

KIC 005303346

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})
005303346-01	OBS	3275.01	37.324820	143.038947	4879.0	6.917	192.7	166.5	0.79	5306	10.33	10.69
005303346-02	OBS	No	18.662404	142.735582	2063.1	9.483	96.6	89.9	0.79	5306	5.90	26.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005303346-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
005303346-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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 005303346-01

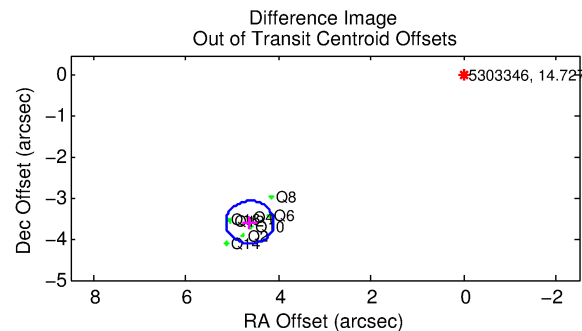
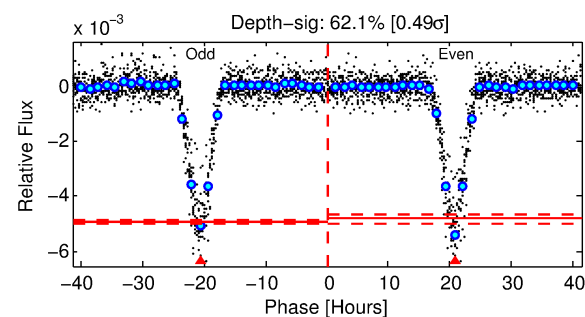
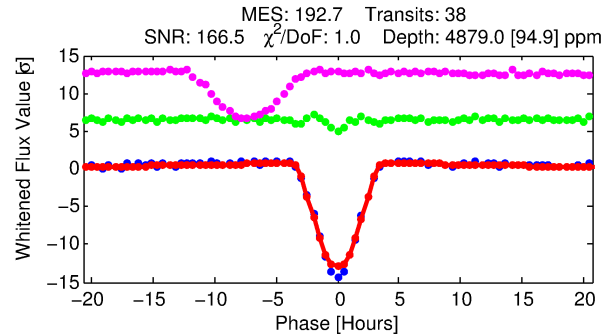
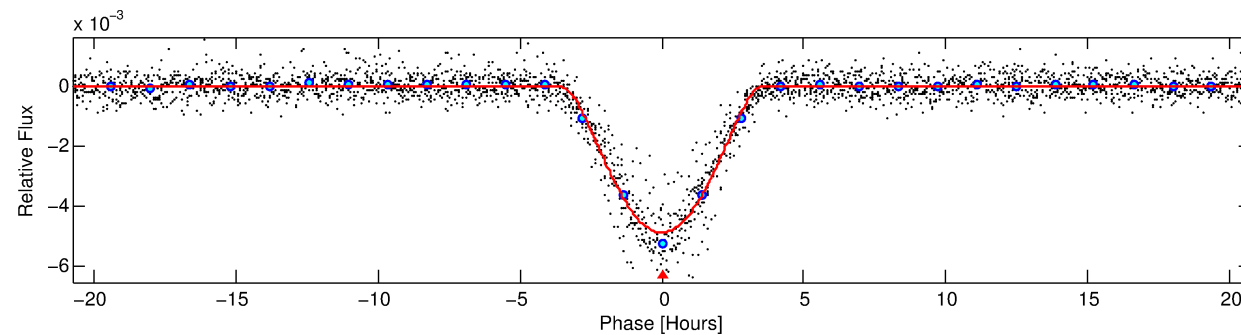
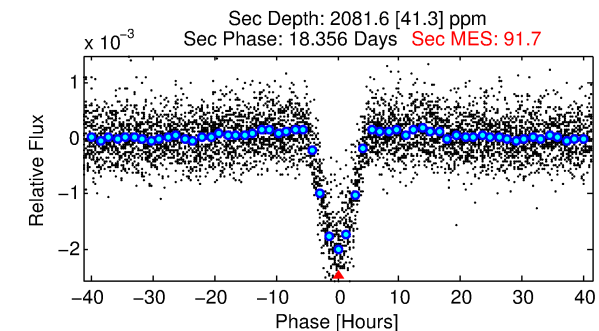
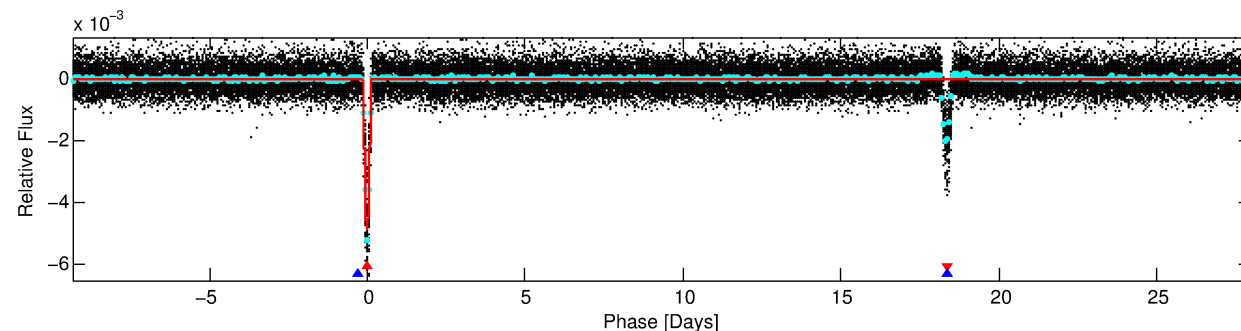
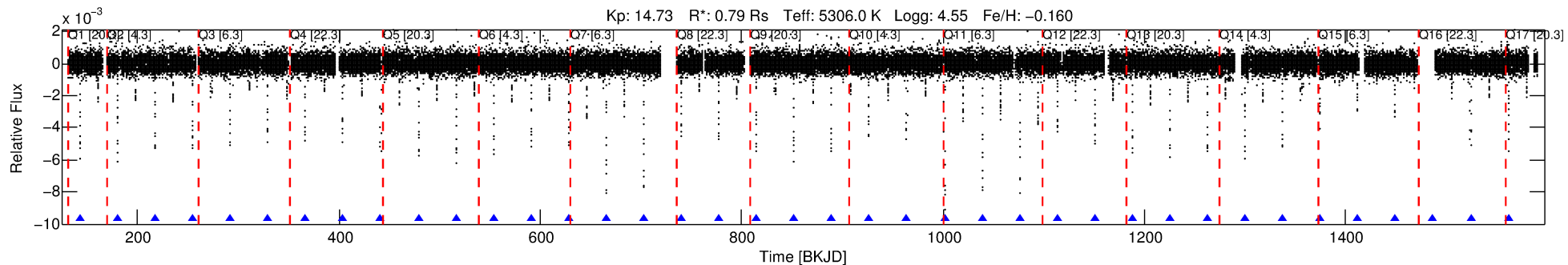
No Significant Match Found

DV One-Page Summary

KIC: 5303346 Candidate: 1 of 2 Period: 37.325 d

KOI: K03275.01 Corr: 0.993

Kp: 14.73 R*: 0.79 Rs Teff: 5306.0 K Logg: 4.55 Fe/H: -0.160



DV Fit Results:

Period = 37.32482 [0.00004] d
Epoch = 143.0389 [0.0009] BKJD
Rp/R* = 0.1199 [0.0348]
a/R* = 20.88 [1.07]
b = 1.00 [0.05]
Seff = 10.69 [2.41]
Teq = 461 [26] K
Rp = 10.33 [3.40] Re
a = 0.2036 [0.0260] AU
Ag = 444.48 [270.84] [1.64σ]
Teff = 3273 [488] K [5.76σ]

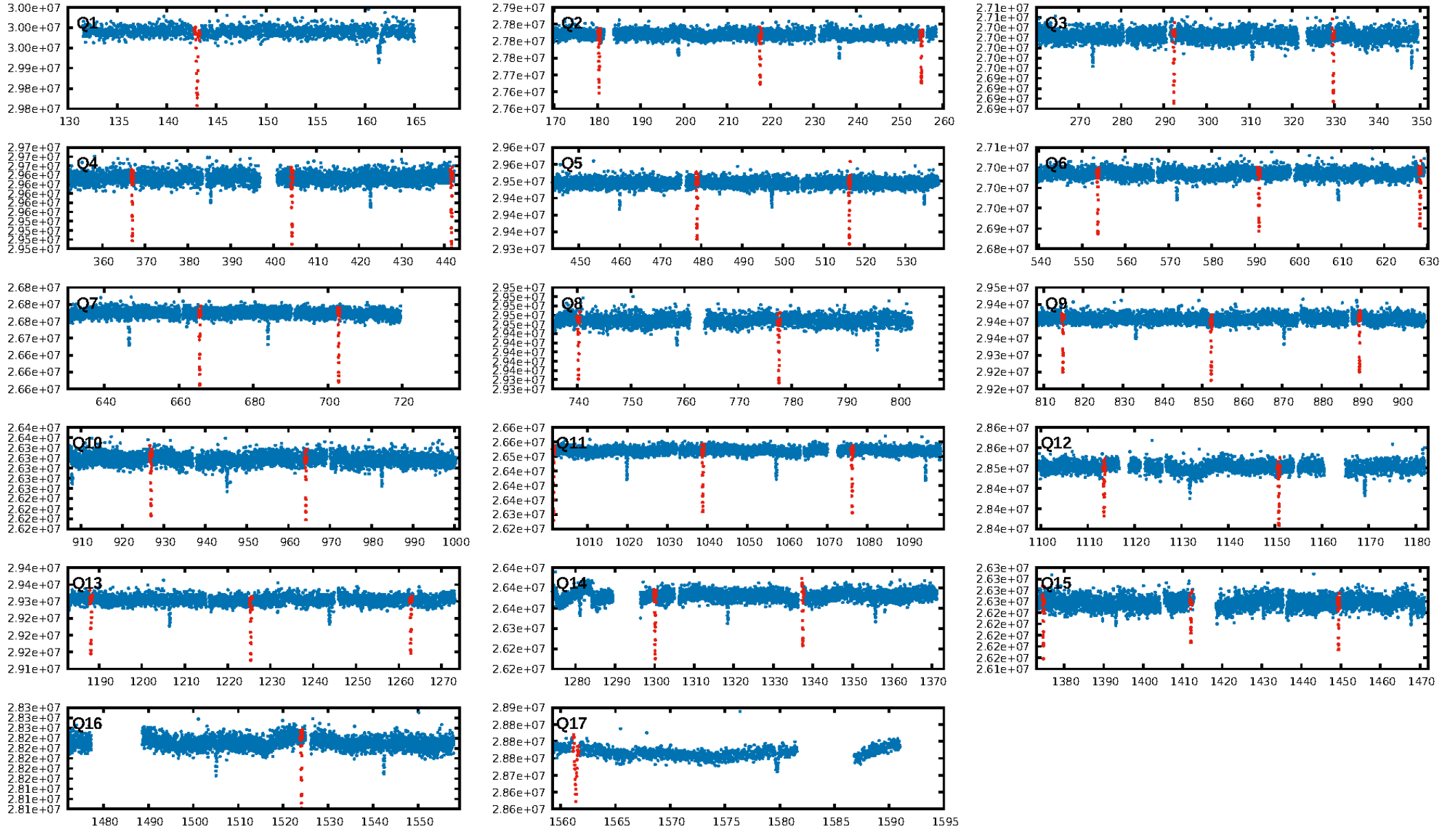
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.16σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [36/36]
GhostDiagnostic-chr: -0.1904
Centroid-sig: 0.0%
Centroid-so: 15.147 arcsec [224.94σ]
OotOffset-rm: 5.851 arcsec [33.68σ]
KicOffset-rm: 5.947 arcsec [33.13σ]
OotOffset-st: 4/0/4/0 [8]
KicOffset-st: 4/0/4/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 0.00 [0/16]

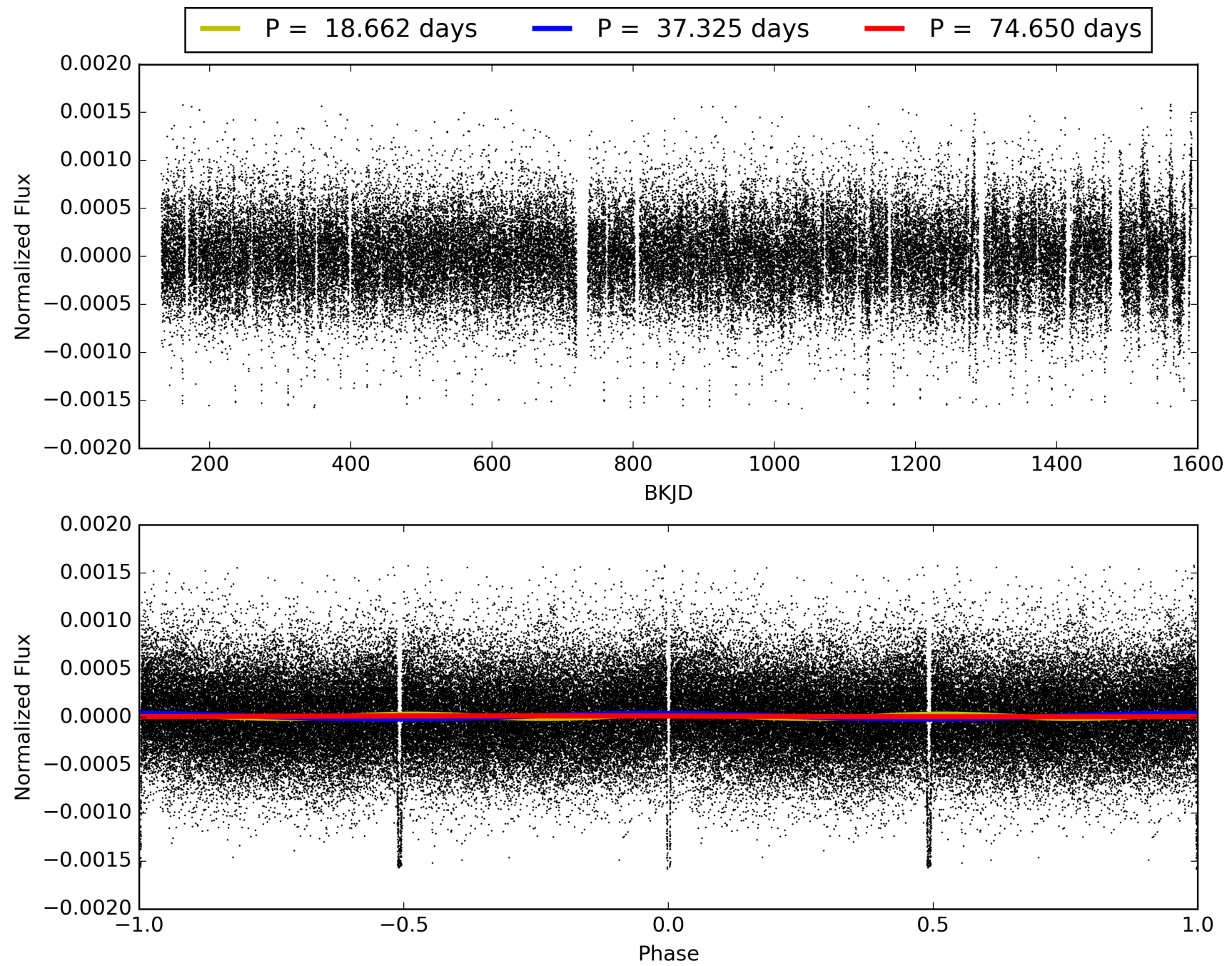
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:16:13 Z

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

TCE 005303346-01, PDC Light Curves

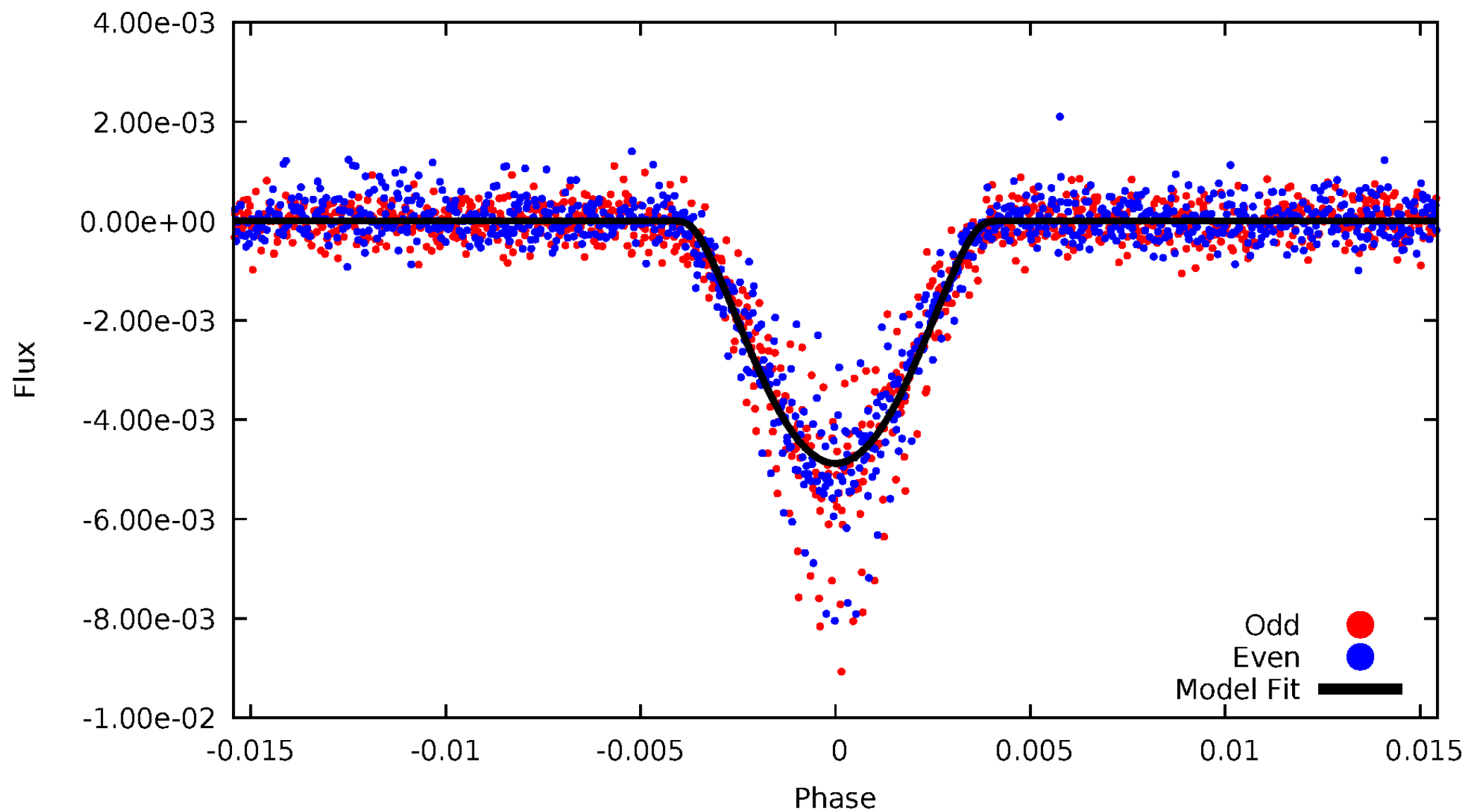


TCE 005303346-01



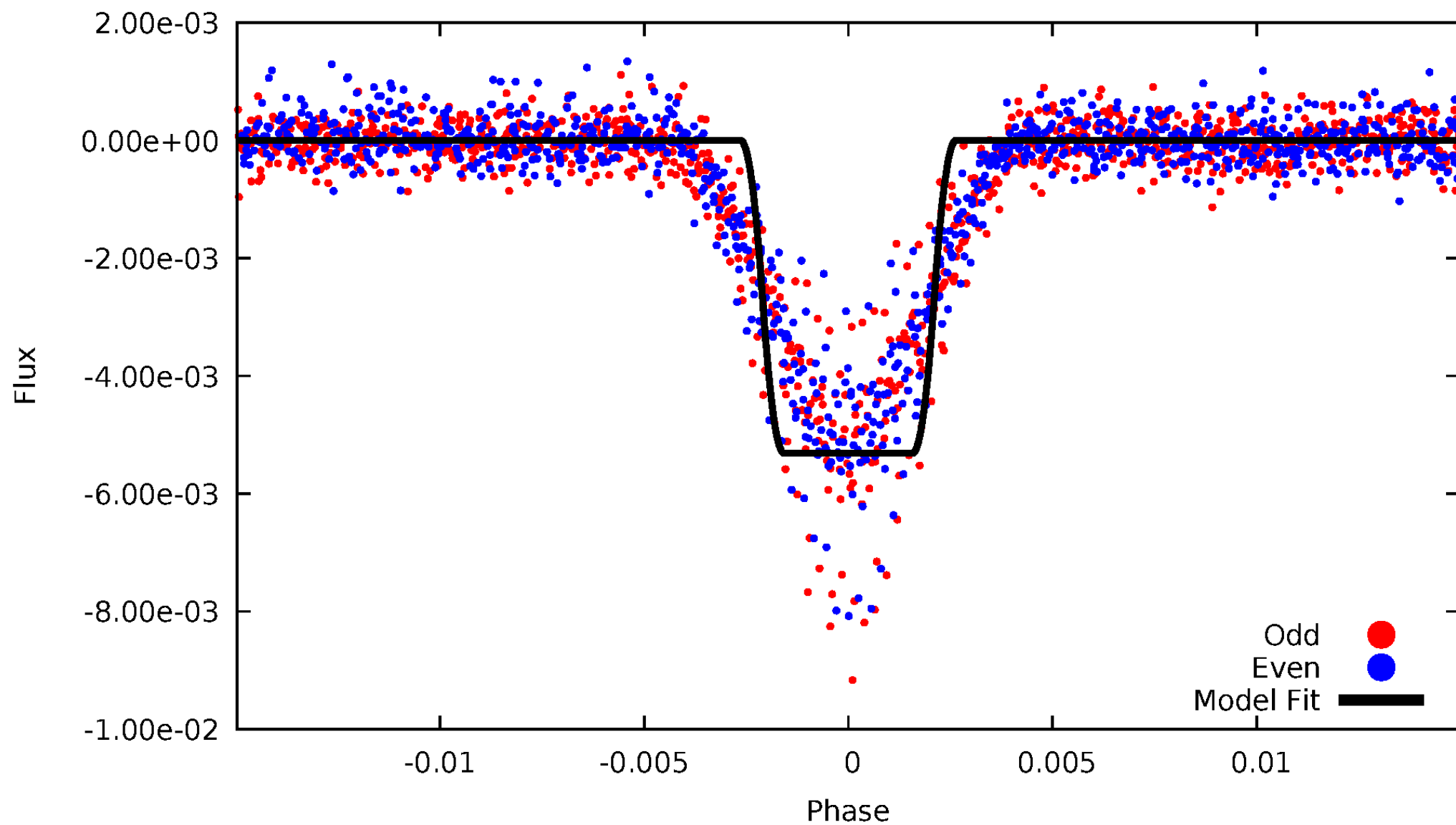
DV Odd/Even

TCE 005303346-01

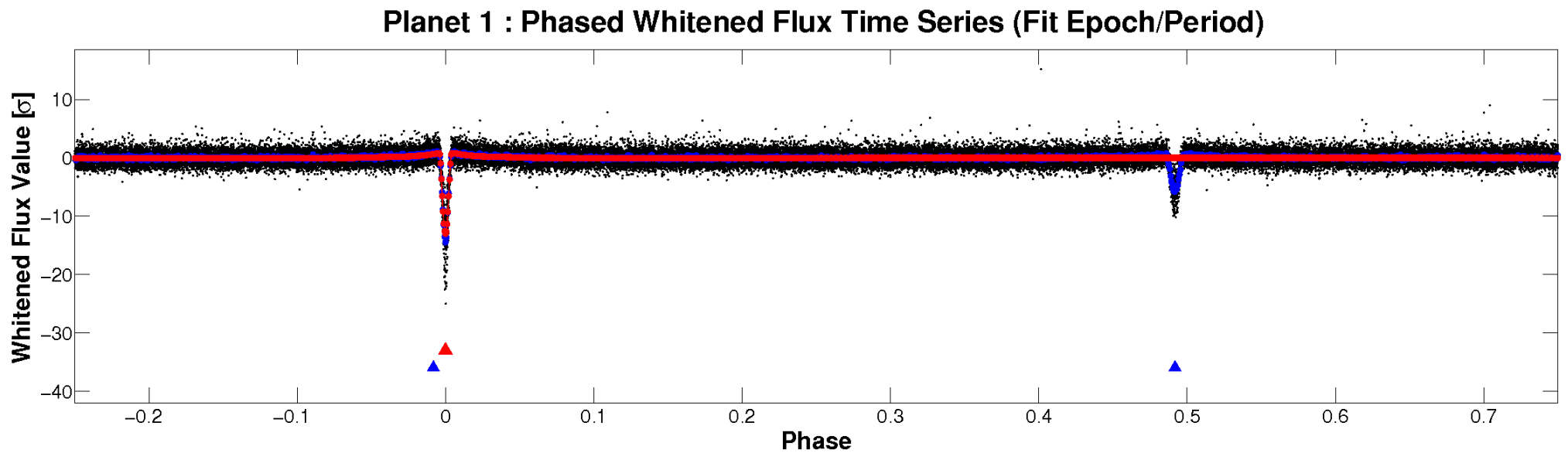
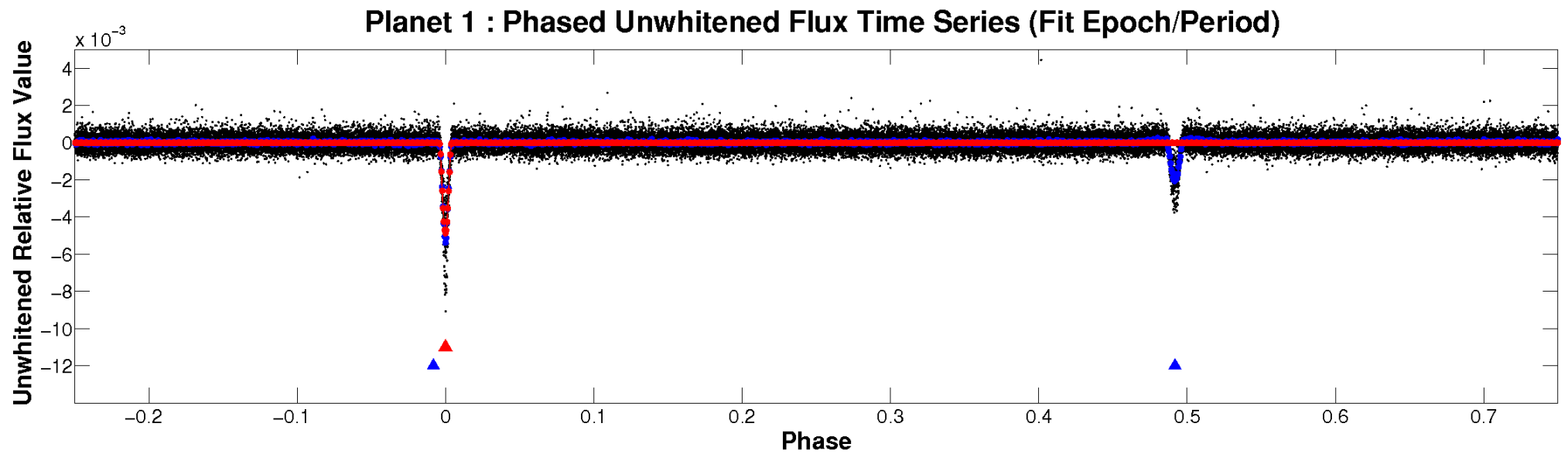


ALT Odd/Even

TCE 005303346-01

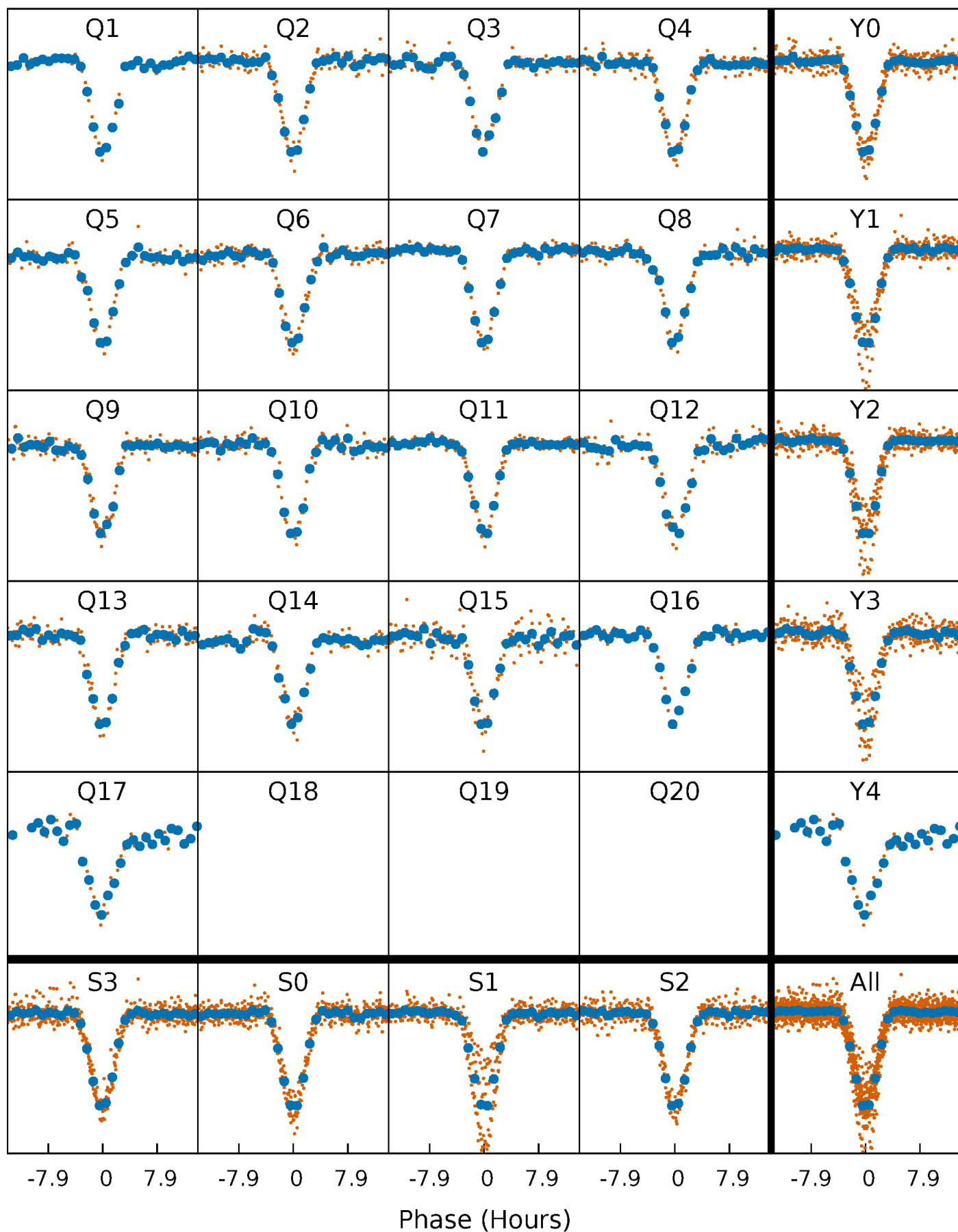


Non-Whitened Vs. Whitened Light Curve



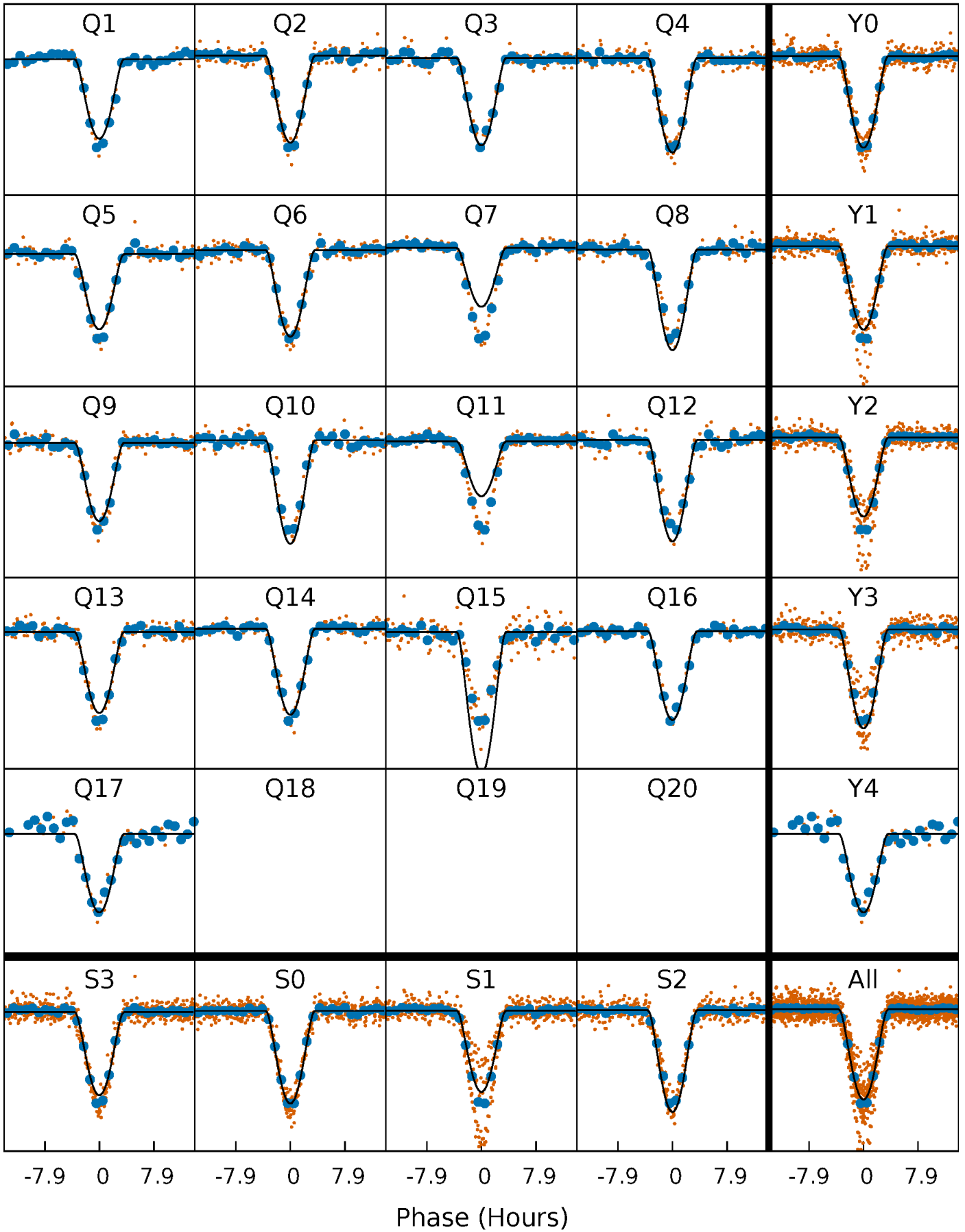
PDC Quarter-Phased Transit Curves

TCE 005303346-01 $P = 37.324820$ Days $T_0 = 143.038947$ (BKJD)



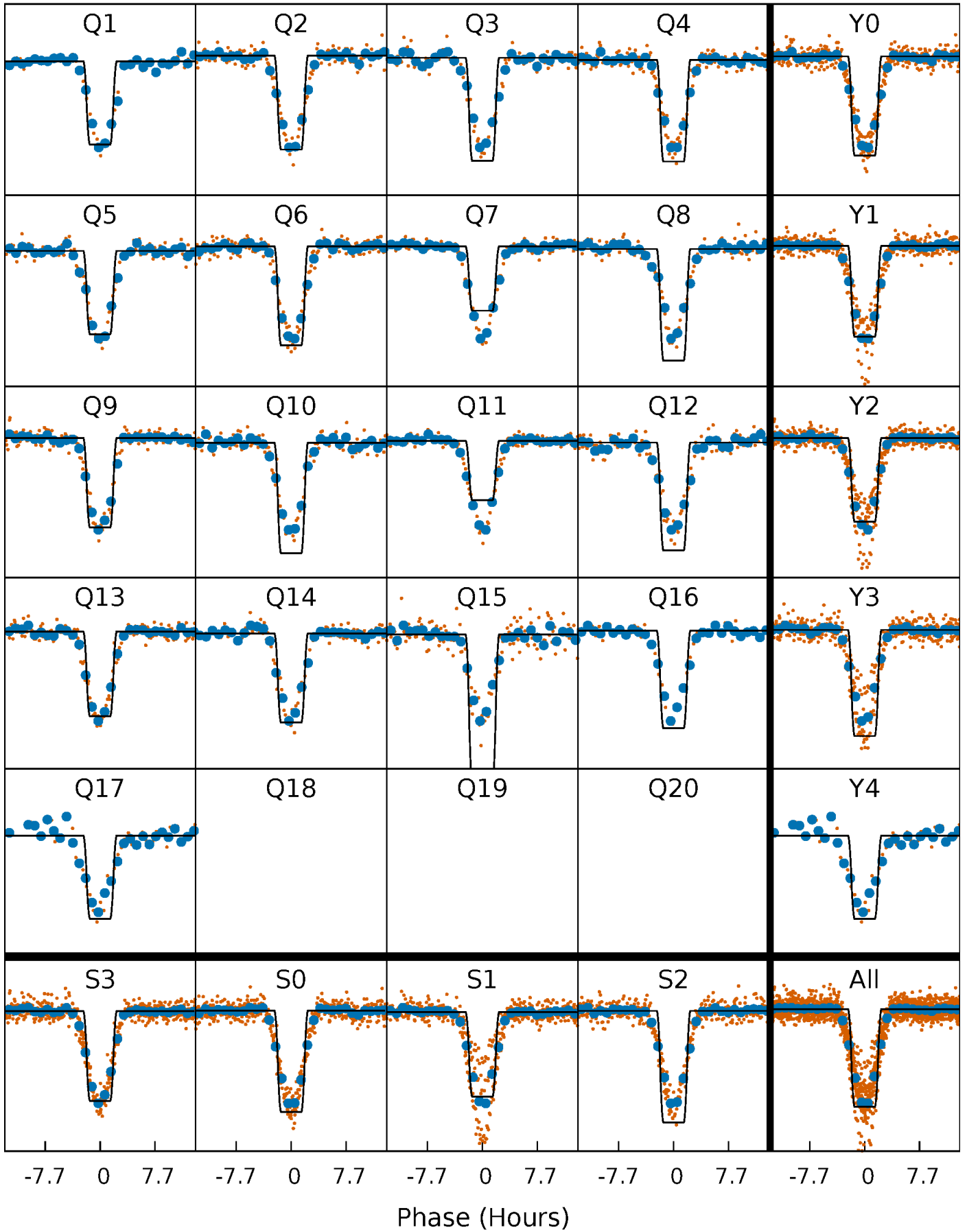
DV Quarter-Phased Transit Curves

TCE 005303346-01 P= 37.324820 Days $T_0=143.038947$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

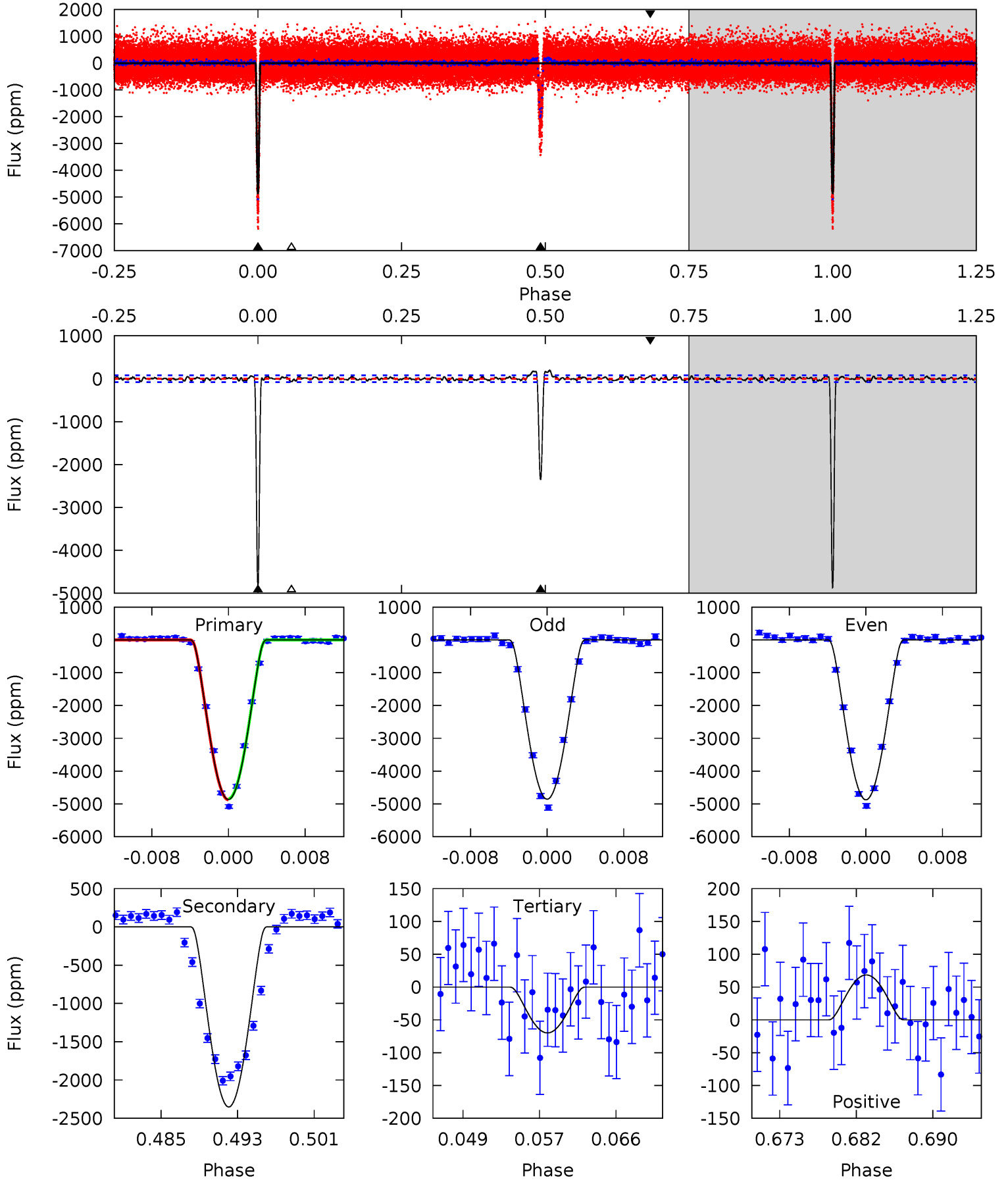
TCE 005303346-01 P= 37.325151 Days $T_0=143.033245$ (BKJD)



DV Model-Shift Uniqueness Test

005303346-01, P = 37.324820 Days, E = 105.714127 Days

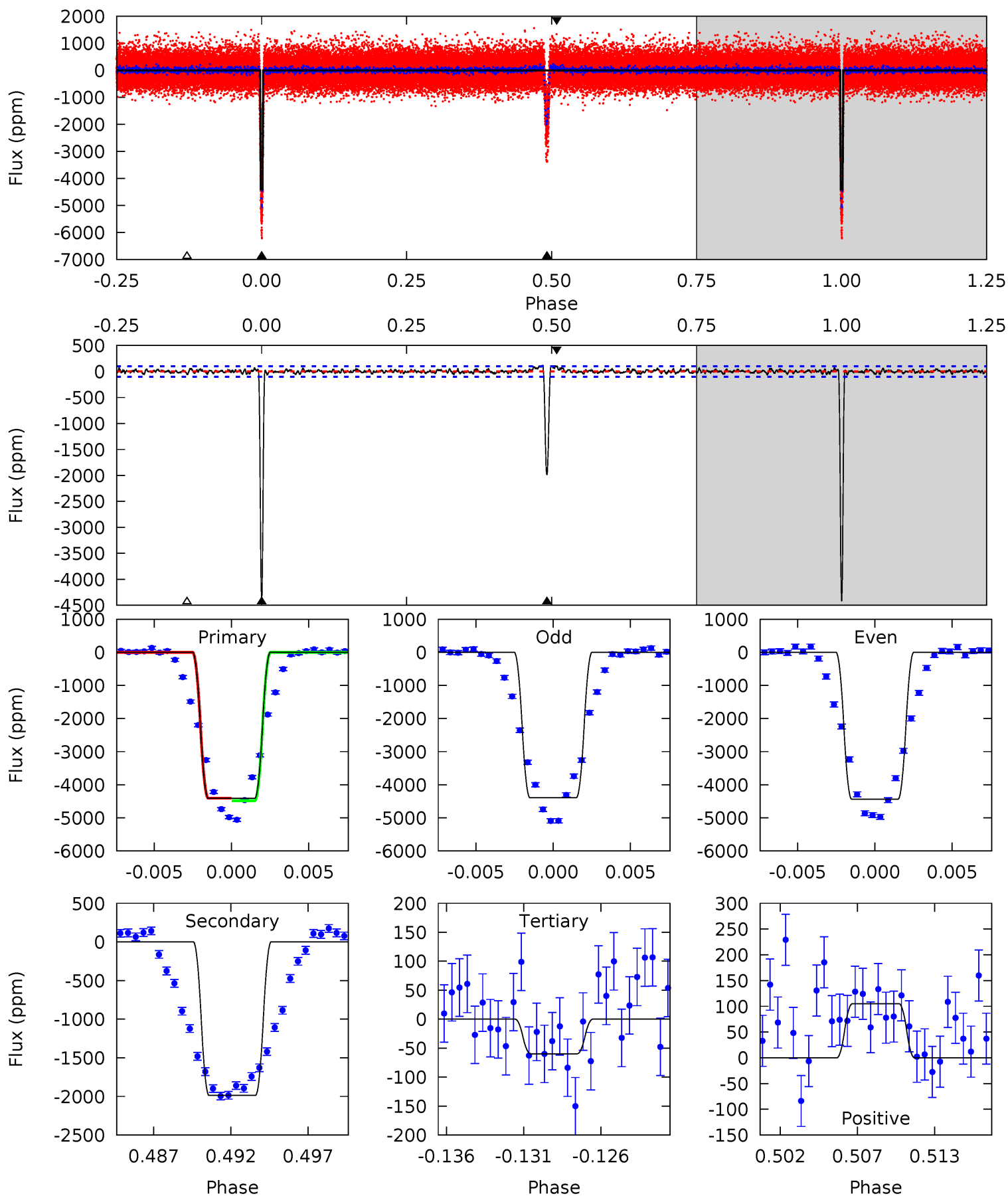
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
315.7	152.6	4.53	4.44	5.06	2.64	2.24	311.2	311.2	148.0	148.1	0.60	1.03	0.04	0



Alt Model-Shift Uniqueness Test

005303346-01, P = 37.325151 Days, E = 105.708094 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
221.8	99.9	3.00	5.29	5.15	2.79	1.35	218.8	216.5	96.9	94.6	1.11	1.02	0.02	1.81



Stellar Parameters For KIC 005303346

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5306^{+175}_{-159}	$4.550^{+0.056}_{-0.098}$	$-0.160^{+0.300}_{-0.300}$	$0.790^{+0.122}_{-0.071}$	$0.810^{+0.094}_{-0.071}$	$2.309^{+0.591}_{-0.666}$
	+3%/-3%	+1%/-2%	+188%/-188%	+15%/-9%	+12%/-9%	+26%/-29%
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 005303346-01 / KOI 3275.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2351 ± 15	$10.35^{+3.29}_{-2.94}$	650^{+31}_{-26}	3791^{+457}_{-346}	508^{+483}_{-219}
Alt.	-1986 ± 20	$6.22^{+3.22}_{-2.83}$	649^{+27}_{-27}	4379^{+1275}_{-602}	1169^{+2725}_{-641}

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

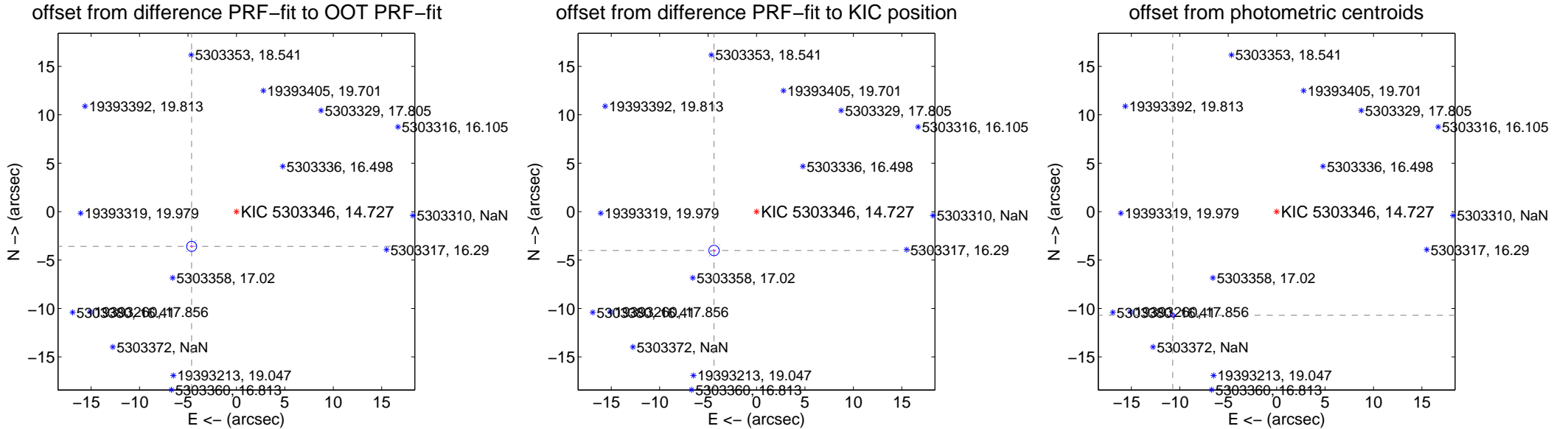
DV Centroid Data

Supplemental centroid analysis for 005303346-01. Kepler magnitude: 14.73. Transit SNR 166.54

There are 8 quarters with good PRF difference image offsets

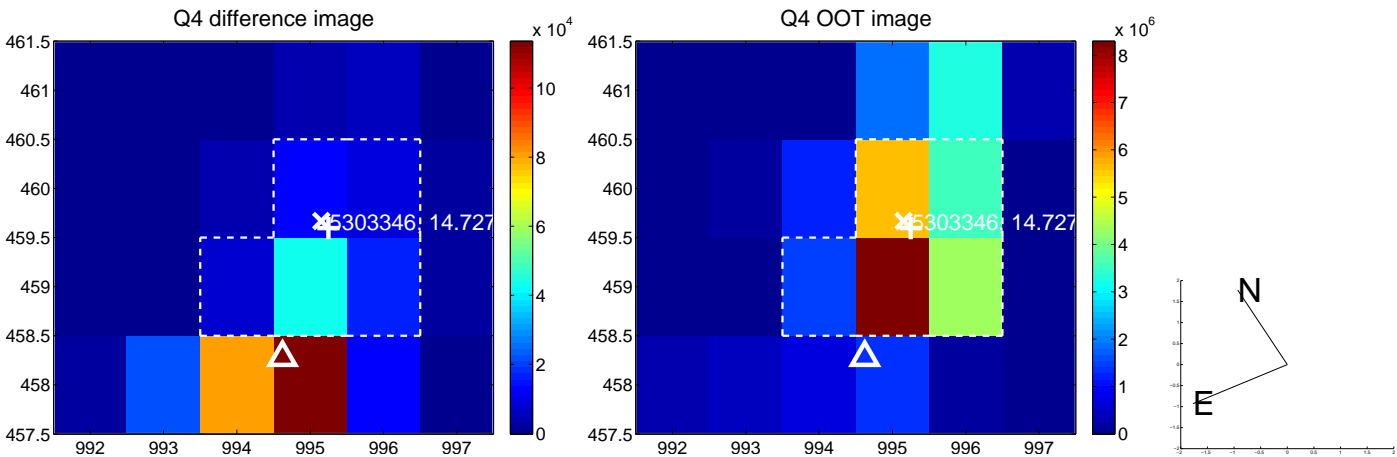
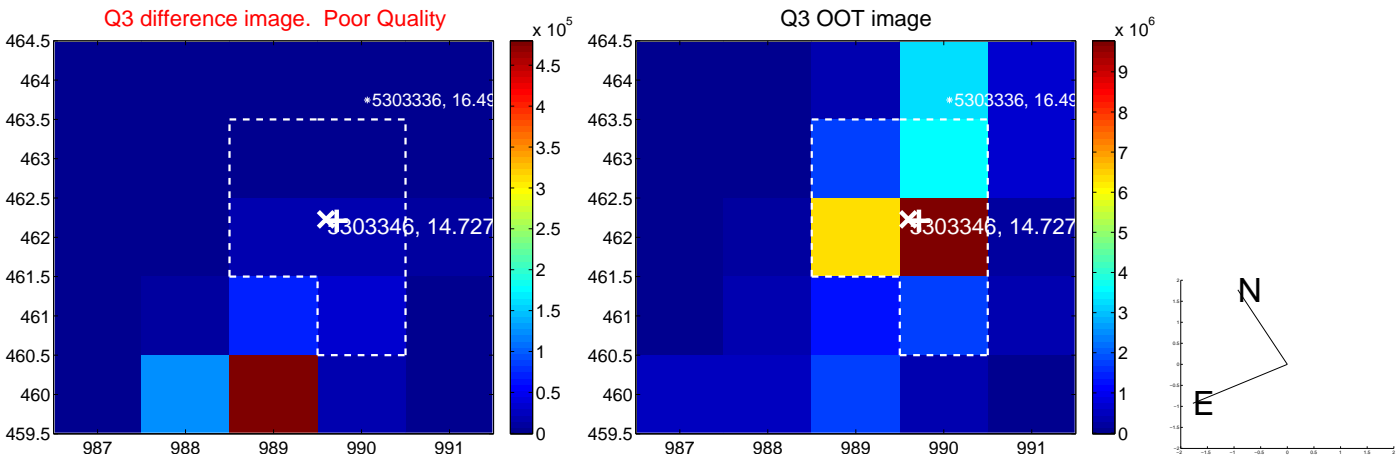
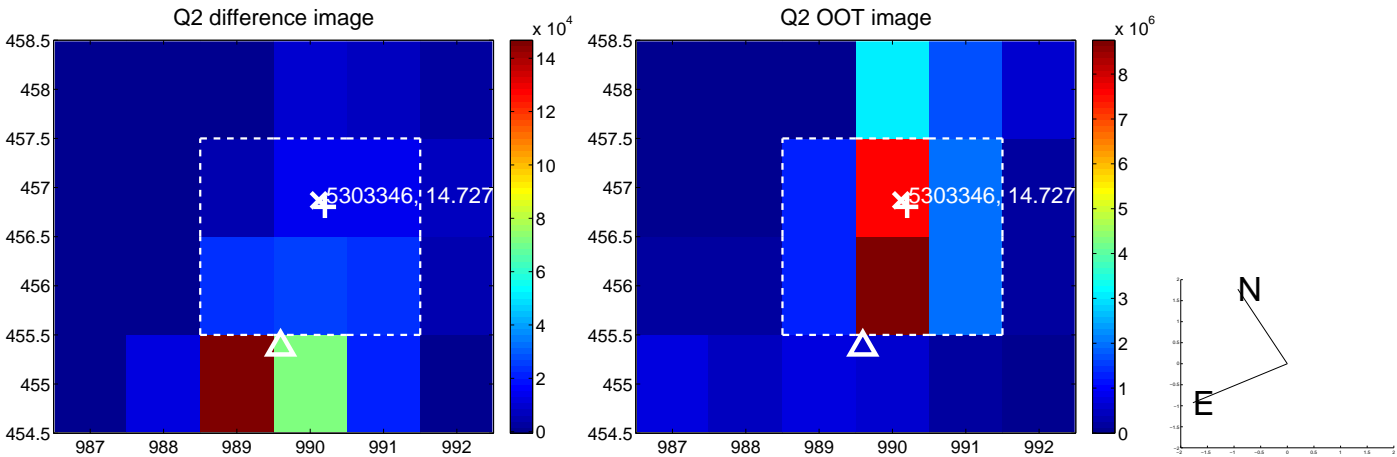
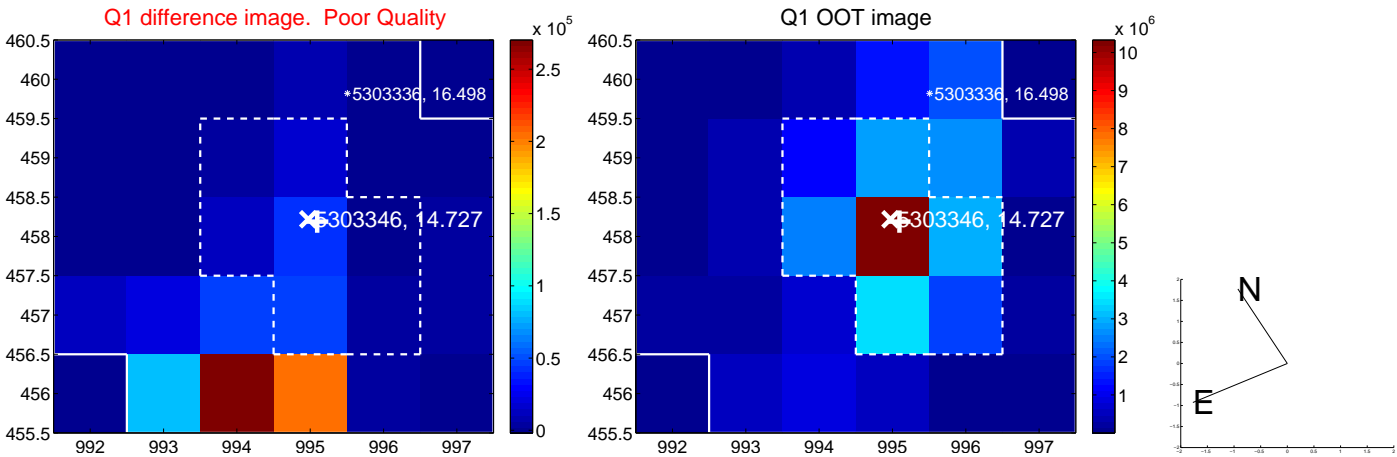
The direct PRF centroid is offset from the target star catalog position by about 0.69 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.851 \pm 0.174	33.68	4.621 \pm 0.145	-3.588 \pm 0.131
PRF-fit source offset from KIC position	5.947 \pm 0.179	33.13	4.386 \pm 0.144	-4.016 \pm 0.131
photometric centroid source offset	15.15 \pm 0.07	224.94	10.72 \pm 0.07	-10.70 \pm 0.07

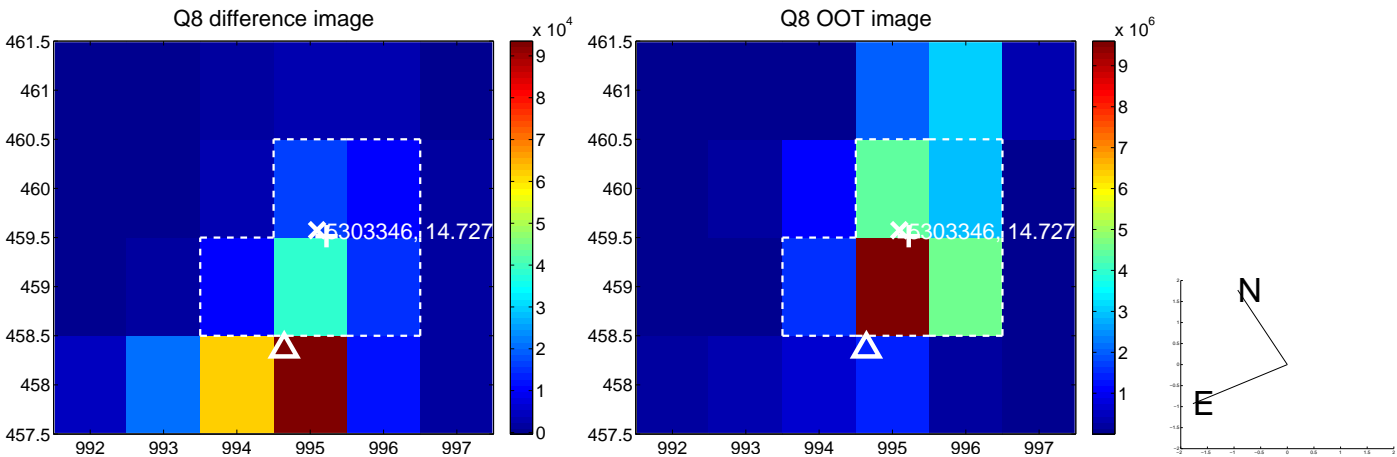
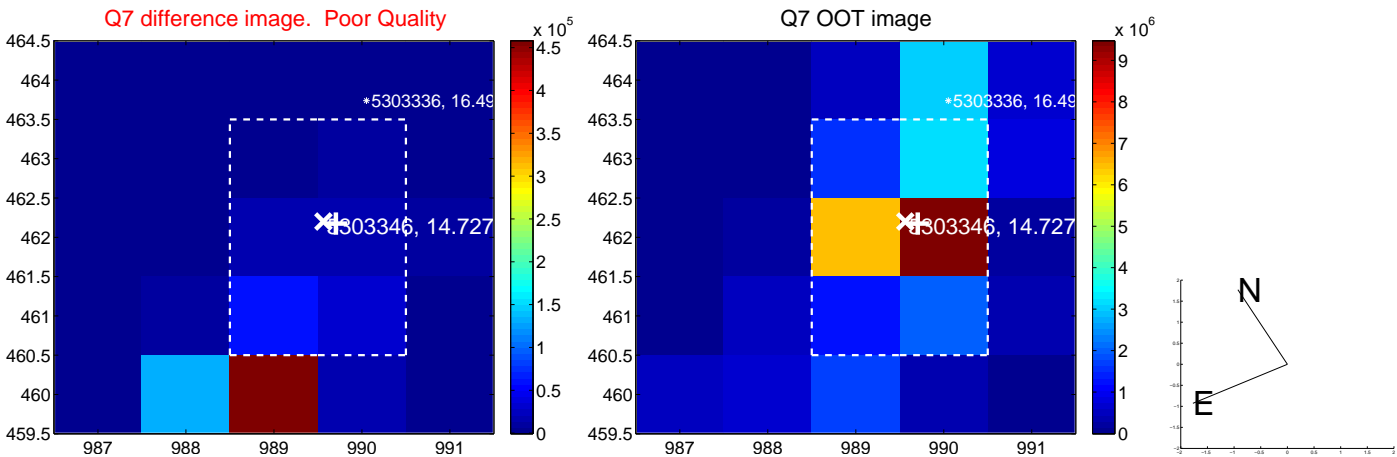
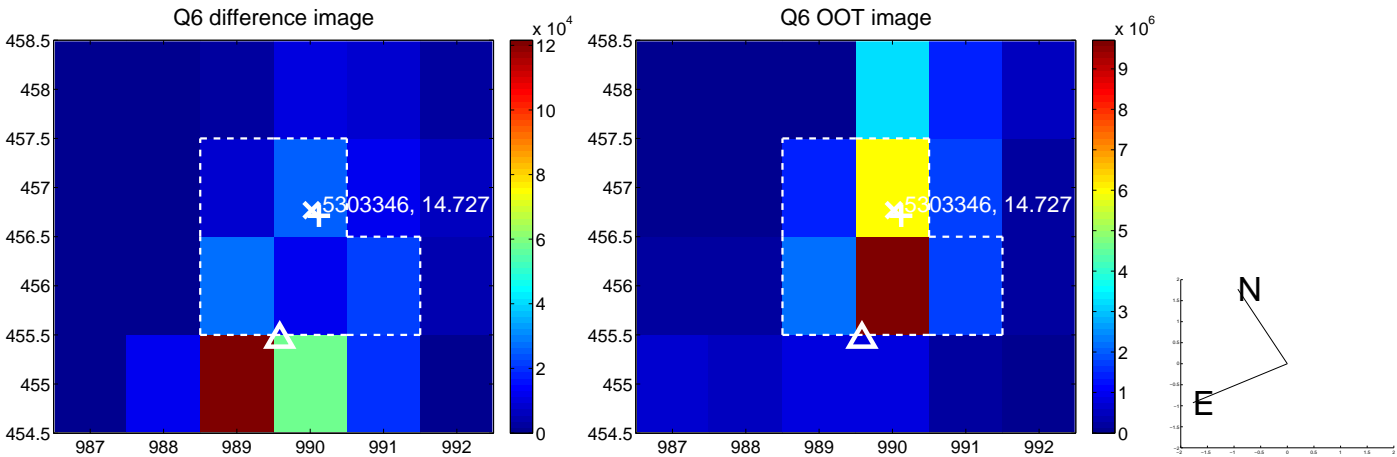
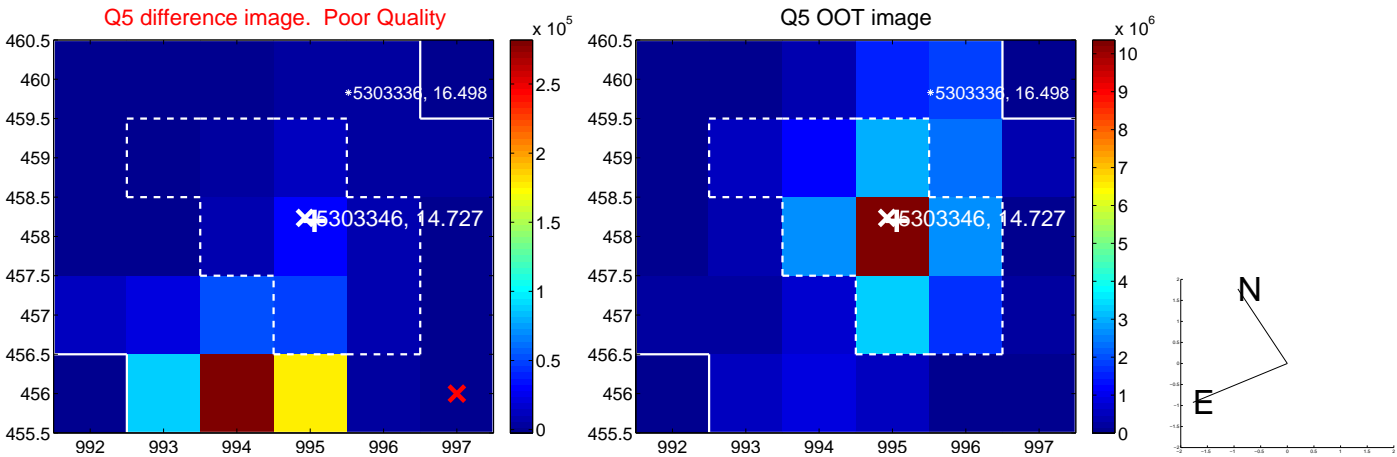


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

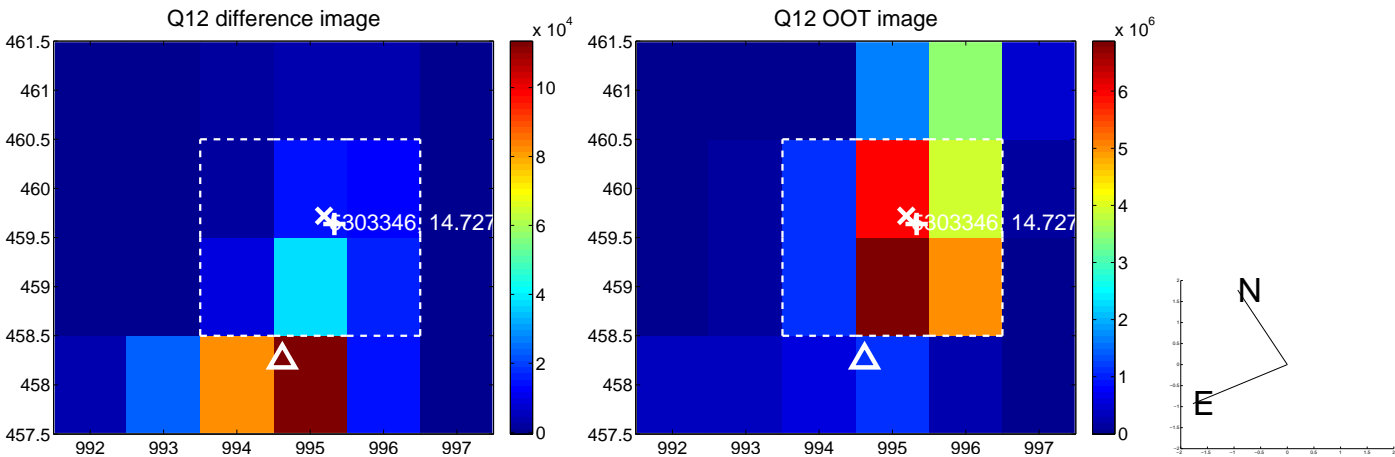
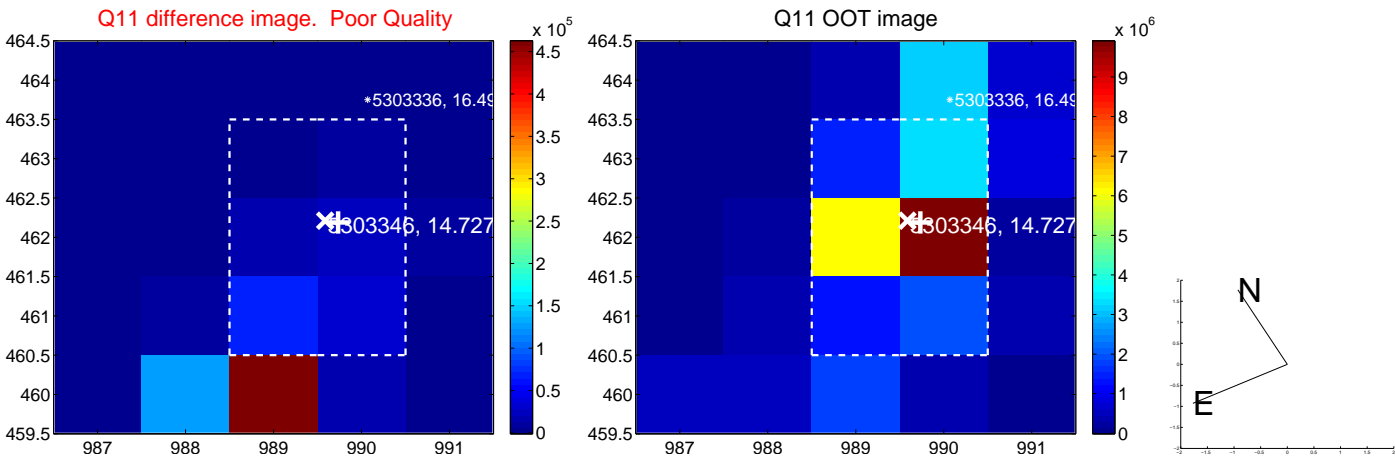
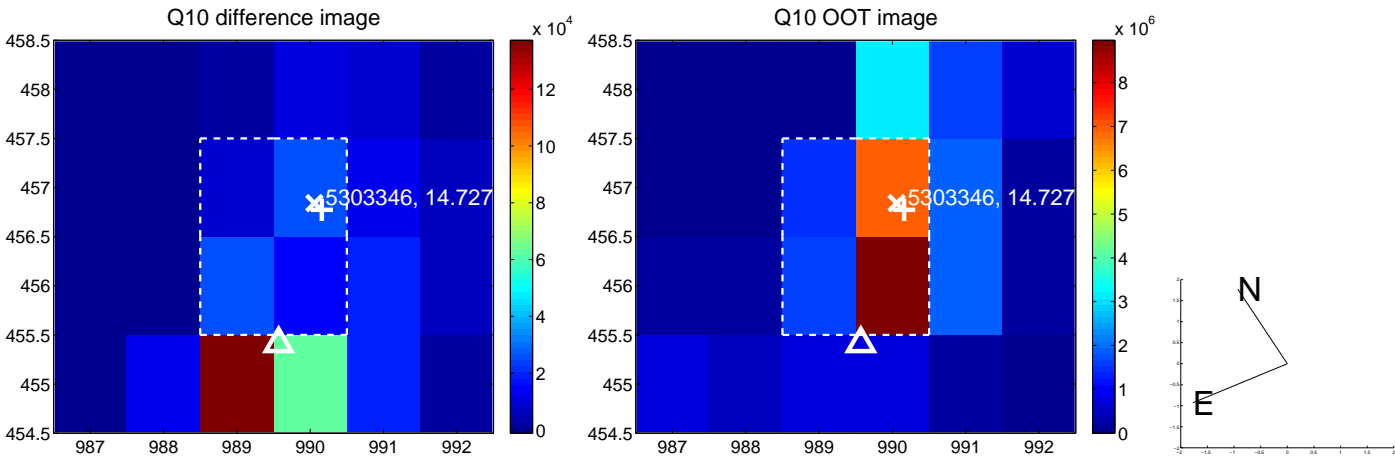
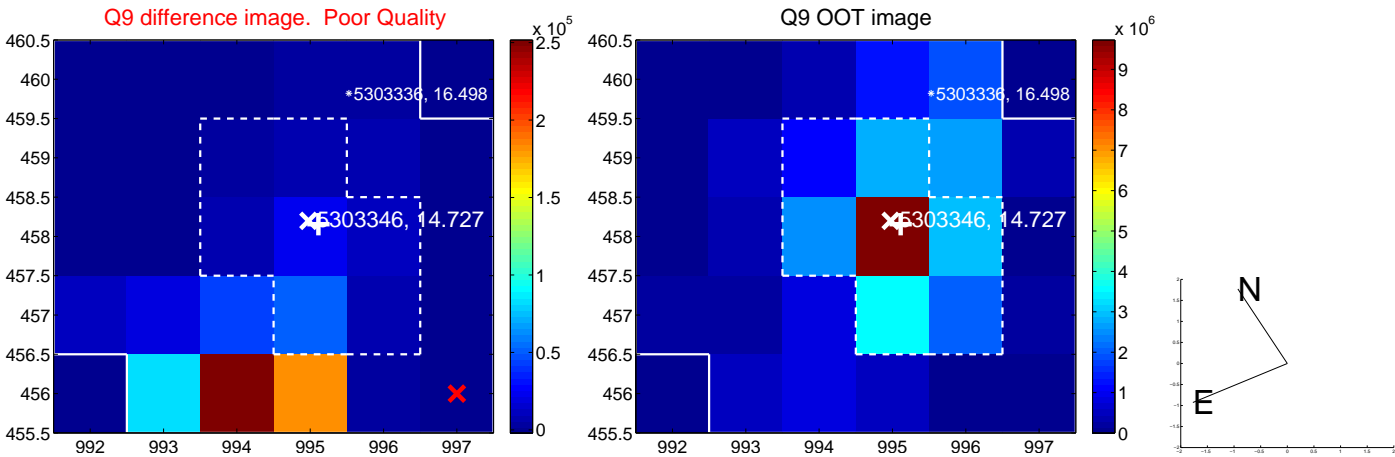
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



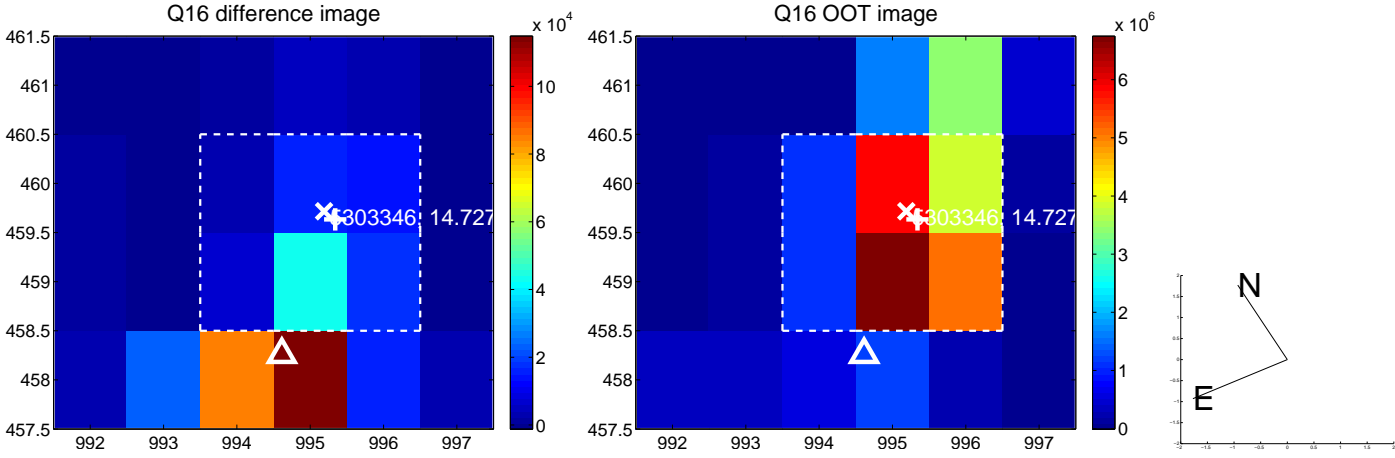
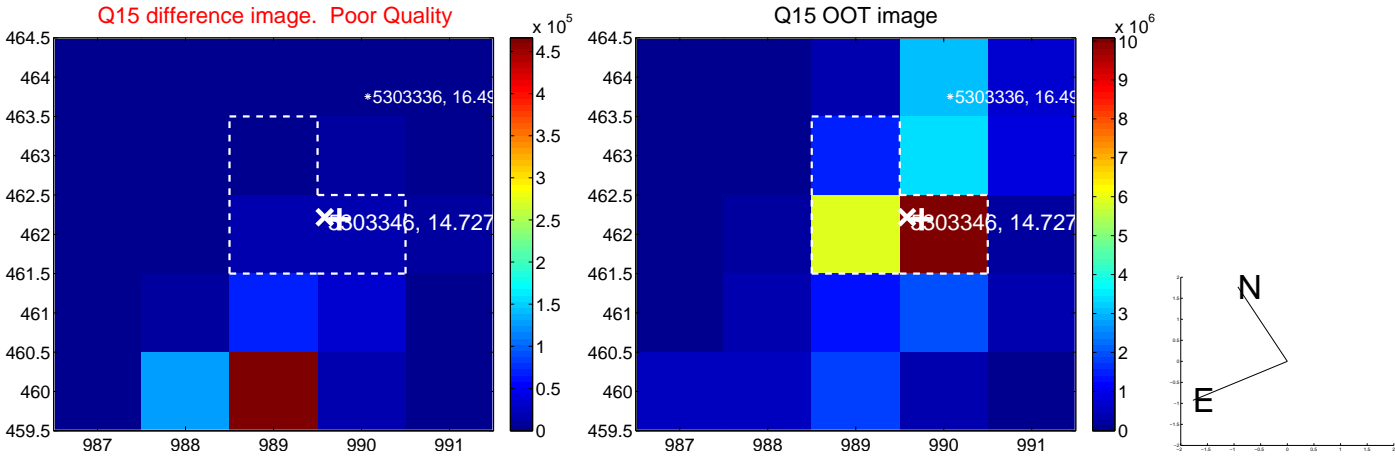
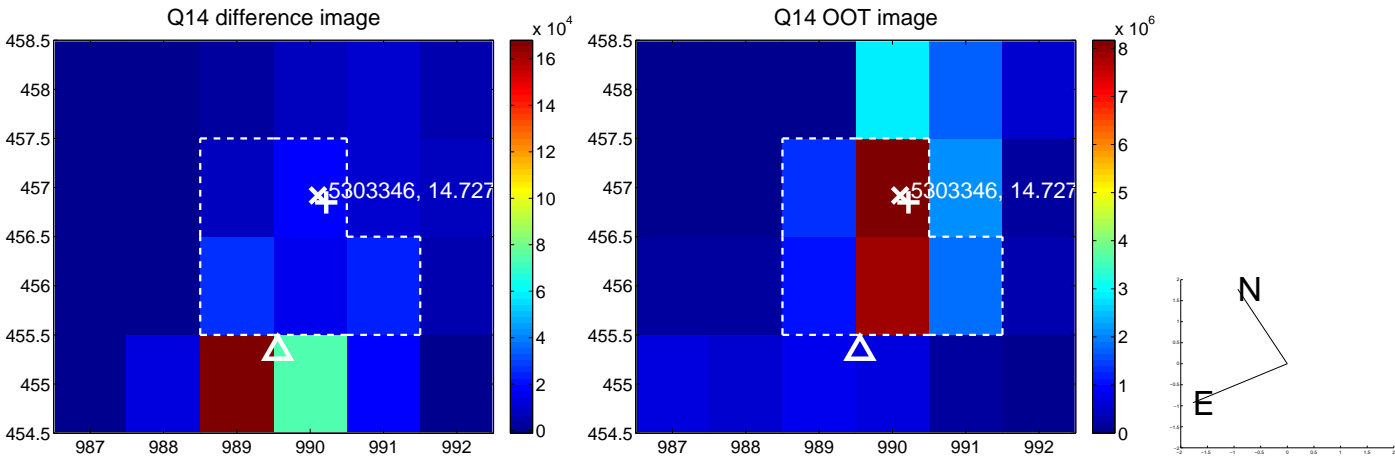
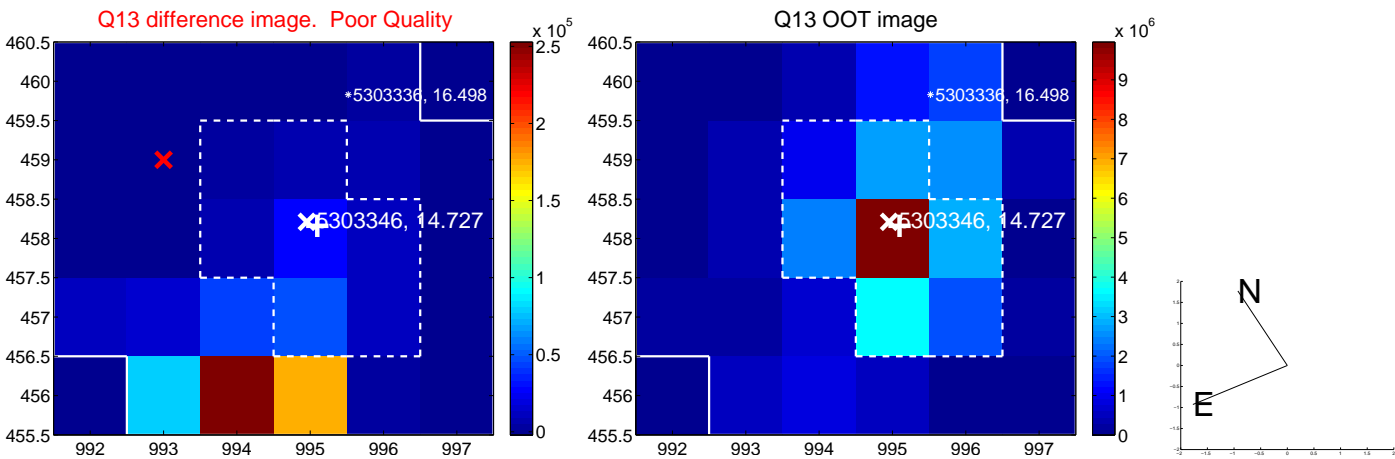
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



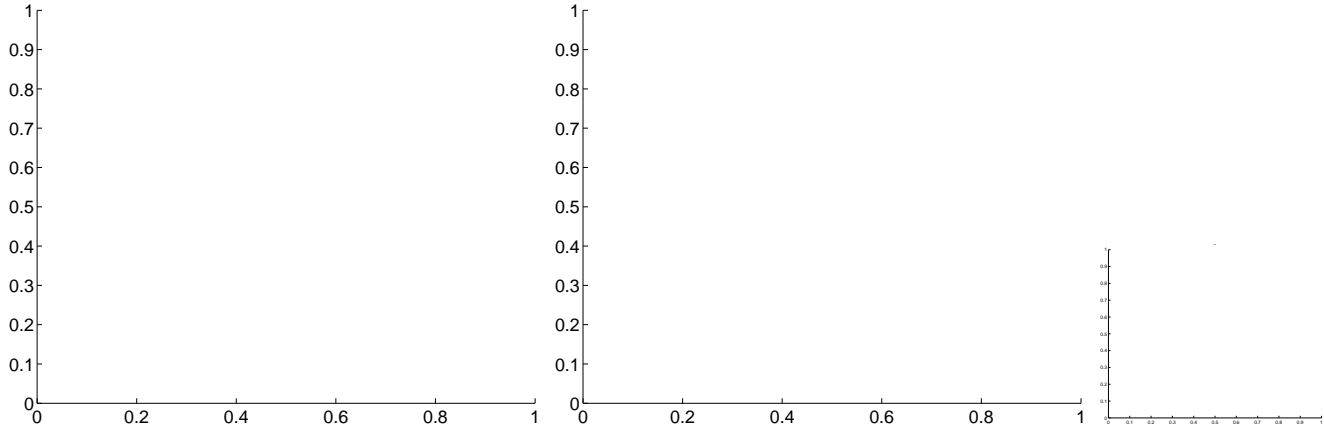
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



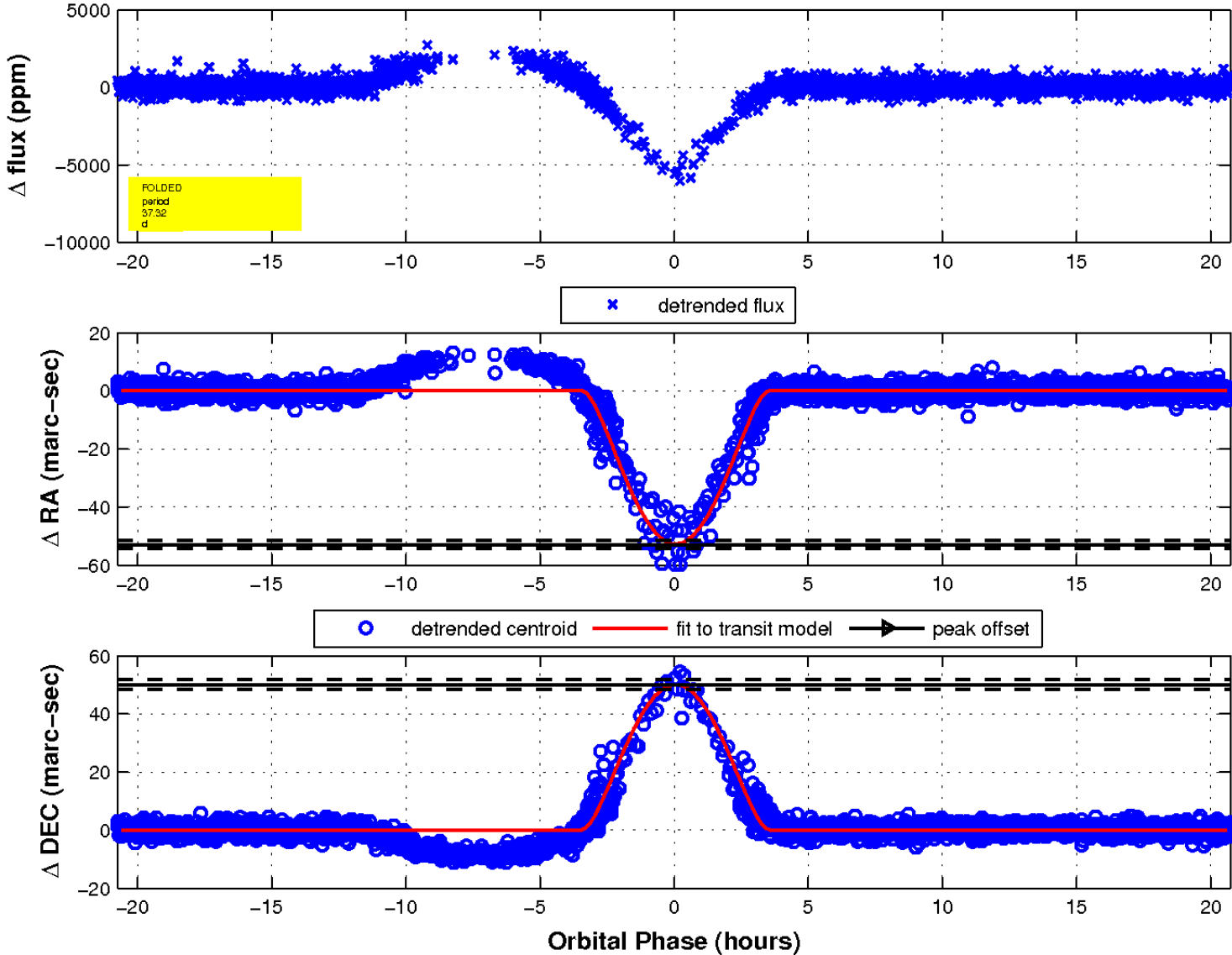
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

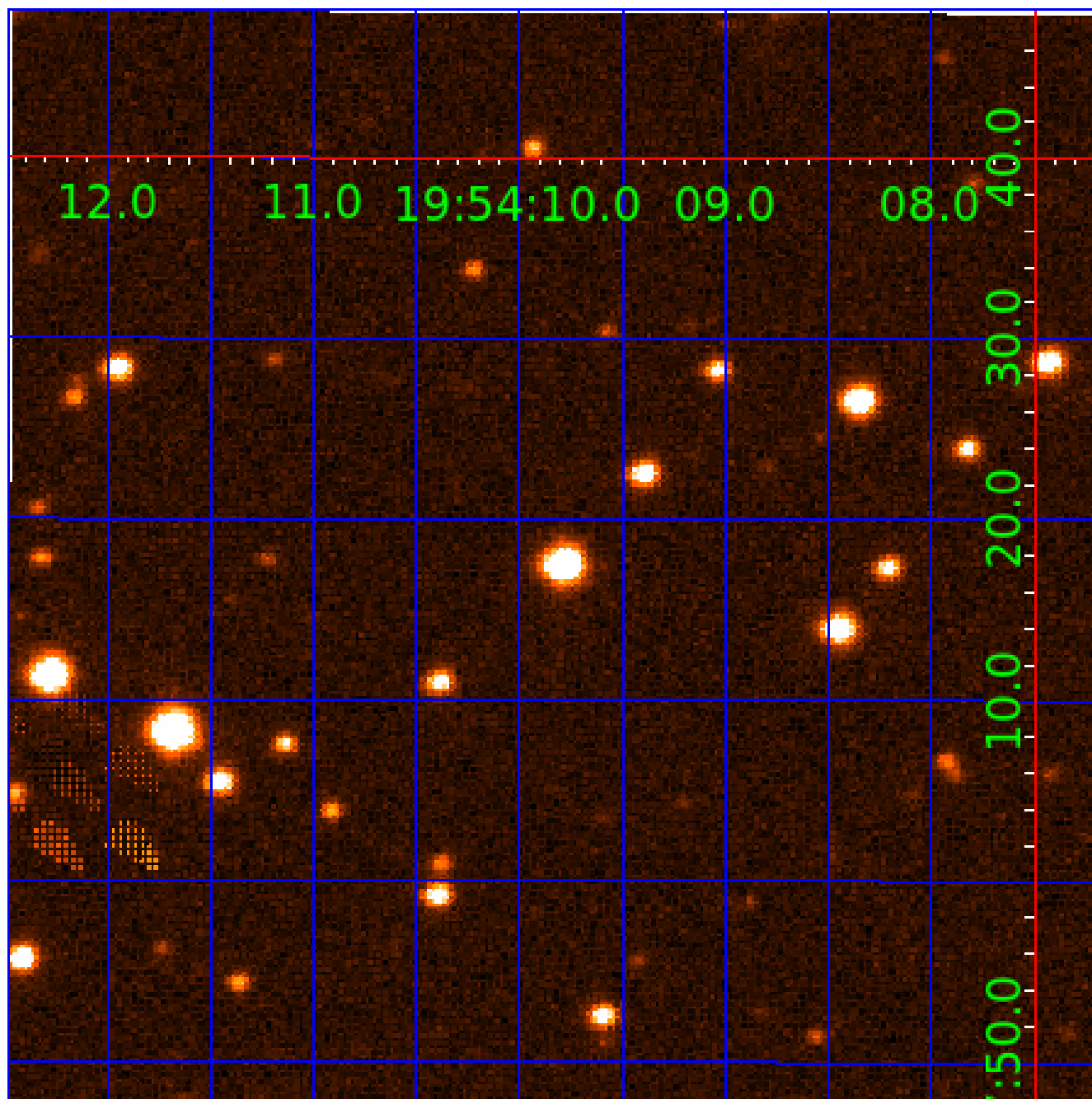


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005303346

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})
005303346-01	OBS	3275.01	37.324820	143.038947	4879.0	6.917	192.7	166.5	0.79	5306	10.33	10.69
005303346-02	OBS	No	18.662404	142.735582	2063.1	9.483	96.6	89.9	0.79	5306	5.90	26.94

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005303346-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
005303346-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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

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

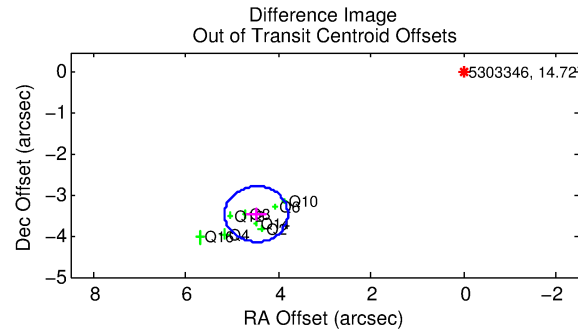
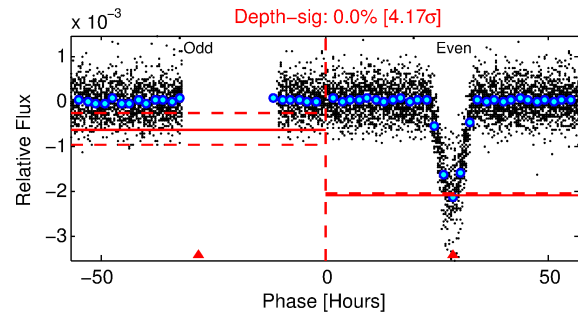
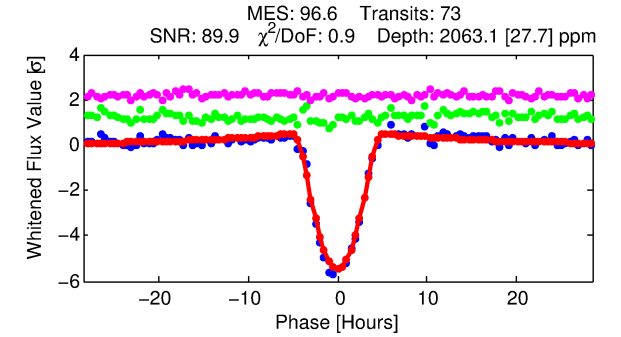
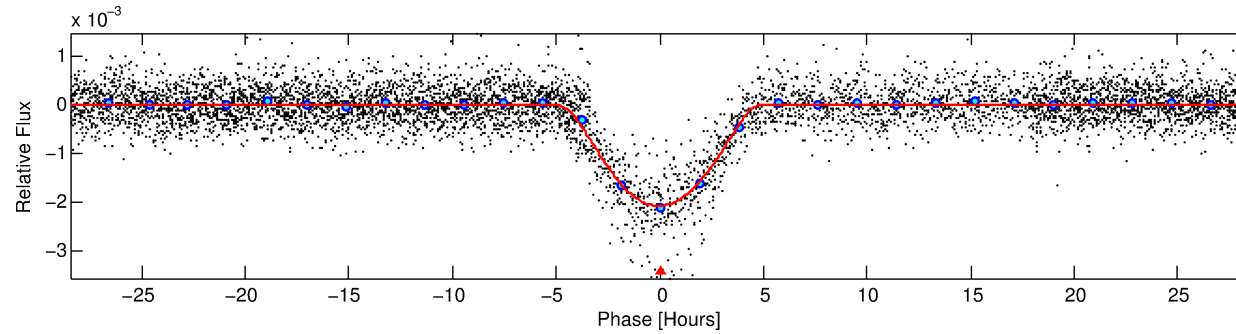
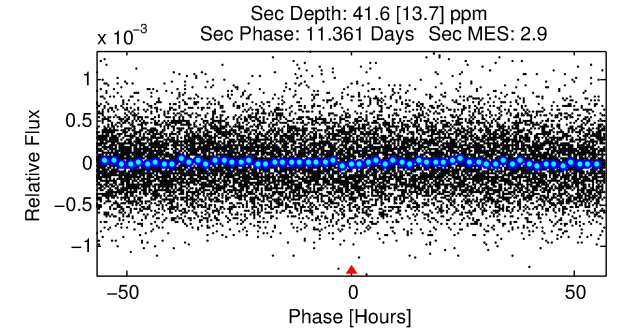
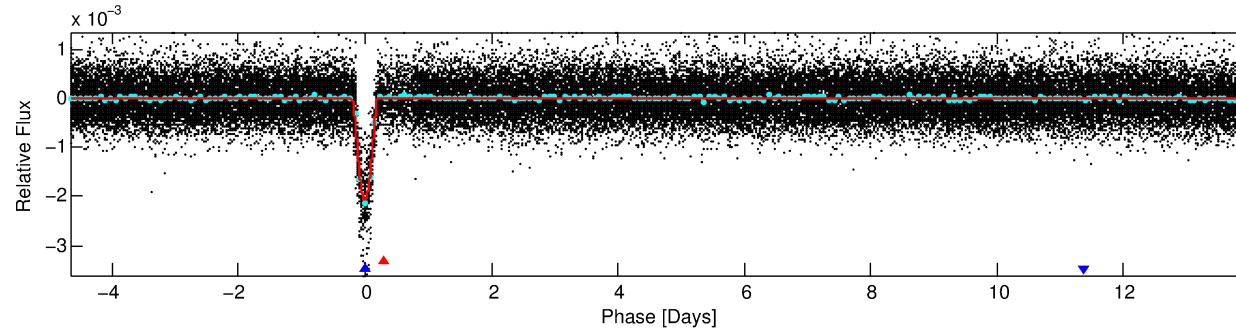
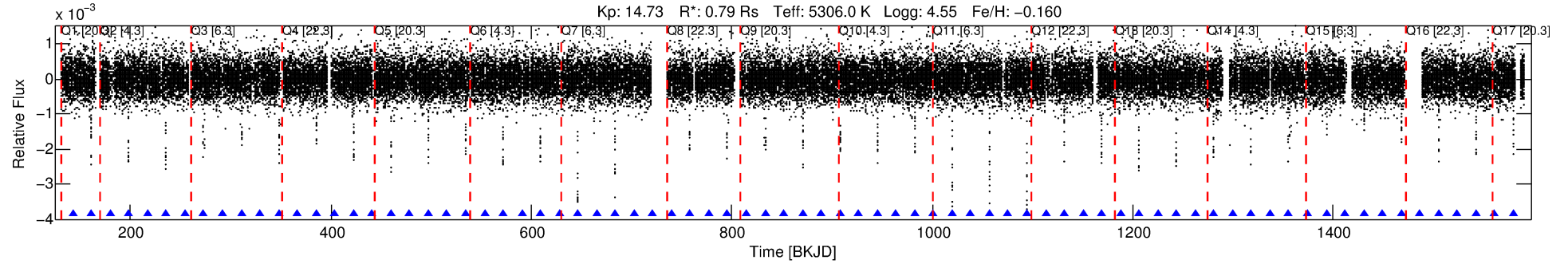
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005303346-02

No Significant Match Found

DV One-Page Summary

KIC: 5303346 Candidate: 2 of 2 Period: 18.662 d
KOI: K03275 Corr: No Ephemeris Match



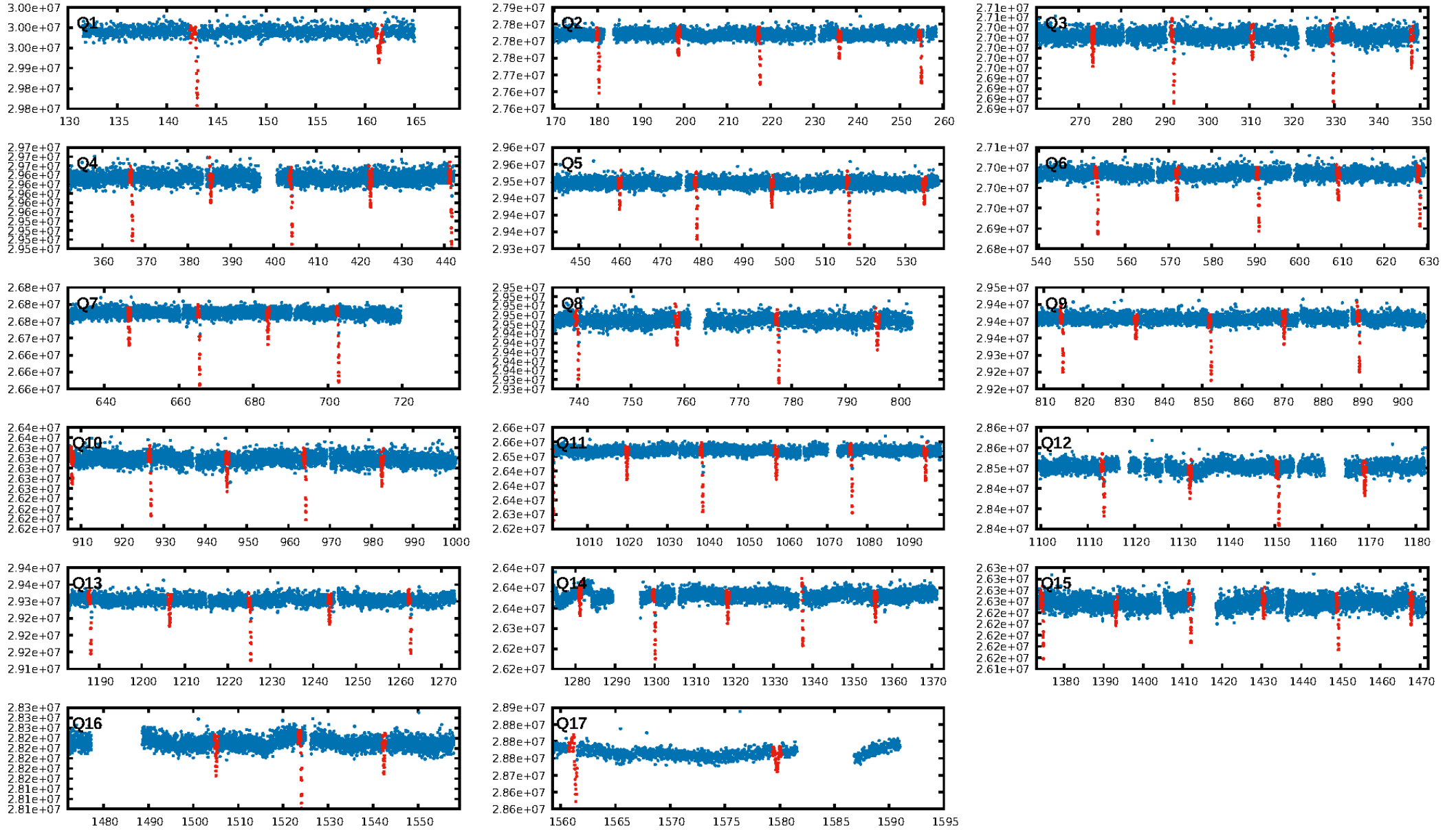
DV Fit Results:

Period = 18.66240 [0.00005] d
Epoch = 142.7356 [0.0022] BKJD
Rp/R* = 0.0684 [0.0154]
a/R* = 6.46 [0.40]
b = 0.98 [0.03]
Seff = 26.94 [6.06]
Teq = 581 [33] K
Rp = 5.90 [1.61] Re
a = 0.1283 [0.0164] AU
Ag = 10.83 [6.34] [1.55σ]
Teff = 1629 [233] K [4.45σ]

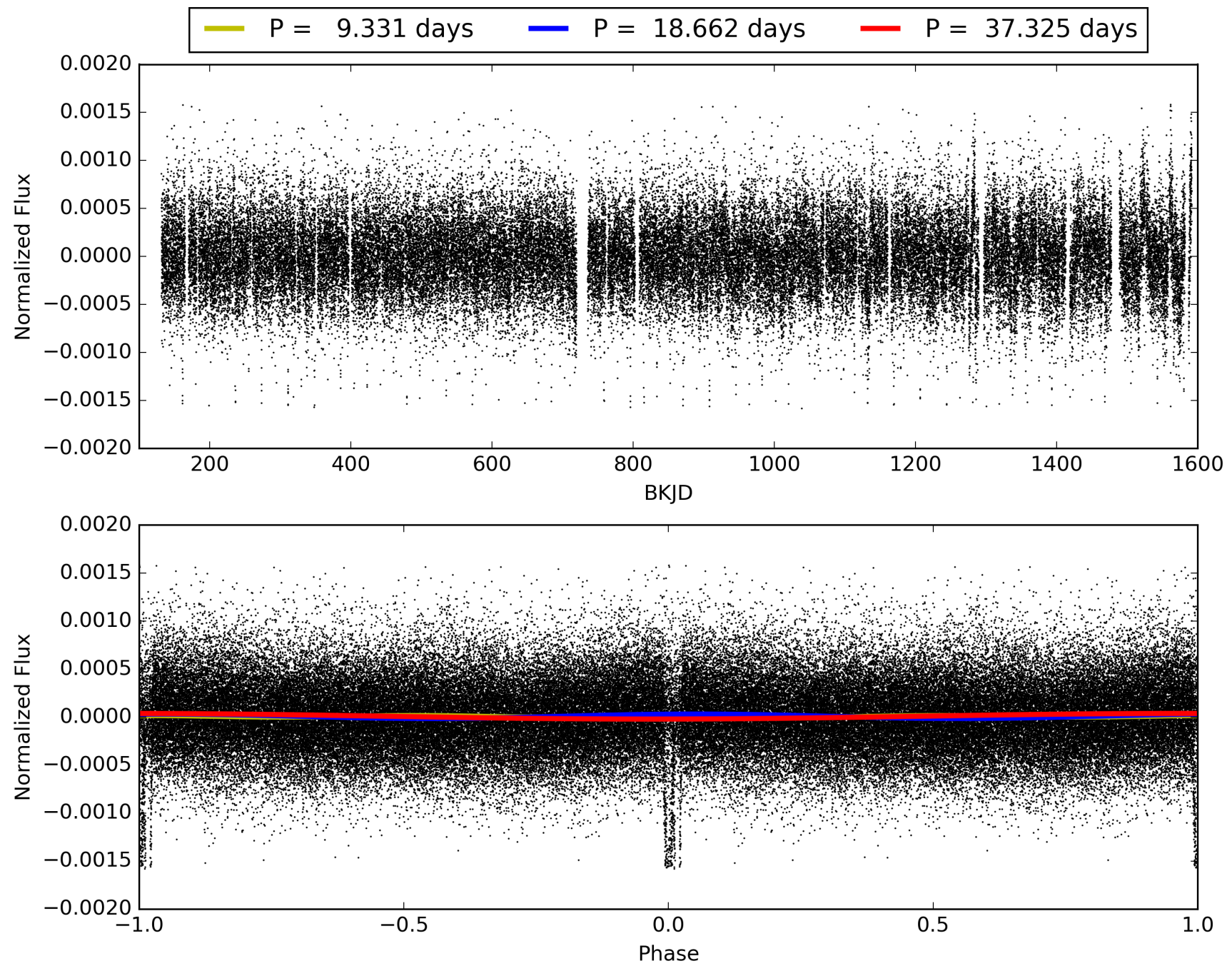
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [38.16σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [70/70]
GhostDiagnostic-chr: -0.05839
Centroid-sig: 0.0%
Centroid-so: 8.721 arcsec [88.60σ]
OotOffset-rm: 5.663 arcsec [24.95σ]
KicOffset-rm: 5.757 arcsec [25.89σ]
OotOffset-st: 4/0/4/0 [8]
KicOffset-st: 4/0/4/0 [8]
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DiffImageOverlap-fno: 1.00 [17/17]

TCE 005303346-02, PDC Light Curves

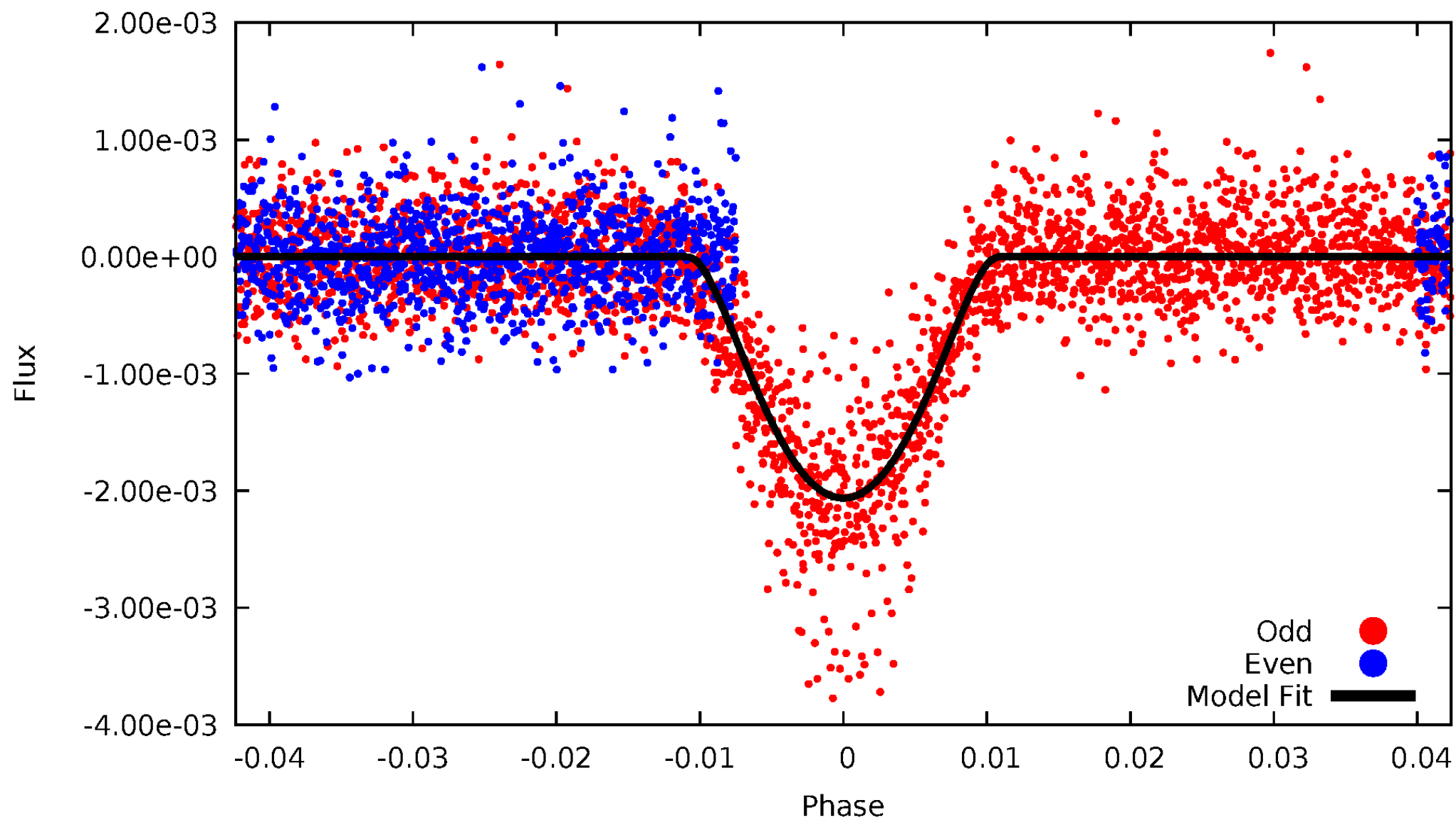


TCE 005303346-02



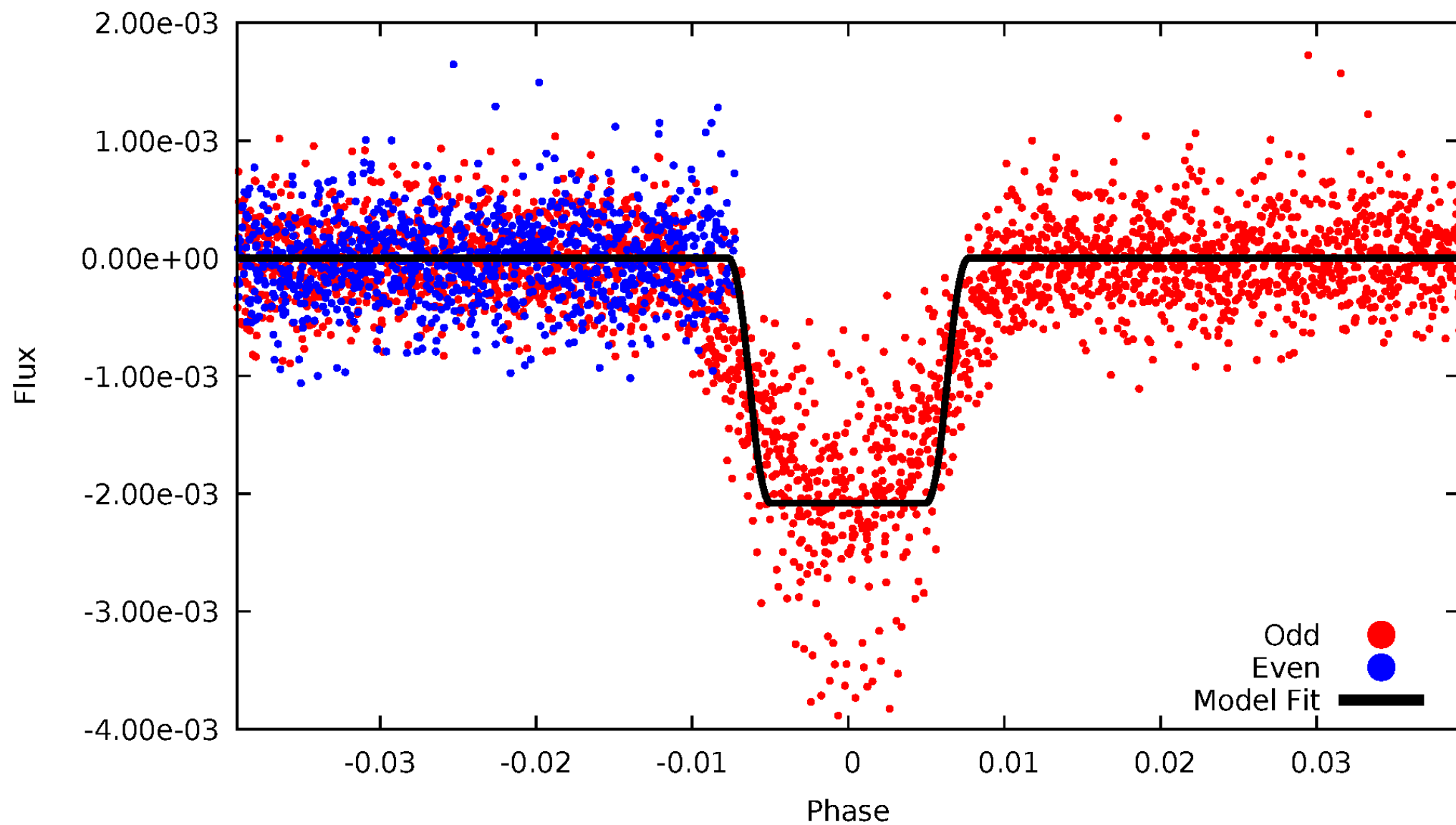
DV Odd/Even

TCE 005303346-02



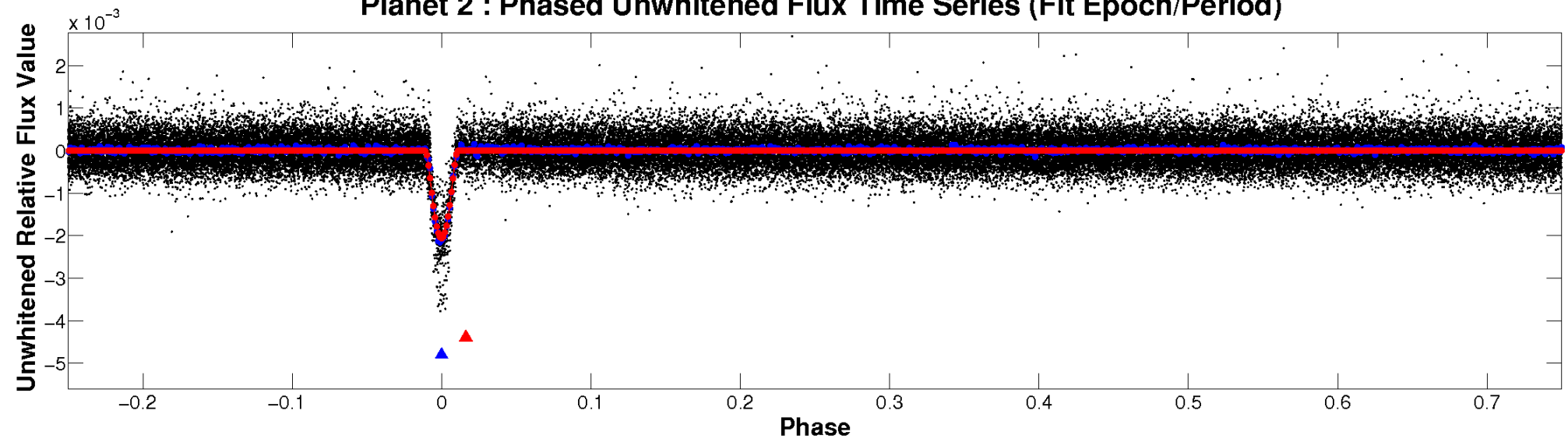
ALT Odd/Even

TCE 005303346-02

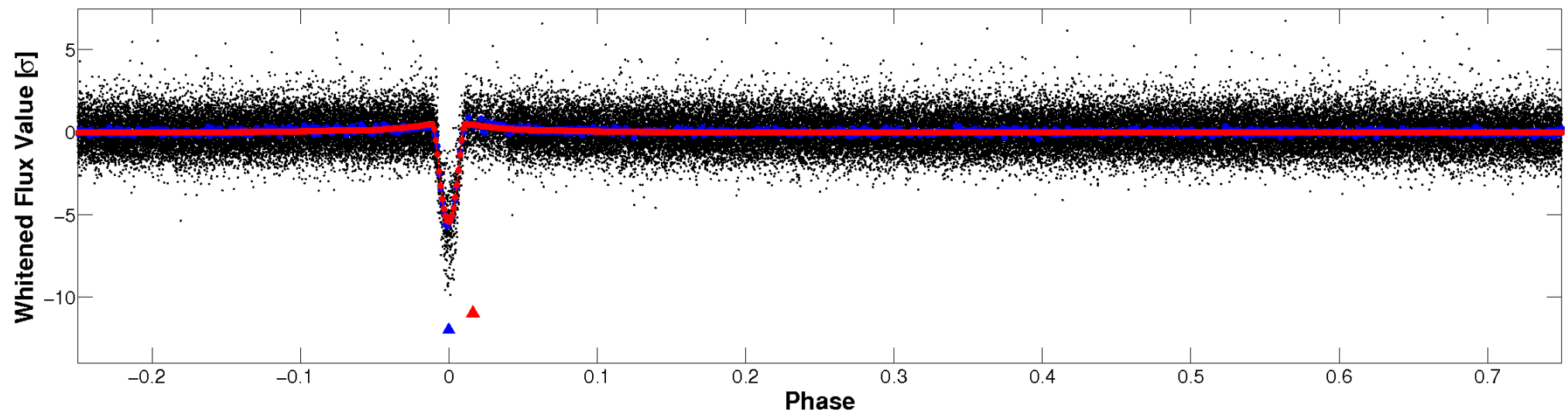


Non-Whitened Vs. Whitened Light Curve

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

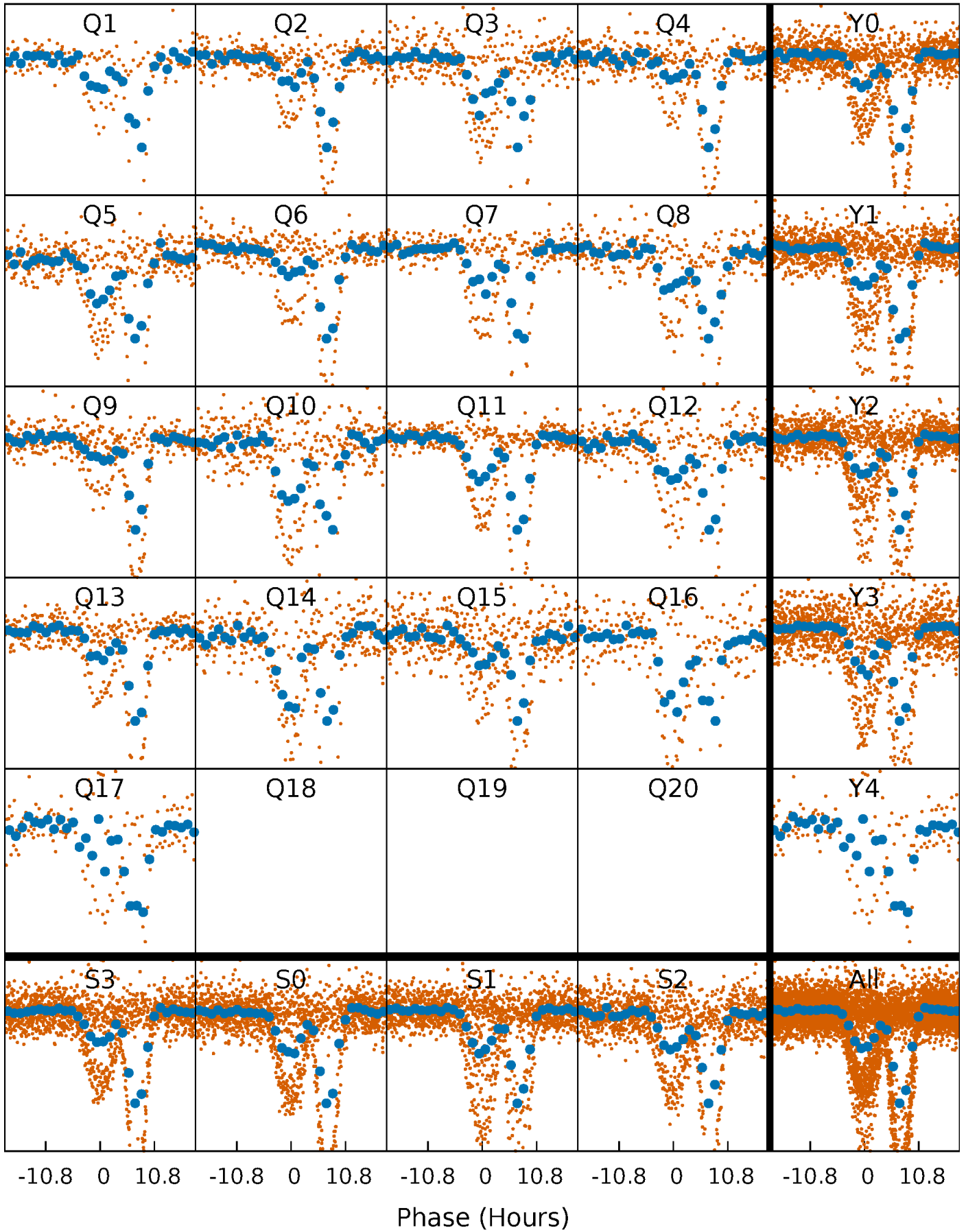


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



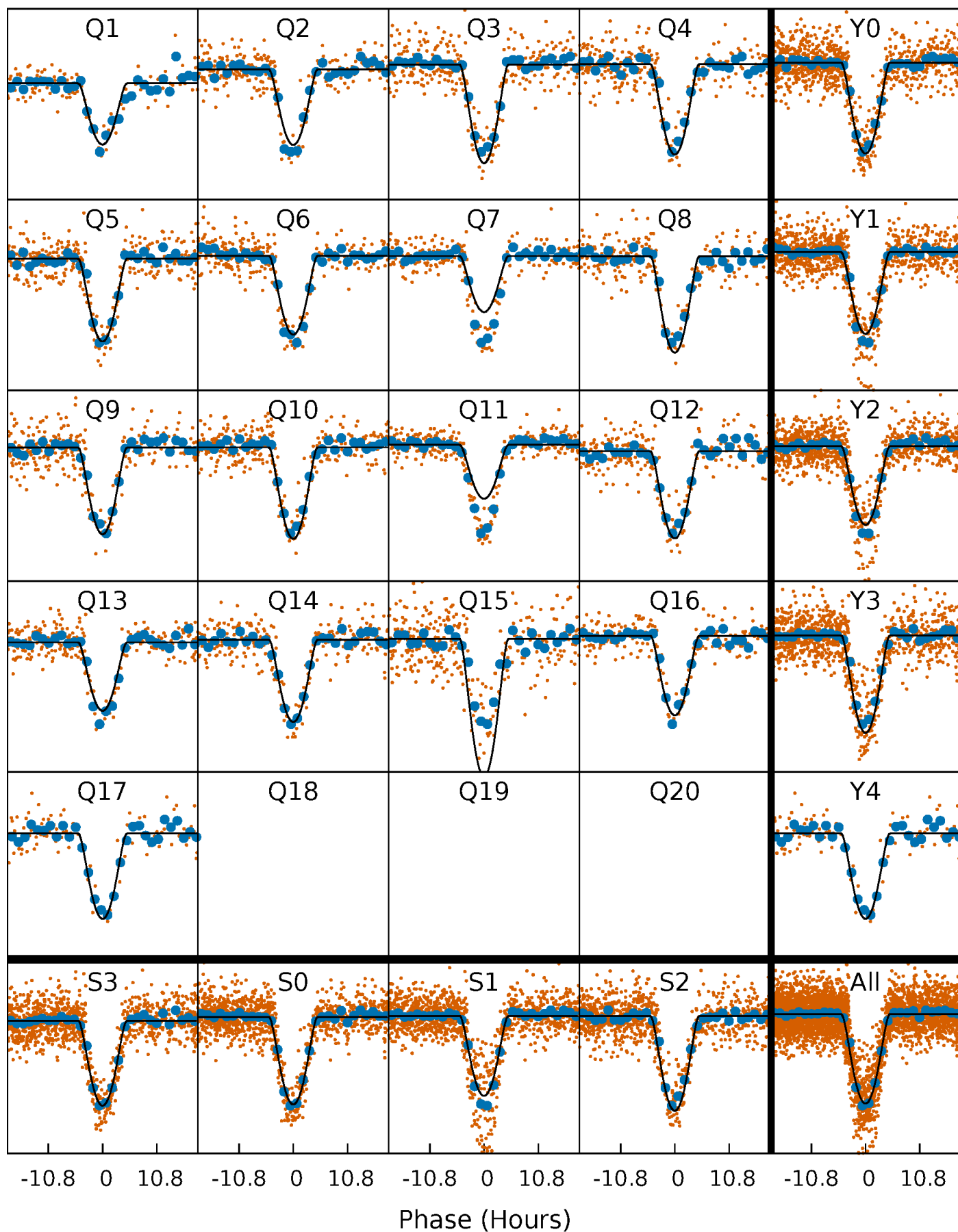
PDC Quarter-Phased Transit Curves

TCE 005303346-02 P= 18.662404 Days $T_0=142.735582$ (BKJD)



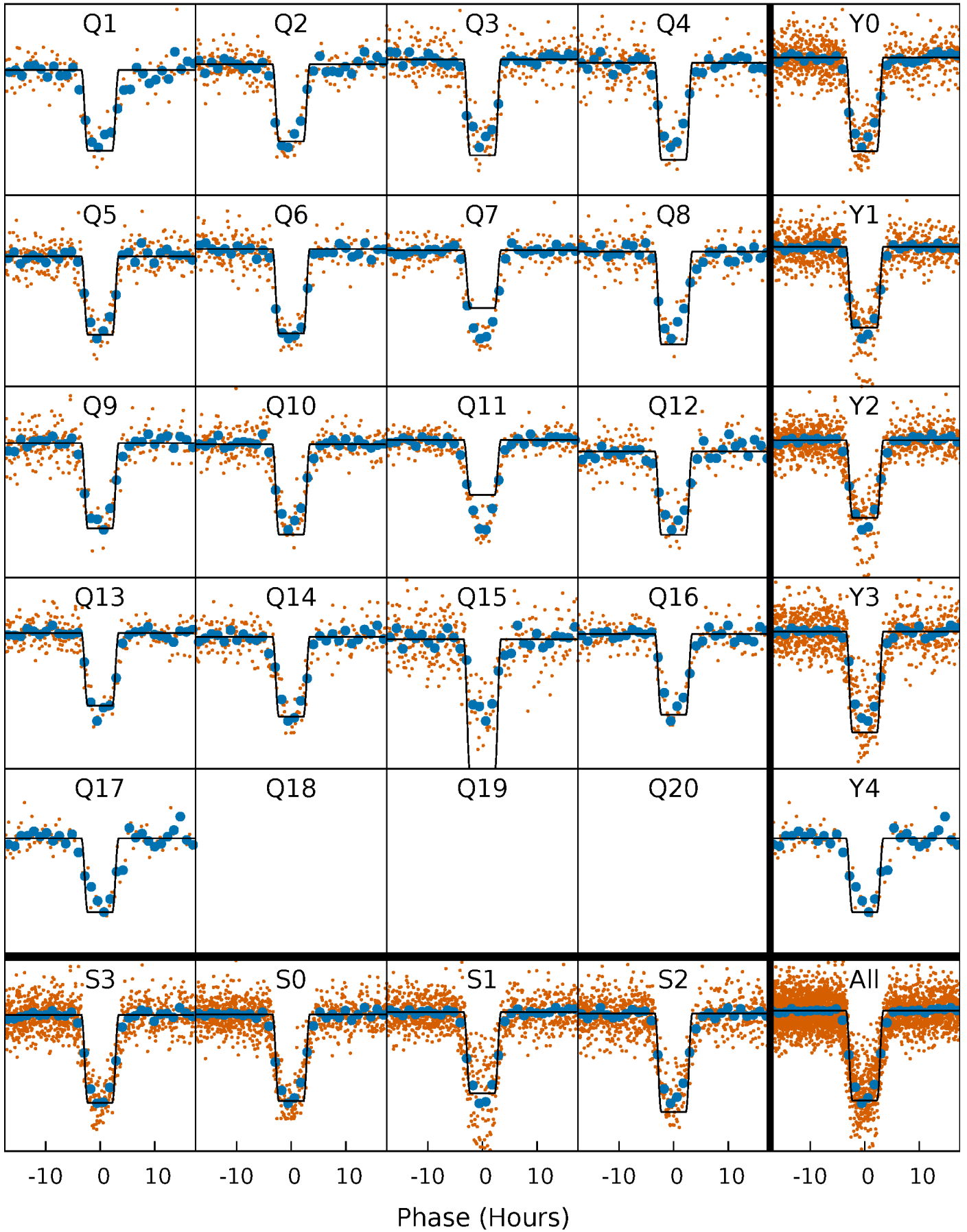
DV Quarter-Phased Transit Curves

TCE 005303346-02 P= 18.662404 Days $T_0=142.735582$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

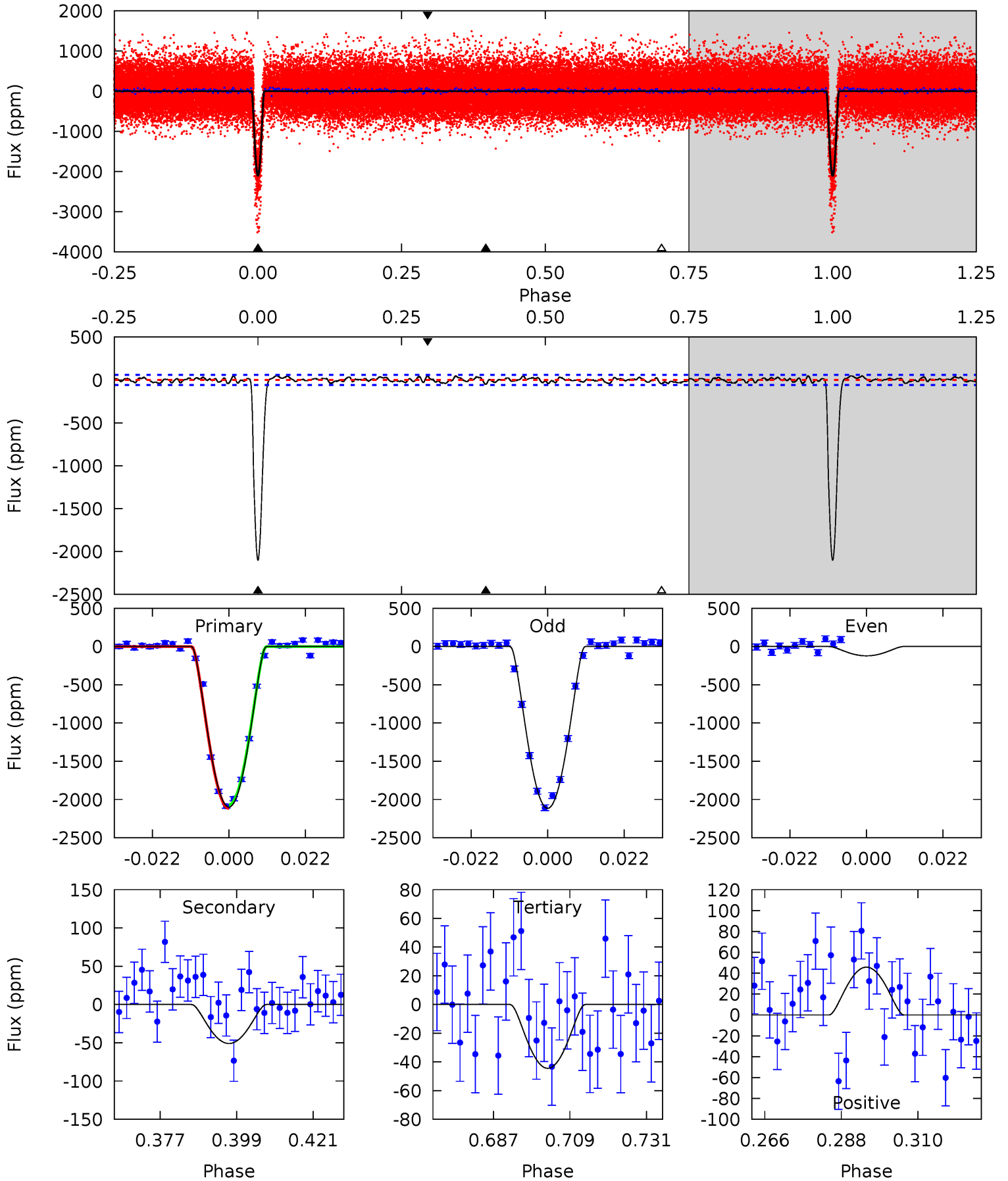
TCE 005303346-02 P= 18.662104 Days $T_0=142.749352$ (BKJD)



DV Model-Shift Uniqueness Test

005303346-02, P = 18.662404 Days, E = 124.073178 Days

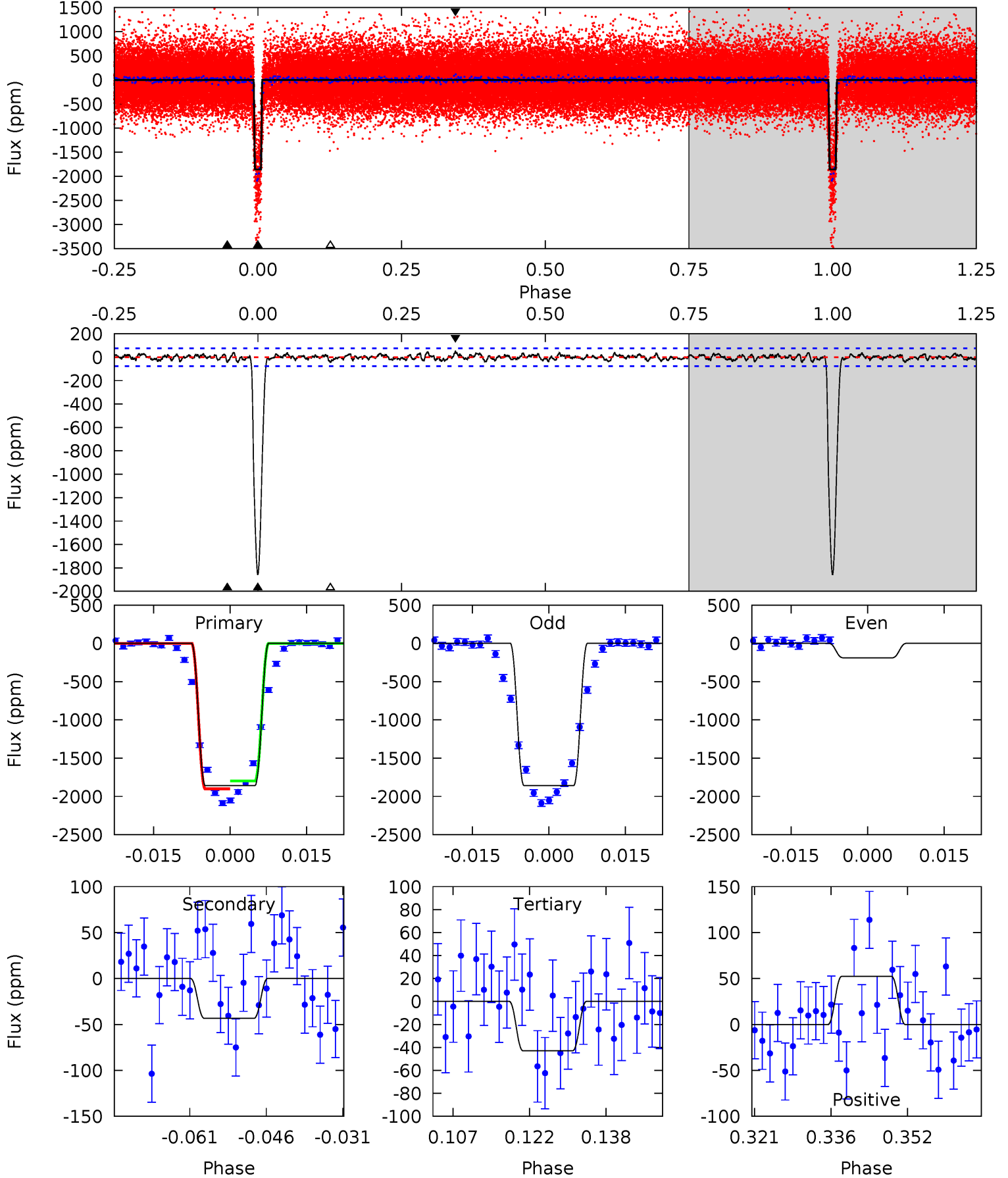
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
175.3	4.25	3.71	3.82	4.87	2.29	1.65	171.5	171.4	0.54	0.43	56.5	0.56	0.02	1.91



Alt Model-Shift Uniqueness Test

005303346-02, P = 18.662104 Days, E = 124.087248 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
120.7	2.82	2.79	3.40	4.94	2.43	1.05	117.9	117.3	0.03	-0.58	11.7	1.06	0.03	3.30



Stellar Parameters For KIC 005303346

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5306^{+175}_{-159}	$4.550^{+0.056}_{-0.098}$	$-0.160^{+0.300}_{-0.300}$	$0.790^{+0.122}_{-0.071}$	$0.810^{+0.094}_{-0.071}$	$2.309^{+0.591}_{-0.666}$
	+3%/-3%	+1%/-2%	+188%/-188%	+15%/-9%	+12%/-9%	+26%/-29%
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 005303346-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-51 ± 12	$5.93^{+1.40}_{-1.45}$	818^{+36}_{-36}	2540^{+206}_{-153}	13^{+11}_{-5}
Alt.	-43 ± 15	$3.99^{+1.32}_{-1.44}$	820^{+42}_{-36}	2760^{+381}_{-250}	25^{+37}_{-13}

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

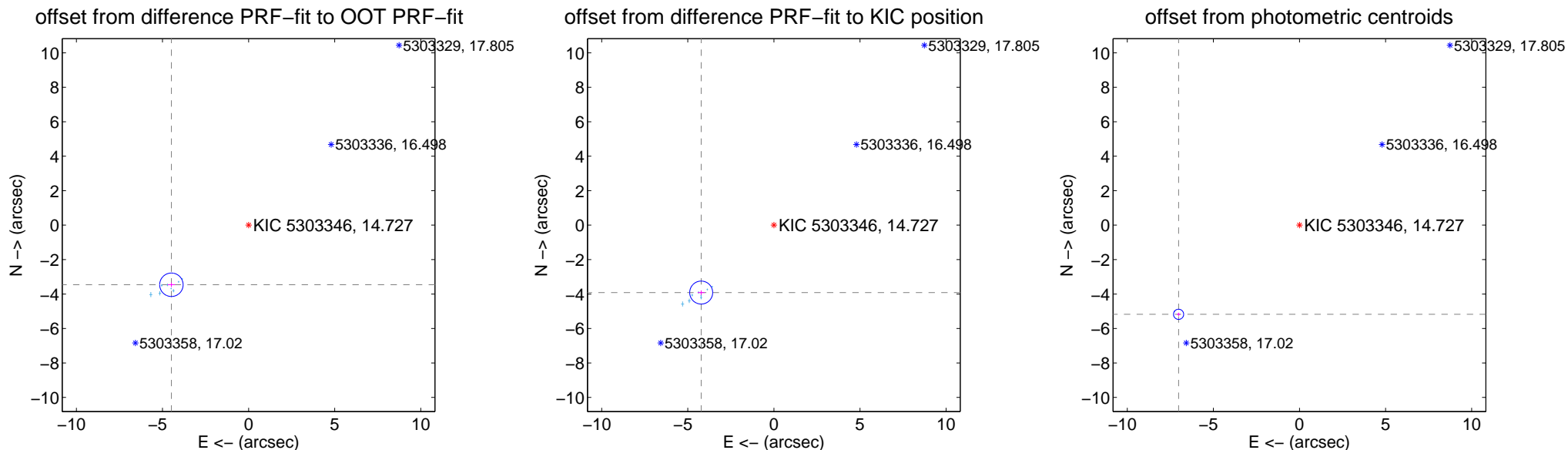
DV Centroid Data

Supplemental centroid analysis for 005303346-02. Kepler magnitude: 14.73. Transit SNR 89.89

There are 8 quarters with good PRF difference image offsets

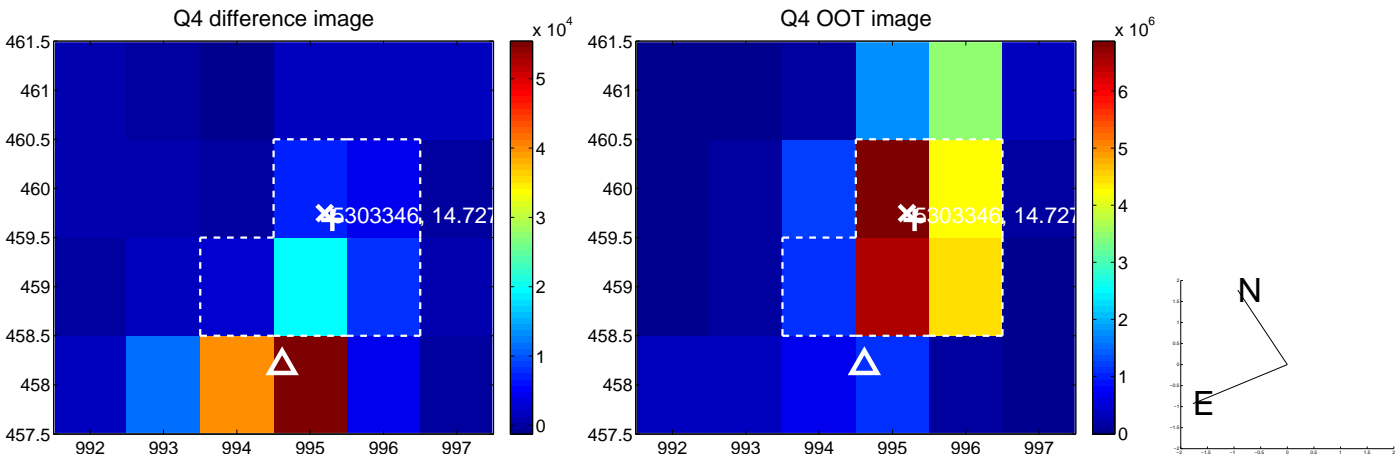
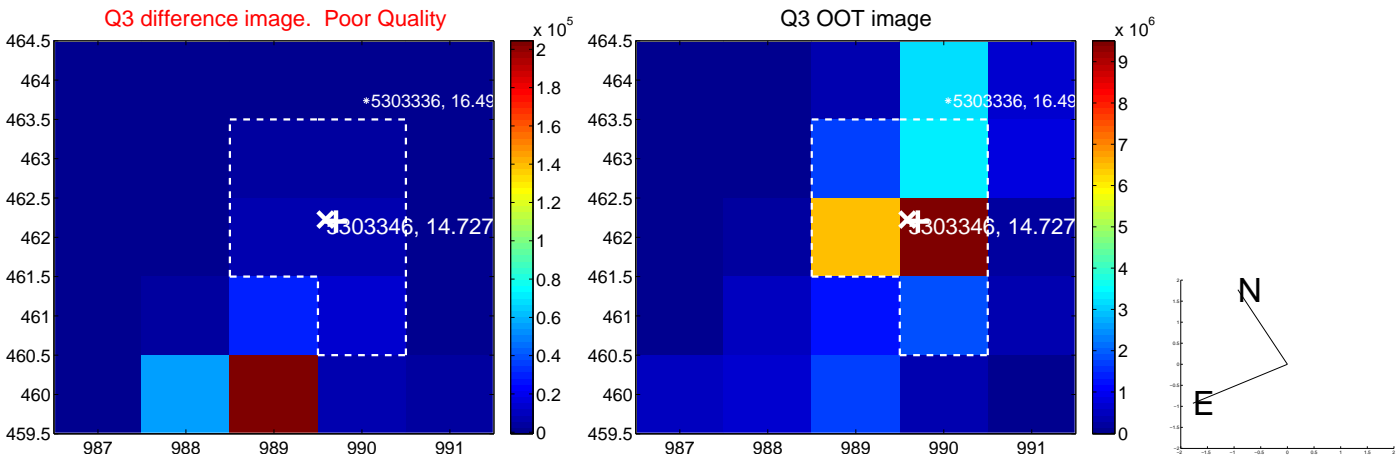
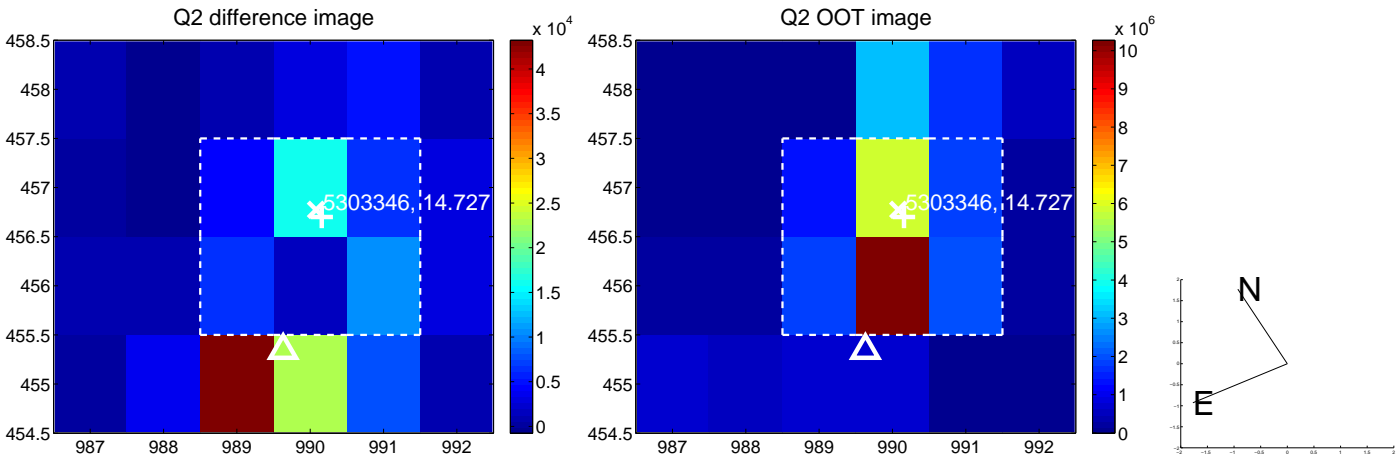
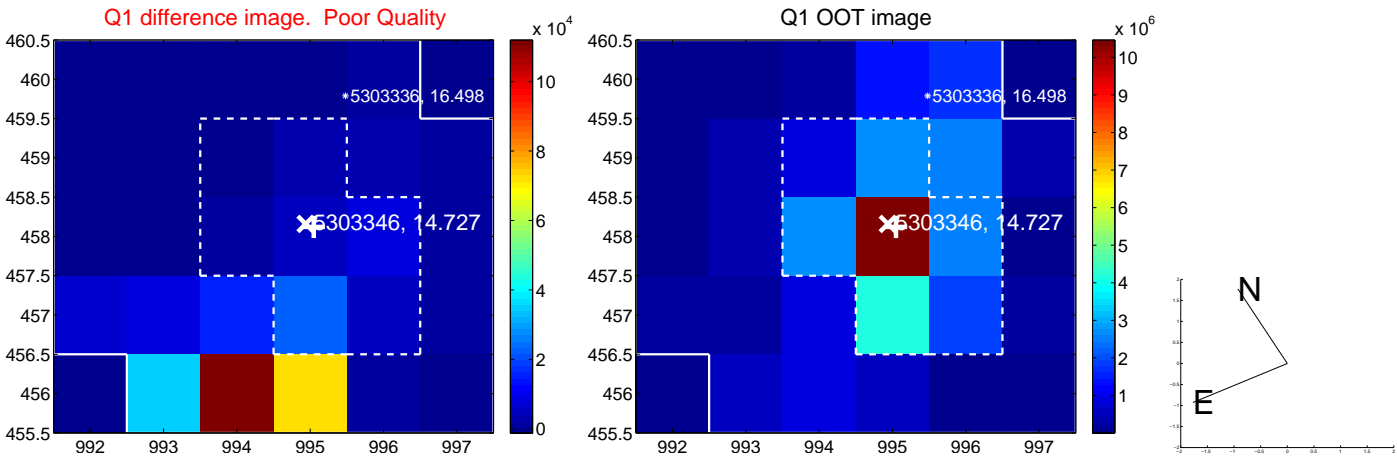
The direct PRF centroid is offset from the target star catalog position by about 0.66 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.663 ± 0.227	24.95	4.483 ± 0.213	-3.461 ± 0.129
PRF-fit source offset from KIC position	5.757 ± 0.222	25.89	4.222 ± 0.205	-3.914 ± 0.128
photometric centroid source offset	8.72 ± 0.10	88.60	7.02 ± 0.10	-5.18 ± 0.09

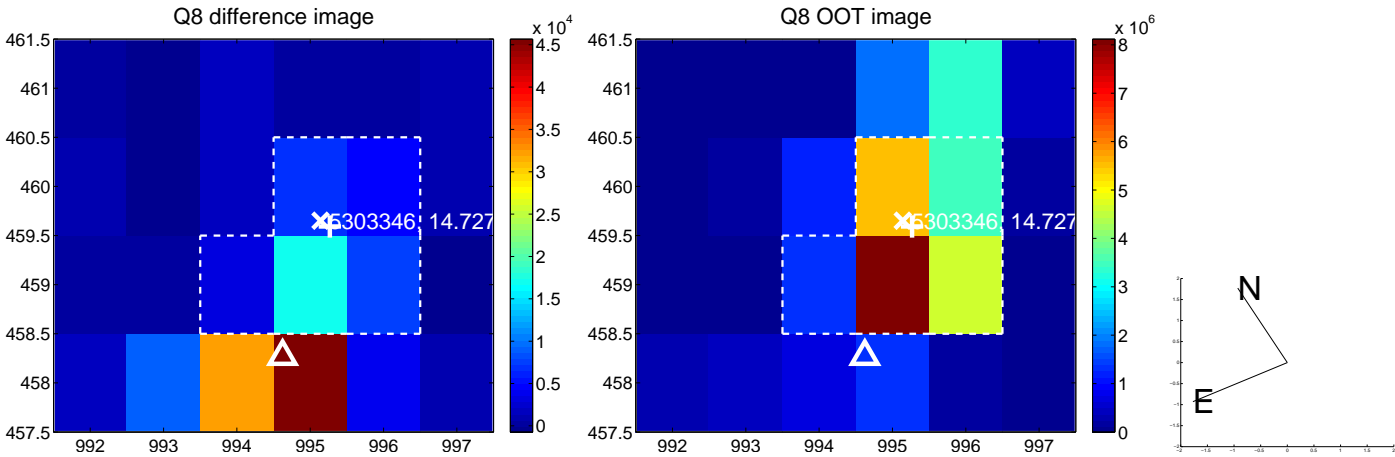
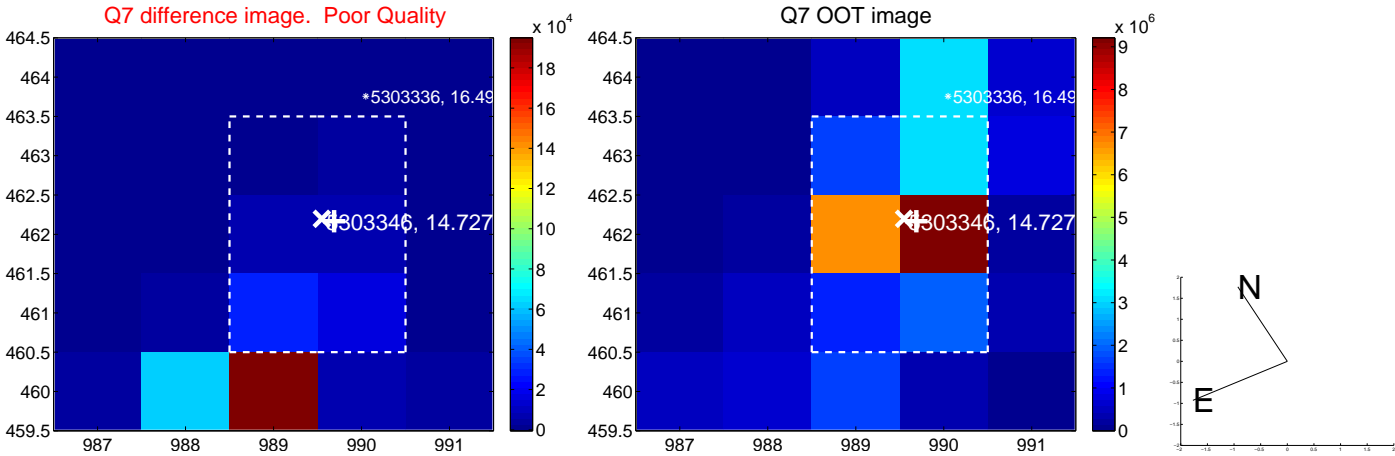
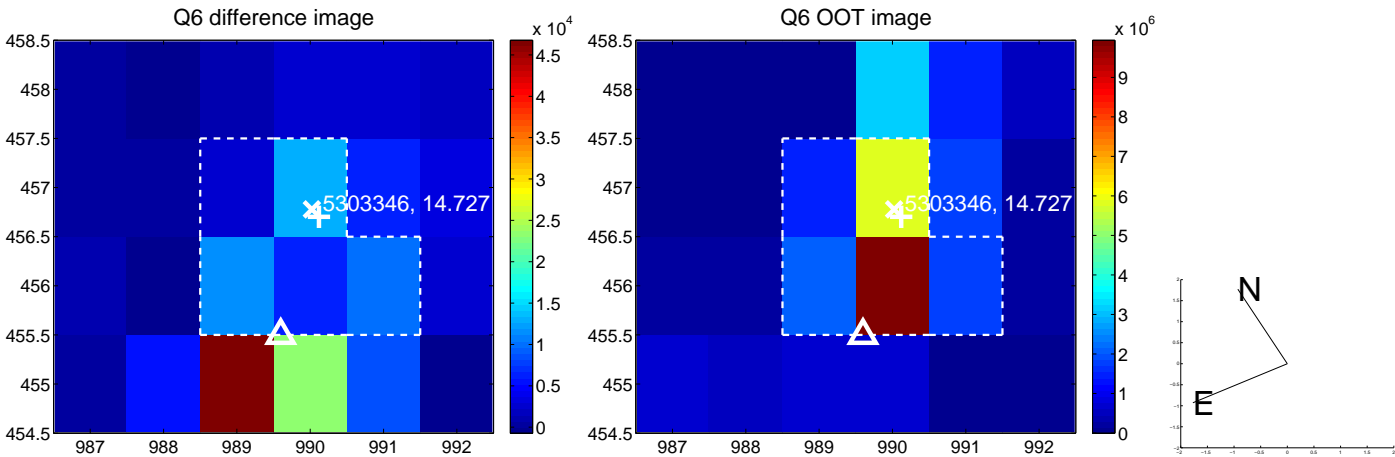
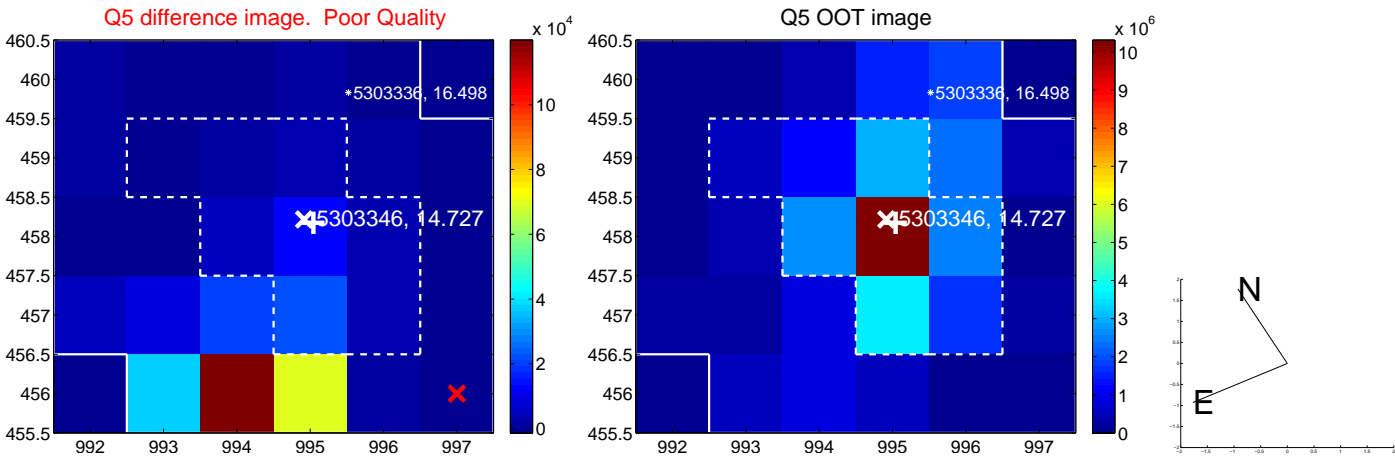


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

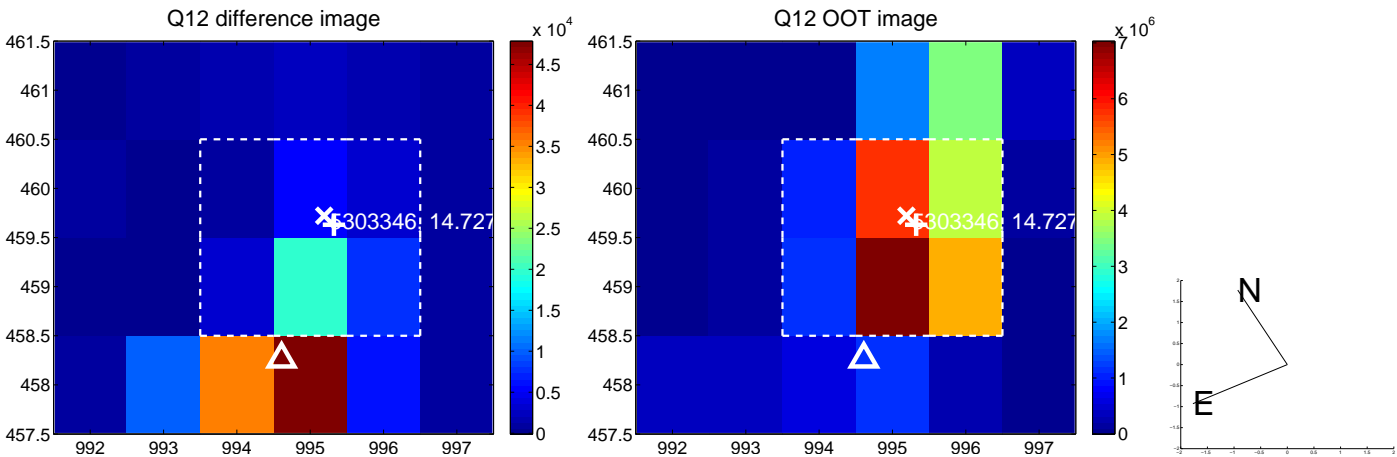
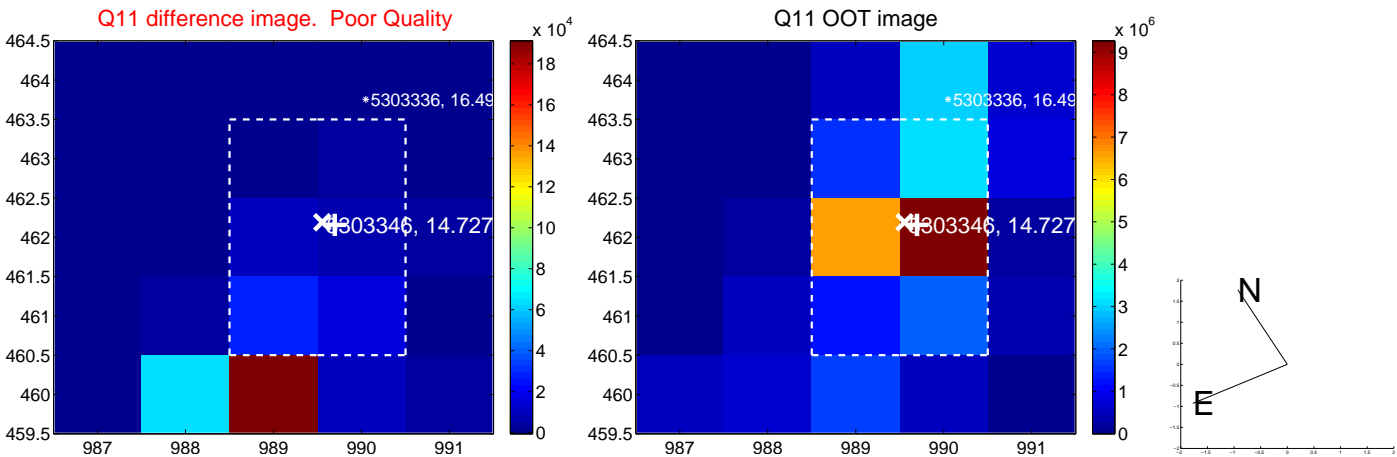
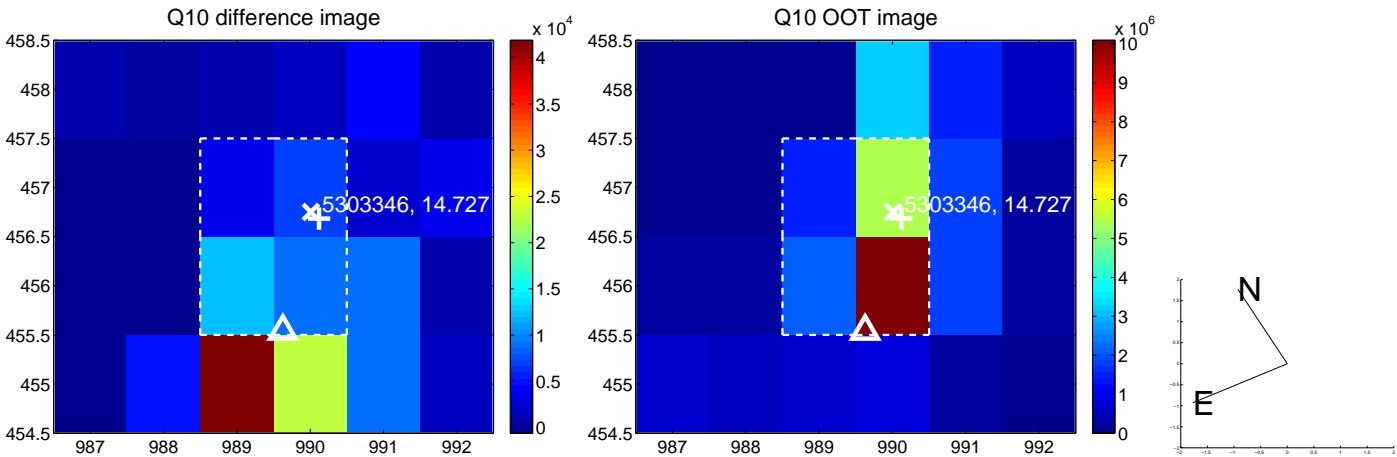
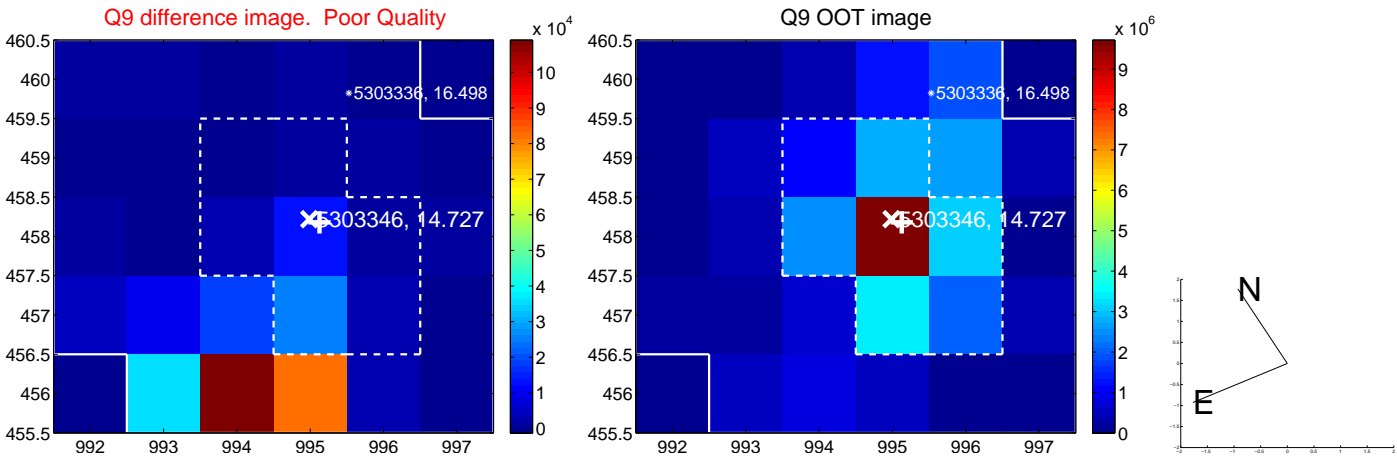
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



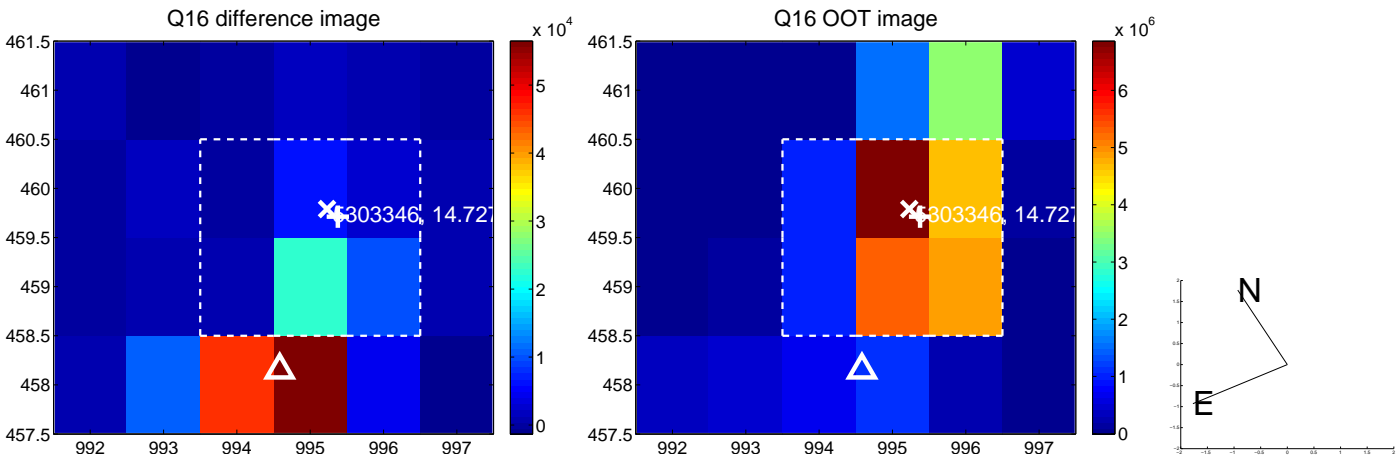
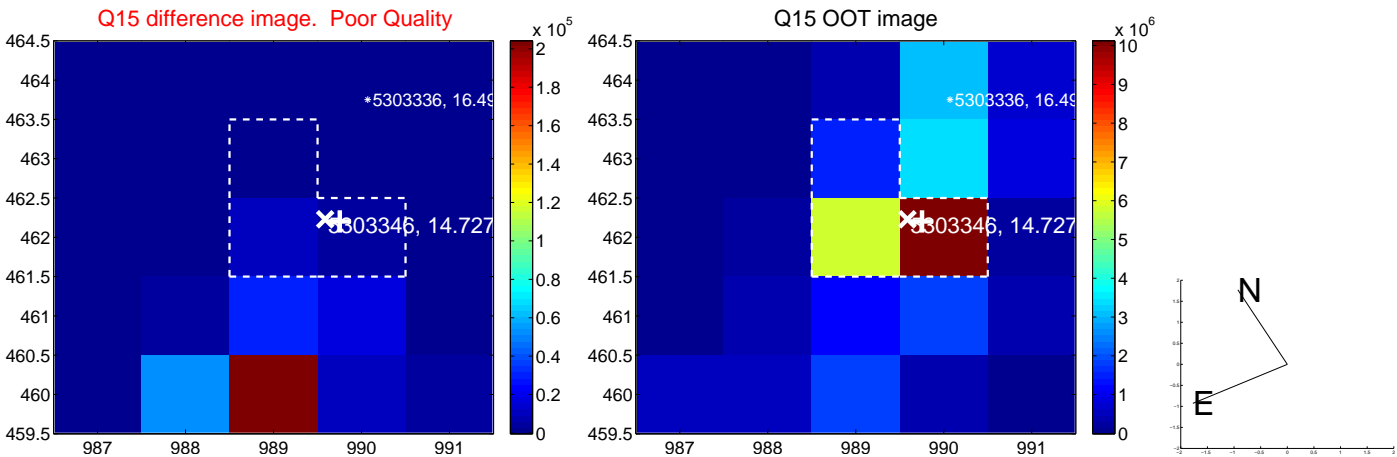
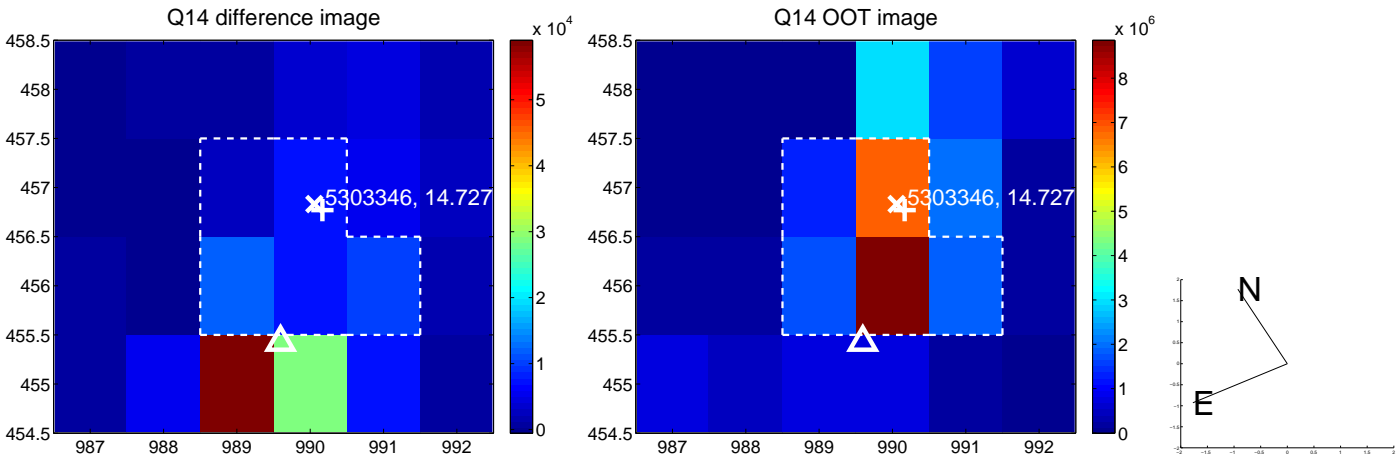
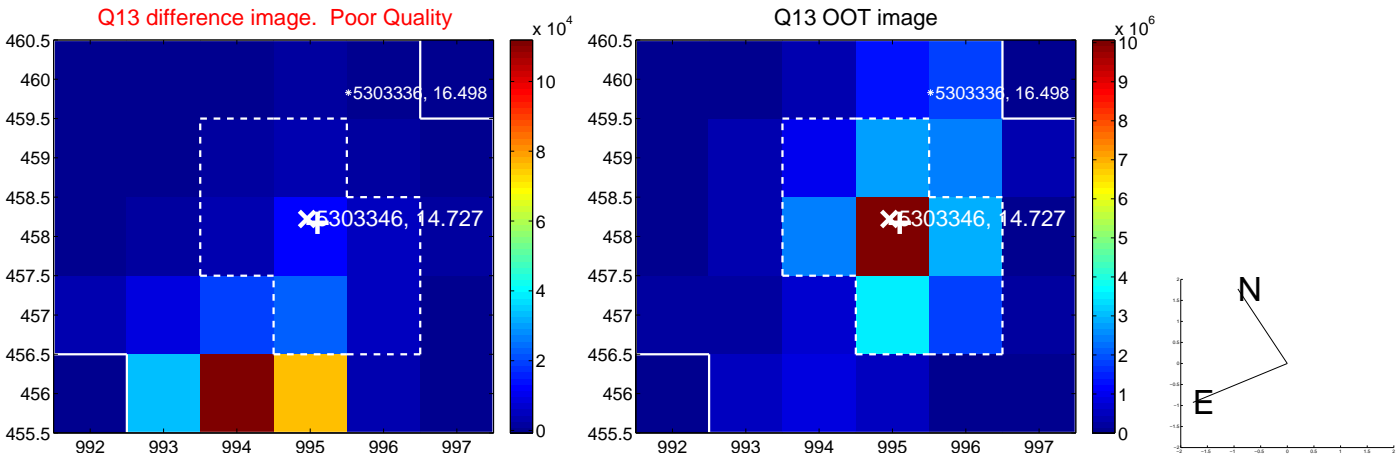
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



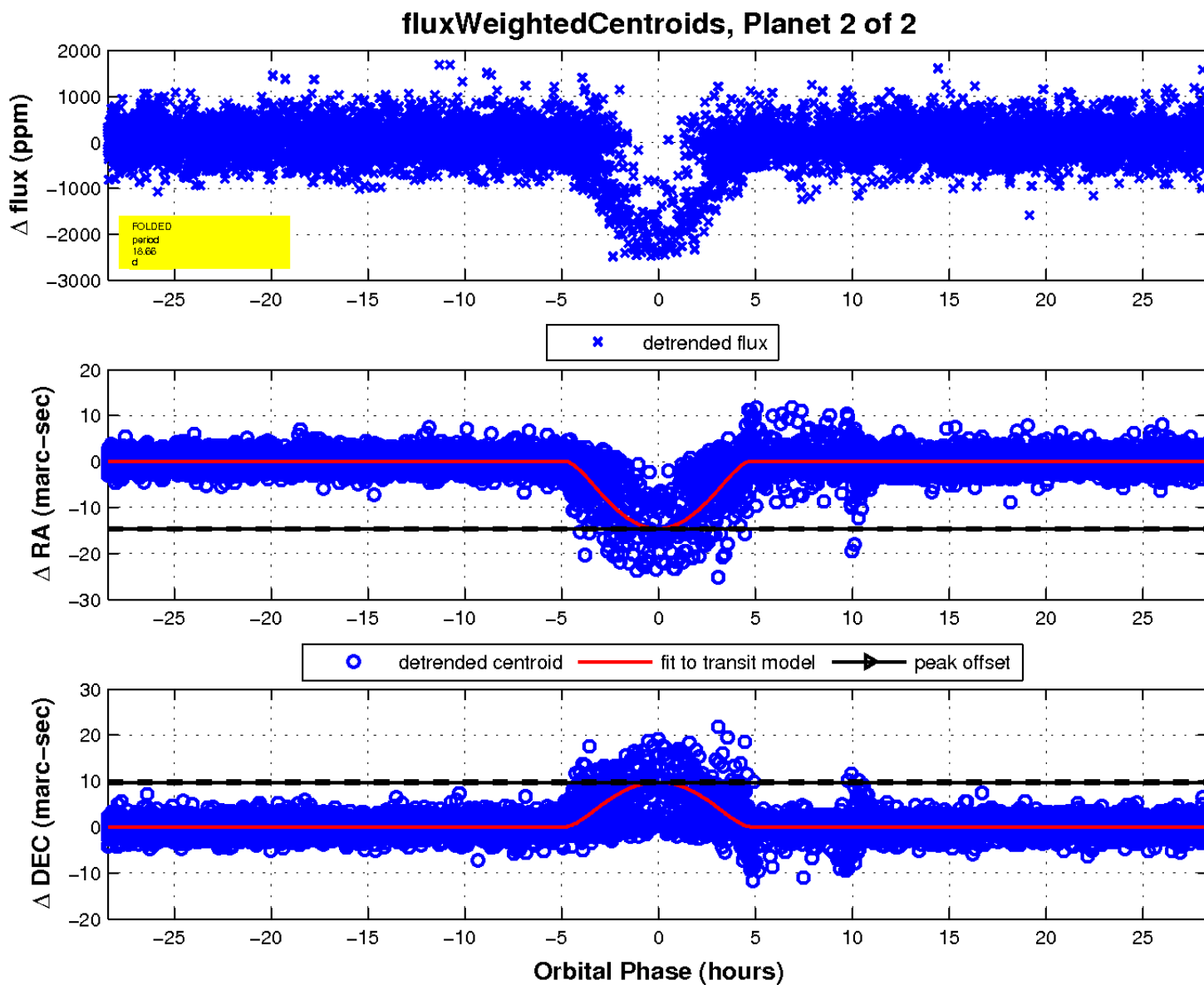
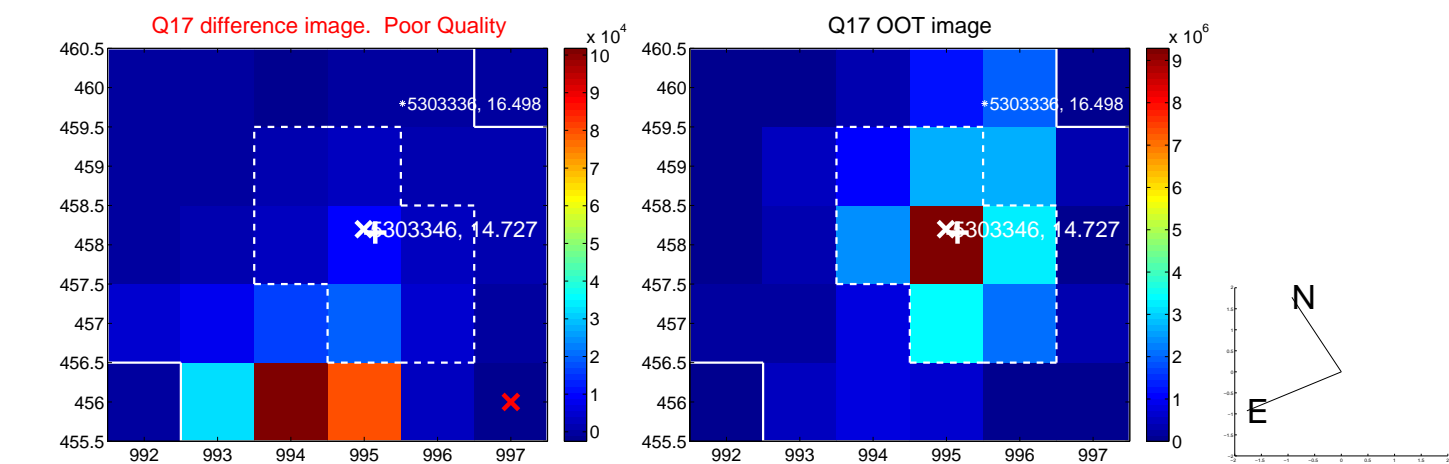
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

