

KIC 010905746

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})
010905746-01	OBS	1725.01	9.878666	138.409406	1514.3	2.072	73.4	77.8	0.42	3609	1.86	5.65
010905746-02	OBS	No	107.423043	218.500592	548.1	8.122	11.4	7.7	0.42	3609	1.00	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010905746-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
010905746-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

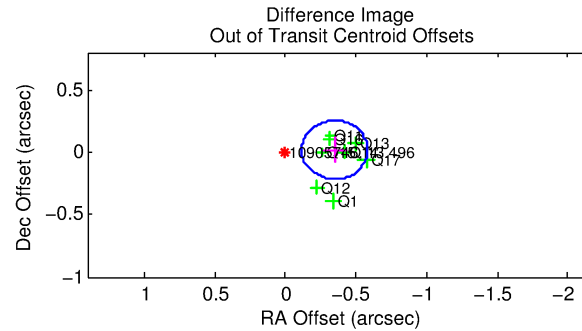
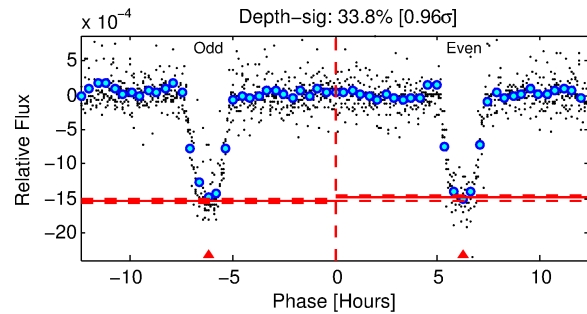
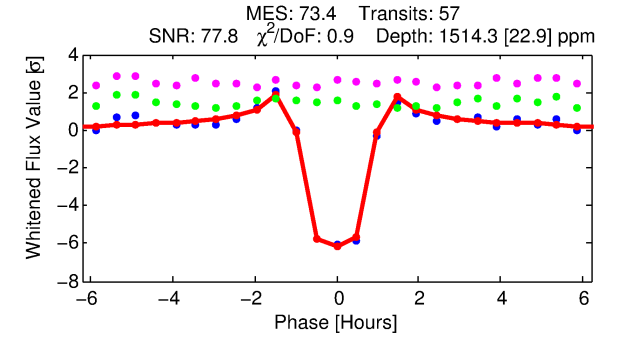
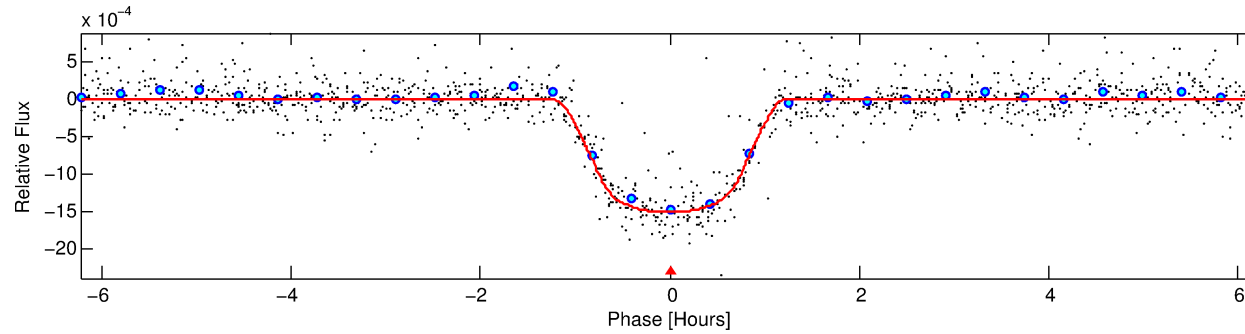
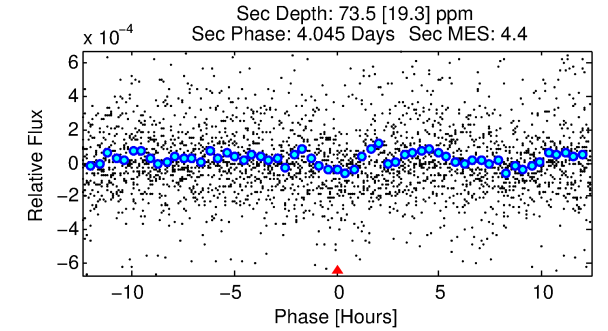
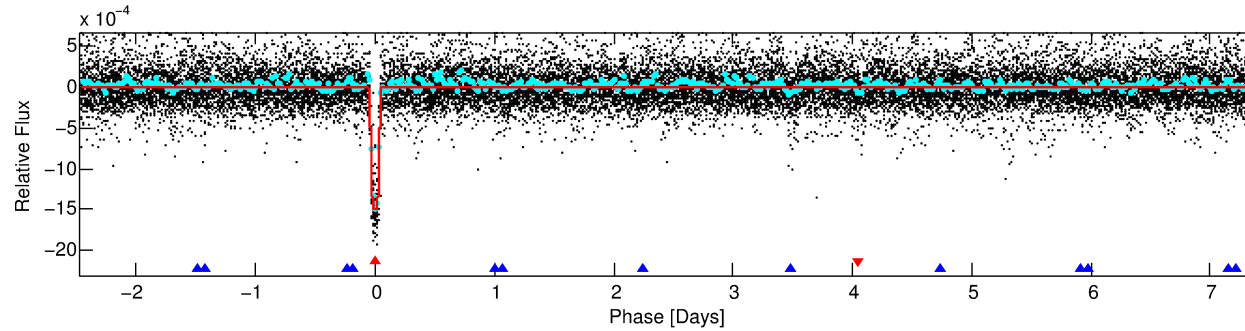
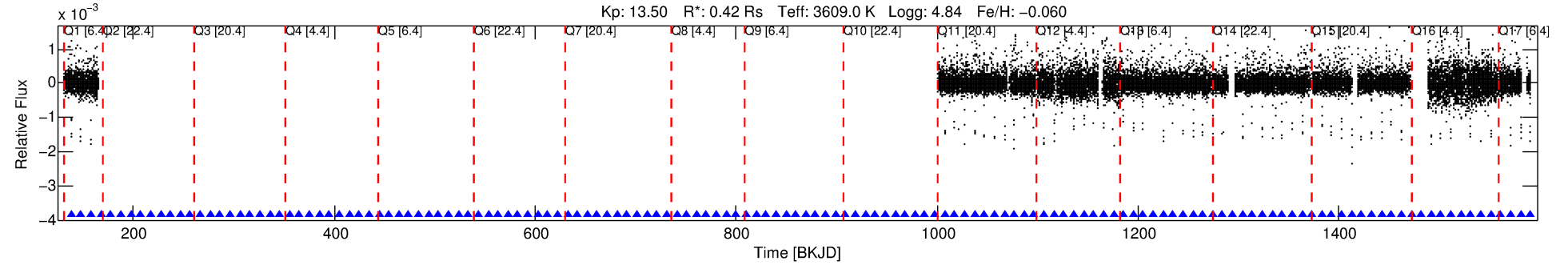
Ephemeris Match Information For 010905746-01

No Significant Match Found

DV One-Page Summary

KIC: 10905746 Candidate: 1 of 2 Period: 9.879 d

KOI: K01725 Corr: No Ephemeris Match



DV Fit Results:

Period = 9.87867 [0.00001] d
Epoch = 138.4094 [0.0007] BKJD
Rp/R* = 0.0404 [0.0020]
a/R* = 22.66 [4.54]
b = 0.83 [0.07]
Seff = 5.65 [0.86]
Teq = 393 [15] K
Rp = 1.86 [0.26] Re
a = 0.0692 [0.0068] AU
Ag = 55.87 [17.08] [3.21σ]
Teffp = 1662 [122] K [10.30σ]

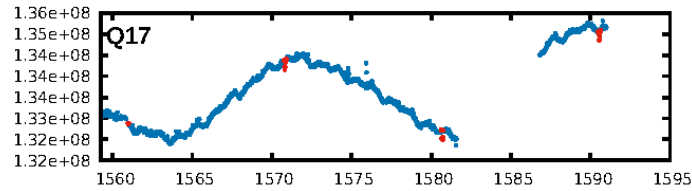
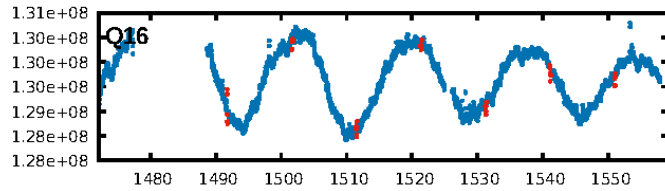
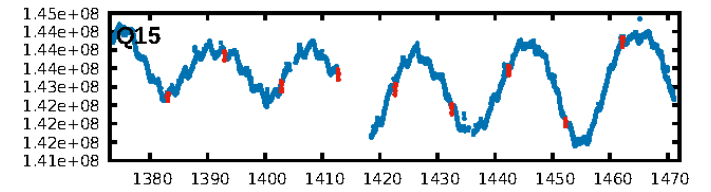
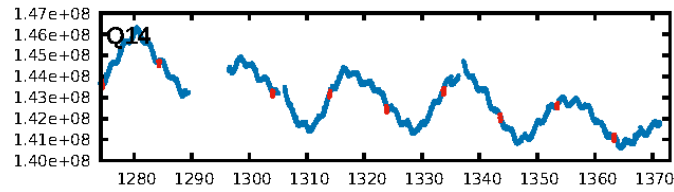
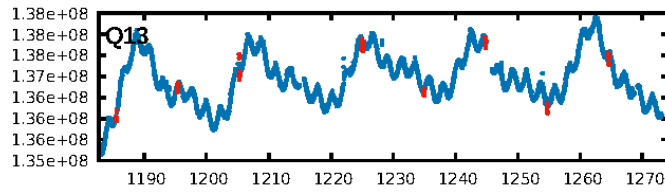
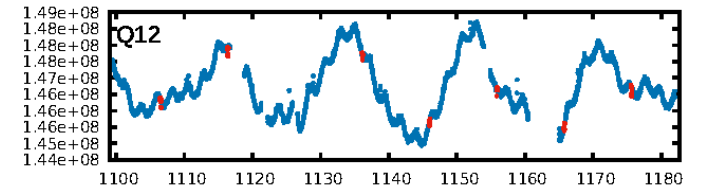
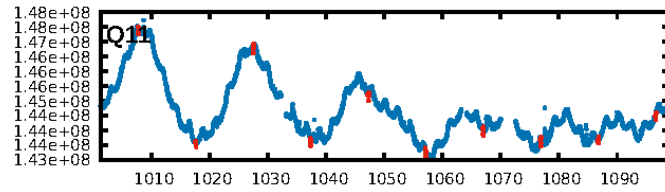
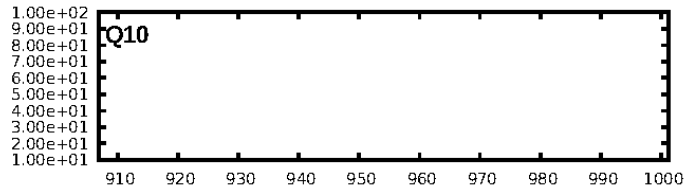
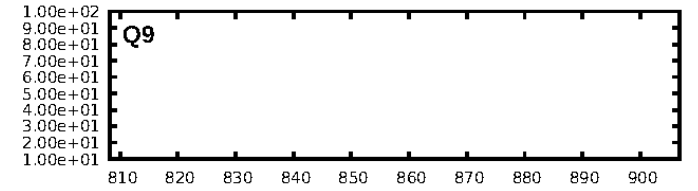
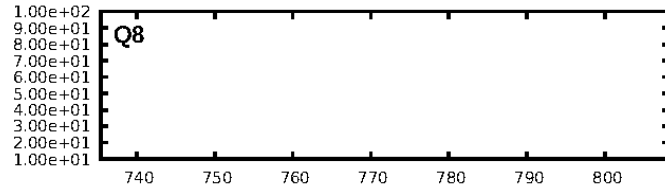
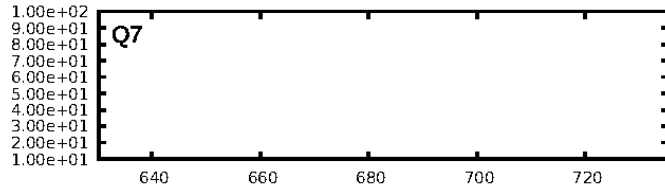
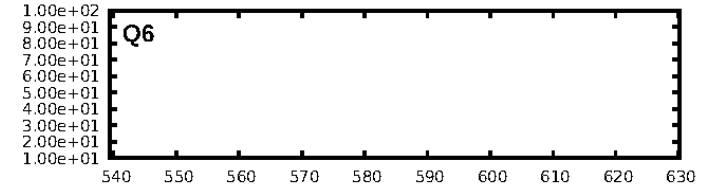
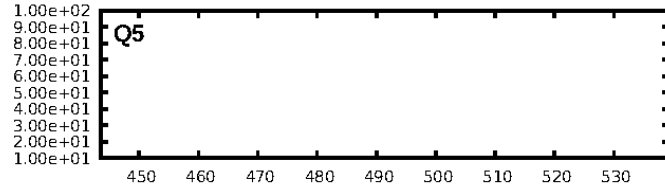
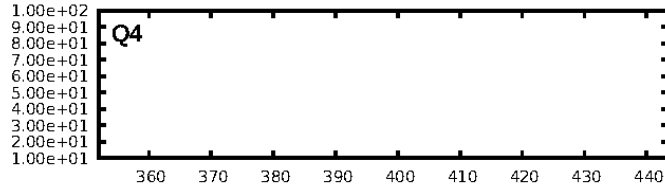
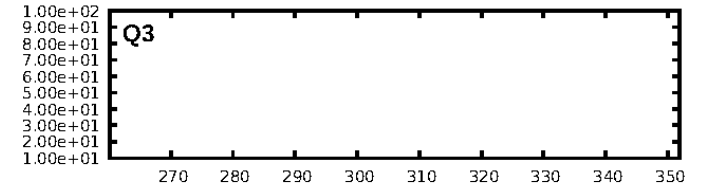
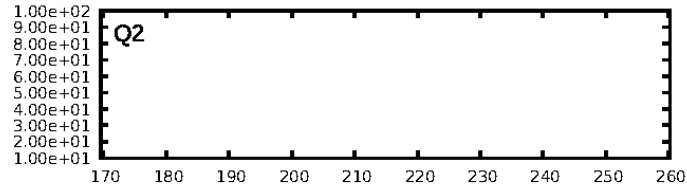
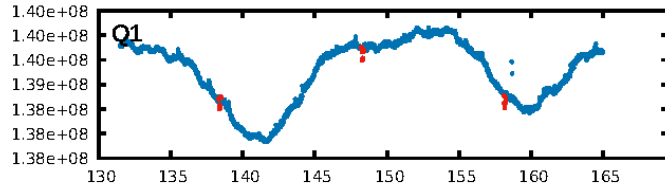
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [279.29σ]
ModelChiSquare2-sig: 38.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [50/50]
GhostDiagnostic-chr: 2.088
Centroid-sig: 0.0%
Centroid-so: 1.227 arcsec [9.43σ]
OotOffset-rm: 0.349 arcsec [4.48σ]
KicOffset-rm: 1.401 arcsec [18.01σ]
OotOffset-st: 1/2/2/3 [8]
KicOffset-st: 1/2/2/3 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 1.00 [8/8]

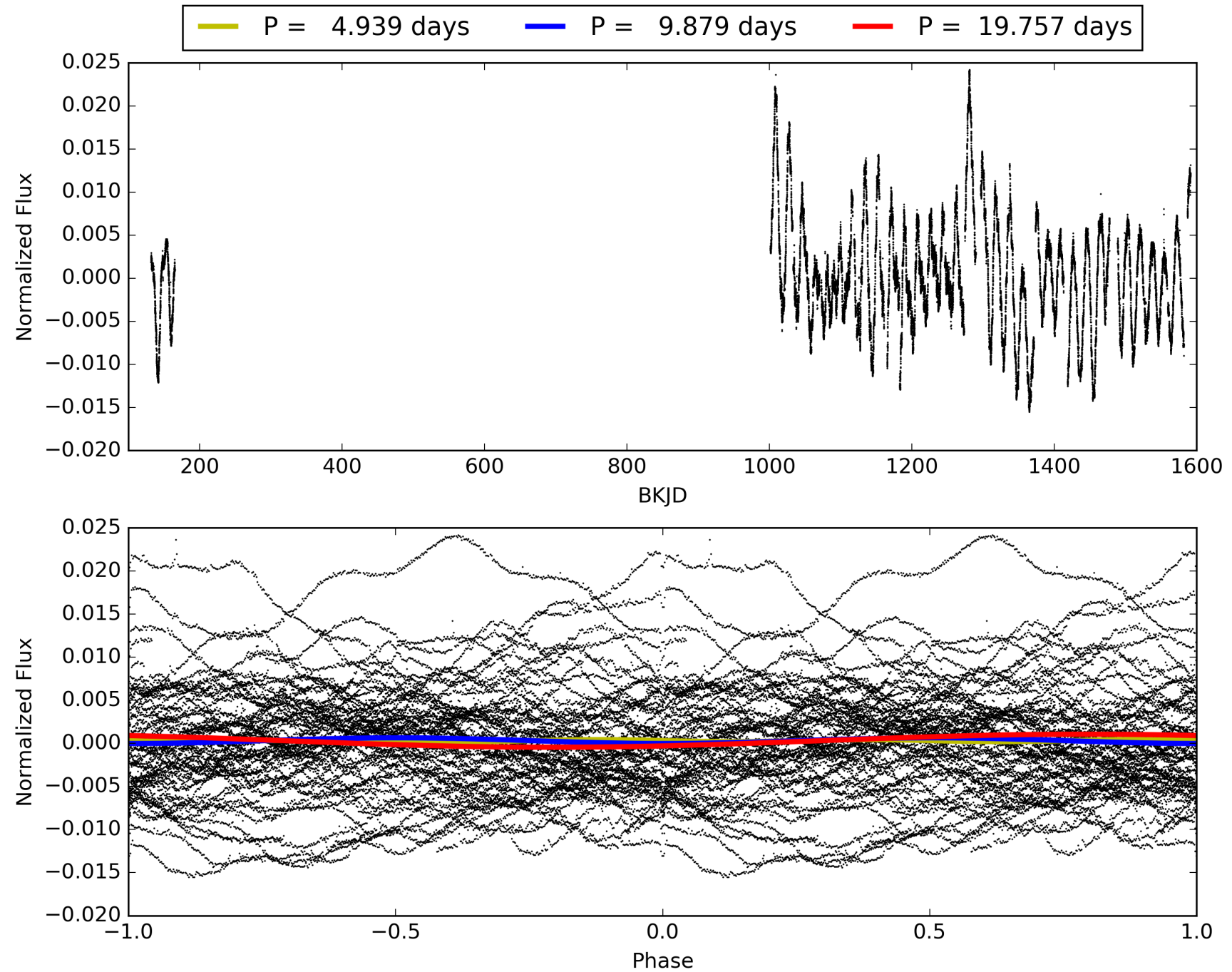
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010905746-01, PDC Light Curves

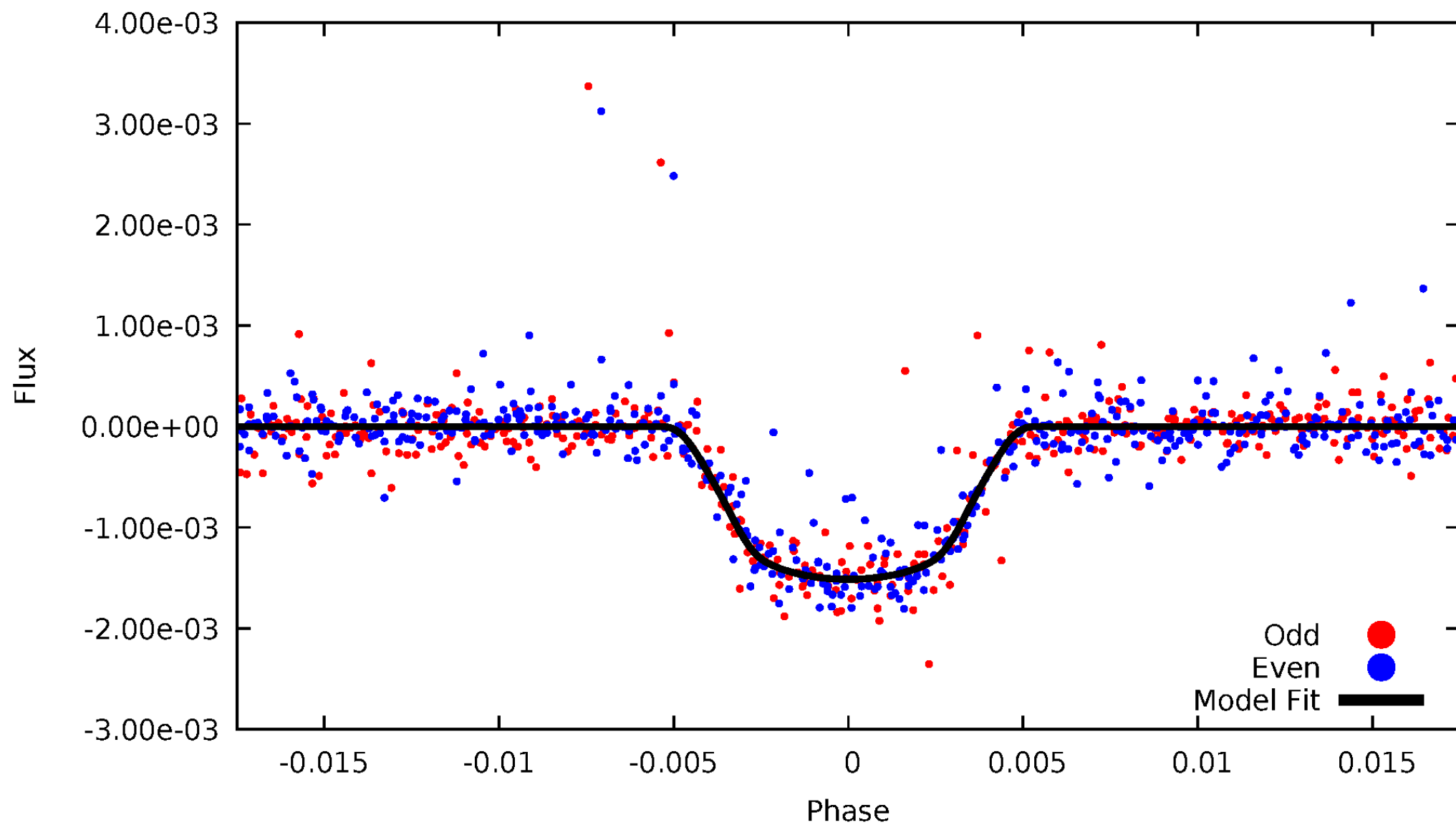


TCE 010905746-01



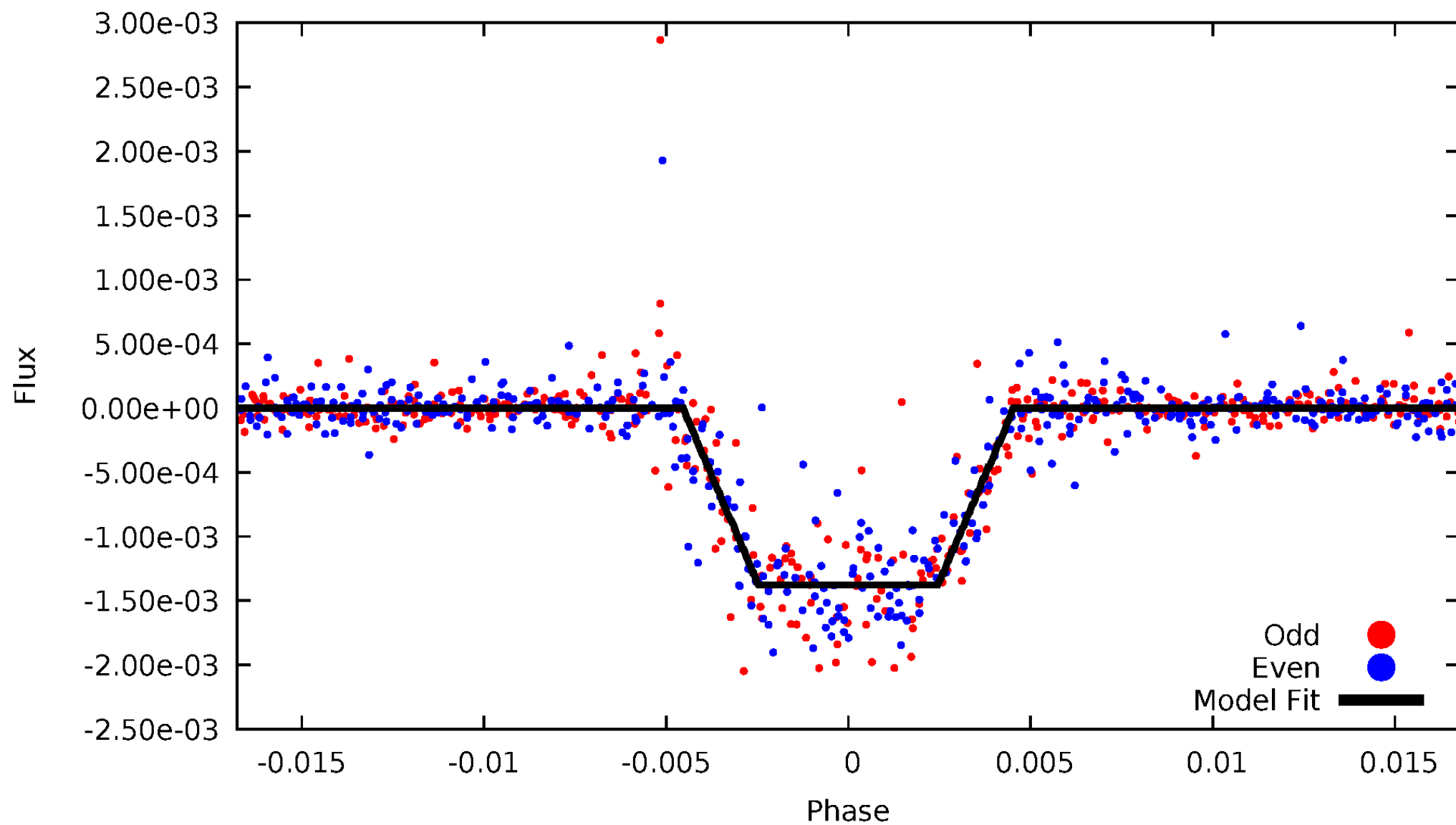
DV Odd/Even

TCE 010905746-01



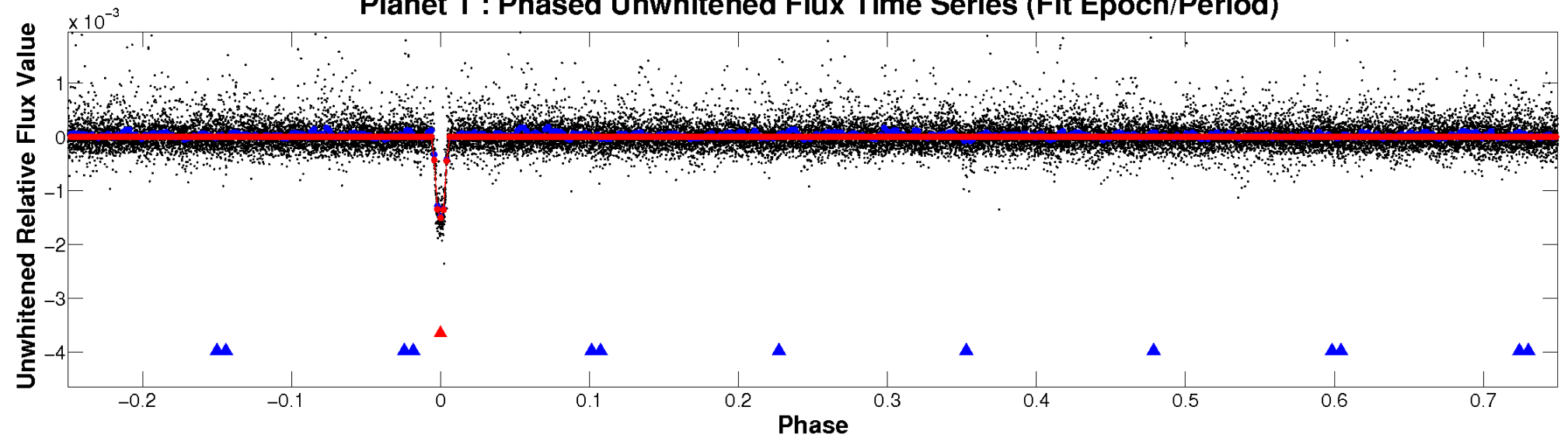
ALT Odd/Even

TCE 010905746-01

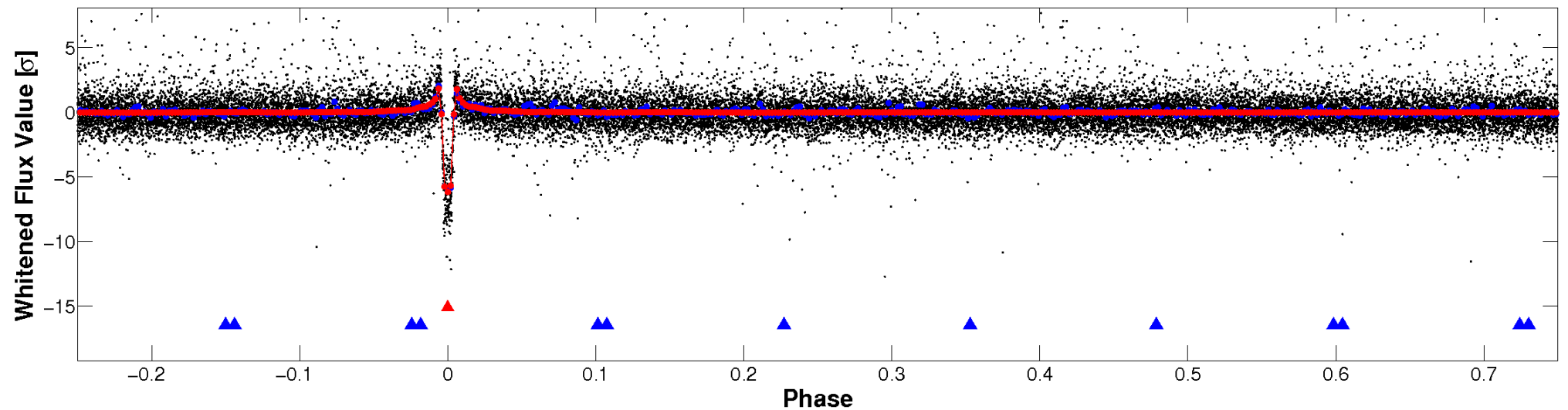


Non-Whitened Vs. Whitened Light Curve

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

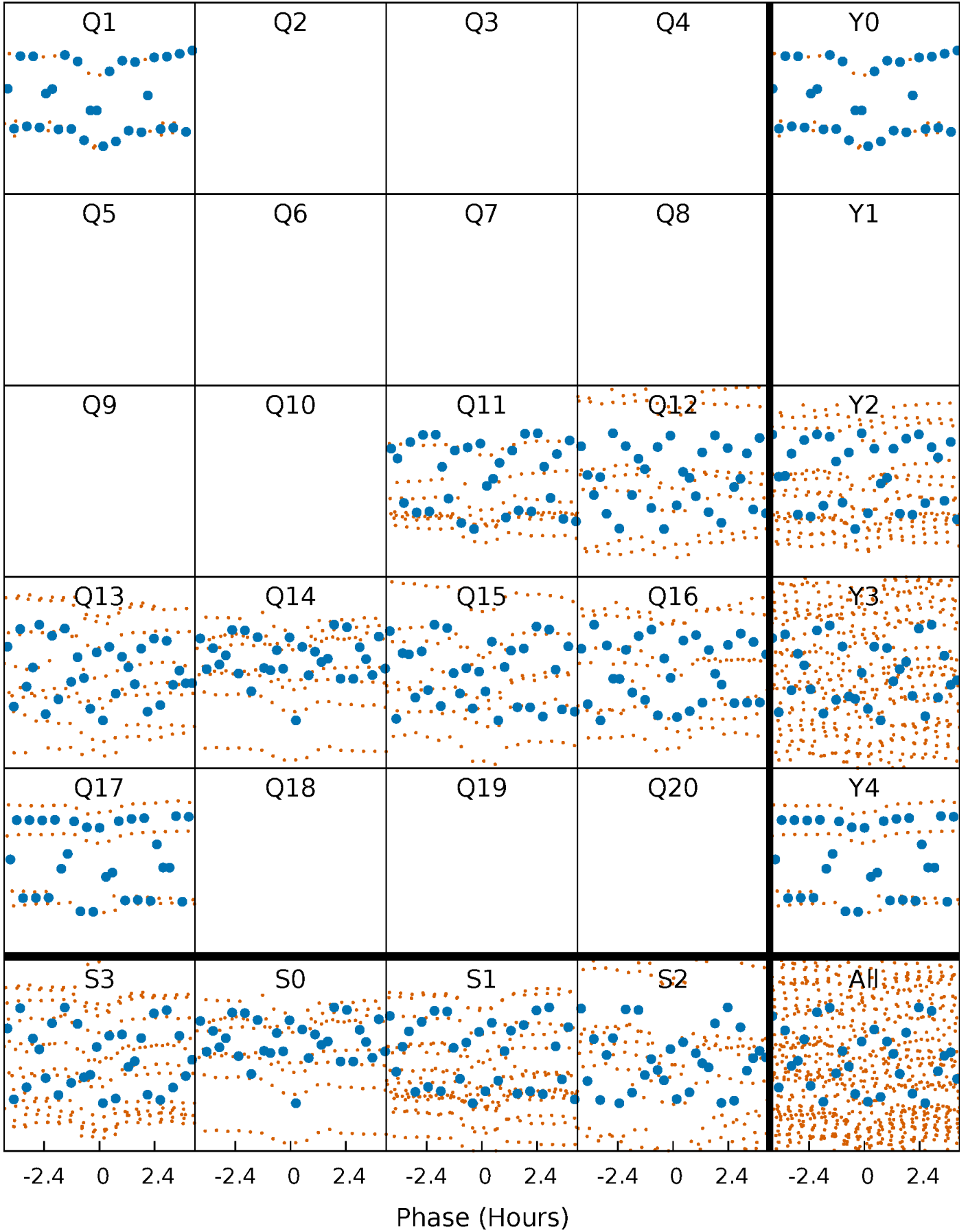


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



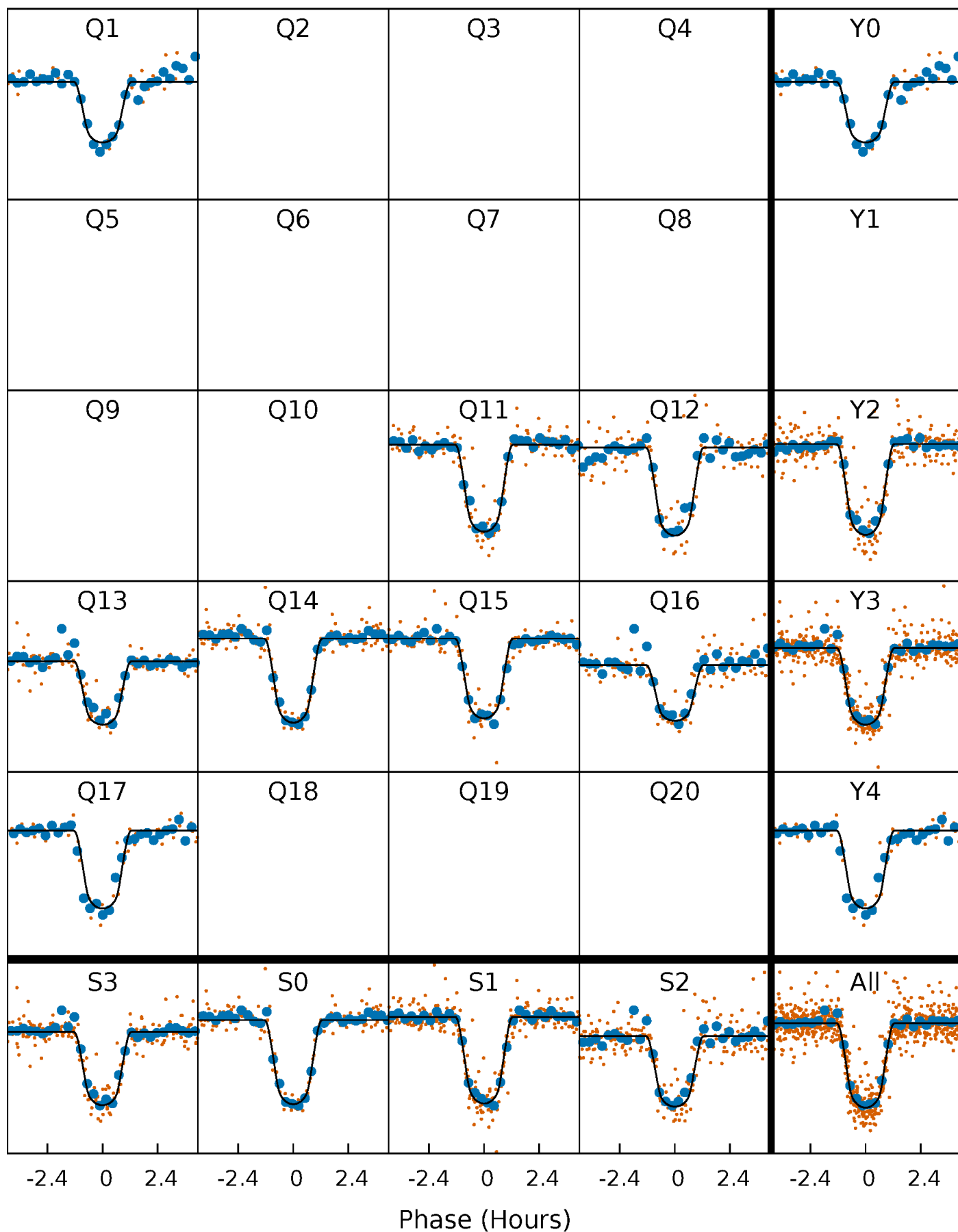
PDC Quarter-Phased Transit Curves

TCE 010905746-01 P= 9.878666 Days $T_0=138.409406$ (BKJD)



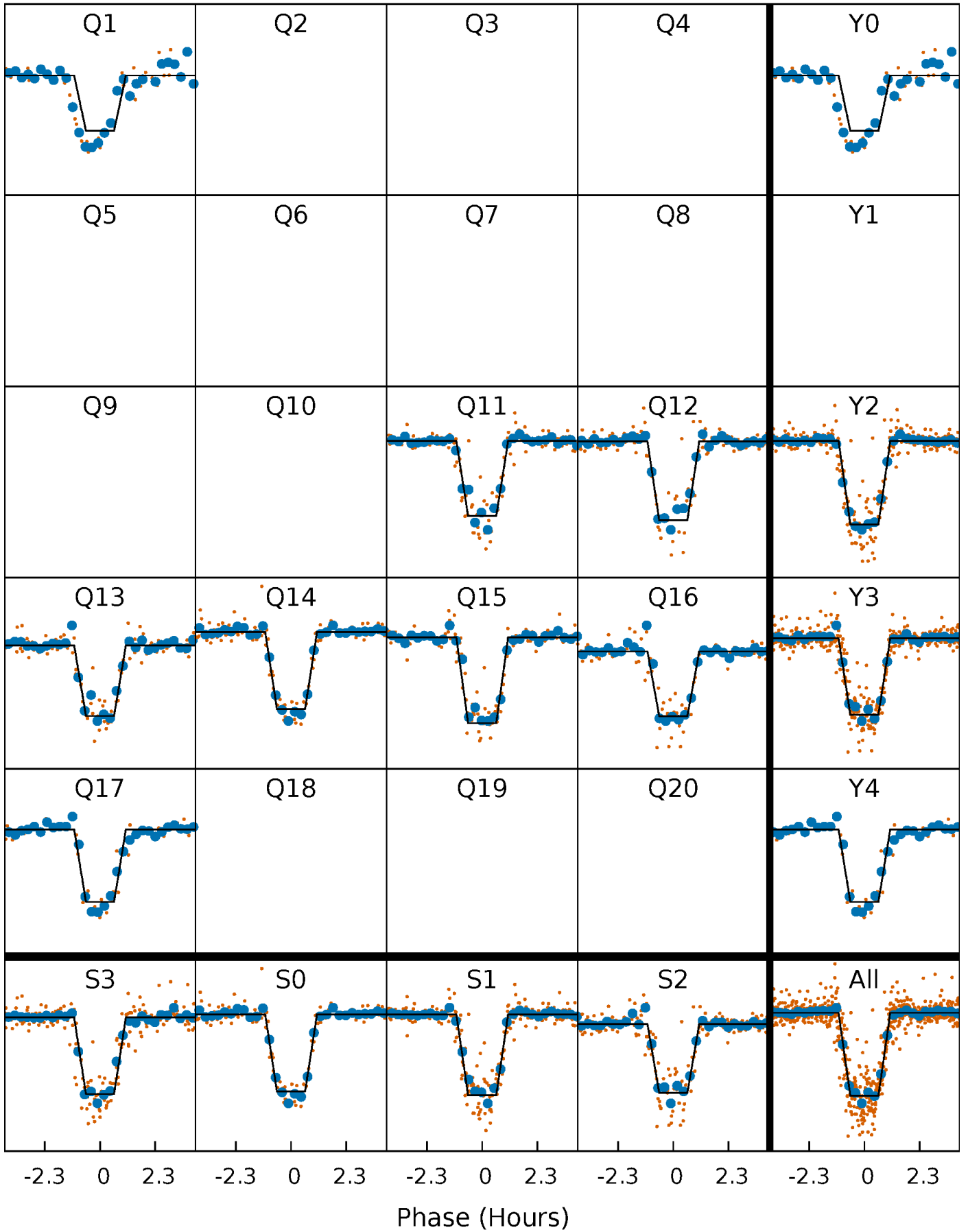
DV Quarter-Phased Transit Curves

TCE 010905746-01 P= 9.878666 Days $T_0=138.409406$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

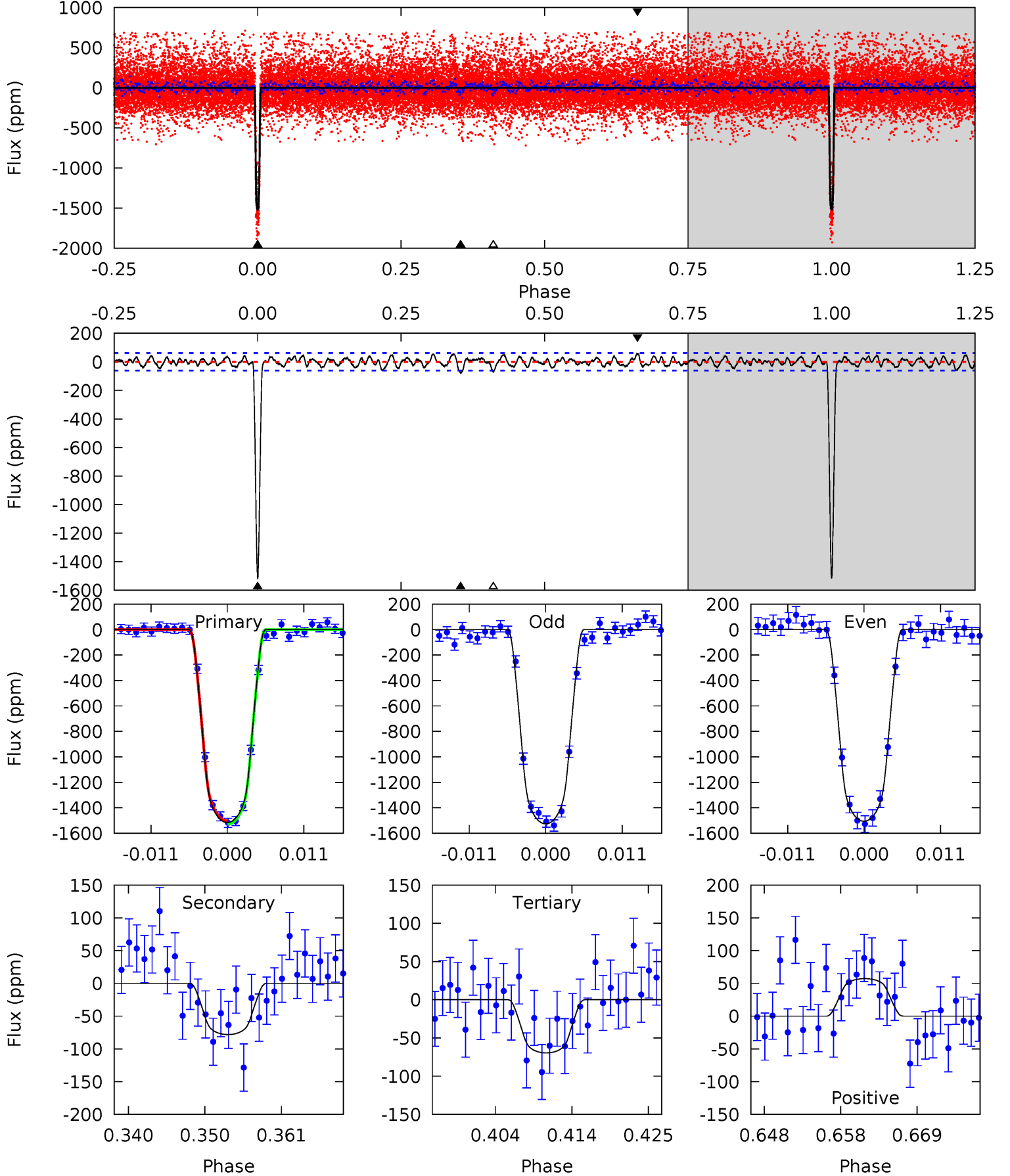
TCE 010905746-01 P= 9.878560 Days $T_0=138.421882$ (BKJD)



DV Model-Shift Uniqueness Test

010905746-01, P = 9.878666 Days, E = 128.530740 Days

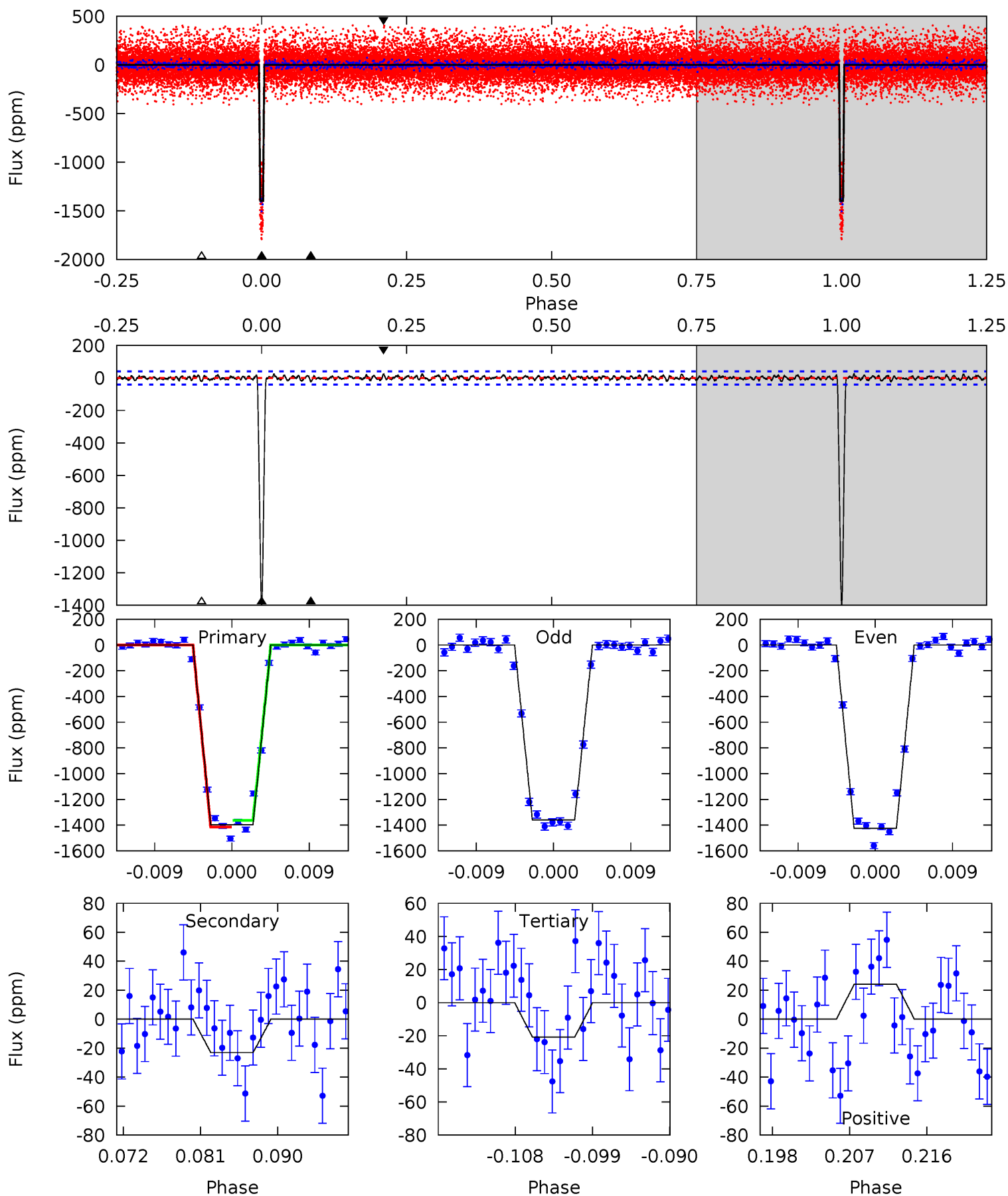
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
123.7	6.38	5.68	4.67	5.01	2.55	1.85	118.0	119.0	0.70	1.71	0.84	0.95	0.04	1.07



Alt Model-Shift Uniqueness Test

010905746-01, P = 9.878560 Days, E = 128.543322 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
173.3	2.86	2.58	2.99	5.05	2.61	0.99	170.7	170.3	0.28	-0.12	4.09	0.98	0.02	3.26



Stellar Parameters For KIC 010905746

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3609^{+72}_{-81}	$4.843^{+0.050}_{-0.055}$	$-0.060^{+0.150}_{-0.150}$	$0.422^{+0.046}_{-0.056}$	$0.452^{+0.044}_{-0.066}$	$8.494^{+2.589}_{-1.825}$
	+2%/-2%	+1%/-1%	+250%/-250%	+11%/-13%	+10%/-15%	+30%/-21%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 010905746-01 / KOI 1725.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-78 ± 12	$1.87^{+0.15}_{-0.15}$	550^{+17}_{-18}	2371^{+65}_{-65}	59^{+12}_{-11}
Alt.	-23 ± 8	$1.72^{+0.14}_{-0.14}$	551^{+17}_{-19}	2109^{+80}_{-99}	21^{+8}_{-7}

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 $A_{obs} \gg 1.0$

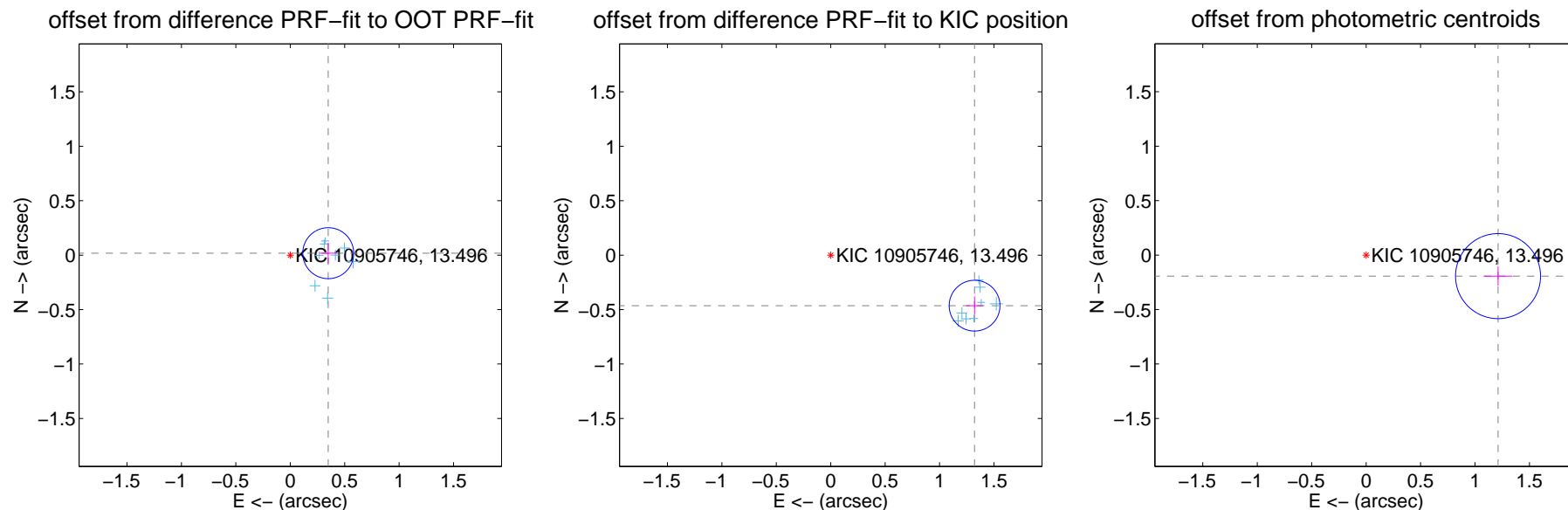
DV Centroid Data

Supplemental centroid analysis for 010905746-01. Kepler magnitude: 13.50. Transit SNR 77.80

There are 8 quarters with good PRF difference image offsets

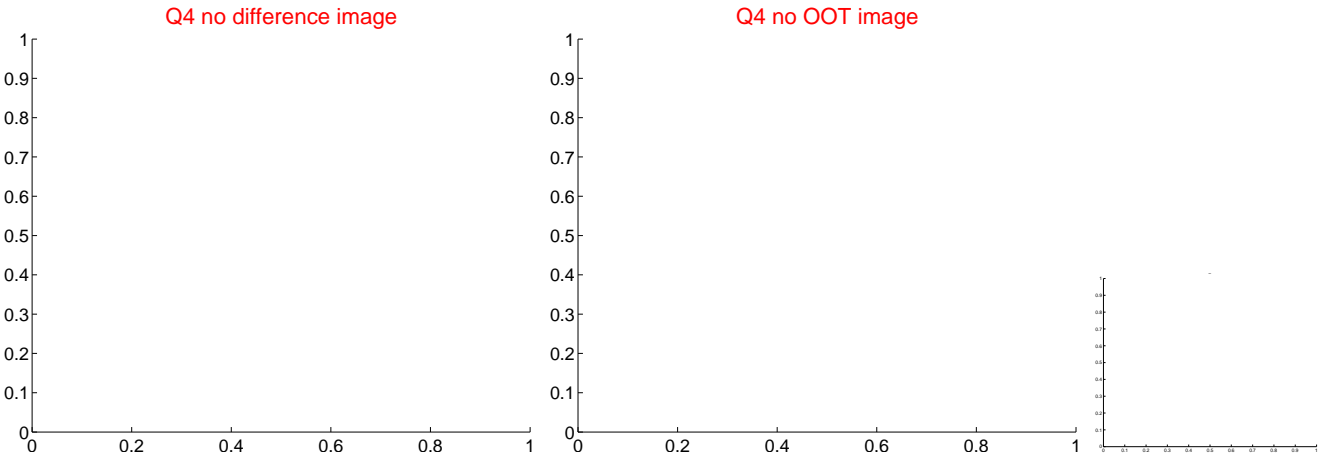
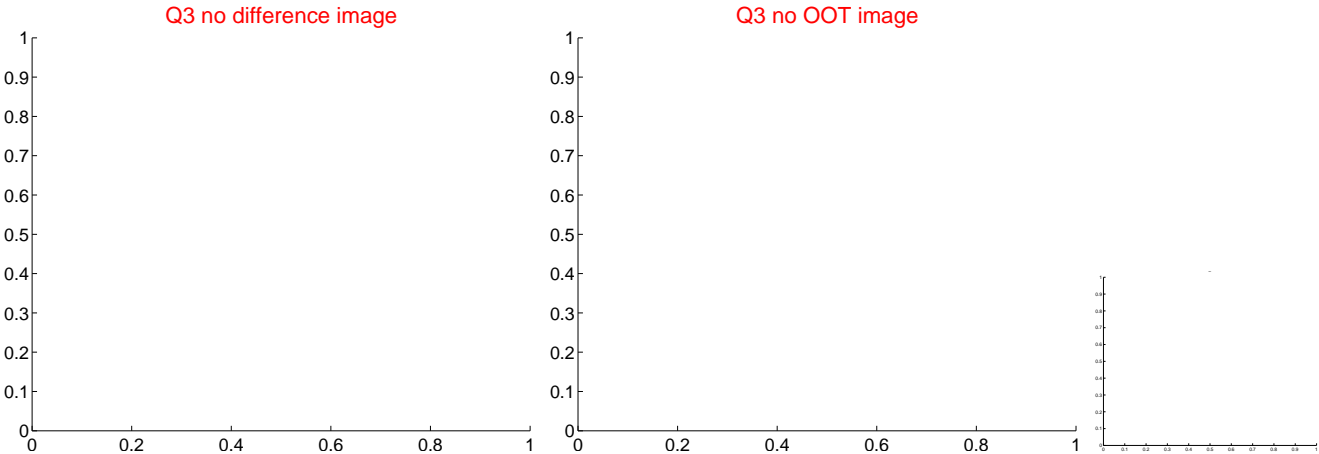
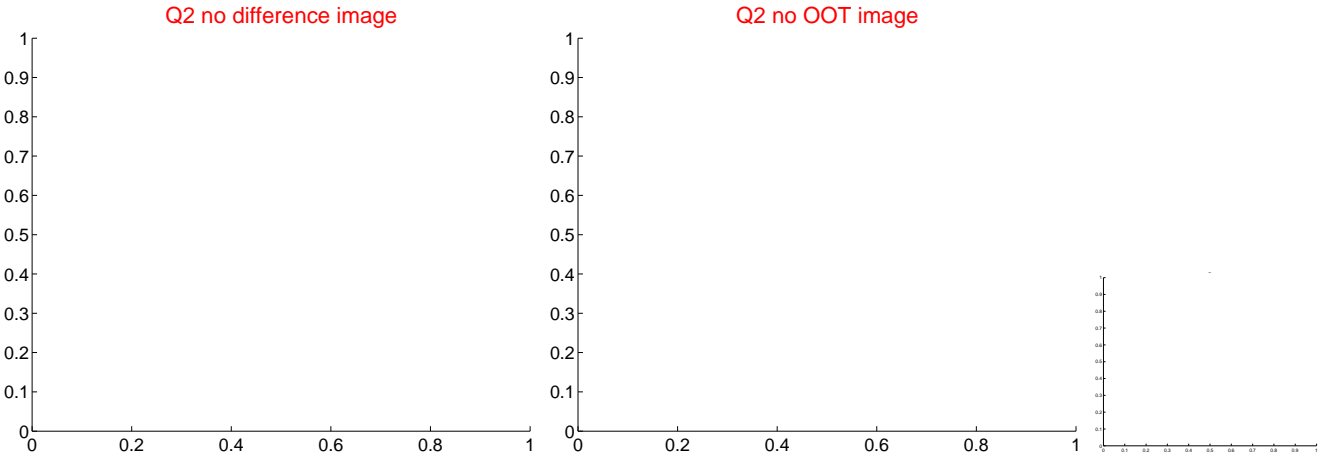
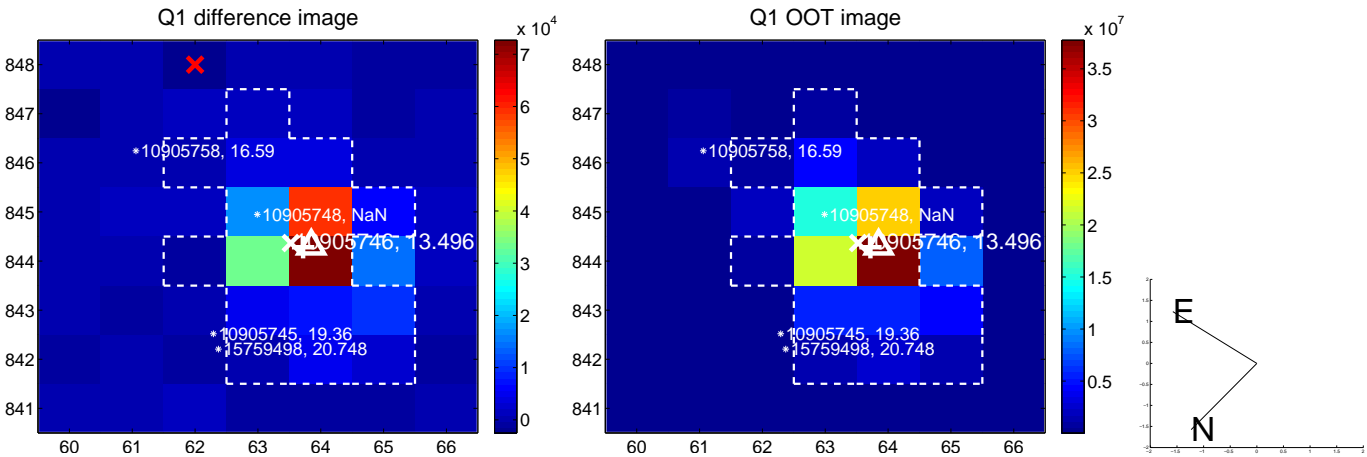
The direct PRF centroid is offset from the target star catalog position by about 1.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.349 ± 0.078	4.48	-0.349 ± 0.078	0.018 ± 0.095
PRF-fit source offset from KIC position	1.401 ± 0.078	18.01	-1.322 ± 0.077	-0.464 ± 0.085
photometric centroid source offset	1.23 ± 0.13	9.43	-1.21 ± 0.13	-0.19 ± 0.09

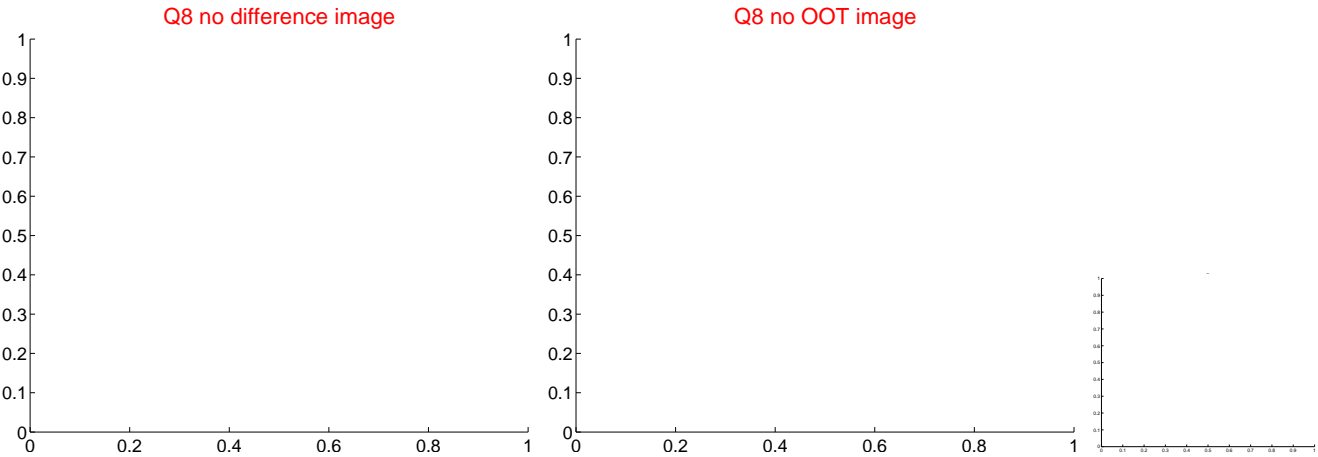
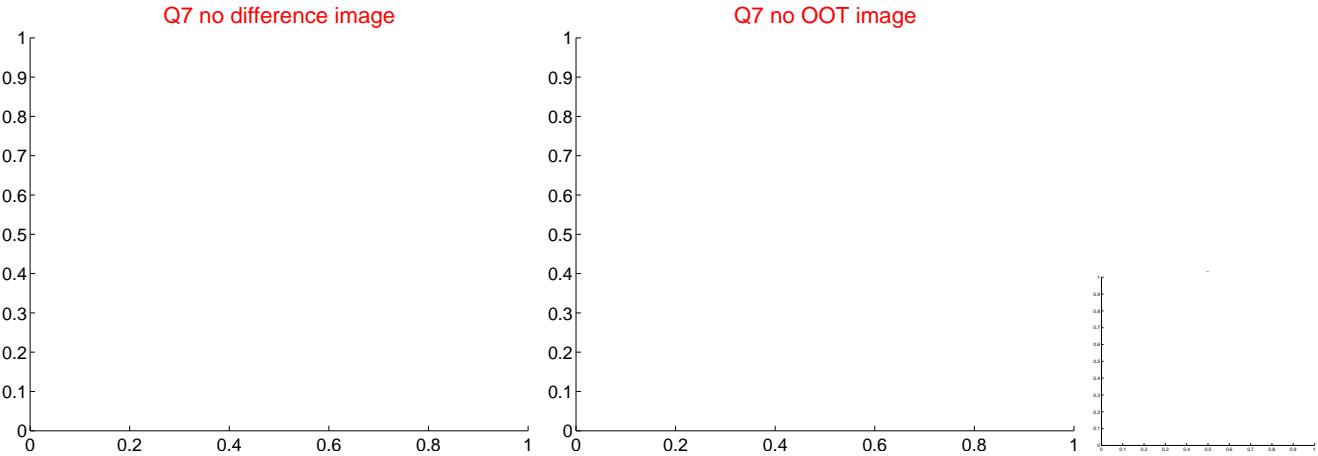
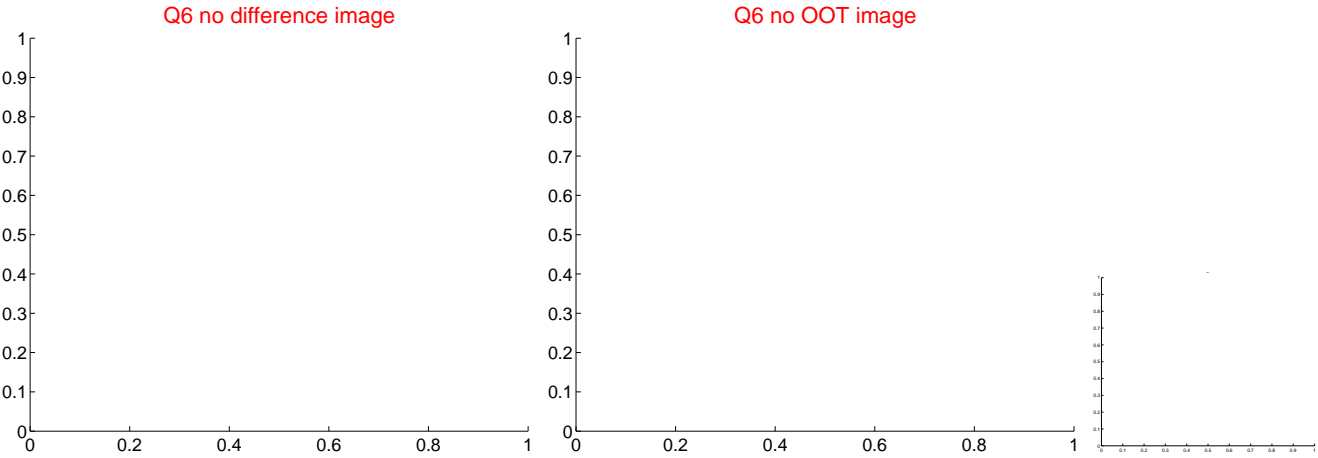
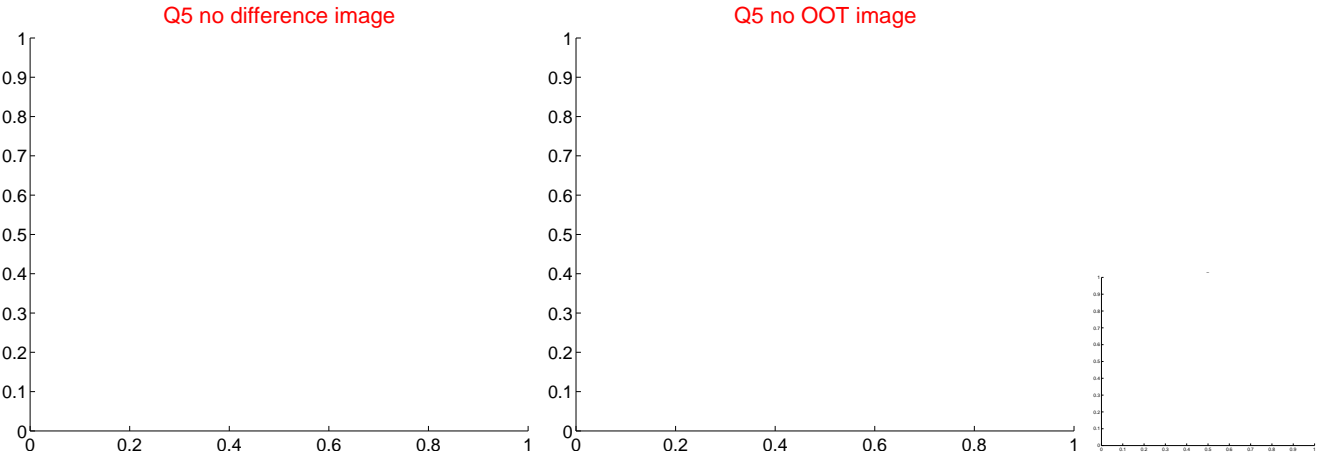


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

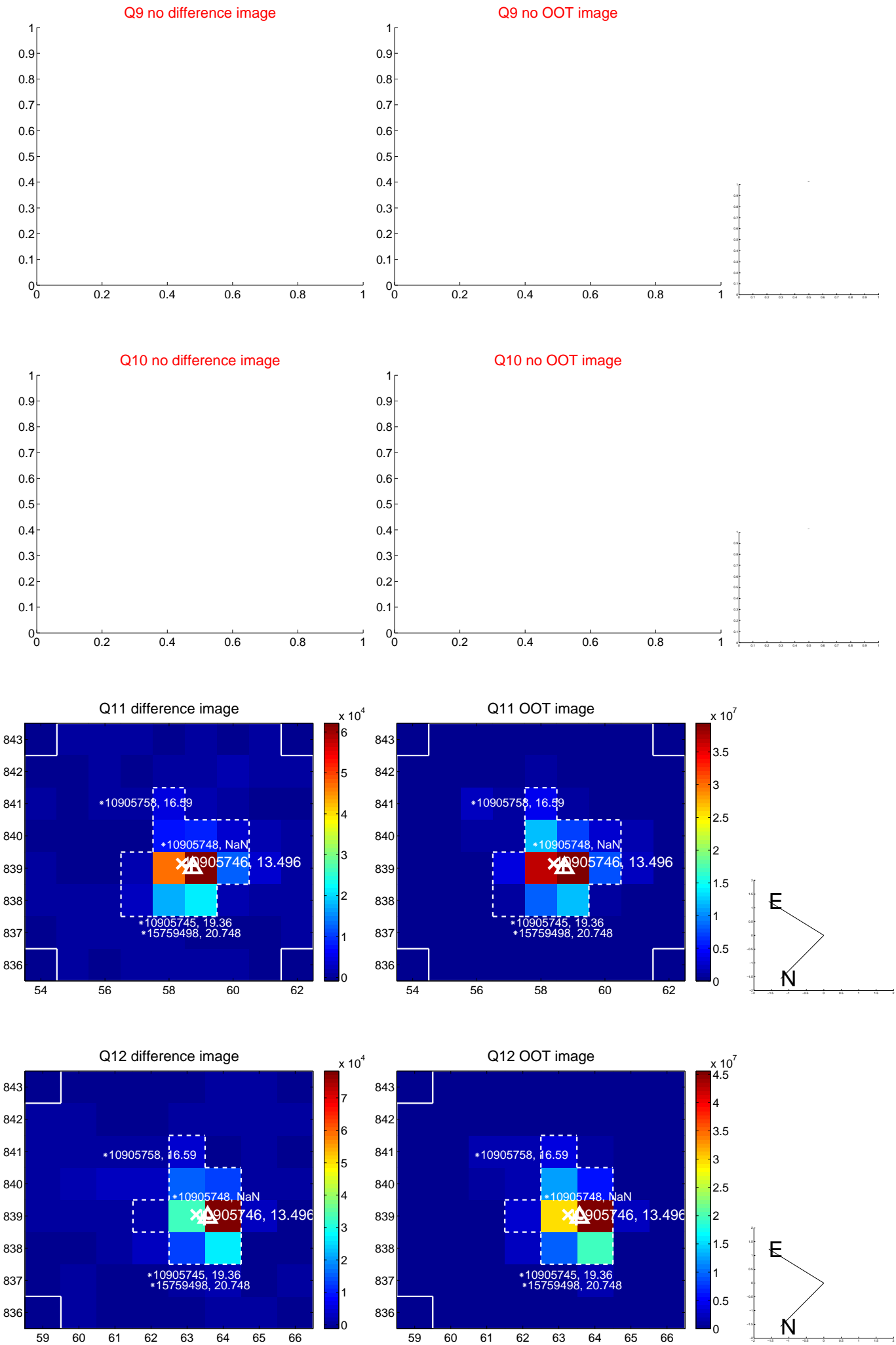
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



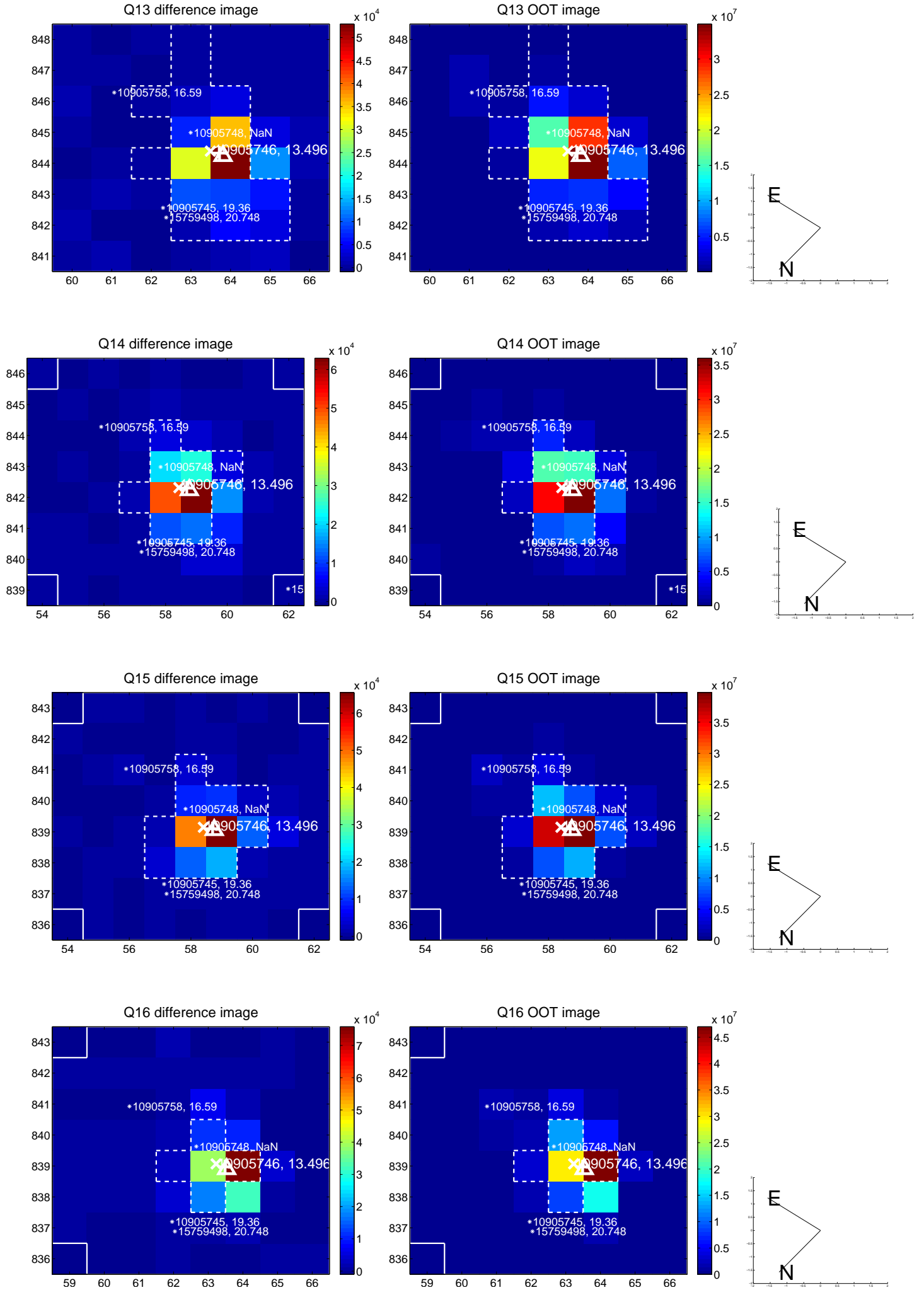
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



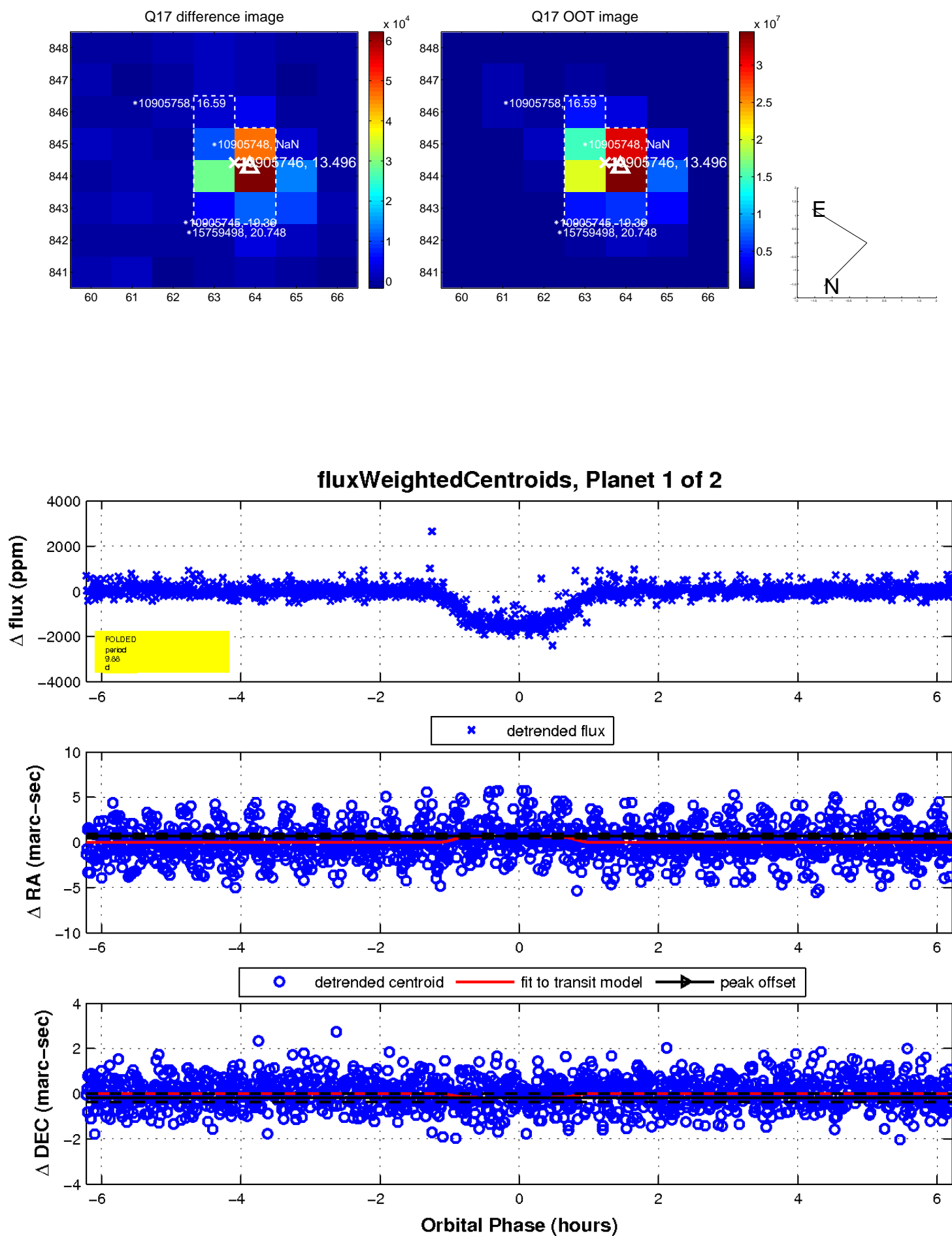
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



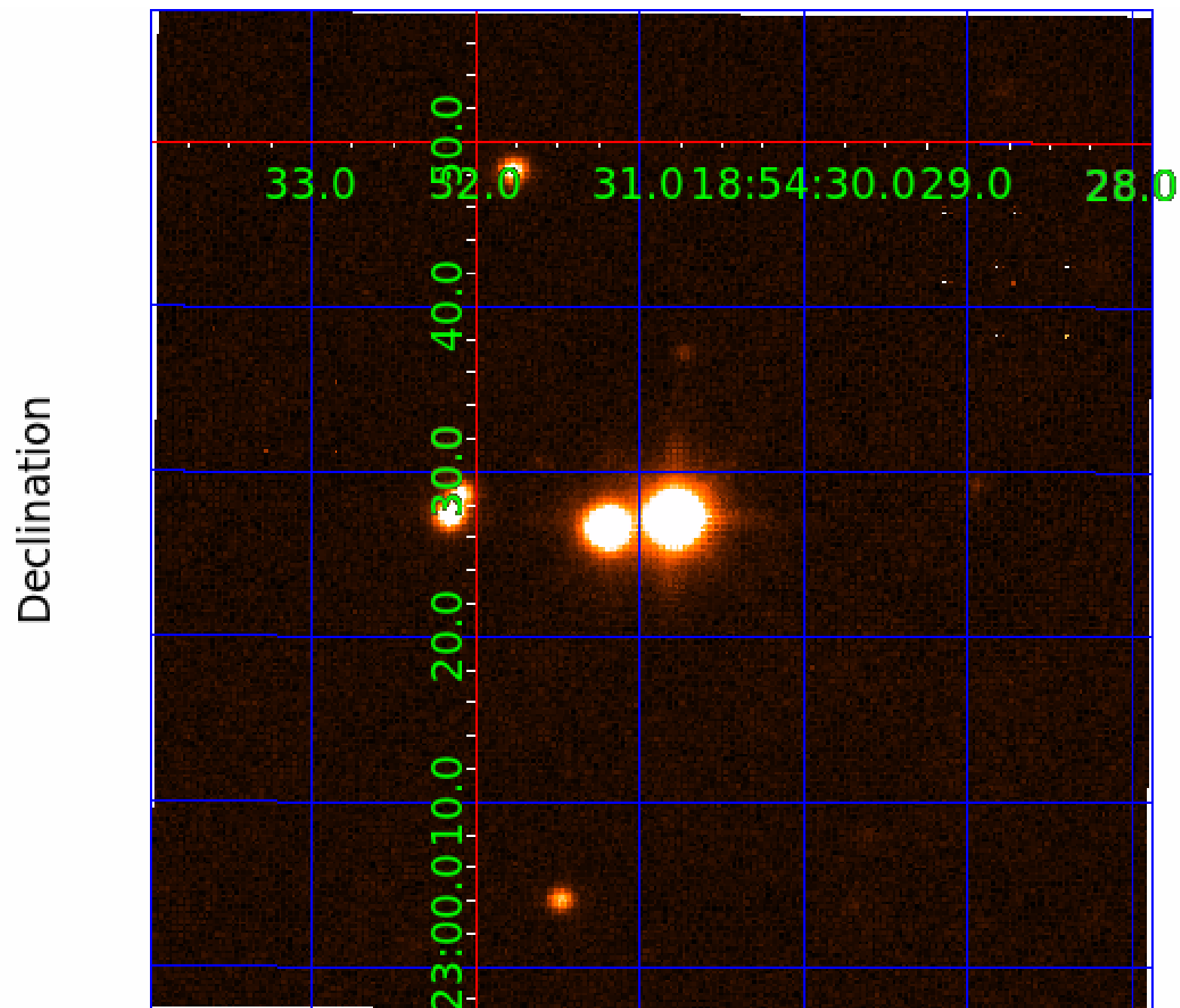
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010905746

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})
010905746-01	OBS	1725.01	9.878666	138.409406	1514.3	2.072	73.4	77.8	0.42	3609	1.86	5.65
010905746-02	OBS	No	107.423043	218.500592	548.1	8.122	11.4	7.7	0.42	3609	1.00	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010905746-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS
010905746-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_ZUMA_TRACKER—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—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.

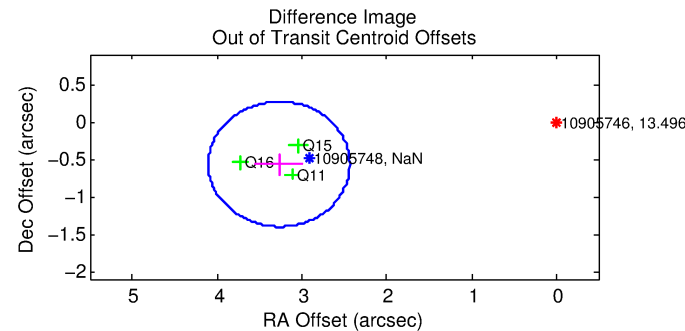
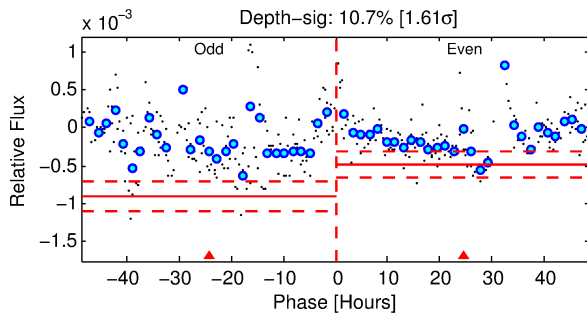
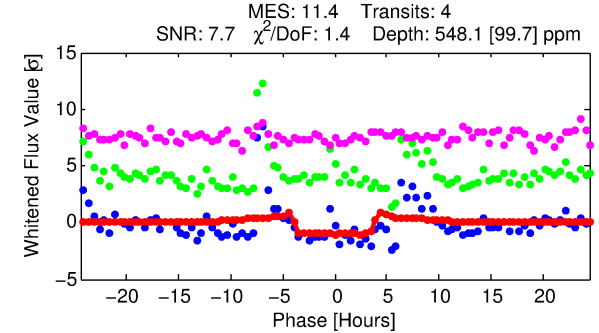
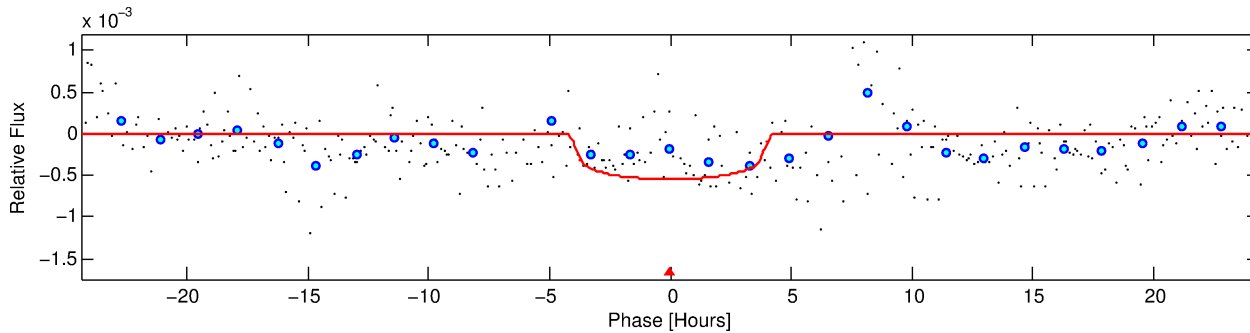
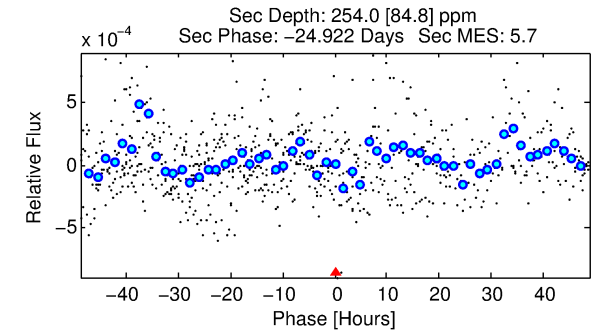
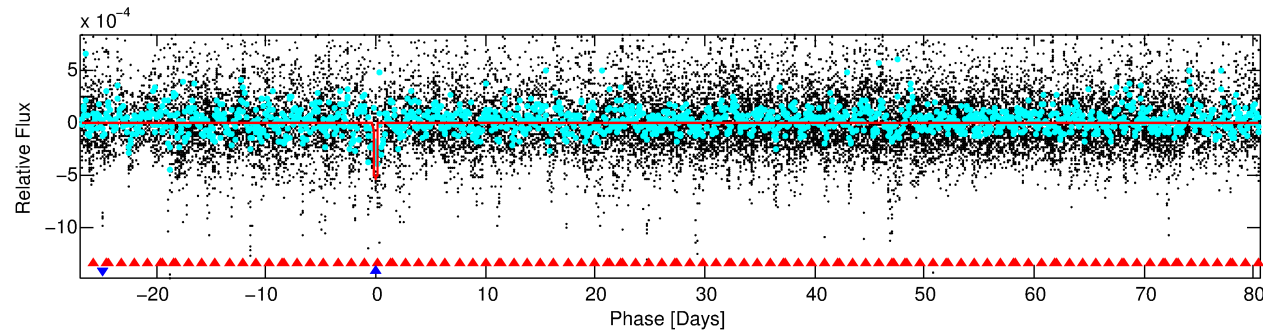
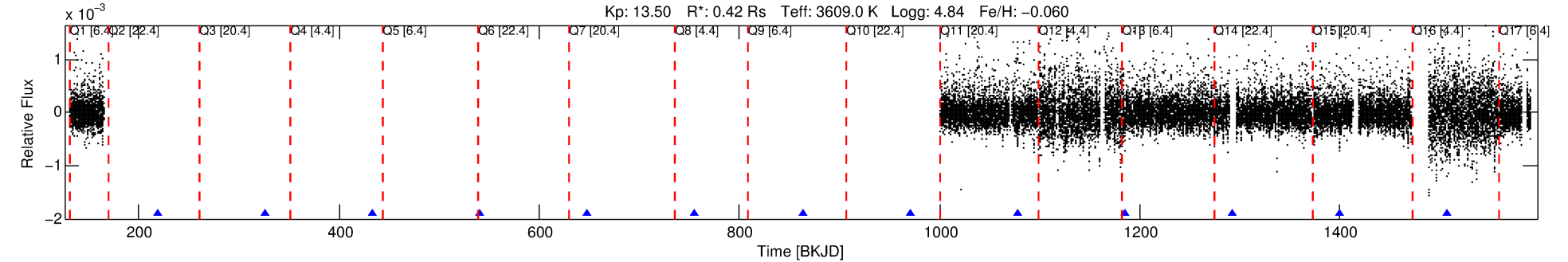
Ephemeris Match Information For 010905746-02

No Significant Match Found

DV One-Page Summary

KIC: 10905746 Candidate: 2 of 2 Period: 107.423 d
KOI: K01725 Corr: No Ephemeris Match

Kp: 13.50 R*: 0.42 Rs Teff: 3609.0 K Logg: 4.84 Fe/H: -0.060



DV Fit Results:

Period = 107.42304 [0.00468] d
Epoch = 218.5006 [0.0480] BKJD
Rp/R* = 0.0217 [0.0479]
a/R* = 92.60 [884.34]
b = 0.45 [16.90]
Seff = 0.23 [0.04]
Teq = 177 [7] K
Rp = 1.00 [2.21] Re
a = 0.3396 [0.0333] AU
Ag = 16111.15 [71277.69] [0.23σ]
Teffp = 3092 [3419] K [0.85σ]

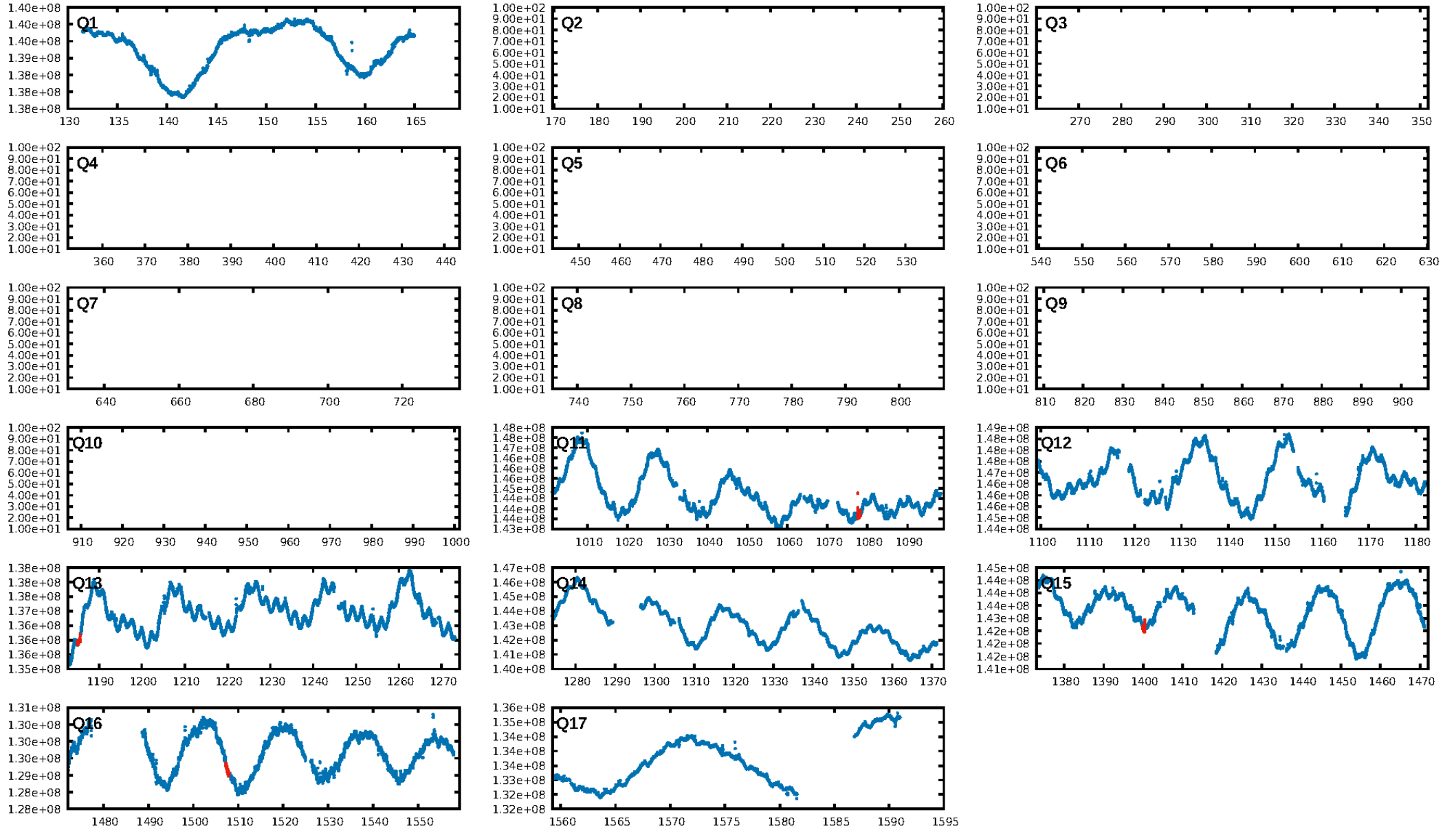
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [279.29σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 75.6%
Bootstrap-pfa: 8.86e-15
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.933
Centroid-sig: 35.4%
Centroid-so: 0.777 arcsec [0.84σ]
OotOffset-rm: 3.317 arcsec [11.92σ]
KicOffset-rm: 2.474 arcsec [9.39σ]
OotOffset-st: 0.2/1/0 [3]
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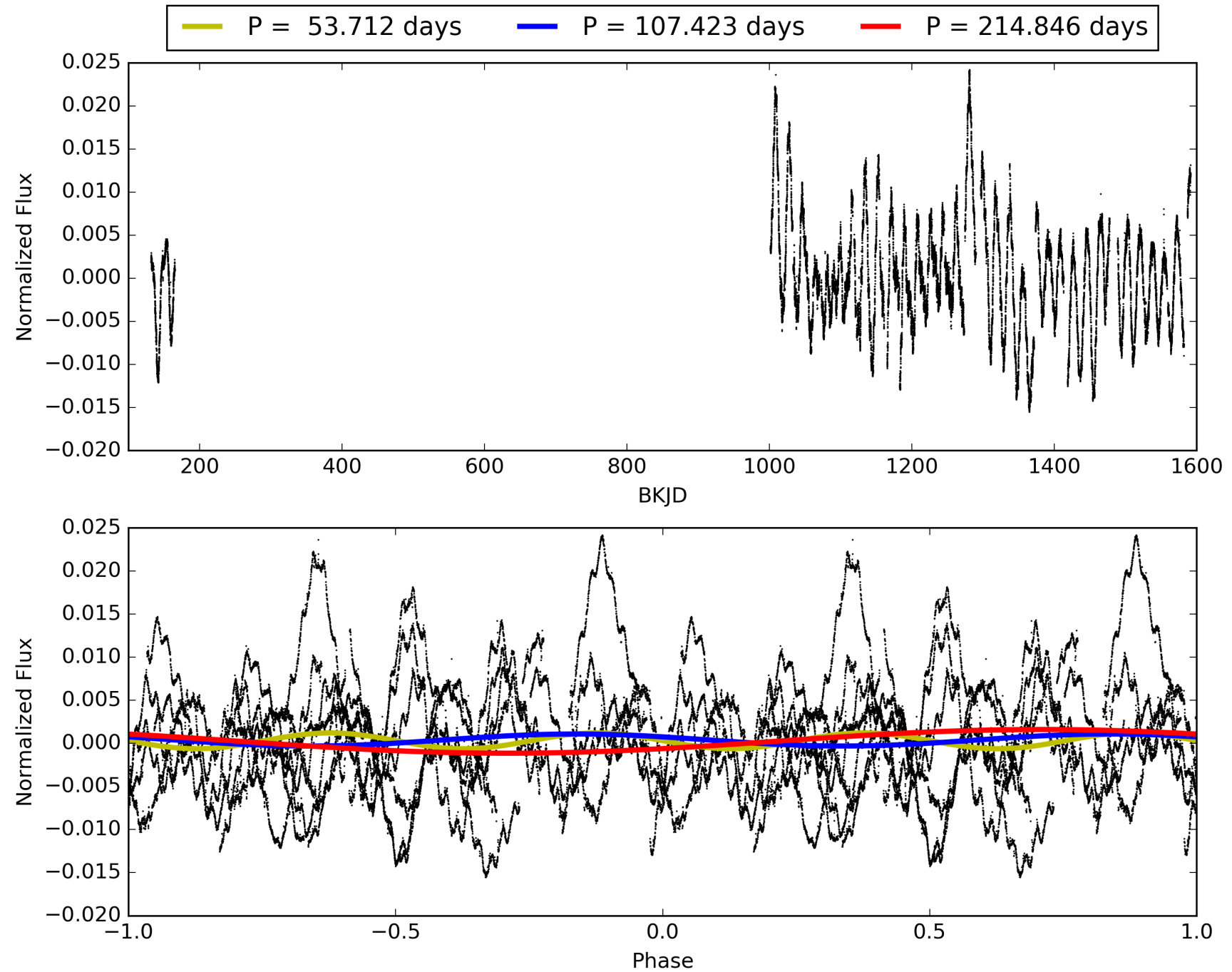
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010905746-02, PDC Light Curves

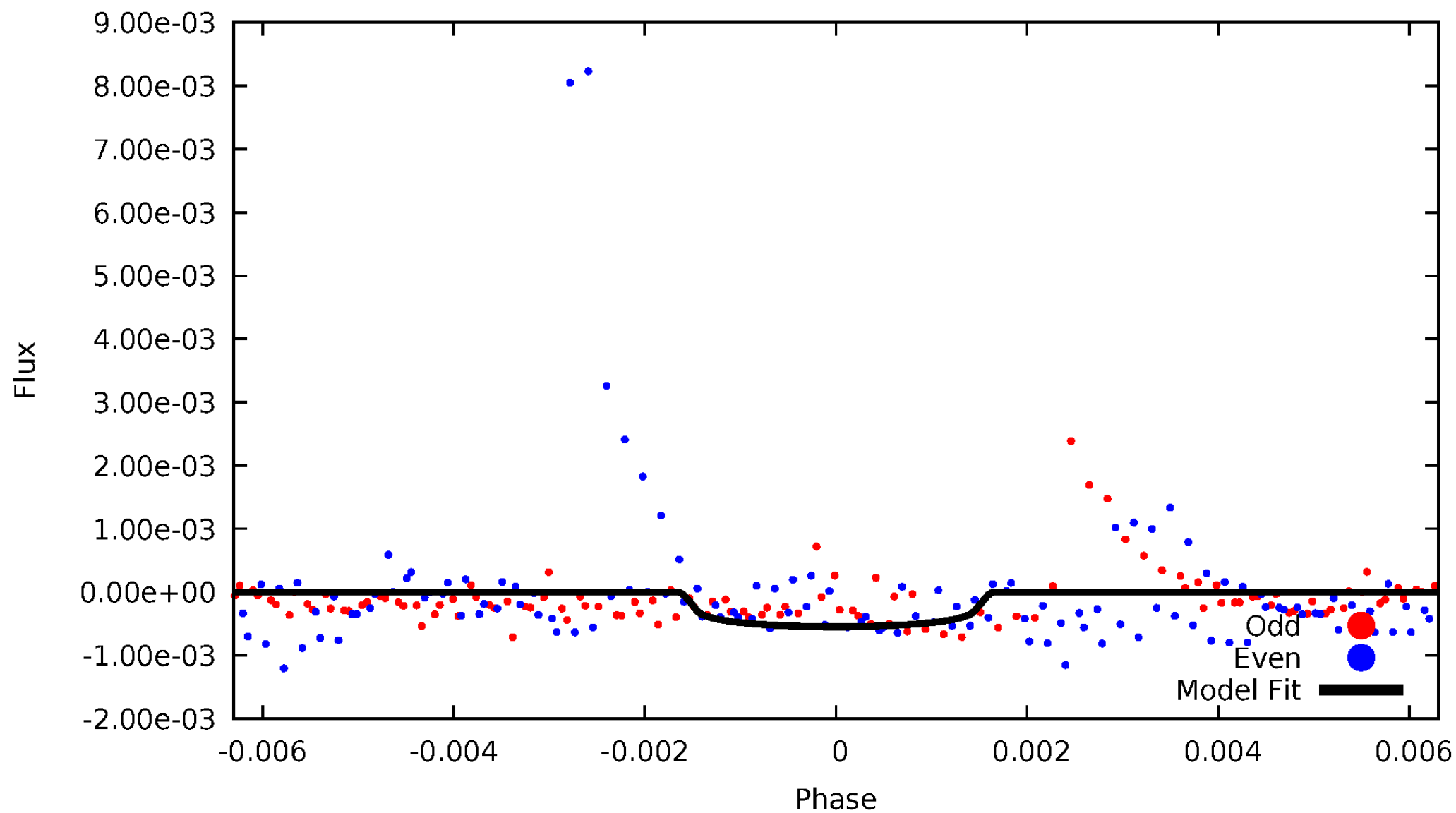


TCE 010905746-02



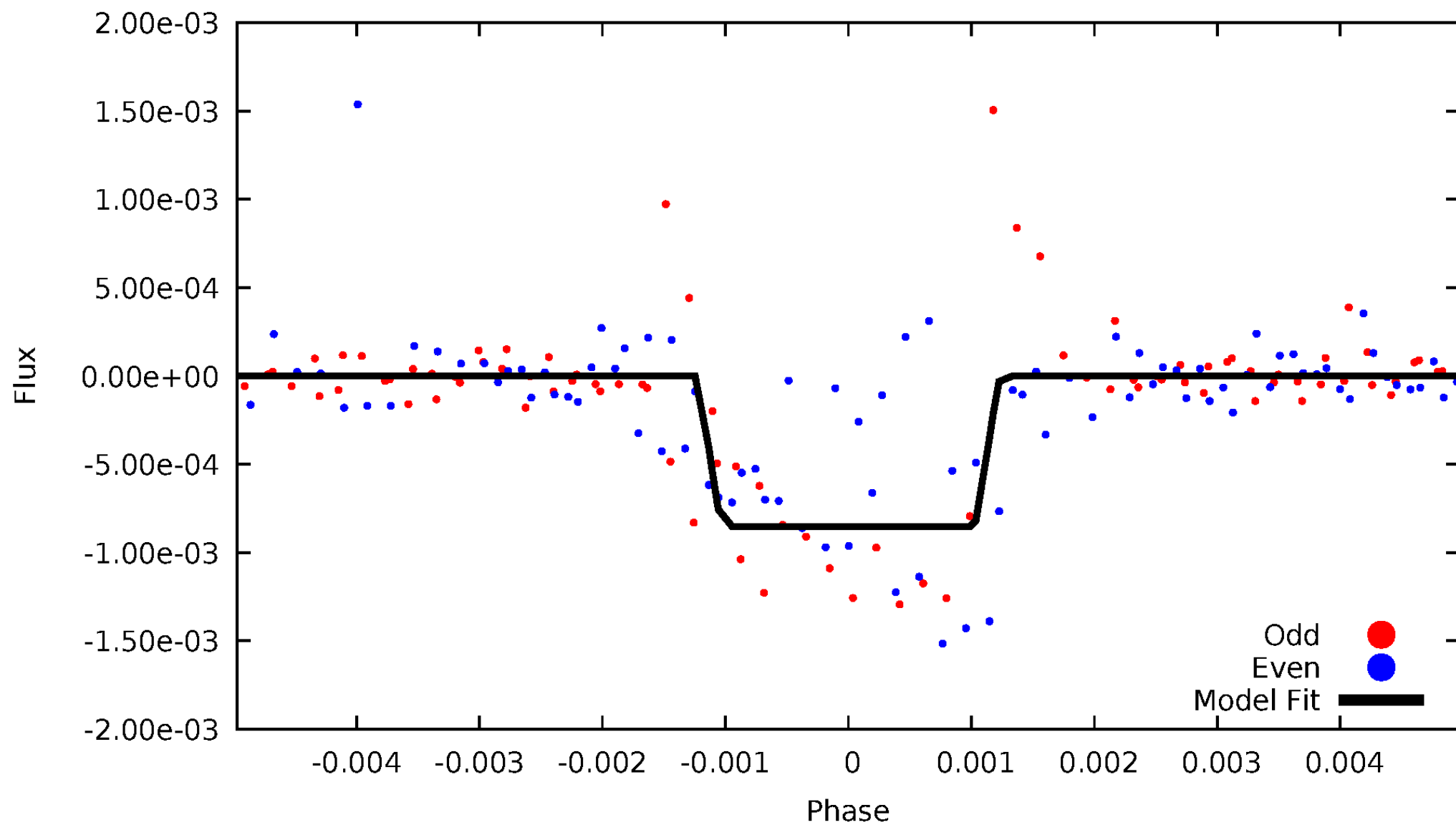
DV Odd/Even

TCE 010905746-02



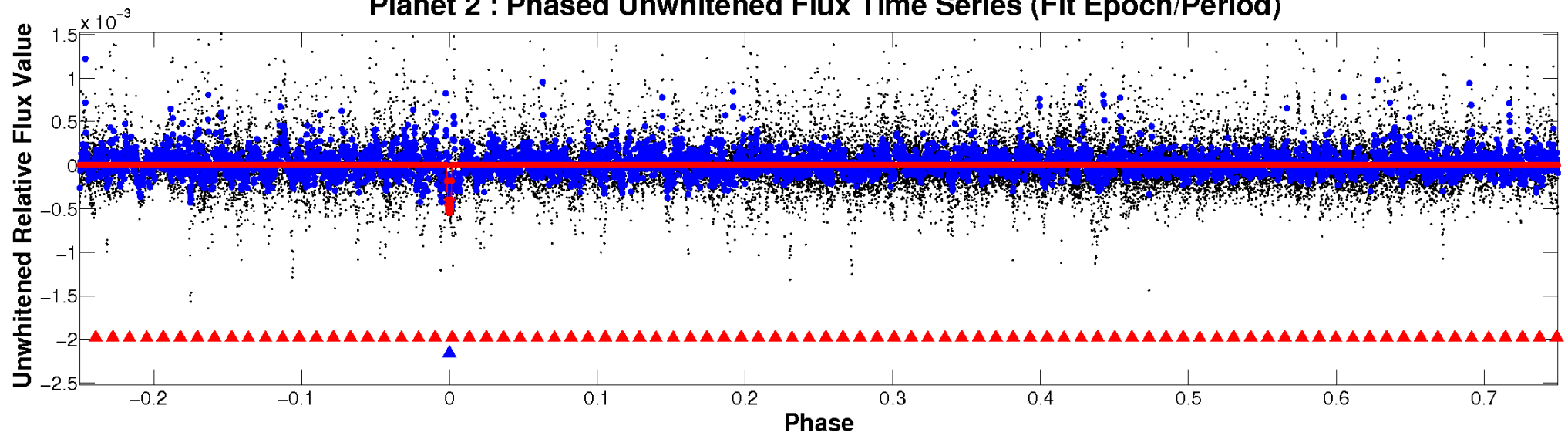
ALT Odd/Even

TCE 010905746-02

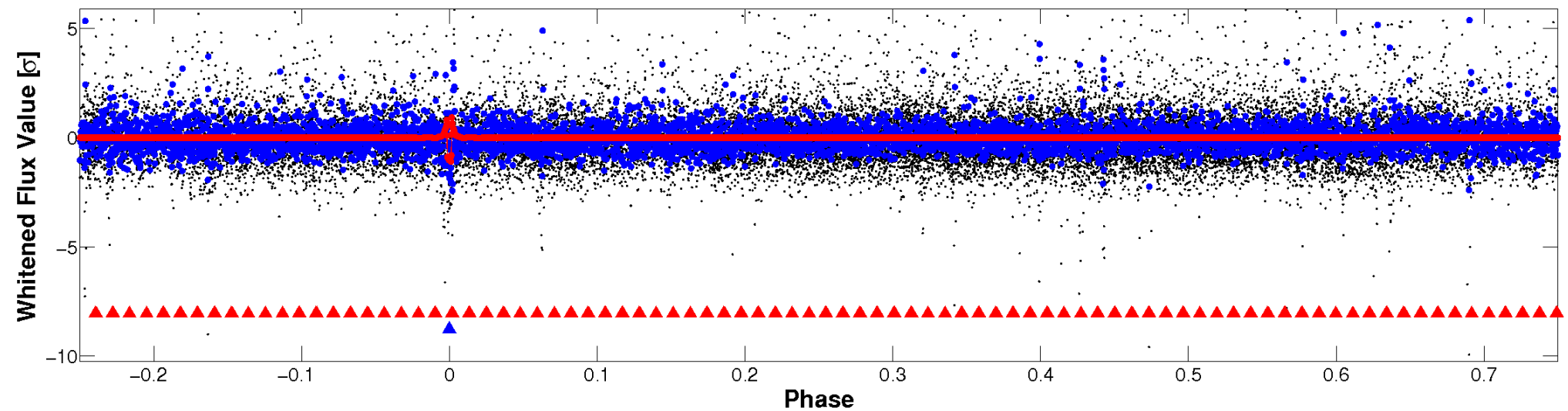


Non-Whitened Vs. Whitened Light Curve

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

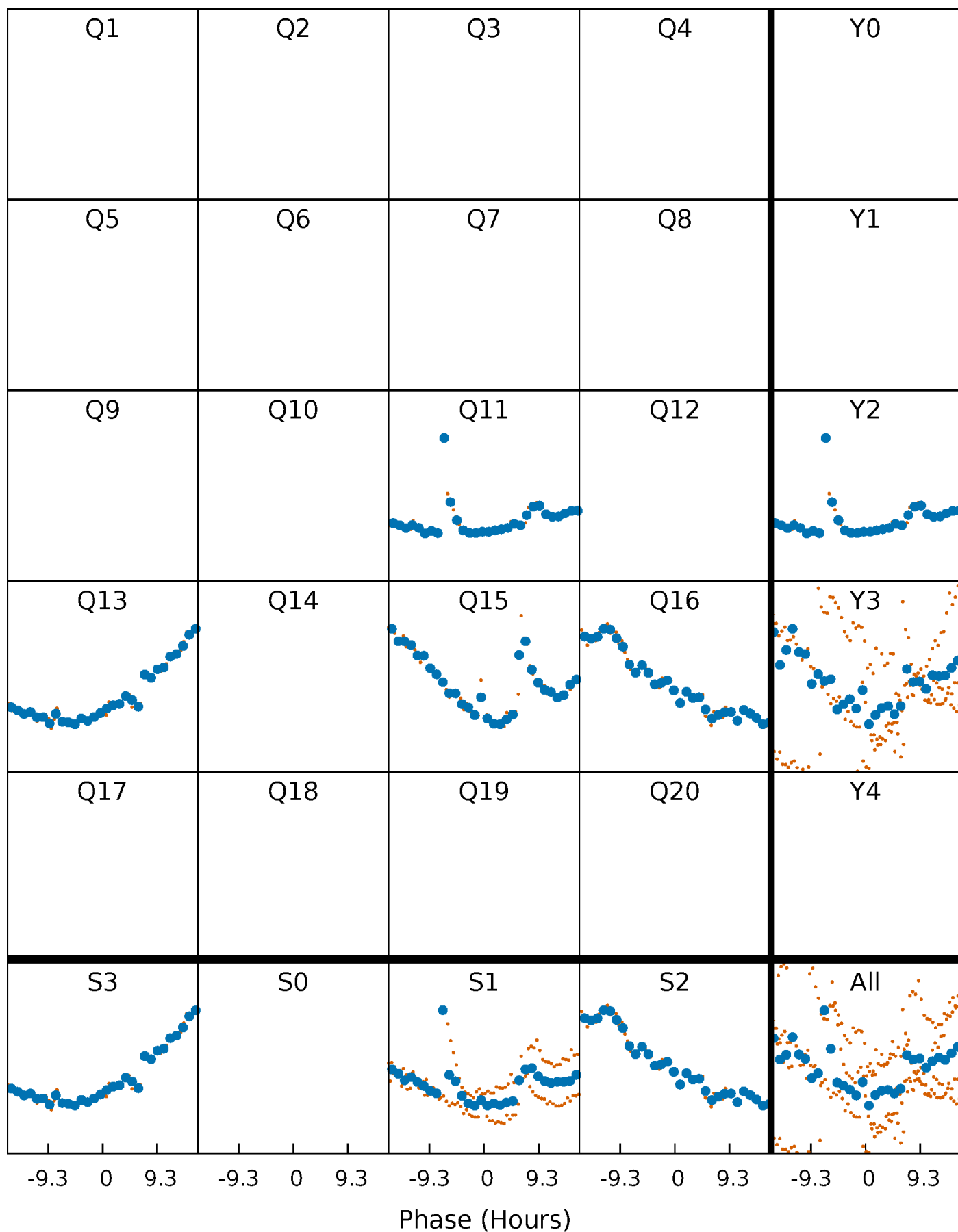


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



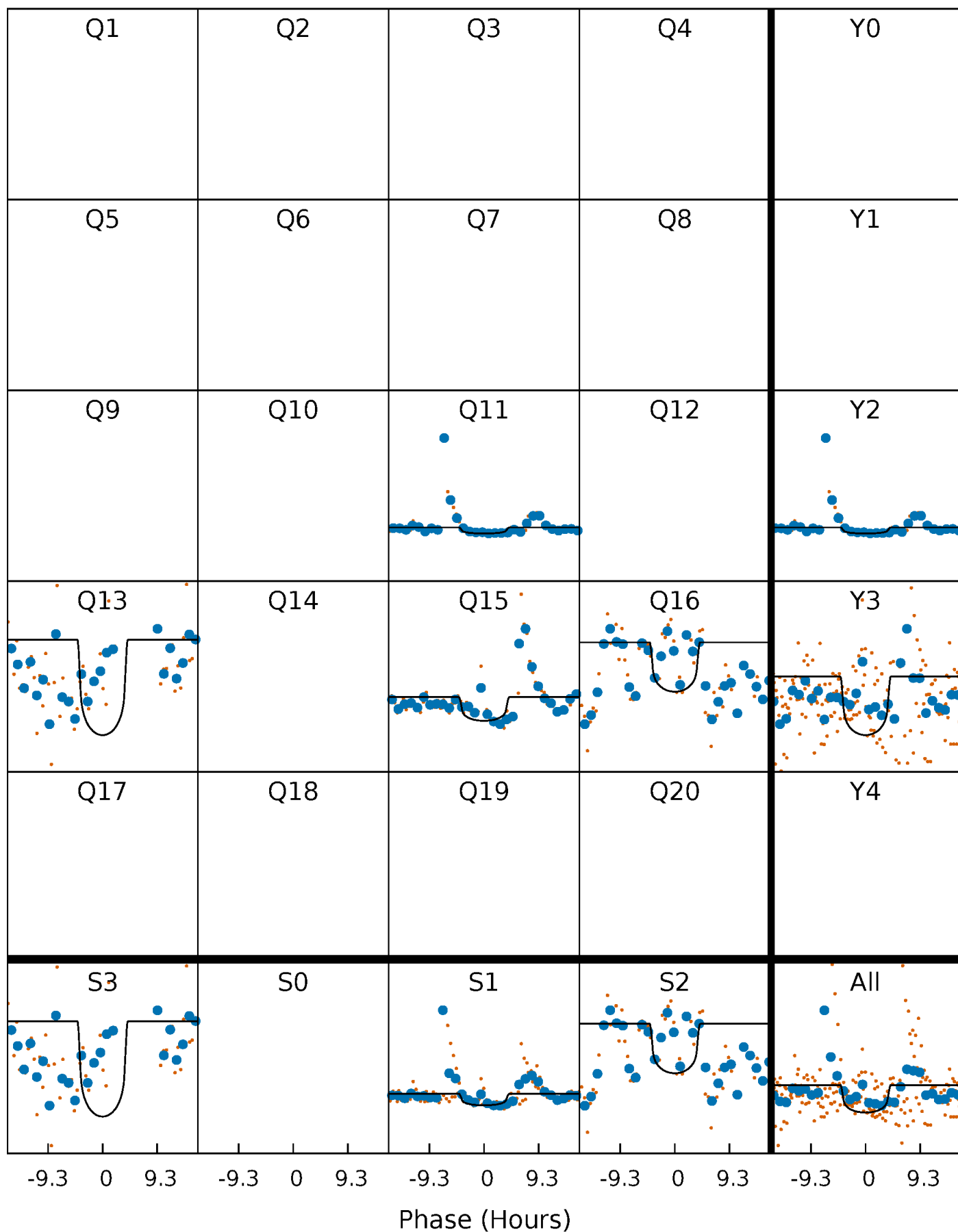
PDC Quarter-Phased Transit Curves

TCE 010905746-02 P=107.423043 Days $T_0=218.500592$ (BKJD)



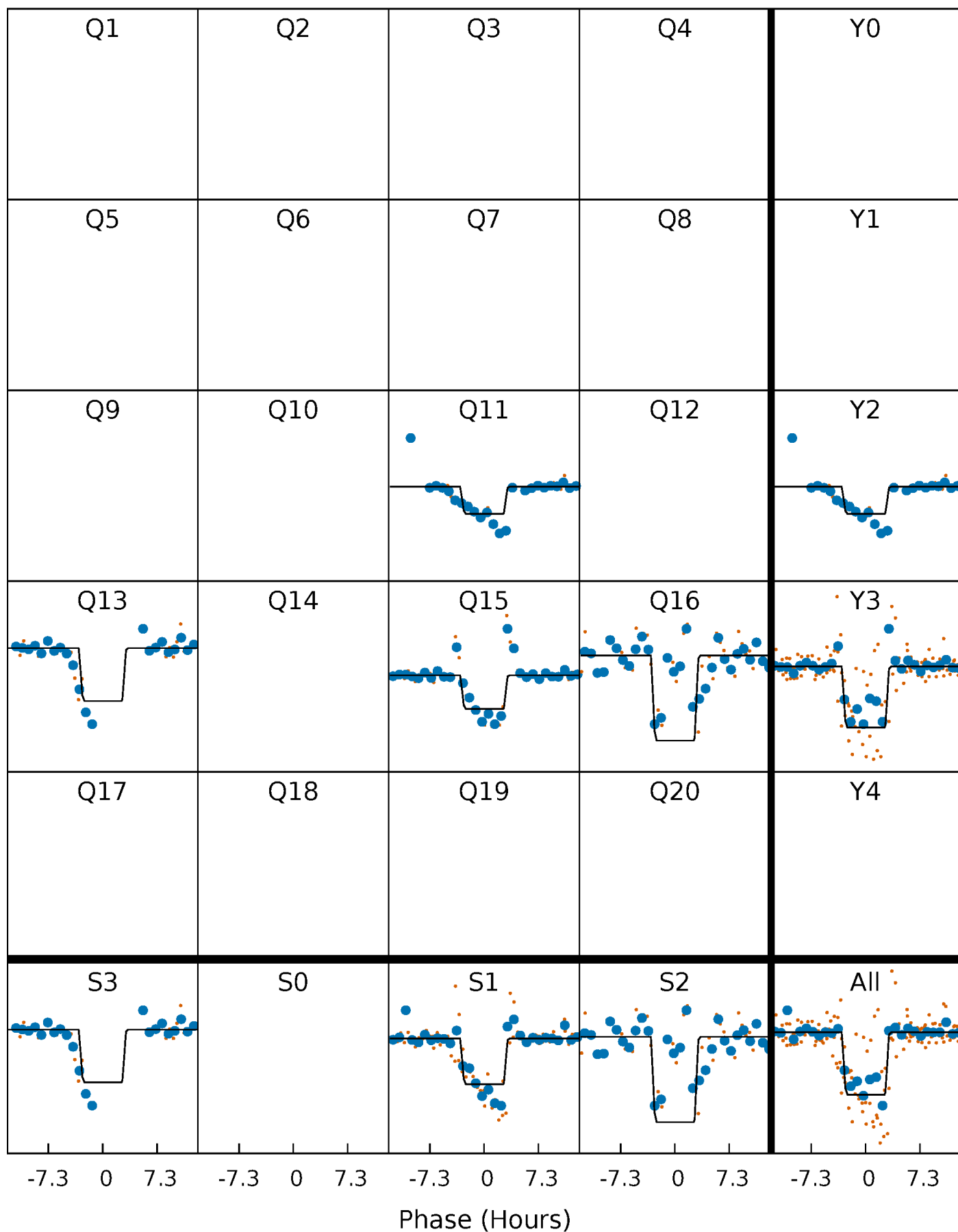
DV Quarter-Phased Transit Curves

TCE 010905746-02 $P=107.423043$ Days $T_0=218.500592$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

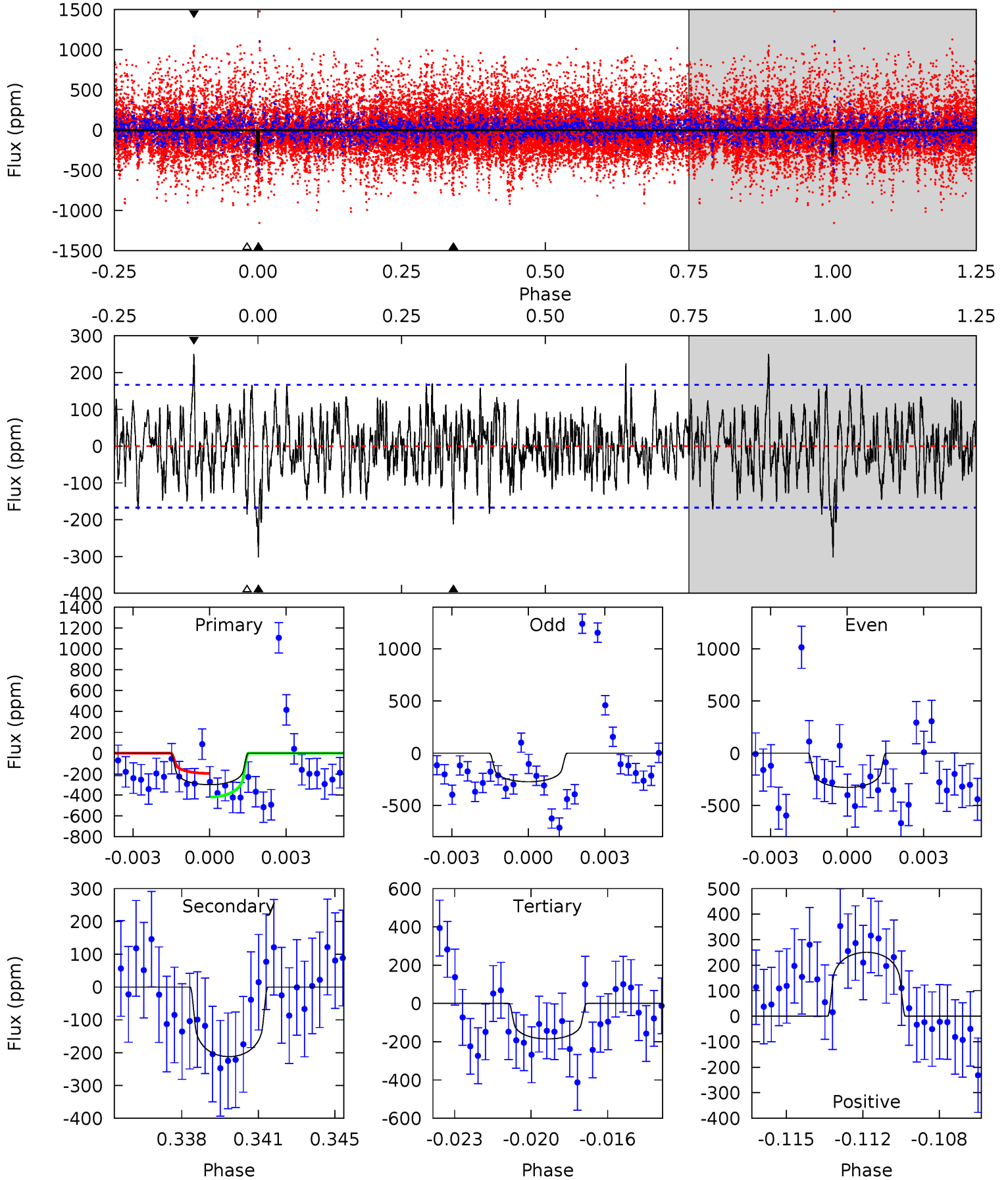
TCE 010905746-02 P=107.412001 Days $T_0=218.759577$ (BKJD)



DV Model-Shift Uniqueness Test

010905746-02, P = 107.423043 Days, E = 111.077549 Days

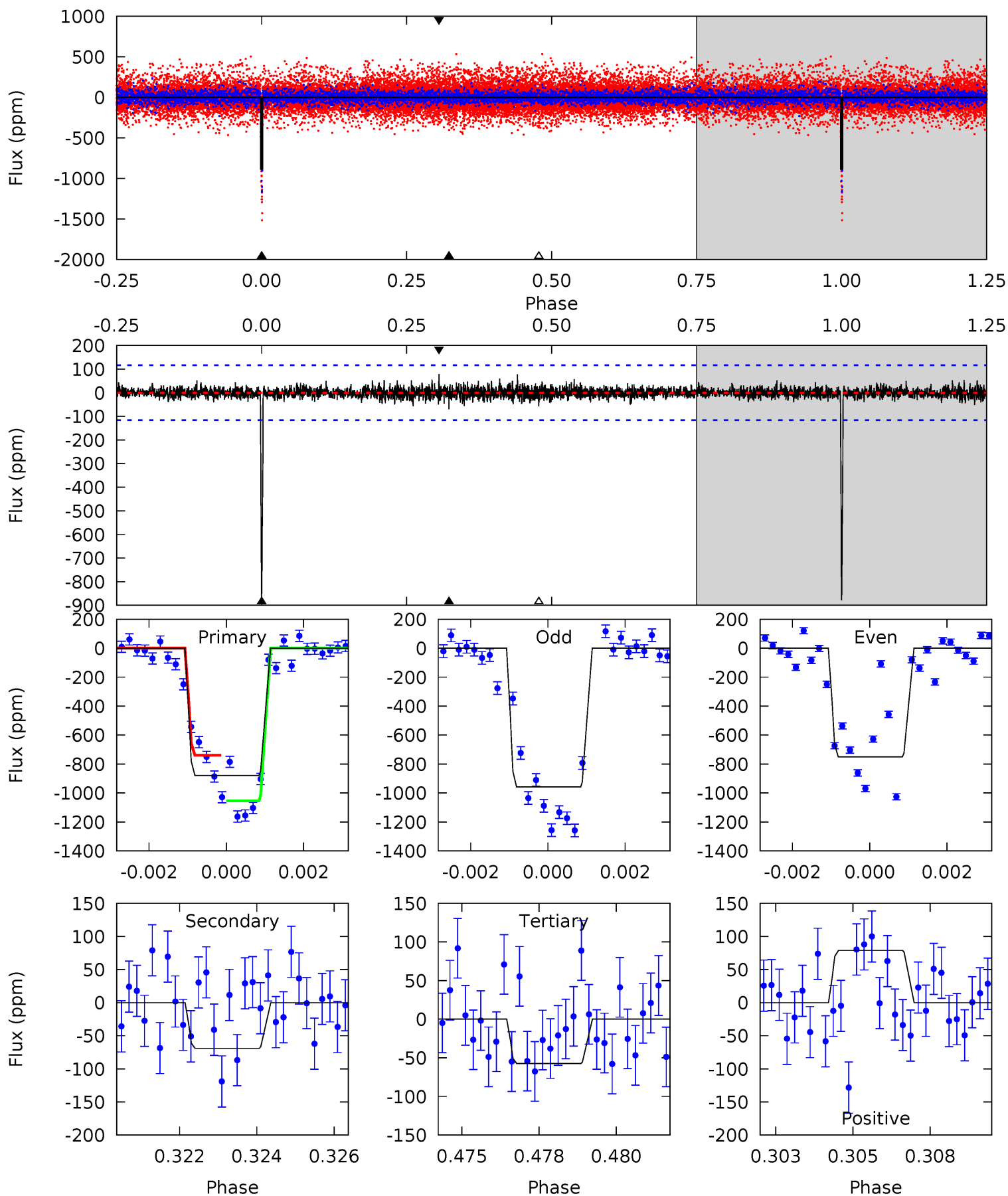
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.47	6.65	5.82	7.86	5.24	2.94	2.02	3.66	1.62	0.84	-1.20	0.83	1.11	0.45	3.56



Alt Model-Shift Uniqueness Test

010905746-02, P = 107.412001 Days, E = 111.347576 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.1	3.15	2.62	3.60	5.30	3.04	0.69	37.5	36.5	0.53	-0.44	4.84	0.84	0.08	0



Stellar Parameters For KIC 010905746

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3609^{+72}_{-81}	$4.843^{+0.050}_{-0.055}$	$-0.060^{+0.150}_{-0.150}$	$0.422^{+0.046}_{-0.056}$	$0.452^{+0.044}_{-0.066}$	$8.494^{+2.589}_{-1.825}$
	+2%/-2%	+1%/-1%	+250%/-250%	+11%/-13%	+10%/-15%	+30%/-21%
Source	SPE70	SPE60	SPE70	DSEP		

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

Secondary Eclipse Parameters for KIC 010905746-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-212 ± 32	$1.86^{+2.03}_{-1.32}$	248^{+8}_{-8}	2672^{+1159}_{-424}	3714^{+39307}_{-2846}
Alt.	-69 ± 22	$2.23^{+1.78}_{-1.46}$	248^{+8}_{-8}	2239^{+698}_{-270}	850^{+6216}_{-603}

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

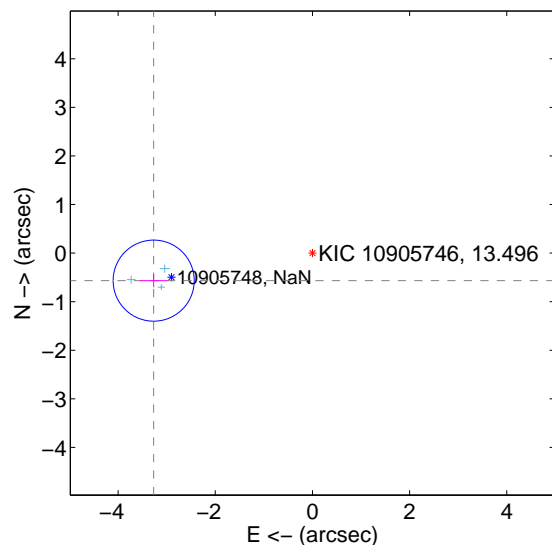
Supplemental centroid analysis for 010905746-02. Kepler magnitude: 13.50. Transit SNR 7.73

There are 3 quarters with good PRF difference image offsets

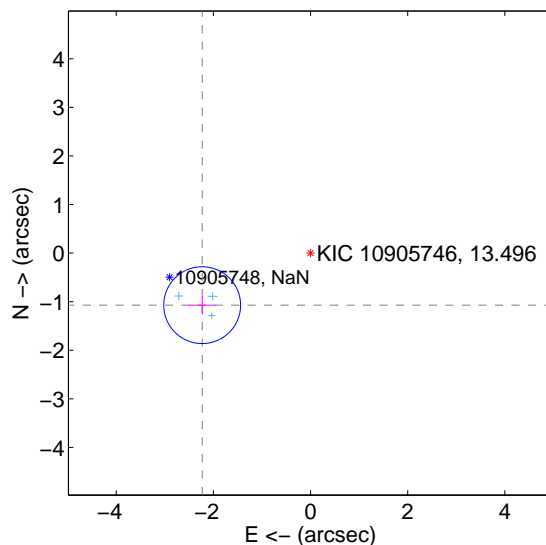
The direct PRF centroid is offset from the target star catalog position by about 1.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.317 ± 0.278	11.92	3.268 ± 0.281	-0.567 ± 0.136
PRF-fit source offset from KIC position	2.474 ± 0.264	9.39	2.230 ± 0.278	-1.072 ± 0.189
photometric centroid source offset	0.78 ± 0.93	0.84	0.59 ± 1.14	-0.51 ± 0.54

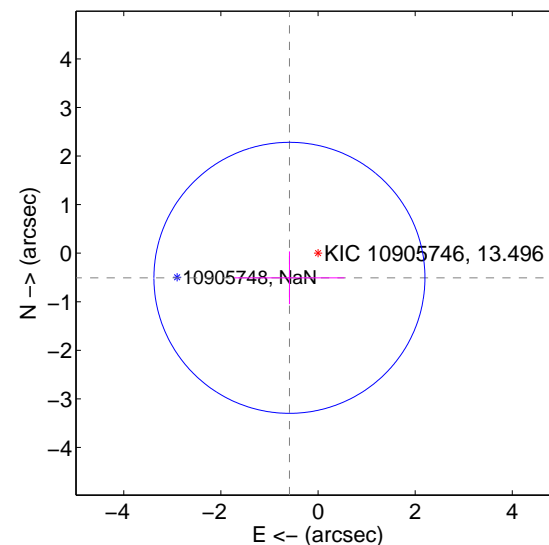
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

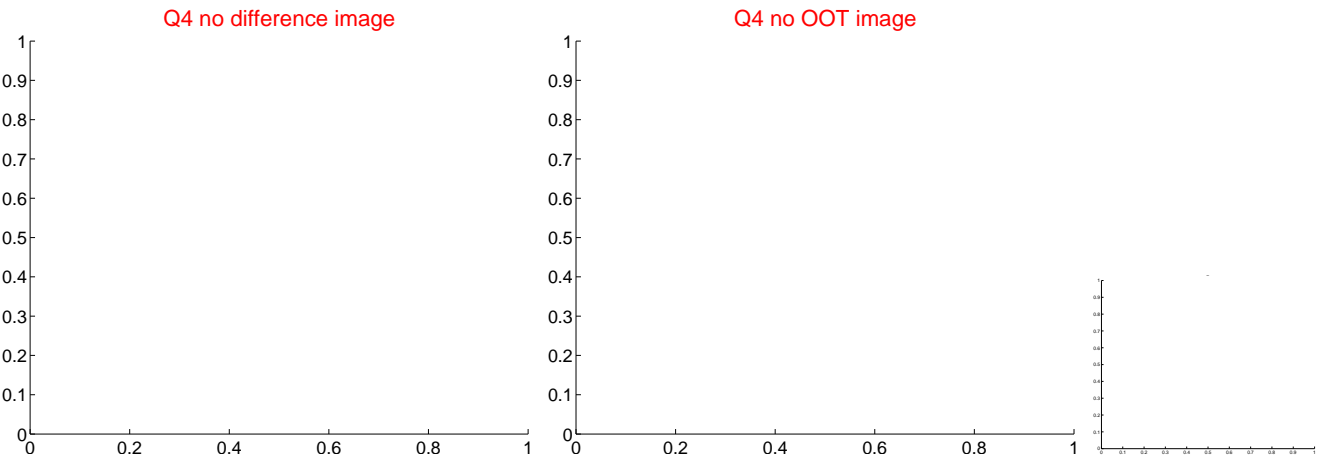
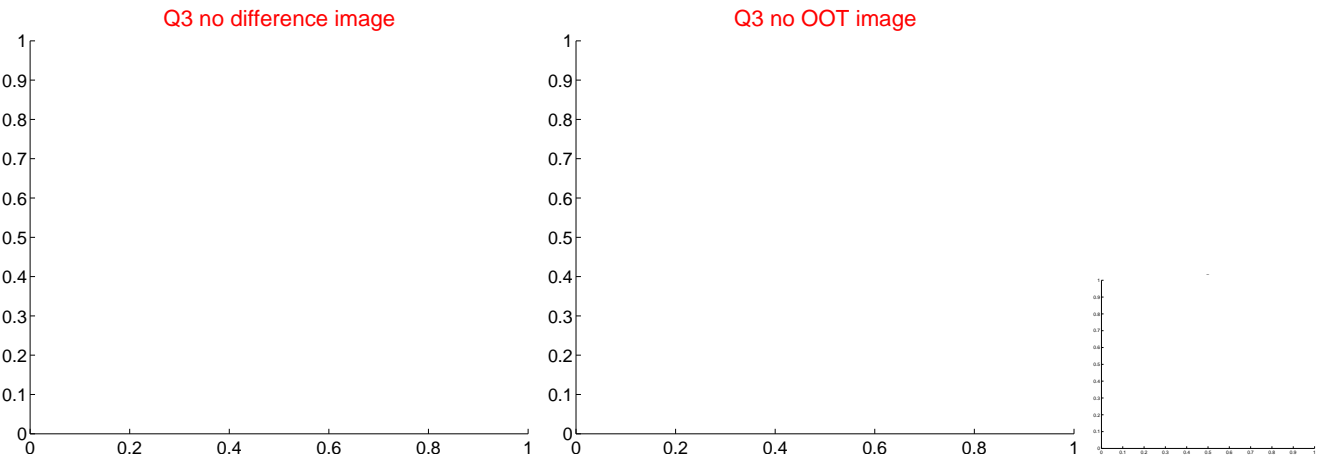
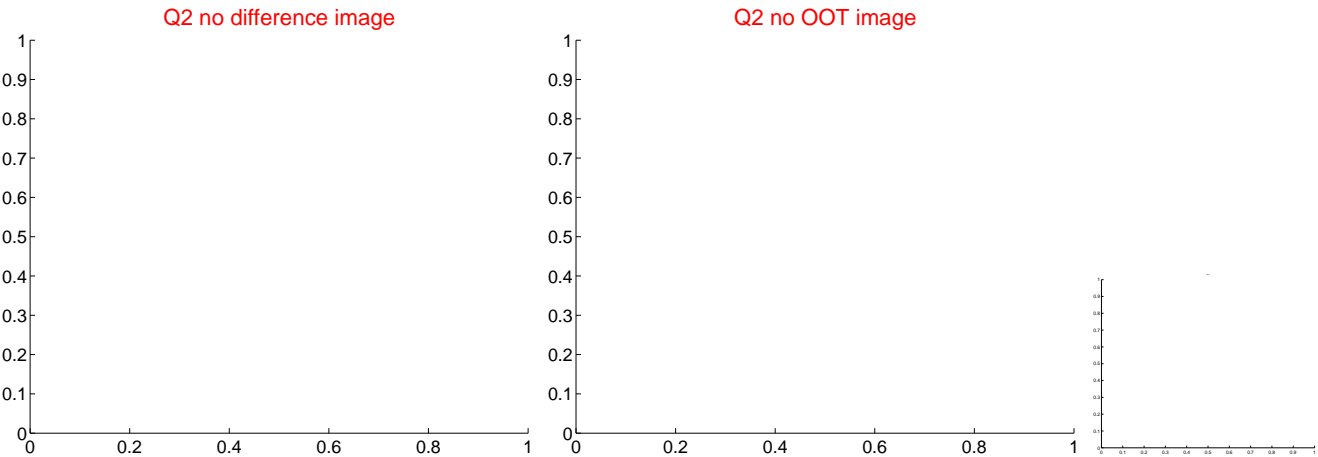
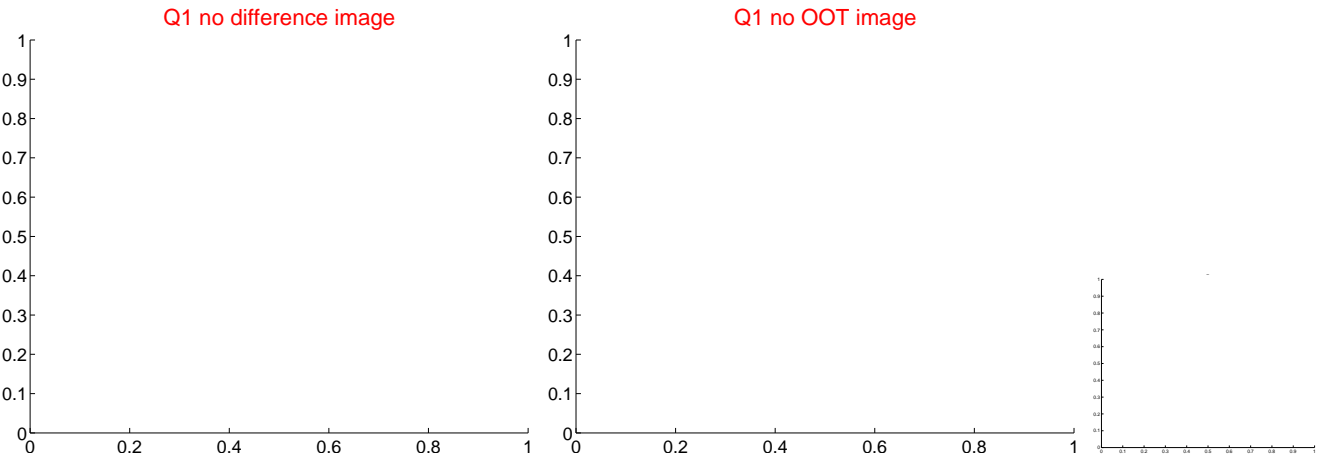


offset from photometric centroids

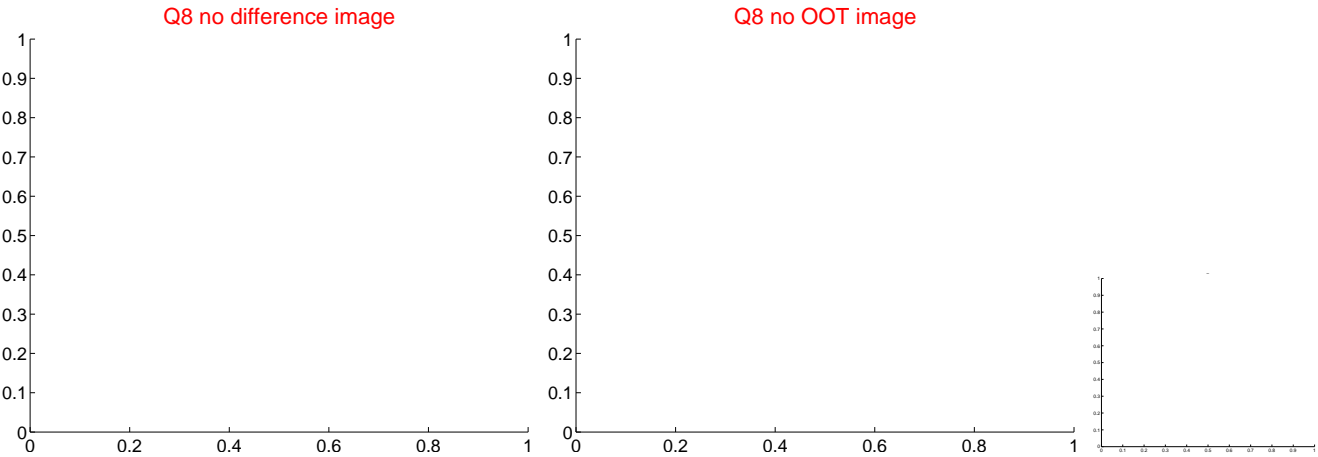
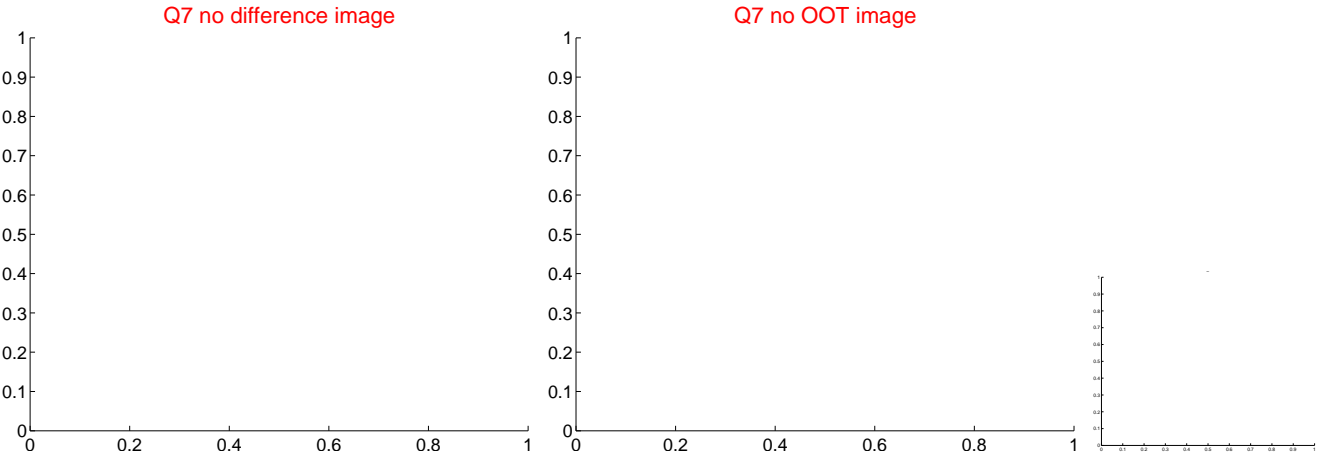
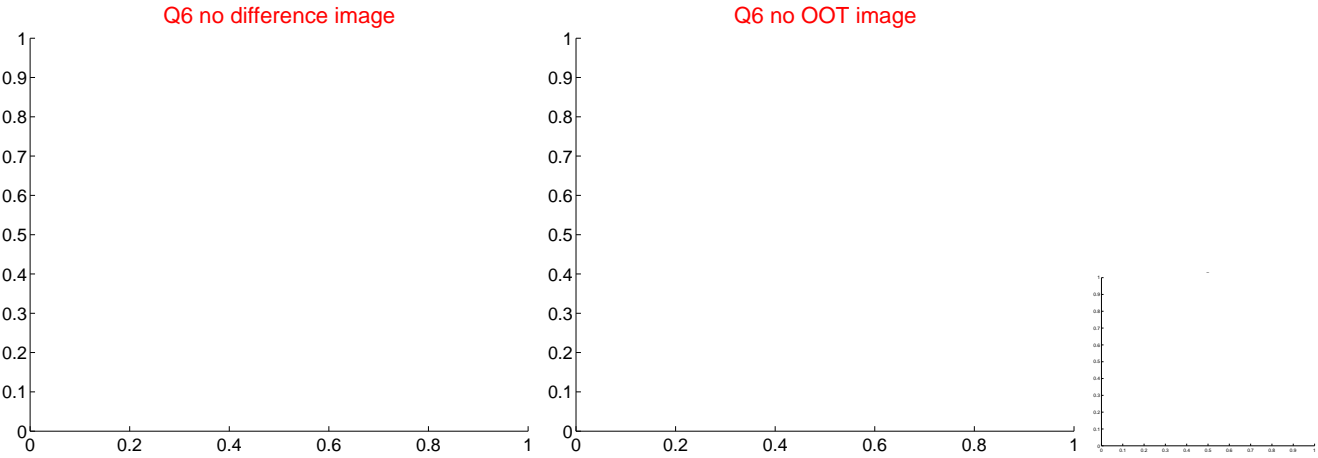
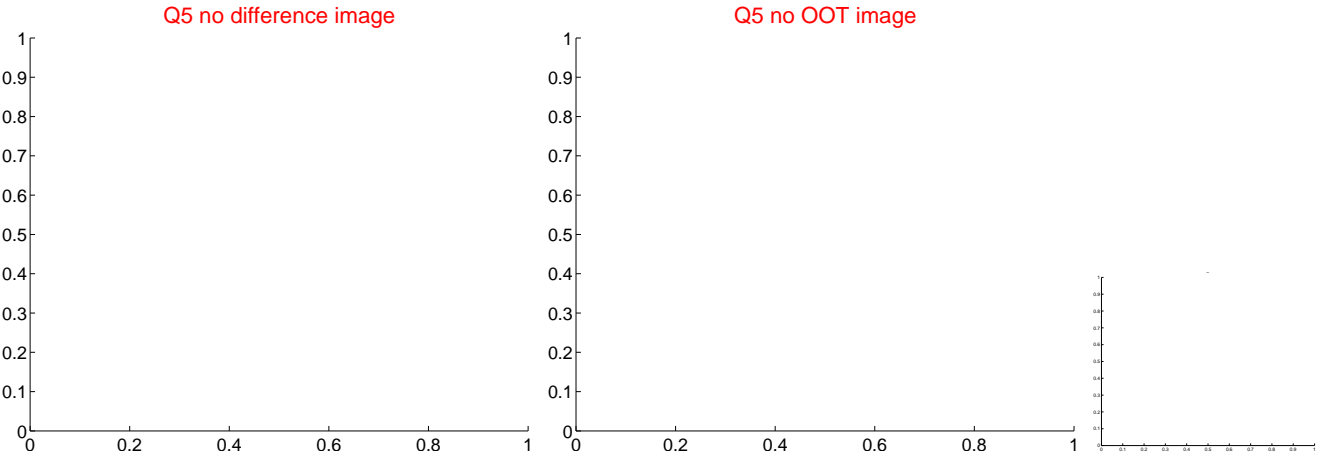


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

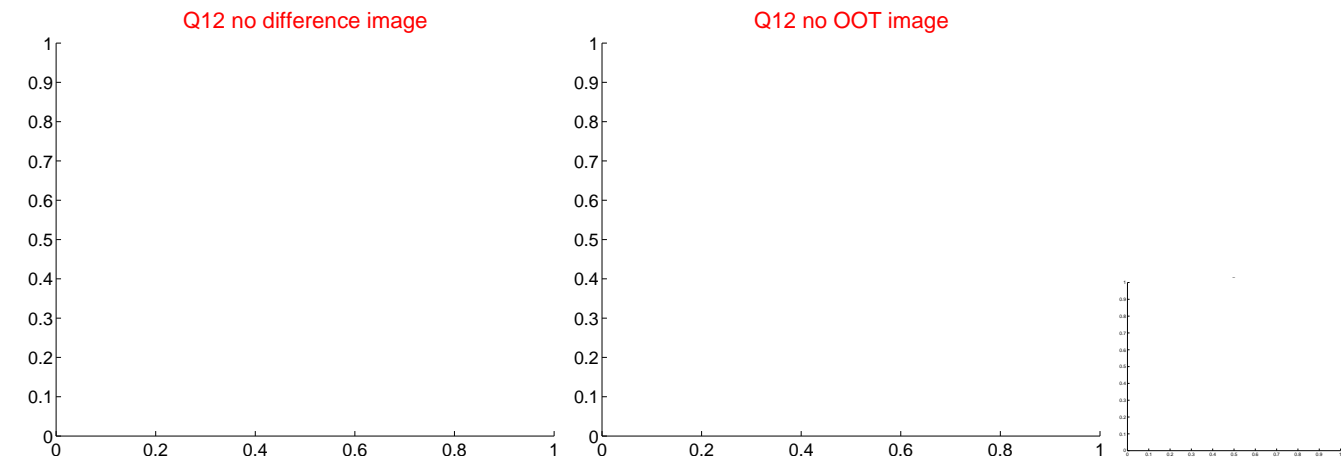
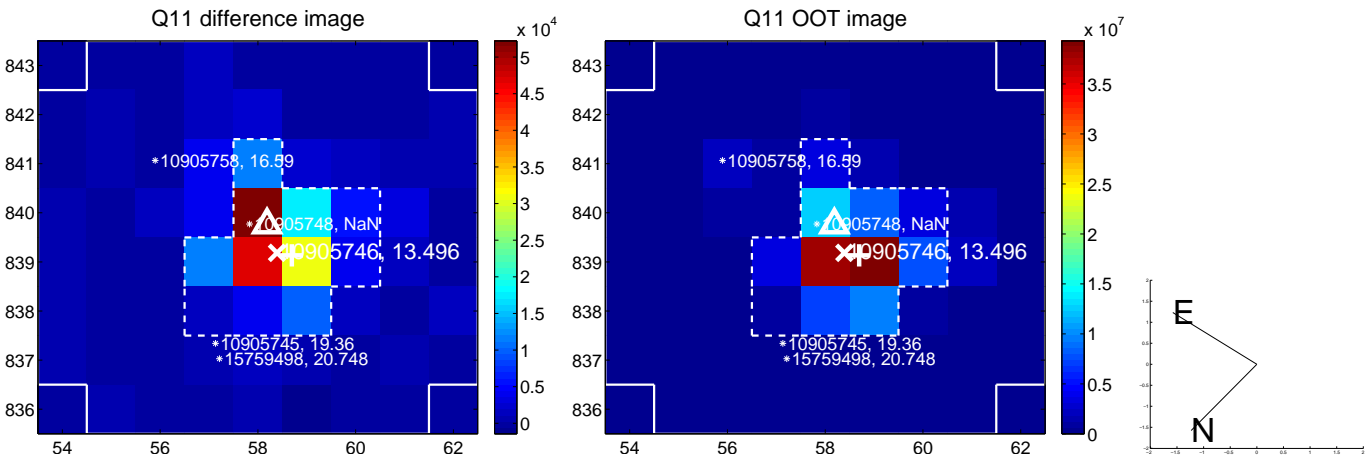
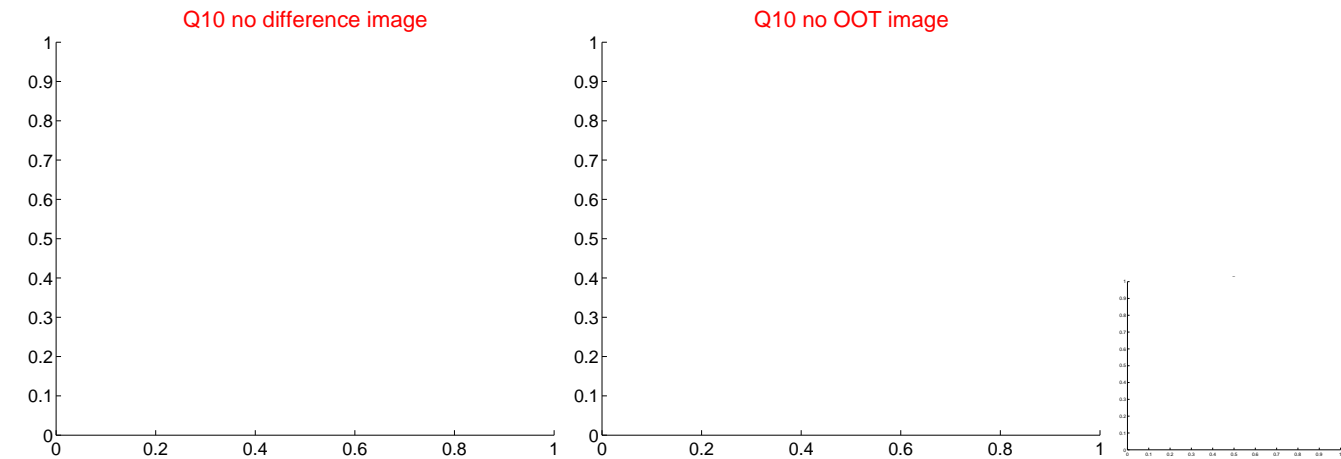
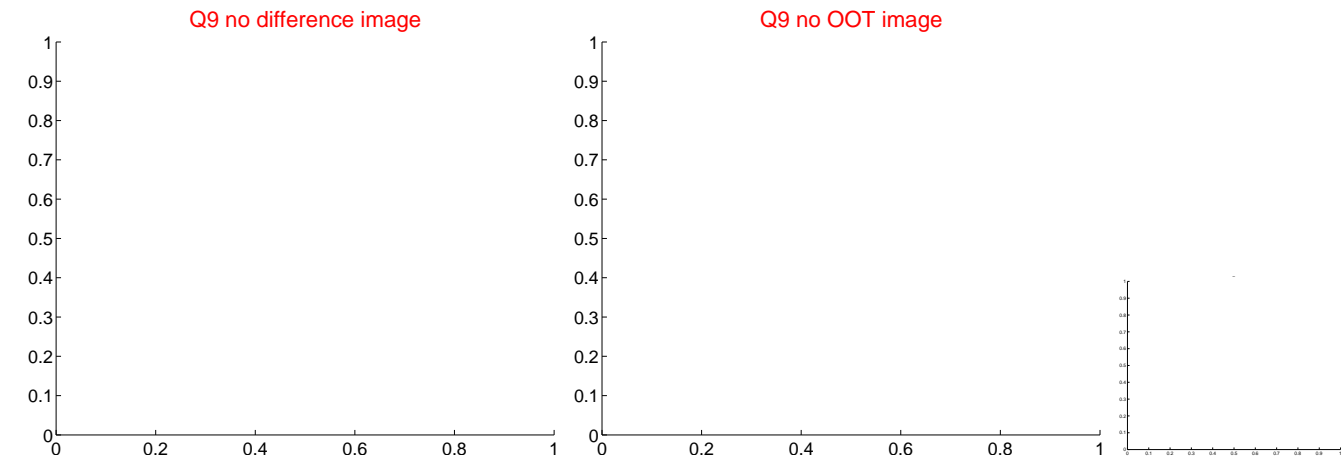
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



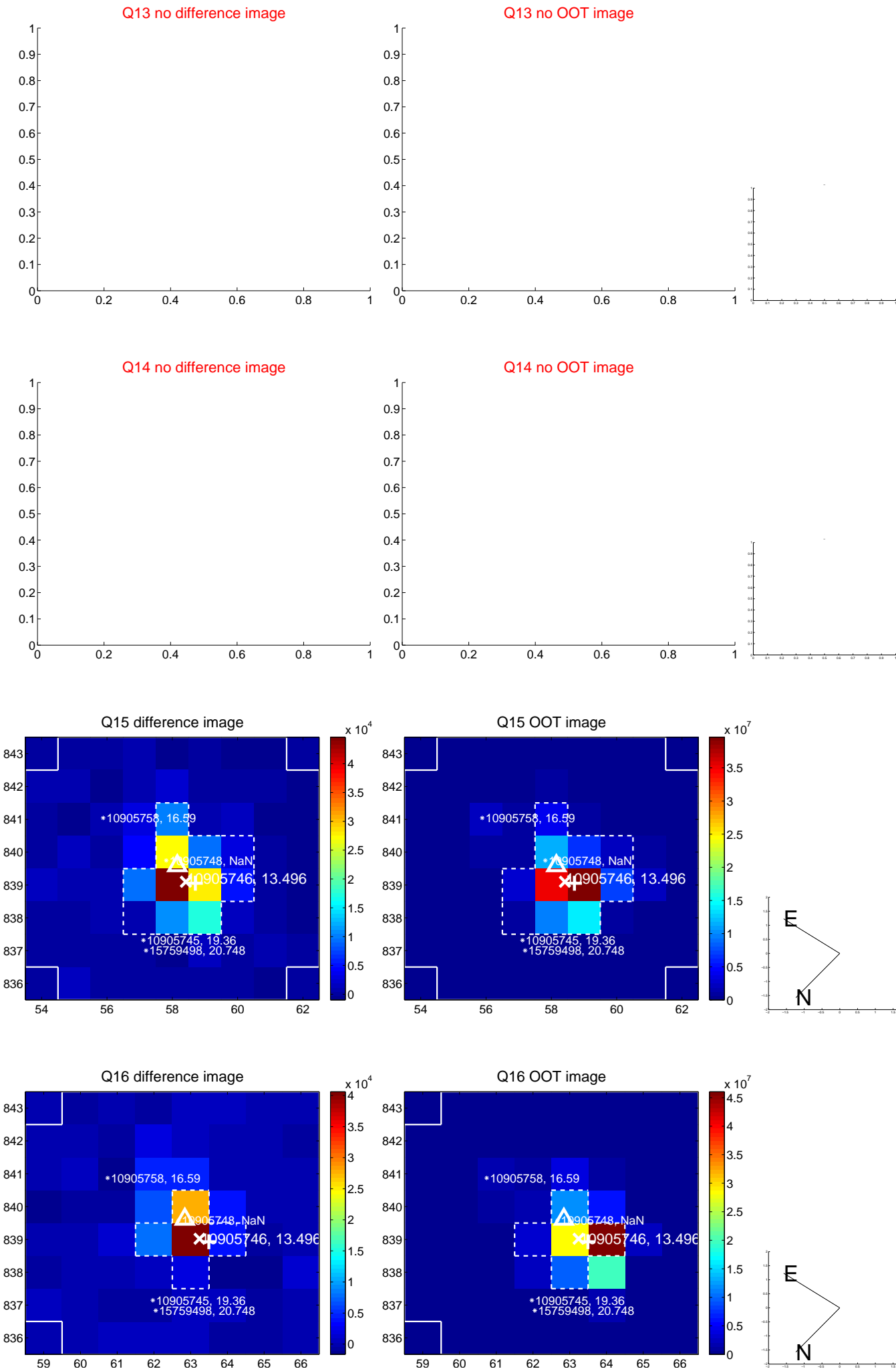
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



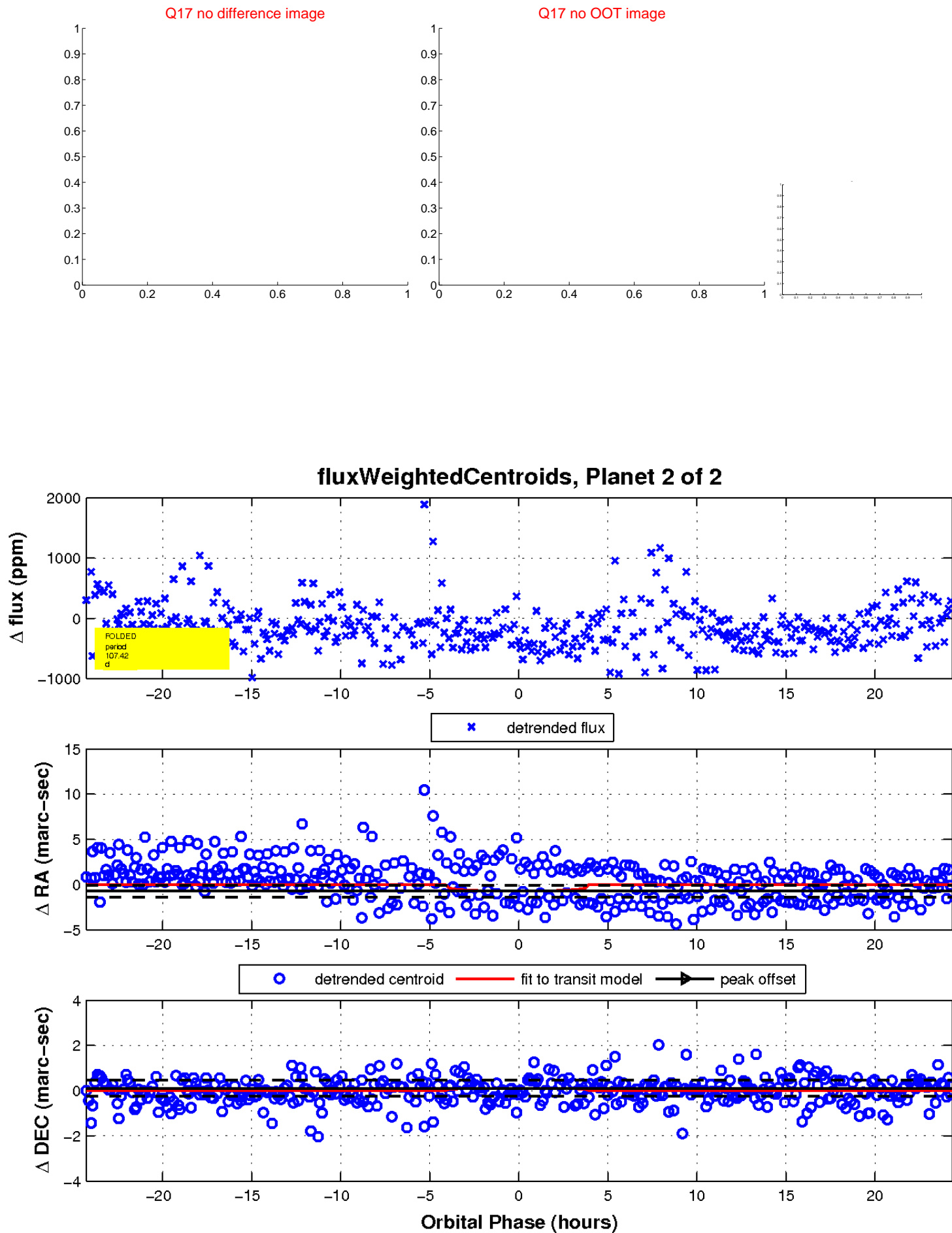
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

