

KIC 006114539

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006114539-01 | OBS | No | 455.862597 | 237.390367 | 119.9 | 11.853 | 10.6 | 10.0 | 2.12 | 7872 | 2.54 | 7.68 |
| 006114539-02 | OBS | No | 0.941806 | 131.911088 | 4.3 | 8.663 | 9.2 | 7.2 | 2.12 | 7872 | 0.46 | 29200.42 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006114539-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 006114539-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—CENT_FEW_DIFFS |

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

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

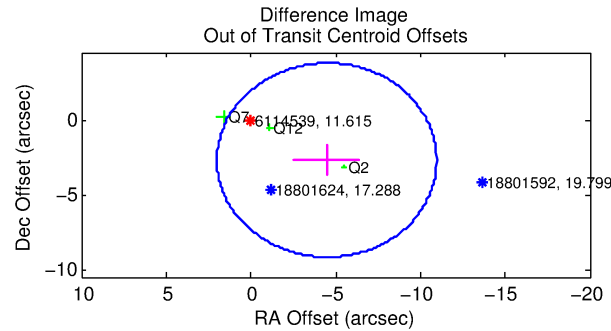
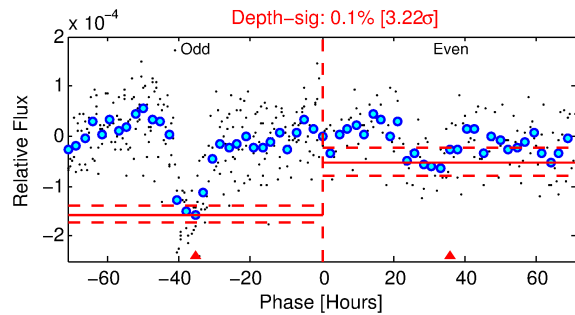
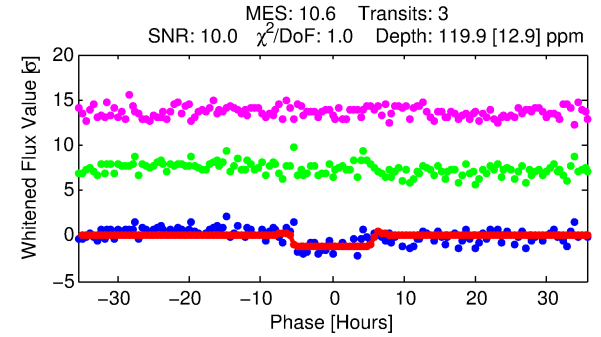
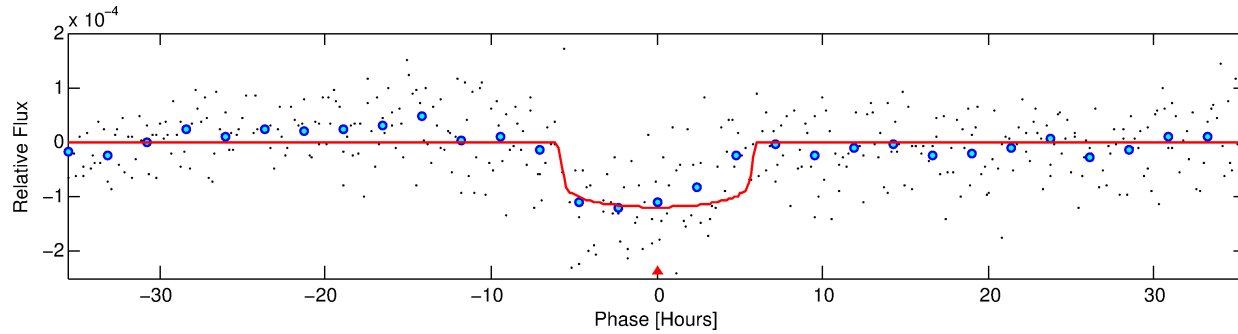
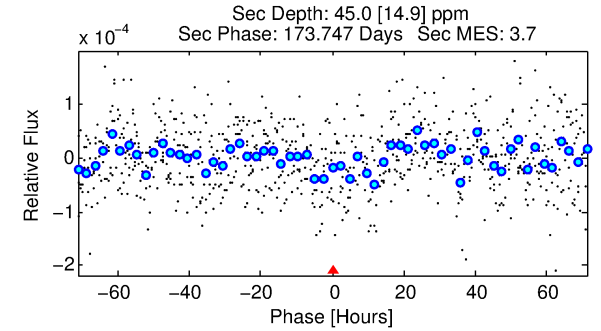
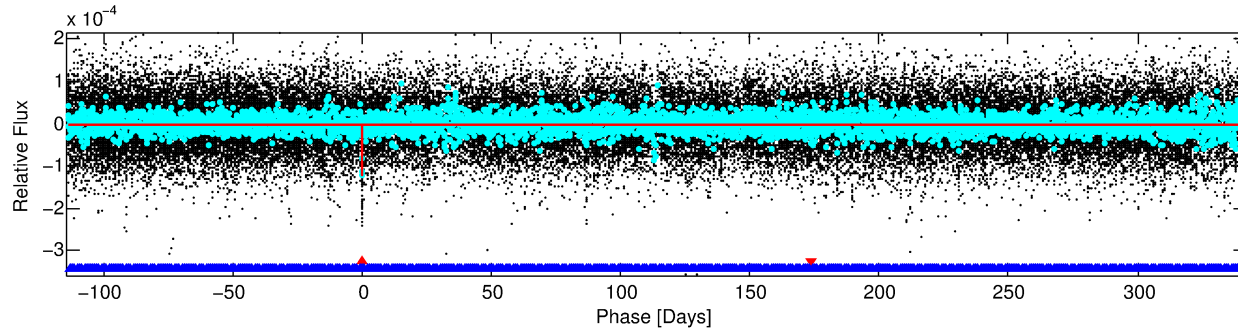
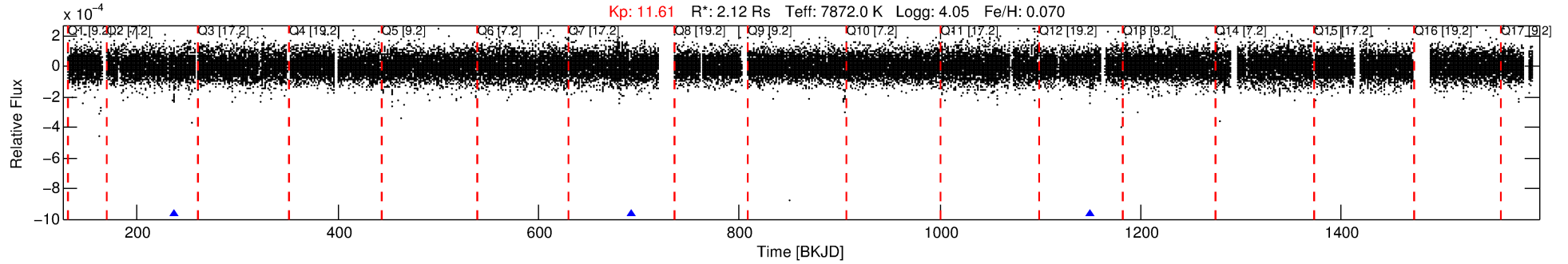
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006114539-01

No Significant Match Found

DV One-Page Summary

KIC: 6114539 Candidate: 1 of 2 Period: 455.863 d



DV Fit Results:

Period = 455.86260 [0.00818] d
Epoch = 237.3904 [0.0104] BKJD
Rp/R* = 0.0110 [0.0028]
a/R* = 192.16 [295.62]
b = 0.77 [0.81]
Seff = 7.68 [2.54]
Teq = 425 [35] K
Rp = 2.54 [0.87] Re
a = 1.4213 [0.2745] AU
Ag = 7760.07 [5174.64] [1.50σ]
Teffp = 6161 [973] K [5.89σ]

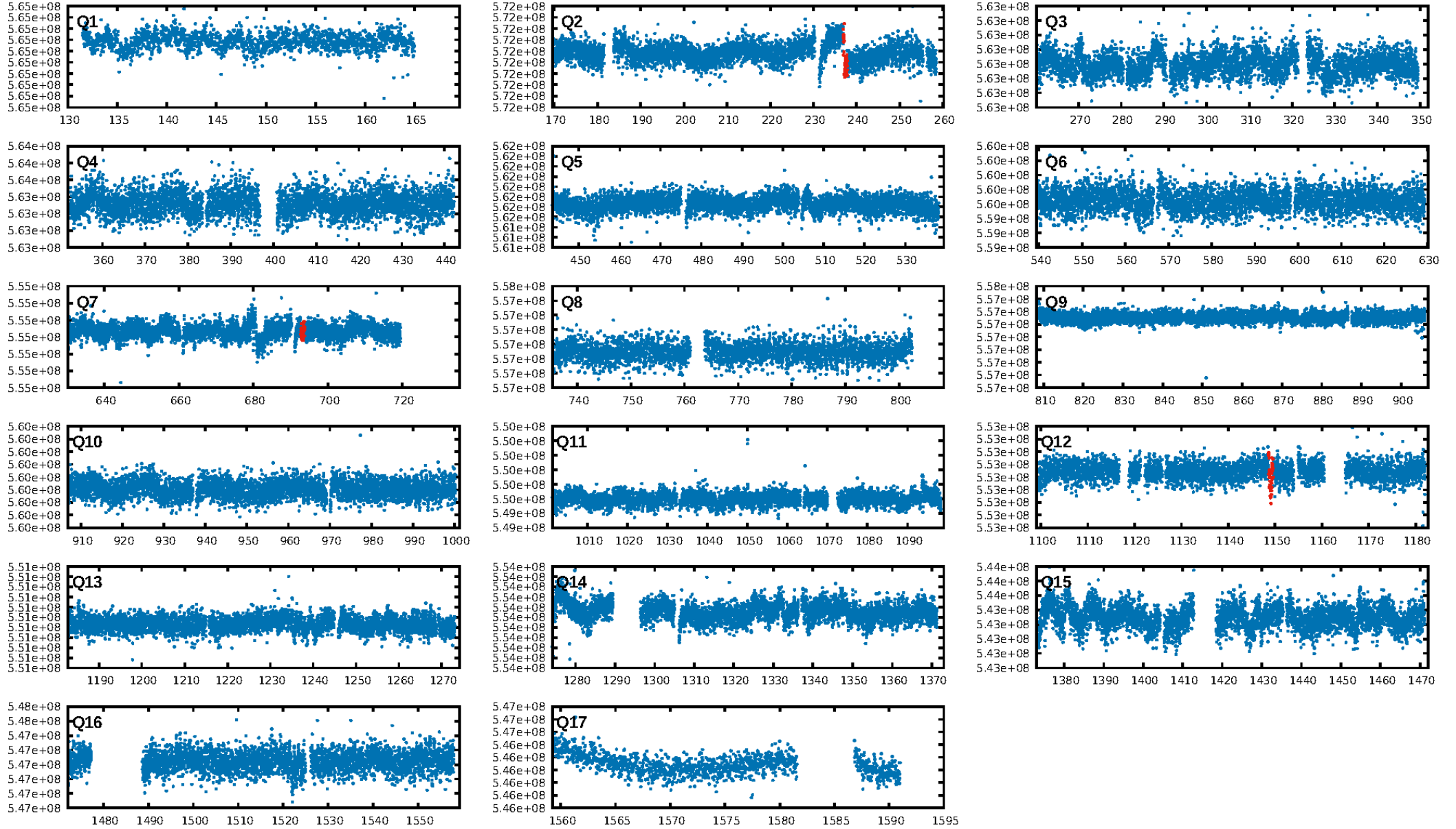
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [743.69σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 97.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.712
Centroid-sig: 78.3%
Centroid-so: 0.370 arcsec [0.32σ]
OotOffset-rm: 5.236 arcsec [2.42σ]
KicOffset-rm: 5.064 arcsec [2.48σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/3]

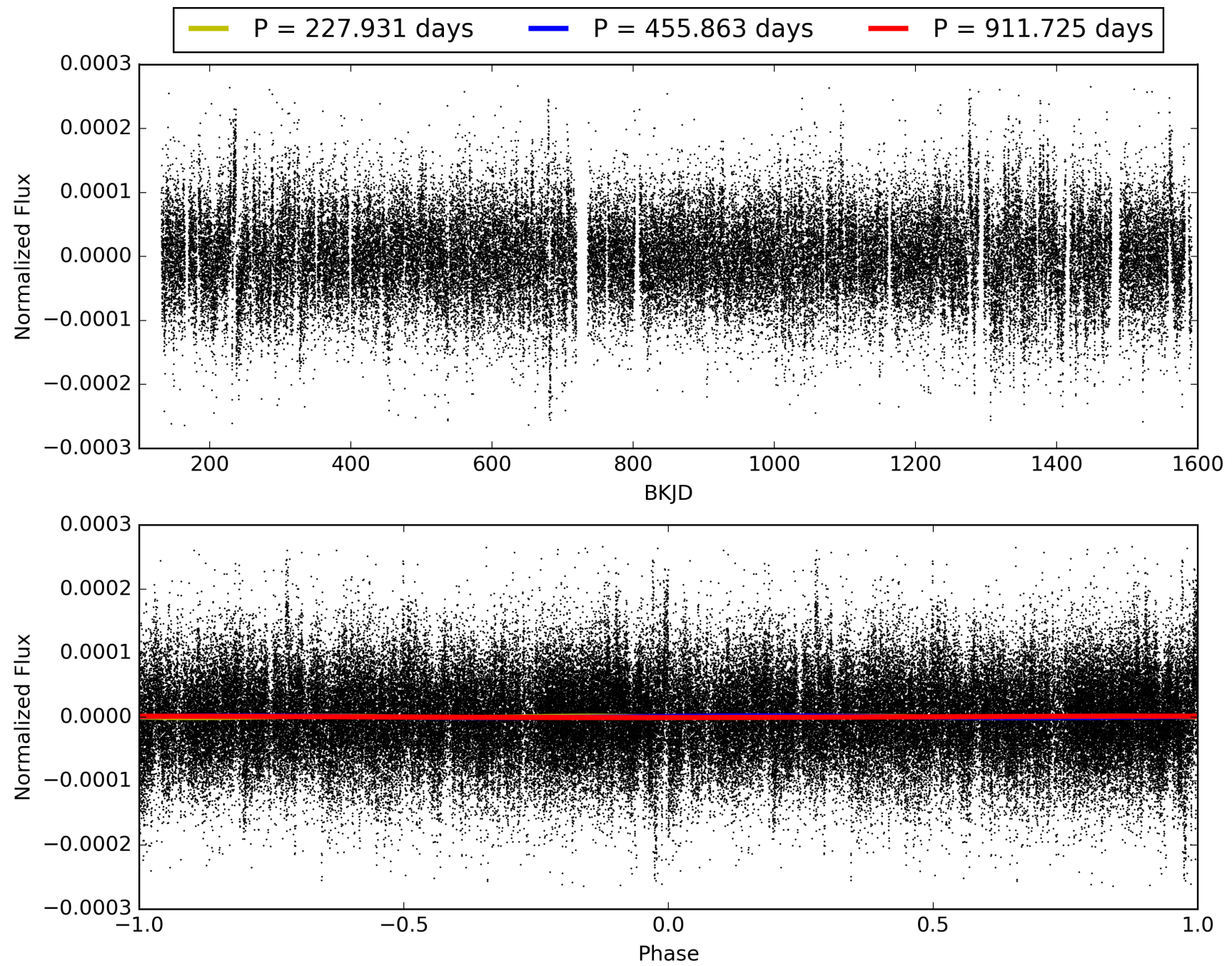
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:41:57 Z

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

TCE 006114539-01, PDC Light Curves

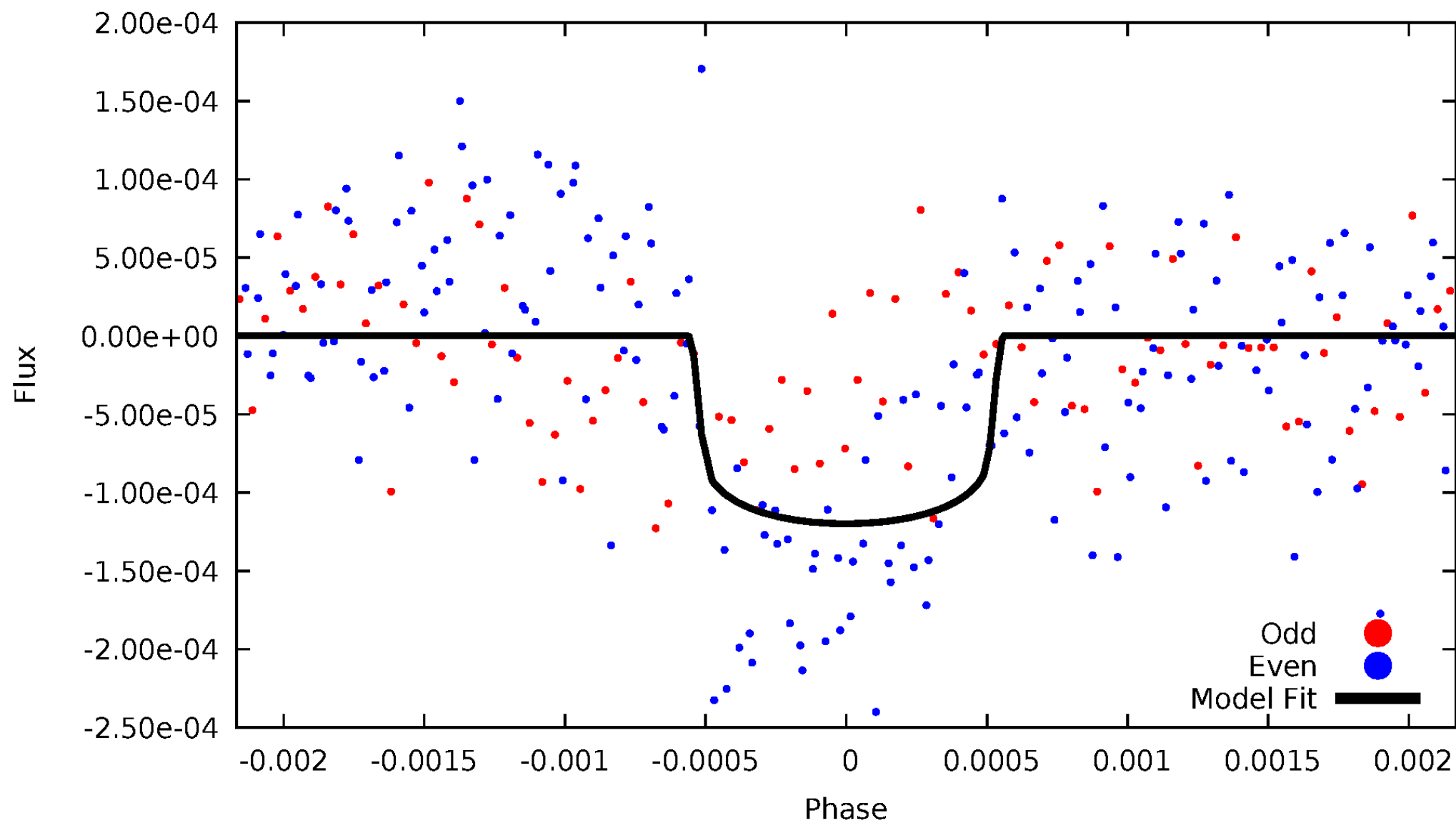


TCE 006114539-01



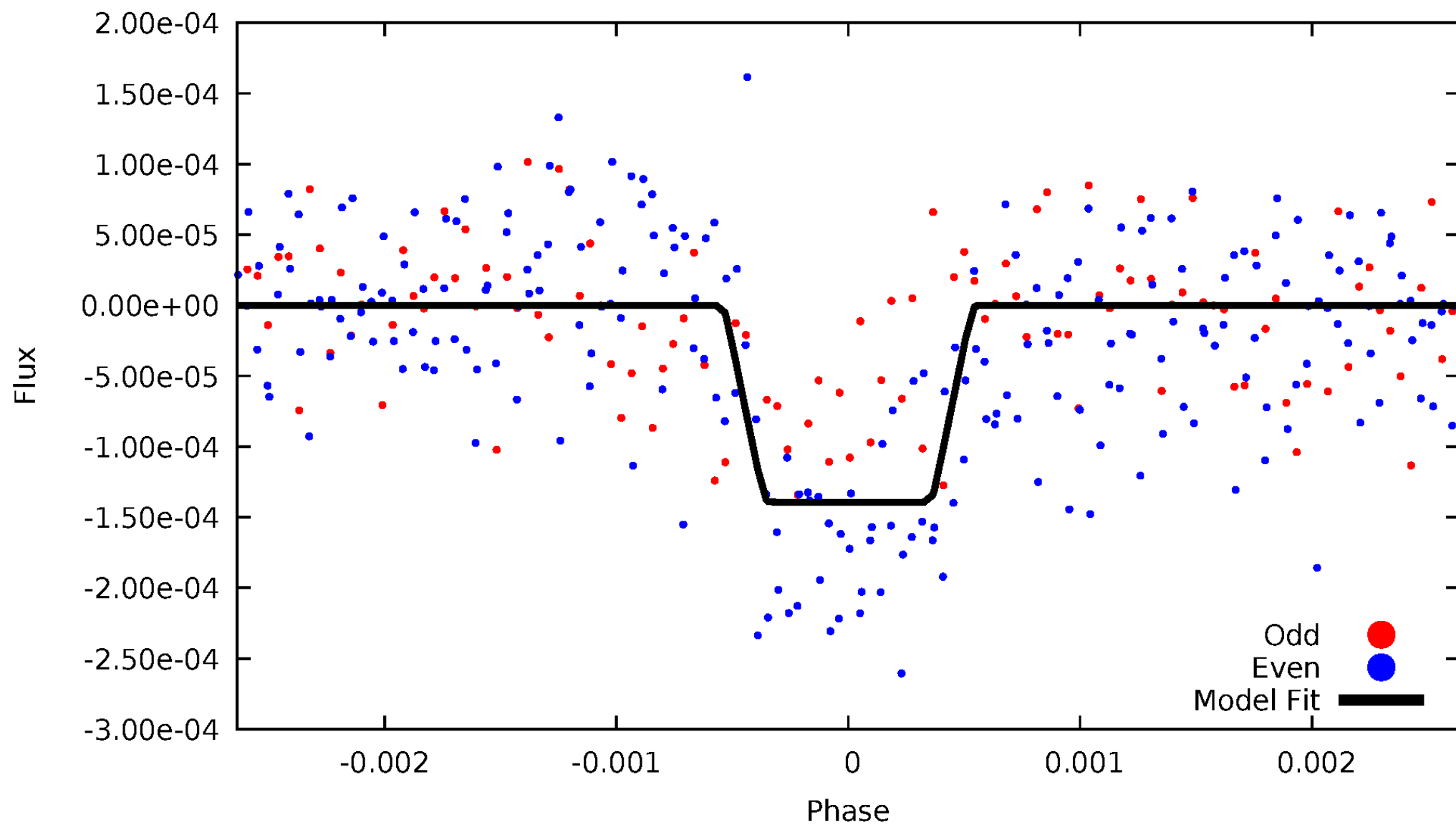
DV Odd/Even

TCE 006114539-01



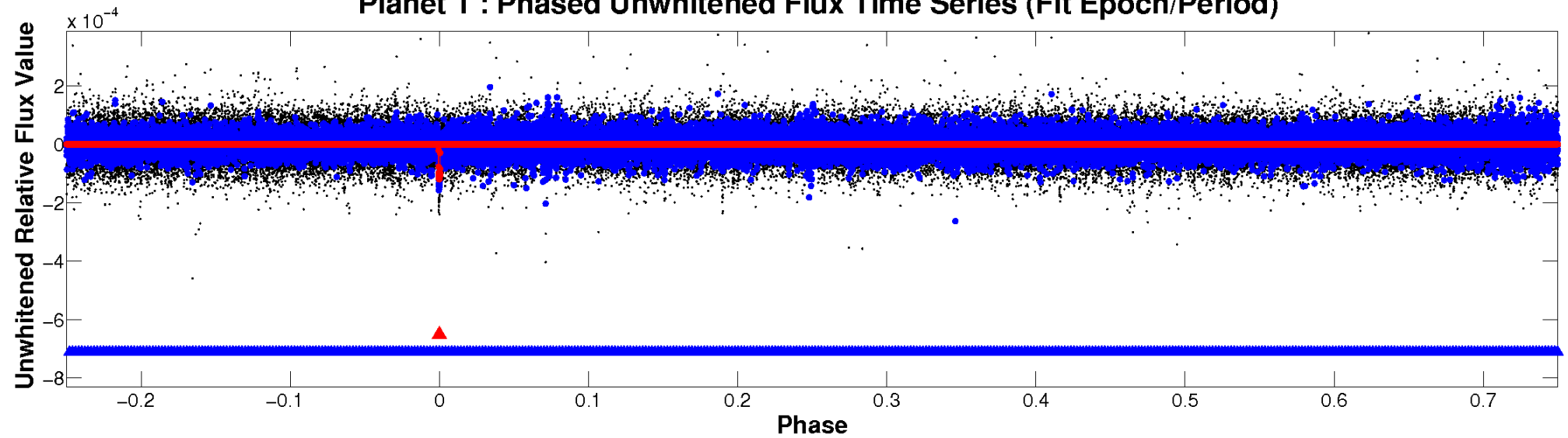
ALT Odd/Even

TCE 006114539-01

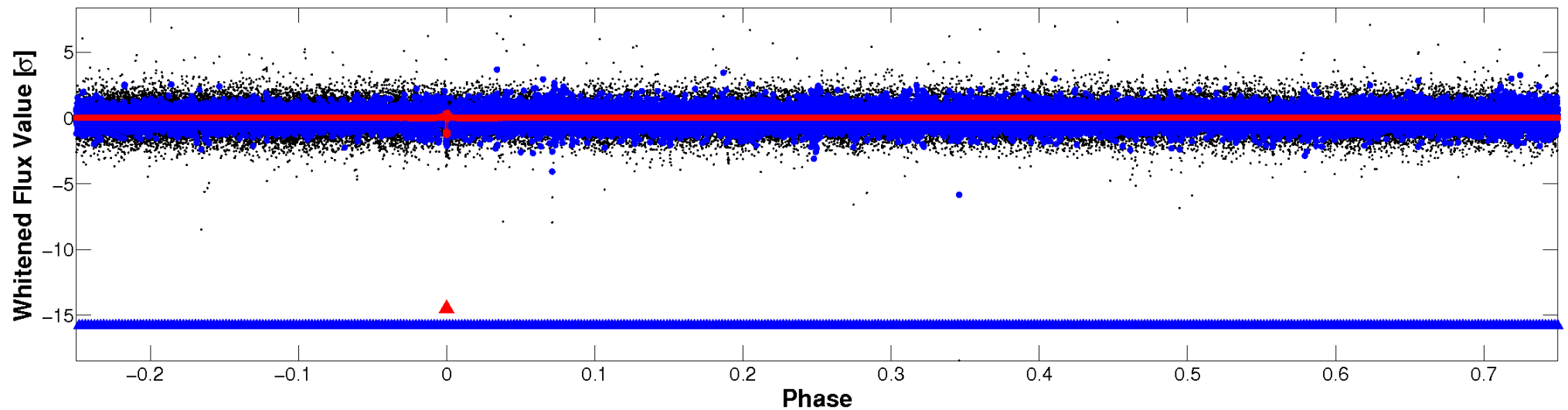


Non-Whitened Vs. Whitened Light Curve

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

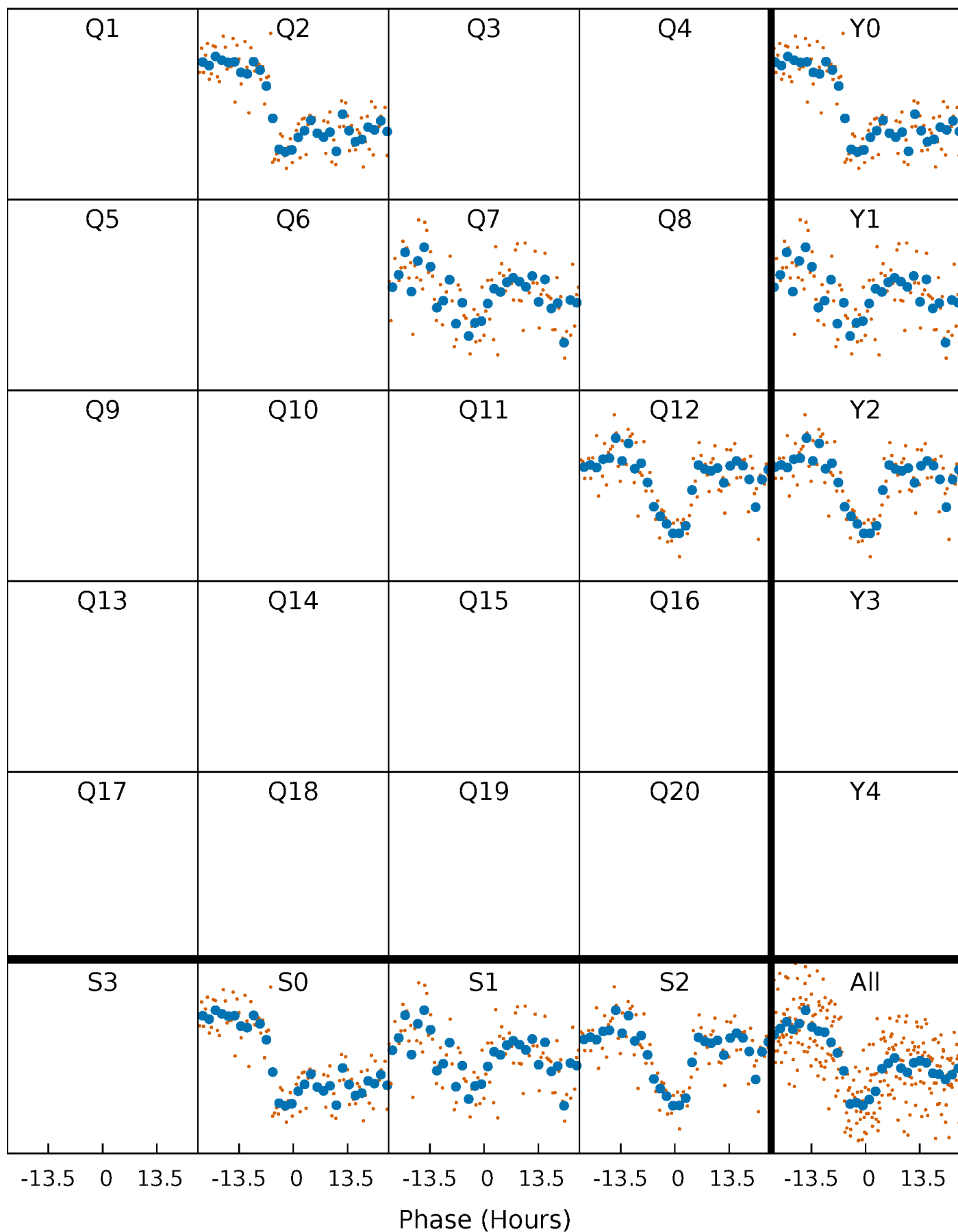


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



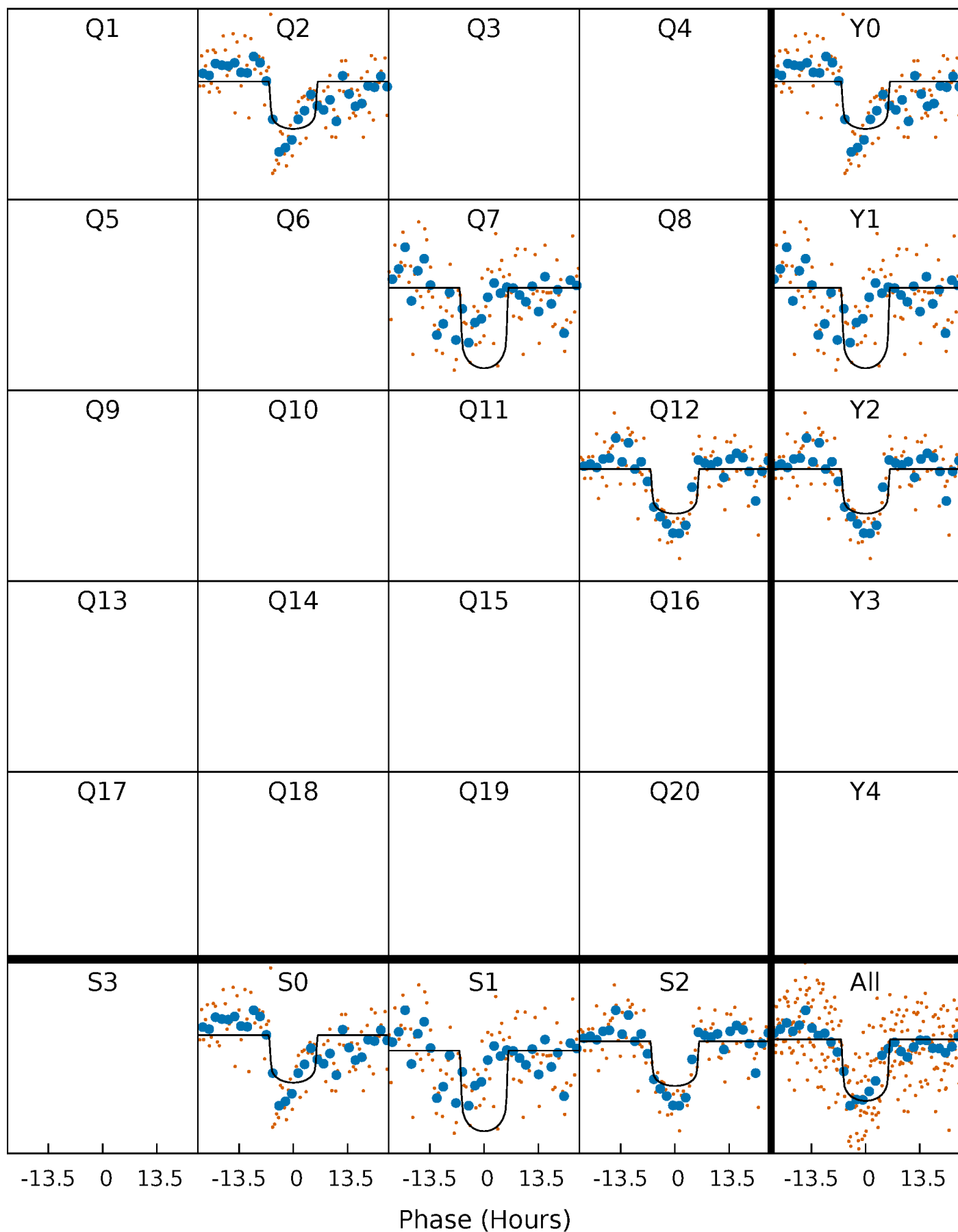
PDC Quarter-Phased Transit Curves

TCE 006114539-01 P=455.862597 Days $T_0=237.390367$ (BKJD)



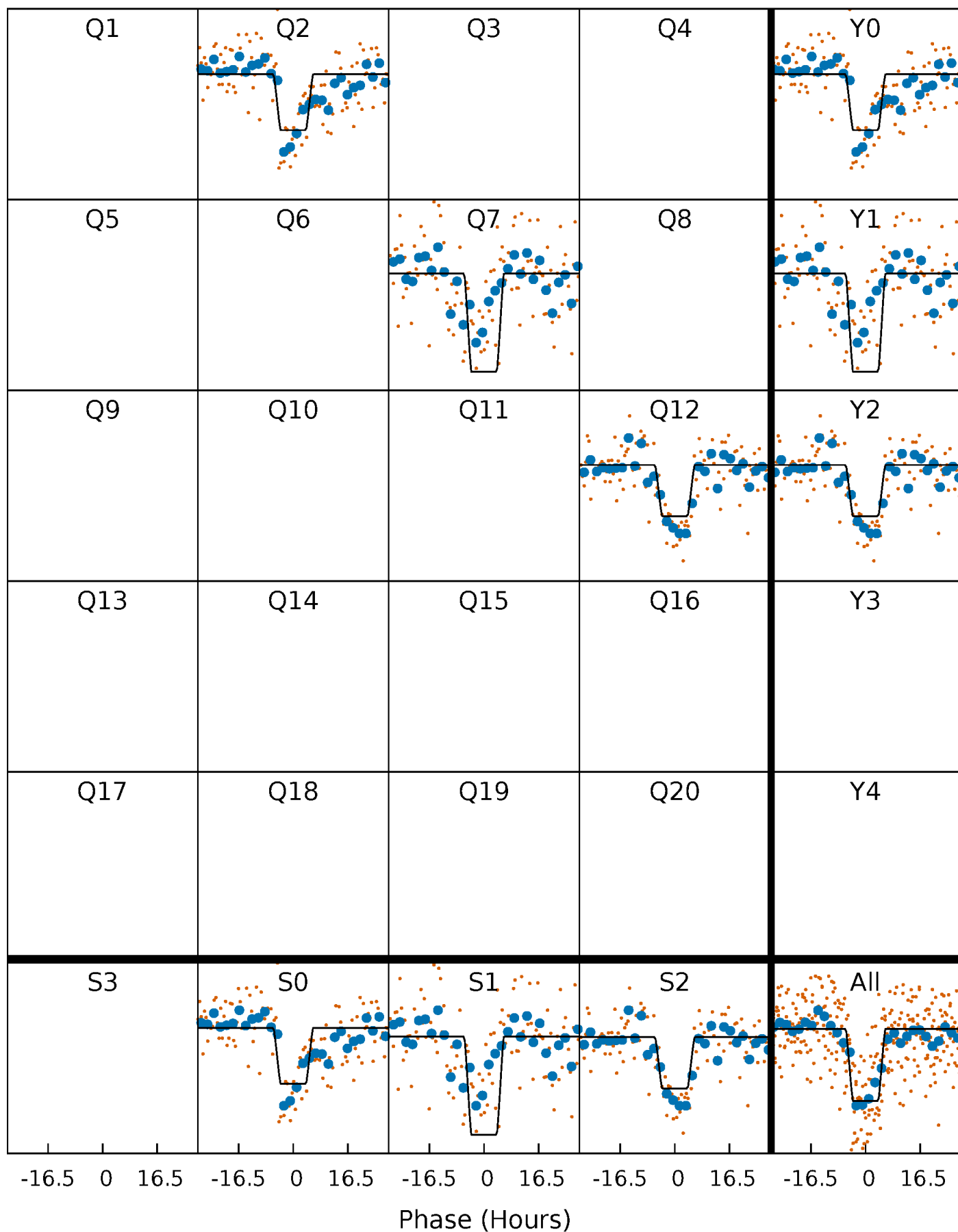
DV Quarter-Phased Transit Curves

TCE 006114539-01 P=455.862597 Days $T_0=237.390367$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

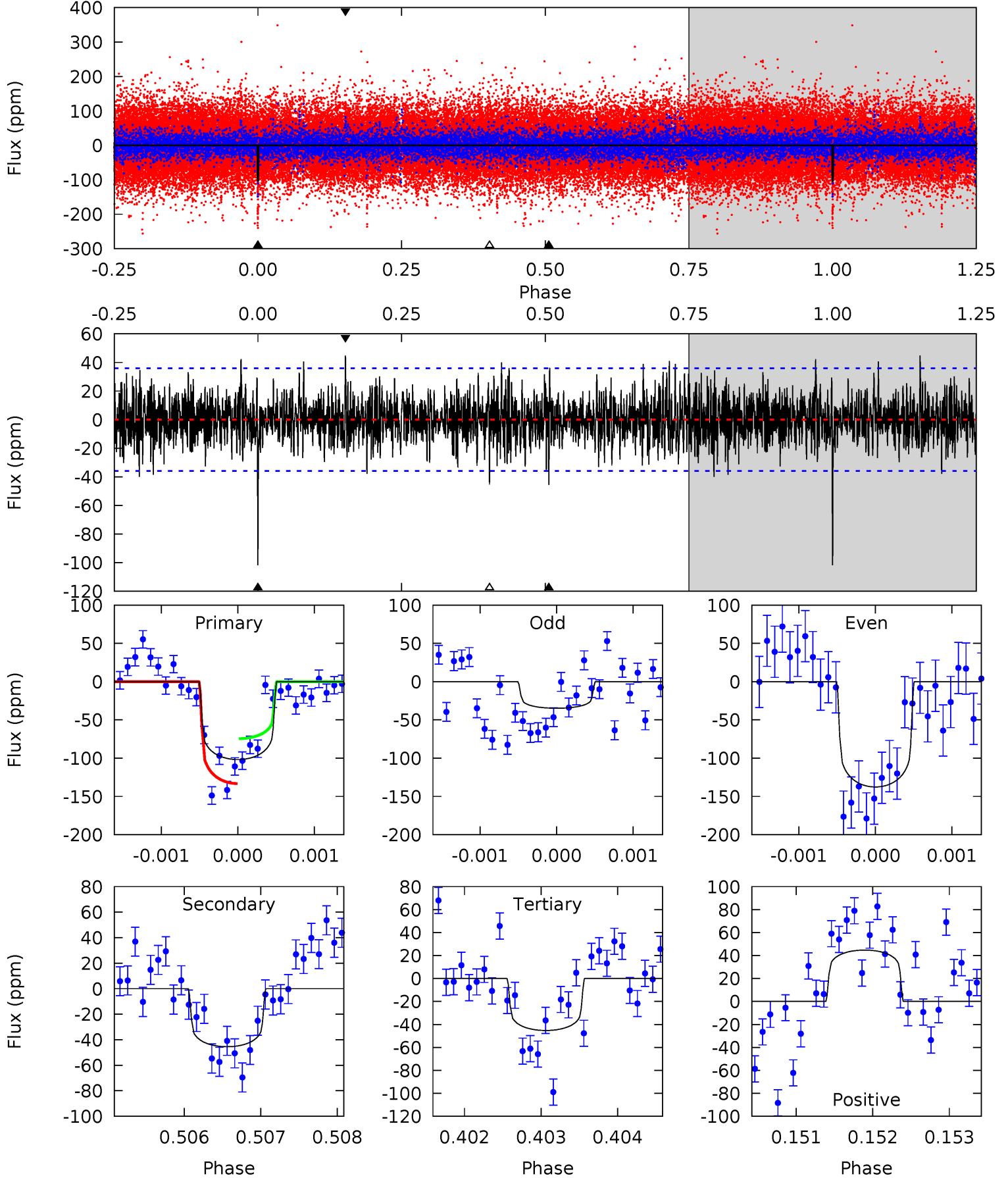
TCE 006114539-01 P=455.852290 Days $T_0=237.354668$ (BKJD)



DV Model-Shift Uniqueness Test

006114539-01, P = 455.862597 Days, E = 237.390367 Days

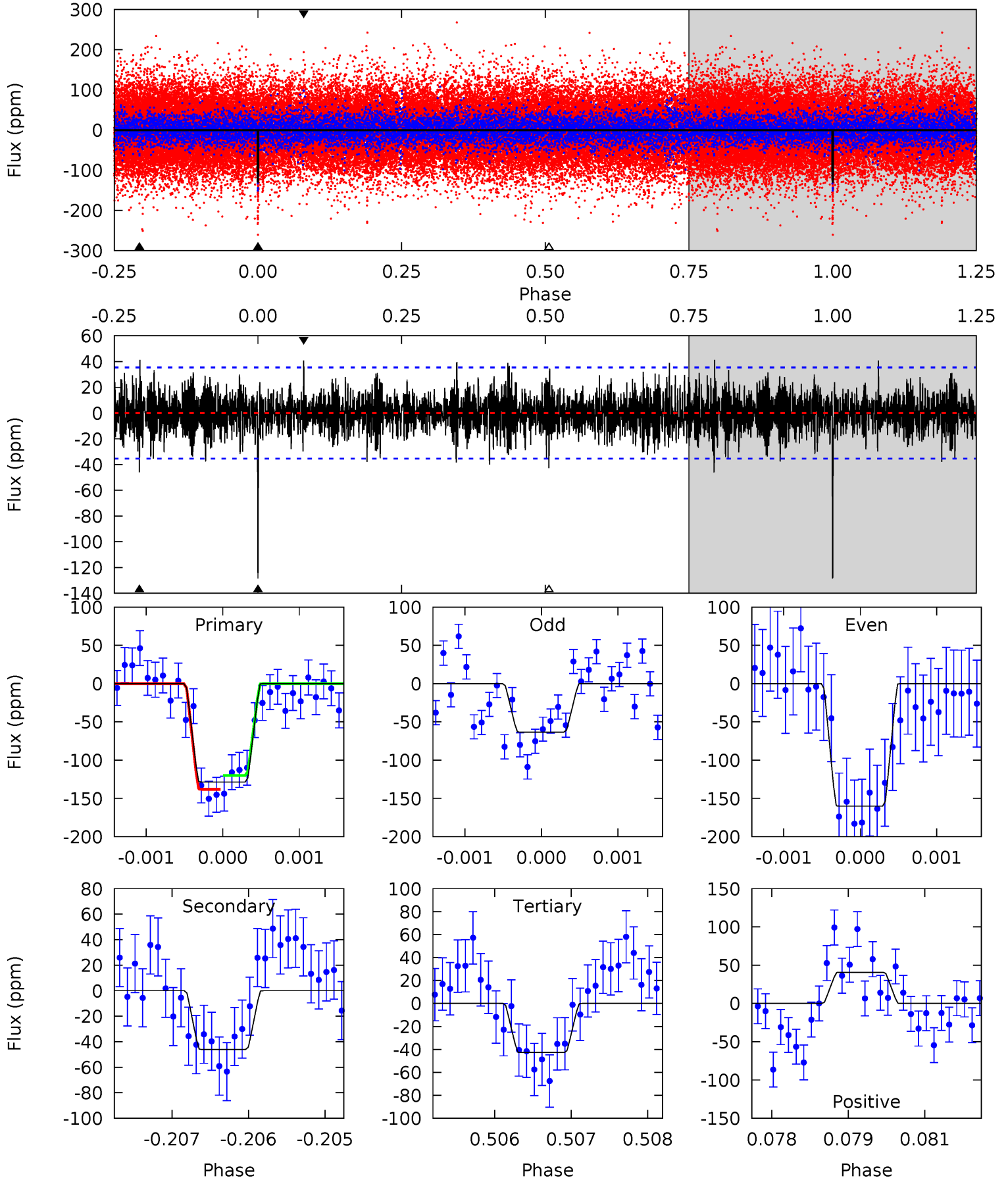
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 15.4 | 6.89 | 6.86 | 6.78 | 5.43 | 3.26 | 1.80 | 8.56 | 8.64 | 0.03 | 0.11 | 7.29 | 0.80 | 0.31 | 4.42 |



Alt Model-Shift Uniqueness Test

006114539-01, P = 455.852290 Days, E = 237.354668 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 19.7 | 7.06 | 6.55 | 6.25 | 5.43 | 3.26 | 1.75 | 13.2 | 13.5 | 0.51 | 0.82 | 6.94 | 0.87 | 0.24 | 1.39 |



Stellar Parameters For KIC 006114539

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|---|
| | 7872^{+216}_{-351} | $4.049^{+0.150}_{-0.150}$ | $0.070^{+0.200}_{-0.350}$ | $2.124^{+0.494}_{-0.494}$ | $1.841^{+0.147}_{-0.319}$ | $0.271^{+0.215}_{-0.121}$ |
| | +3%/-4% | +4%/-4% | +286%/-500% | +23%/-23% | +8%/-17% | +79%/-45% |
| 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 006114539-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|-------------------|----------------------|------------------------|
| DV | -45 ± 7 | $2.51^{+0.73}_{-0.68}$ | 594^{+42}_{-38} | 6069^{+986}_{-722} | 7951^{+6696}_{-3375} |
| Alt. | -46 ± 7 | $2.72^{+0.74}_{-0.70}$ | 595^{+41}_{-41} | 5813^{+878}_{-595} | 6692^{+5554}_{-2571} |

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 $A_{obs} \gg 1.0$

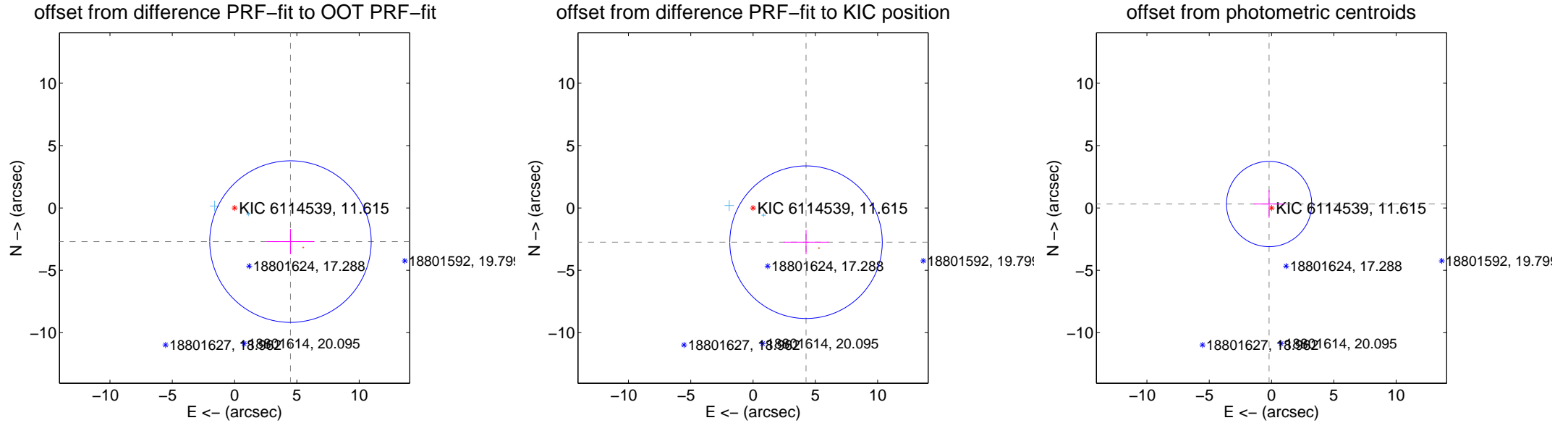
DV Centroid Data

Supplemental centroid analysis for 006114539-01. **Kepler magnitude: 11.62.** Transit SNR 10.01

There are 2 quarters with good PRF difference image offsets

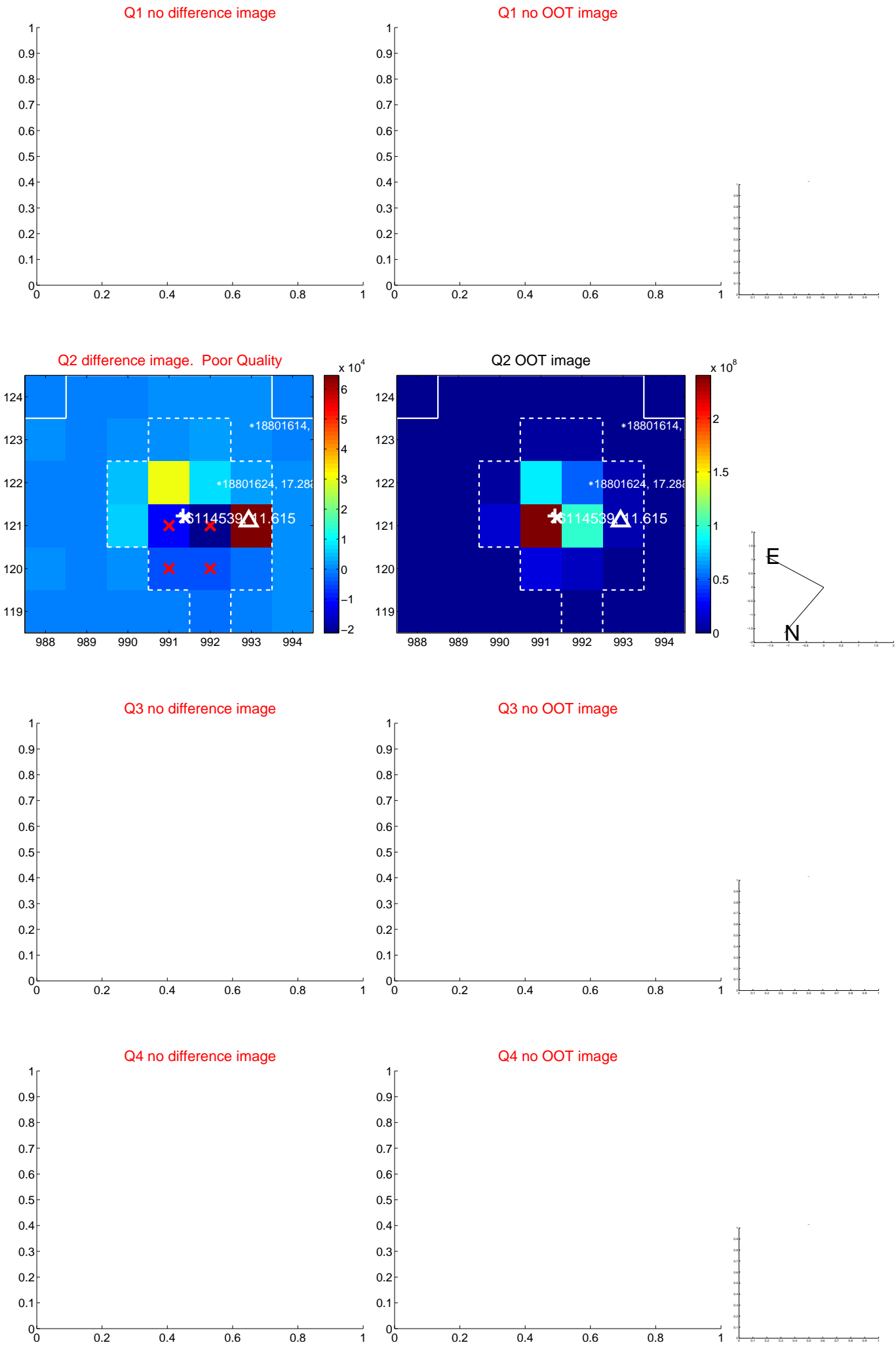
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 5.236 ± 2.160 | 2.42 | -4.487 ± 1.924 | -2.698 ± 1.009 |
| PRF-fit source offset from KIC position | 5.064 ± 2.040 | 2.48 | -4.254 ± 1.811 | -2.747 ± 0.967 |
| photometric centroid source offset | 0.37 ± 1.14 | 0.32 | 0.19 ± 1.24 | 0.32 ± 1.10 |

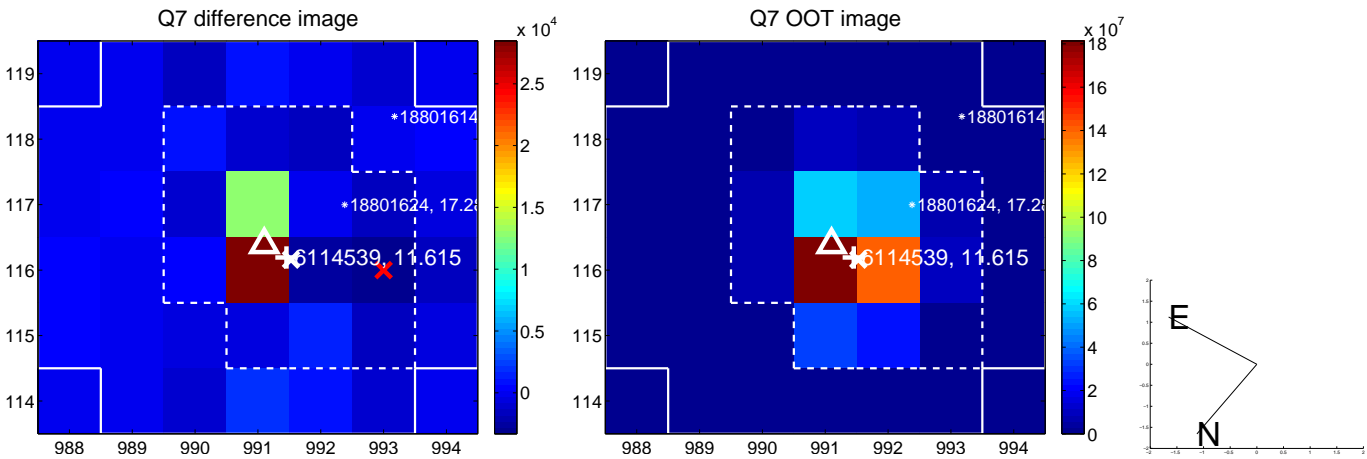


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

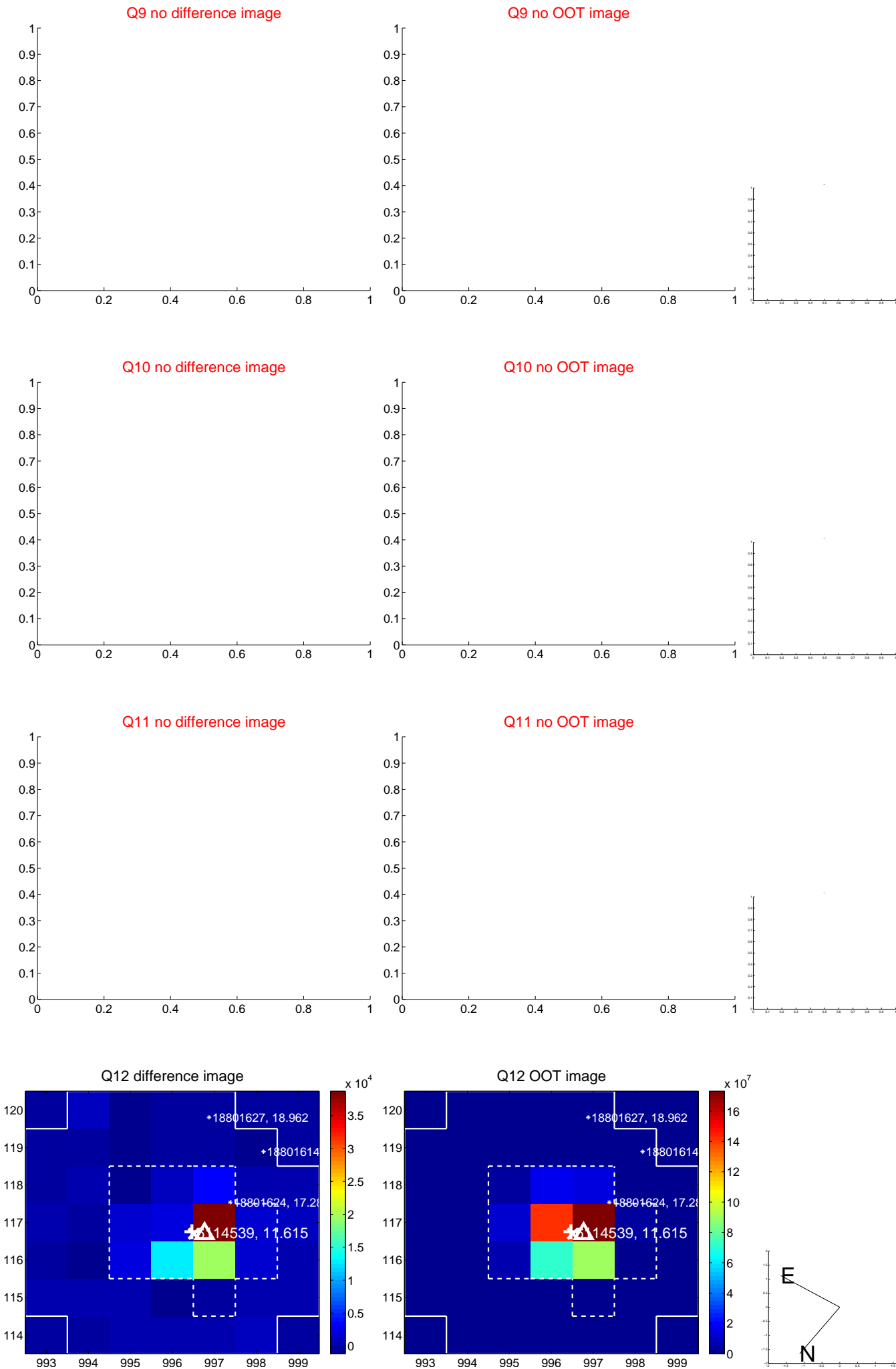
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



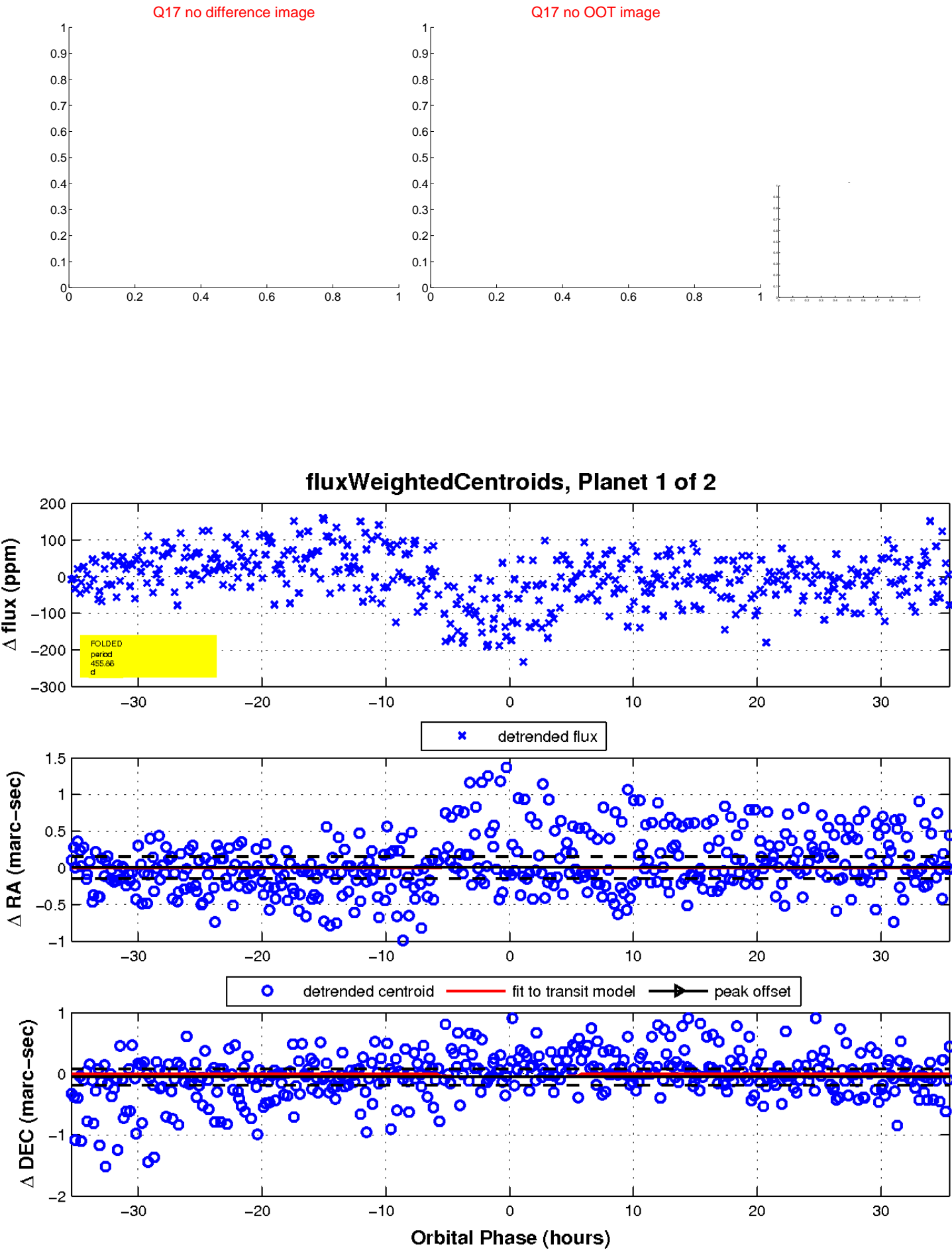
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

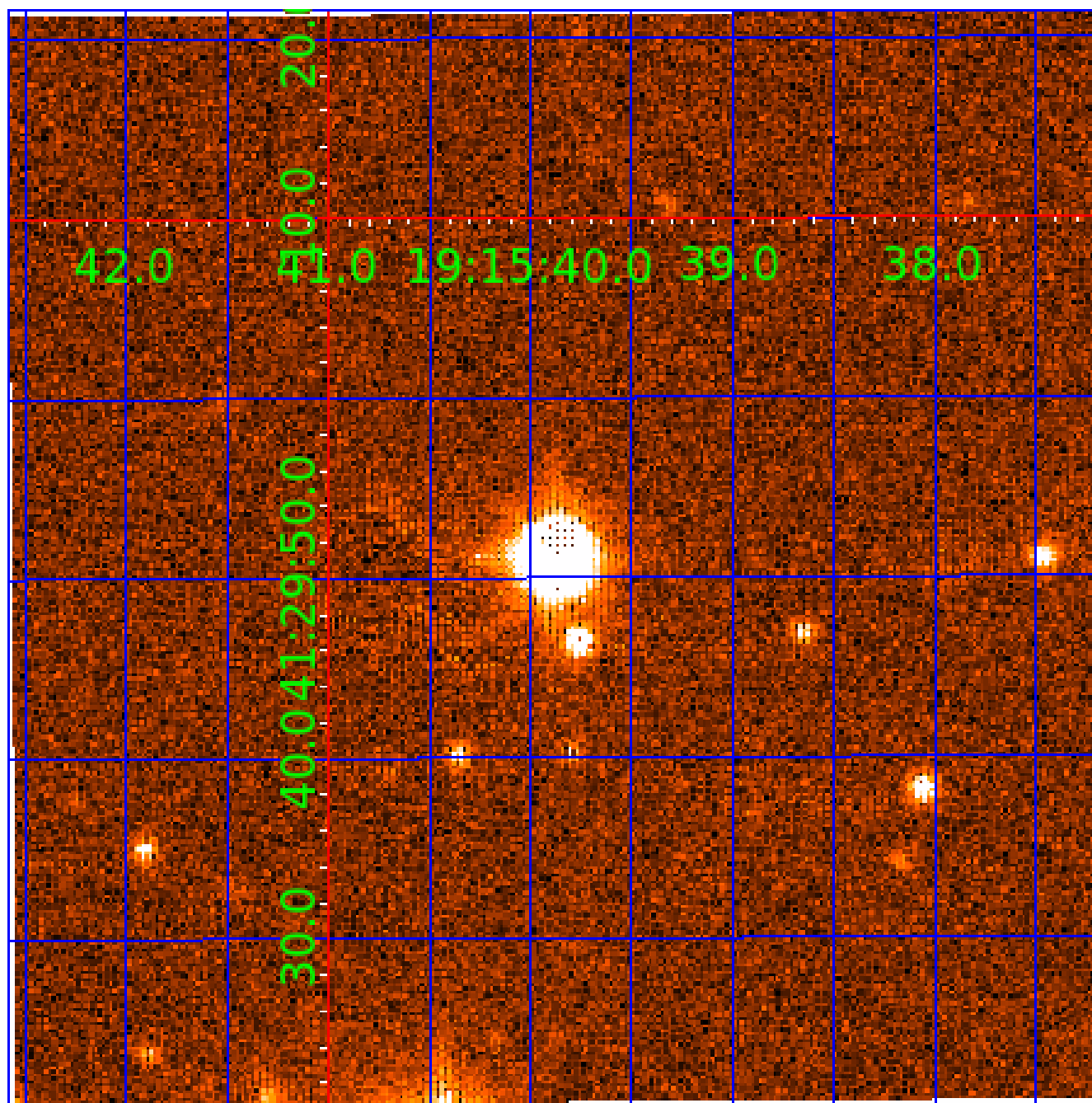


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006114539

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006114539-01 | OBS | No | 455.862597 | 237.390367 | 119.9 | 11.853 | 10.6 | 10.0 | 2.12 | 7872 | 2.54 | 7.68 |
| 006114539-02 | OBS | No | 0.941806 | 131.911088 | 4.3 | 8.663 | 9.2 | 7.2 | 2.12 | 7872 | 0.46 | 29200.42 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006114539-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_MARSHALL—INCONSISTENT_TRANS—CENT_FEW_DIFFS |
| 006114539-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—CENT_FEW_DIFFS |

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

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

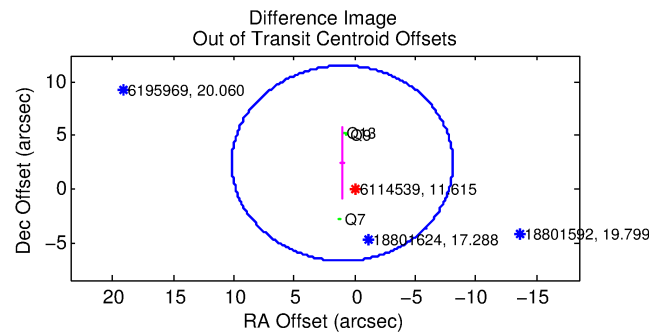
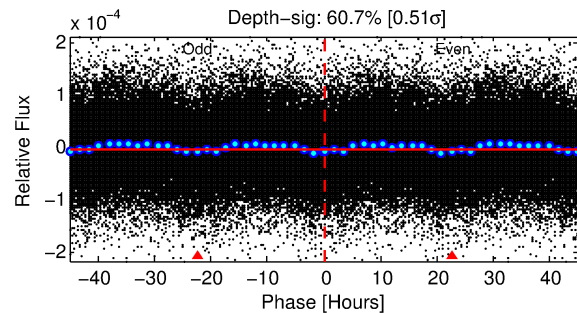
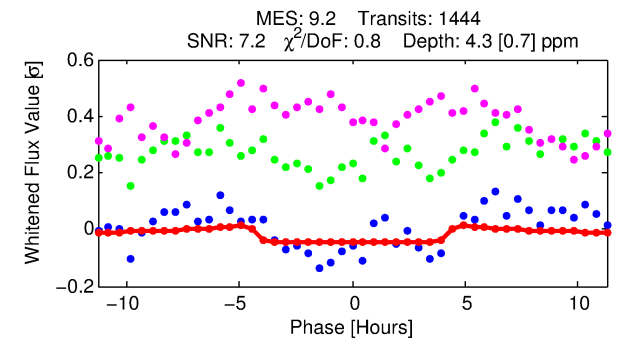
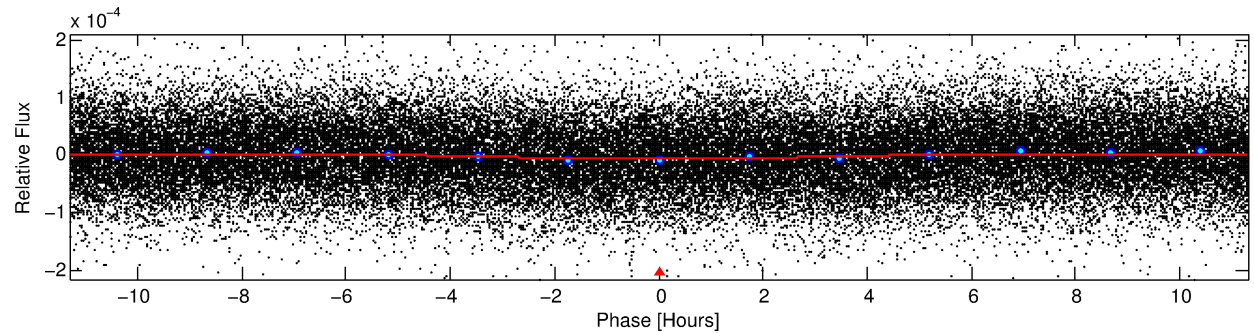
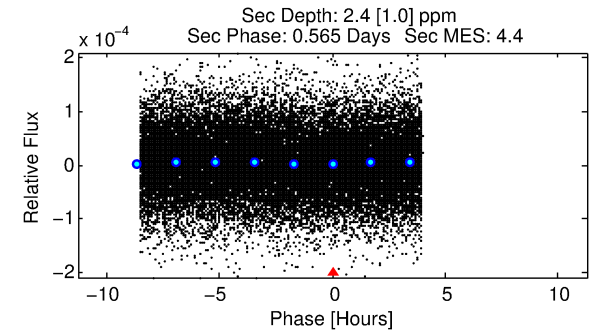
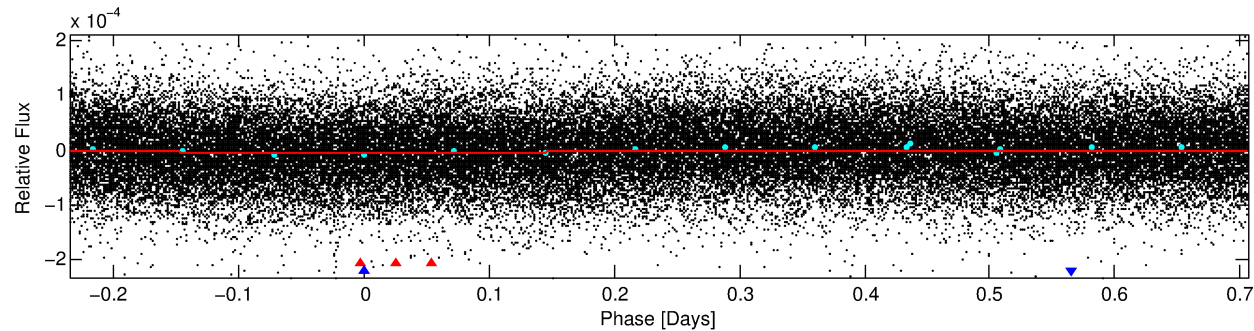
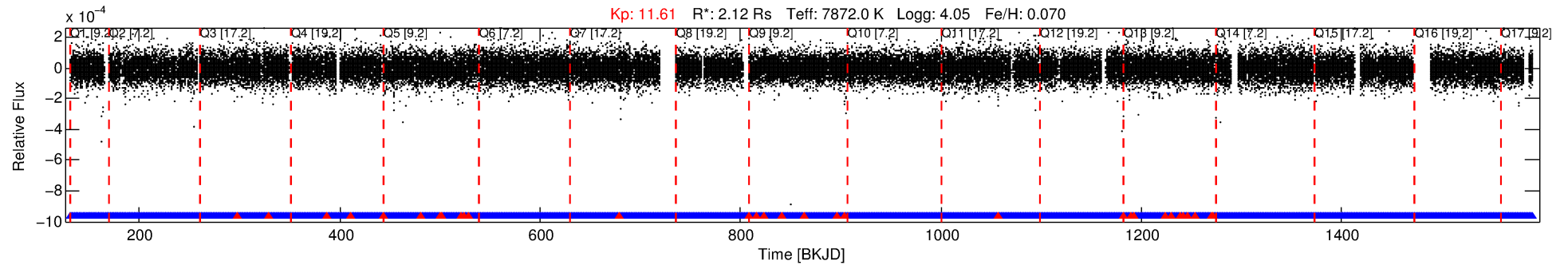
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006114539-02

No Significant Match Found

DV One-Page Summary

KIC: 6114539 Candidate: 2 of 2 Period: 0.942 d



DV Fit Results:

Period = 0.94181 [0.00002] d
Epoch = 131.9111 [0.0080] BKJD
Rp/R* = 0.0020 [0.0019]
a/R* = 1.05 [0.55]
b = 0.60 [6.32]
Seff = 29200.42 [9634.84]
Teq = 3333 [275] K
Rp = 0.46 [0.45] Re
a = 0.0231 [0.0045] AU
Ag = 3.24 [6.38] [0.35σ]
Teffp = 6916 [3383] K [1.06σ]

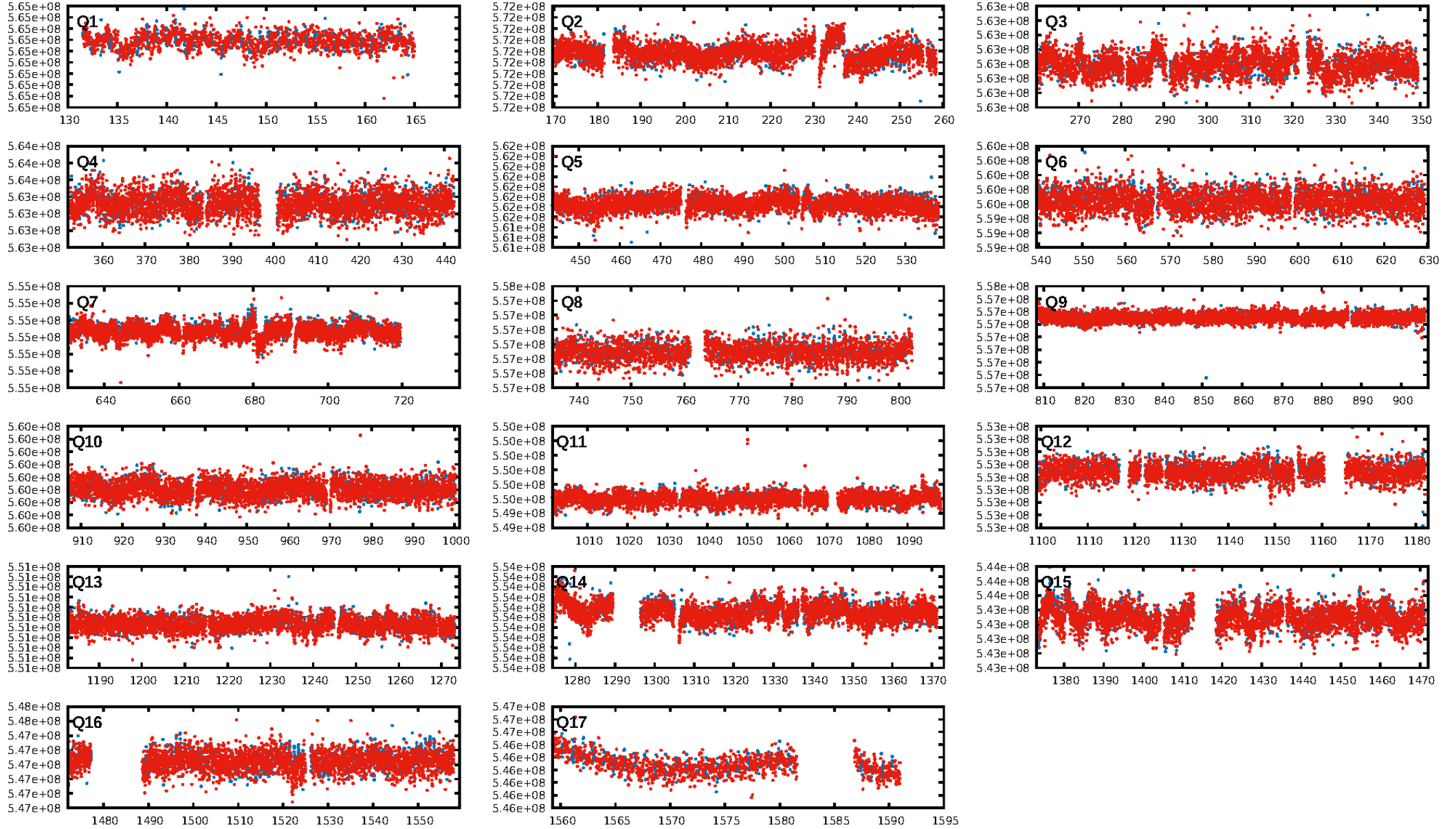
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [743.69σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1345/1379]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 2.620 arcsec [0.86σ]
KicOffset-rm: 2.769 arcsec [0.95σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [17/17]

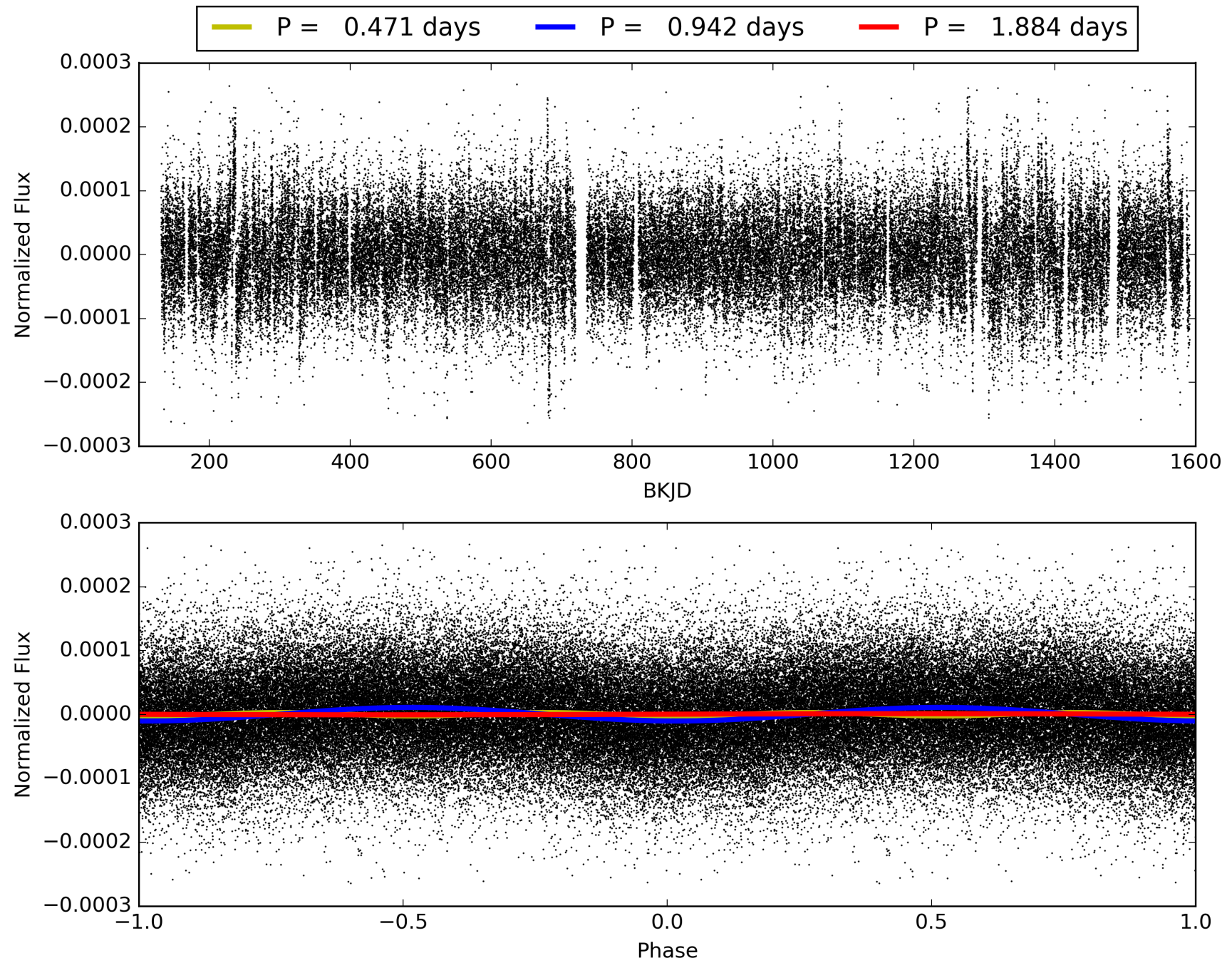
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:42:08 Z

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

TCE 006114539-02, PDC Light Curves

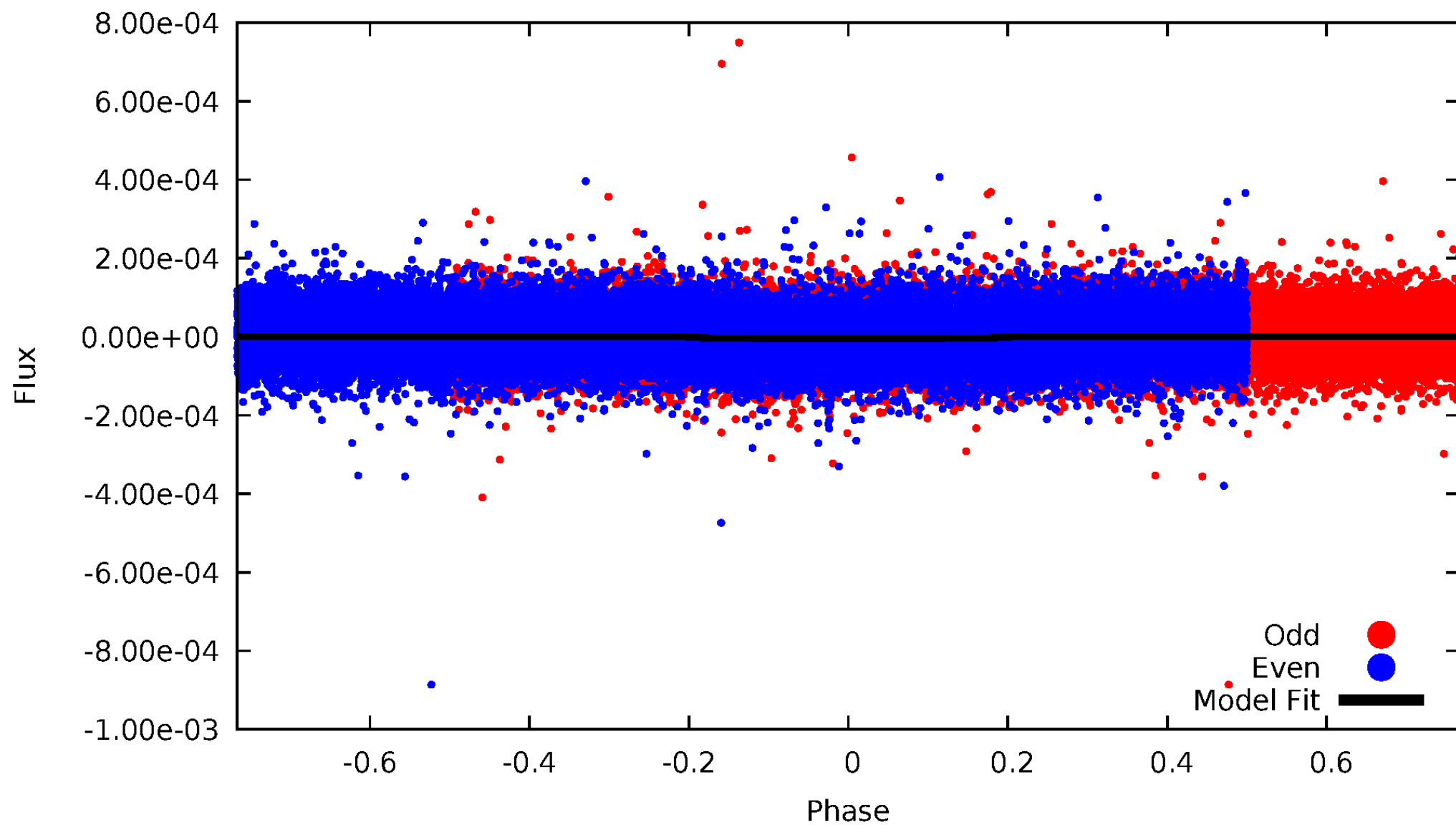


TCE 006114539-02



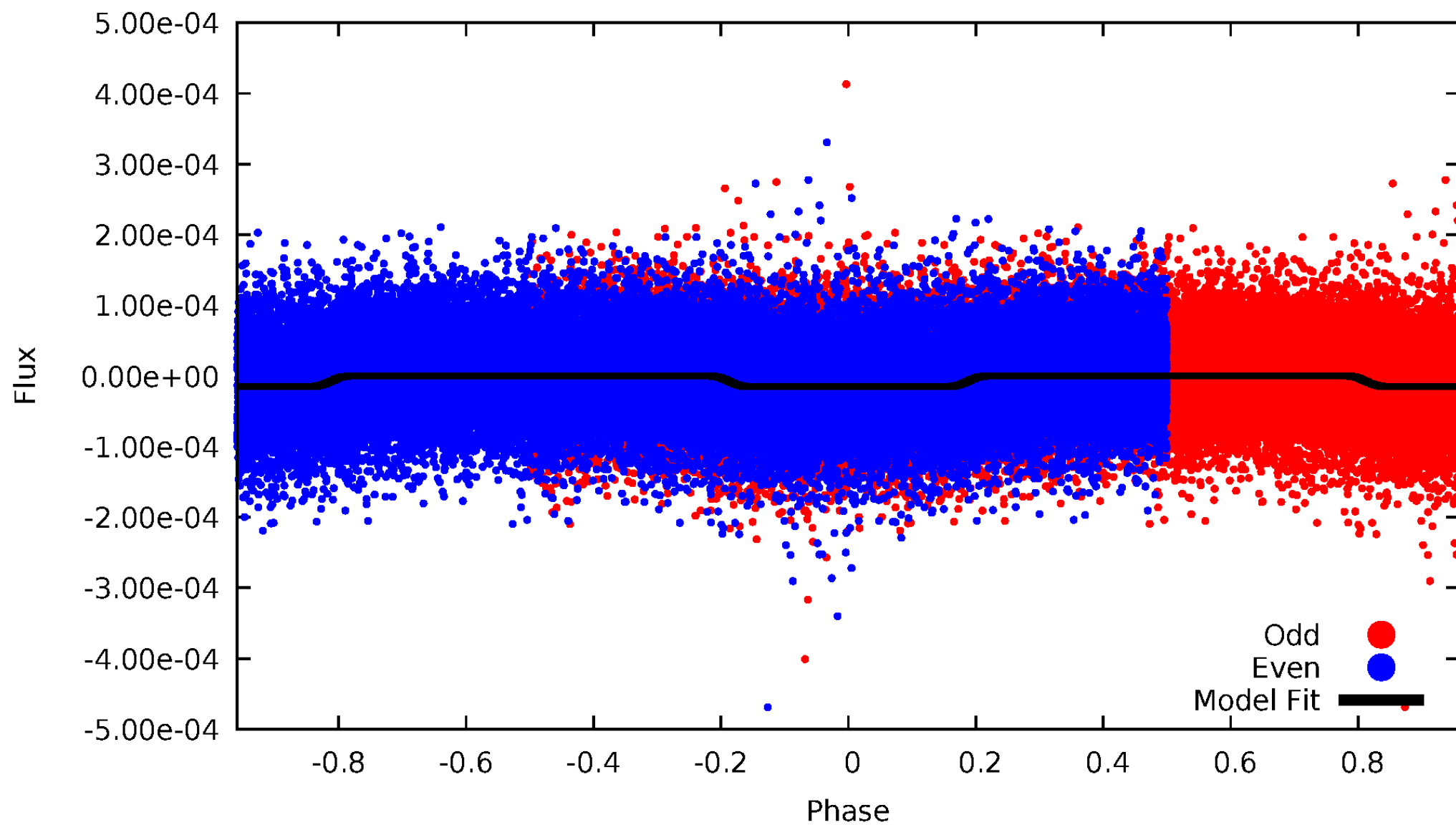
DV Odd/Even

TCE 006114539-02



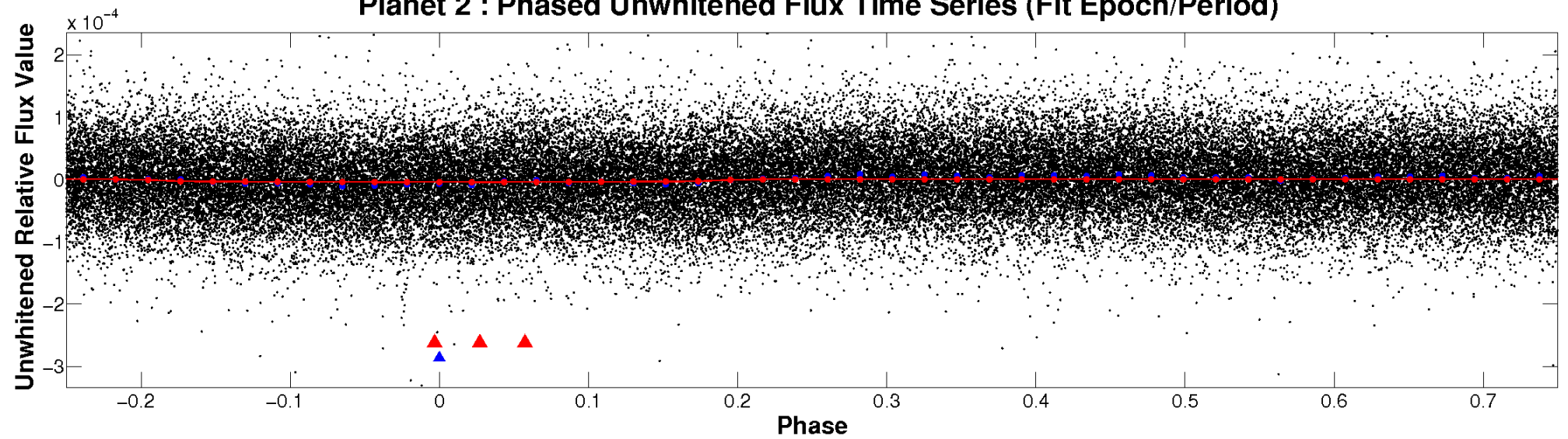
ALT Odd/Even

TCE 006114539-02

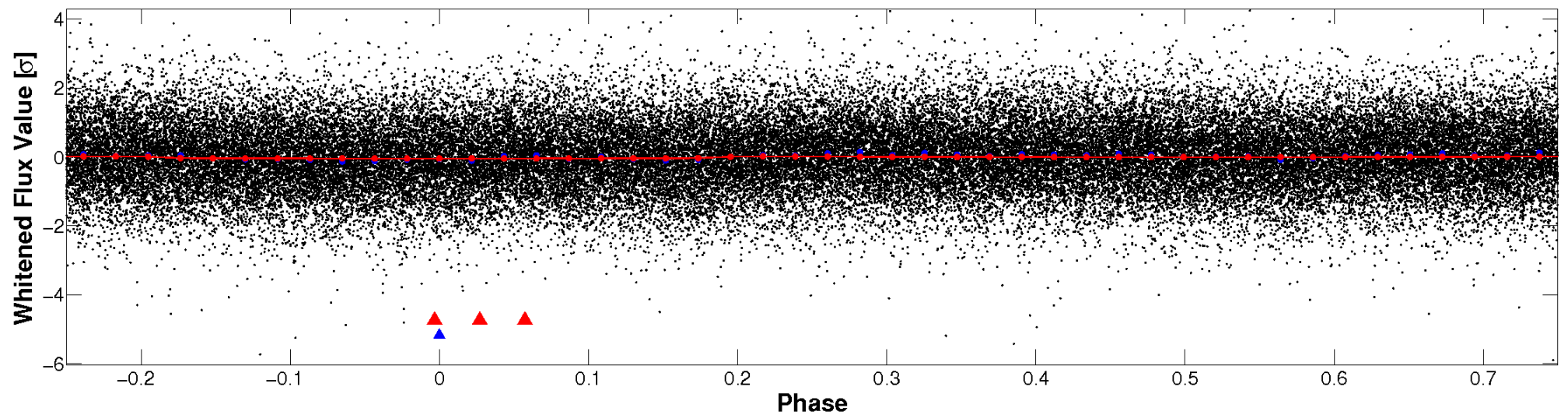


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

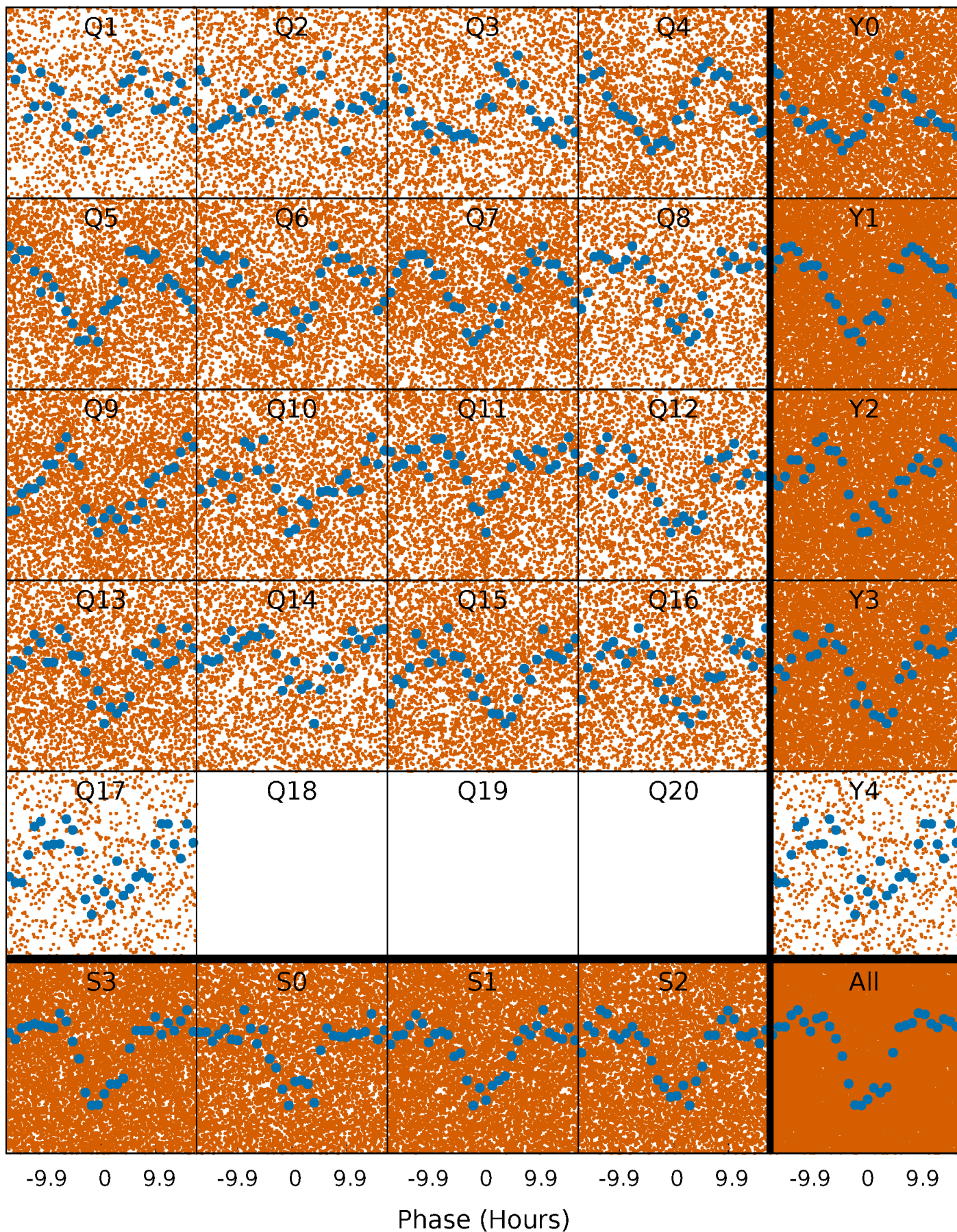


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



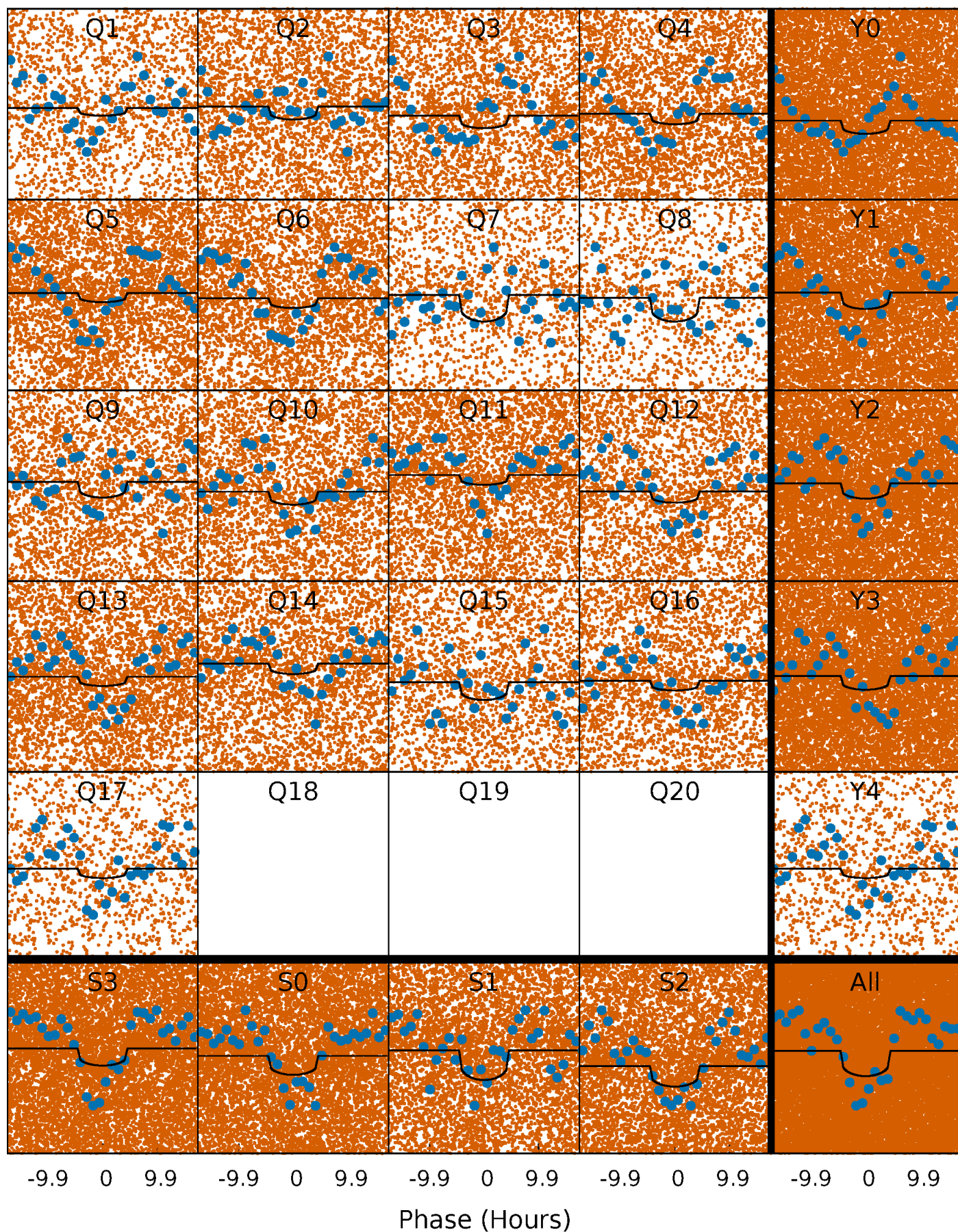
PDC Quarter-Phased Transit Curves

TCE 006114539-02 P= 0.941806 Days $T_0=131.911088$ (BKJD)



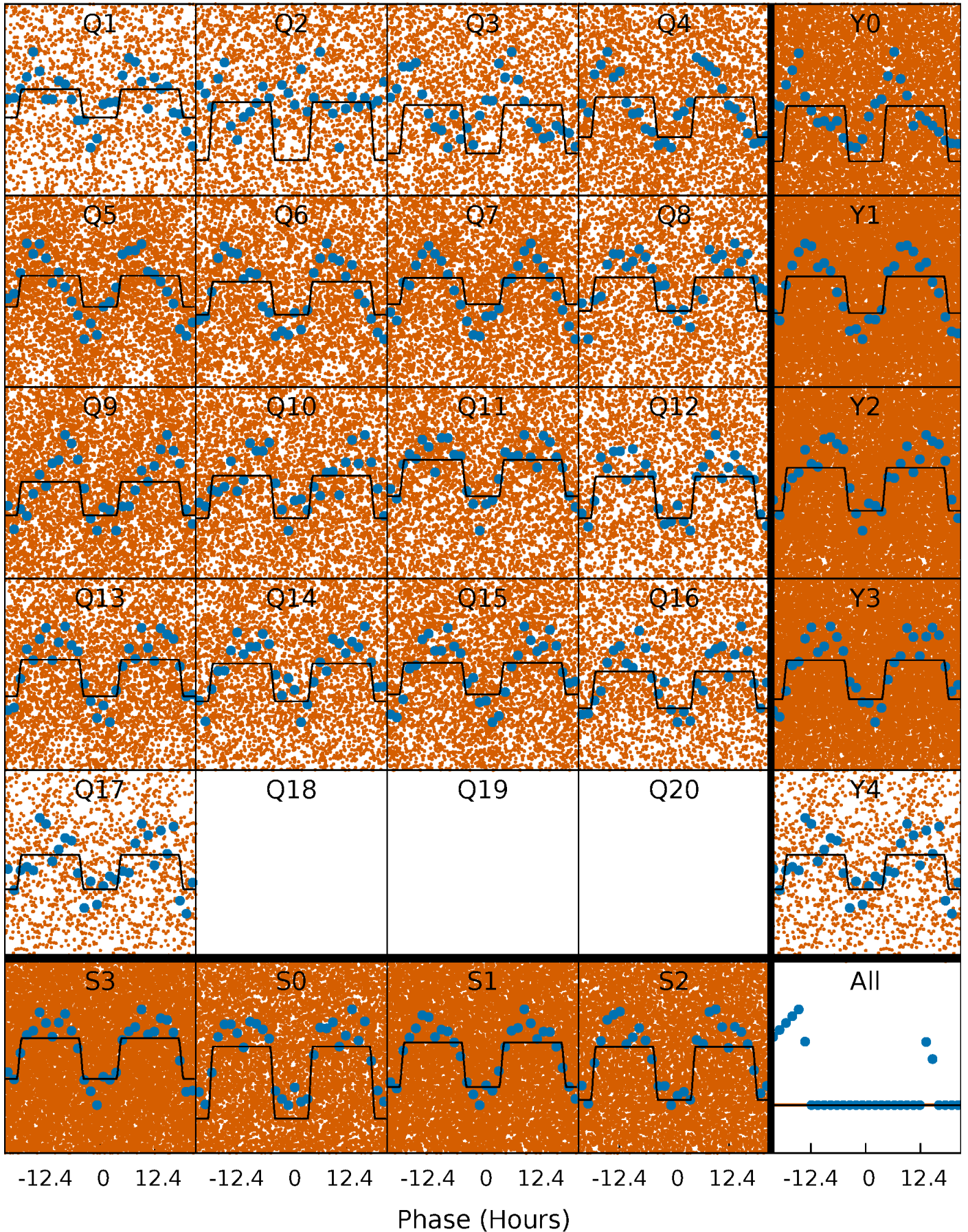
DV Quarter-Phased Transit Curves

TCE 006114539-02 P= 0.941806 Days $T_0=131.911088$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

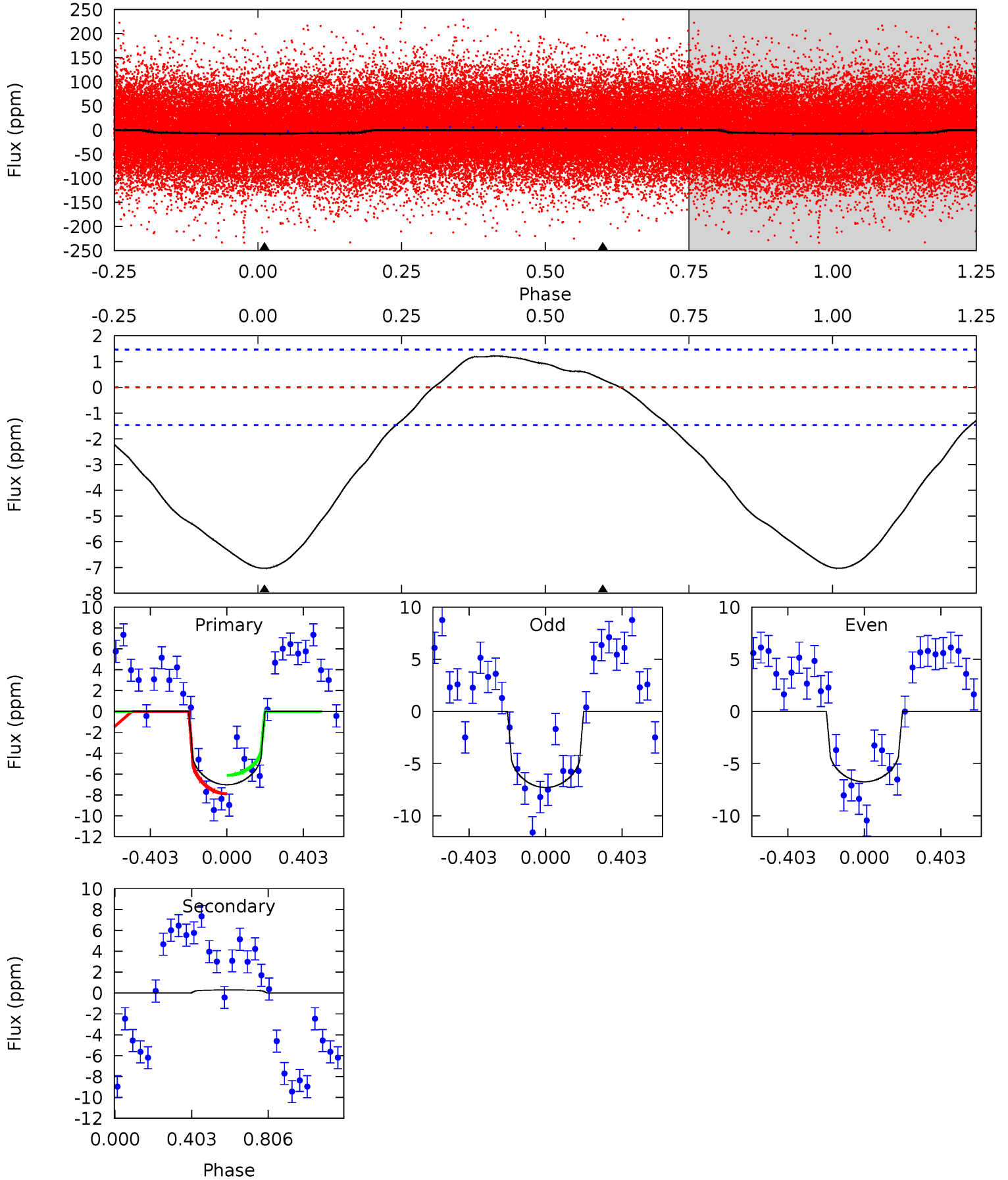
TCE 006114539-02 P= 0.941871 Days $T_0=131.877715$ (BKJD)



DV Model-Shift Uniqueness Test

006114539-02, $P = 0.941806$ Days, $E = 130.969282$ Days

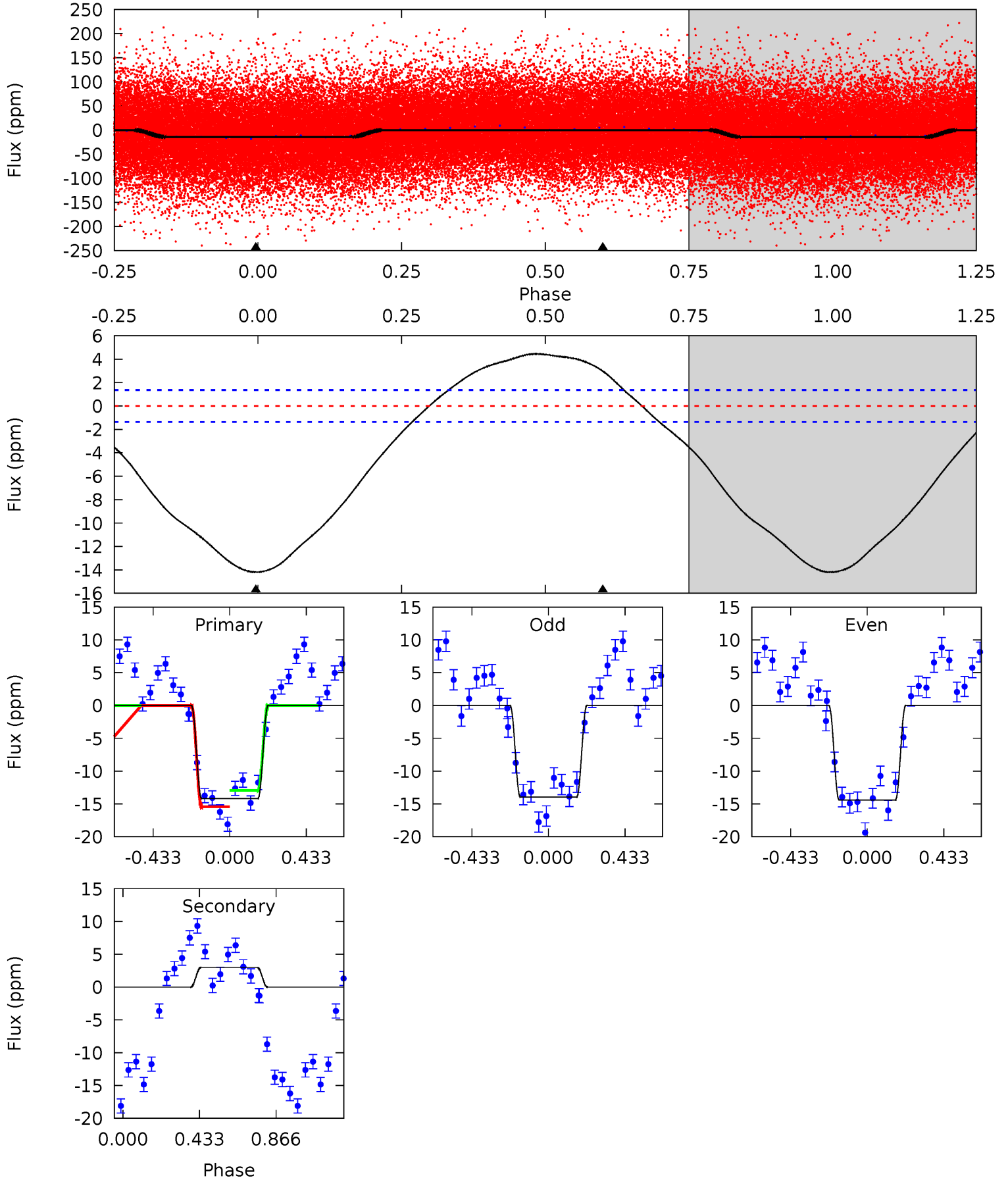
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.4 | -0.88 | 0 | 0 | 4.26 | 0.84 | 1.80 | 20.4 | 20.4 | -0.88 | -0.88 | 0.80 | 1.06 | 0.15 | 2.63 |



Alt Model-Shift Uniqueness Test

006114539-02, P = 0.941871 Days, E = 130.935844 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 44.1 | -9.25 | 0 | 0 | 4.25 | 0.78 | 3.96 | 44.1 | 44.1 | -9.25 | -9.25 | 0.65 | 1.04 | 0.24 | 3.72 |



Stellar Parameters For KIC 006114539

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (g \cdot \text{cm}^{-3})$ |
|--------|----------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------------------|
| | 7872^{+216}_{-351} | $4.049^{+0.150}_{-0.150}$ | $0.070^{+0.200}_{-0.350}$ | $2.124^{+0.494}_{-0.494}$ | $1.841^{+0.147}_{-0.319}$ | $0.271^{+0.215}_{-0.121}$ |
| | +3%/-4% | +4%/-4% | +286%/-500% | +23%/-23% | +8%/-17% | +79%/-45% |
| 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 006114539-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | 0 ± 0 | $0.56^{+0.40}_{-0.35}$ | 4625^{+311}_{-280} | -4476^{+533}_{-1533} | $-0.213^{+0.228}_{-1.462}$ |
| Alt. | 3 ± 0 | $0.87^{+0.44}_{-0.41}$ | 4652^{+301}_{-325} | -5491^{+623}_{-1957} | $-1.099^{+0.610}_{-2.967}$ |

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 $A_{obs} \gg 1.0$

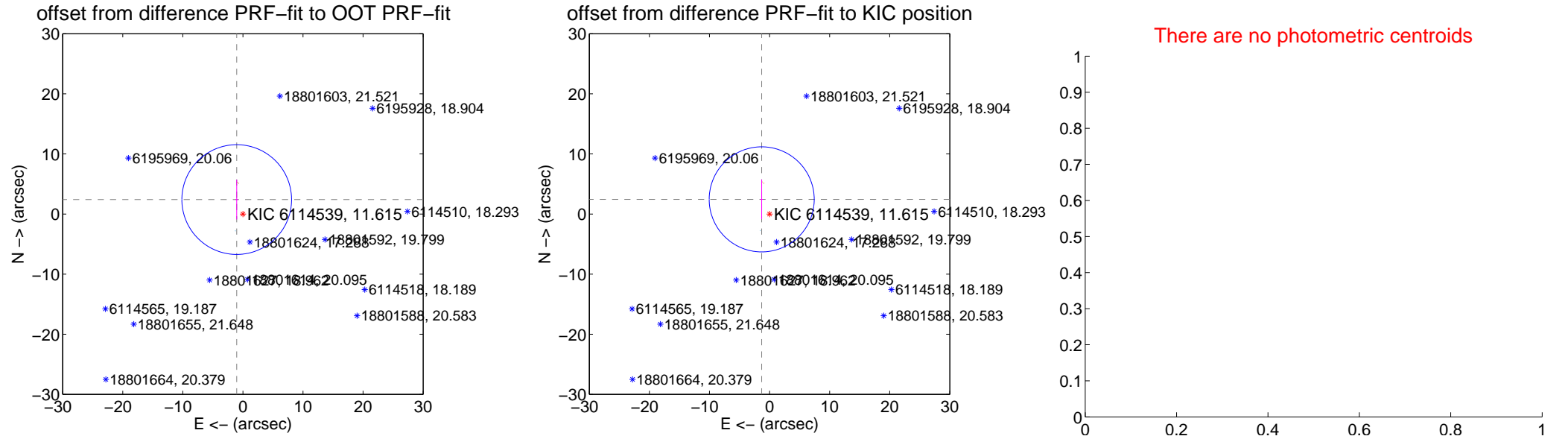
DV Centroid Data

Supplemental centroid analysis for 006114539-02. **Kepler magnitude: 11.62.** Transit SNR 7.20

There are 1 quarters with good PRF difference image offsets

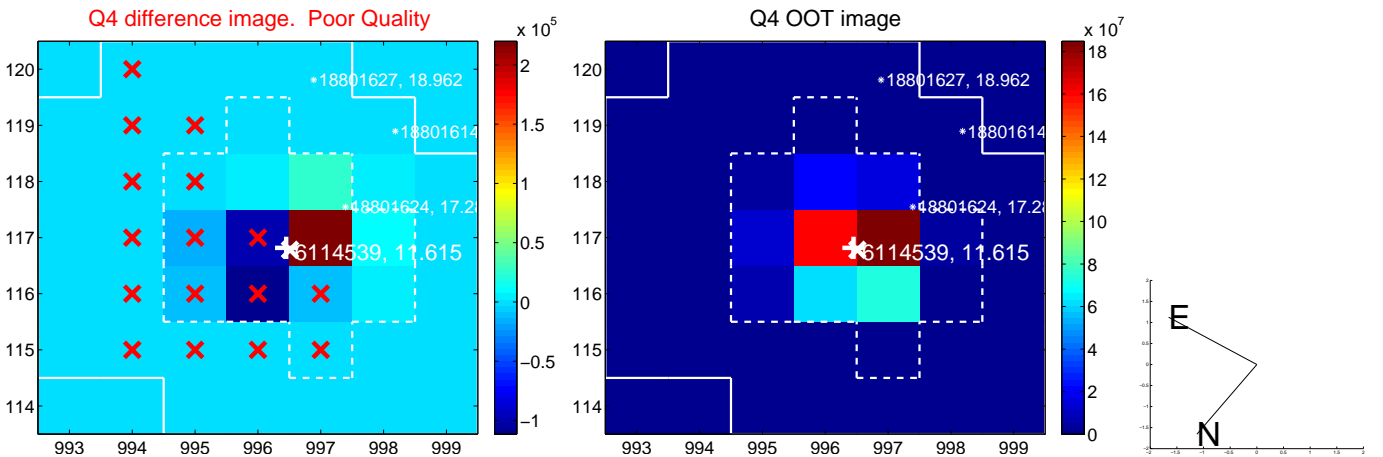
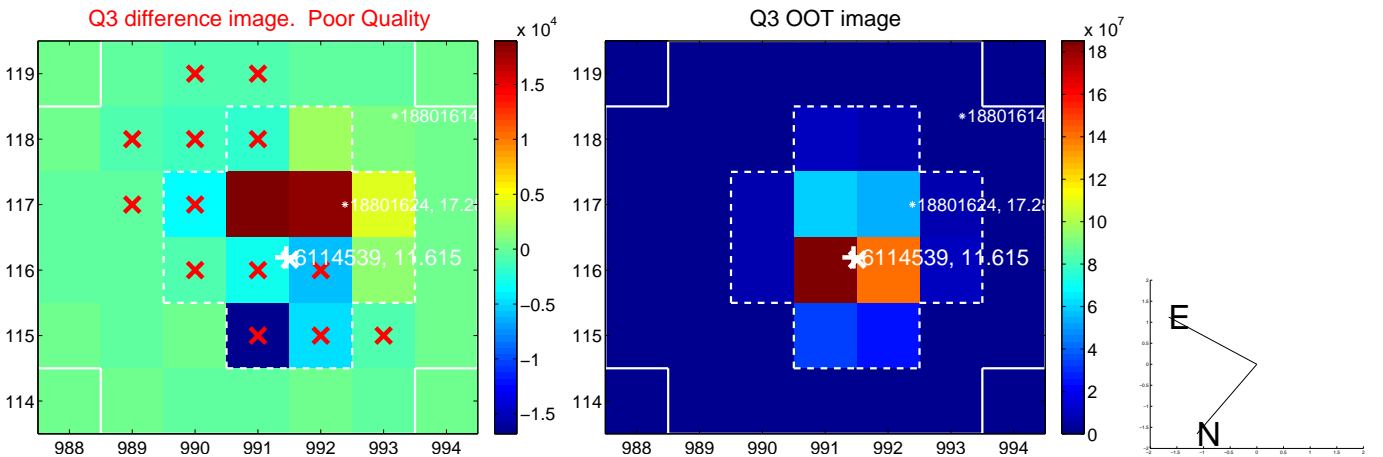
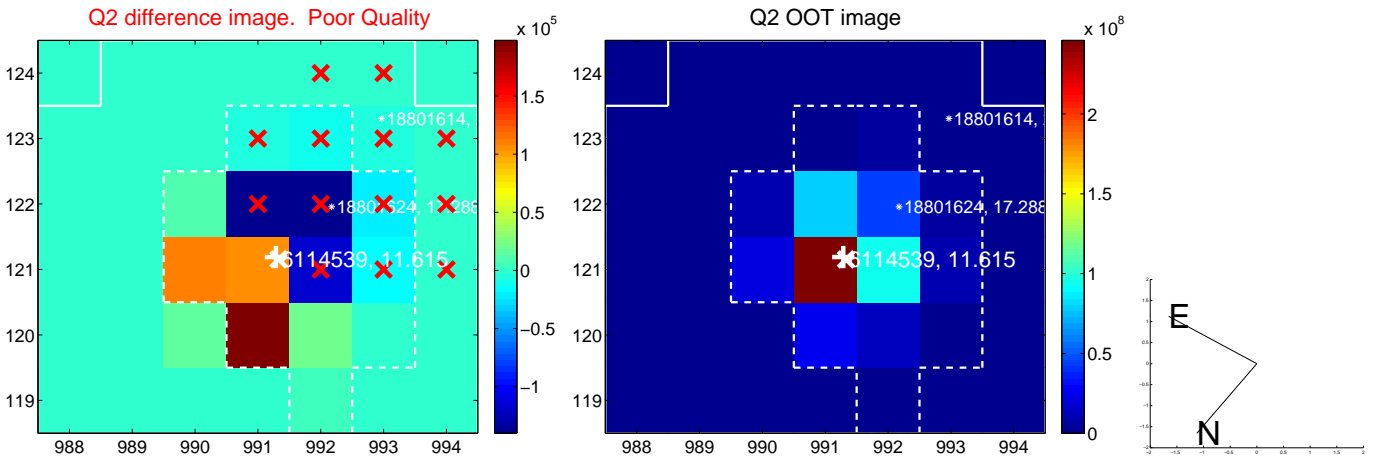
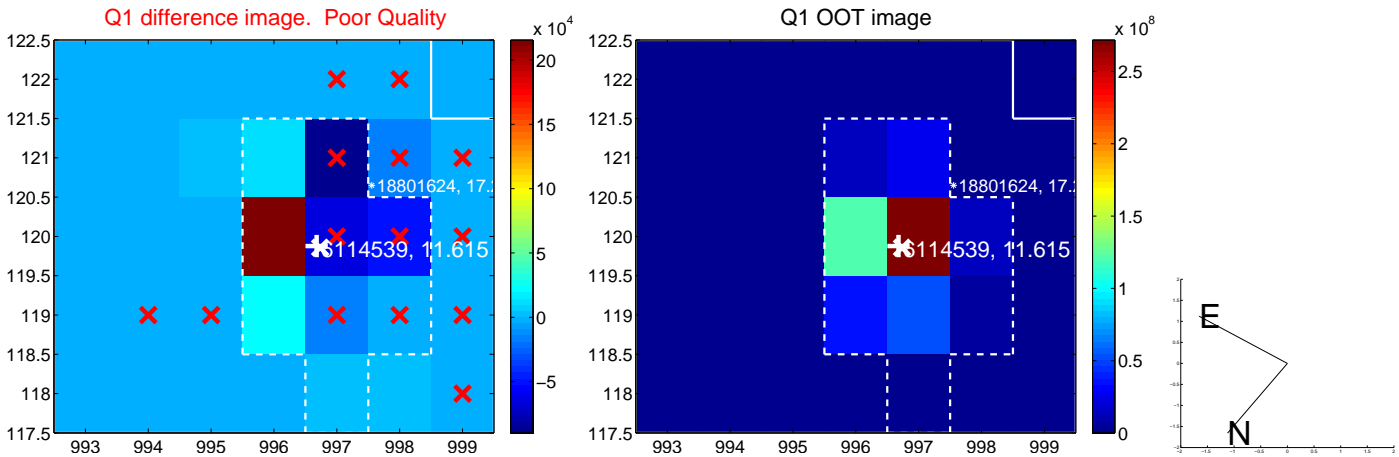
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|-------------------|
| PRF-fit source offset from OOT | 2.620 ± 3.043 | 0.86 | 1.033 ± 0.191 | 2.407 ± 3.311 |
| PRF-fit source offset from KIC position | 2.769 ± 2.914 | 0.95 | 1.308 ± 0.214 | 2.441 ± 3.304 |
| photometric centroid source offset | — | — | — | — |

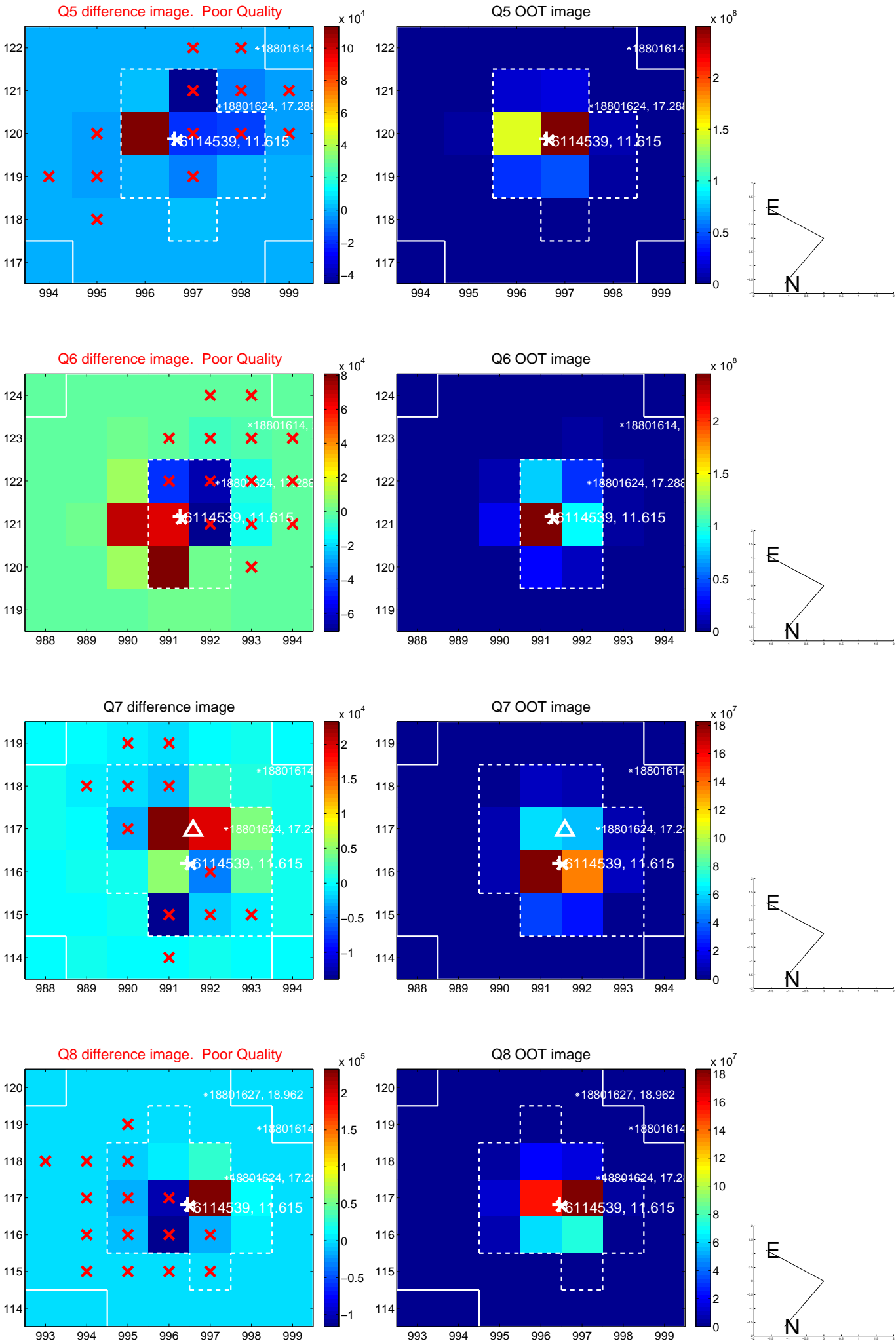


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

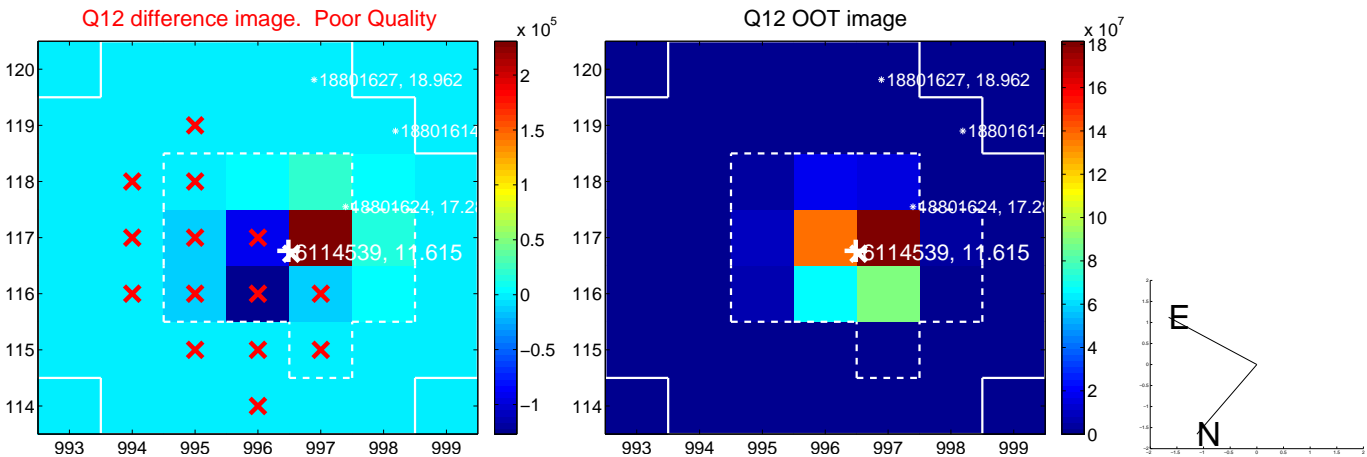
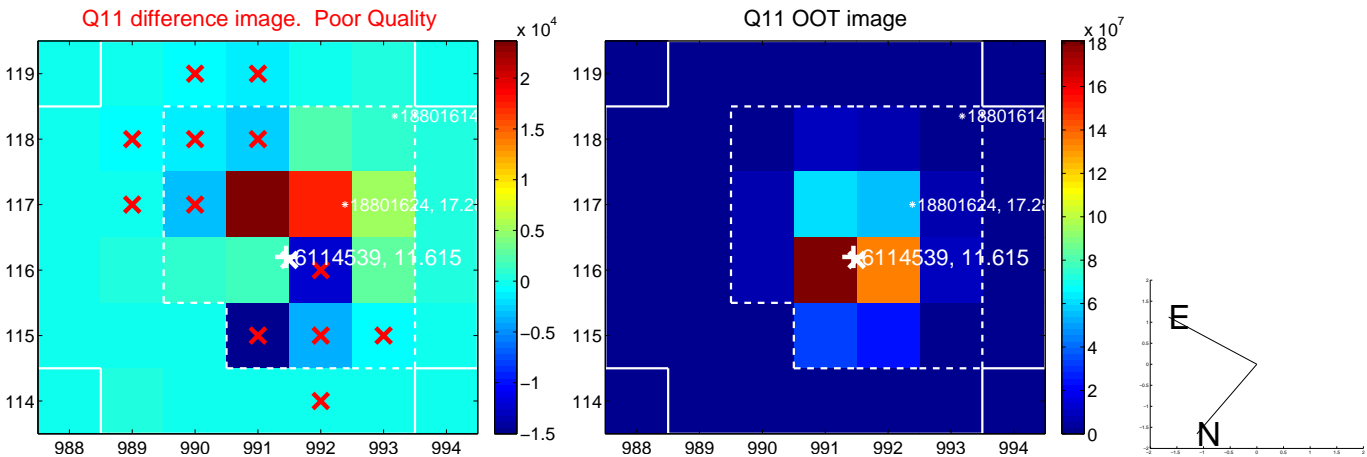
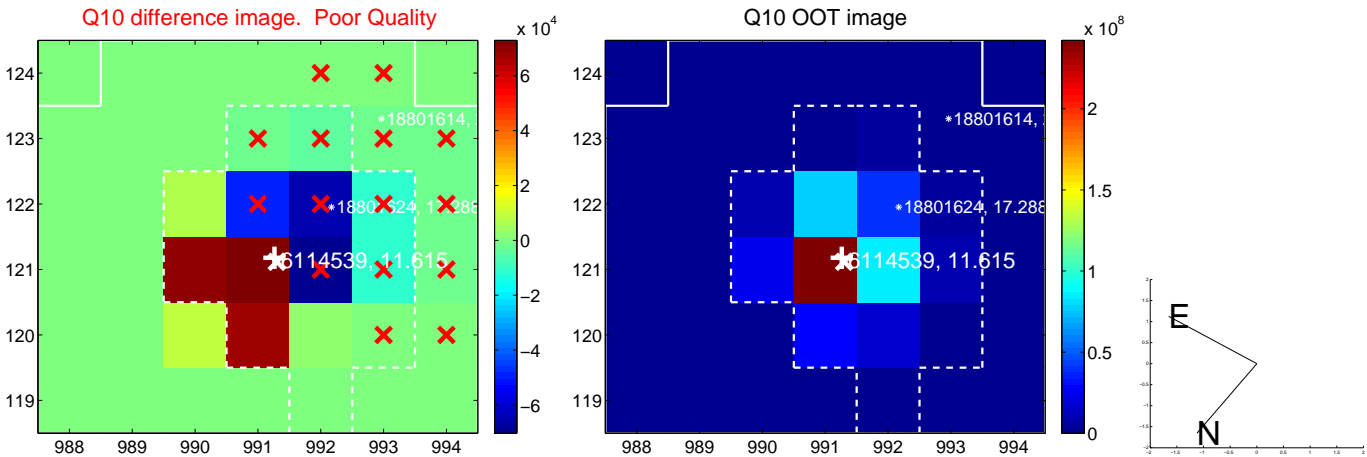
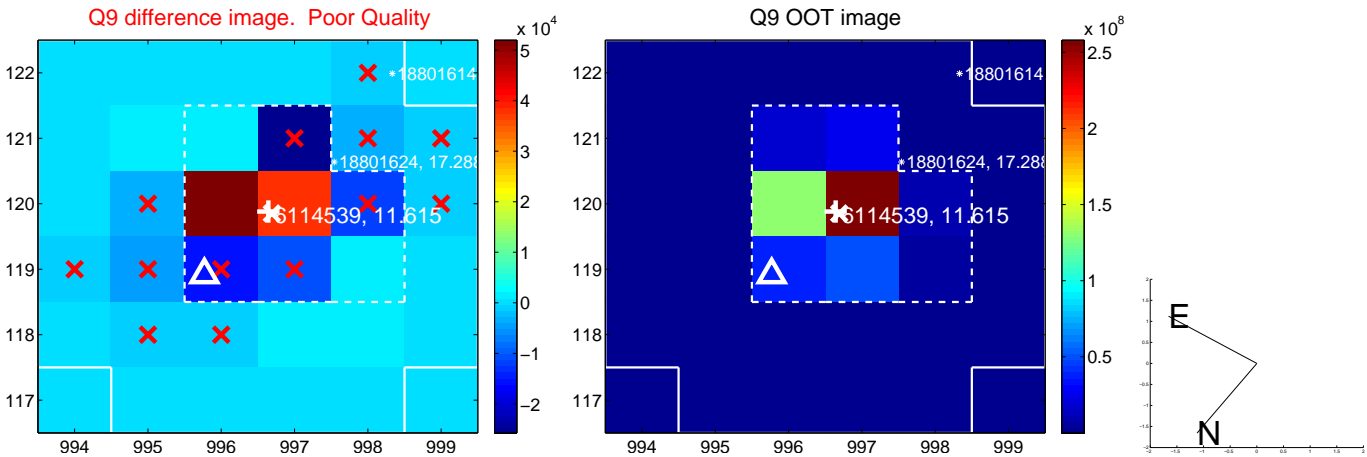
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



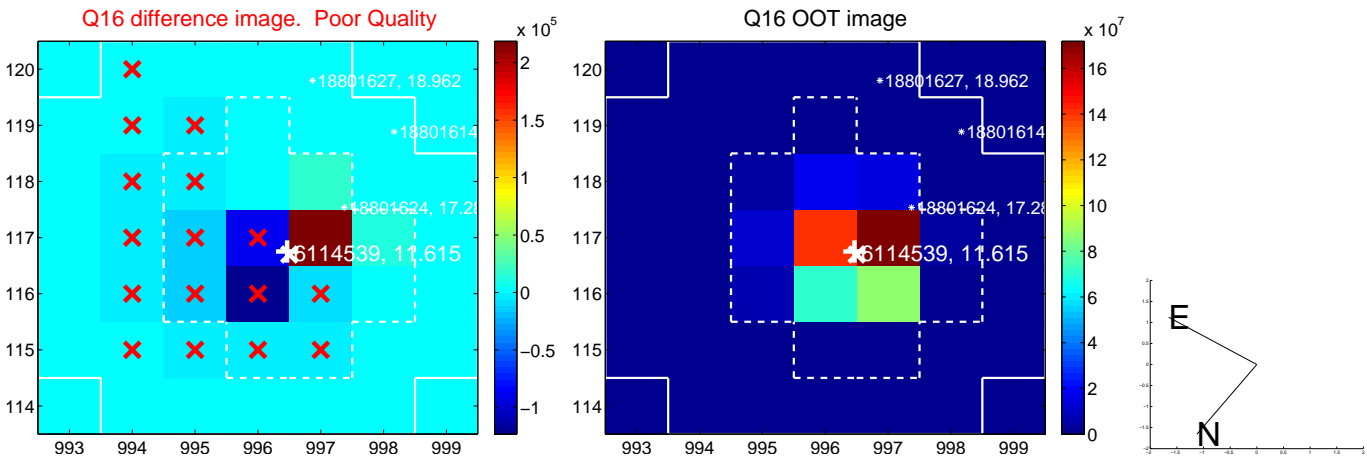
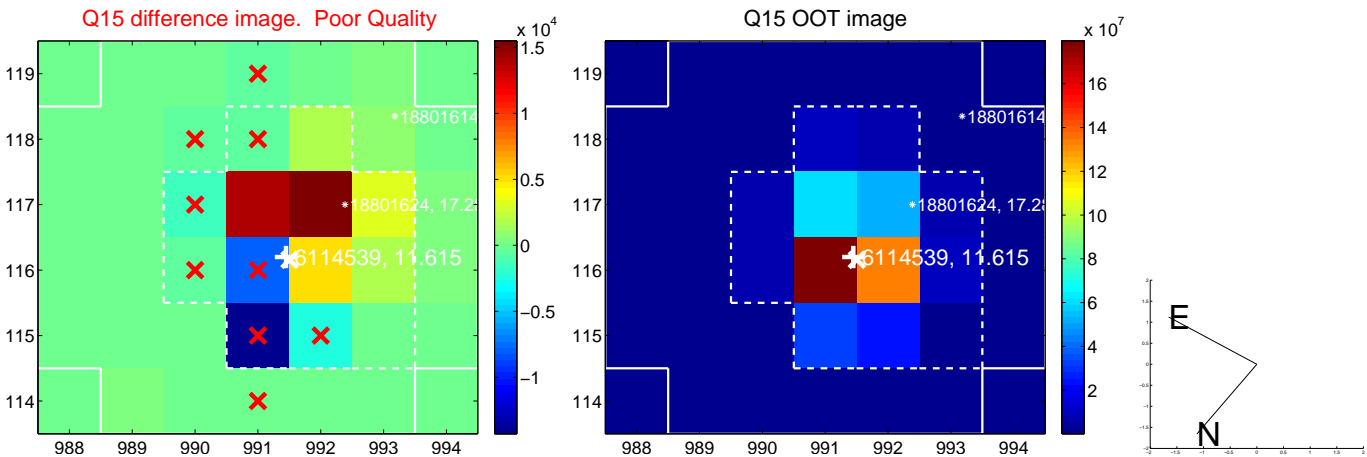
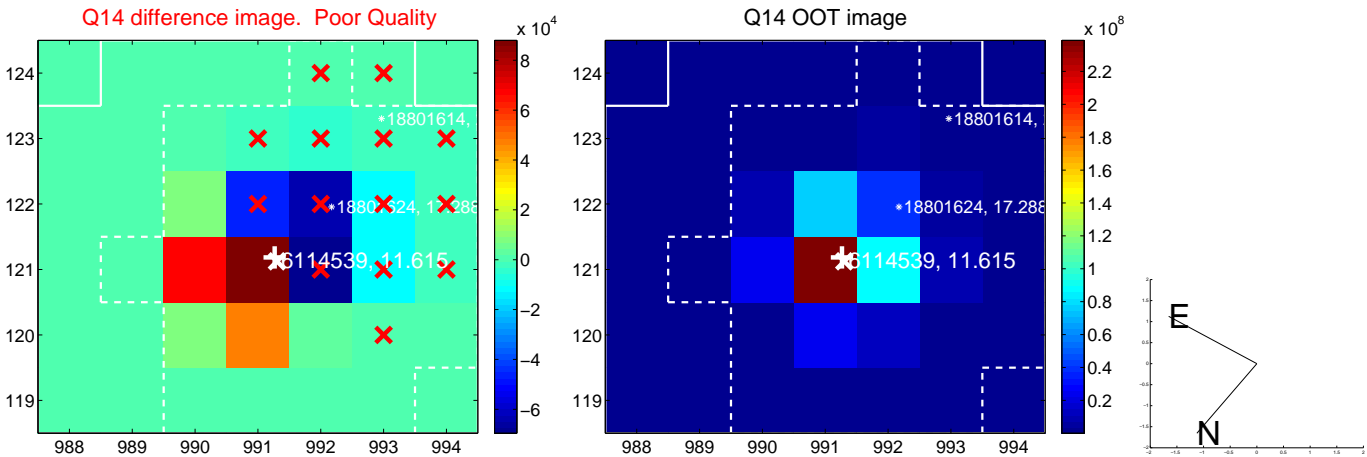
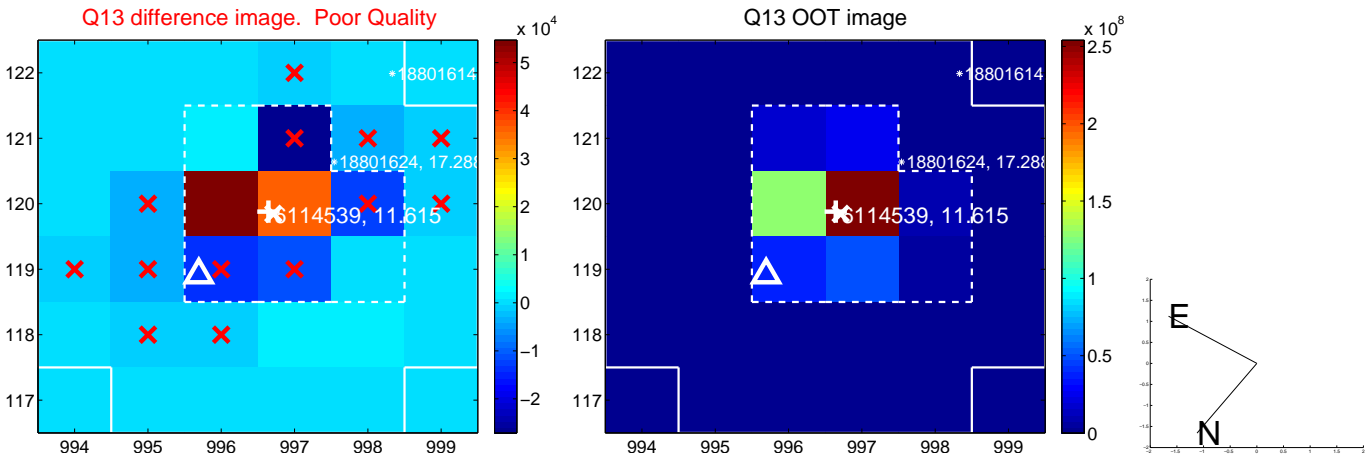
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



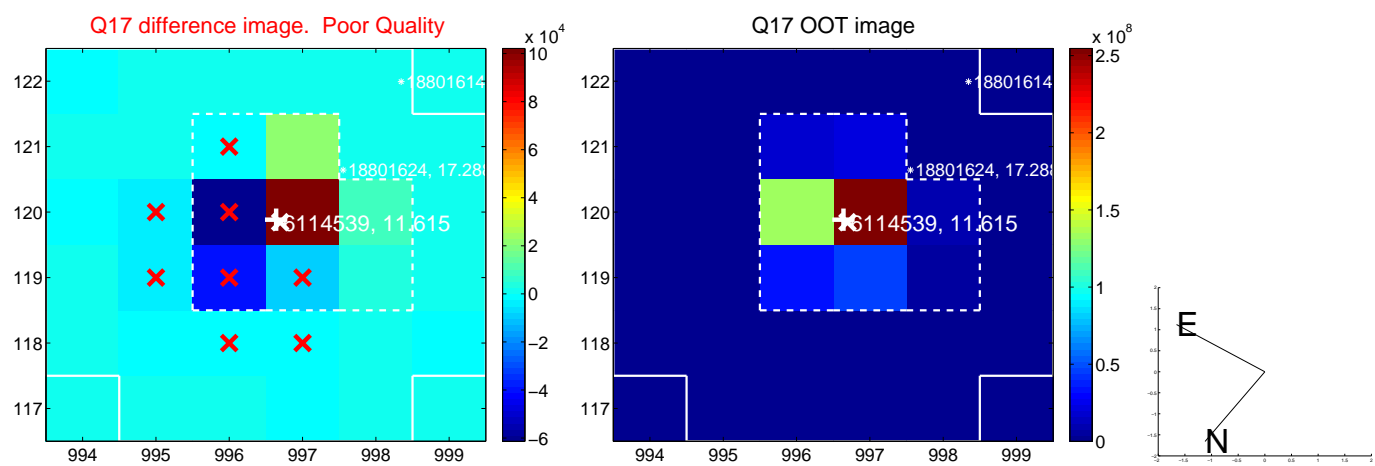
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



folded centroid time series figure for this object.

UKIRT Image

Declination

