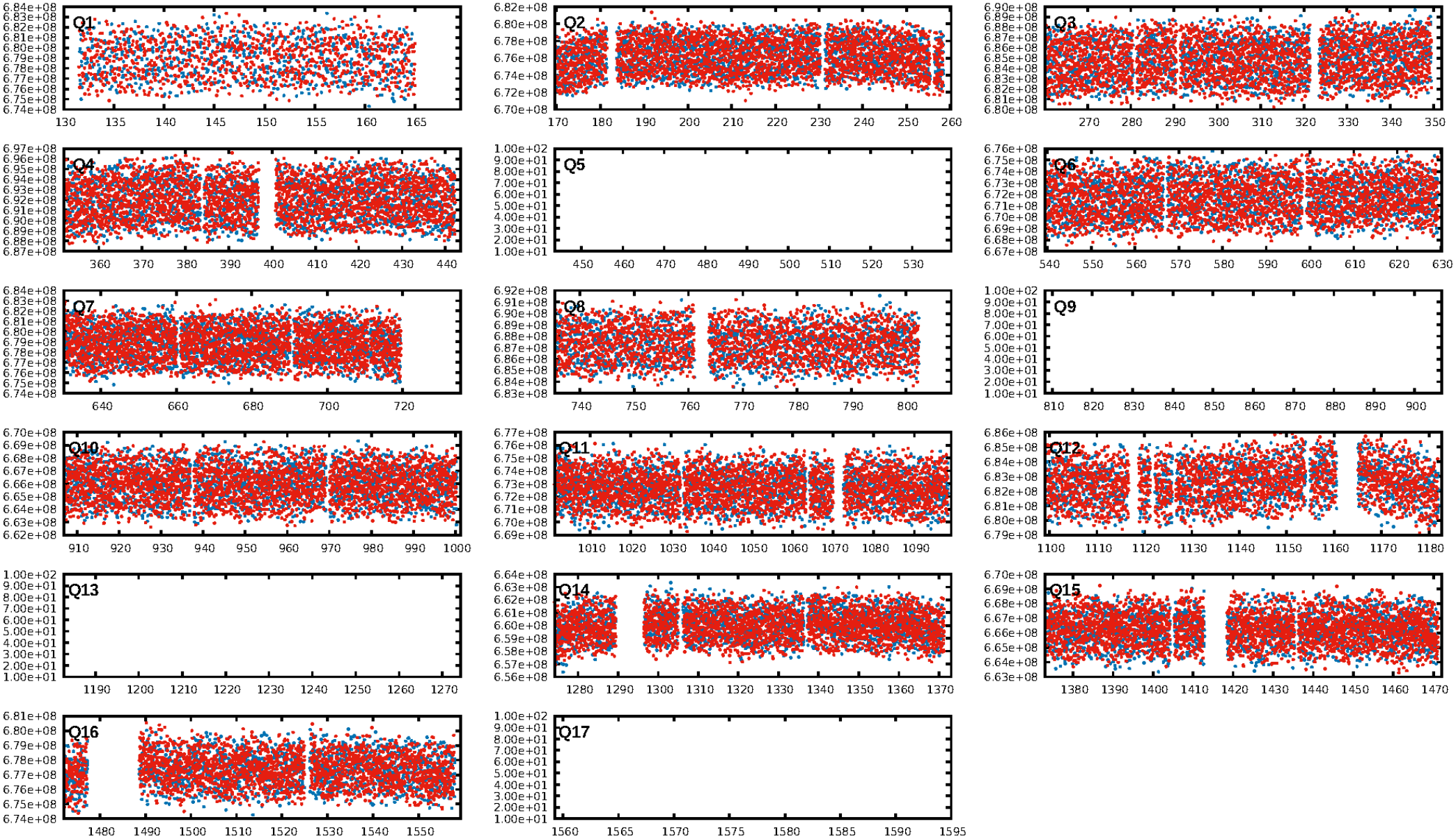
ShortPeriod−sig: N/A
LongPeriod−sig: 100.0% [22.61σ]
ModelChiSquare2−sig: N/A
ModelChiSquareGof−sig: N/A
Bootstrap−pfa: 7.29e−17
RollingBand−fgt: 1.00 [1681/1681]
GhostDiagnostic−chr: 2.45

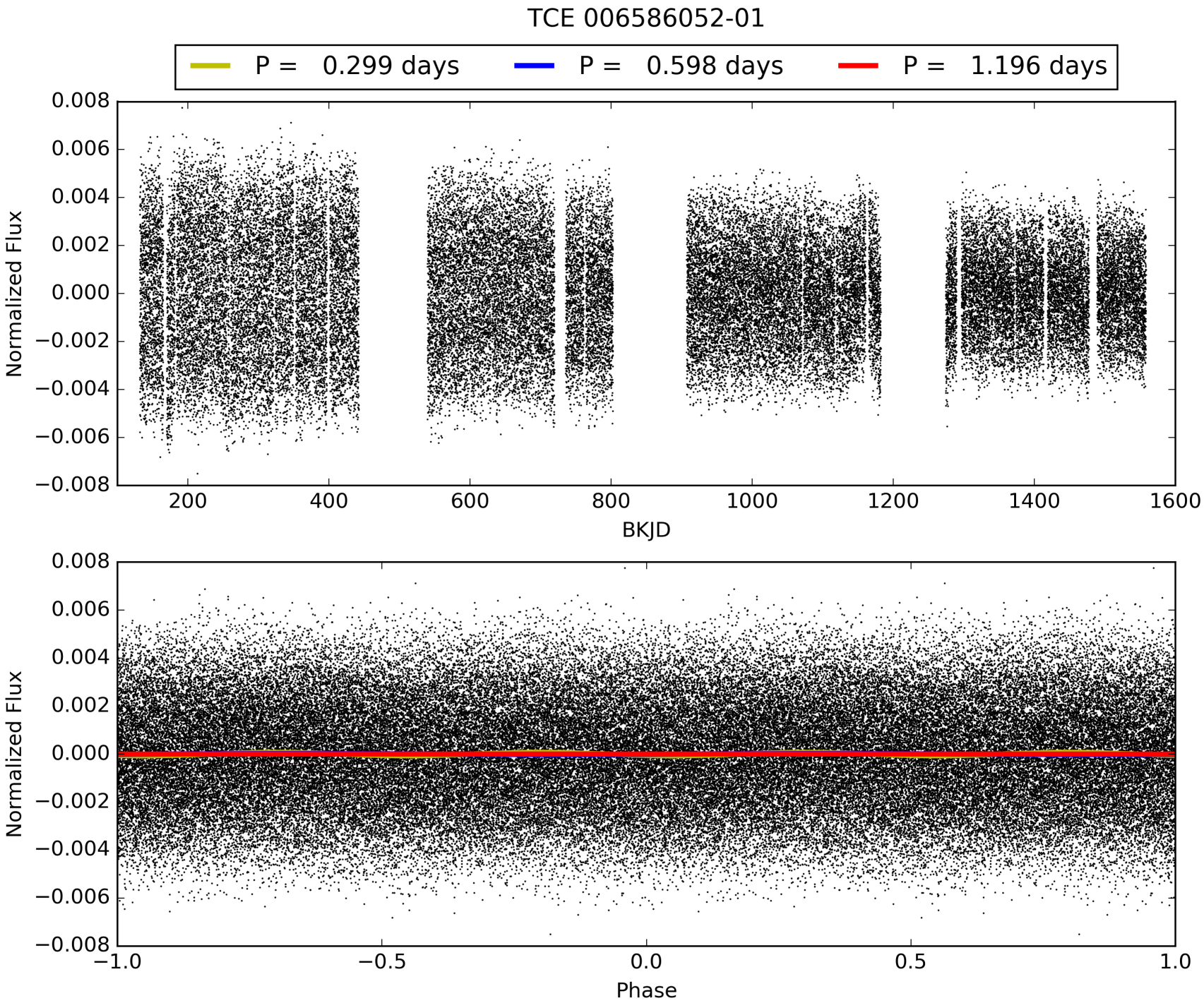
Centroid−sig: 0.1%
Centroid−so: 0.279 arcsec [2.12σ]
OotOffset−rm: 2.158 arcsec [2.01σ]
KicOffset−rm: 2.395 arcsec [2.34σ]
OotOffset−st: 4/4/2/1 [11]
KicOffset−st: 4/4/2/1 [11]
DiffImageQuality−fgm: 0.36 [4/11]
DiffImageOverlap−fno: 1.00 [13/13]

**Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 20:45:22 Z**

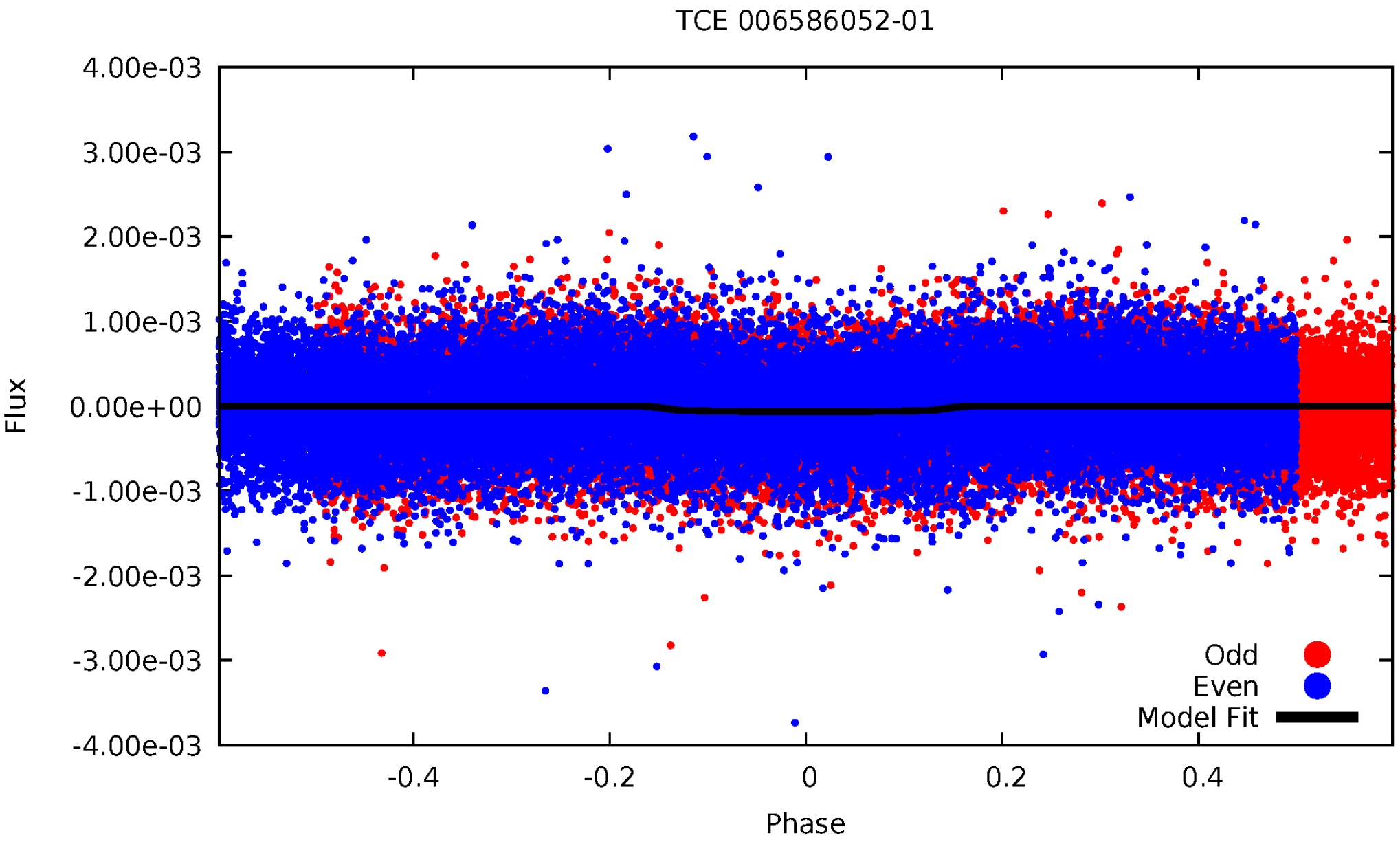
**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 006586052-01, PDC Light Curves

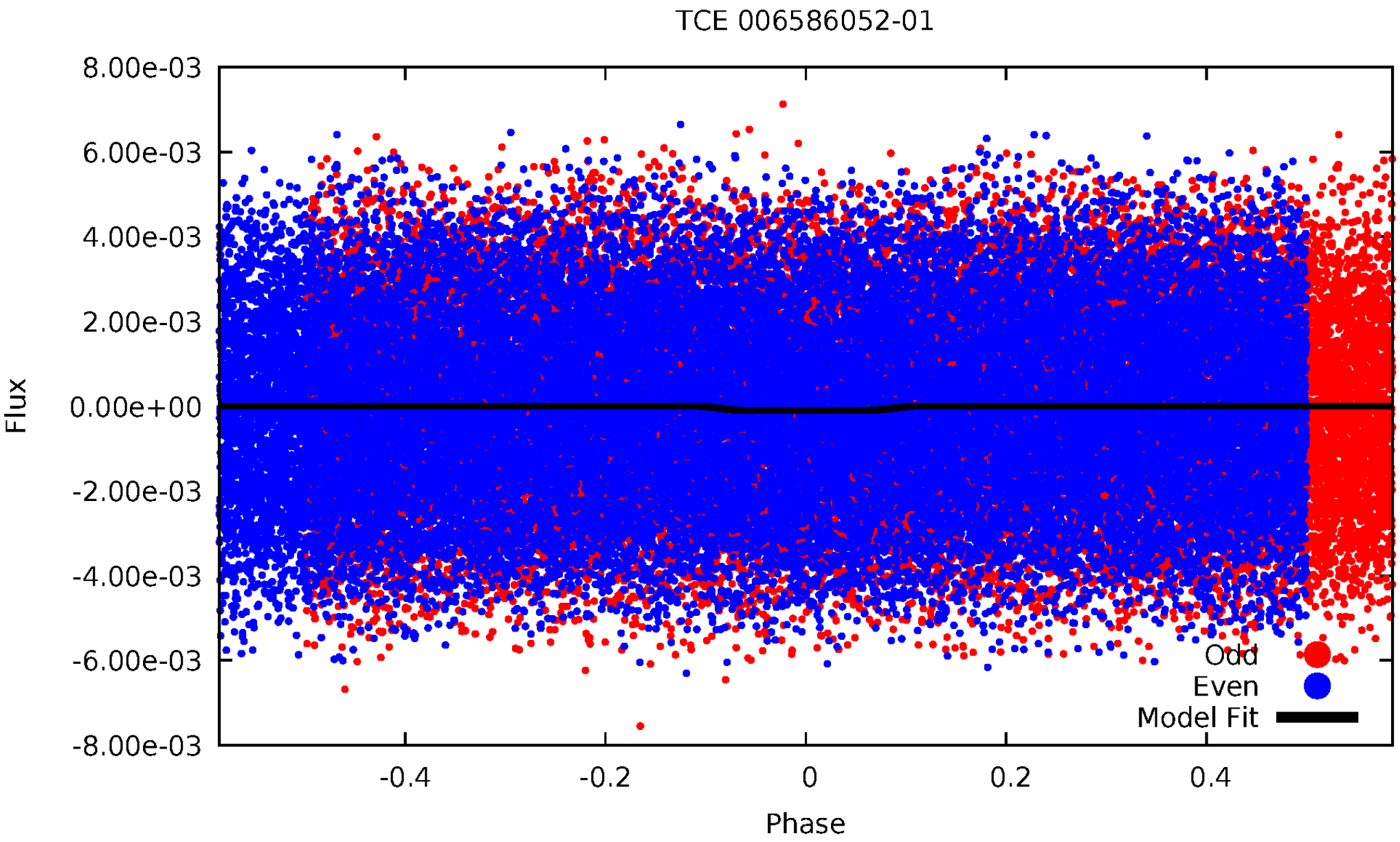



TCE 006586052-01
P = 0.299 days
P = 0.598 days
P = 1.196 days
Normalized Flux
BKJD
Normalized Flux
Phase

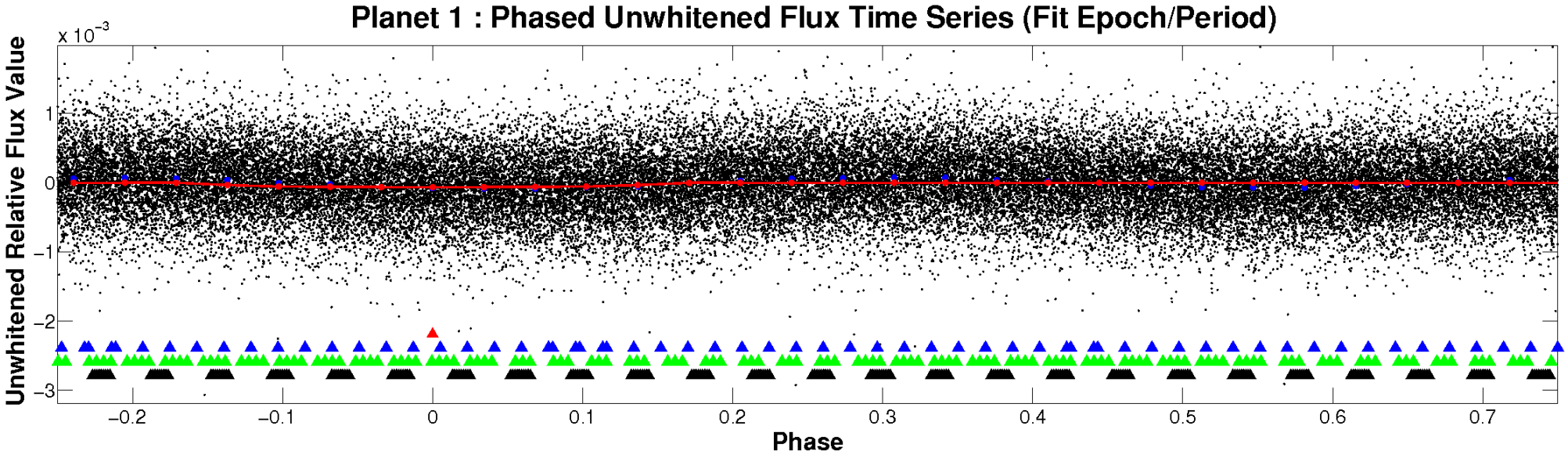
# DV Odd/Even

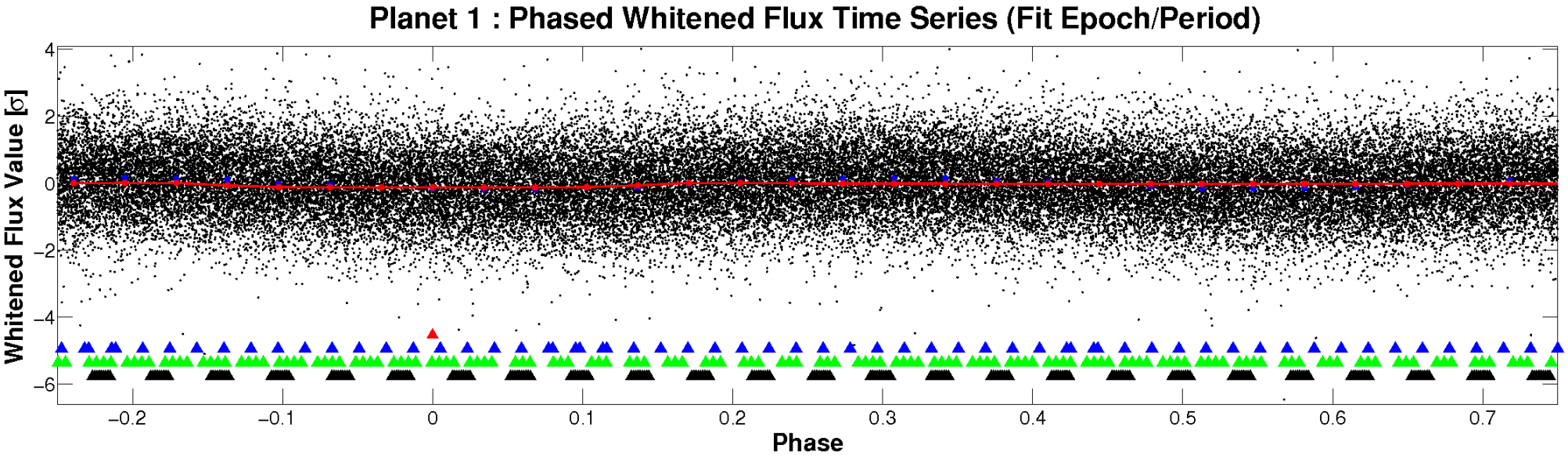

TCE 006586052-01
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
Flux
-0.4
-0.2
0
0.2
0.4
Phase
Odd
Even
Model Fit

**ALT Odd/Even**


TCE 006586052-01
8.00e-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
-8.00e-03
Flux
-0.4
-0.2
0
0.2
0.4
Phase
Odd
Even
Model Fit

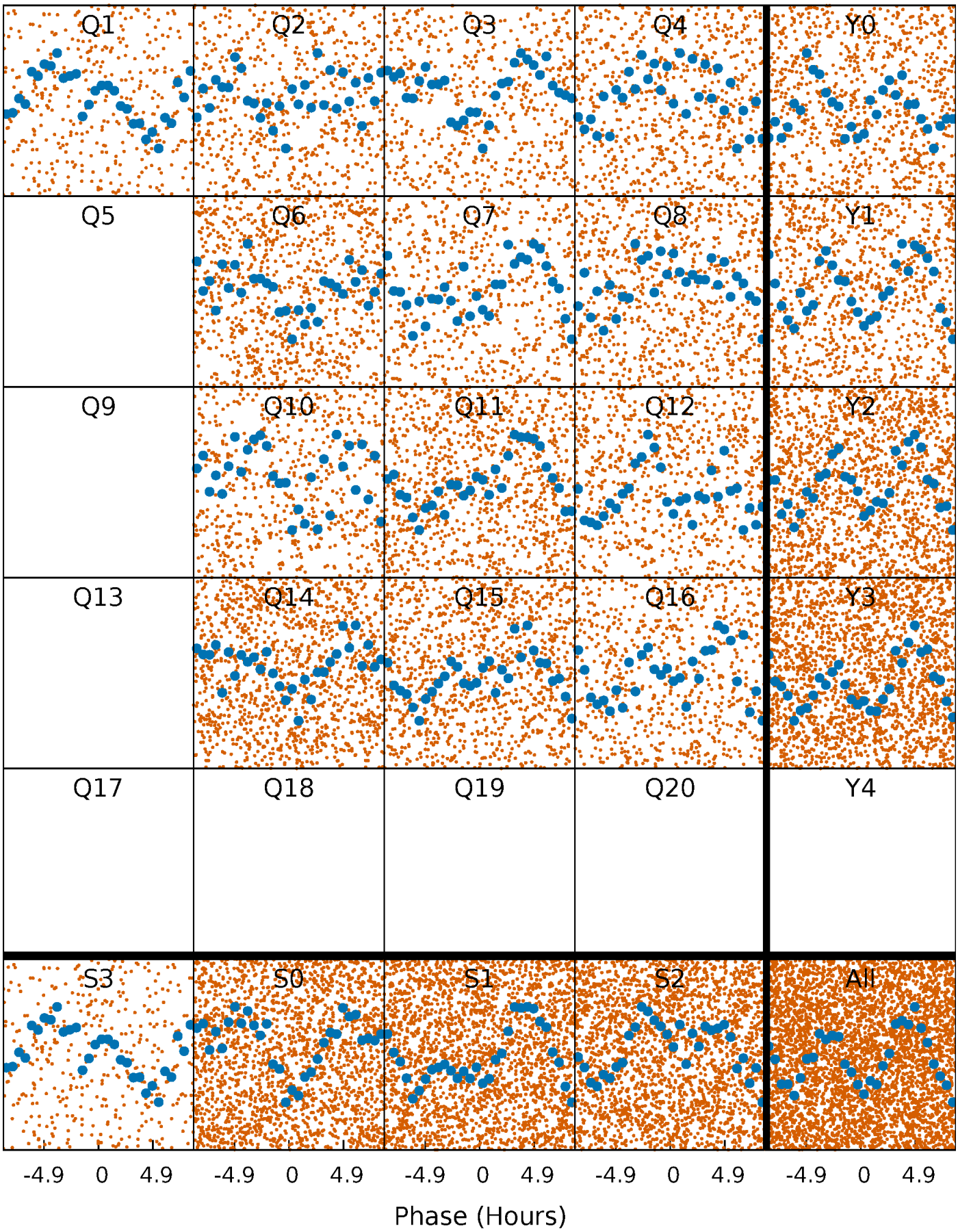
# Non-Whitened Vs. Whitened Light Curve



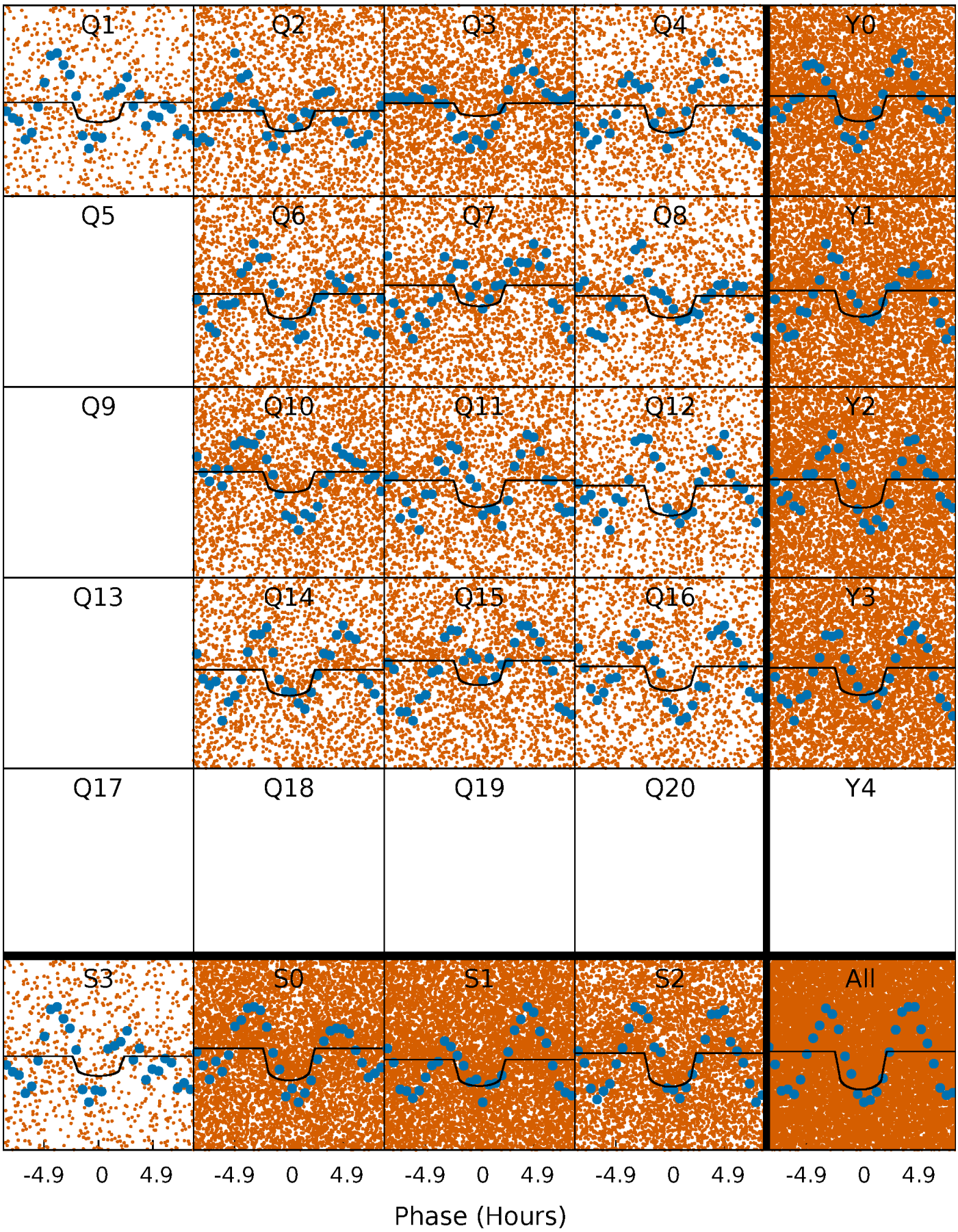
# PDC Quarter-Phased Transit Curves

TCE 006586052-01 P= 0.597750 Days $T_0$=132.002259 (BKJD)



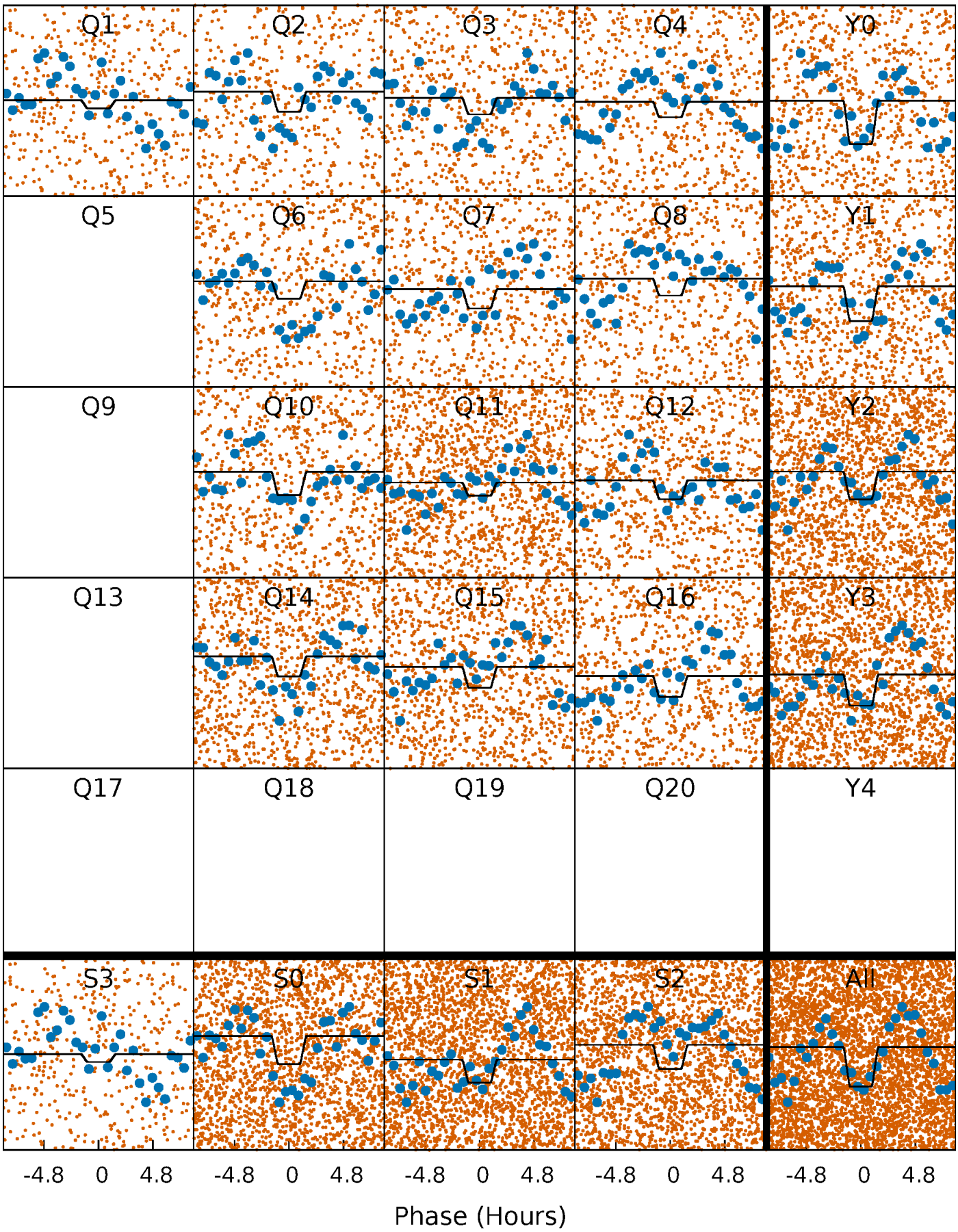
# DV Quarter-Phased Transit Curves

TCE 006586052-01 P= 0.597750 Days $T_0$=132.002259 (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

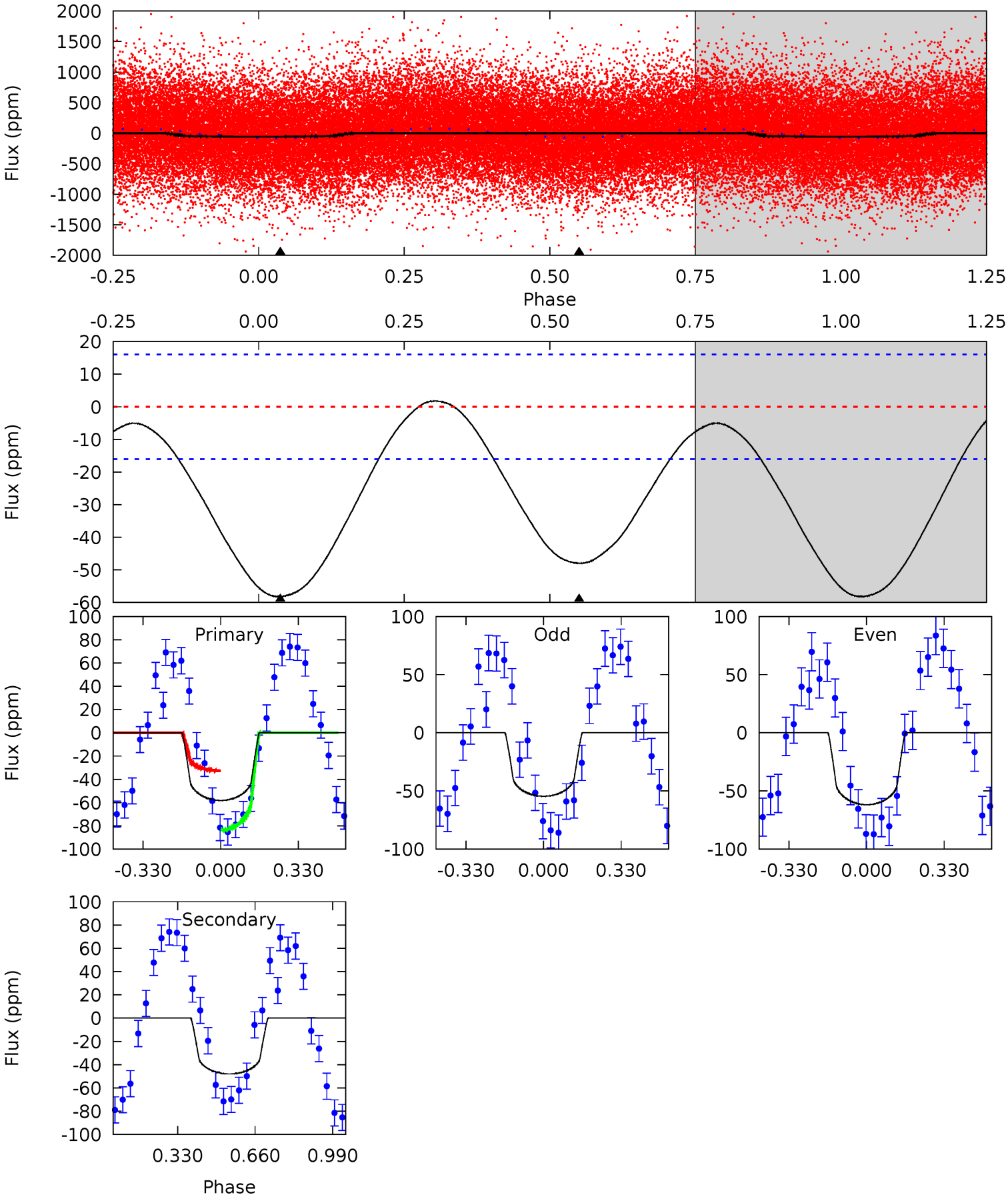
TCE 006586052-01 P= 0.597774 Days $T_0$=131.988969 (BKJD)



# DV Model-Shift Uniqueness Test

006586052-01, P = 0.597750 Days, E = 131.404509 Days

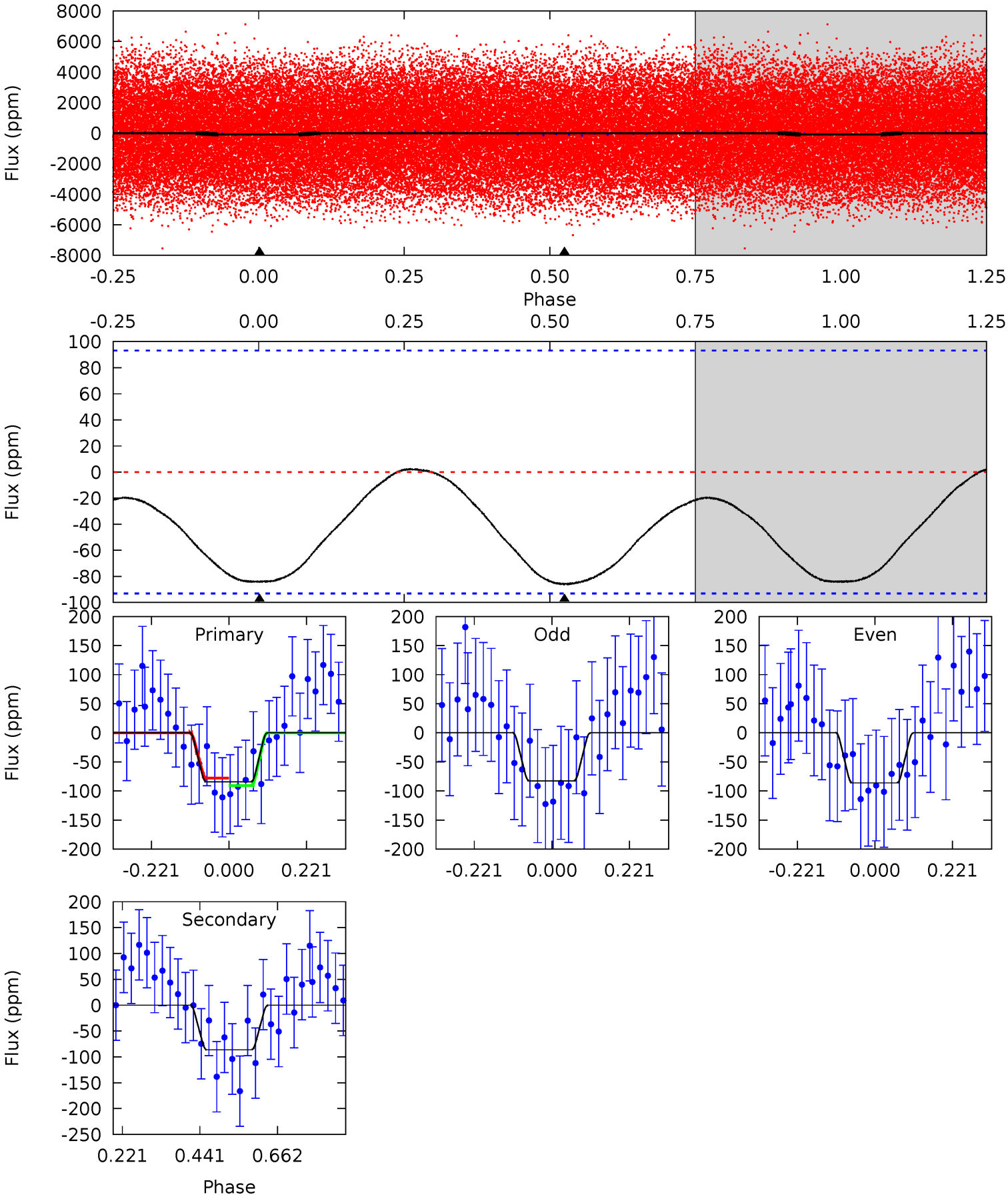
| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.6 | 12.9 | 0 | 0 | 4.31 | 0.97 | 0.85 | 15.6 | 15.6 | 12.9 | 12.9 | 0.96 | 1.05 | 0.03 | 7.03 |



# Alt Model-Shift Uniqueness Test

006586052-01, P = 0.597774 Days, E = 131.391195 Days

| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.98 | 4.07 | 0 | 0 | 4.40 | 1.22 | 0.46 | 3.98 | 3.98 | 4.07 | 4.07 | 0.08 | 1.22 | 0.03 | 0.30 |



Stellar Parameters For KIC 006586052

| | $T_{\rm eff}(K)$ | $\log(g)$ | [Fe/H] | $R$ ($R_\odot$) | $M(M_\odot)$ | $p_\star$ (g·cm$^{-3}$) |
|---|---|---|---|---|---|---|
| | $7751^{+214}_{-349}$ | $4.061^{+0.139}_{-0.155}$ | $0.070^{+0.200}_{-0.400}$ | $2.068^{+0.533}_{-0.484}$ | $1.794^{+0.181}_{-0.294}$ | $0.286^{+0.224}_{-0.124}$ |
| | +3%/-5% | +3%/-4% | +286%/-571% | +26%/-23% | +10%/-16% | +78%/-44% |
| Source | KIC0 | 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 006586052-01 / KOI

| Detrend | Depth (ppm) | $R_p$ ($R_\oplus$) | $T_{max}$ (K) | $T_{obs}$ (K) | $A_{obs}$ |
|---|---|---|---|---|---|
| DV | -48±4 | $1.83^{+1.15}_{-1.04}$ | $5276^{+372}_{-324}$ | $6723^{+5369}_{-1706}$ | $2.174^{+9.691}_{-1.354}$ |
| Alt. | -86±21 | $2.34^{+1.15}_{-1.18}$ | $5258^{+361}_{-339}$ | $6909^{+4458}_{-1595}$ | $2.413^{+7.894}_{-1.403}$ |

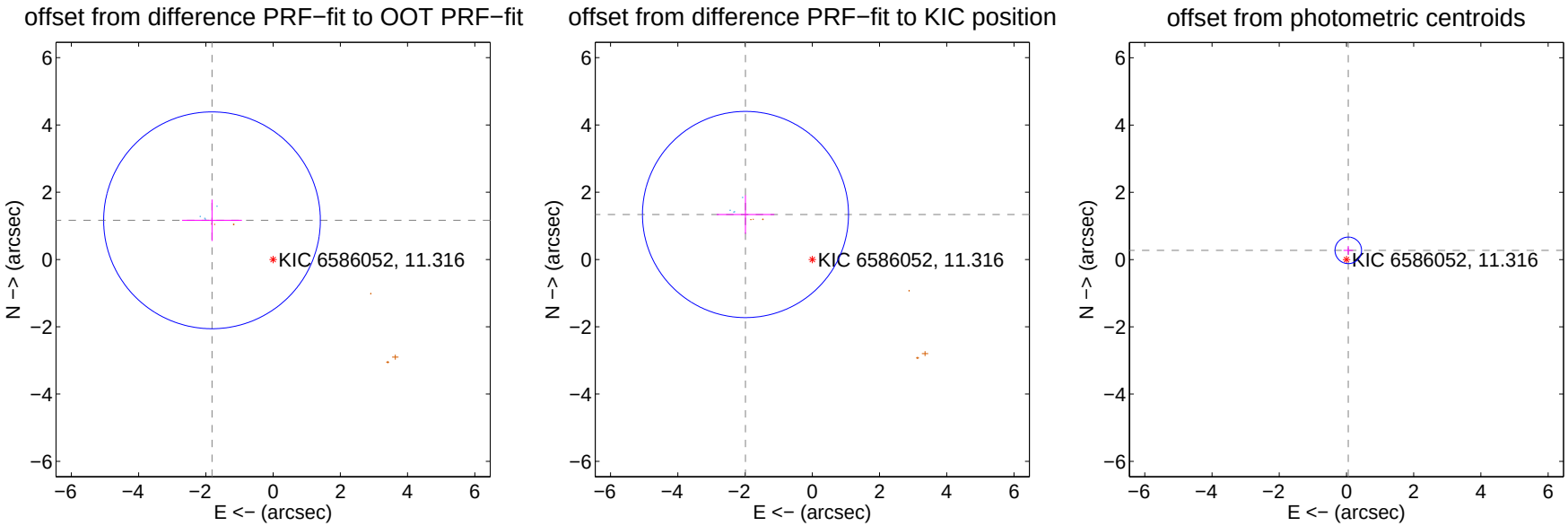
$T_{max}$ = Theoretical Maximum Planetary Temperature
$T_{obs}$ = Observed Planetary Temperature (Assuming A=0.3)
$A_{obs}$ = Observed Albedo (Assuming T=0)

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

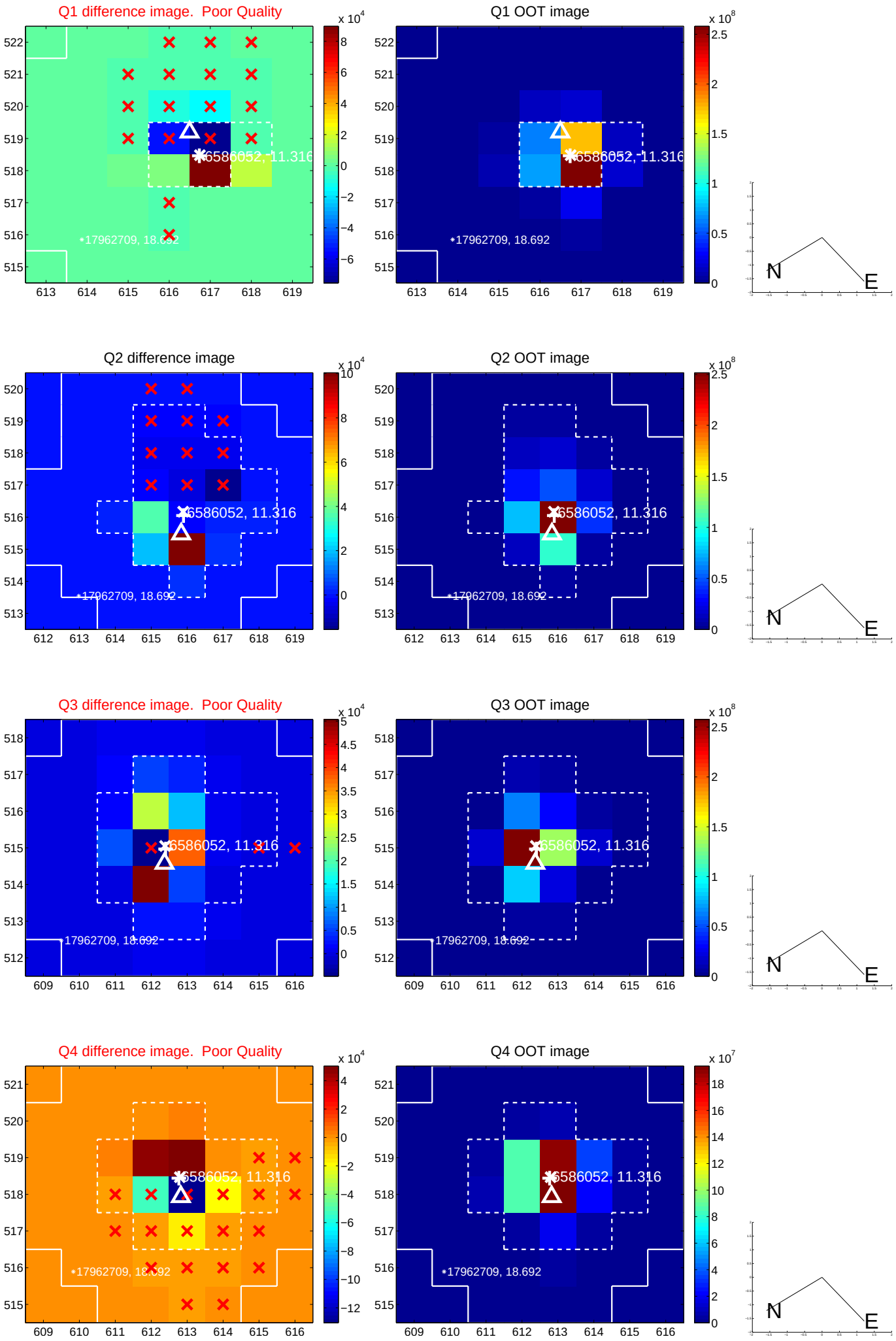
Supplemental centroid analysis for 006586052-01. Kepler magnitude: 11.32. Transit SNR 13.83
There are 4 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

| | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA | $\Delta$ Dec |
|---|---|---|---|---|
| PRF-fit source offset from OOT | 2.158 ± 1.074 | 2.01 | 1.817 ± 0.889 | 1.165 ± 0.617 |
| PRF-fit source offset from KIC position | 2.395 ± 1.021 | 2.34 | 1.987 ± 0.856 | 1.337 ± 0.572 |
| photometric centroid source offset | 0.28 ± 0.13 | 2.12 | -0.05 ± 0.14 | 0.27 ± 0.13 |




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.



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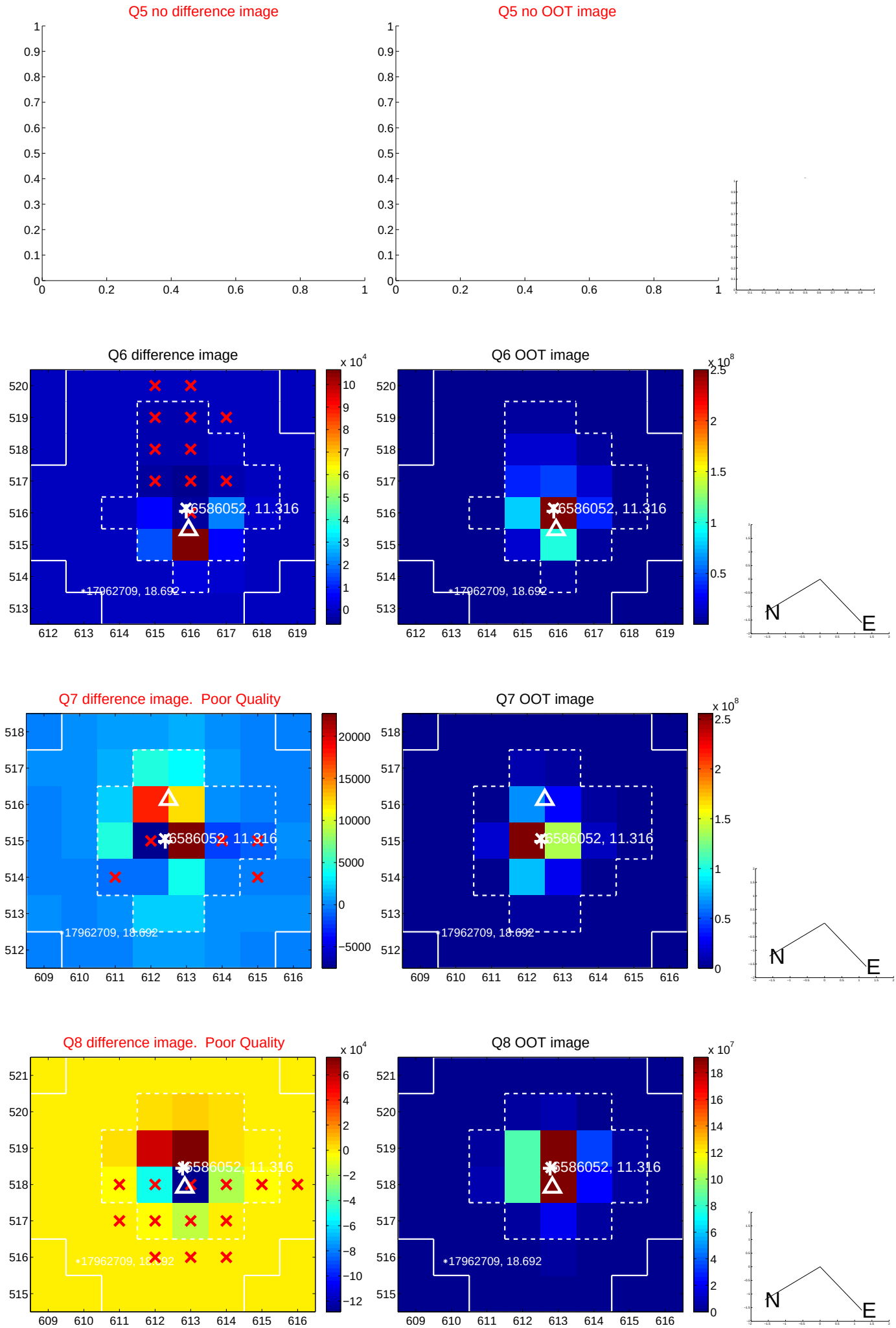
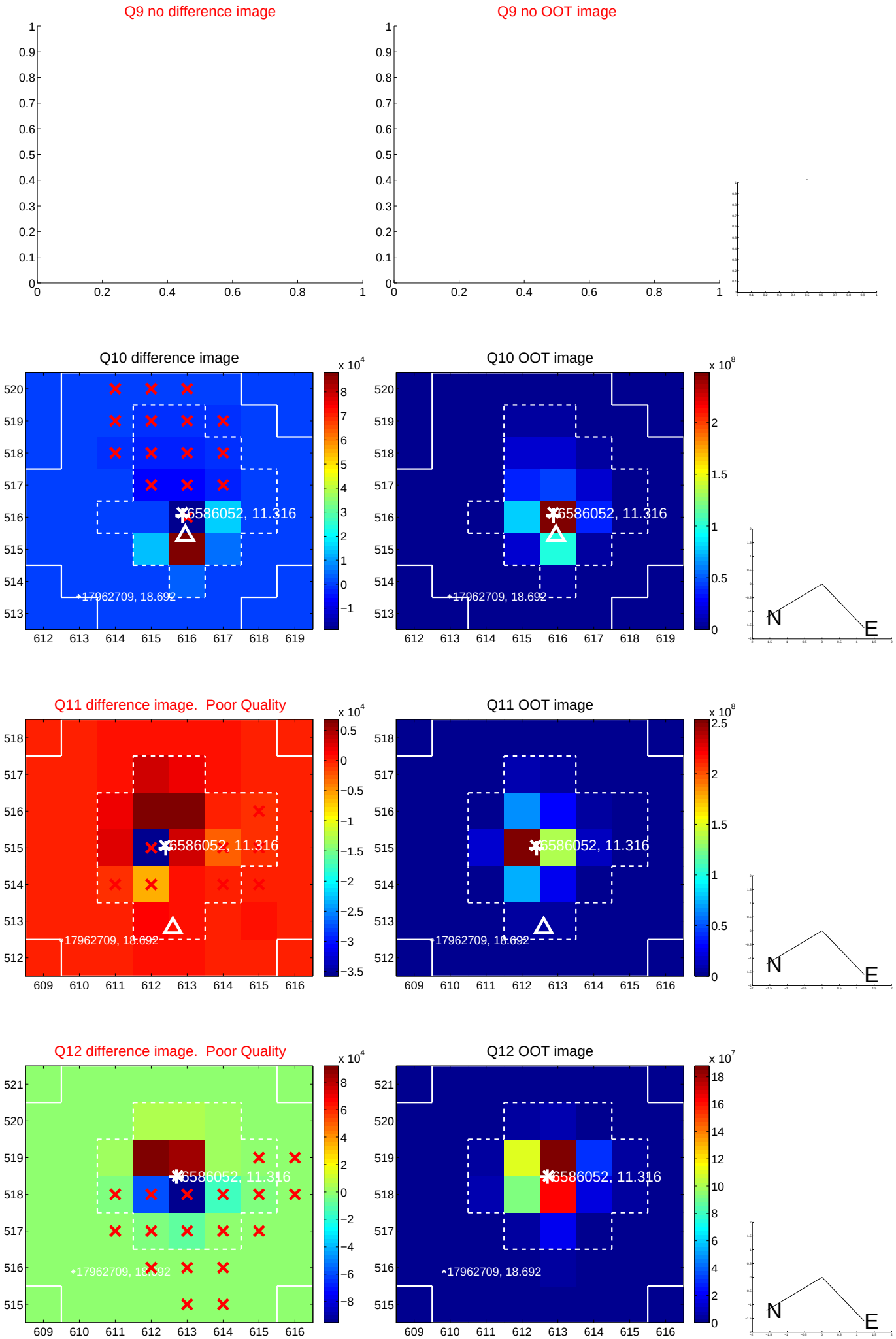


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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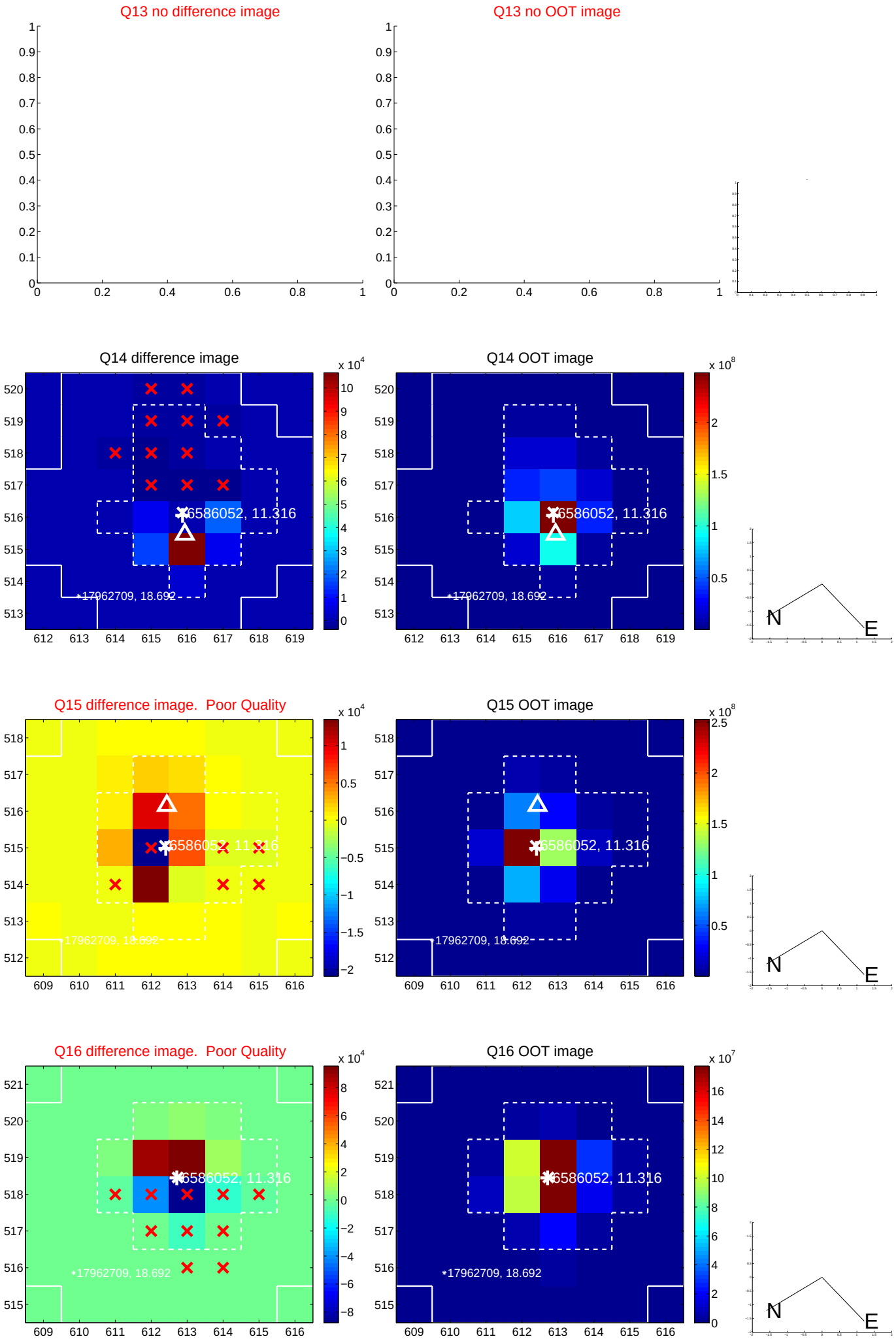
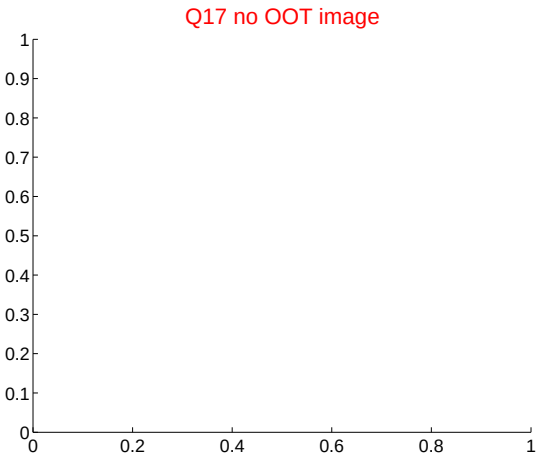
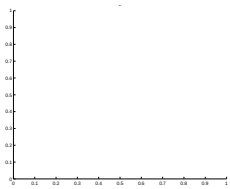
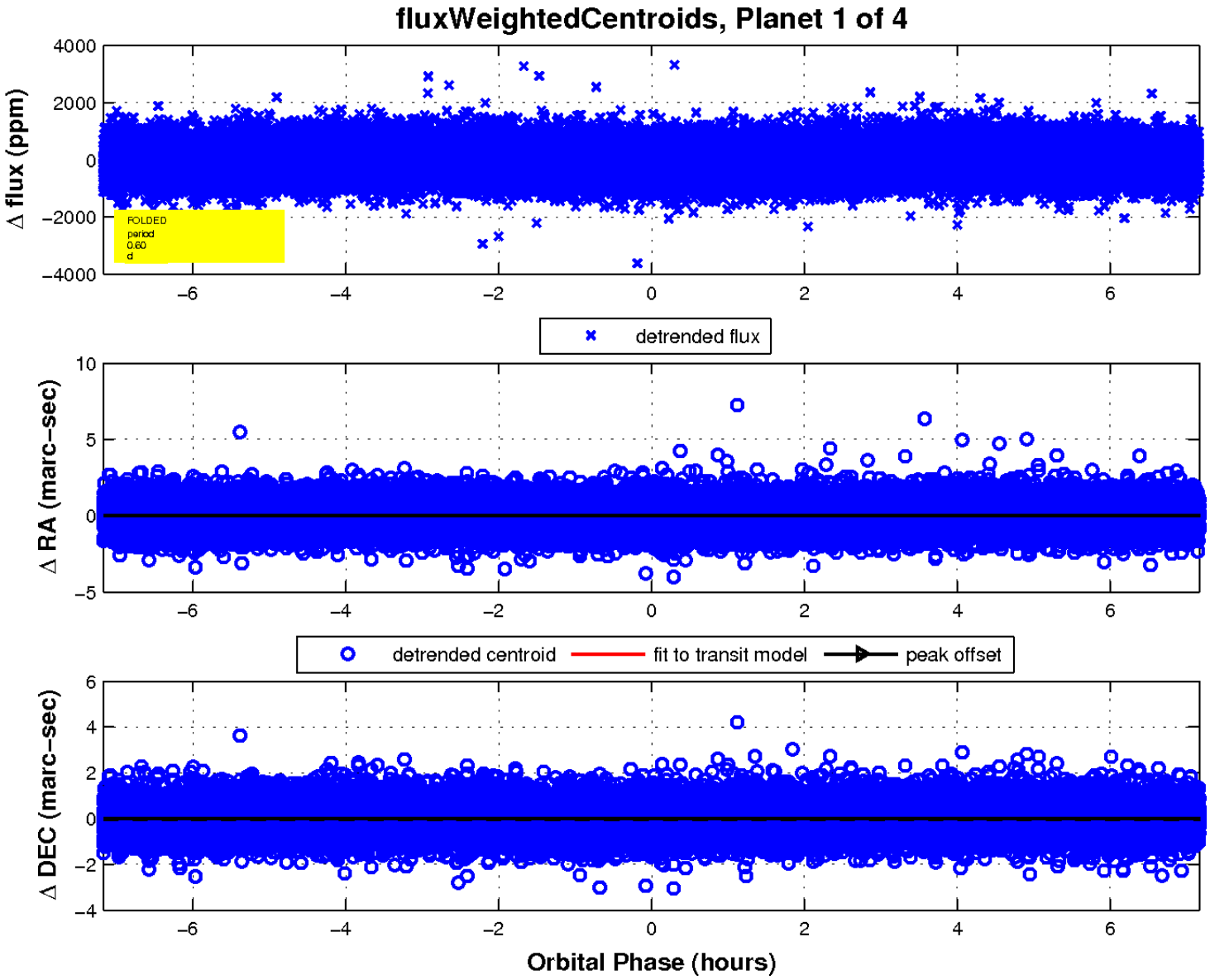


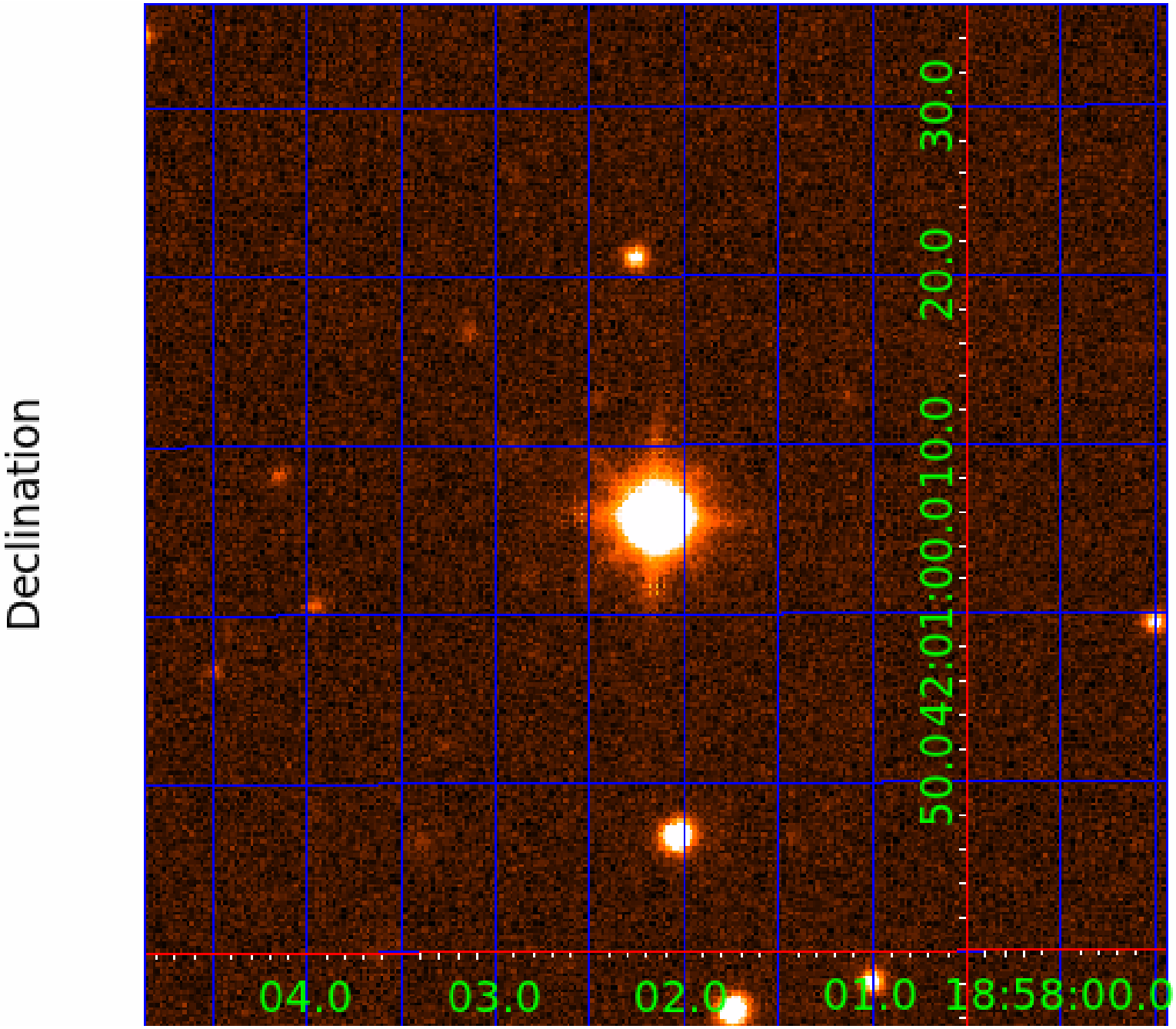
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





**UKIRT Image**



# KIC 006586052

## 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) | $R_p$ ($R_\oplus$) | $S_p$ ($S_\oplus$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | No | 0.597750 | 132.002259 | 63.6 | 4.288 | 11.3 | 13.8 | 2.07 | 7751 | 1.78 | 48528.79 |
| 006586052-02 | OBS | No | 23.116596 | 152.971340 | 668.5 | 4.572 | 10.2 | 12.6 | 2.07 | 7751 | 10.01 | 371.07 |
| 006586052-03 | OBS | No | 10.468215 | 139.047083 | 114.5 | 2.797 | 10.8 | 3.4 | 2.07 | 7751 | 2.35 | 1067.08 |
| 006586052-04 | OBS | No | 6.431826 | 131.579024 | 111.6 | 4.468 | 11.6 | 4.8 | 2.07 | 7751 | 2.34 | 2042.90 |

## Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—CENT_SATURATED |
| 006586052-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |

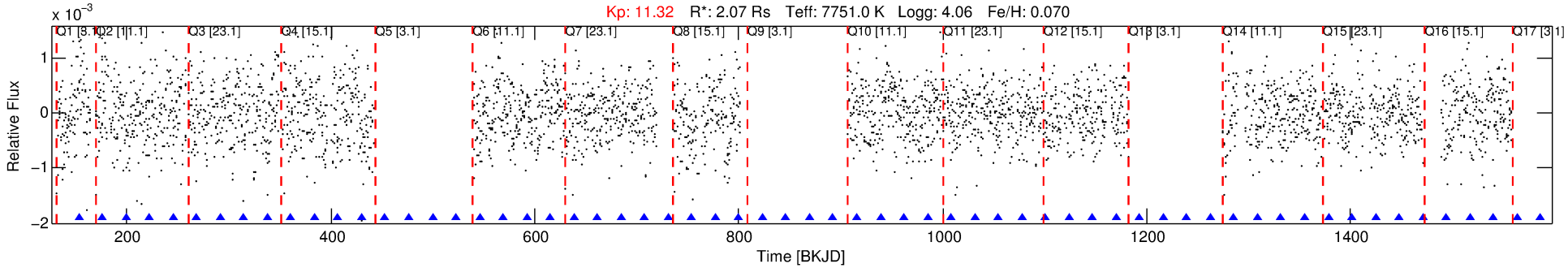
**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

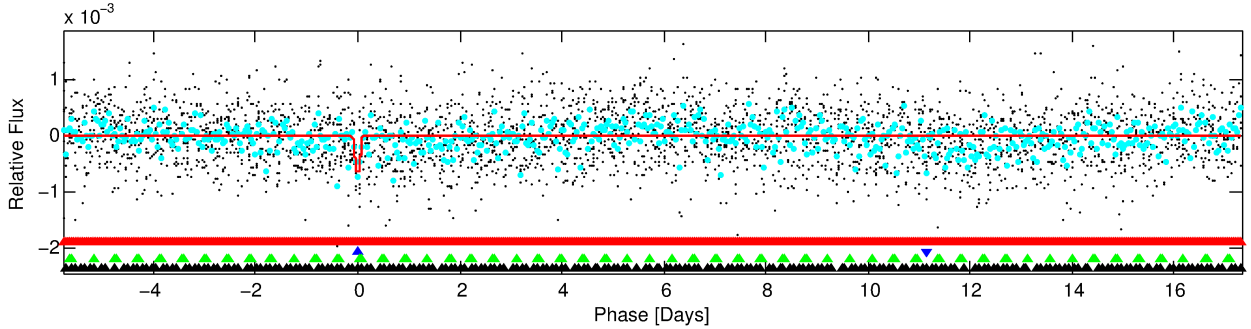
## Ephemeris Match Information For 006586052-02

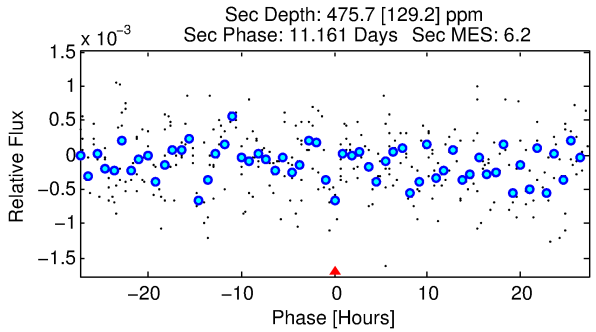
No Significant Match Found

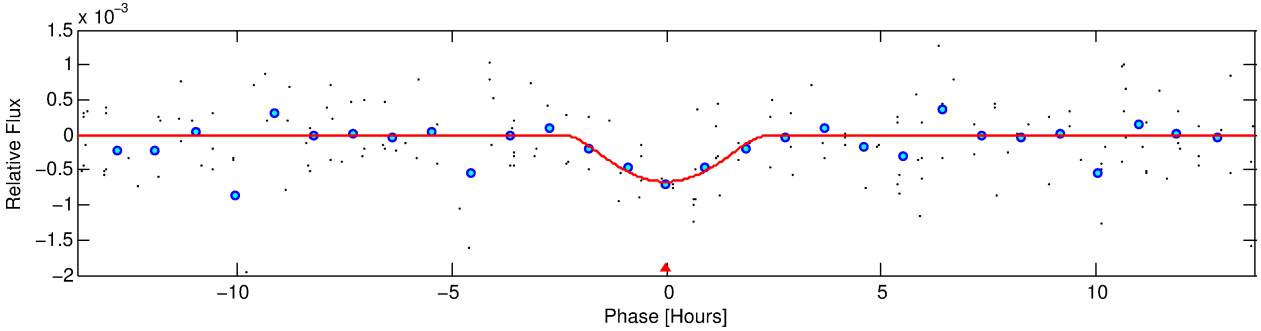
# DV One-Page Summary

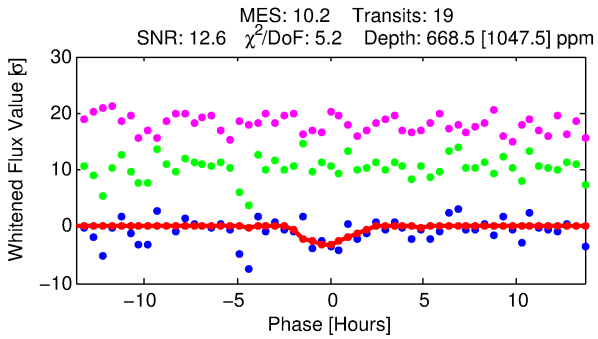
**KIC: 6586052 Candidate: 2 of 4 Period: 23.117 d**

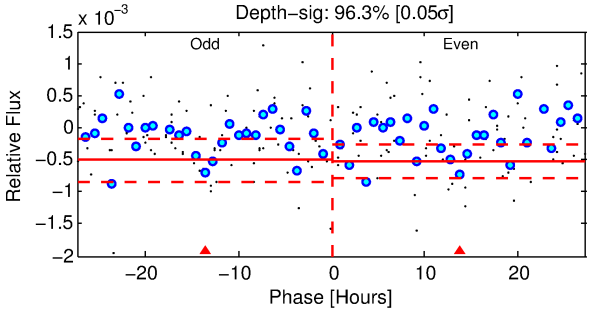


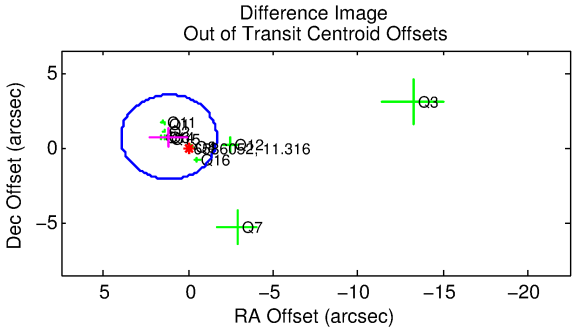




DV Fit Results:

Period = 23.11660 [0.00076] d
Epoch = 152.9713 [0.0299] BKJD
Rp/R* = 0.0443 [0.4051]
a/R* = 11.68 [26.79]
b = 1.00 [0.64]

Seff = 371.07 [127.78]
Teq = 1119 [96] K
Rp = 10.00 [91.46] Re
a = 0.1931 [0.0403] AU

Ag = 97.45 [1781.35] [0.05σ]
Teffp = 5437 [24843] K [0.17σ]

DV Diagnostic Results:

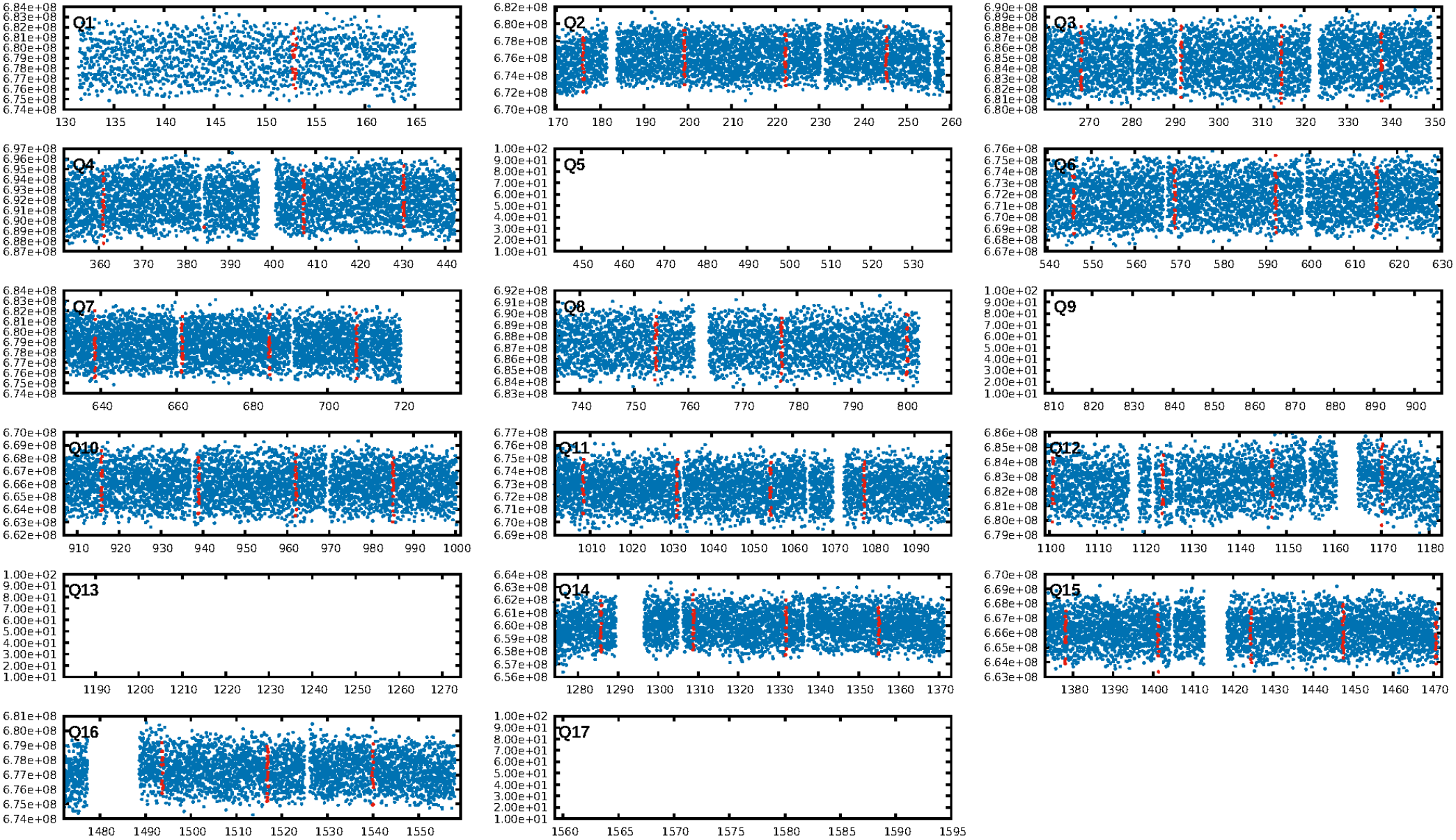
ShortPeriod−sig: 100.0% [56.64σ]
LongPeriod−sig: N/A
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 8.51e−11
RollingBand−fgt: 1.00 [19/19]
GhostDiagnostic−chr: −4.748

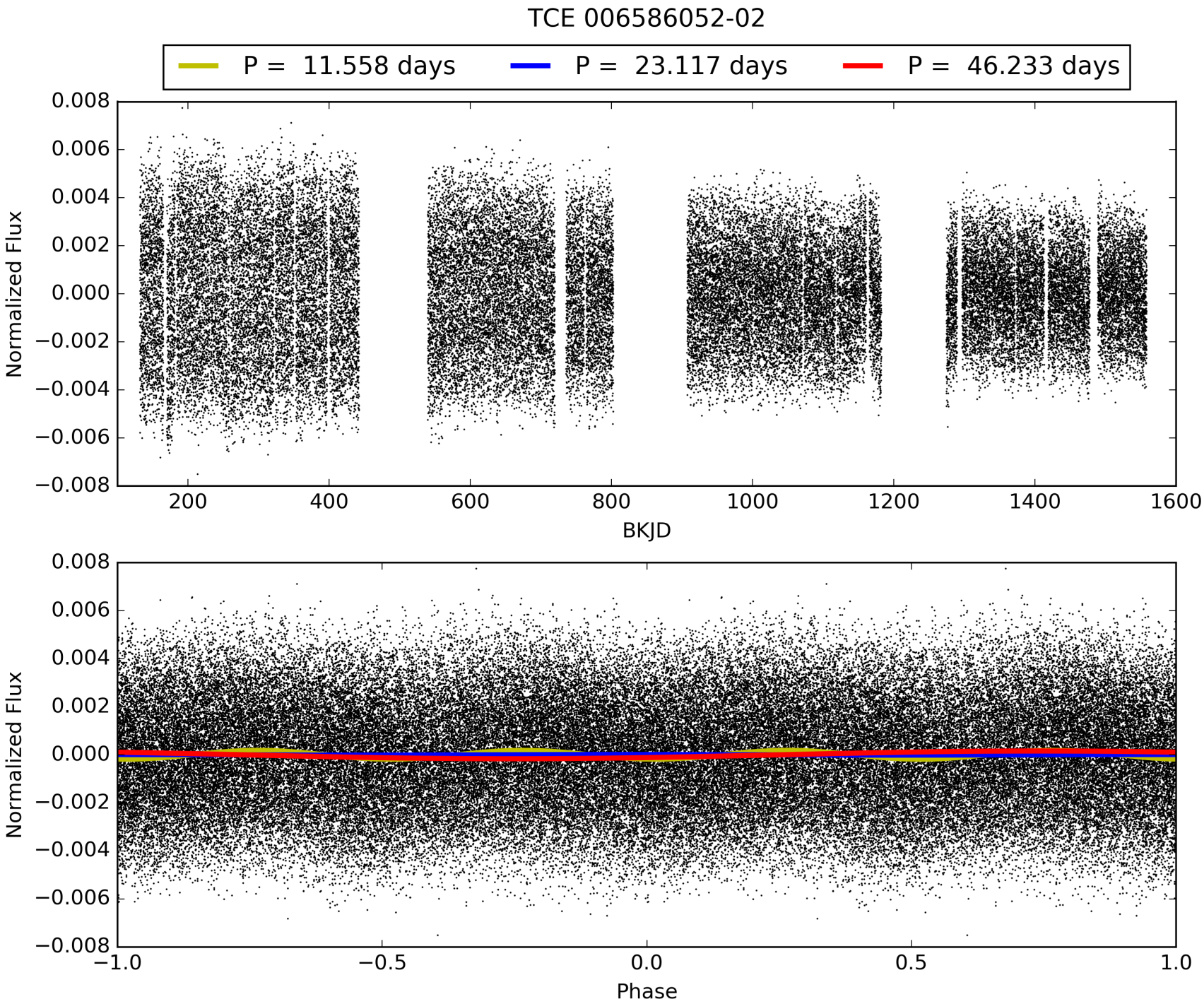
Centroid−sig: 55.7%
Centroid−so: 0.065 arcsec [0.61σ]
OotOffset−rm: 1.340 arcsec [1.42σ]
KicOffset−rm: 1.773 arcsec [2.23σ]
OotOffset−st: 3/4/4/1 [12]
KicOffset−st: 3/4/4/1 [12]
DiffImageQuality−fgm: 0.50 [6/12]
DiffImageOverlap−fno: 0.00 [0/13]

**Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 20:45:32 Z**

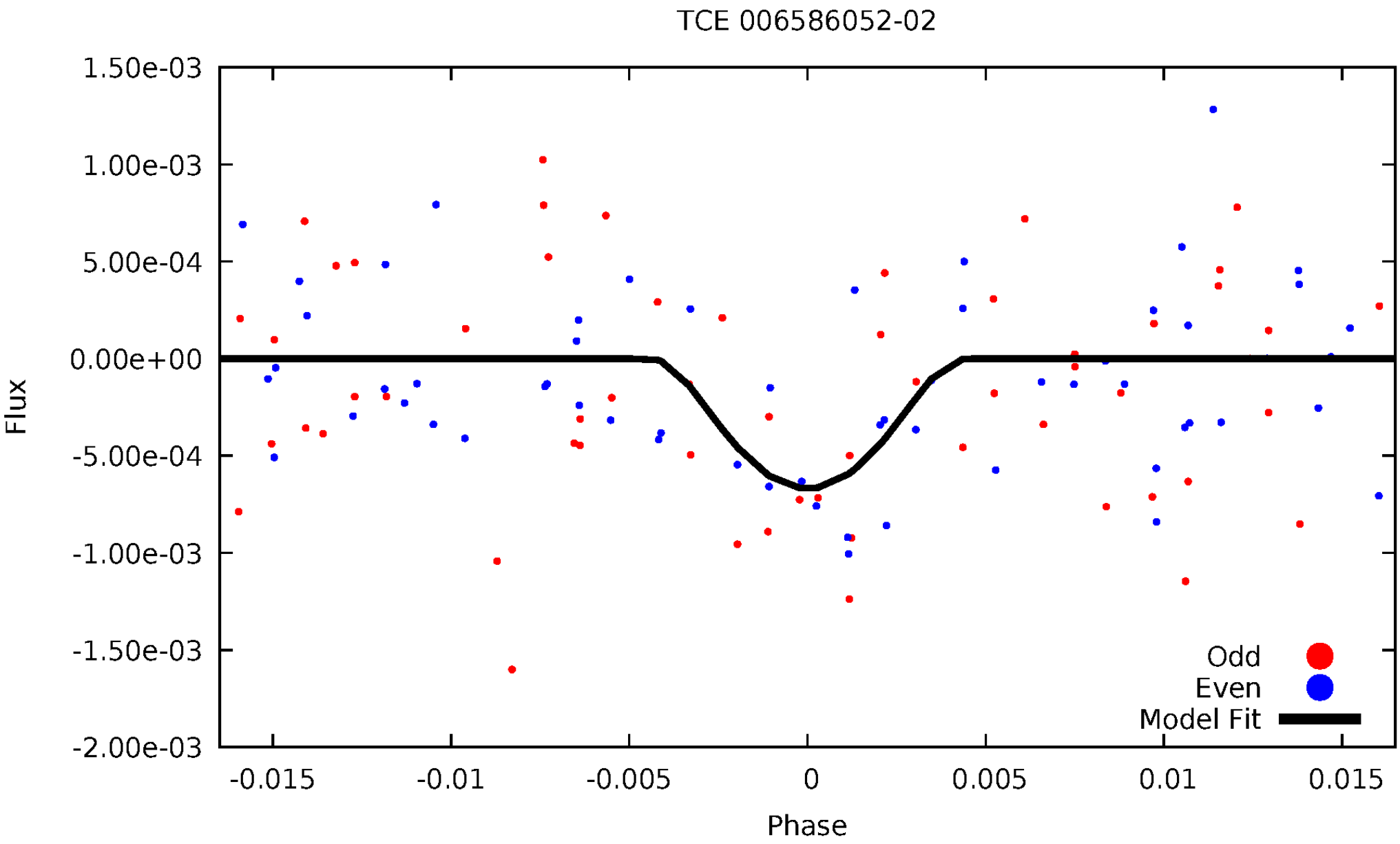
**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 006586052-02, PDC Light Curves

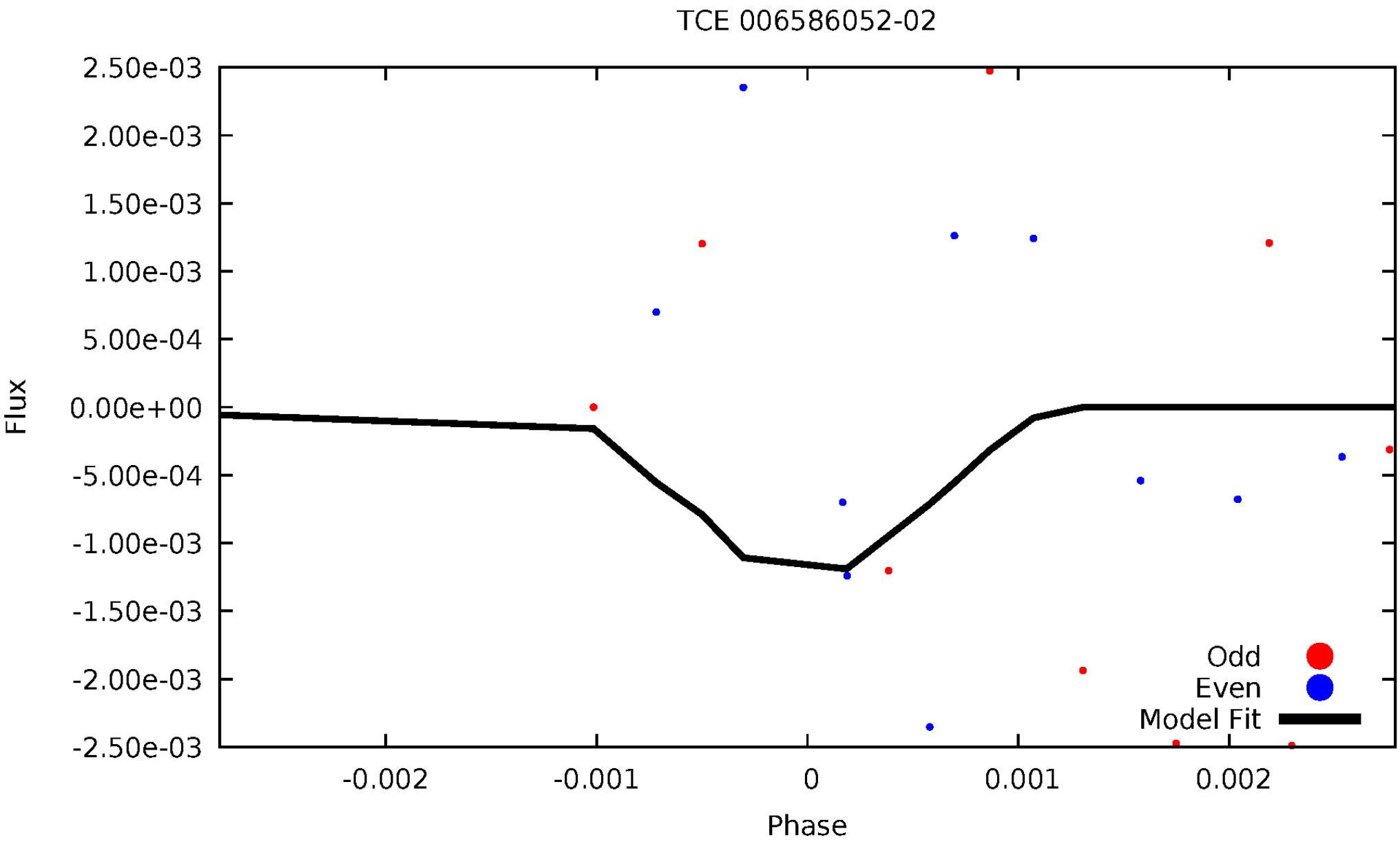



TCE 006586052-02
P = 11.558 days
P = 23.117 days
P = 46.233 days
Normalized Flux
BKJD
Normalized Flux
Phase

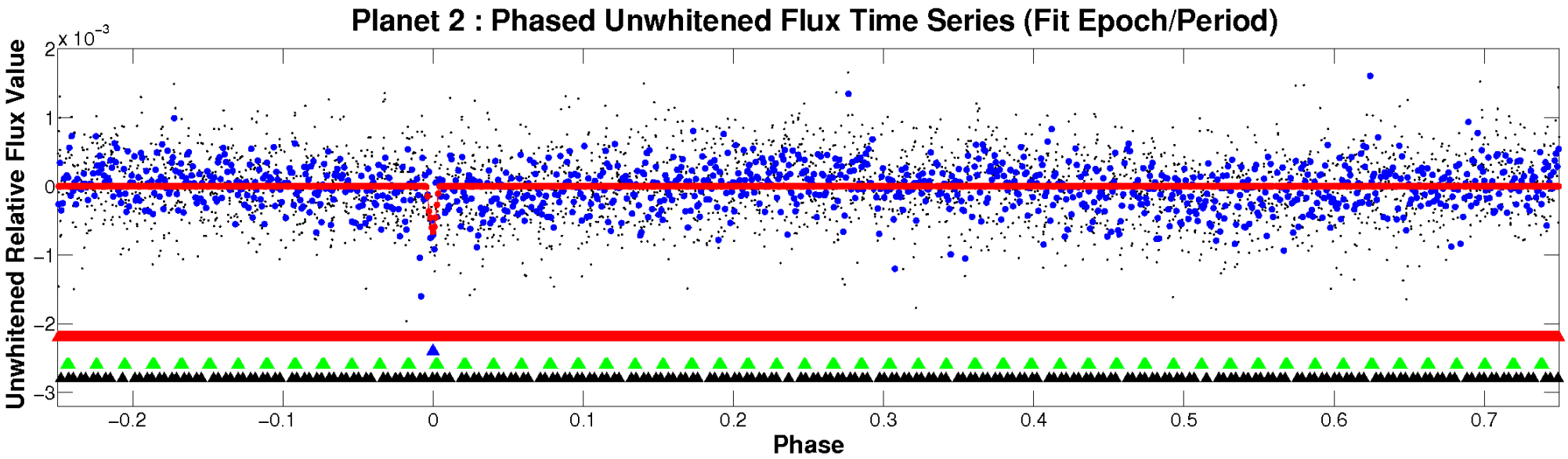
# DV Odd/Even

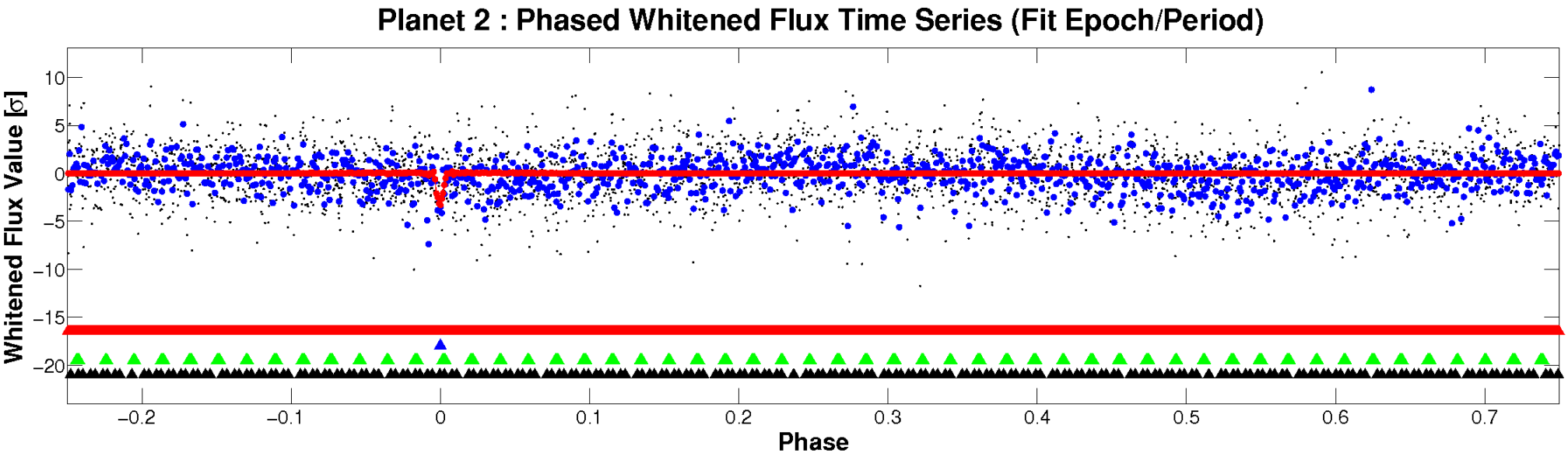

TCE 006586052-02
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
Phase
Odd
Even
Model Fit

**ALT Odd/Even**


TCE 006586052-02
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
-0.002
-0.001
0
0.001
0.002
Phase
Odd
Even
Model Fit

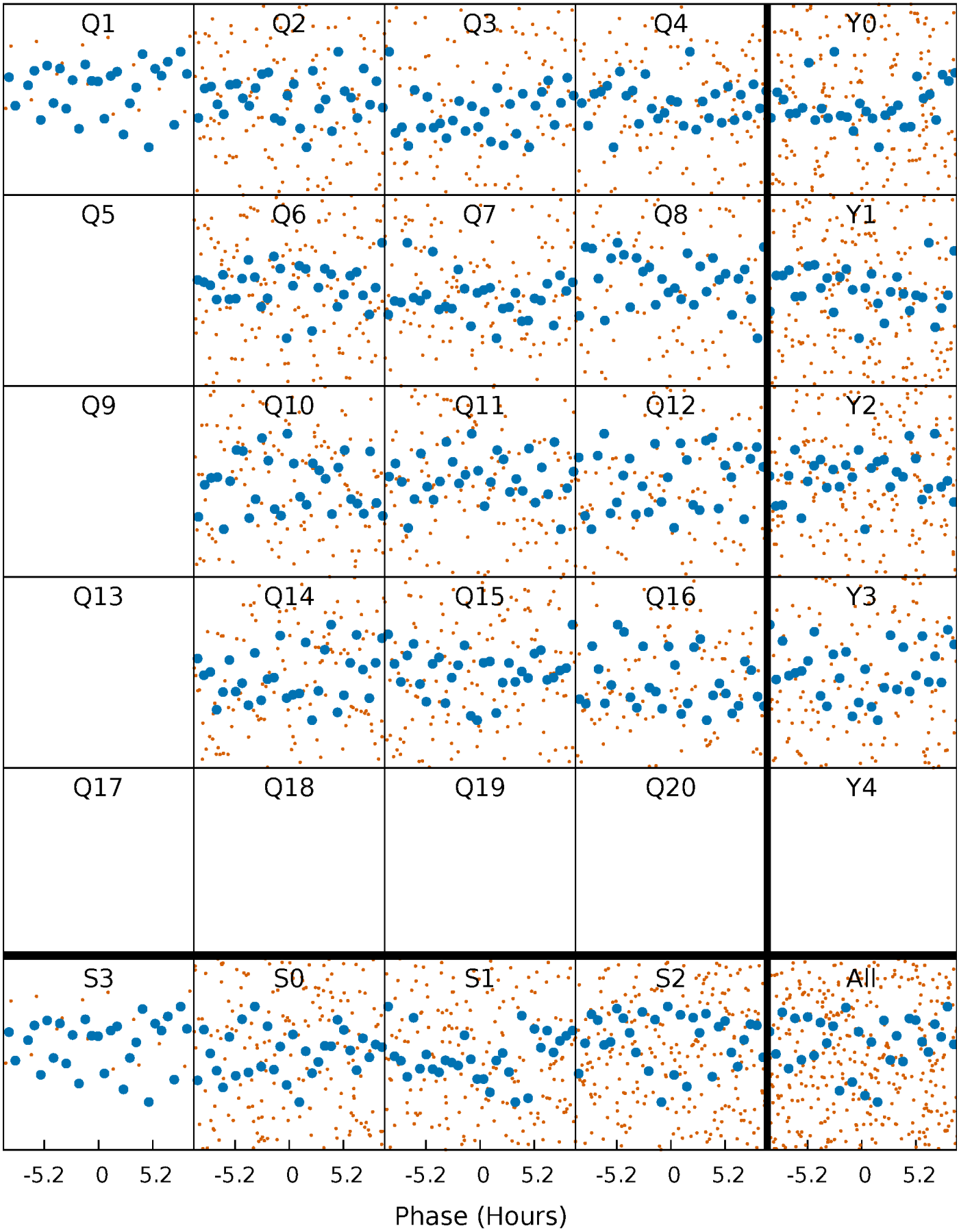
# Non-Whitened Vs. Whitened Light Curve



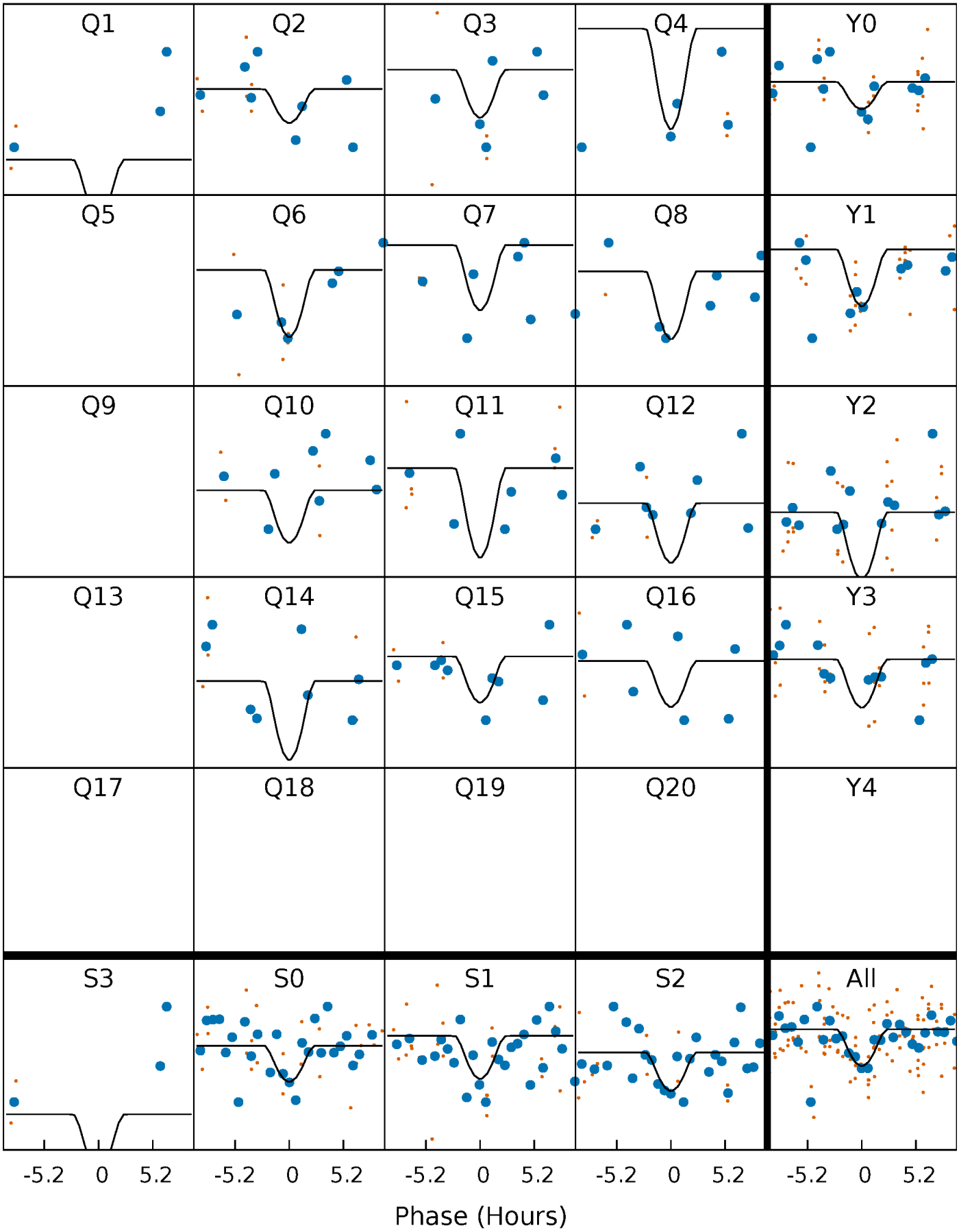
# PDC Quarter-Phased Transit Curves

TCE 006586052-02 P= 23.116596 Days $T_0$=152.971340 (BKJD)



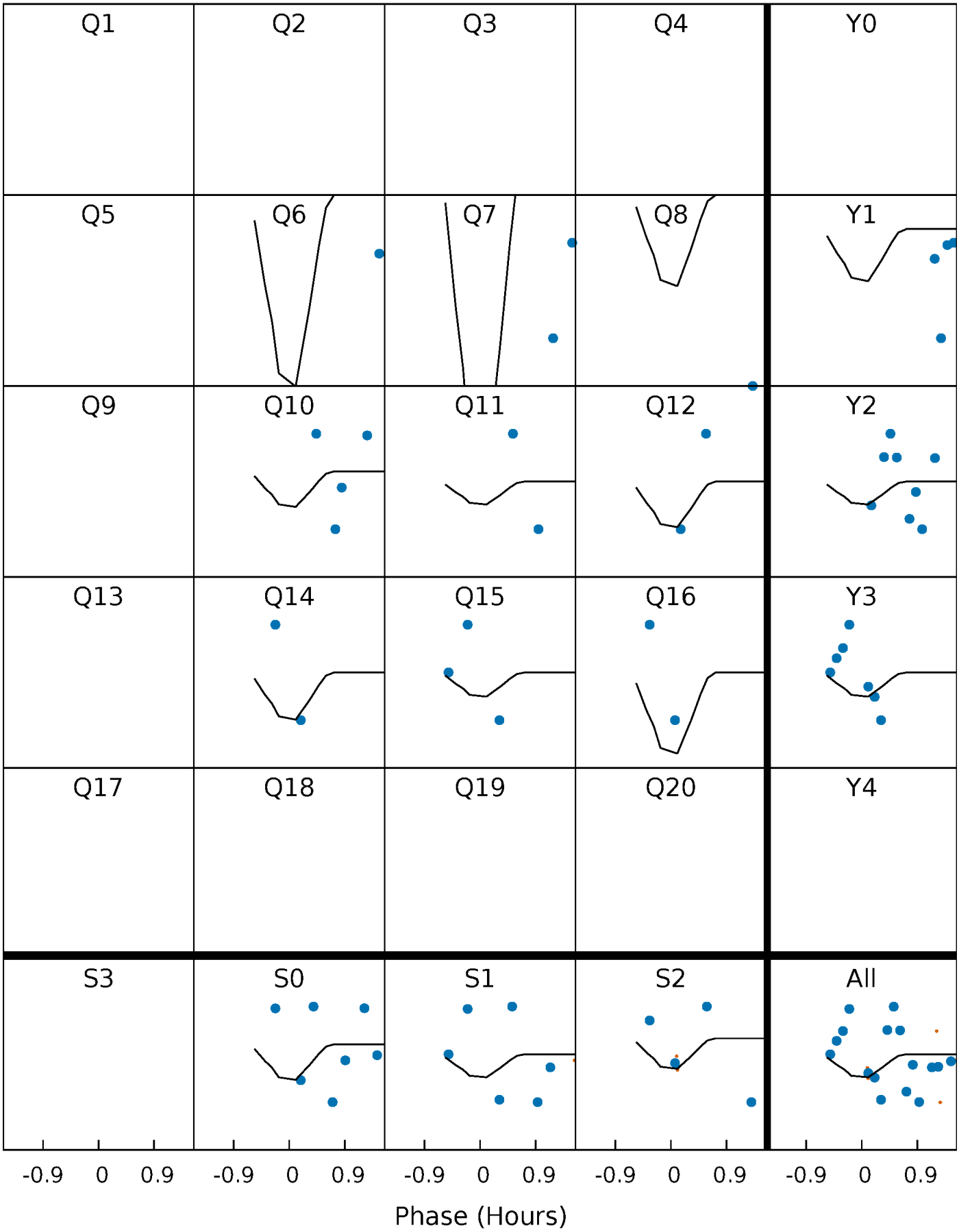
# DV Quarter-Phased Transit Curves

TCE 006586052-02 P= 23.116596 Days $T_0$=152.971340 (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

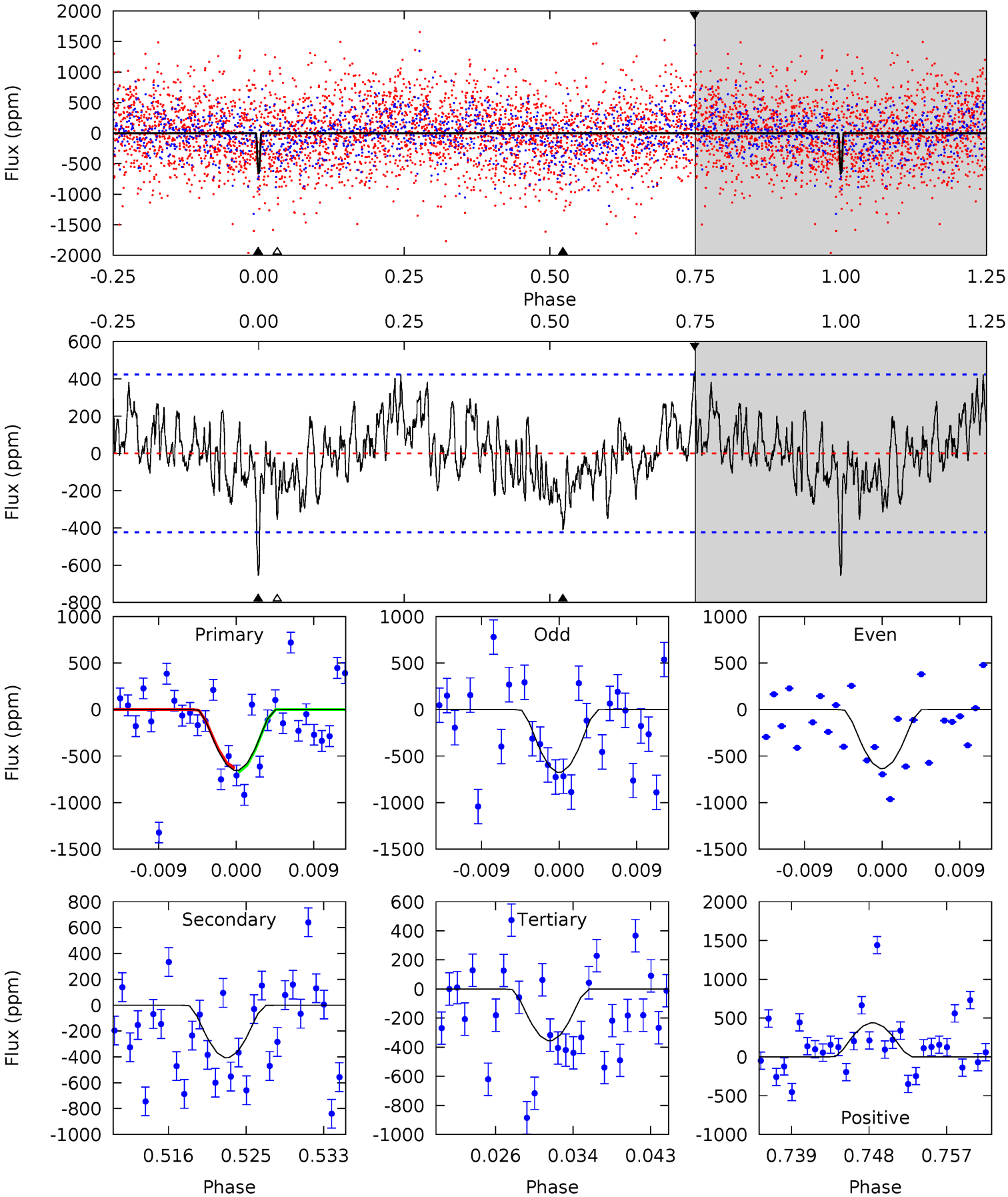
TCE 006586052-02 P= 23.115001 Days $T_0$=153.114308 (BKJD)



# DV Model-Shift Uniqueness Test

006586052-02, P = 23.116596 Days, E = 129.854744 Days

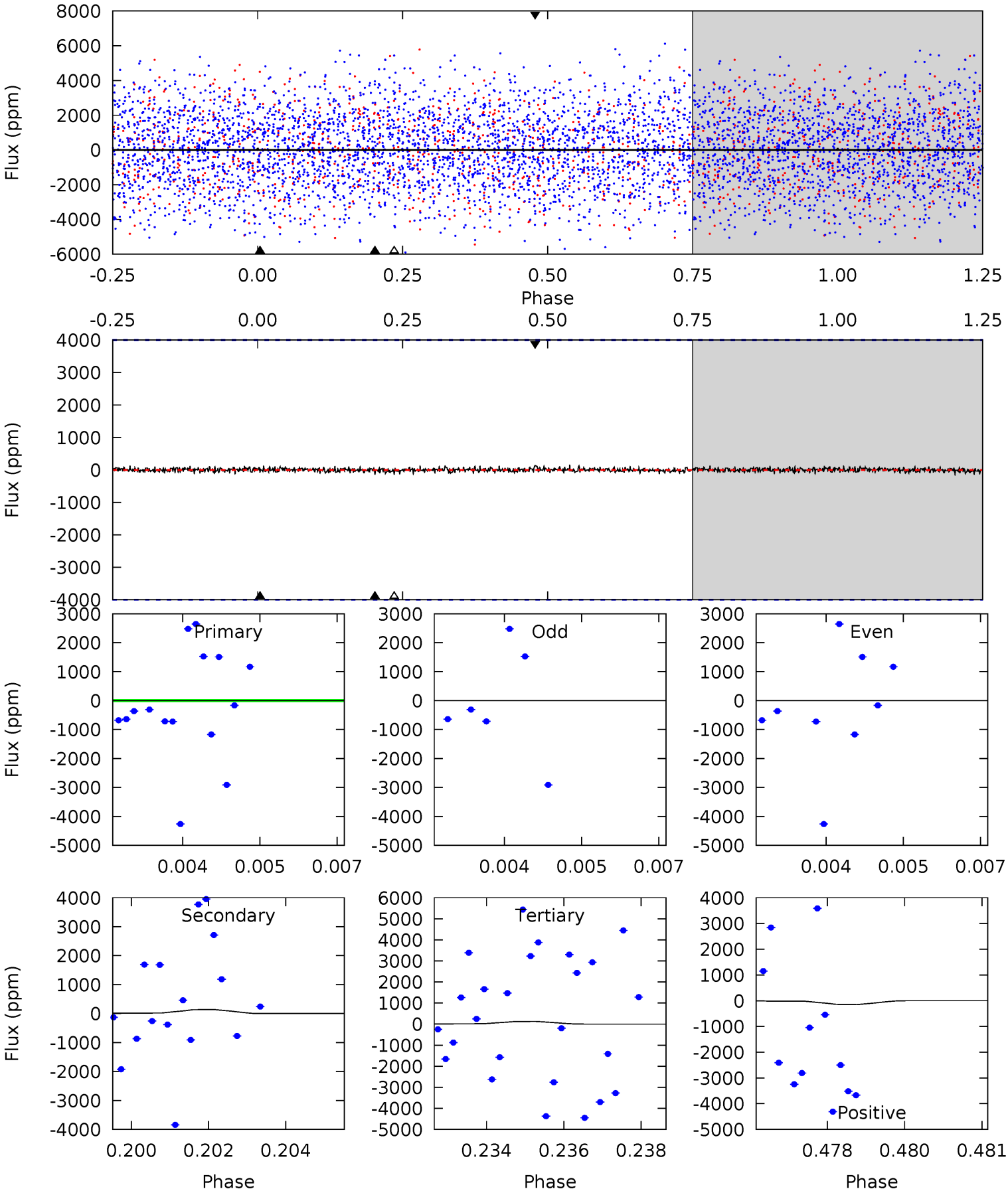
| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.83 | 4.86 | 4.25 | 5.24 | 5.06 | 2.63 | 1.75 | 3.58 | 2.58 | 0.61 | -0.39 | 0.25 | 0.67 | 0.40 | 0.28 |



# Alt Model-Shift Uniqueness Test

006586052-02, P = 23.115001 Days, E = 129.999307 Days

| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.09 | 0.19 | 0.17 | 0.20 | 5.35 | 3.12 | 0.05 | -0.08 | -0.11 | 0.02 | -0.01 | 0.20 | 1.07 | 0.52 | 0.63 |



Stellar Parameters For KIC 006586052

| | $T_{\rm eff}(K)$ | $\log(g)$ | [Fe/H] | $R$ ($R_\odot$) | $M(M_\odot)$ | $p_\star$ (g·cm$^{-3}$) |
|---|---|---|---|---|---|---|
| | $7751^{+214}_{-349}$ | $4.061^{+0.139}_{-0.155}$ | $0.070^{+0.200}_{-0.400}$ | $2.068^{+0.533}_{-0.484}$ | $1.794^{+0.181}_{-0.294}$ | $0.286^{+0.224}_{-0.124}$ |
| | +3%/-5% | +3%/-4% | +286%/-571% | +26%/-23% | +10%/-16% | +78%/-44% |
| Source | KIC0 | 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 006586052-02 / KOI

| Detrend | Depth (ppm) | $R_p$ ($R_\oplus$) | $T_{max}$ (K) | $T_{obs}$ (K) | $A_{obs}$ |
|---|---|---|---|---|---|
| DV | -406±84 | $65.88^{+74.61}_{-48.32}$ | $1562^{+111}_{-102}$ | $2698^{+1383}_{-727}$ | $1.878^{+25.048}_{-1.487}$ |
| Alt. | -142±748 | $66.64^{+79.59}_{-44.02}$ | $1569^{+107}_{-115}$ | $1647^{+1739}_{-4653}$ | $0.317^{+7.827}_{-3.521}$ |

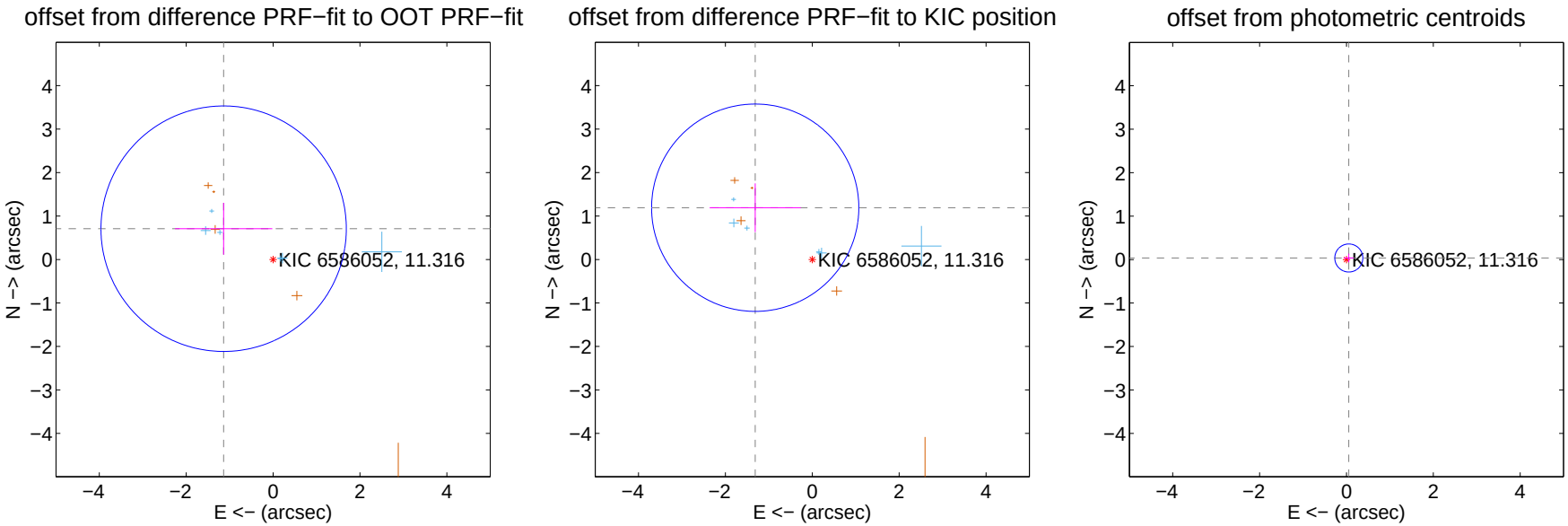
$T_{max}$ = Theoretical Maximum Planetary Temperature
$T_{obs}$ = Observed Planetary Temperature (Assuming A=0.3)
$A_{obs}$ = Observed Albedo (Assuming T=0)

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

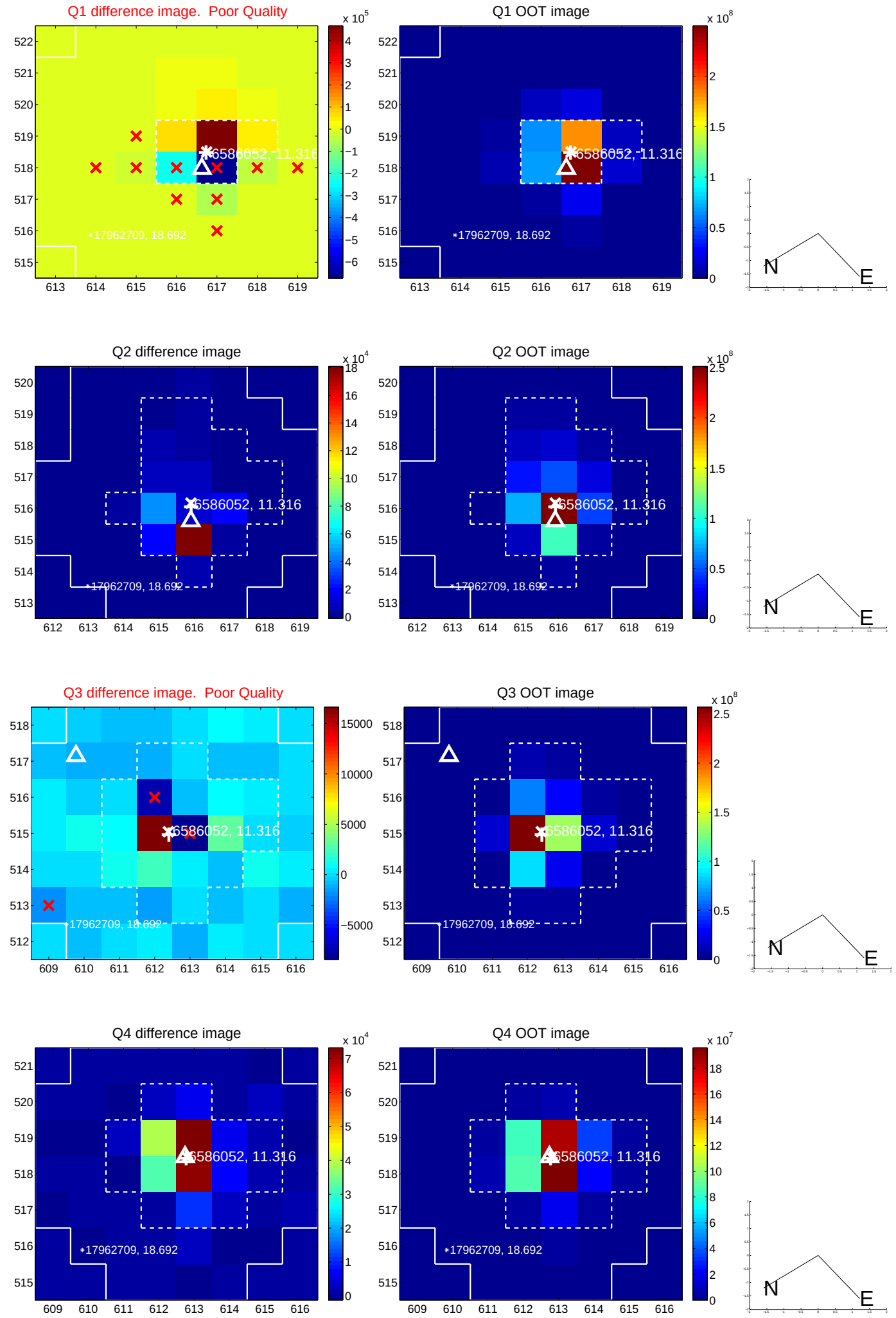
Supplemental centroid analysis for 006586052-02. Kepler magnitude: 11.32. Transit SNR 12.57
There are 6 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

| | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA | $\Delta$ Dec |
|---|---|---|---|---|
| PRF-fit source offset from OOT | 1.340 ± 0.941 | 1.42 | 1.138 ± 1.120 | 0.708 ± 0.595 |
| PRF-fit source offset from KIC position | 1.773 ± 0.795 | 2.23 | 1.313 ± 1.050 | 1.191 ± 0.561 |
| photometric centroid source offset | 0.07 ± 0.11 | 0.61 | -0.05 ± 0.11 | 0.04 ± 0.10 |

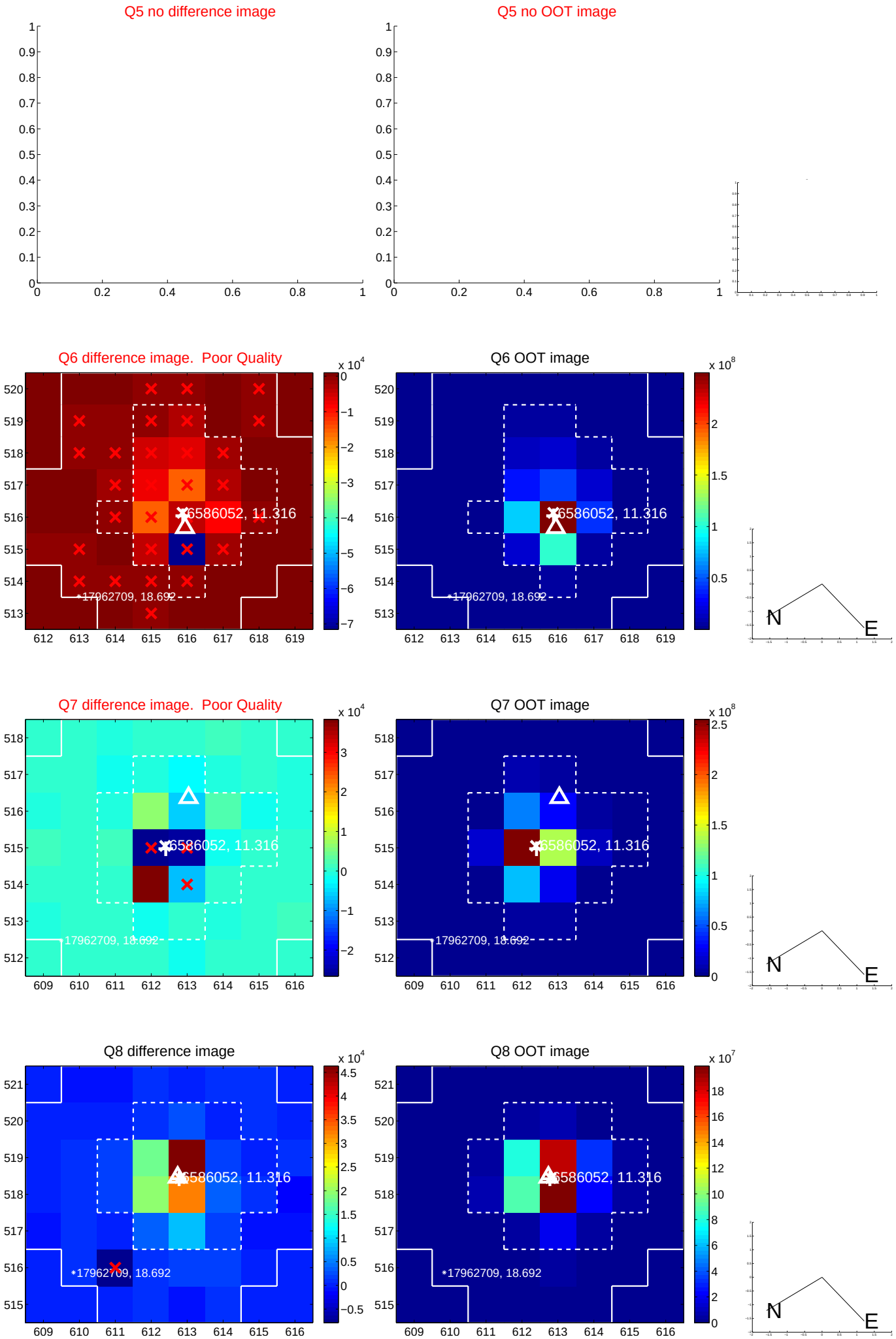



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-$\sigma$ uncertainty. Blue circle: three-$\sigma$.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

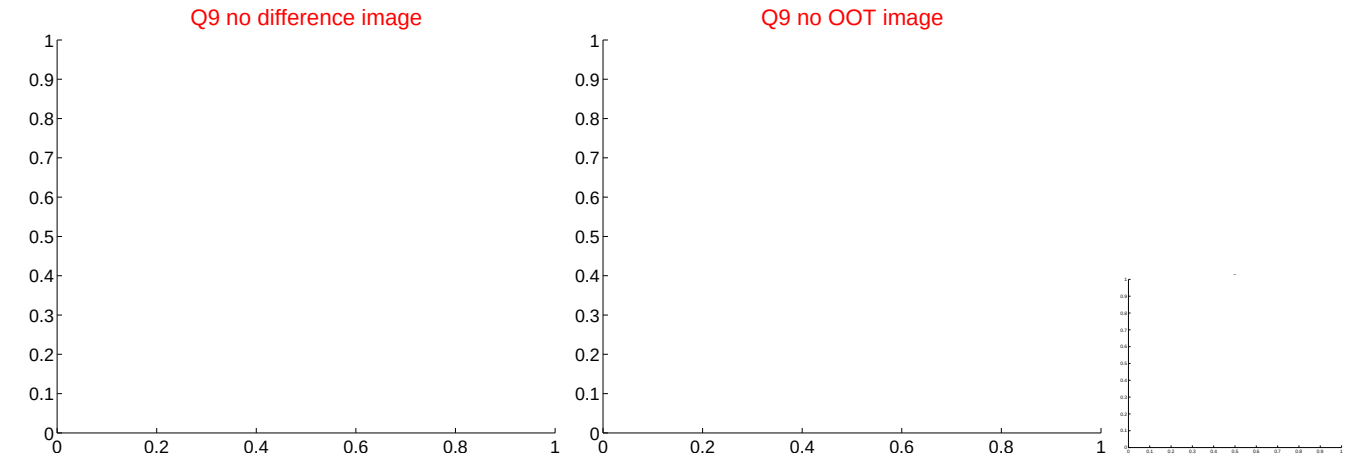
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

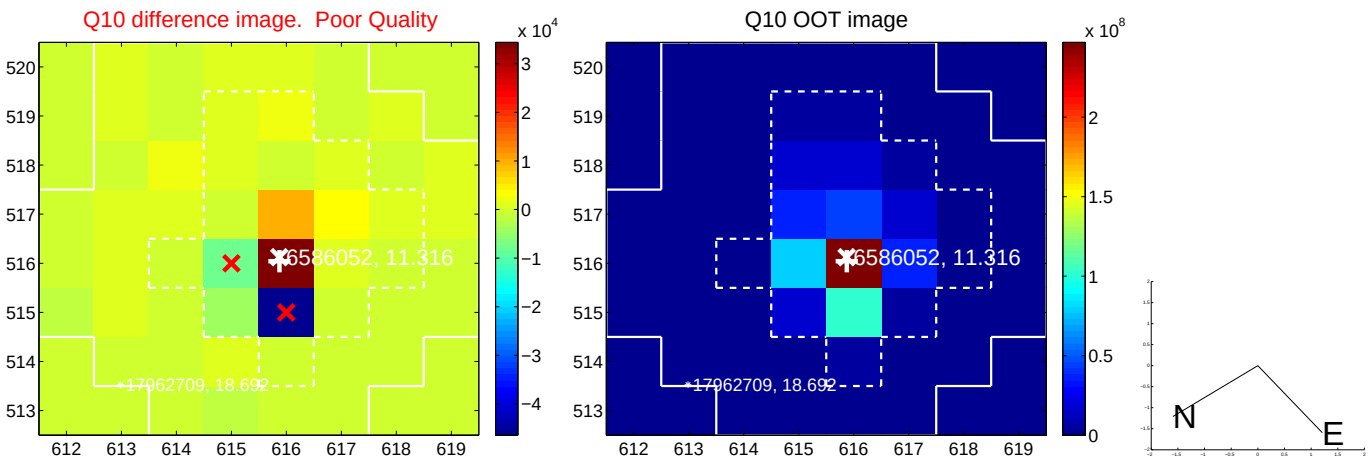


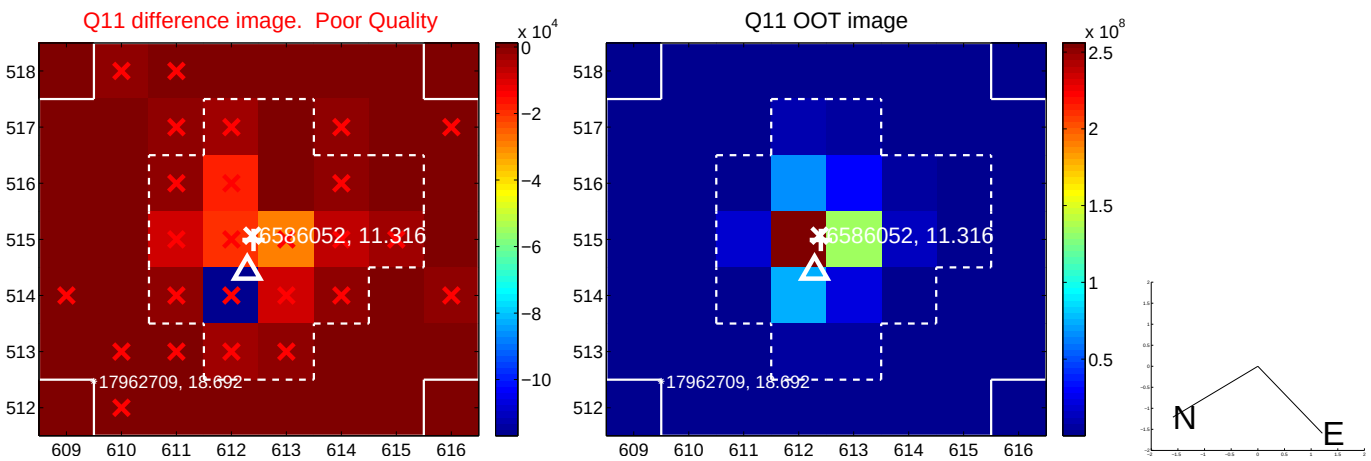
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

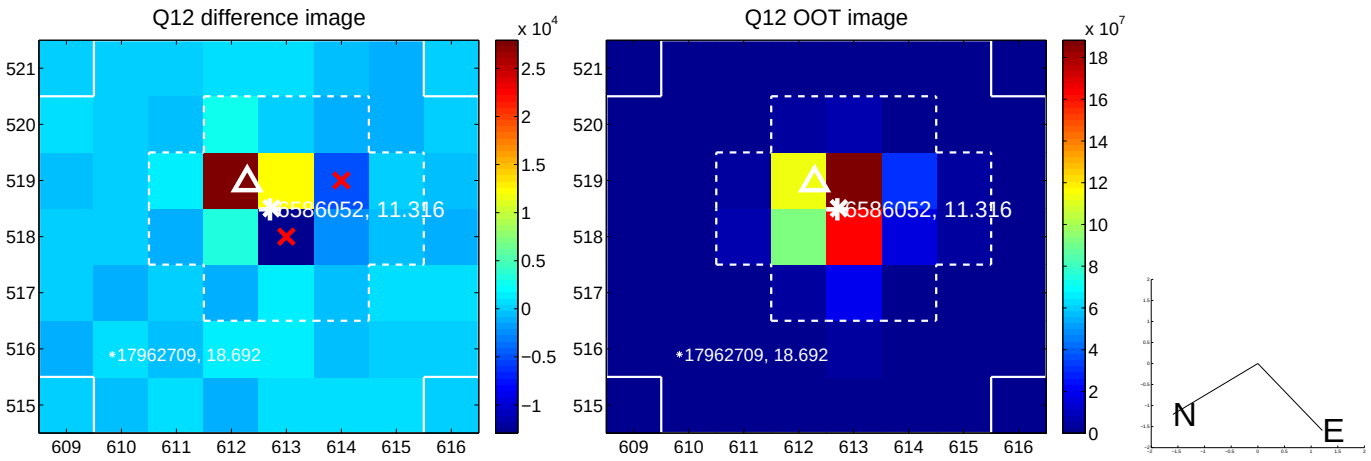


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

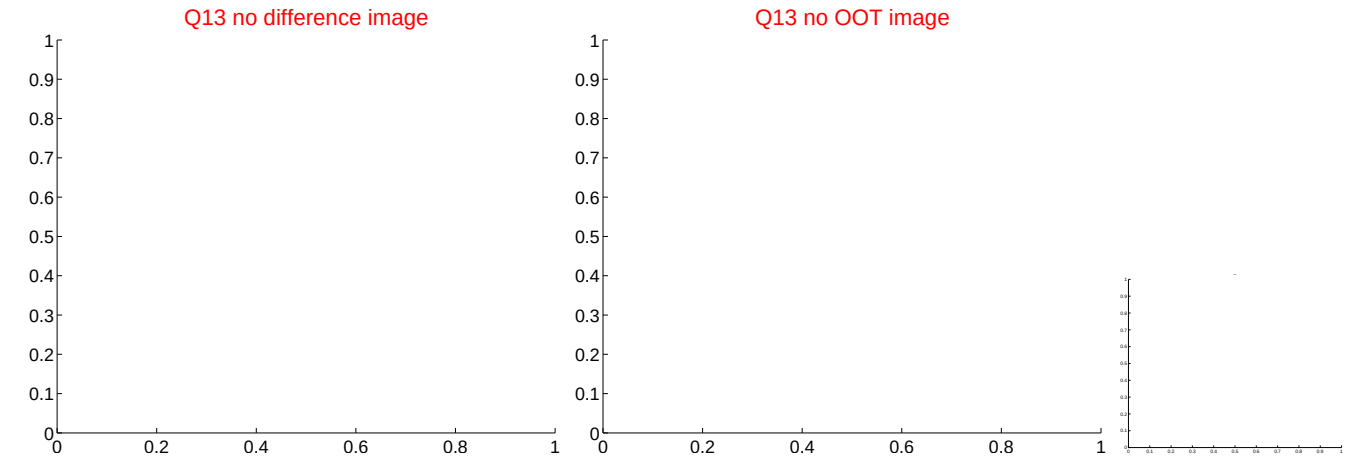


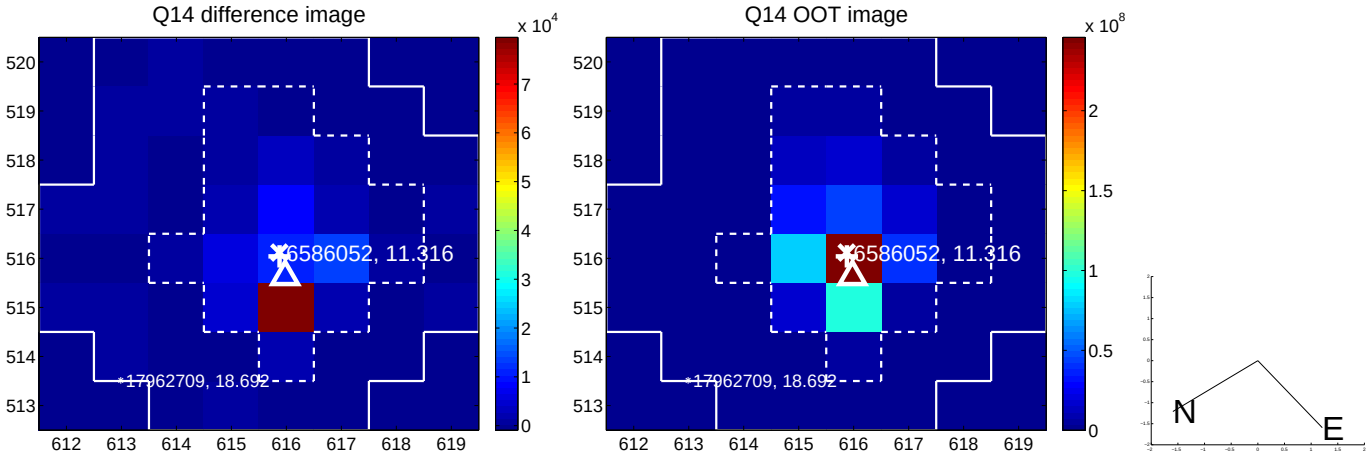



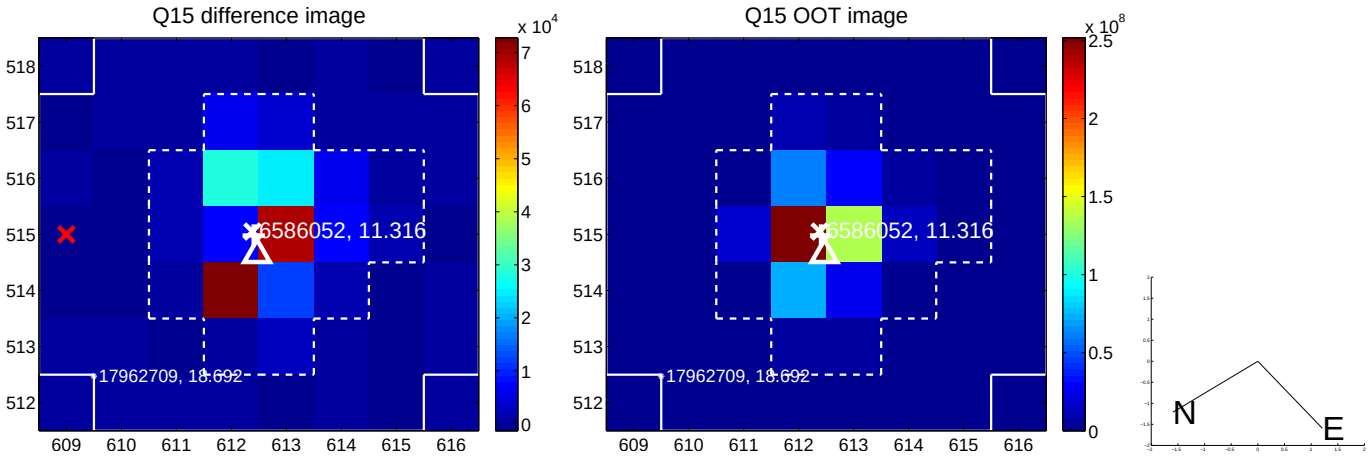



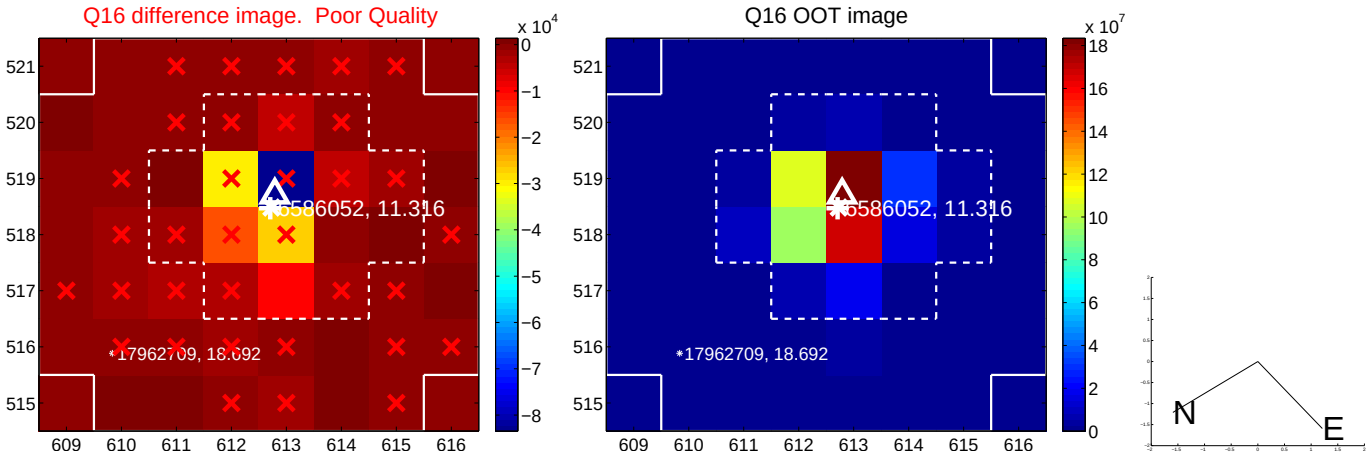



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

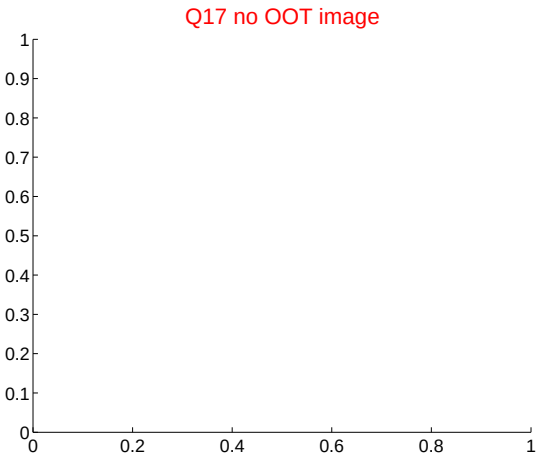


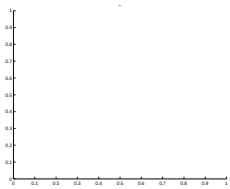



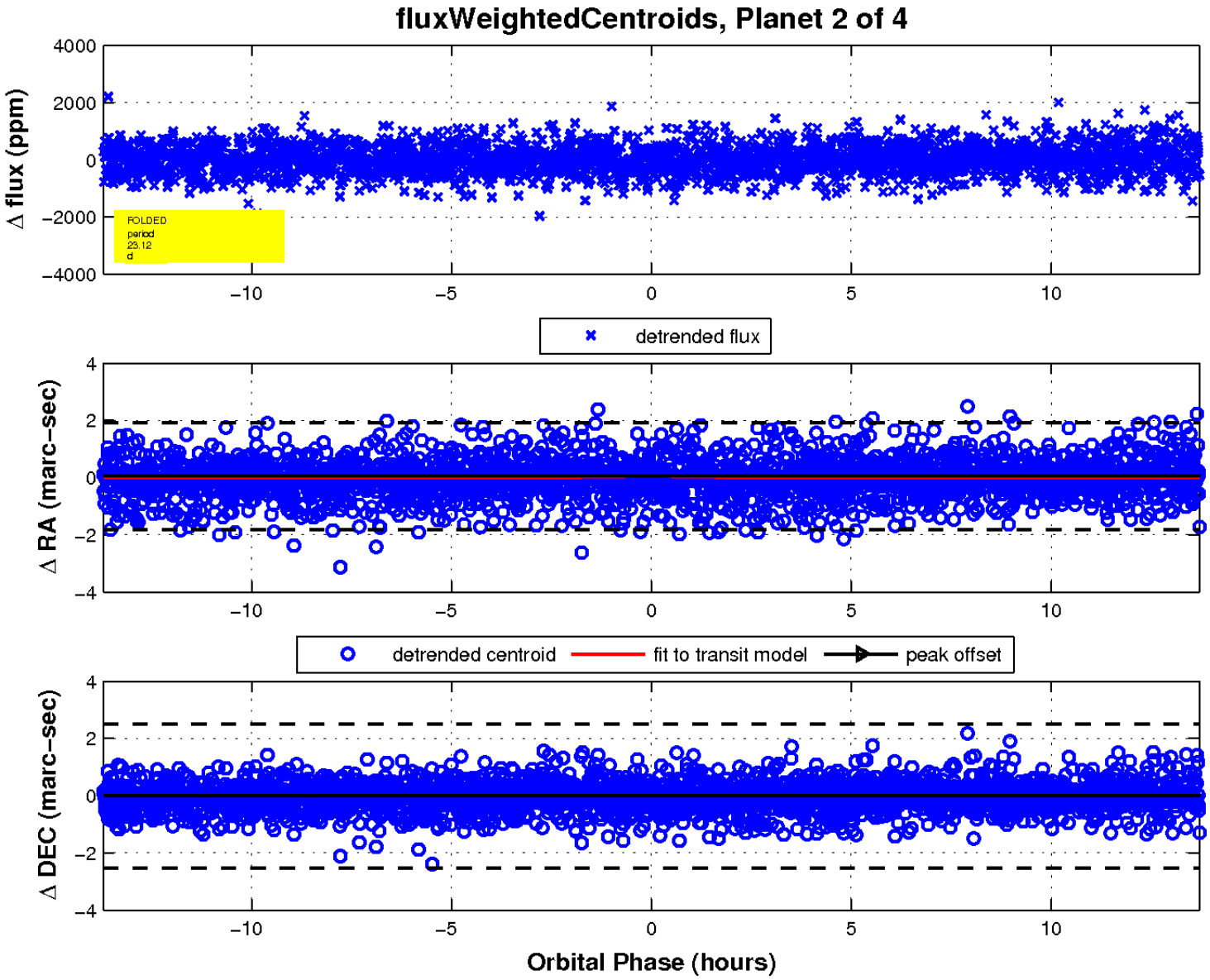



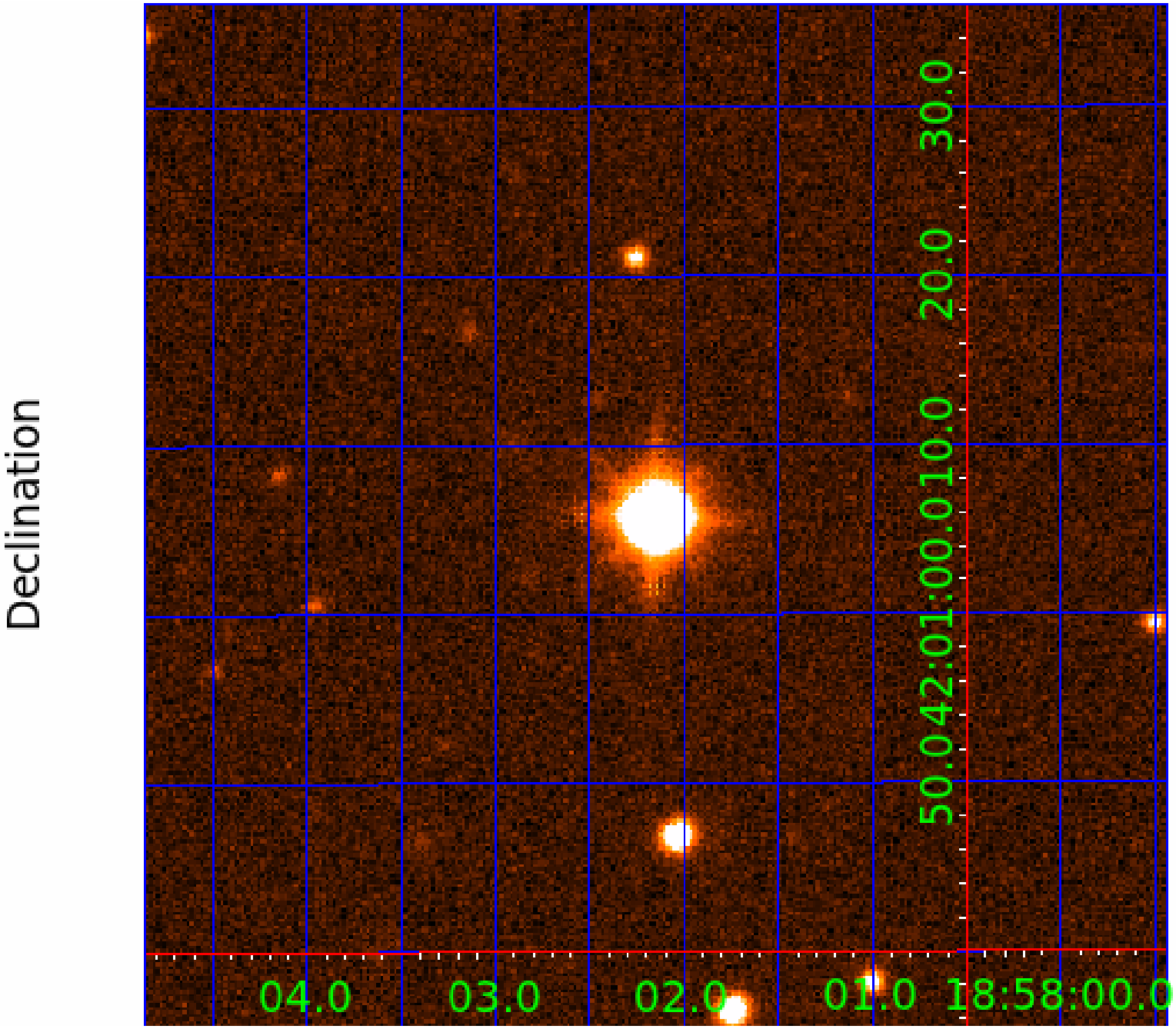
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





**UKIRT Image**



# KIC 006586052

## 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) | $R_p$ ($R_\oplus$) | $S_p$ ($S_\oplus$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | No | 0.597750 | 132.002259 | 63.6 | 4.288 | 11.3 | 13.8 | 2.07 | 7751 | 1.78 | 48528.79 |
| 006586052-02 | OBS | No | 23.116596 | 152.971340 | 668.5 | 4.572 | 10.2 | 12.6 | 2.07 | 7751 | 10.01 | 371.07 |
| 006586052-03 | OBS | No | 10.468215 | 139.047083 | 114.5 | 2.797 | 10.8 | 3.4 | 2.07 | 7751 | 2.35 | 1067.08 |
| 006586052-04 | OBS | No | 6.431826 | 131.579024 | 111.6 | 4.468 | 11.6 | 4.8 | 2.07 | 7751 | 2.34 | 2042.90 |

## Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—CENT_SATURATED |
| 006586052-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |

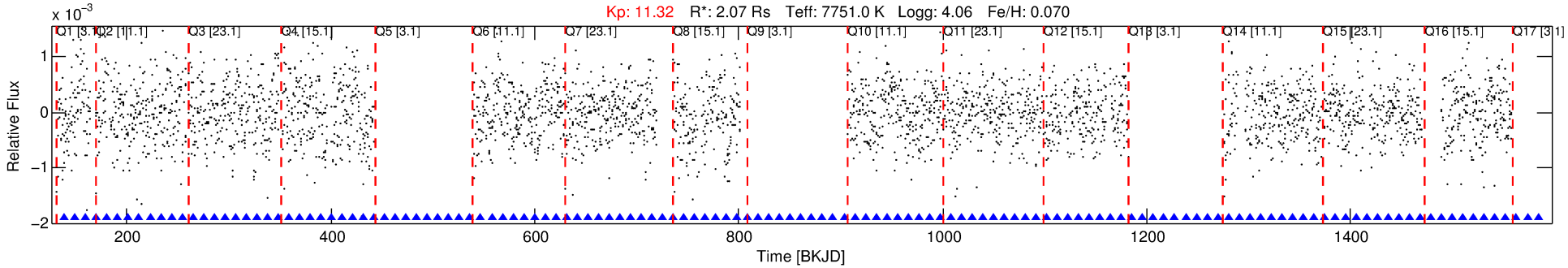
**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

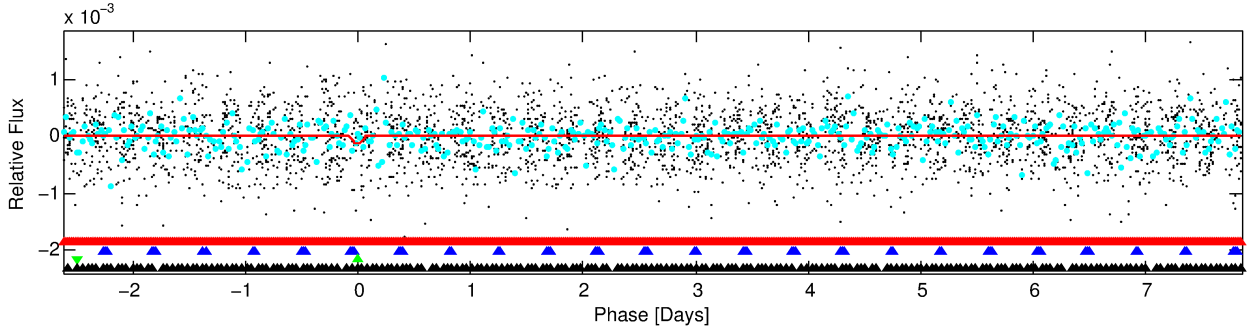
## Ephemeris Match Information For 006586052-03

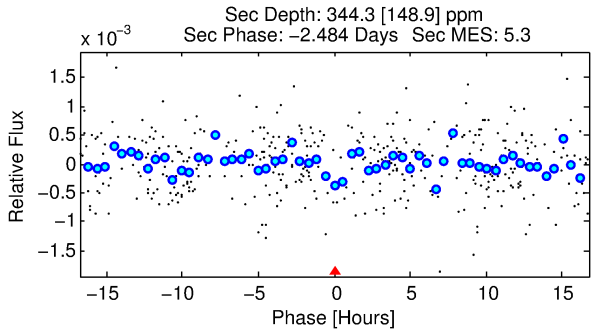
No Significant Match Found

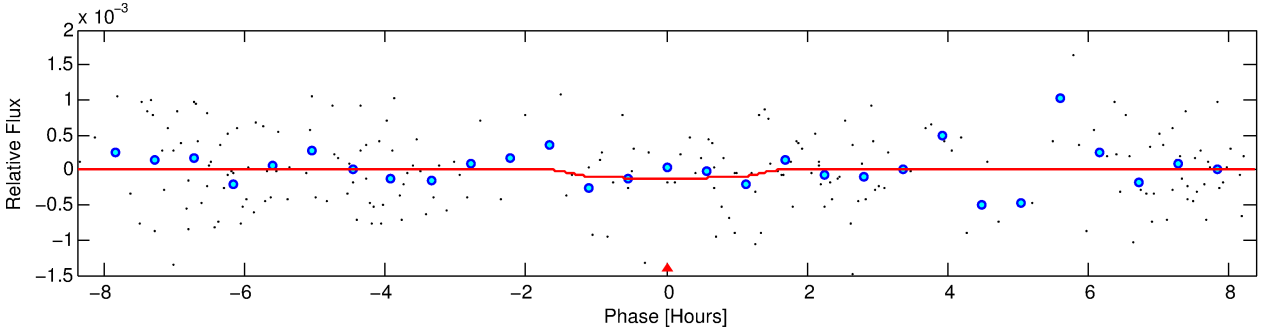
# DV One-Page Summary

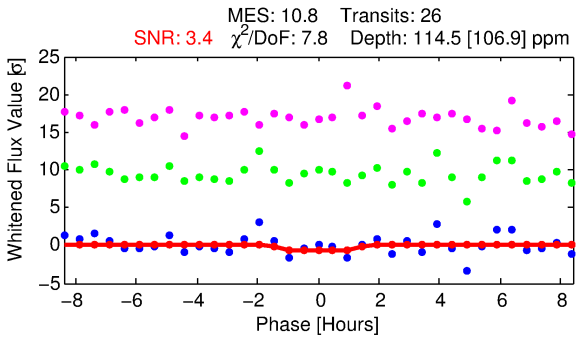
**KIC: 6586052 Candidate: 3 of 4 Period: 10.468 d**

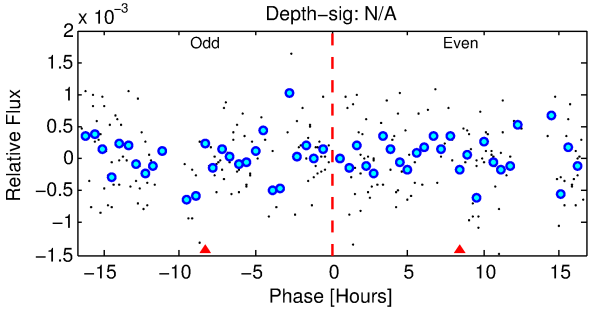


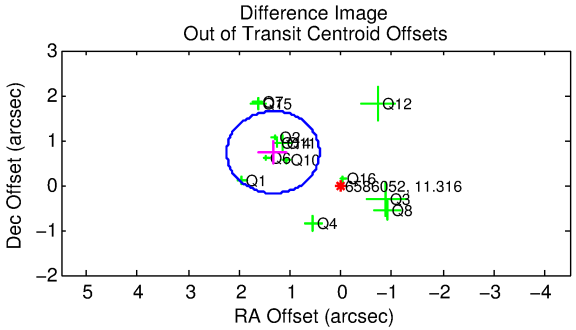




DV Fit Results:

Period = 10.46822 [0.00068] d
Epoch = 139.0471 [0.0498] BKJD
Rp/R* = 0.0104 [0.0380]
a/R* = 22.42 [510.60]
b = 0.64 [21.35]

Seff = 1067.08 [367.44]
Teq = 1457 [125] K
Rp = 2.34 [8.59] Re
a = 0.1138 [0.0238] AU

Ag = 446.44 [3269.64] [0.14σ]
Teffp = 10358 [18955] K [0.47σ]

DV Diagnostic Results:

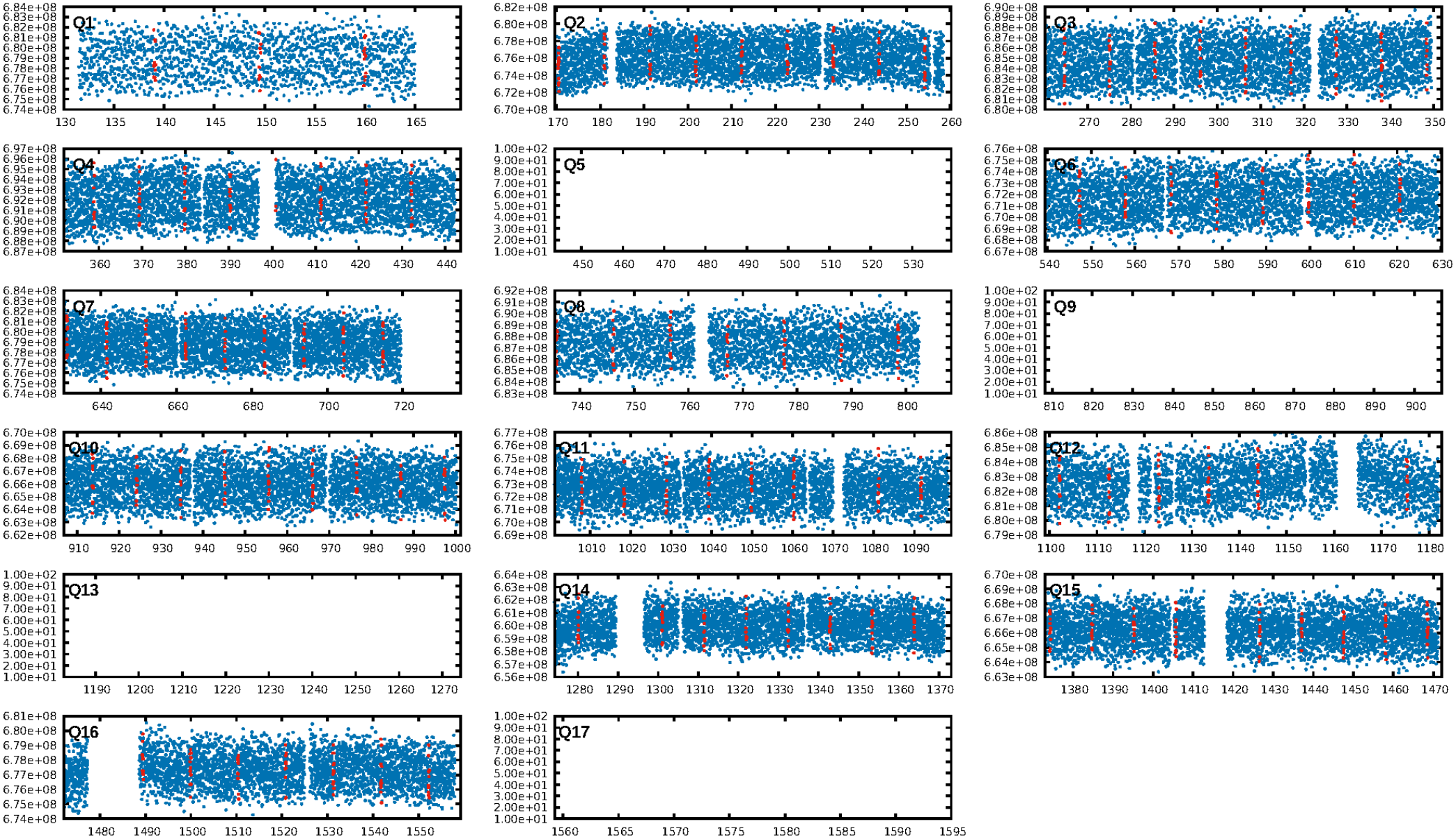
ShortPeriod−sig: 100.0% [18.38σ]
LongPeriod−sig: 100.0% [56.64σ]
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 0.0%
Bootstrap−pfa: 3.39e−11
RollingBand−fgt: 1.00 [26/26]
GhostDiagnostic−chr: 1.029

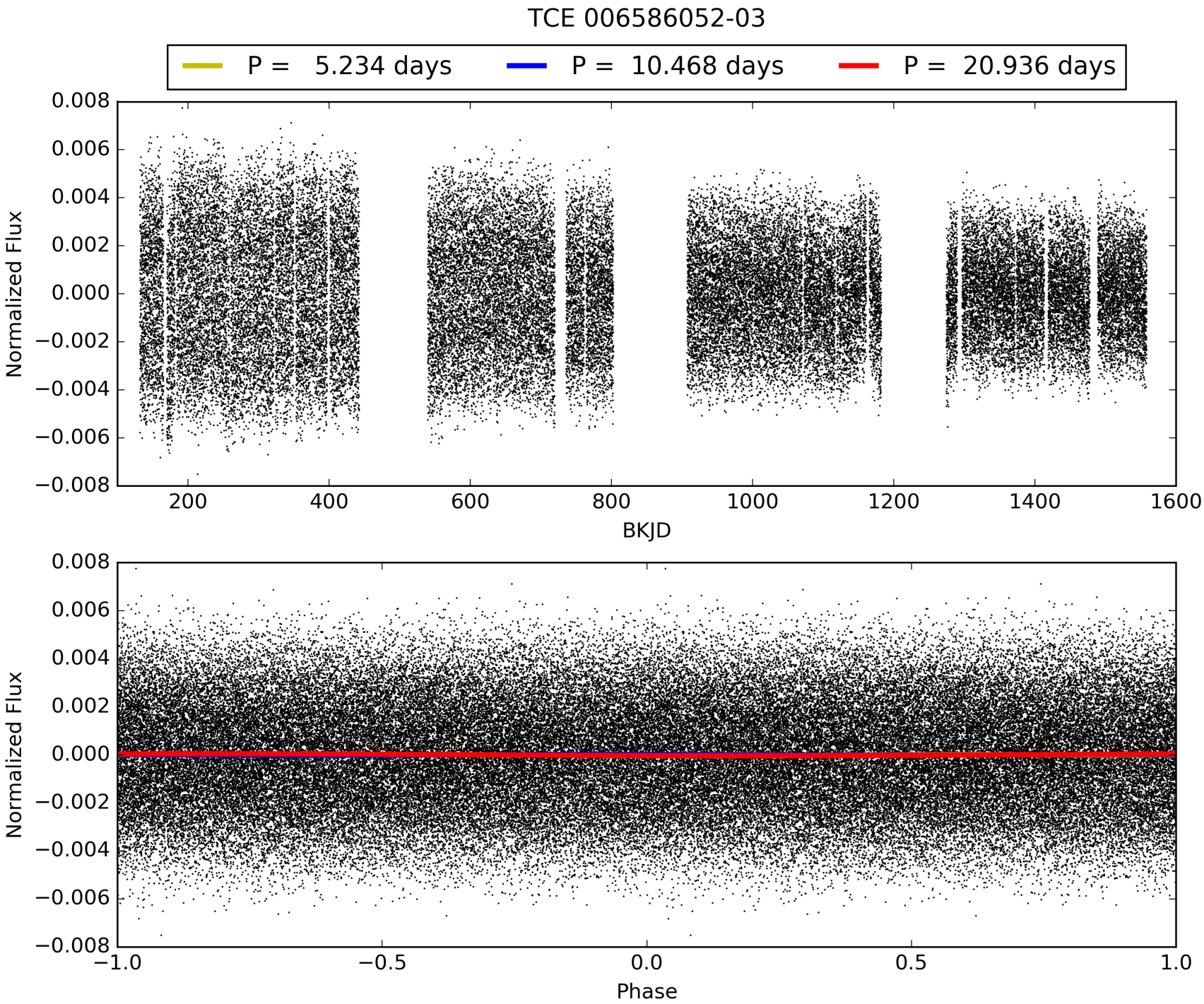
Centroid−sig: 4.9%
Centroid−so: 0.476 arcsec [1.27σ]
OotOffset−rm: 1.520 arcsec [5.00σ]
KicOffset−rm: 1.877 arcsec [6.33σ]
OotOffset−st: 4/4/4/1 [13]
KicOffset−st: 4/4/4/1 [13]
DiffImageQuality−fgm: 0.54 [7/13]
DiffImageOverlap−fno: 0.00 [0/13]

**Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 20:45:35 Z**

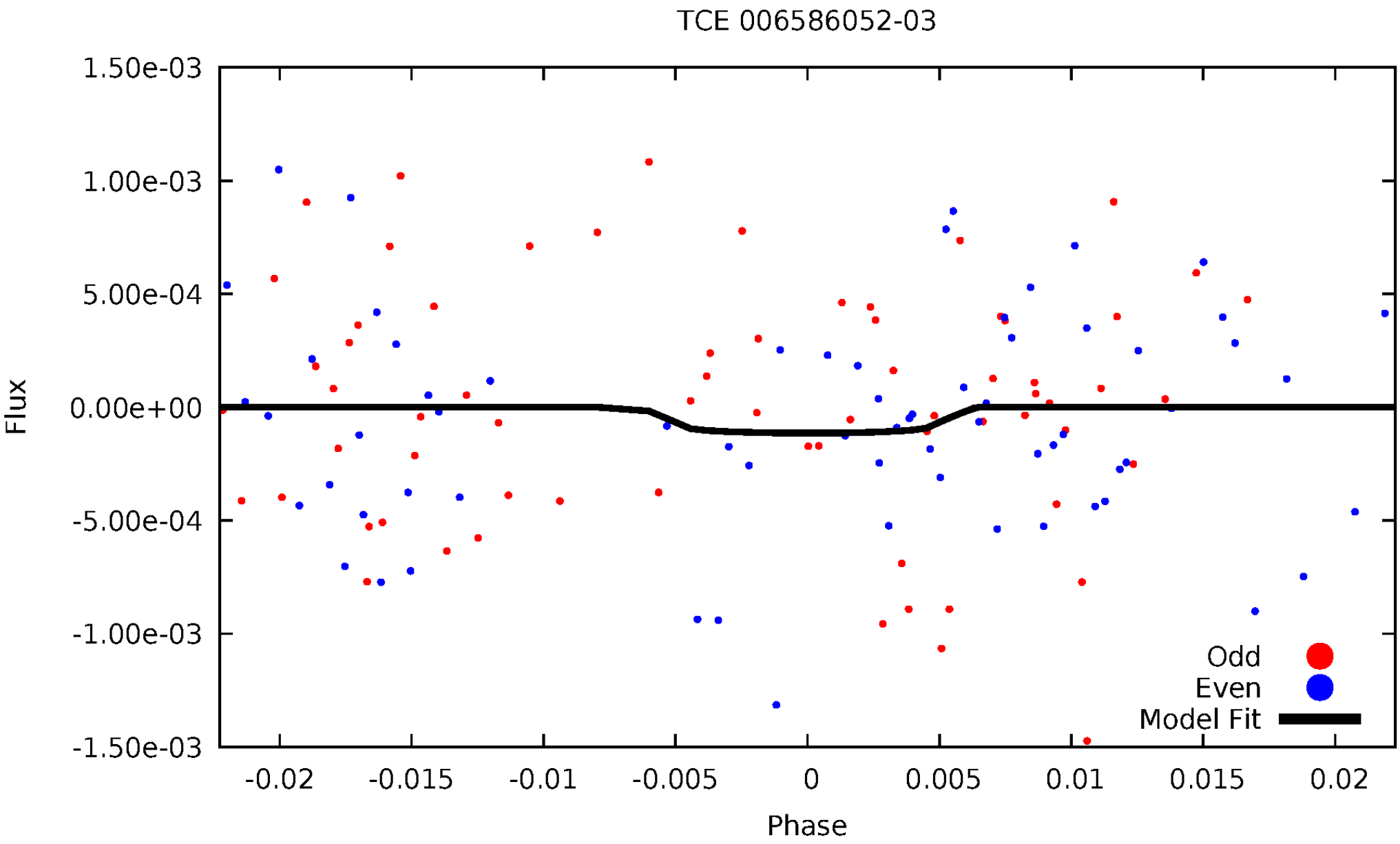
**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 006586052-03, PDC Light Curves

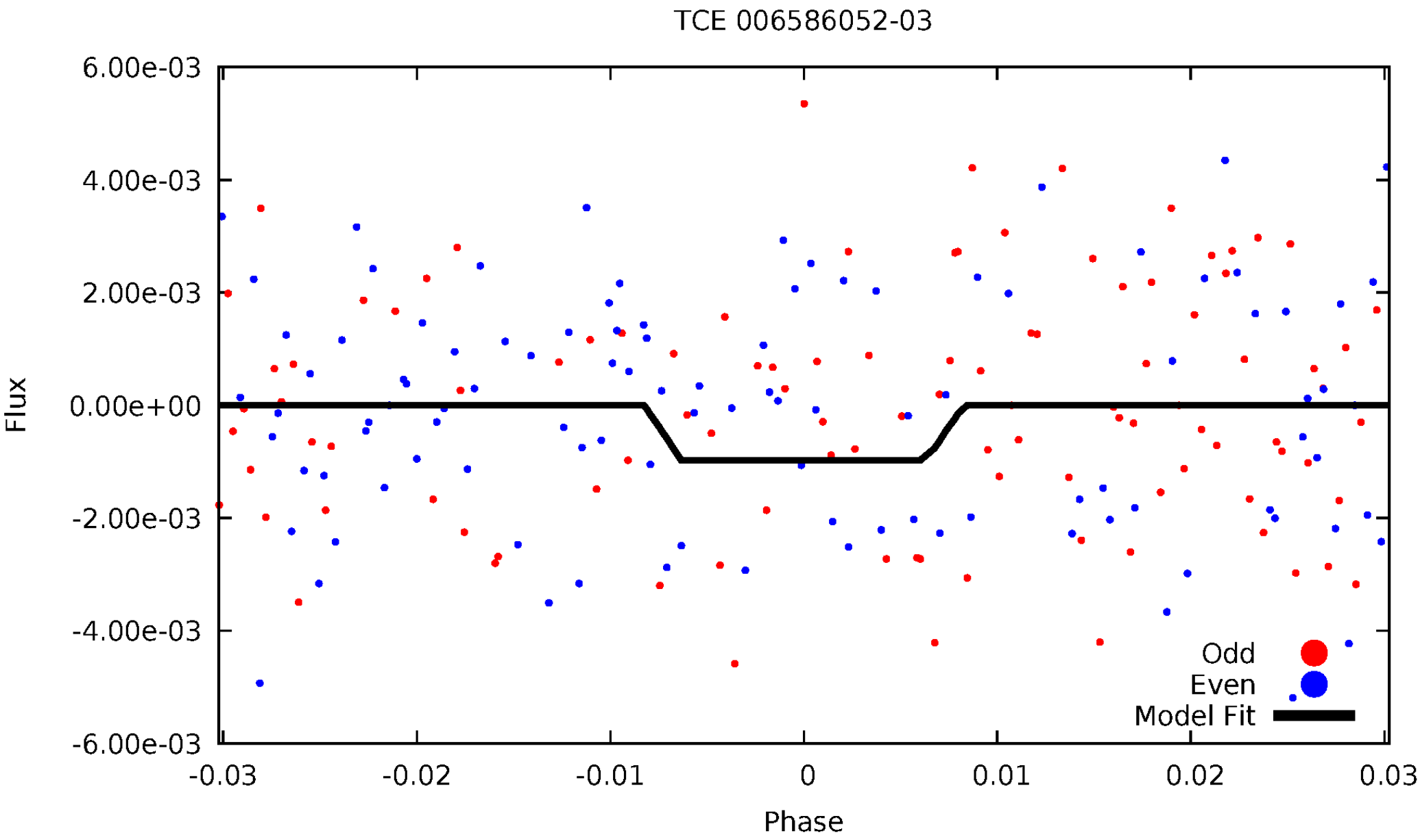



TCE 006586052-03
P = 5.234 days
P = 10.468 days
P = 20.936 days
Normalized Flux
BKJD
Normalized Flux
Phase

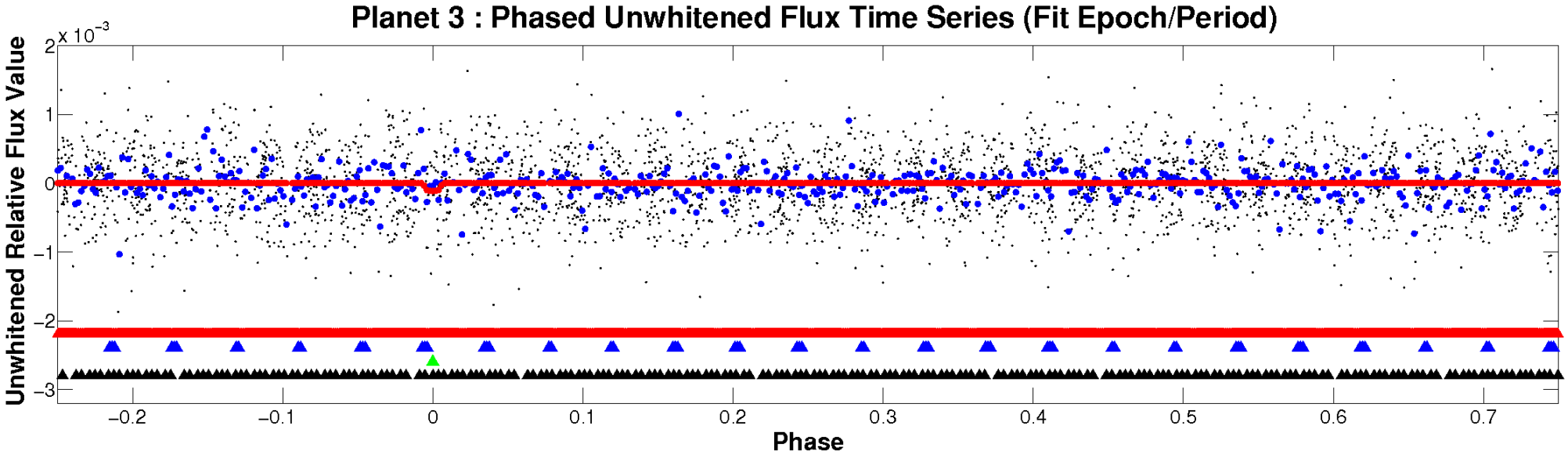
# DV Odd/Even

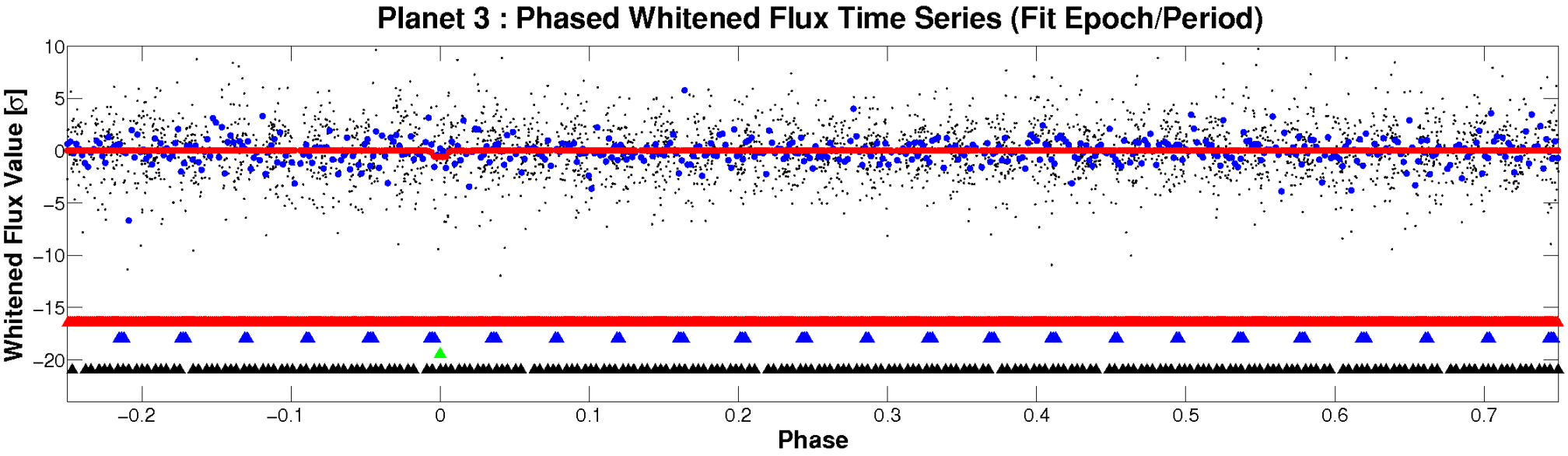

TCE 006586052-03
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
Flux
-0.02
-0.015
-0.01
-0.005
0
0.005
0.01
0.015
0.02
Phase
Odd
Even
Model Fit

**ALT Odd/Even**


TCE 006586052-03
6.00e-03
4.00e-03
2.00e-03
0.00e+00
-2.00e-03
-4.00e-03
-6.00e-03
Flux
-0.03
-0.02
-0.01
0
0.01
0.02
0.03
Phase
Odd
Even
Model Fit

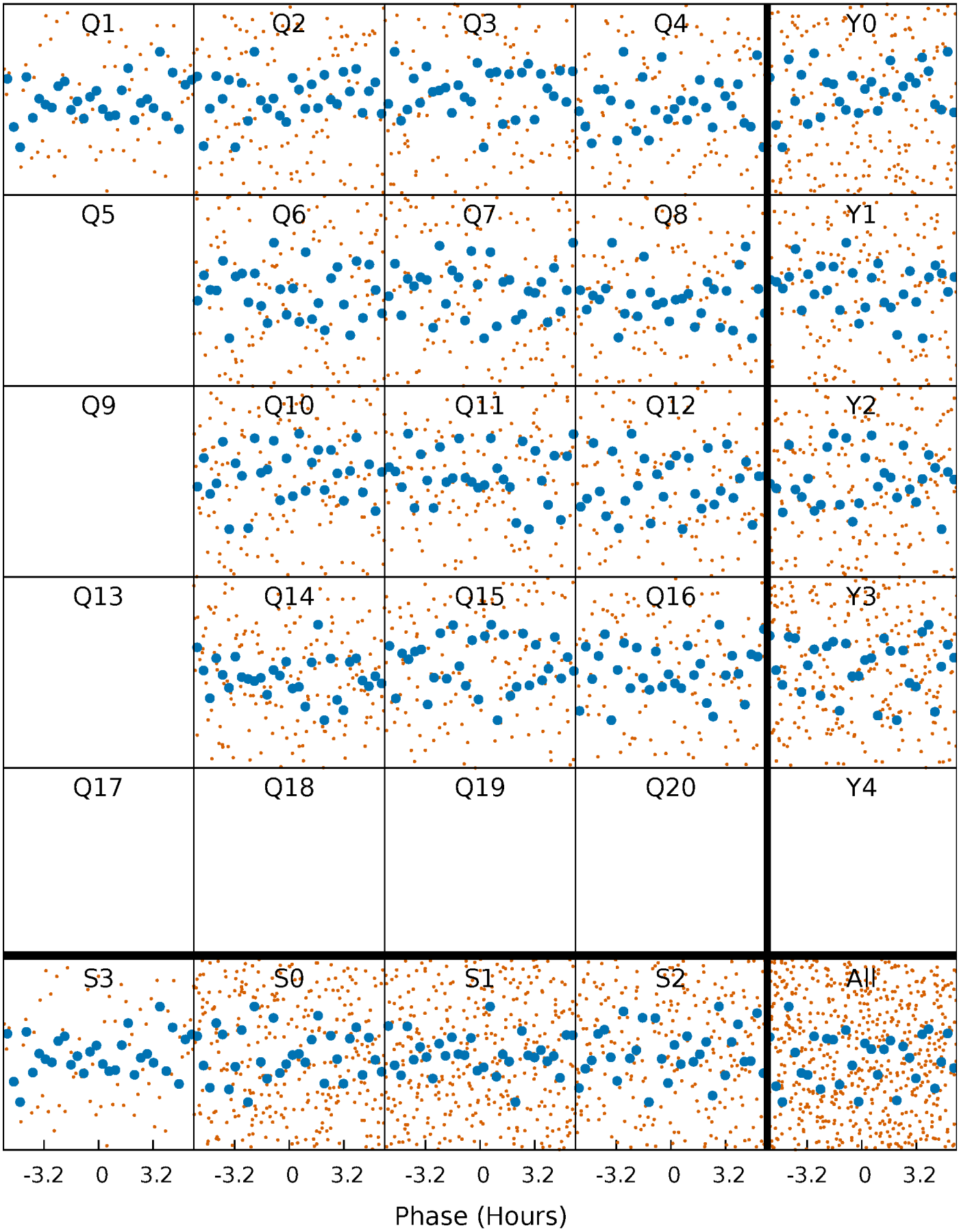
# Non-Whitened Vs. Whitened Light Curve



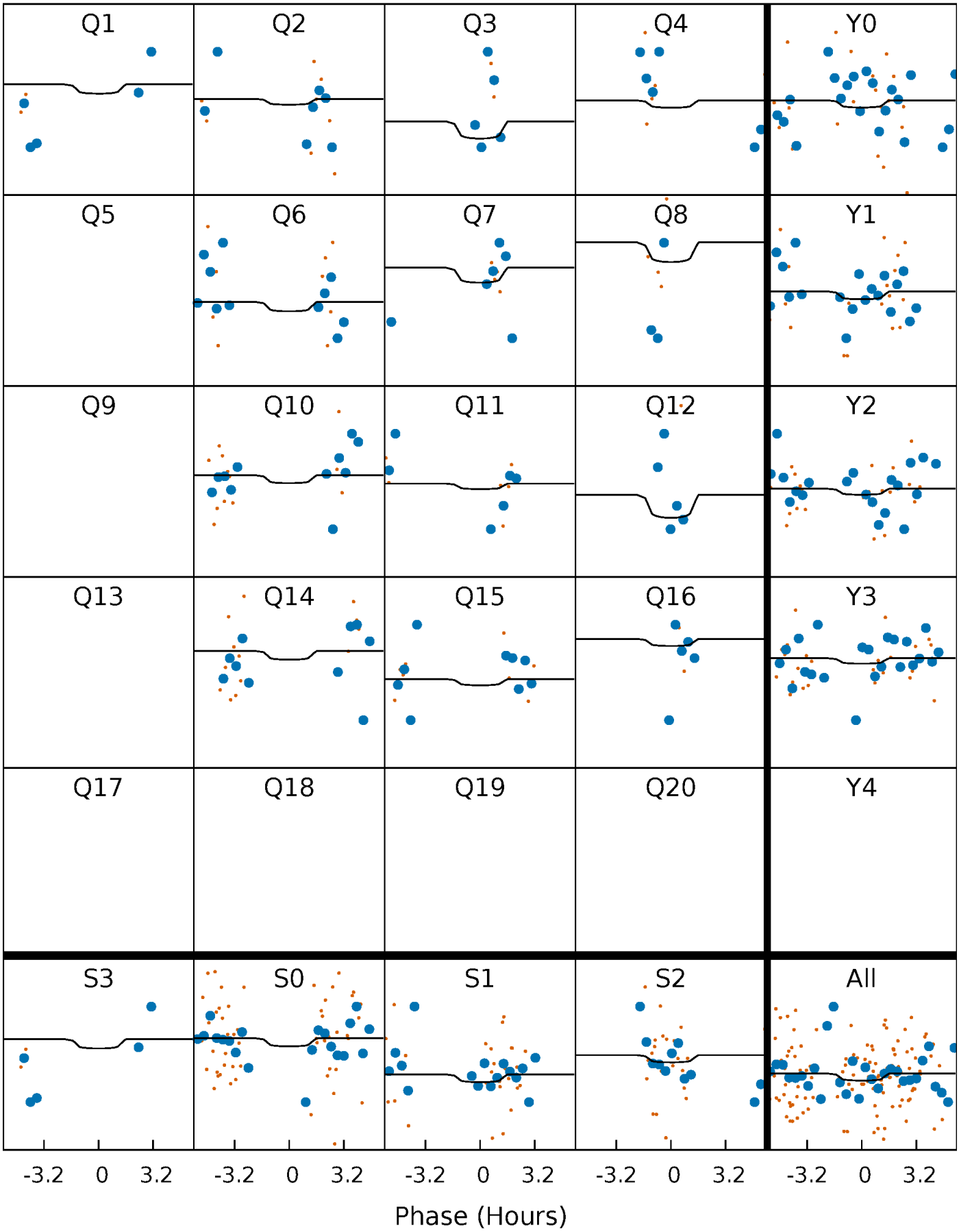
# PDC Quarter-Phased Transit Curves

TCE 006586052-03 P= 10.468215 Days $T_0$=139.047083 (BKJD)



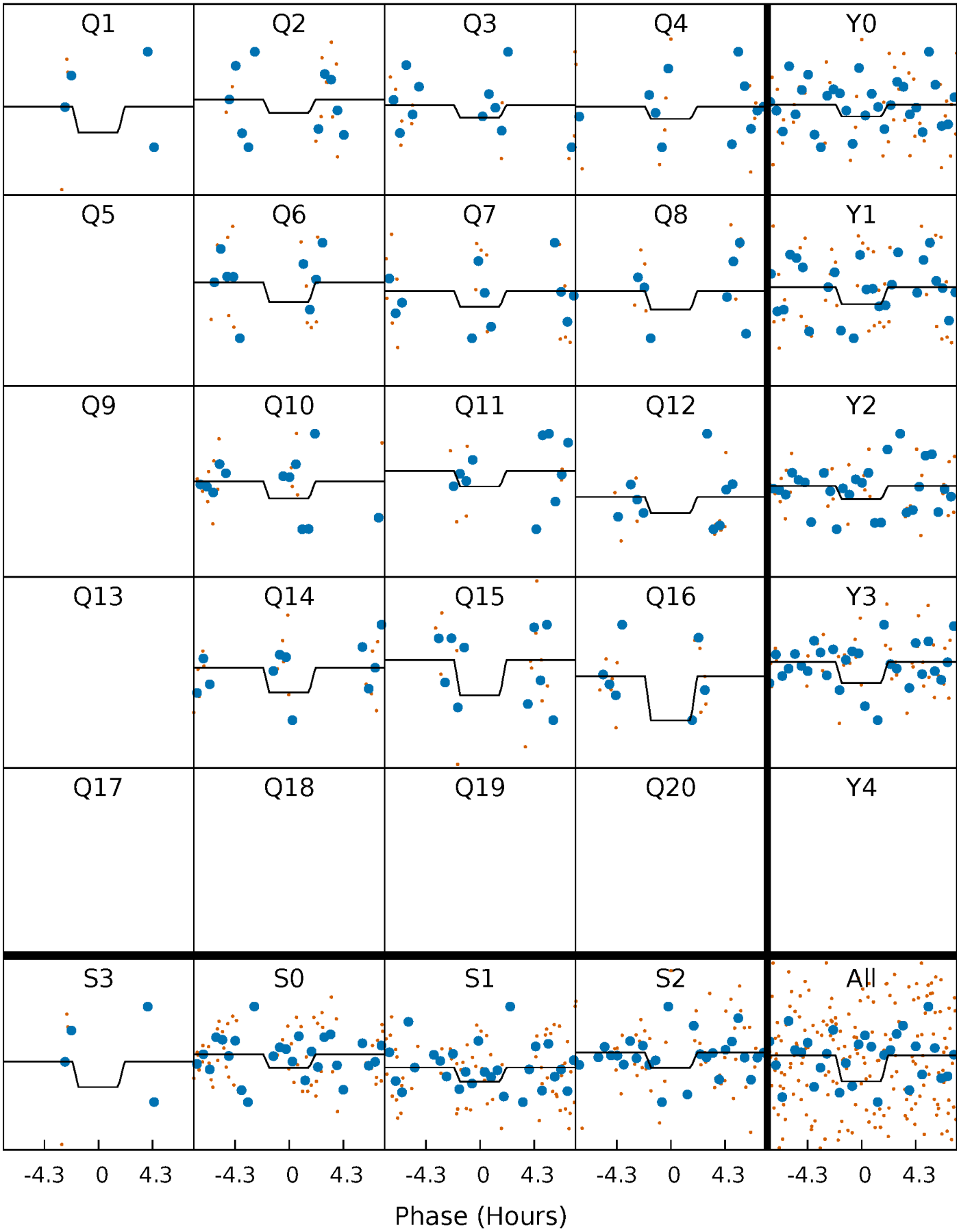
# DV Quarter-Phased Transit Curves

TCE 006586052-03 P= 10.468215 Days $T_0$=139.047083 (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

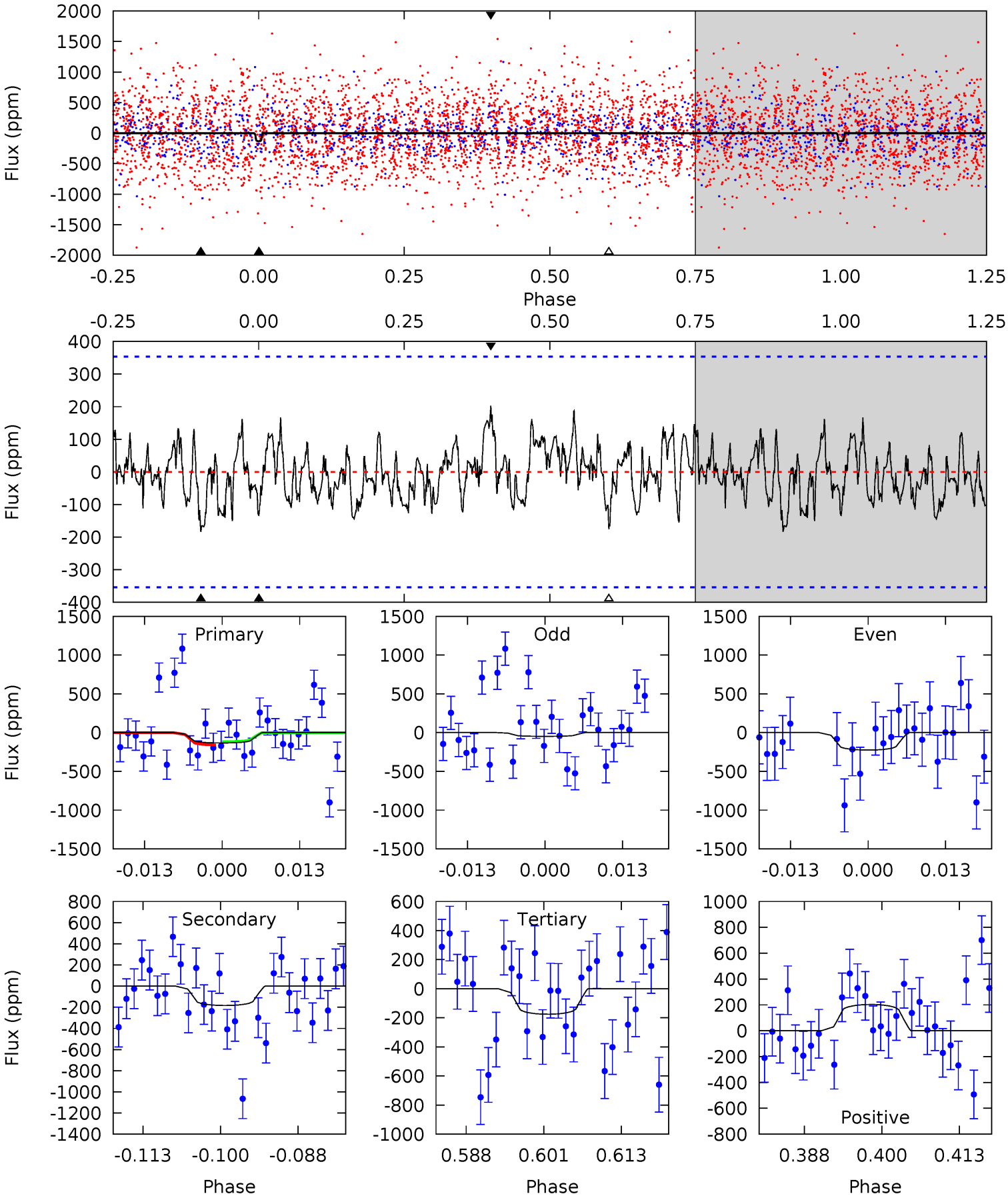
TCE 006586052-03 P= 10.470421 Days $T_0$=138.974690 (BKJD)



# DV Model-Shift Uniqueness Test

006586052-03, P = 10.468215 Days, E = 128.578868 Days

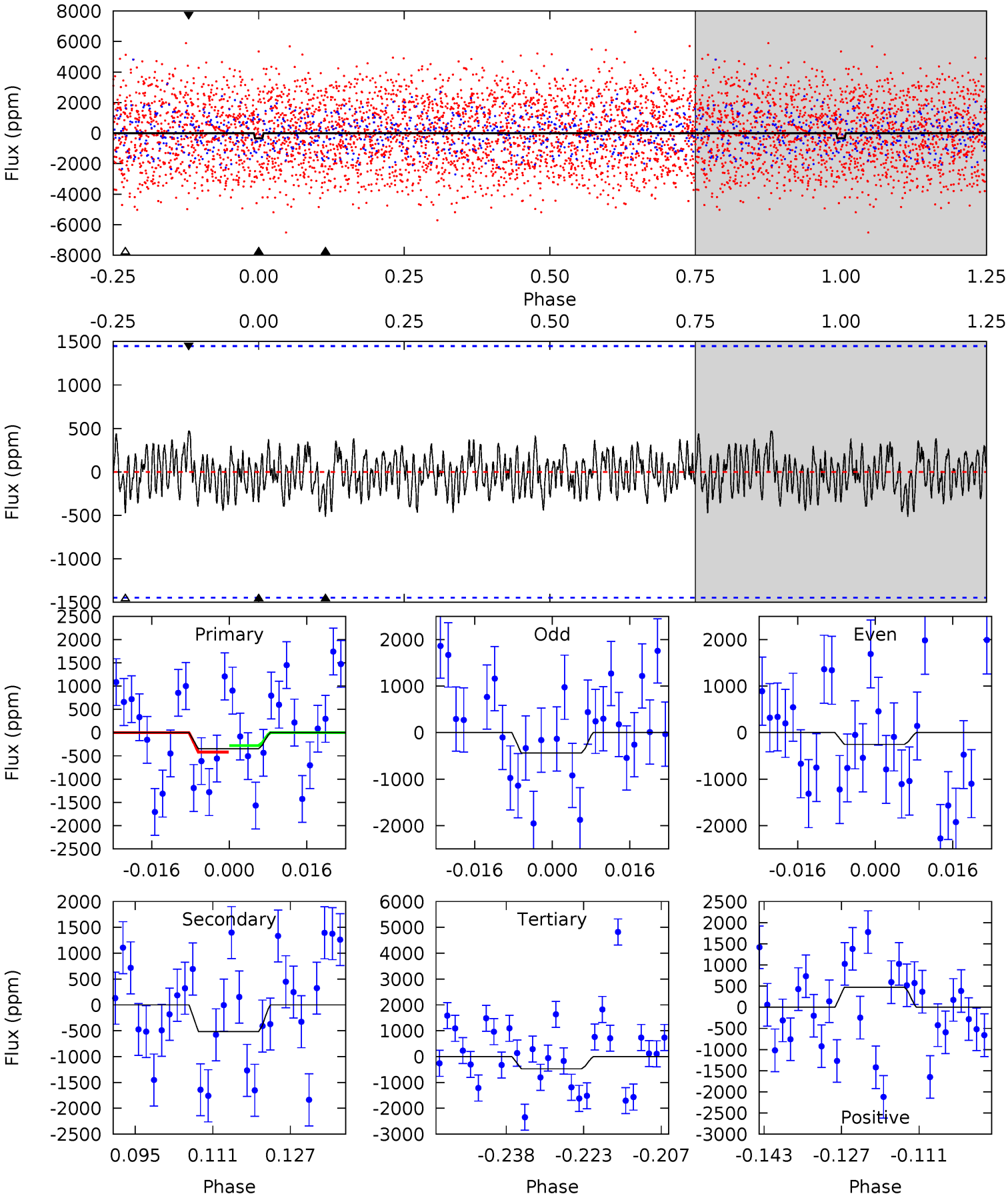
| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.88 | 2.58 | 2.47 | 2.86 | 4.98 | 2.50 | 0.96 | -0.59 | -0.98 | 0.11 | -0.28 | 1.25 | 2.30 | 0.53 | 0.27 |



# Alt Model-Shift Uniqueness Test

006586052-03, P = 10.470421 Days, E = 128.504269 Days

| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.19 | 1.76 | 1.61 | 1.61 | 4.94 | 2.41 | 0.63 | -0.42 | -0.43 | 0.15 | 0.14 | 0.32 | 4.1E7 | 0.48 | 0.24 |



Stellar Parameters For KIC 006586052

| | $T_{\rm eff}(K)$ | $\log(g)$ | [Fe/H] | $R$ ($R_\odot$) | $M(M_\odot)$ | $p_\star$ (g·cm$^{-3}$) |
|---|---|---|---|---|---|---|
| | $7751^{+214}_{-349}$ | $4.061^{+0.139}_{-0.155}$ | $0.070^{+0.200}_{-0.400}$ | $2.068^{+0.533}_{-0.484}$ | $1.794^{+0.181}_{-0.294}$ | $0.286^{+0.224}_{-0.124}$ |
| | +3%/-5% | +3%/-4% | +286%/-571% | +26%/-23% | +10%/-16% | +78%/-44% |
| Source | KIC0 | 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 006586052-03 / KOI

| Detrend | Depth (ppm) | $R_p$ ($R_\oplus$) | $T_{max}$ (K) | $T_{obs}$ (K) | $A_{obs}$ |
|---|---|---|---|---|---|
| DV | -183±71 | $6.62^{+6.94}_{-4.56}$ | $2021^{+148}_{-127}$ | $5088^{+4566}_{-1293}$ | $28^{+269}_{-22}$ |
| Alt. | -515±293 | $9.31^{+7.61}_{-6.24}$ | $2029^{+134}_{-126}$ | $5471^{+5609}_{-1429}$ | $36^{+327}_{-28}$ |

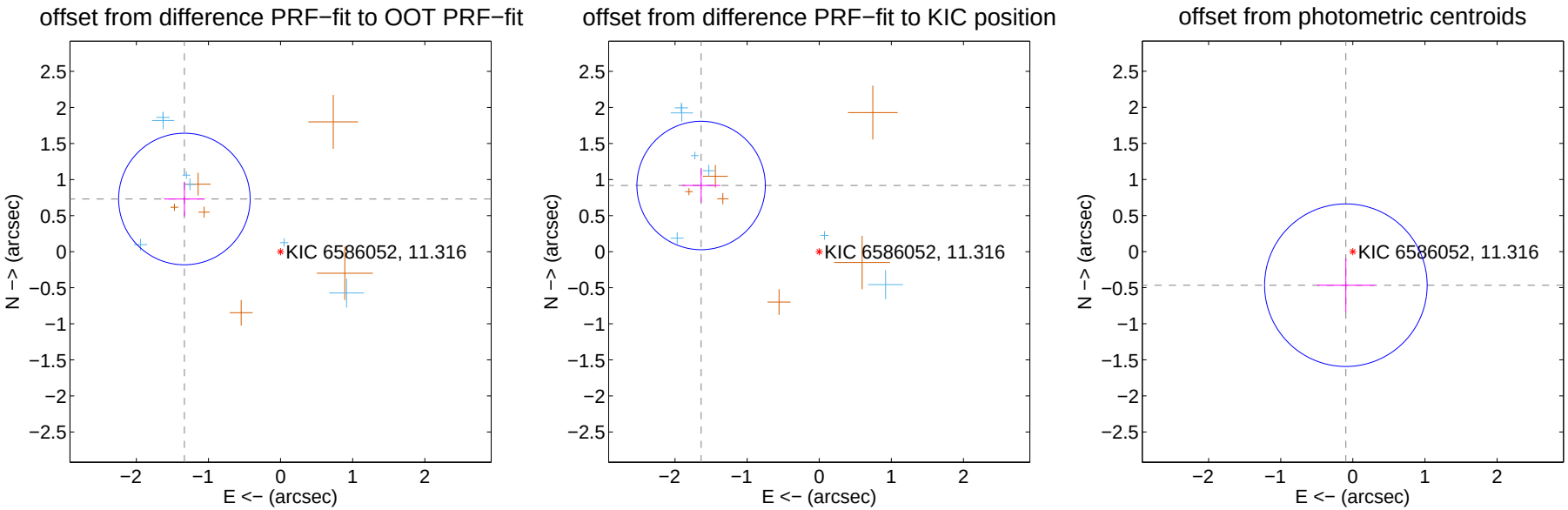
$T_{max}$ = Theoretical Maximum Planetary Temperature
$T_{obs}$ = Observed Planetary Temperature (Assuming A=0.3)
$A_{obs}$ = Observed Albedo (Assuming T=0)

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

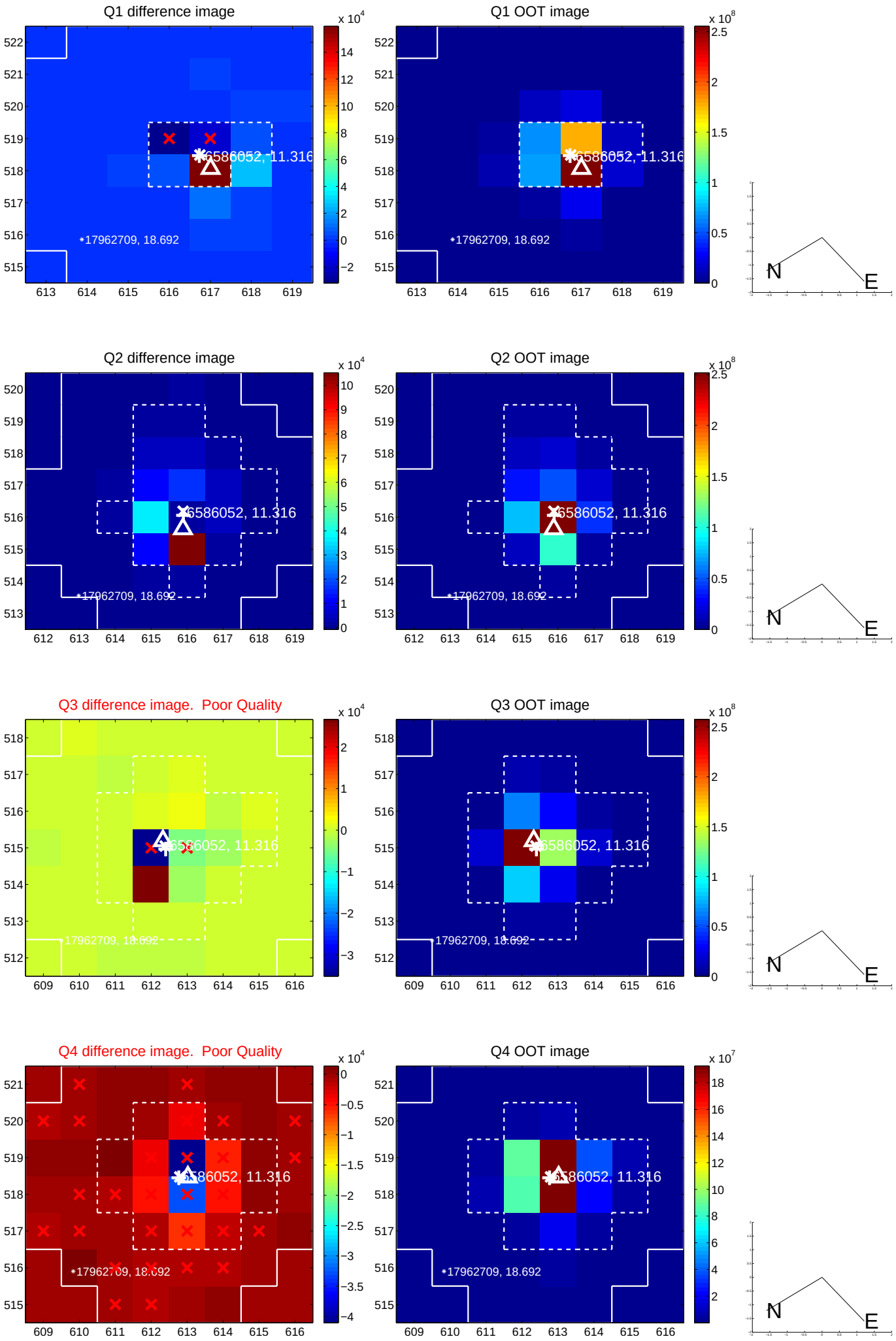
Supplemental centroid analysis for 006586052-03. Kepler magnitude: 11.32. Transit SNR 3.39
There are 7 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

| | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA | $\Delta$ Dec |
|---|---|---|---|---|
| PRF-fit source offset from OOT | 1.520 ± 0.304 | 5.00 | 1.334 ± 0.282 | 0.730 ± 0.239 |
| PRF-fit source offset from KIC position | 1.877 ± 0.297 | 6.33 | 1.638 ± 0.265 | 0.917 ± 0.236 |
| photometric centroid source offset | 0.48 ± 0.38 | 1.27 | 0.10 ± 0.40 | -0.47 ± 0.37 |

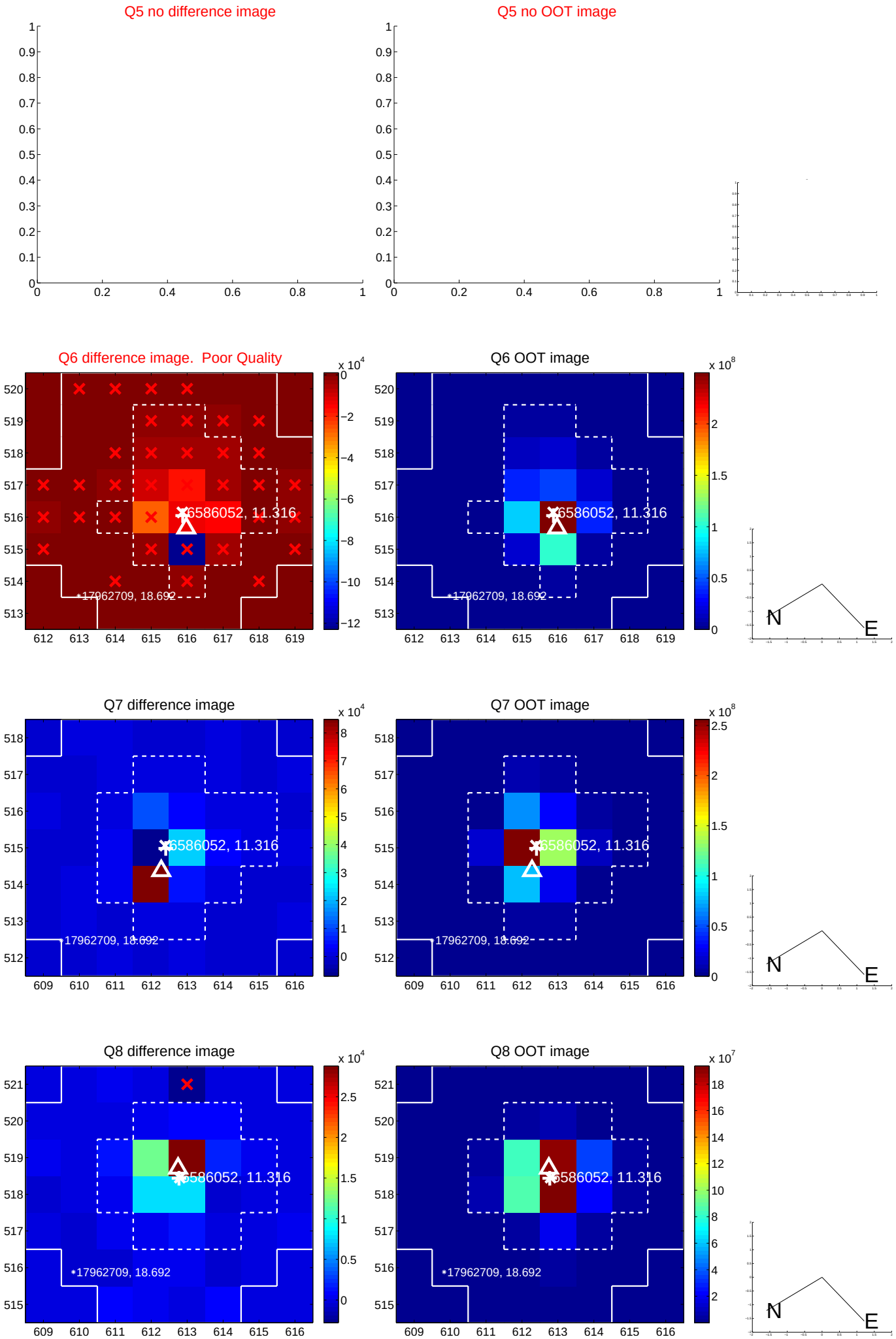



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-$\sigma$ uncertainty. Blue circle: three-$\sigma$.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

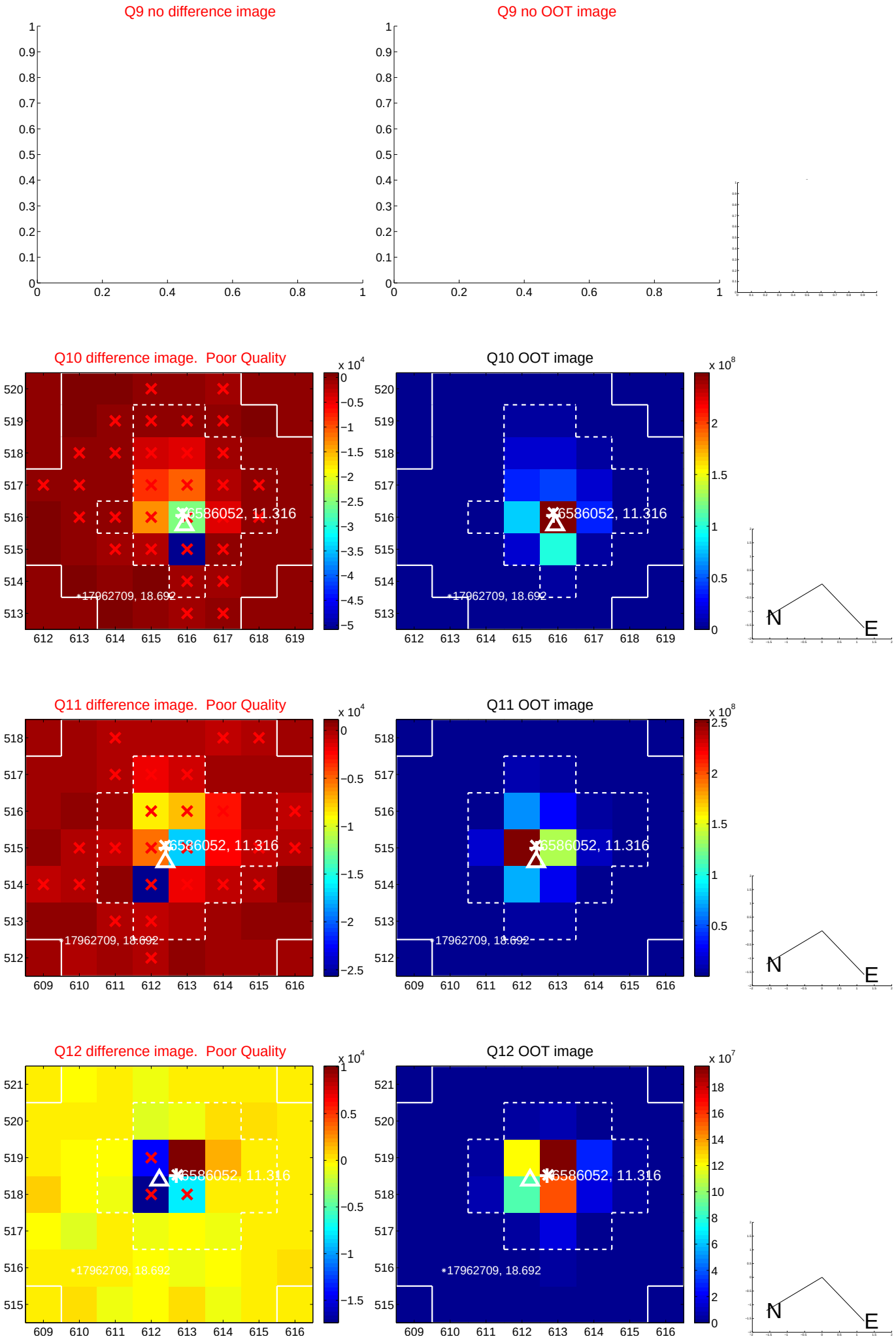
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



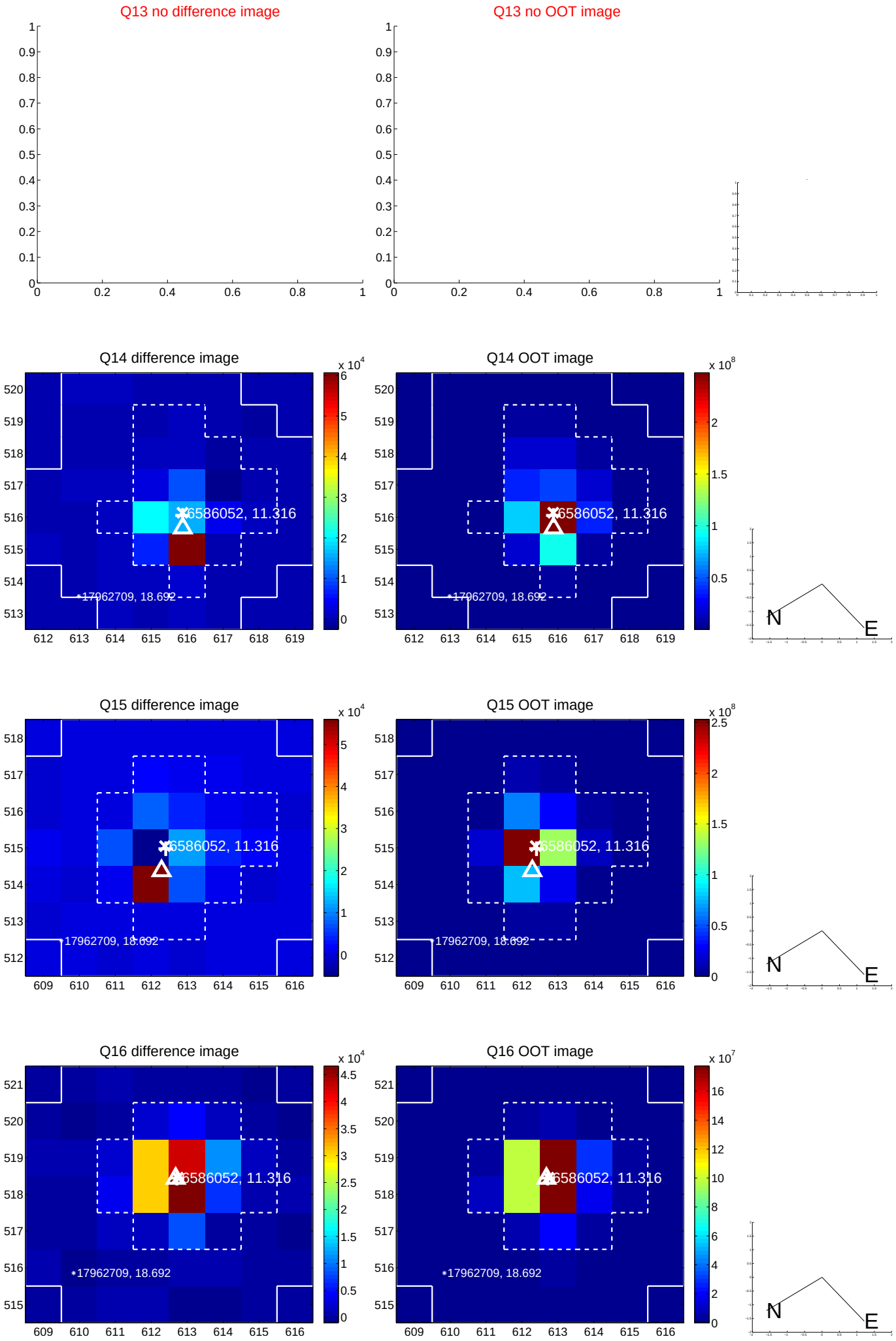
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



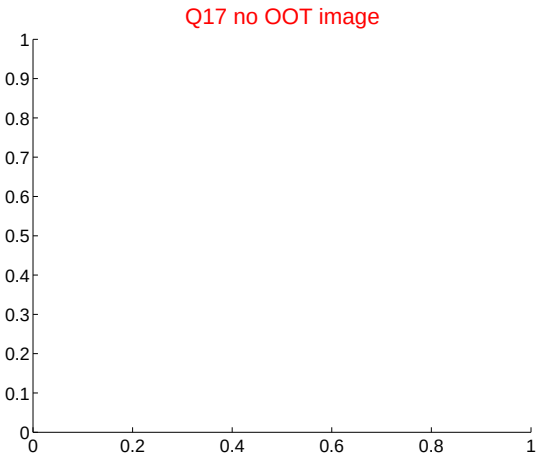
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

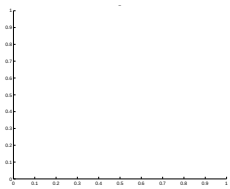


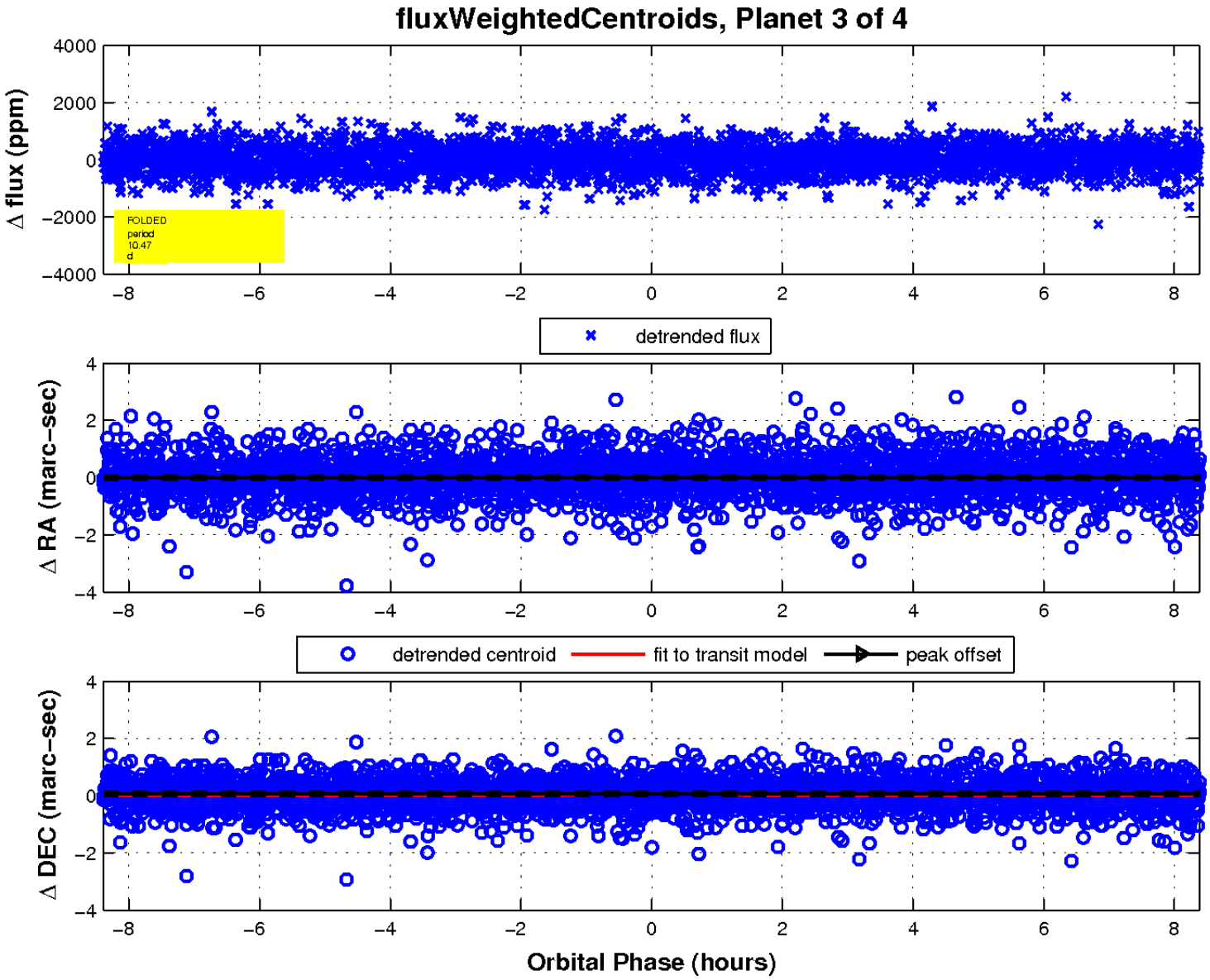
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



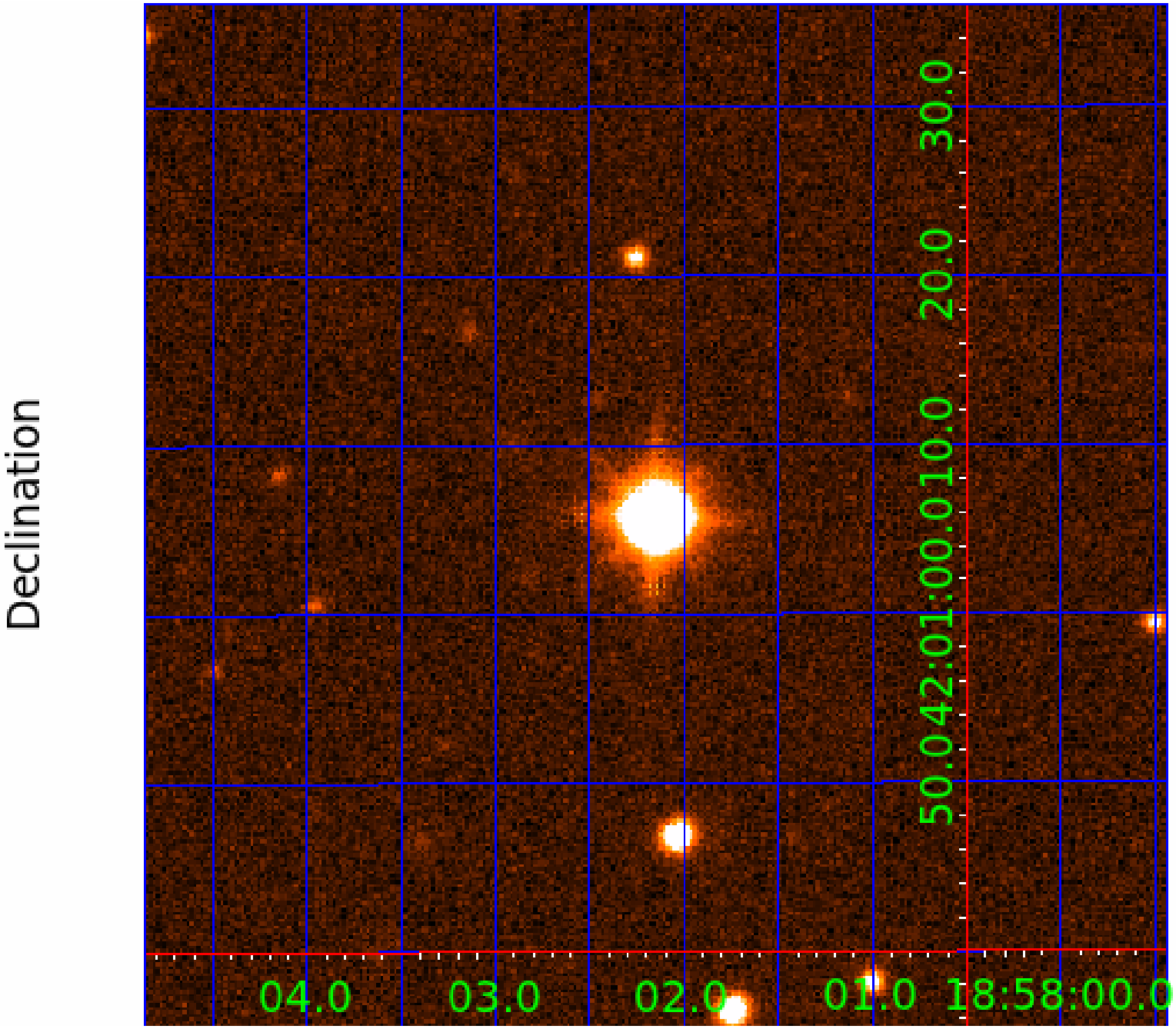
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.





**UKIRT Image**



# KIC 006586052

## 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) | $R_p$ ($R_\oplus$) | $S_p$ ($S_\oplus$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | No | 0.597750 | 132.002259 | 63.6 | 4.288 | 11.3 | 13.8 | 2.07 | 7751 | 1.78 | 48528.79 |
| 006586052-02 | OBS | No | 23.116596 | 152.971340 | 668.5 | 4.572 | 10.2 | 12.6 | 2.07 | 7751 | 10.01 | 371.07 |
| 006586052-03 | OBS | No | 10.468215 | 139.047083 | 114.5 | 2.797 | 10.8 | 3.4 | 2.07 | 7751 | 2.35 | 1067.08 |
| 006586052-04 | OBS | No | 6.431826 | 131.579024 | 111.6 | 4.468 | 11.6 | 4.8 | 2.07 | 7751 | 2.34 | 2042.90 |

## Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|---|---|---|---|---|---|---|---|---|
| 006586052-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—CENT_SATURATED |
| 006586052-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-03 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |
| 006586052-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED |

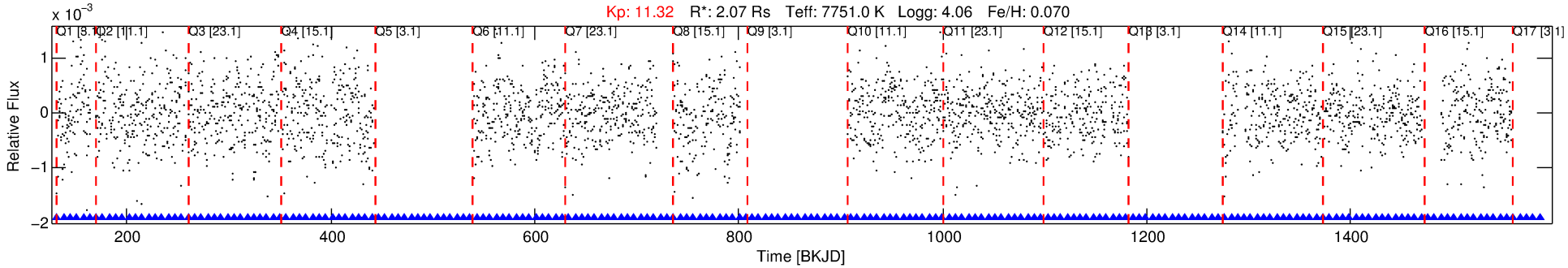
**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

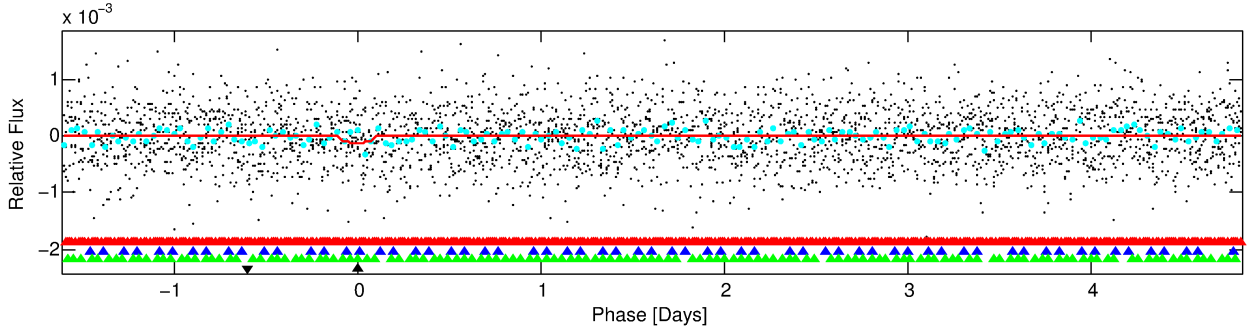
## Ephemeris Match Information For 006586052-04

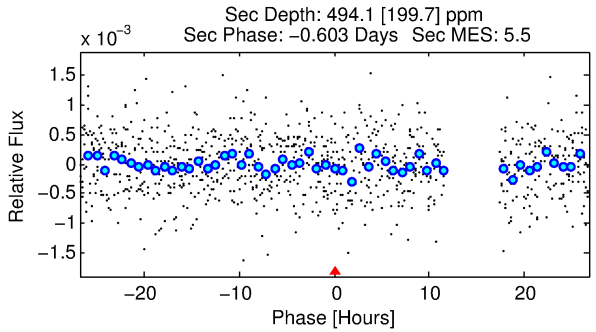
No Significant Match Found

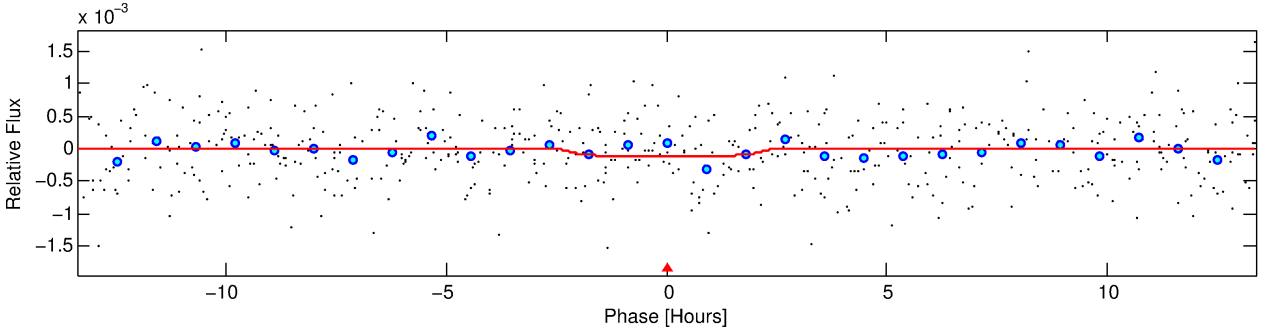
# DV One-Page Summary

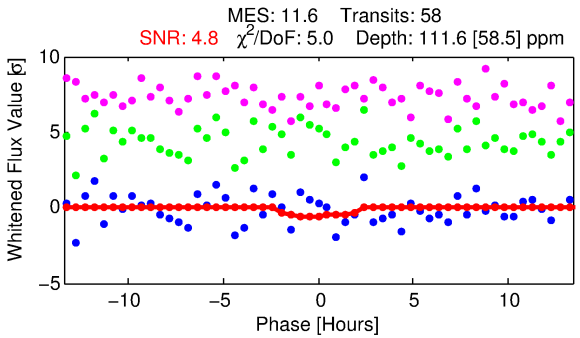
**KIC: 6586052 Candidate: 4 of 4 Period: 6.432 d**

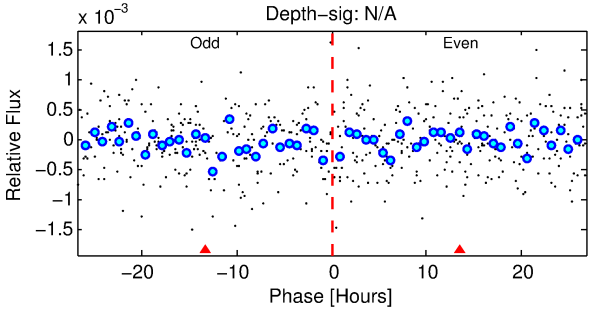


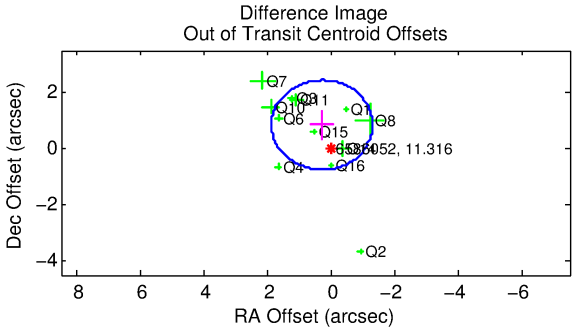




DV Fit Results:

Period = 6.43183 [0.00032] d
Epoch = 131.5790 [0.0396] BKJD
Rp/R* = 0.0104 [0.0291]
a/R* = 8.05 [137.85]
b = 0.70 [12.73]

Seff = 2042.90 [703.46]
Teq = 1714 [148] K
Rp = 2.34 [6.59] Re
a = 0.0823 [0.0172] AU

Ag = 335.59 [1889.21] [0.18σ]
Teffp = 11344 [15952] K [0.60σ]

DV Diagnostic Results:

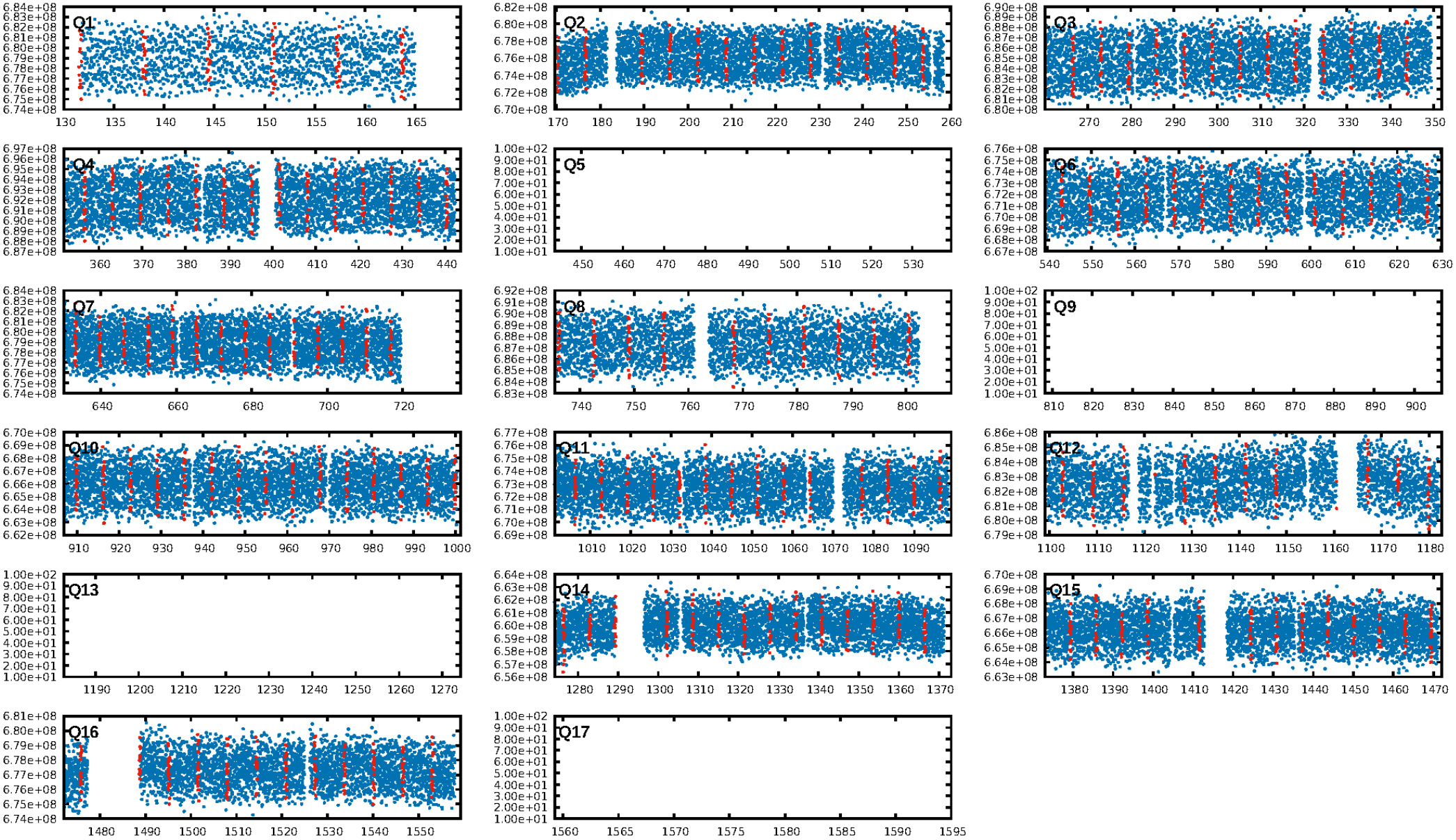
ShortPeriod−sig: 100.0% [22.61σ]
LongPeriod−sig: 100.0% [18.38σ]
ModelChiSquare2−sig: 0.0%
ModelChiSquareGof−sig: 100.0%
Bootstrap−pfa: 3.56e−13
RollingBand−fgt: 1.00 [56/56]
GhostDiagnostic−chr: −0.3758

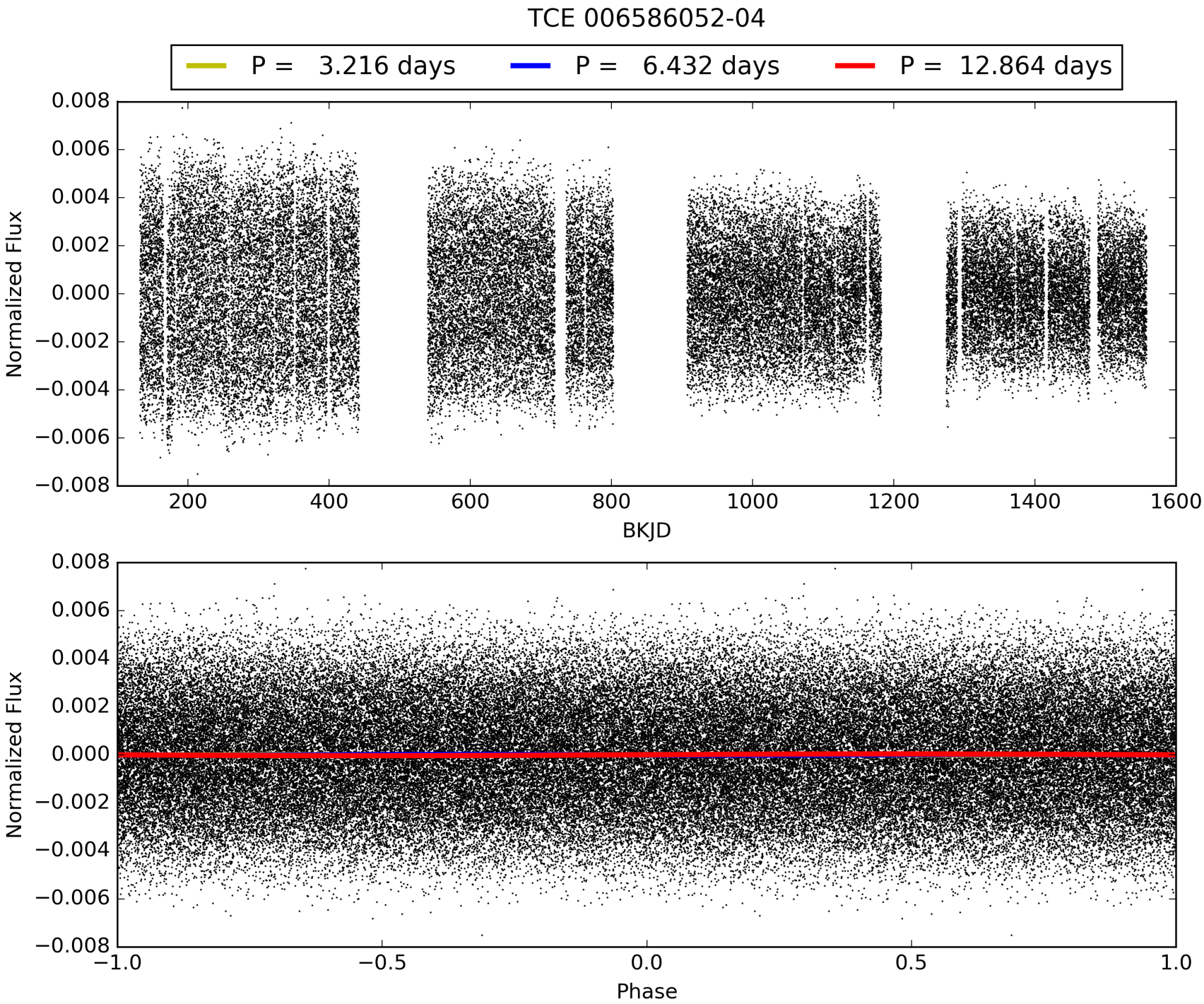
Centroid−sig: 73.1%
Centroid−so: 0.085 arcsec [0.34σ]
OotOffset−rm: 0.893 arcsec [1.68σ]
KicOffset−rm: 1.058 arcsec [2.07σ]
OotOffset−st: 4/4/3/1 [12]
KicOffset−st: 4/4/3/1 [12]
DiffImageQuality−fgm: 0.50 [6/12]
DiffImageOverlap−fno: 0.00 [0/13]

**Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01−Feb−2016 20:45:38 Z**

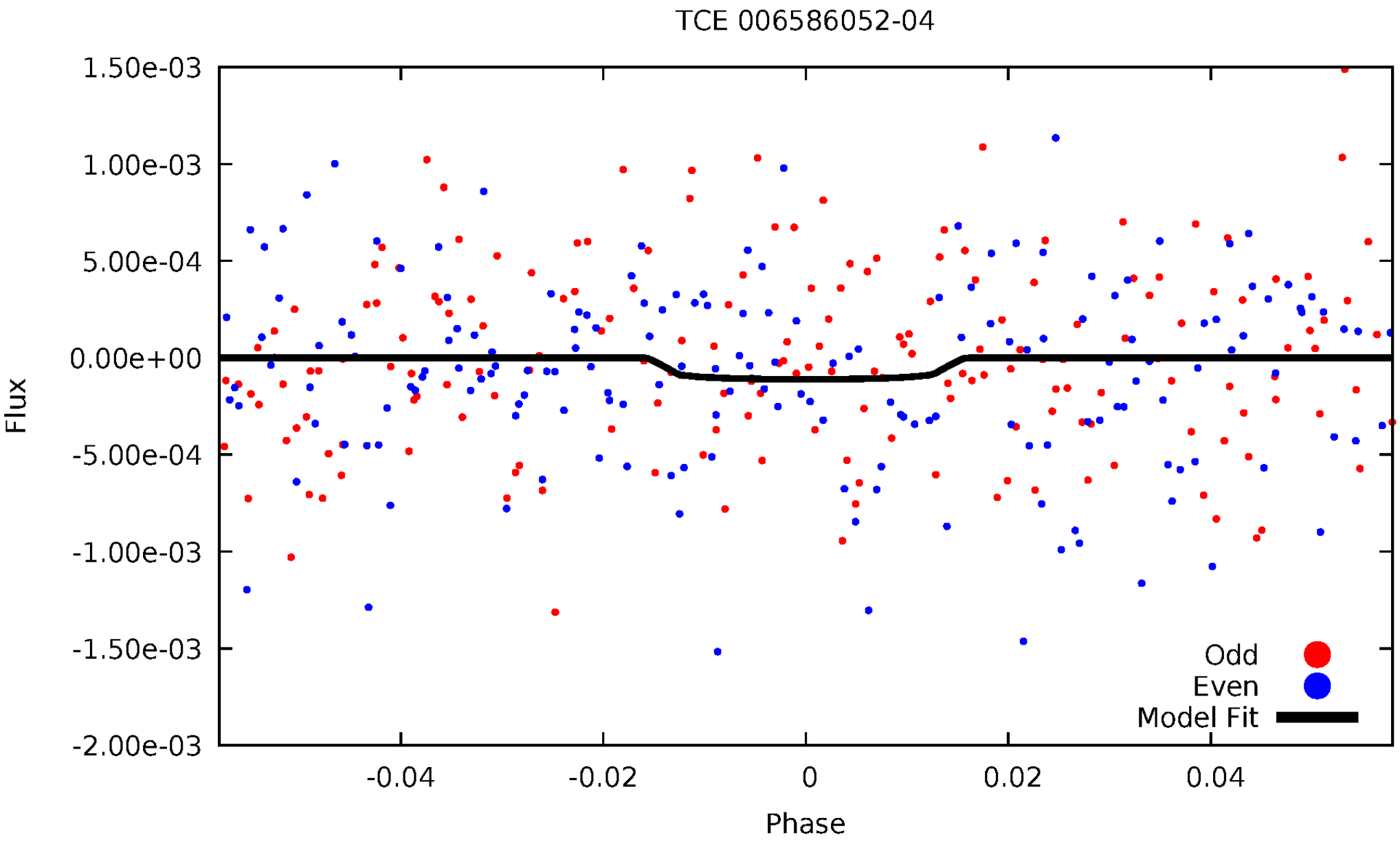
**This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center**

# TCE 006586052-04, PDC Light Curves

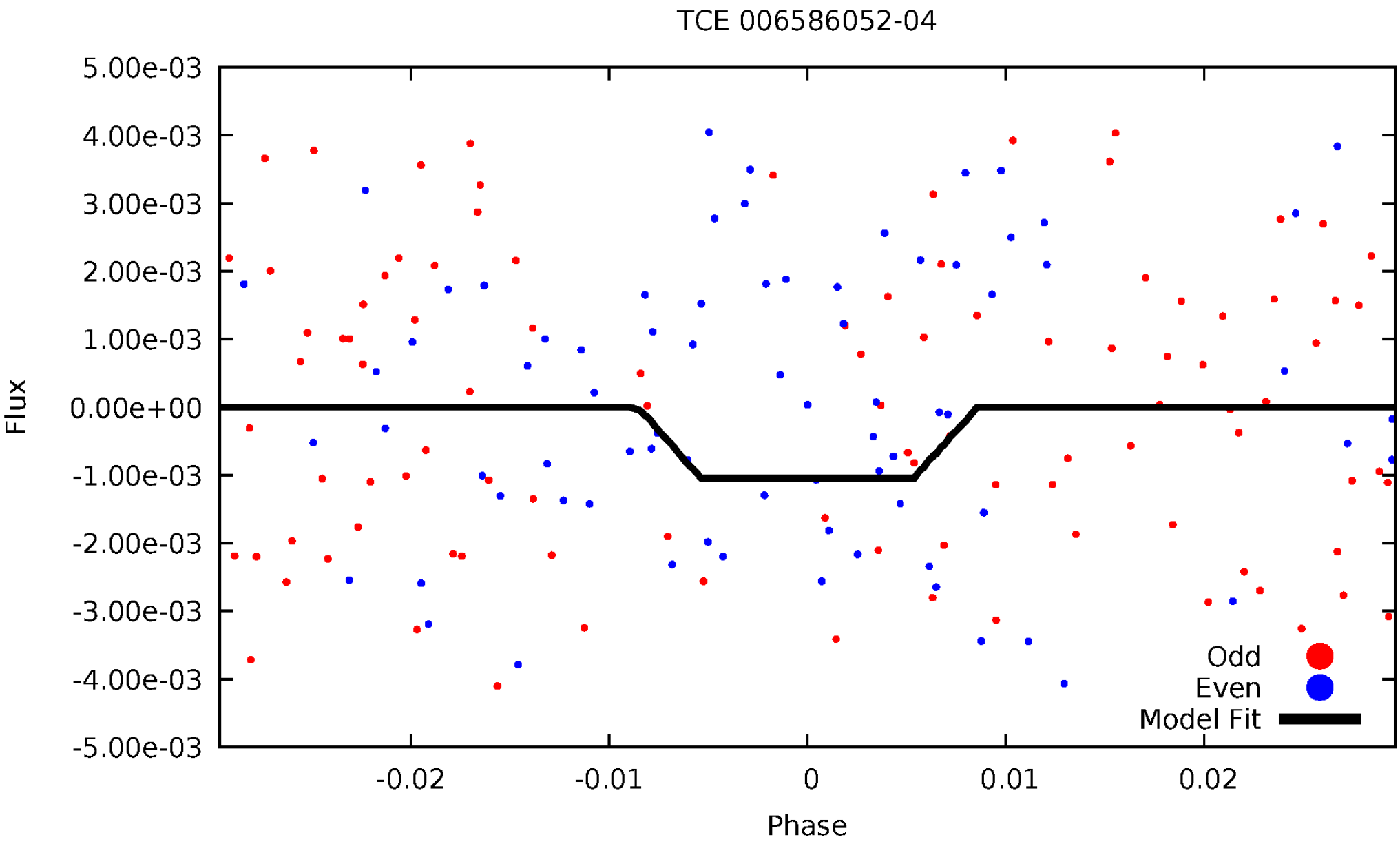



TCE 006586052-04
P = 3.216 days
P = 6.432 days
P = 12.864 days
Normalized Flux
BKJD
Normalized Flux
Phase

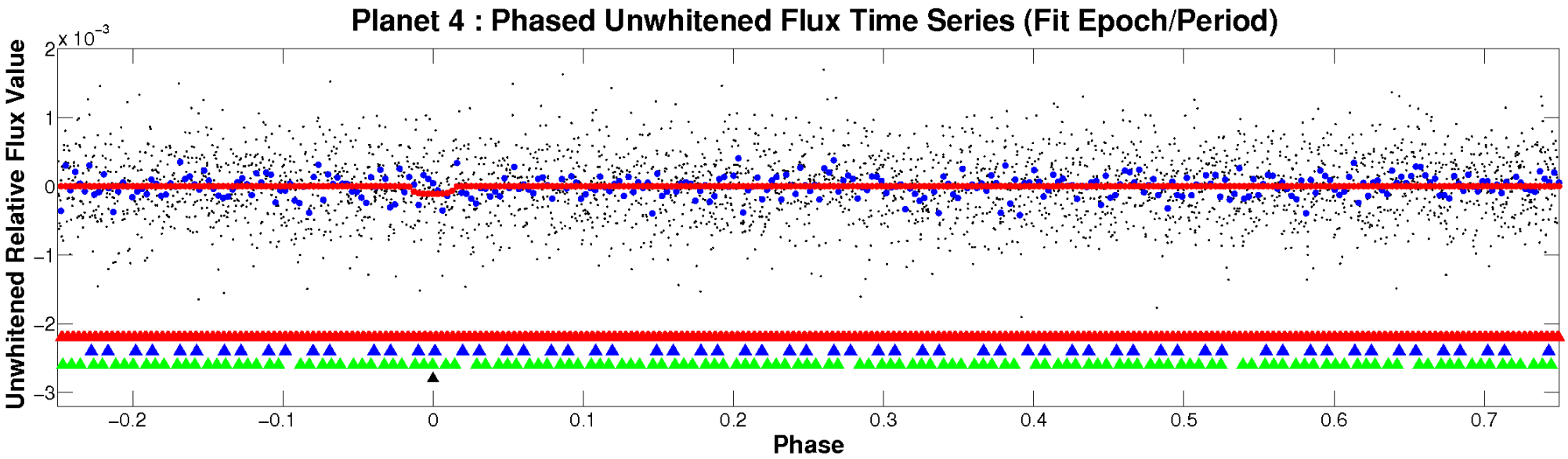
# DV Odd/Even

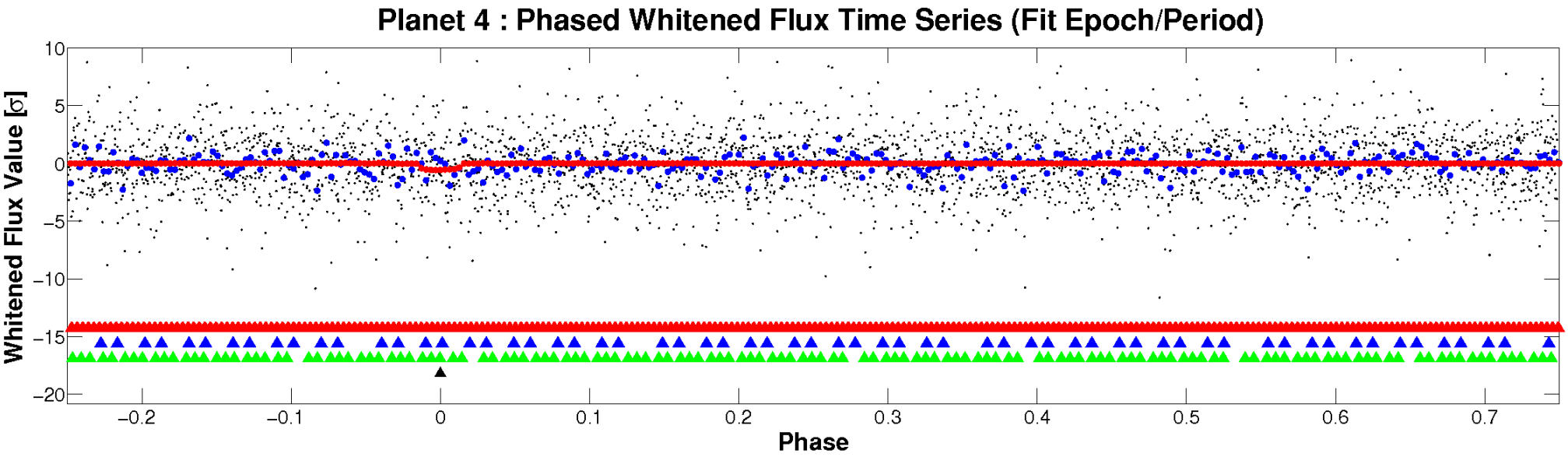

TCE 006586052-04
1.50e-03
1.00e-03
5.00e-04
0.00e+00
-5.00e-04
-1.00e-03
-1.50e-03
-2.00e-03
Flux
-0.04
-0.02
0
0.02
0.04
Phase
Odd
Even
Model Fit

**ALT Odd/Even**


TCE 006586052-04
5.00e-03
4.00e-03
3.00e-03
2.00e-03
1.00e-03
0.00e+00
-1.00e-03
-2.00e-03
-3.00e-03
-4.00e-03
-5.00e-03
Flux
-0.02
-0.01
0
0.01
0.02
Phase
Odd
Even
Model Fit

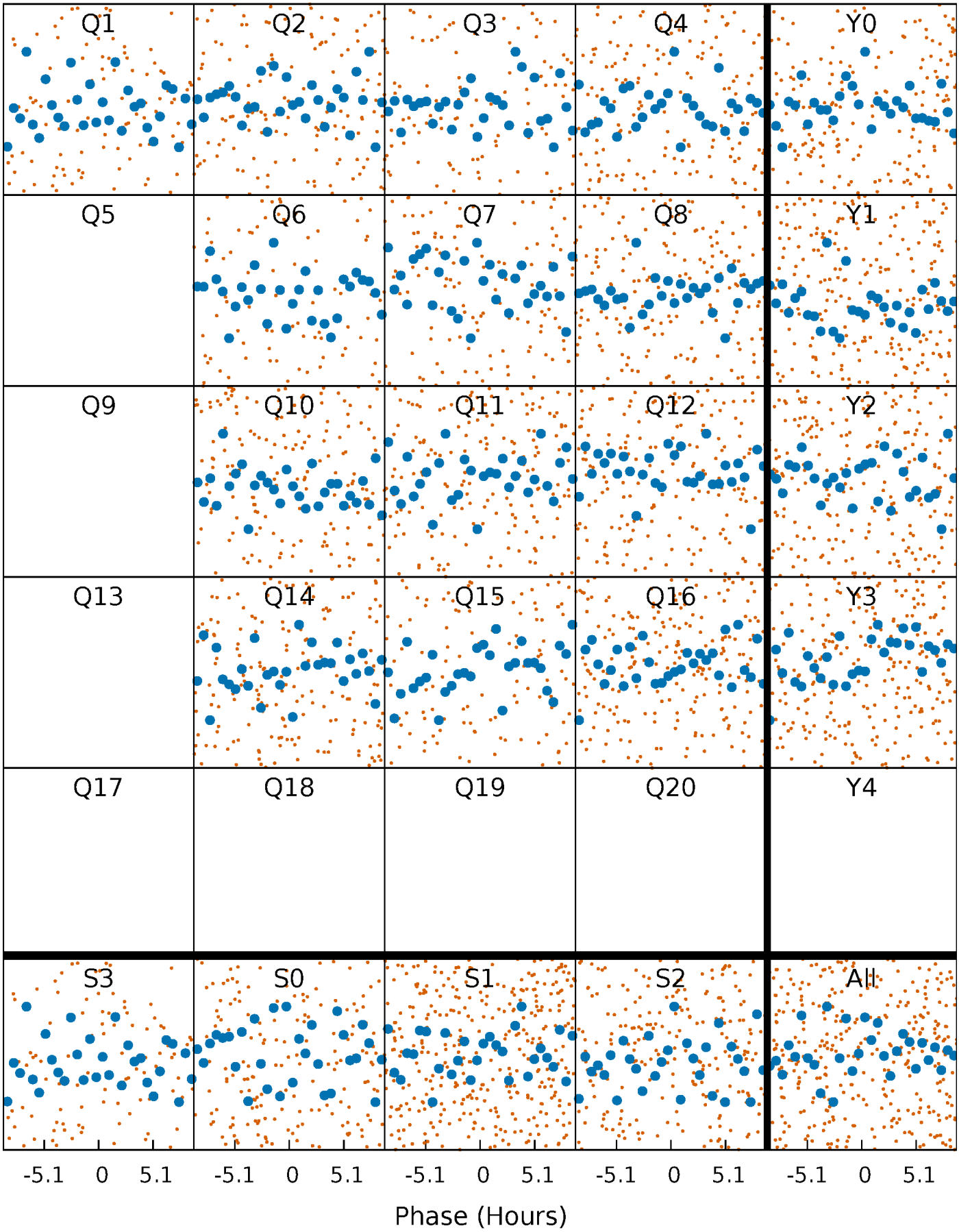
# Non-Whitened Vs. Whitened Light Curve



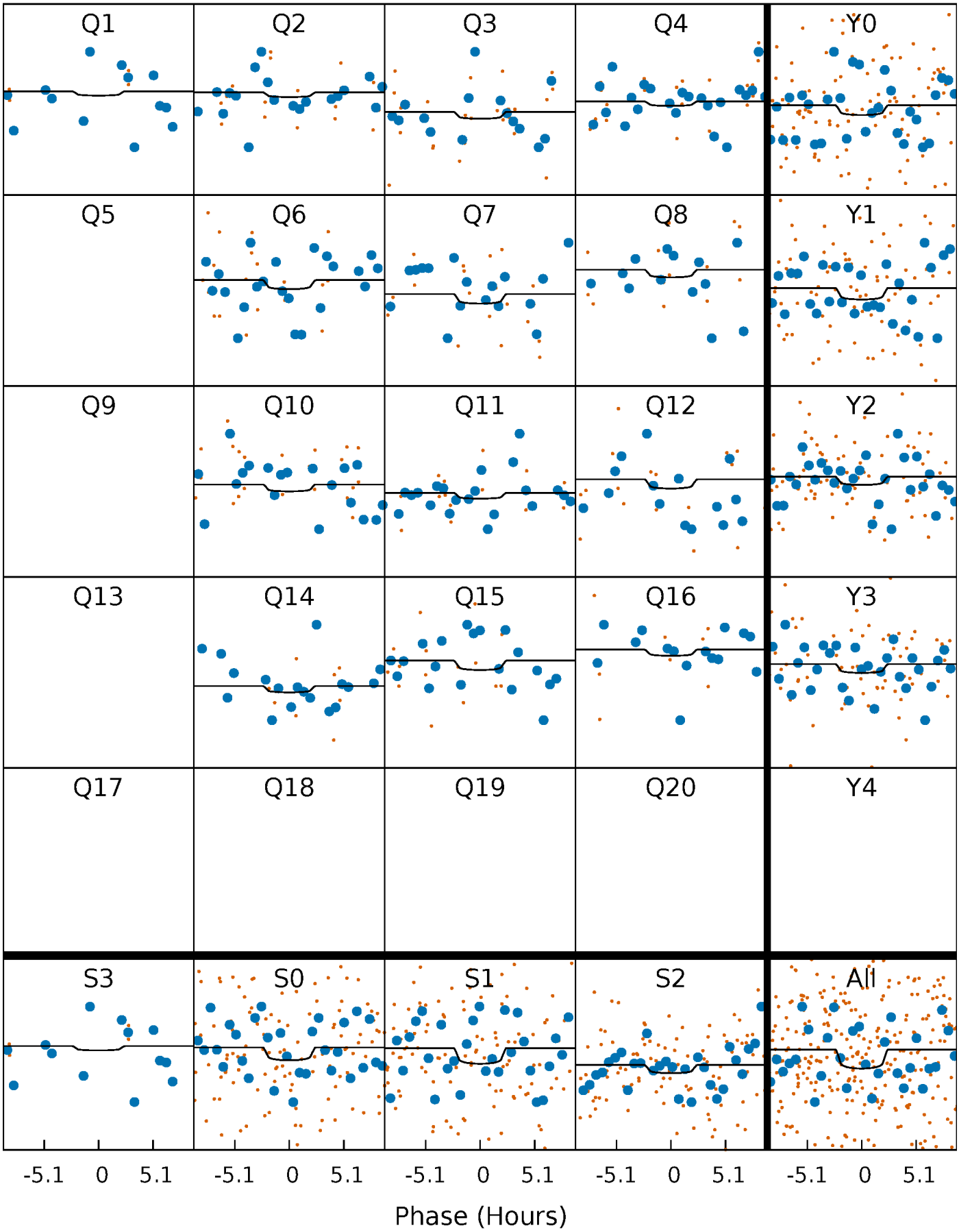
# PDC Quarter-Phased Transit Curves

TCE 006586052-04 P= 6.431826 Days $T_0$=131.579024 (BKJD)



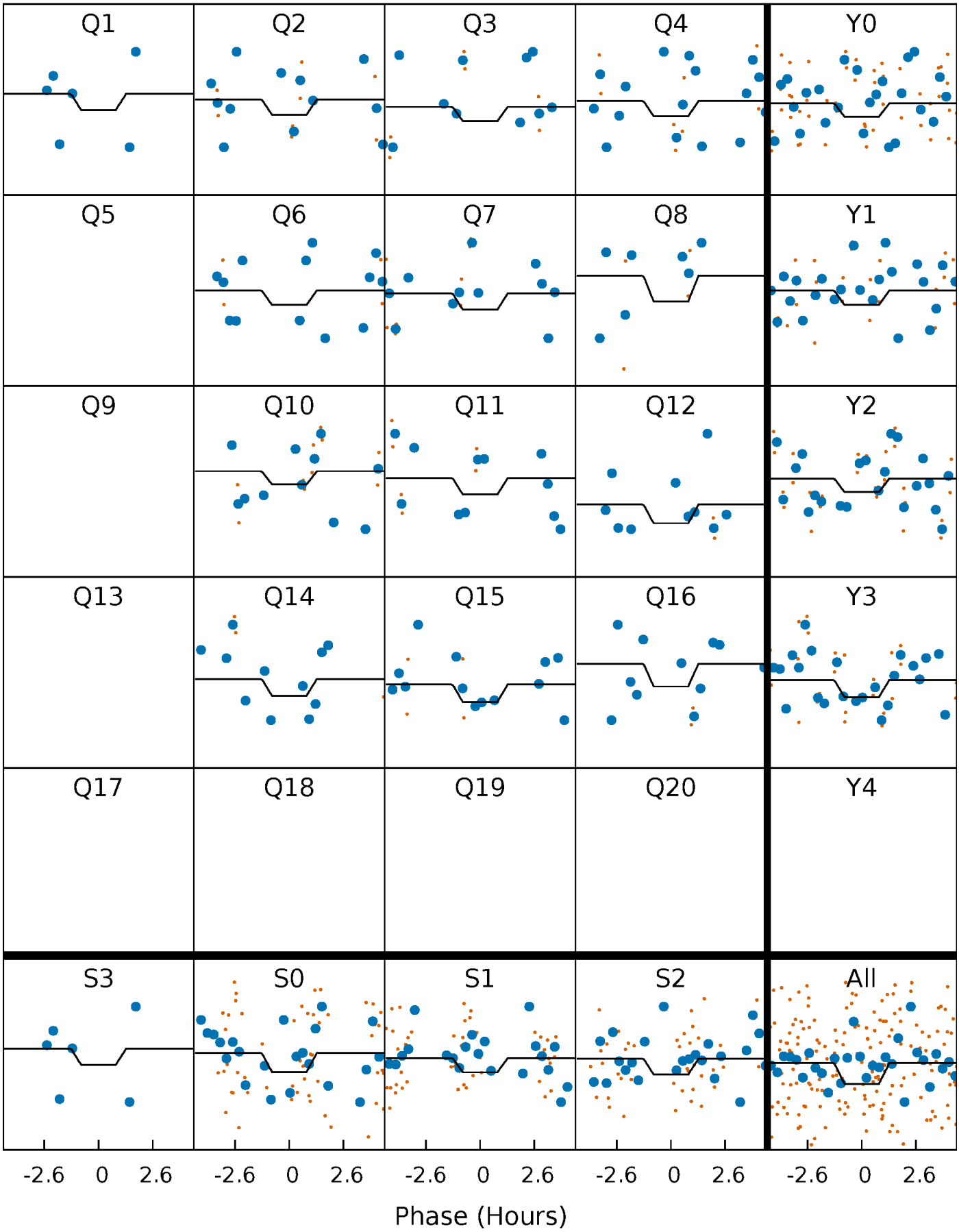
# DV Quarter-Phased Transit Curves

TCE 006586052-04 P= 6.431826 Days $T_0$=131.579024 (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

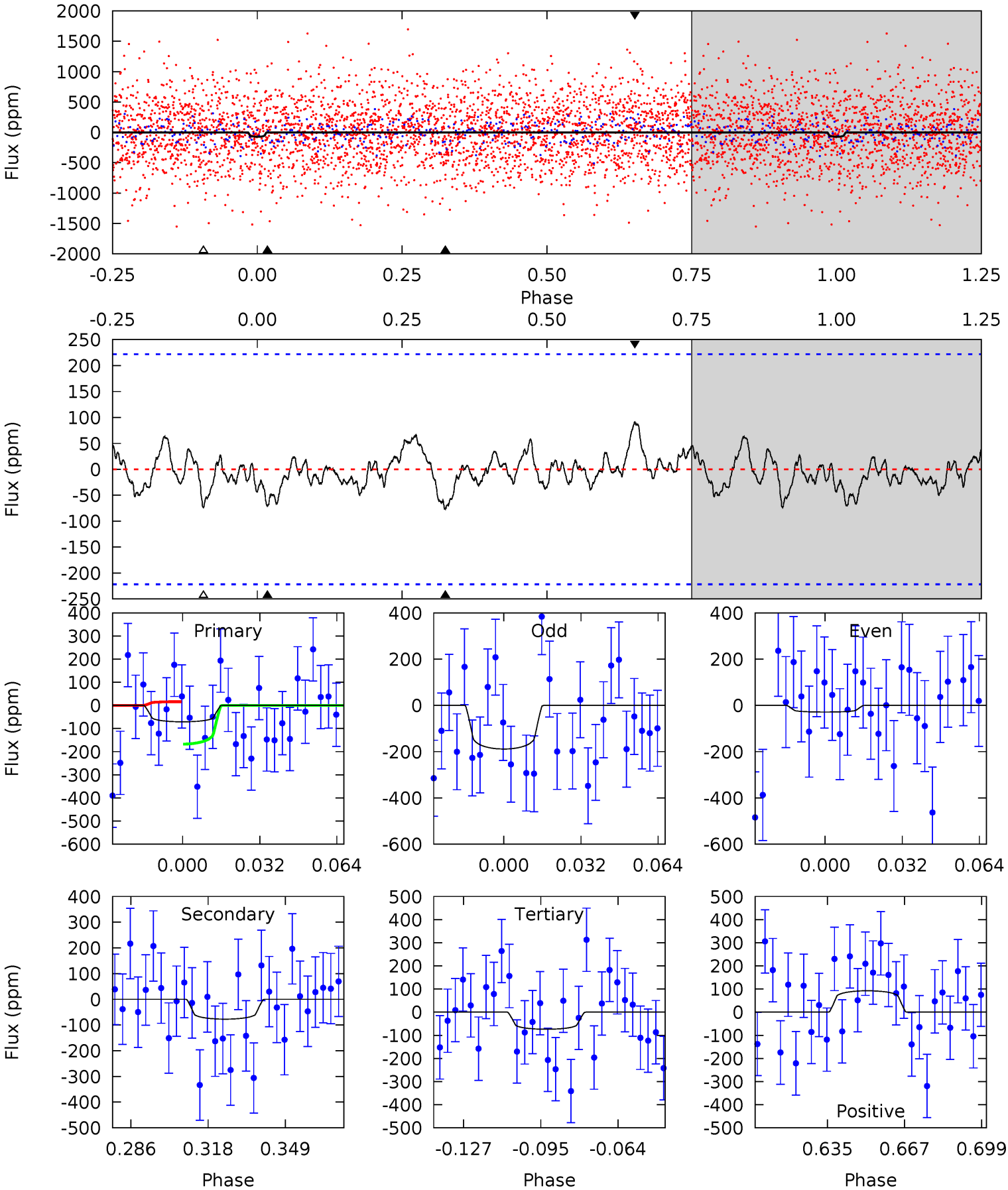
TCE 006586052-04 P= 6.430746 Days $T_0$=131.918232 (BKJD)



# DV Model-Shift Uniqueness Test

006586052-04, P = 6.431826 Days, E = 131.579024 Days

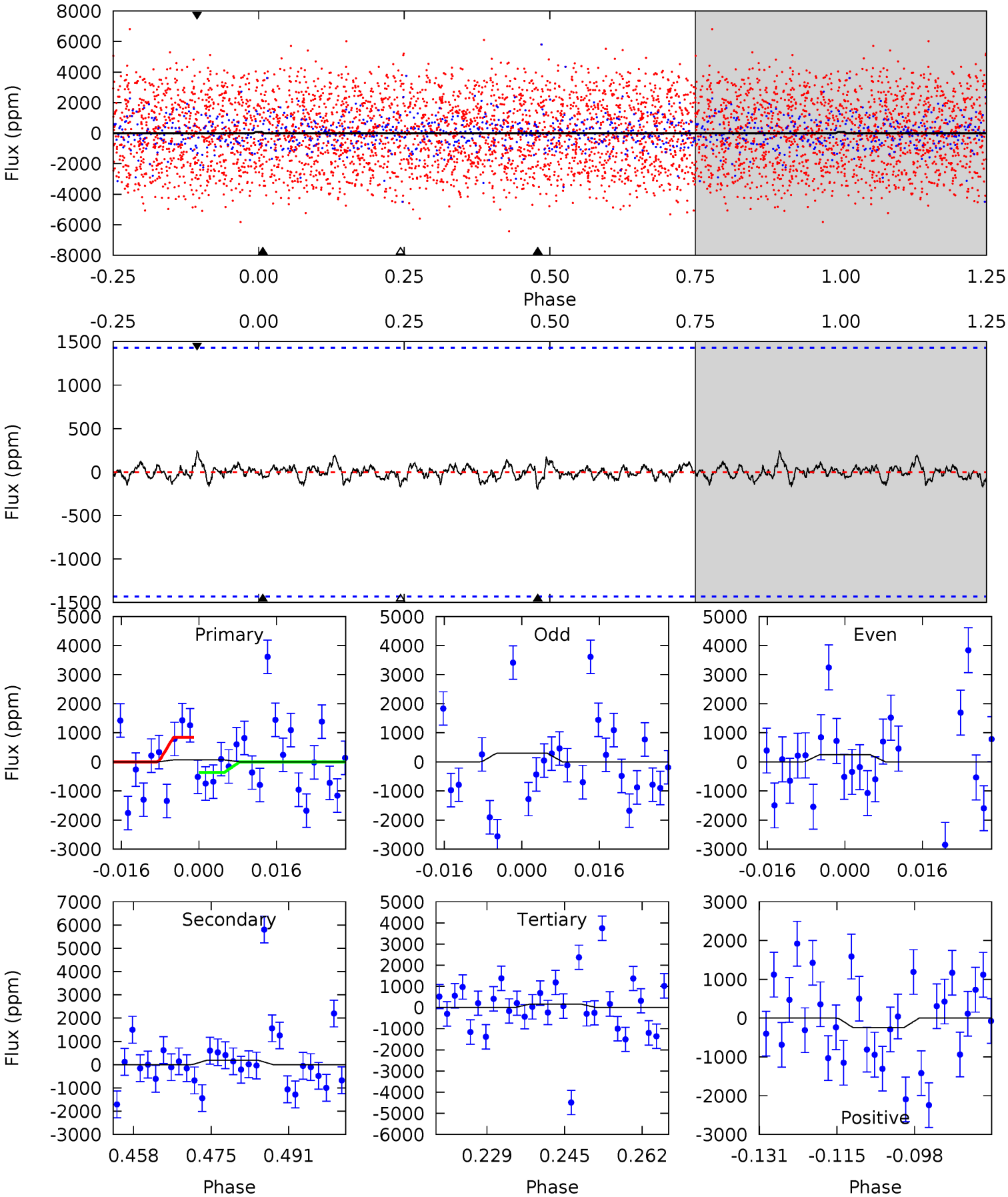
| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.54 | 1.67 | 1.60 | 2.00 | 4.80 | 2.15 | 0.60 | -0.06 | -0.46 | 0.07 | -0.33 | 1.75 | -6.73 | 0.54 | 1.66 |



# Alt Model-Shift Uniqueness Test

006586052-04, P = 6.430746 Days, E = 125.487486 Days

| Pri | Sec | Ter | Pos | $FA_1$ | $FA_2$ | $F_{Red}$ | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.24 | 0.66 | 0.57 | 0.85 | 4.93 | 2.40 | 0.22 | -0.33 | -0.61 | 0.09 | -0.19 | 0.08 | 4.0E6 | 0.56 | 0.80 |



Stellar Parameters For KIC 006586052

| | $T_{\rm eff}(K)$ | $\log(g)$ | [Fe/H] | $R$ ($R_\odot$) | $M(M_\odot)$ | $p_\star$ (g·cm$^{-3}$) |
|---|---|---|---|---|---|---|
| | $7751^{+214}_{-349}$ | $4.061^{+0.139}_{-0.155}$ | $0.070^{+0.200}_{-0.400}$ | $2.068^{+0.533}_{-0.484}$ | $1.794^{+0.181}_{-0.294}$ | $0.286^{+0.224}_{-0.124}$ |
| | +3%/-5% | +3%/-4% | +286%/-571% | +26%/-23% | +10%/-16% | +78%/-44% |
| Source | KIC0 | 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 006586052-04 / KOI

| Detrend | Depth (ppm) | $R_p$ ($R_\oplus$) | $T_{max}$ (K) | $T_{obs}$ (K) | $A_{obs}$ |
|---|---|---|---|---|---|
| DV | -77±46 | $5.31^{+5.66}_{-3.60}$ | $2402^{+159}_{-160}$ | $4573^{+3767}_{-1299}$ | $8.340^{+79.478}_{-6.905}$ |
| Alt. | -192±290 | $8.42^{+6.29}_{-5.48}$ | $2398^{+171}_{-156}$ | $4496^{+3199}_{-8576}$ | $7.728^{+64.946}_{-11.452}$ |

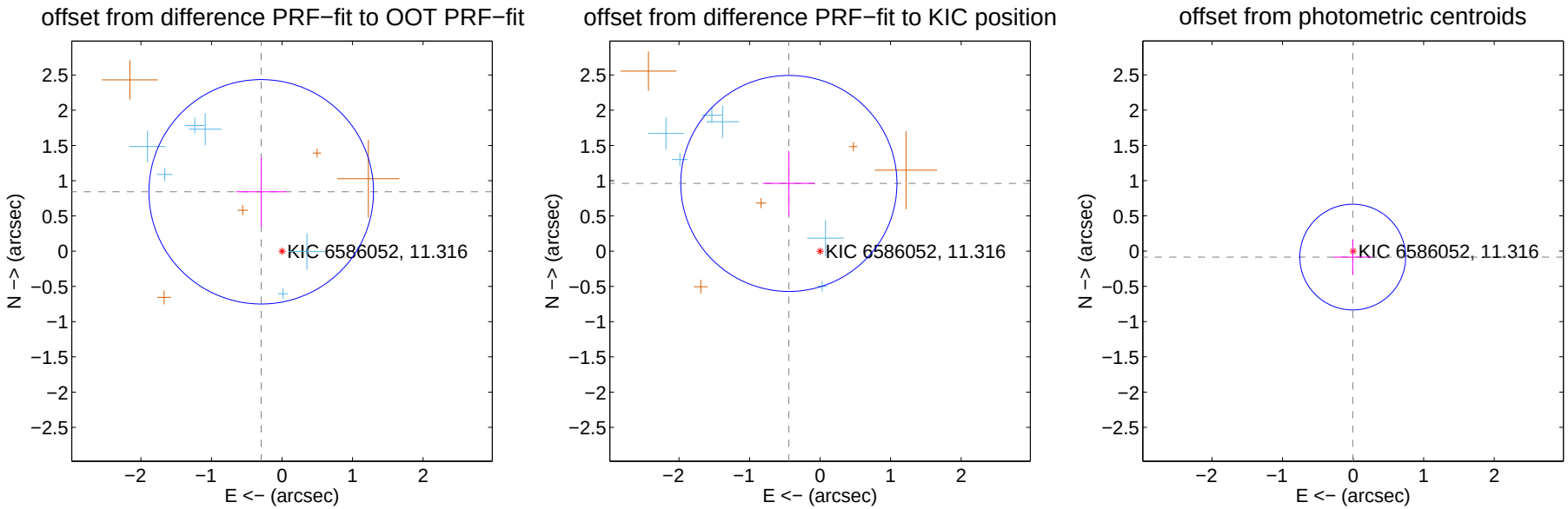
$T_{max}$ = Theoretical Maximum Planetary Temperature
$T_{obs}$ = Observed Planetary Temperature (Assuming A=0.3)
$A_{obs}$ = Observed Albedo (Assuming T=0)

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

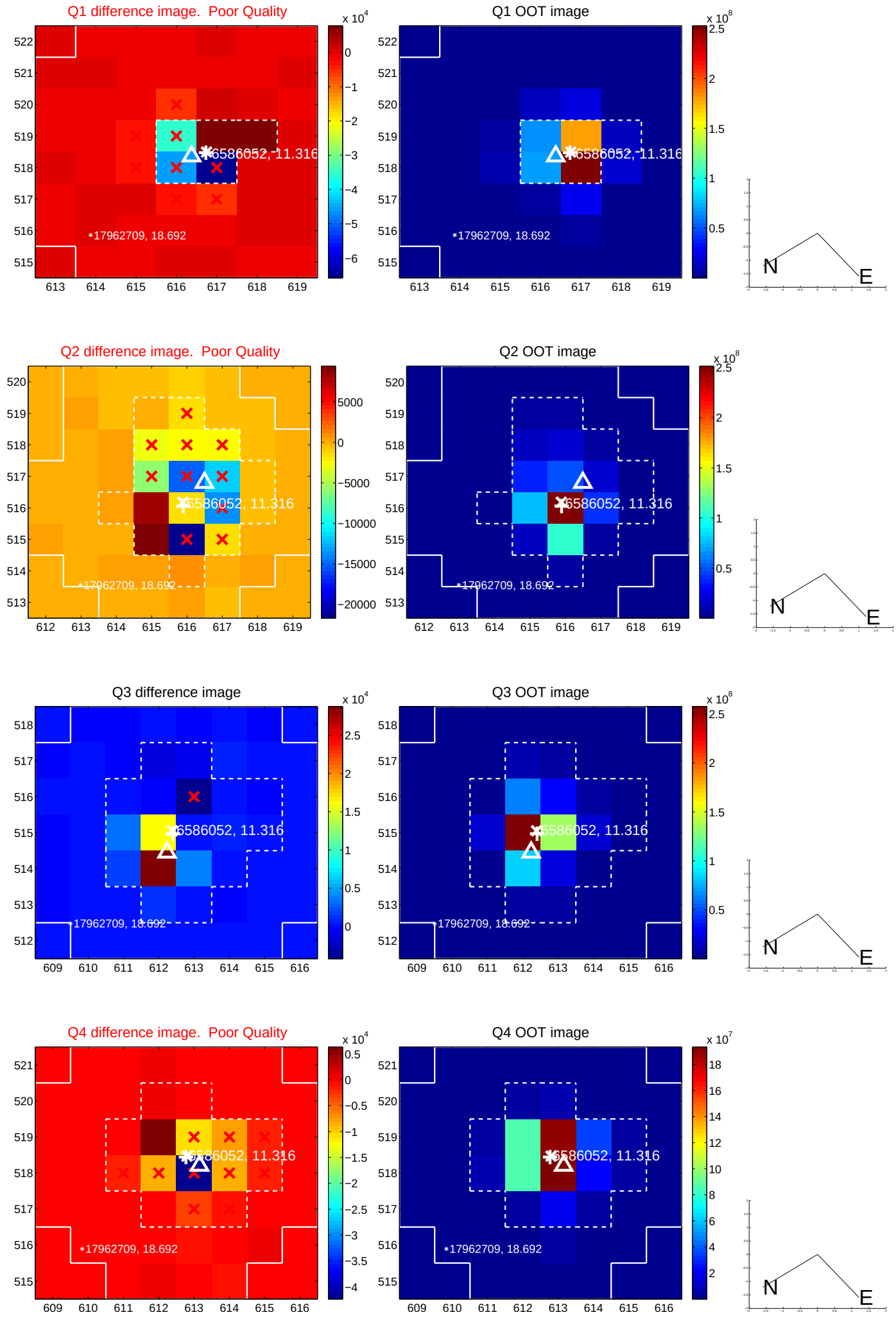
Supplemental centroid analysis for 006586052-04. Kepler magnitude: 11.32. Transit SNR 4.85
There are 6 quarters with good PRF difference image offsets
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

| | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA | $\Delta$ Dec |
|---|---|---|---|---|
| PRF-fit source offset from OOT | 0.893 ± 0.531 | 1.68 | 0.295 ± 0.356 | 0.843 ± 0.492 |
| PRF-fit source offset from KIC position | 1.058 ± 0.511 | 2.07 | 0.443 ± 0.370 | 0.961 ± 0.459 |
| photometric centroid source offset | 0.08 ± 0.25 | 0.34 | 0.01 ± 0.27 | -0.08 ± 0.25 |

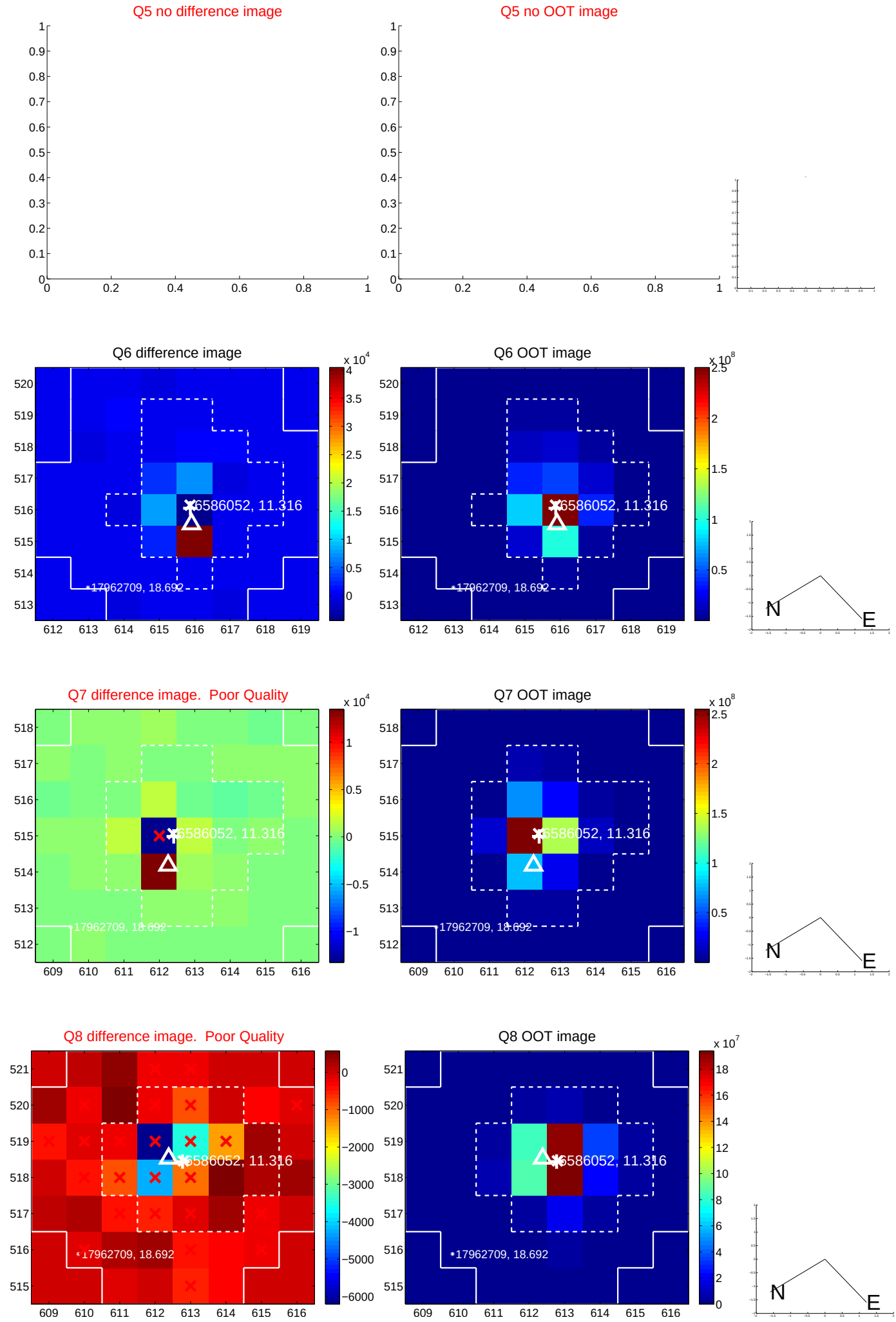



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-$\sigma$ uncertainty. Blue circle: three-$\sigma$.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

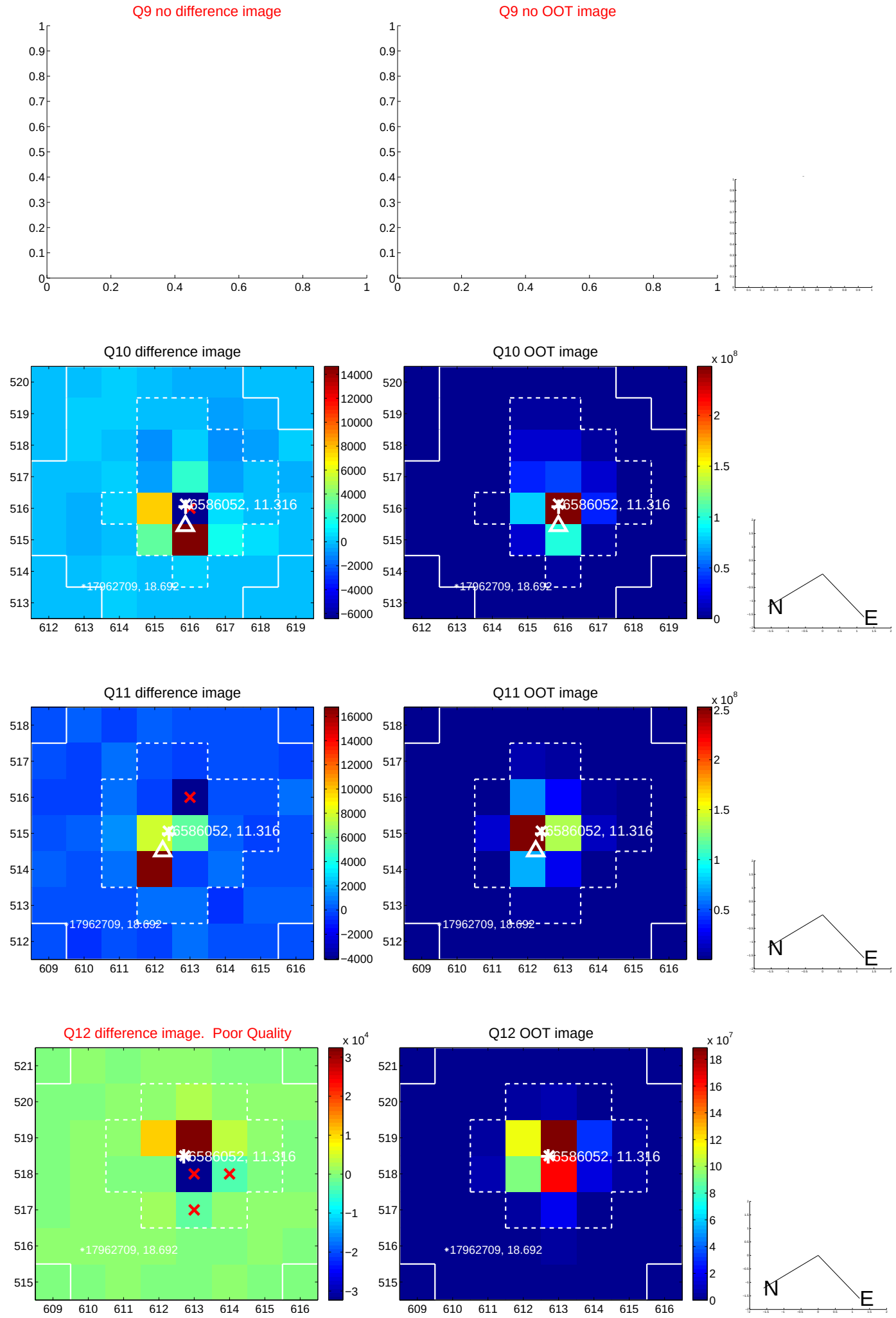
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



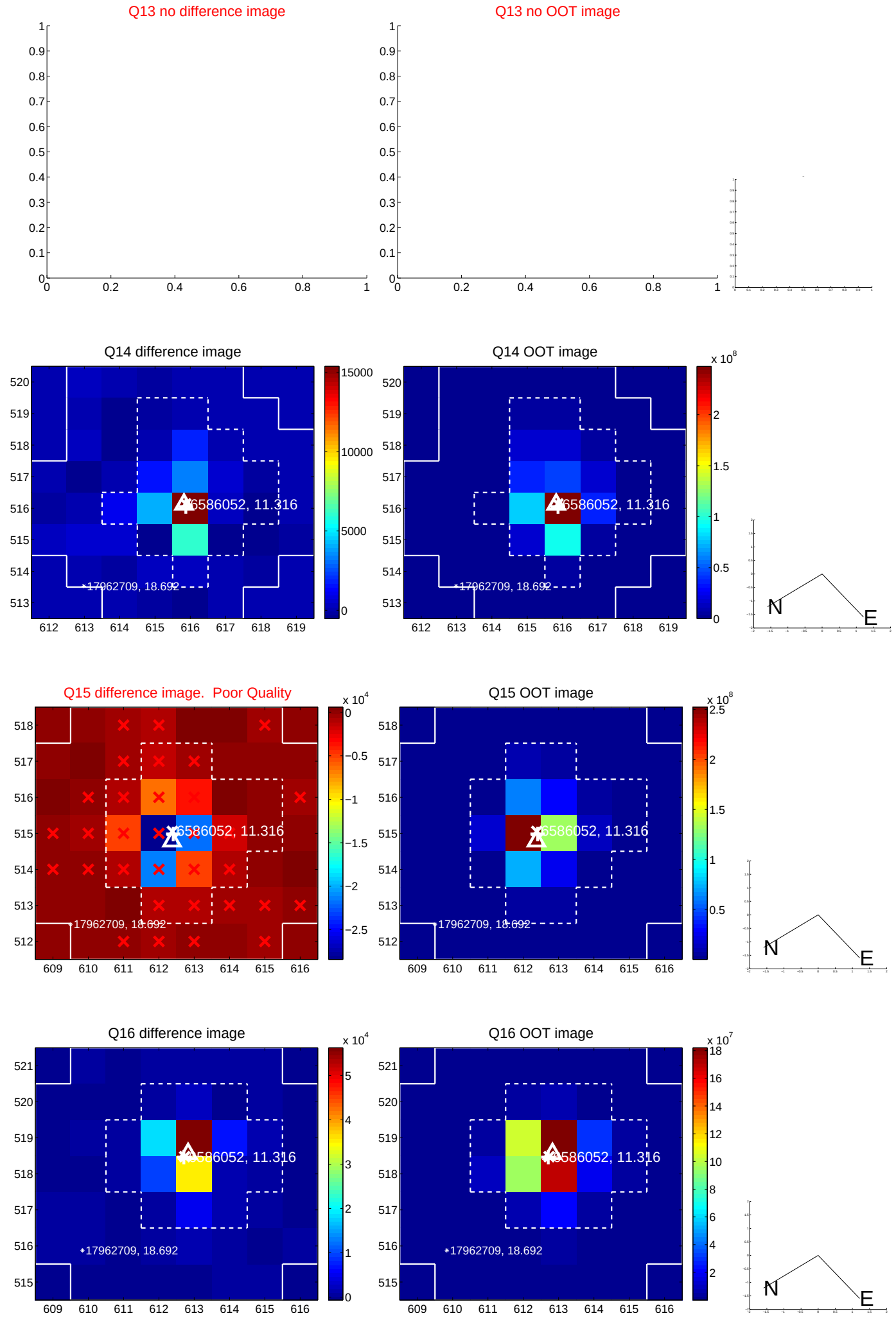
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



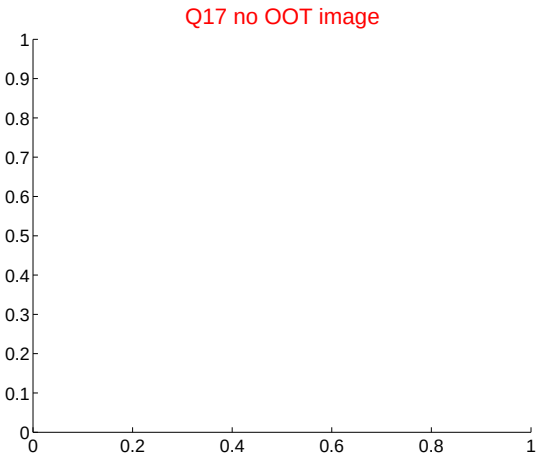
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

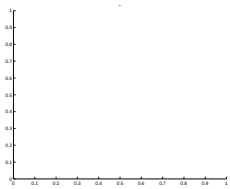


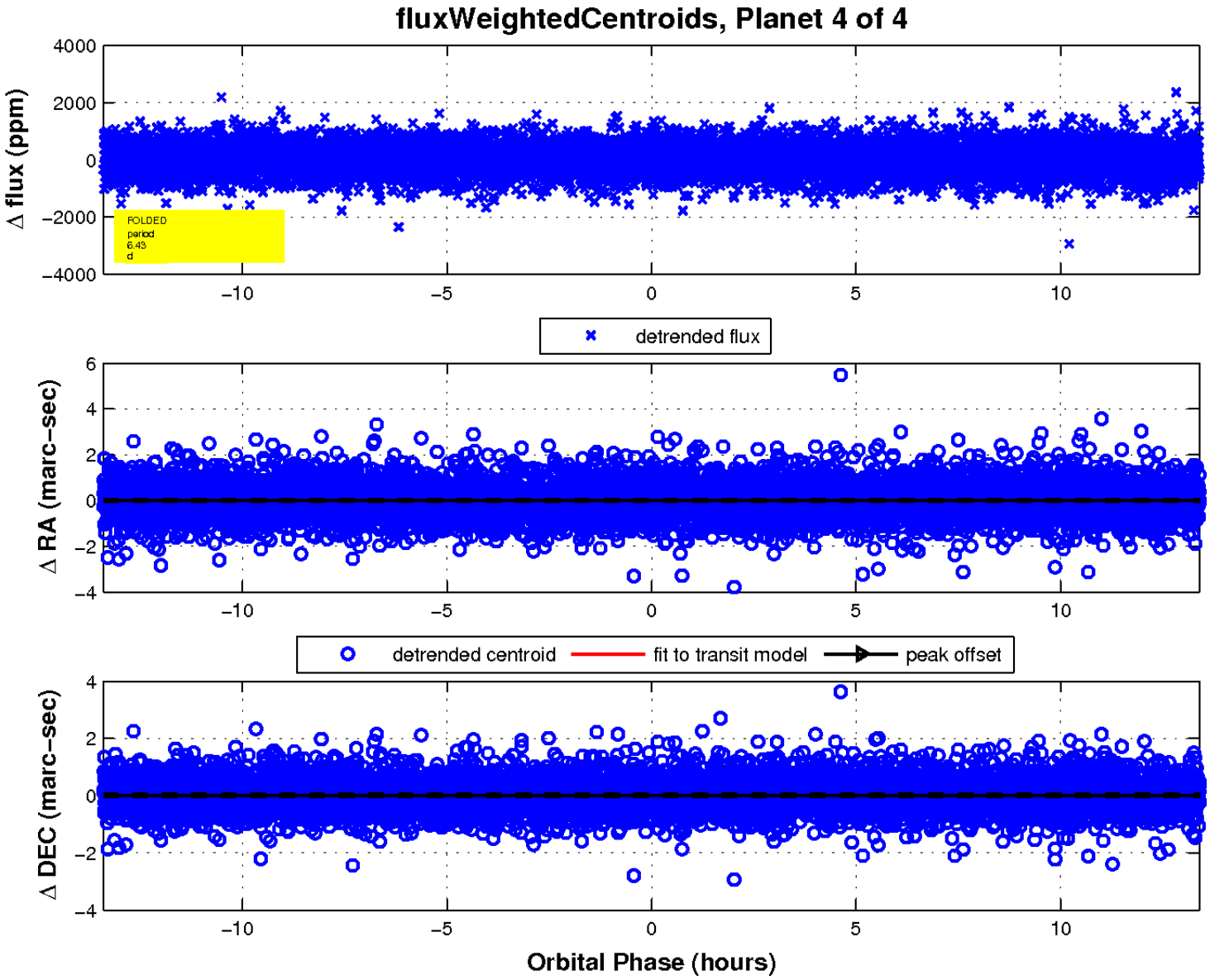
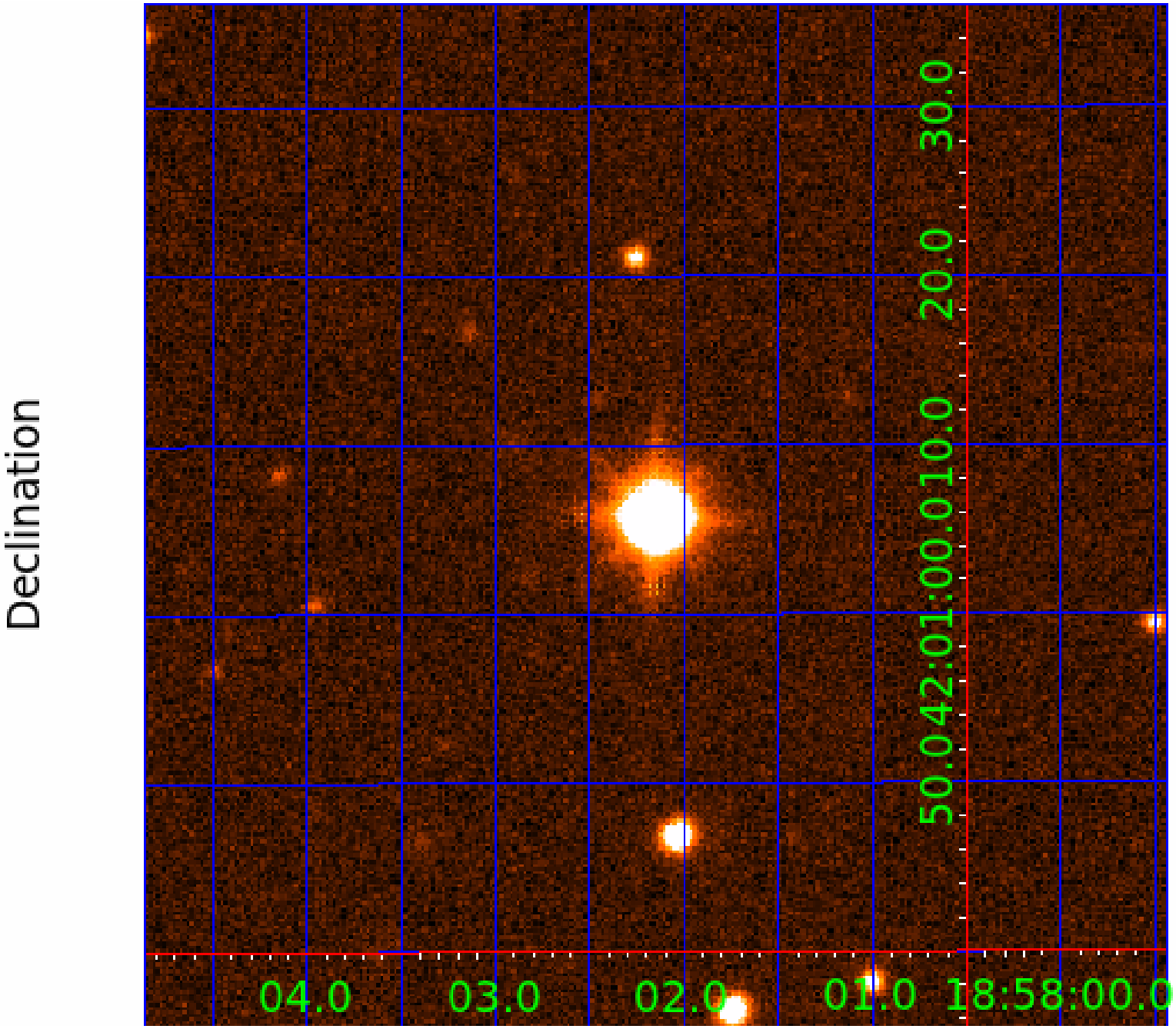
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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





**UKIRT Image**