

KIC 009328852

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})
009328852-01	OBS	No	5.812665	133.182100	309039.1	1.797	324.6	1607.6	0.46	4399	41.65	29.30
009328852-02	OBS	7159.01	0.645851	131.892244	283481.7	1.500	8782.9	-1.0	0.46	4399	25.26	548.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009328852-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—MOD_NONUNIQ_ALT—MOD_TER_ALT
009328852-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD—CENT_NOFITS

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

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

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

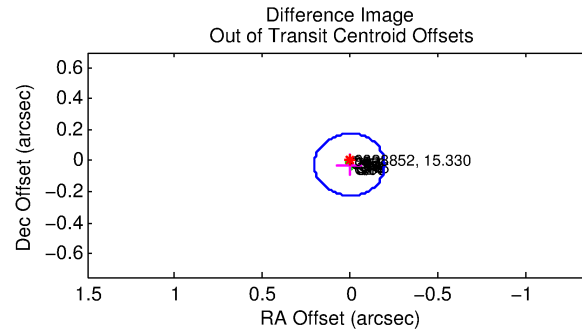
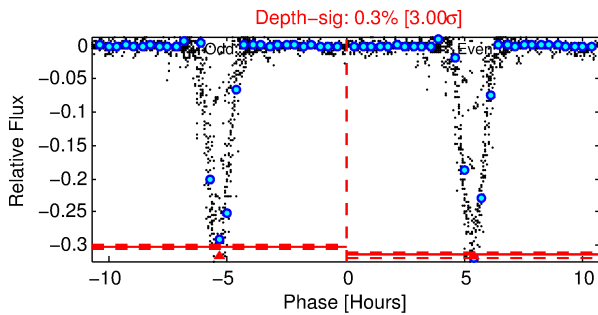
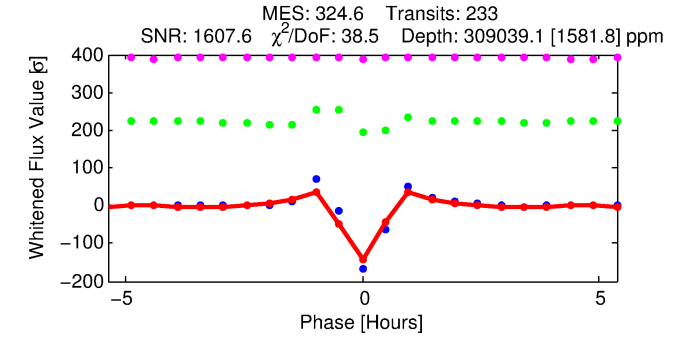
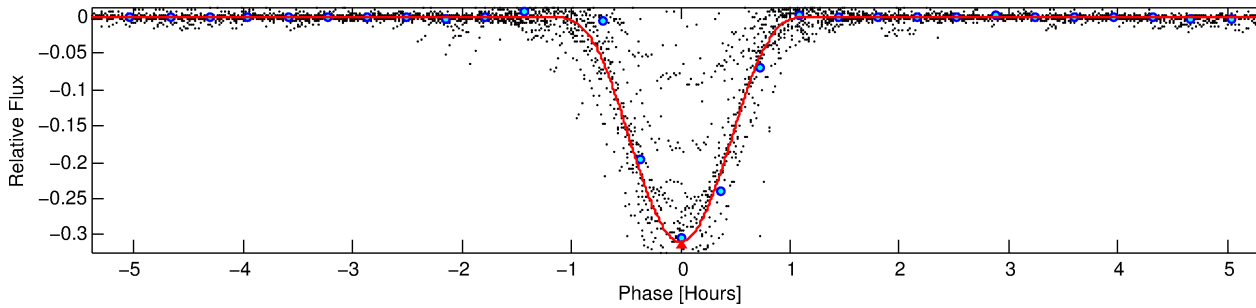
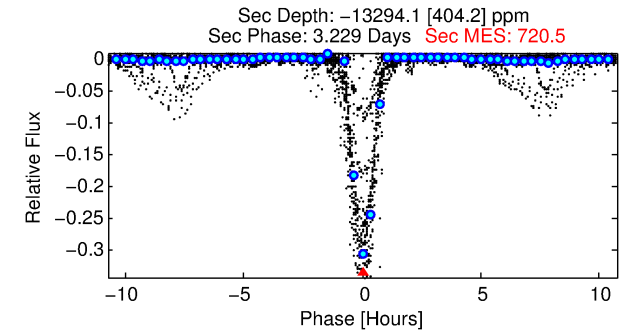
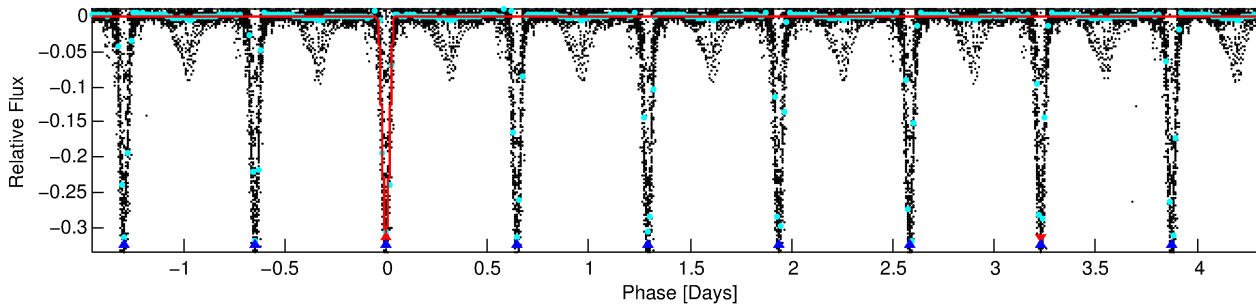
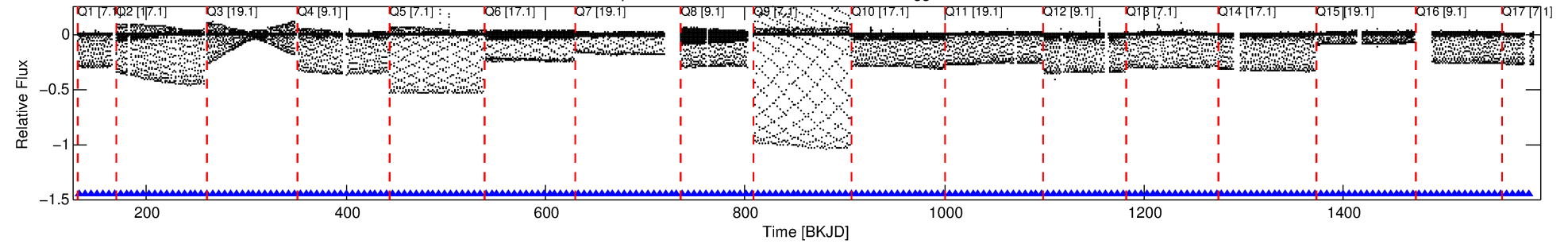
Ephemeris Match Information For 009328852-01

No Significant Match Found

DV One-Page Summary

KIC: 9328852 Candidate: 1 of 2 Period: 5.813 d
KOI: K07159 Corr: No Ephemeris Match

Kp: 15.33 R*: 0.46 Rs Teff: 4399.0 K Logg: 4.79 Fe/H: -1.560



DV Fit Results:

Period = 5.81267 [0.00000] d
Epoch = 133.1821 [0.0001] BKJD
Rp/R* = 0.8244 [0.1125]
a/R* = 39.12 [1.50]
b = 0.91 [0.14]
Seff = 29.30 [5.83]
Teq = 593 [30] K
Rp = 41.65 [7.53] Re
a = 0.0495 [0.0049] AU
Ag = N/A
Teffp = N/A

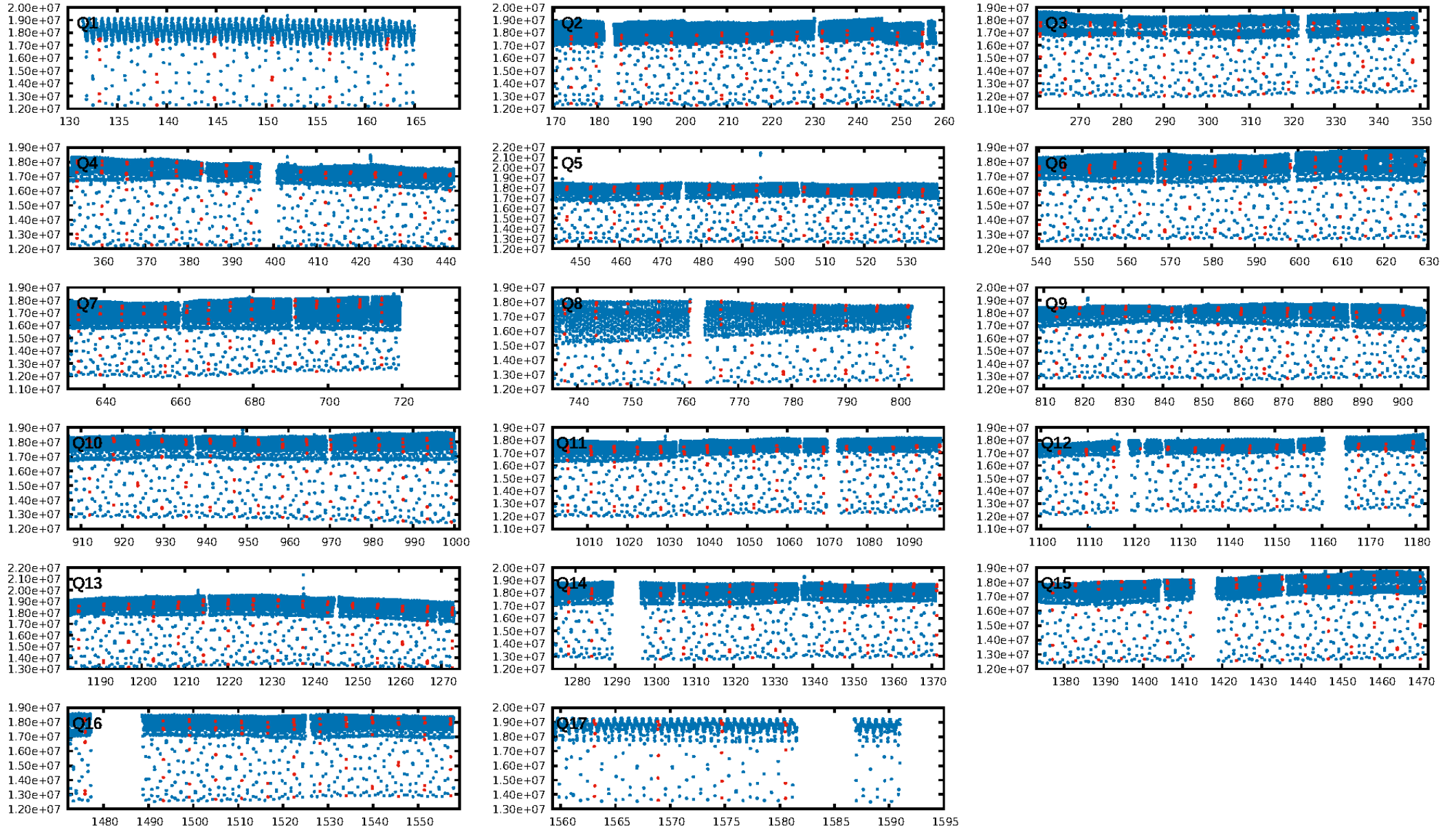
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [52.98σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [223/223]
GhostDiagnostic-chr: -1.84
Centroid-sig: N/A
Centroid-so: 0.054 arcsec [45.89σ]
OotOffset-rm: 0.026 arcsec [0.39σ]
KicOffset-rm: 0.080 arcsec [1.18σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

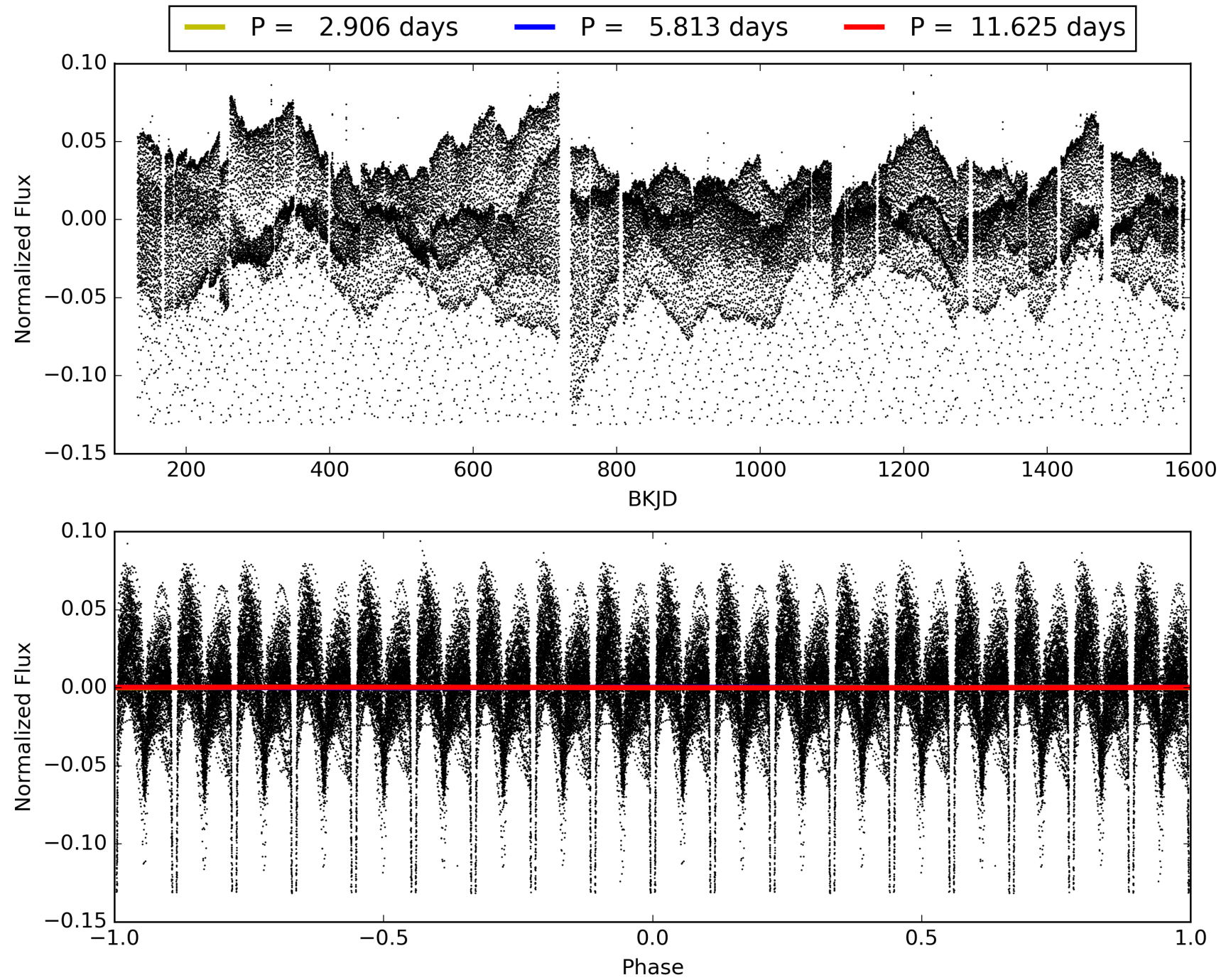
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:36:57 Z

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

TCE 009328852-01, PDC Light Curves

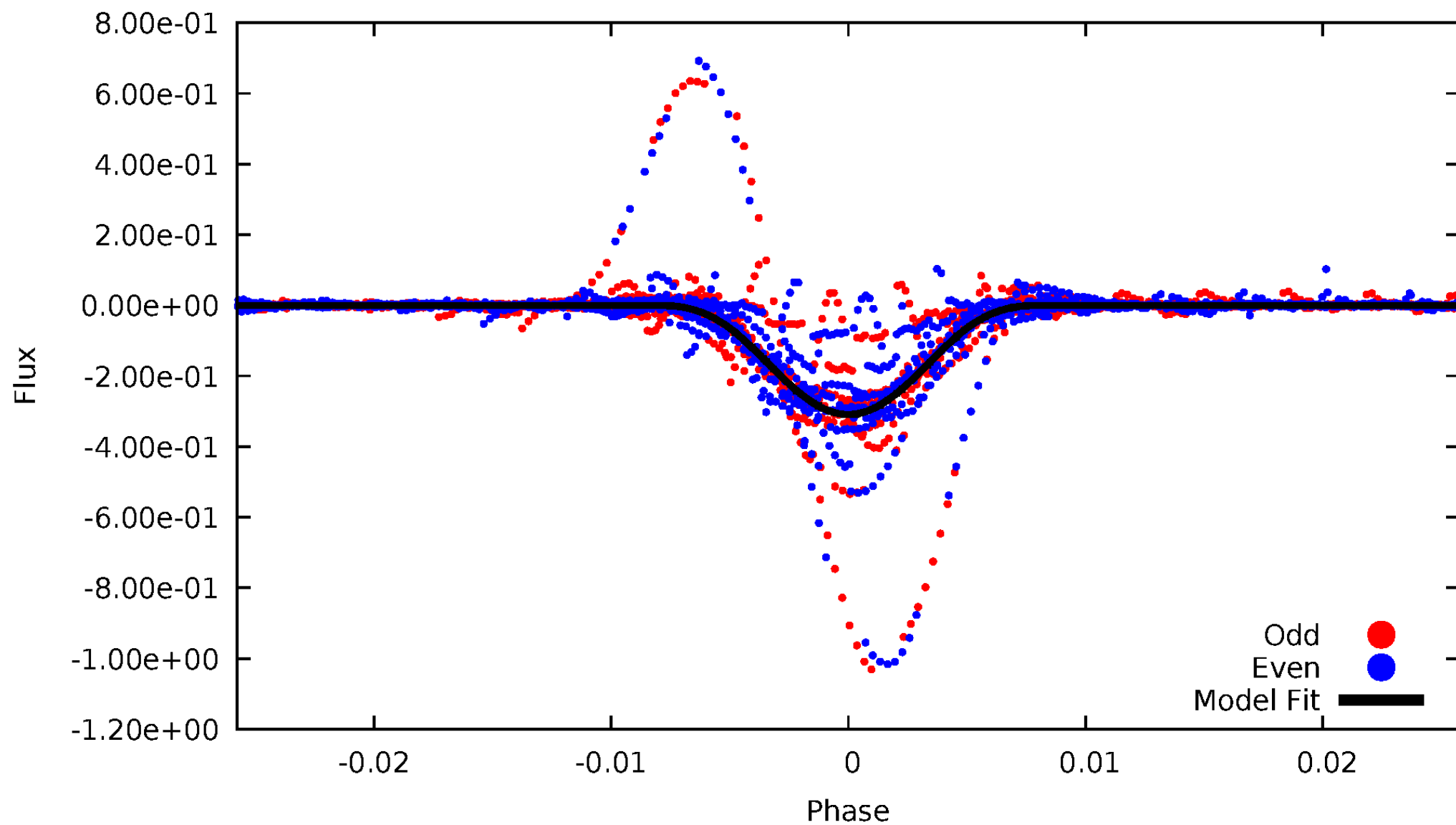


TCE 009328852-01



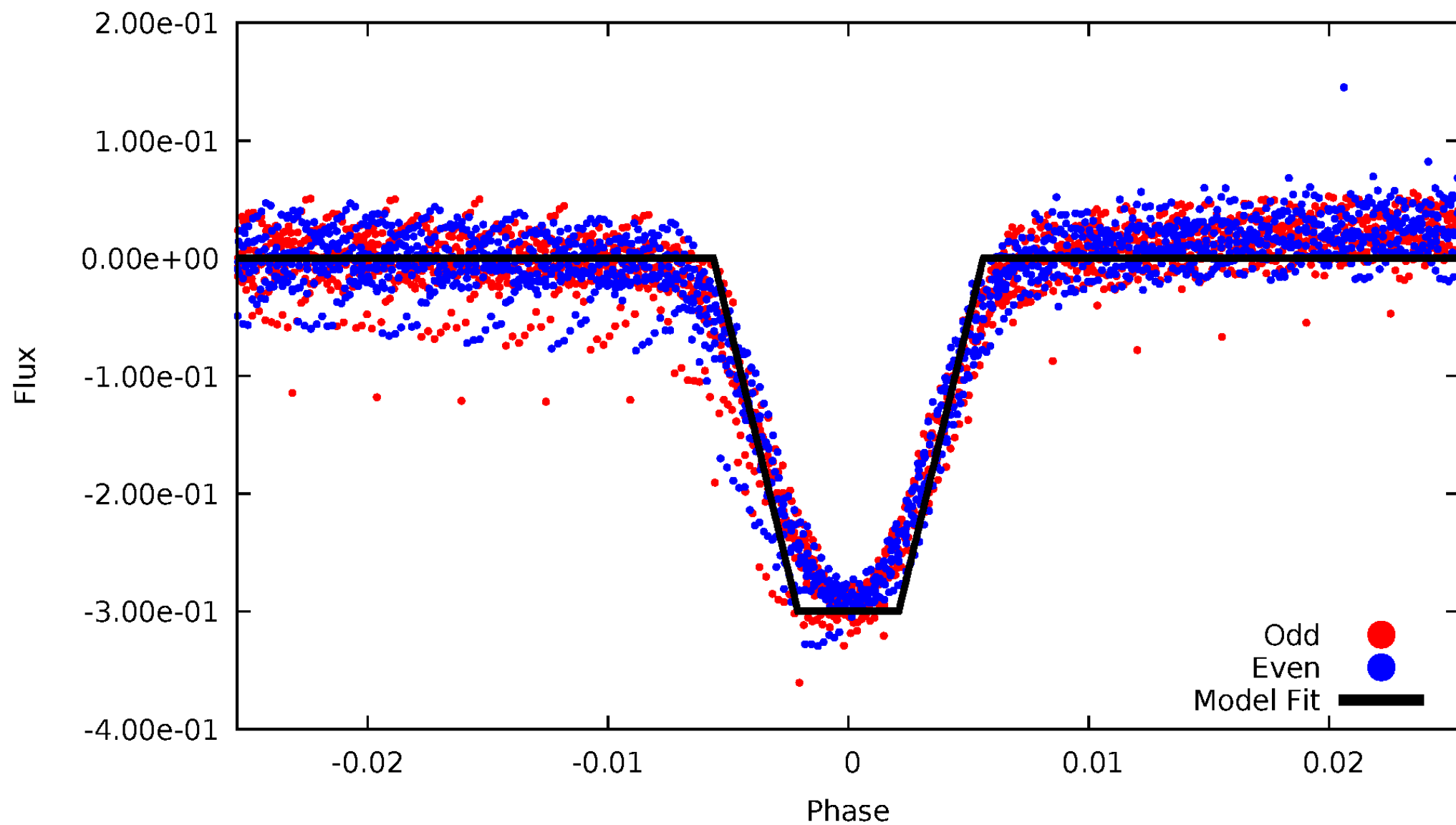
DV Odd/Even

TCE 009328852-01



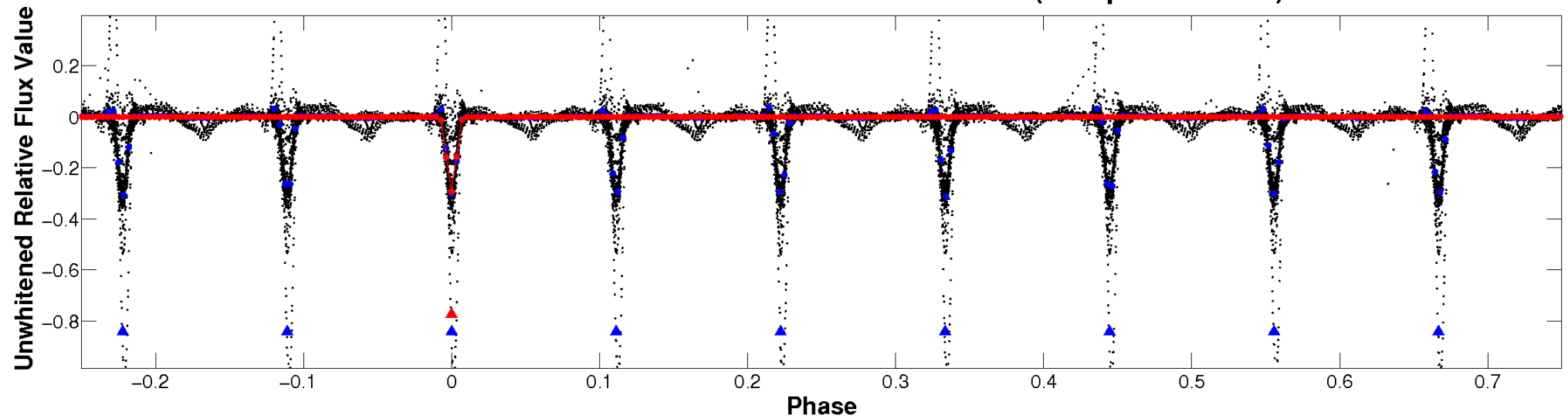
ALT Odd/Even

TCE 009328852-01

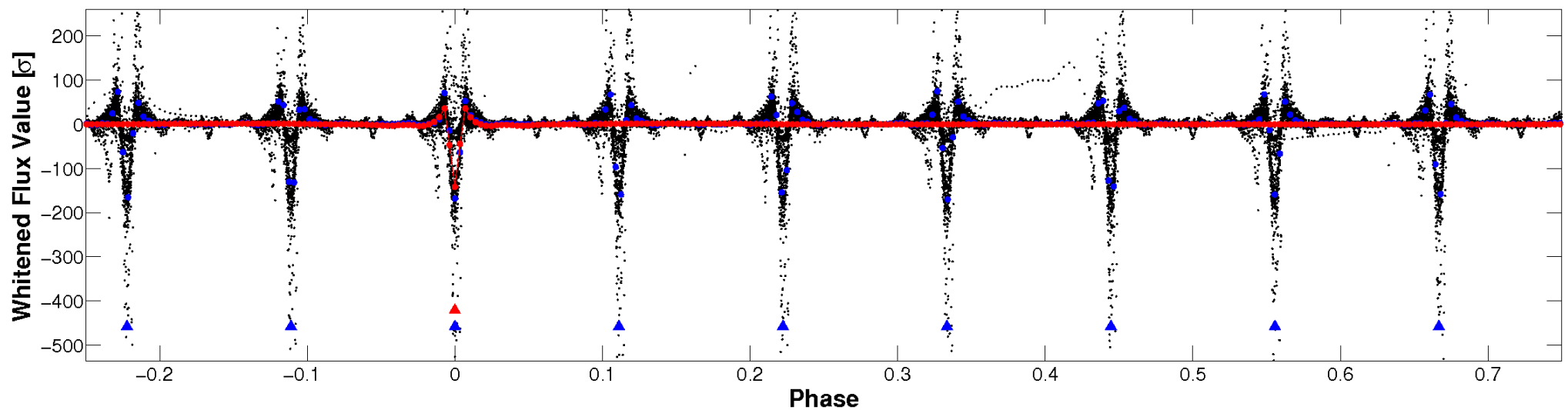


Non-Whitened Vs. Whitened Light Curve

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

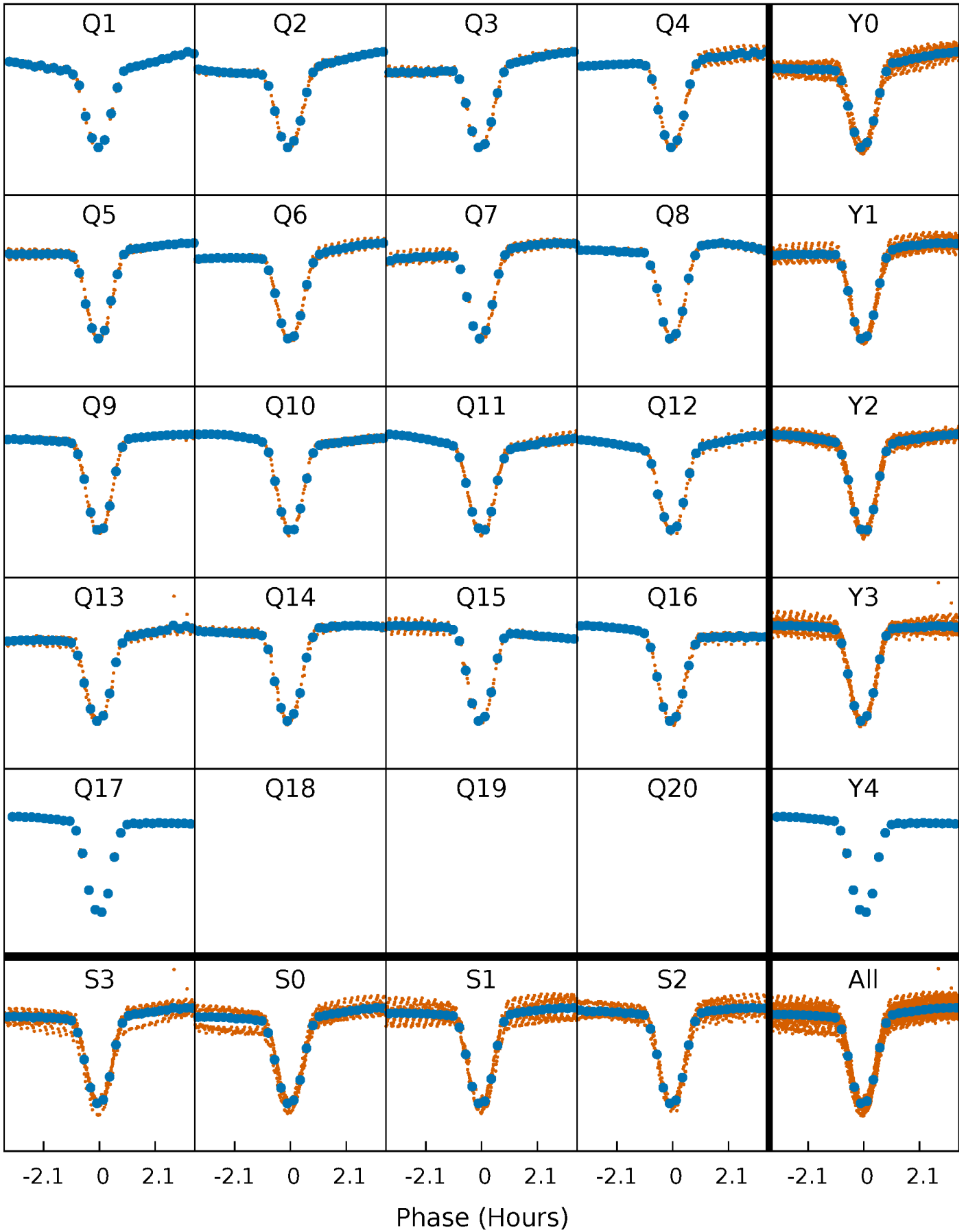


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



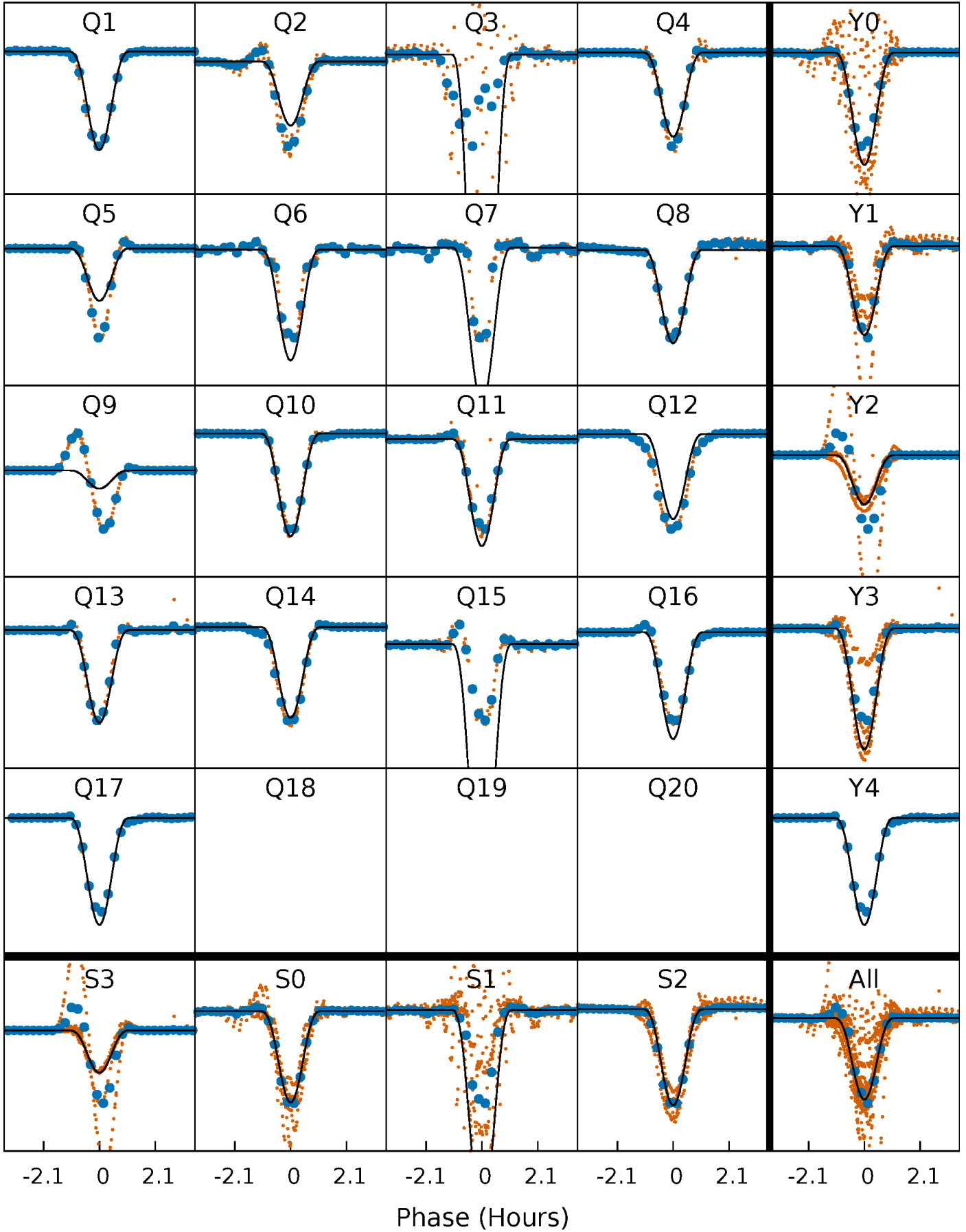
PDC Quarter-Phased Transit Curves

TCE 009328852-01 P= 5.812665 Days $T_0=133.182100$ (BKJD)



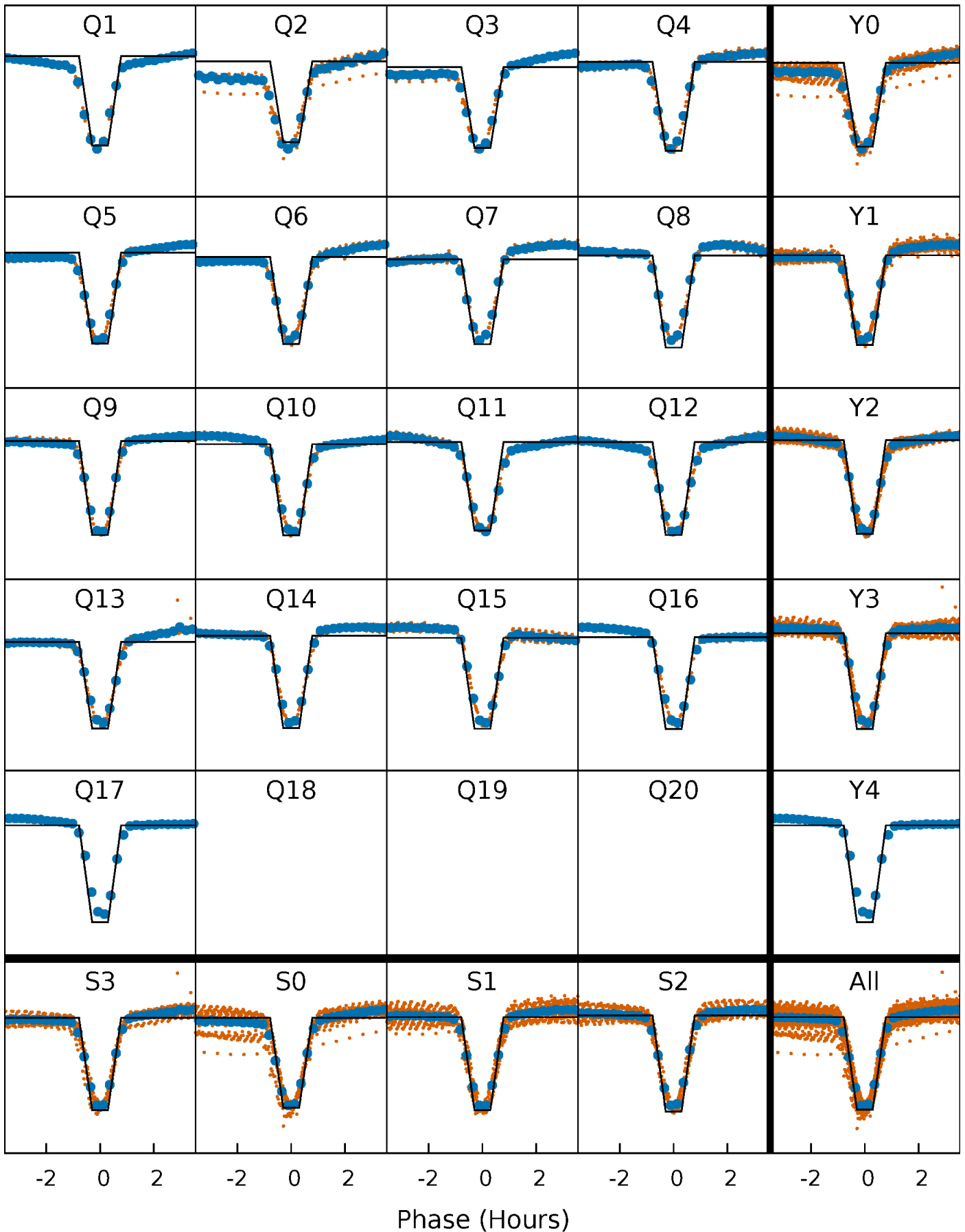
DV Quarter-Phased Transit Curves

TCE 009328852-01 P= 5.812665 Days $T_0=133.182100$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

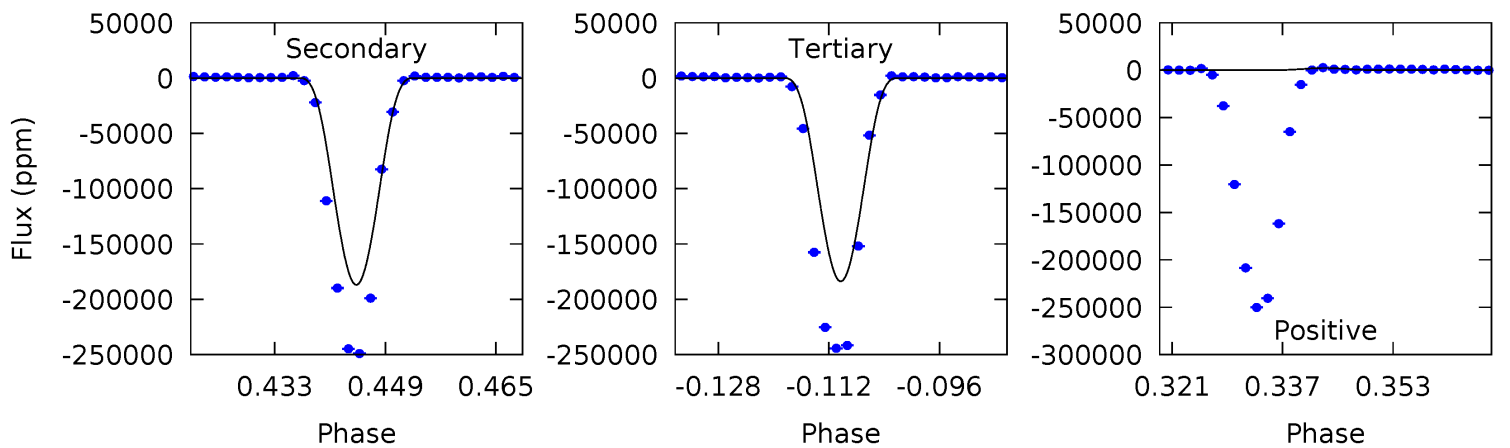
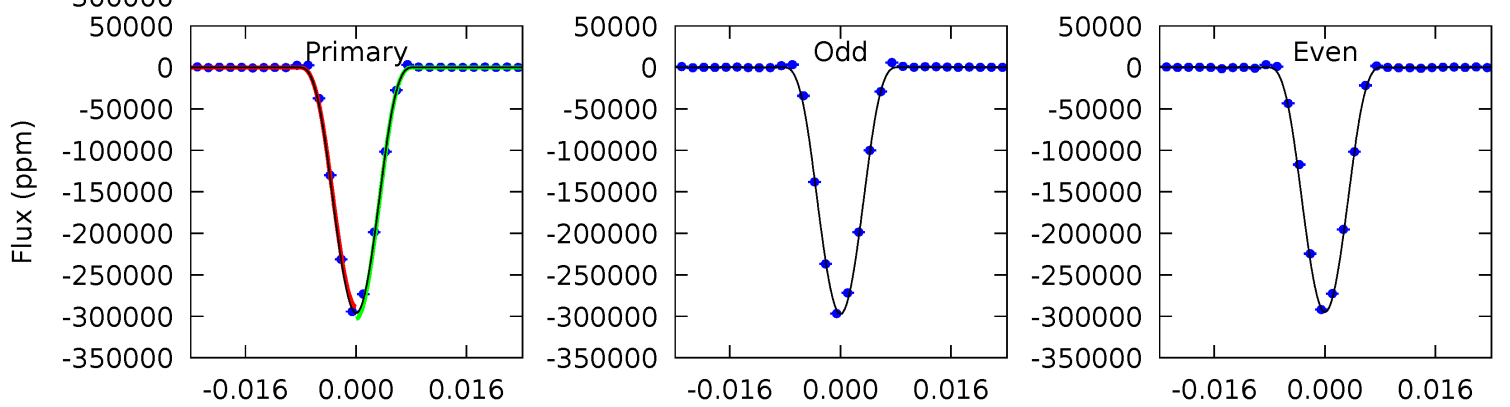
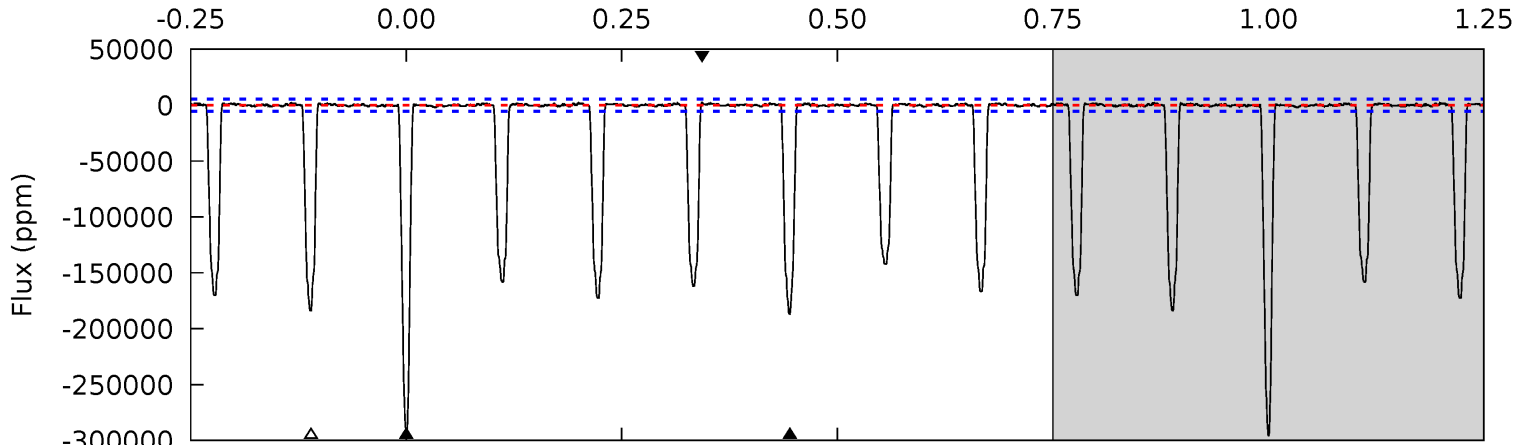
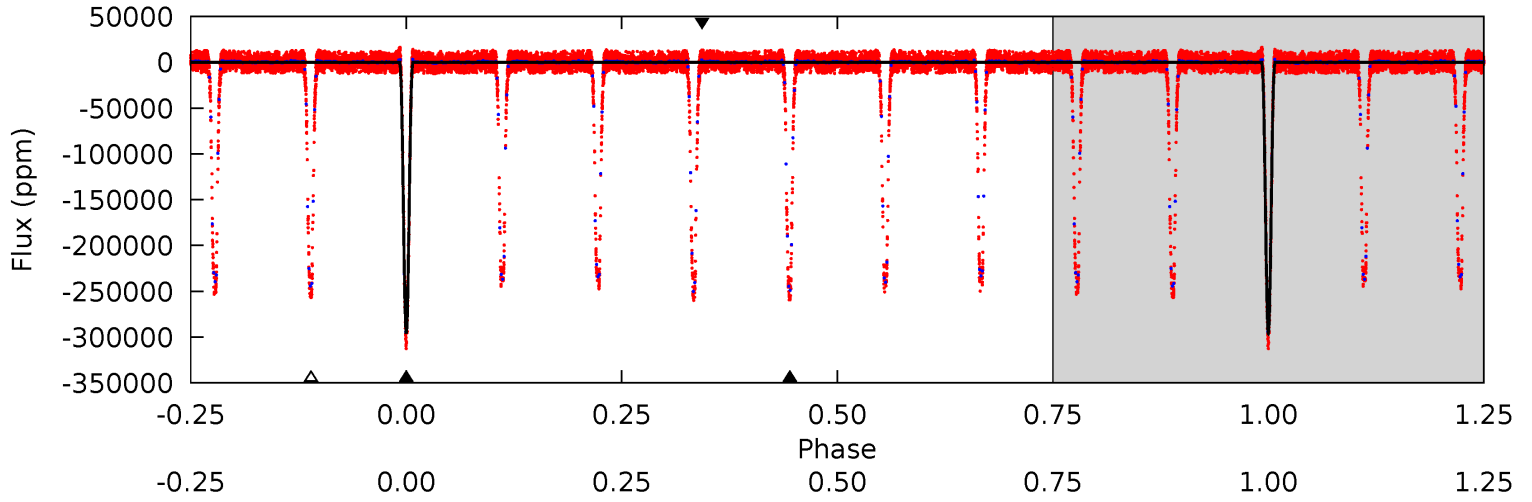
TCE 009328852-01 P= 5.812635 Days $T_0=133.185206$ (BKJD)



DV Model-Shift Uniqueness Test

009328852-01, P = 5.812665 Days, E = 127.369435 Days

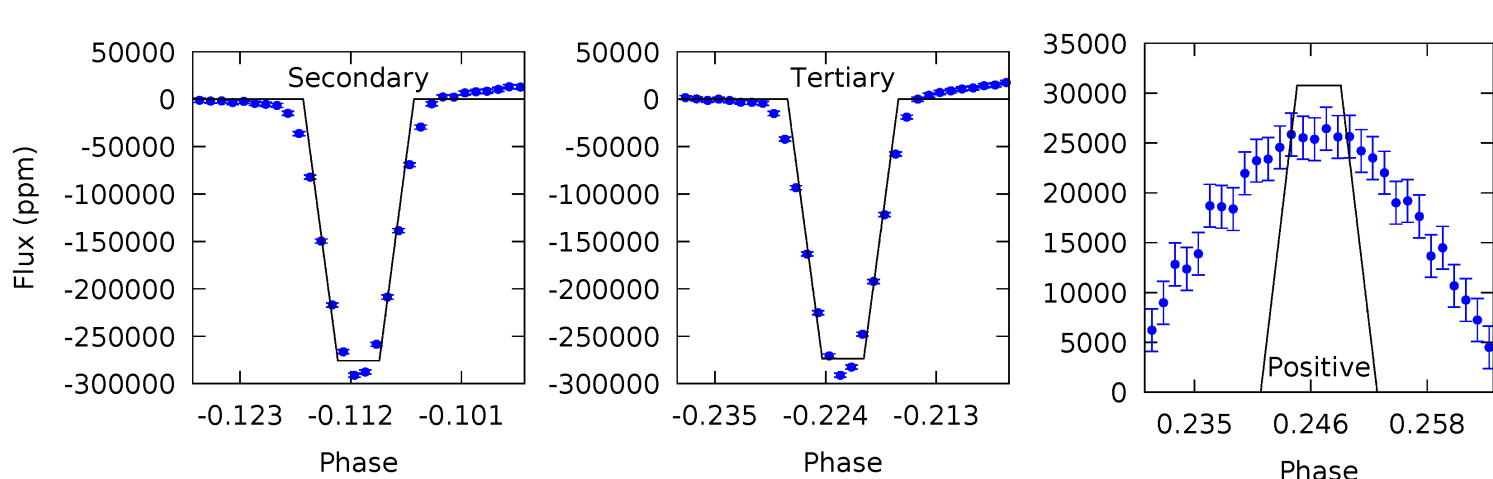
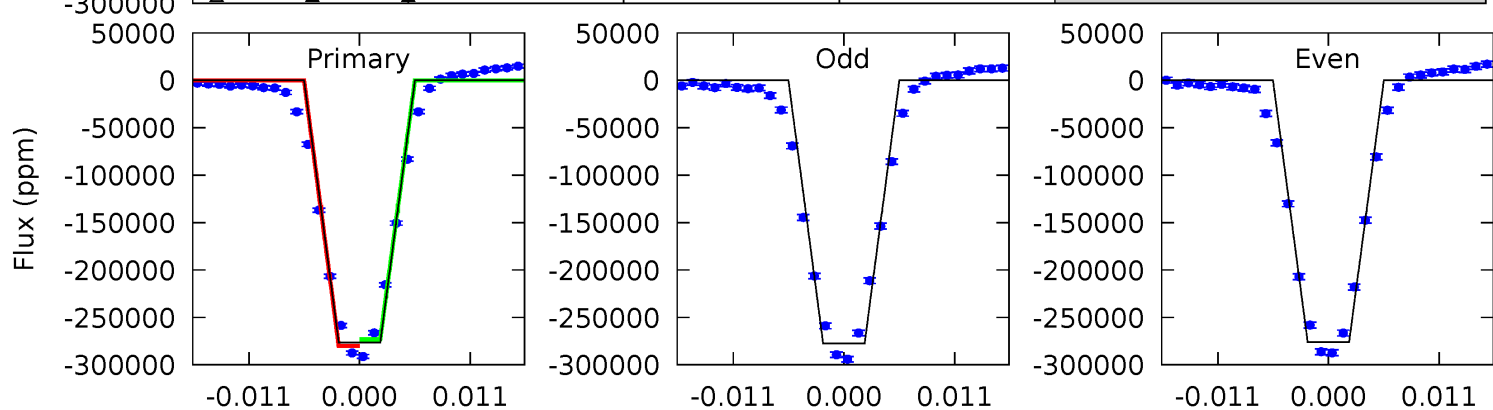
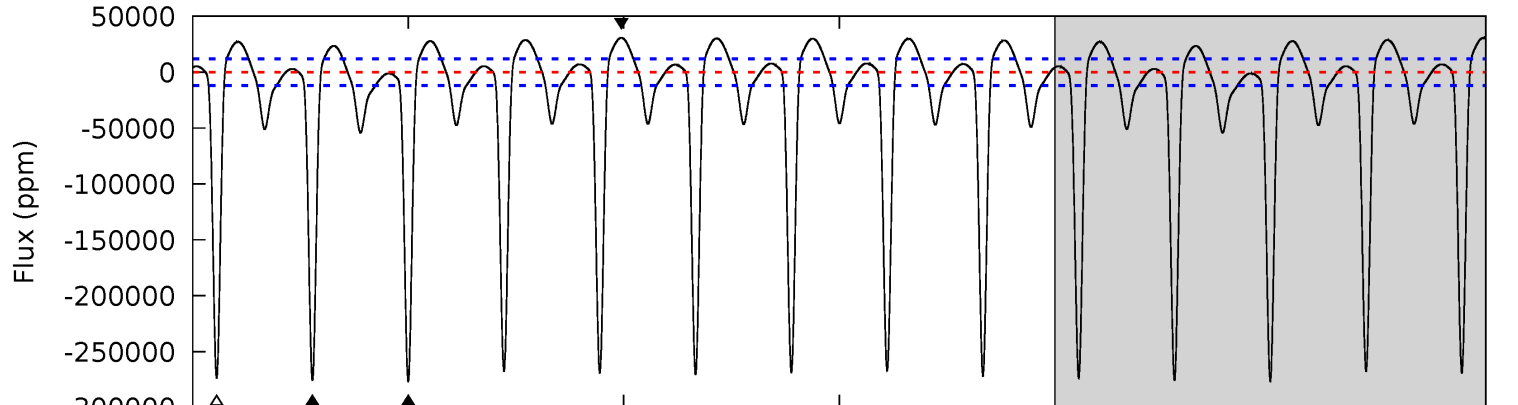
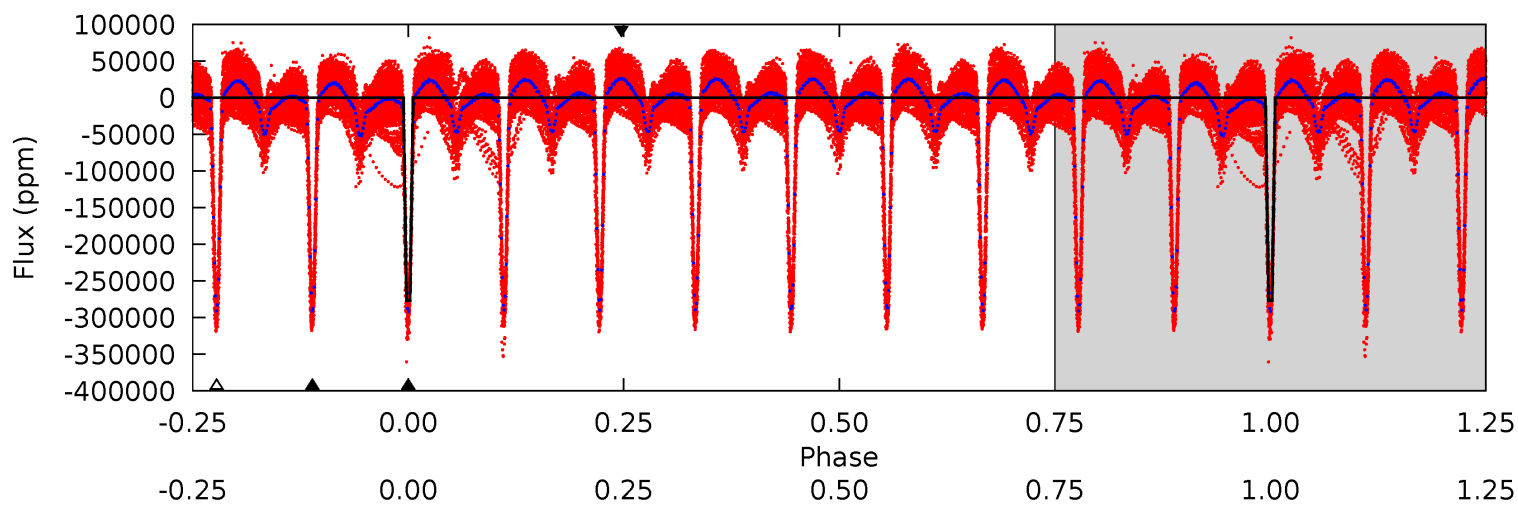
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
267.5	168.8	166.0	2.06	4.93	2.41	15.9	101.5	265.5	2.82	166.8	1.04	1.04	0.01	0



Alt Model-Shift Uniqueness Test

009328852-01, P = 5.812635 Days, E = 127.372571 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
115.3	114.9	114.0	12.8	5.00	2.54	25.5	1.28	102.5	0.87	102.0	0.35	1.00	0.10	1.52



Stellar Parameters For KIC 009328852

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4399^{+125}_{-156}	$4.788^{+0.075}_{-0.030}$	$-1.560^{+0.300}_{-0.250}$	$0.463^{+0.029}_{-0.055}$	$0.480^{+0.031}_{-0.043}$	$6.811^{+2.242}_{-0.838}$
	+3%/-4%	+2%/-1%	+19%/-16%	+6%/-12%	+6%/-9%	+33%/-12%
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 009328852-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-186818 ± 1107	$40.95^{+5.87}_{-5.93}$	822^{+29}_{-35}	3623^{+214}_{-174}	186^{+65}_{-43}
Alt.	-275746 ± 2401	$27.10^{+5.74}_{-5.98}$	822^{+28}_{-38}	4614^{+526}_{-370}	699^{+477}_{-222}

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

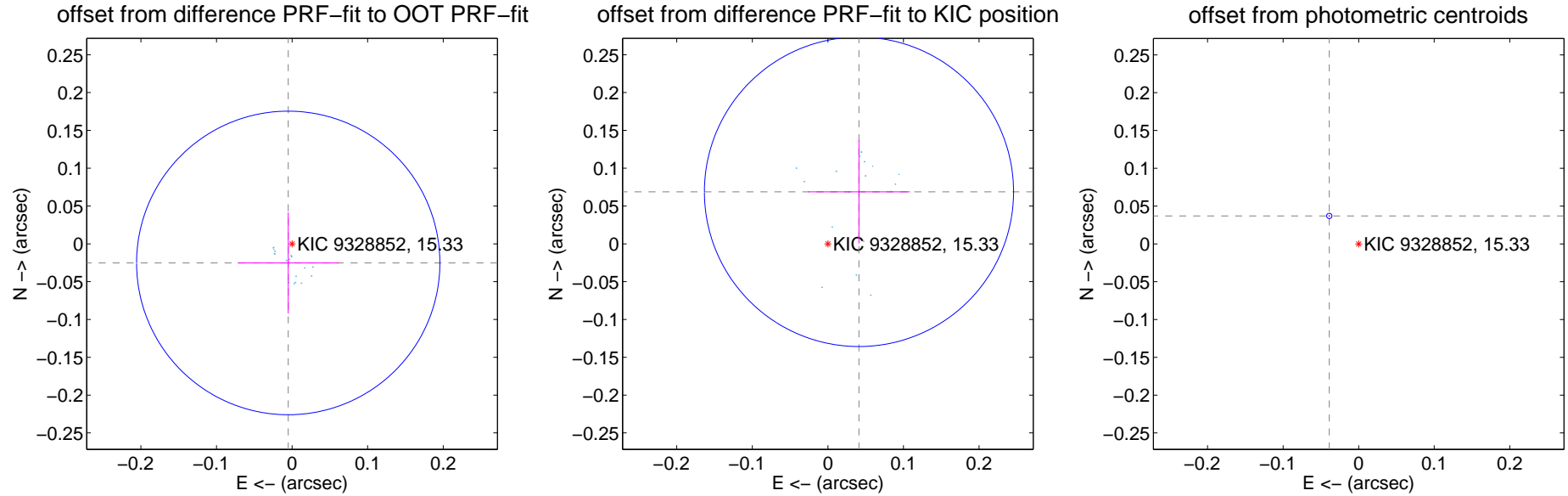
DV Centroid Data

Supplemental centroid analysis for 009328852-01. Kepler magnitude: 15.33. Transit SNR 1607.55

There are 17 quarters with good PRF difference image offsets

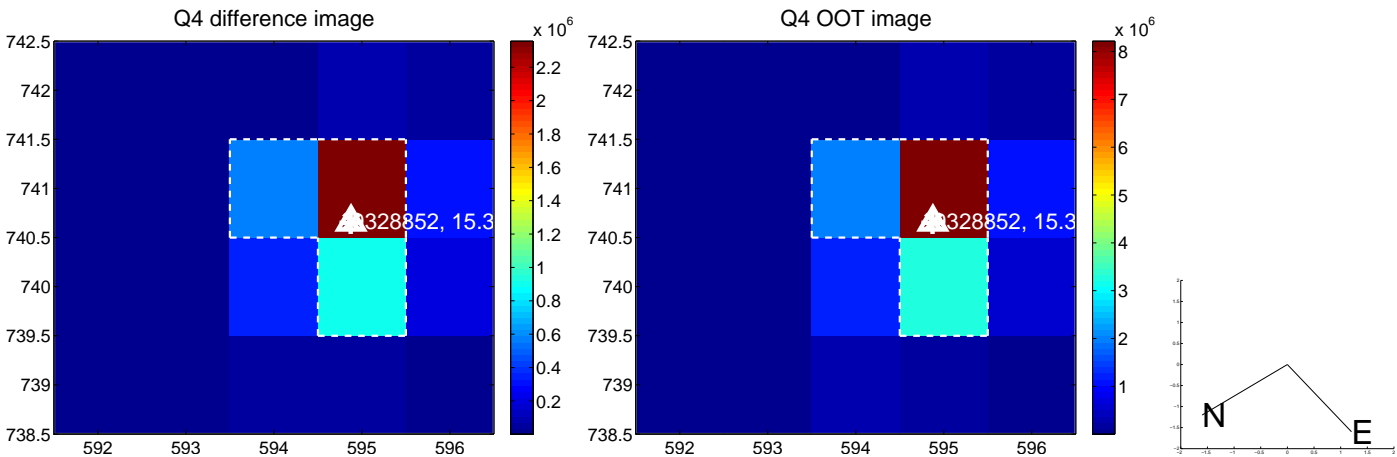
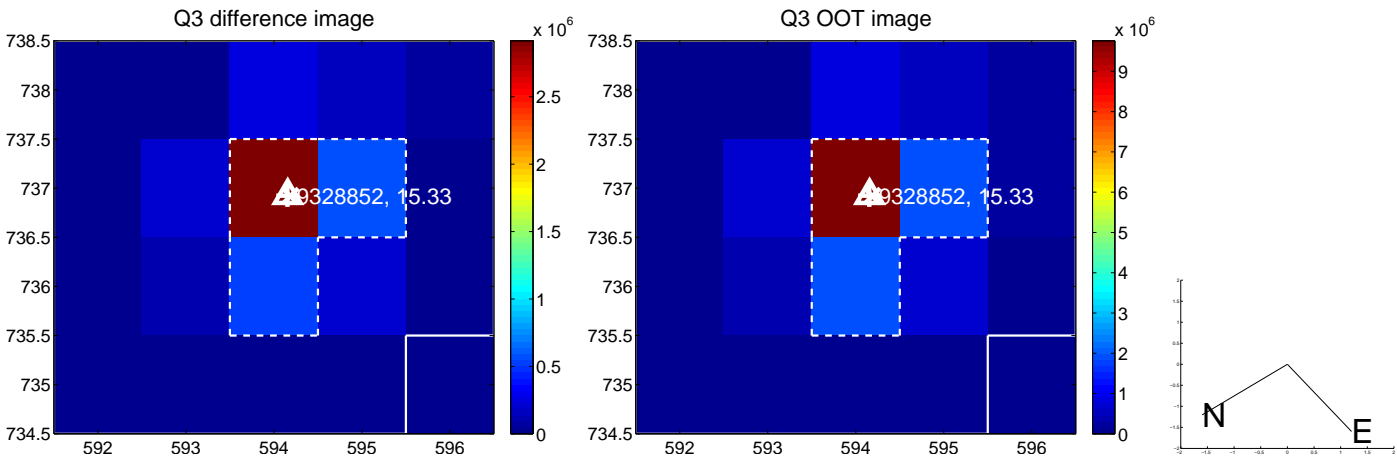
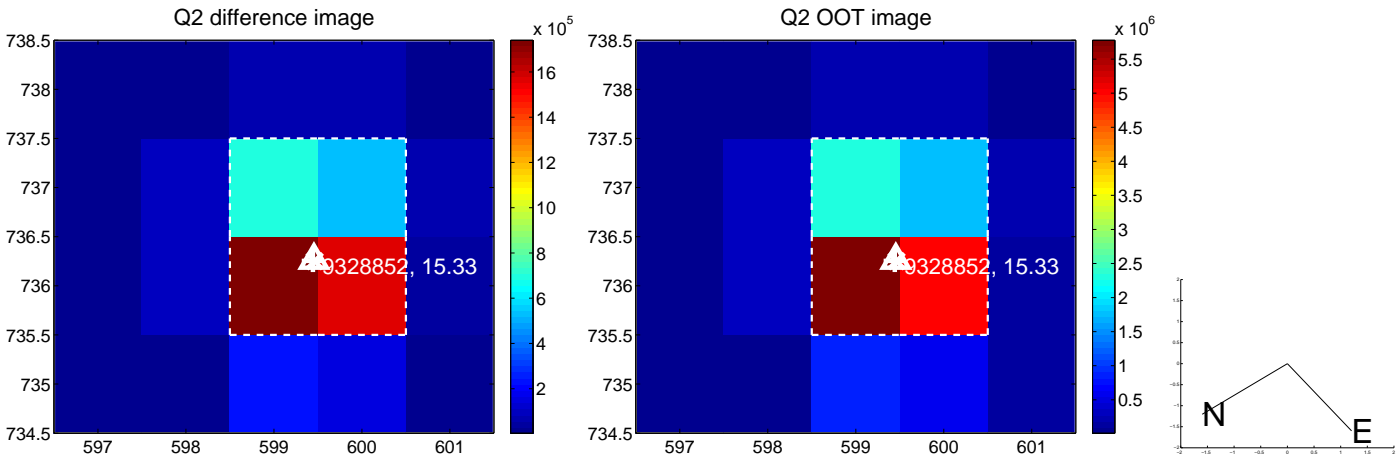
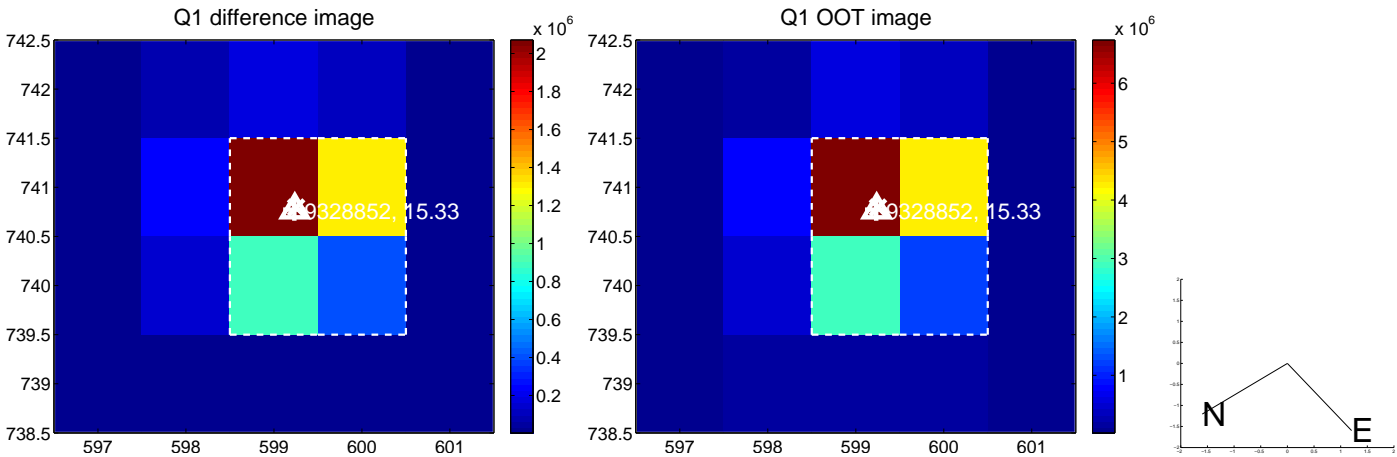
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.026 ± 0.067	0.39	0.005 ± 0.067	-0.025 ± 0.067
PRF-fit source offset from KIC position	0.080 ± 0.068	1.18	-0.041 ± 0.067	0.069 ± 0.068
photometric centroid source offset	0.05 ± 0.00	45.89	0.04 ± 0.00	0.04 ± 0.00

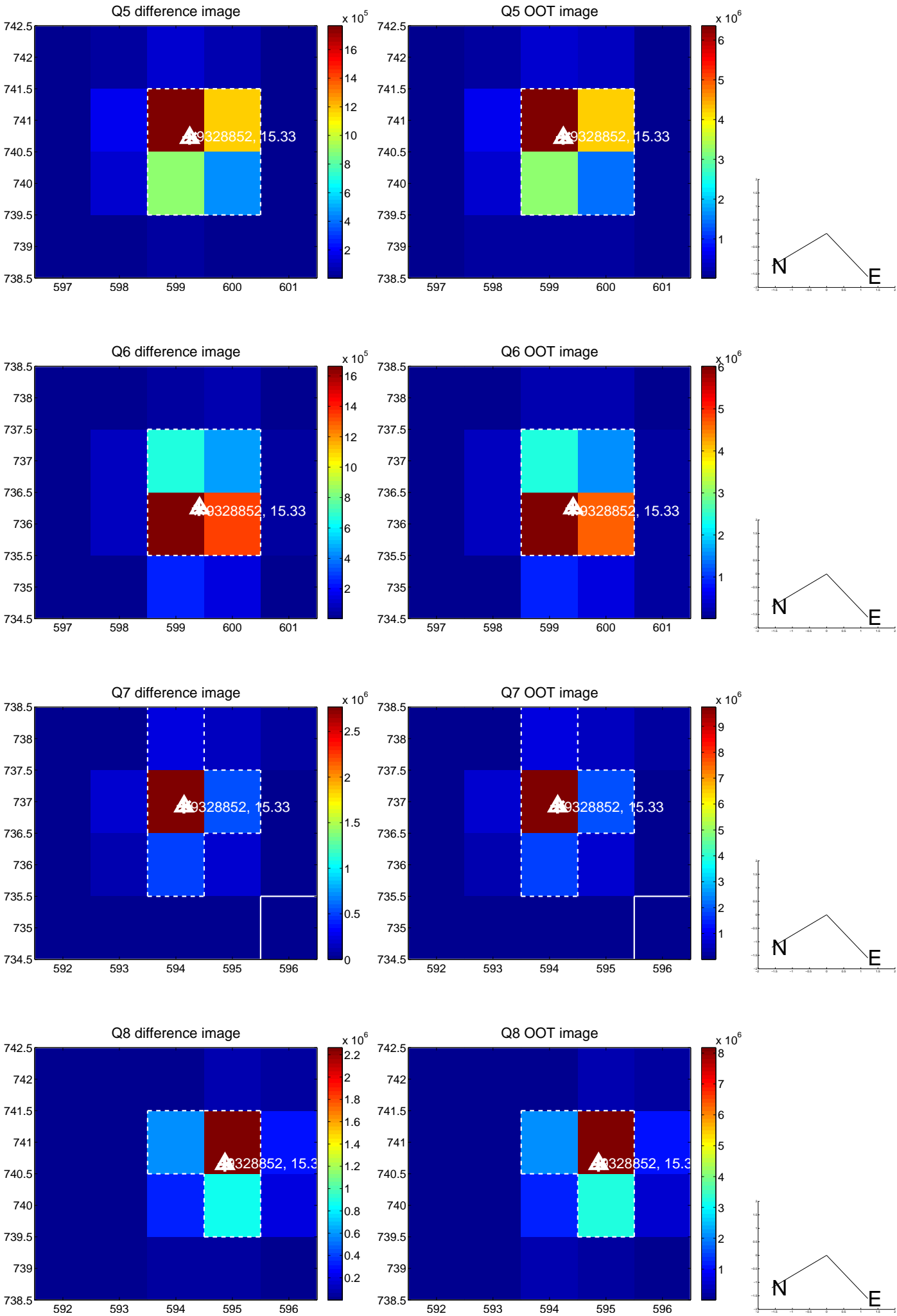


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

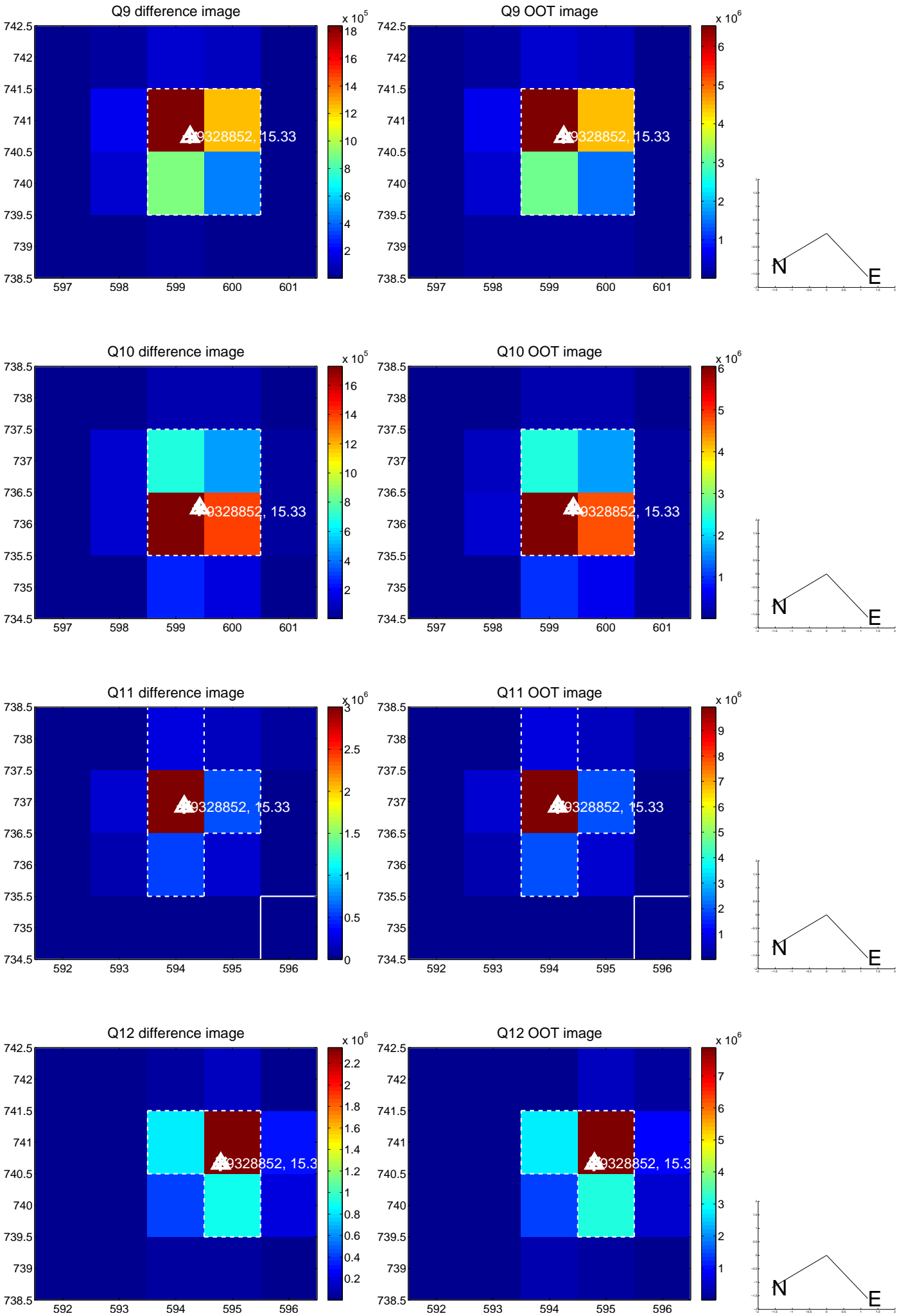
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



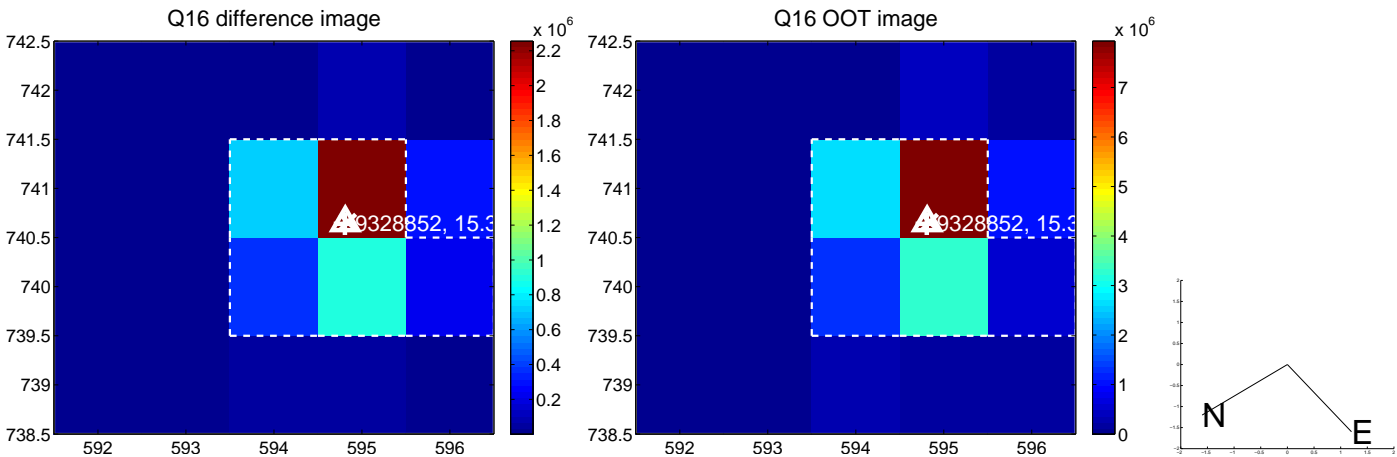
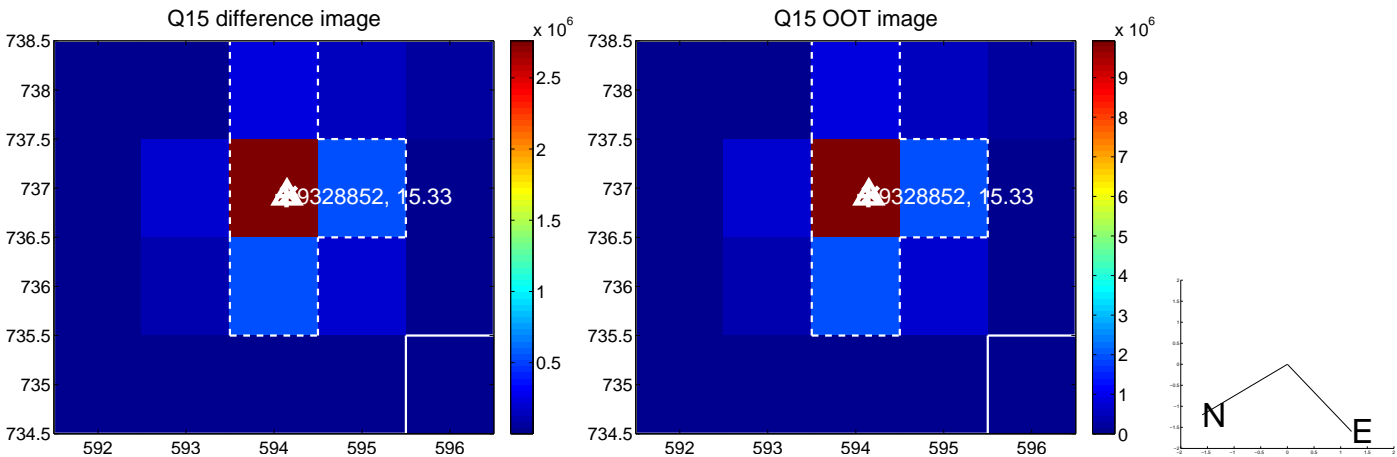
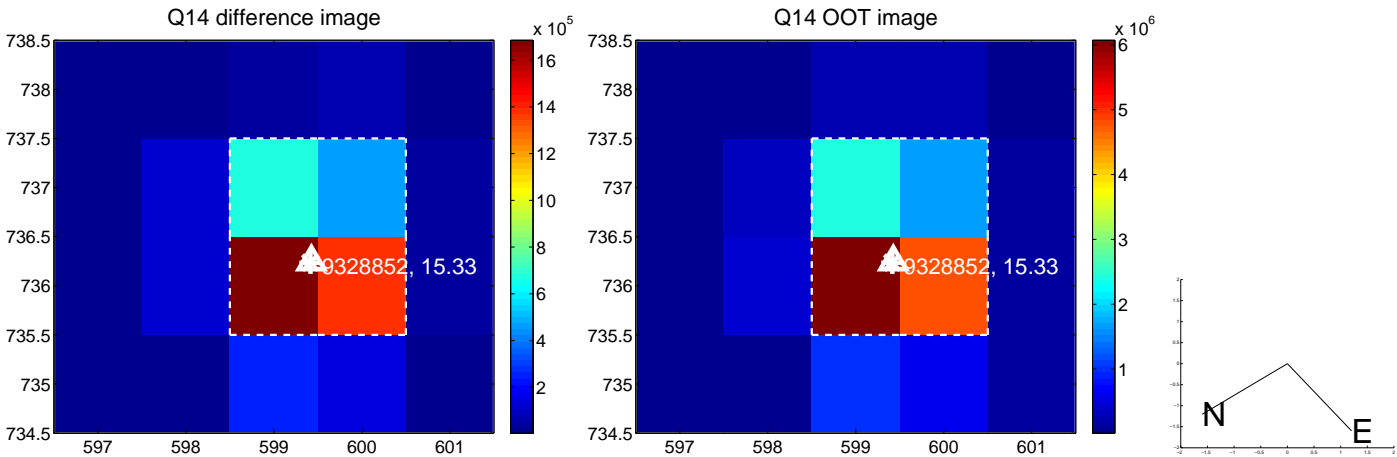
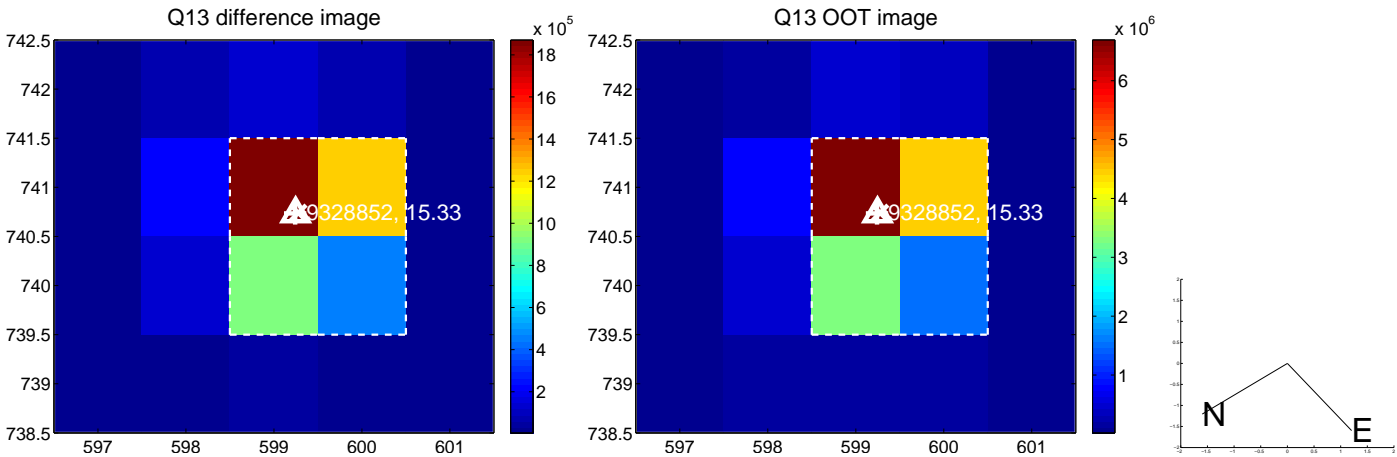
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



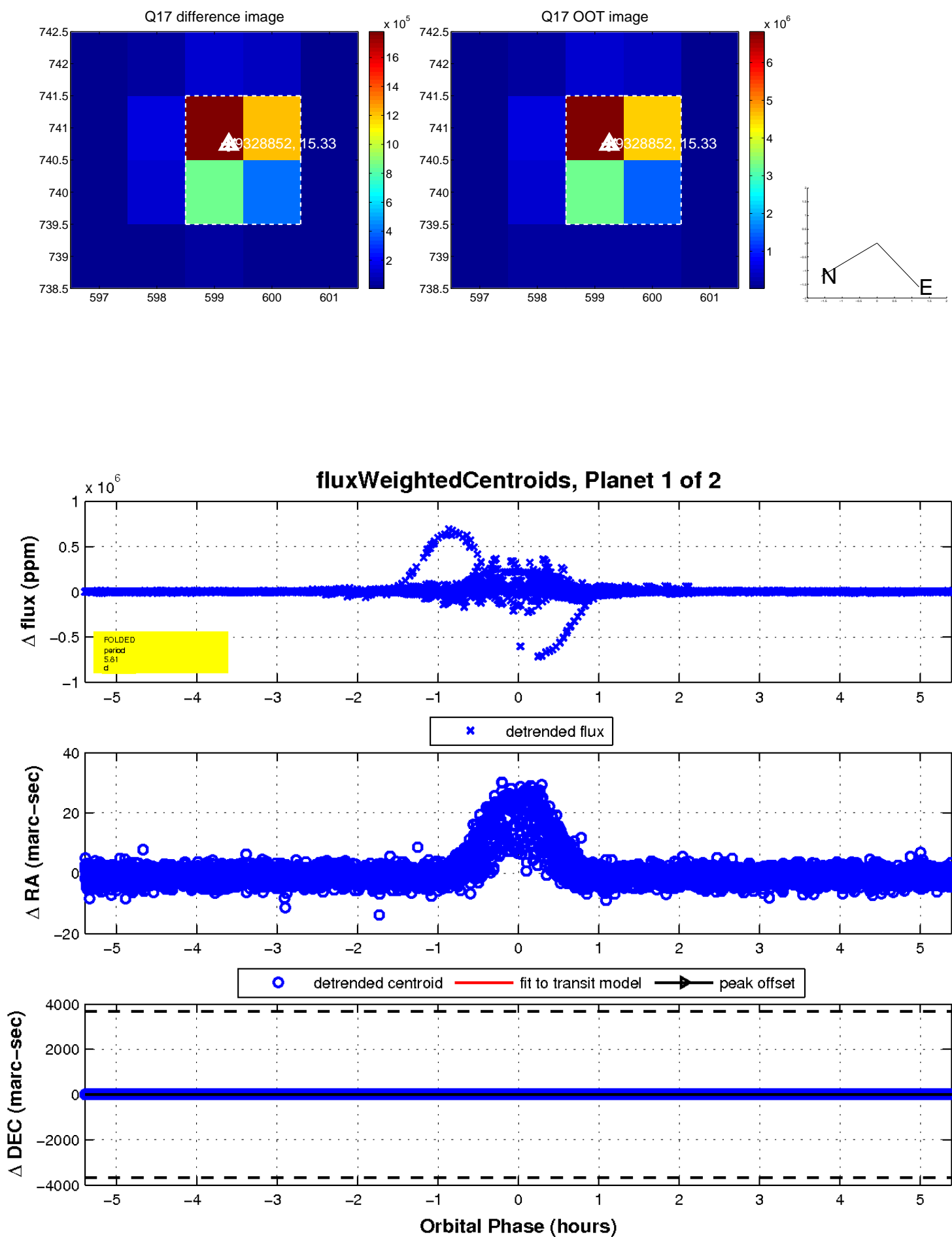
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

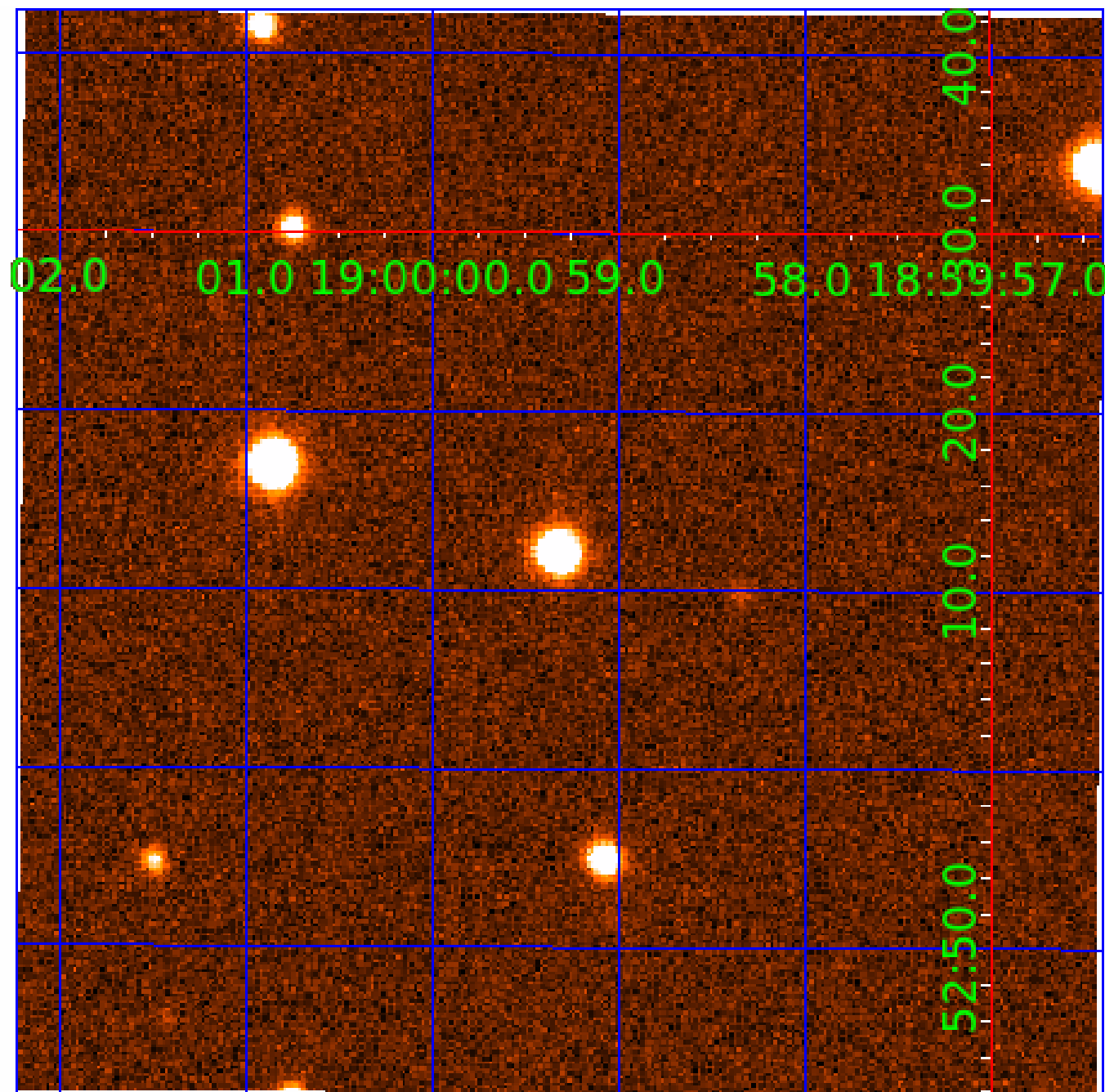


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009328852

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})
009328852-01	OBS	No	5.812665	133.182100	309039.1	1.797	324.6	1607.6	0.46	4399	41.65	29.30
009328852-02	OBS	7159.01	0.645851	131.892244	283481.7	1.500	8782.9	-1.0	0.46	4399	25.26	548.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009328852-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—MOD_NONUNIQ_ALT—MOD_TER_ALT
009328852-02	OBS	FP	0.00	1	0	0	0	SAME_NTL_PERIOD—CENT_NOFITS

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

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

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

Ephemeris Match Information For 009328852-02

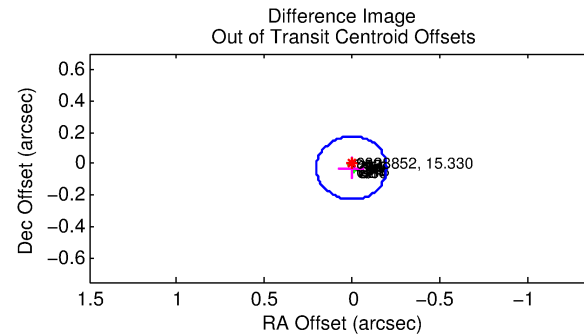
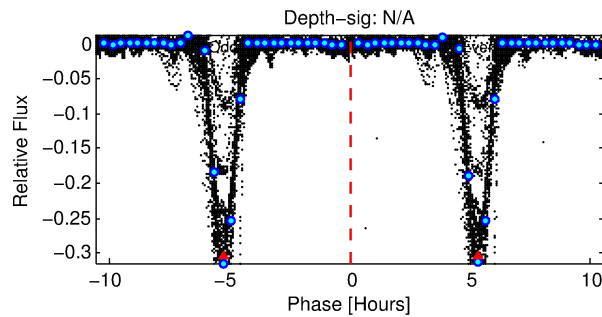
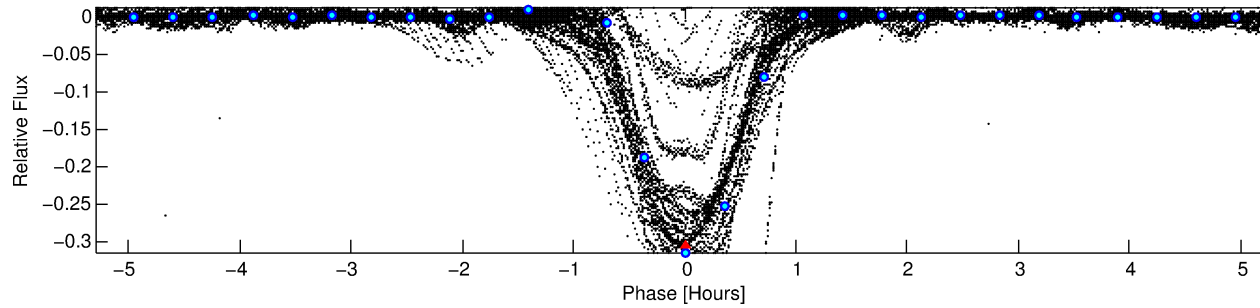
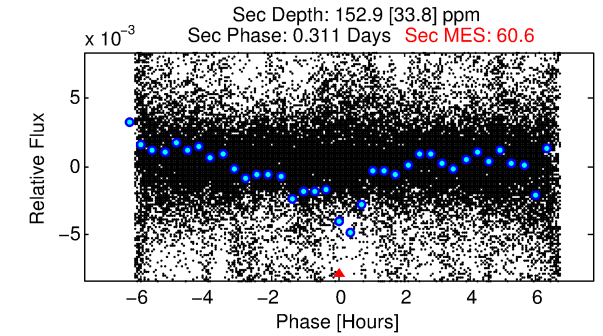
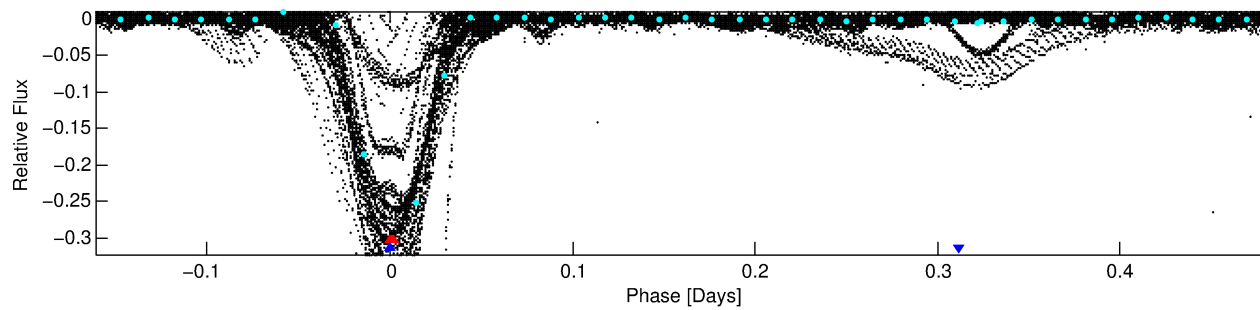
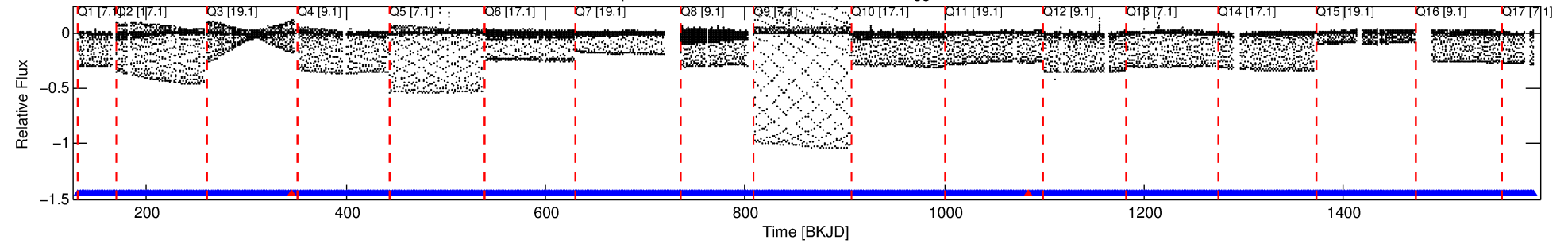
No Significant Match Found

DV One-Page Summary

KIC: 9328852 Candidate: 2 of 2 Period: 0.646 d

KOI: K07159.01 Corr: 0.902

Kp: 15.33 R*: 0.46 Rs Teff: 4399.0 K Logg: 4.79 Fe/H: -1.560



TPS TCE Results:

Period = 0.64585 d
Epoch = 131.8922 BKJD

DV fit results are unavailable

DV Diagnostic Results:

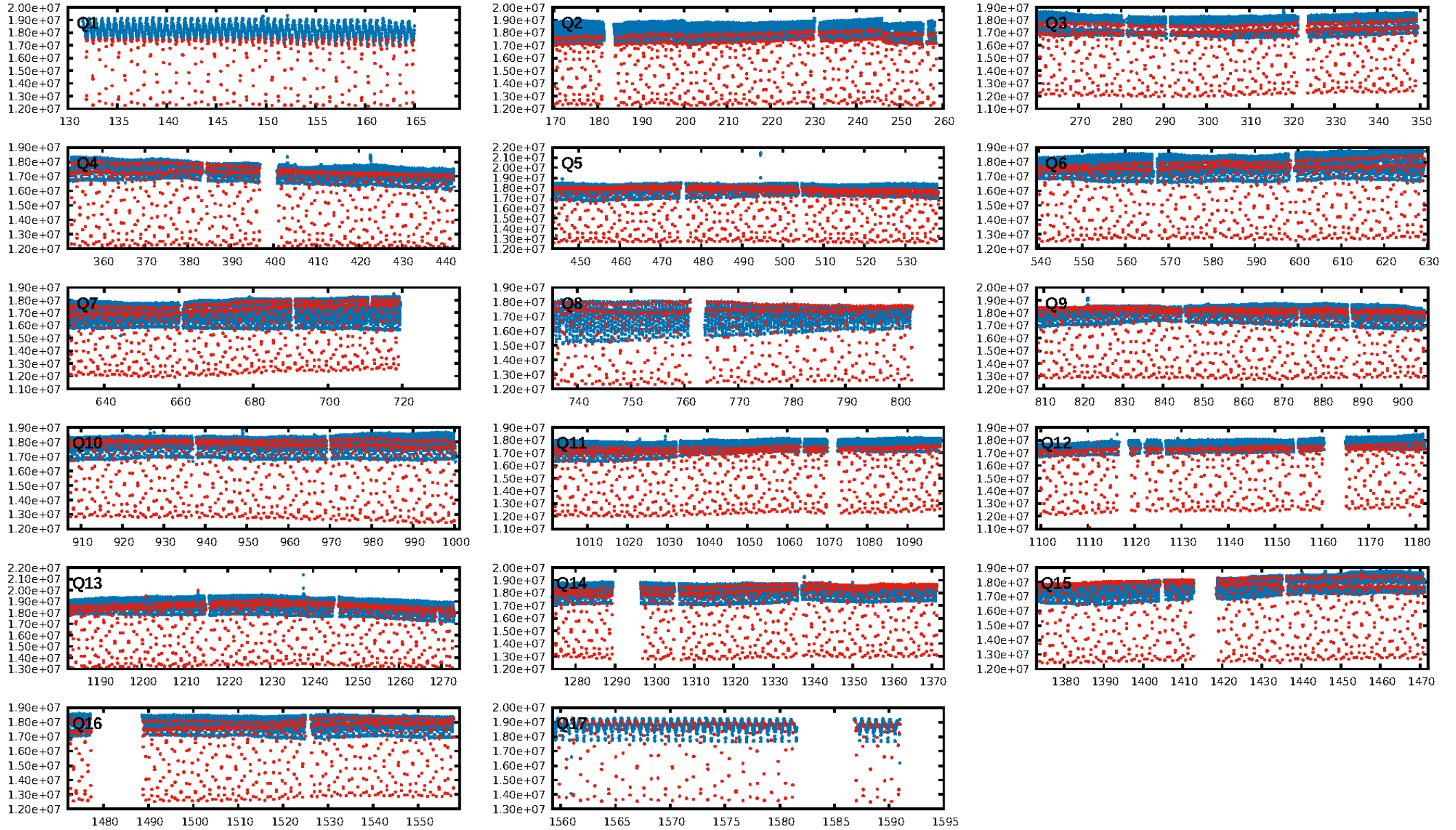
ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [52.98σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1756/1758]
GhostDiagnostic-chr: 0.9889

Centroid-sig: N/A
Centroid-so: 0.030 arcsec [55.17σ]
OotOffset-rm: 0.027 arcsec [0.40σ]
KicOffset-rm: 0.095 arcsec [1.39σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
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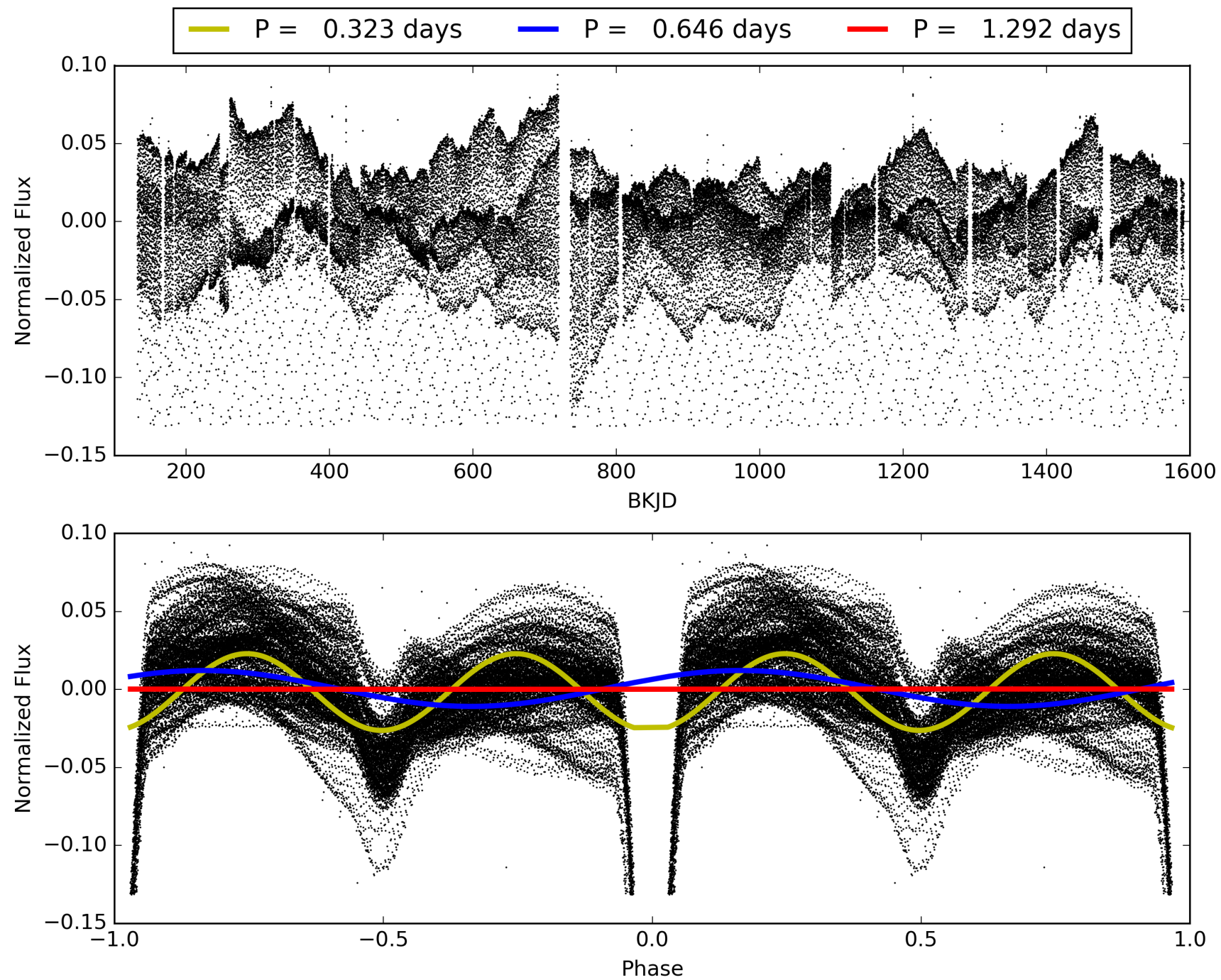
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:37:03 Z

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

TCE 009328852-02, PDC Light Curves

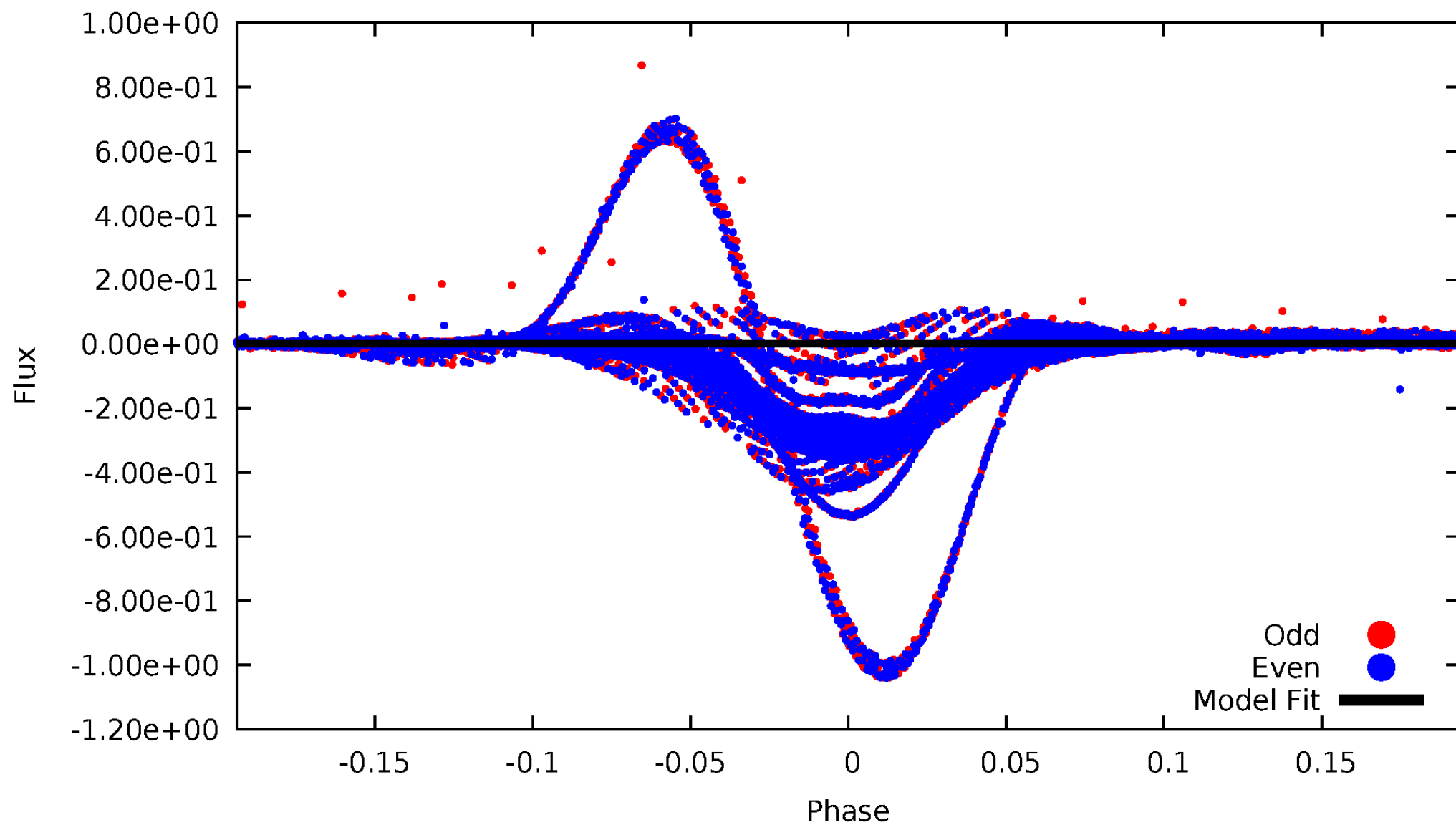


TCE 009328852-02



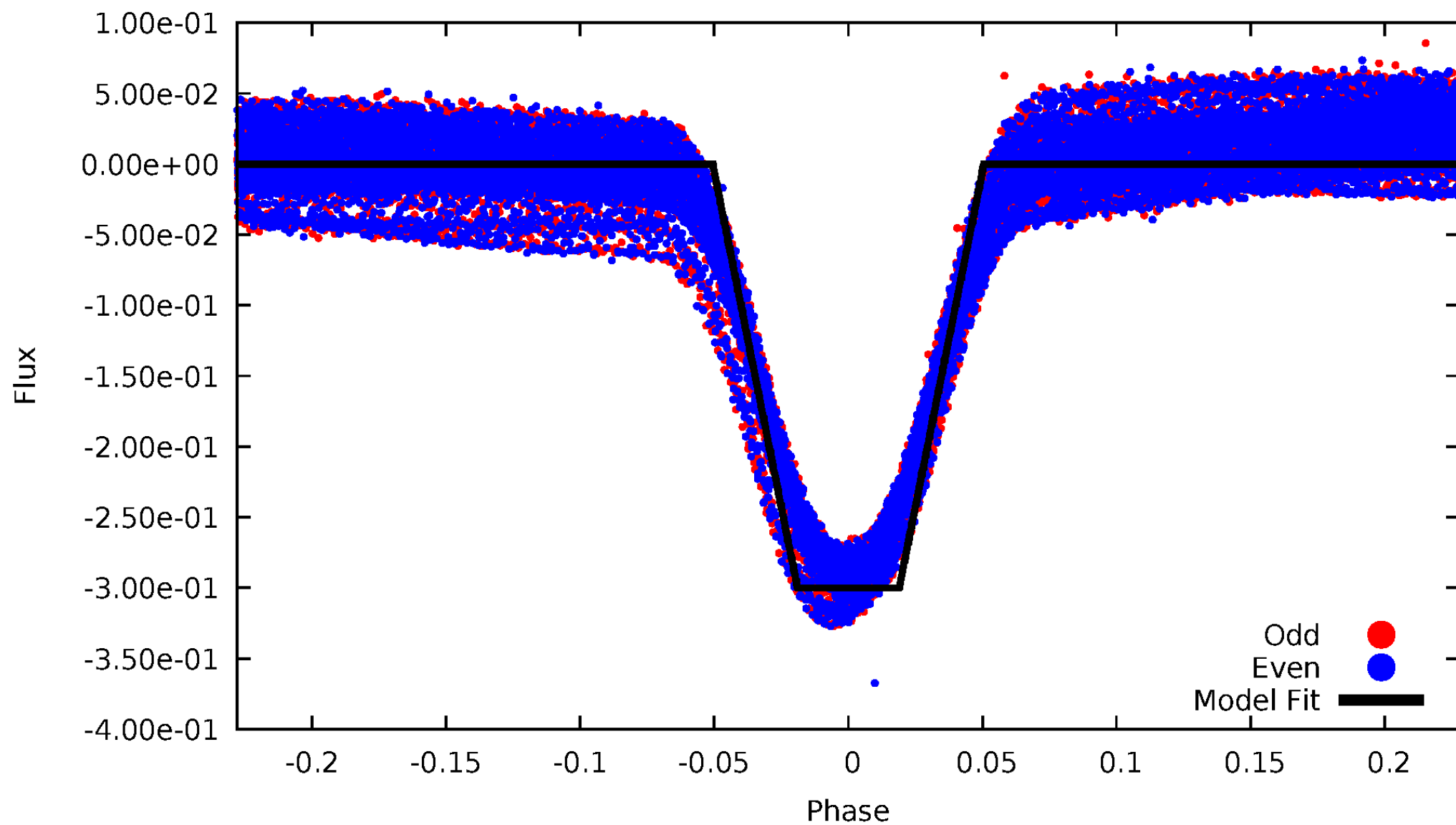
DV Odd/Even

TCE 009328852-02



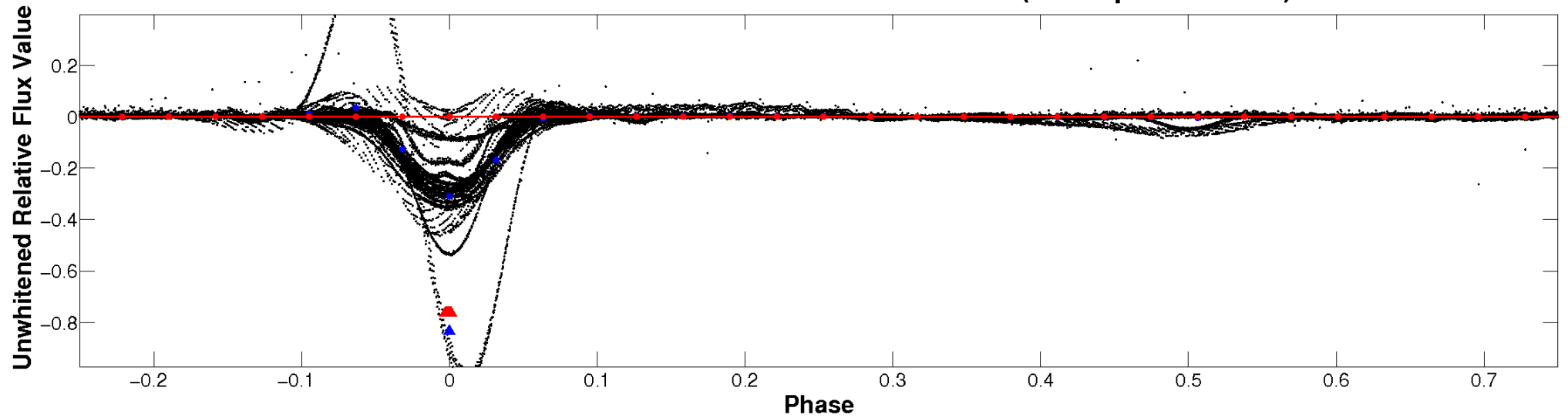
ALT Odd/Even

TCE 009328852-02

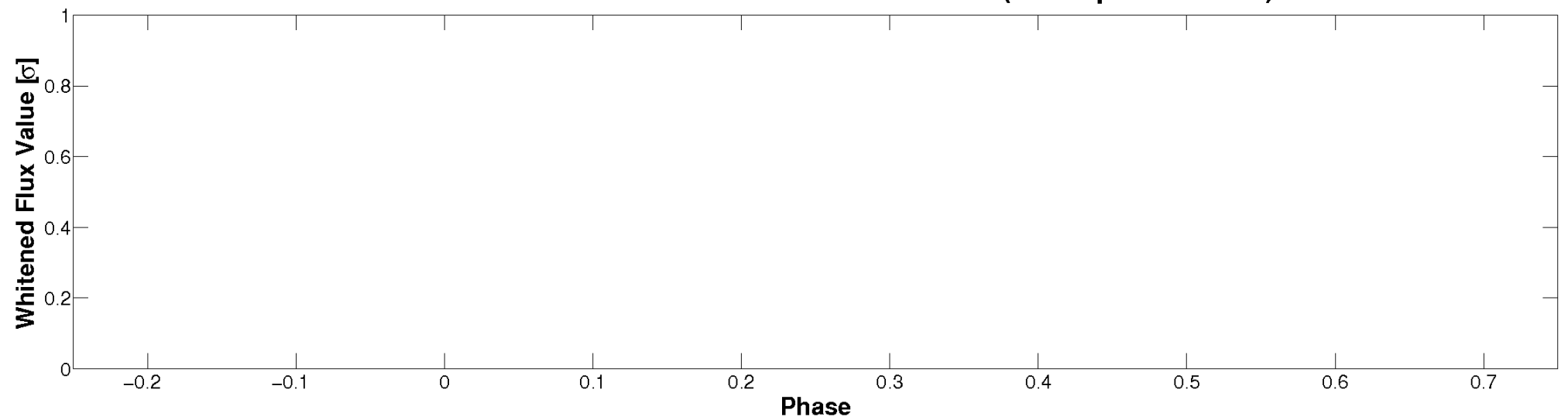


Non-Whitened Vs. Whitened Light Curve

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

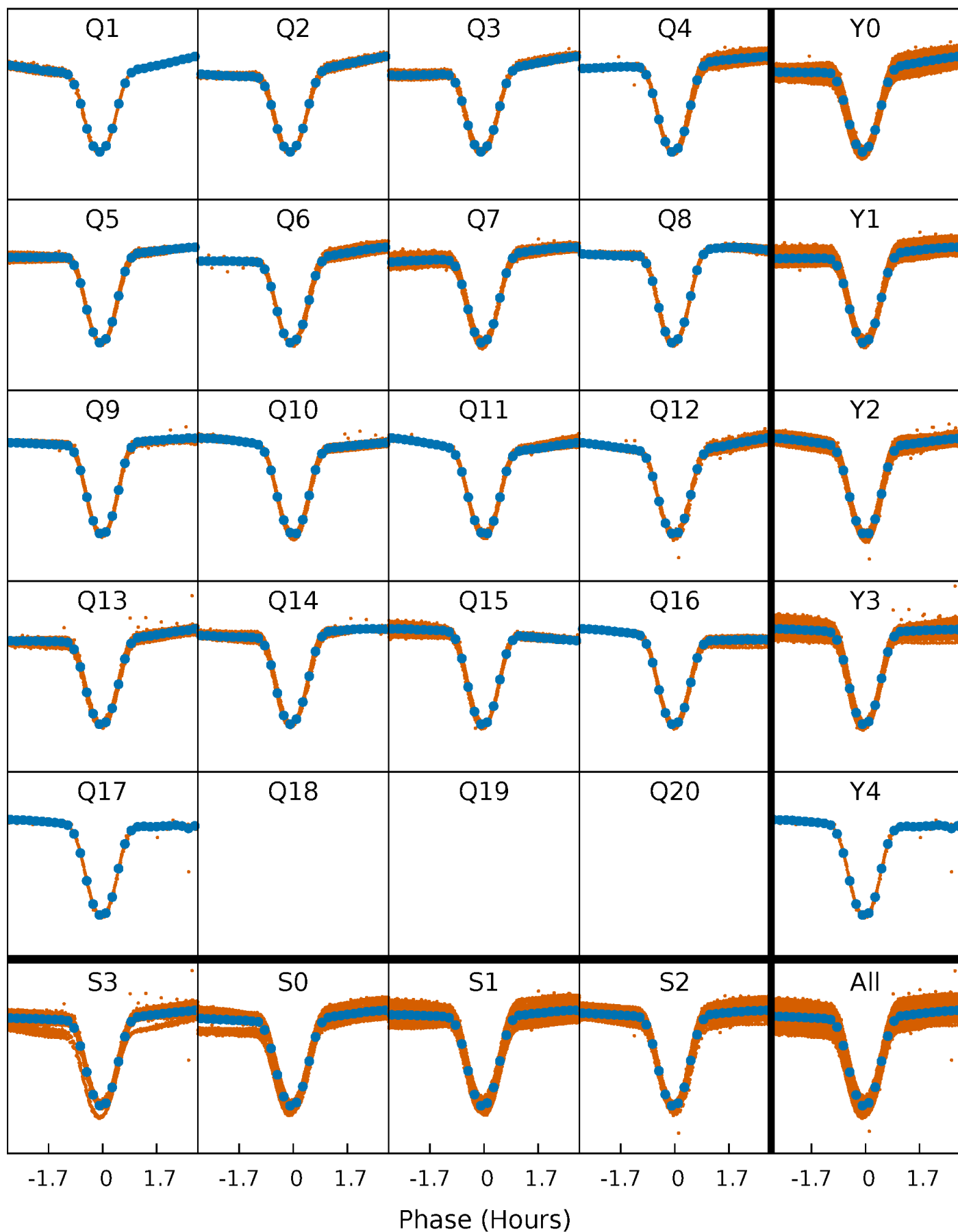


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



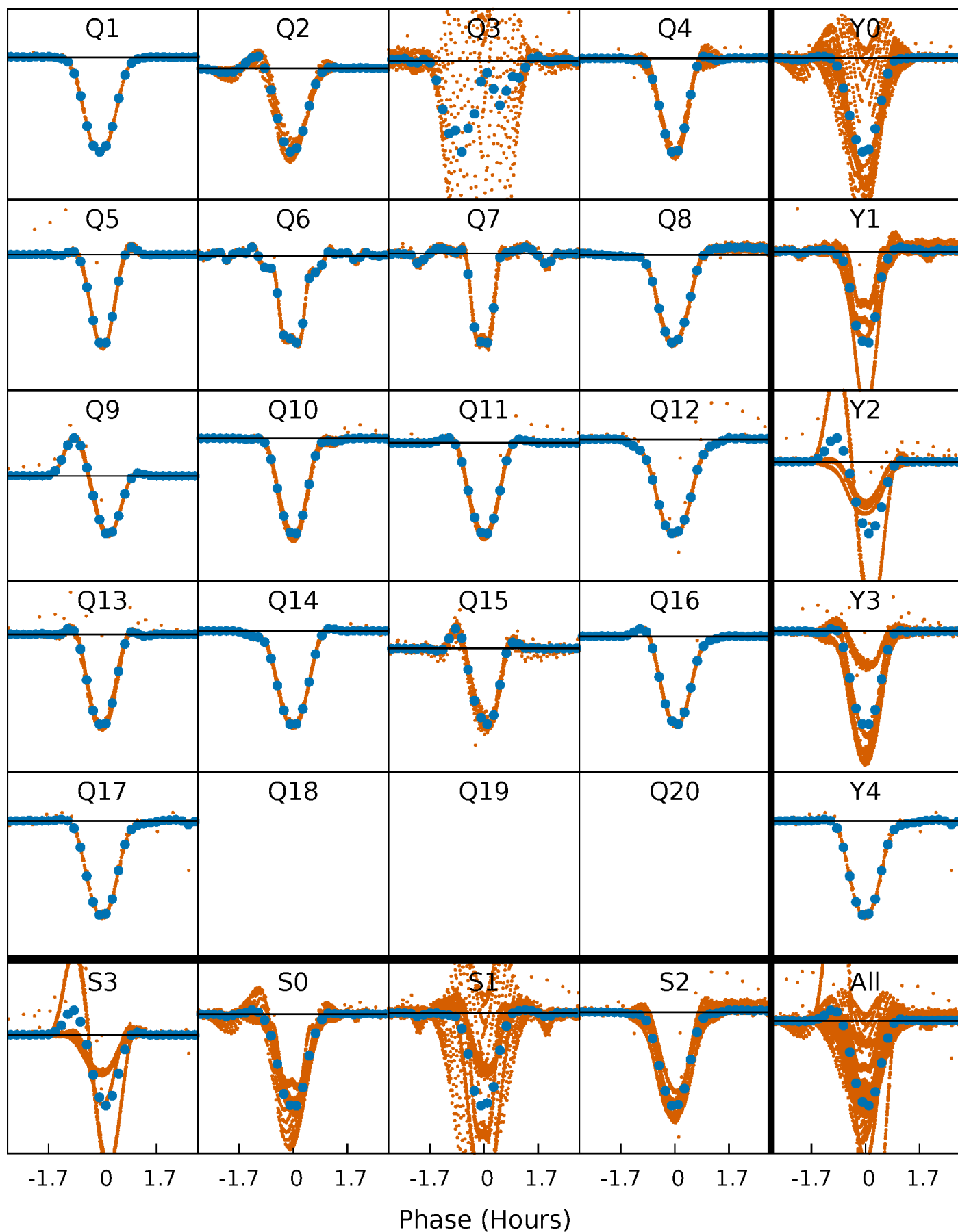
PDC Quarter-Phased Transit Curves

TCE 009328852-02 P= 0.645851 Days $T_0=131.892244$ (BKJD)



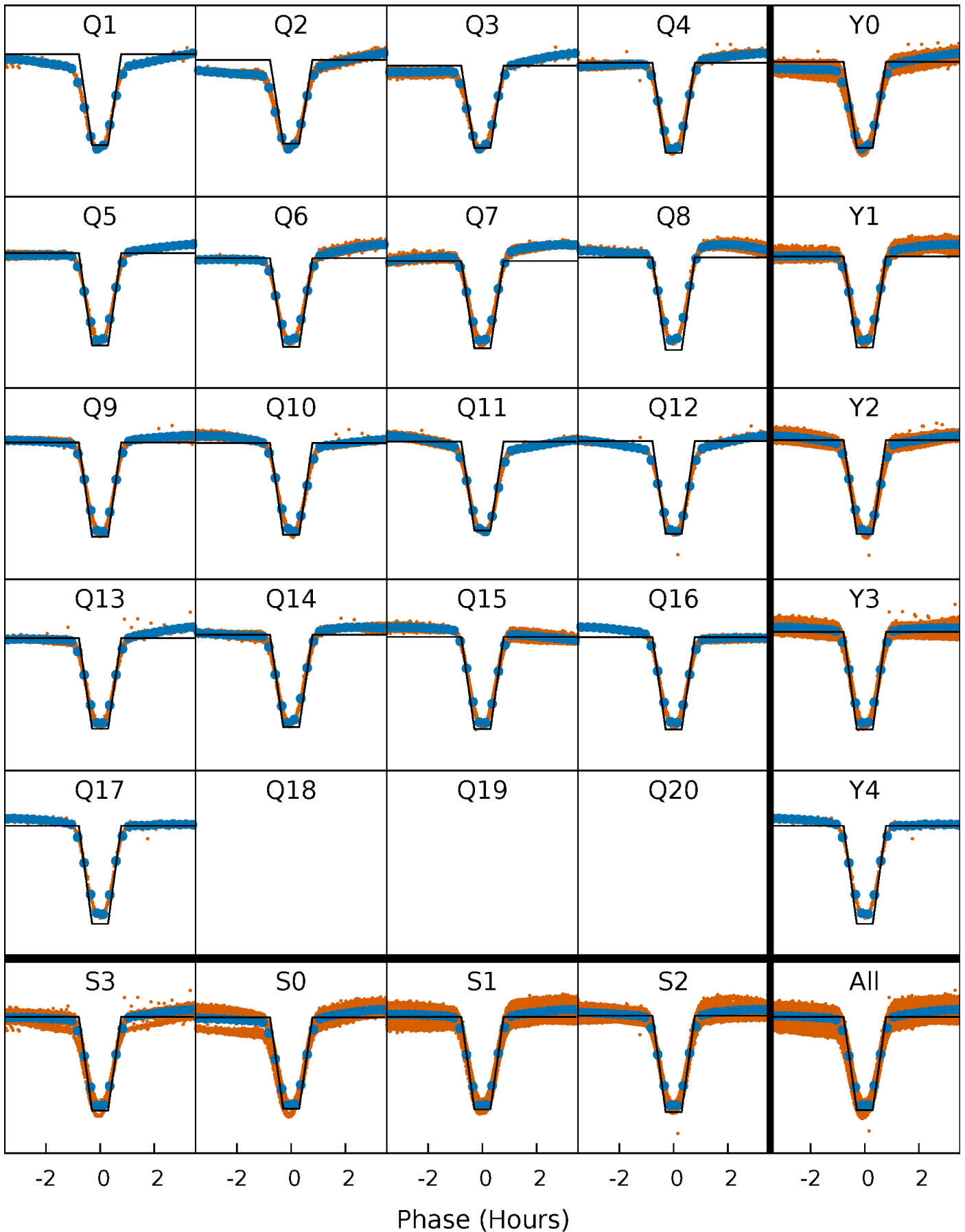
DV Quarter-Phased Transit Curves

TCE 009328852-02 P= 0.645851 Days $T_0=131.892244$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

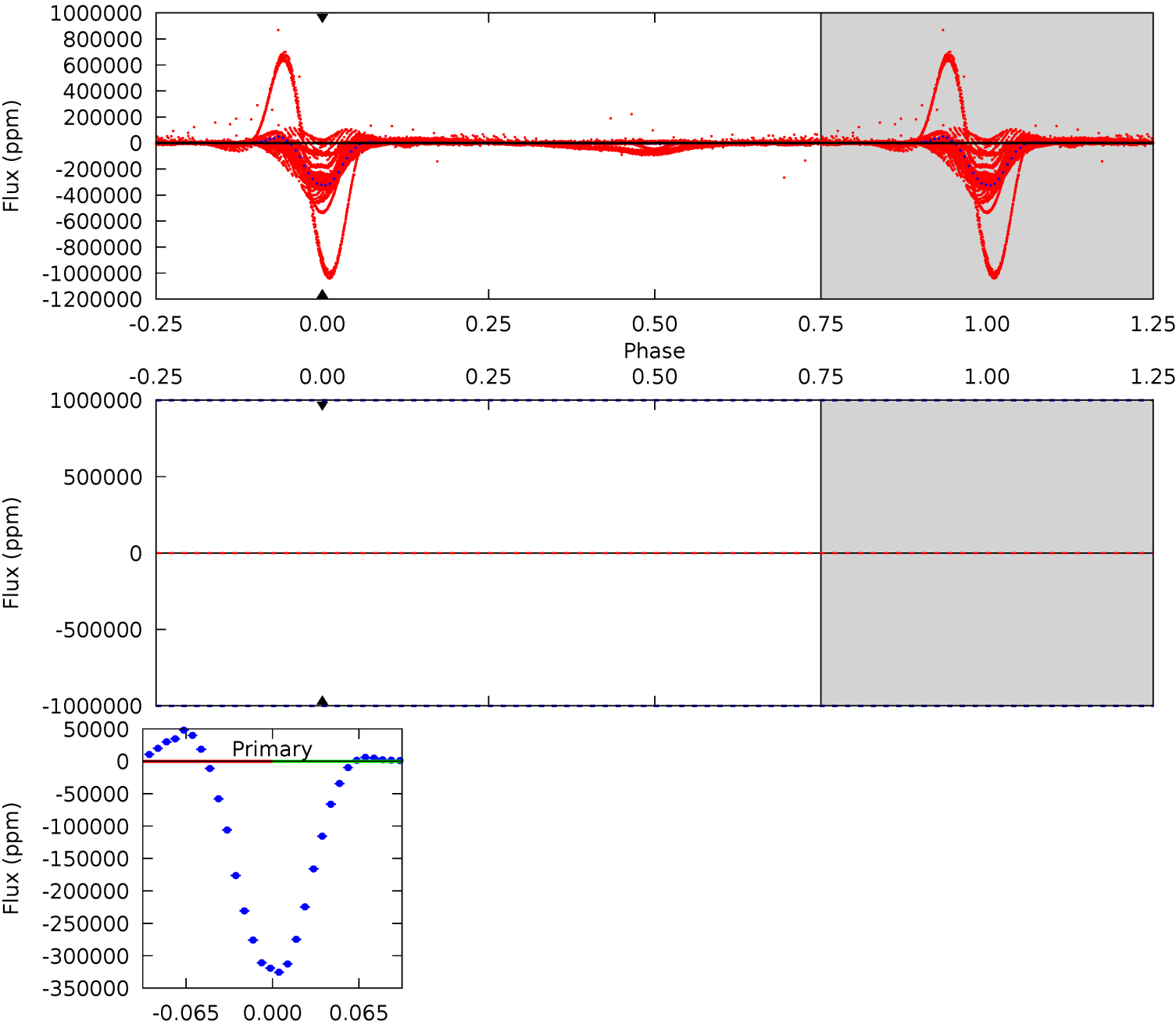
TCE 009328852-02 $P = 0.645851$ Days $T_0 = 131.890893$ (BKJD)



DV Model-Shift Uniqueness Test

009328852-02, P = 0.645851 Days, E = 131.246393 Days

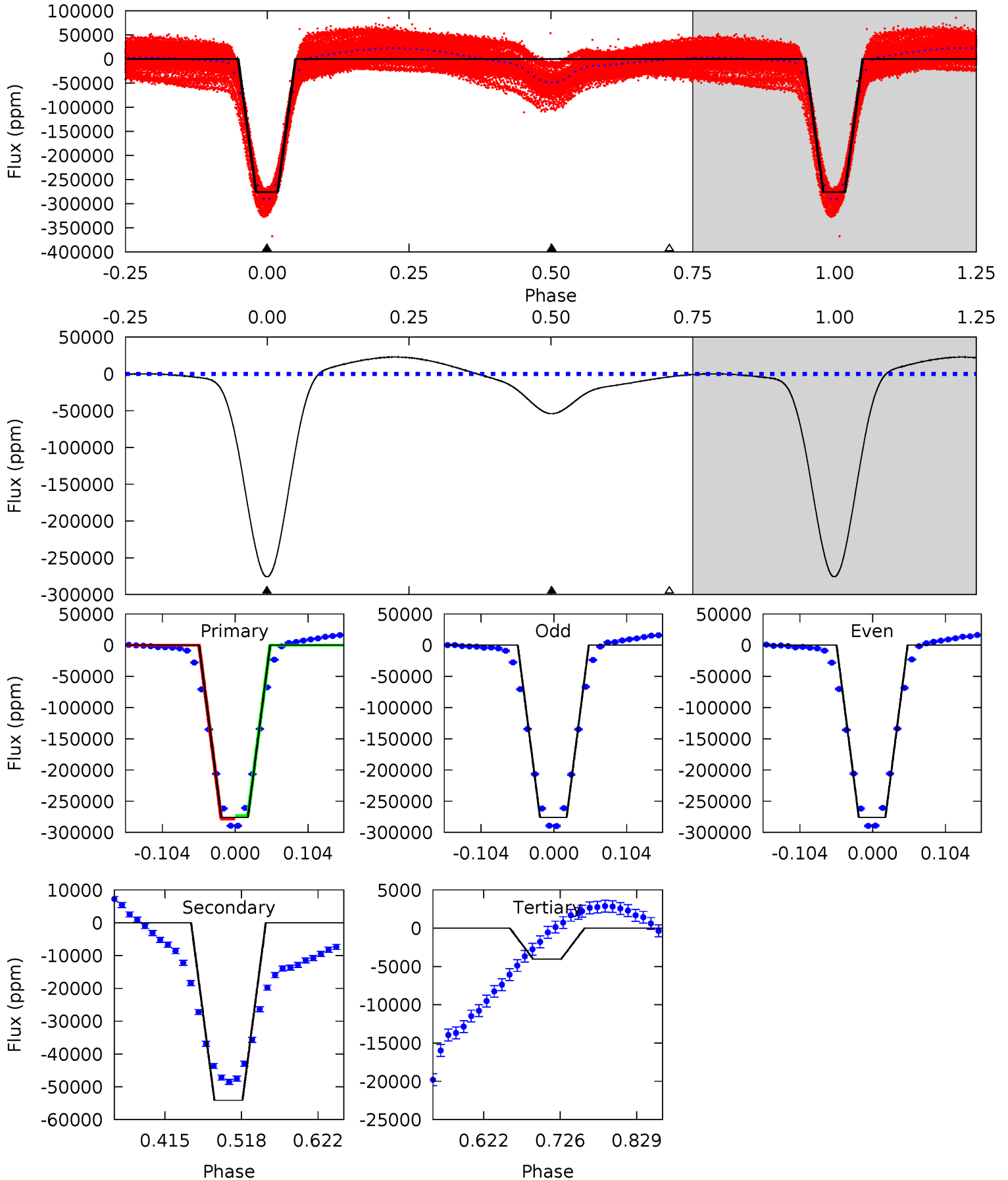
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009328852-02, P = 0.645851 Days, E = 131.245042 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
954.4	187.2	13.9	0	4.56	1.63	39.9	940.4	954.4	173.3	187.2	0.08	1.01	0.08	9.04



Stellar Parameters For KIC 009328852

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4399^{+125}_{-156}	$4.788^{+0.075}_{-0.030}$	$-1.560^{+0.300}_{-0.250}$	$0.463^{+0.029}_{-0.055}$	$0.480^{+0.031}_{-0.043}$	$6.811^{+2.242}_{-0.838}$
	+3%/-4%	+2%/-1%	+19%/-16%	+6%/-12%	+6%/-9%	+33%/-12%
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 009328852-02 / KOI 7159.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$25.28^{+5.26}_{-5.38}$	1707^{+63}_{-68}	-2385^{+6194}_{-1331}	$-0.231^{+13.736}_{-11.298}$
Alt.	-54127 ± 289	$26.93^{+5.32}_{-5.07}$	1706^{+62}_{-69}	3297^{+227}_{-204}	$5.682^{+2.912}_{-1.667}$

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

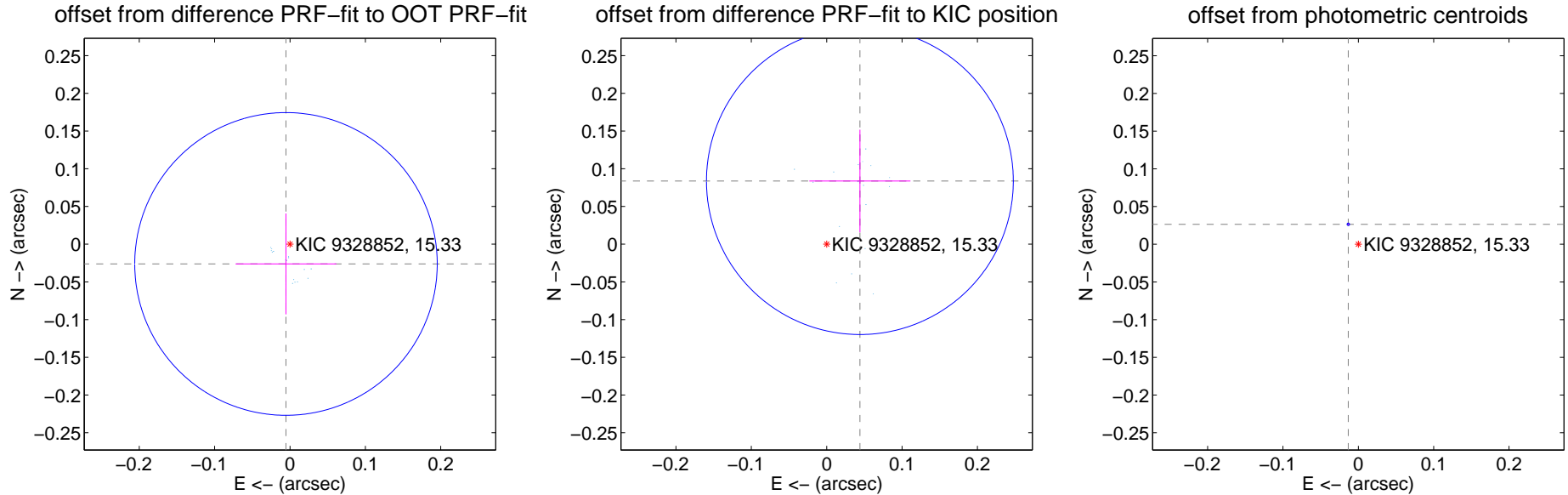
DV Centroid Data

Supplemental centroid analysis for 009328852-02. Kepler magnitude: 15.33. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

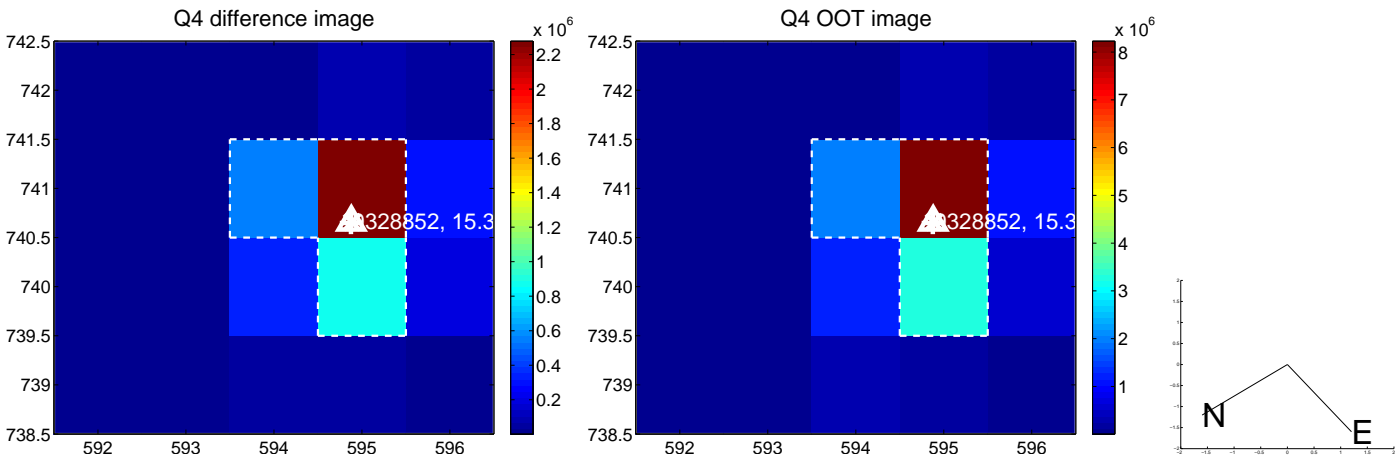
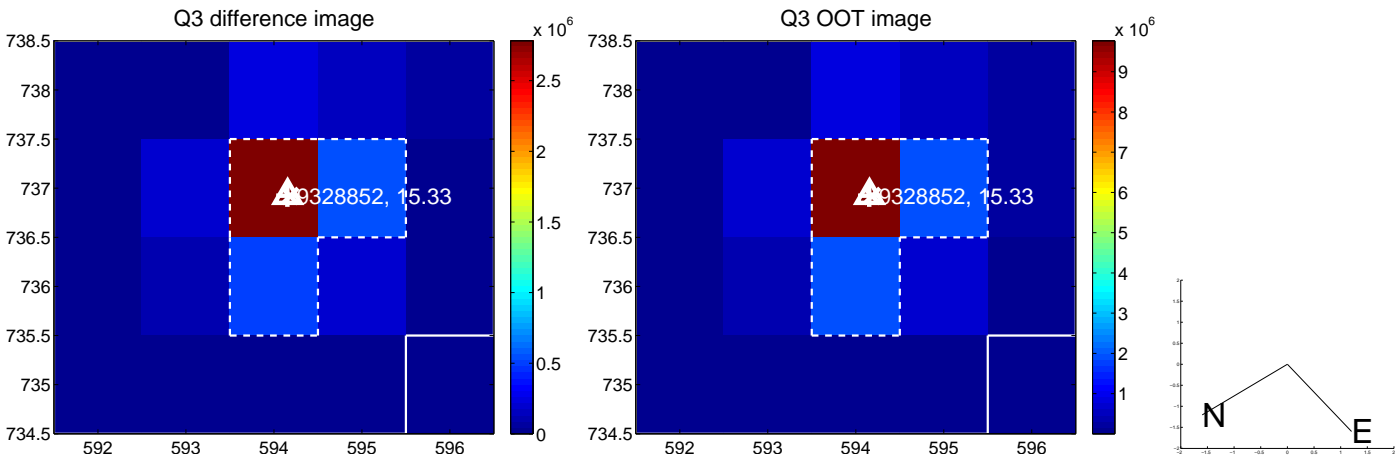
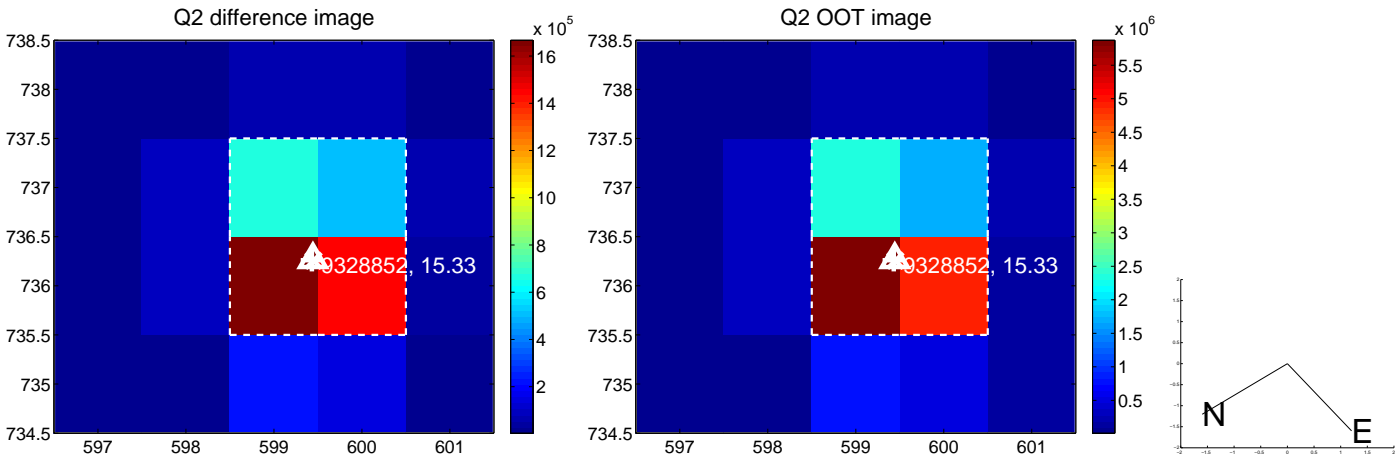
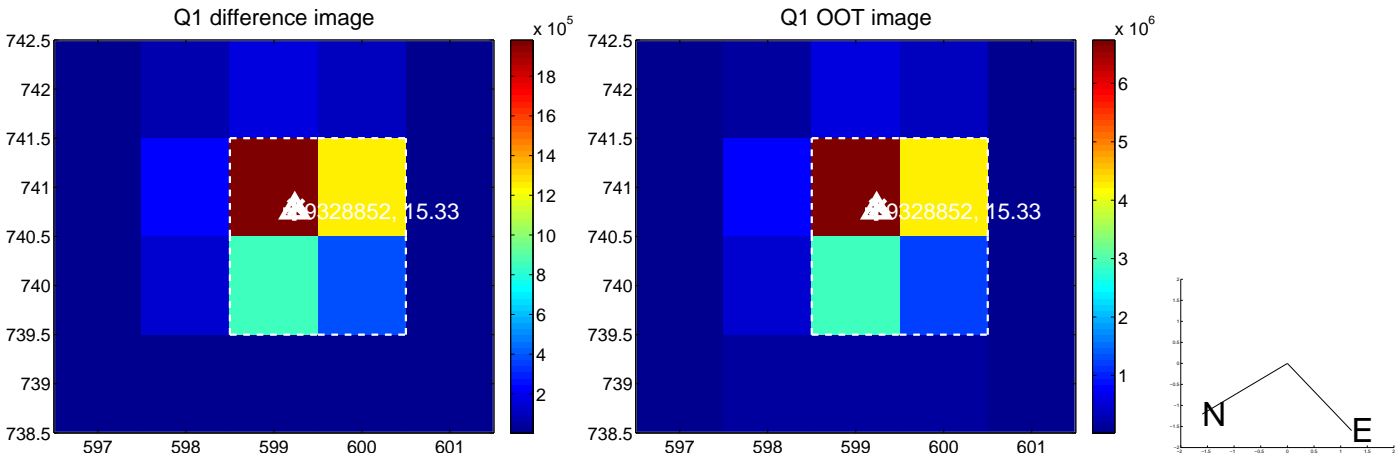
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.027 ± 0.067	0.40	0.005 ± 0.067	-0.026 ± 0.067
PRF-fit source offset from KIC position	0.095 ± 0.068	1.39	-0.044 ± 0.067	0.084 ± 0.068
photometric centroid source offset	0.03 ± 0.00	55.17	0.01 ± 0.00	0.03 ± 0.00

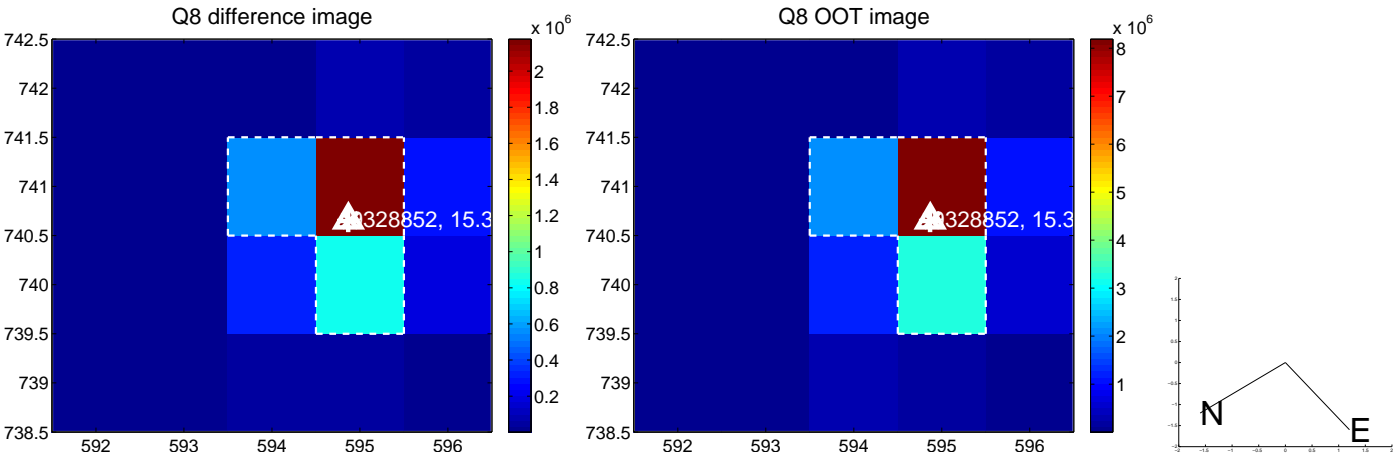
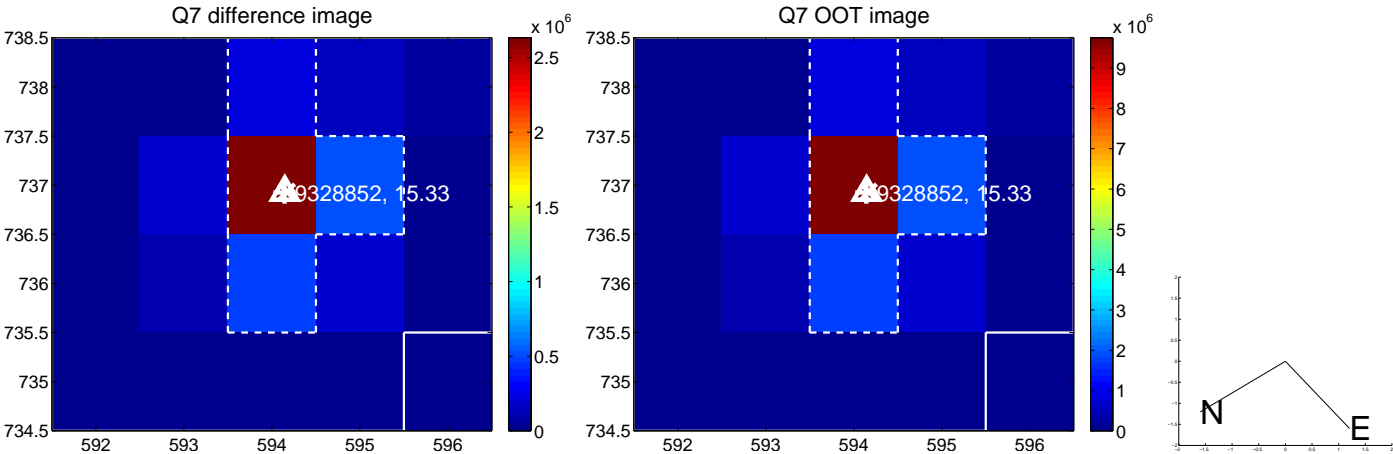
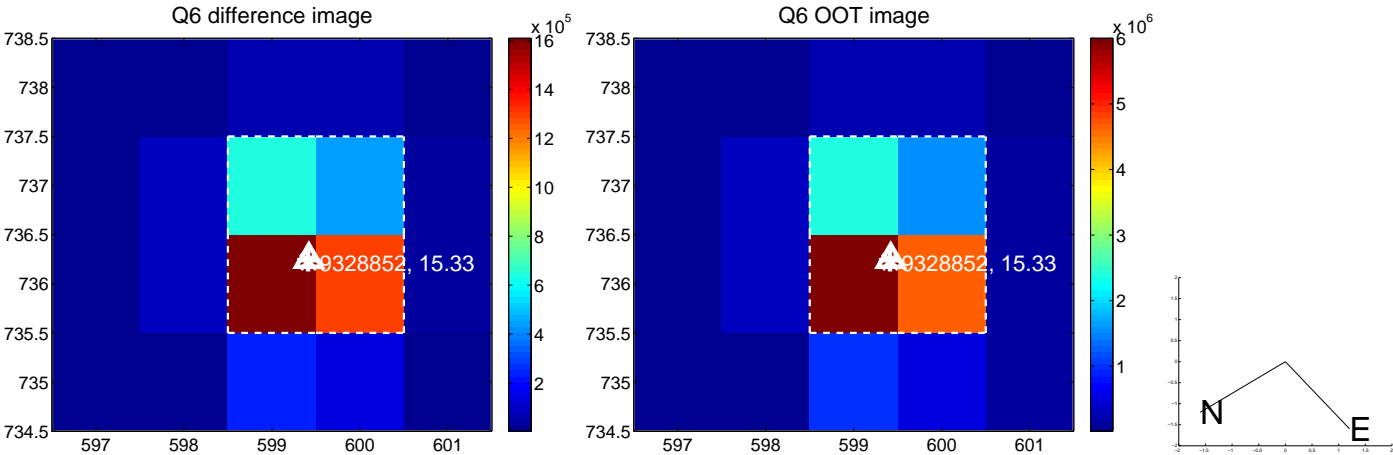
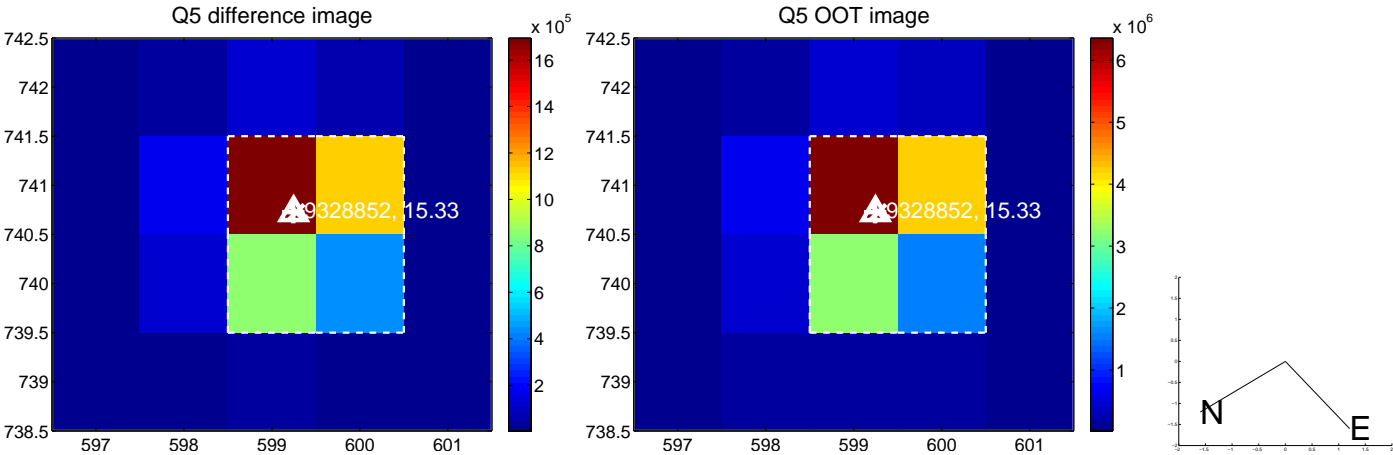


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

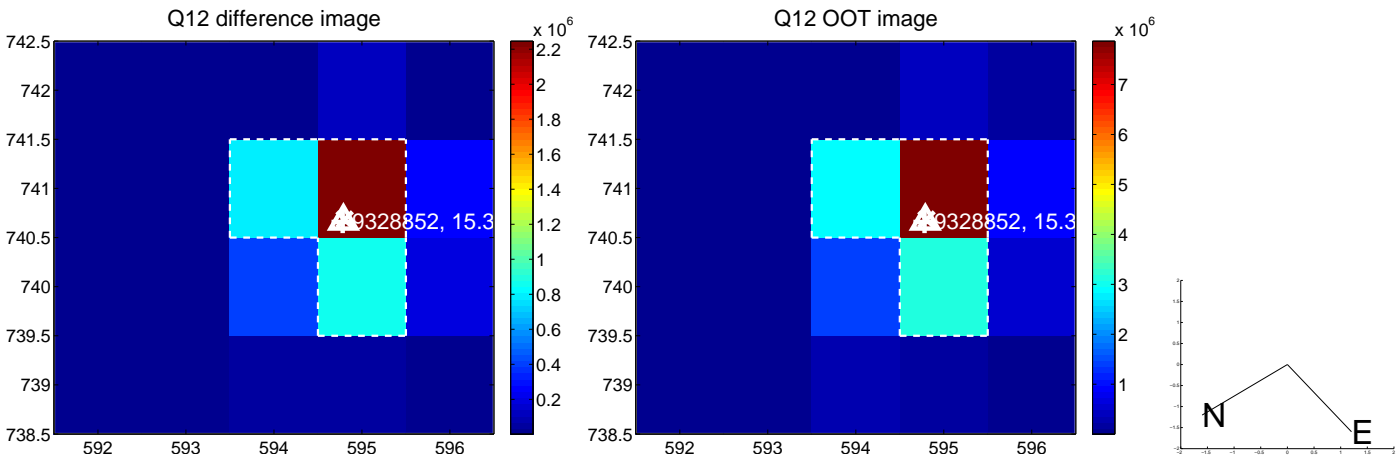
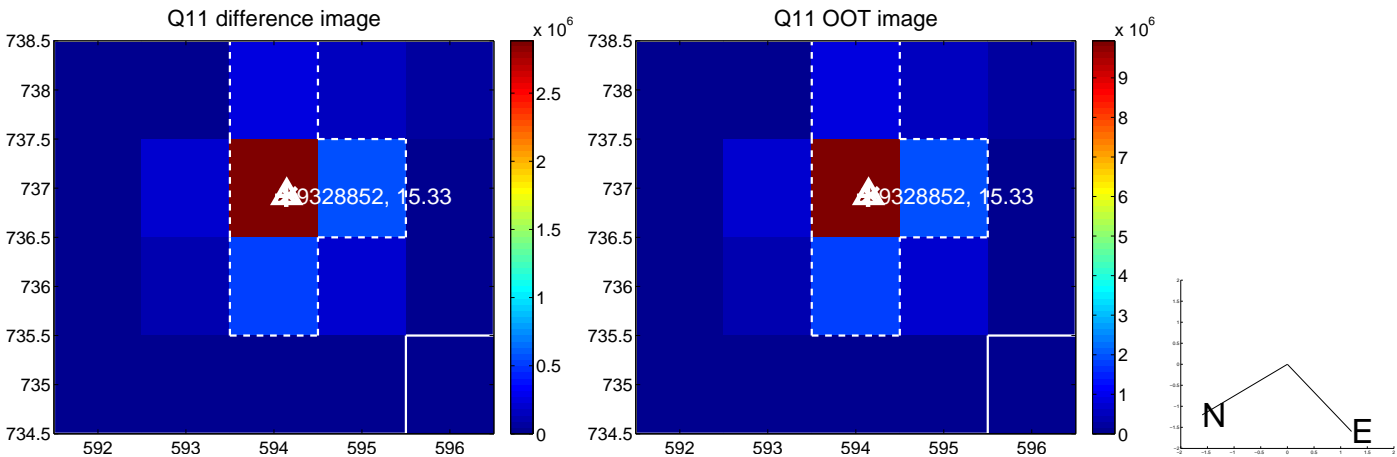
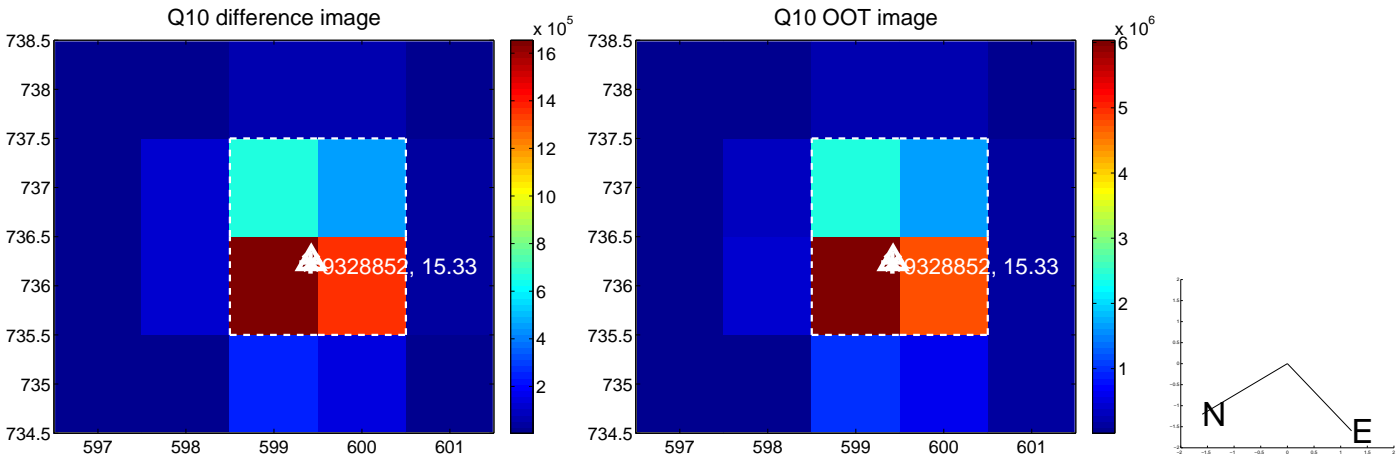
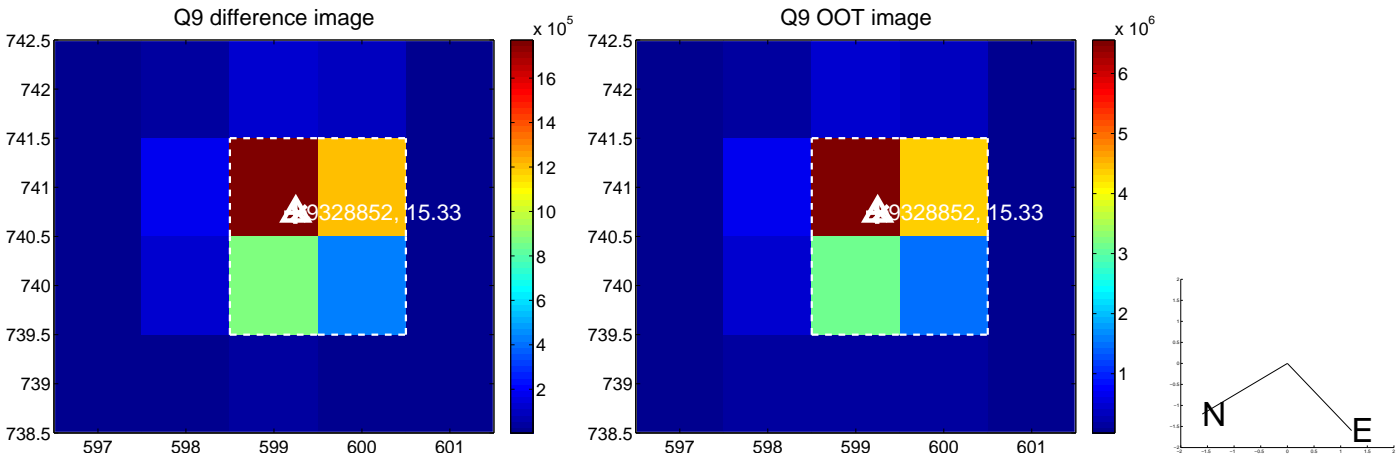
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



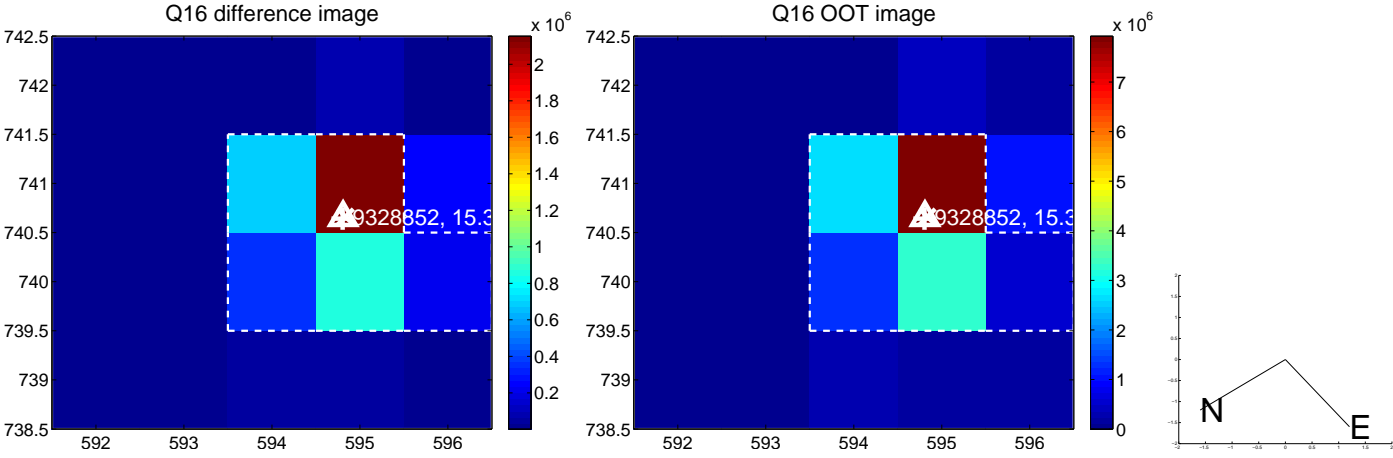
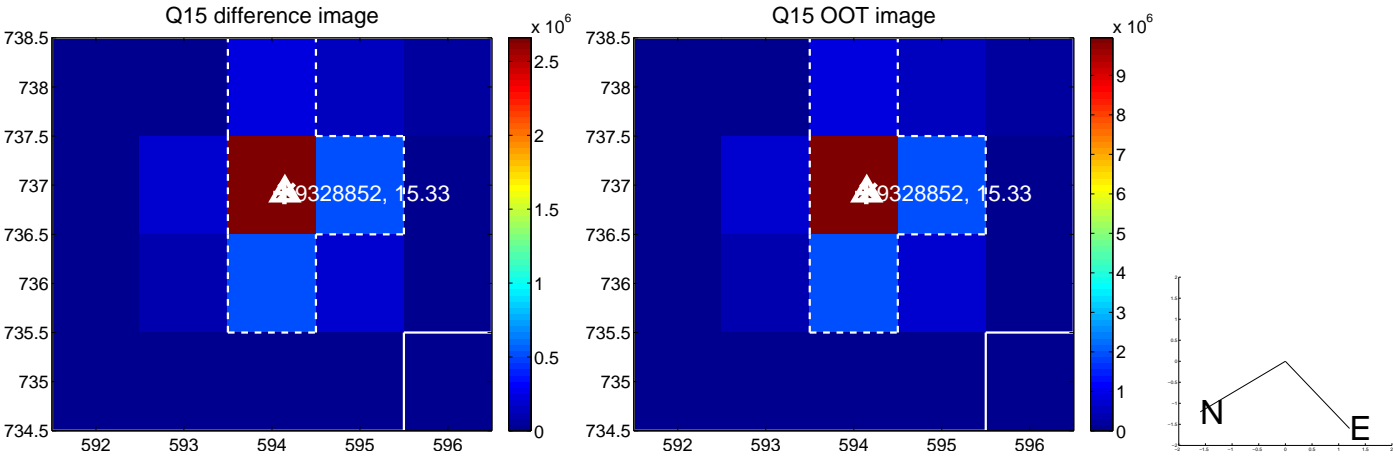
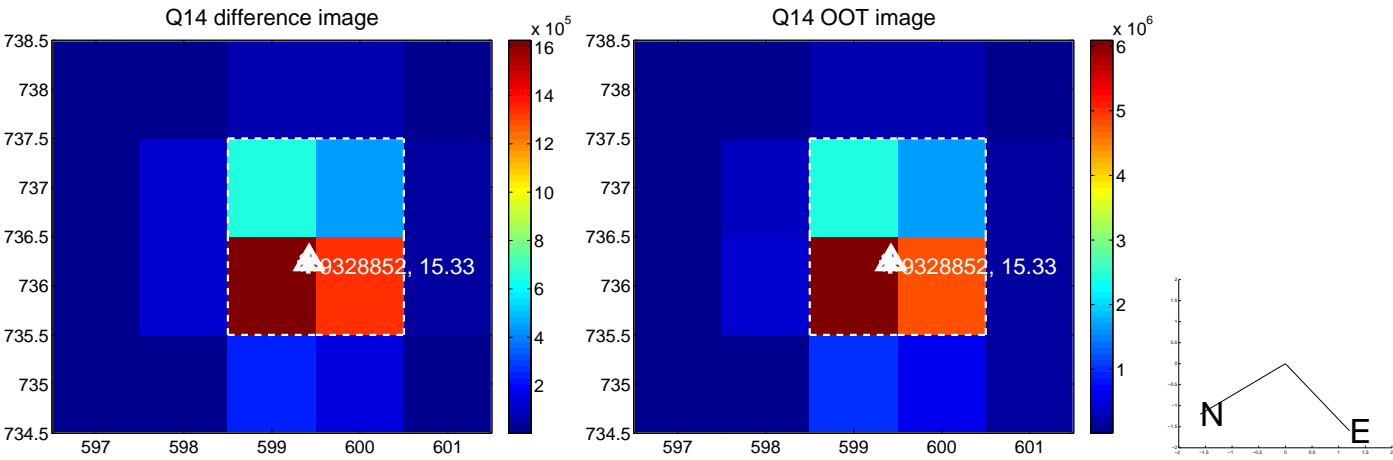
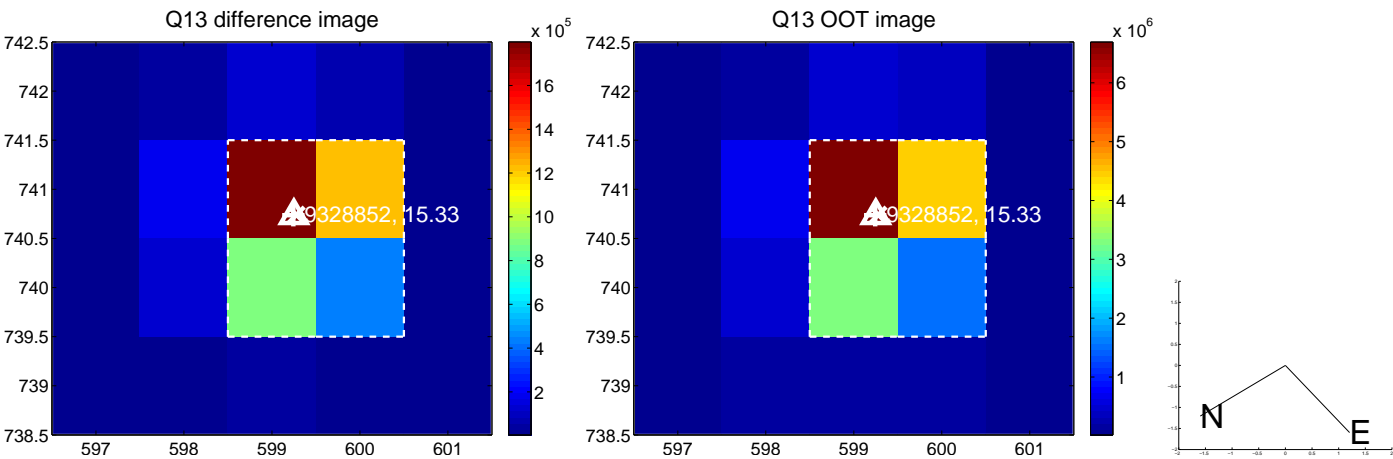
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



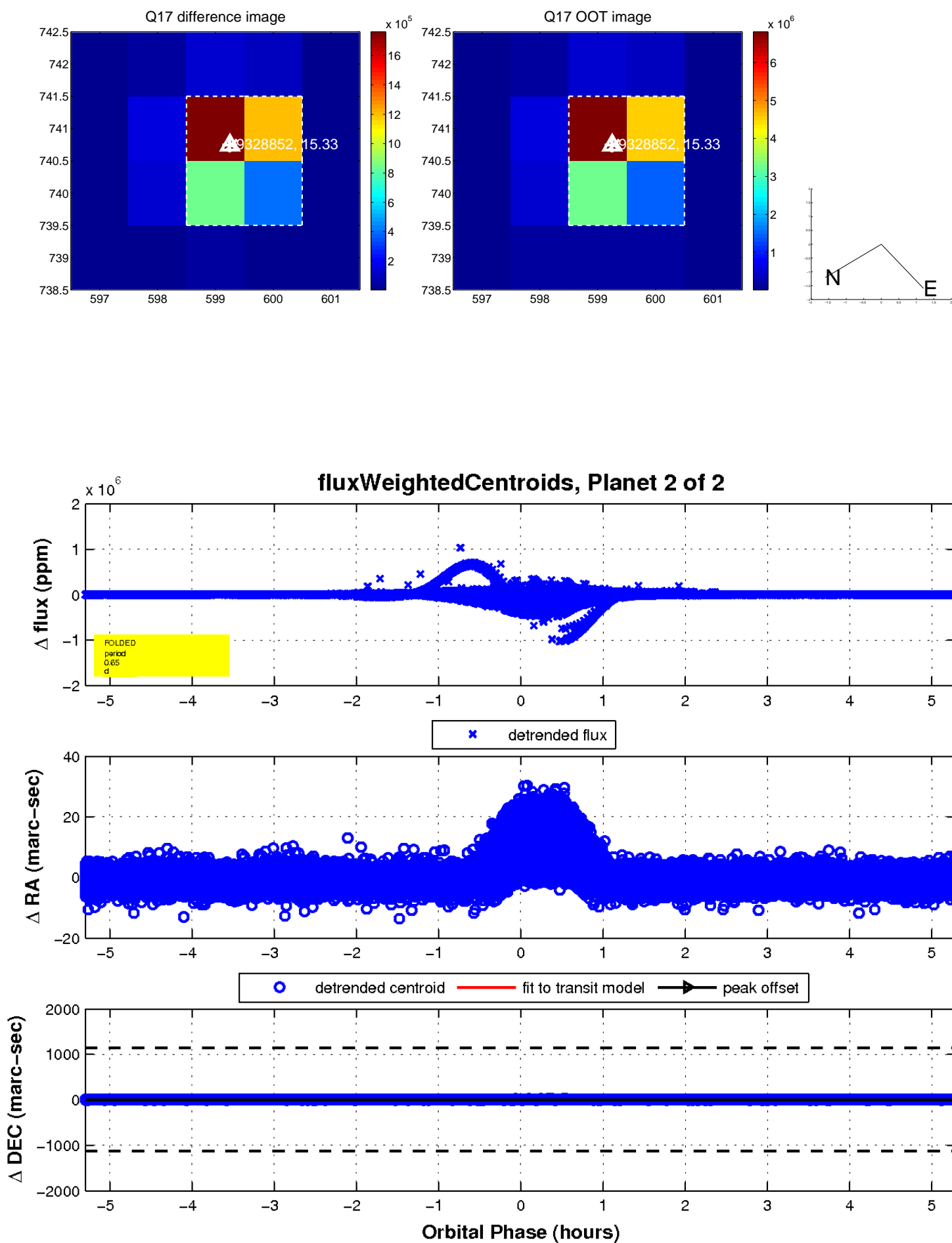
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

