

KIC 006291473

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}) |
|--------------|----------|------|---------------|--------------|-------------|------------------|------|-----|-----------------------------|-----------------|------------------------|------------------------|
| 006291473-01 | OBS | No | 0.948466 | 131.706460 | 44.0 | 3.763 | 8.4 | 7.6 | 1.57 | 7310 | 1.21 | 13743.54 |
| 006291473-02 | OBS | No | 0.948424 | 132.212137 | 17.6 | 4.272 | 11.6 | 3.3 | 1.57 | 7310 | 0.69 | 13744.37 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|-------------------------------------------------------|
| 006291473-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 006291473-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |

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

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

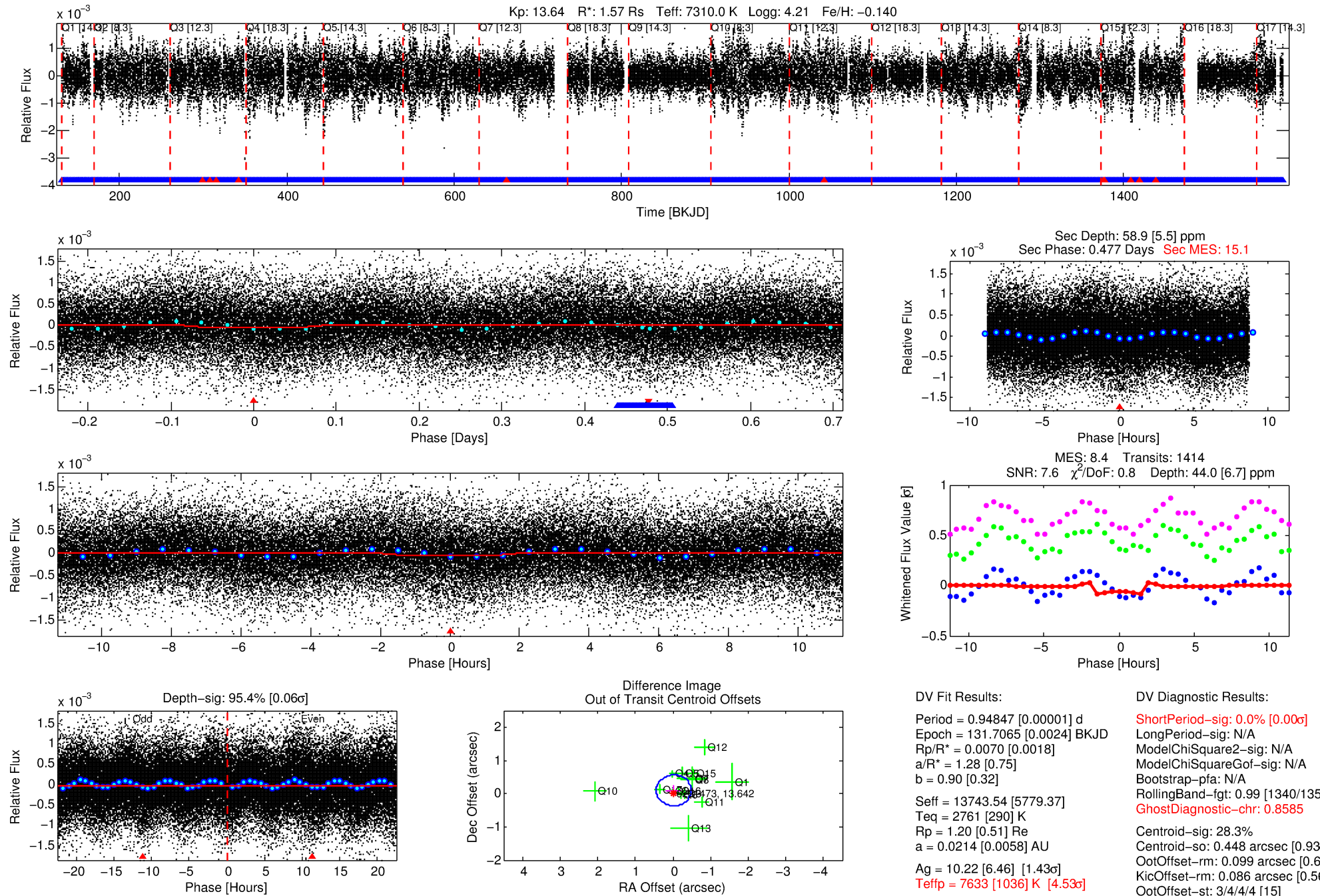
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006291473-01

No Significant Match Found

DV One-Page Summary

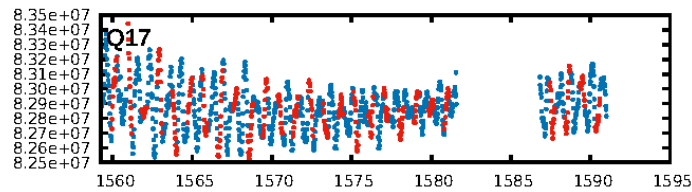
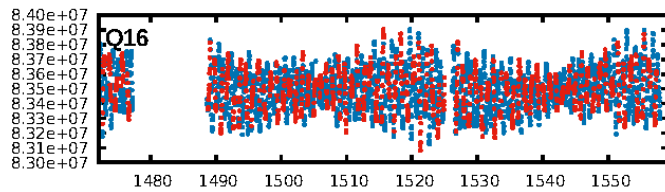
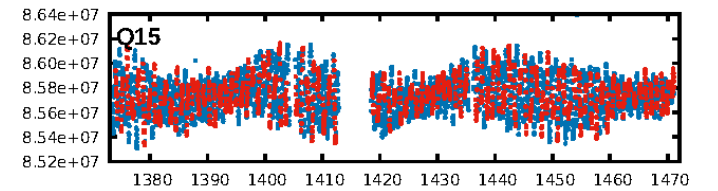
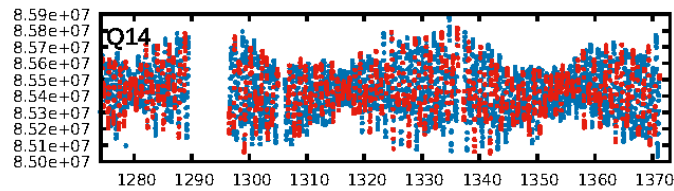
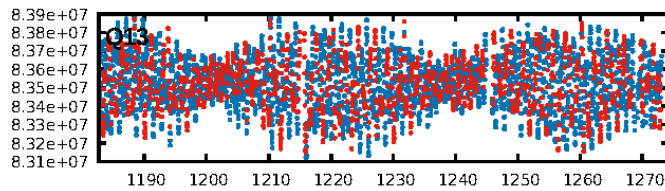
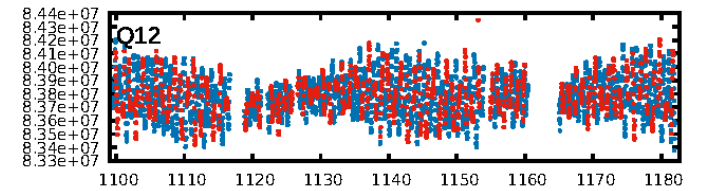
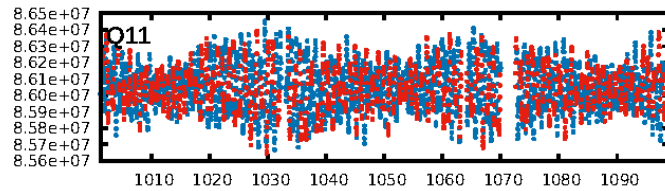
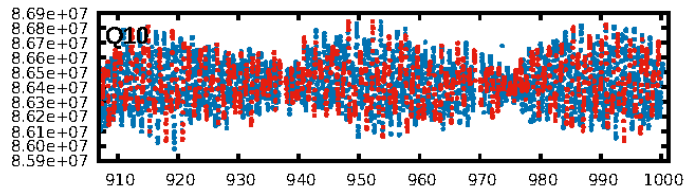
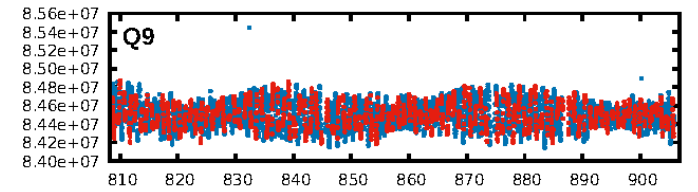
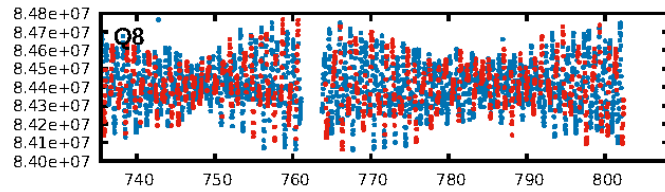
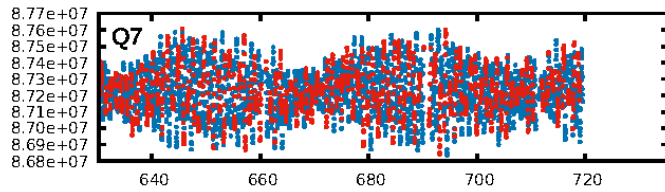
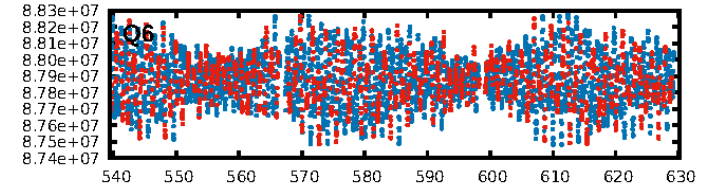
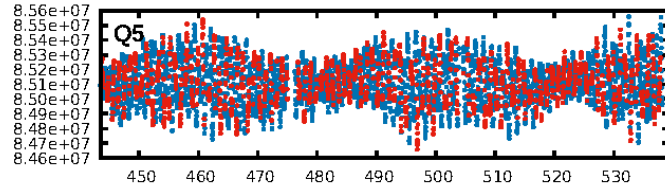
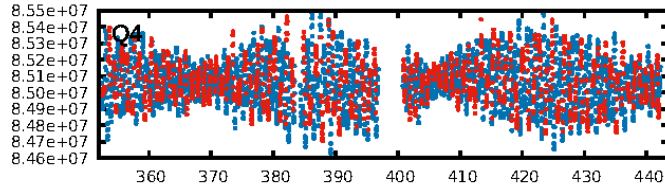
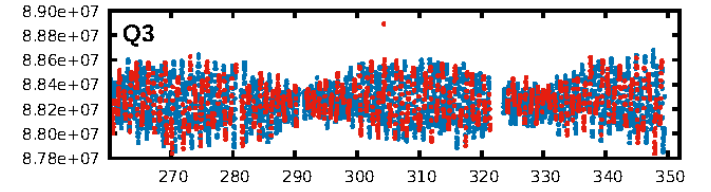
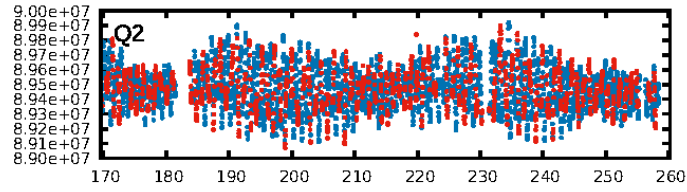
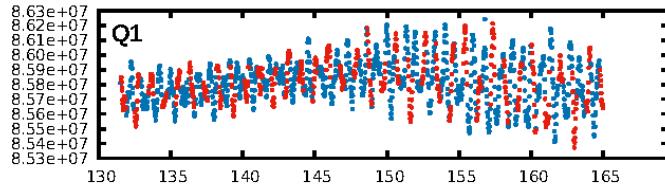
KIC: 6291473 Candidate: 1 of 2 Period: 0.948 d



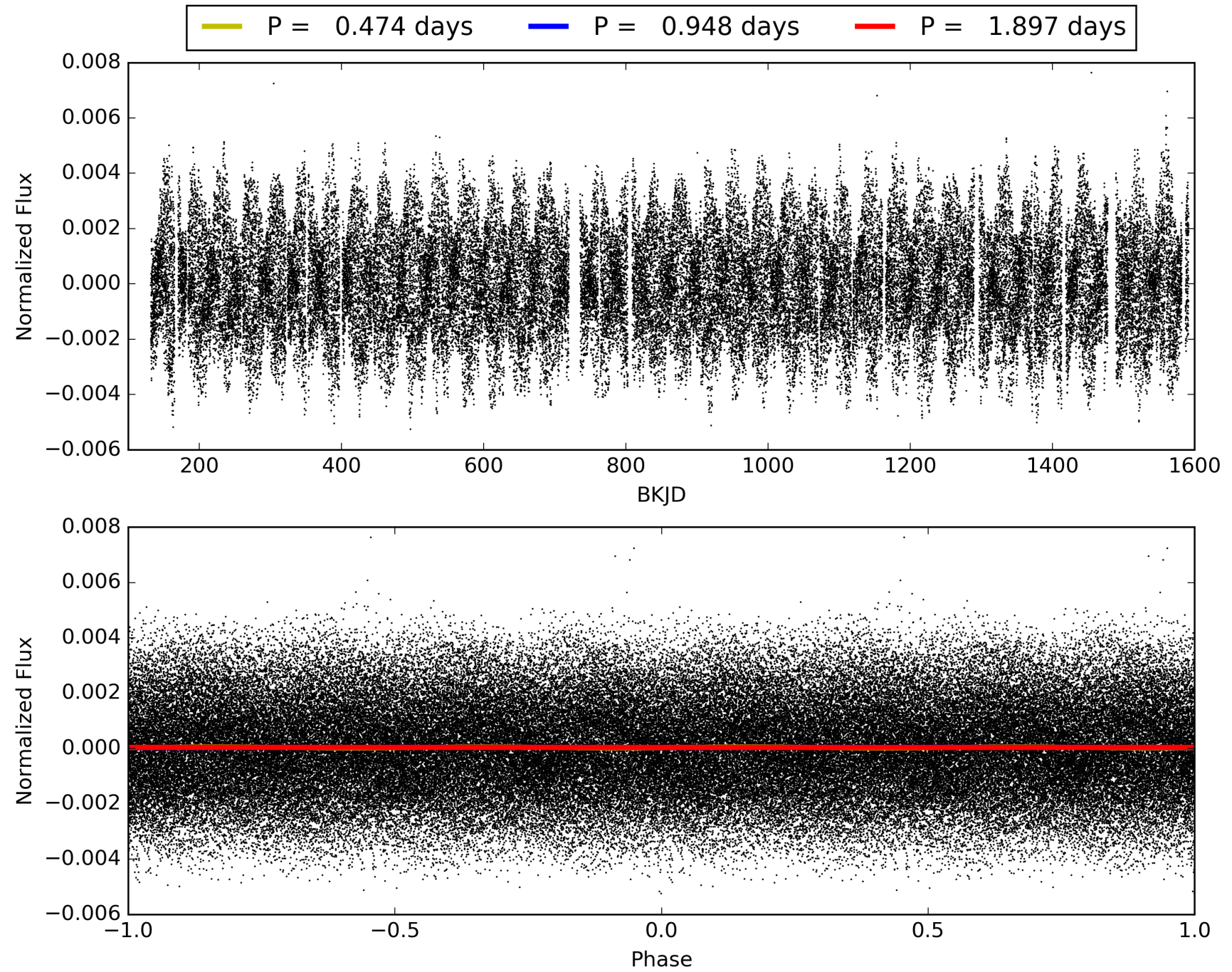
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:51:18 Z

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

TCE 006291473-01, PDC Light Curves

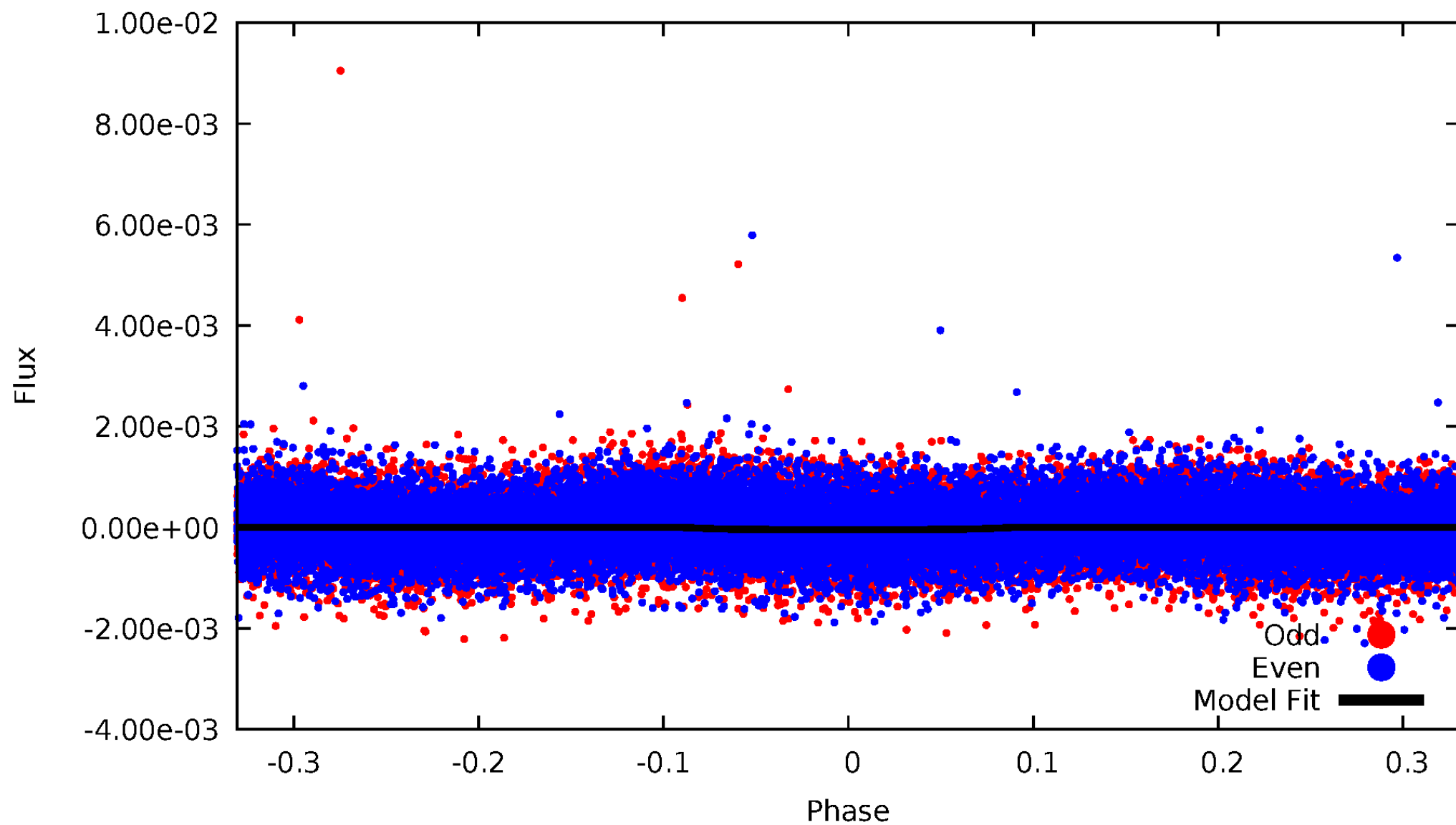


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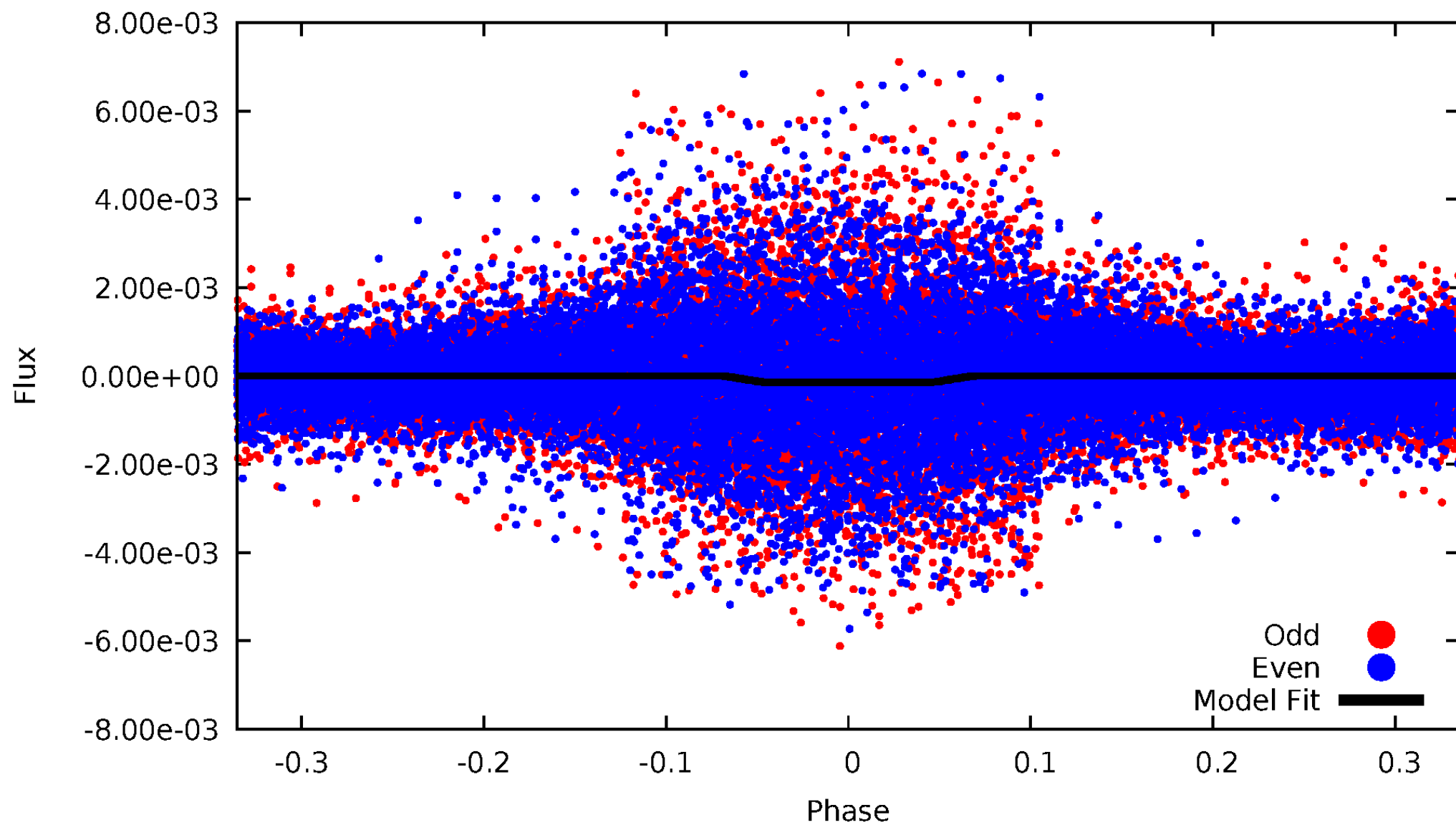
DV Odd/Even

TCE 006291473-01



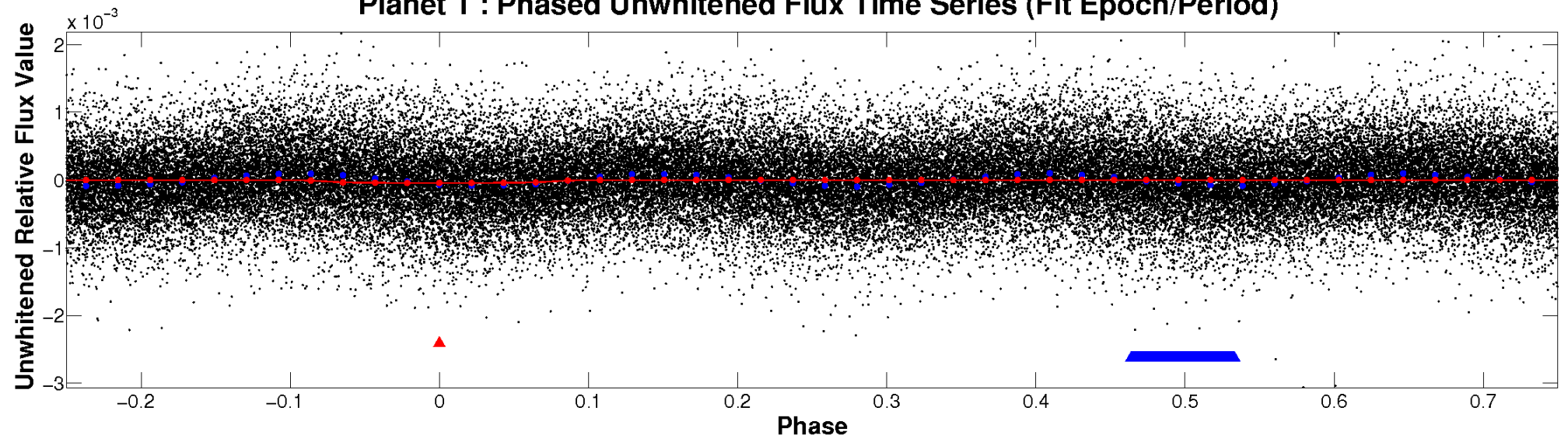
ALT Odd/Even

TCE 006291473-01

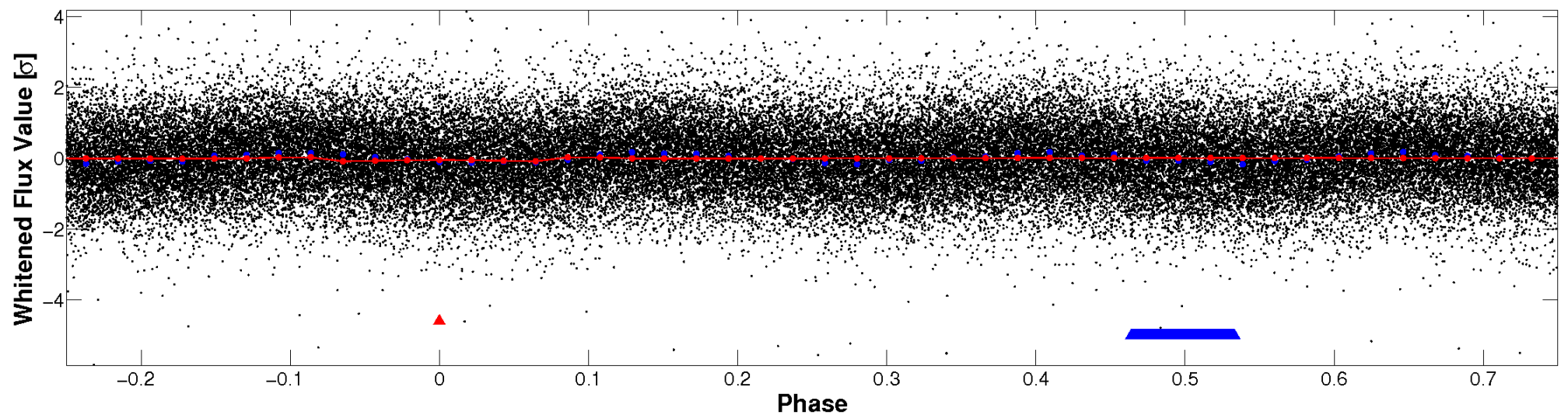


Non-Whitened Vs. Whitened Light Curve

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

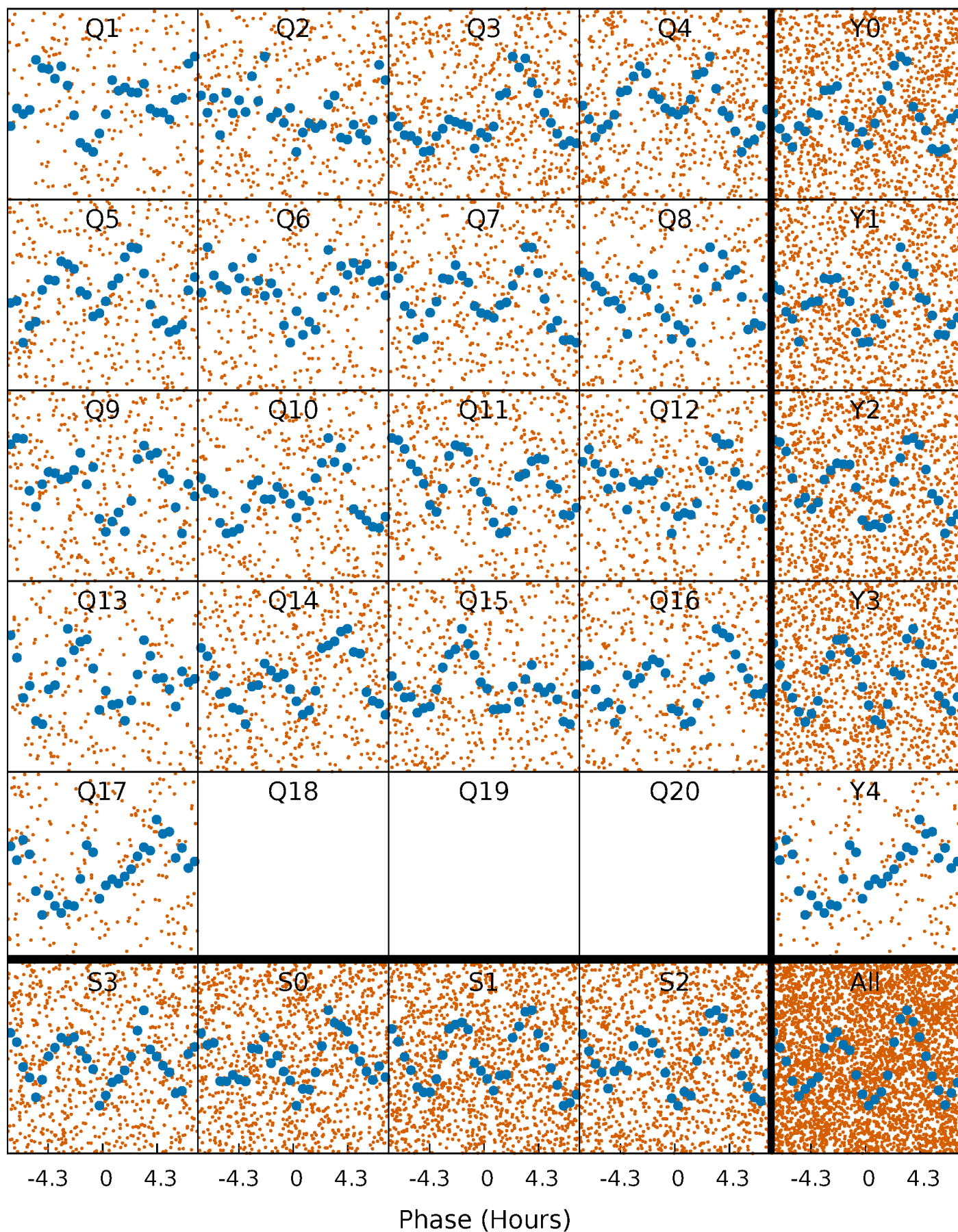


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



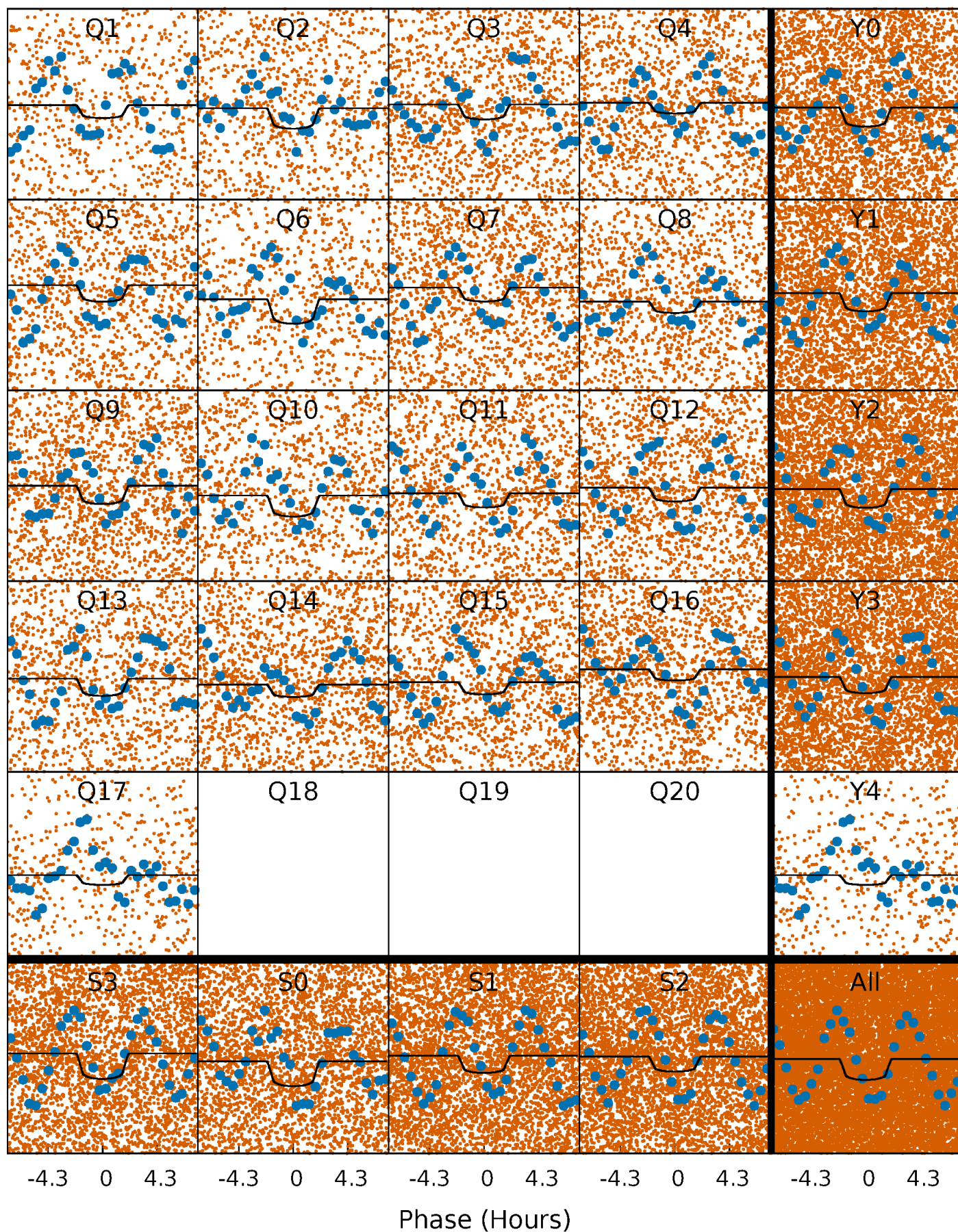
PDC Quarter-Phased Transit Curves

TCE 006291473-01 P= 0.948466 Days $T_0=131.706460$ (BKJD)



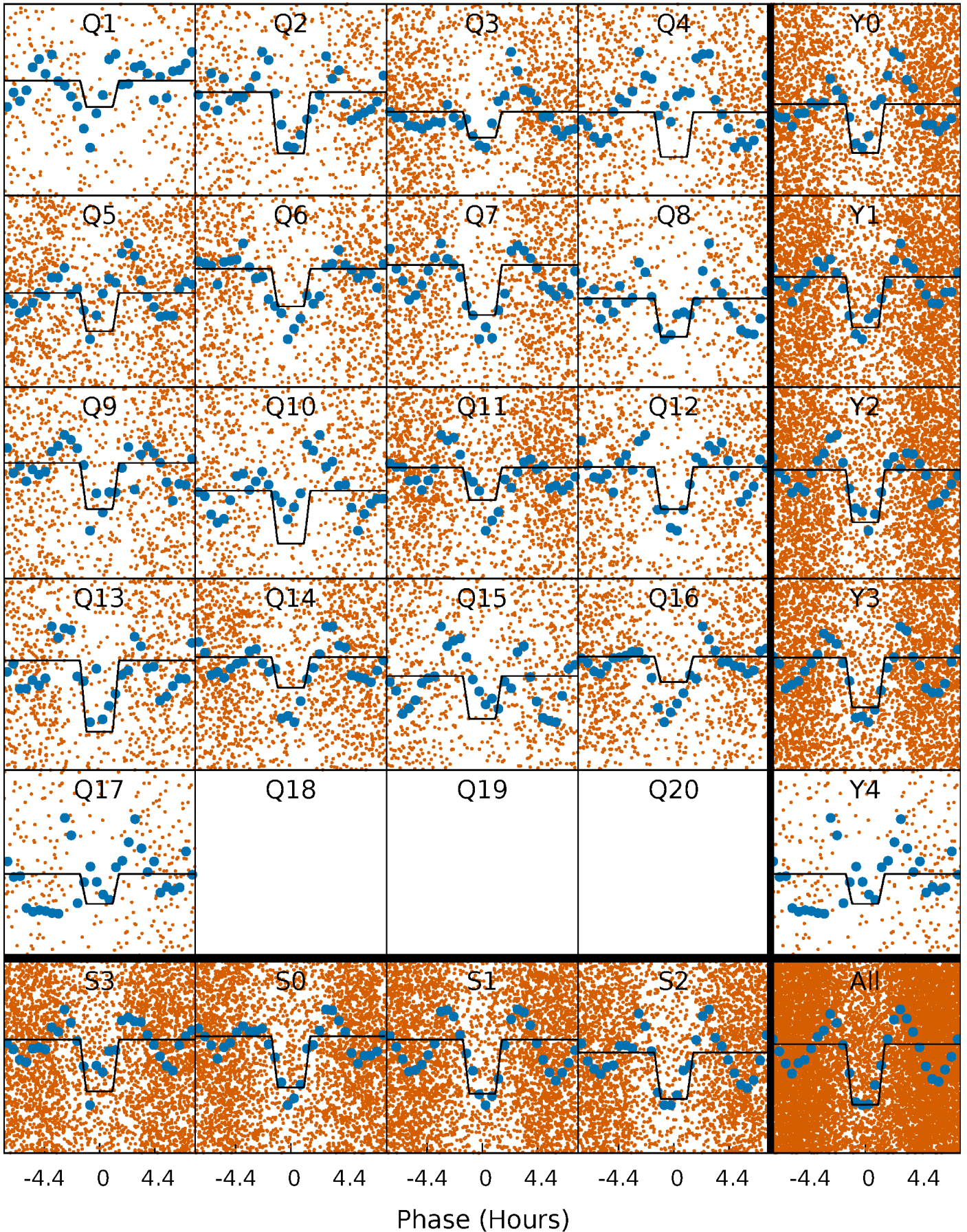
DV Quarter-Phased Transit Curves

TCE 006291473-01 P= 0.948466 Days $T_0=131.706460$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

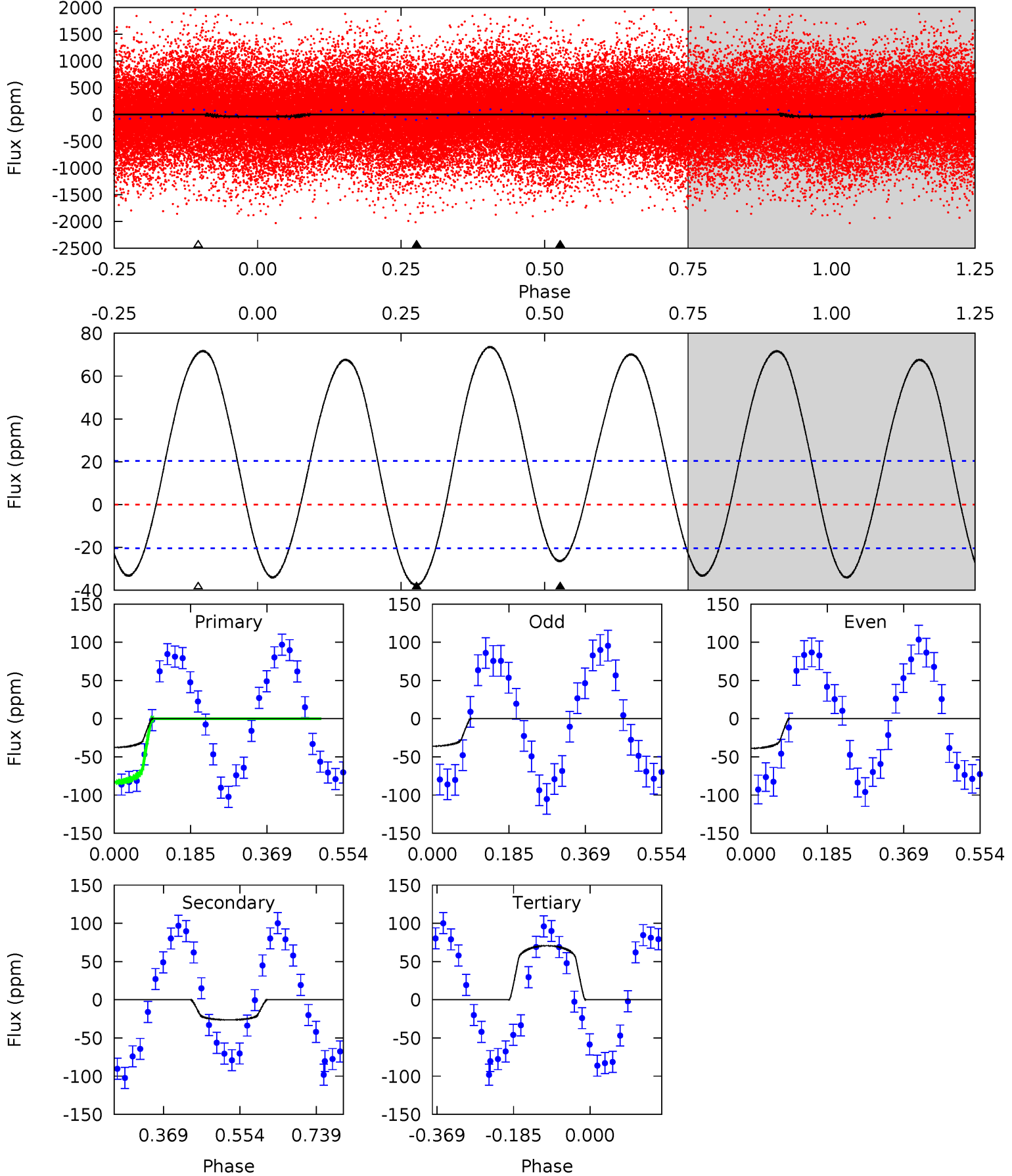
TCE 006291473-01 P= 0.948499 Days $T_0=131.705633$ (BKJD)



DV Model-Shift Uniqueness Test

006291473-01, P = 0.948466 Days, E = 130.757994 Days

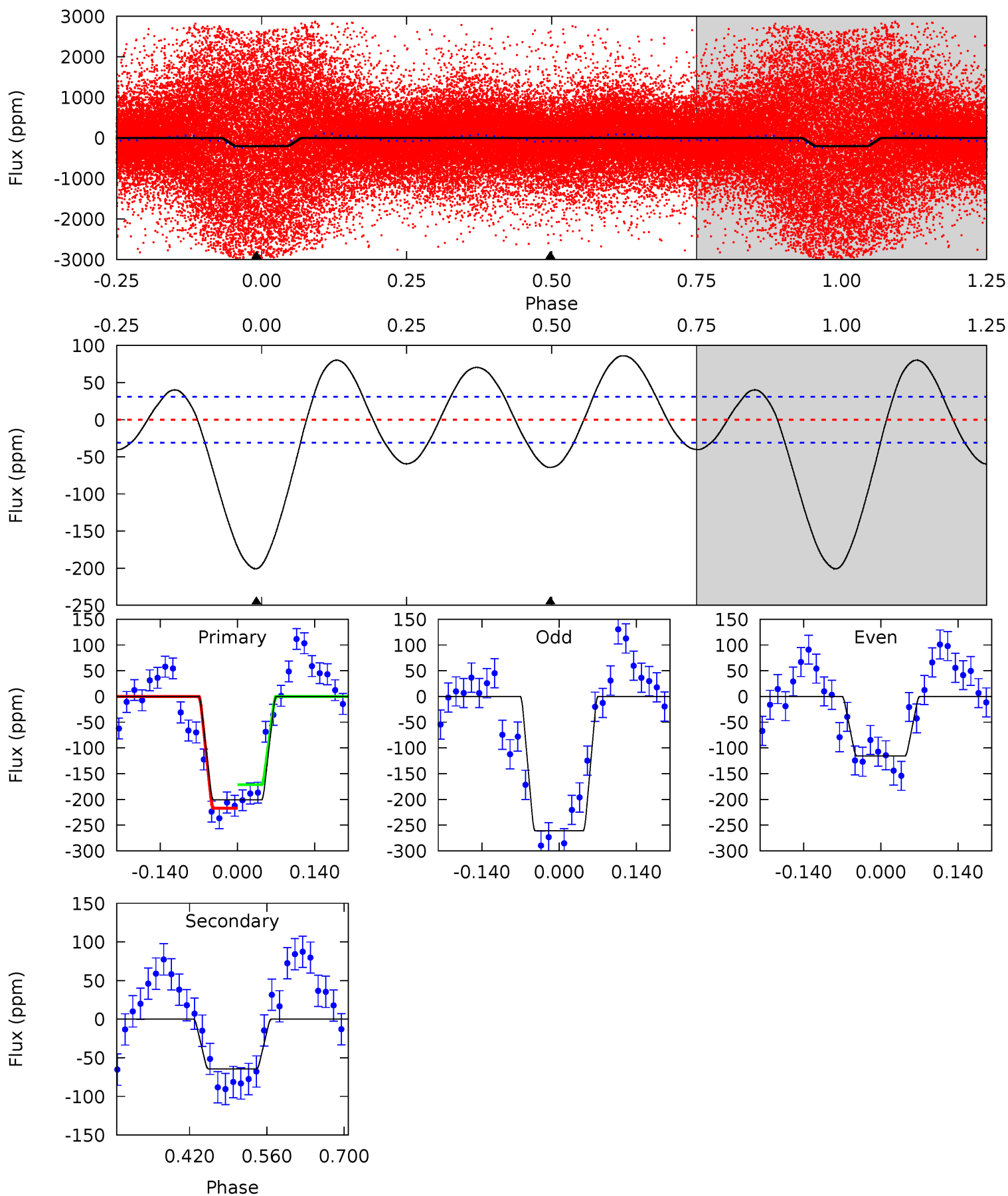
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-------|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.18 | 5.75 | -15.4 | 0 | 4.43 | 1.33 | 7.73 | 23.6 | 8.18 | 21.1 | 5.75 | 0.31 | 1.13 | 0.66 | 8.17 |



Alt Model-Shift Uniqueness Test

006291473-01, P = 0.948499 Days, E = 130.757134 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 29.2 | 9.33 | 0 | 0 | 4.49 | 1.48 | 6.05 | 29.2 | 29.2 | 9.33 | 9.33 | 10.5 | 1.00 | 0.30 | 3.32 |



Stellar Parameters For KIC 006291473

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
| | 7310^{+232}_{-348} | $4.209^{+0.105}_{-0.195}$ | $-0.140^{+0.250}_{-0.350}$ | $1.568^{+0.531}_{-0.286}$ | $1.452^{+0.219}_{-0.219}$ | $0.531^{+0.270}_{-0.266}$ |
| | +3%/-5% | +2%/-5% | +179%/-250% | +34%/-18% | +15%/-15% | +51%/-50% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006291473-01 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{max} (K)$ | $T_{obs} (K)$ | A_{obs} |
|---------|-------------|------------------------|----------------------|-----------------------|---------------------------|
| DV | -26 ± 5 | $1.23^{+0.38}_{-0.33}$ | 3903^{+301}_{-240} | 6082^{+1059}_{-791} | $4.374^{+3.391}_{-1.876}$ |
| Alt. | -64 ± 7 | $2.10^{+0.52}_{-0.37}$ | 3907^{+310}_{-261} | 5758^{+583}_{-499} | $3.579^{+1.800}_{-1.214}$ |

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 $A_{obs} \gg 1.0$

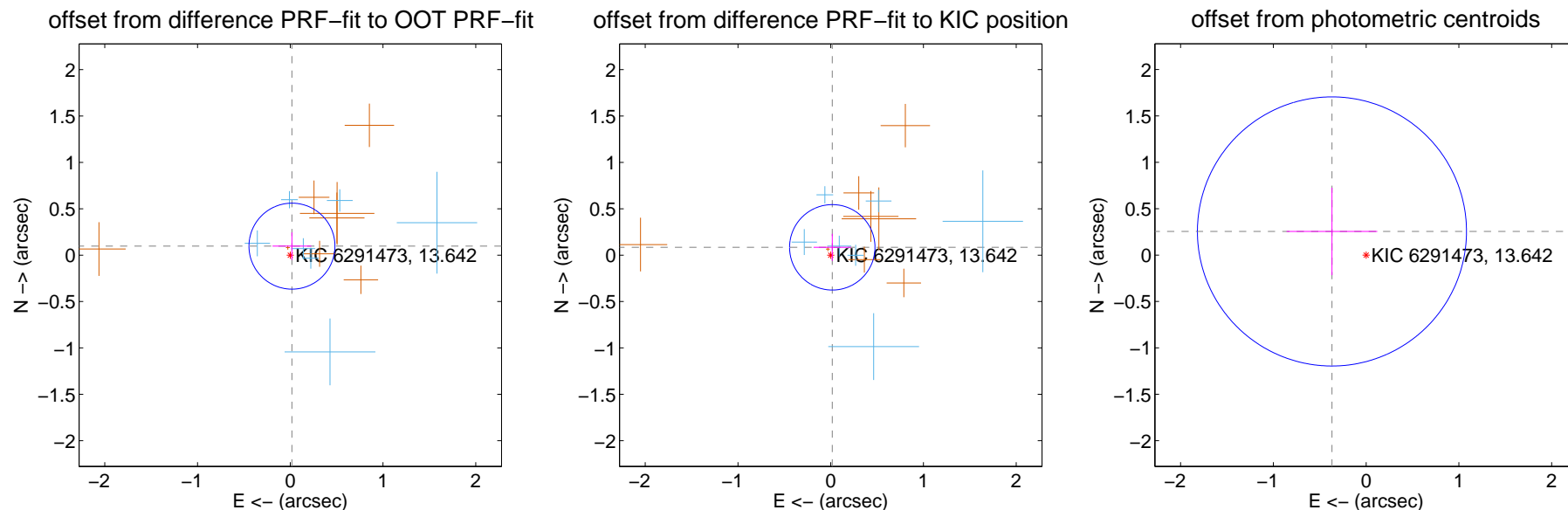
DV Centroid Data

Supplemental centroid analysis for 006291473-01. Kepler magnitude: 13.64. Transit SNR 7.55

There are 7 quarters with good PRF difference image offsets

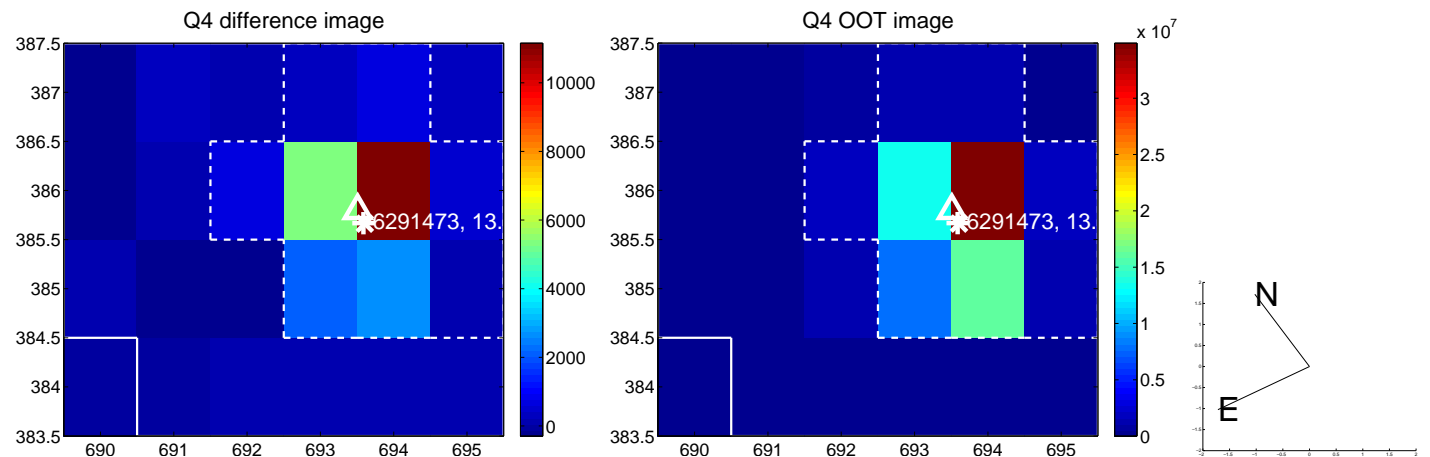
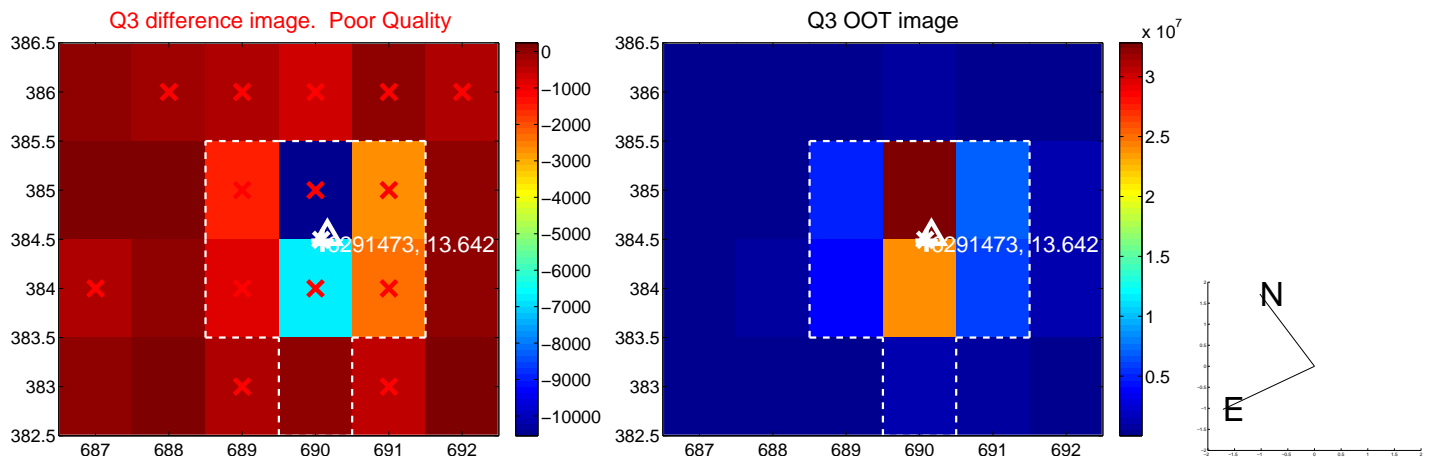
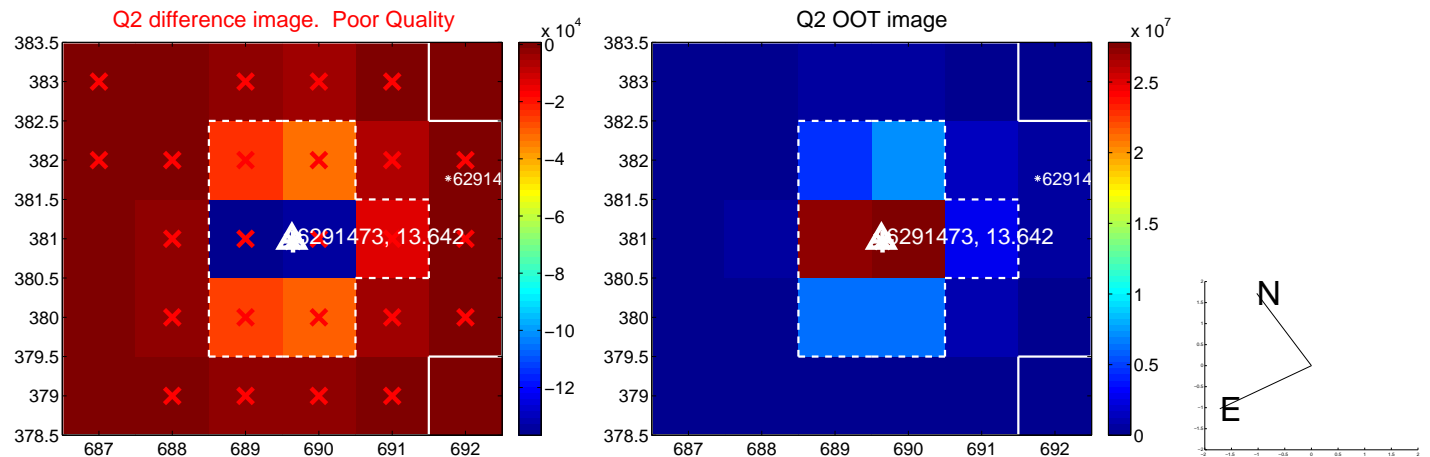
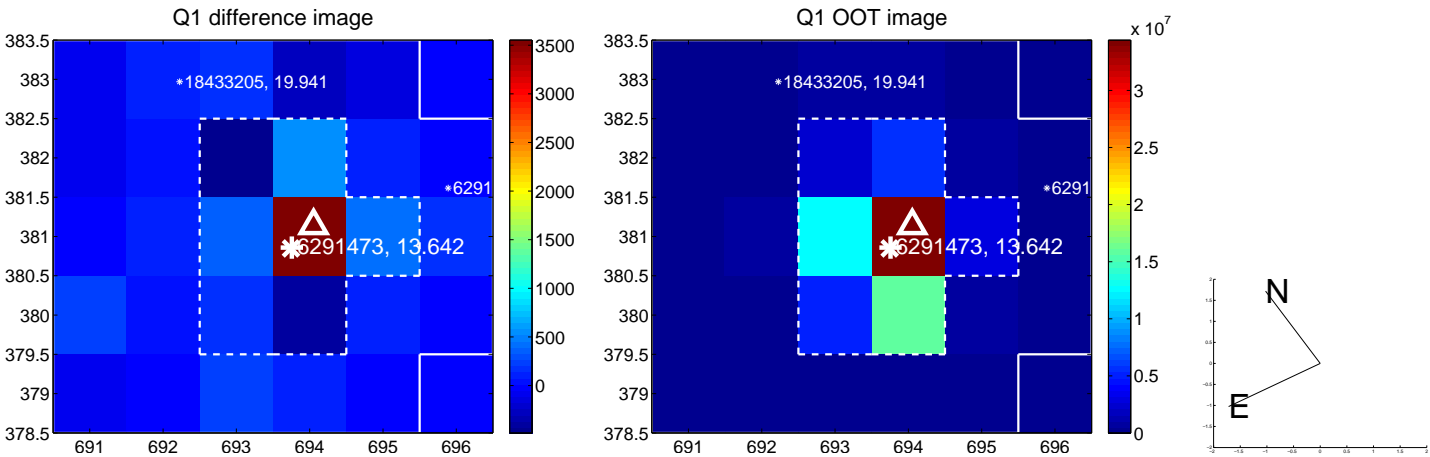
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|--------------------|-------------------|
| PRF-fit source offset from OOT | 0.099 ± 0.155 | 0.64 | -0.018 ± 0.209 | 0.097 ± 0.148 |
| PRF-fit source offset from KIC position | 0.086 ± 0.154 | 0.56 | -0.017 ± 0.201 | 0.084 ± 0.146 |
| photometric centroid source offset | 0.45 ± 0.48 | 0.93 | 0.37 ± 0.49 | 0.25 ± 0.47 |

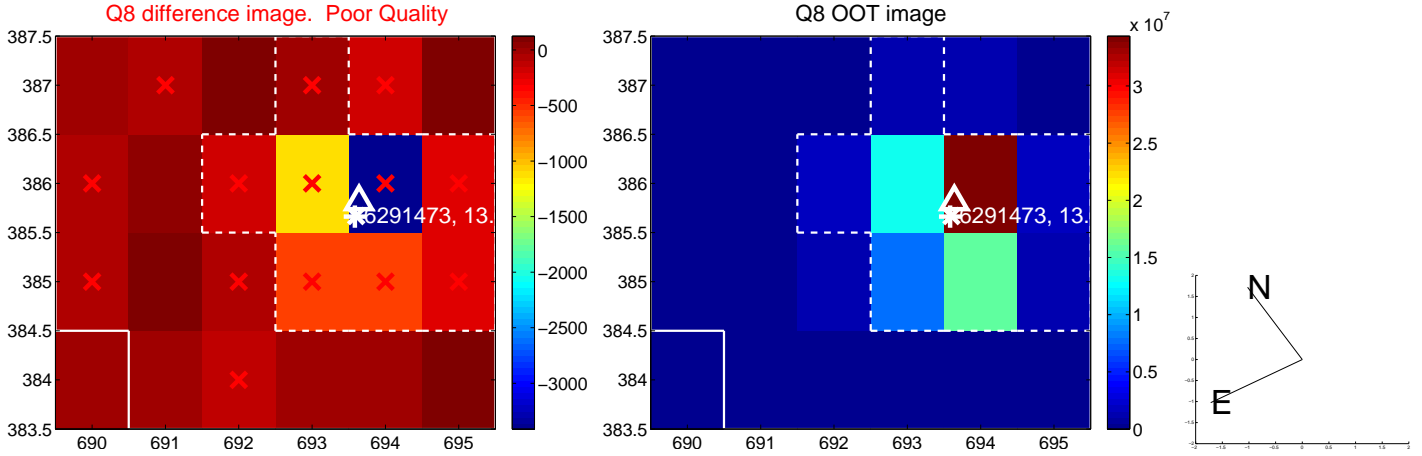
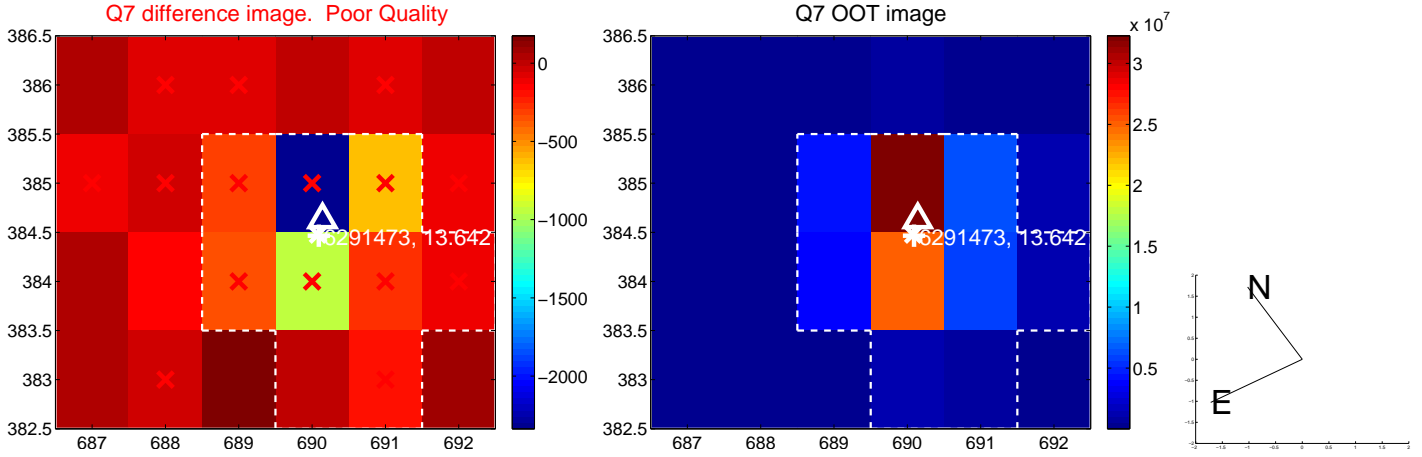
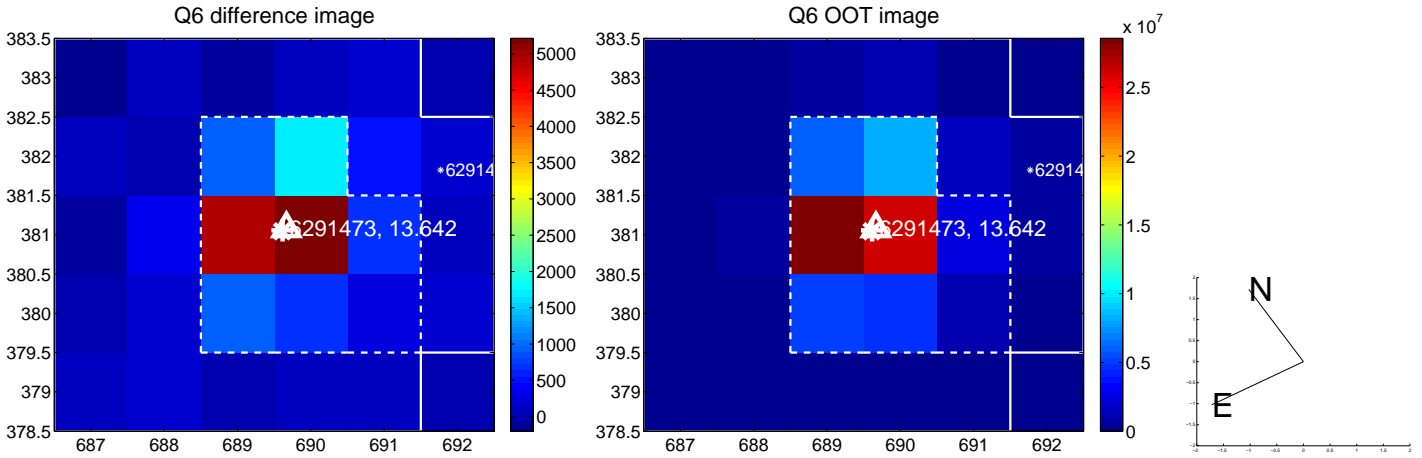
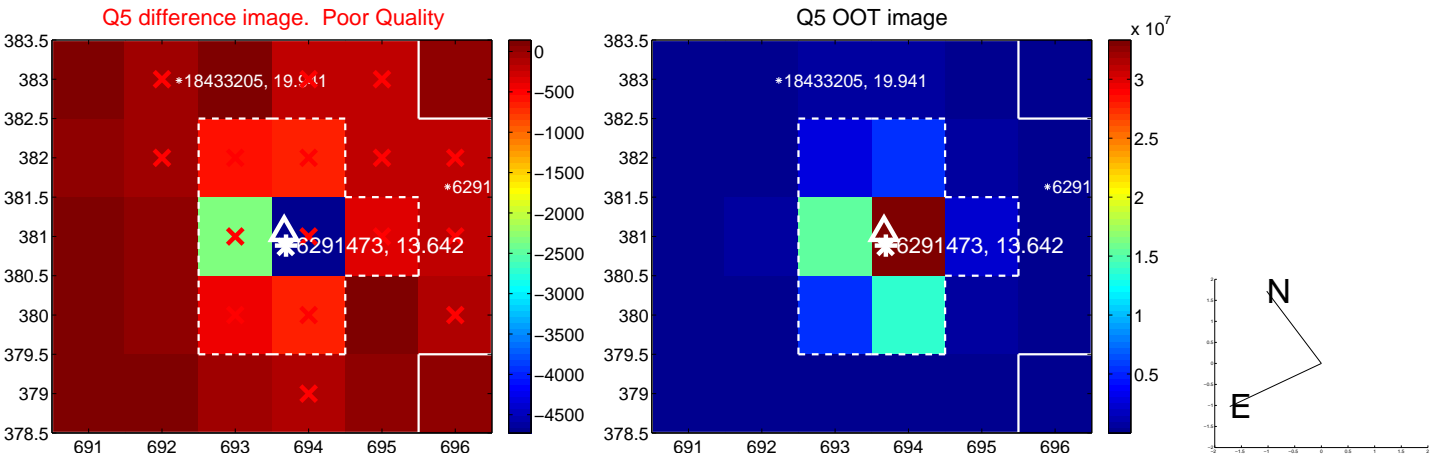


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

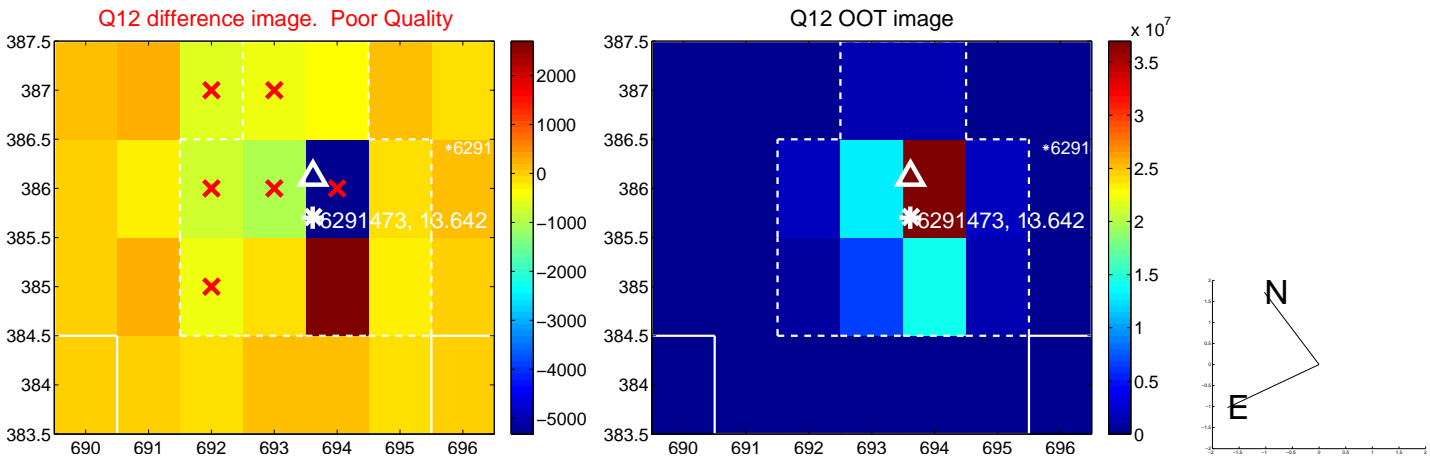
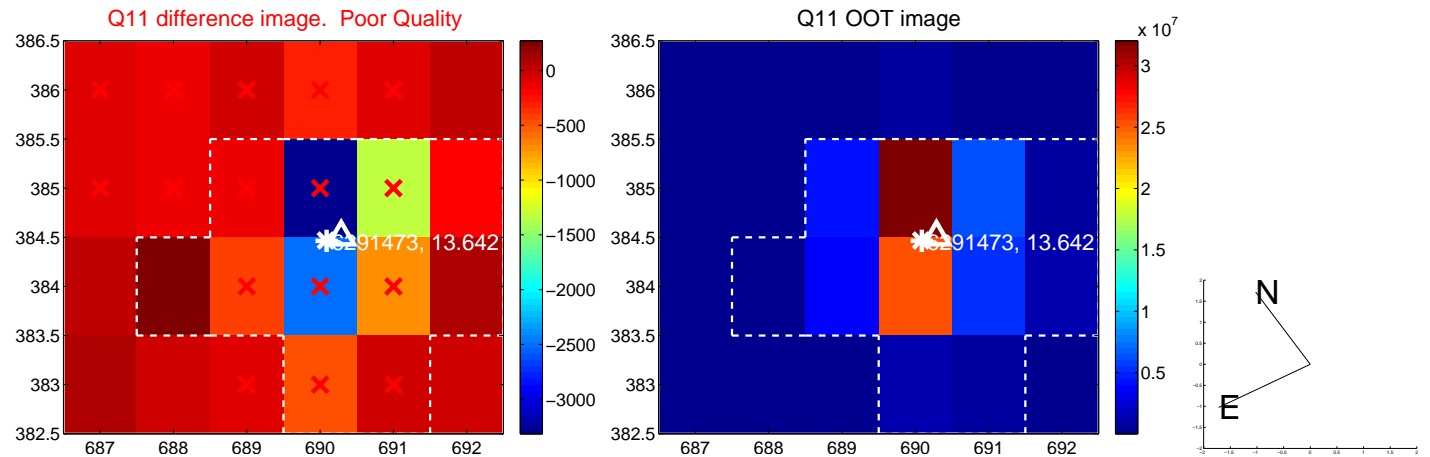
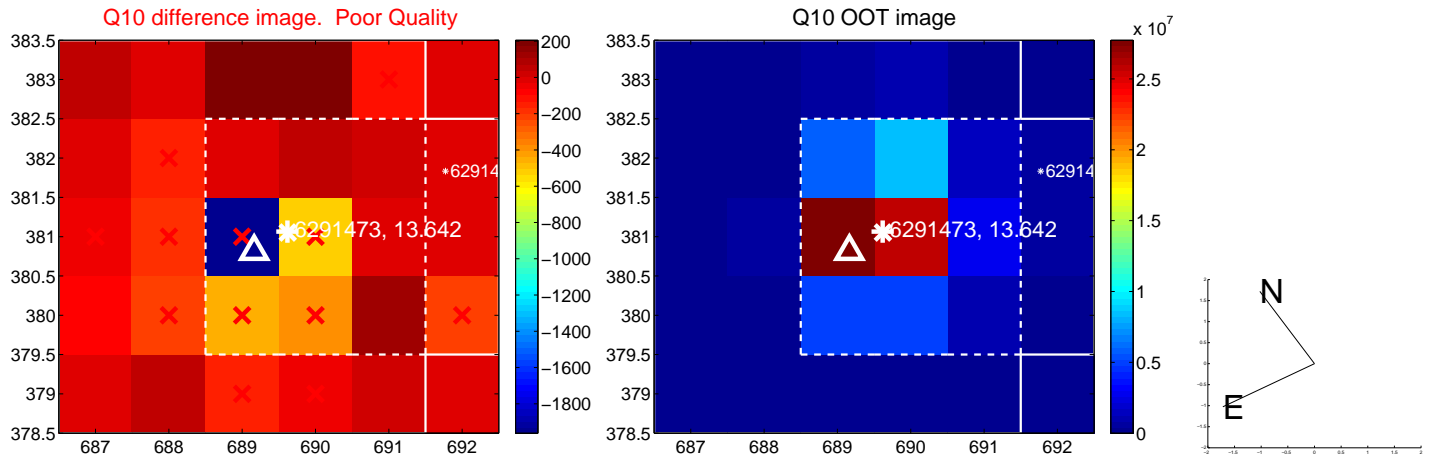
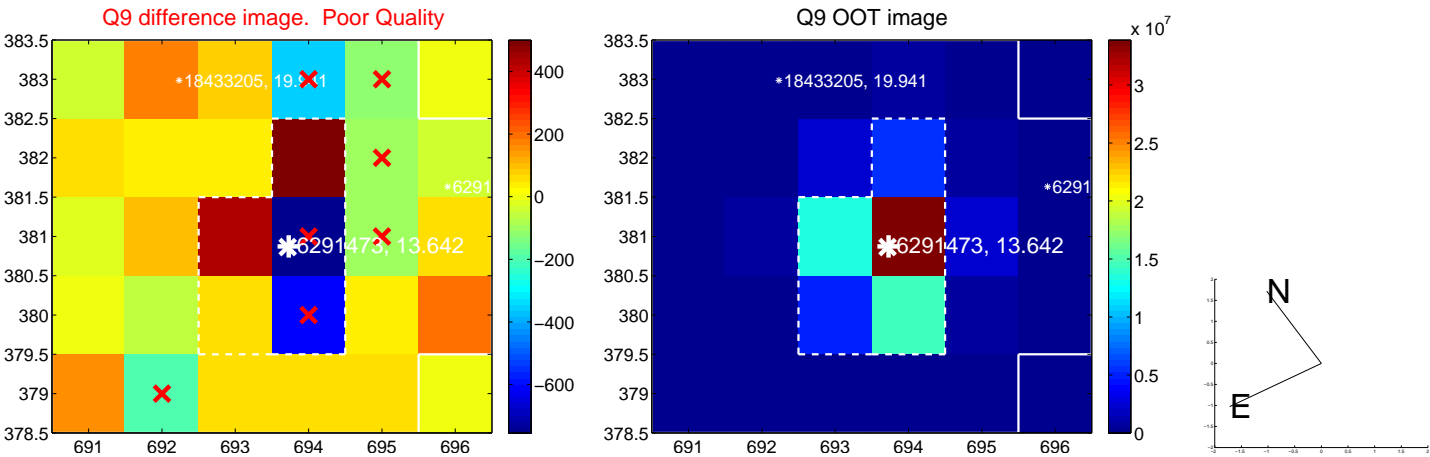
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



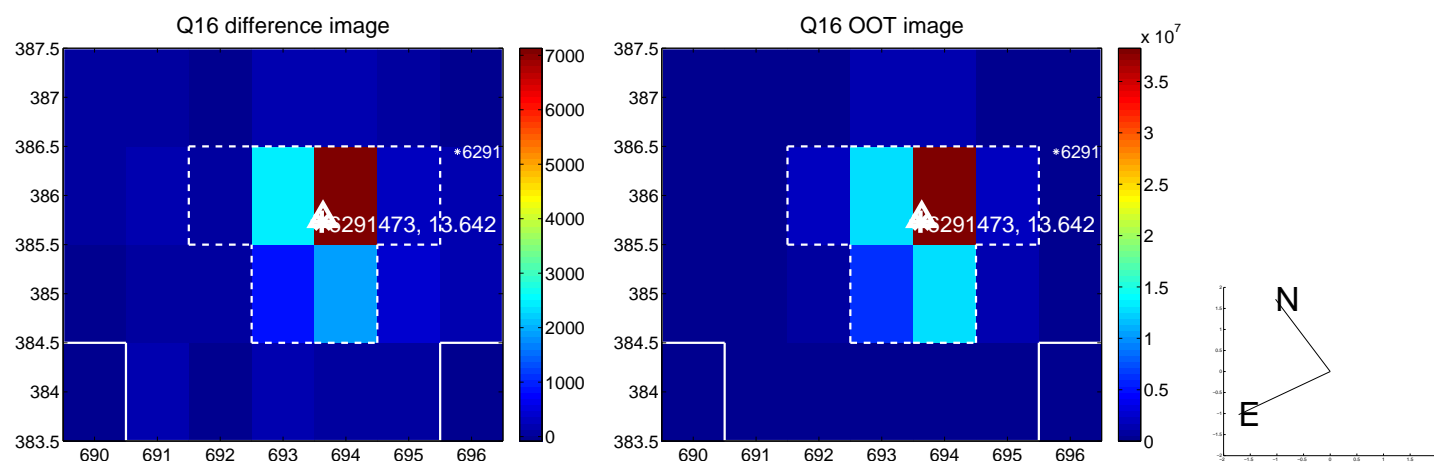
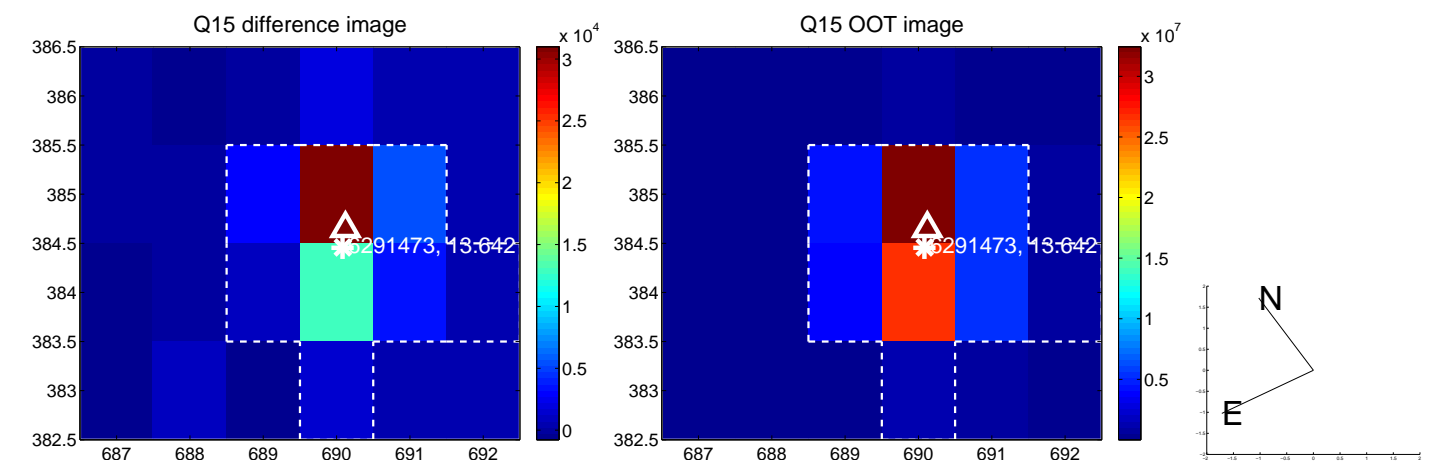
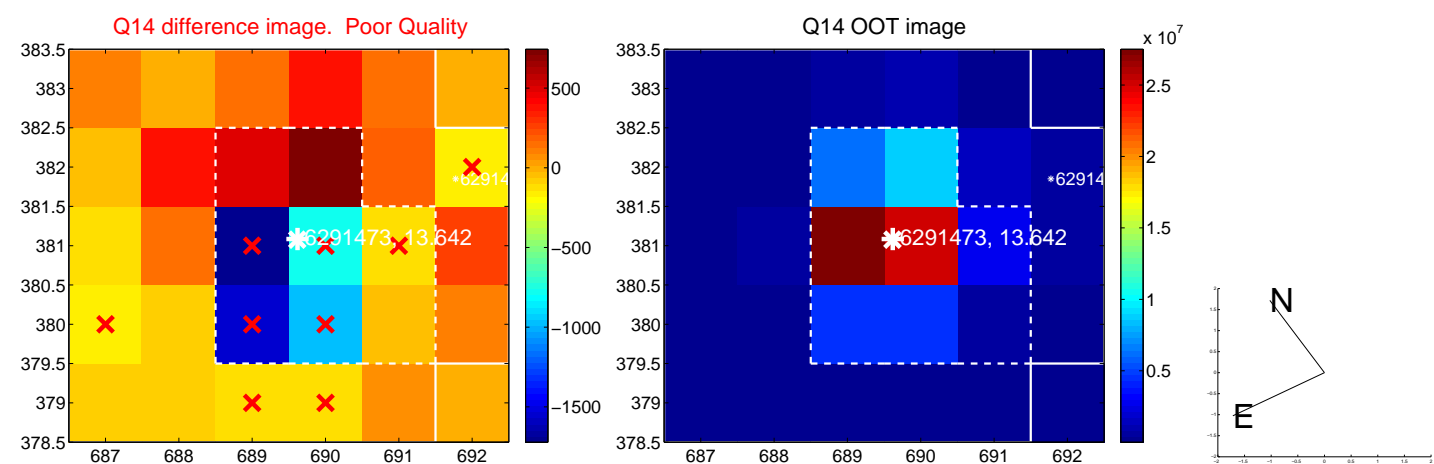
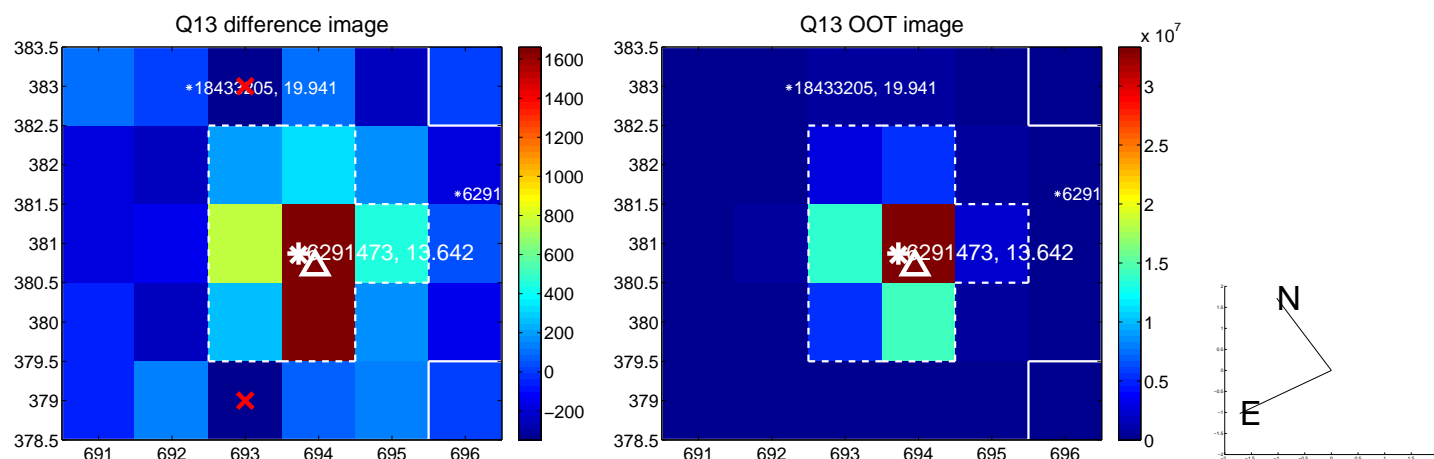
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



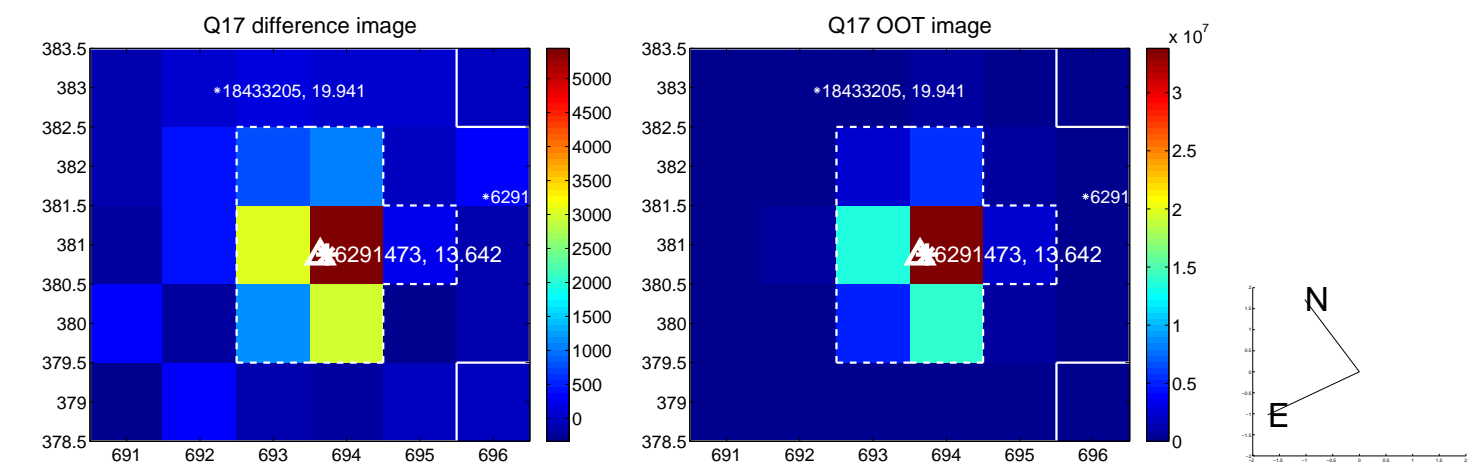
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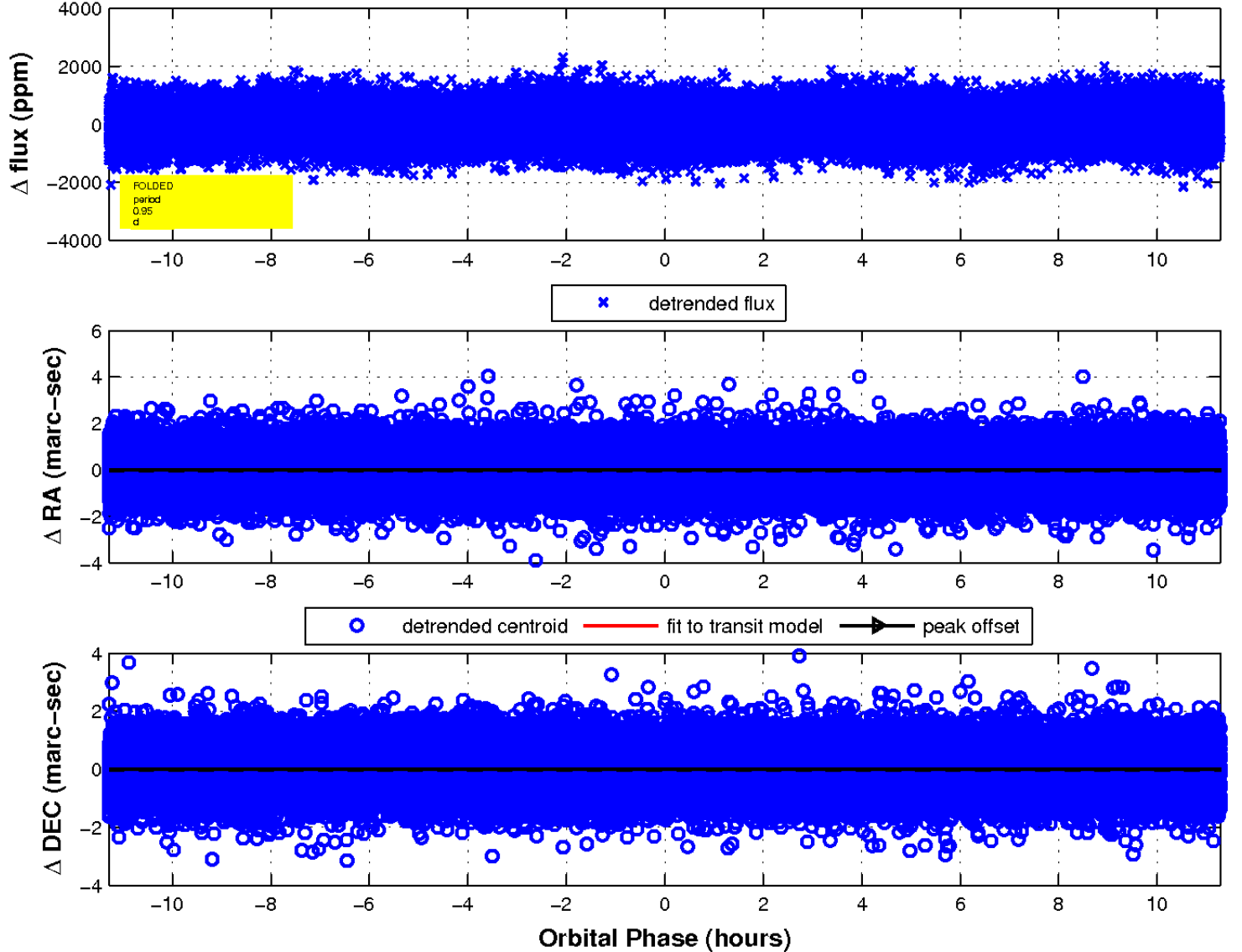
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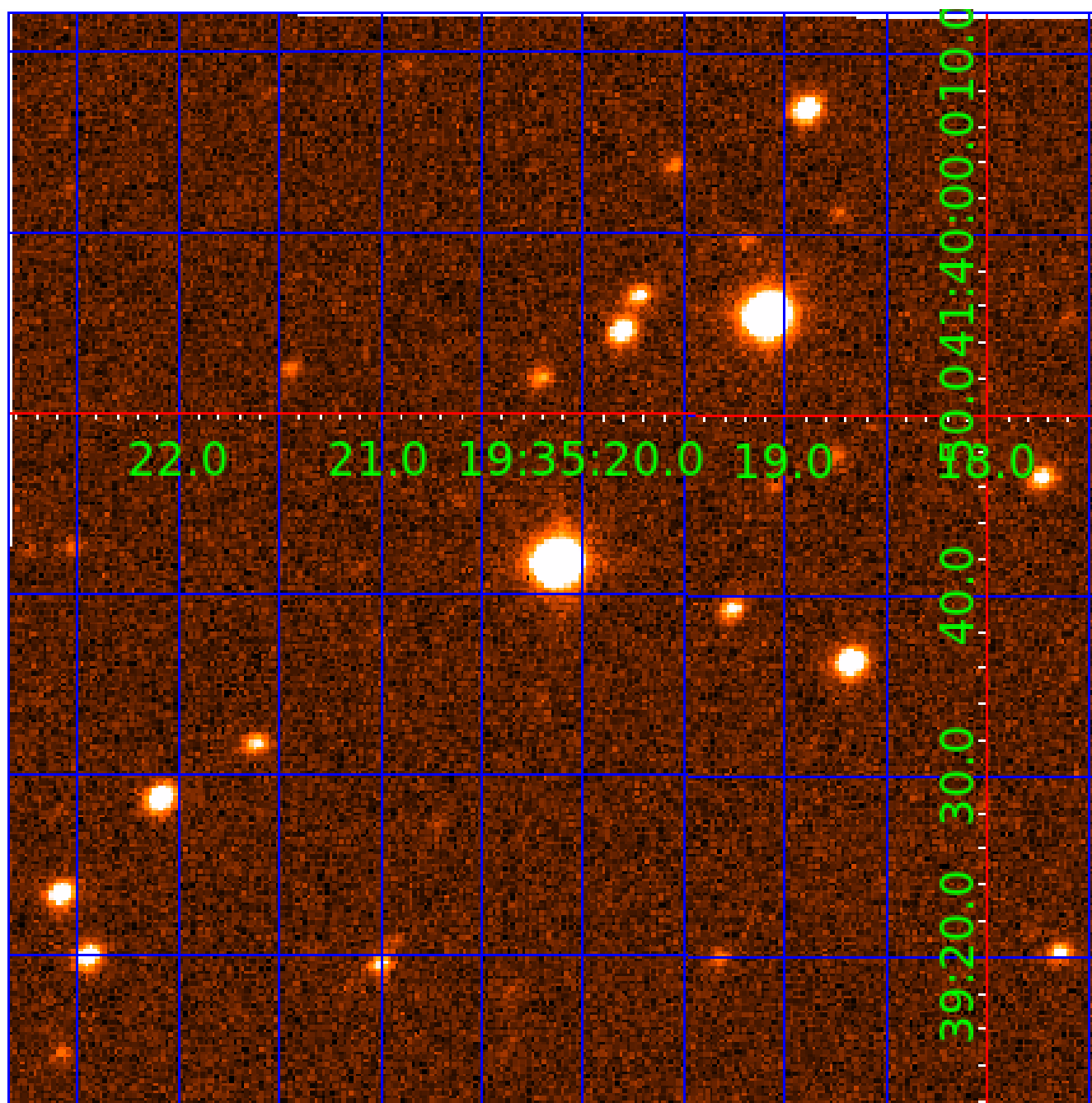


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 006291473

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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| 006291473-02 | OBS | No | 0.948424 | 132.212137 | 17.6 | 4.272 | 11.6 | 3.3 | 1.57 | 7310 | 0.69 | 13744.37 |

Robovetter Results

| TCE | Run Type | Disp | Score | N | S | C | E | Comments |
|--------------|----------|------|-------|---|---|---|---|-------------------------------------------------------|
| 006291473-01 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT |
| 006291473-02 | OBS | FP | 0.00 | 1 | 0 | 0 | 0 | LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD |

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

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

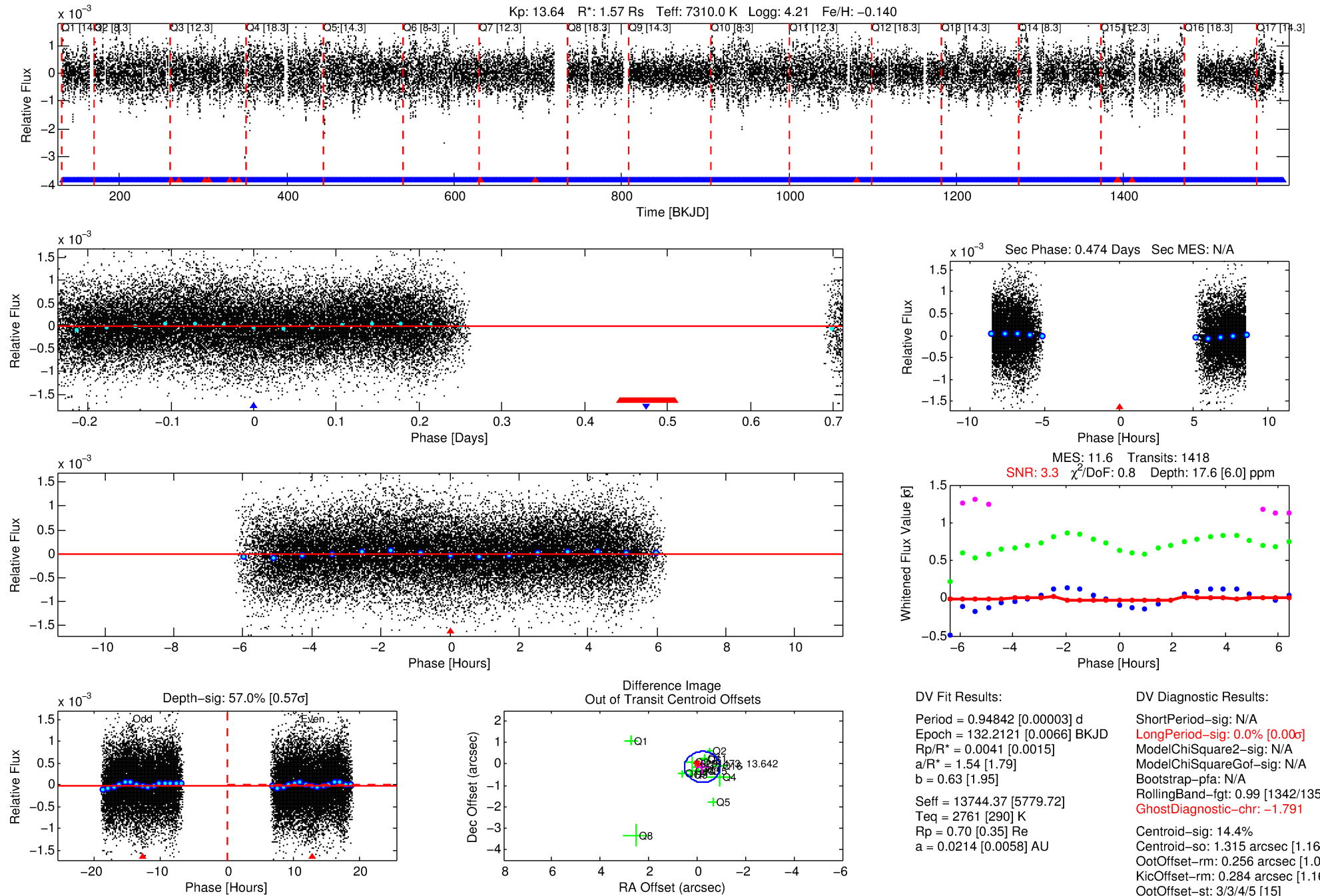
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006291473-02

No Significant Match Found

DV One-Page Summary

KIC: 6291473 Candidate: 2 of 2 Period: 0.948 d



DV Fit Results:

Period = 0.94842 [0.00003] d
Epoch = 132.2121 [0.0066] BKJD
Rp/R* = 0.0041 [0.0015]
a/R* = 1.54 [1.79]
b = 0.63 [1.95]
Seff = 13744.37 [5779.72]
Teff = 2761 [290] K
Rp = 0.70 [0.35] Re
a = 0.0214 [0.0058] AU

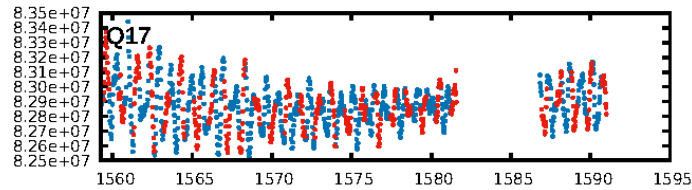
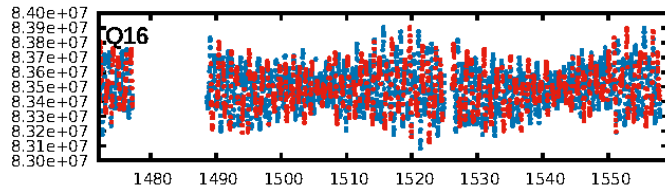
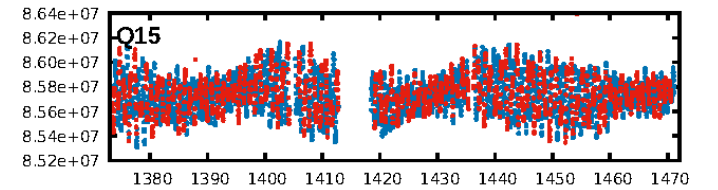
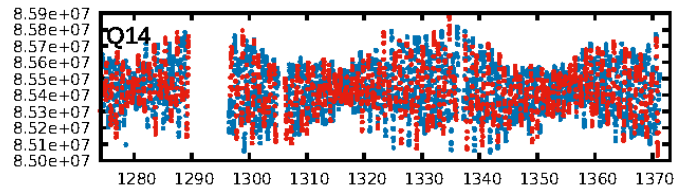
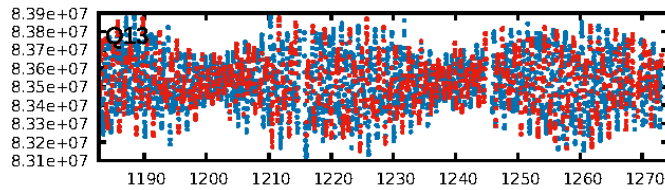
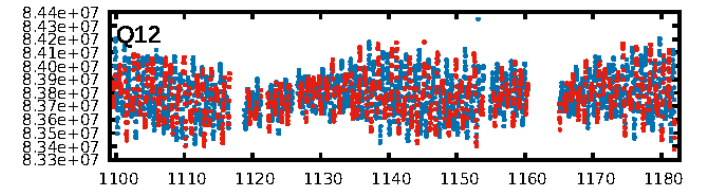
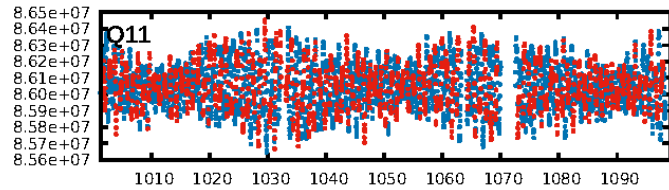
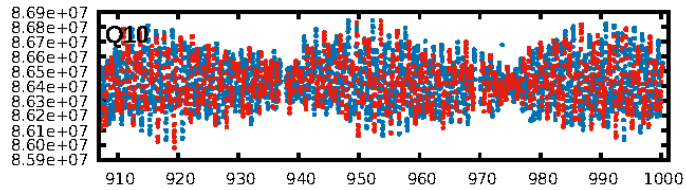
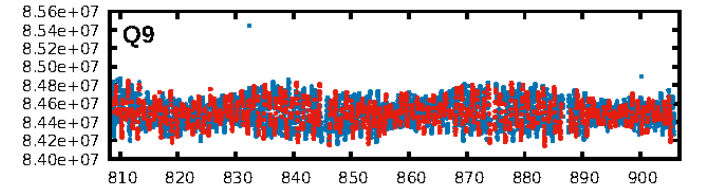
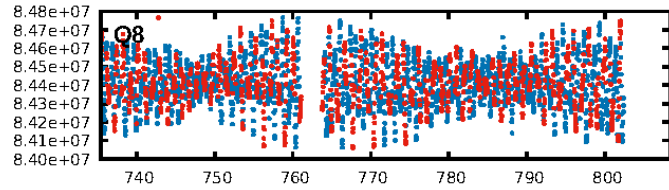
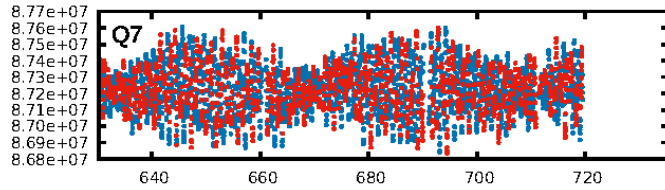
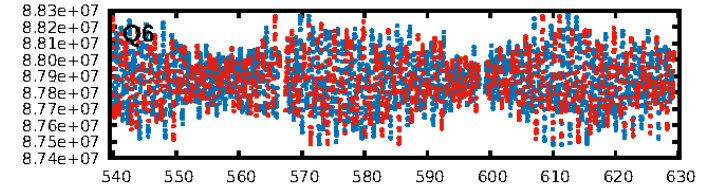
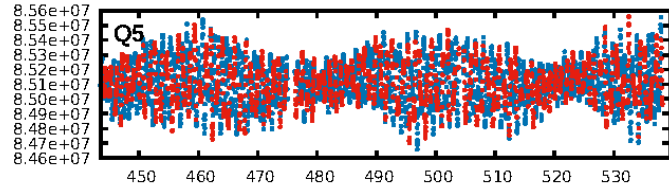
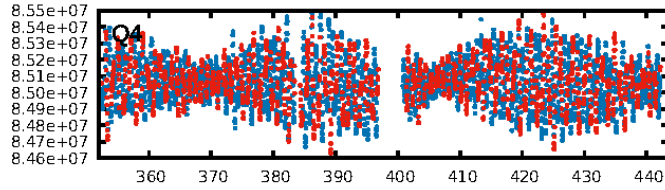
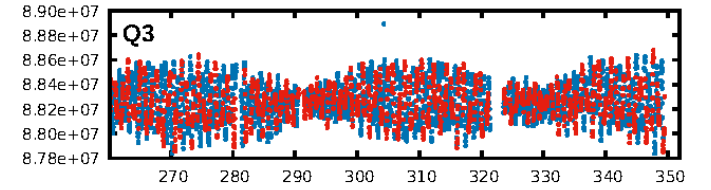
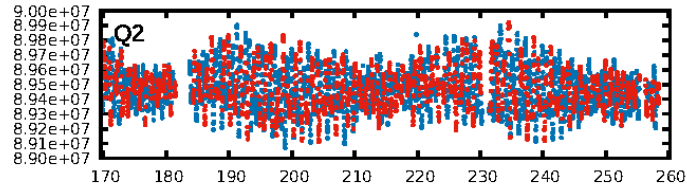
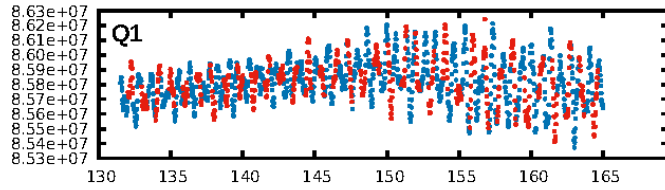
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [1342/1354]
GhostDiagnostic-chr: -1.791
Centroid-sig: 14.4%
Centroid-so: 1.315 arcsec [1.16 σ]
OotOffset-rm: 0.256 arcsec [1.05 σ]
KicOffset-rm: 0.284 arcsec [1.16 σ]
OotOffset-st: 3/3/4/5 [15]
KicOffset-st: 3/3/4/5 [15]
DiffImageQuality-fgm: 0.60 [9/15]
DiffImageOverlap-fno: 0.00 [0/17]

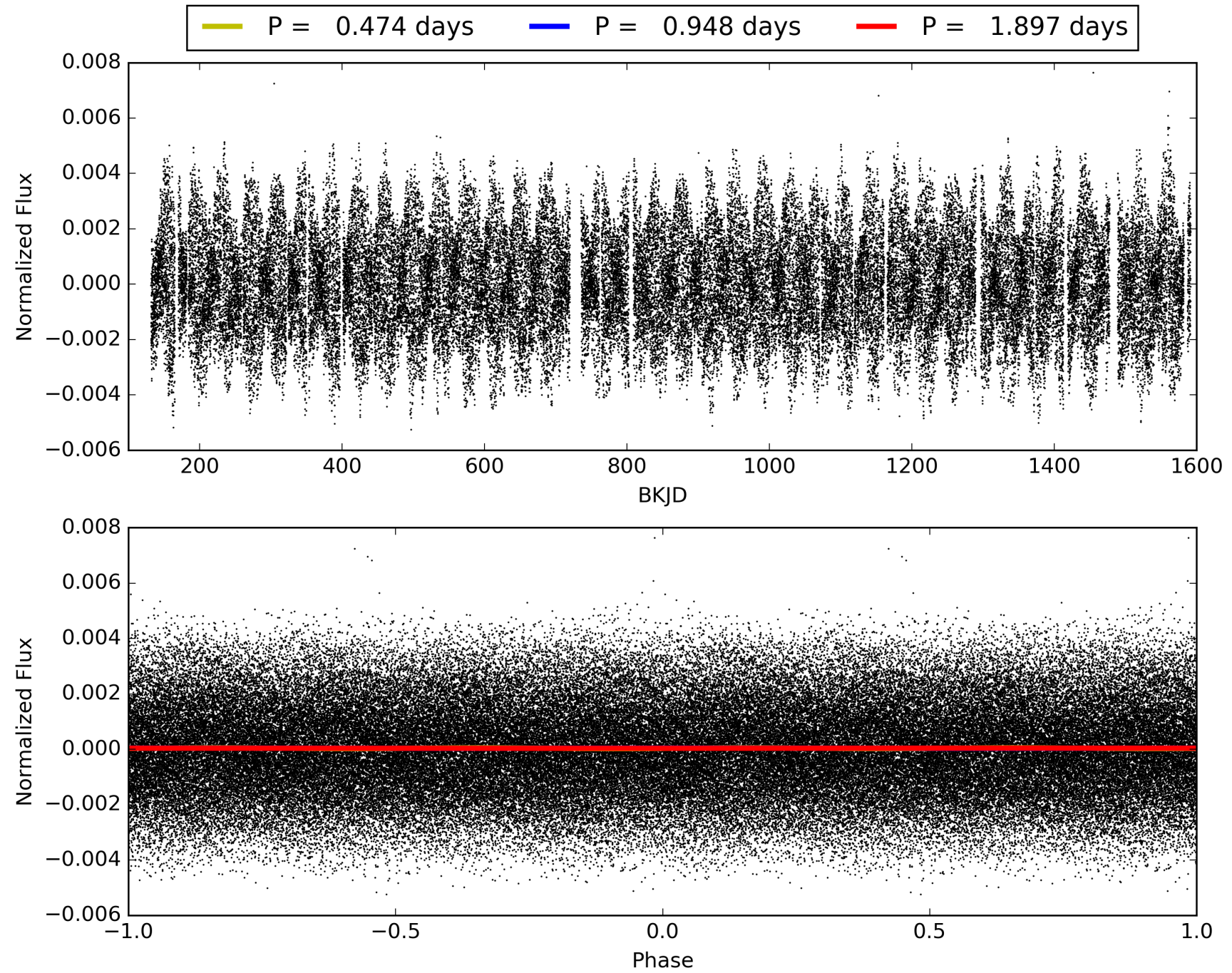
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:51:31 Z

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

TCE 006291473-02, PDC Light Curves

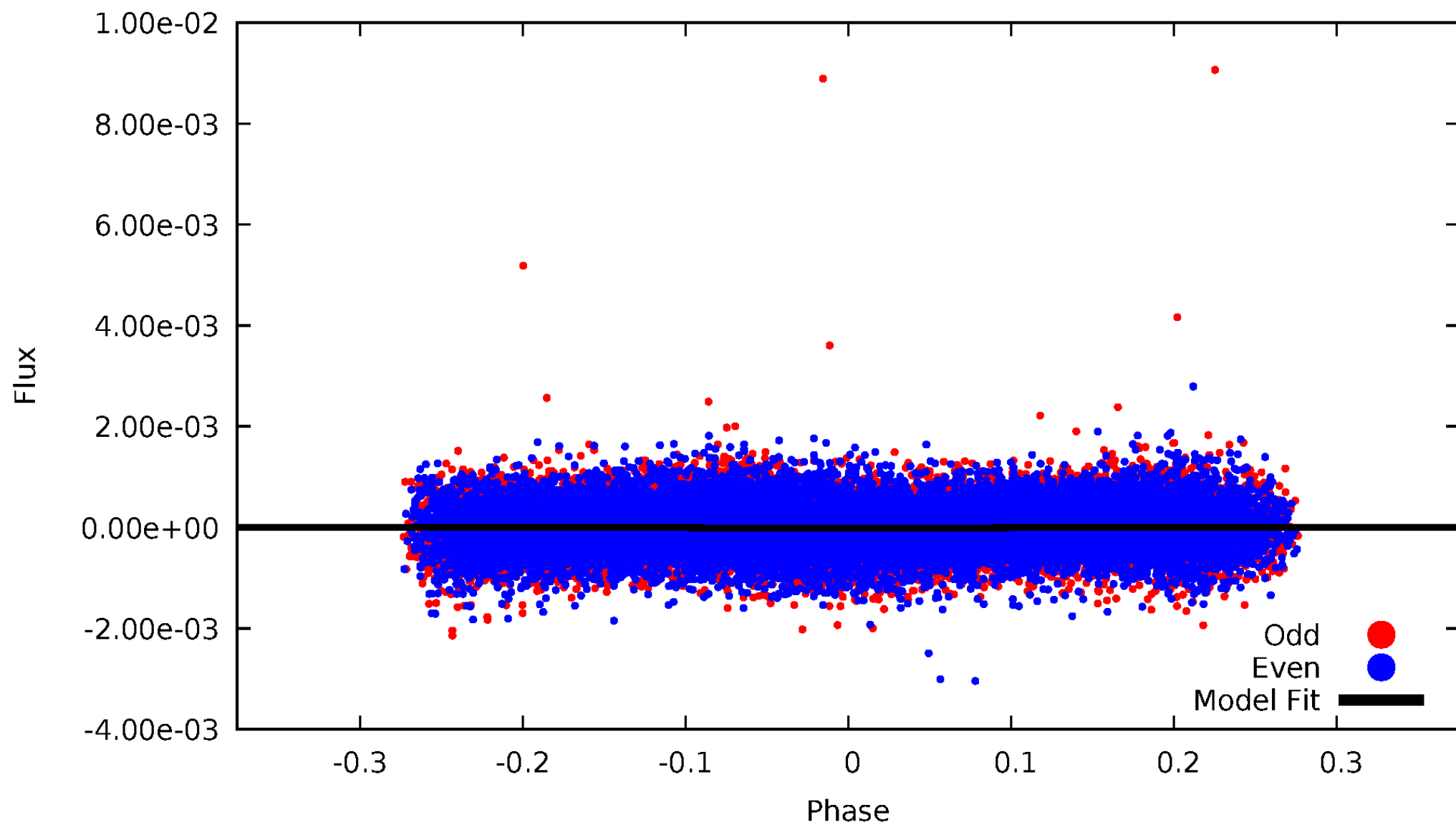


TCE 006291473-02



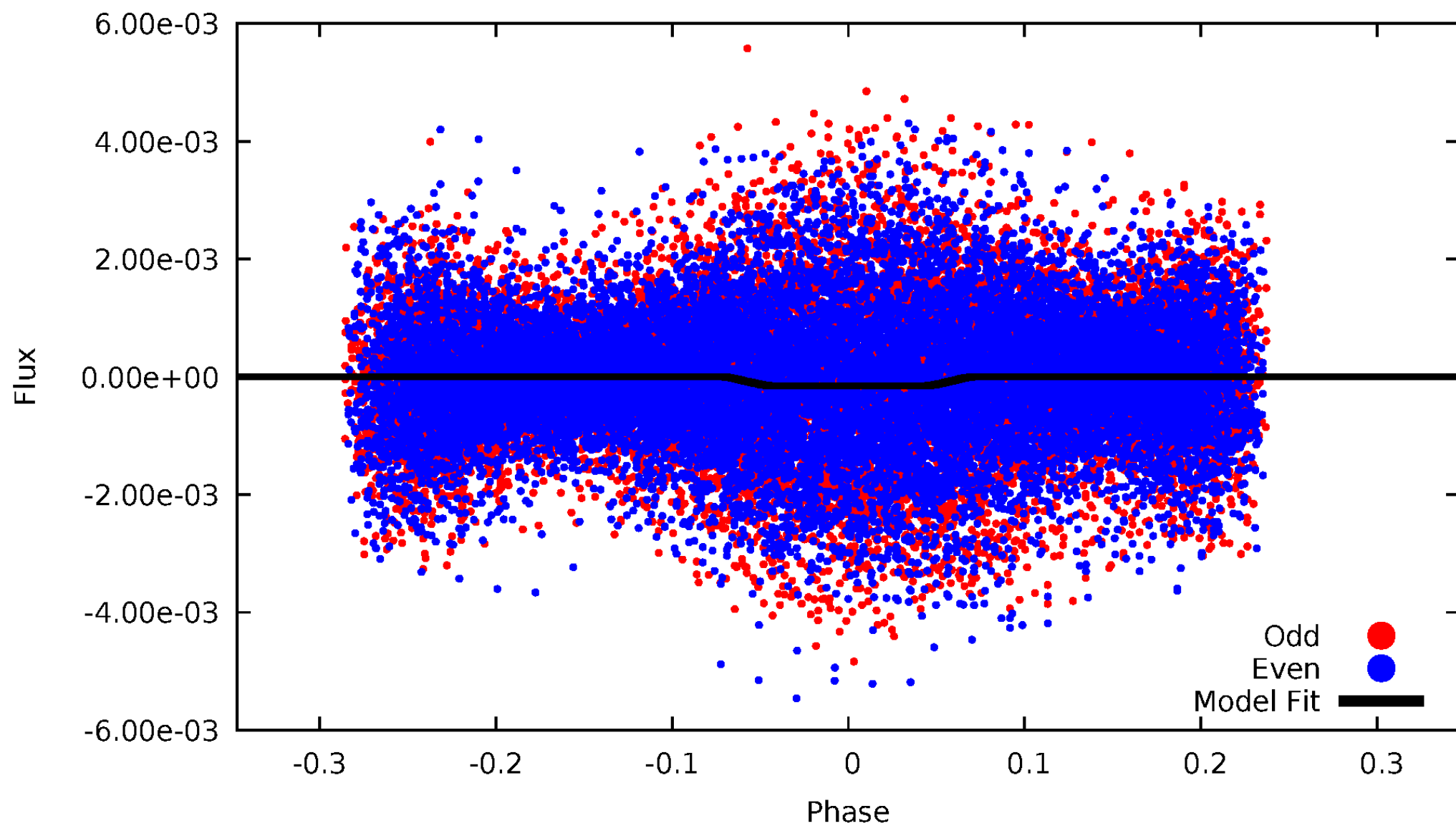
DV Odd/Even

TCE 006291473-02



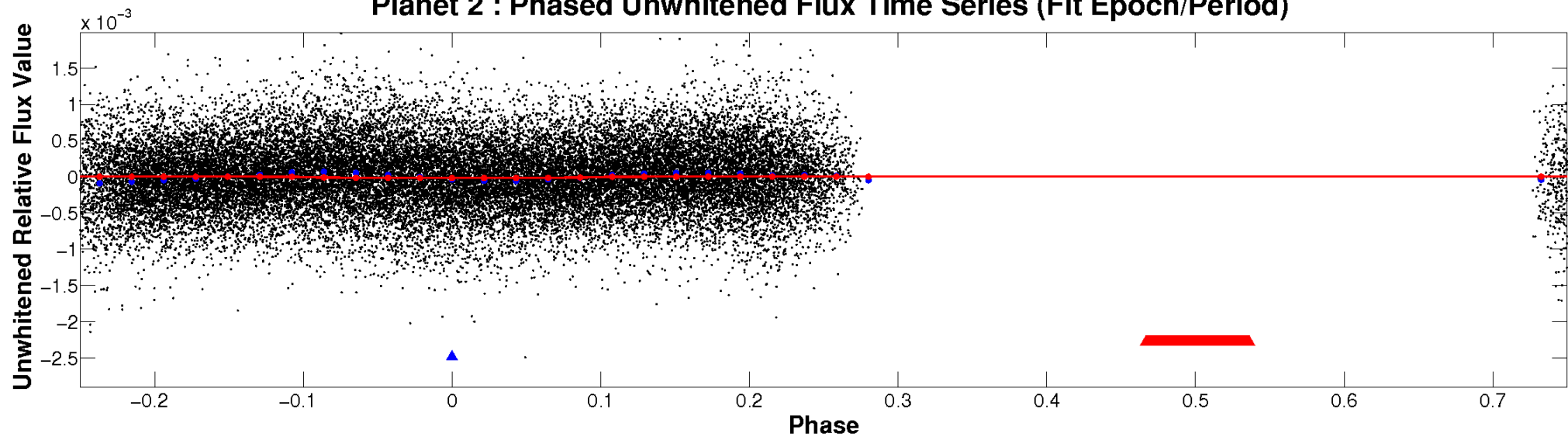
ALT Odd/Even

TCE 006291473-02

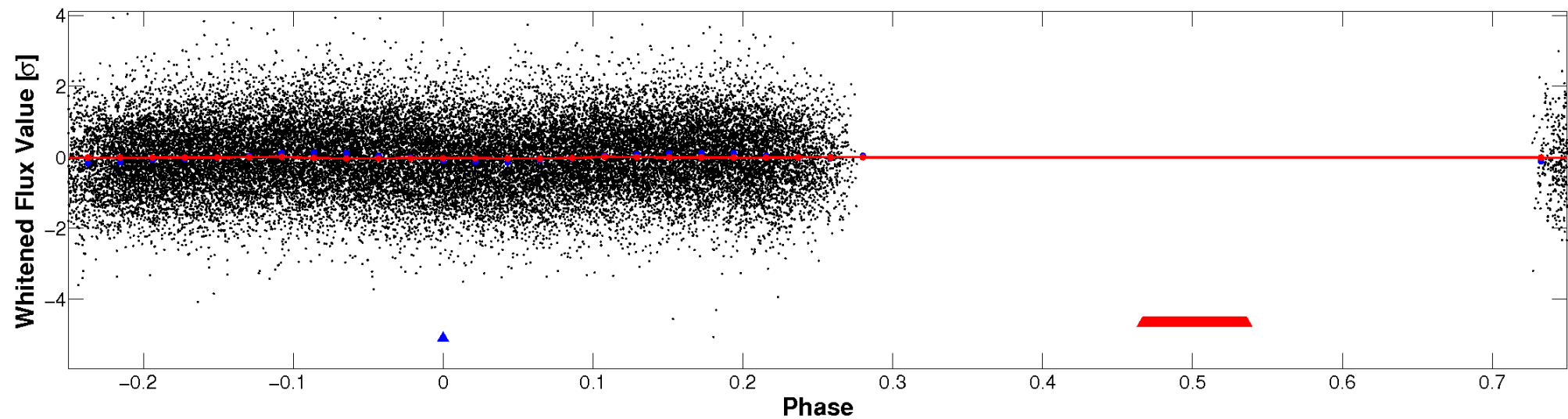


Non-Whitened Vs. Whitened Light Curve

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

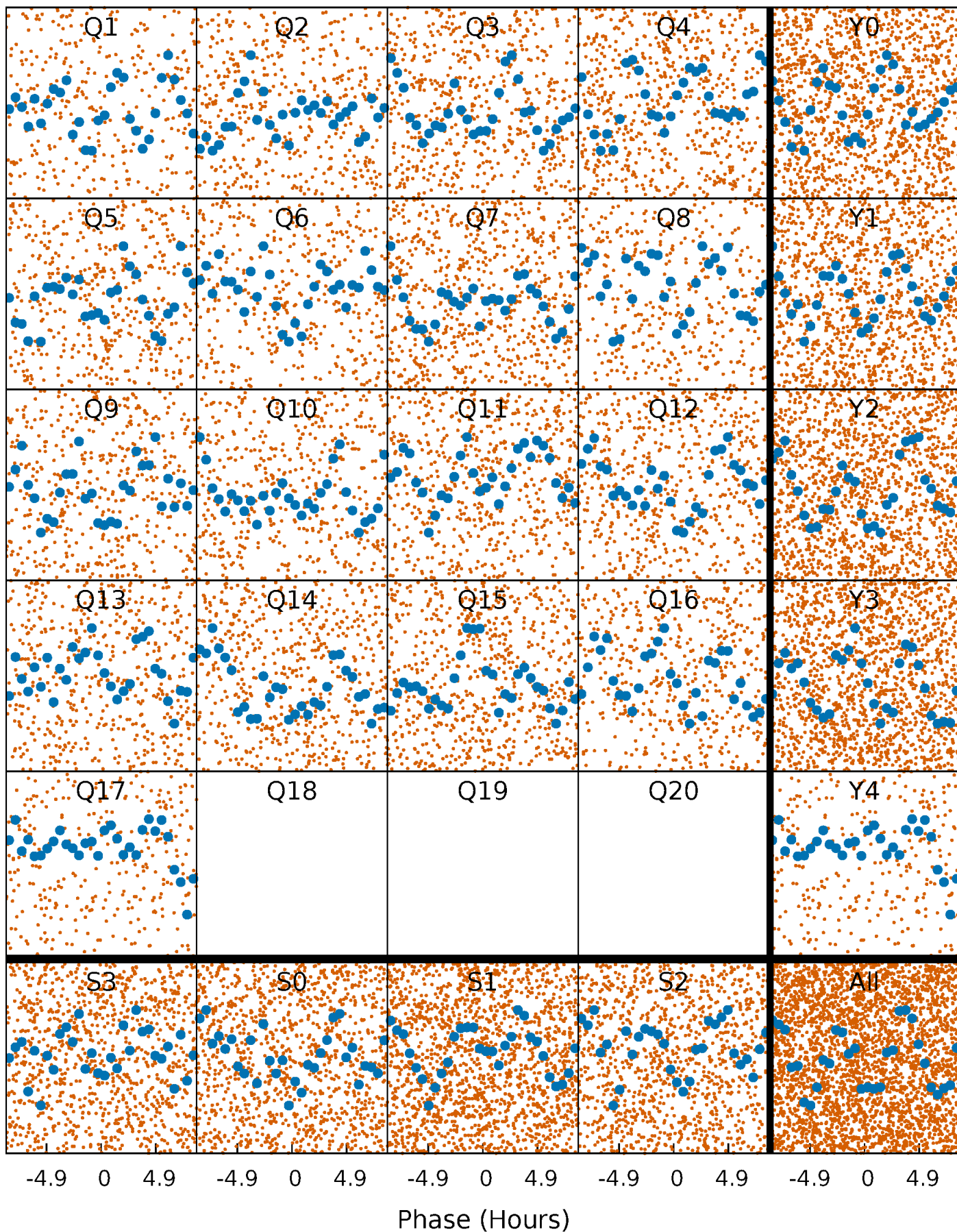


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



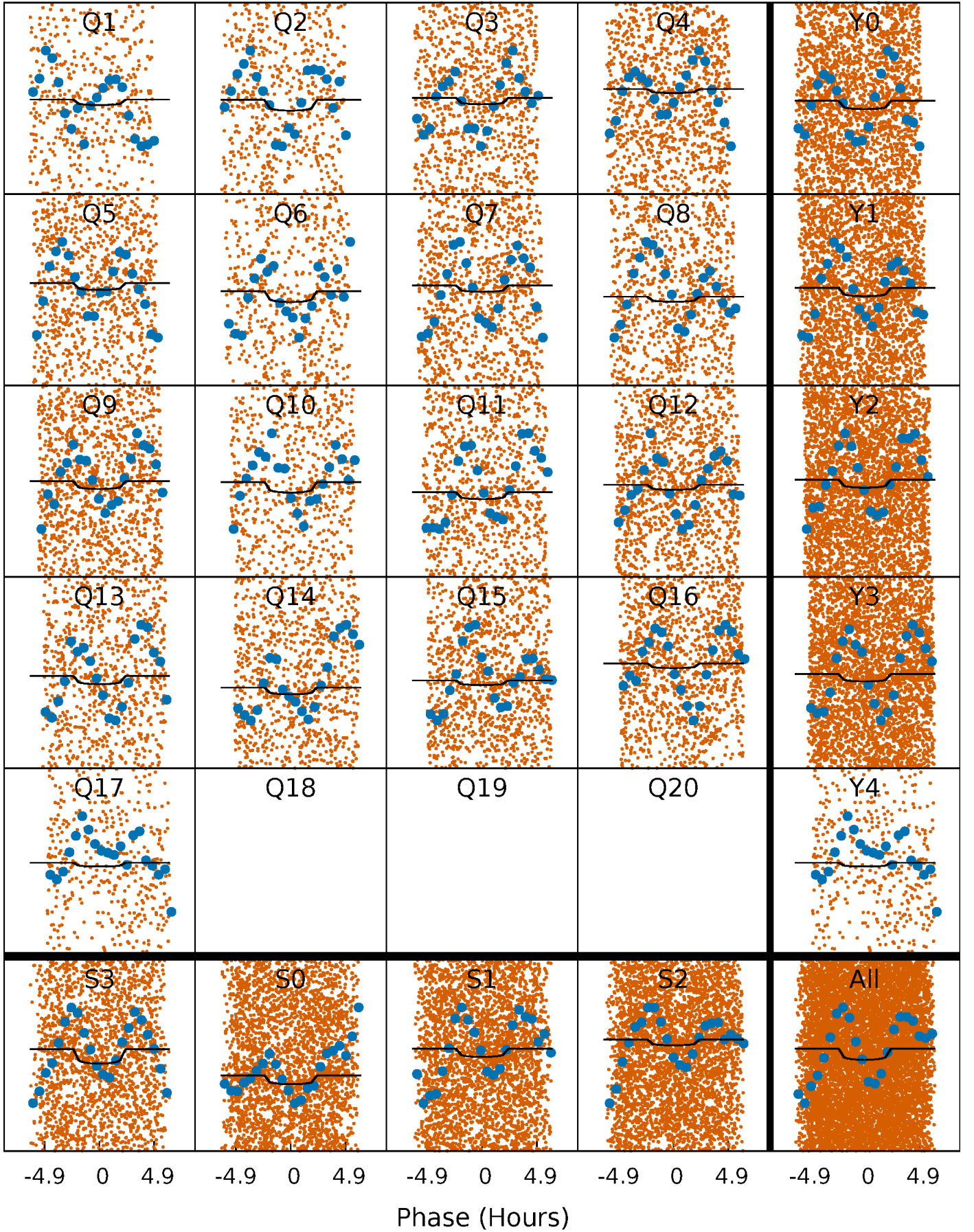
PDC Quarter-Phased Transit Curves

TCE 006291473-02 P= 0.948424 Days $T_0=132.212137$ (BKJD)



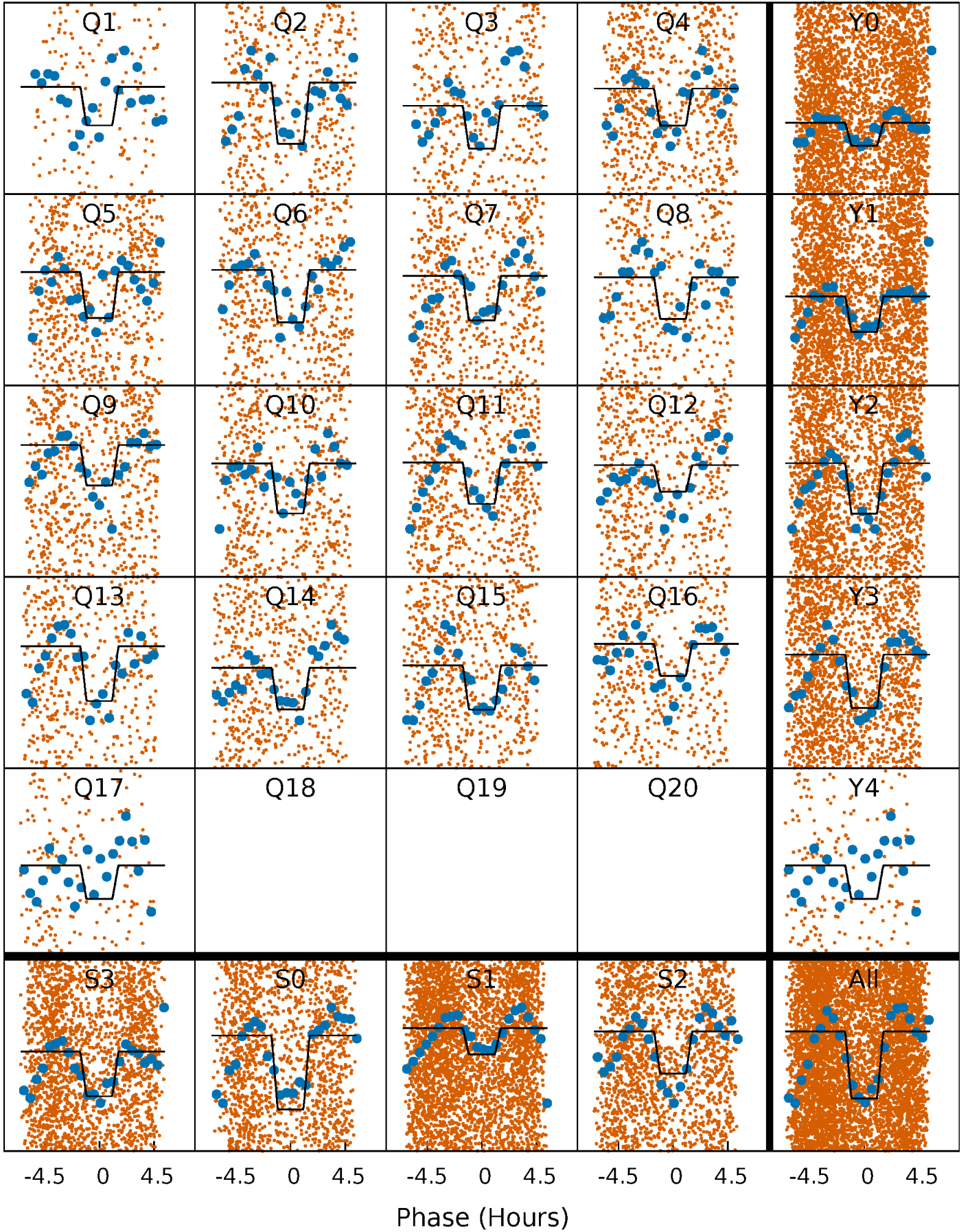
DV Quarter-Phased Transit Curves

TCE 006291473-02 P= 0.948424 Days $T_0=132.212137$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

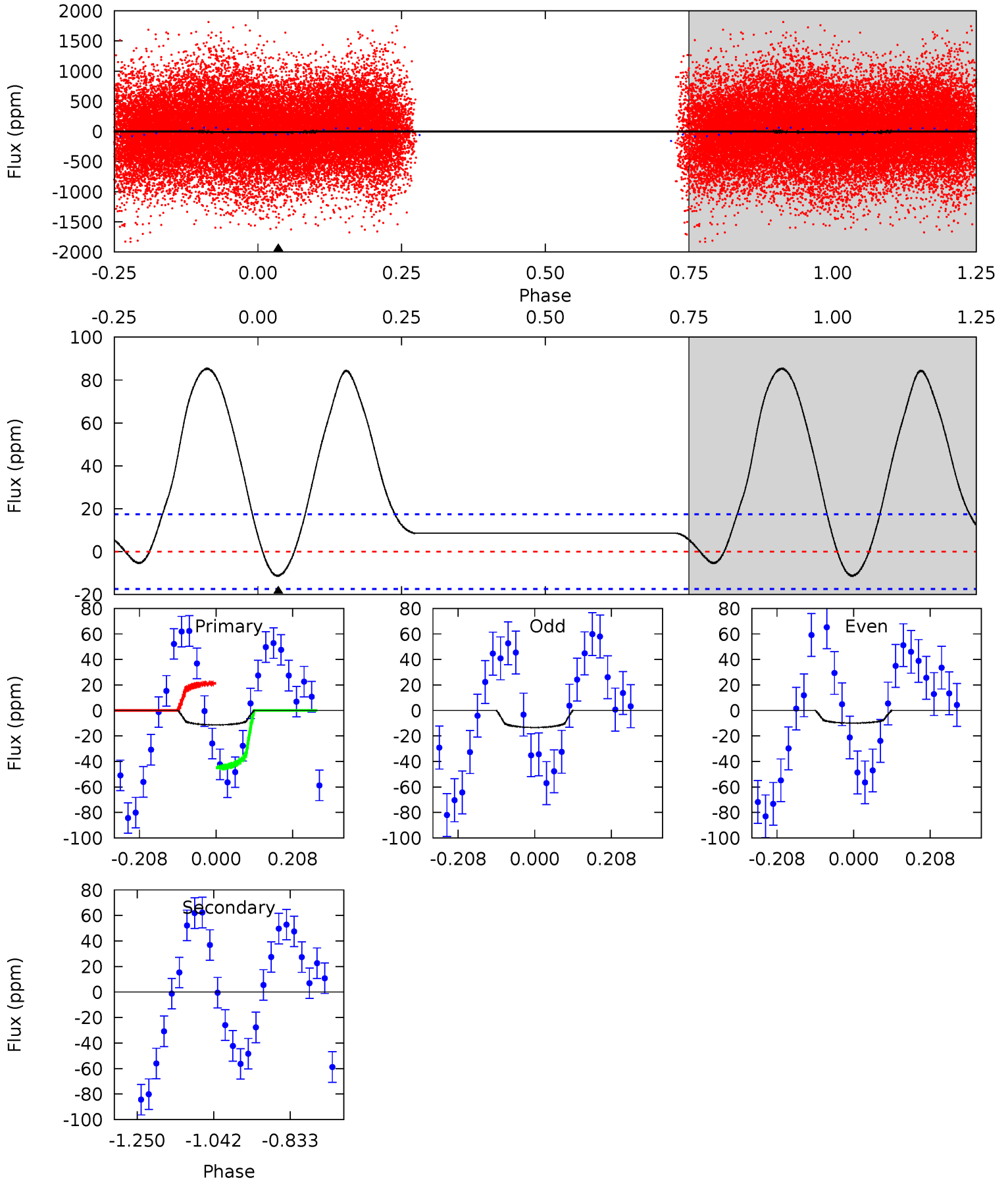
TCE 006291473-02 P= 0.948493 Days $T_0=132.183235$ (BKJD)



DV Model-Shift Uniqueness Test

006291473-02, P = 0.948424 Days, E = 131.263713 Days

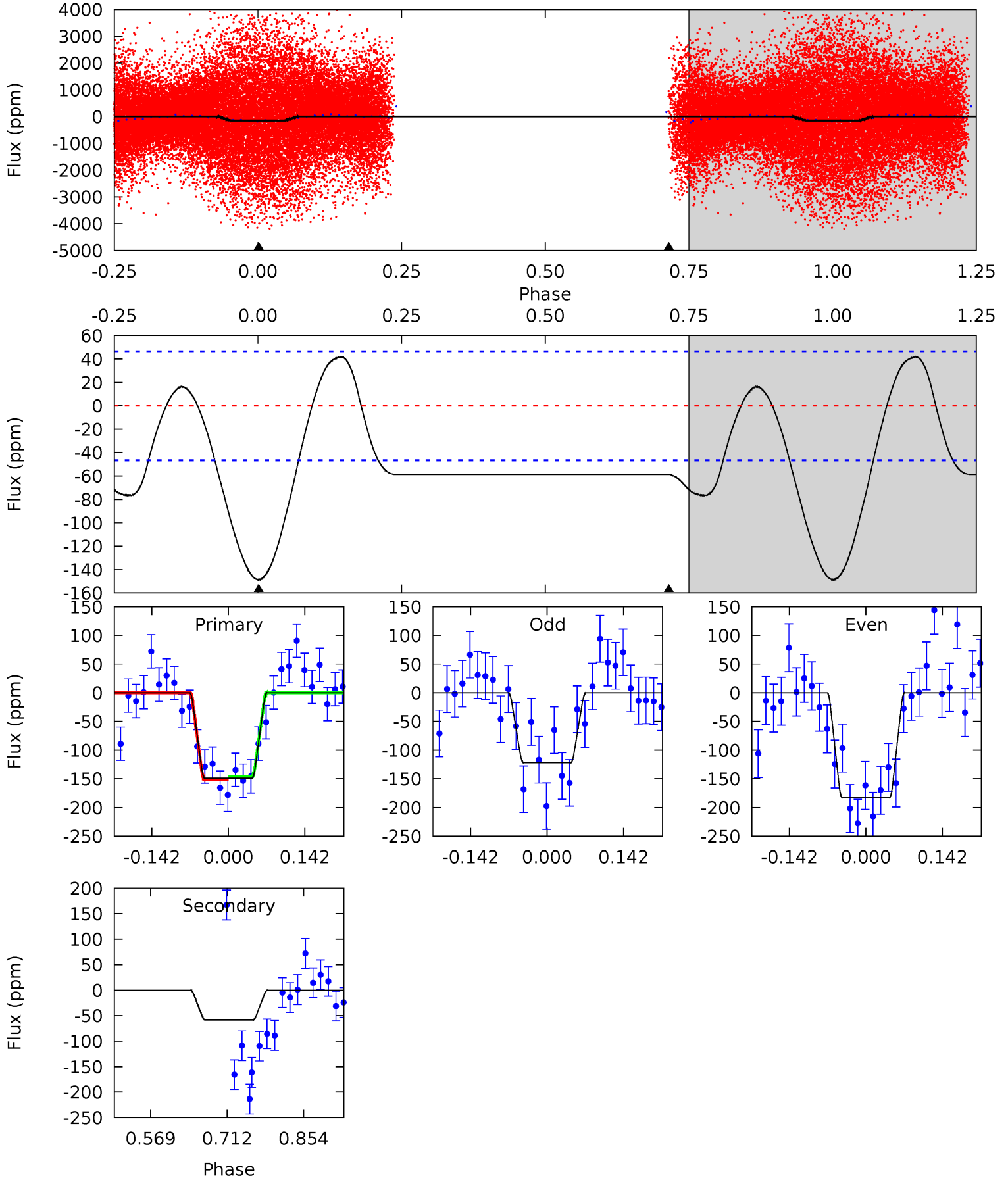
| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|-----|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 2.86 | 0 | 0 | 0 | 4.41 | 1.26 | 1.44 | 2.86 | 2.86 | 0 | 0 | 0.44 | 0.89 | 0.88 | 2.83 |



Alt Model-Shift Uniqueness Test

006291473-02, P = 0.948493 Days, E = 131.234742 Days

| Pri | Sec | Ter | Pos | FA ₁ | FA ₂ | F _{Red} | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM | Shape | TAT |
|------|------|-----|-----|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 14.3 | 5.65 | 0 | 0 | 4.49 | 1.47 | 3.21 | 14.3 | 14.3 | 5.65 | 5.65 | 3.05 | 0.80 | 0.22 | 0.25 |



Stellar Parameters For KIC 006291473

| | $T_{\text{eff}}(K)$ | $\log(g)$ | [Fe/H] | $R (R_{\odot})$ | $M(M_{\odot})$ | $p_{\star} (\text{g}\cdot\text{cm}^{-3})$ |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|-------------------------------------------|
| | 7310^{+232}_{-348} | $4.209^{+0.105}_{-0.195}$ | $-0.140^{+0.250}_{-0.350}$ | $1.568^{+0.531}_{-0.286}$ | $1.452^{+0.219}_{-0.219}$ | $0.531^{+0.270}_{-0.266}$ |
| | +3%/-5% | +2%/-5% | +179%/-250% | +34%/-18% | +15%/-15% | +51%/-50% |
| Source | PHO1 | KIC0 | KIC0 | DSEP | | |

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 006291473-02 / KOI

| Detrend | Depth (ppm) | $R_p (R_{\oplus})$ | $T_{\text{max}} (K)$ | $T_{\text{obs}} (K)$ | A_{obs} |
|---------|--------------|------------------------|----------------------|-------------------------|---------------------------|
| DV | 0 ± 4 | $0.70^{+0.30}_{-0.25}$ | 3905^{+312}_{-260} | -3522^{+8650}_{-1897} | $0.048^{+2.351}_{-2.169}$ |
| Alt. | -59 ± 10 | $2.16^{+0.41}_{-0.37}$ | 3883^{+313}_{-243} | 5554^{+487}_{-442} | $3.158^{+1.469}_{-1.048}$ |

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

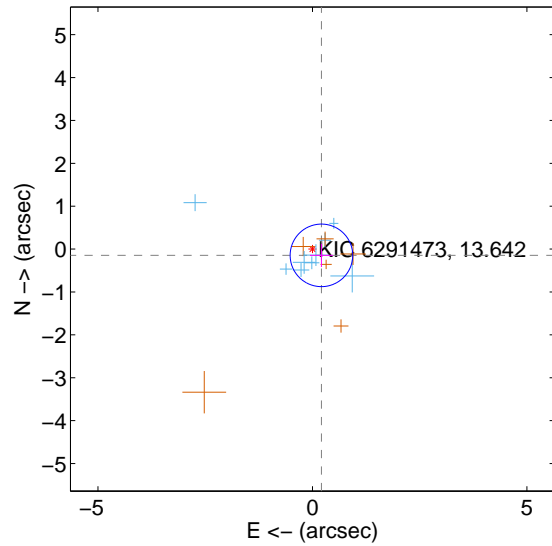
Supplemental centroid analysis for 006291473-02. Kepler magnitude: 13.64. Transit SNR 3.28

There are 9 quarters with good PRF difference image offsets

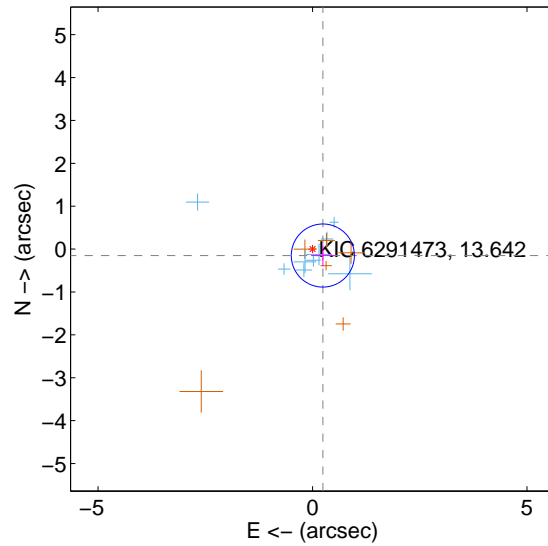
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

| | Distance in arcsec | Distance / σ | Δ RA | Δ Dec |
|-----------------------------------------|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT | 0.256 ± 0.243 | 1.05 | -0.210 ± 0.268 | -0.146 ± 0.271 |
| PRF-fit source offset from KIC position | 0.284 ± 0.245 | 1.16 | -0.241 ± 0.275 | -0.150 ± 0.251 |
| photometric centroid source offset | 1.32 ± 1.13 | 1.16 | 1.20 ± 1.14 | -0.55 ± 1.09 |

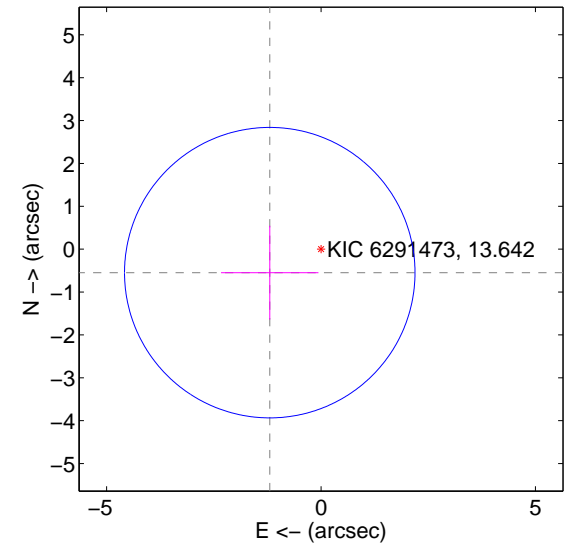
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

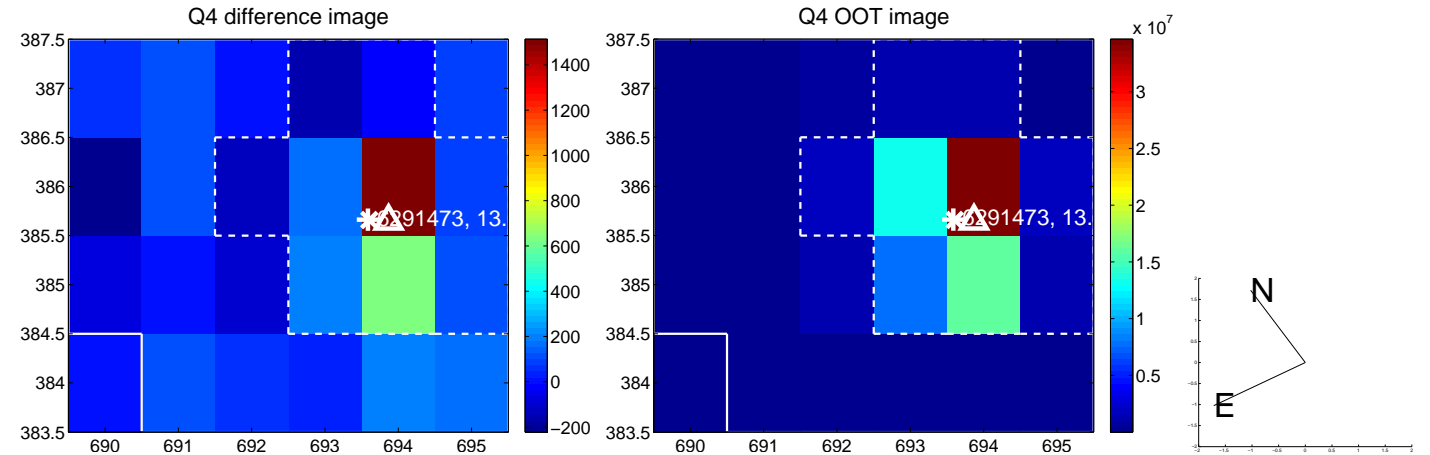
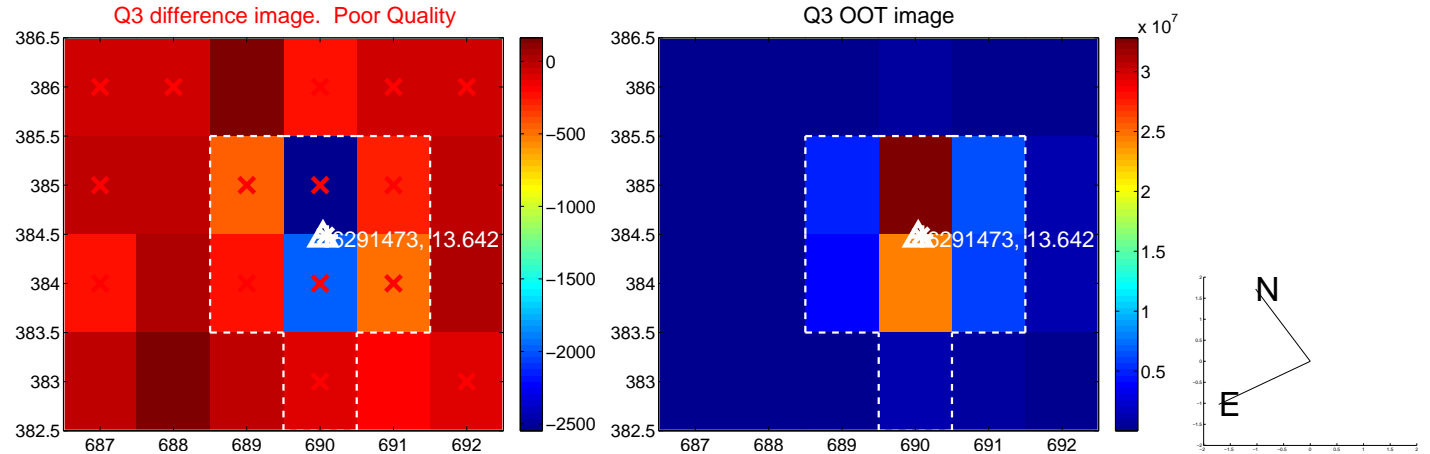
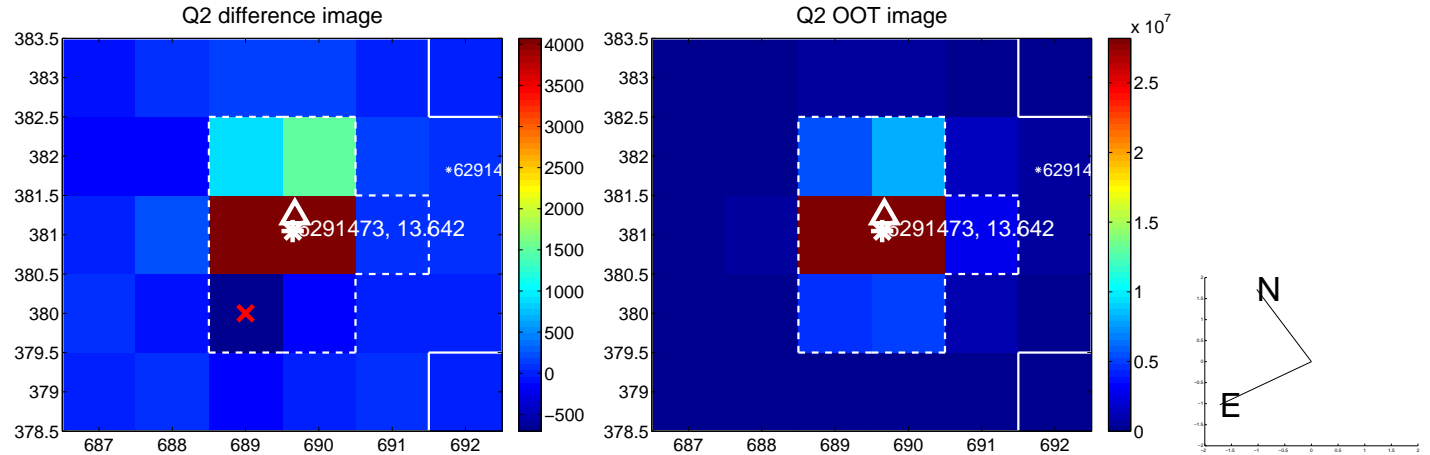
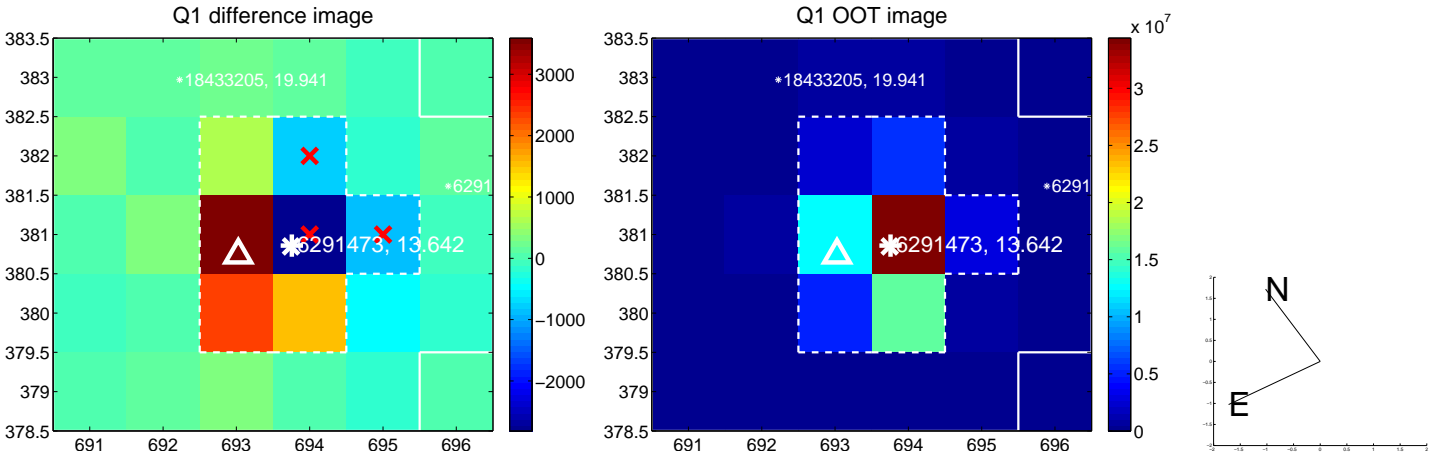


offset from photometric centroids

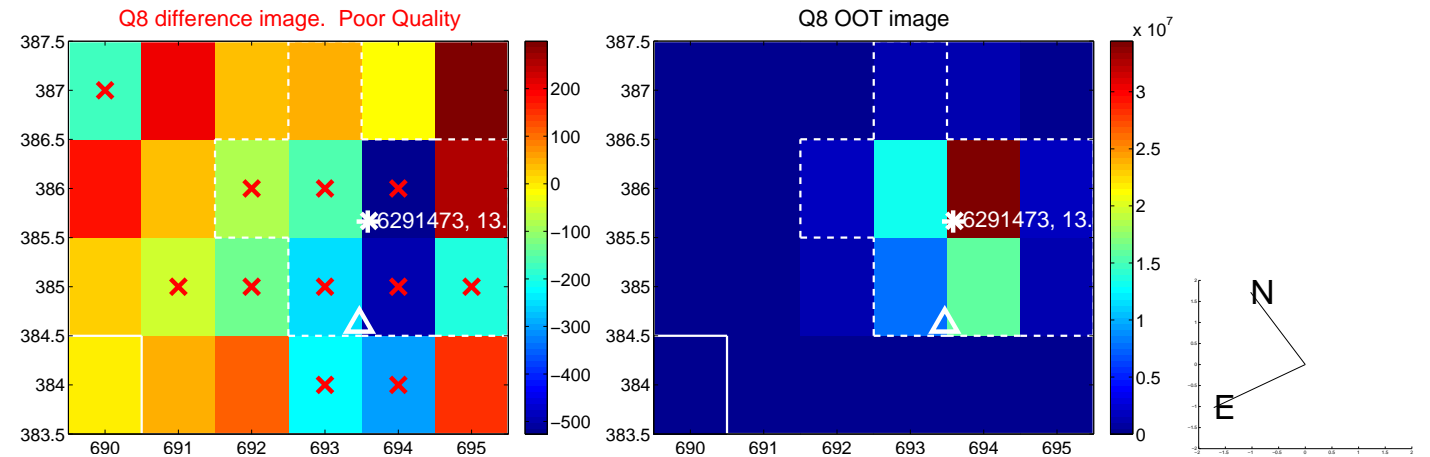
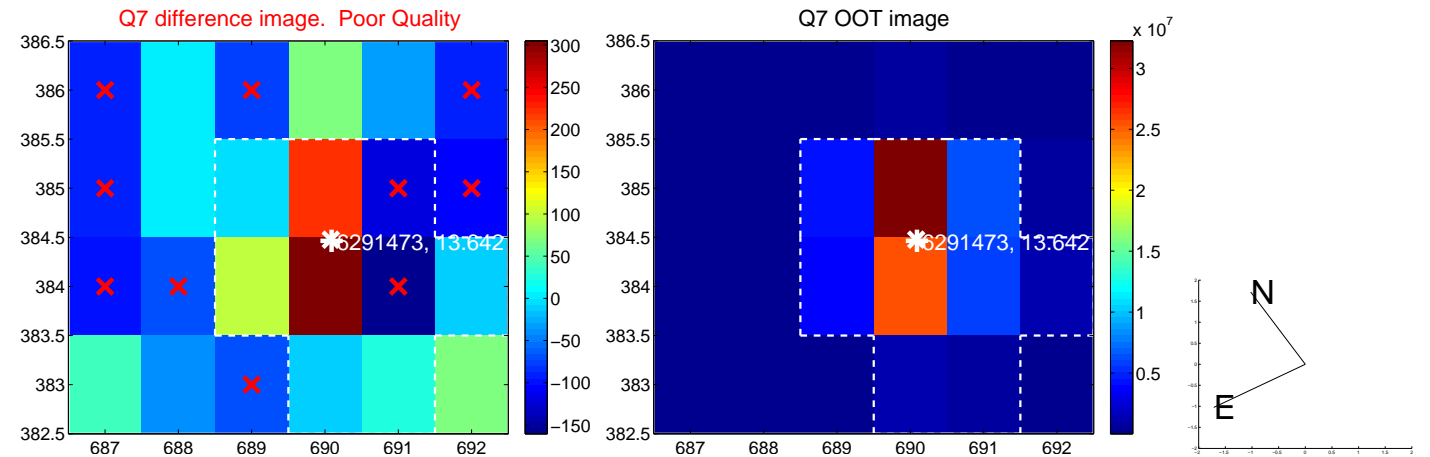
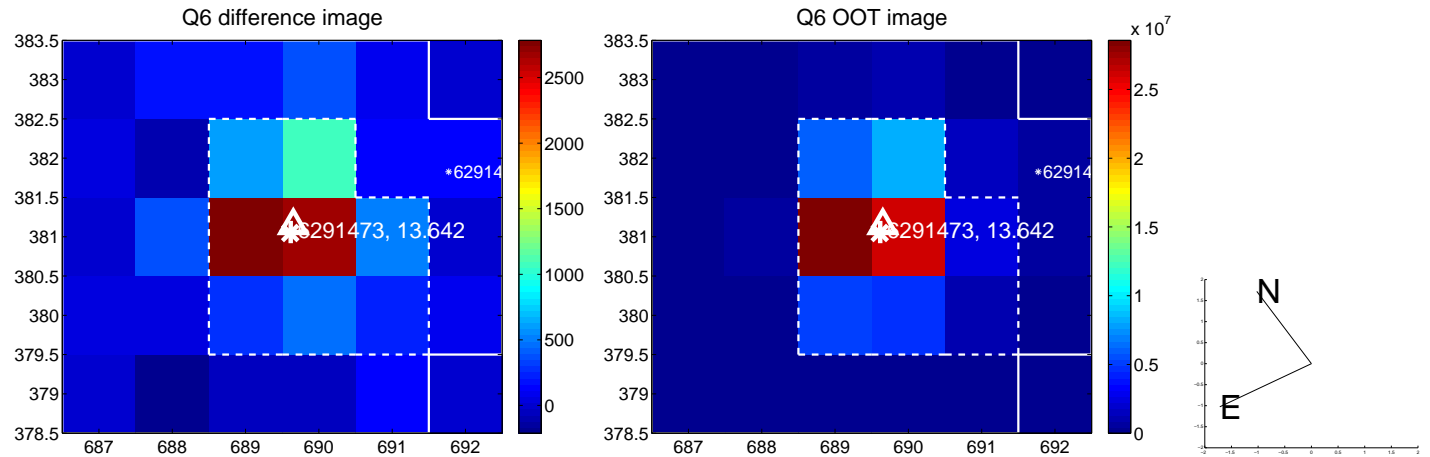
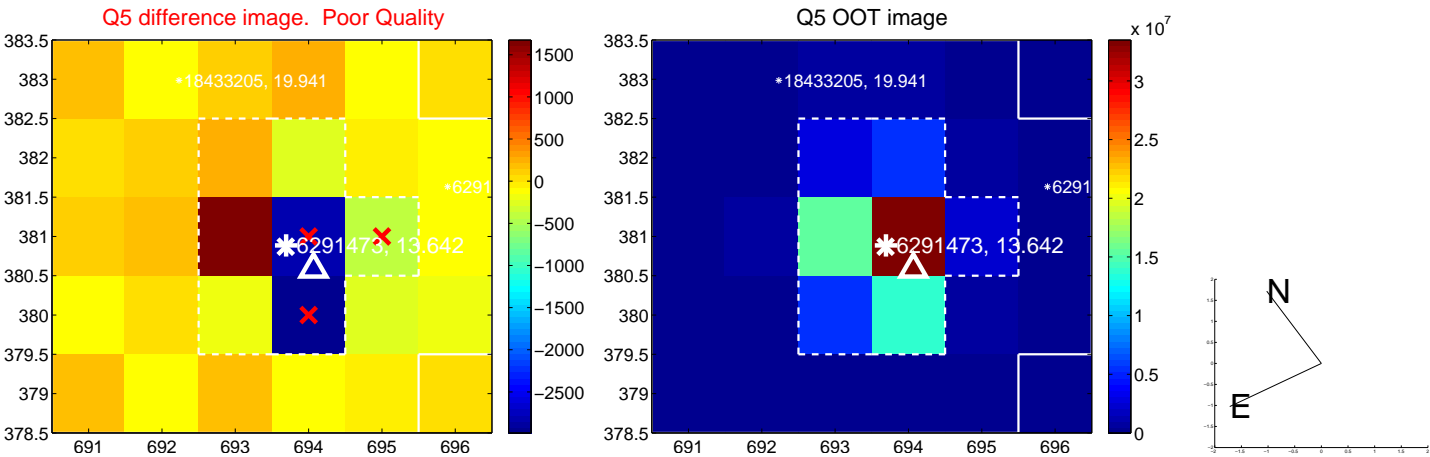


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

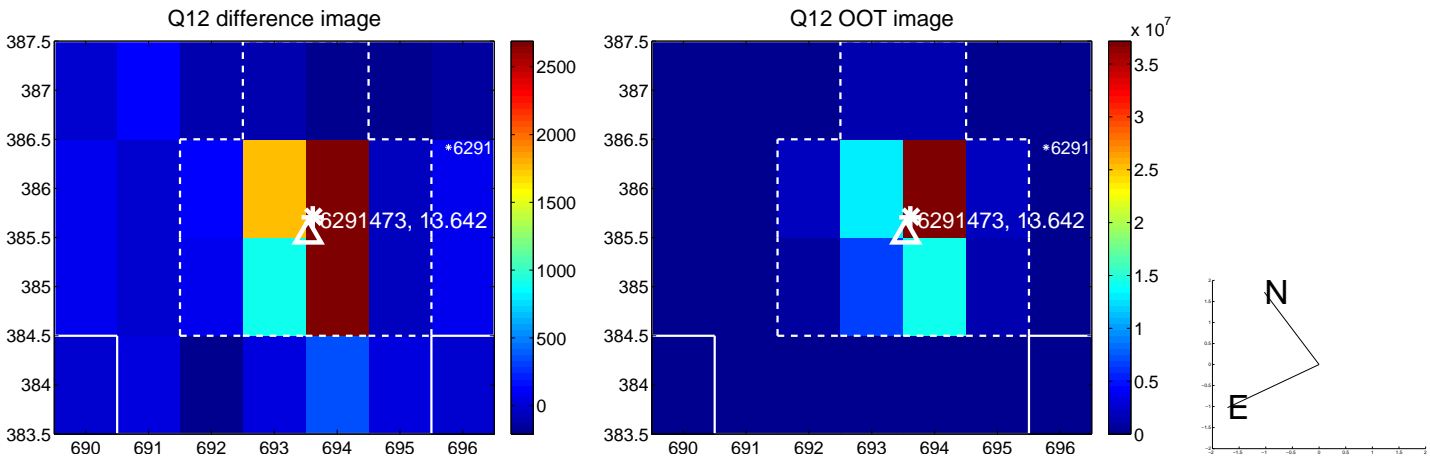
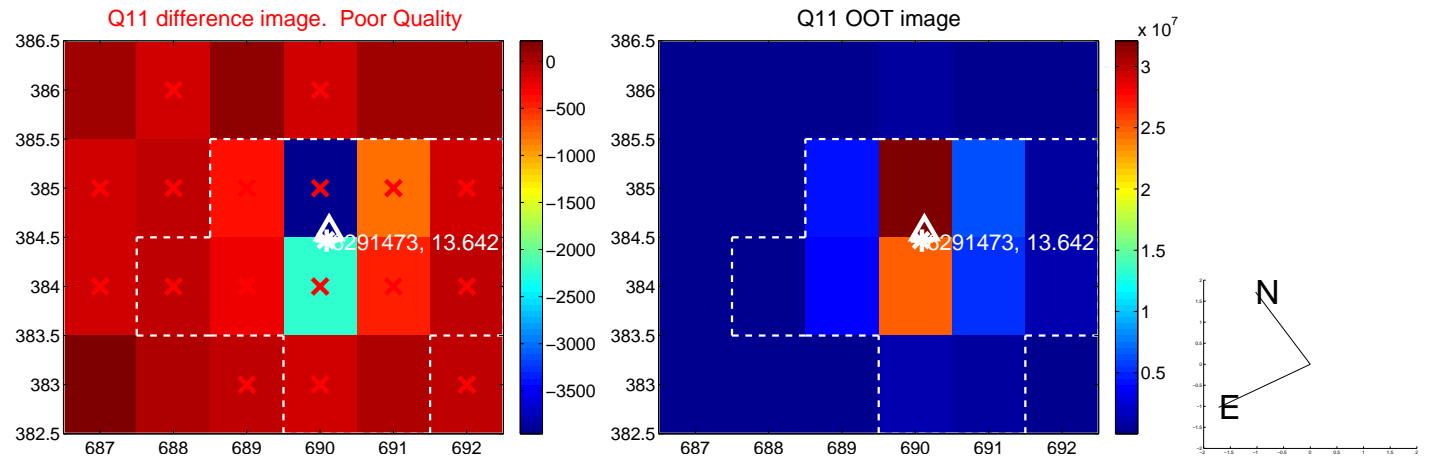
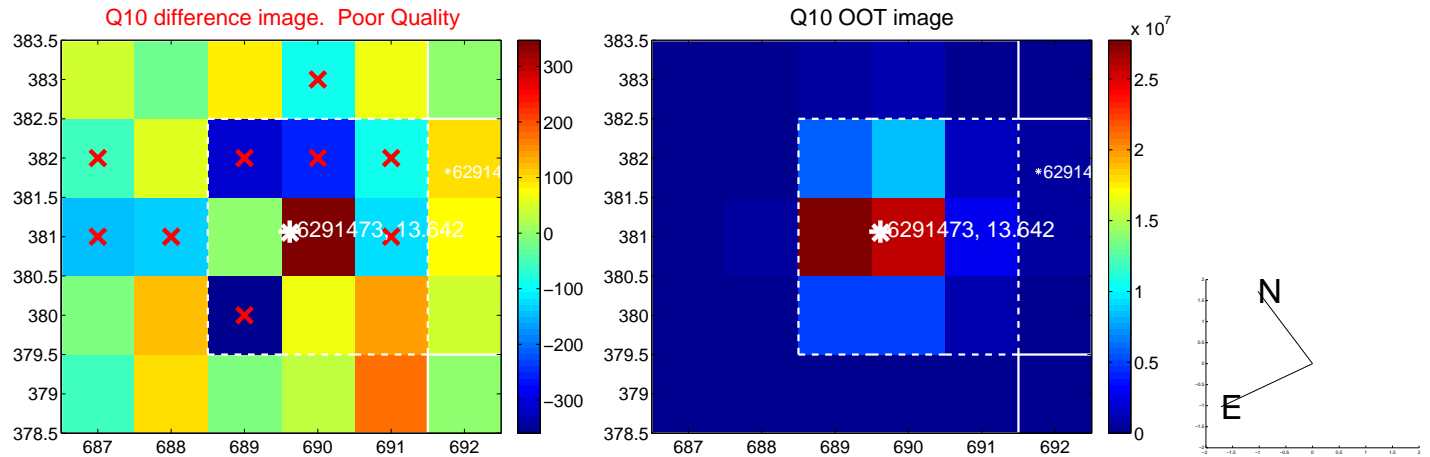
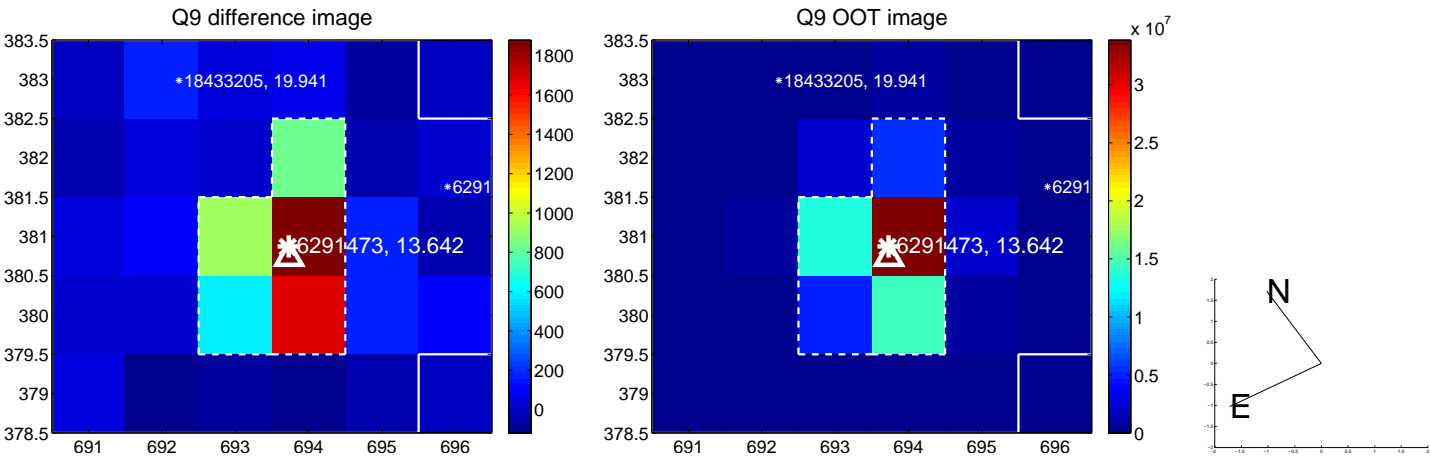
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



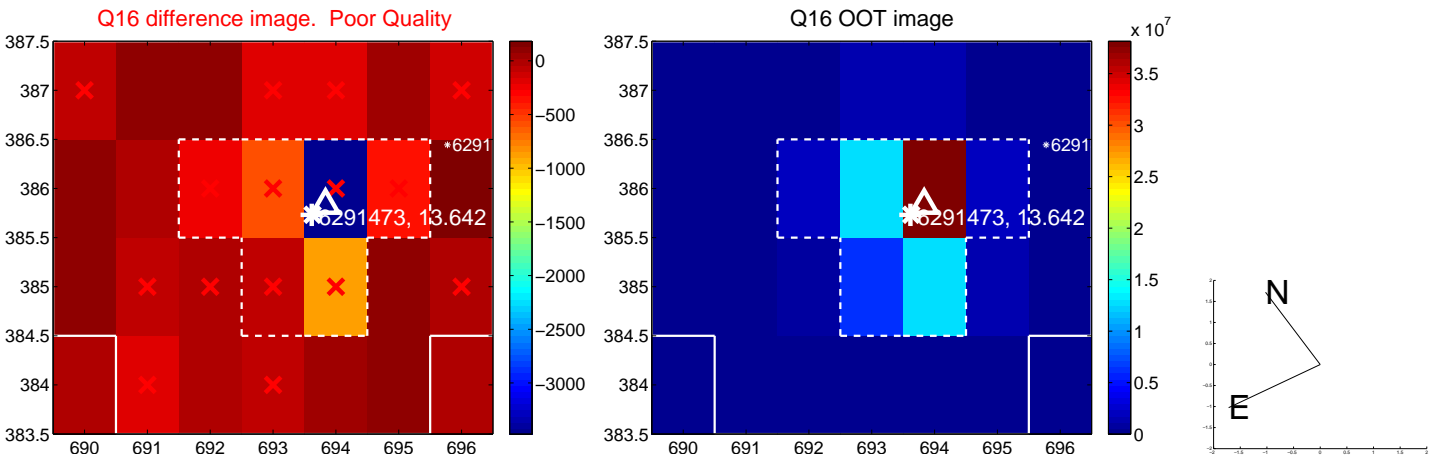
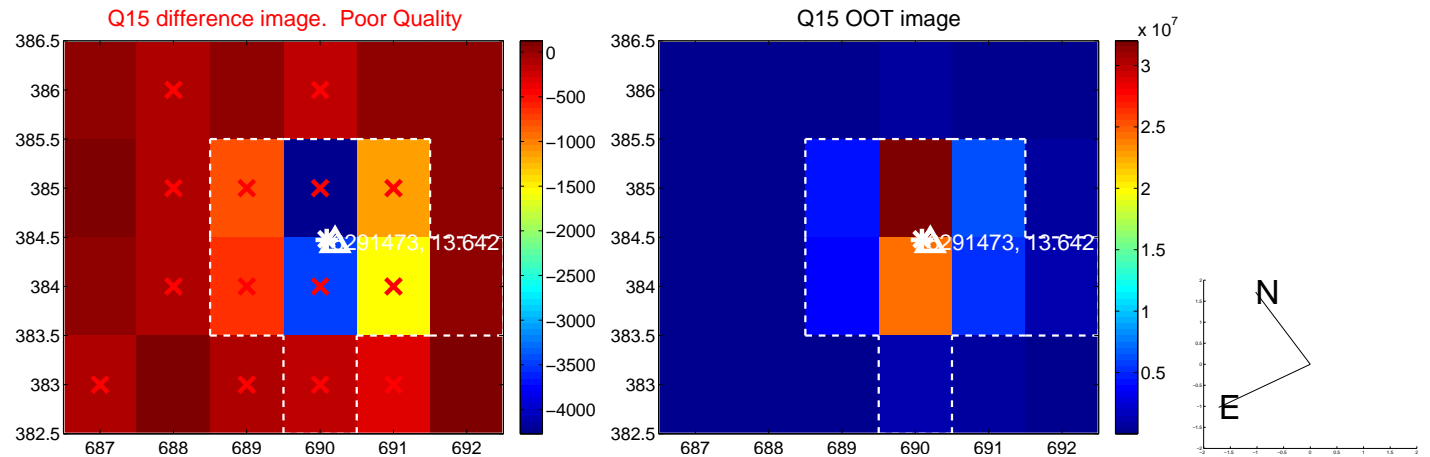
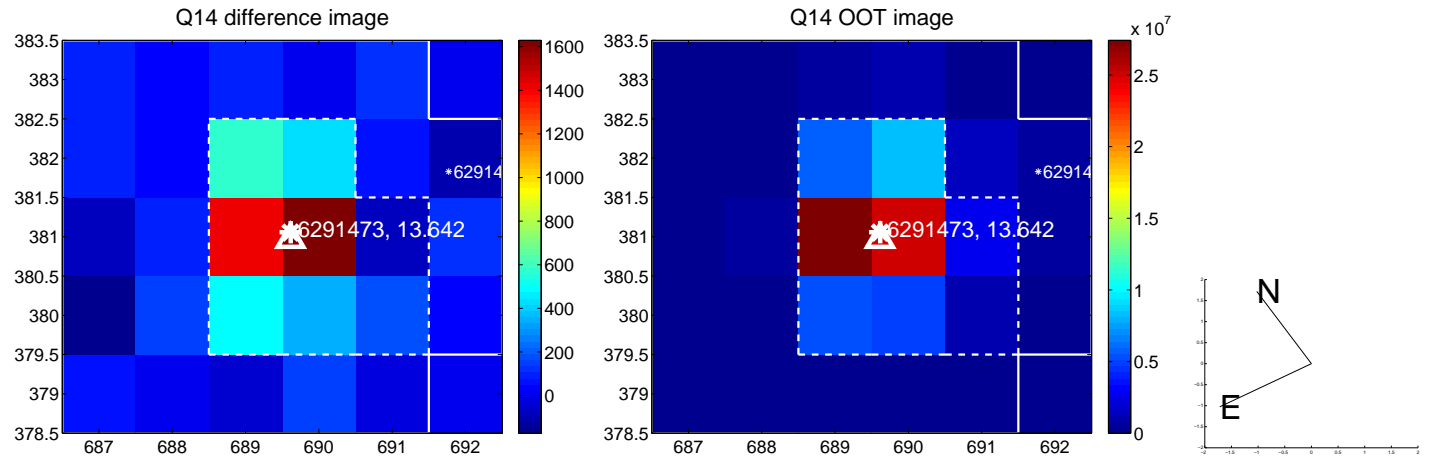
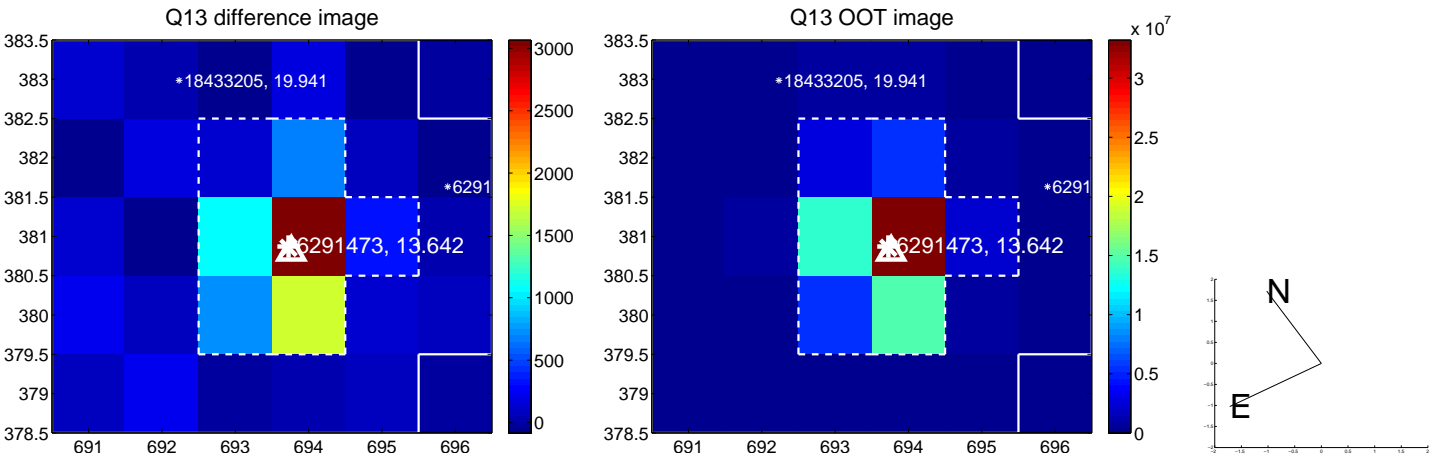
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



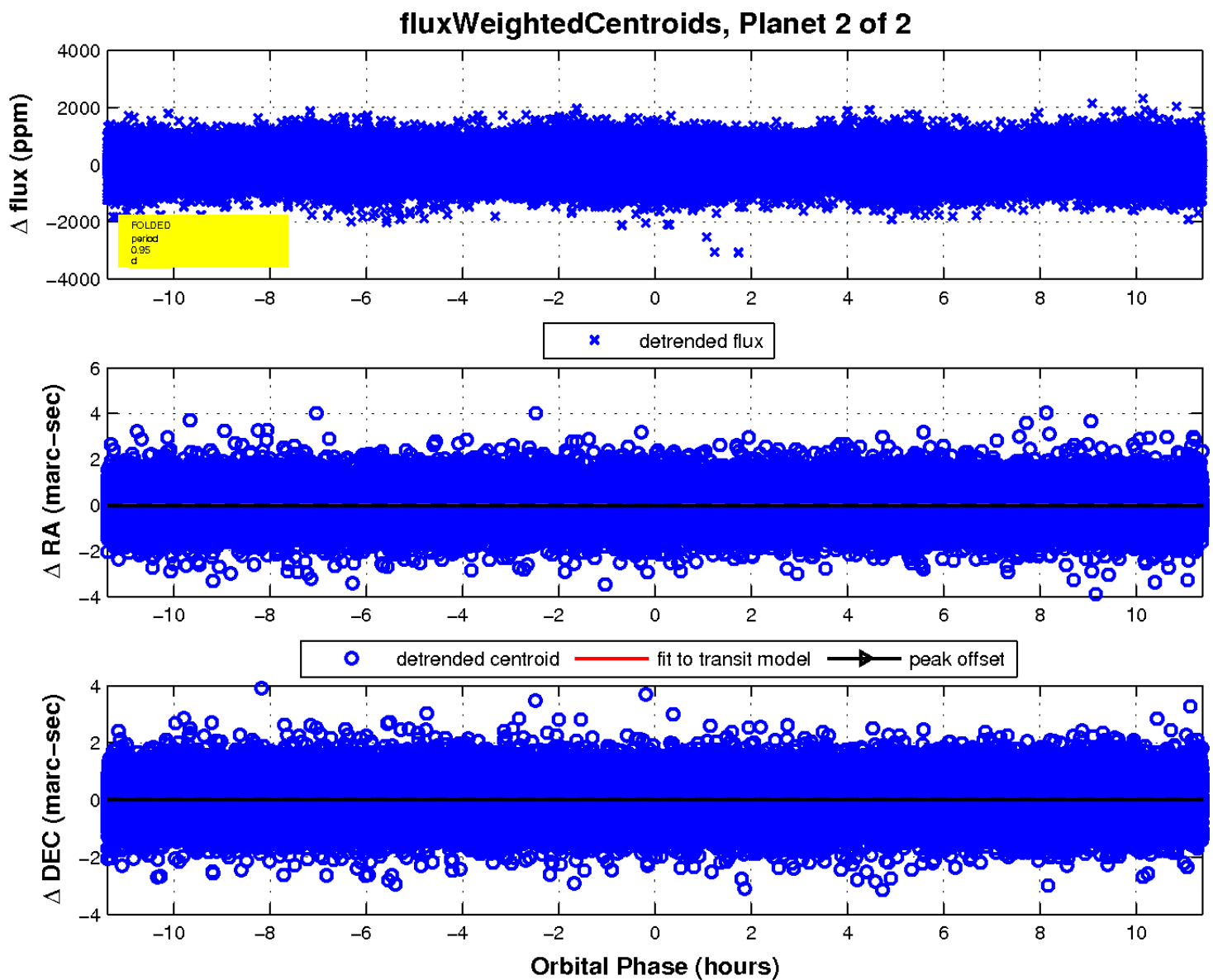
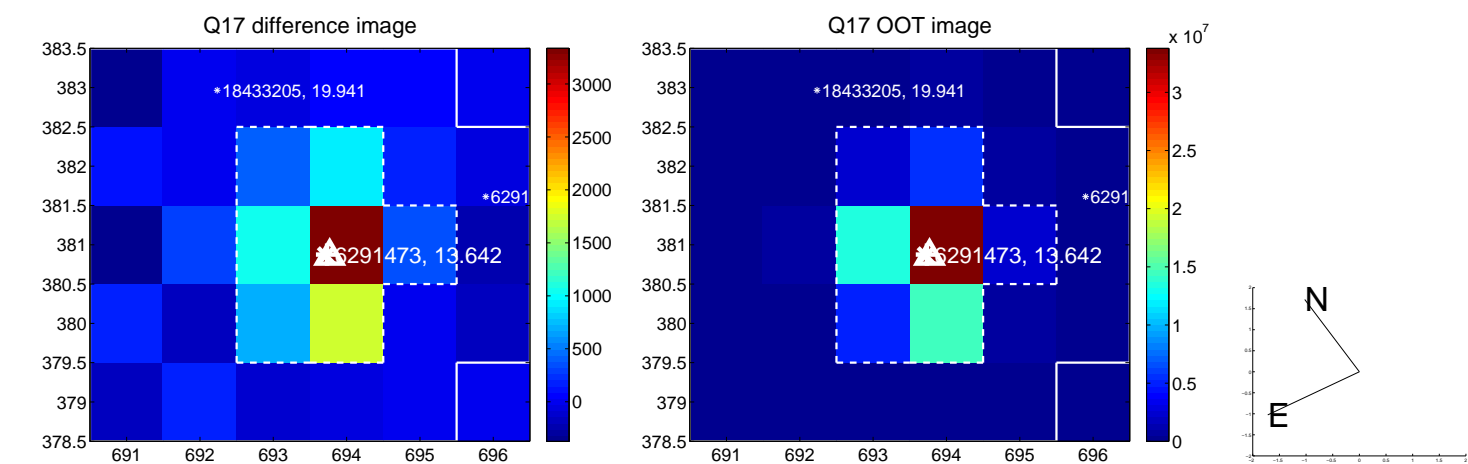
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

