

KIC 004385148

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})
004385148-01	OBS	2942.01	13.842957	139.960553	612.7	4.235	14.5	16.2	0.84	5745	2.40	56.52
004385148-02	OBS	2942.02	24.275784	152.434382	686.0	4.788	12.6	13.8	0.84	5745	2.42	26.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004385148-01	OBS	PC	0.95	0	0	0	0	CENT_KIC_POS
004385148-02	OBS	PC	0.97	0	0	0	0	CENT_KIC_POS

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 004385148-01

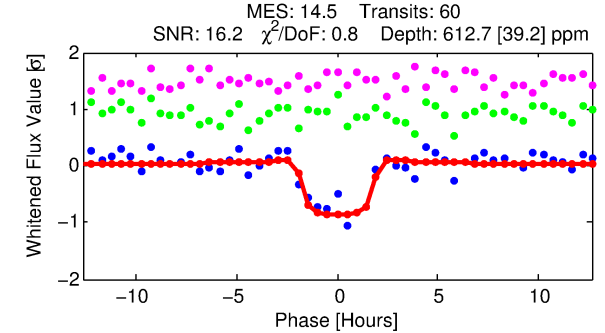
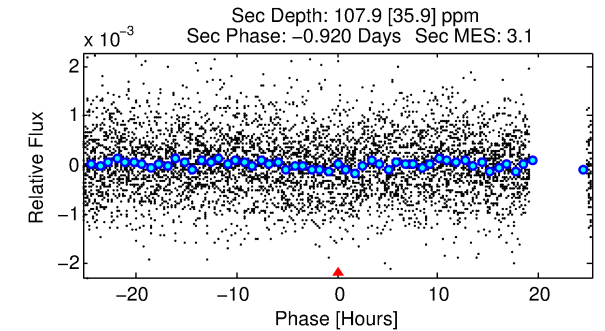
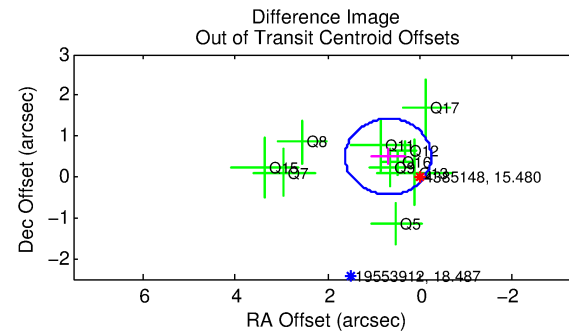
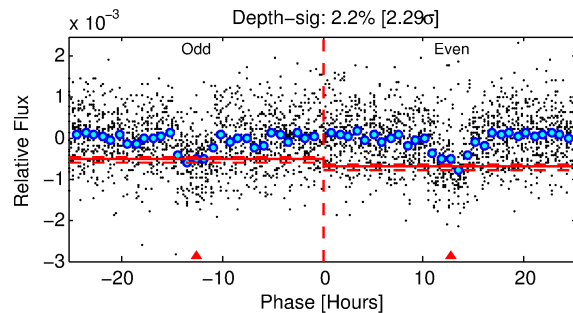
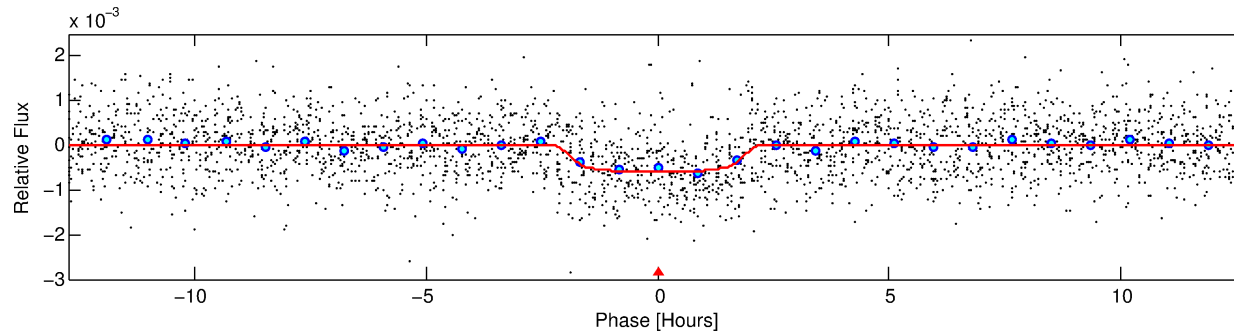
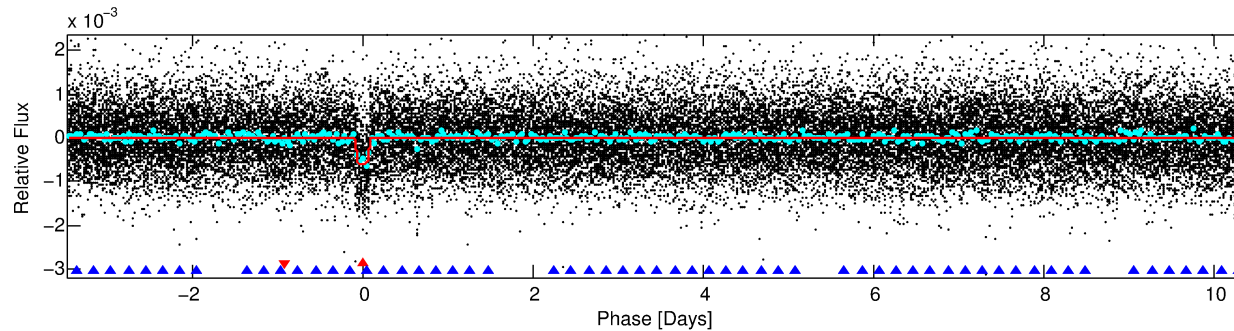
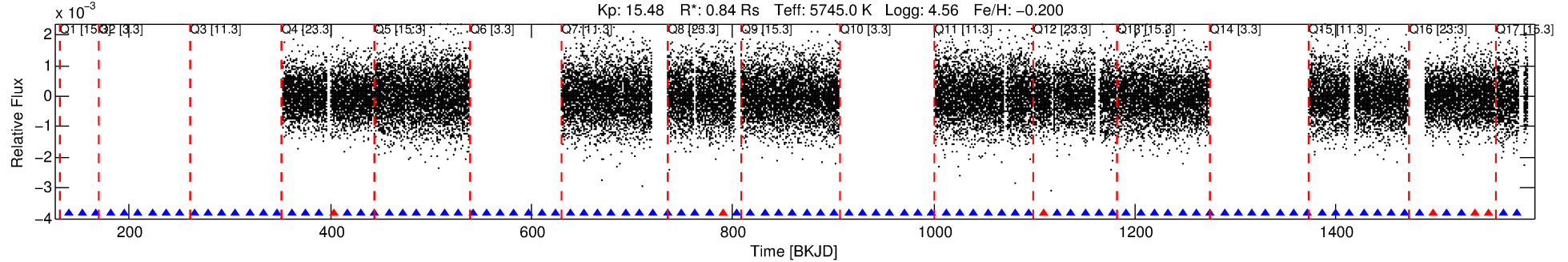
No Significant Match Found

DV One-Page Summary

KIC: 4385148 Candidate: 1 of 2 Period: 13.843 d

KOI: K02942.01 Corr: 0.977

Kp: 15.48 R*: 0.84 Rs Teff: 5745.0 K Logg: 4.56 Fe/H: -0.200



DV Fit Results:

Period = 13.84296 [0.00009] d
Epoch = 139.9606 [0.0061] BKJD
Rp/R* = 0.0263 [0.0046]
a/R* = 13.55 [10.67]
b = 0.87 [0.22]
Seff = 56.52 [19.07]
Teff = 699 [59] K
Rp = 2.40 [0.73] Re
a = 0.1100 [0.0232] AU
Ag = 124.45 [71.42] [1.73σ]
Teffp = 3611 [456] K [6.34σ]

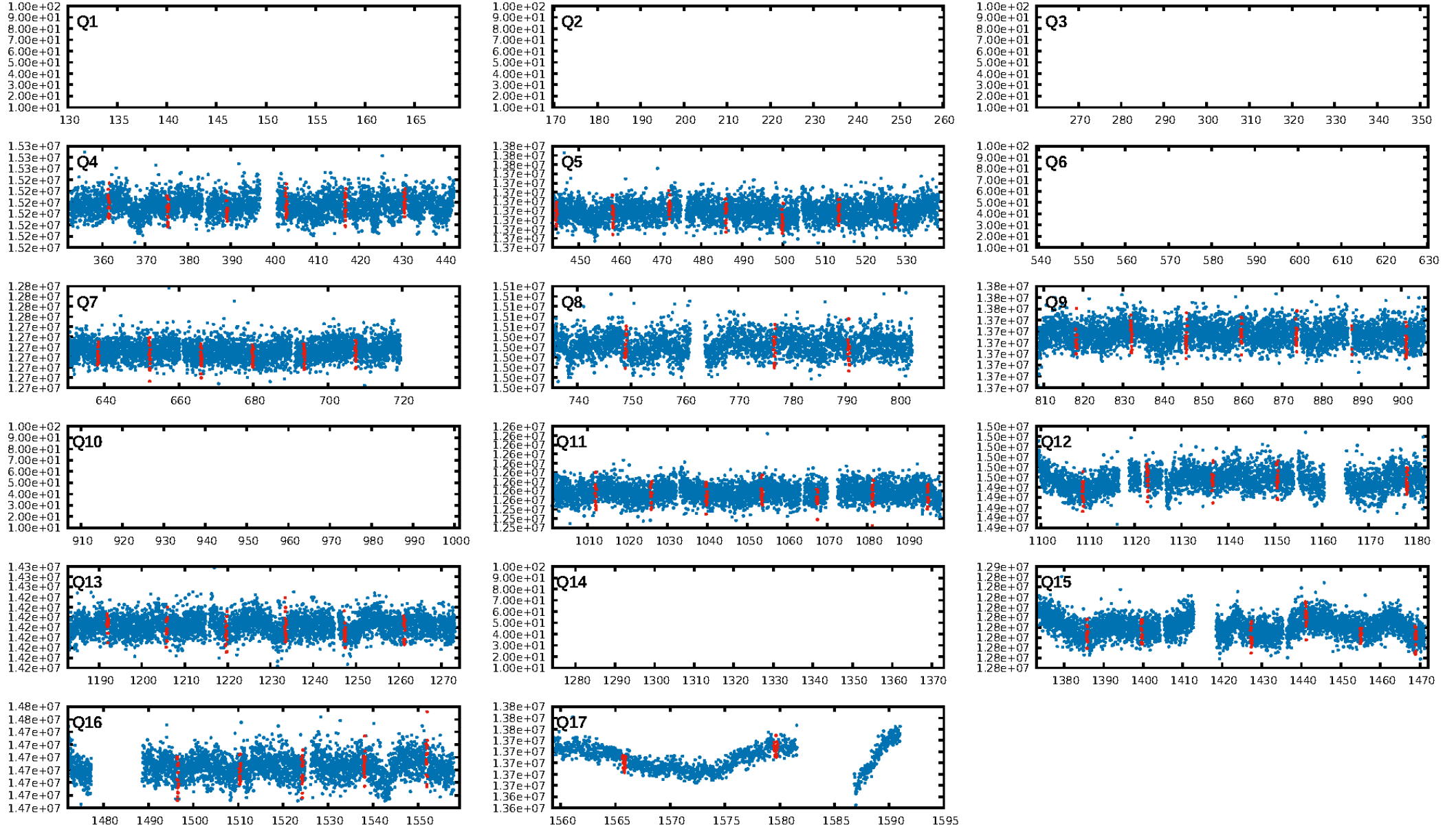
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [39.17σ]
ModelChiSquare2-sig: 100.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.97e-45
RollingBand-fgt: 0.90 [52/58]
GhostDiagnostic-chr: 1.505
Centroid-sig: 0.1%
Centroid-so: 0.947 arcsec [2.29σ]
OotOffset-rm: 0.850 arcsec [2.74σ]
KicOffset-rm: 0.942 arcsec [3.83σ]
OotOffset-st: 0/3/3/4 [10]
KicOffset-st: 0/3/3/4 [10]
DiffImageQuality-fgm: 0.80 [8/10]
DiffImageOverlap-fno: 1.00 [11/11]

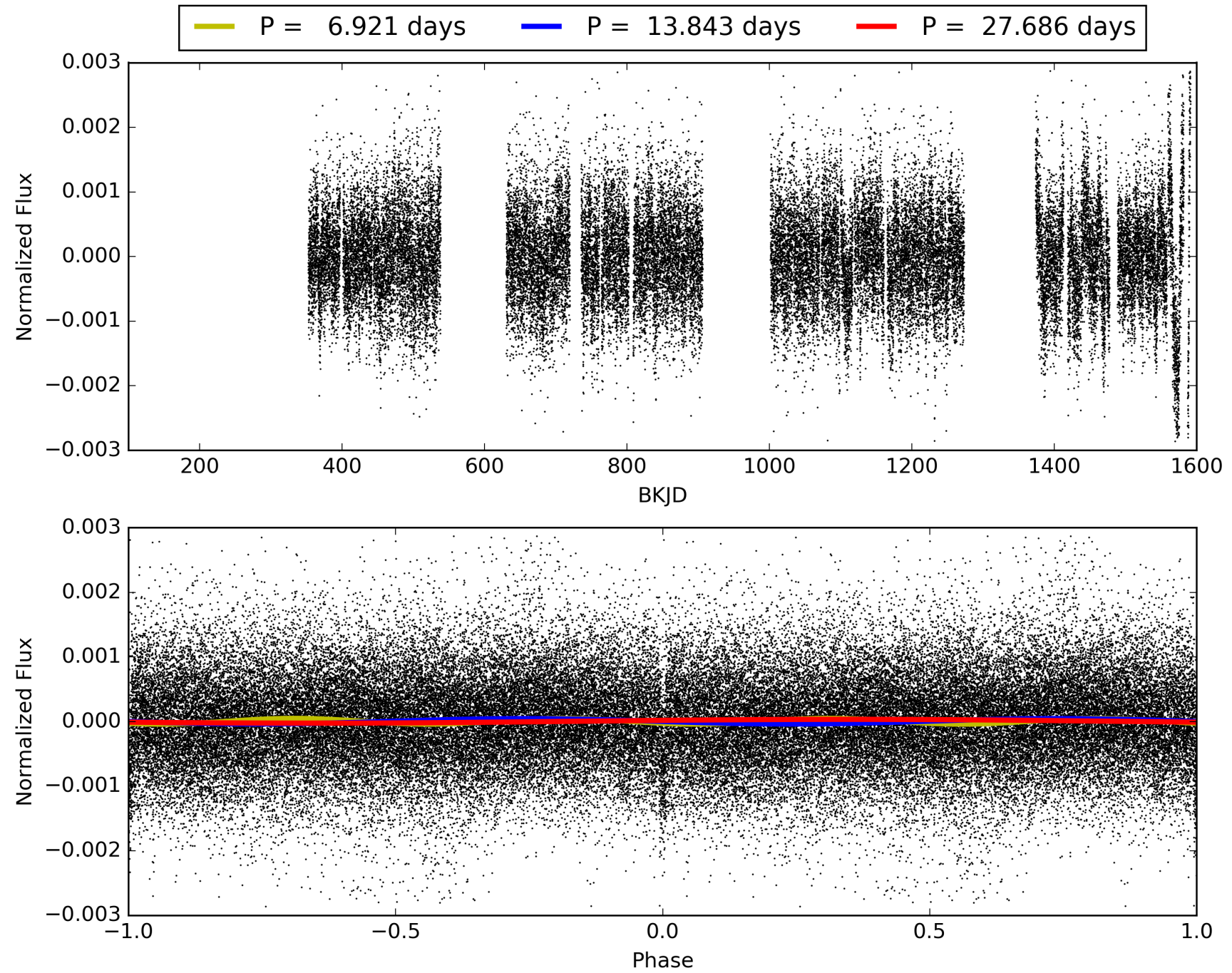
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:25:27 Z

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

TCE 004385148-01, PDC Light Curves

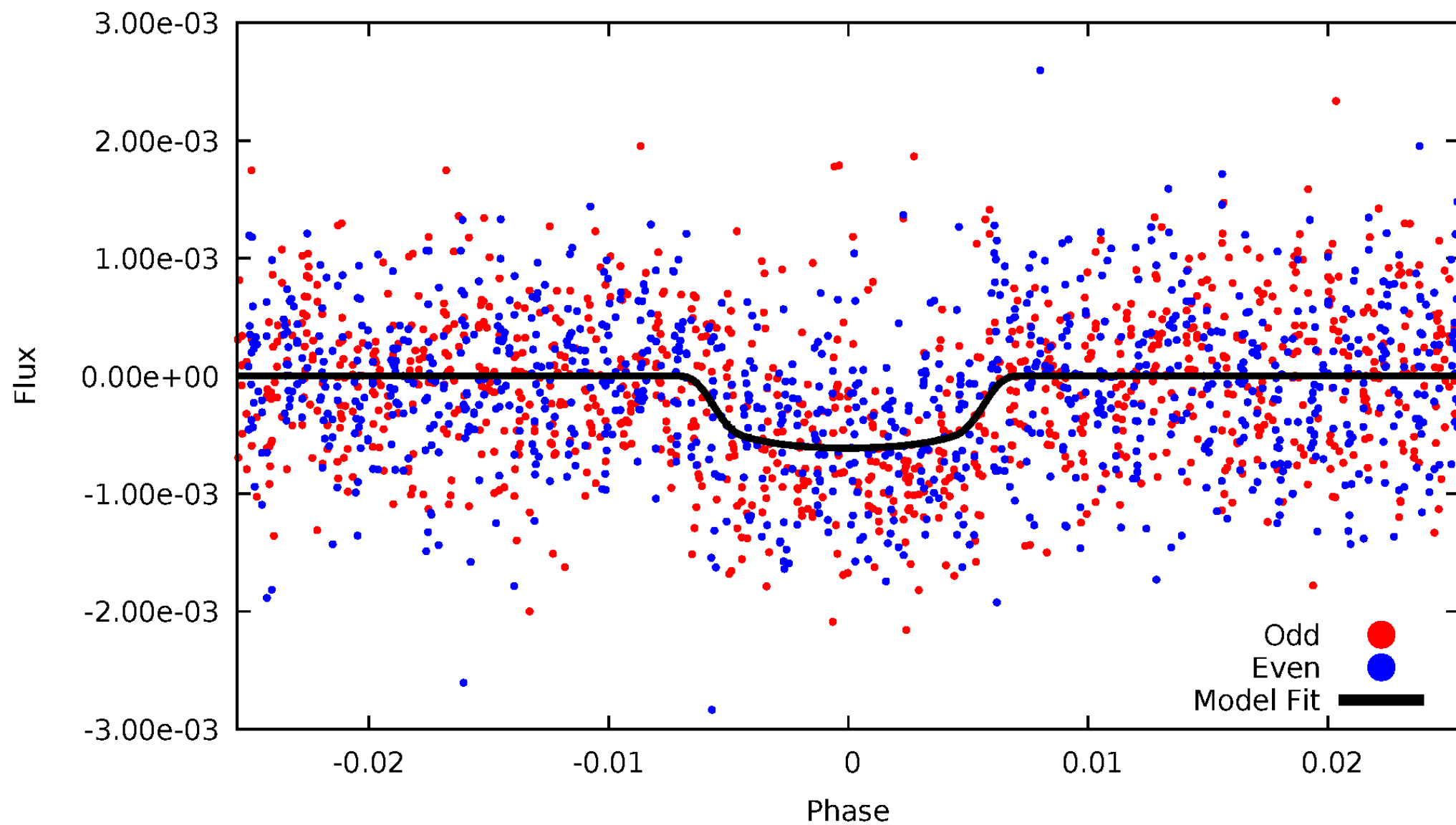


TCE 004385148-01



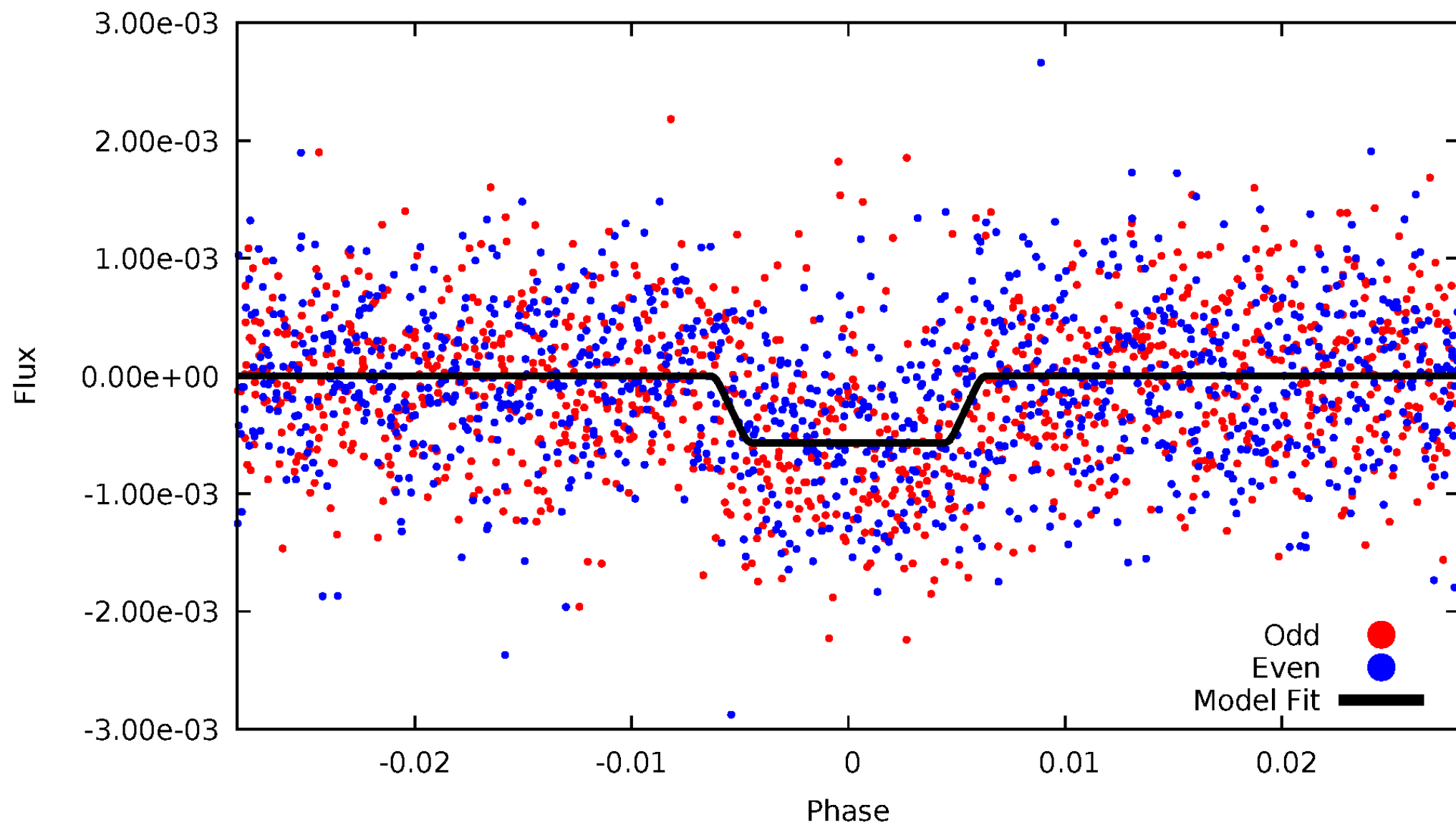
DV Odd/Even

TCE 004385148-01



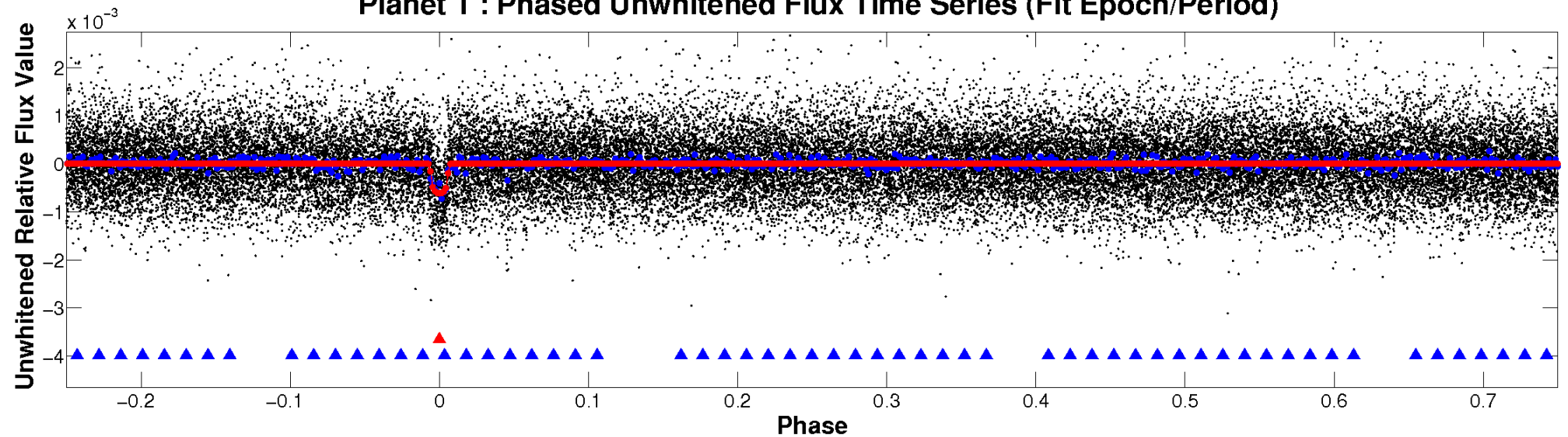
ALT Odd/Even

TCE 004385148-01

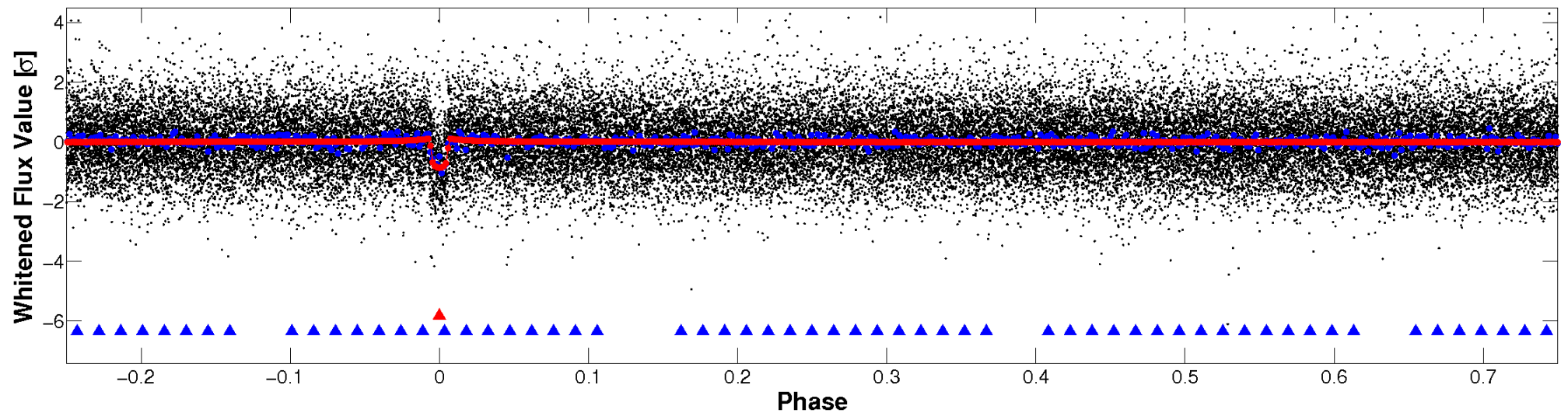


Non-Whitened Vs. Whitened Light Curve

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

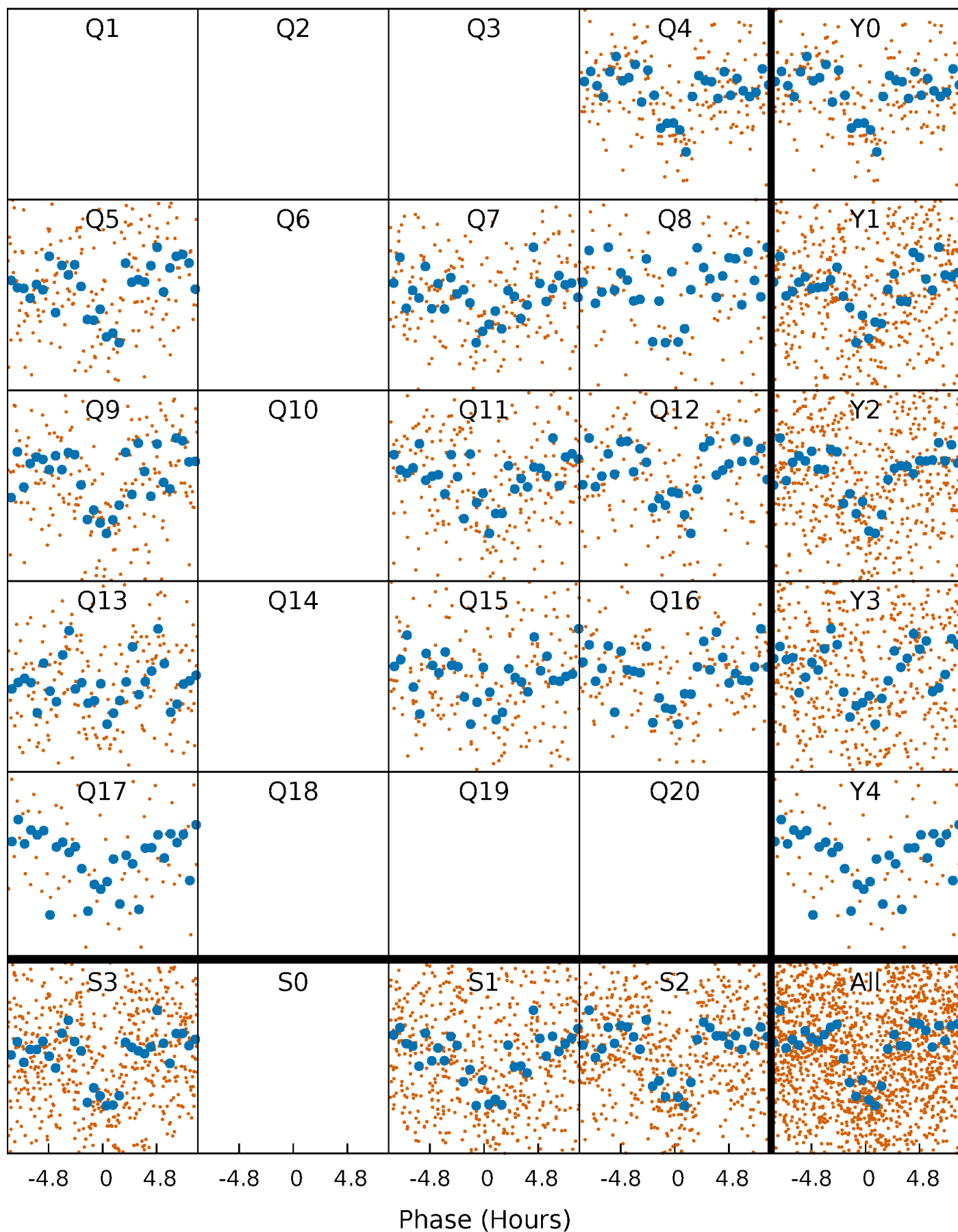


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



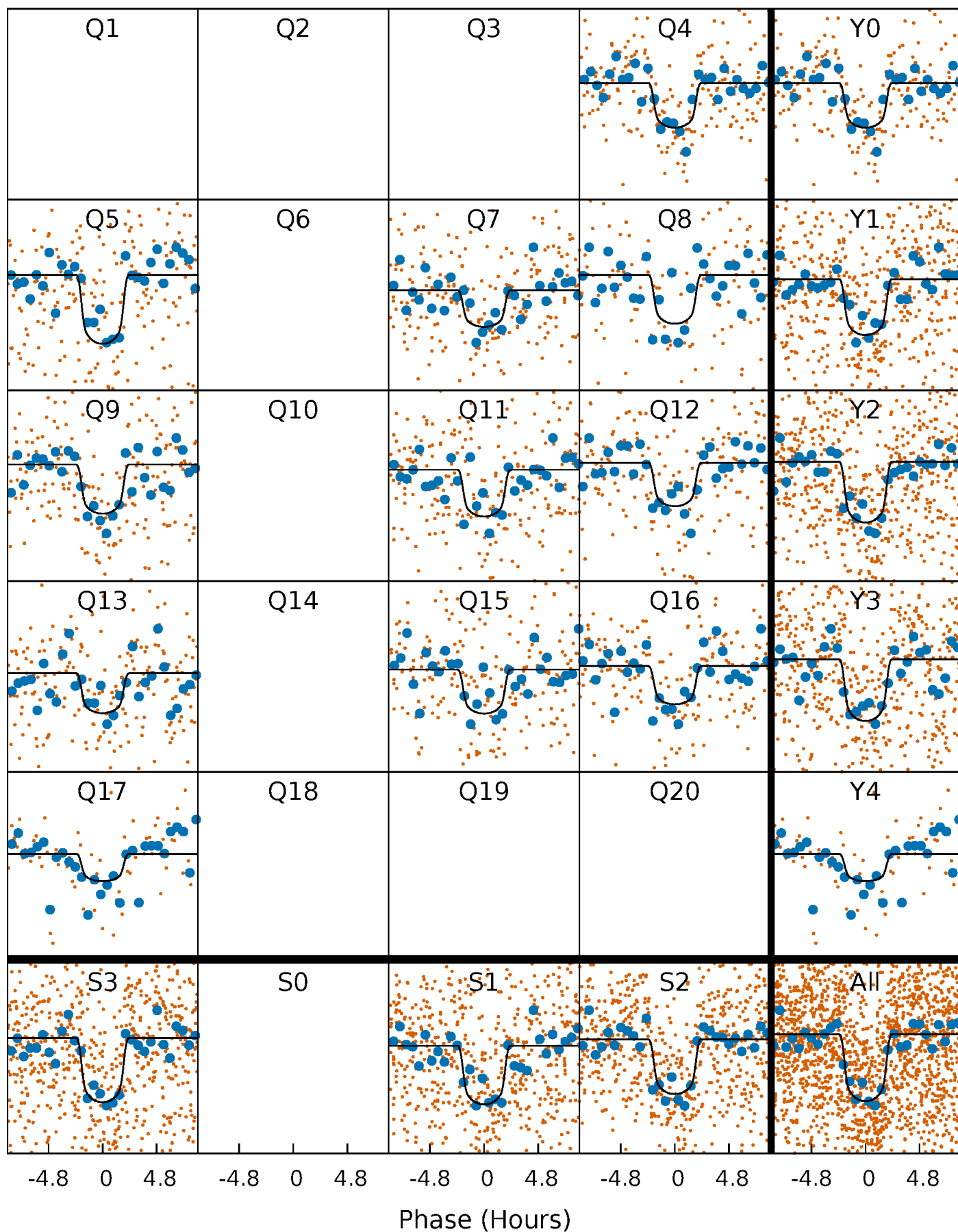
PDC Quarter-Phased Transit Curves

TCE 004385148-01 P= 13.842957 Days $T_0=139.960553$ (BKJD)



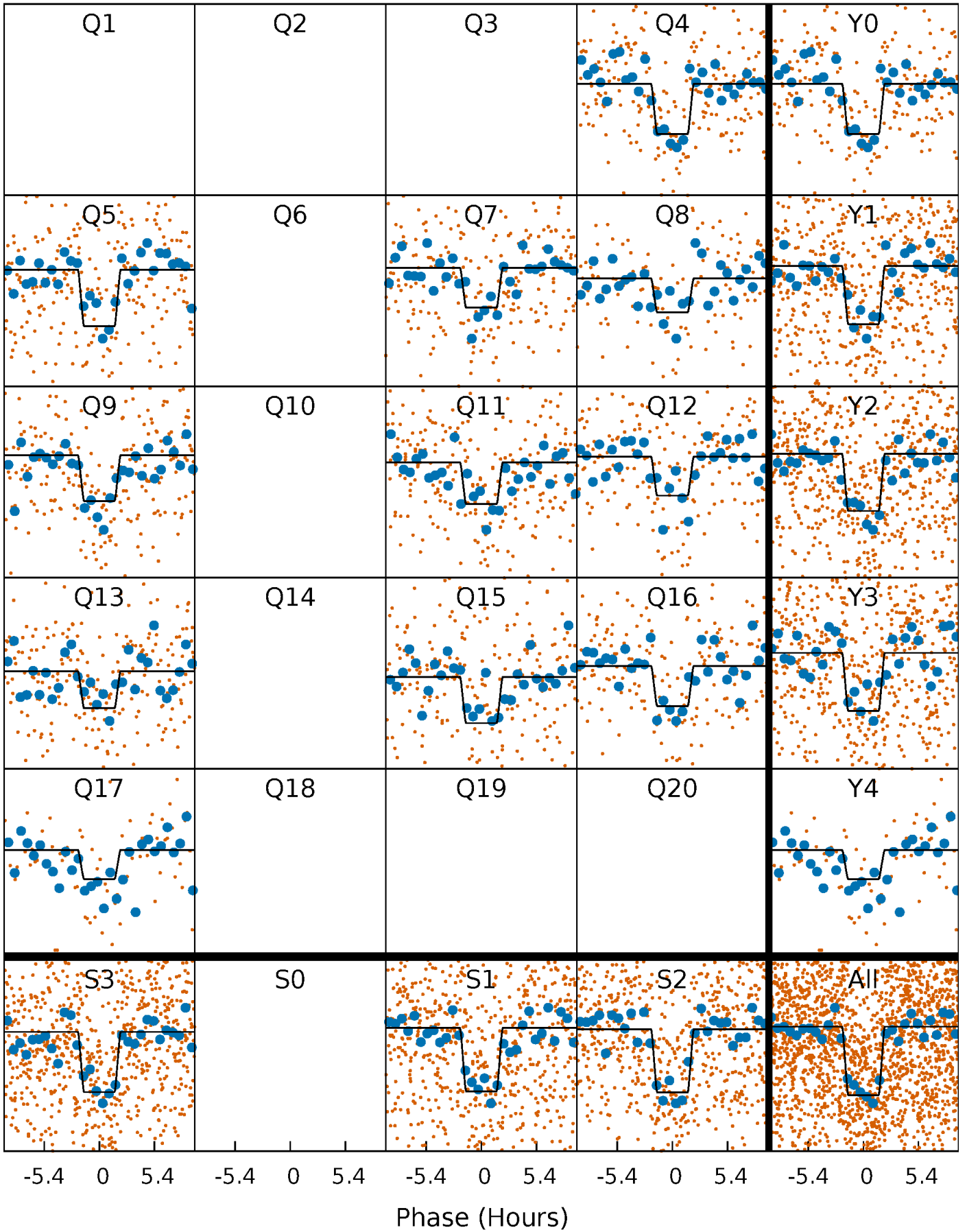
DV Quarter-Phased Transit Curves

TCE 004385148-01 P= 13.842957 Days $T_0=139.960553$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

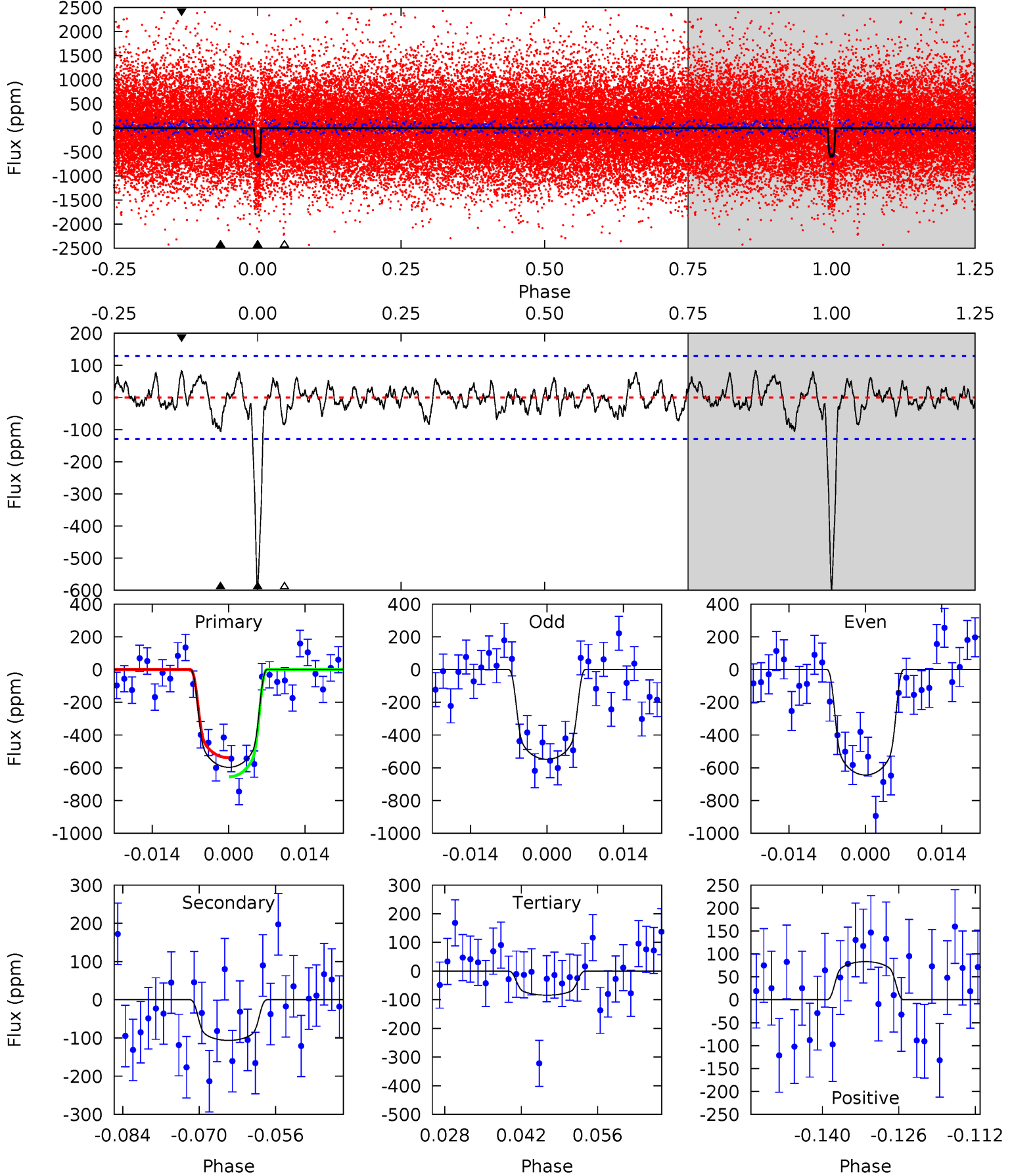
TCE 004385148-01 P= 13.842719 Days $T_0=139.972757$ (BKJD)



DV Model-Shift Uniqueness Test

004385148-01, P = 13.842957 Days, E = 139.960553 Days

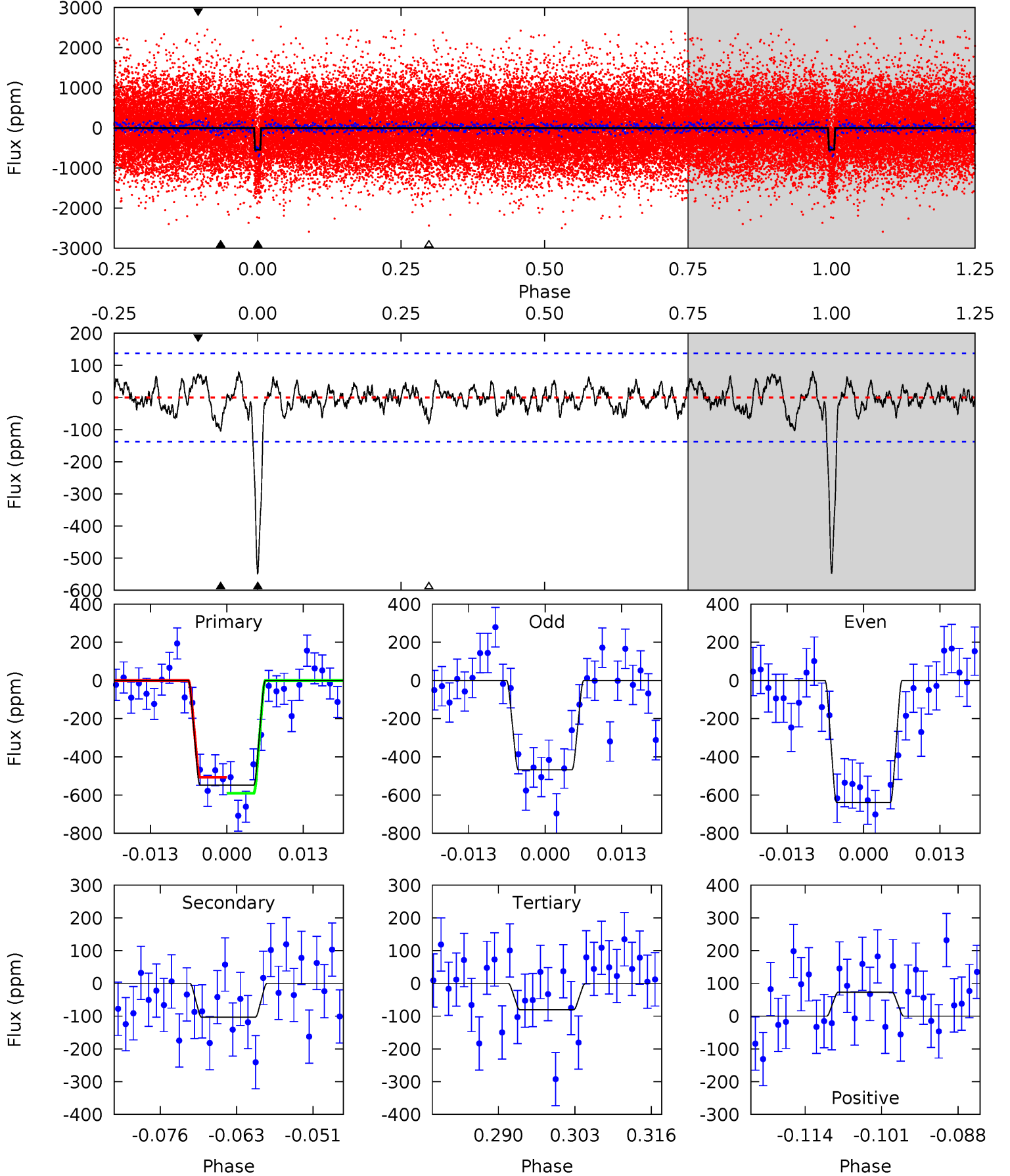
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.8	4.07	3.21	3.18	4.96	2.46	1.20	19.6	19.6	0.86	0.89	1.84	0.96	0.12	2.23



Alt Model-Shift Uniqueness Test

004385148-01, $P = 13.842719$ Days, $E = 139.972757$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	3.74	2.92	2.66	4.98	2.49	1.06	17.0	17.2	0.82	1.09	3.10	0.96	0.13	1.53



Stellar Parameters For KIC 004385148

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5745^{+181}_{-201}	$4.559^{+0.042}_{-0.168}$	$-0.200^{+0.300}_{-0.300}$	$0.837^{+0.209}_{-0.075}$	$0.928^{+0.100}_{-0.110}$	$2.227^{+0.500}_{-1.016}$
	+3%/-3%	+1%/-4%	+150%/-150%	+25%/-9%	+11%/-12%	+22%/-46%
Source	KIC0	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 004385148-01 / KOI 2942.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-106 ± 26	$2.46^{+0.56}_{-0.48}$	992^{+59}_{-45}	3925^{+351}_{-290}	110^{+69}_{-40}
Alt.	-103 ± 28	$2.27^{+0.50}_{-0.46}$	996^{+63}_{-48}	4034^{+398}_{-340}	129^{+84}_{-51}

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 $A_{obs} \gg 1.0$

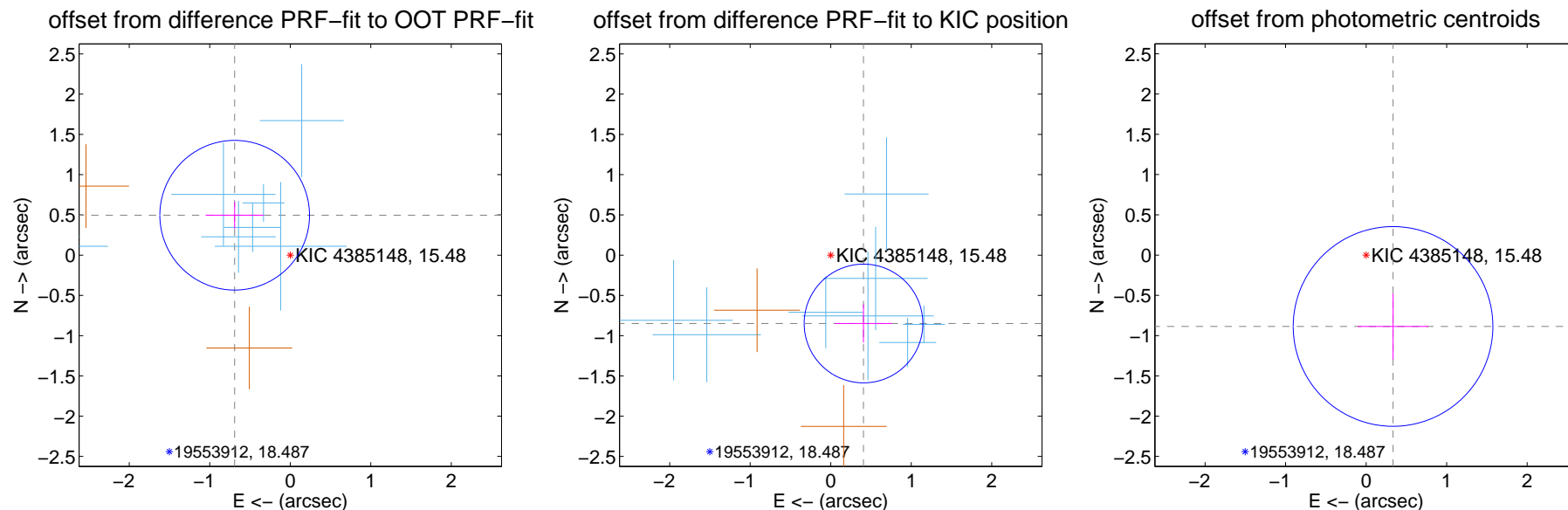
DV Centroid Data

Supplemental centroid analysis for 004385148-01. Kepler magnitude: 15.48. Transit SNR 16.19

There are 8 quarters with good PRF difference image offsets

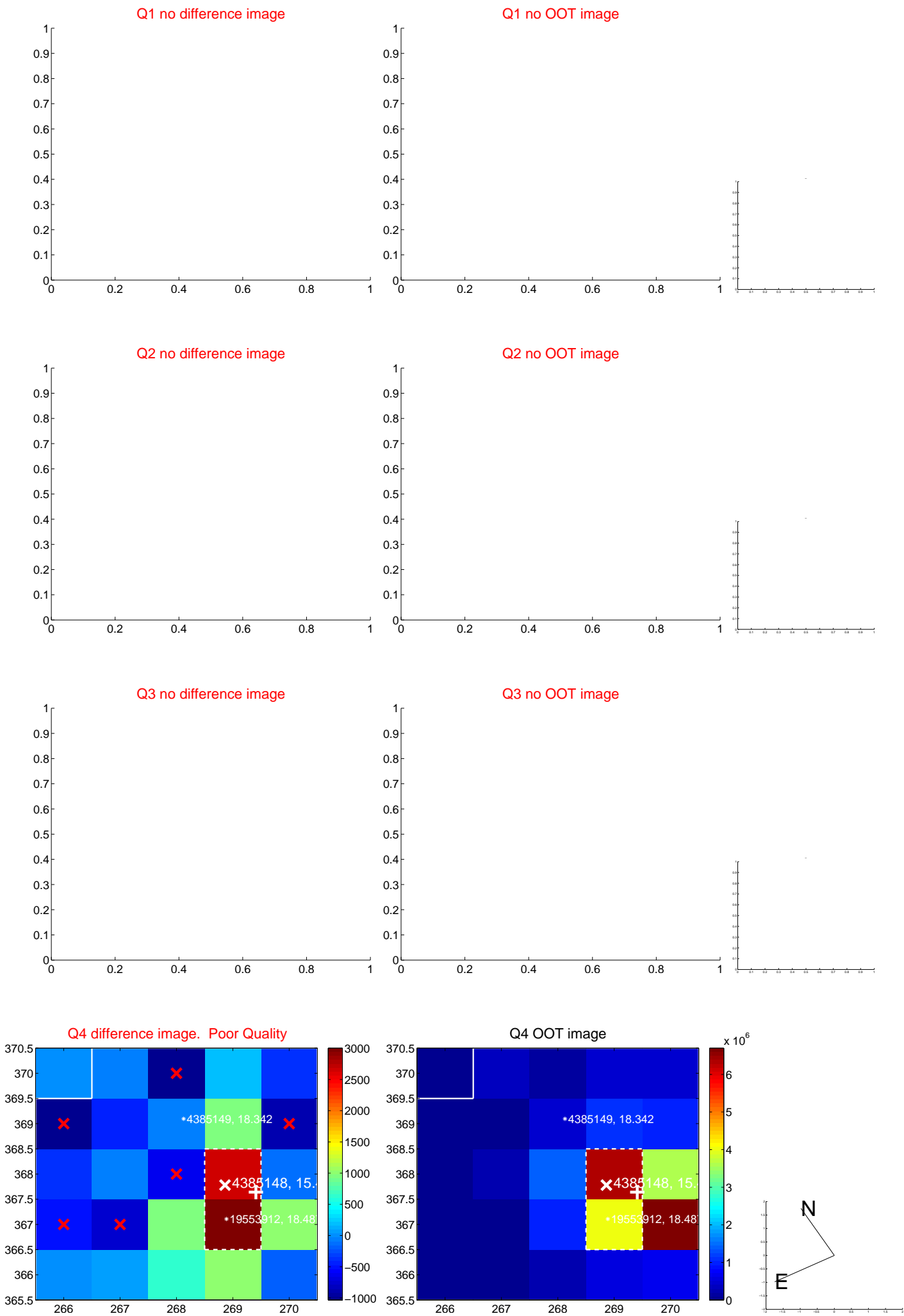
The direct PRF centroid is offset from the target star catalog position by about 1.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.850 ± 0.310	2.74	0.691 ± 0.362	0.496 ± 0.167
PRF-fit source offset from KIC position	0.942 ± 0.246	3.83	-0.407 ± 0.356	-0.849 ± 0.237
photometric centroid source offset	0.95 ± 0.41	2.29	-0.33 ± 0.44	-0.89 ± 0.41

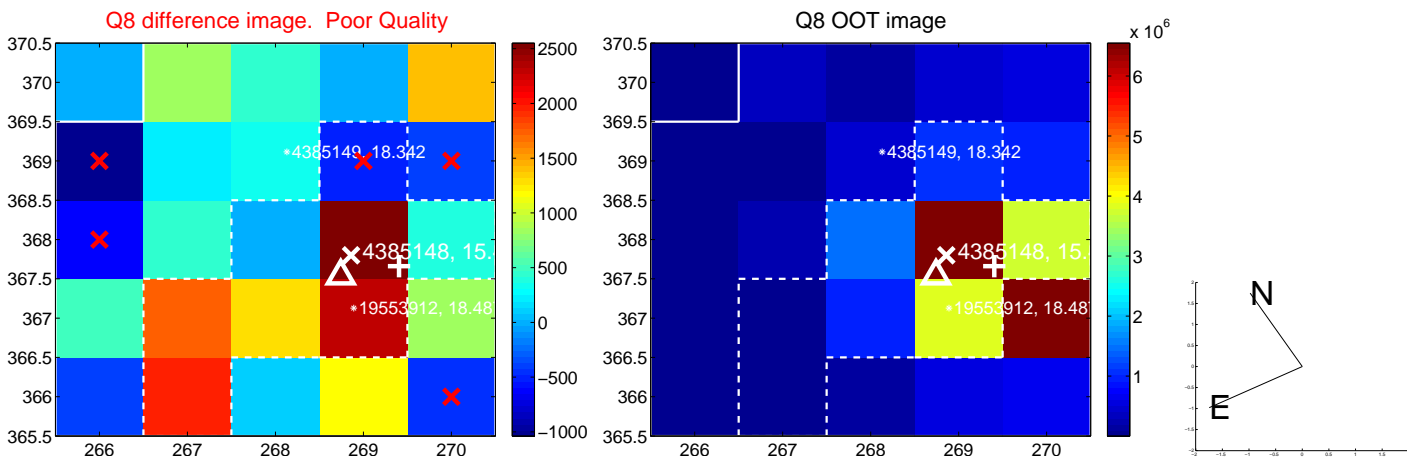
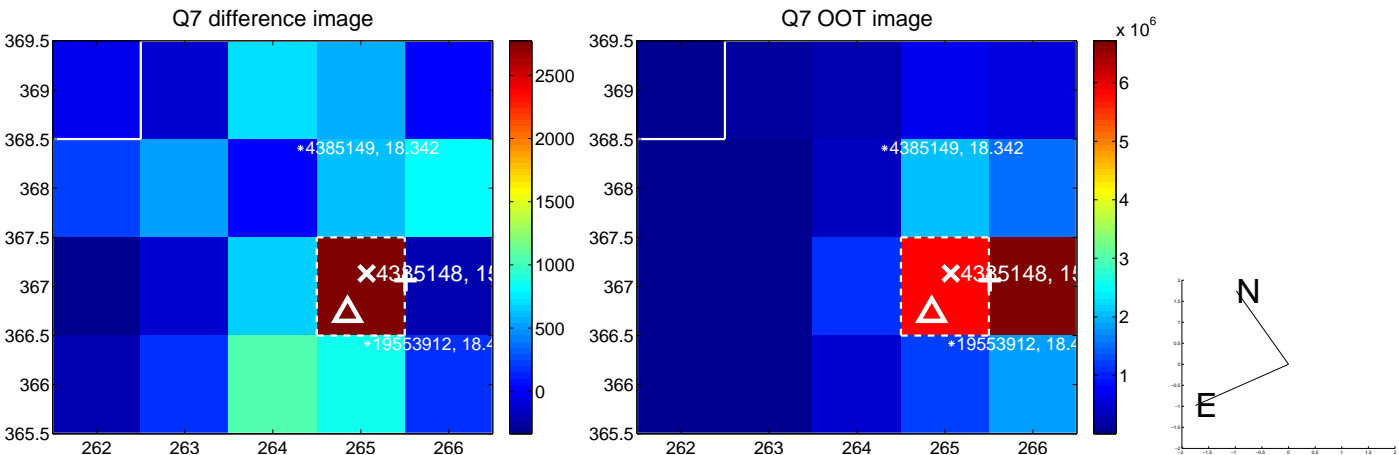
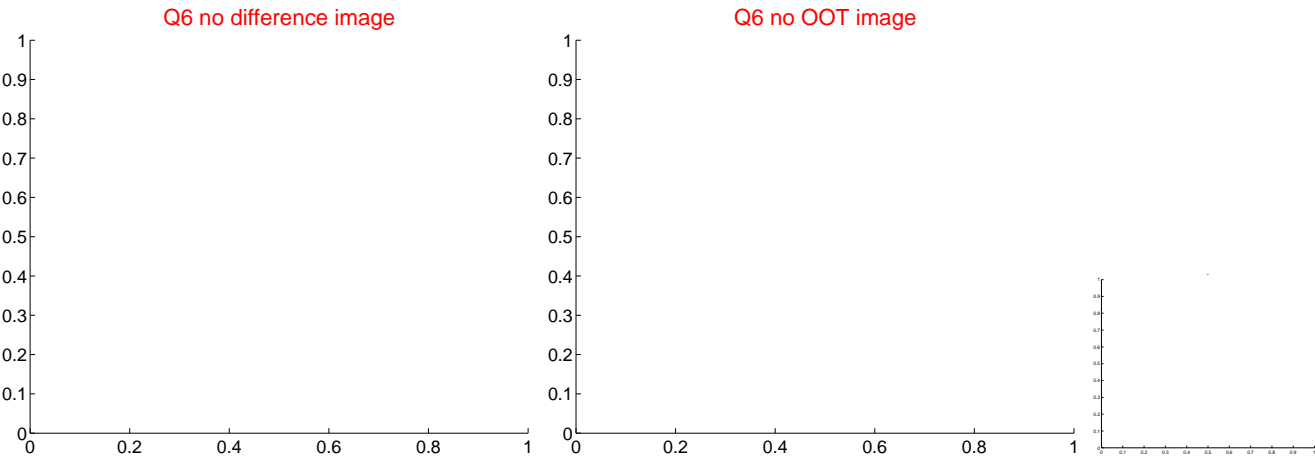
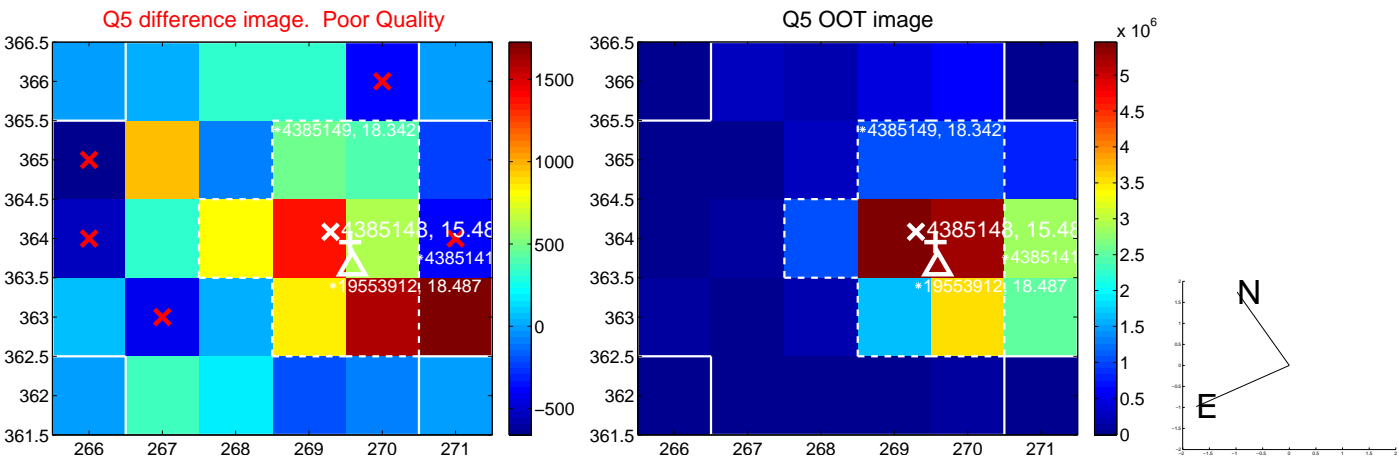


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

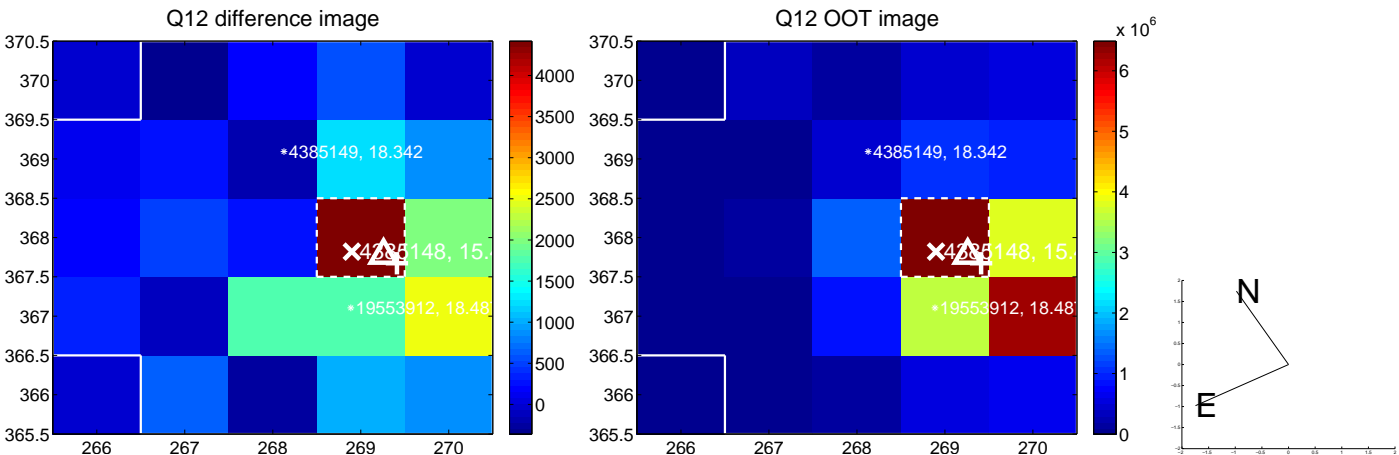
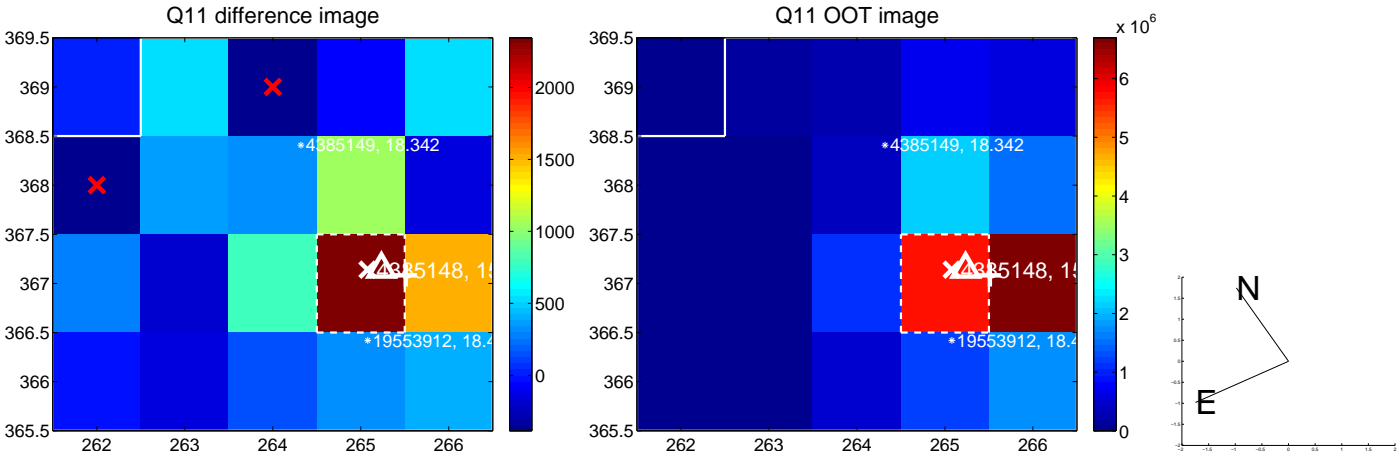
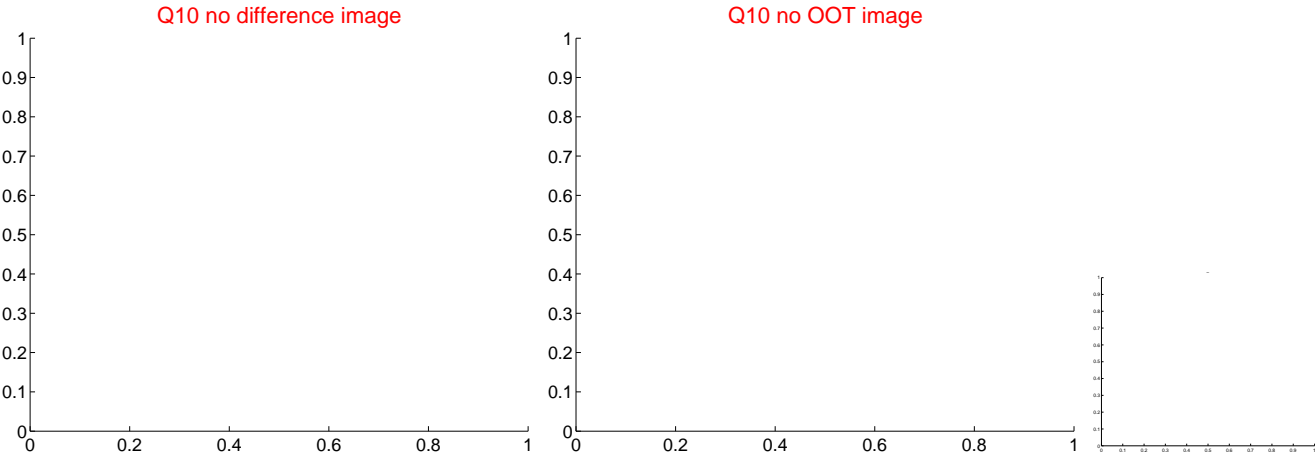
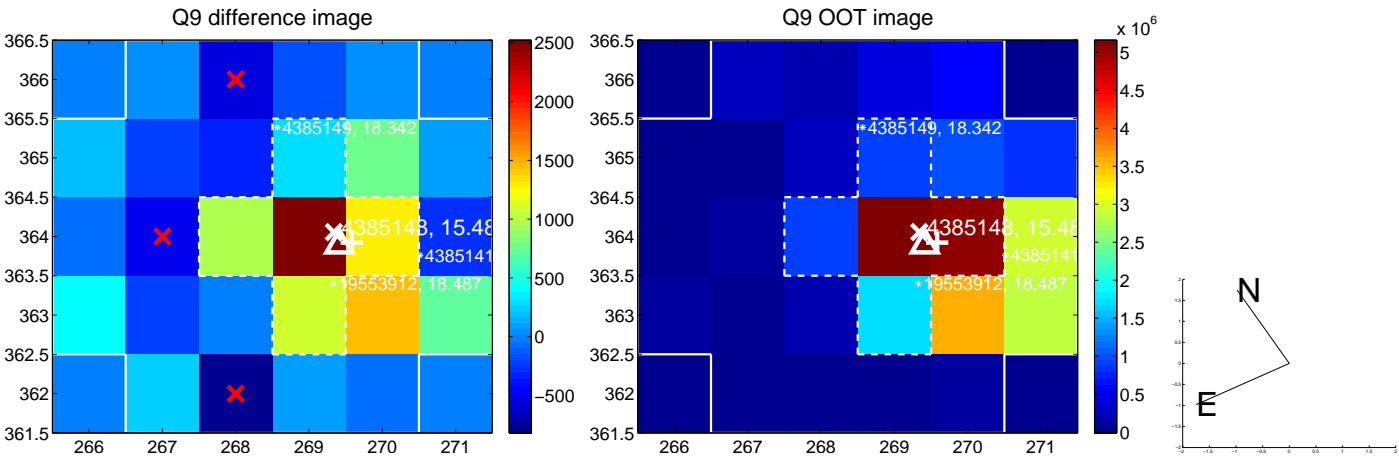
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



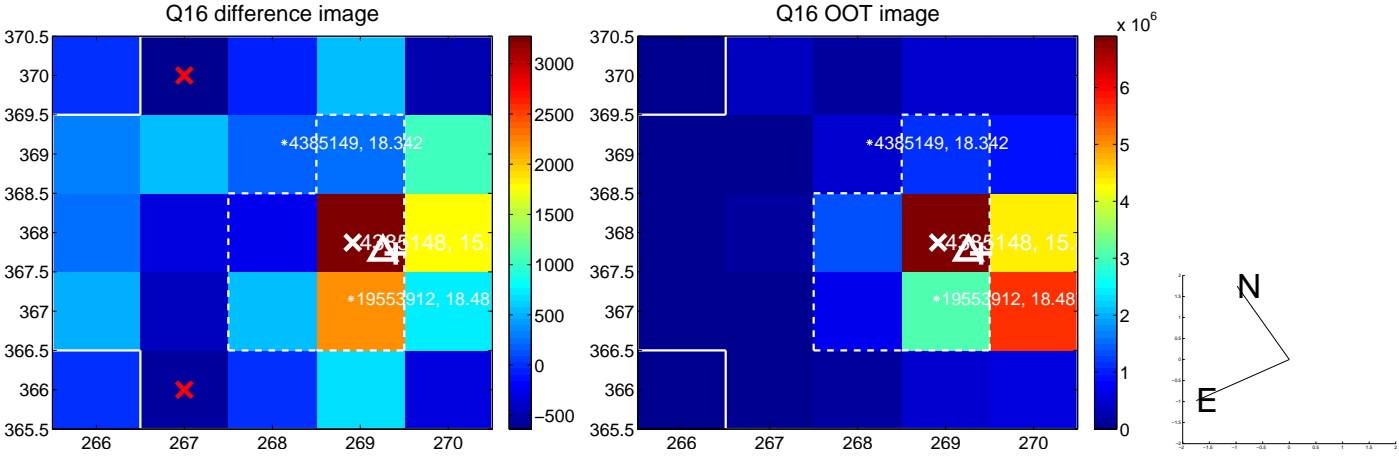
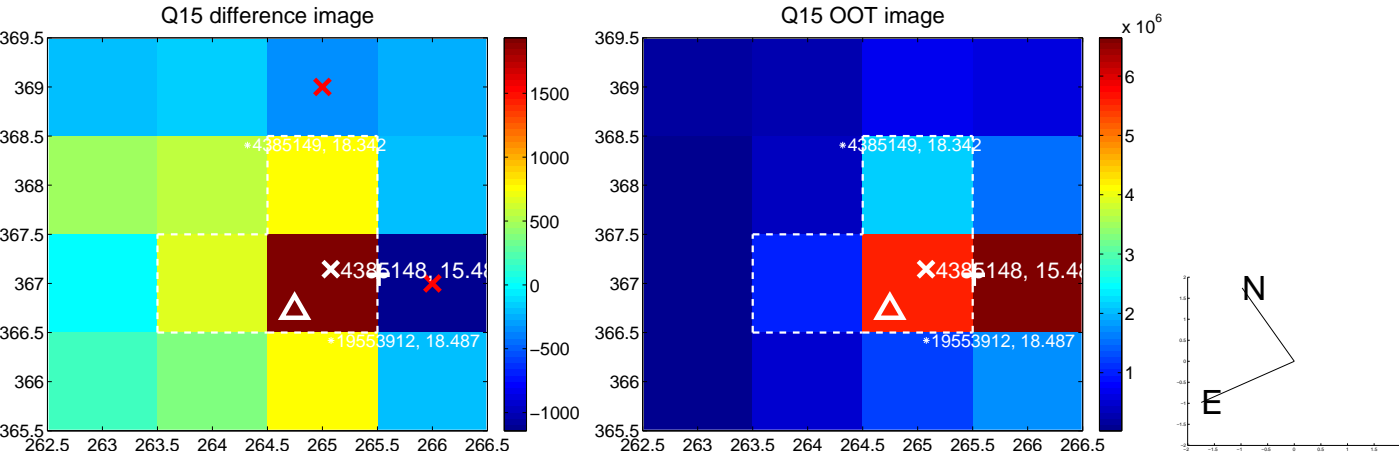
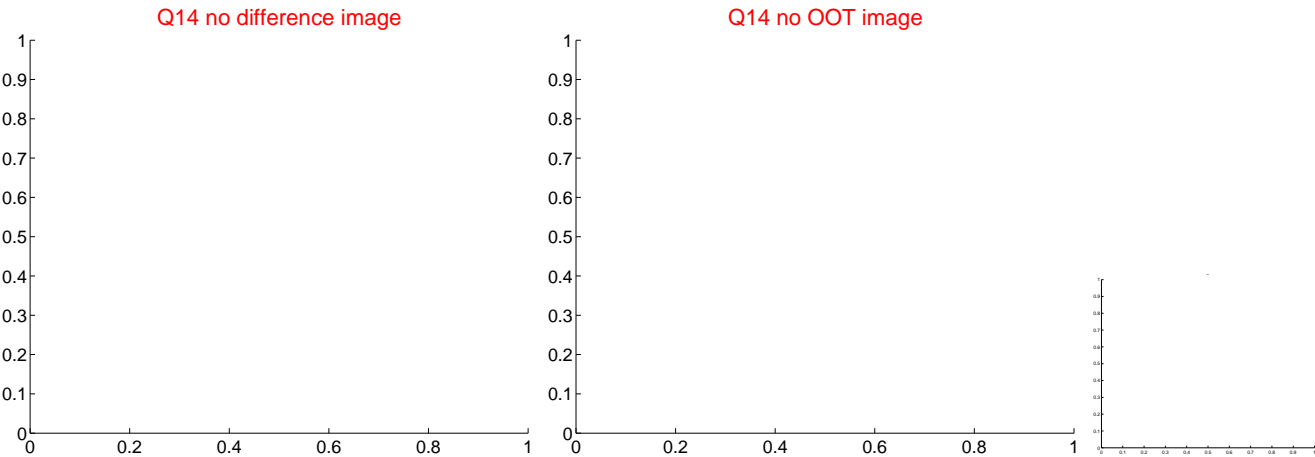
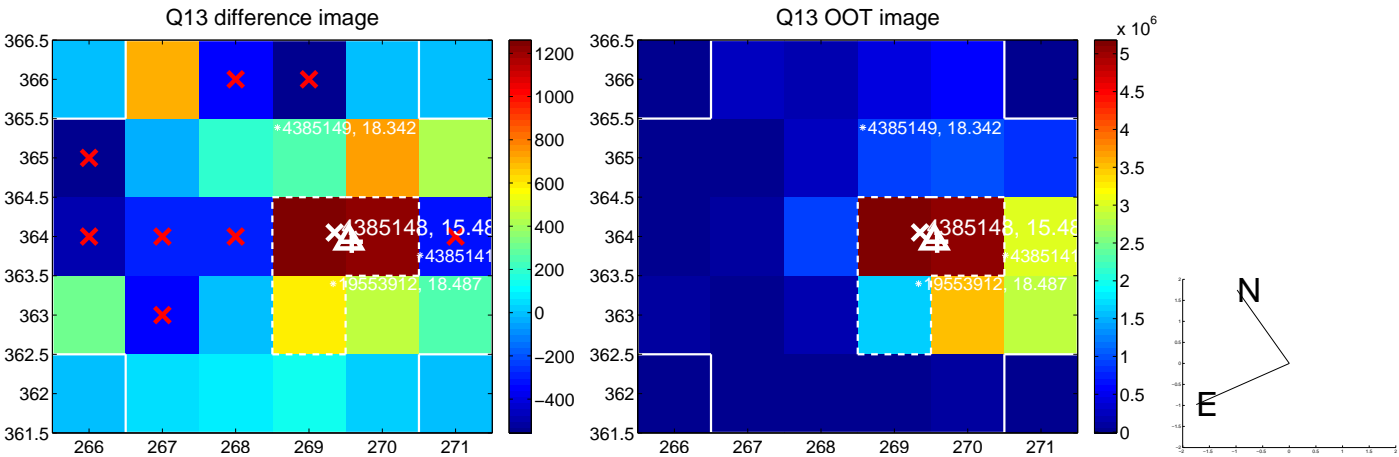
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



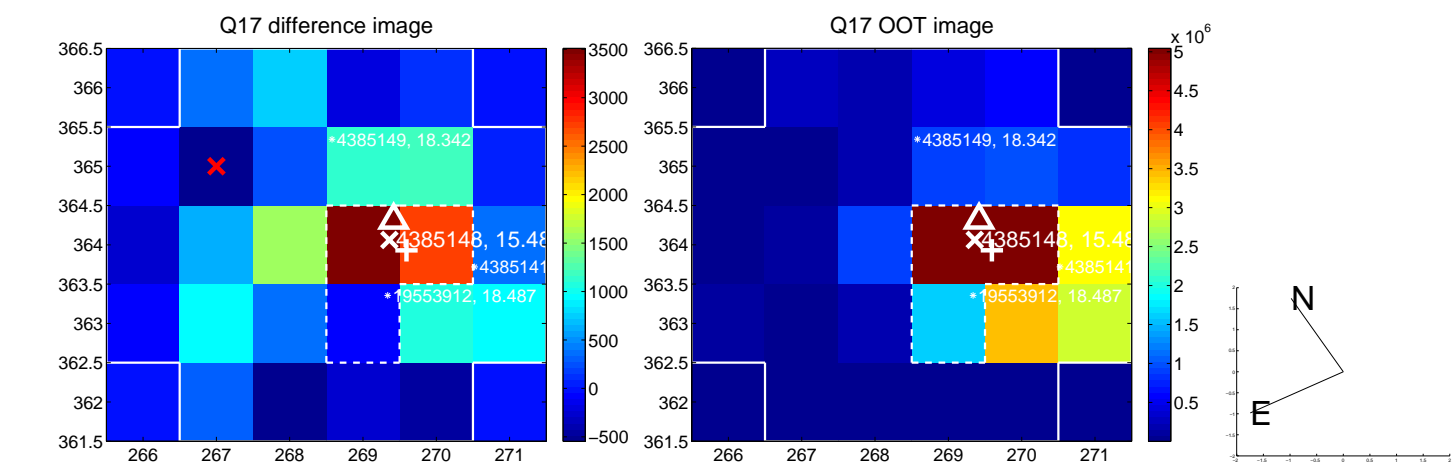
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



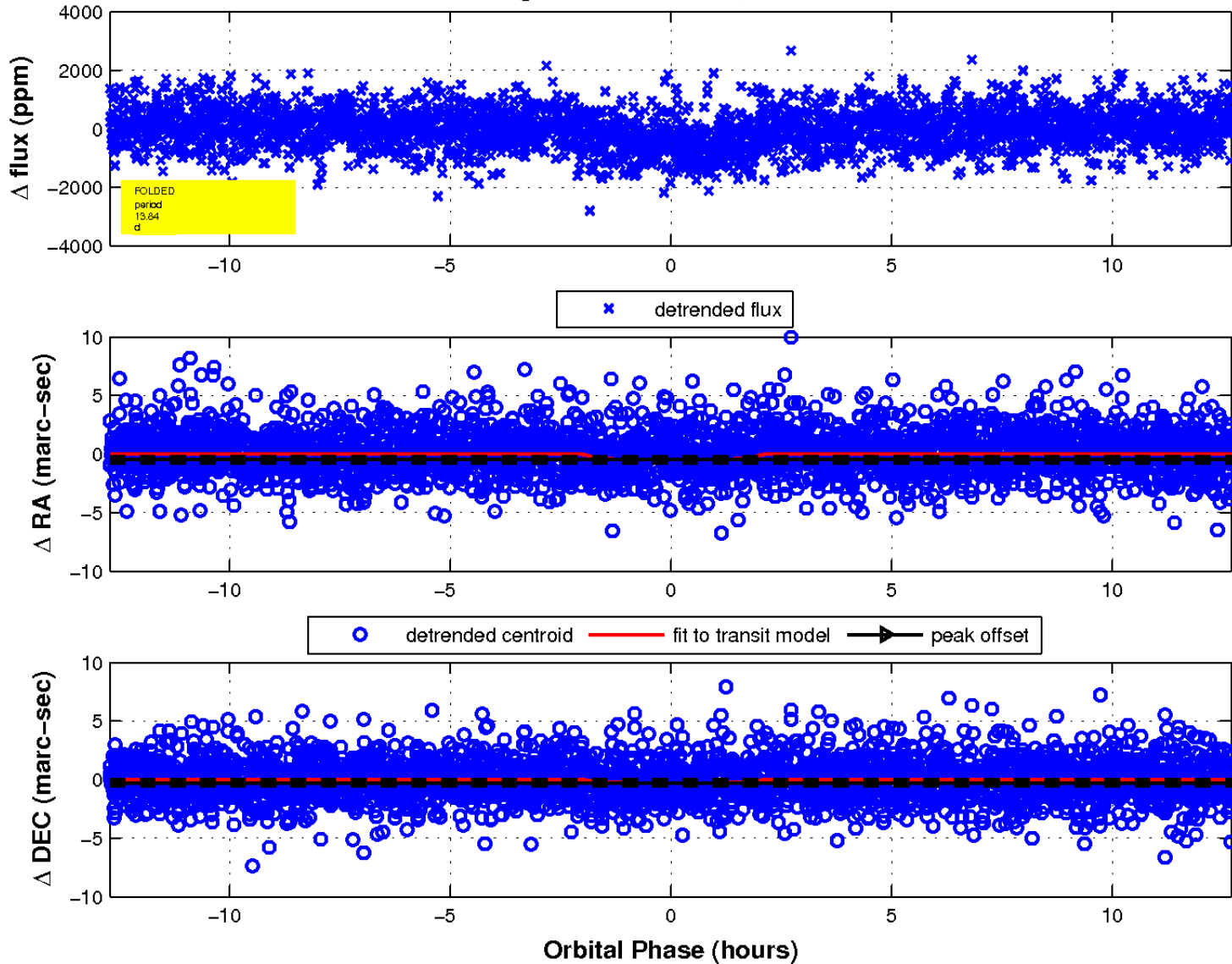
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



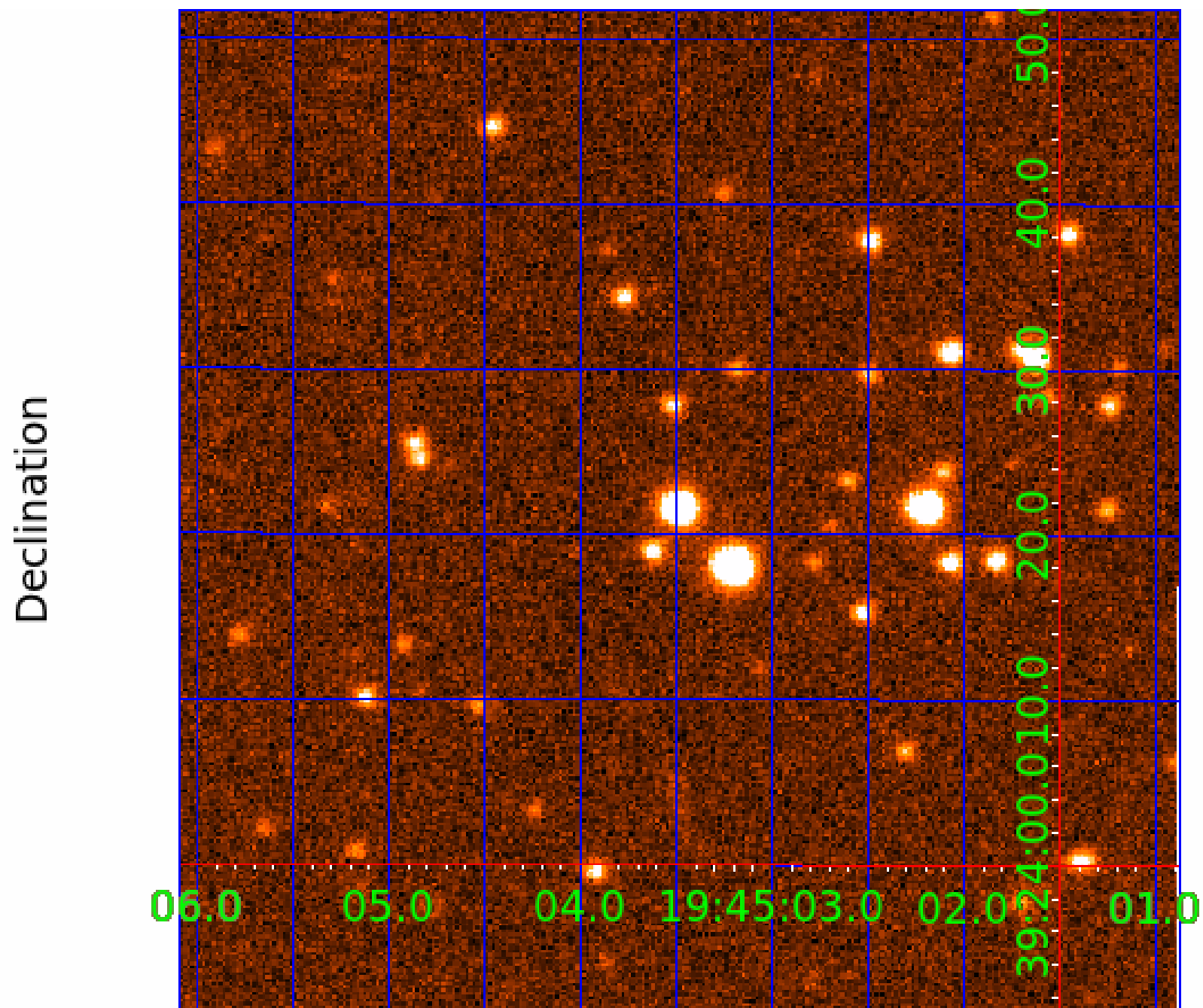
white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 004385148

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})
004385148-01	OBS	2942.01	13.842957	139.960553	612.7	4.235	14.5	16.2	0.84	5745	2.40	56.52
004385148-02	OBS	2942.02	24.275784	152.434382	686.0	4.788	12.6	13.8	0.84	5745	2.42	26.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004385148-01	OBS	PC	0.95	0	0	0	0	CENT_KIC_POS
004385148-02	OBS	PC	0.97	0	0	0	0	CENT_KIC_POS

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

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

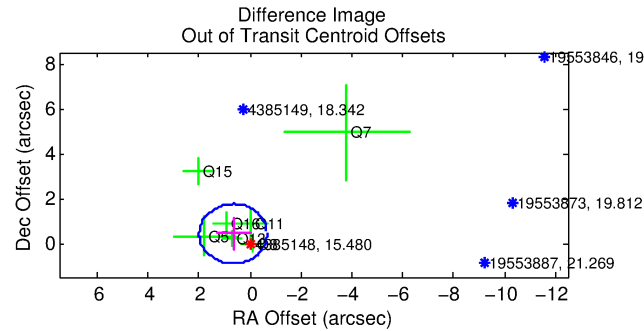
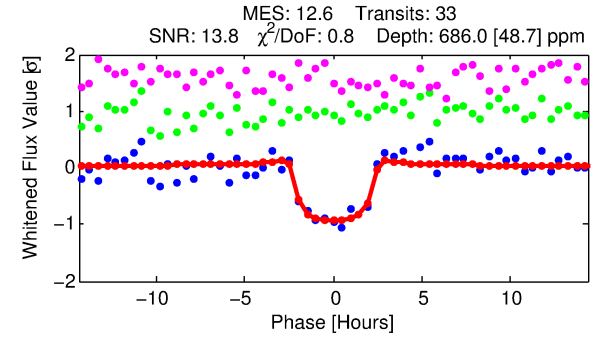
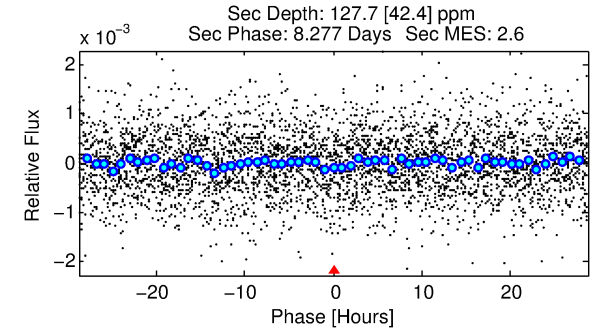
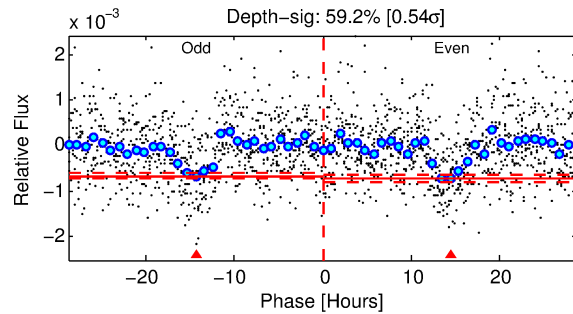
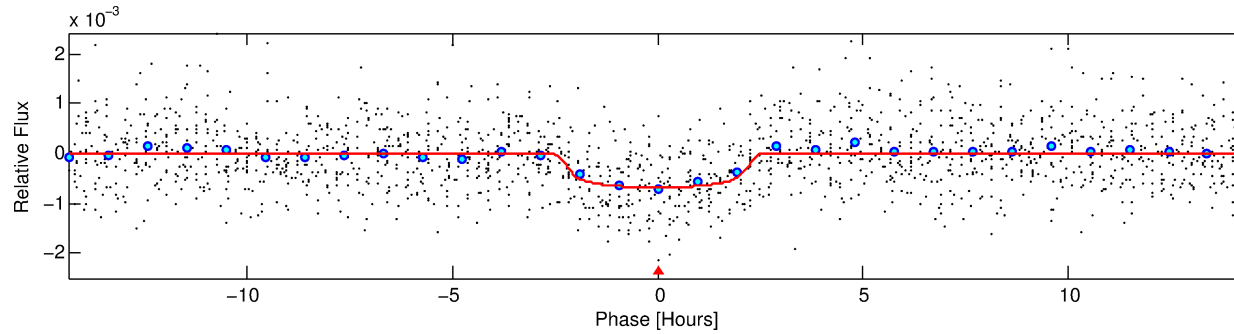
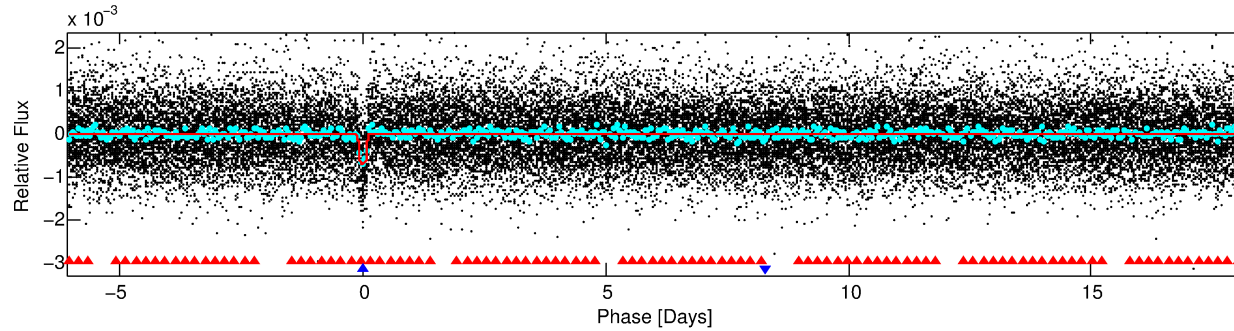
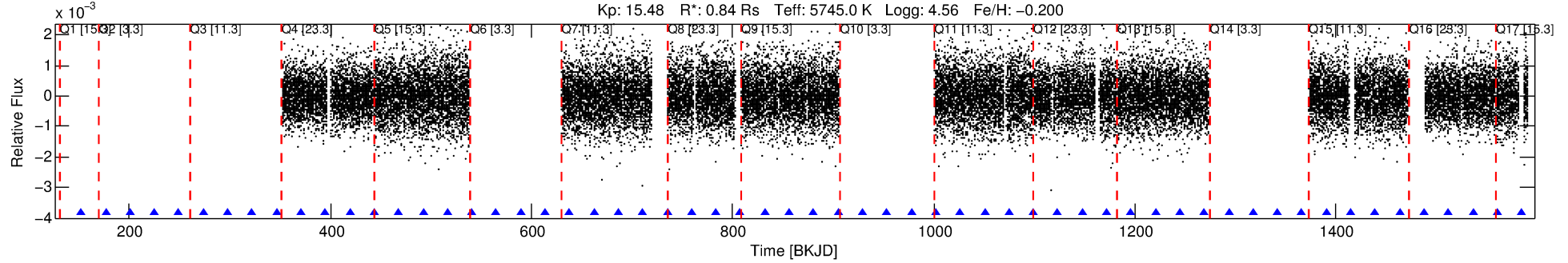
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004385148-02

No Significant Match Found

DV One-Page Summary

KIC: 4385148 Candidate: 2 of 2 Period: 24.276 d
KOI: K02942.02 Corr: 0.965



DV Fit Results:

Period = 24.27578 [0.00020] d
Epoch = 152.4344 [0.0071] BKJD
Rp/R* = 0.0265 [0.0089]
a/R* = 25.39 [38.25]
b = 0.79 [0.73]
Seff = 26.73 [9.02]
Teq = 580 [49] K
Rp = 2.42 [1.02] Re
a = 0.1599 [0.0337] AU
Ag = 306.45 [248.73] [1.23 σ]
Teffp = 3751 [717] K [4.41 σ]

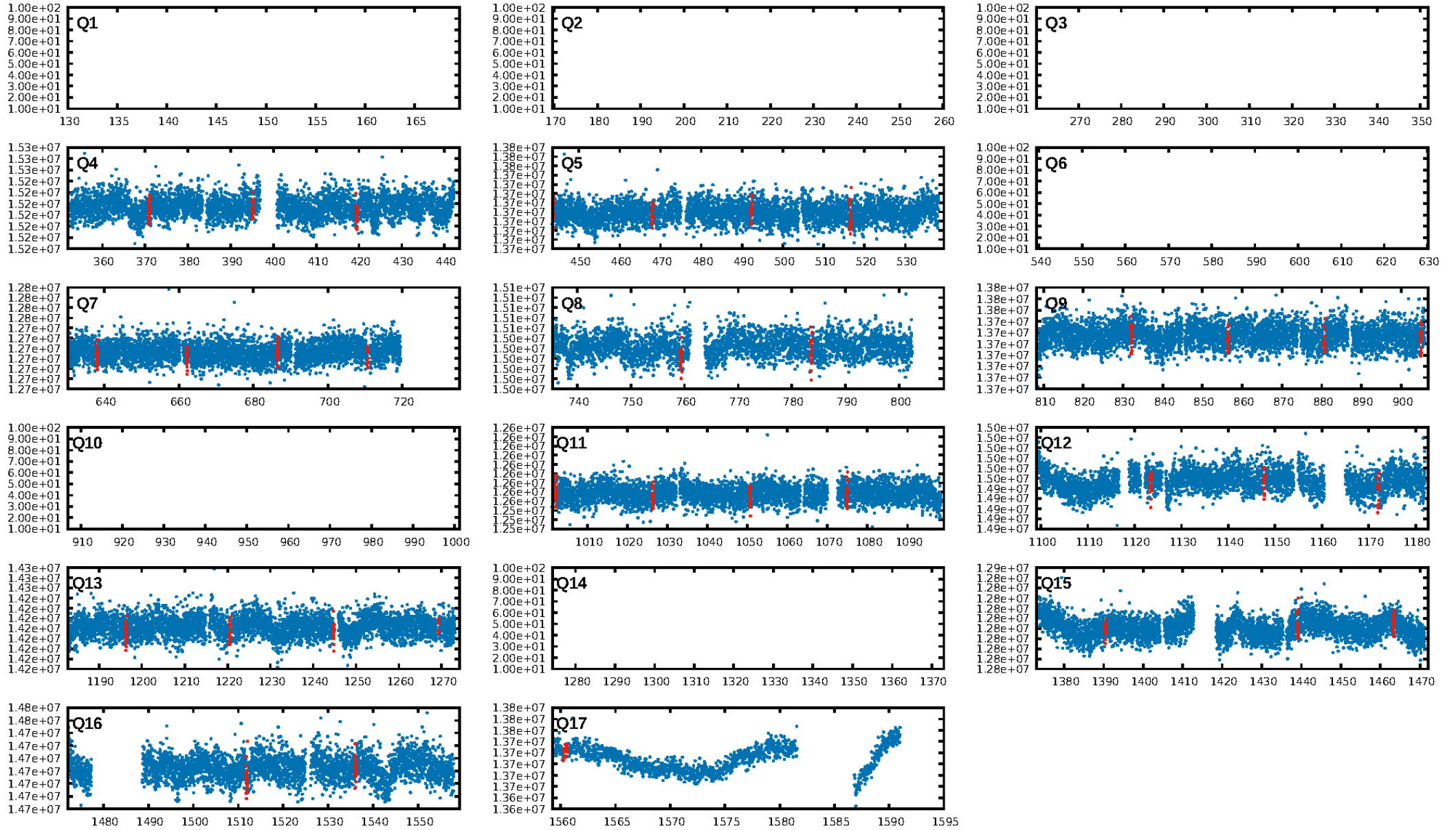
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [39.17 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 83.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.62e-35
RollingBand-fgt: 1.00 [32/32]
GhostDiagnostic-chr: 3.794
Centroid-sig: 0.0%
Centroid-so: 0.789 arcsec [1.73 σ]
OotOffset-rm: 0.784 arcsec [1.77 σ]
KicOffset-rm: 0.686 arcsec [1.35 σ]
OotOffset-st: 0/3/2/2 [7]
KicOffset-st: 0/3/2/2 [7]
DiffImageQuality-fgm: 0.86 [6/7]
DiffImageOverlap-fno: 1.00 [10/10]

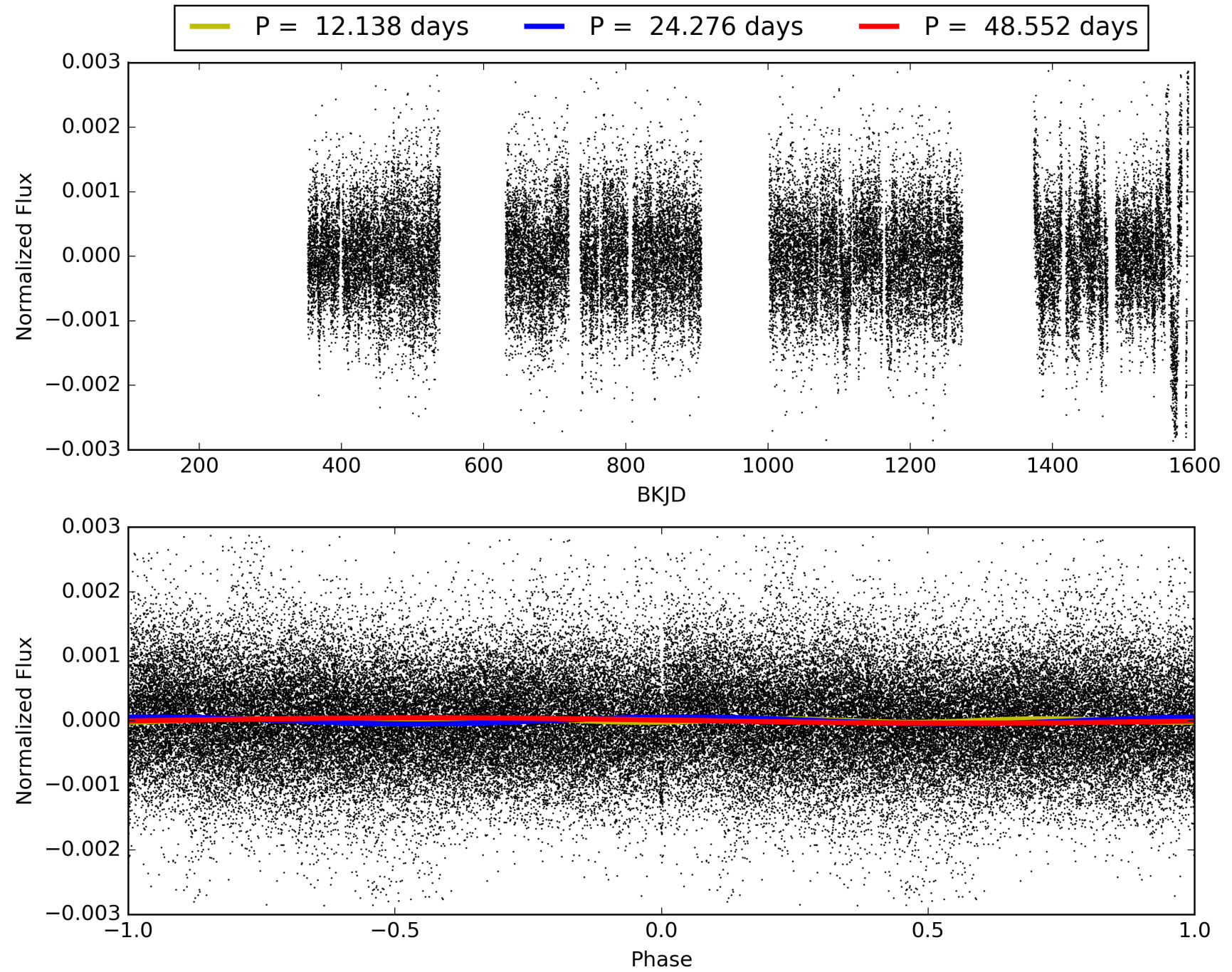
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 22:25:33 Z

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

TCE 004385148-02, PDC Light Curves

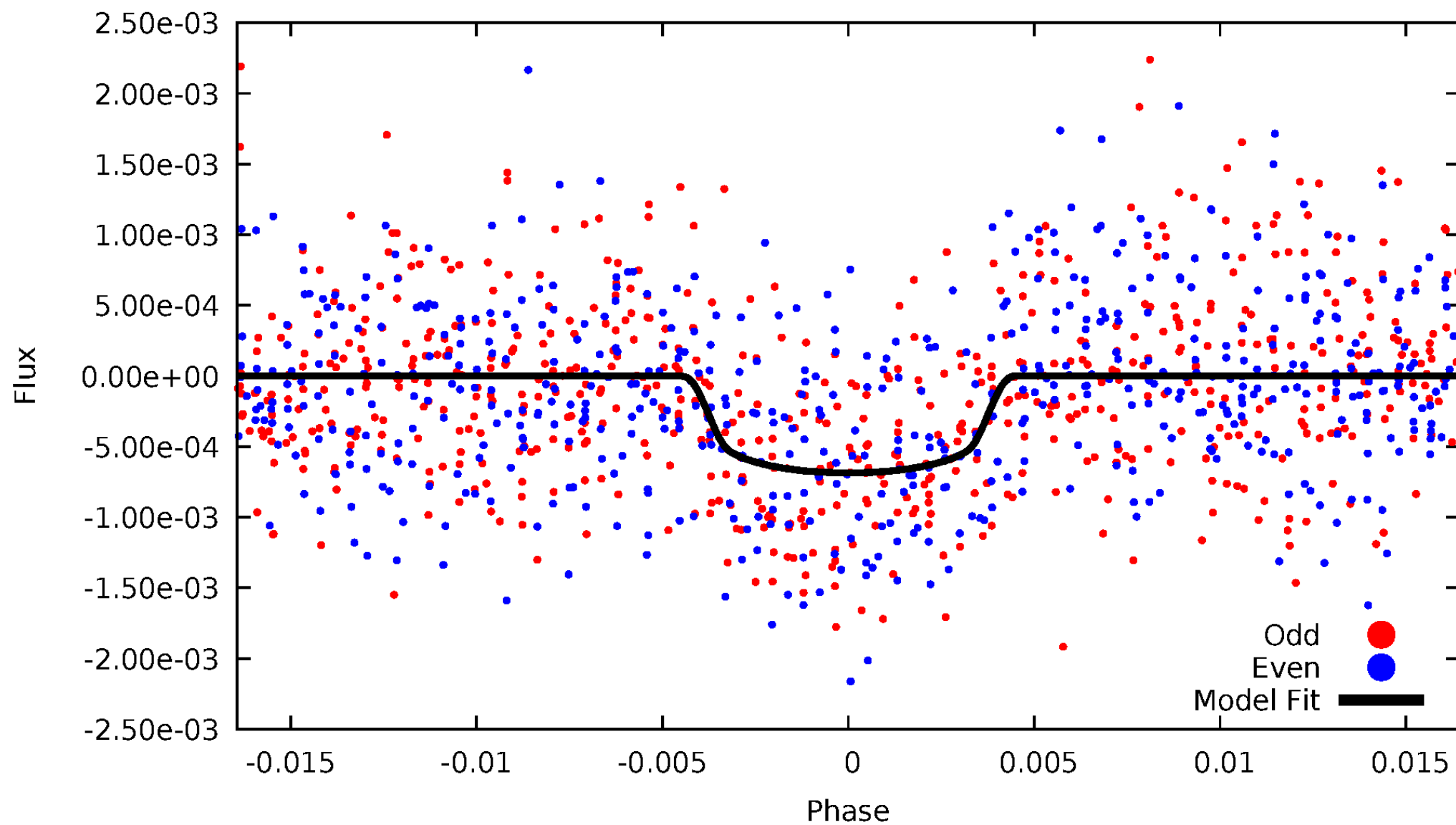


TCE 004385148-02



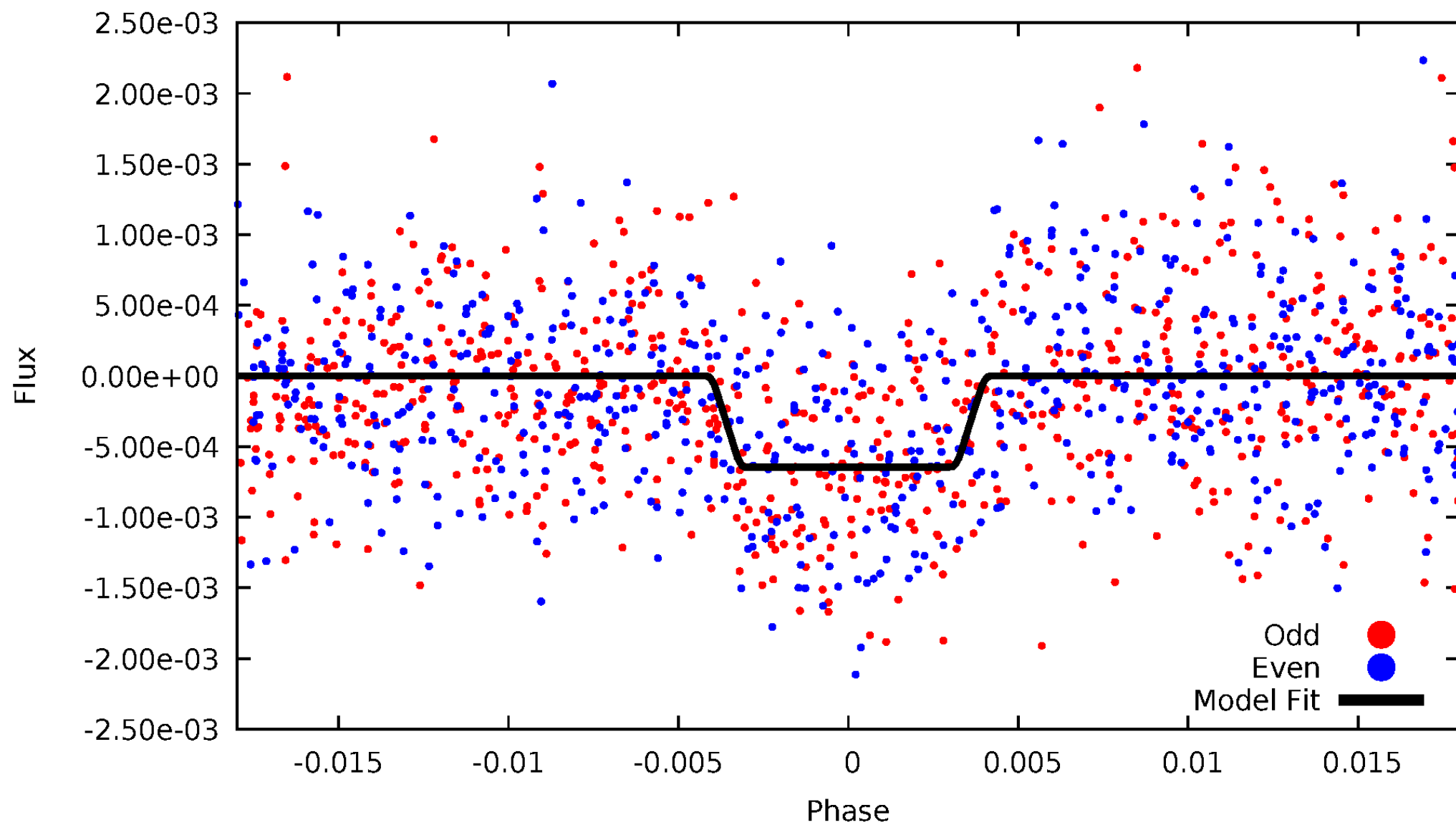
DV Odd/Even

TCE 004385148-02



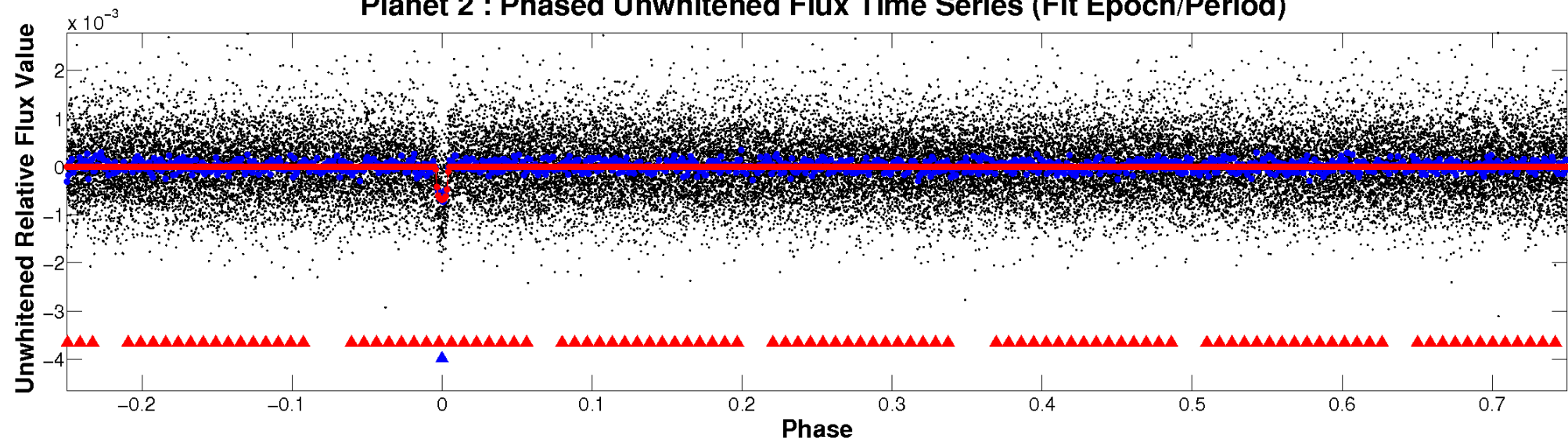
ALT Odd/Even

TCE 004385148-02

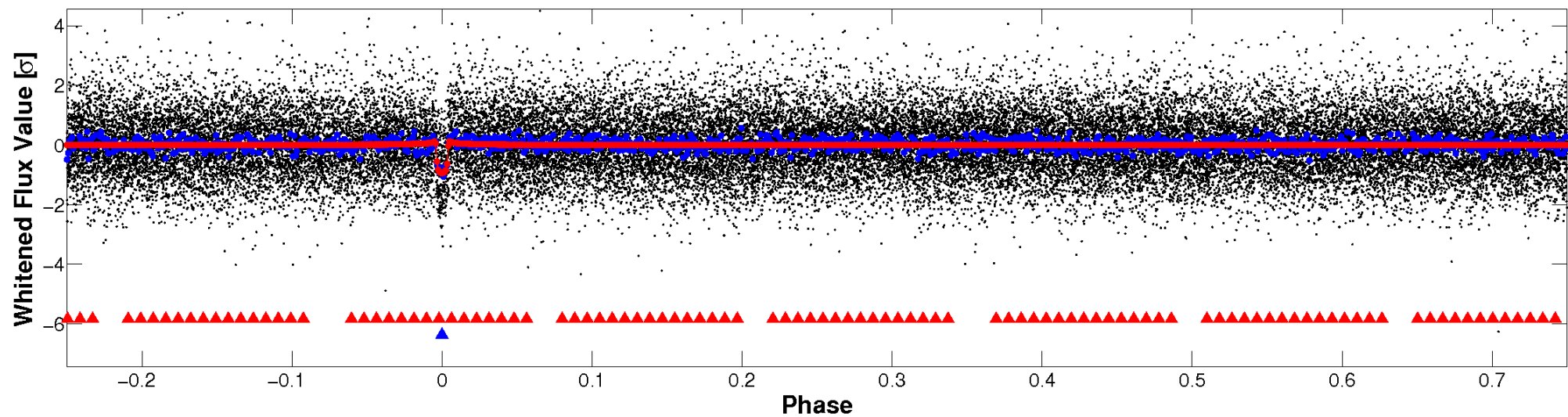


Non-Whitened Vs. Whitened Light Curve

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

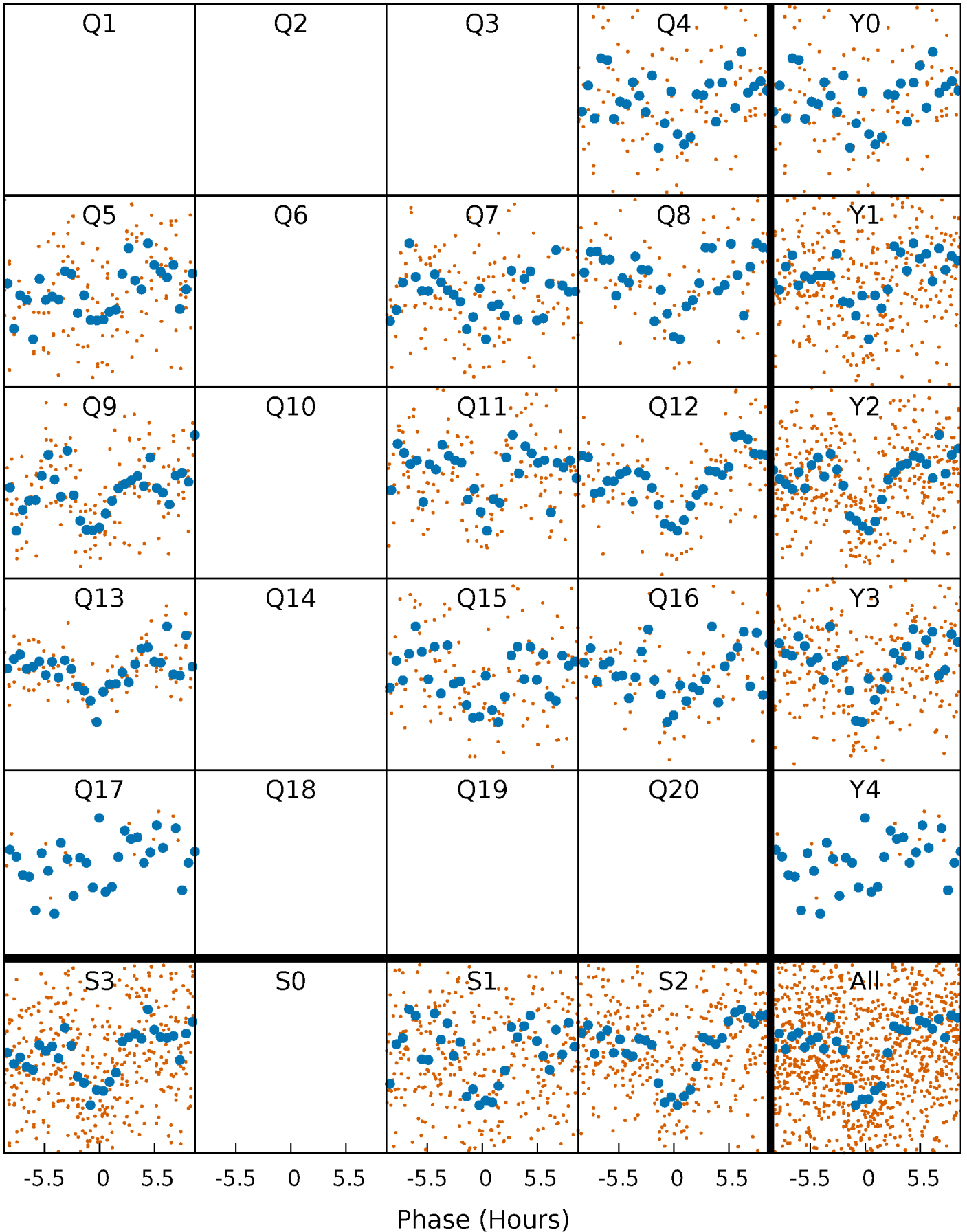


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



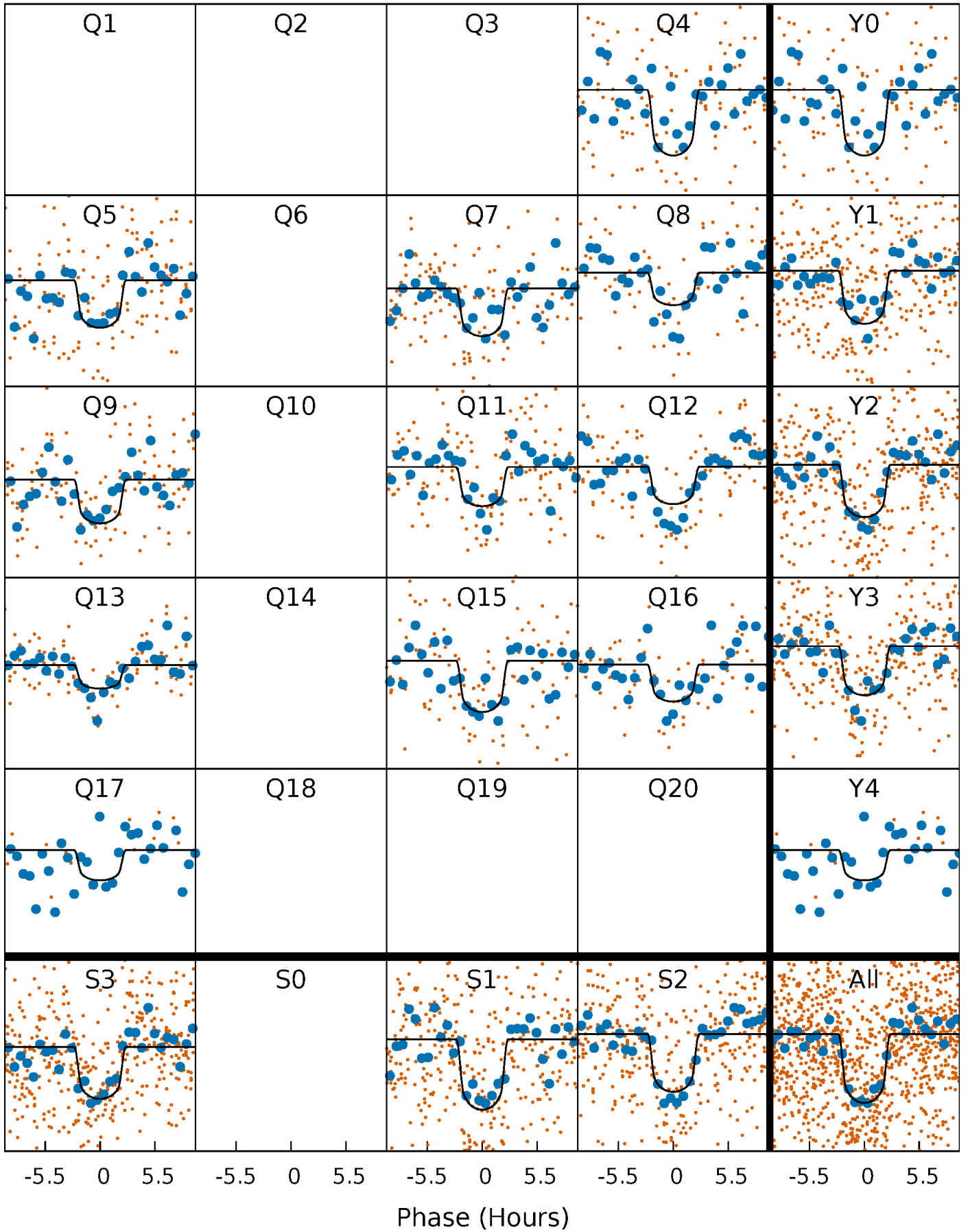
PDC Quarter-Phased Transit Curves

TCE 004385148-02 P= 24.275784 Days $T_0=152.434382$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004385148-02 P= 24.275784 Days $T_0=152.434382$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

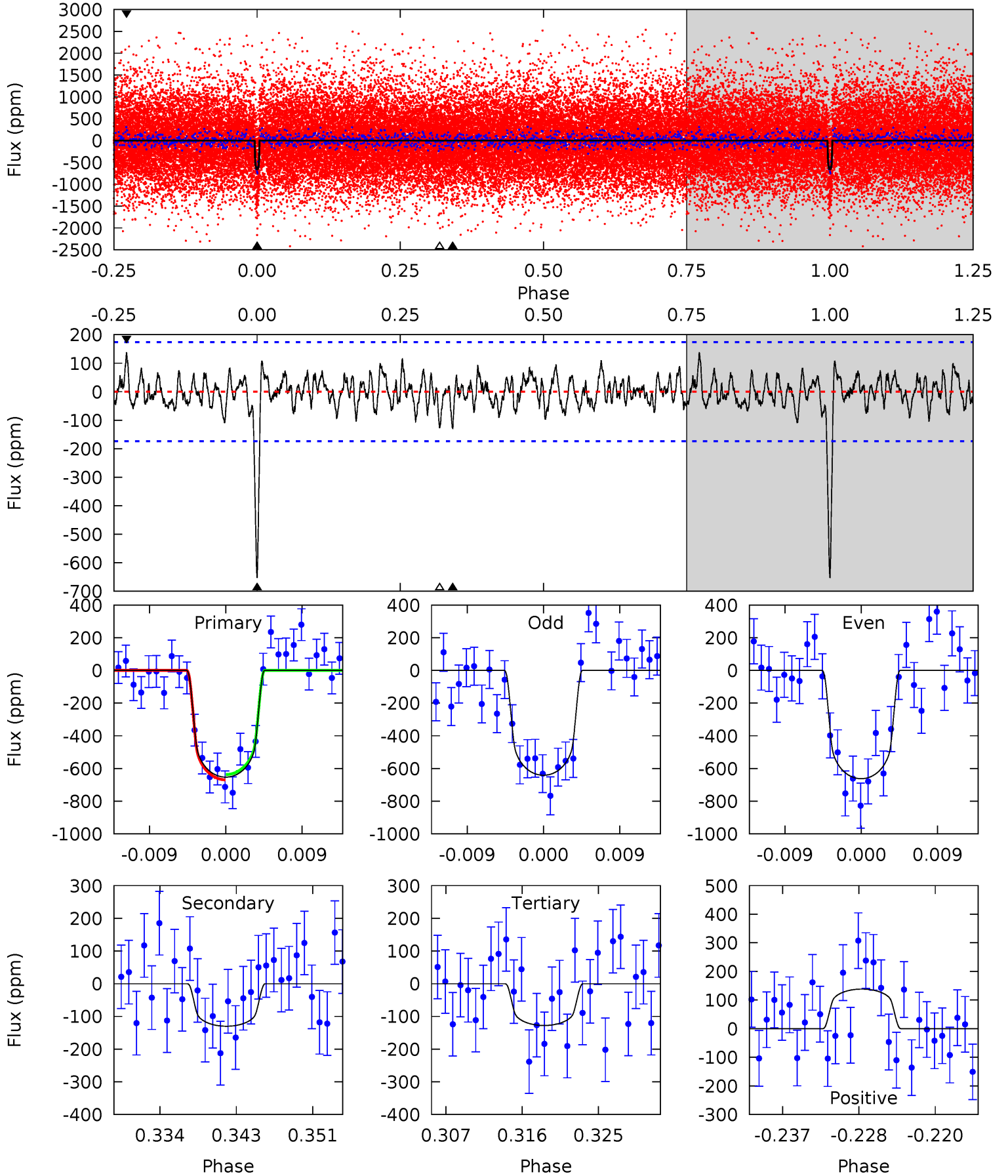
TCE 004385148-02 P= 24.276316 Days $T_0=152.416748$ (BKJD)



DV Model-Shift Uniqueness Test

004385148-02, P = 24.275784 Days, E = 152.434382 Days

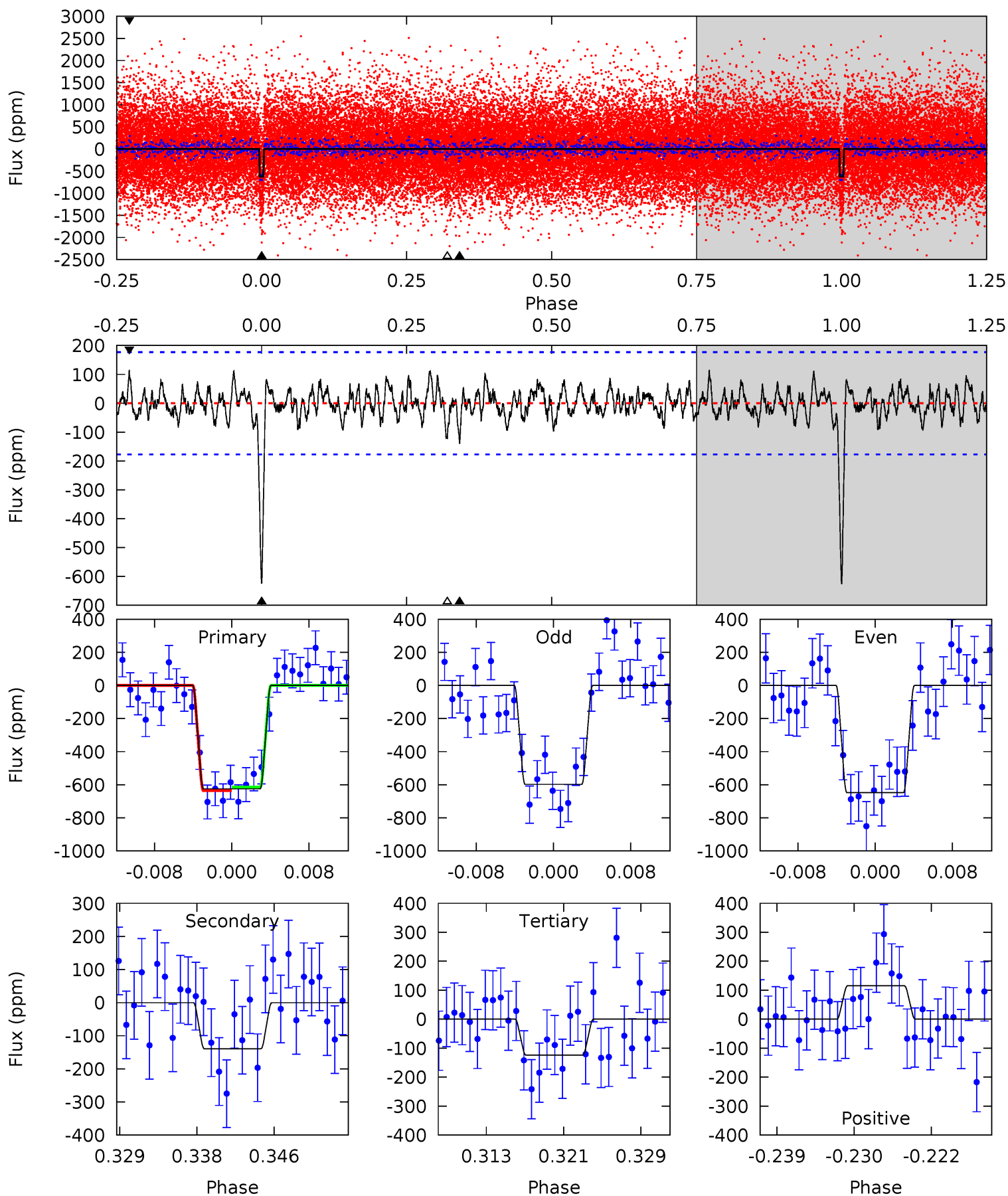
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	3.78	3.72	4.03	5.05	2.62	1.23	15.3	15.0	0.07	-0.24	0.31	1.01	0.17	0.47



Alt Model-Shift Uniqueness Test

004385148-02, P = 24.276316 Days, E = 152.416748 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	3.97	3.53	3.29	5.06	2.64	1.13	14.3	14.6	0.44	0.68	0.71	1.02	0.16	0.29



Stellar Parameters For KIC 004385148

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5745^{+181}_{-201}	$4.559^{+0.042}_{-0.168}$	$-0.200^{+0.300}_{-0.300}$	$0.837^{+0.209}_{-0.075}$	$0.928^{+0.100}_{-0.110}$	$2.227^{+0.500}_{-1.016}$
	+3%/-3%	+1%/-4%	+150%/-150%	+25%/-9%	+11%/-12%	+22%/-46%
Source	KIC0	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 004385148-02 / KOI 2942.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-130 ± 34	$2.50^{+0.97}_{-0.84}$	826^{+52}_{-41}	4052^{+706}_{-441}	286^{+379}_{-151}
Alt.	-139 ± 35	$2.42^{+0.89}_{-0.88}$	827^{+54}_{-40}	4174^{+827}_{-488}	328^{+491}_{-163}

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 $A_{obs} \gg 1.0$

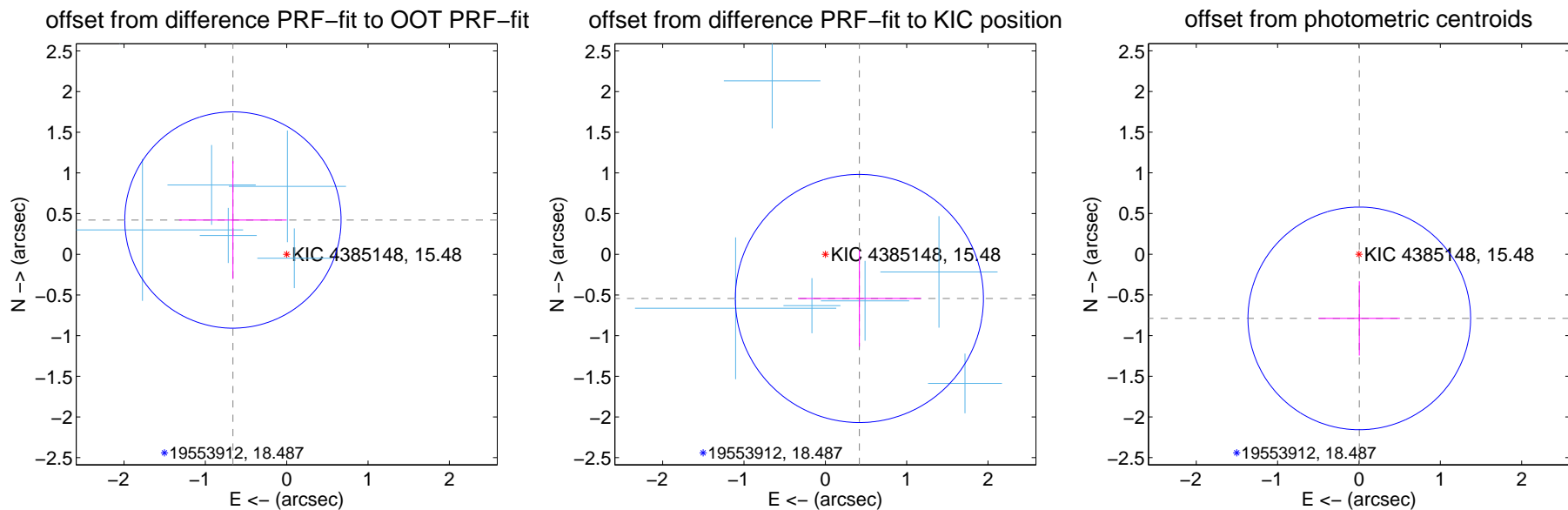
DV Centroid Data

Supplemental centroid analysis for 004385148-02. Kepler magnitude: 15.48. Transit SNR 13.81

There are 6 quarters with good PRF difference image offsets

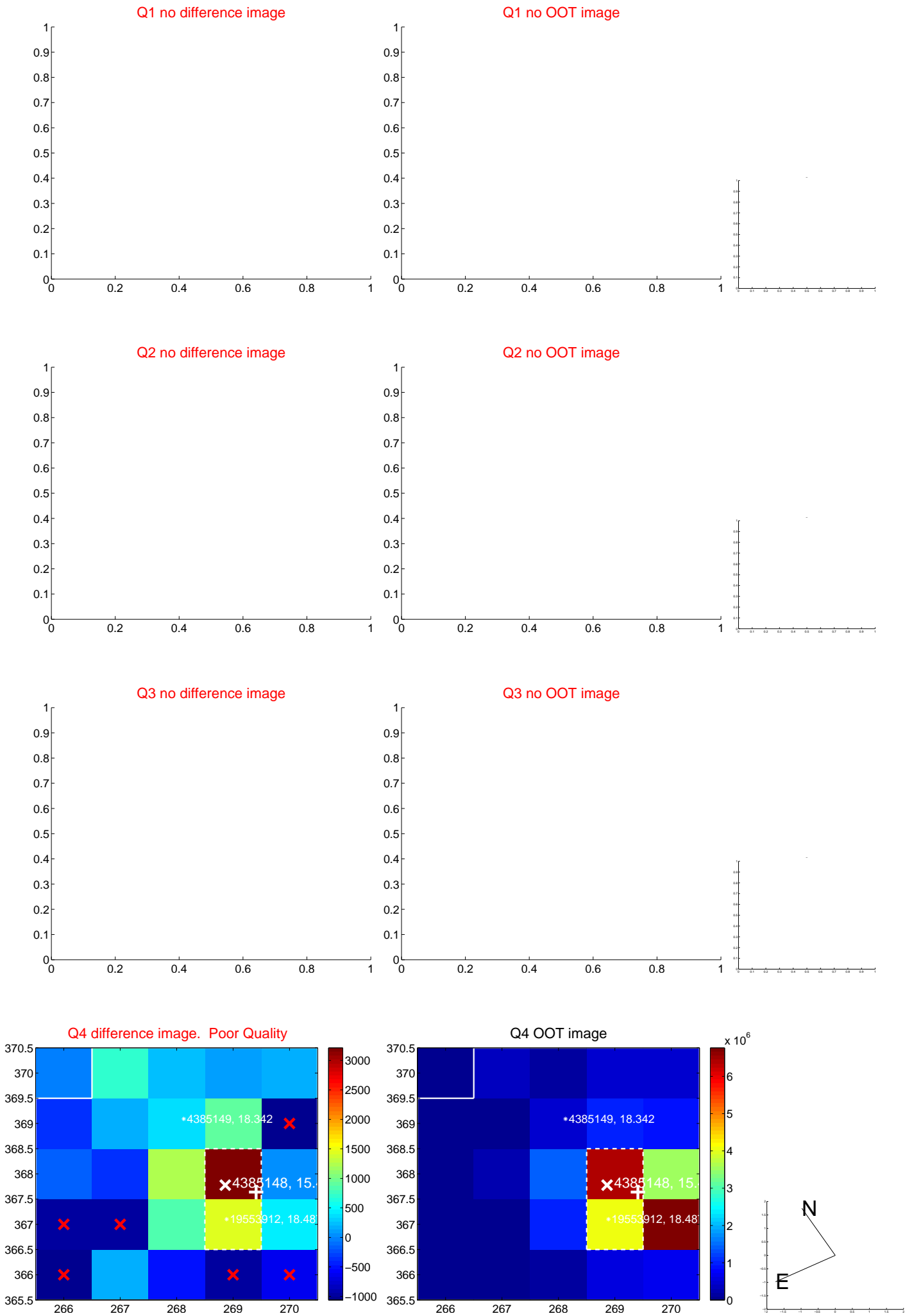
The OOT PRF centroid is offset from the target star catalog position by about 2.00 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.784 ± 0.443	1.77	0.661 ± 0.662	0.421 ± 0.724
PRF-fit source offset from KIC position	0.686 ± 0.508	1.35	-0.419 ± 0.756	-0.543 ± 0.590
photometric centroid source offset	0.79 ± 0.46	1.73	-0.00 ± 0.50	-0.79 ± 0.46

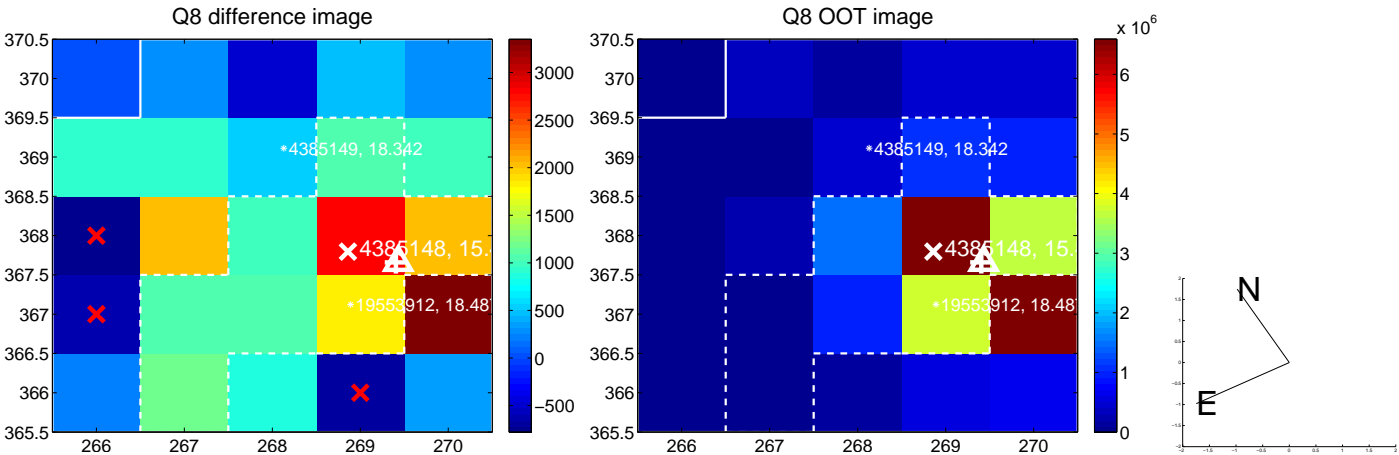
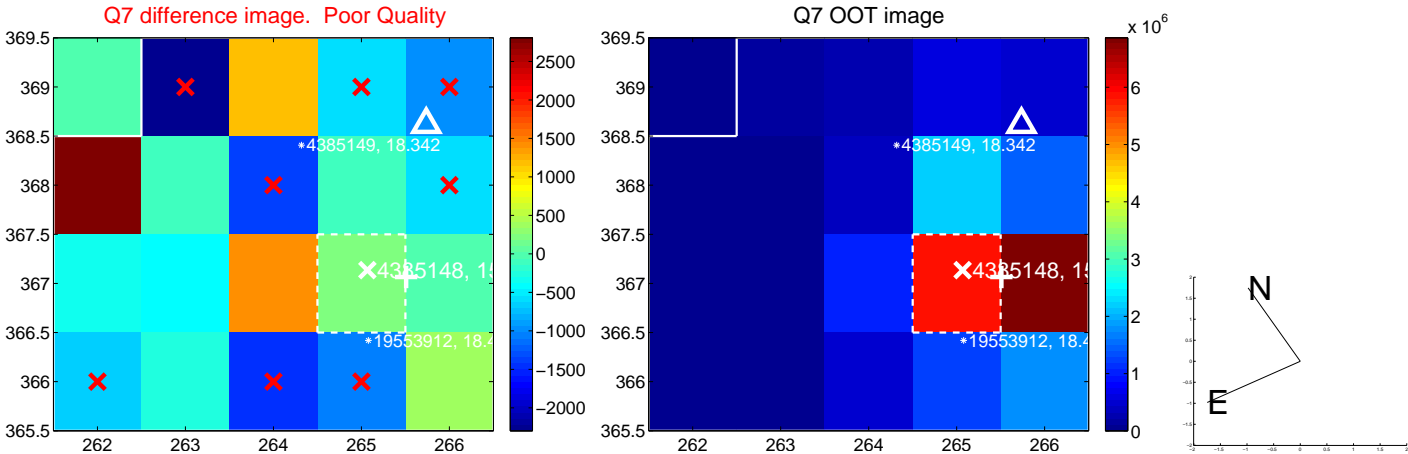
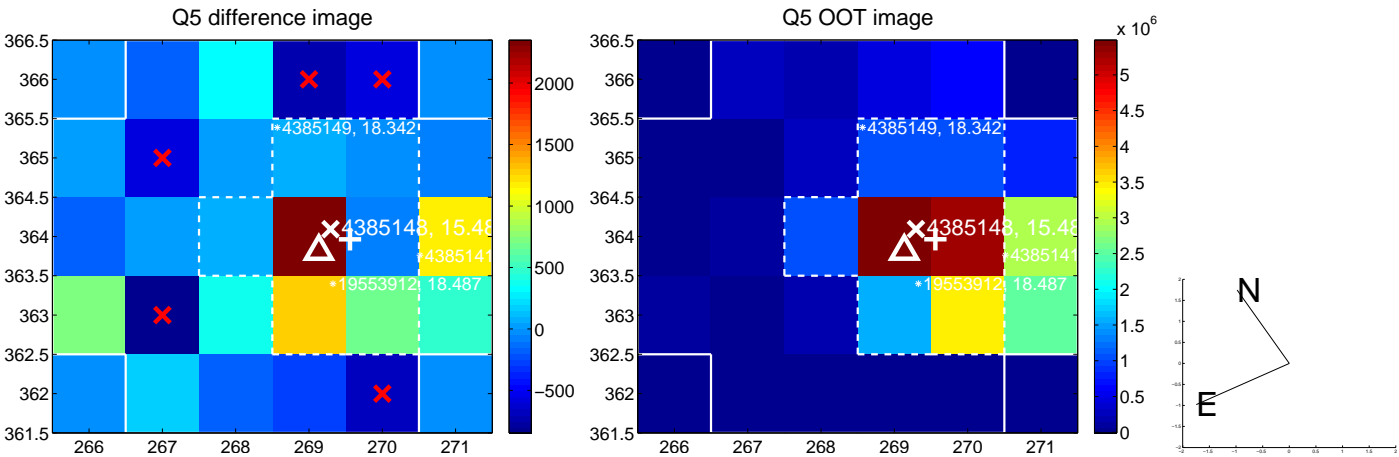


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

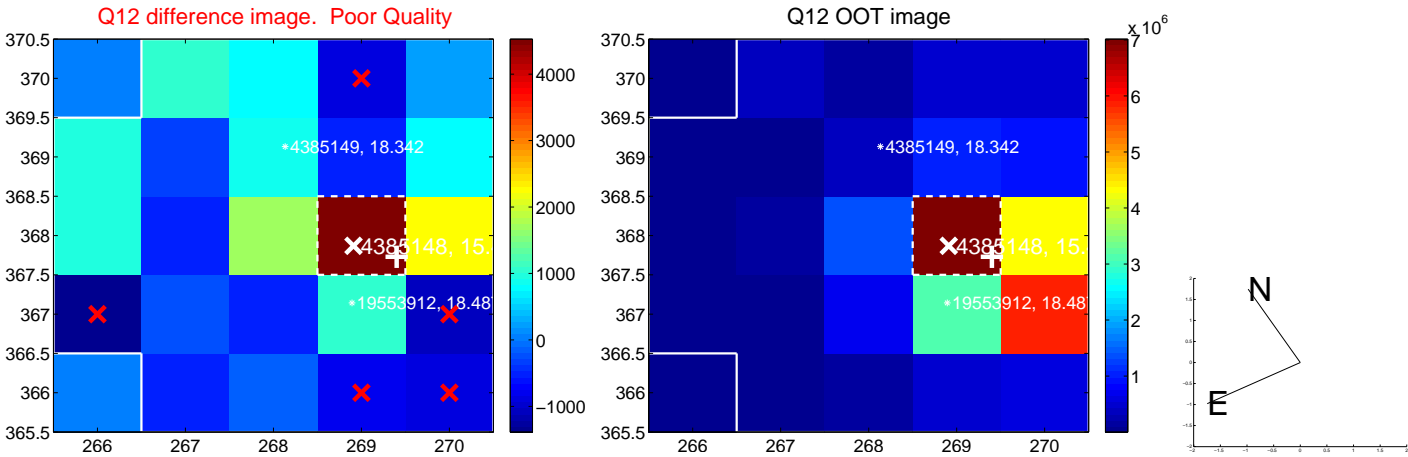
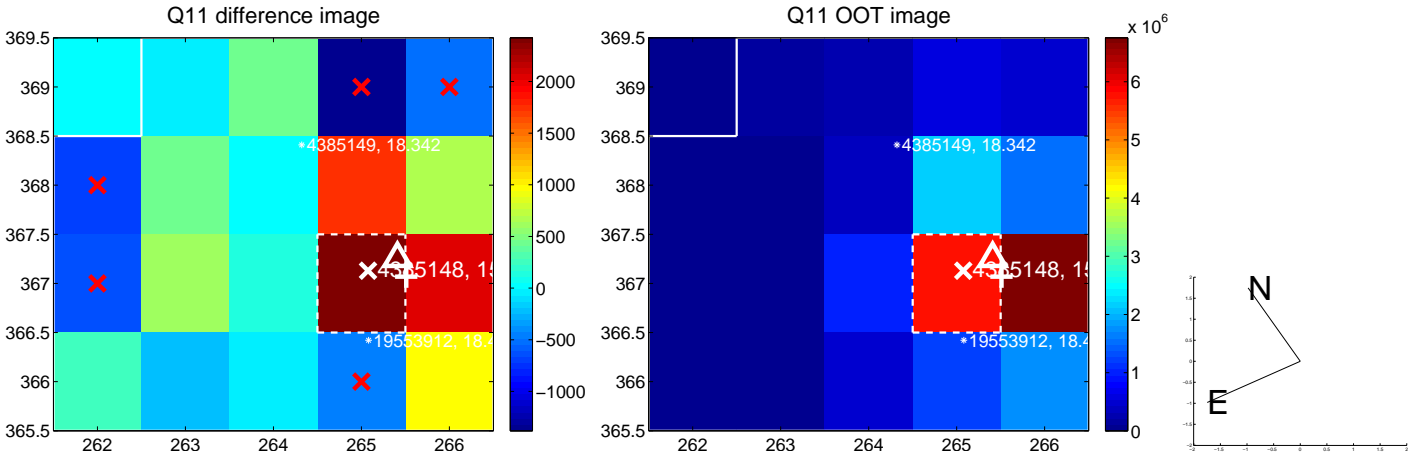
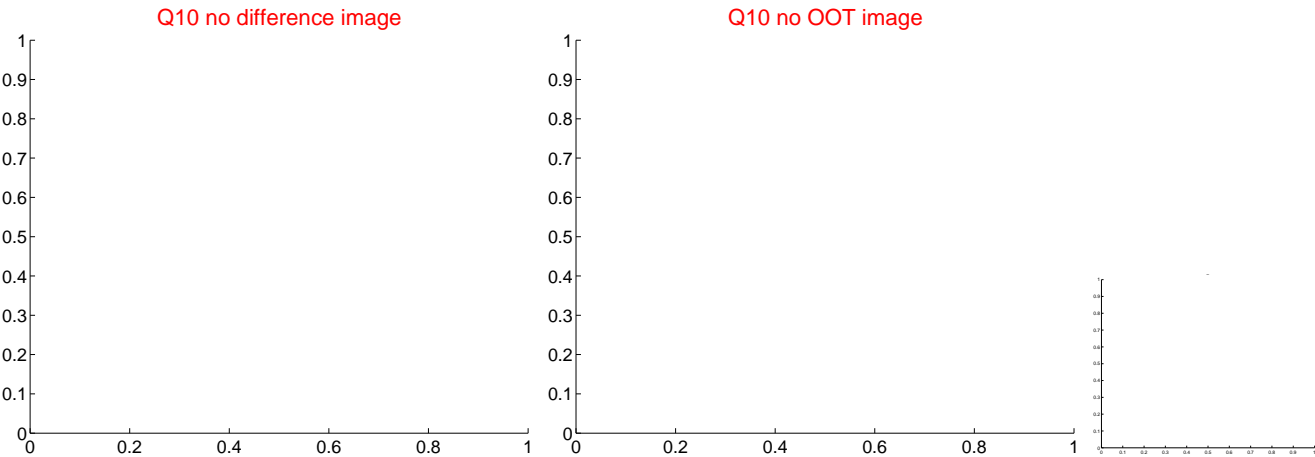
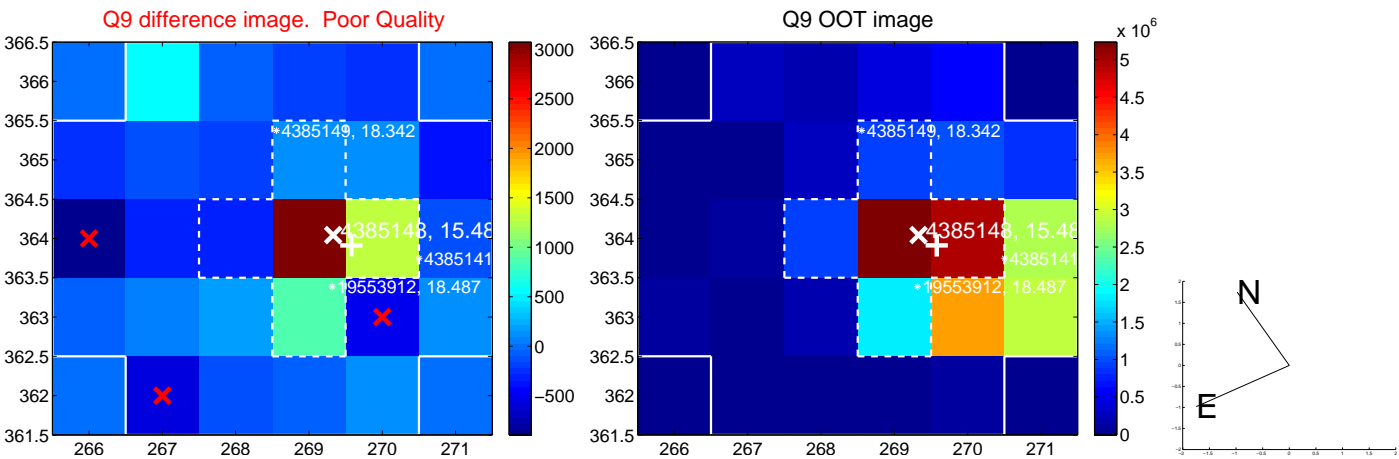
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



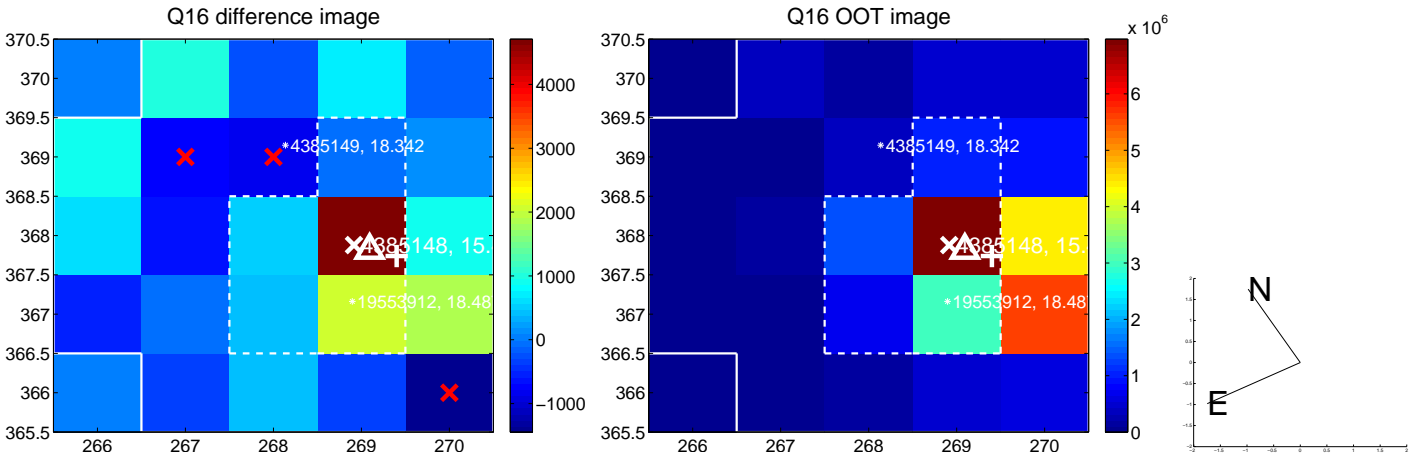
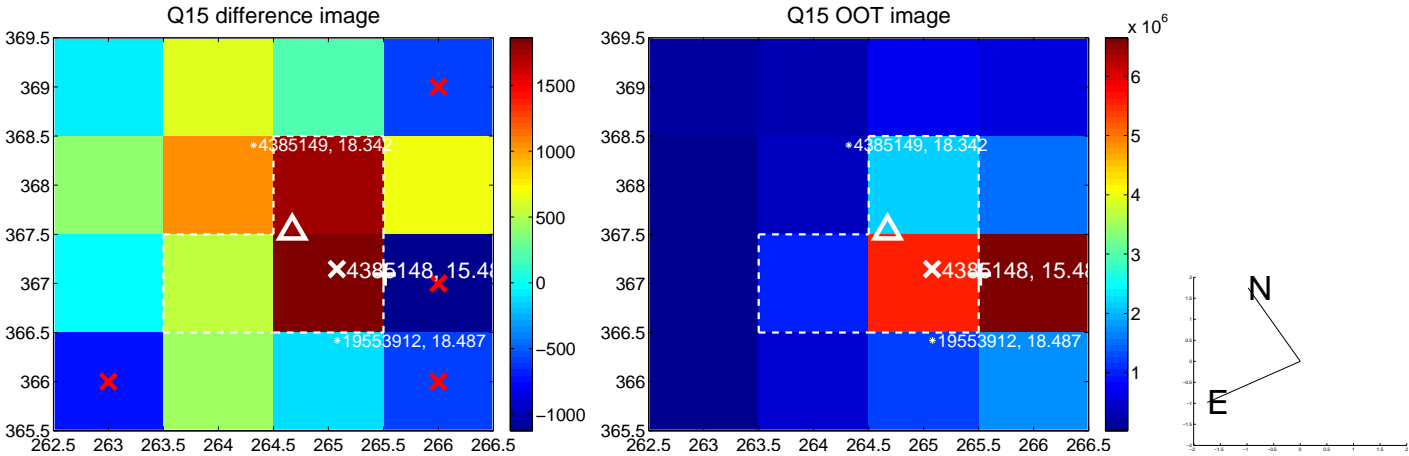
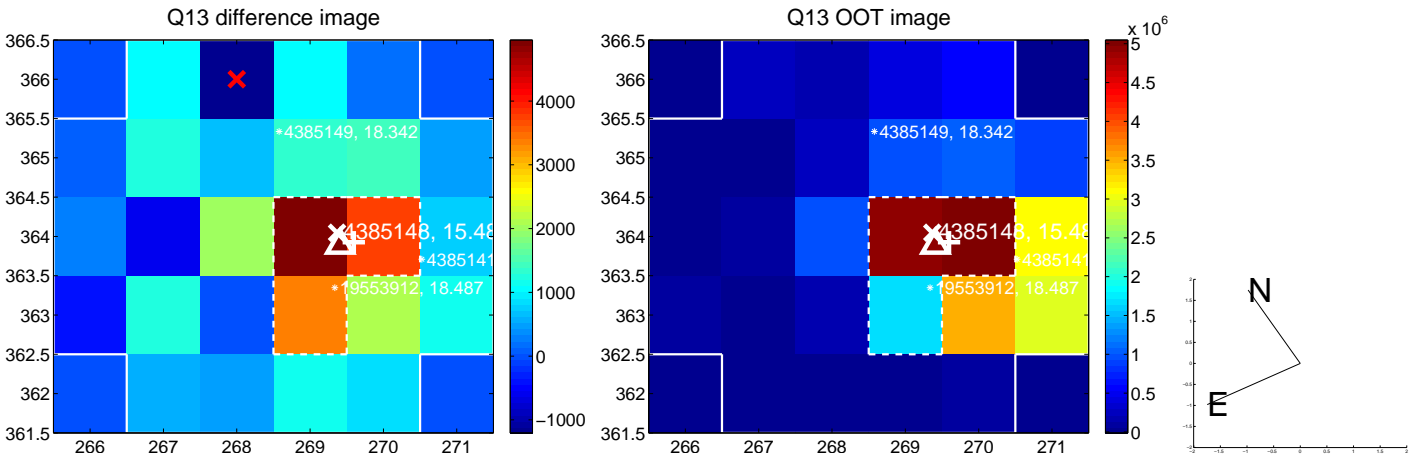
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



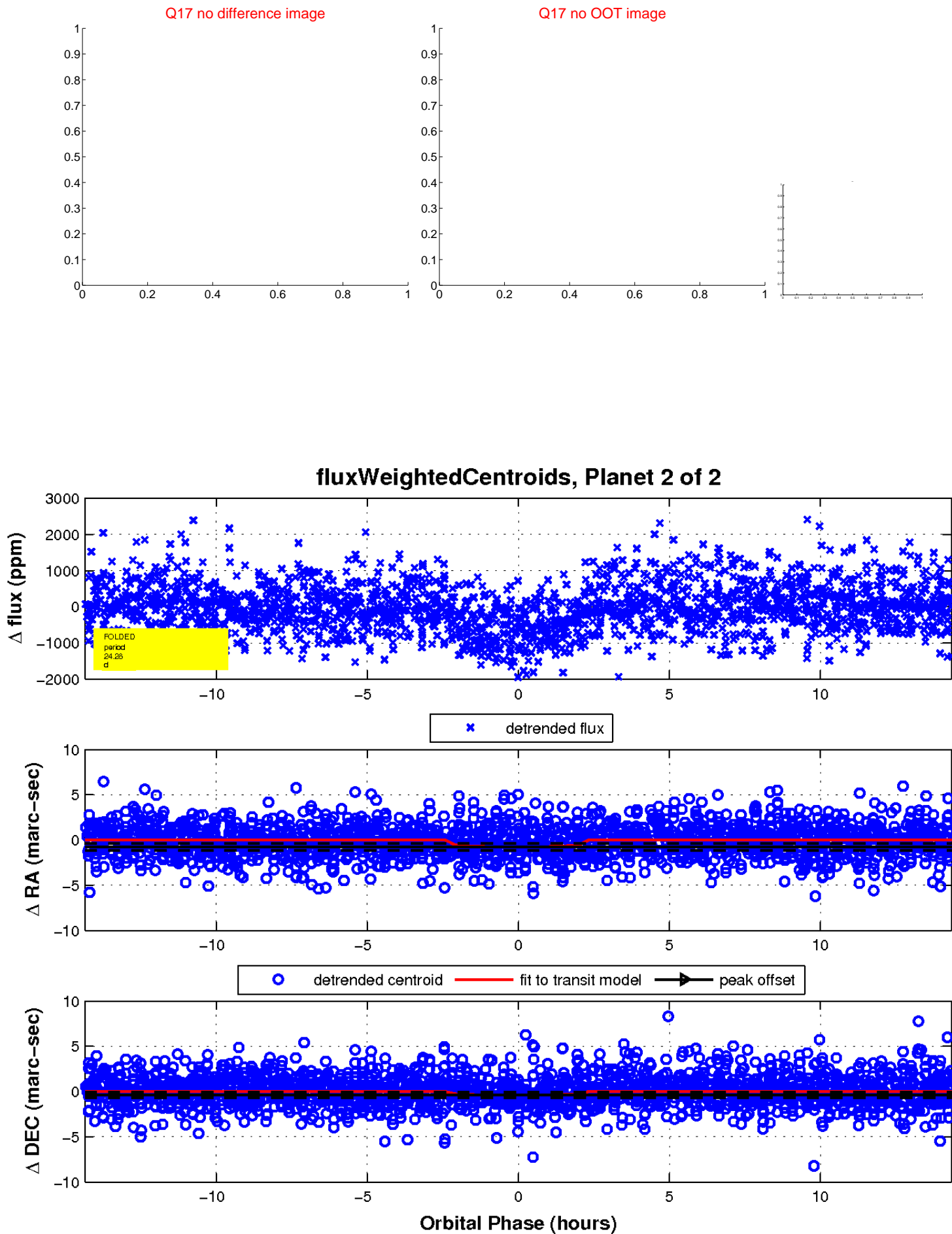
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

