

KIC 012306699

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})
012306699-01	OBS	3858.01	3.204232	133.819704	855.7	2.681	39.1	44.6	0.74	5139	3.81	217.43
012306699-02	OBS	No	3.204230	132.215260	207.2	2.098	10.3	12.2	0.74	5139	1.30	217.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012306699-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
012306699-02	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 012306699-01

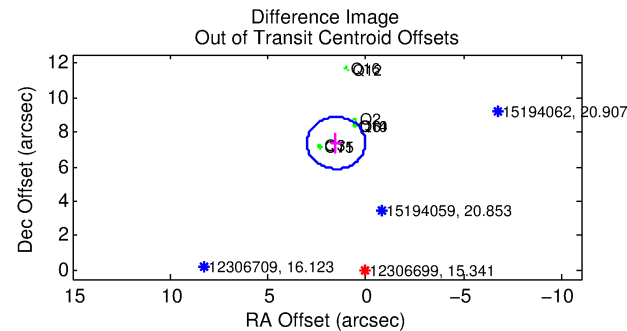
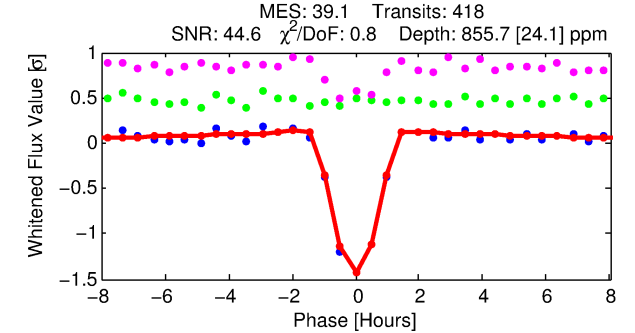
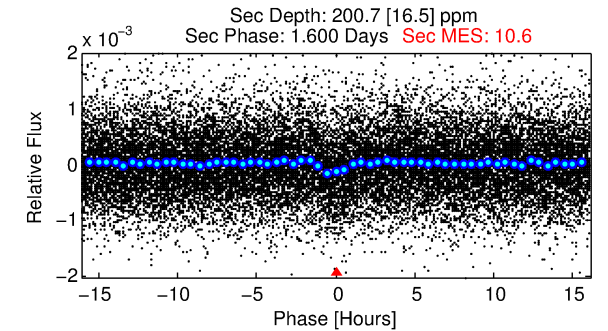
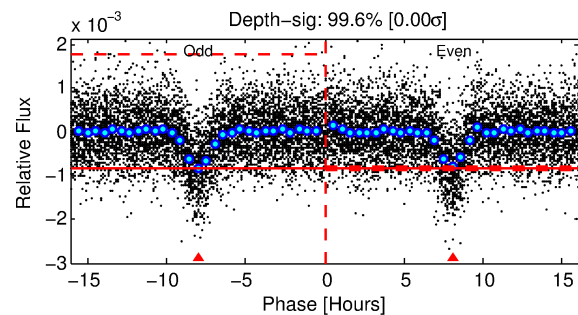
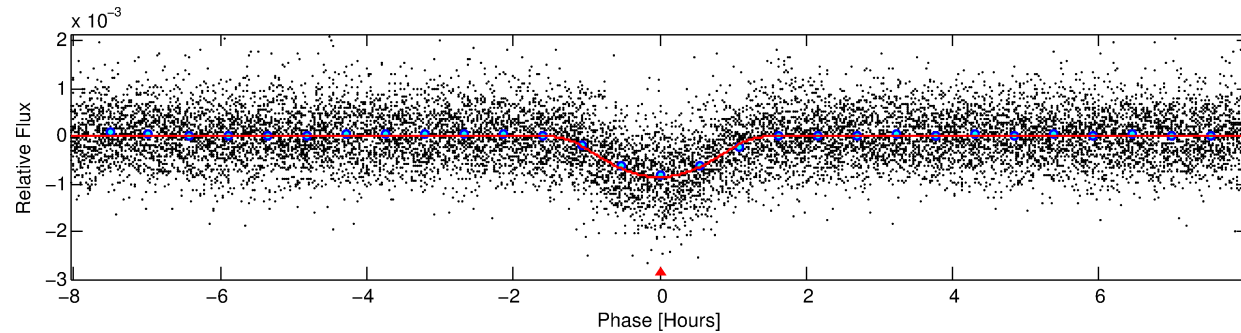
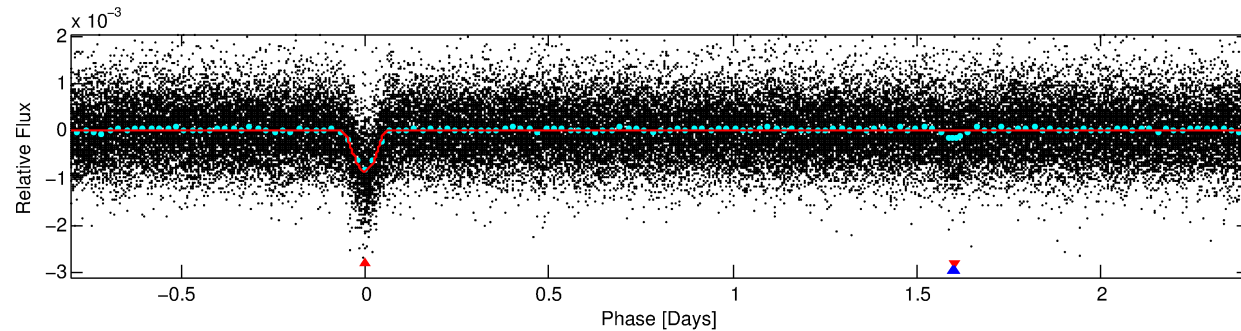
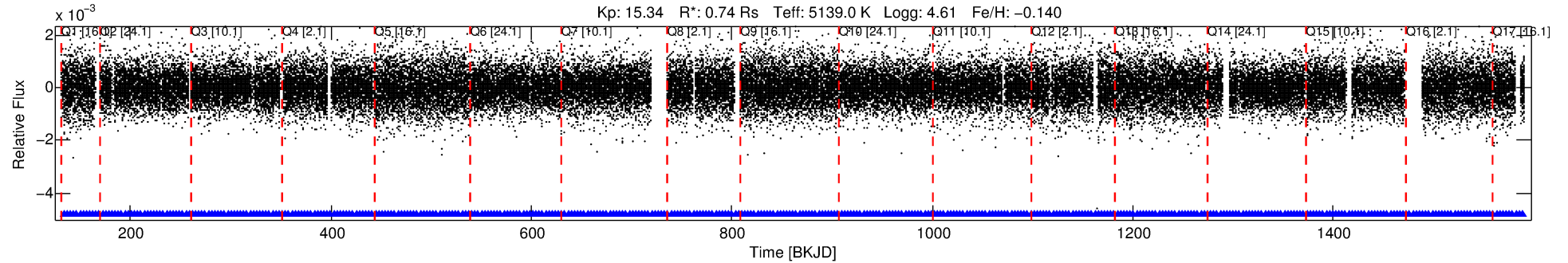
No Significant Match Found

DV One-Page Summary

KIC: 12306699 Candidate: 1 of 2 Period: 3.204 d

KOI: K03858.01 Corr: 0.984

Kp: 15.34 R*: 0.74 Rs Teff: 5139.0 K Logg: 4.61 Fe/H: -0.140



DV Fit Results:

Period = 3.20423 [0.00001] d
Epoch = 133.8197 [0.0010] BKJD
Rp/R* = 0.0471 [0.0275]
a/R* = 3.32 [0.53]
b = 0.99 [0.05]
Seff = 217.43 [41.03]
Teq = 979 [46] K
Rp = 3.81 [2.28] Re
a = 0.0397 [0.0042] AU
Ag = 12.00 [14.14] [0.78σ]
Teff = 2818 [828] K [2.22σ]

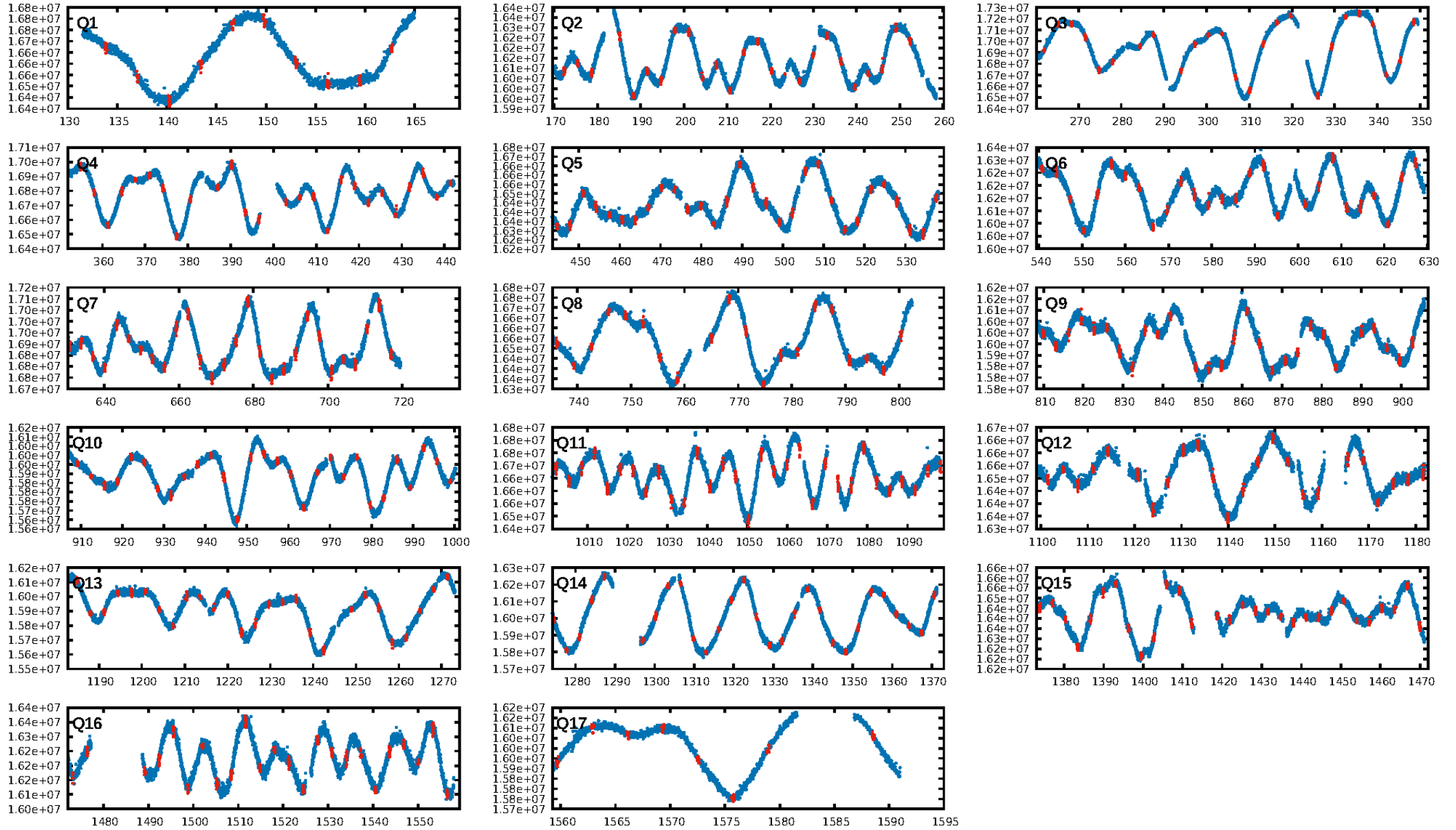
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [400/400]
GhostDiagnostic-chr: -0.1196
Centroid-sig: 0.0%
Centroid-so: 17.549 arcsec [73.10σ]
OotOffset-rm: 7.529 arcsec [15.10σ]
KicOffset-rm: 7.793 arcsec [17.65σ]
OotOffset-st: 4/4/2/0 [10]
KicOffset-st: 4/4/2/0 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 1.00 [17/17]

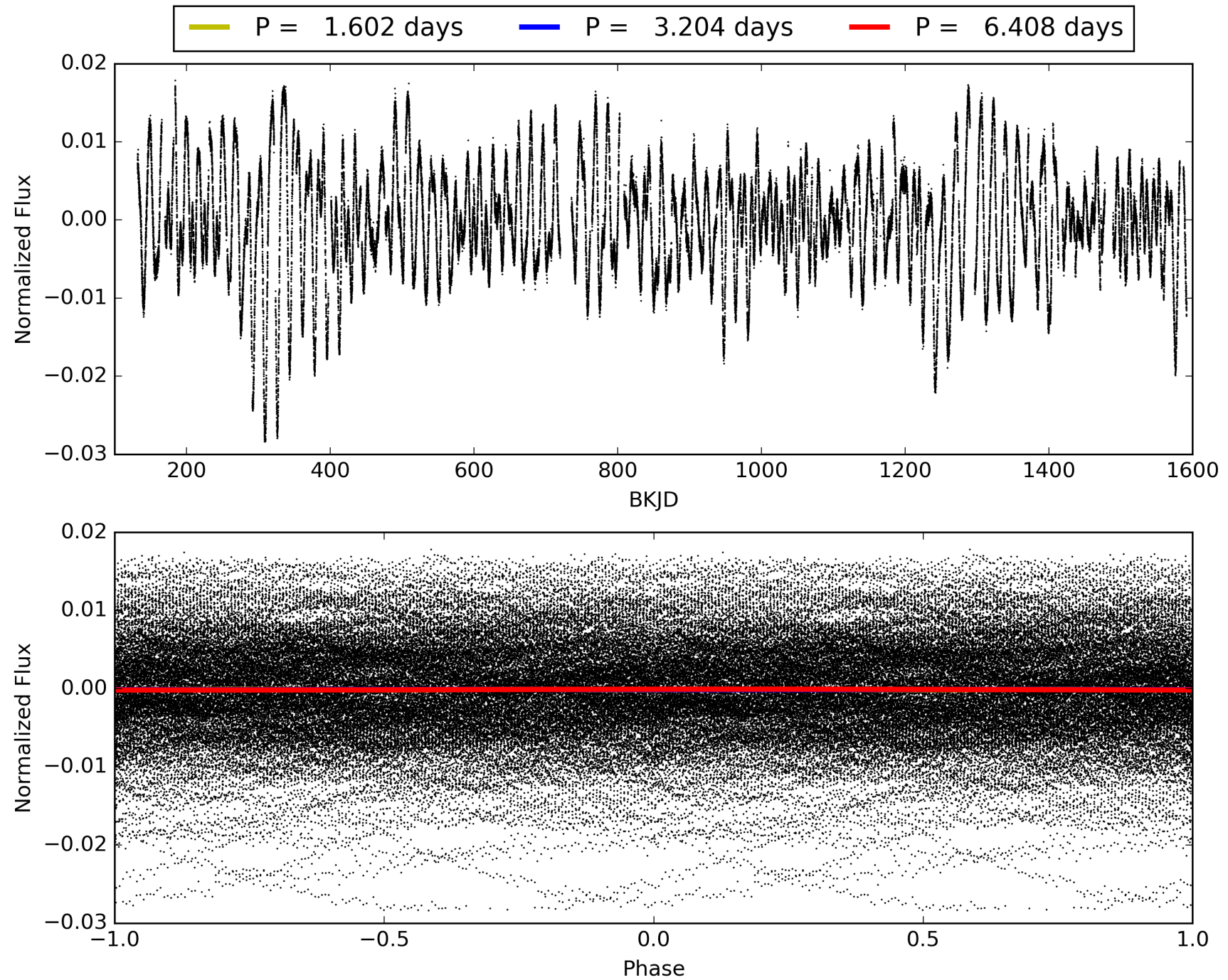
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 07:41:50 Z

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

TCE 012306699-01, PDC Light Curves

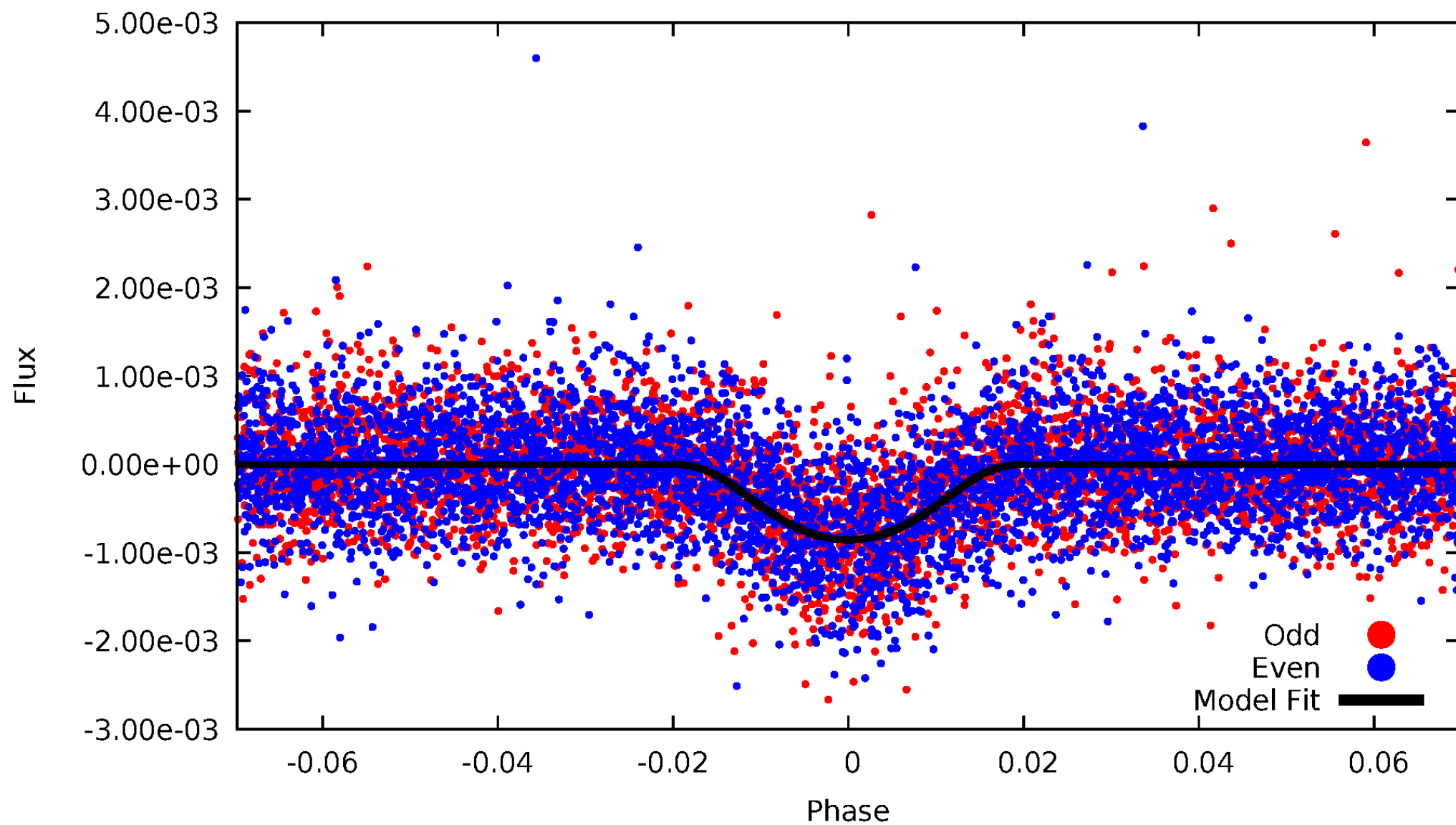


TCE 012306699-01



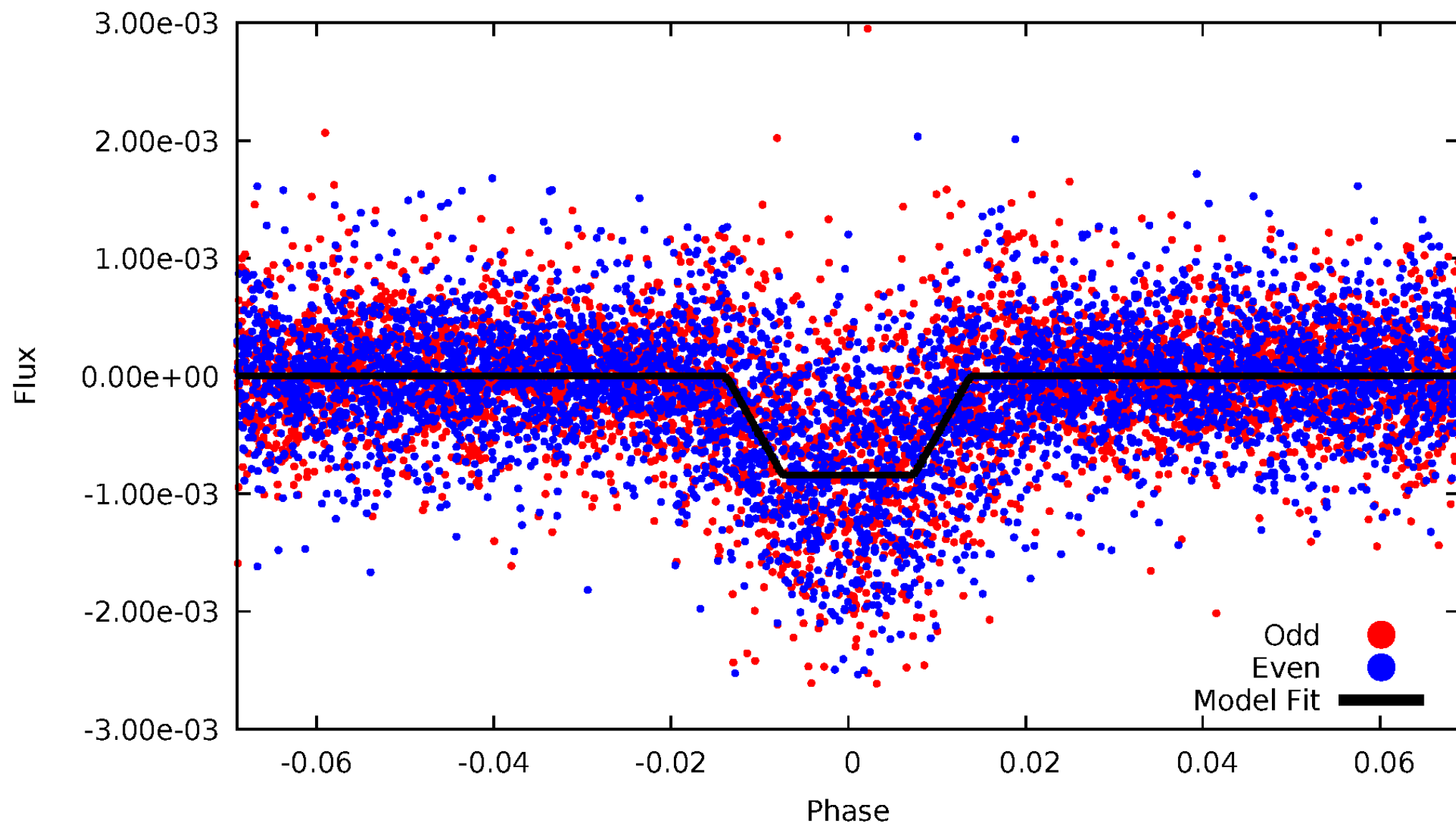
DV Odd/Even

TCE 012306699-01



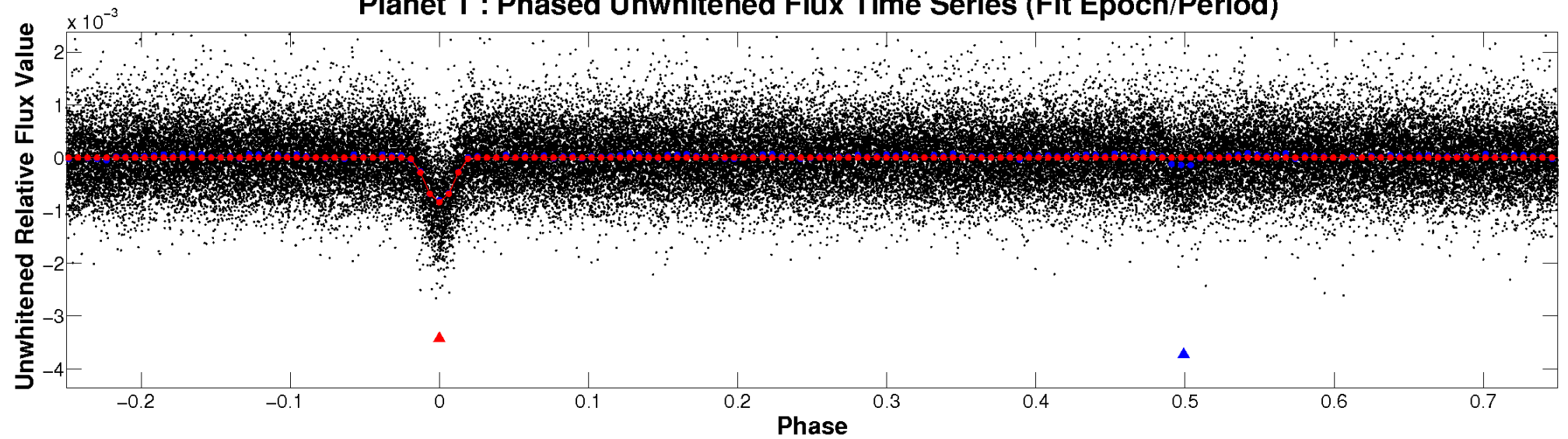
ALT Odd/Even

TCE 012306699-01

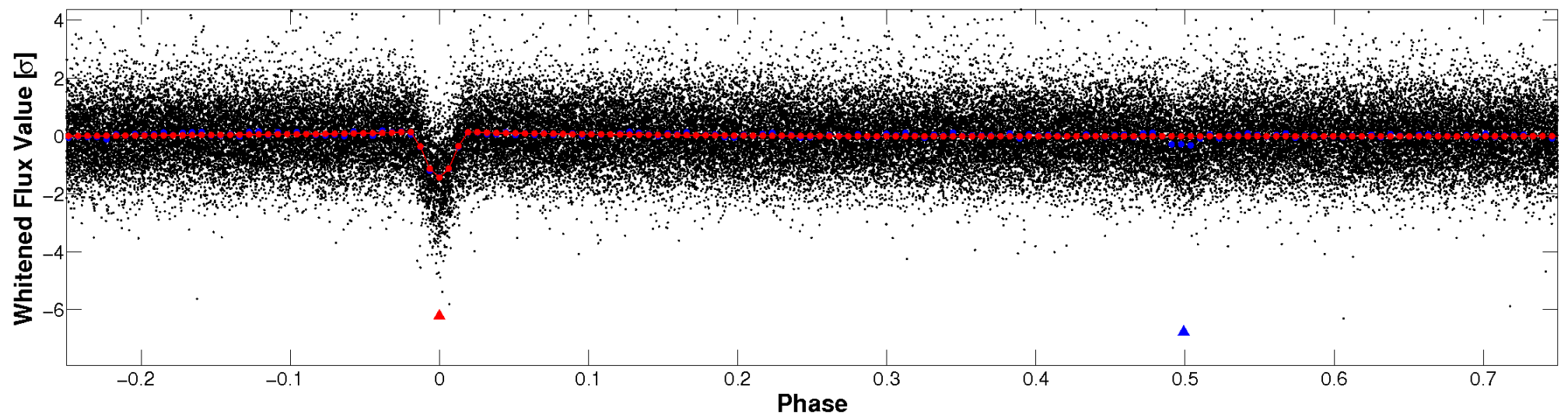


Non-Whitened Vs. Whitened Light Curve

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

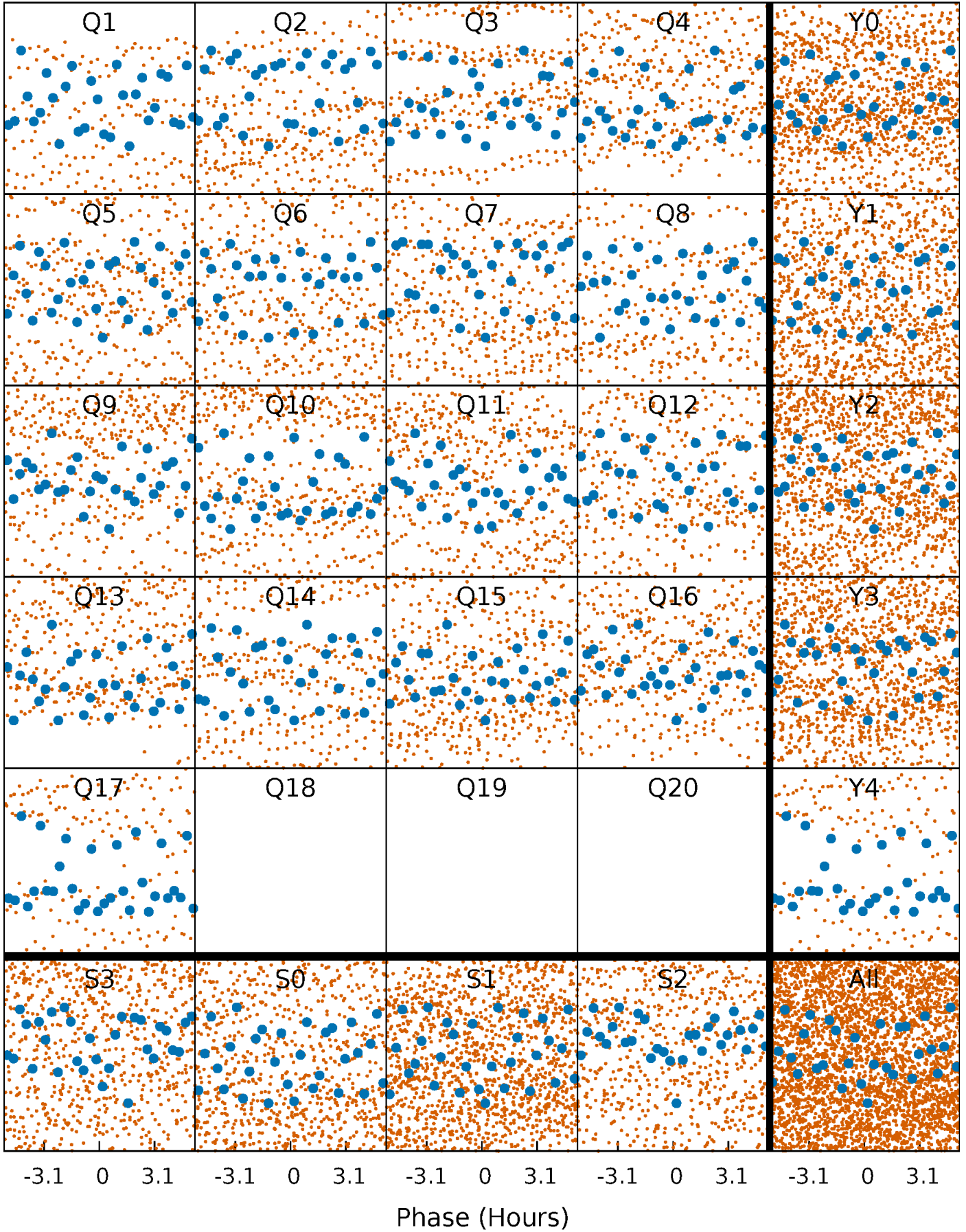


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



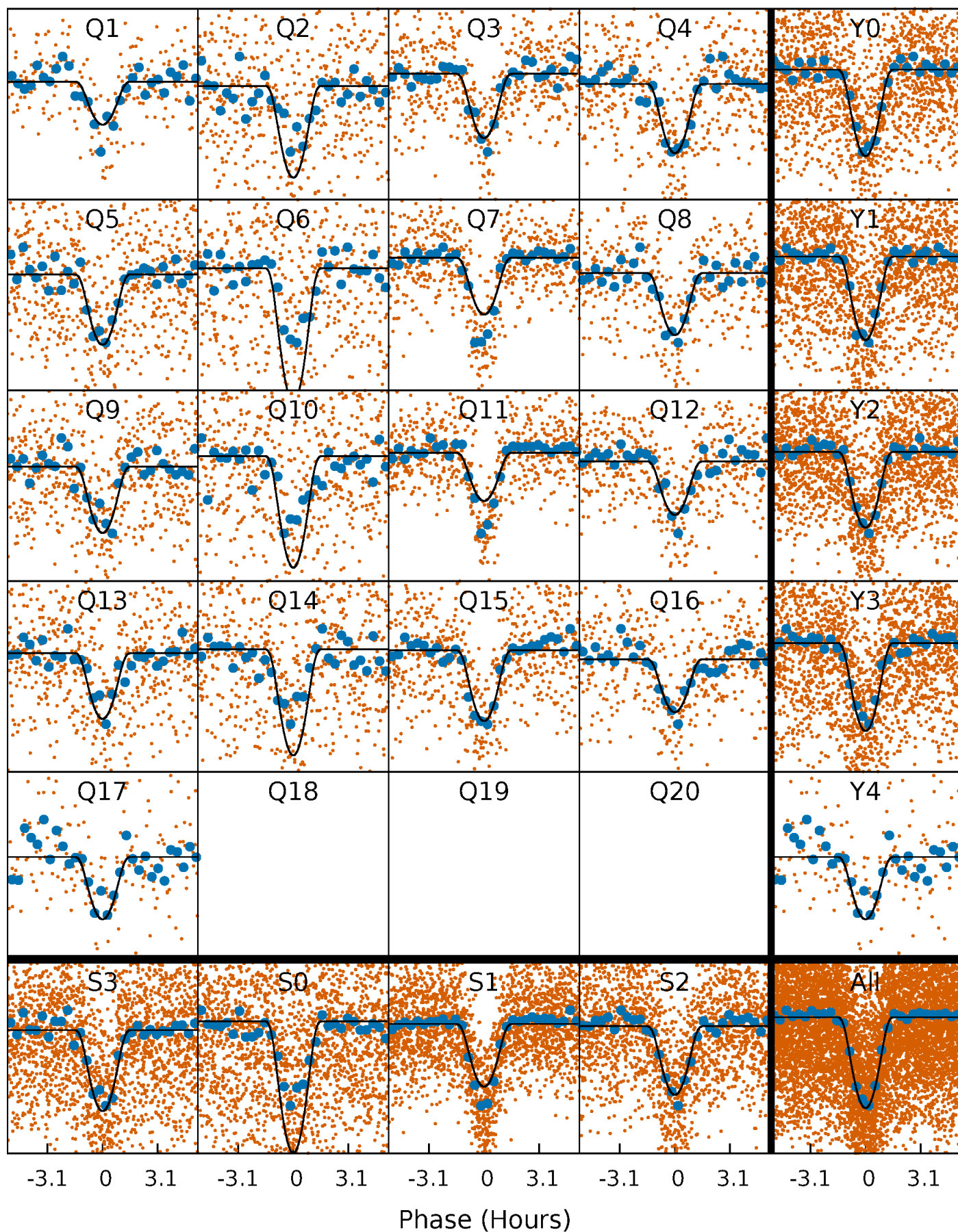
PDC Quarter-Phased Transit Curves

TCE 012306699-01 P= 3.204232 Days $T_0=133.819704$ (BKJD)



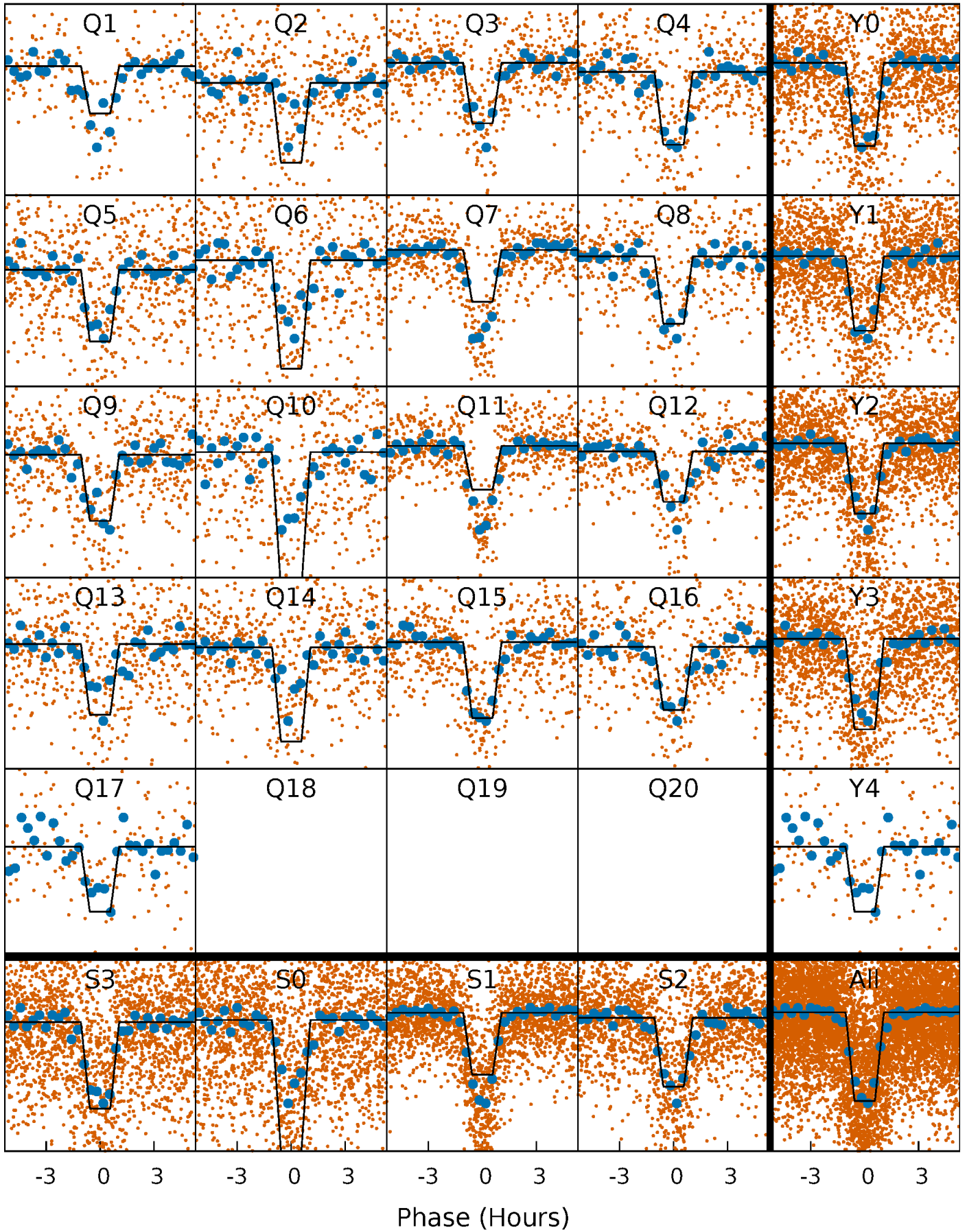
DV Quarter-Phased Transit Curves

TCE 012306699-01 P= 3.204232 Days $T_0=133.819704$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

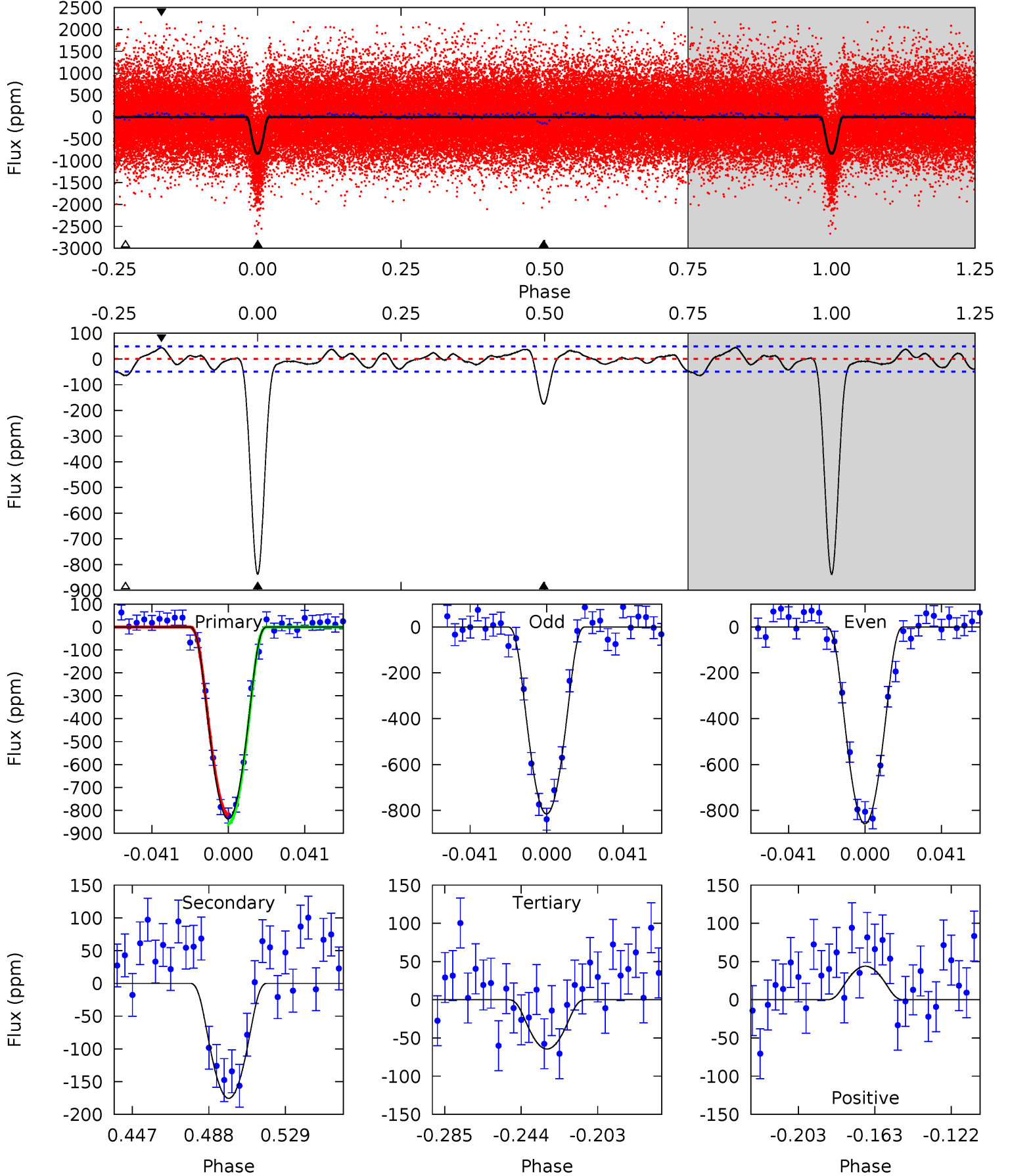
TCE 012306699-01 P= 3.204226 Days $T_0=133.821205$ (BKJD)



DV Model-Shift Uniqueness Test

012306699-01, P = 3.204232 Days, E = 130.615472 Days

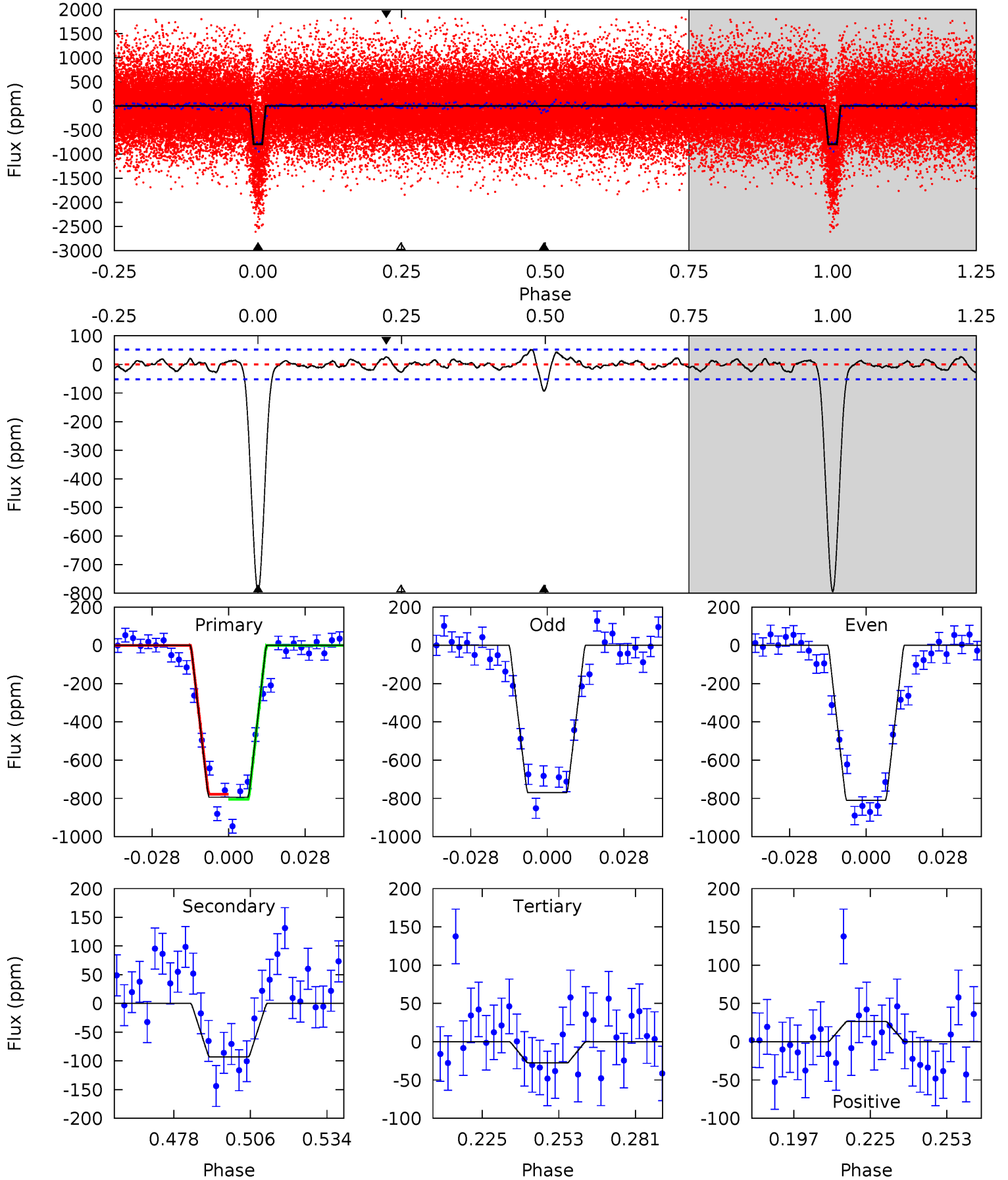
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
80.5	16.9	6.20	4.22	4.75	2.05	2.01	74.3	76.3	10.7	12.7	2.05	1.00	0.05	2.00



Alt Model-Shift Uniqueness Test

012306699-01, P = 3.204226 Days, E = 130.616979 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.4	8.61	2.57	2.44	4.82	2.20	1.10	70.9	71.0	6.04	6.17	1.88	1.04	0.06	0



Stellar Parameters For KIC 012306699

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5139^{+153}_{-138}	$4.609^{+0.033}_{-0.077}$	$-0.140^{+0.300}_{-0.300}$	$0.741^{+0.096}_{-0.059}$	$0.825^{+0.065}_{-0.098}$	$2.862^{+0.503}_{-0.744}$
	+3%/-3%	+1%/-2%	+214%/-214%	+13%/-8%	+8%/-12%	+18%/-26%
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 012306699-01 / KOI 3858.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-176 ± 10	$3.97^{+2.28}_{-2.10}$	1381^{+52}_{-46}	3235^{+887}_{-406}	$9.723^{+33.637}_{-5.658}$
Alt.	-93 ± 11	$2.75^{+2.22}_{-1.75}$	1384^{+50}_{-50}	3274^{+1308}_{-533}	10^{+67}_{-7}

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

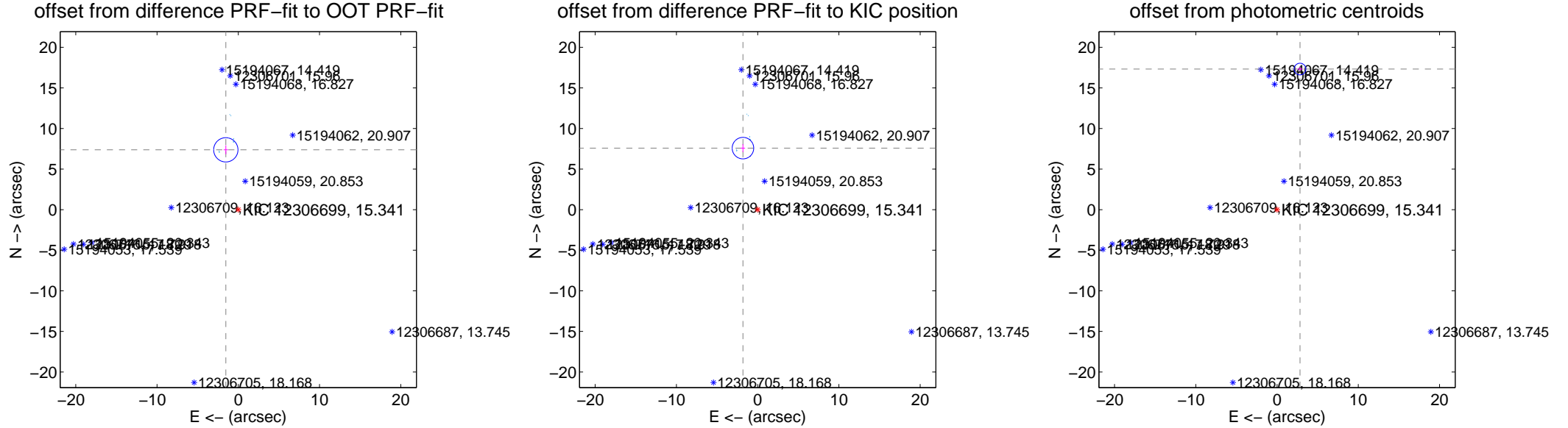
DV Centroid Data

Supplemental centroid analysis for 012306699-01. Kepler magnitude: 15.34. Transit SNR 44.64

There are 10 quarters with good PRF difference image offsets

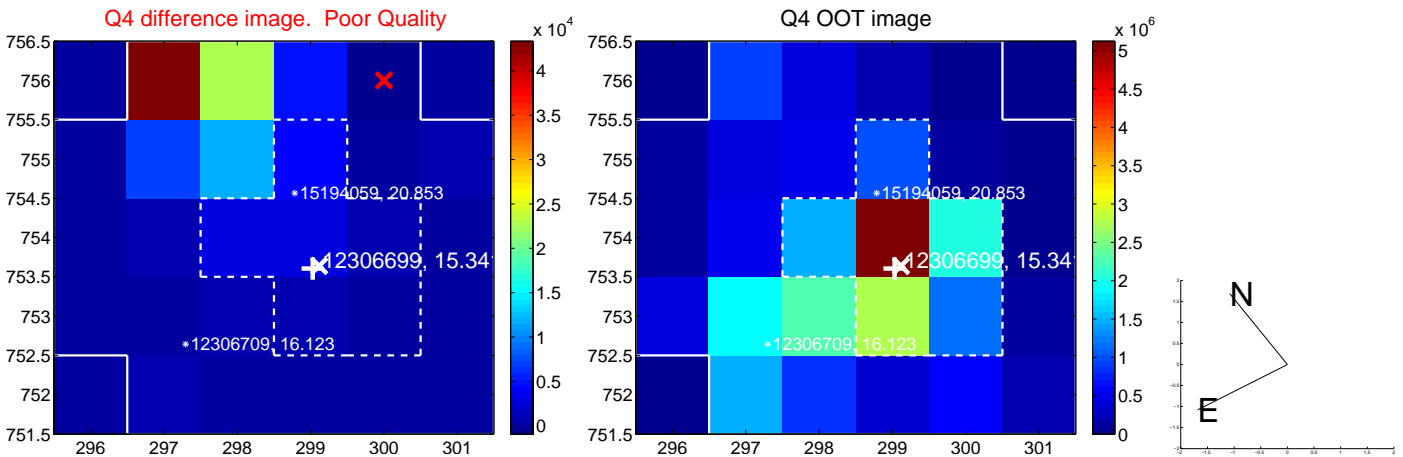
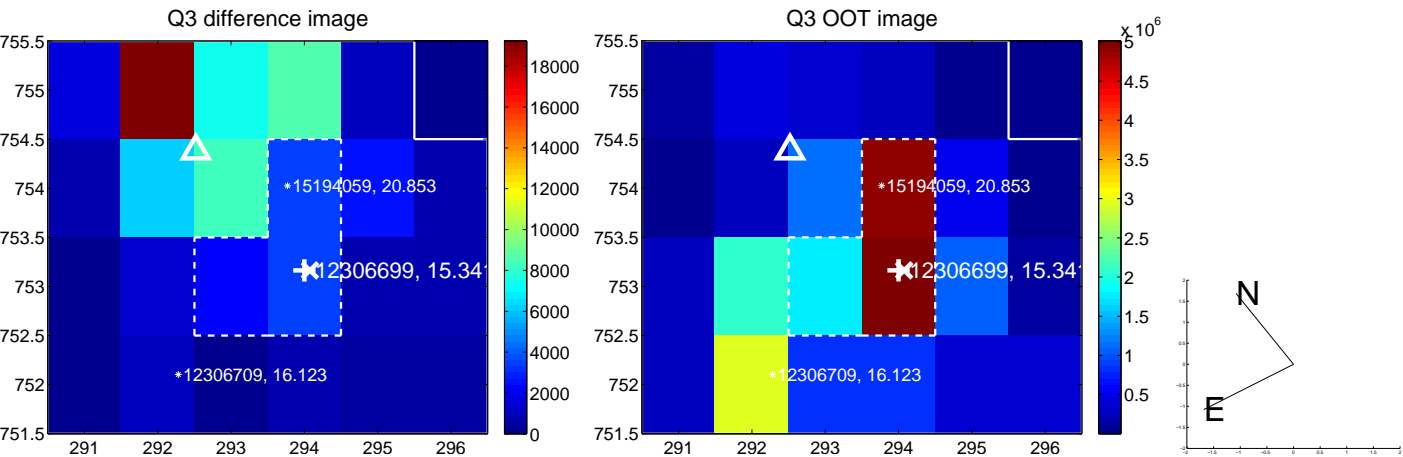
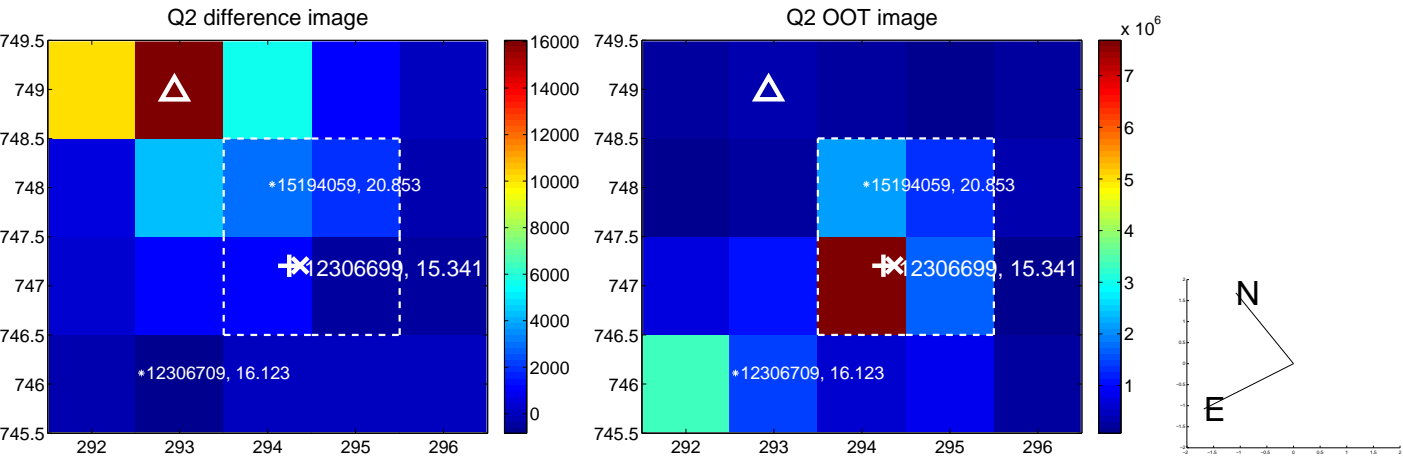
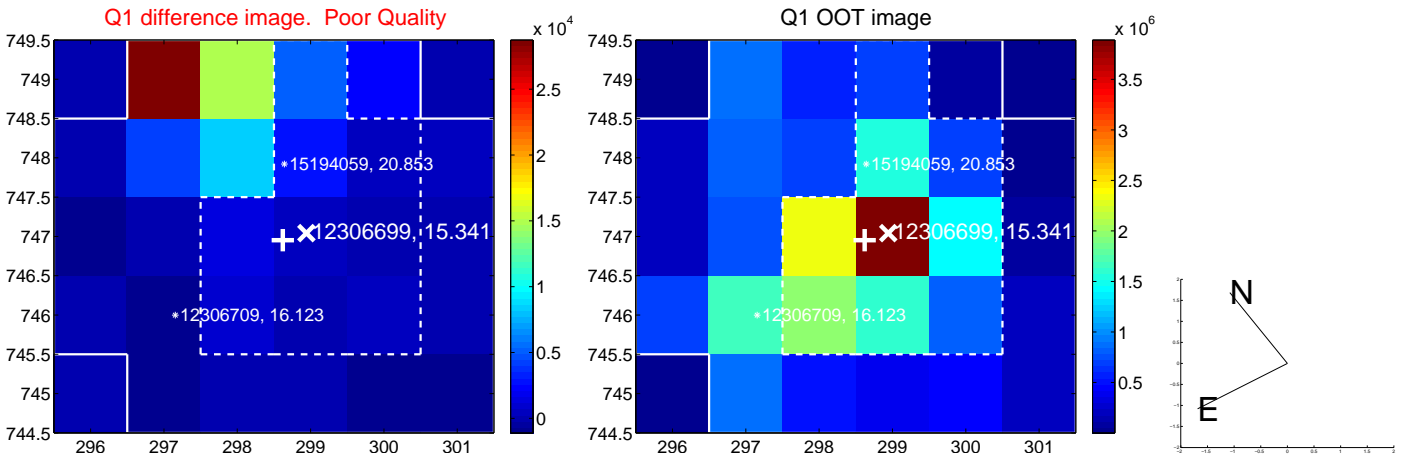
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.529 \pm 0.499	15.10	1.533 \pm 0.272	7.371 \pm 0.538
PRF-fit source offset from KIC position	7.793 \pm 0.442	17.65	1.810 \pm 0.262	7.580 \pm 0.491
photometric centroid source offset	17.55 \pm 0.24	73.10	-2.83 \pm 0.32	17.32 \pm 0.24

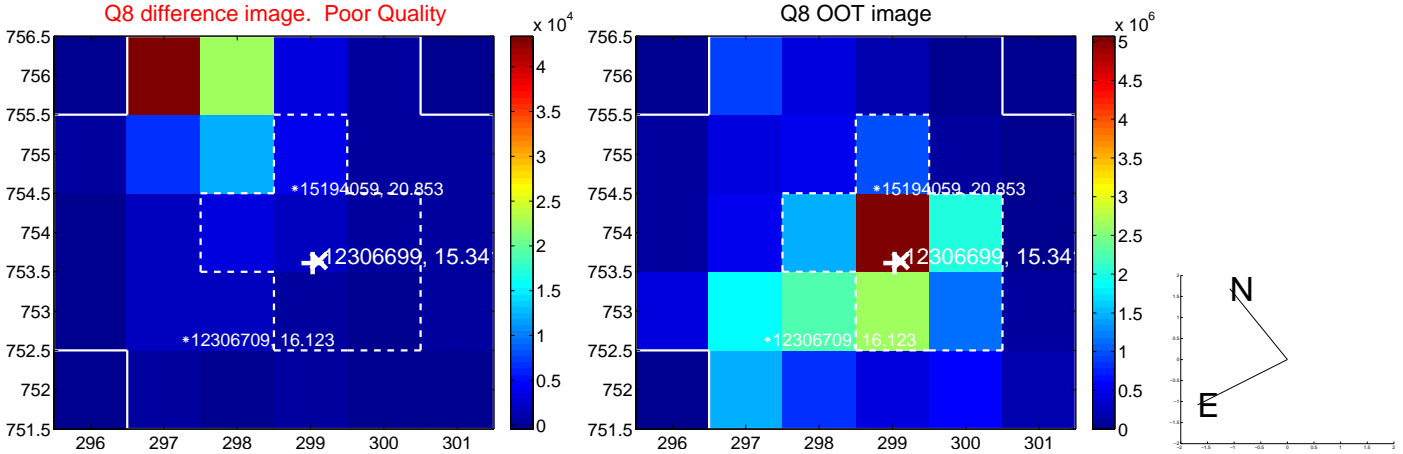
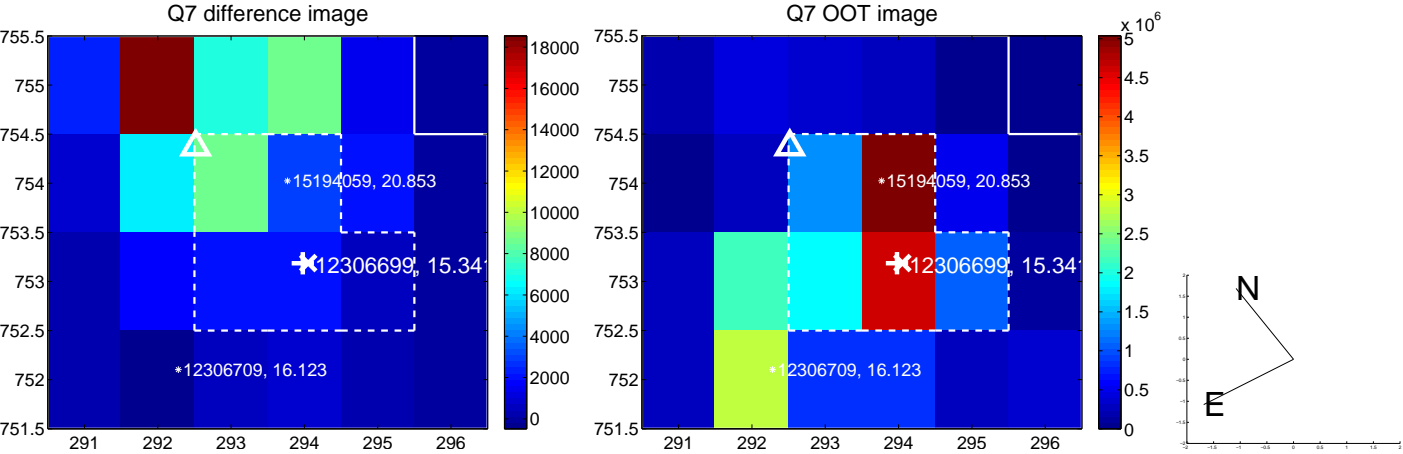
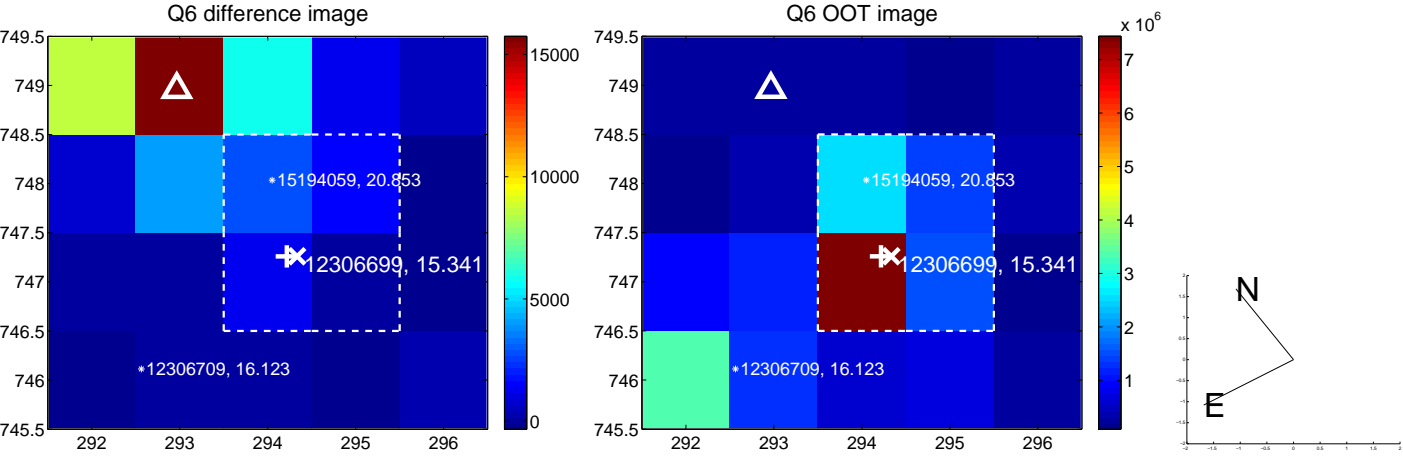
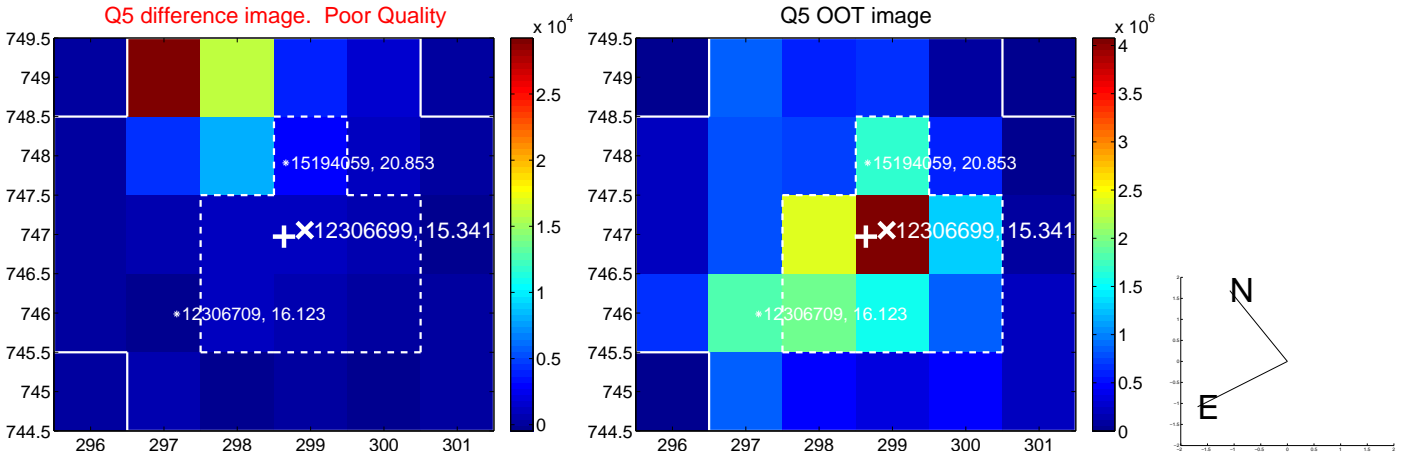


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

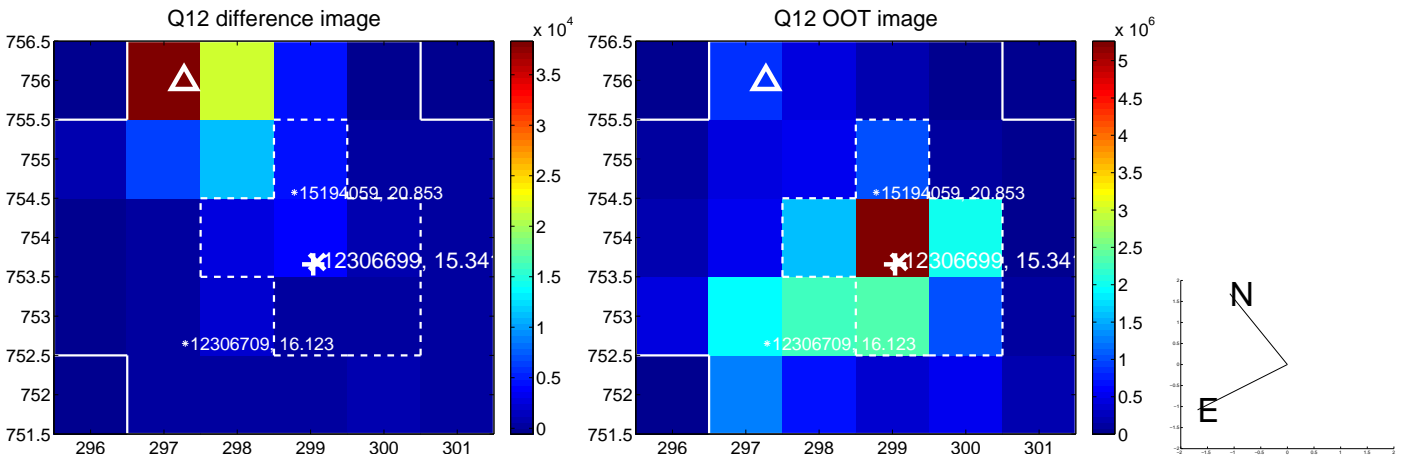
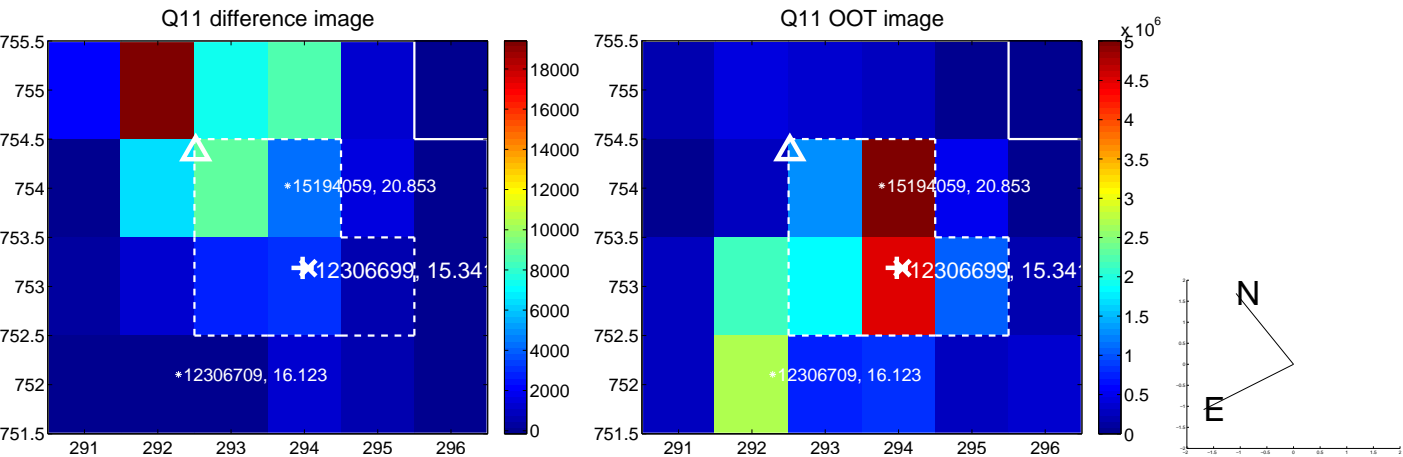
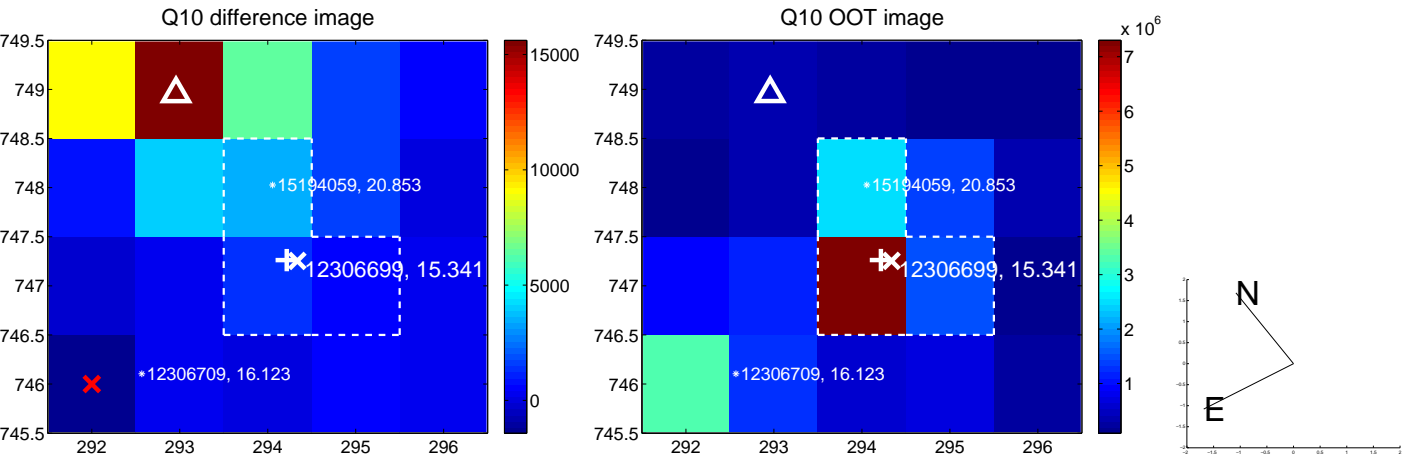
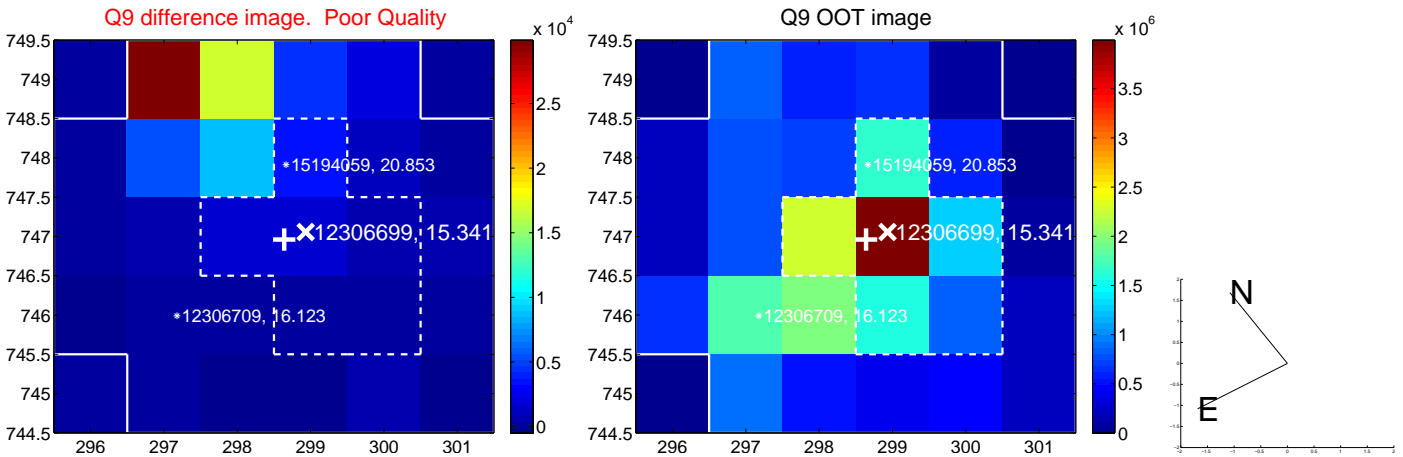
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



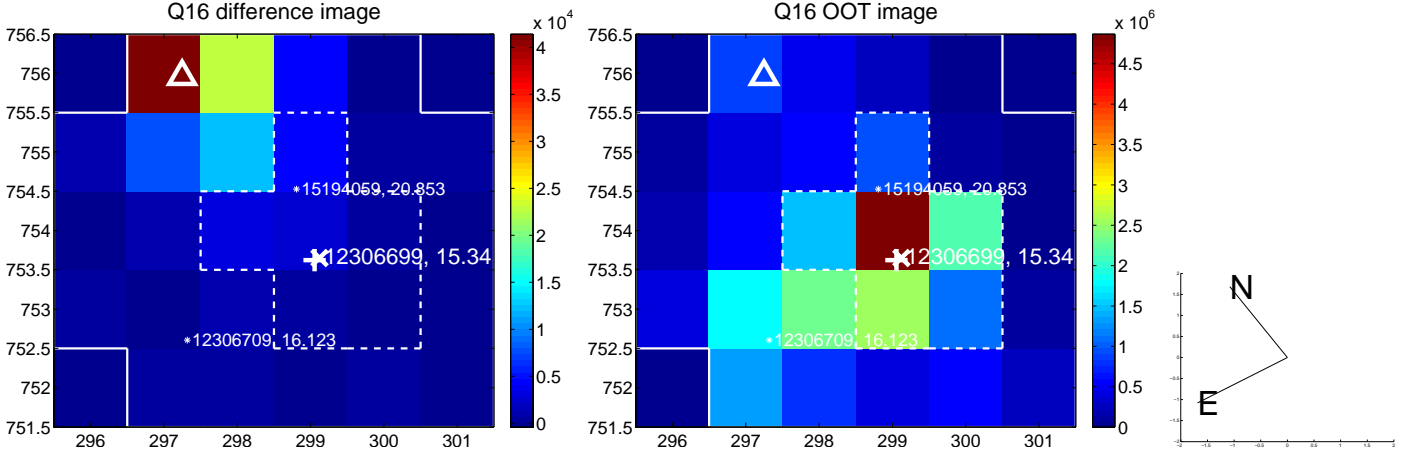
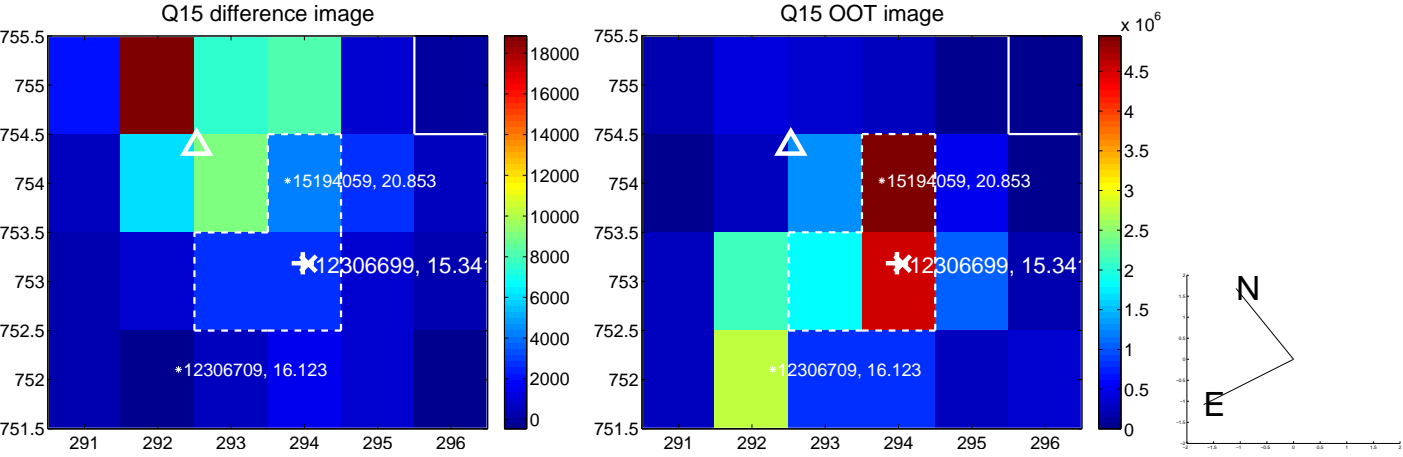
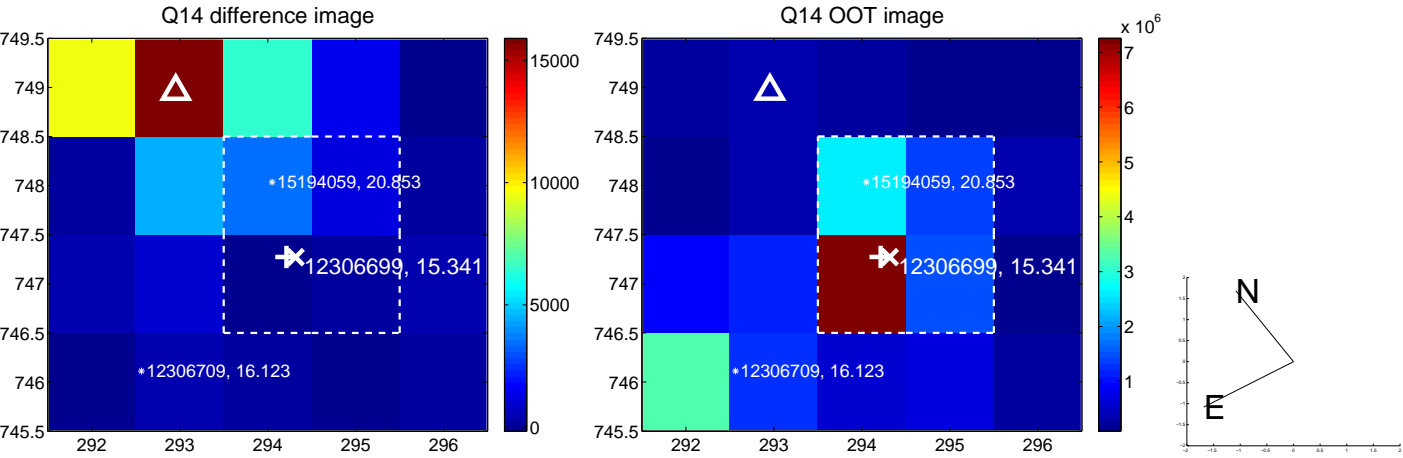
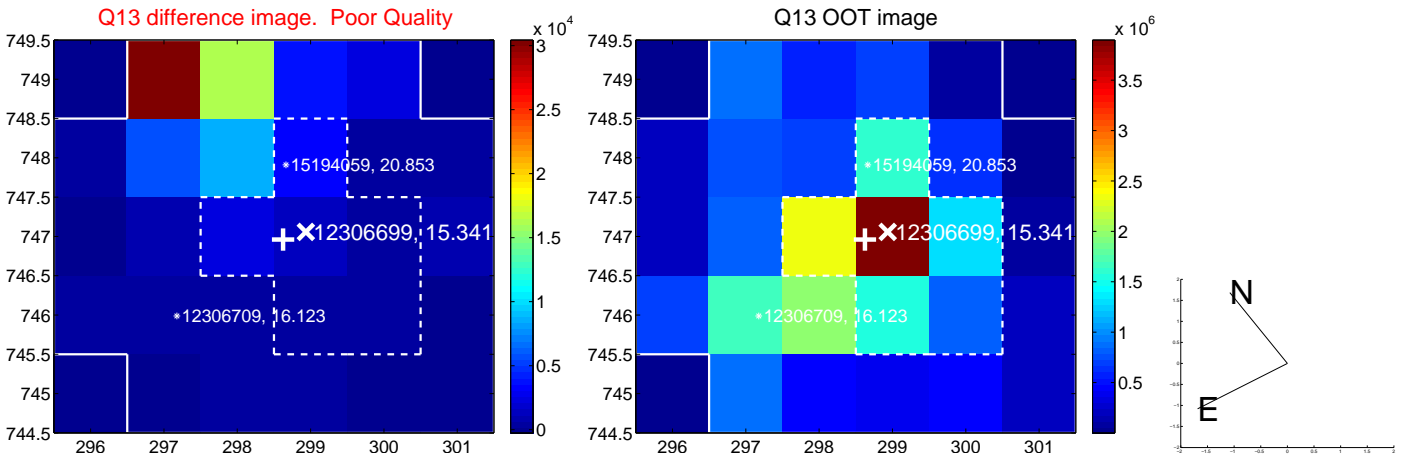
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



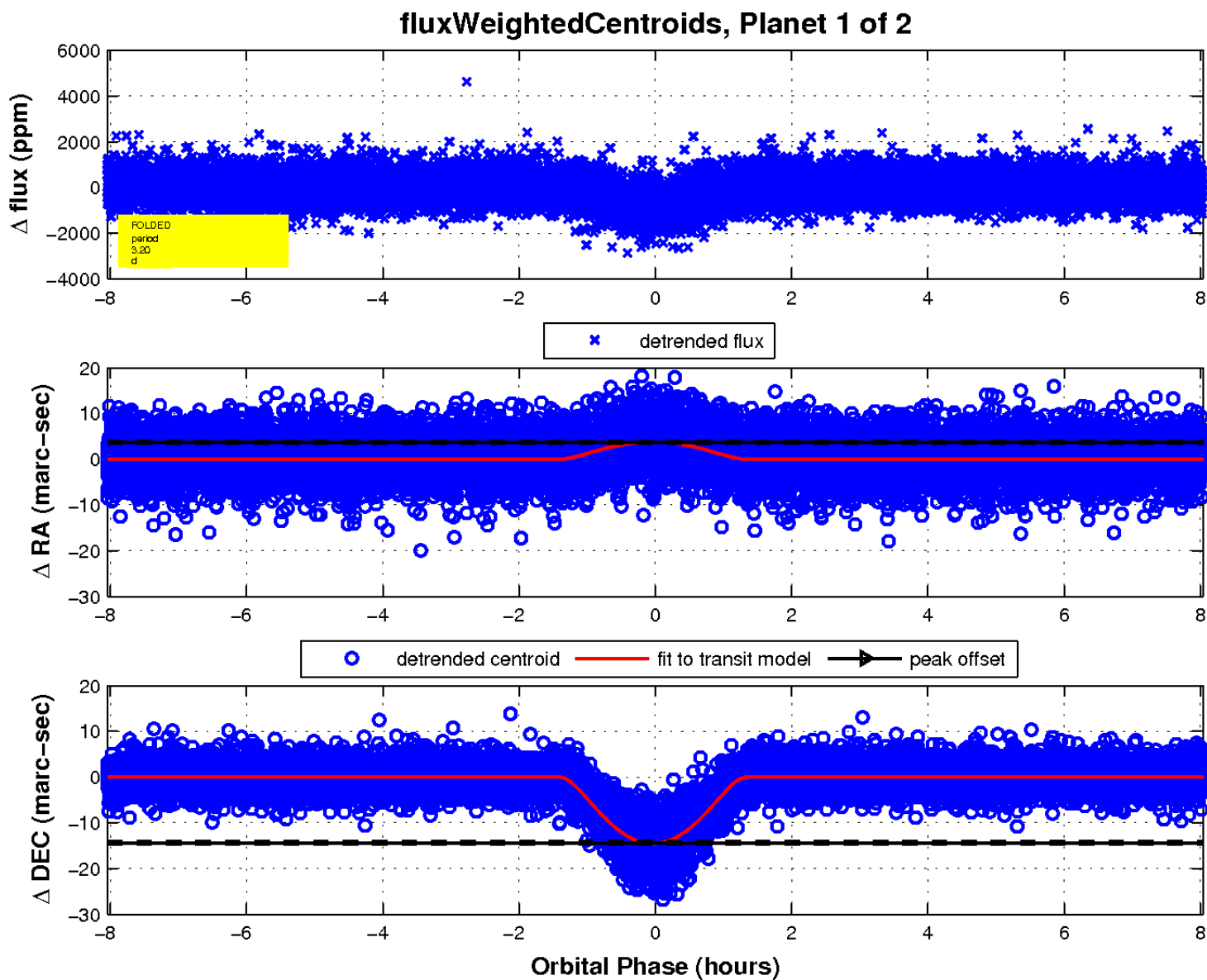
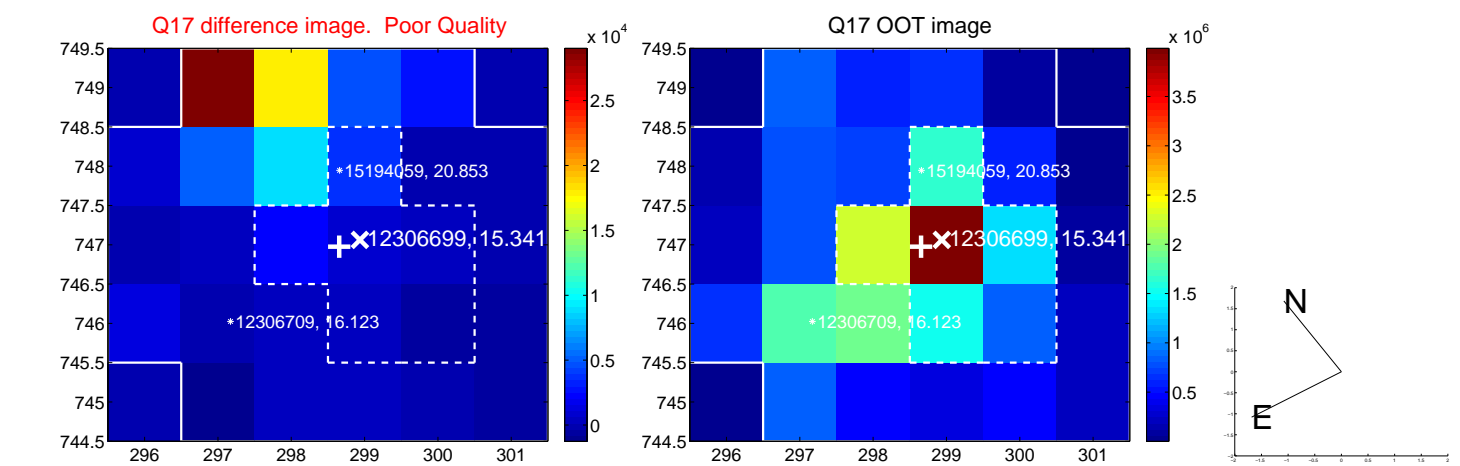
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

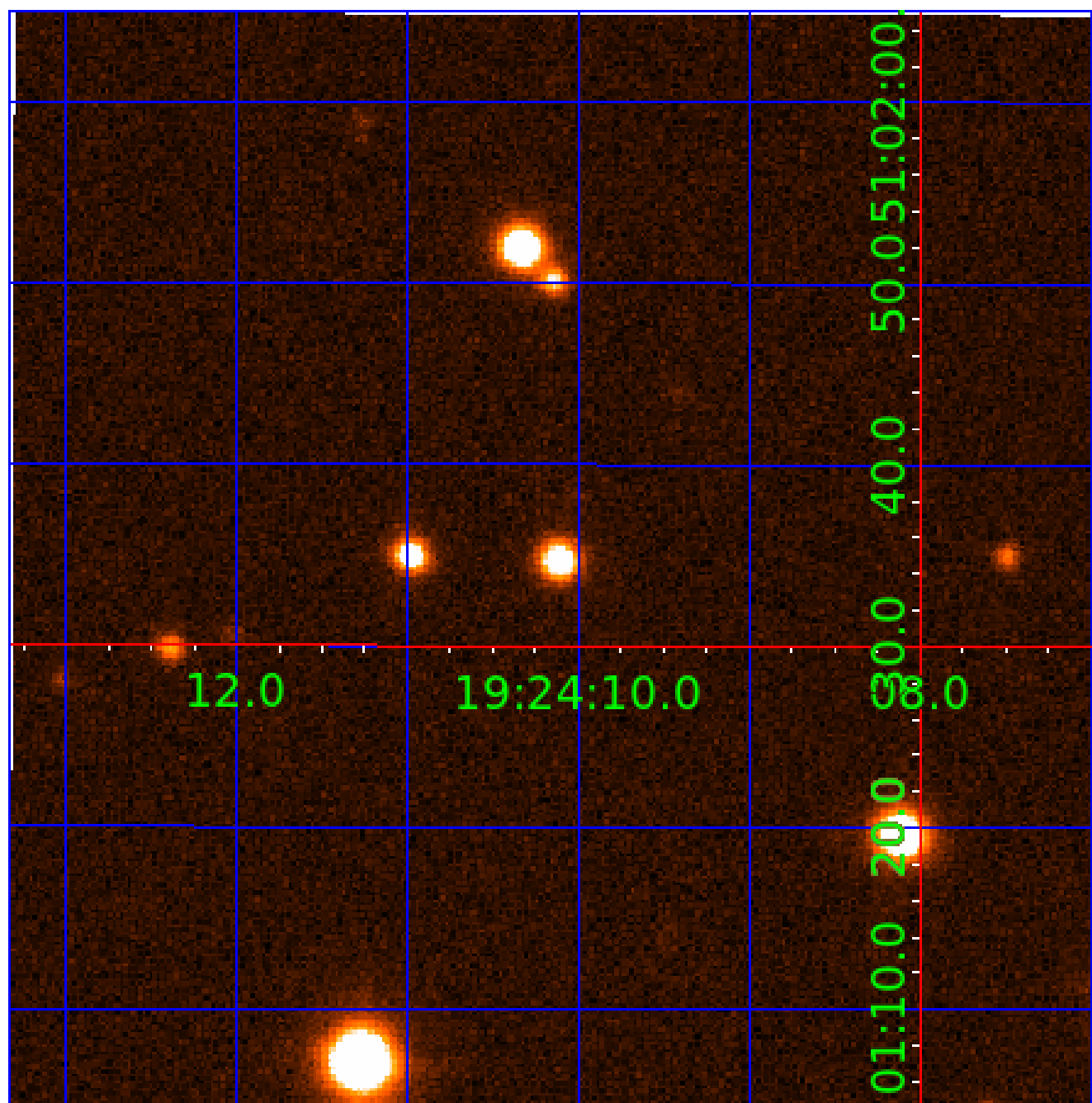


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012306699

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})
012306699-01	OBS	3858.01	3.204232	133.819704	855.7	2.681	39.1	44.6	0.74	5139	3.81	217.43
012306699-02	OBS	No	3.204230	132.215260	207.2	2.098	10.3	12.2	0.74	5139	1.30	217.43

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012306699-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
012306699-02	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.

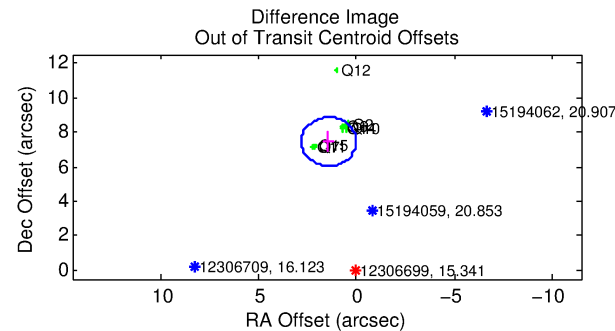
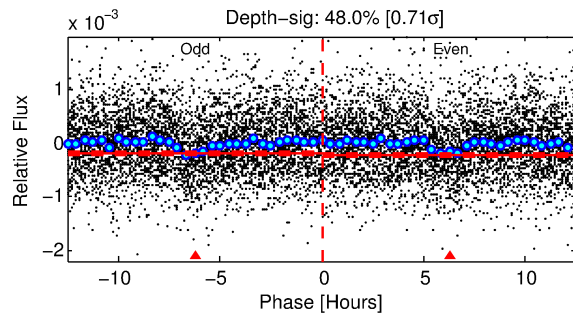
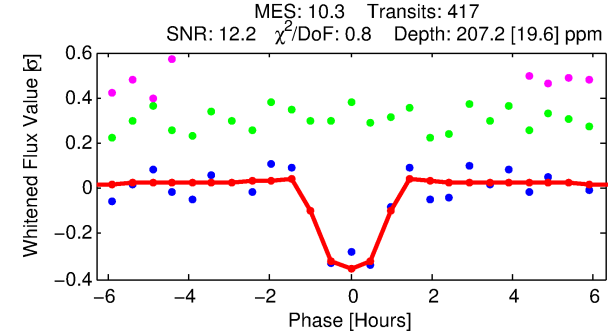
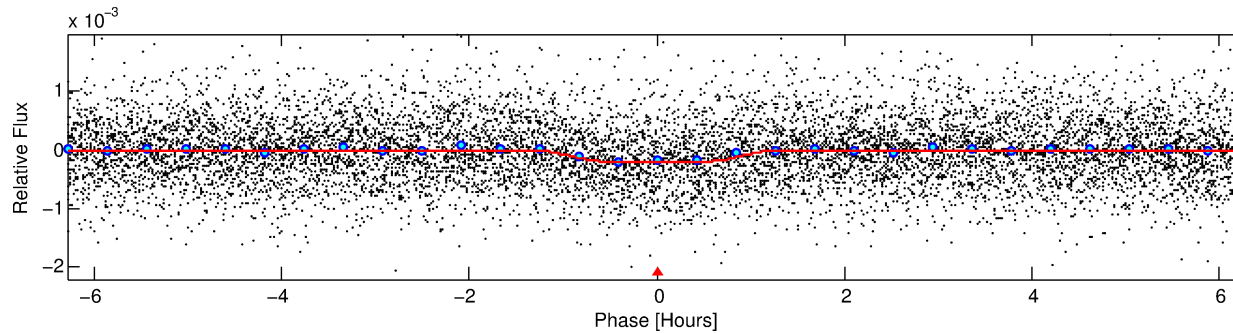
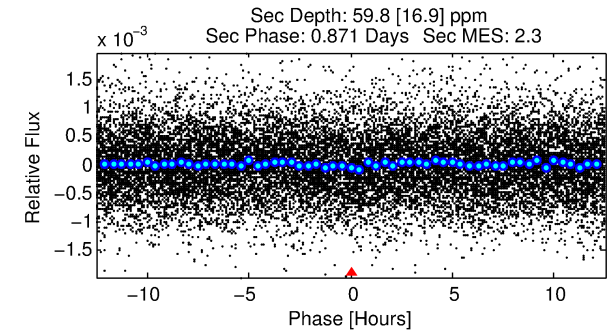
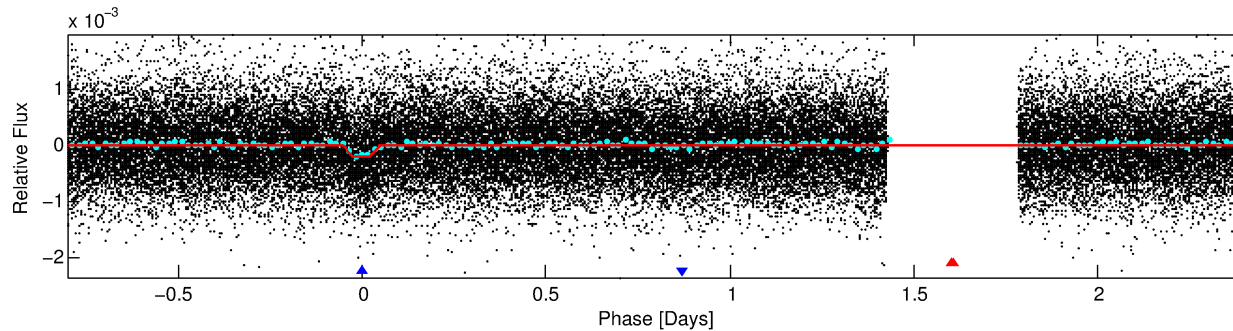
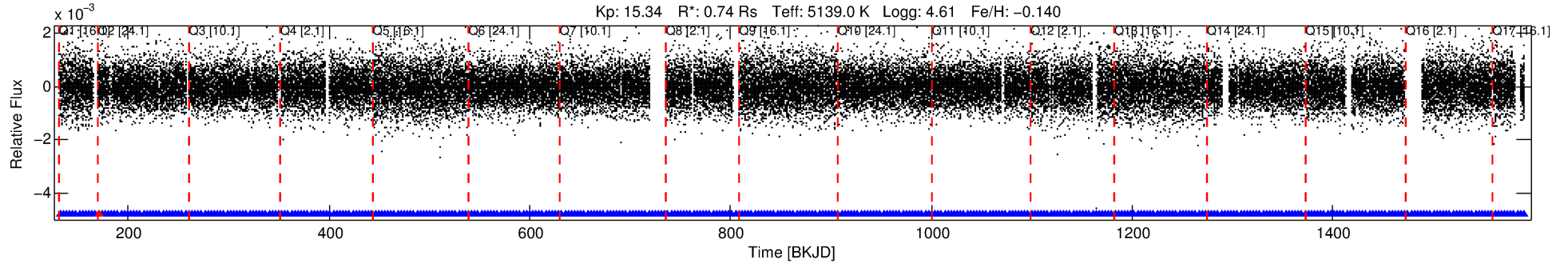
Ephemeris Match Information For 012306699-02

No Significant Match Found

DV One-Page Summary

KIC: 12306699 Candidate: 2 of 2 Period: 3.204 d
KOI: K03858 Corr: No Ephemeris Match

Kp: 15.34 R*: 0.74 Rs Teff: 5139.0 K Logg: 4.61 Fe/H: -0.140



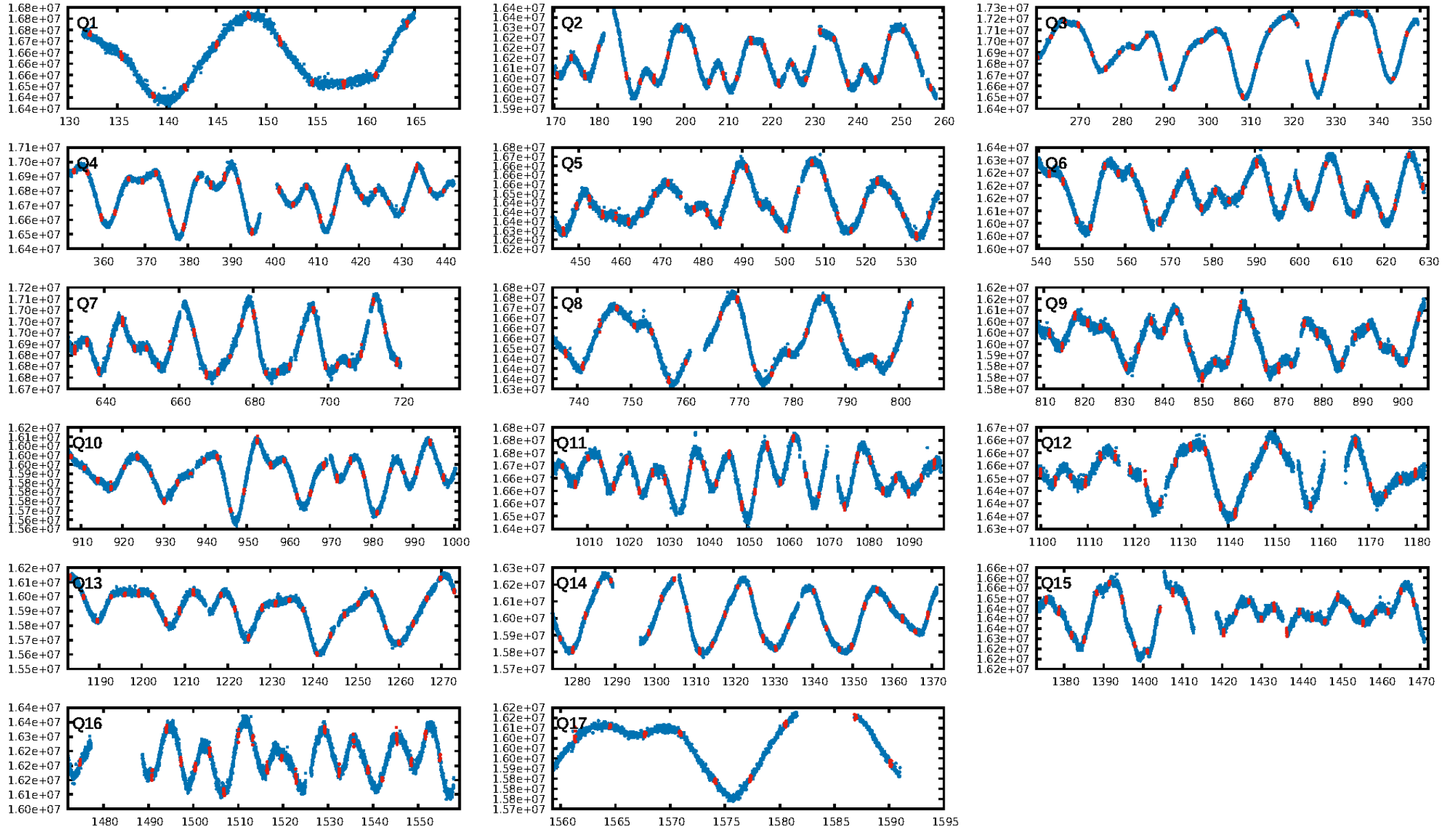
DV Fit Results:

Period = 3.20423 [0.00002] d
Epoch = 132.2153 [0.0028] BKJD
Rp/R* = 0.0161 [0.0095]
a/R* = 5.43 [12.85]
b = 0.91 [0.49]
Seff = 217.43 [41.03]
Teq = 979 [46] K
Rp = 1.30 [0.78] Re
a = 0.0397 [0.0042] AU
Ag = 30.55 [37.12] [0.80σ]
Teff = 3559 [1079] K [2.39σ]

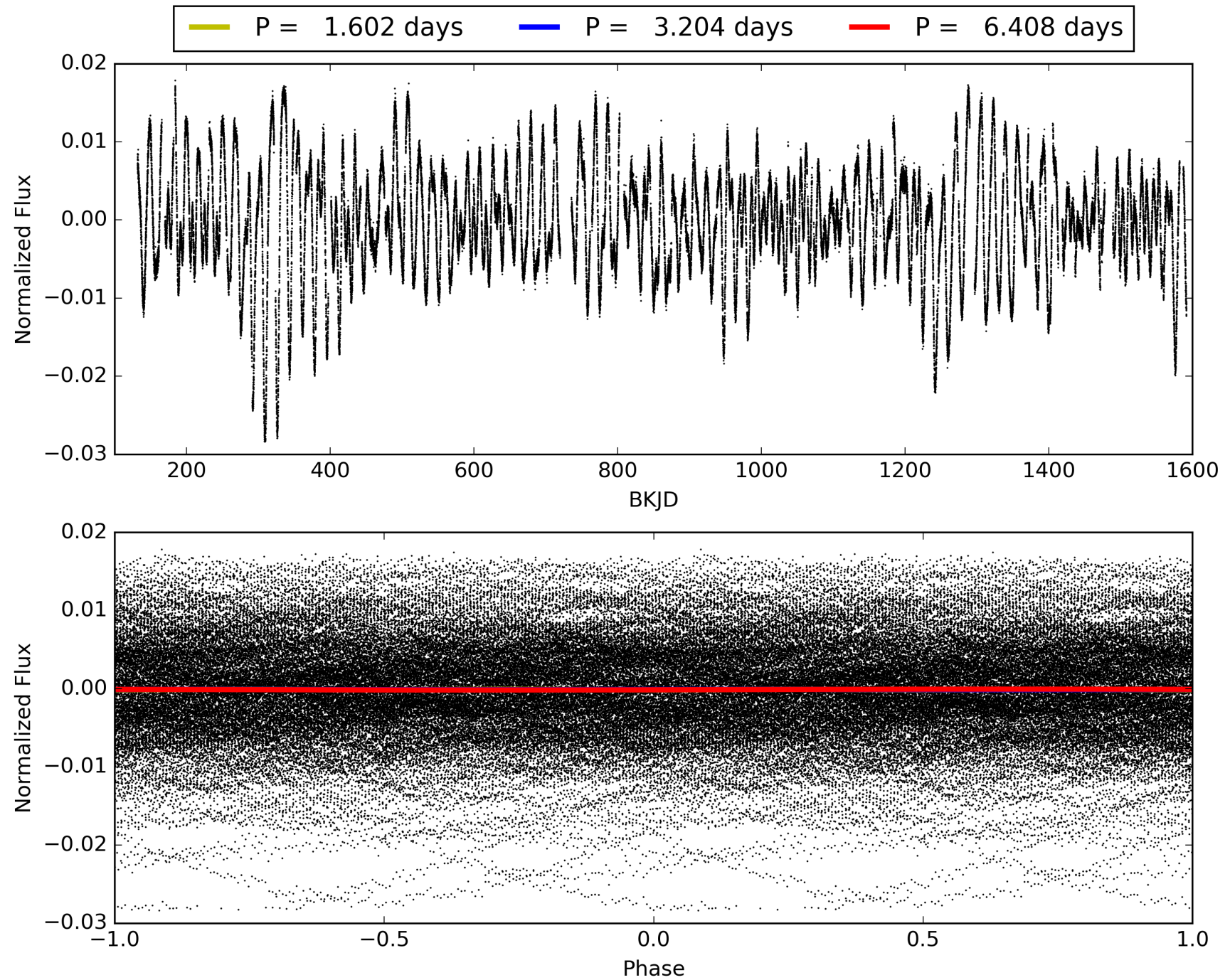
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.81e-24
RollingBand-fgt: 1.00 [396/397]
GhostDiagnostic-chr: -0.1447
Centroid-sig: 0.0%
Centroid-so: 16.813 arcsec [18.58σ]
OotOffset-rm: 7.582 arcsec [16.17σ]
KicOffset-rm: 7.826 arcsec [18.54σ]
OotOffset-st: 4/3/1/0 [8]
KicOffset-st: 4/3/1/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012306699-02, PDC Light Curves

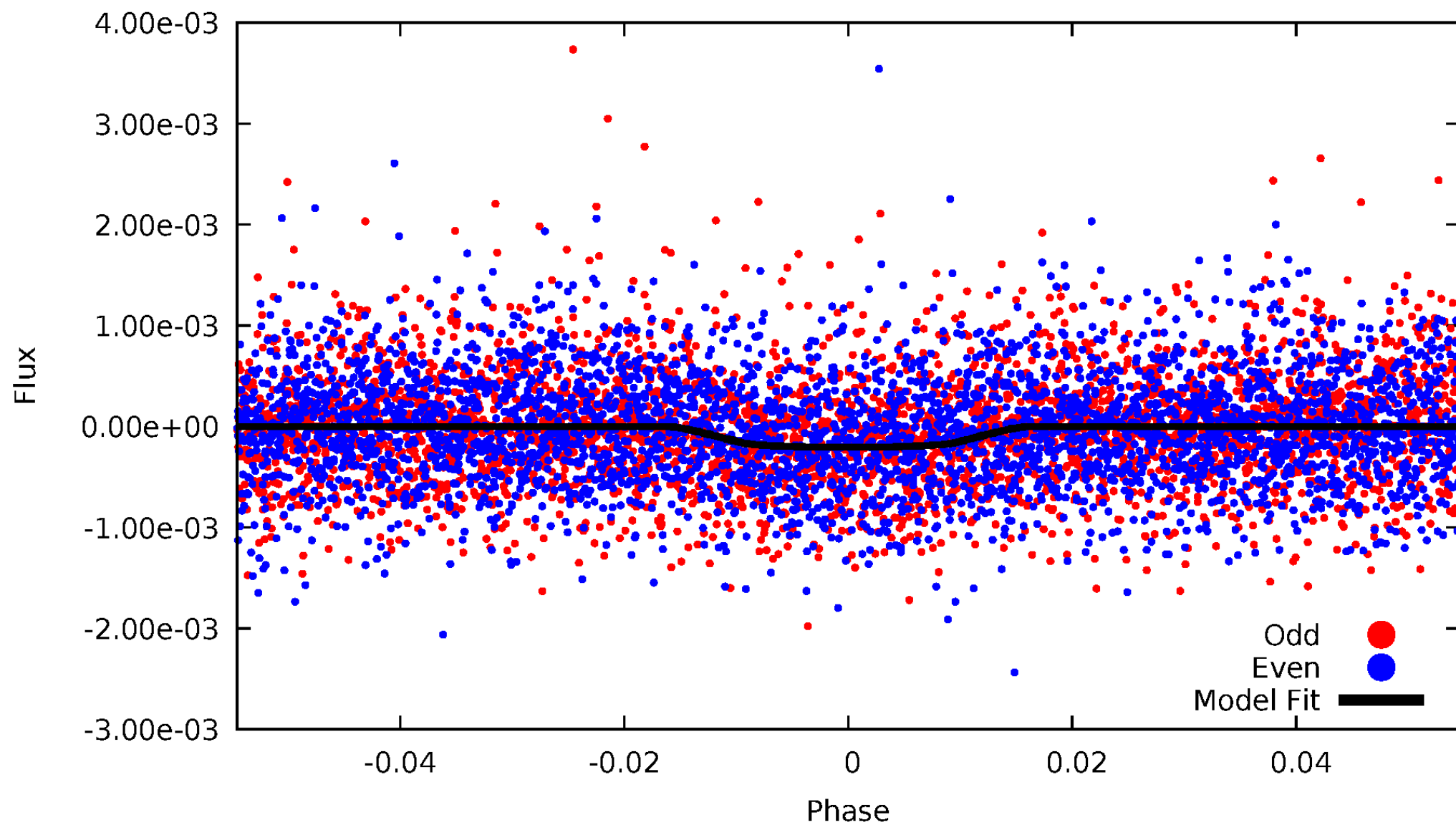


TCE 012306699-02



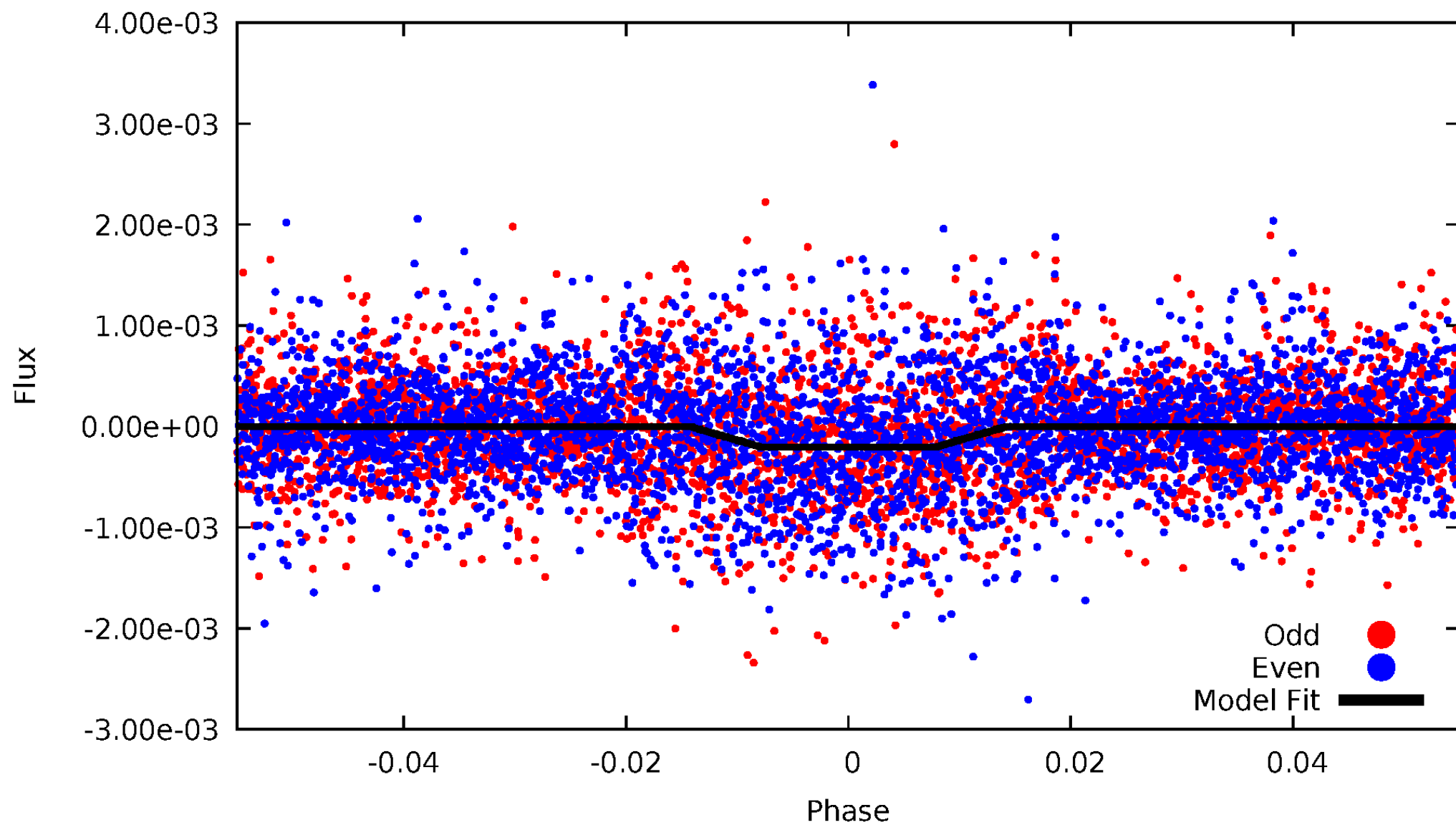
DV Odd/Even

TCE 012306699-02



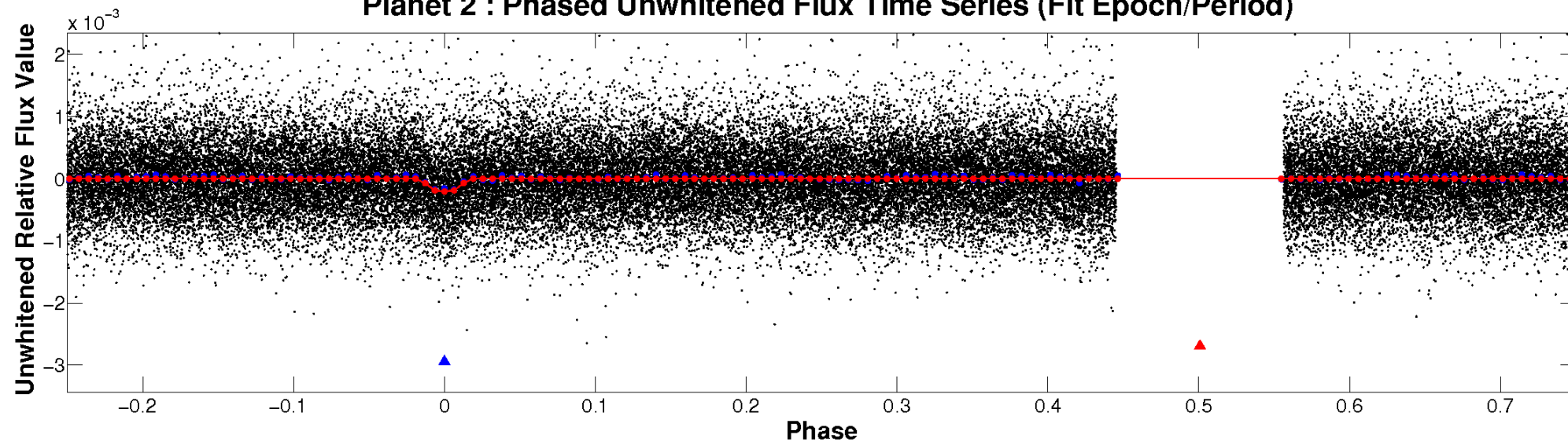
ALT Odd/Even

TCE 012306699-02

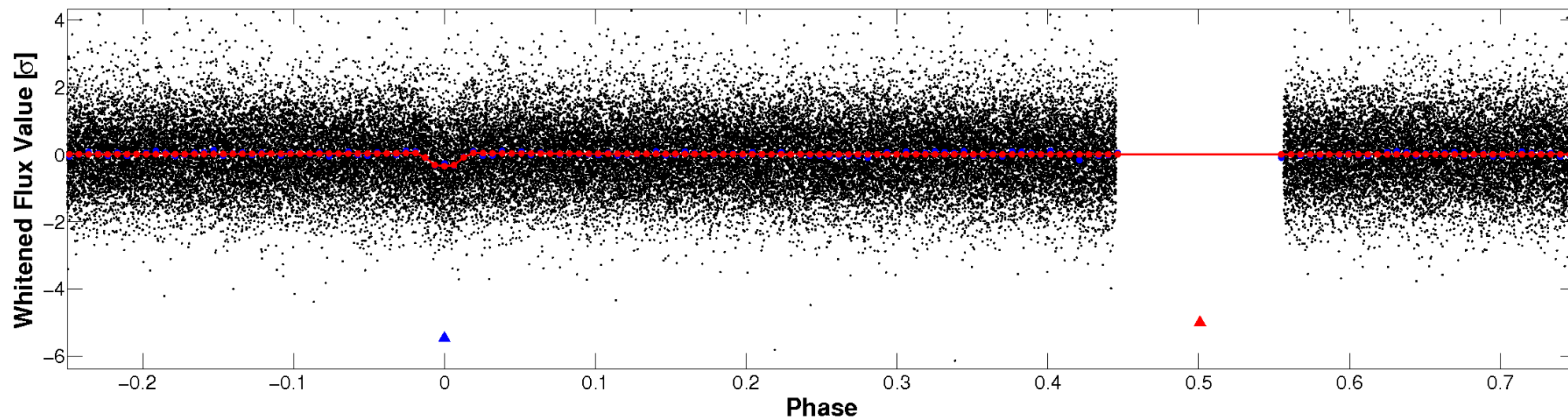


Non-Whitened Vs. Whitened Light Curve

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

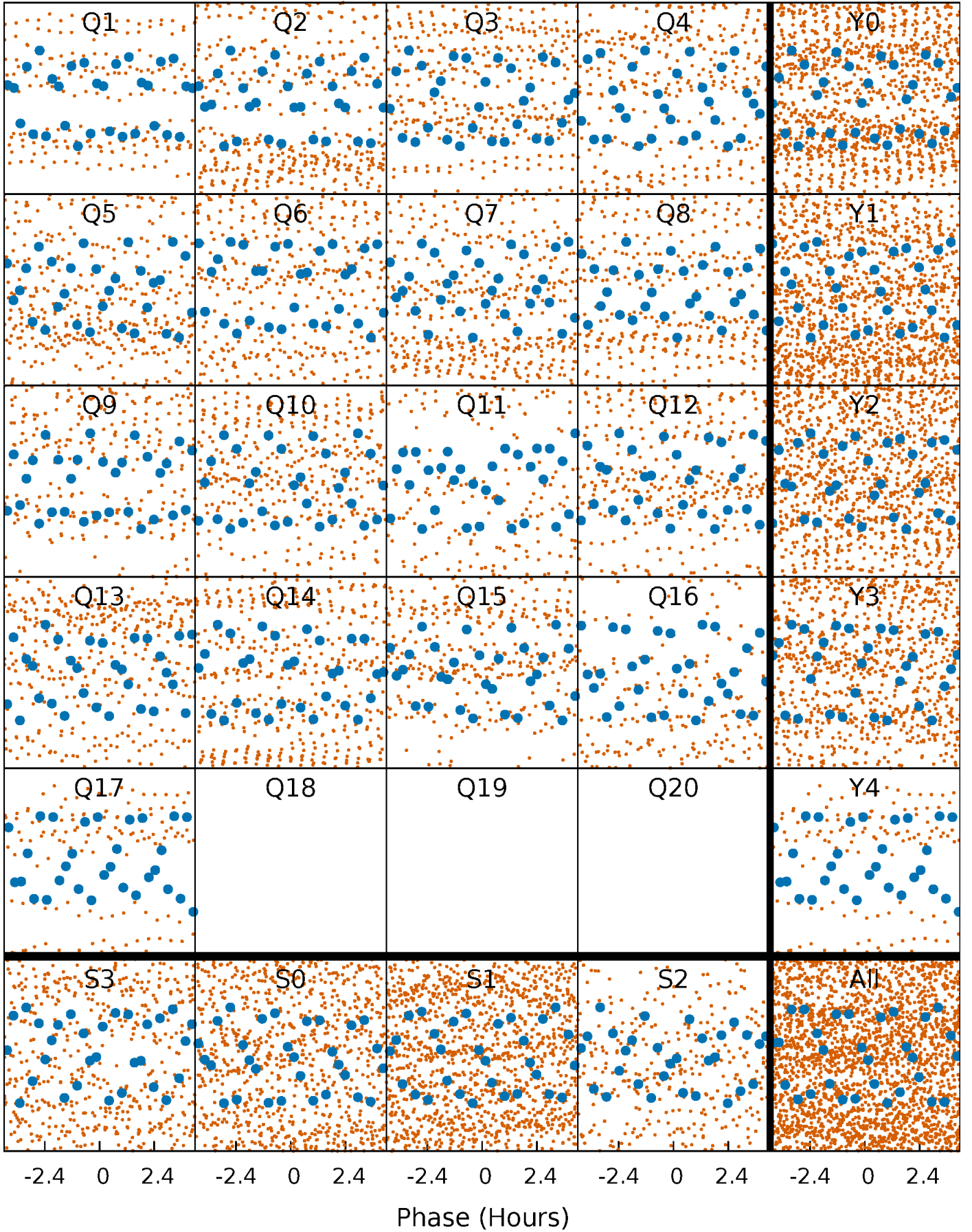


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



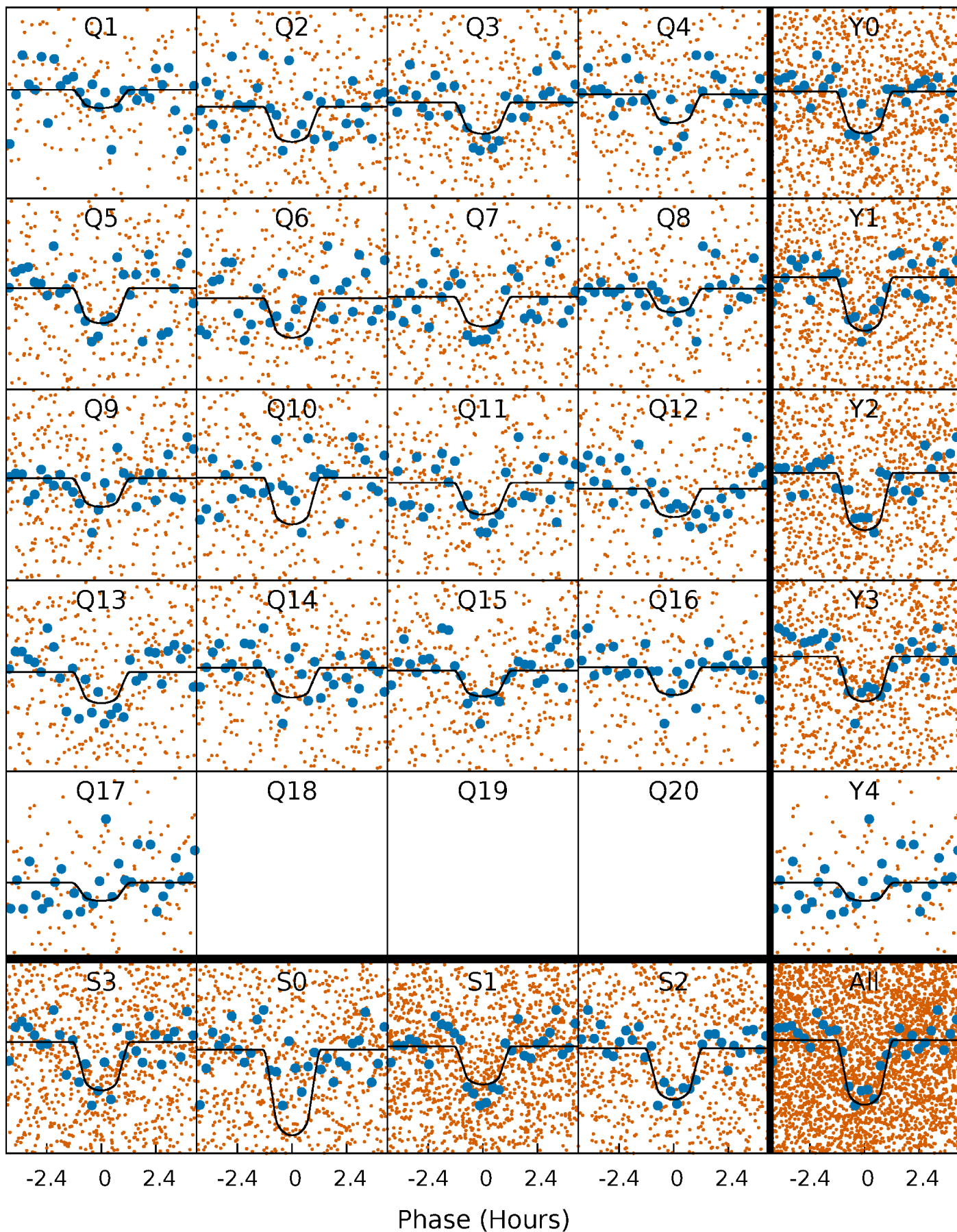
PDC Quarter-Phased Transit Curves

TCE 012306699-02 P= 3.204230 Days $T_0=132.215260$ (BKJD)



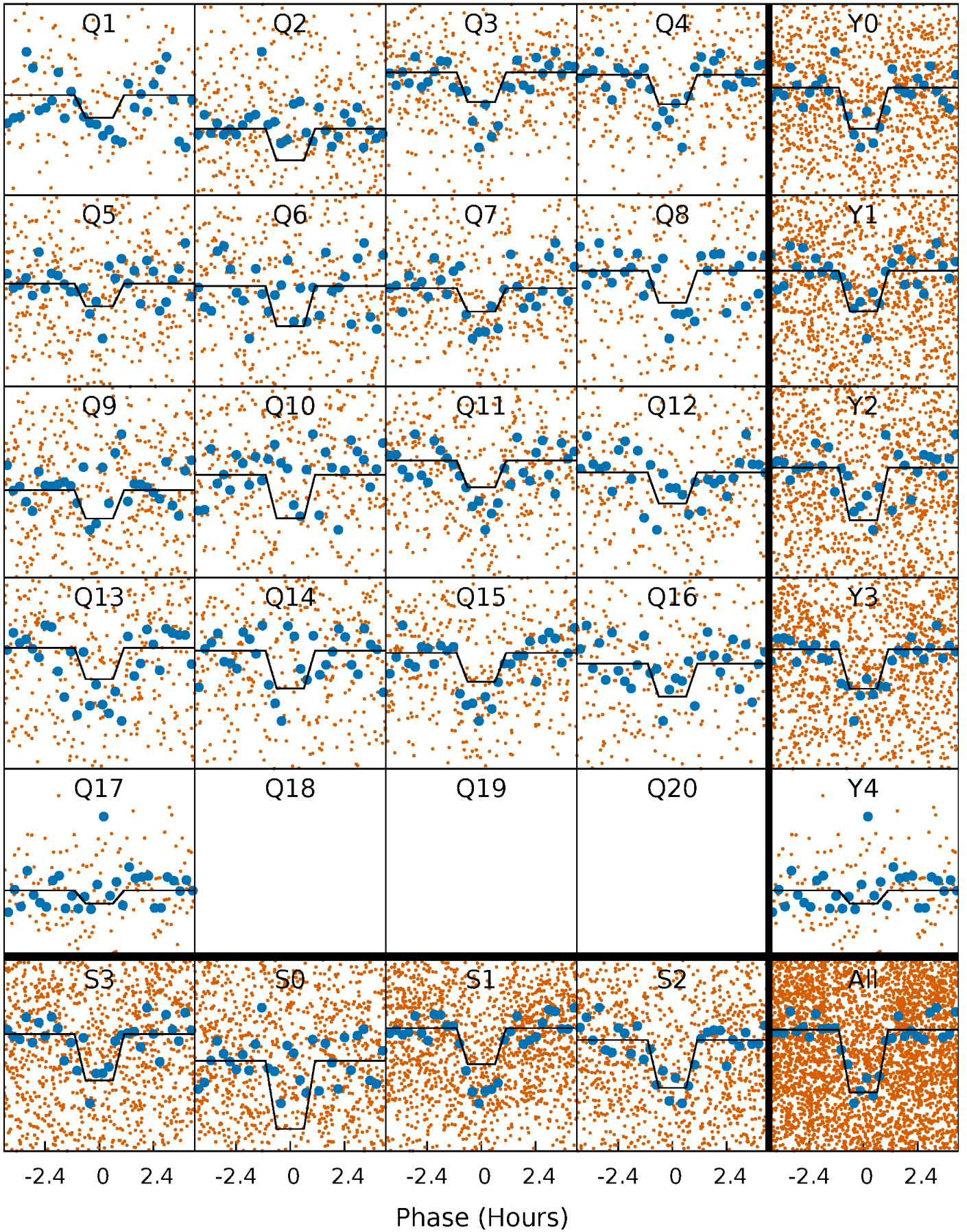
DV Quarter-Phased Transit Curves

TCE 012306699-02 $P = 3.204230$ Days $T_0 = 132.215260$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

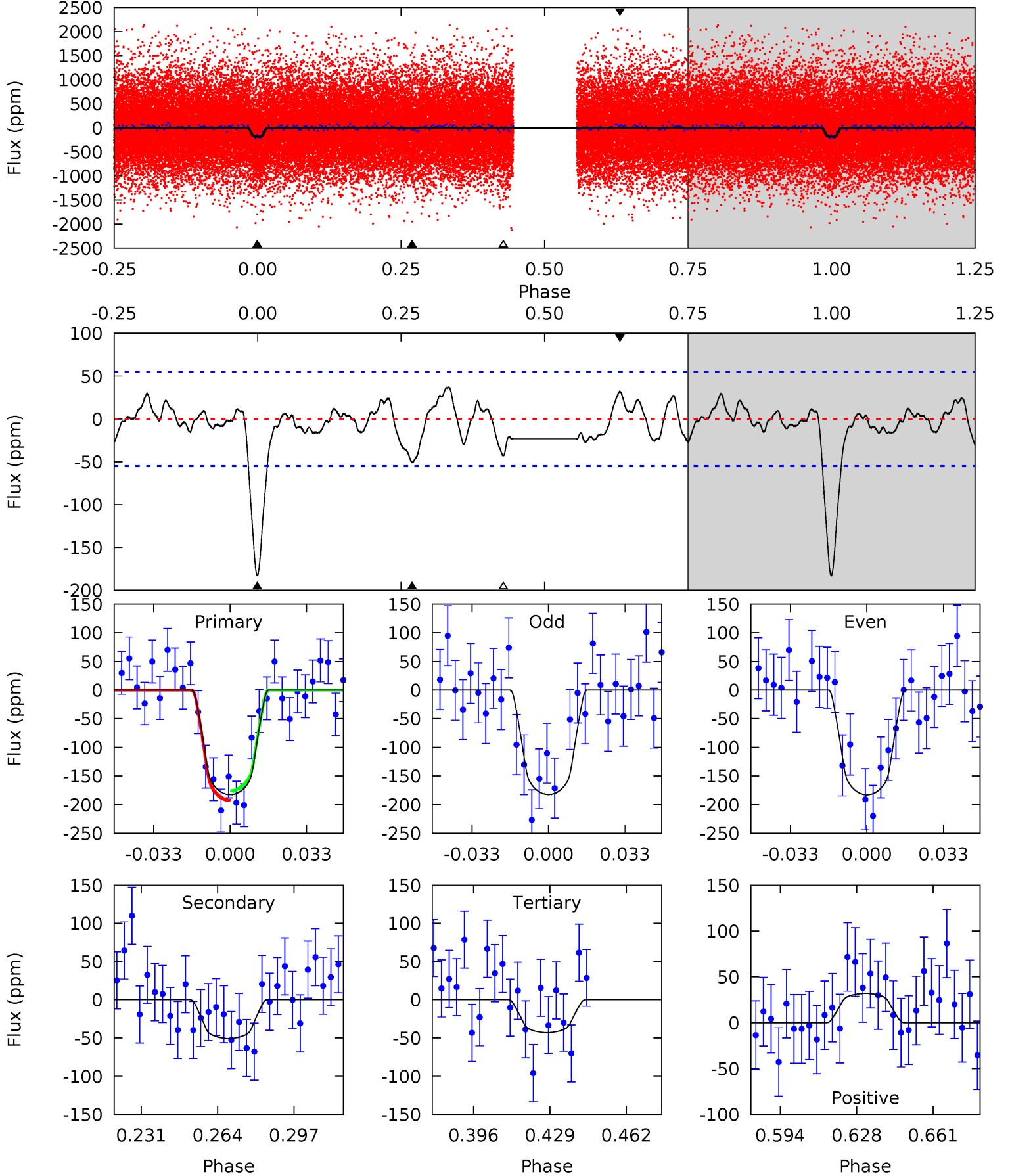
TCE 012306699-02 $P = 3.204247$ Days $T_0 = 132.209200$ (BKJD)



DV Model-Shift Uniqueness Test

012306699-02, P = 3.204230 Days, E = 129.011030 Days

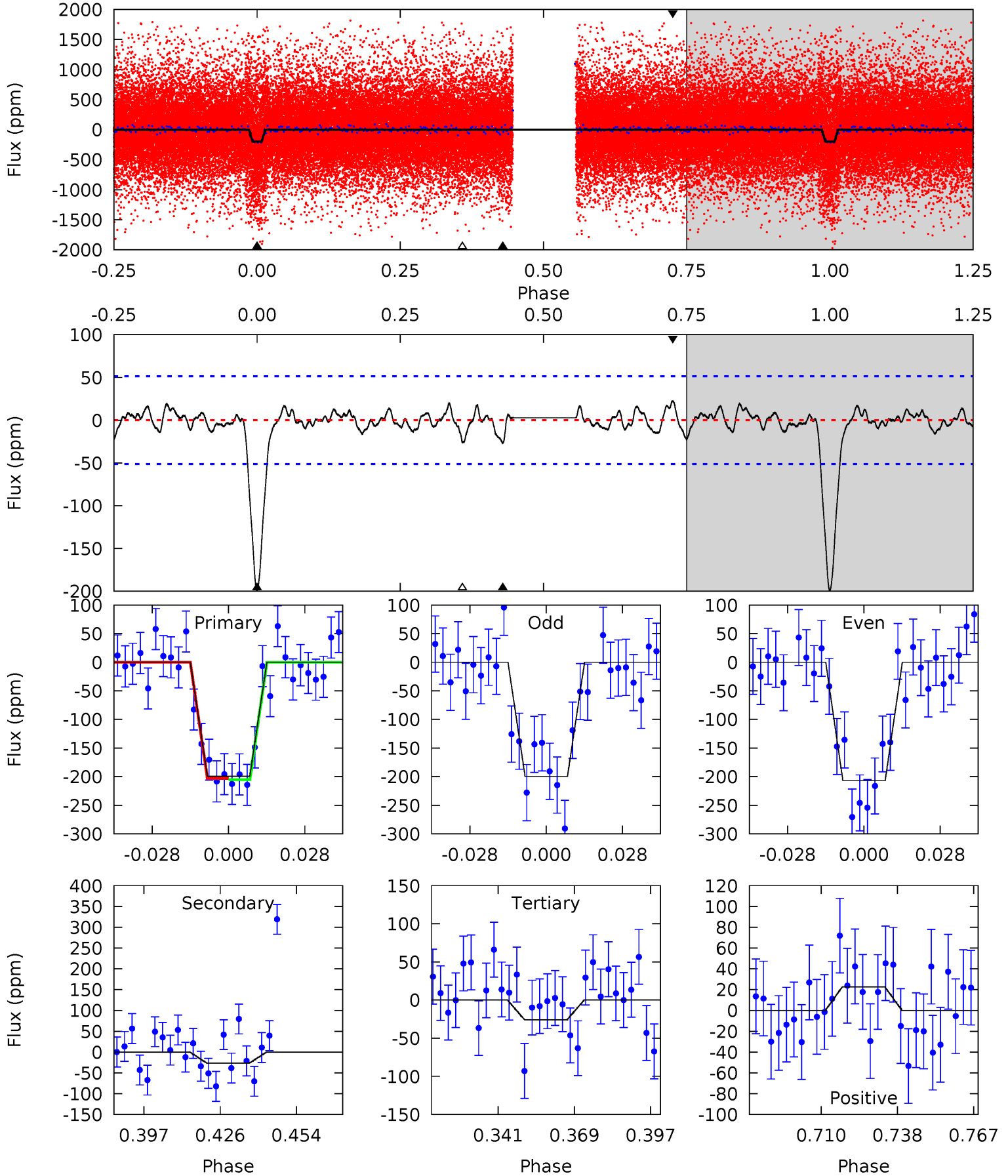
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	4.42	3.74	2.78	4.79	2.13	1.39	12.2	13.1	0.68	1.64	0.02	0.93	0.17	0.71



Alt Model-Shift Uniqueness Test

012306699-02, P = 3.204247 Days, E = 129.004953 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	2.51	2.43	2.14	4.82	2.19	0.83	16.3	16.6	0.07	0.37	0.33	1.16	0.10	0.11



Stellar Parameters For KIC 012306699

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5139^{+153}_{-138}	$4.609^{+0.033}_{-0.077}$	$-0.140^{+0.300}_{-0.300}$	$0.741^{+0.096}_{-0.059}$	$0.825^{+0.065}_{-0.098}$	$2.862^{+0.503}_{-0.744}$
	+3%/-3%	+1%/-2%	+214%/-214%	+13%/-8%	+8%/-12%	+18%/-26%
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 012306699-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-51 ± 11	$1.37^{+0.73}_{-0.70}$	1383^{+50}_{-52}	3716^{+1190}_{-490}	23^{+70}_{-14}
Alt.	-27 ± 11	$1.26^{+0.75}_{-0.68}$	1384^{+55}_{-50}	3408^{+1070}_{-511}	14^{+49}_{-9}

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

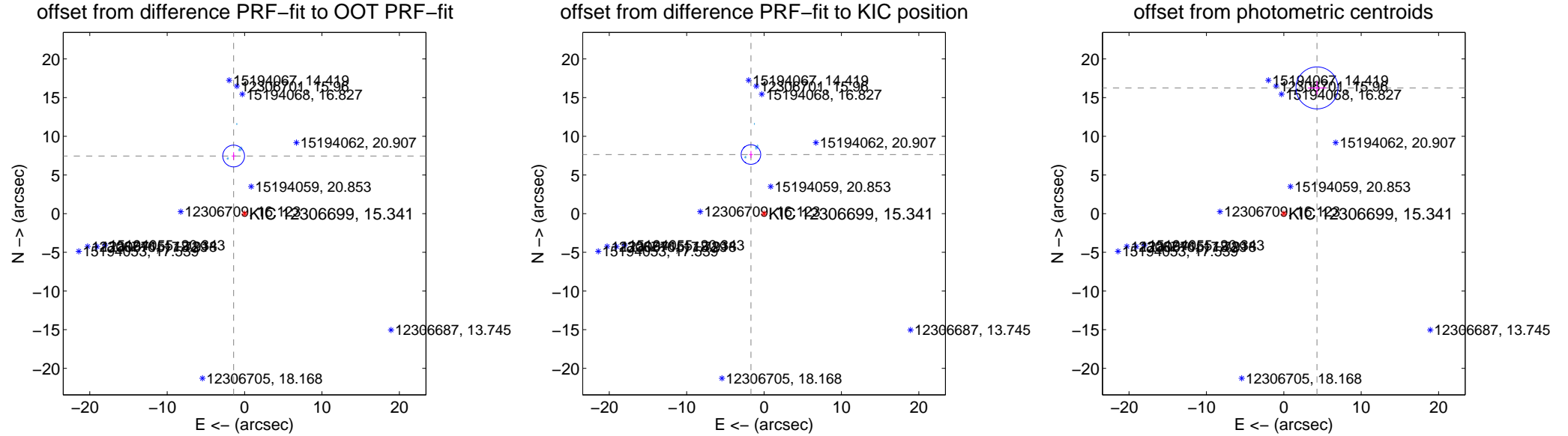
DV Centroid Data

Supplemental centroid analysis for 012306699-02. Kepler magnitude: 15.34. Transit SNR 12.18

There are 8 quarters with good PRF difference image offsets

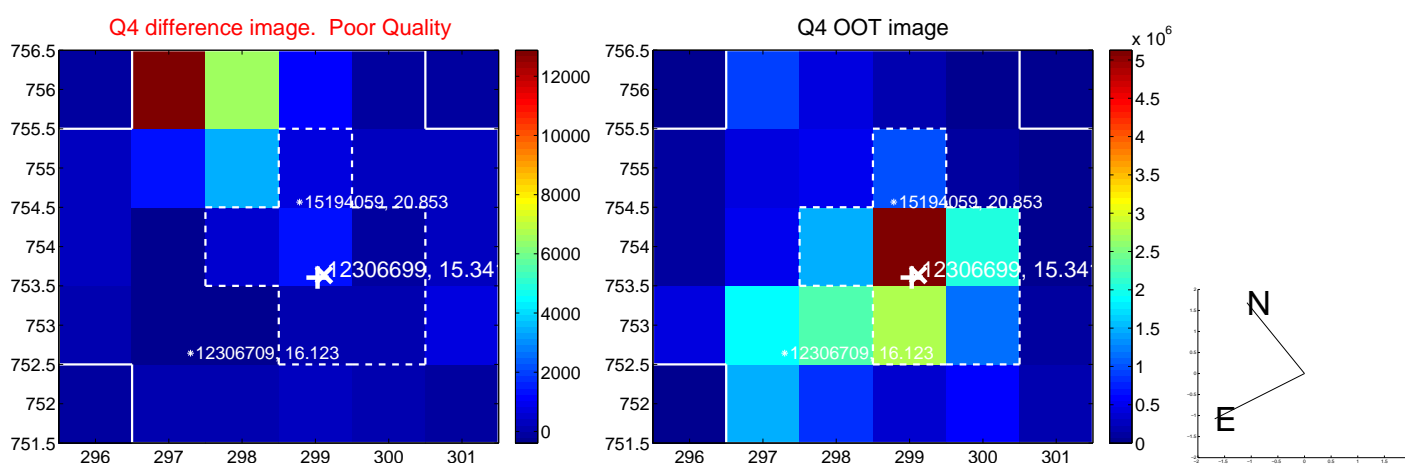
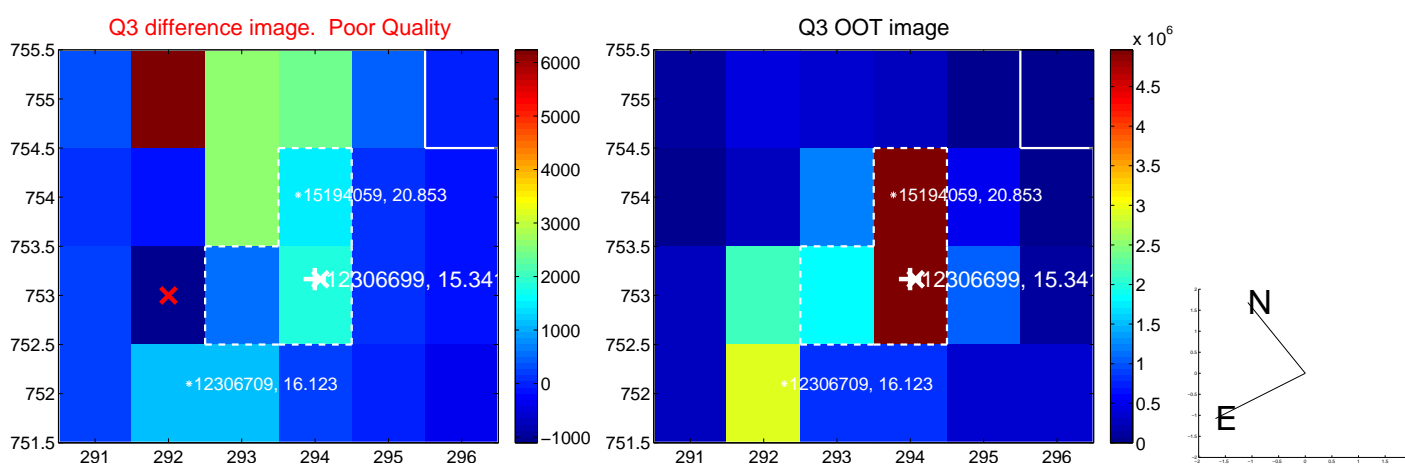
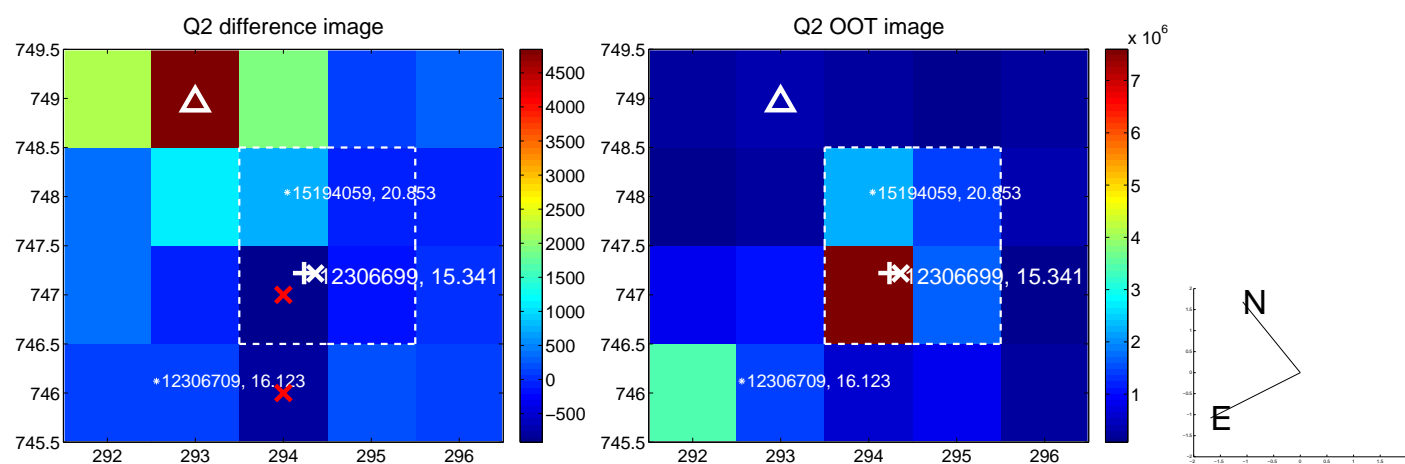
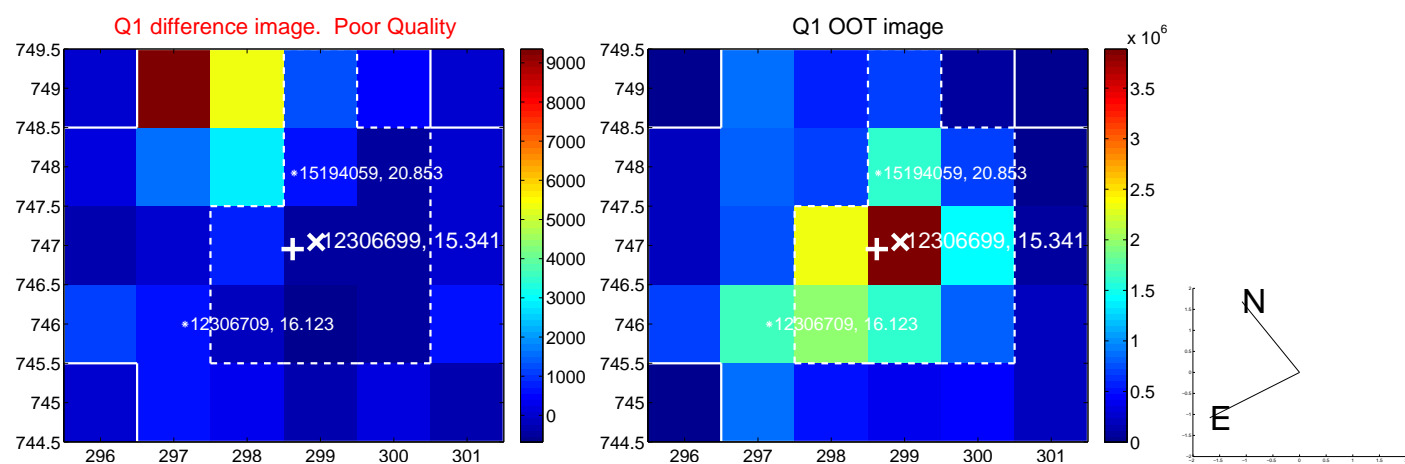
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.582 \pm 0.469	16.17	1.414 \pm 0.265	7.449 \pm 0.502
PRF-fit source offset from KIC position	7.826 \pm 0.422	18.54	1.696 \pm 0.244	7.640 \pm 0.463
photometric centroid source offset	16.81 \pm 0.91	18.58	-4.29 \pm 1.19	16.26 \pm 0.88

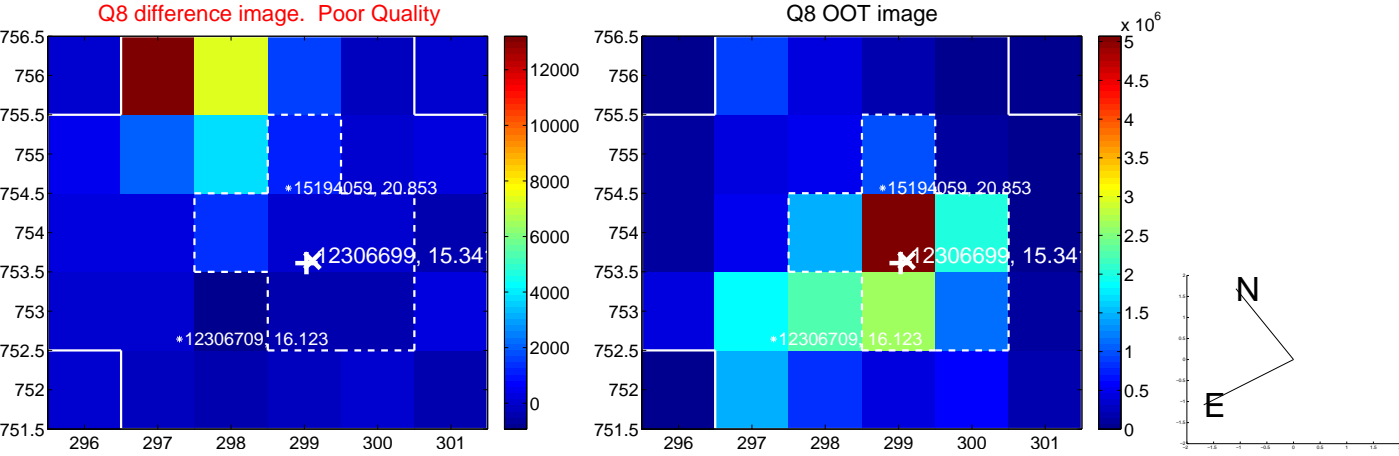
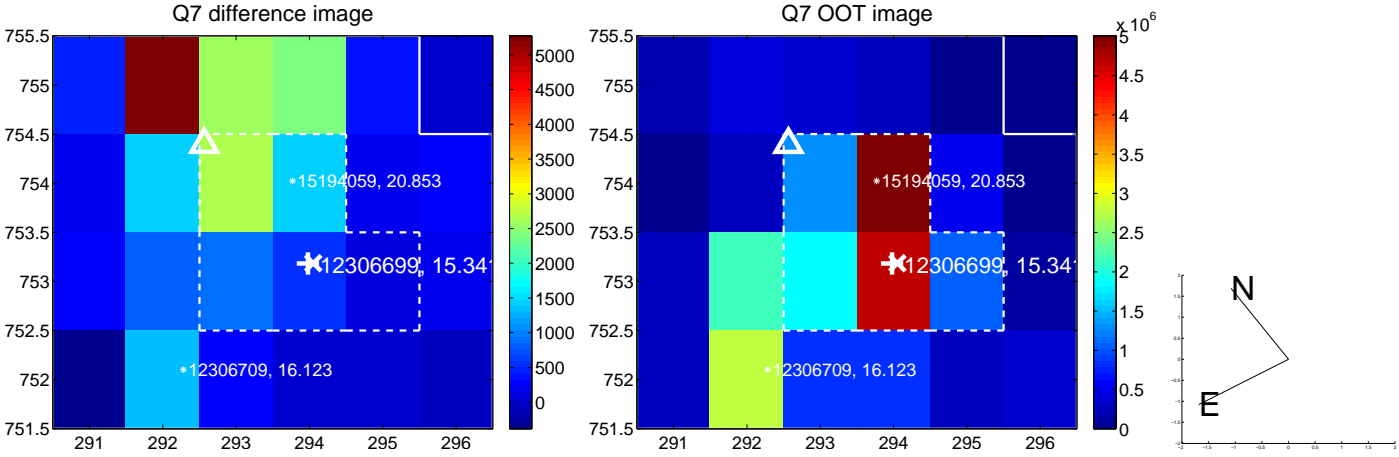
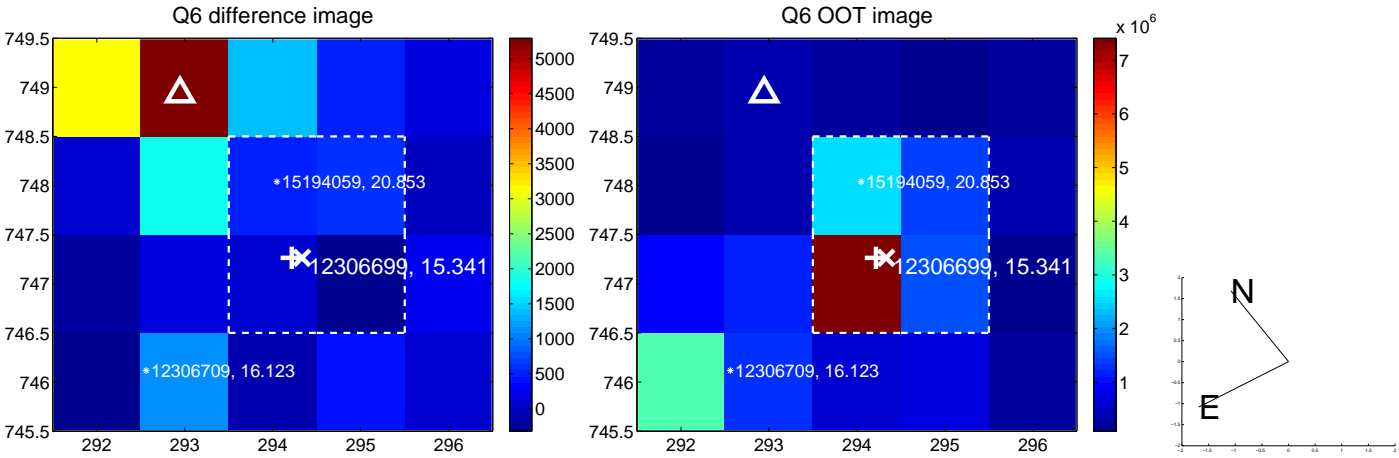
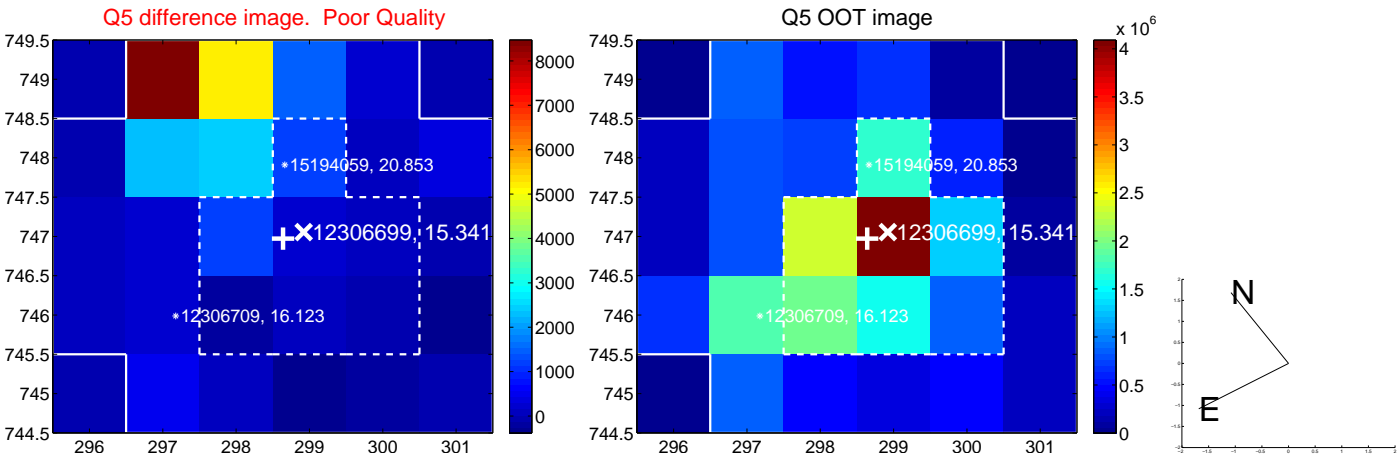


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

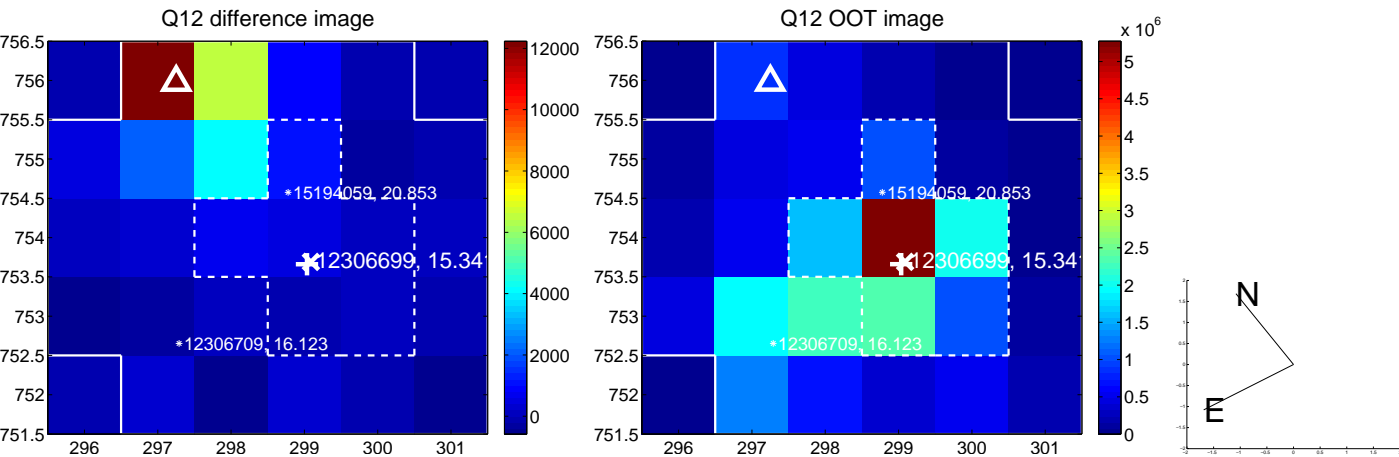
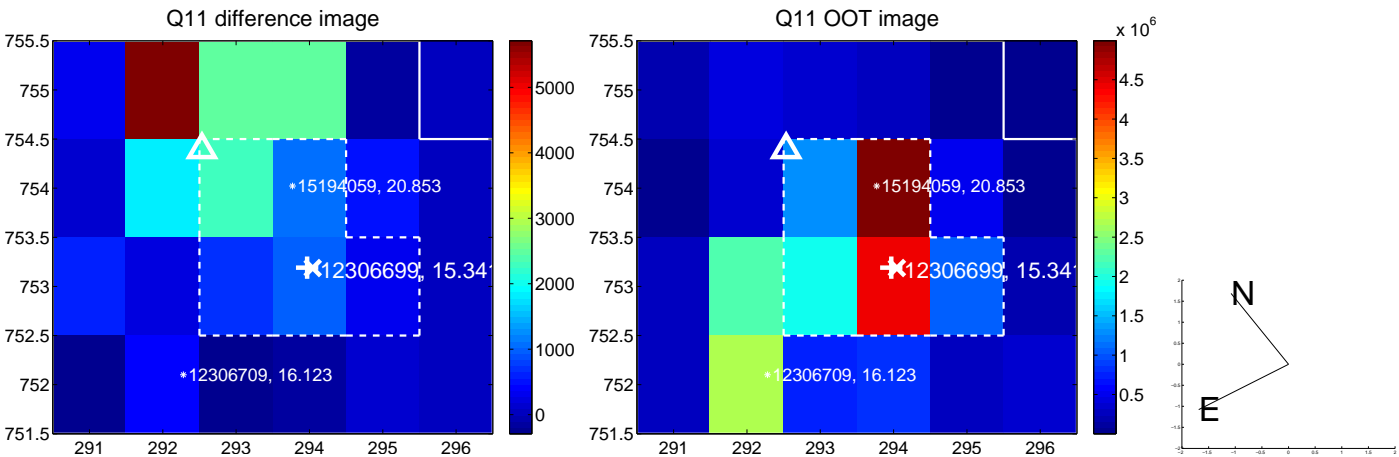
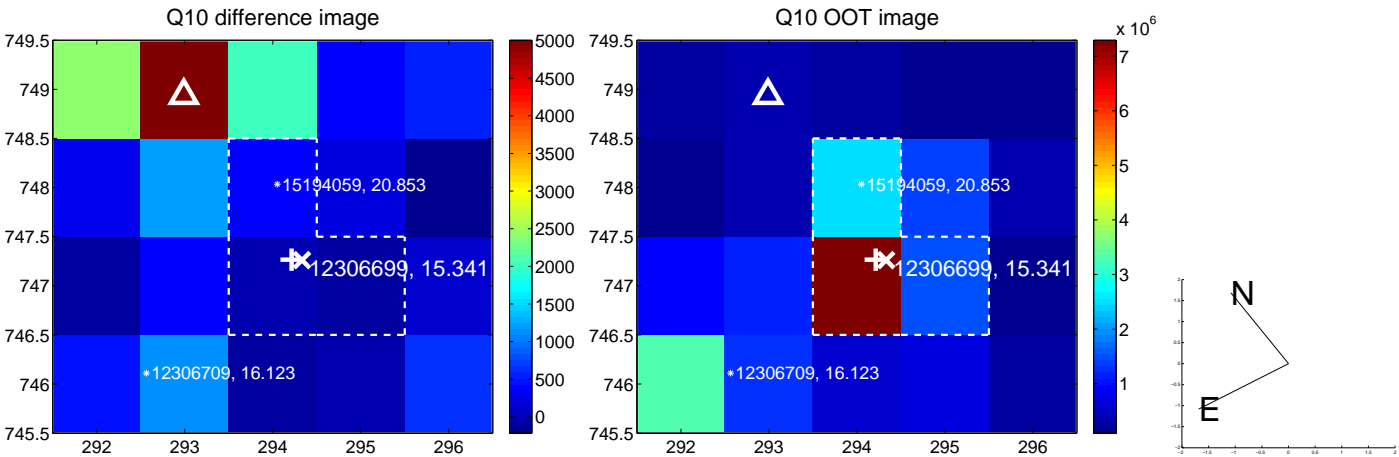
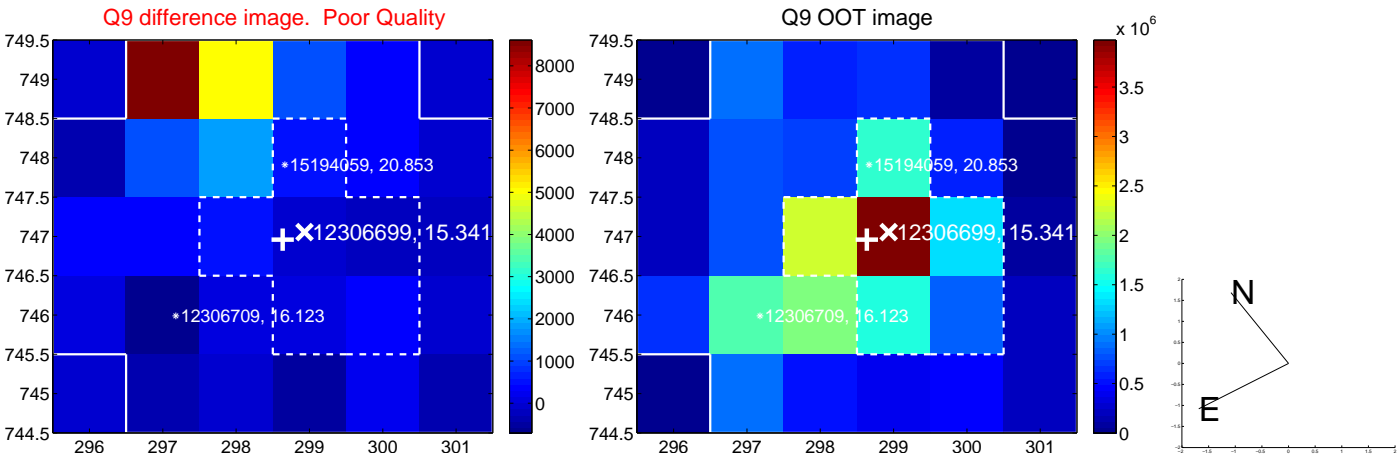
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



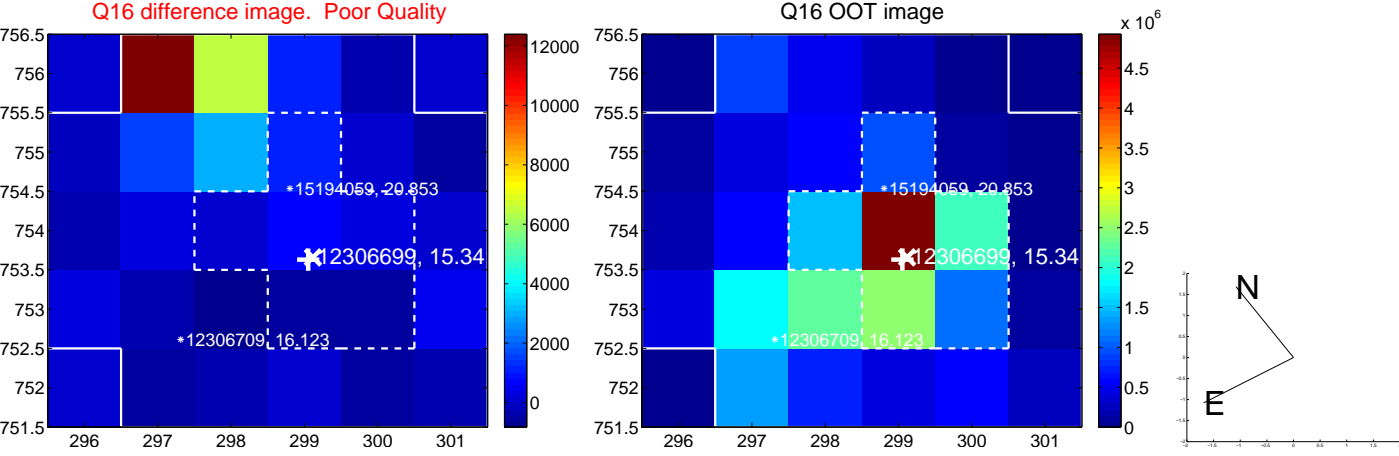
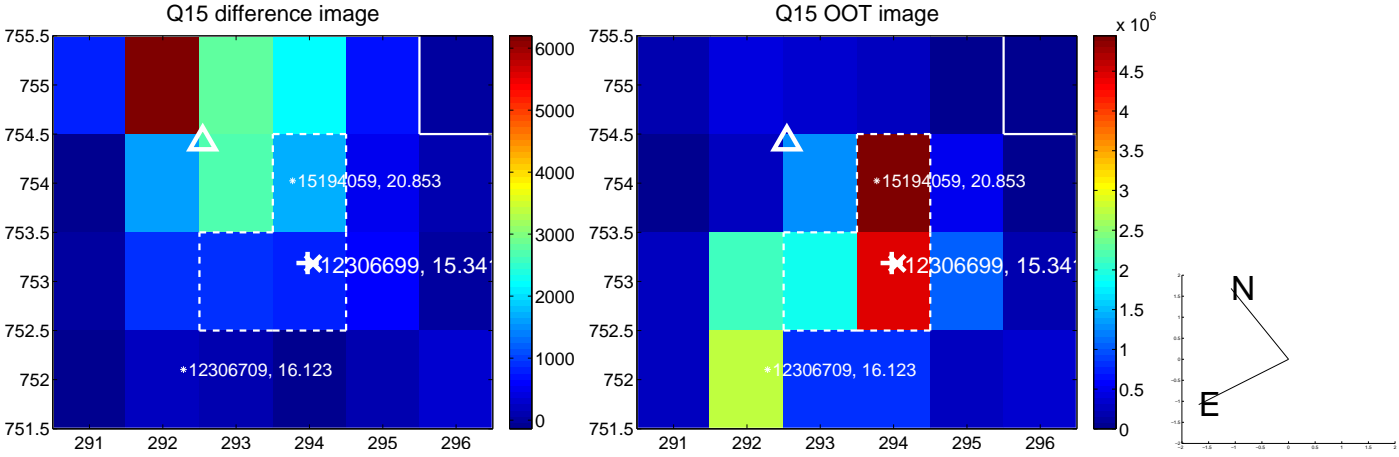
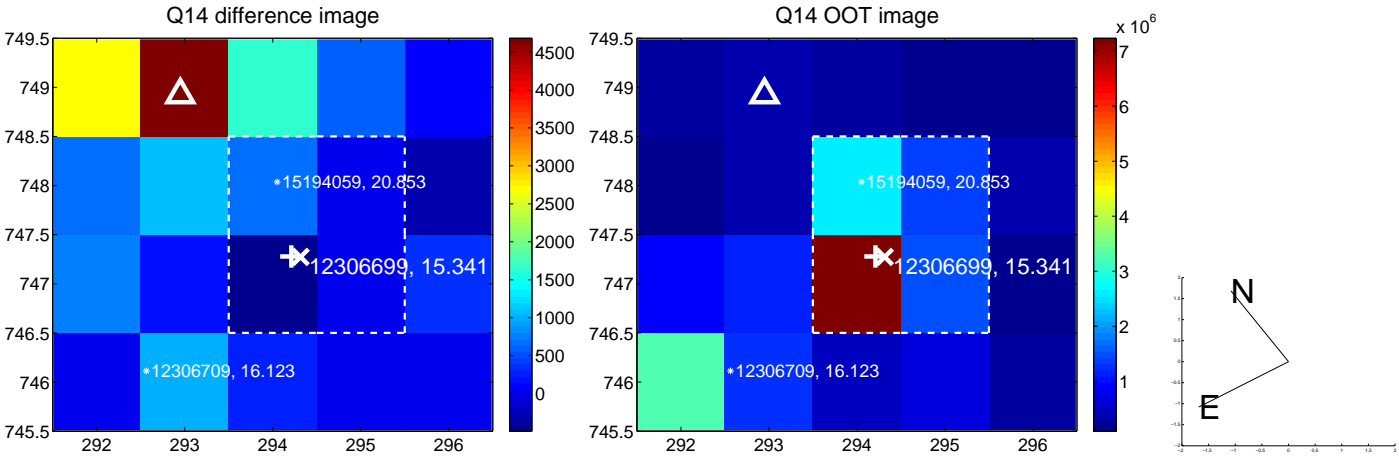
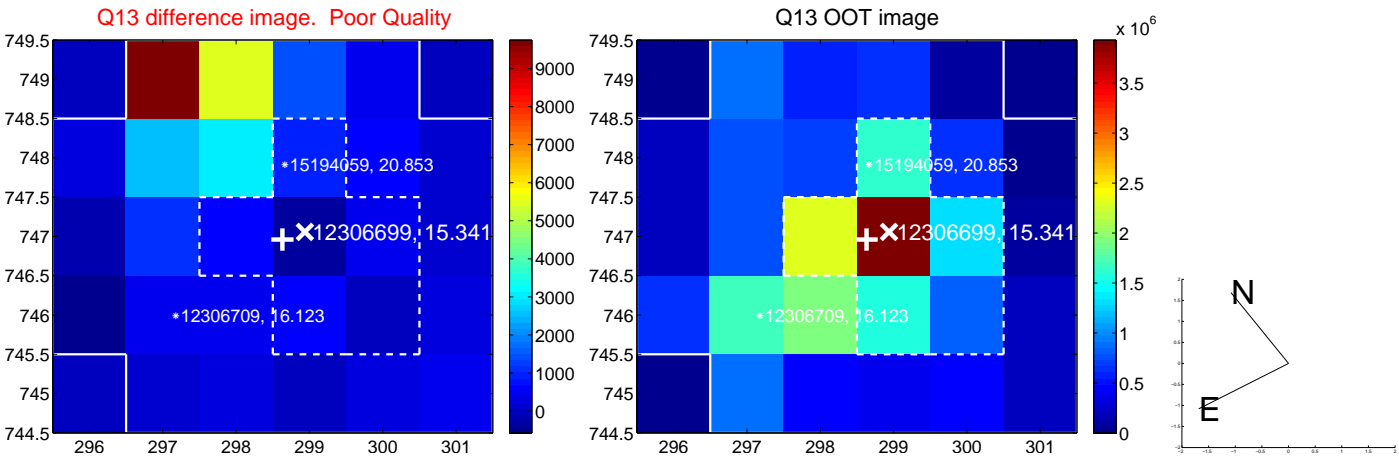
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



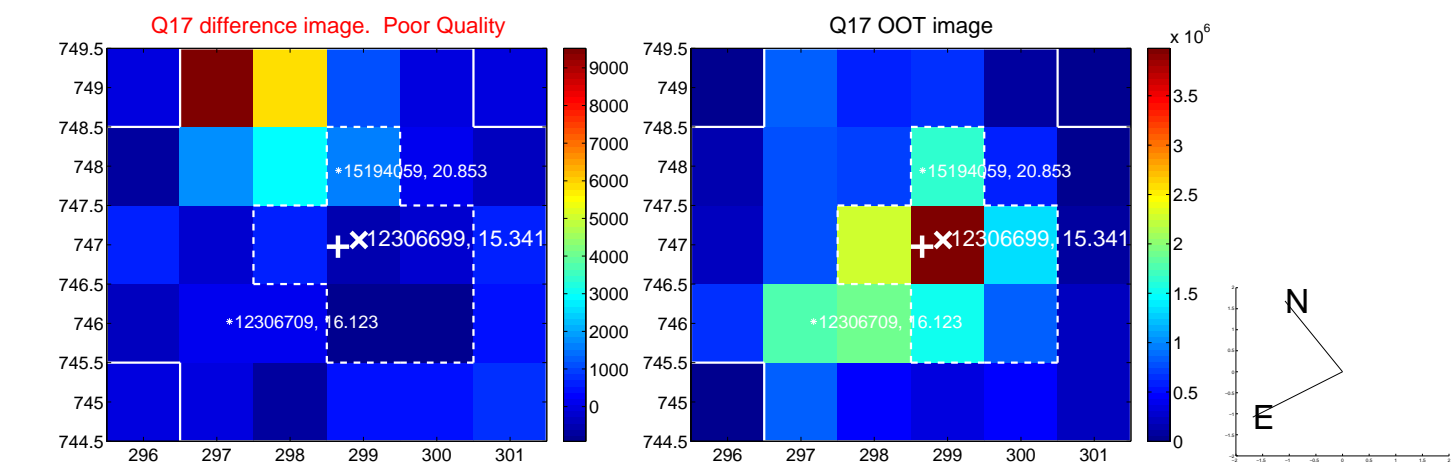
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



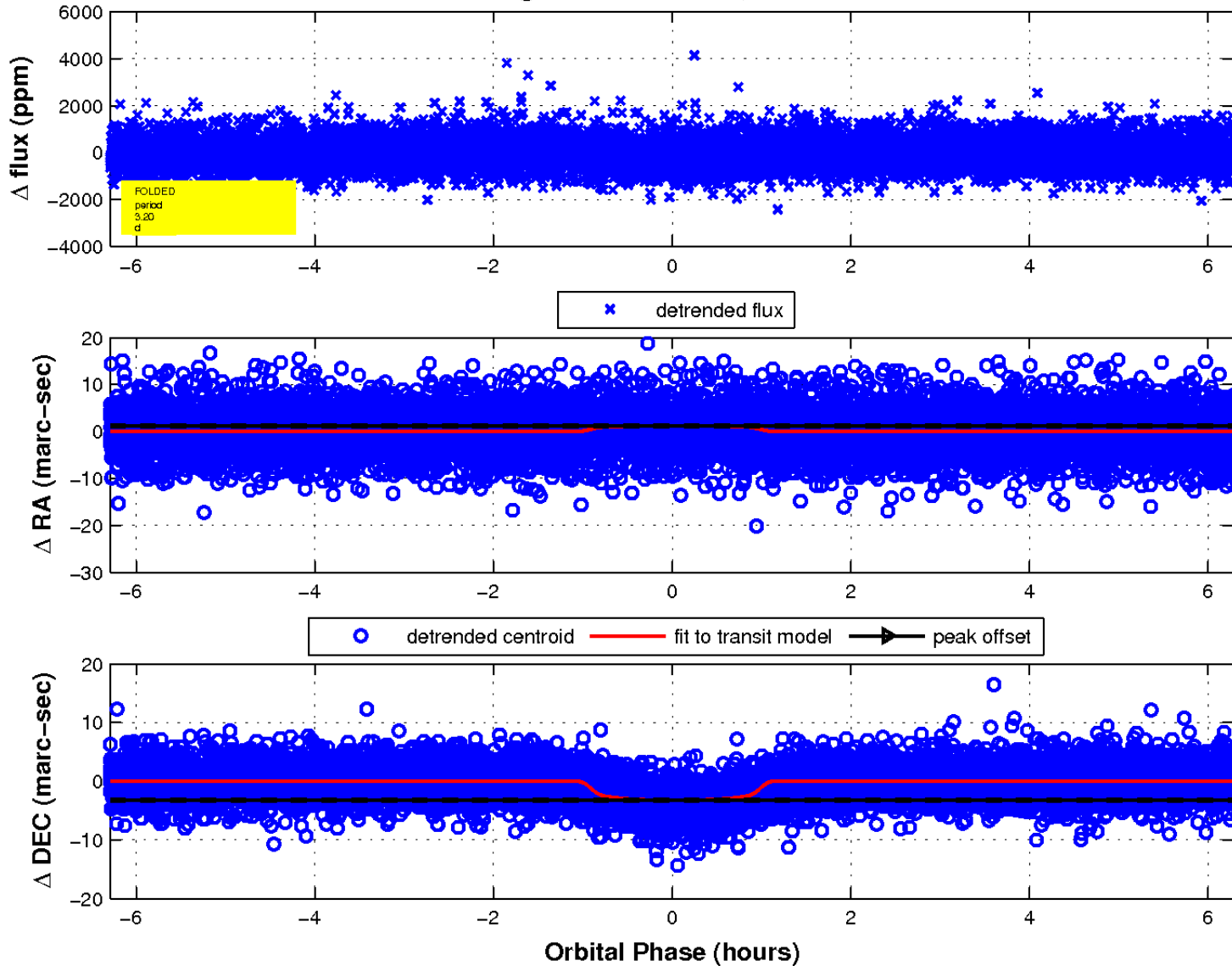
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

