

KIC 004753988

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})
004753988-01	OBS	6445.01	7.304447	135.026054	142441.3	4.069	6885.7	4550.6	0.90	6024	44.86	177.75
004753988-02	OBS	No	3.652222	135.001544	51275.8	3.894	2700.4	2366.8	0.90	6024	29.44	447.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004753988-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE
004753988-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

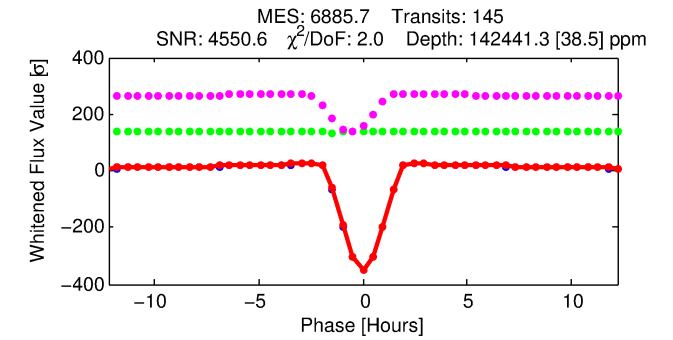
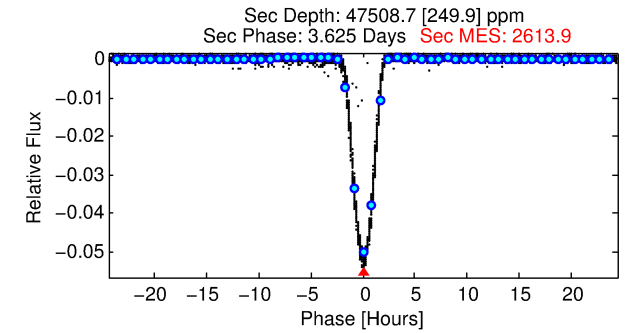
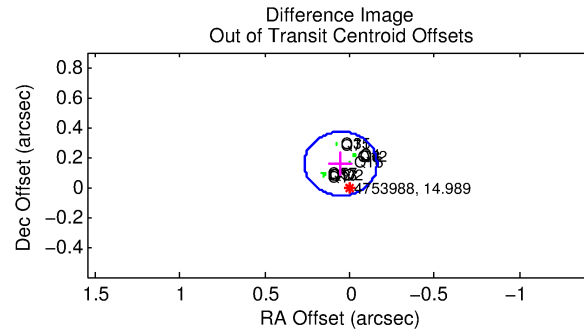
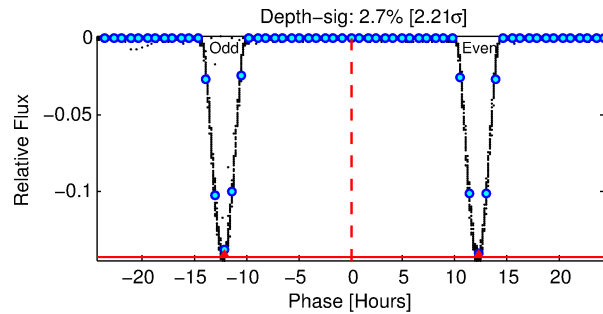
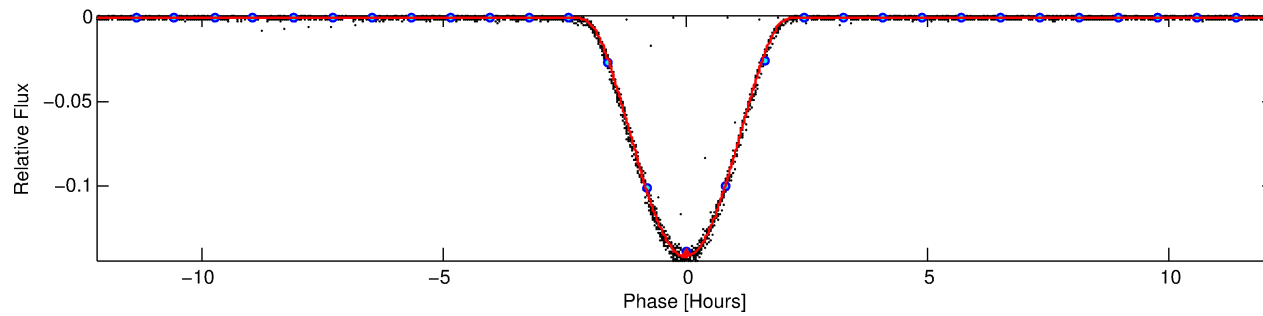
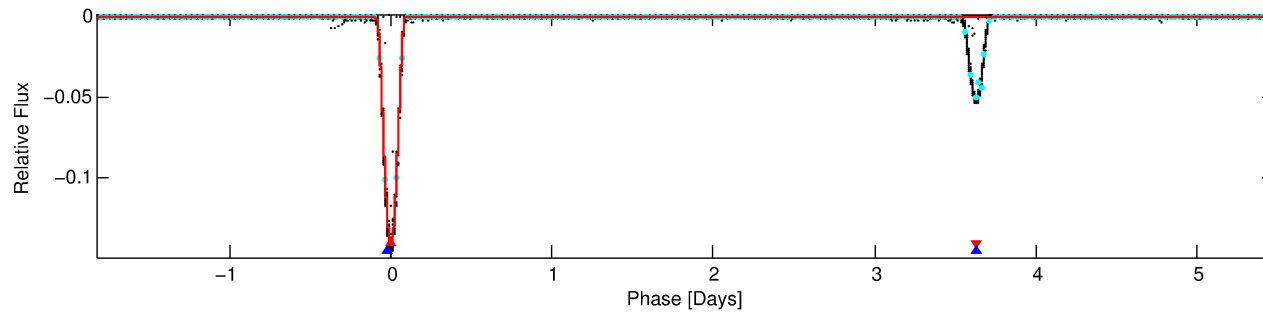
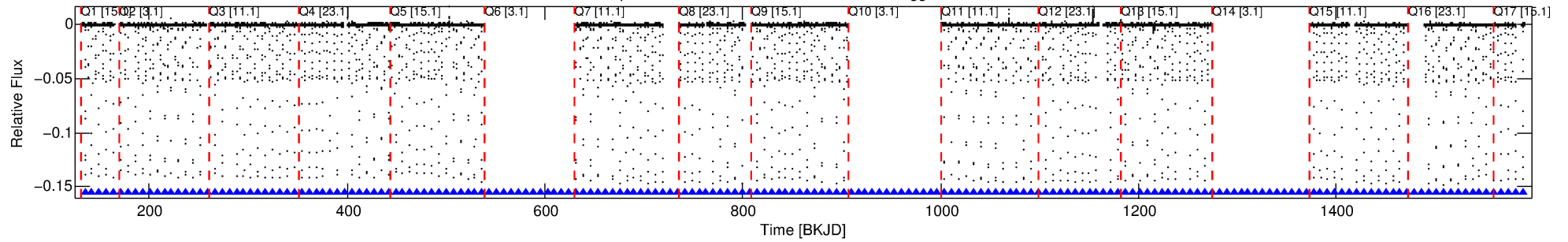
Ephemeris Match Information For 004753988-01

No Significant Match Found

DV One-Page Summary

KIC: 4753988 Candidate: 1 of 2 Period: 7.304 d
KOI: K06445.01 Corr: 0.996

Kp: 14.99 R*: 0.90 Rs Teff: 6024.0 K Logg: 4.52 Fe/H: -0.260



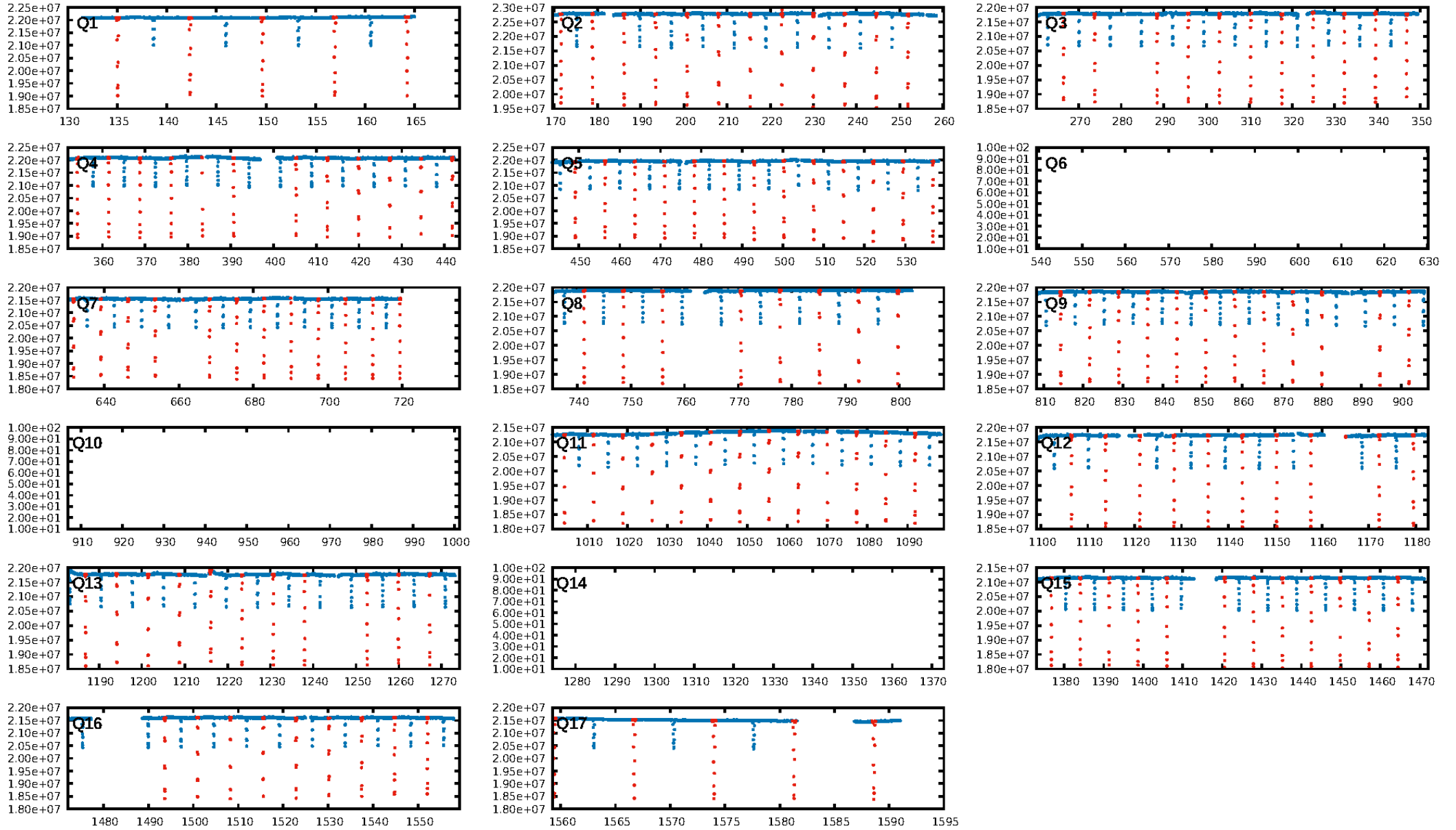
DV Fit Results:

Period = 7.30445 [0.00000] d
Epoch = 135.0261 [0.0000] BKJD
Rp/R* = 0.4568 [0.0068]
a/R* = 16.60 [0.01]
b = 0.81 [0.01]
Seff = 177.75 [72.98]
Teff = 931 [96] K
Rp = 44.86 [13.97] Re
a = 0.0733 [0.0193] AU
Ag = 69.83 [27.03] [2.55σ]
Teffp = 4161 [149] K [18.24σ]

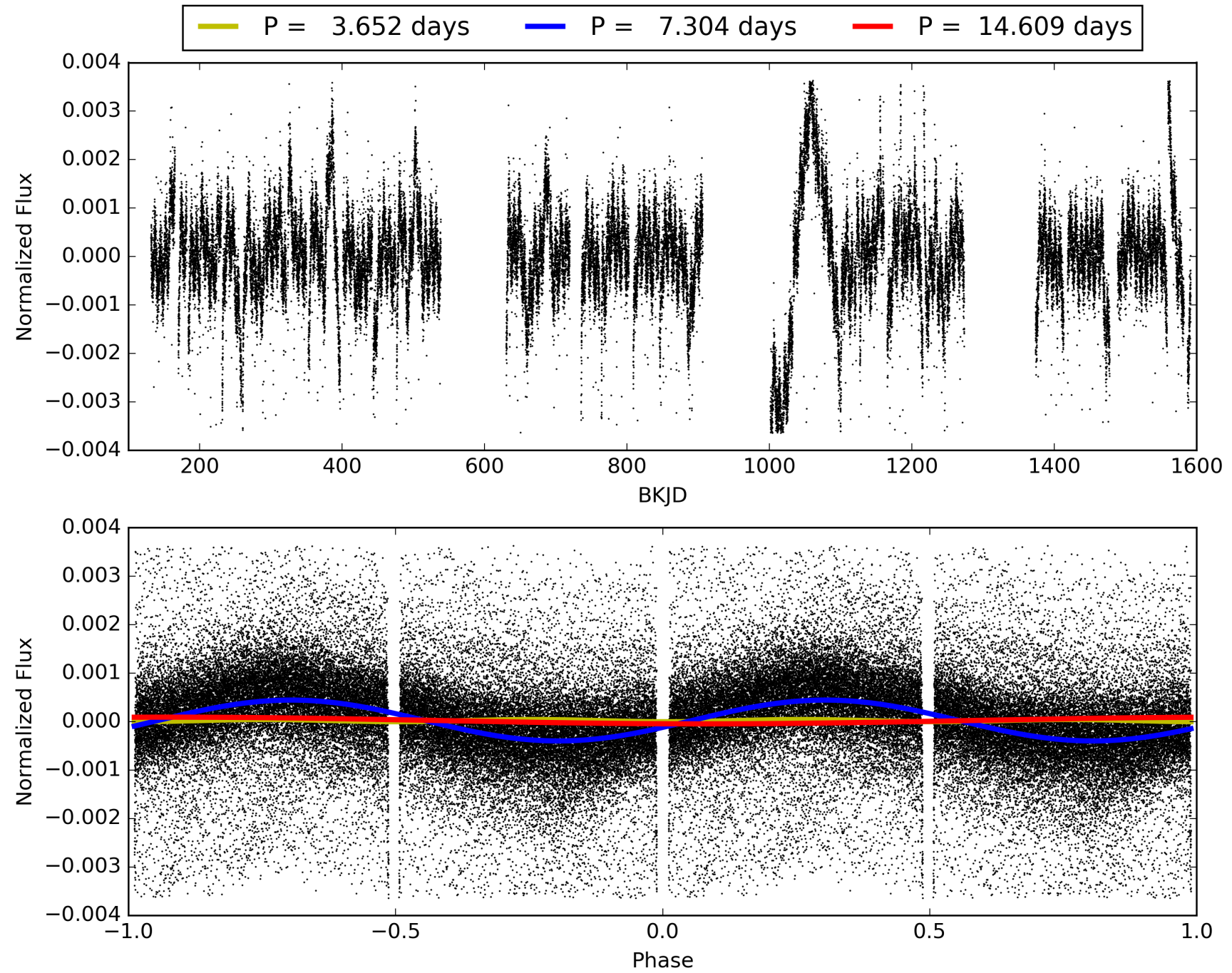
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.56σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [135/135]
GhostDiagnostic-chr: 2.542
Centroid-sig: 0.0%
Centroid-so: 0.301 arcsec [134.83σ]
OotOffset-rm: 0.165 arcsec [2.31σ]
KicOffset-rm: 0.048 arcsec [0.68σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 004753988-01, PDC Light Curves

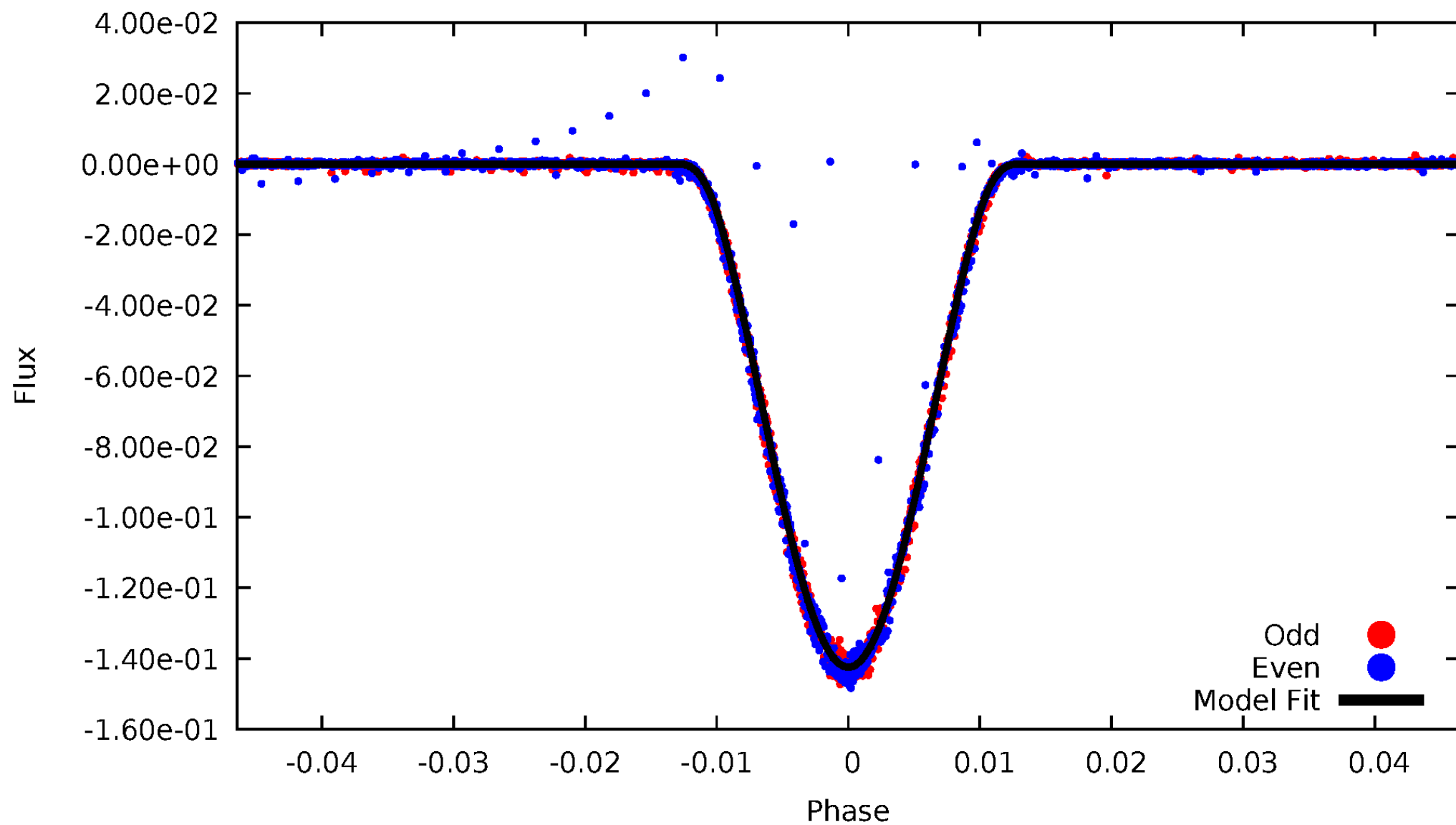


TCE 004753988-01



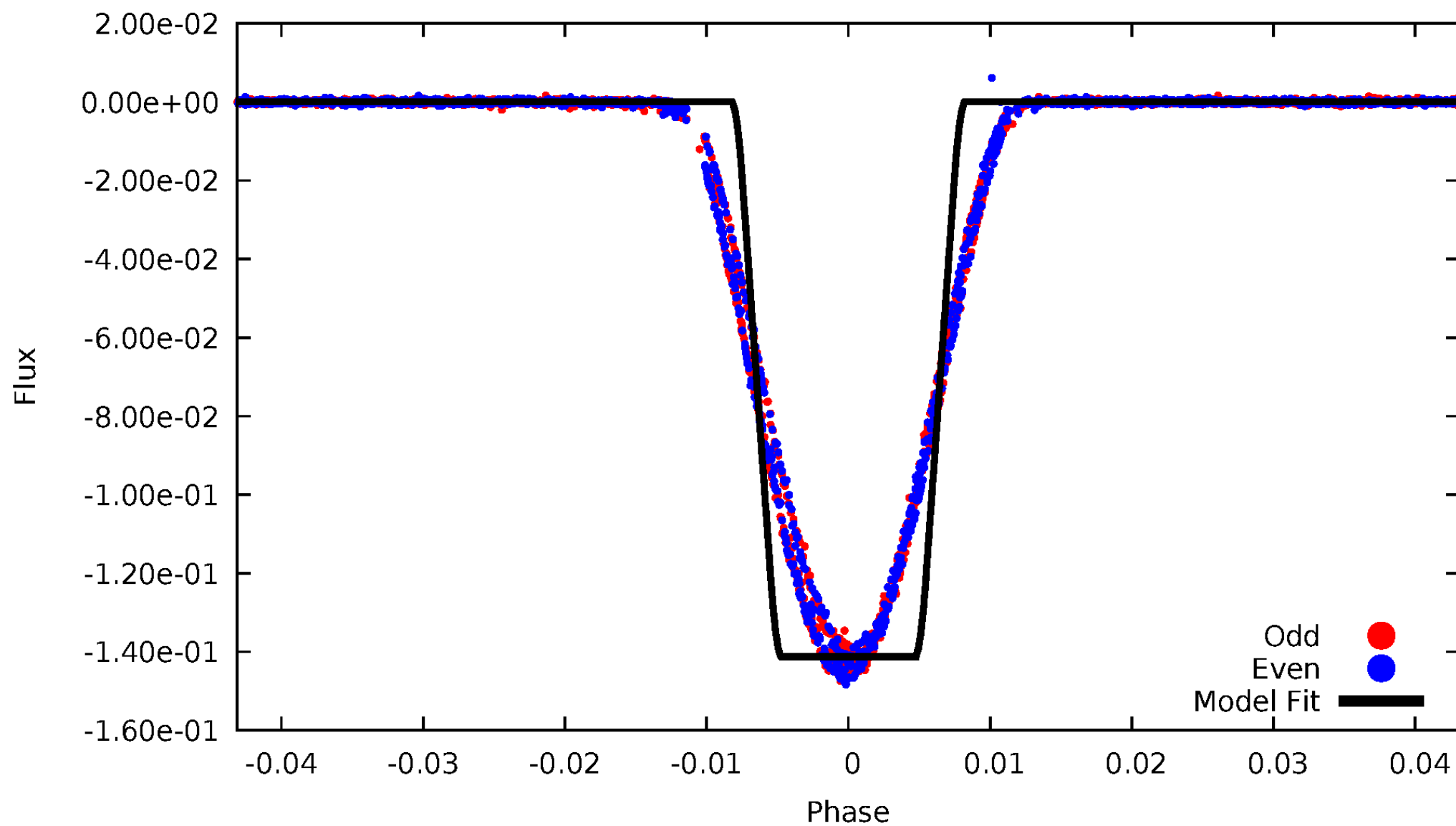
DV Odd/Even

TCE 004753988-01



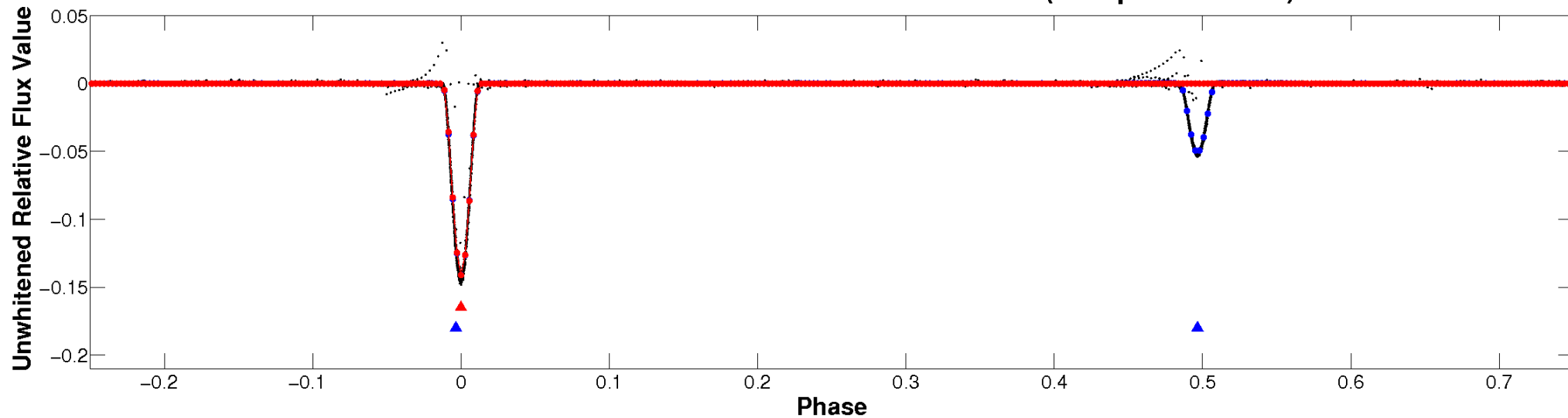
ALT Odd/Even

TCE 004753988-01

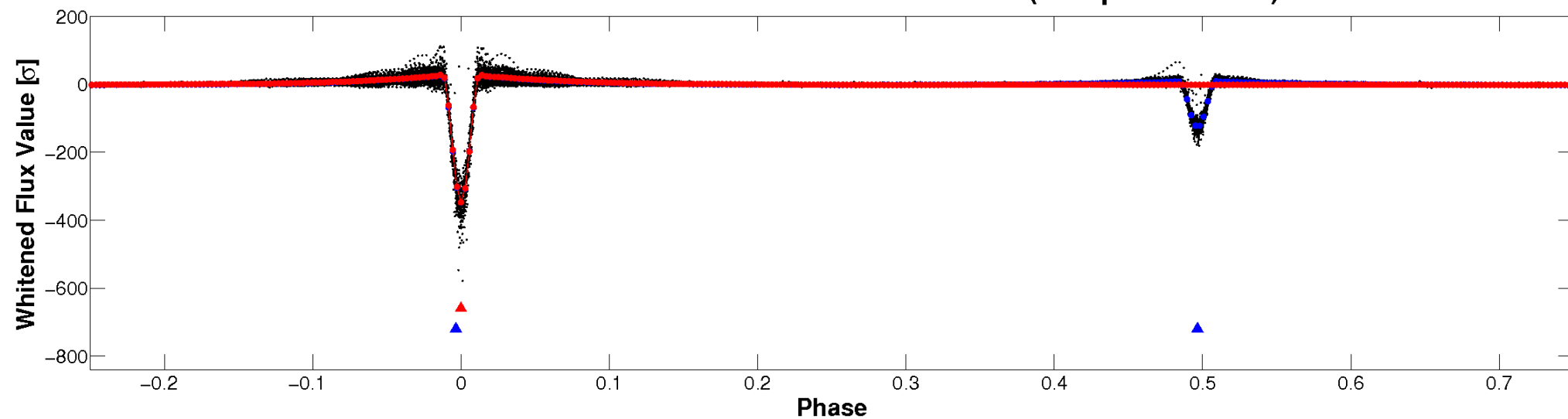


Non-Whitened Vs. Whitened Light Curve

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

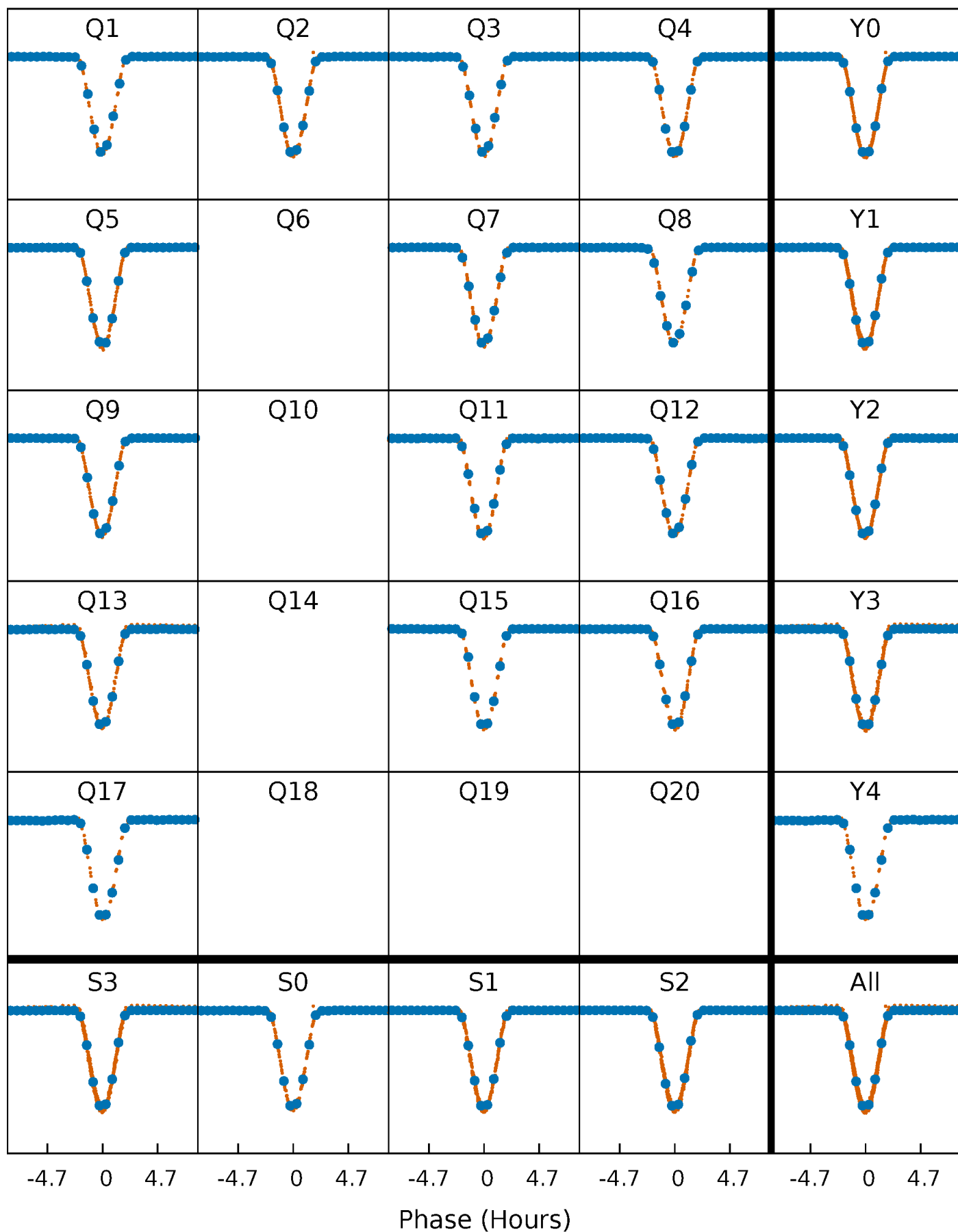


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



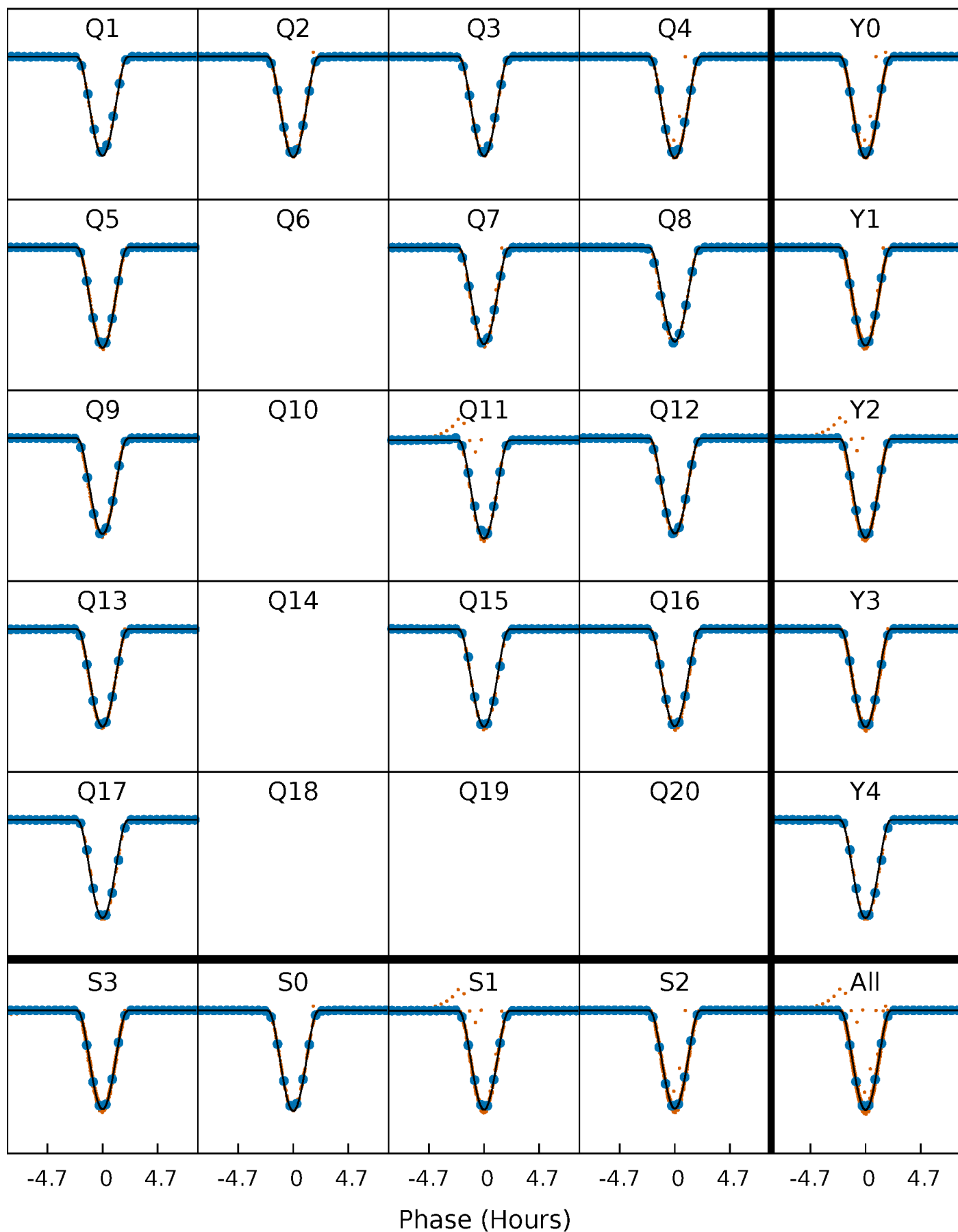
PDC Quarter-Phased Transit Curves

TCE 004753988-01 P= 7.304447 Days $T_0=135.026054$ (BKJD)



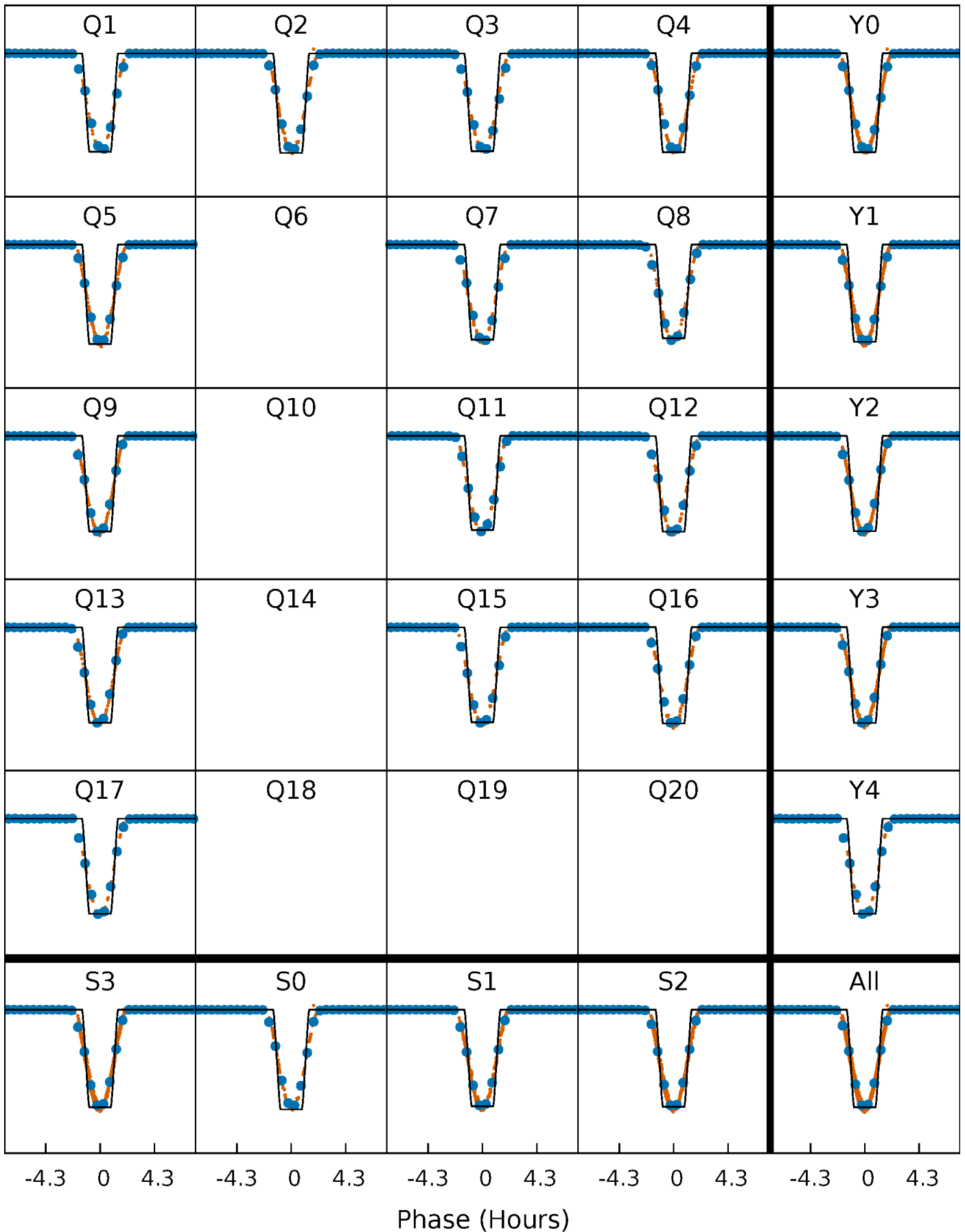
DV Quarter-Phased Transit Curves

TCE 004753988-01 P= 7.304447 Days $T_0=135.026054$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

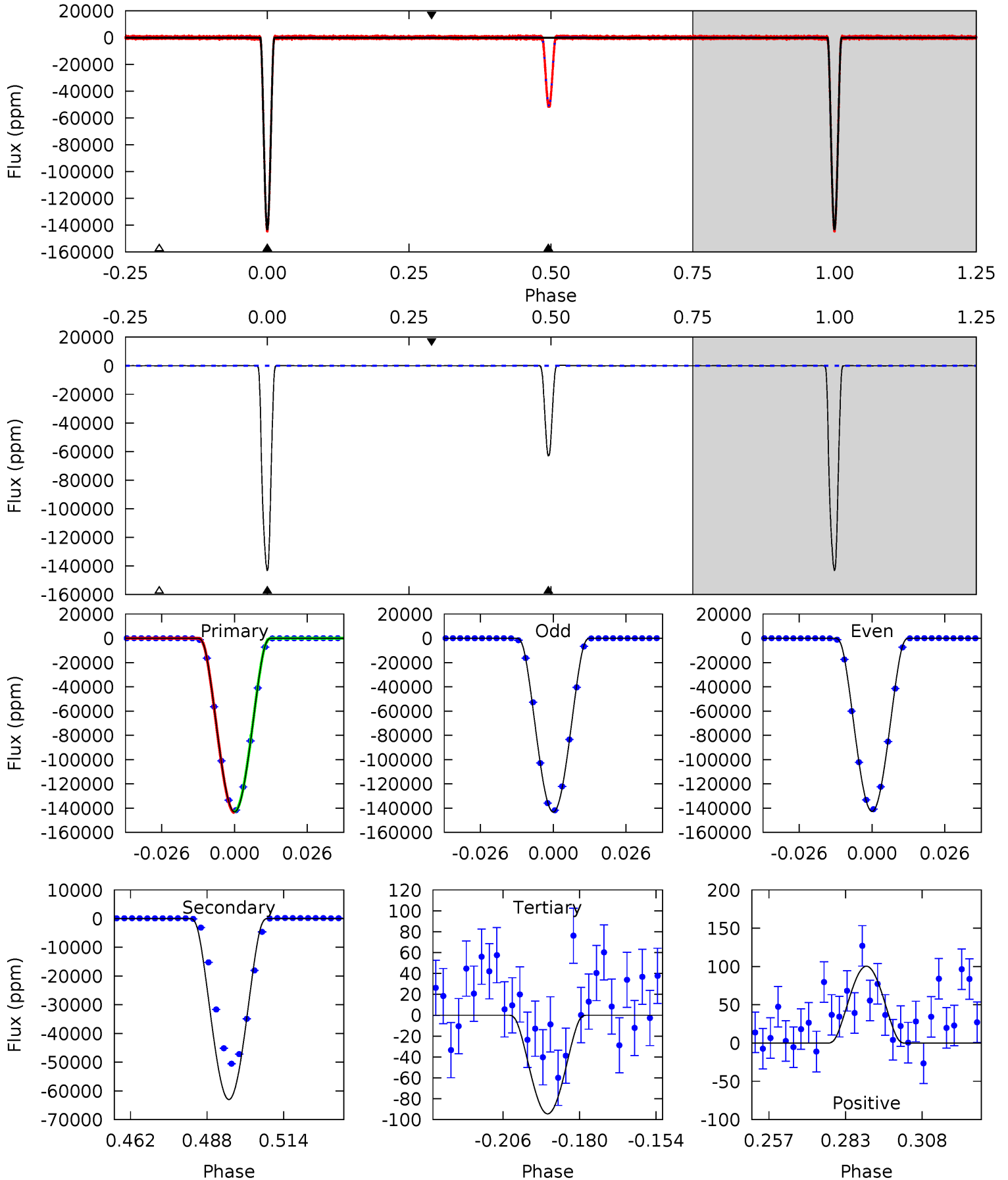
TCE 004753988-01 P= 7.304477 Days $T_0=135.023001$ (BKJD)



DV Model-Shift Uniqueness Test

004753988-01, P = 7.304447 Days, E = 127.721607 Days

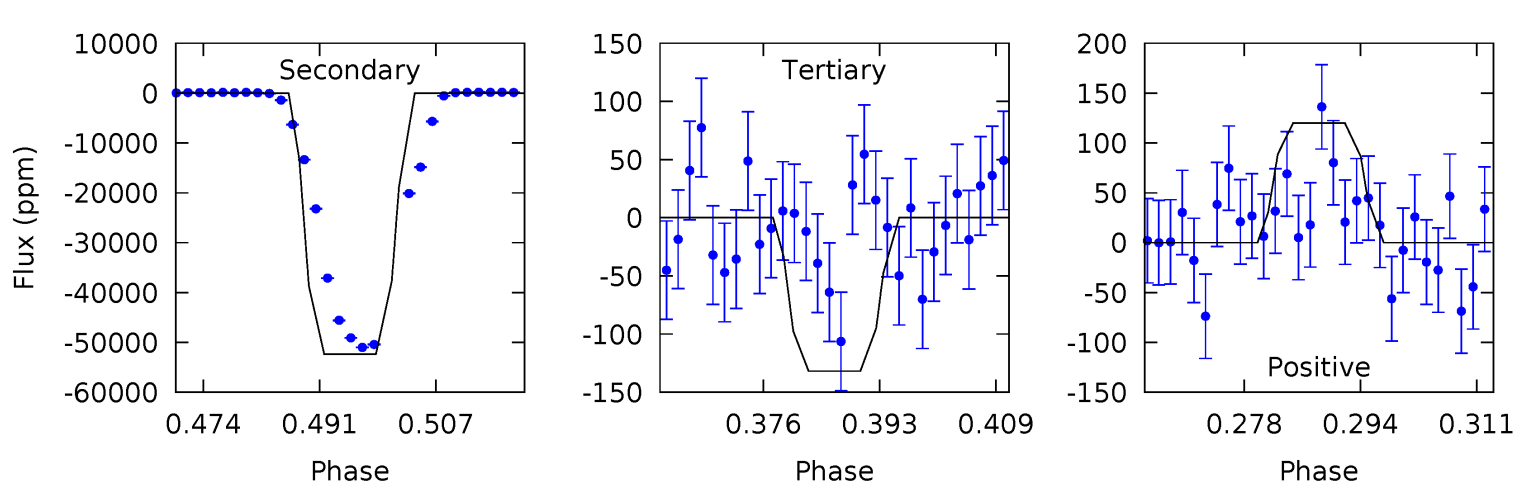
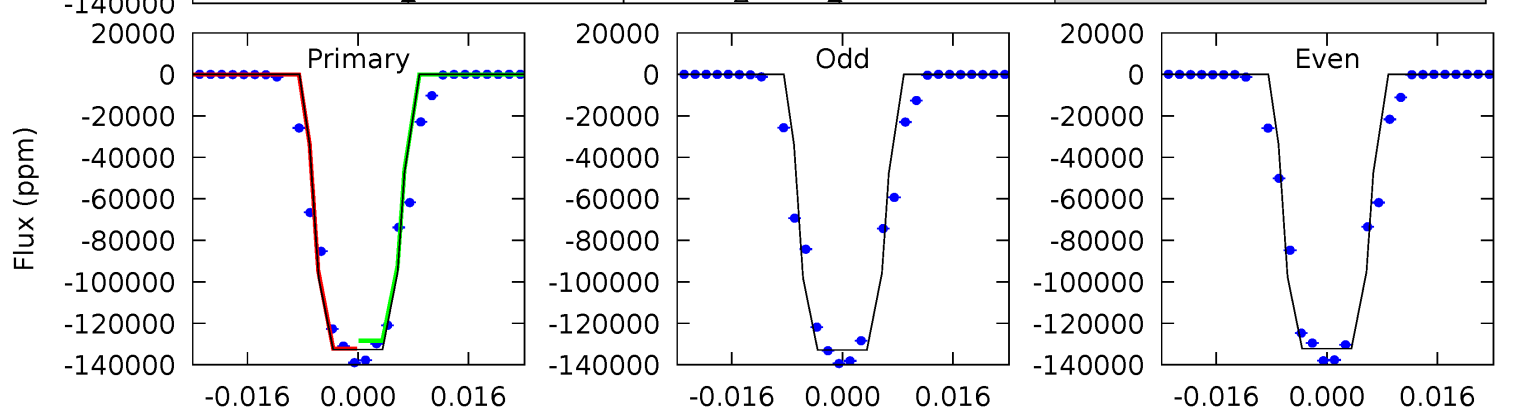
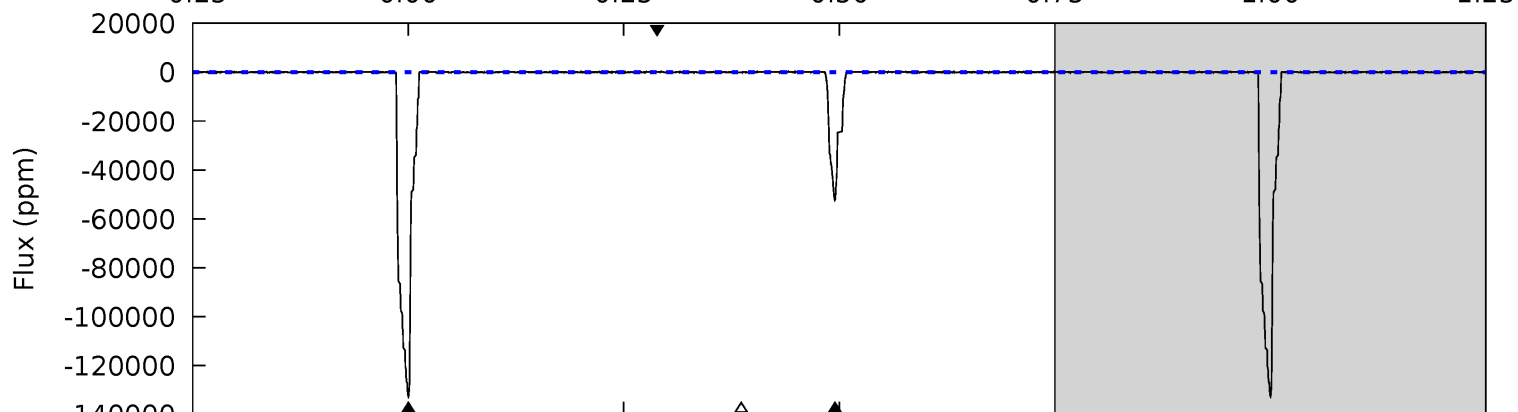
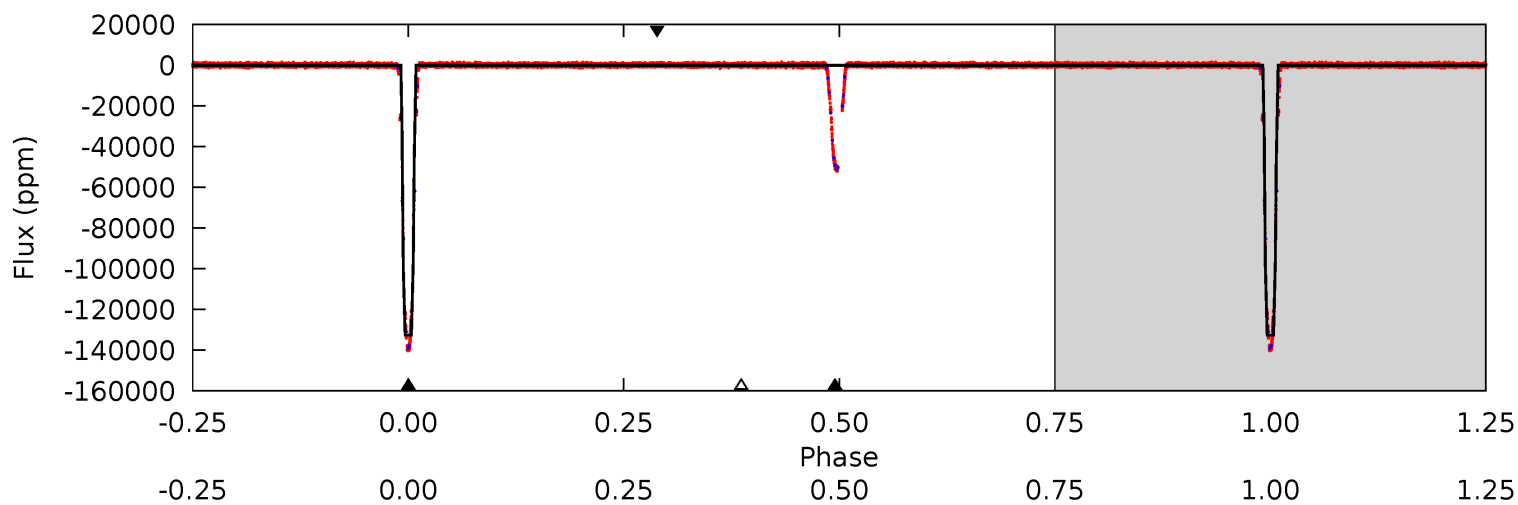
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10086	4440	6.66	7.07	4.84	2.23	3.68	10079	10079	4433	4433	16.4	0.99	0.00	39.5



Alt Model-Shift Uniqueness Test

004753988-01, P = 7.304477 Days, E = 127.718524 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4128	1628	4.10	3.73	4.93	2.40	1.30	4124	4124	1624	1625	11.5	1.00	0.00	0



Stellar Parameters For KIC 004753988

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6024^{+190}_{-211}	$4.523^{+0.050}_{-0.212}$	$-0.260^{+0.300}_{-0.300}$	$0.900^{+0.280}_{-0.088}$	$0.985^{+0.132}_{-0.120}$	$1.903^{+0.401}_{-1.023}$
	+3%/-4%	+1%/-5%	+115%/-115%	+31%/-10%	+13%/-12%	+21%/-54%
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 004753988-01 / KOI 6445.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-62998 ± 14	$45.97^{+7.41}_{-3.35}$	1333^{+88}_{-72}	4696^{+112}_{-149}	92^{+13}_{-21}
Alt.	-52334 ± 32	$37.39^{+6.80}_{-2.46}$	1325^{+100}_{-64}	4878^{+122}_{-155}	113^{+15}_{-28}

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 $A_{obs} \gg 1.0$

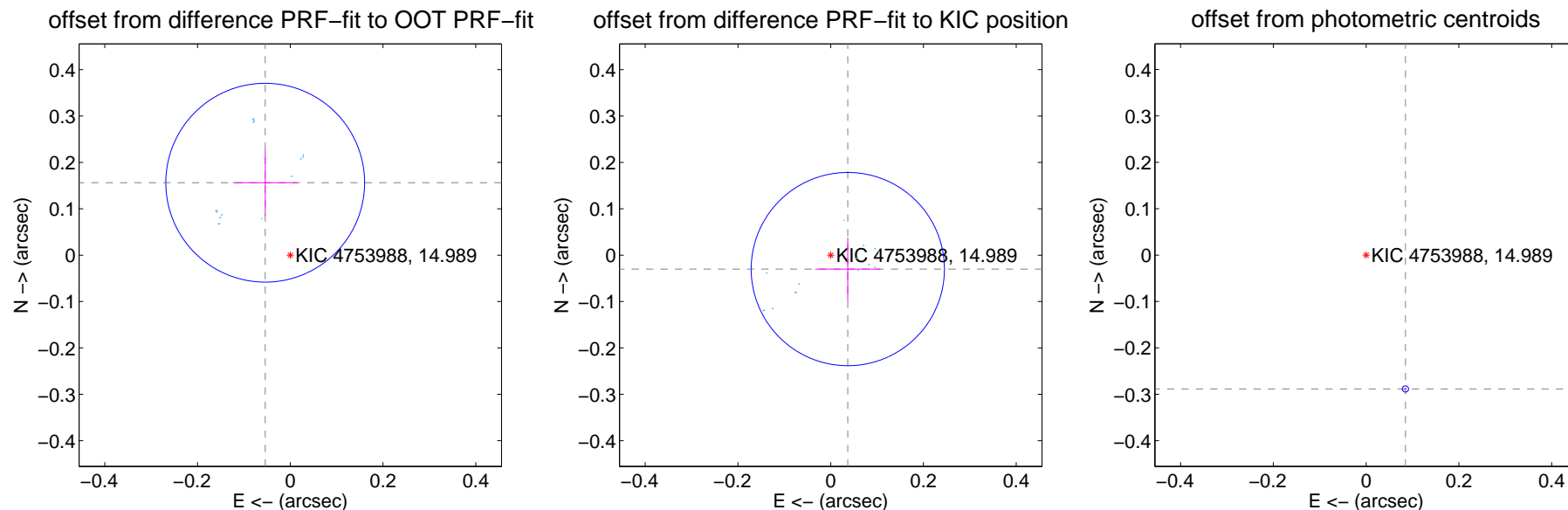
DV Centroid Data

Supplemental centroid analysis for 004753988-01. Kepler magnitude: 14.99. Transit SNR 4550.59

There are 14 quarters with good PRF difference image offsets

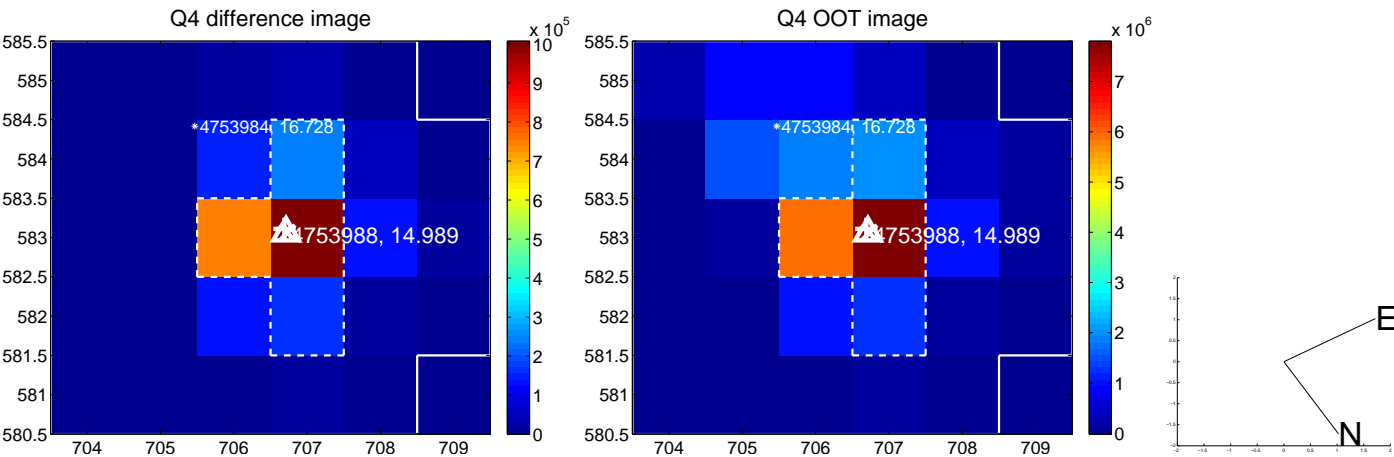
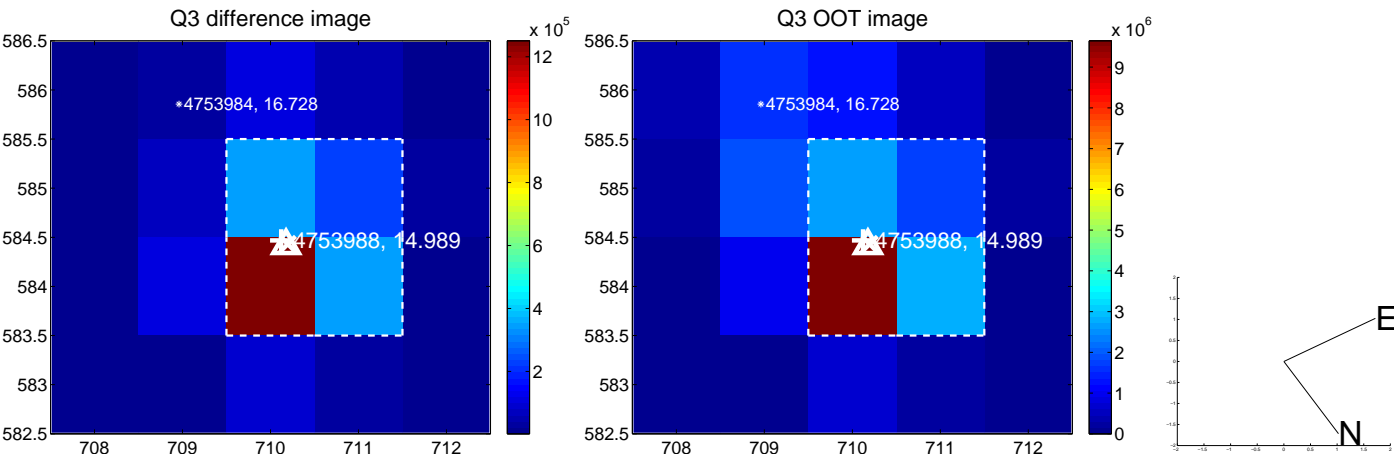
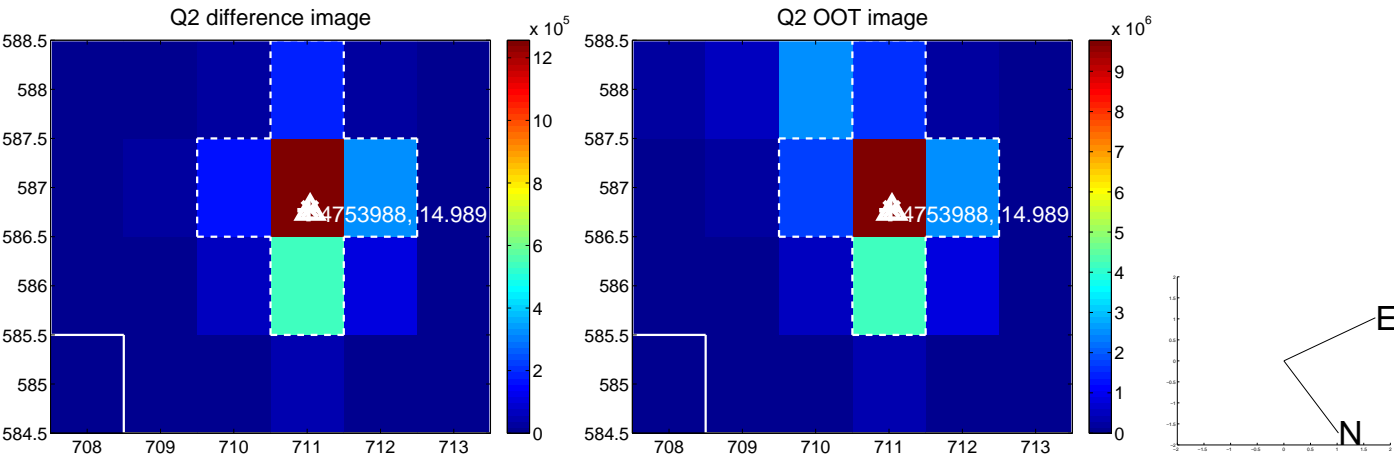
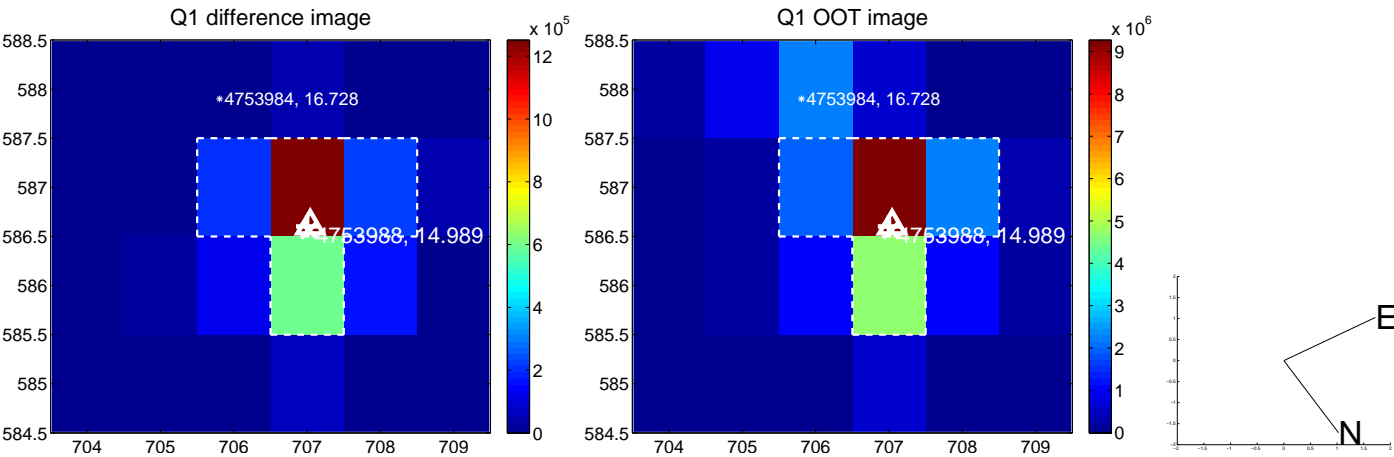
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.165 ± 0.071	2.31	0.054 ± 0.070	0.156 ± 0.072
PRF-fit source offset from KIC position	0.048 ± 0.069	0.68	-0.037 ± 0.070	-0.030 ± 0.068
photometric centroid source offset	0.30 ± 0.00	134.83	-0.08 ± 0.00	-0.29 ± 0.00

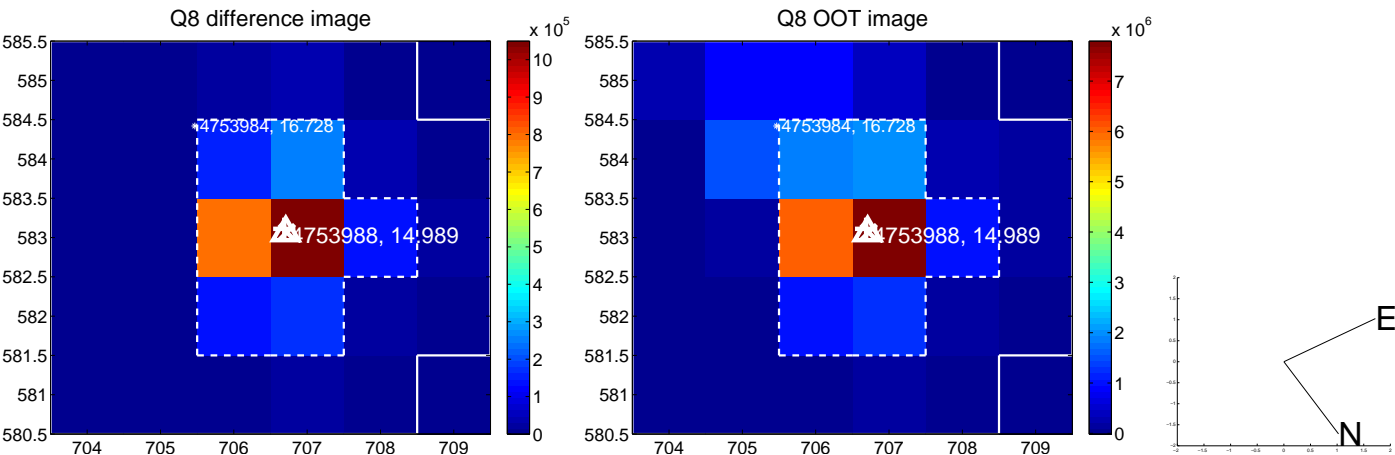
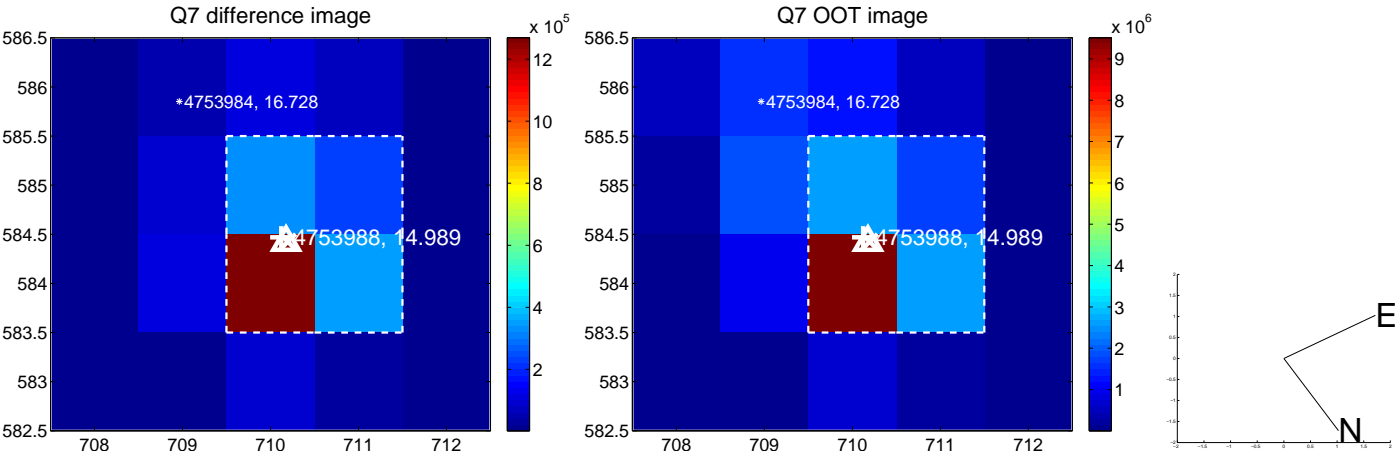
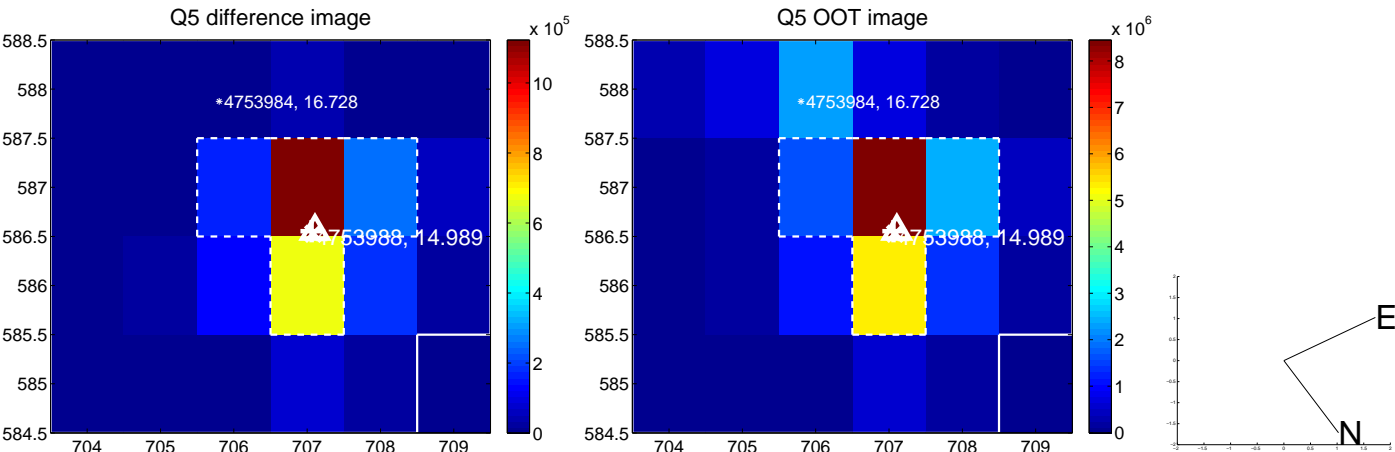


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

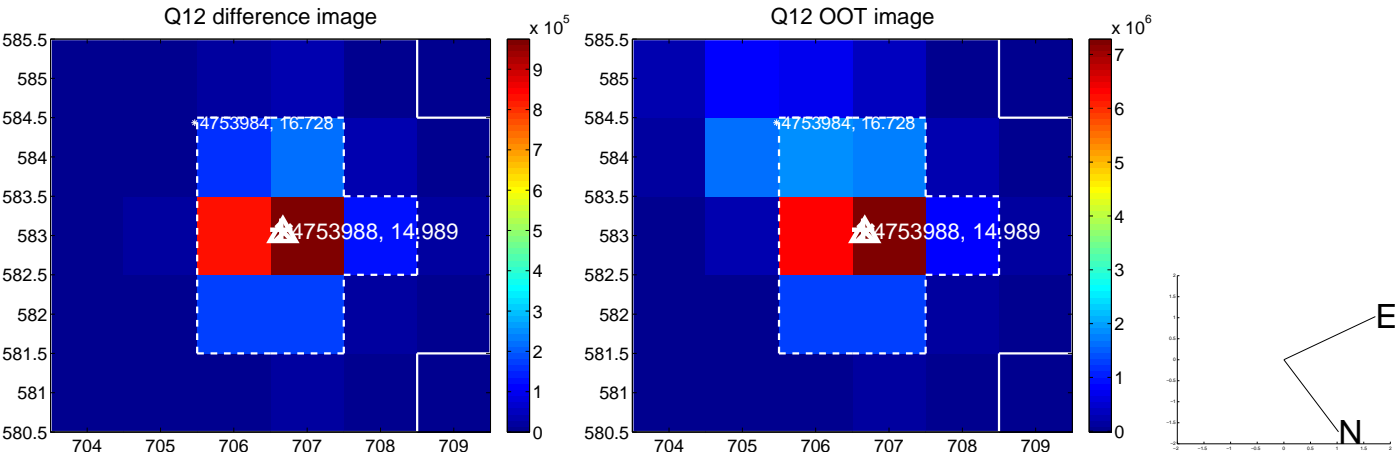
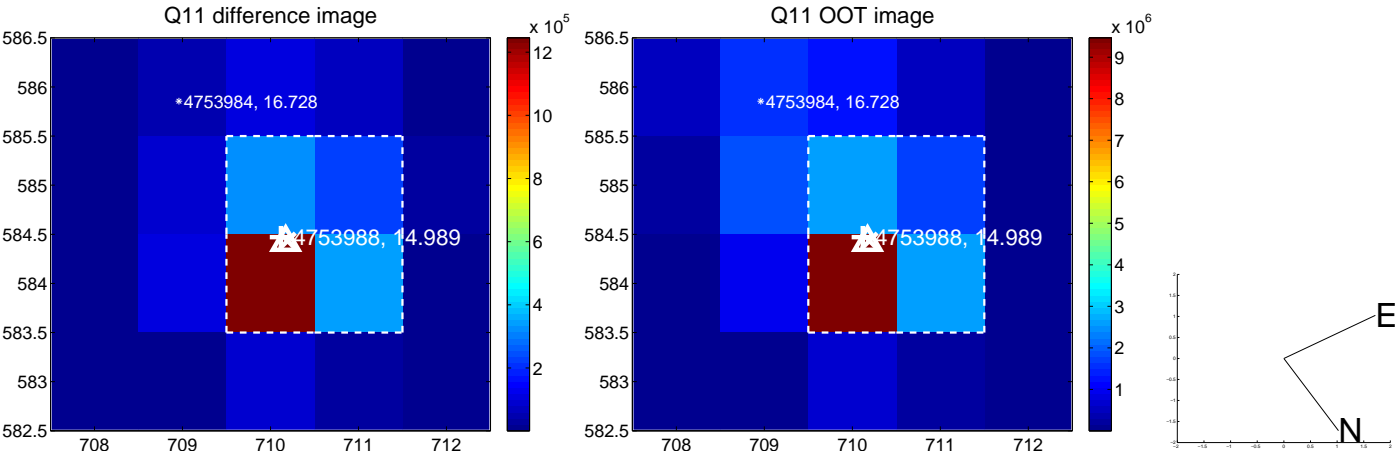
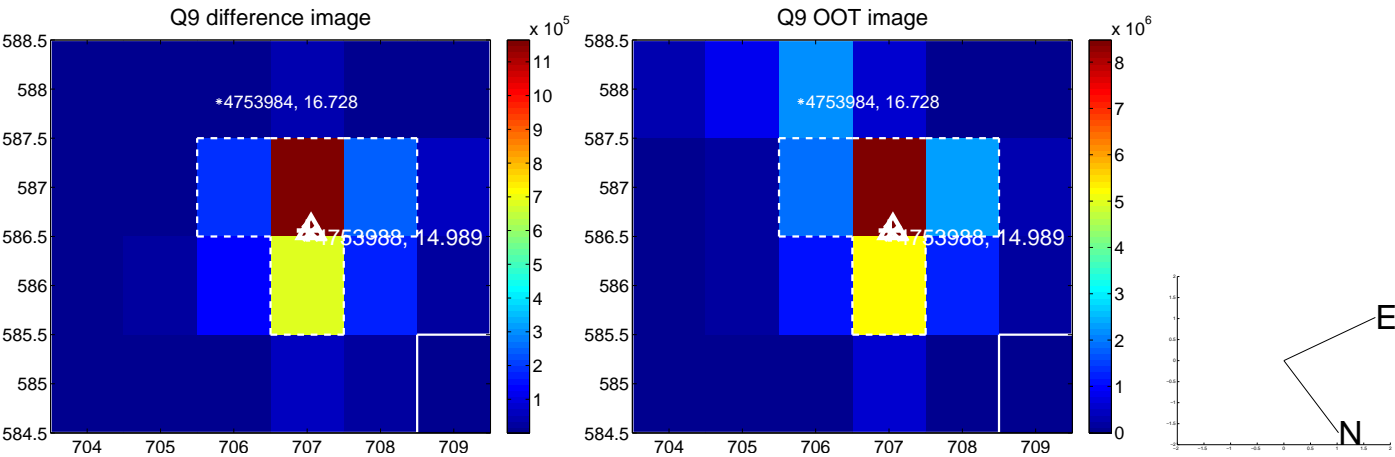
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



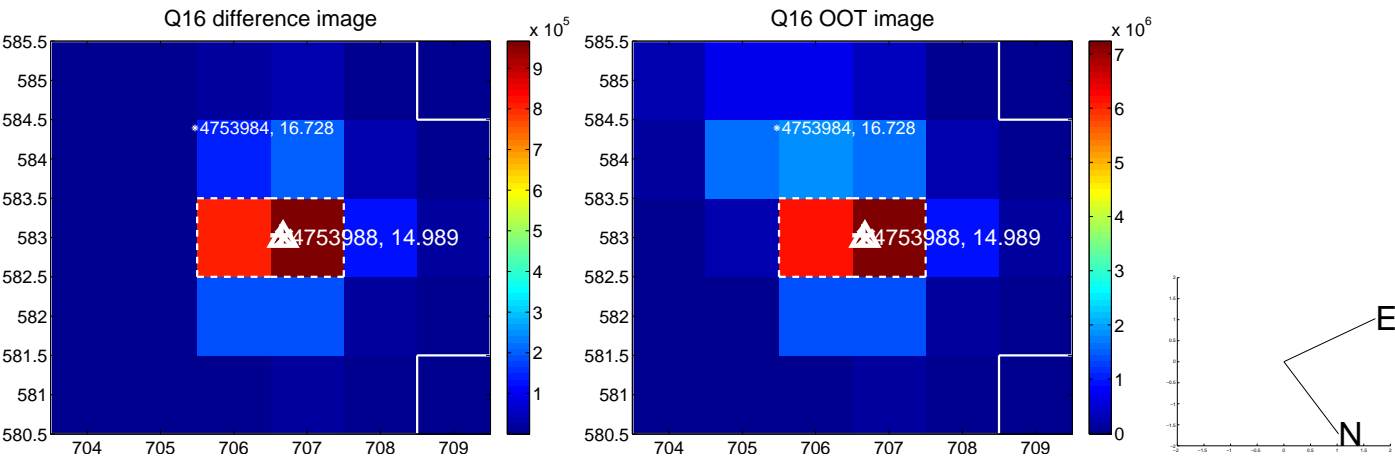
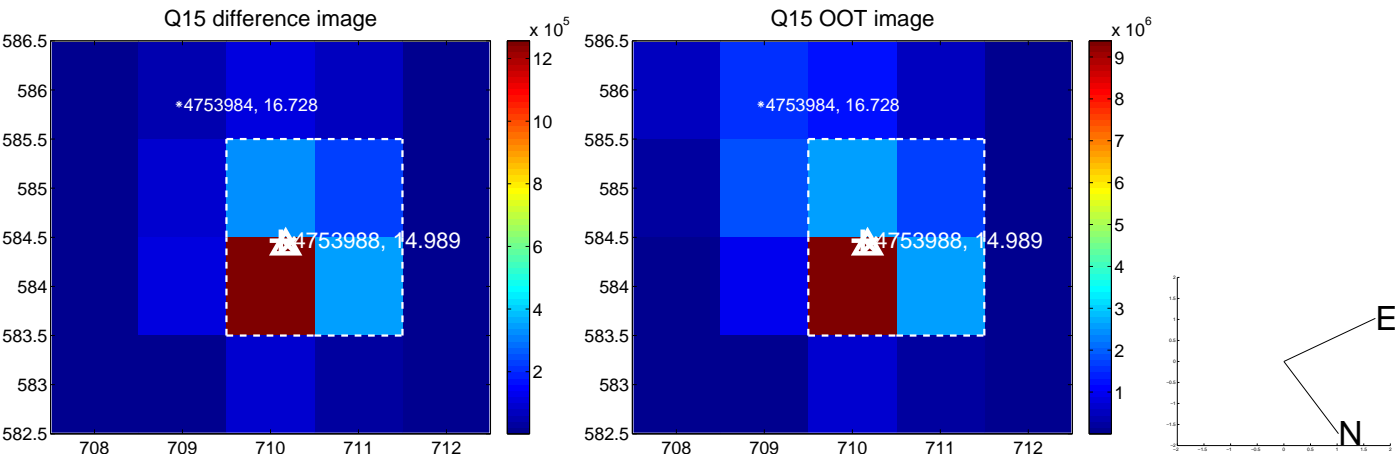
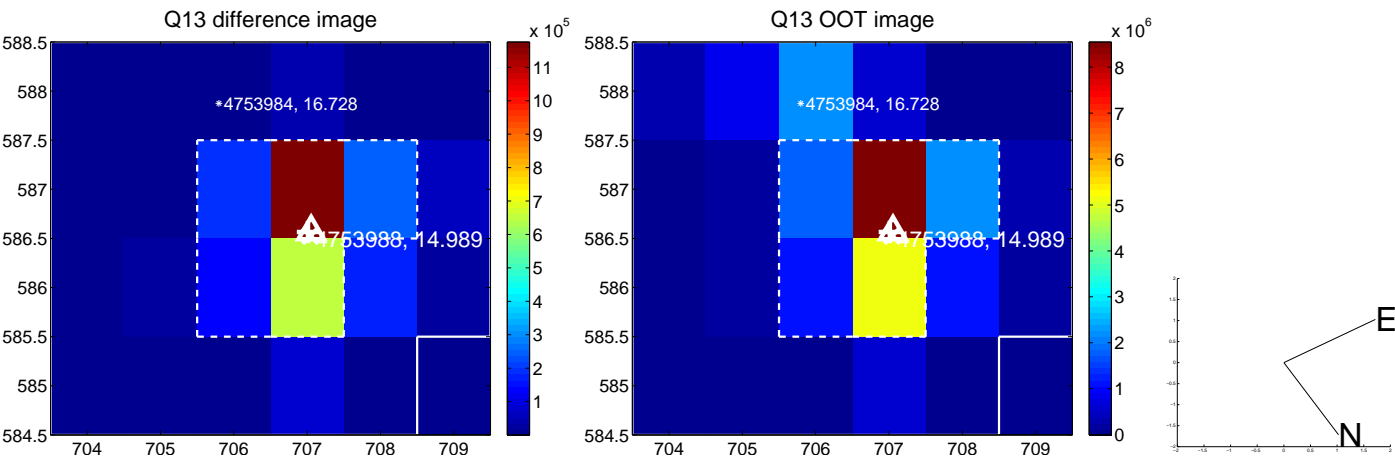
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



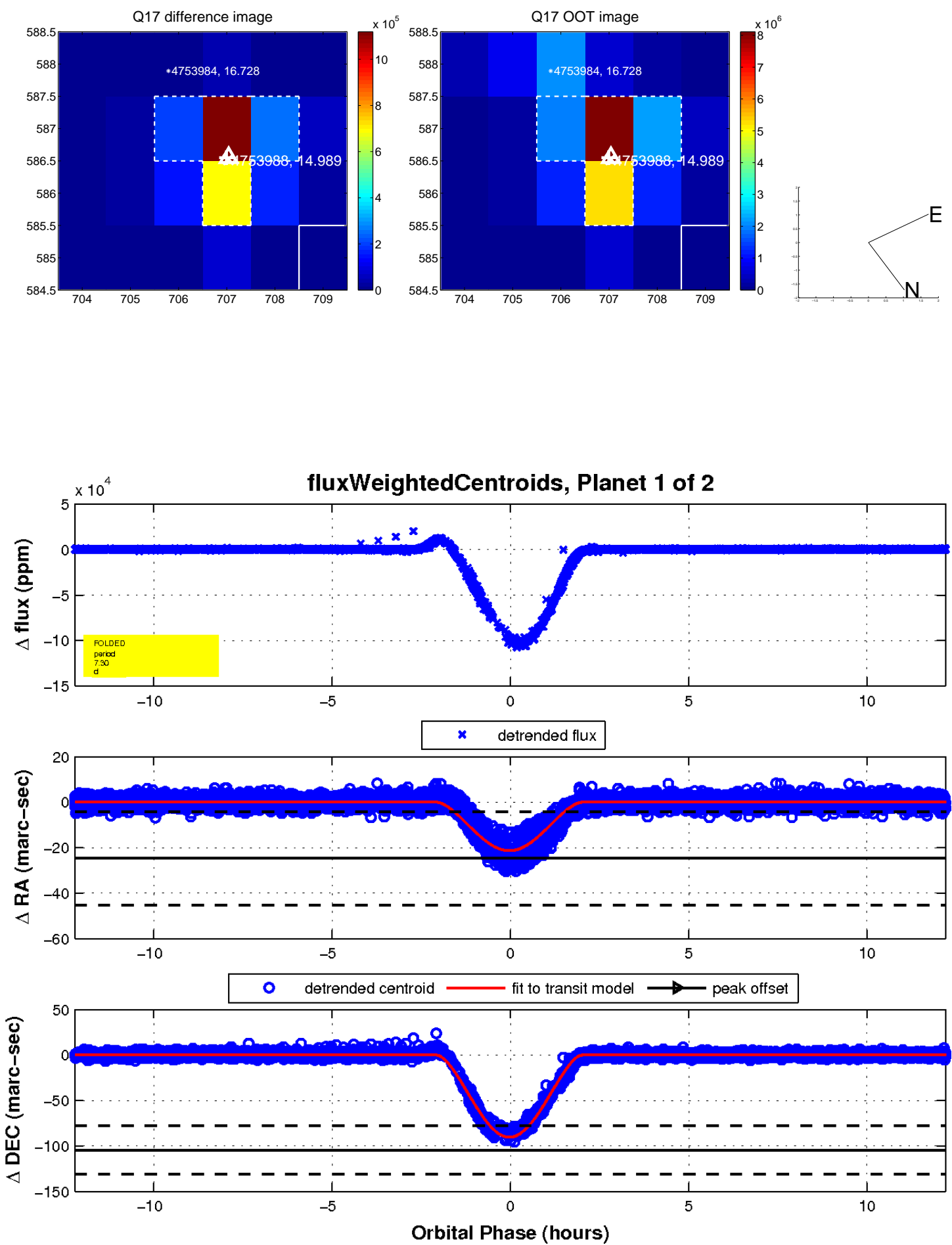
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



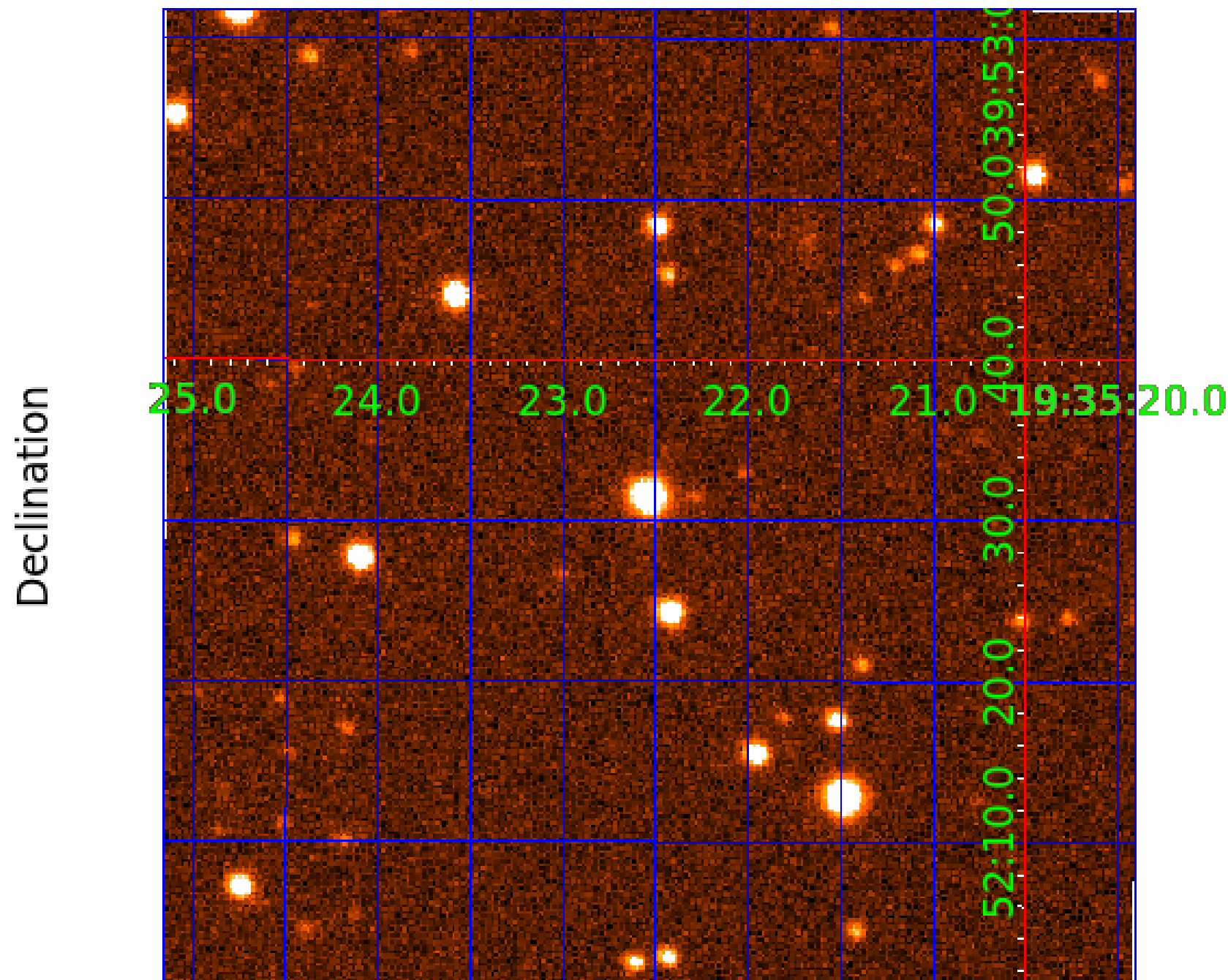
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004753988

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})
004753988-01	OBS	6445.01	7.304447	135.026054	142441.3	4.069	6885.7	4550.6	0.90	6024	44.86	177.75
004753988-02	OBS	No	3.652222	135.001544	51275.8	3.894	2700.4	2366.8	0.90	6024	29.44	447.90

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004753988-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—DEEP_V_SHAPED—HAS_SEC_TCE
004753988-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

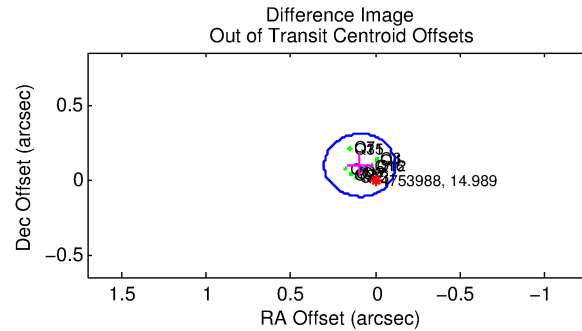
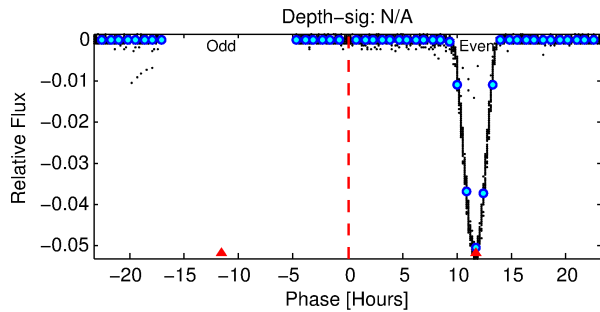
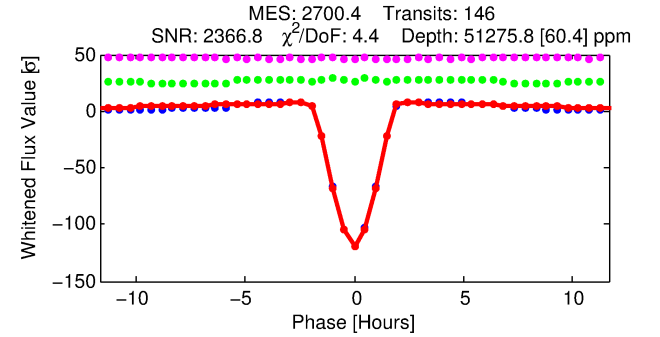
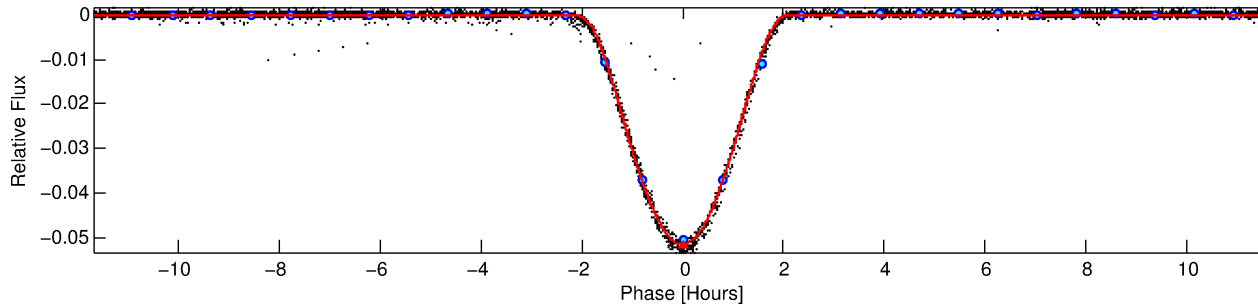
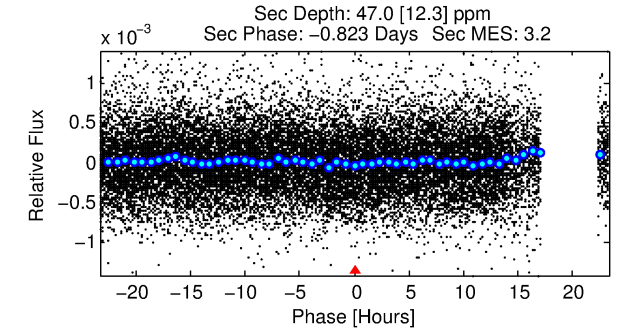
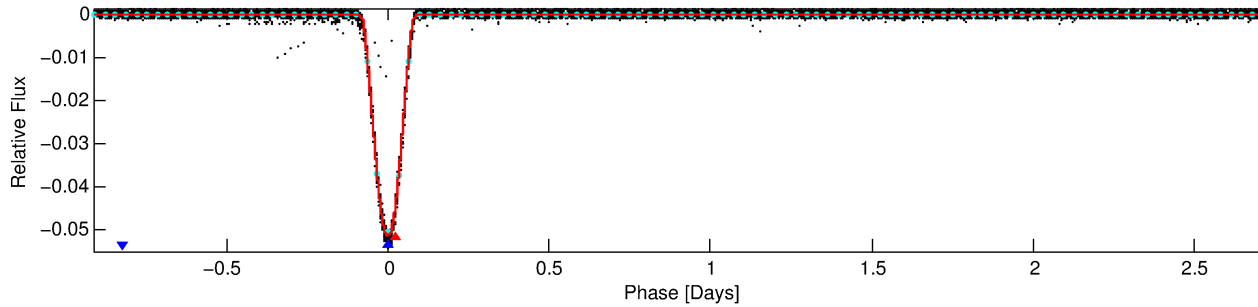
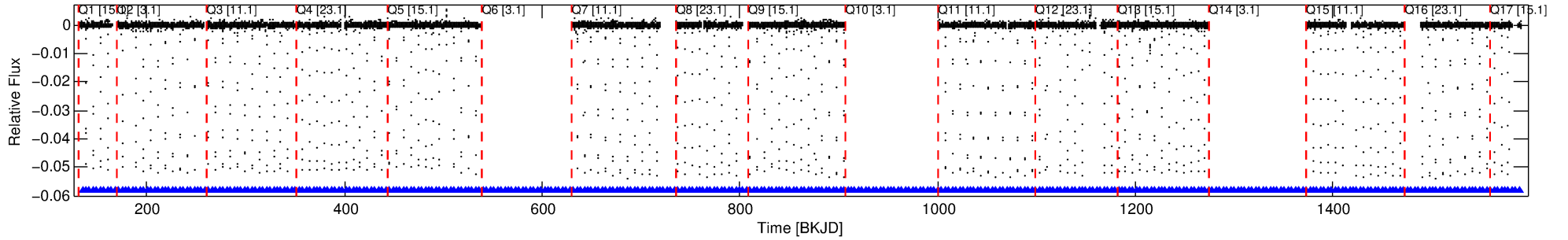
Ephemeris Match Information For 004753988-02

No Significant Match Found

DV One-Page Summary

KIC: 4753988 Candidate: 2 of 2 Period: 3.652 d
KOI: K06445 Corr: No Ephemeris Match

Kp: 14.99 R*: 0.90 Rs Teff: 6024.0 K Logg: 4.52 Fe/H: -0.260



DV Fit Results:

Period = 3.65222 [0.00000] d
Epoch = 135.0015 [0.0001] BKJD
Rp/R* = 0.2997 [0.0126]
a/R* = 6.68 [0.02]
b = 0.92 [0.02]
Seff = 447.91 [183.89]
Teq = 1173 [120] K
Rp = 29.44 [9.24] Re
a = 0.0462 [0.0122] AU
Ag = 0.06 [0.03] [-31.01σ]
Teffp = 911 [70] K [-1.88σ]

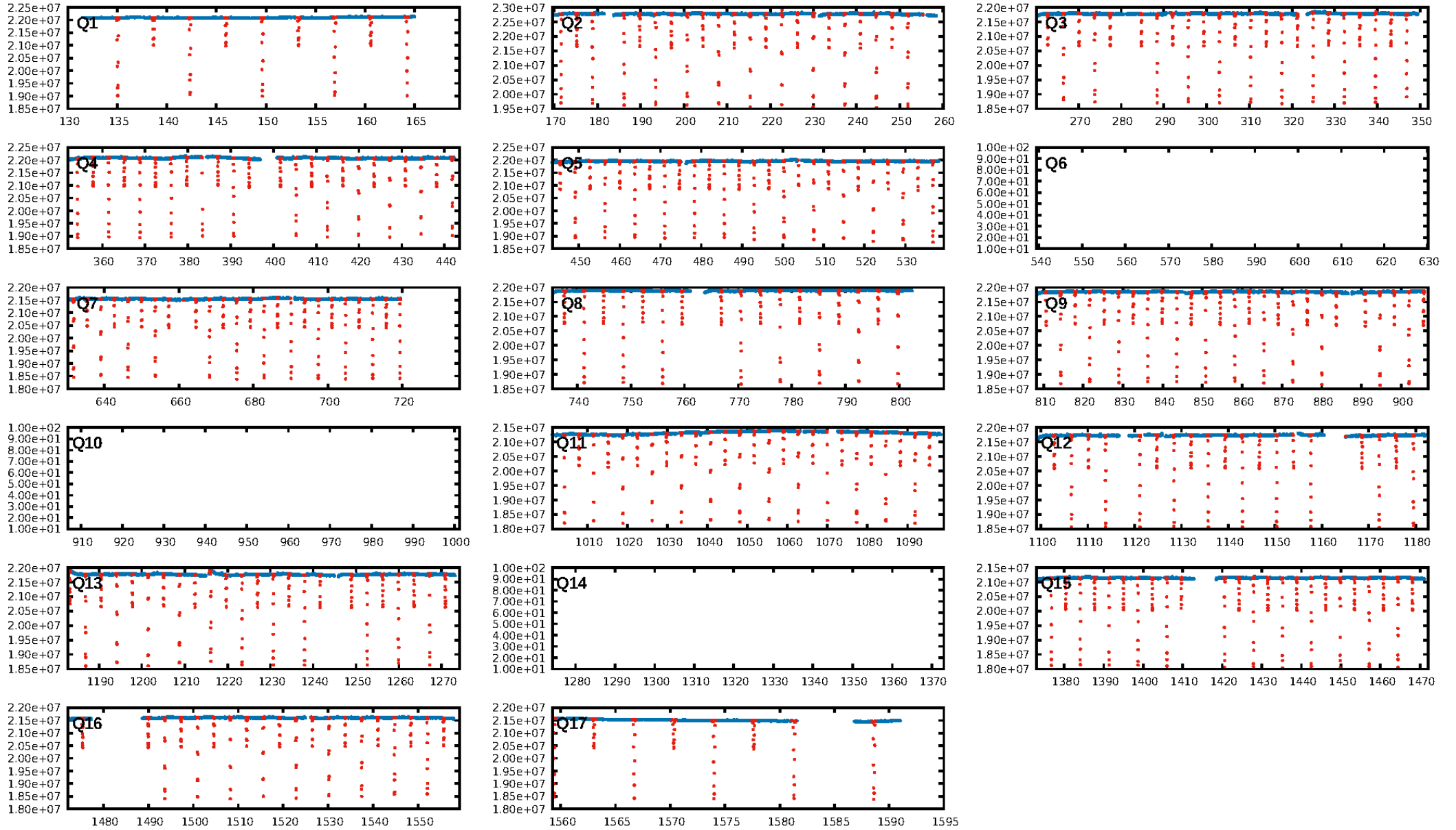
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [15.56σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [139/139]
GhostDiagnostic-chr: 4.052
Centroid-sig: 0.0%
Centroid-so: 0.290 arcsec [67.30σ]
OotOffset-rm: 0.134 arcsec [1.92σ]
KicOffset-rm: 0.097 arcsec [1.42σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

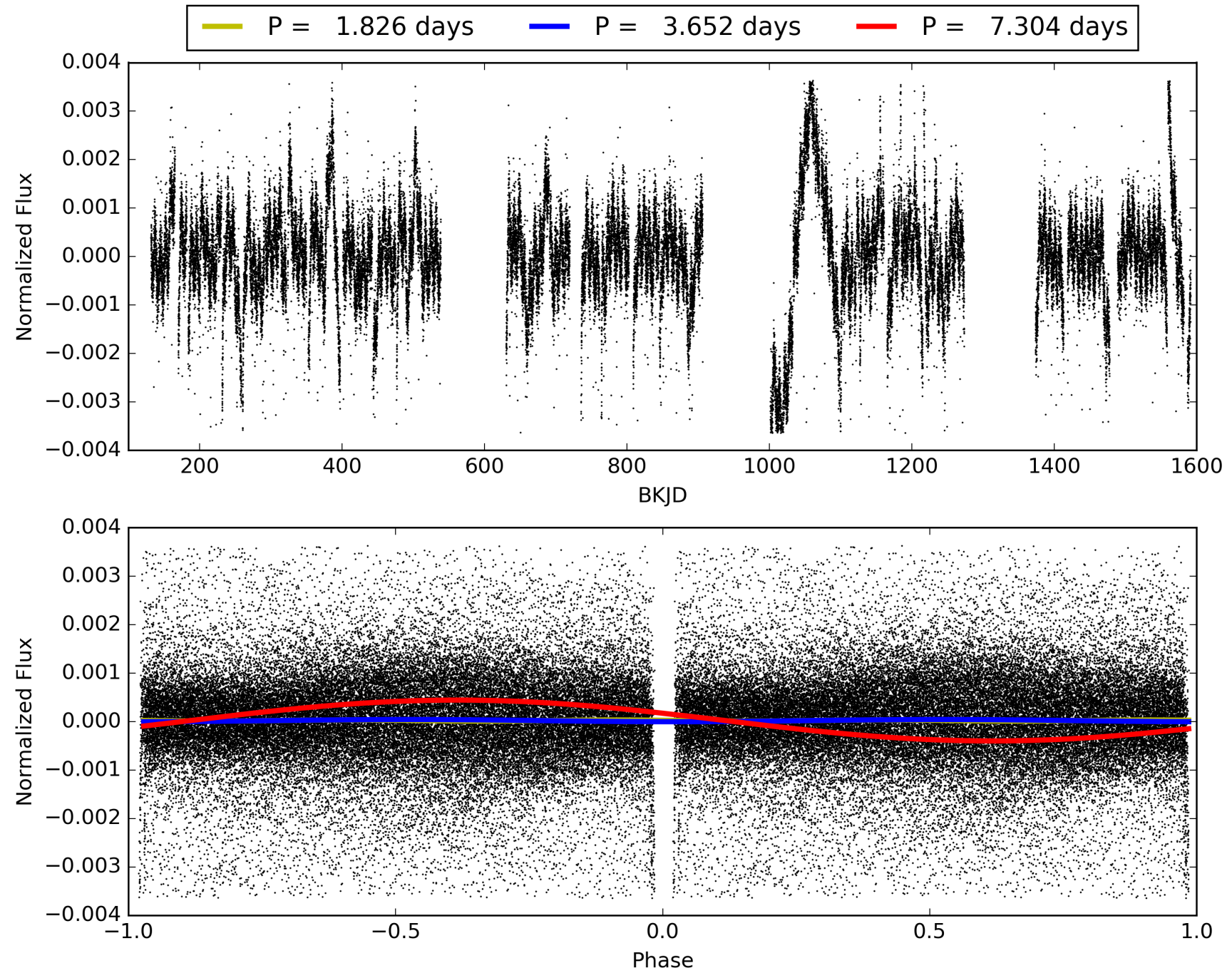
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004753988-02, PDC Light Curves

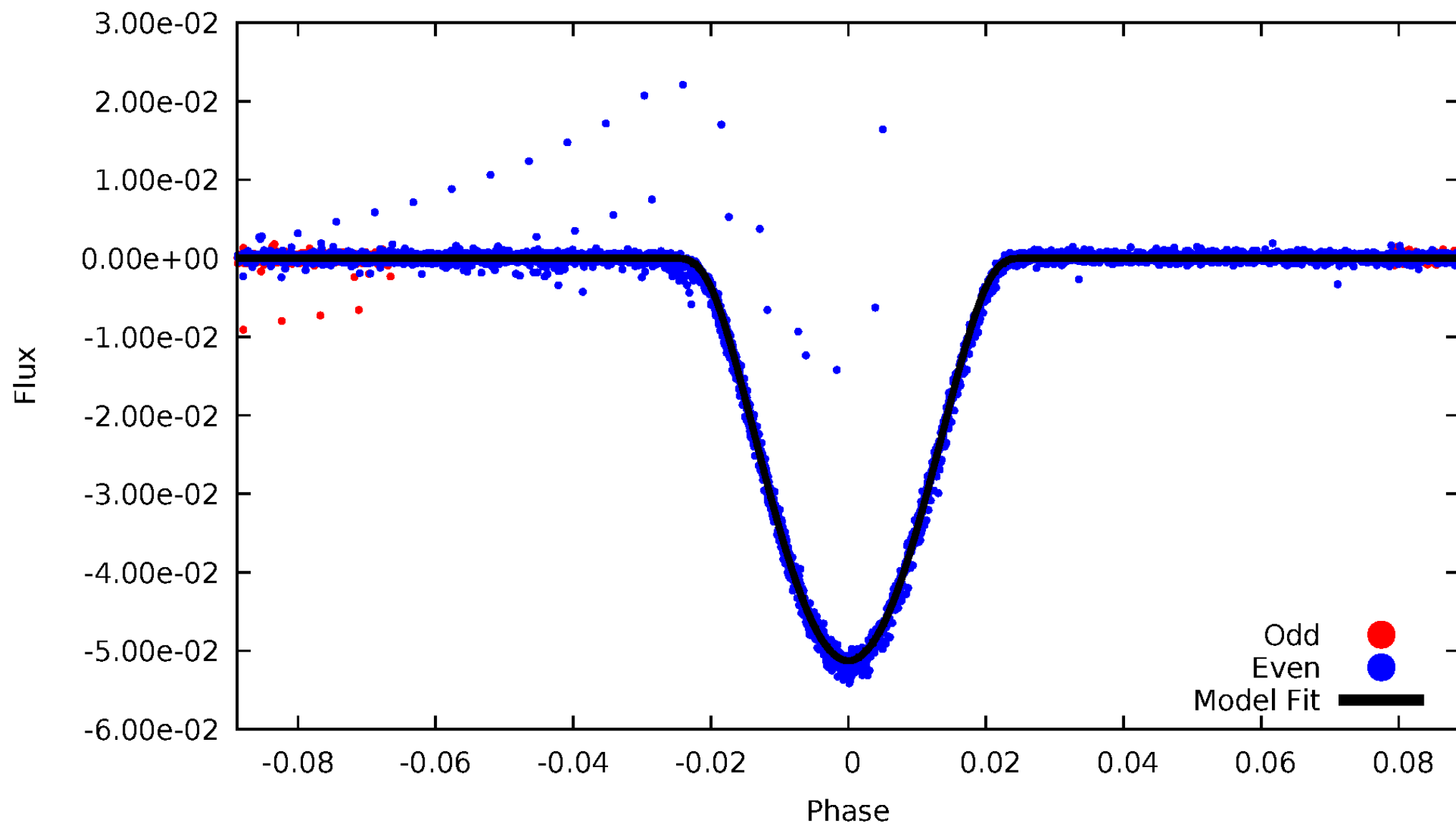


TCE 004753988-02



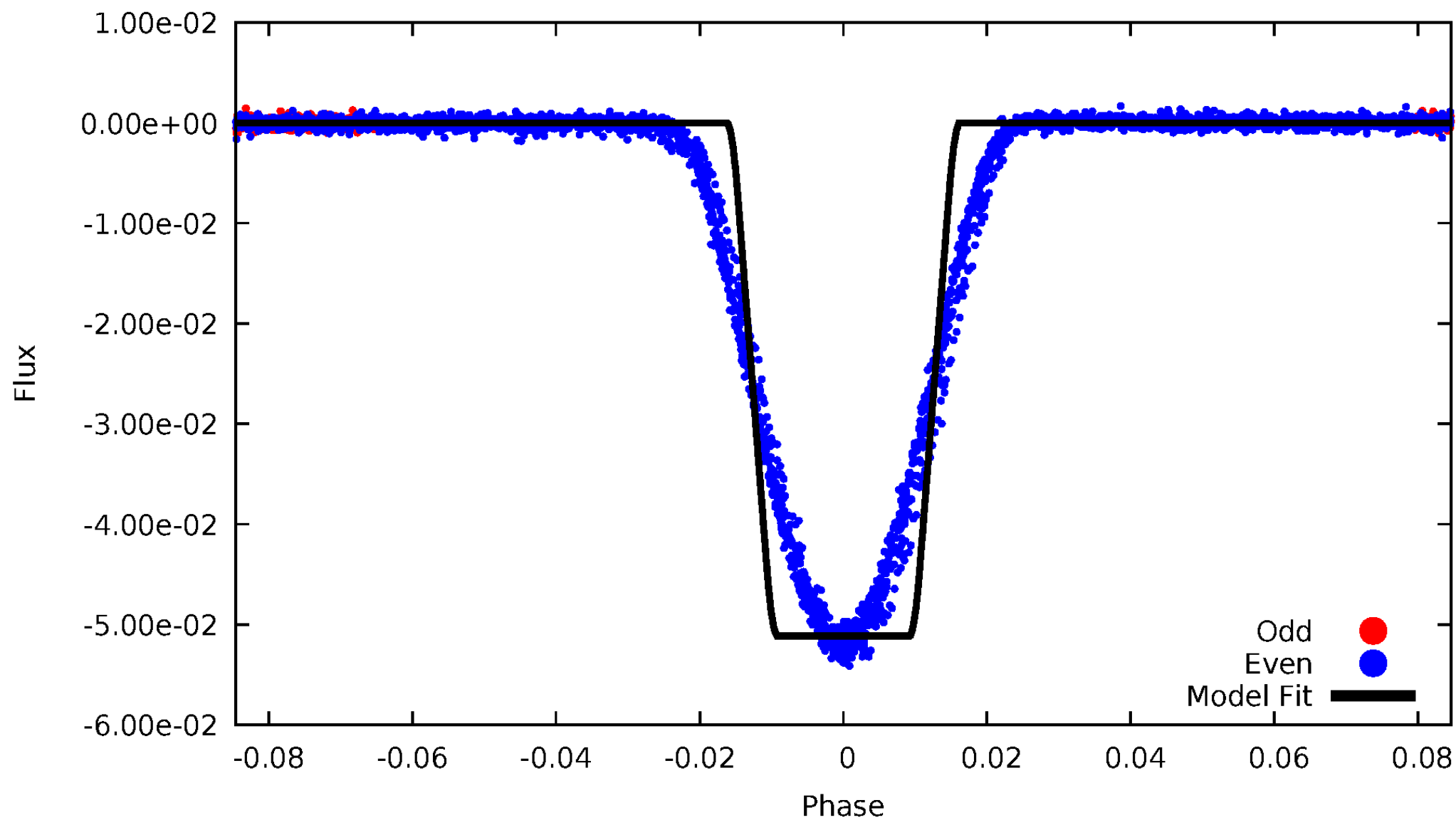
DV Odd/Even

TCE 004753988-02



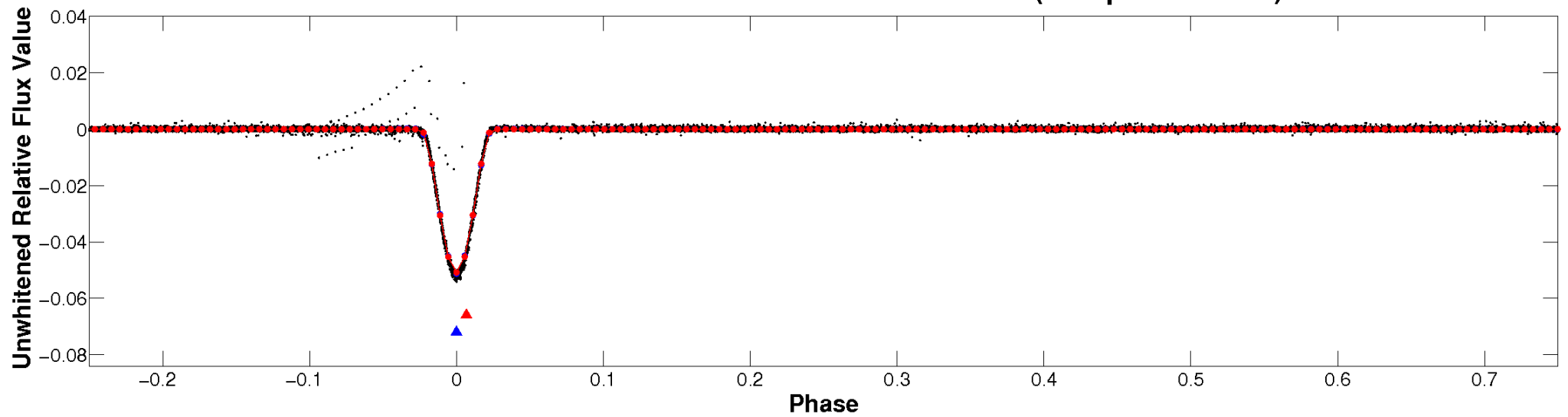
ALT Odd/Even

TCE 004753988-02

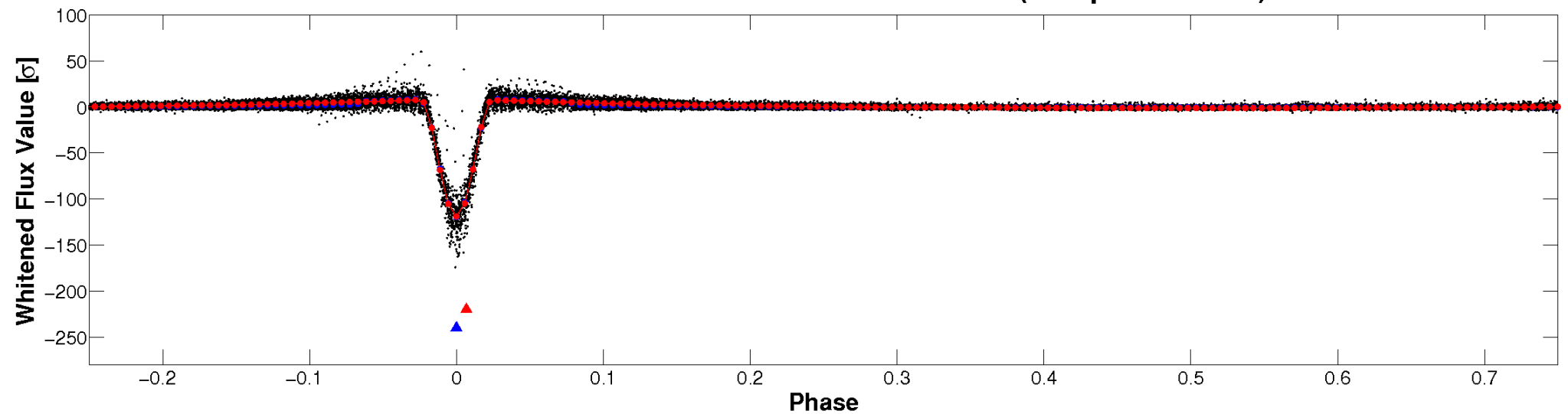


Non-Whitened Vs. Whitened Light Curve

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

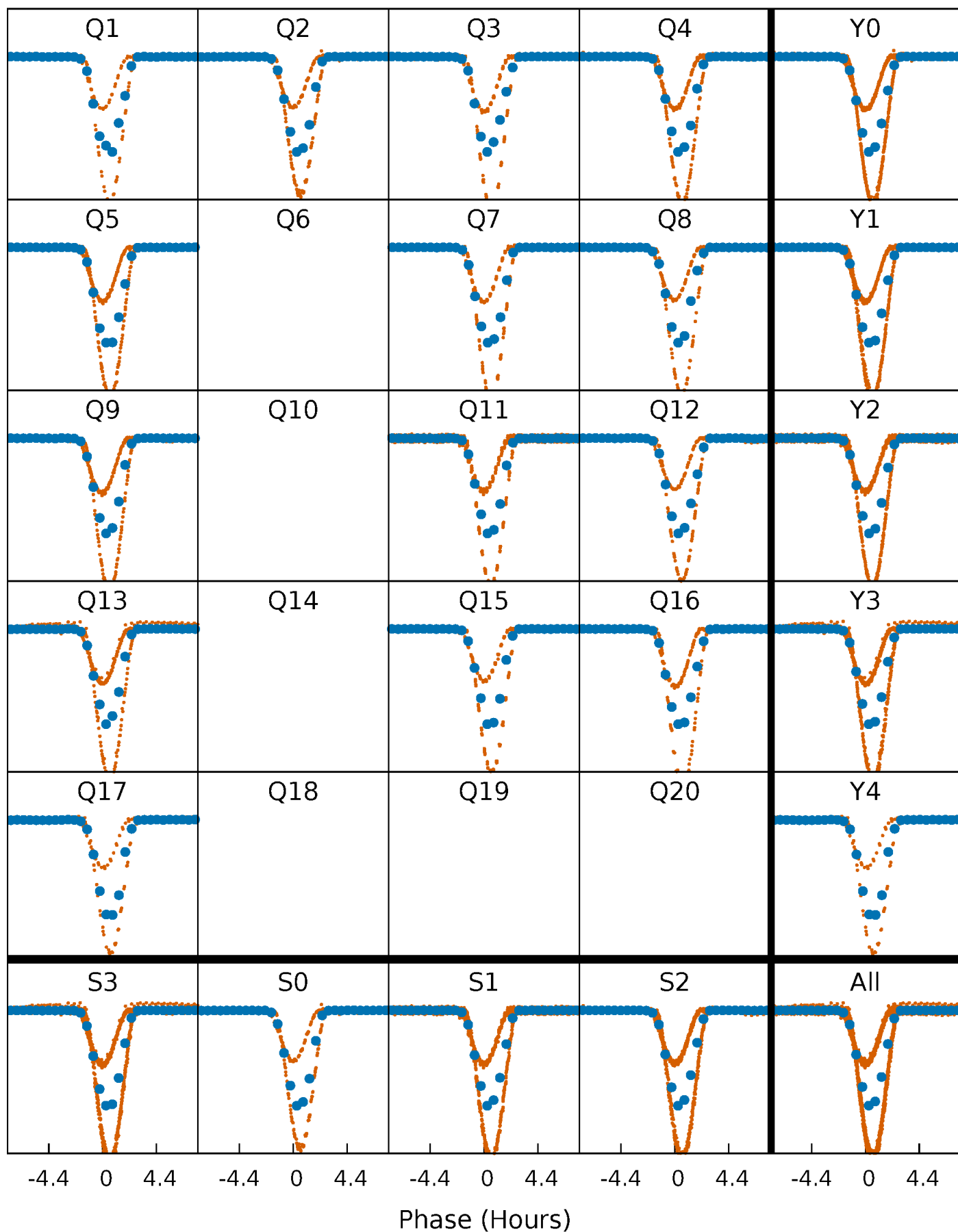


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



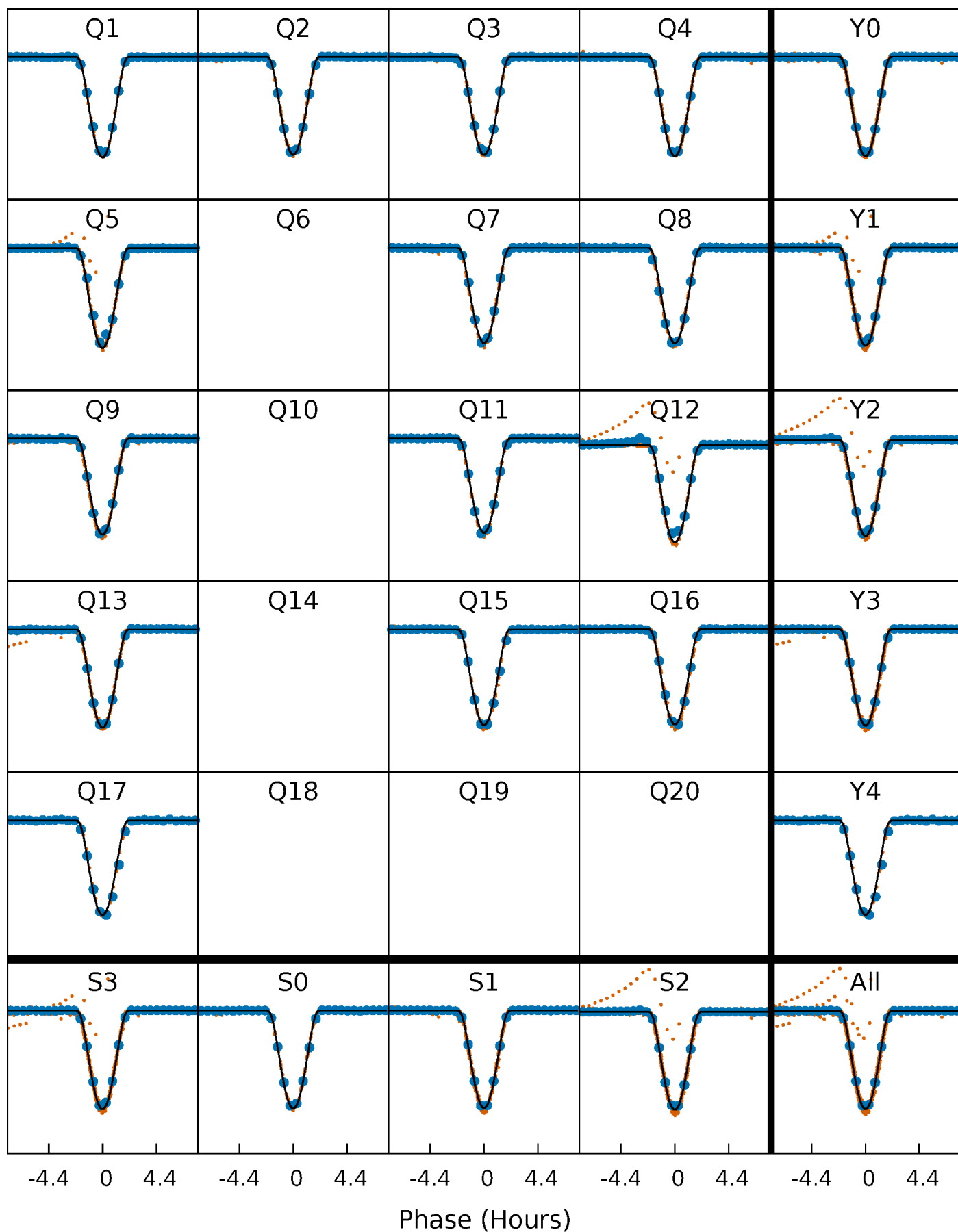
PDC Quarter-Phased Transit Curves

TCE 004753988-02 P= 3.652222 Days $T_0=135.001544$ (BKJD)



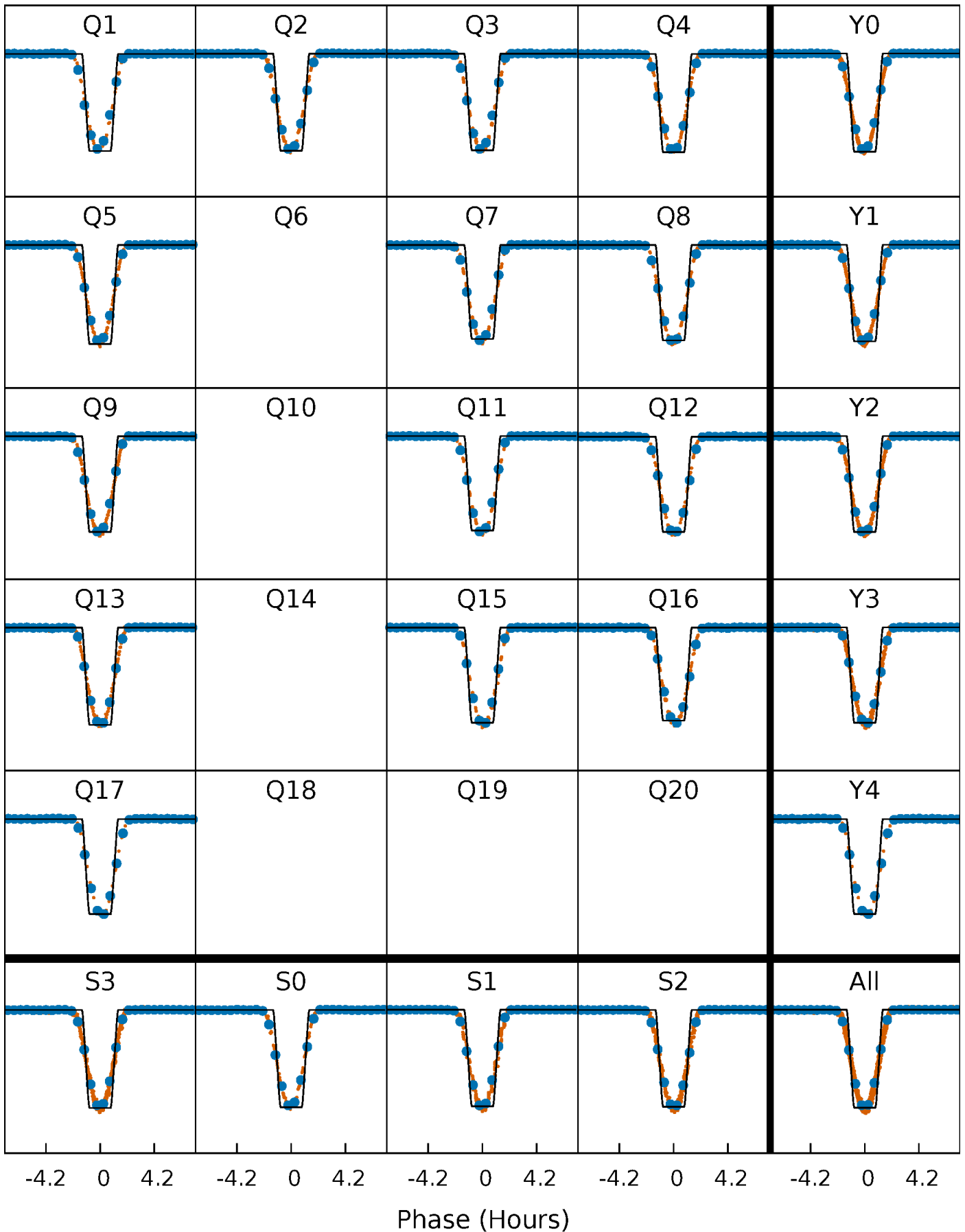
DV Quarter-Phased Transit Curves

TCE 004753988-02 $P = 3.652222$ Days $T_0 = 135.001544$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

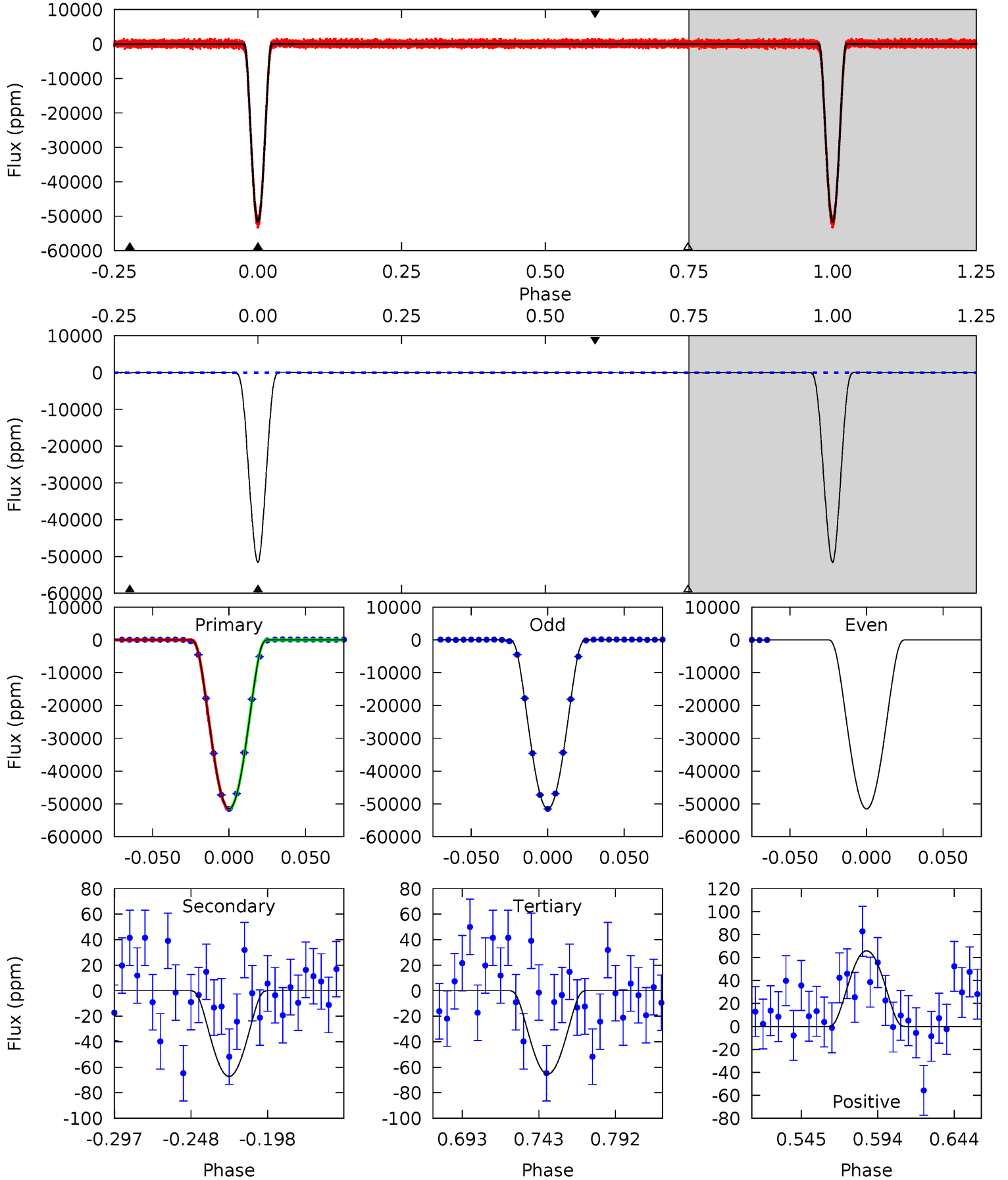
TCE 004753988-02 P= 3.652208 Days $T_0=135.004373$ (BKJD)



DV Model-Shift Uniqueness Test

004753988-02, P = 3.652222 Days, E = 131.349322 Days

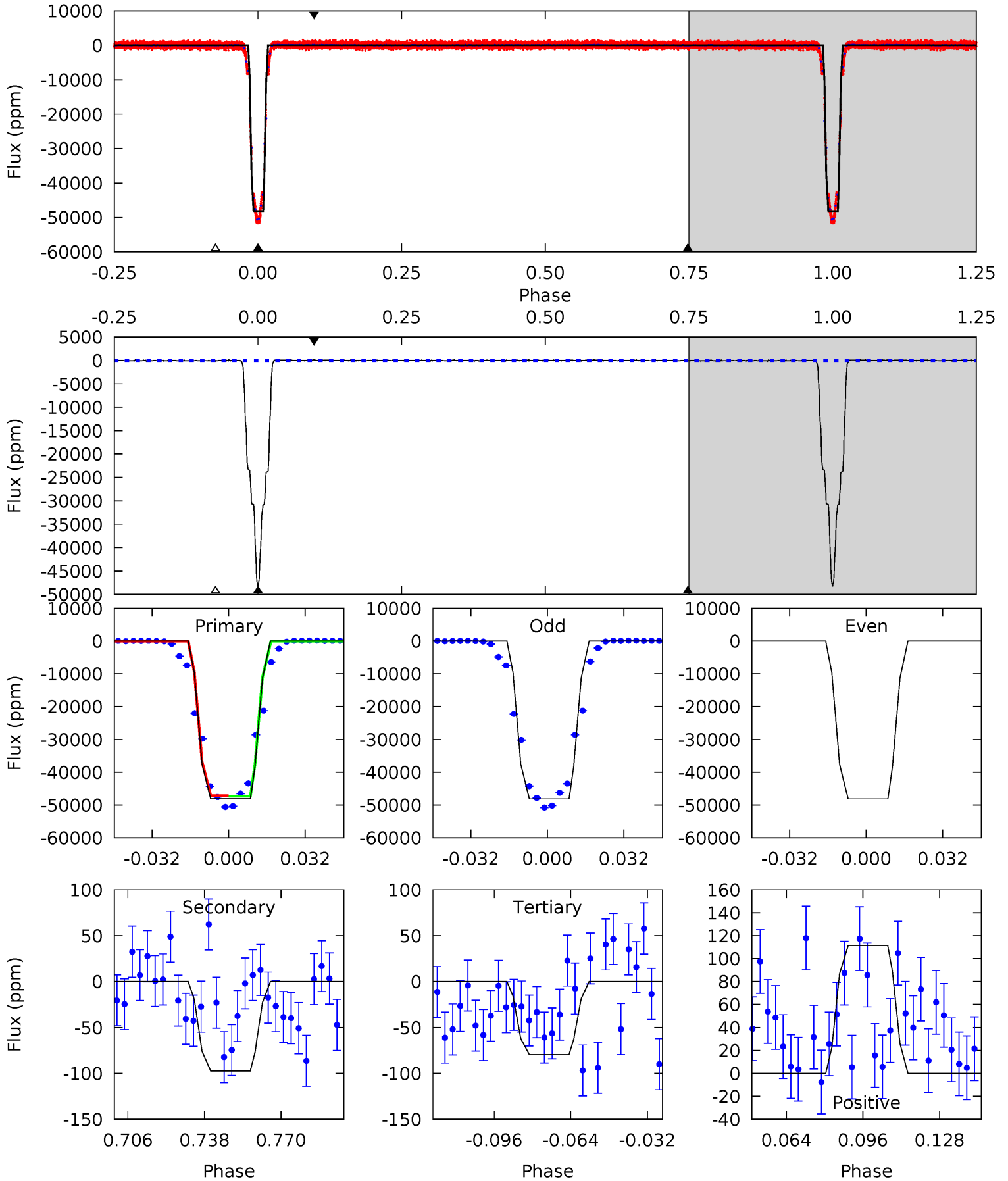
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4518	5.89	5.73	5.77	4.71	1.96	2.16	4512	4512	0.17	0.12	0	0.99	0.00	7.15



Alt Model-Shift Uniqueness Test

004753988-02, P = 3.652208 Days, E = 131.352165 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2321	4.70	3.84	5.37	4.80	2.14	1.64	2317	2316	0.86	-0.67	0	1.00	0.00	4.18



Stellar Parameters For KIC 004753988

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6024^{+190}_{-211}	$4.523^{+0.050}_{-0.212}$	$-0.260^{+0.300}_{-0.300}$	$0.900^{+0.280}_{-0.088}$	$0.985^{+0.132}_{-0.120}$	$1.903^{+0.401}_{-1.023}$
	+3%/-4%	+1%/-5%	+115%/-115%	+31%/-10%	+13%/-12%	+21%/-54%
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 004753988-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-67 ± 11	$30.30^{+4.82}_{-2.74}$	1672^{+120}_{-84}	-2209^{+66}_{-91}	$0.083^{+0.024}_{-0.022}$
Alt.	-97 ± 21	$23.09^{+3.82}_{-2.58}$	1673^{+128}_{-85}	-2019^{+300}_{-163}	$0.210^{+0.071}_{-0.066}$

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

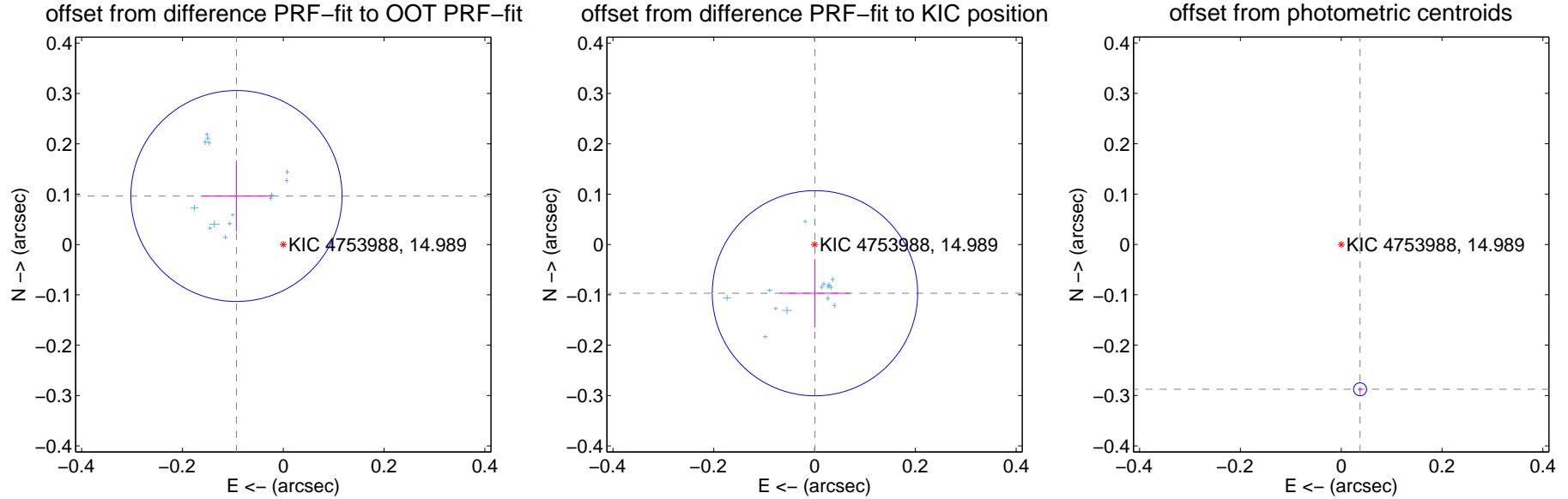
DV Centroid Data

Supplemental centroid analysis for 004753988-02. Kepler magnitude: 14.99. Transit SNR 2366.84

There are 14 quarters with good PRF difference image offsets

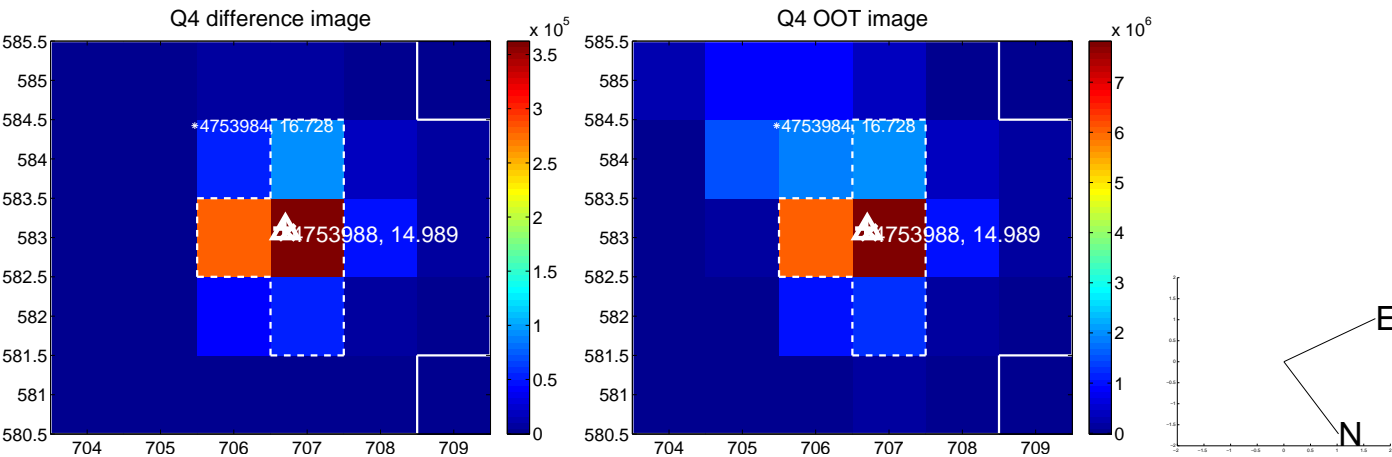
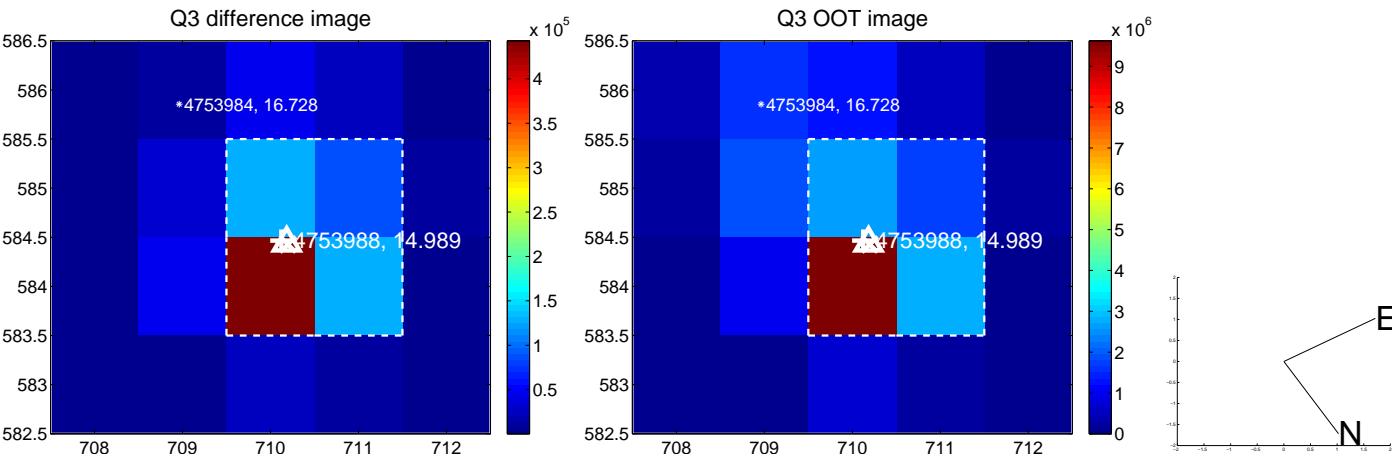
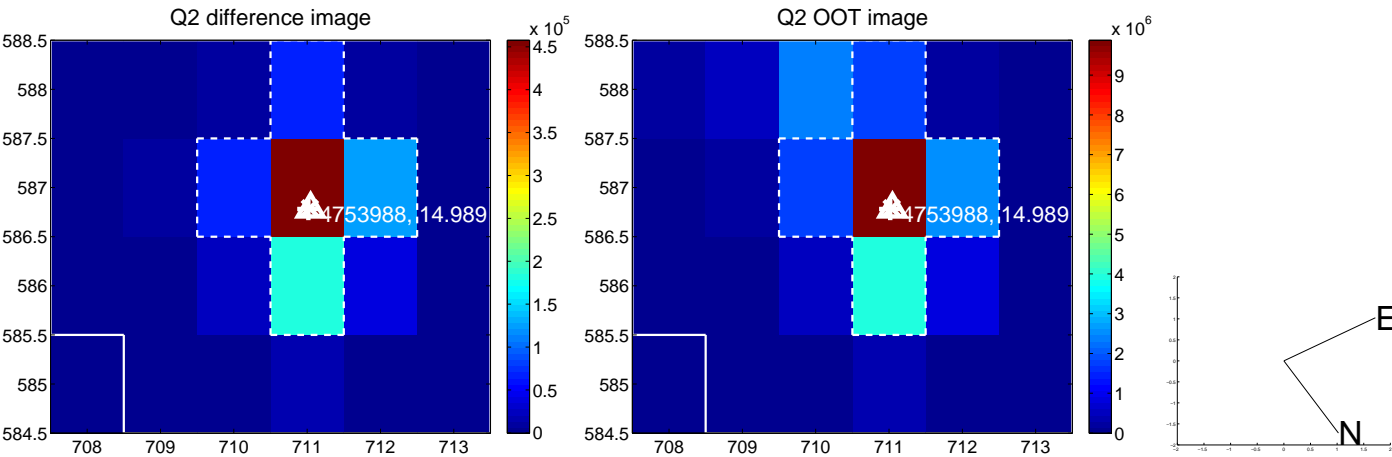
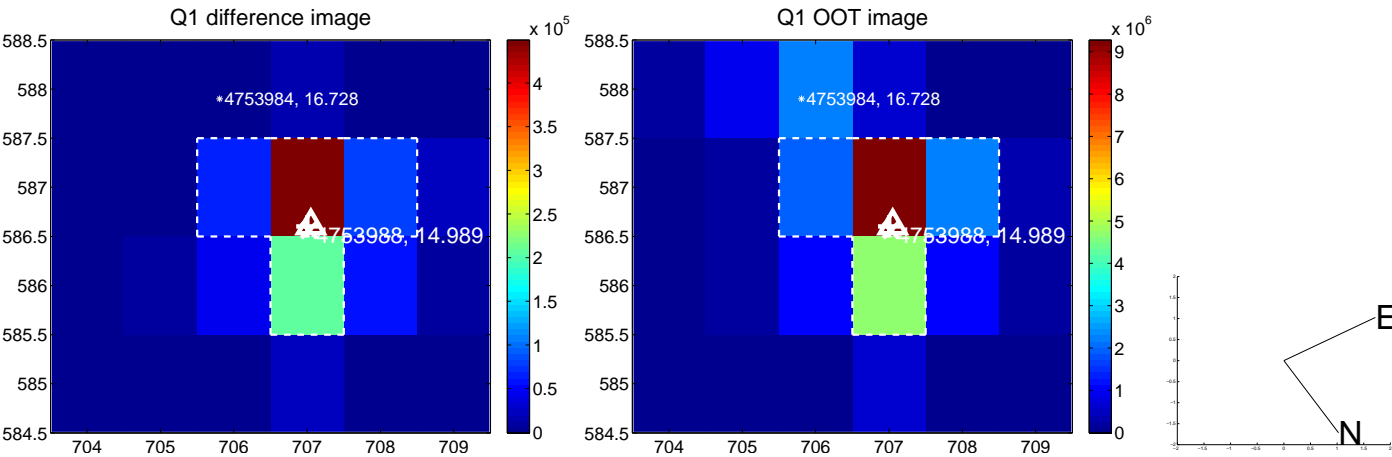
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.134 ± 0.070	1.92	0.093 ± 0.069	0.096 ± 0.070
PRF-fit source offset from KIC position	0.097 ± 0.068	1.42	-0.001 ± 0.069	-0.097 ± 0.068
photometric centroid source offset	0.29 ± 0.00	67.30	-0.04 ± 0.00	-0.29 ± 0.00

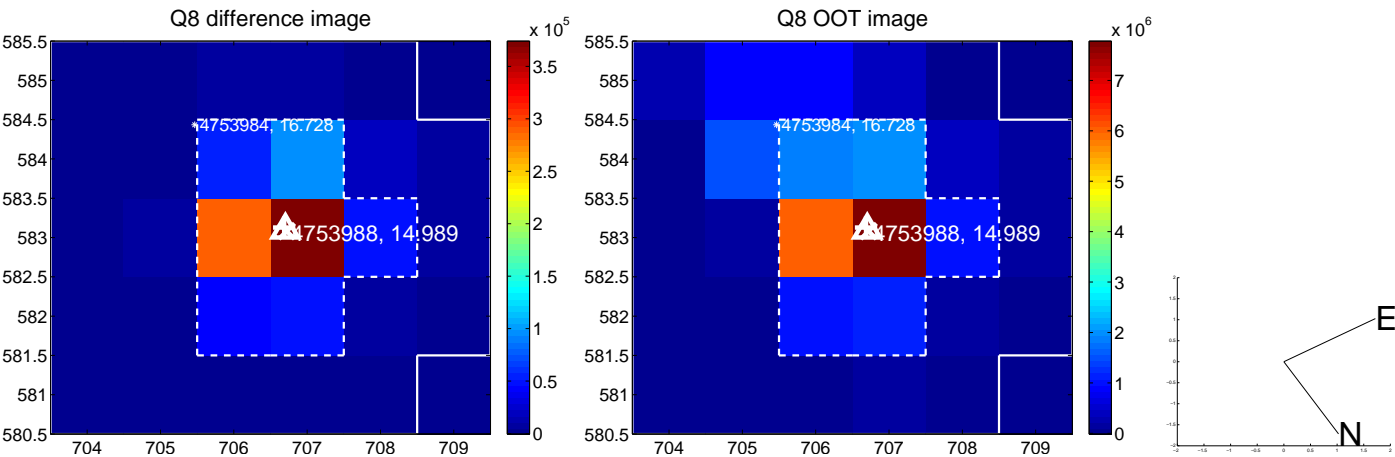
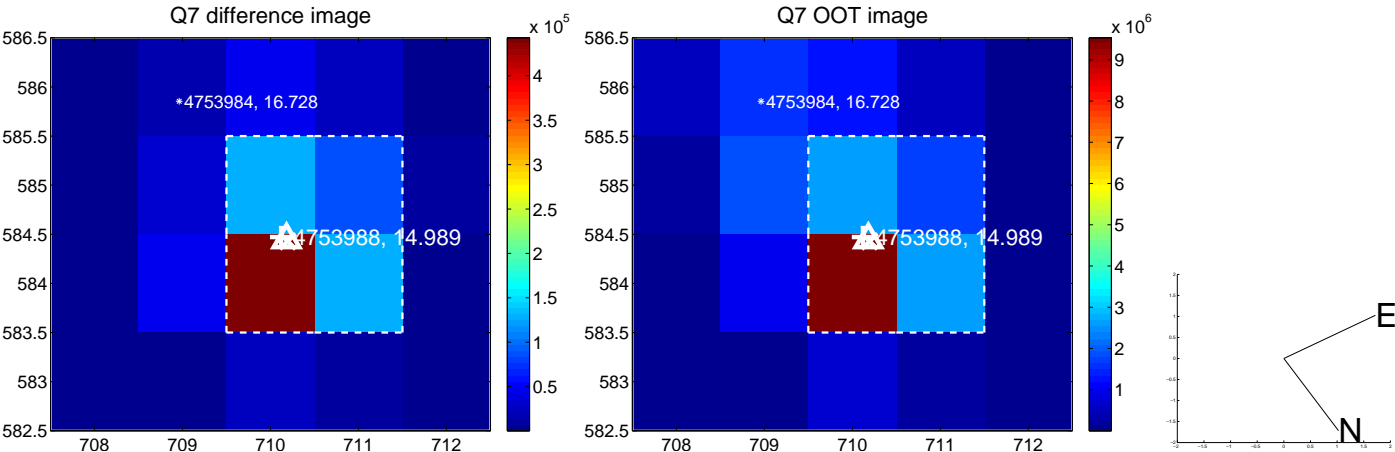
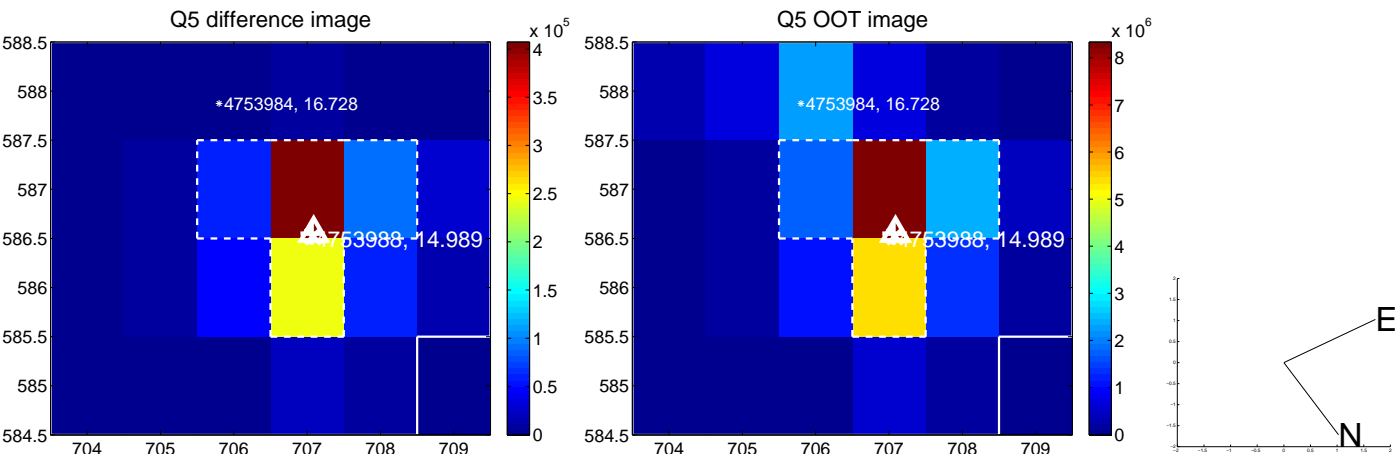


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

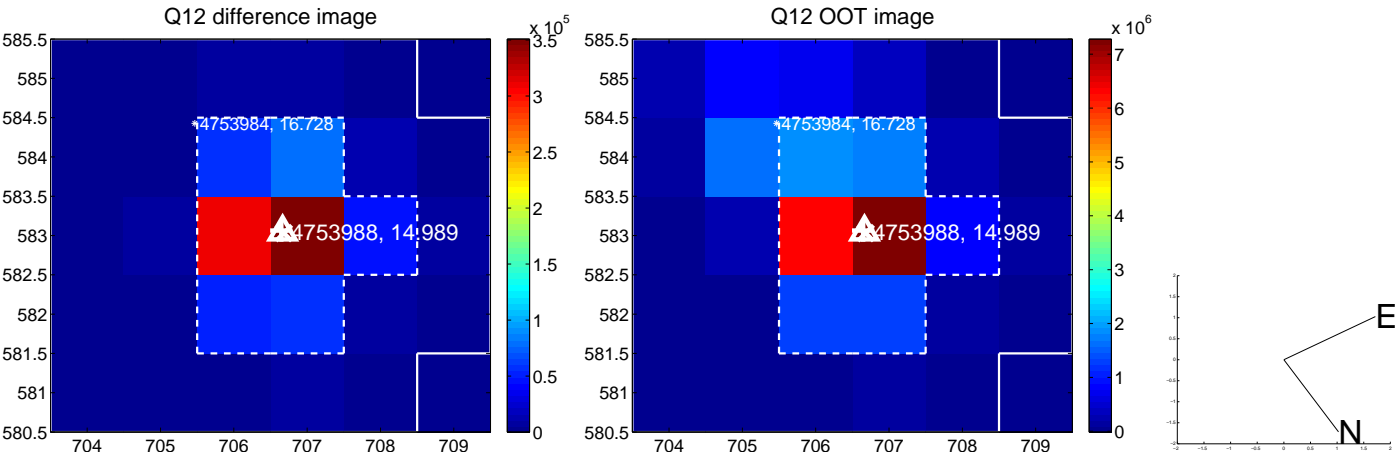
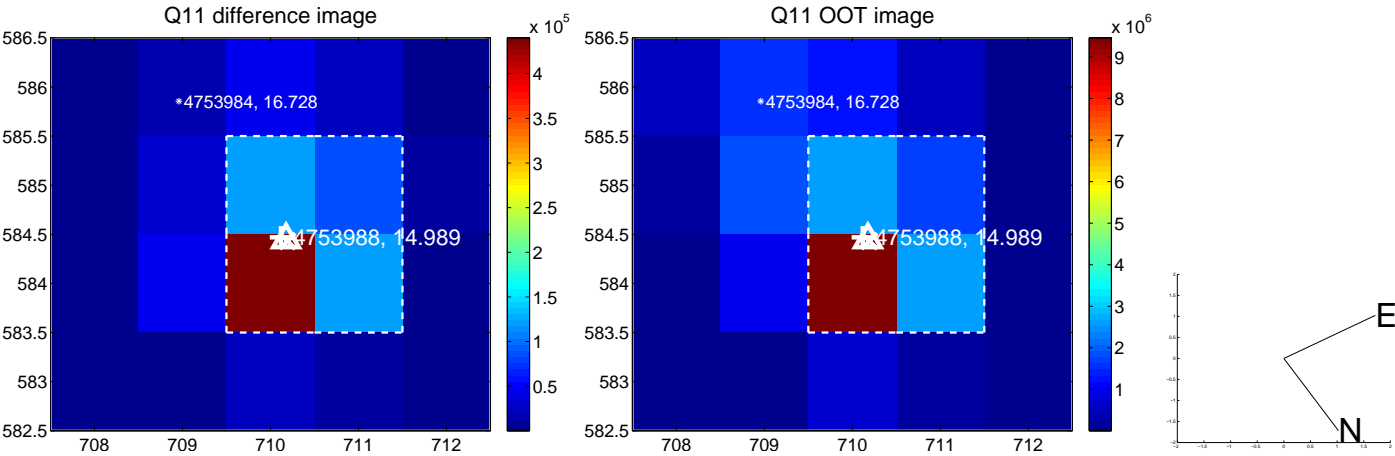
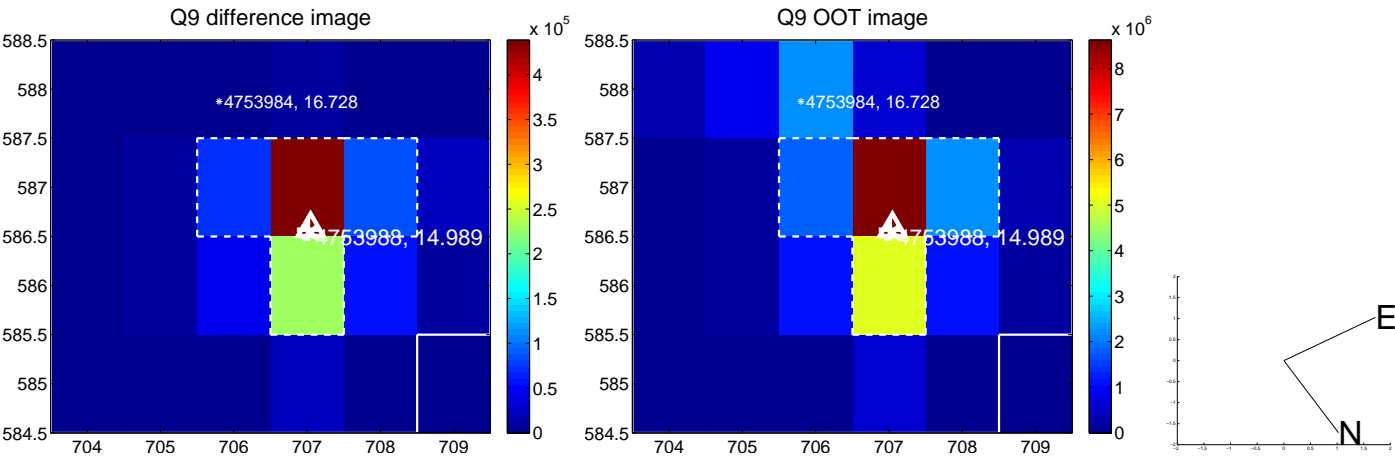
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



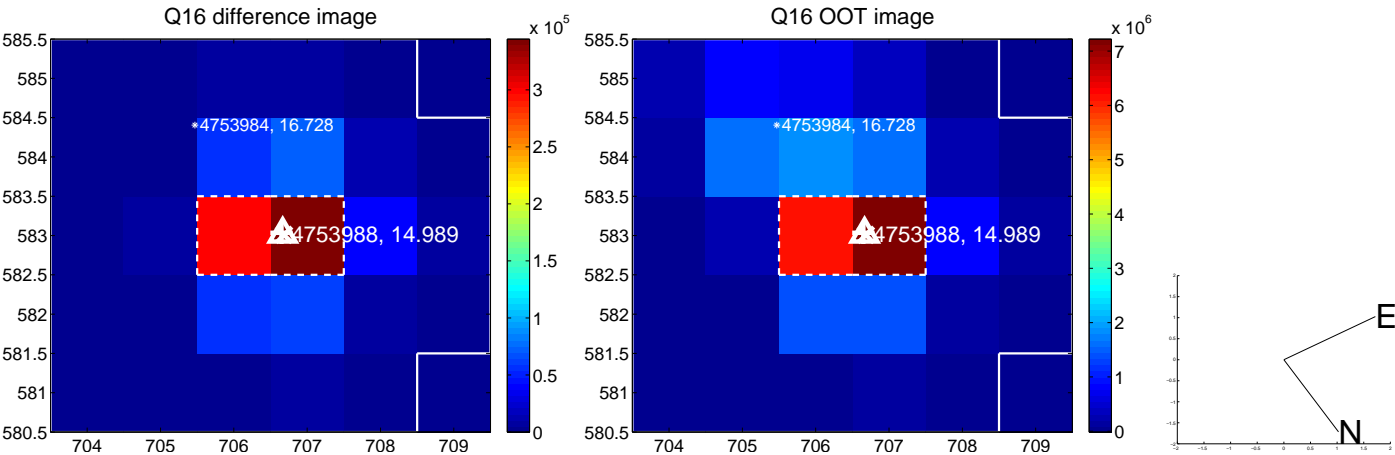
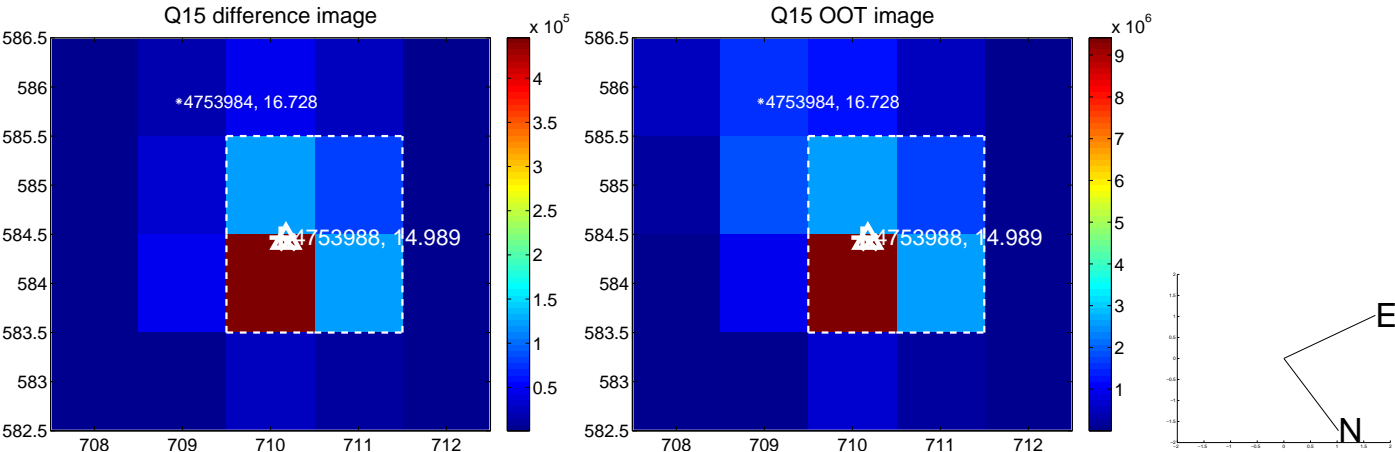
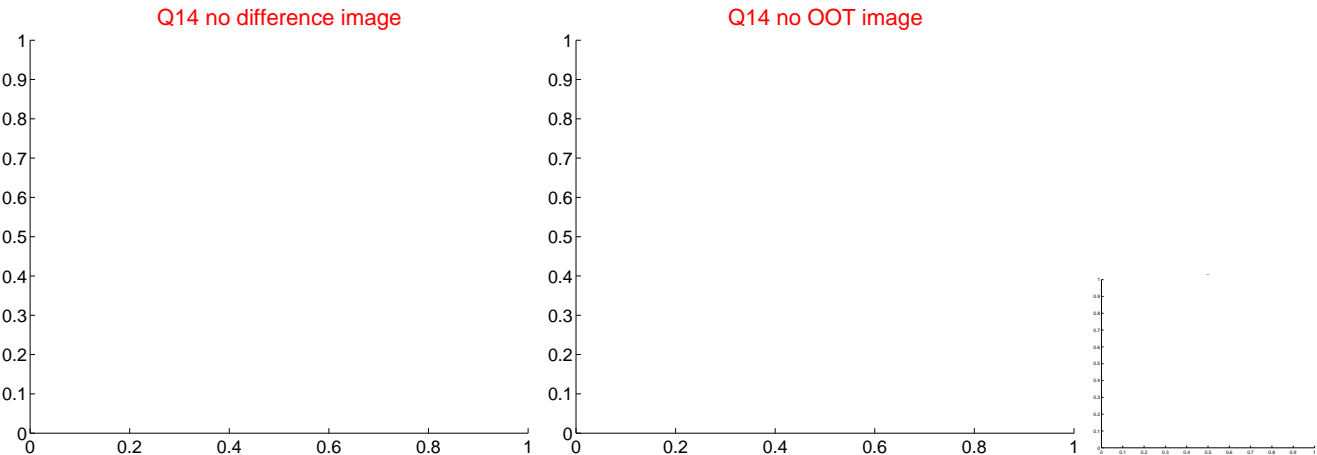
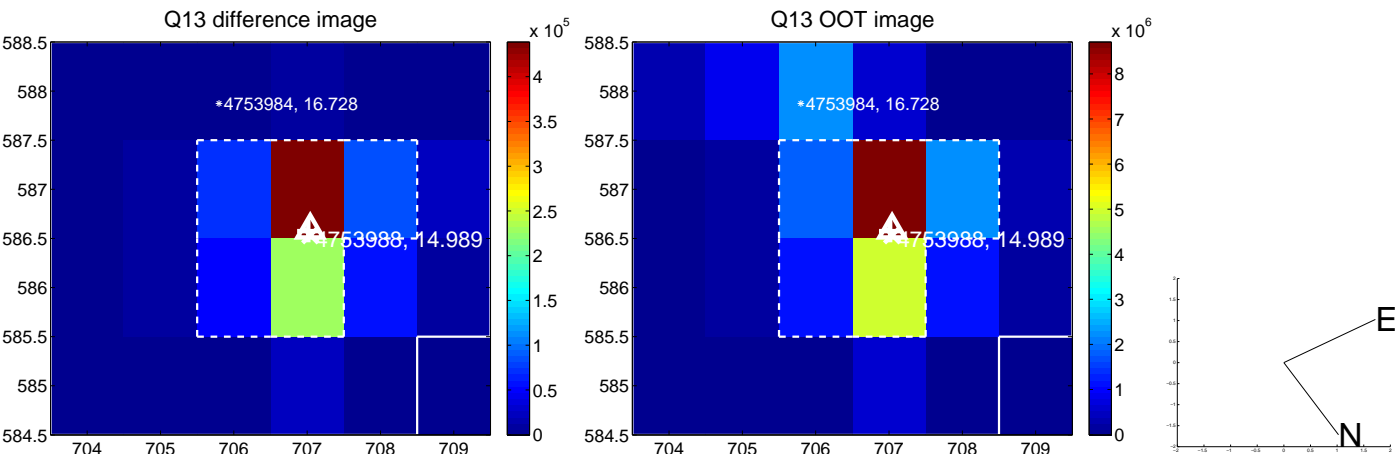
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



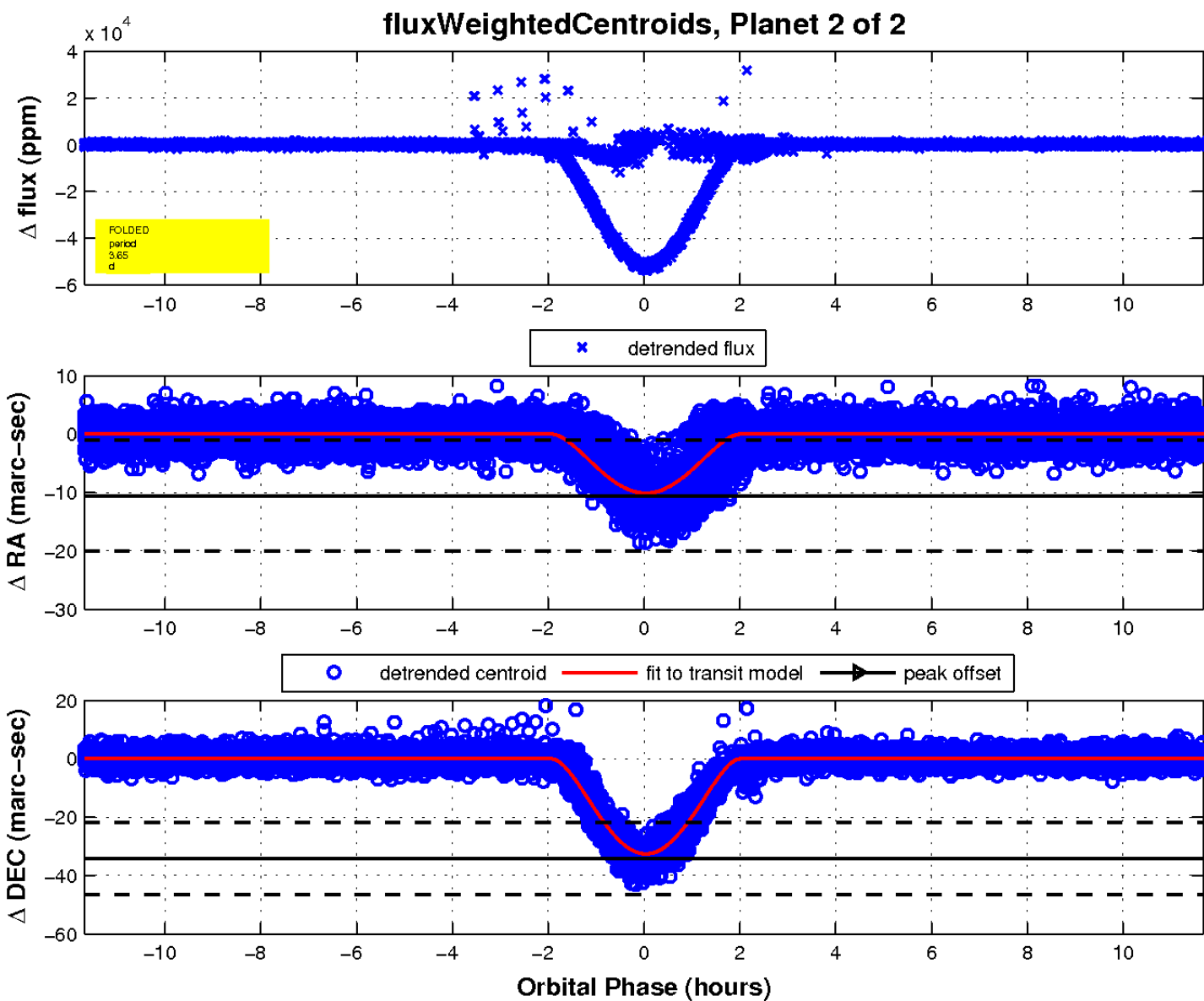
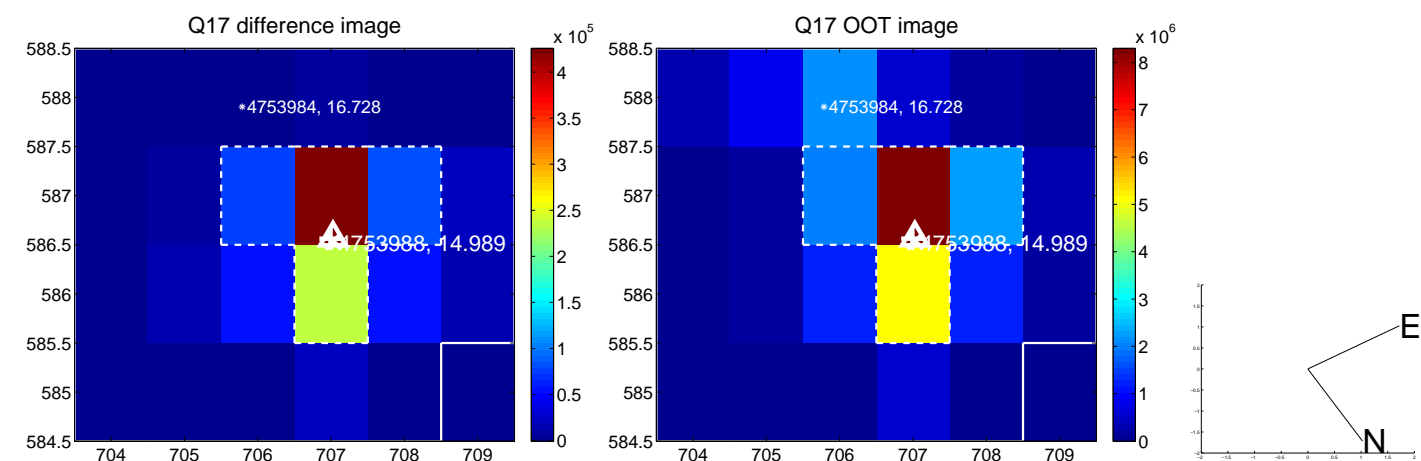
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

