

KIC 009649300

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009649300-01 | OBS | No | 0.548248 | 131.663199 | 17.5 | 3.250 | 9.0 | 5.4 | 0.86 | 5907 | 0.36 | 4853.54 |
| 009649300-03 | OBS | No | 69.103439 | 190.704243 | 661.1 | 3.850 | 11.0 | 8.3 | 0.86 | 5907 | 3.45 | 7.68 |
| 009649300-06 | OBS | No | 112.537602 | 226.248360 | 730.9 | 4.972 | 10.0 | 7.9 | 0.86 | 5907 | 2.67 | 4.01 |
| 009649300-07 | OBS | No | 110.158780 | 138.598961 | 408.4 | 3.236 | 8.7 | 4.2 | 0.86 | 5907 | 1.84 | 4.12 |
| 009649300-08 | OBS | No | 414.487765 | 368.220164 | 530.1 | 3.500 | 8.6 | -1.0 | 0.86 | 5907 | 1.97 | 0.70 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009649300-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 009649300-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST |
| 009649300-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 009649300-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS |
| 009649300-08 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—NO_FITS—CENT_NOFITS |

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

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

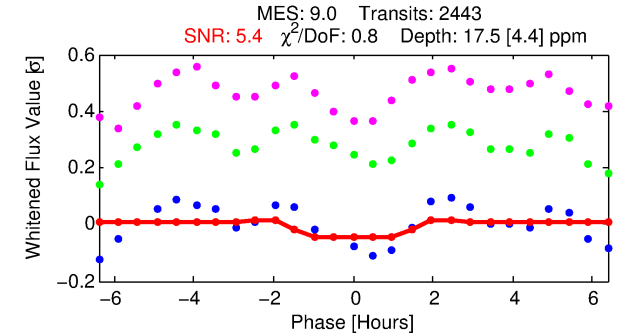
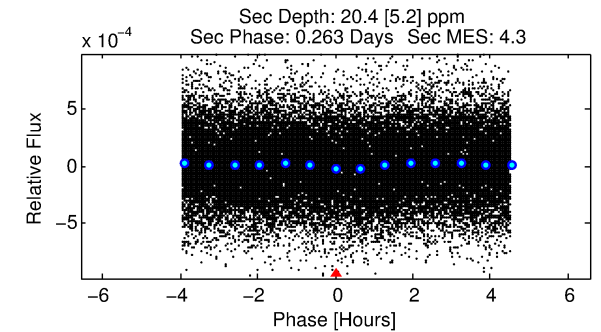
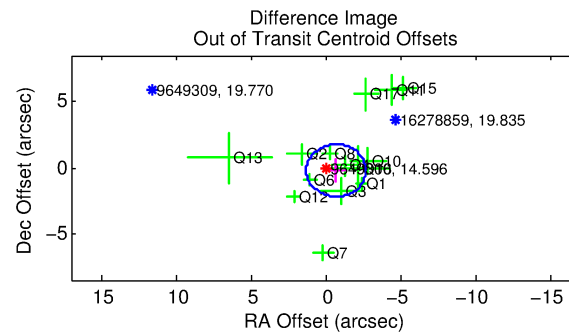
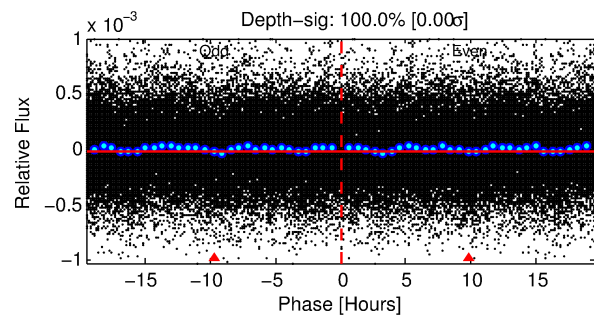
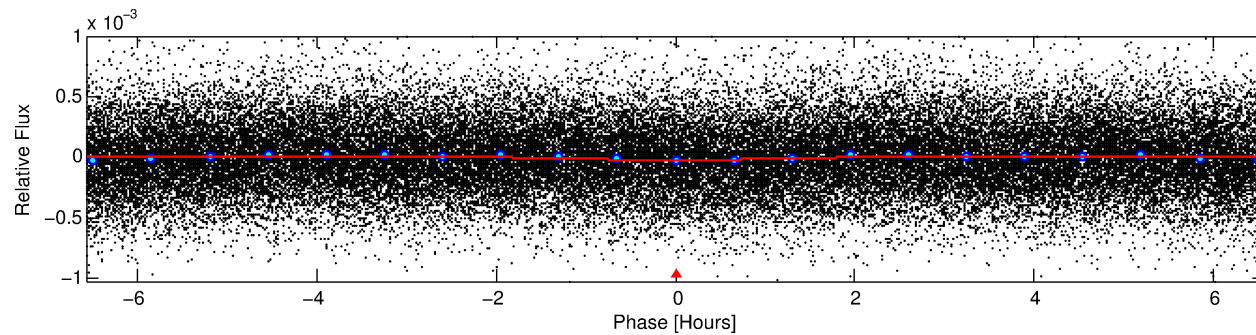
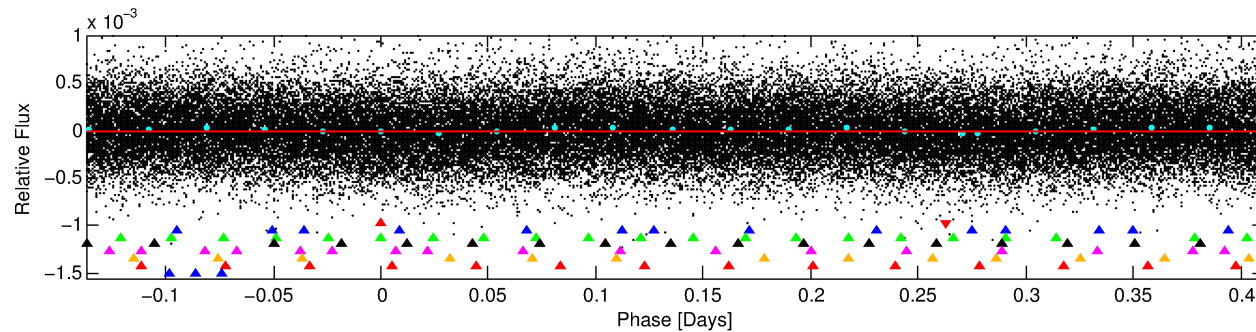
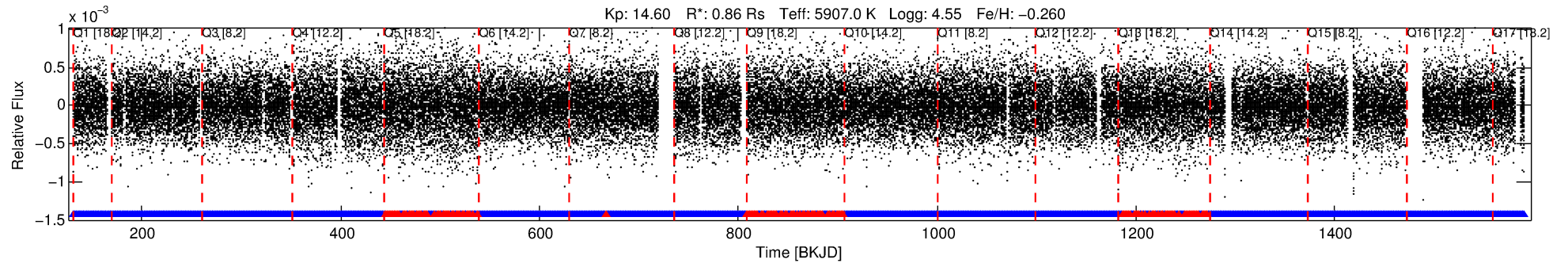
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009649300-01

No Significant Match Found

DV One-Page Summary

KIC: 9649300 Candidate: 1 of 8 Period: 0.548 d



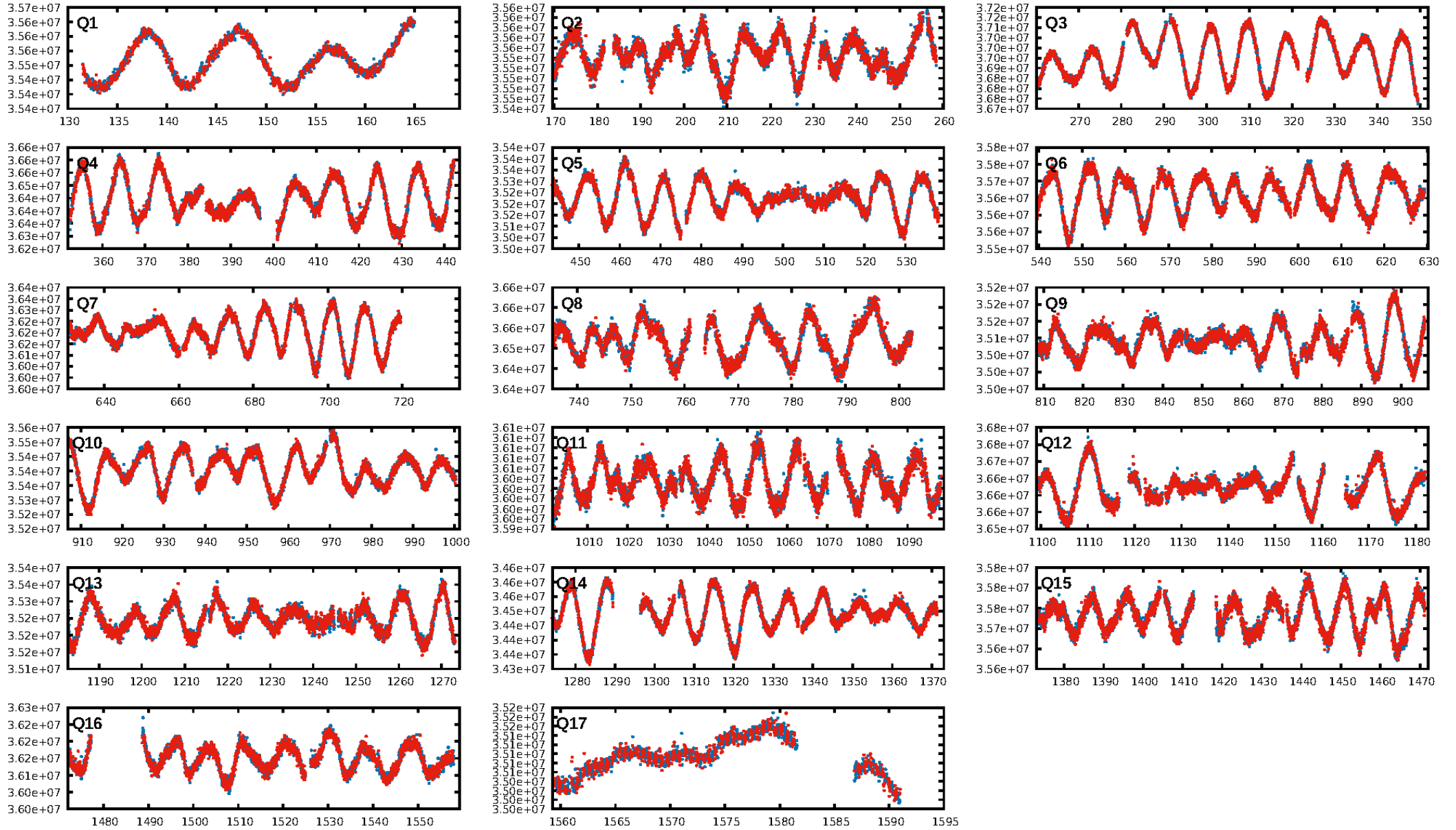
DV Fit Results:

Period = 0.54825 [0.00002] d
Epoch = 131.6632 [0.0059] BKJD
Rp/R* = 0.0039 [0.0066]
a/R* = 1.40 [5.54]
b = 0.30 [24.69]
Seff = 4853.54 [1803.38]
Teff = 2128 [198] K
Rp = 0.36 [0.63] Re
a = 0.0129 [0.0031] AU
Ag = 14.20 [48.79] [0.27σ]
Teffp = 6388 [5461] K [0.78σ]

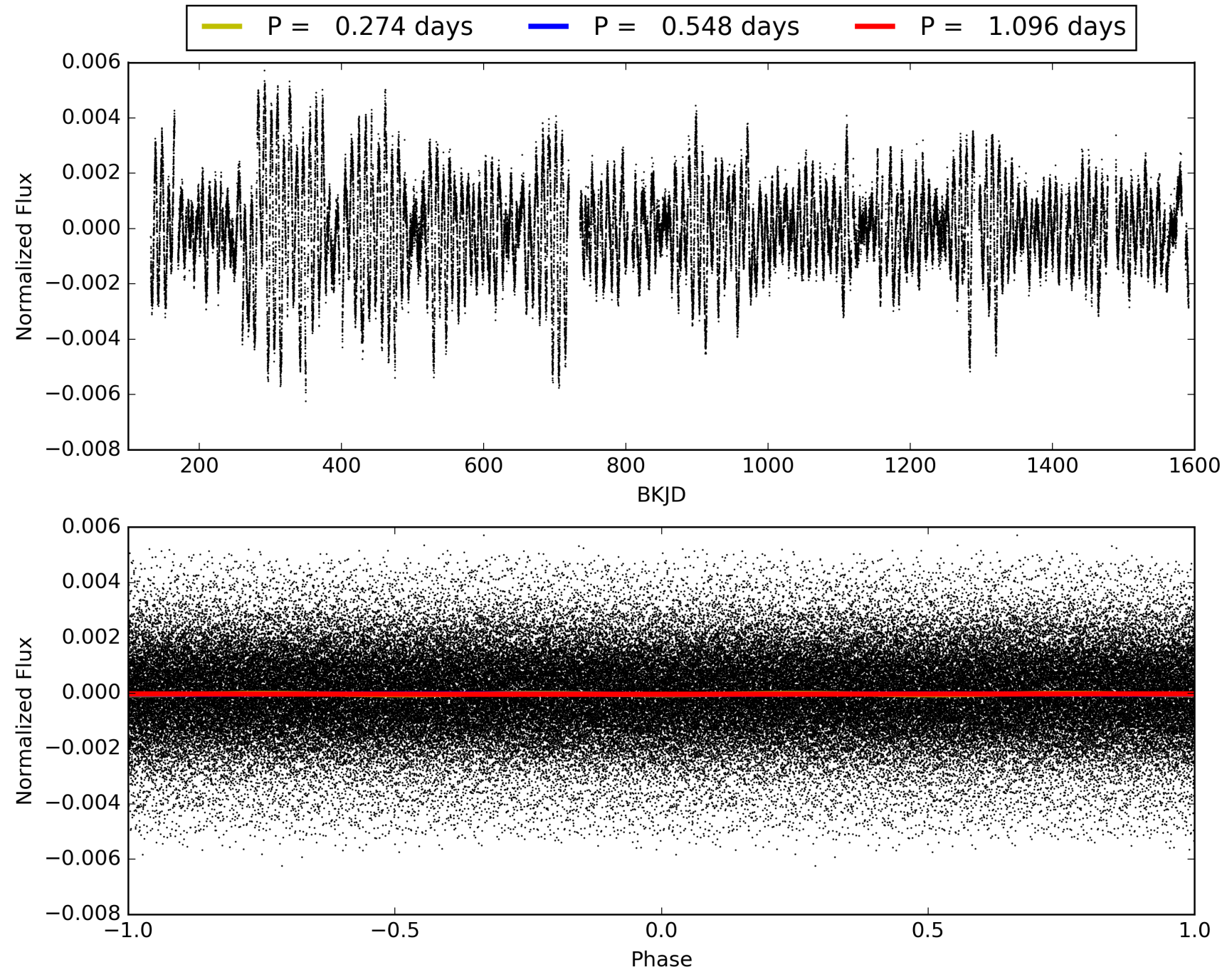
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [326.58σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.47e-13
RollingBand-fgt: 0.92 [2150/2334]
GhostDiagnostic-chr: 2.51
Centroid-sig: 0.4%
Centroid-so: 5.162 arcsec [2.60σ]
OotOffset-rm: 0.735 arcsec [1.11σ]
KicOffset-rm: 0.894 arcsec [1.29σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 0.36 [5/14]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 009649300-01, PDC Light Curves

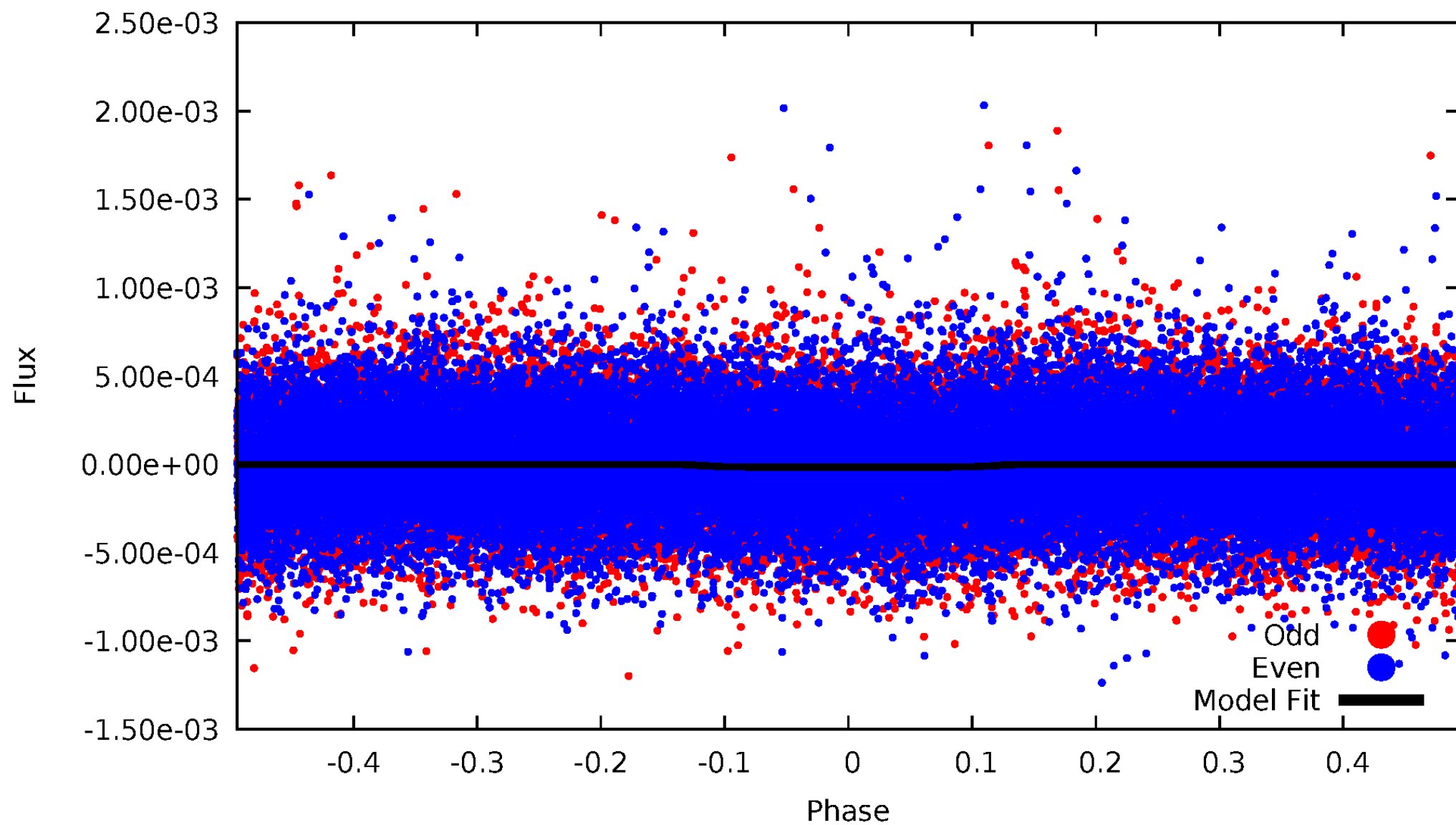


TCE 009649300-01



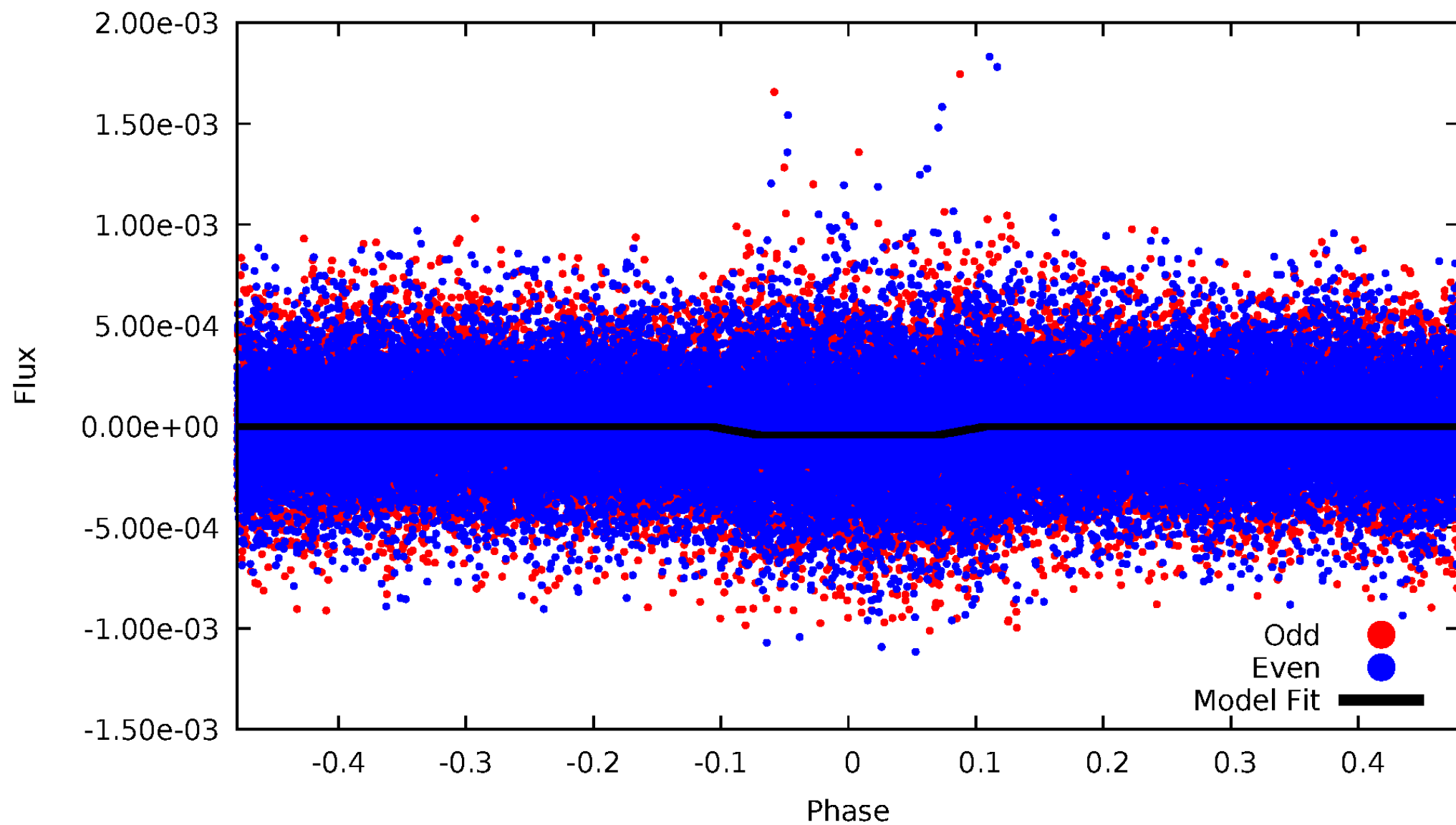
DV Odd/Even

TCE 009649300-01

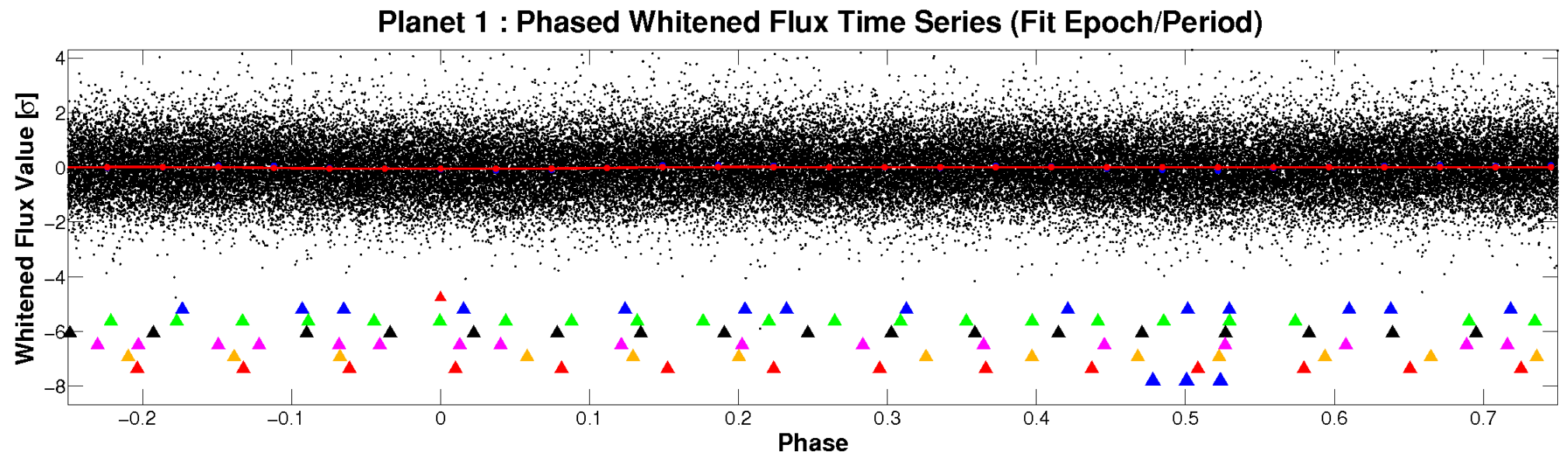
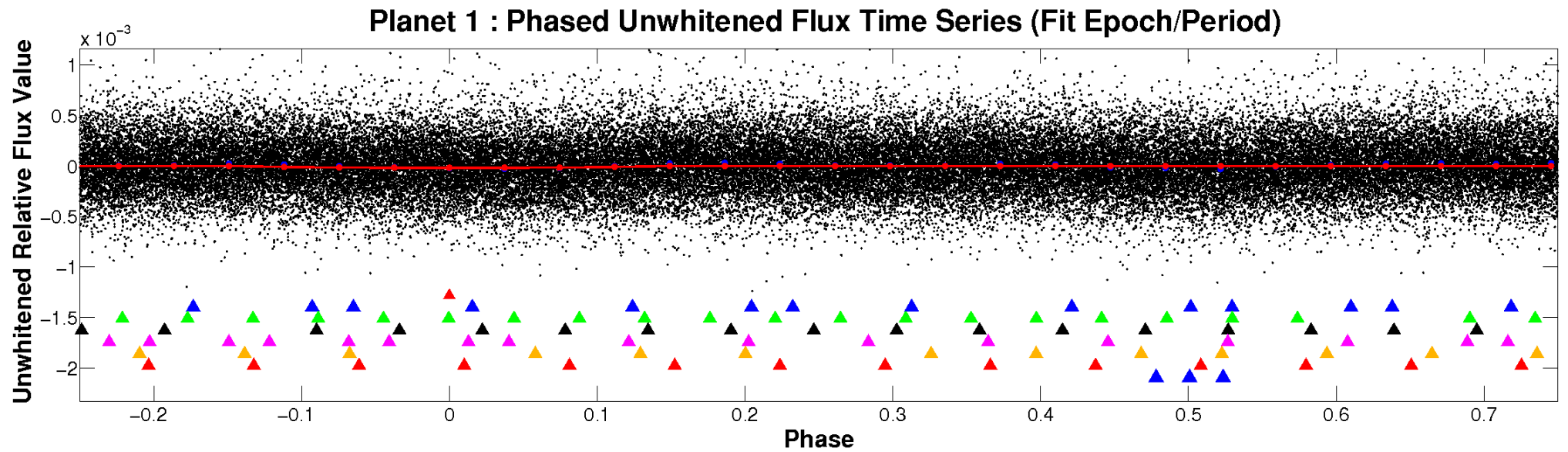


ALT Odd/Even

TCE 009649300-01

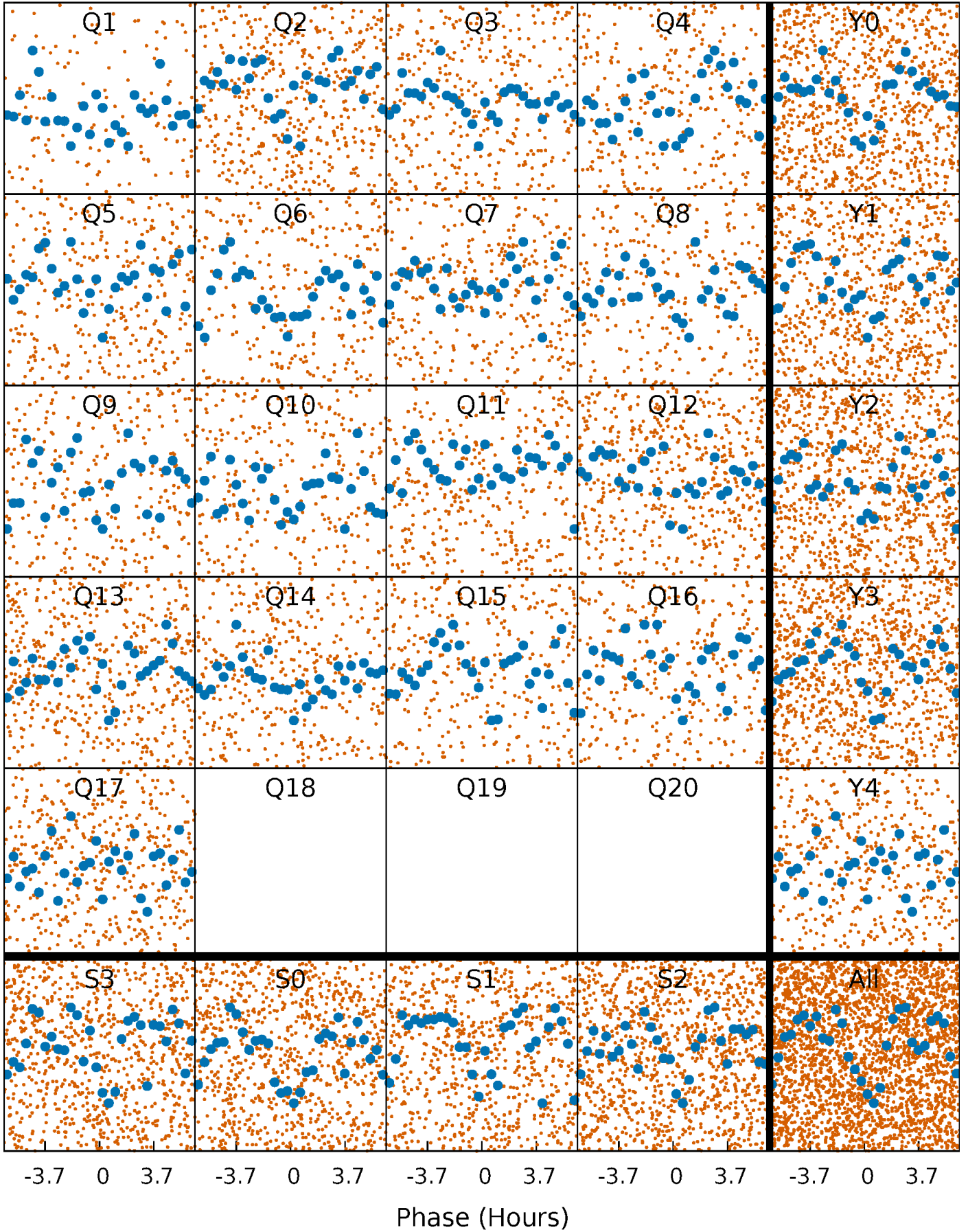


Non-Whitened Vs. Whitened Light Curve



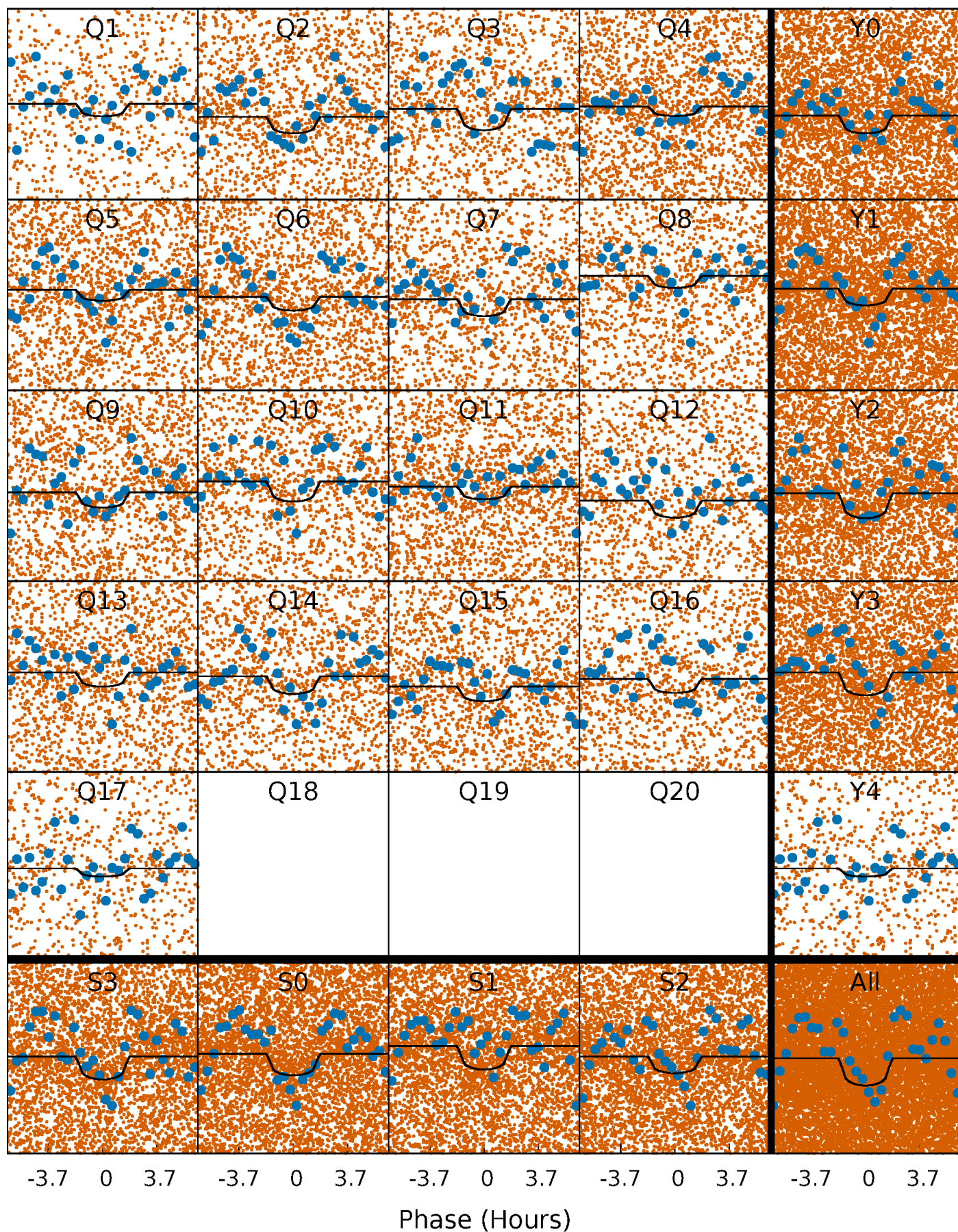
PDC Quarter-Phased Transit Curves

TCE 009649300-01 P= 0.548248 Days $T_0=131.663199$ (BKJD)



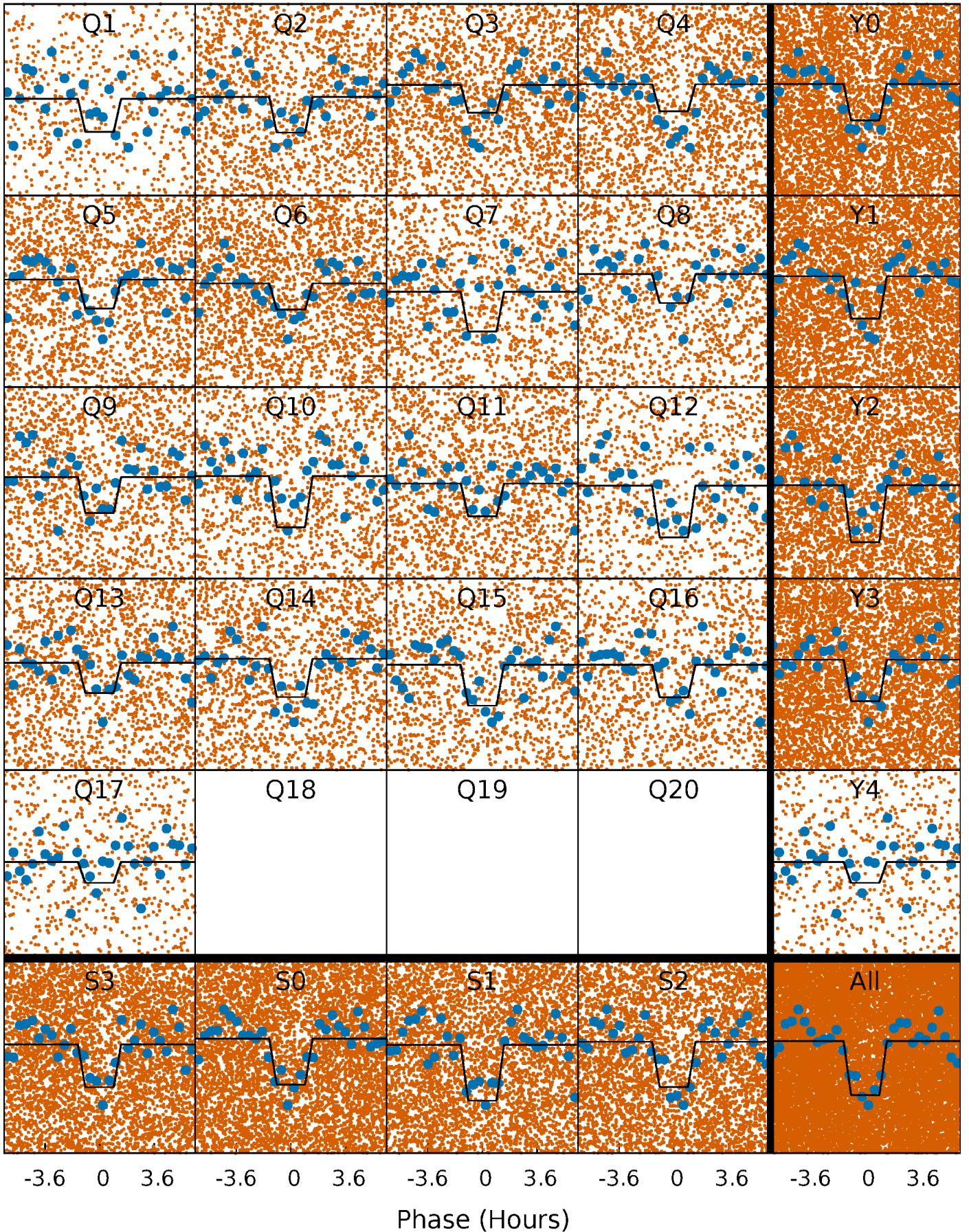
DV Quarter-Phased Transit Curves

TCE 009649300-01 P= 0.548248 Days $T_0=131.663199$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

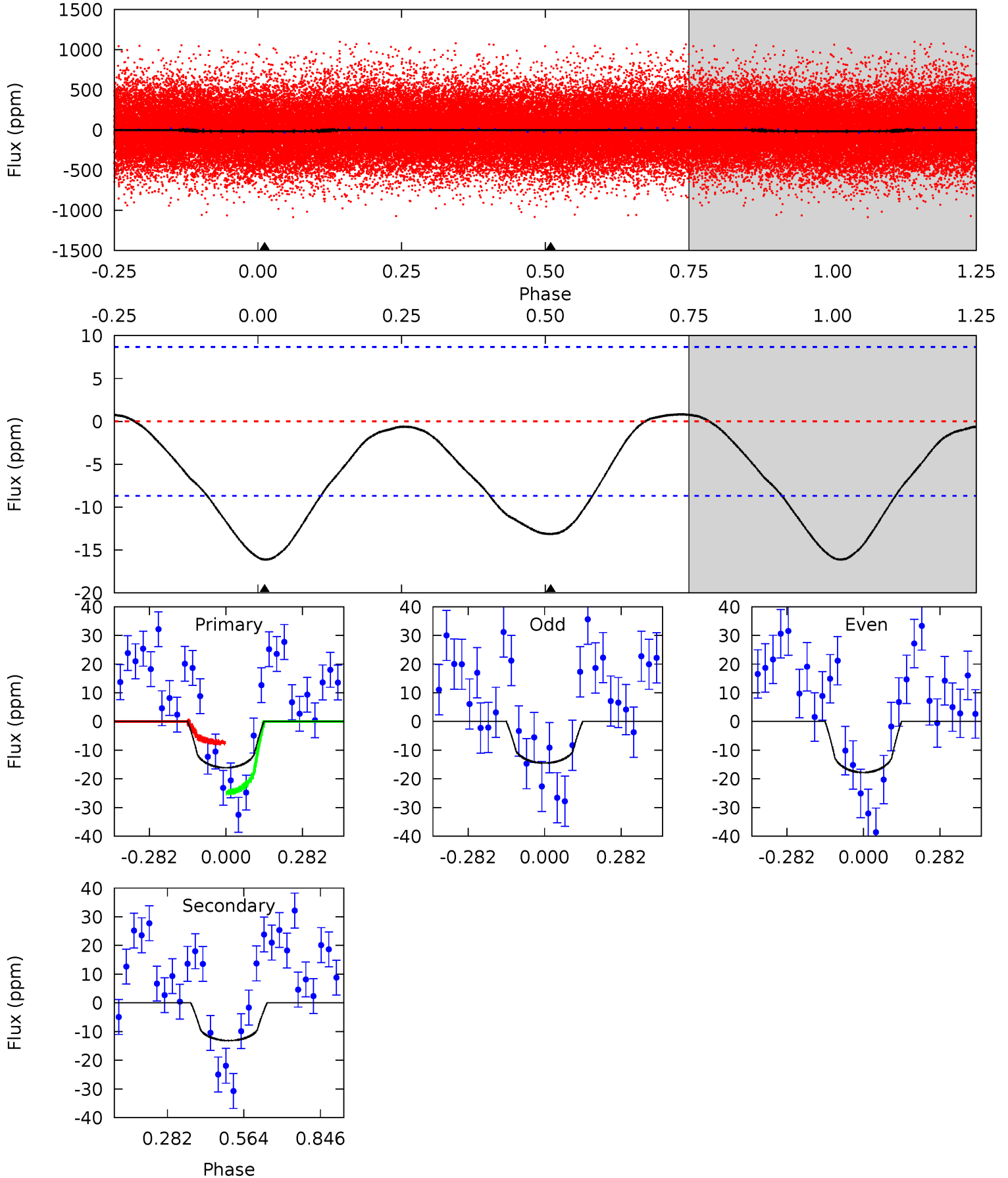
TCE 009649300-01 P= 0.548254 Days $T_0=131.664648$ (BKJD)



DV Model-Shift Uniqueness Test

009649300-01, P = 0.548248 Days, E = 131.114951 Days

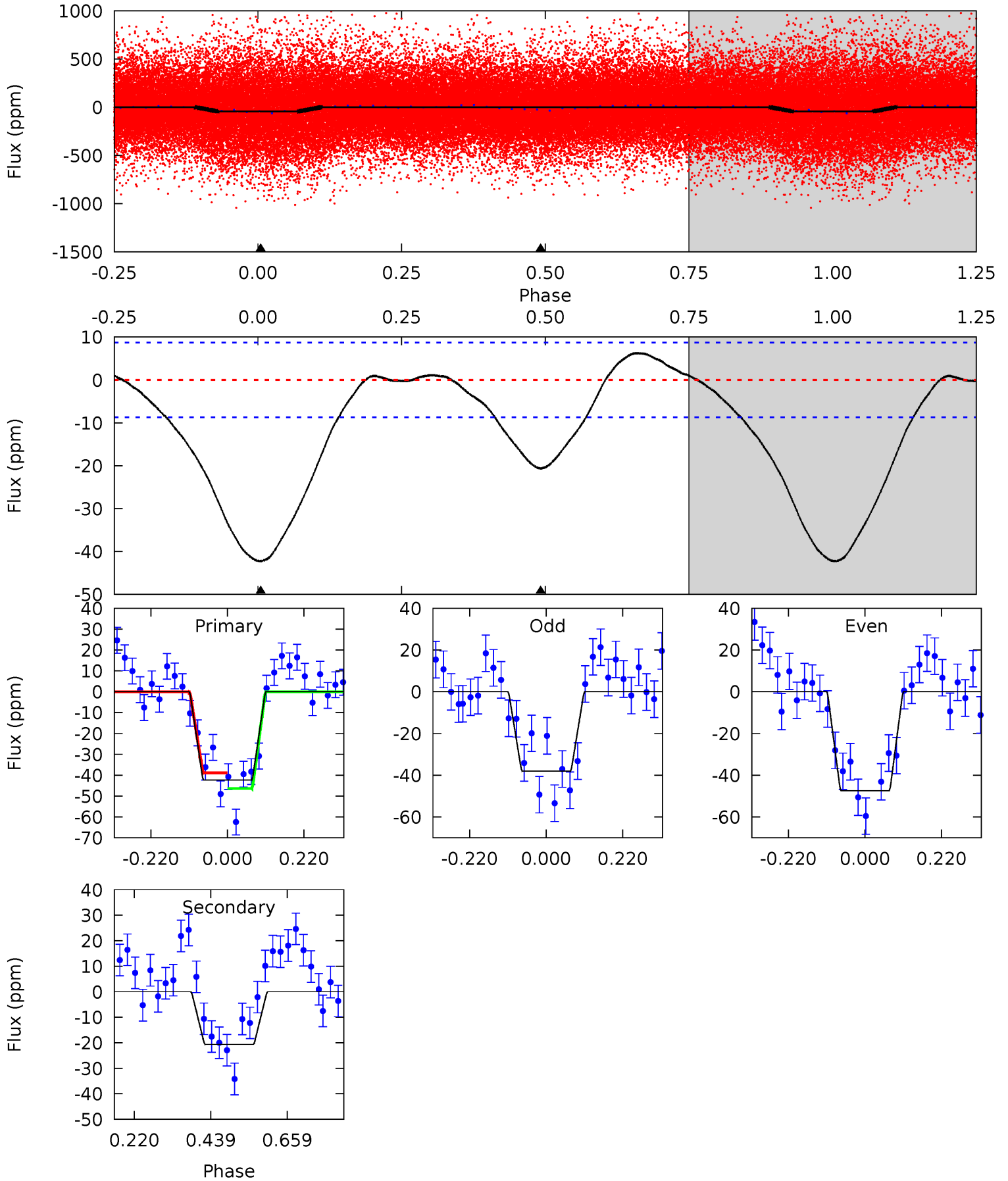
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.07 | 6.57 | 0 | 0 | 4.34 | 1.08 | 0.34 | 8.07 | 8.07 | 6.57 | 6.57 | 0.82 | 0.93 | 0.05 | 4.37 |



Alt Model-Shift Uniqueness Test

009649300-01, P = 0.548254 Days, E = 131.116394 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 21.3 | 10.4 | 0 | 0 | 4.40 | 1.23 | 0.63 | 21.3 | 21.3 | 10.4 | 10.4 | 2.37 | 1.13 | 0.13 | 1.89 |



Stellar Parameters For KIC 009649300

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5907^{+142}_{-178} | $4.547^{+0.036}_{-0.192}$ | $-0.260^{+0.300}_{-0.300}$ | $0.860^{+0.247}_{-0.077}$ | $0.951^{+0.107}_{-0.119}$ | $2.103^{+0.408}_{-1.075}$ |
| | +2%/-3% | +1%/-4% | +115%/-115% | +29%/-9% | +11%/-13% | +19%/-51% |
| 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 009649300-01 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | -13 ± 2 | $0.59^{+0.55}_{-0.42}$ | 3038^{+198}_{-130} | 4596^{+3857}_{-1116} | $3.383^{+34.809}_{-2.453}$ |
| Alt. | -21 ± 2 | $0.76^{+0.61}_{-0.51}$ | 3037^{+191}_{-131} | 4510^{+3571}_{-973} | $3.114^{+25.520}_{-2.142}$ |

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 $A_{obs} \gg 1.0$

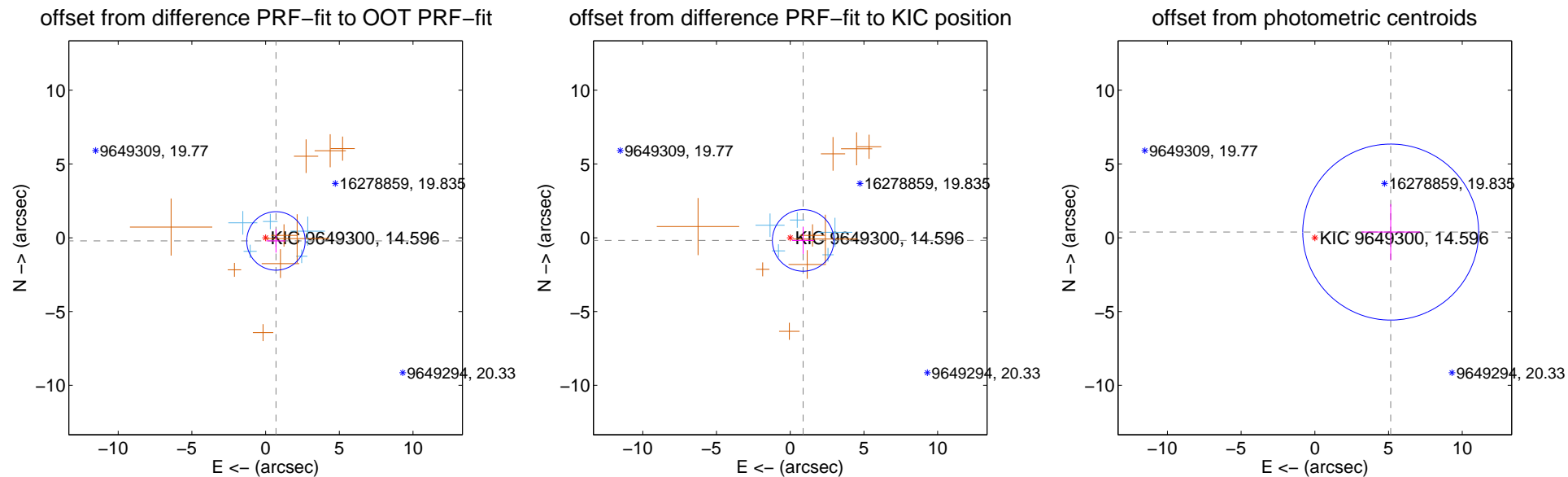
DV Centroid Data

Supplemental centroid analysis for 009649300-01. Kepler magnitude: 14.60. Transit SNR 5.44

There are 5 quarters with good PRF difference image offsets

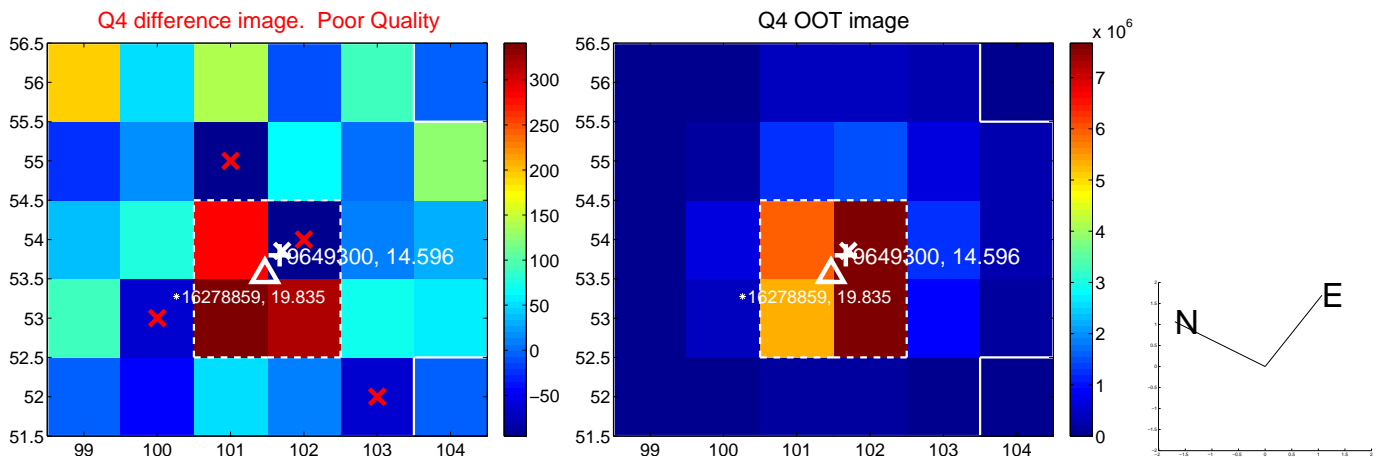
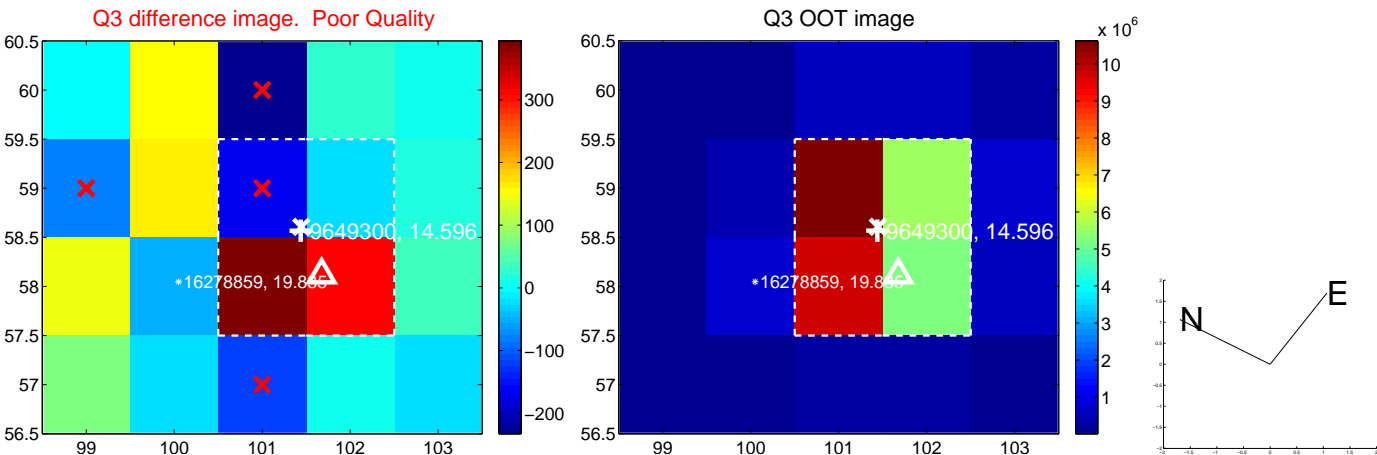
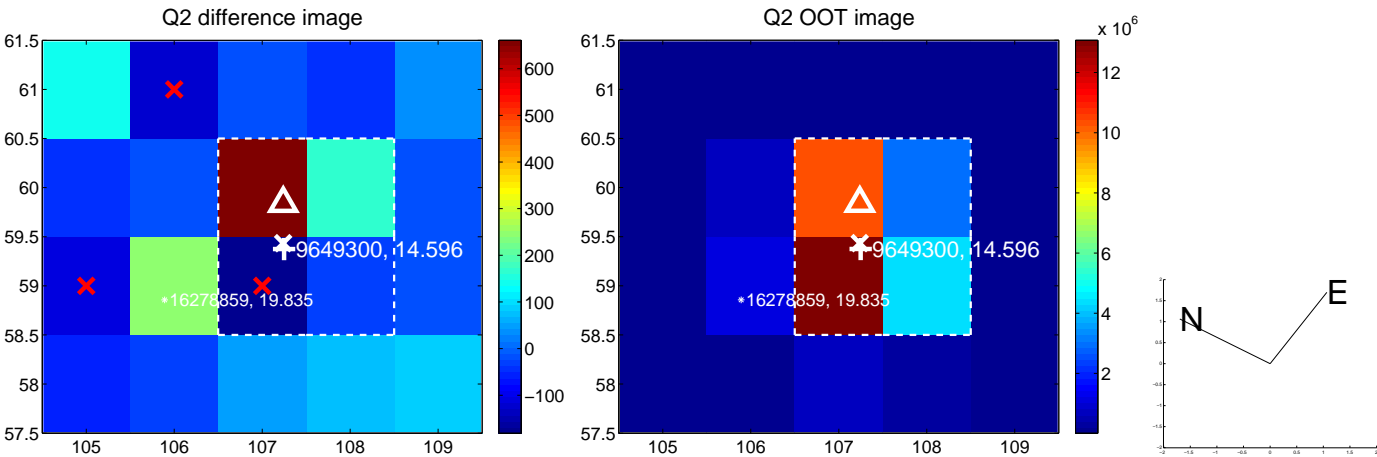
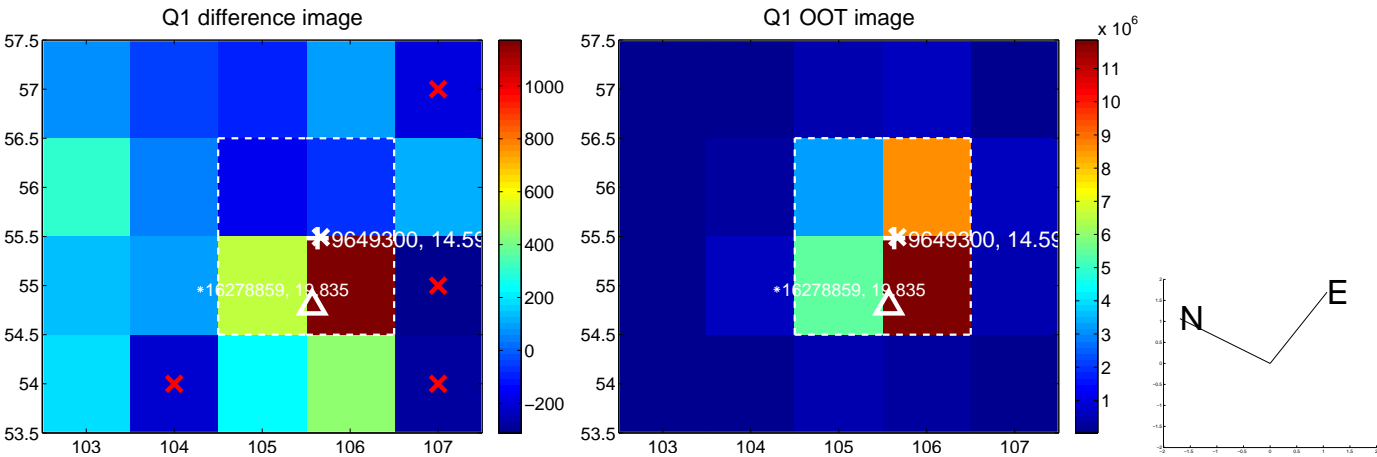
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.735 ± 0.661 | 1.11 | -0.703 ± 0.647 | -0.214 ± 0.795 |
| PRF-fit source offset from KIC position | 0.894 ± 0.695 | 1.29 | -0.875 ± 0.753 | -0.180 ± 0.912 |
| photometric centroid source offset | 5.16 ± 1.99 | 2.60 | -5.15 ± 1.99 | 0.39 ± 1.89 |

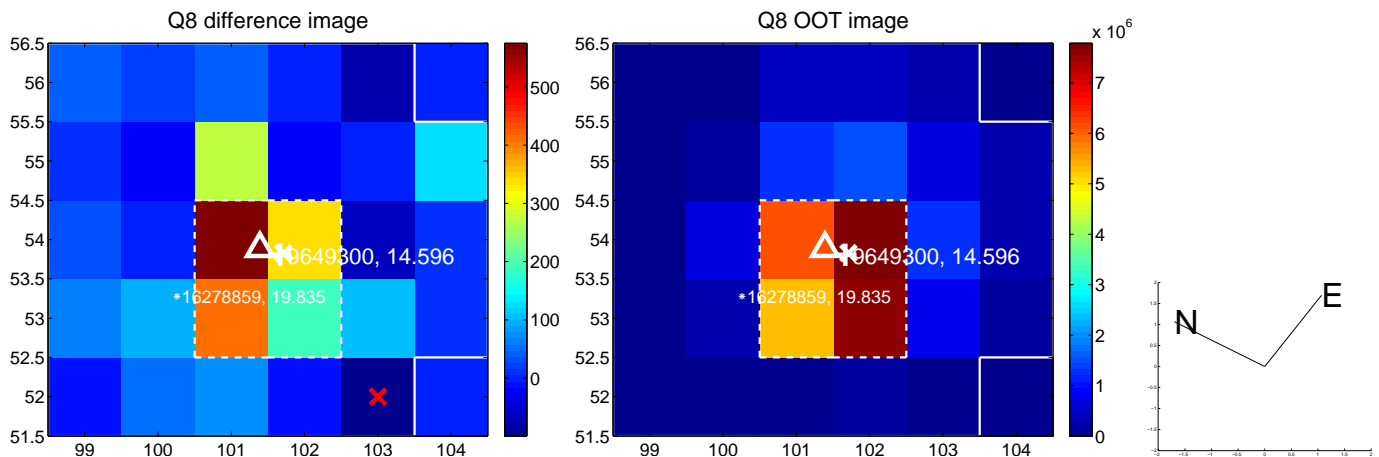
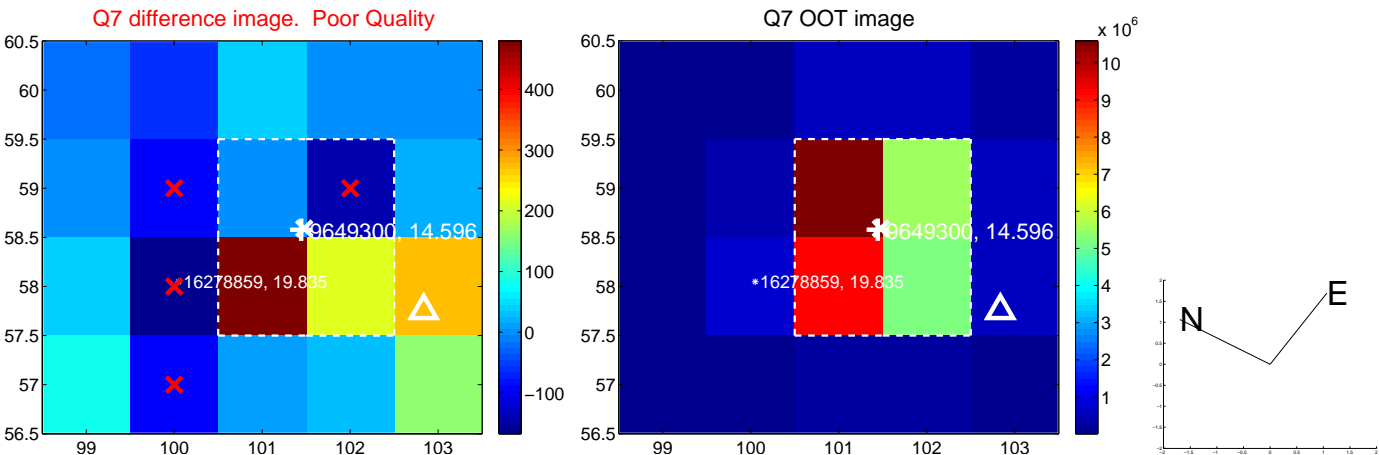
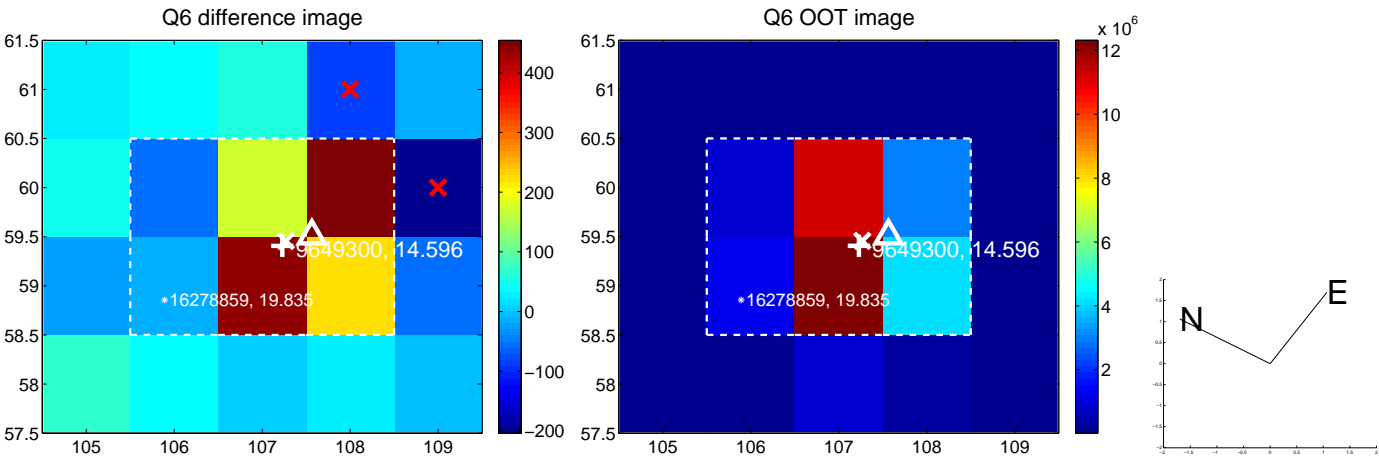
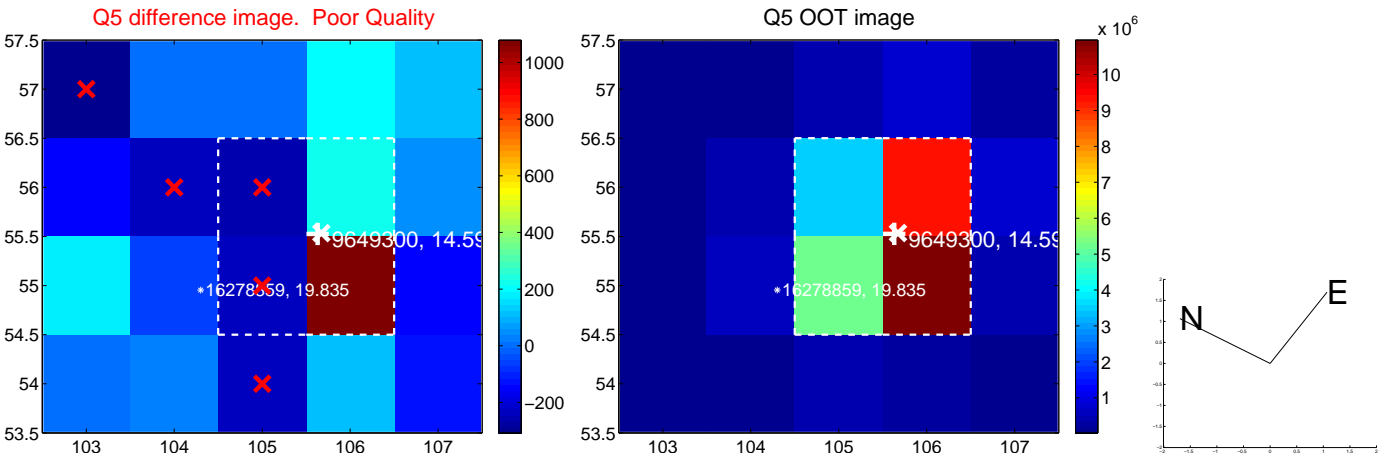


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

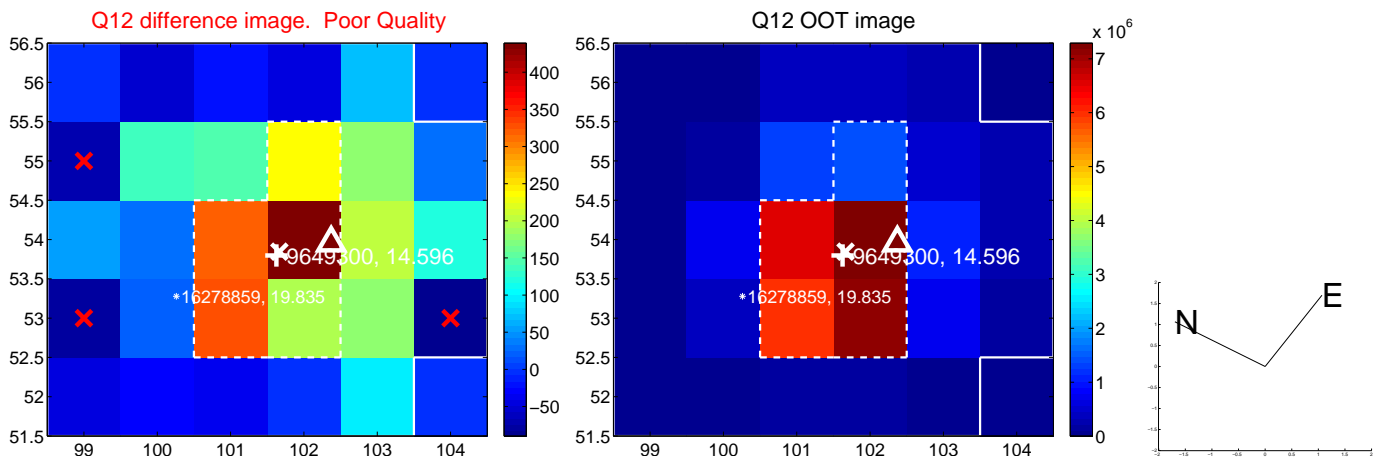
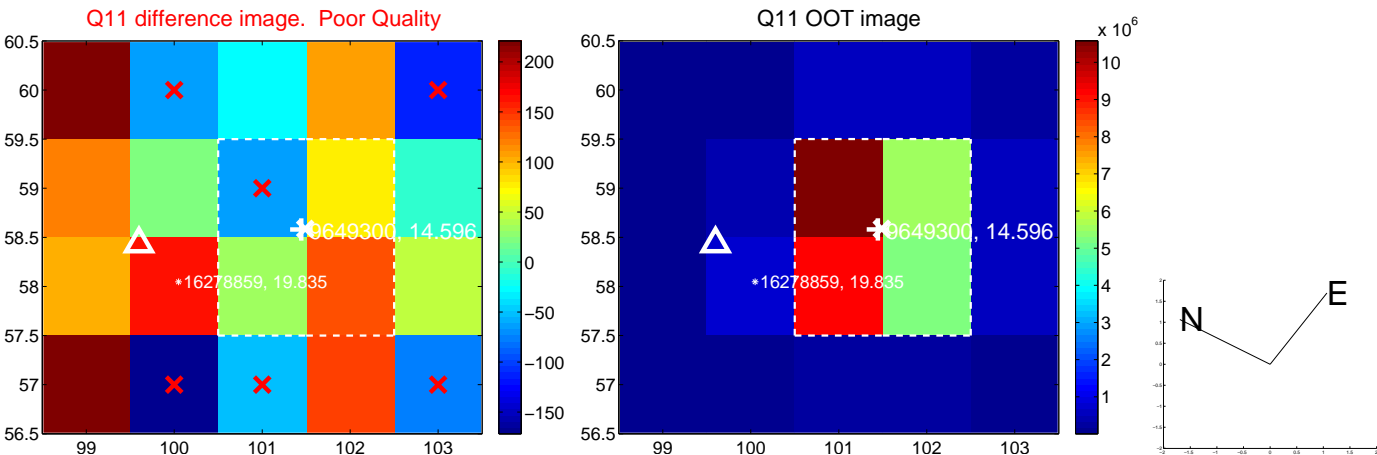
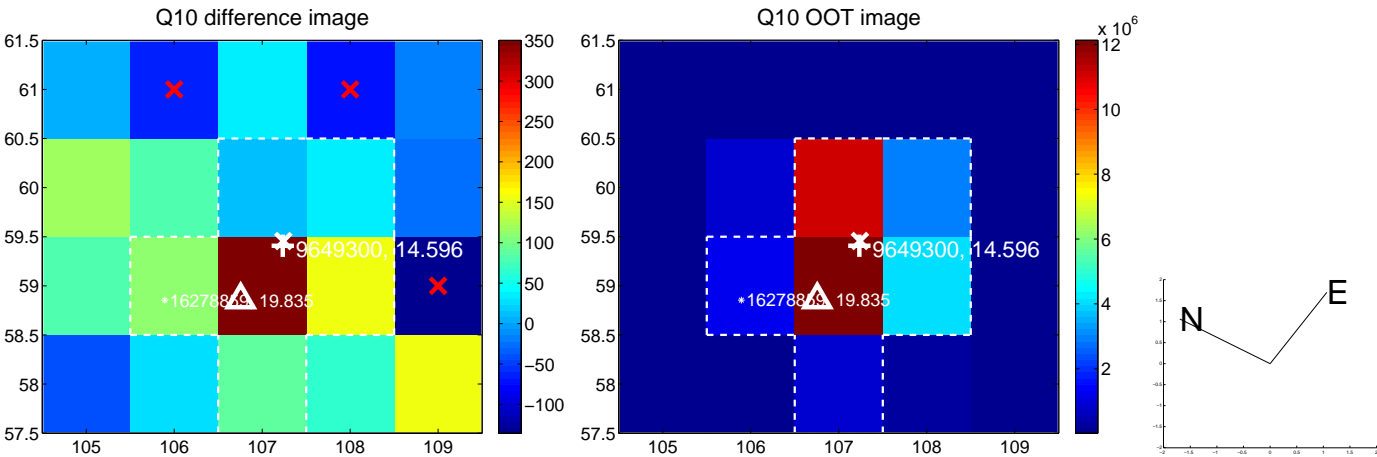
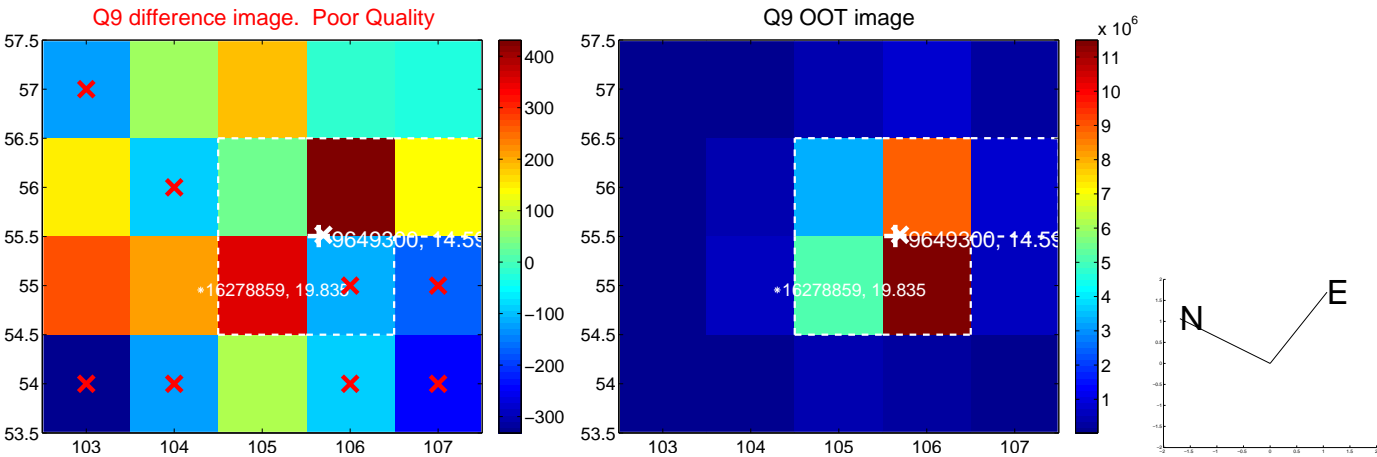
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



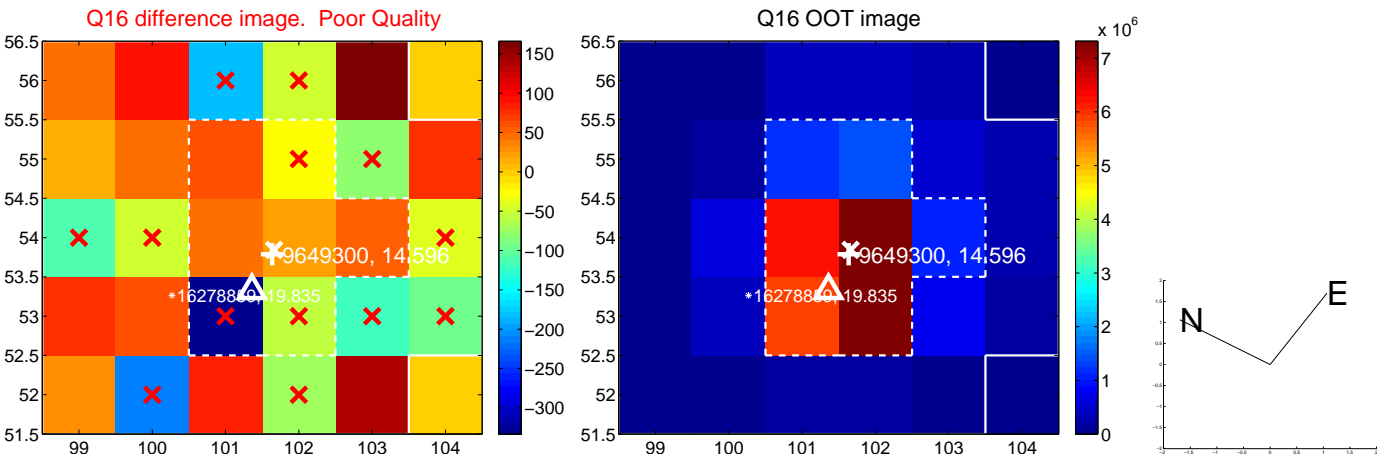
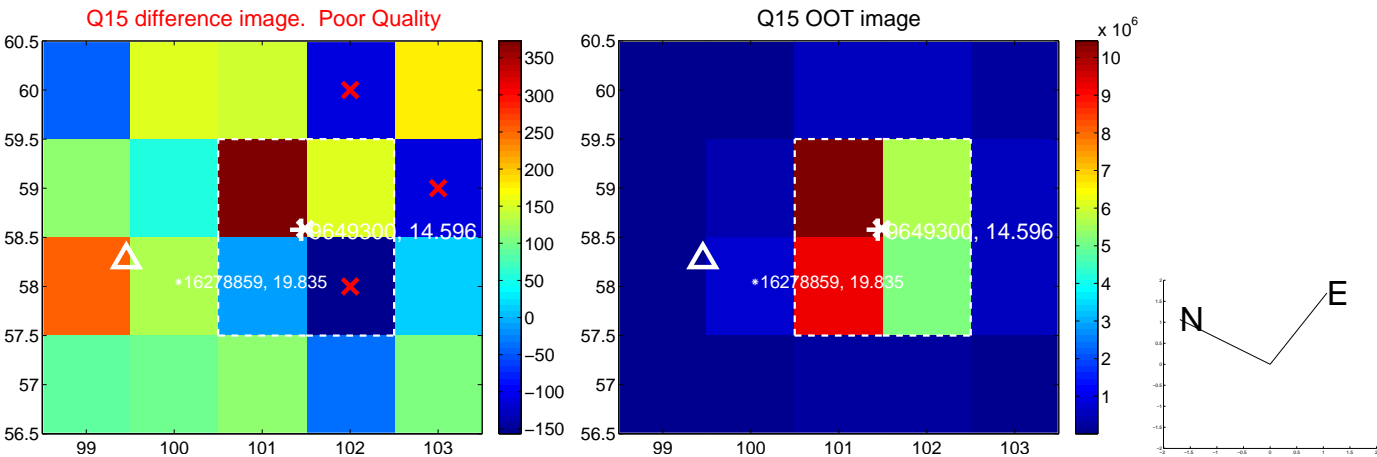
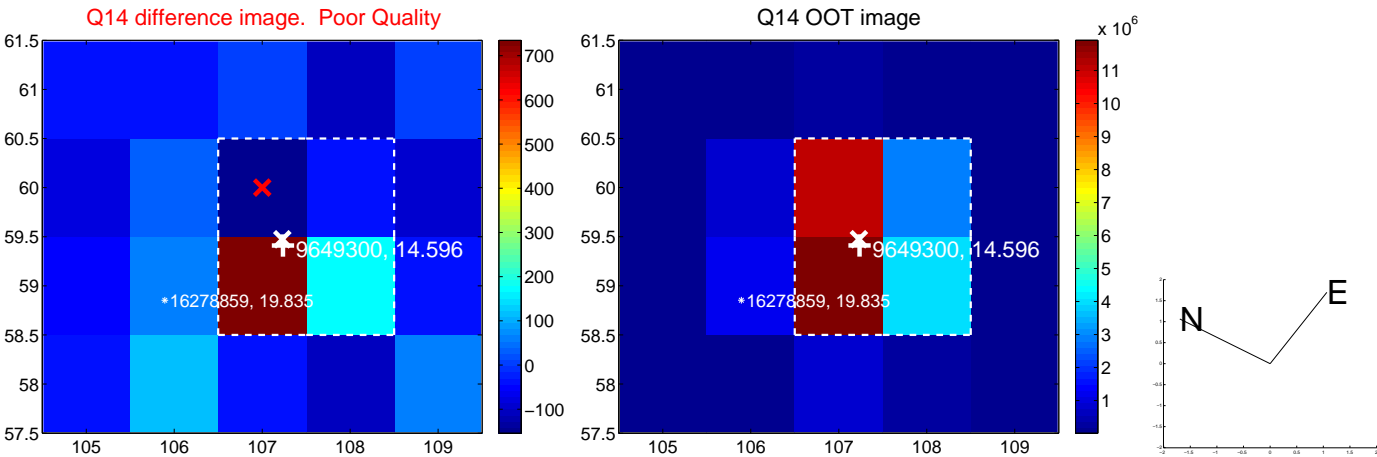
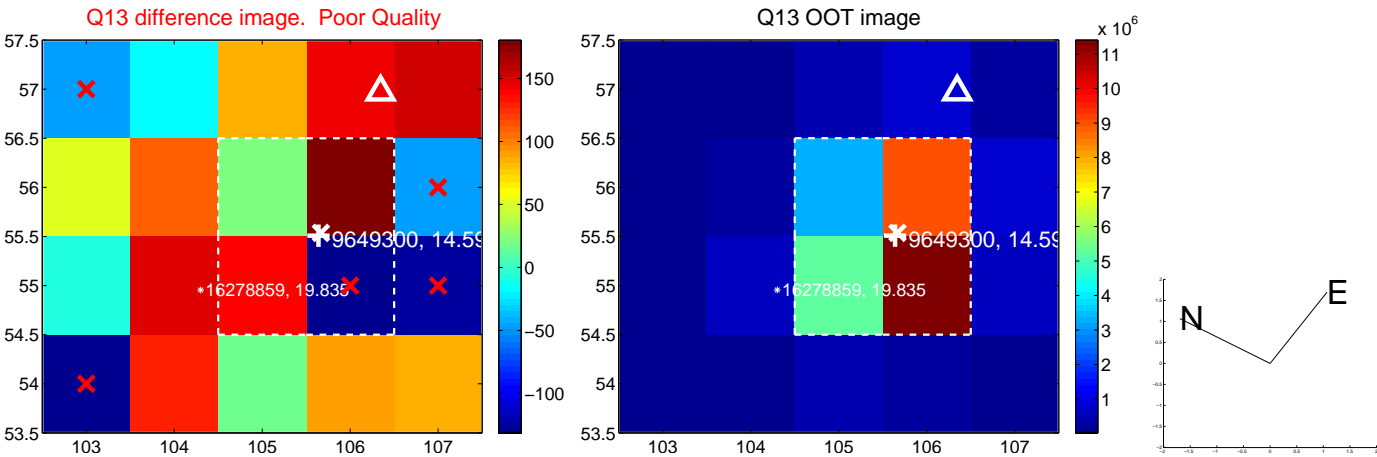
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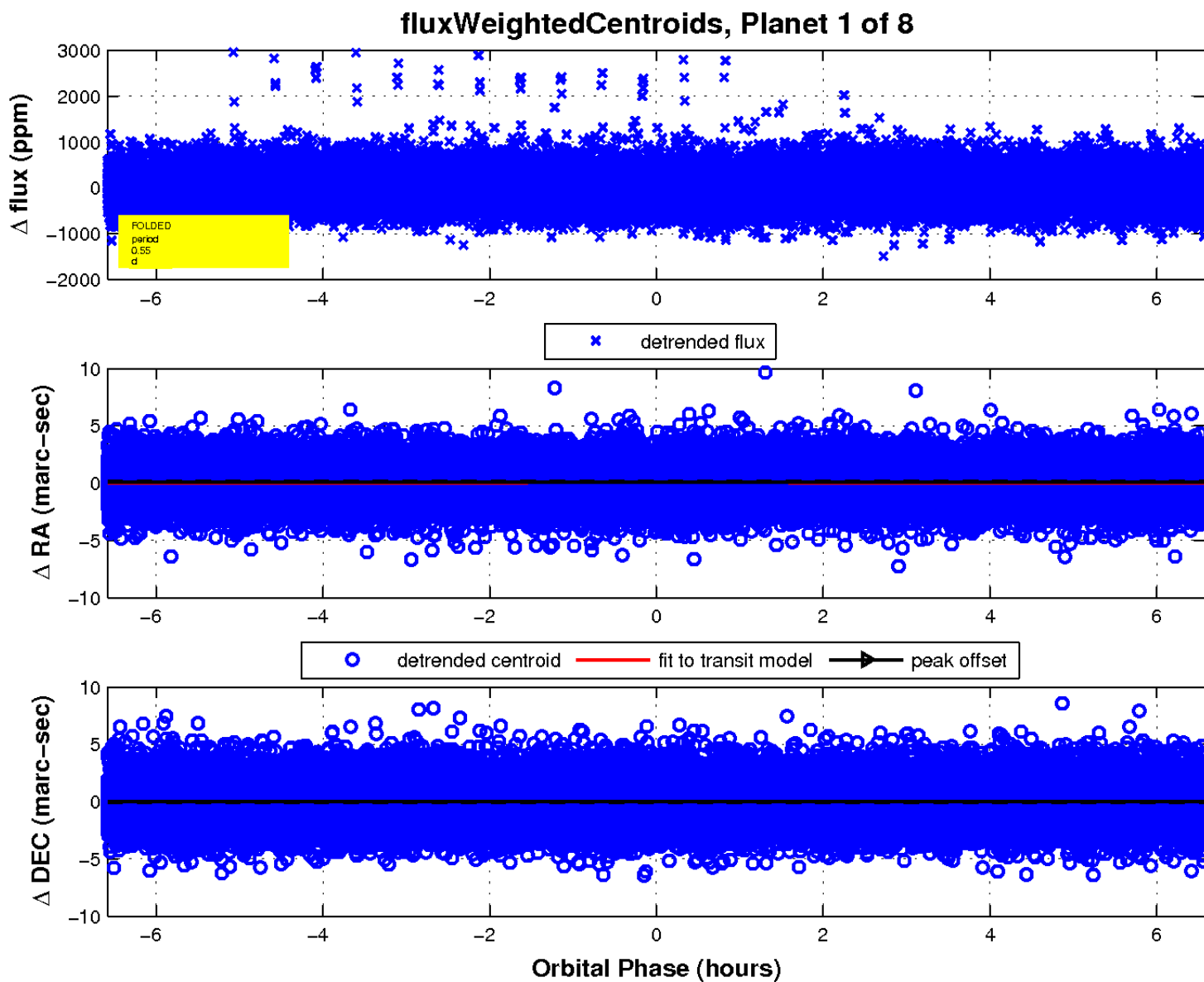
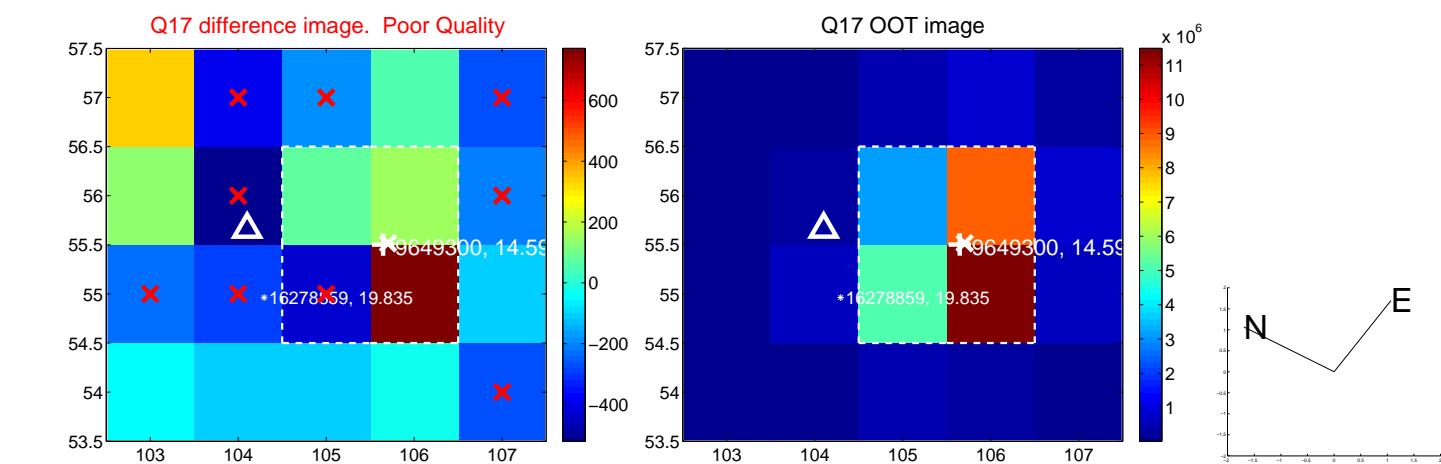
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



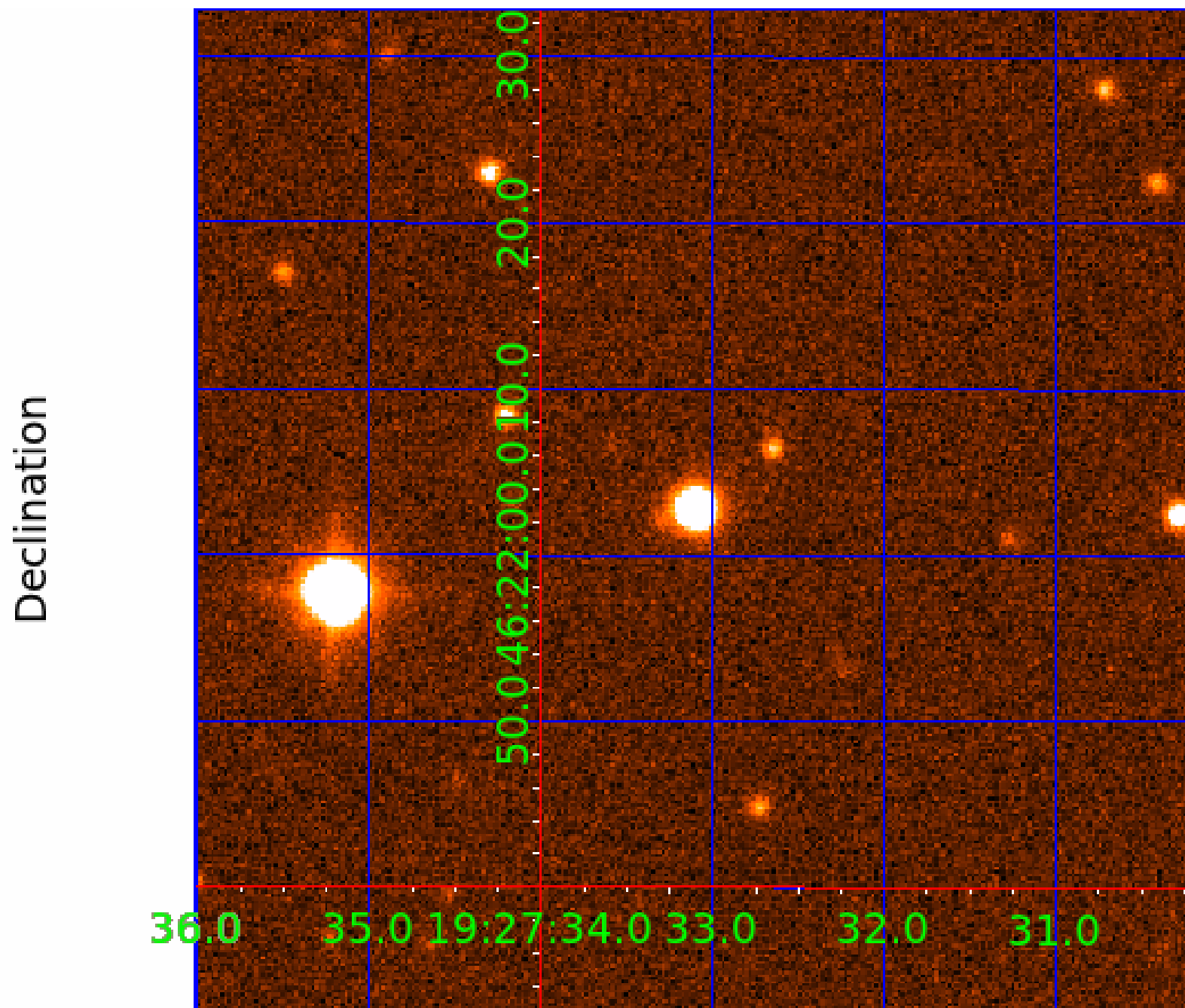
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 009649300

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009649300-01 | OBS | No | 0.548248 | 131.663199 | 17.5 | 3.250 | 9.0 | 5.4 | 0.86 | 5907 | 0.36 | 4853.54 |
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| 009649300-06 | OBS | No | 112.537602 | 226.248360 | 730.9 | 4.972 | 10.0 | 7.9 | 0.86 | 5907 | 2.67 | 4.01 |
| 009649300-07 | OBS | No | 110.158780 | 138.598961 | 408.4 | 3.236 | 8.7 | 4.2 | 0.86 | 5907 | 1.84 | 4.12 |
| 009649300-08 | OBS | No | 414.487765 | 368.220164 | 530.1 | 3.500 | 8.6 | -1.0 | 0.86 | 5907 | 1.97 | 0.70 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009649300-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 009649300-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST |
| 009649300-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 009649300-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS |
| 009649300-08 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—NO_FITS—CENT_NOFITS |

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

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

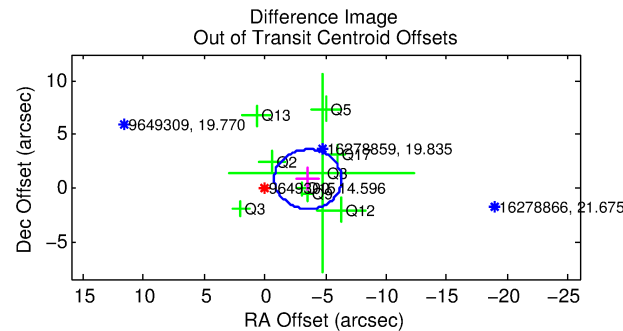
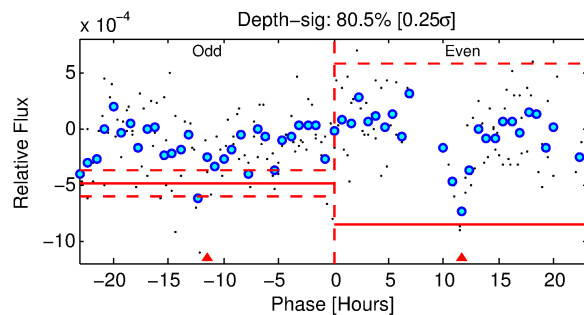
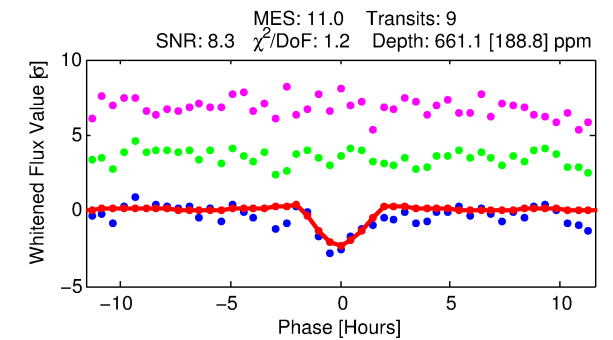
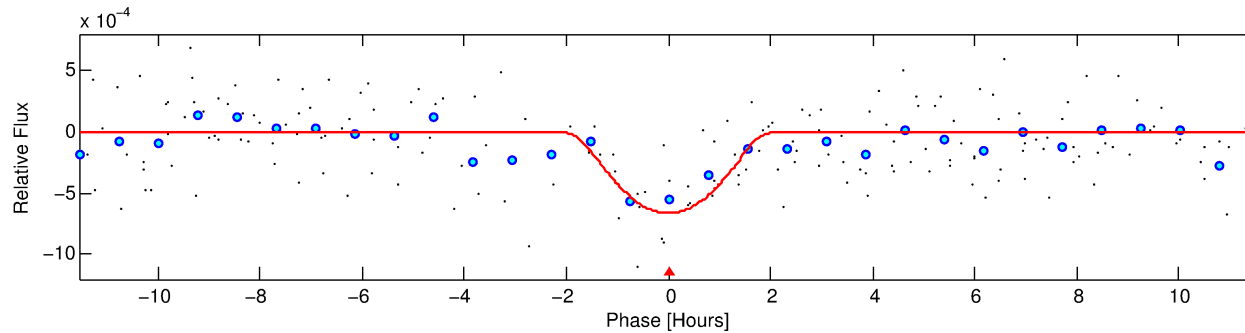
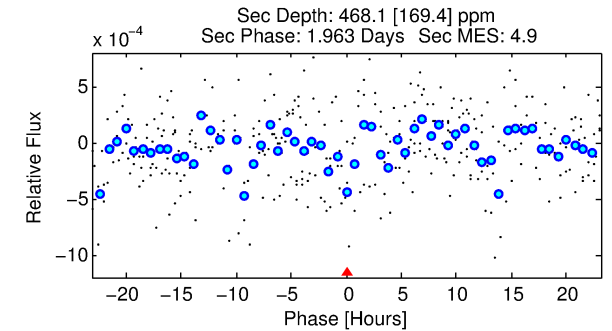
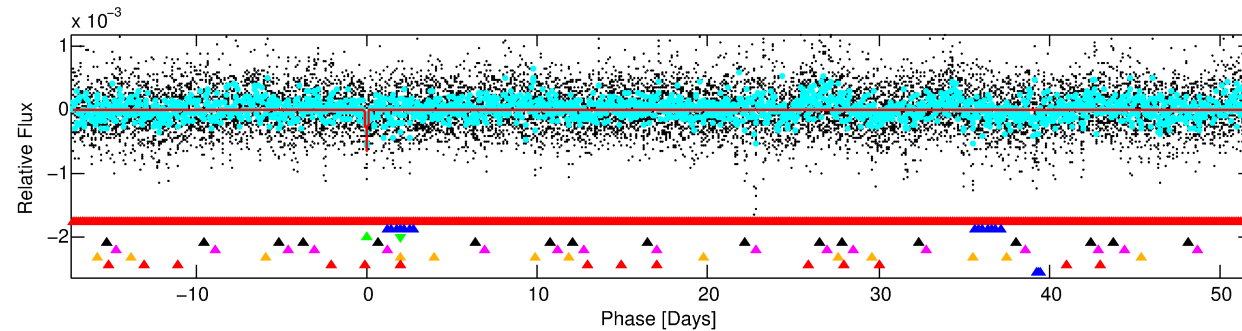
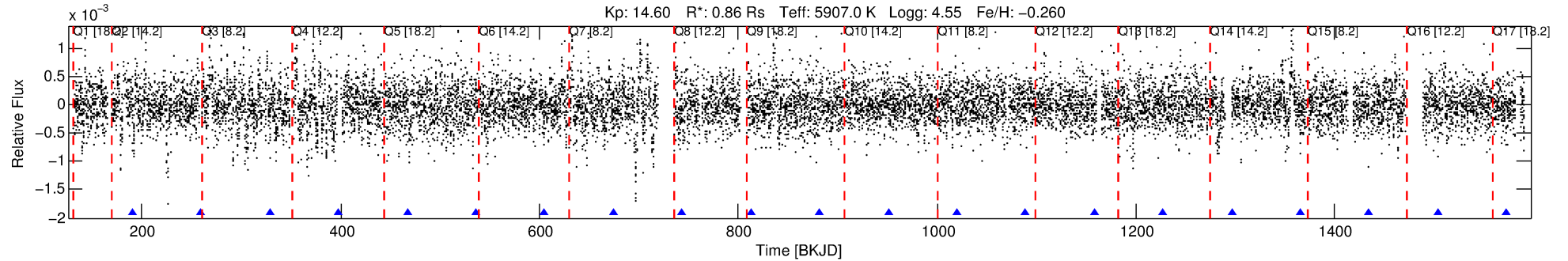
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009649300-03

No Significant Match Found

DV One-Page Summary

KIC: 9649300 Candidate: 3 of 8 Period: 69.103 d



DV Fit Results:

Period = 69.10344 [0.00123] d
Epoch = 190.7042 [0.0212] BKJD
Rp/R* = 0.0368 [0.0765]
a/R* = 44.62 [36.22]
b = 0.98 [0.15]
Seff = 7.68 [2.85]
Teff = 424 [39] K
Rp = 3.45 [7.24] Re
a = 0.3241 [0.0783] AU
Ag = 2269.99 [9507.40] [0.24 σ]
Teffp = 4530 [4729] K [0.87 σ]

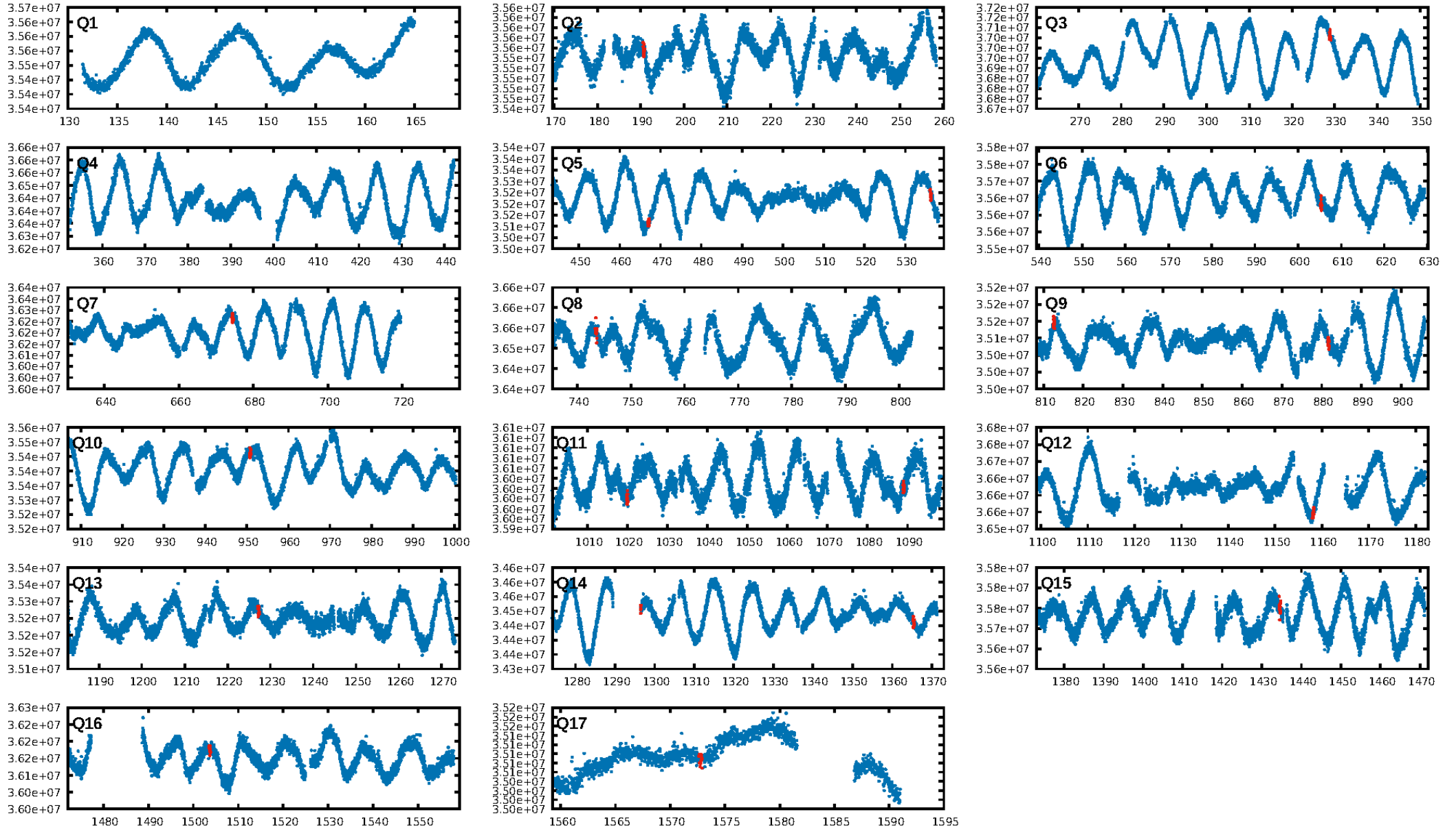
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [326.58 σ]
LongPeriod-sig: 100.0% [64.94 σ]
ModelChiSquare2-sig: 8.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.86e-16
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -0.0874
Centroid-sig: 5.7%
Centroid-so: 1.381 arcsec [1.85 σ]
OotOffset-rm: 3.651 arcsec [3.95 σ]
KicOffset-rm: 3.810 arcsec [4.12 σ]
OotOffset-st: 1/2/2/4 [9]
KicOffset-st: 1/2/2/4 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.00 [0/15]

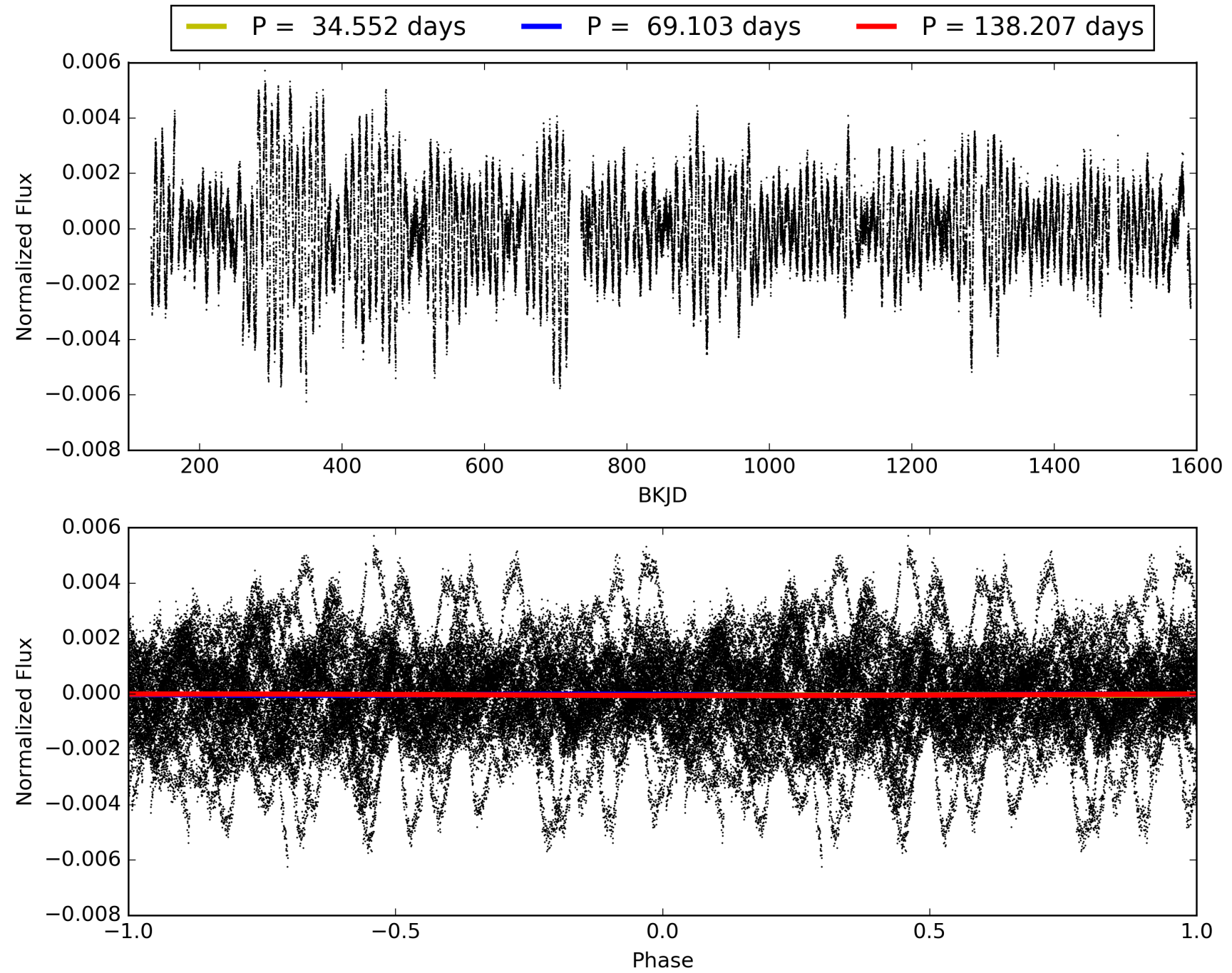
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:12:04 Z

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

TCE 009649300-03, PDC Light Curves

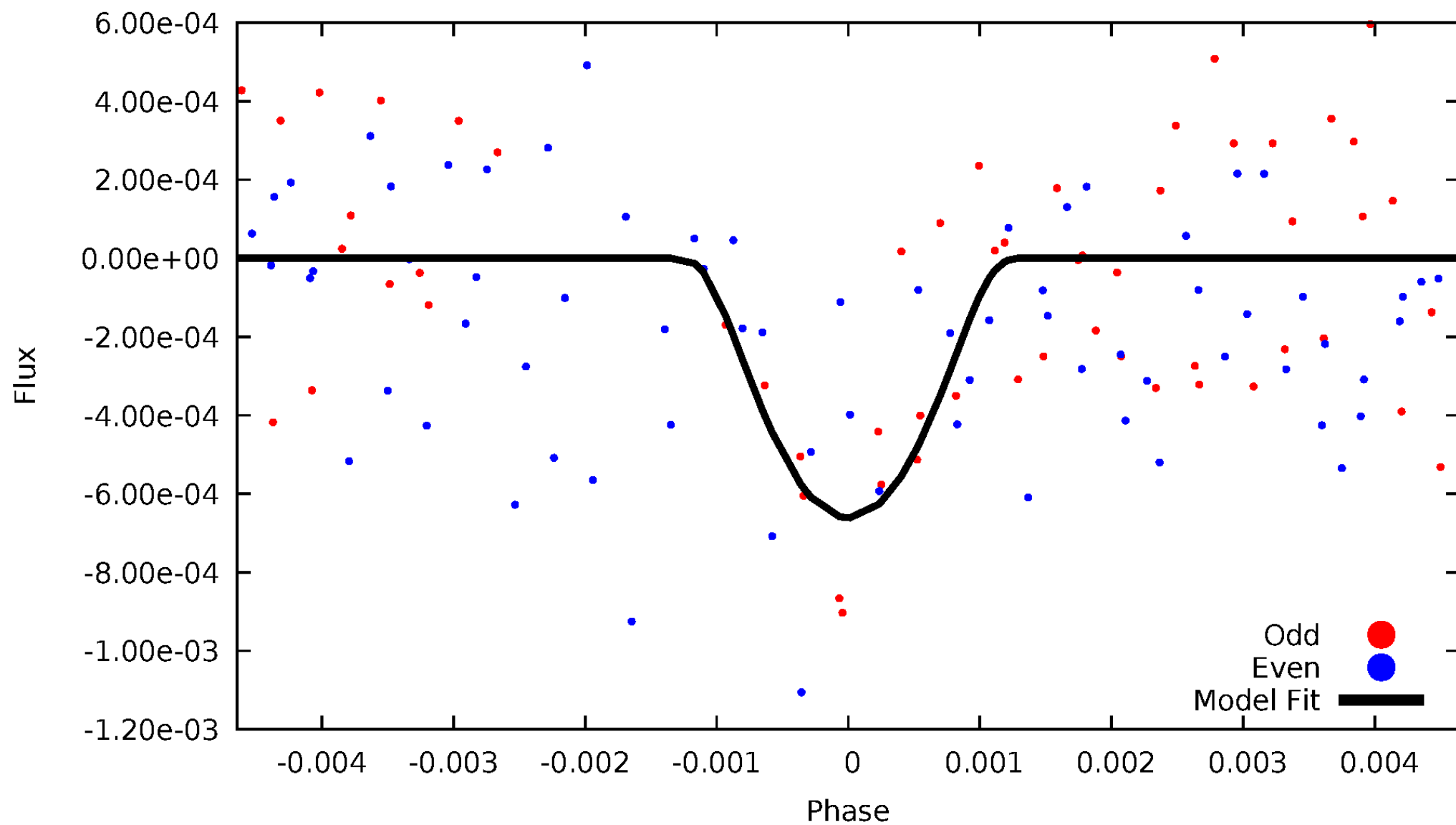


TCE 009649300-03



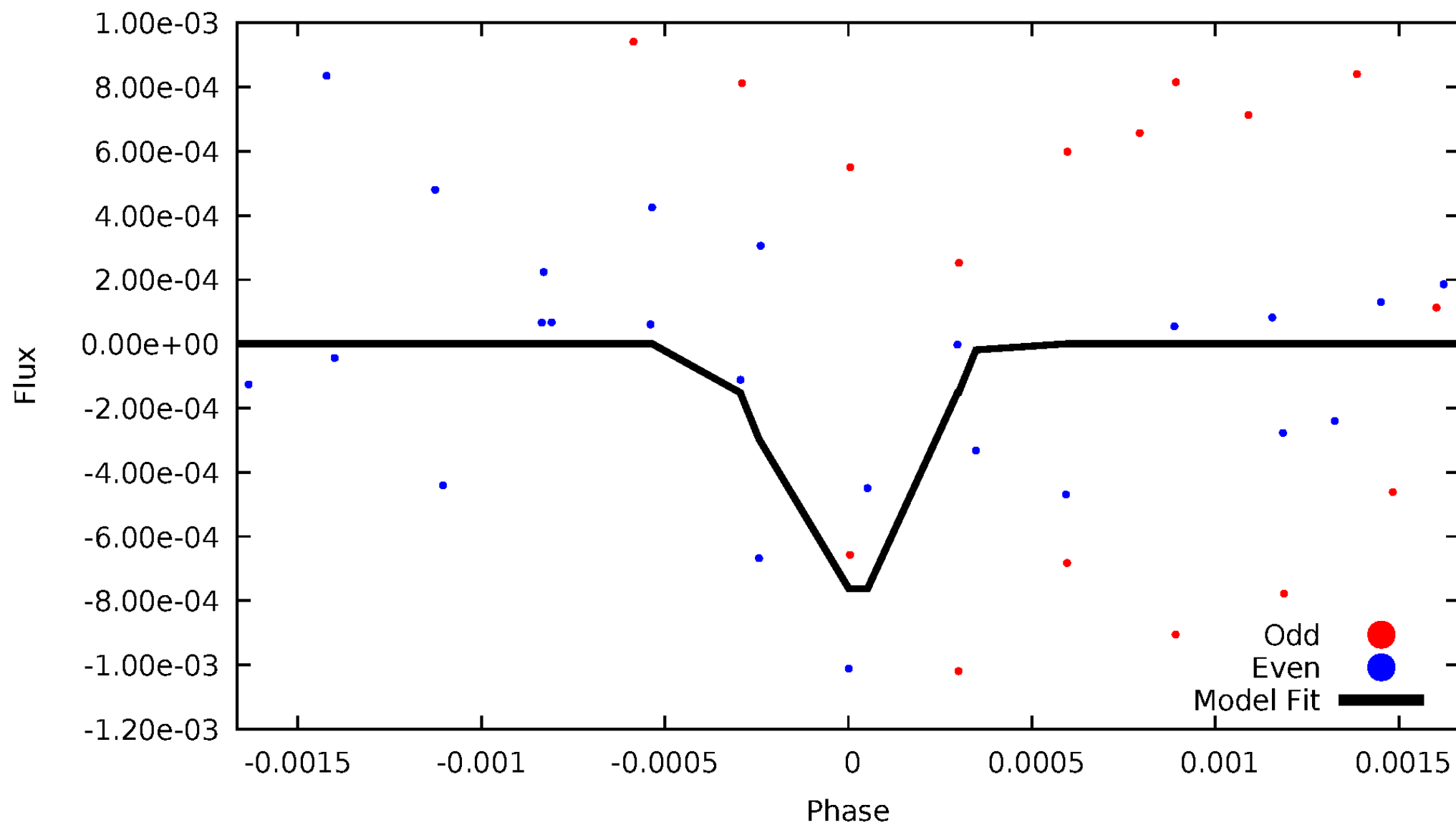
DV Odd/Even

TCE 009649300-03



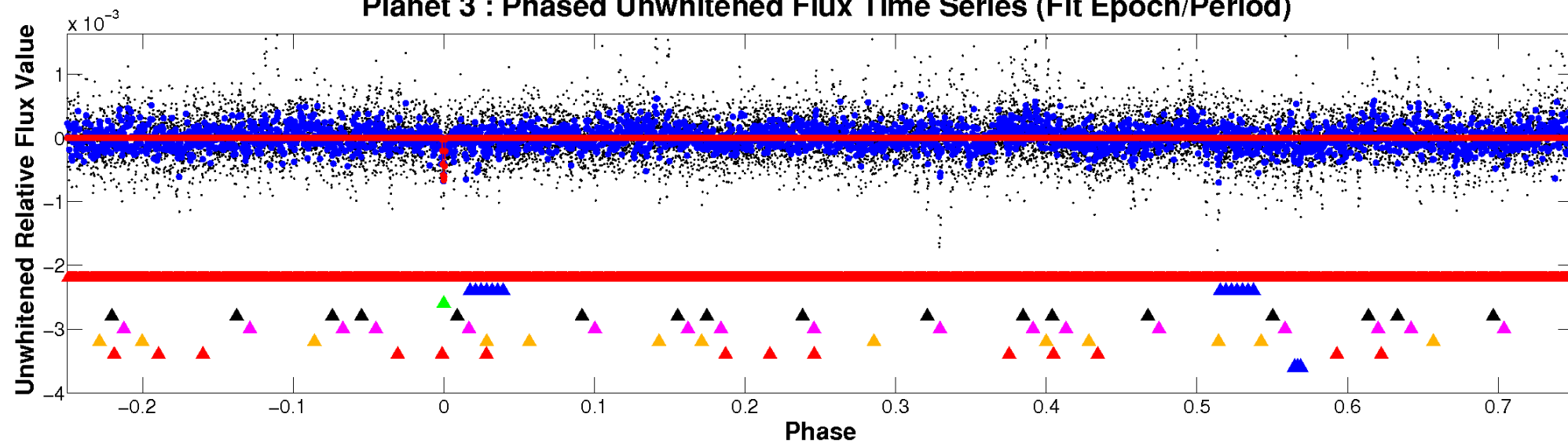
ALT Odd/Even

TCE 009649300-03

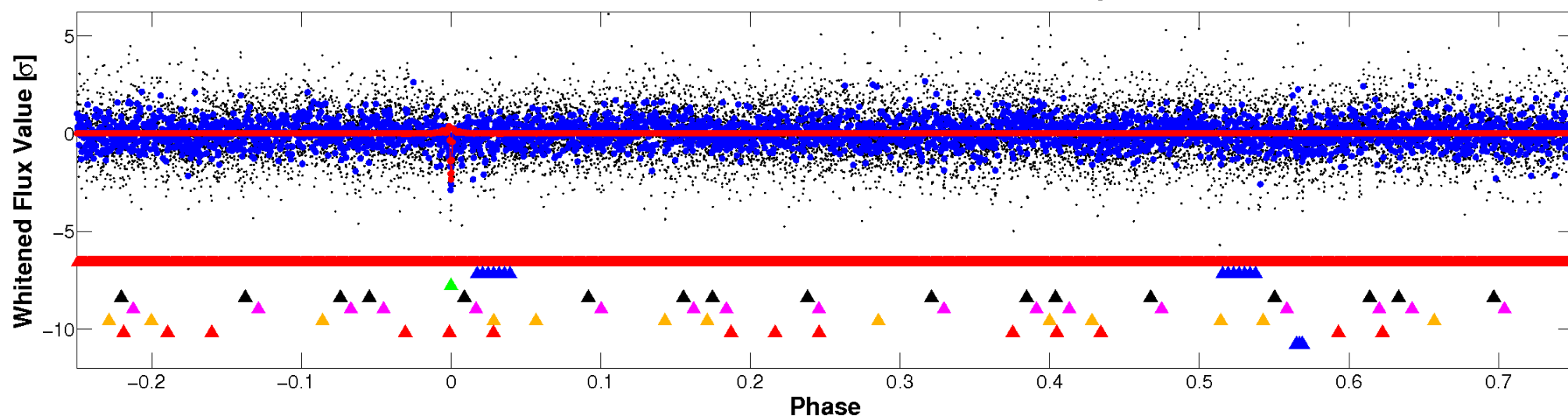


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

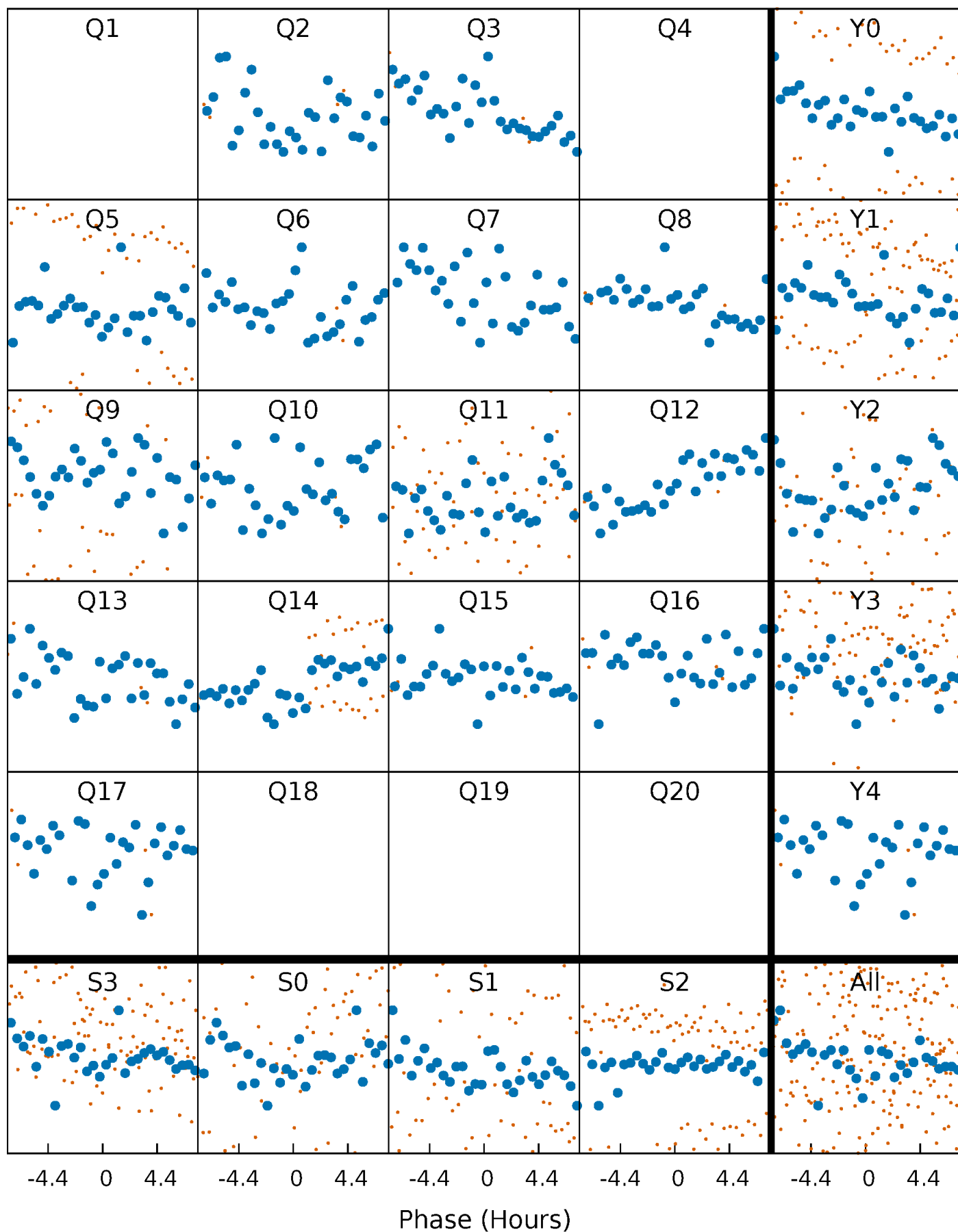


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



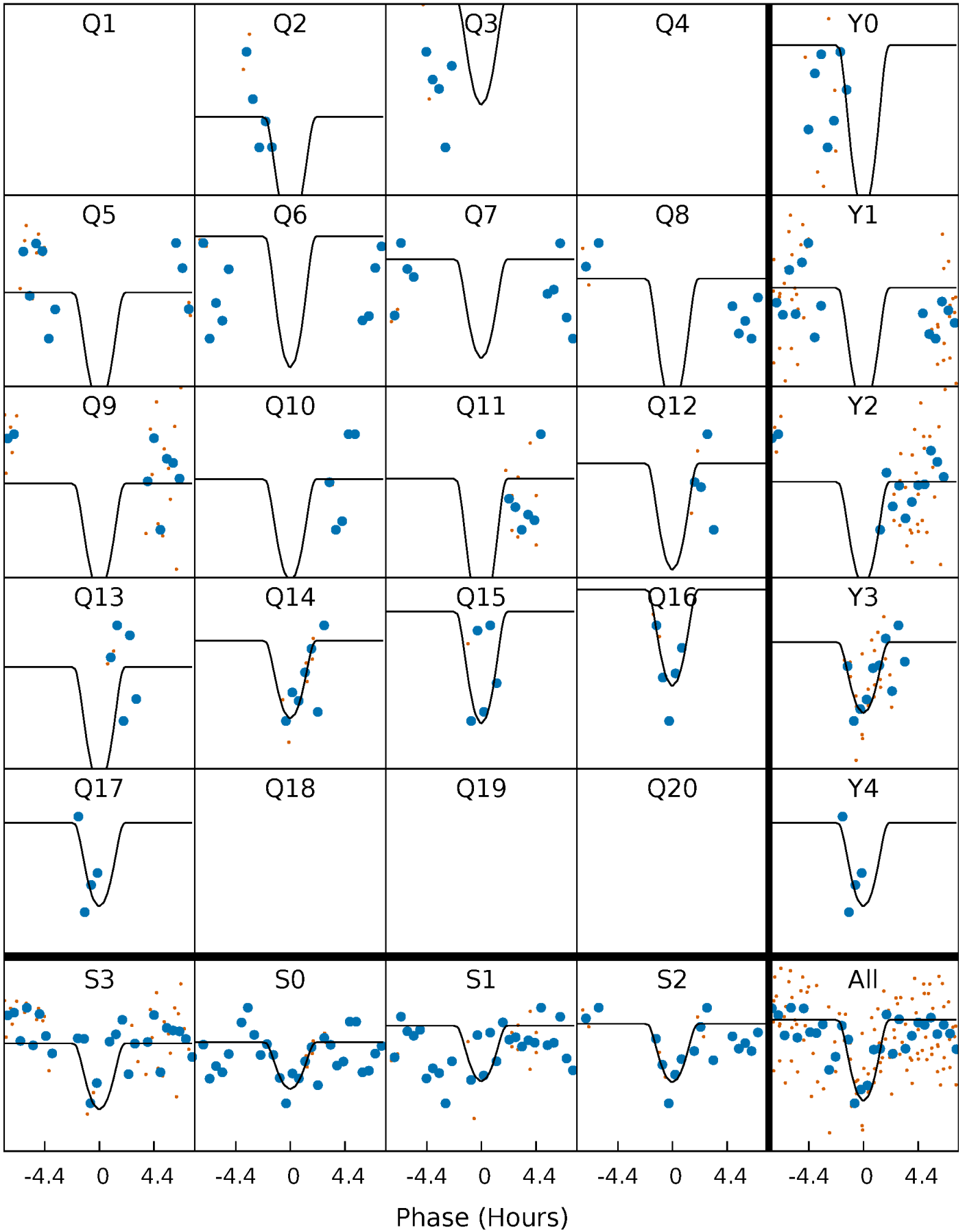
PDC Quarter-Phased Transit Curves

TCE 009649300-03 $P = 69.103439$ Days $T_0 = 190.704243$ (BKJD)



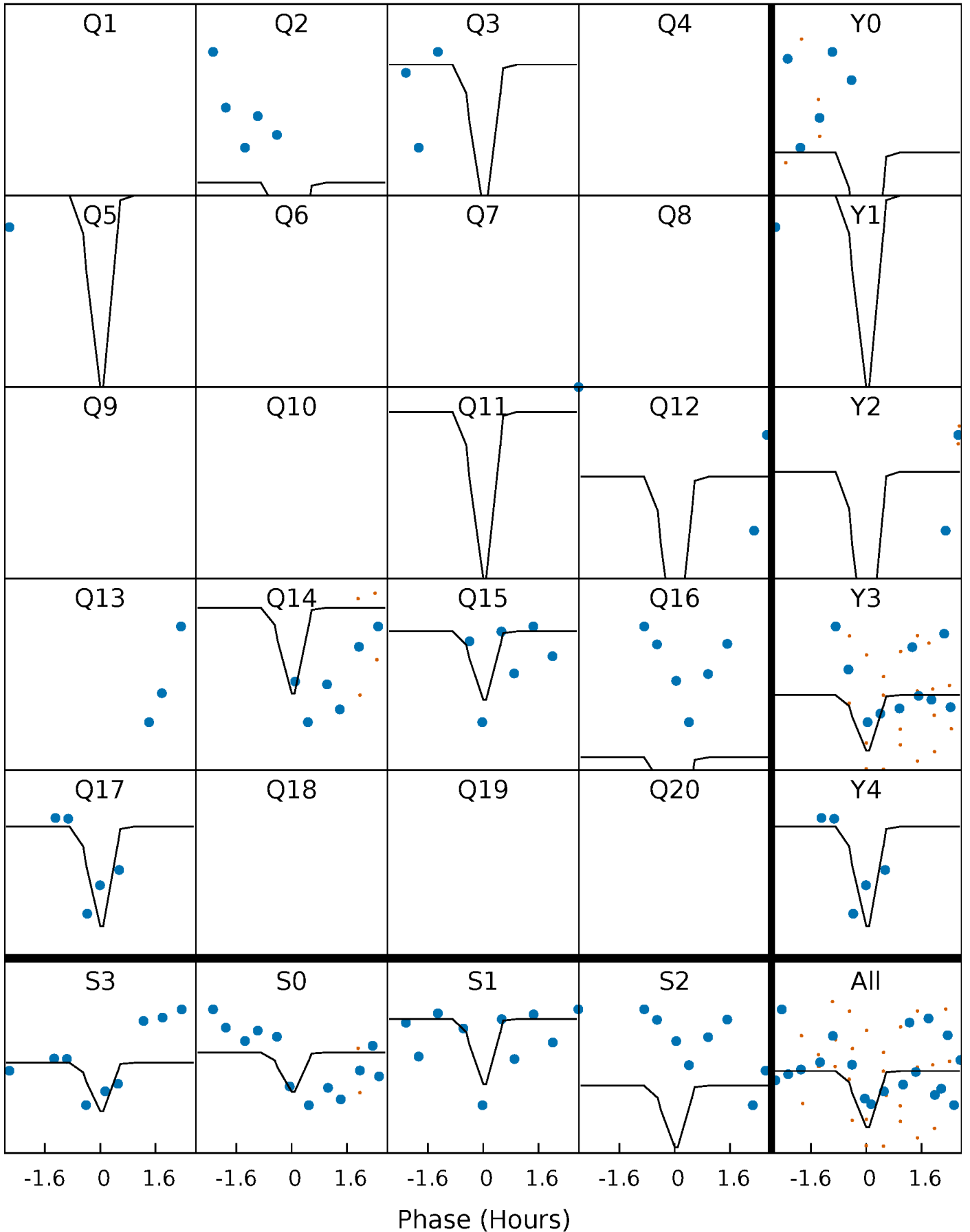
DV Quarter-Phased Transit Curves

TCE 009649300-03 $P = 69.103439$ Days $T_0 = 190.704243$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

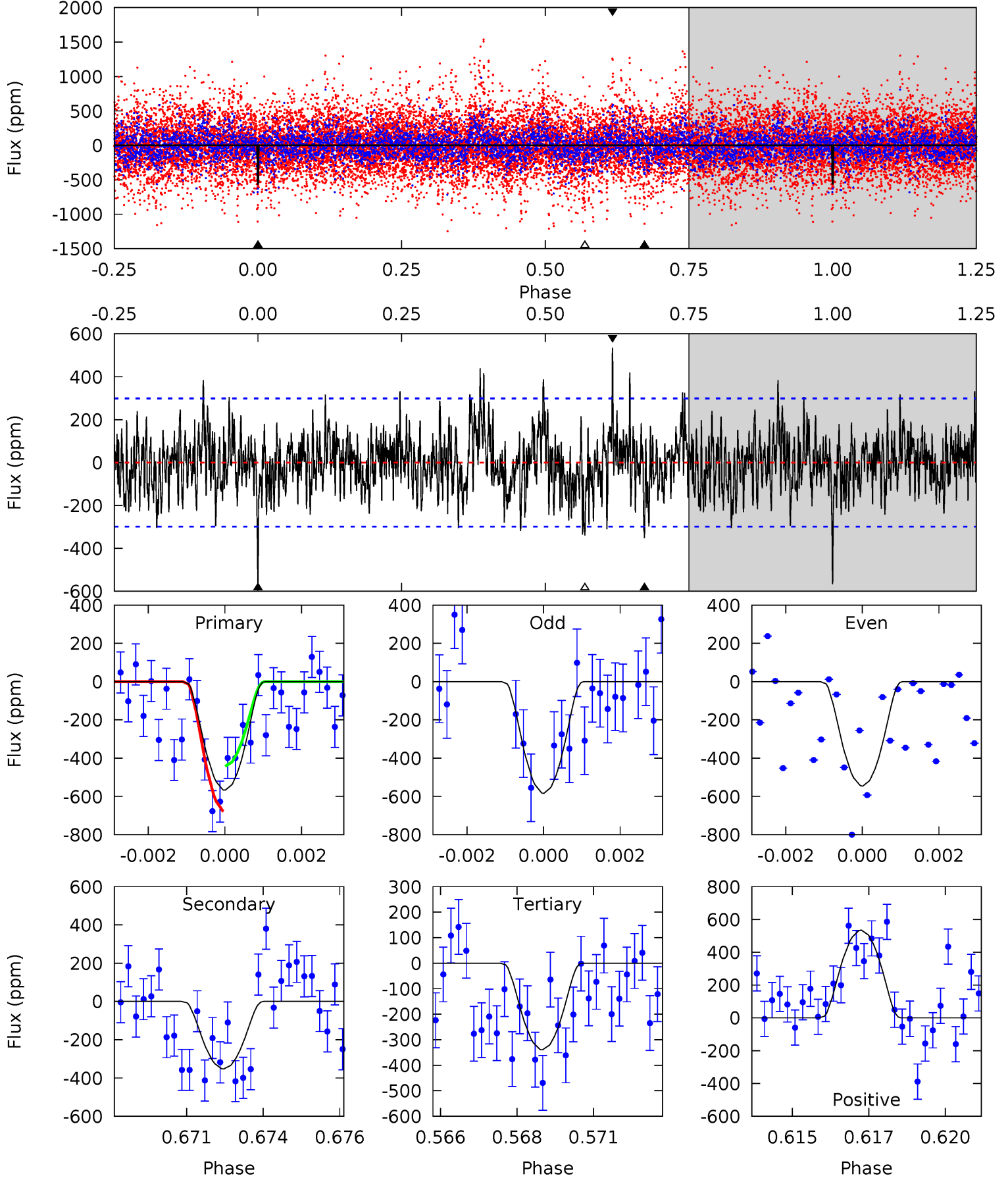
TCE 009649300-03 $P = 69.104233$ Days $T_0 = 190.665229$ (BKJD)



DV Model-Shift Uniqueness Test

009649300-03, P = 69.103439 Days, E = 121.600804 Days

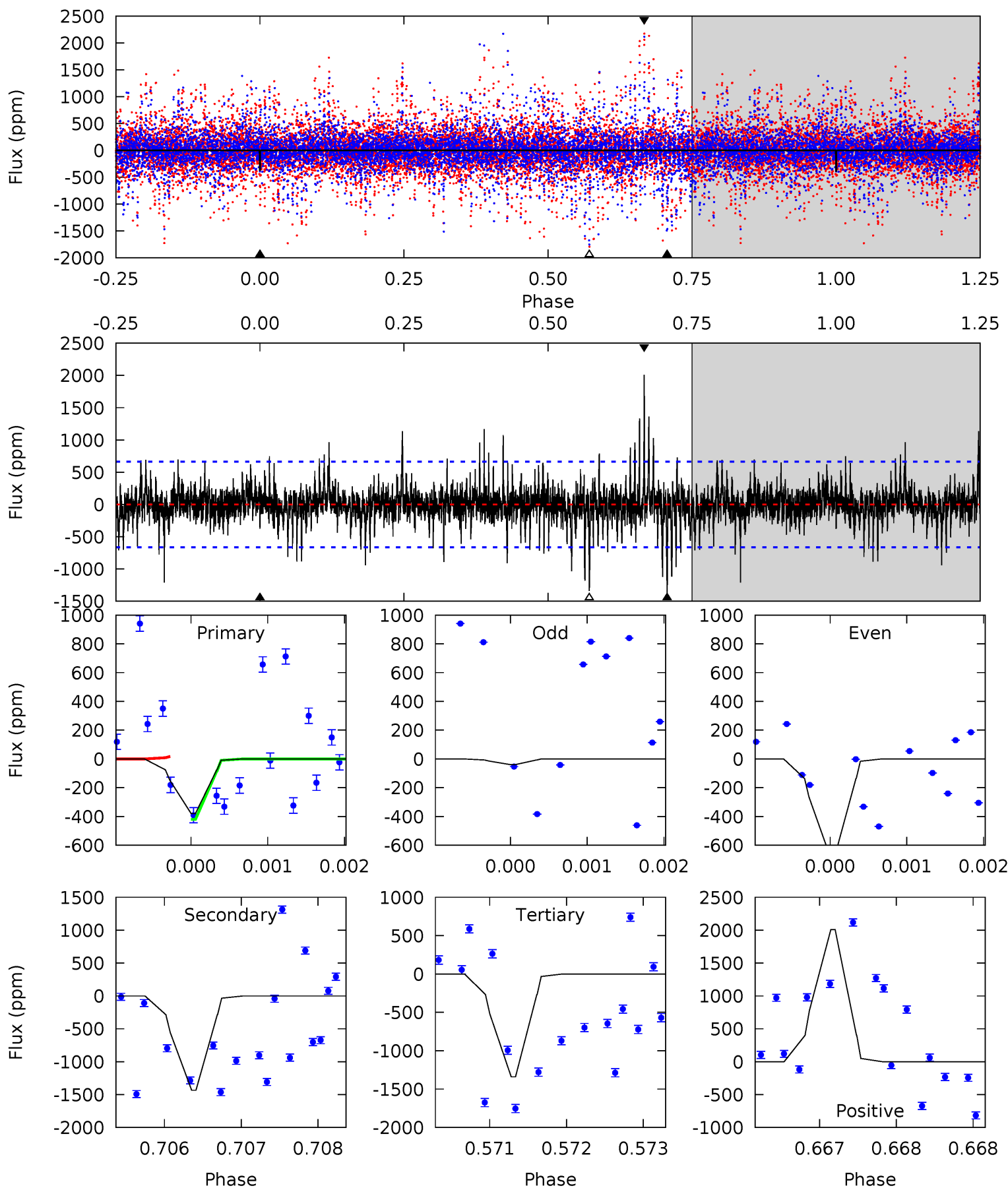
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.0 | 6.24 | 6.01 | 9.46 | 5.29 | 3.03 | 2.09 | 4.04 | 0.58 | 0.23 | -3.22 | 0.33 | 1.06 | 0.49 | 2.06 |



Alt Model-Shift Uniqueness Test

009649300-03, P = 69.104233 Days, E = 121.560996 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3.13 | 11.8 | 11.0 | 16.6 | 5.47 | 3.33 | 1.80 | -7.92 | -13.4 | 0.78 | -4.73 | 2.26 | 0.58 | 0.58 | 1.31 |



Stellar Parameters For KIC 009649300

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5907^{+142}_{-178} | $4.547^{+0.036}_{-0.192}$ | $-0.260^{+0.300}_{-0.300}$ | $0.860^{+0.247}_{-0.077}$ | $0.951^{+0.107}_{-0.119}$ | $2.103^{+0.408}_{-1.075}$ |
| | +2%/-3% | +1%/-4% | +115%/-115% | +29%/-9% | +11%/-13% | +19%/-51% |
| 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 009649300-03 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|-----------------|------------------------|-------------------|-----------------------|-------------------------|
| DV | -352 ± 56 | $6.76^{+6.15}_{-4.53}$ | 607^{+42}_{-27} | 3564^{+1801}_{-648} | 416^{+3555}_{-300} |
| Alt. | -1435 ± 121 | $6.46^{+6.01}_{-4.27}$ | 606^{+38}_{-25} | 4657^{+3154}_{-976} | 1916^{+13919}_{-1385} |

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 $A_{obs} \gg 1.0$

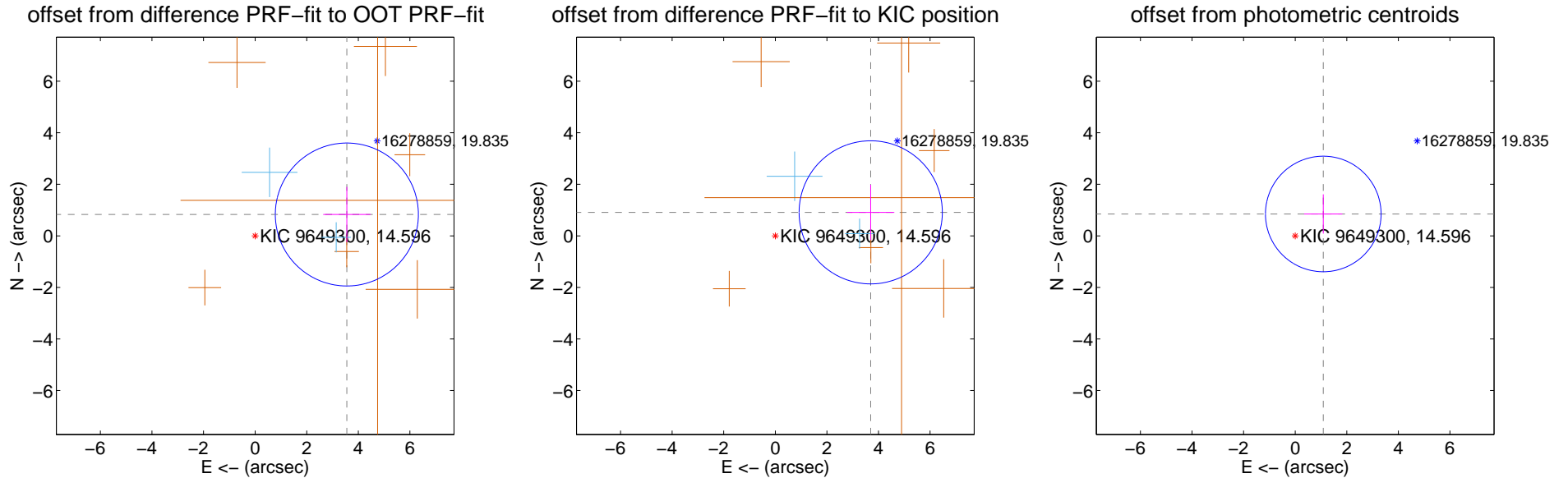
DV Centroid Data

Supplemental centroid analysis for 009649300-03. Kepler magnitude: 14.60. Transit SNR 8.32

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

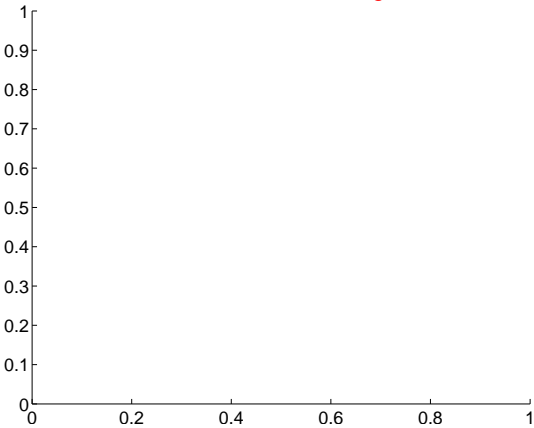
| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 3.651 ± 0.925 | 3.95 | -3.556 ± 0.916 | 0.829 ± 1.072 |
| PRF-fit source offset from KIC position | 3.810 ± 0.926 | 4.12 | -3.699 ± 0.916 | 0.912 ± 1.072 |
| photometric centroid source offset | 1.38 ± 0.75 | 1.85 | -1.09 ± 0.74 | 0.85 ± 0.76 |



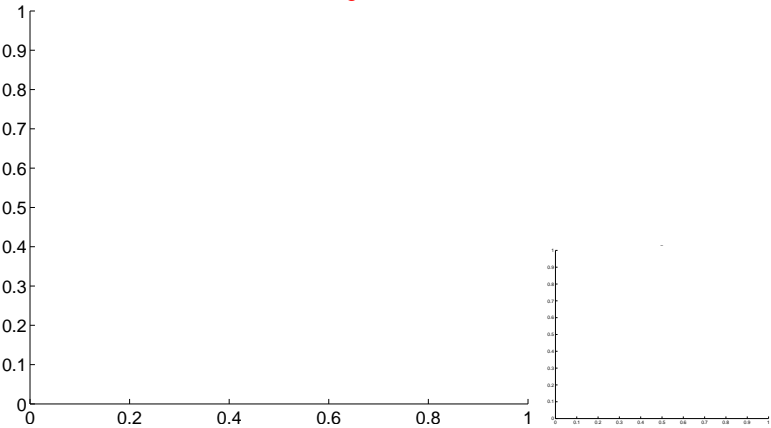
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

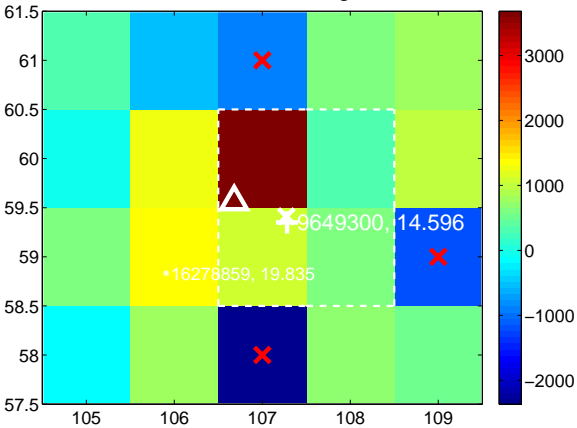
Q1 no difference image



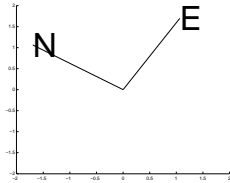
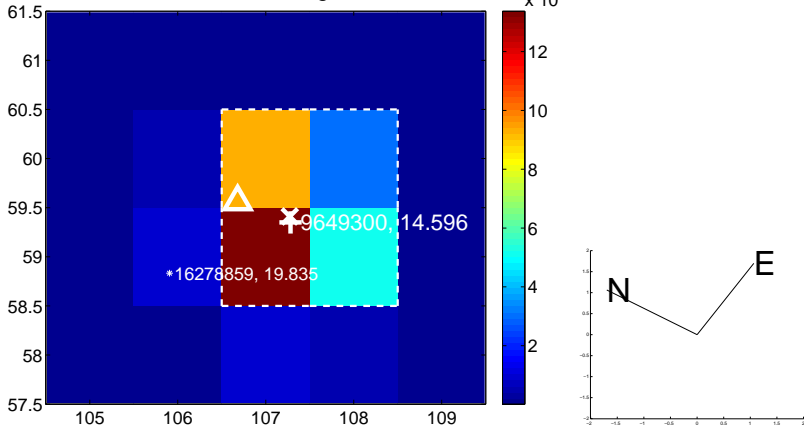
Q1 no OOT image



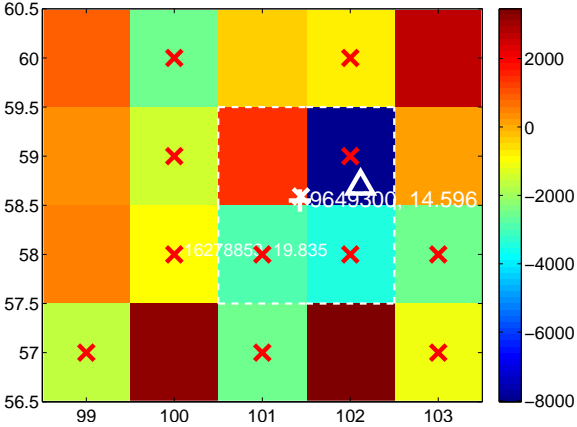
Q2 difference image



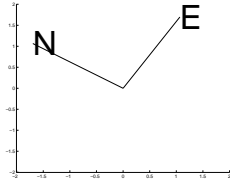
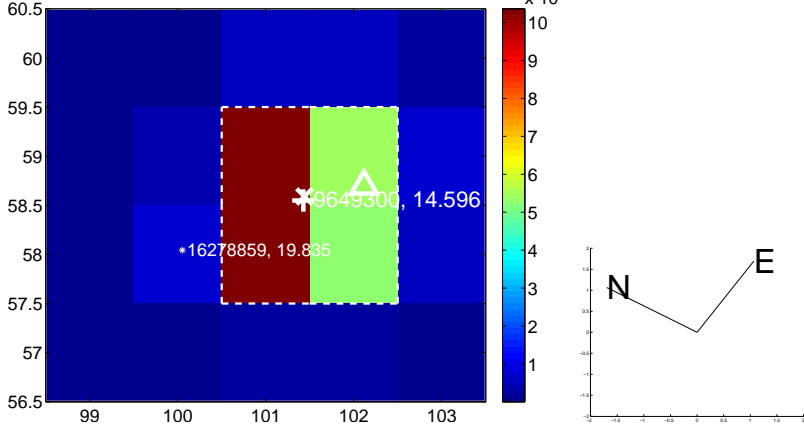
Q2 OOT image



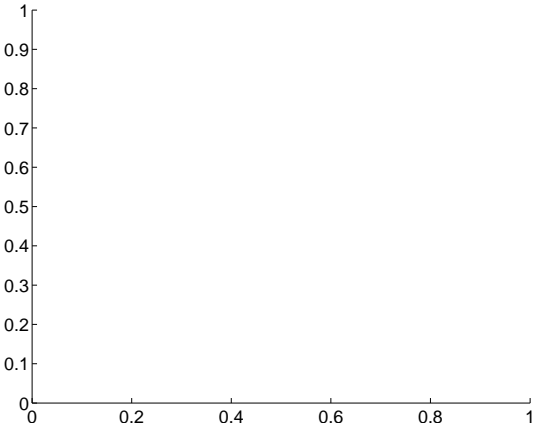
Q3 difference image. Poor Quality



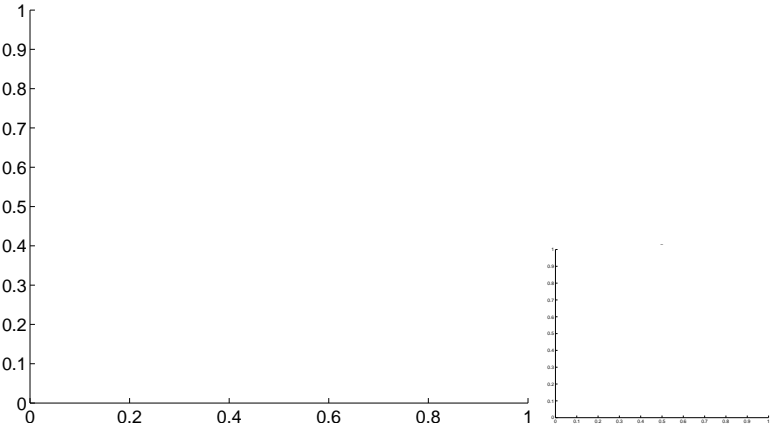
Q3 OOT image



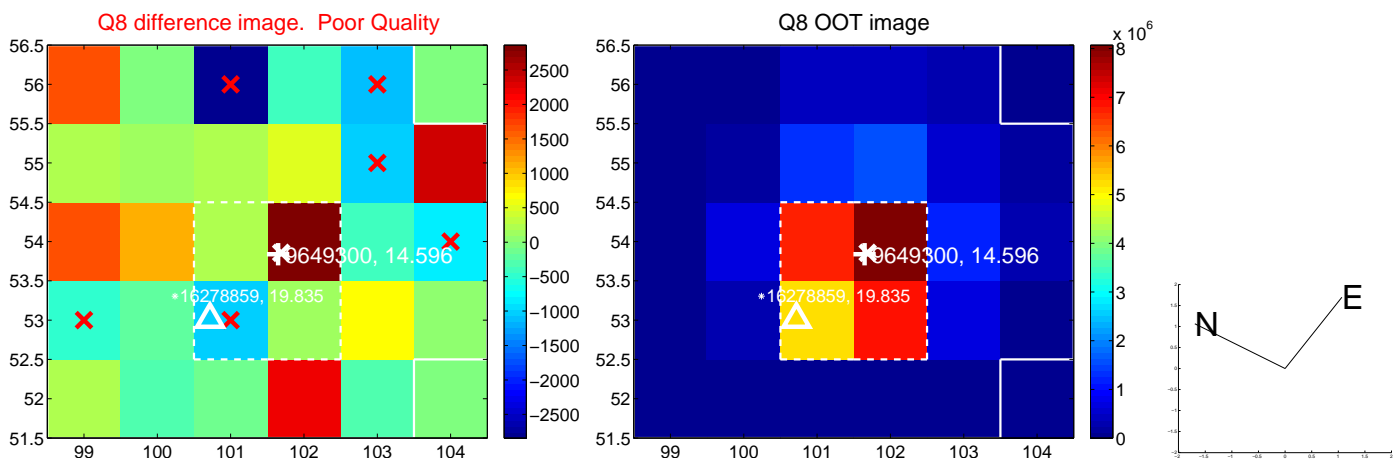
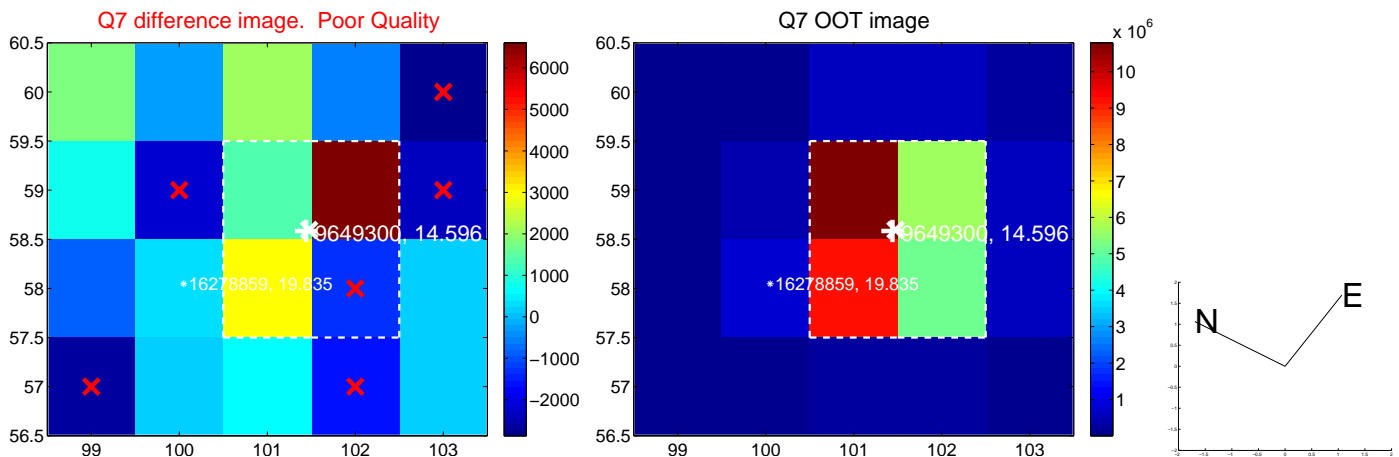
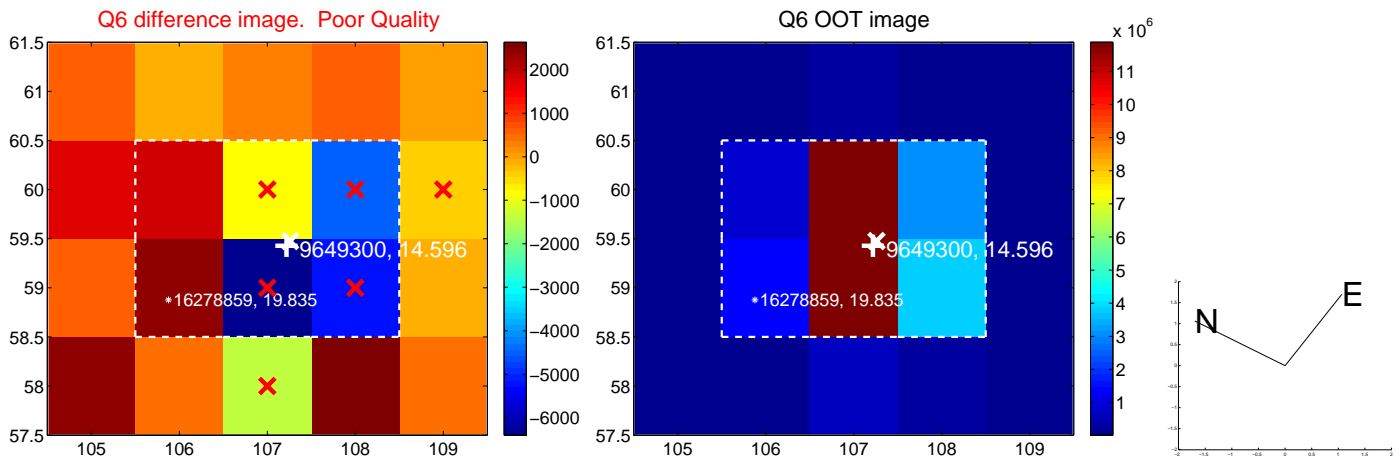
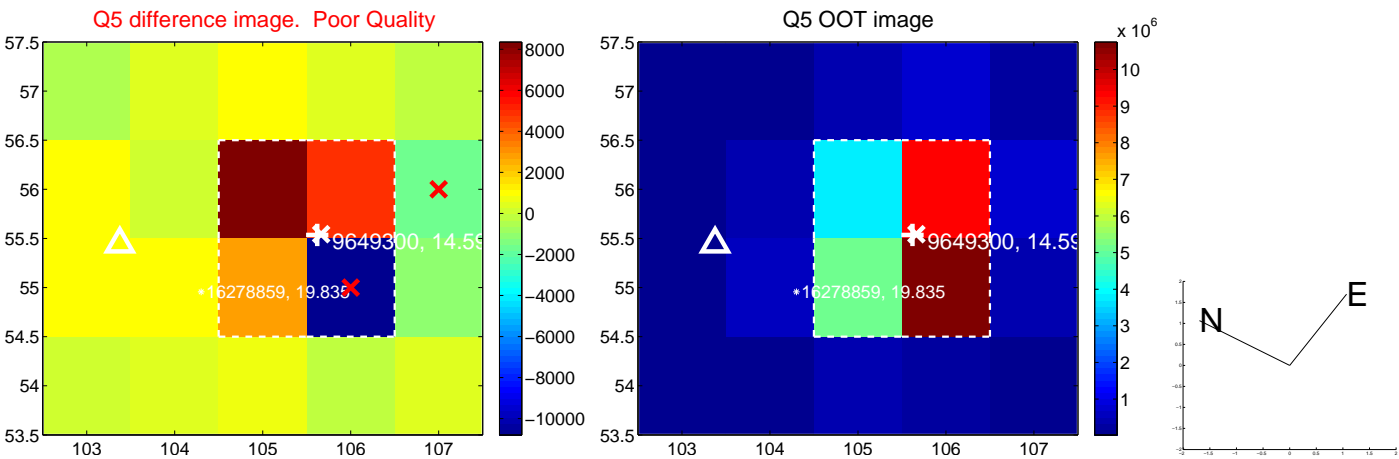
Q4 no difference image



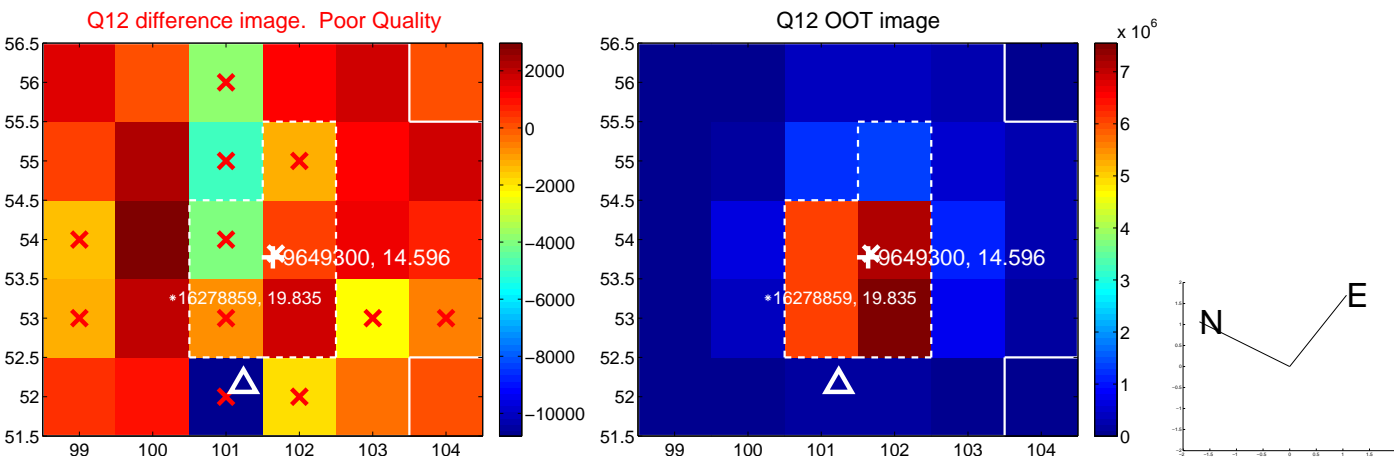
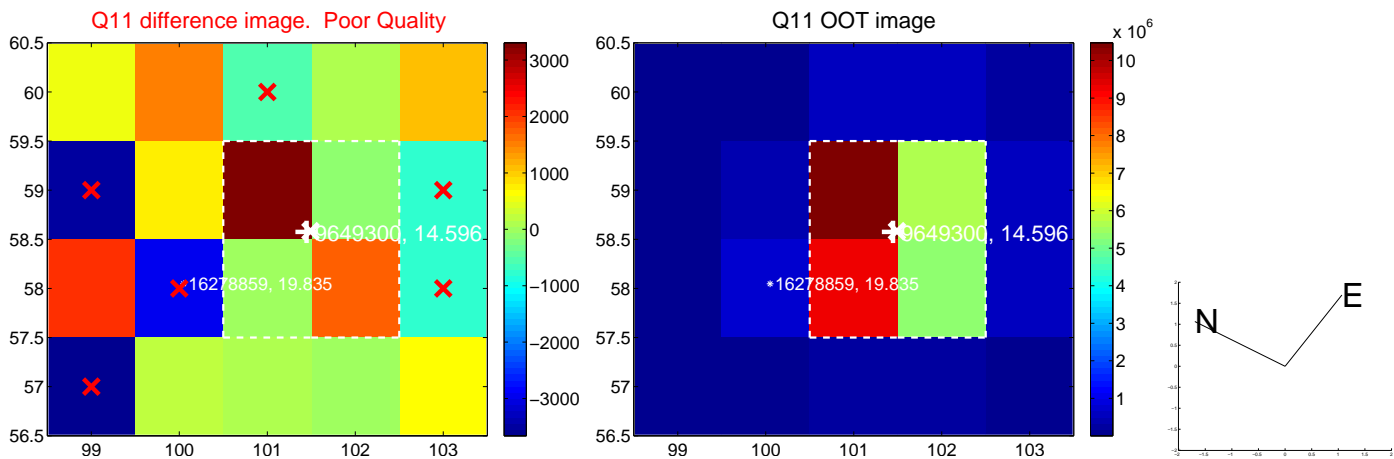
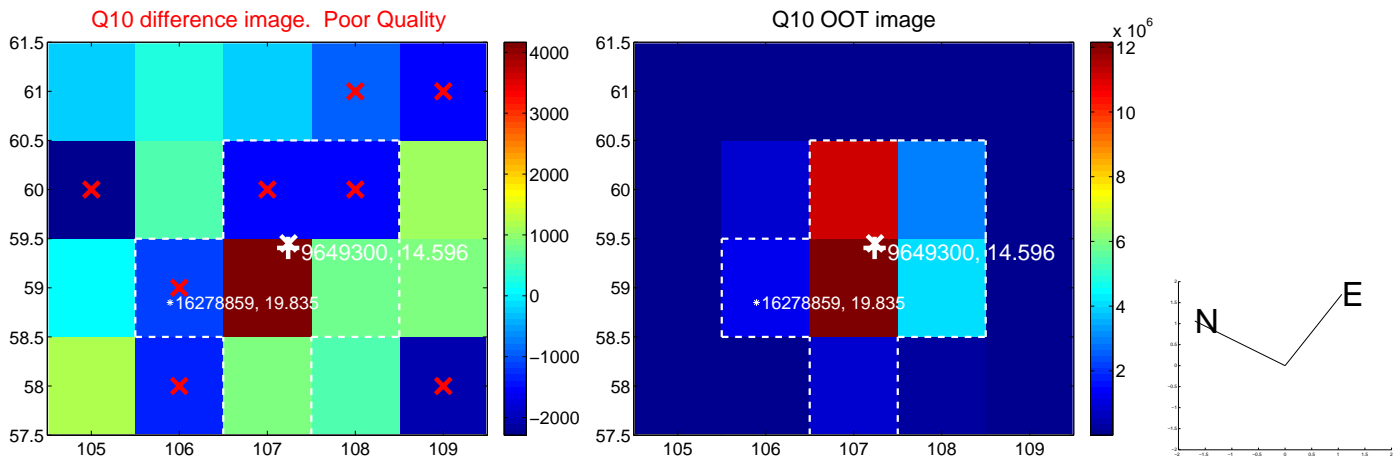
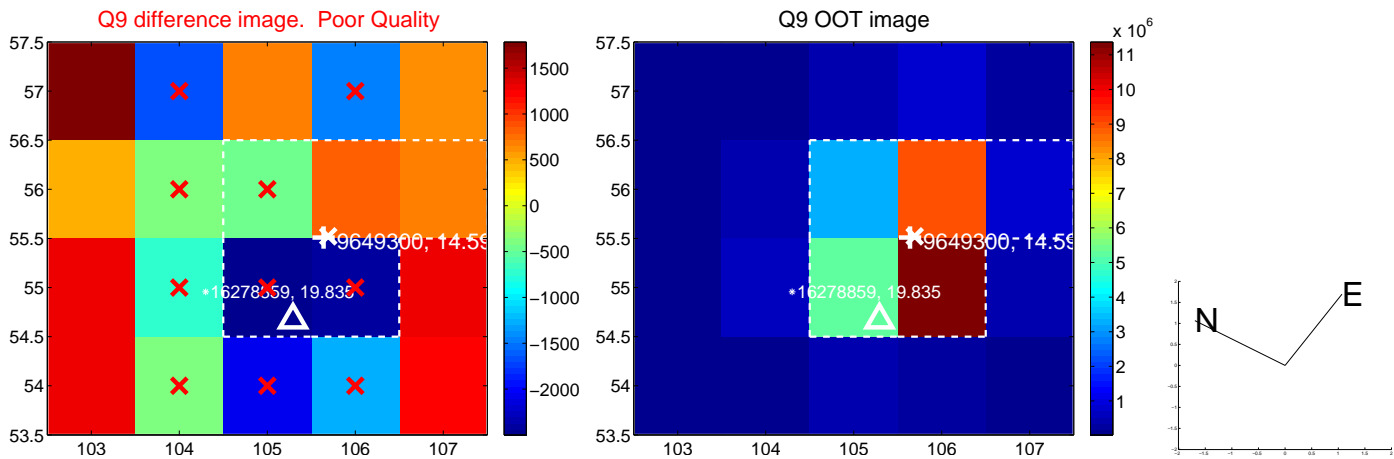
Q4 no OOT image



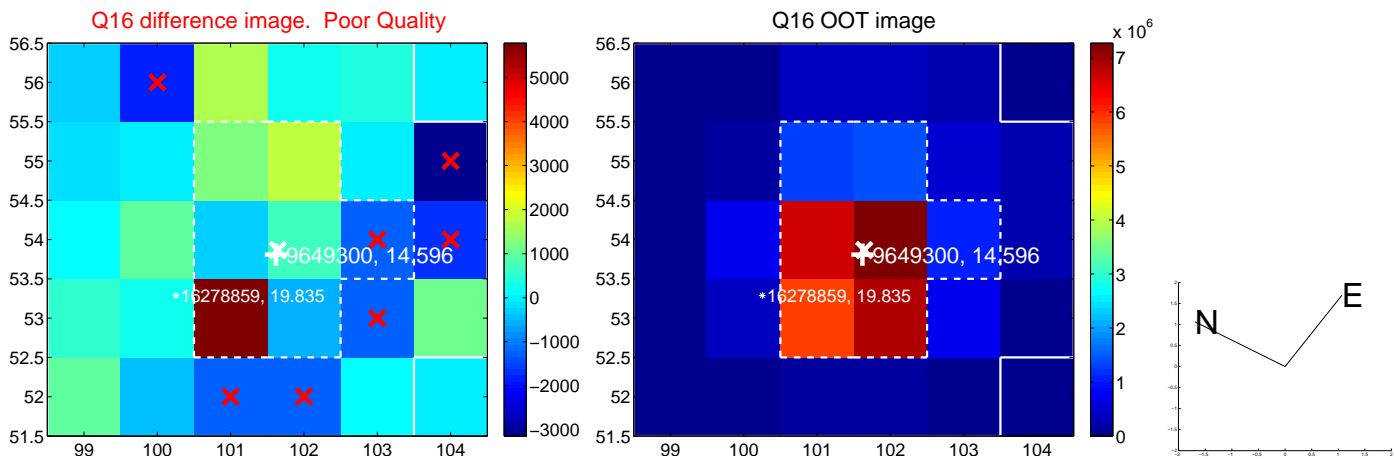
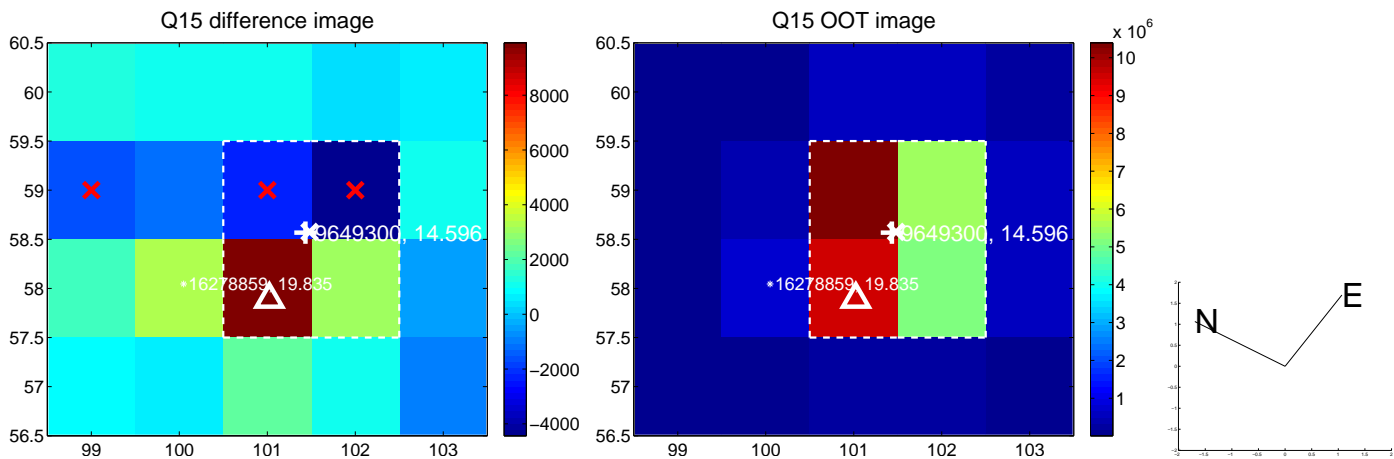
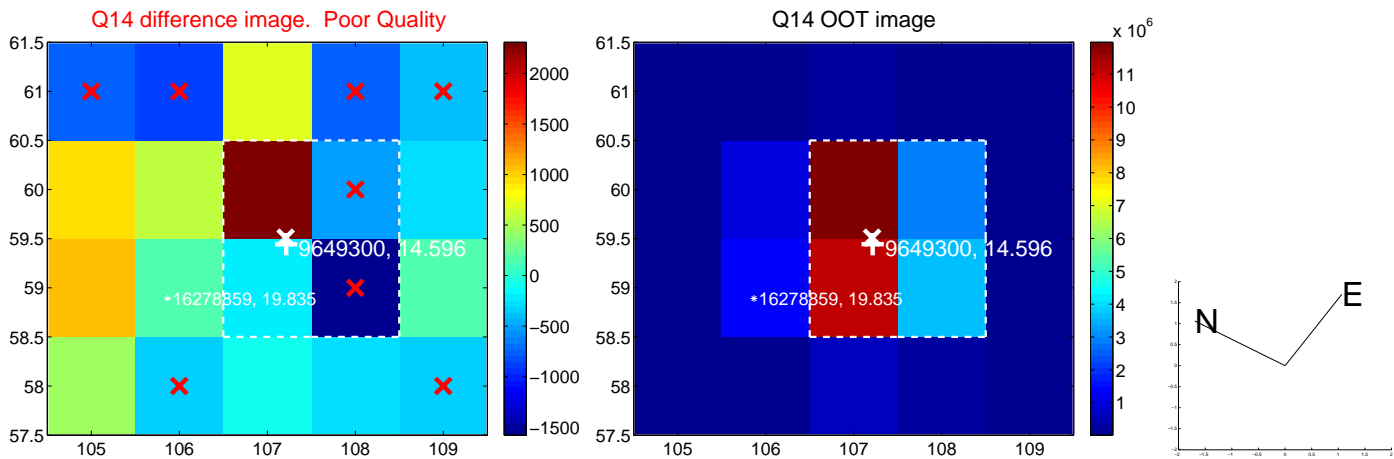
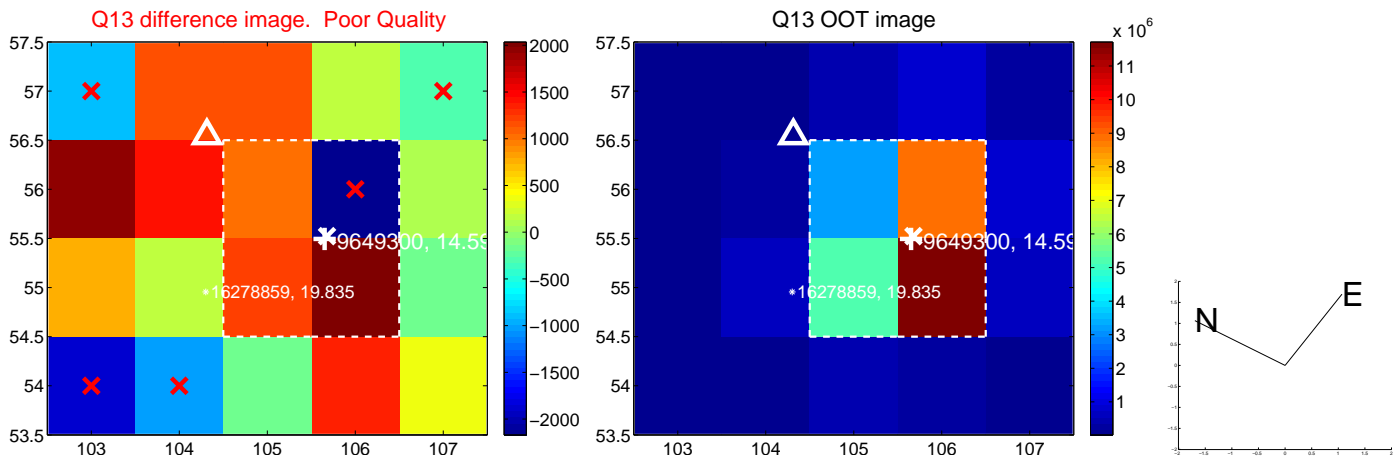
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



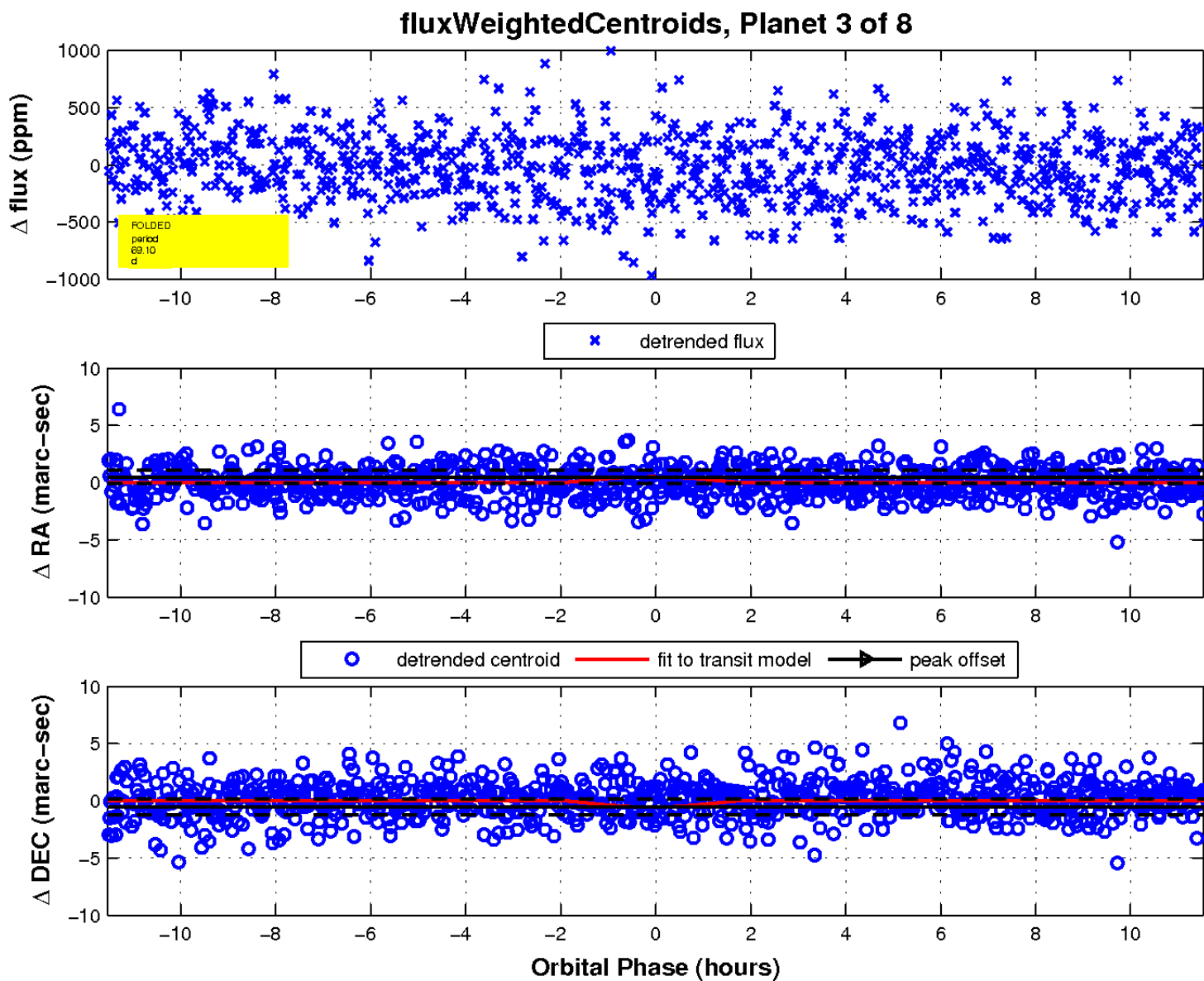
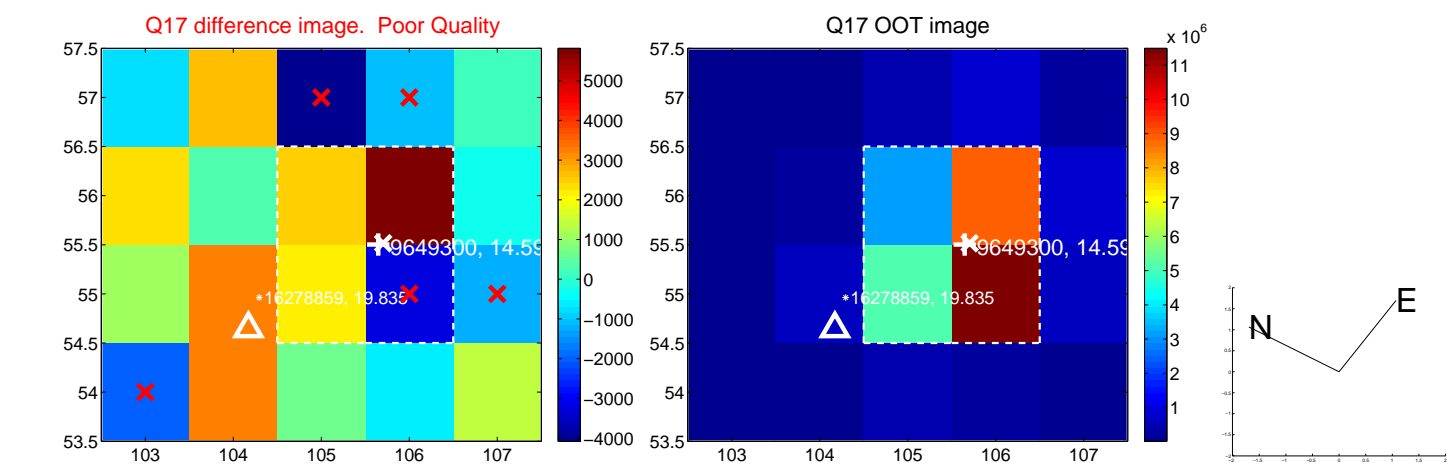
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

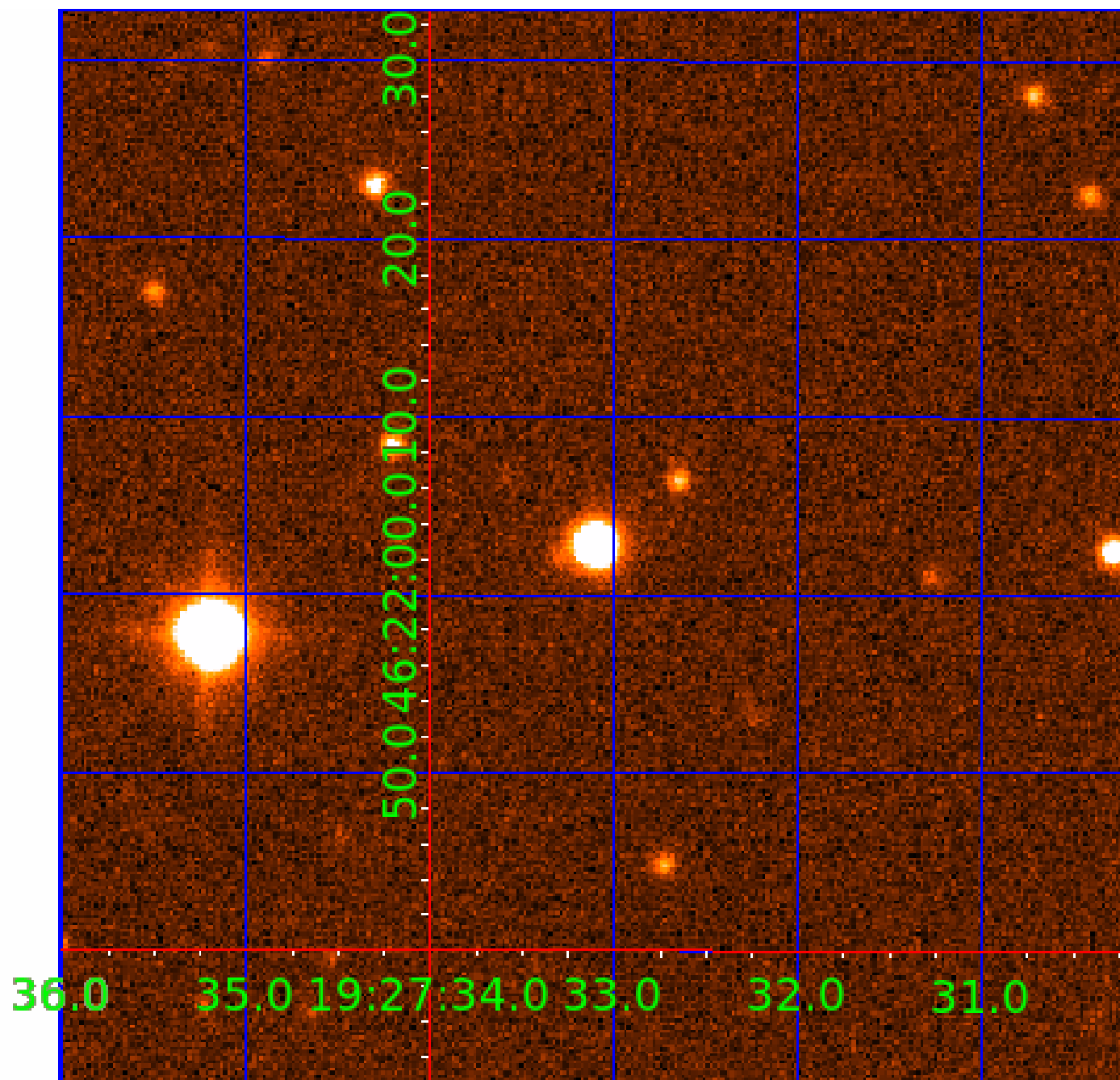


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009649300

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009649300-01 | OBS | No | 0.548248 | 131.663199 | 17.5 | 3.250 | 9.0 | 5.4 | 0.86 | 5907 | 0.36 | 4853.54 |
| 009649300-03 | OBS | No | 69.103439 | 190.704243 | 661.1 | 3.850 | 11.0 | 8.3 | 0.86 | 5907 | 3.45 | 7.68 |
| 009649300-06 | OBS | No | 112.537602 | 226.248360 | 730.9 | 4.972 | 10.0 | 7.9 | 0.86 | 5907 | 2.67 | 4.01 |
| 009649300-07 | OBS | No | 110.158780 | 138.598961 | 408.4 | 3.236 | 8.7 | 4.2 | 0.86 | 5907 | 1.84 | 4.12 |
| 009649300-08 | OBS | No | 414.487765 | 368.220164 | 530.1 | 3.500 | 8.6 | -1.0 | 0.86 | 5907 | 1.97 | 0.70 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009649300-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 009649300-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST |
| 009649300-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 009649300-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS |
| 009649300-08 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—NO_FITS—CENT_NOFITS |

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

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

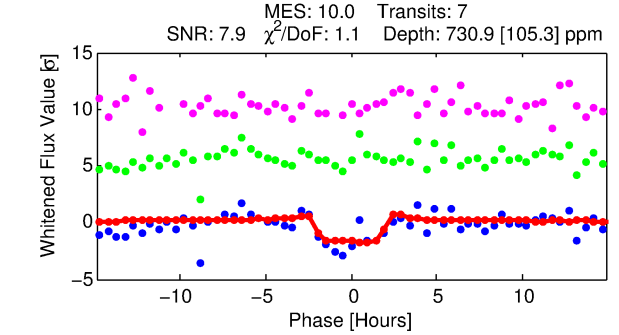
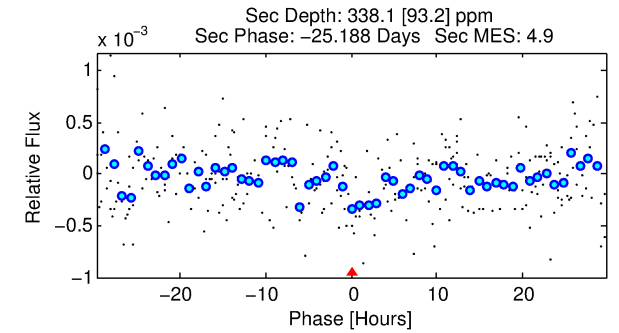
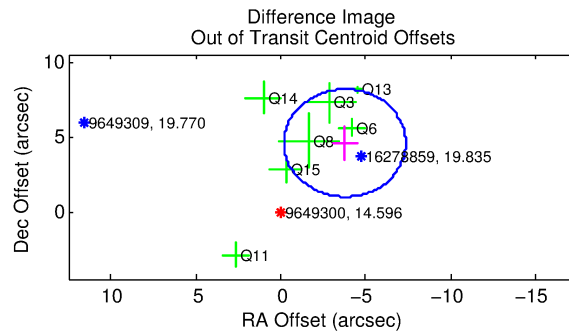
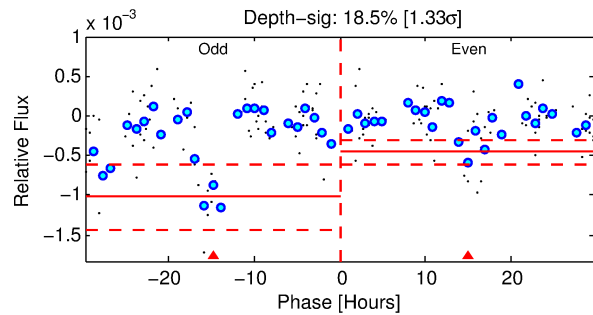
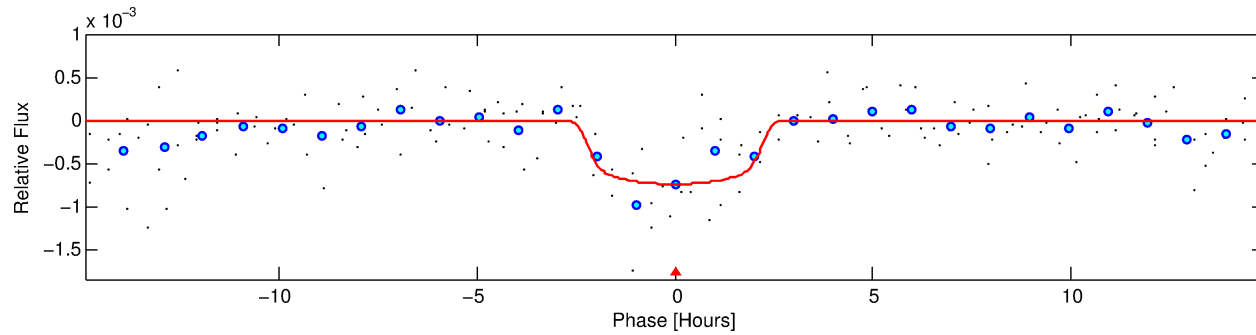
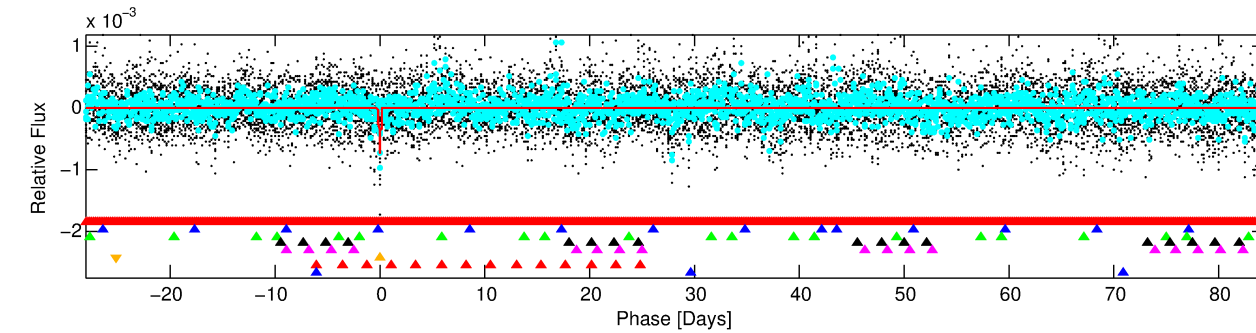
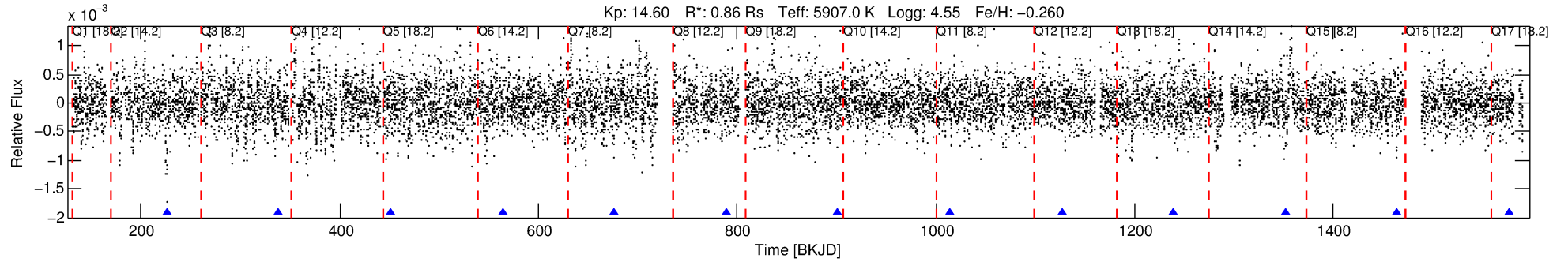
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009649300-06

No Significant Match Found

DV One-Page Summary

KIC: 9649300 Candidate: 6 of 8 Period: 112.538 d



DV Fit Results:

Period = 112.53760 [0.00176] d
Epoch = 226.2484 [0.0124] BKJD
Rp/R* = 0.0285 [0.0070]
a/R* = 95.60 [106.73]
b = 0.87 [0.32]
Seff = 4.01 [1.49]
Teq = 361 [34] K
Rp = 2.68 [1.01] Re
a = 0.4486 [0.1084] AU
Ag = 5232.04 [3479.67] [1.50 σ]
Teffp = 4744 [685] K [6.39 σ]

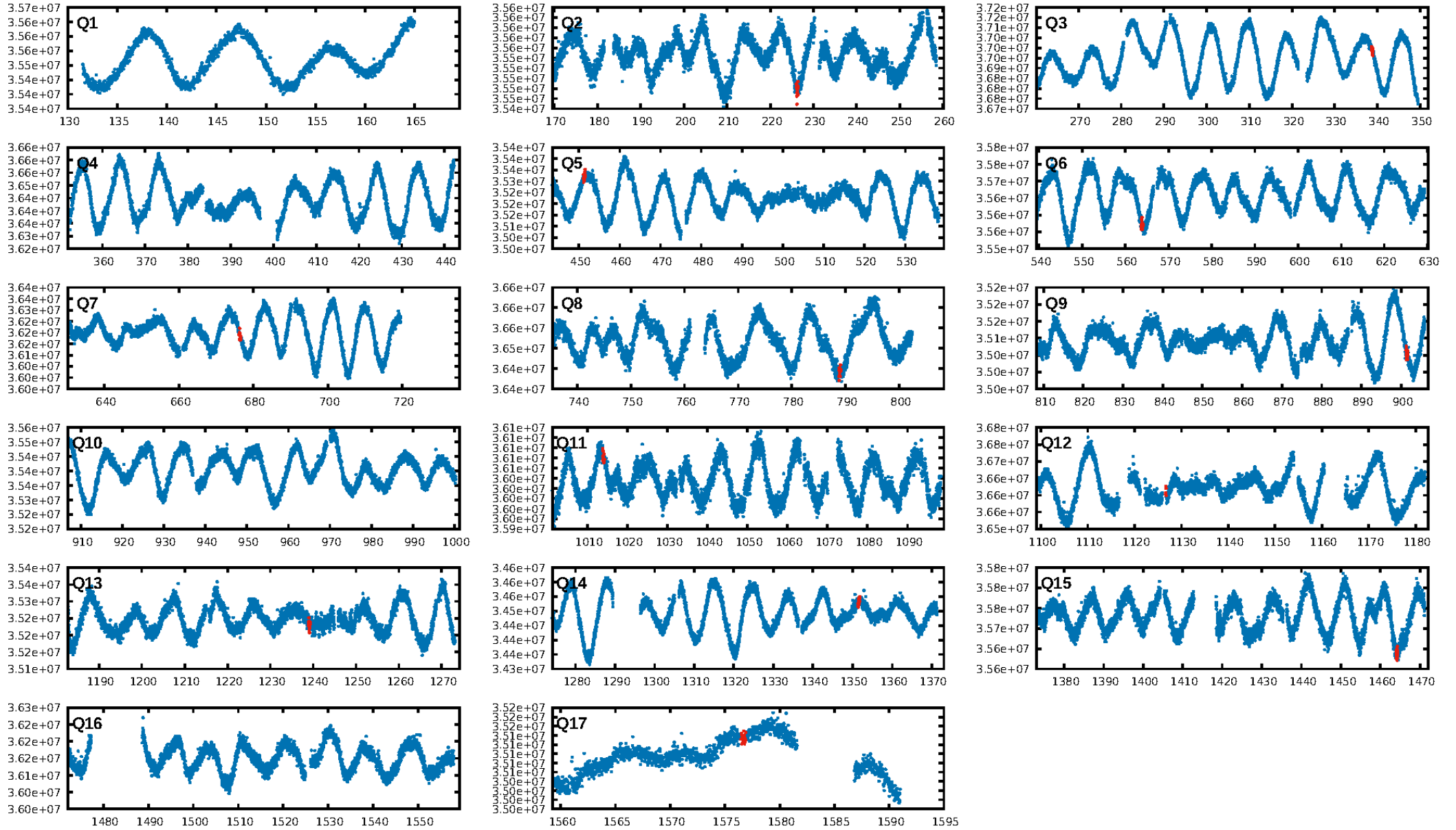
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.62 σ]
LongPeriod-sig: 100.0% [1191.85 σ]
ModelChiSquare2-sig: 4.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.26e-11
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 9.648
Centroid-sig: 14.3%
Centroid-so: 1.090 arcsec [1.85 σ]
OotOffset-rm: 5.938 arcsec [4.96 σ]
KicOffset-rm: 6.108 arcsec [4.33 σ]
OotOffset-st: 2/3/1/1 [7]
KicOffset-st: 2/3/1/1 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 0.00 [0/12]

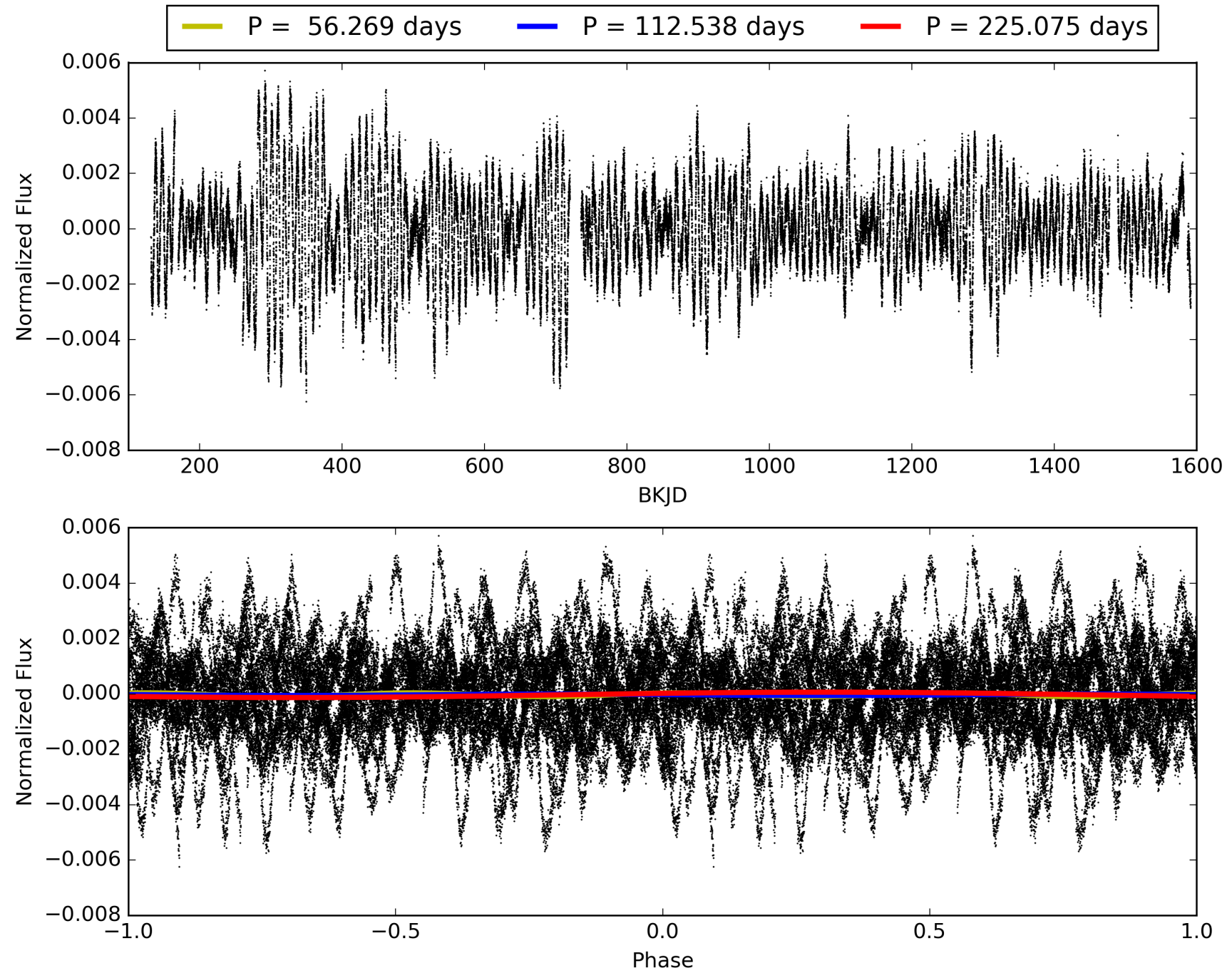
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:12:15 Z

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

TCE 009649300-06, PDC Light Curves

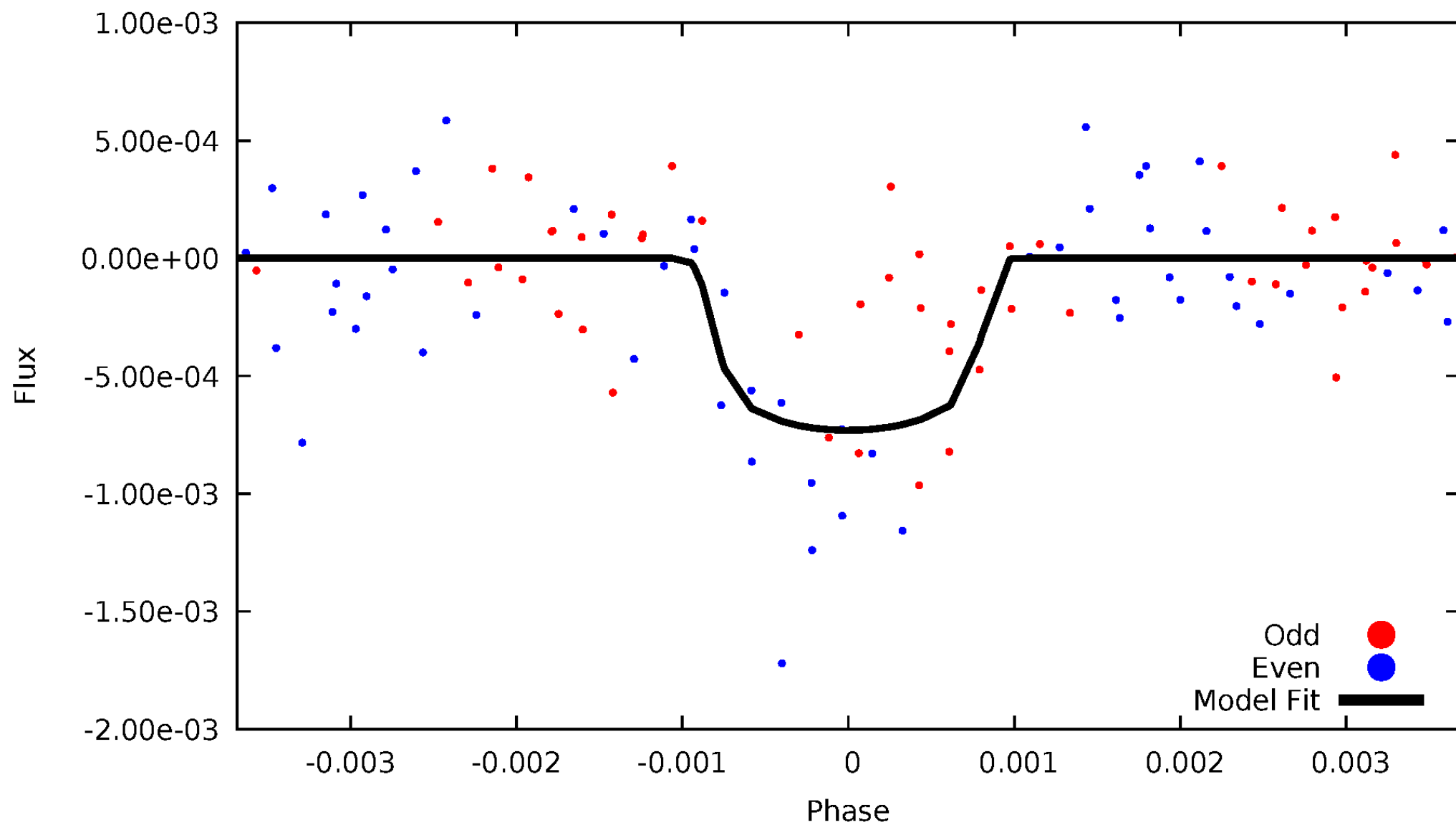


TCE 009649300-06



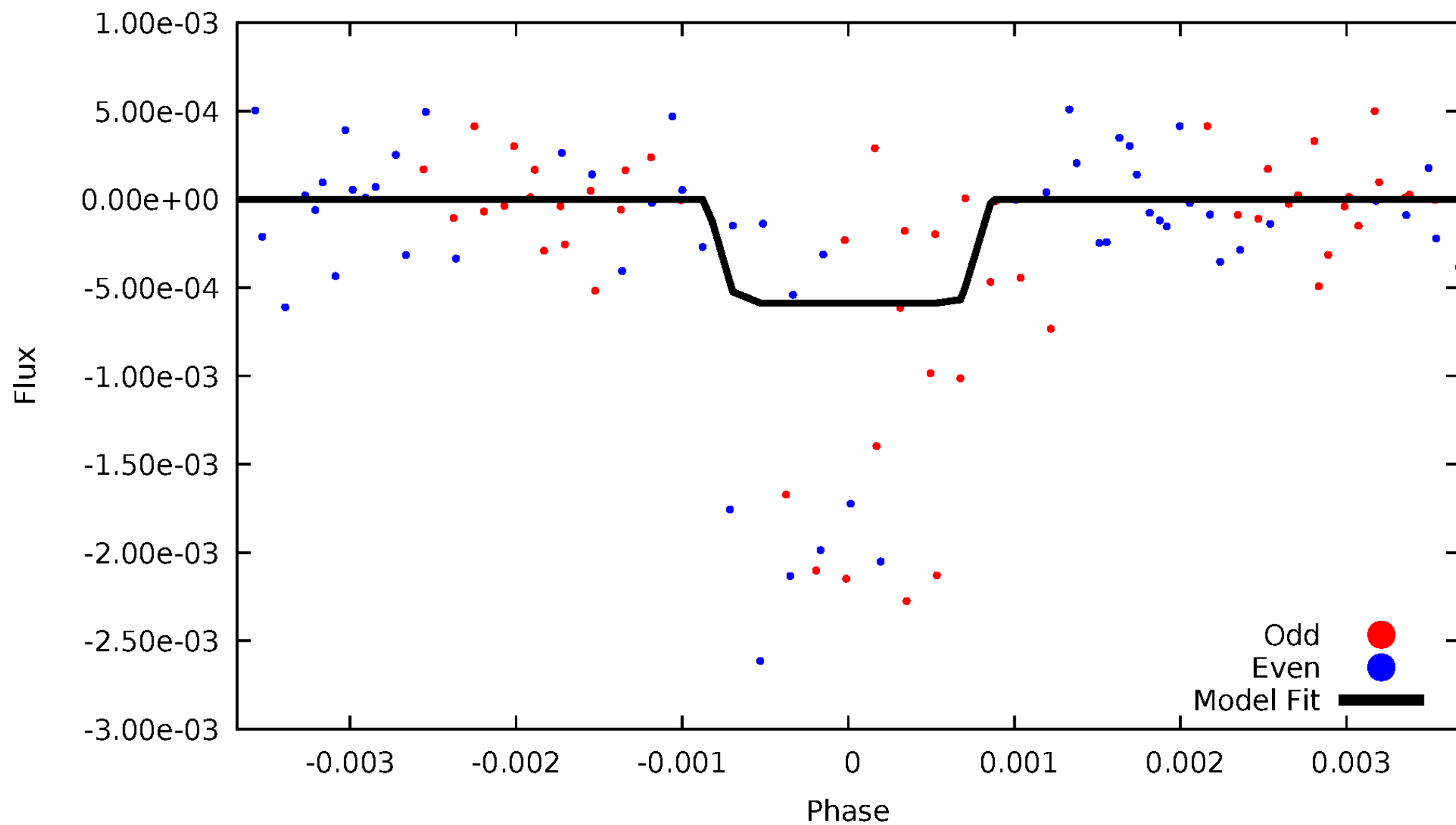
DV Odd/Even

TCE 009649300-06



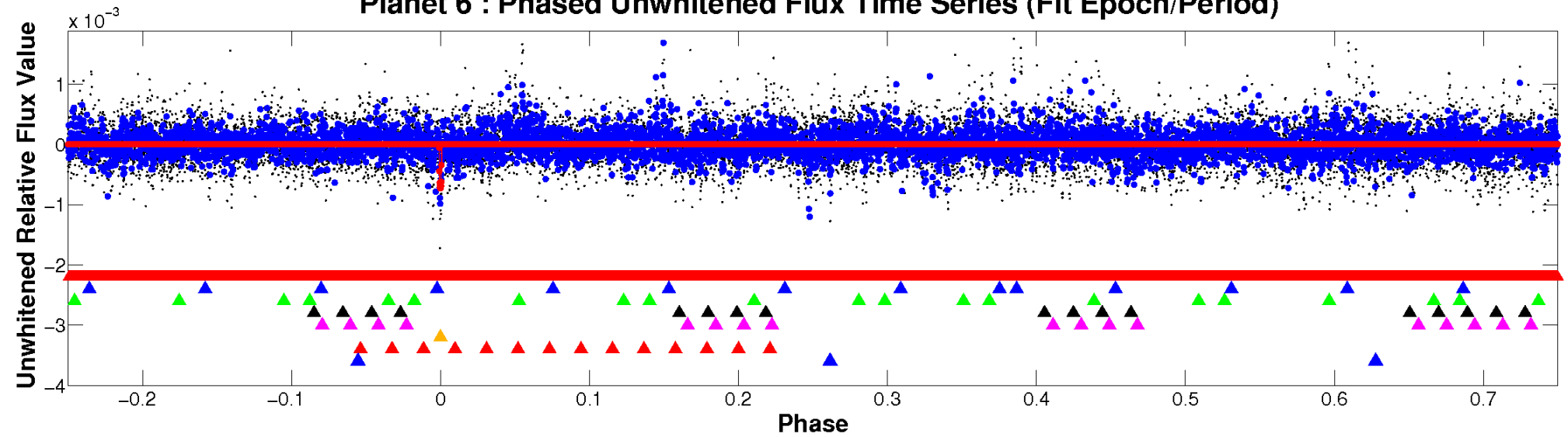
ALT Odd/Even

TCE 009649300-06

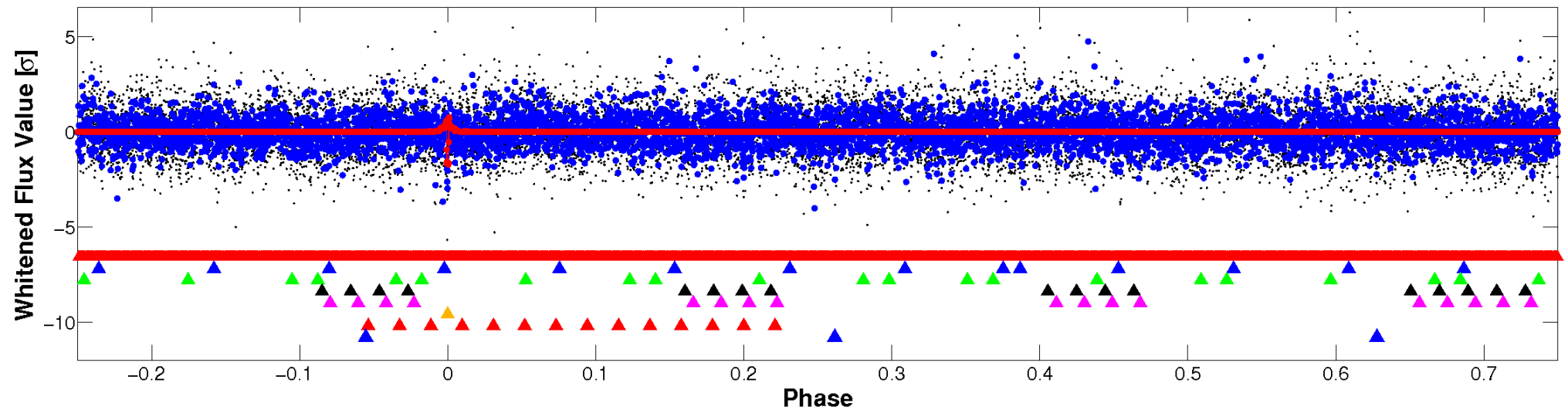


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

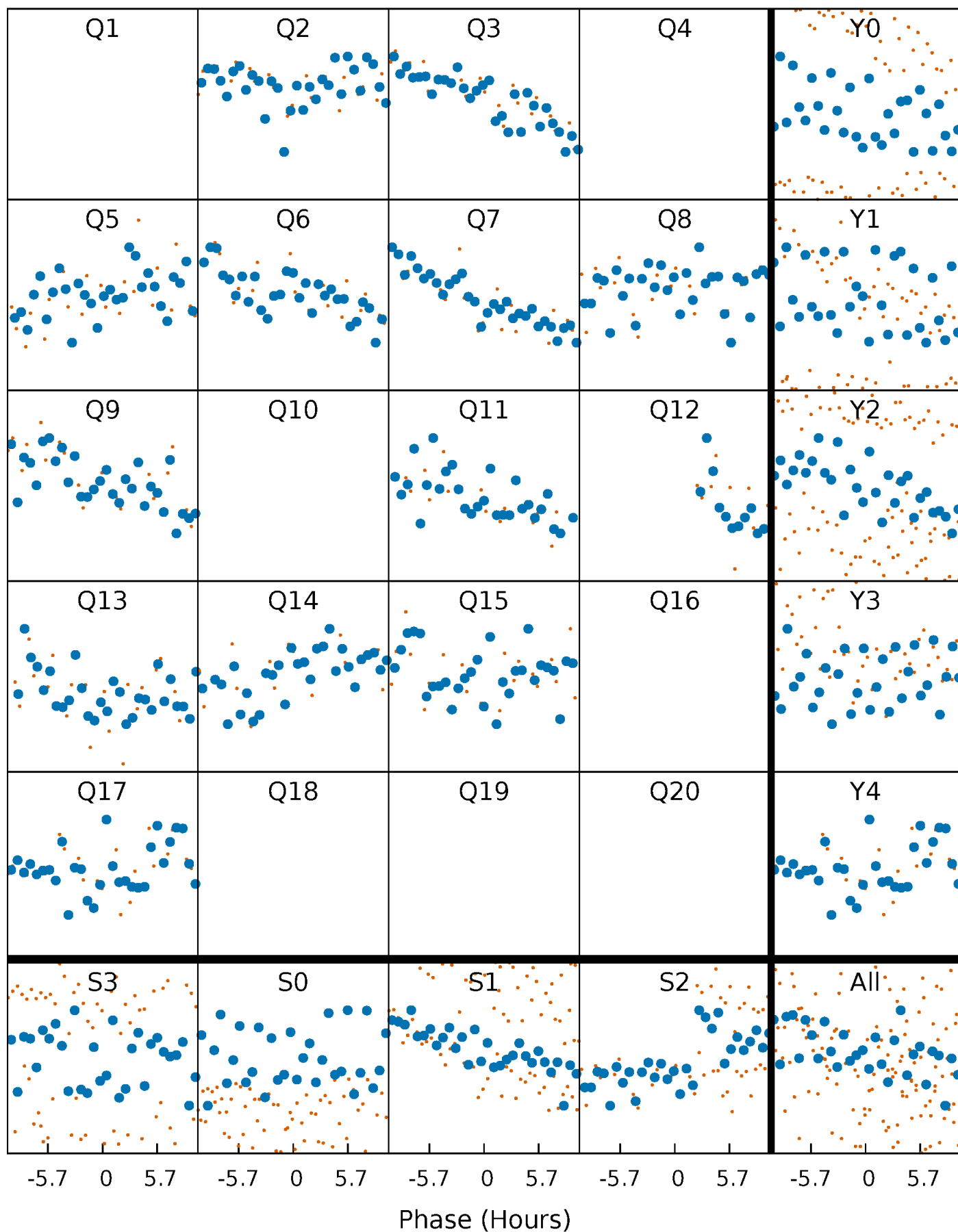


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



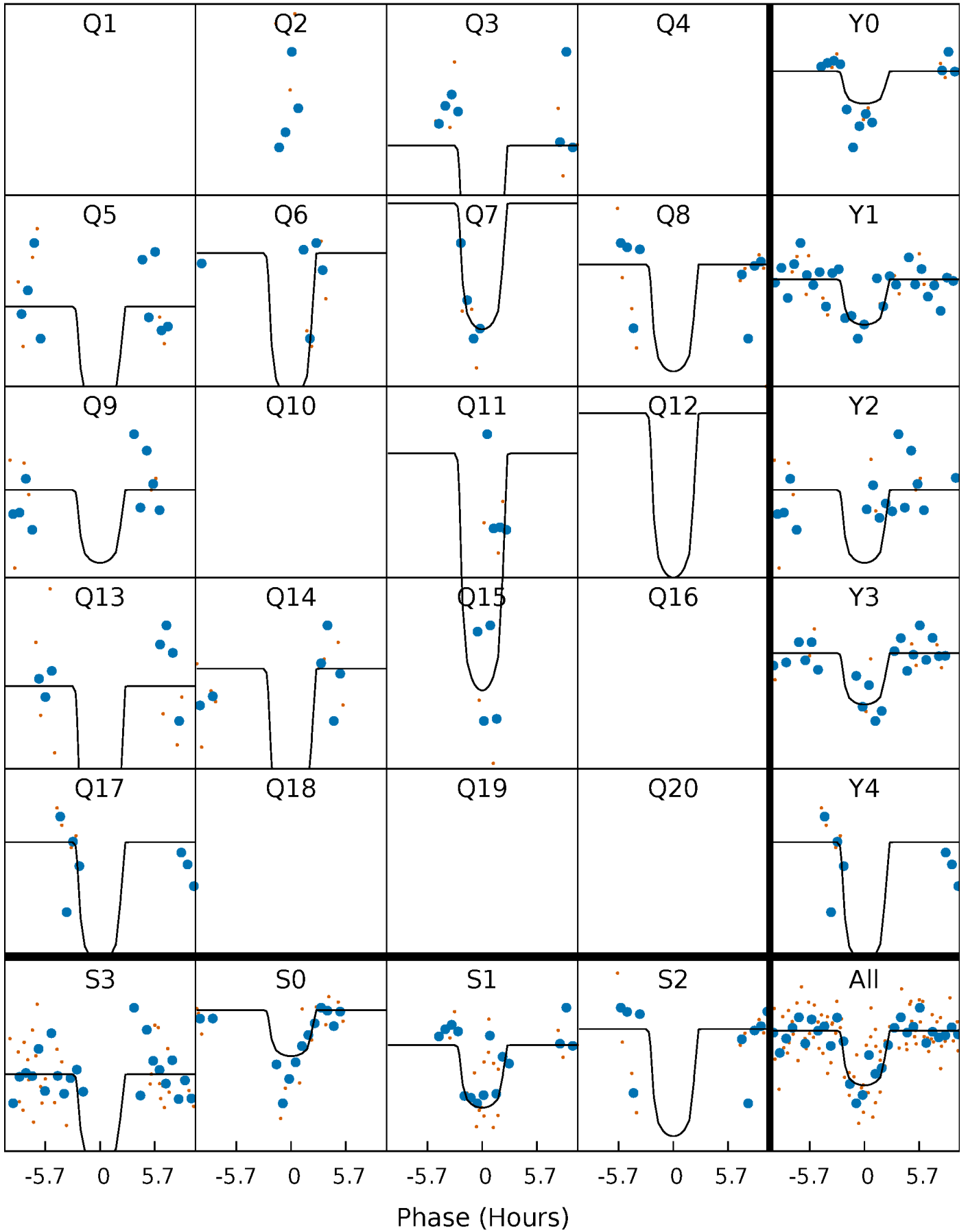
PDC Quarter-Phased Transit Curves

TCE 009649300-06 P=112.537603 Days $T_0=226.248360$ (BKJD)



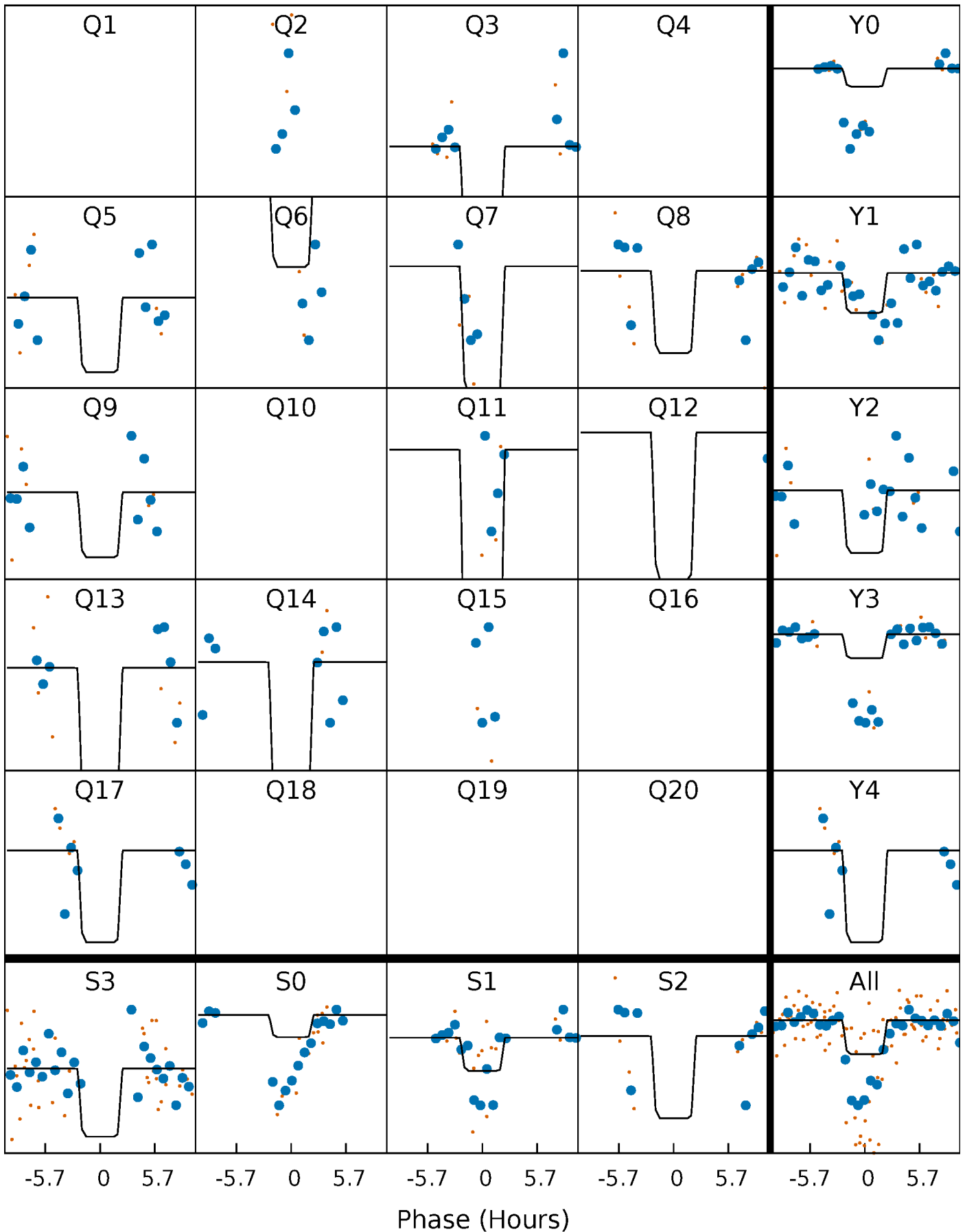
DV Quarter-Phased Transit Curves

TCE 009649300-06 P=112.537603 Days $T_0=226.248360$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

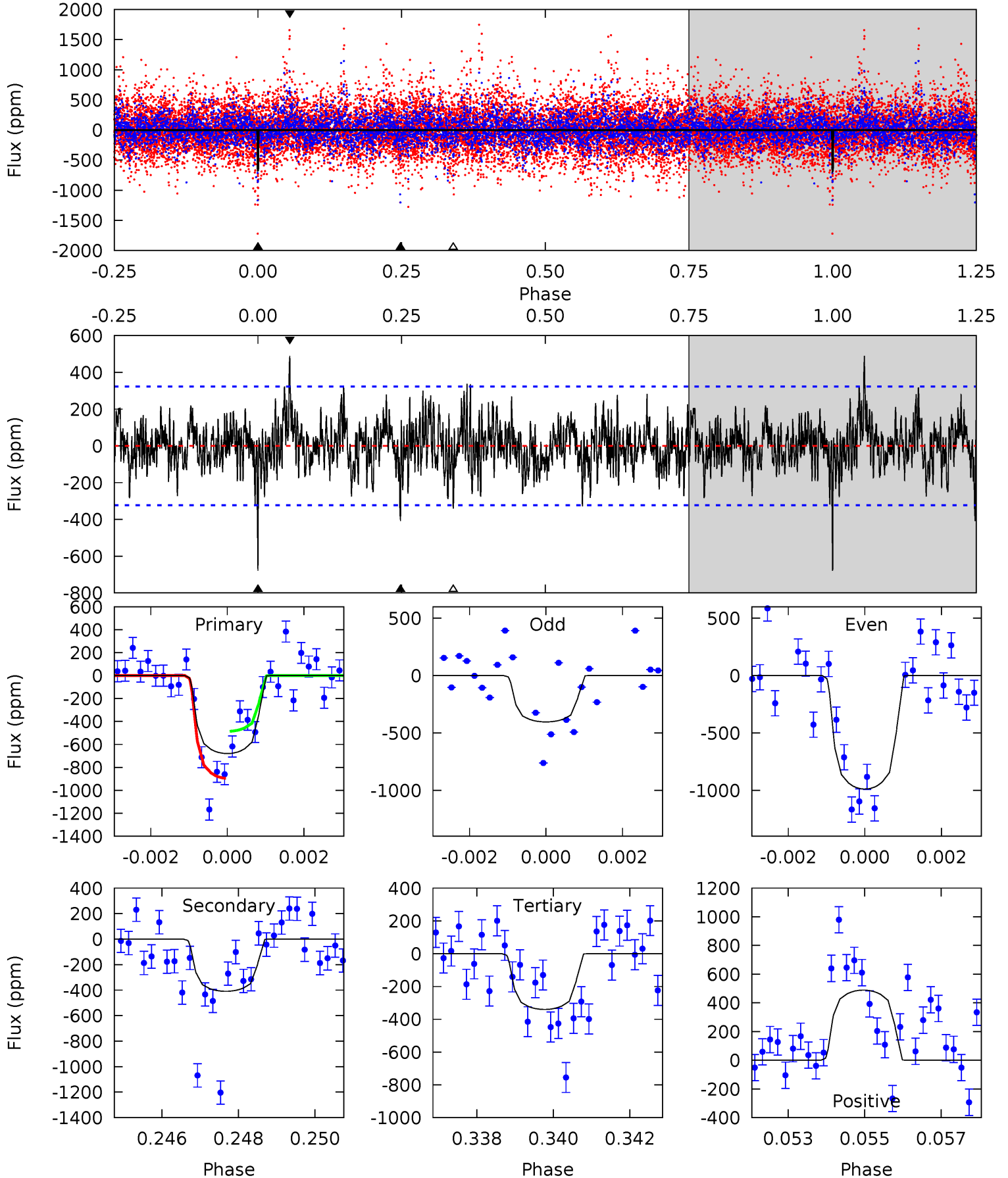
TCE 009649300-06 P=112.537039 Days $T_0=226.263116$ (BKJD)



DV Model-Shift Uniqueness Test

009649300-06, P = 112.537603 Days, E = 113.710757 Days

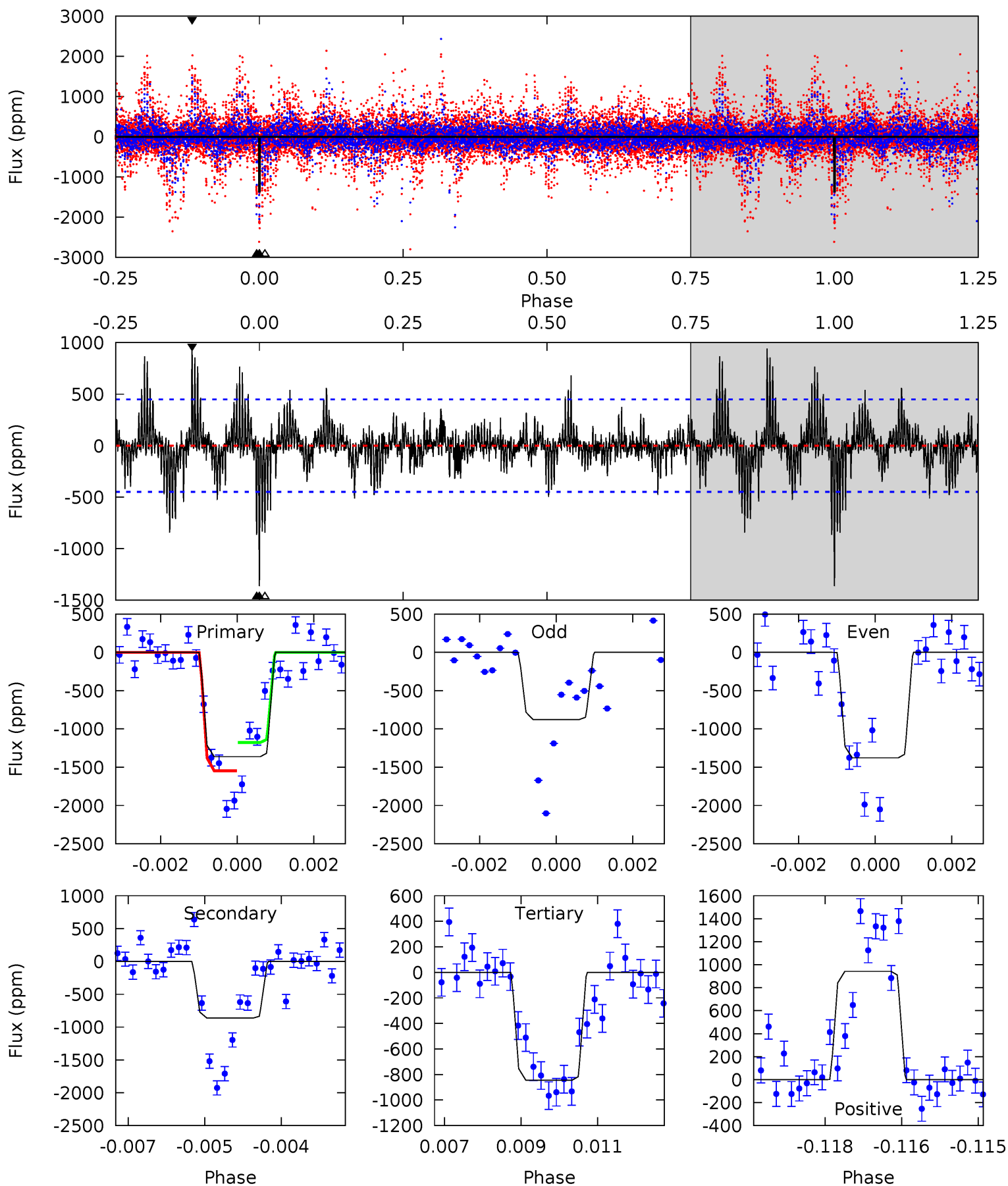
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 11.2 | 6.77 | 5.63 | 8.09 | 5.34 | 3.10 | 1.74 | 5.62 | 3.16 | 1.15 | -1.32 | 4.80 | 1.14 | 0.42 | 3.40 |



Alt Model-Shift Uniqueness Test

009649300-06, P = 112.537039 Days, E = 113.726077 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.2 | 10.3 | 10.1 | 11.2 | 5.35 | 3.13 | 2.02 | 6.17 | 5.01 | 0.22 | -0.93 | 2.82 | 1.20 | 0.41 | 2.21 |



Stellar Parameters For KIC 009649300

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5907^{+142}_{-178} | $4.547^{+0.036}_{-0.192}$ | $-0.260^{+0.300}_{-0.300}$ | $0.860^{+0.247}_{-0.077}$ | $0.951^{+0.107}_{-0.119}$ | $2.103^{+0.408}_{-1.075}$ |
| | +2%/-3% | +1%/-4% | +115%/-115% | +29%/-9% | +11%/-13% | +19%/-51% |
| 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 009649300-06 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|----------------------|-----------------------|--------------------------|
| DV | -409 ± 60 | $2.78^{+0.87}_{-0.74}$ | 515^{+32}_{-22} | 5059^{+763}_{-500} | 5699^{+5379}_{-2290} |
| Alt. | -863 ± 84 | $2.46^{+0.81}_{-0.76}$ | 517^{+30}_{-21} | 6452^{+1379}_{-834} | 15576^{+16275}_{-6811} |

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 $A_{\text{obs}} \gg 1.0$

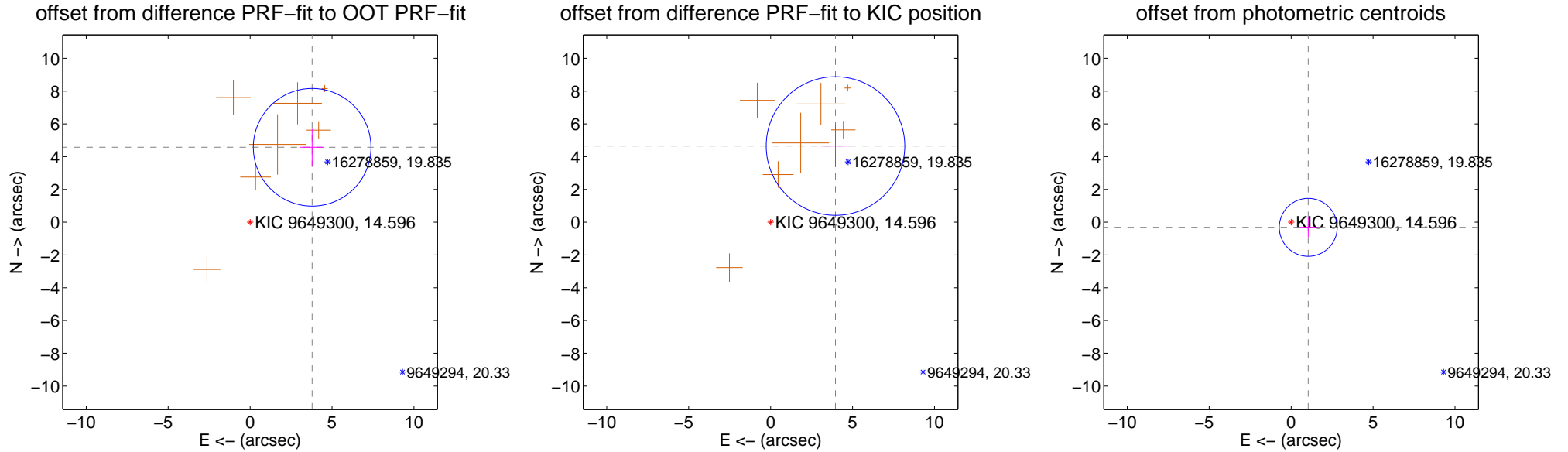
DV Centroid Data

Supplemental centroid analysis for 009649300-06. Kepler magnitude: 14.60. Transit SNR 7.85

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

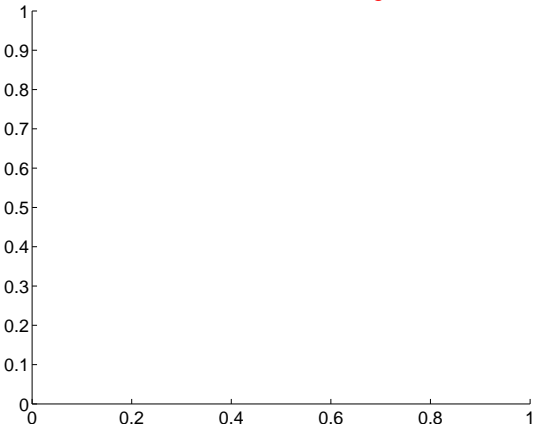
| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 5.938 ± 1.197 | 4.96 | -3.787 ± 0.728 | 4.573 ± 1.125 |
| PRF-fit source offset from KIC position | 6.108 ± 1.410 | 4.33 | -3.959 ± 0.887 | 4.651 ± 1.273 |
| photometric centroid source offset | 1.09 ± 0.59 | 1.85 | -1.04 ± 0.59 | -0.31 ± 0.59 |



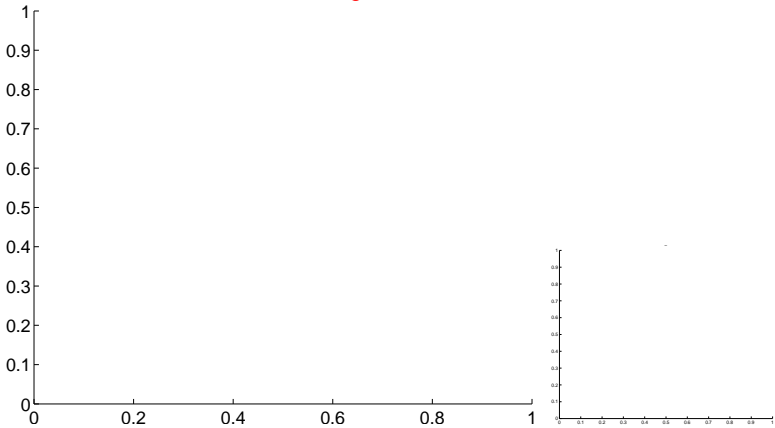
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

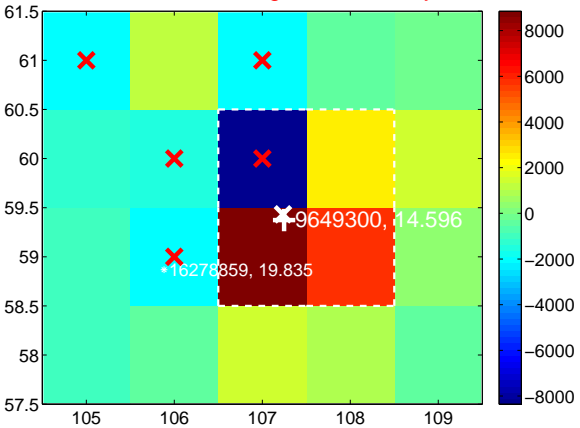
Q1 no difference image



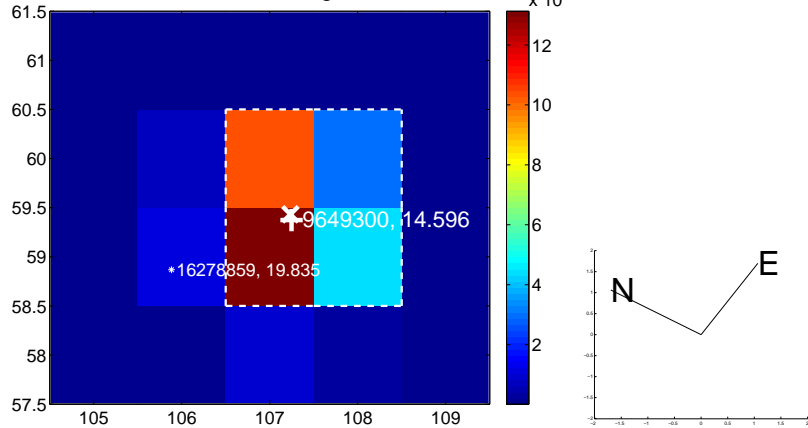
Q1 no OOT image



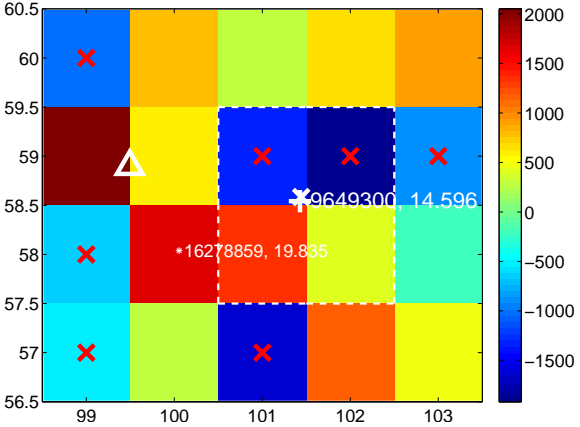
Q2 difference image. Poor Quality



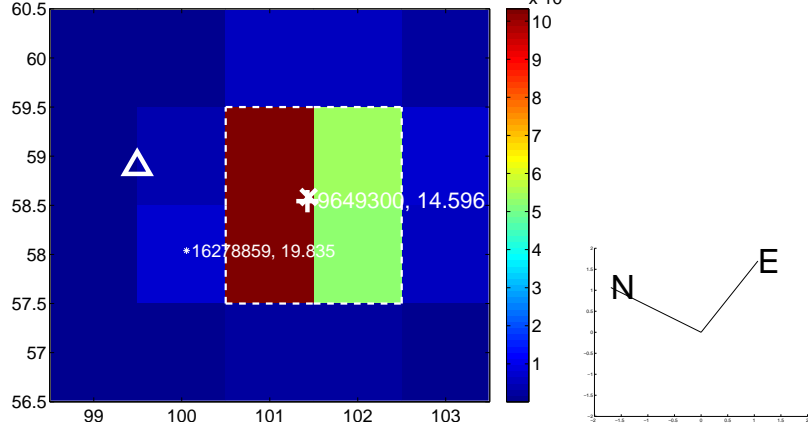
Q2 OOT image



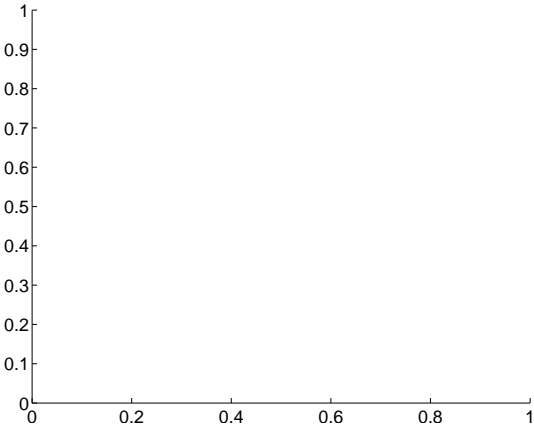
Q3 difference image. Poor Quality



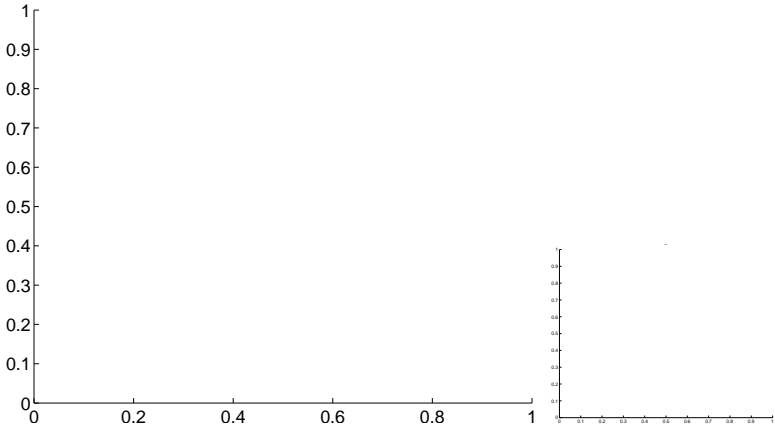
Q3 OOT image



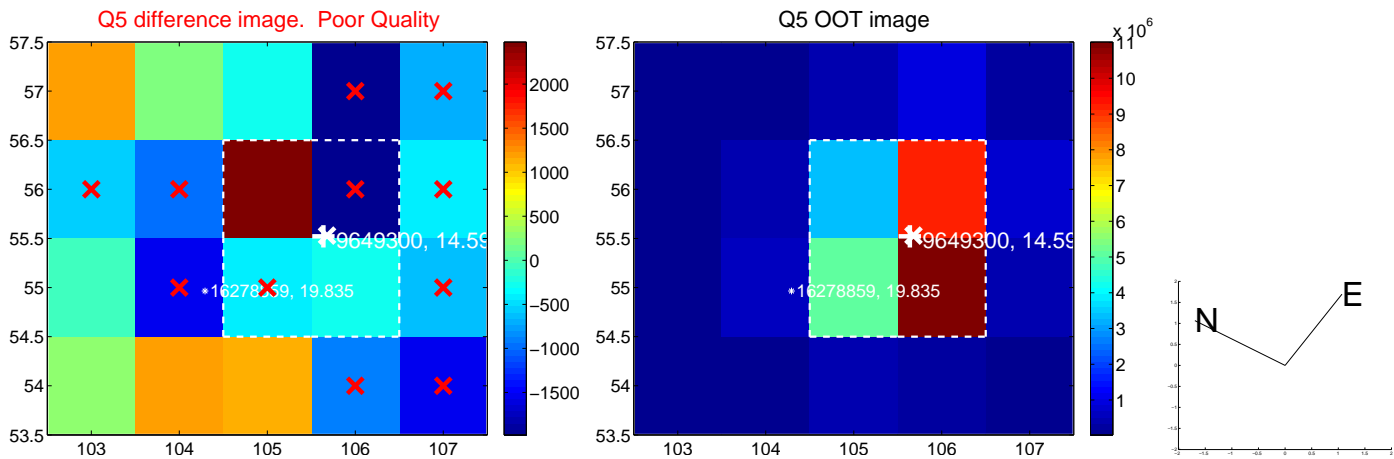
Q4 no difference image



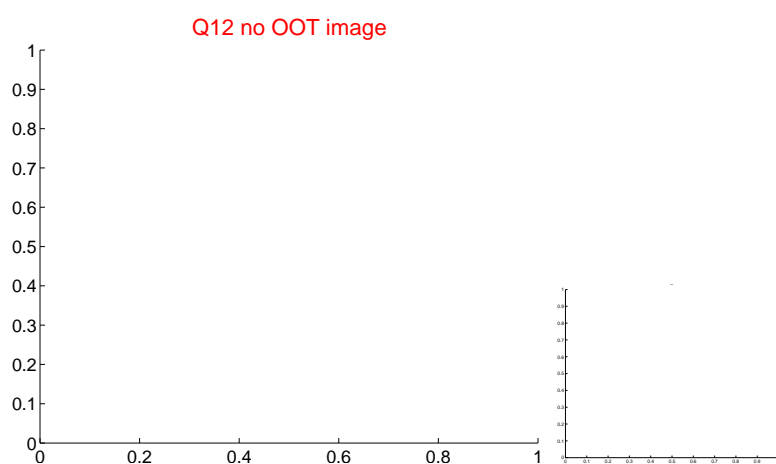
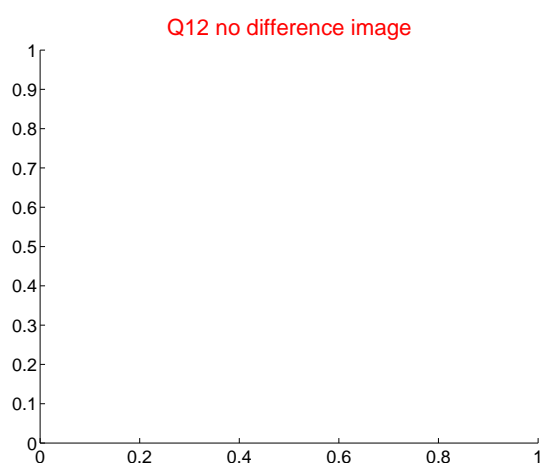
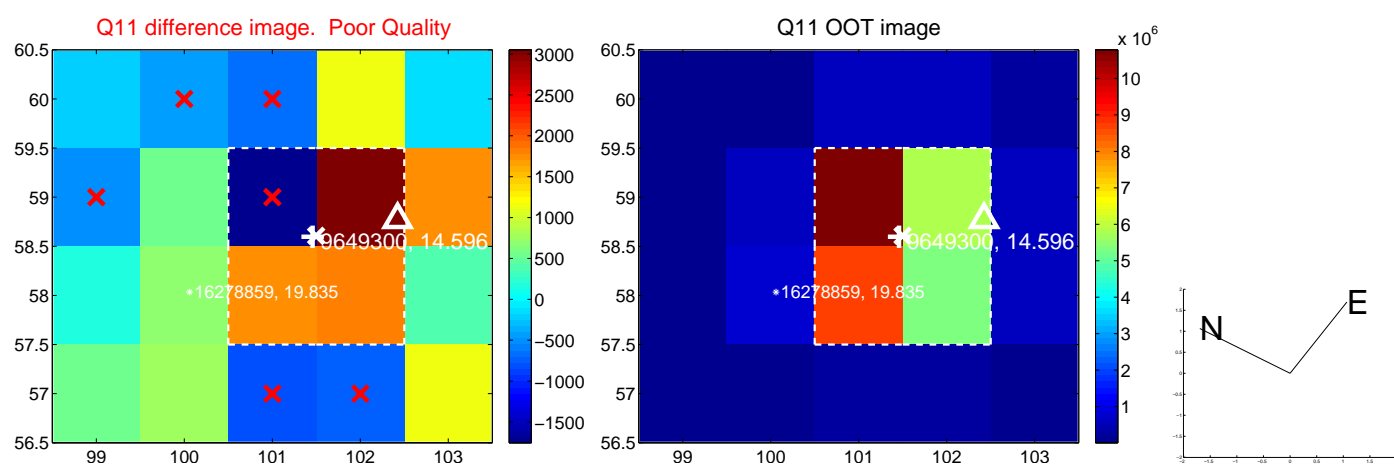
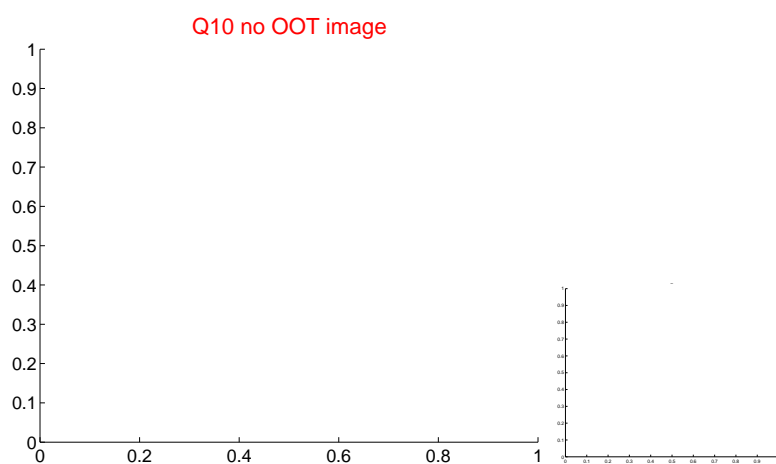
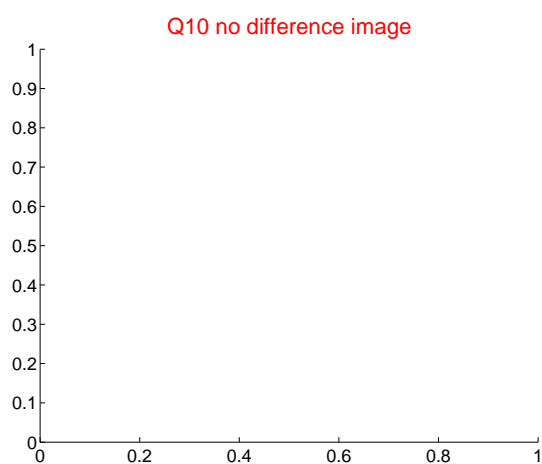
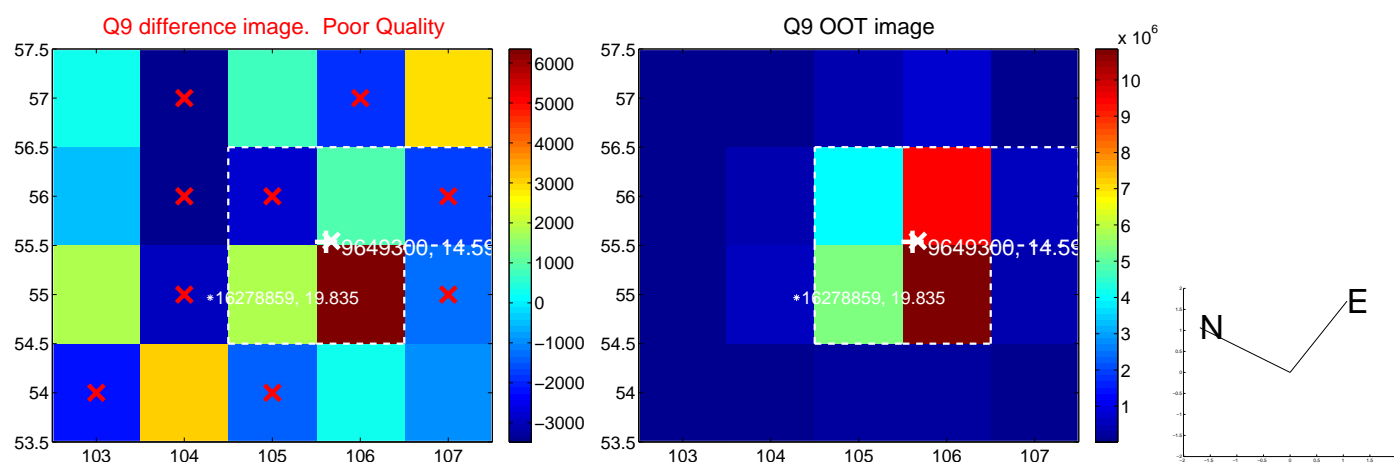
Q4 no OOT image



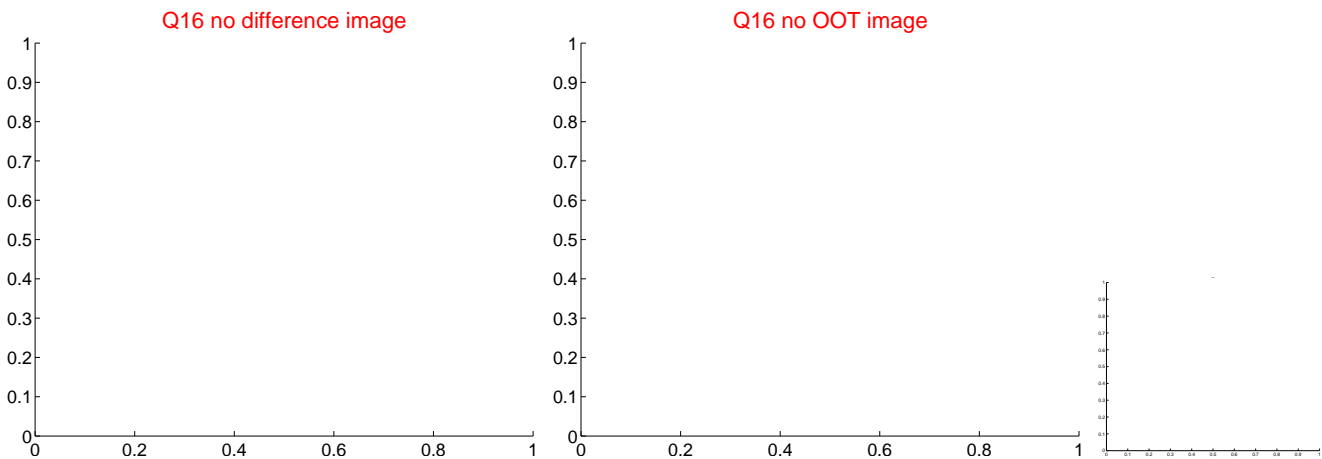
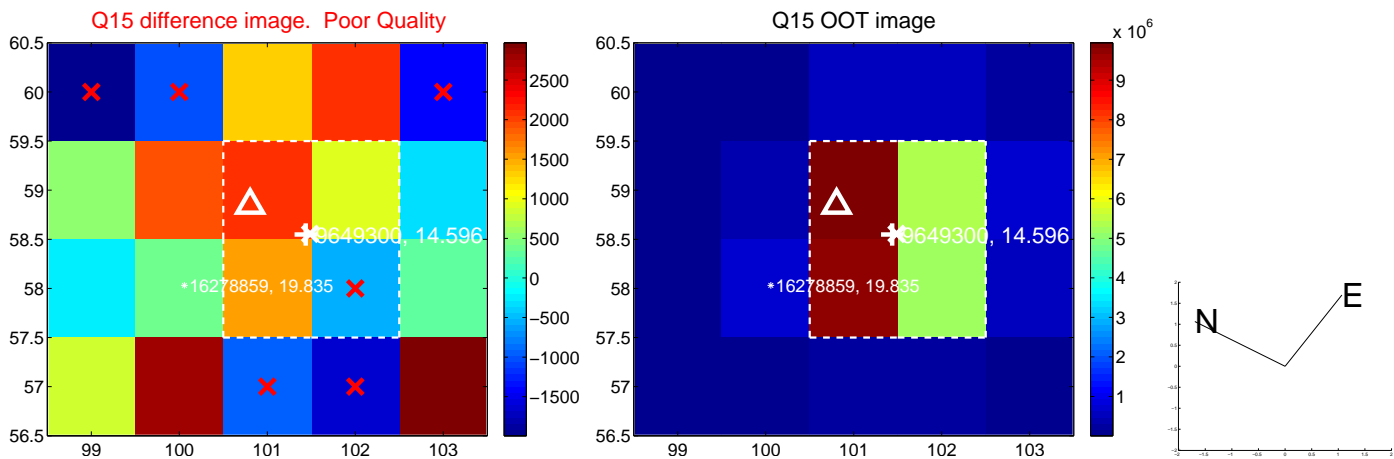
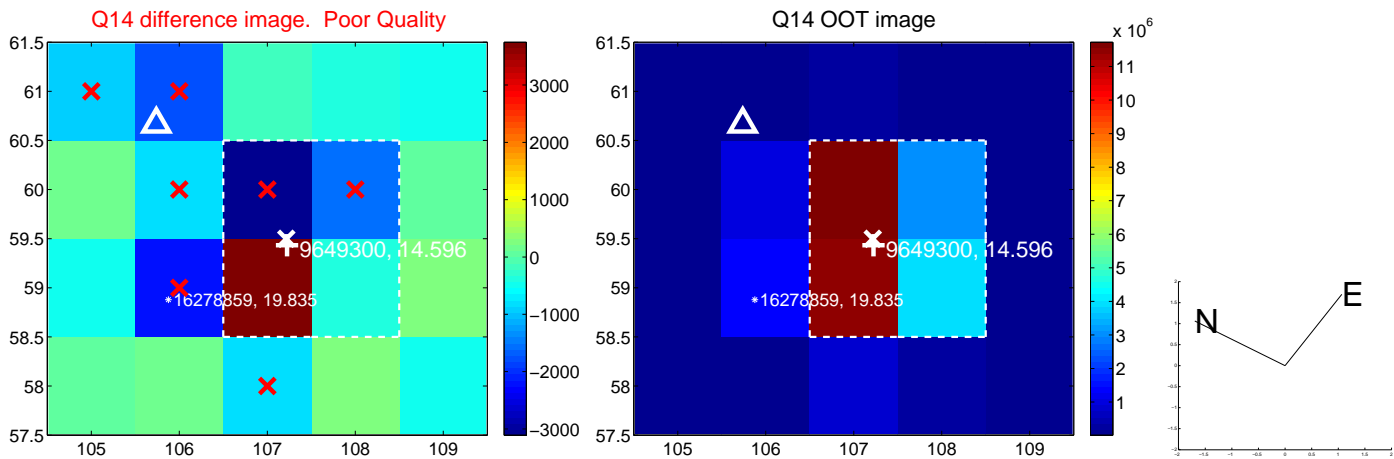
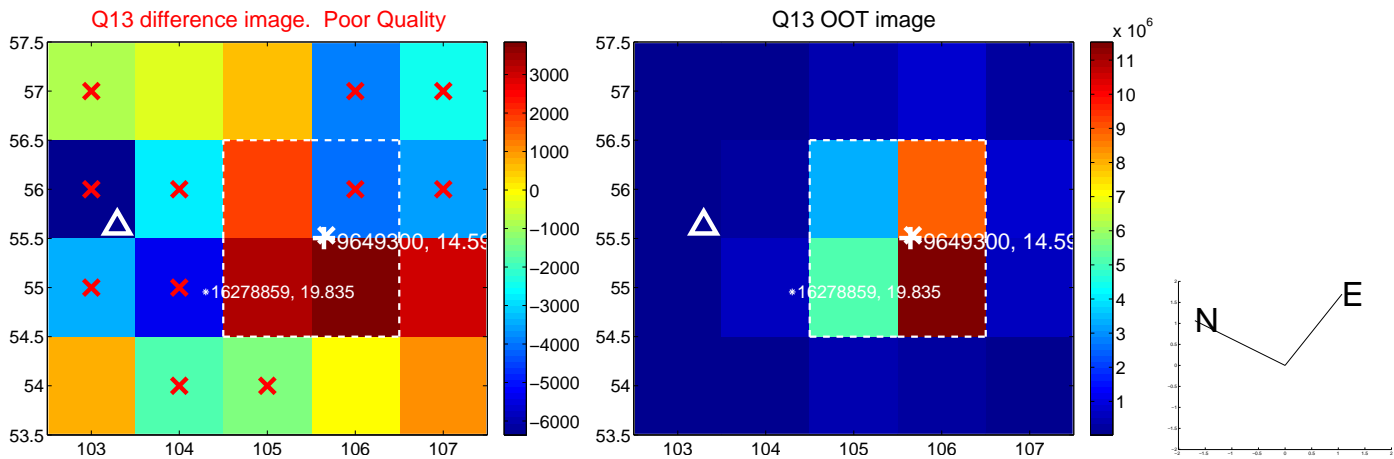
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



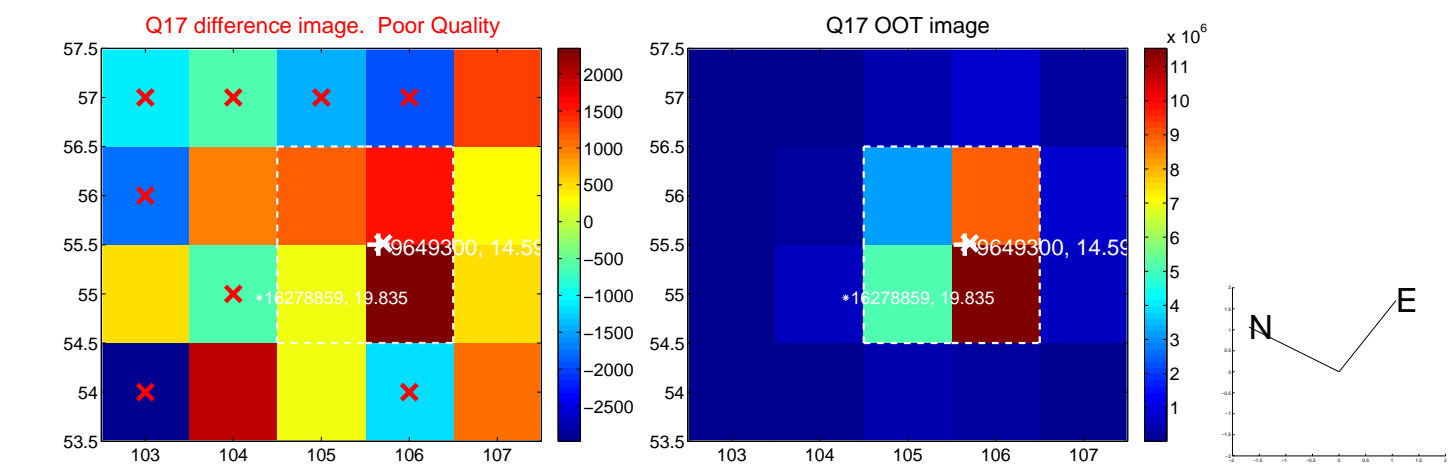
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



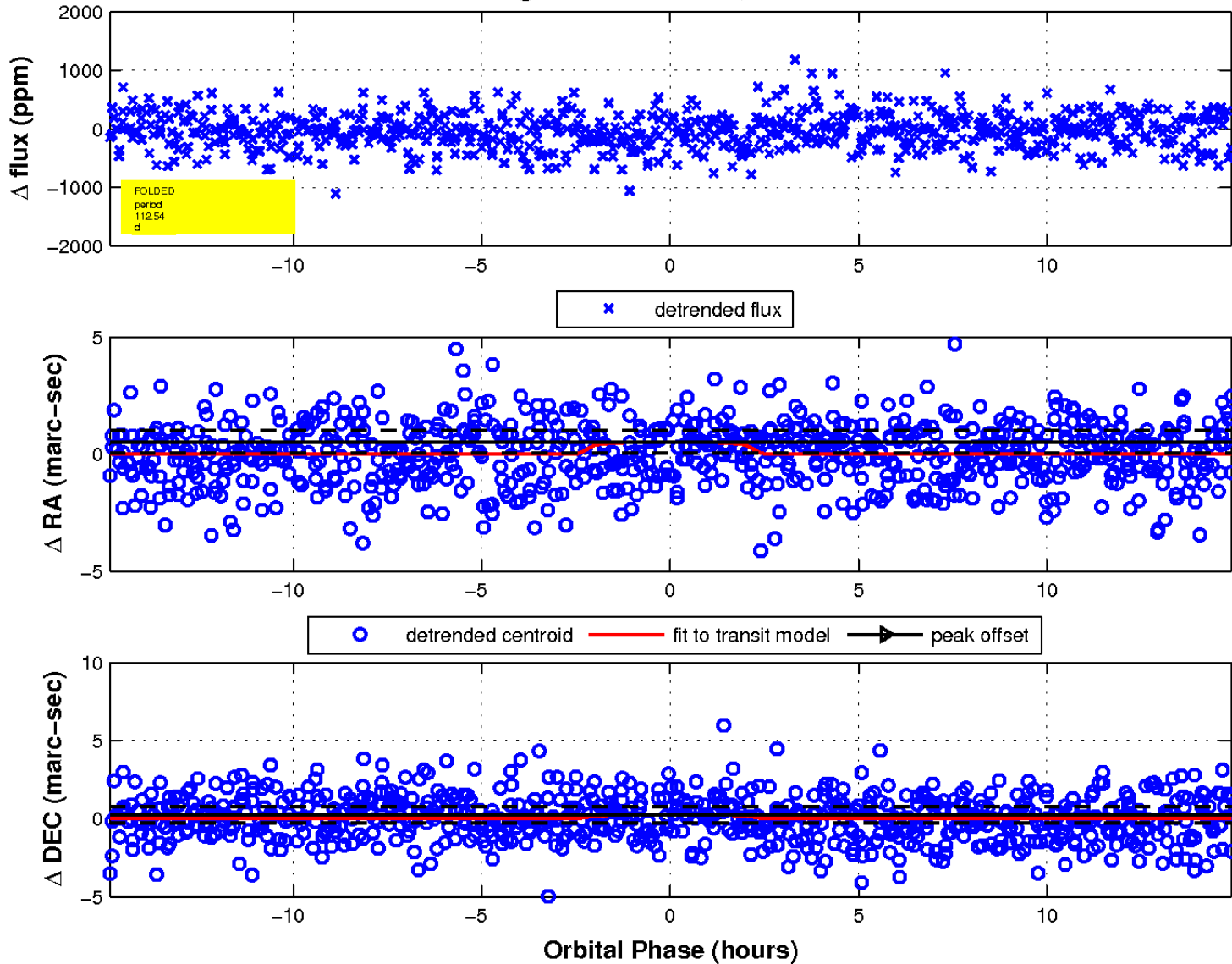
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

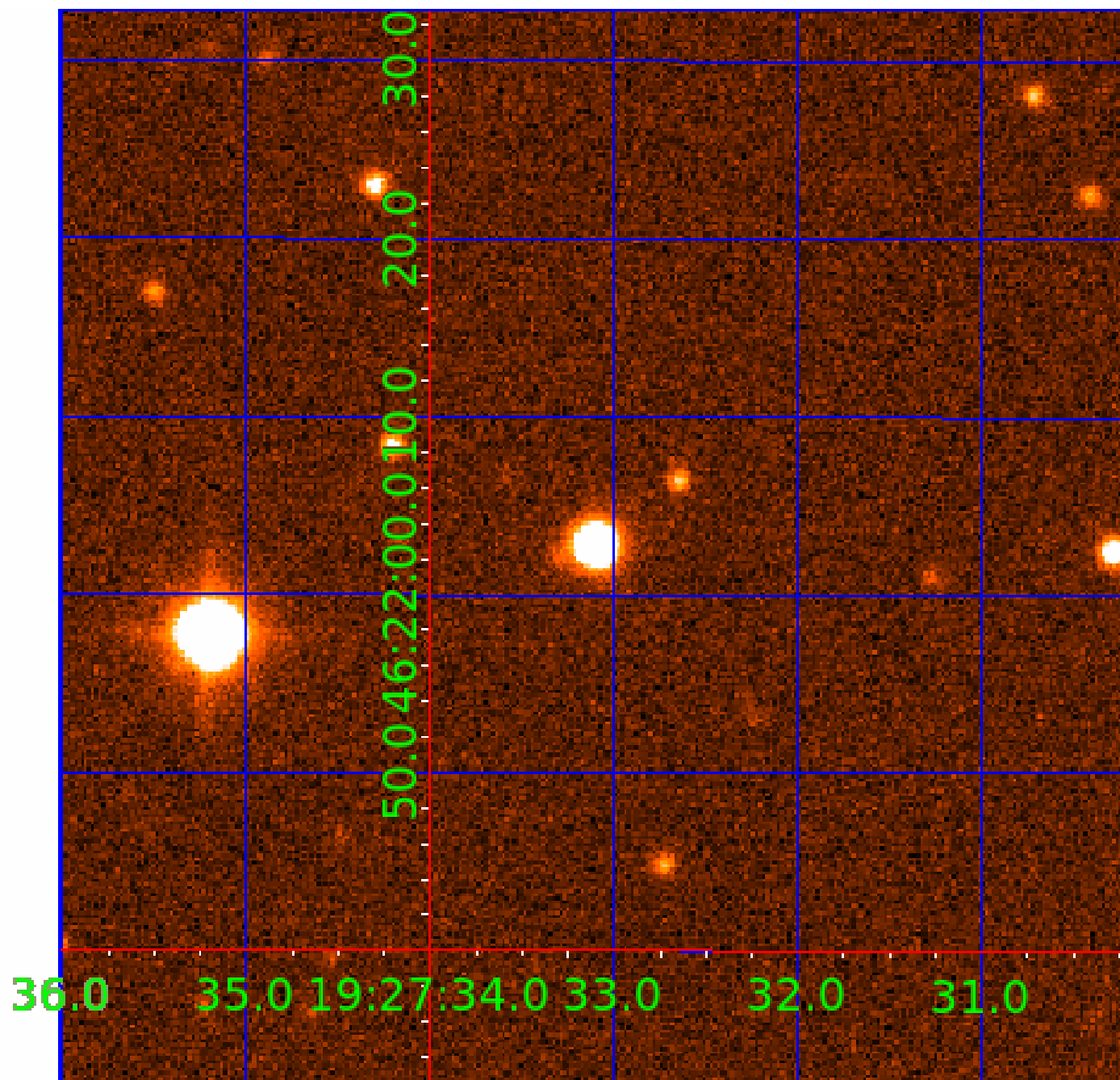


fluxWeightedCentroids, Planet 6 of 8



UKIRT Image

Declination



KIC 009649300

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009649300-01 | OBS | No | 0.548248 | 131.663199 | 17.5 | 3.250 | 9.0 | 5.4 | 0.86 | 5907 | 0.36 | 4853.54 |
| 009649300-03 | OBS | No | 69.103439 | 190.704243 | 661.1 | 3.850 | 11.0 | 8.3 | 0.86 | 5907 | 3.45 | 7.68 |
| 009649300-06 | OBS | No | 112.537602 | 226.248360 | 730.9 | 4.972 | 10.0 | 7.9 | 0.86 | 5907 | 2.67 | 4.01 |
| 009649300-07 | OBS | No | 110.158780 | 138.598961 | 408.4 | 3.236 | 8.7 | 4.2 | 0.86 | 5907 | 1.84 | 4.12 |
| 009649300-08 | OBS | No | 414.487765 | 368.220164 | 530.1 | 3.500 | 8.6 | -1.0 | 0.86 | 5907 | 1.97 | 0.70 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009649300-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 009649300-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST |
| 009649300-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 009649300-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS |
| 009649300-08 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—NO_FITS—CENT_NOFITS |

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

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

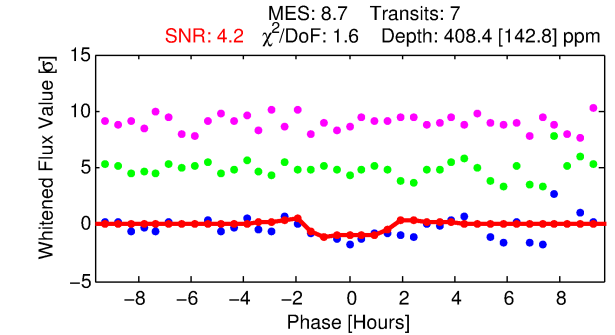
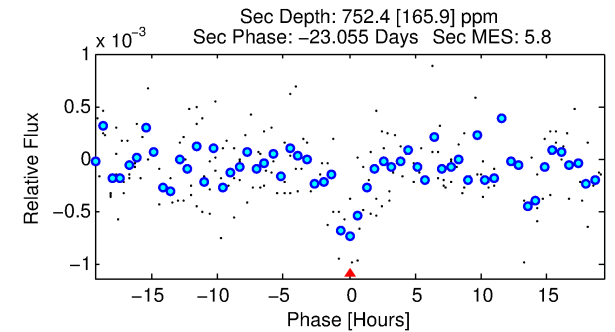
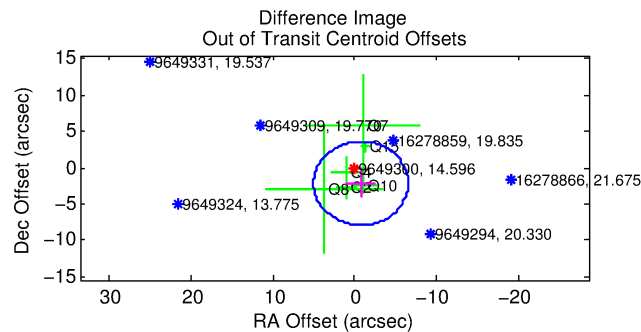
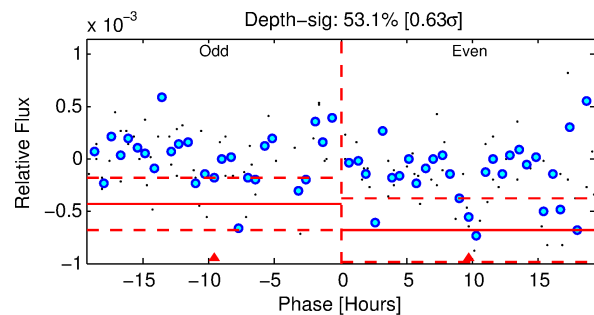
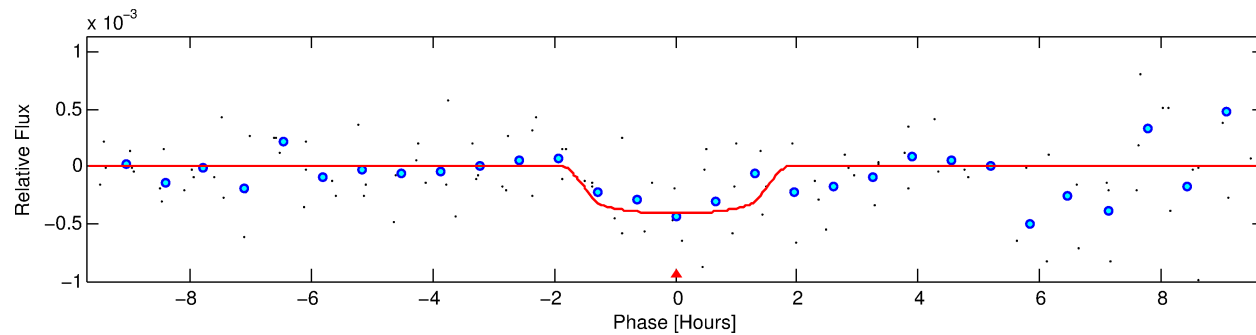
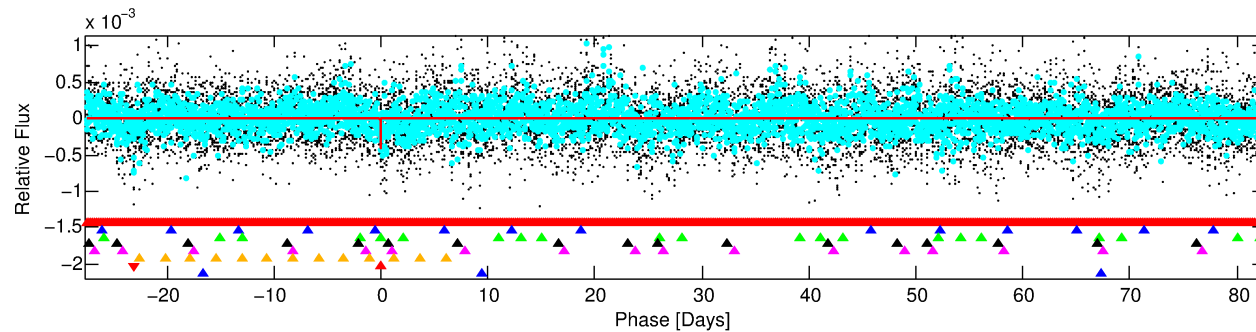
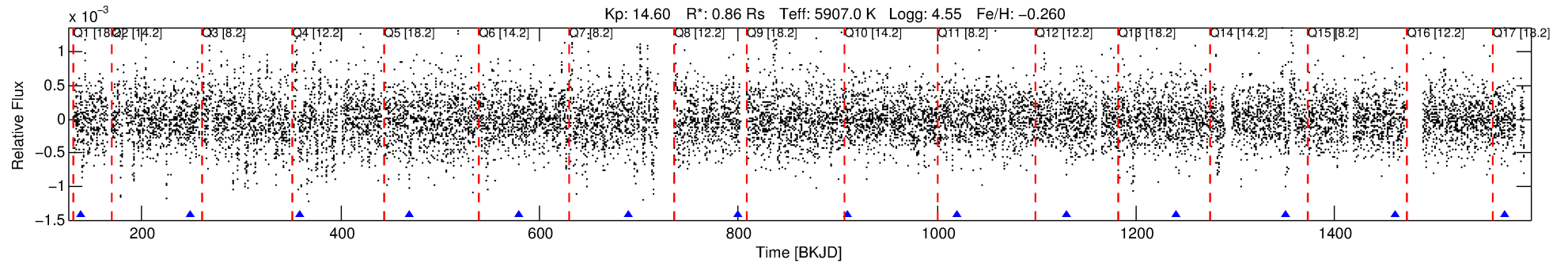
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009649300-07

No Significant Match Found

DV One-Page Summary

KIC: 9649300 Candidate: 7 of 8 Period: 110.159 d



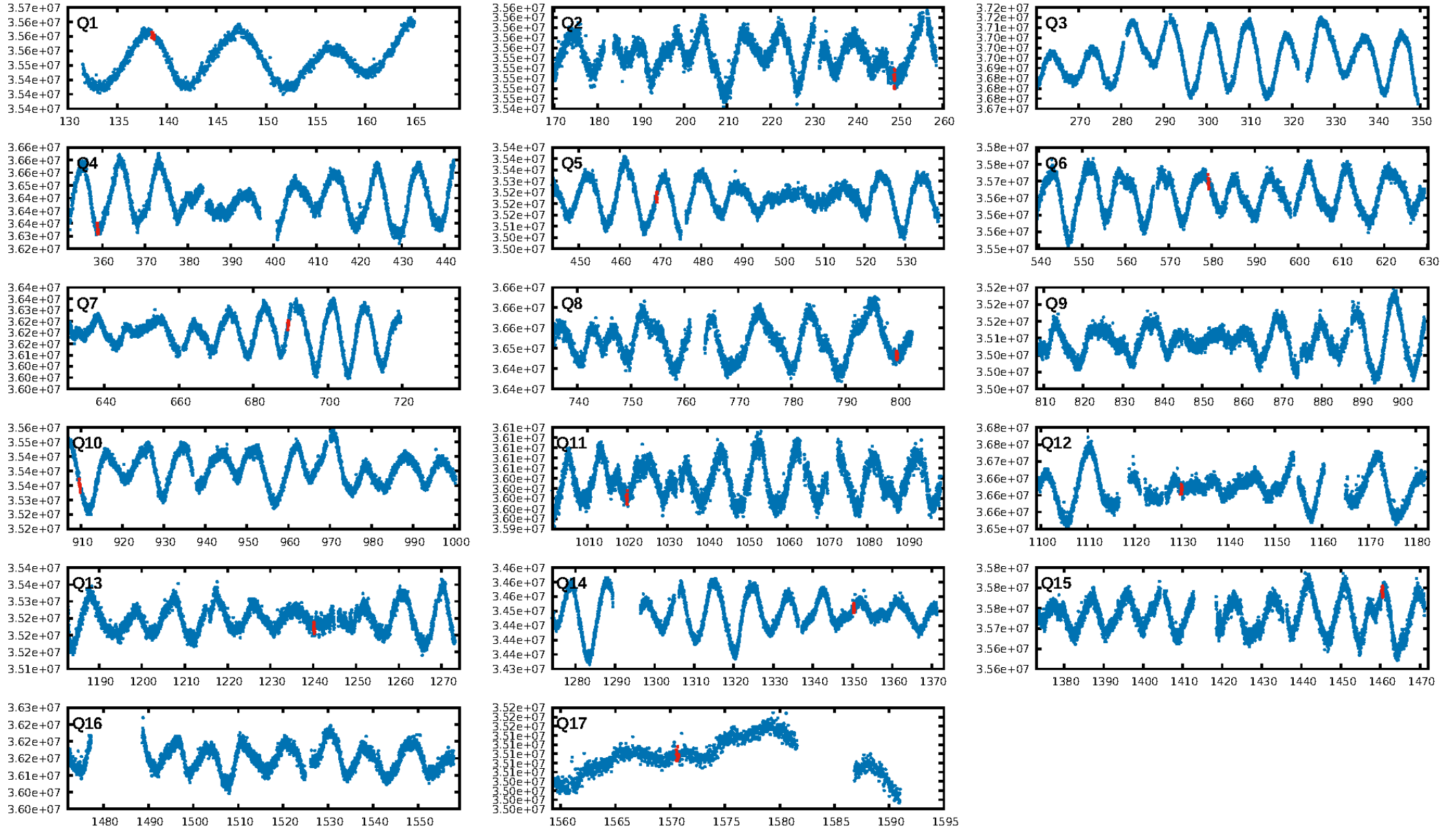
DV Fit Results:

Period = 110.15878 [0.00732] d
Epoch = 138.5990 [0.0239] BKJD
Rp/R* = 0.0197 [0.0787]
a/R* = 198.95 [3759.39]
b = 0.67 [15.61]
Seff = 4.12 [1.53]
Teq = 363 [34] K
Rp = 1.84 [7.40] Re
a = 0.4423 [0.1069] AU
Ag = 23789.70 [190623.74] [0.12 σ]
Teffp = 6977 [13966] K [0.47 σ]

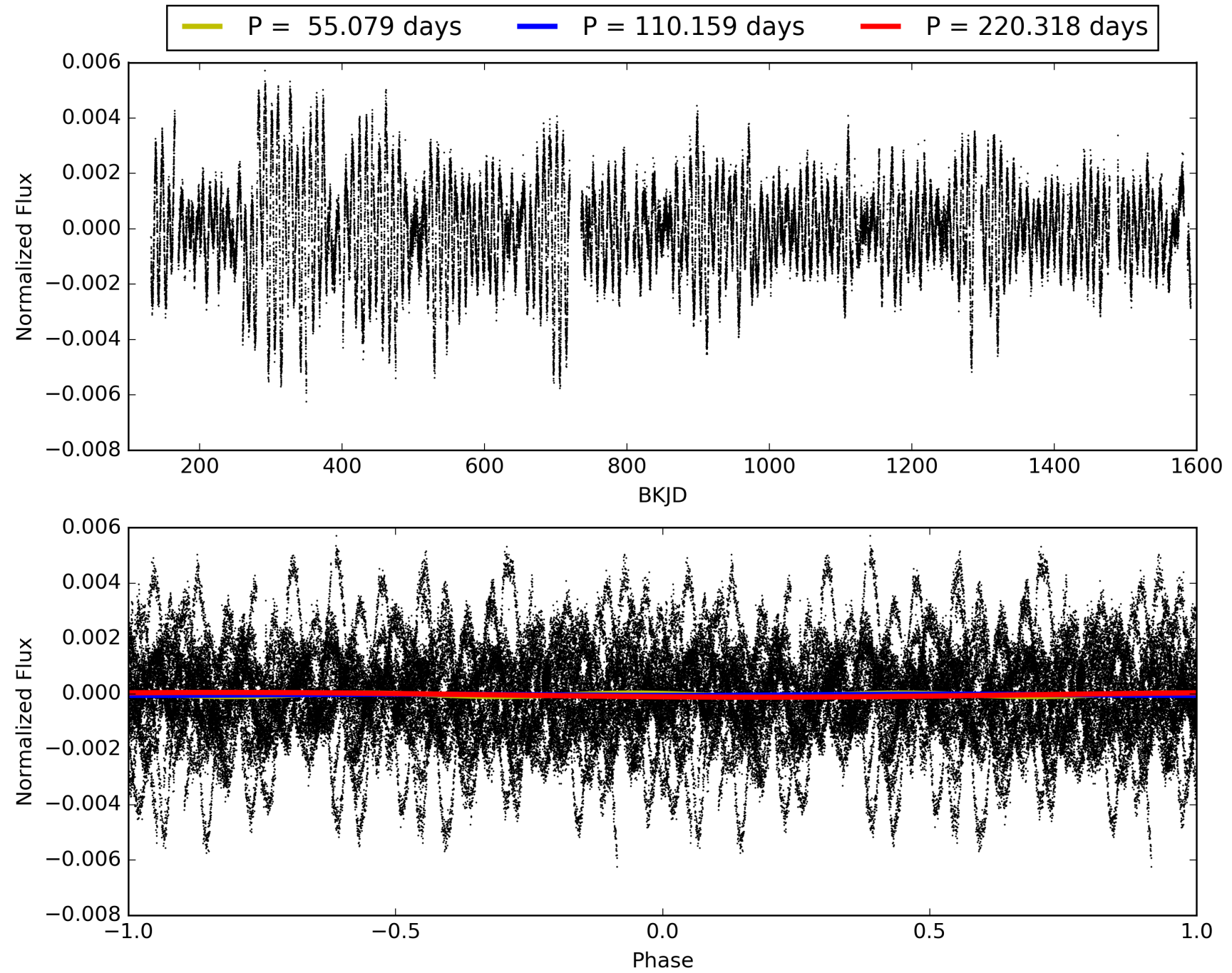
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [44.73 σ]
LongPeriod-sig: 100.0% [9.62 σ]
ModelChiSquare2-sig: 14.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.63e-11
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1.045
Centroid-sig: 0.1%
Centroid-so: 2.488 arcsec [2.23 σ]
OotOffset-rm: 2.288 arcsec [1.19 σ]
KicOffset-rm: 2.396 arcsec [1.25 σ]
OotOffset-st: 2/2/2/0 [6]
KicOffset-st: 2/2/2/0 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.00 [0/13]

TCE 009649300-07, PDC Light Curves

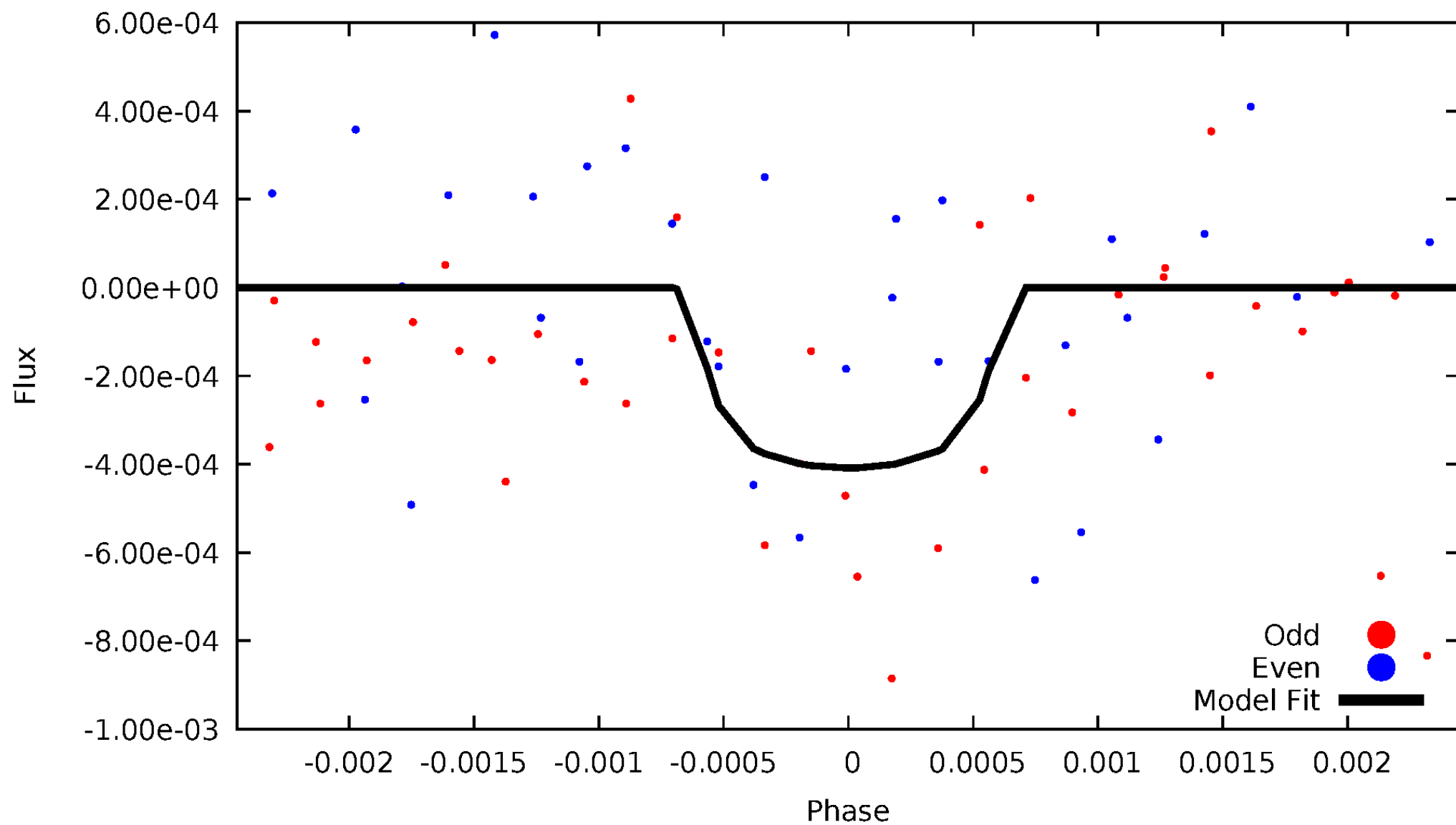


TCE 009649300-07



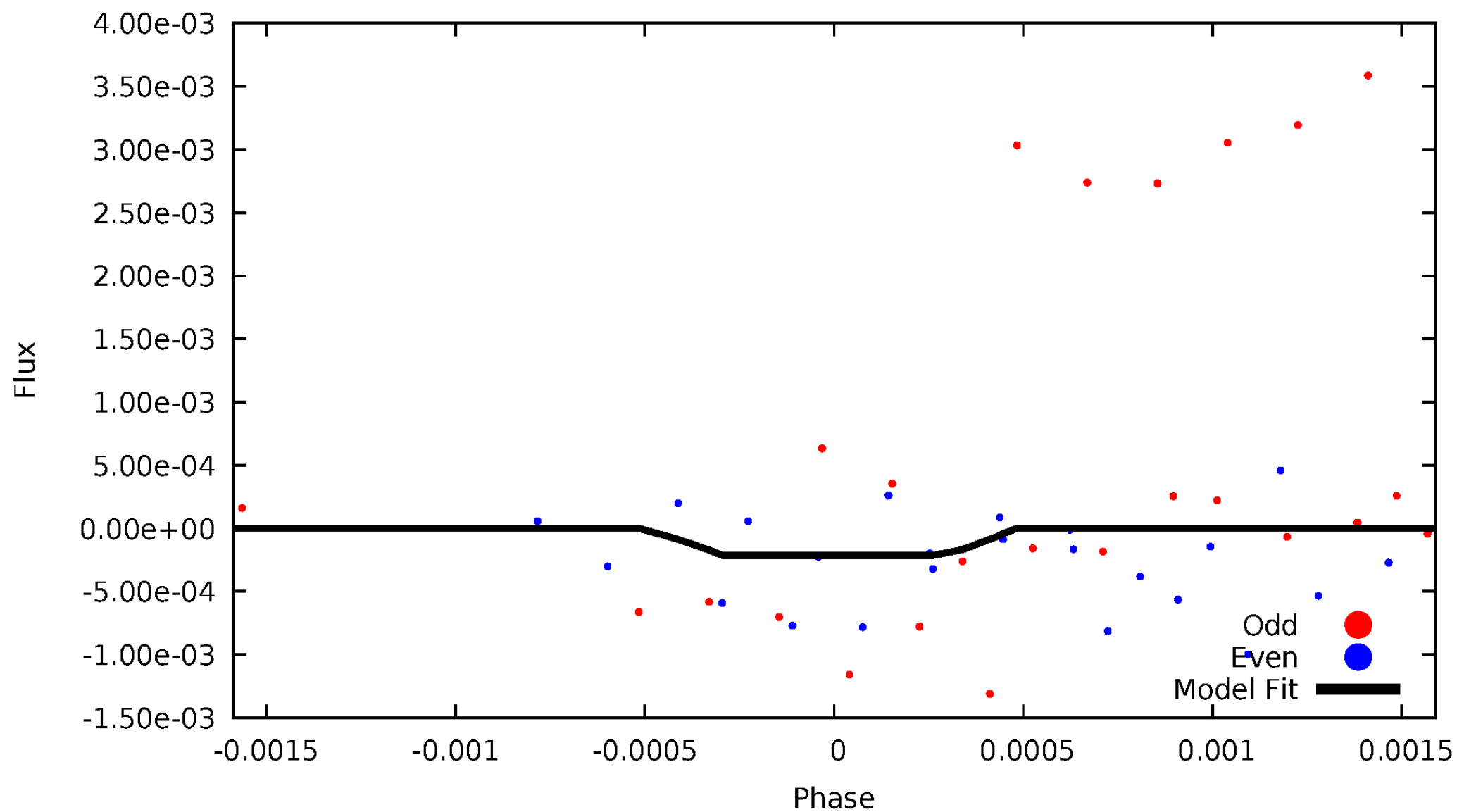
DV Odd/Even

TCE 009649300-07



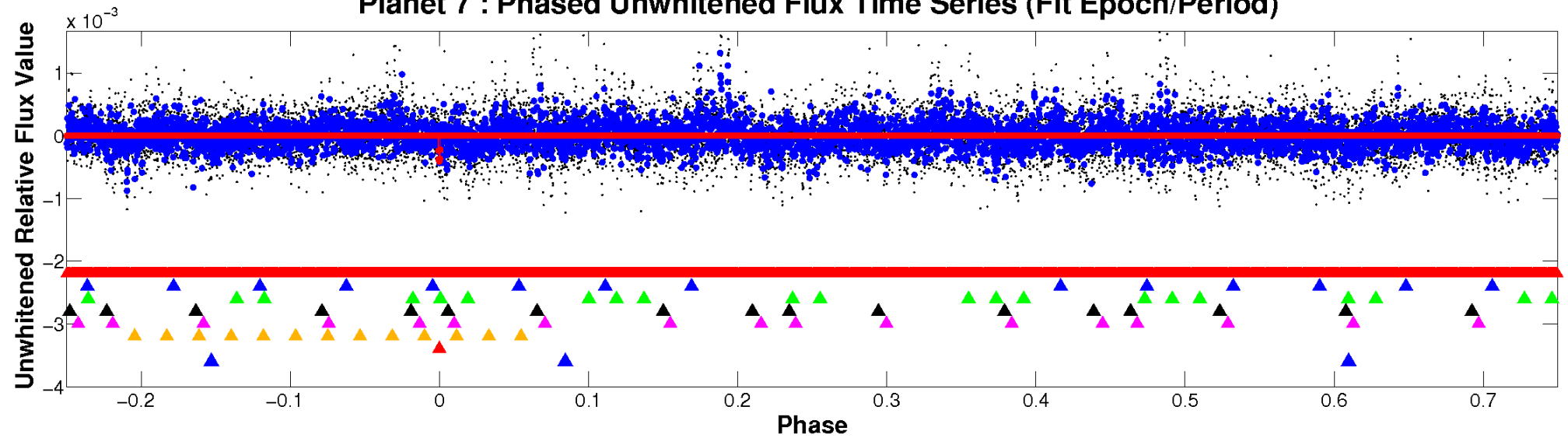
ALT Odd/Even

TCE 009649300-07

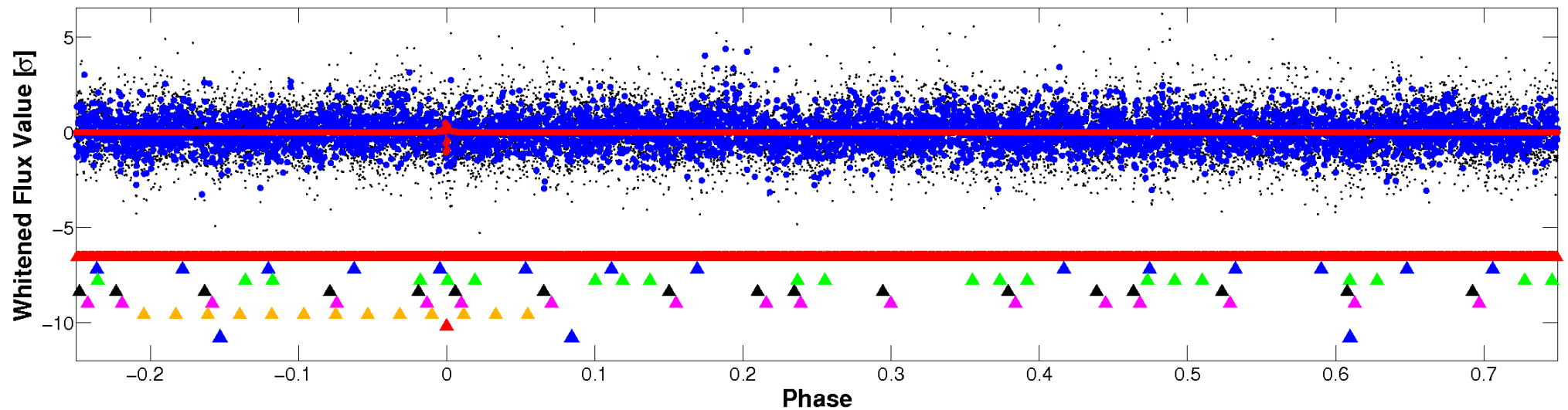


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

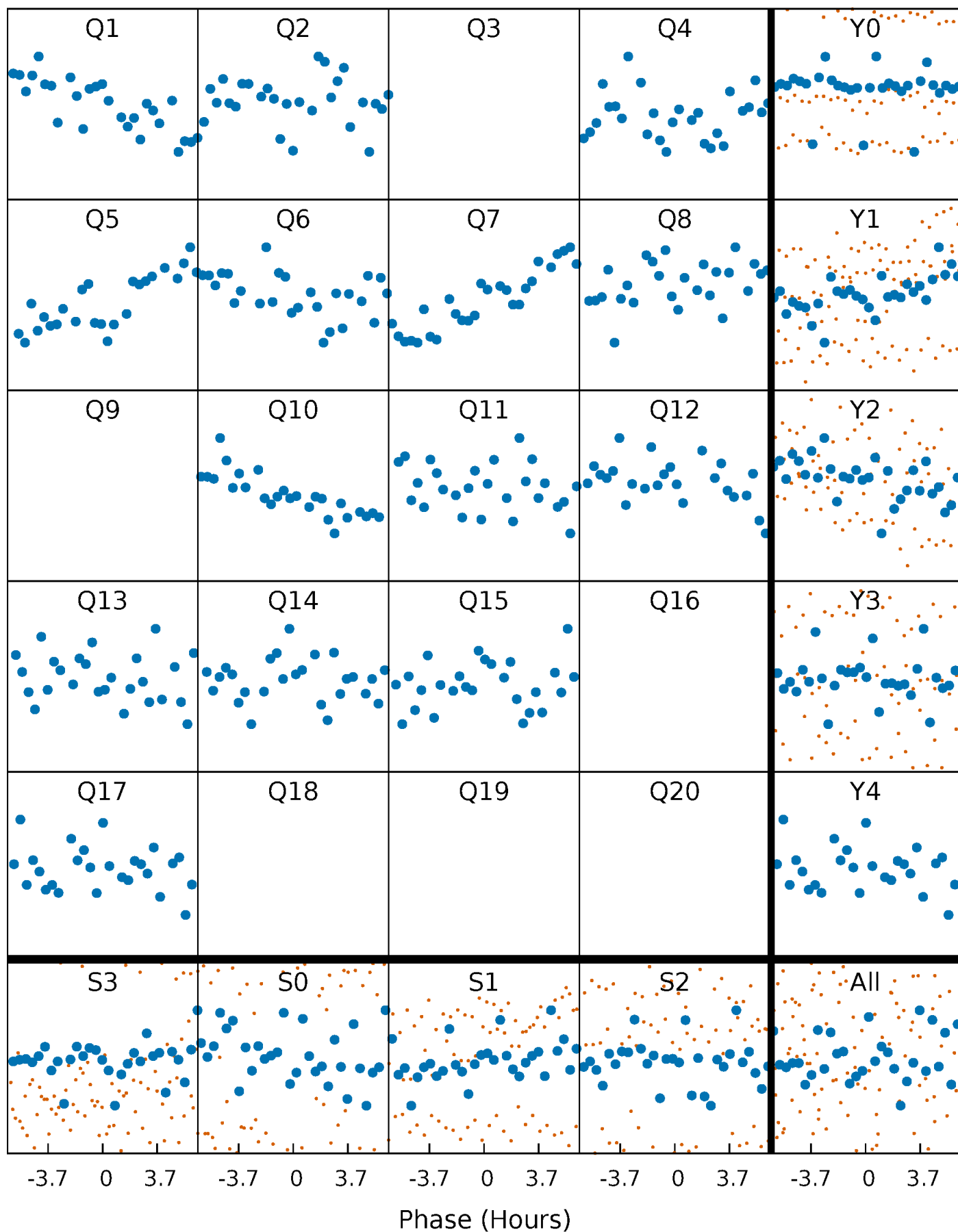


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



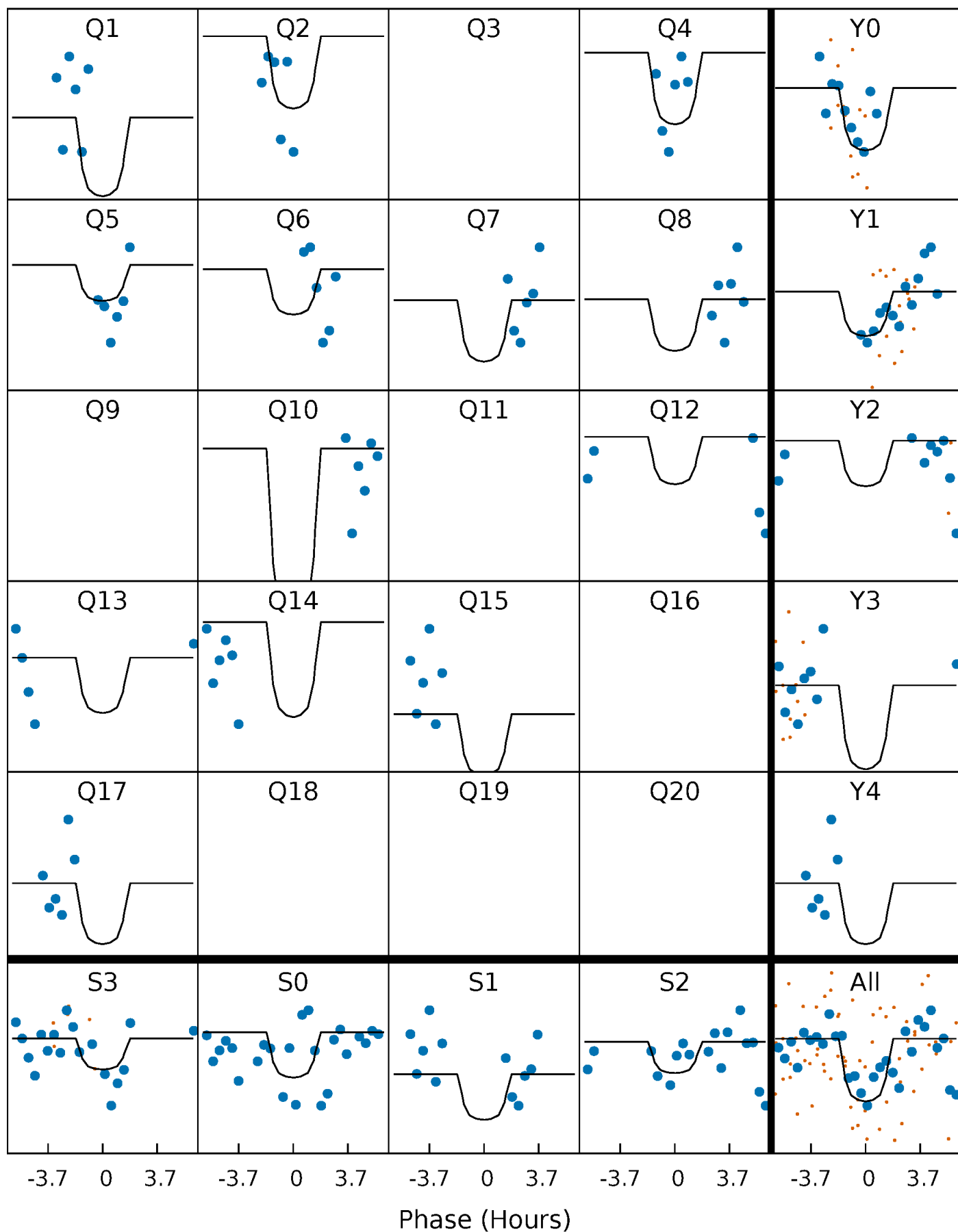
PDC Quarter-Phased Transit Curves

TCE 009649300-07 $P=110.158780$ Days $T_0=138.598961$ (BKJD)



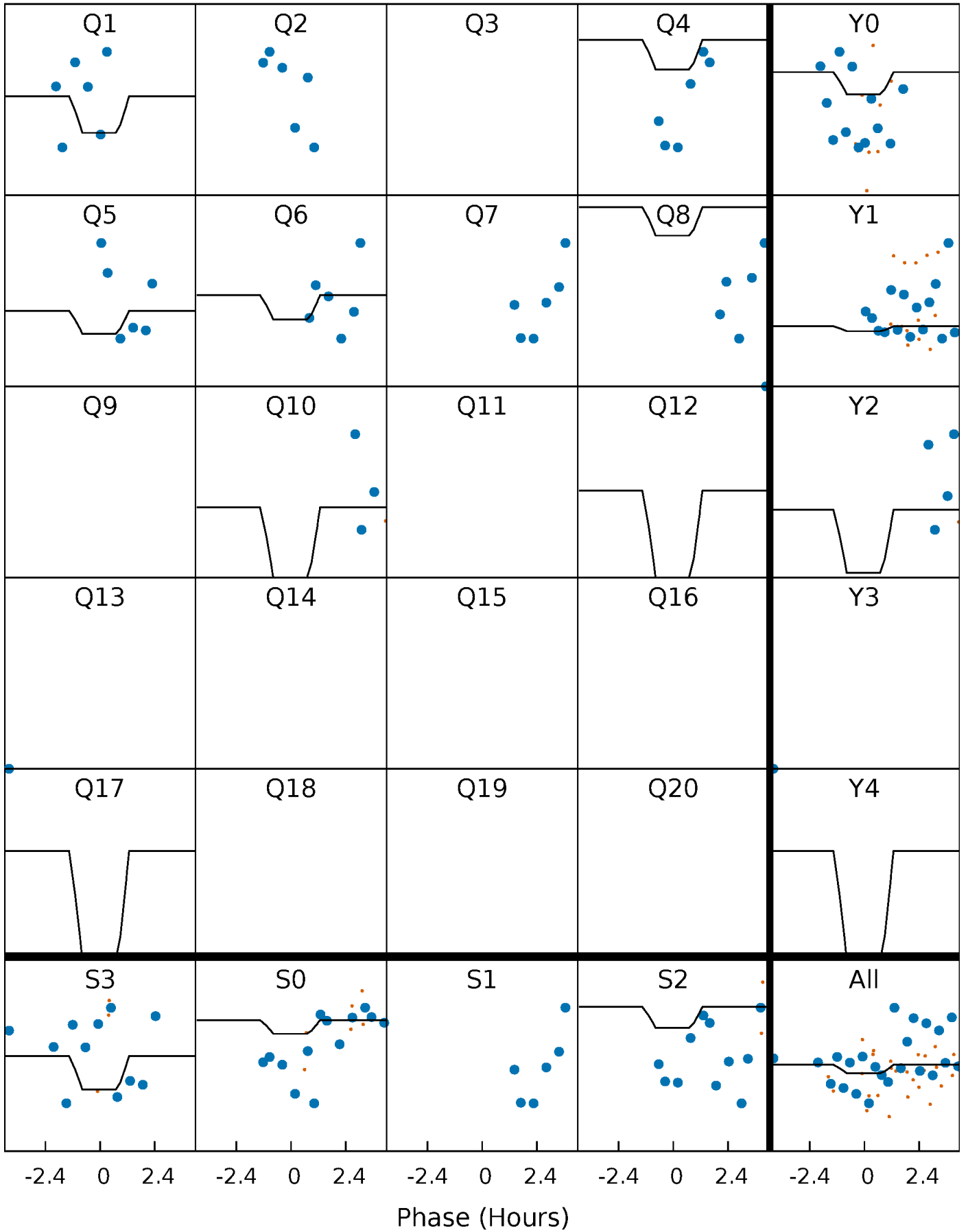
DV Quarter-Phased Transit Curves

TCE 009649300-07 P=110.158780 Days $T_0=138.598961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

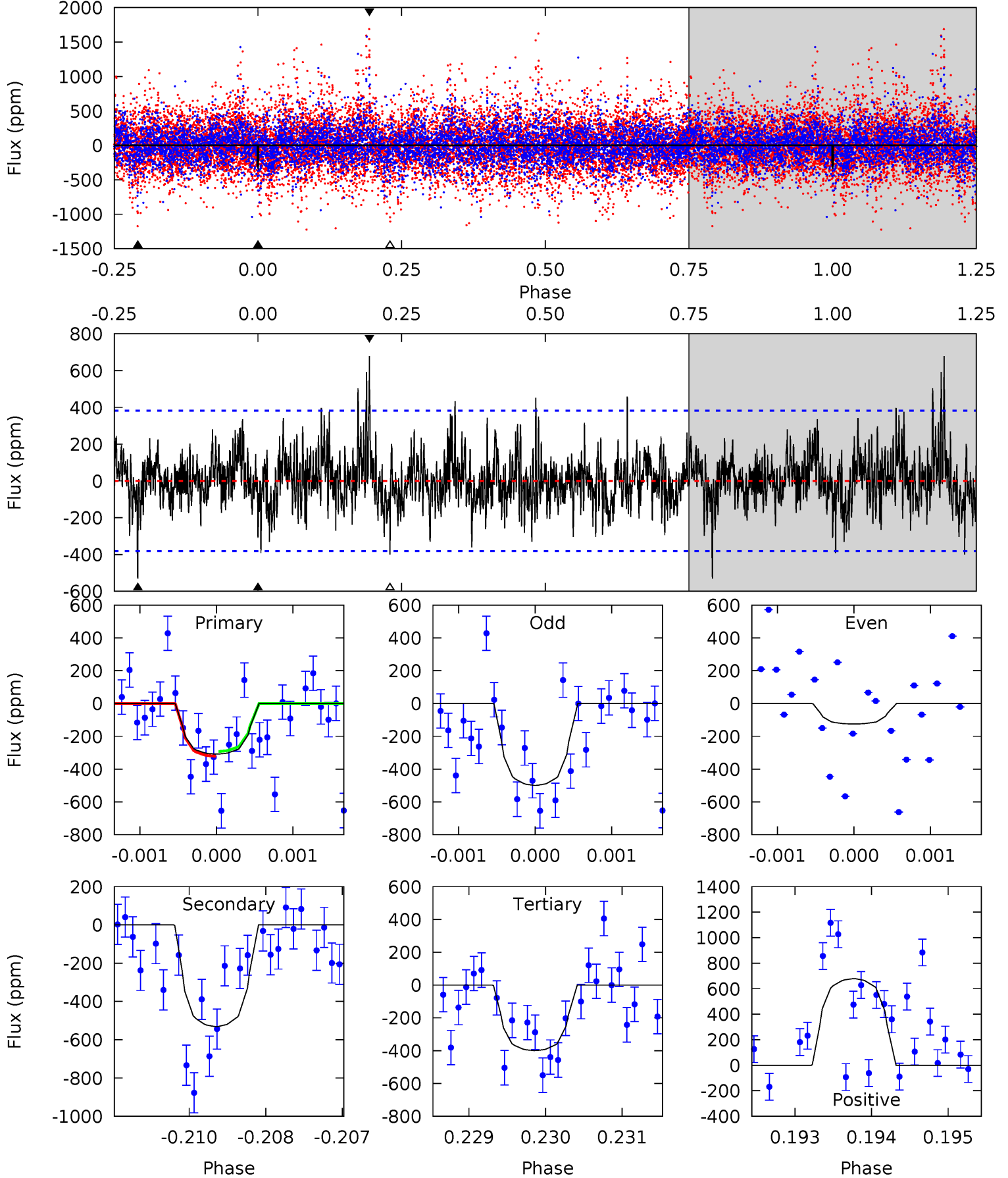
TCE 009649300-07 P=110.170279 Days $T_0=138.546191$ (BKJD)



DV Model-Shift Uniqueness Test

009649300-07, P = 110.158780 Days, E = 28.440181 Days

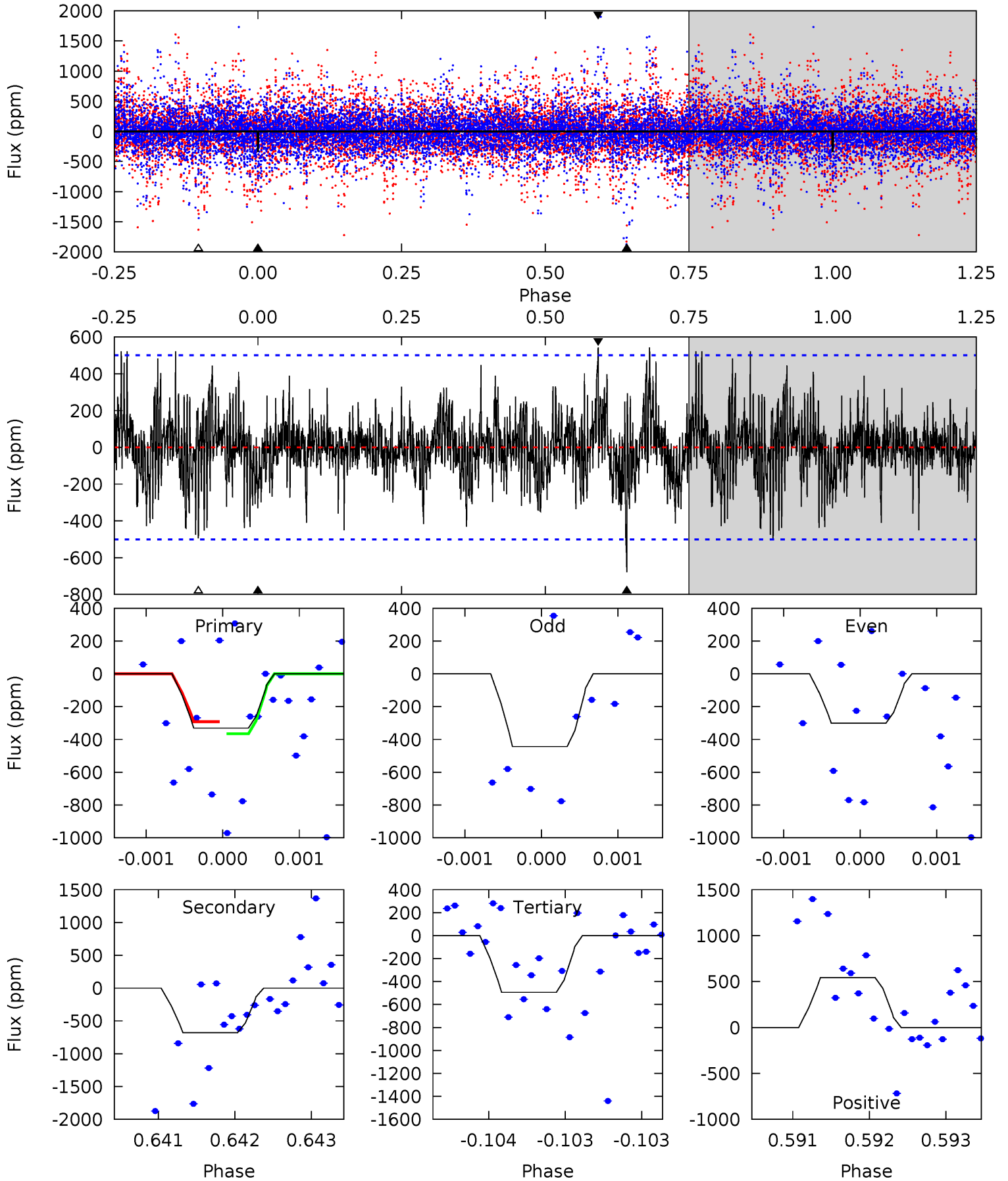
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 4.37 | 7.53 | 5.66 | 9.61 | 5.41 | 3.22 | 1.69 | -1.29 | -5.24 | 1.86 | -2.09 | 2.62 | 0.78 | 0.56 | 0.20 |



Alt Model-Shift Uniqueness Test

009649300-07, P = 110.170279 Days, E = 28.375912 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 3.64 | 7.45 | 5.43 | 5.96 | 5.50 | 3.36 | 1.48 | -1.79 | -2.32 | 2.02 | 1.49 | 0.75 | 1.68 | 0.44 | 0.39 |



Stellar Parameters For KIC 009649300

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5907^{+142}_{-178} | $4.547^{+0.036}_{-0.192}$ | $-0.260^{+0.300}_{-0.300}$ | $0.860^{+0.247}_{-0.077}$ | $0.951^{+0.107}_{-0.119}$ | $2.103^{+0.408}_{-1.075}$ |
| | +2%/-3% | +1%/-4% | +115%/-115% | +29%/-9% | +11%/-13% | +19%/-51% |
| 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 009649300-07 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|---------------|------------------------|-------------------|-----------------------|-------------------------|
| DV | -531 ± 71 | $6.08^{+6.28}_{-4.30}$ | 519^{+36}_{-23} | 3978^{+2771}_{-825} | 1550^{+16400}_{-1183} |
| Alt. | -679 ± 91 | $5.97^{+5.74}_{-4.06}$ | 521^{+32}_{-25} | 4165^{+2681}_{-851} | 1980^{+17544}_{-1466} |

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

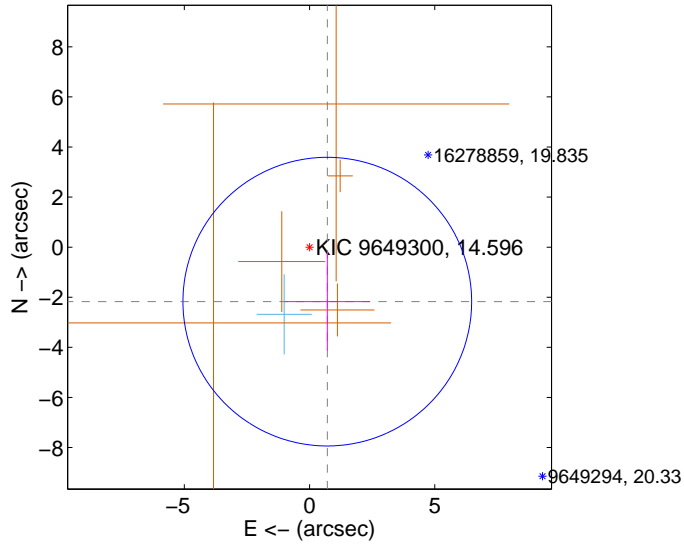
Supplemental centroid analysis for 009649300-07. Kepler magnitude: 14.60. Transit SNR 4.16

There are 1 quarters with good PRF difference image offsets

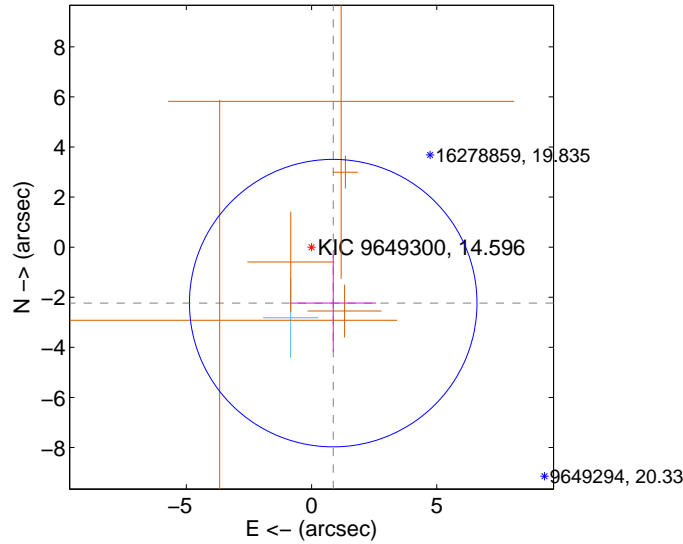
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 2.288 ± 1.921 | 1.19 | -0.709 ± 1.706 | -2.175 ± 1.942 |
| PRF-fit source offset from KIC position | 2.396 ± 1.913 | 1.25 | -0.865 ± 1.706 | -2.234 ± 1.942 |
| photometric centroid source offset | 2.49 ± 1.11 | 2.23 | -1.44 ± 1.11 | 2.03 ± 1.11 |

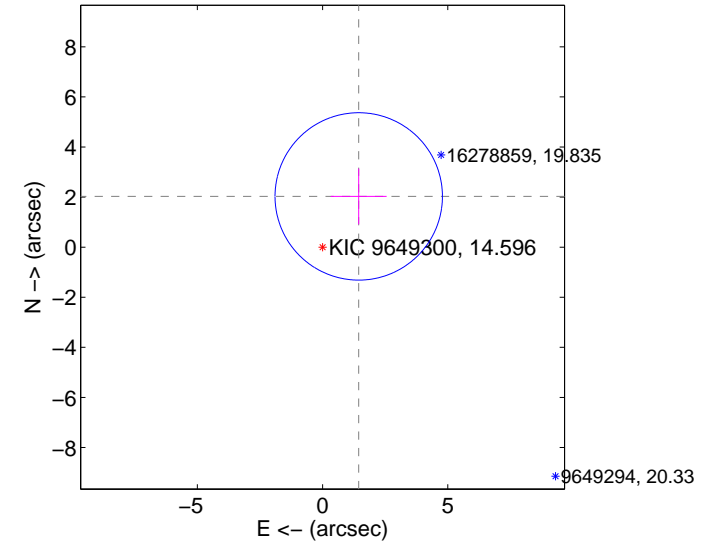
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

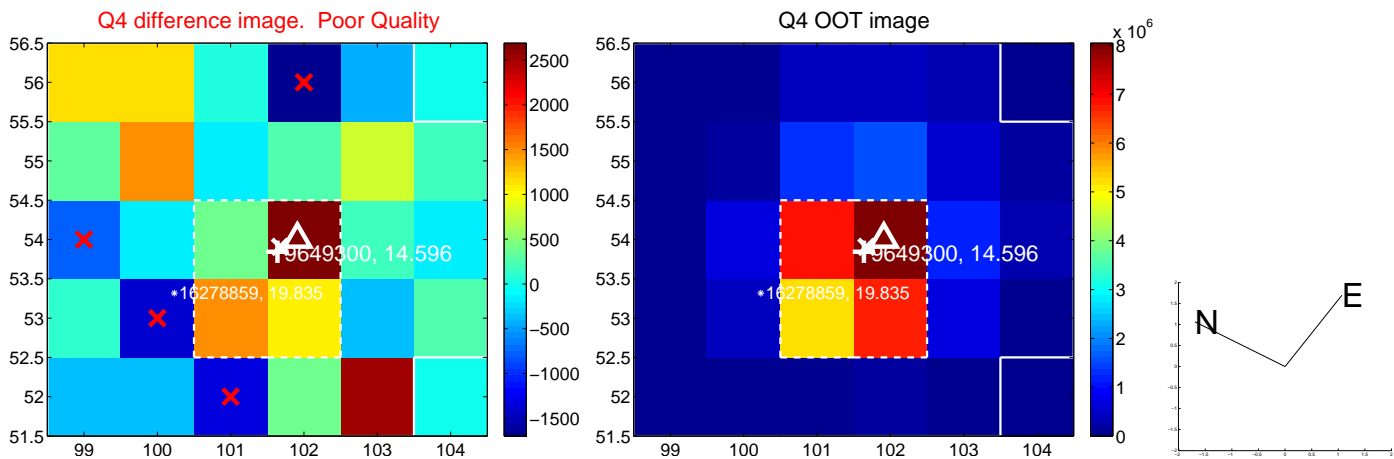
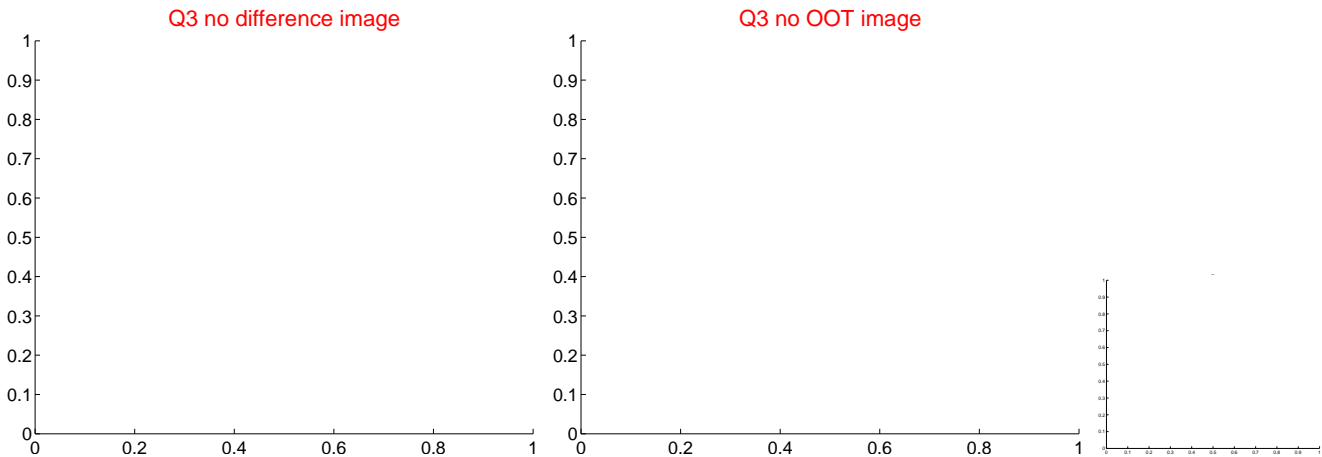
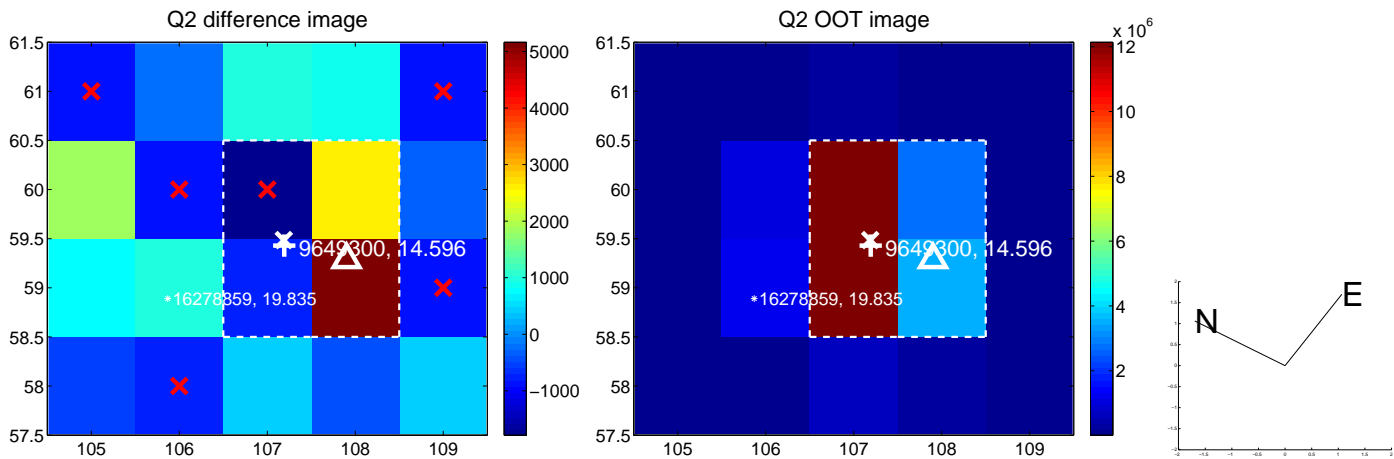
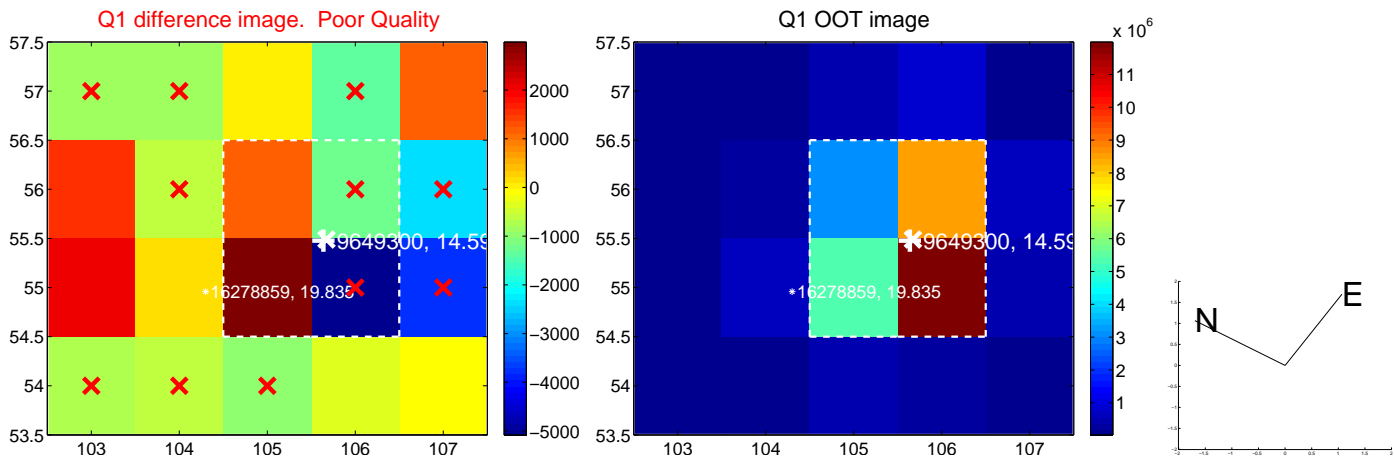


offset from photometric centroids

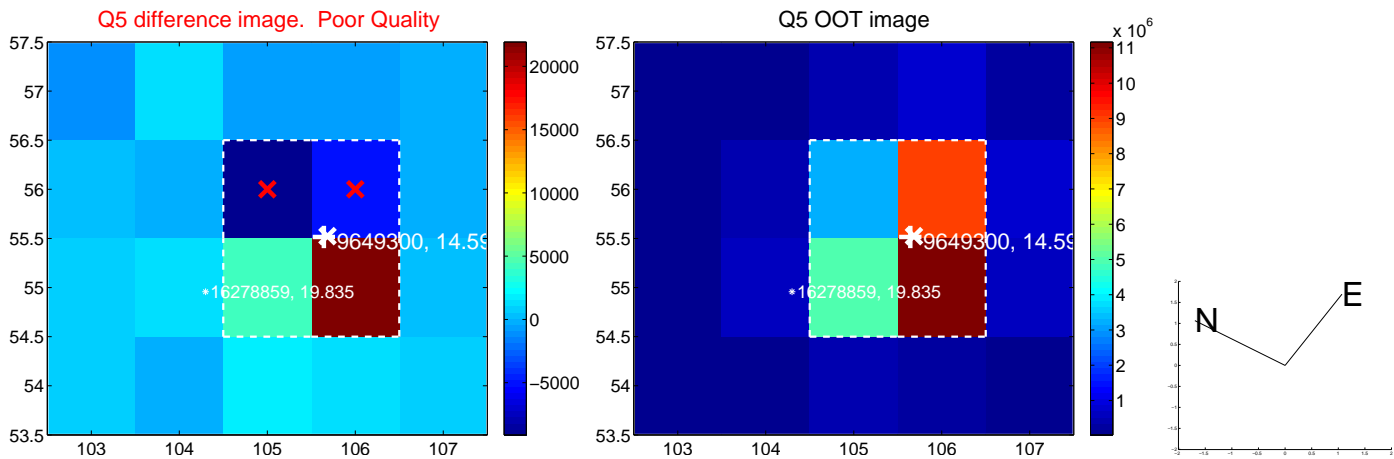


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

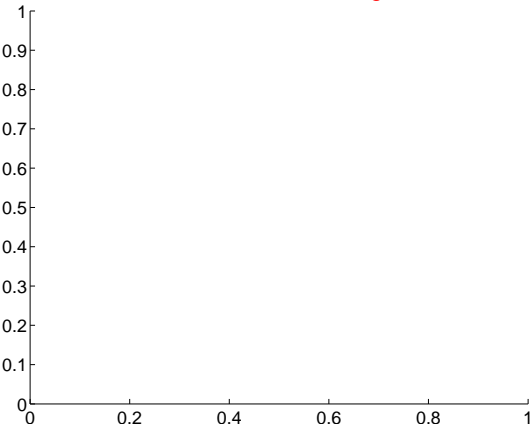


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

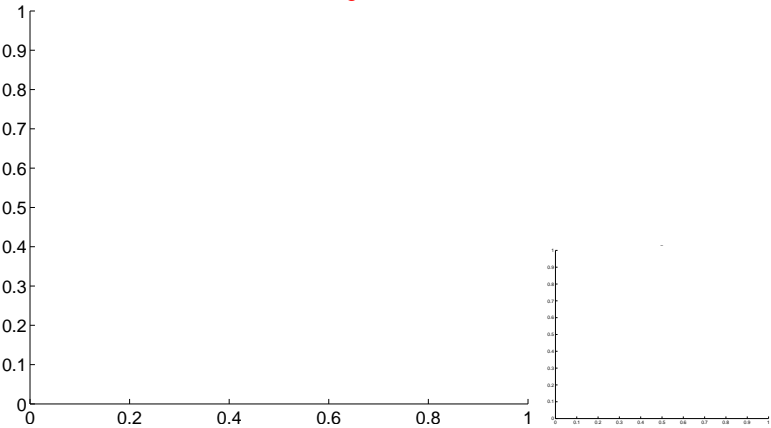


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

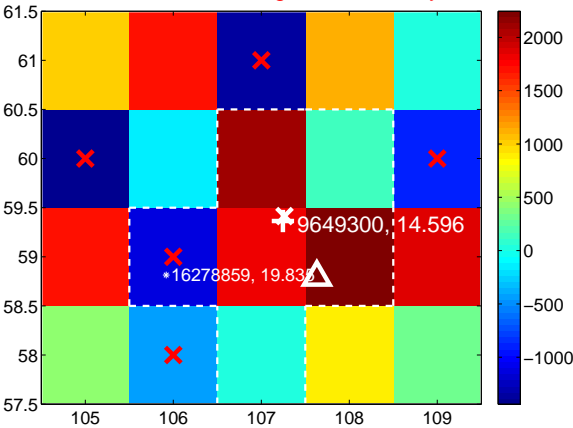
Q9 no difference image



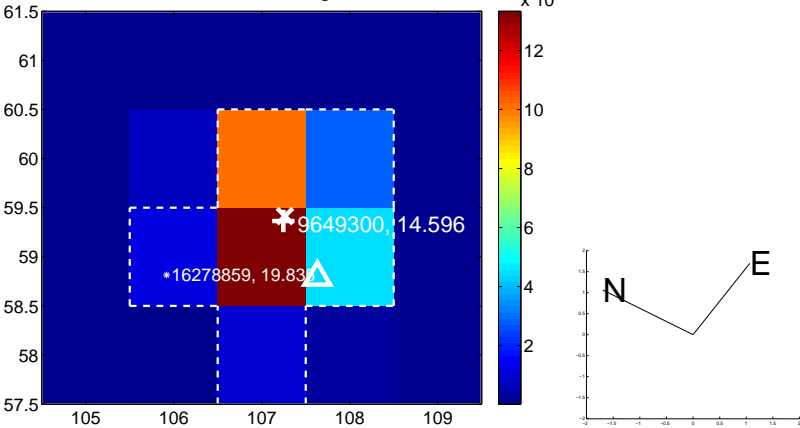
Q9 no OOT image



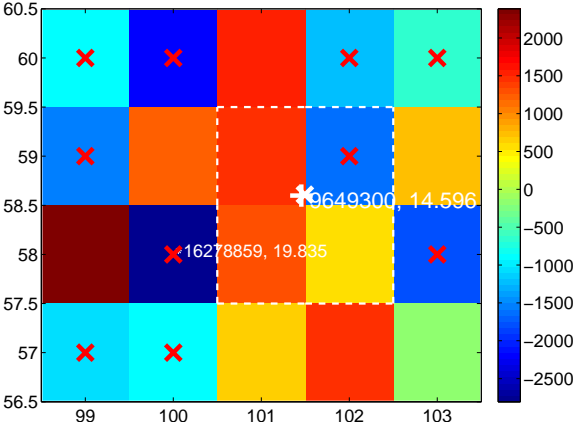
Q10 difference image. Poor Quality



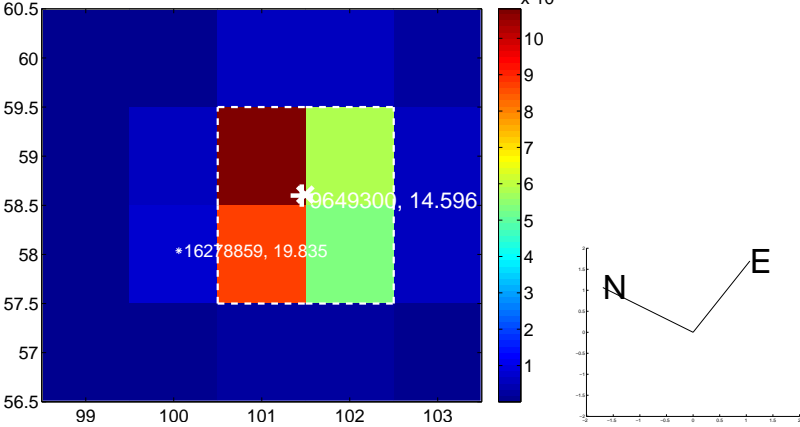
Q10 OOT image



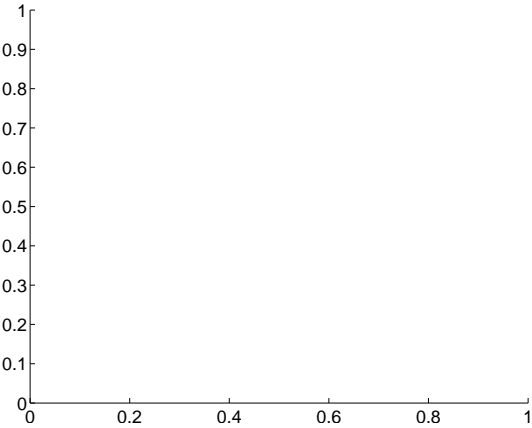
Q11 difference image. Poor Quality



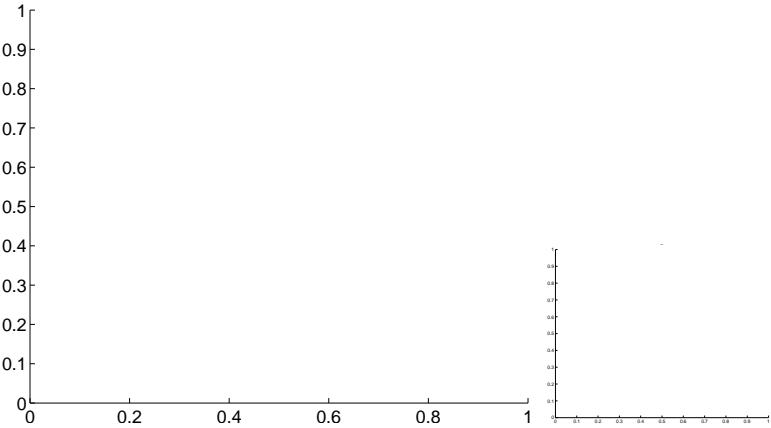
Q11 OOT image



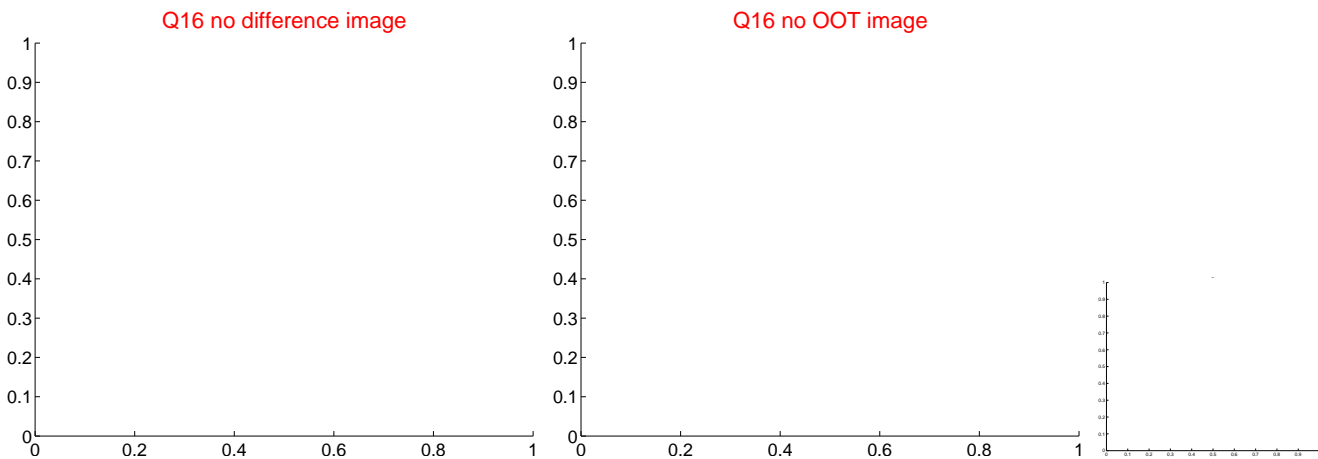
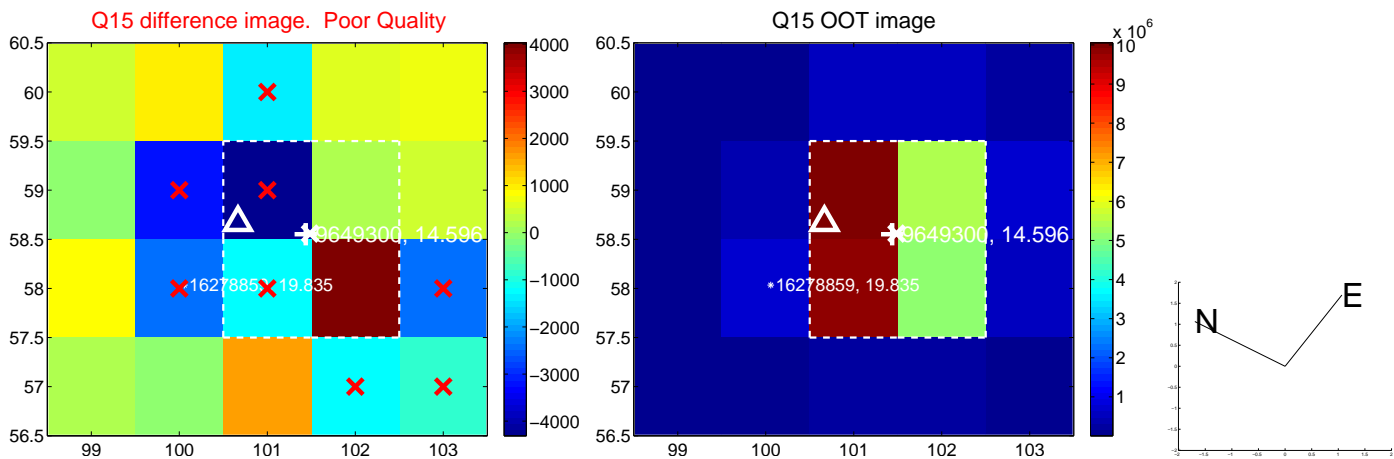
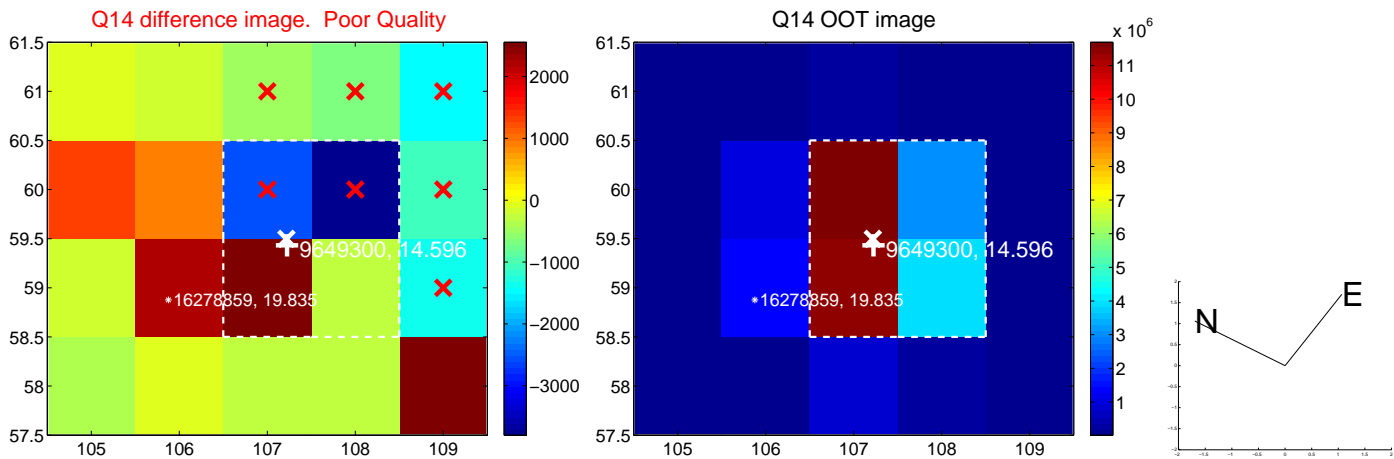
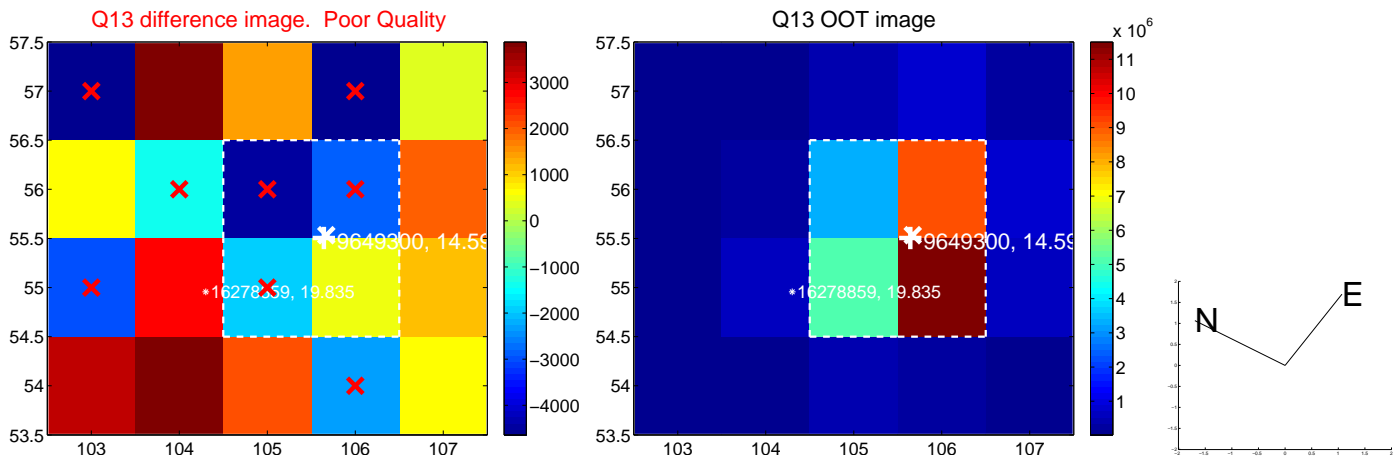
Q12 no difference image



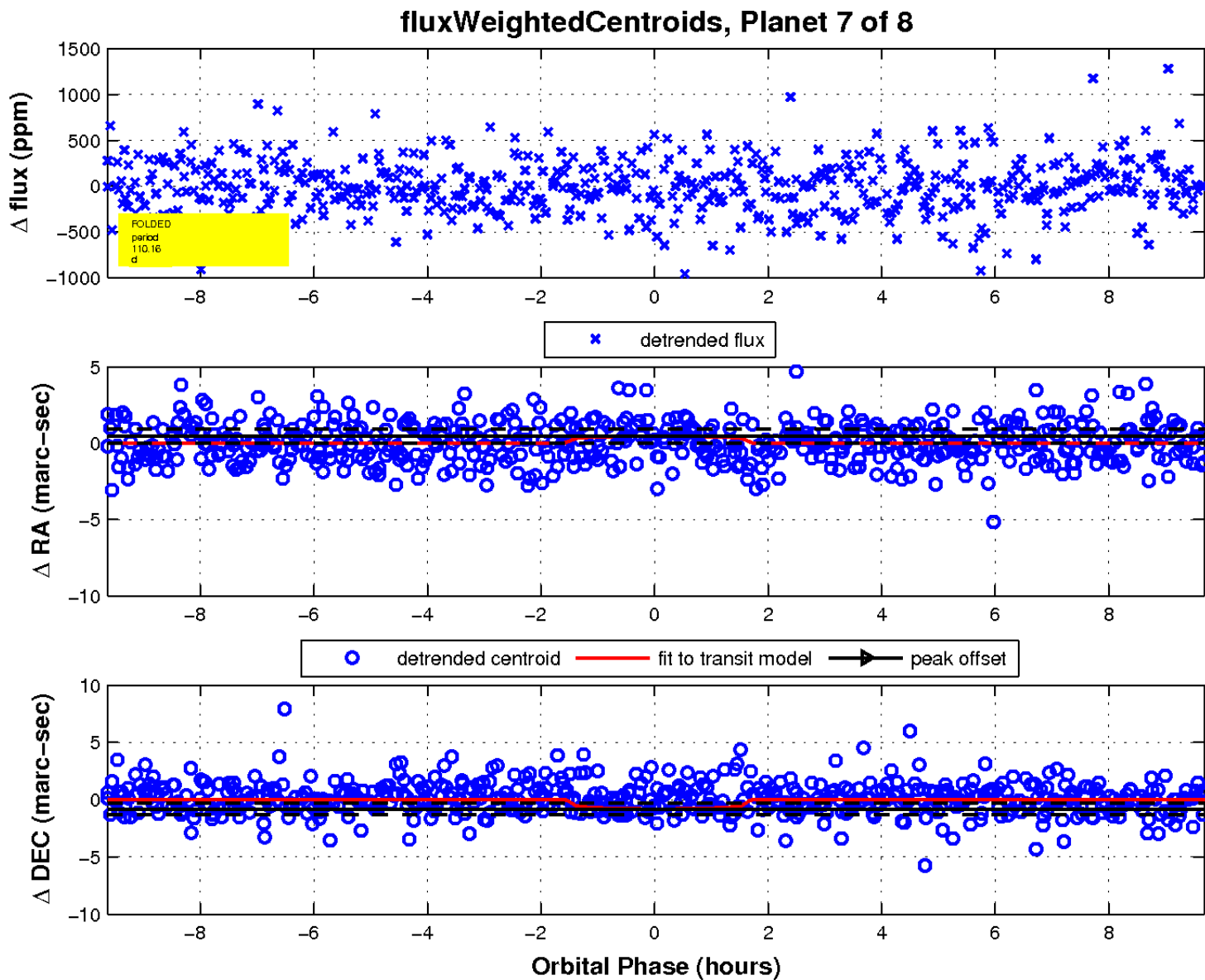
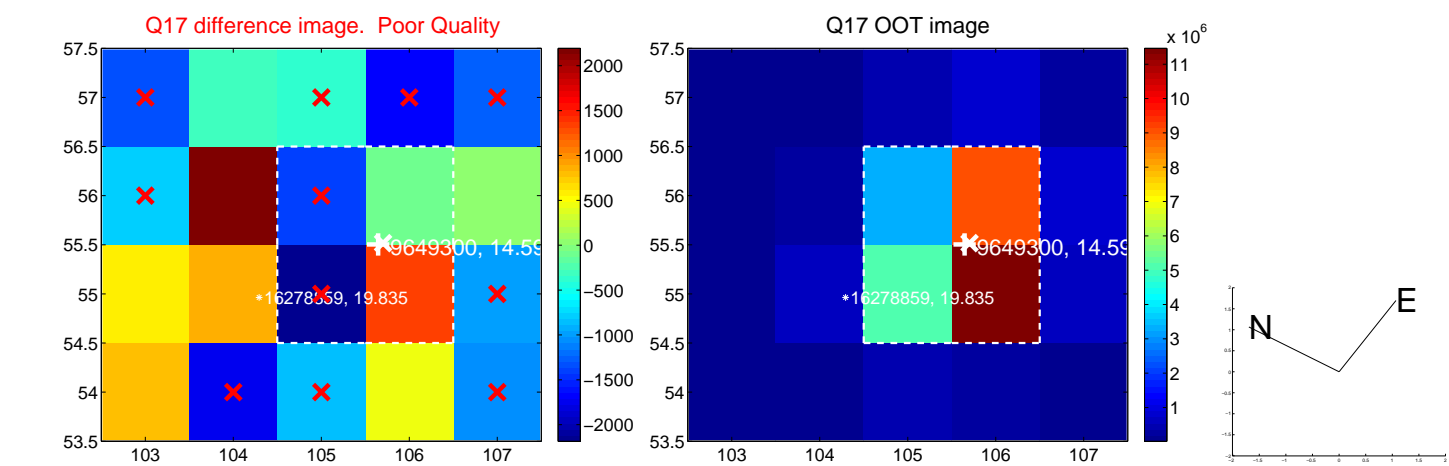
Q12 no OOT image



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

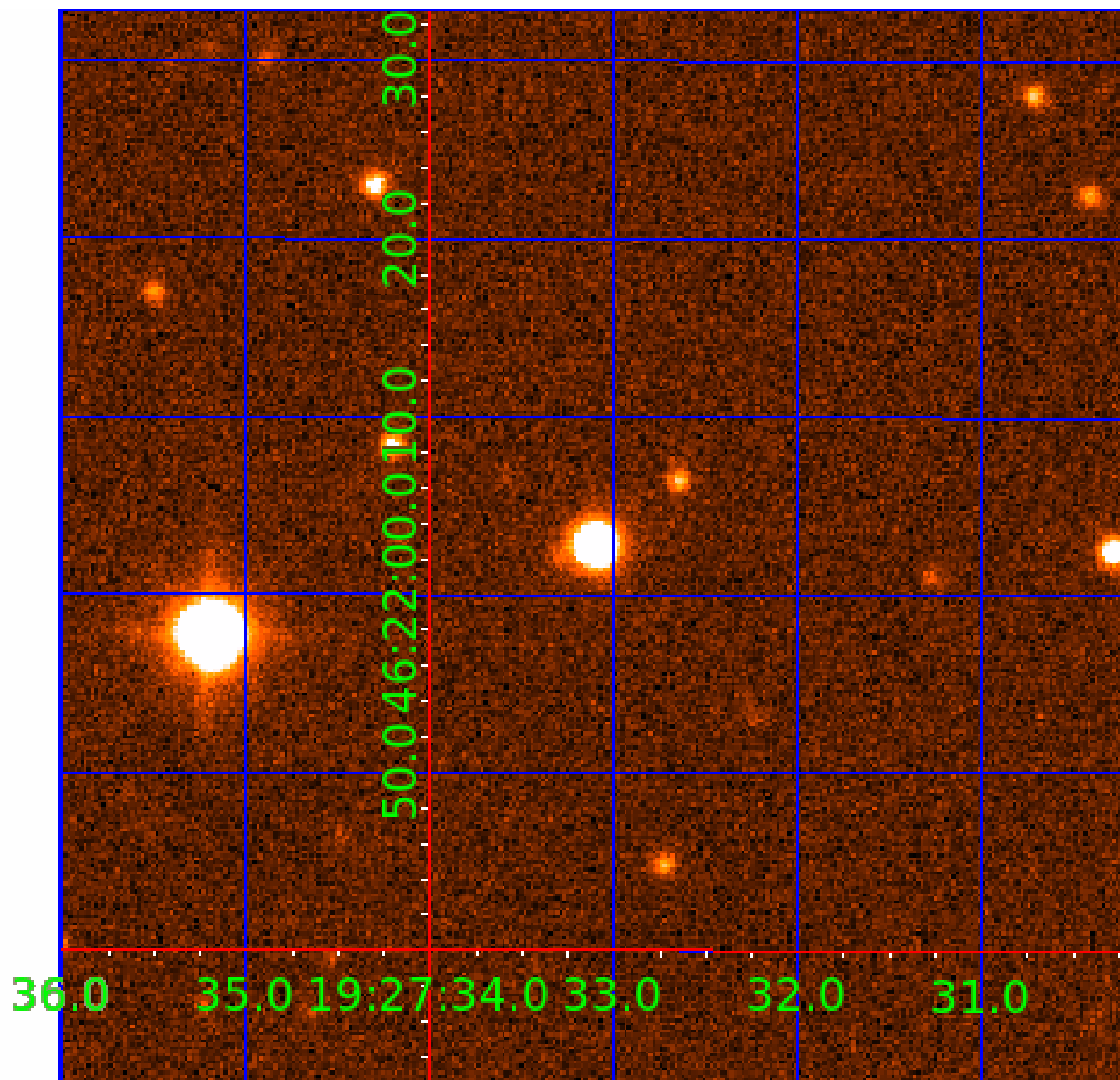


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009649300

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 009649300-01 | OBS | No | 0.548248 | 131.663199 | 17.5 | 3.250 | 9.0 | 5.4 | 0.86 | 5907 | 0.36 | 4853.54 |
| 009649300-03 | OBS | No | 69.103439 | 190.704243 | 661.1 | 3.850 | 11.0 | 8.3 | 0.86 | 5907 | 3.45 | 7.68 |
| 009649300-06 | OBS | No | 112.537602 | 226.248360 | 730.9 | 4.972 | 10.0 | 7.9 | 0.86 | 5907 | 2.67 | 4.01 |
| 009649300-07 | OBS | No | 110.158780 | 138.598961 | 408.4 | 3.236 | 8.7 | 4.2 | 0.86 | 5907 | 1.84 | 4.12 |
| 009649300-08 | OBS | No | 414.487765 | 368.220164 | 530.1 | 3.500 | 8.6 | -1.0 | 0.86 | 5907 | 1.97 | 0.70 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|---|
| 009649300-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT |
| 009649300-03 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST |
| 009649300-06 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS |
| 009649300-07 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS |
| 009649300-08 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—NO_FITS—CENT_NOFITS |

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

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

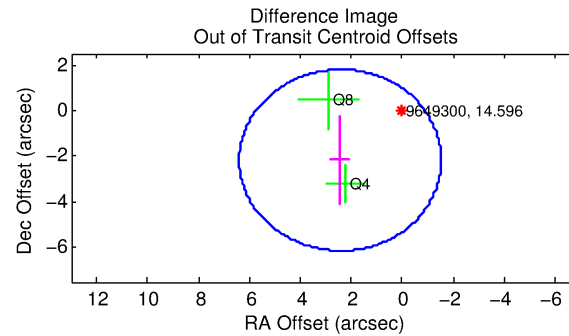
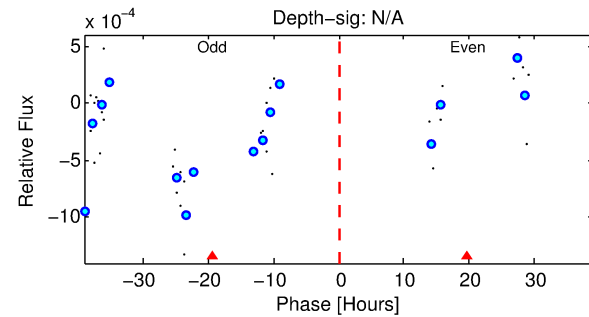
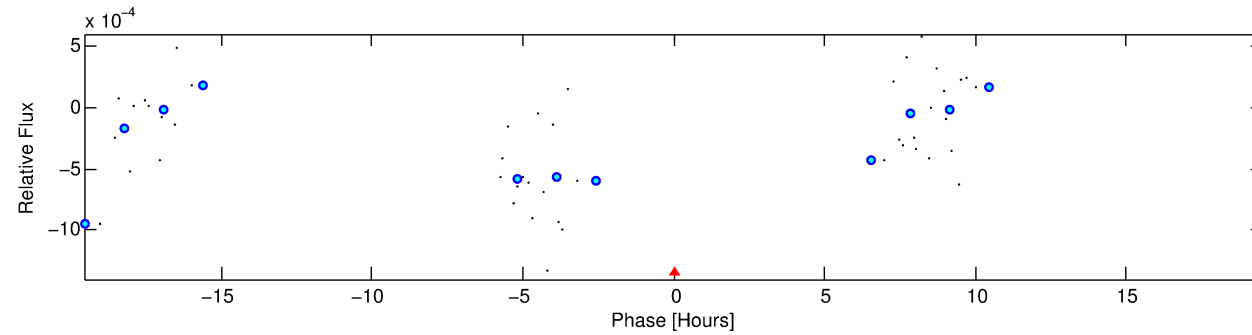
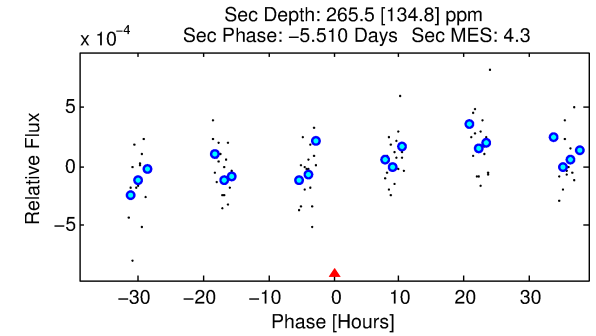
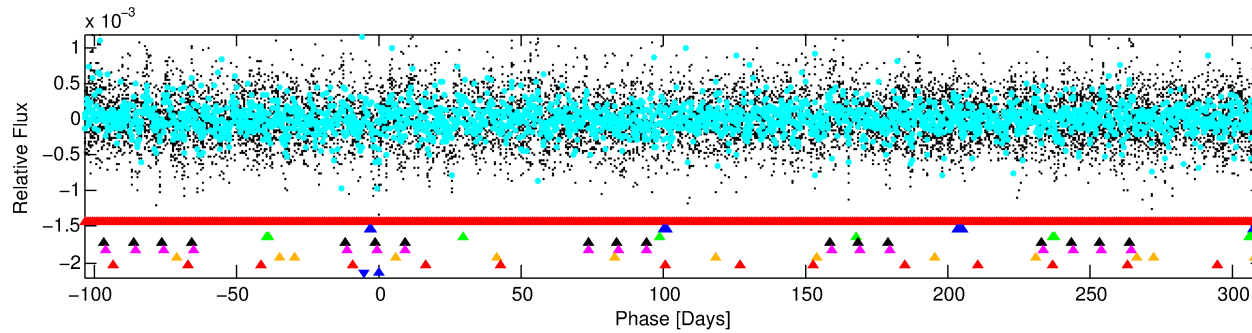
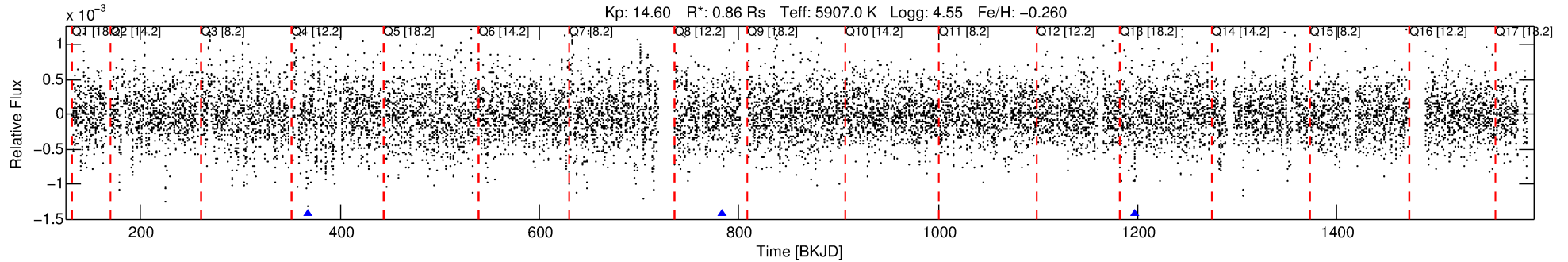
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009649300-08

No Significant Match Found

DV One-Page Summary

KIC: 9649300 Candidate: 8 of 8 Period: 414.488 d



TPS TCE Results:

Period = 414.48777 d
Epoch = 368.2202 BKJD

DV fit results are unavailable

DV Diagnostic Results:

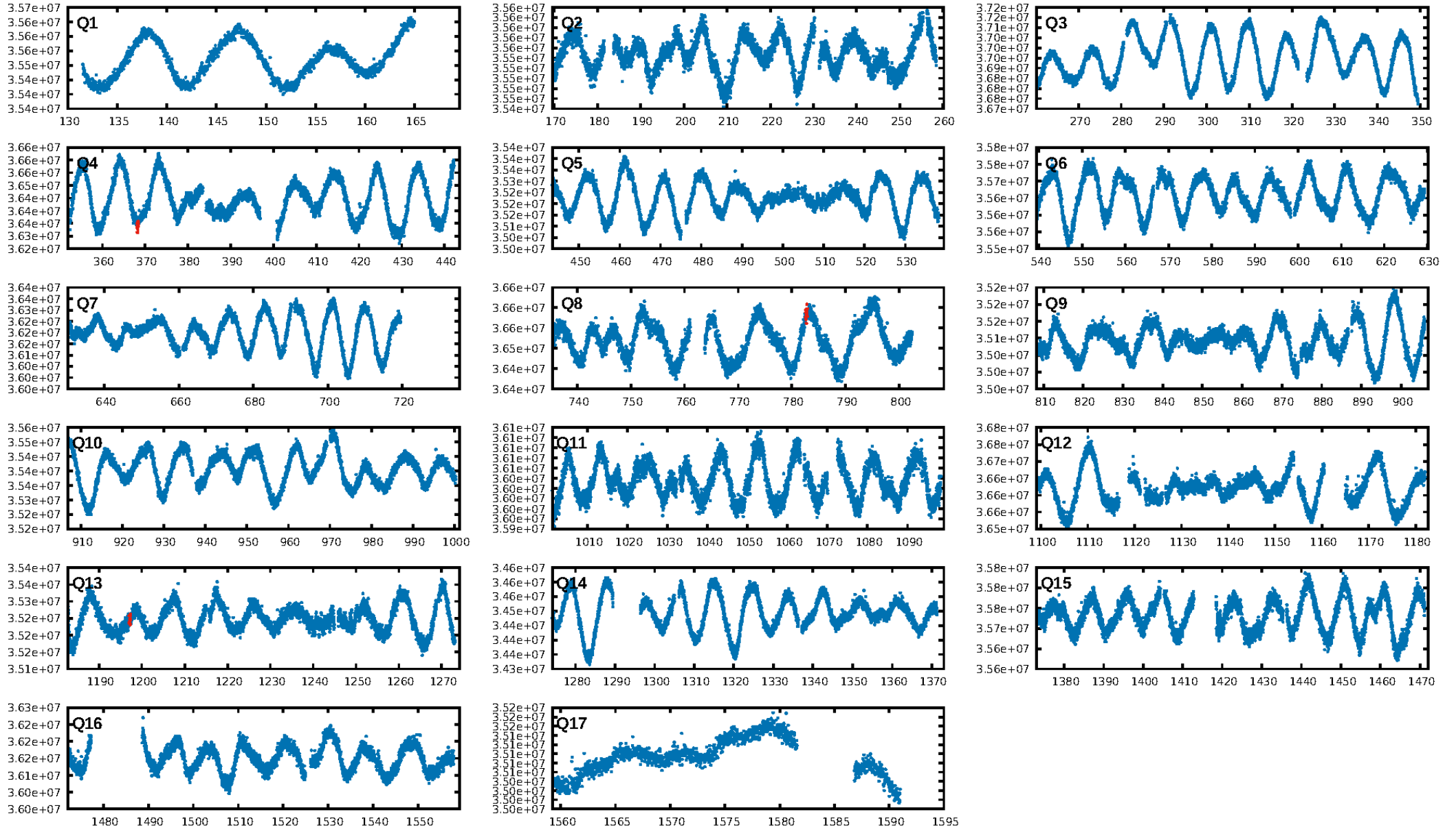
ShortPeriod-sig: 100.0% [1191.85σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.43e-08
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: 0.7481

Centroid-sig: 27.3%
Centroid-so: 0.174 arcsec [0.68σ]
OotOffset-rm: 3.256 arcsec [2.46σ]
KicOffset-rm: 3.067 arcsec [2.13σ]
OotOffset-st: 0/0/2/0 [2]
KicOffset-st: 0/0/2/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/2]

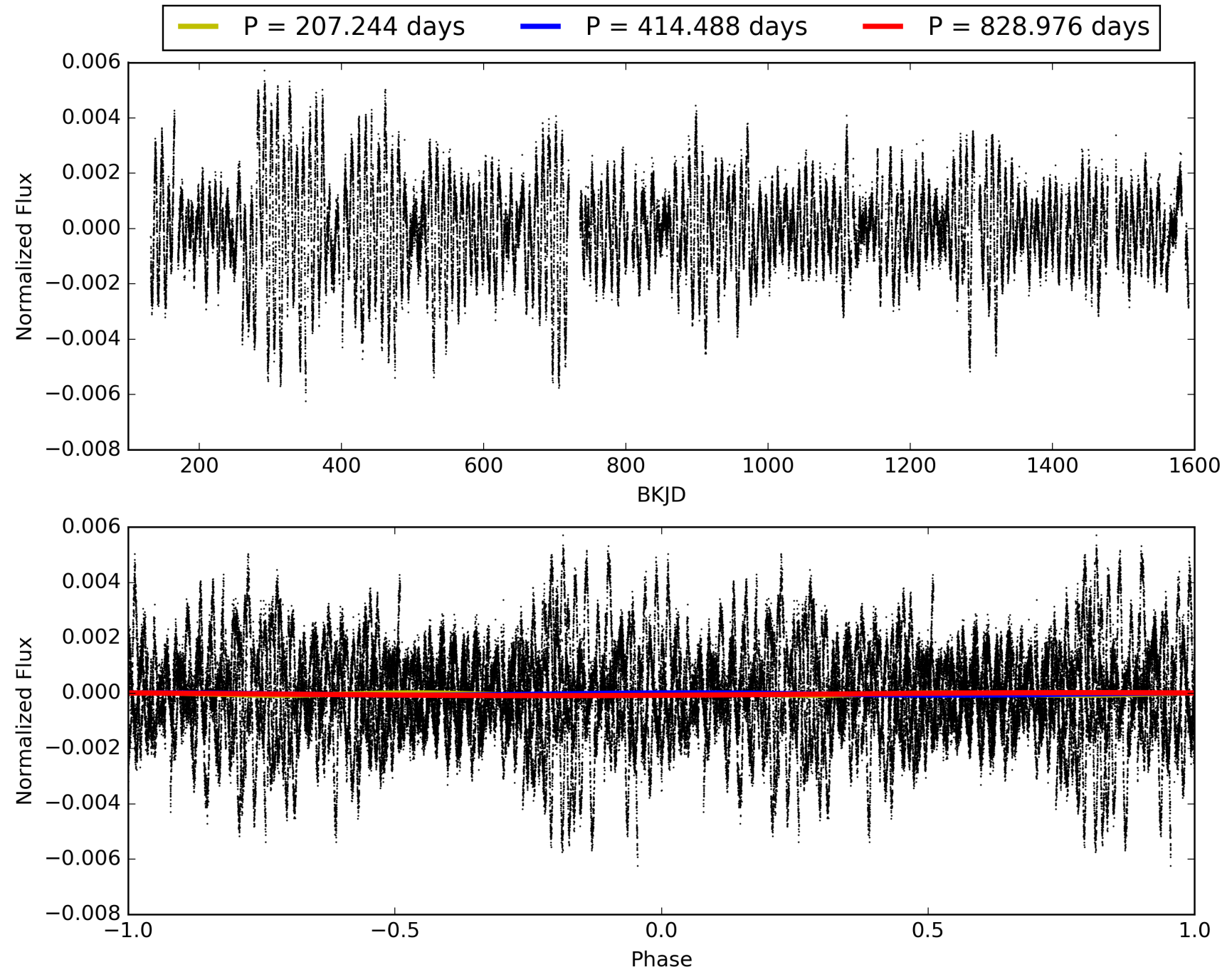
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:12:24 Z

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

TCE 009649300-08, PDC Light Curves

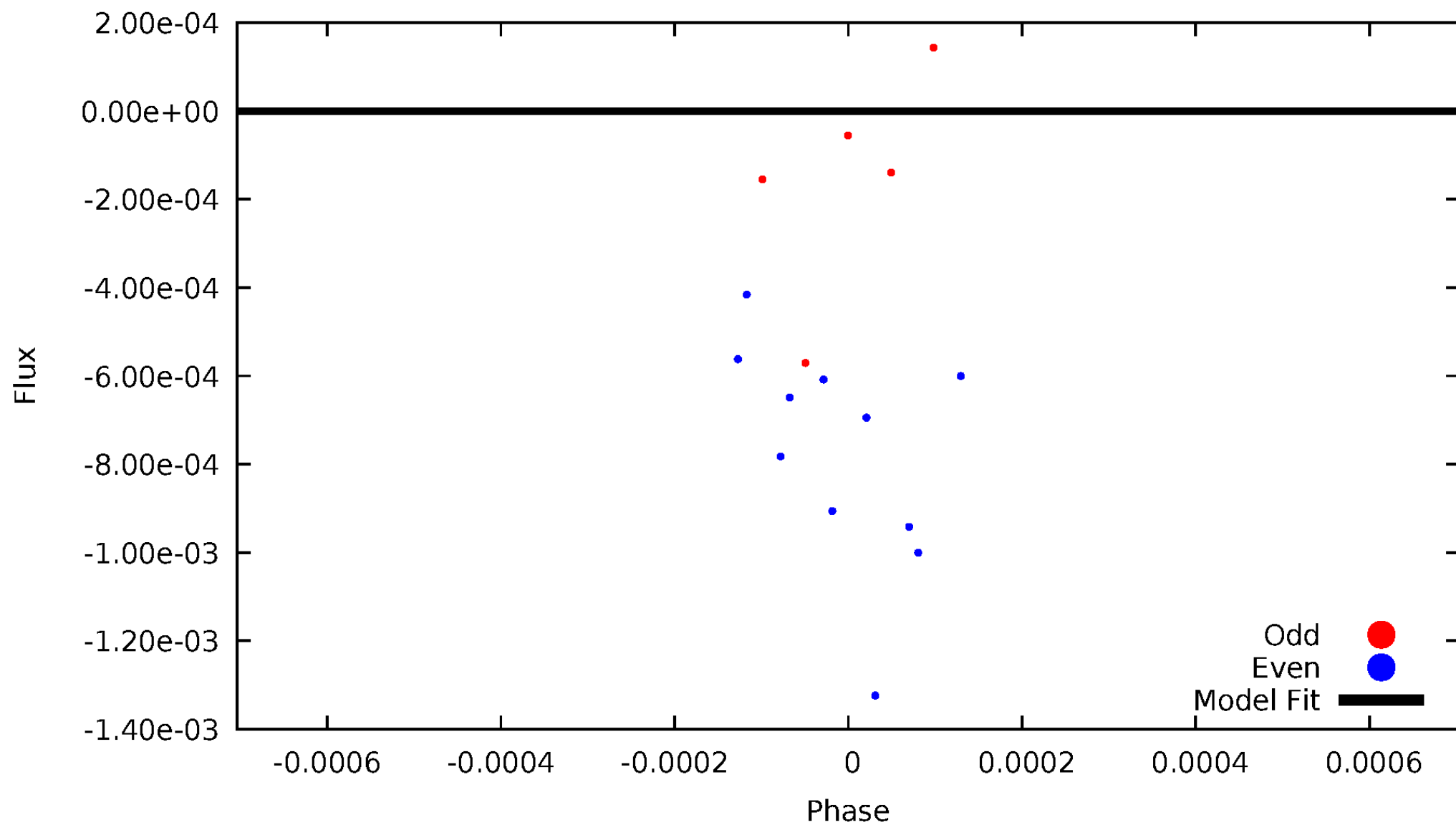


TCE 009649300-08



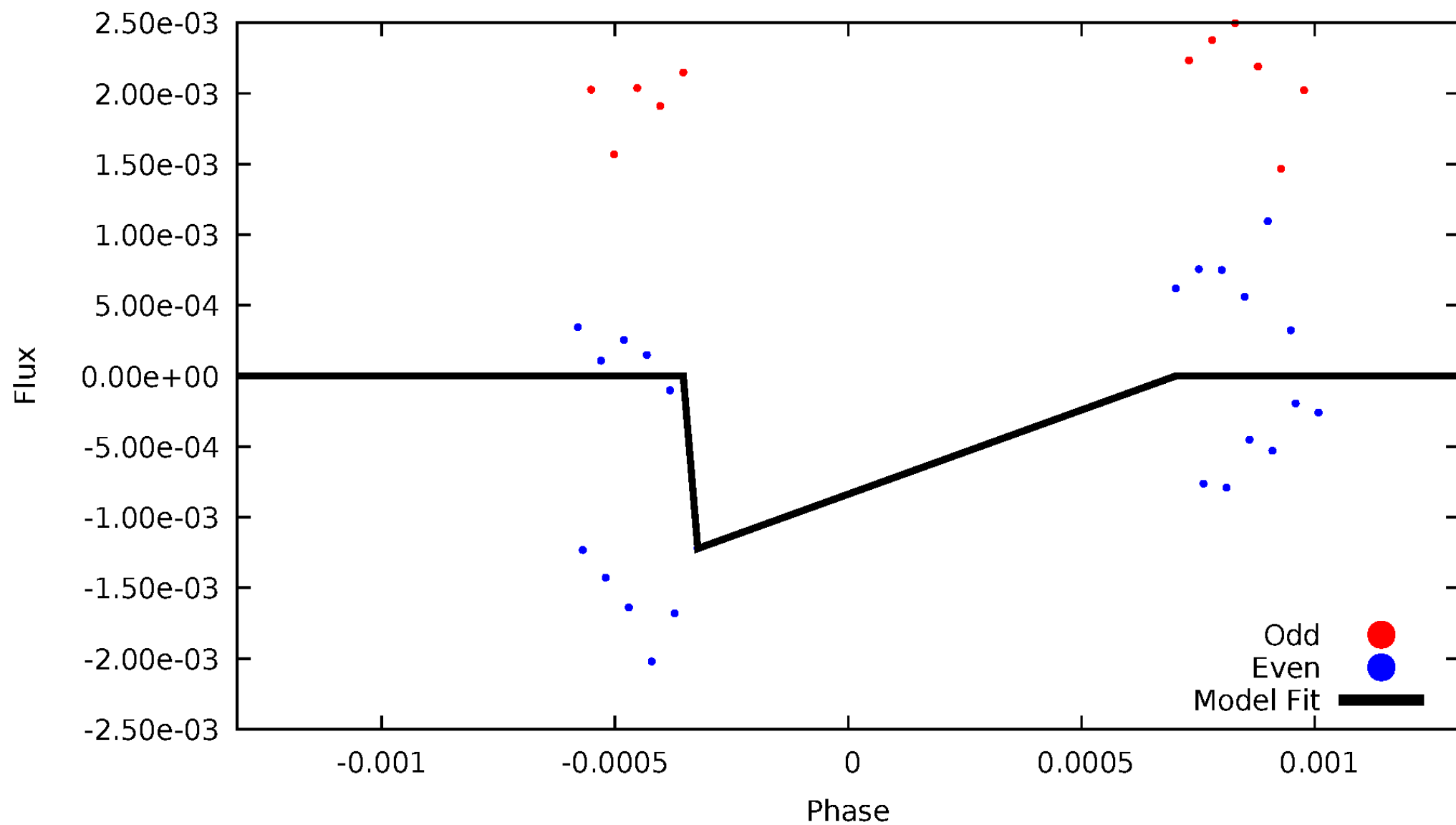
DV Odd/Even

TCE 009649300-08



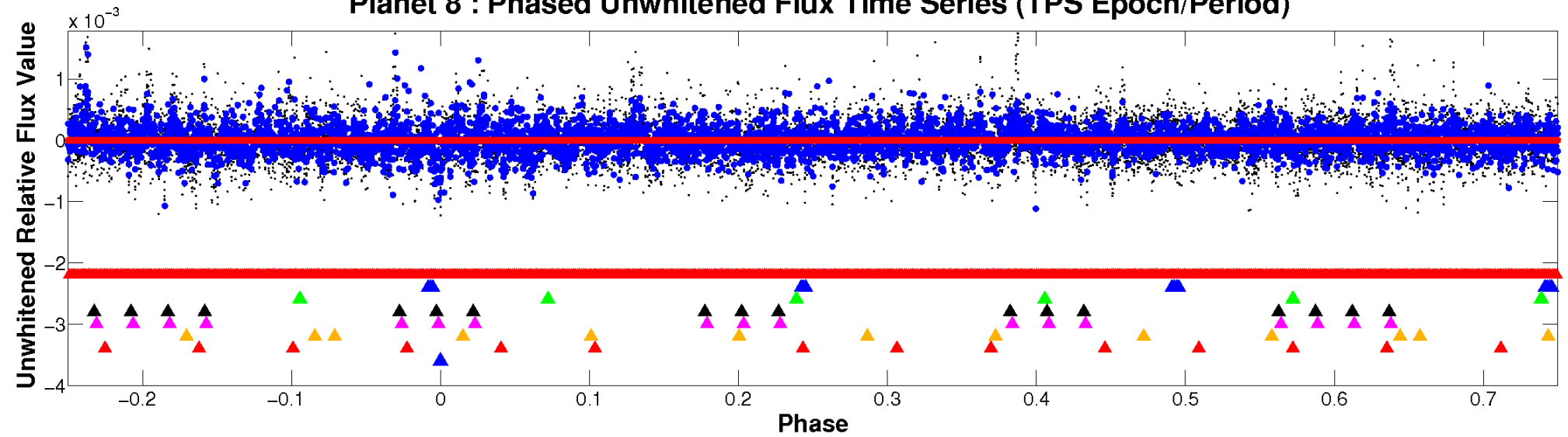
ALT Odd/Even

TCE 009649300-08

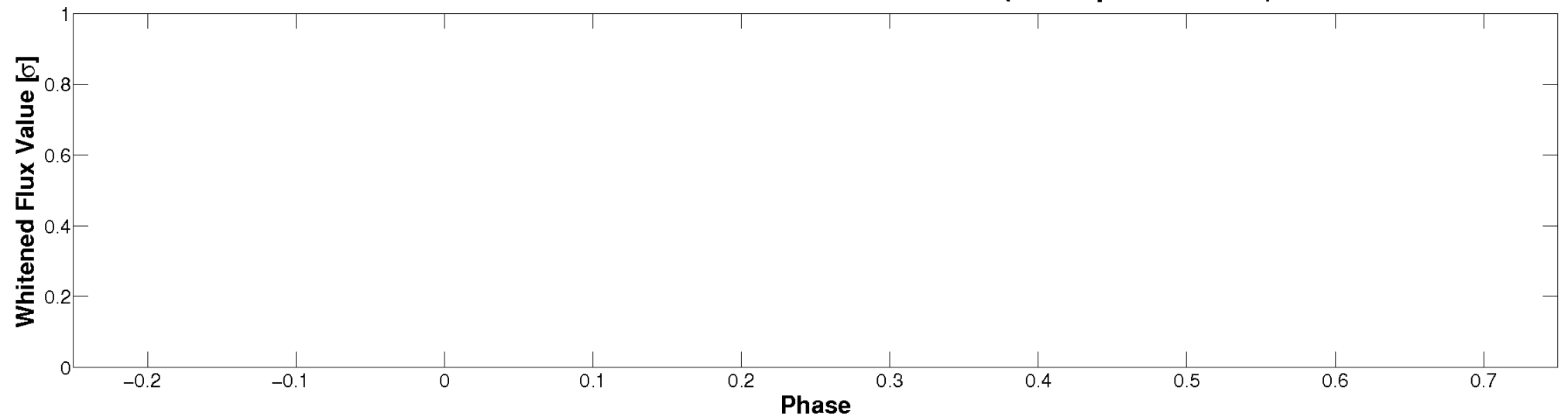


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

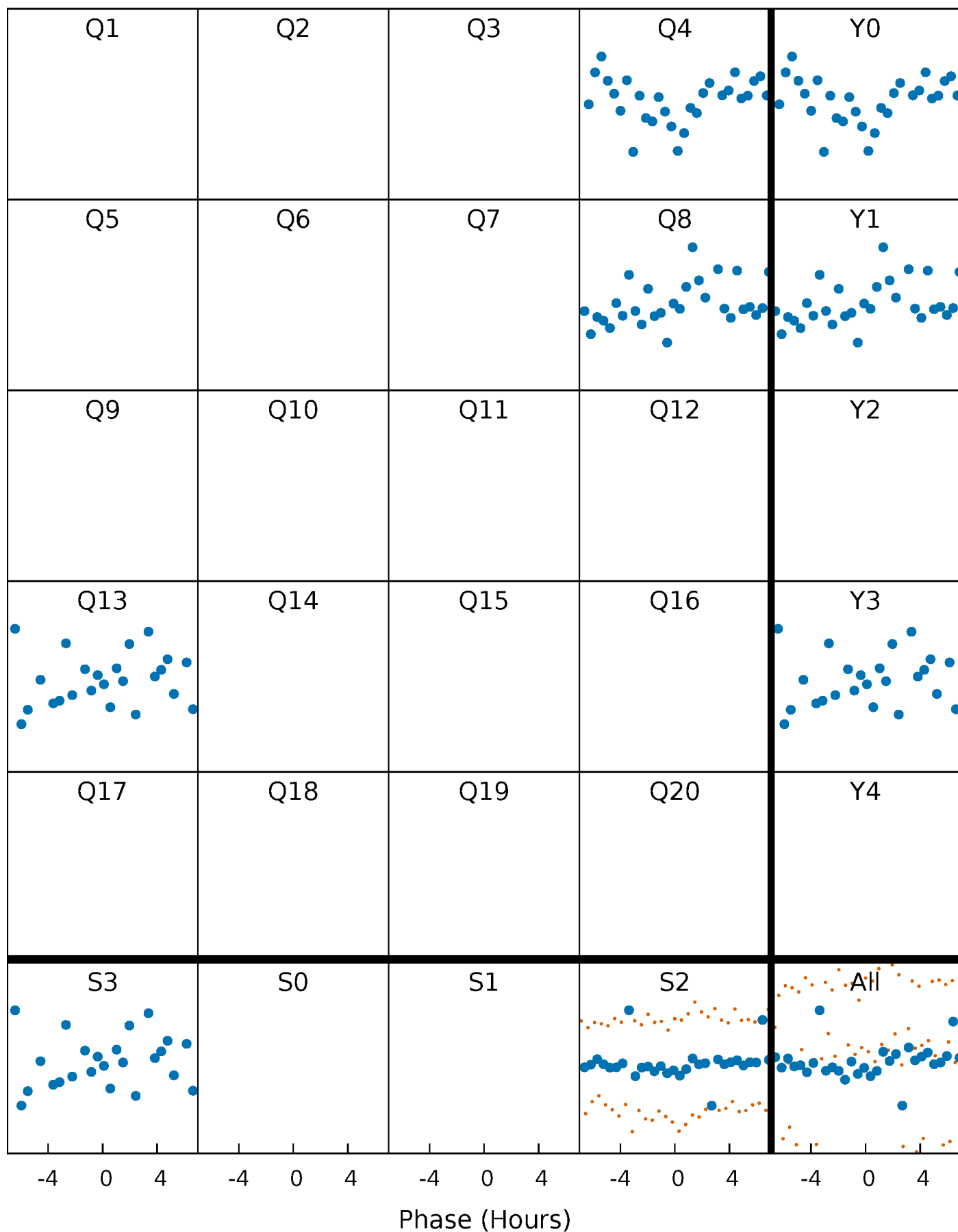


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



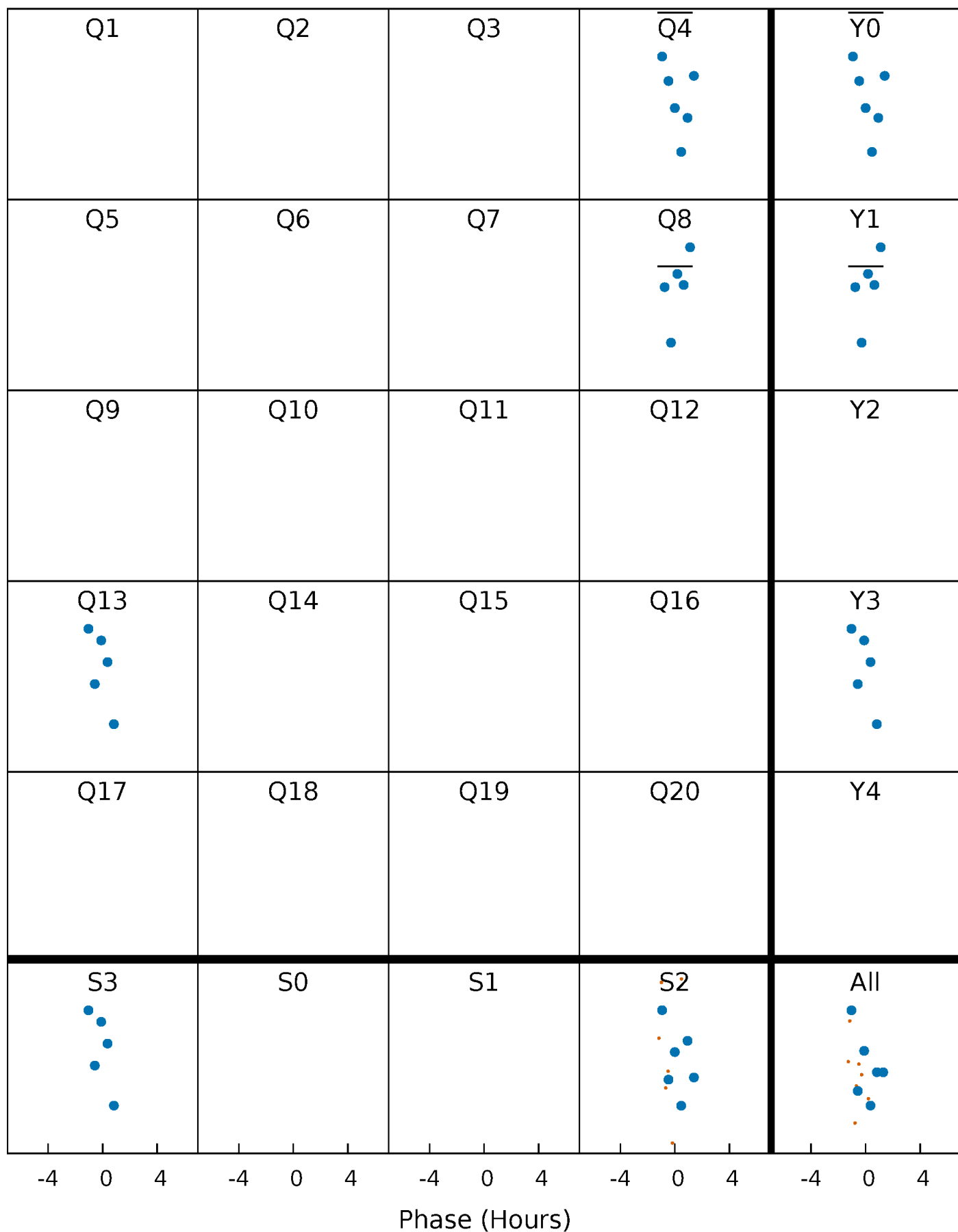
PDC Quarter-Phased Transit Curves

TCE 009649300-08 $P=414.487765$ Days $T_0=368.220164$ (BKJD)



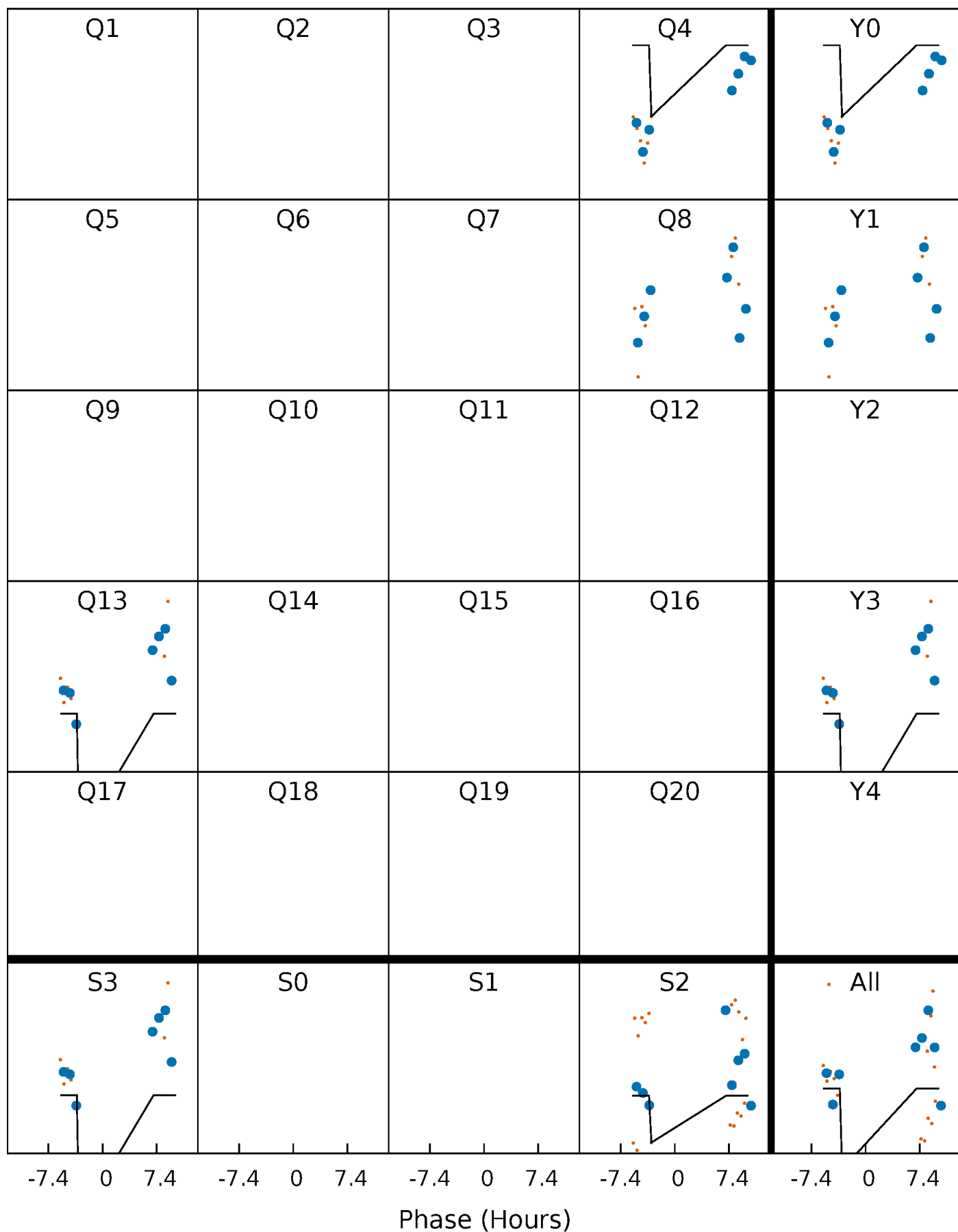
DV Quarter-Phased Transit Curves

TCE 009649300-08 $P=414.487765$ Days $T_0=368.220164$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

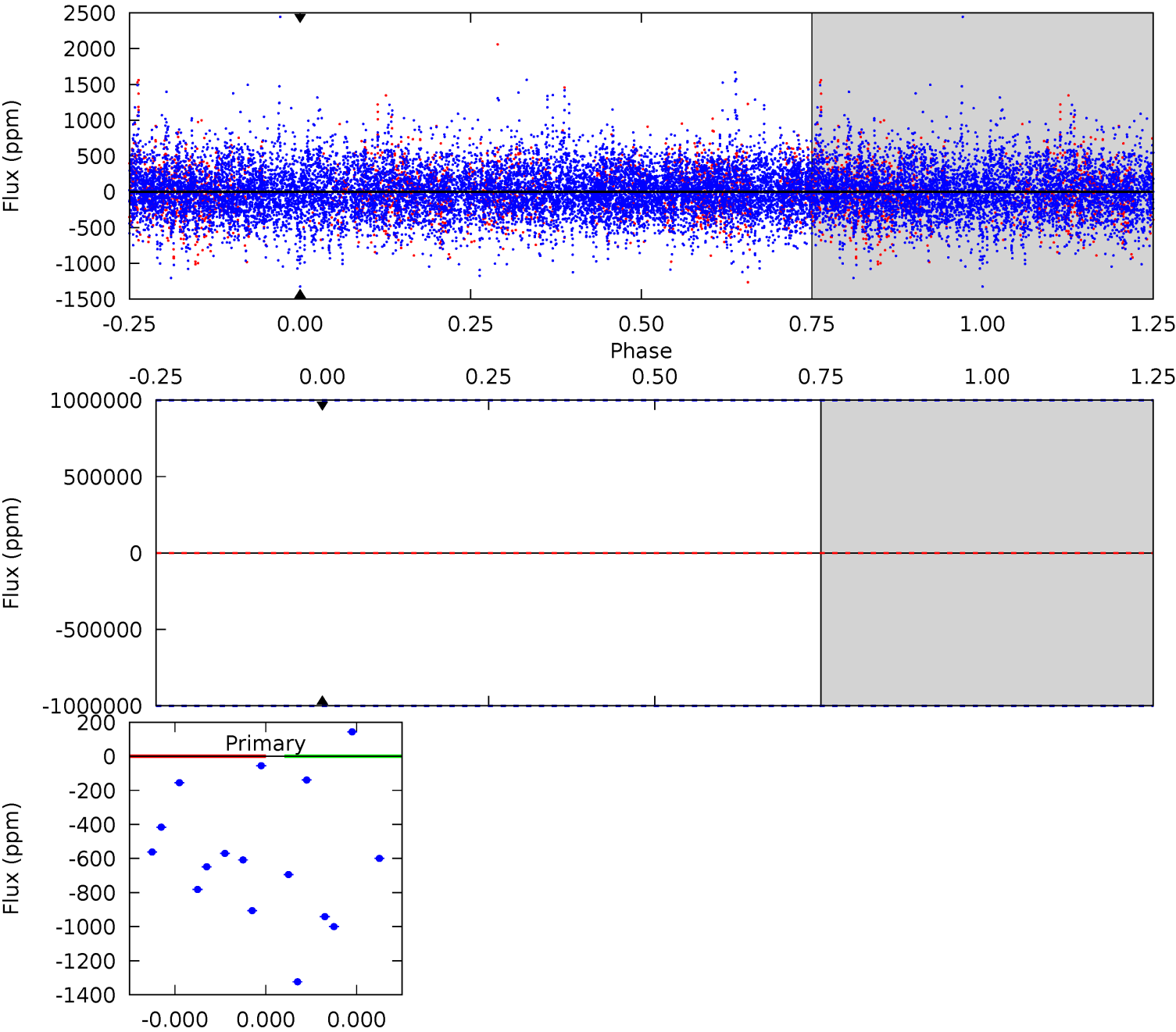
TCE 009649300-08 P=414.487765 Days $T_0=368.407719$ (BKJD)



DV Model-Shift Uniqueness Test

009649300-08, P = 414.487765 Days, E = 368.220164 Days

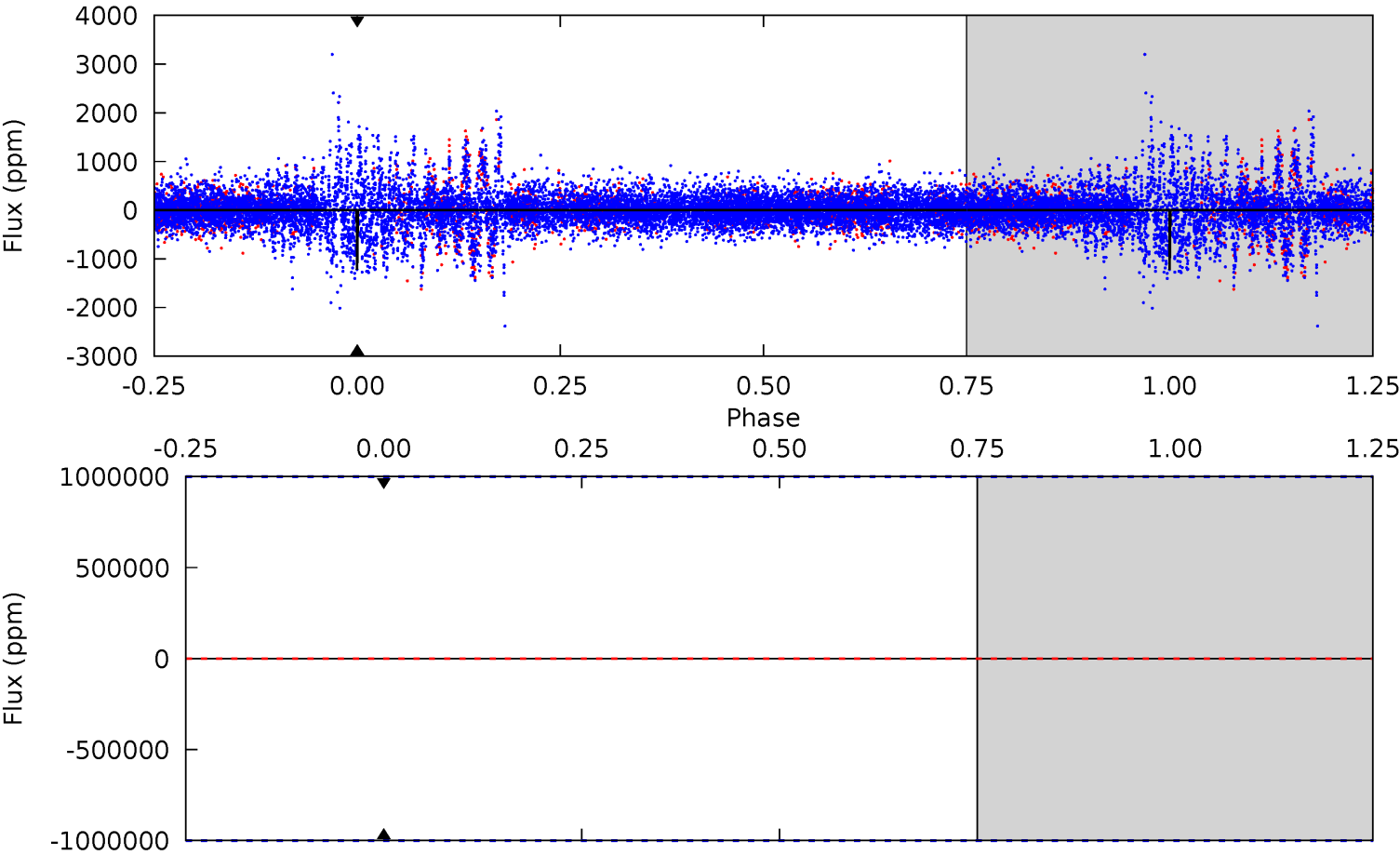
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|-----|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|-----|-------|-----|
| 0 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Alt Model-Shift Uniqueness Test

009649300-08, P = 414.487765 Days, E = 368.407719 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 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Stellar Parameters For KIC 009649300

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | R (R_{\odot}) | M (M_{\odot}) | p_{\star} ($\text{g}\cdot\text{cm}^{-3}$) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5907^{+142}_{-178} | $4.547^{+0.036}_{-0.192}$ | $-0.260^{+0.300}_{-0.300}$ | $0.860^{+0.247}_{-0.077}$ | $0.951^{+0.107}_{-0.119}$ | $2.103^{+0.408}_{-1.075}$ |
| | +2%/-3% | +1%/-4% | +115%/-115% | +29%/-9% | +11%/-13% | +19%/-51% |
| 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 009649300-08 / KOI

| Detrend | Depth (ppm) | R_p (R_{\oplus}) | T_{max} (K) | T_{obs} (K) | A_{obs} |
|---------|------------------|------------------------|-------------------|---------------------------|---|
| DV | 0 ± 1000000 | $7.37^{+8.02}_{-4.81}$ | 335^{+21}_{-14} | -4117^{+27735}_{-14352} | $-9895.567^{+2403846.730}_{-1439976.982}$ |
| Alt. | -0 ± 1000000 | $8.53^{+8.11}_{-5.64}$ | 334^{+22}_{-15} | 4301^{+15646}_{-21972} | $16629^{+1707011}_{-1380512}$ |

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 $A_{obs} \gg 1.0$

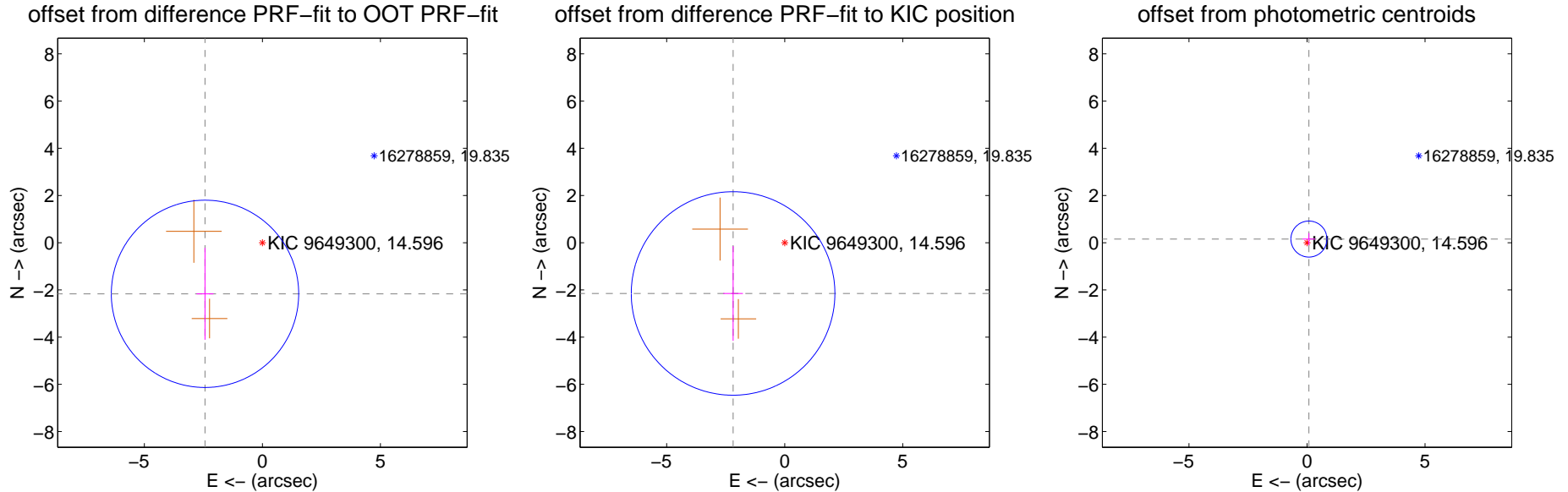
DV Centroid Data

Supplemental centroid analysis for 009649300-08. Kepler magnitude: 14.60. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

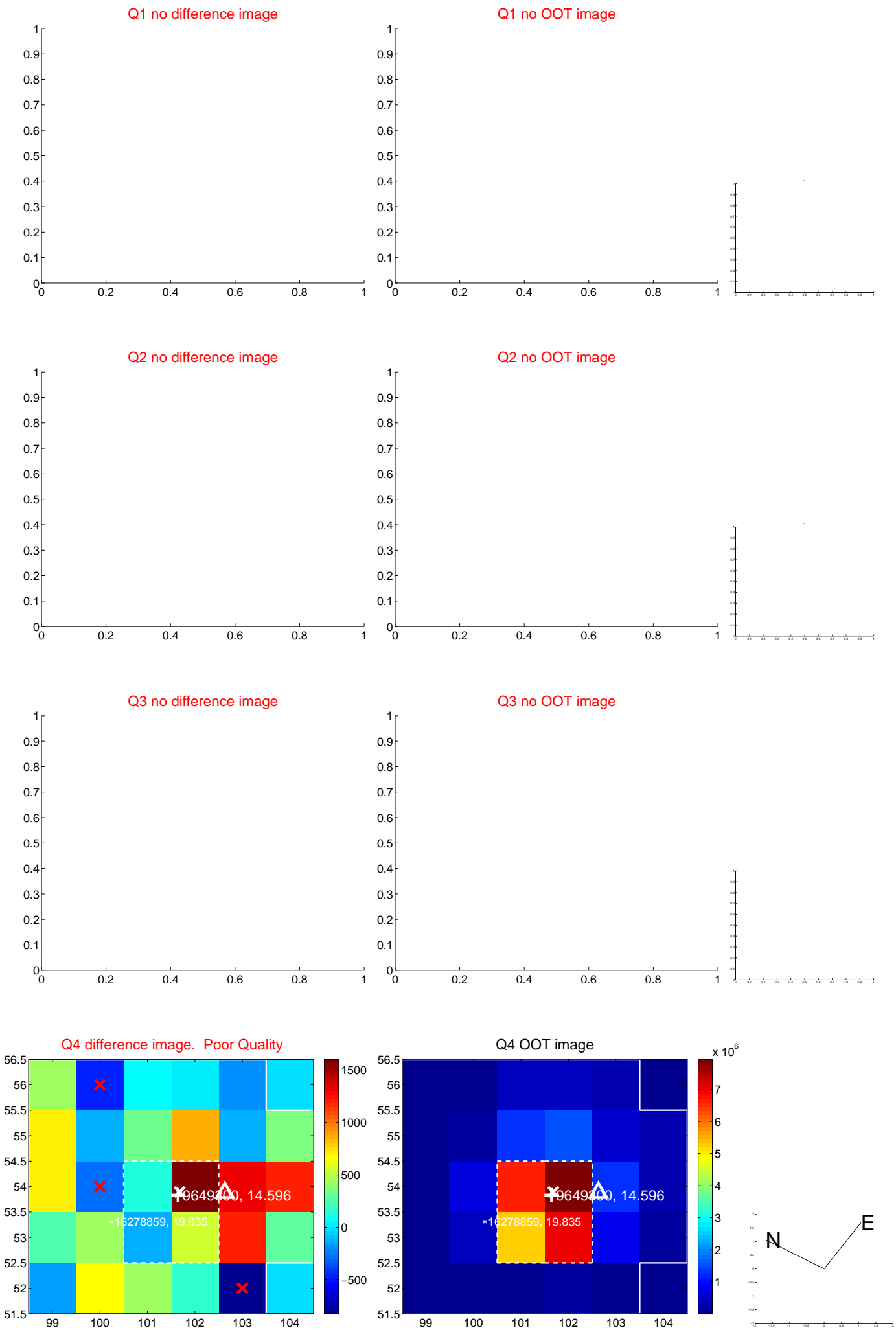
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|-------------------|--------------------|
| PRF-fit source offset from OOT | 3.256 ± 1.323 | 2.46 | 2.431 ± 0.358 | -2.166 ± 1.947 |
| PRF-fit source offset from KIC position | 3.067 ± 1.437 | 2.13 | 2.186 ± 0.417 | -2.151 ± 2.005 |
| photometric centroid source offset | 0.17 ± 0.25 | 0.68 | -0.08 ± 0.27 | 0.15 ± 0.25 |

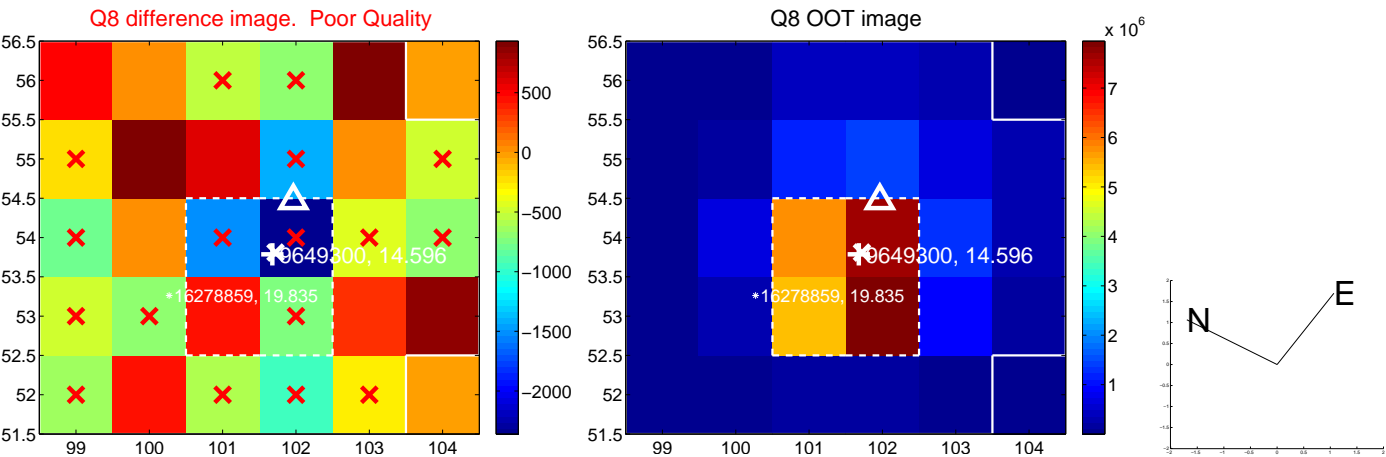
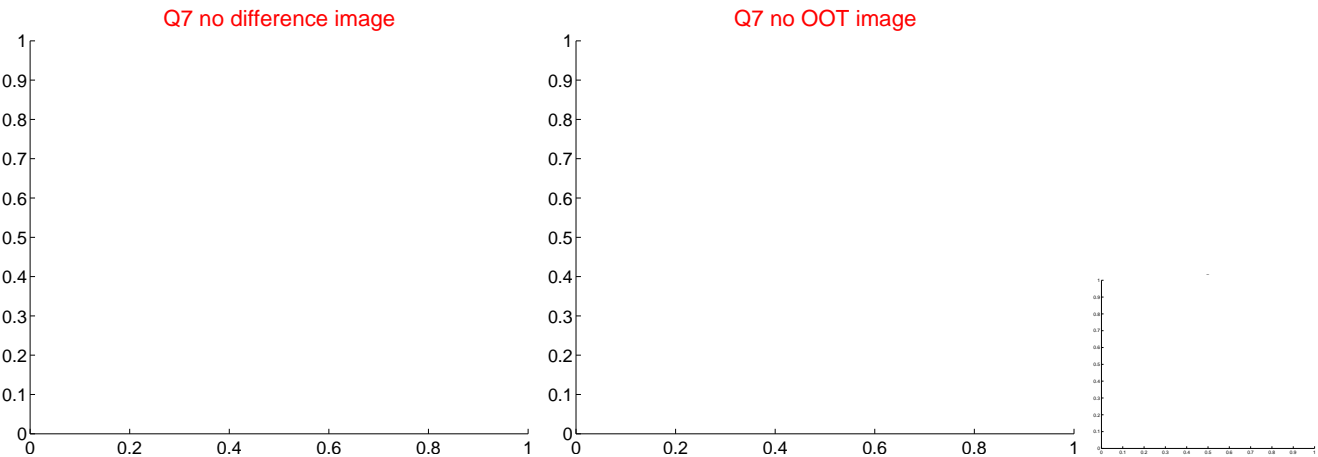
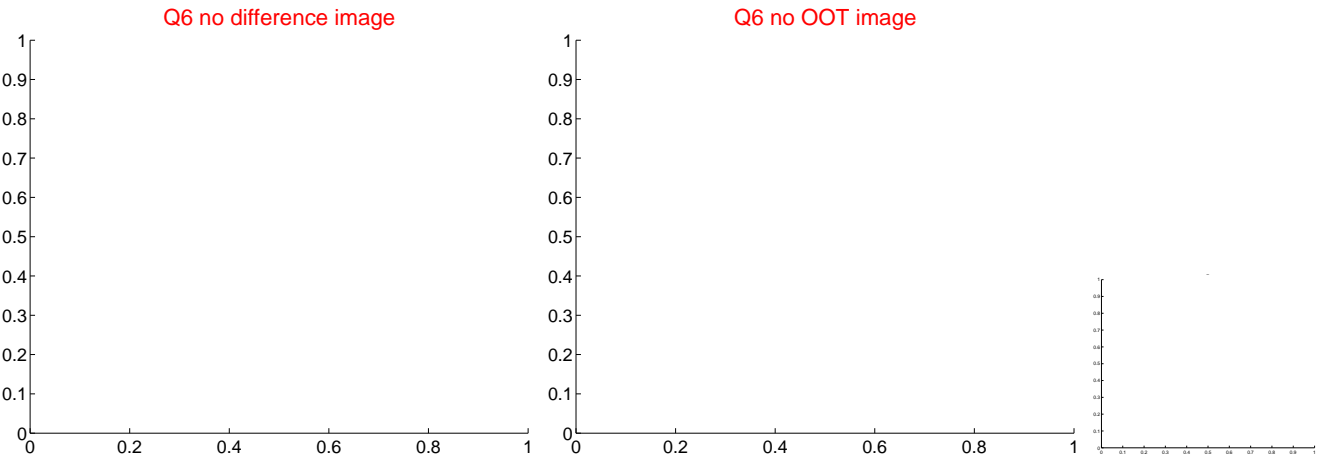
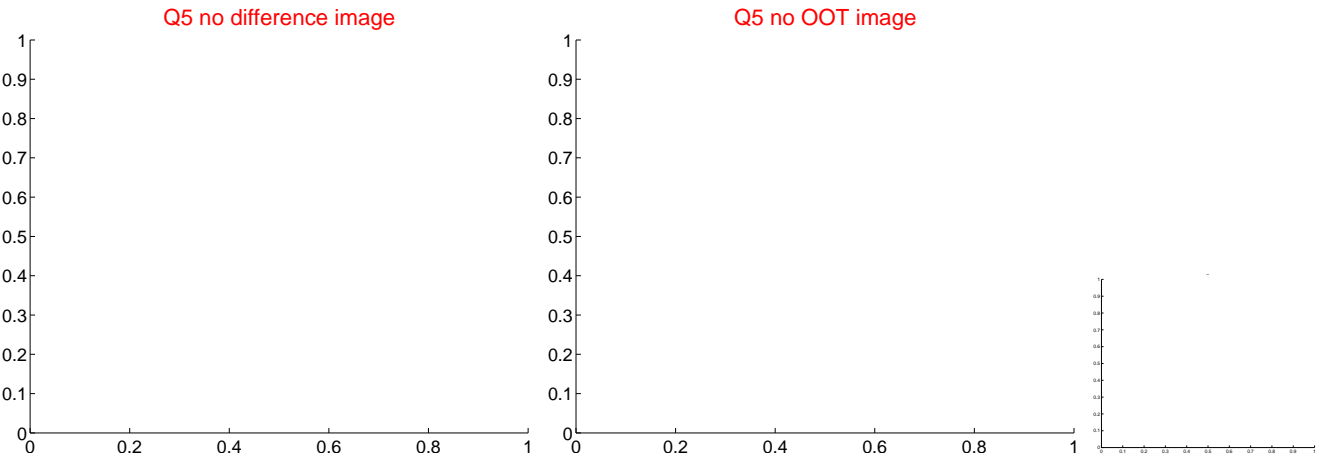


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

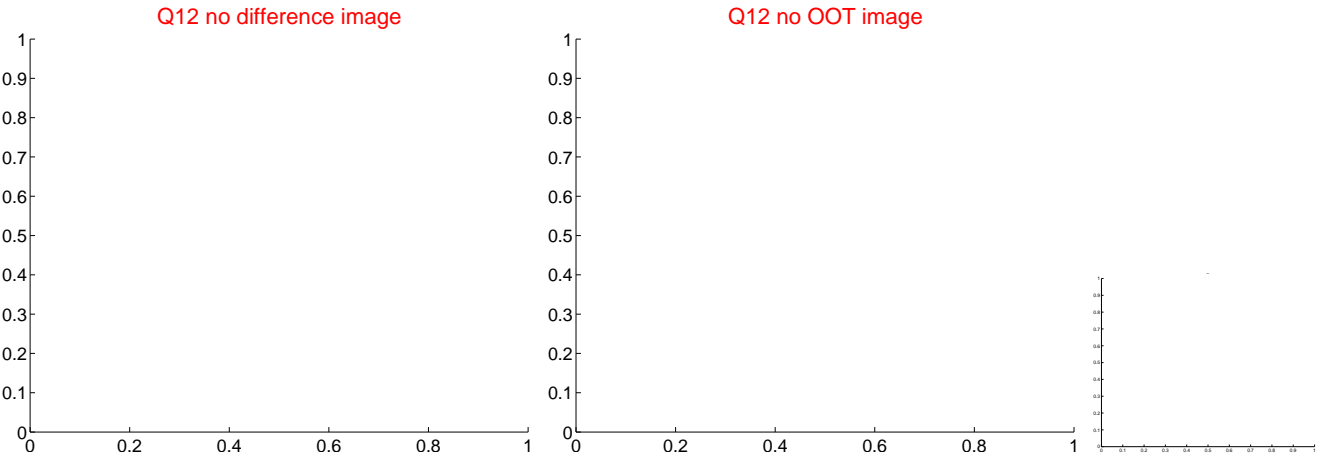
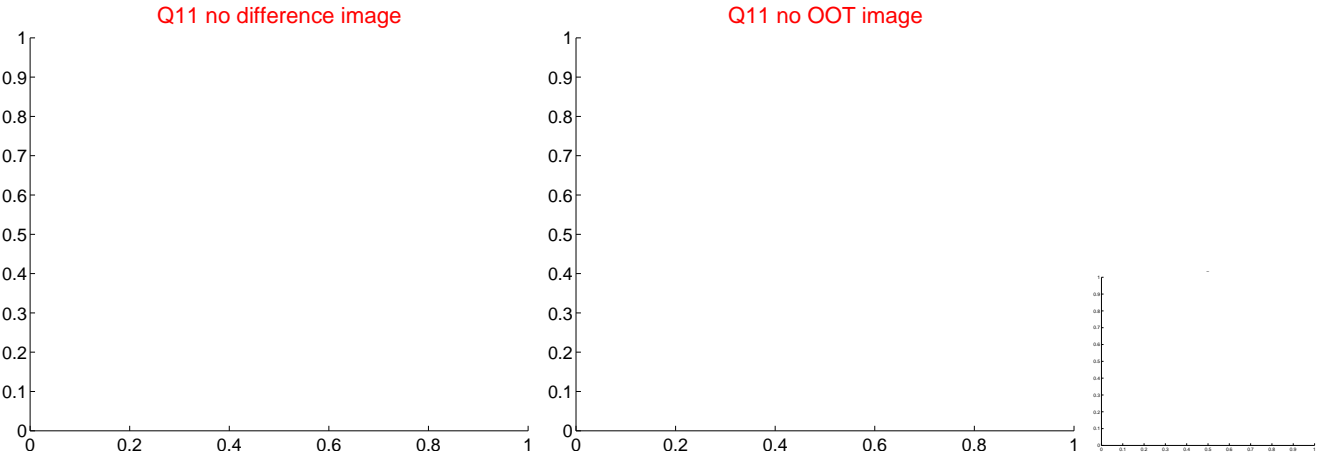
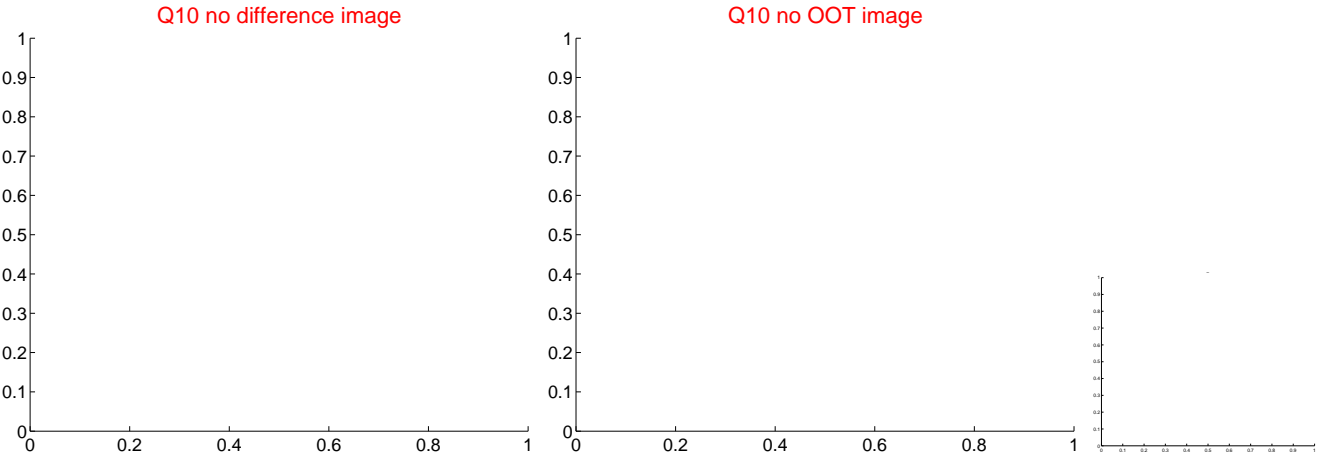
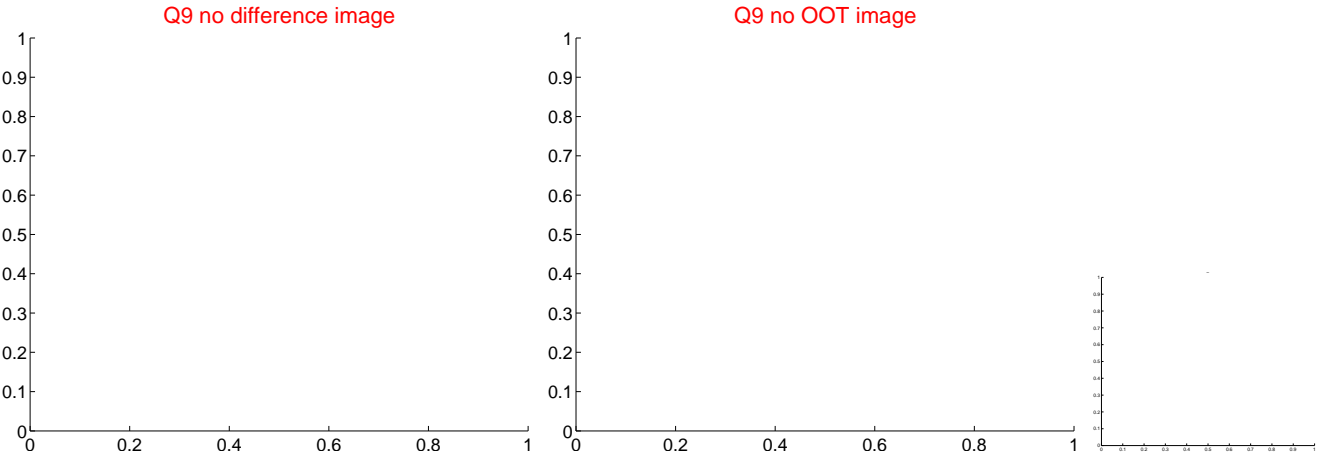
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



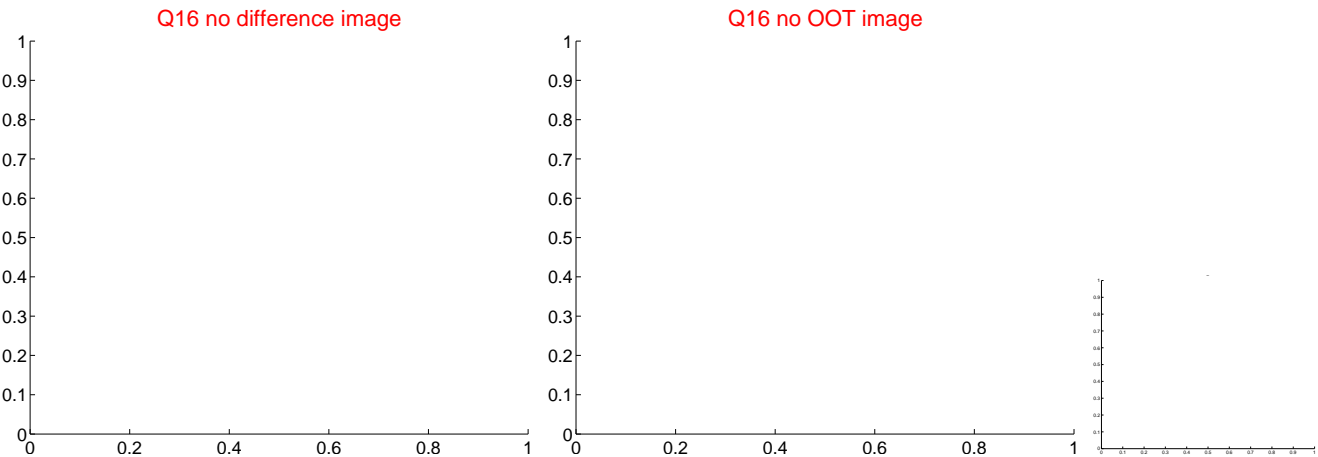
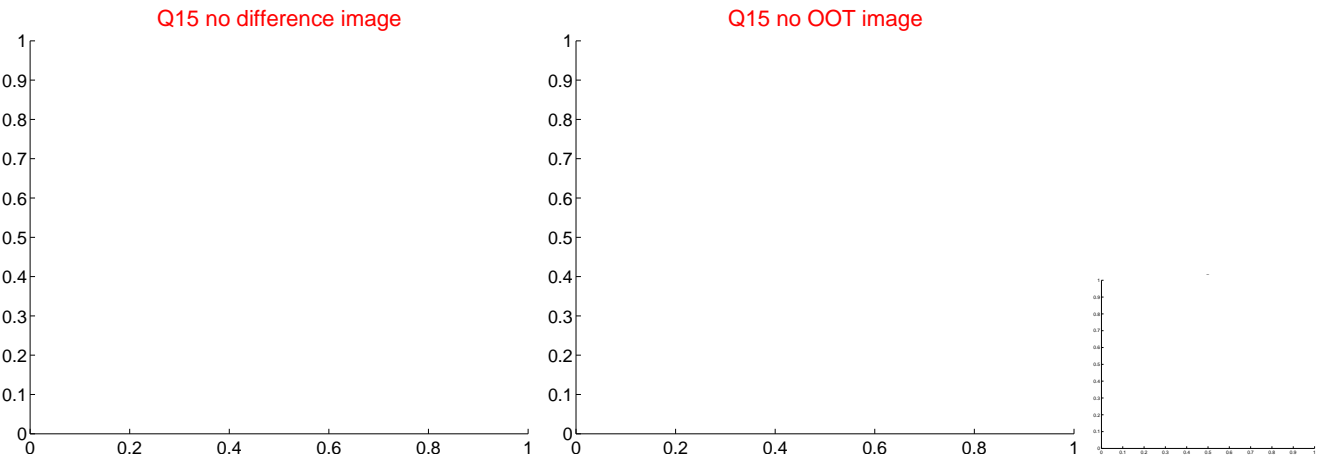
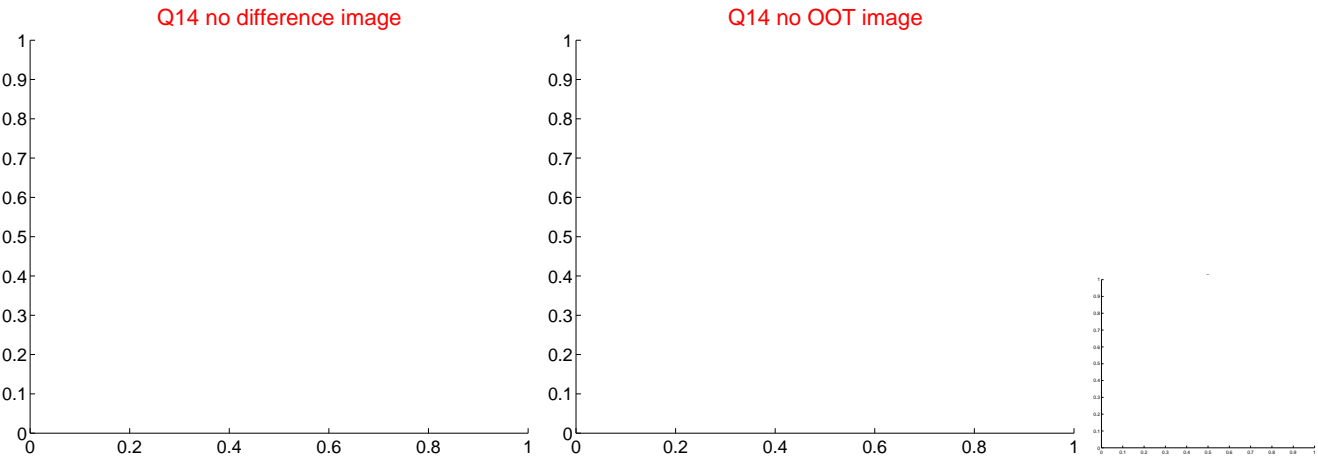
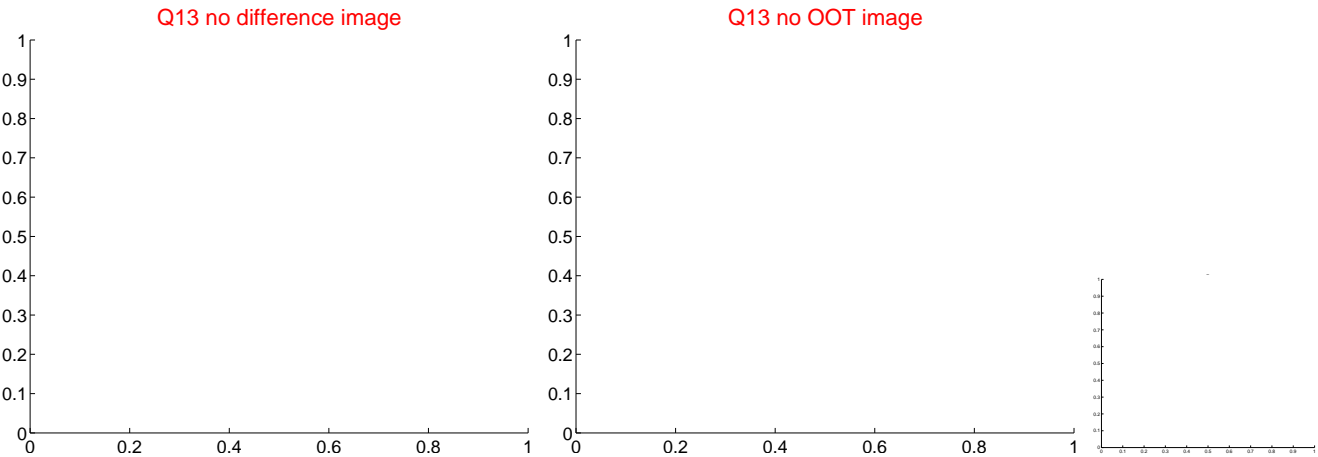
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



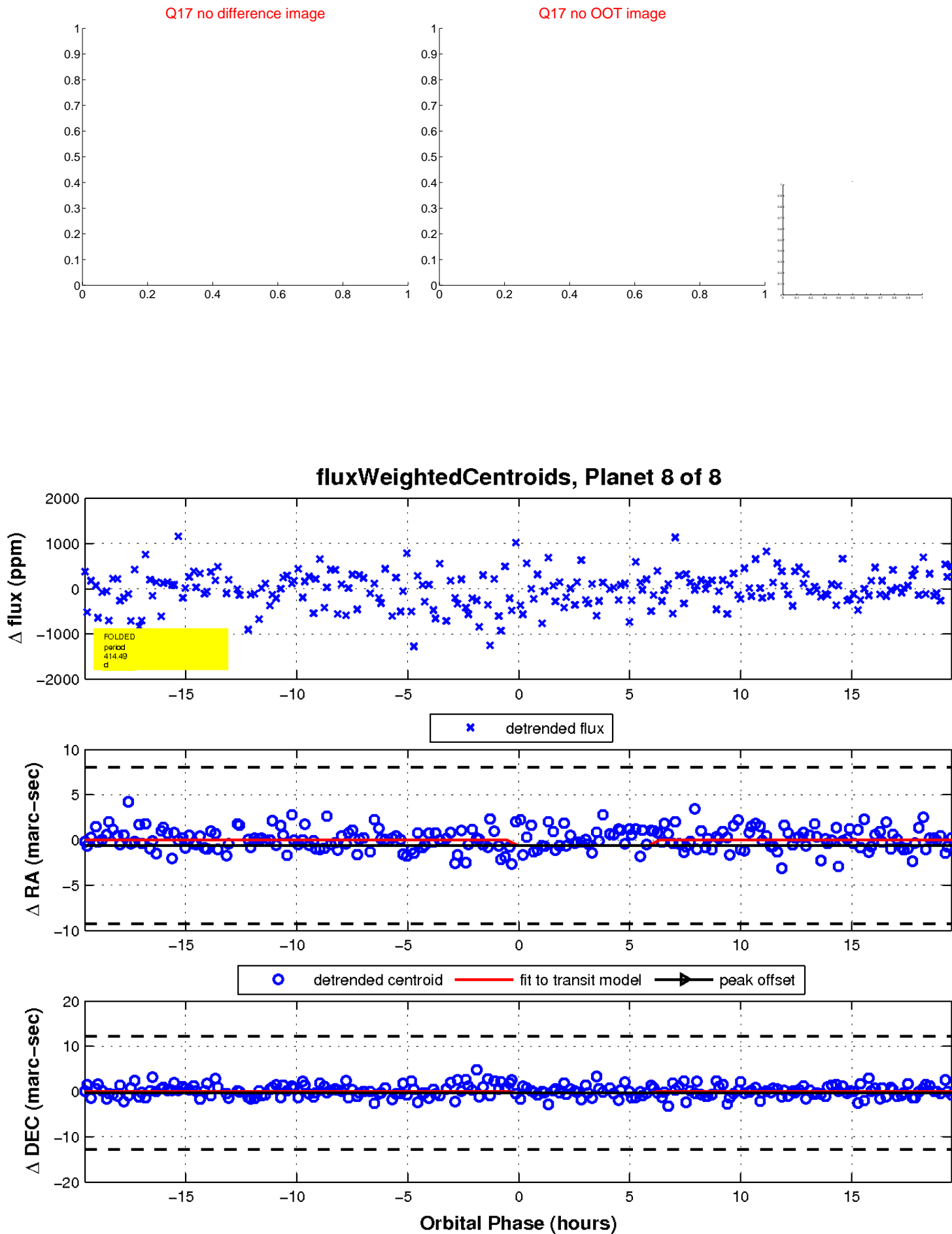
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

