

KIC 007987749

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})
007987749-01	OBS	6948.01	17.030857	145.542797	77516.1	4.251	3017.8	2418.8	1.42	5575	62.12	115.44
007987749-02	OBS	No	17.030851	135.490806	38397.6	4.180	1588.9	1486.7	1.42	5575	42.05	115.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007987749-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
007987749-02	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.

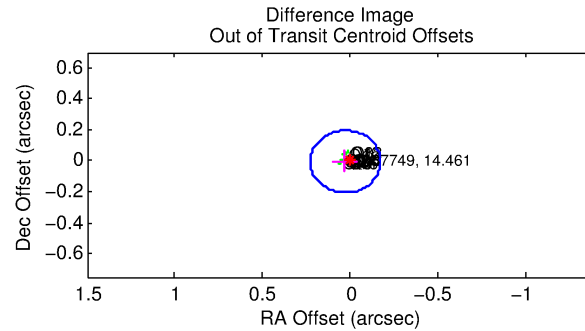
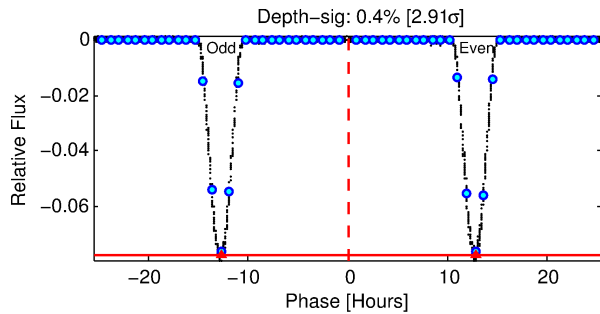
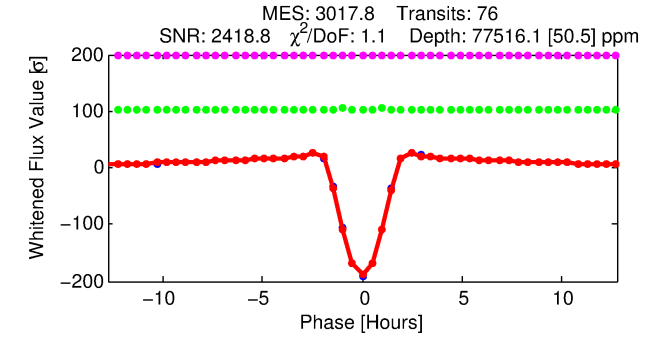
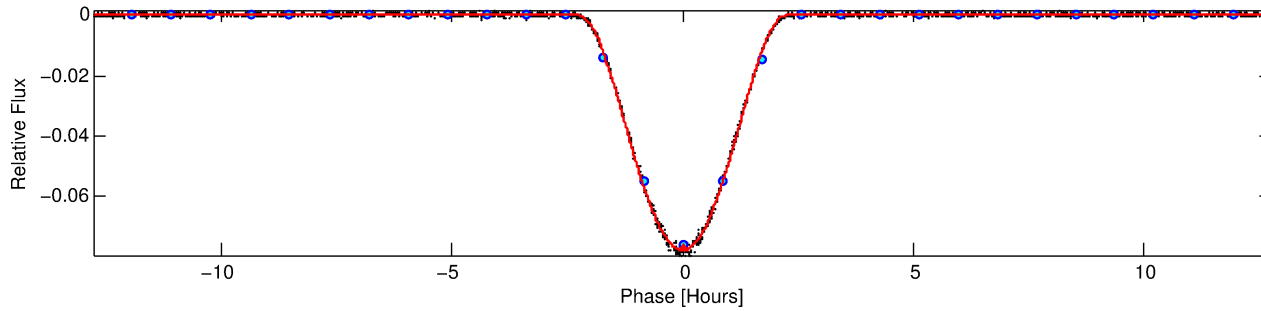
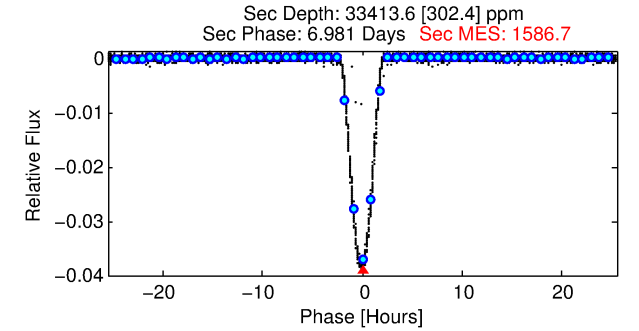
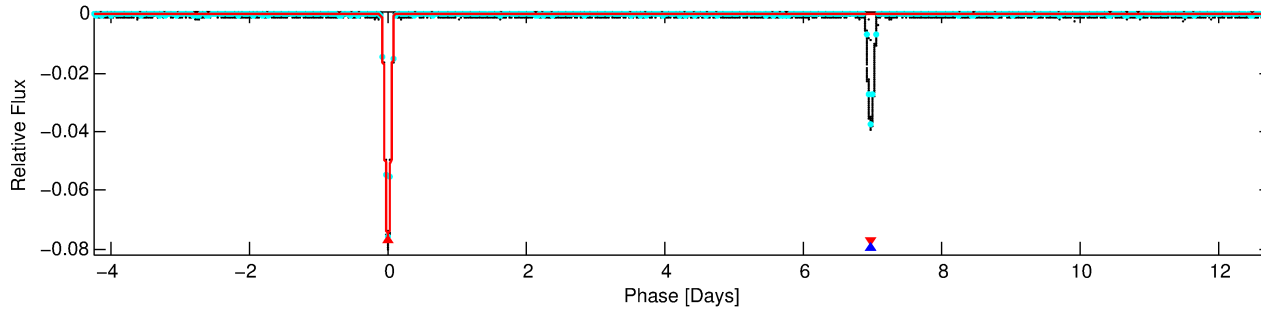
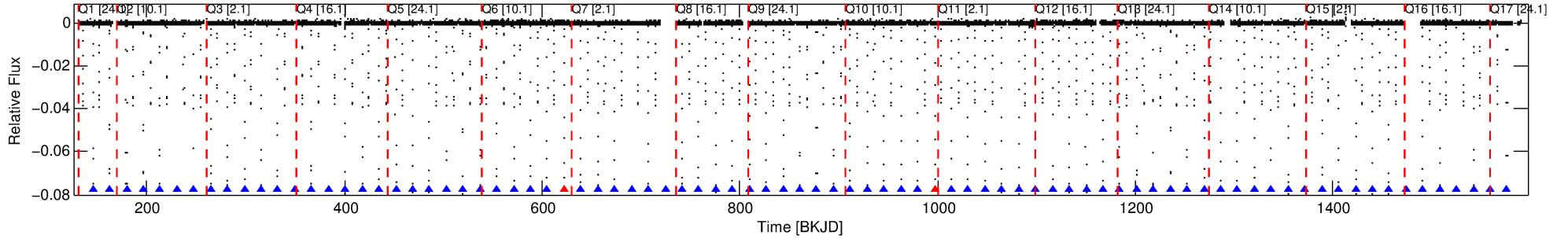
Ephemeris Match Information For 007987749-01

No Significant Match Found

DV One-Page Summary

KIC: 7987749 Candidate: 1 of 2 Period: 17.031 d
KOI: K06948.01 Corr: 1.000

Kp: 14.46 R*: 1.42 Rs Teff: 5575.0 K Logg: 4.07 Fe/H: -0.260



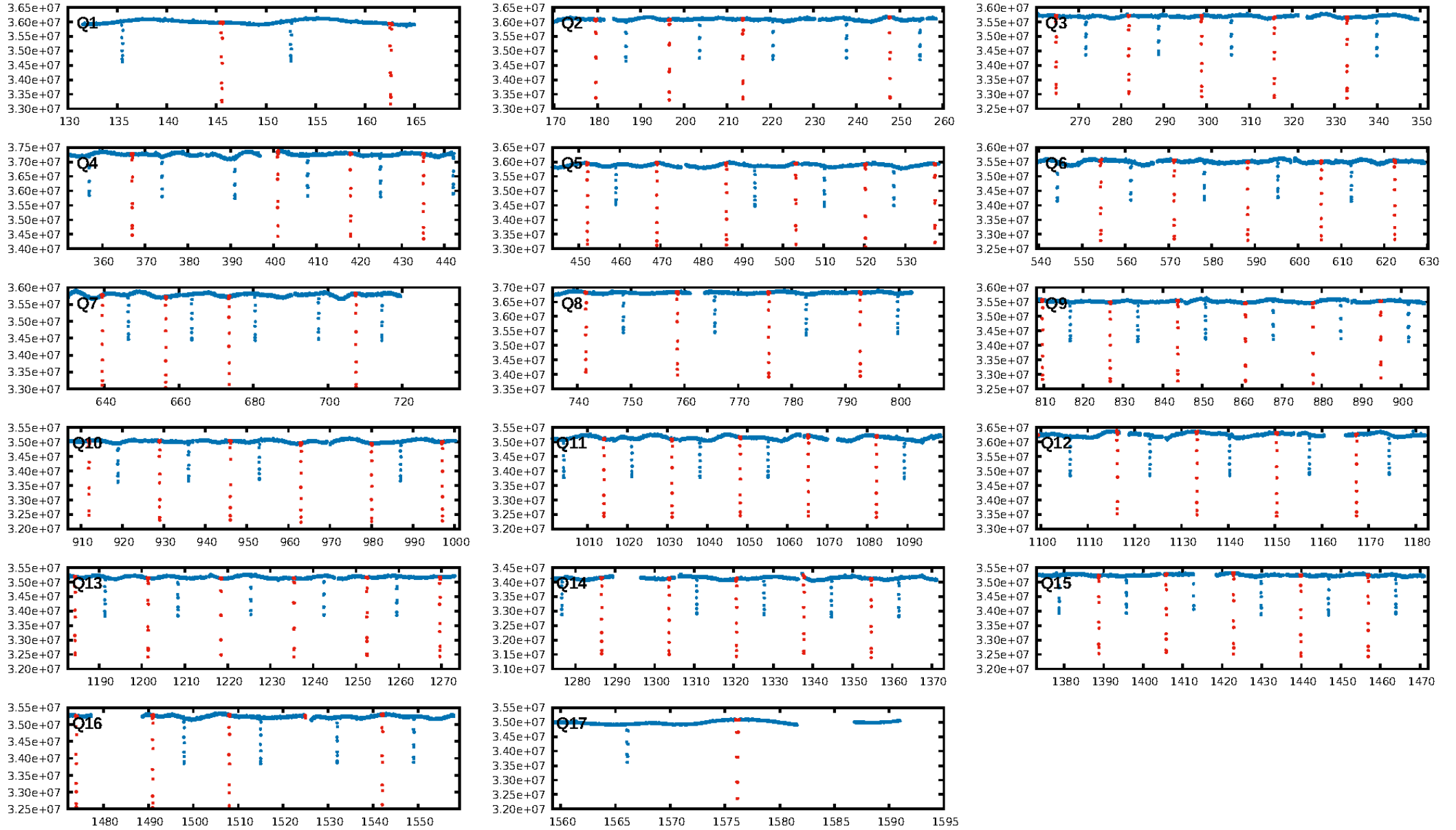
DV Fit Results:

Period = 17.03086 [0.00000] d
Epoch = 145.5428 [0.0000] BKJD
Rp/R* = 0.4000 [0.0167]
a/R* = 31.53 [0.02]
b = 0.95 [0.02]
Seff = 115.44 [91.05]
Teq = 836 [165] K
Rp = 62.12 [25.45] Re
a = 0.1232 [0.0561] AU
Ag = 72.33 [56.71] [1.26σ]
Teffp = 3769 [138] K [13.65σ]

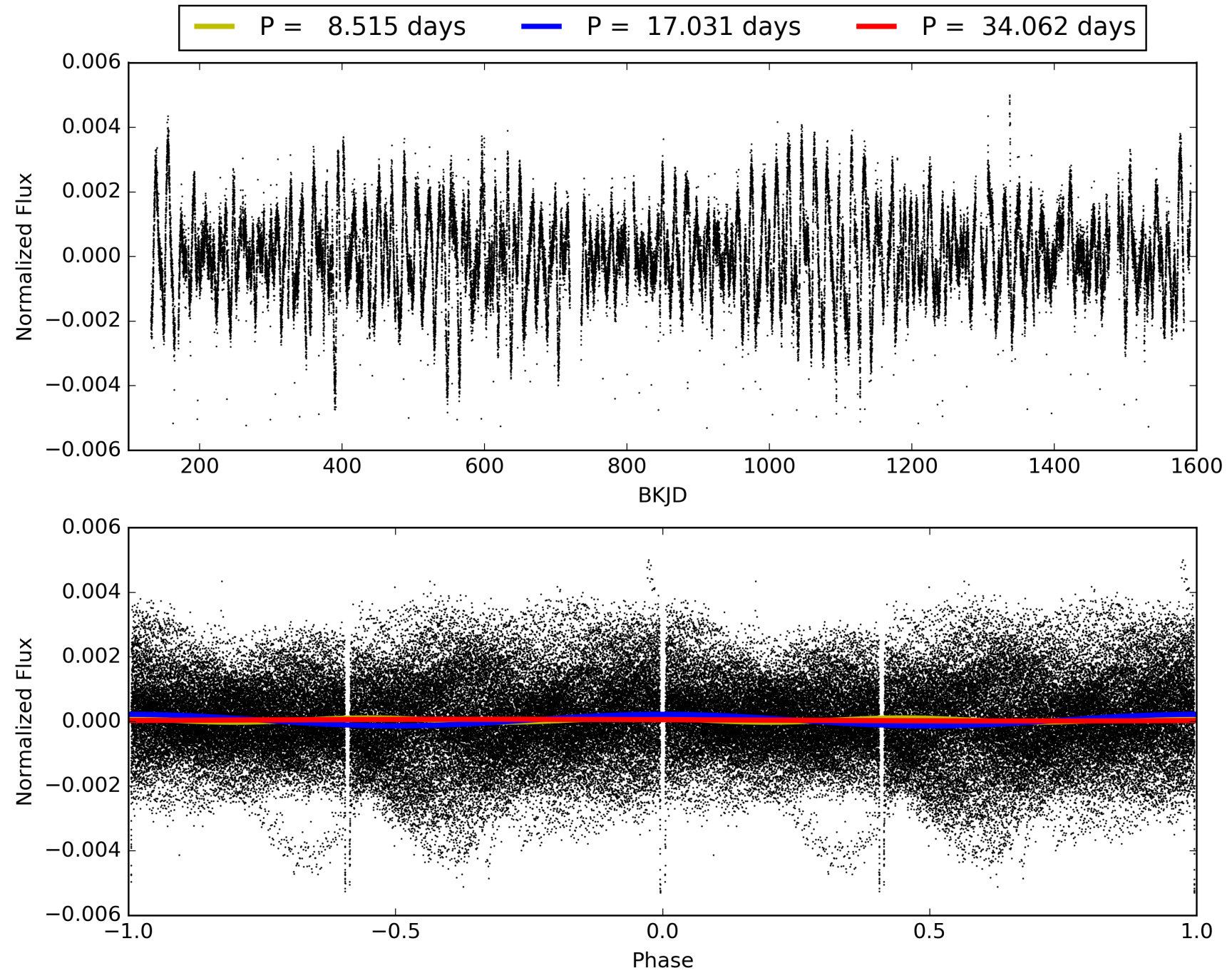
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 95.8%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.97 [71/73]
GhostDiagnostic-chr: 3.246
Centroid-sig: 0.0%
Centroid-so: 0.116 arcsec [30.95σ]
OotOffset-rm: 0.030 arcsec [0.45σ]
KicOffset-rm: 0.048 arcsec [0.67σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007987749-01, PDC Light Curves

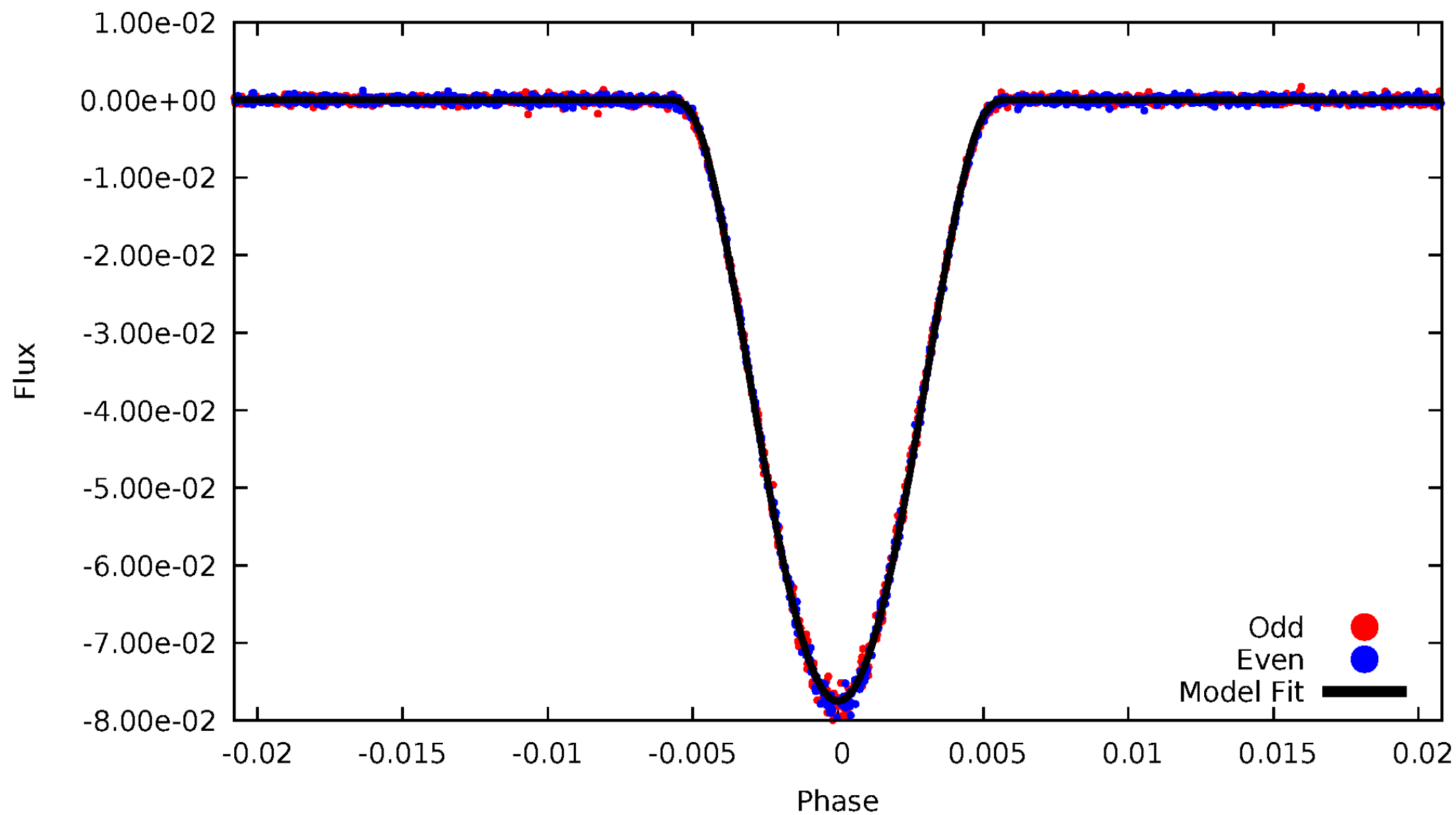


TCE 007987749-01



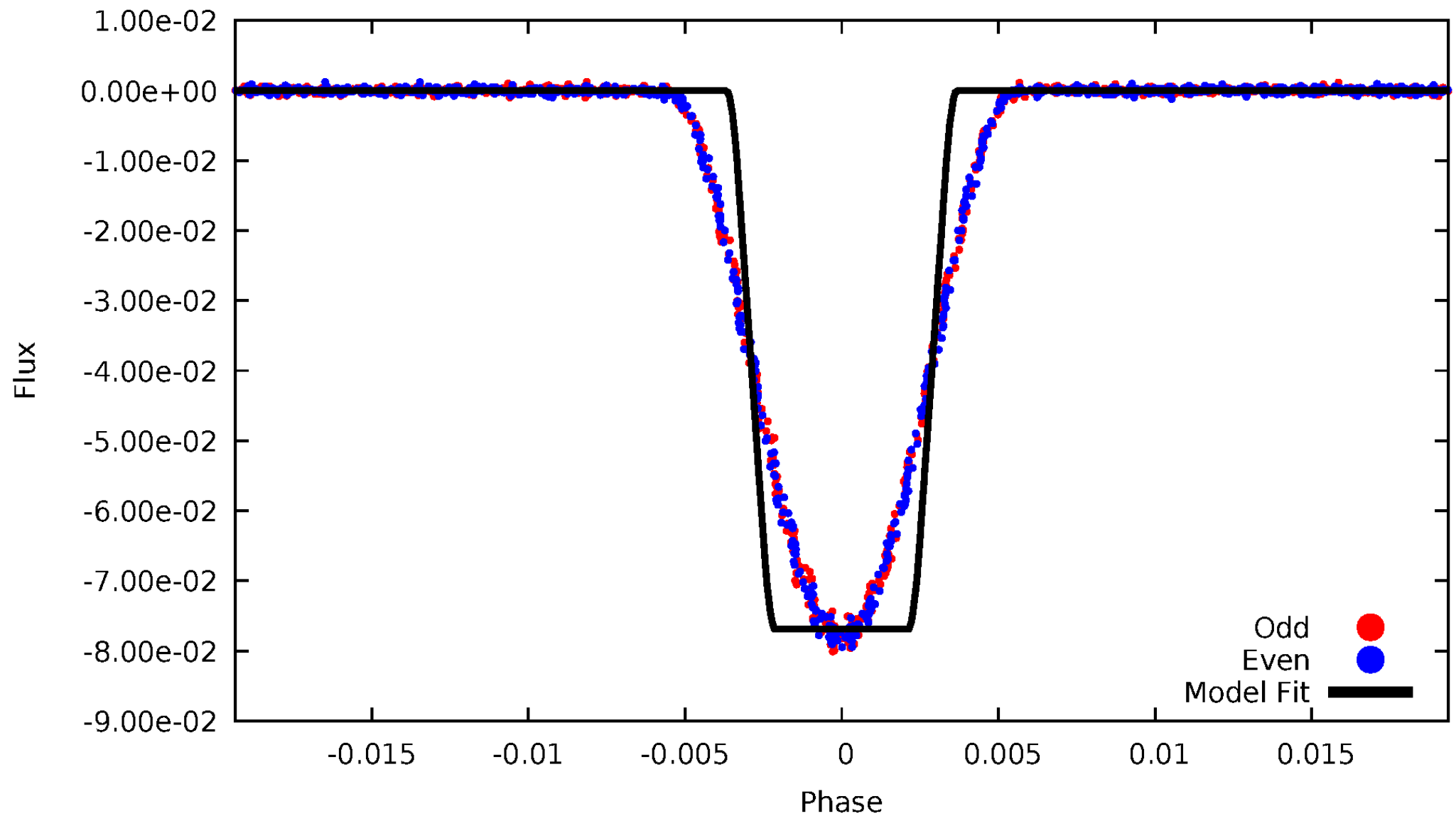
DV Odd/Even

TCE 007987749-01



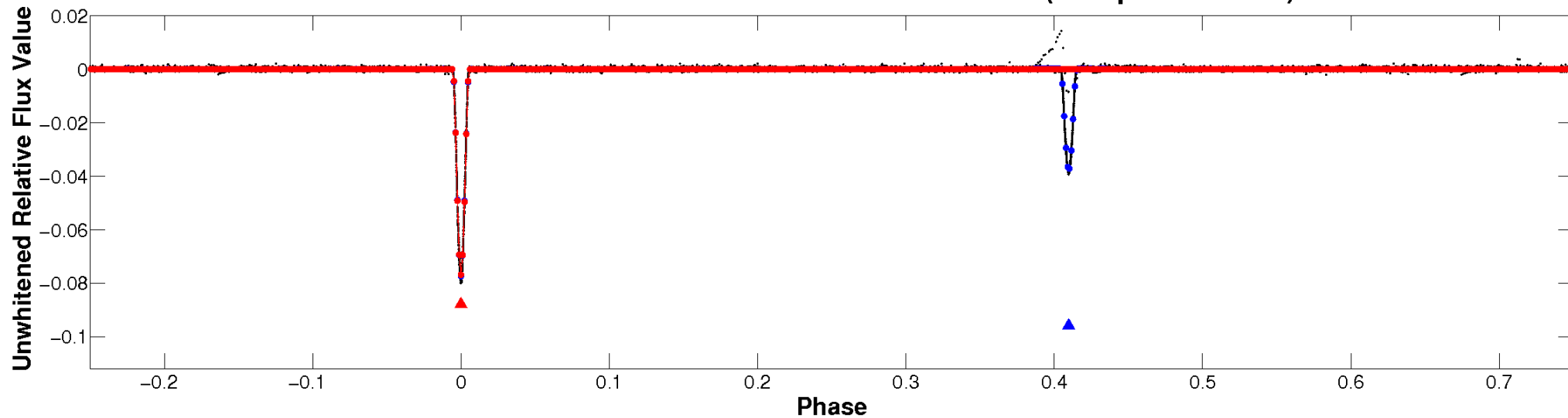
ALT Odd/Even

TCE 007987749-01

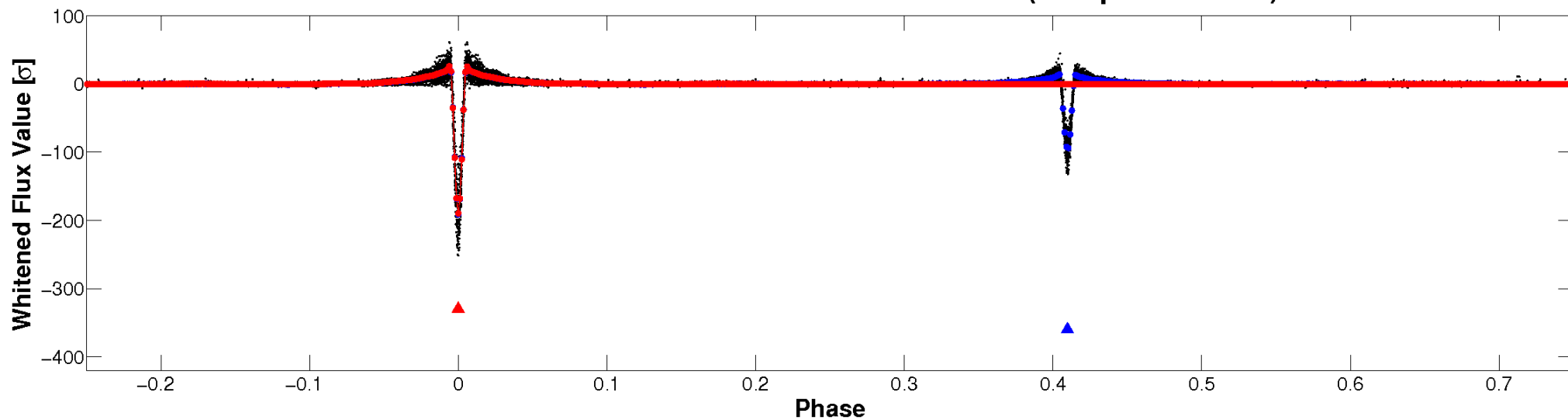


Non-Whitened Vs. Whitened Light Curve

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

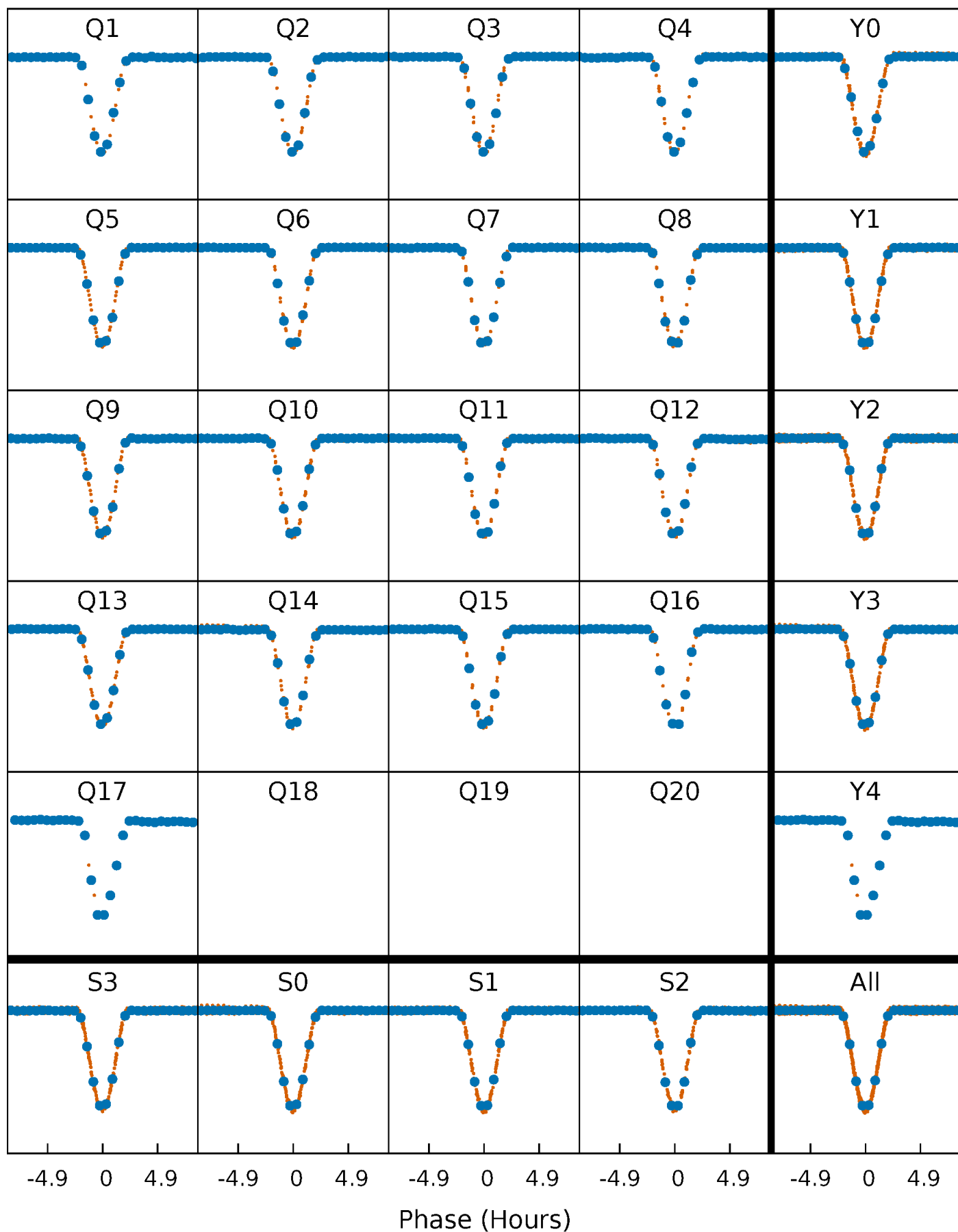


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



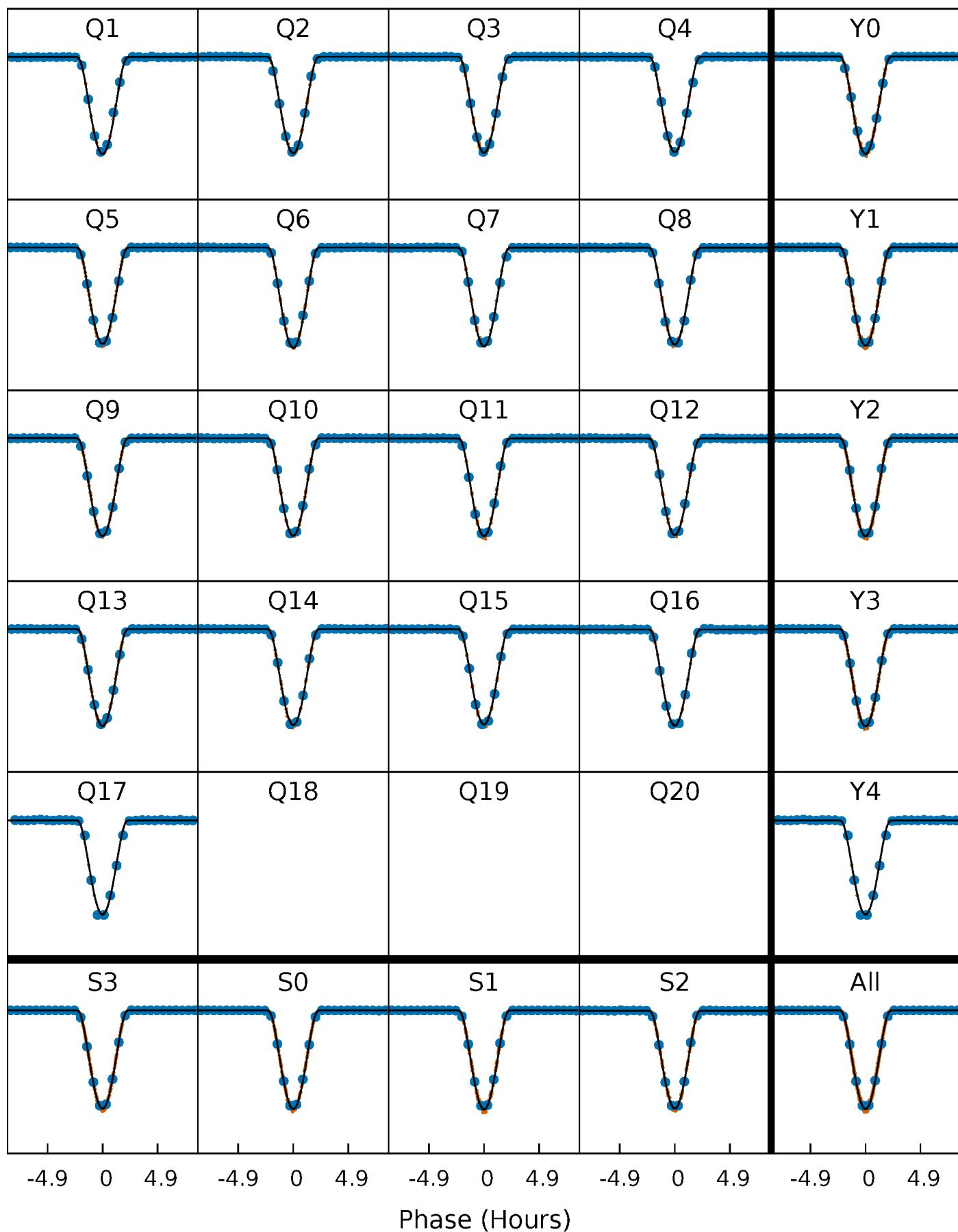
PDC Quarter-Phased Transit Curves

TCE 007987749-01 P= 17.030857 Days $T_0=145.542797$ (BKJD)



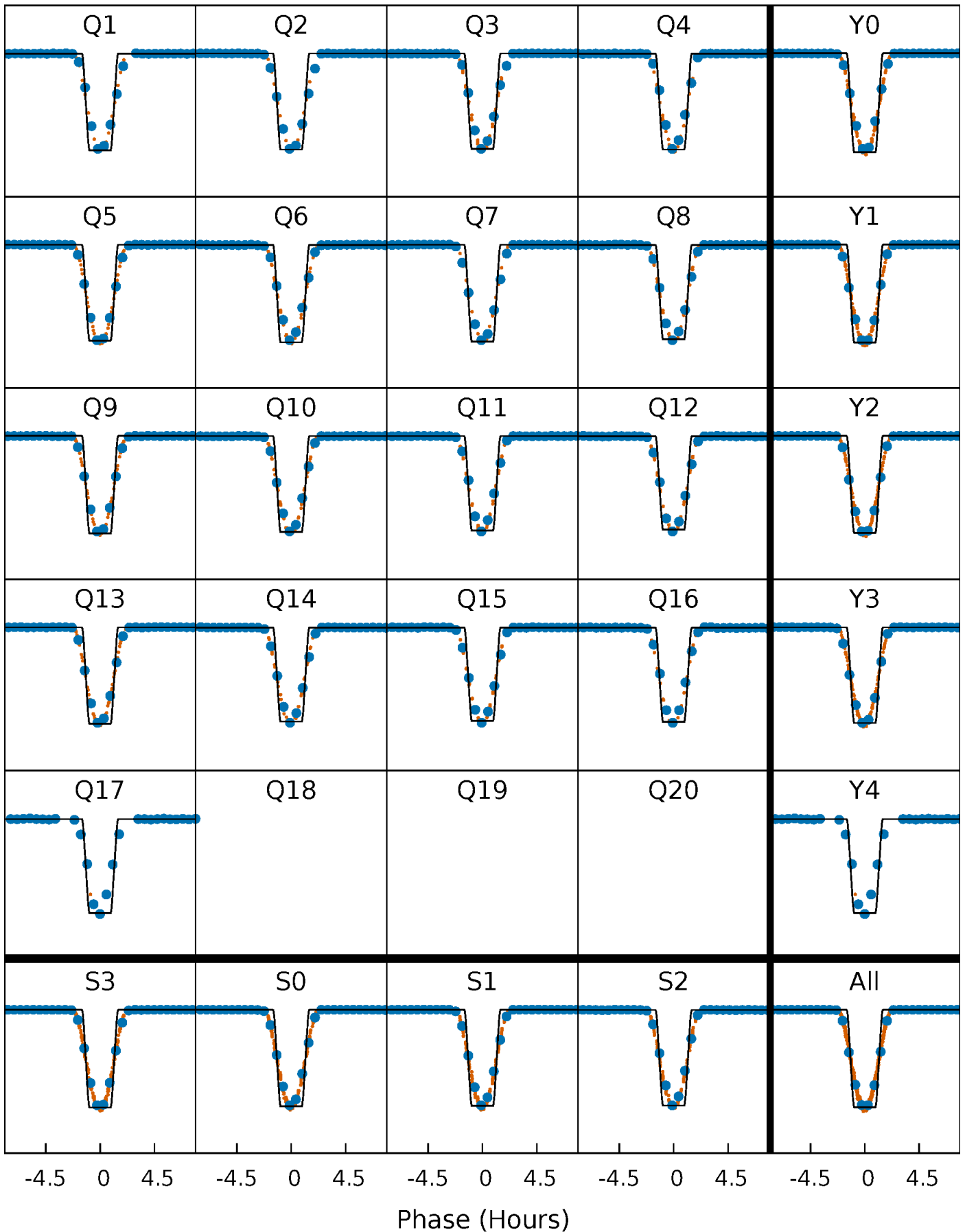
DV Quarter-Phased Transit Curves

TCE 007987749-01 P= 17.030857 Days $T_0=145.542797$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

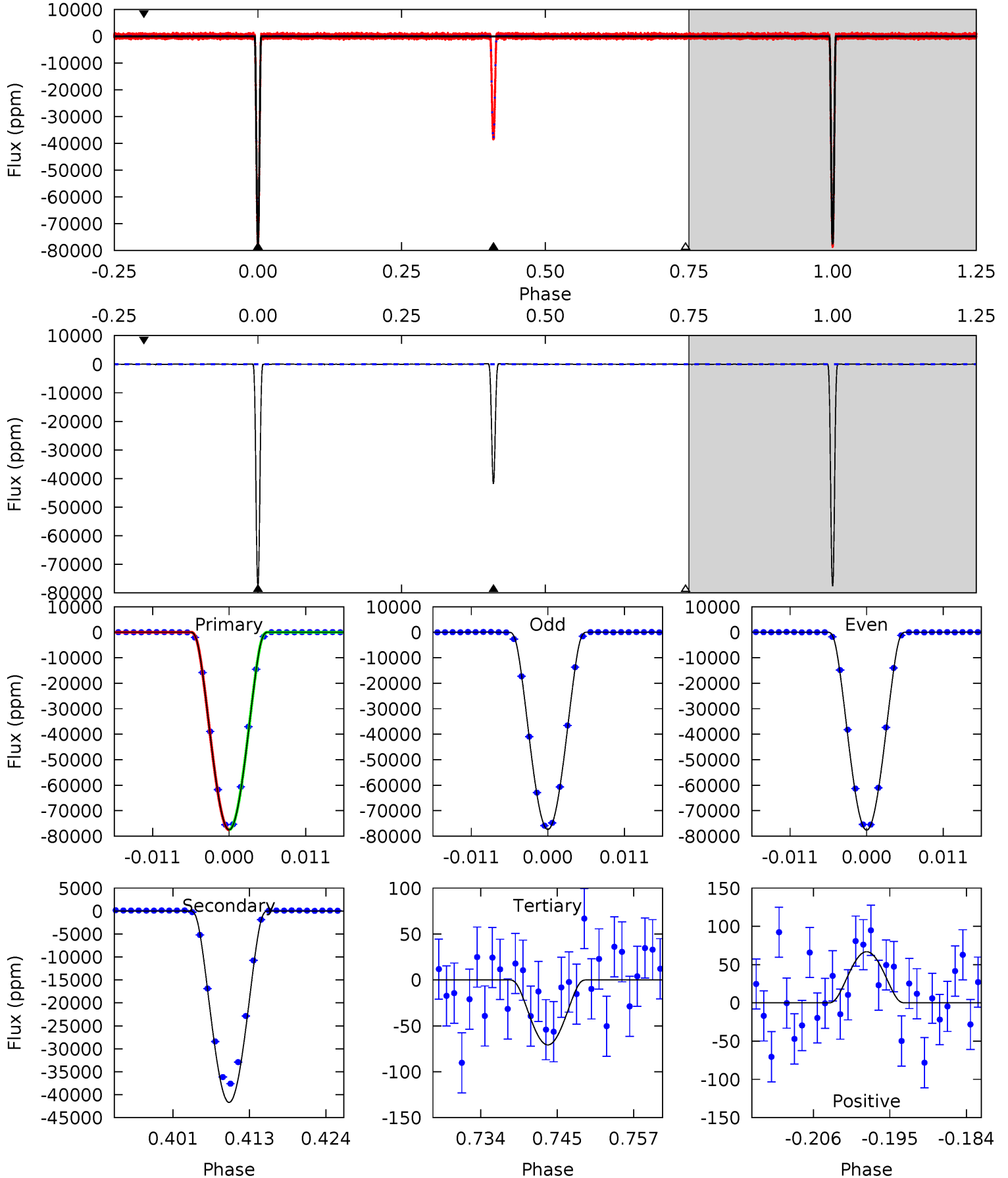
TCE 007987749-01 P= 17.030907 Days $T_0=145.540708$ (BKJD)



DV Model-Shift Uniqueness Test

007987749-01, P = 17.030857 Days, E = 128.511940 Days

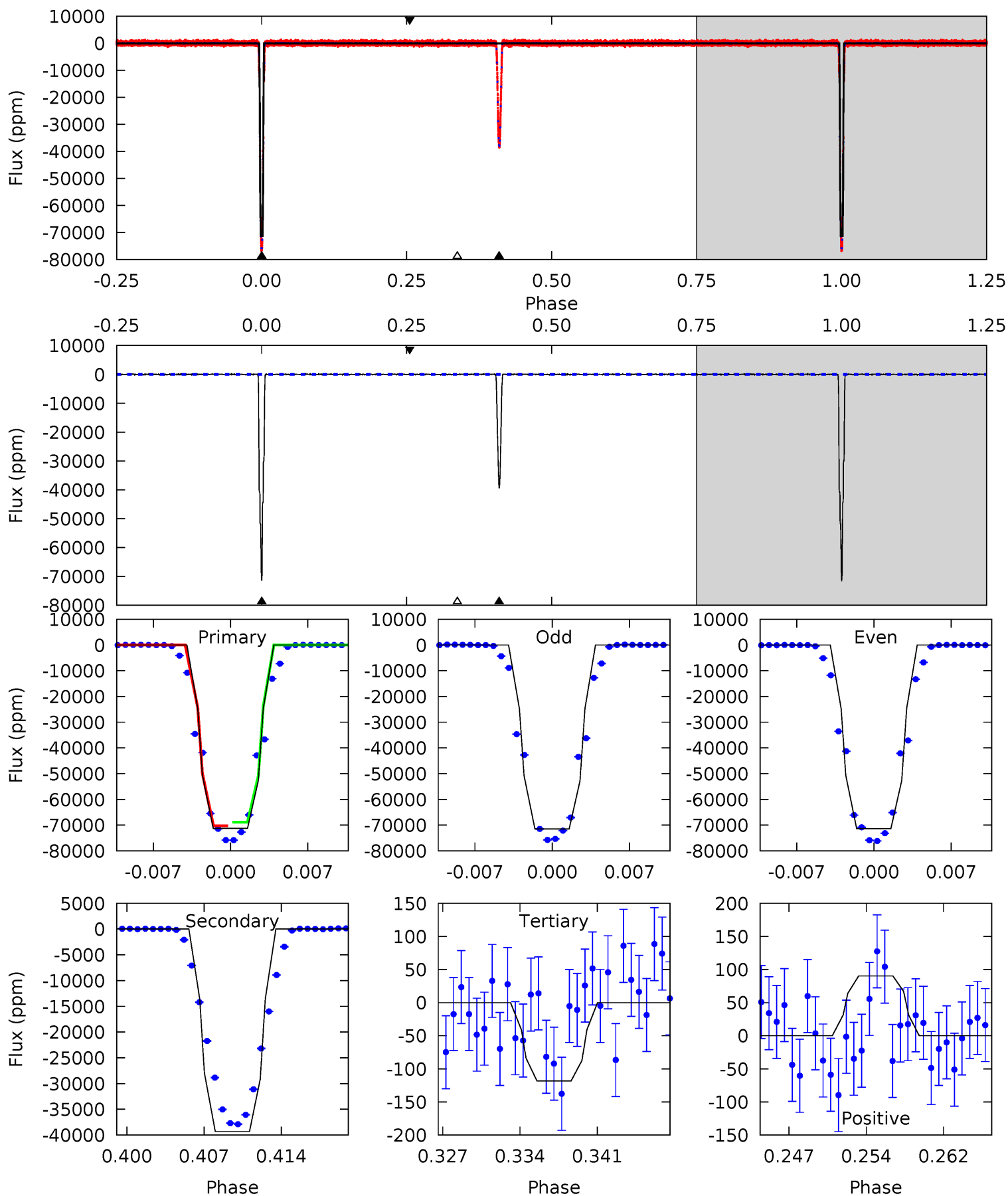
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6008	3232	5.49	5.18	5.00	2.53	2.55	6002	6002	3226	3226	10.4	1.00	0.00	0.61



Alt Model-Shift Uniqueness Test

007987749-01, P = 17.030907 Days, E = 128.509801 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2765	1525	4.58	3.50	5.09	2.68	1.17	2761	2762	1521	1522	2.77	1.00	0.00	0



Stellar Parameters For KIC 007987749

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5575^{+167}_{-167}	$4.066^{+0.476}_{-0.204}$	$-0.260^{+0.300}_{-0.250}$	$1.423^{+0.475}_{-0.580}$	$0.860^{+0.100}_{-0.090}$	$0.420^{+1.633}_{-0.226}$
	+3%/-3%	+12%/-5%	+115%/-96%	+33%/-41%	+12%/-10%	+389%/-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 007987749-01 / KOI 6948.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-41684 ± 13	$60.20^{+11.52}_{-13.93}$	1141^{+116}_{-131}	4258^{+115}_{-125}	101^{+68}_{-29}
Alt.	-39314 ± 26	$41.91^{+9.76}_{-9.95}$	1152^{+115}_{-151}	4857^{+190}_{-169}	198^{+137}_{-66}

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 $A_{obs} \gg 1.0$

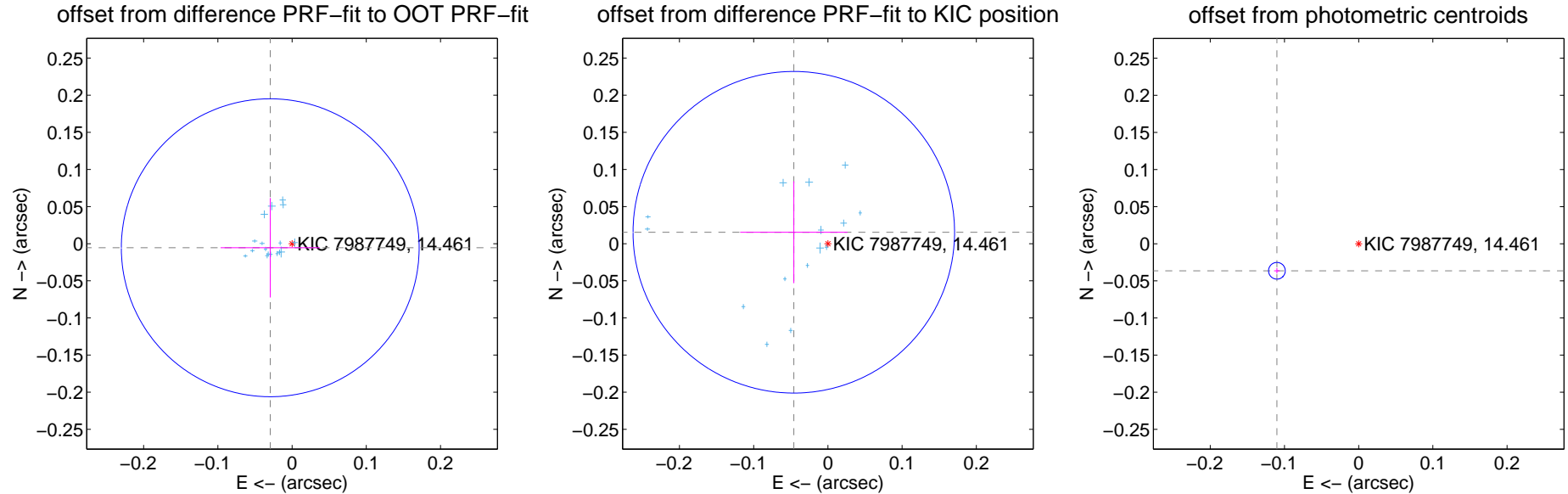
DV Centroid Data

Supplemental centroid analysis for 007987749-01. Kepler magnitude: 14.46. Transit SNR 2418.76

There are 17 quarters with good PRF difference image offsets

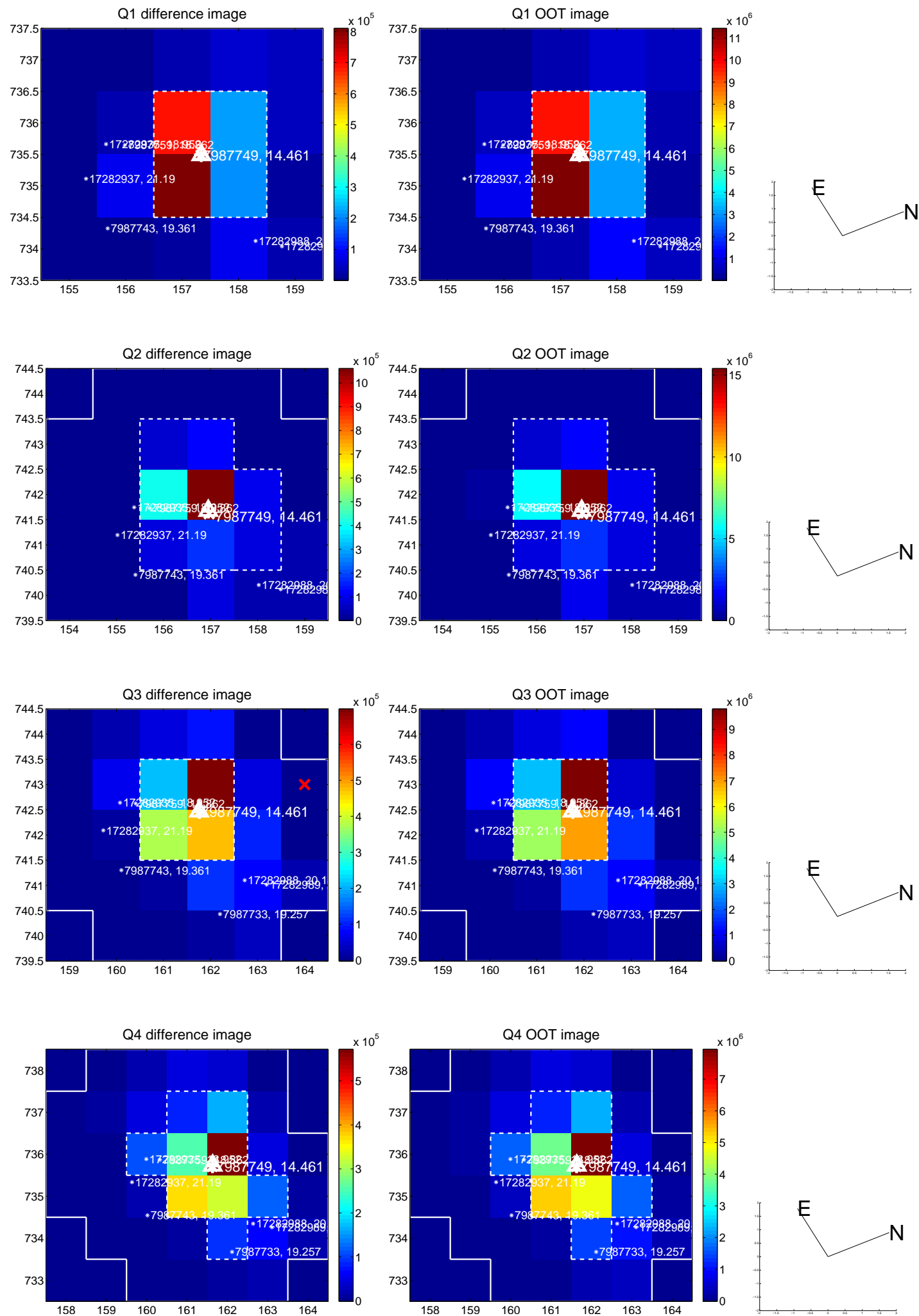
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.030 ± 0.067	0.45	0.029 ± 0.067	-0.005 ± 0.067
PRF-fit source offset from KIC position	0.048 ± 0.072	0.67	0.046 ± 0.072	0.015 ± 0.069
photometric centroid source offset	0.12 ± 0.00	30.95	0.11 ± 0.00	-0.04 ± 0.00

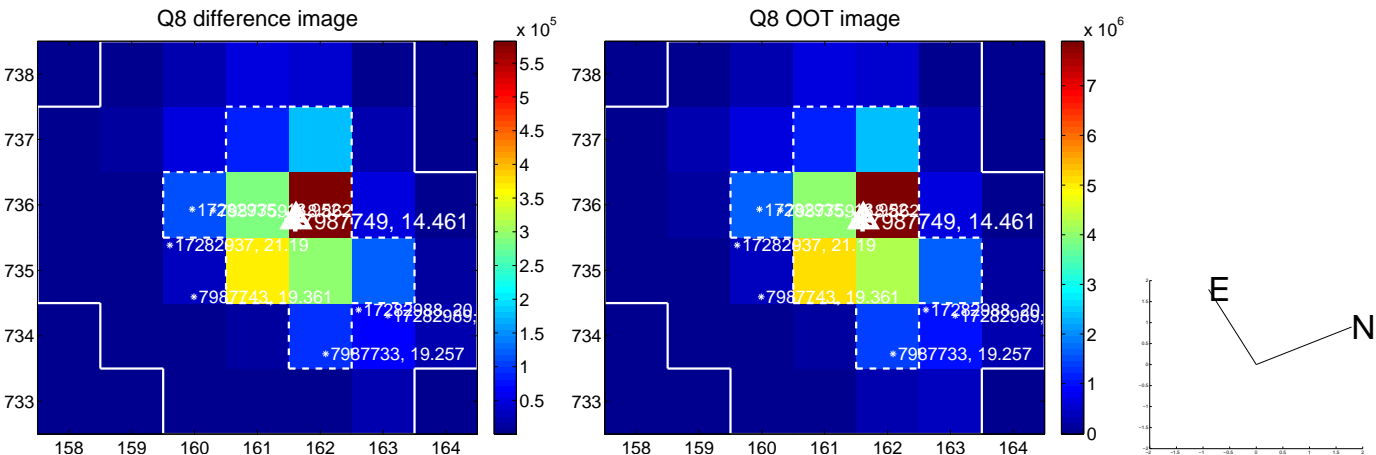
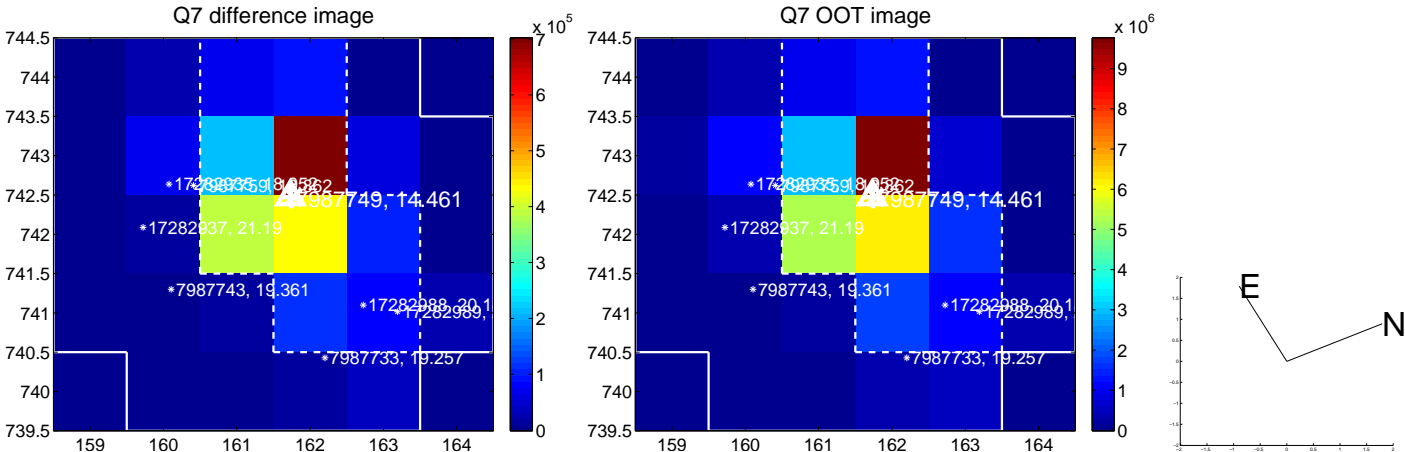
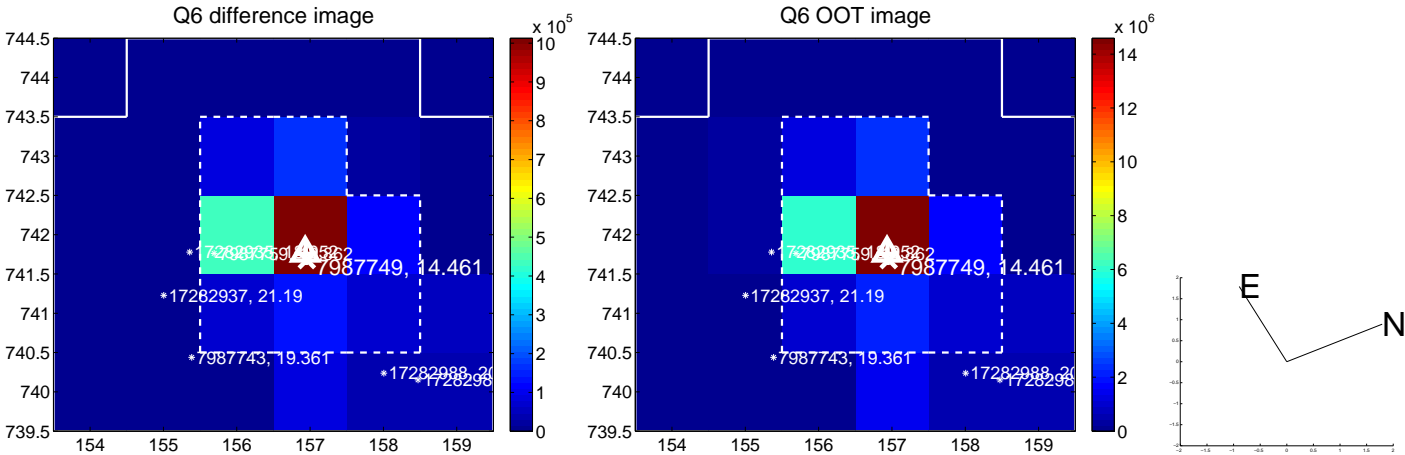
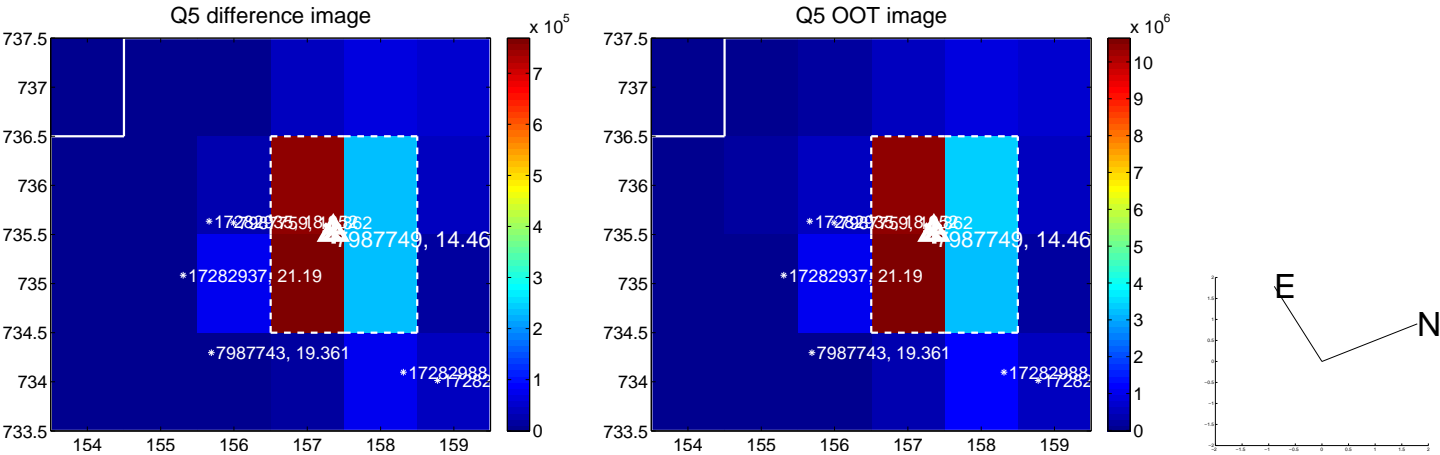


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

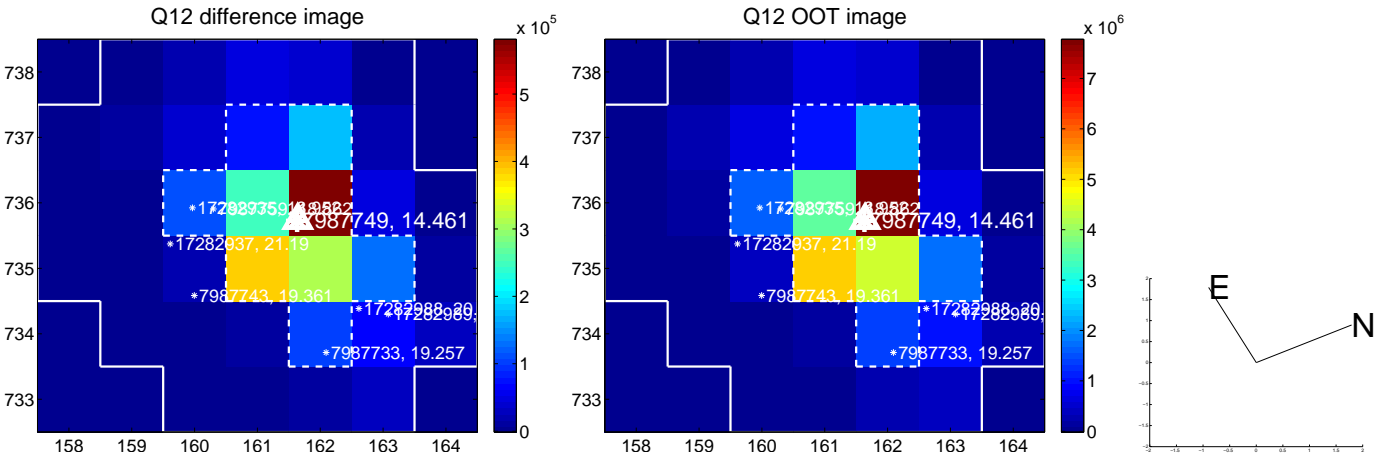
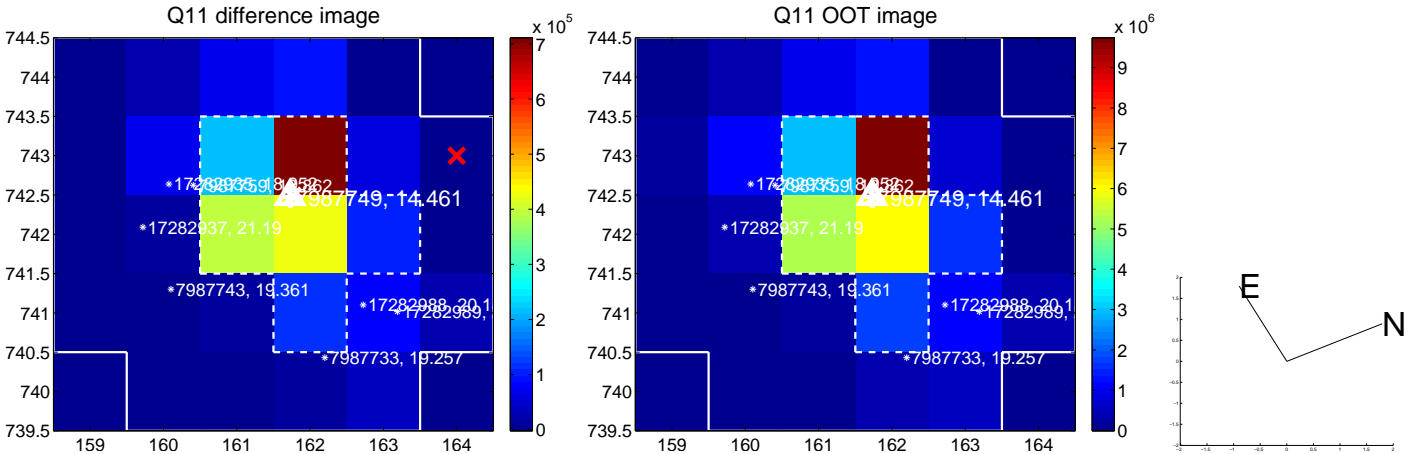
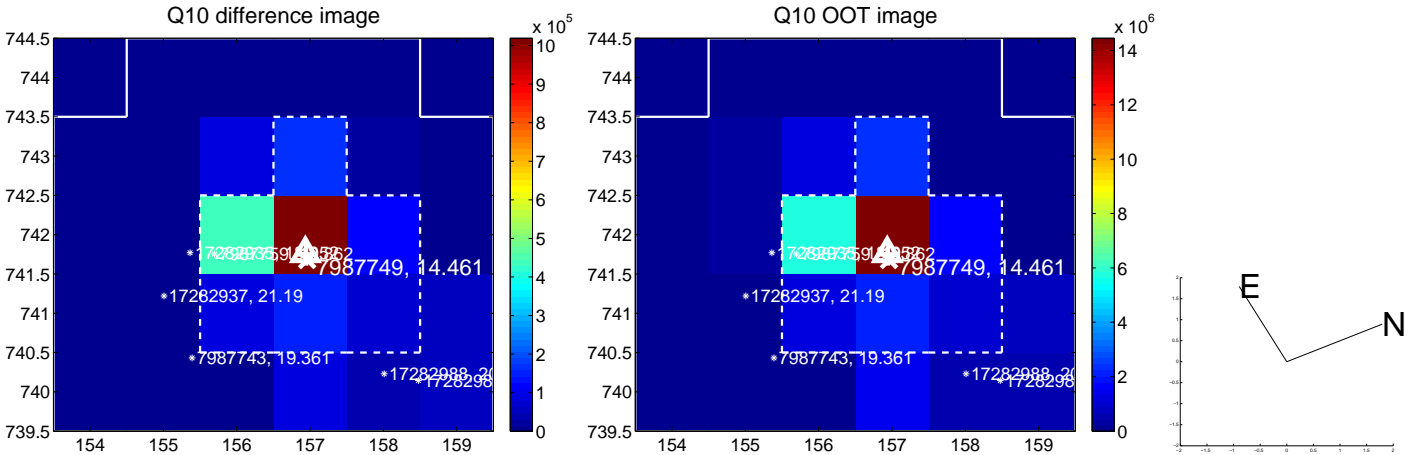
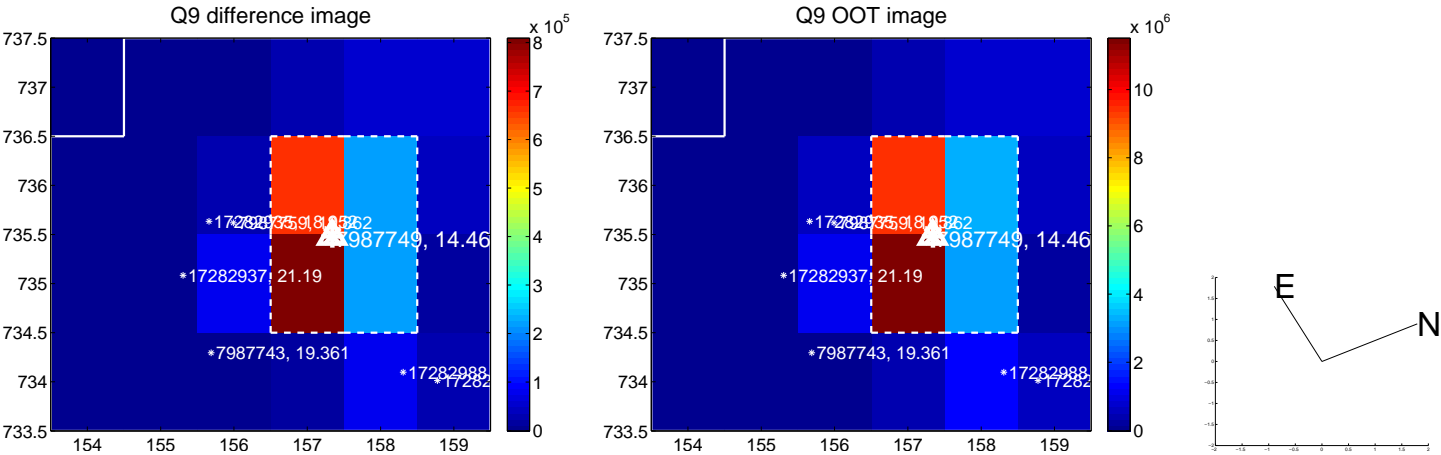
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



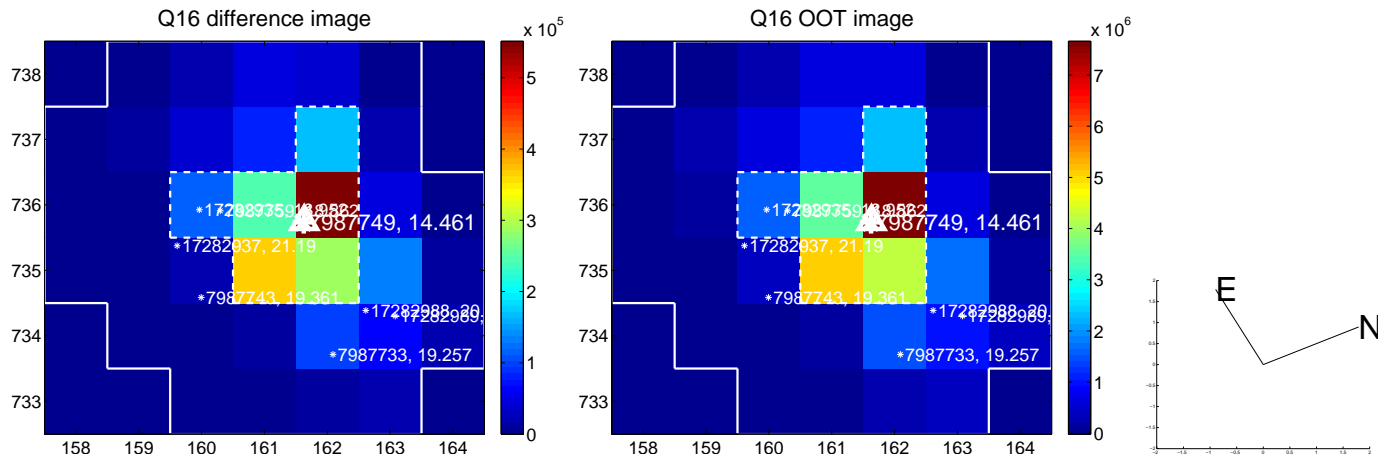
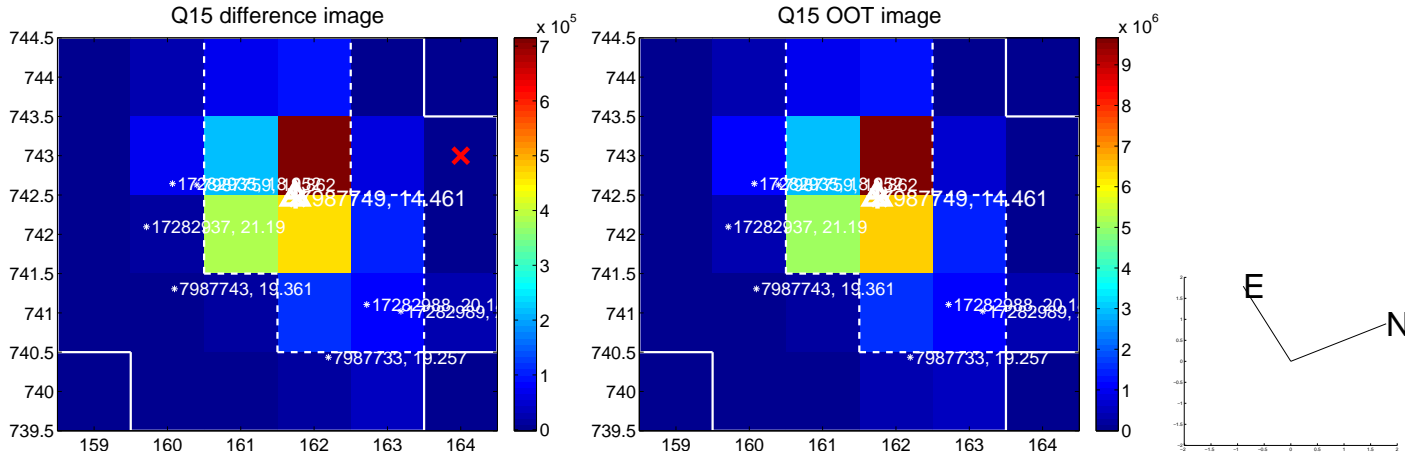
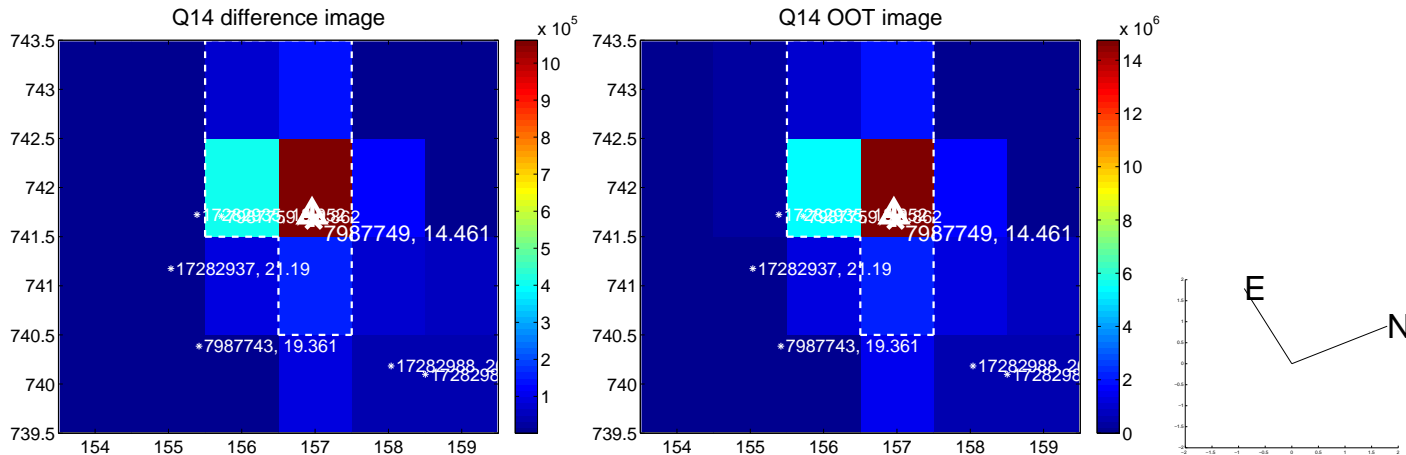
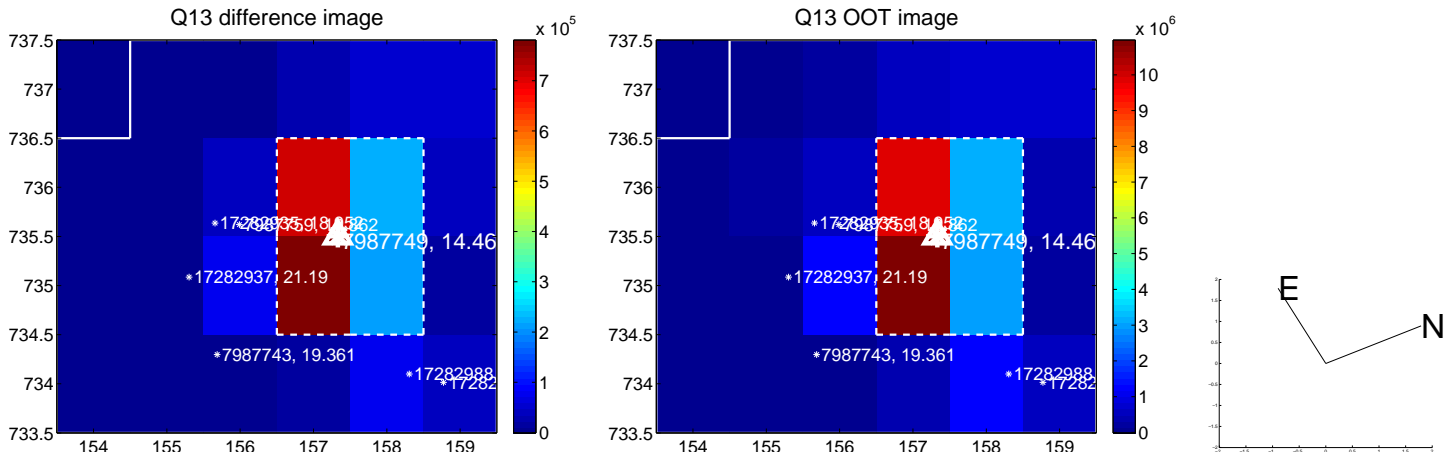
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



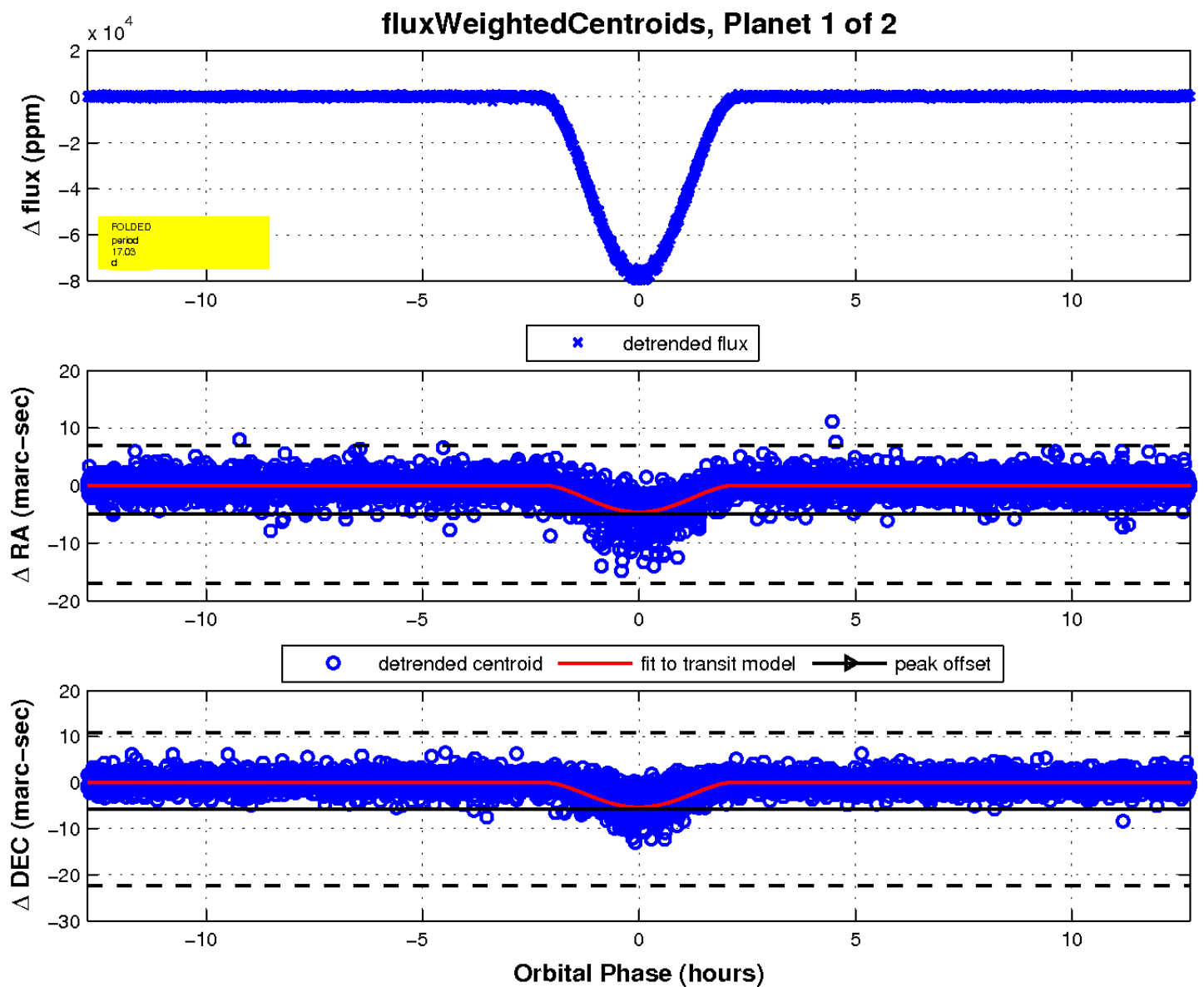
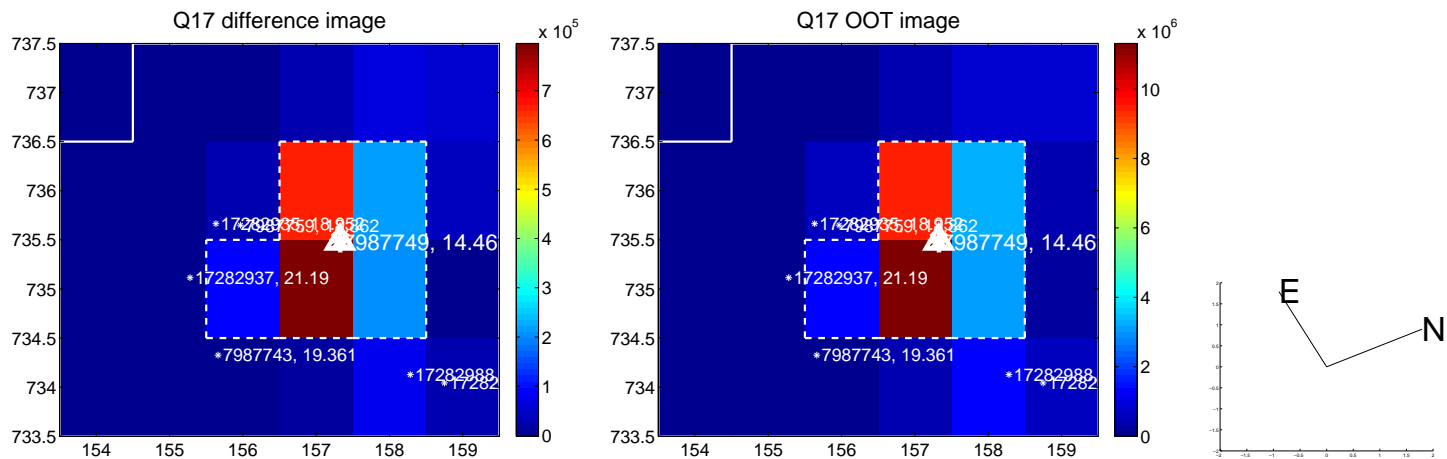
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

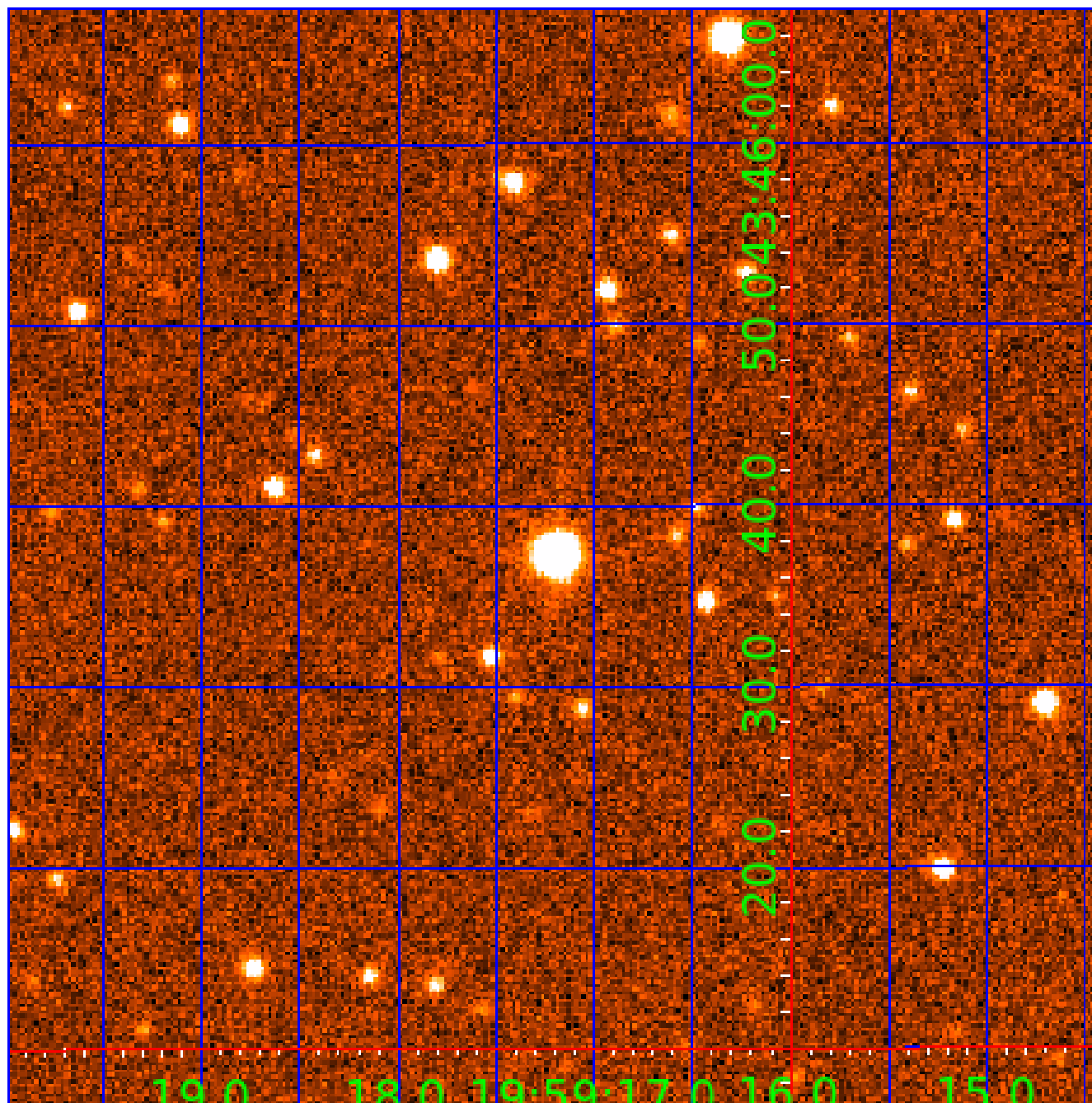


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



UKIRT Image

Declination



KIC 007987749

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})
007987749-01	OBS	6948.01	17.030857	145.542797	77516.1	4.251	3017.8	2418.8	1.42	5575	62.12	115.44
007987749-02	OBS	No	17.030851	135.490806	38397.6	4.180	1588.9	1486.7	1.42	5575	42.05	115.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007987749-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
007987749-02	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.

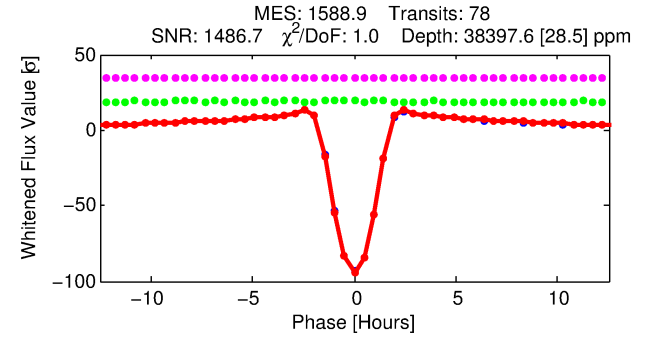
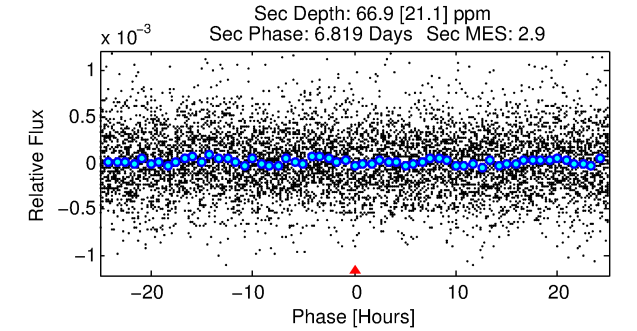
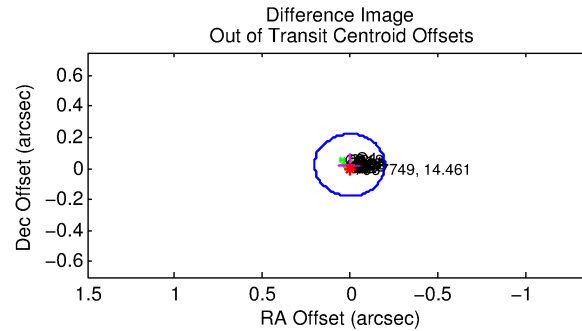
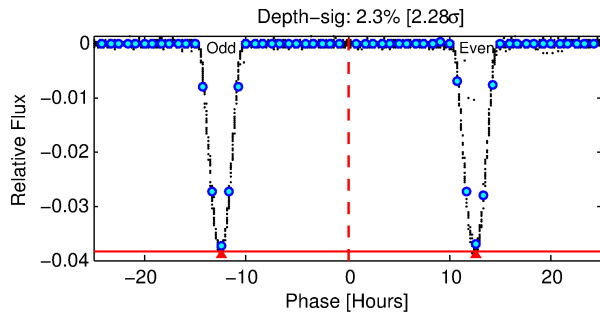
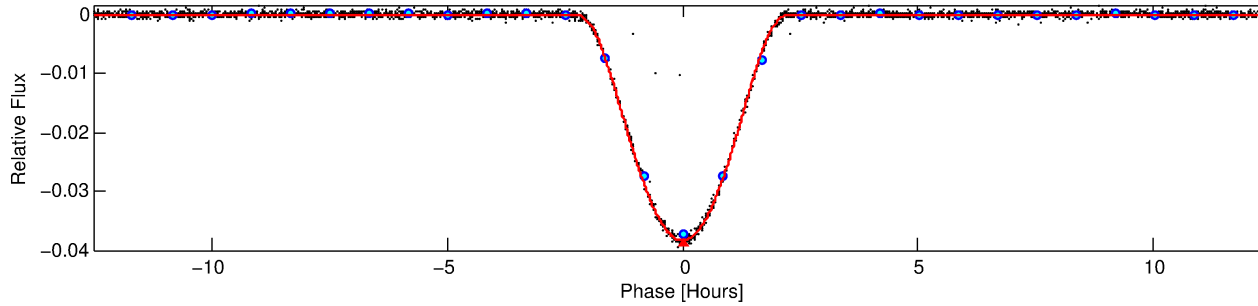
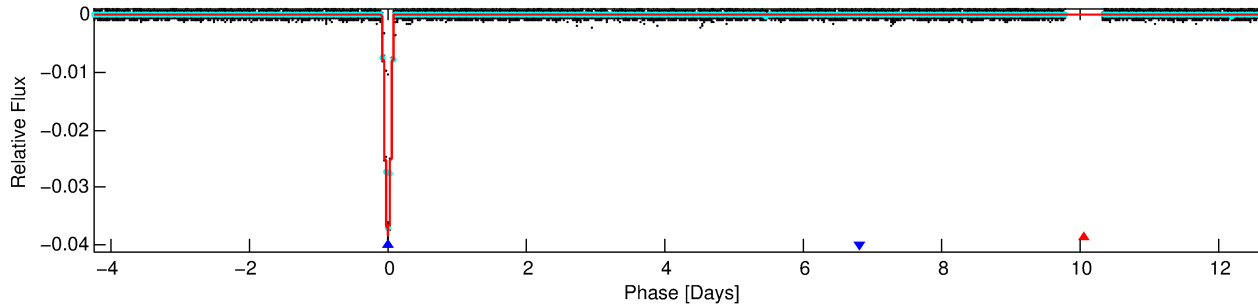
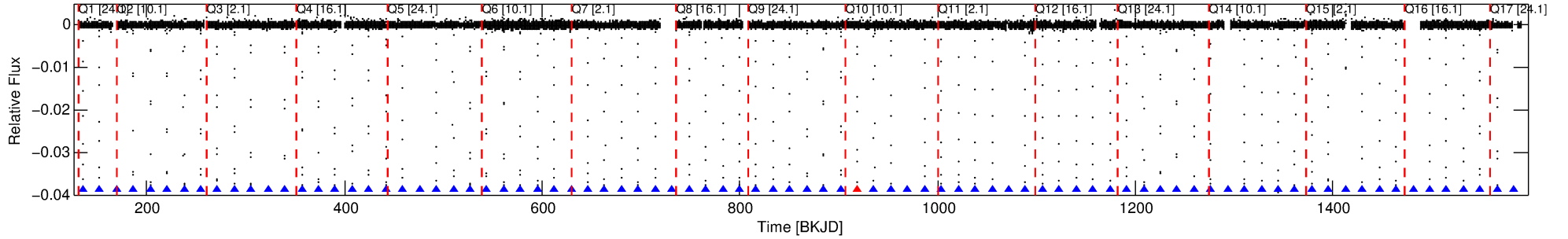
Ephemeris Match Information For 007987749-02

No Significant Match Found

DV One-Page Summary

KIC: 7987749 Candidate: 2 of 2 Period: 17.031 d
KOI: K06948 Corr: No Ephemeris Match

Kp: 14.46 R*: 1.42 Rs Teff: 5575.0 K Logg: 4.07 Fe/H: -0.260



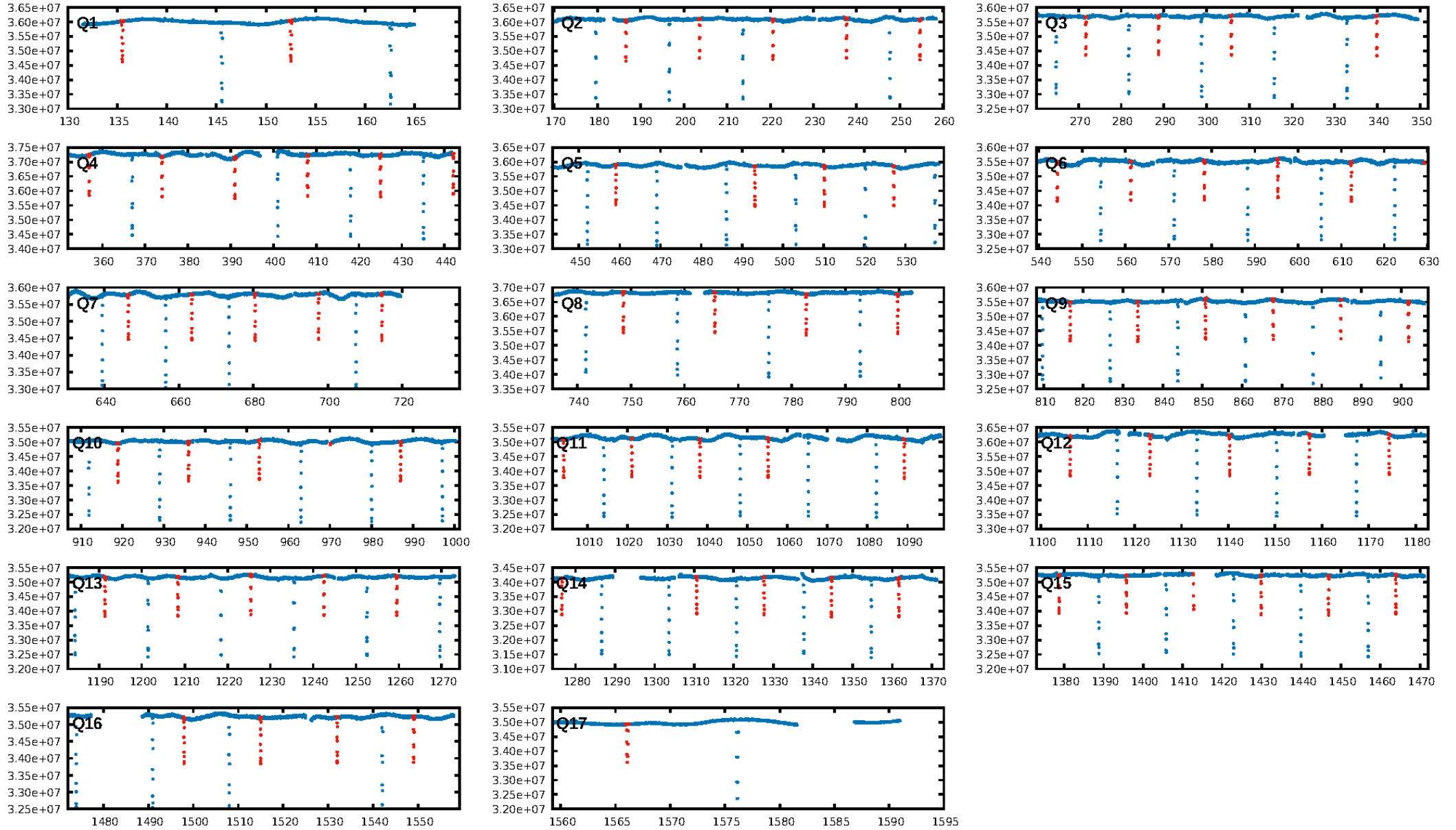
DV Fit Results:

Period = 17.03085 [0.00000] d
Epoch = 135.4908 [0.0001] BKJD
Rp/R* = 0.2708 [0.0074]
a/R* = 26.65 [0.07]
b = 0.94 [0.01]
Seff = 115.44 [91.05]
Teq = 836 [165] K
Rp = 42.05 [17.18] Re
a = 0.1232 [0.0561] AU
Ag = 0.32 [0.27] [-2.57σ]
Teffp = 969 [83] K [0.72σ]

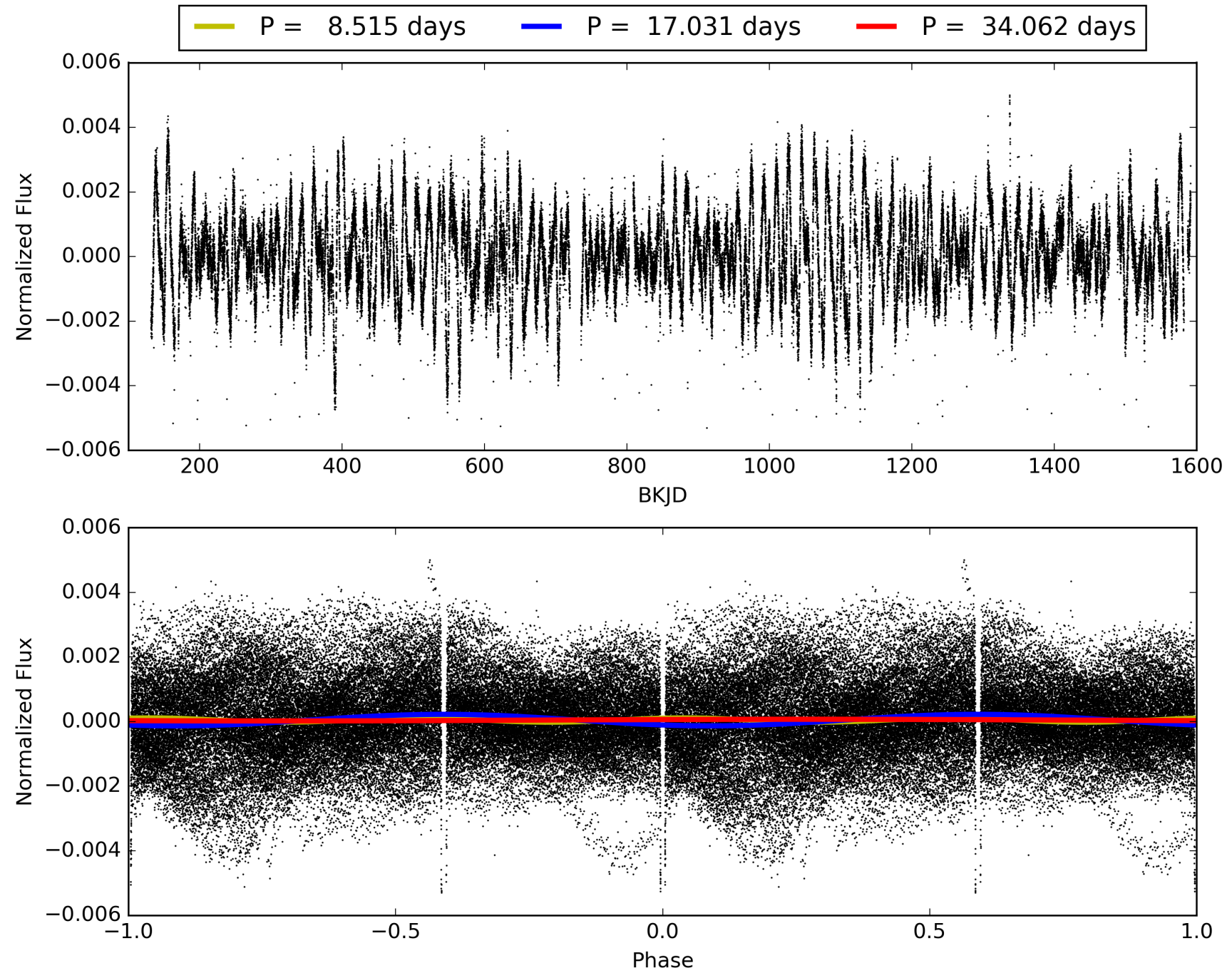
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 84.6%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [74/75]
GhostDiagnostic-chr: 3.641
Centroid-sig: 0.0%
Centroid-so: 0.102 arcsec [13.51σ]
OotOffset-rm: 0.022 arcsec [0.33σ]
KicOffset-rm: 0.054 arcsec [0.78σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007987749-02, PDC Light Curves

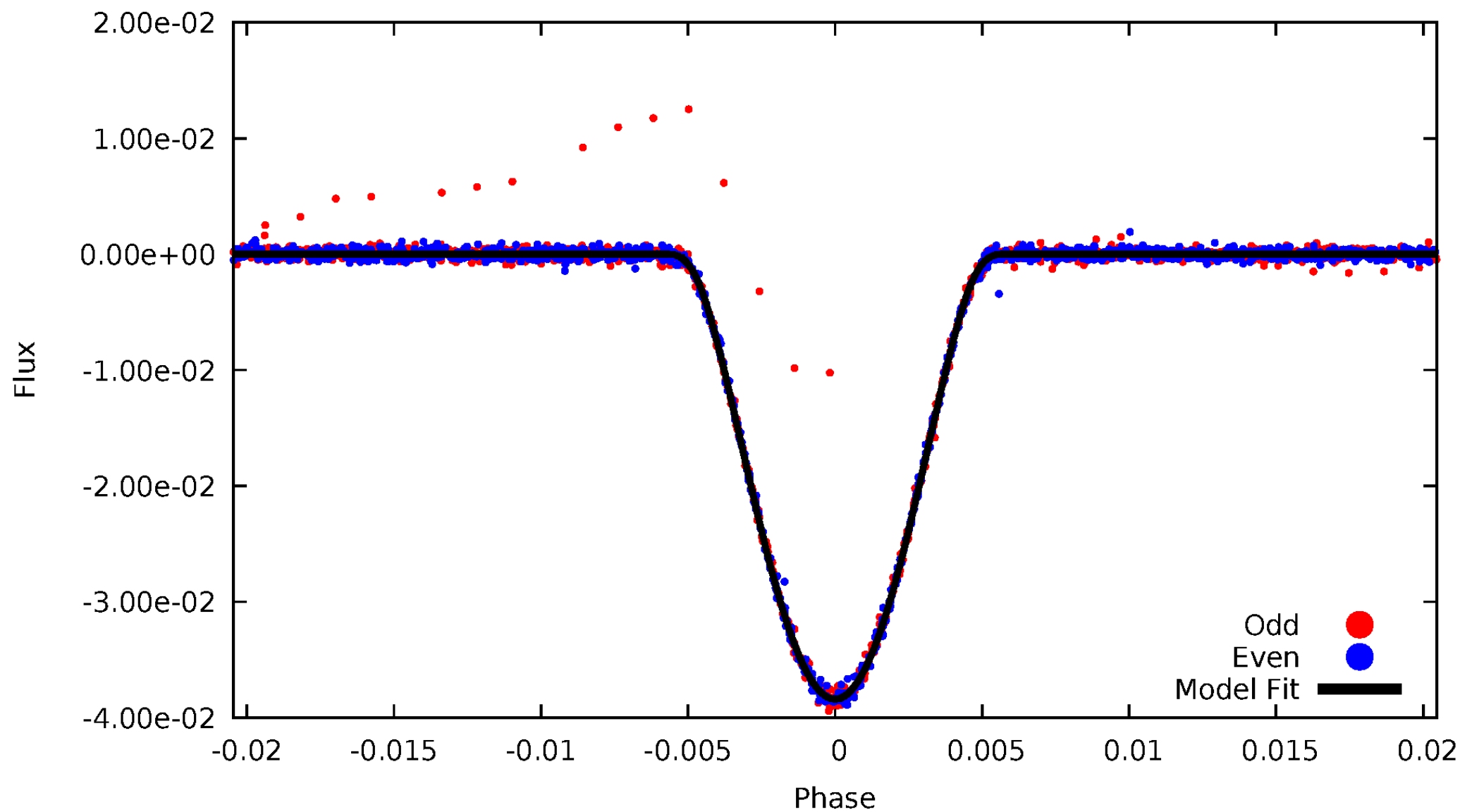


TCE 007987749-02



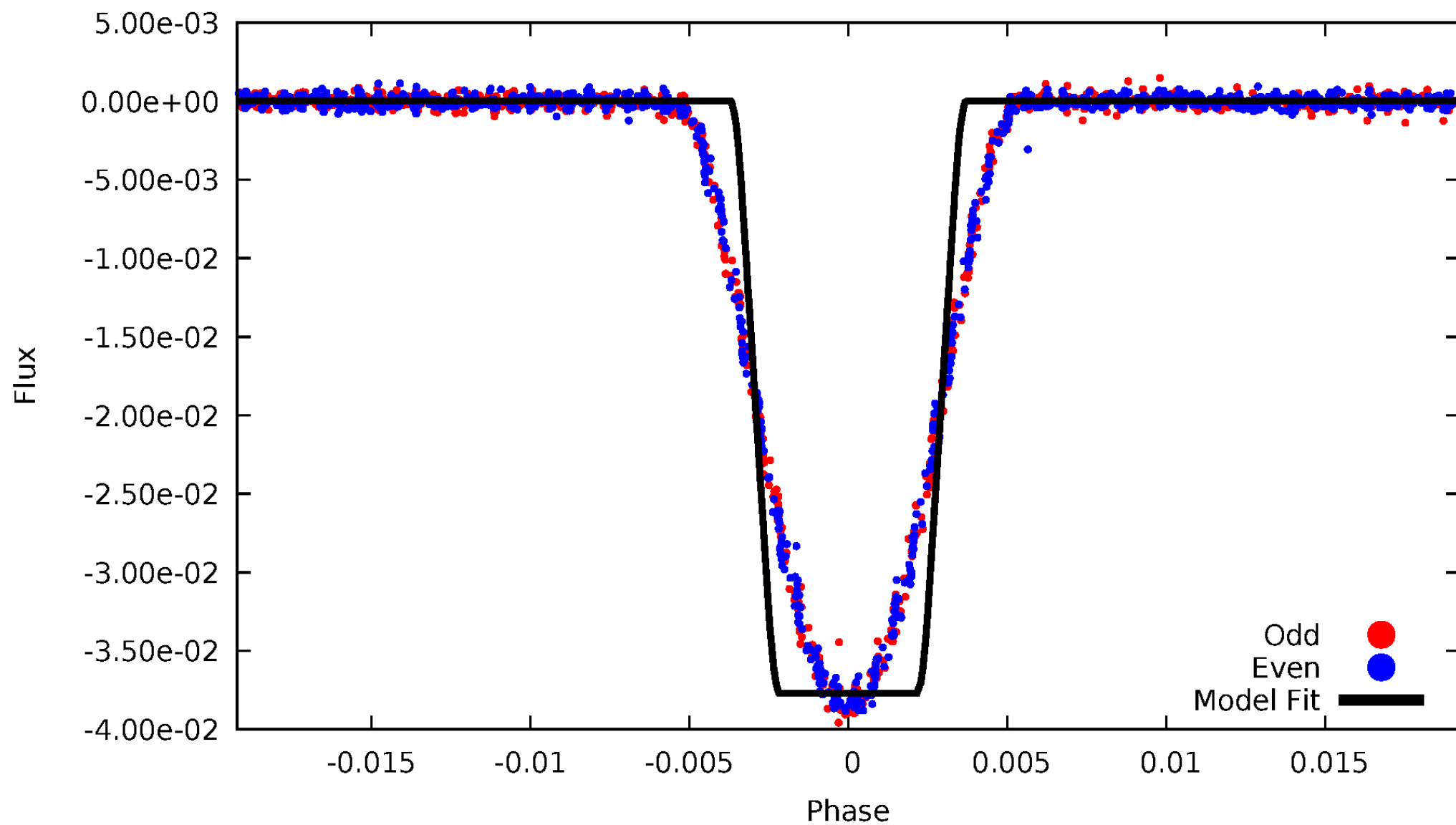
DV Odd/Even

TCE 007987749-02



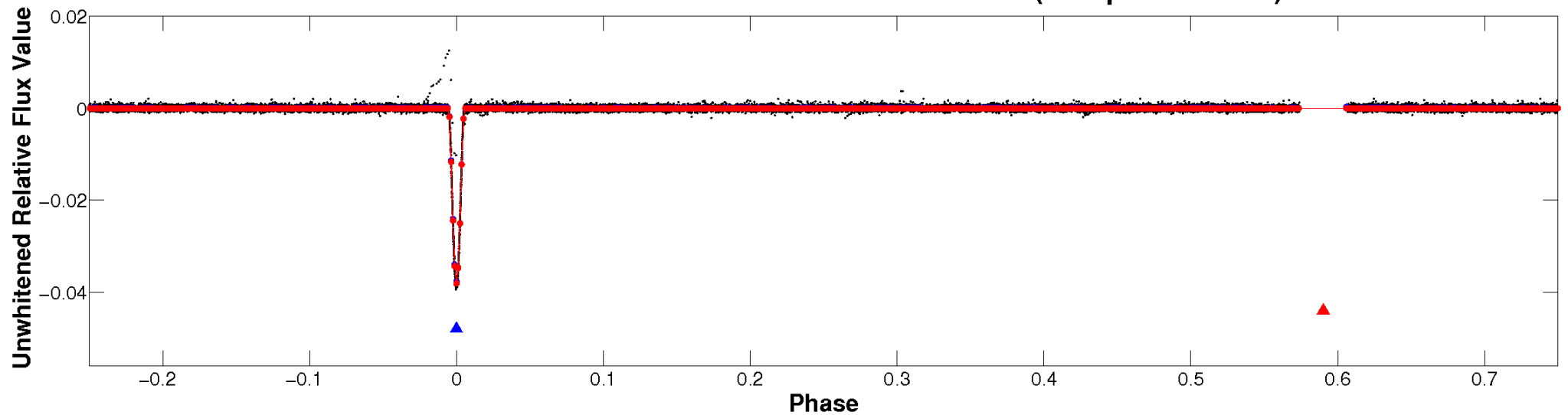
ALT Odd/Even

TCE 007987749-02

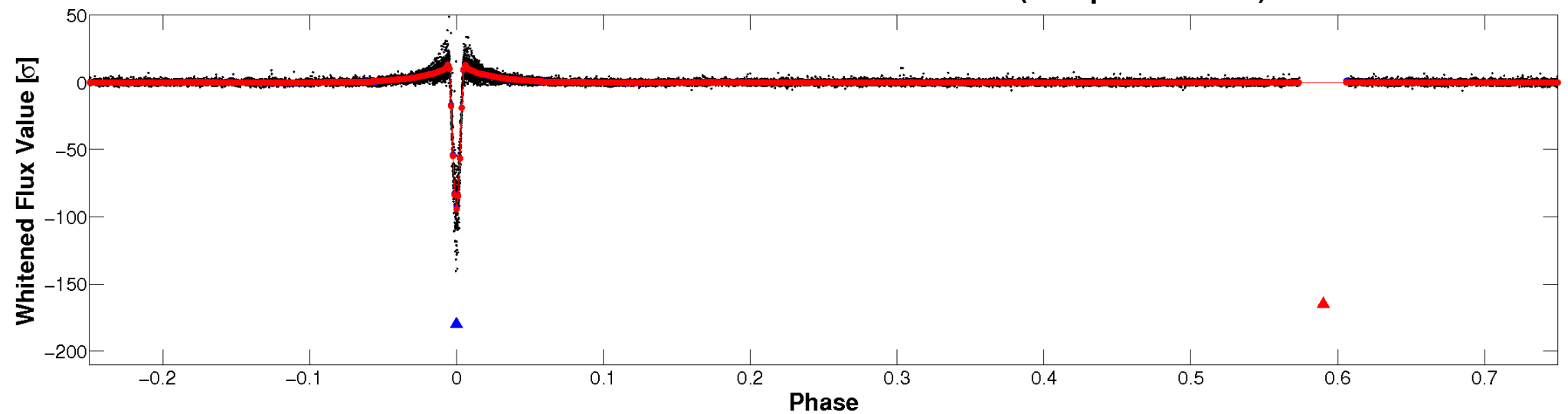


Non-Whitened Vs. Whitened Light Curve

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

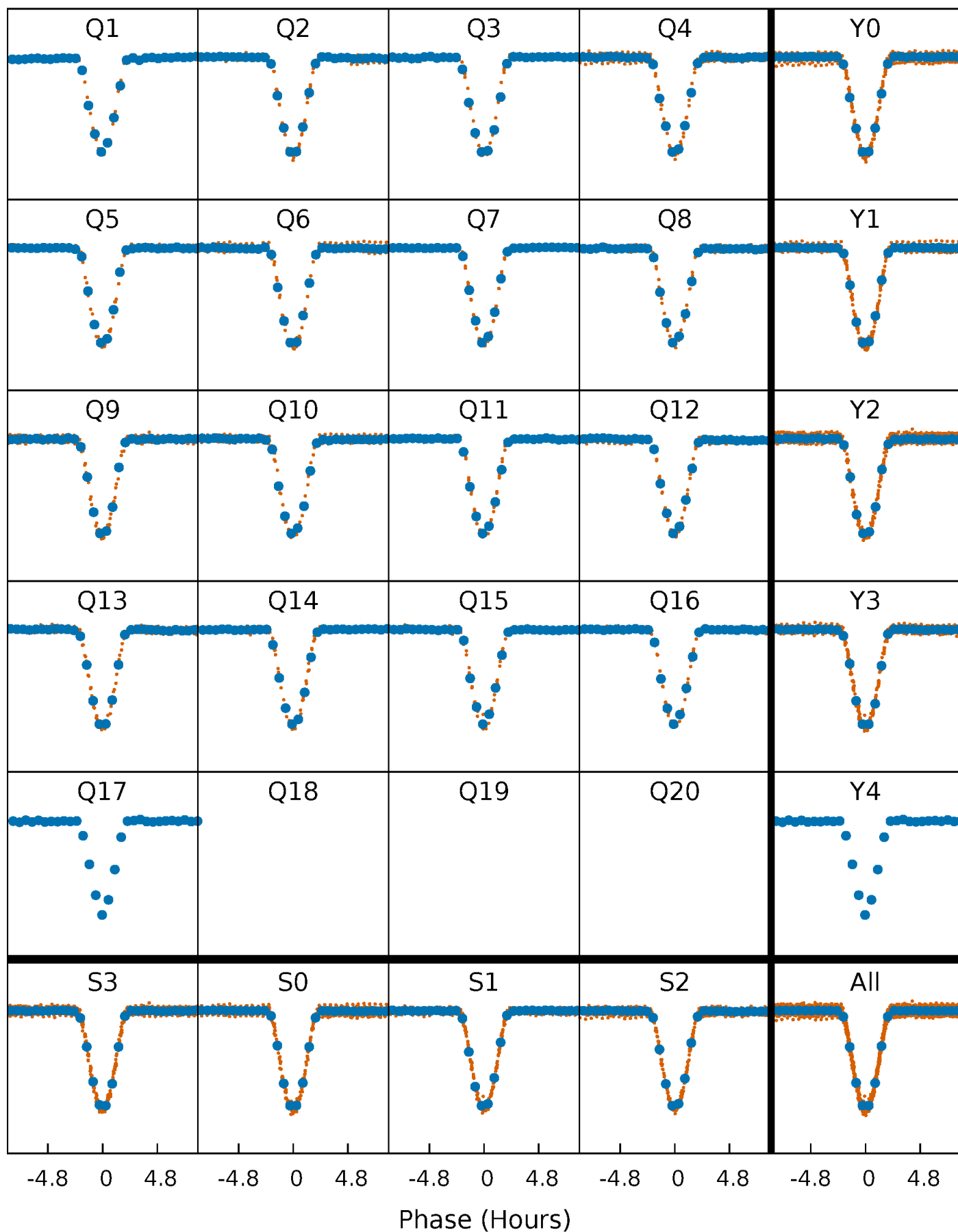


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



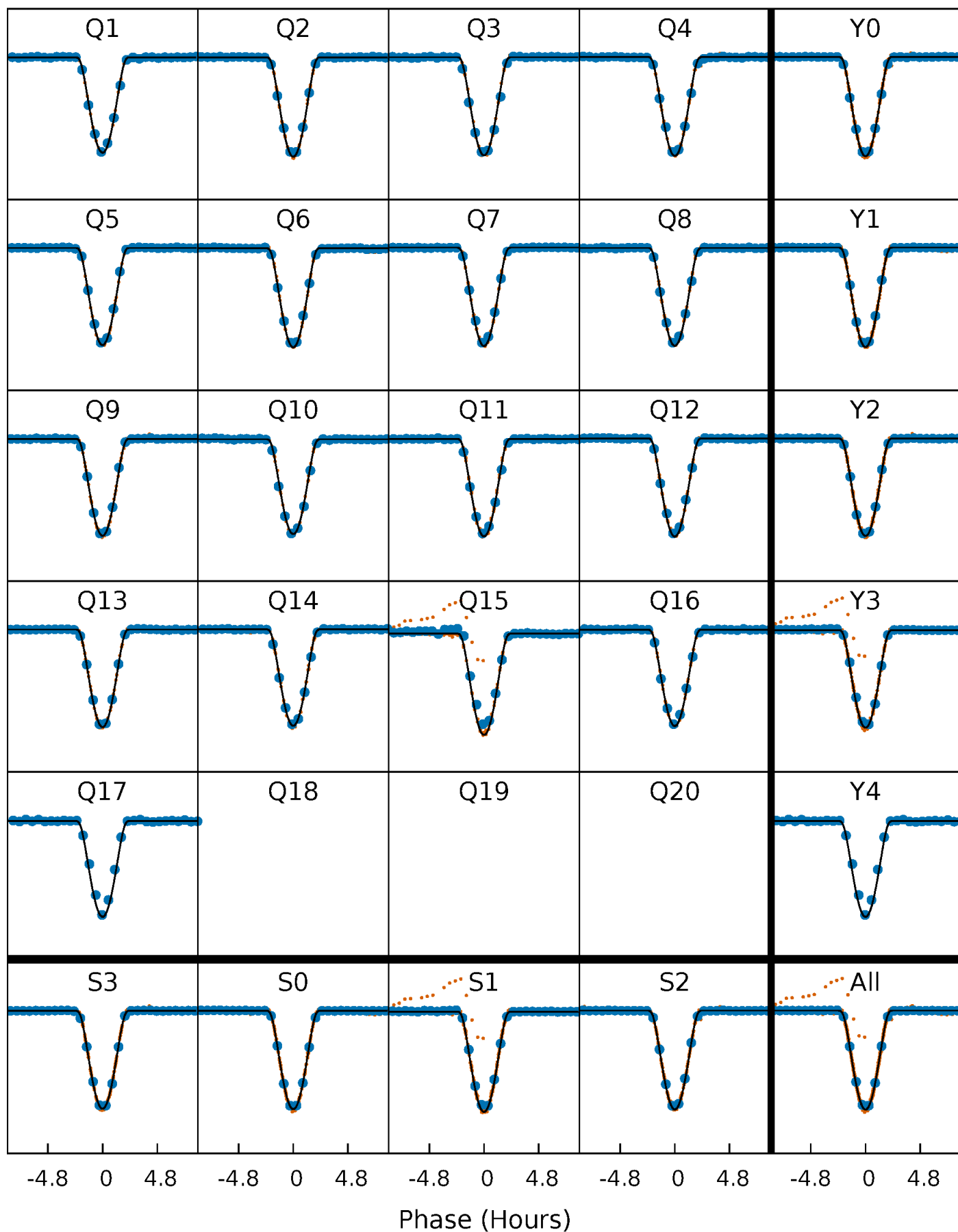
PDC Quarter-Phased Transit Curves

TCE 007987749-02 P= 17.030851 Days $T_0=135.490806$ (BKJD)



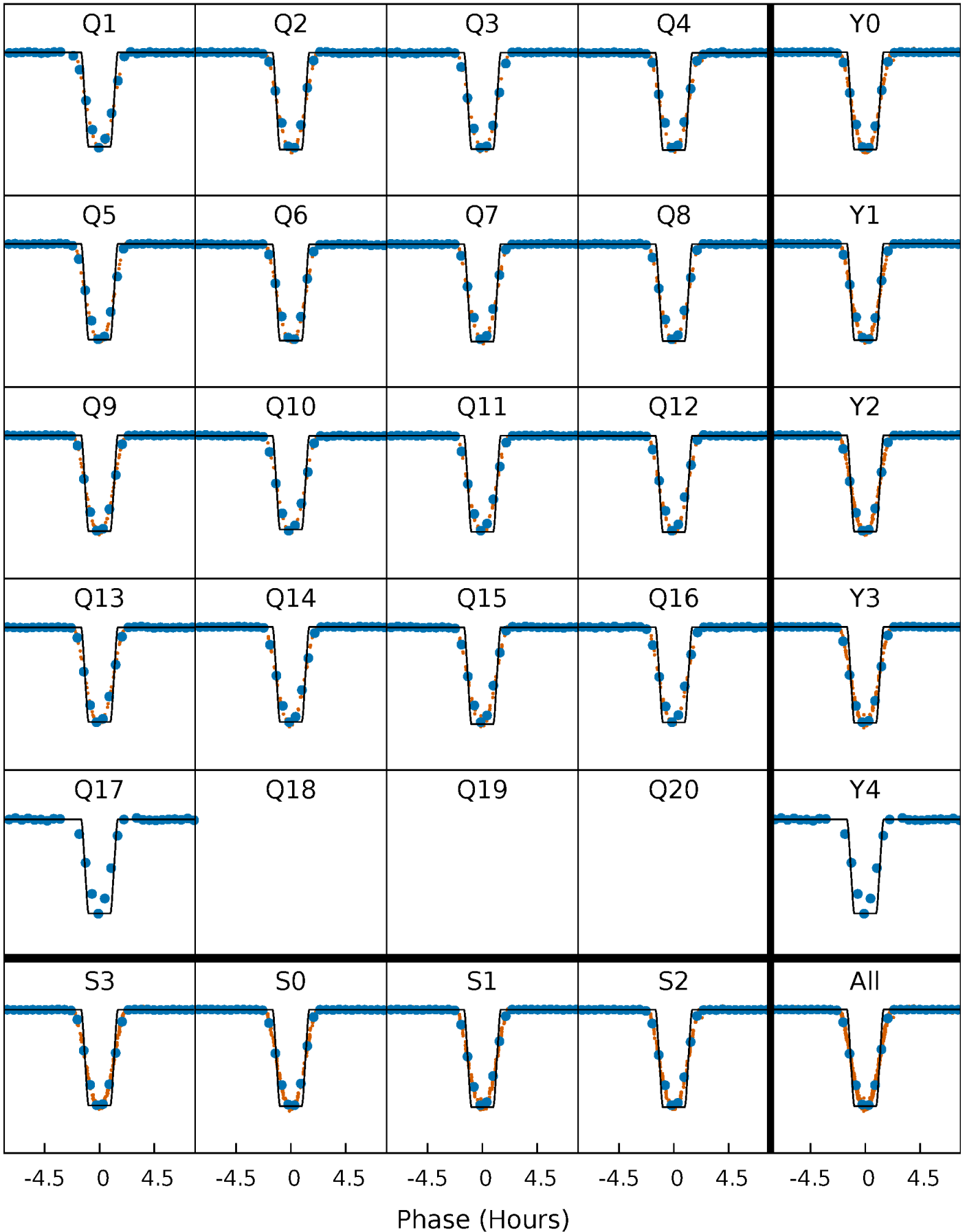
DV Quarter-Phased Transit Curves

TCE 007987749-02 P= 17.030851 Days $T_0=135.490806$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

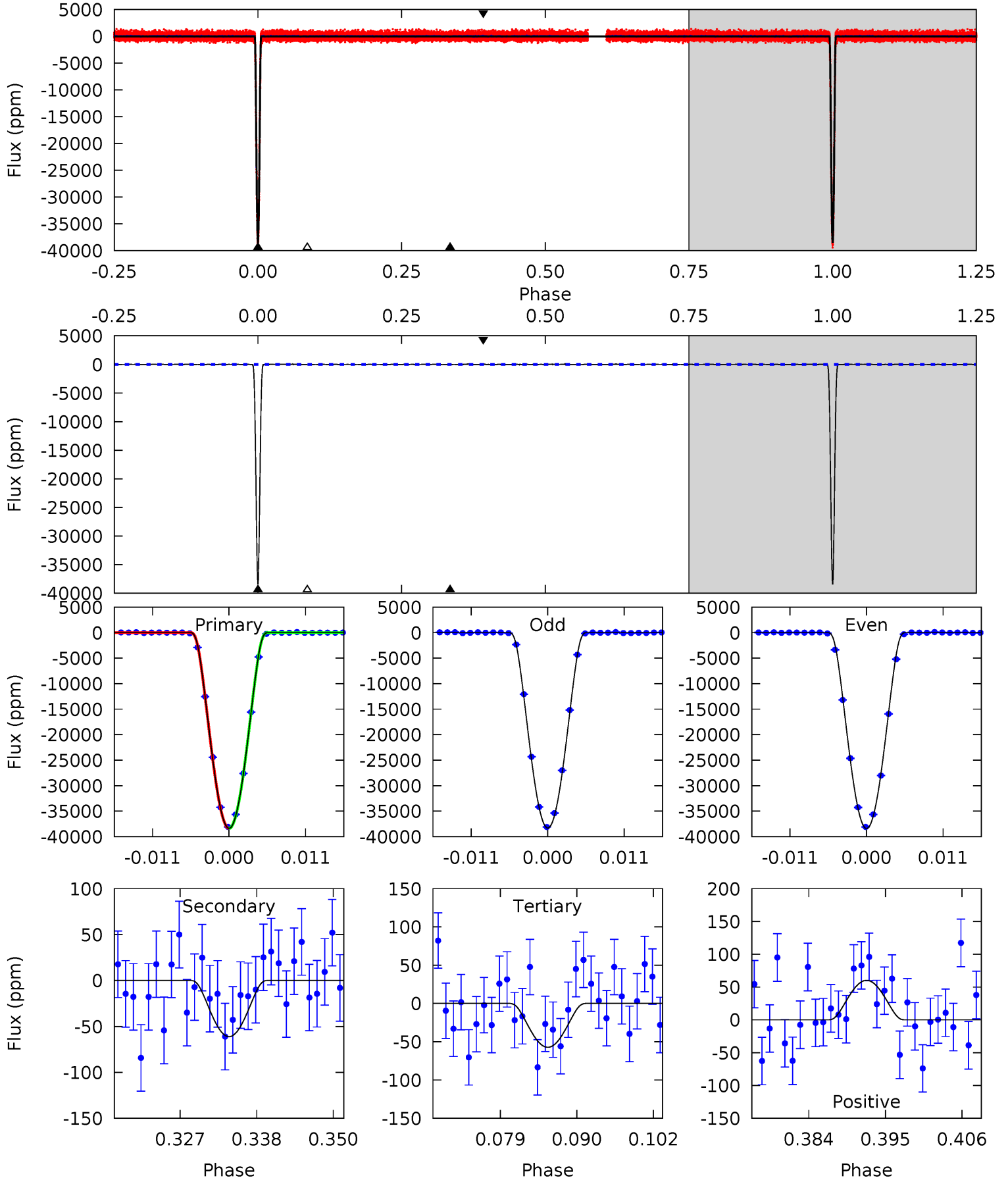
TCE 007987749-02 P= 17.030907 Days $T_0=135.488511$ (BKJD)



DV Model-Shift Uniqueness Test

007987749-02, P = 17.030851 Days, E = 118.459955 Days

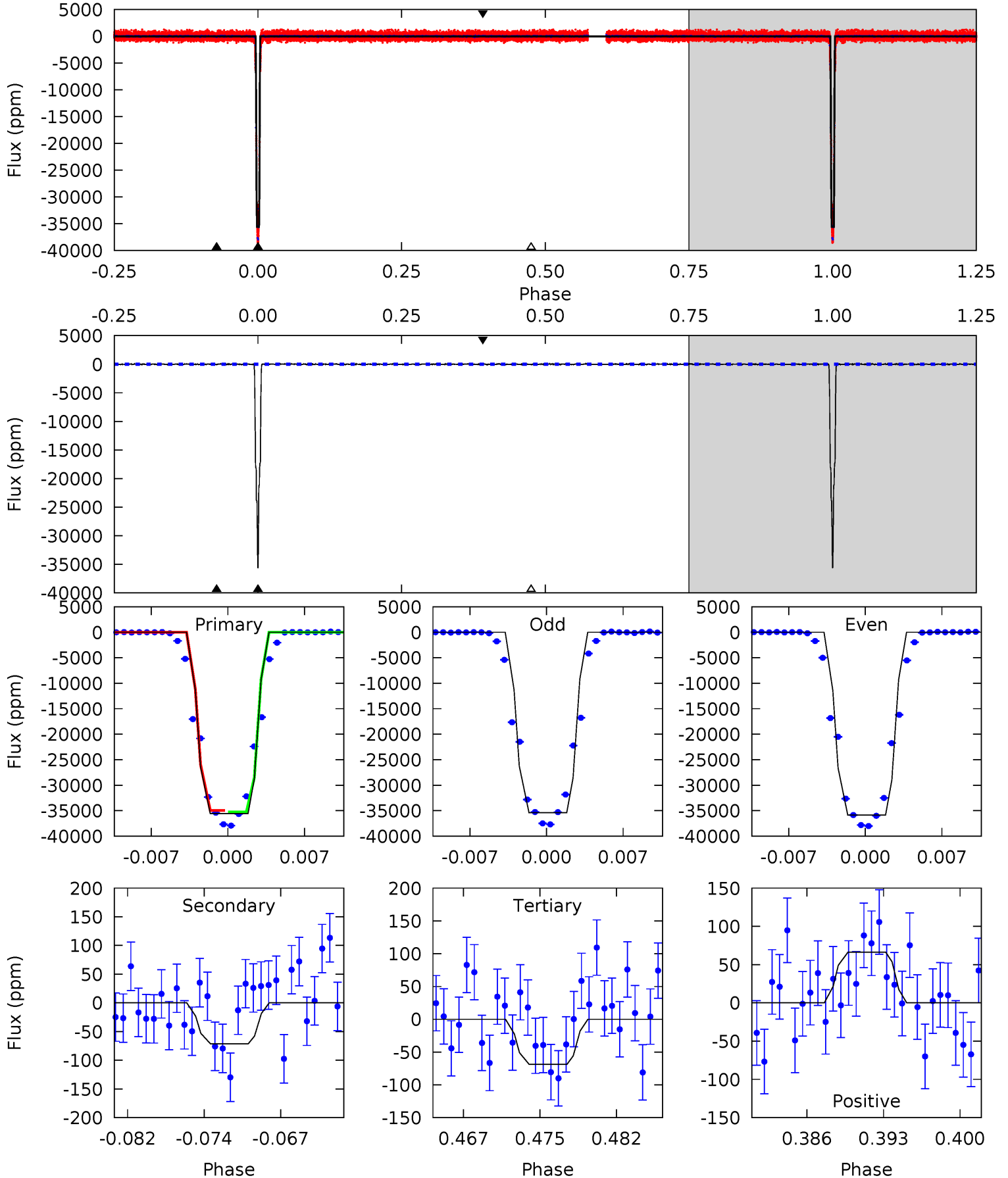
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3109	4.95	4.64	4.88	5.00	2.53	1.71	3104	3104	0.31	0.07	3.94	0.99	0.00	0.14



Alt Model-Shift Uniqueness Test

007987749-02, P = 17.030907 Days, E = 118.457604 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1790	3.59	3.46	3.33	5.08	2.68	1.08	1786	1787	0.13	0.25	12.5	1.00	0.00	0



Stellar Parameters For KIC 007987749

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5575^{+167}_{-167}	$4.066^{+0.476}_{-0.204}$	$-0.260^{+0.300}_{-0.250}$	$1.423^{+0.475}_{-0.580}$	$0.860^{+0.100}_{-0.090}$	$0.420^{+1.633}_{-0.226}$
	+3%/-3%	+12%/-5%	+115%/-96%	+33%/-41%	+12%/-10%	+389%/-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 007987749-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-61 ± 12	$41.10^{+8.12}_{-9.67}$	1156^{+111}_{-149}	1043^{+774}_{-2852}	$0.300^{+0.228}_{-0.106}$
Alt.	-71 ± 20	$29.67^{+5.67}_{-6.64}$	1157^{+110}_{-134}	2001^{+106}_{-173}	$0.670^{+0.513}_{-0.252}$

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

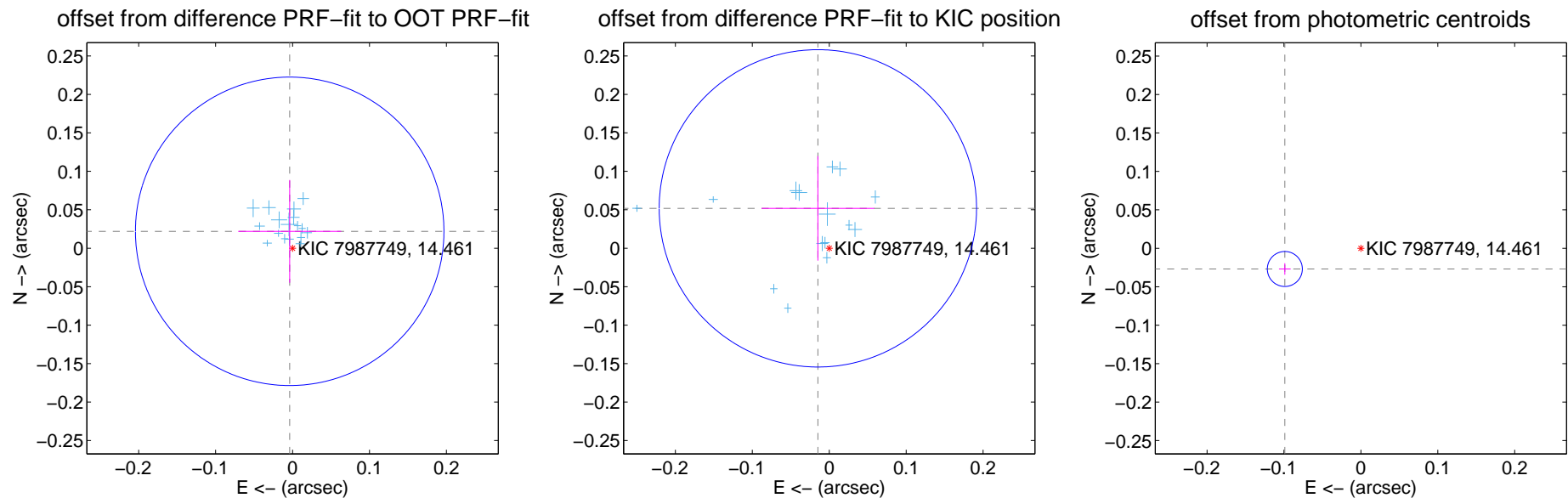
DV Centroid Data

Supplemental centroid analysis for 007987749-02. Kepler magnitude: 14.46. Transit SNR 1486.71

There are 17 quarters with good PRF difference image offsets

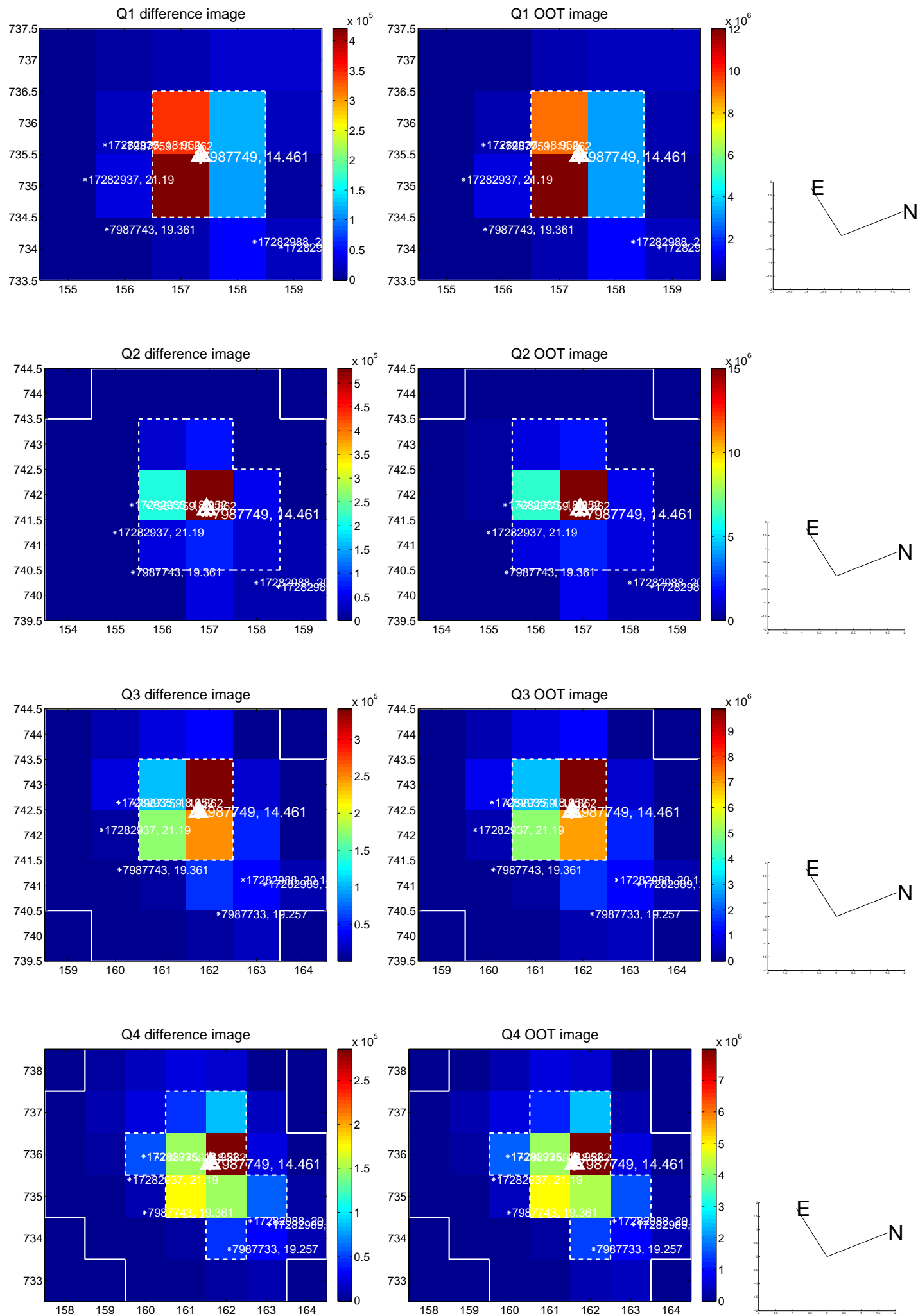
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.022 ± 0.067	0.33	0.004 ± 0.067	0.022 ± 0.067
PRF-fit source offset from KIC position	0.054 ± 0.069	0.78	0.015 ± 0.073	0.052 ± 0.068
photometric centroid source offset	0.10 ± 0.01	13.51	0.10 ± 0.01	-0.03 ± 0.01

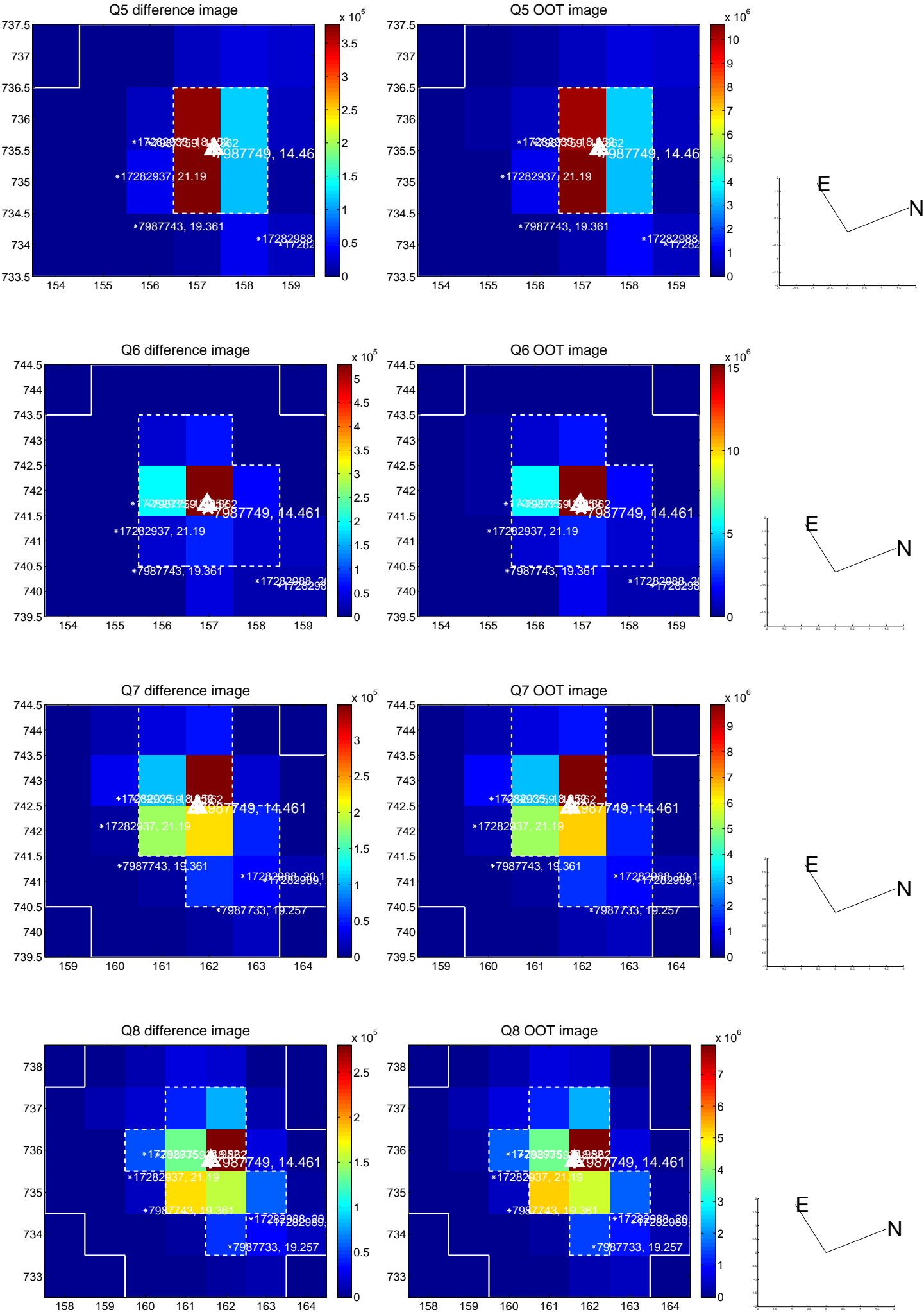


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

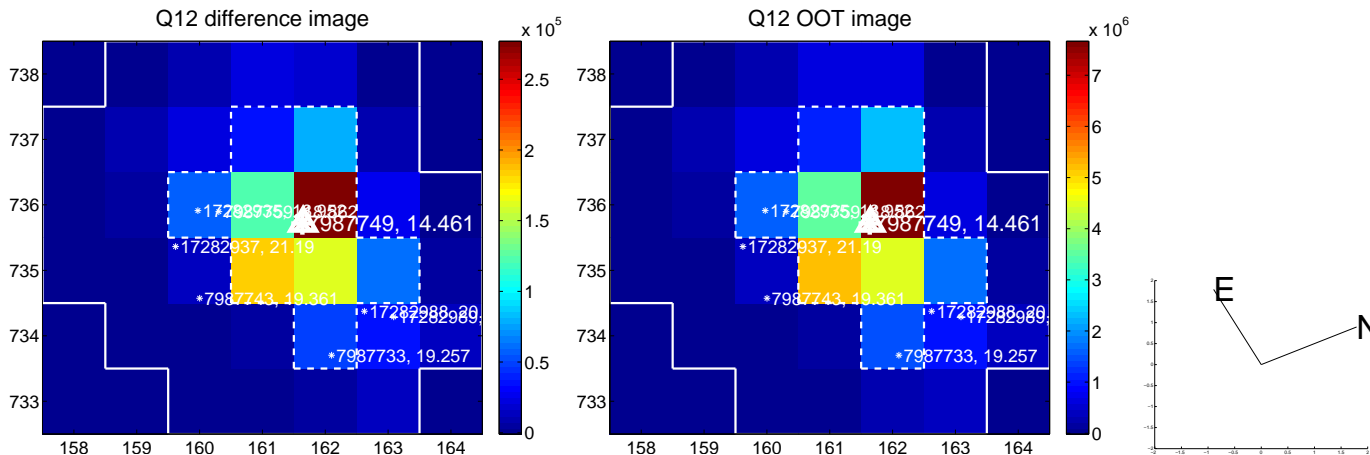
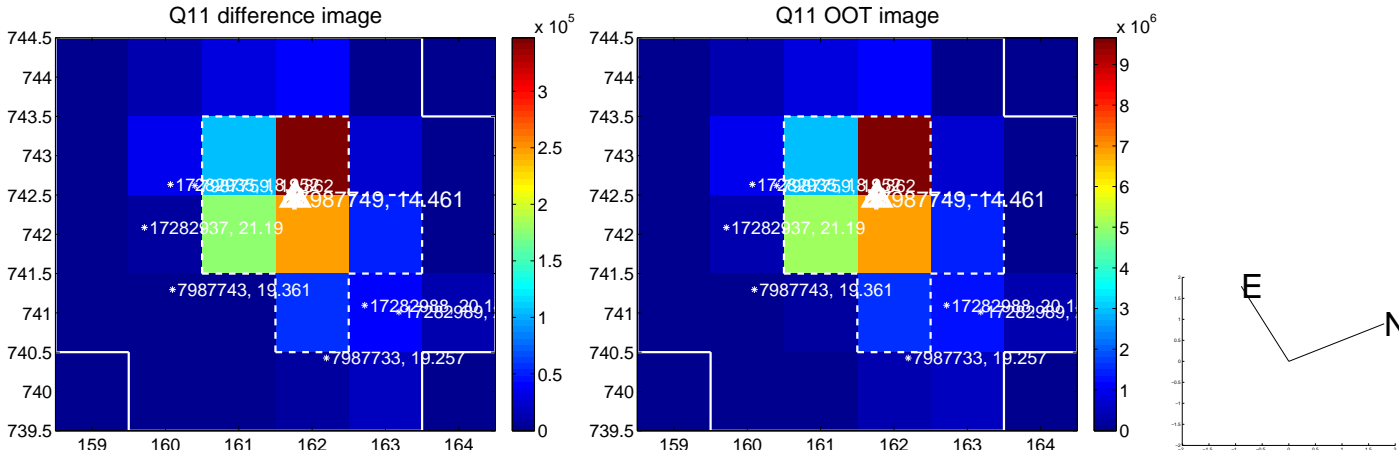
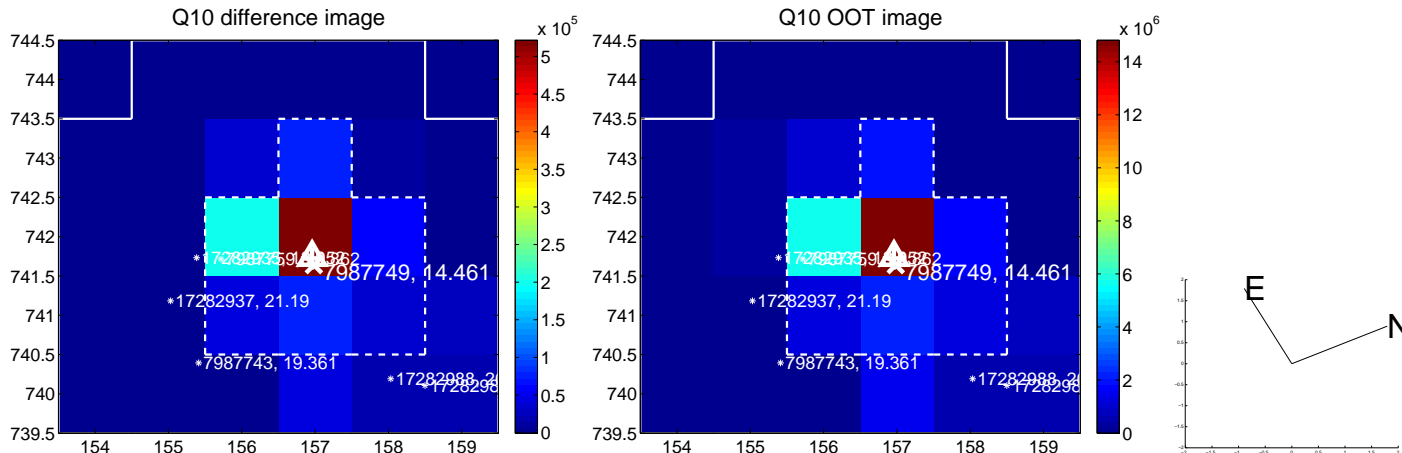
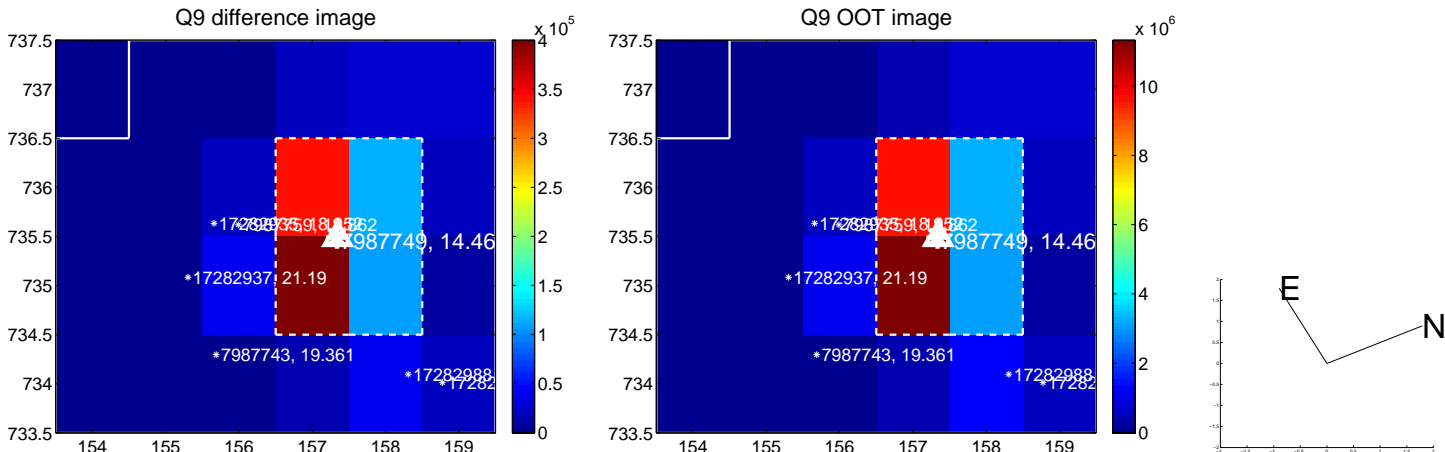
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



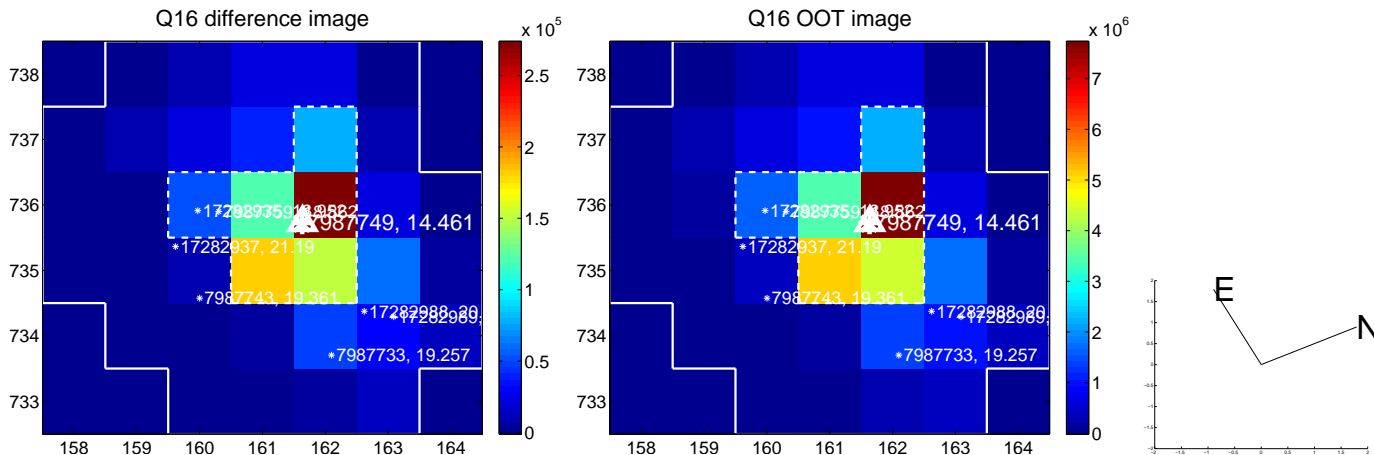
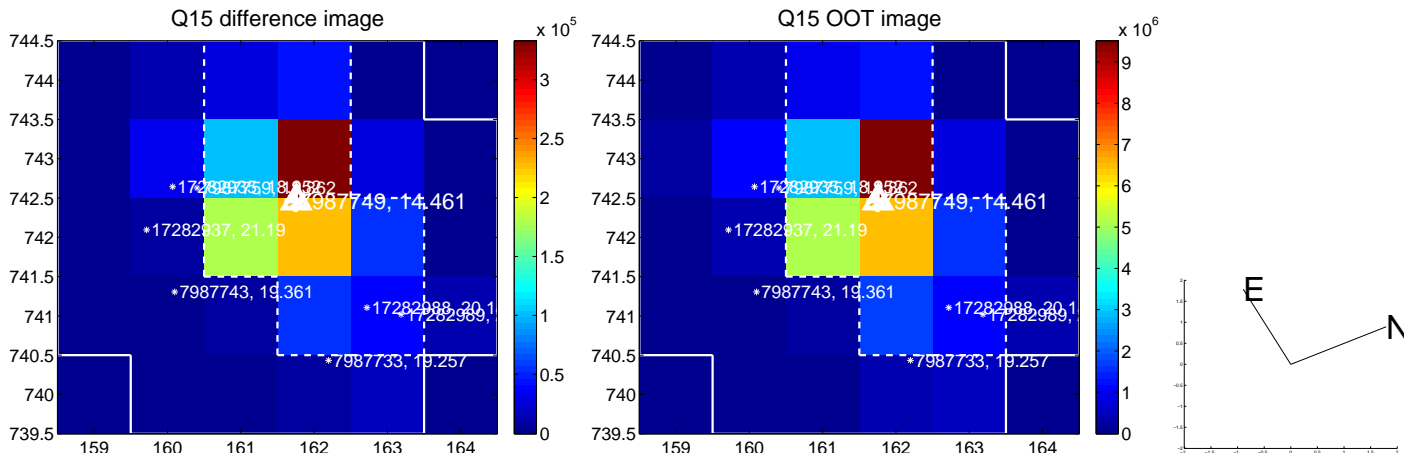
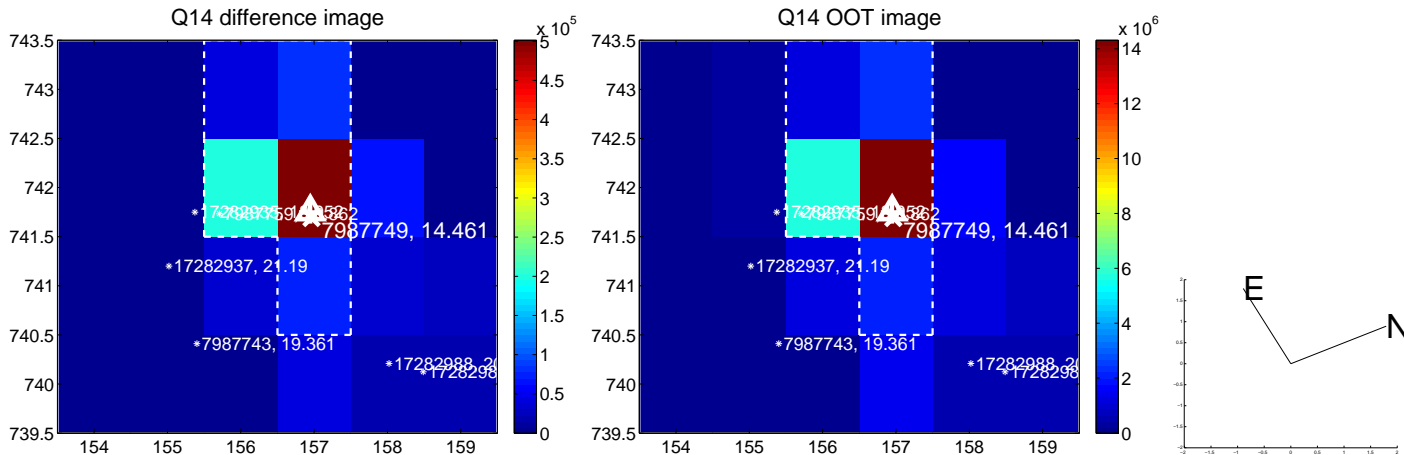
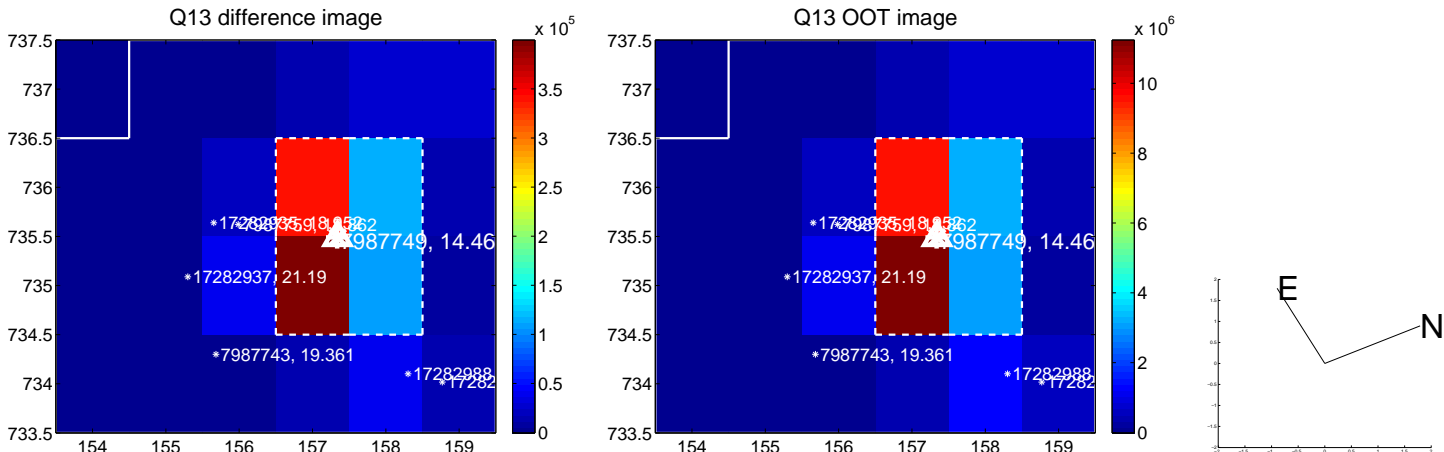
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



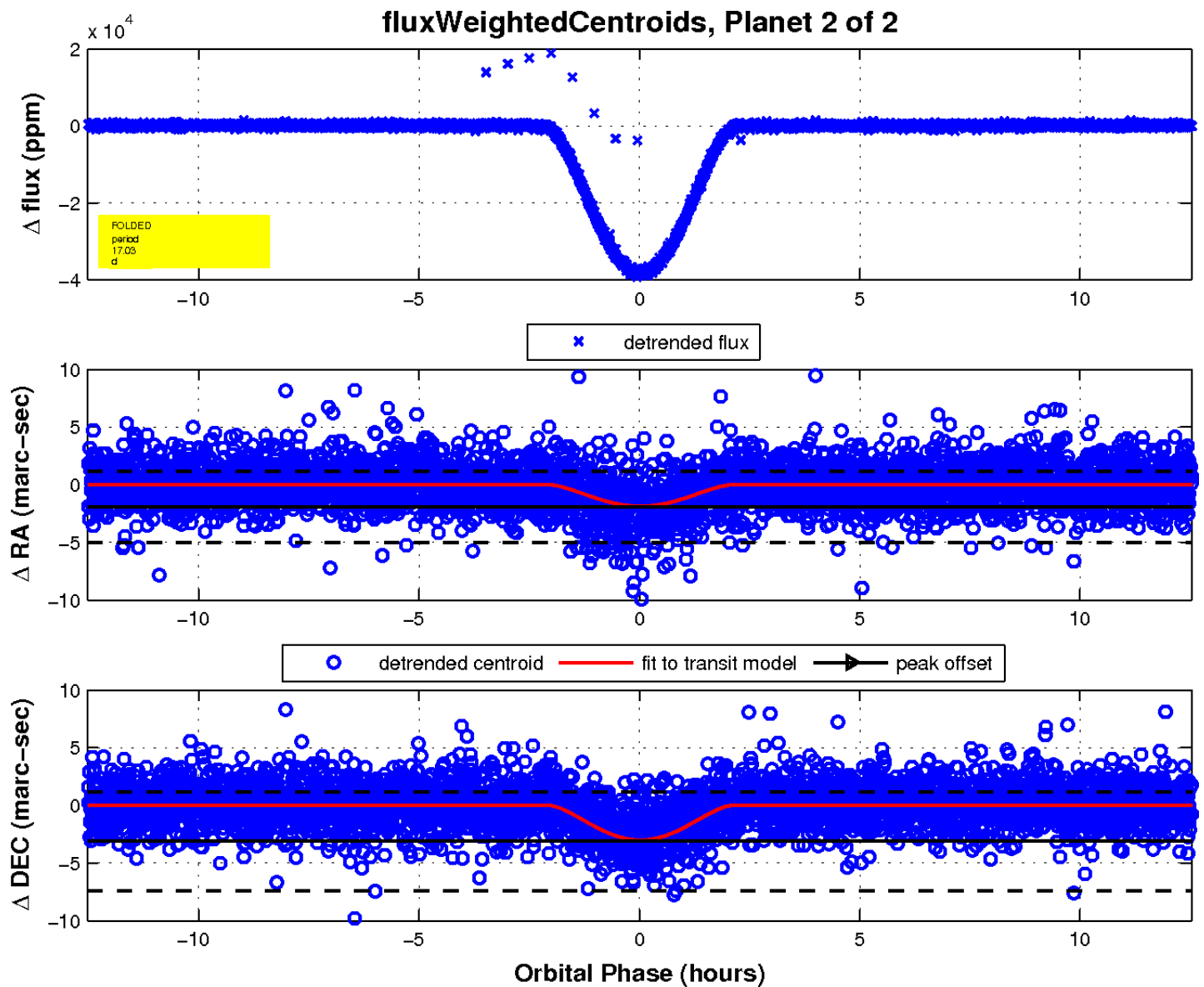
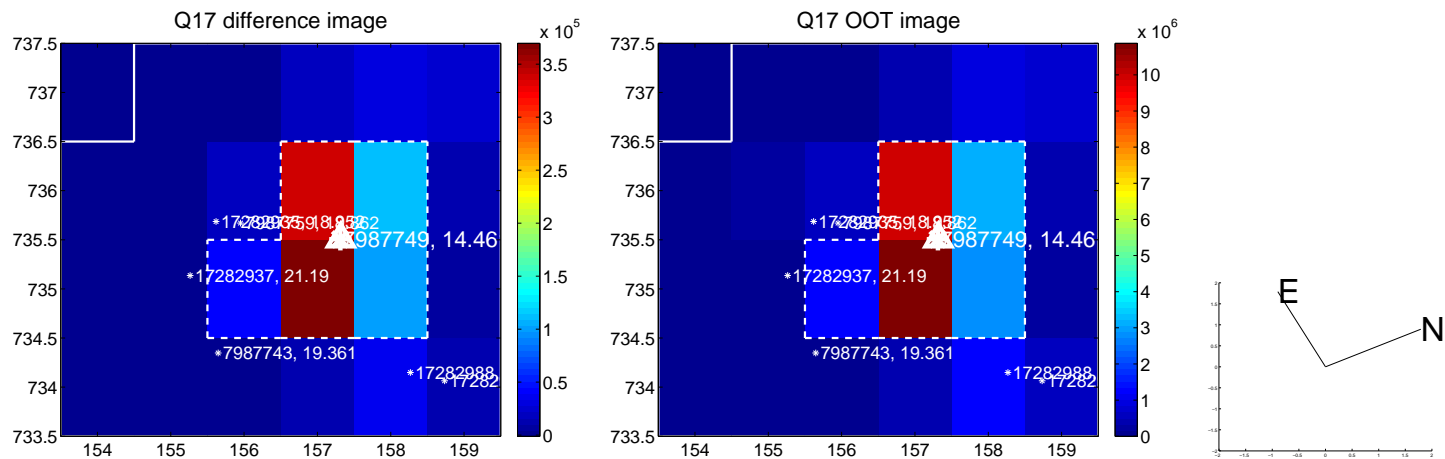
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

