

KIC 006301749

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|------|-----------------------------|-----------------|------------------------|------------------------|
| 006301749-01 | OBS | No | 0.675147 | 132.026284 | 123.3 | 2.671 | 10.9 | 11.6 | 0.85 | 5467 | 1.14 | 2933.17 |
| 006301749-02 | OBS | No | 0.675122 | 131.711283 | 86.3 | 2.592 | 11.1 | 7.6 | 0.85 | 5467 | 0.85 | 2933.31 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
| 006301749-01 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET |
| 006301749-02 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET |

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

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

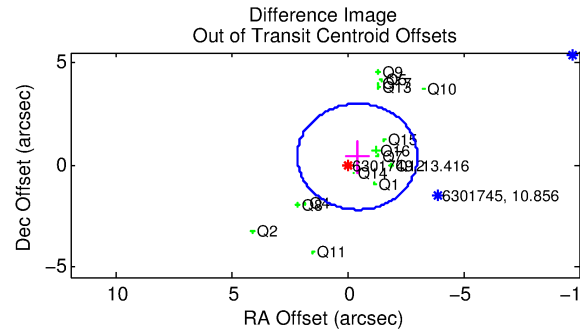
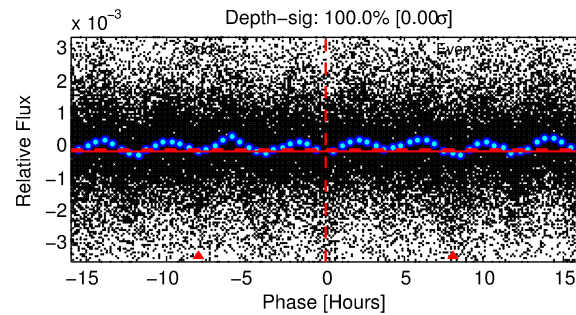
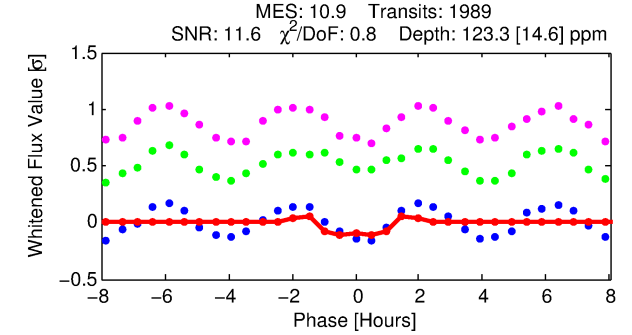
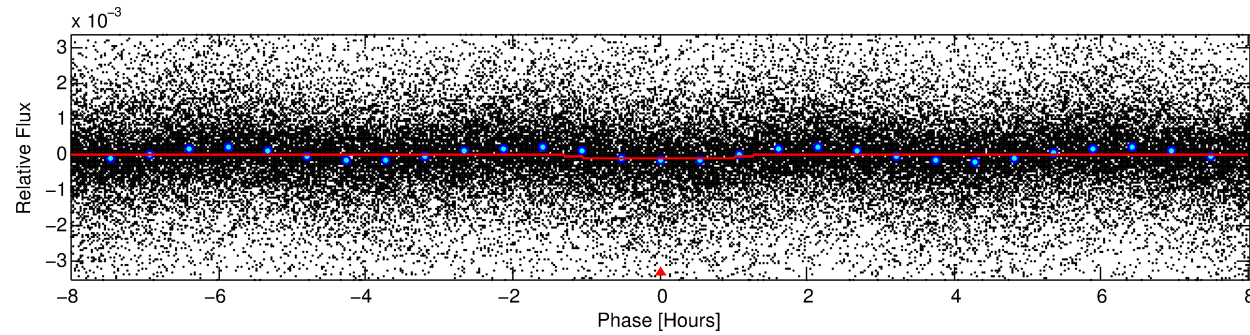
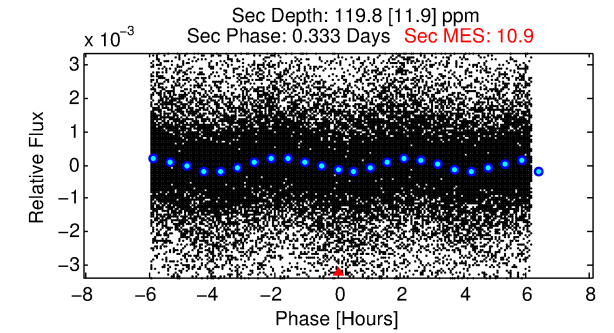
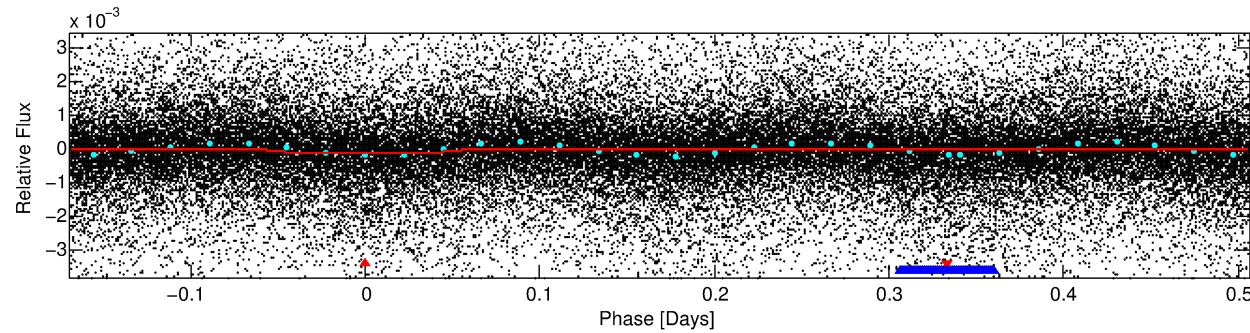
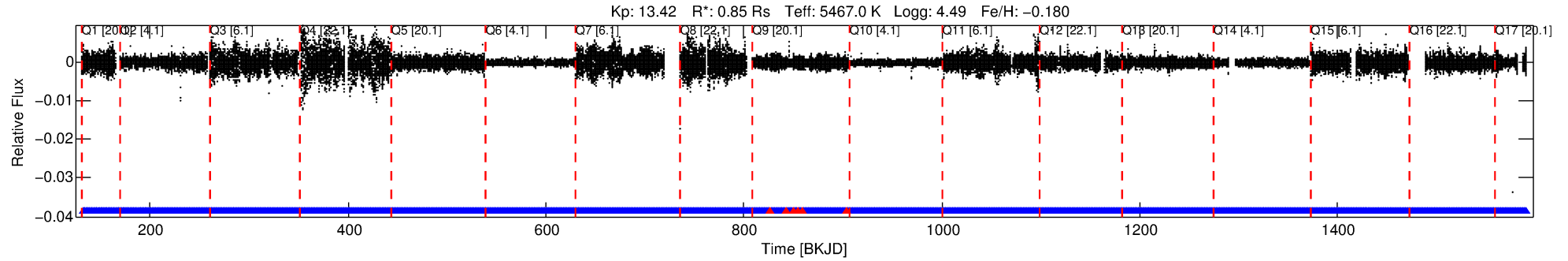
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006301749-01

No Significant Match Found

DV One-Page Summary

KIC: 6301749 Candidate: 1 of 2 Period: 0.675 d



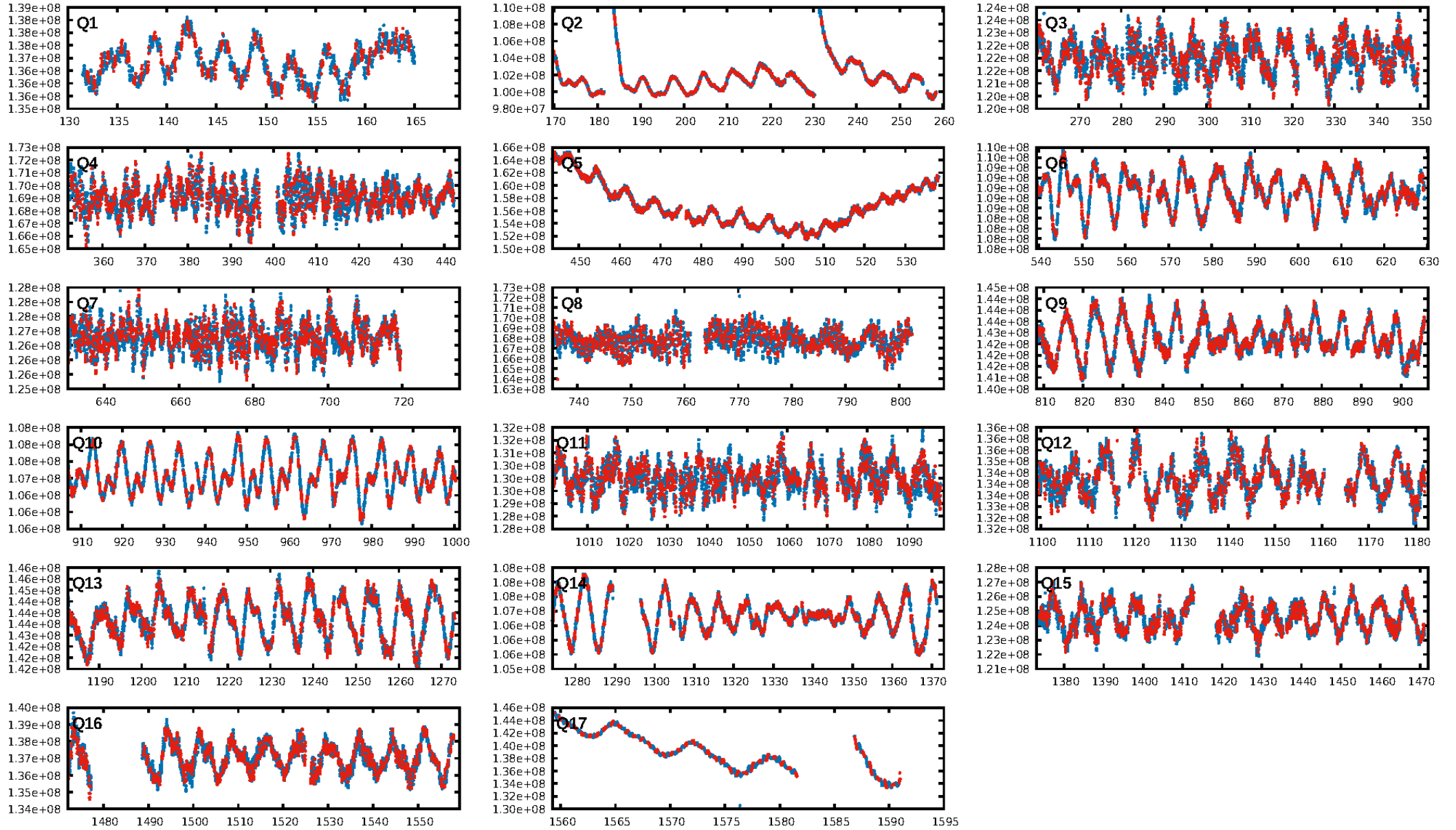
DV Fit Results:

Period = 0.67515 [0.00001] d
Epoch = 132.0263 [0.0016] BKJD
Rp/R* = 0.0122 [0.0039]
a/R* = 1.30 [0.74]
b = 0.90 [0.30]
Seff = 2933.17 [816.40]
Teq = 1877 [131] K
Rp = 1.14 [0.43] Re
a = 0.0141 [0.0024] AU
Ag = 10.15 [6.98] [1.31σ]
Teff = 5178 [844] K [3.87σ]

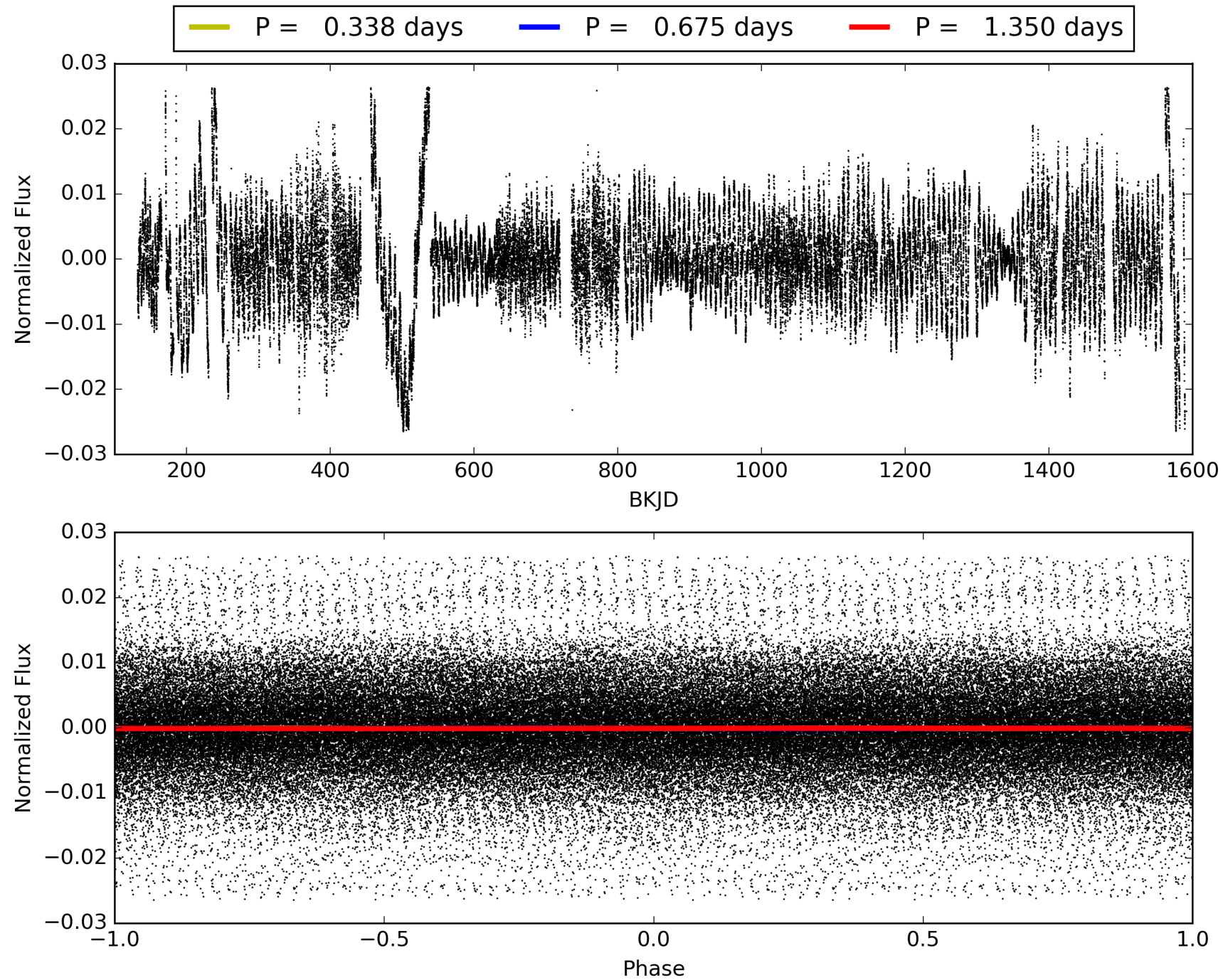
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 2.58e-09
RollingBand-fgt: 1.00 [1893/1899]
GhostDiagnostic-chr: -1.822
Centroid-sig: 17.1%
Centroid-so: 2.620 arcsec [19.18σ]
OotOffset-rm: 0.566 arcsec [0.65σ]
KicOffset-rm: 4.371 arcsec [11.67σ]
OotOffset-st: 3/3/4/5 [15]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.27 [4/15]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 006301749-01, PDC Light Curves

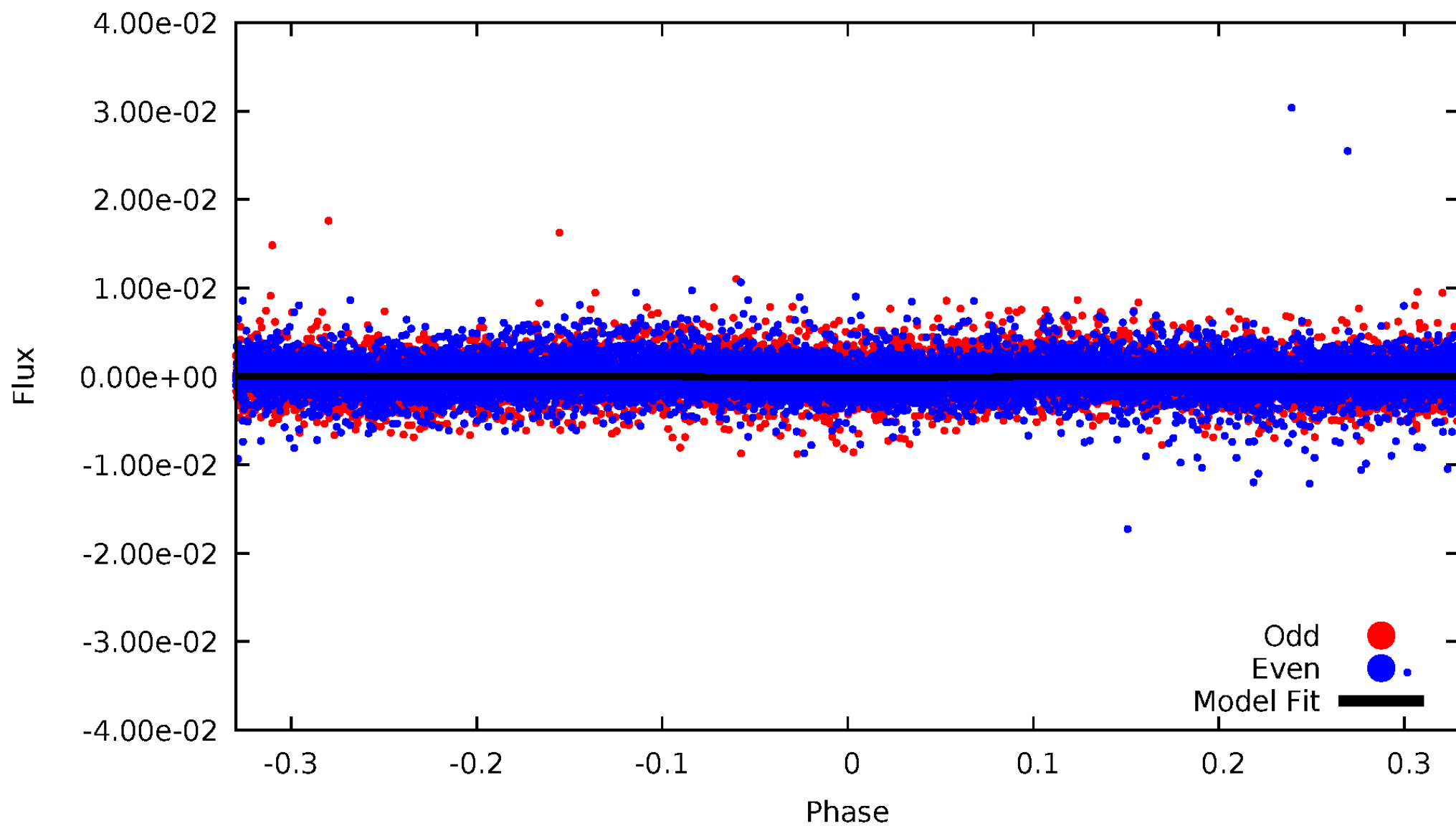


TCE 006301749-01



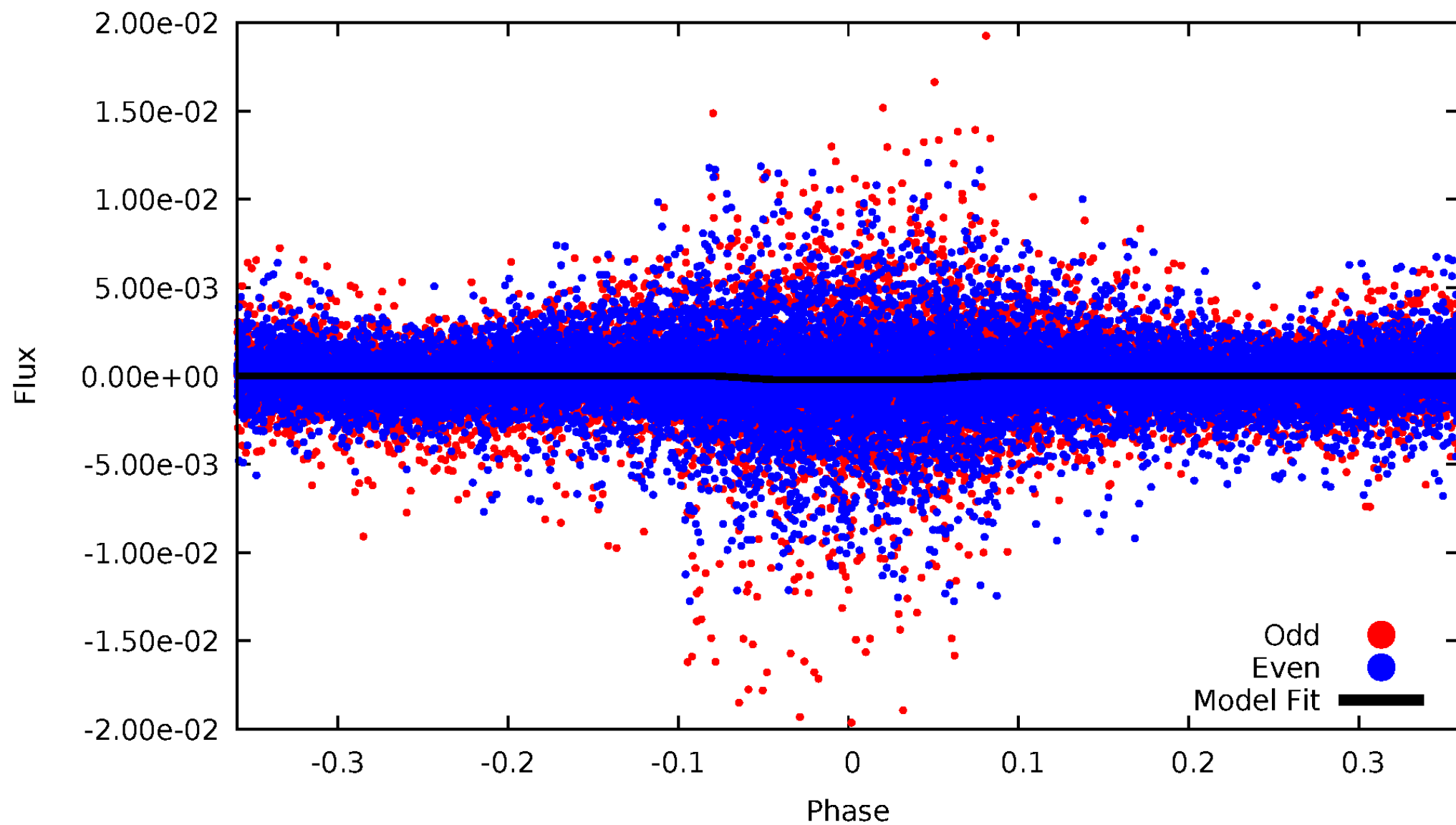
DV Odd/Even

TCE 006301749-01



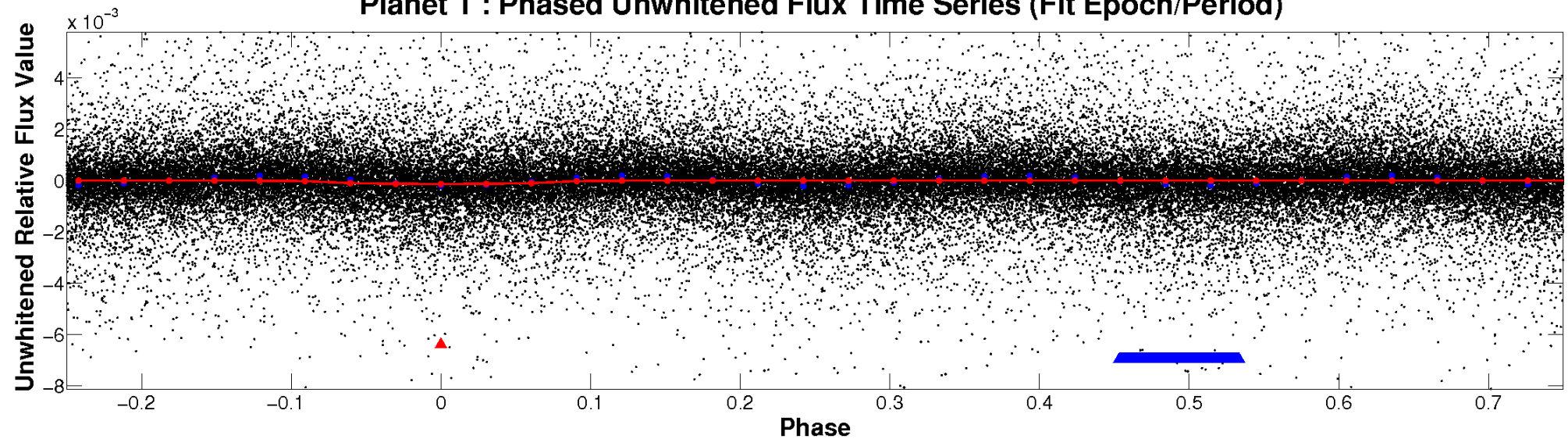
ALT Odd/Even

TCE 006301749-01

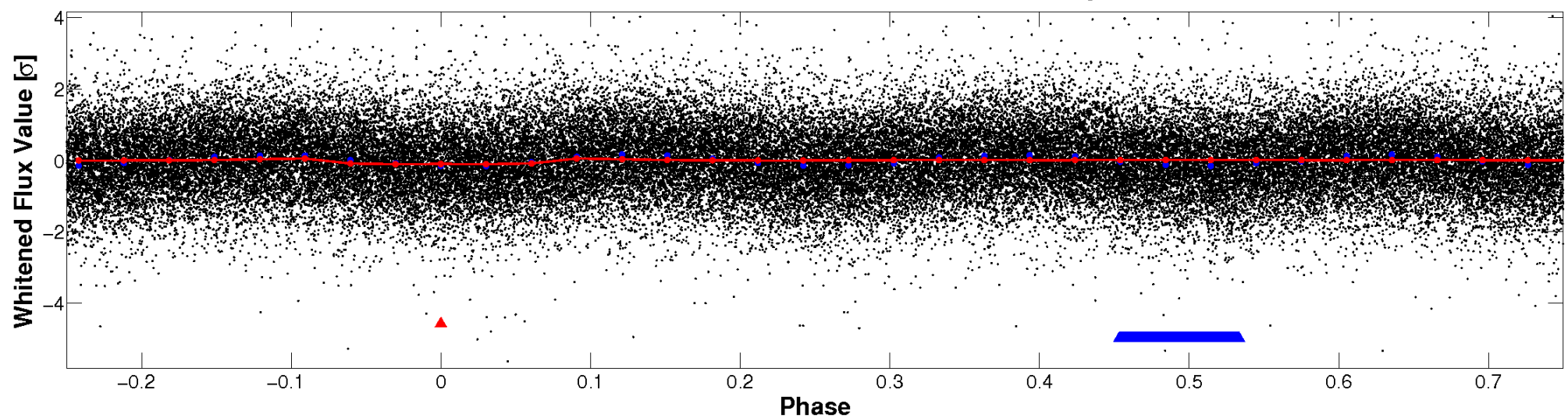


Non-Whitened Vs. Whitened Light Curve

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

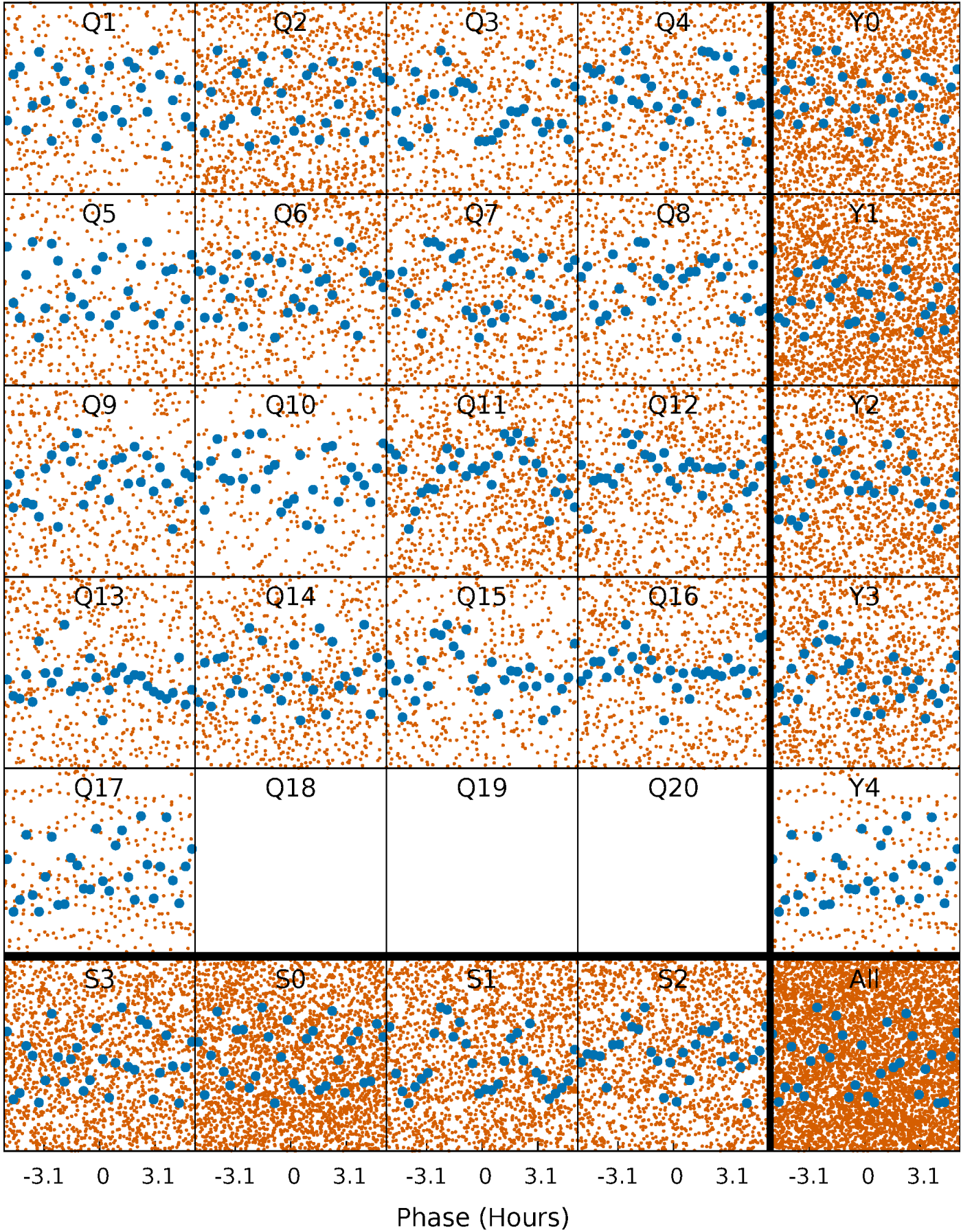


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



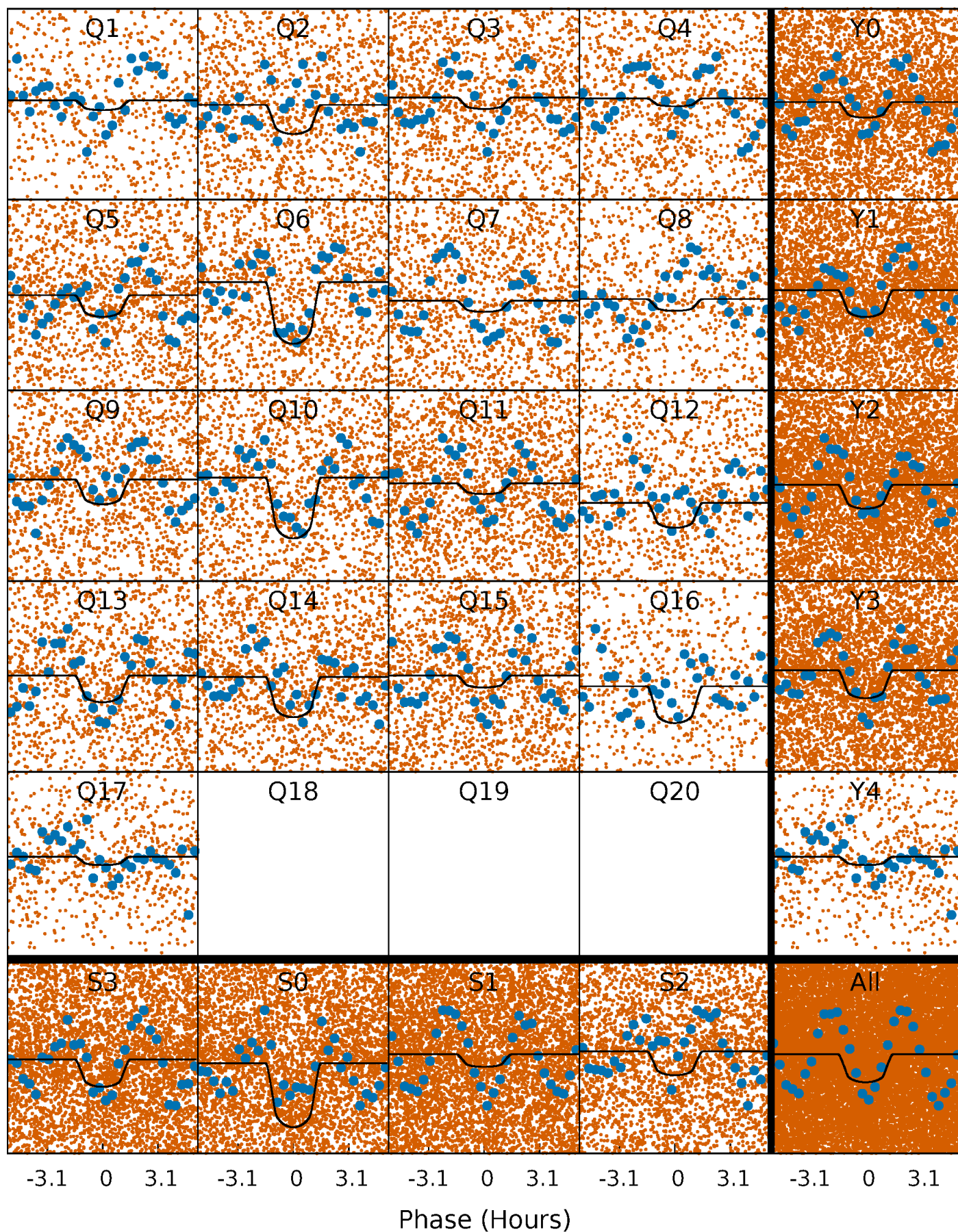
PDC Quarter-Phased Transit Curves

TCE 006301749-01 P= 0.675147 Days $T_0=132.026284$ (BKJD)



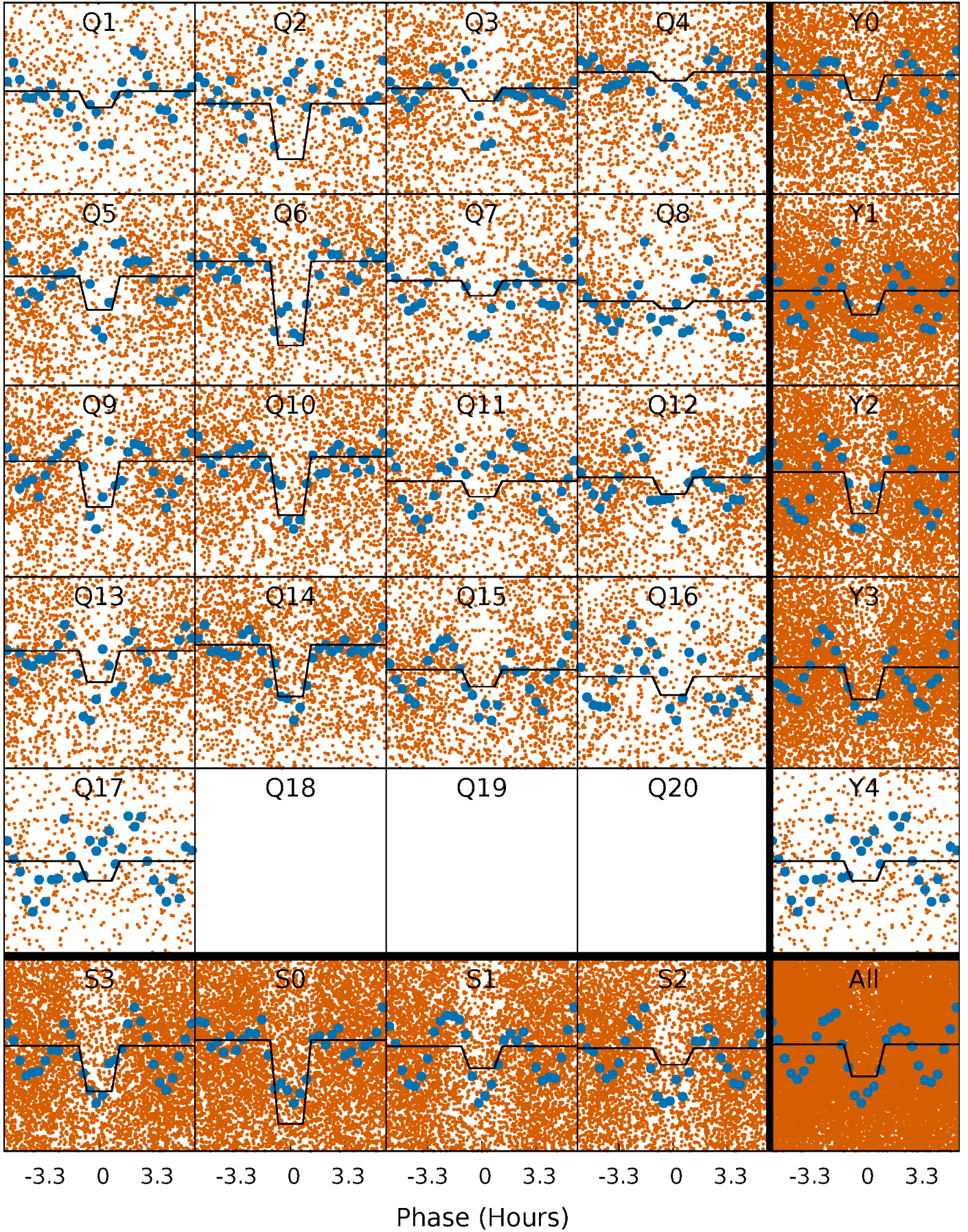
DV Quarter-Phased Transit Curves

TCE 006301749-01 P= 0.675147 Days $T_0=132.026284$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

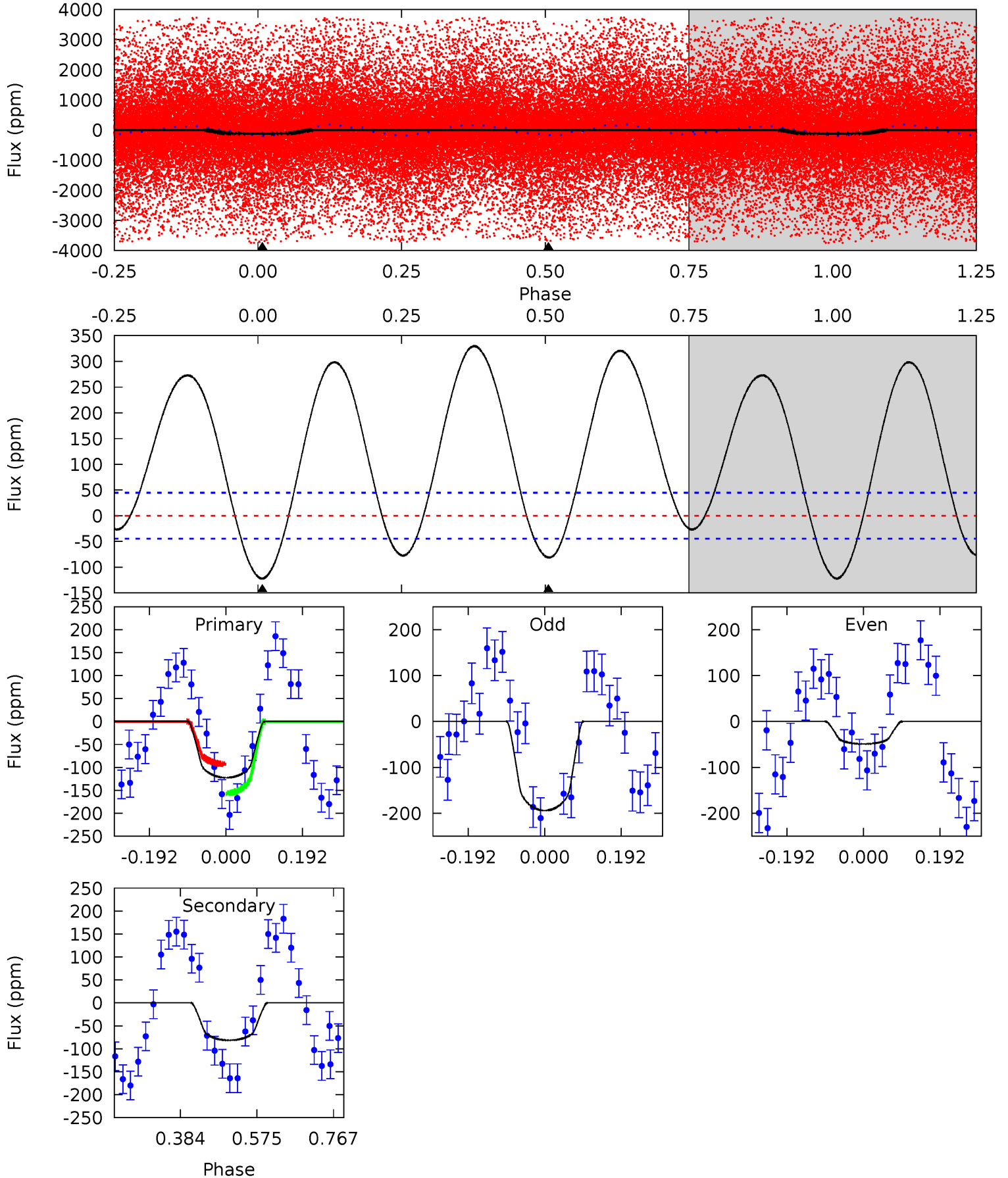
TCE 006301749-01 P= 0.675152 Days $T_0=132.025463$ (BKJD)



DV Model-Shift Uniqueness Test

006301749-01, P = 0.675147 Days, E = 131.351137 Days

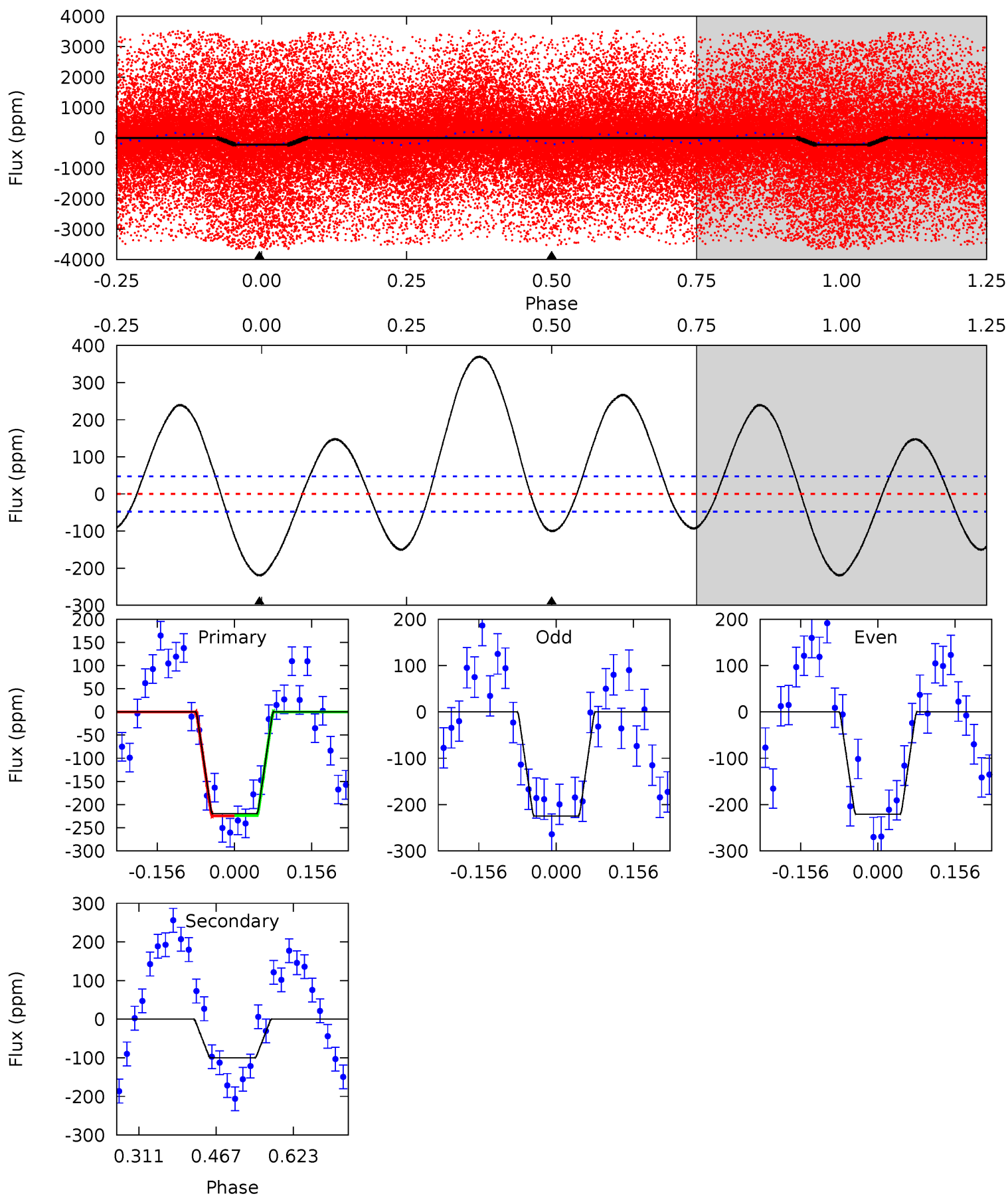
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 12.1 | 8.07 | 0 | 0 | 4.43 | 1.31 | 5.56 | 12.1 | 12.1 | 8.07 | 8.07 | 7.25 | 0.95 | 0.73 | 3.13 |



Alt Model-Shift Uniqueness Test

006301749-01, P = 0.675152 Days, E = 131.350311 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 20.7 | 9.42 | 0 | 0 | 4.47 | 1.42 | 10.8 | 20.7 | 20.7 | 9.42 | 9.42 | 0.19 | 1.26 | 0.63 | 0.02 |



Stellar Parameters For KIC 006301749

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5467^{+164}_{-147} | $4.490^{+0.092}_{-0.138}$ | $-0.180^{+0.300}_{-0.300}$ | $0.855^{+0.173}_{-0.107}$ | $0.824^{+0.110}_{-0.073}$ | $1.857^{+0.730}_{-0.728}$ |
| | +3%/-3% | +2%/-3% | +167%/-167% | +20%/-13% | +13%/-9% | +39%/-39% |
| 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 006301749-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|----------------------|---------------------------|
| DV | -81±10 | $1.18^{+0.38}_{-0.40}$ | 2631^{+151}_{-112} | 4716^{+851}_{-512} | $6.335^{+7.426}_{-2.649}$ |
| Alt. | -100±11 | $1.31^{+0.43}_{-0.37}$ | 2638^{+152}_{-119} | 4723^{+778}_{-525} | $6.386^{+6.009}_{-2.765}$ |

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

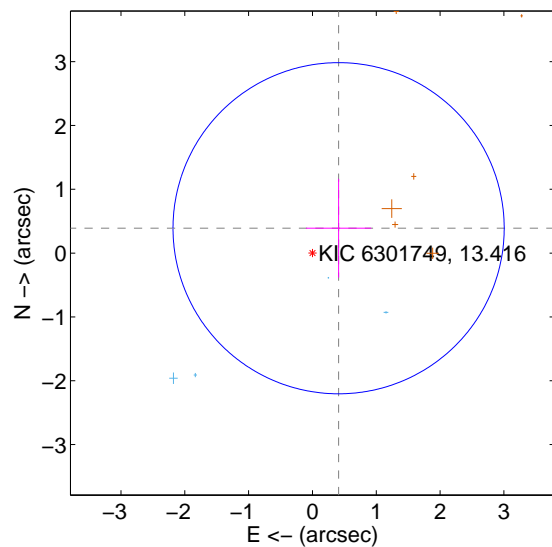
Supplemental centroid analysis for 006301749-01. Kepler magnitude: 13.42. Transit SNR 11.58

There are 4 quarters with good PRF difference image offsets

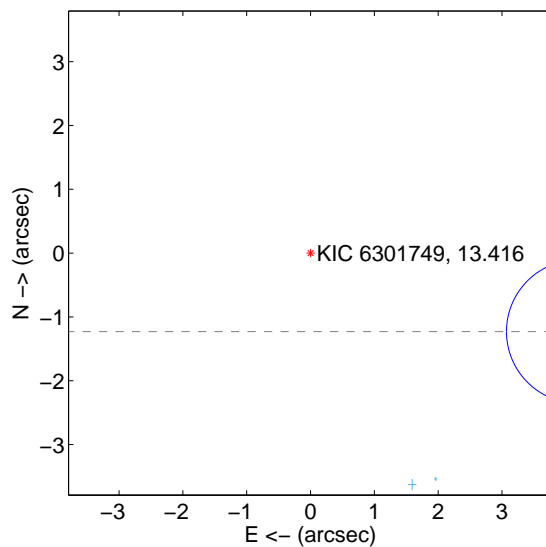
The OOT PRF centroid is offset from the target star catalog position by about 4.38 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.566 ± 0.865 | 0.65 | -0.410 ± 0.512 | 0.390 ± 0.773 |
| PRF-fit source offset from KIC position | 4.371 ± 0.375 | 11.67 | -4.194 ± 0.347 | -1.229 ± 0.608 |
| photometric centroid source offset | 2.62 ± 0.14 | 19.18 | -2.53 ± 0.14 | -0.70 ± 0.14 |

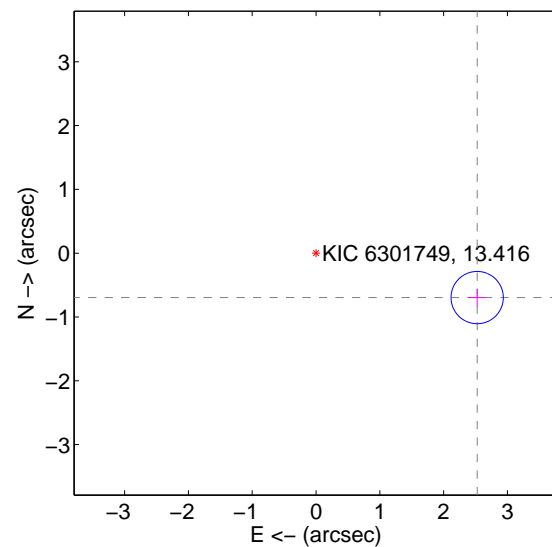
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

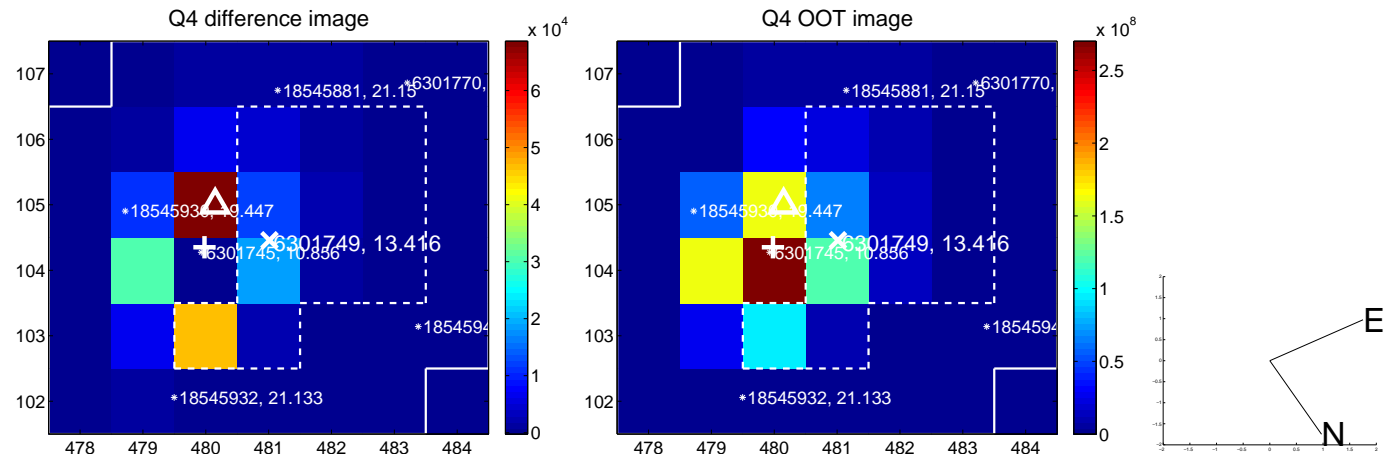
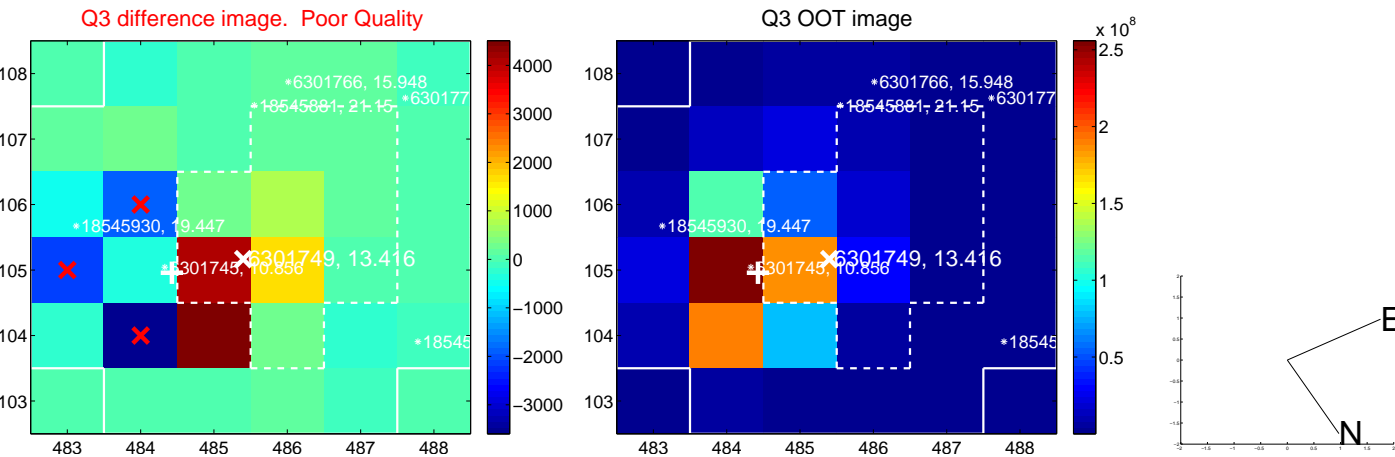
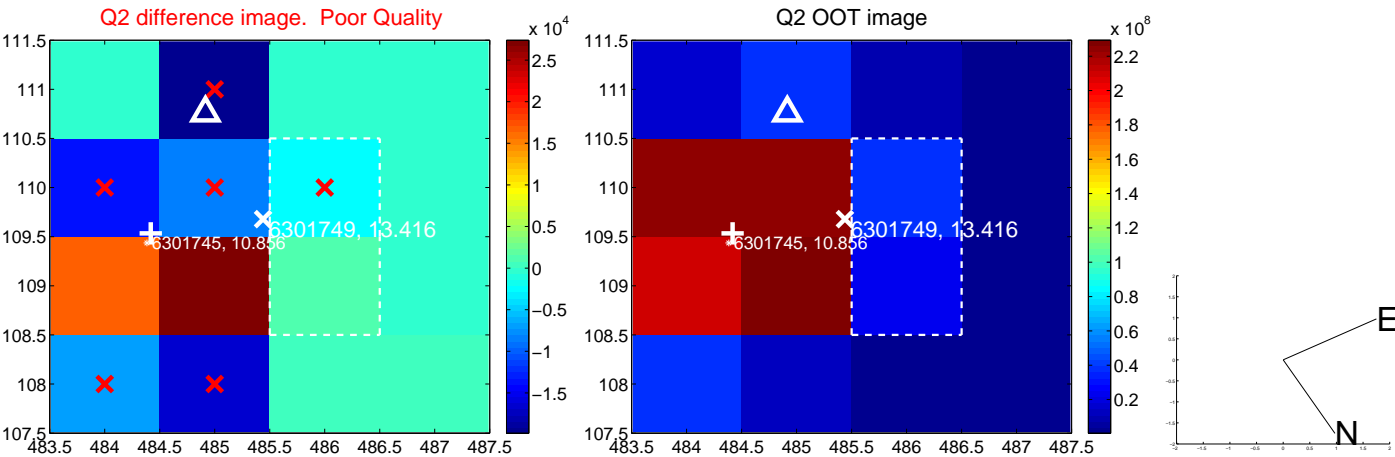
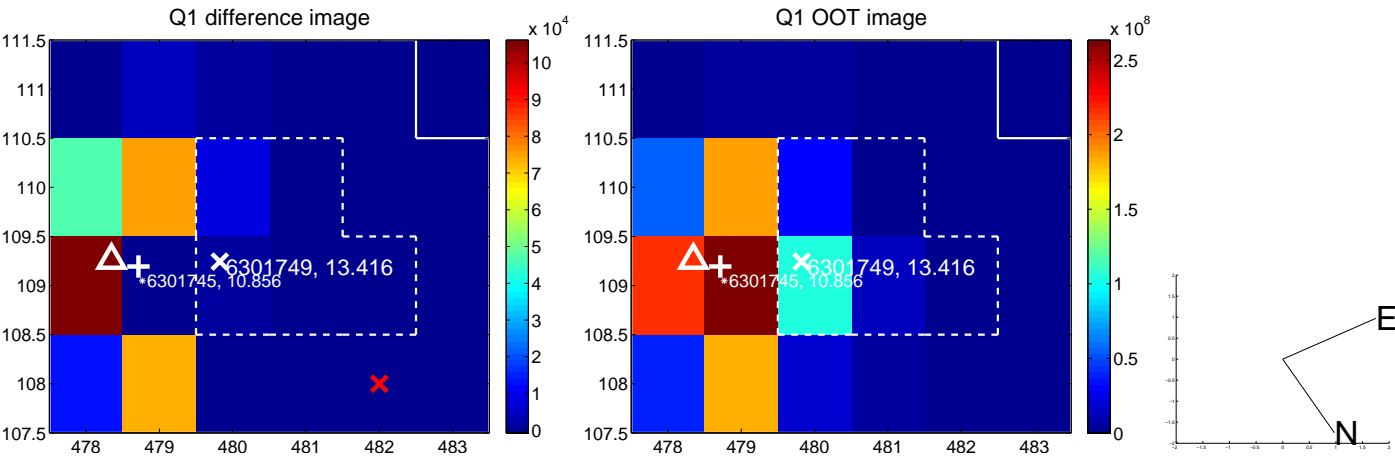


offset from photometric centroids

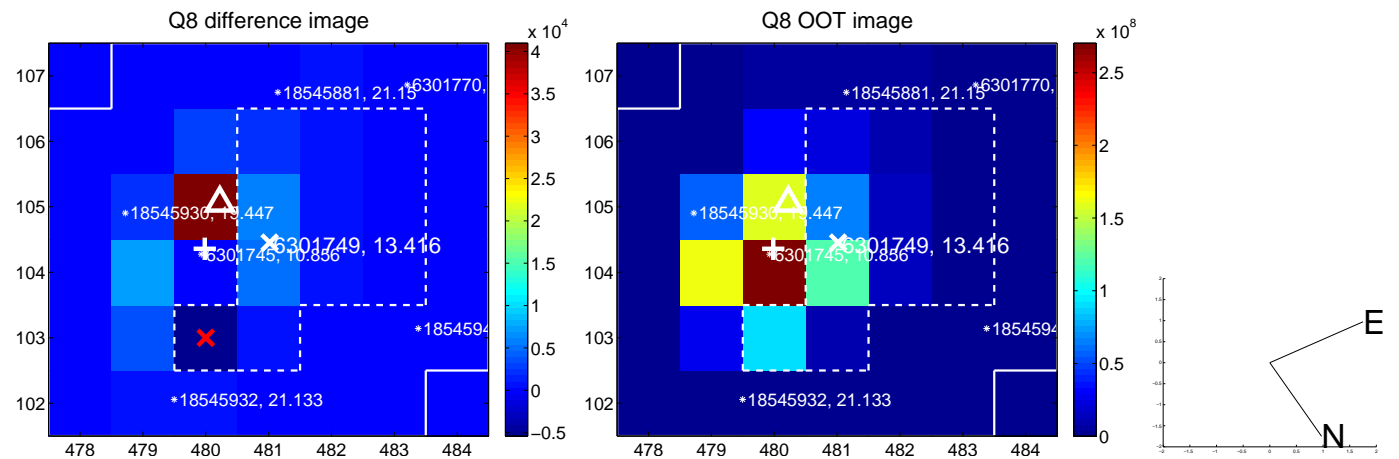
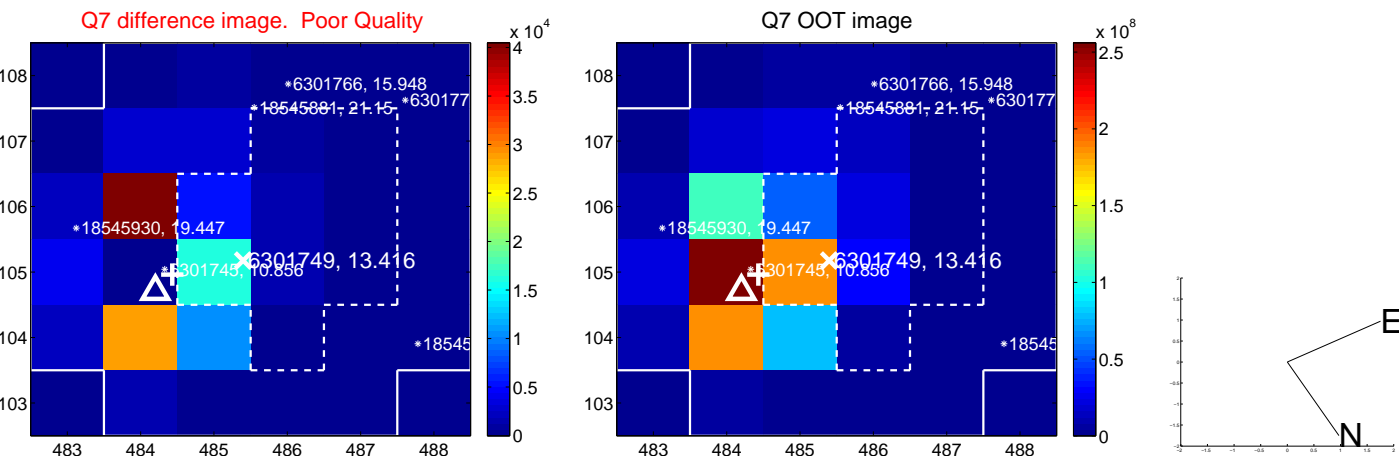
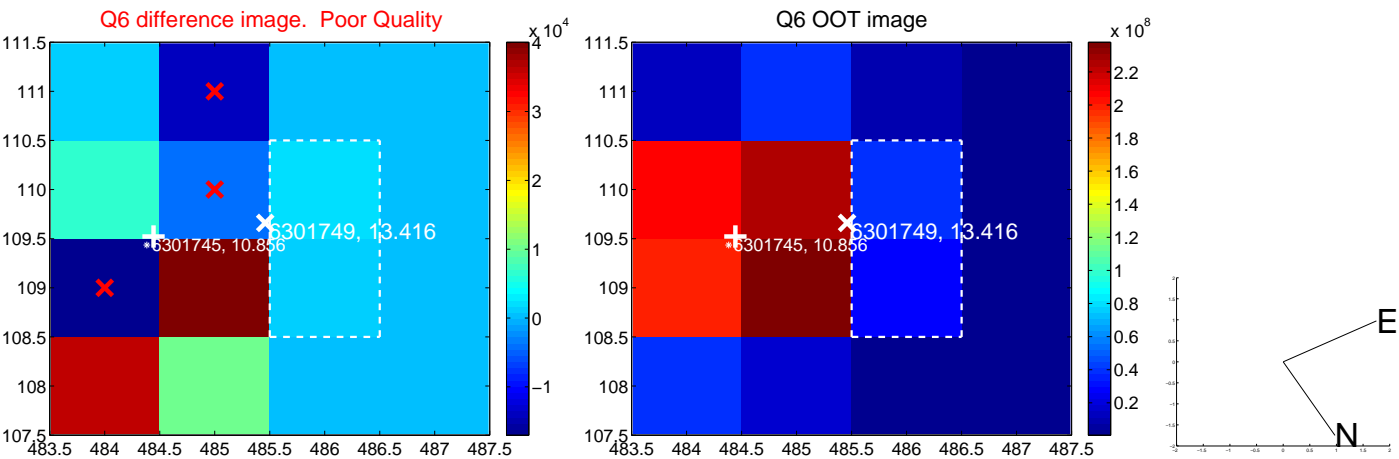
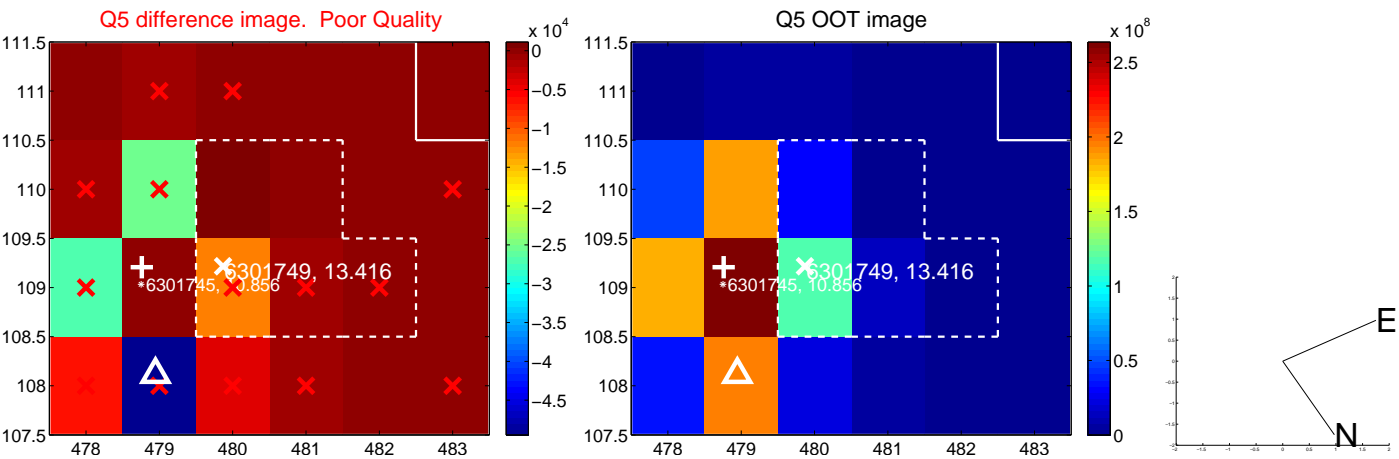


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

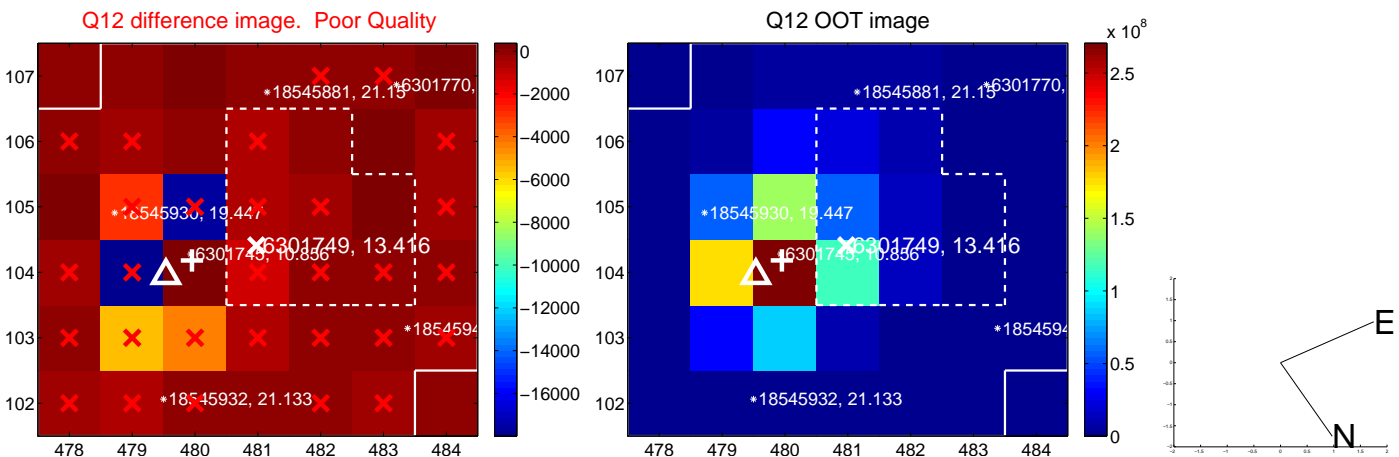
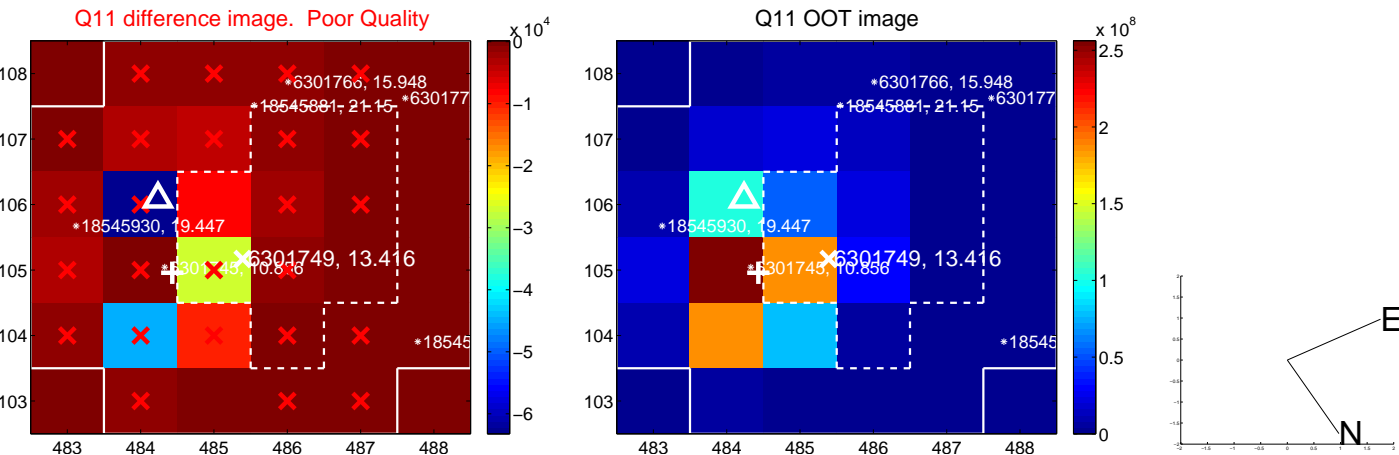
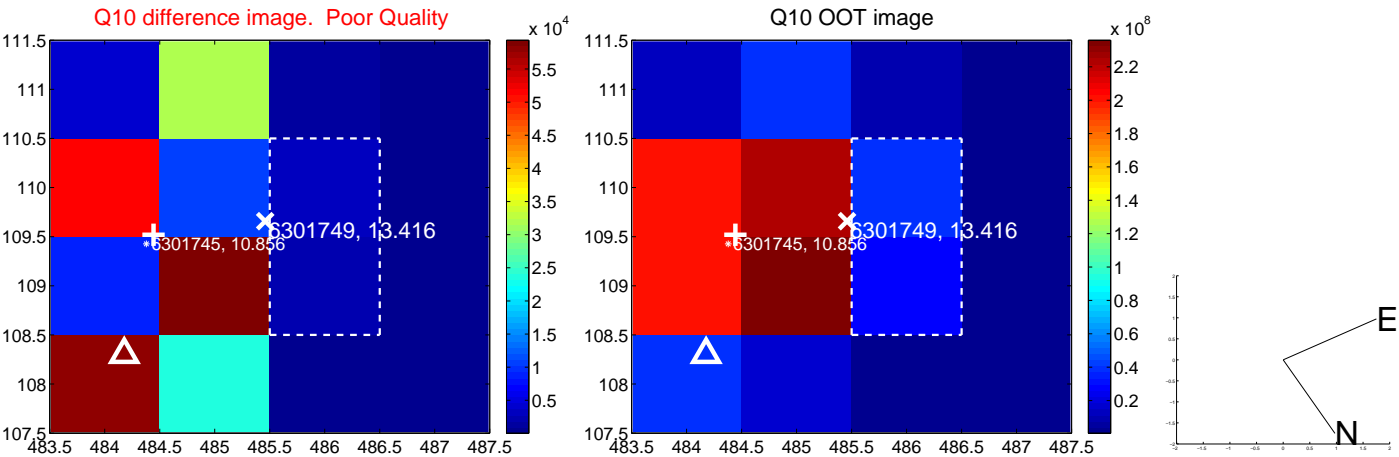
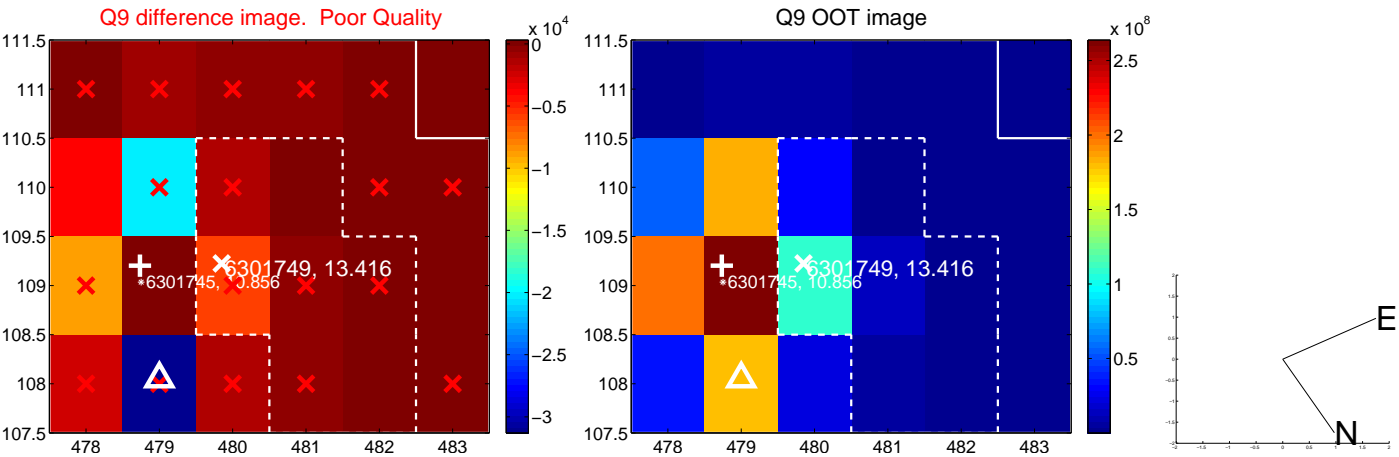
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



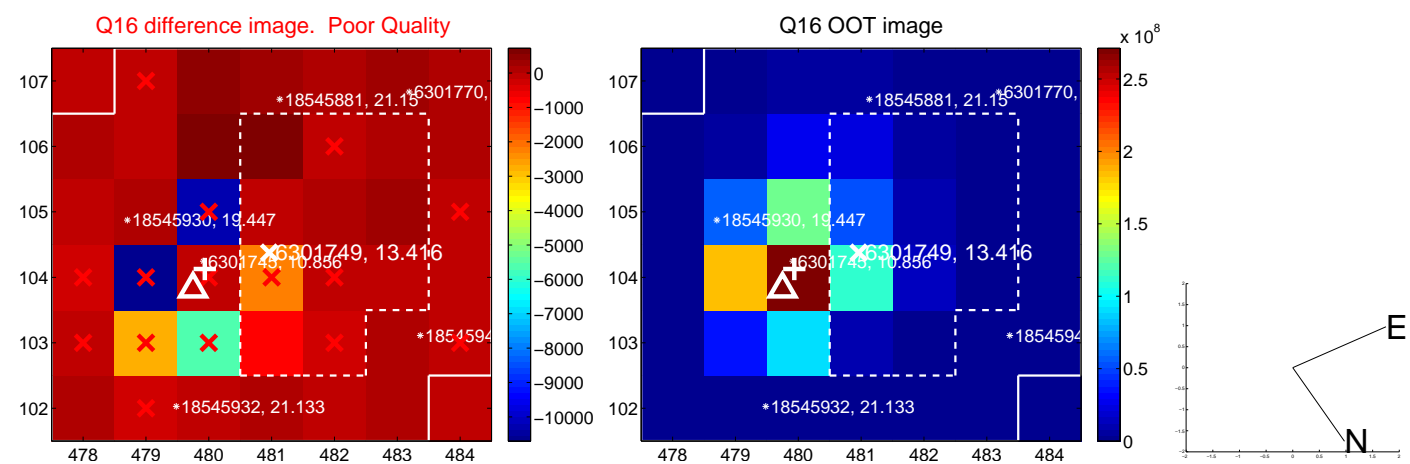
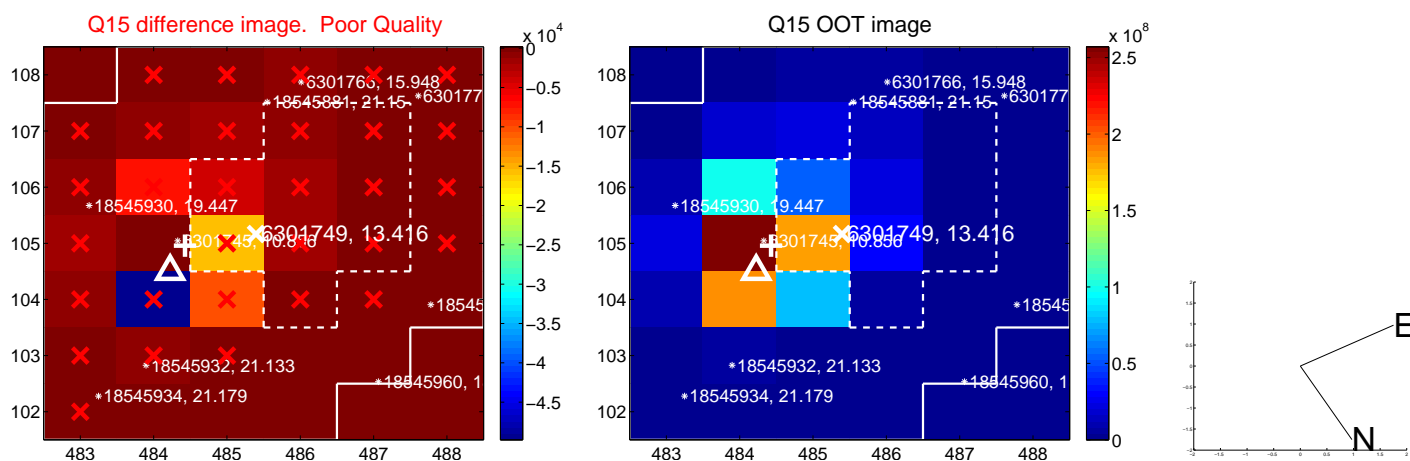
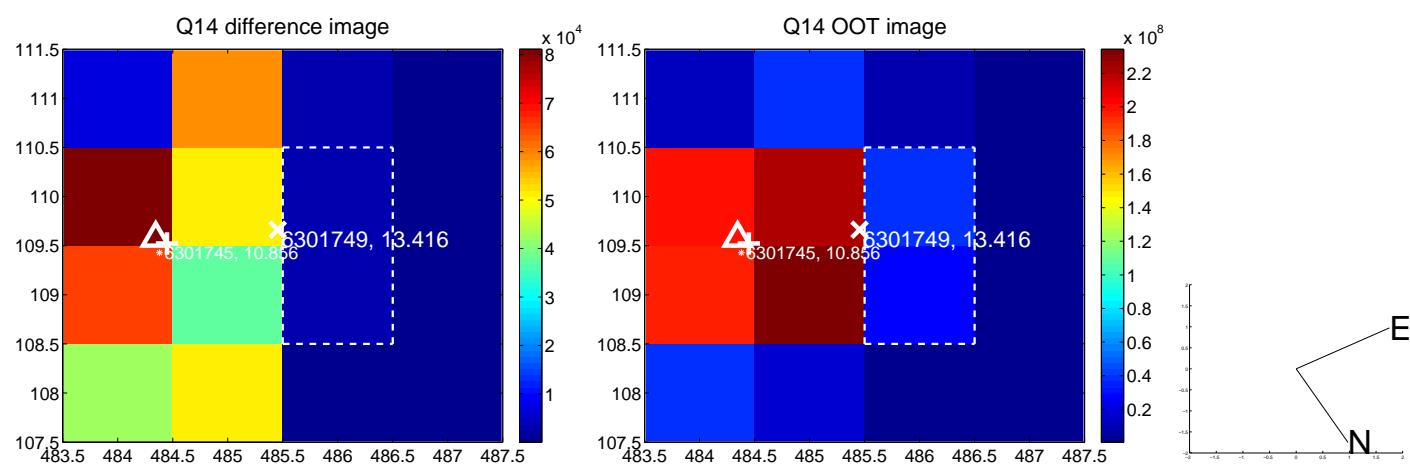
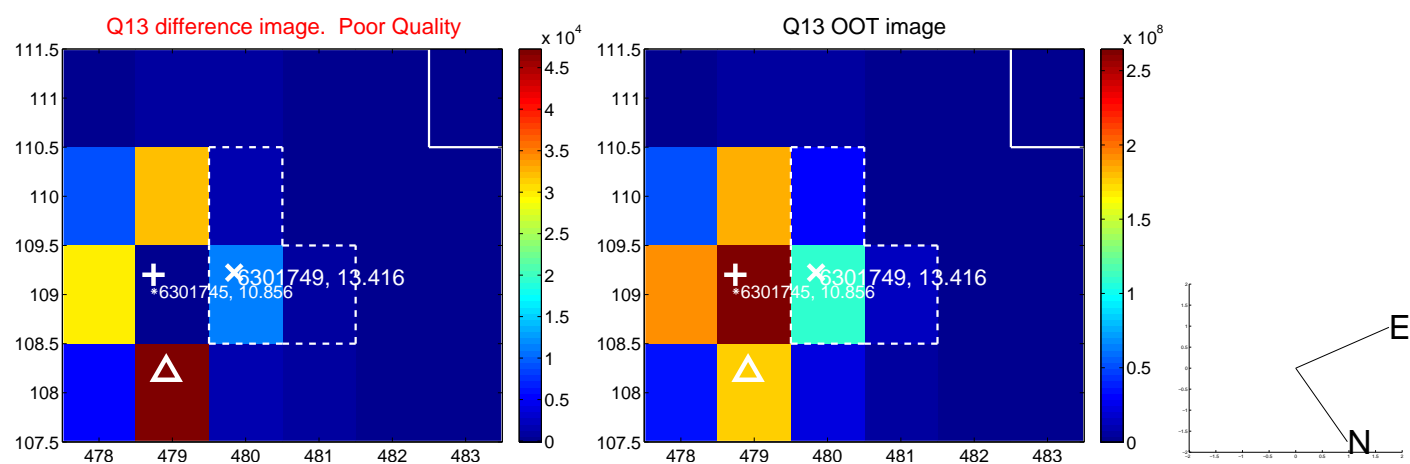
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



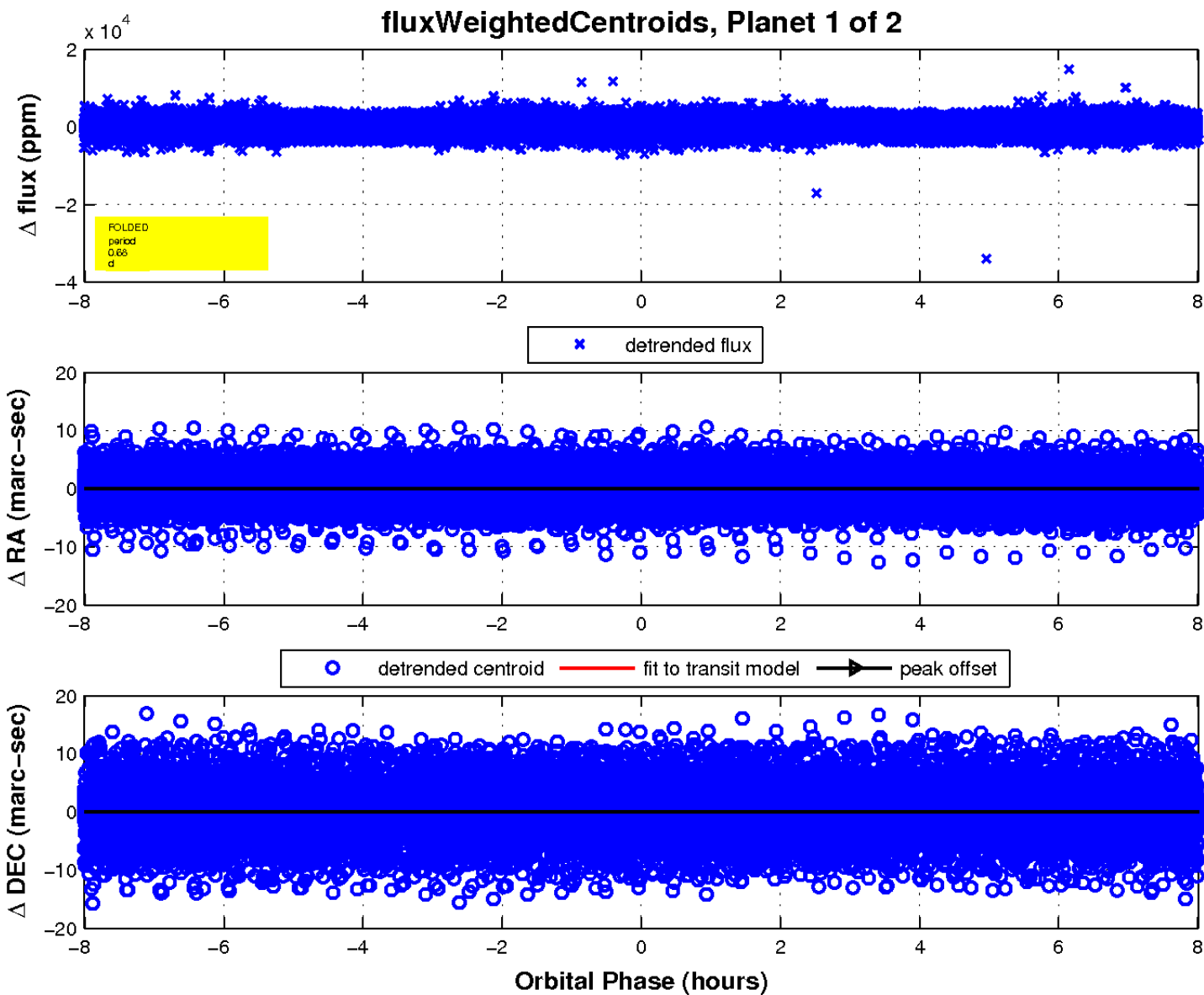
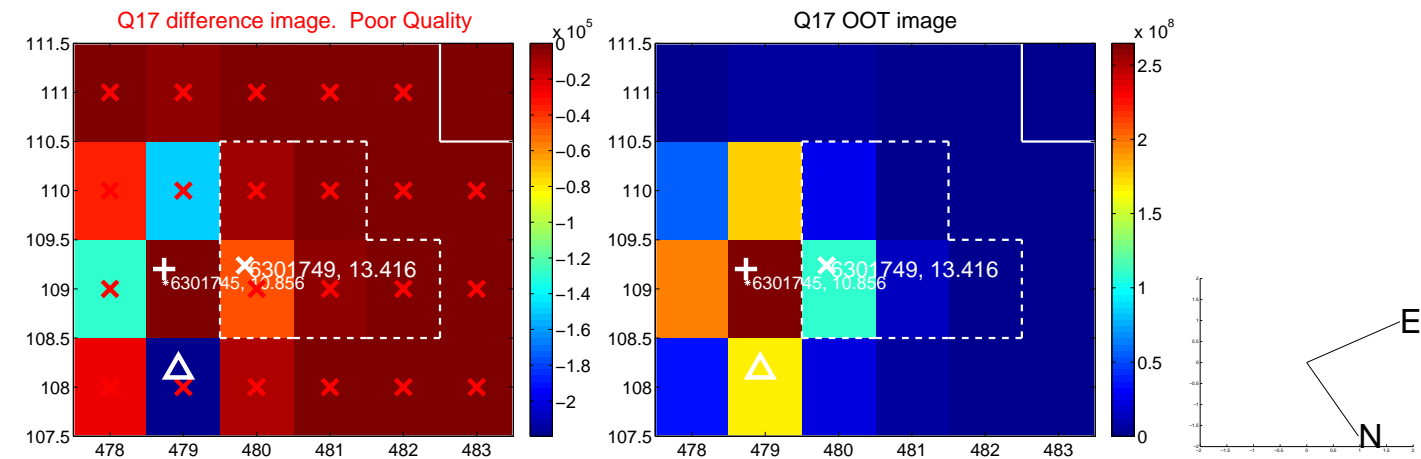
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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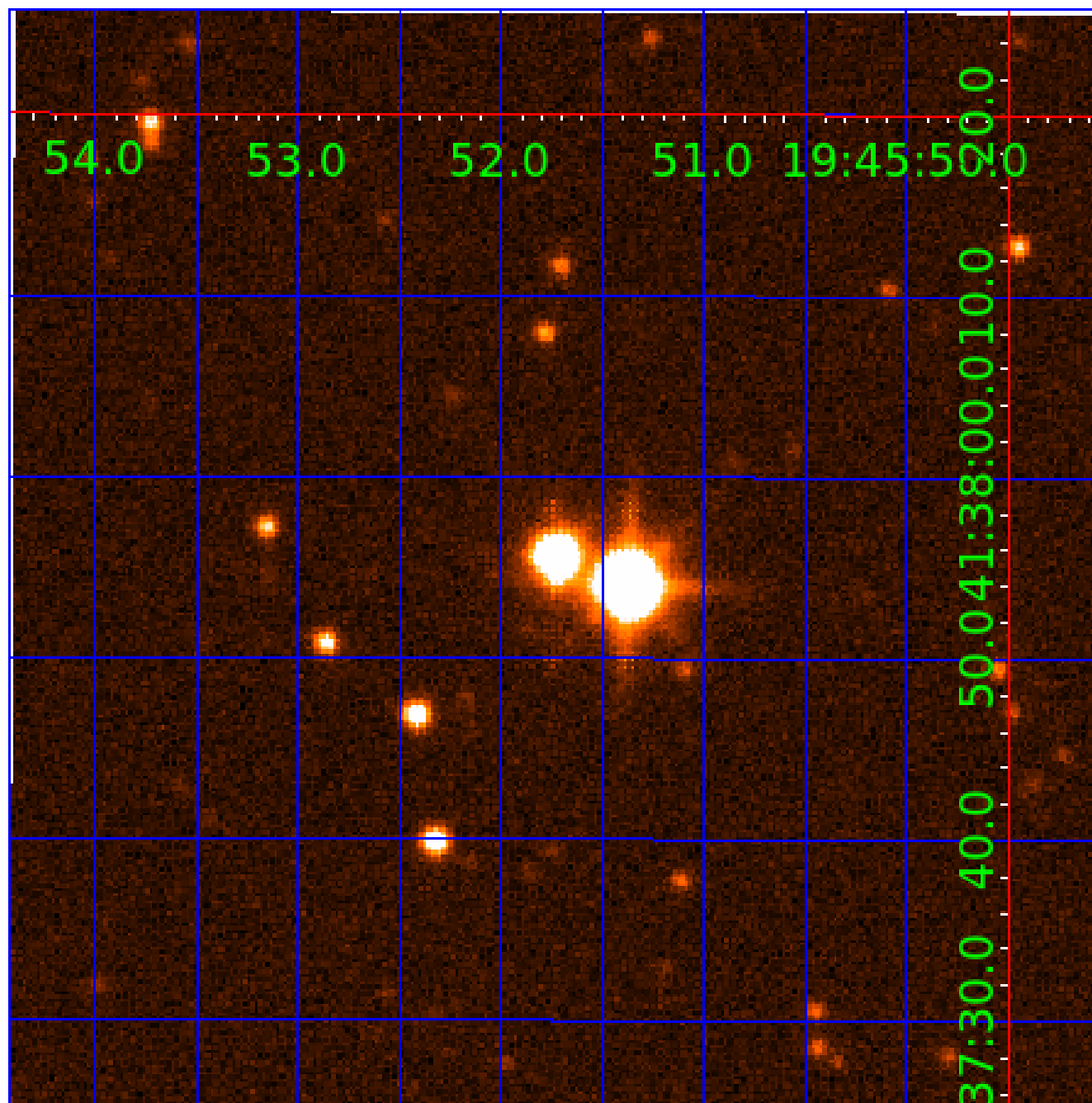


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006301749

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}) |
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Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|--|
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| 006301749-02 | OBS | FP | 0.00 | 1 | 0 | 1 | 0 | LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_RESOLVED_OFFSET |

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

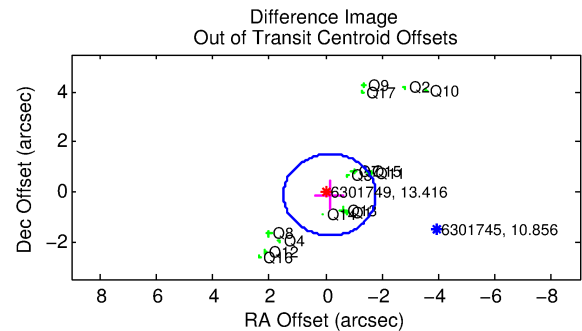
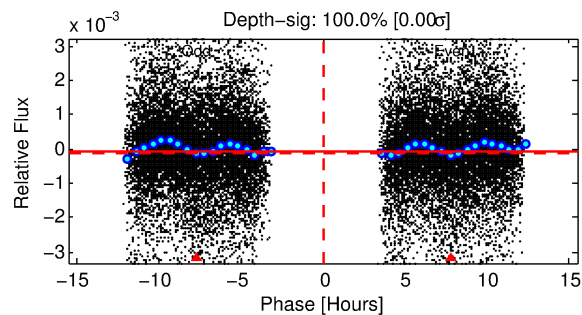
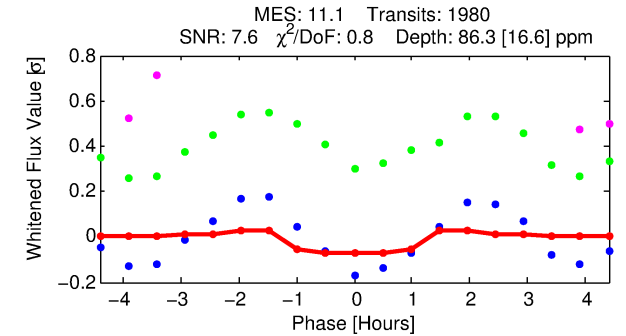
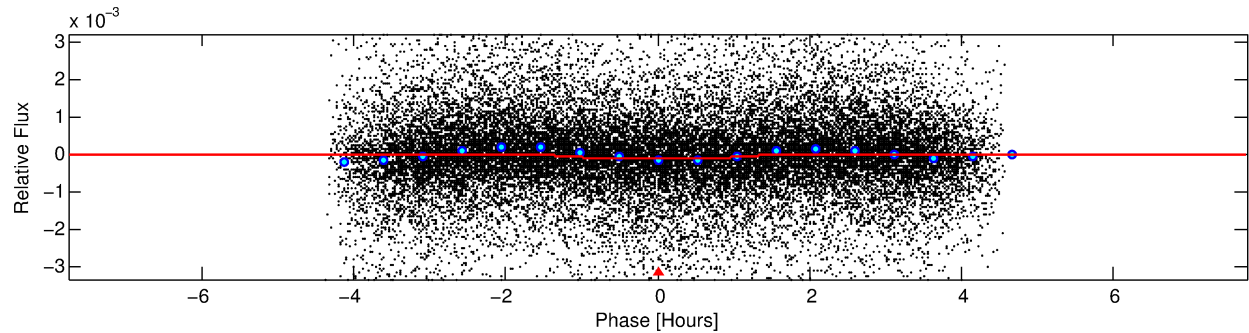
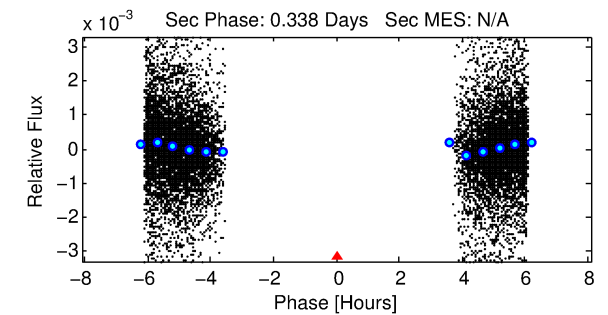
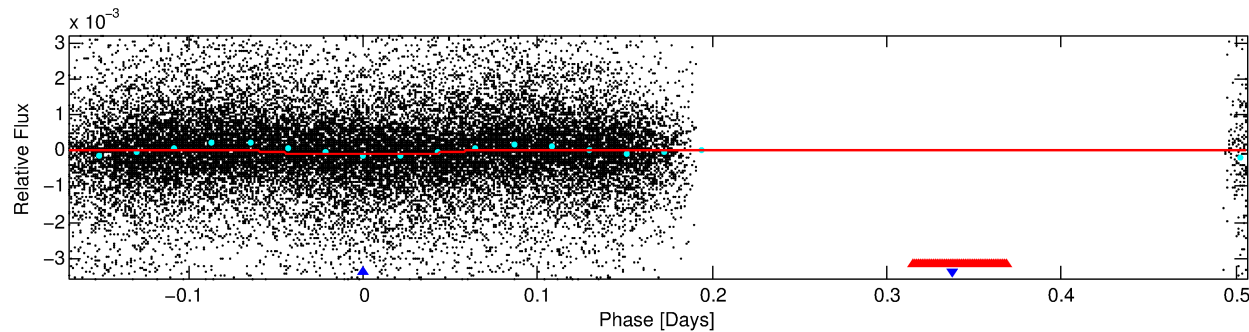
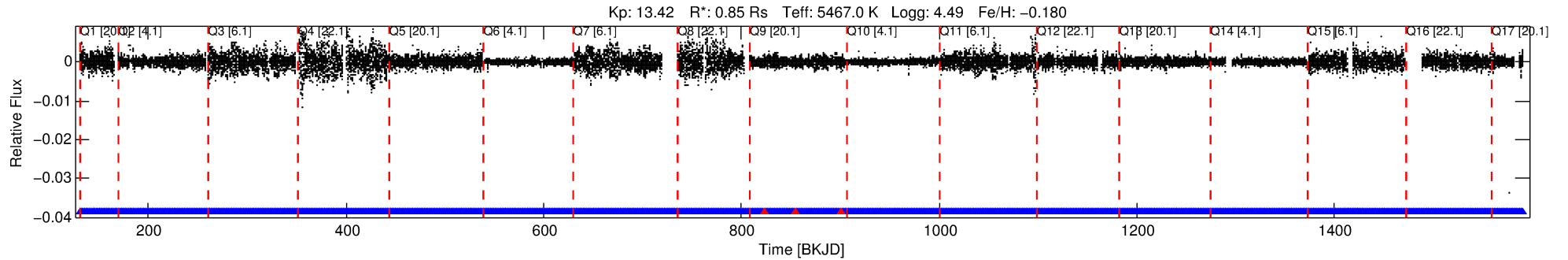
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006301749-02

No Significant Match Found

DV One-Page Summary

KIC: 6301749 Candidate: 2 of 2 Period: 0.675 d



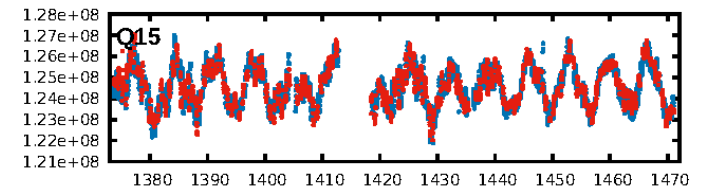
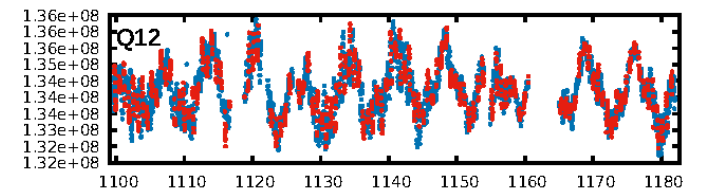
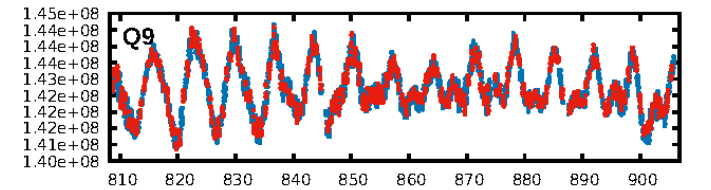
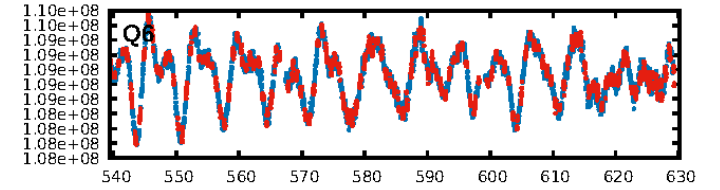
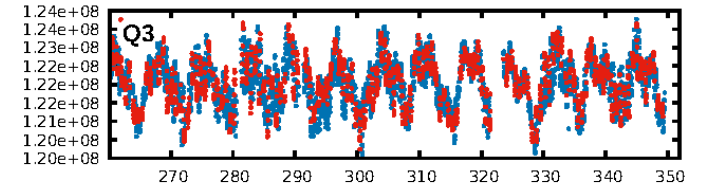
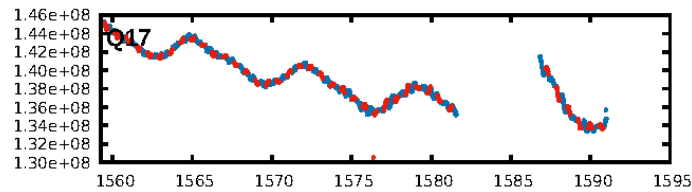
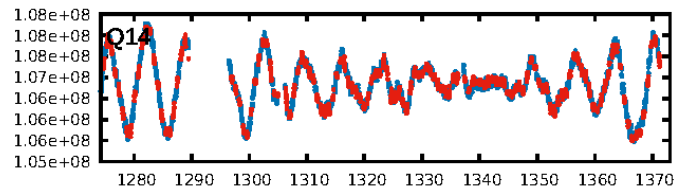
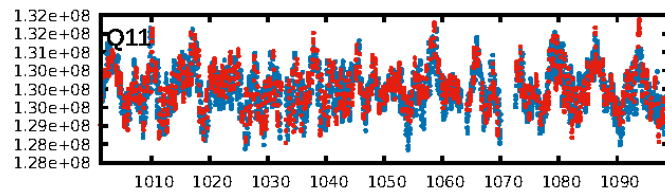
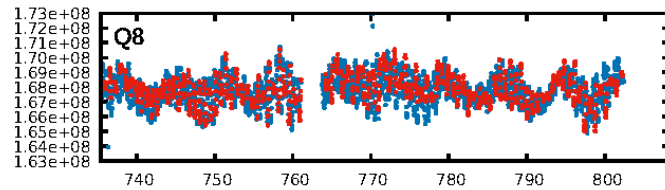
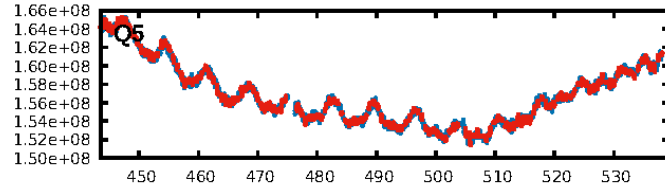
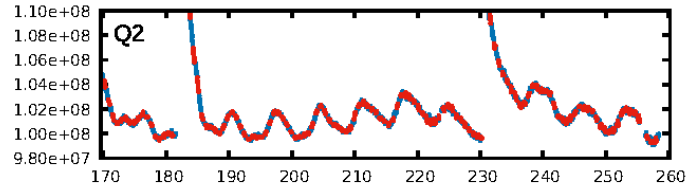
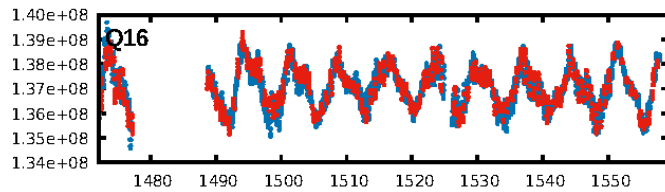
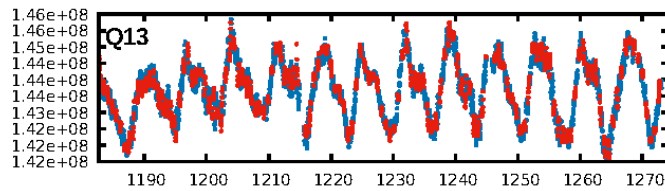
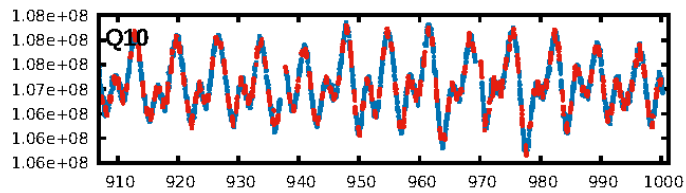
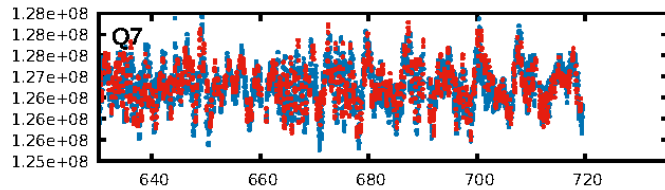
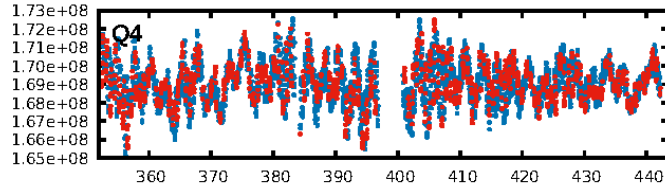
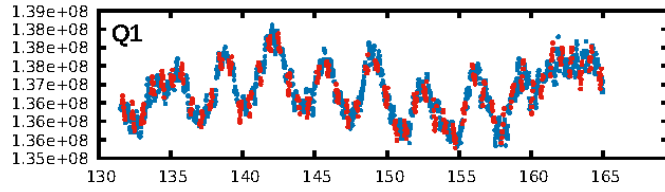
DV Fit Results:

Period = 0.67512 [0.00001] d
Epoch = 131.7113 [0.0026] BKJD
Rp/R* = 0.0091 [0.0056]
a/R* = 1.66 [2.65]
b = 0.70 [1.86]
Seff = 2933.31 [816.44]
Teq = 1877 [131] K
Rp = 0.85 [0.55] Re
a = 0.0141 [0.0024] AU

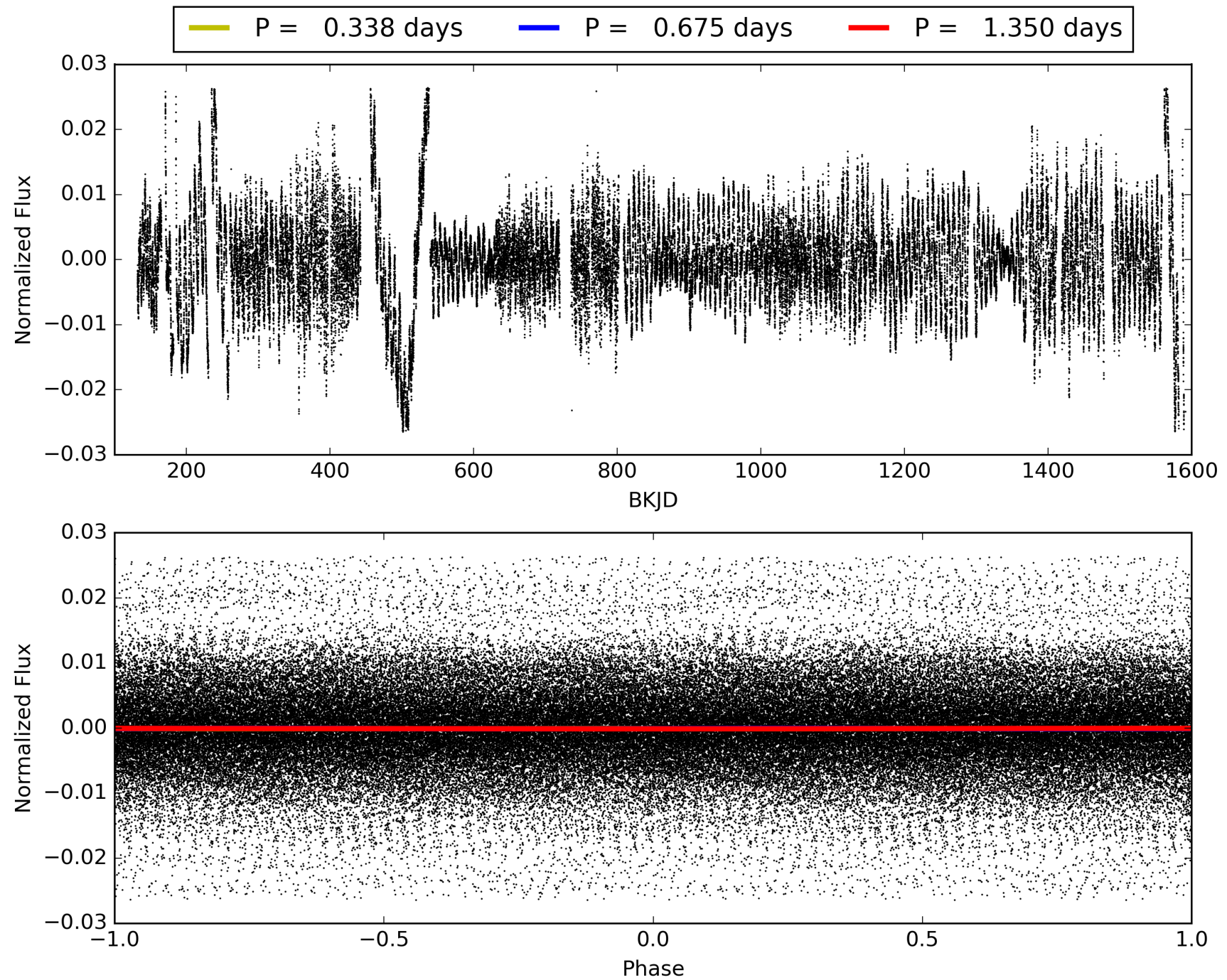
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.05e-09
RollingBand-fgt: 1.00 [1888/1891]
GhostDiagnostic-chr: -0.9439
Centroid-sig: 3.5%
Centroid-so: 2.792 arcsec [14.19σ]
OotOffset-rm: 0.191 arcsec [0.35σ]
KicOffset-rm: 4.299 arcsec [8.54σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.27 [4/15]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 006301749-02, PDC Light Curves

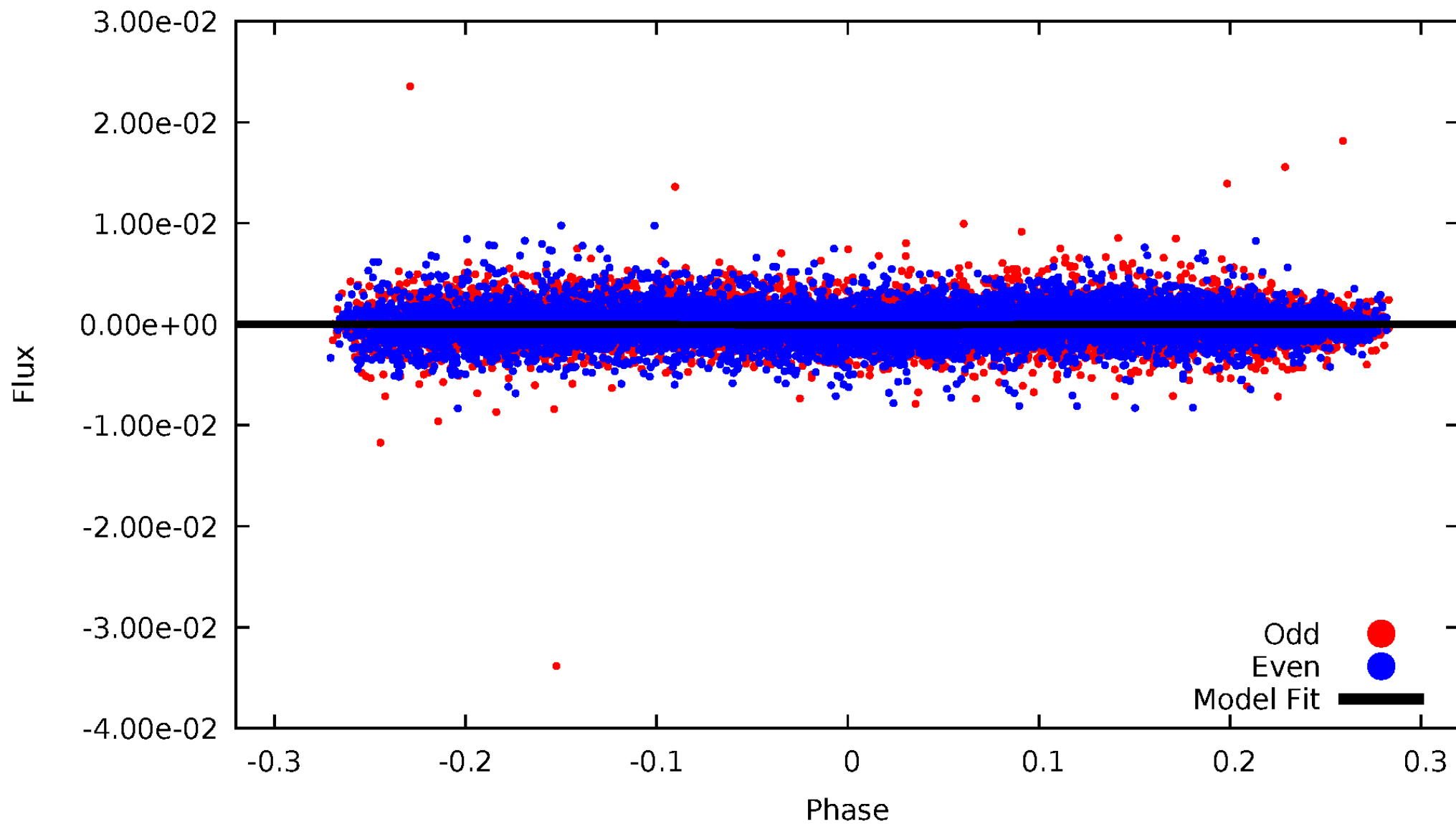


TCE 006301749-02



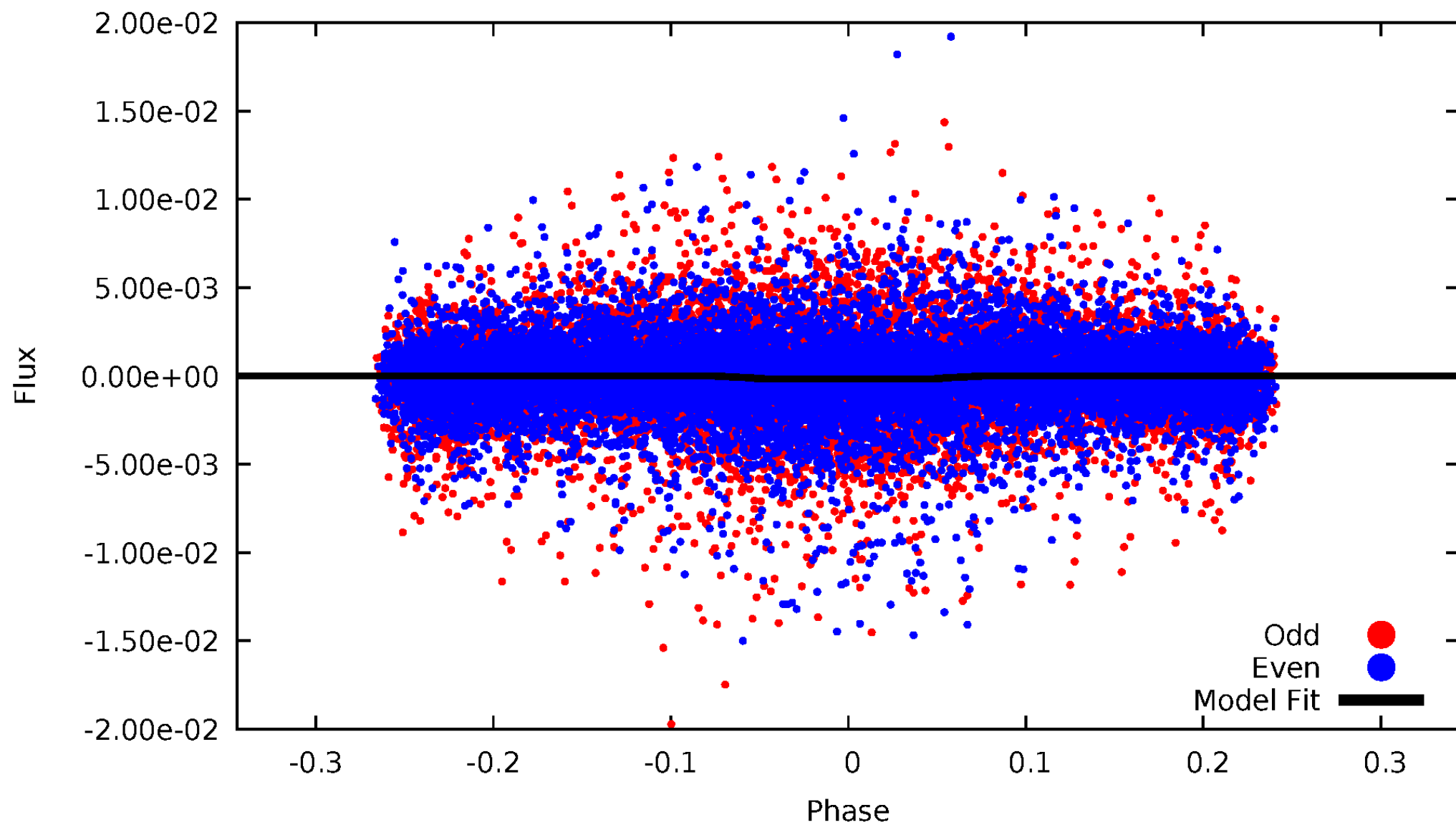
DV Odd/Even

TCE 006301749-02



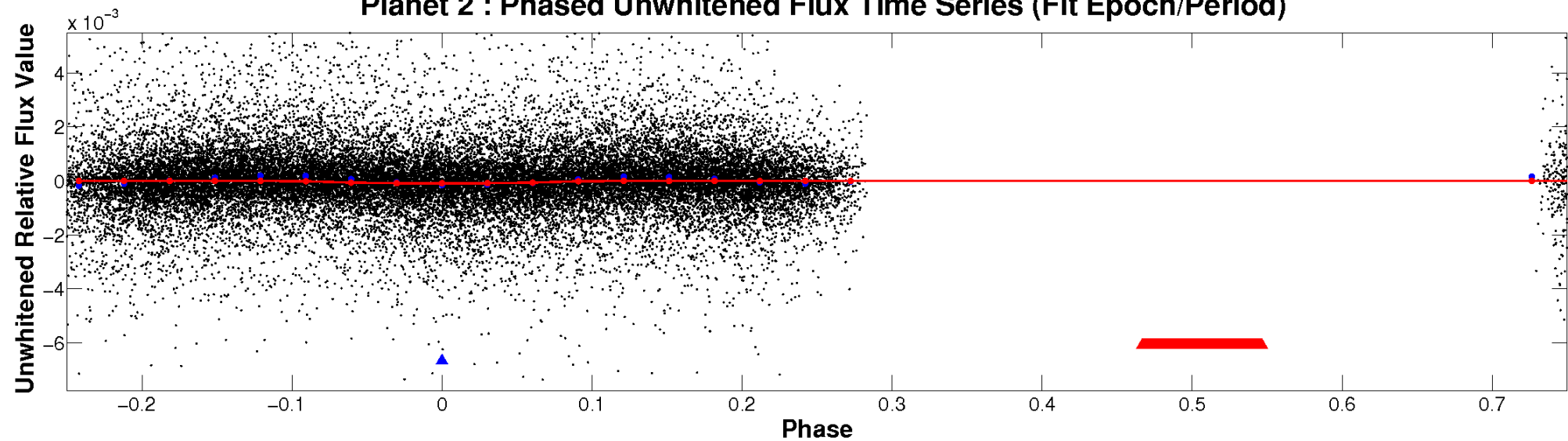
ALT Odd/Even

TCE 006301749-02

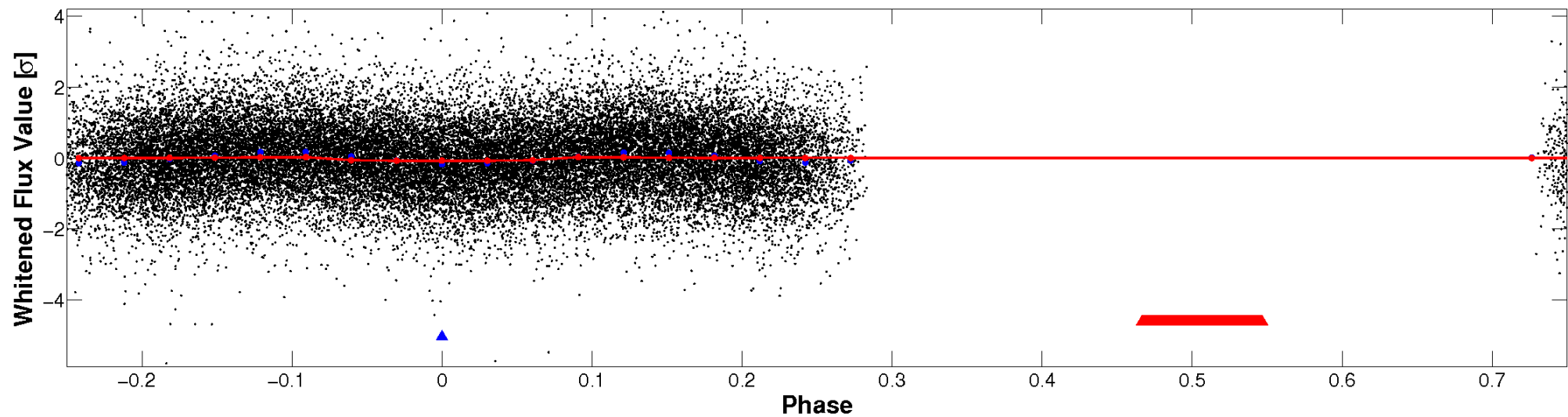


Non-Whitened Vs. Whitened Light Curve

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

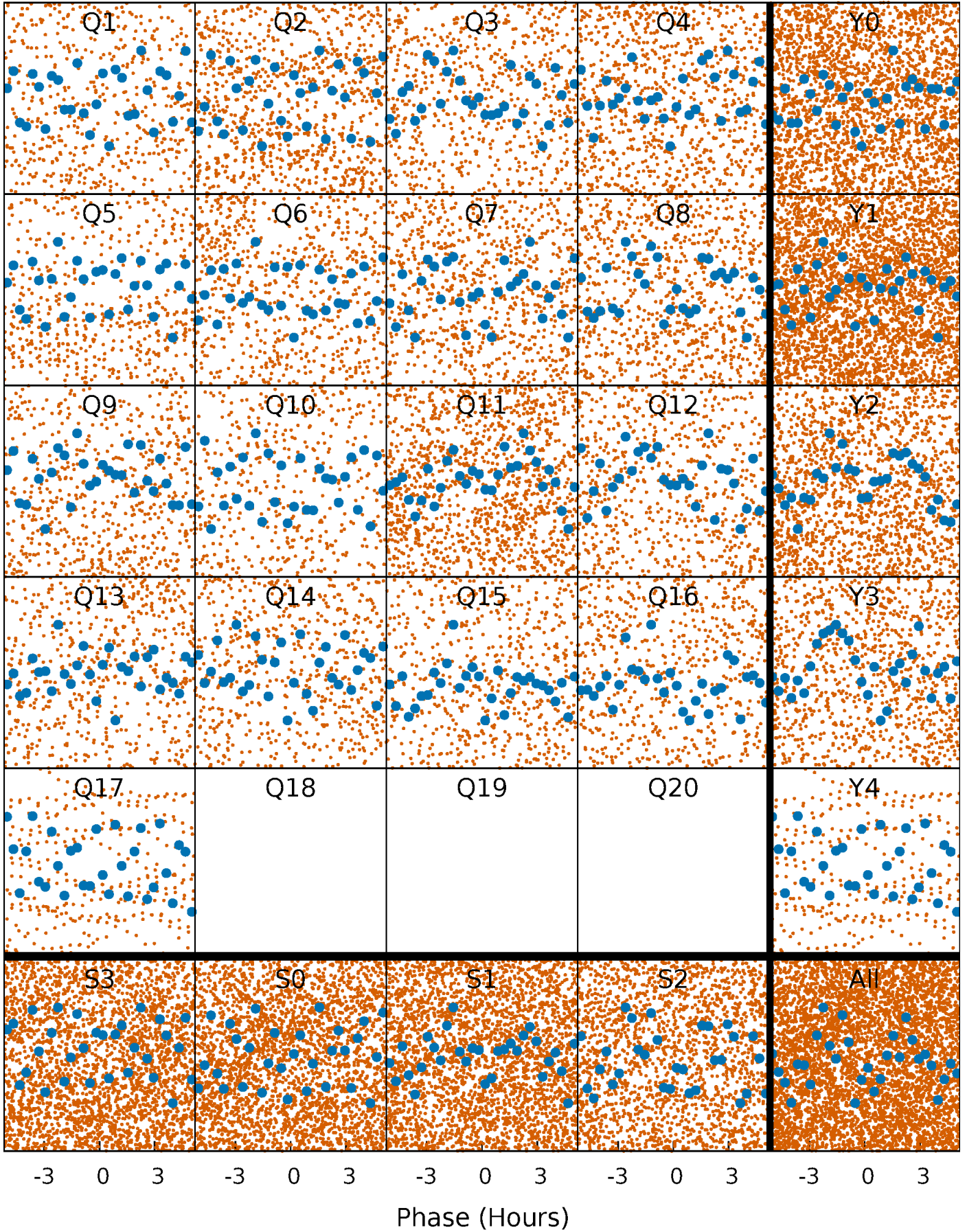


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



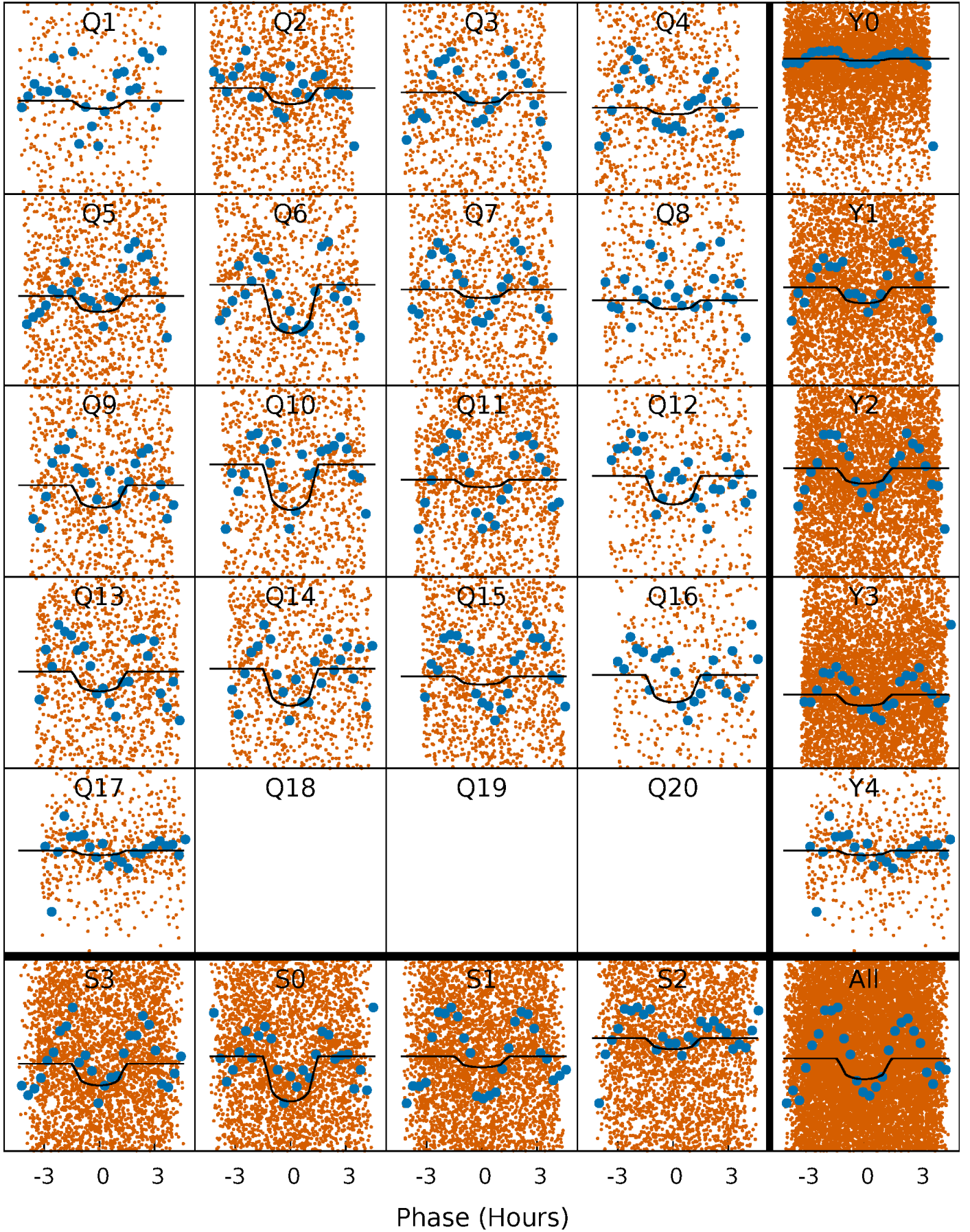
PDC Quarter-Phased Transit Curves

TCE 006301749-02 P= 0.675122 Days $T_0=131.711283$ (BKJD)



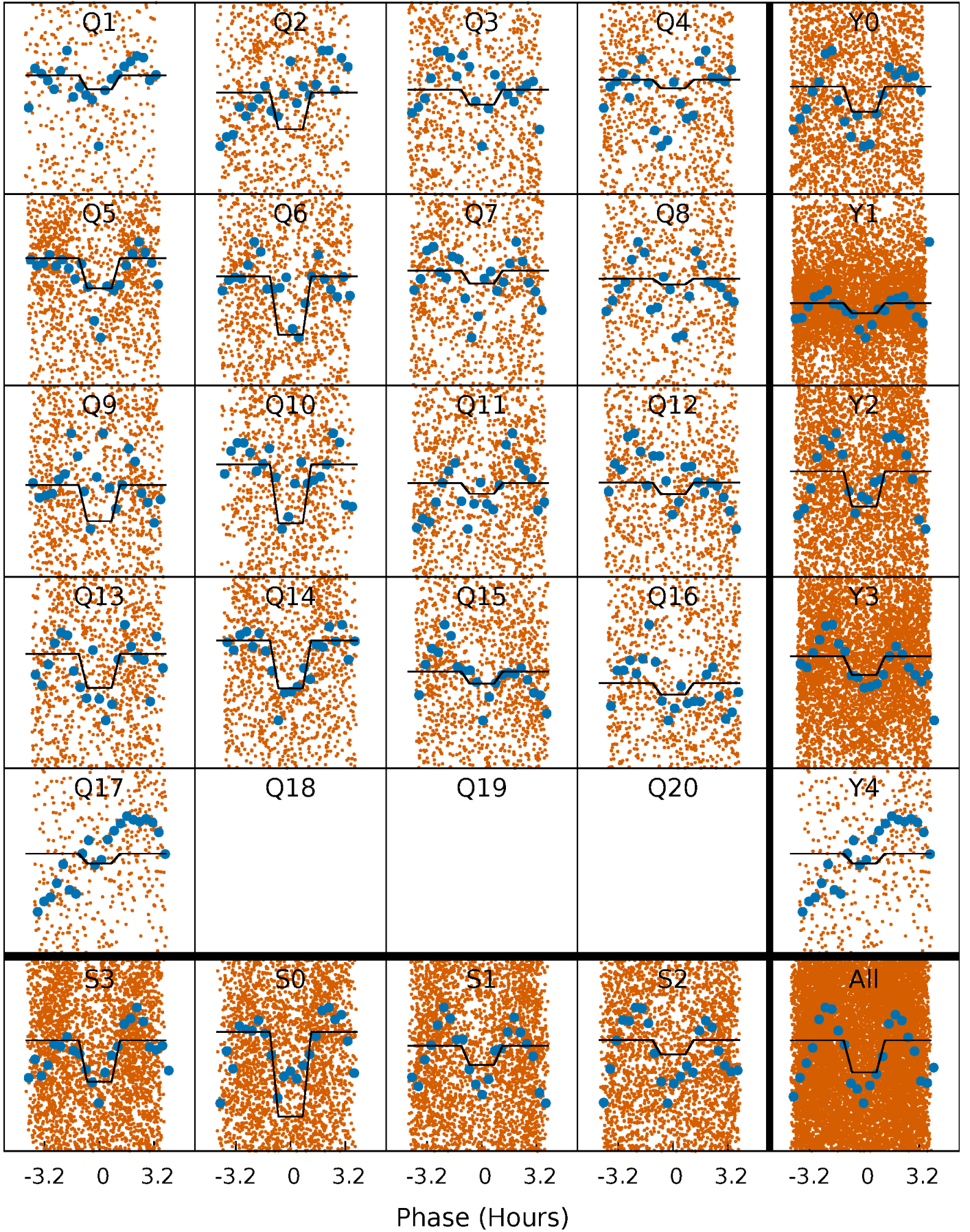
DV Quarter-Phased Transit Curves

TCE 006301749-02 P= 0.675122 Days $T_0=131.711283$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

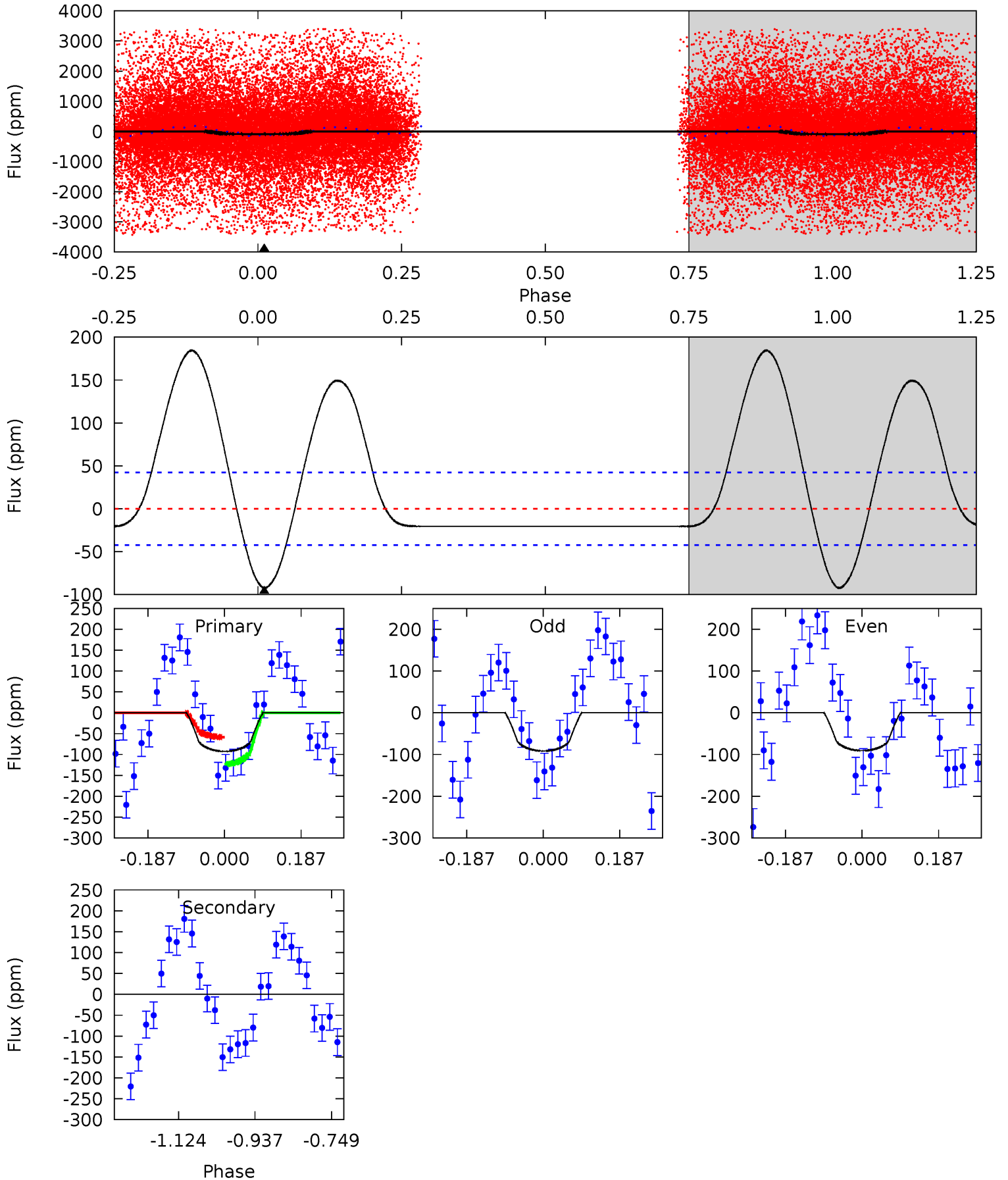
TCE 006301749-02 $P = 0.675137$ Days $T_0 = 131.708378$ (BKJD)



DV Model-Shift Uniqueness Test

006301749-02, P = 0.675122 Days, E = 131.036161 Days

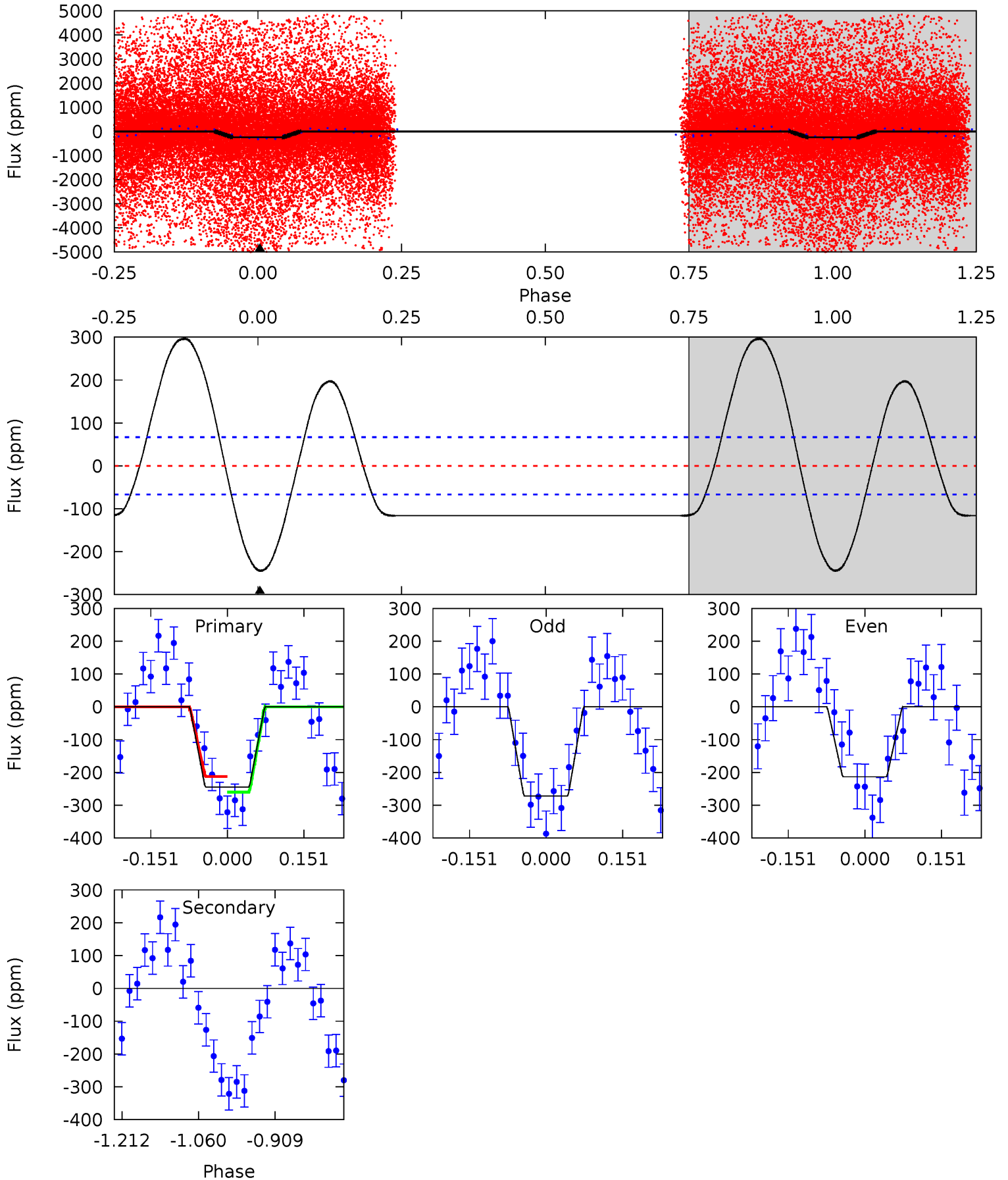
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 9.66 | 0 | 0 | 0 | 4.43 | 1.32 | 2.54 | 9.66 | 9.66 | 0 | 0 | 0.05 | 1.09 | 0.67 | 3.40 |



Alt Model-Shift Uniqueness Test

006301749-02, P = 0.675137 Days, E = 131.033241 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 16.4 | 0 | 0 | 0 | 4.48 | 1.43 | 7.89 | 16.4 | 16.4 | 0 | 0 | 1.99 | 1.46 | 0.55 | 1.33 |



Stellar Parameters For KIC 006301749

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
| | 5467^{+164}_{-147} | $4.490^{+0.092}_{-0.138}$ | $-0.180^{+0.300}_{-0.300}$ | $0.855^{+0.173}_{-0.107}$ | $0.824^{+0.110}_{-0.073}$ | $1.857^{+0.730}_{-0.728}$ |
| | +3%/-3% | +2%/-3% | +167%/-167% | +20%/-13% | +13%/-9% | +39%/-39% |
| 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 006301749-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|------------------------|----------------------------|
| DV | 0 ± 10 | $0.90^{+0.54}_{-0.45}$ | 2637^{+154}_{-127} | -2898^{+6469}_{-991} | $-0.007^{+1.578}_{-1.829}$ |
| Alt. | 0 ± 15 | $1.27^{+0.54}_{-0.53}$ | 2637^{+151}_{-128} | -2859^{+6213}_{-732} | $0.013^{+1.187}_{-1.119}$ |

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 $A_{obs} \gg 1.0$

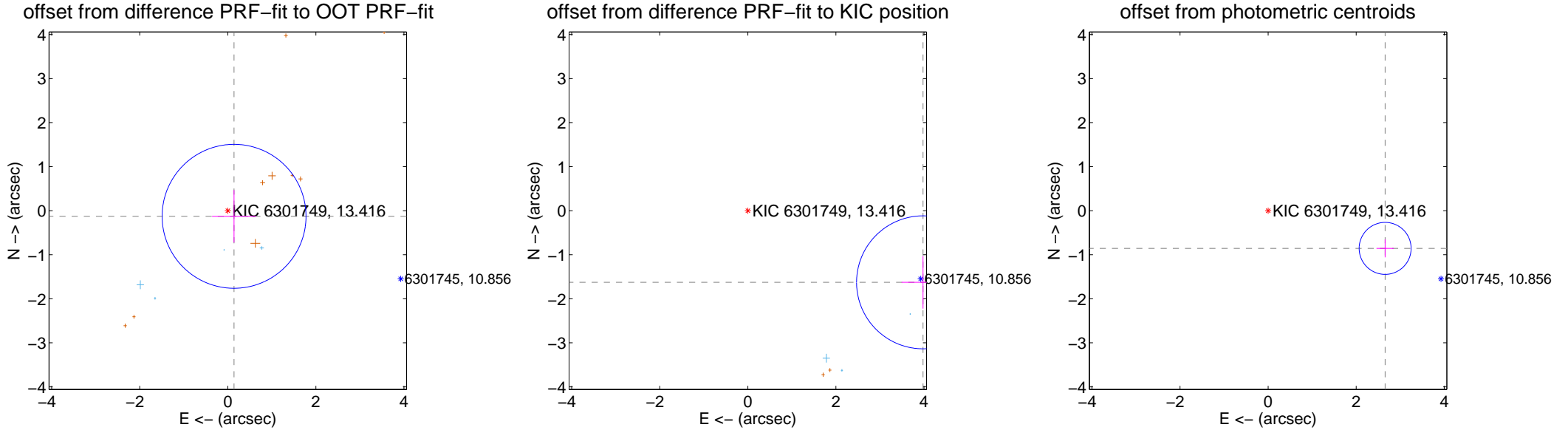
DV Centroid Data

Supplemental centroid analysis for 006301749-02. Kepler magnitude: 13.42. Transit SNR 7.60

There are 4 quarters with good PRF difference image offsets

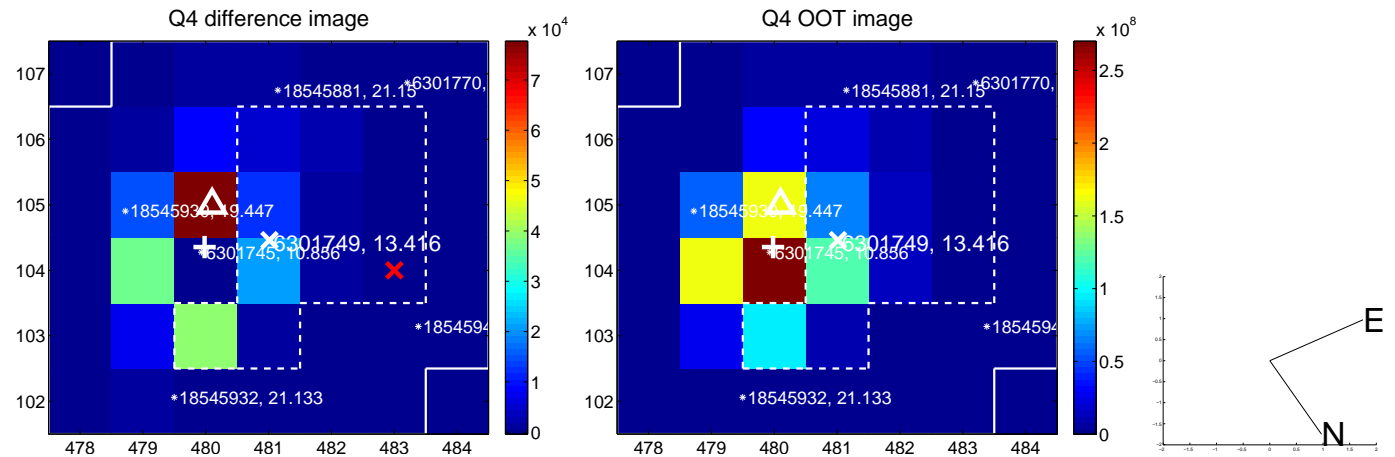
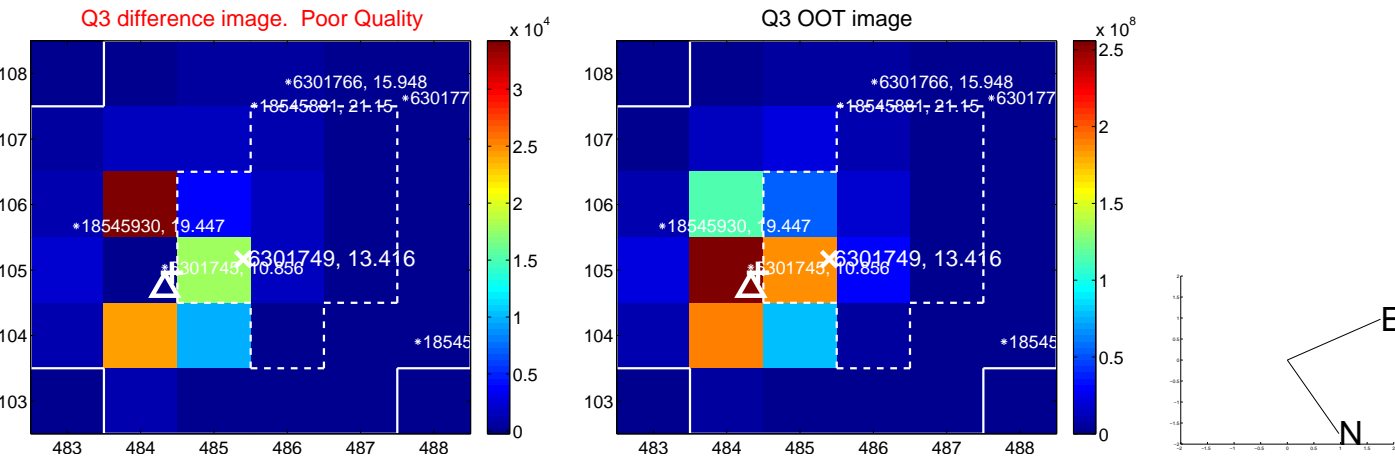
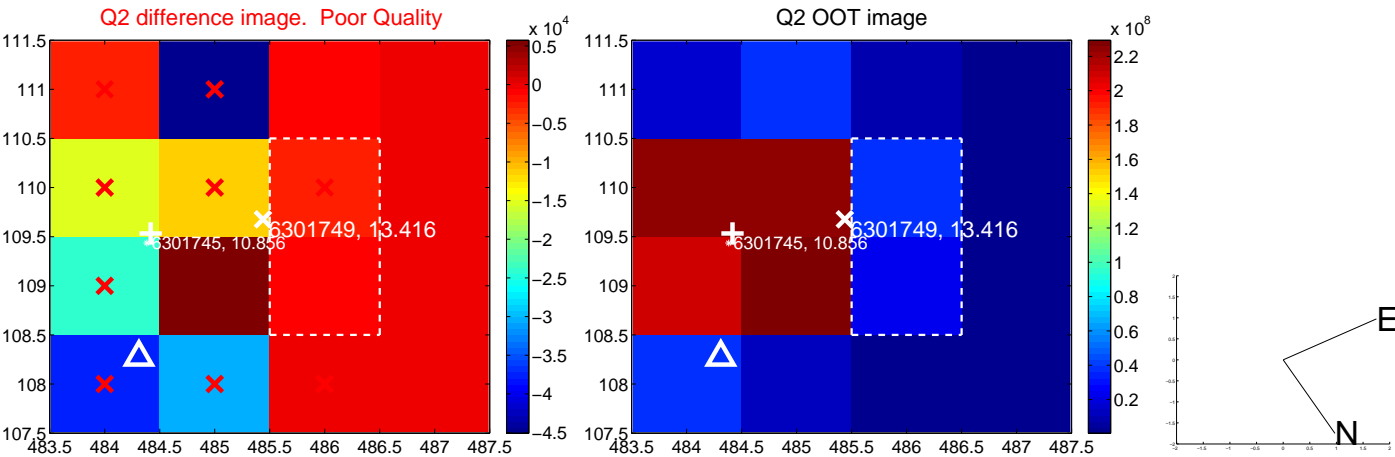
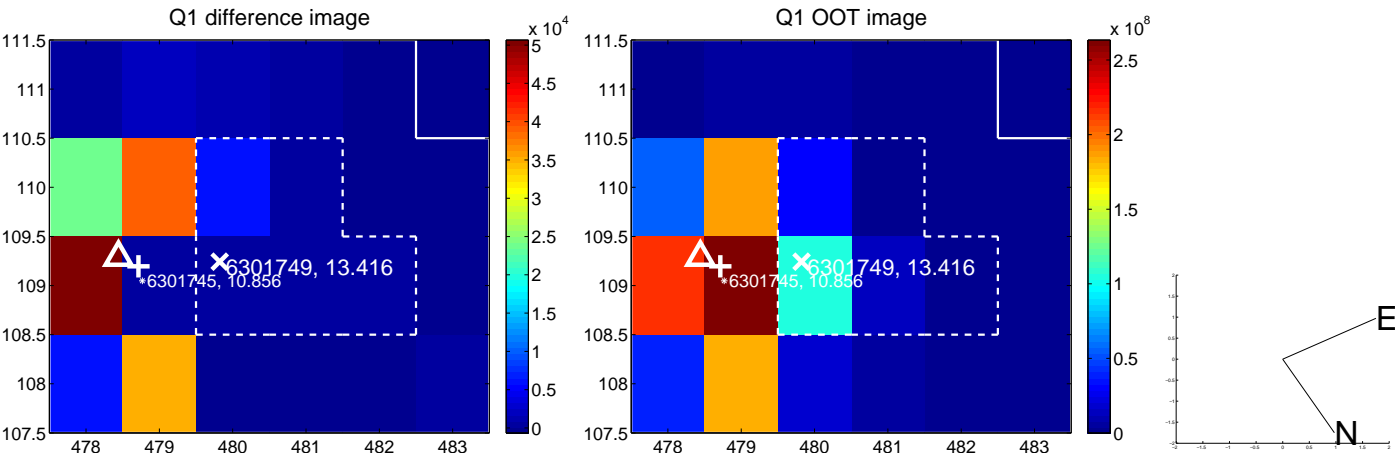
The OOT PRF centroid is offset from the target star catalog position by about 4.38 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.191 ± 0.545 | 0.35 | -0.142 ± 0.500 | -0.128 ± 0.595 |
| PRF-fit source offset from KIC position | 4.299 ± 0.503 | 8.54 | -3.979 ± 0.486 | -1.626 ± 0.596 |
| photometric centroid source offset | 2.79 ± 0.20 | 14.19 | -2.66 ± 0.20 | -0.86 ± 0.20 |

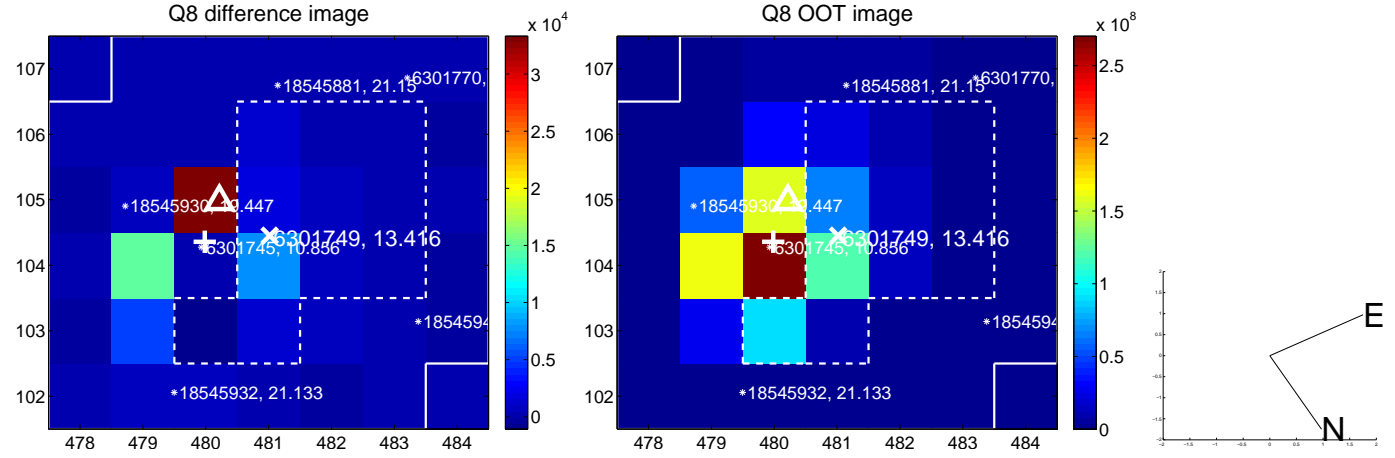
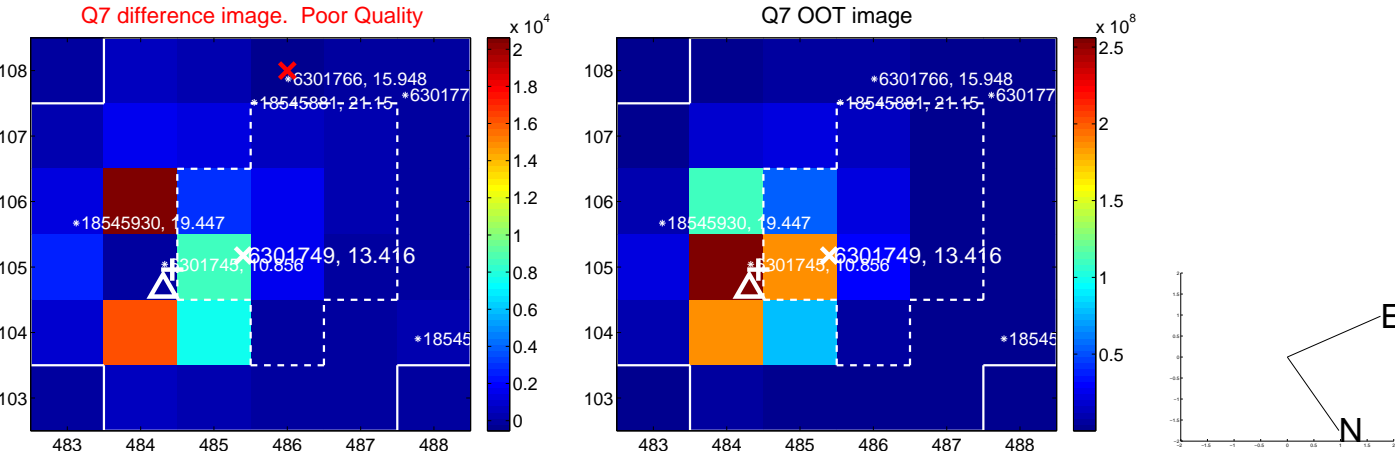
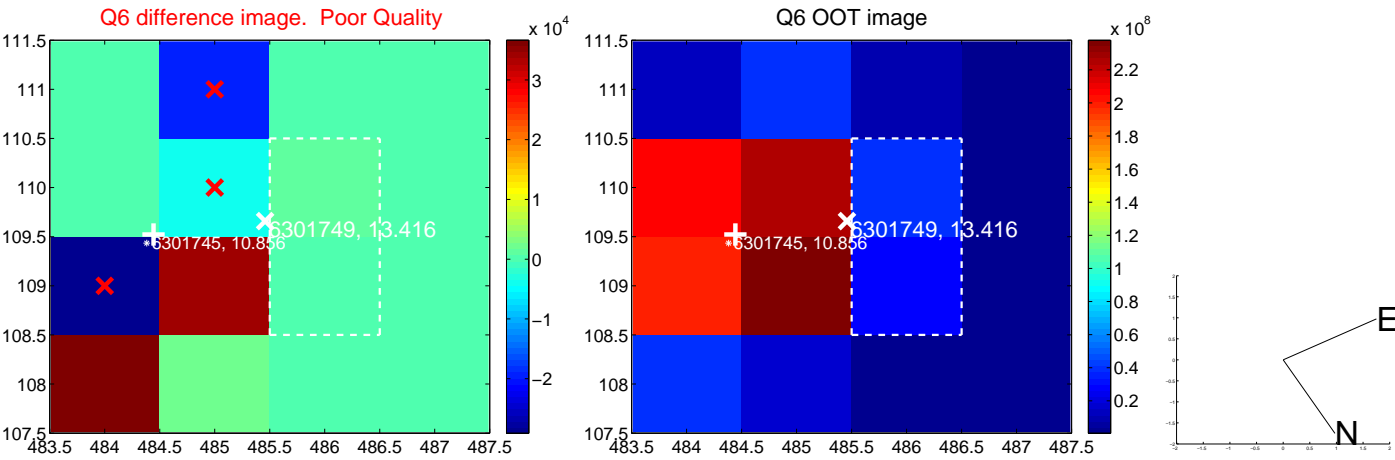
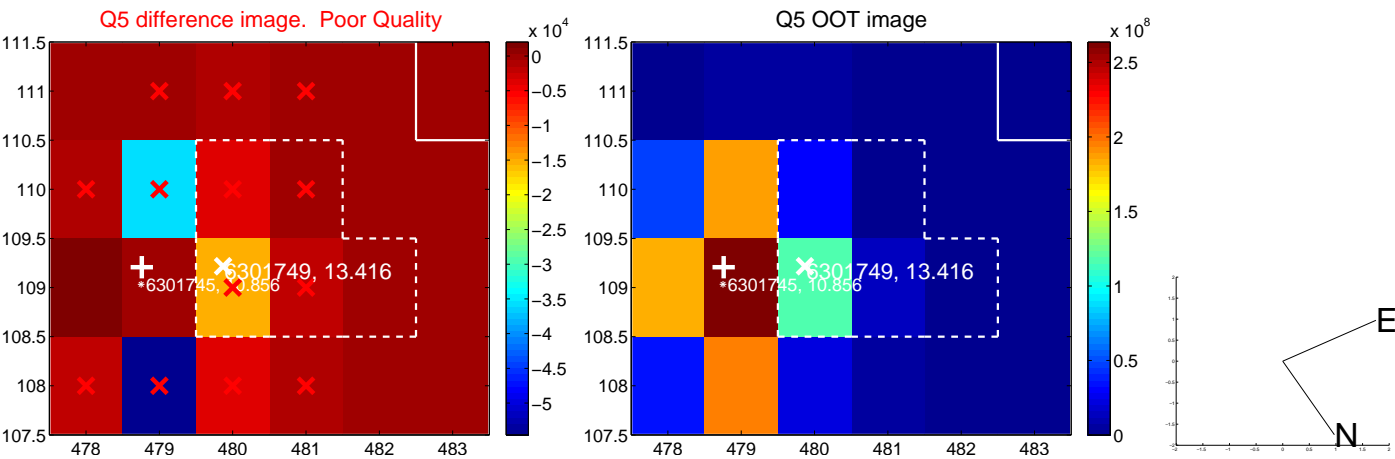


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

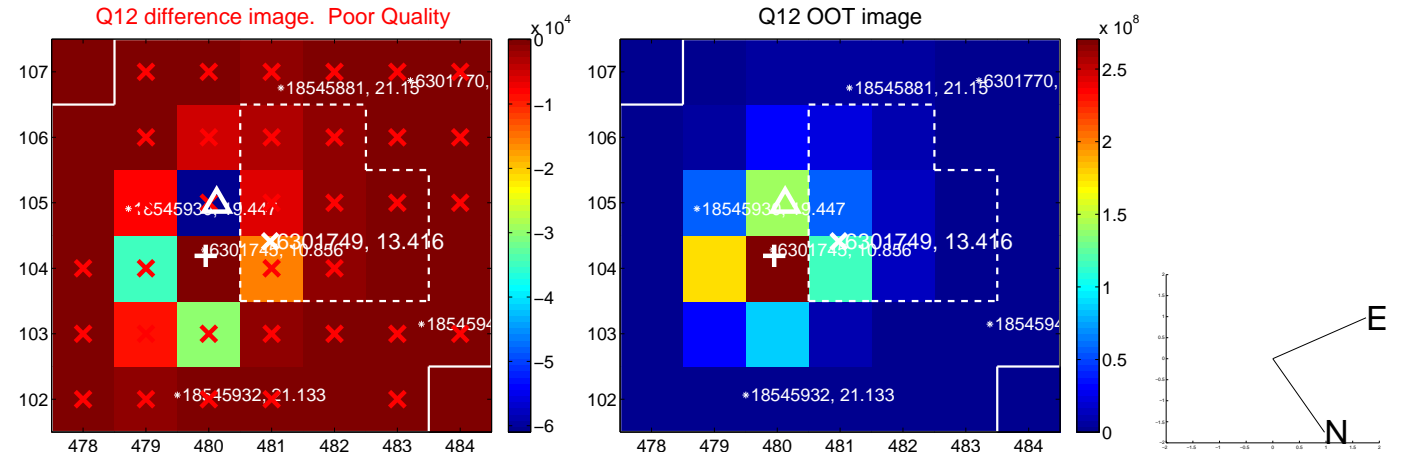
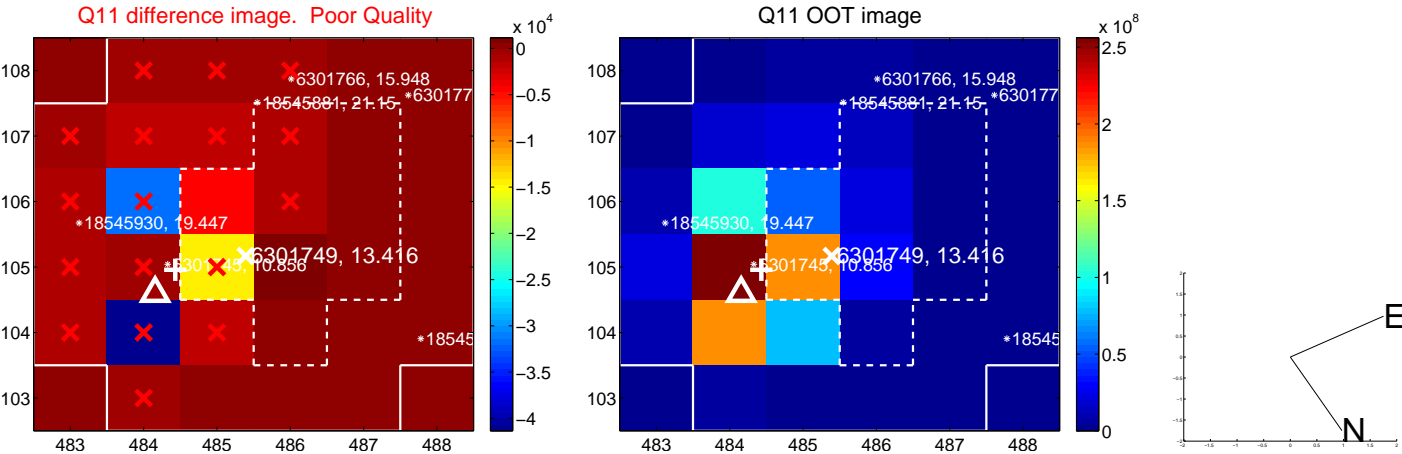
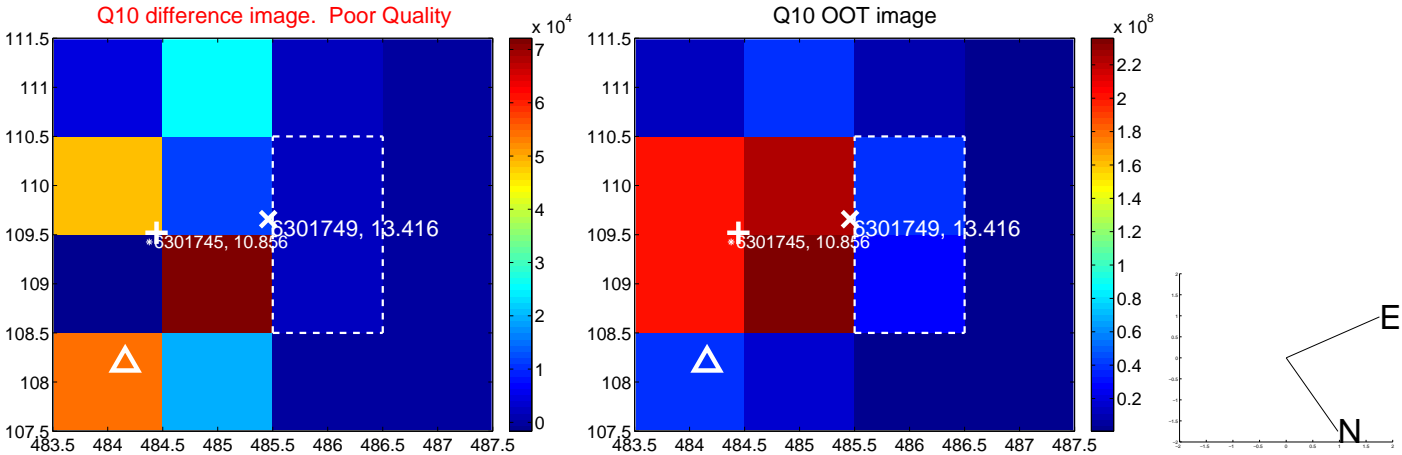
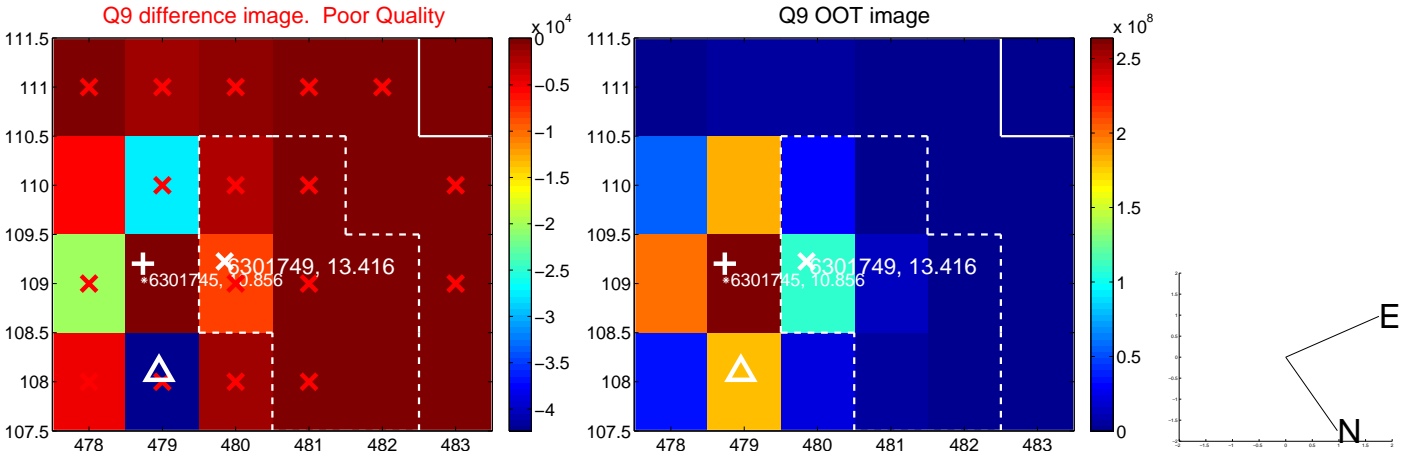
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



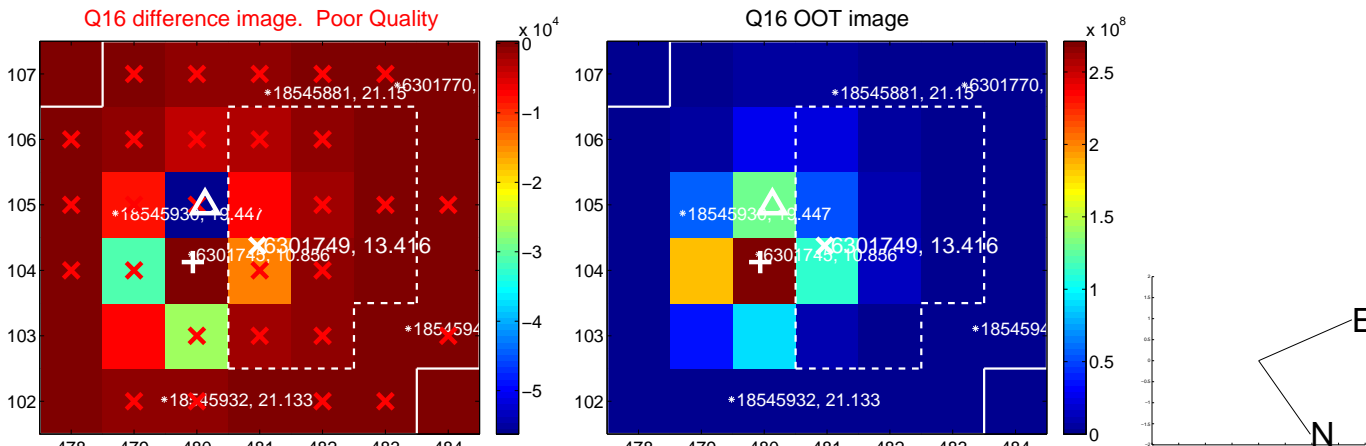
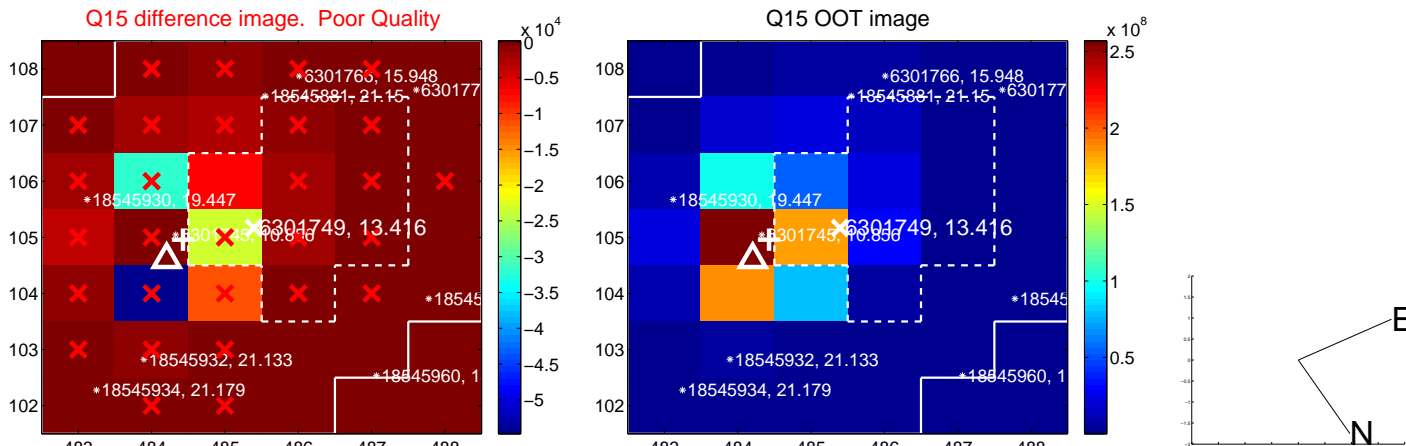
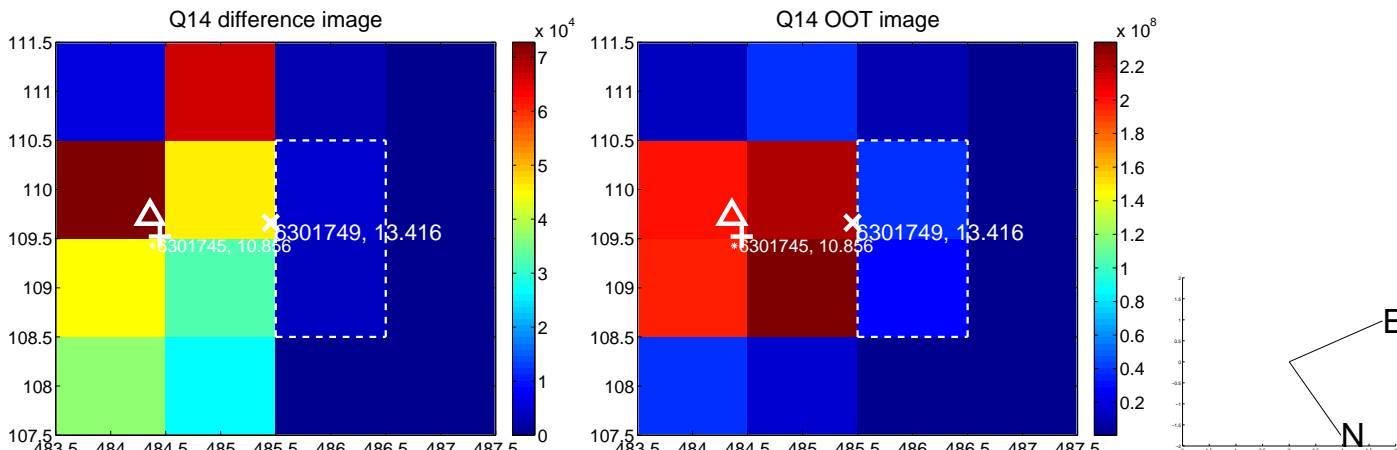
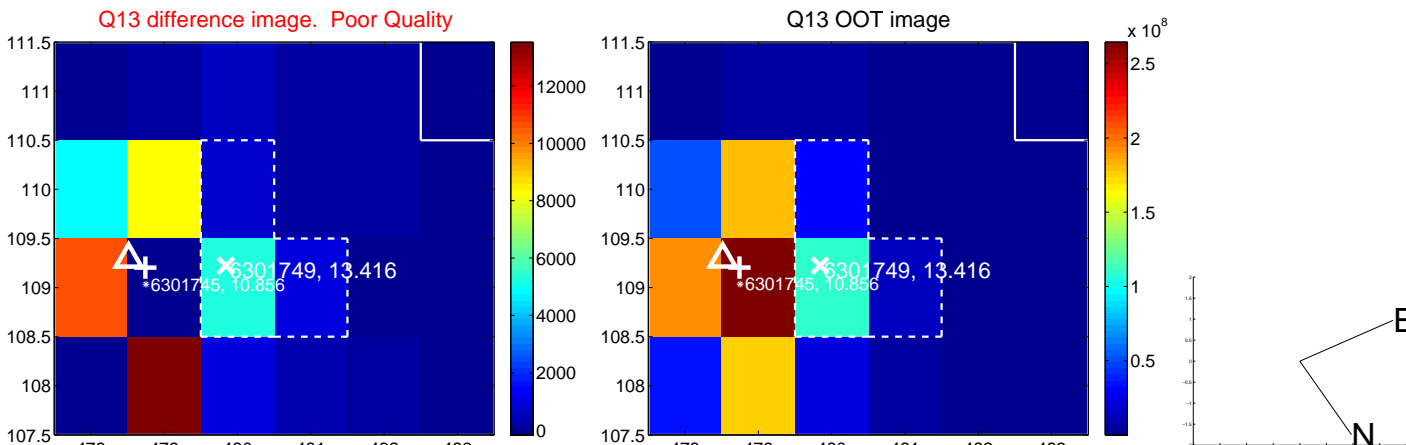
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



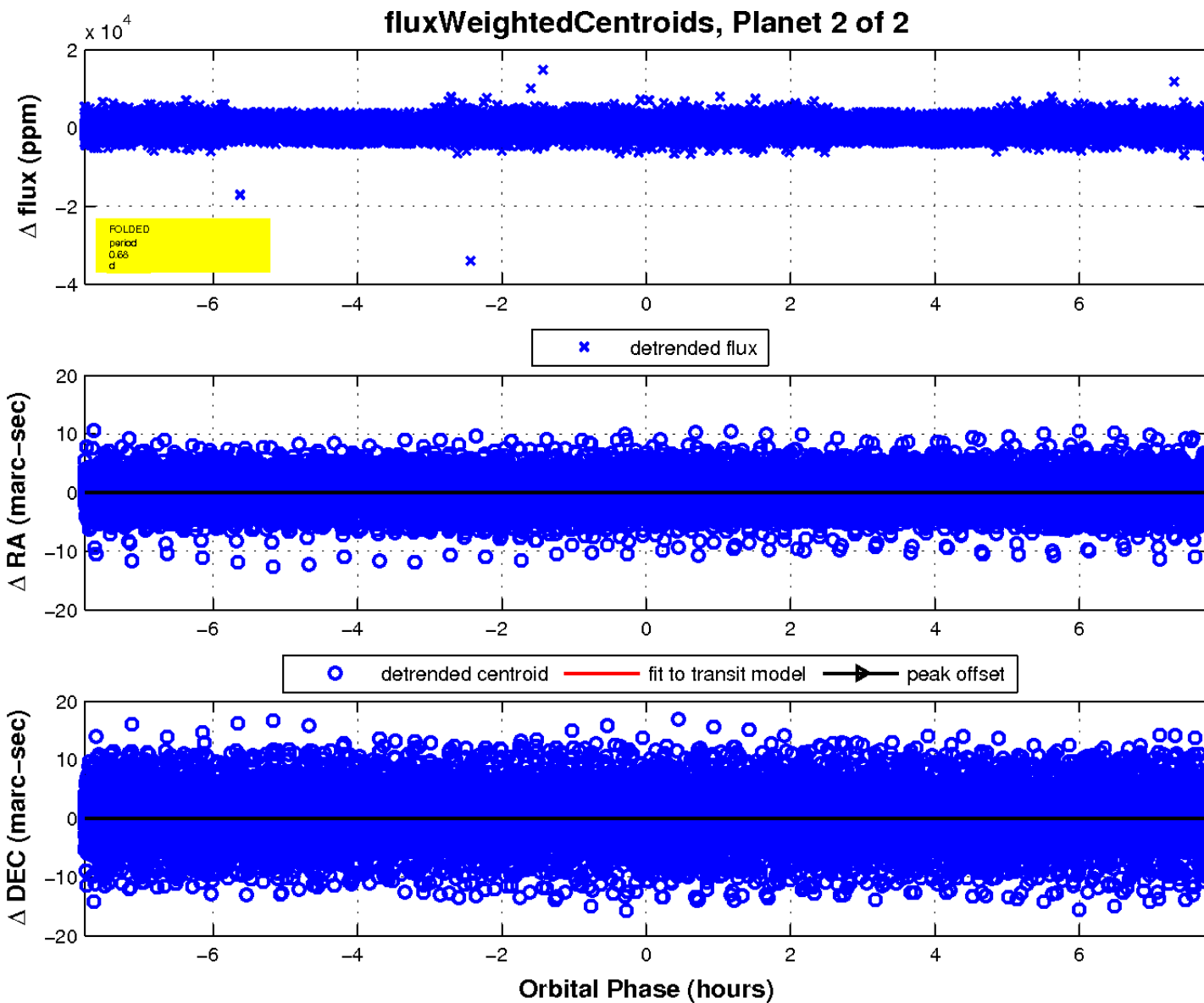
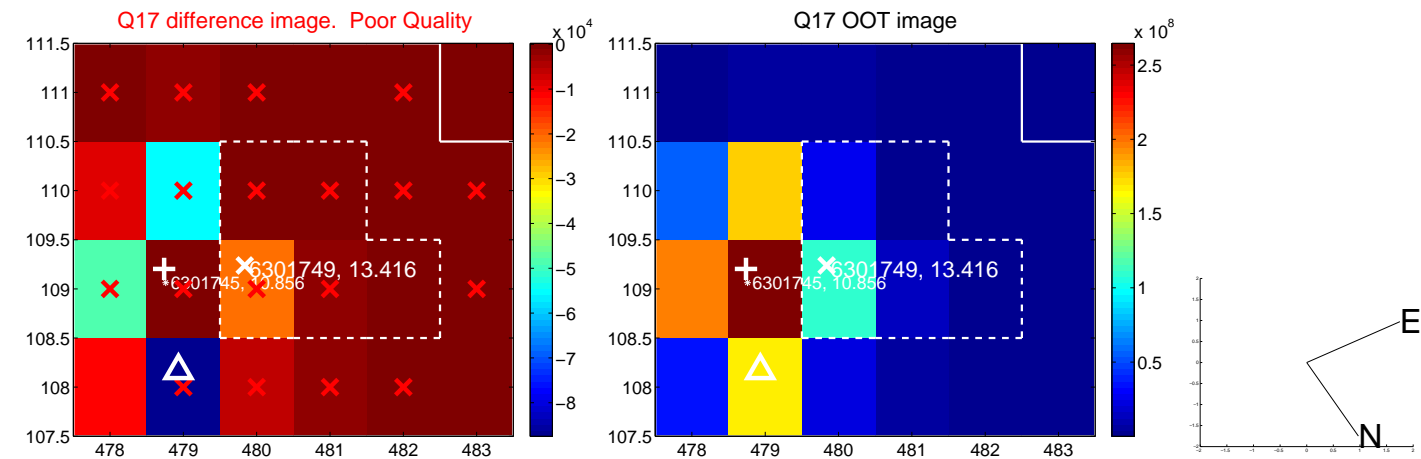
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

