

KIC 009084569

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})
009084569-01	OBS	No	492.658877	193.288665	160.9	17.703	9.5	10.0	0.87	5060	1.31	0.33
009084569-02	OBS	7923.01	395.120155	162.747007	127.8	22.187	10.0	9.2	0.87	5060	1.19	0.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009084569-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009084569-02	OBS	PC	0.75	0	0	0	0	CENT_FEW_DIFFS

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

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

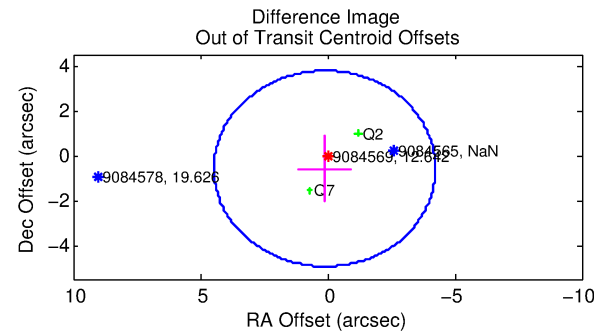
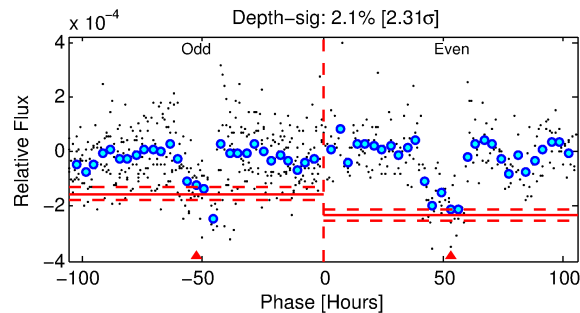
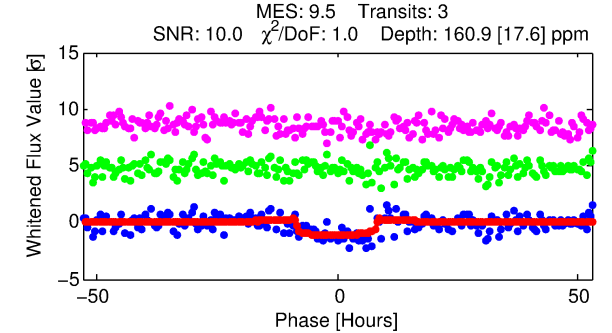
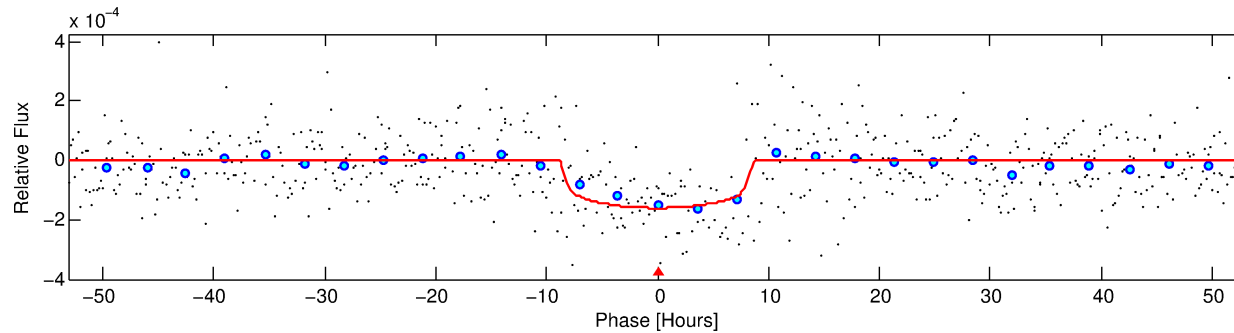
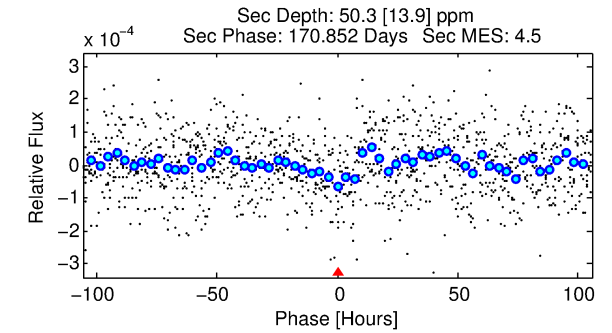
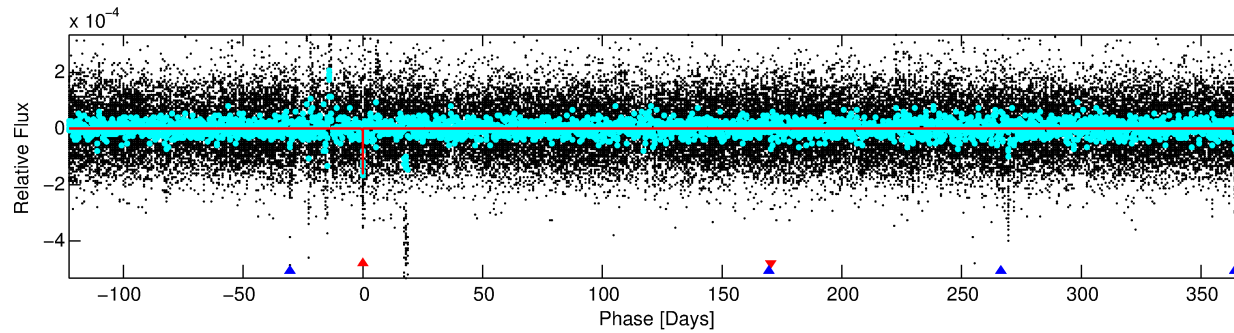
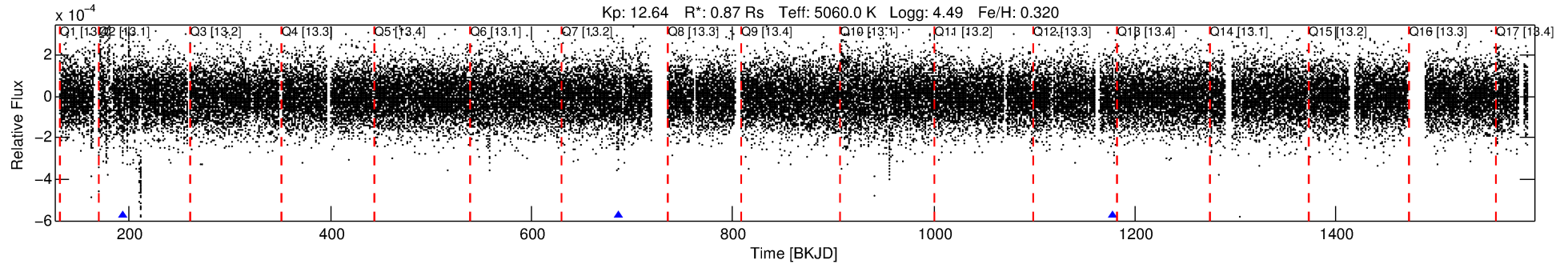
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009084569-01

No Significant Match Found

DV One-Page Summary

KIC: 9084569 Candidate: 1 of 2 Period: 492.659 d



DV Fit Results:

Period = 492.65888 [0.01931] d
Epoch = 193.2887 [0.0209] BKJD
Rp/R* = 0.0139 [0.0023]
a/R* = 107.04 [66.17]
b = 0.88 [0.16]
Seff = 0.33 [0.07]
Teq = 193 [10] K
Rp = 1.31 [0.27] Re
a = 1.1599 [0.1186] AU
Ag = 21524.14 [9955.61] [2.16σ]
Teffp = 3618 [417] K [8.20σ]

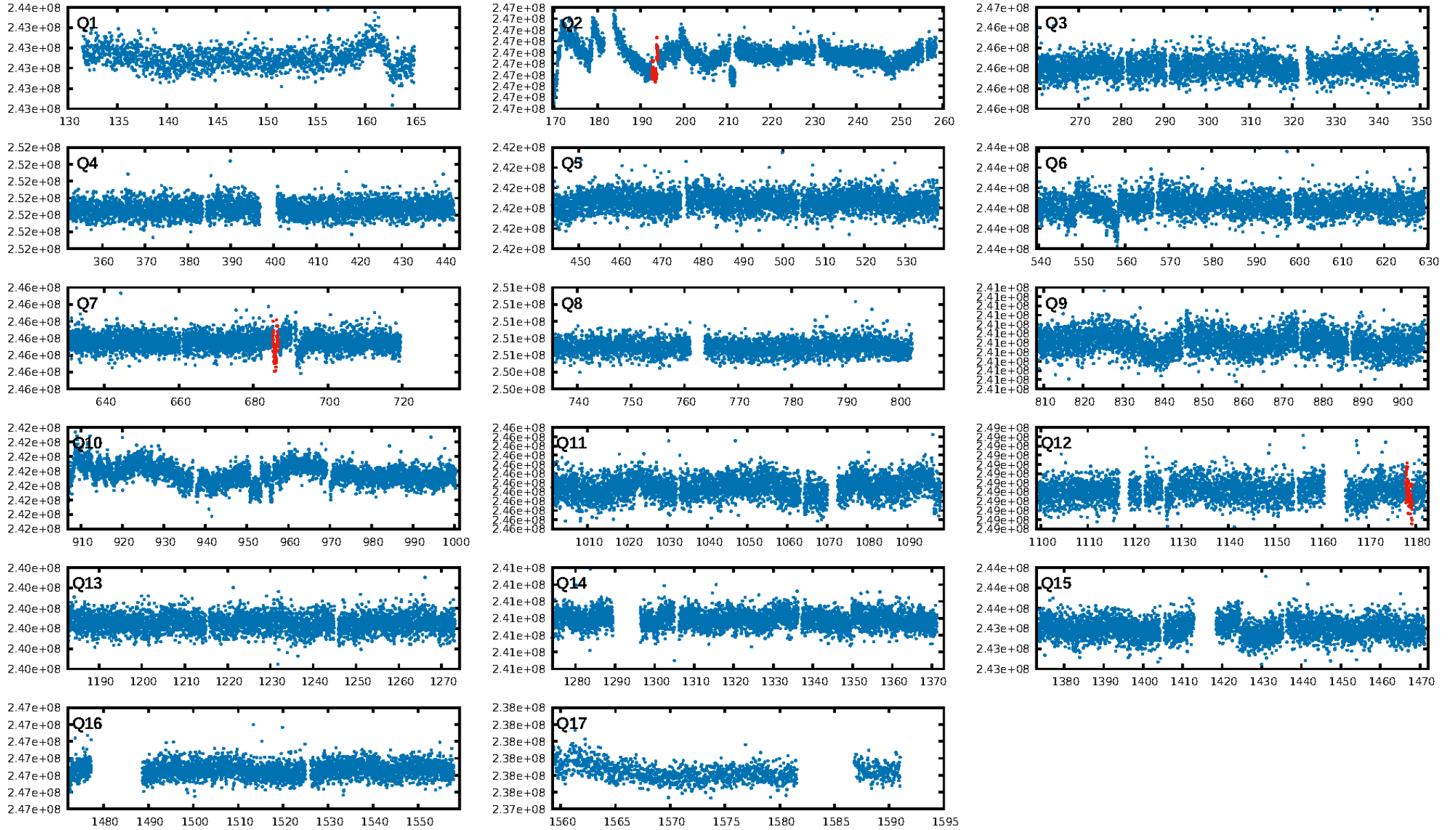
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [82.47σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 4.76e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.729
Centroid-sig: 0.5%
Centroid-so: 2.489 arcsec [1.87σ]
OotOffset-rm: 0.596 arcsec [0.41σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.638 arcsec [0.43σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

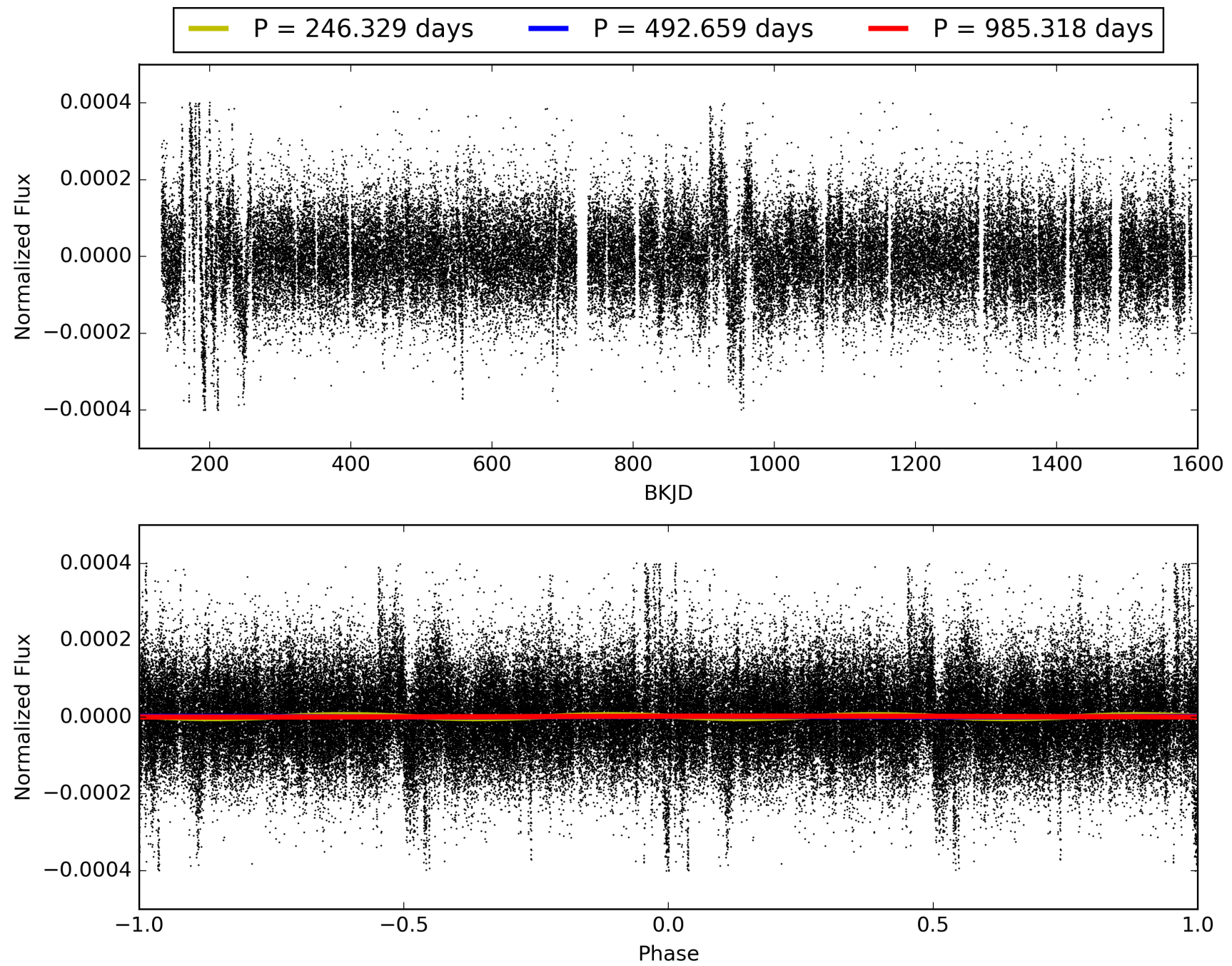
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:32:39 Z

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

TCE 009084569-01, PDC Light Curves

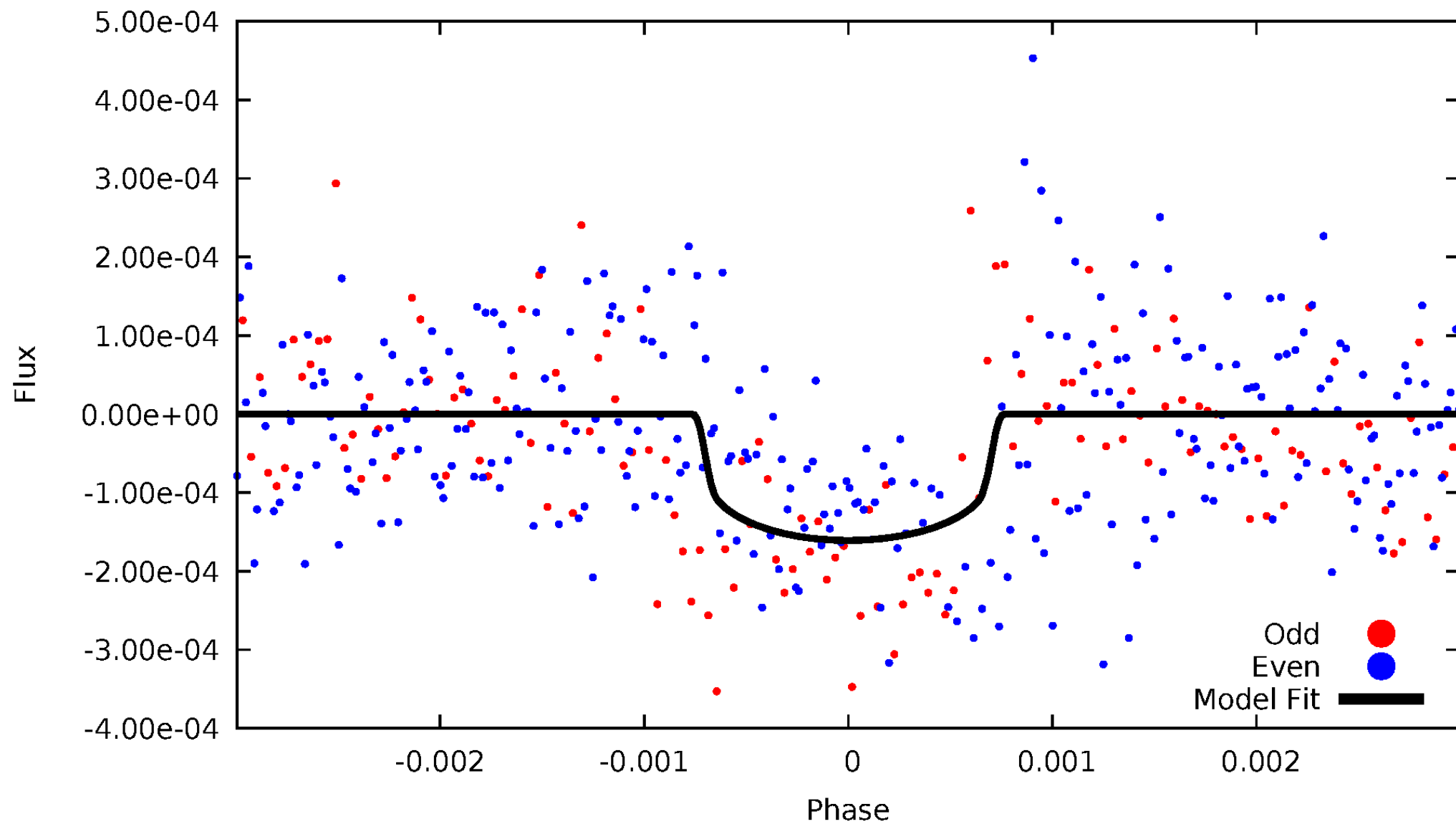


TCE 009084569-01



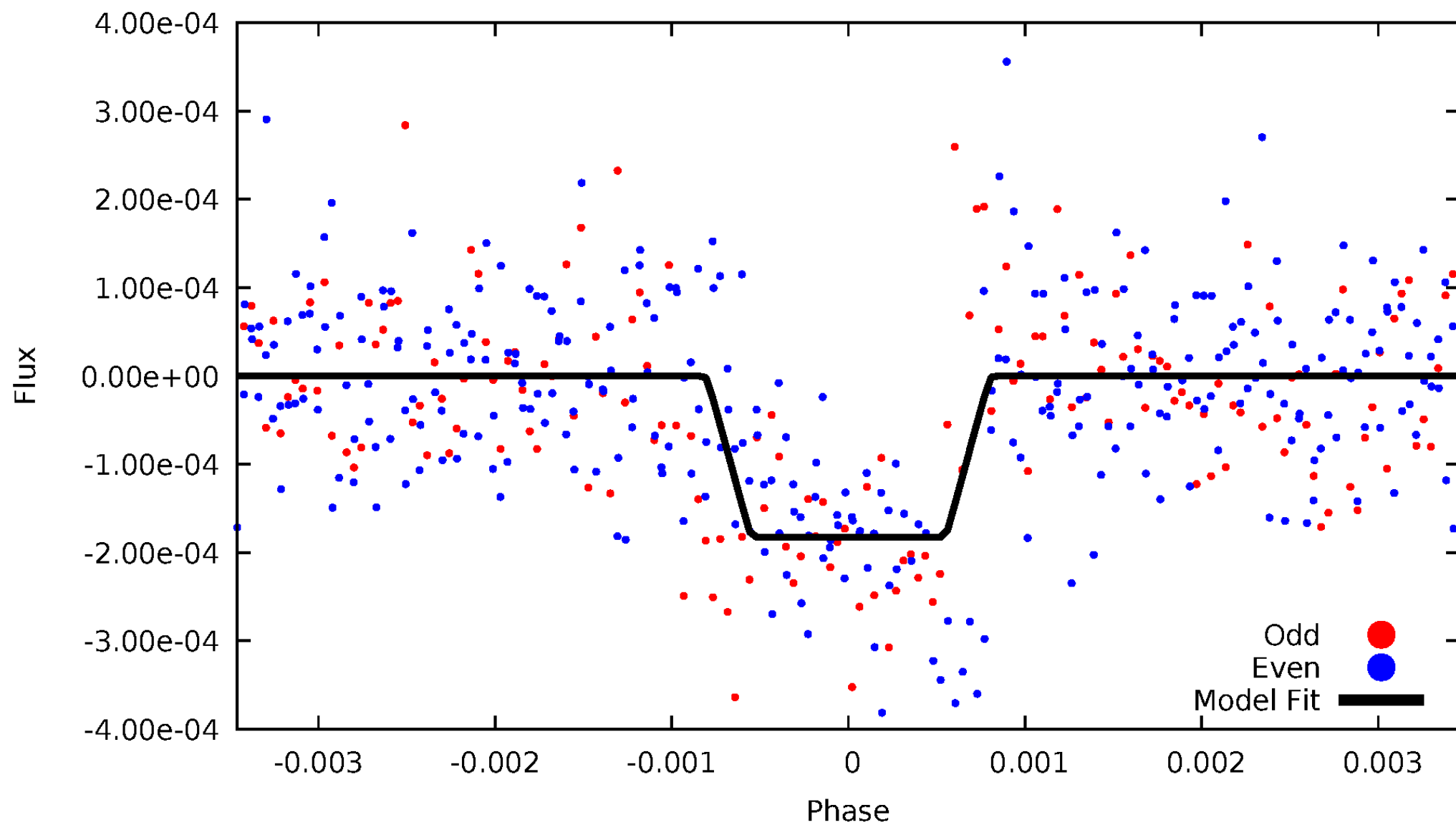
DV Odd/Even

TCE 009084569-01



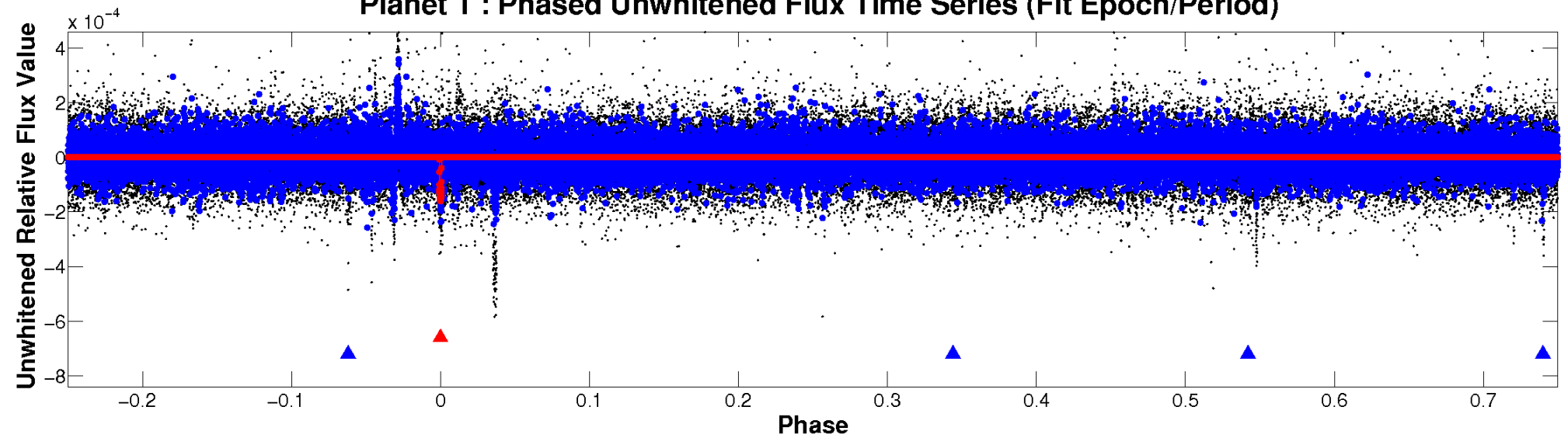
ALT Odd/Even

TCE 009084569-01

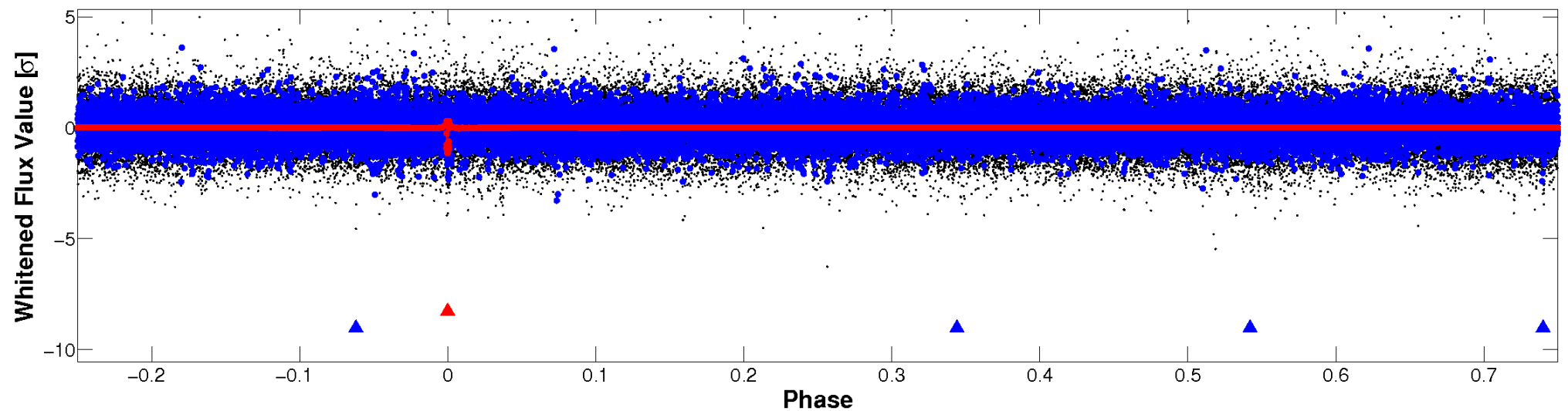


Non-Whitened Vs. Whitened Light Curve

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



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



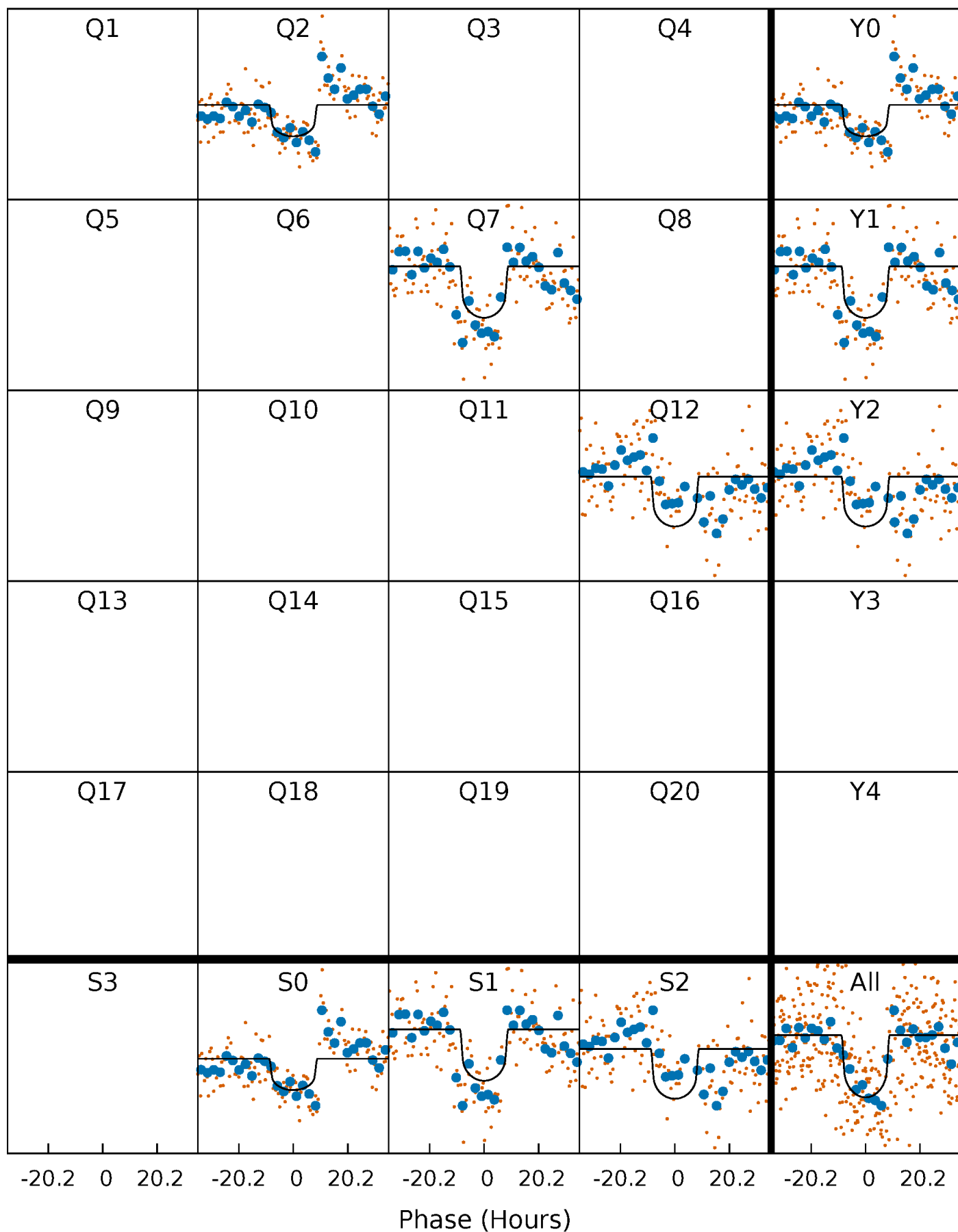
PDC Quarter-Phased Transit Curves

TCE 009084569-01 P=492.658877 Days $T_0=193.288665$ (BKJD)



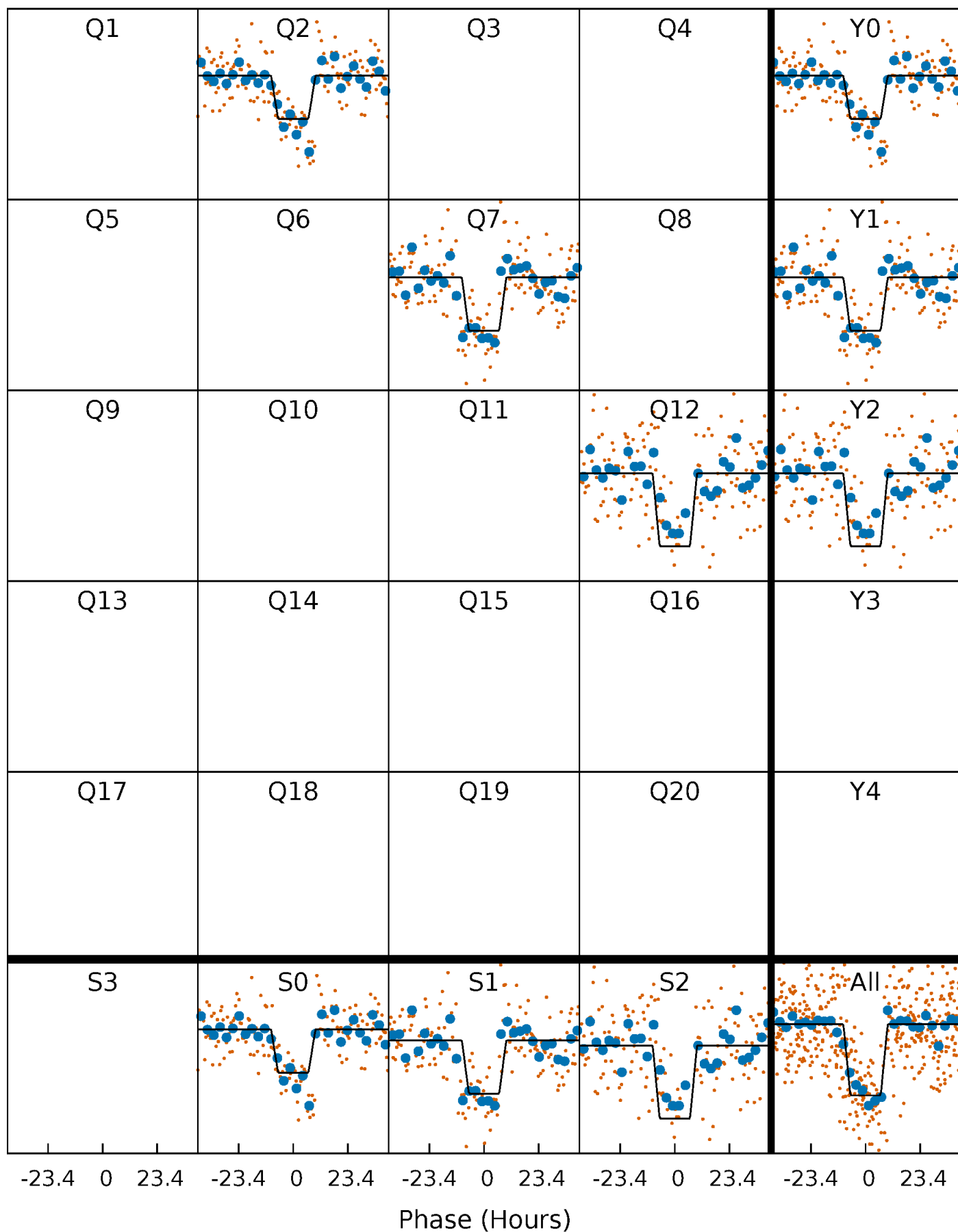
DV Quarter-Phased Transit Curves

TCE 009084569-01 P=492.658877 Days $T_0=193.288665$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

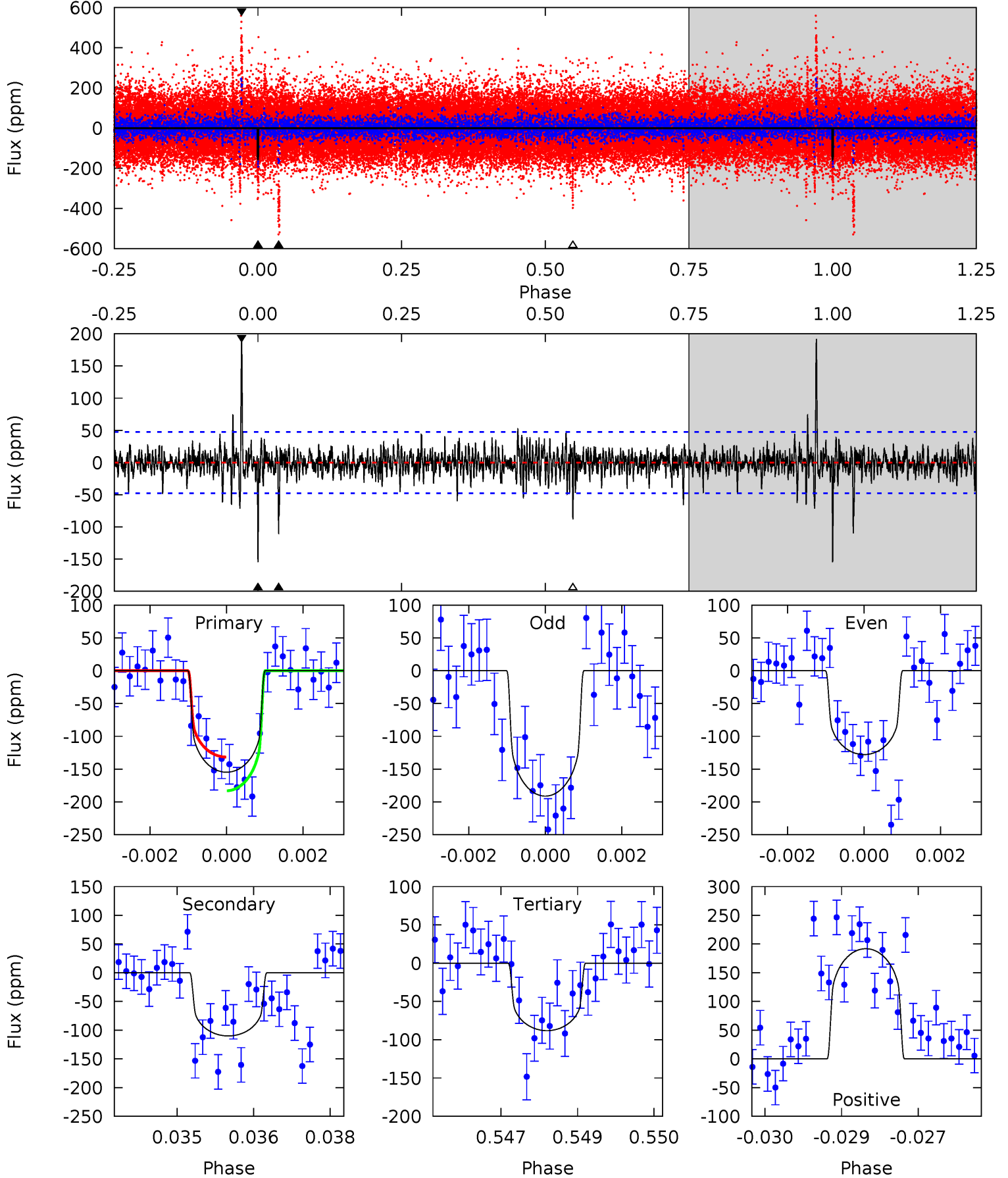
TCE 009084569-01 P=492.653132 Days $T_0=193.292979$ (BKJD)



DV Model-Shift Uniqueness Test

009084569-01, P = 492.658877 Days, E = 193.288665 Days

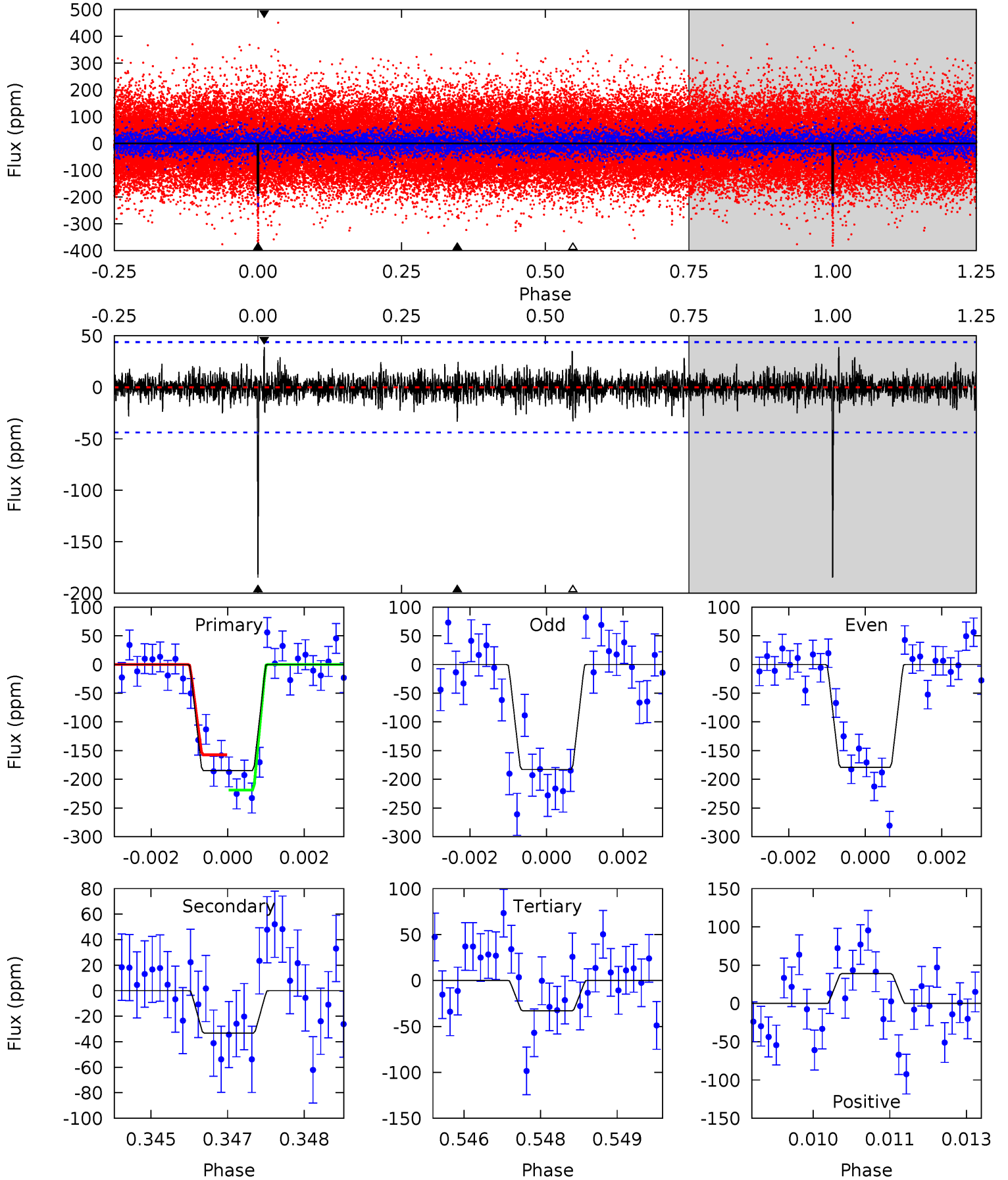
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.4	12.4	9.93	21.6	5.38	3.17	1.87	7.51	-4.18	2.47	-9.22	3.48	0.81	0.55	2.86



Alt Model-Shift Uniqueness Test

009084569-01, P = 492.653132 Days, E = 193.292979 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.6	4.06	4.05	4.76	5.36	3.15	0.93	18.5	17.8	0.01	-0.70	0.22	0.96	0.17	3.74



Stellar Parameters For KIC 009084569

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5060^{+192}_{-174}	$4.493^{+0.080}_{-0.088}$	$0.320^{+0.100}_{-0.300}$	$0.869^{+0.100}_{-0.091}$	$0.856^{+0.062}_{-0.062}$	$1.838^{+0.620}_{-0.465}$
	+4%/-3%	+2%/-2%	+31%/-94%	+12%/-10%	+7%/-7%	+34%/-25%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009084569-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-110 ± 9	$1.30^{+0.23}_{-0.21}$	271^{+13}_{-12}	4545^{+364}_{-313}	48181^{+21399}_{-13726}
Alt.	-33 ± 8	$1.27^{+0.26}_{-0.23}$	271^{+13}_{-13}	3679^{+300}_{-265}	14651^{+8366}_{-5252}

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 $A_{obs} \gg 1.0$

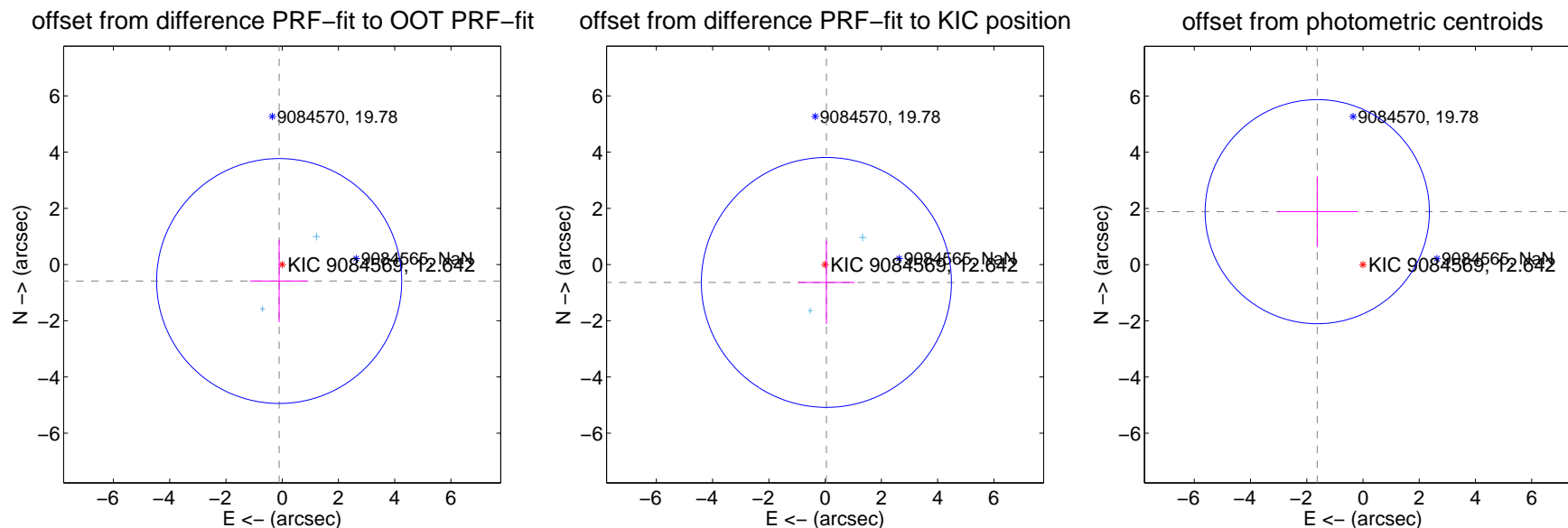
DV Centroid Data

Supplemental centroid analysis for 009084569-01. Kepler magnitude: 12.64. Transit SNR 10.02

There are 2 quarters with good PRF difference image offsets

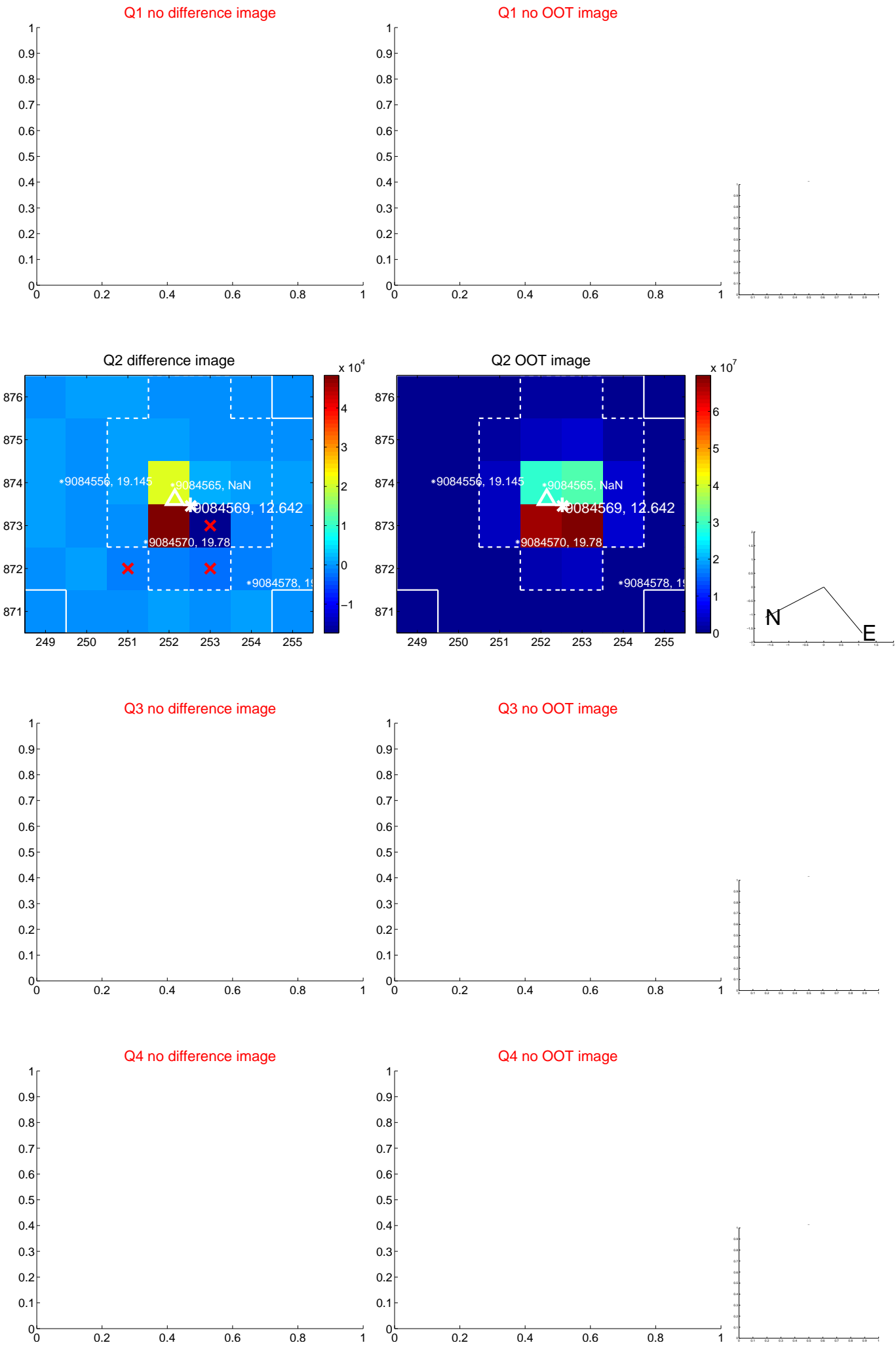
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.596 ± 1.452	0.41	0.108 ± 1.038	-0.586 ± 1.465
PRF-fit source offset from KIC position	0.638 ± 1.482	0.43	-0.045 ± 1.006	-0.636 ± 1.484
photometric centroid source offset	2.49 ± 1.33	1.87	1.63 ± 1.42	1.88 ± 1.26

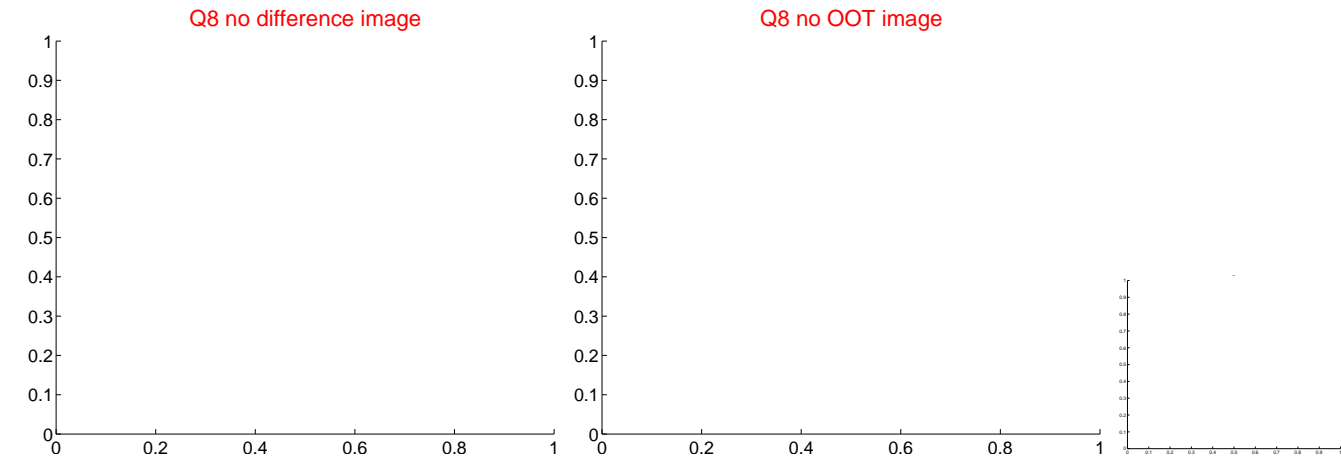
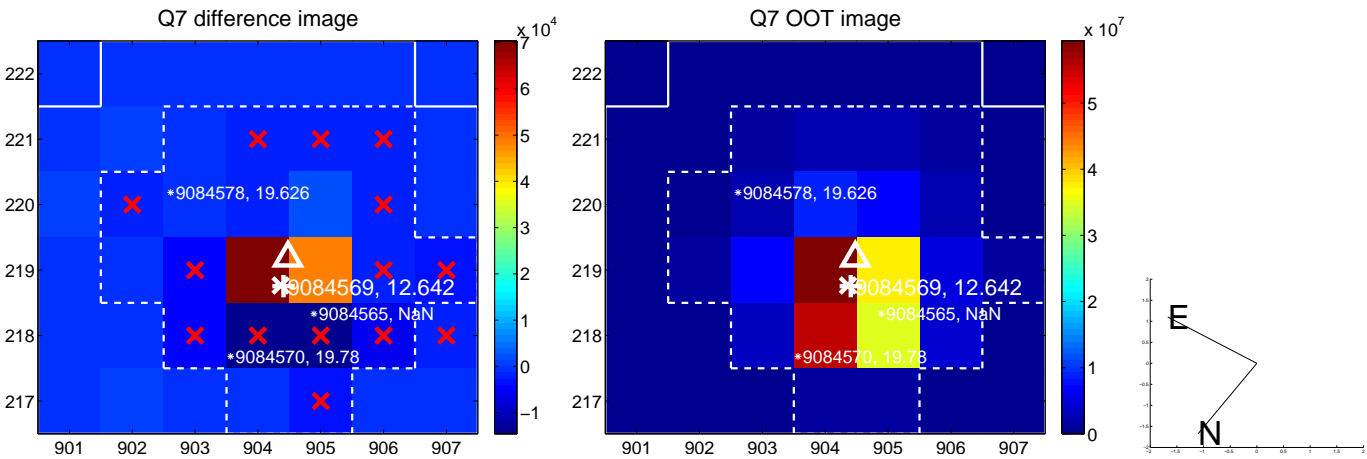
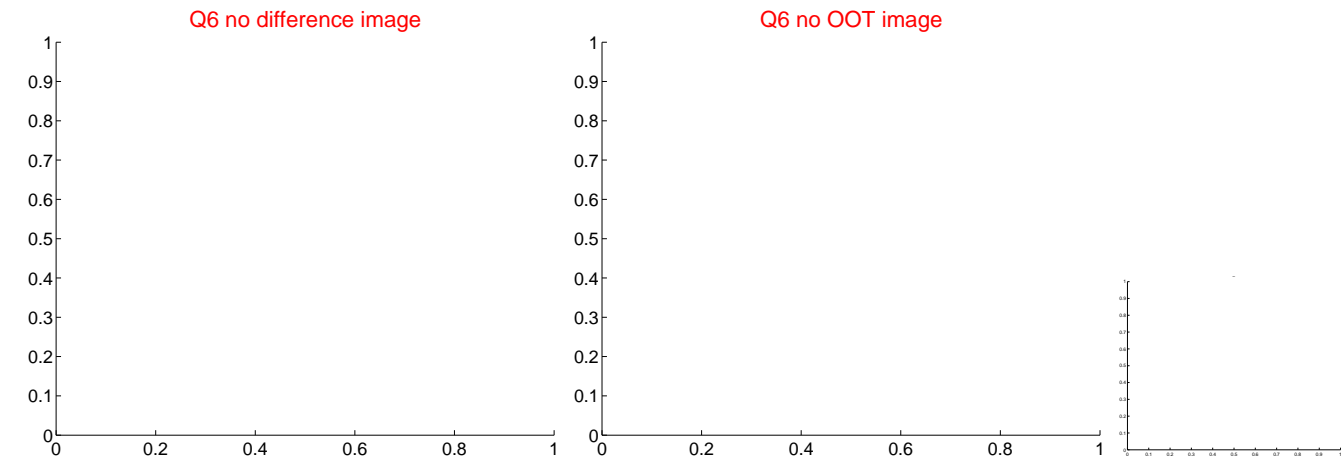
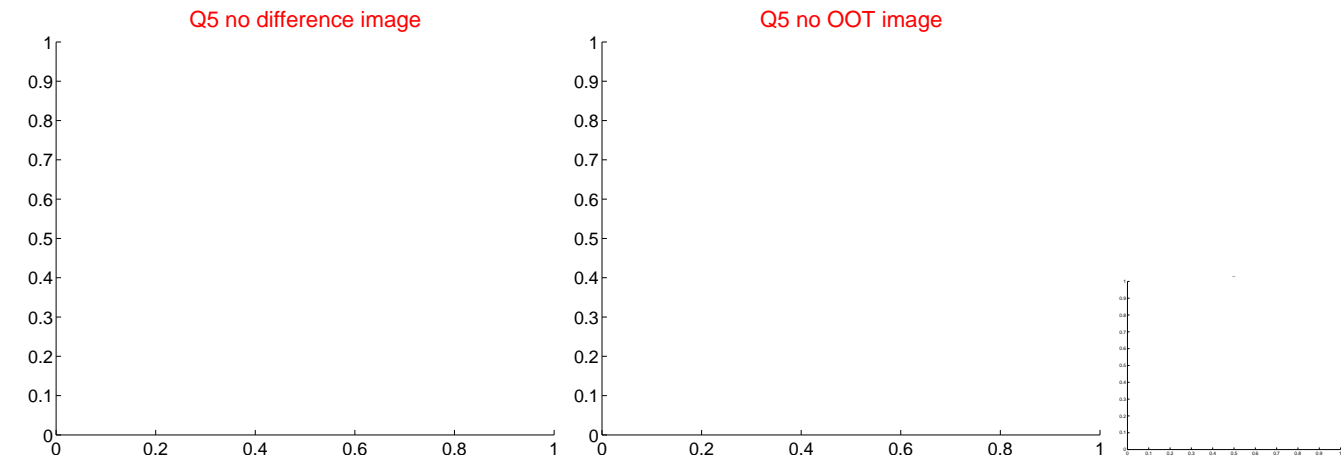


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

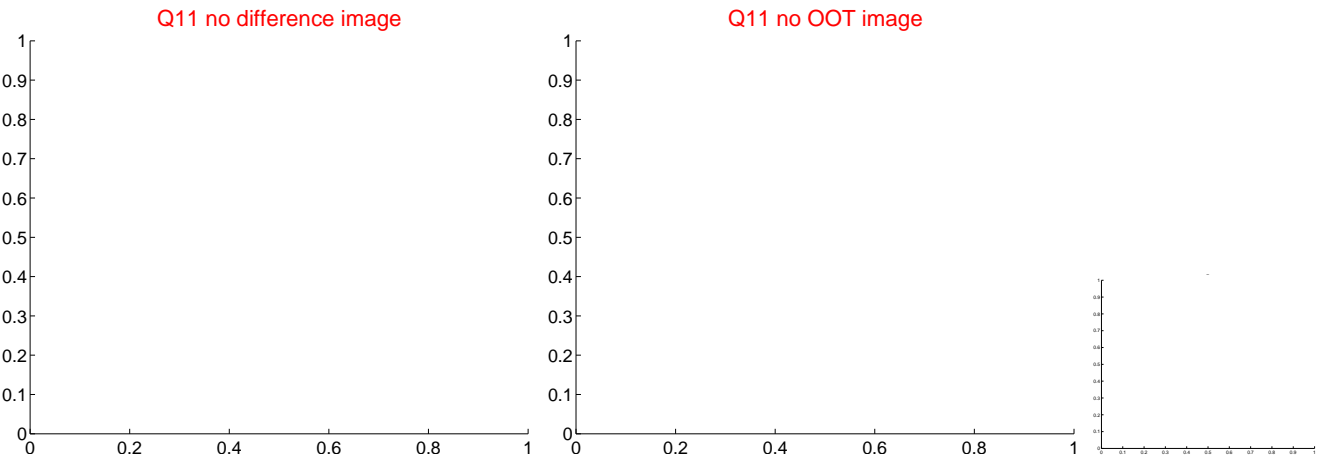
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



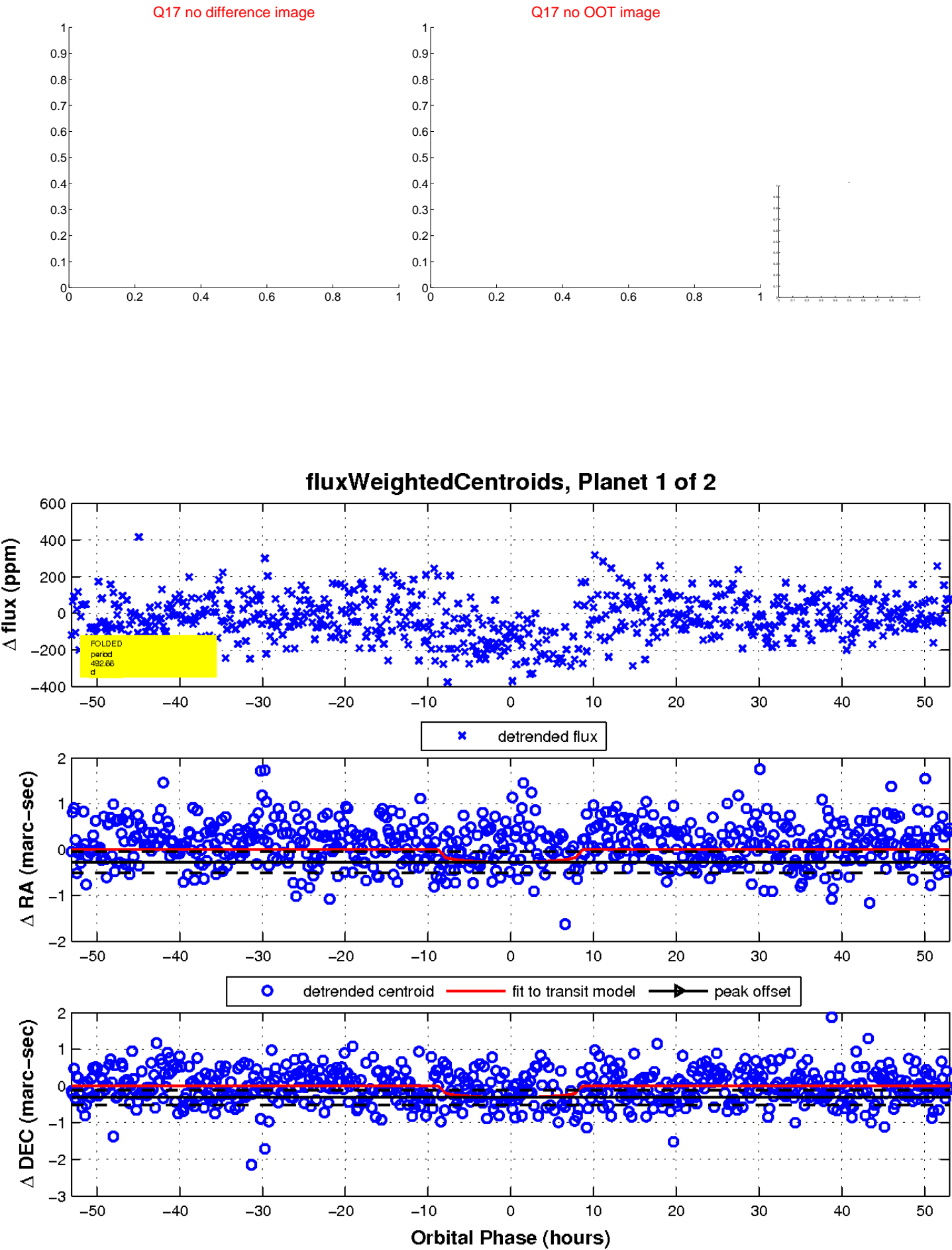
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

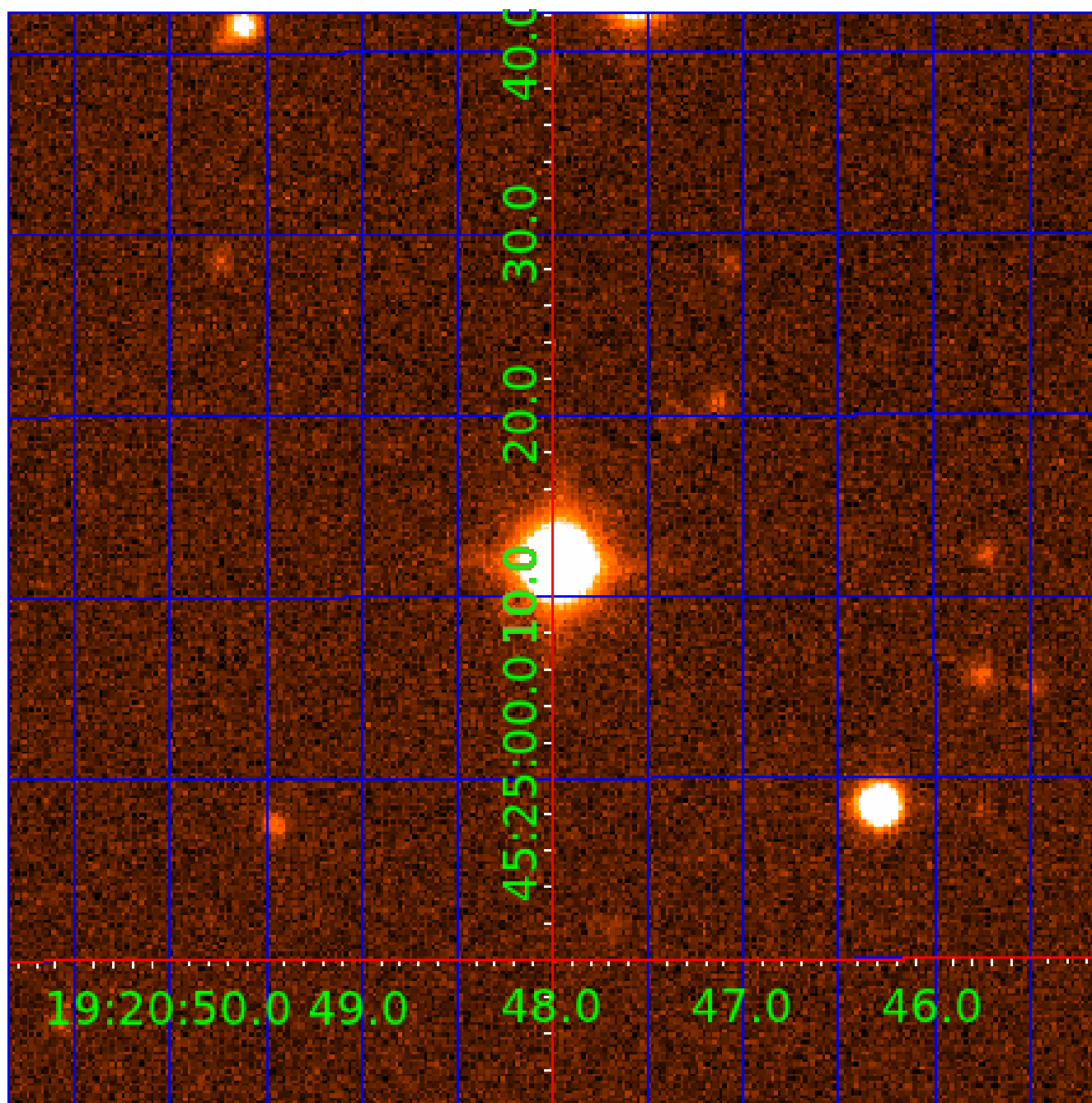


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009084569

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})
009084569-01	OBS	No	492.658877	193.288665	160.9	17.703	9.5	10.0	0.87	5060	1.31	0.33
009084569-02	OBS	7923.01	395.120155	162.747007	127.8	22.187	10.0	9.2	0.87	5060	1.19	0.44

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009084569-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009084569-02	OBS	PC	0.75	0	0	0	0	CENT_FEW_DIFFS

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

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

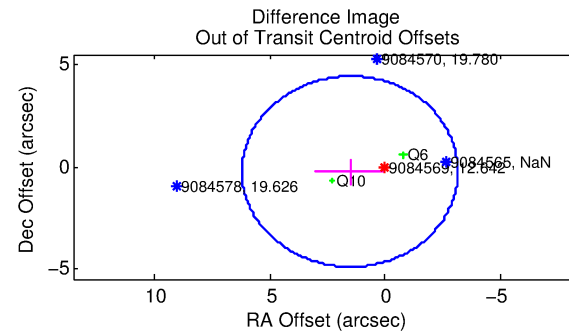
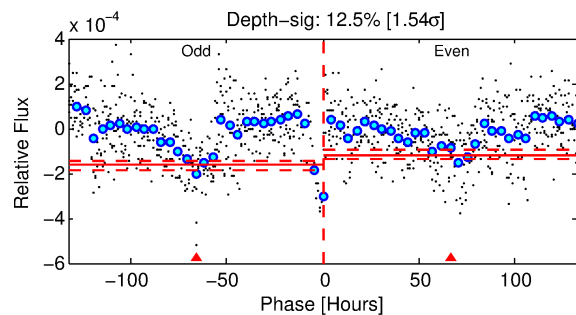
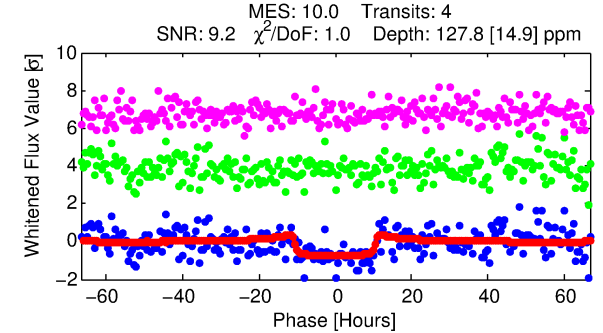
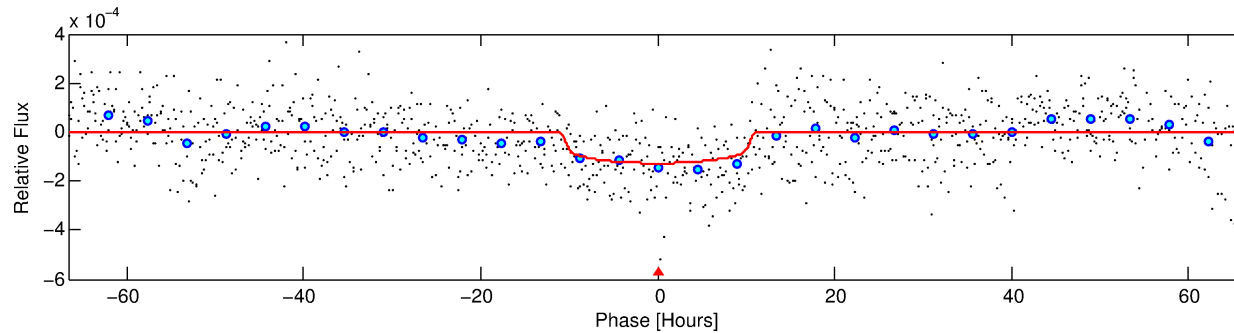
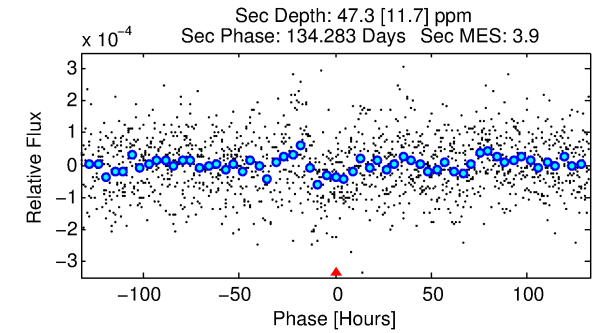
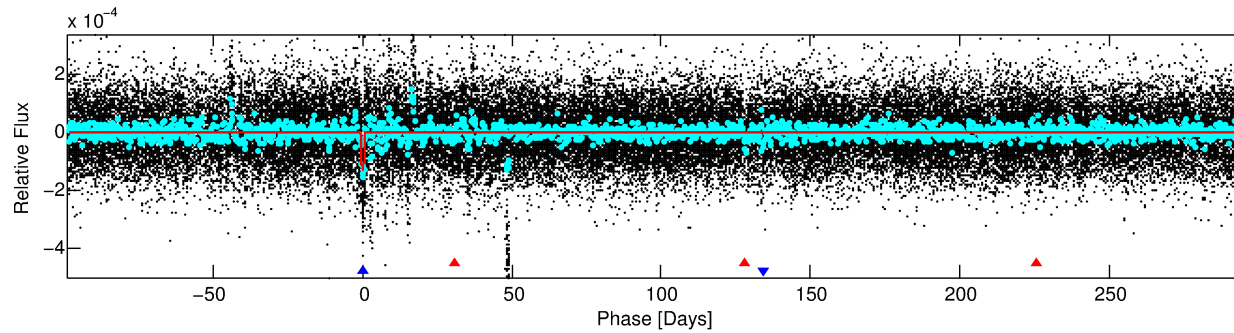
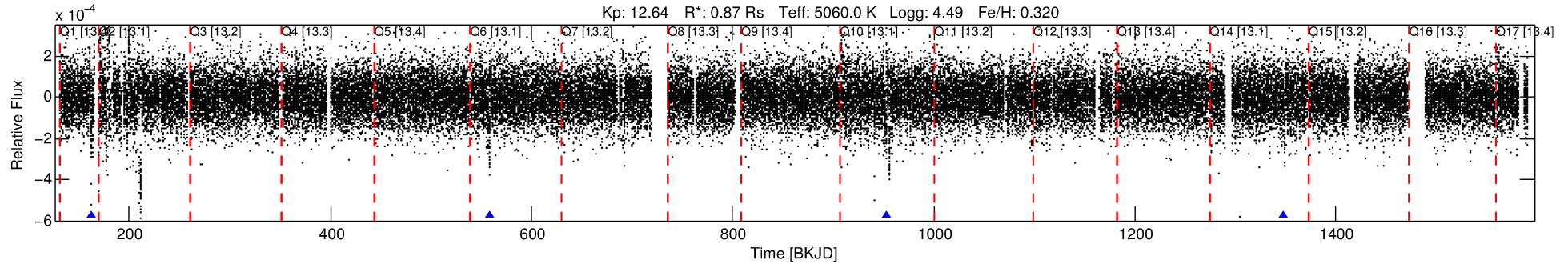
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009084569-02

No Significant Match Found

DV One-Page Summary

KIC: 9084569 Candidate: 2 of 2 Period: 395.120 d



DV Fit Results:

Period = 395.12015 [0.01283] d
Epoch = 162.7470 [0.0241] BKJD
Rp/R* = 0.0125 [0.0019]
a/R* = 64.58 [34.60]
b = 0.89 [0.12]
Seff = 0.44 [0.10]
Teq = 208 [11] K
Rp = 1.19 [0.22] Re
a = 1.0012 [0.1023] AU
Ag = 18451.87 [7677.18] [2.40σ]
Teffp = 3748 [389] K [9.11σ]

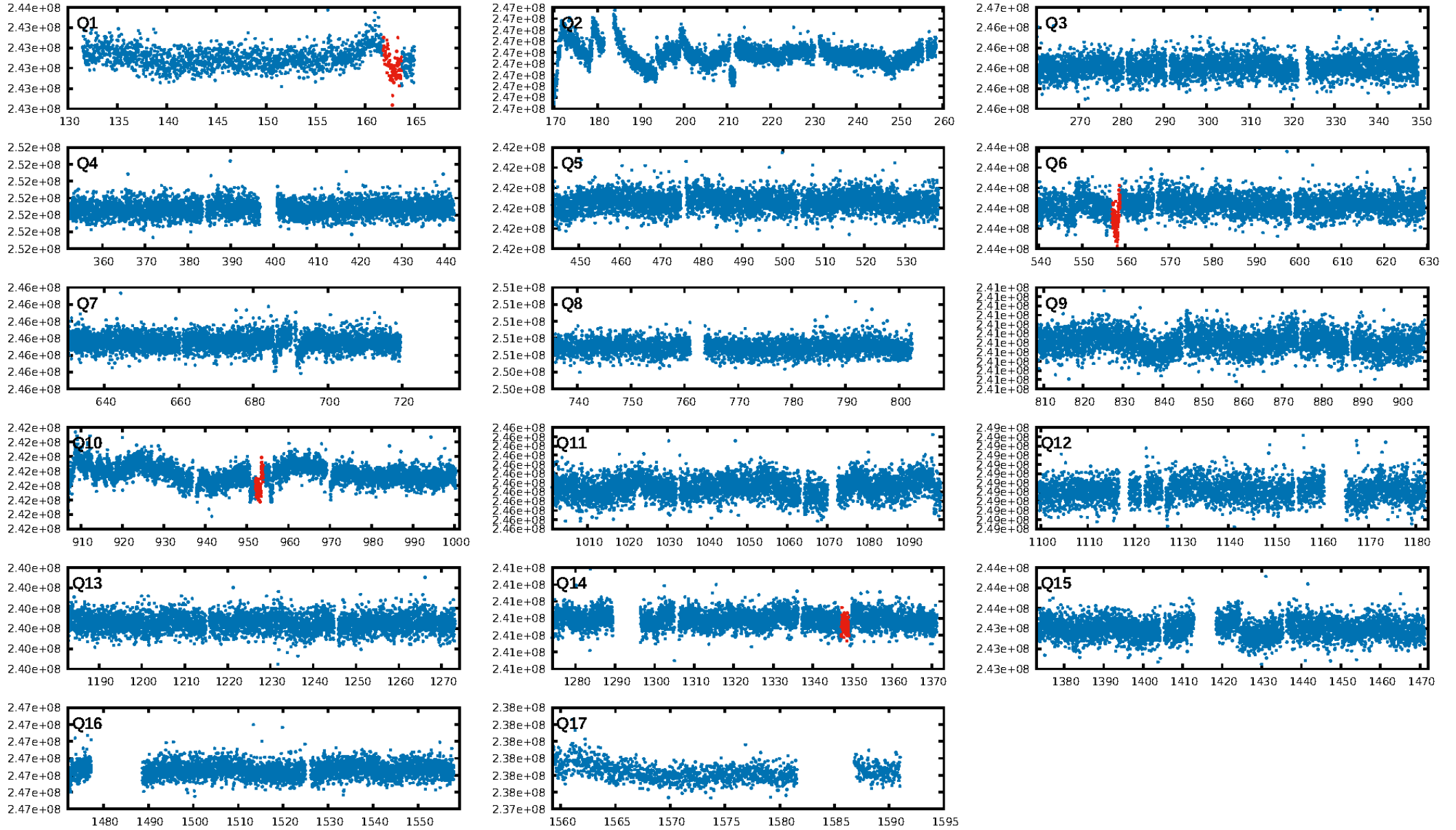
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [82.47σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.45e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.3106
Centroid-sig: 13.2%
Centroid-so: 1.046 arcsec [1.01σ]
OotOffset-rm: 1.546 arcsec [0.99σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-rm: 1.354 arcsec [0.88σ]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
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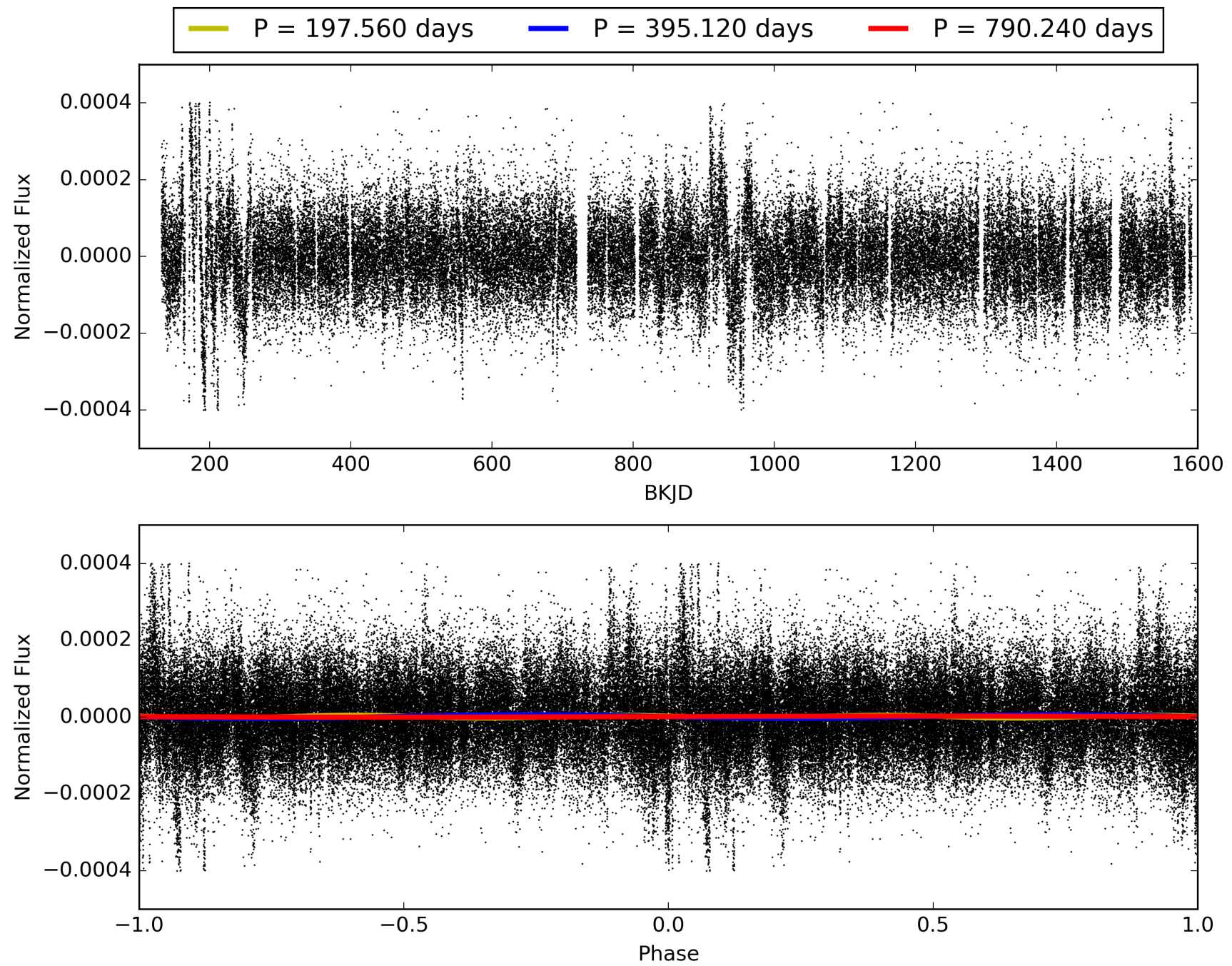
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 19:32:47 Z

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

TCE 009084569-02, PDC Light Curves

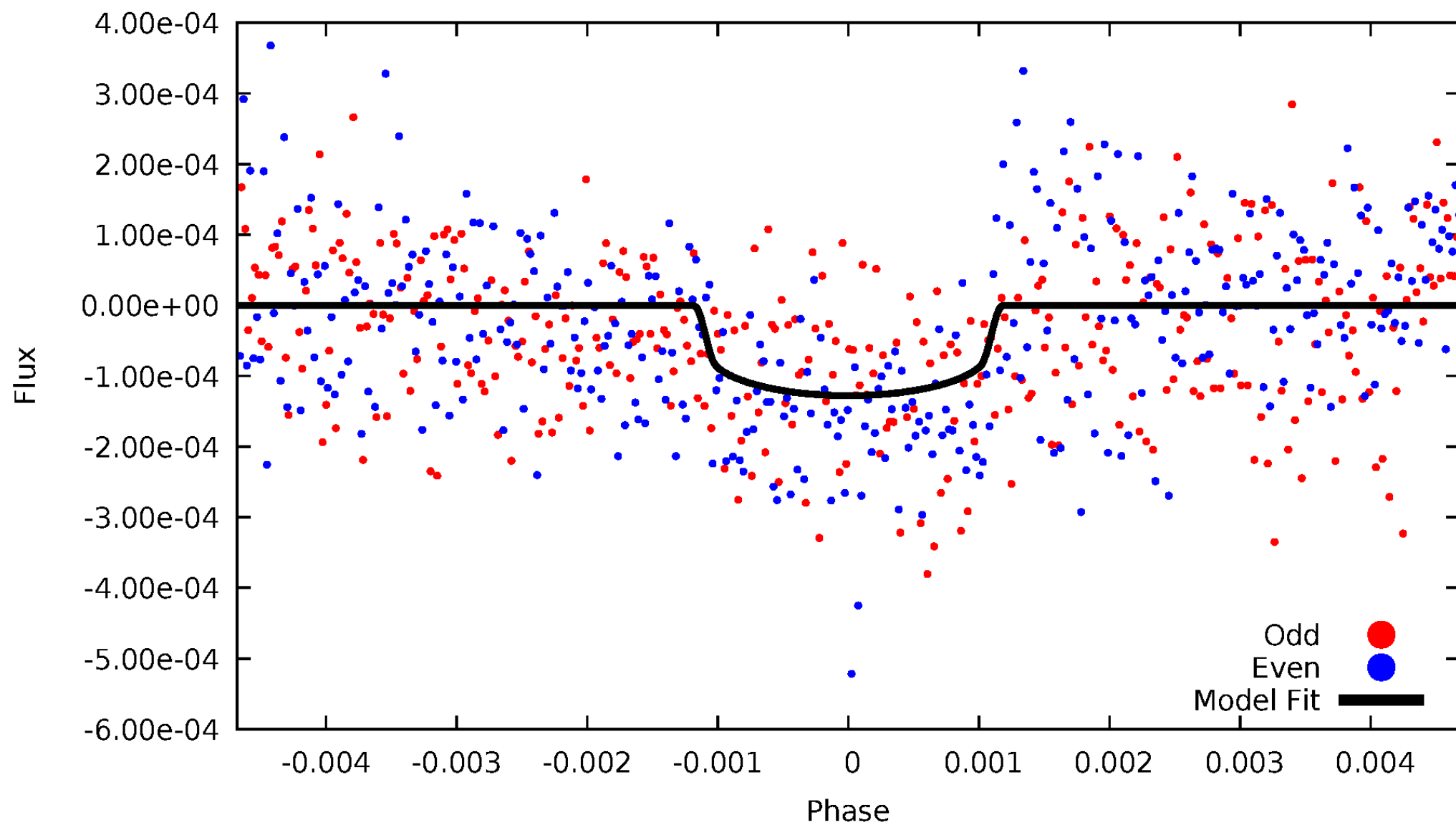


TCE 009084569-02



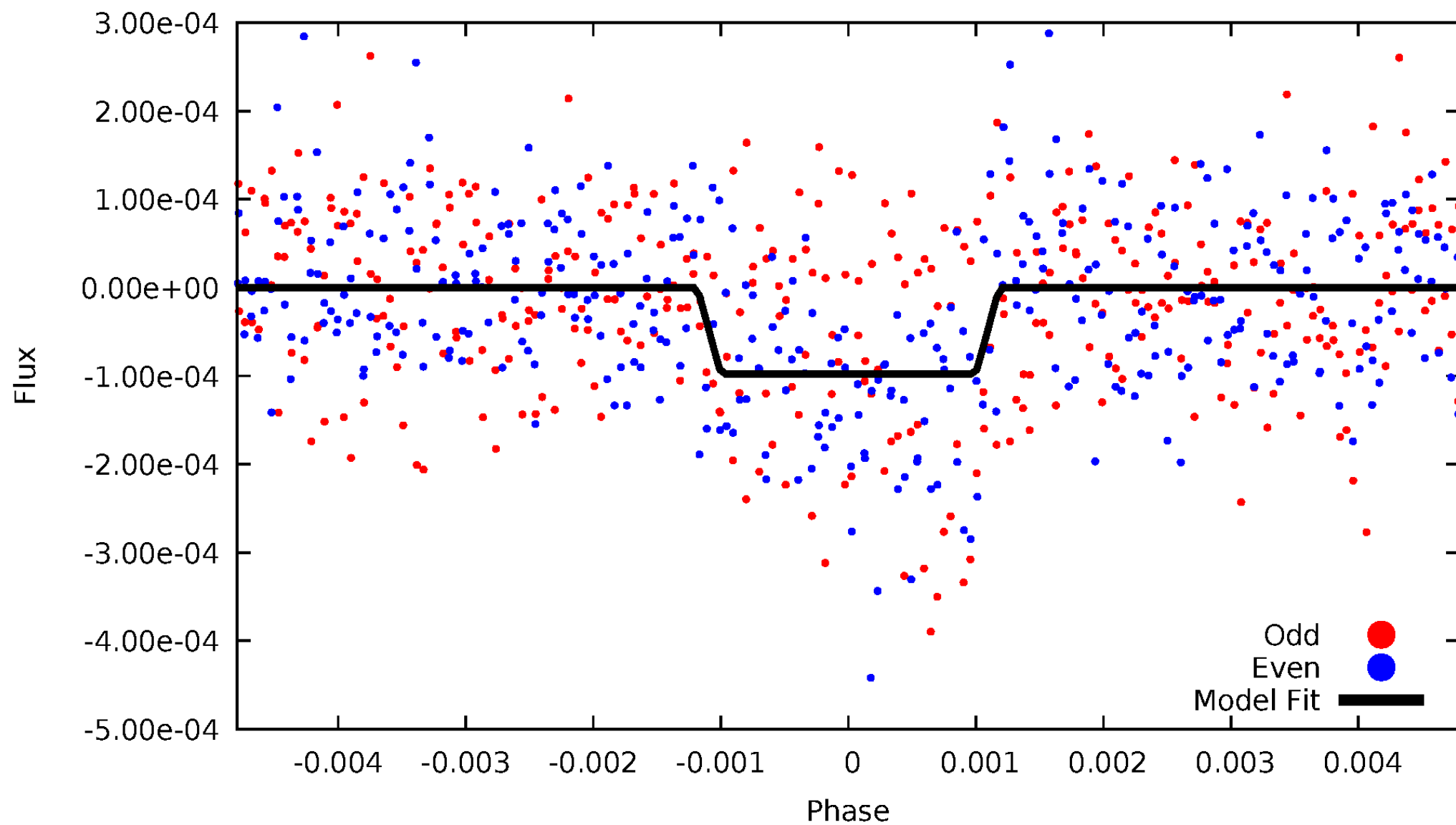
DV Odd/Even

TCE 009084569-02



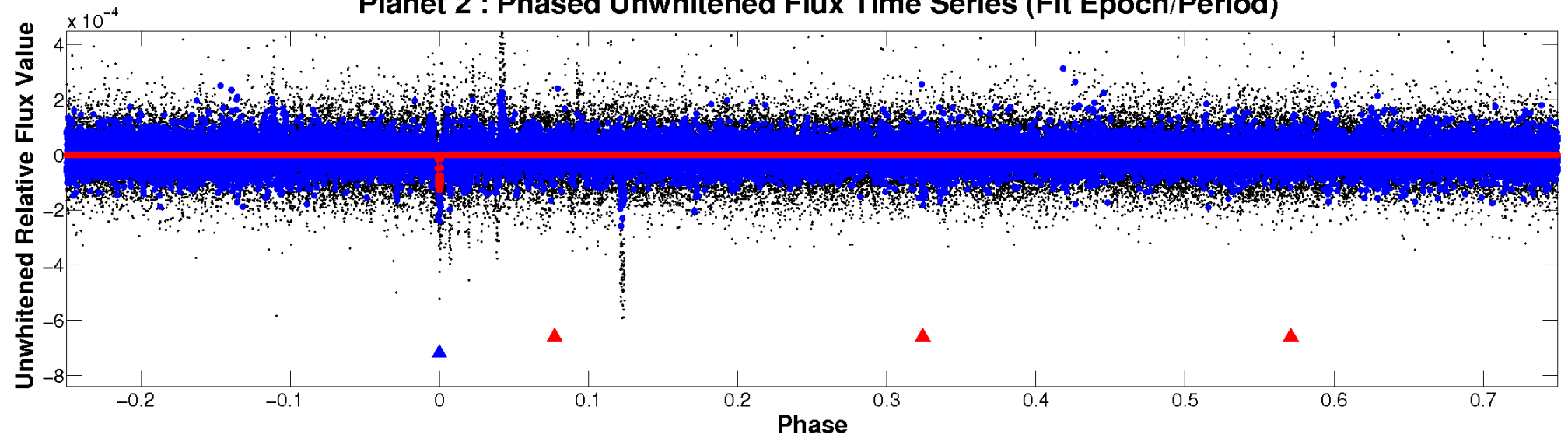
ALT Odd/Even

TCE 009084569-02

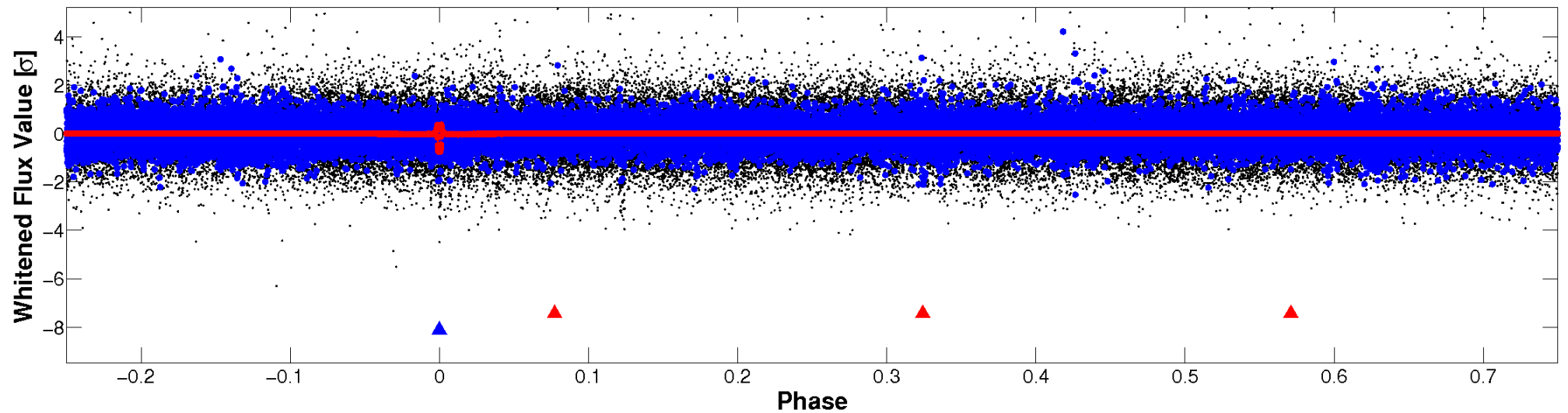


Non-Whitened Vs. Whitened Light Curve

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

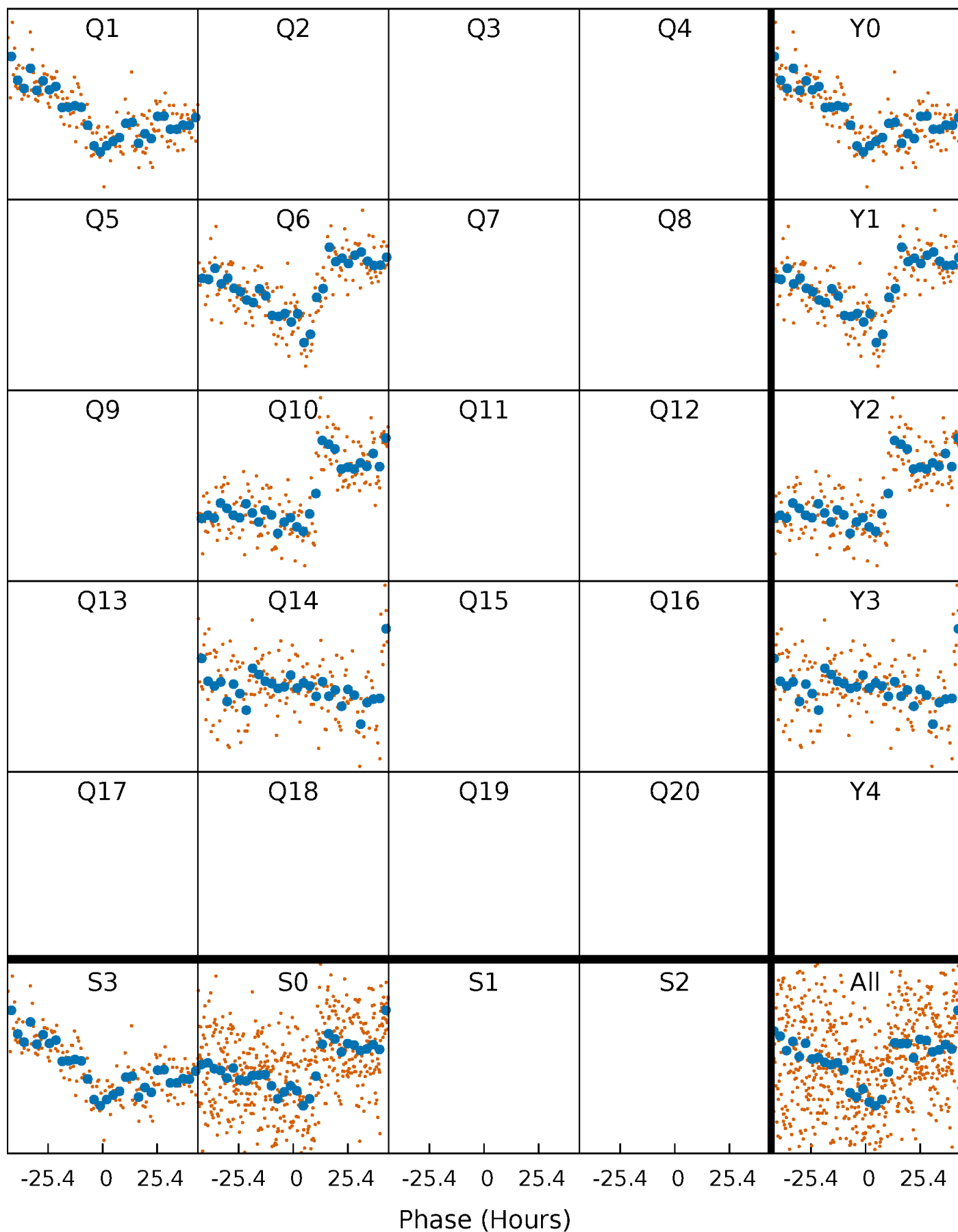


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 009084569-02 P=395.120155 Days $T_0=162.747007$ (BKJD)



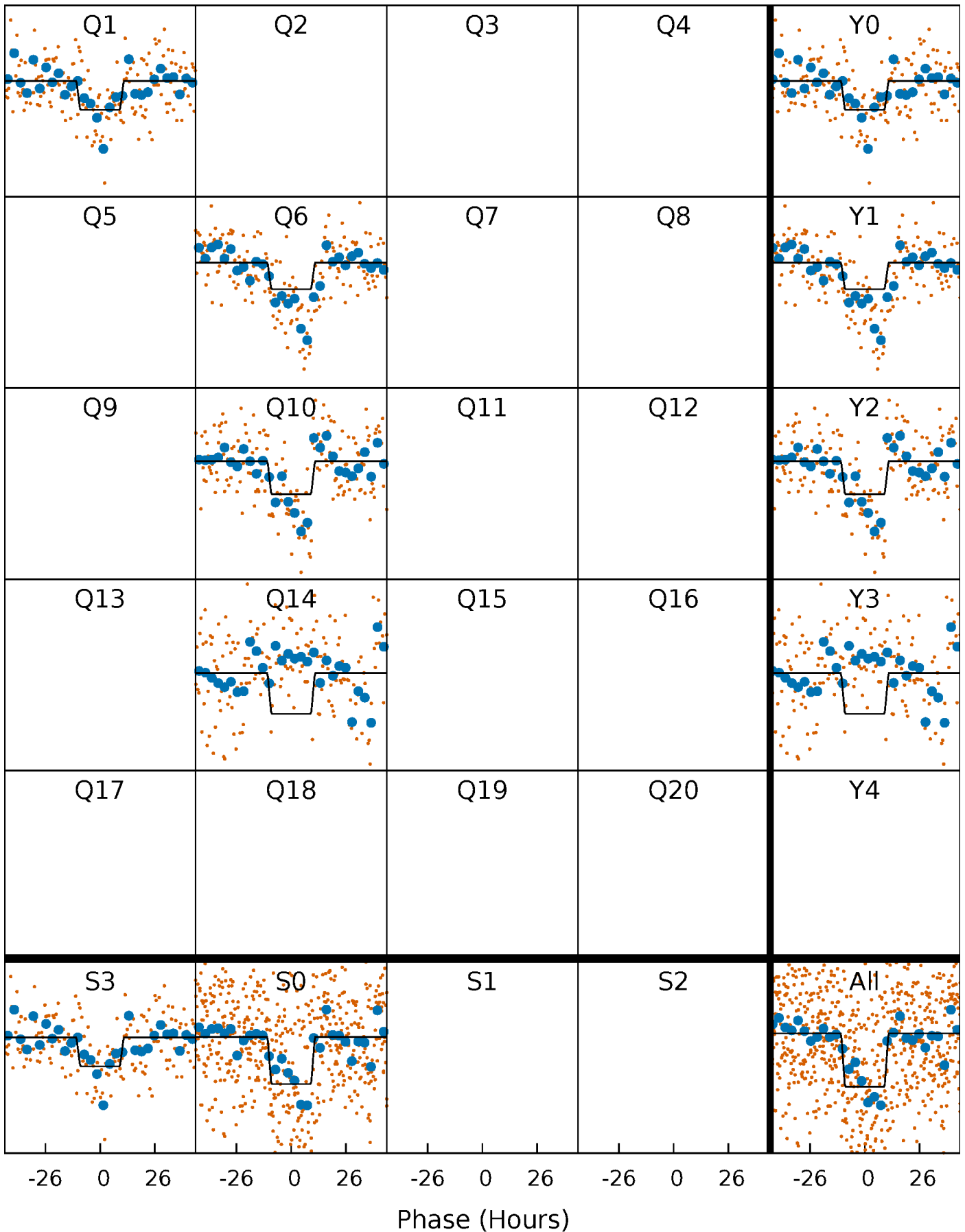
DV Quarter-Phased Transit Curves

TCE 009084569-02 P=395.120155 Days $T_0=162.747007$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

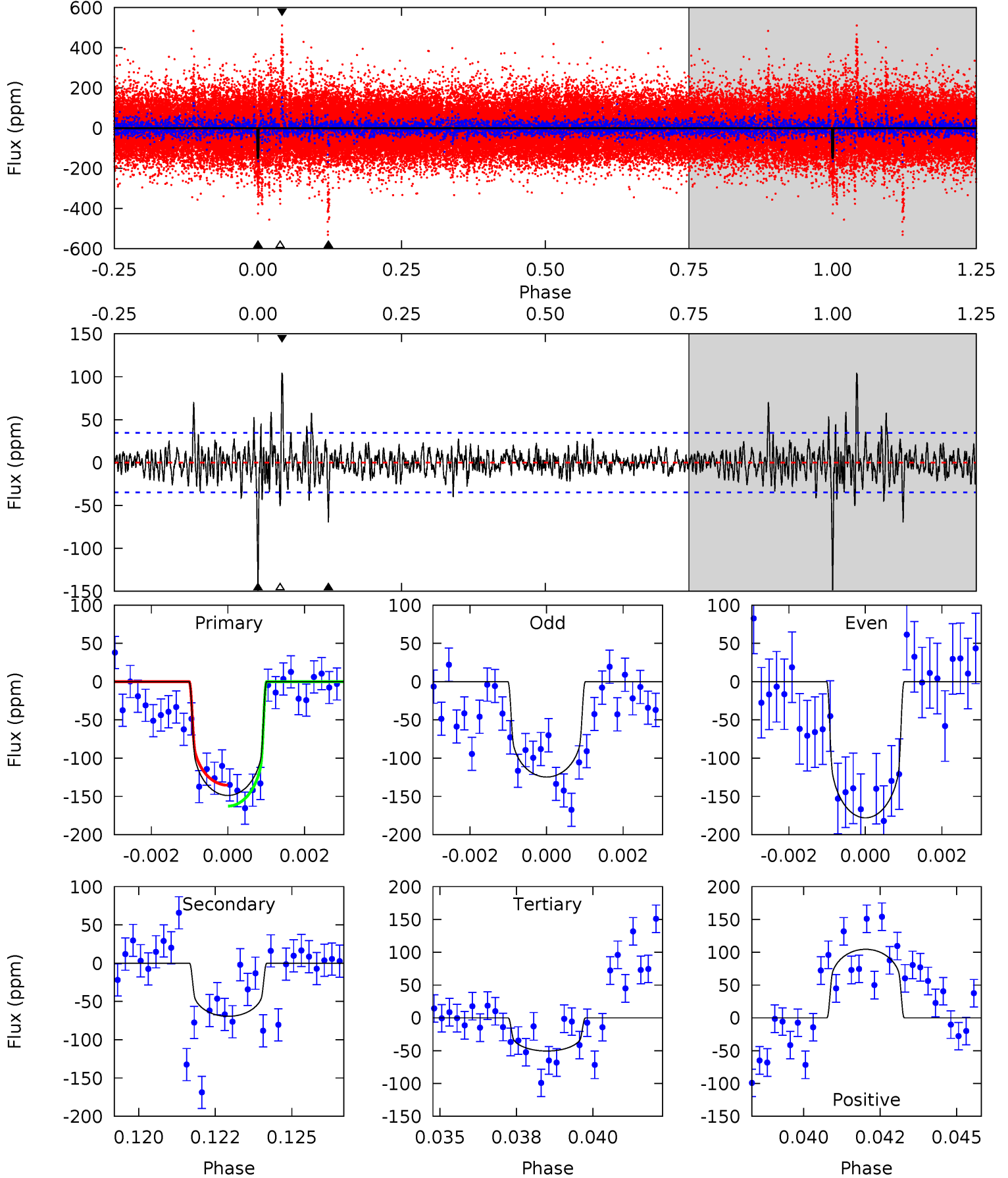
TCE 009084569-02 P=395.164617 Days $T_0=162.686417$ (BKJD)



DV Model-Shift Uniqueness Test

009084569-02, $P = 395.120155$ Days, $E = 162.747007$ Days

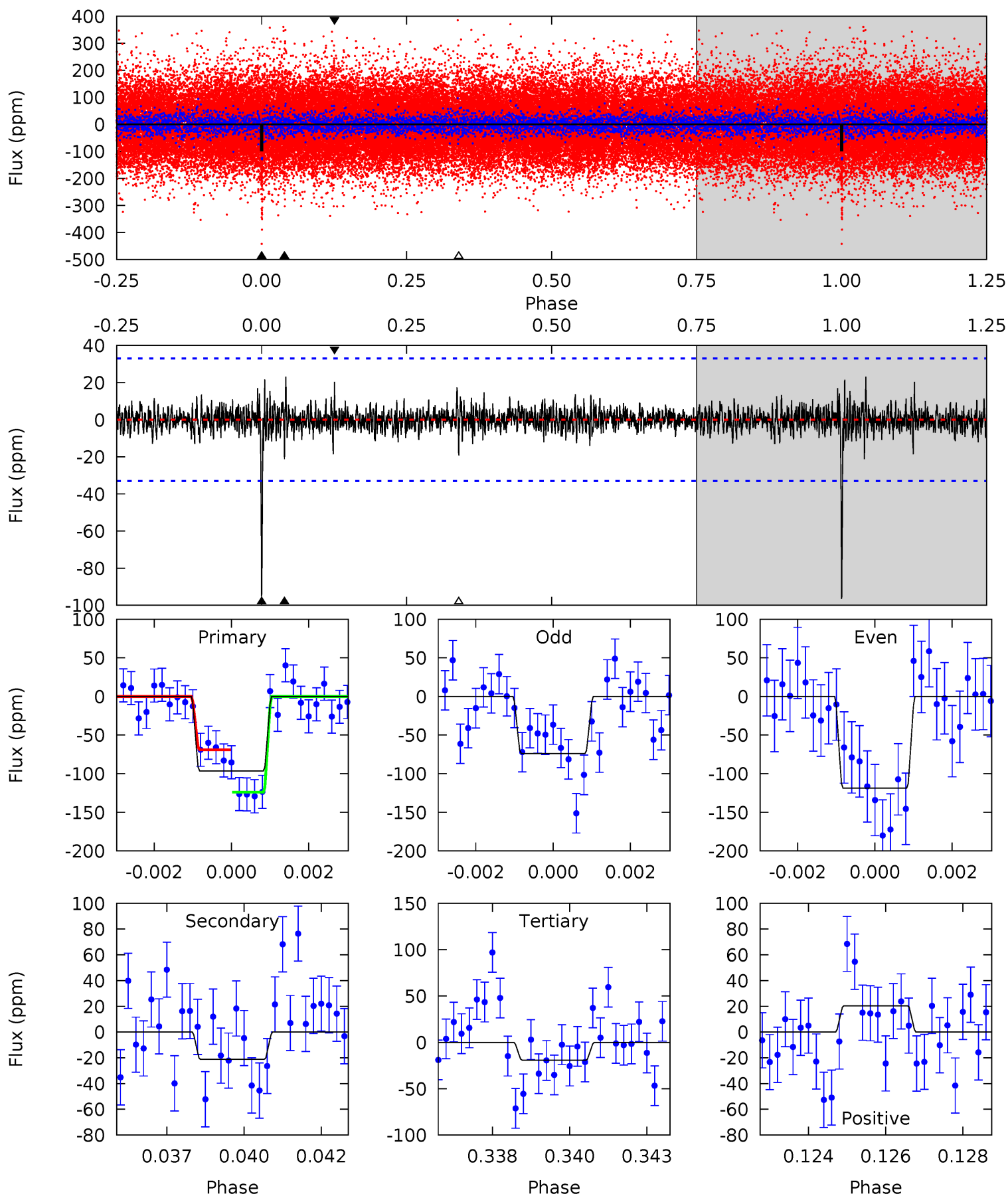
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	10.6	7.72	16.0	5.30	3.04	2.02	15.0	6.76	2.89	-5.35	4.07	0.85	0.41	2.09



Alt Model-Shift Uniqueness Test

009084569-02, P = 395.164617 Days, E = 162.686417 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	3.40	3.07	3.28	5.30	3.04	0.69	12.4	12.2	0.33	0.12	3.61	0.81	0.19	4.41



Stellar Parameters For KIC 009084569

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5060^{+192}_{-174}	$4.493^{+0.080}_{-0.088}$	$0.320^{+0.100}_{-0.300}$	$0.869^{+0.100}_{-0.091}$	$0.856^{+0.062}_{-0.062}$	$1.838^{+0.620}_{-0.465}$
	+4%/-3%	+2%/-2%	+31%/-94%	+12%/-10%	+7%/-7%	+34%/-25%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009084569-02 / KOI 7923.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-69 ± 7	$1.20^{+0.20}_{-0.19}$	292^{+14}_{-12}	4303^{+300}_{-260}	26664^{+10856}_{-7414}
Alt.	-21 ± 6	$0.95^{+0.19}_{-0.19}$	291^{+15}_{-13}	3770^{+387}_{-304}	12839^{+9241}_{-4818}

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

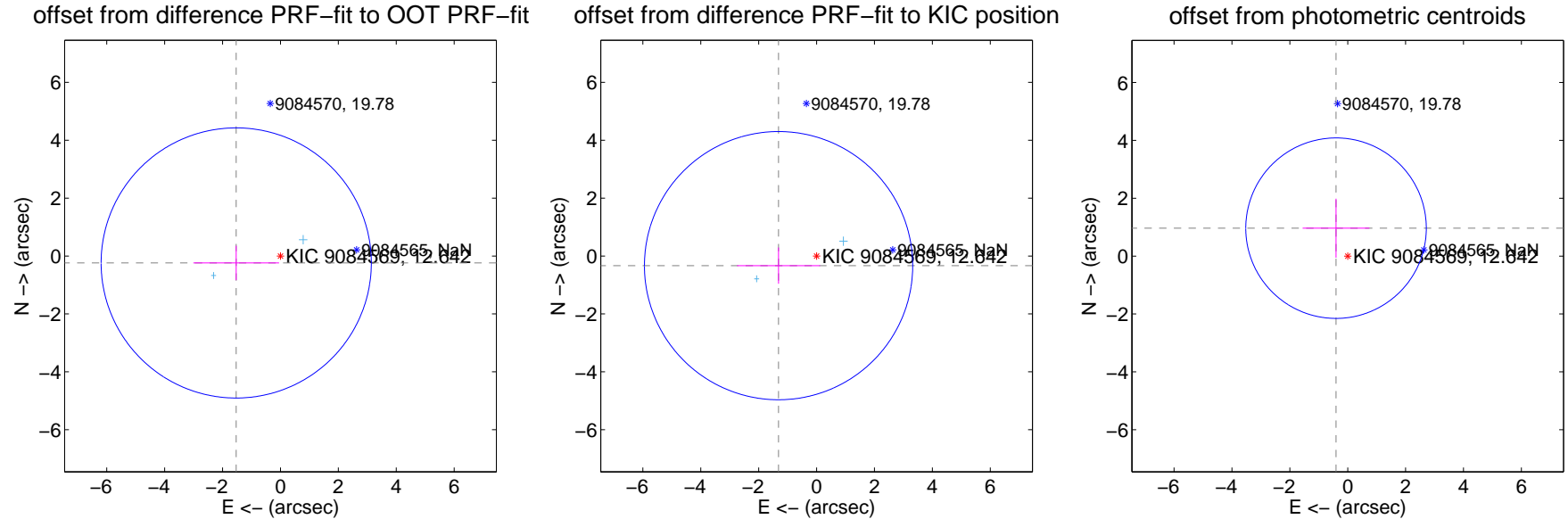
DV Centroid Data

Supplemental centroid analysis for 009084569-02. Kepler magnitude: 12.64. Transit SNR 9.24

There are 2 quarters with good PRF difference image offsets

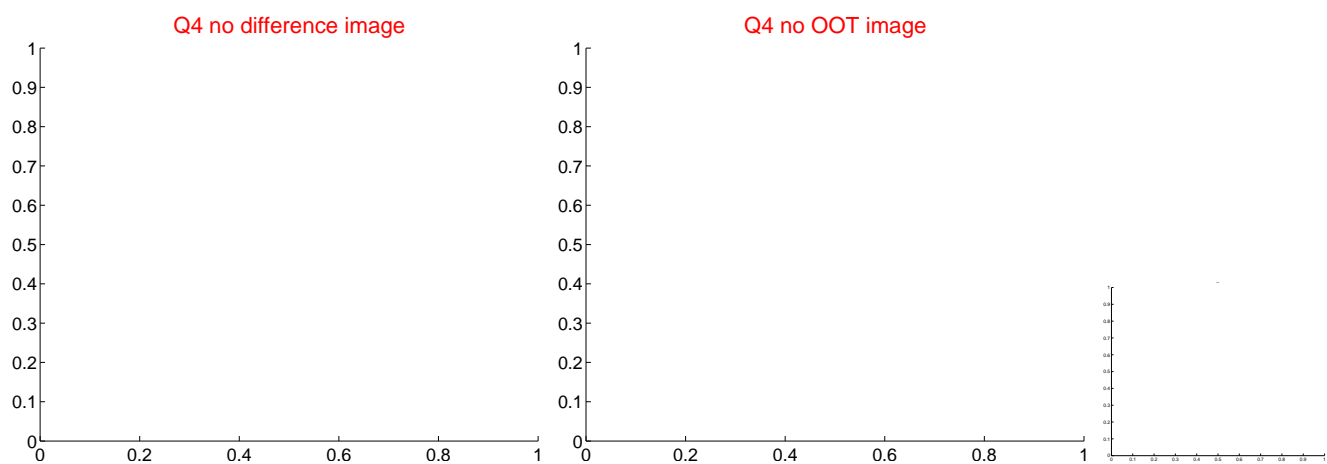
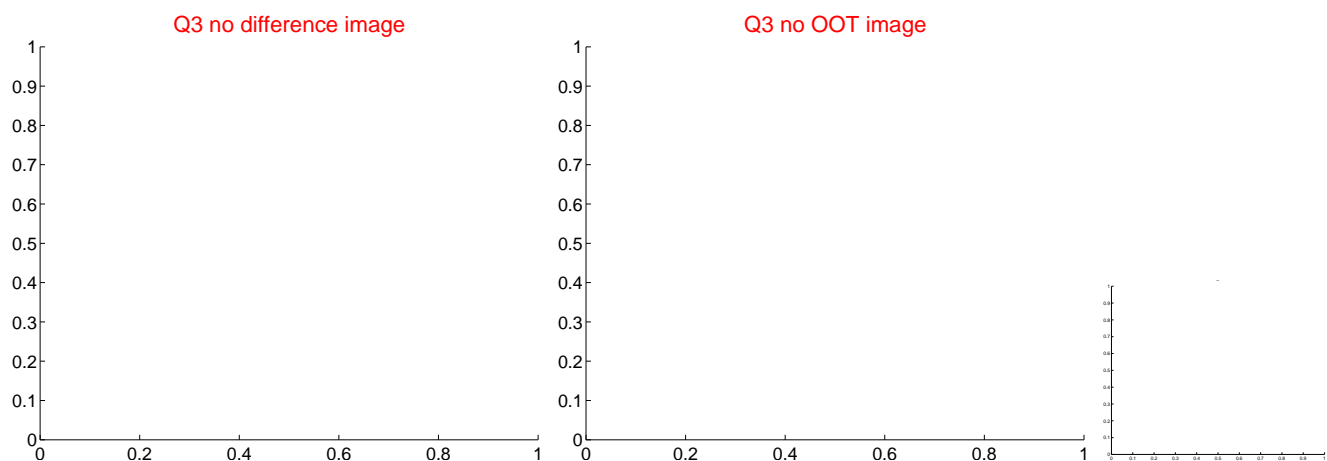
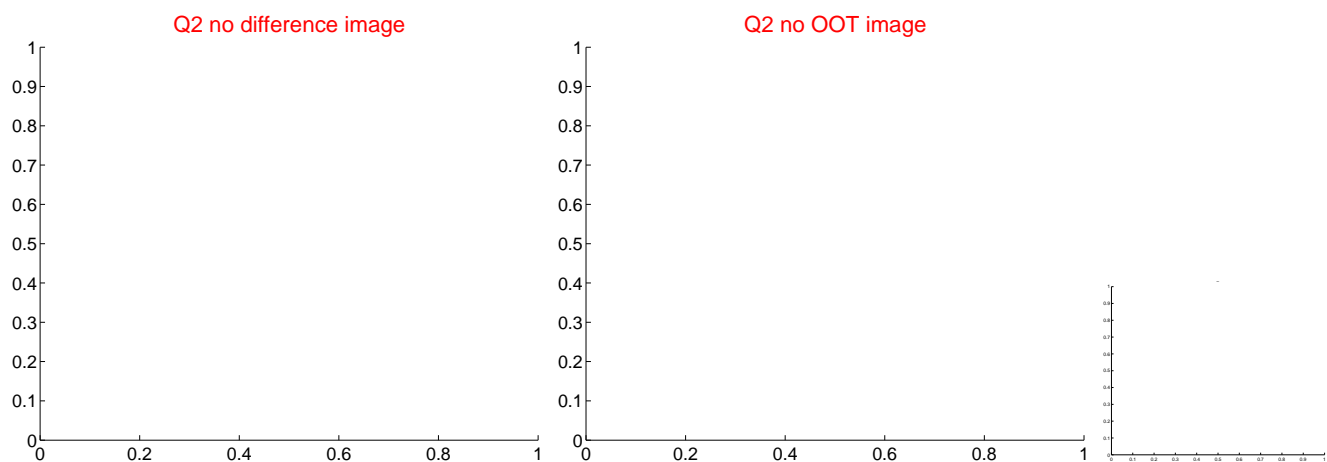
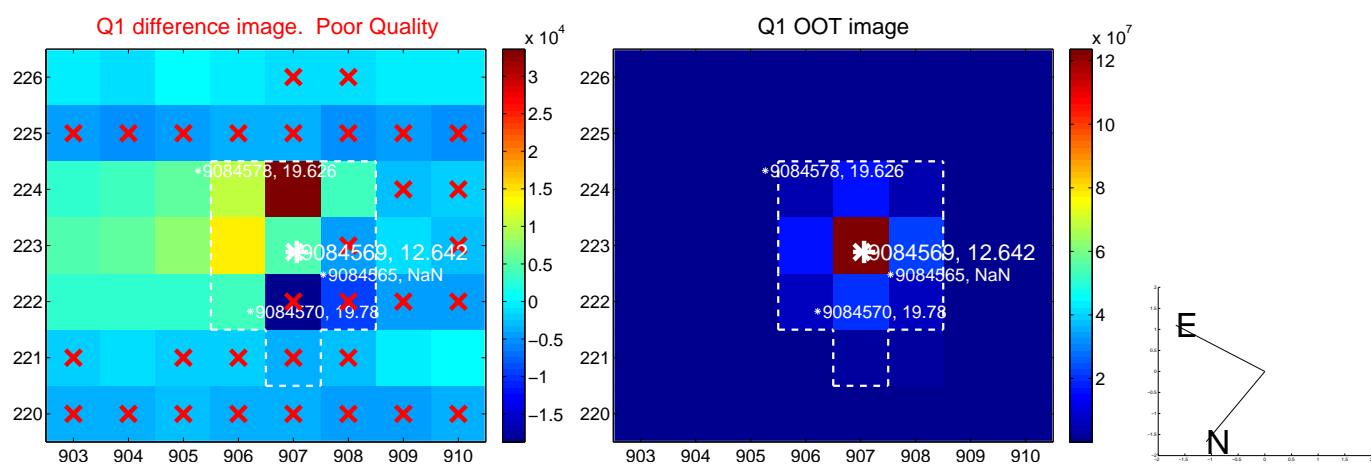
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.546 ± 1.555	0.99	1.528 ± 1.481	-0.240 ± 0.596
PRF-fit source offset from KIC position	1.354 ± 1.544	0.88	1.312 ± 1.435	-0.333 ± 0.626
photometric centroid source offset	1.05 ± 1.04	1.01	0.40 ± 1.15	0.96 ± 1.02

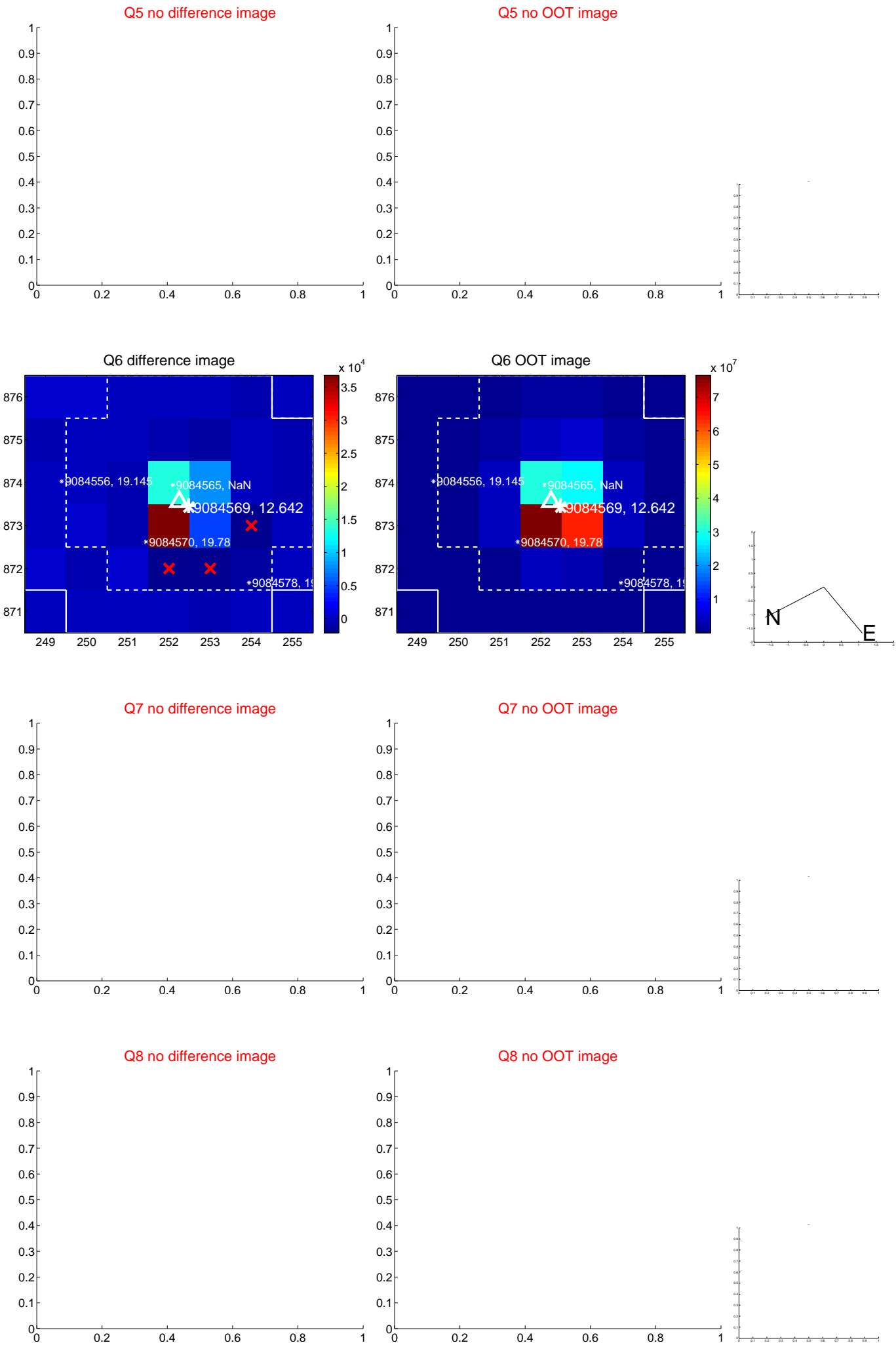


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

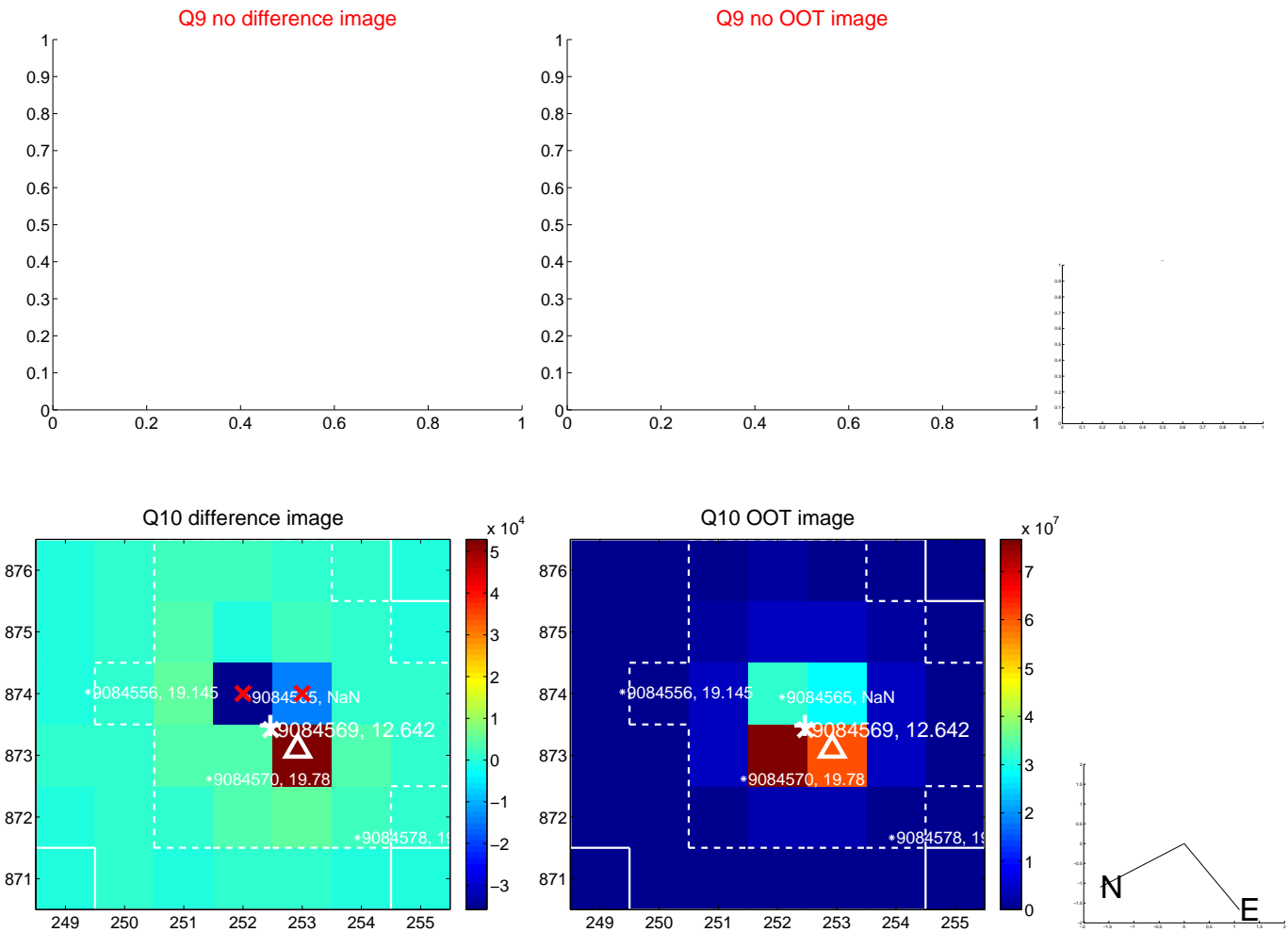
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



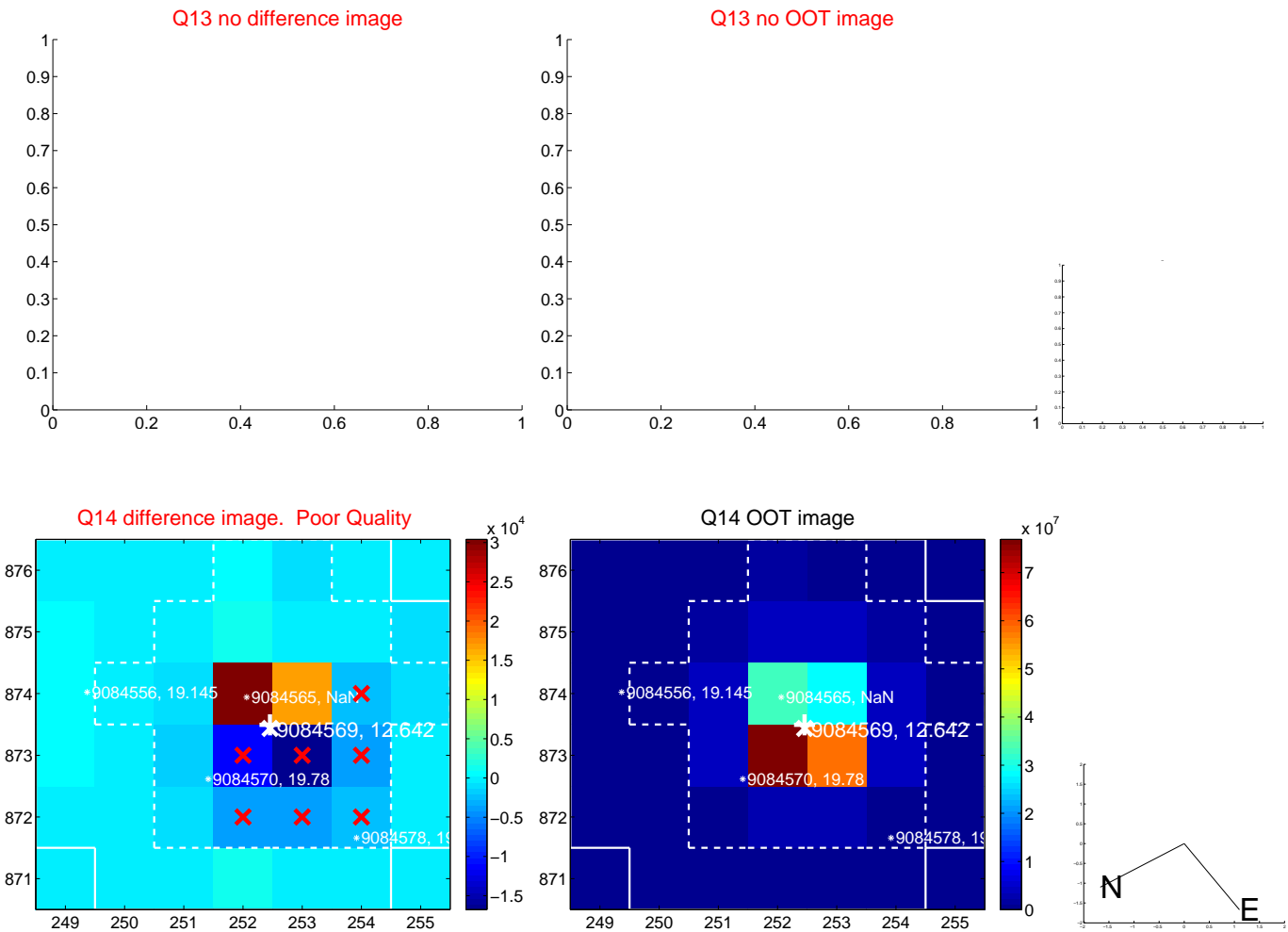
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



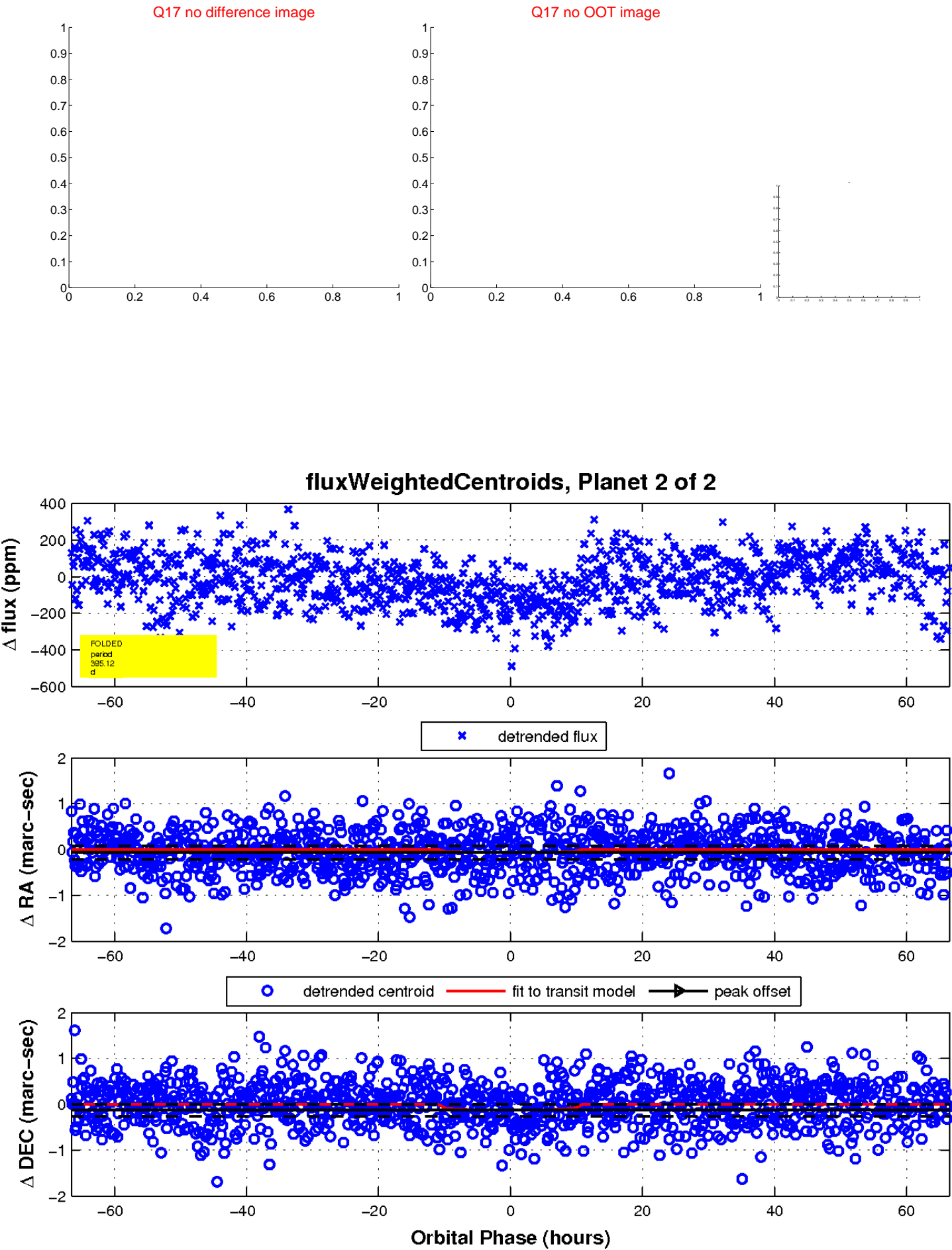
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

