

KIC 005445334

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})
005445334-01	OBS	No	510.259340	500.932486	325.2	5.024	13.2	8.6	0.80	5347	1.51	0.32
005445334-02	OBS	No	530.453474	336.109256	247.7	3.387	8.5	6.9	0.80	5347	1.50	0.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005445334-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005445334-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

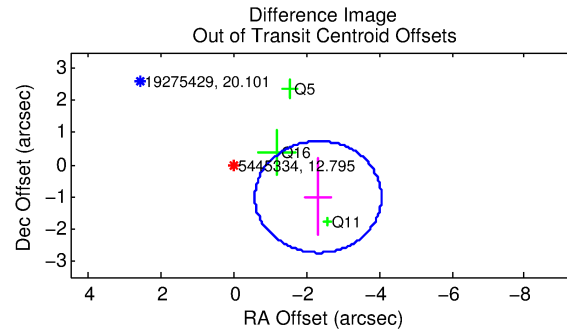
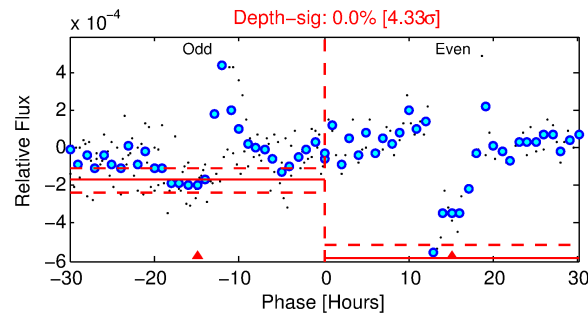
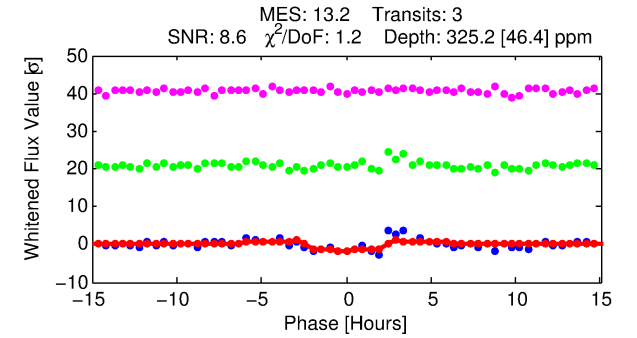
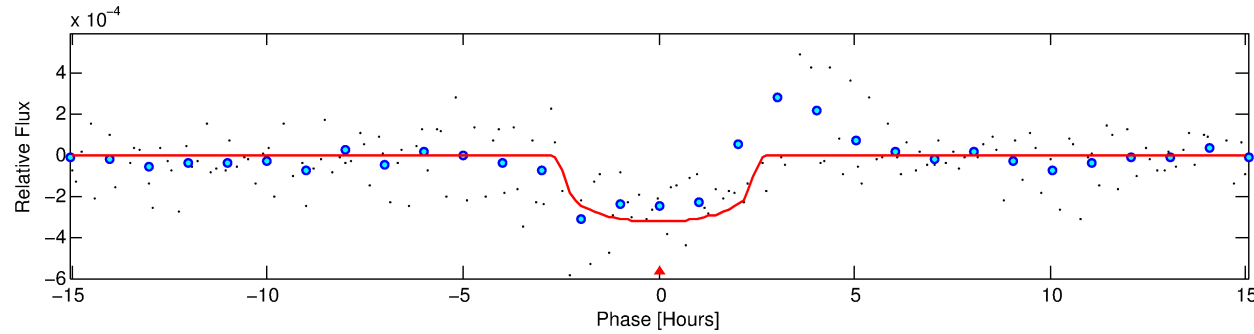
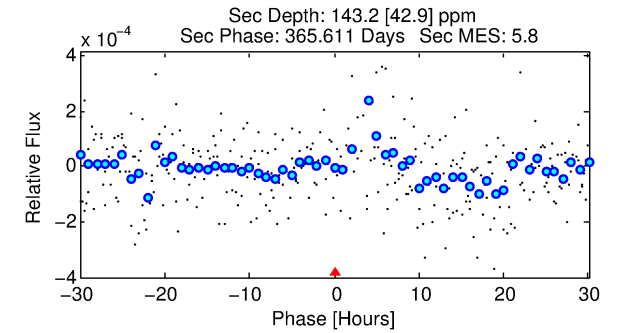
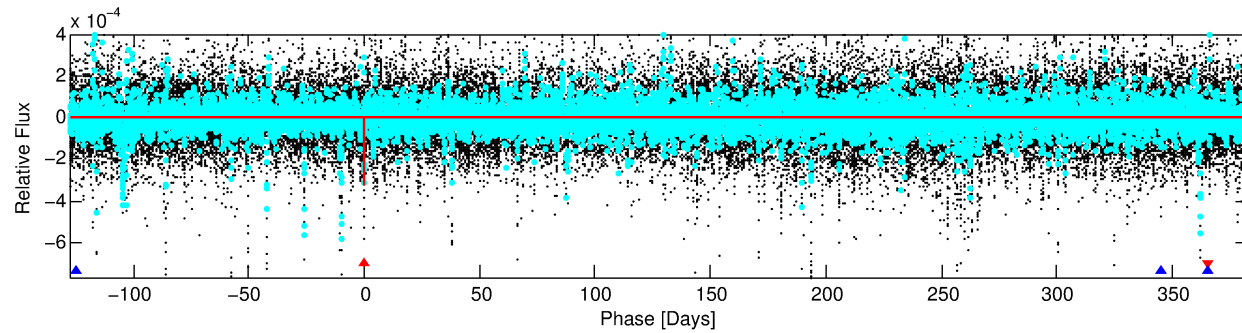
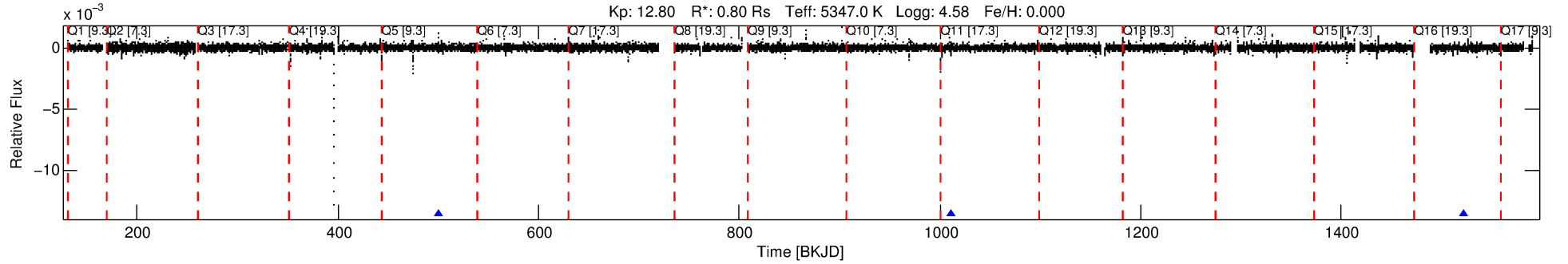
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005445334-01

No Significant Match Found

DV One-Page Summary

KIC: 5445334 Candidate: 1 of 2 Period: 510.259 d



DV Fit Results:

Period = 510.25934 [0.00523] d
Epoch = 500.9325 [0.0065] BKJD
Rp/R* = 0.0173 [0.0216]
a/R* = 611.66 [2928.86]
b = 0.64 [4.43]
Seff = 0.32 [0.05]
Teq = 192 [7] K
Rp = 1.51 [1.90] Re
a = 1.2041 [0.1082] AU
Ag = 49877.90 [125809.68] [0.40 σ]
Teffp = 4445 [2800] K [1.52 σ]

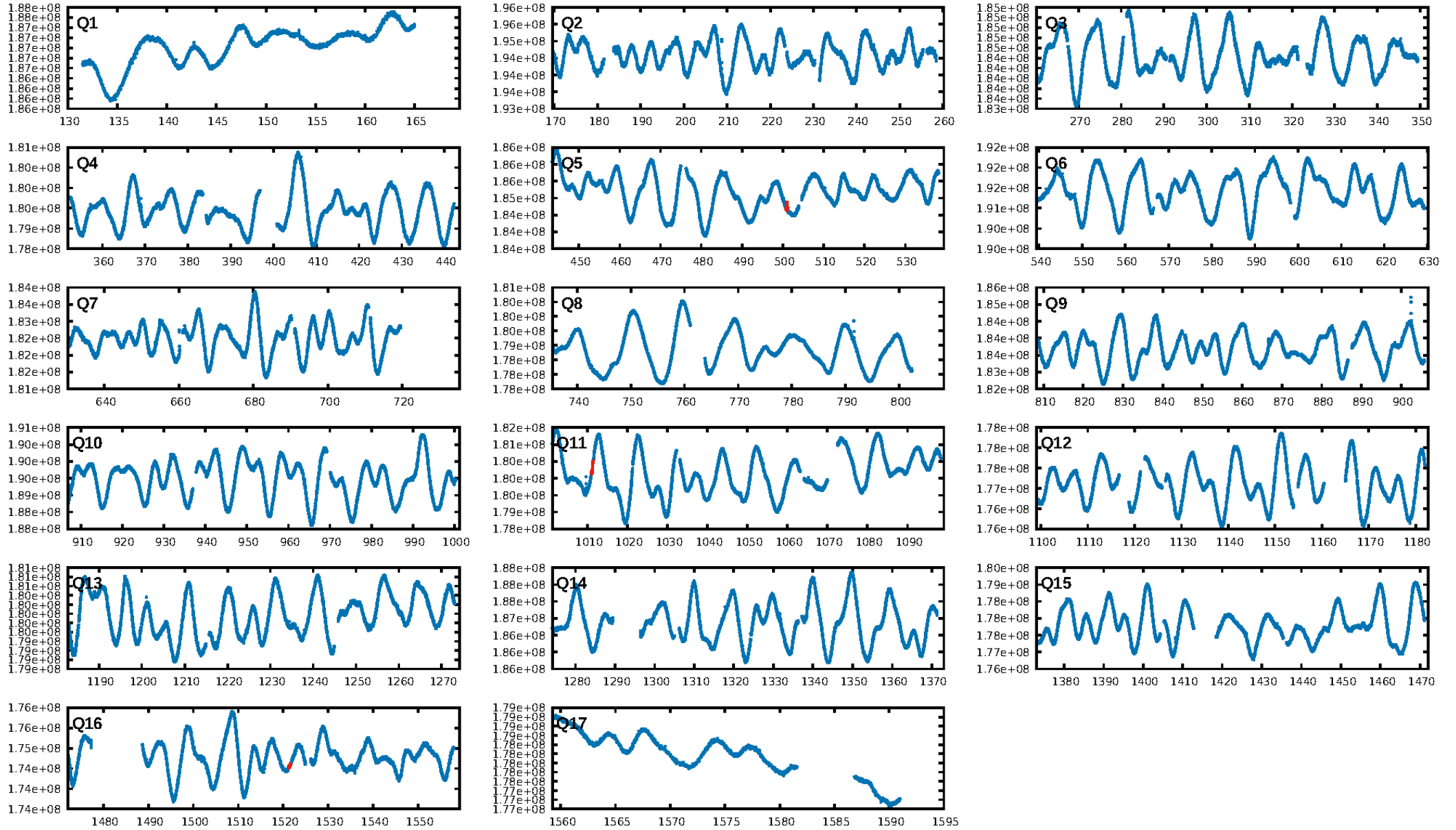
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [80.00 σ]
ModelChiSquare2-sig: 1.5%
ModelChiSquareGof-sig: 62.2%
Bootstrap-pfa: 2.74e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.212
Centroid-sig: 6.3%
Centroid-so: 1.470 arcsec [1.51 σ]
OotOffset-rm: 2.531 arcsec [4.37 σ]
KicOffset-rm: 2.480 arcsec [3.19 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

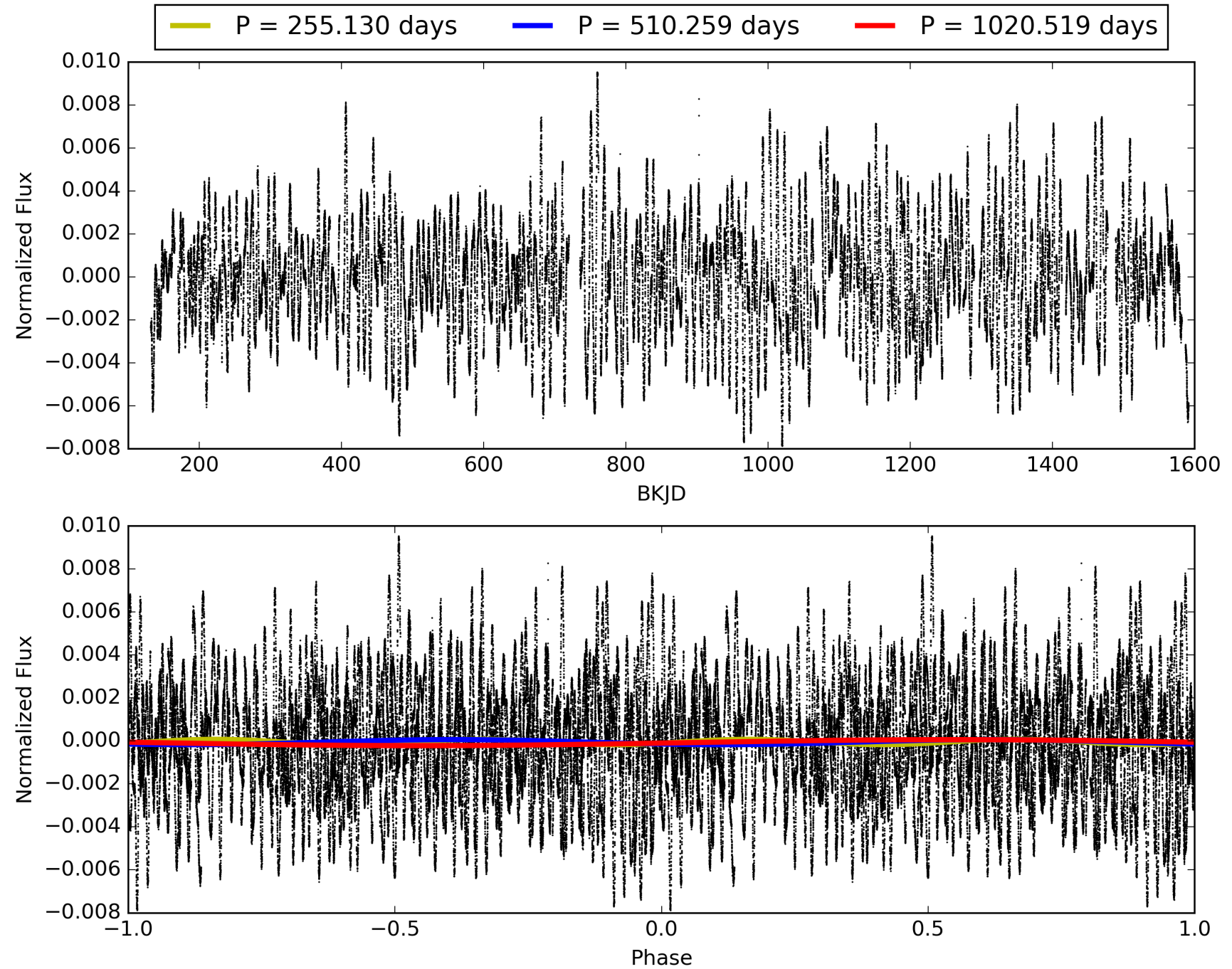
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:08:18 Z

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

TCE 005445334-01, PDC Light Curves

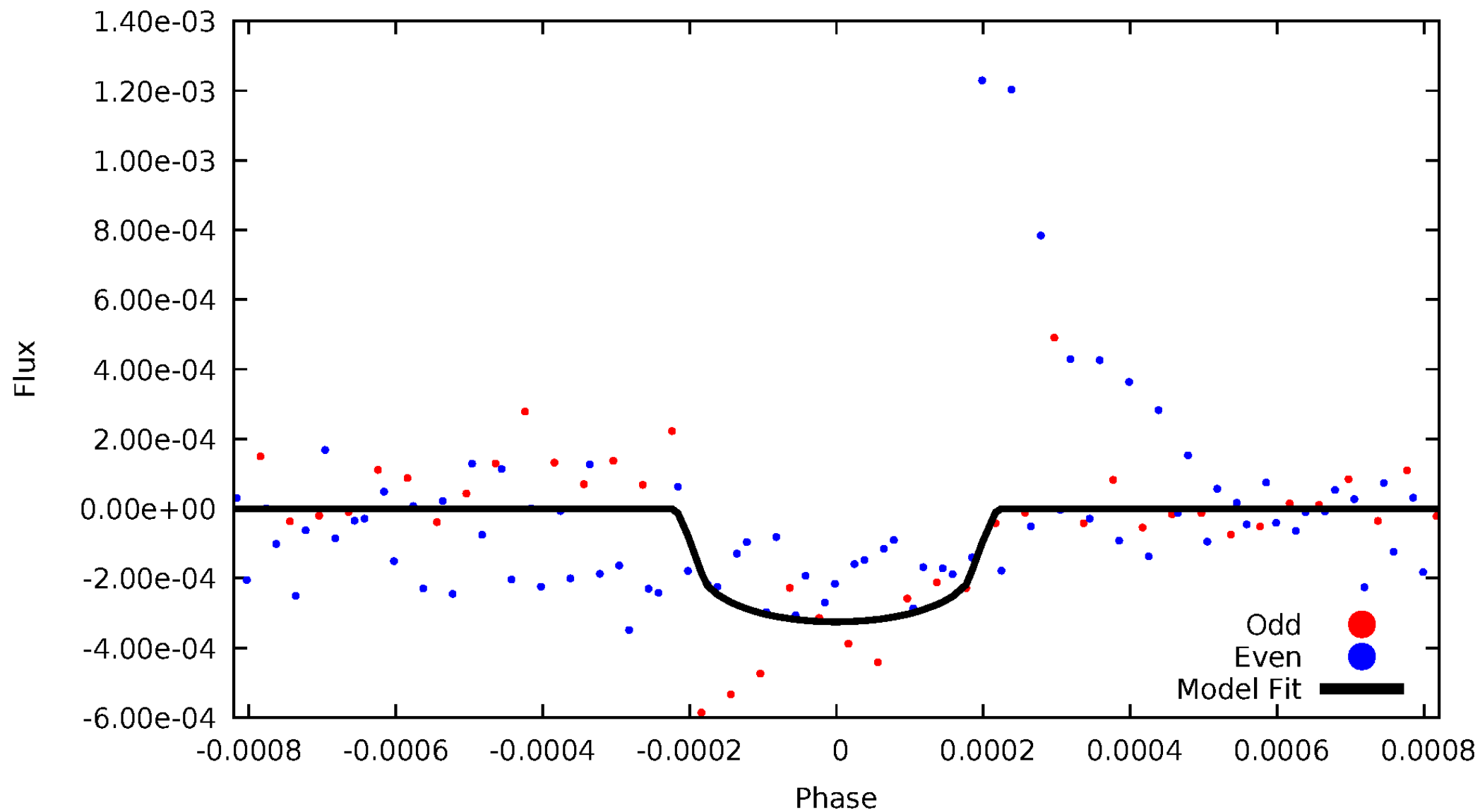


TCE 005445334-01



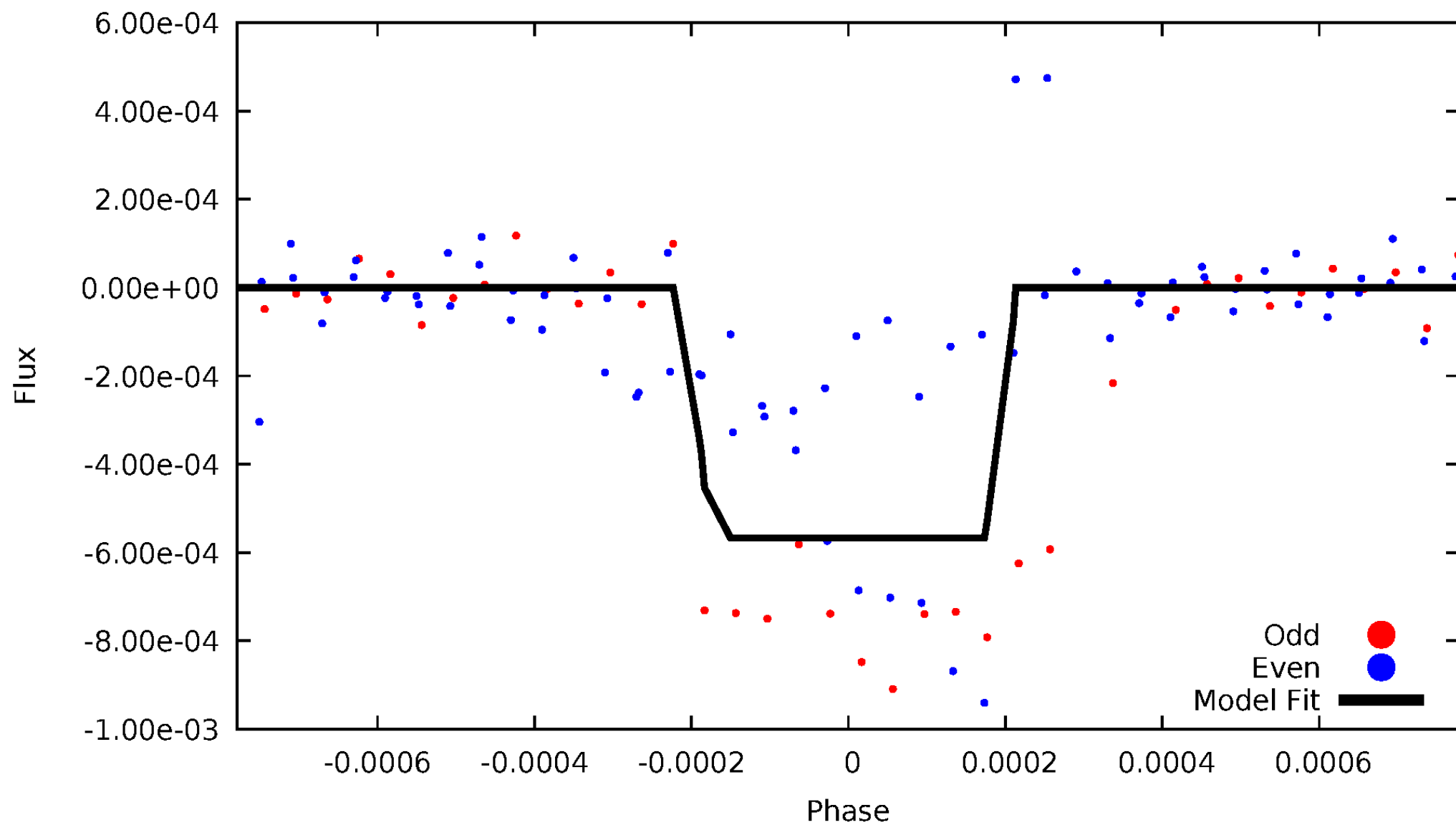
DV Odd/Even

TCE 005445334-01

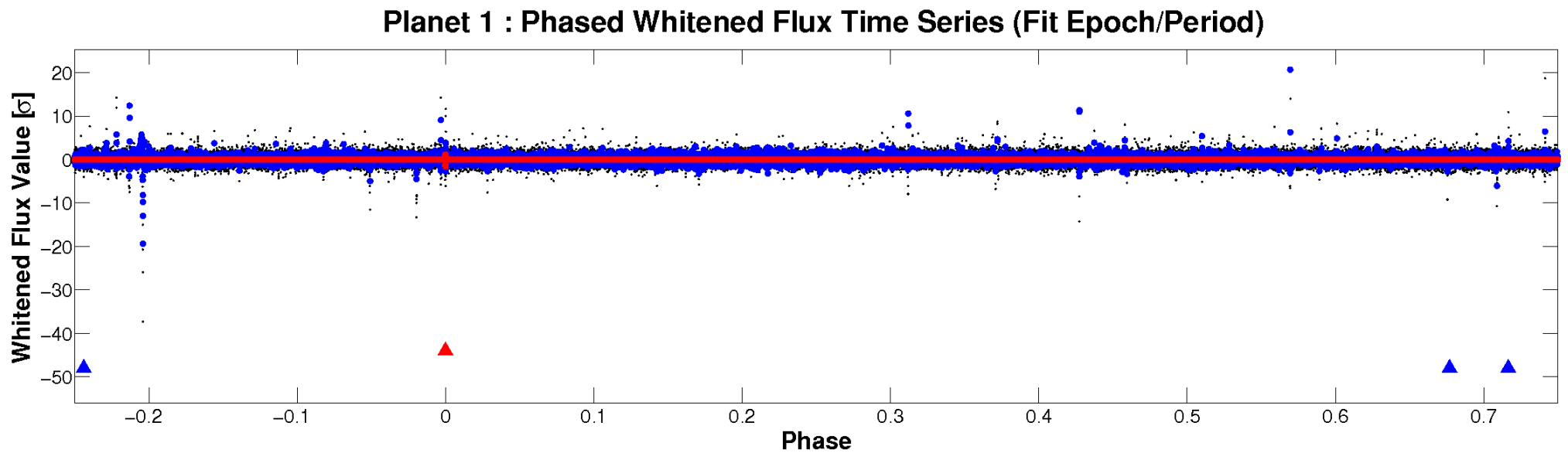
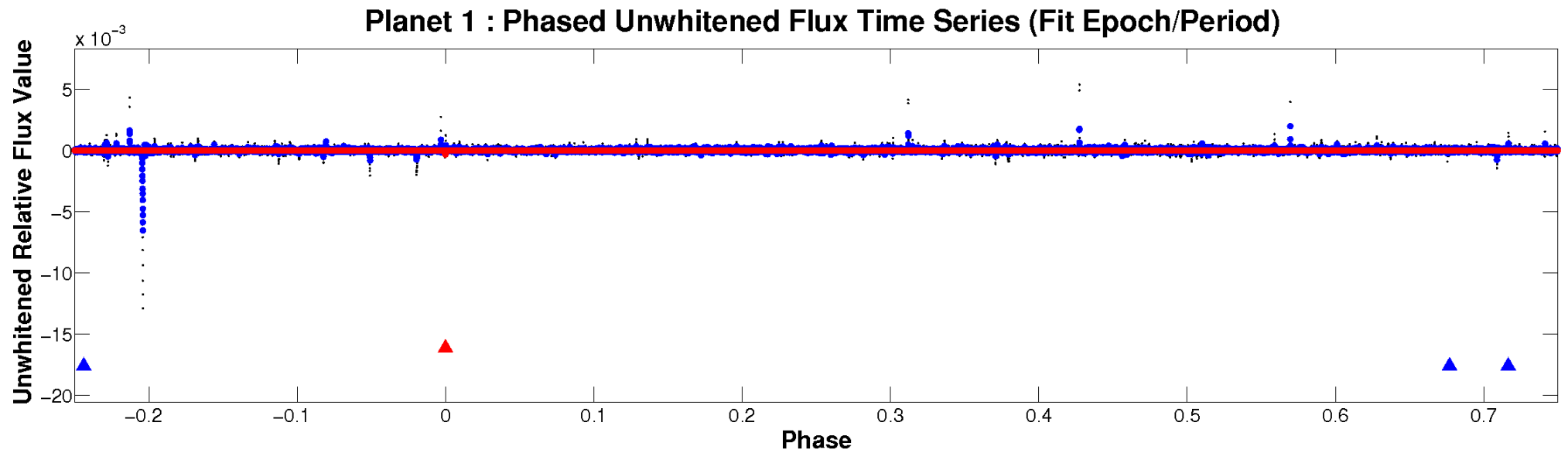


ALT Odd/Even

TCE 005445334-01

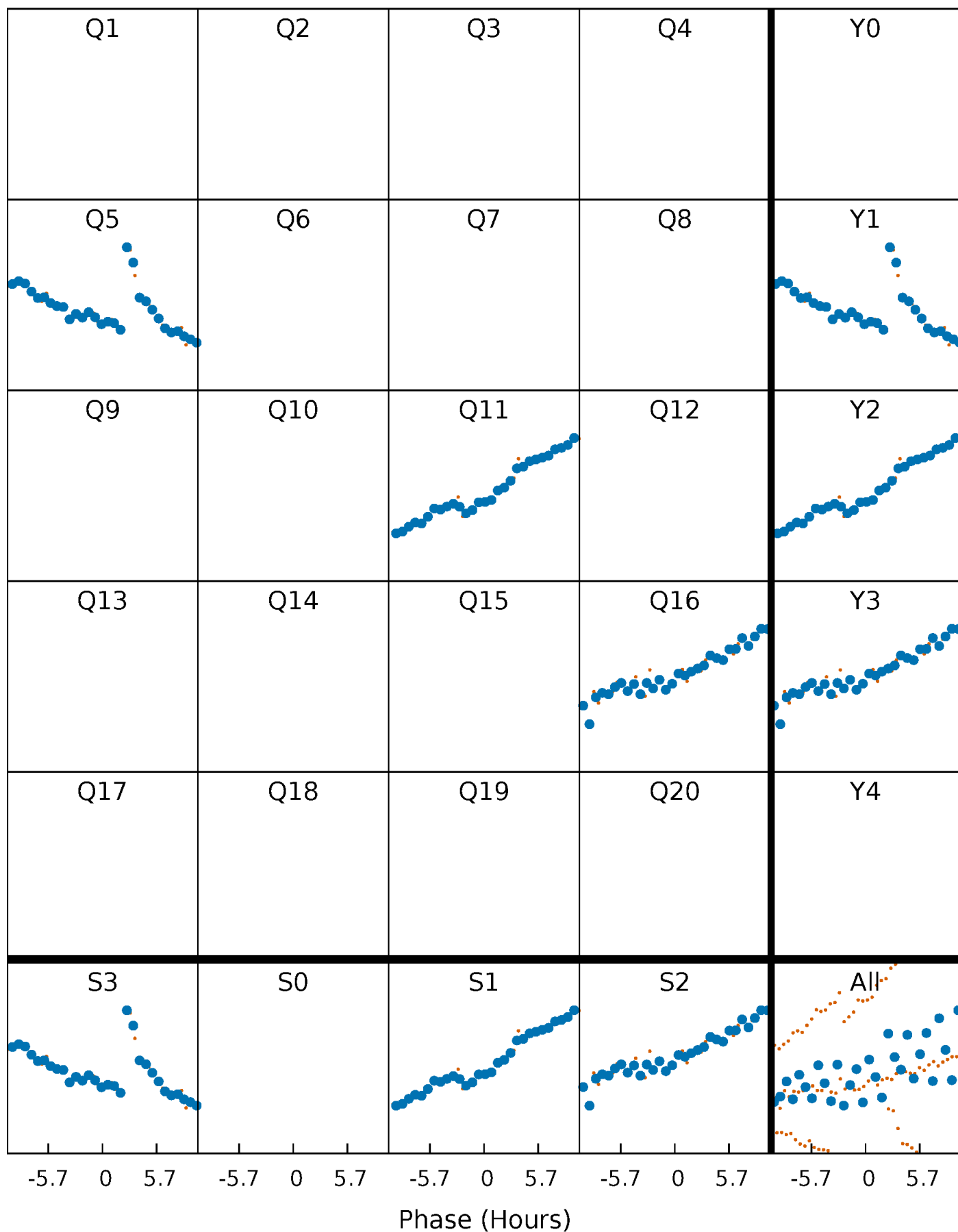


Non-Whitened Vs. Whitened Light Curve



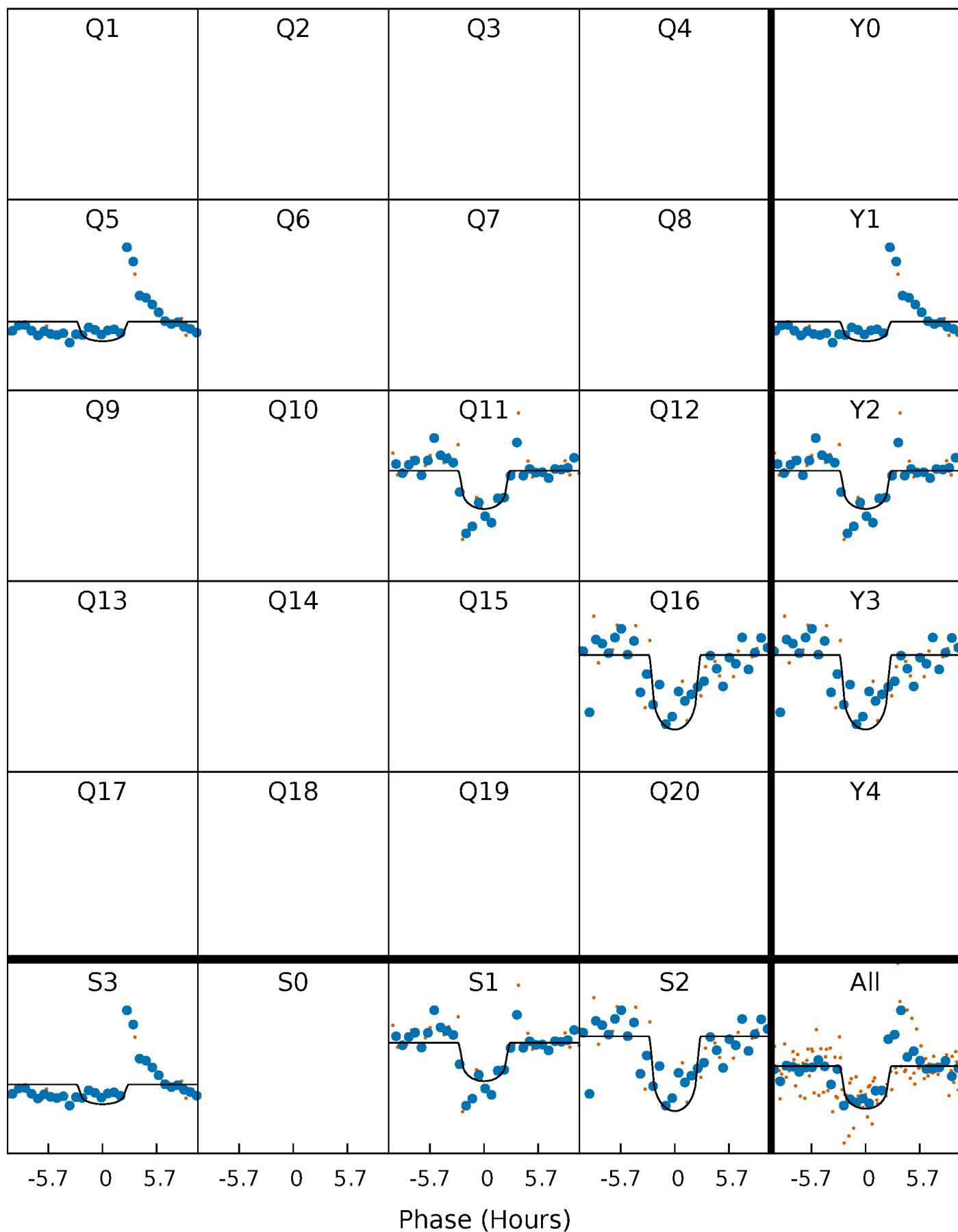
PDC Quarter-Phased Transit Curves

TCE 005445334-01 P=510.259341 Days $T_0=500.932486$ (BKJD)



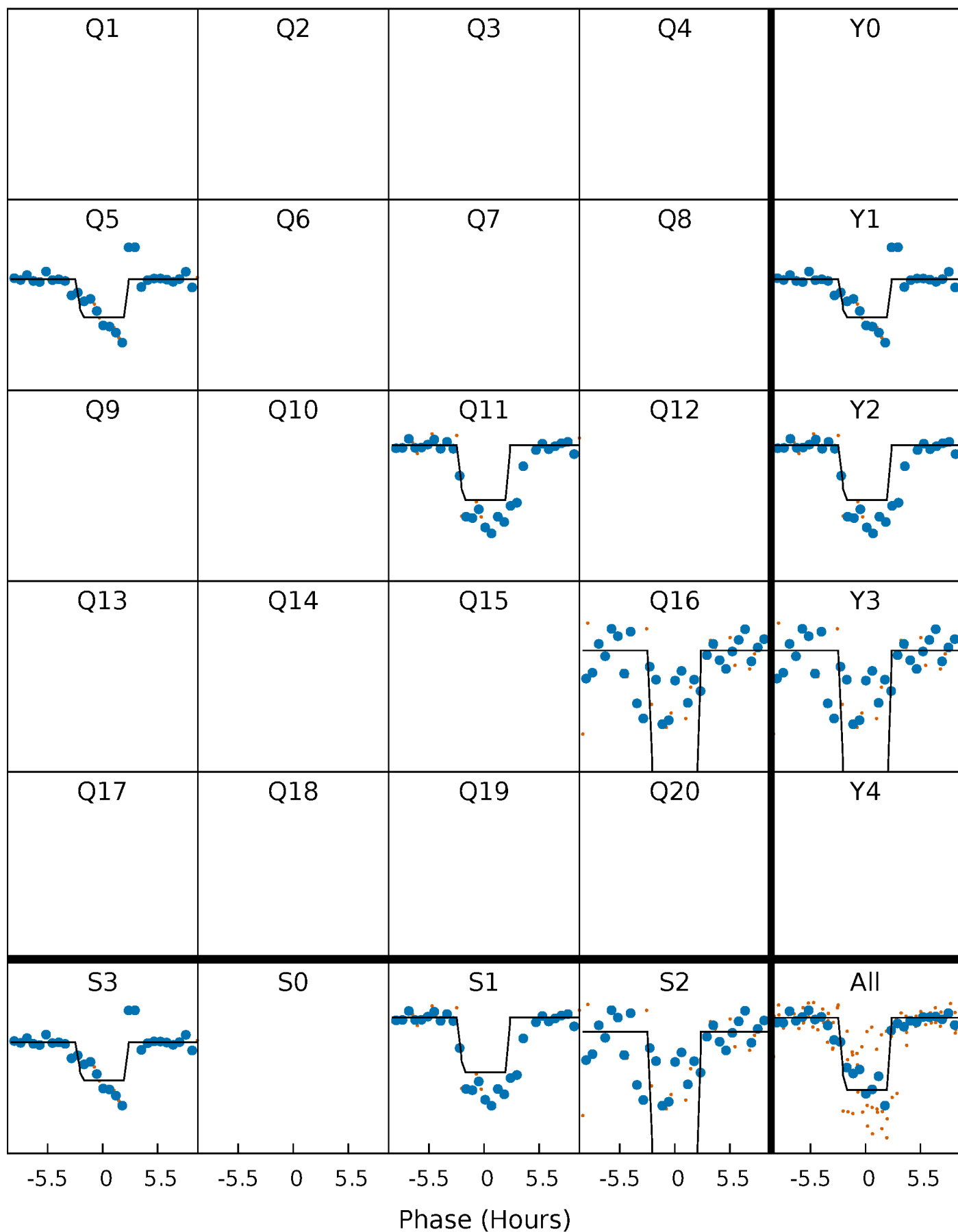
DV Quarter-Phased Transit Curves

TCE 005445334-01 P=510.259341 Days $T_0=500.932486$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

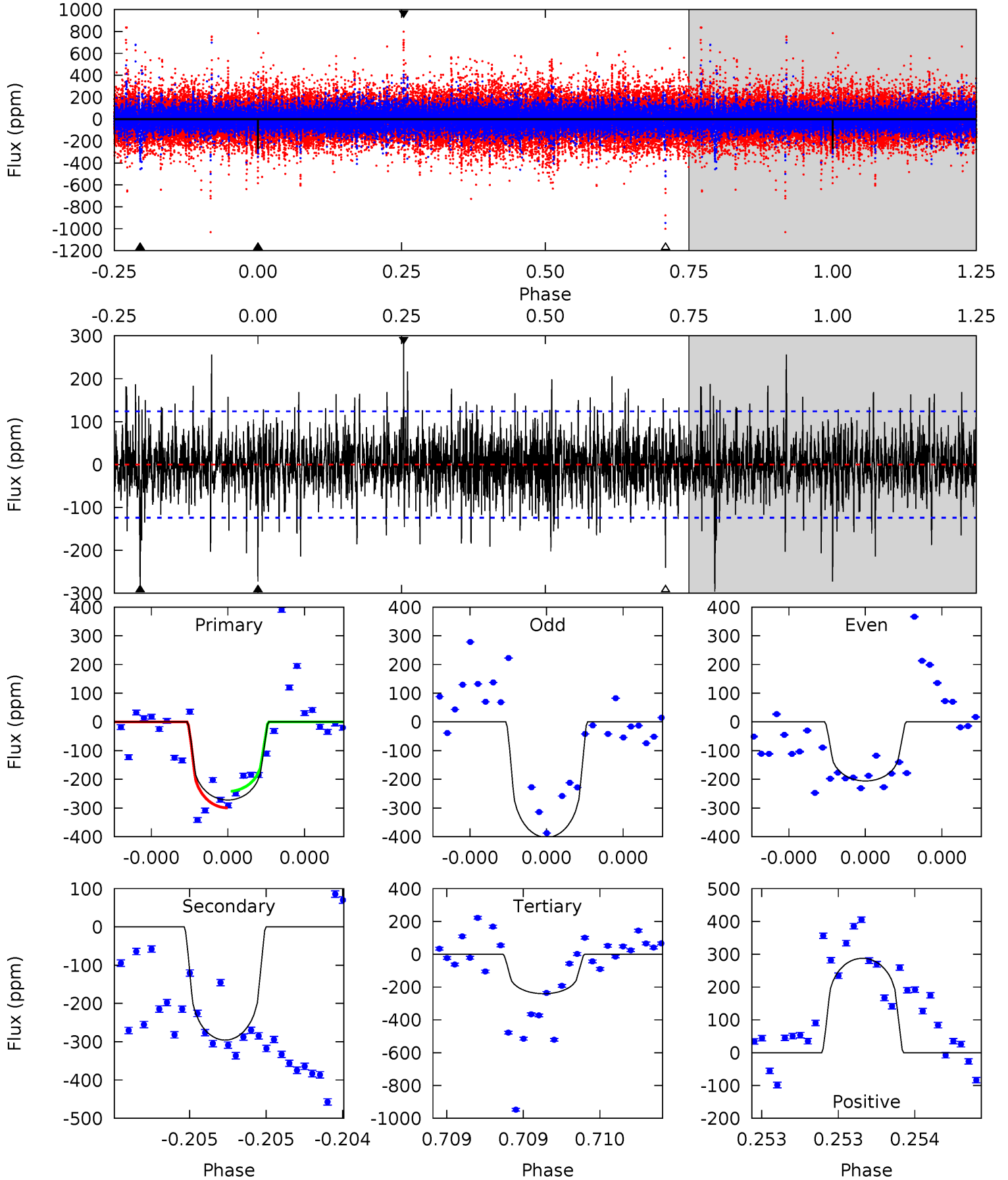
TCE 005445334-01 P=510.266860 Days $T_0=500.924788$ (BKJD)



DV Model-Shift Uniqueness Test

005445334-01, P = 510.259341 Days, E = 500.932486 Days

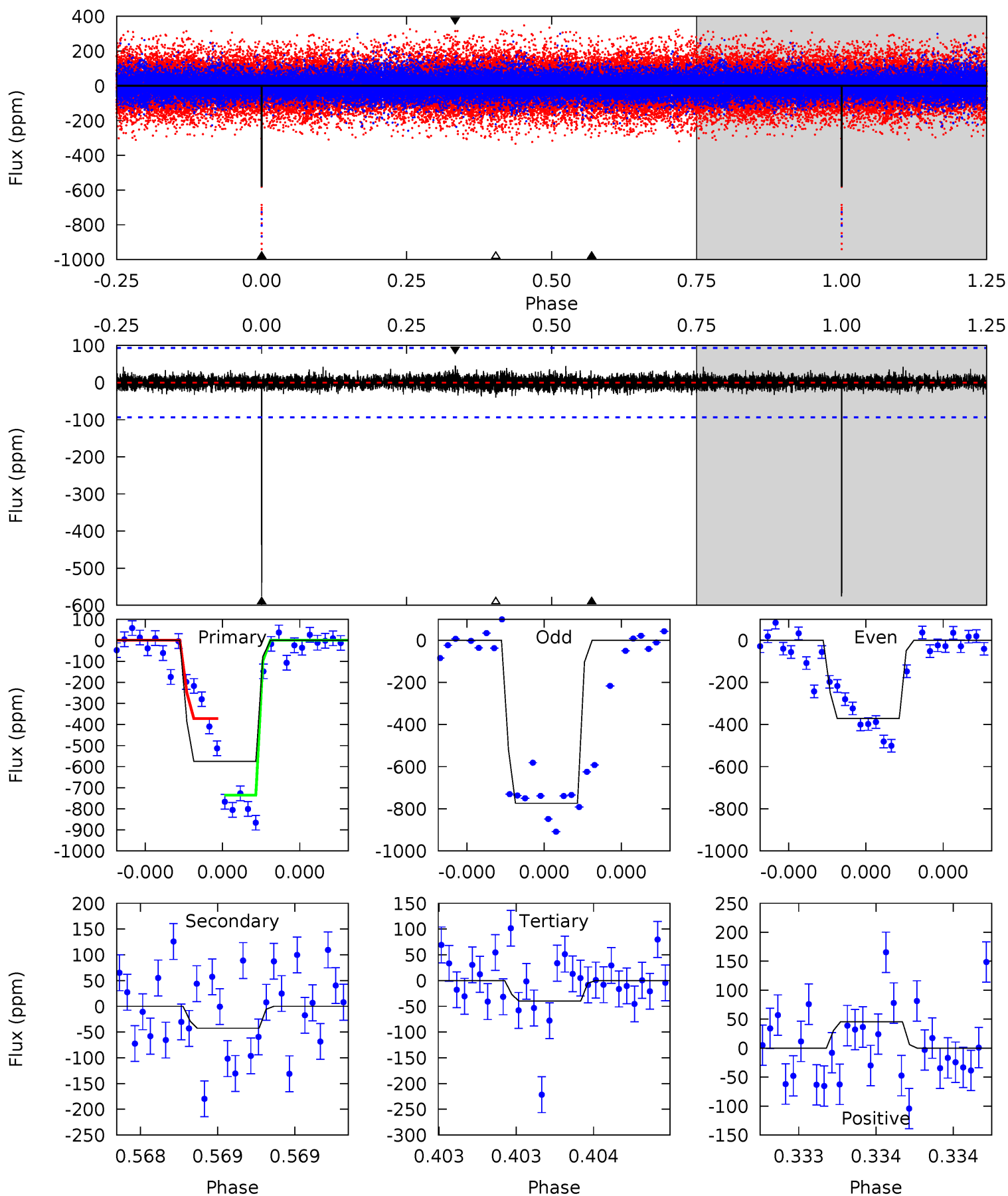
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	13.4	10.9	13.0	5.60	3.53	2.15	1.43	-0.70	2.49	0.37	3.99	1.07	0.49	1.32



Alt Model-Shift Uniqueness Test

005445334-01, P = 510.266860 Days, E = 500.924788 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.6	2.55	2.39	2.72	5.61	3.54	0.54	32.2	31.8	0.16	-0.18	13.1	0.87	0.07	11.2



Stellar Parameters For KIC 005445334

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5347^{+74}_{-85}	$4.582^{+0.013}_{-0.081}$	$0.000^{+0.150}_{-0.150}$	$0.801^{+0.078}_{-0.028}$	$0.899^{+0.032}_{-0.069}$	$2.460^{+0.176}_{-0.595}$
	+1%/-2%	+0%/-2%	+inf%/-inf%	+10%/-3%	+4%/-8%	+7%/-24%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005445334-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-296 ± 22	$2.00^{+1.84}_{-1.24}$	272^{+6}_{-6}	4779^{+2935}_{-1013}	$58088^{+345265}_{-42213}$
Alt.	-42 ± 17	$2.43^{+1.77}_{-1.48}$	272^{+8}_{-6}	3163^{+1238}_{-486}	5242^{+33439}_{-3650}

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

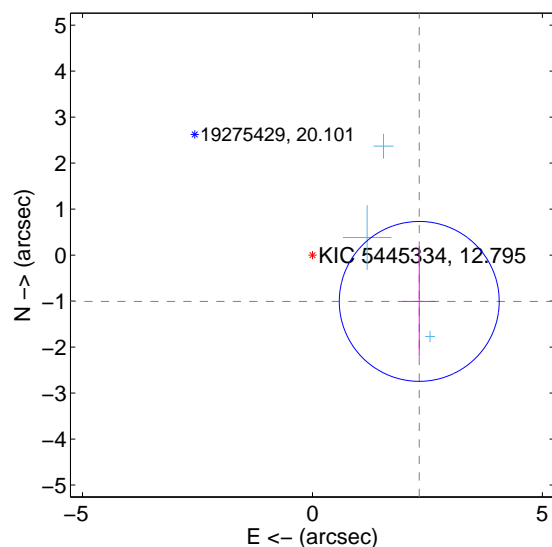
Supplemental centroid analysis for 005445334-01. Kepler magnitude: 12.79. Transit SNR 8.62

There are 3 quarters with good PRF difference image offsets

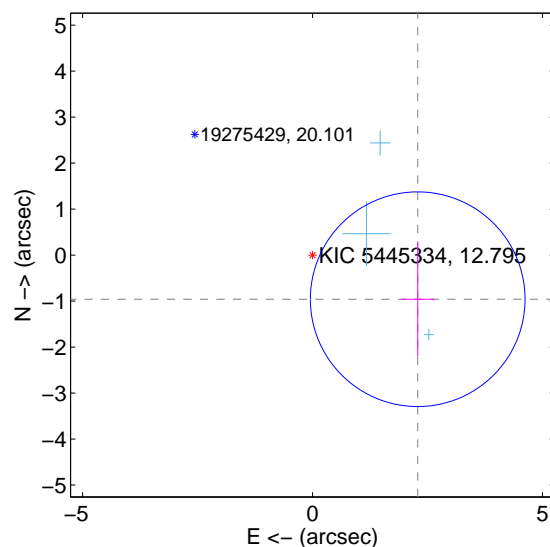
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.531 ± 0.579	4.37	-2.322 ± 0.359	-1.007 ± 1.199
PRF-fit source offset from KIC position	2.480 ± 0.778	3.19	-2.287 ± 0.361	-0.959 ± 1.241
photometric centroid source offset	1.47 ± 0.97	1.51	-1.25 ± 0.98	-0.78 ± 0.95

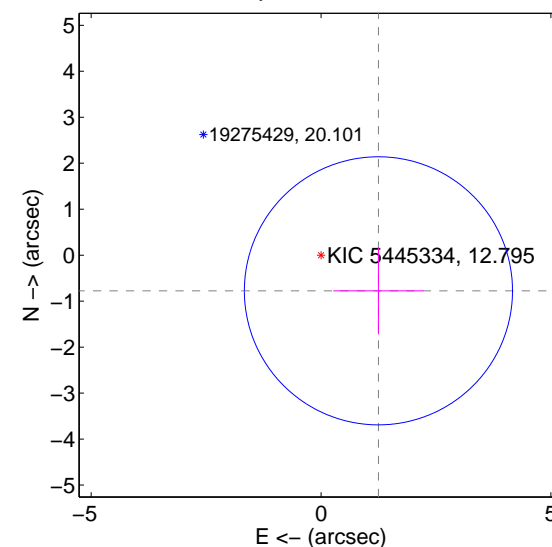
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

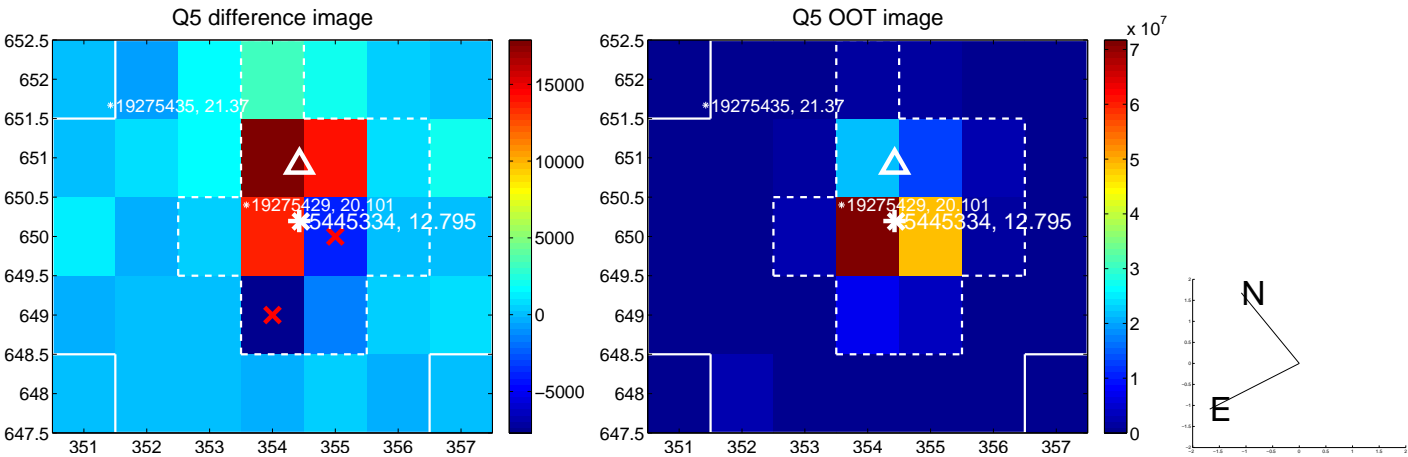


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

Q9 no difference image



Q9 no OOT image



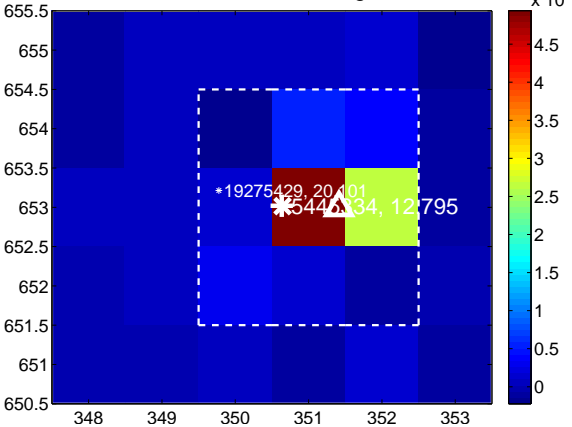
Q10 no difference image



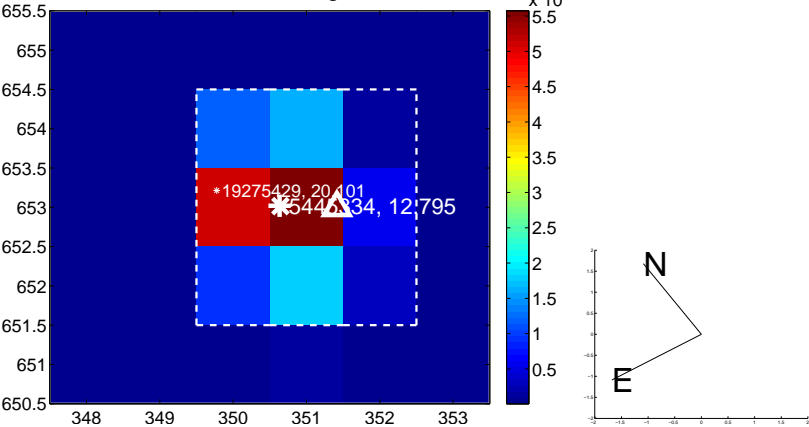
Q10 no OOT image



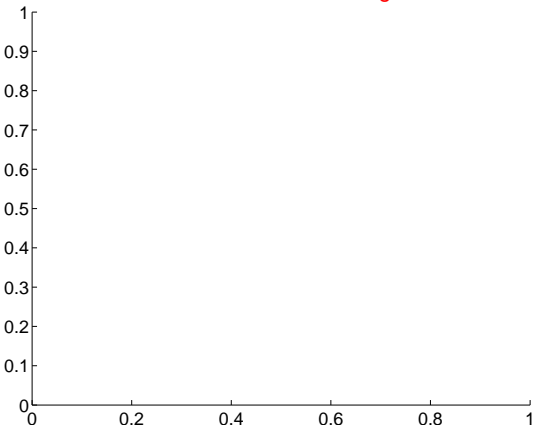
Q11 difference image



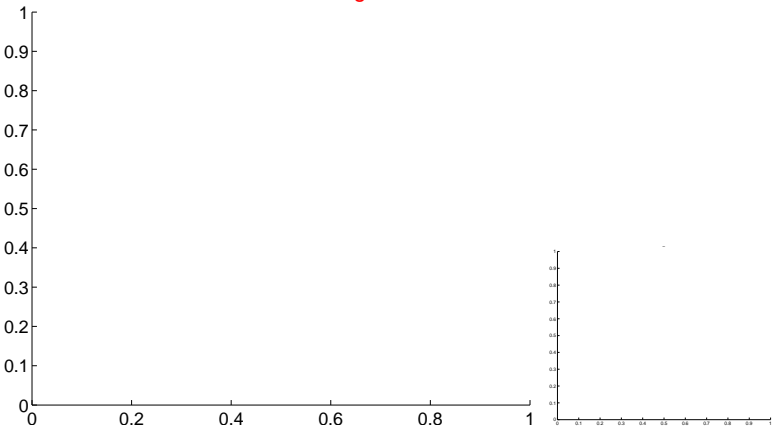
Q11 OOT image



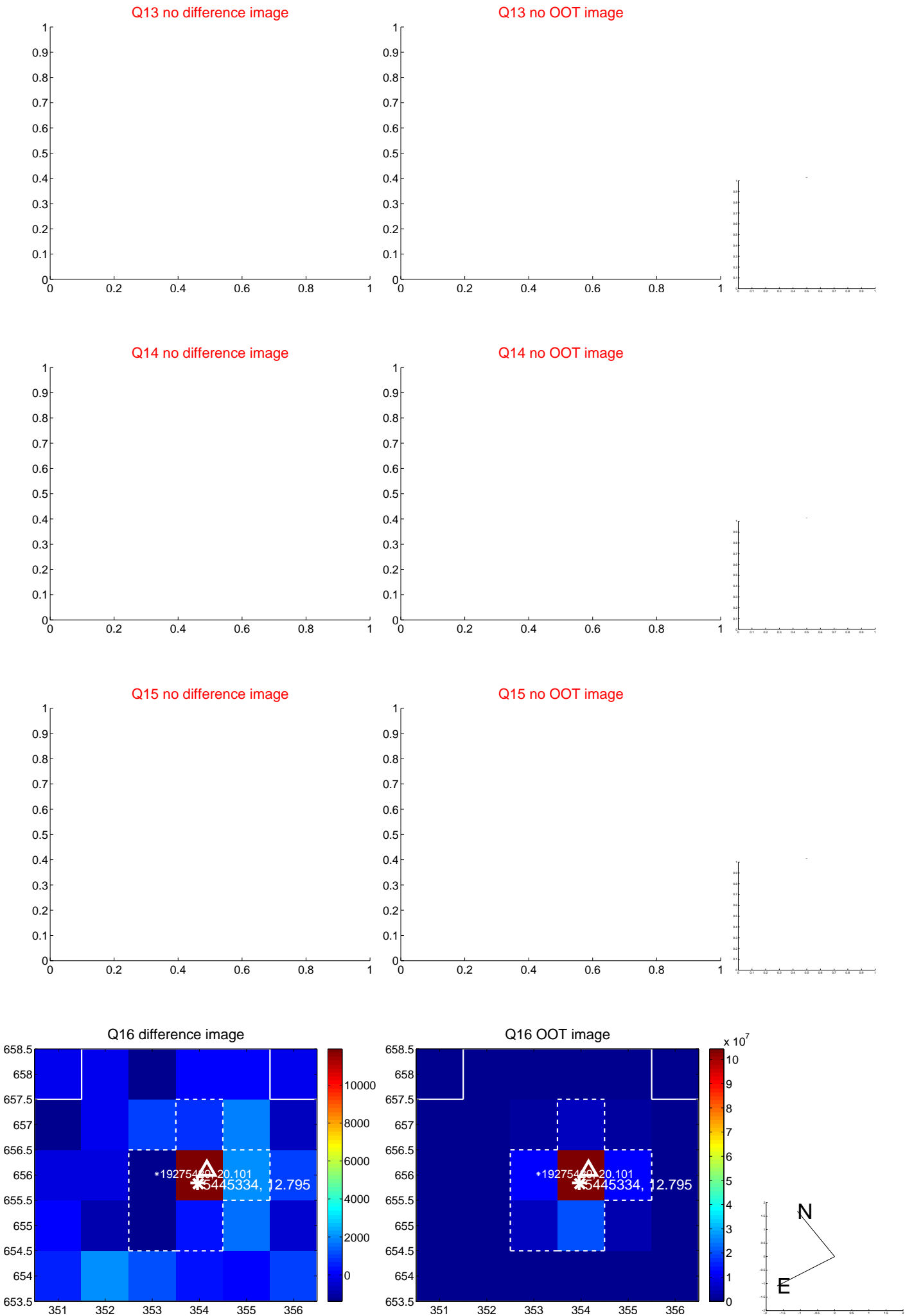
Q12 no difference image



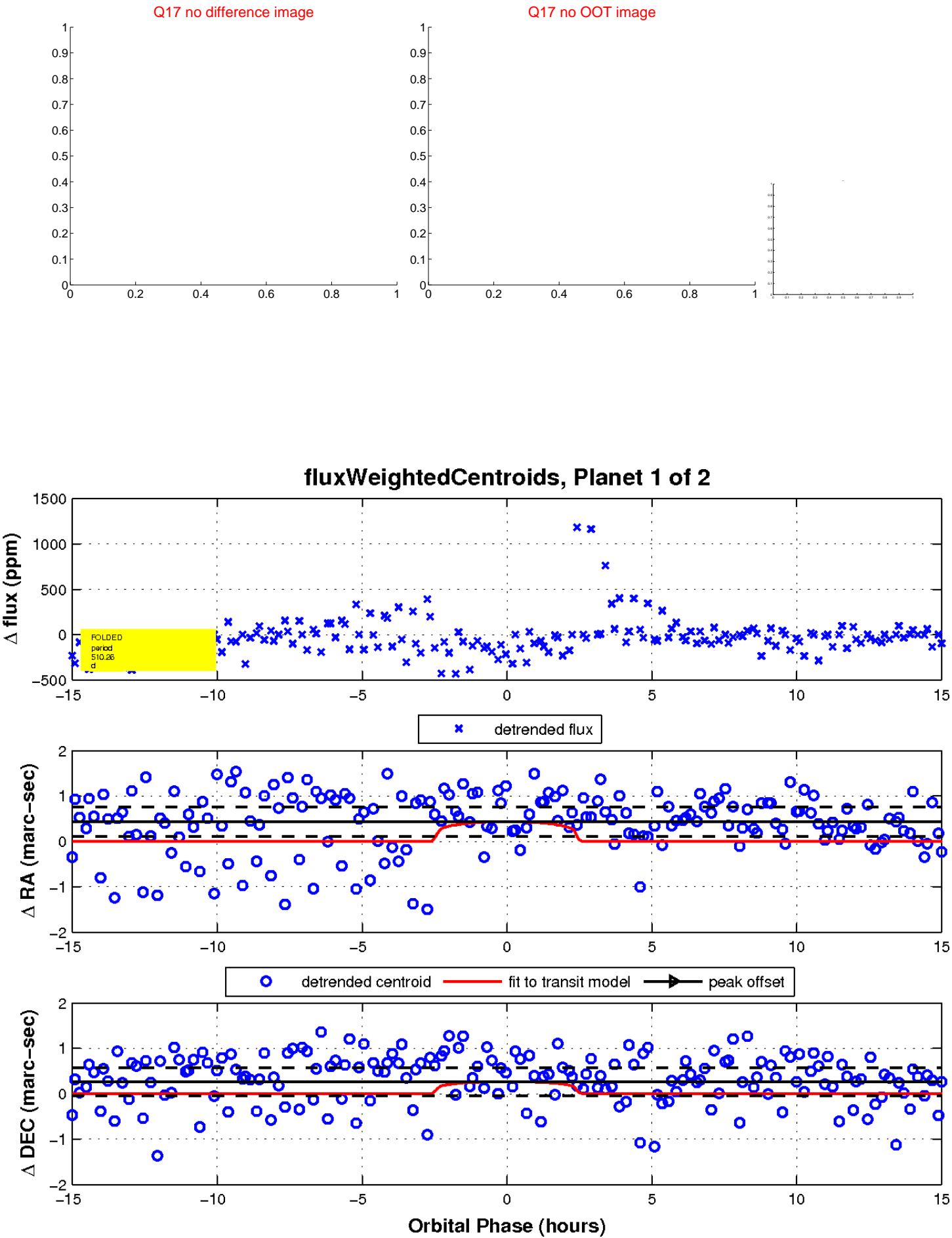
Q12 no OOT image



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

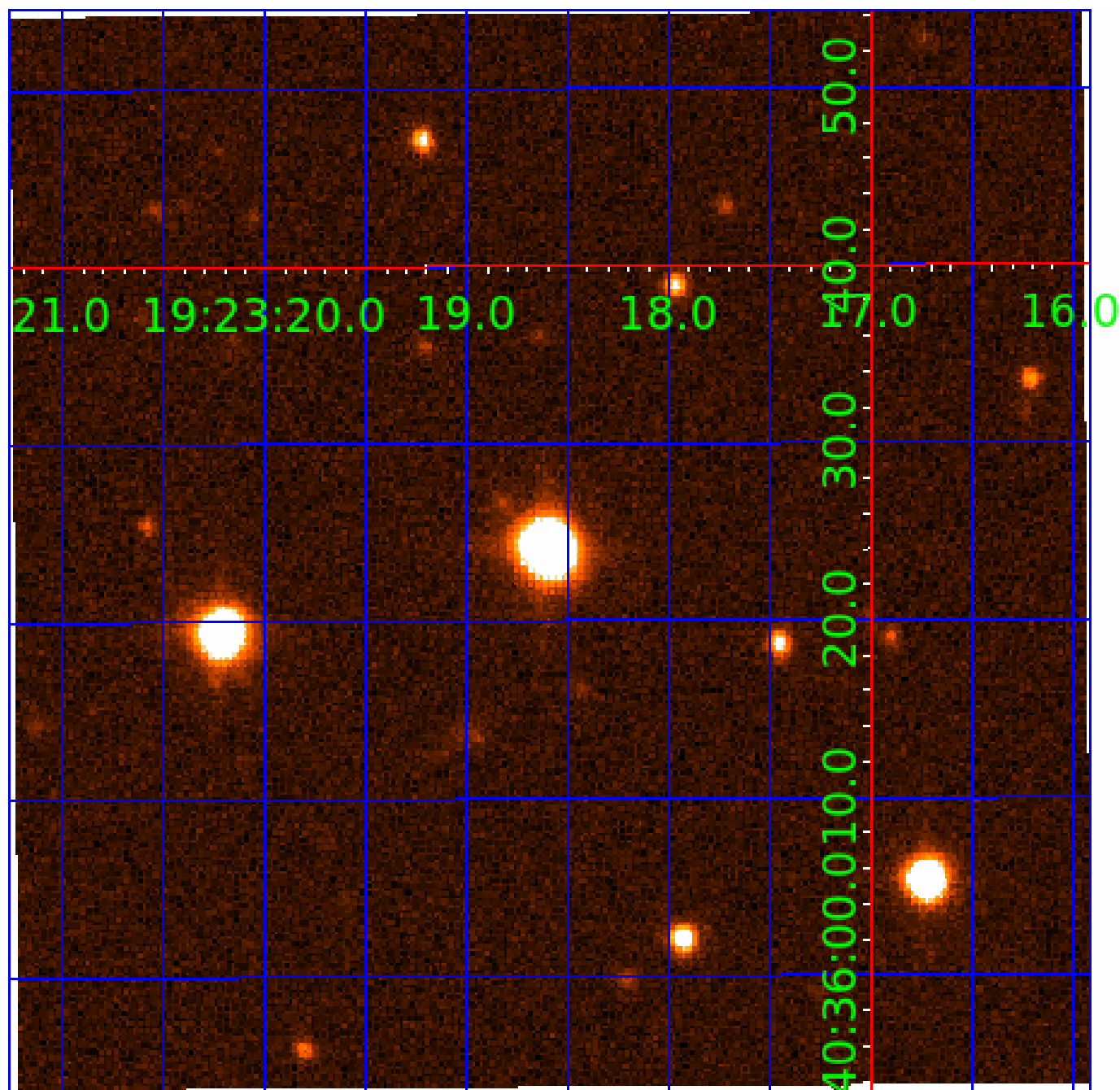


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005445334

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})
005445334-01	OBS	No	510.259340	500.932486	325.2	5.024	13.2	8.6	0.80	5347	1.51	0.32
005445334-02	OBS	No	530.453474	336.109256	247.7	3.387	8.5	6.9	0.80	5347	1.50	0.31

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005445334-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
005445334-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

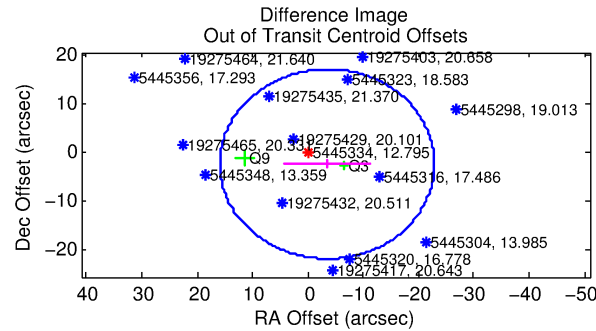
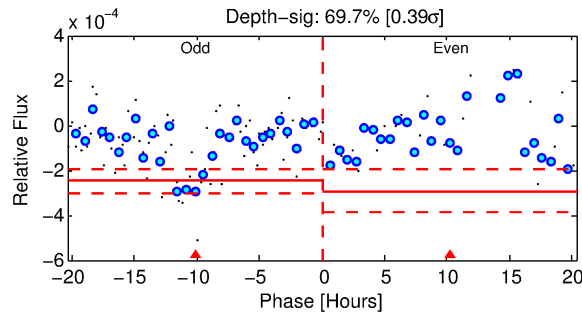
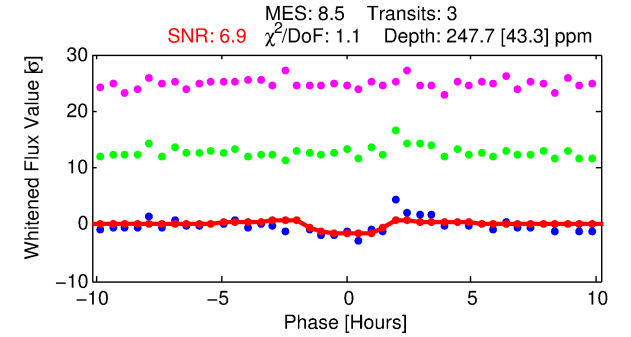
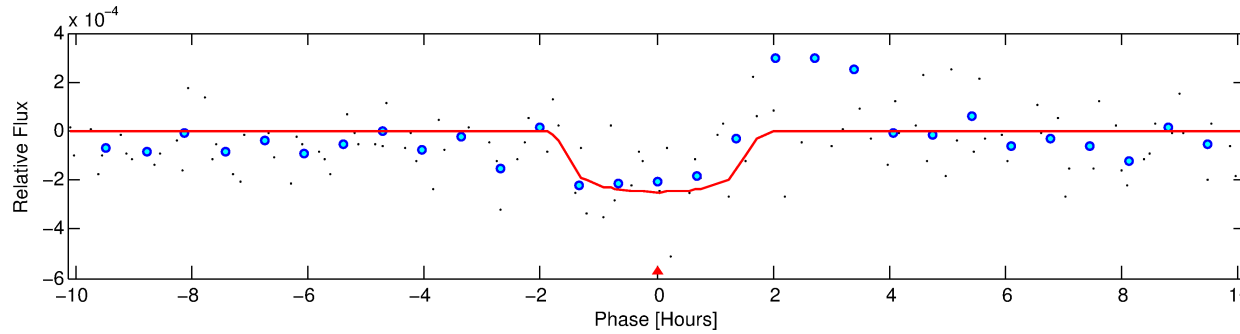
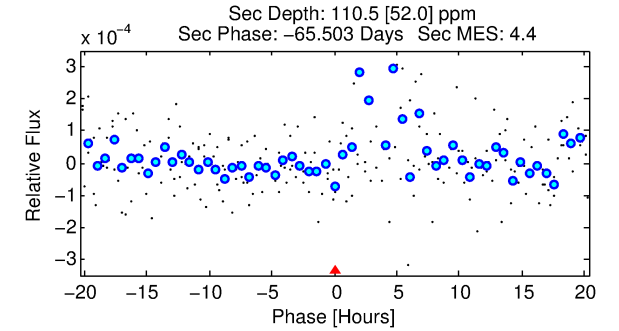
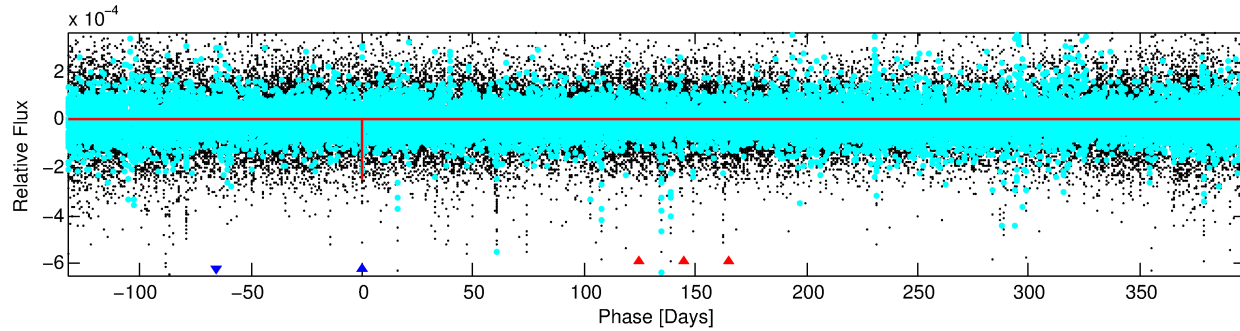
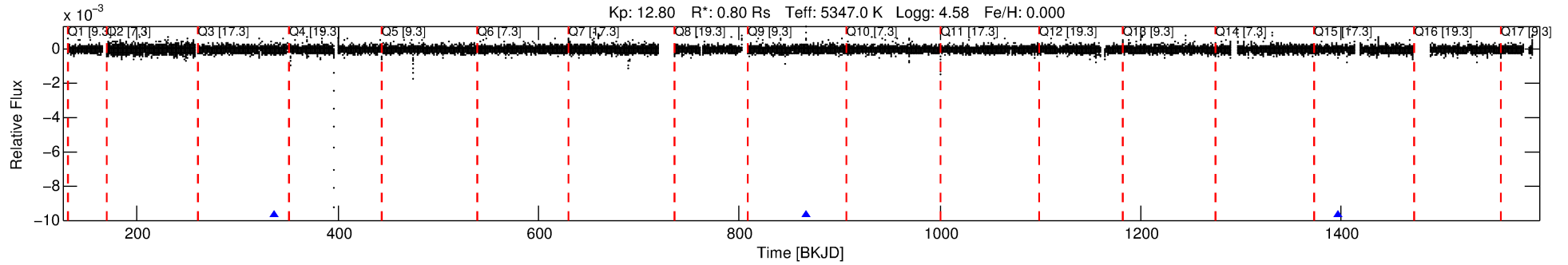
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005445334-02

No Significant Match Found

DV One-Page Summary

KIC: 5445334 Candidate: 2 of 2 Period: 530.453 d



DV Fit Results:

Period = 530.45347 [0.00642] d
Epoch = 336.1093 [0.0087] BKJD
Rp/R* = 0.0171 [0.0179]
a/R* = 601.42 [2645.84]
b = 0.88 [1.11]
Seff = 0.31 [0.05]
Teq = 190 [7] K
Rp = 1.50 [1.57] Re
a = 1.2356 [0.1111] AU
Ag = 41523.54 [89426.50] [0.46 σ]
Teffp = 4192 [2253] K [1.78 σ]

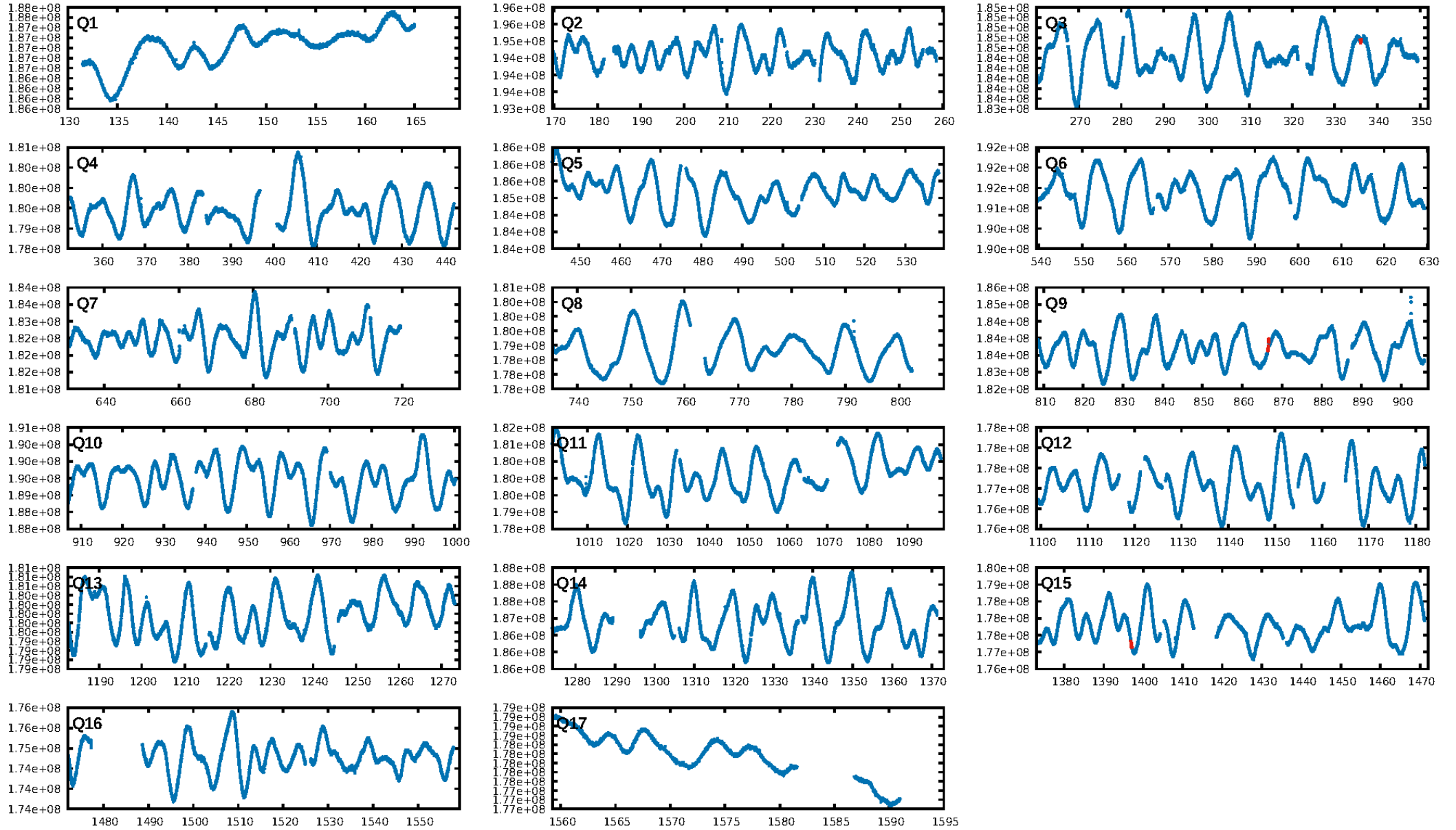
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [80.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 80.5%
ModelChiSquareGof-sig: 95.4%
Bootstrap-pfa: 3.74e-06
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.1926
Centroid-sig: 55.5%
Centroid-so: 0.897 arcsec [0.71 σ]
OotOffset-rm: 4.193 arcsec [0.65 σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: 4.158 arcsec [0.63 σ]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

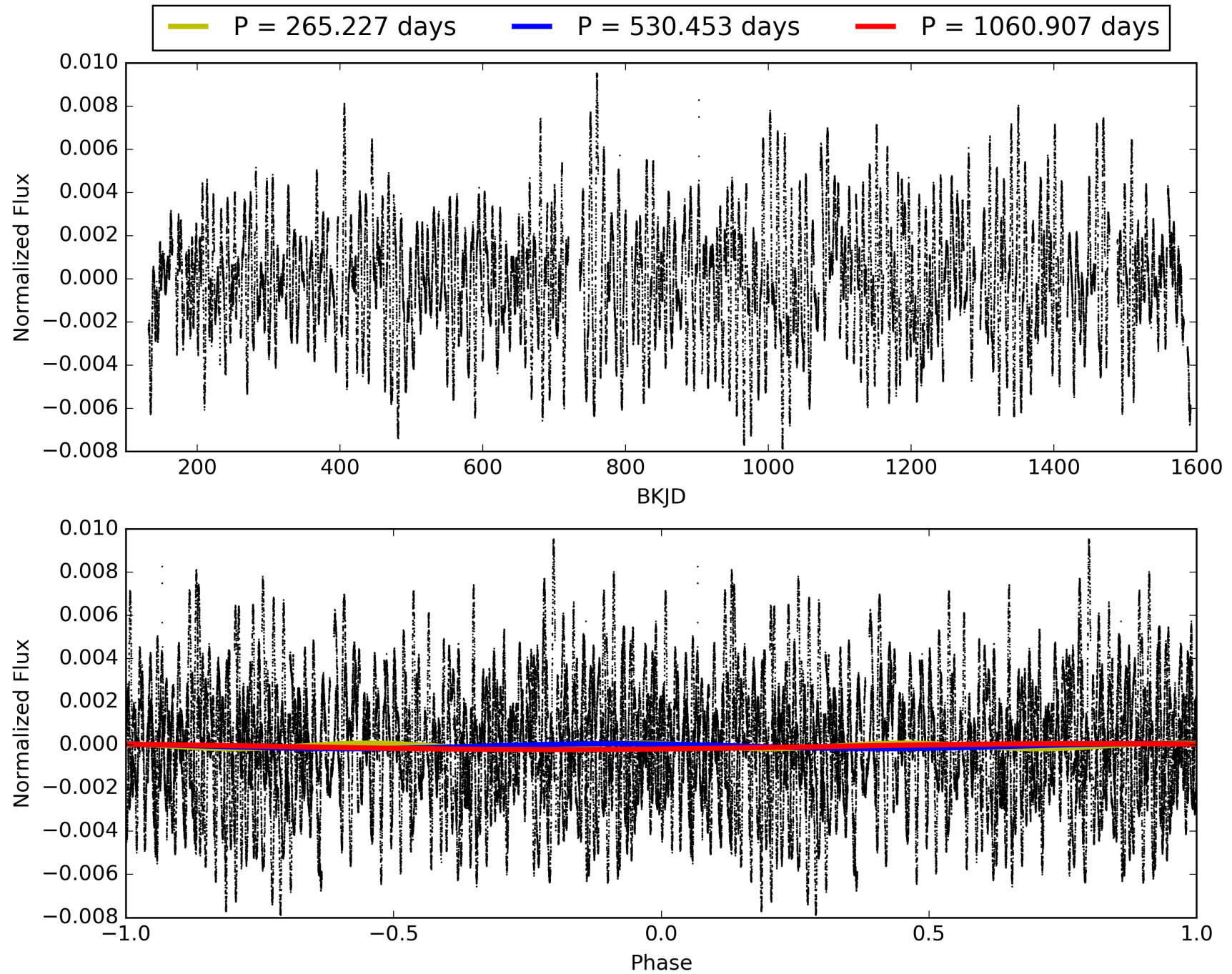
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:08:39 Z

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

TCE 005445334-02, PDC Light Curves

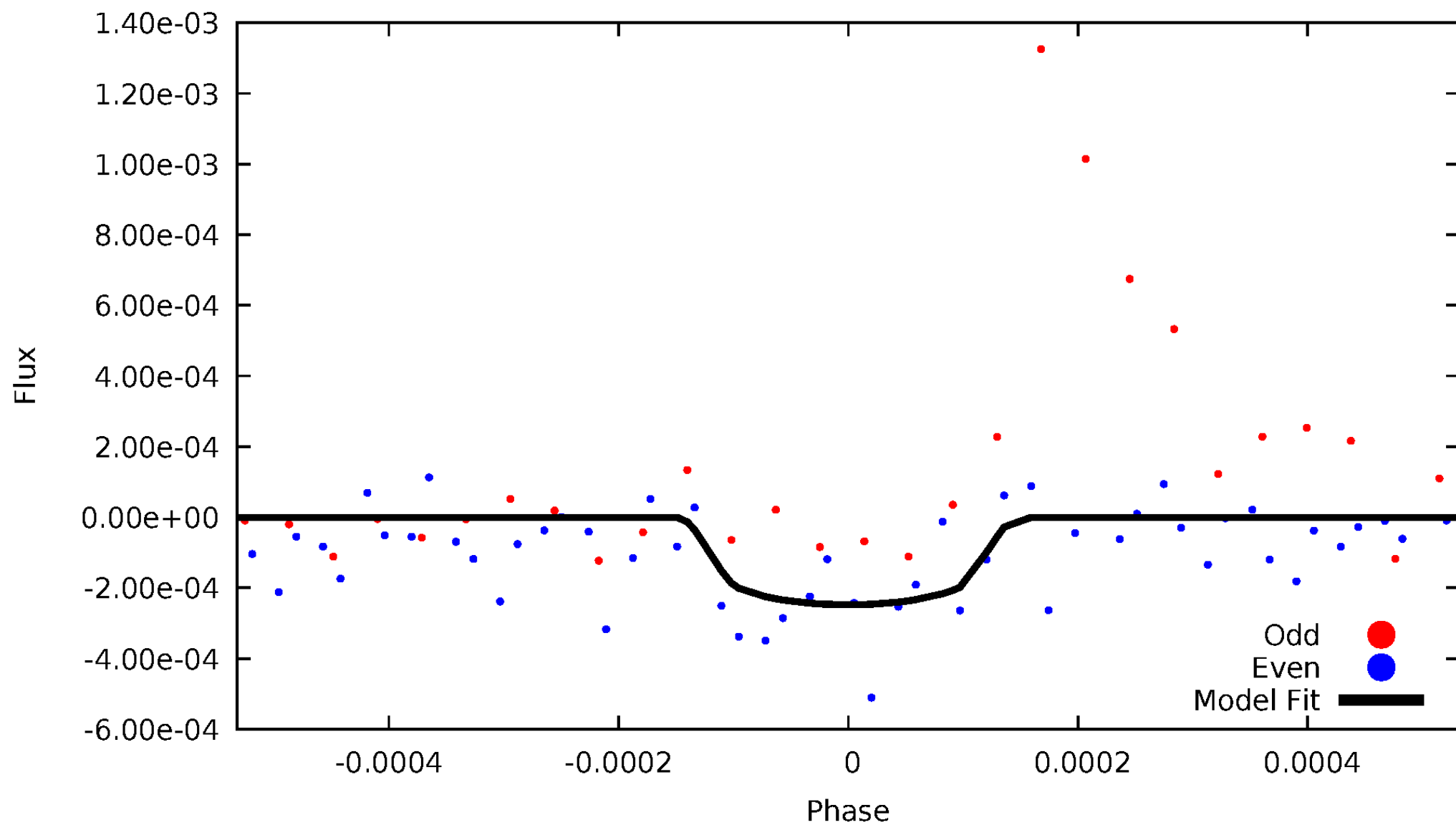


TCE 005445334-02



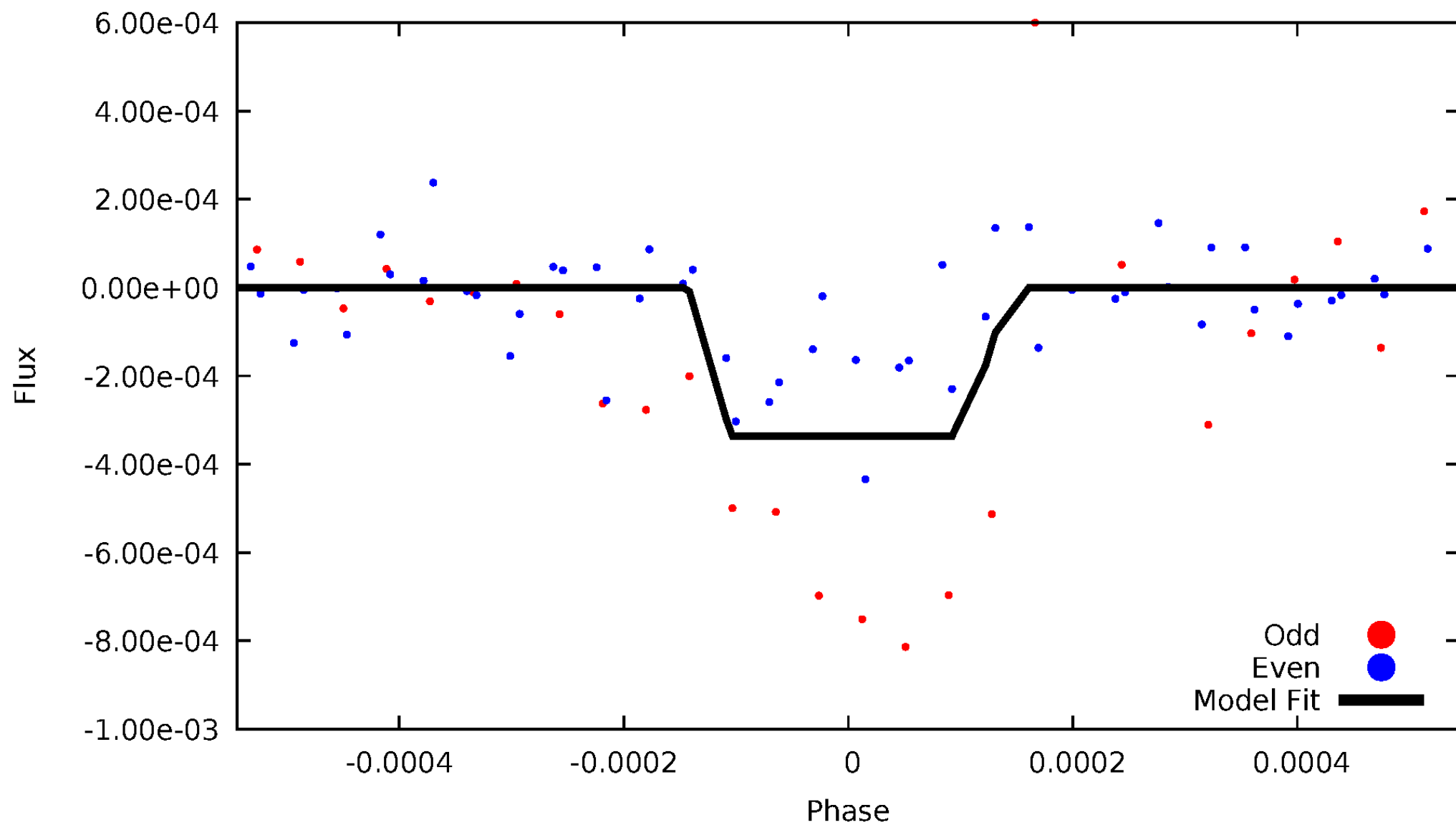
DV Odd/Even

TCE 005445334-02



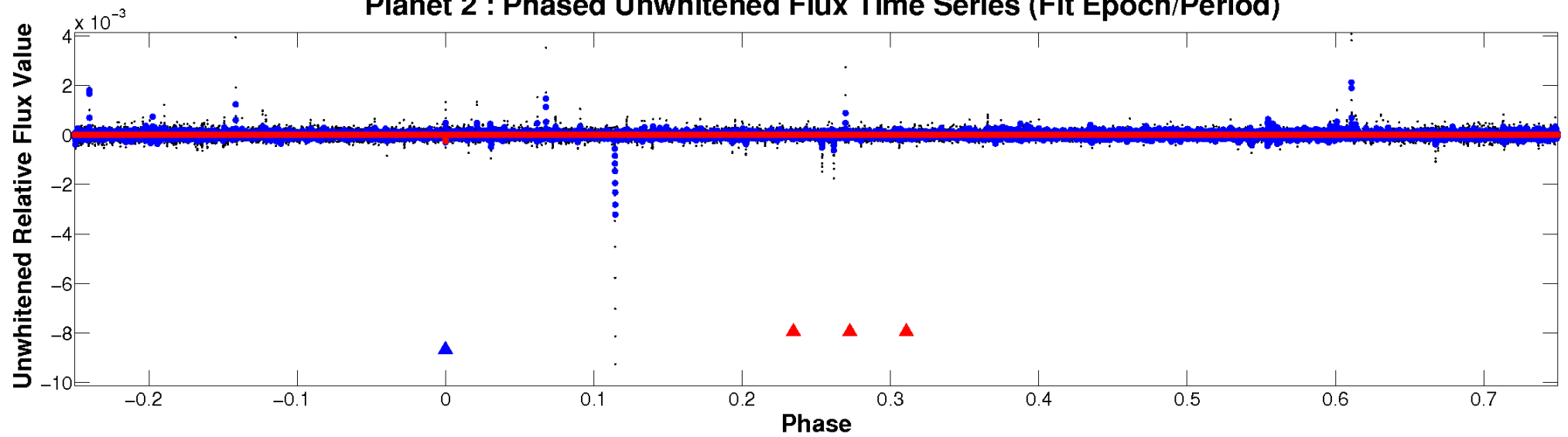
ALT Odd/Even

TCE 005445334-02

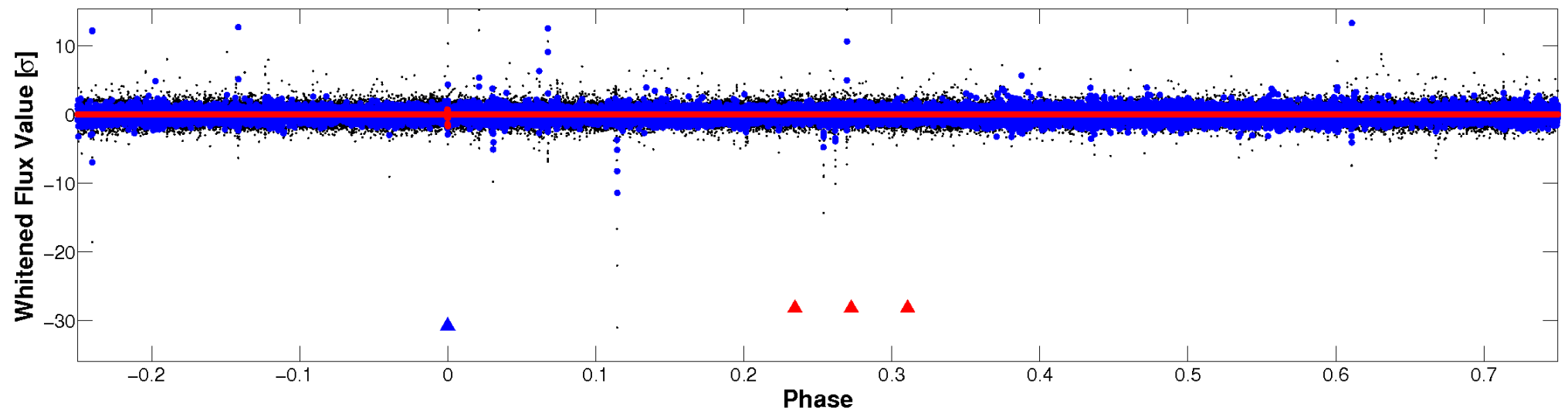


Non-Whitened Vs. Whitened Light Curve

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

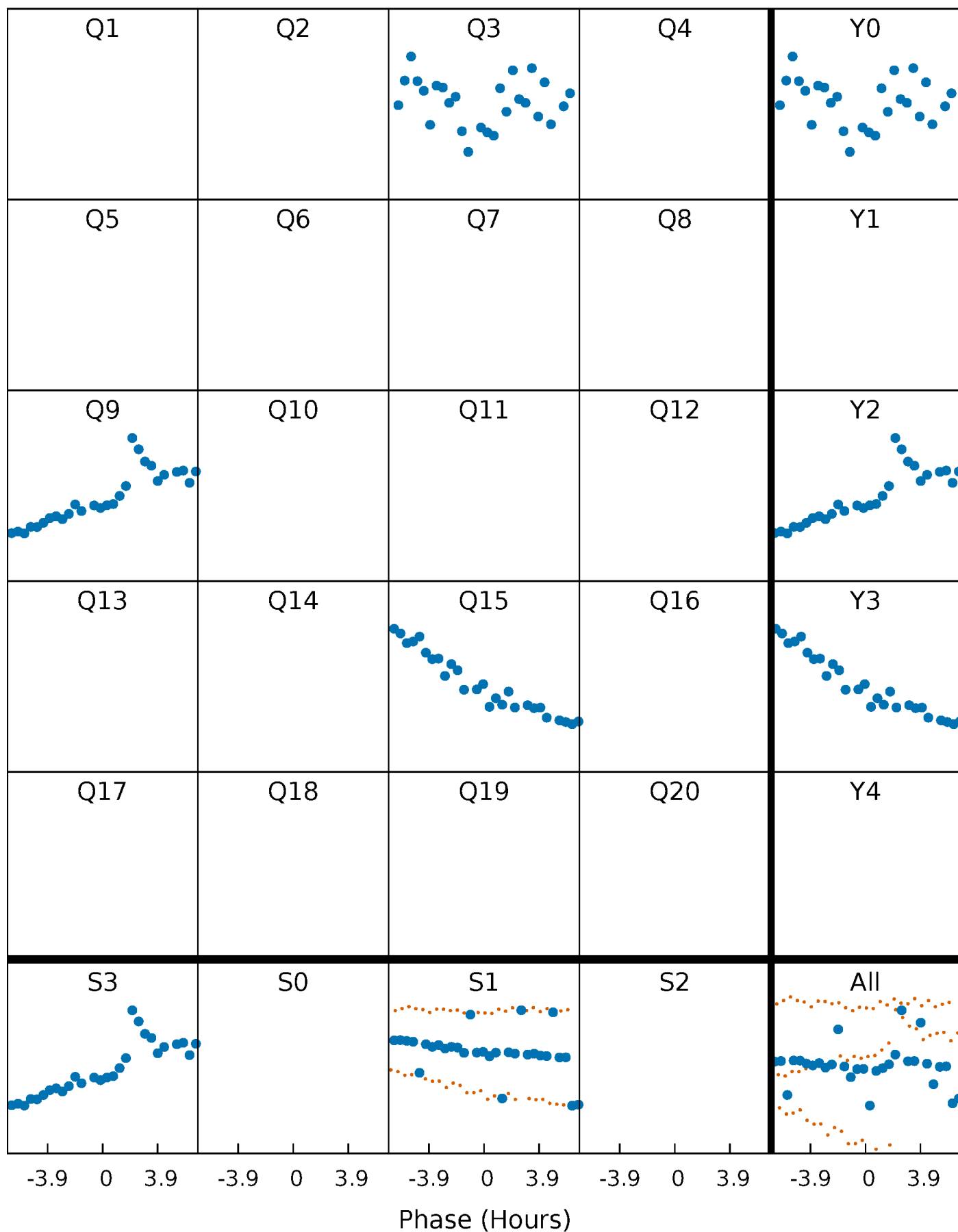


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



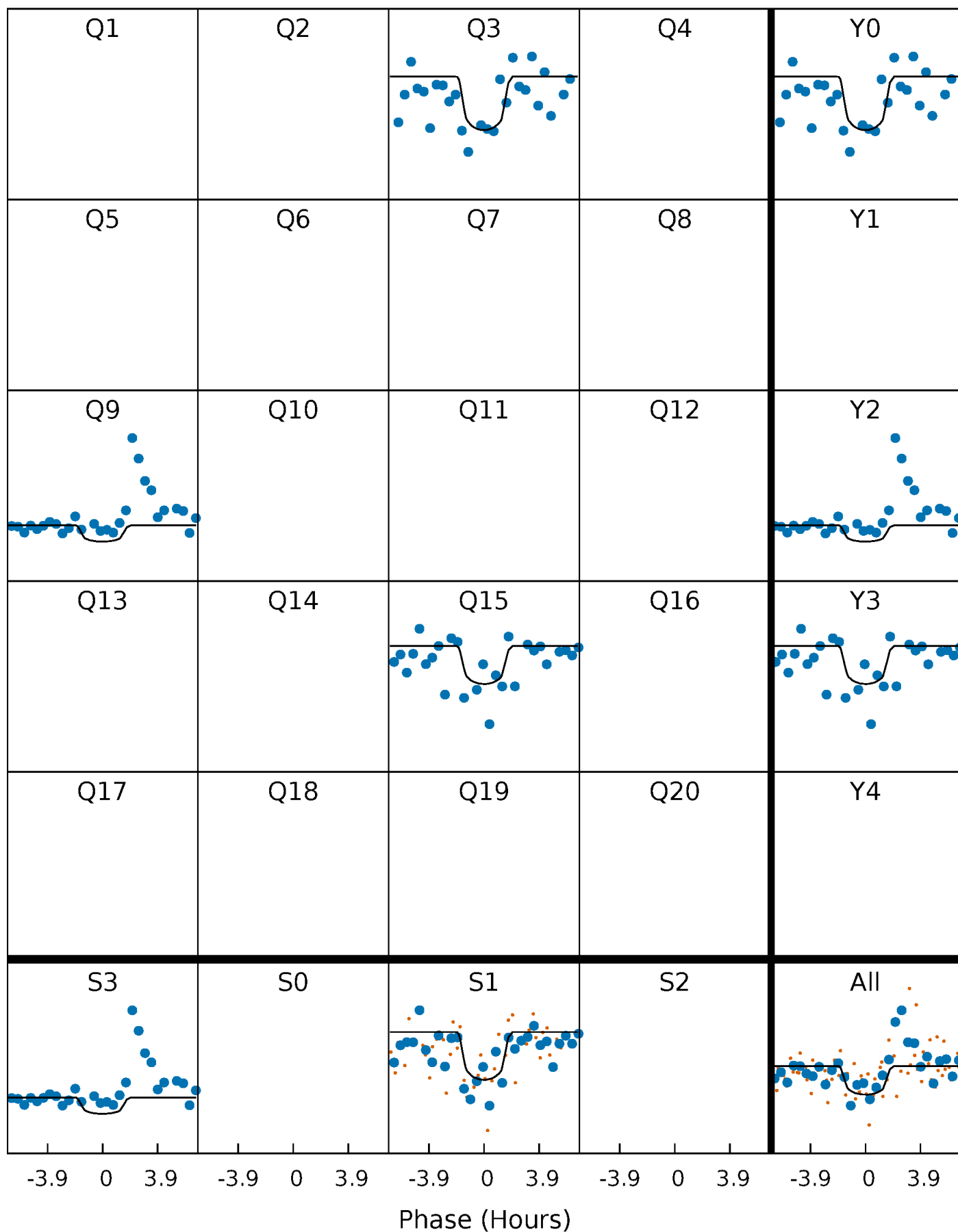
PDC Quarter-Phased Transit Curves

TCE 005445334-02 $P=530.453474$ Days $T_0=336.109256$ (BKJD)



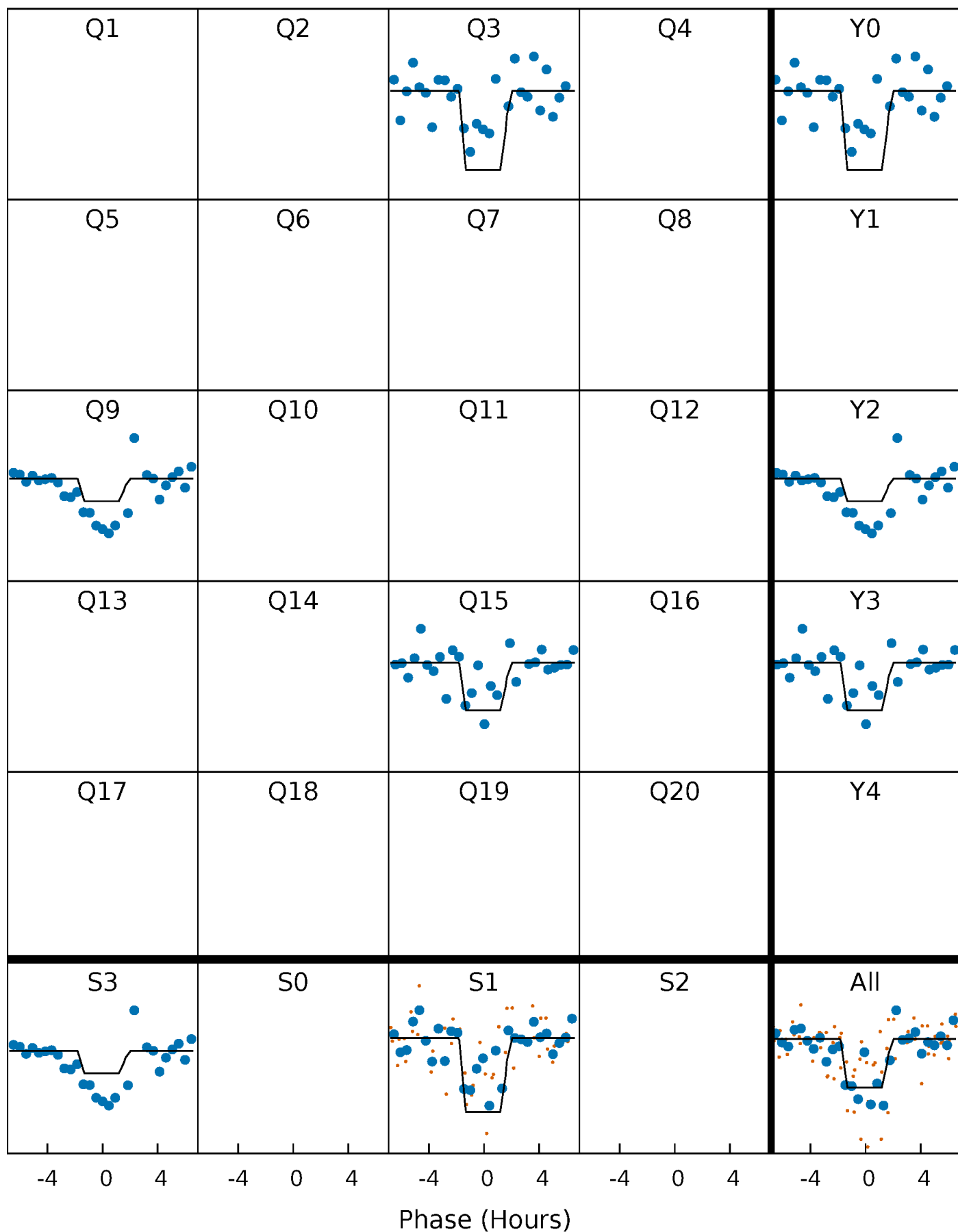
DV Quarter-Phased Transit Curves

TCE 005445334-02 $P=530.453474$ Days $T_0=336.109256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

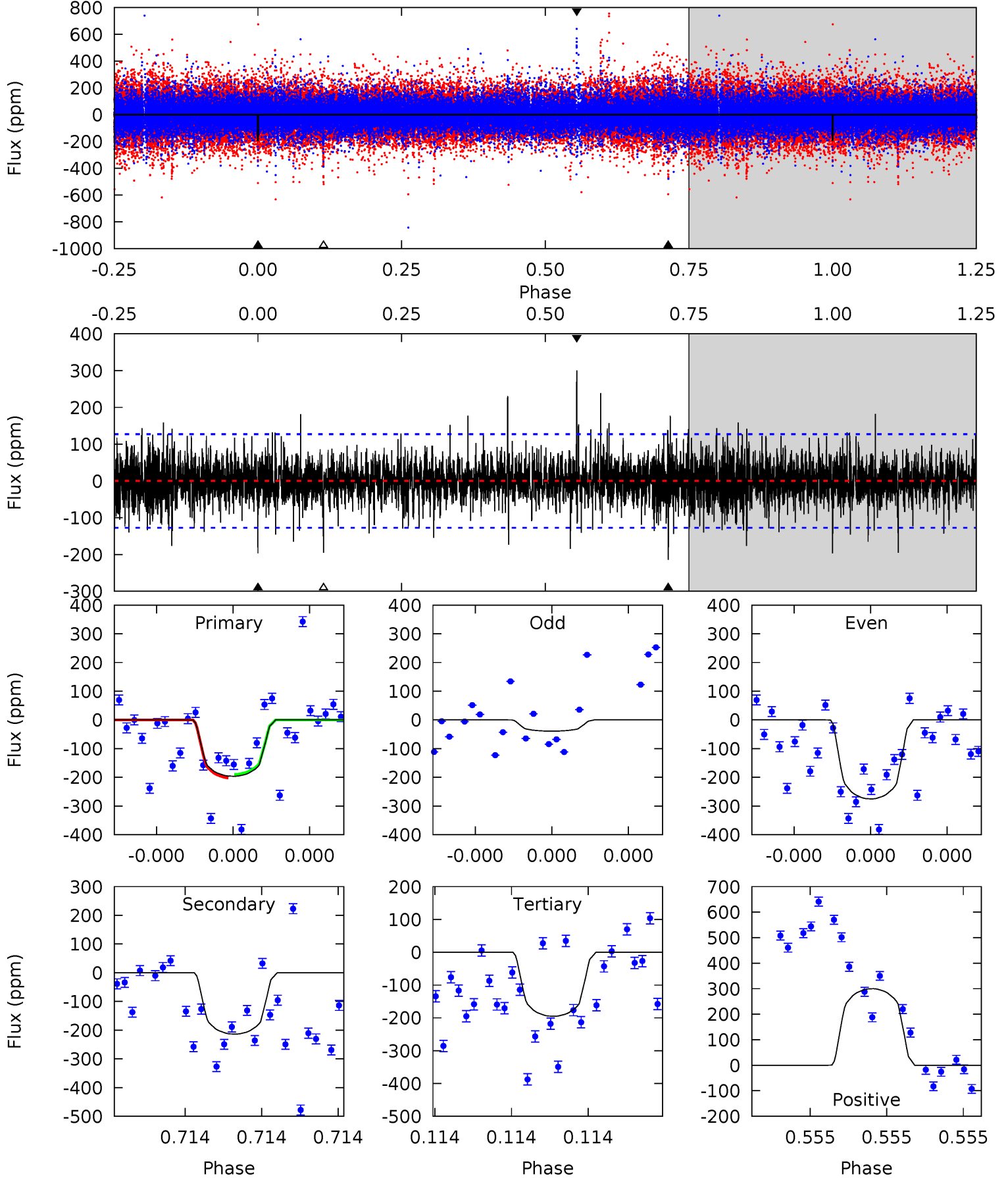
TCE 005445334-02 P=530.455218 Days $T_0=336.108301$ (BKJD)



DV Model-Shift Uniqueness Test

005445334-02, P = 530.453474 Days, E = 336.109256 Days

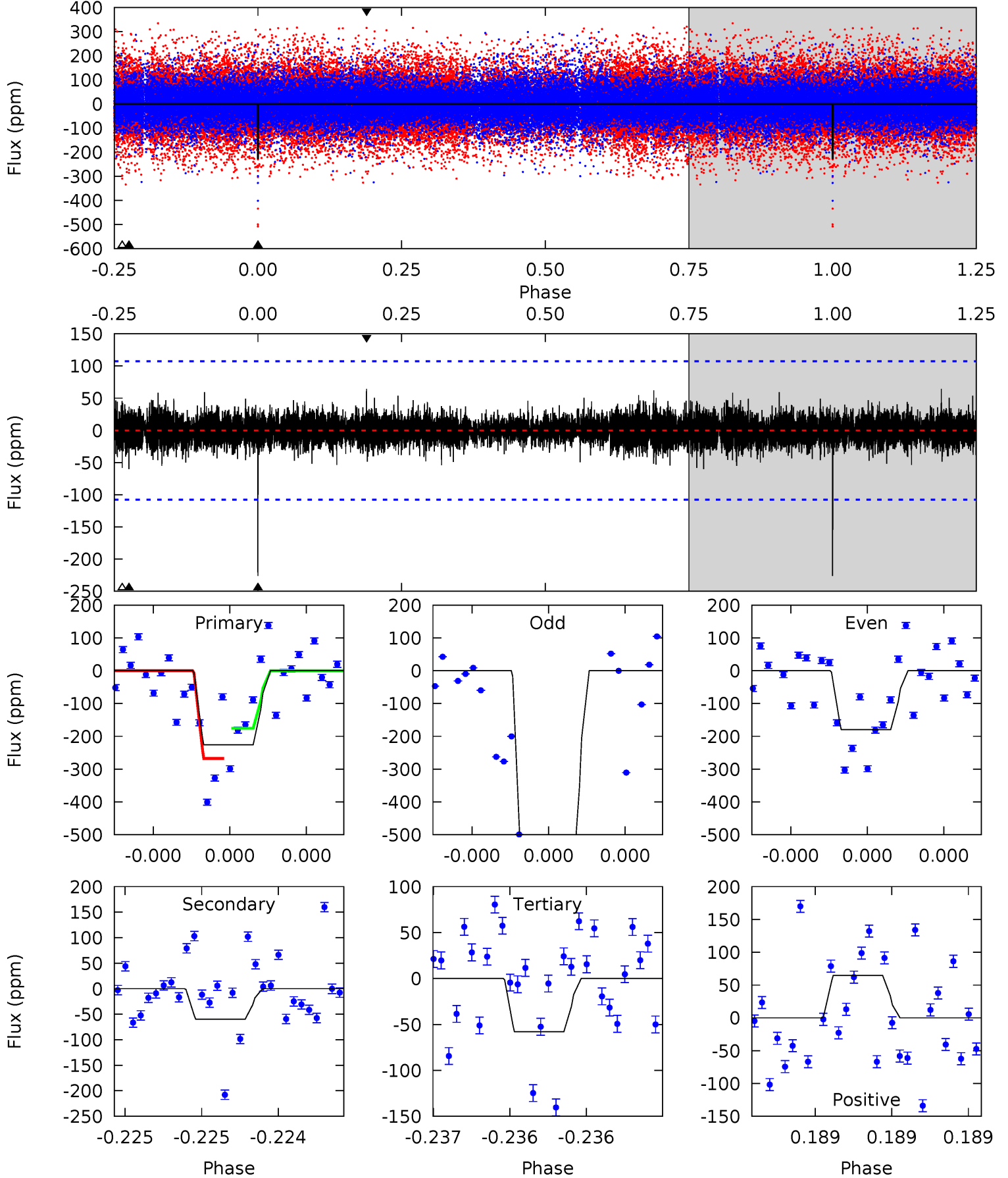
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.75	9.52	8.70	13.4	5.67	3.63	1.72	0.05	-4.61	0.83	-3.84	4.77	0.80	0.58	0.27



Alt Model-Shift Uniqueness Test

005445334-02, P = 530.455218 Days, E = 336.108301 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	3.15	3.05	3.40	5.66	3.61	0.66	8.84	8.50	0.10	-0.25	14.1	1.60	0.22	2.44



Stellar Parameters For KIC 005445334

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5347^{+74}_{-85}	$4.582^{+0.013}_{-0.081}$	$0.000^{+0.150}_{-0.150}$	$0.801^{+0.078}_{-0.028}$	$0.899^{+0.032}_{-0.069}$	$2.460^{+0.176}_{-0.595}$
	+1%/-2%	+0%/-2%	+inf%/-inf%	+10%/-3%	+4%/-8%	+7%/-24%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 005445334-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-214 ± 22	$1.86^{+1.45}_{-1.18}$	268^{+7}_{-6}	4597^{+2857}_{-884}	$51316^{+336135}_{-35210}$
Alt.	-60 ± 19	$1.94^{+1.46}_{-1.15}$	268^{+7}_{-6}	3601^{+1414}_{-597}	12955^{+61332}_{-8884}

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

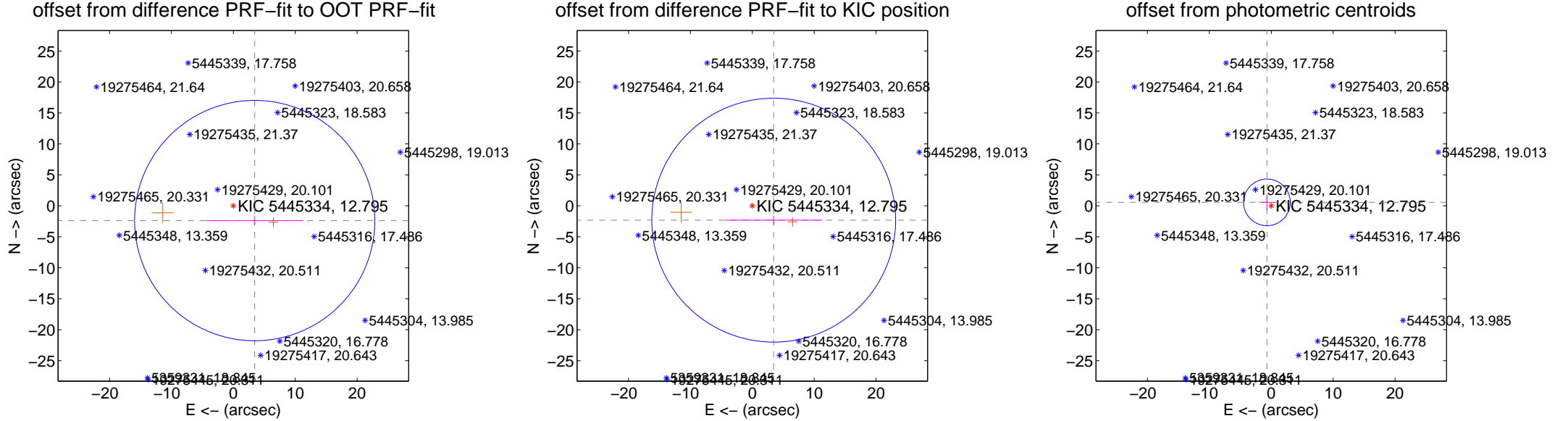
DV Centroid Data

Supplemental centroid analysis for 005445334-02. Kepler magnitude: 12.79. Transit SNR 6.91

There are 0 quarters with good PRF difference image offsets

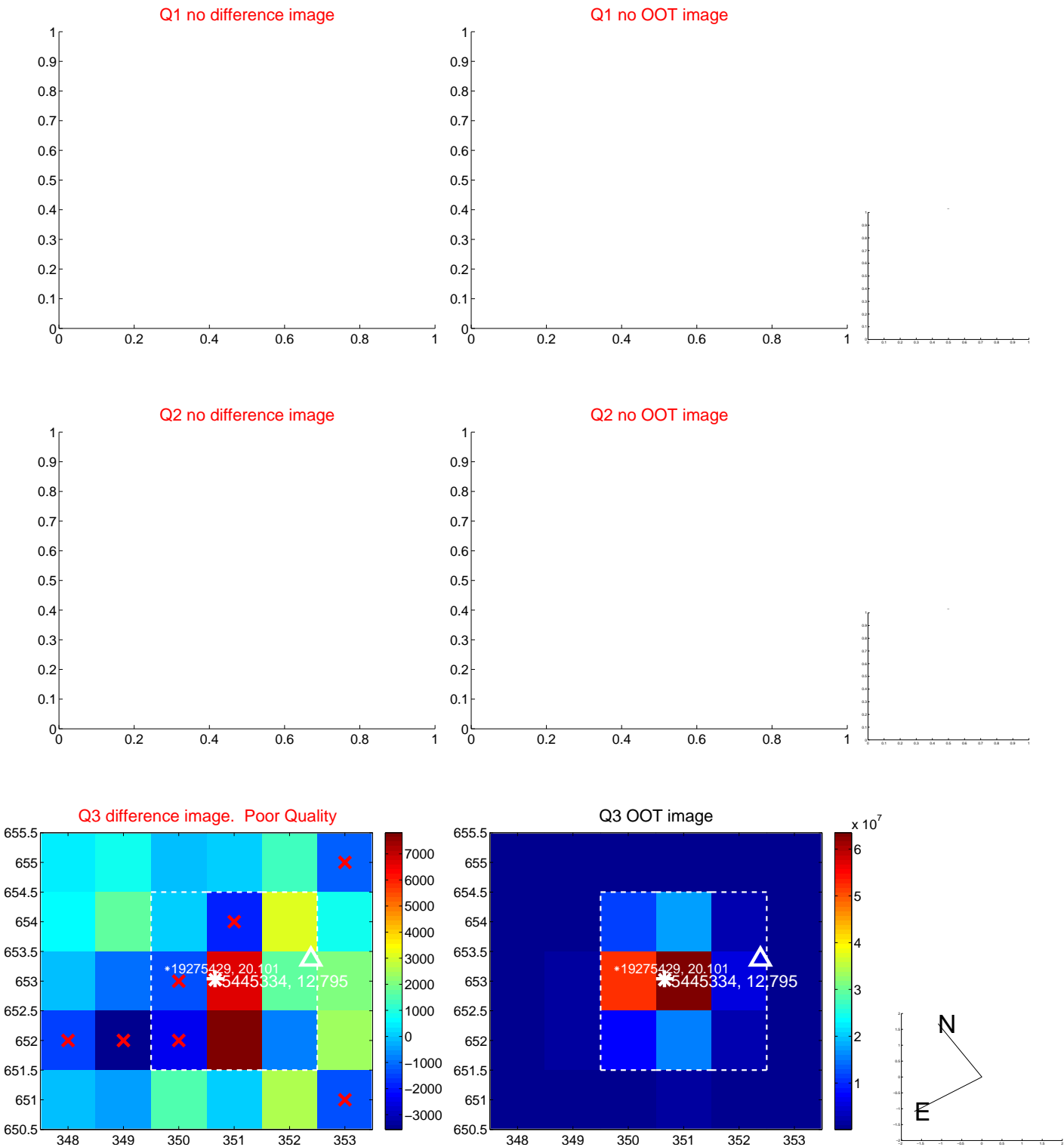
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.193 ± 6.470	0.65	-3.455 ± 7.839	-2.377 ± 0.690
PRF-fit source offset from KIC position	4.158 ± 6.566	0.63	-3.458 ± 7.882	-2.309 ± 0.699
photometric centroid source offset	0.90 ± 1.26	0.71	0.69 ± 1.26	0.57 ± 1.25



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.

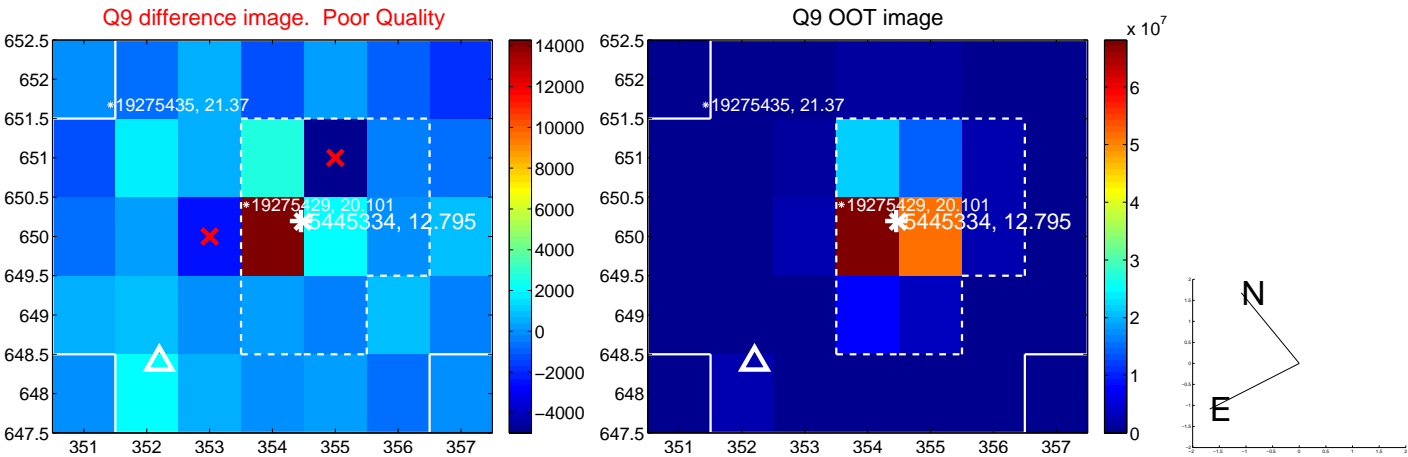
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



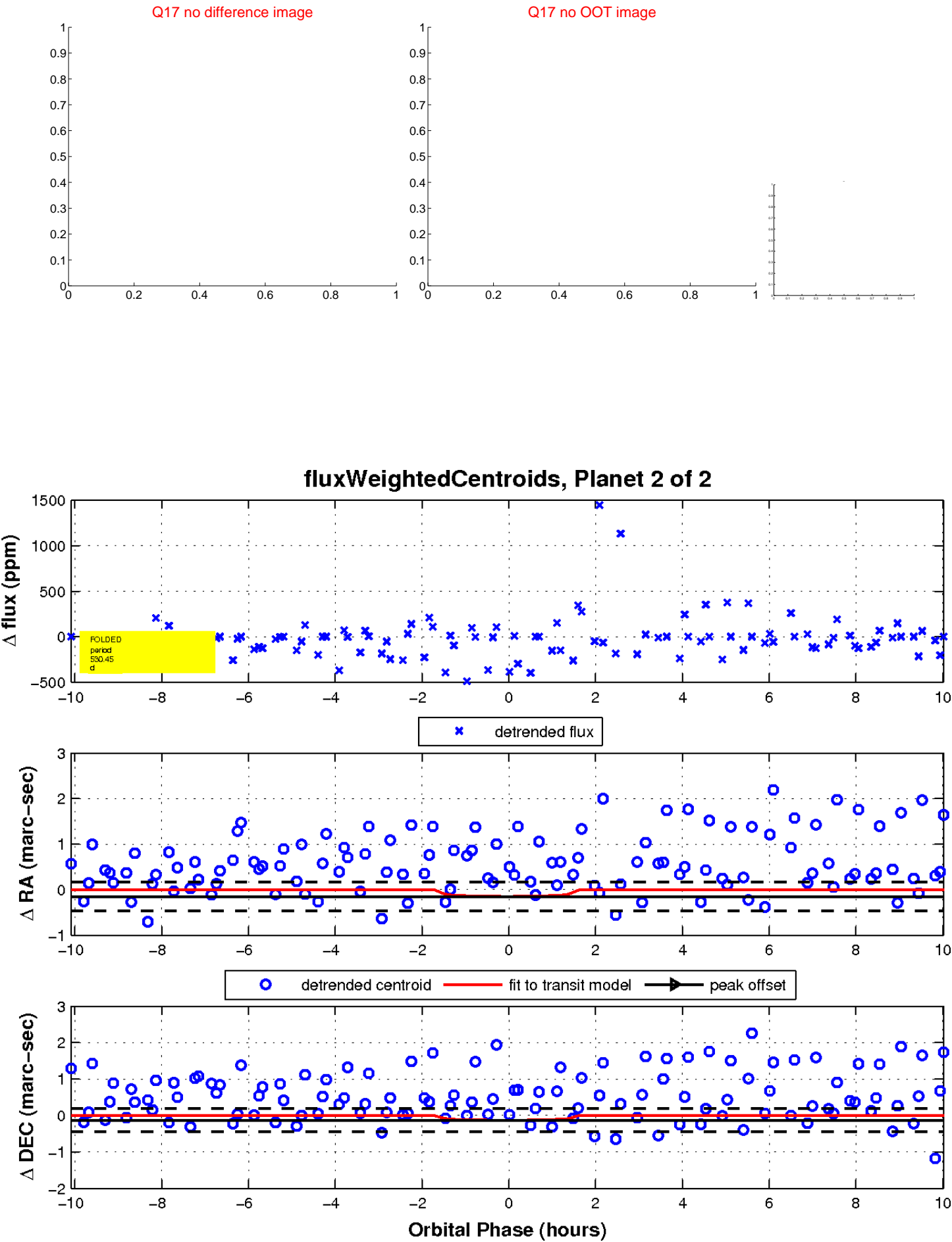
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

