

KIC 006046311

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006046311-01 | OBS | No | 0.958353 | 132.116492 | 13.9 | 5.377 | 42.6 | 1.9 | 1.12 | 6312 | 0.43 | 4945.27 |
| 006046311-02 | OBS | 6654.01 | 0.958163 | 131.820422 | 8.6 | 3.338 | 19.1 | 1.3 | 1.12 | 6312 | 0.39 | 4946.58 |
| 006046311-04 | OBS | No | 1.906049 | 133.667142 | 196.9 | 7.988 | 8.9 | 4.4 | 1.12 | 6312 | 1.60 | 1977.18 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------------------------------------------------------------|
| 006046311-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 006046311-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD |
| 006046311-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV |

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.

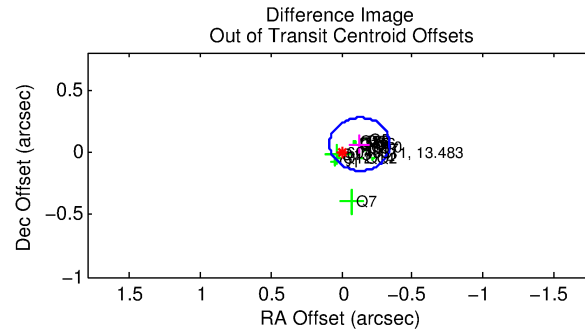
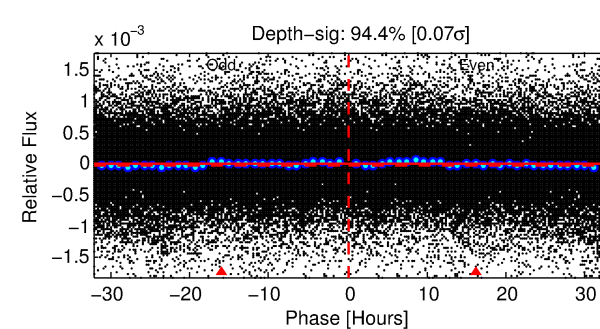
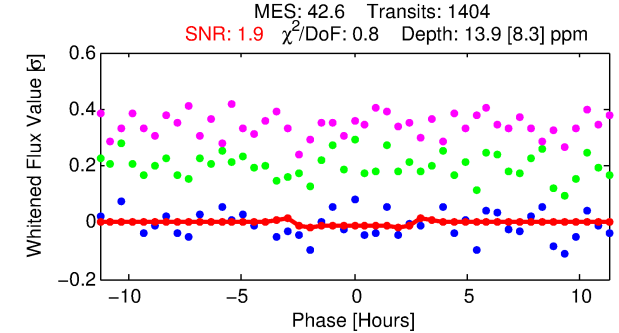
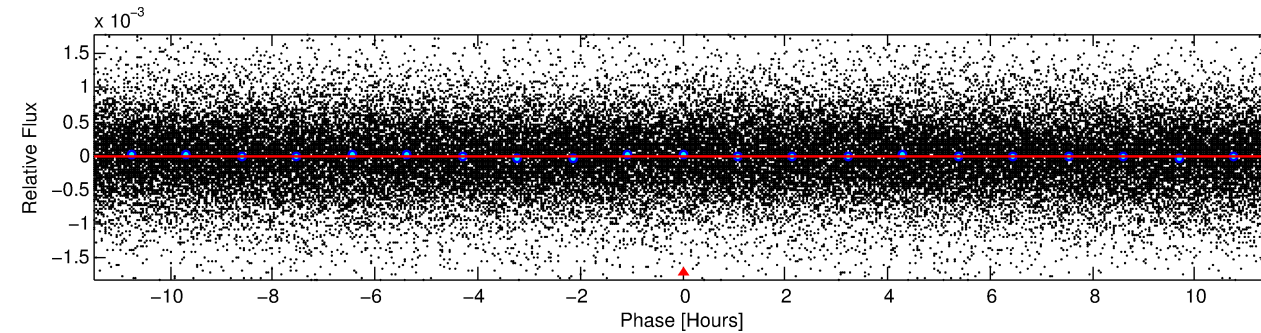
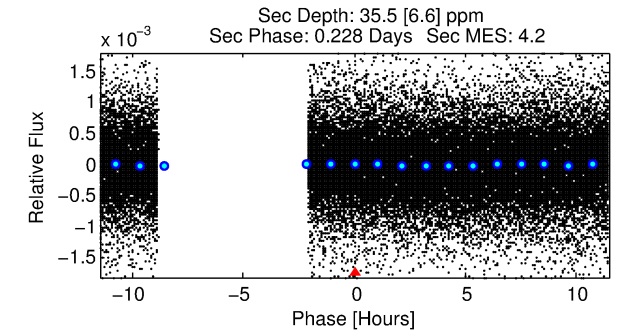
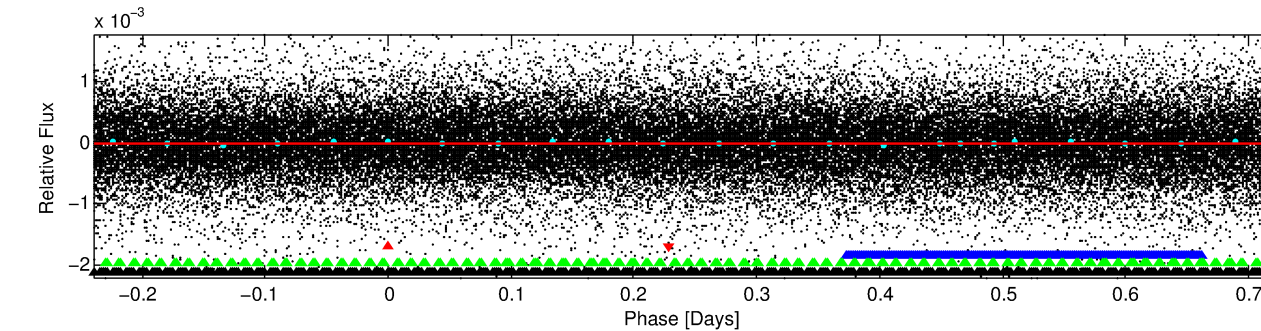
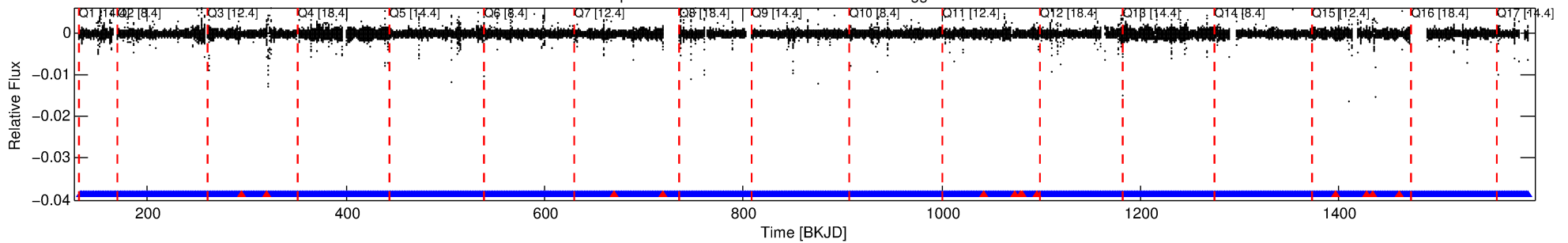
Ephemeris Match Information For 006046311-01

No Significant Match Found

DV One-Page Summary

KIC: 6046311 Candidate: 1 of 4 Period: 0.958 d
KOI: K06654 Corr: No Ephemeris Match

Kp: 13.48 R*: 1.12 Rs Teff: 6312.0 K Logg: 4.34 Fe/H: -0.340



DV Fit Results:

Period = 0.95835 [0.00005] d
Epoch = 132.1165 [0.0094] BKJD
Rp/R* = 0.0036 [0.0025]
a/R* = 1.36 [2.11]
b = 0.57 [4.05]
Seff = 4945.27 [1826.95]
Teff = 2138 [197] K
Rp = 0.44 [0.33] Re
a = 0.0190 [0.0046] AU
Ag = 37.33 [53.65] [0.68σ]
Teffp = 8172 [2863] K [2.10σ]

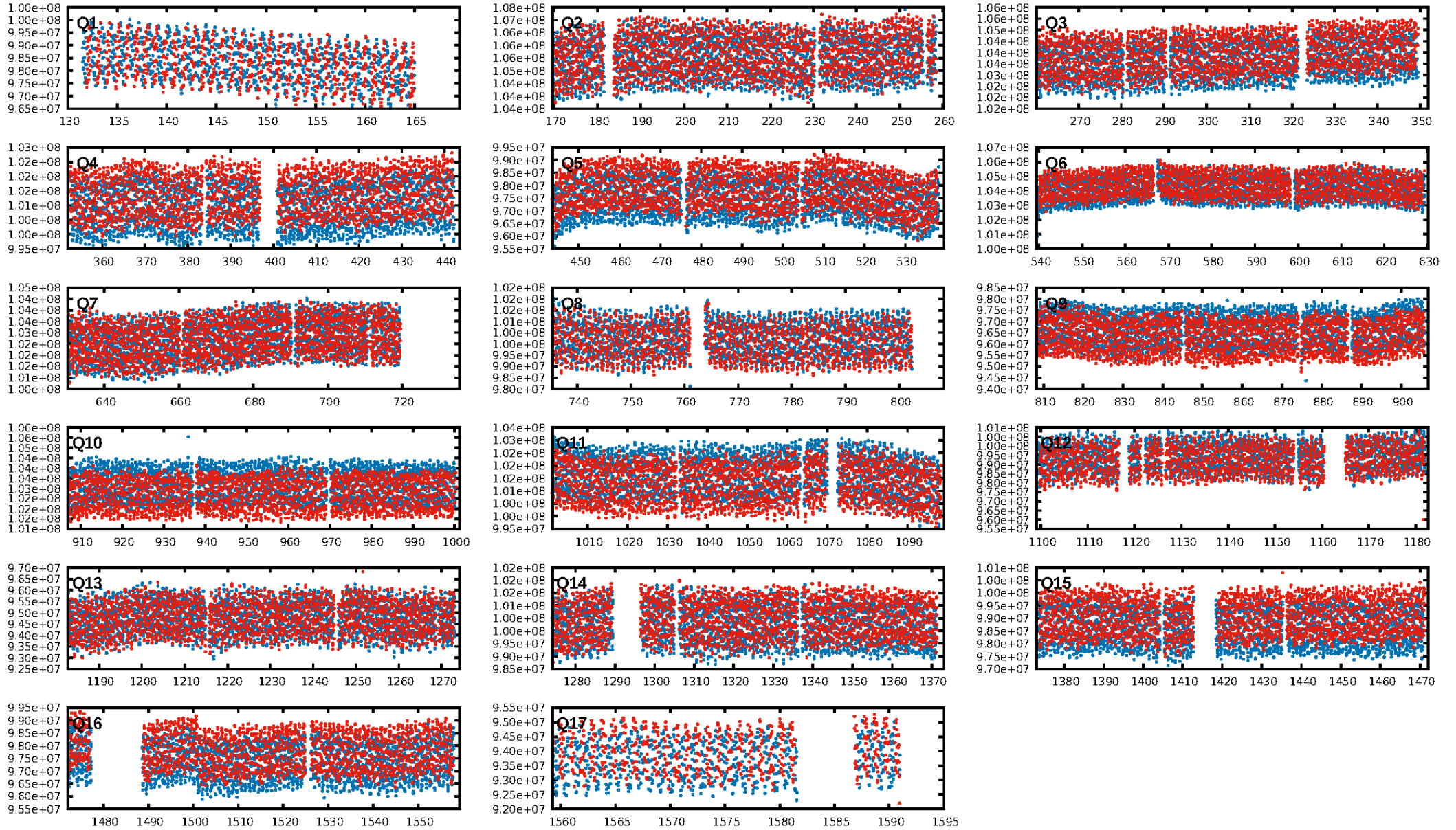
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 98.2% [2.36σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1328/1341]
GhostDiagnostic-chr: -4.946
Centroid-sig: 0.0%
Centroid-so: 8.140 arcsec [1.83σ]
OotOffset-rm: 0.143 arcsec [2.02σ]
KicOffset-rm: 0.017 arcsec [0.24σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.35 [6/17]
DiffImageOverlap-fno: 0.00 [0/17]

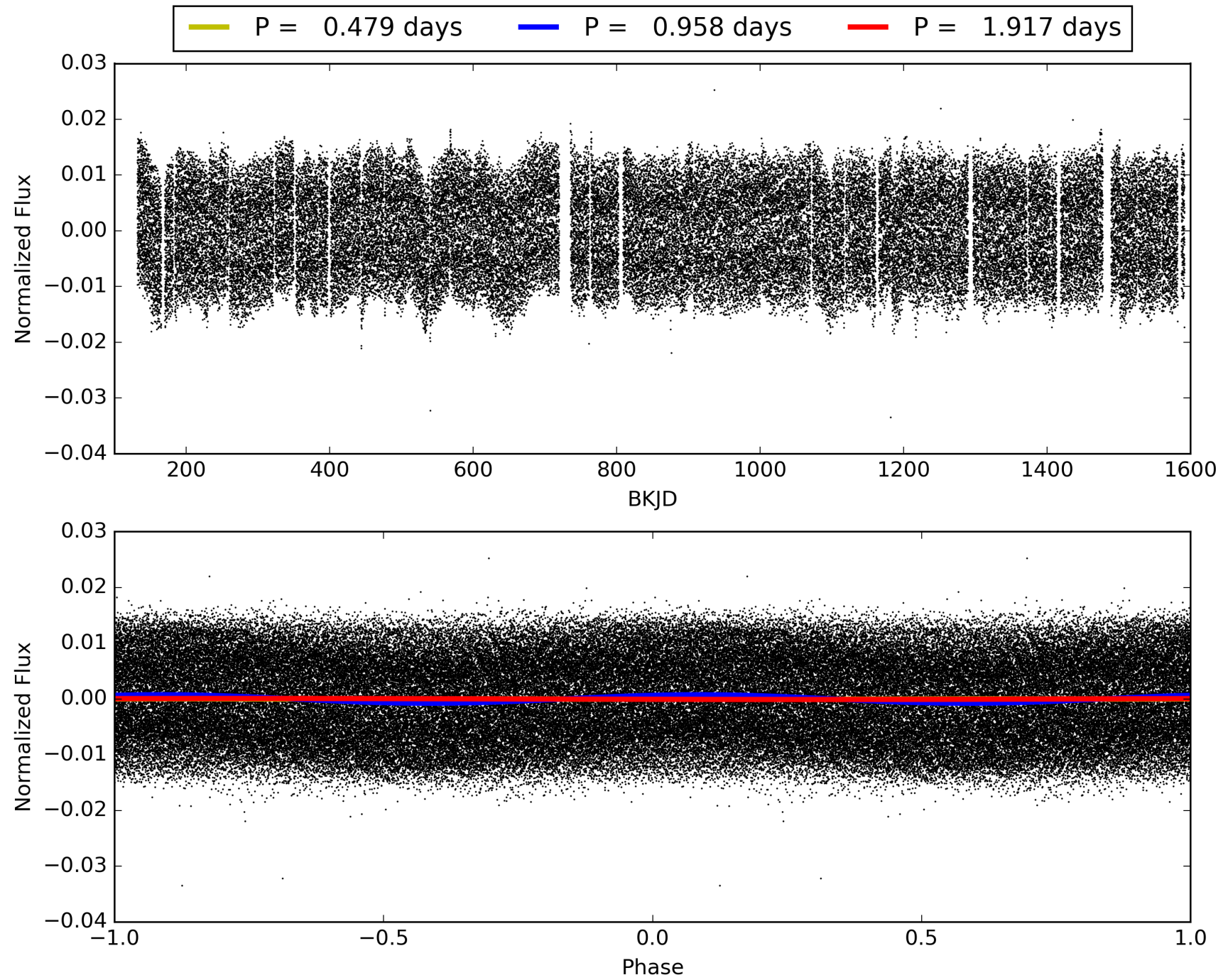
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:23:37 Z

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

TCE 006046311-01, PDC Light Curves

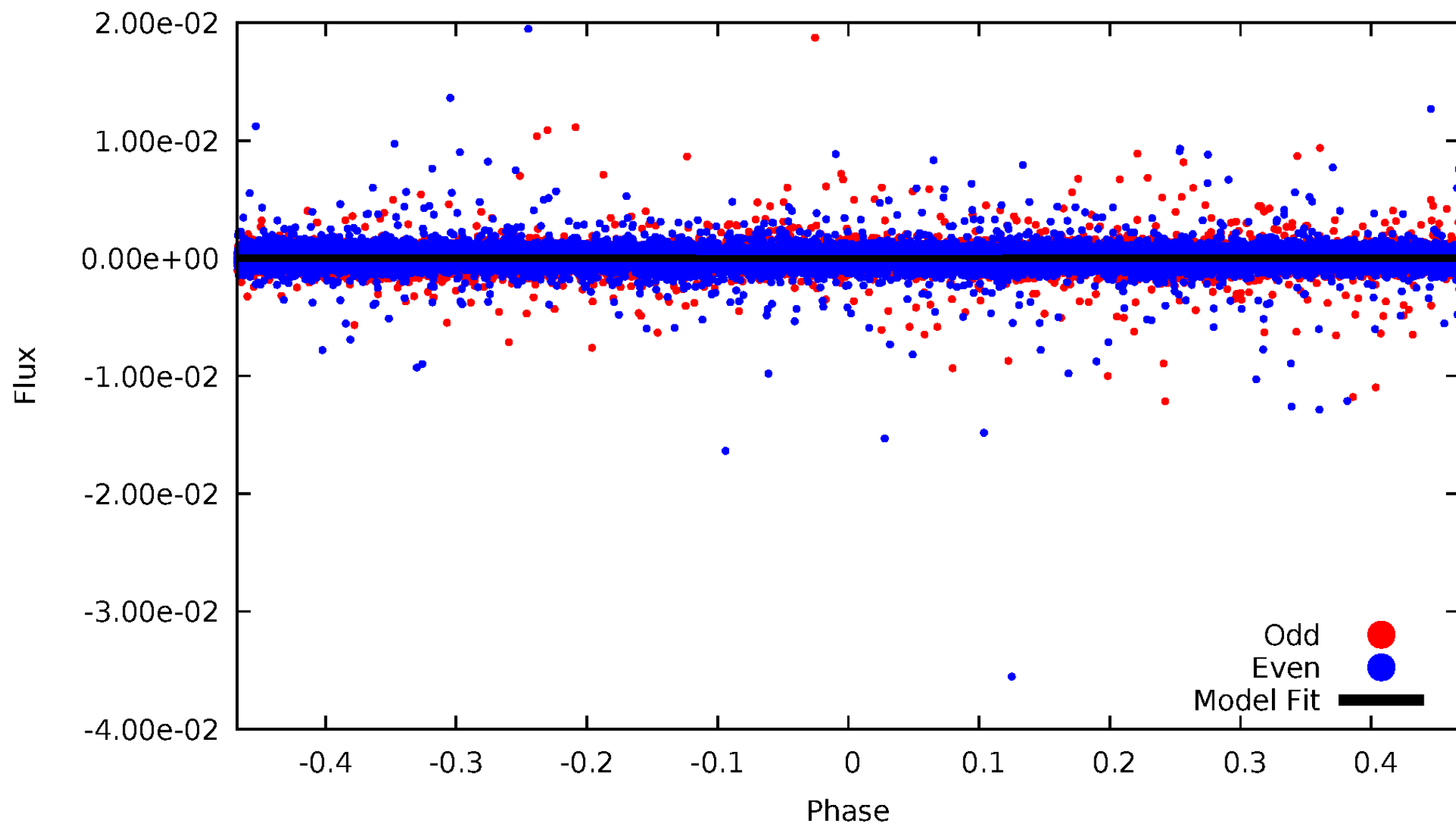


TCE 006046311-01



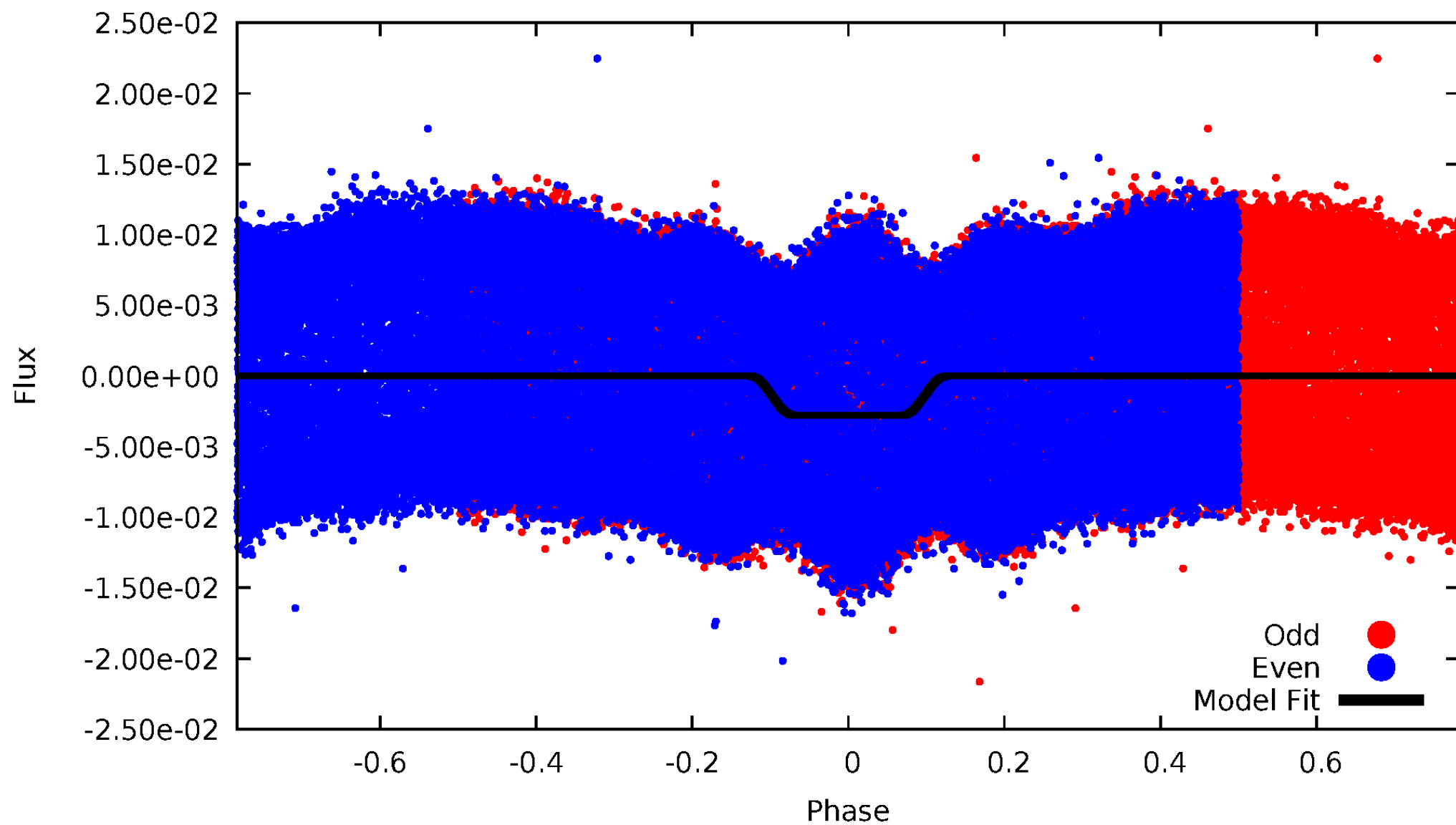
DV Odd/Even

TCE 006046311-01



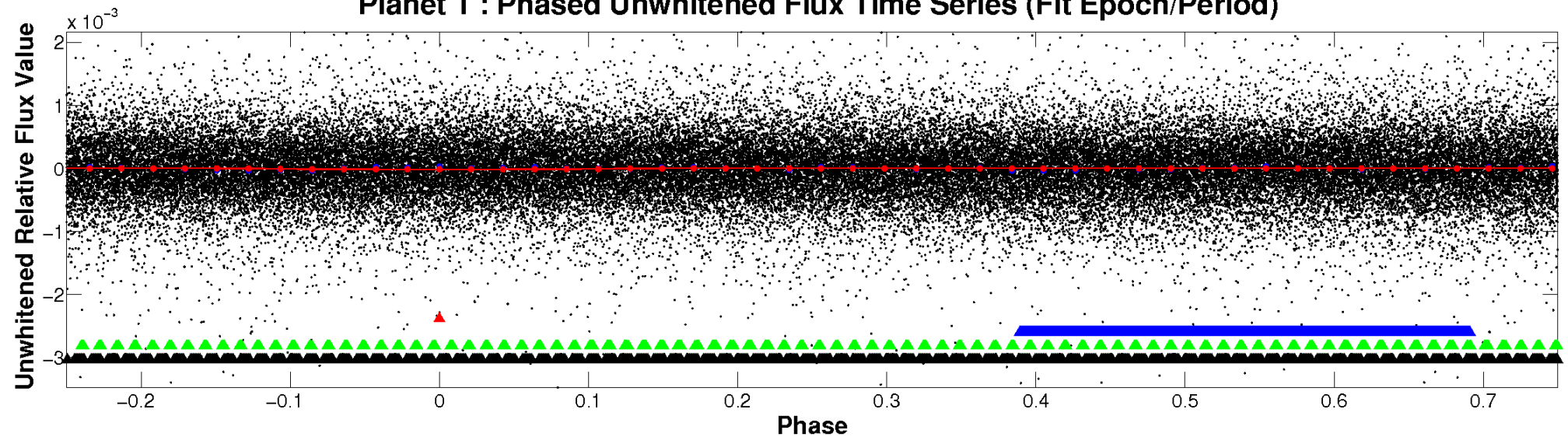
ALT Odd/Even

TCE 006046311-01

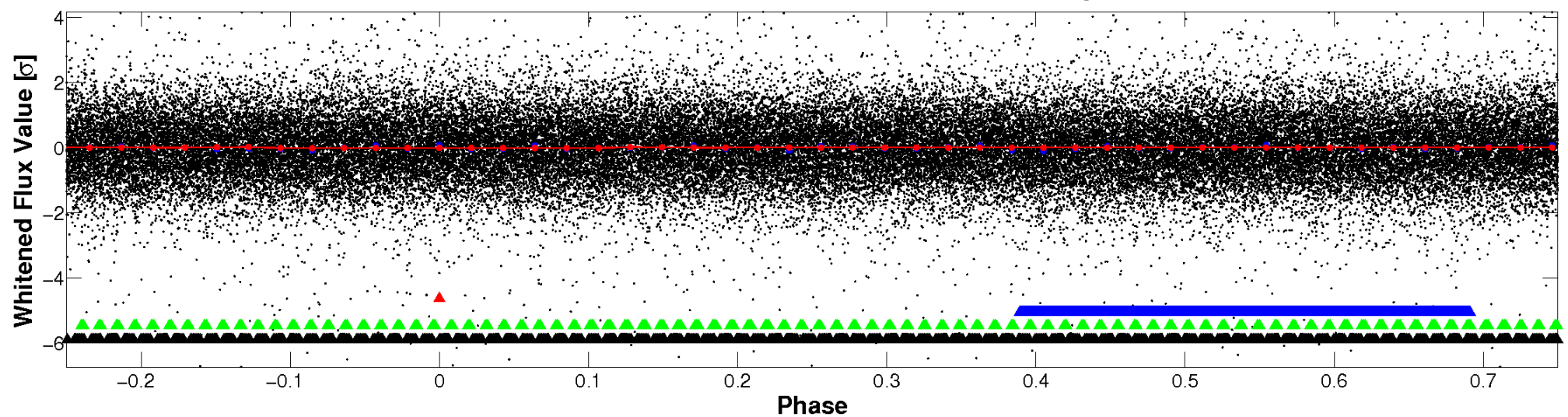


Non-Whitened Vs. Whitened Light Curve

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

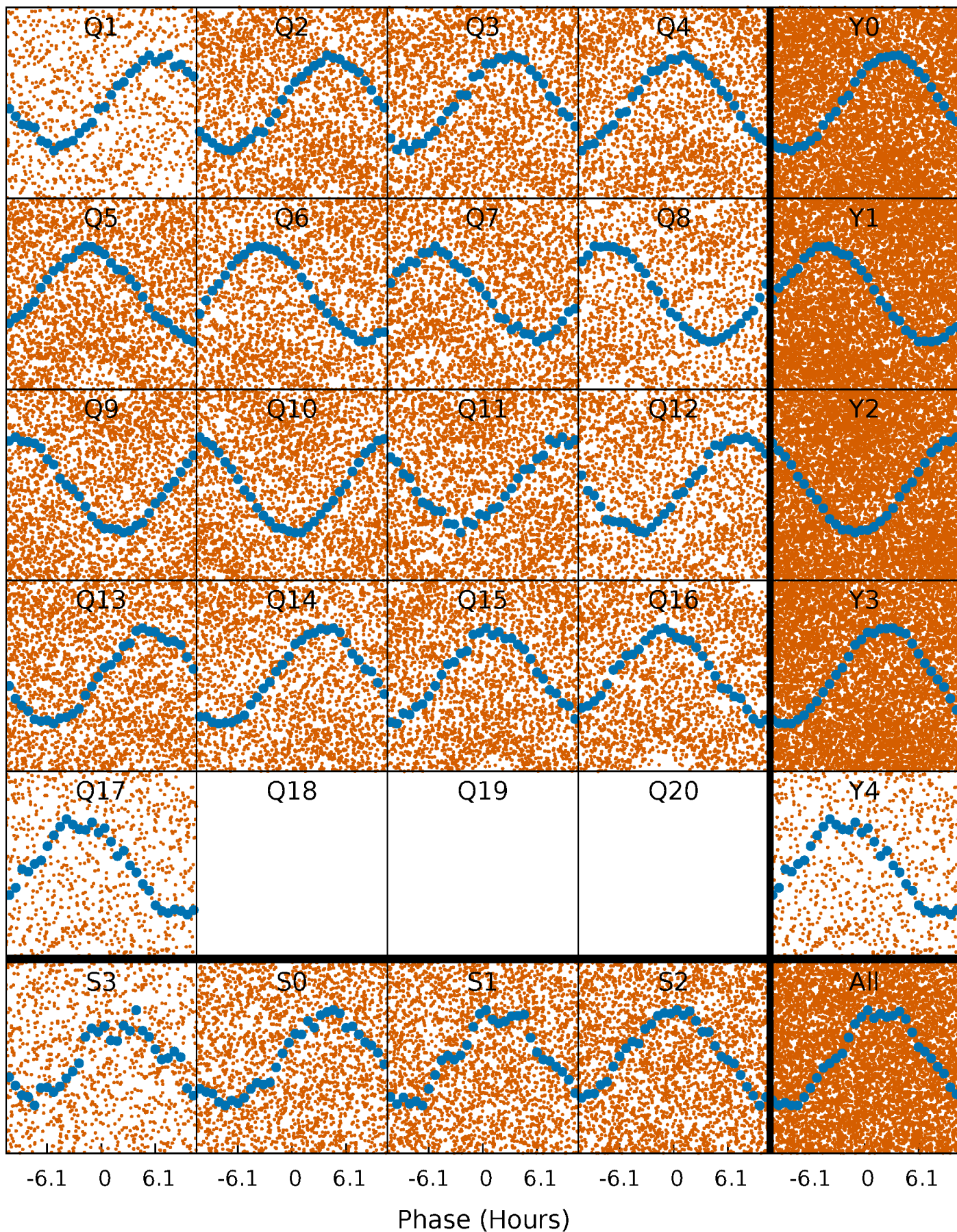


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



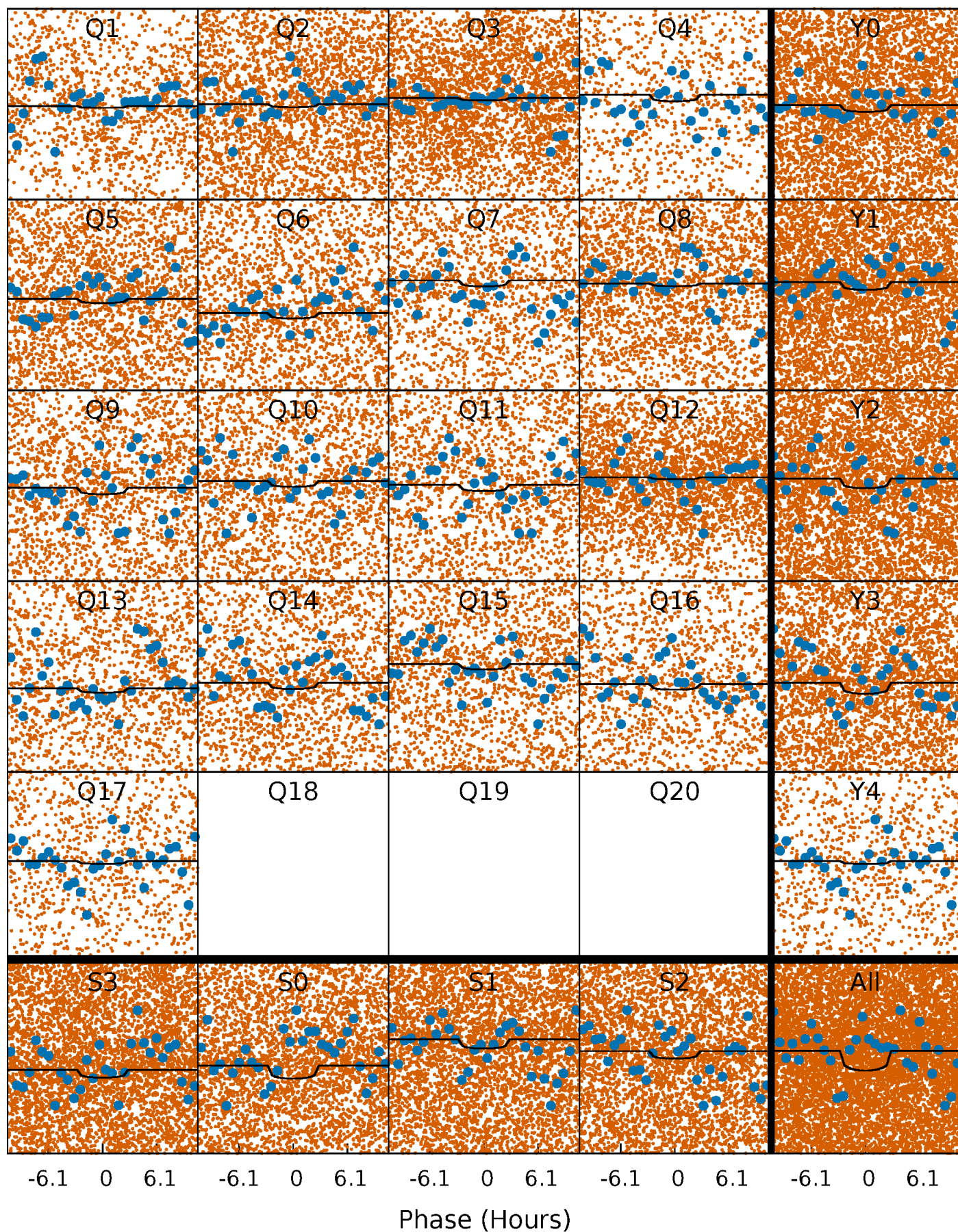
PDC Quarter-Phased Transit Curves

TCE 006046311-01 P= 0.958353 Days $T_0=132.116492$ (BKJD)



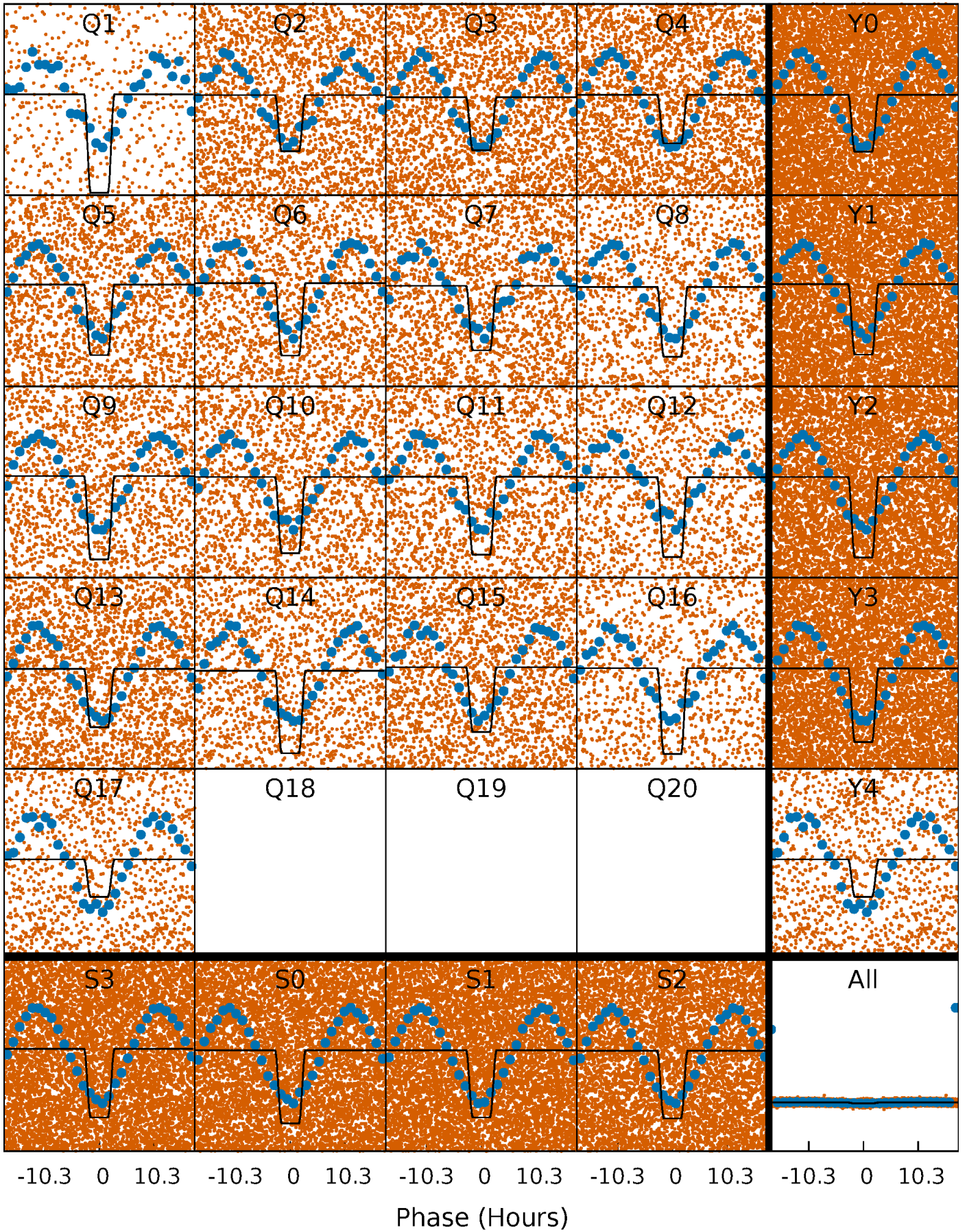
DV Quarter-Phased Transit Curves

TCE 006046311-01 P= 0.958353 Days $T_0=132.116492$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

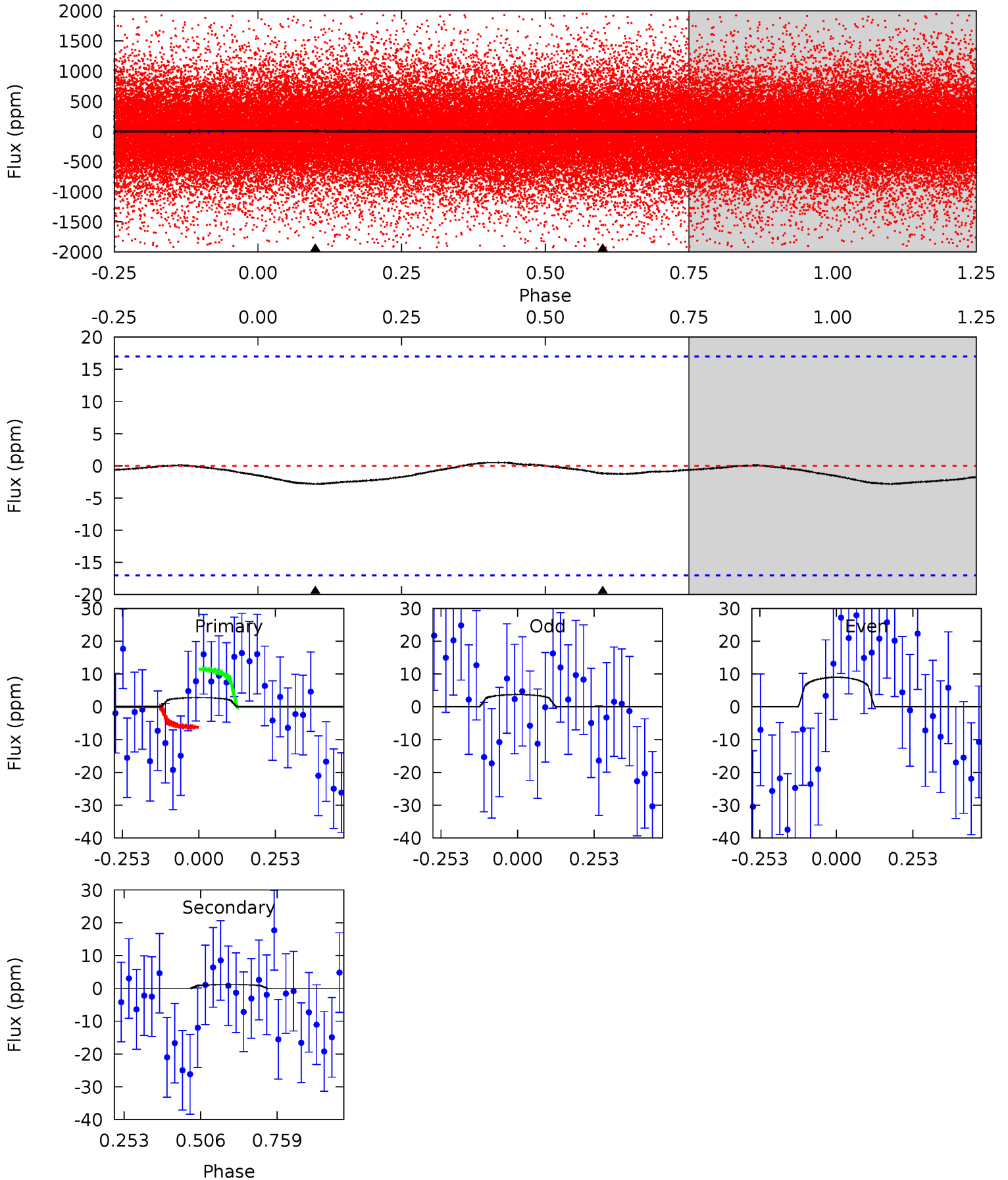
TCE 006046311-01 P= 0.957475 Days $T_0=131.912025$ (BKJD)



DV Model-Shift Uniqueness Test

006046311-01, P = 0.958353 Days, E = 131.158139 Days

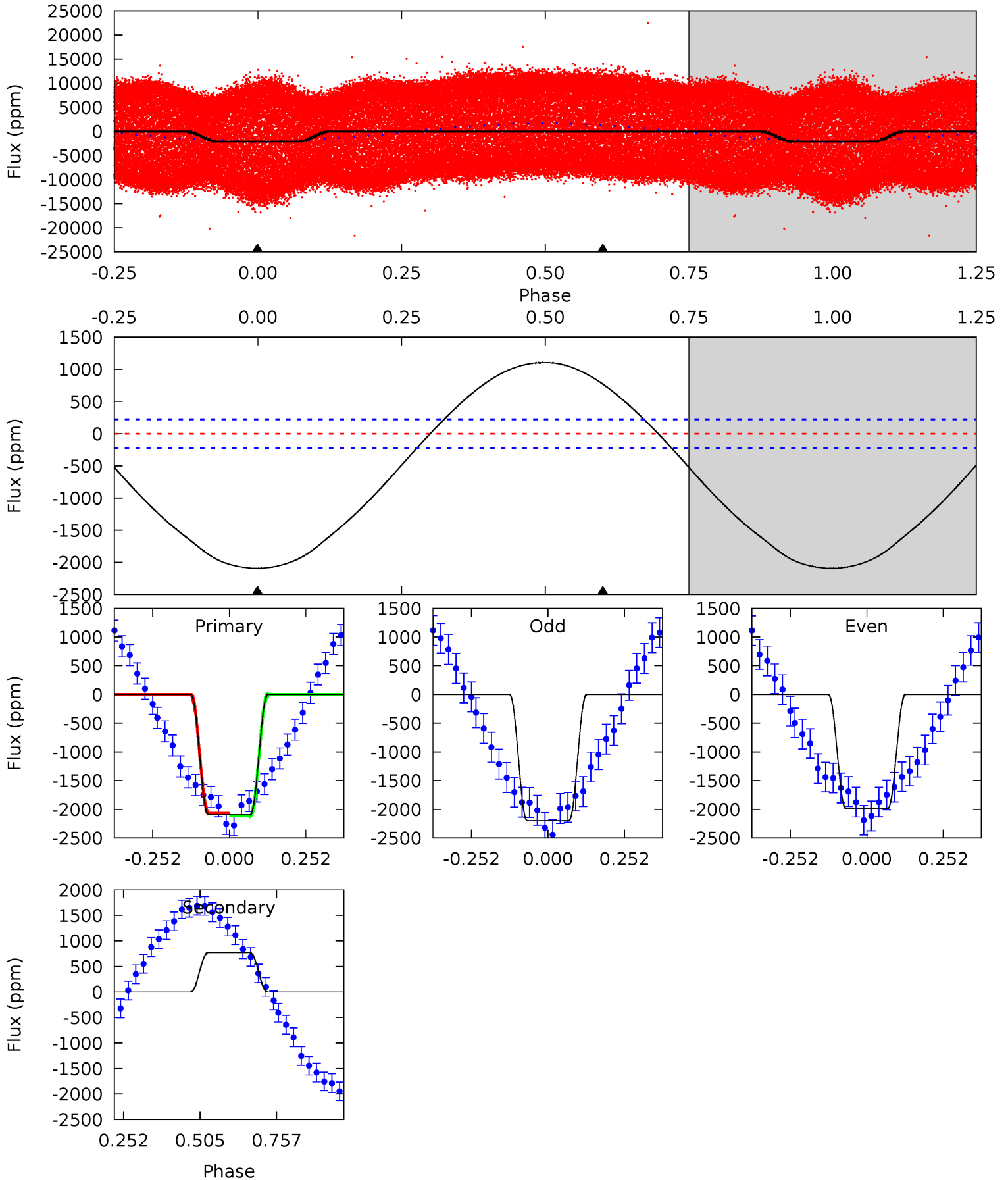
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 0.72 | 0.30 | 0 | 0 | 4.37 | 1.14 | 0.05 | 0.72 | 0.72 | 0.30 | 0.30 | 0.66 | 4.19 | 0.16 | 0.66 |



Alt Model-Shift Uniqueness Test

006046311-01, P = 0.957475 Days, E = 130.954550 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 41.2 | -15.2 | 0 | 0 | 4.37 | 1.14 | 5.41 | 41.2 | 41.2 | -15.2 | -15.2 | 2.03 | 0.99 | 0.35 | 0.49 |



Stellar Parameters For KIC 006046311

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
| | 6312^{+169}_{-207} | $4.338^{+0.124}_{-0.186}$ | $-0.340^{+0.300}_{-0.300}$ | $1.122^{+0.327}_{-0.176}$ | $0.998^{+0.160}_{-0.107}$ | $0.996^{+0.580}_{-0.500}$ |
| | +3%/-3% | +3%/-4% | +88%/-88% | +29%/-16% | +16%/-11% | +58%/-50% |
| 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 006046311-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -1 ± 4 | $0.47^{+0.29}_{-0.27}$ | 2994^{+223}_{-165} | 3371^{+1963}_{-7932} | $0.782^{+6.365}_{-3.361}$ |
| Alt. | 770 ± 51 | $6.58^{+1.09}_{-0.73}$ | 3021^{+230}_{-175} | -4799^{+152}_{-143} | $-3.530^{+0.876}_{-0.868}$ |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

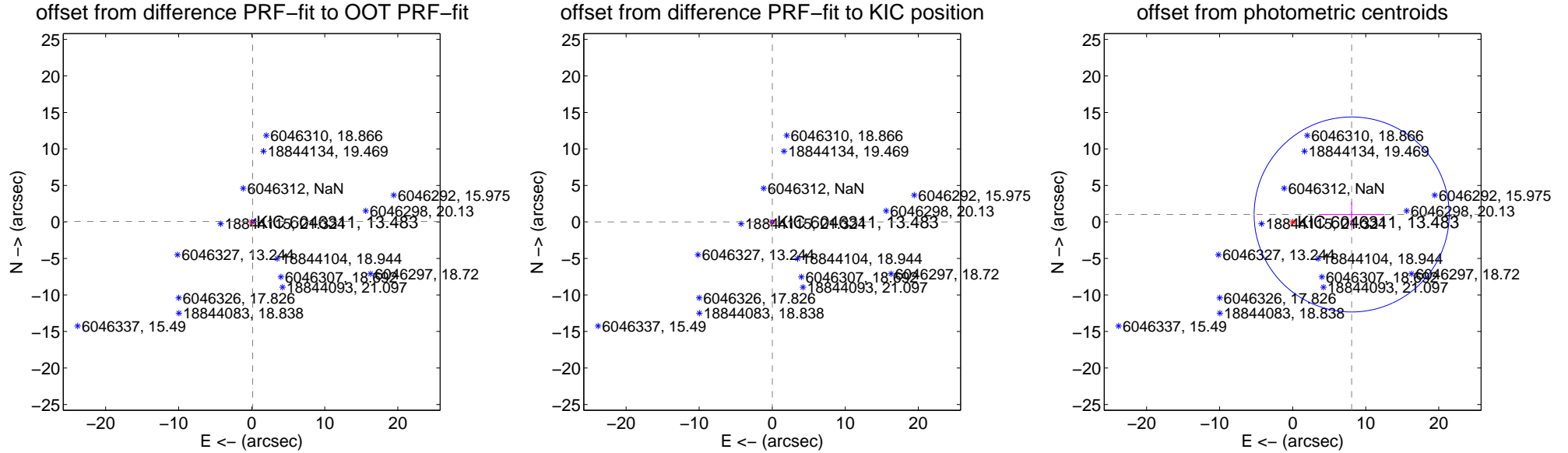
DV Centroid Data

Supplemental centroid analysis for 006046311-01. Kepler magnitude: 13.48. Transit SNR 1.94

There are 6 quarters with good PRF difference image offsets

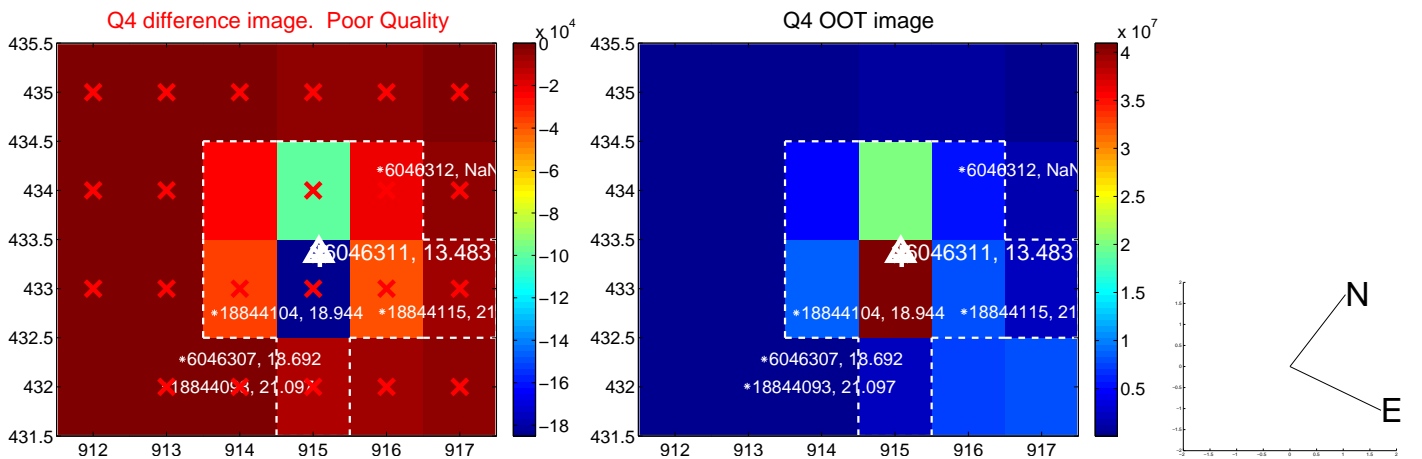
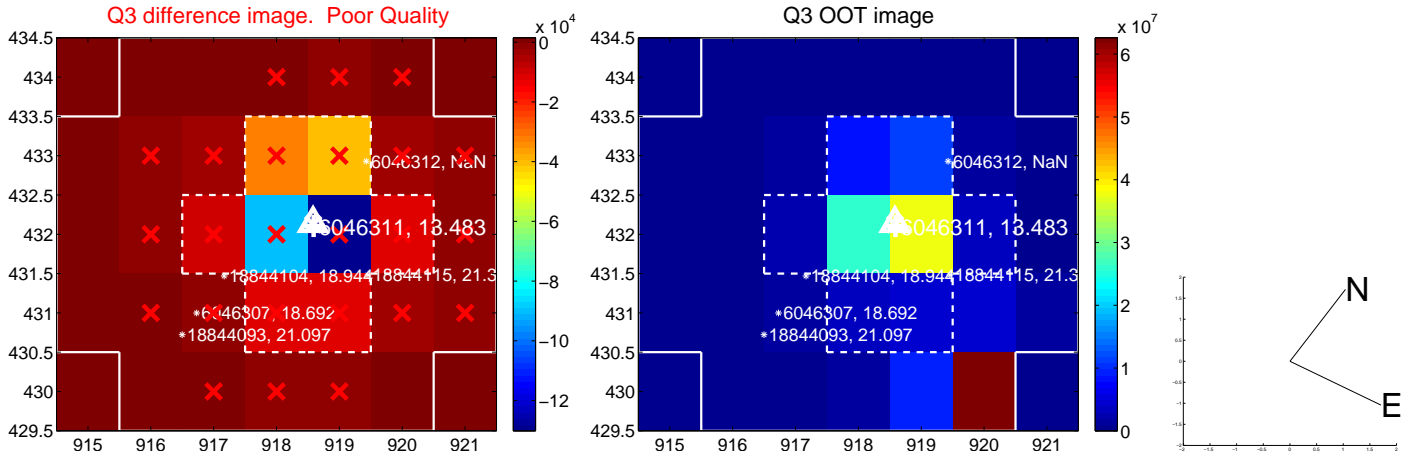
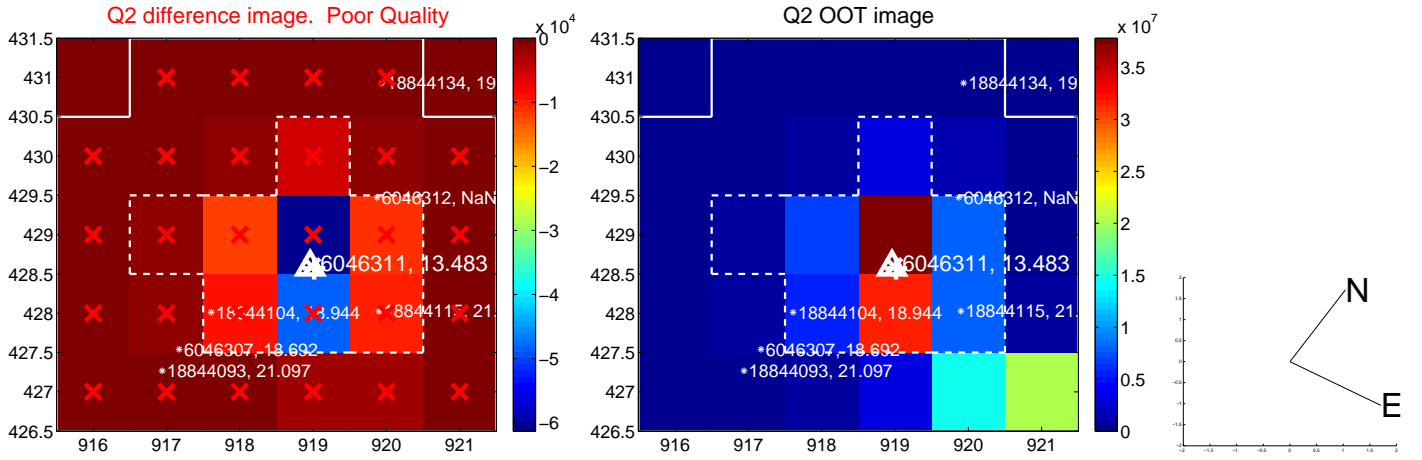
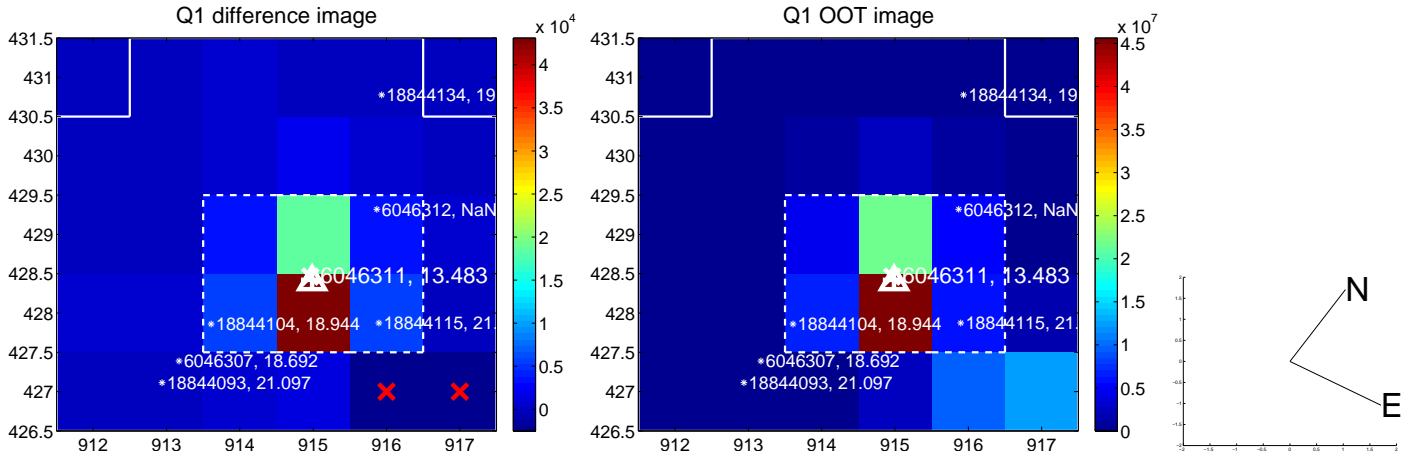
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.143 ± 0.071 | 2.02 | -0.128 ± 0.069 | 0.064 ± 0.072 |
| PRF-fit source offset from KIC position | 0.017 ± 0.071 | 0.24 | -0.015 ± 0.070 | 0.008 ± 0.073 |
| photometric centroid source offset | 8.14 ± 4.45 | 1.83 | -8.07 ± 4.48 | 1.03 ± 1.72 |

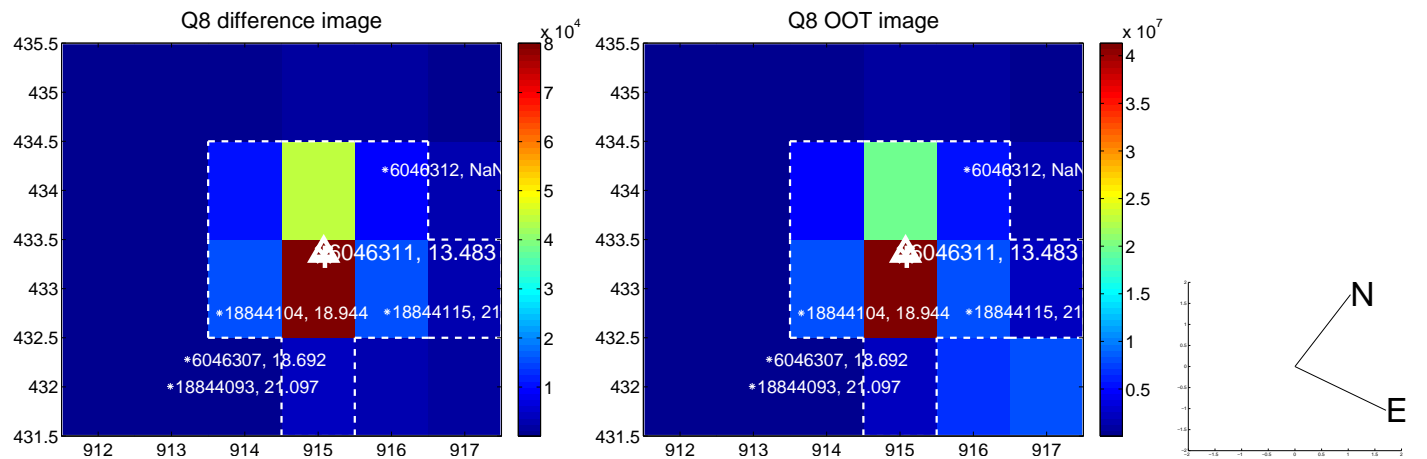
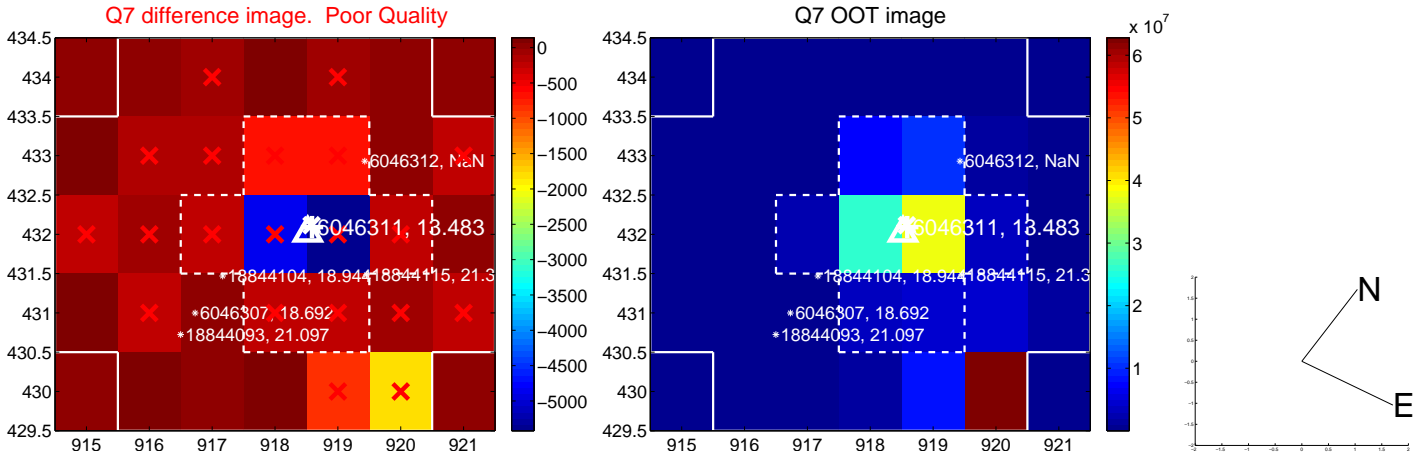
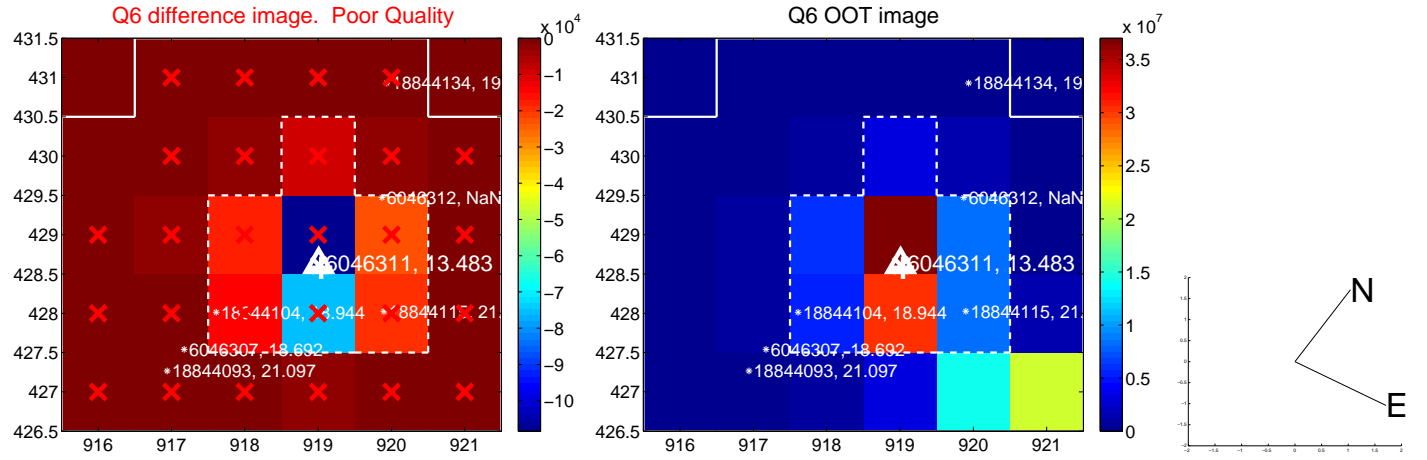
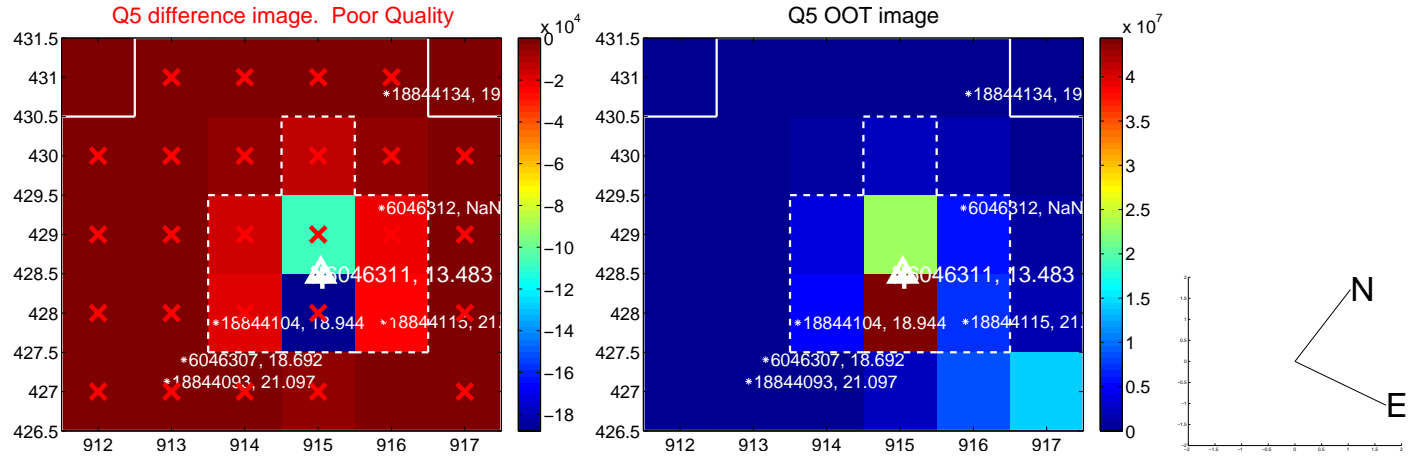


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

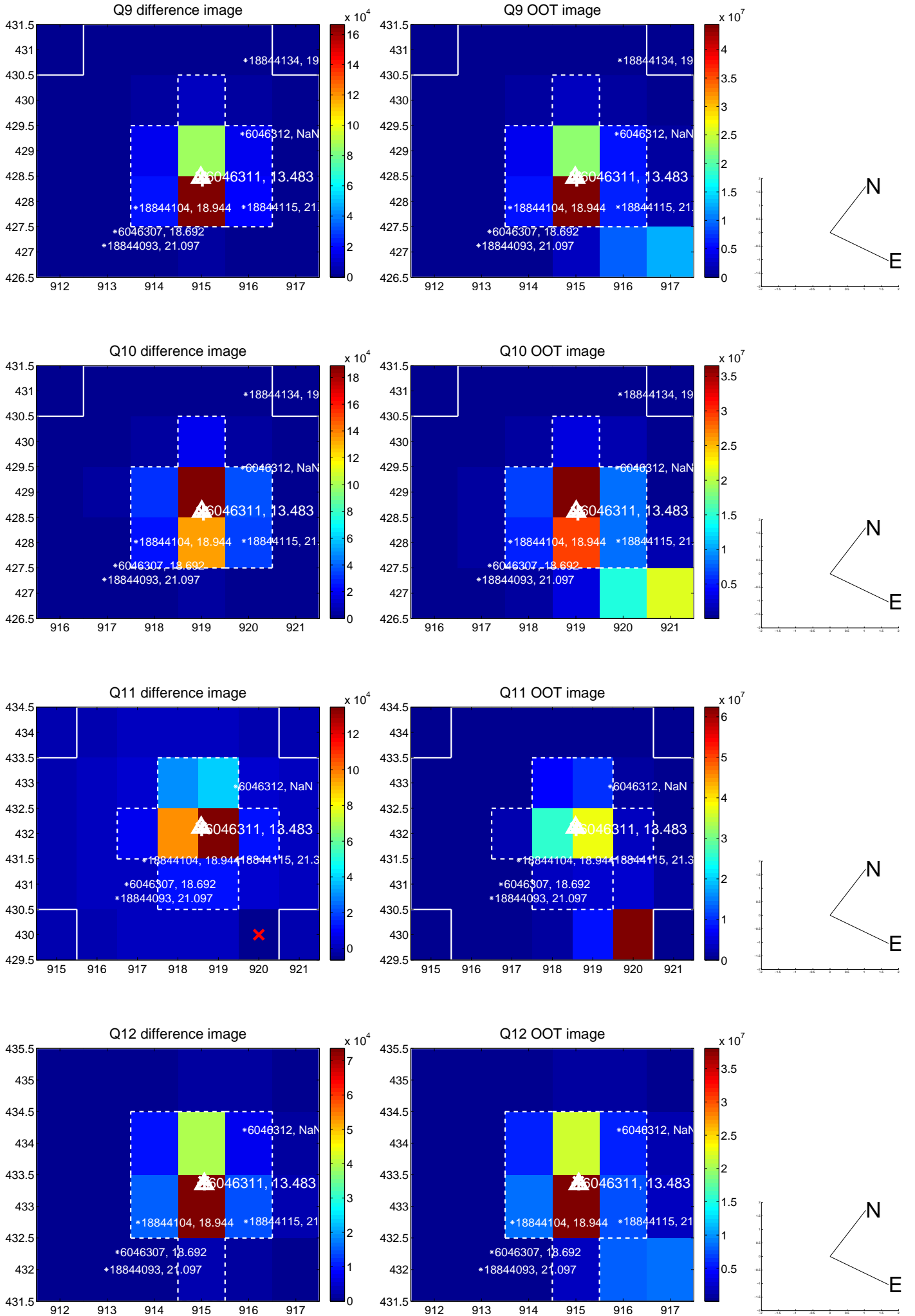
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



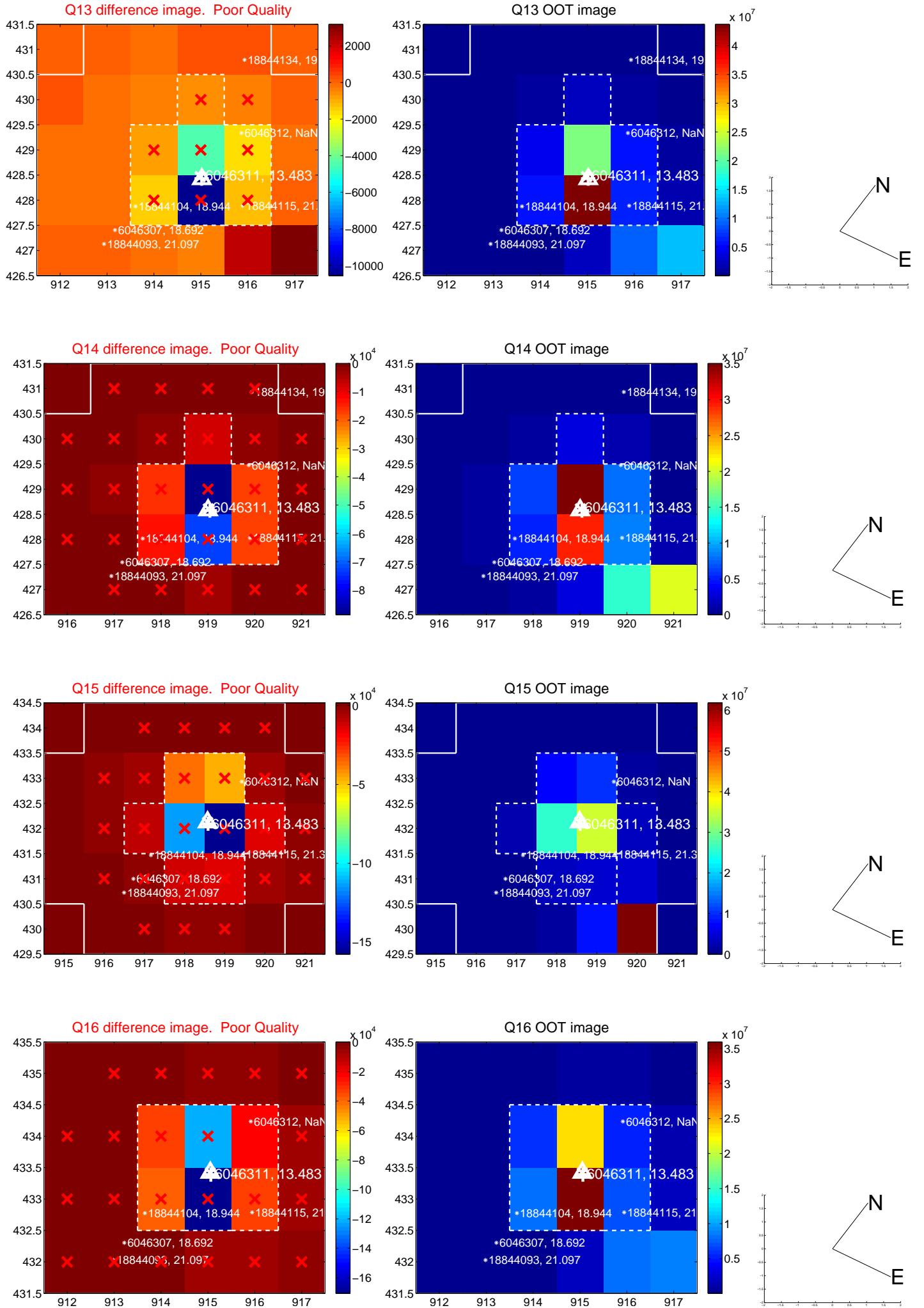
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



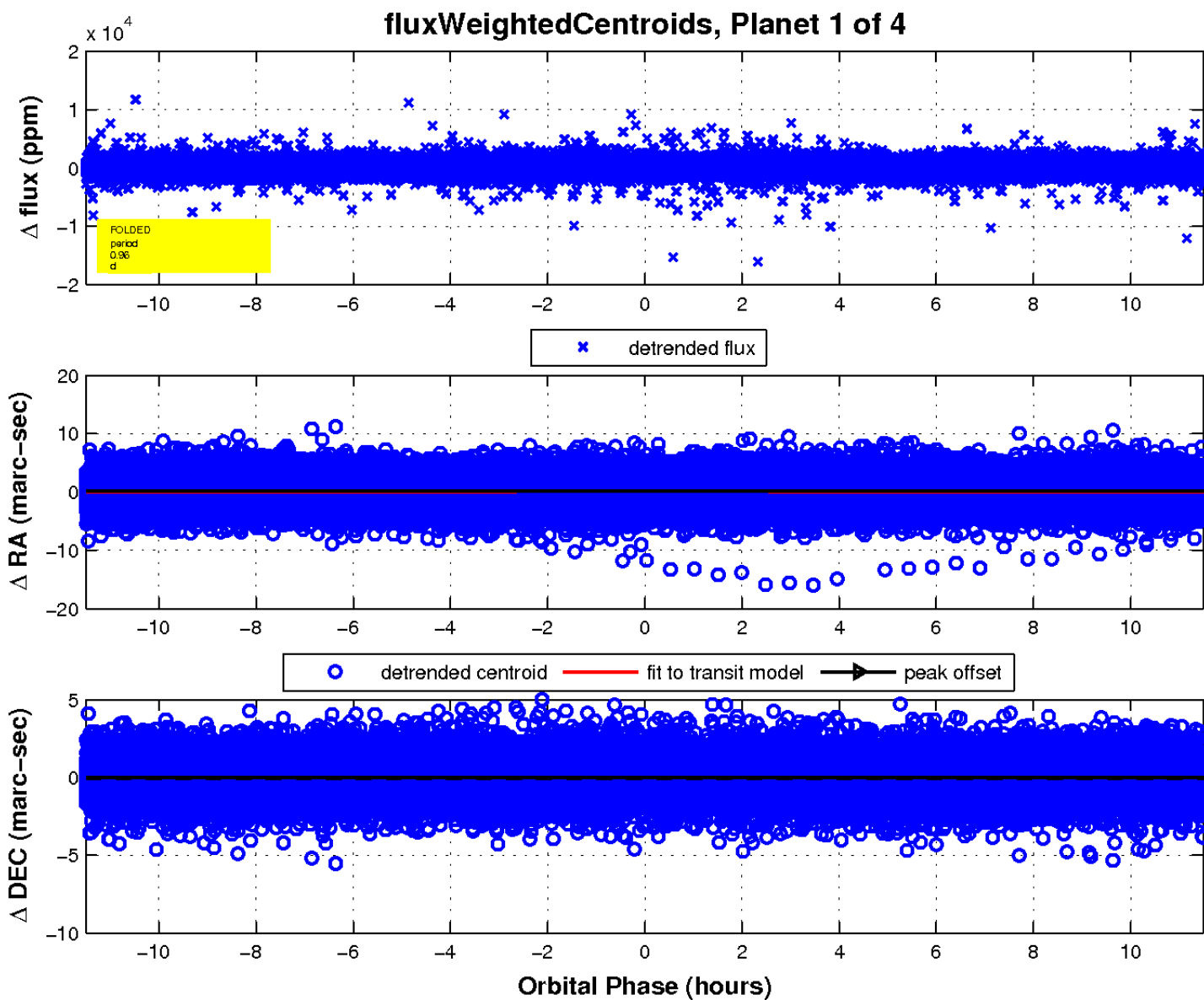
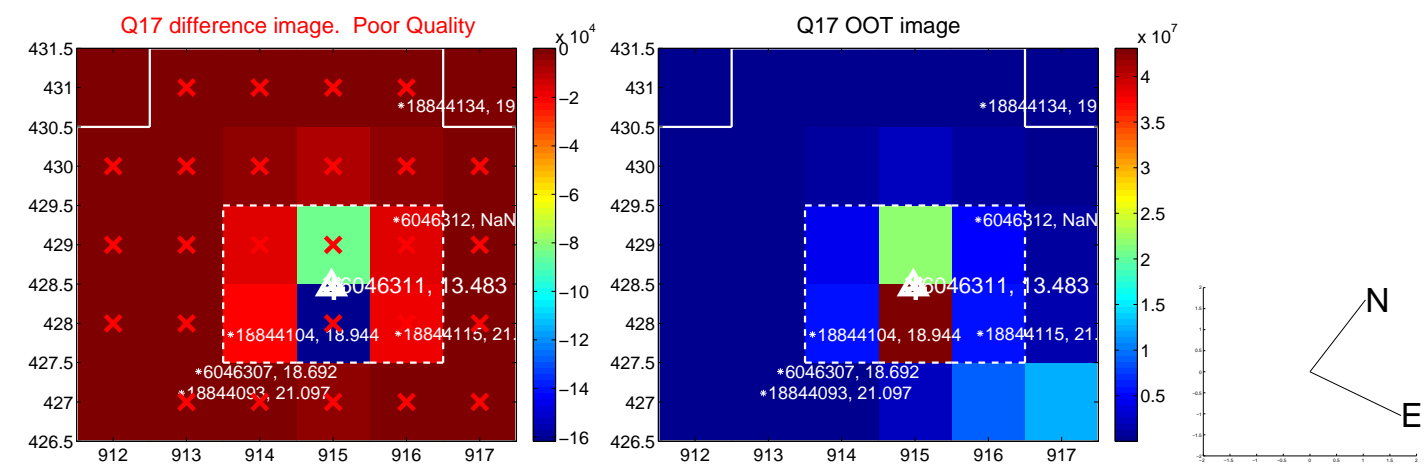
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



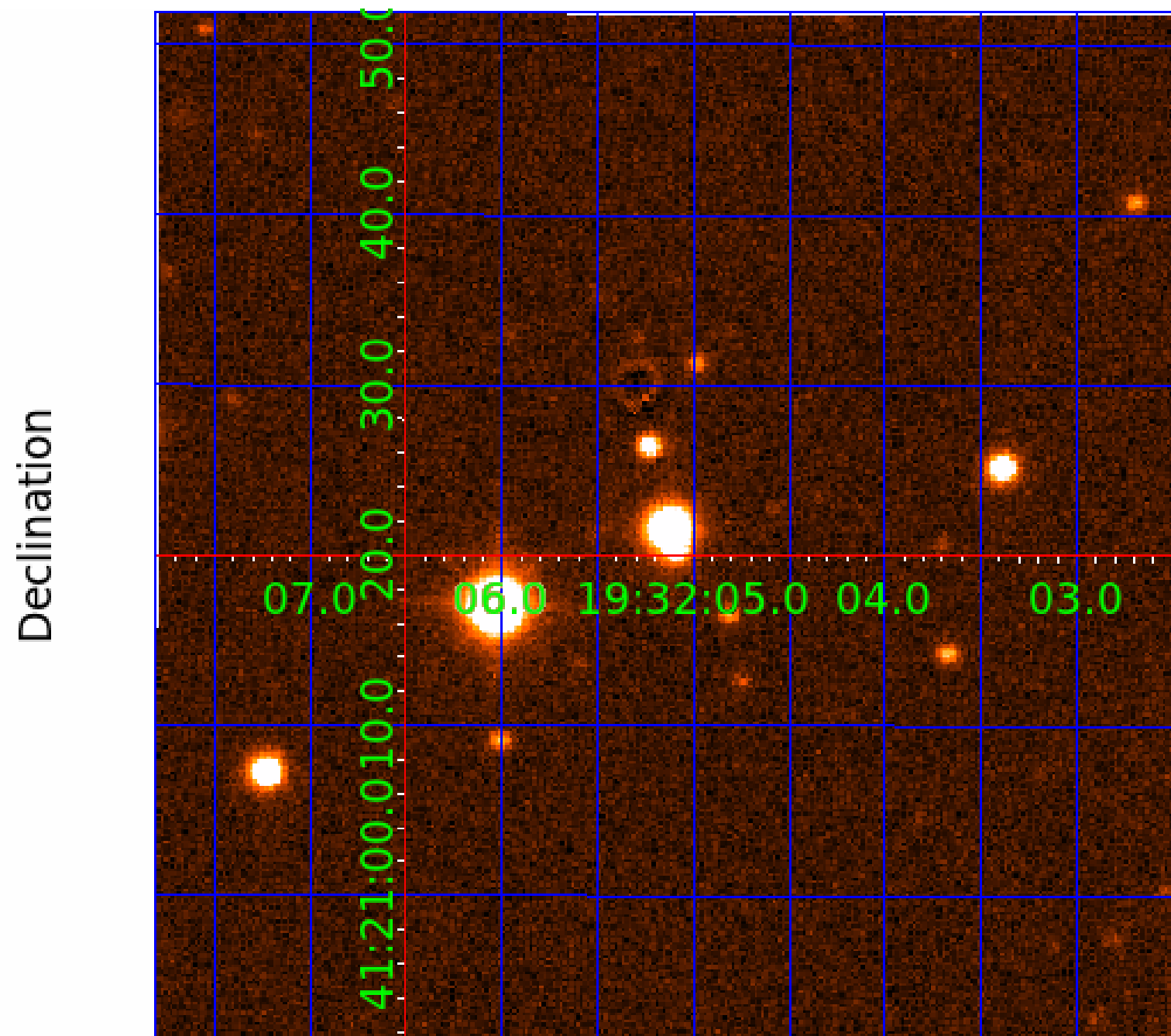
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006046311

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006046311-01 | OBS | No | 0.958353 | 132.116492 | 13.9 | 5.377 | 42.6 | 1.9 | 1.12 | 6312 | 0.43 | 4945.27 |
| 006046311-02 | OBS | 6654.01 | 0.958163 | 131.820422 | 8.6 | 3.338 | 19.1 | 1.3 | 1.12 | 6312 | 0.39 | 4946.58 |
| 006046311-04 | OBS | No | 1.906049 | 133.667142 | 196.9 | 7.988 | 8.9 | 4.4 | 1.12 | 6312 | 1.60 | 1977.18 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------------------------------------------------------------|
| 006046311-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 006046311-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD |
| 006046311-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV |

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.

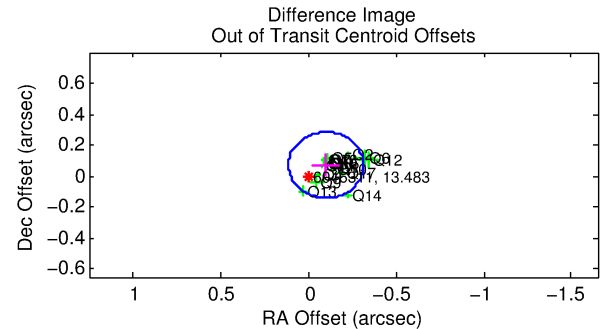
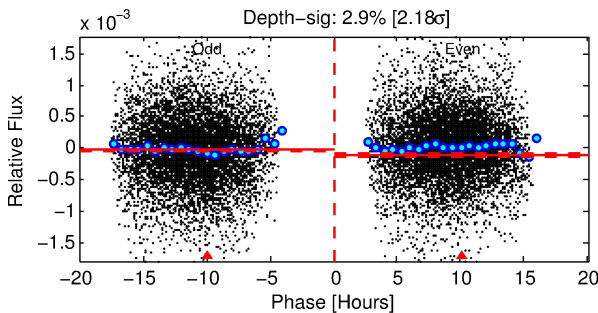
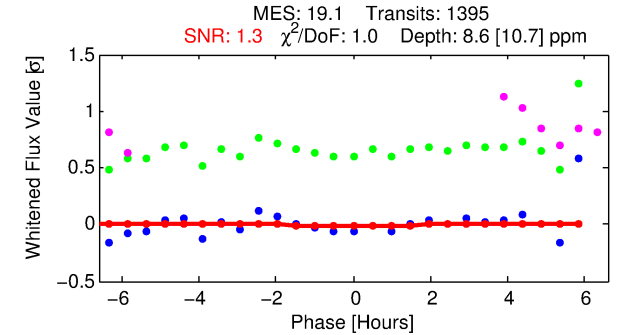
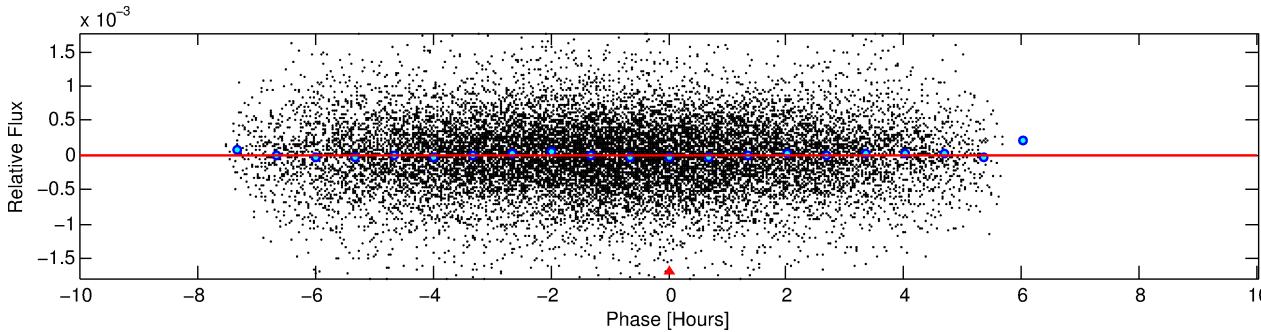
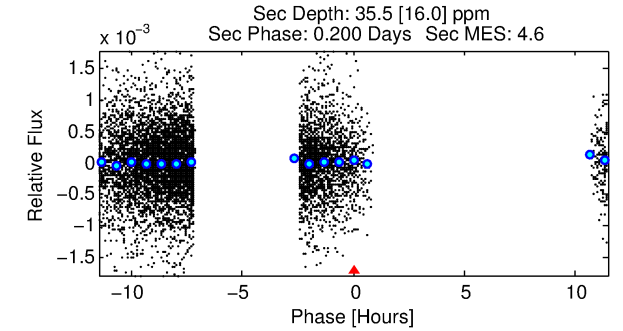
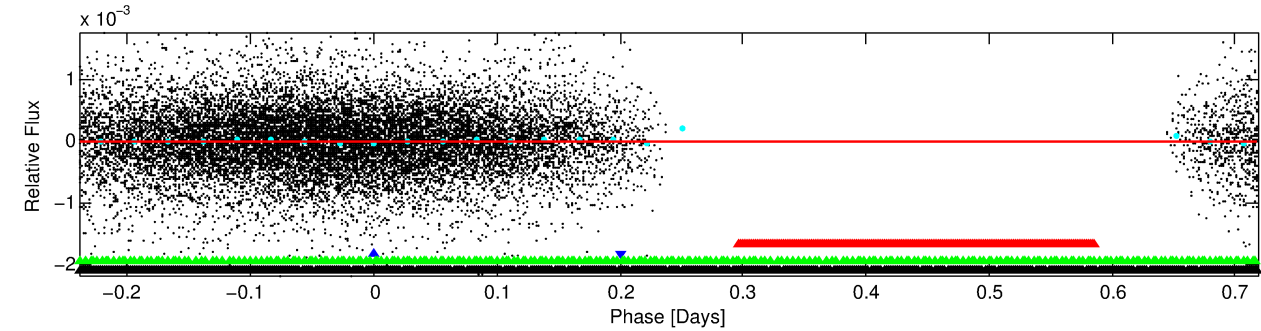
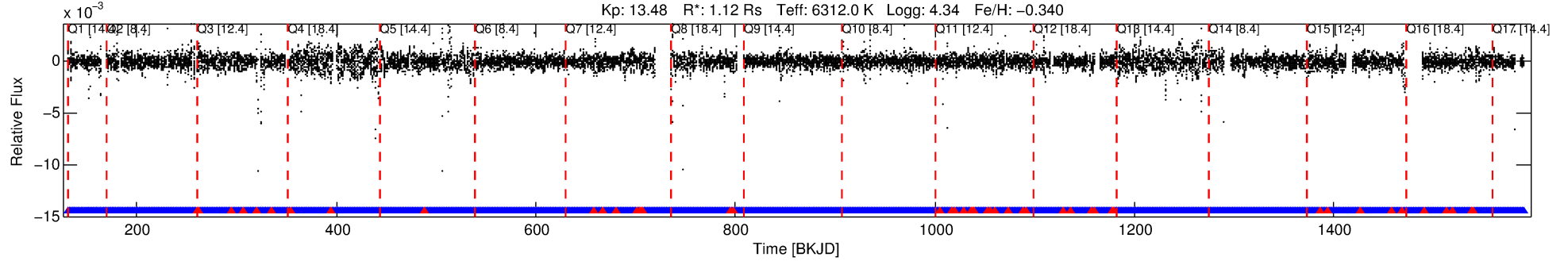
Ephemeris Match Information For 006046311-02

No Significant Match Found

DV One-Page Summary

KIC: 6046311 Candidate: 2 of 4 Period: 0.958 d

KOI: K06654 Corr: No Ephemeris Match



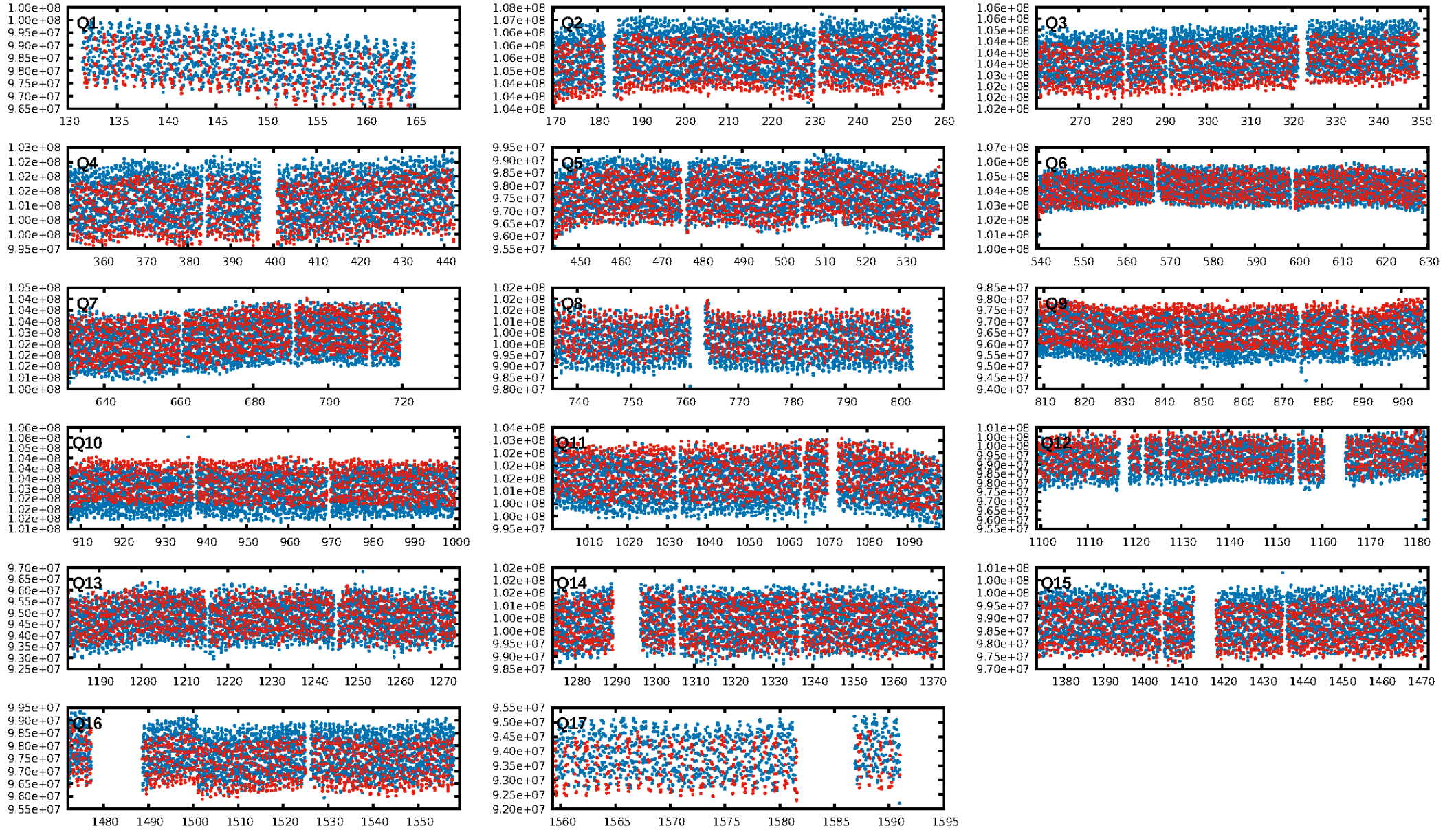
DV Fit Results:

Period = 0.95816 [0.00010] d
Epoch = 131.8204 [0.0214] BKJD
Rp/R* = 0.0032 [0.0046]
a/R* = 1.28 [3.78]
b = 0.92 [1.21]
Seff = 4946.58 [1827.43]
Teq = 2138 [198] K
Rp = 0.39 [0.57] Re
a = 0.0190 [0.0046] AU
Ag = 45.67 [133.02] [0.34σ]
Teffp = 8595 [6221] K [1.04σ]

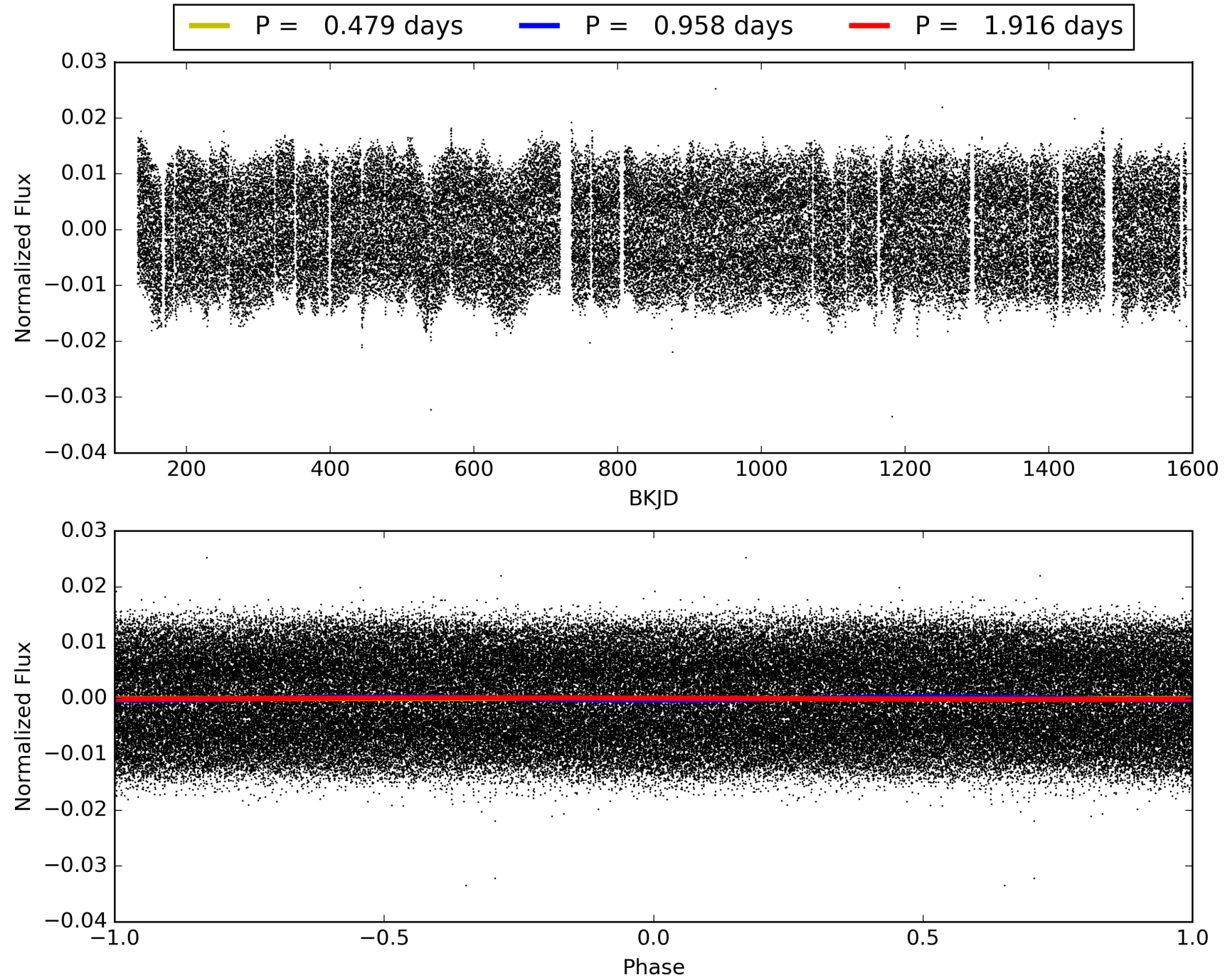
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [1285/1332]
GhostDiagnostic-chr: -2.817
Centroid-sig: 61.1%
Centroid-so: 1.032 arcsec [0.18σ]
OotOffset-rm: 0.123 arcsec [1.73σ]
KicOffset-rm: 0.015 arcsec [0.22σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 0.29 [5/17]

TCE 006046311-02, PDC Light Curves

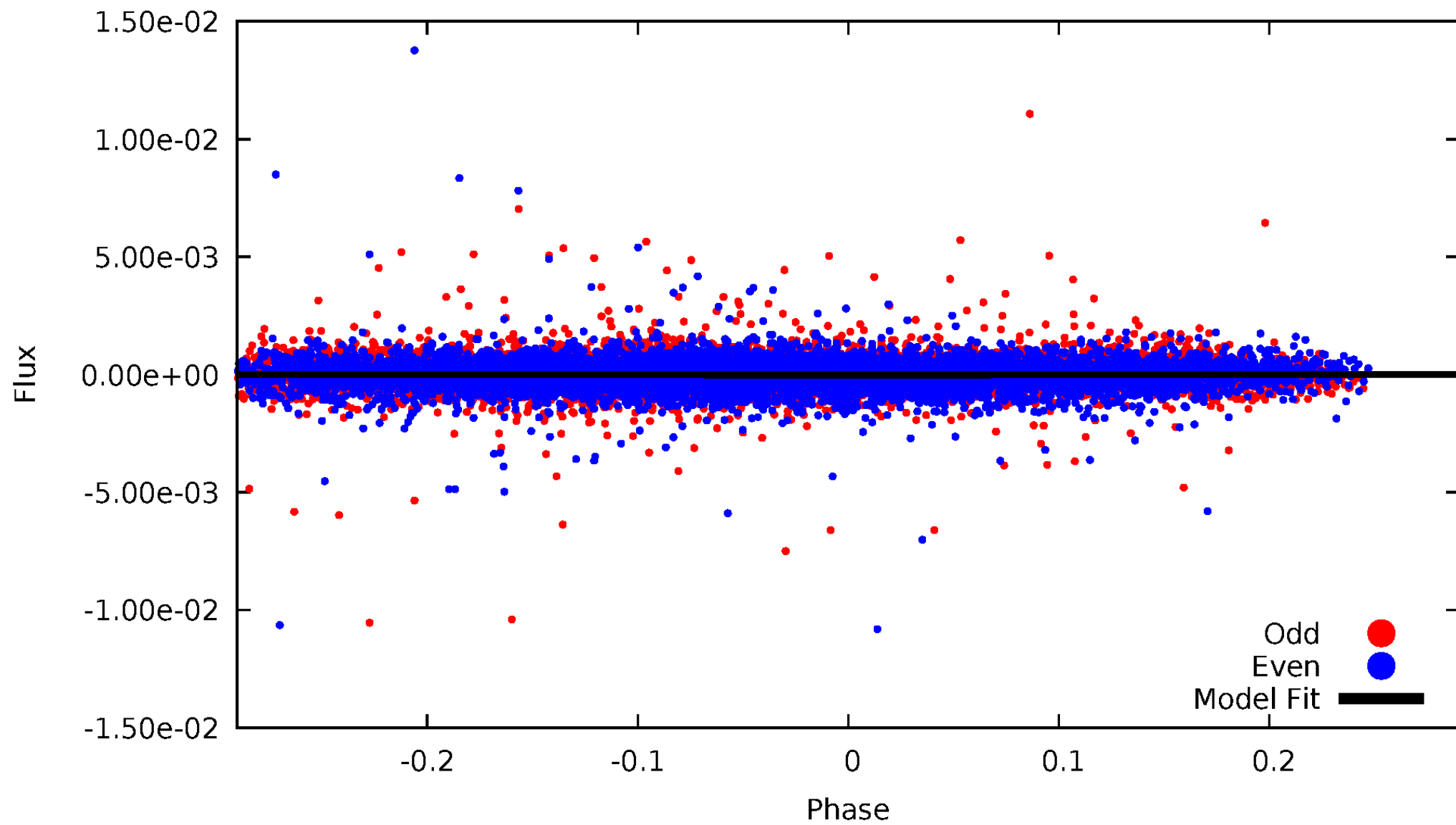


TCE 006046311-02



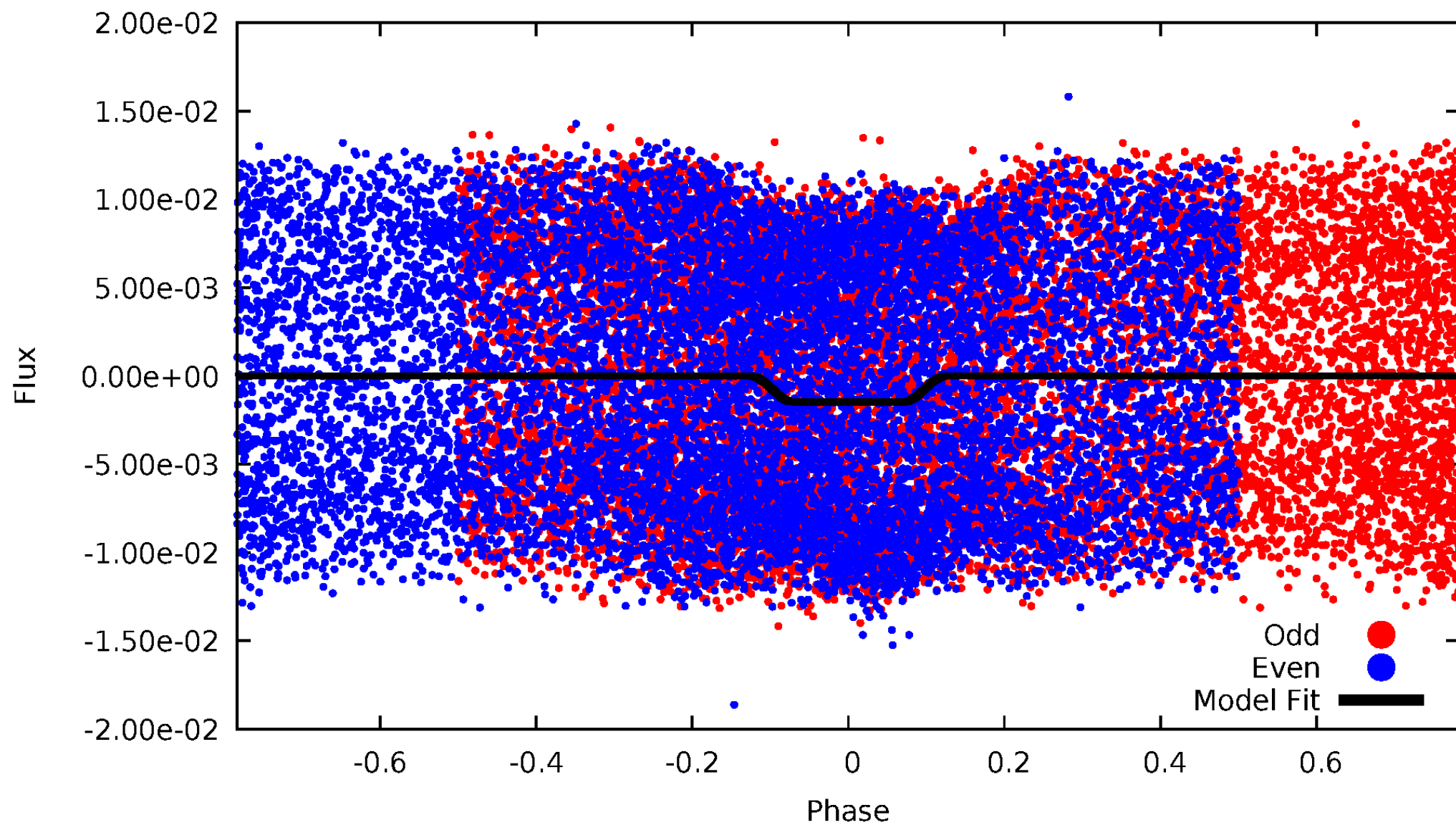
DV Odd/Even

TCE 006046311-02



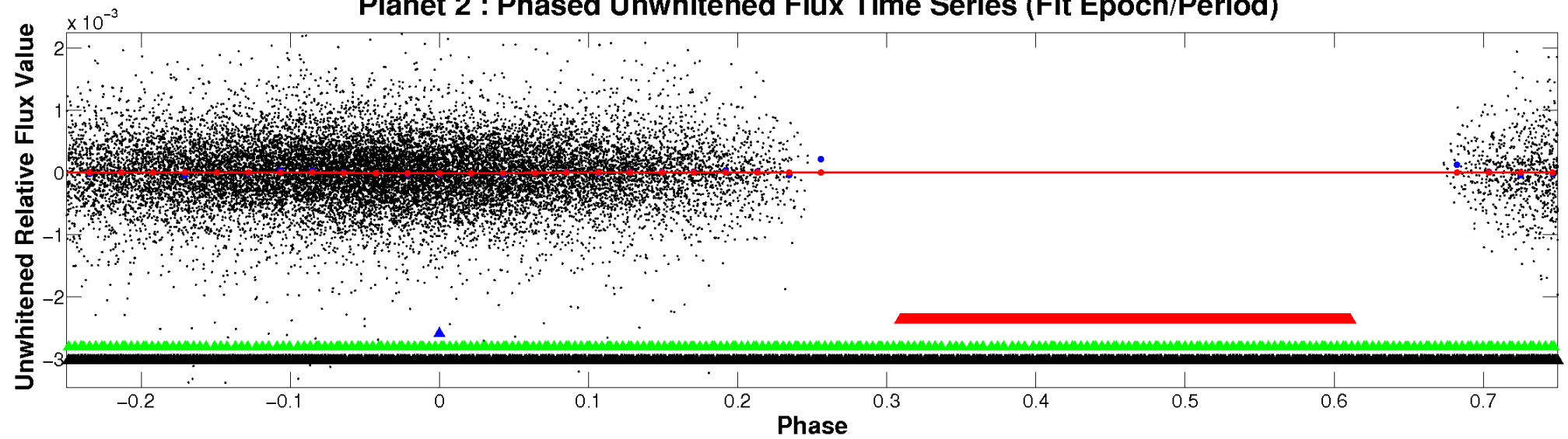
ALT Odd/Even

TCE 006046311-02

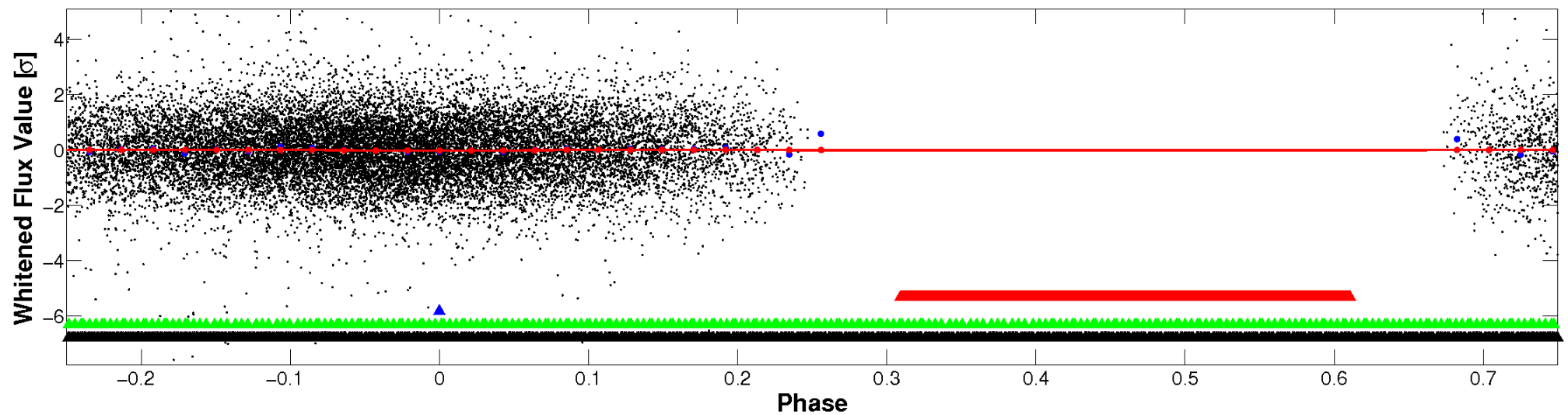


Non-Whitened Vs. Whitened Light Curve

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

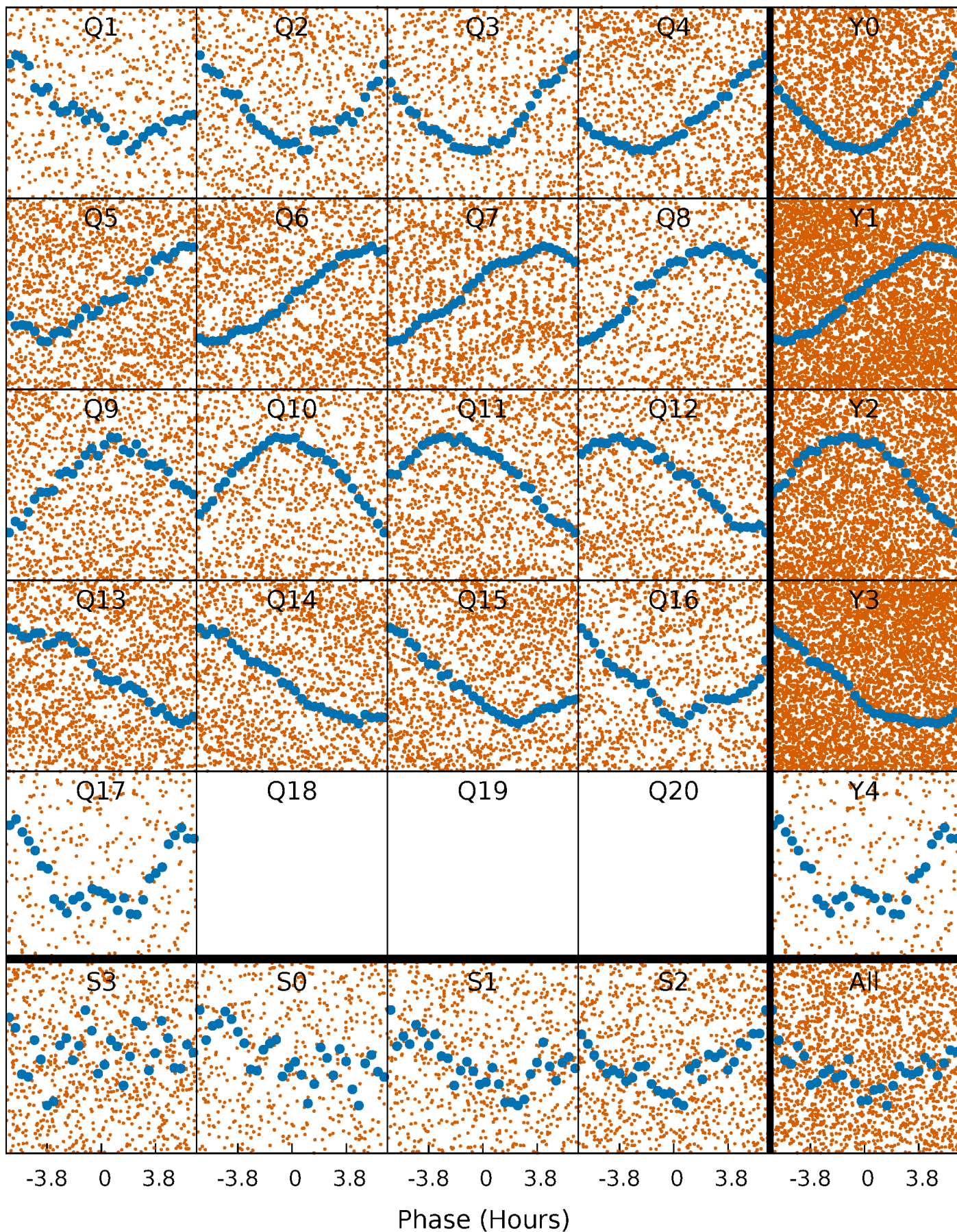


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



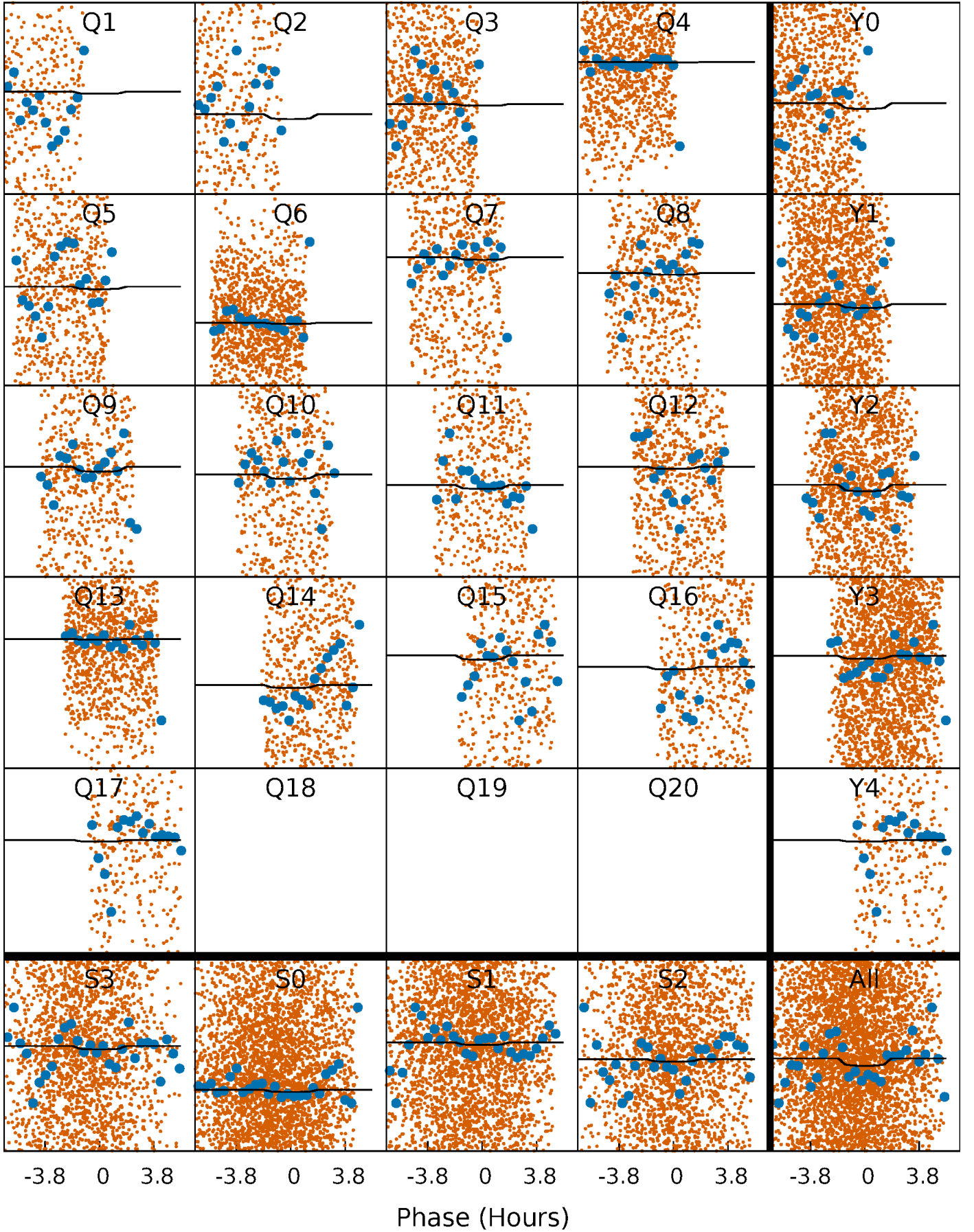
PDC Quarter-Phased Transit Curves

TCE 006046311-02 P= 0.958163 Days $T_0=131.820422$ (BKJD)



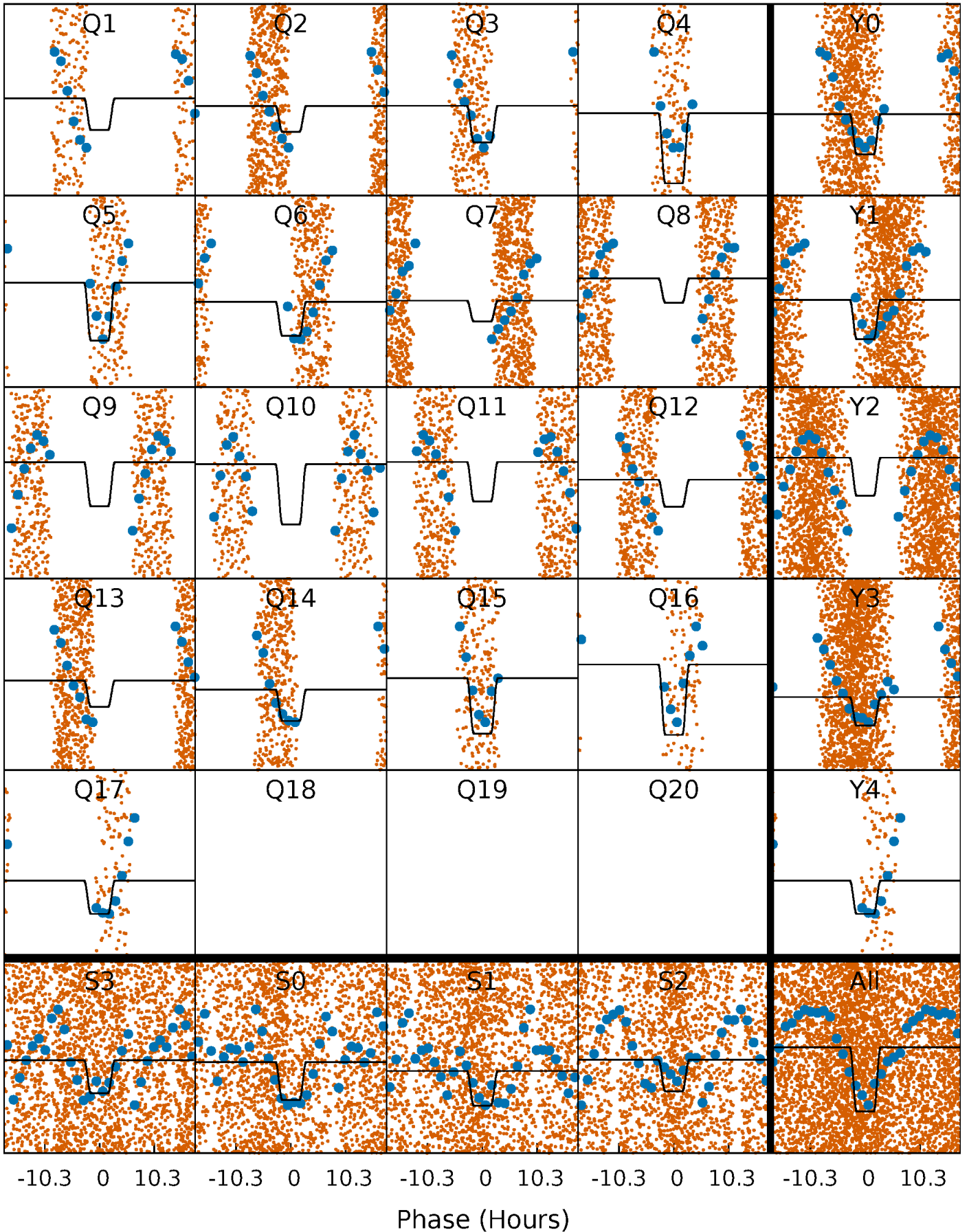
DV Quarter-Phased Transit Curves

TCE 006046311-02 P= 0.958163 Days $T_0=131.820422$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

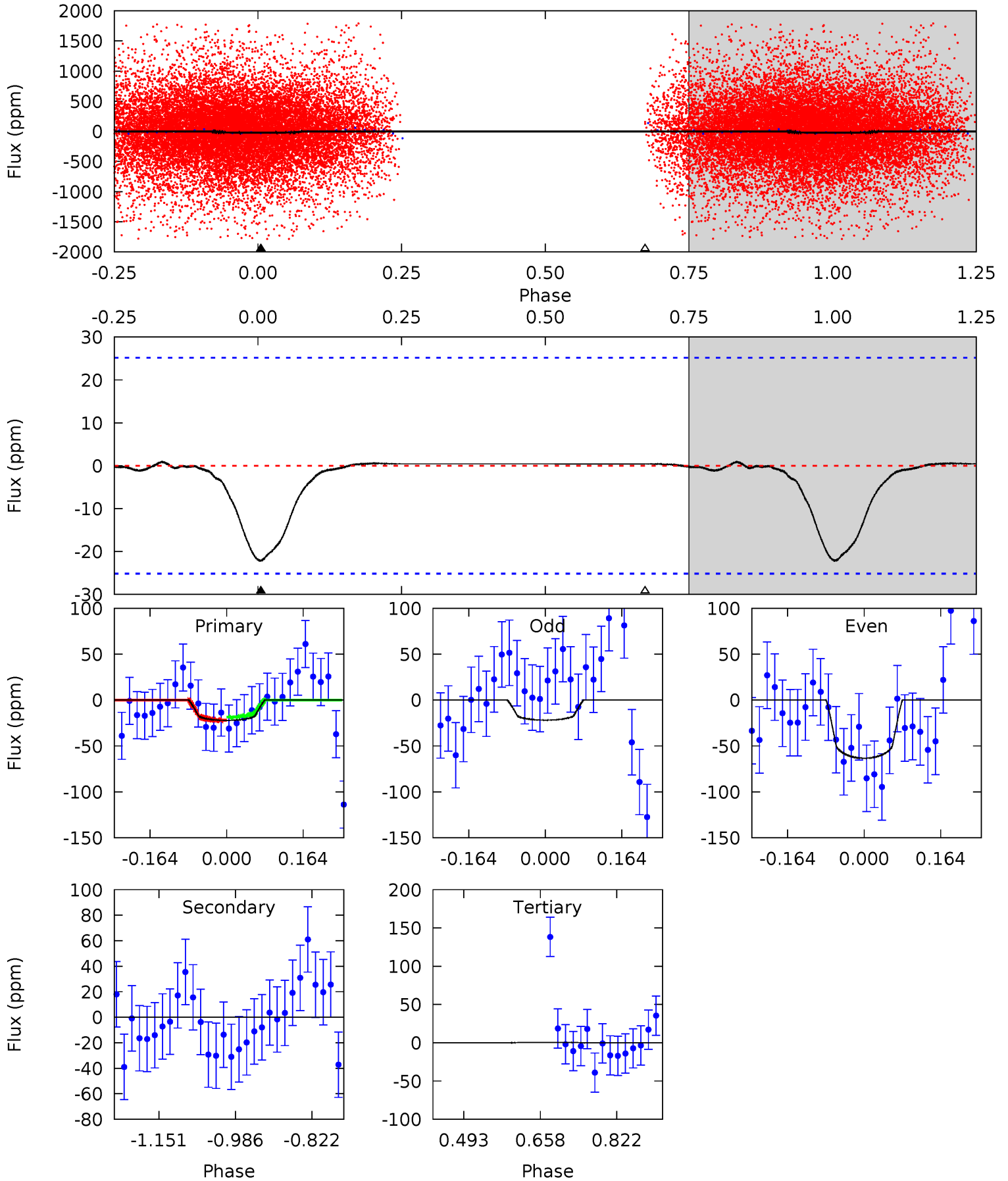
TCE 006046311-02 P= 0.957475 Days $T_0=131.889560$ (BKJD)



DV Model-Shift Uniqueness Test

006046311-02, P = 0.958163 Days, E = 130.862259 Days

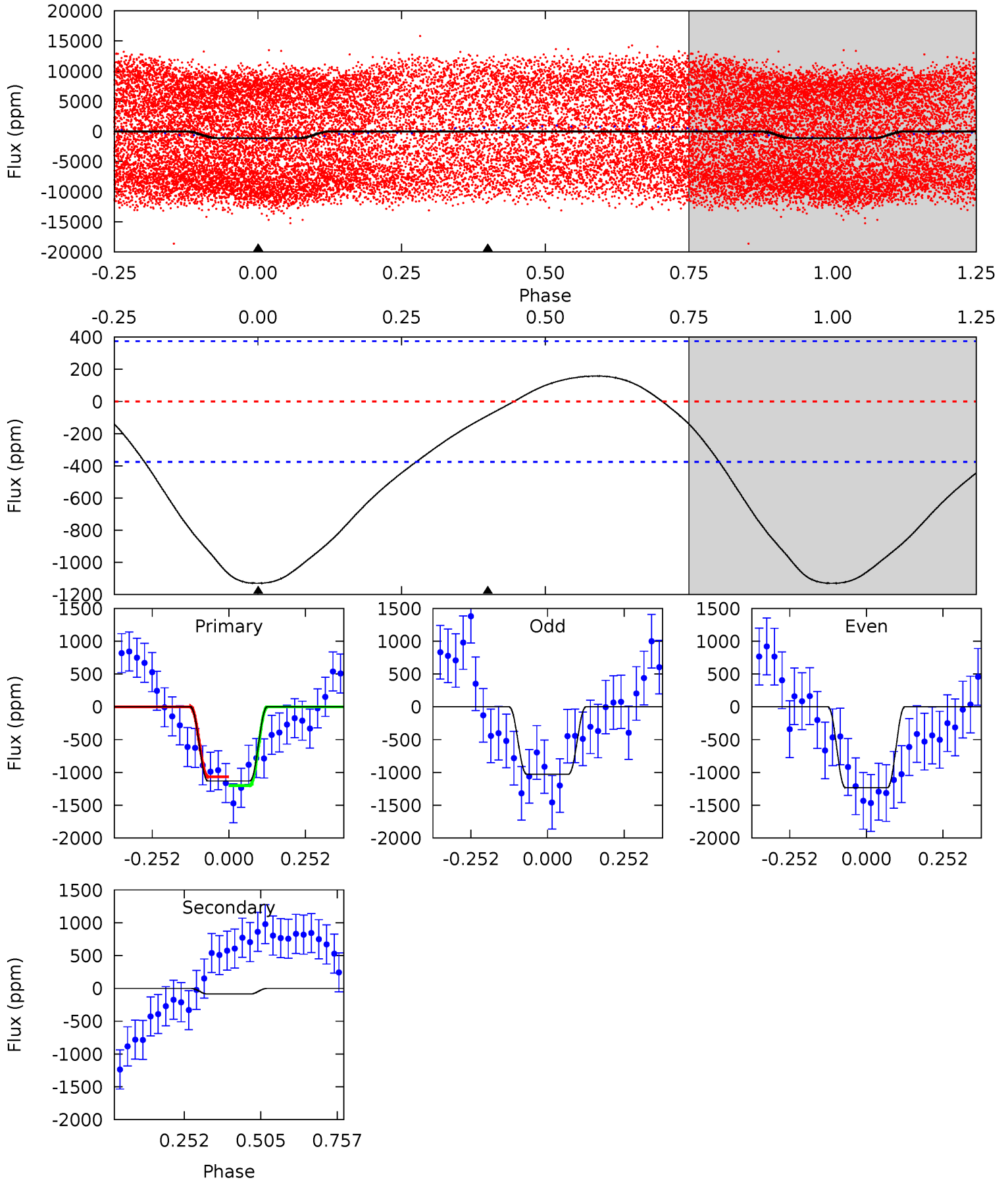
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-----|-------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3.93 | 0 | -0.08 | 0 | 4.46 | 1.39 | 0.10 | 4.00 | 3.93 | 0.08 | 0 | 3.73 | 7.30 | 0.04 | 0.32 |



Alt Model-Shift Uniqueness Test

006046311-02, P = 0.957475 Days, E = 130.932085 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 13.2 | 1.01 | 0 | 0 | 4.37 | 1.14 | 0.91 | 13.2 | 13.2 | 1.01 | 1.01 | 1.20 | 1.70 | 0.12 | 0.74 |



Stellar Parameters For KIC 006046311

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
| | 6312^{+169}_{-207} | $4.338^{+0.124}_{-0.186}$ | $-0.340^{+0.300}_{-0.300}$ | $1.122^{+0.327}_{-0.176}$ | $0.998^{+0.160}_{-0.107}$ | $0.996^{+0.580}_{-0.500}$ |
| | +3%/-3% | +3%/-4% | +88%/-88% | +29%/-16% | +16%/-11% | +58%/-50% |
| 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 006046311-02 / KOI 6654.01

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|-------------------------|---------------------------|
| DV | 0 ± 6 | $0.60^{+0.55}_{-0.39}$ | 3011^{+213}_{-186} | -3075^{+8152}_{-1975} | $0.044^{+5.458}_{-4.710}$ |
| Alt. | -87 ± 86 | $4.77^{+0.91}_{-0.76}$ | 3008^{+217}_{-170} | 3287^{+607}_{-6426} | $0.733^{+0.882}_{-0.747}$ |

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 $A_{obs} \gg 1.0$

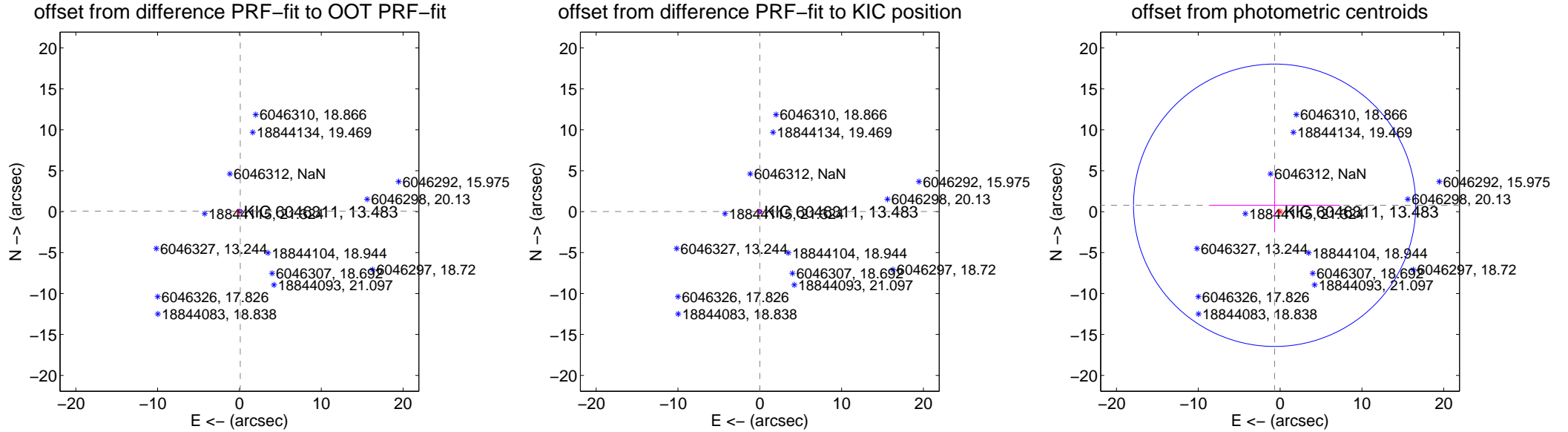
DV Centroid Data

Supplemental centroid analysis for 006046311-02. Kepler magnitude: 13.48. Transit SNR 1.30

There are 10 quarters with good PRF difference image offsets

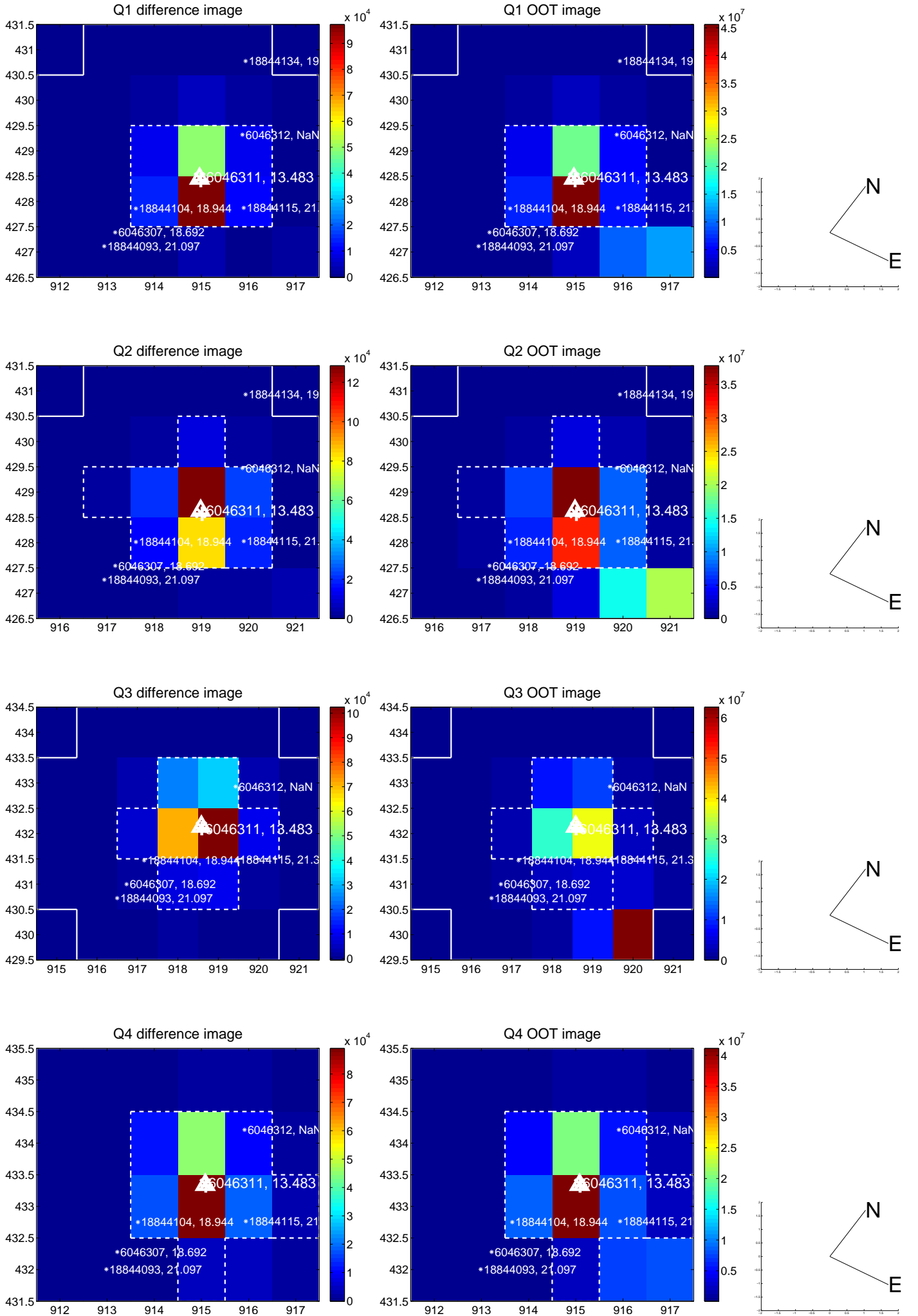
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.123 ± 0.071 | 1.73 | -0.100 ± 0.071 | 0.072 ± 0.069 |
| PRF-fit source offset from KIC position | 0.015 ± 0.071 | 0.22 | -0.006 ± 0.071 | 0.014 ± 0.070 |
| photometric centroid source offset | 1.03 ± 5.75 | 0.18 | 0.67 ± 7.96 | 0.78 ± 3.29 |

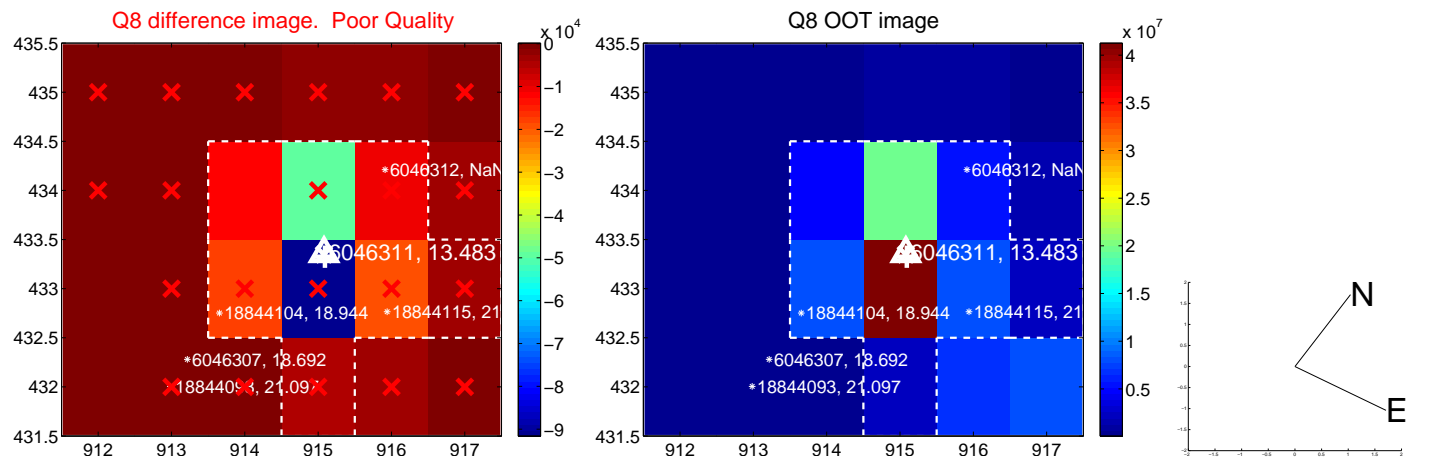
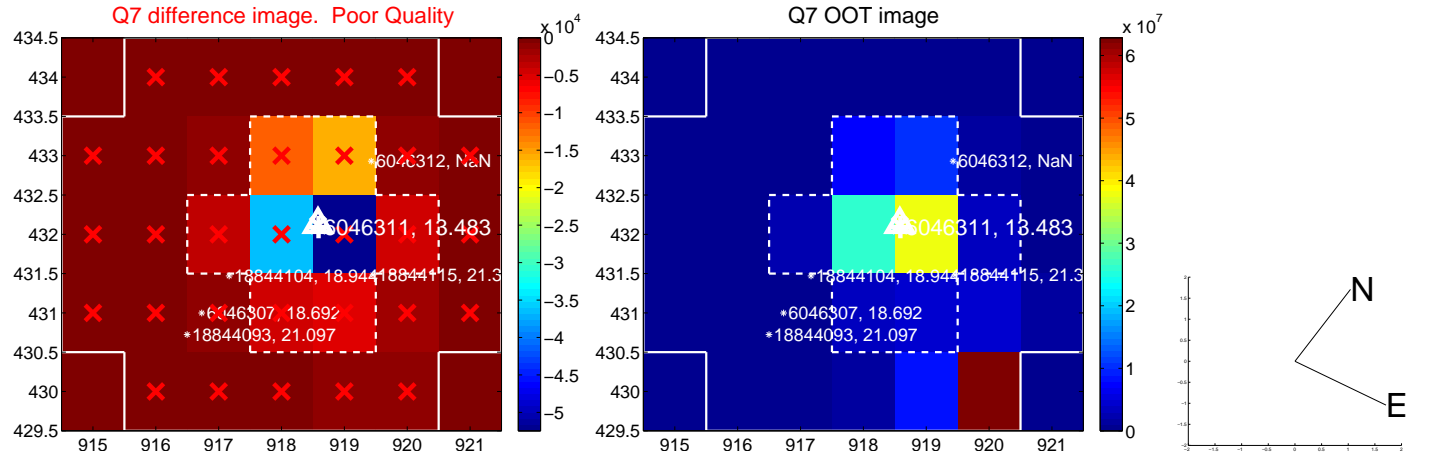
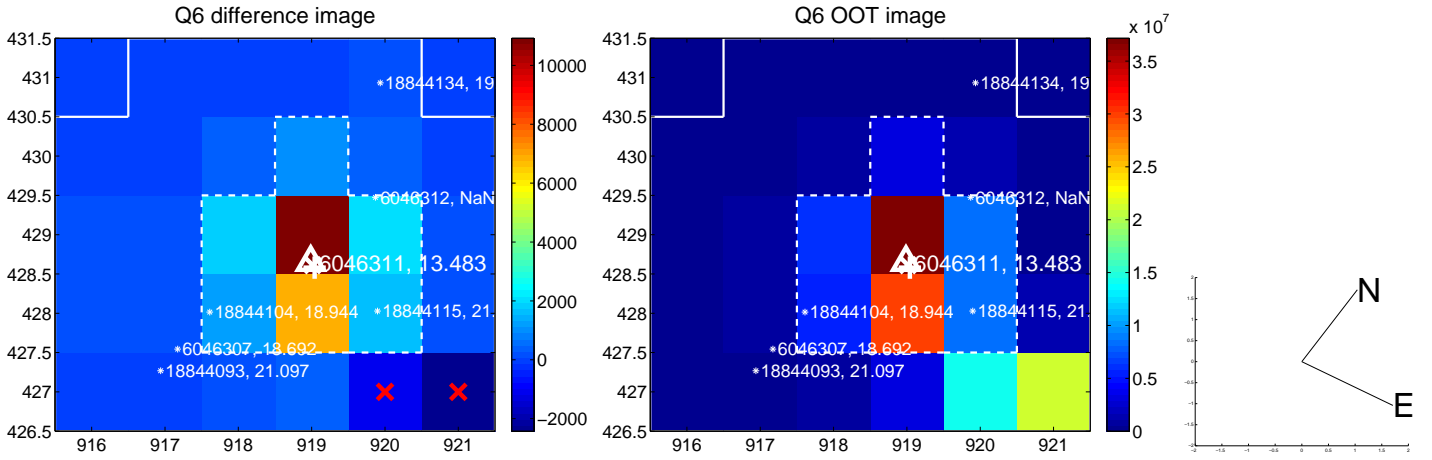
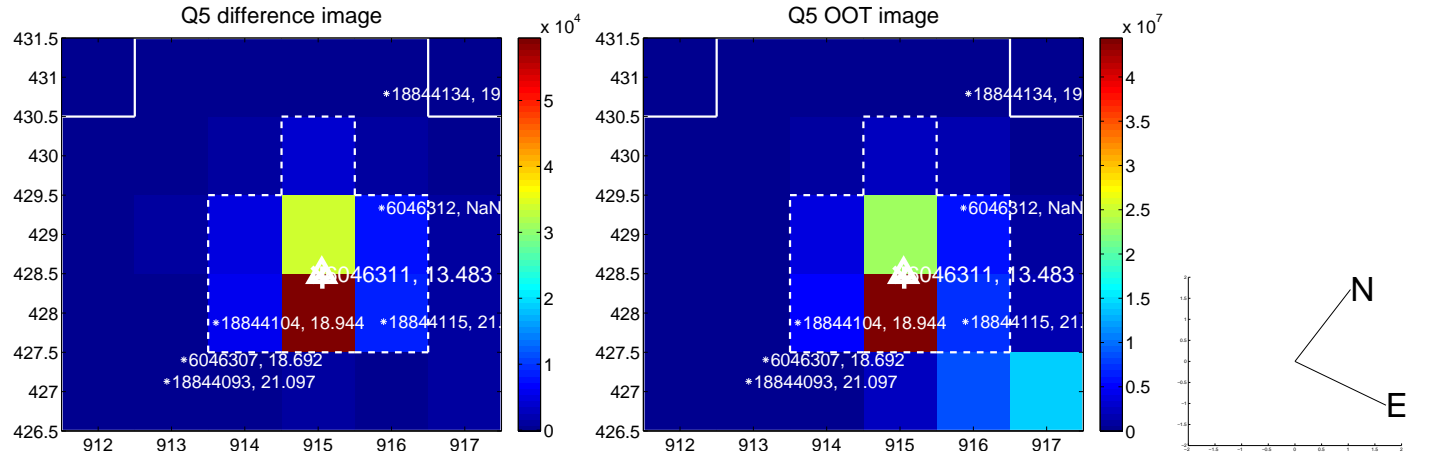


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

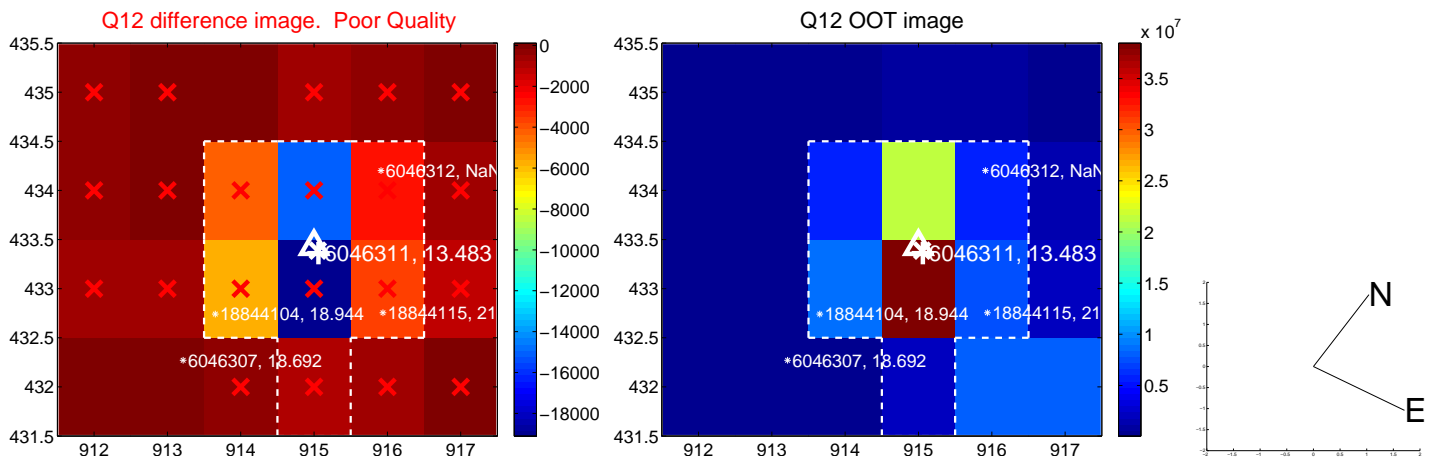
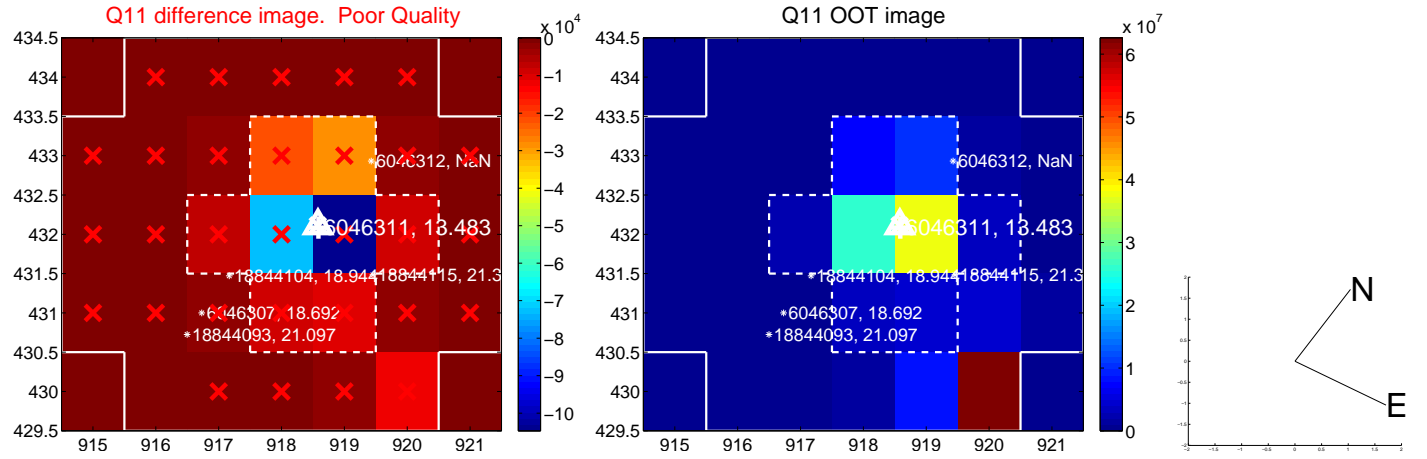
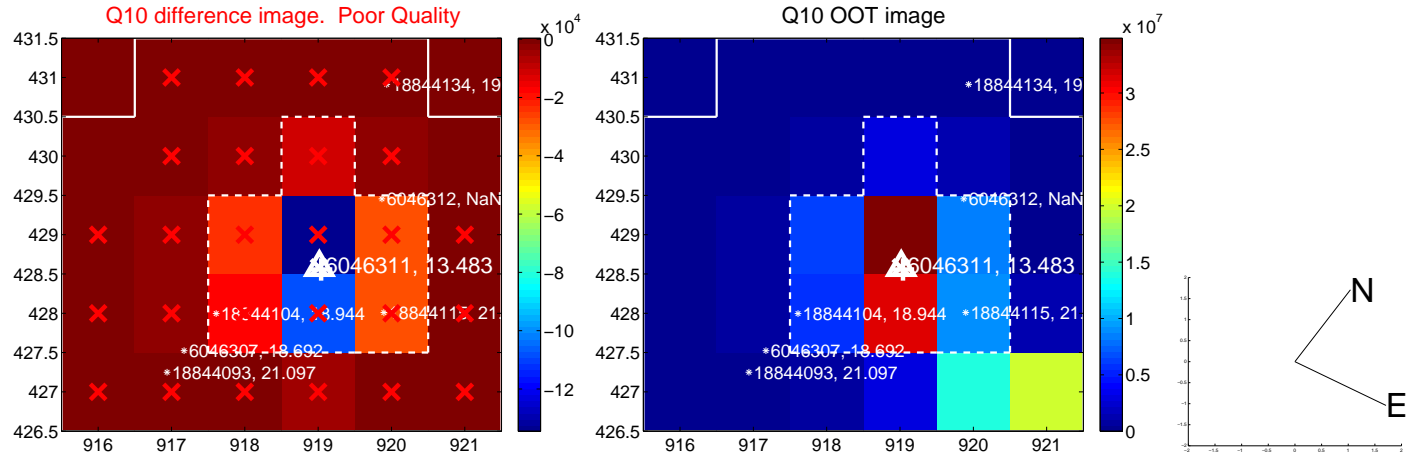
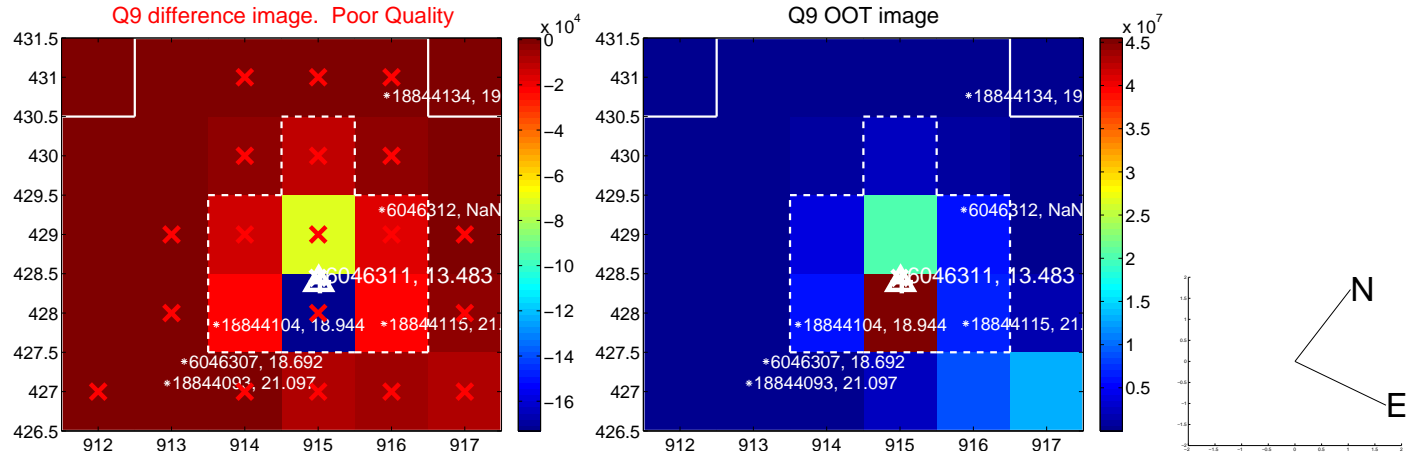
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



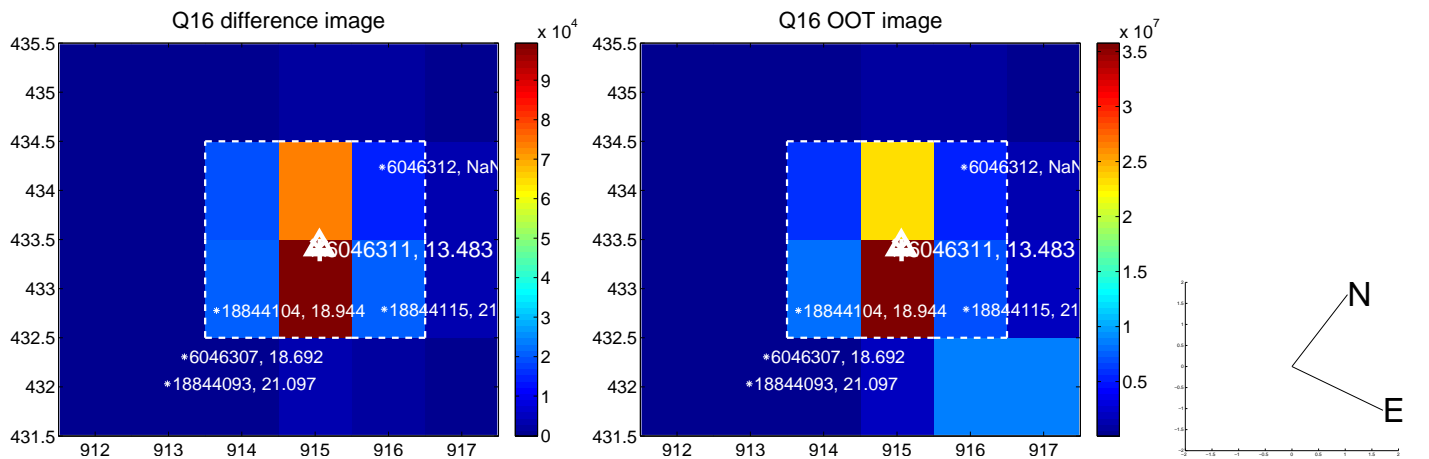
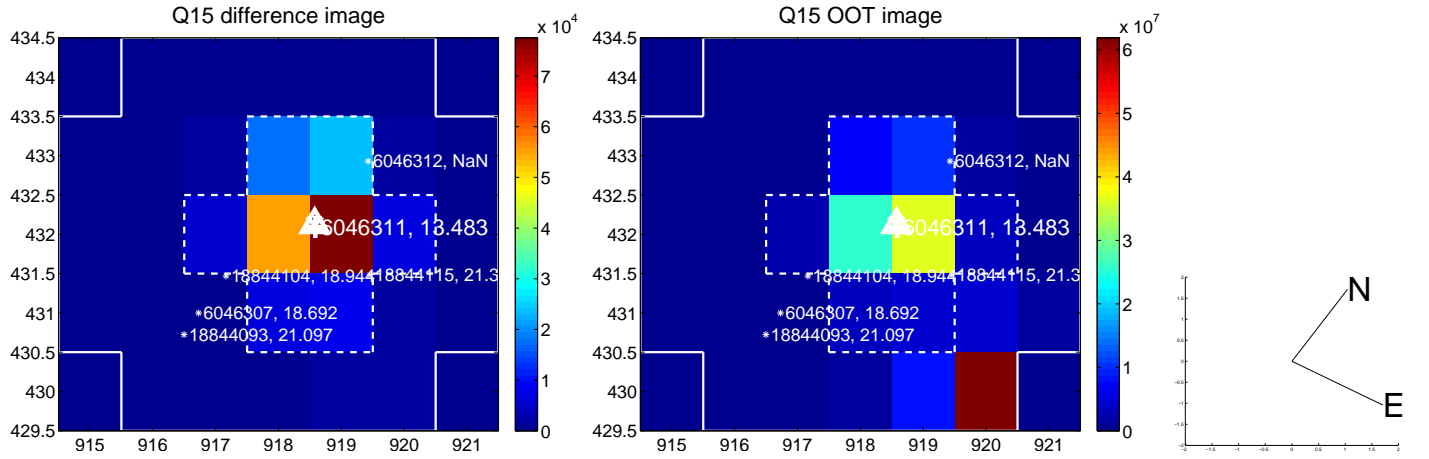
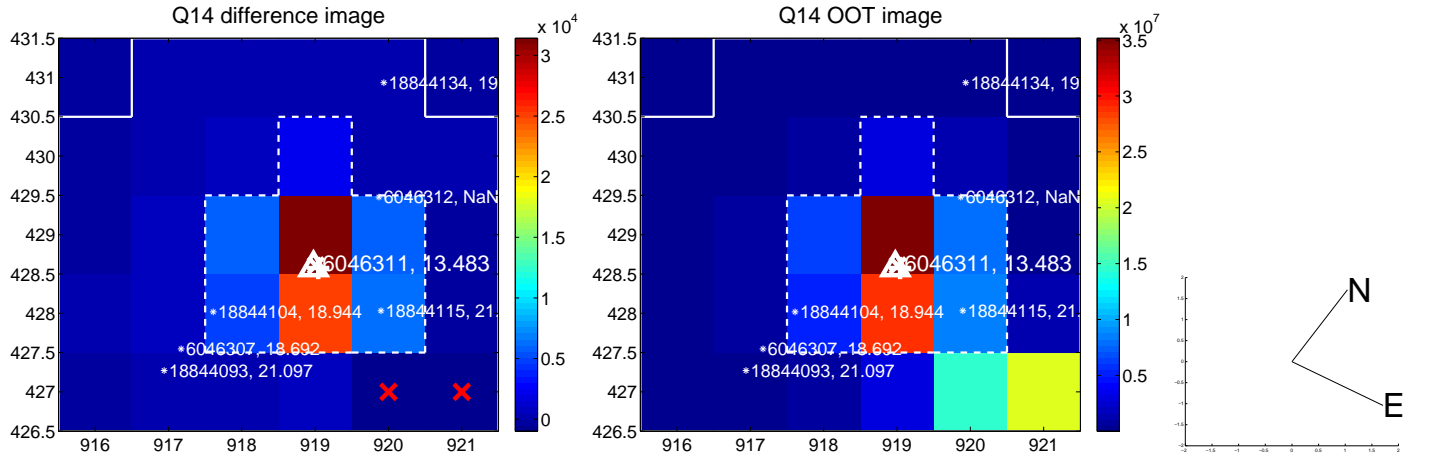
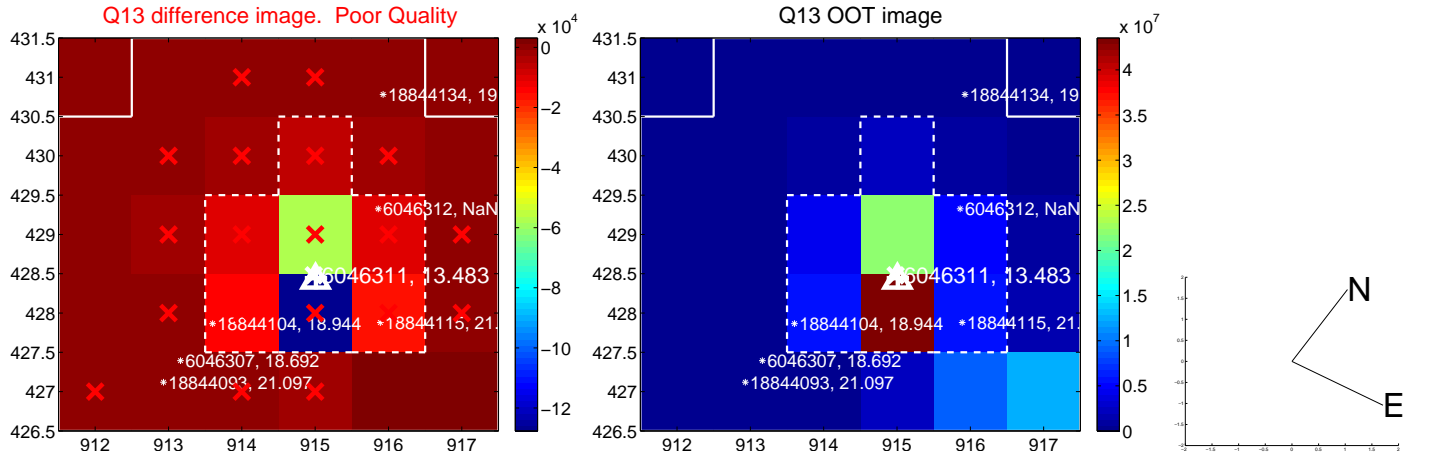
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



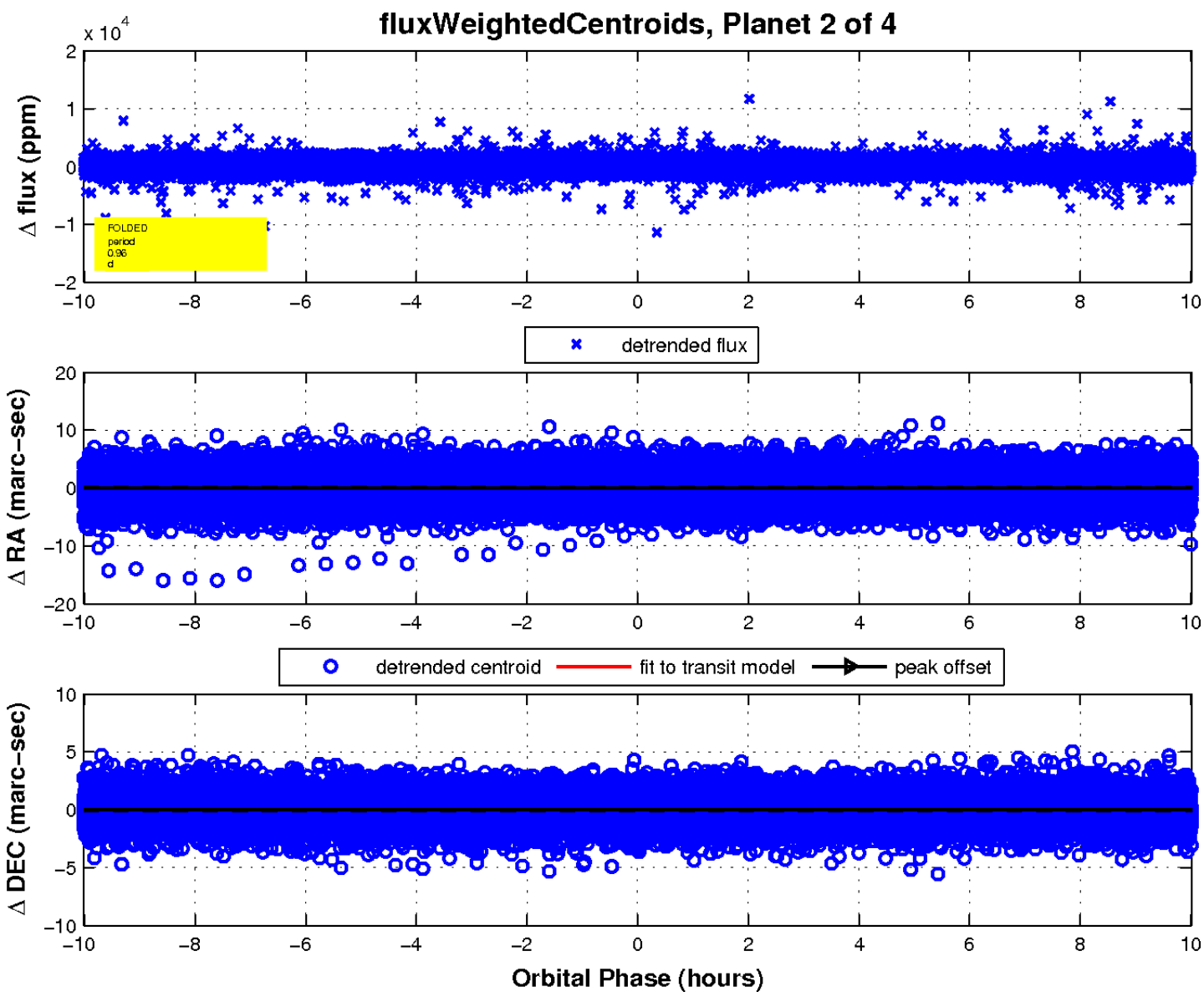
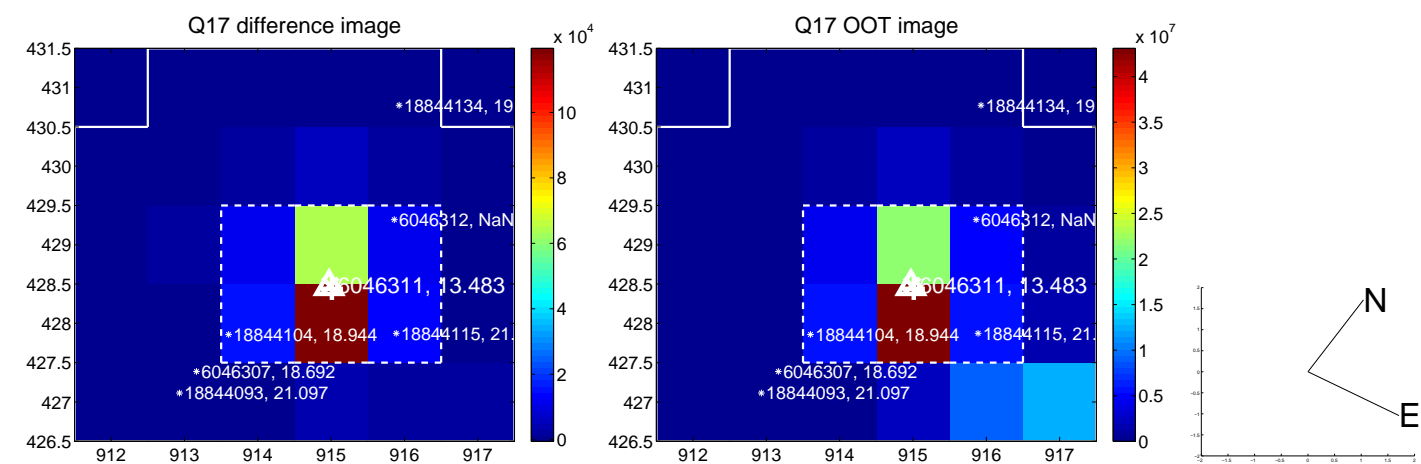
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



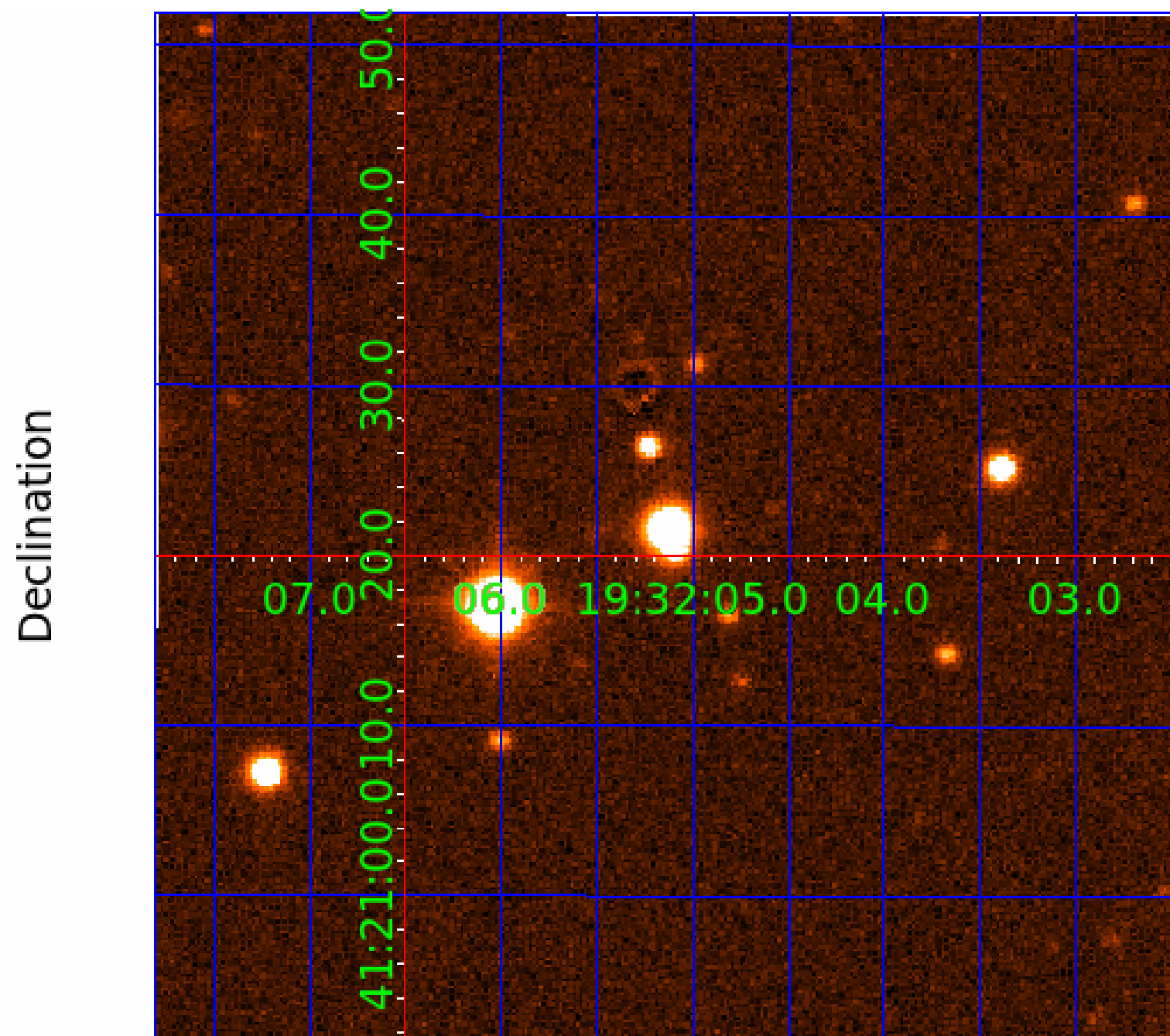
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 006046311

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}) |
|--------------|----------|---------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006046311-01 | OBS | No | 0.958353 | 132.116492 | 13.9 | 5.377 | 42.6 | 1.9 | 1.12 | 6312 | 0.43 | 4945.27 |
| 006046311-02 | OBS | 6654.01 | 0.958163 | 131.820422 | 8.6 | 3.338 | 19.1 | 1.3 | 1.12 | 6312 | 0.39 | 4946.58 |
| 006046311-04 | OBS | No | 1.906049 | 133.667142 | 196.9 | 7.988 | 8.9 | 4.4 | 1.12 | 6312 | 1.60 | 1977.18 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---------------------------------------------------------------------|
| 006046311-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 006046311-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—SAME_NTL_PERIOD |
| 006046311-04 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV |

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.

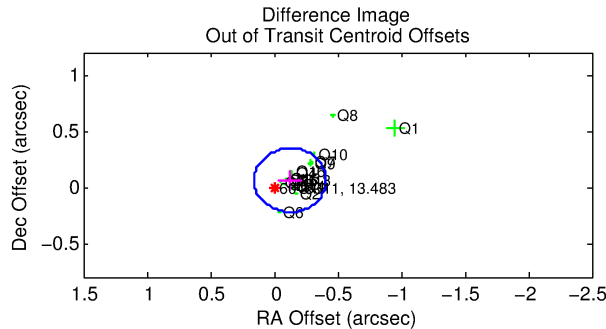
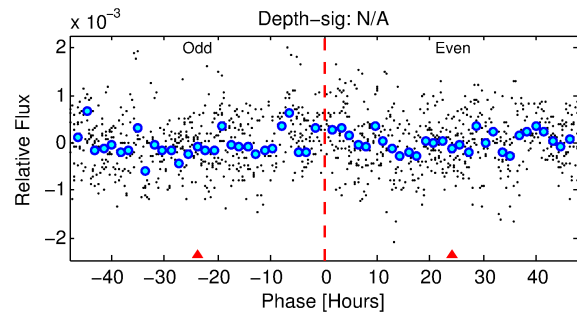
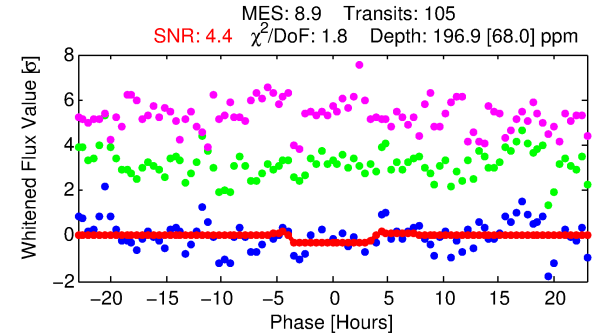
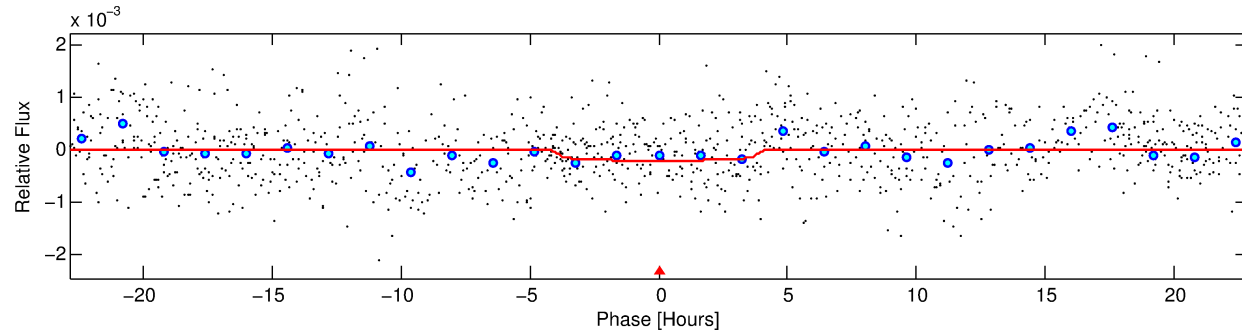
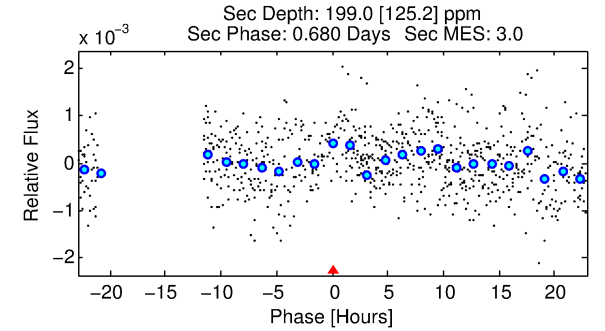
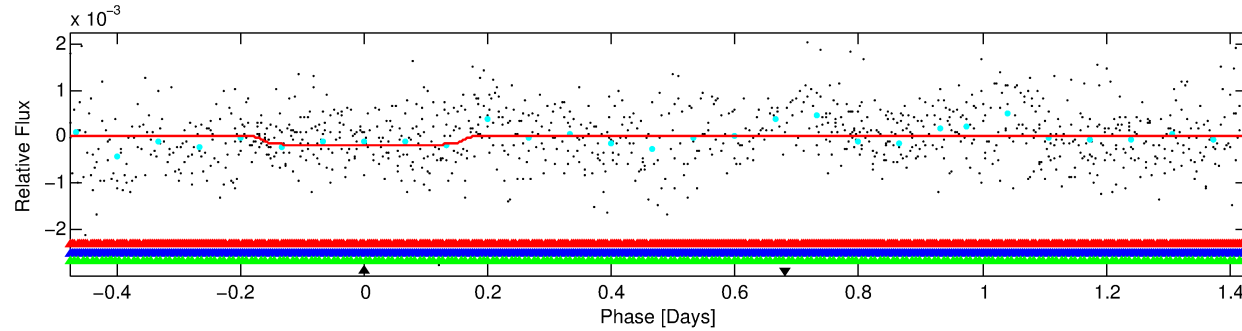
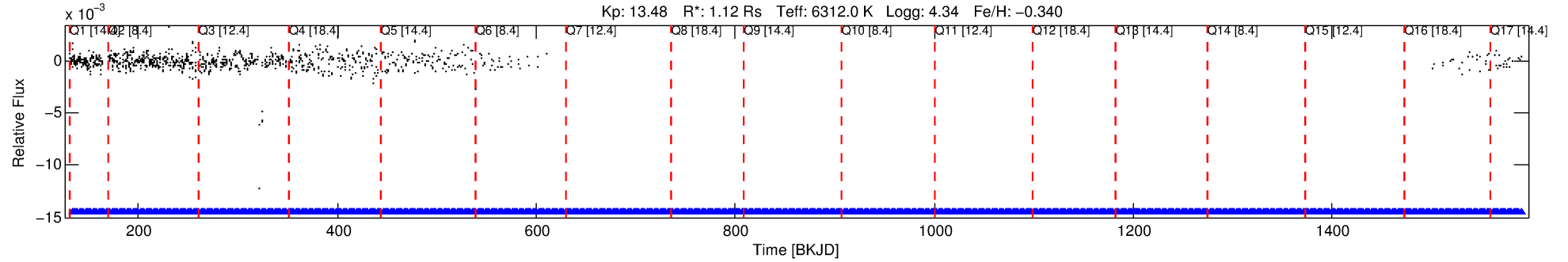
Ephemeris Match Information For 006046311-04

No Significant Match Found

DV One-Page Summary

KIC: 6046311 Candidate: 4 of 4 Period: 1.906 d

KOI: K06654 Corr: No Ephemeris Match



DV Fit Results:

Period = 1.90605 [0.00014] d
Epoch = 133.6671 [0.0148] BKJD
Rp/R* = 0.0131 [0.0345]
a/R* = 1.84 [17.93]
b = 0.38 [31.46]
Seff = 1977.18 [730.43]
Teq = 1700 [157] K
Rp = 1.60 [4.25] Re
a = 0.0301 [0.0073] AU
Ag = 38.57 [205.13] [0.18σ]
Teffp = 6551 [8695] K [0.56σ]

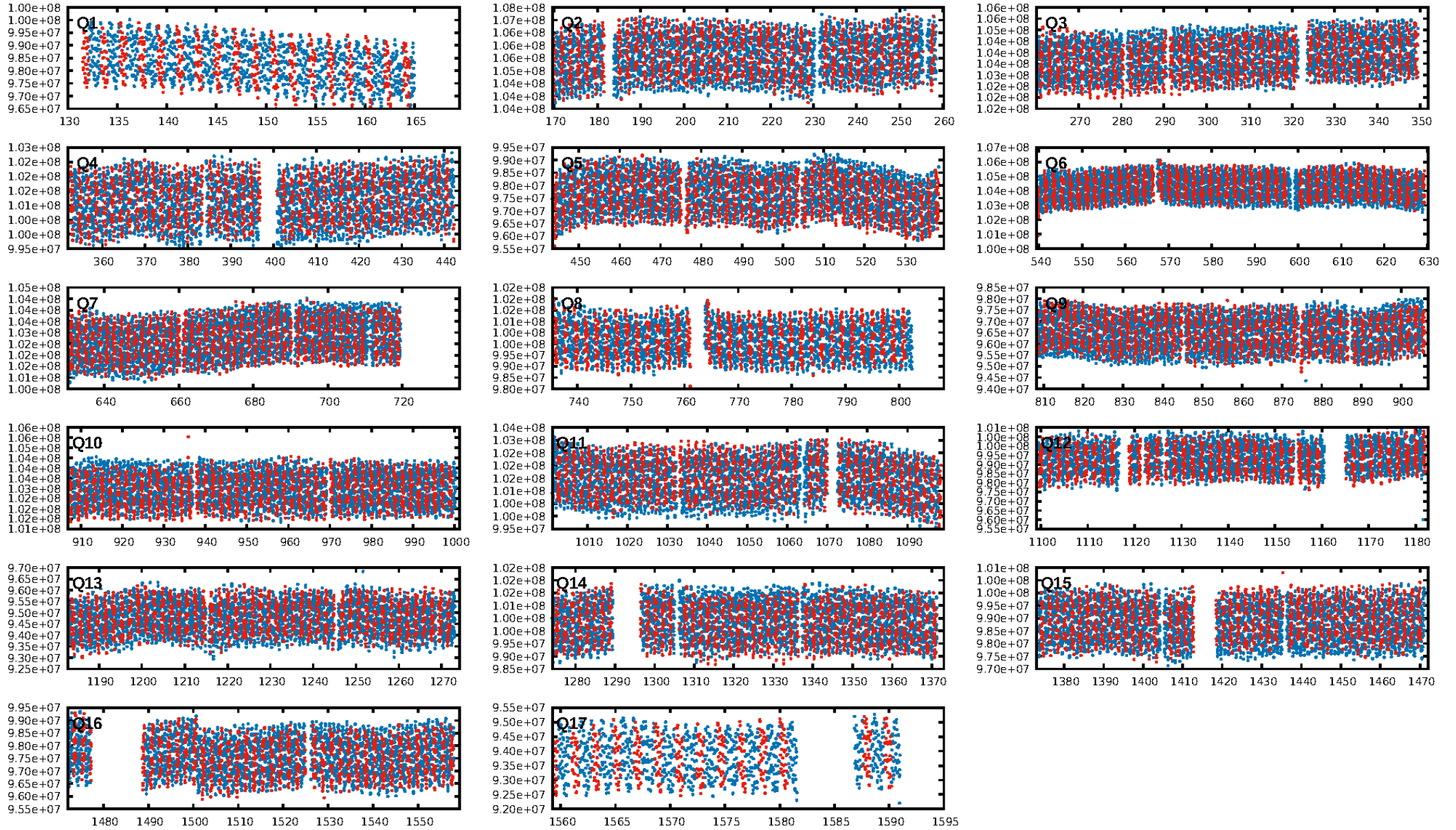
DV Diagnostic Results:

ShortPeriod-sig: 98.2% [2.36σ]
LongPeriod-sig: 100.0% [9.83σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [87/87]
GhostDiagnostic-chr: 1.3
Centroid-sig: 0.0%
Centroid-so: 1.311 arcsec [2.99σ]
OotOffset-rm: 0.140 arcsec [1.48σ]
KicOffset-rm: 0.016 arcsec [0.17σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

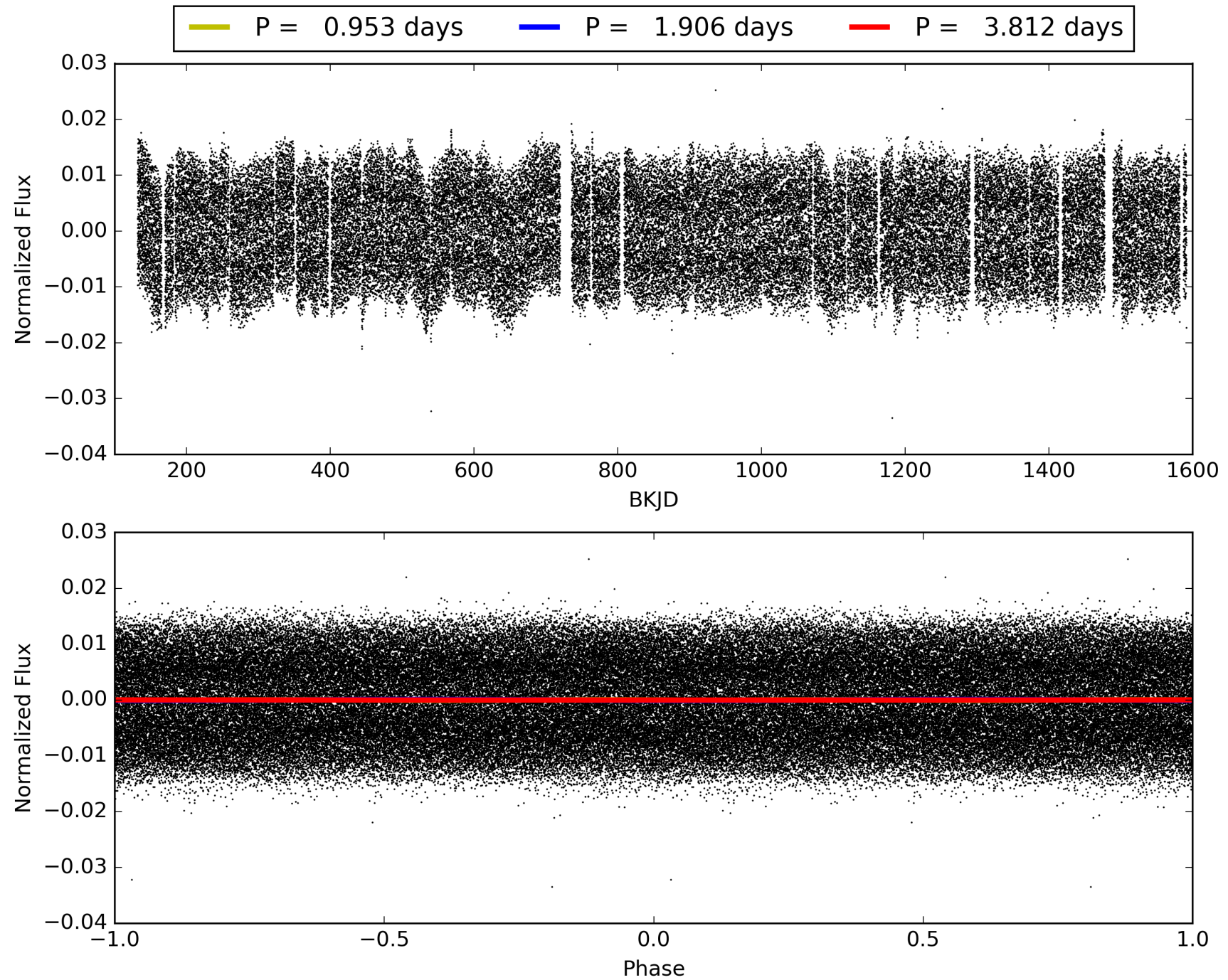
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:24:00 Z

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

TCE 006046311-04, PDC Light Curves

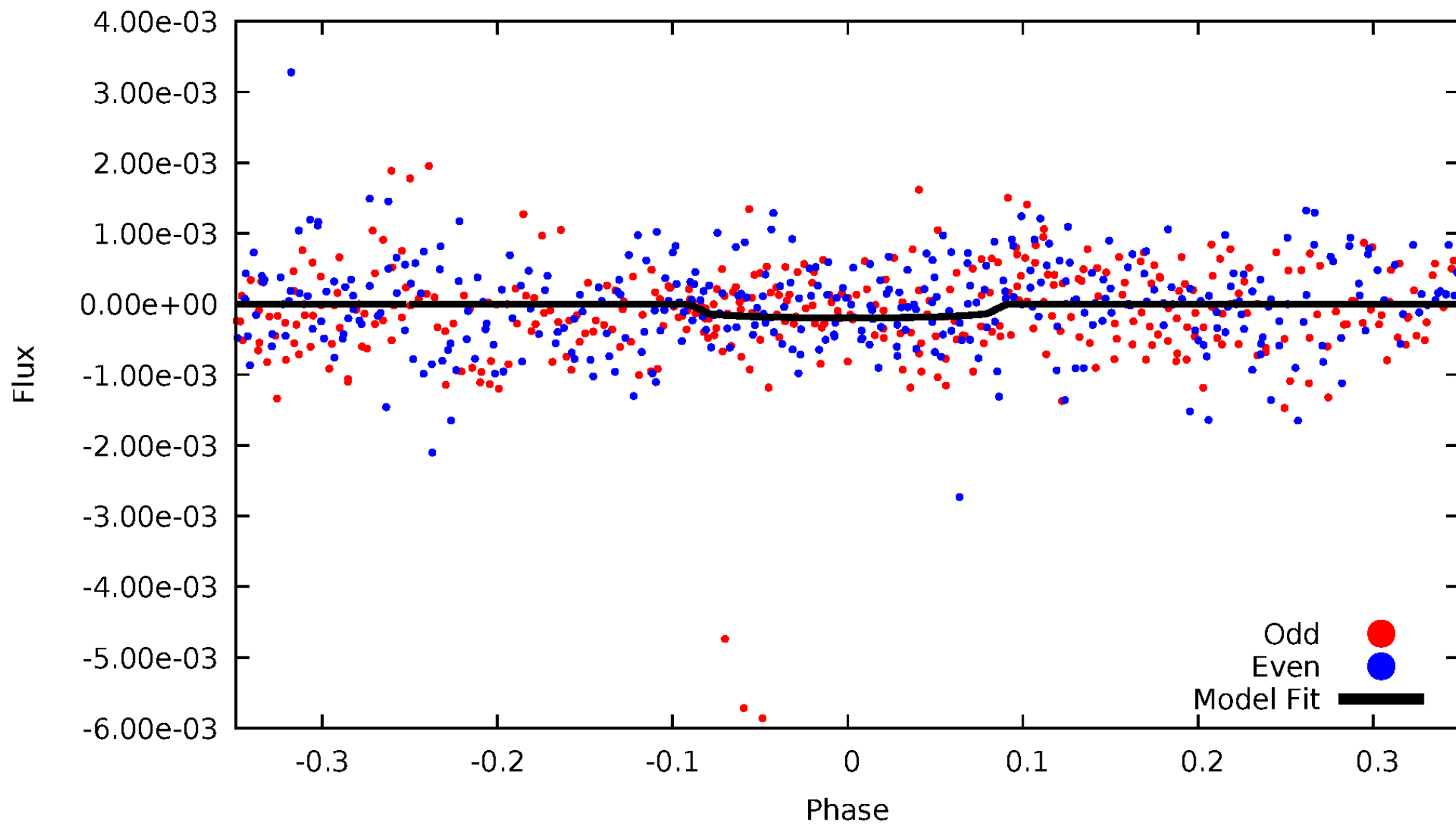


TCE 006046311-04



DV Odd/Even

TCE 006046311-04

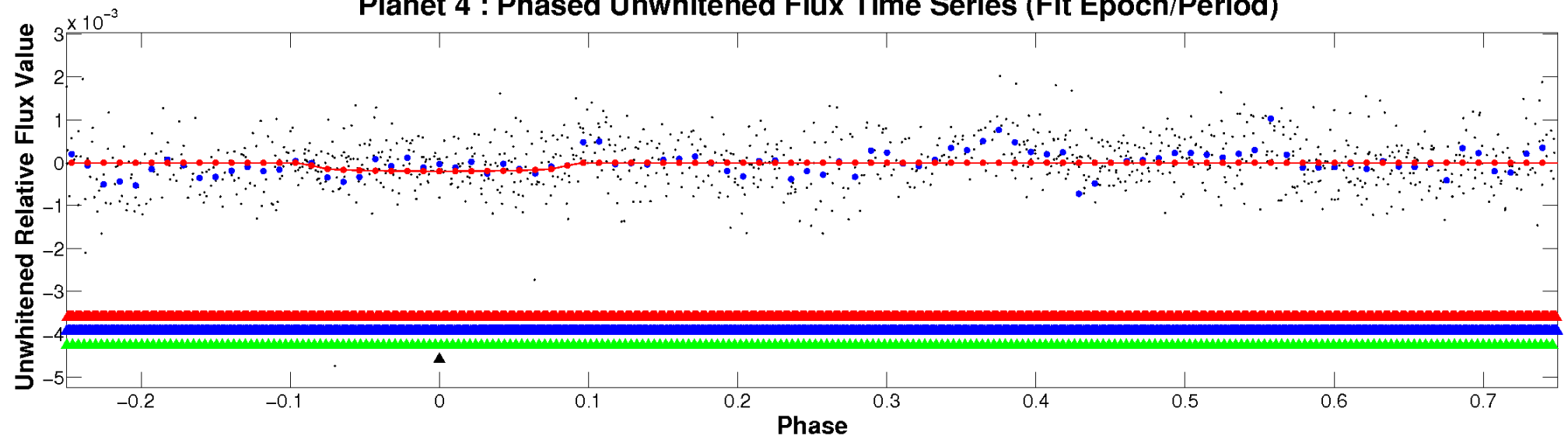


ALT Odd/Even

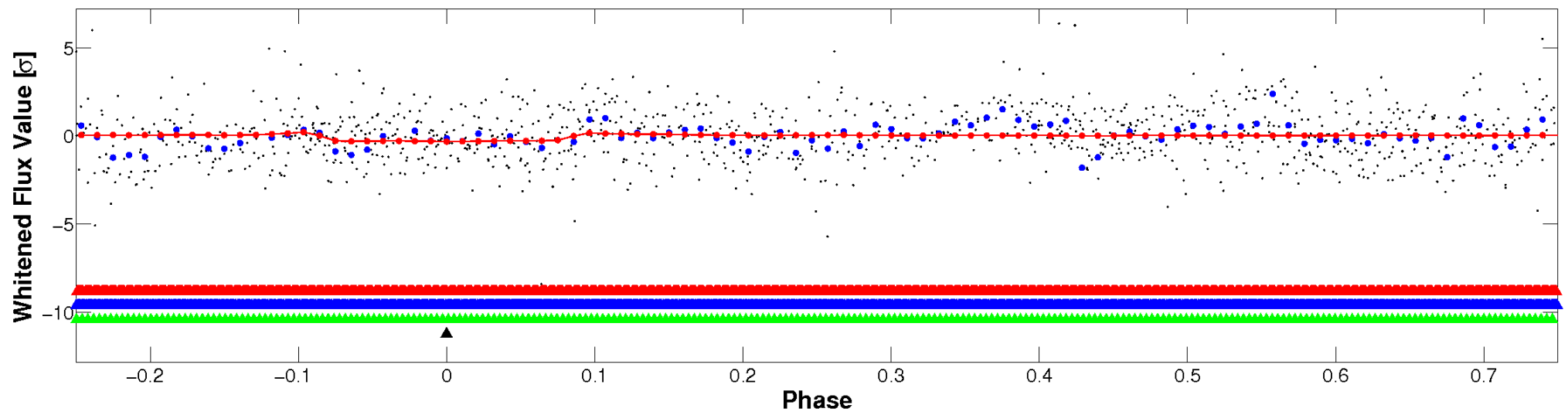
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

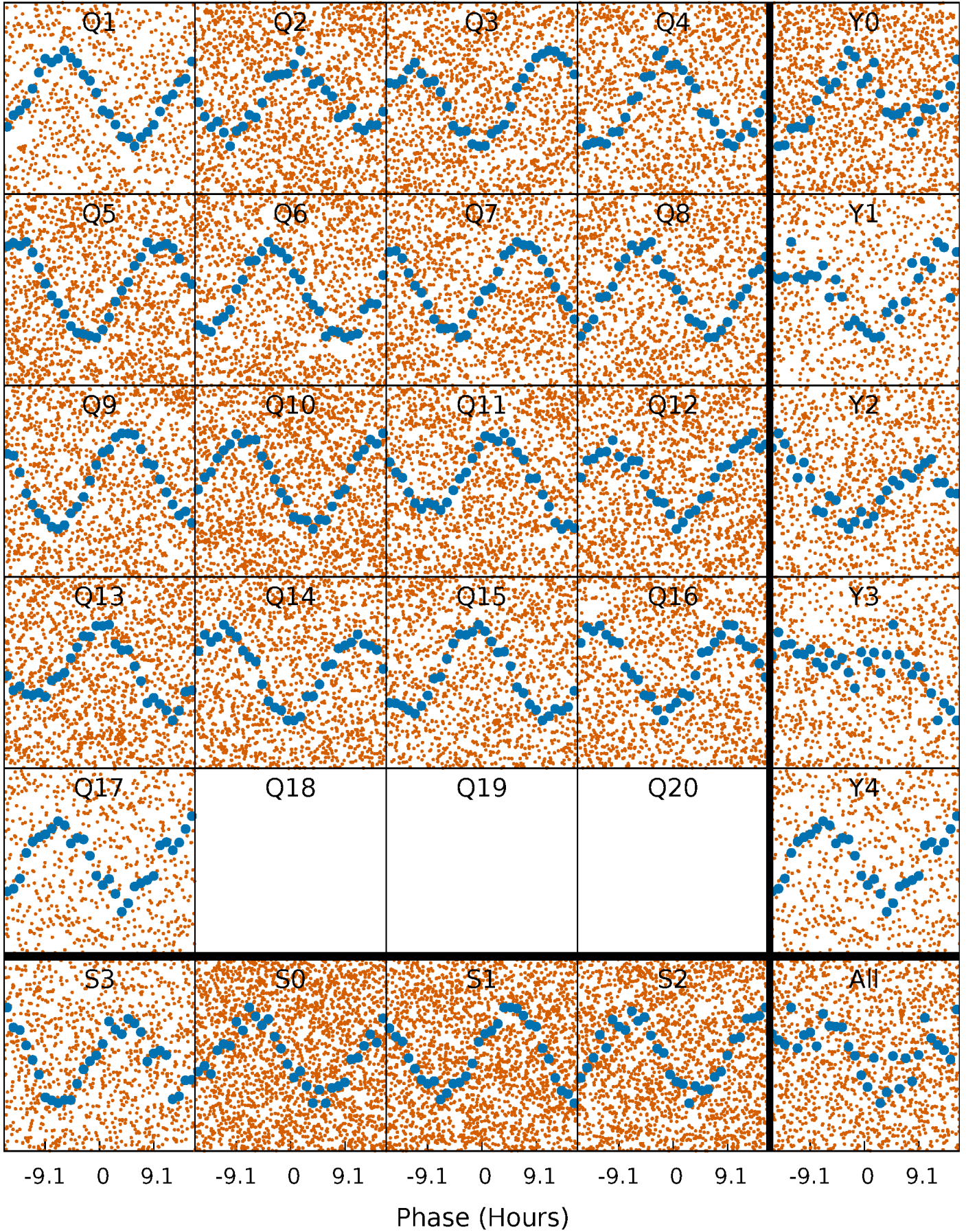


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



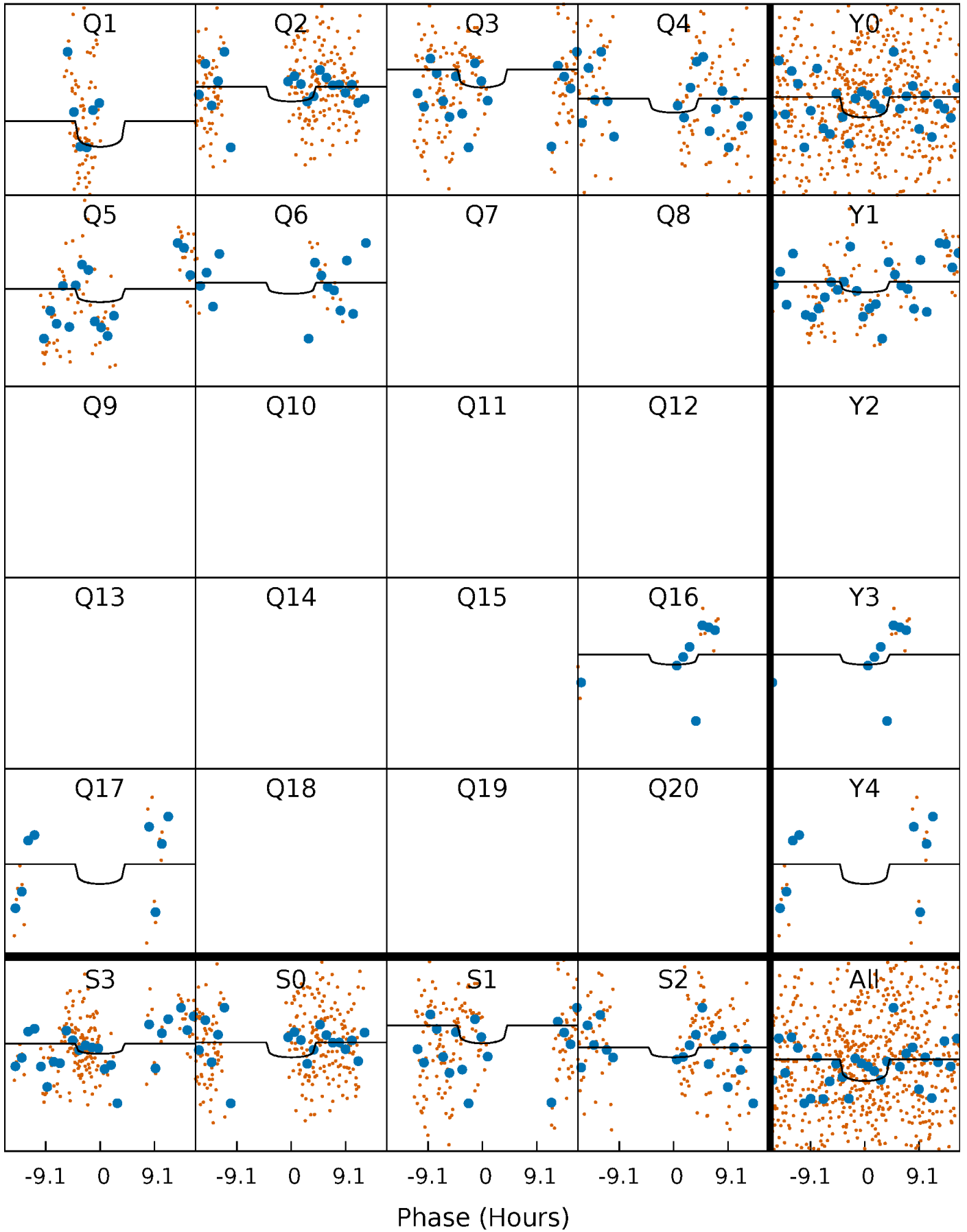
PDC Quarter-Phased Transit Curves

TCE 006046311-04 P= 1.906049 Days $T_0=133.667142$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 006046311-04 P= 1.906049 Days $T_0=133.667142$ (BKJD)

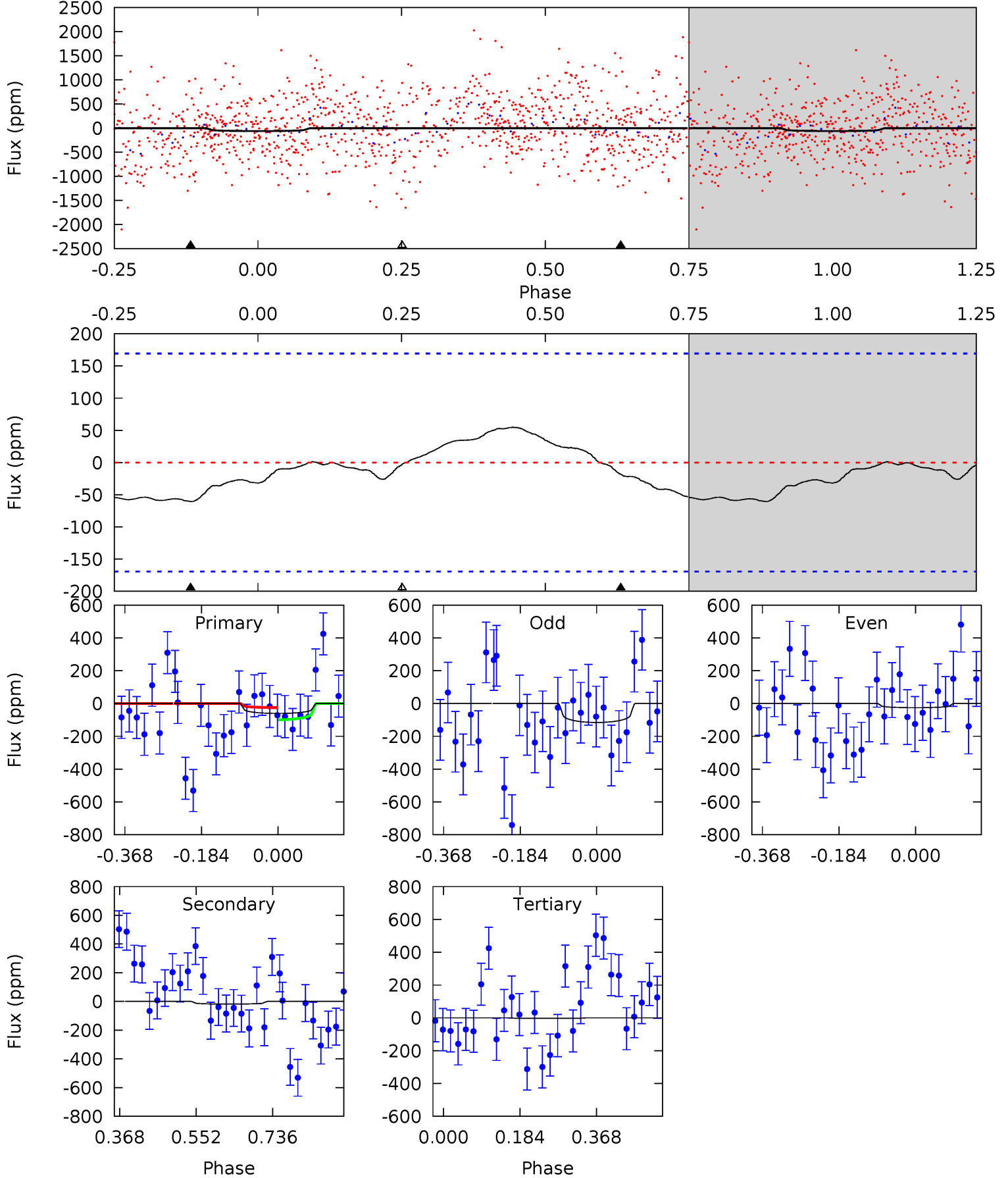


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

006046311-04, P = 1.906049 Days, E = 129.855044 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 1.59 | 0.48 | 0.08 | 0 | 4.44 | 1.33 | 0.66 | 1.50 | 1.59 | 0.40 | 0.48 | 1.18 | 1.82 | 0.48 | 1.20 |



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 006046311

| | $T_{\text{eff}}(K)$ | $\log(g)$ | $[\text{Fe}/\text{H}]$ | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
| | 6312^{+169}_{-207} | $4.338^{+0.124}_{-0.186}$ | $-0.340^{+0.300}_{-0.300}$ | $1.122^{+0.327}_{-0.176}$ | $0.998^{+0.160}_{-0.107}$ | $0.996^{+0.580}_{-0.500}$ |
| | +3%/-3% | +3%/-4% | +88%/-88% | +29%/-16% | +16%/-11% | +58%/-50% |
| 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 006046311-04 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|------------------------|---------------------------|
| DV | -18 ± 38 | $3.69^{+3.50}_{-2.46}$ | 2392^{+179}_{-145} | 2171^{+2016}_{-5460} | $0.351^{+4.921}_{-1.188}$ |
| Alt. | N/A | N/A | N/A | N/A | N/A |

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

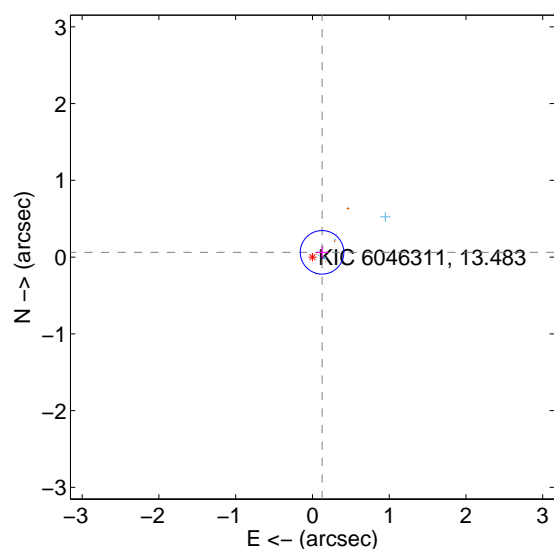
Supplemental centroid analysis for 006046311-04. Kepler magnitude: 13.48. Transit SNR 4.41

There are 9 quarters with good PRF difference image offsets

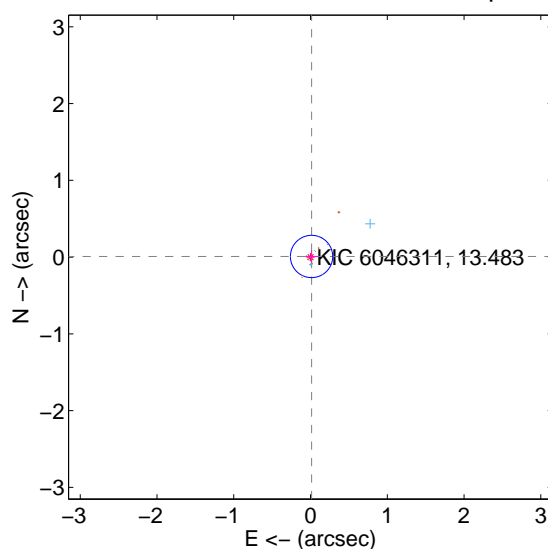
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.140 ± 0.095 | 1.48 | -0.125 ± 0.086 | 0.062 ± 0.083 |
| PRF-fit source offset from KIC position | 0.016 ± 0.092 | 0.17 | -0.013 ± 0.082 | 0.008 ± 0.082 |
| photometric centroid source offset | 1.31 ± 0.44 | 2.99 | 1.31 ± 0.44 | -0.04 ± 0.16 |

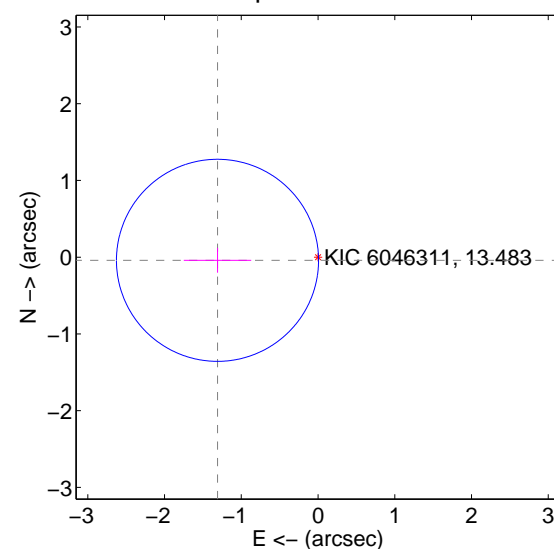
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

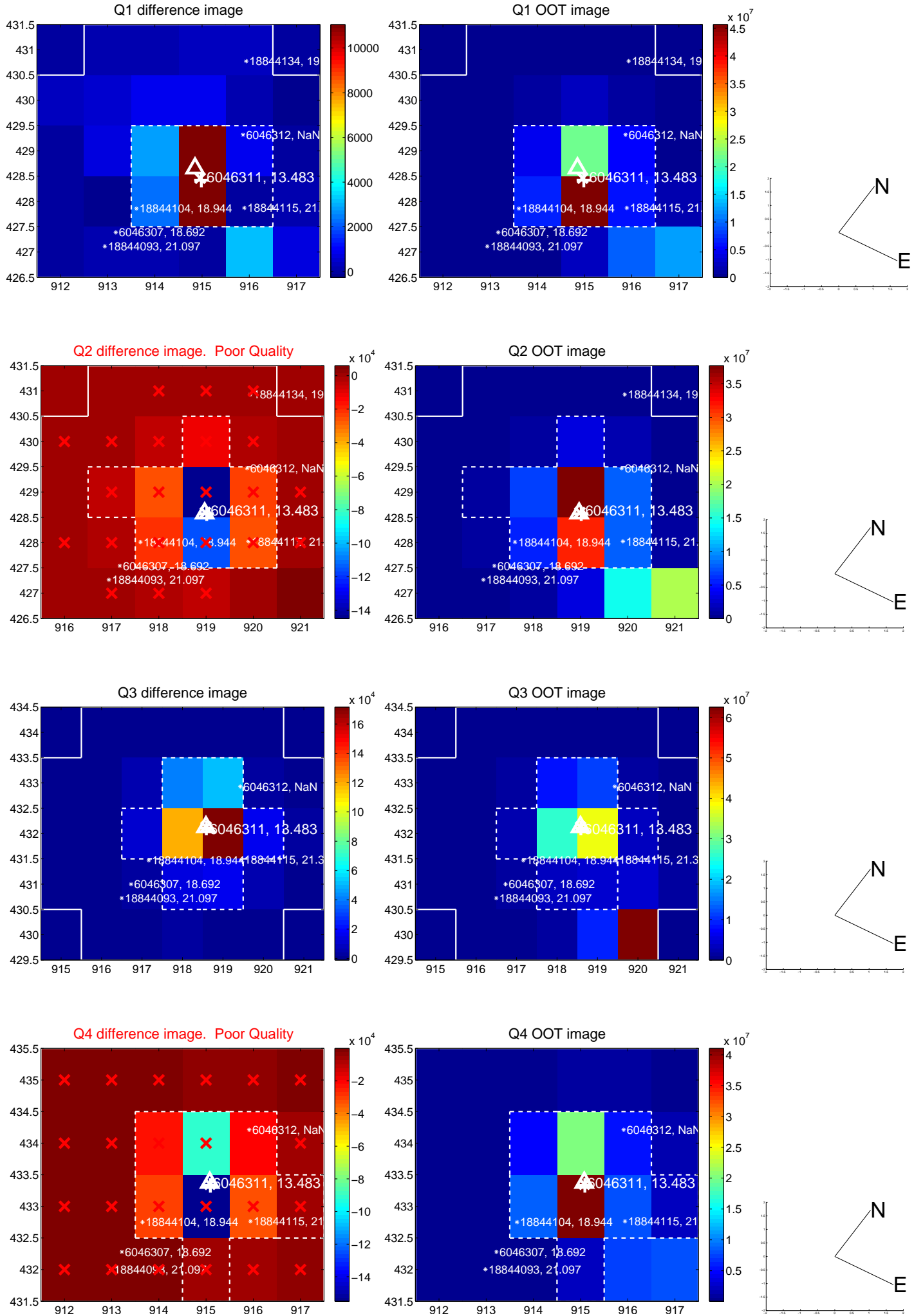


offset from photometric centroids

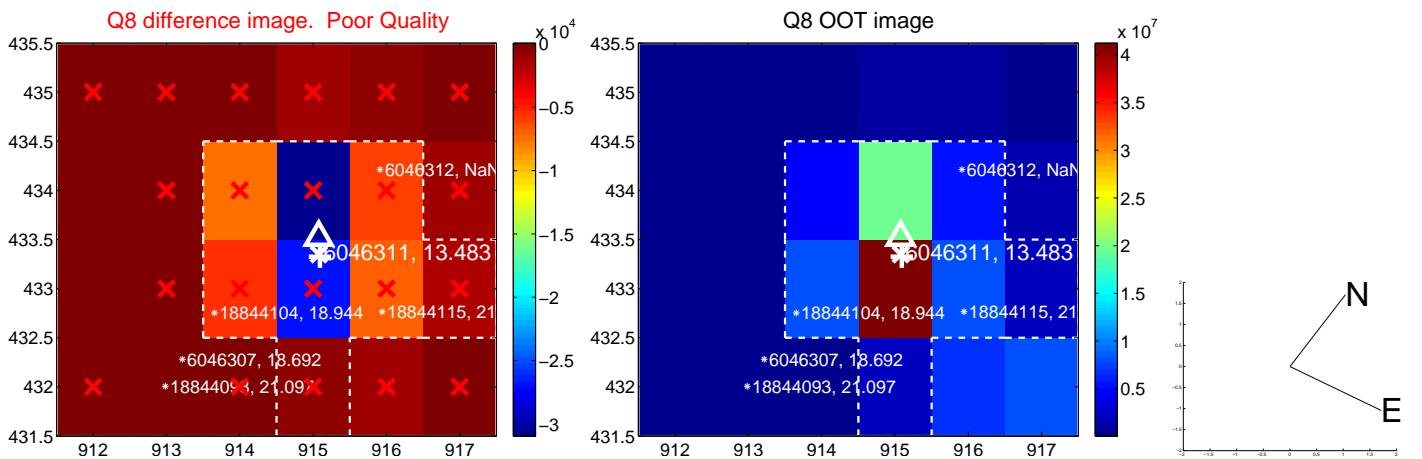
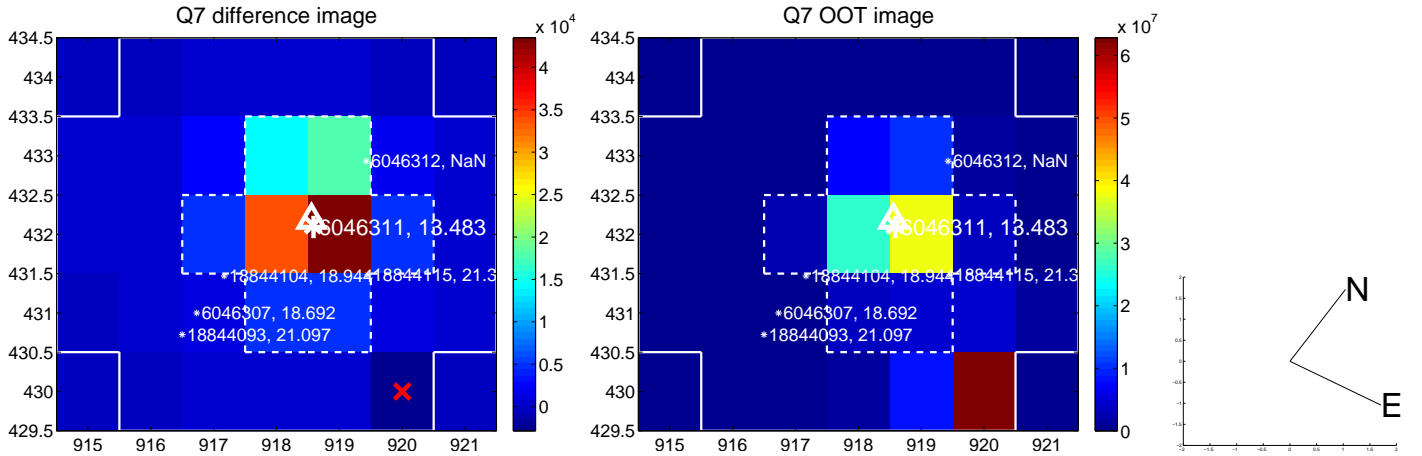
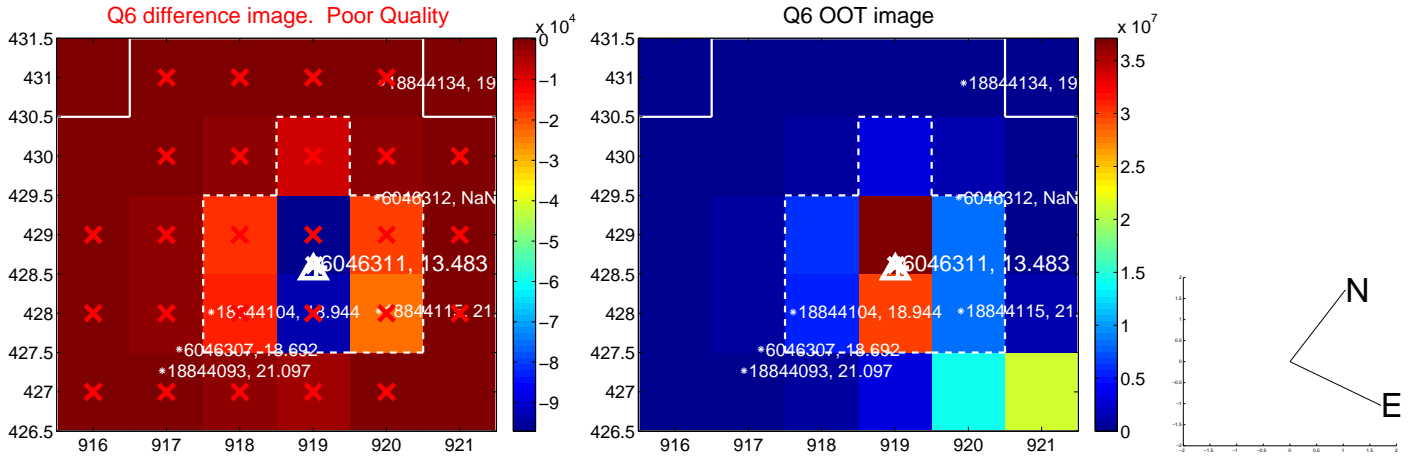
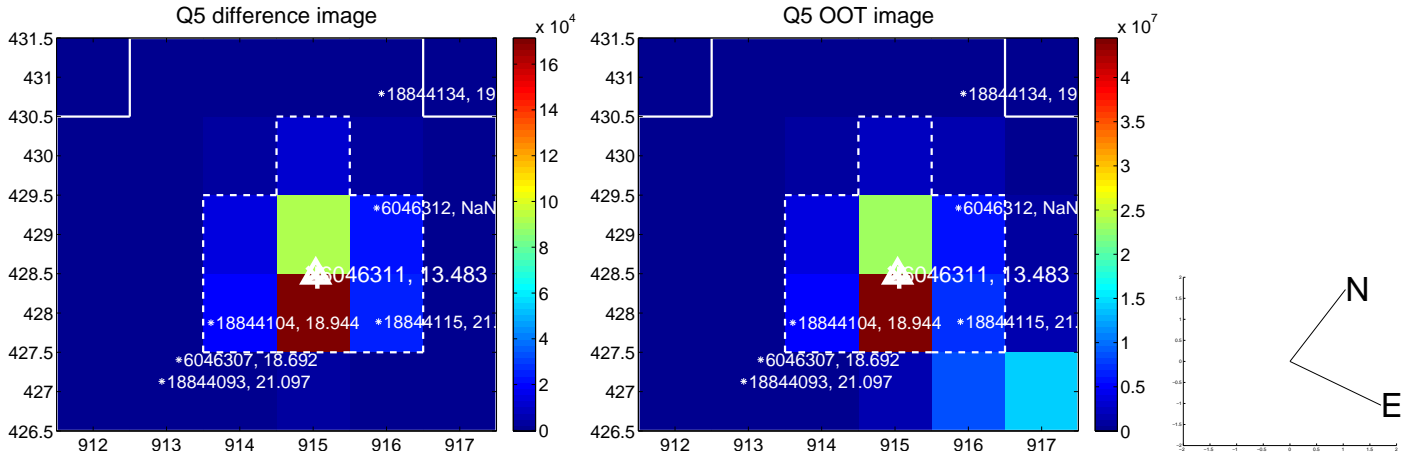


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

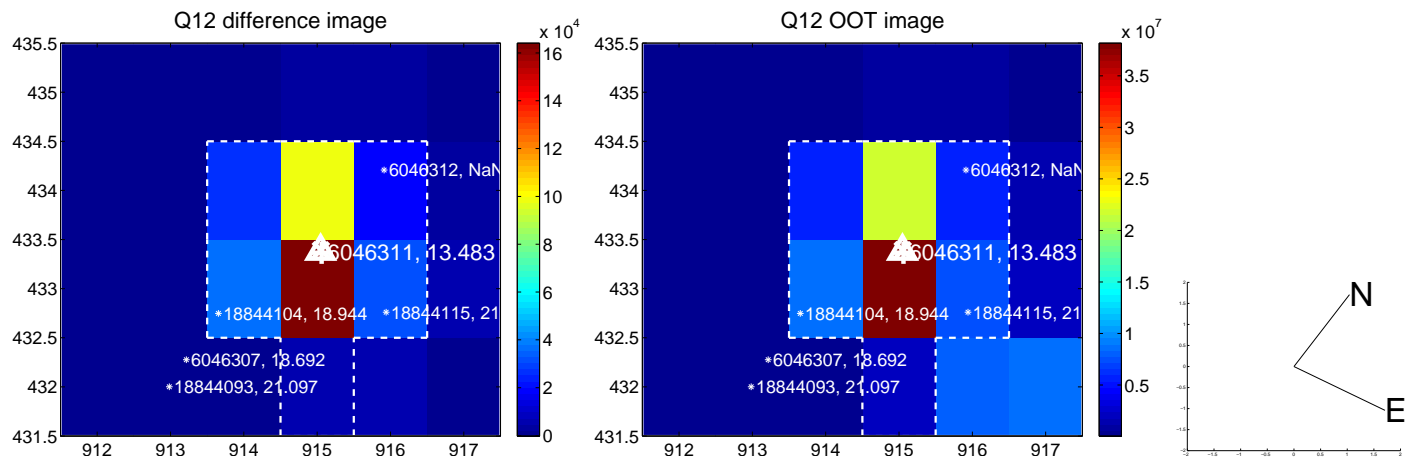
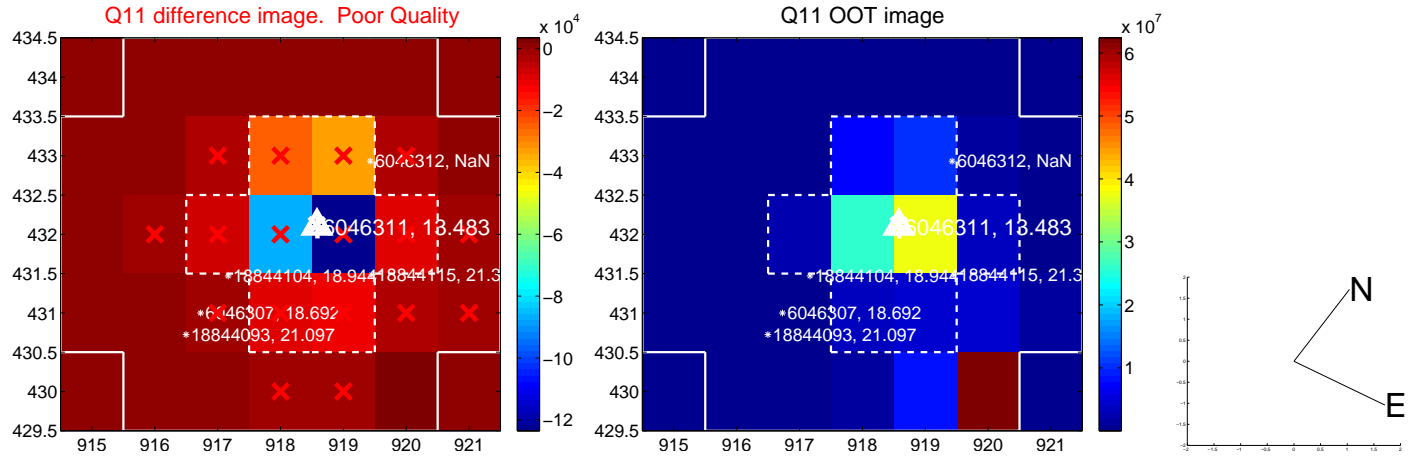
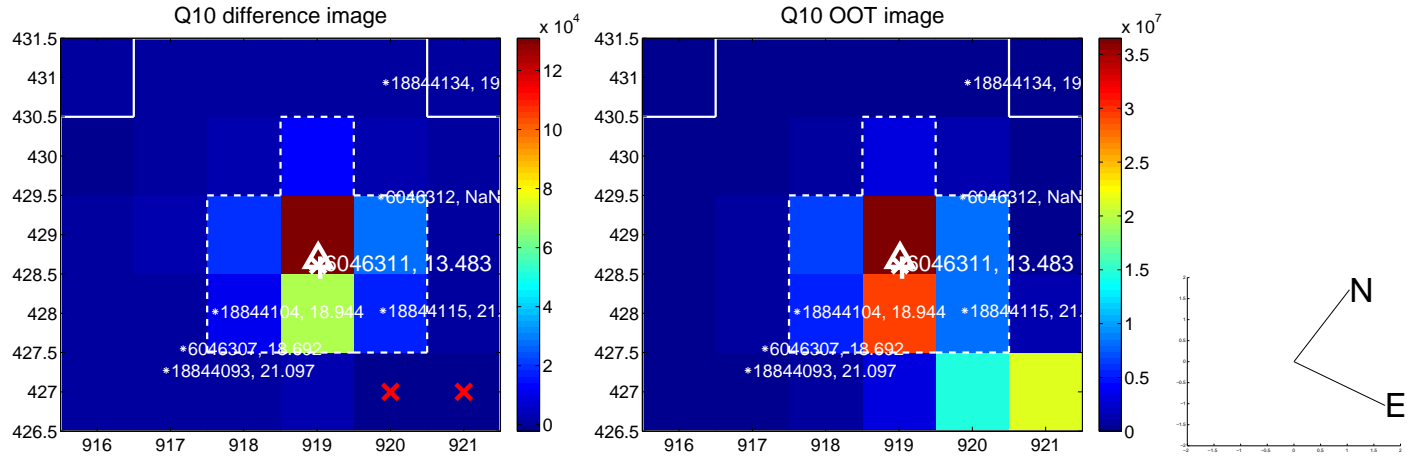
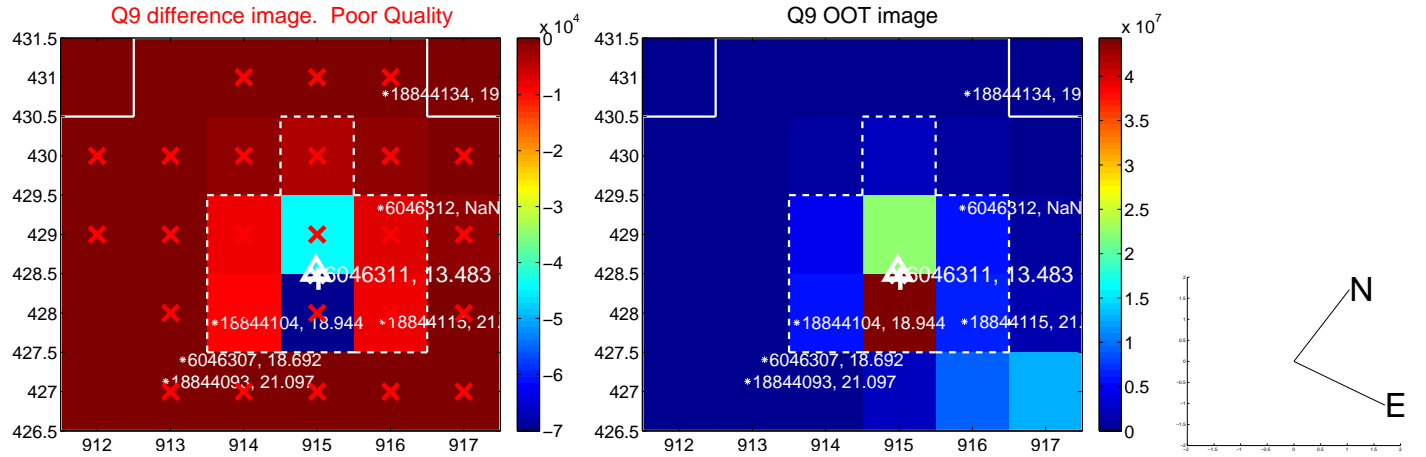
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



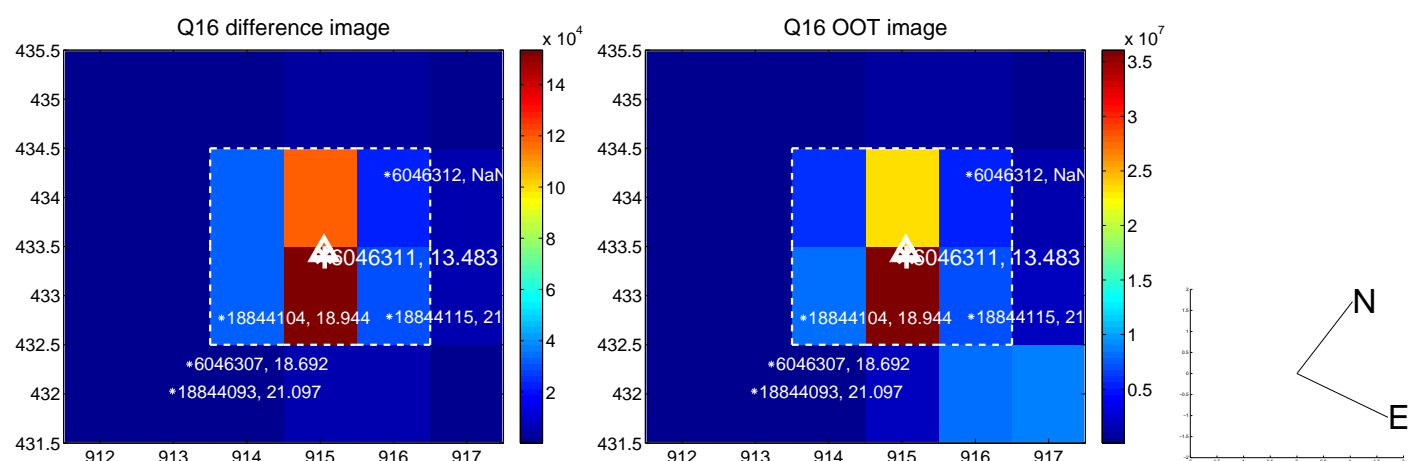
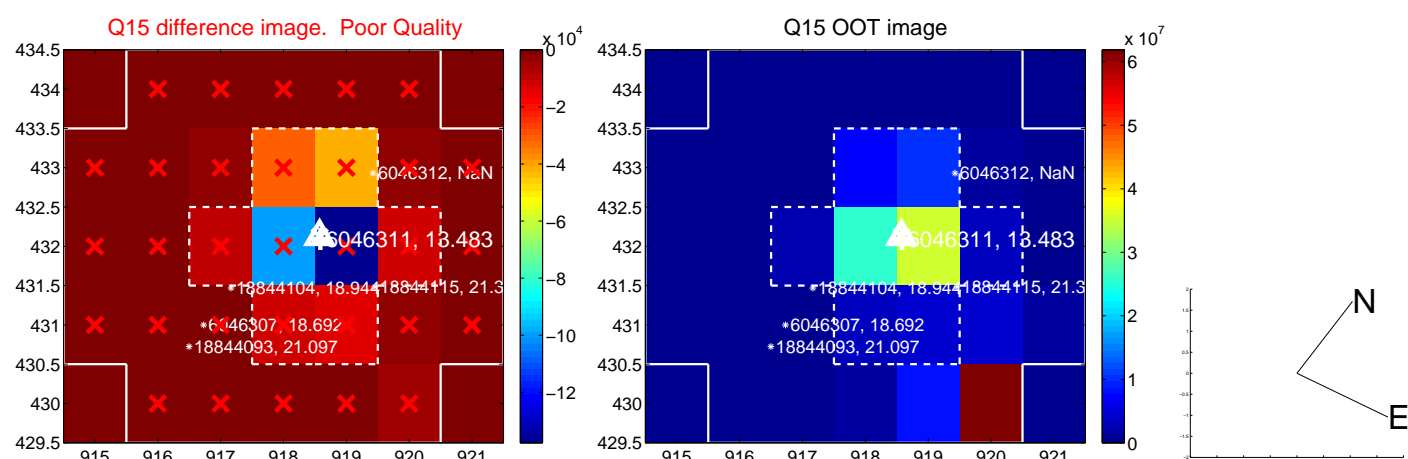
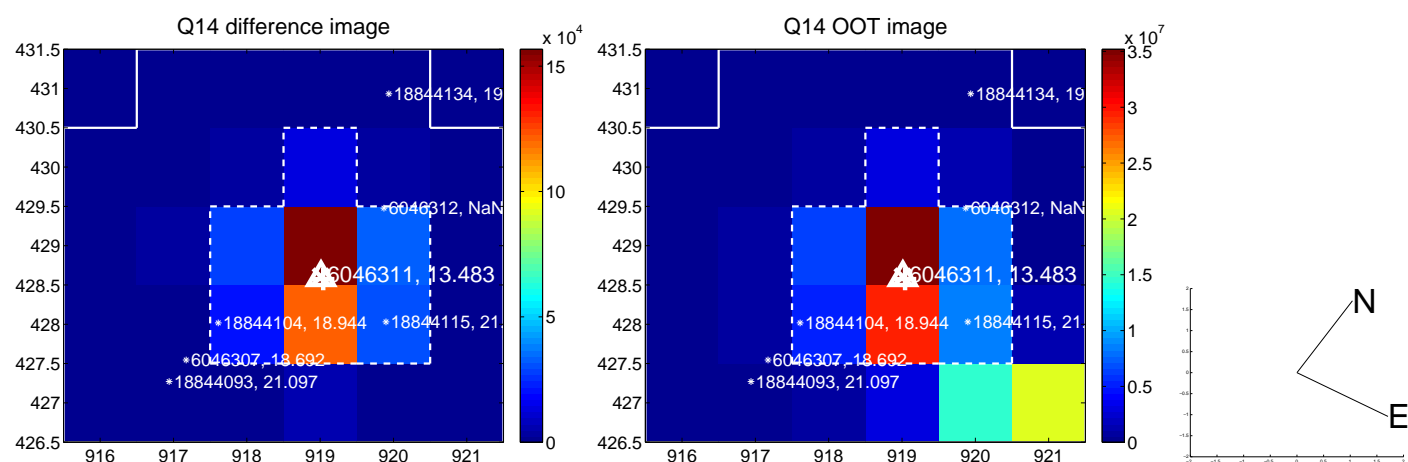
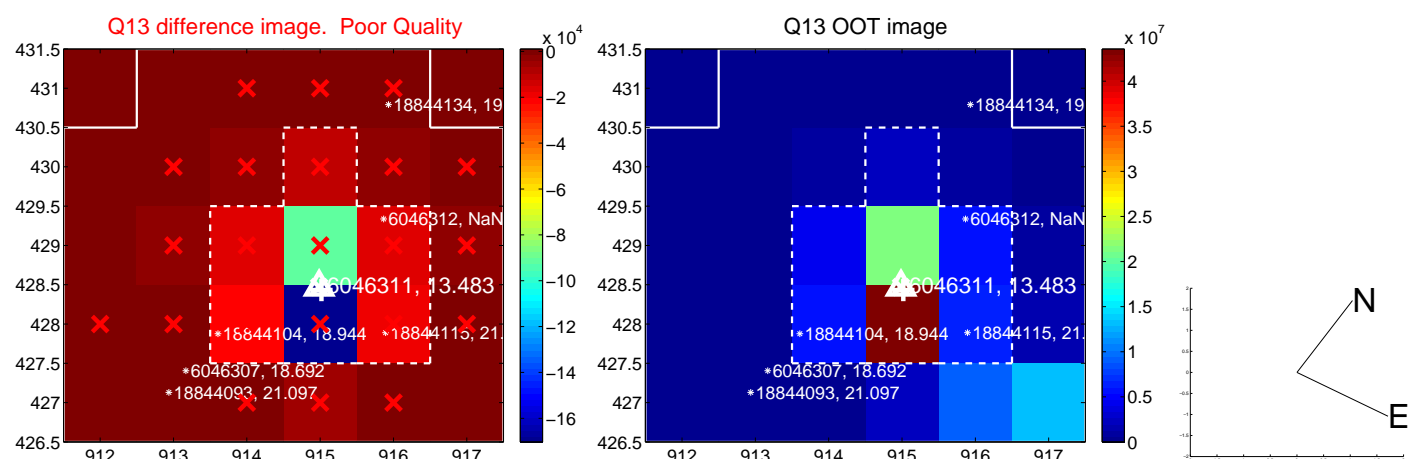
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



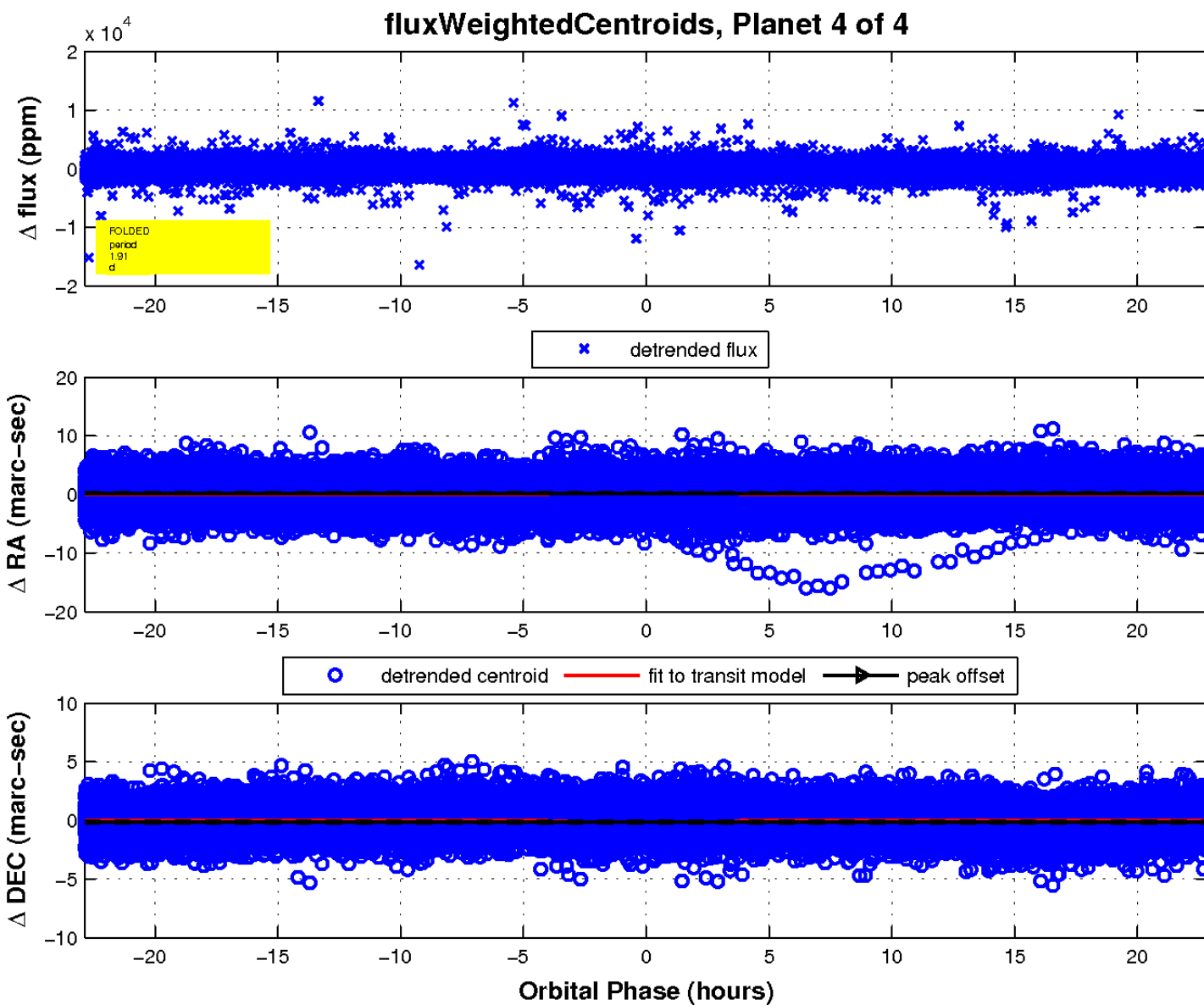
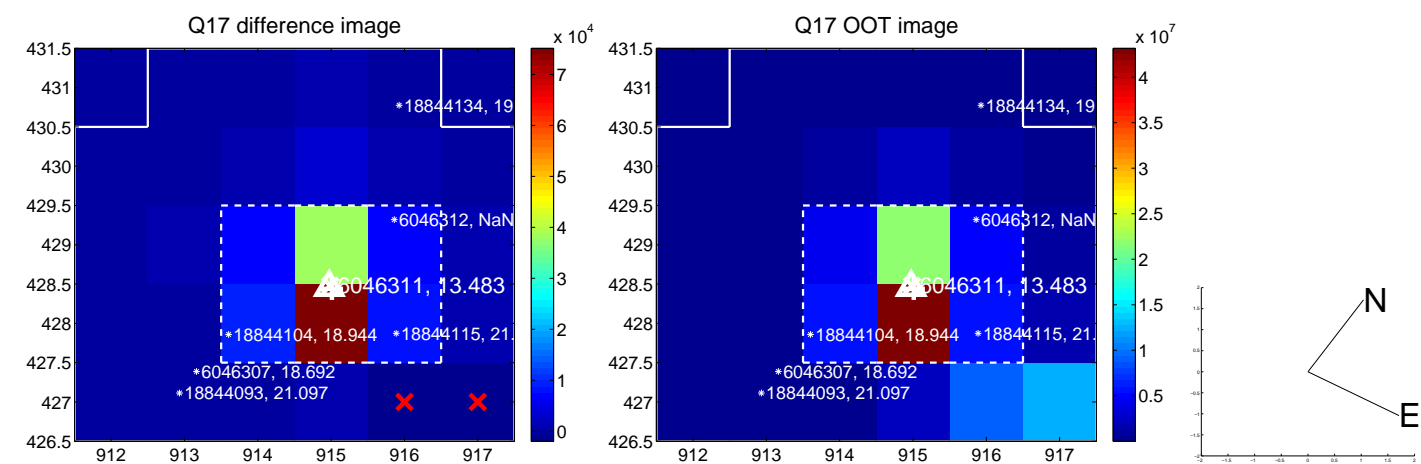
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

