

KIC 005103942

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})
005103942-01	OBS	1668.01	10.101759	131.807289	568.3	2.056	24.6	28.6	0.87	6058	2.95	112.12
005103942-02	OBS	No	5.050853	131.763157	381.2	1.591	18.2	20.6	0.87	6058	2.00	282.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005103942-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
005103942-02	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.

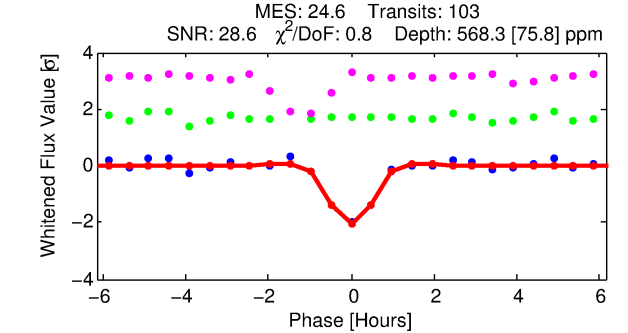
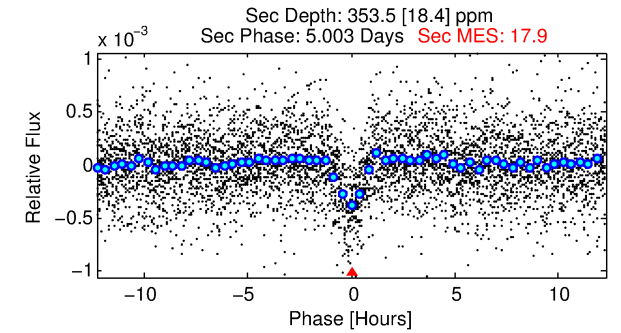
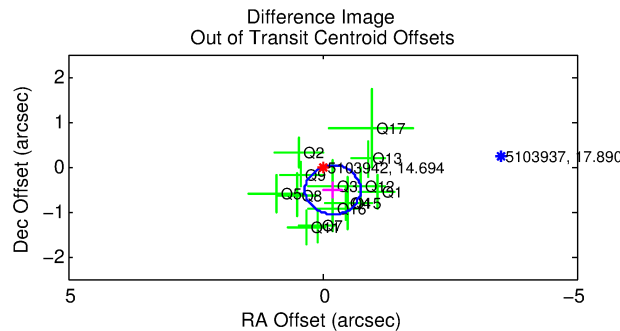
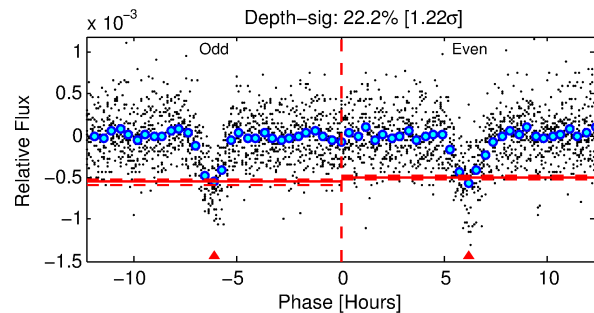
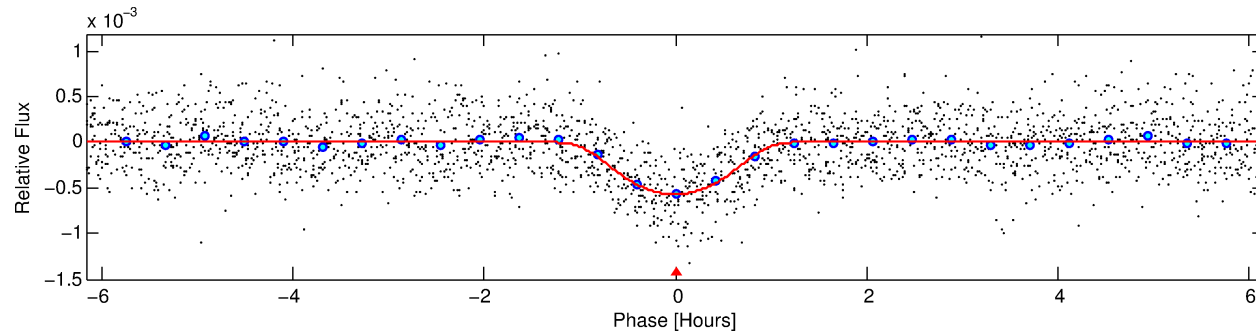
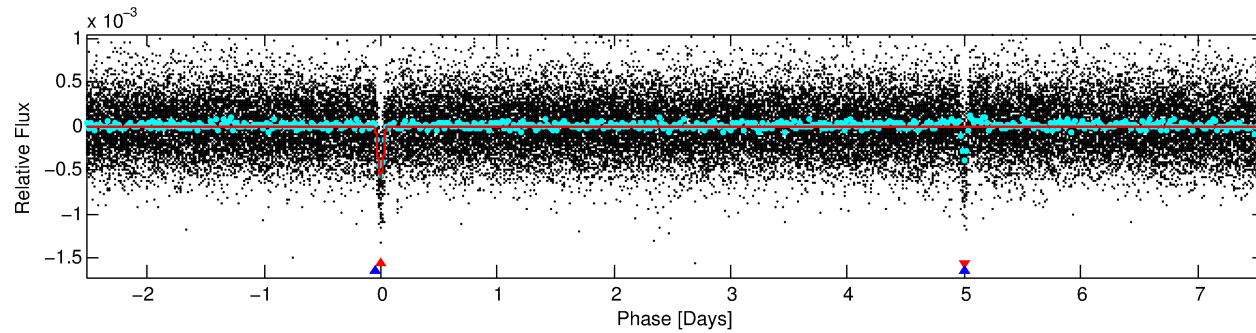
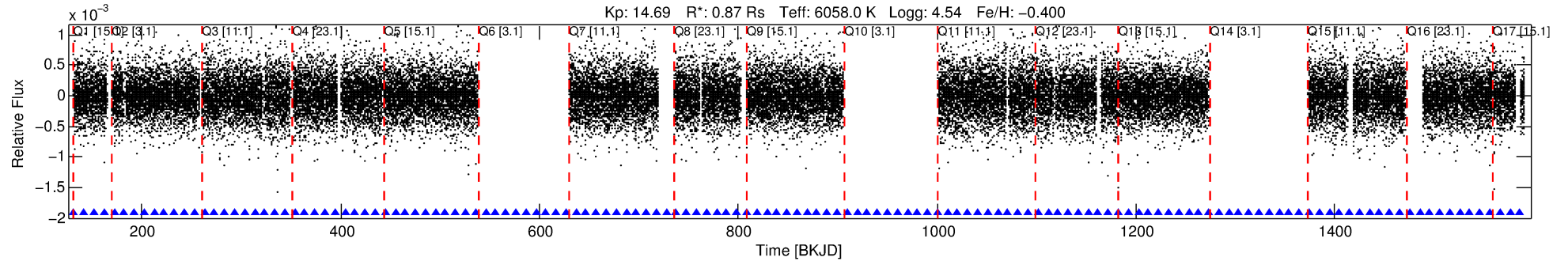
Ephemeris Match Information For 005103942-01

No Significant Match Found

DV One-Page Summary

KIC: 5103942 Candidate: 1 of 2 Period: 10.102 d

KOI: K01668.01 Corr: 0.941



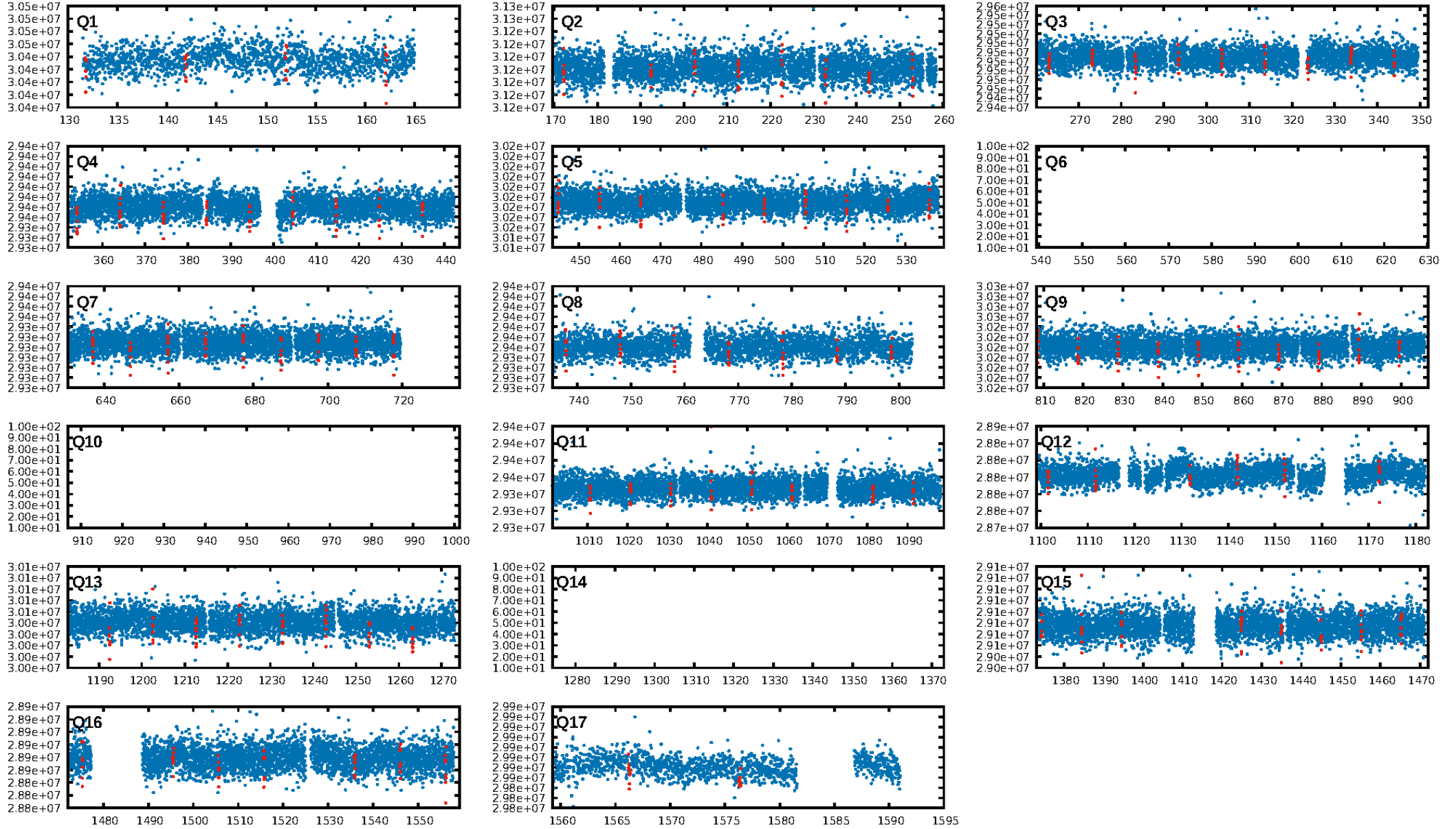
DV Fit Results:

Period = 10.10176 [0.00002] d
Epoch = 131.8073 [0.0016] BKJD
Rp/R* = 0.0312 [0.0122]
a/R* = 12.21 [2.78]
b = 0.98 [0.03]
Seff = 112.12 [45.42]
Teff = 830 [84] K
Rp = 2.95 [1.46] Re
a = 0.0899 [0.0233] AU
Ag = 180.77 [157.54] [1.14 σ]
Teffp = 4704 [934] K [4.13 σ]

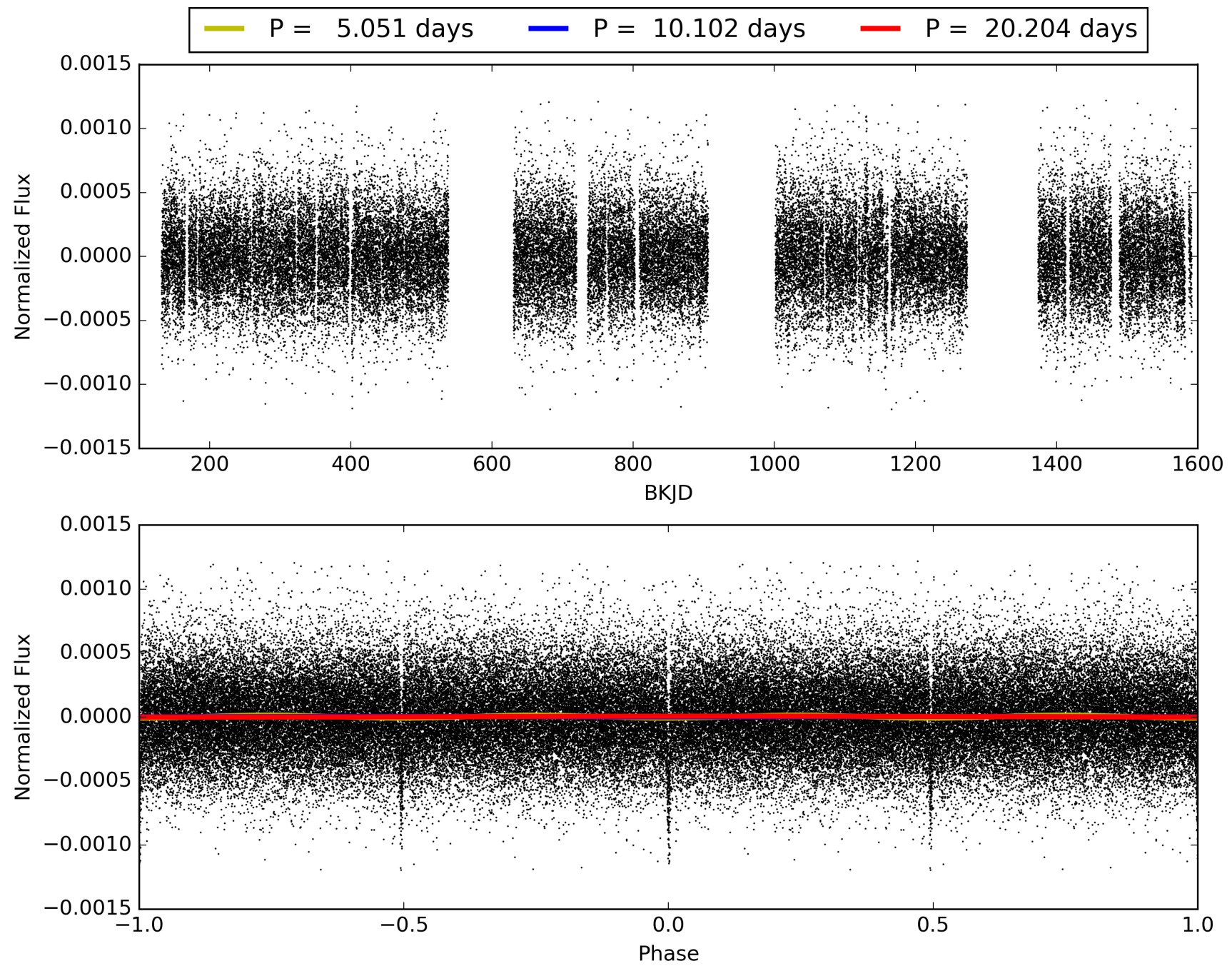
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.63 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.57e-133
RollingBand-fgt: 1.00 [97/97]
GhostDiagnostic-chr: 4
Centroid-sig: 0.1%
Centroid-so: 1.057 arcsec [2.11 σ]
OOTOffset-rm: 0.557 arcsec [3.06 σ]
OOTOffset-st: 1/4/4/5 [14]
KICOffset-rm: 0.509 arcsec [2.63 σ]
KICOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 005103942-01, PDC Light Curves

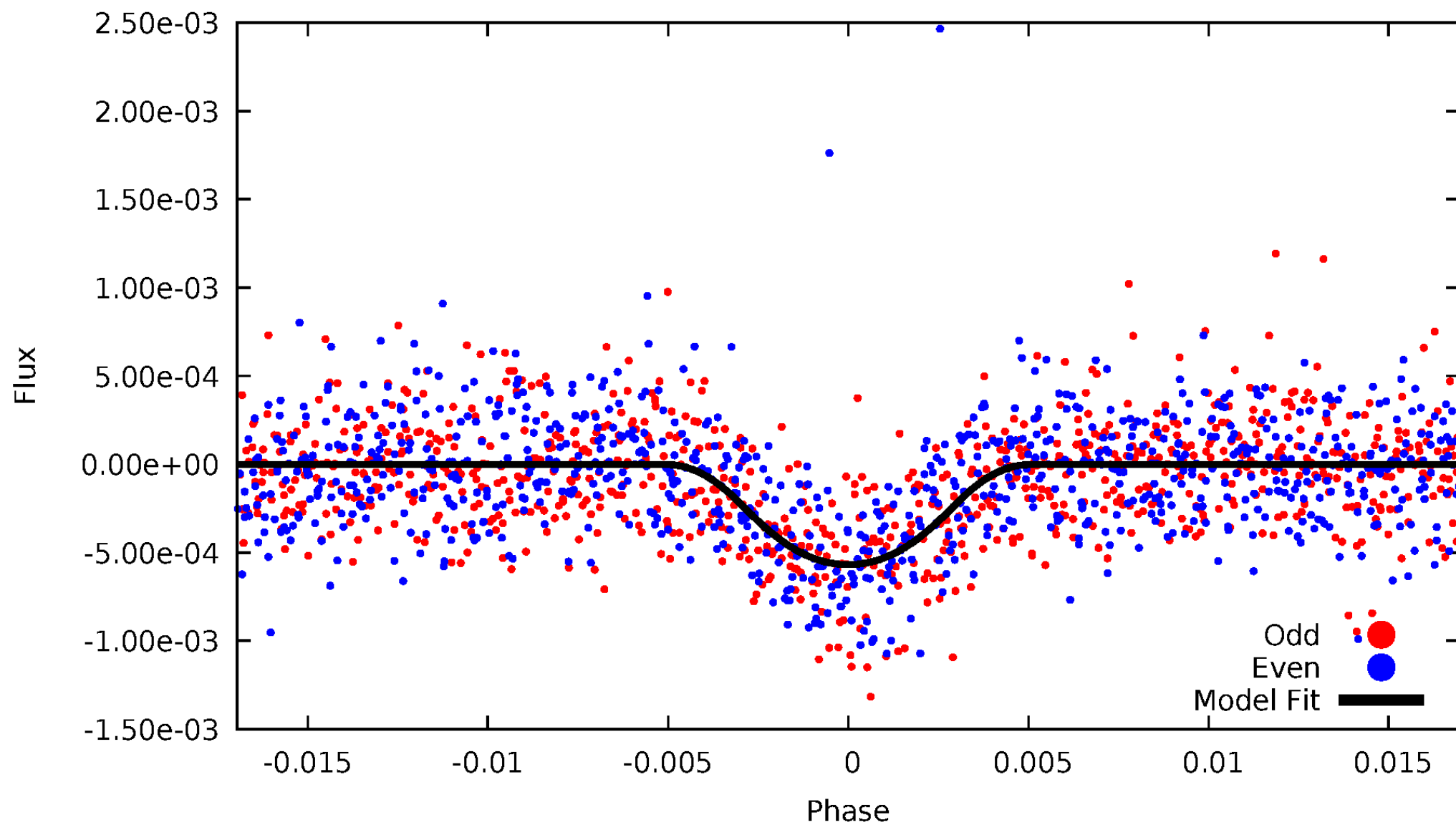


TCE 005103942-01



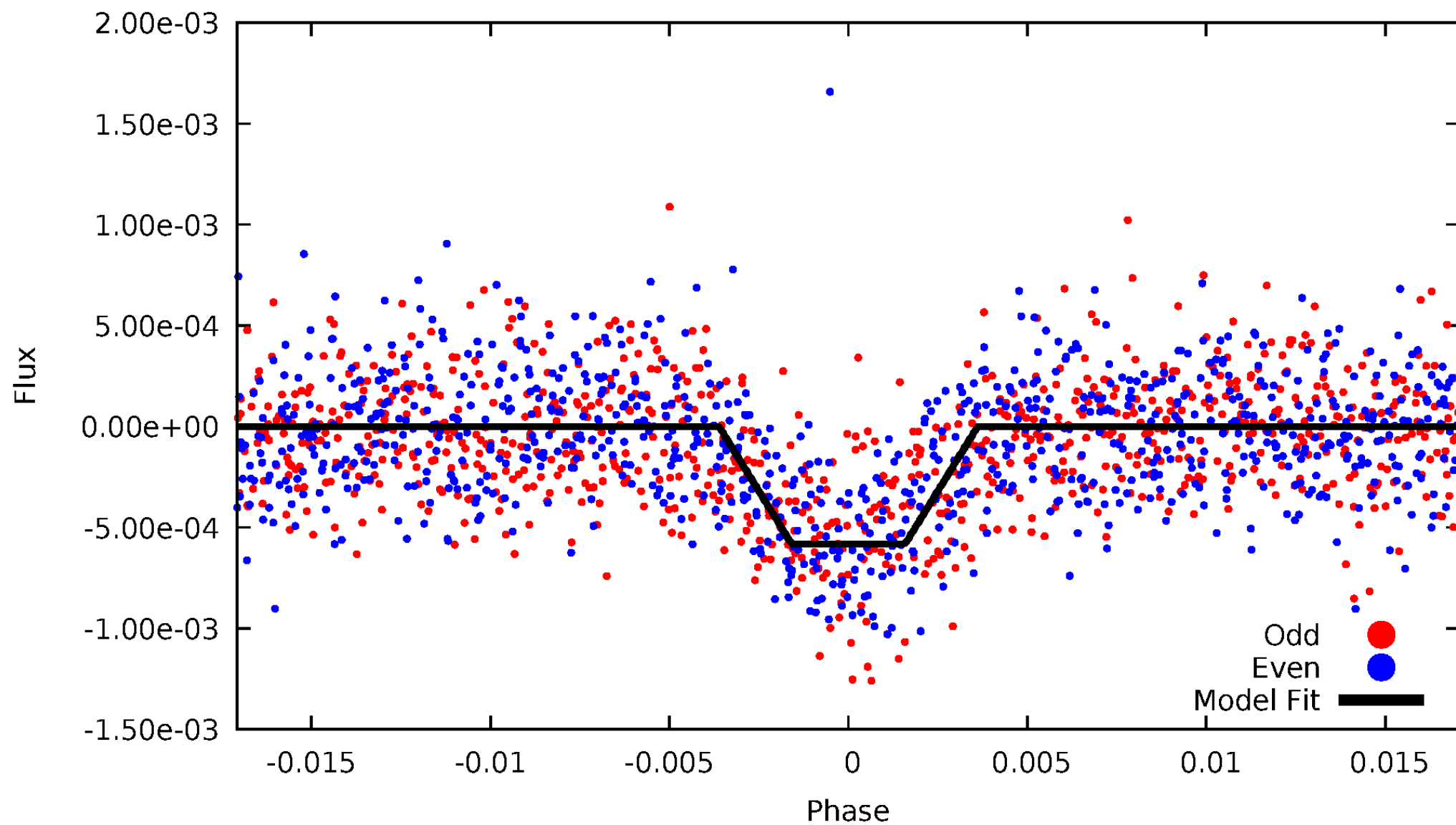
DV Odd/Even

TCE 005103942-01



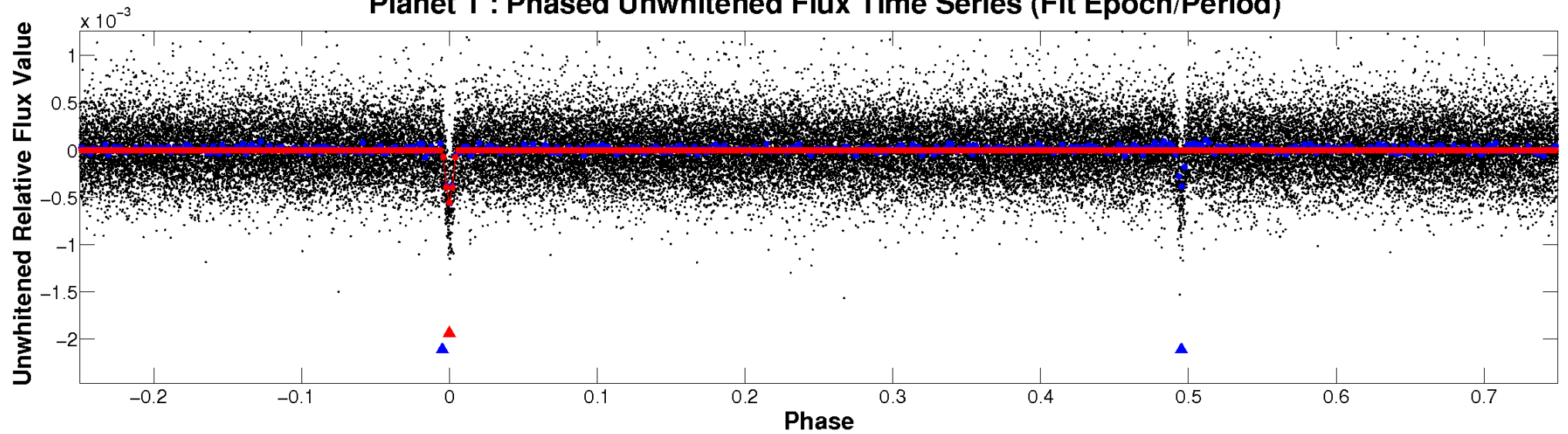
ALT Odd/Even

TCE 005103942-01

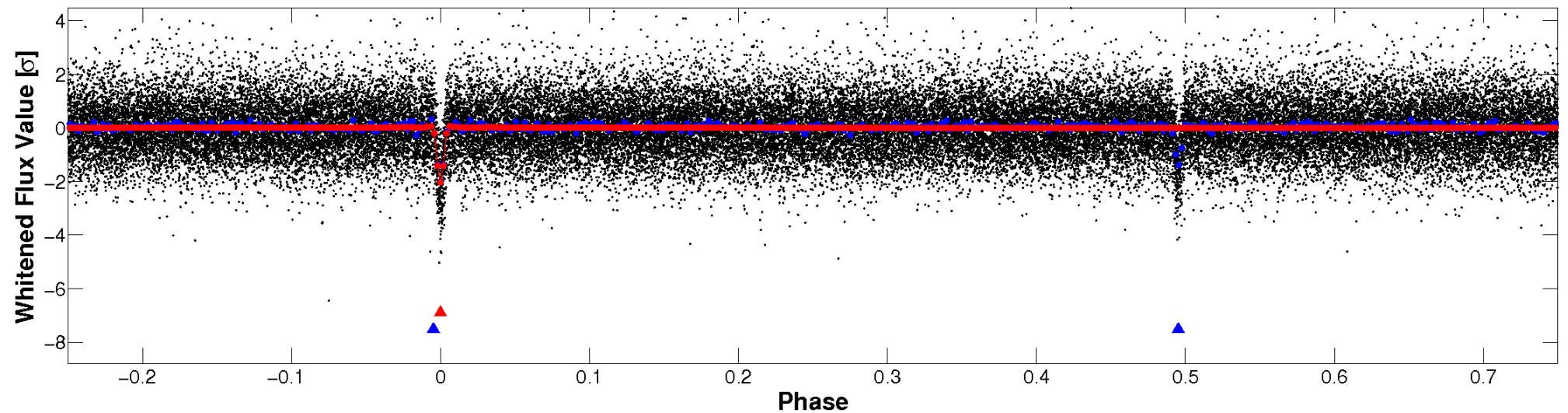


Non-Whitened Vs. Whitened Light Curve

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

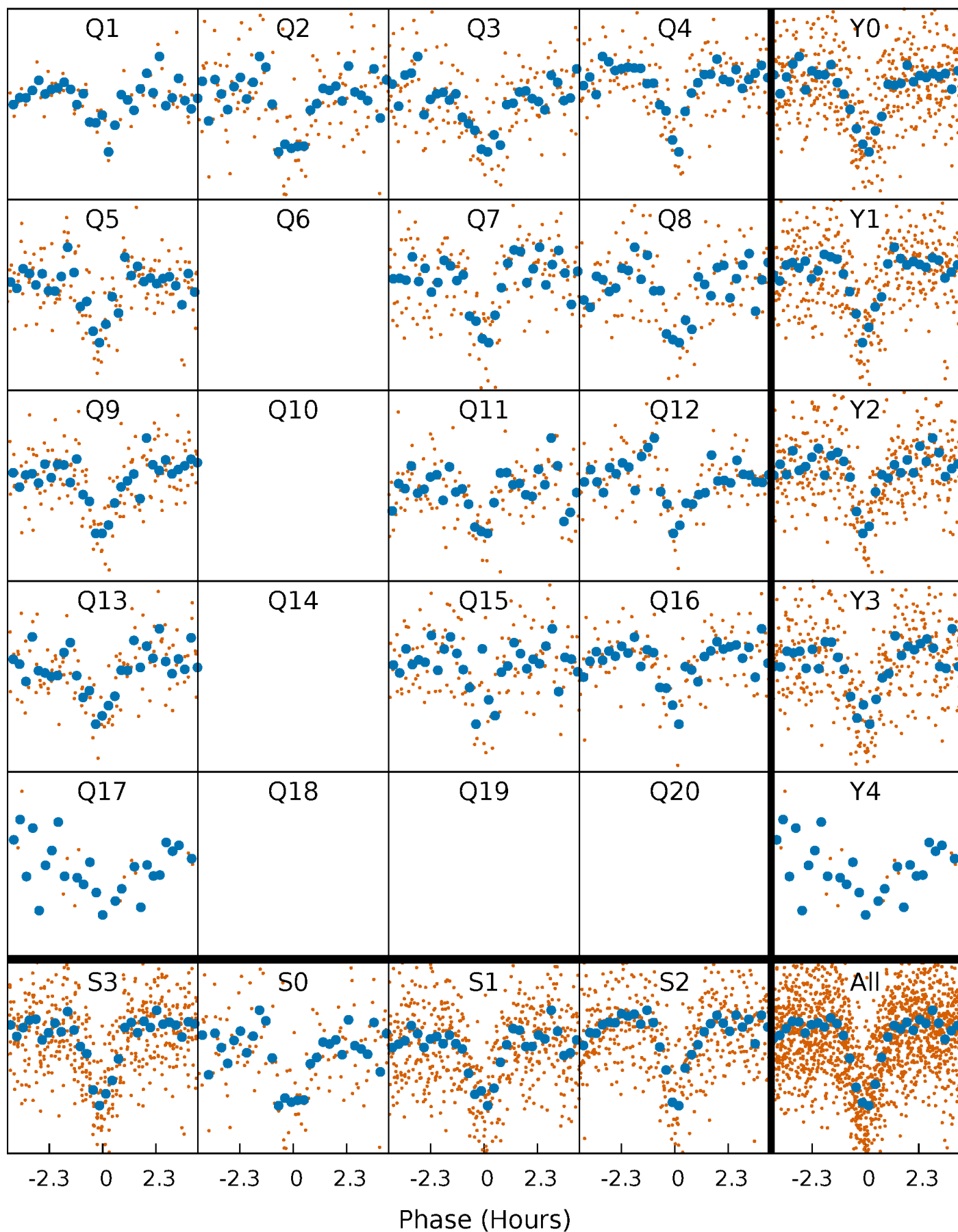


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



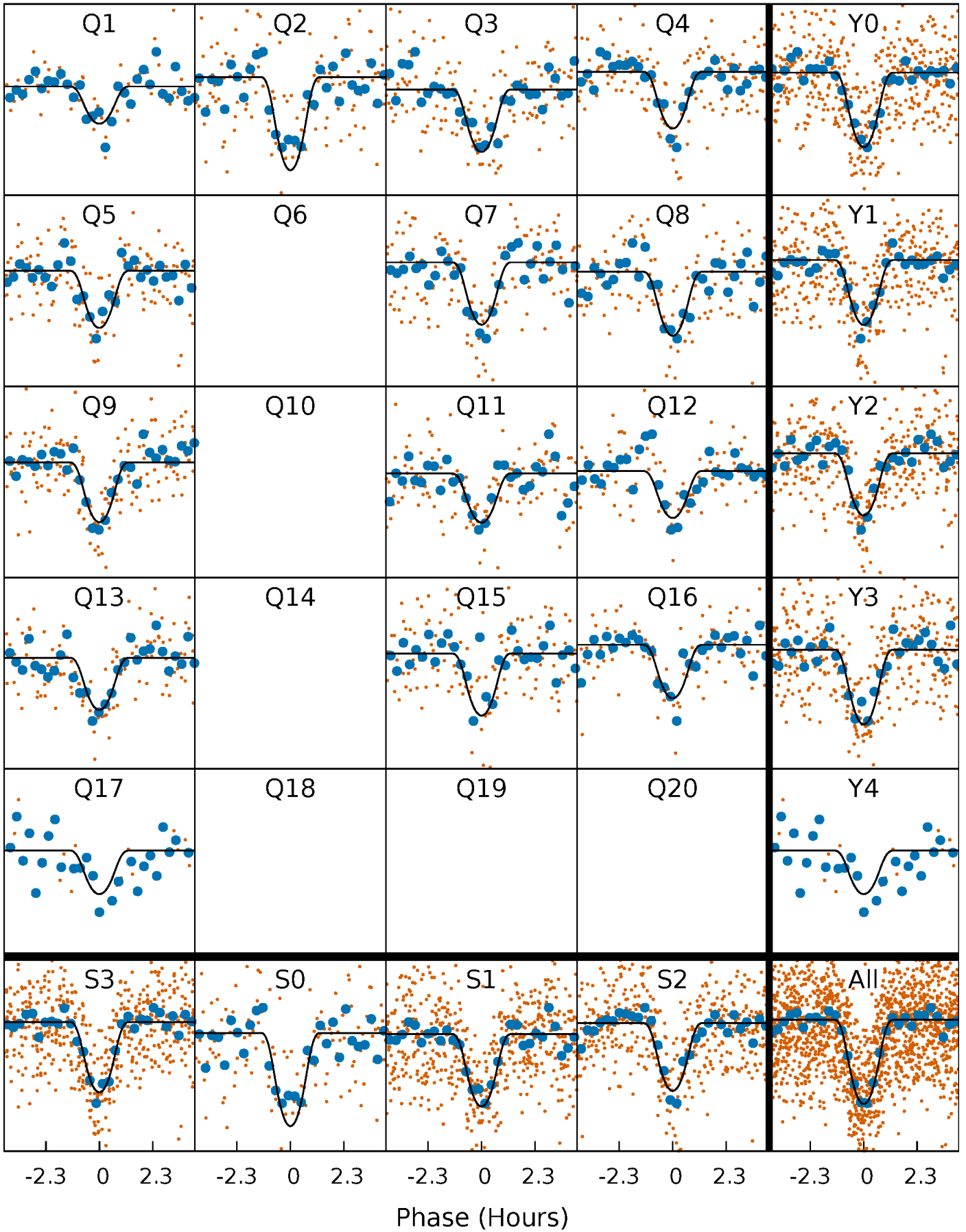
PDC Quarter-Phased Transit Curves

TCE 005103942-01 P= 10.101759 Days $T_0=131.807289$ (BKJD)



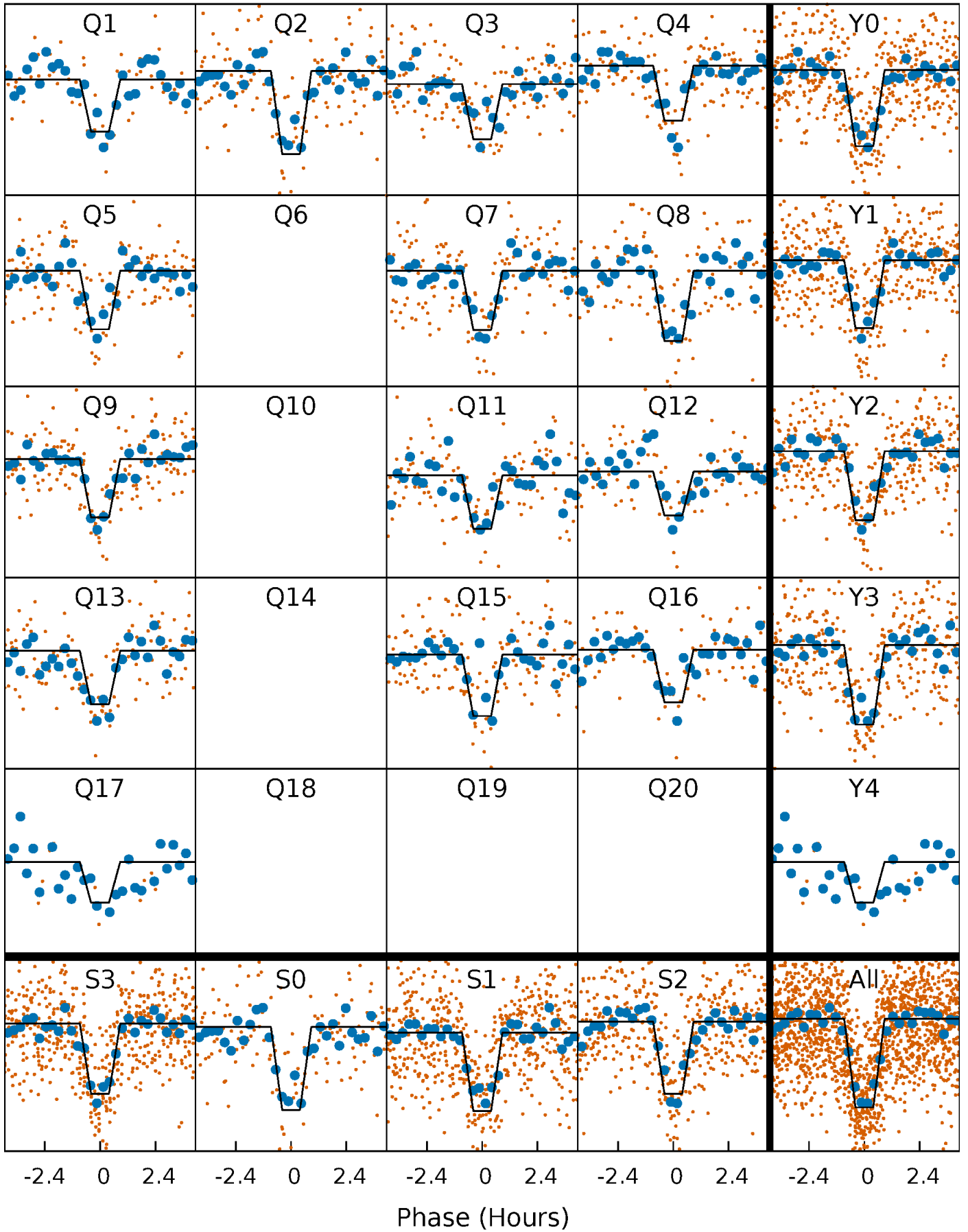
DV Quarter-Phased Transit Curves

TCE 005103942-01 P= 10.101759 Days $T_0=131.807289$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

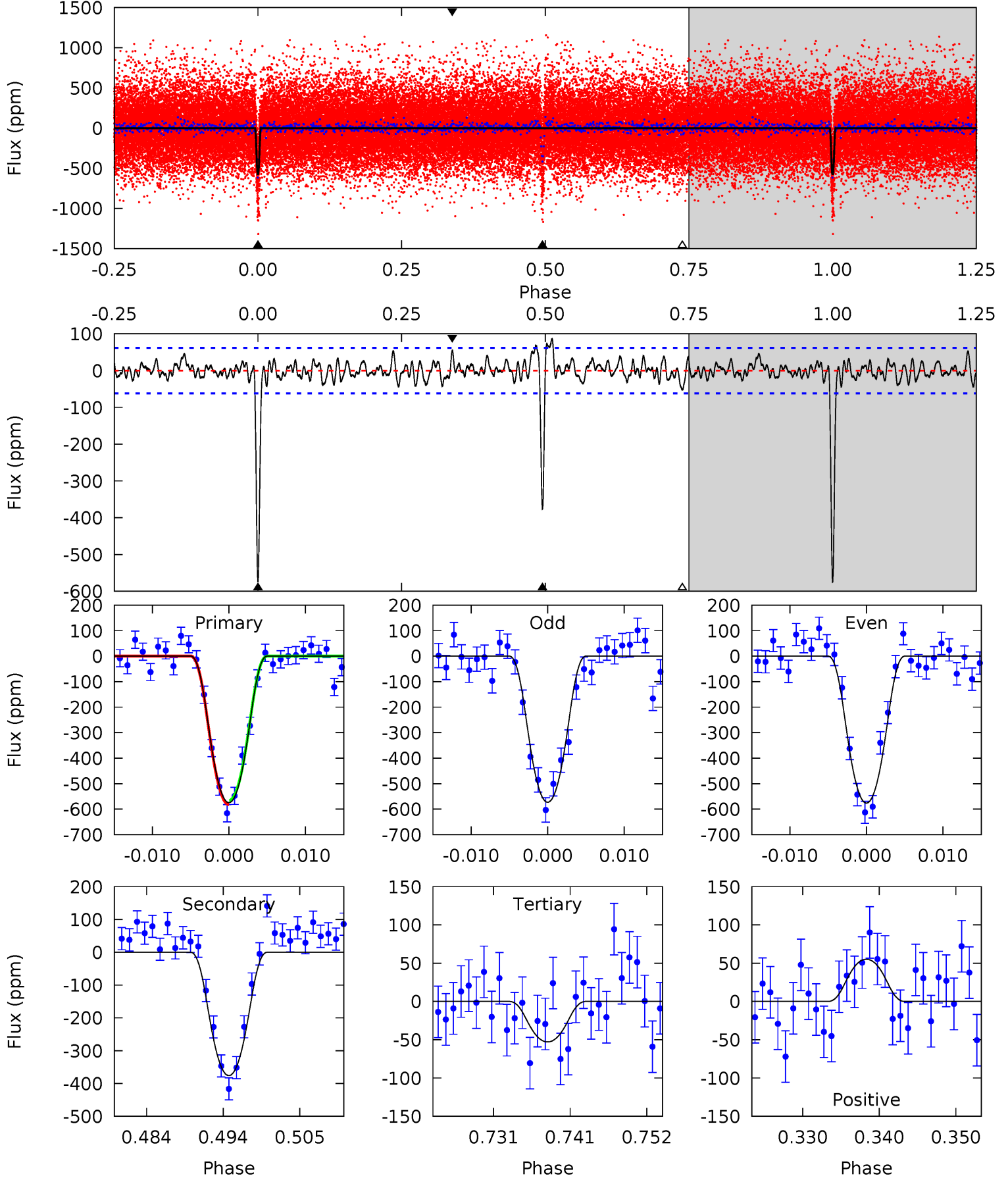
TCE 005103942-01 P= 10.101760 Days $T_0=131.806963$ (BKJD)



DV Model-Shift Uniqueness Test

005103942-01, P = 10.101759 Days, E = 121.705530 Days

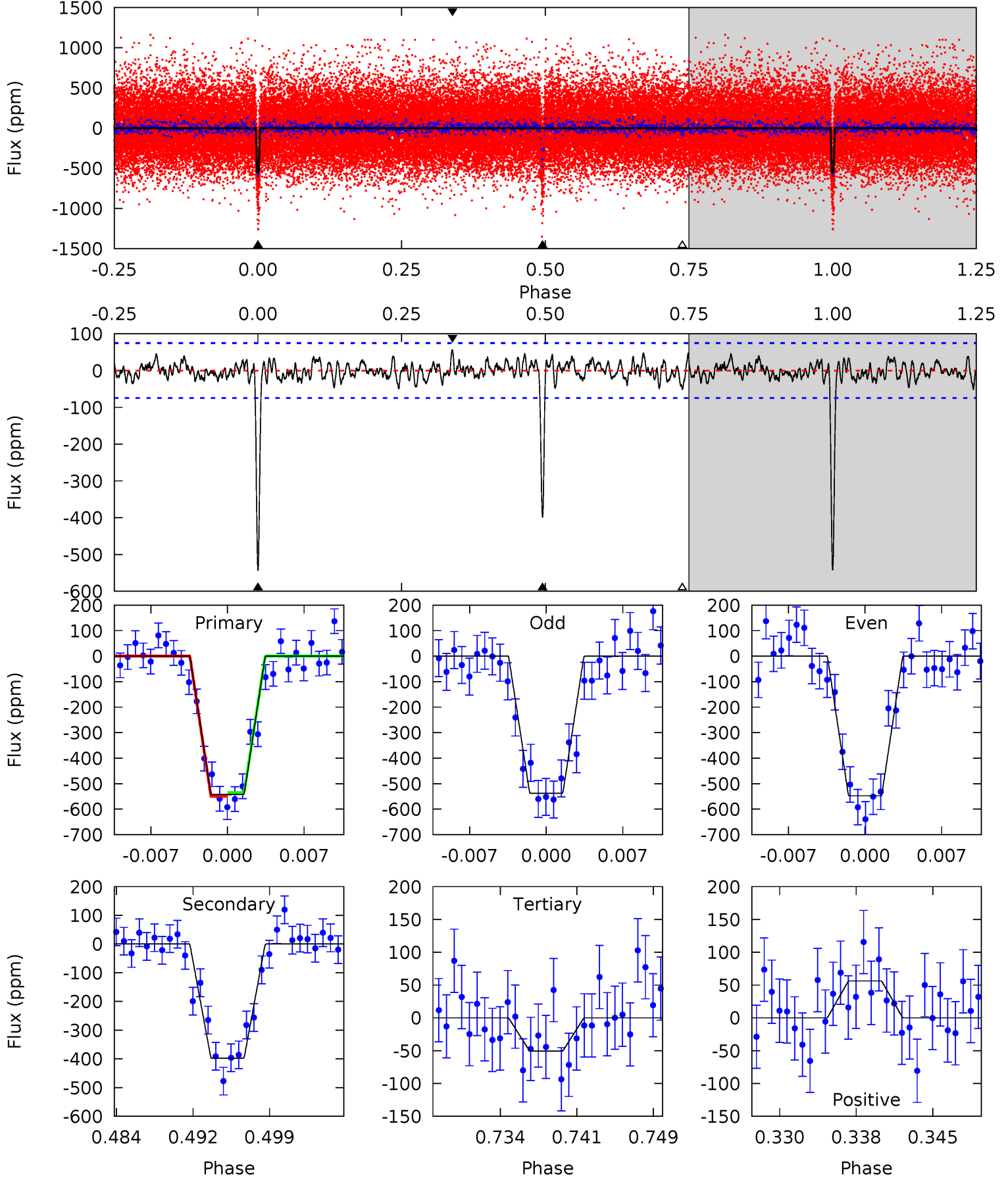
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.7	30.6	4.30	4.48	5.02	2.57	1.62	42.4	42.2	26.3	26.1	0.13	0.97	0.13	0.63



Alt Model-Shift Uniqueness Test

005103942-01, P = 10.101760 Days, E = 121.705203 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.0	27.1	3.44	3.84	5.09	2.68	1.25	33.6	33.2	23.7	23.3	0.36	1.00	0.09	0.54



Stellar Parameters For KIC 005103942

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6058^{+164}_{-201}	$4.540^{+0.037}_{-0.212}$	$-0.400^{+0.300}_{-0.300}$	$0.867^{+0.262}_{-0.082}$	$0.950^{+0.108}_{-0.119}$	$2.052^{+0.417}_{-1.075}$
	+3%/-3%	+1%/-5%	+75%/-75%	+30%/-9%	+11%/-13%	+20%/-52%
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 005103942-01 / KOI 1668.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-376 ± 12	$3.14^{+1.29}_{-1.27}$	1187^{+87}_{-57}	4857^{+1277}_{-598}	165^{+286}_{-81}
Alt.	-397 ± 15	$2.44^{+1.26}_{-1.22}$	1186^{+87}_{-54}	5484^{+2413}_{-876}	295^{+845}_{-168}

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 $A_{obs} \gg 1.0$

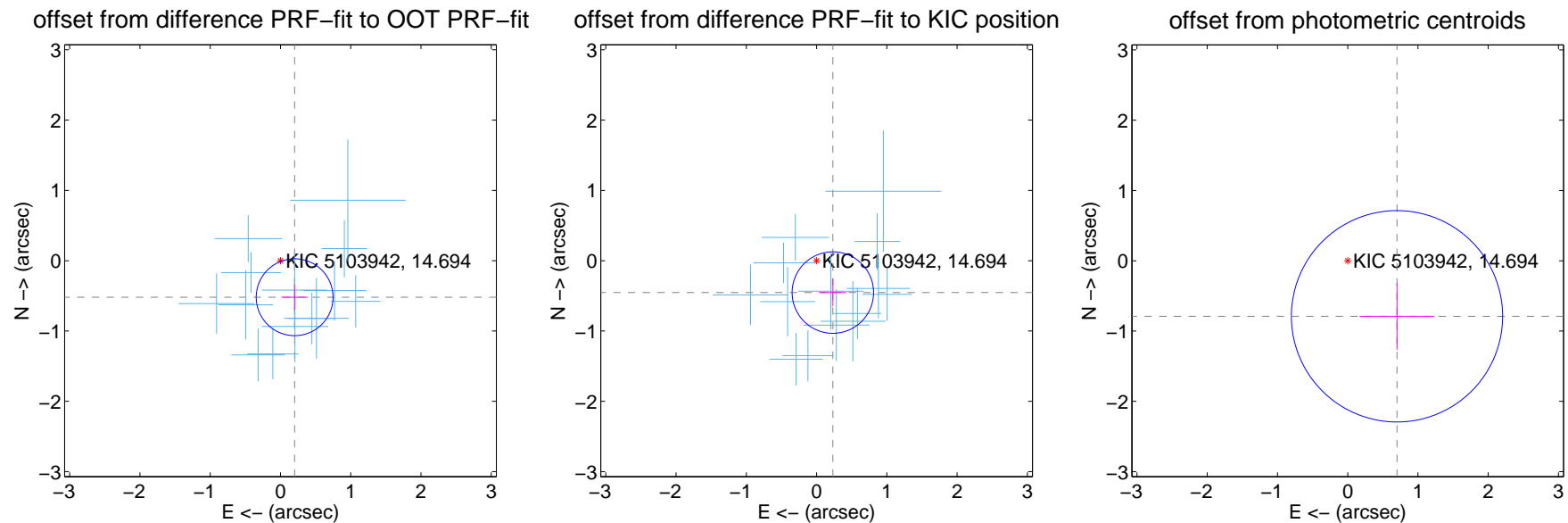
DV Centroid Data

Supplemental centroid analysis for 005103942-01. Kepler magnitude: 14.69. Transit SNR 28.63

There are 14 quarters with good PRF difference image offsets

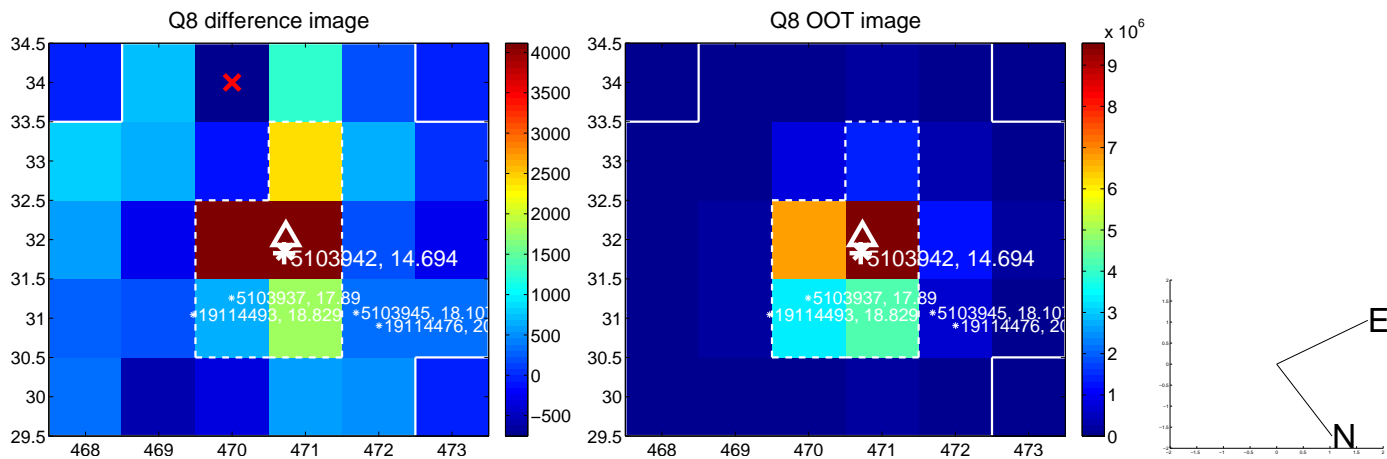
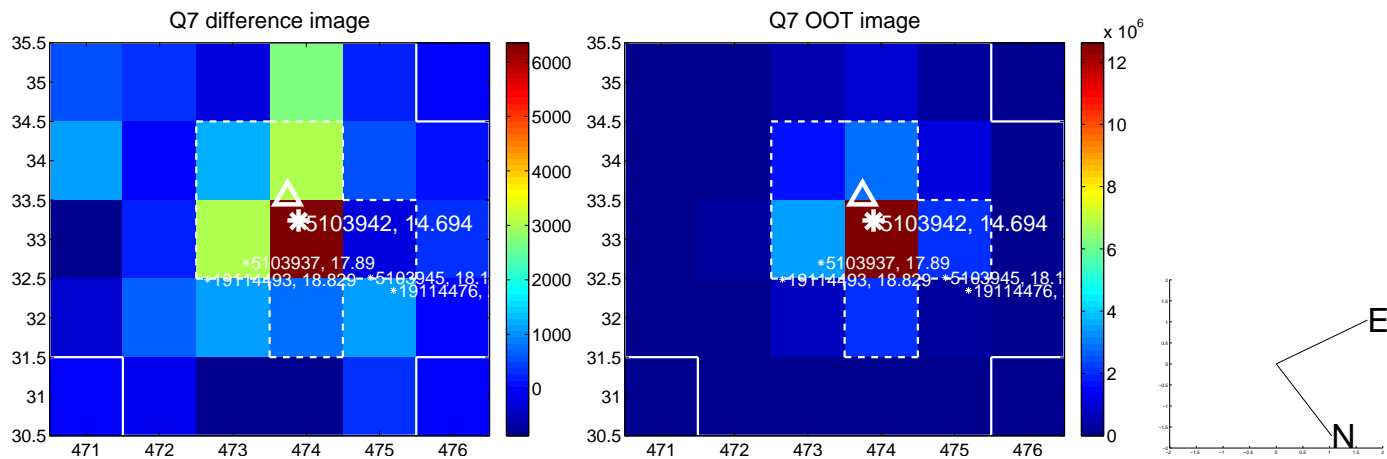
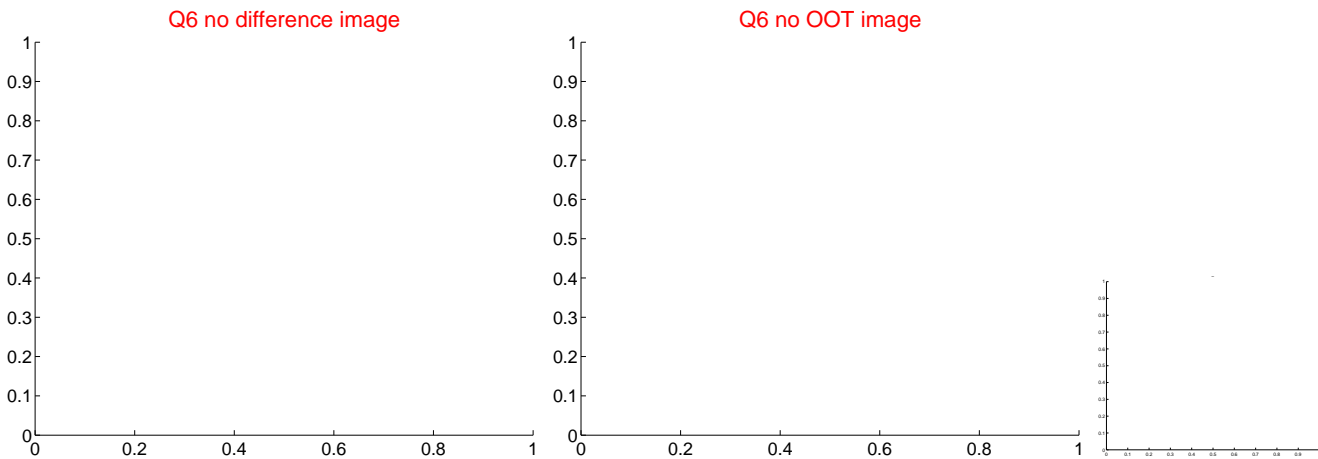
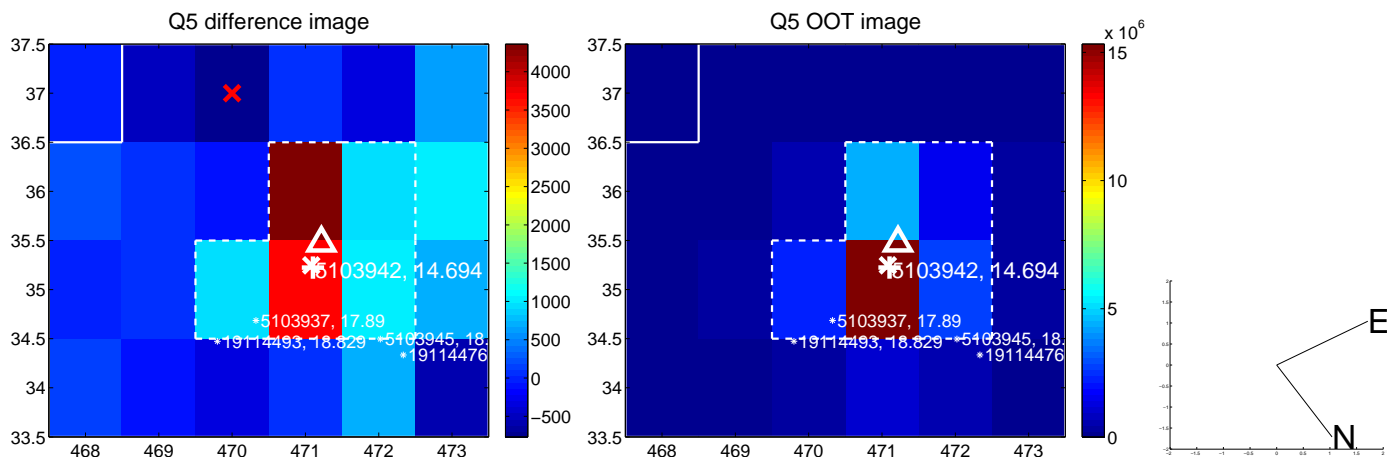
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.557 ± 0.182	3.06	-0.202 ± 0.189	-0.520 ± 0.181
PRF-fit source offset from KIC position	0.509 ± 0.193	2.63	-0.231 ± 0.188	-0.453 ± 0.194
photometric centroid source offset	1.06 ± 0.50	2.11	-0.70 ± 0.53	-0.79 ± 0.47

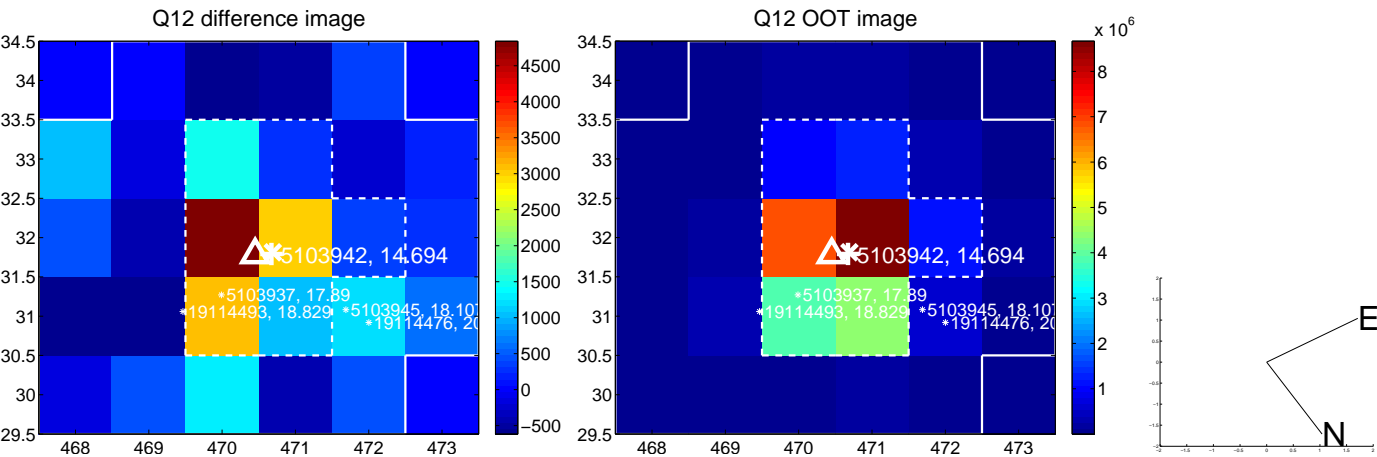
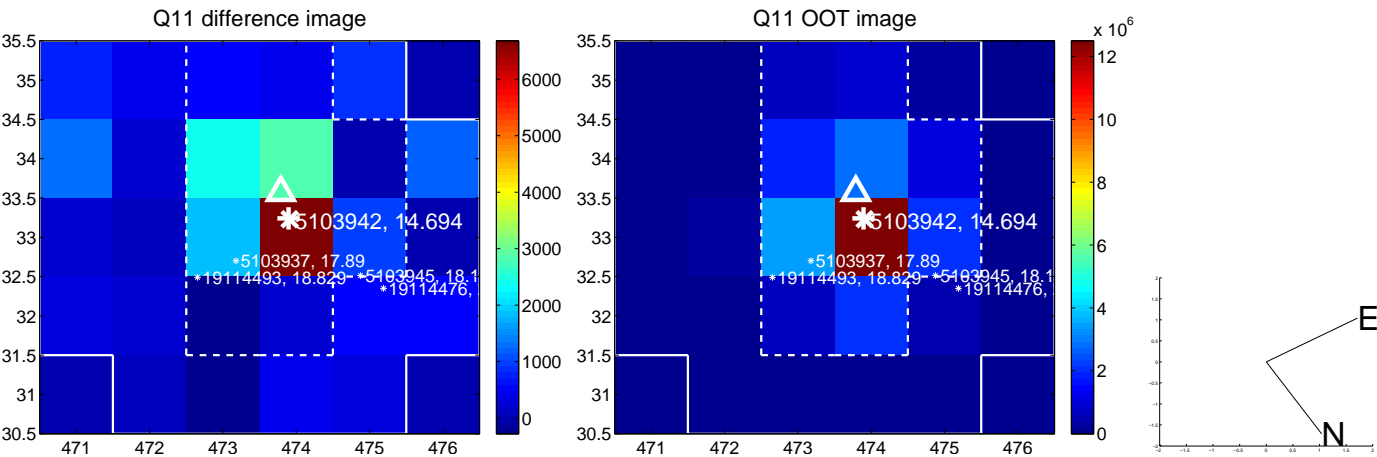
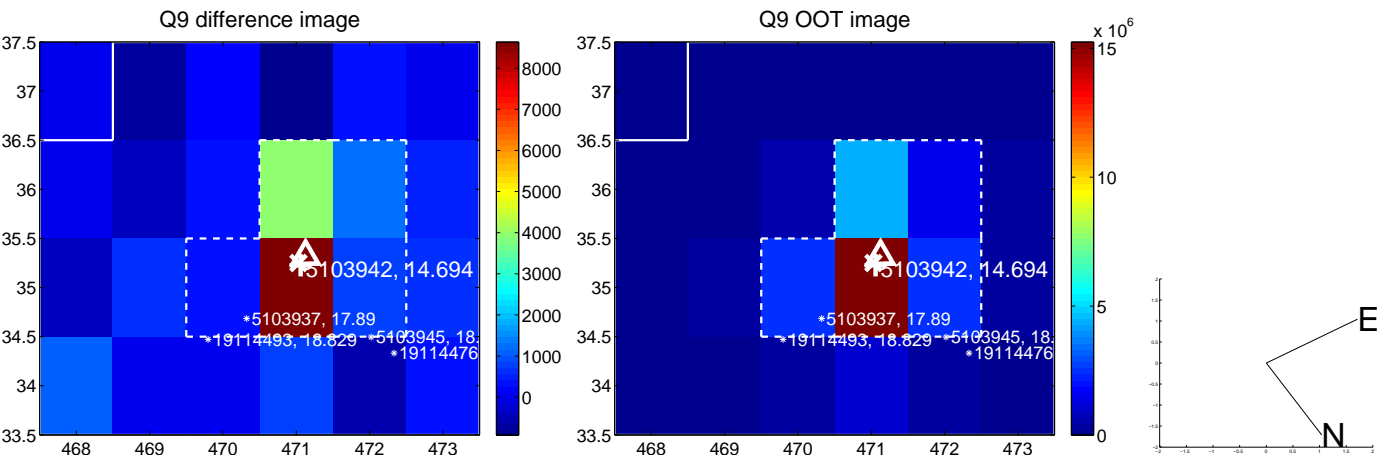


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

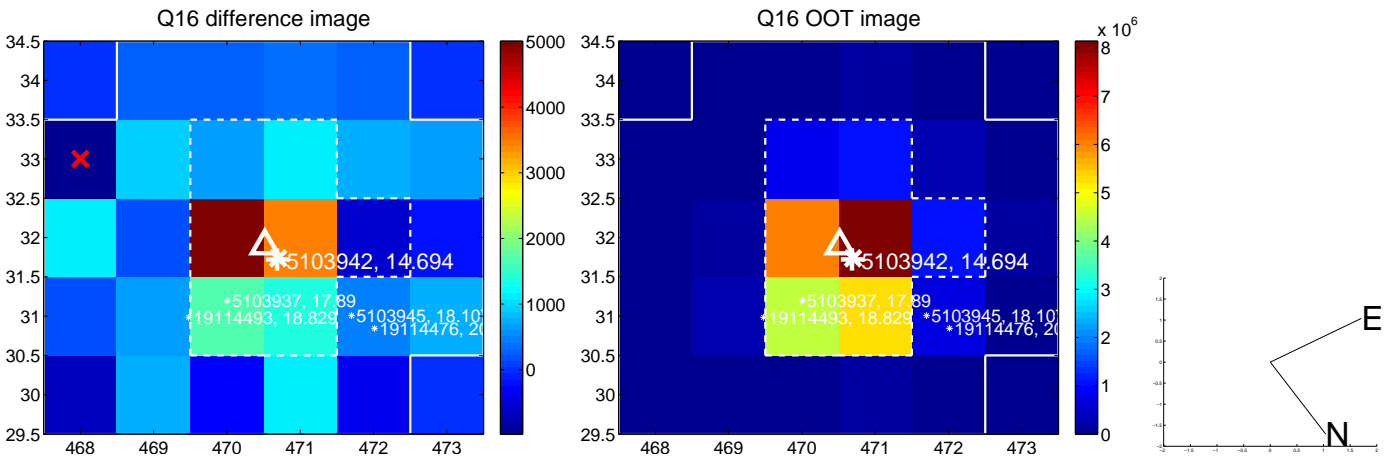
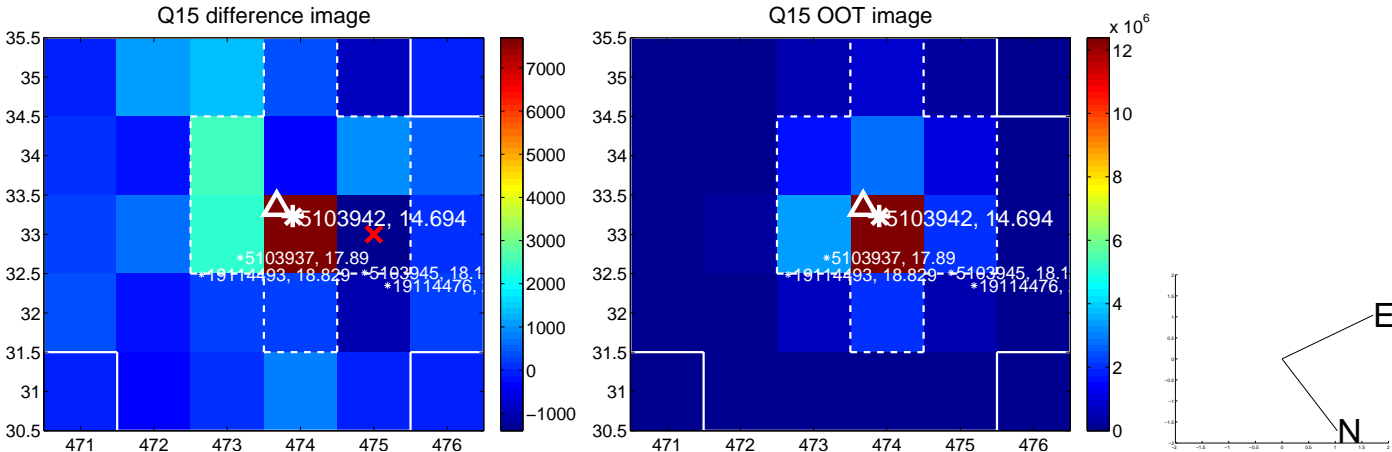
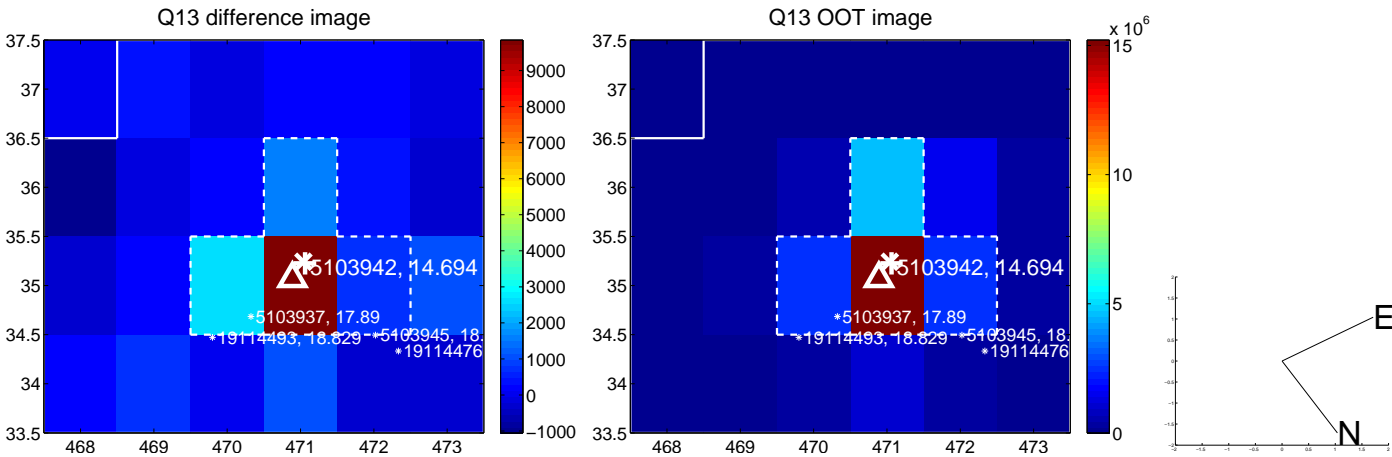
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



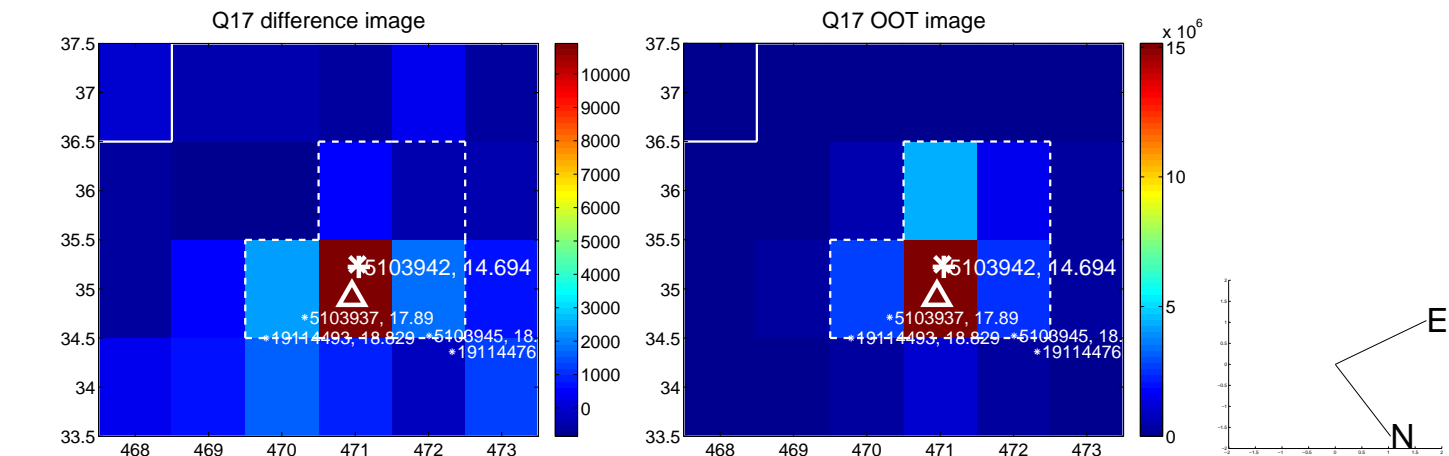
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



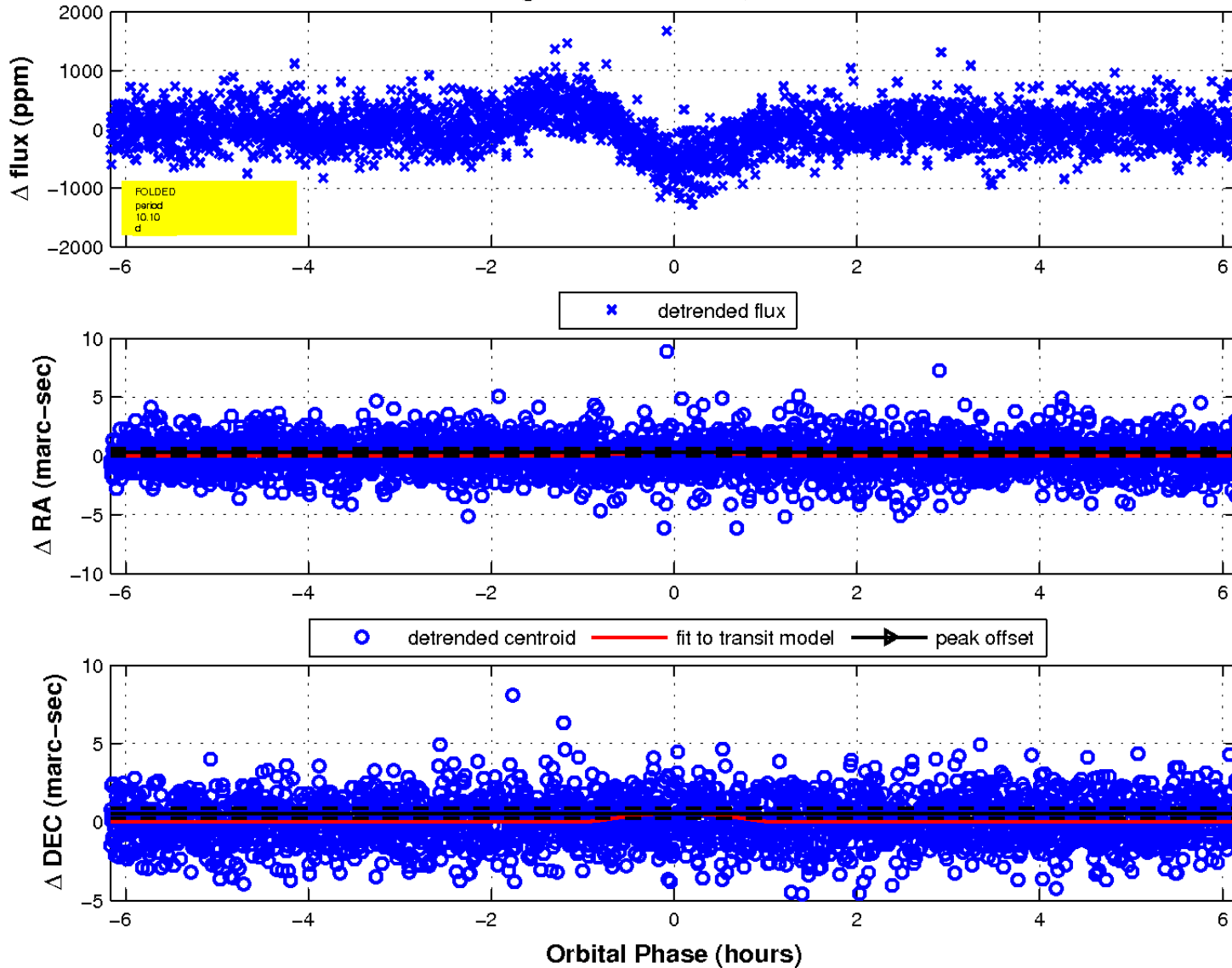
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

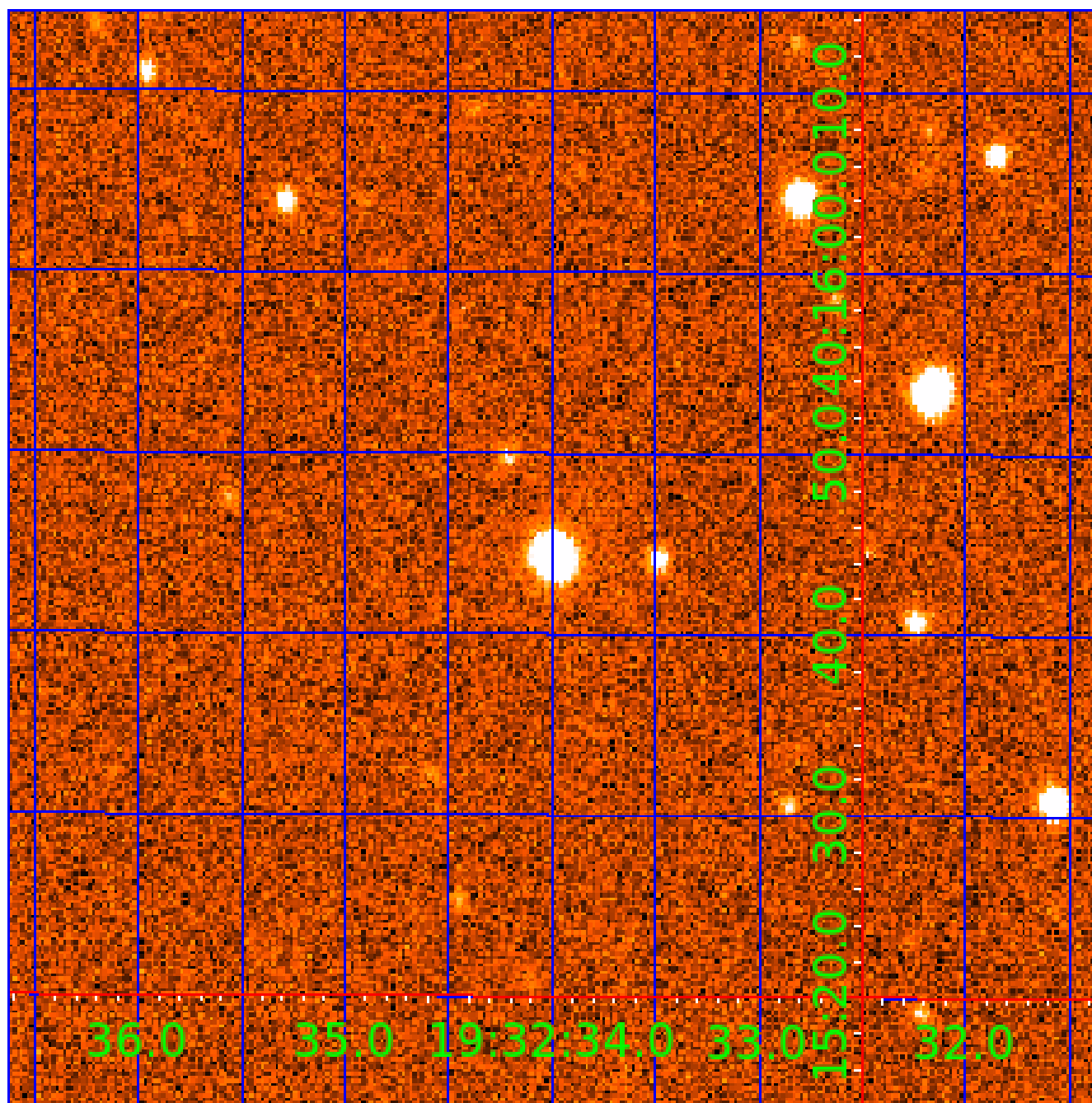


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005103942

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})
005103942-01	OBS	1668.01	10.101759	131.807289	568.3	2.056	24.6	28.6	0.87	6058	2.95	112.12
005103942-02	OBS	No	5.050853	131.763157	381.2	1.591	18.2	20.6	0.87	6058	2.00	282.53

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005103942-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
005103942-02	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 005103942-02

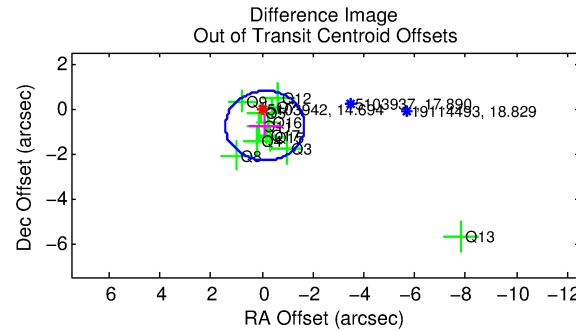
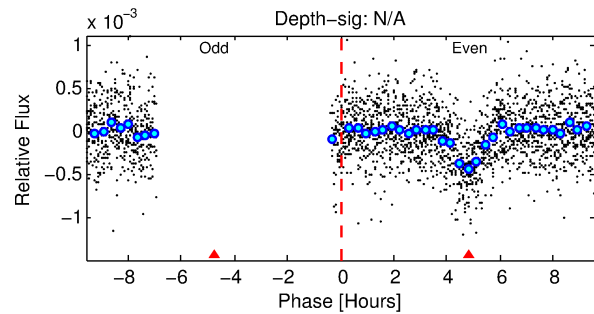
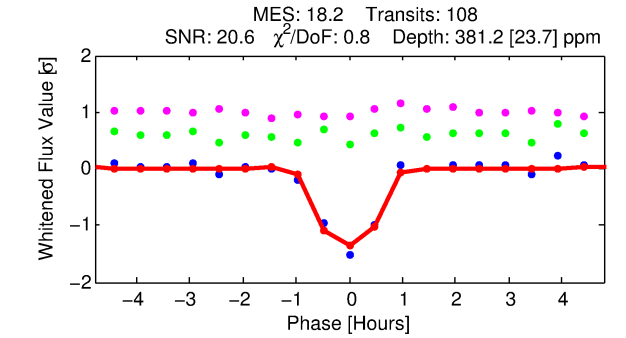
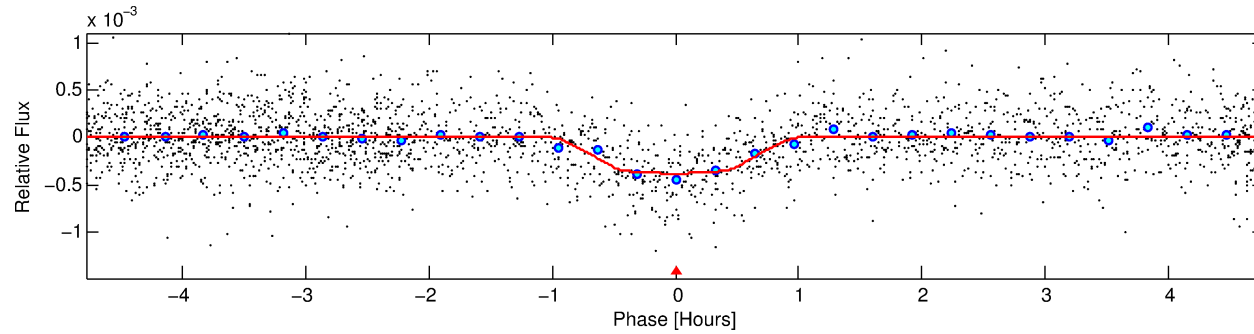
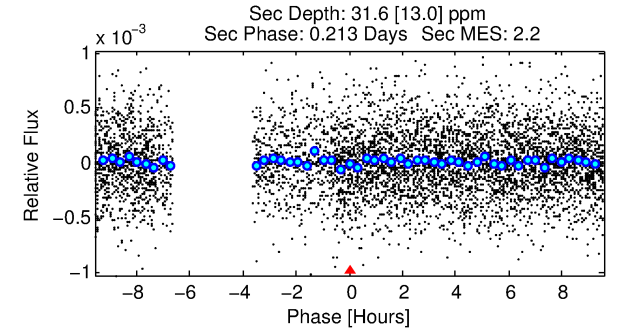
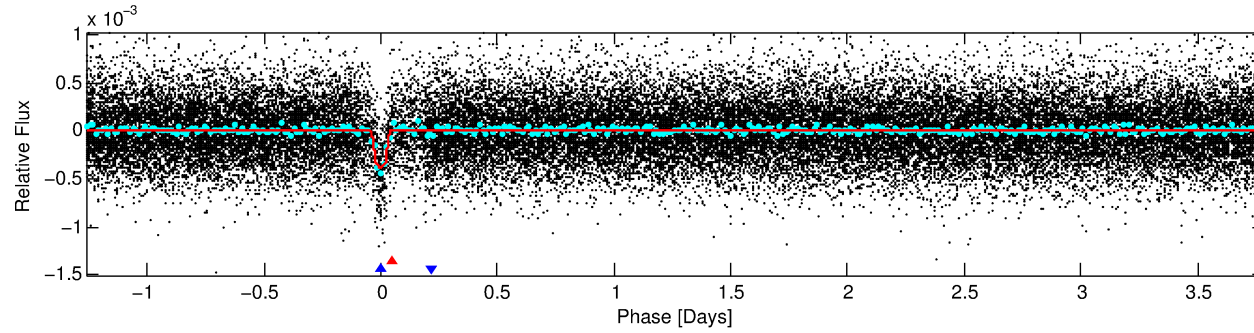
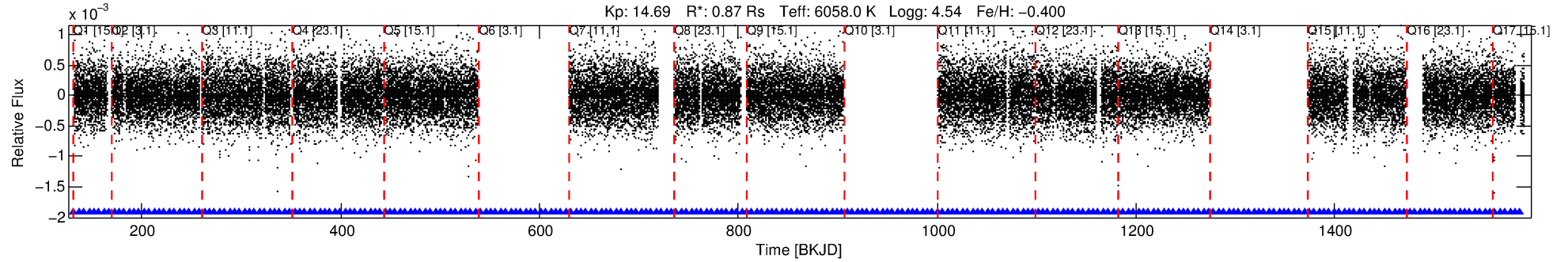
No Significant Match Found

DV One-Page Summary

KIC: 5103942 Candidate: 2 of 2 Period: 5.051 d

KOI: K01668 Corr: No Ephemeris Match

Kp: 14.69 R*: 0.87 Rs Teff: 6058.0 K Logg: 4.54 Fe/H: -0.400



DV Fit Results:

Period = 5.05085 [0.00001] d
Epoch = 131.7632 [0.0015] BKJD
Rp/R* = 0.0211 [0.0058]
a/R* = 11.66 [16.75]
b = 0.90 [0.31]
Seff = 282.53 [114.45]
Teq = 1045 [106] K
Rp = 2.00 [0.82] Re
a = 0.0567 [0.0147] AU
Ag = 13.99 [11.01] [1.18σ]
Teffp = 3126 [547] K [3.73σ]

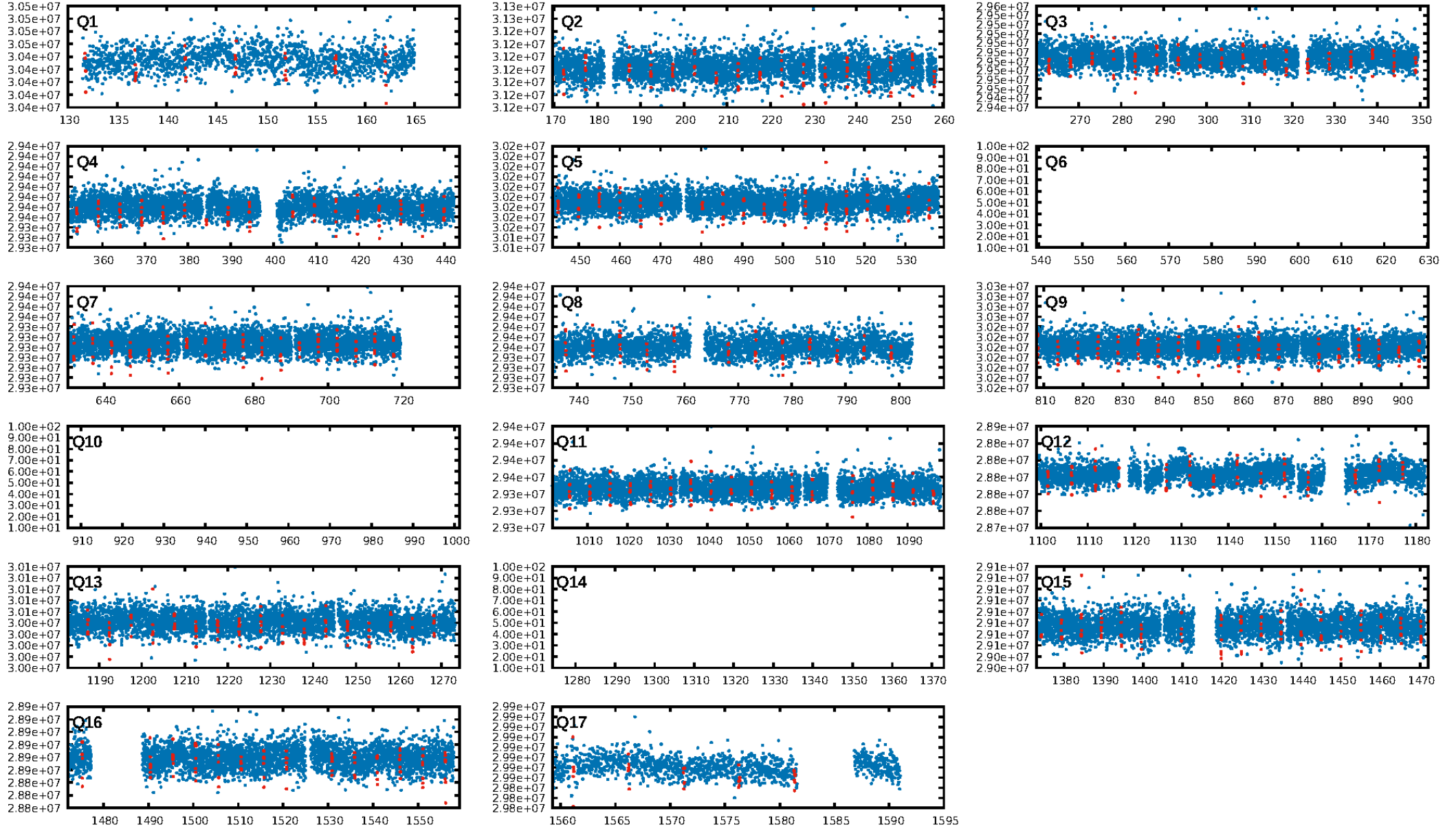
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [46.63σ]
ModelChiSquare2-sig: 98.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.04e-73
RollingBand-fgt: 1.00 [102/102]
GhostDiagnostic-chr: 1.505
Centroid-sig: 6.3%
Centroid-so: 0.907 arcsec [1.83σ]
OotOffset-rm: 0.778 arcsec [1.50σ]
KicOffset-rm: 0.763 arcsec [1.31σ]
OotOffset-st: 0/4/4/4 [12]
KicOffset-st: 0/4/4/4 [12]
DiffImageQuality-fgm: 0.83 [10/12]
DiffImageOverlap-fno: 1.00 [14/14]

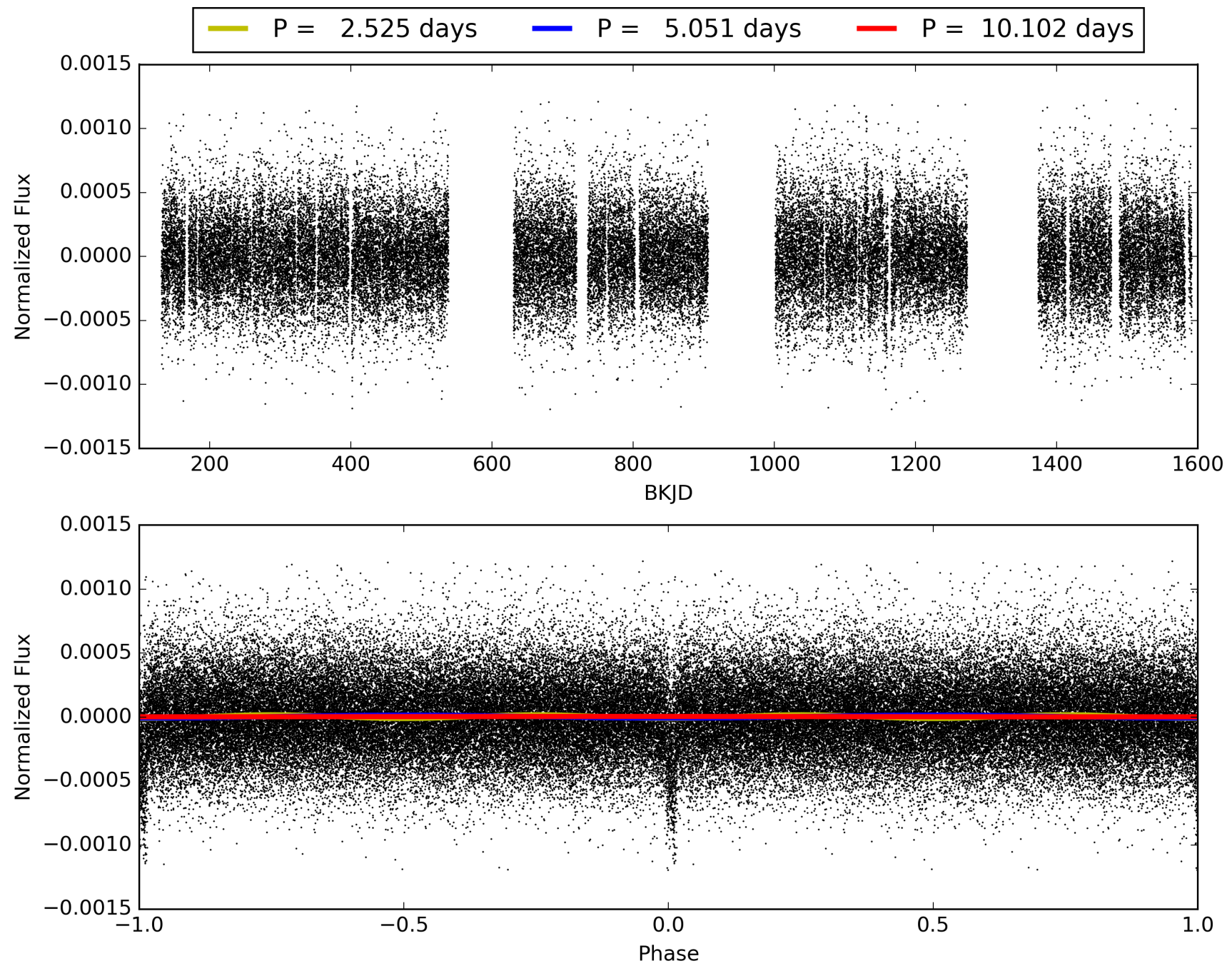
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:12:15 Z

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

TCE 005103942-02, PDC Light Curves

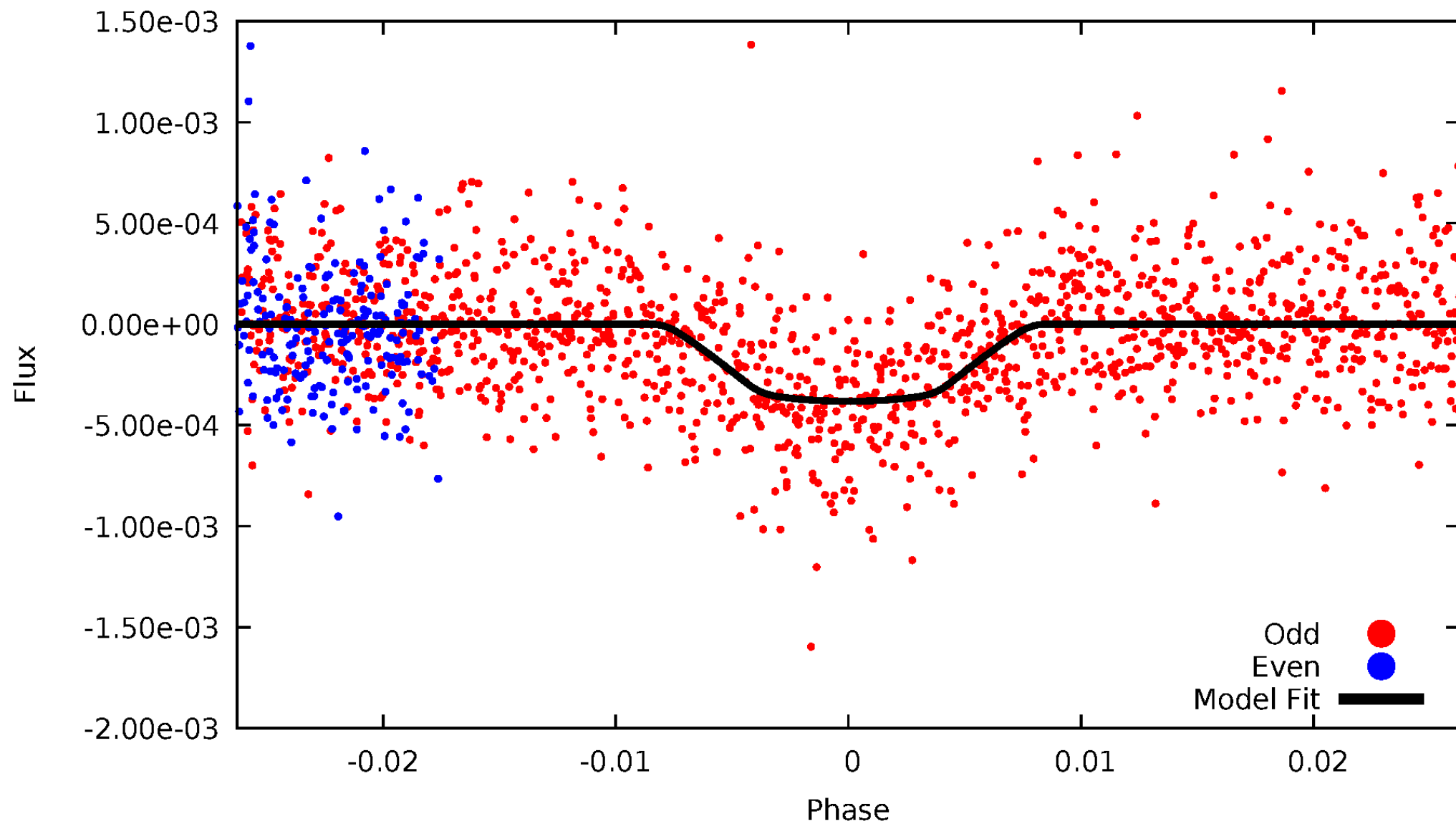


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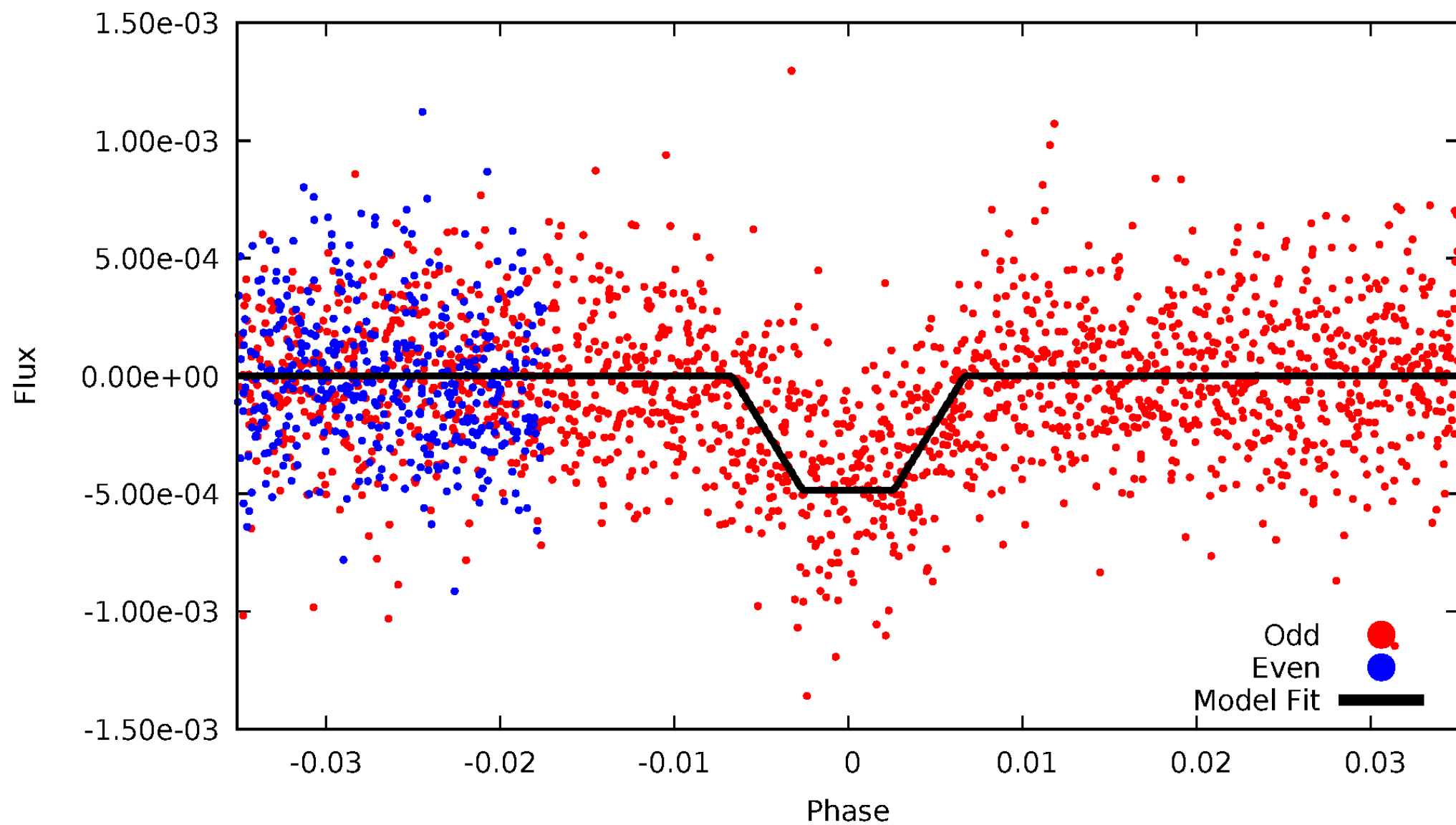
DV Odd/Even

TCE 005103942-02



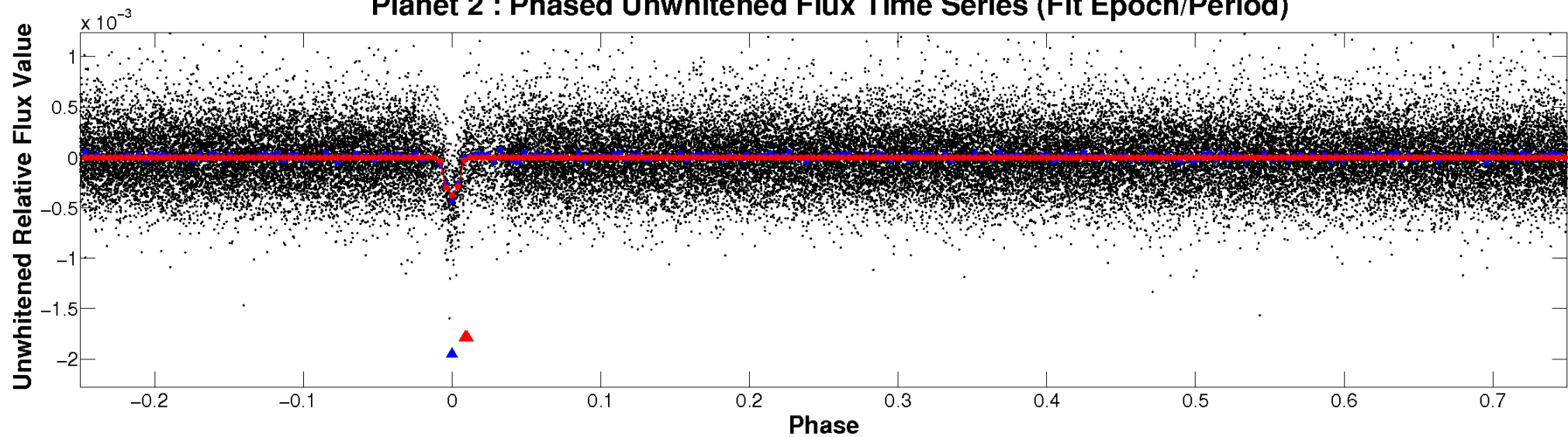
ALT Odd/Even

TCE 005103942-02

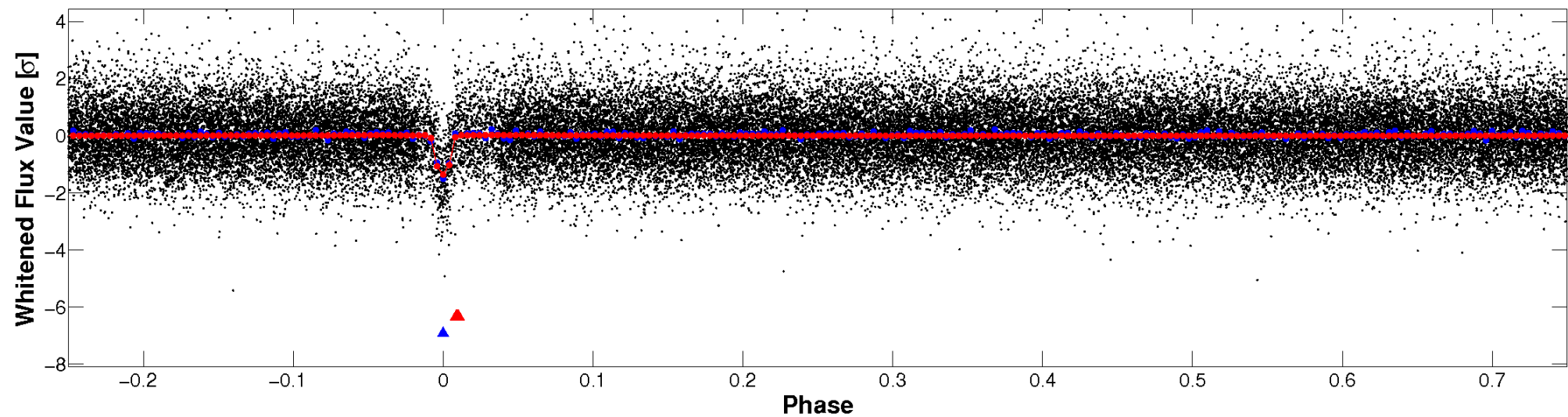


Non-Whitened Vs. Whitened Light Curve

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

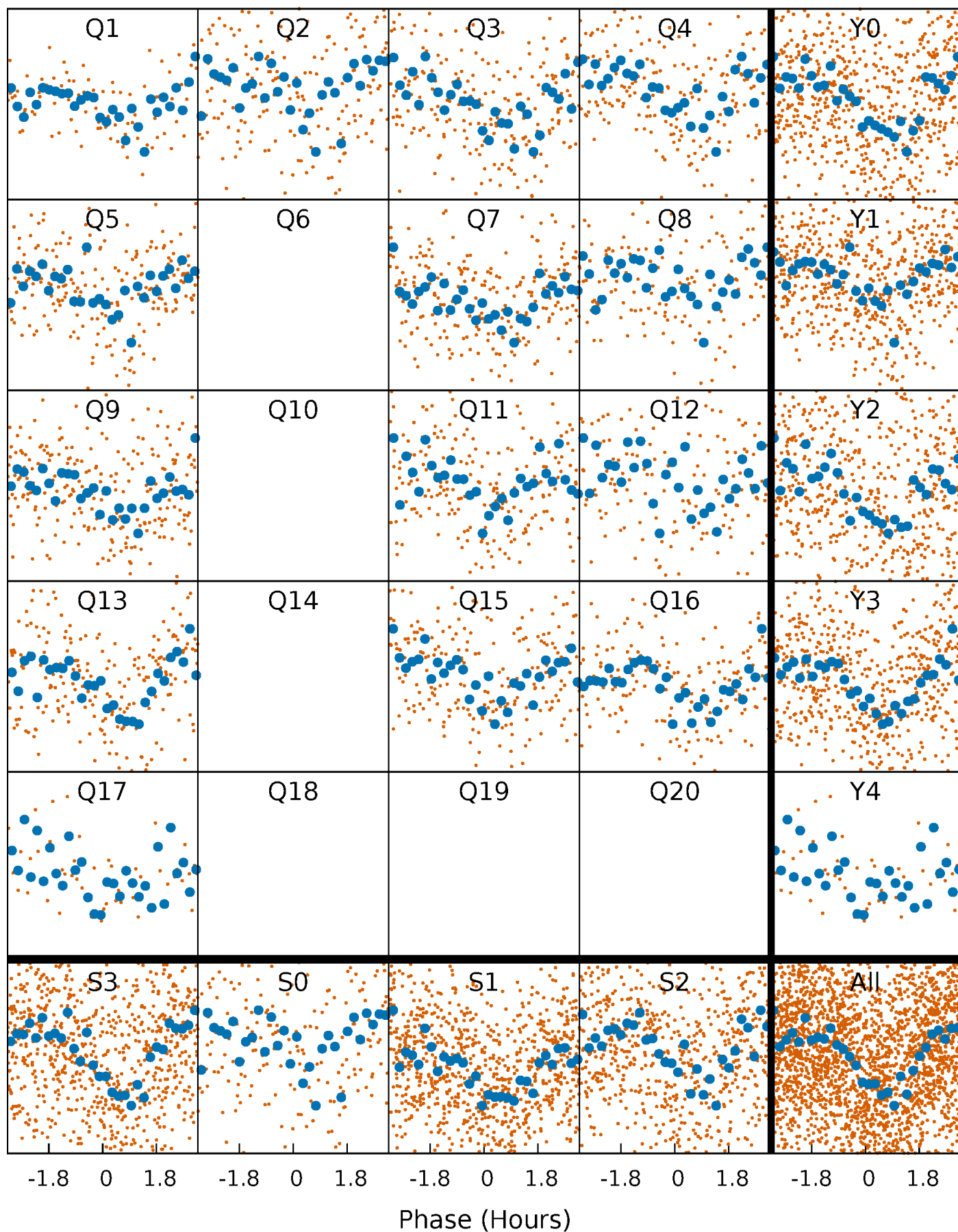


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



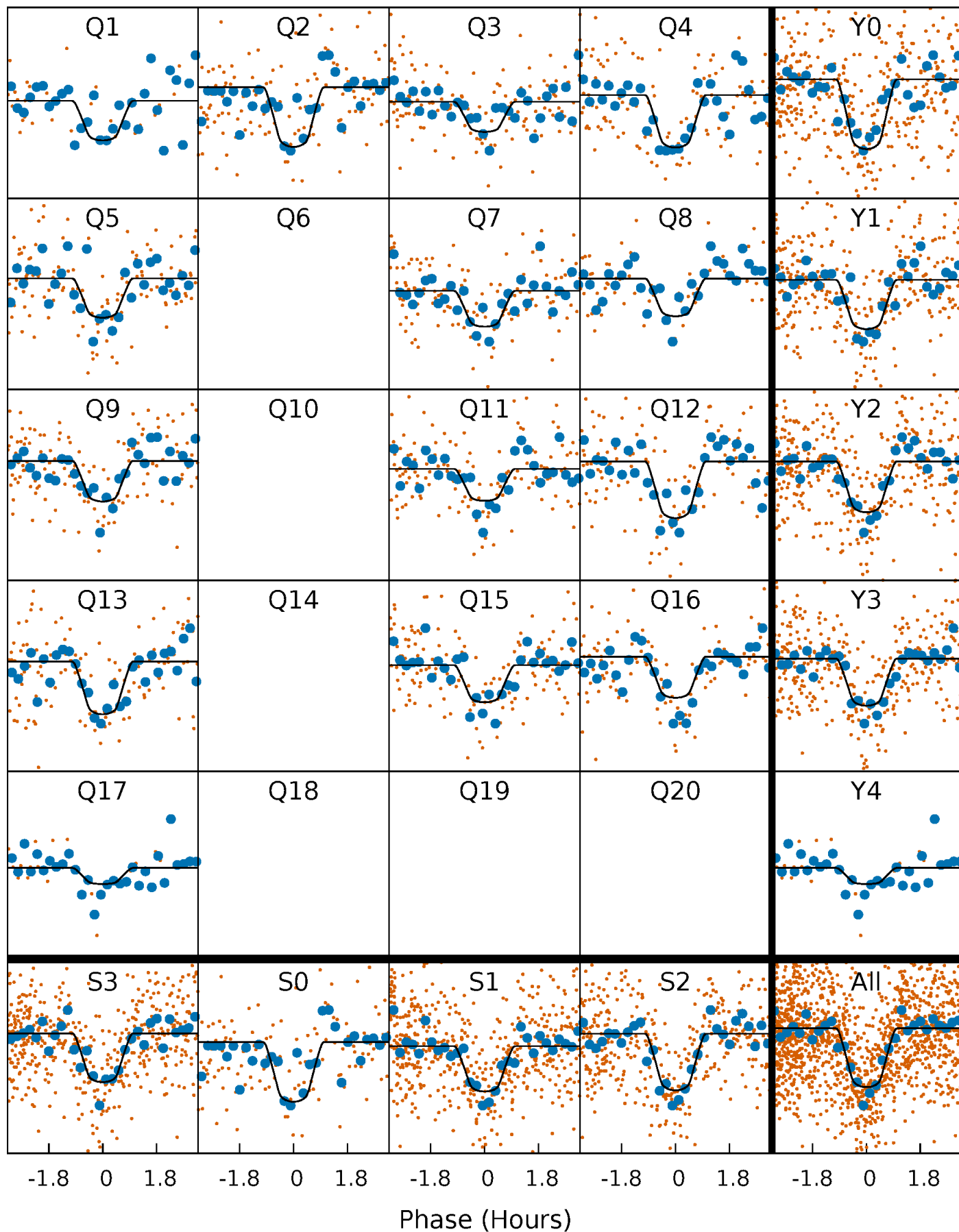
PDC Quarter-Phased Transit Curves

TCE 005103942-02 P= 5.050853 Days $T_0=131.763157$ (BKJD)



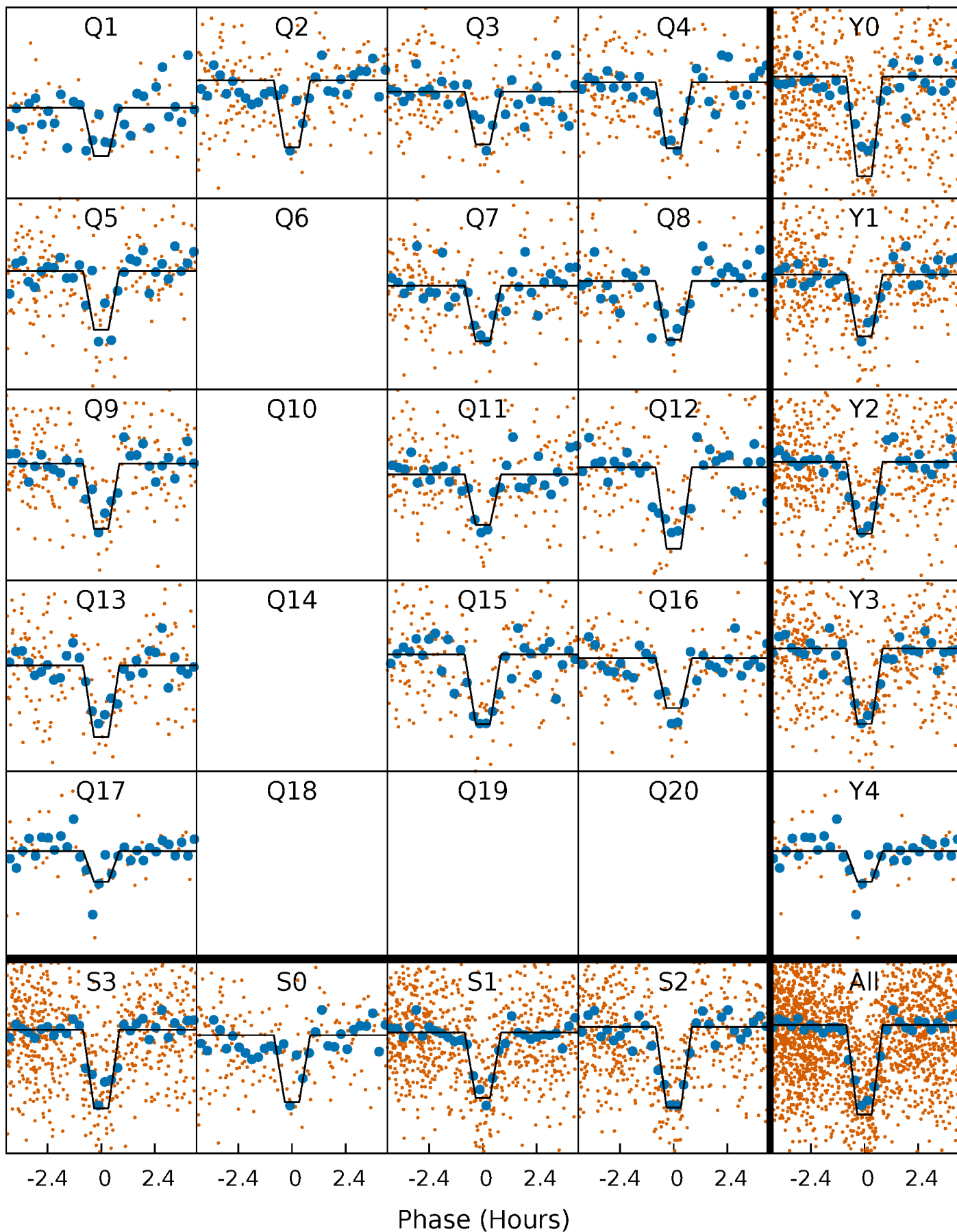
DV Quarter-Phased Transit Curves

TCE 005103942-02 P= 5.050853 Days $T_0=131.763157$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

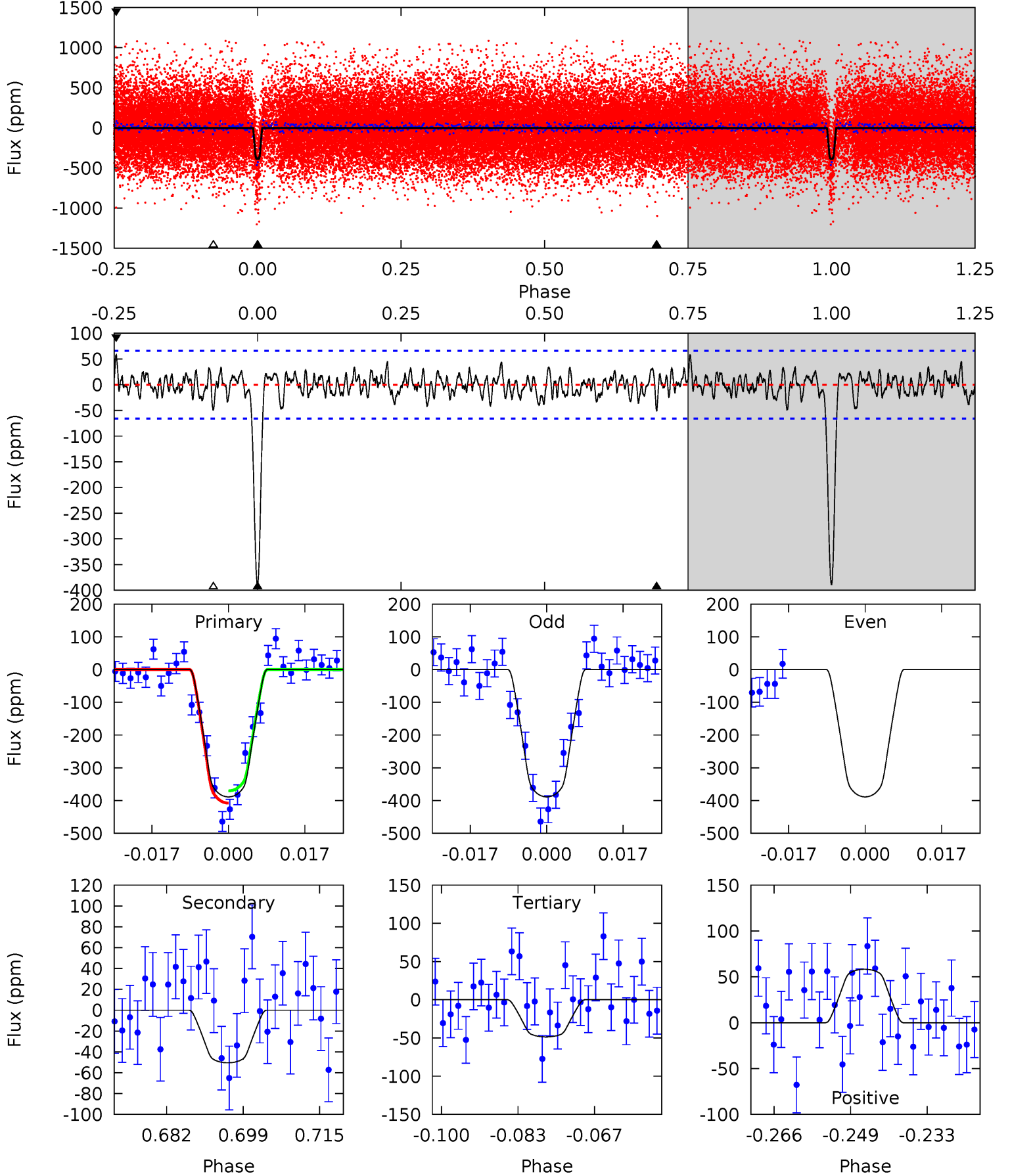
TCE 005103942-02 P= 5.050895 Days $T_0=131.755365$ (BKJD)



DV Model-Shift Uniqueness Test

005103942-02, P = 5.050853 Days, E = 126.712304 Days

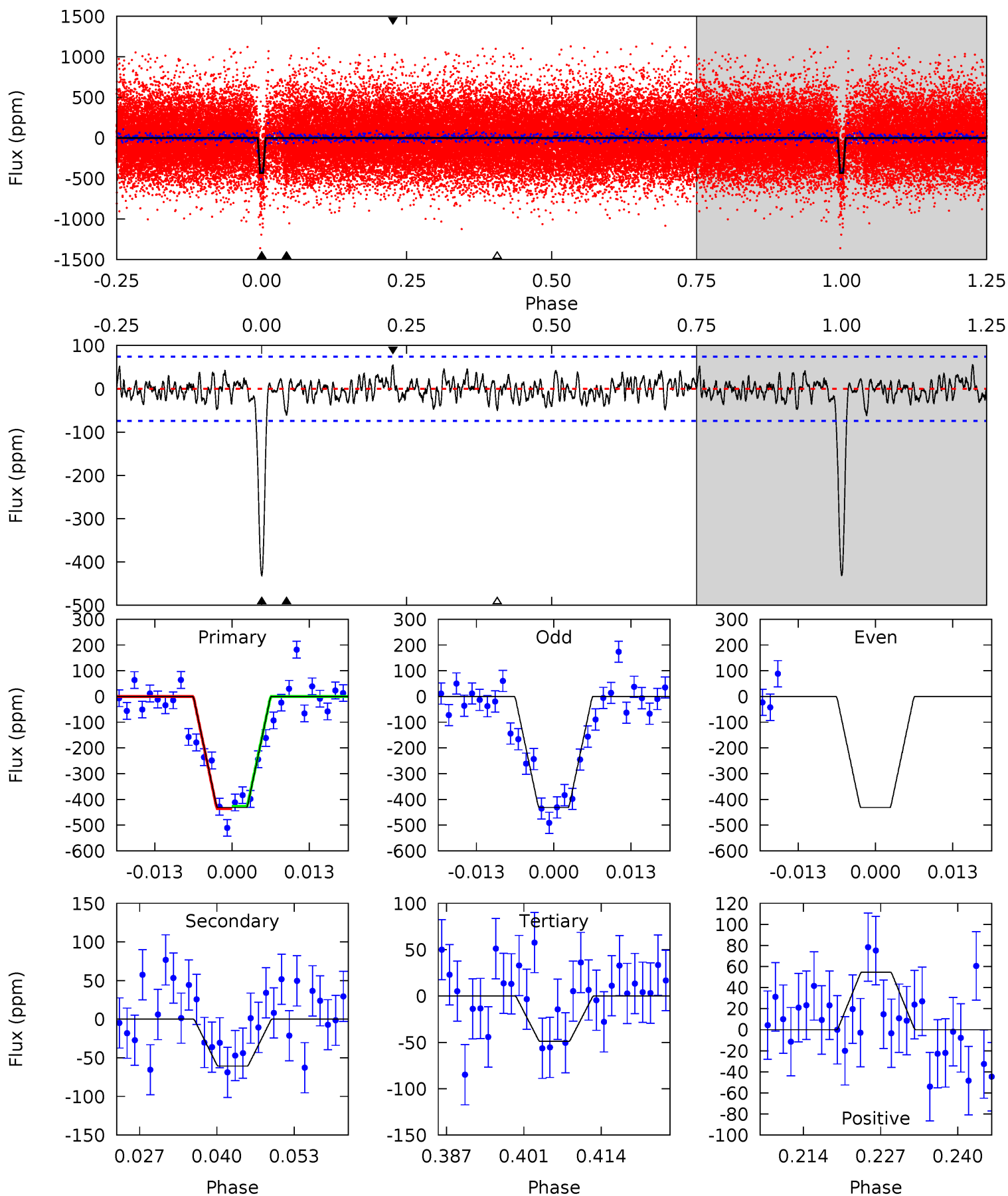
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.1	3.78	3.64	4.36	4.93	2.39	1.27	25.4	24.7	0.14	-0.58	0	1.02	0.13	1.40



Alt Model-Shift Uniqueness Test

005103942-02, P = 5.050895 Days, E = 126.704470 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.8	4.06	3.27	3.64	4.97	2.47	1.26	25.5	25.2	0.79	0.42	0	0.98	0.11	0.28



Stellar Parameters For KIC 005103942

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6058^{+164}_{-201}	$4.540^{+0.037}_{-0.212}$	$-0.400^{+0.300}_{-0.300}$	$0.867^{+0.262}_{-0.082}$	$0.950^{+0.108}_{-0.119}$	$2.052^{+0.417}_{-1.075}$
	+3%/-3%	+1%/-5%	+75%/-75%	+30%/-9%	+11%/-13%	+20%/-52%
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 005103942-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-51 ± 13	$2.13^{+0.63}_{-0.60}$	1497^{+105}_{-70}	3837^{+509}_{-371}	19^{+20}_{-9}
Alt.	-61 ± 15	$2.20^{+0.71}_{-0.62}$	1503^{+100}_{-76}	3932^{+493}_{-373}	21^{+21}_{-10}

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

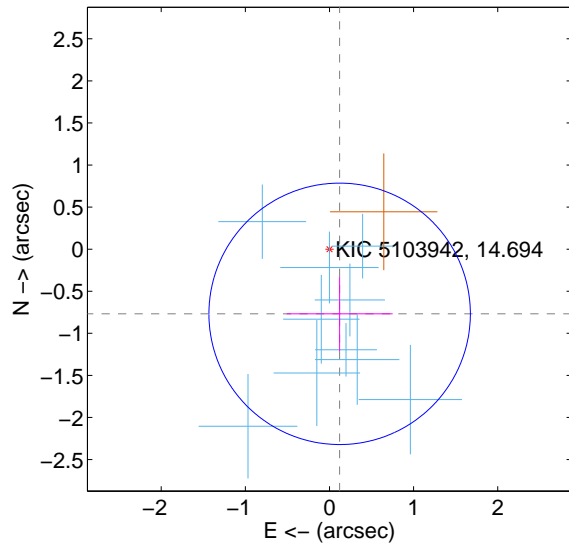
Supplemental centroid analysis for 005103942-02. Kepler magnitude: 14.69. Transit SNR 20.57

There are 10 quarters with good PRF difference image offsets

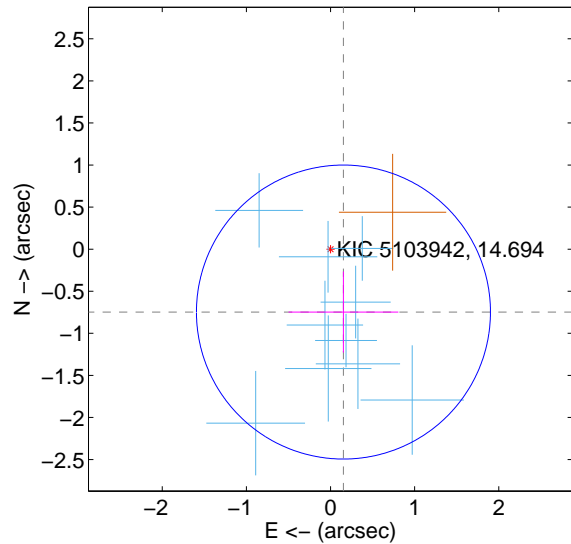
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.778 ± 0.518	1.50	-0.121 ± 0.629	-0.768 ± 0.442
PRF-fit source offset from KIC position	0.763 ± 0.582	1.31	-0.154 ± 0.653	-0.747 ± 0.482
photometric centroid source offset	0.91 ± 0.50	1.83	-0.62 ± 0.53	0.66 ± 0.47

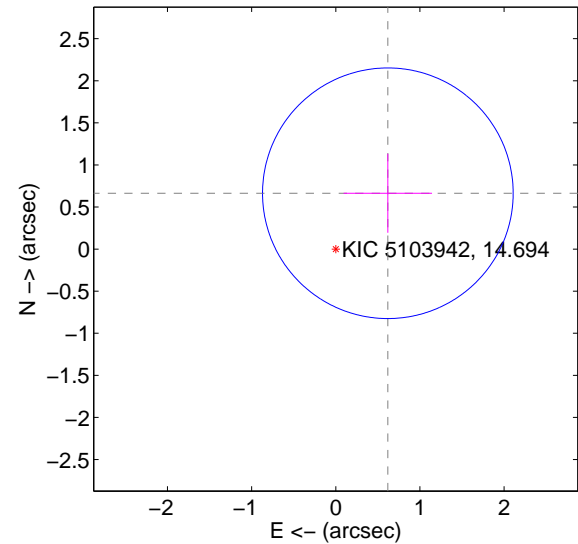
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

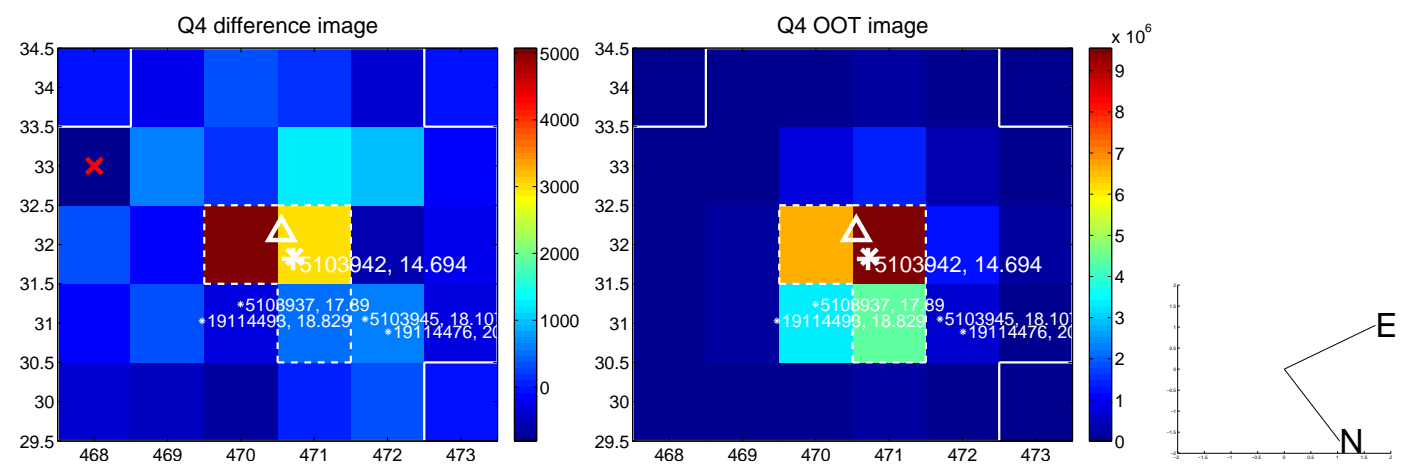
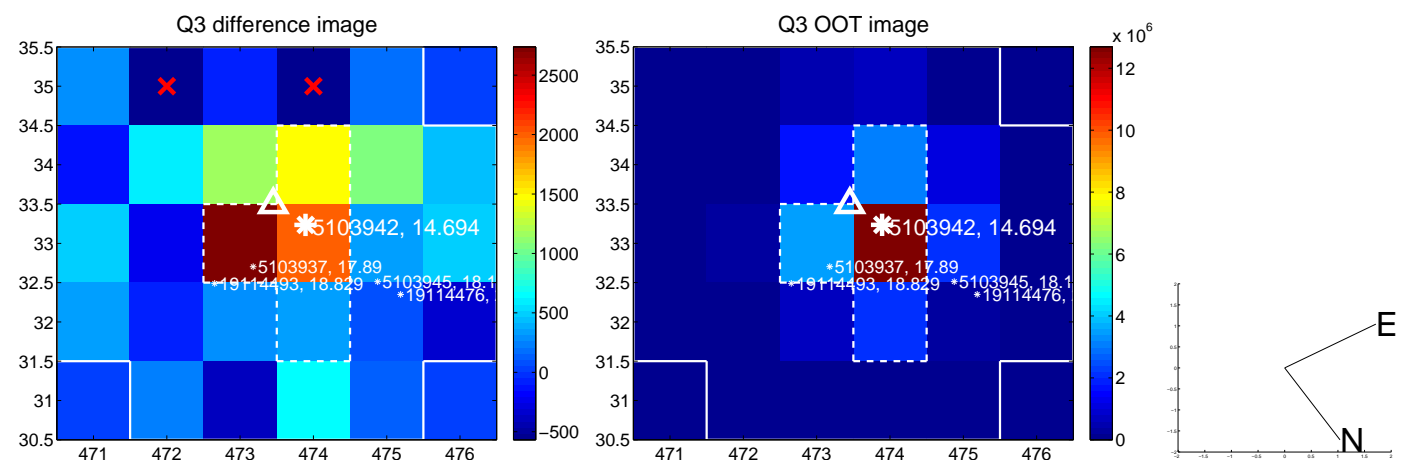
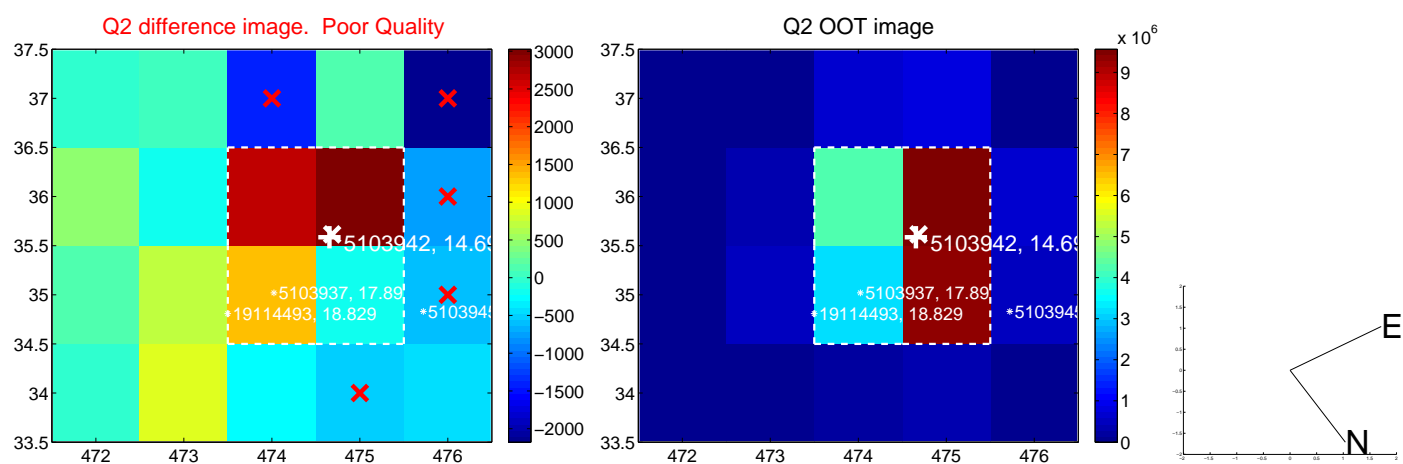
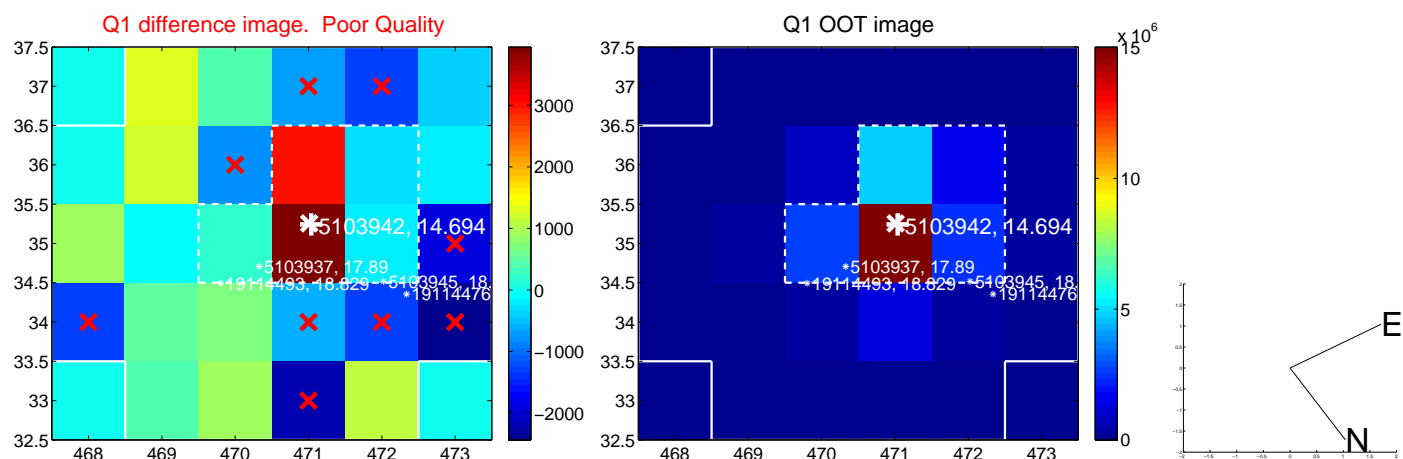


offset from photometric centroids

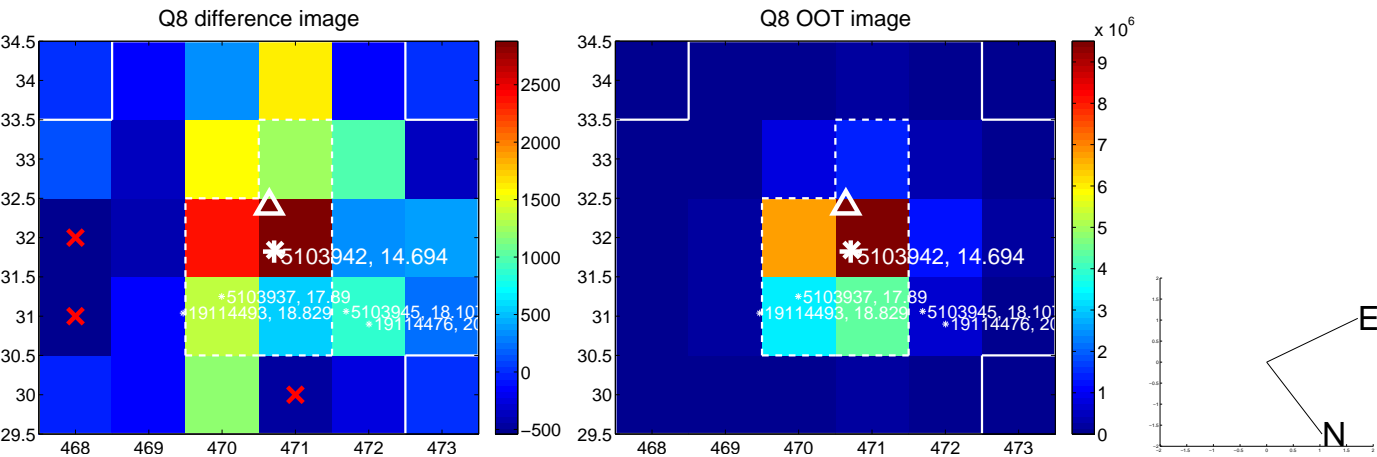
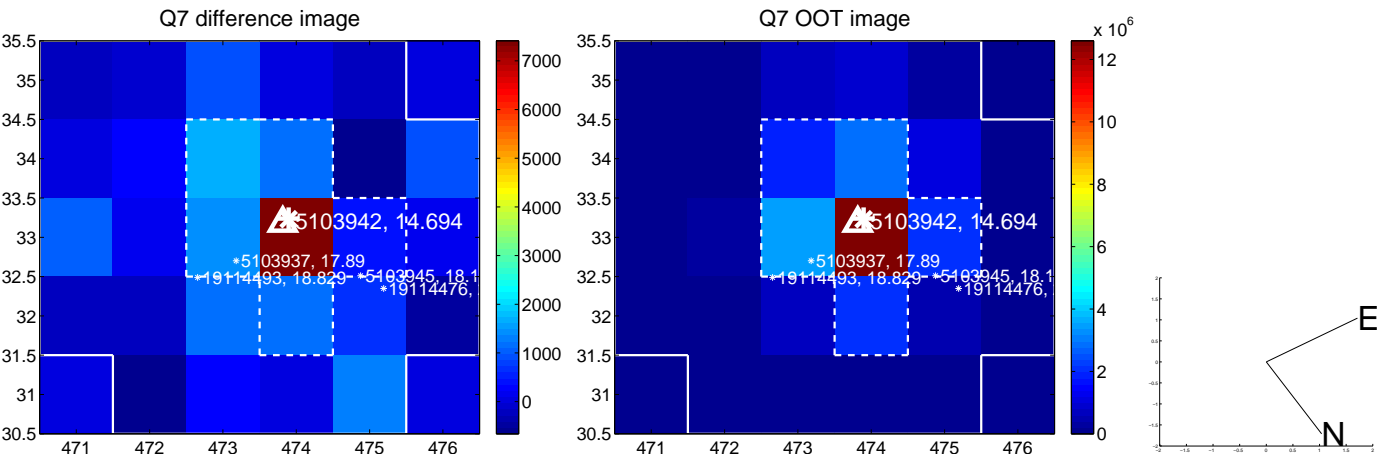
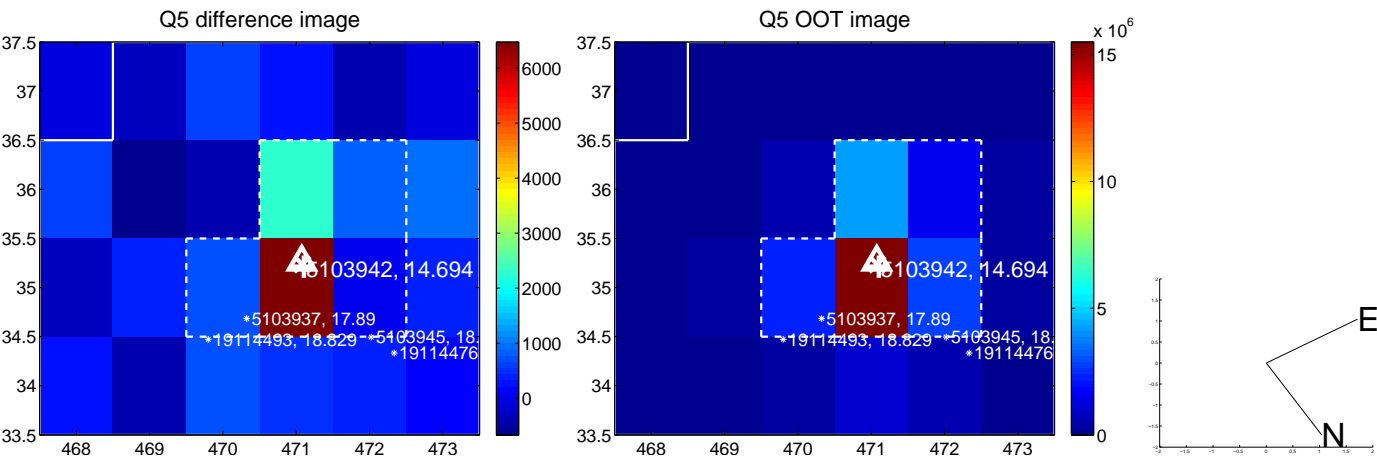


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

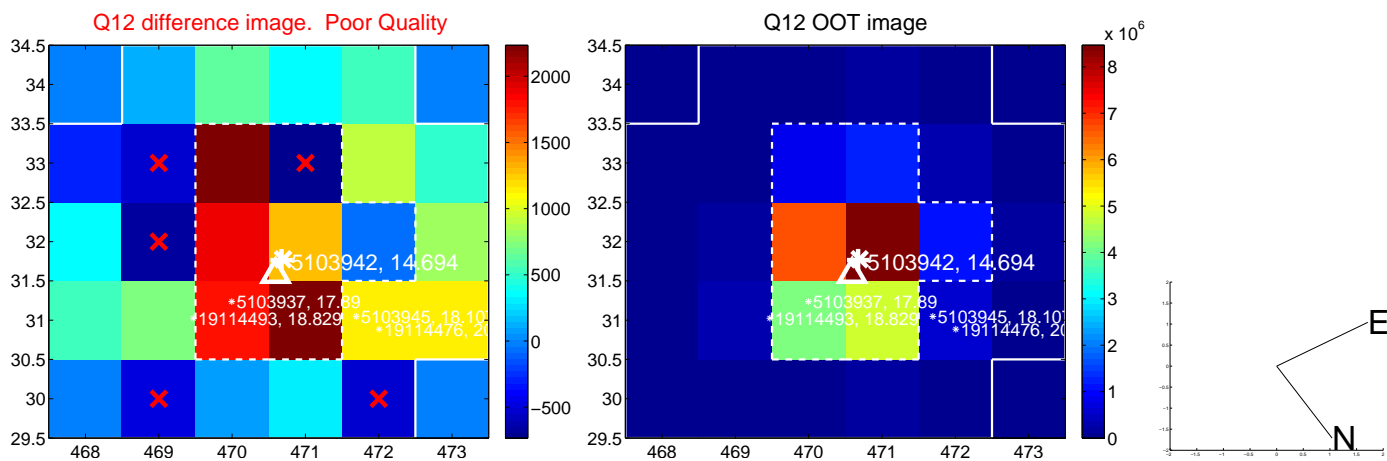
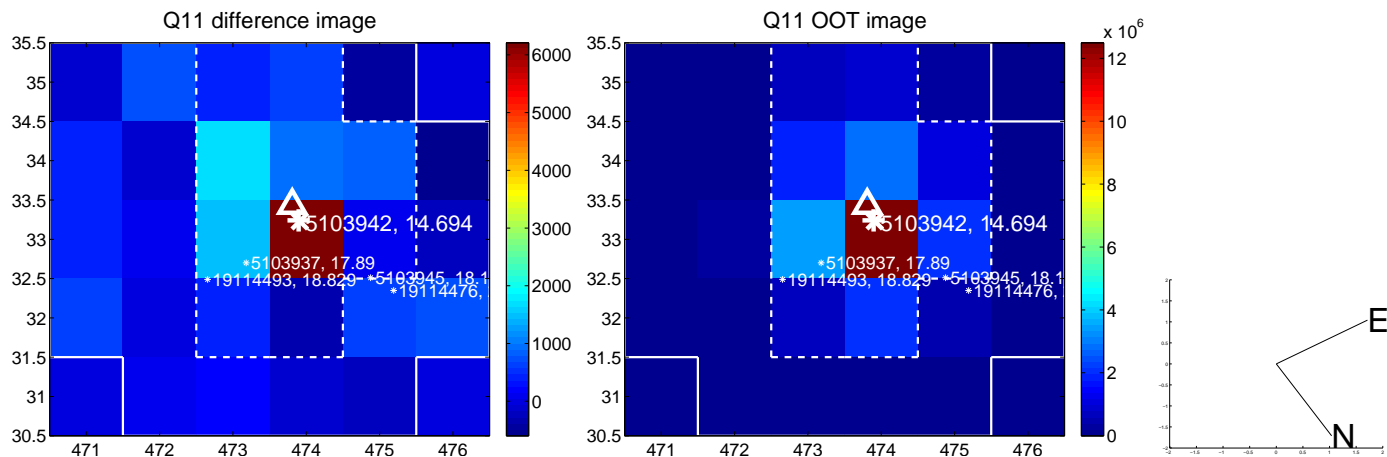
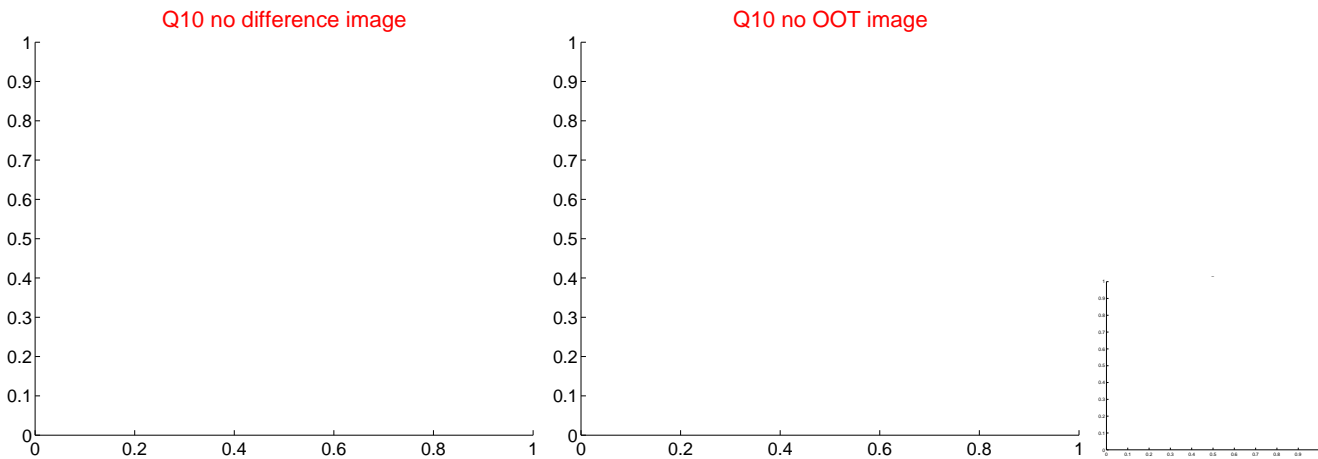
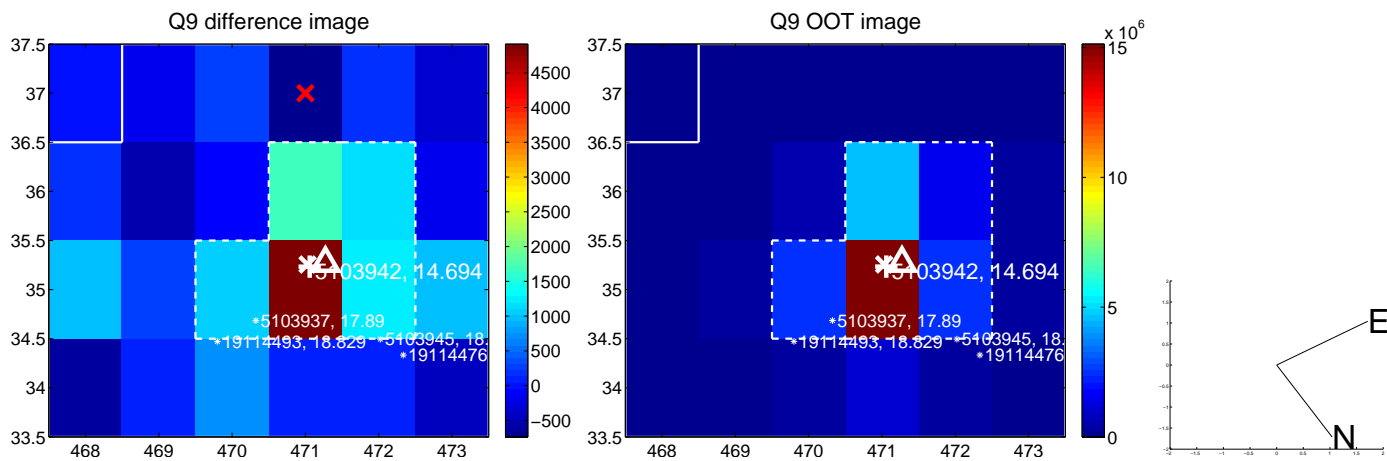
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



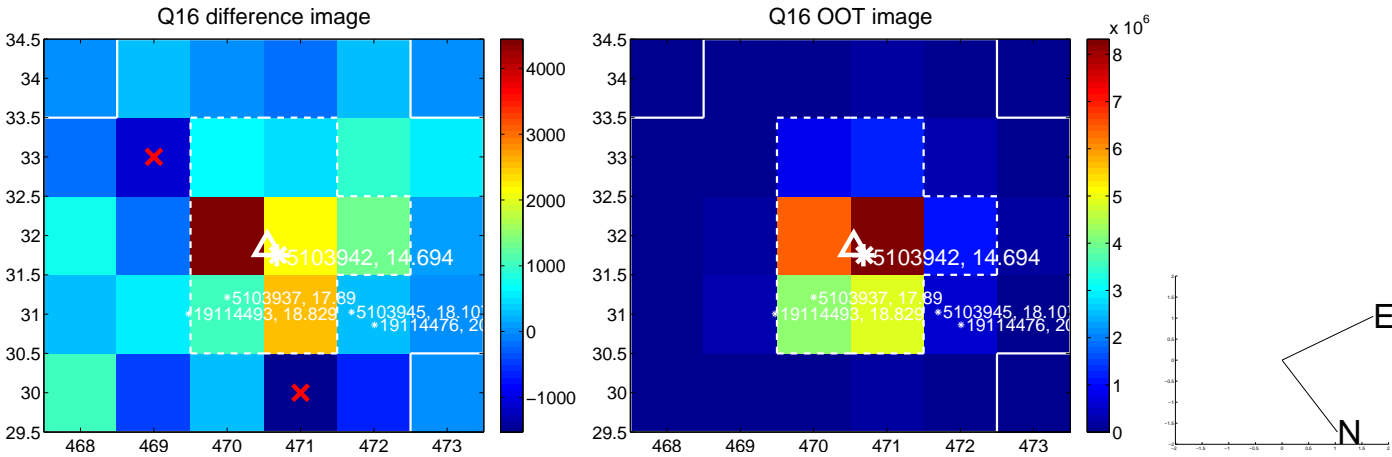
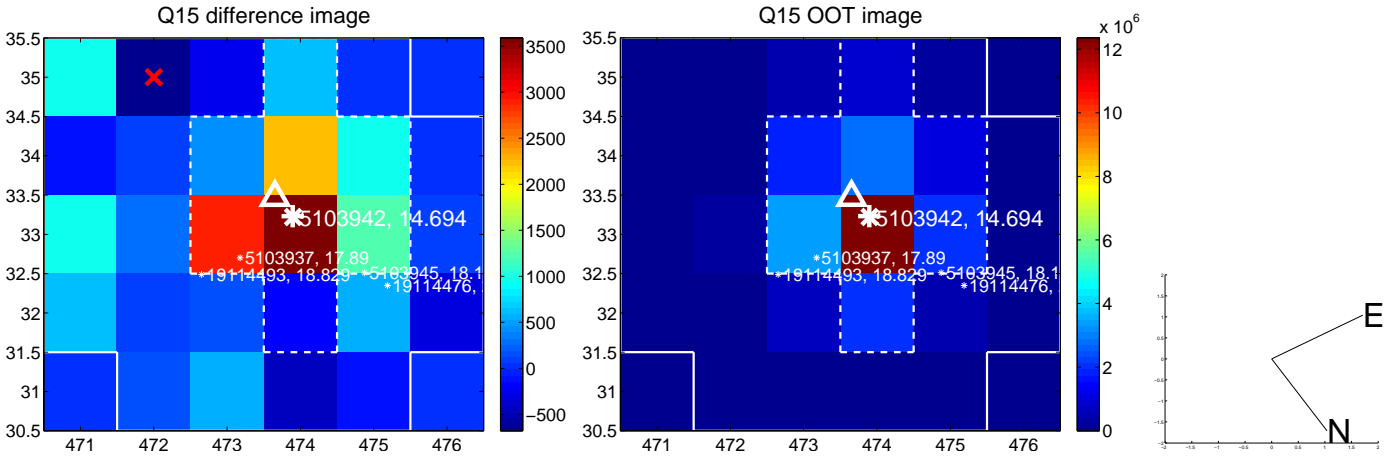
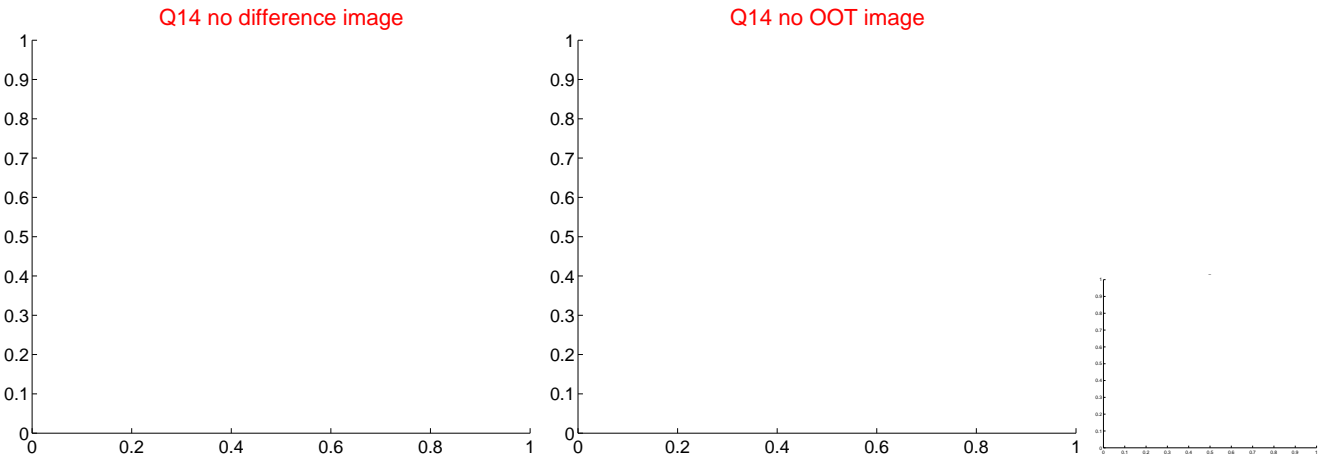
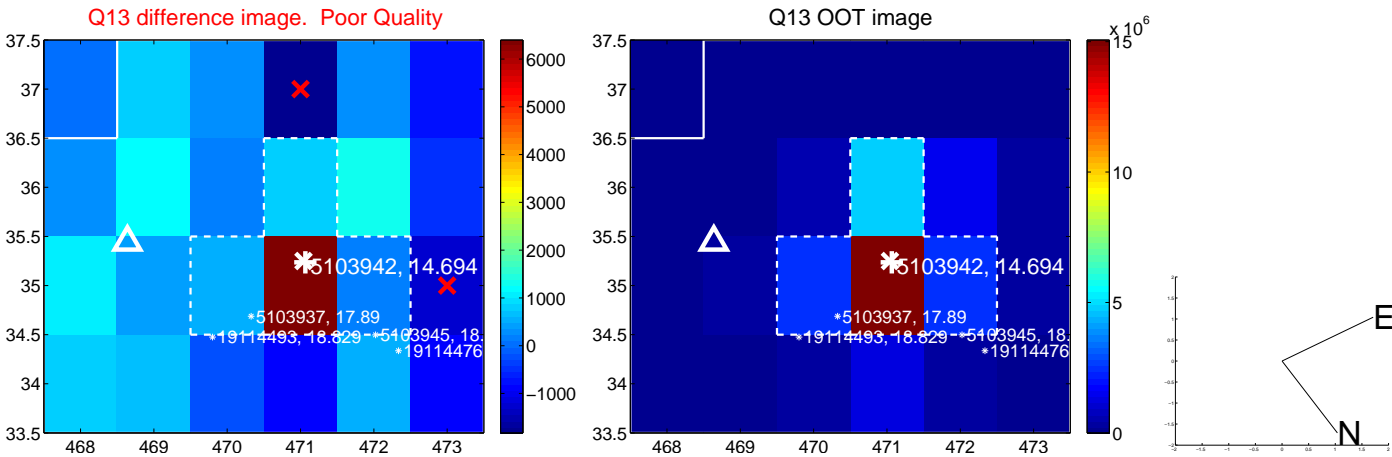
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



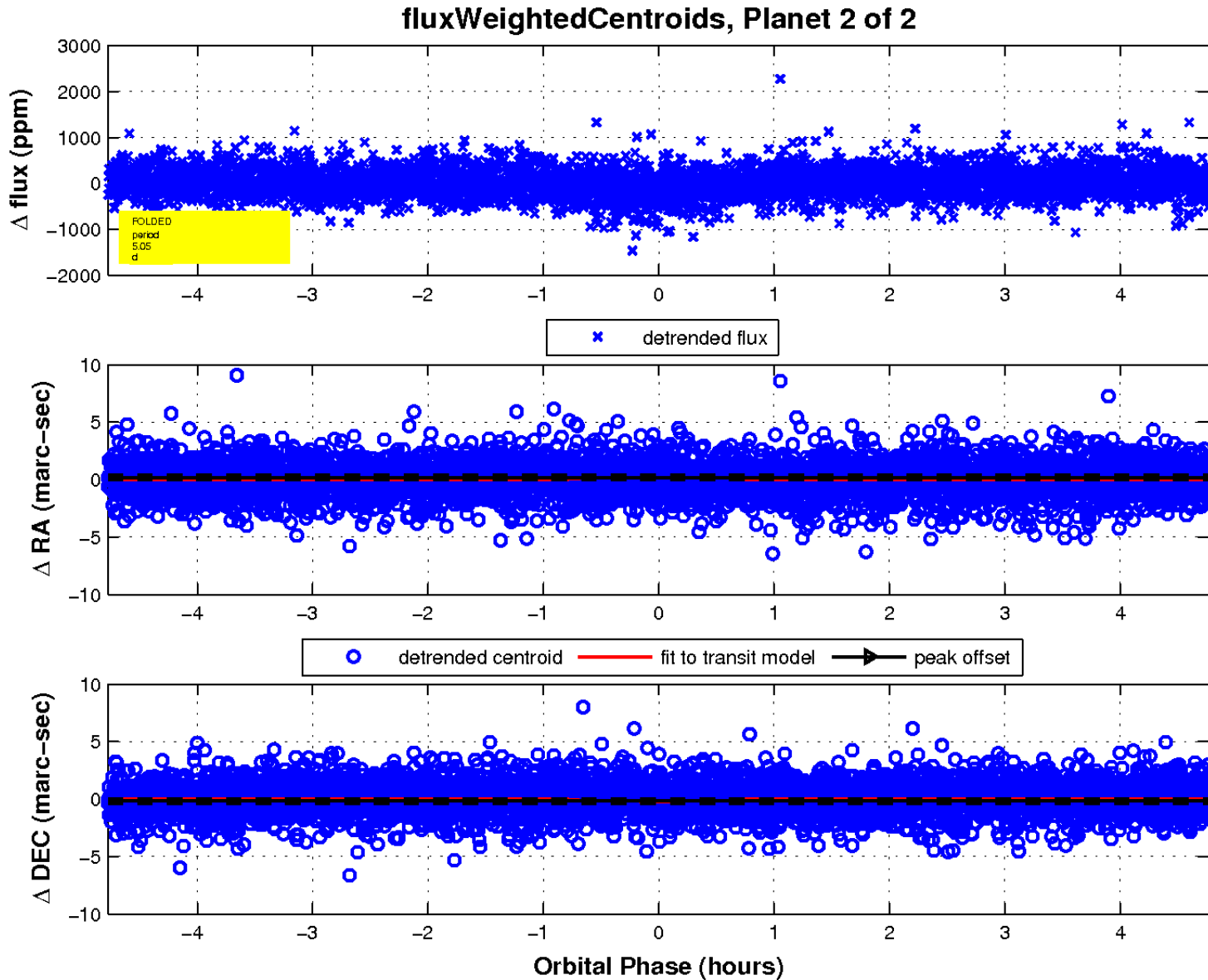
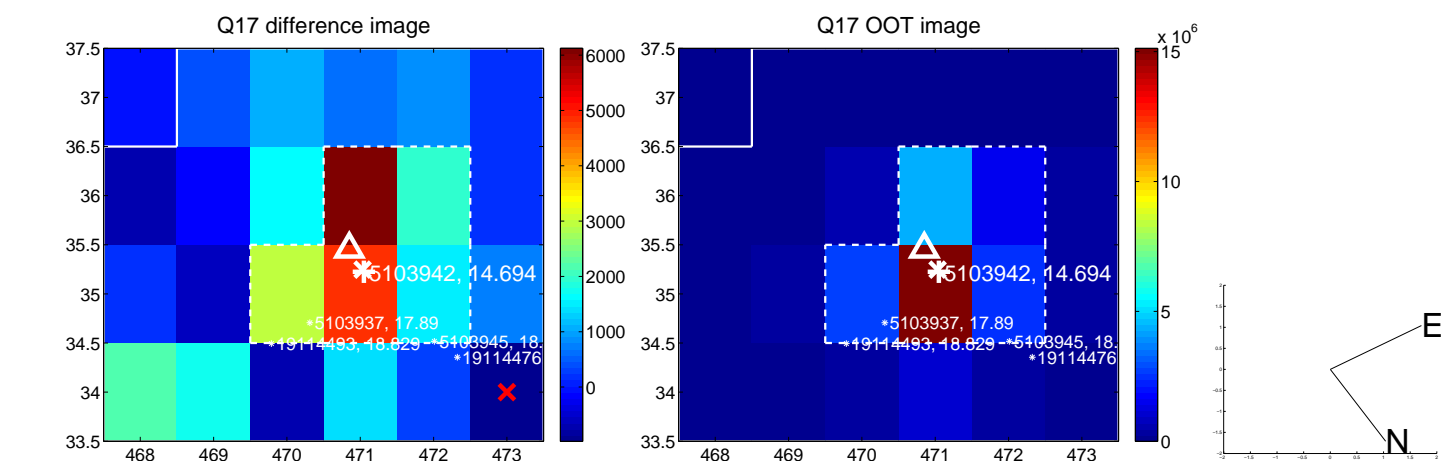
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

