

KIC 008029546

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})
008029546-01	OBS	No	0.848169	132.053812	32.4	3.301	9.5	7.6	2.77	7360	1.87	40821.81
008029546-02	OBS	No	121.484991	225.391264	461.9	7.444	7.4	6.7	2.77	7360	6.29	54.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008029546-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008029546-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

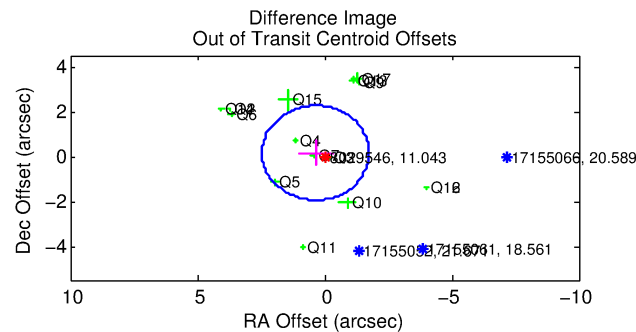
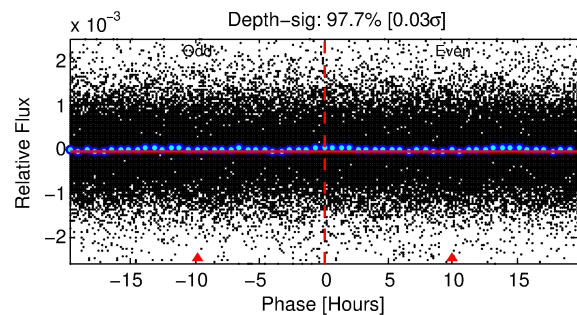
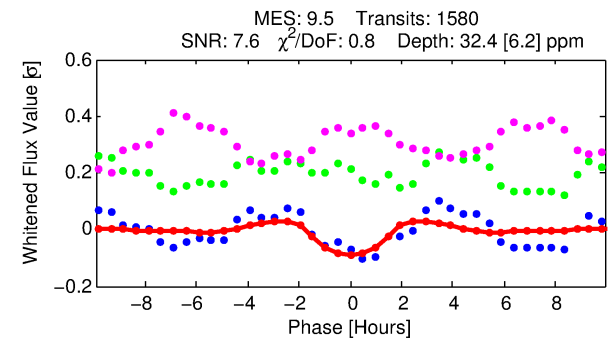
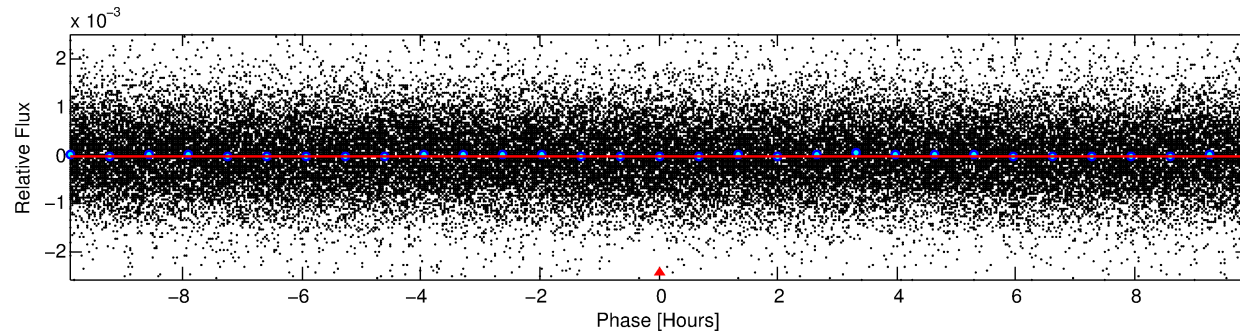
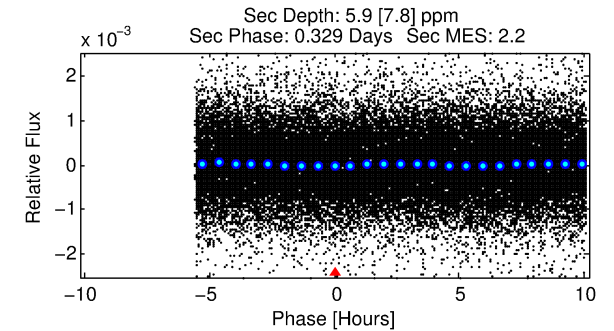
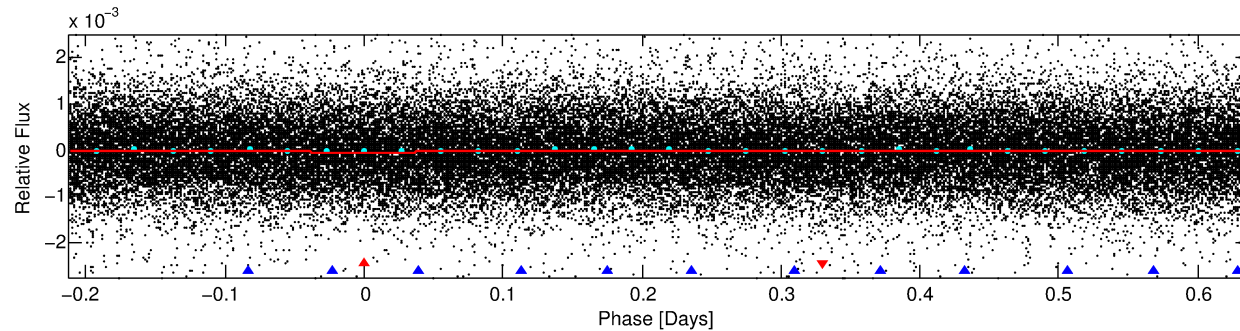
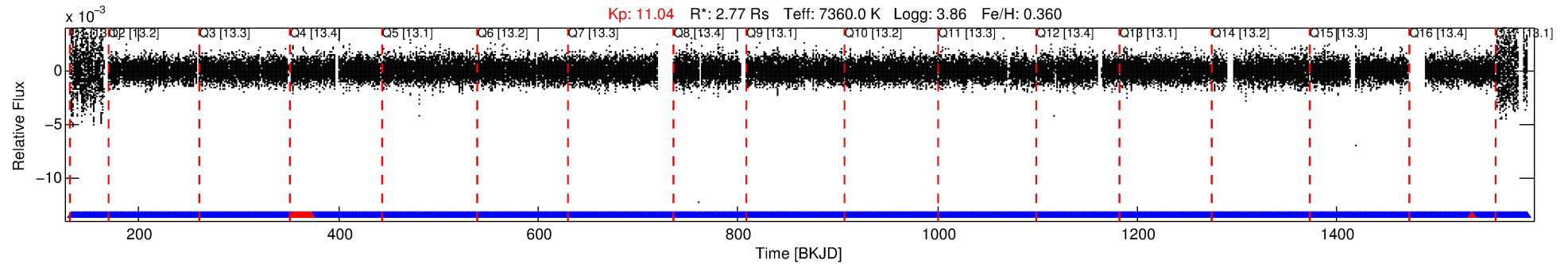
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008029546-01

No Significant Match Found

DV One-Page Summary

KIC: 8029546 Candidate: 1 of 2 Period: 0.848 d



DV Fit Results:

Period = 0.84817 [0.00001] d
Epoch = 132.0538 [0.0053] BKJD
Rp/R* = 0.0062 [0.0055]
a/R* = 1.22 [2.30]
b = 0.93 [0.86]
Seff = 40821.81 [11888.33]
Teq = 3625 [264] K
Rp = 1.87 [1.70] Re
a = 0.0222 [0.0042] AU
Ag = 0.46 [1.02] [-0.53σ]
Teffp = 4612 [2538] K [0.39σ]

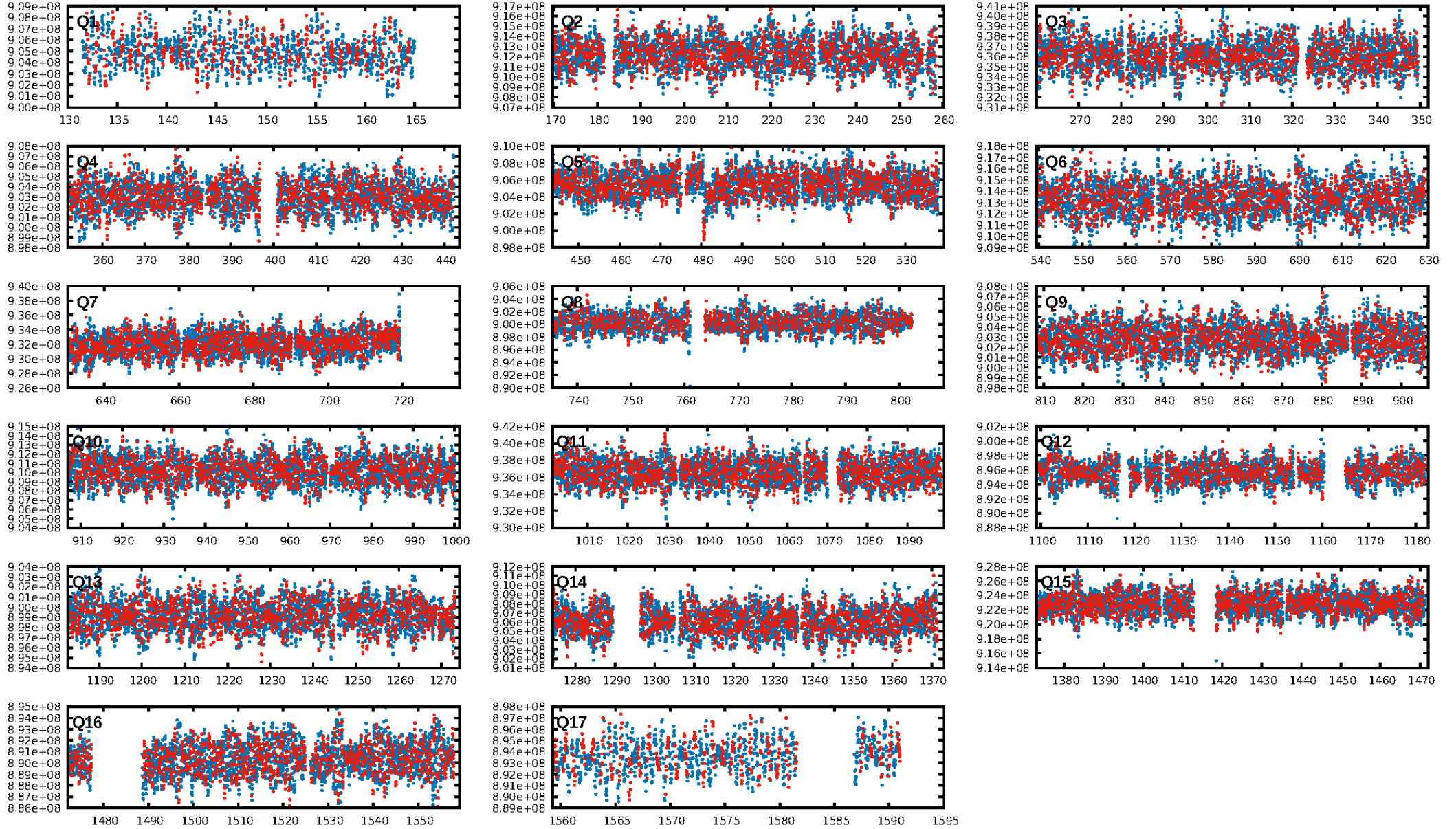
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [355.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.61e-21
RollingBand-fgt: 0.99 [1487/1509]
GhostDiagnostic-chr: 1.204
Centroid-sig: 1.3%
Centroid-so: 0.417 arcsec [1.30σ]
OotOffset-rm: 0.392 arcsec [0.56σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.232 arcsec [0.37σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.33 [5/15]
DiffImageOverlap-fno: 1.00 [17/17]

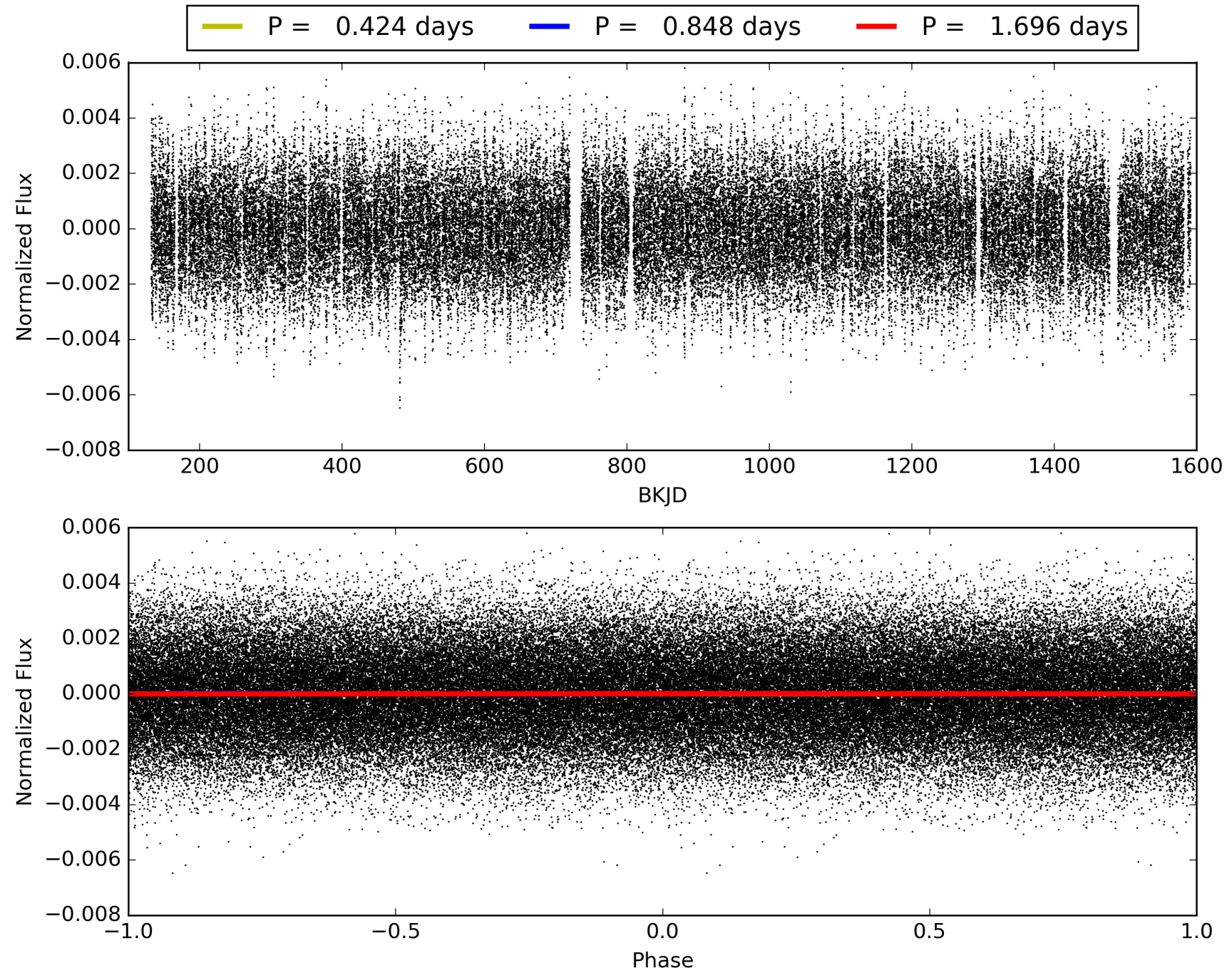
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008029546-01, PDC Light Curves

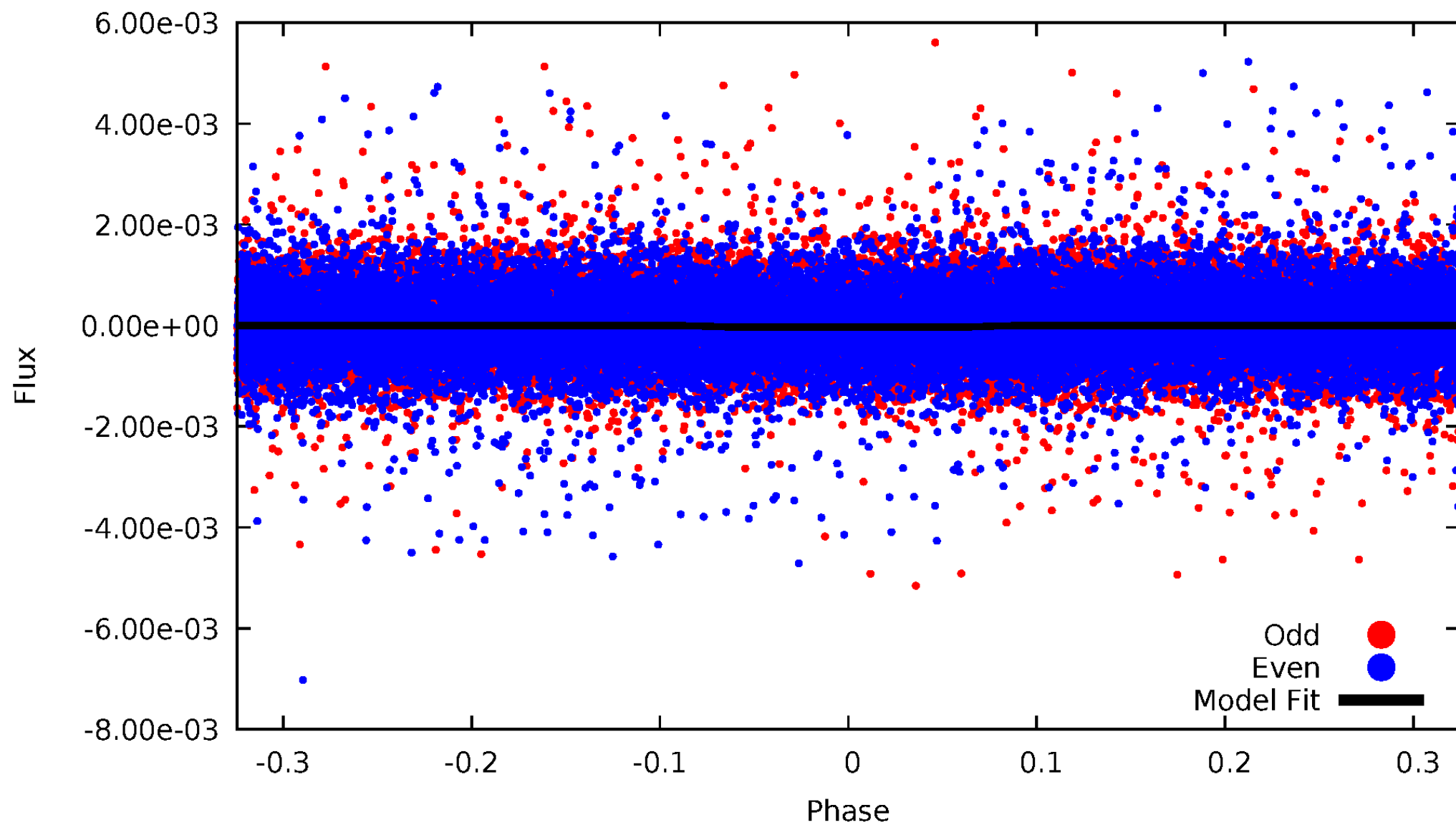


TCE 008029546-01



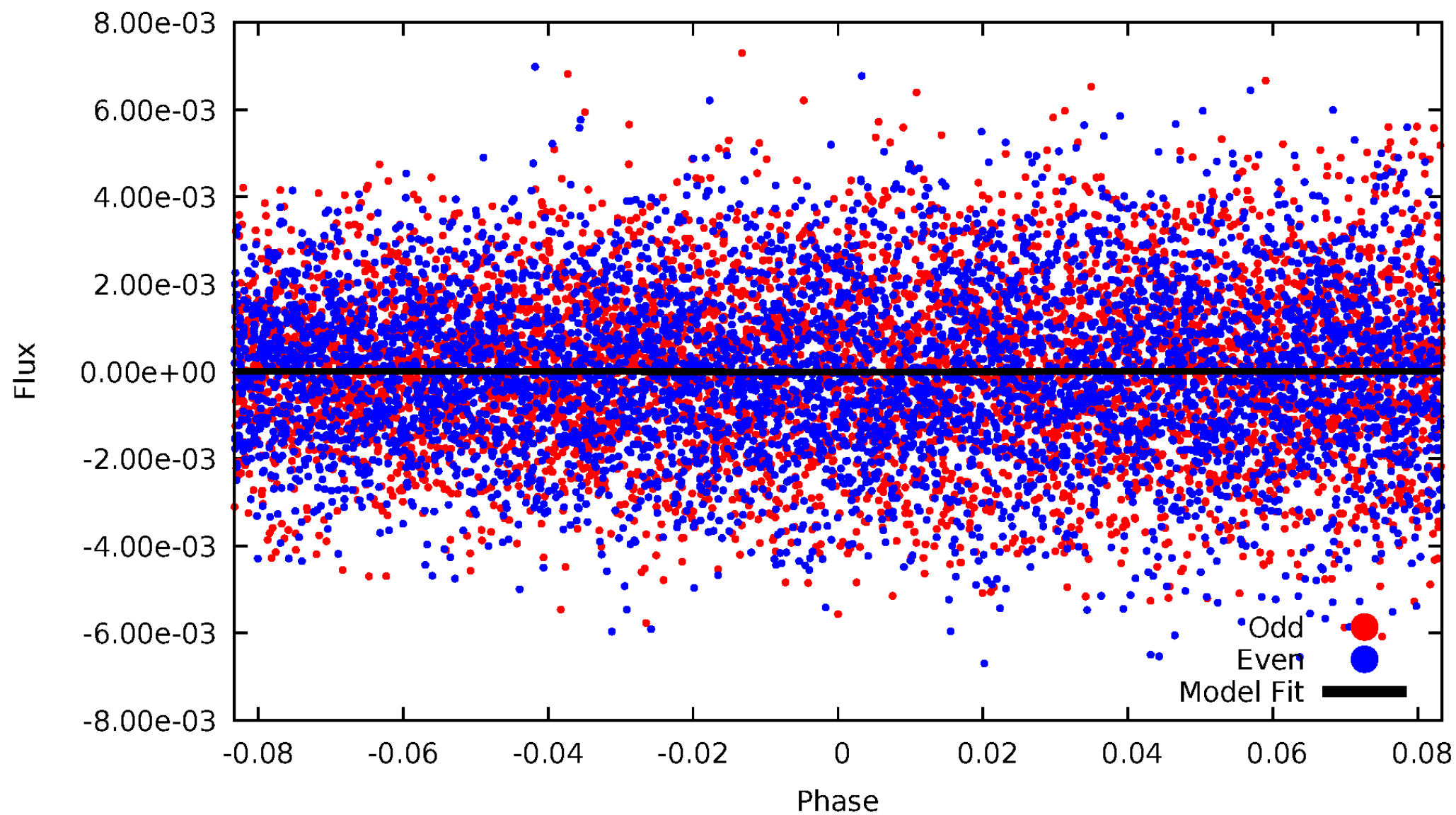
DV Odd/Even

TCE 008029546-01

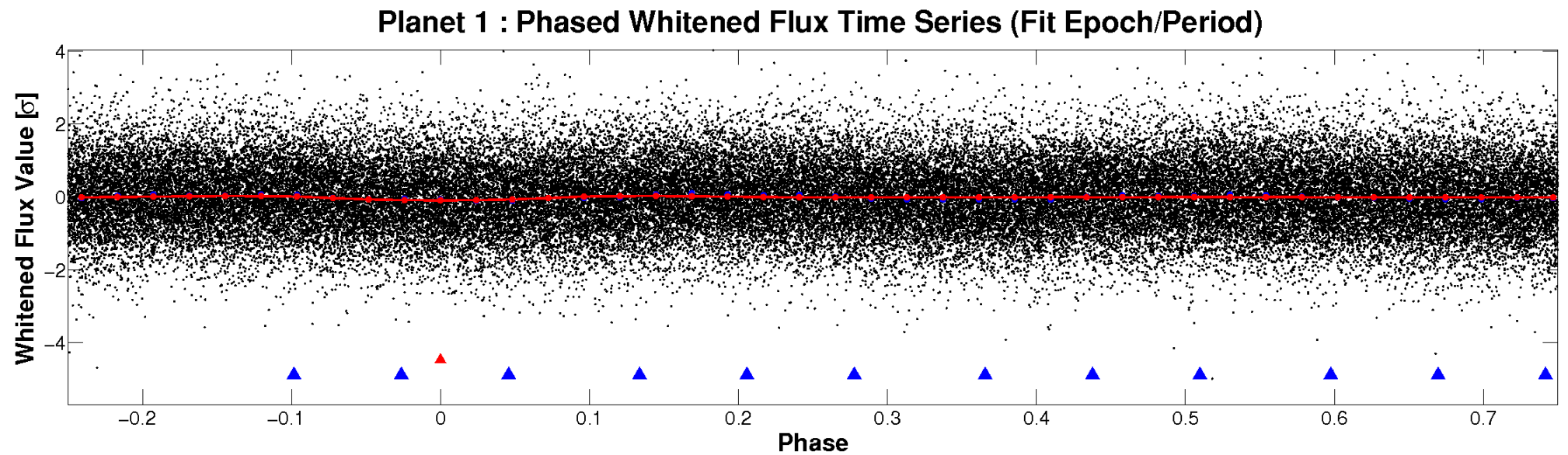
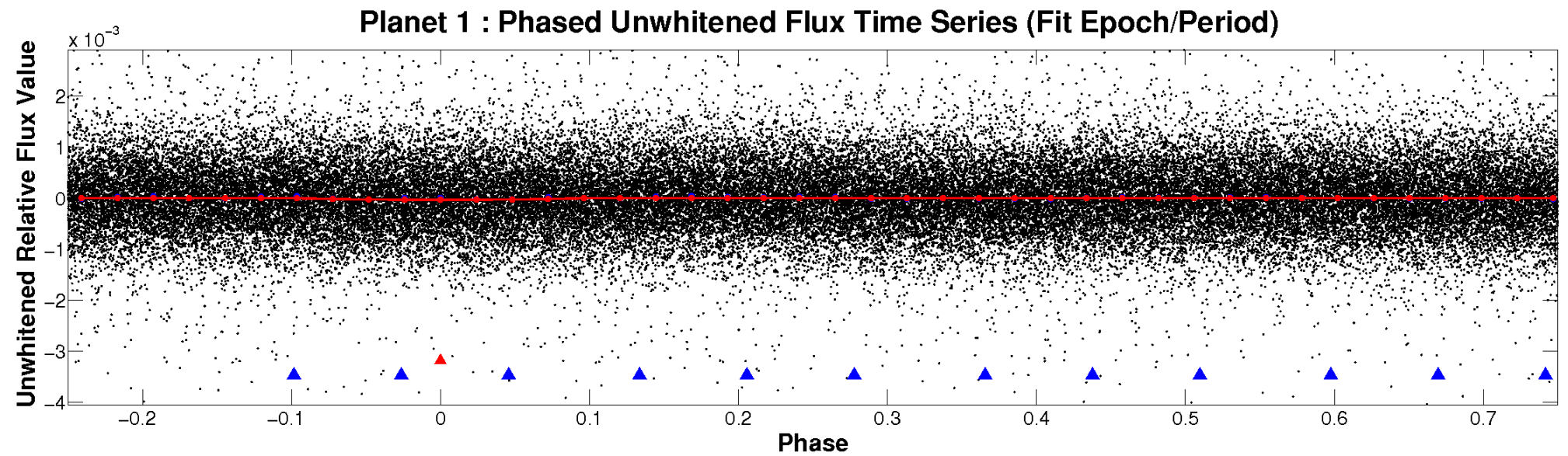


ALT Odd/Even

TCE 008029546-01

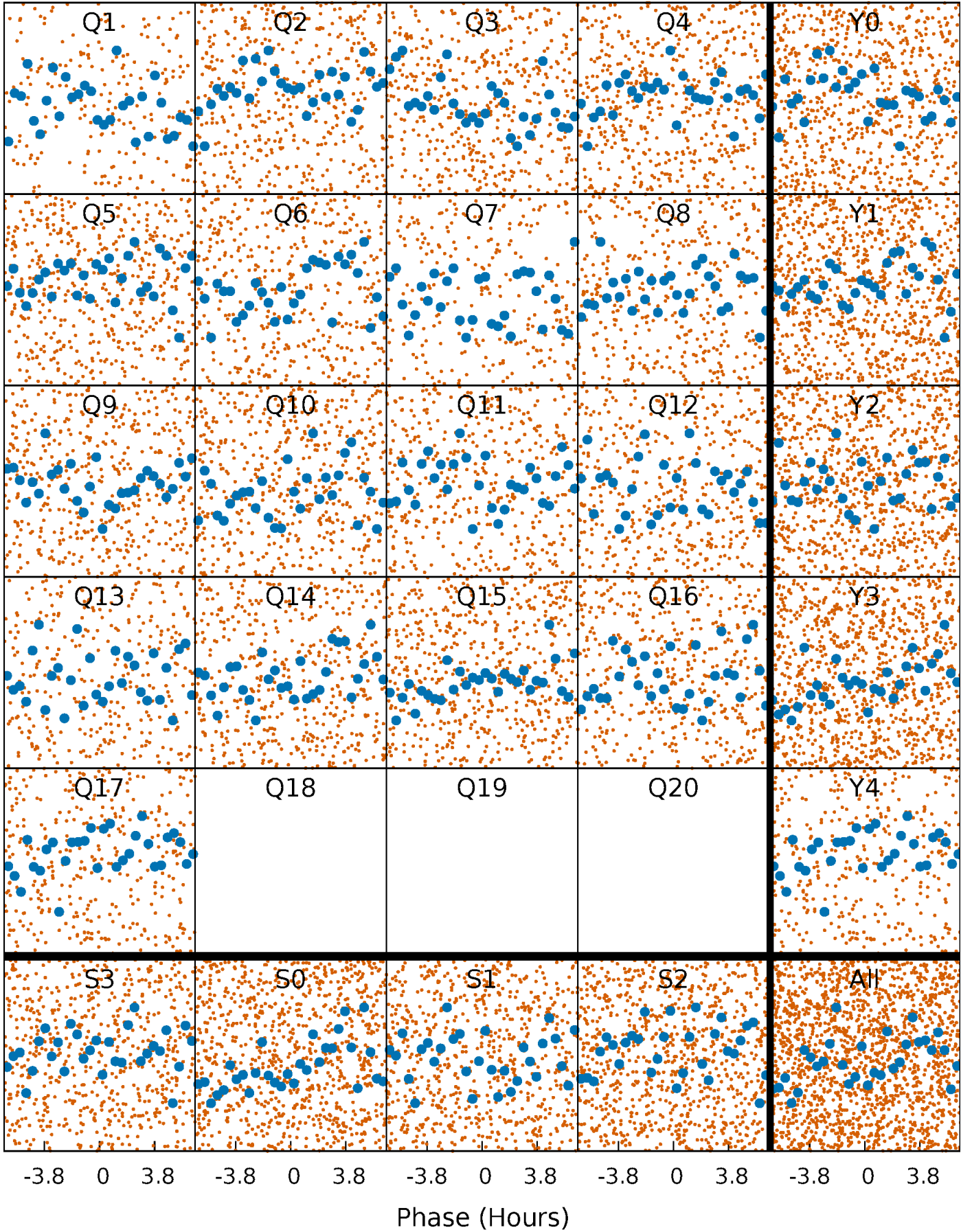


Non-Whitened Vs. Whitened Light Curve



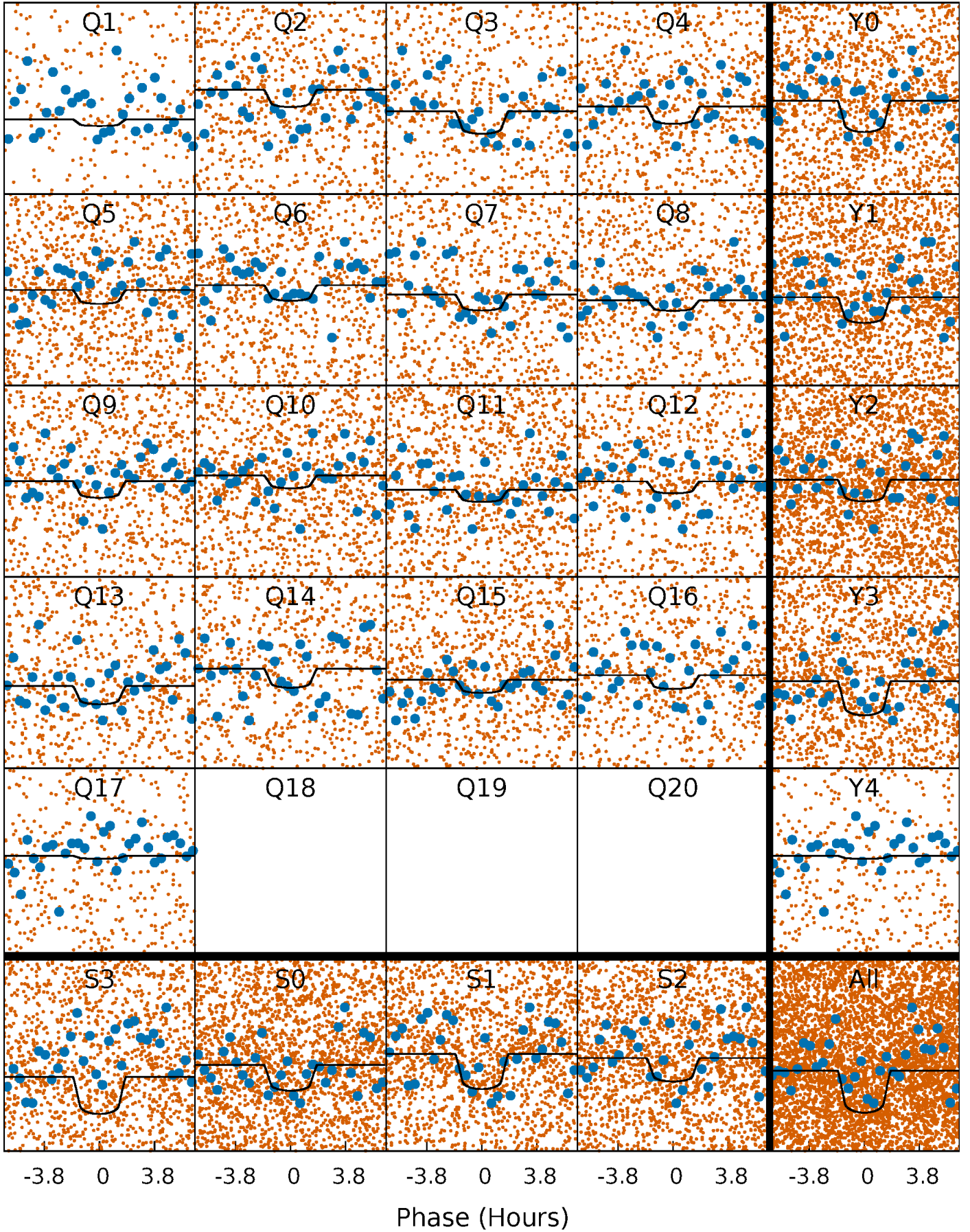
PDC Quarter-Phased Transit Curves

TCE 008029546-01 P= 0.848169 Days $T_0=132.053812$ (BKJD)



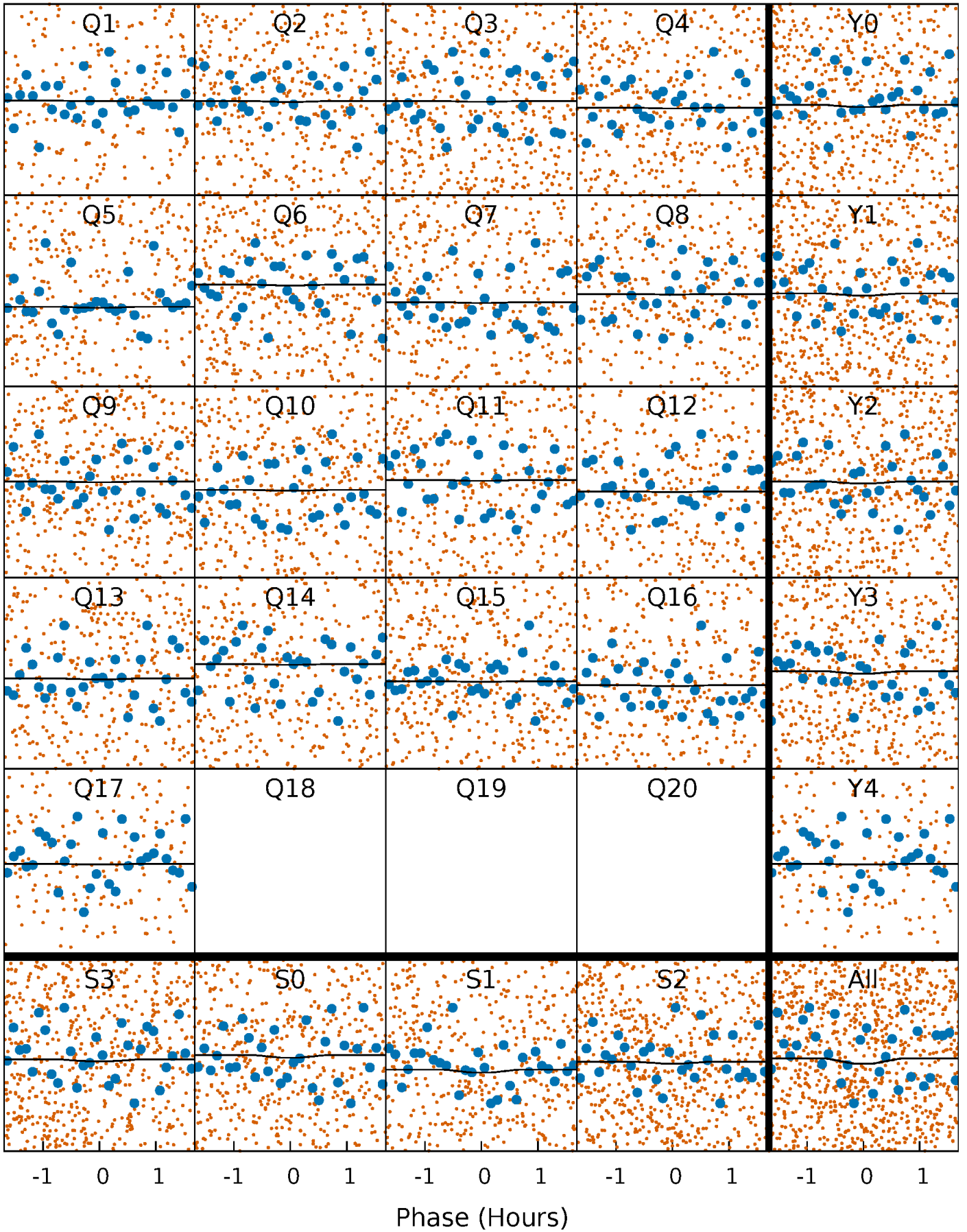
DV Quarter-Phased Transit Curves

TCE 008029546-01 P= 0.848169 Days $T_0=132.053812$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

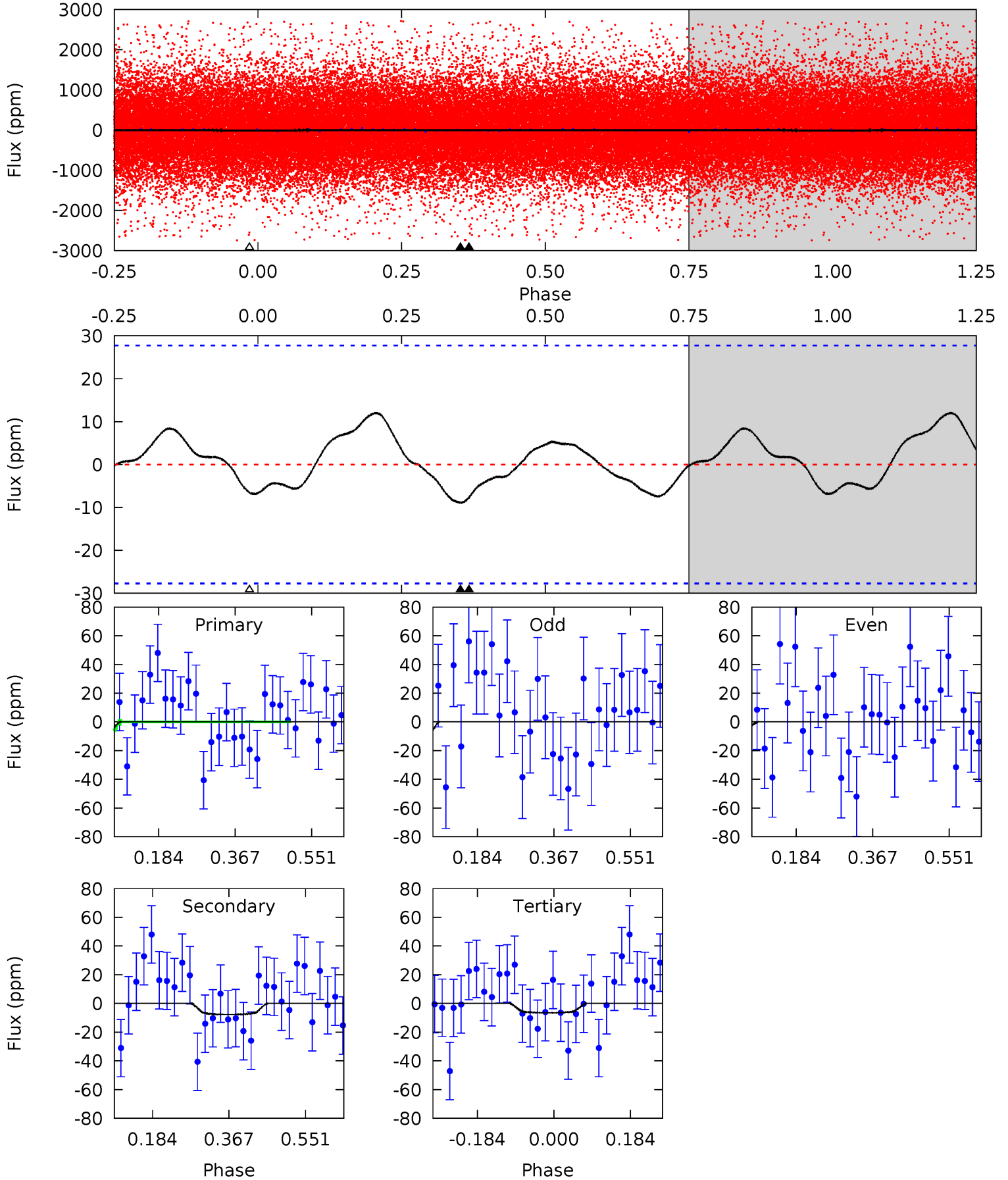
TCE 008029546-01 P= 0.848193 Days $T_0=131.988052$ (BKJD)



DV Model-Shift Uniqueness Test

008029546-01, P = 0.848169 Days, E = 131.205643 Days

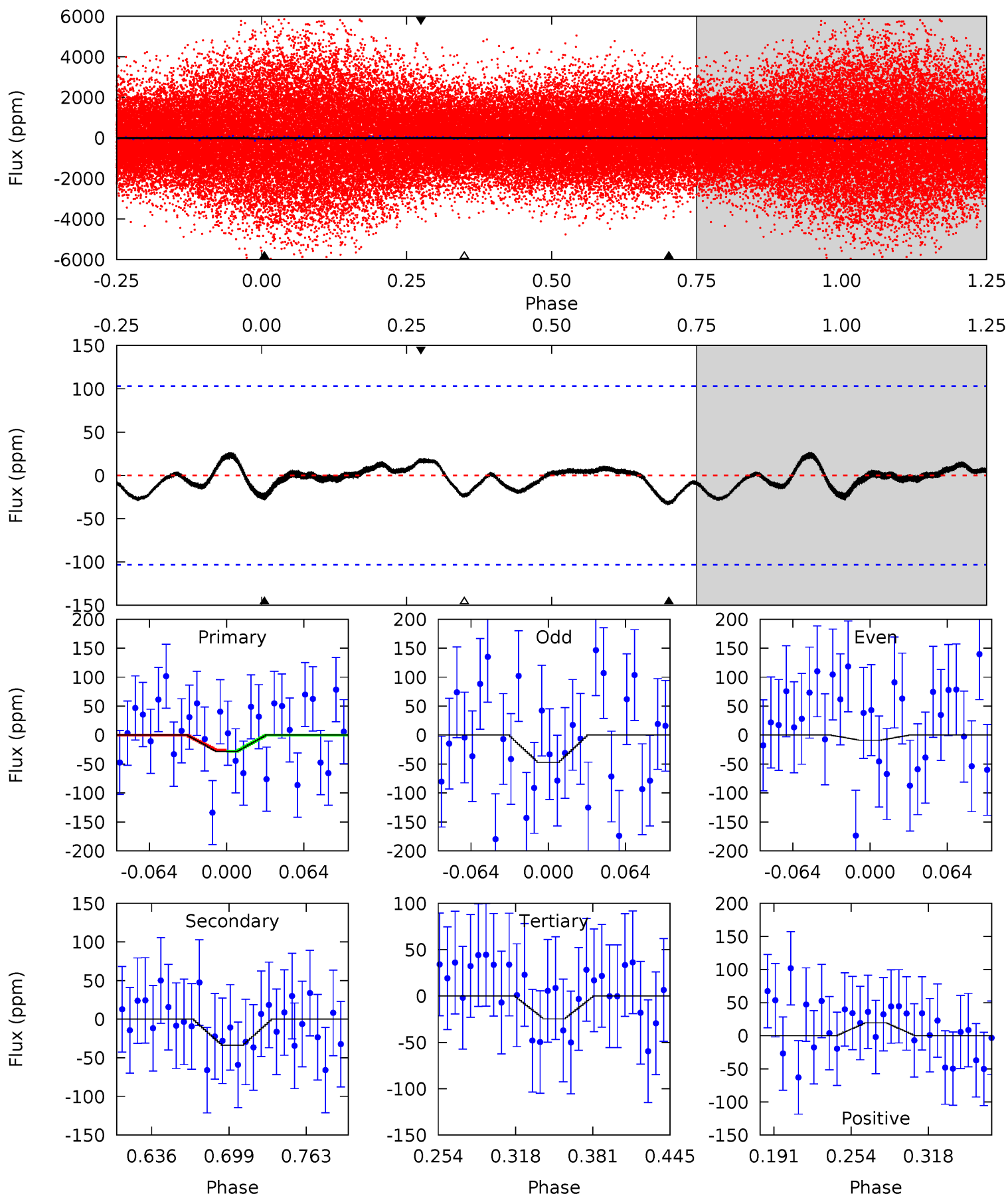
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.43	1.24	1.05	0	4.44	1.33	0.74	0.38	1.43	0.19	1.24	0.64	0.93	0.57	0.57



Alt Model-Shift Uniqueness Test

008029546-01, P = 0.848193 Days, E = 131.139859 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.29	1.53	1.12	0.88	4.66	1.86	0.50	0.17	0.41	0.41	0.65	0.85	-0.02	0.44	0.04



Stellar Parameters For KIC 008029546

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7360^{+66}_{-95}	$3.861^{+0.162}_{-0.075}$	$0.360^{+0.050}_{-0.150}$	$2.765^{+0.318}_{-0.591}$	$2.026^{+0.135}_{-0.203}$	$0.135^{+0.109}_{-0.032}$
	+1%/-1%	+4%/-2%	+14%/-42%	+12%/-21%	+7%/-10%	+81%/-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 008029546-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-8 ± 6	$2.07^{+1.45}_{-1.29}$	5030^{+178}_{-265}	3254^{+3520}_{-7395}	$0.356^{+2.370}_{-0.302}$
Alt.	-34 ± 22	$1.48^{+1.35}_{-0.98}$	5034^{+178}_{-237}	7343^{+9822}_{-2816}	$3.429^{+24.548}_{-2.759}$

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 $A_{obs} \gg 1.0$

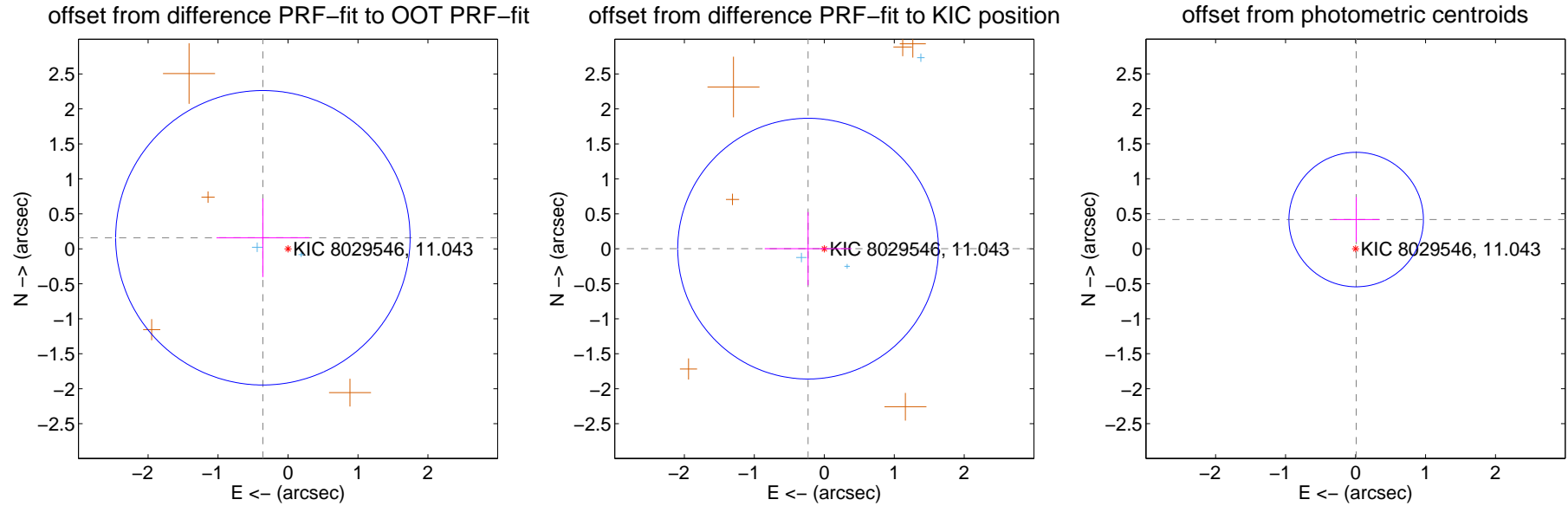
DV Centroid Data

Supplemental centroid analysis for 008029546-01. **Kepler magnitude: 11.04.** Transit SNR 7.57

There are 5 quarters with good PRF difference image offsets

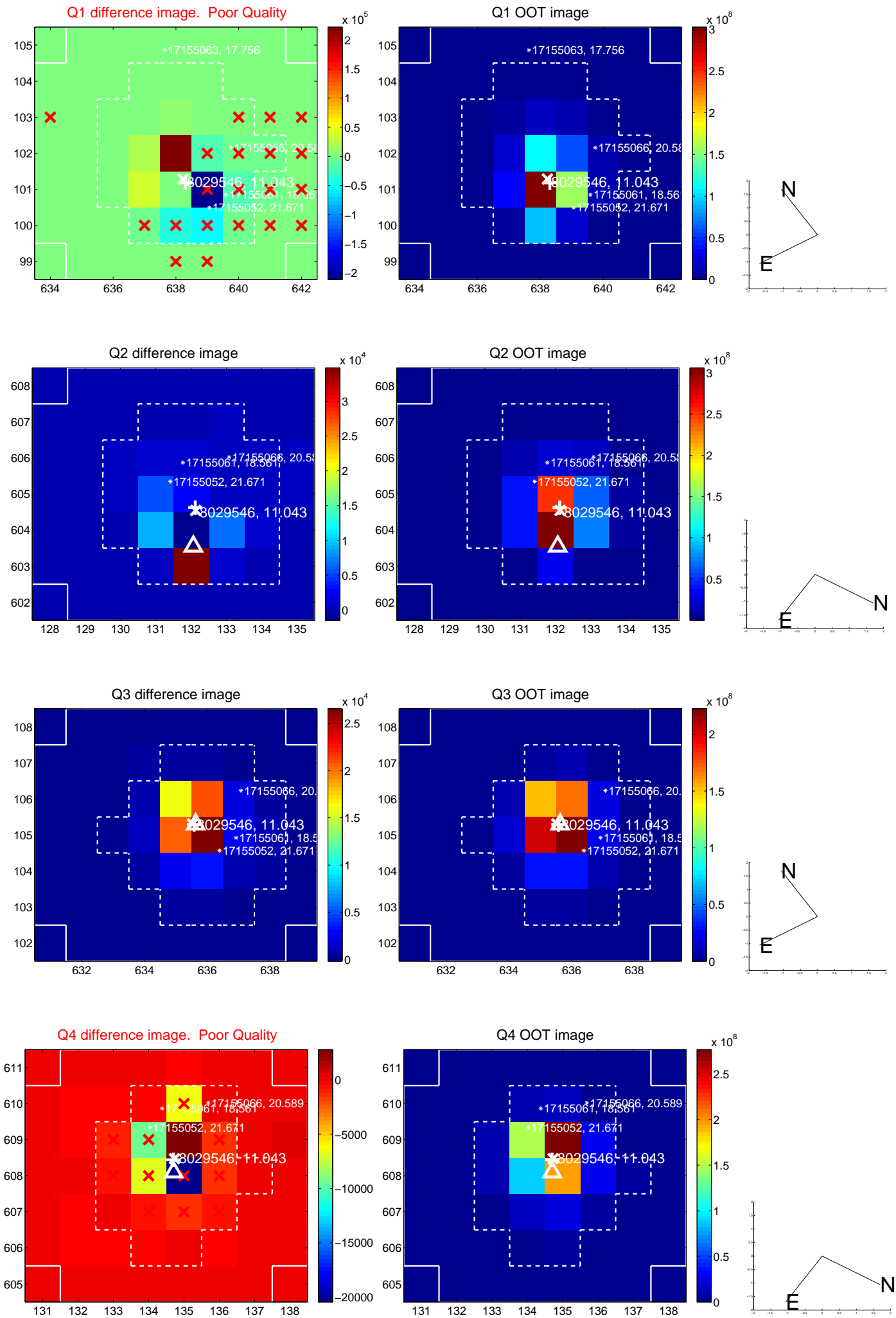
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.392 ± 0.702	0.56	0.359 ± 0.664	0.158 ± 0.562
PRF-fit source offset from KIC position	0.232 ± 0.621	0.37	0.232 ± 0.619	0.002 ± 0.523
photometric centroid source offset	0.42 ± 0.32	1.30	-0.01 ± 0.33	0.42 ± 0.32

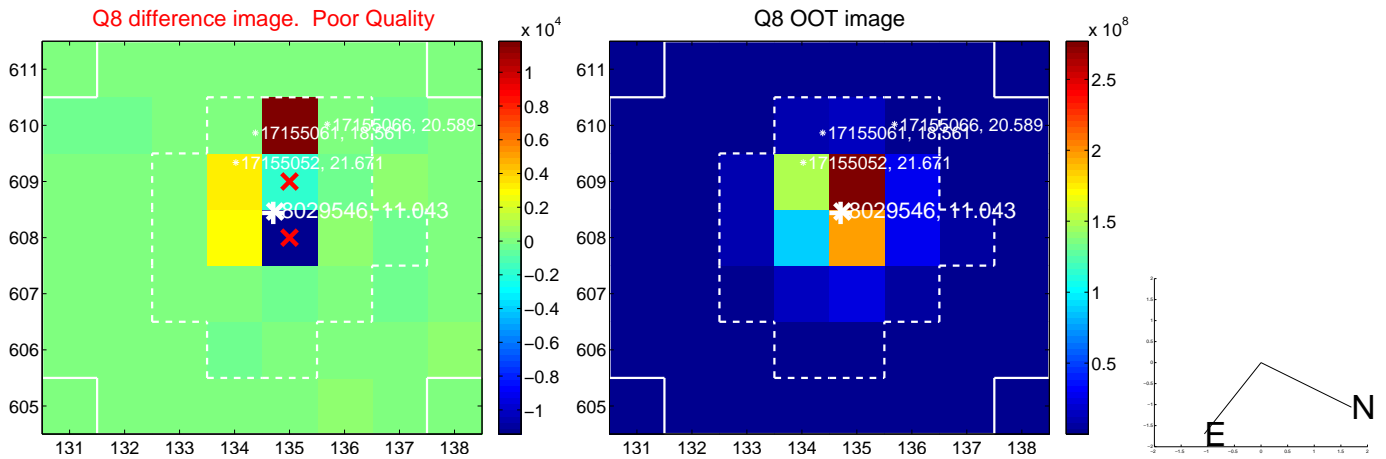
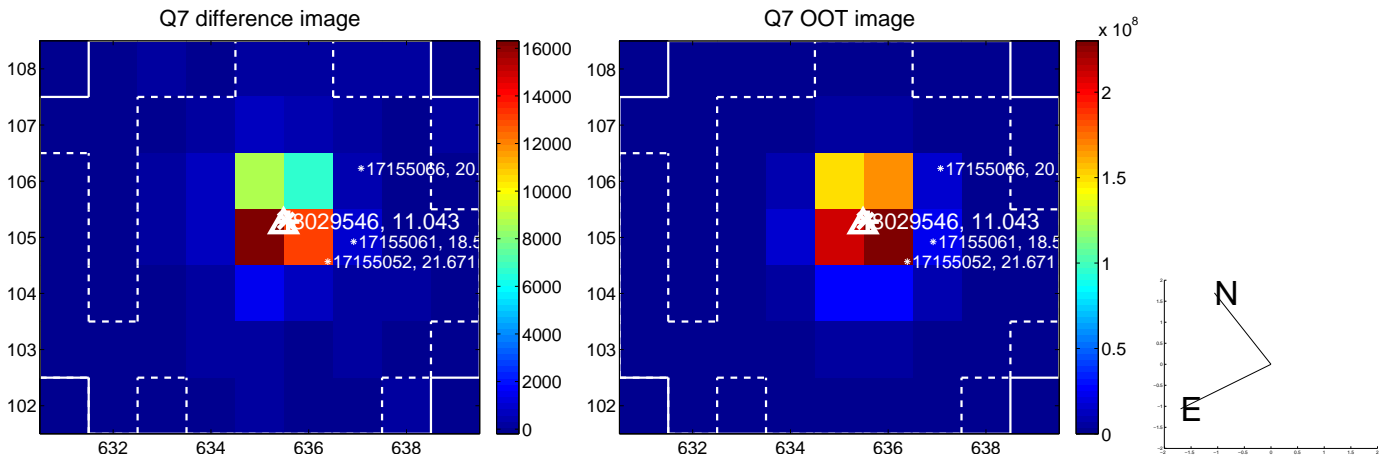
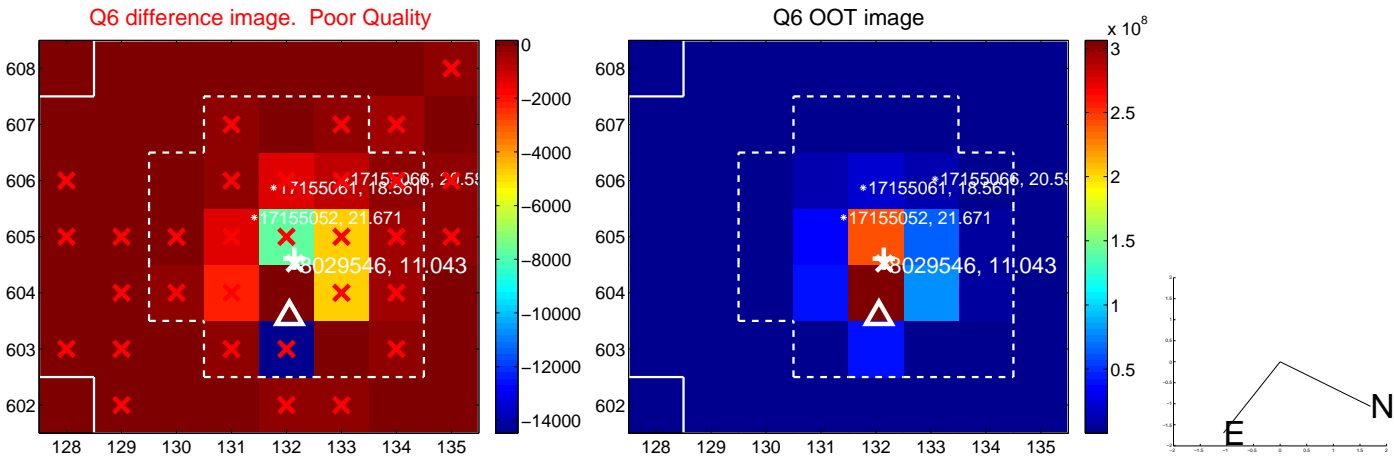
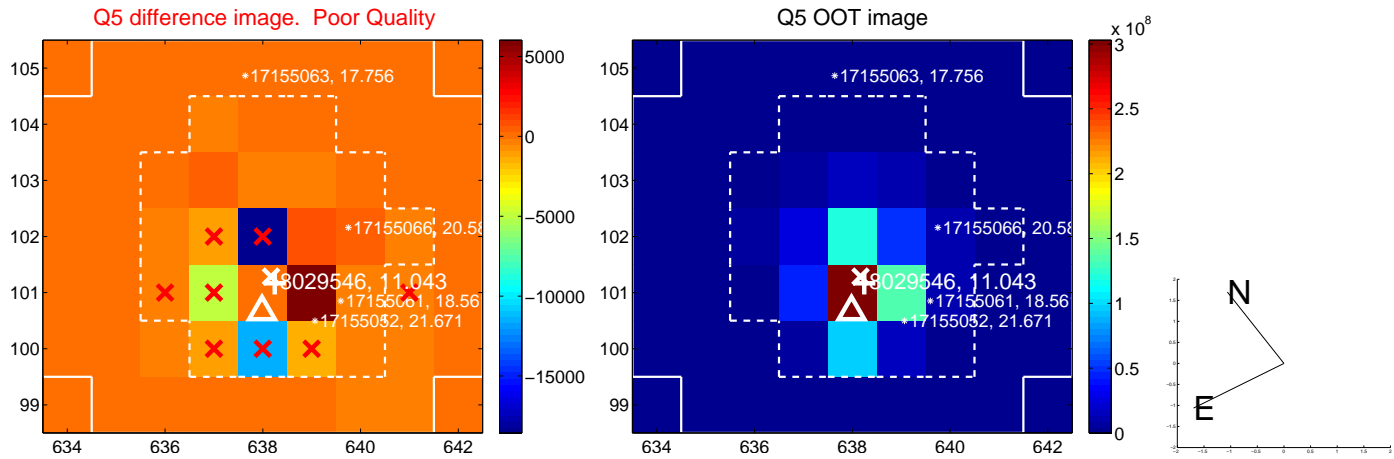


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

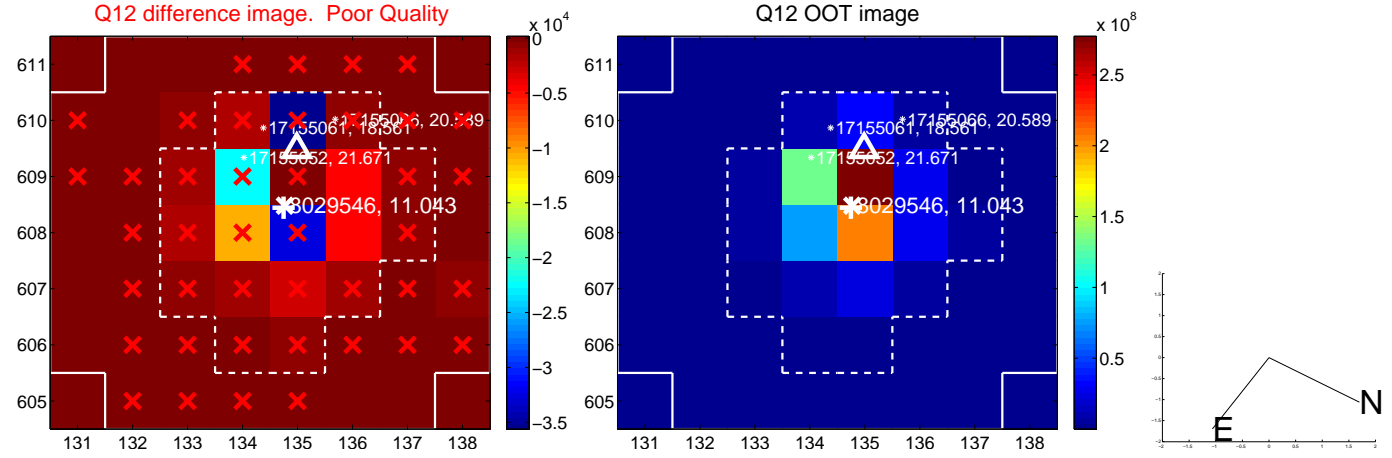
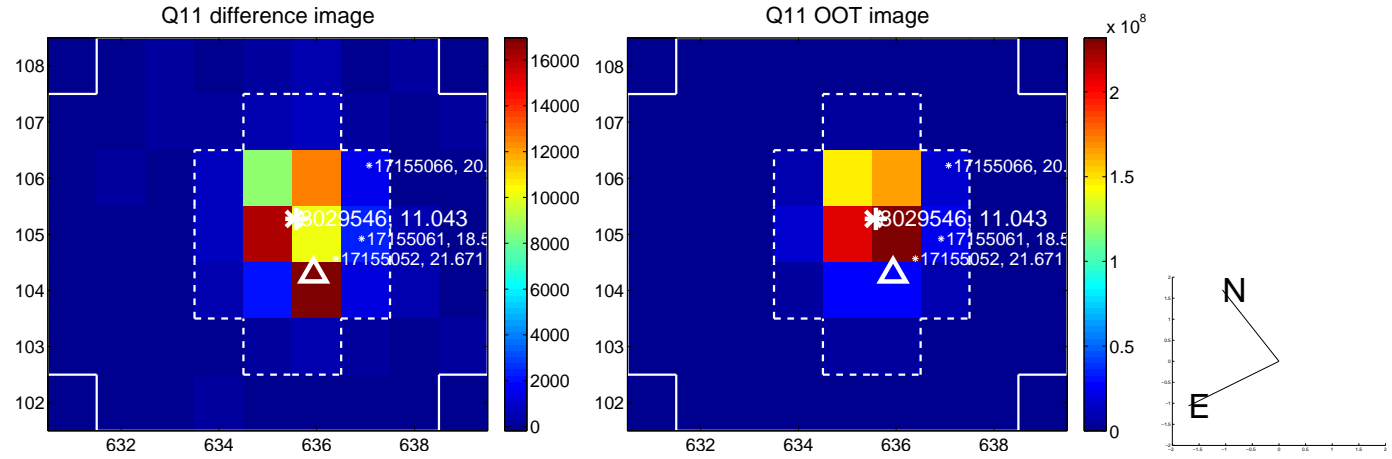
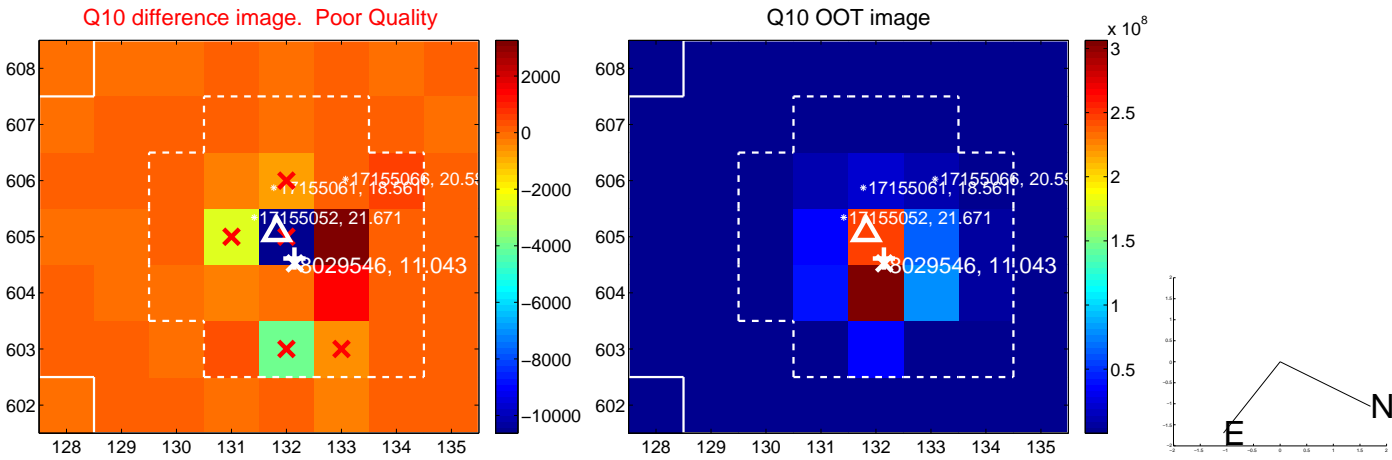
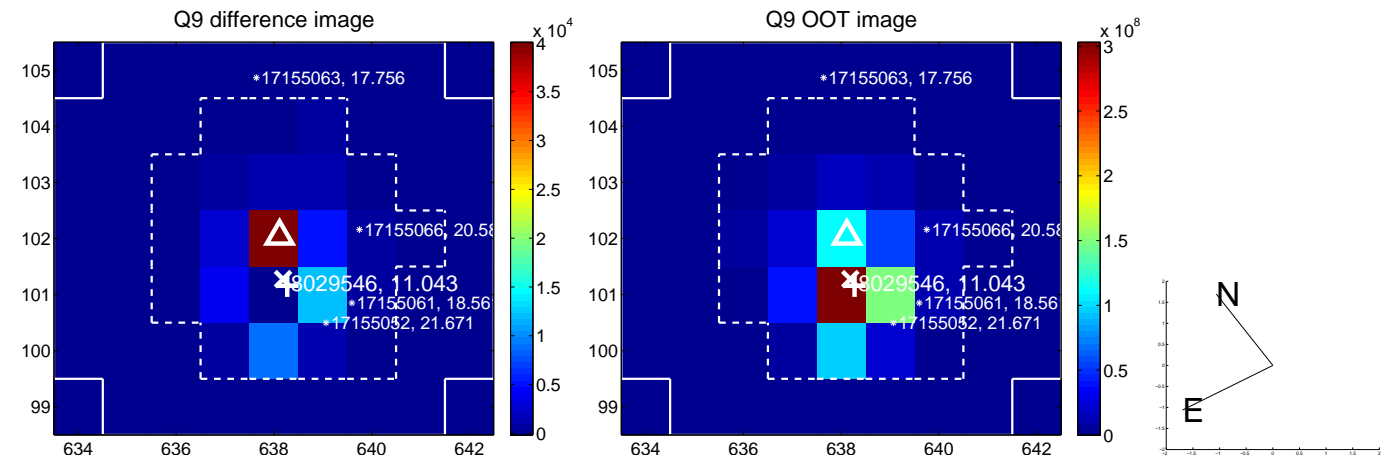
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



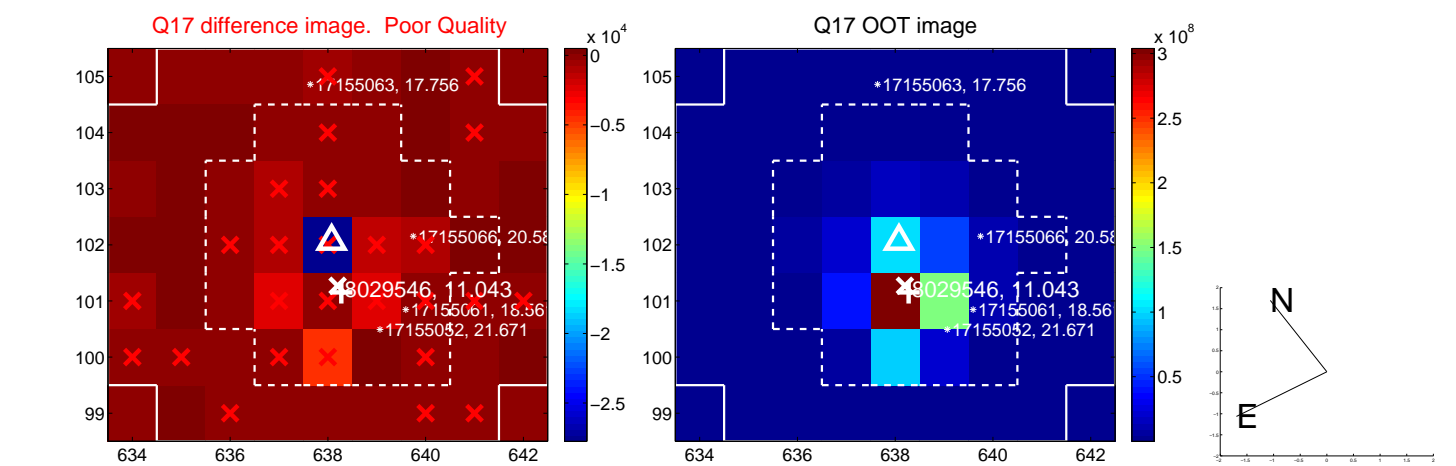
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



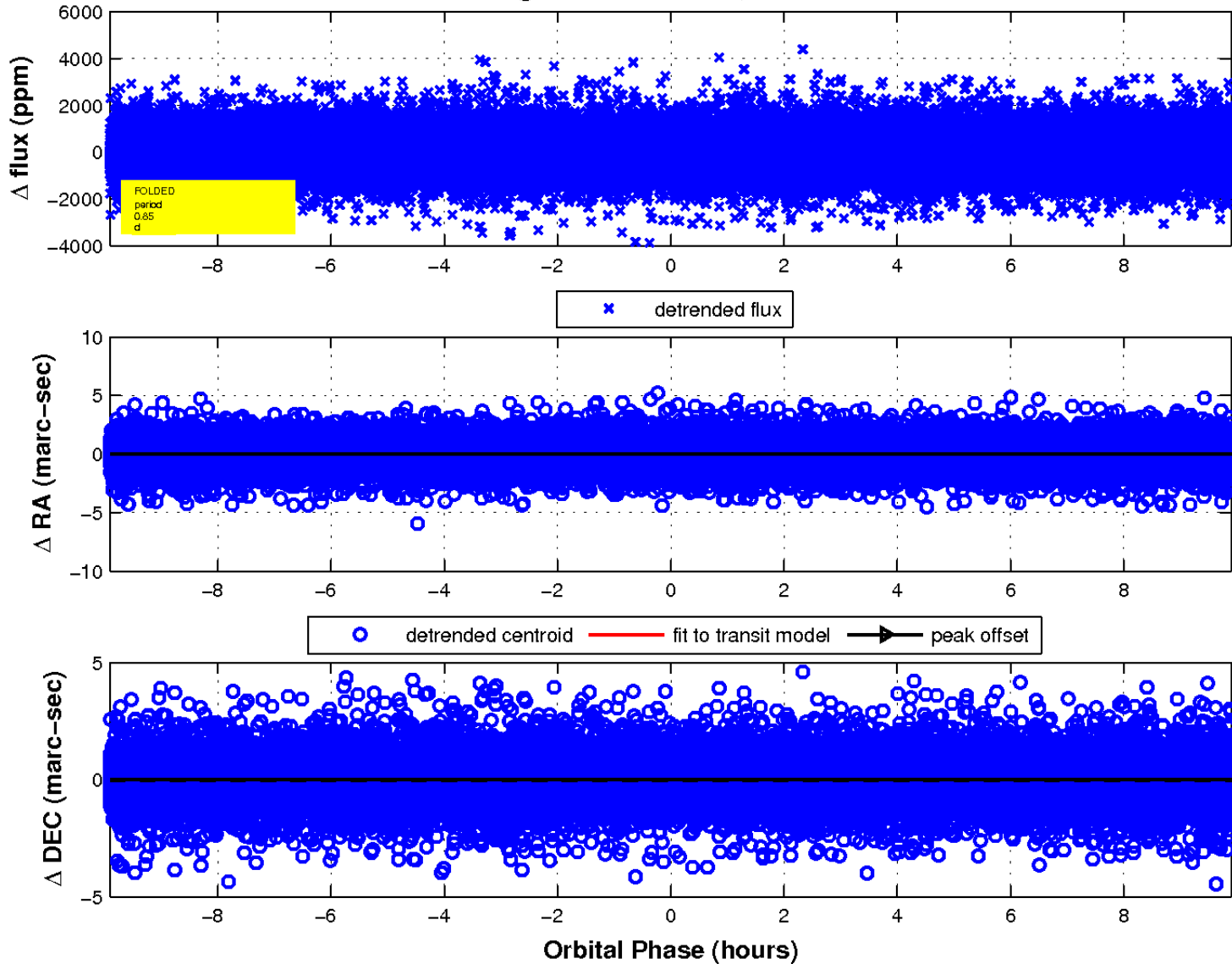
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



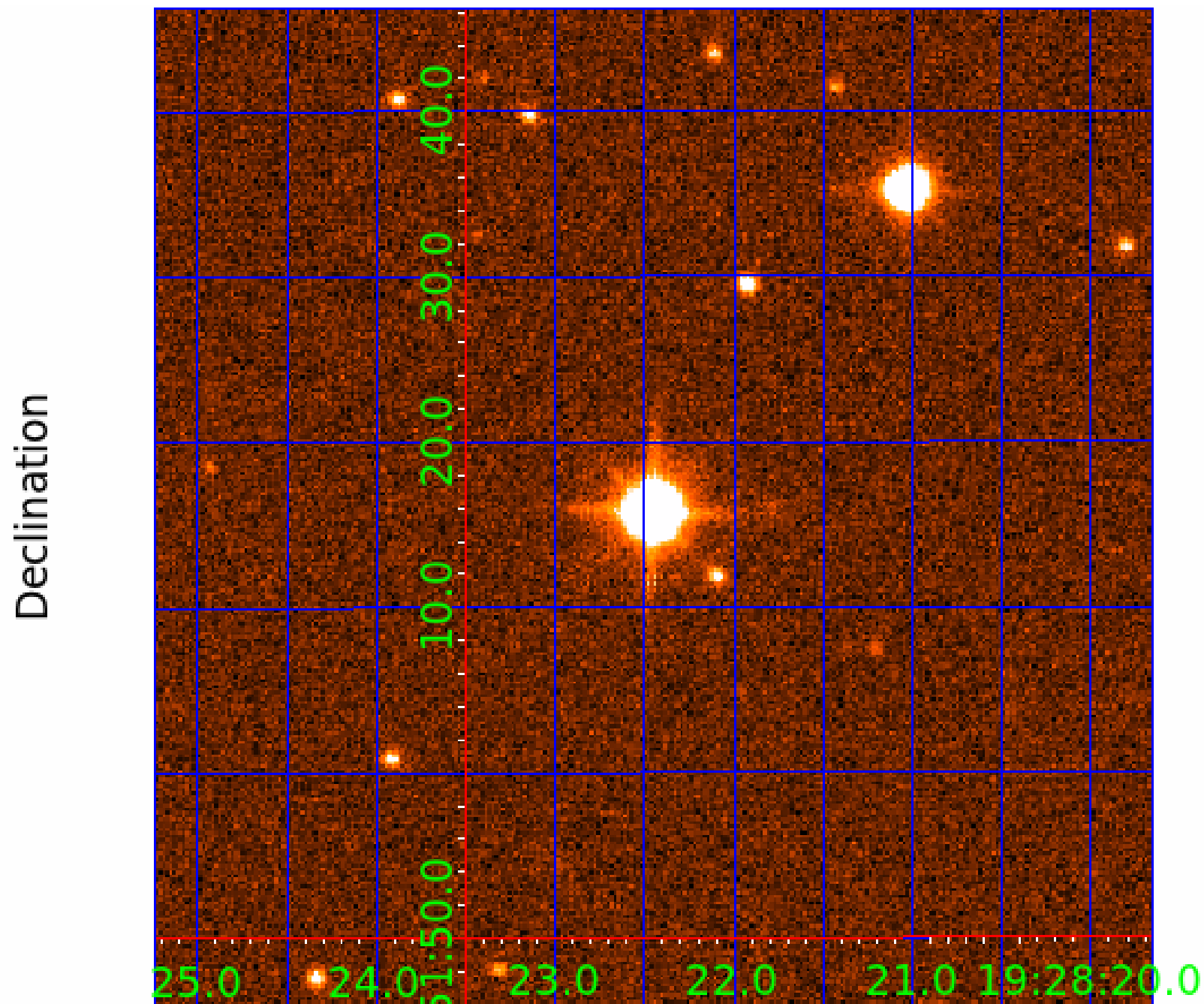
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 008029546

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})
008029546-01	OBS	No	0.848169	132.053812	32.4	3.301	9.5	7.6	2.77	7360	1.87	40821.81
008029546-02	OBS	No	121.484991	225.391264	461.9	7.444	7.4	6.7	2.77	7360	6.29	54.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008029546-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008029546-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

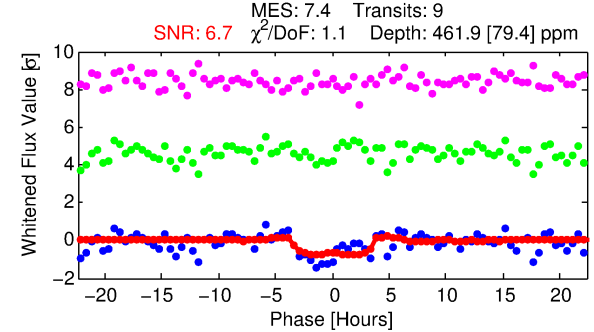
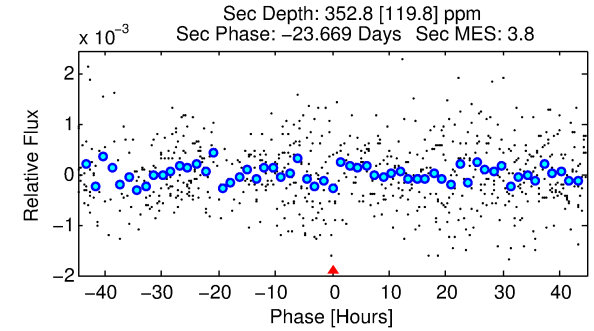
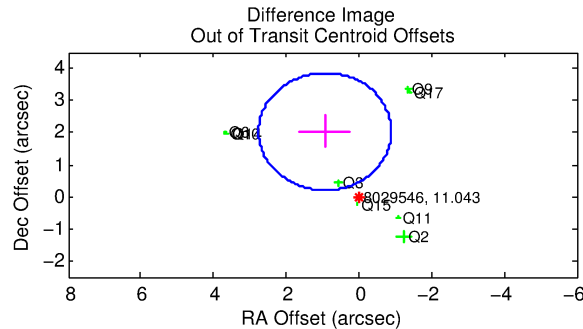
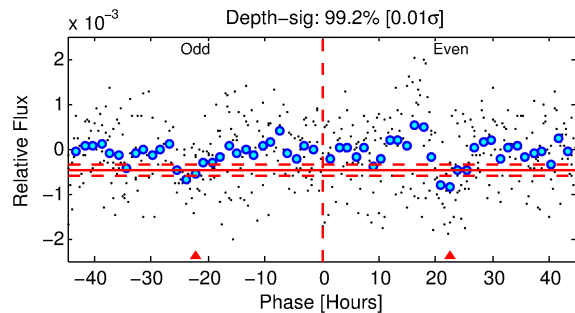
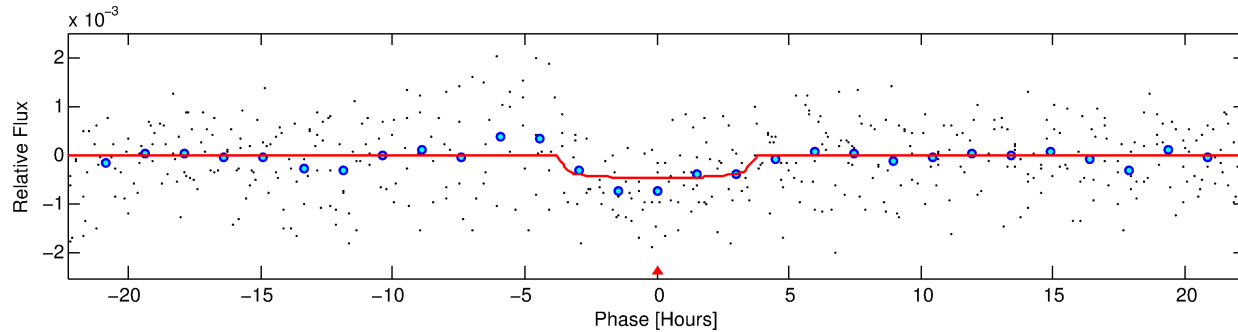
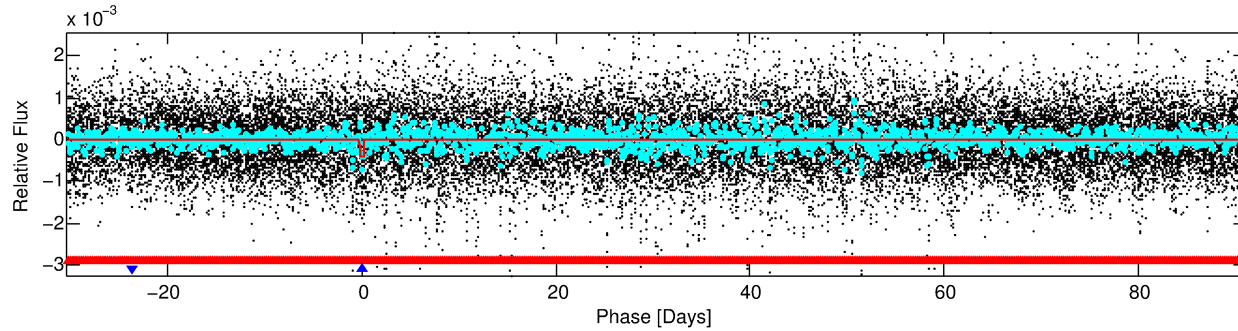
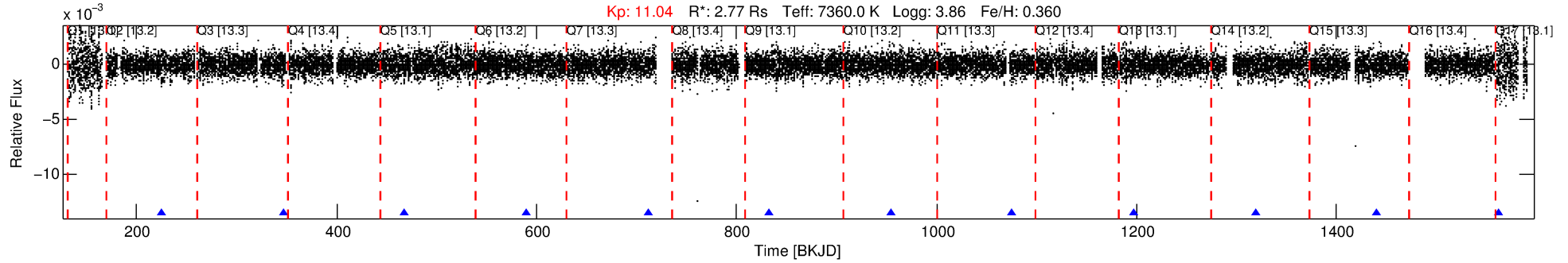
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008029546-02

No Significant Match Found

DV One-Page Summary

KIC: 8029546 Candidate: 2 of 2 Period: 121.485 d



DV Fit Results:

Period = 121.48499 [0.00306] d
 Epoch = 225.3913 [0.0201] BKJD
 Rp/R* = 0.0208 [0.0214]
 a/R* = 99.16 [598.75]
 b = 0.64 [5.60]
 Seff = 54.47 [15.86]
 Teq = 693 [50] K
 Rp = 6.29 [6.58] Re
 a = 0.6074 [0.1149] AU
 Ag = 1811.45 [3798.72] [0.48σ]
 Tefp = 6987 [3630] K [1.73σ]

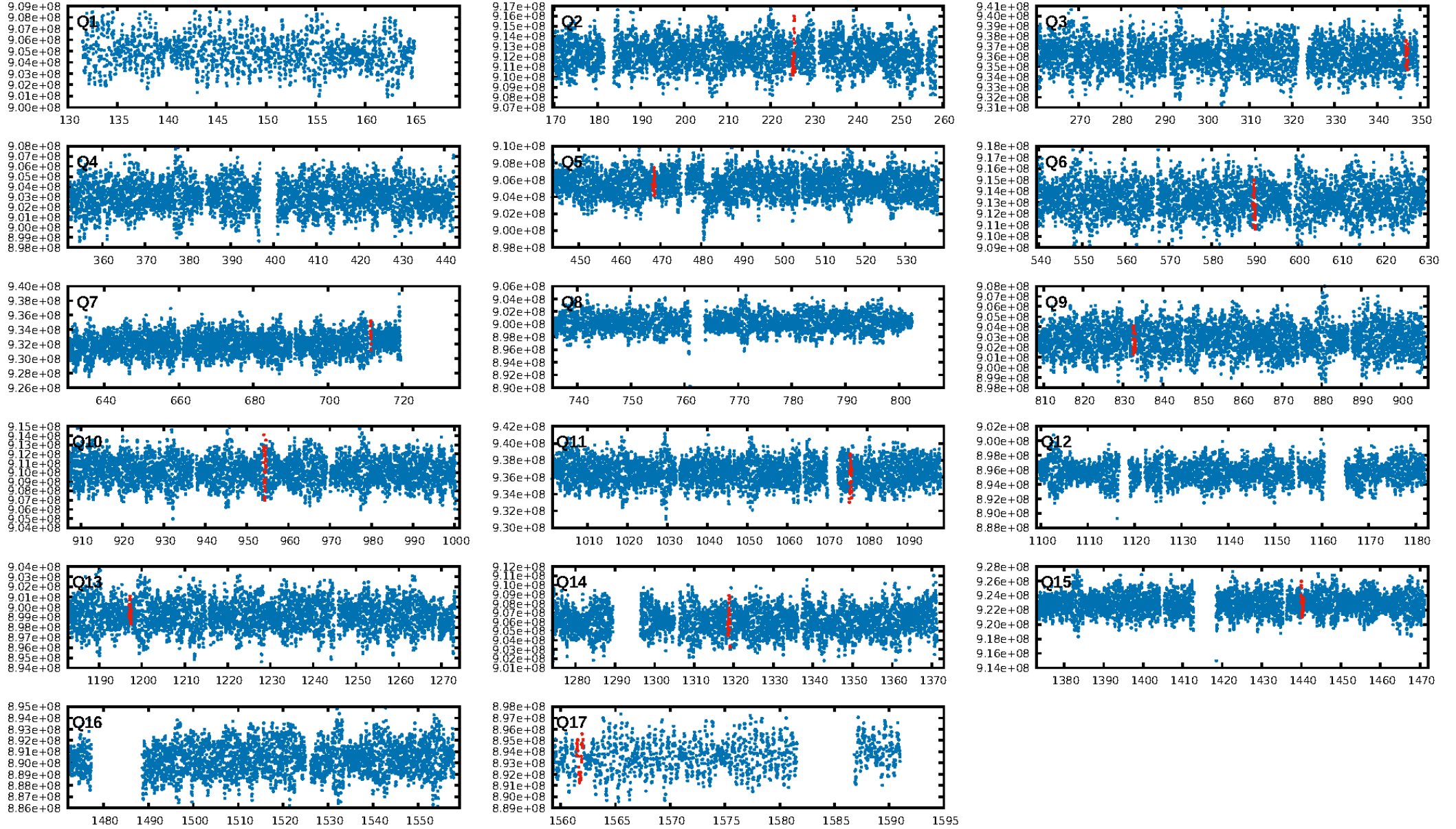
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [355.56σ]
 LongPeriod-sig: N/A
 ModelChiSquare2-sig: 52.1%
 ModelChiSquareGof-sig: 100.0%
 Bootstrap-pfa: 5.51e-10
 RollingBand-fgt: 1.00 [8/8]
 GhostDiagnostic-chr: 0.9133
 Centroid-sig: 59.2%
 Centroid-so: 0.145 arcsec [0.66σ]
 OotOffset-rm: 2.237 arcsec [3.67σ]
 KicOffset-rm: 1.965 arcsec [3.16σ]
 OotOffset-st: 4/3/0/2 [9]
 KicOffset-st: 4/3/0/2 [9]
 DiffImageQuality-fgm: 0.44 [4/9]
 DiffImageOverlap-fno: 0.00 [0/10]

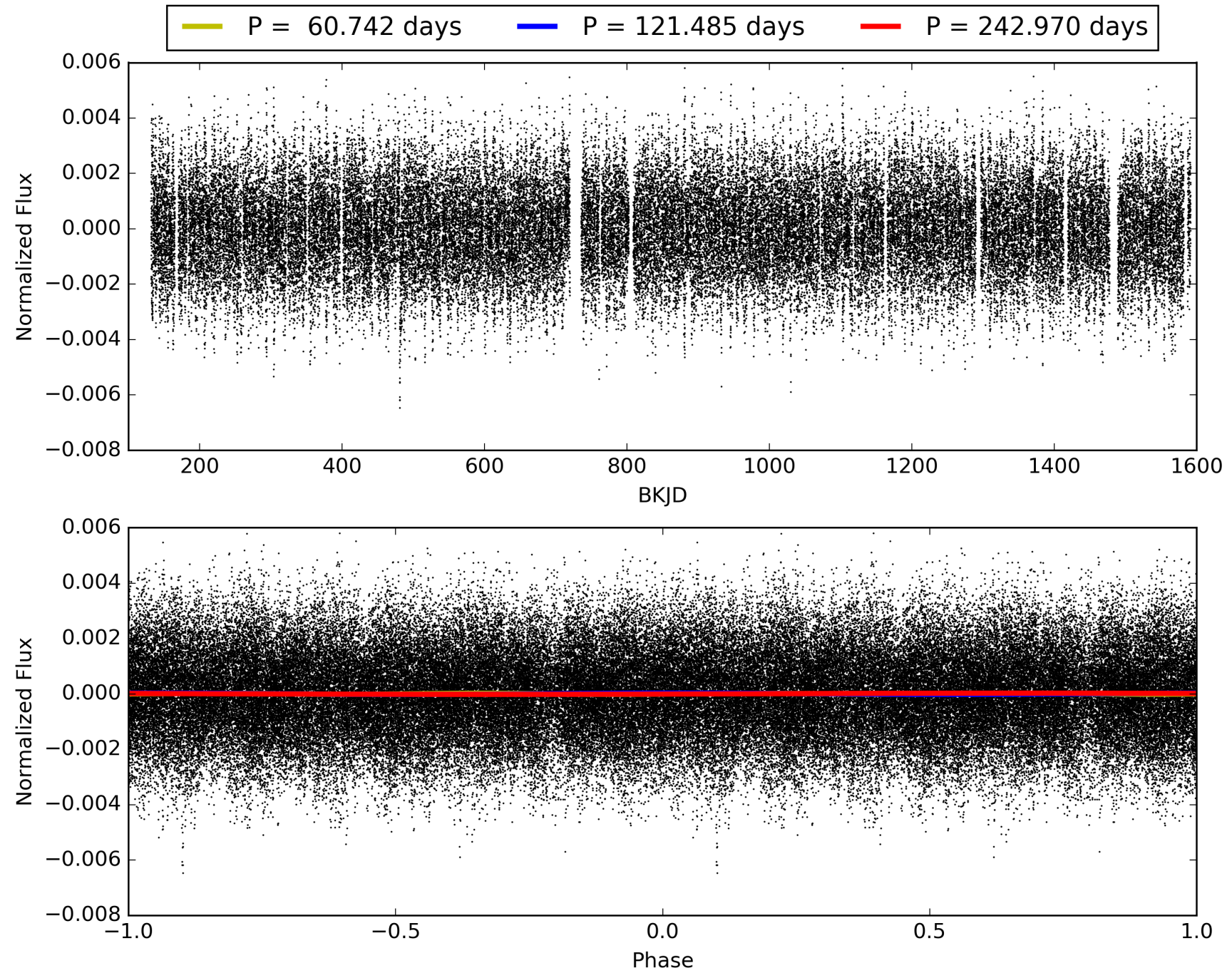
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:45:25 Z

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

TCE 008029546-02, PDC Light Curves

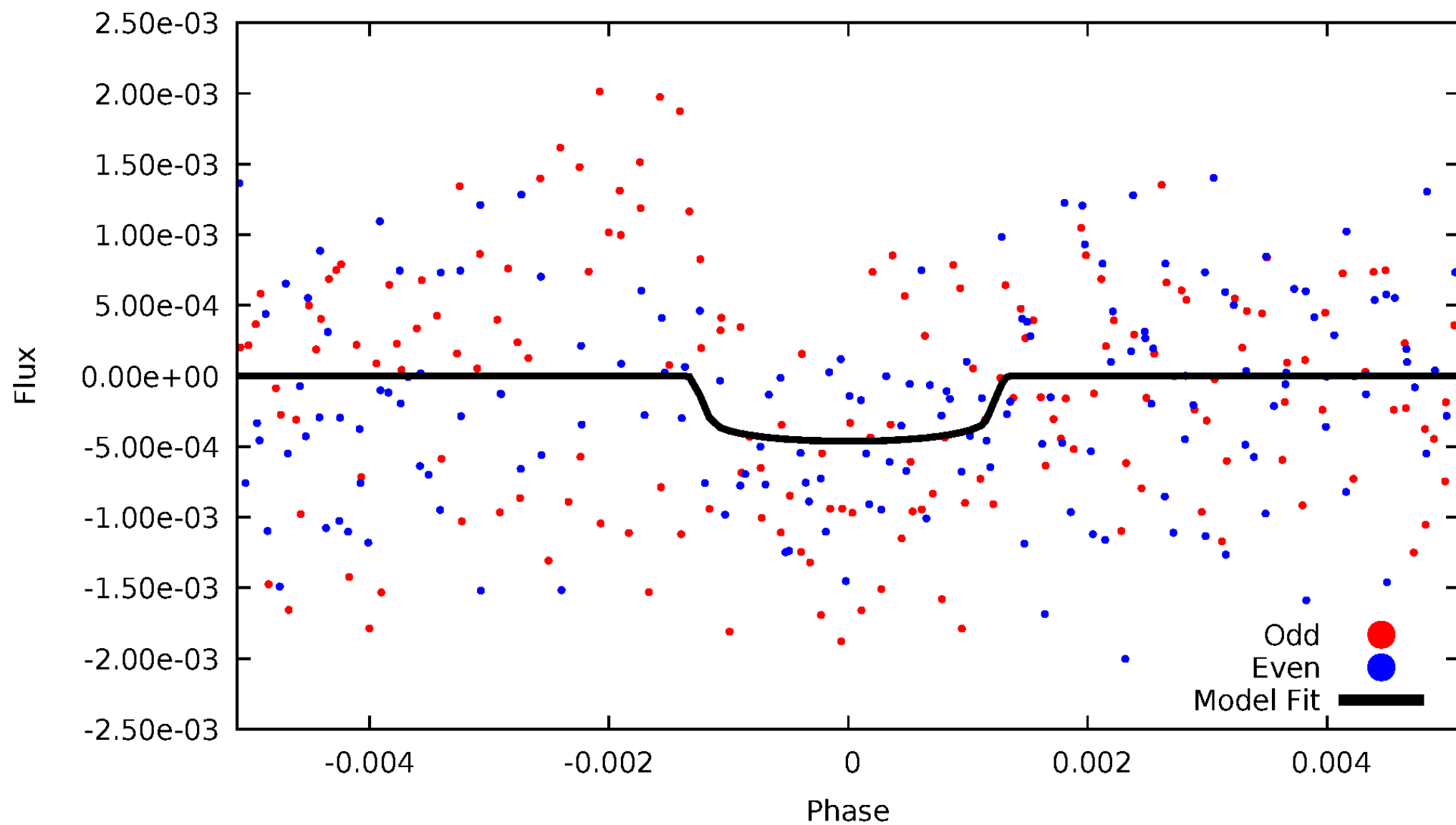


TCE 008029546-02



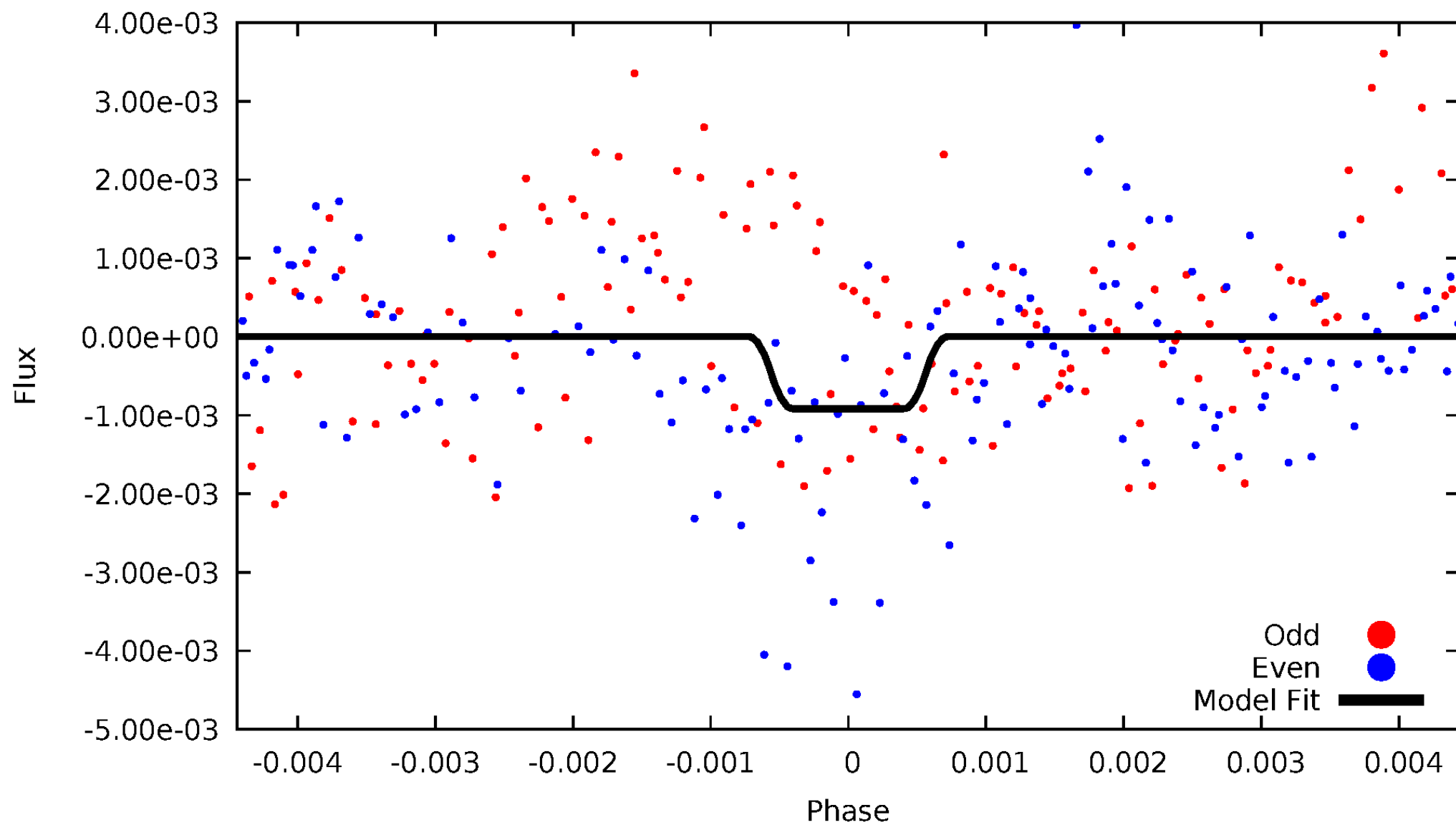
DV Odd/Even

TCE 008029546-02



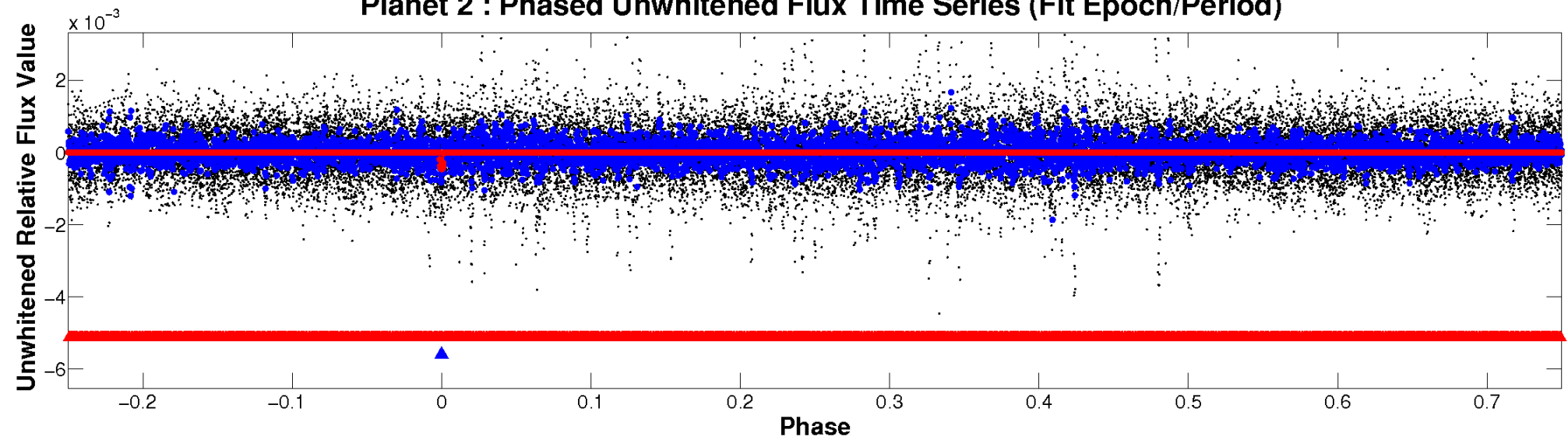
ALT Odd/Even

TCE 008029546-02

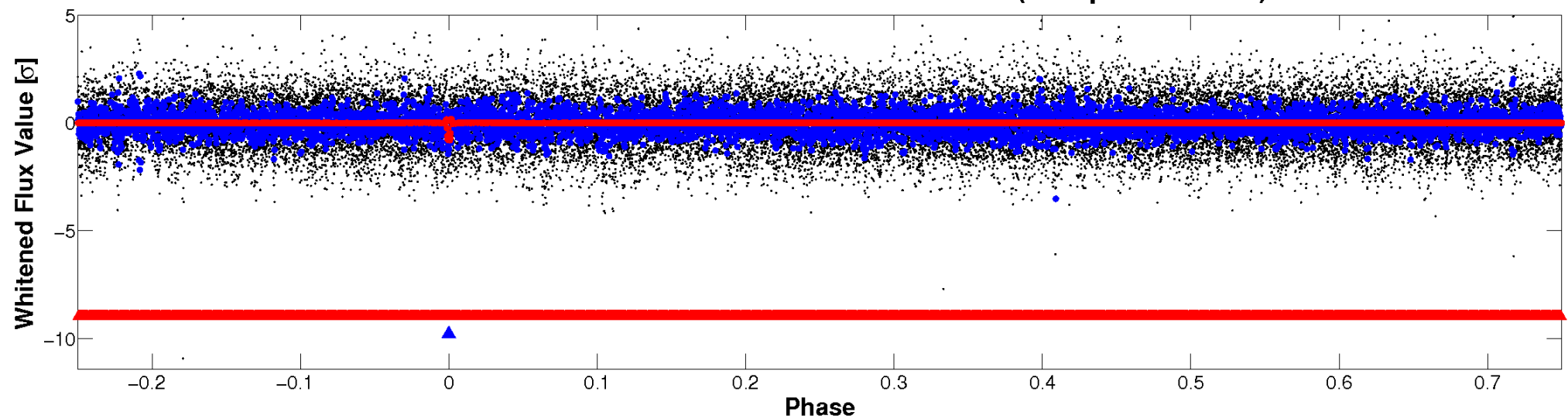


Non-Whitened Vs. Whitened Light Curve

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

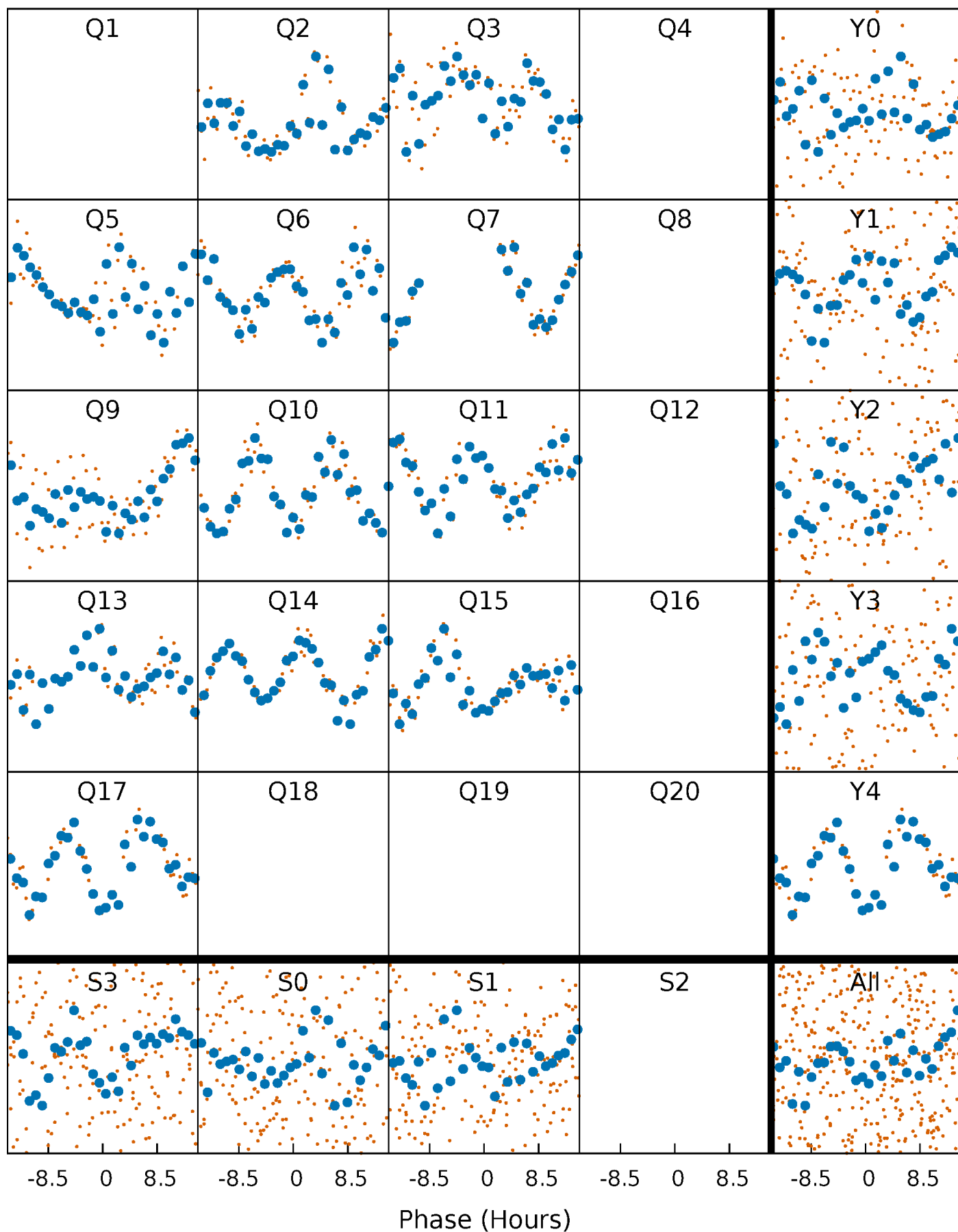


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



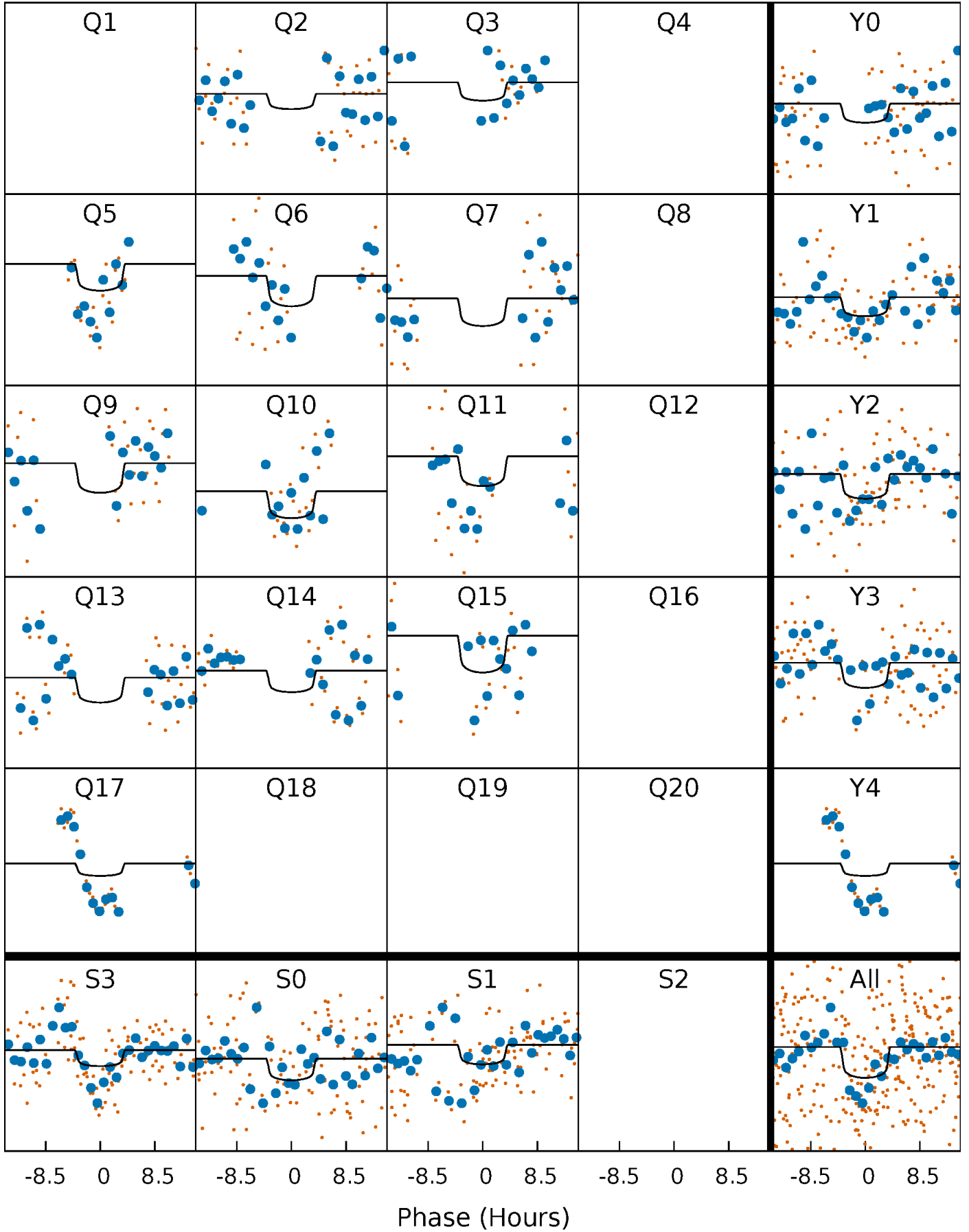
PDC Quarter-Phased Transit Curves

TCE 008029546-02 P=121.484991 Days $T_0=225.391264$ (BKJD)



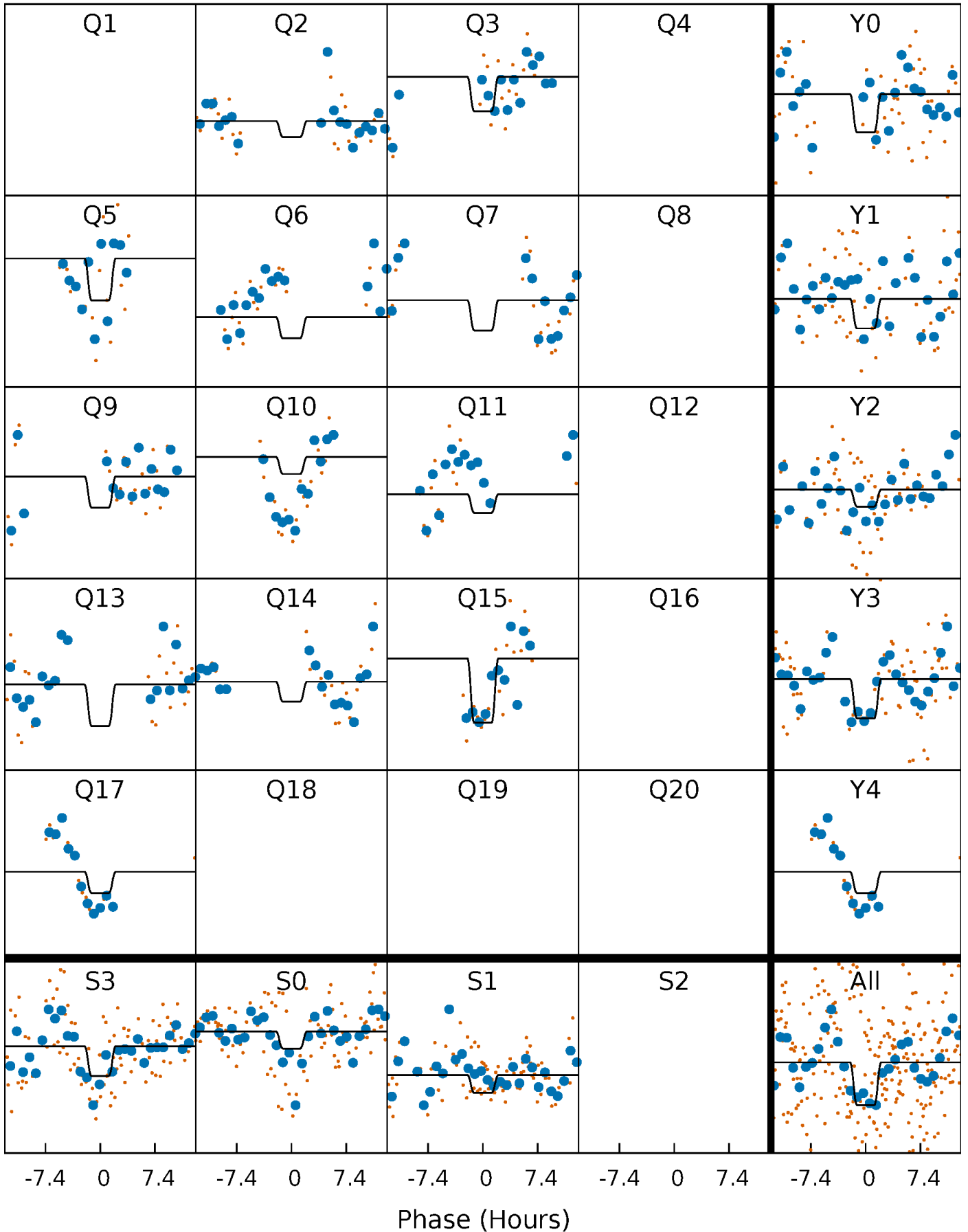
DV Quarter-Phased Transit Curves

TCE 008029546-02 P=121.484991 Days $T_0=225.391264$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

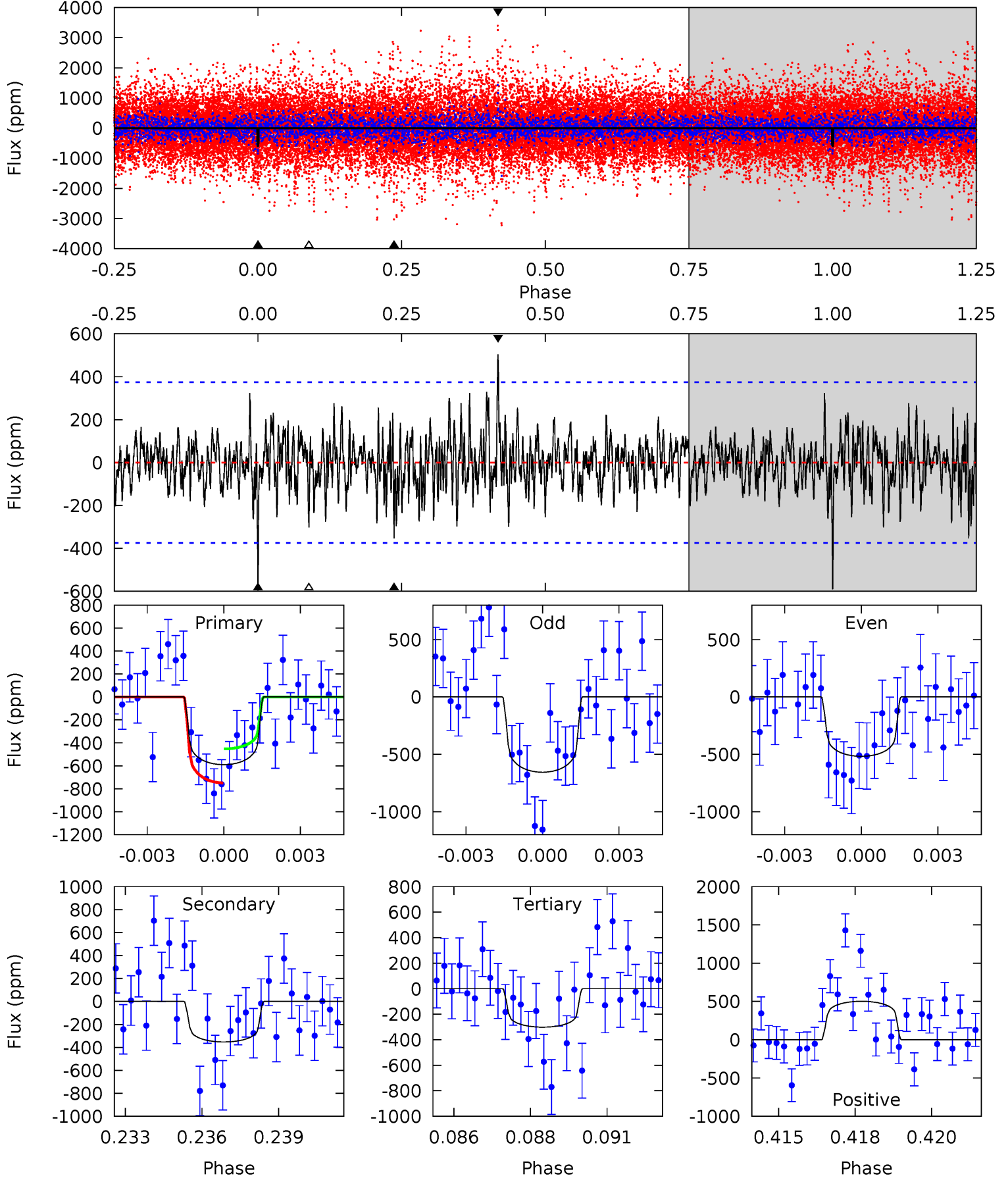
TCE 008029546-02 P=121.486215 Days $T_0=225.409733$ (BKJD)



DV Model-Shift Uniqueness Test

008029546-02, P = 121.484991 Days, E = 103.906273 Days

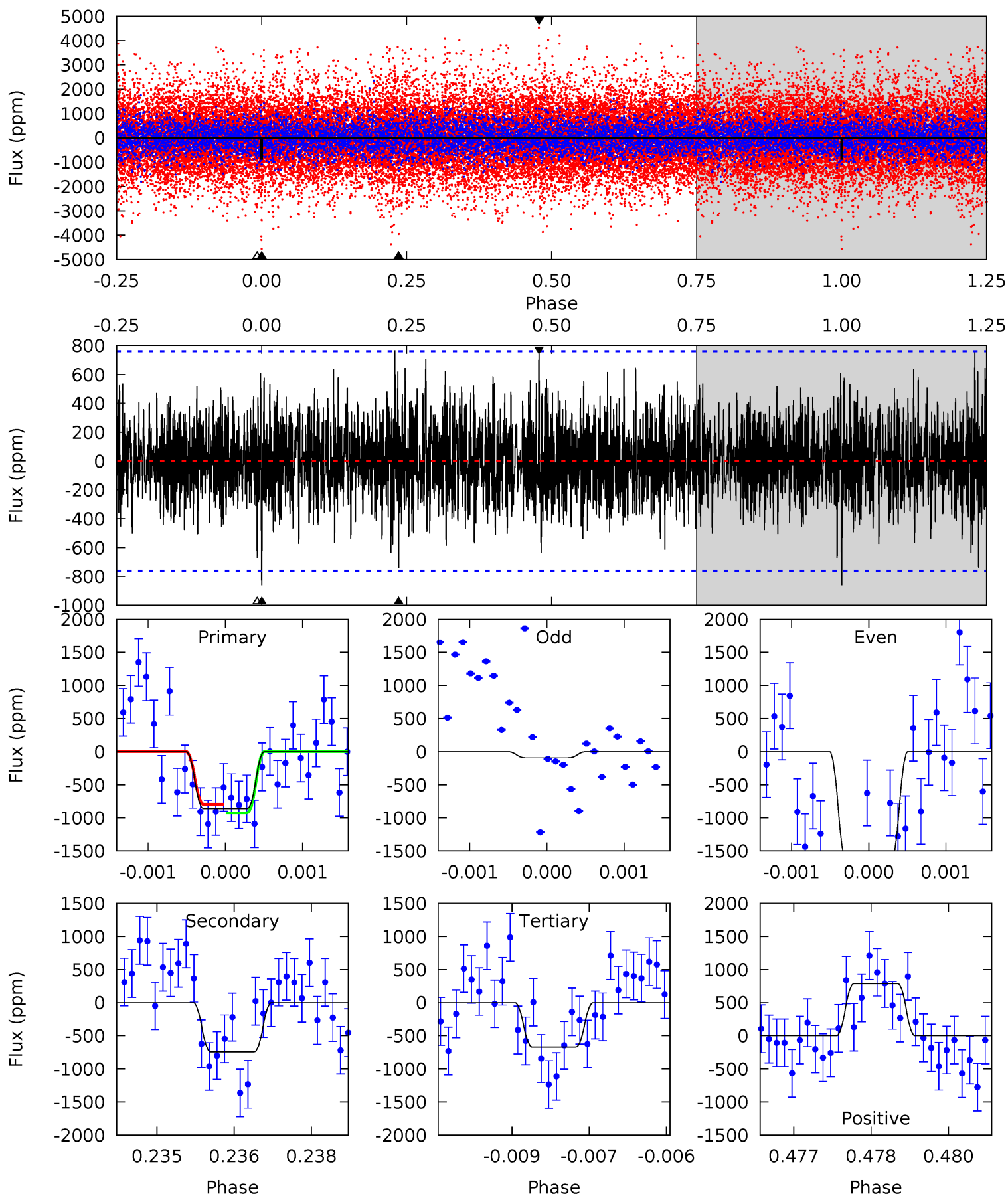
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.31	4.97	4.25	7.07	5.28	3.01	1.41	4.06	1.24	0.72	-2.10	0.97	1.06	0.46	2.09



Alt Model-Shift Uniqueness Test

008029546-02, P = 121.486215 Days, E = 103.923518 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.10	5.26	4.75	5.58	5.39	3.19	1.61	1.35	0.52	0.51	-0.32	5.65	0.86	0.48	0.46



Stellar Parameters For KIC 008029546

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7360^{+66}_{-95}	$3.861^{+0.162}_{-0.075}$	$0.360^{+0.050}_{-0.150}$	$2.765^{+0.318}_{-0.591}$	$2.026^{+0.135}_{-0.203}$	$0.135^{+0.109}_{-0.032}$
	+1%/-1%	+4%/-2%	+14%/-42%	+12%/-21%	+7%/-10%	+81%/-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 008029546-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-353 ± 71	$7.30^{+5.95}_{-4.41}$	962^{+32}_{-53}	6257^{+4833}_{-1489}	1315^{+7203}_{-932}
Alt.	-743 ± 141	$9.13^{+6.40}_{-5.26}$	963^{+33}_{-50}	6769^{+5582}_{-1534}	1763^{+8702}_{-1162}

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

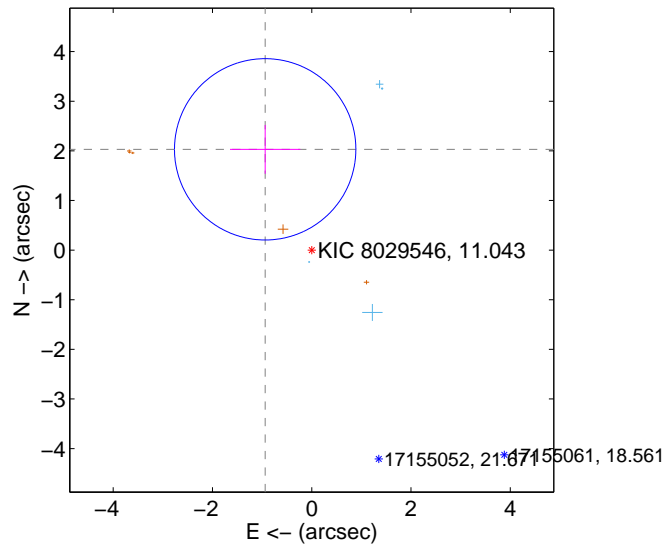
Supplemental centroid analysis for 008029546-02. **Kepler magnitude: 11.04.** Transit SNR 6.75

There are 4 quarters with good PRF difference image offsets

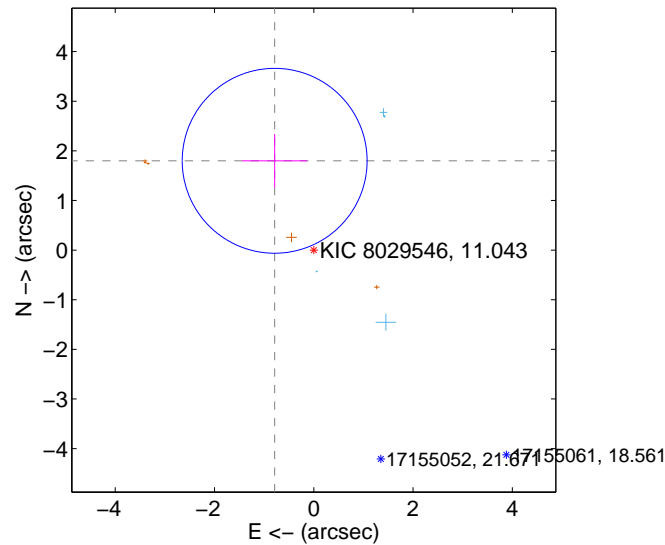
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.237 ± 0.609	3.67	0.938 ± 0.709	2.031 ± 0.491
PRF-fit source offset from KIC position	1.965 ± 0.621	3.16	0.788 ± 0.654	1.800 ± 0.540
photometric centroid source offset	0.15 ± 0.22	0.66	0.10 ± 0.22	-0.10 ± 0.22

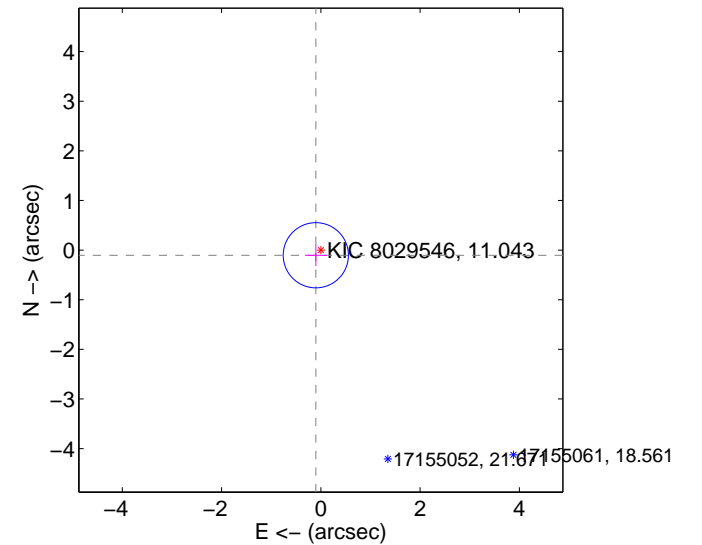
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

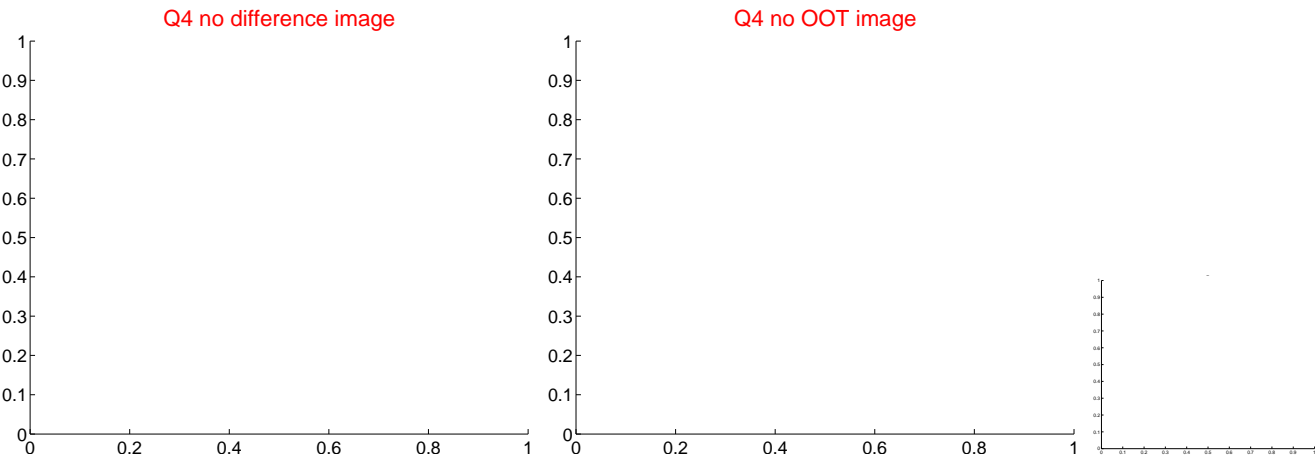
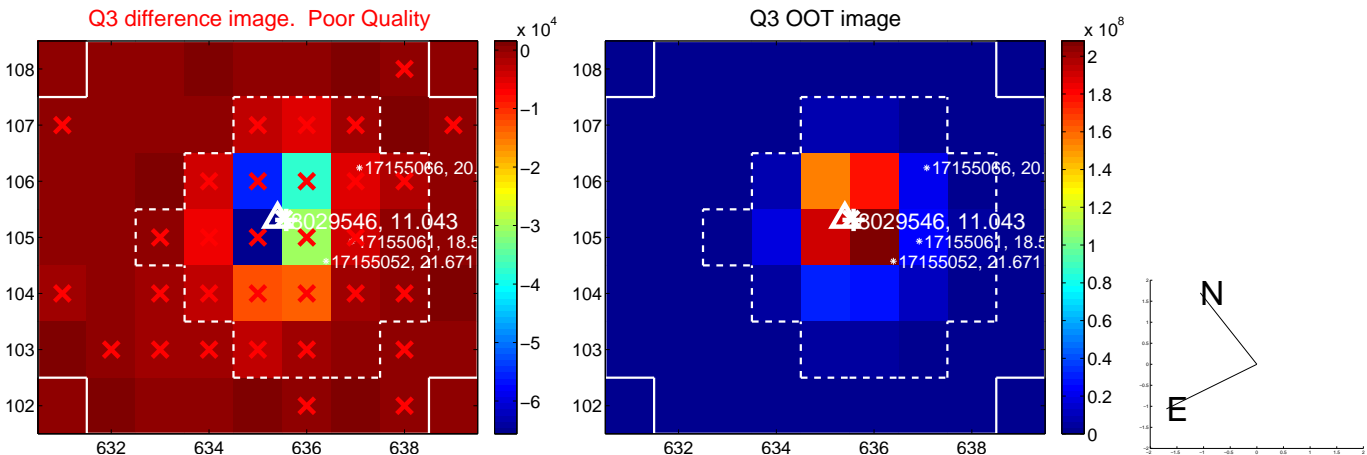
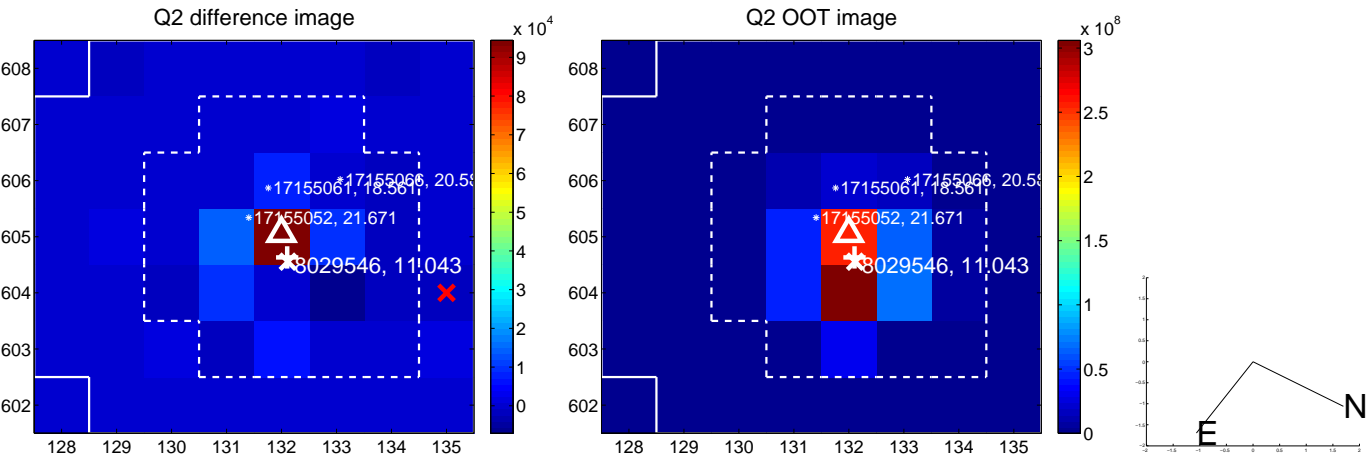
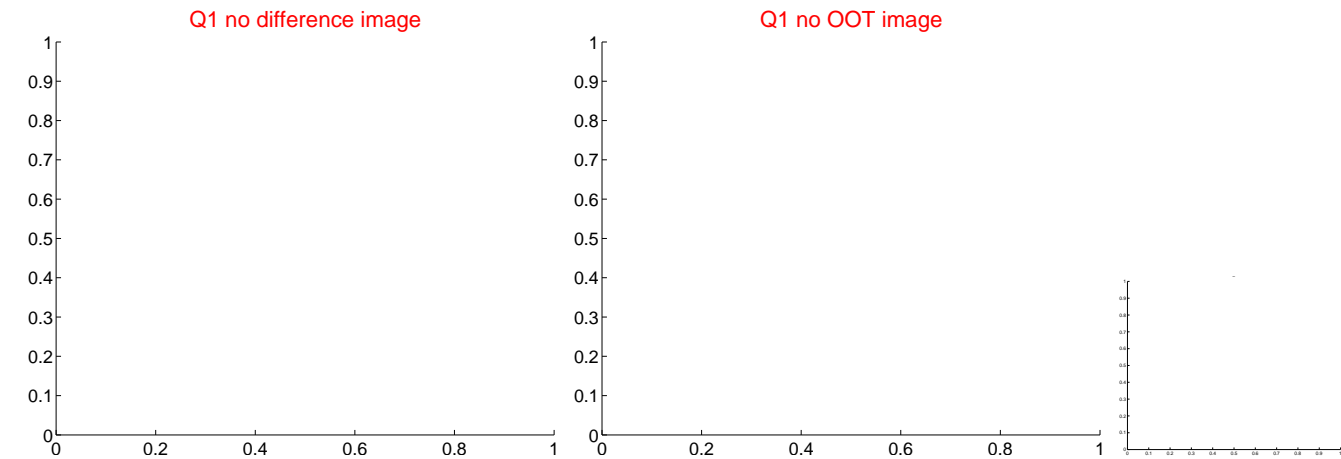


offset from photometric centroids

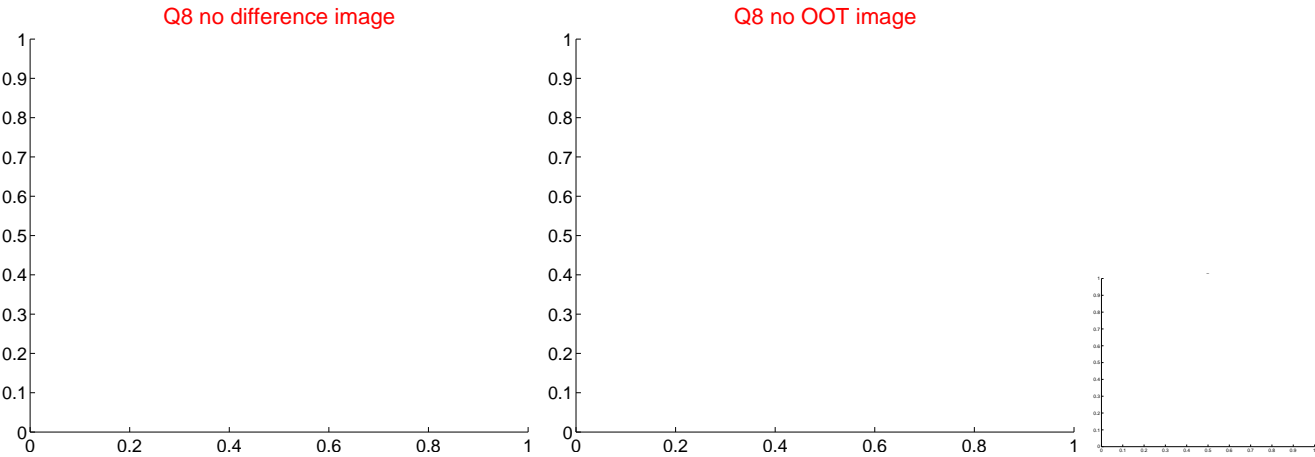
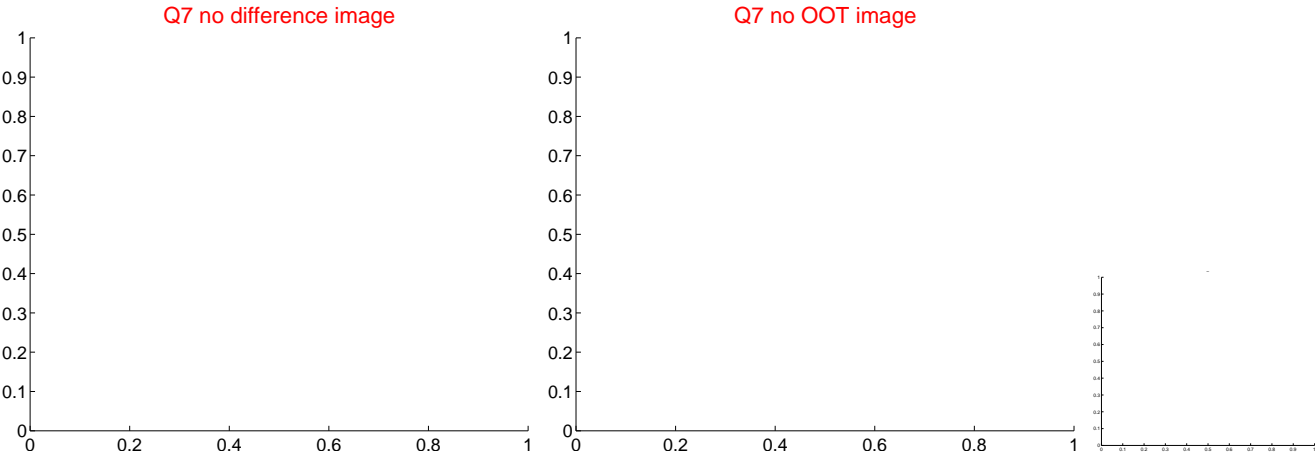
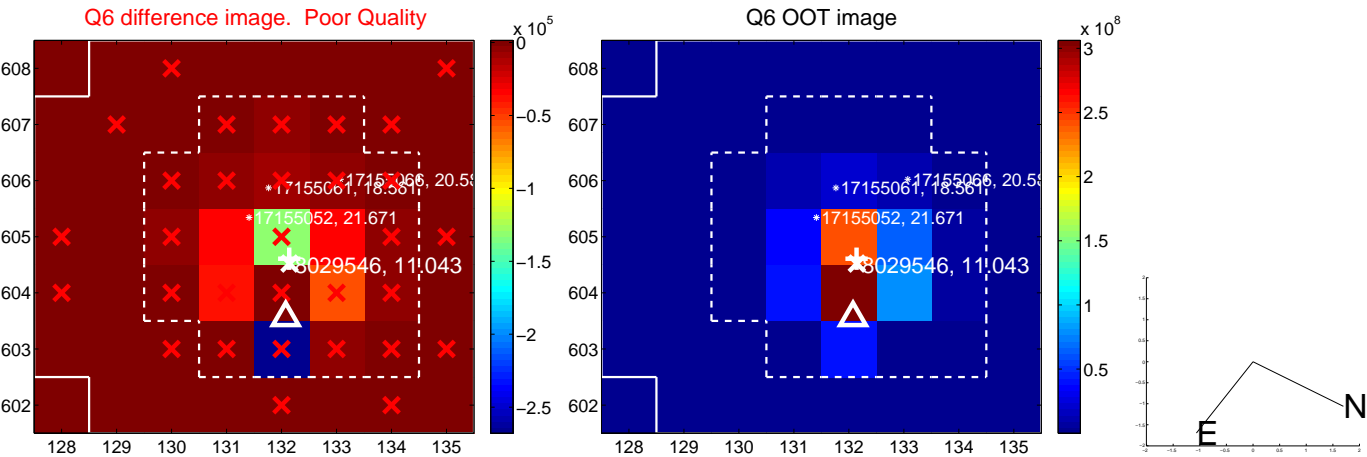
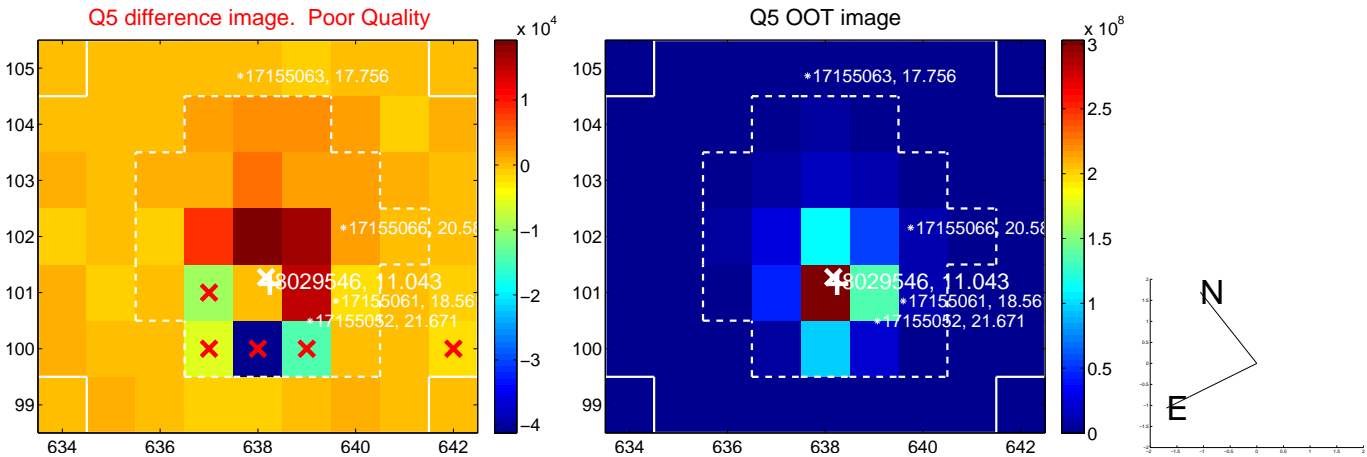


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

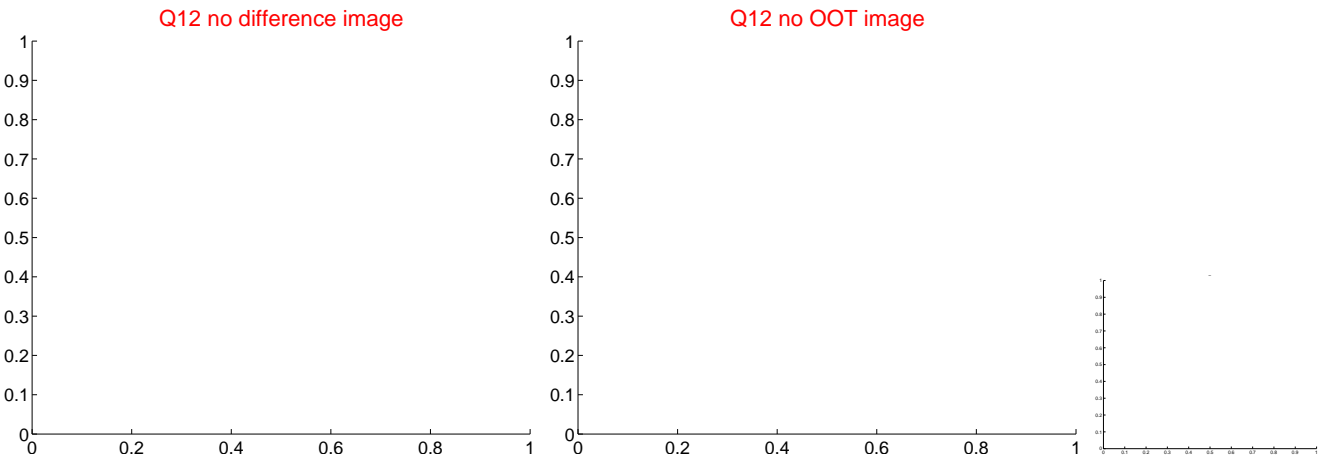
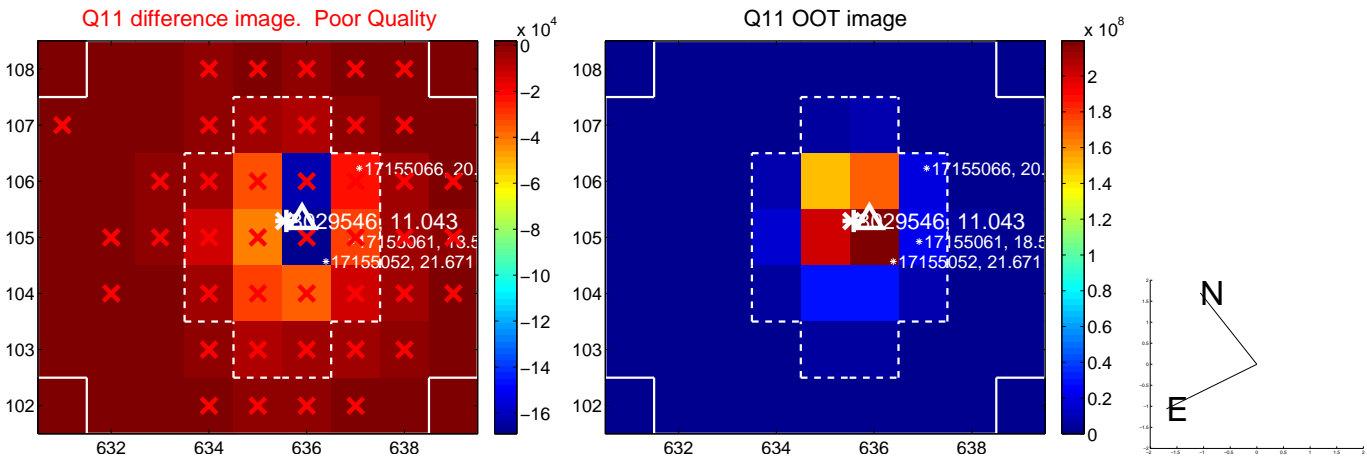
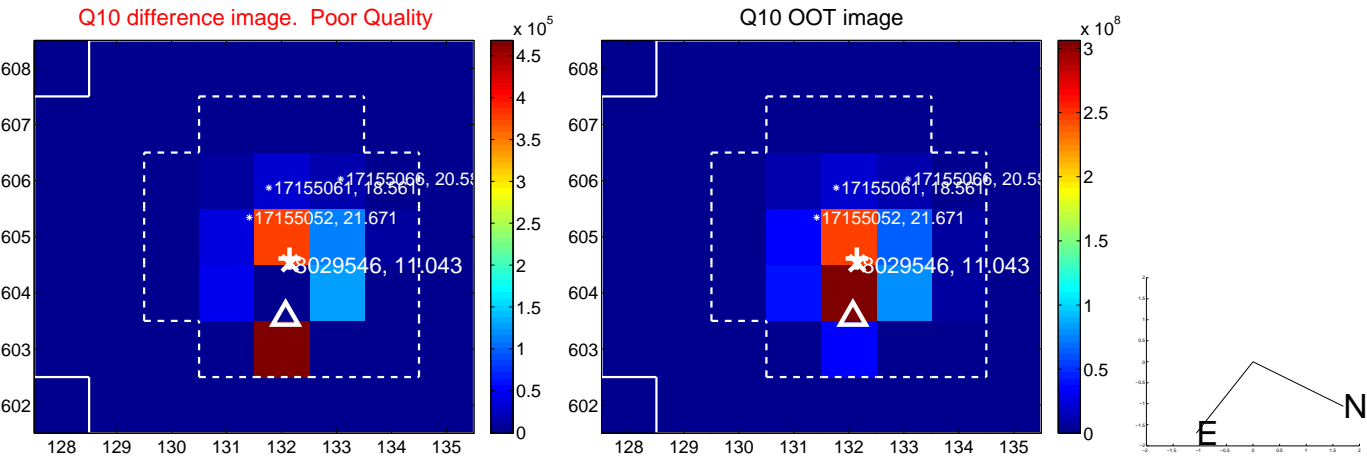
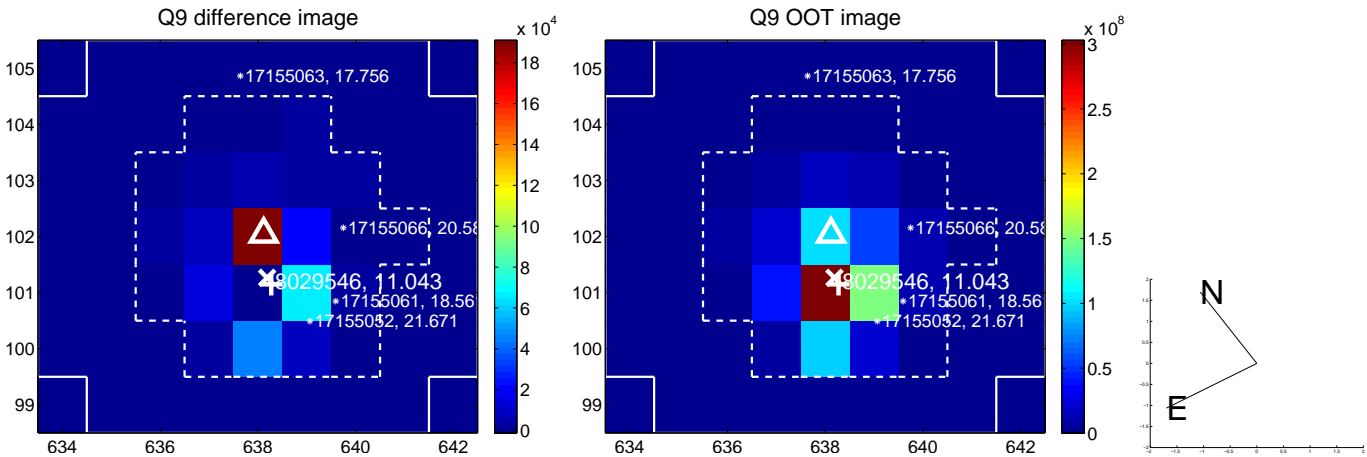
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



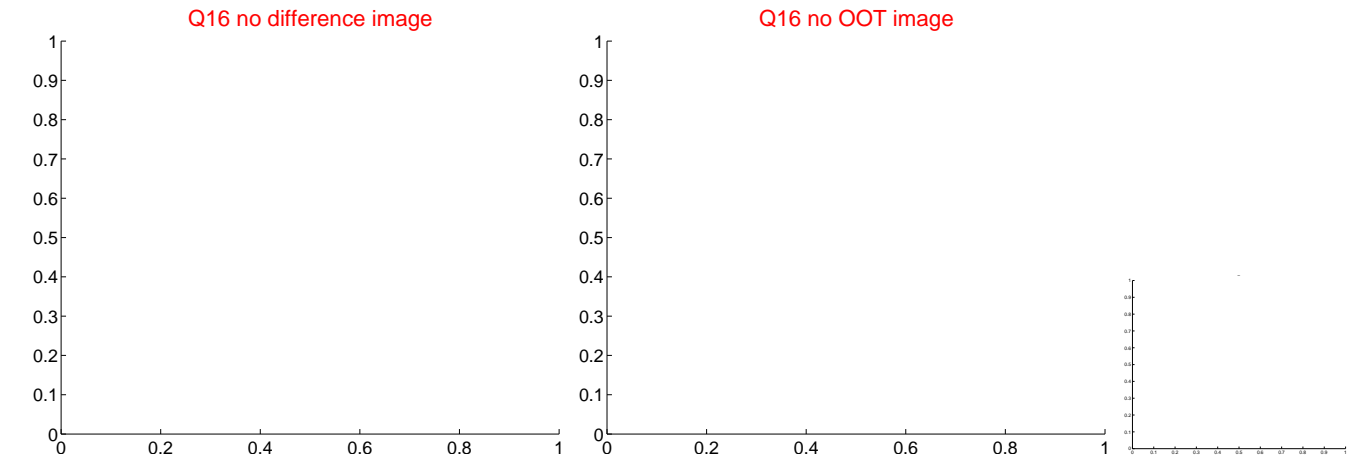
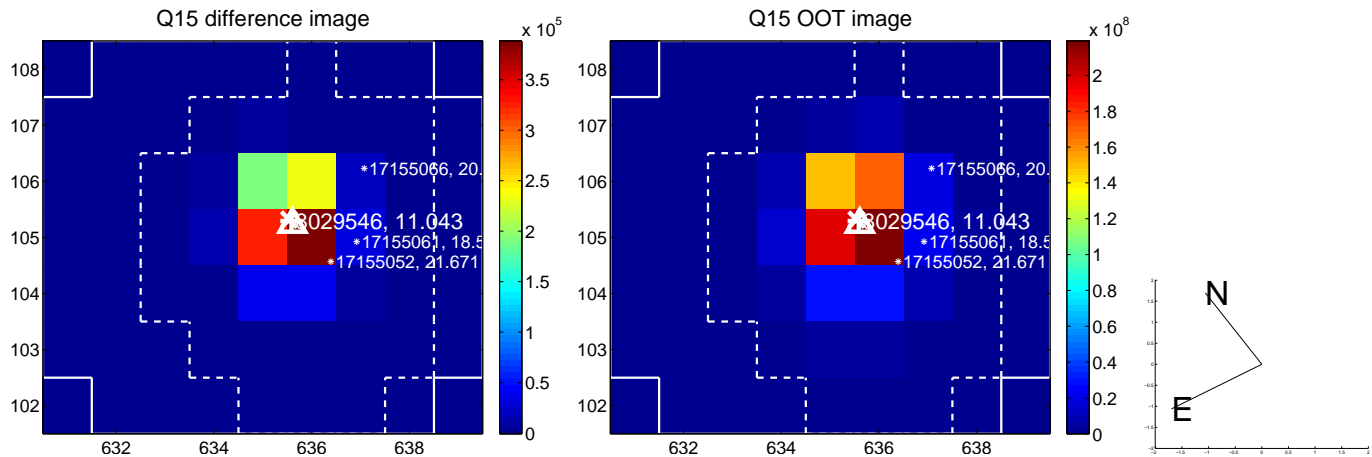
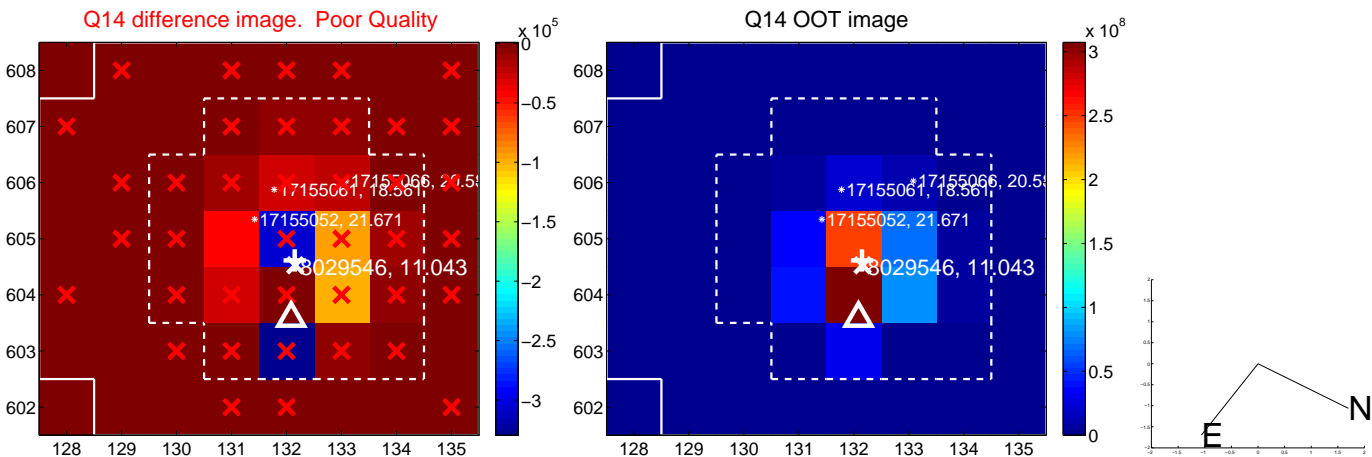
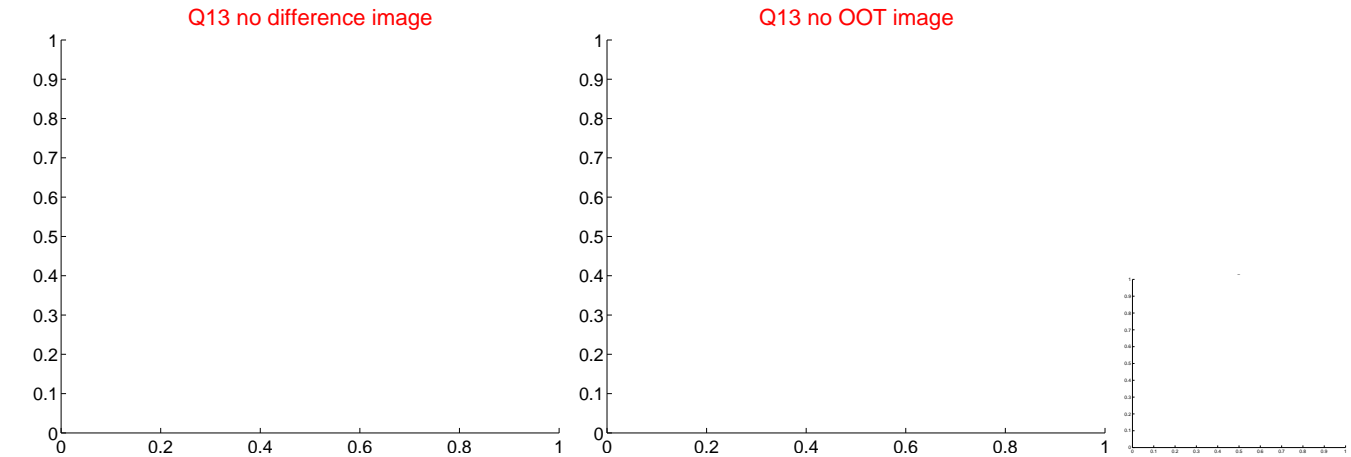
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



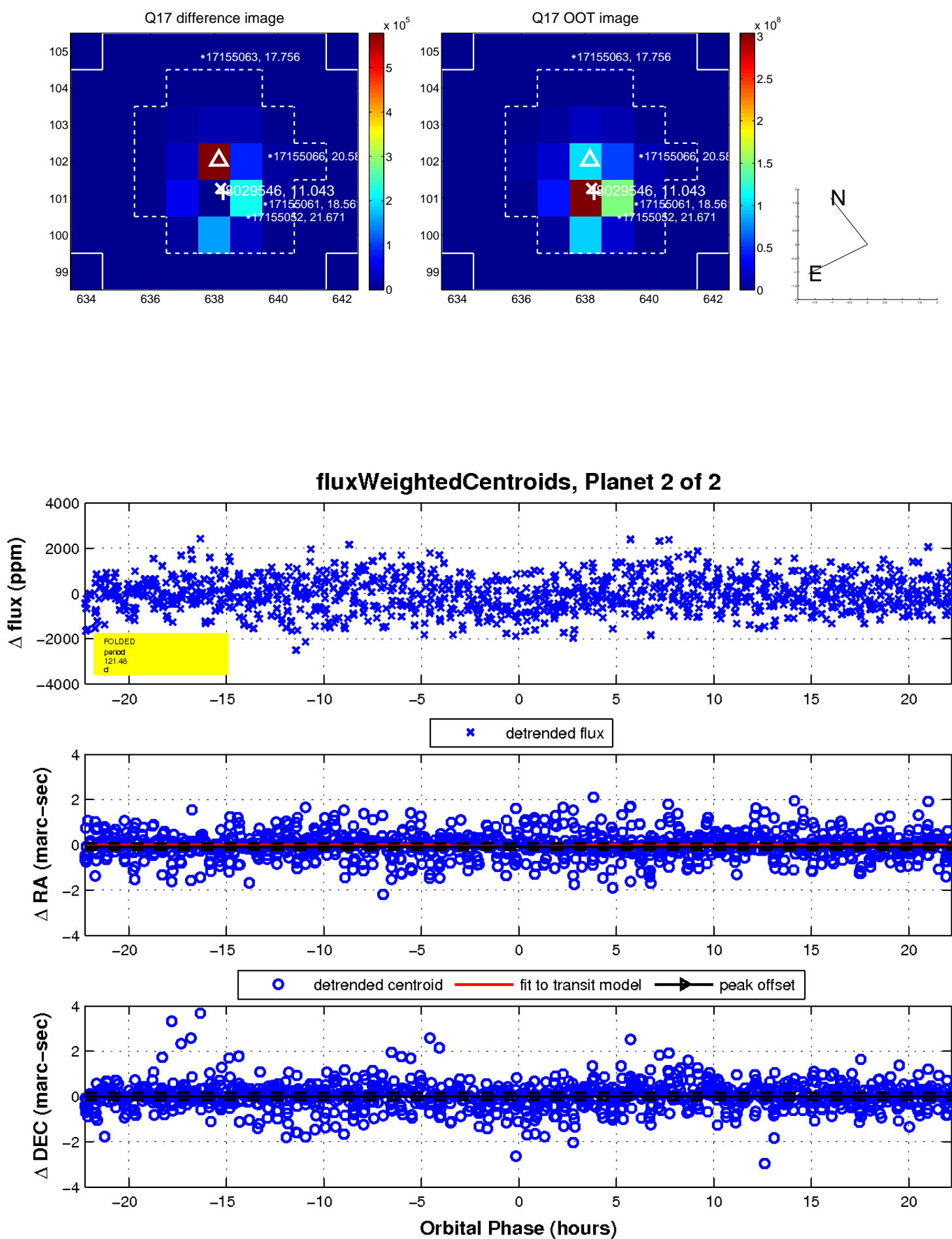
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

