

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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

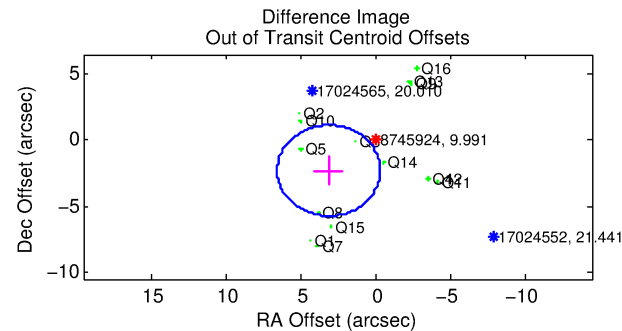
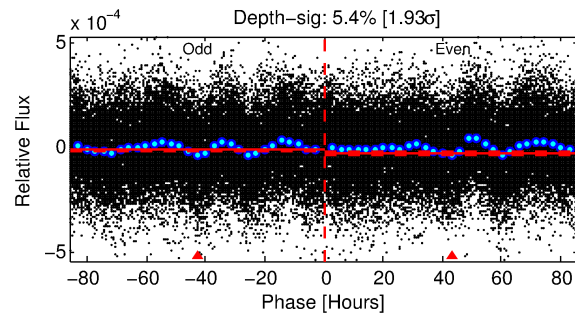
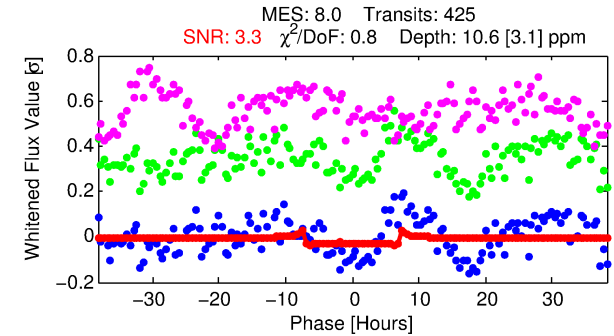
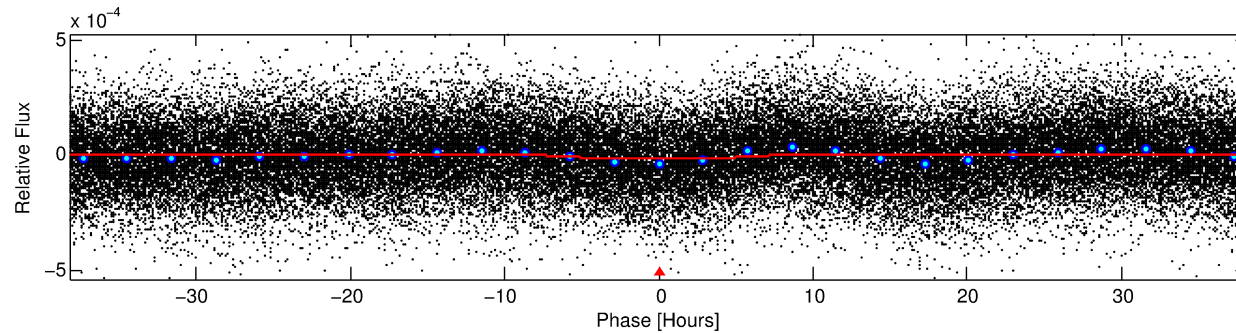
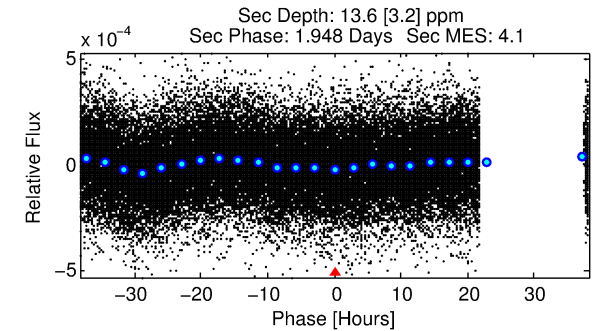
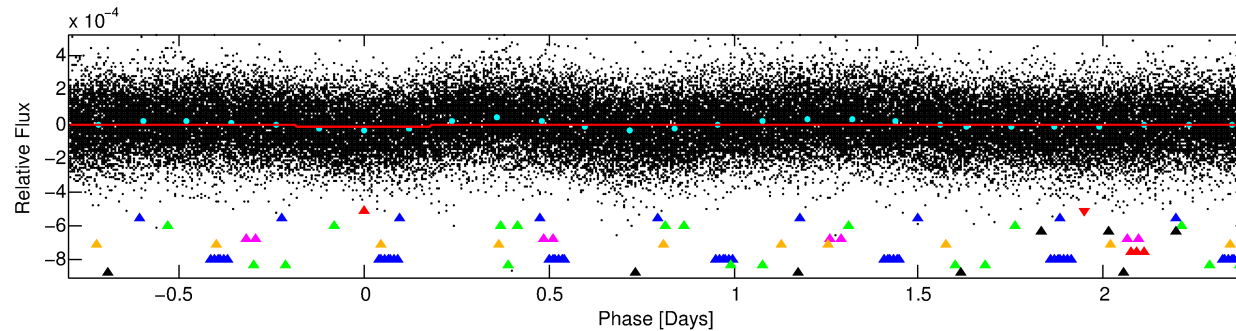
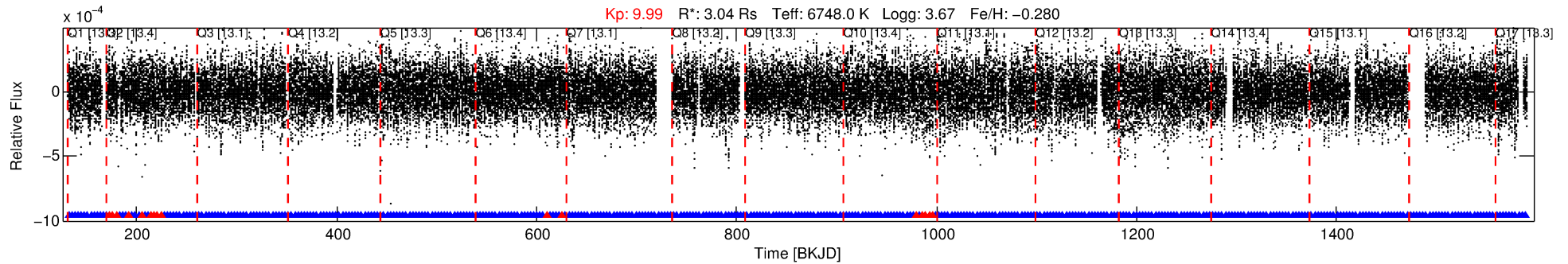
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-01

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 1 of 10 Period: 3.187 d



DV Fit Results:

Period = 3.18729 [0.00006] d
Epoch = 131.9827 [0.0100] BKJD
Rp/R* = 0.0034 [0.0008]
a/R* = 1.22 [0.42]
b = 0.89 [0.25]
Seff = 7079.39 [3981.24]
Teq = 2339 [329] K
Rp = 1.14 [0.50] Re
a = 0.0492 [0.0171] AU
Ag = 13.97 [10.60] [1.22σ]
Teffp = 6991 [938] K [4.68σ]

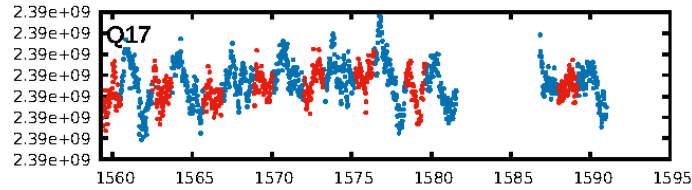
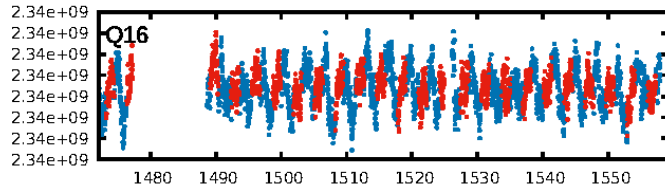
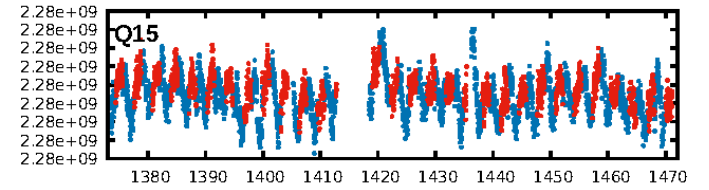
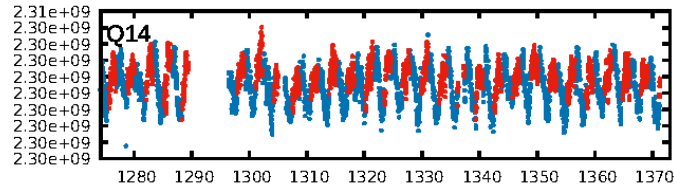
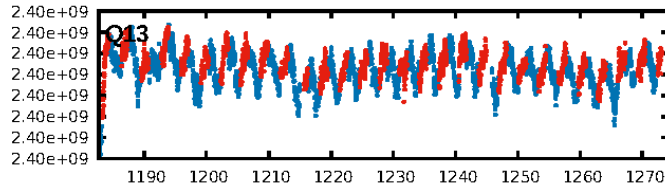
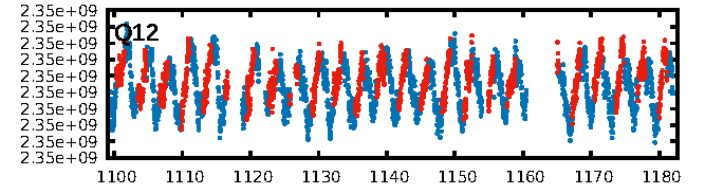
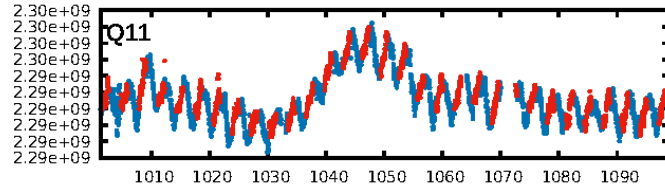
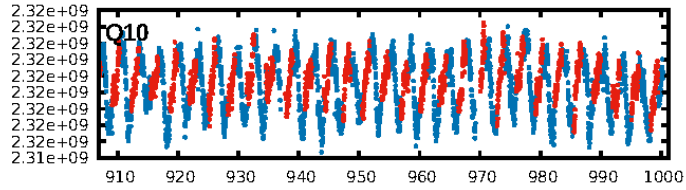
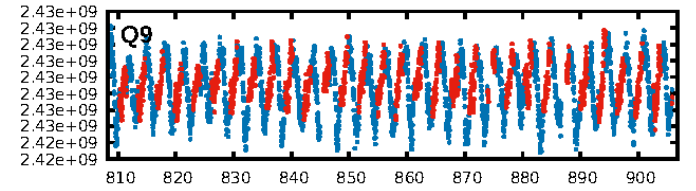
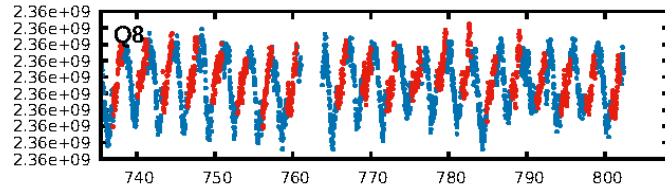
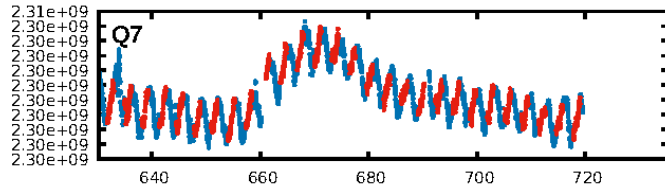
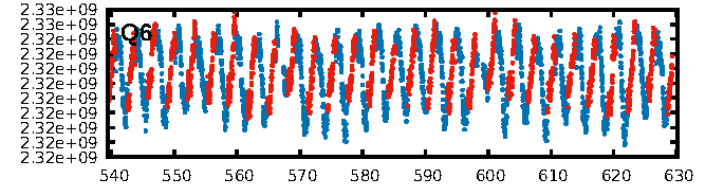
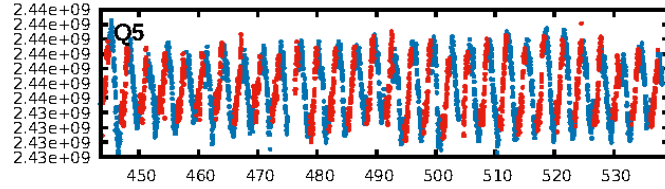
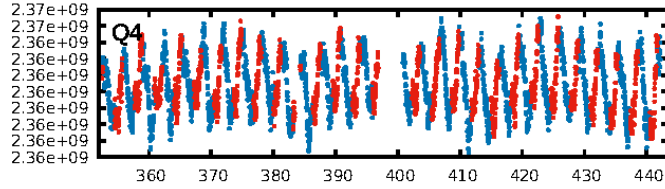
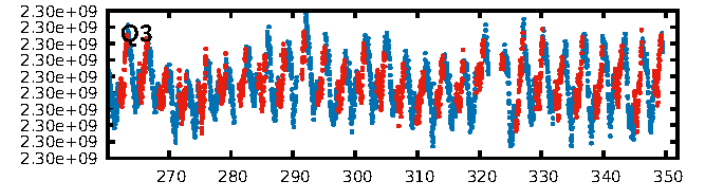
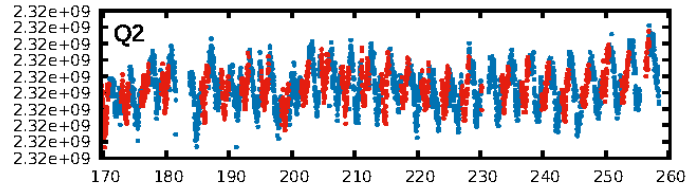
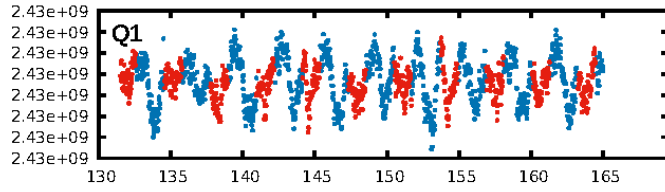
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [48.32σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.96 [390/406]
GhostDiagnostic-chr: 0.404
Centroid-sig: 0.2%
Centroid-so: 3.417 arcsec [2.41σ]
OotOffset-rm: 3.860 arcsec [3.37σ]
KicOffset-rm: 4.235 arcsec [3.38σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.13 [2/15]
DiffImageOverlap-fno: 1.00 [17/17]

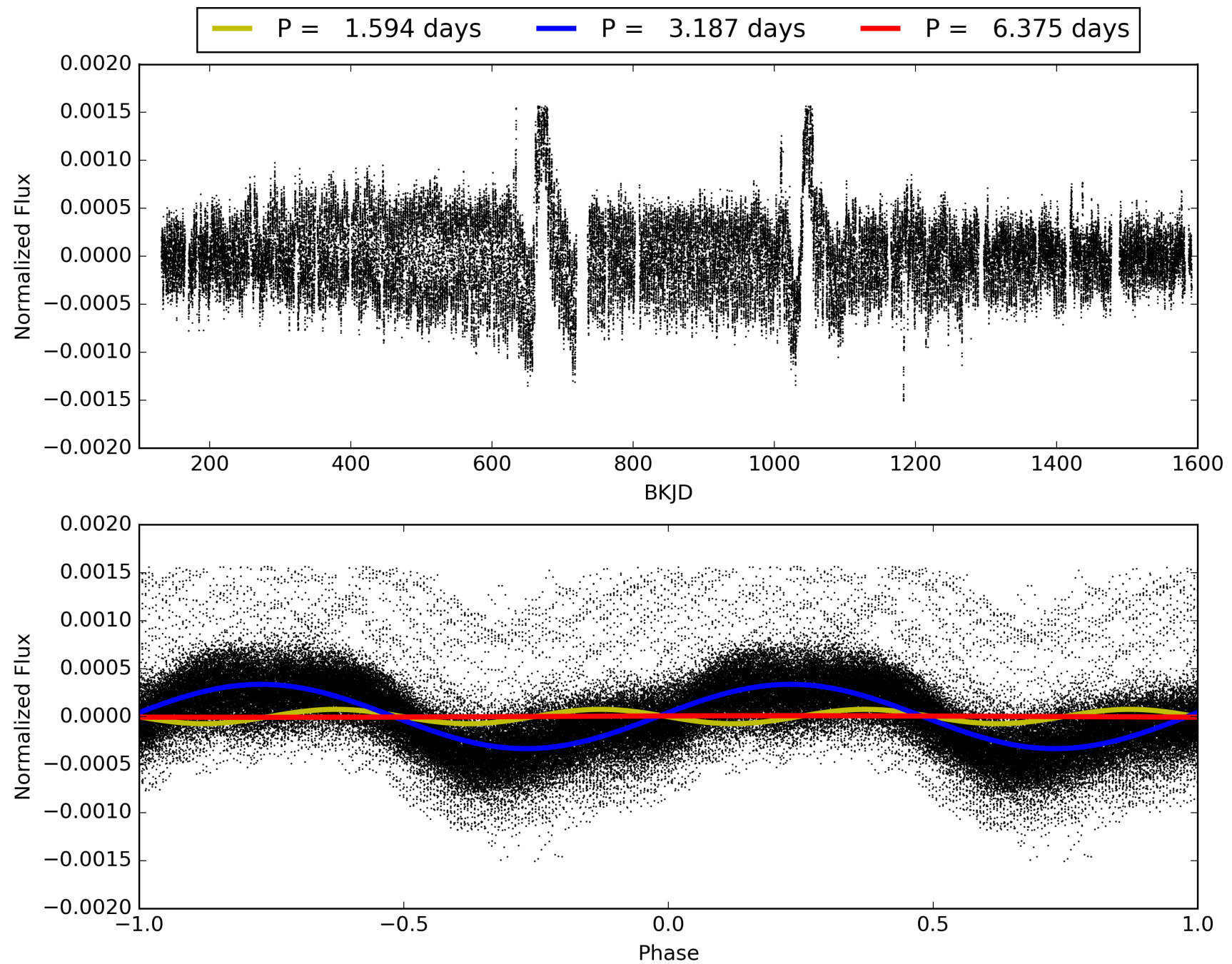
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:55:38 Z

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

TCE 008745924-01, PDC Light Curves

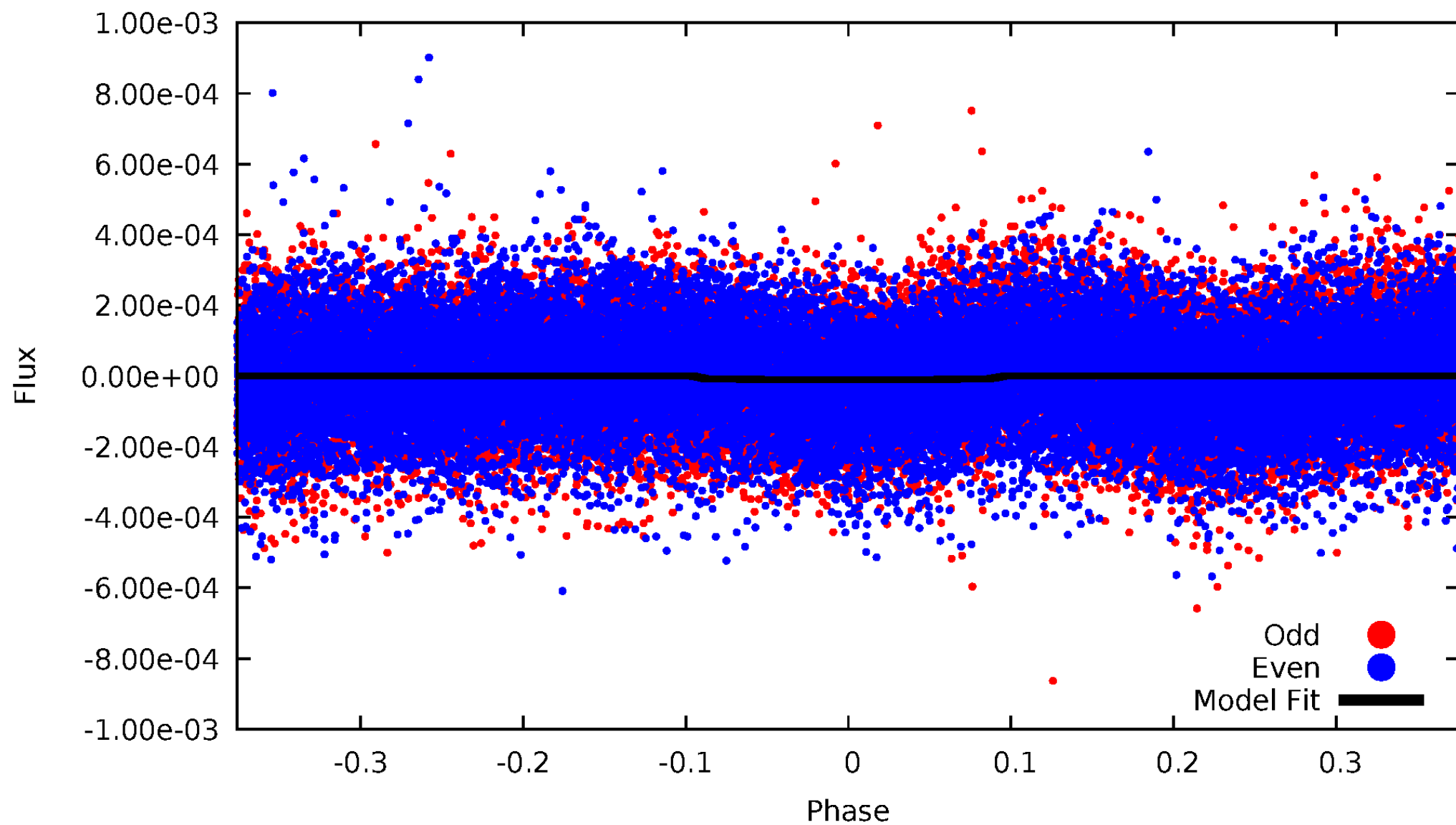


TCE 008745924-01



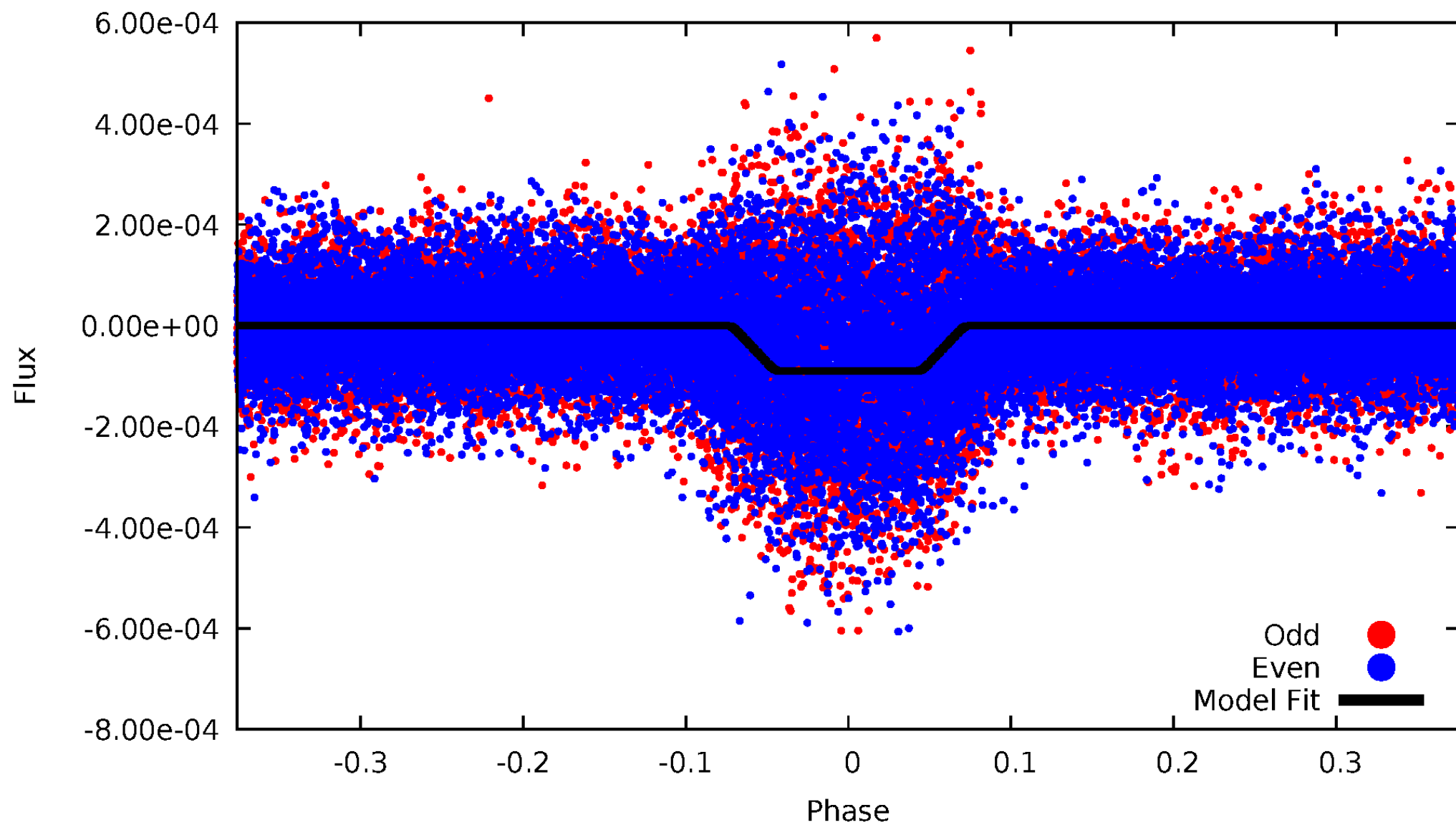
DV Odd/Even

TCE 008745924-01



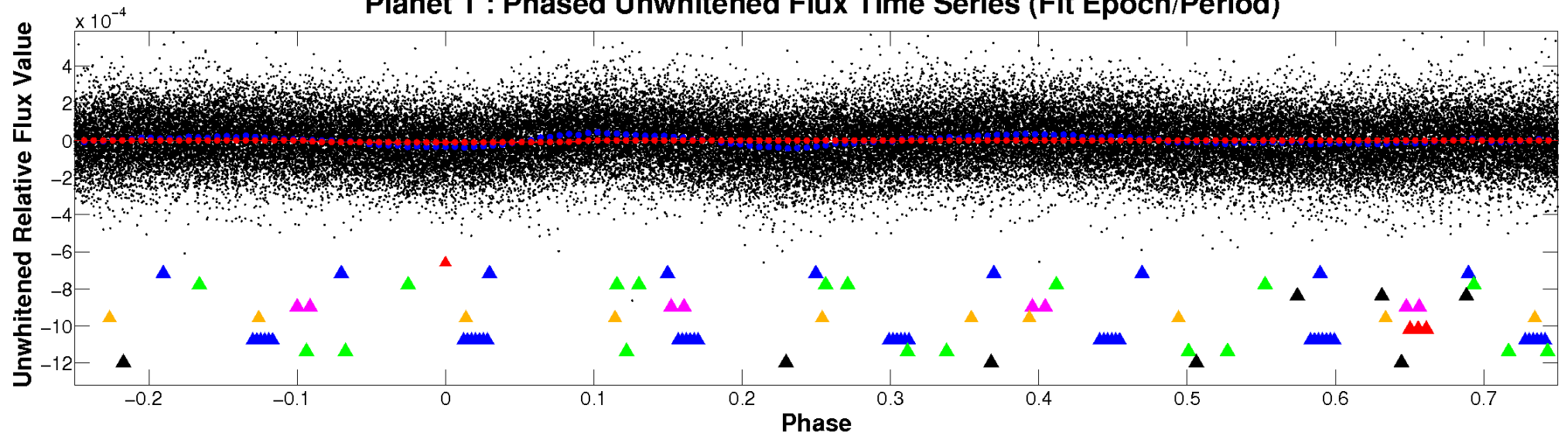
ALT Odd/Even

TCE 008745924-01

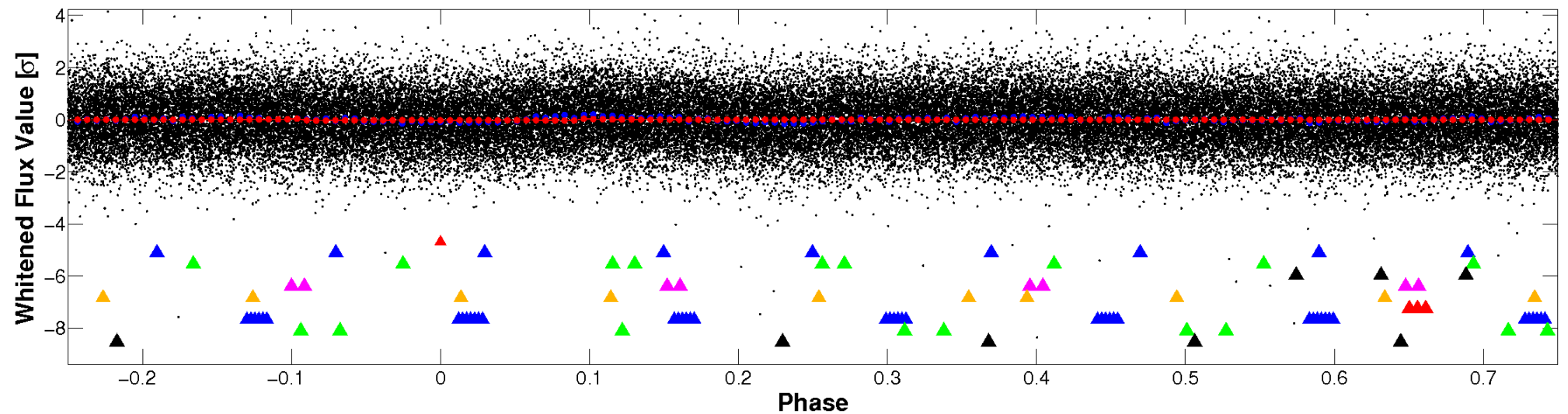


Non-Whitened Vs. Whitened Light Curve

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

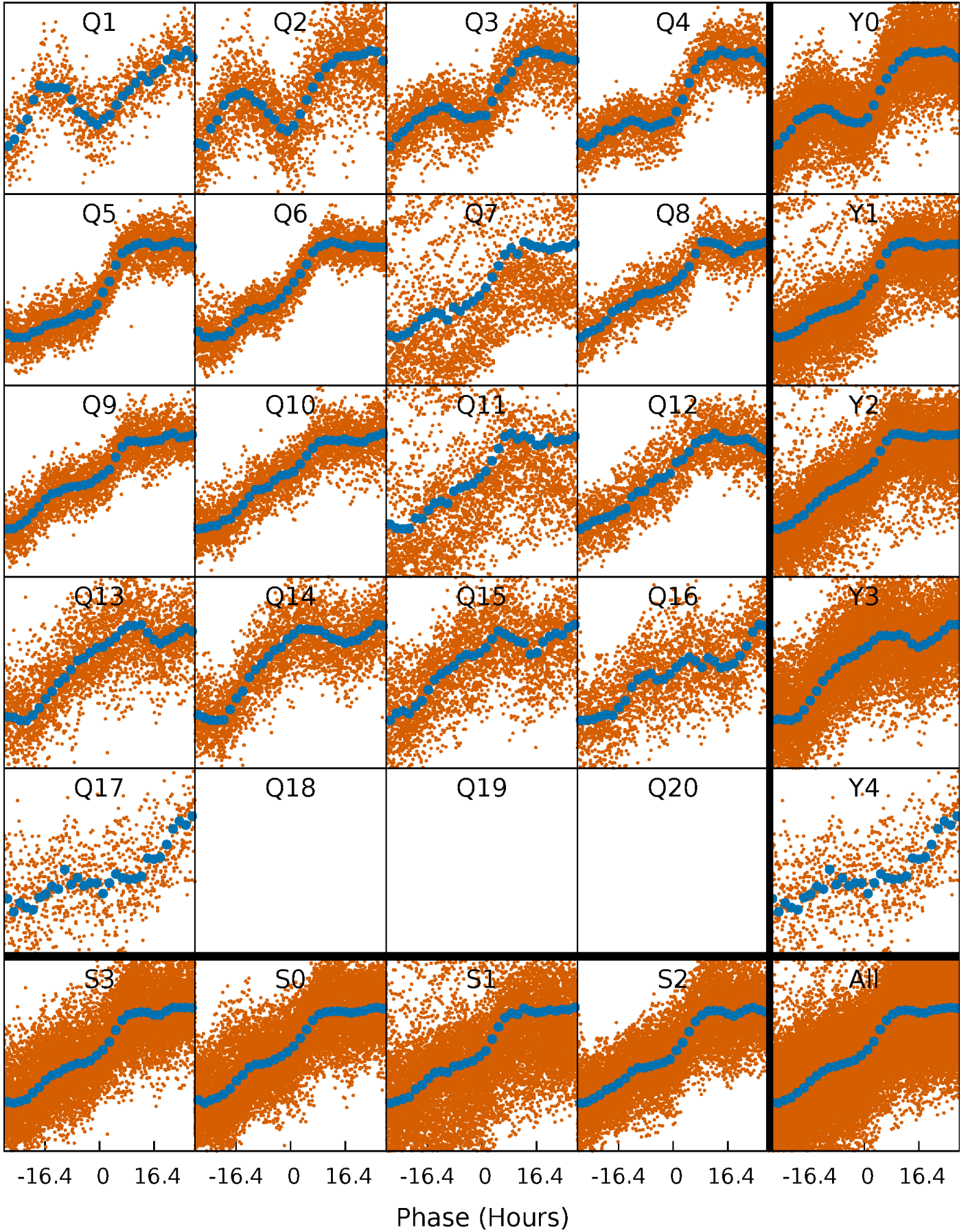


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



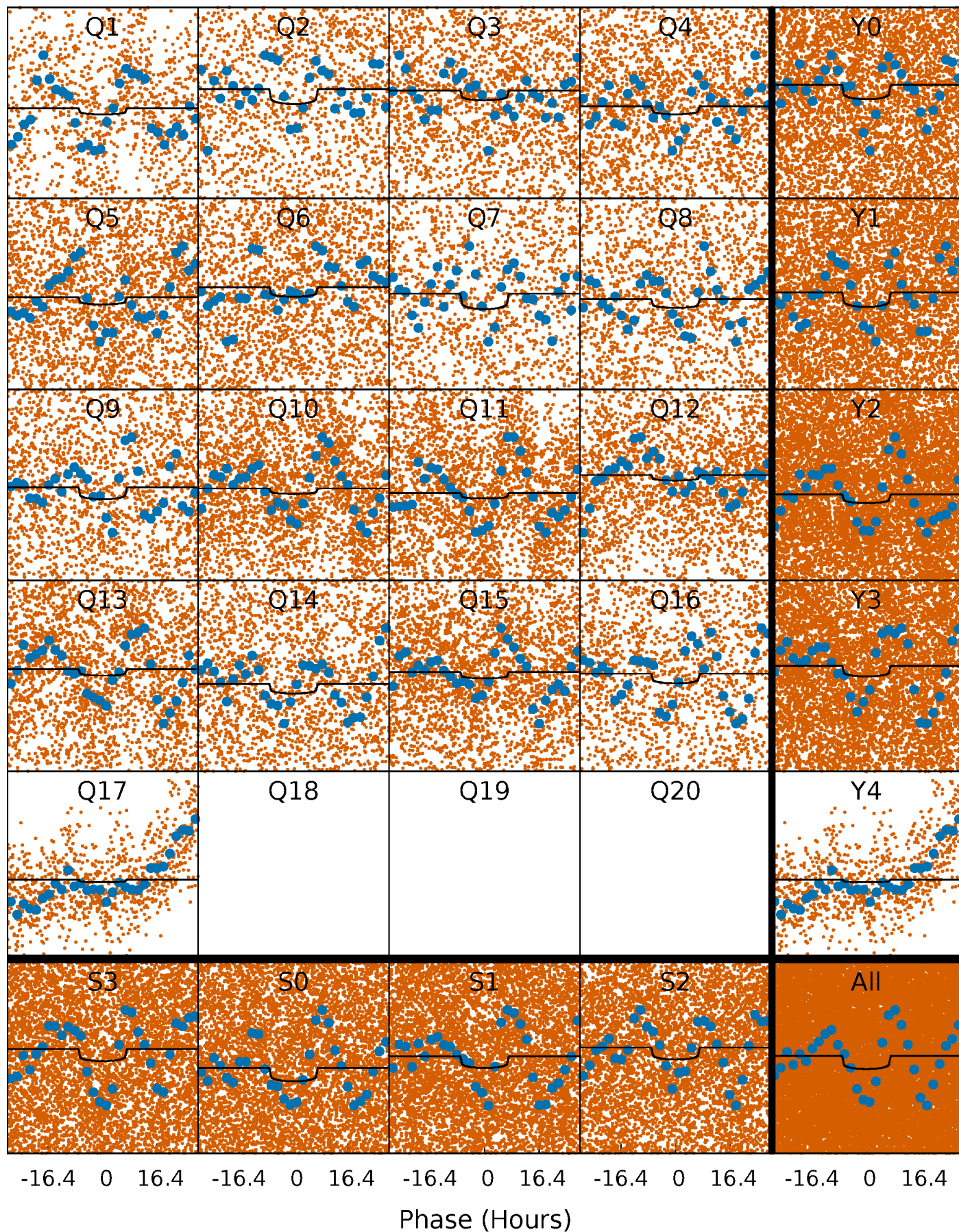
PDC Quarter-Phased Transit Curves

TCE 008745924-01 P= 3.187289 Days $T_0=131.982687$ (BKJD)



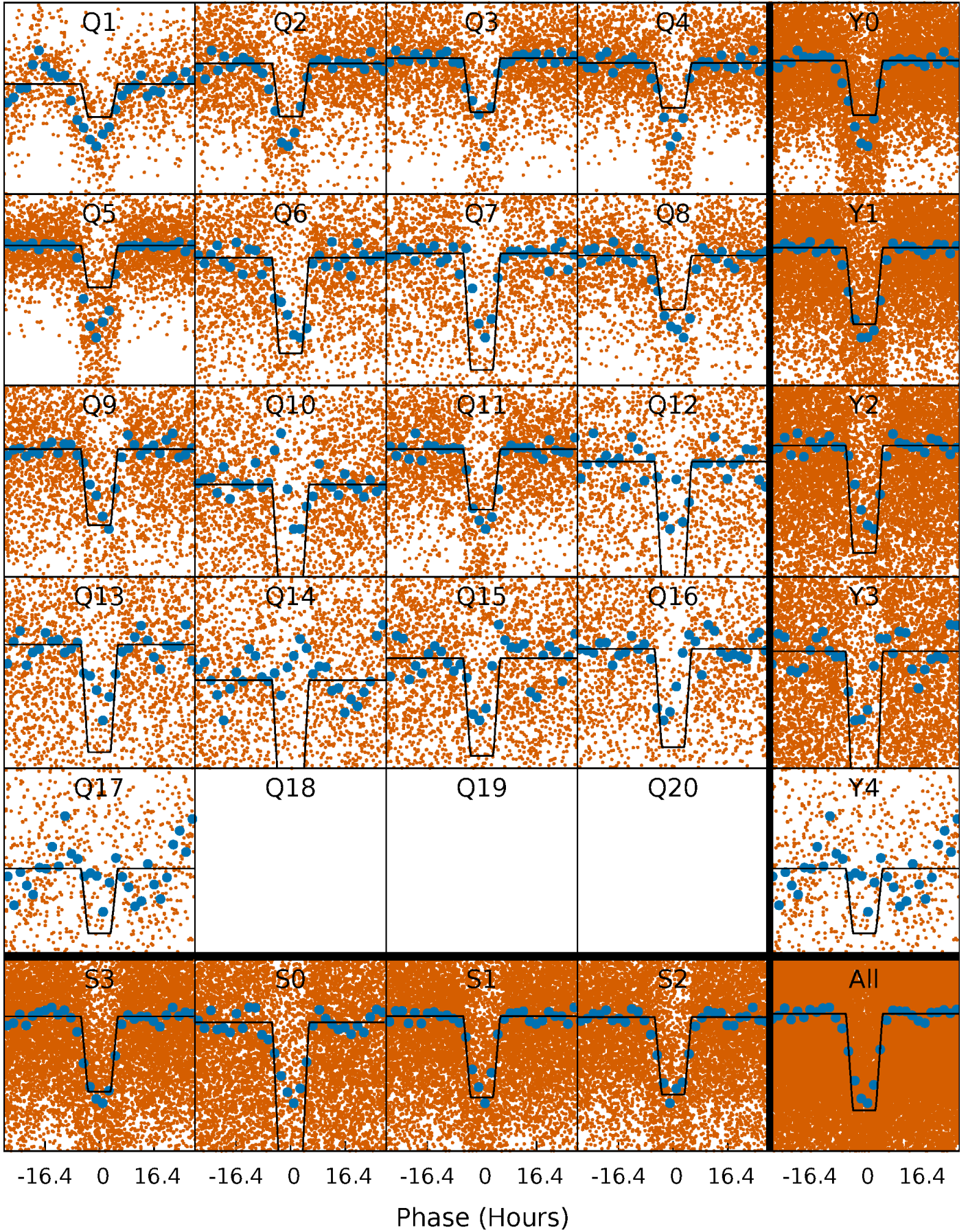
DV Quarter-Phased Transit Curves

TCE 008745924-01 P= 3.187289 Days $T_0=131.982687$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

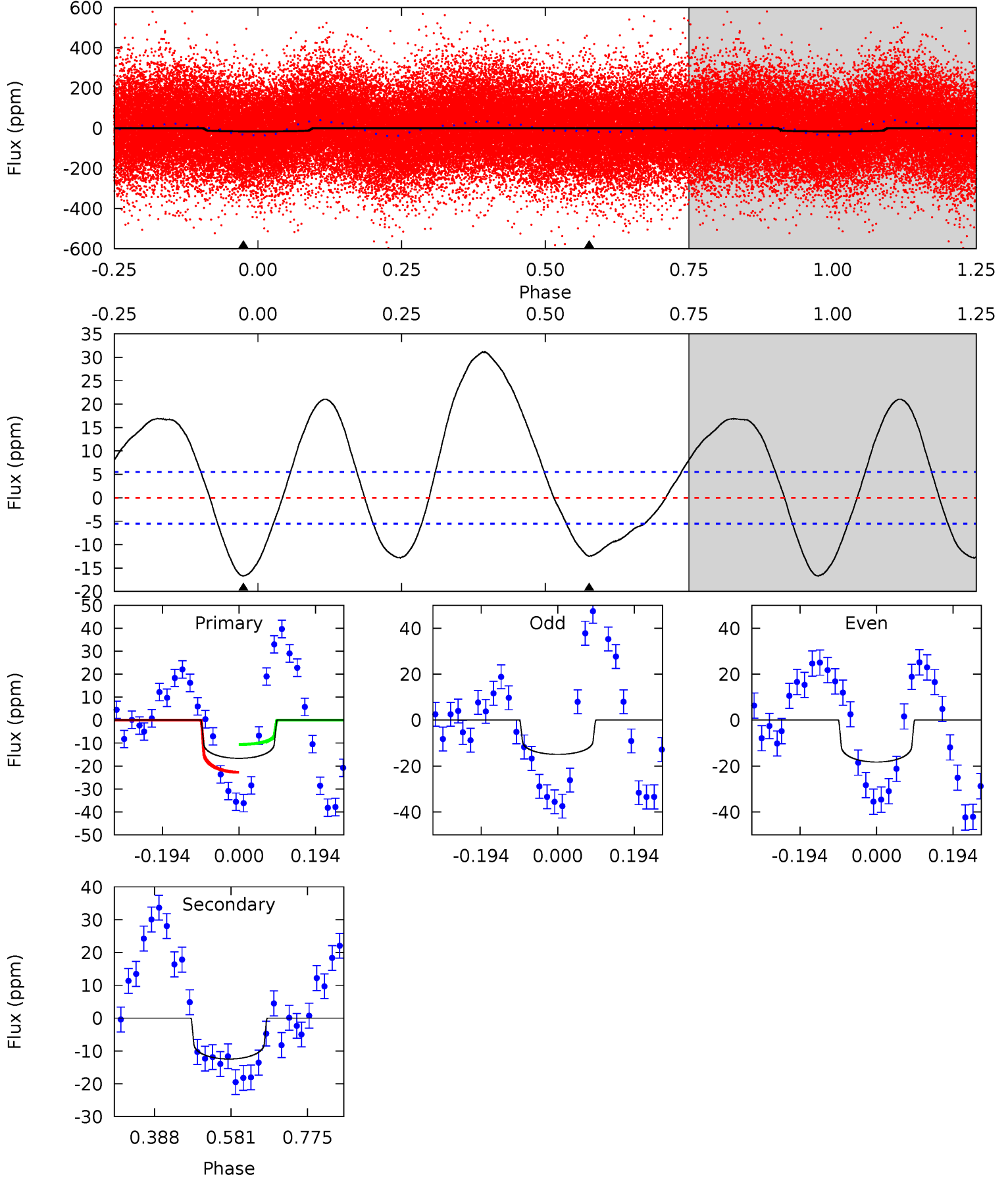
TCE 008745924-01 P= 3.187259 Days $T_0=131.993106$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-01, P = 3.187289 Days, E = 128.795398 Days

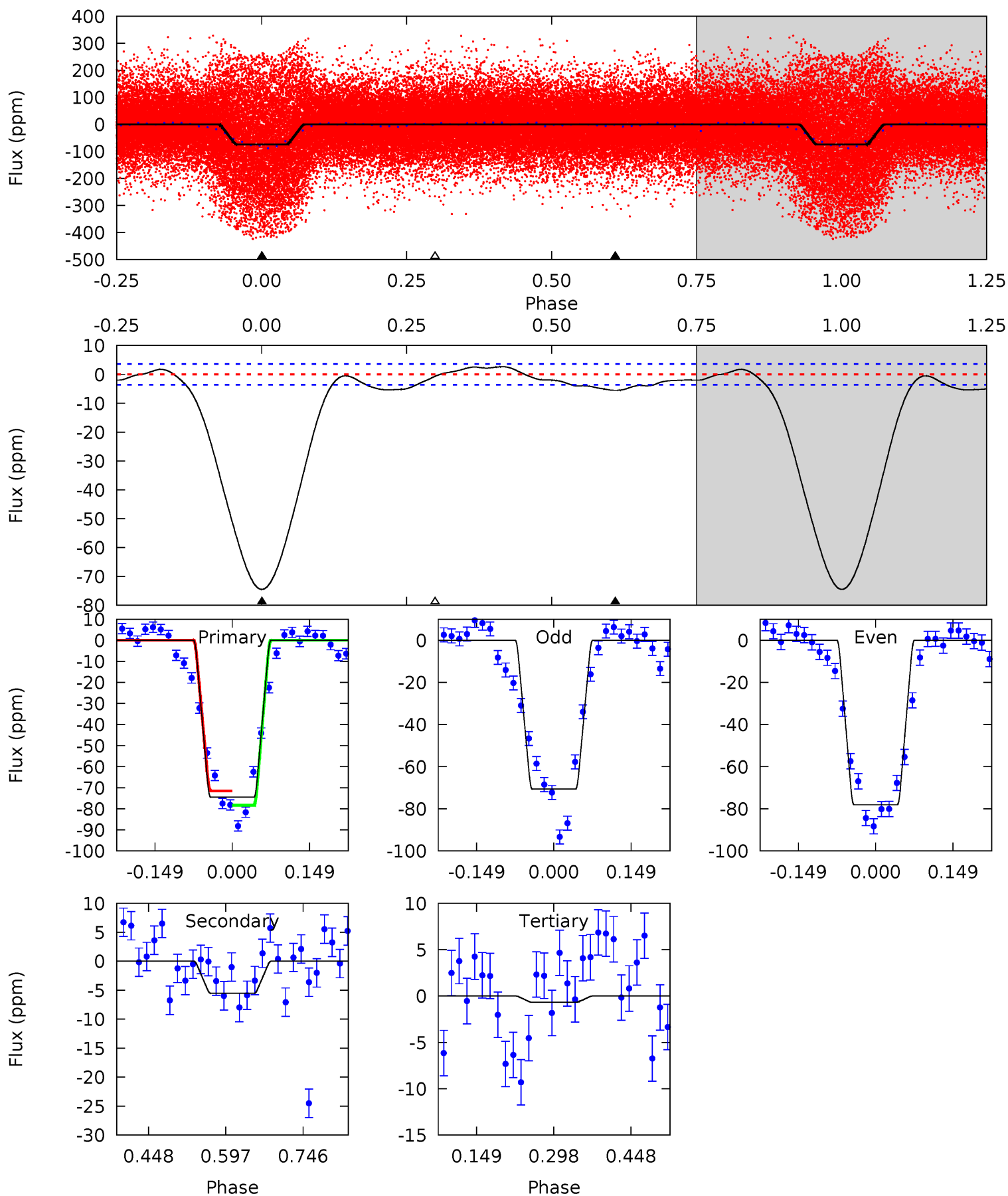
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	10.0	0	0	4.42	1.30	11.4	13.4	13.4	10.0	10.0	1.35	1.03	0.65	5.06



Alt Model-Shift Uniqueness Test

008745924-01, P = 3.187259 Days, E = 128.805847 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
93.0	6.91	0.86	0	4.48	1.44	3.33	92.1	93.0	6.05	6.91	4.63	0.90	0.03	4.22



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-12 ± 1	$1.06^{+0.32}_{-0.30}$	3196^{+186}_{-289}	6840^{+1159}_{-750}	15^{+14}_{-6}
Alt.	-6 ± 1	$3.05^{+0.45}_{-0.60}$	3208^{+187}_{-297}	3461^{+228}_{-204}	$0.808^{+0.411}_{-0.217}$

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 $A_{obs} \gg 1.0$

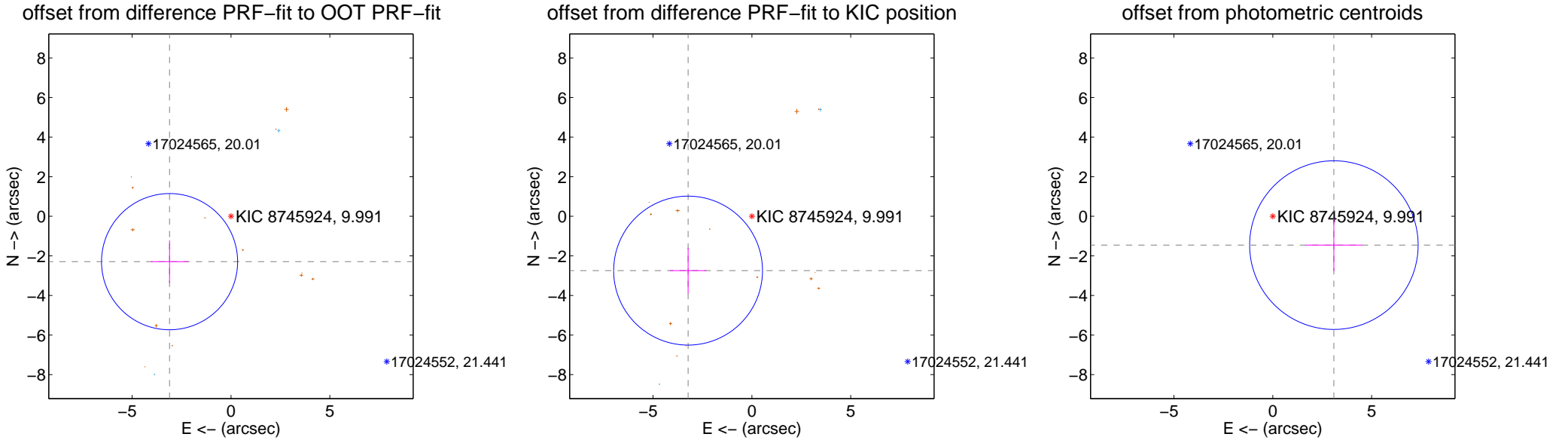
DV Centroid Data

Supplemental centroid analysis for 008745924-01. **Kepler magnitude: 9.99.** Transit SNR 3.34

There are 2 quarters with good PRF difference image offsets

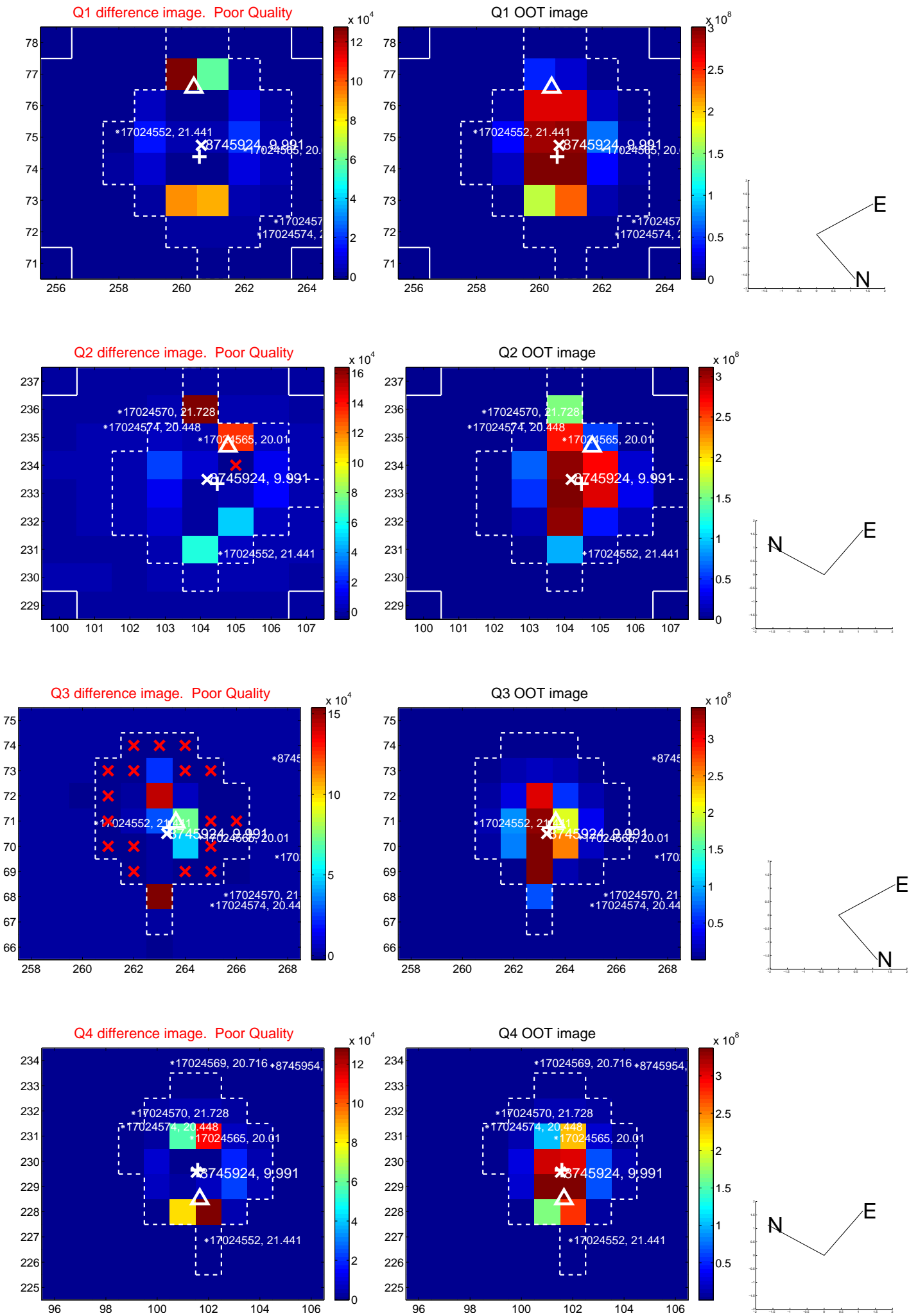
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.860 ± 1.147	3.37	3.106 ± 0.951	-2.291 ± 1.073
PRF-fit source offset from KIC position	4.235 ± 1.254	3.38	3.226 ± 0.922	-2.743 ± 1.154
photometric centroid source offset	3.42 ± 1.42	2.41	-3.09 ± 1.44	-1.46 ± 1.32

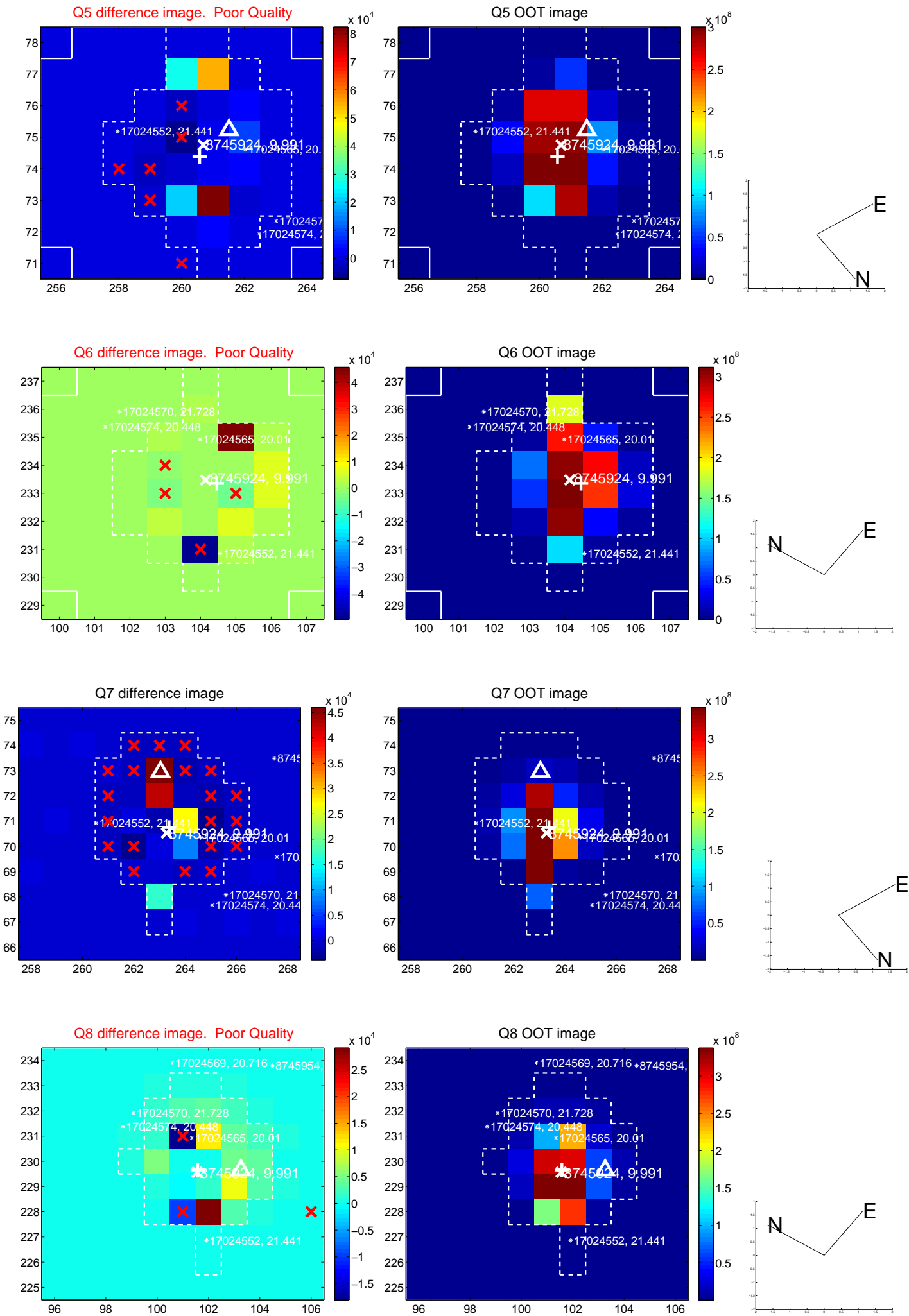


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

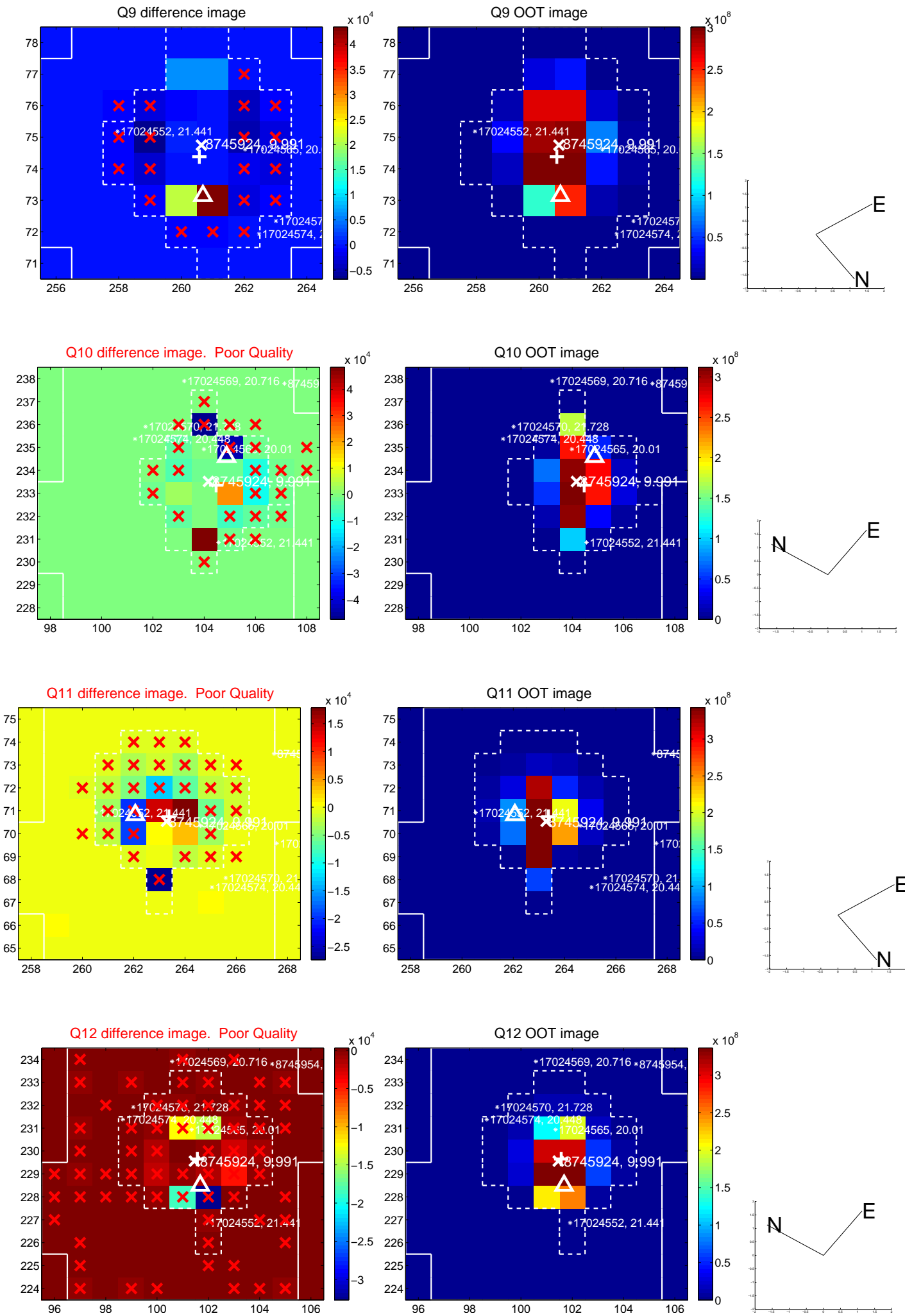
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



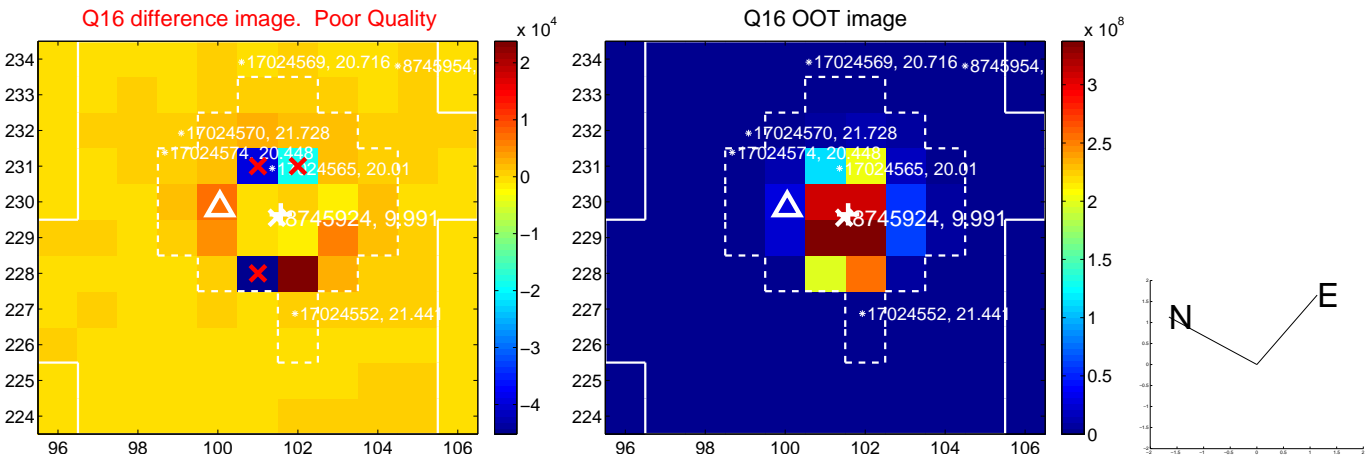
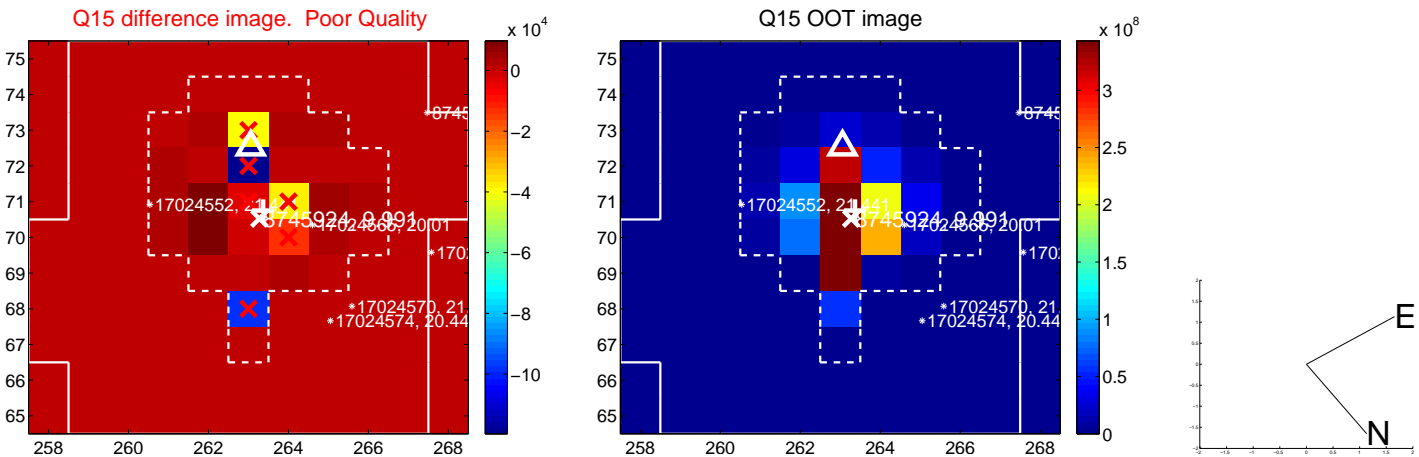
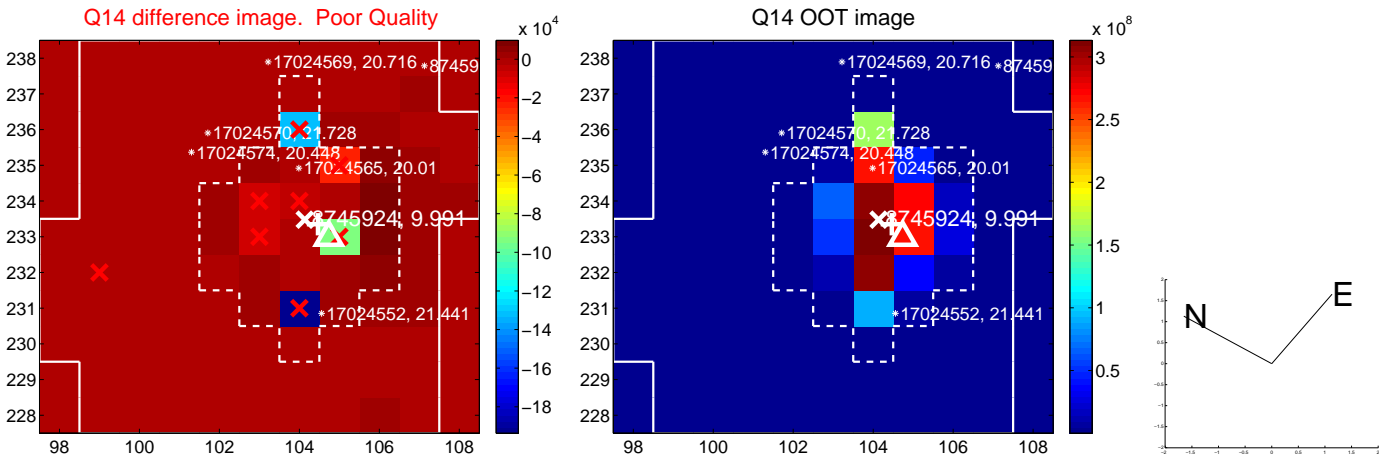
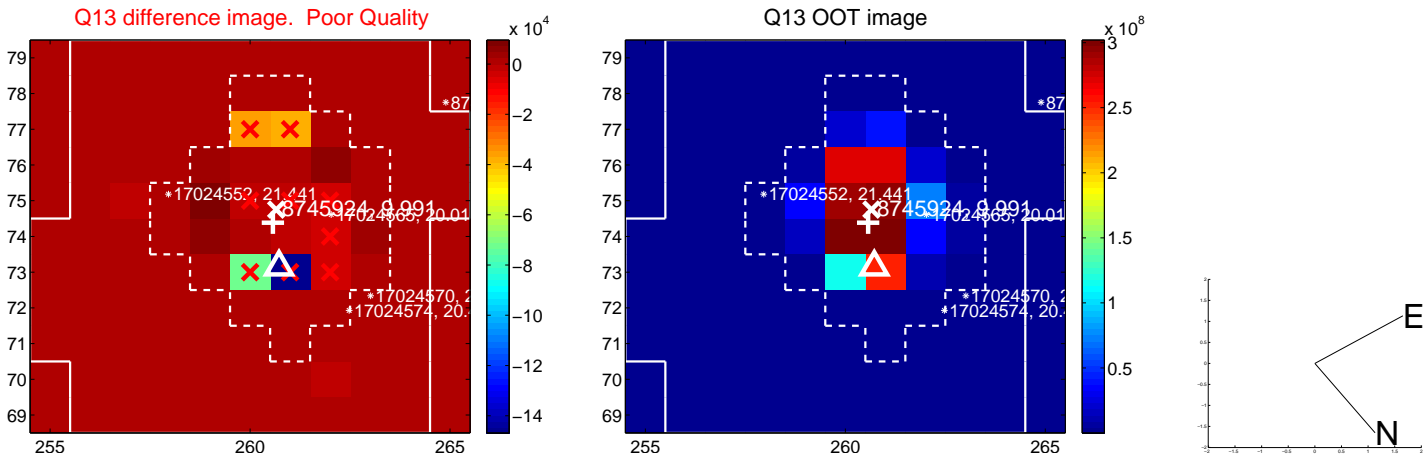
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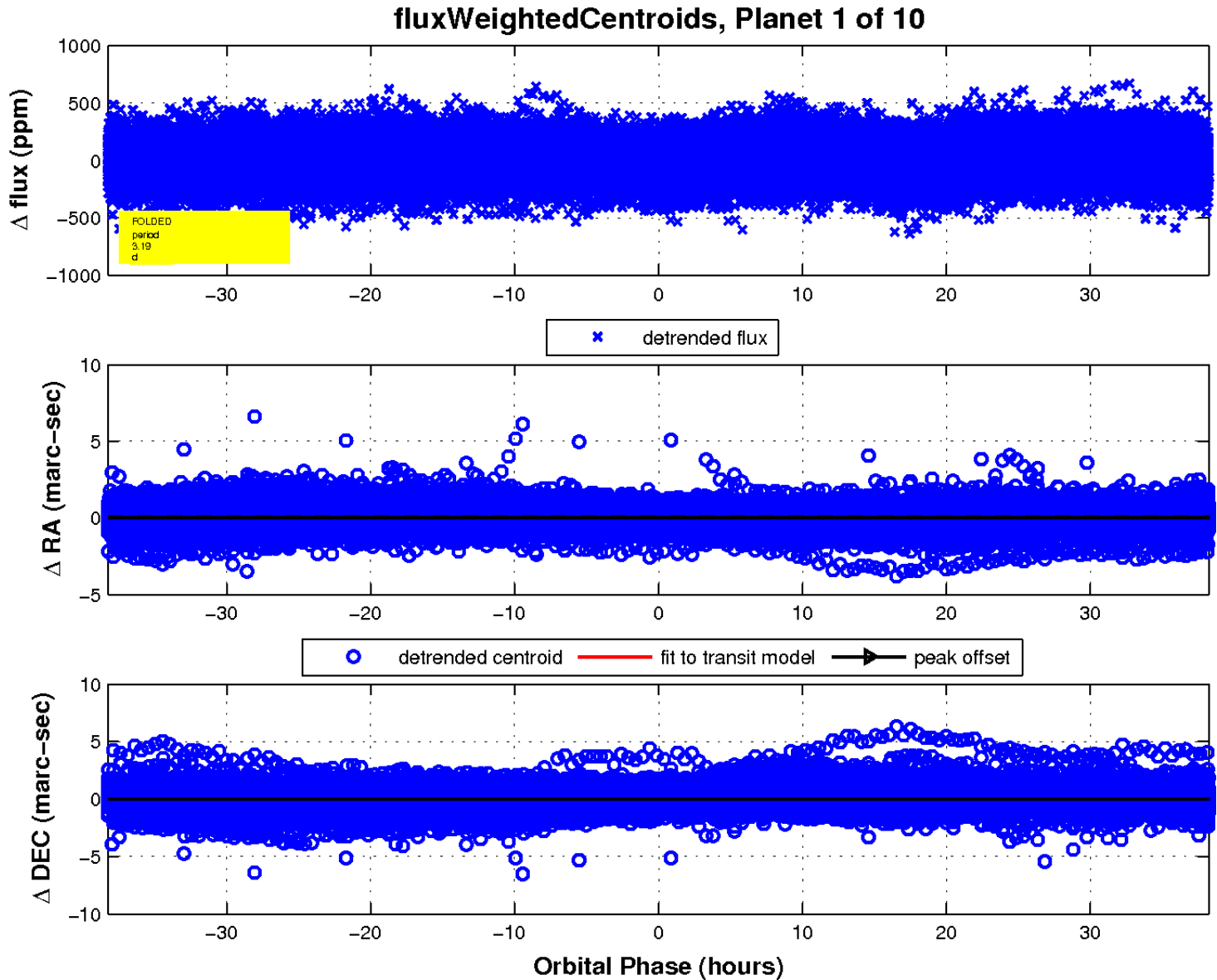
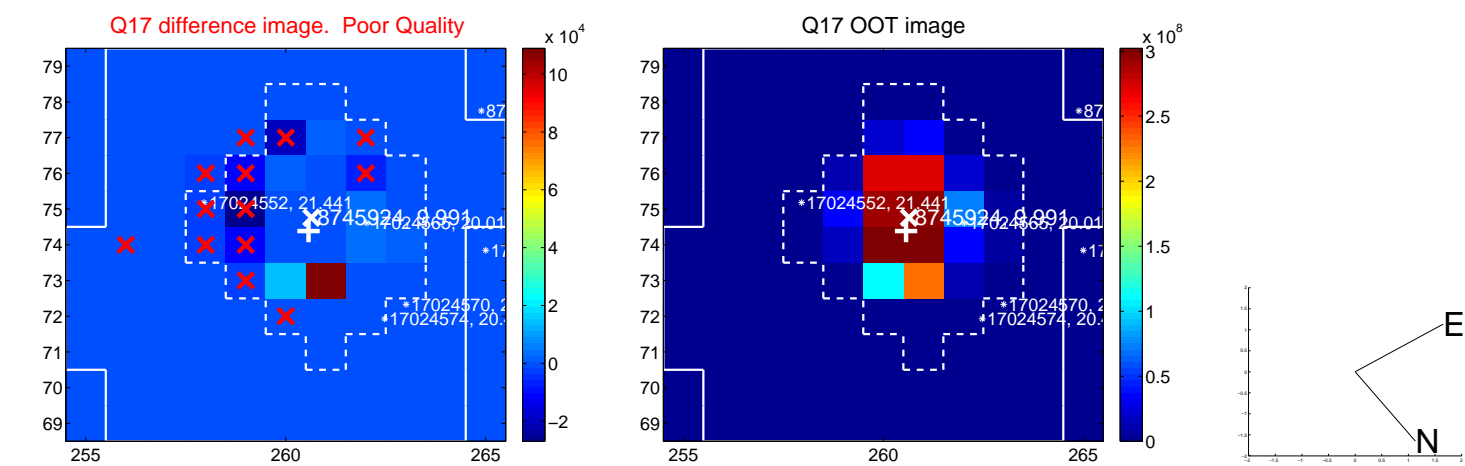
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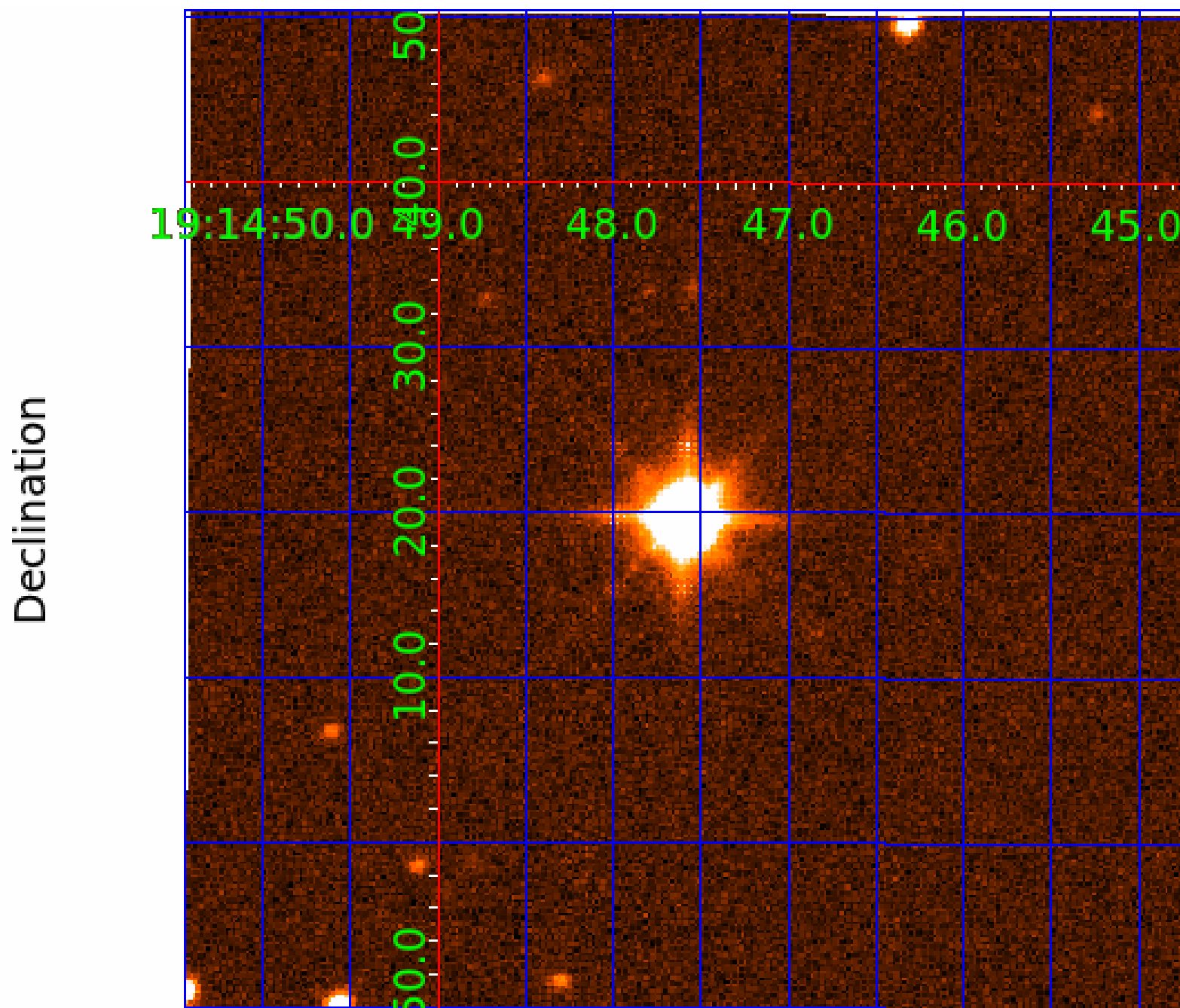
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UKIRT Image



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008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

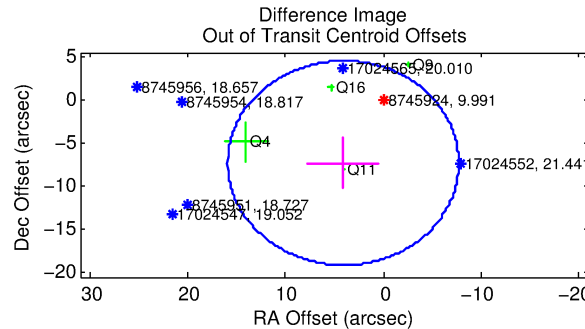
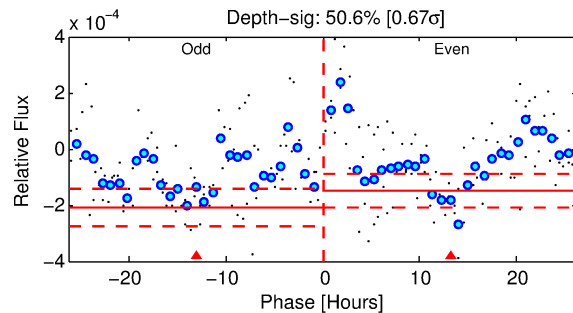
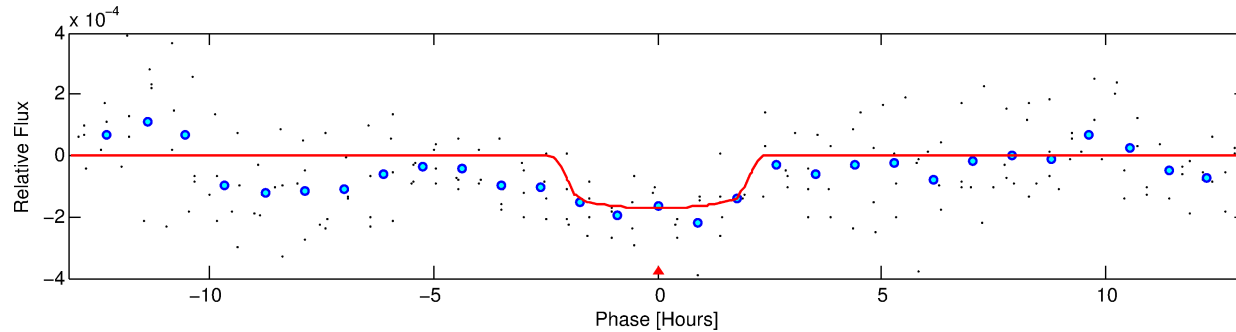
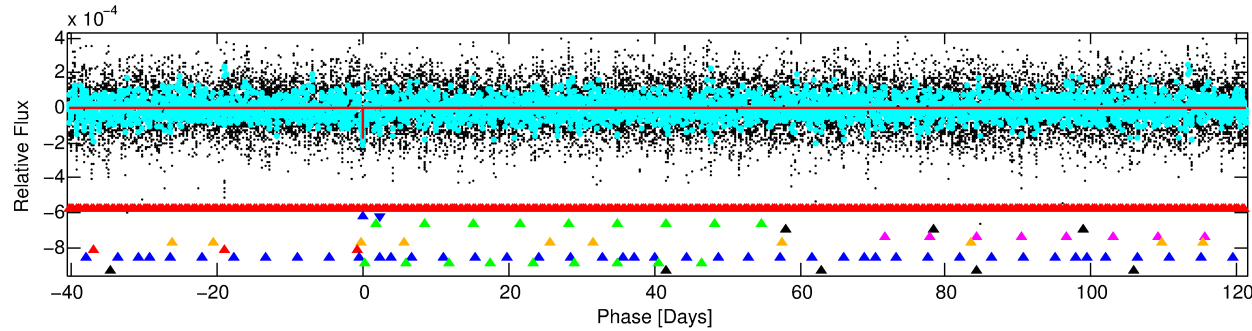
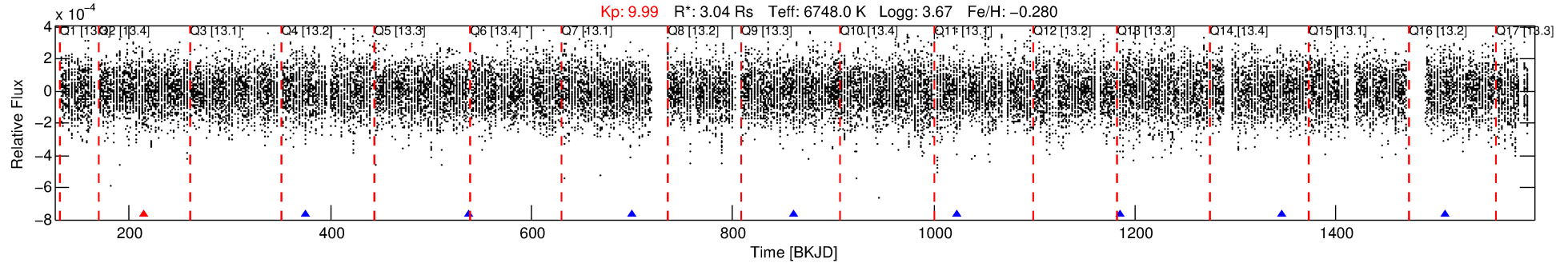
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-02

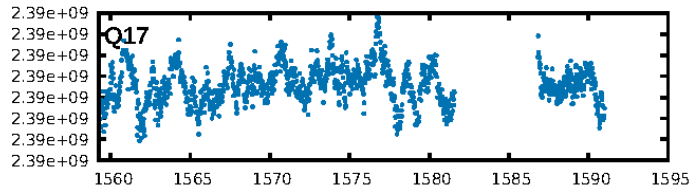
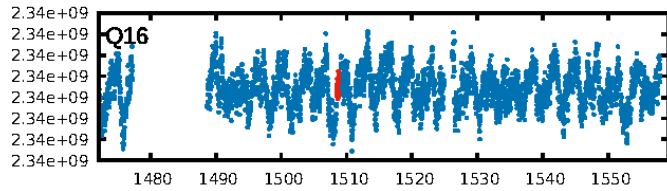
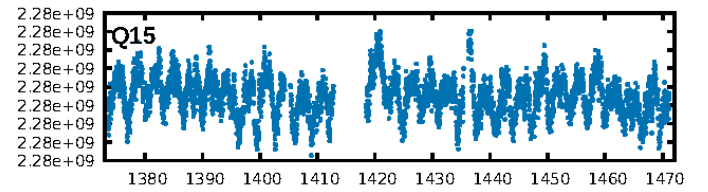
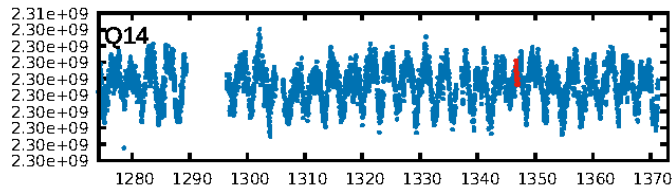
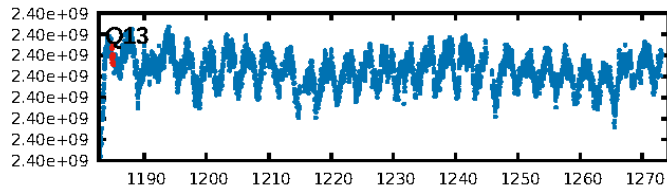
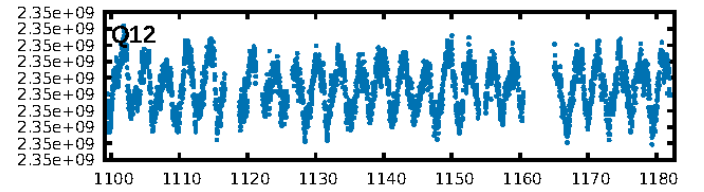
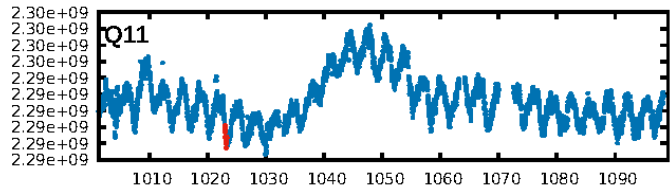
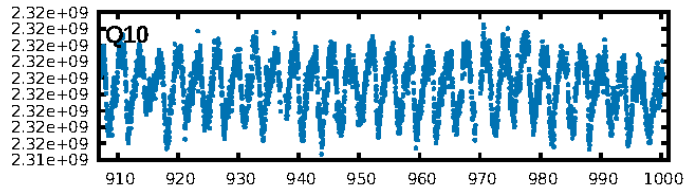
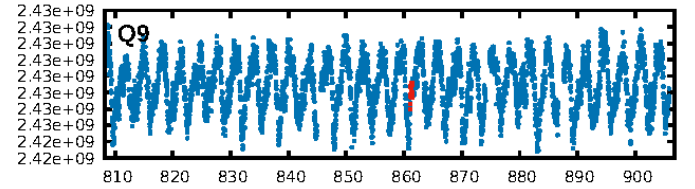
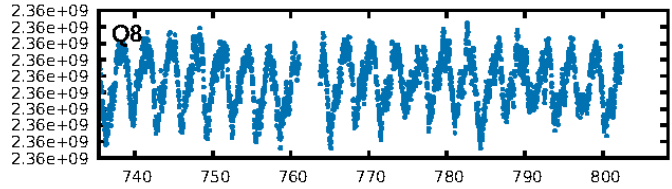
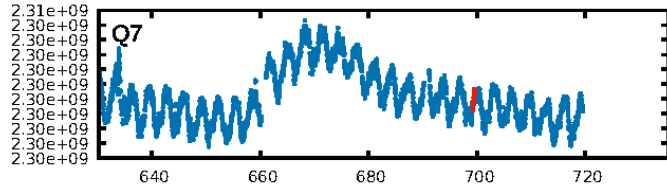
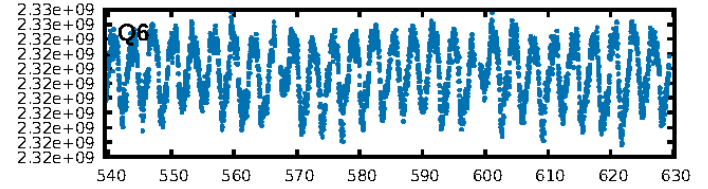
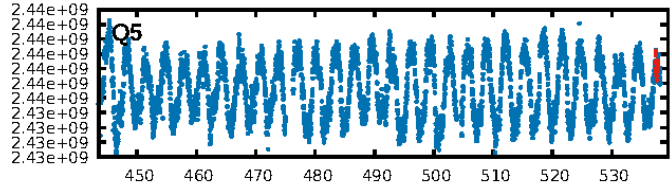
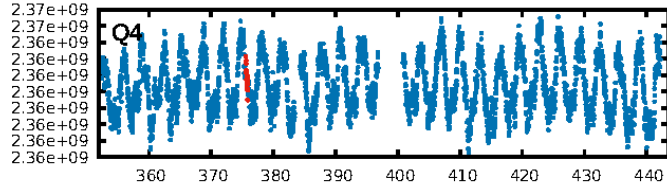
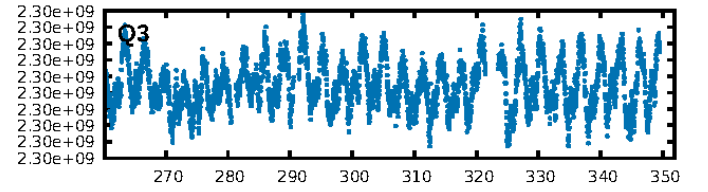
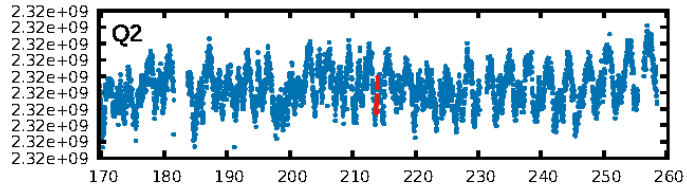
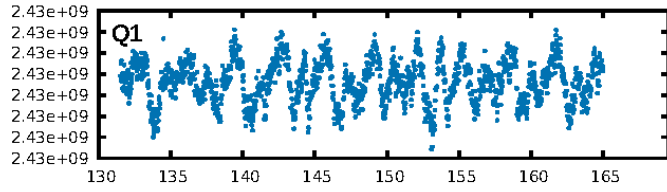
No Significant Match Found

DV One-Page Summary

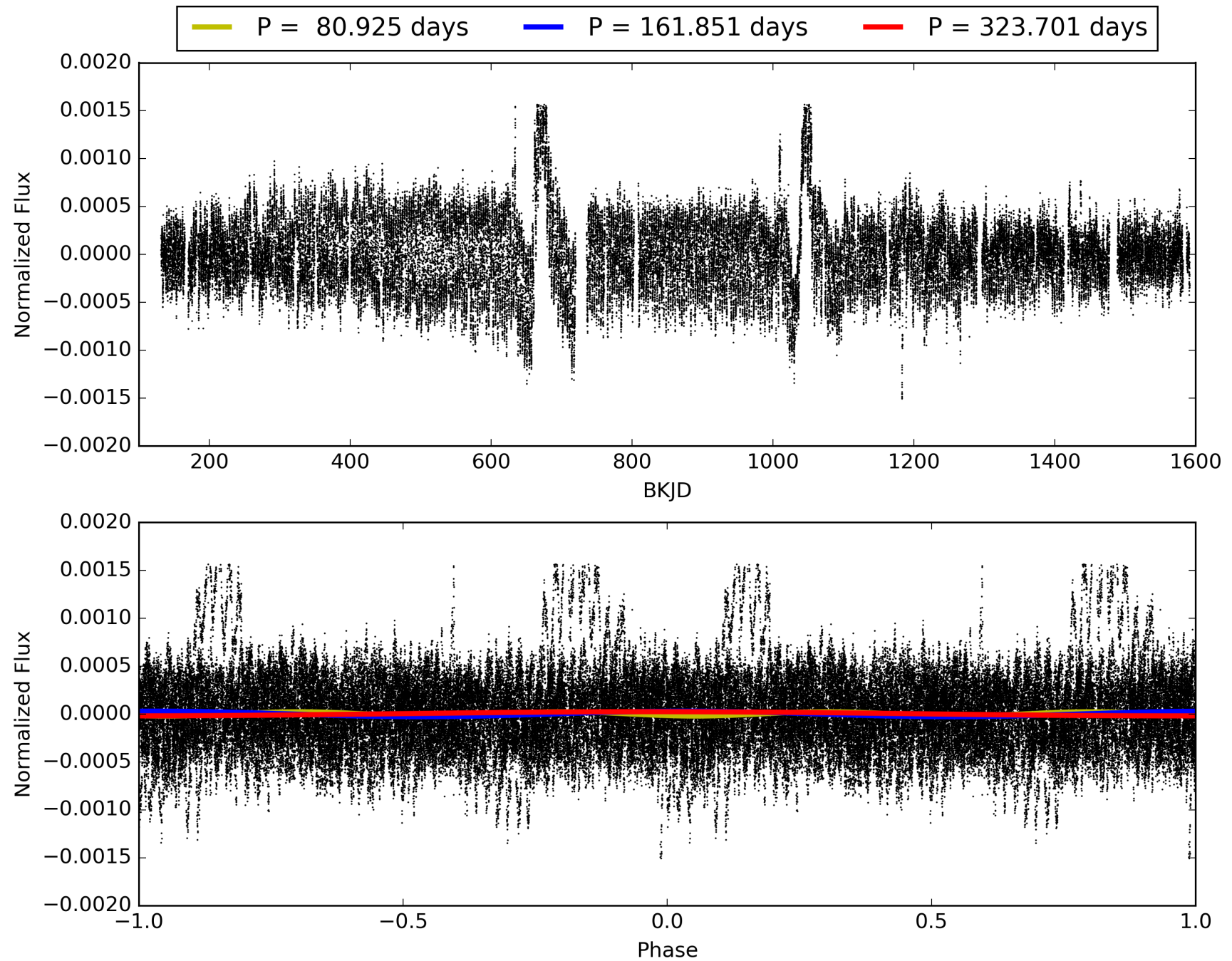
KIC: 8745924 Candidate: 2 of 10 Period: 161.851 d



TCE 008745924-02, PDC Light Curves

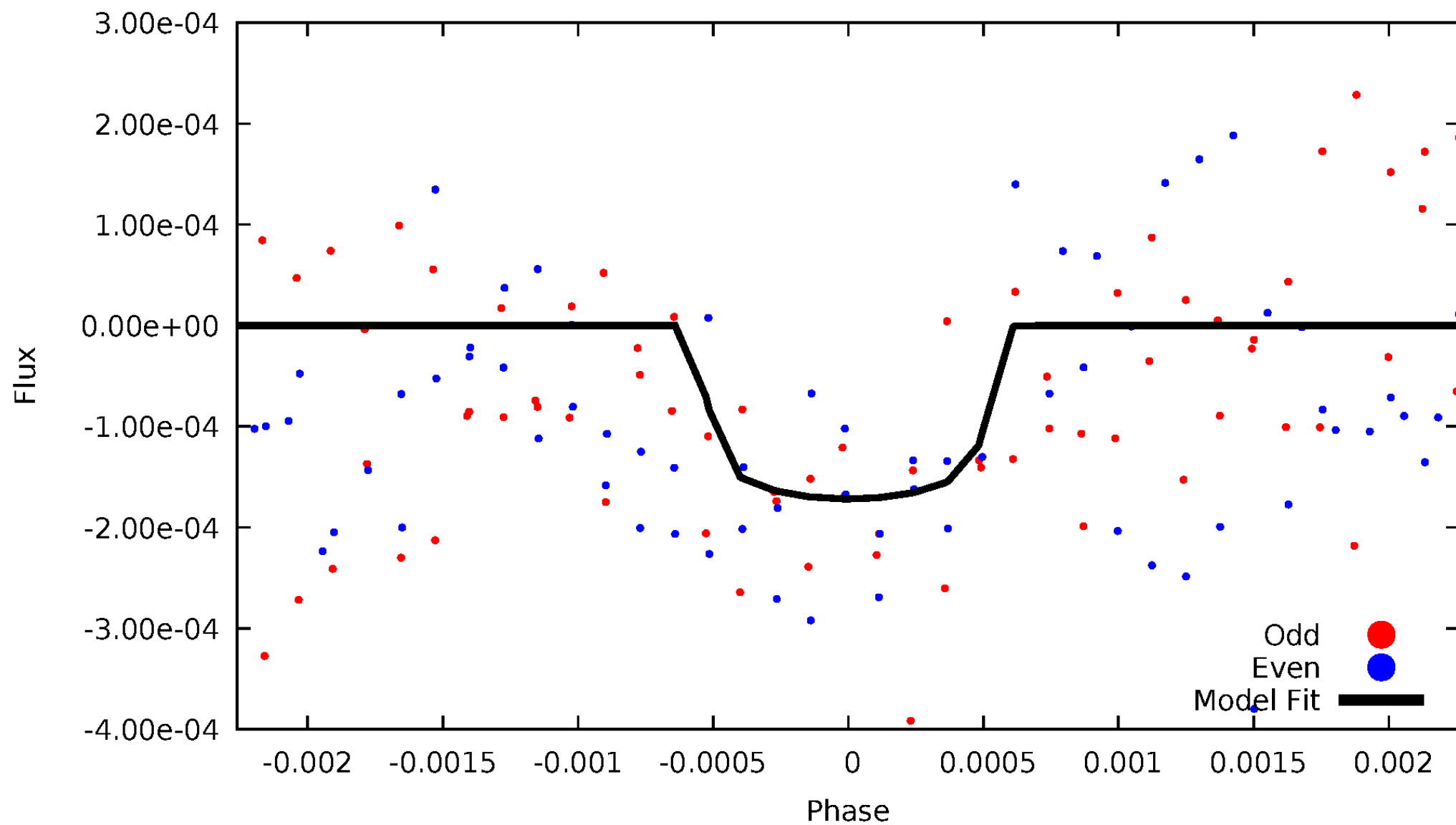


TCE 008745924-02



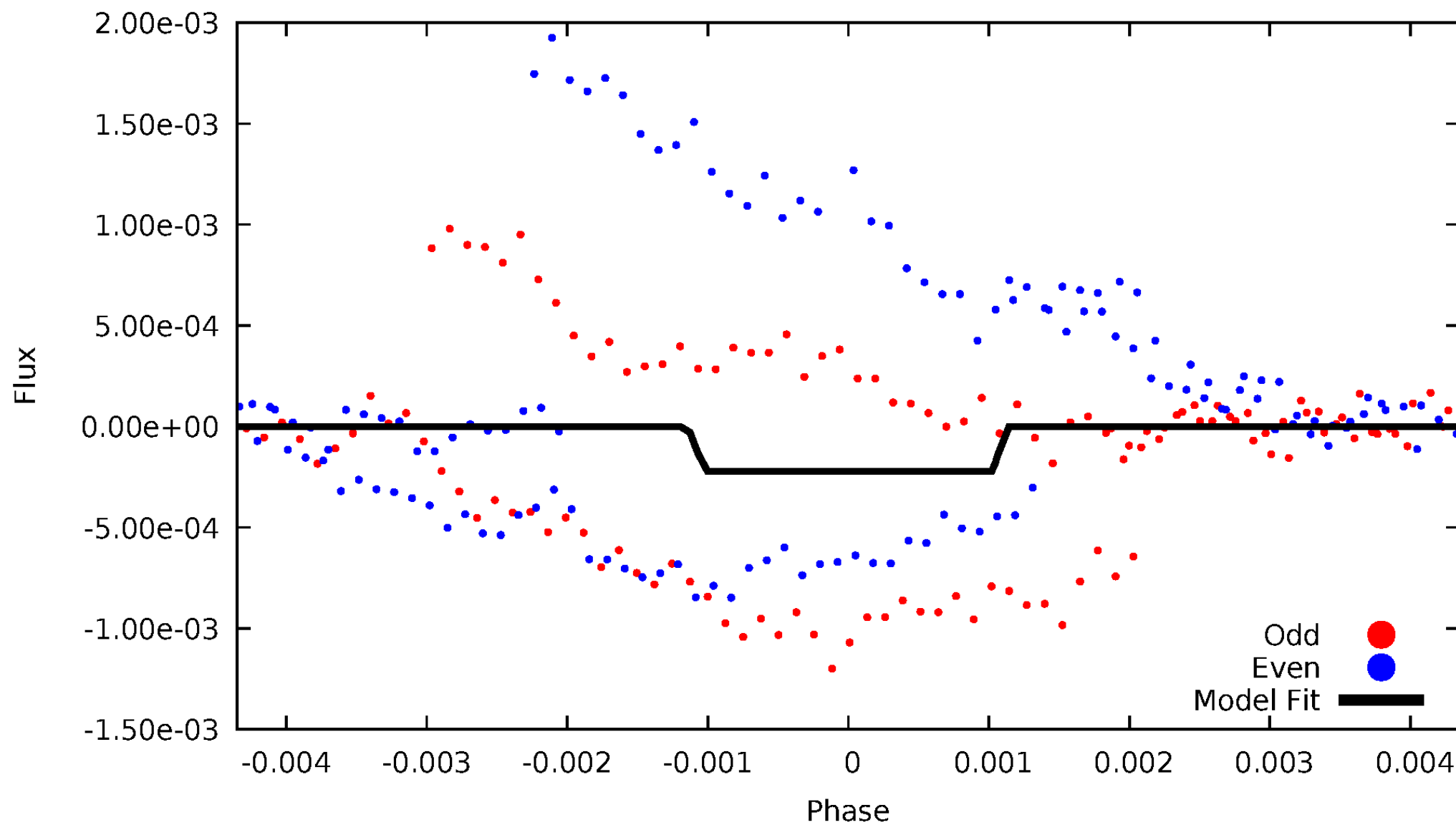
DV Odd/Even

TCE 008745924-02



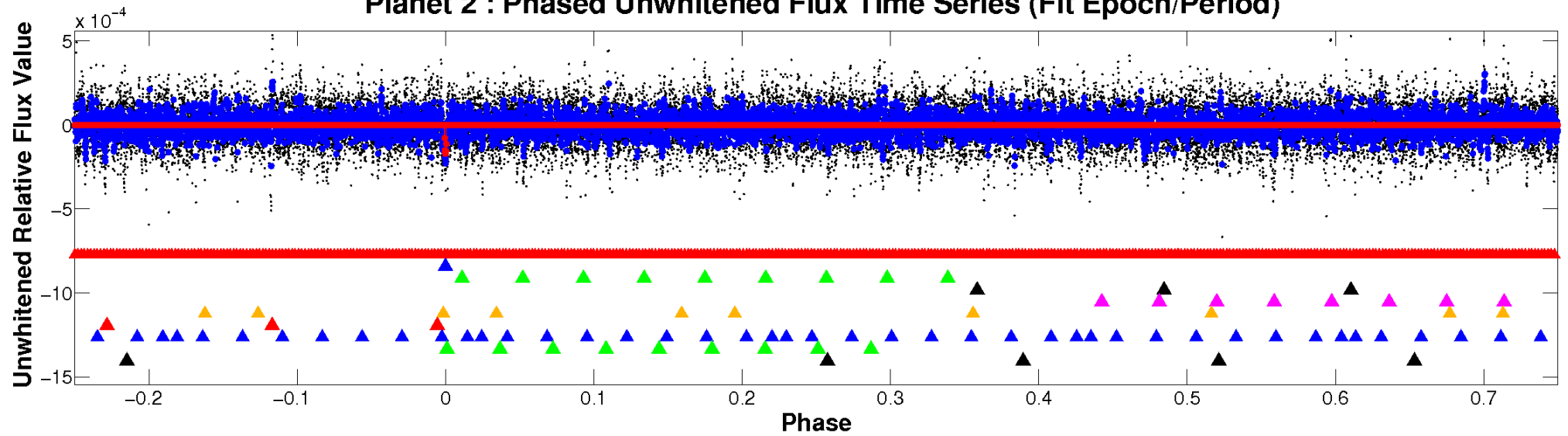
ALT Odd/Even

TCE 008745924-02

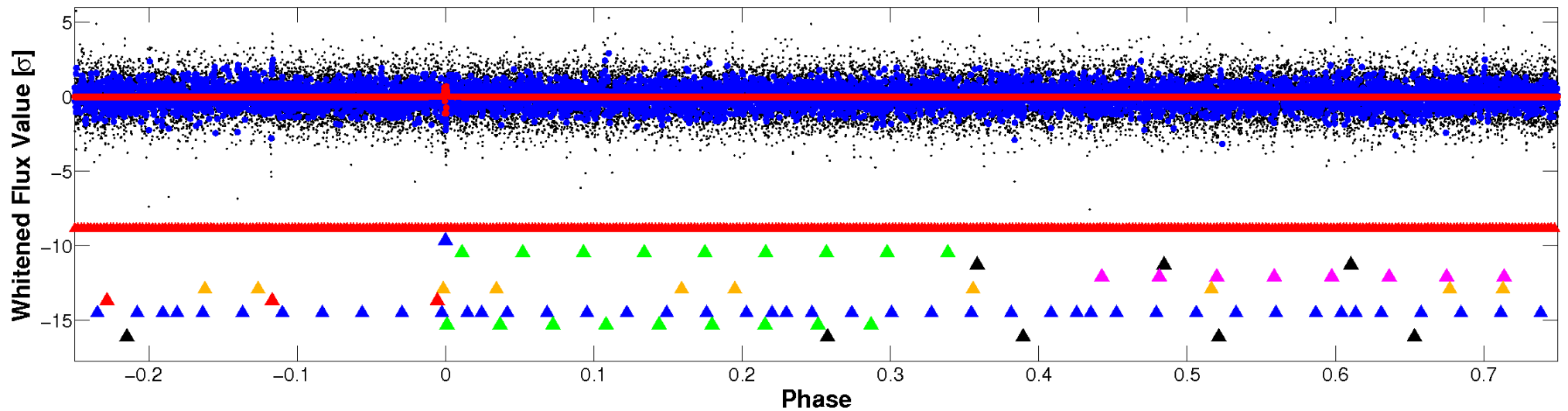


Non-Whitened Vs. Whitened Light Curve

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

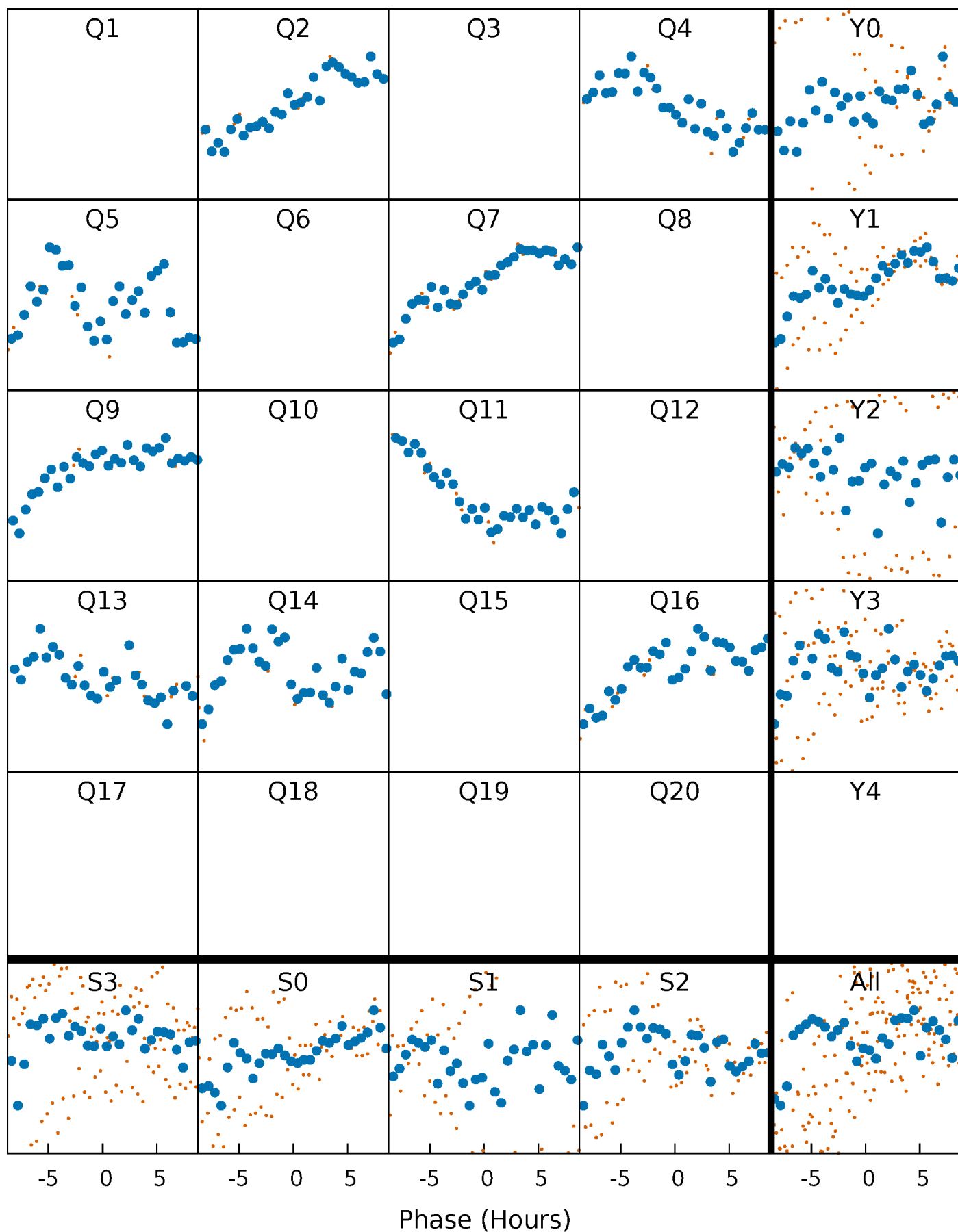


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



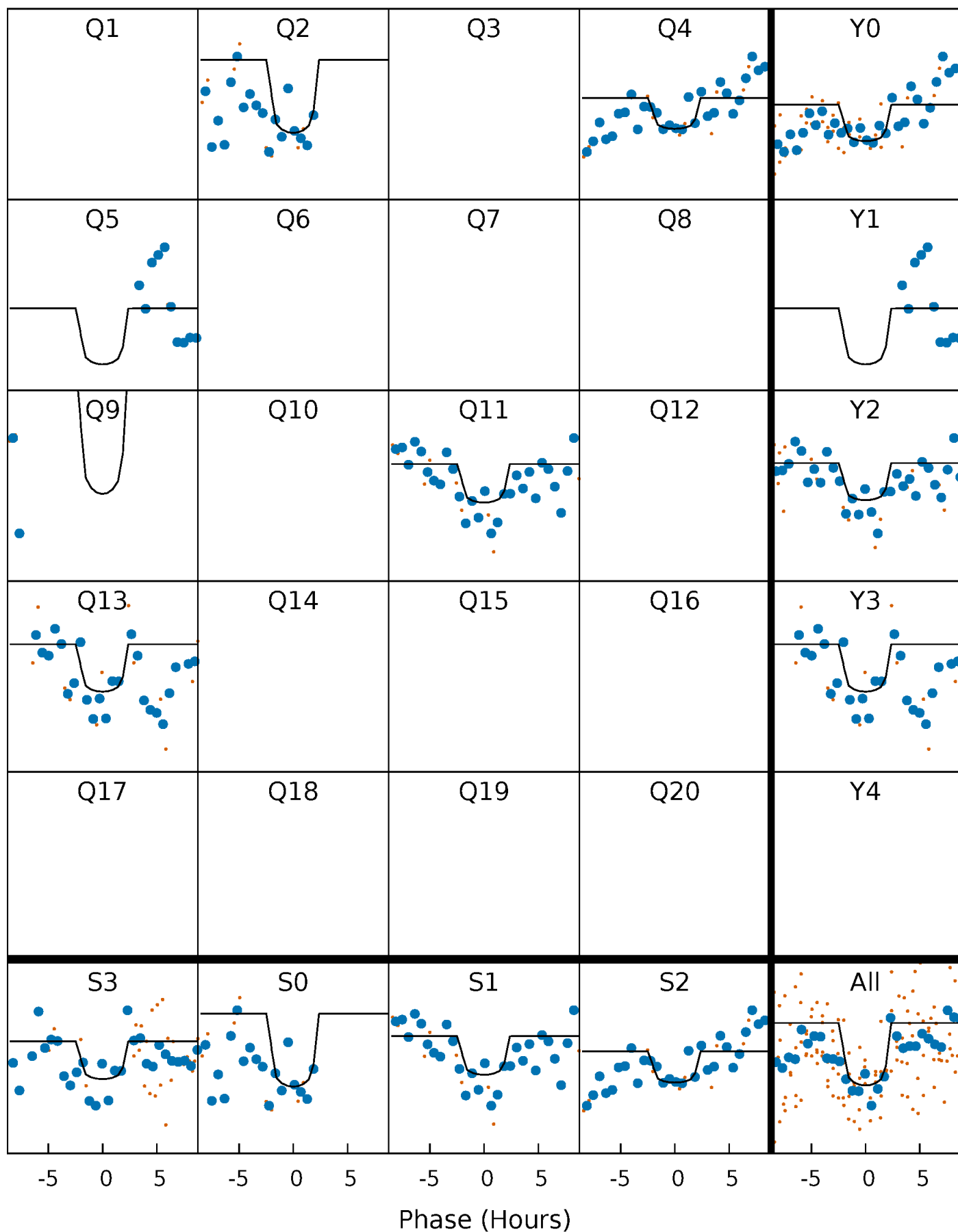
PDC Quarter-Phased Transit Curves

TCE 008745924-02 P=161.850559 Days $T_0=213.863106$ (BKJD)



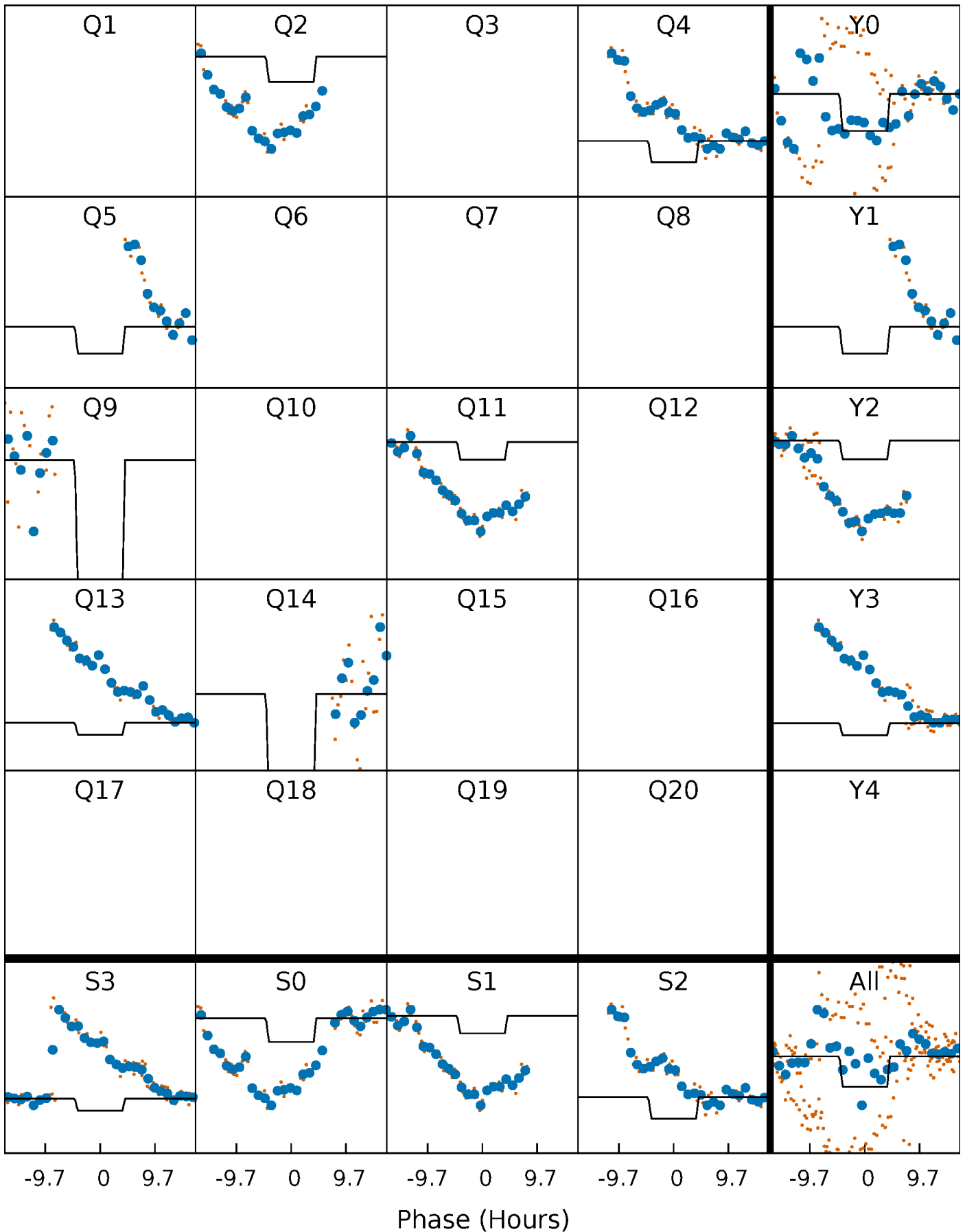
DV Quarter-Phased Transit Curves

TCE 008745924-02 $P=161.850559$ Days $T_0=213.863106$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

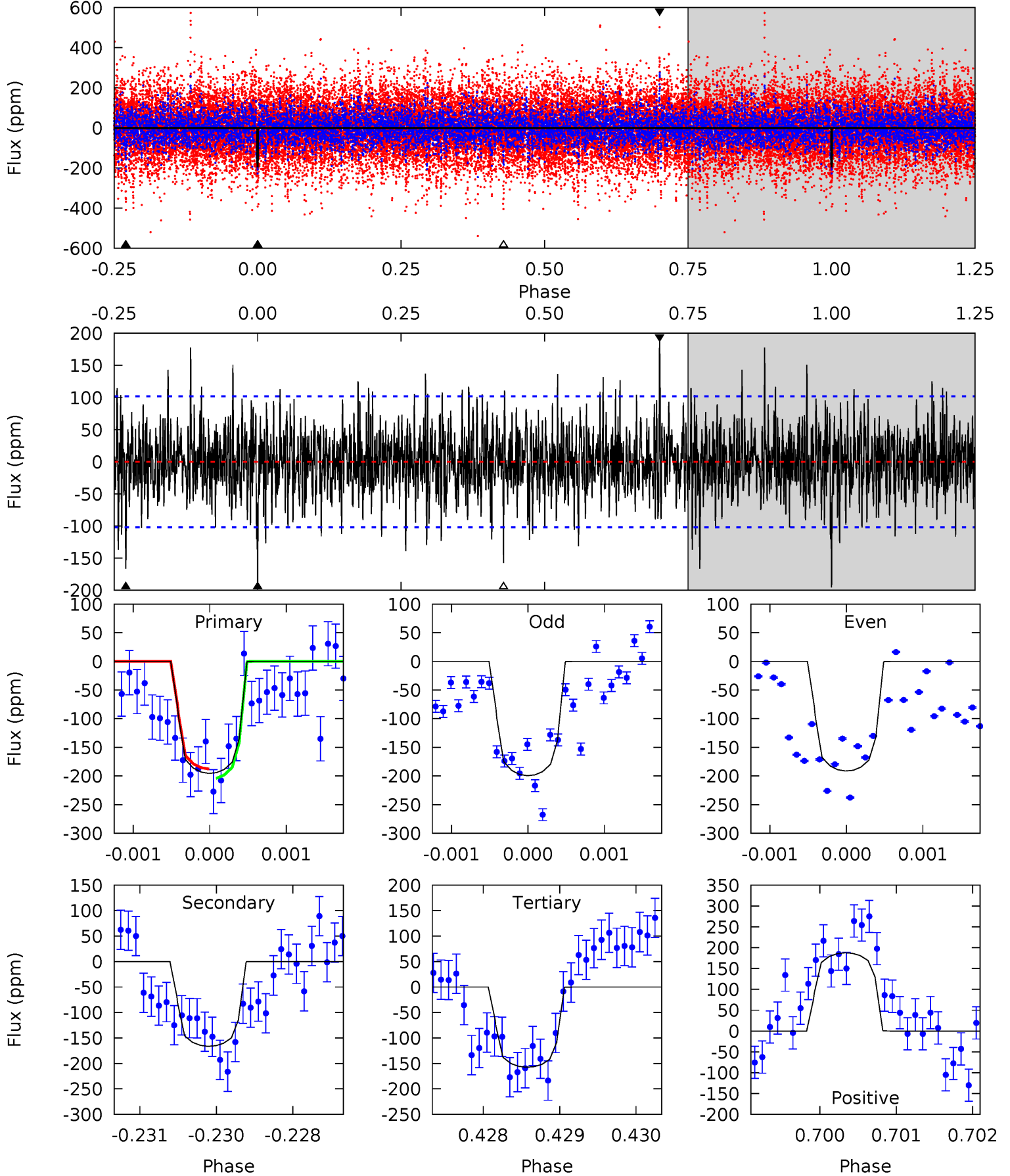
TCE 008745924-02 P=161.888285 Days $T_0=213.730810$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-02, P = 161.850559 Days, E = 52.012547 Days

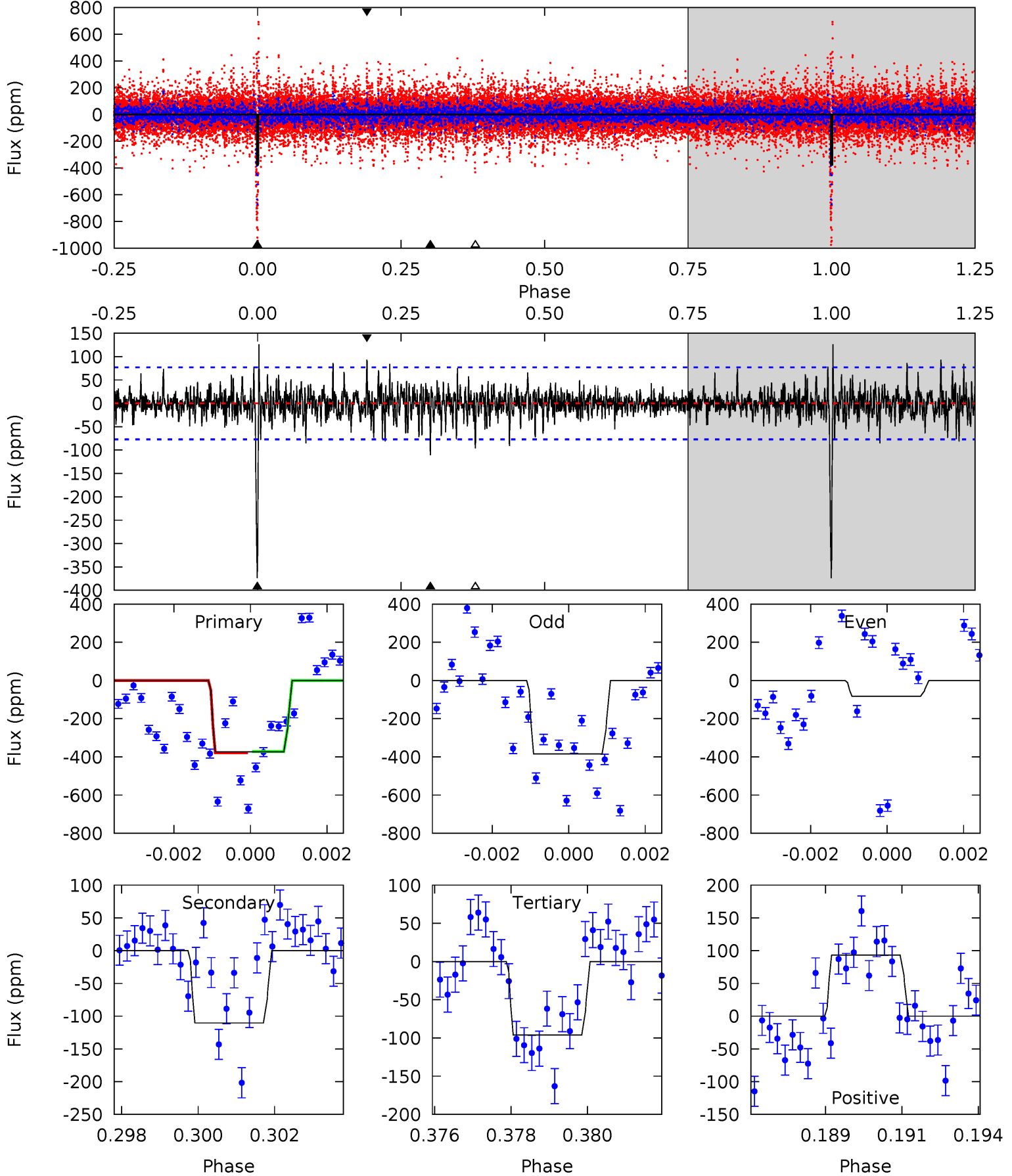
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	8.83	8.36	9.96	5.41	3.23	2.25	2.02	0.42	0.47	-1.13	0.22	1.02	0.49	0.44



Alt Model-Shift Uniqueness Test

008745924-02, P = 161.888285 Days, E = 51.842525 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.7	7.60	6.61	6.41	5.31	3.07	1.53	19.1	19.3	0.99	1.19	11.8	0.47	0.25	0



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-166 ± 19	$4.66^{+2.96}_{-2.57}$	864^{+48}_{-82}	6169^{+4265}_{-1265}	1934^{+7683}_{-1219}
Alt.	-110 ± 15	$4.89^{+3.04}_{-2.88}$	863^{+49}_{-74}	5525^{+3216}_{-1028}	1142^{+5203}_{-696}

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

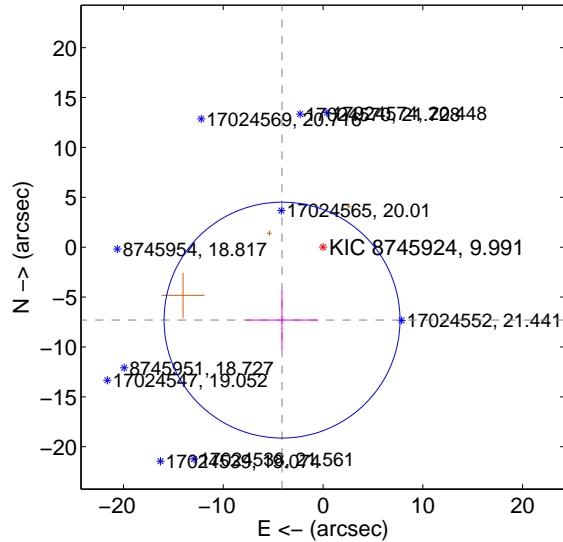
Supplemental centroid analysis for 008745924-02. **Kepler magnitude: 9.99.** Transit SNR 6.41

There are 1 quarters with good PRF difference image offsets

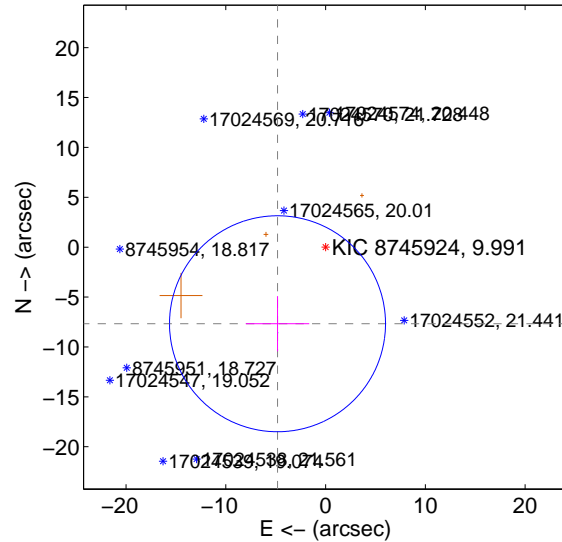
The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.385 ± 3.940	2.13	4.109 ± 3.616	-7.310 ± 2.957
PRF-fit source offset from KIC position	9.062 ± 3.608	2.51	4.818 ± 3.182	-7.675 ± 2.765
photometric centroid source offset	0.66 ± 0.63	1.05	-0.32 ± 0.68	-0.58 ± 0.61

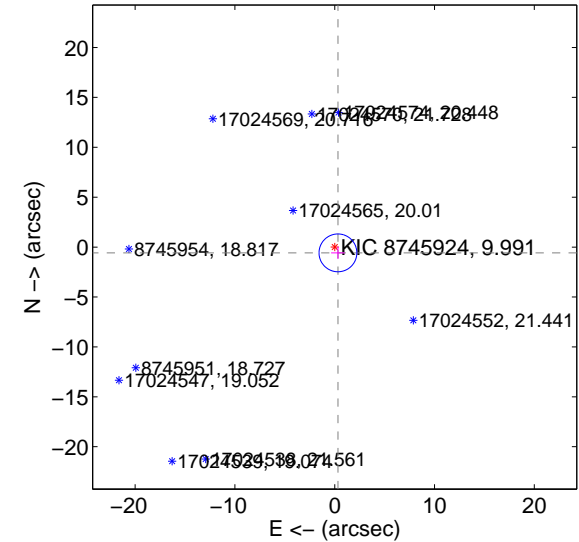
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

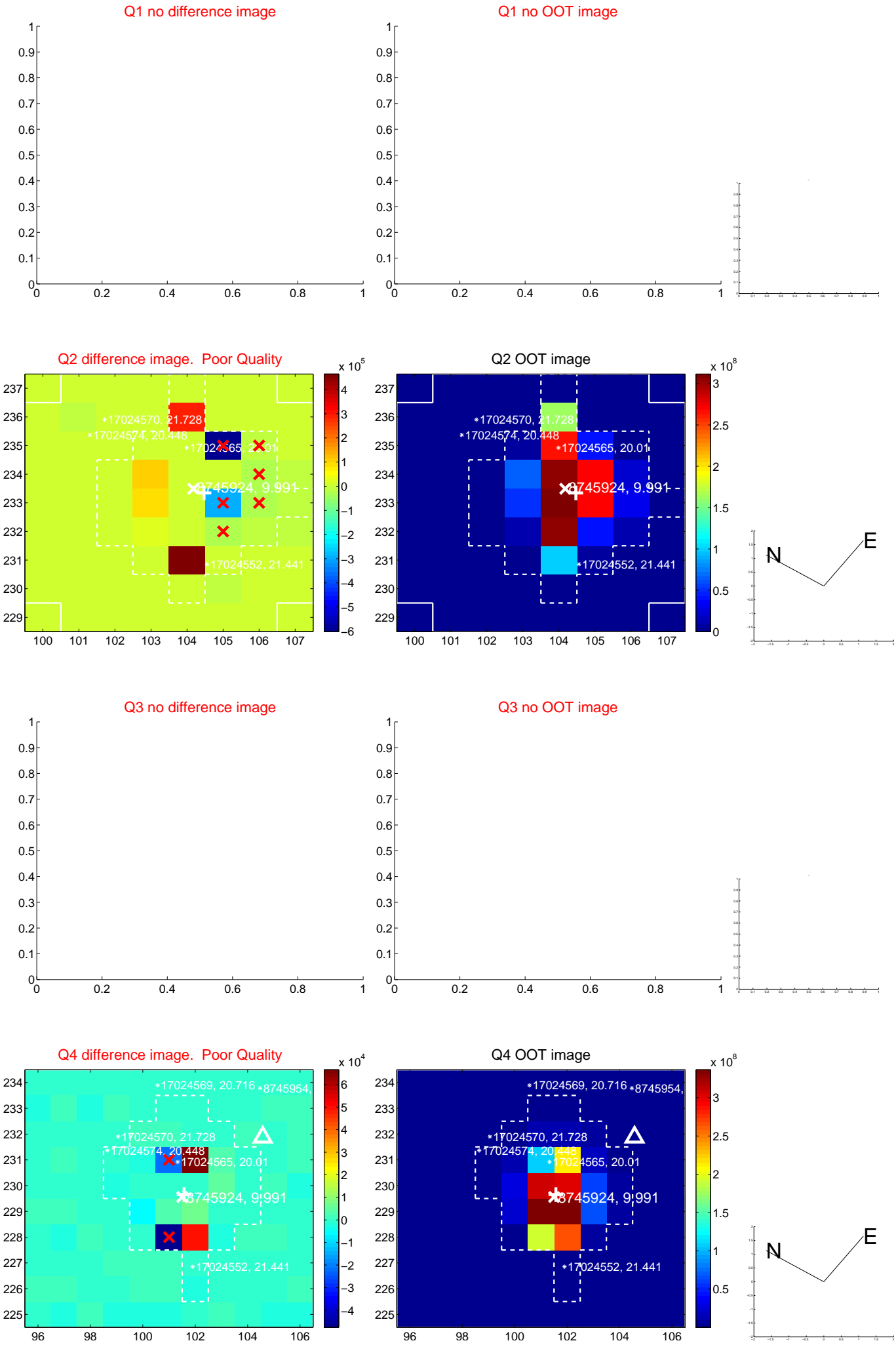


offset from photometric centroids

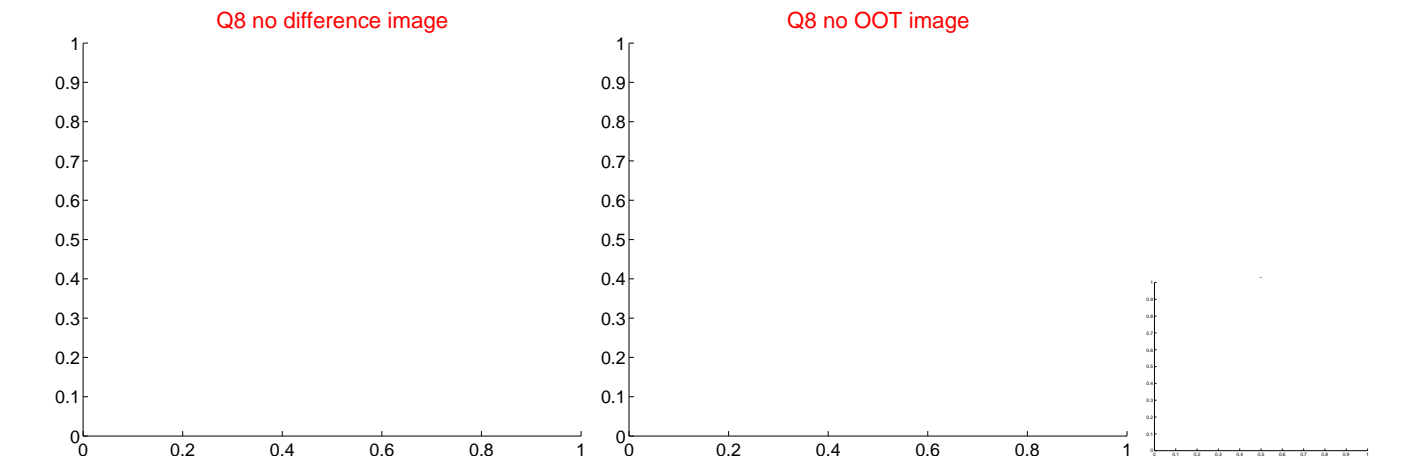
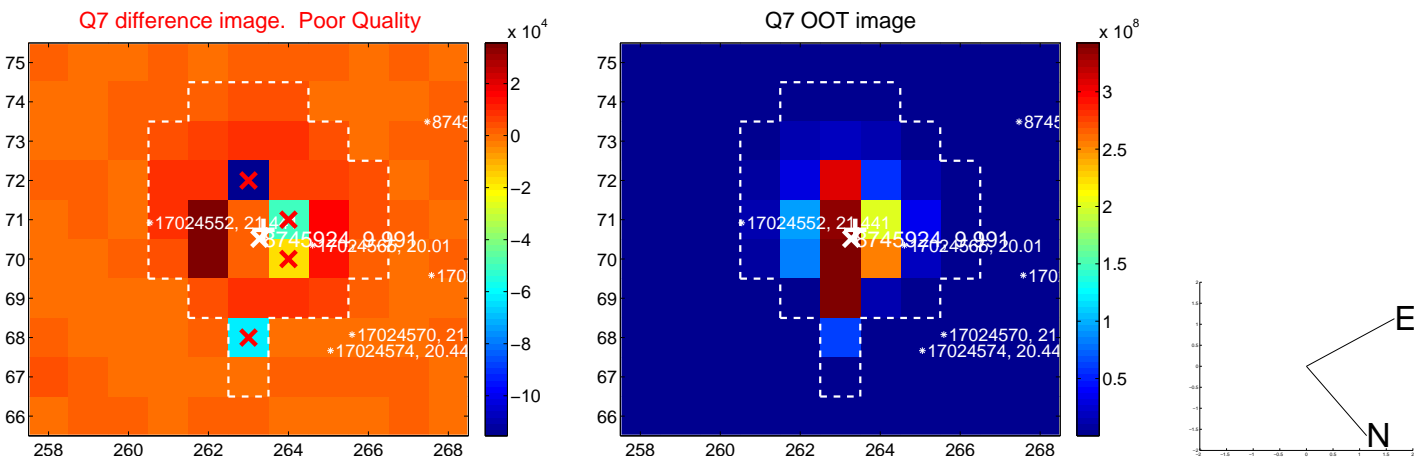
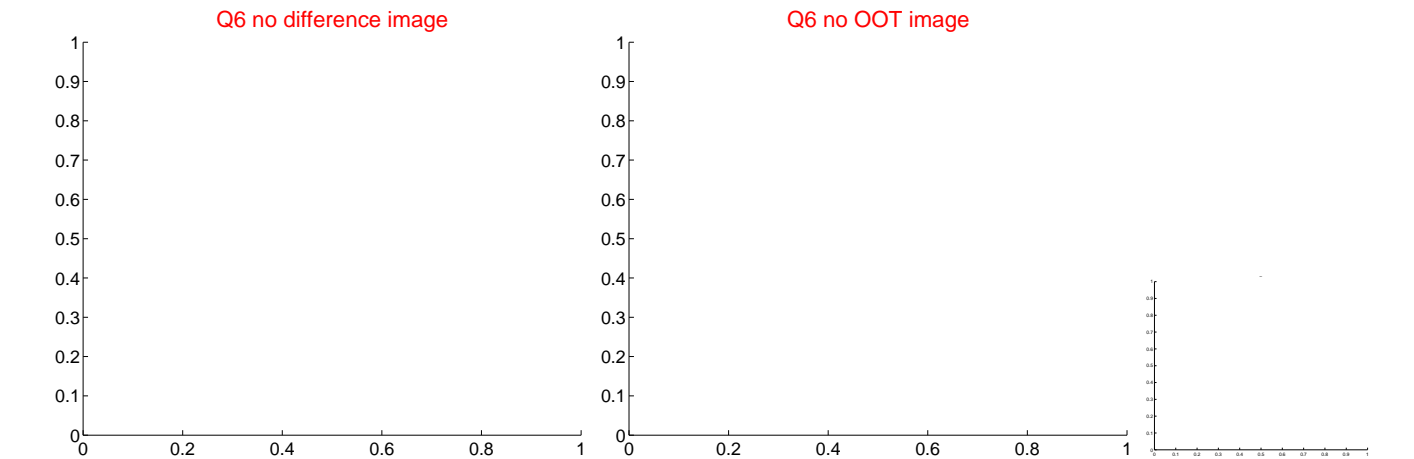
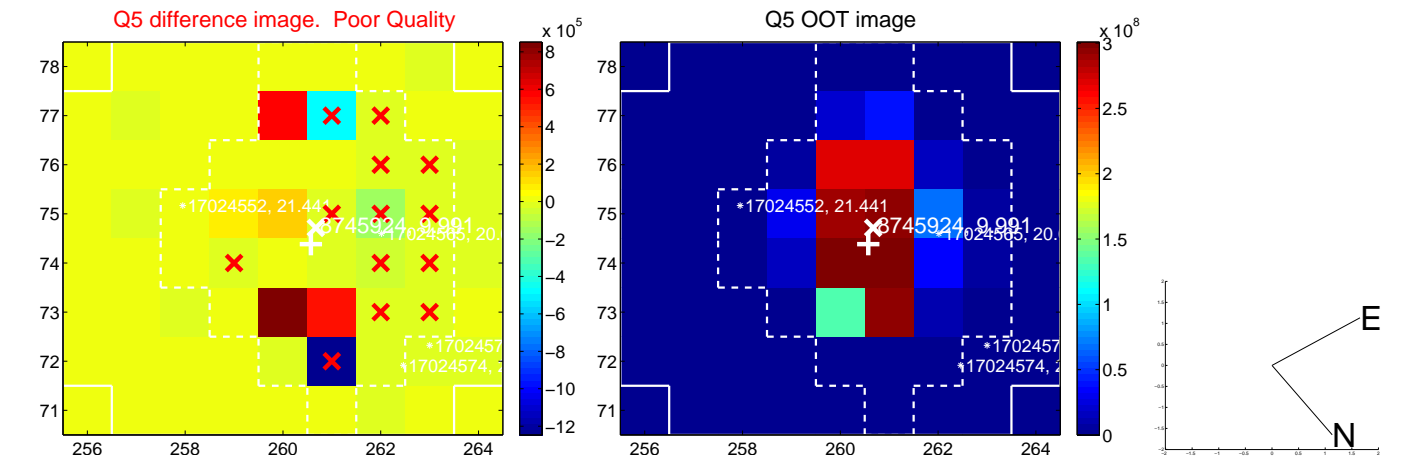


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

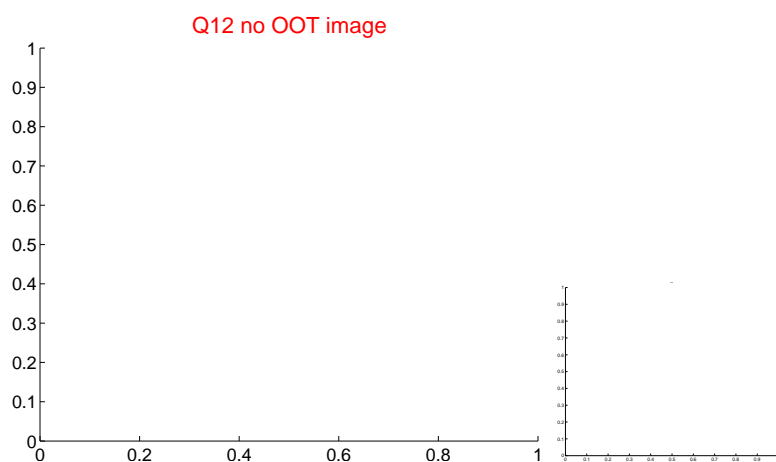
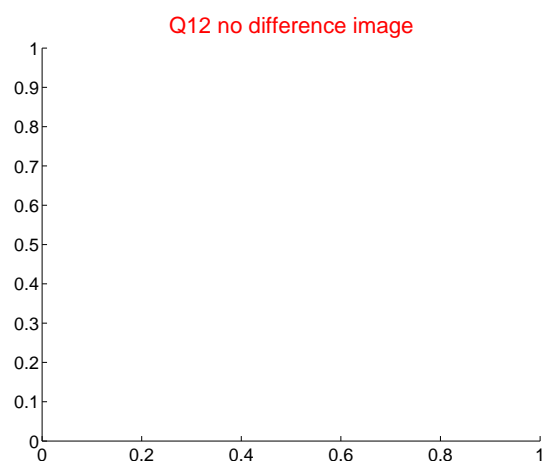
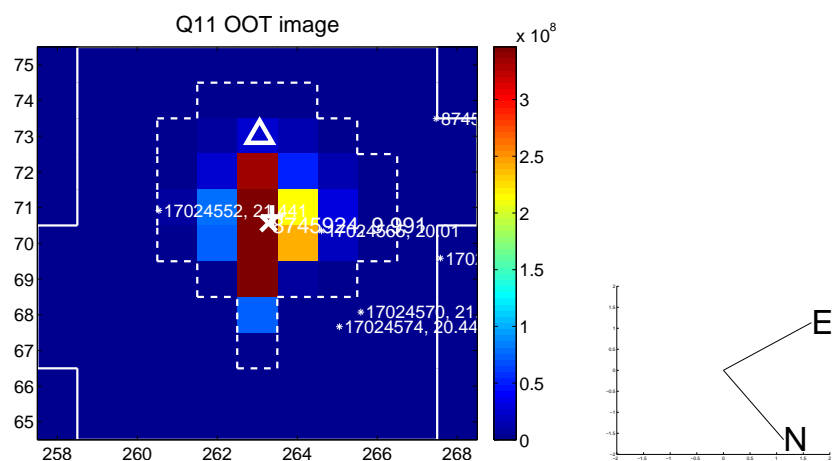
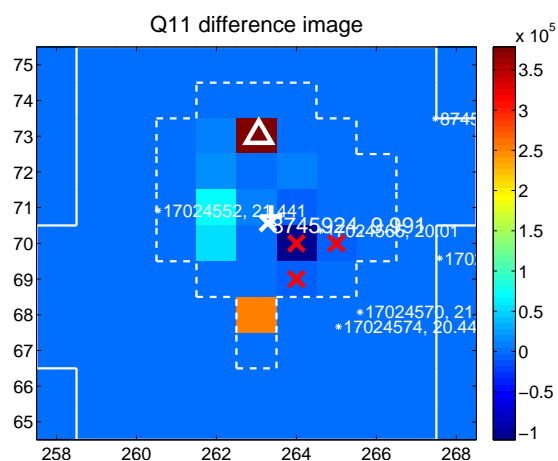
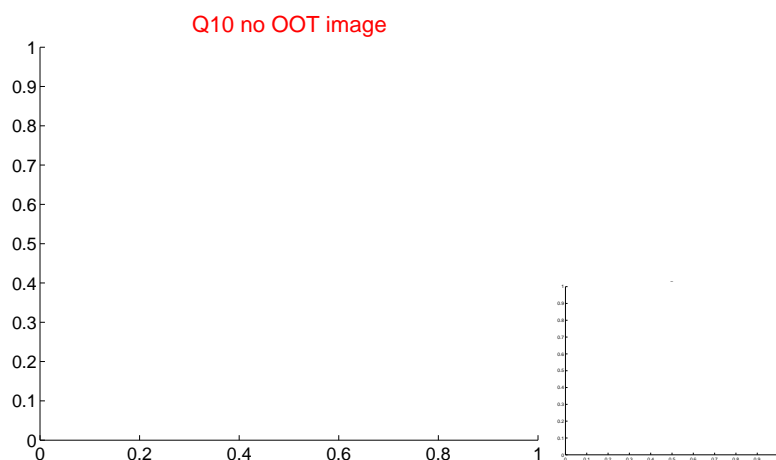
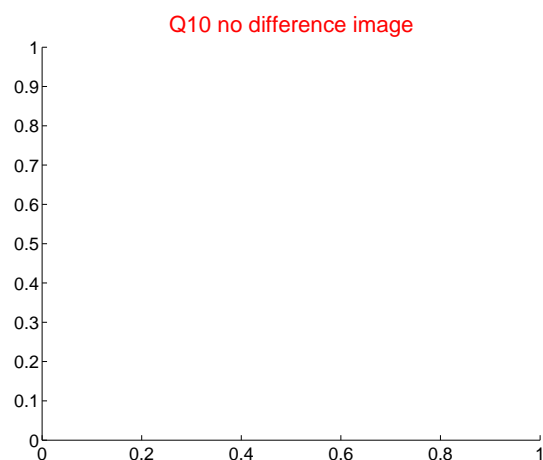
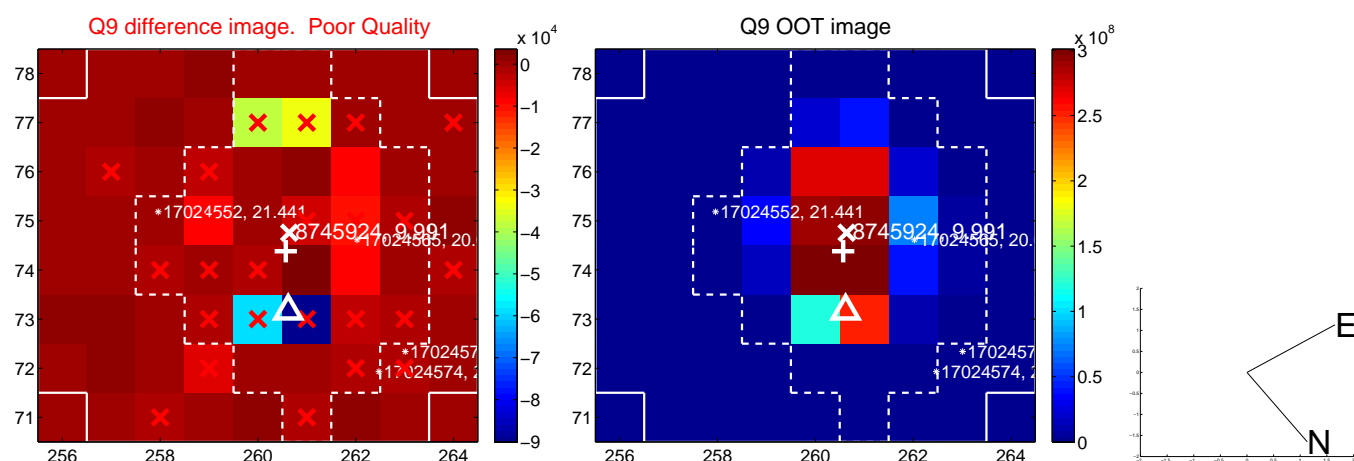
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



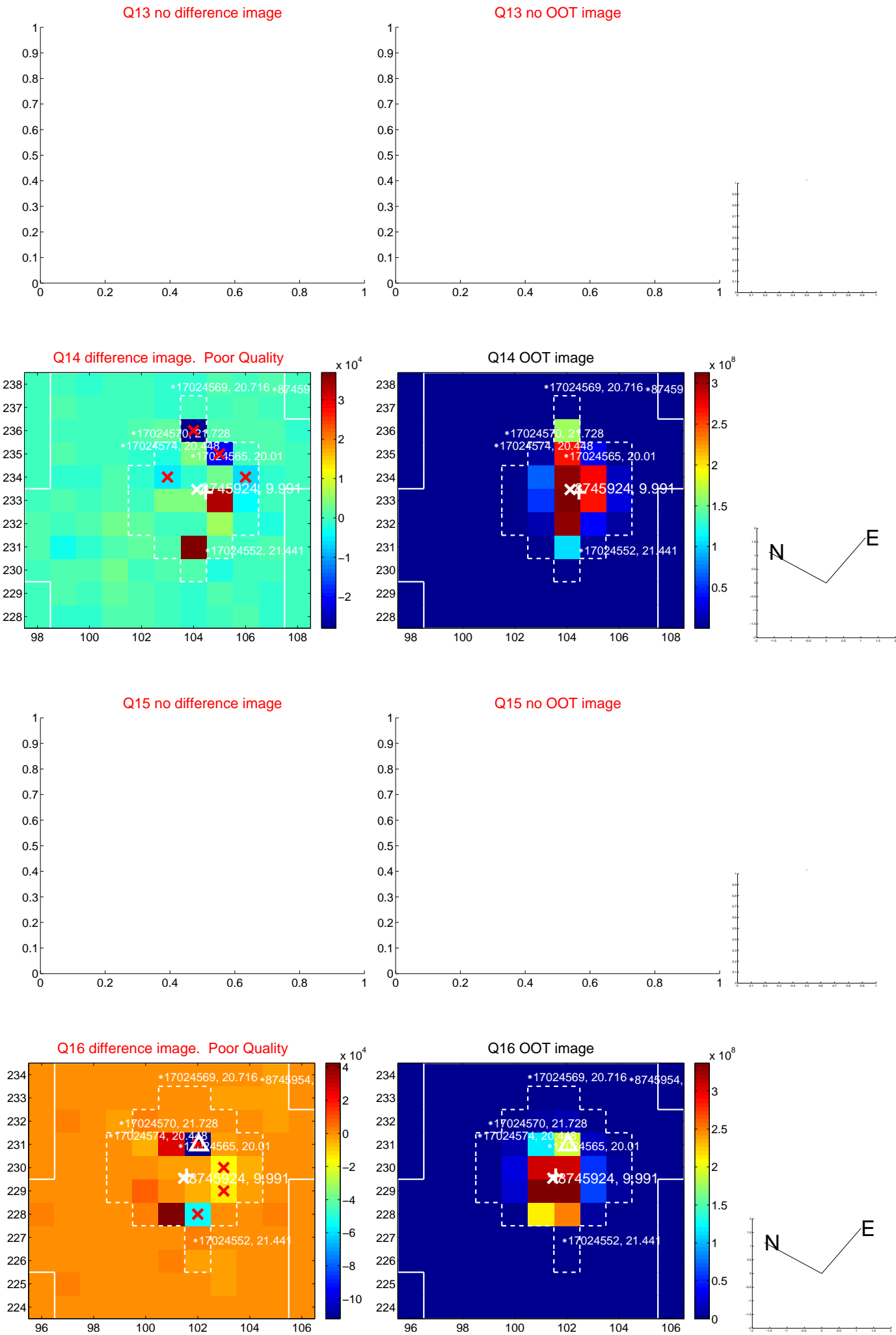
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



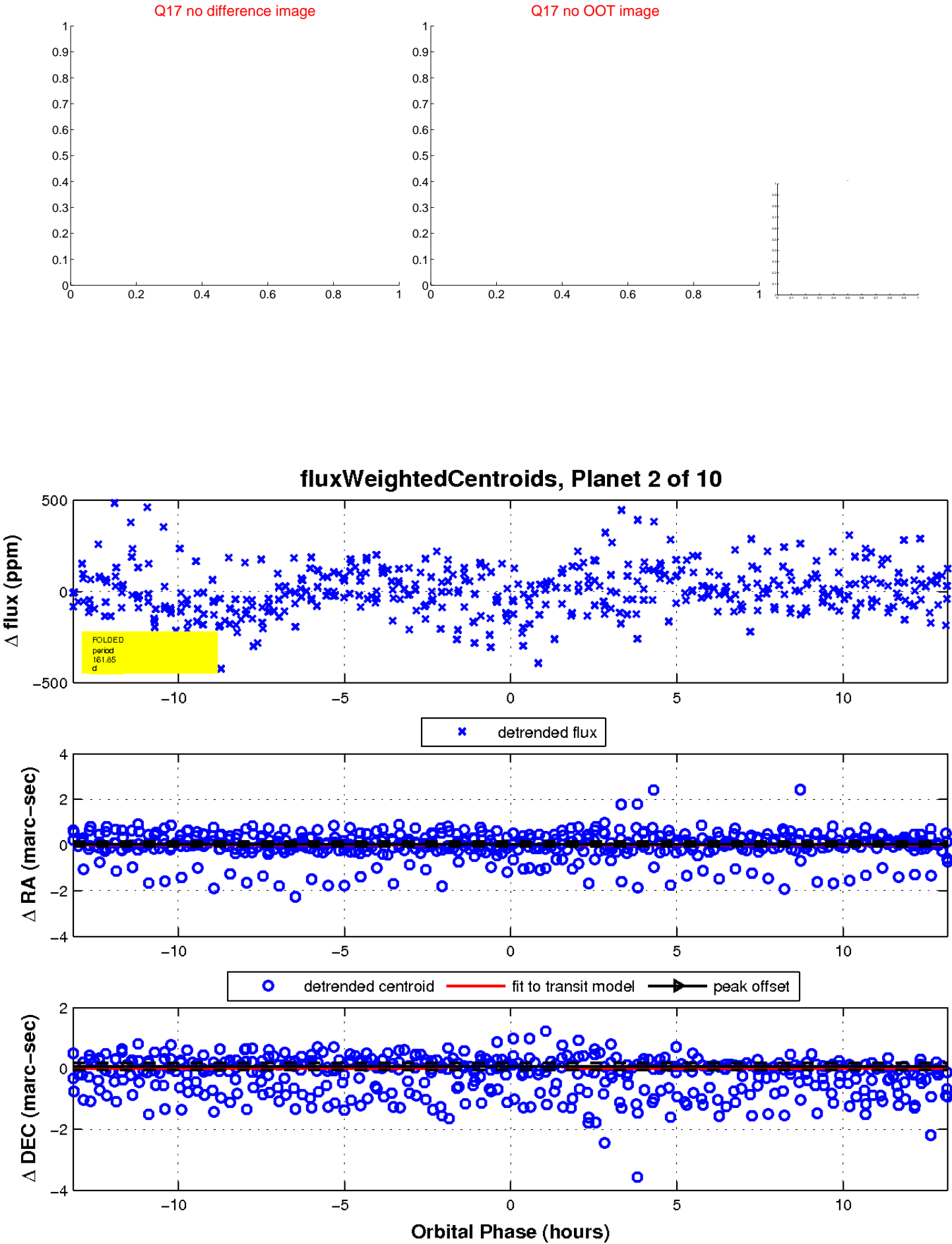
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



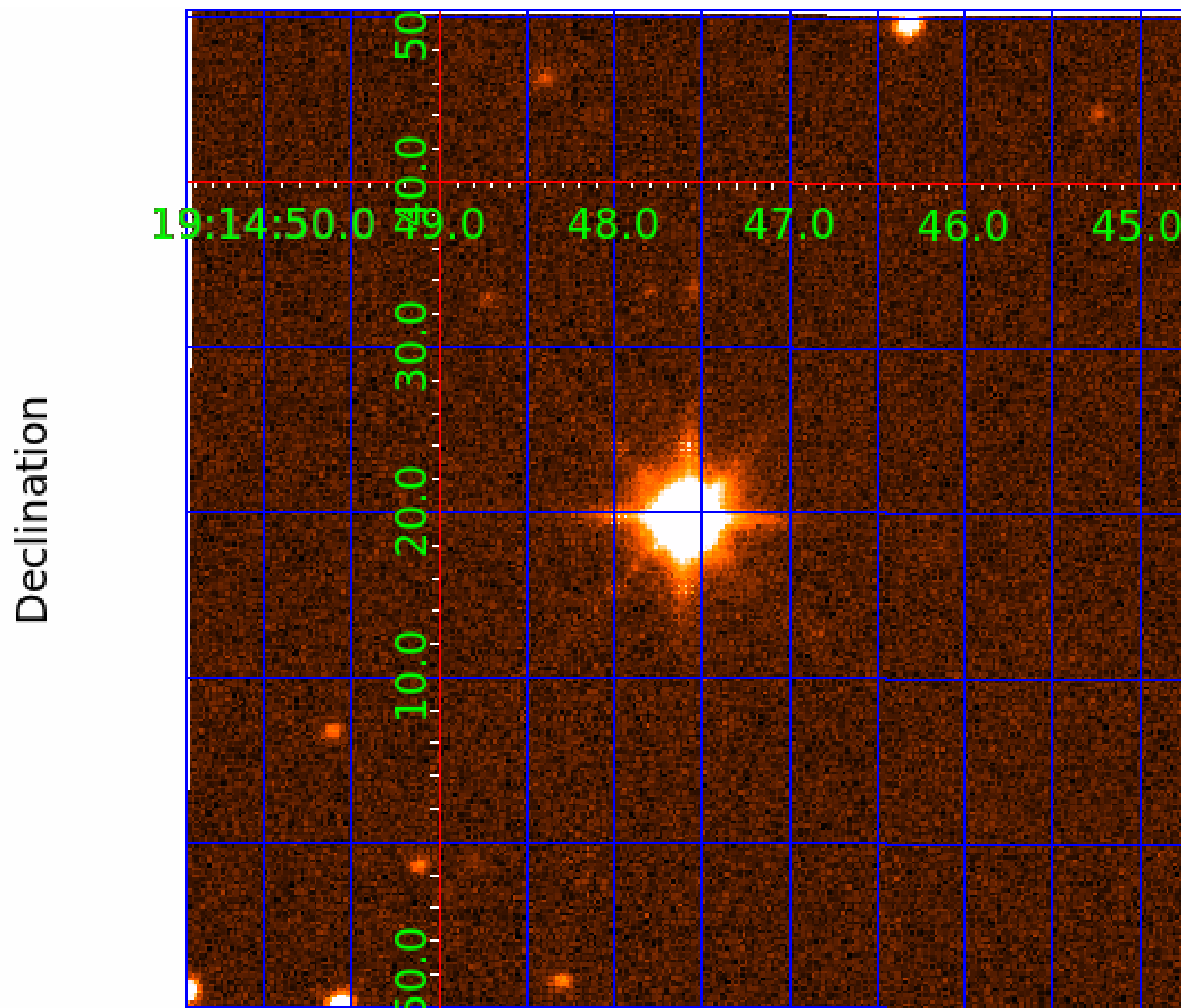
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

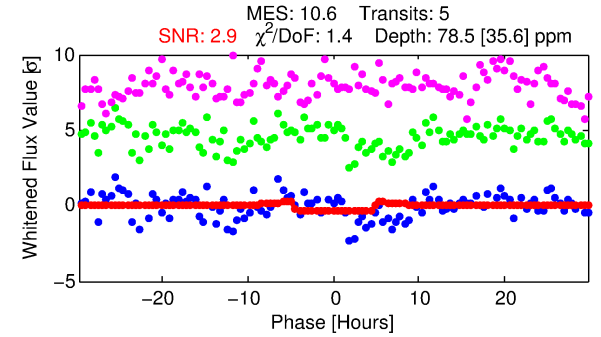
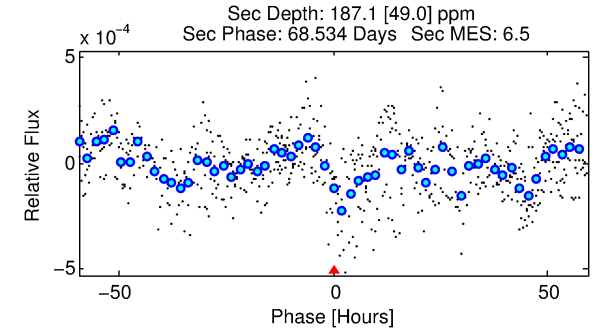
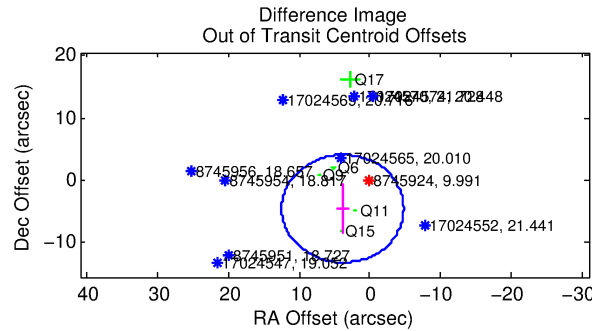
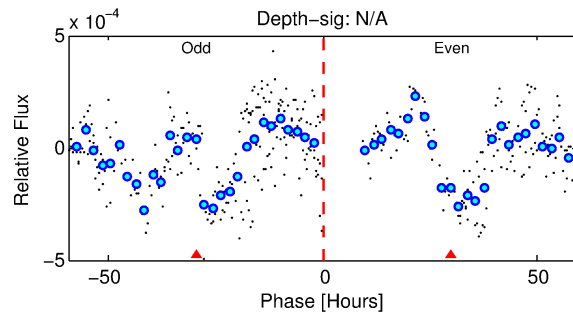
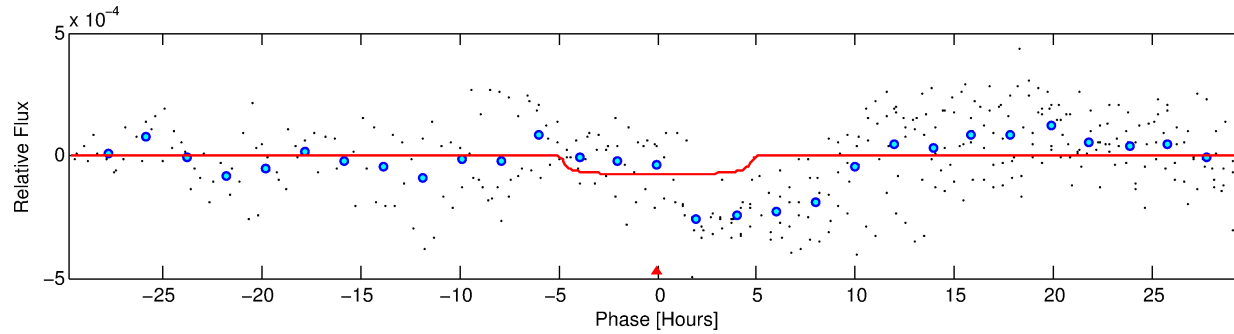
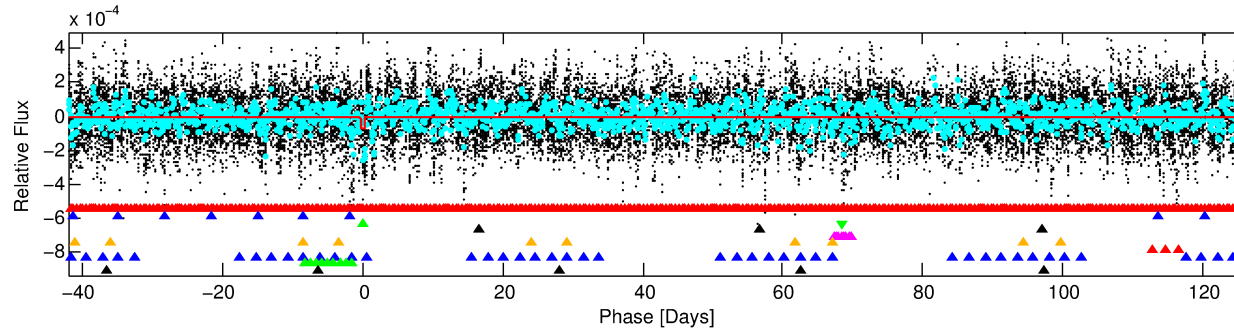
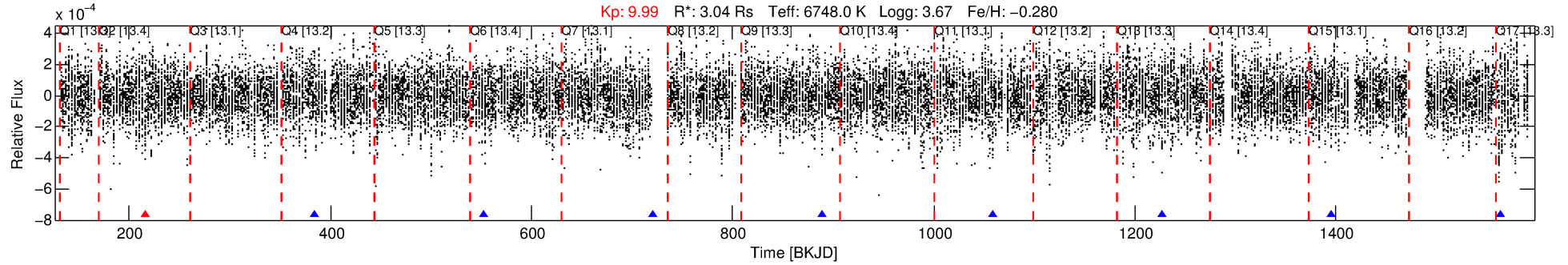
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-03

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 3 of 10 Period: 168.478 d



DV Fit Results:

Period = 168.47774 [0.00670] d
Epoch = 215.6691 [0.0368] BKJD
 $R_p/R^* = 0.0094$ [0.0046]
 $a/R^* = 59.51$ [144.66]
 $b = 0.90$ [0.52]
 $\text{Seff} = 35.69$ [20.07]
 $T_{\text{eq}} = 623$ [88] K
 $R_p = 3.13$ [1.92] R_e
 $a = 0.6929$ [0.2411] AU
 $A_g = 5047.85$ [5808.93] [0.87σ]
 $T_{\text{eff}} = 8122$ [2067] K [3.62σ]

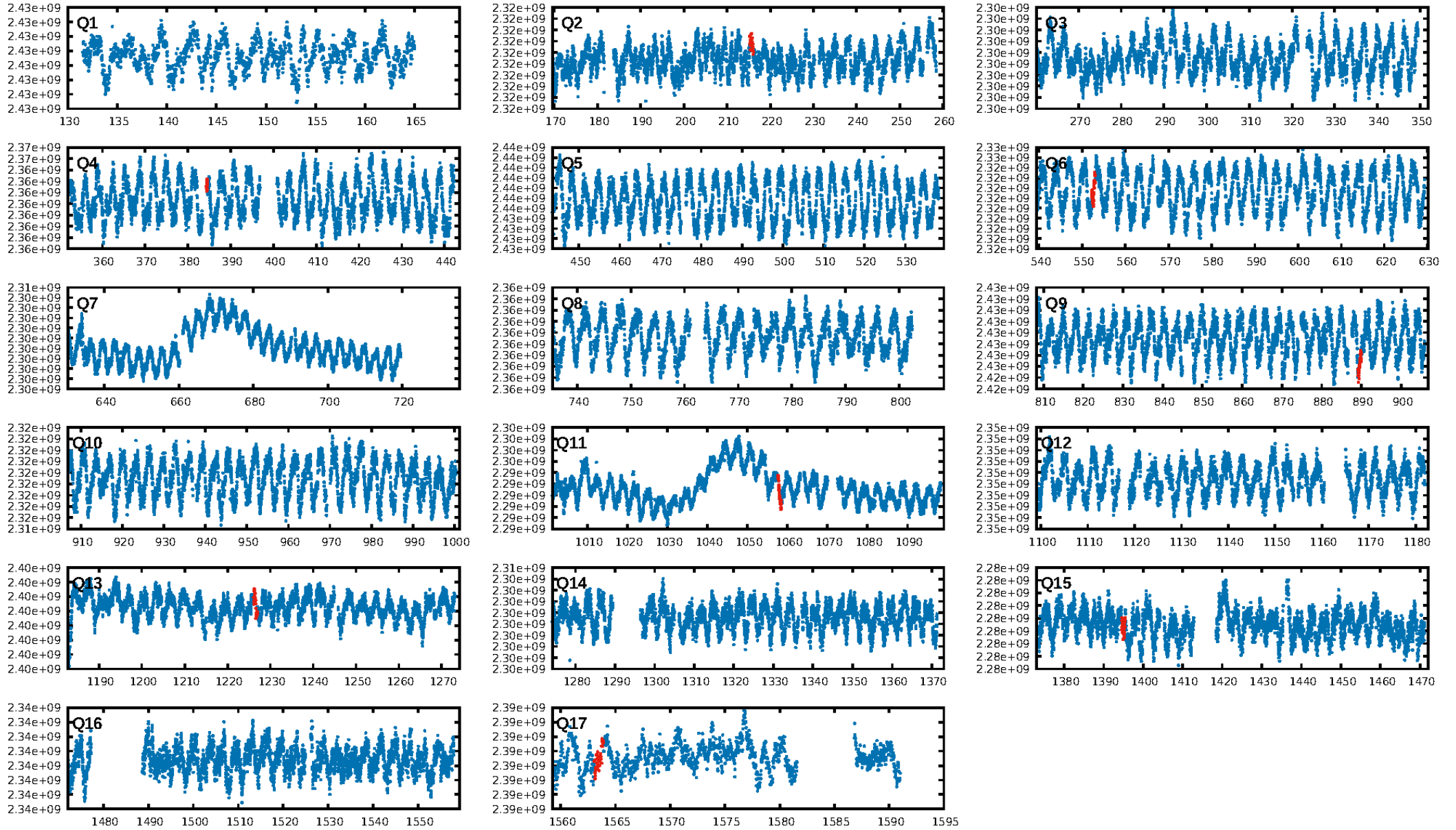
DV Diagnostic Results:

ShortPeriod-sig: 38.6% [0.50σ]
LongPeriod-sig: 100.0% [266.56σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: -1.458
Centroid-sig: 25.7%
Centroid-so: 1.581 arcsec [1.02σ]
OotOffset-rm: 5.954 arcsec [2.07σ]
OotOffset-st: 1/2/0/2 [5]
KicOffset-rm: 7.011 arcsec [2.19σ]
KicOffset-st: 1/2/0/2 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.17 [1/6]

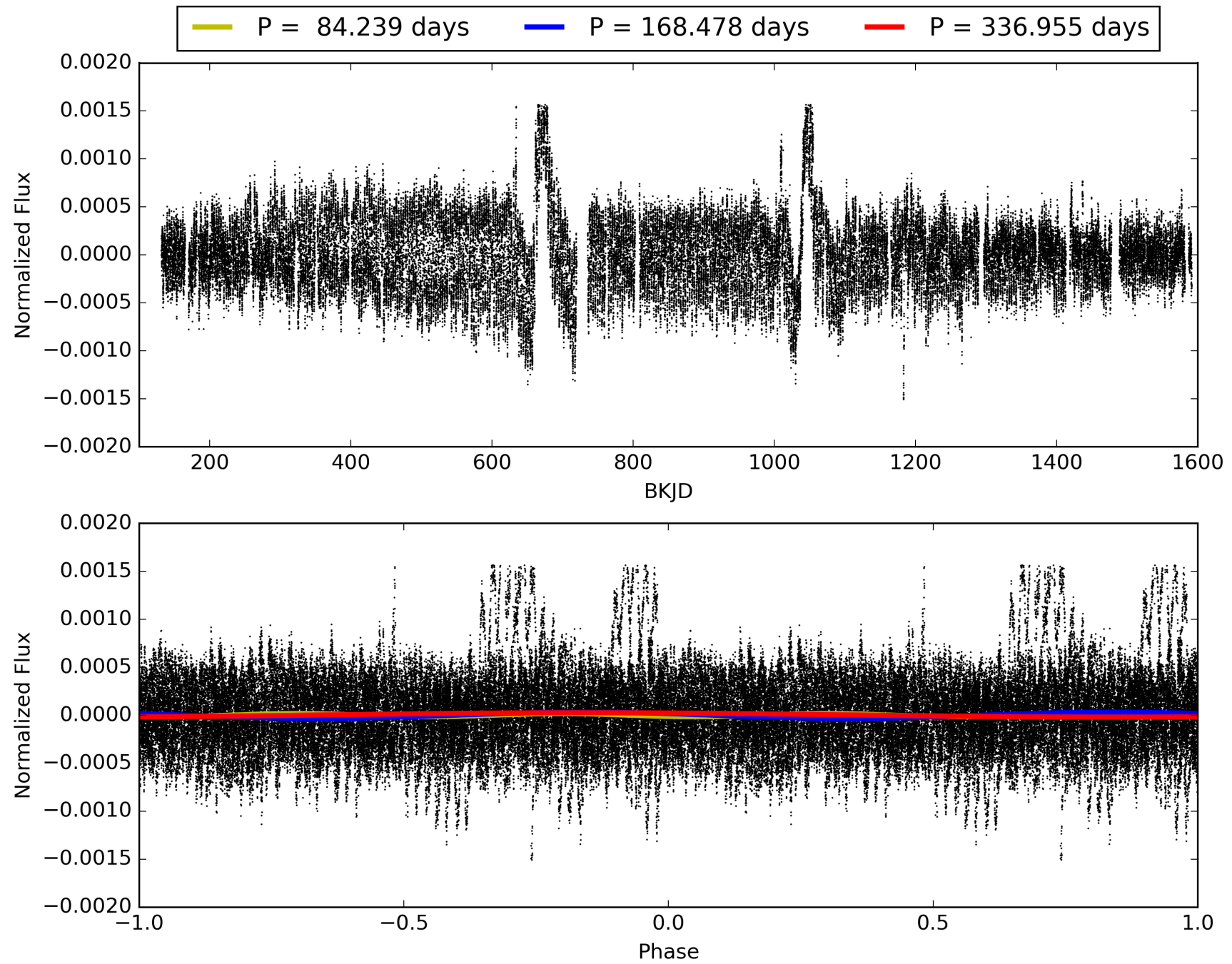
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:55:55 Z

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

TCE 008745924-03, PDC Light Curves

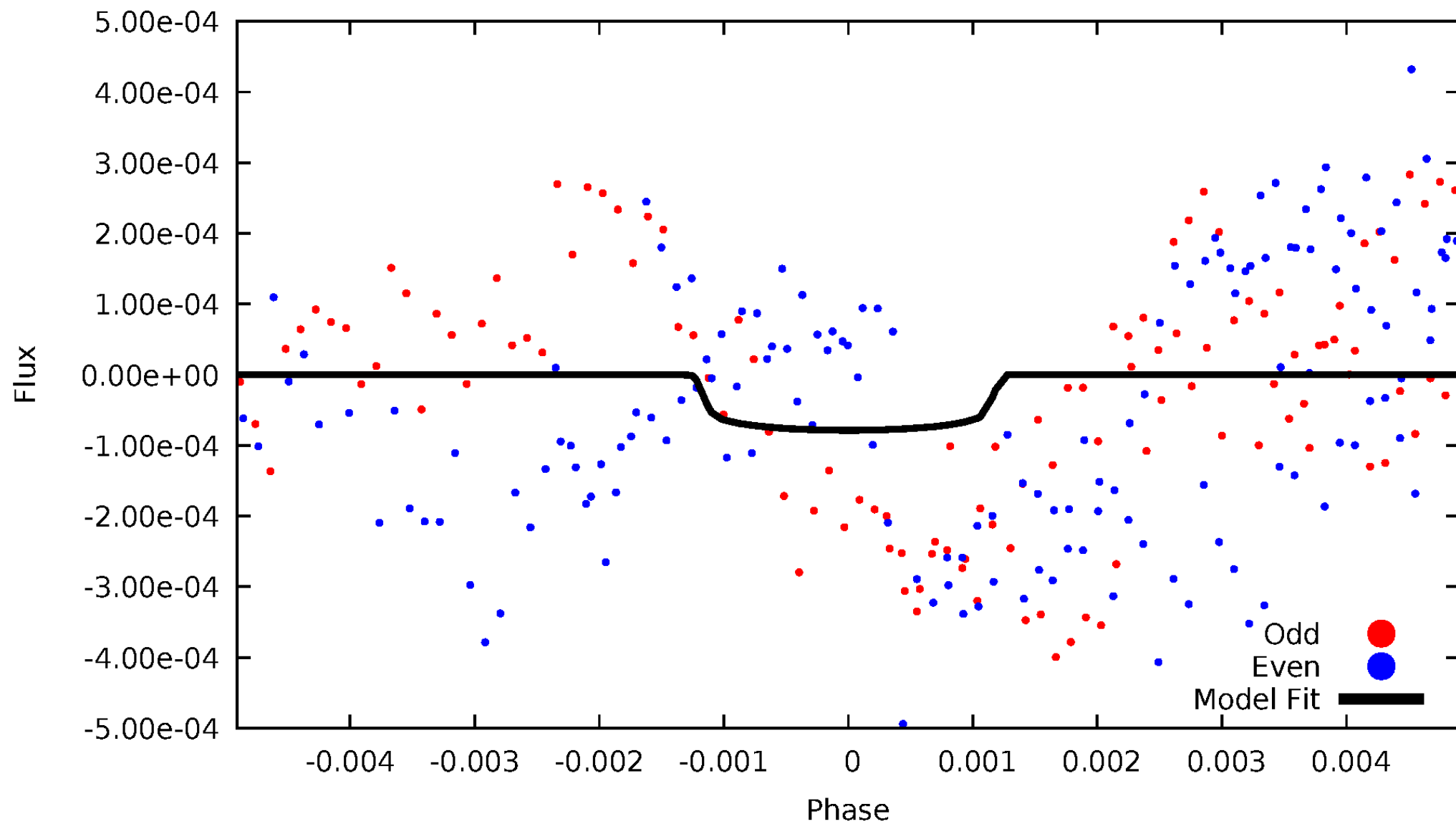


TCE 008745924-03



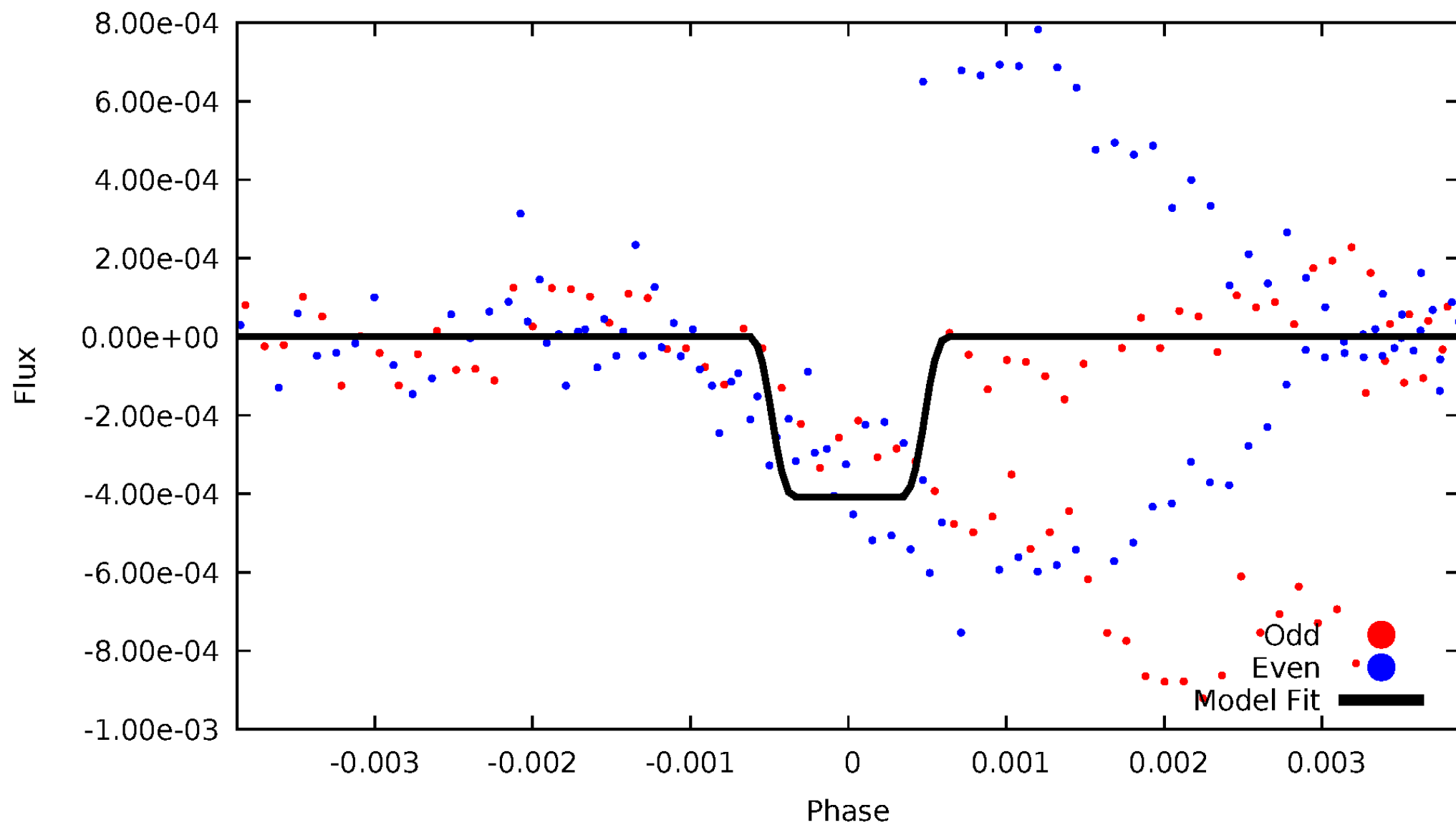
DV Odd/Even

TCE 008745924-03

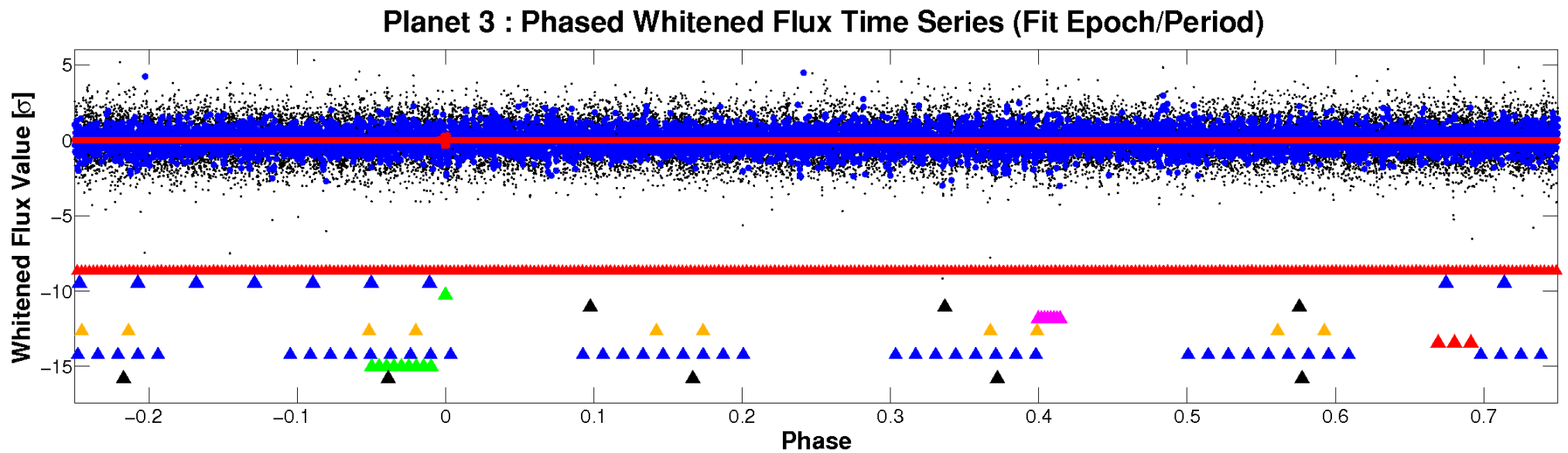
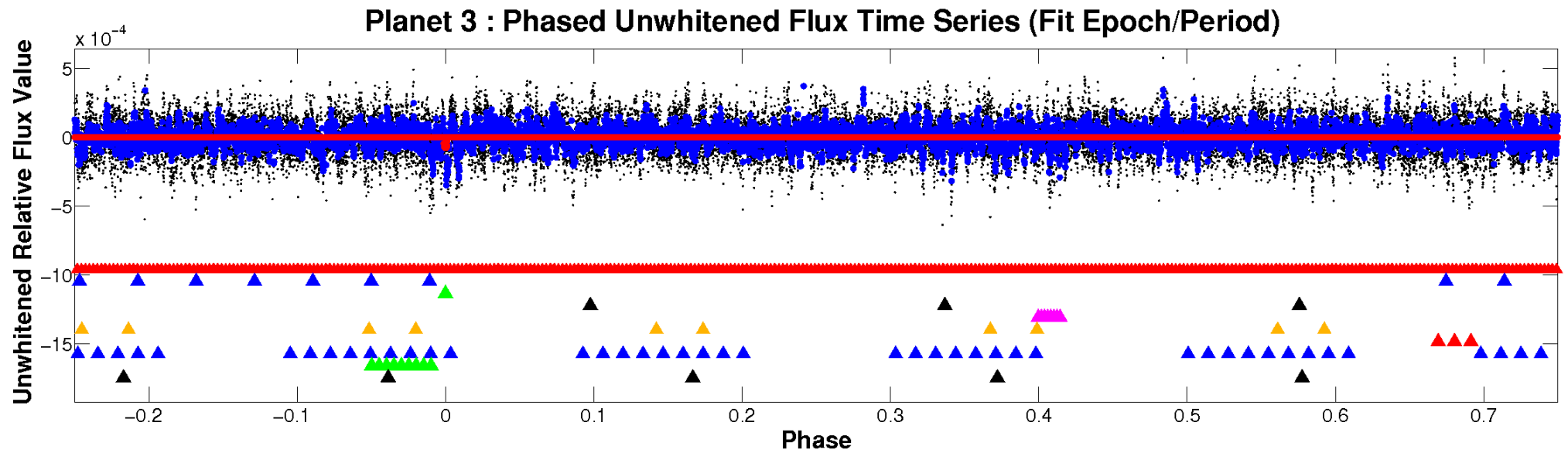


ALT Odd/Even

TCE 008745924-03

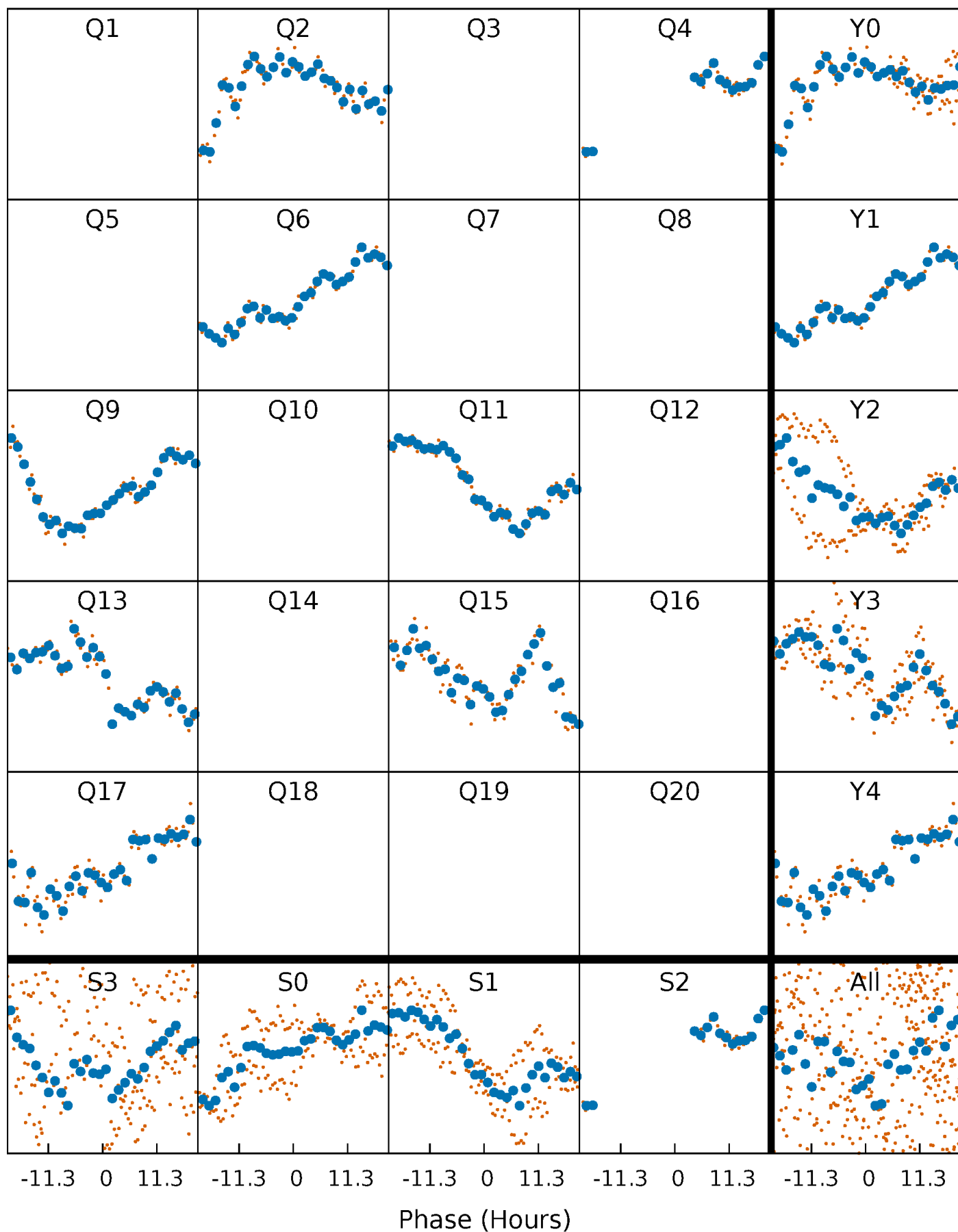


Non-Whitened Vs. Whitened Light Curve



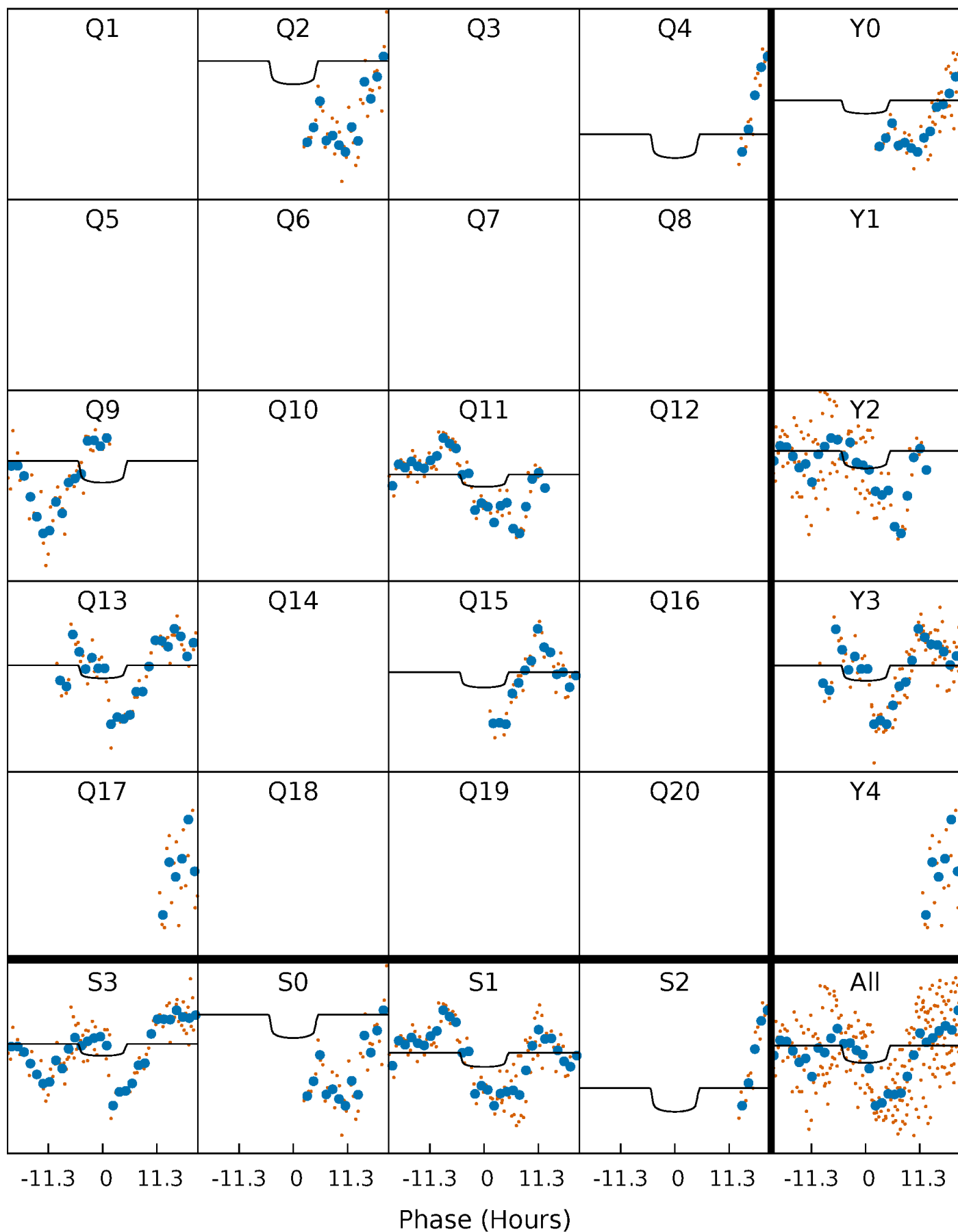
PDC Quarter-Phased Transit Curves

TCE 008745924-03 $P=168.477736$ Days $T_0=215.669126$ (BKJD)



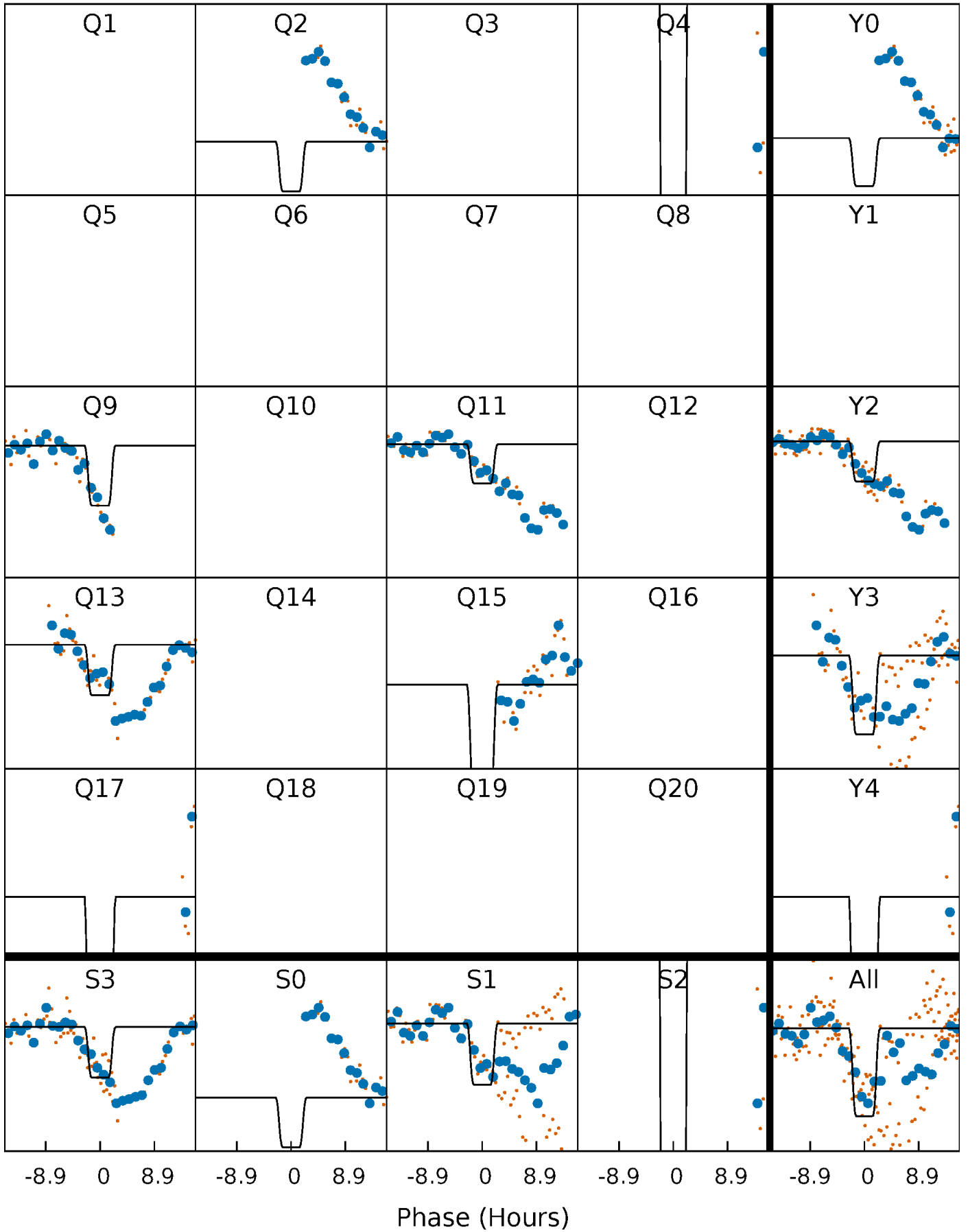
DV Quarter-Phased Transit Curves

TCE 008745924-03 P=168.477736 Days $T_0=215.669126$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

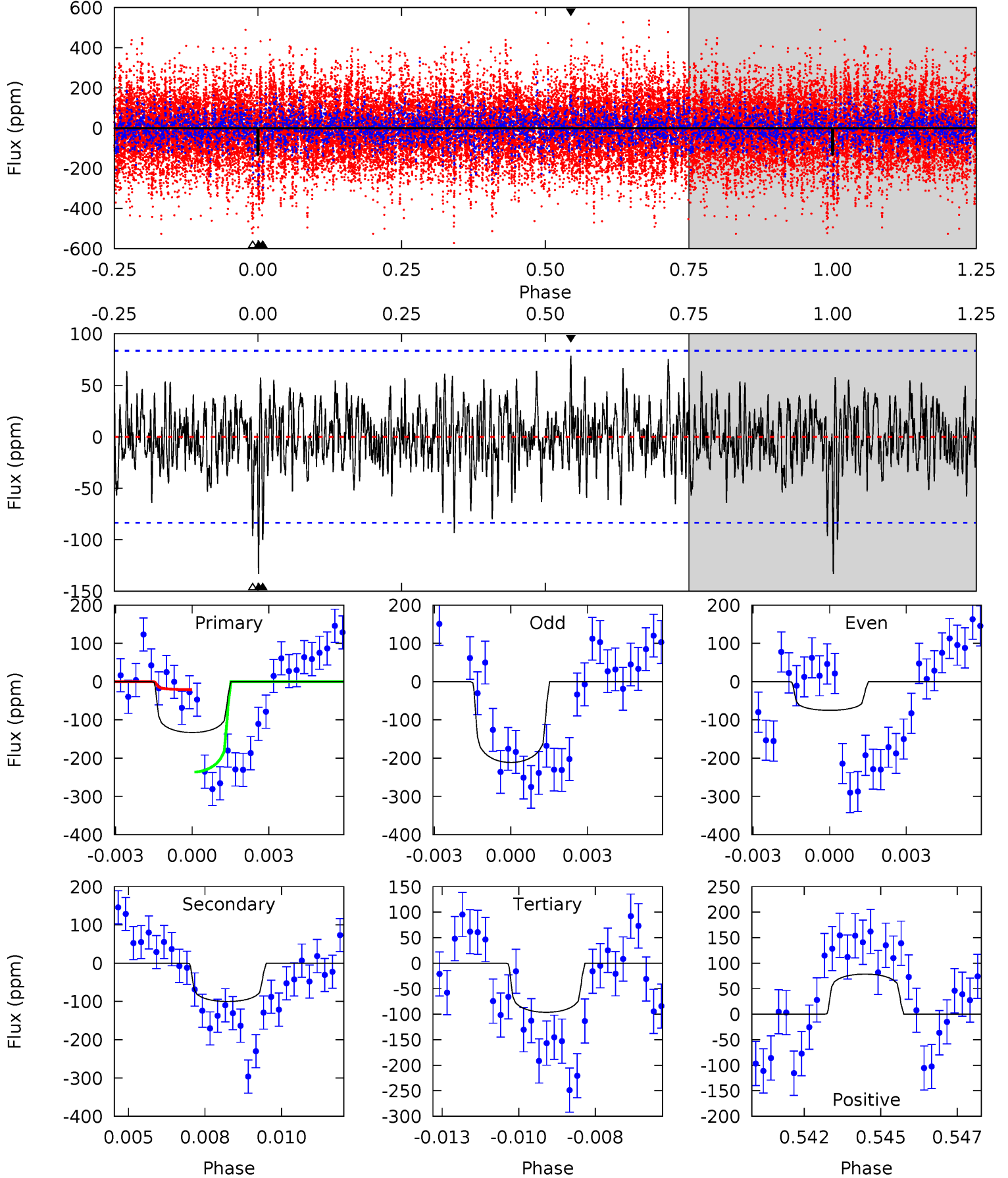
TCE 008745924-03 P=168.467891 Days $T_0=215.681951$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-03, P = 168.477736 Days, E = 47.191390 Days

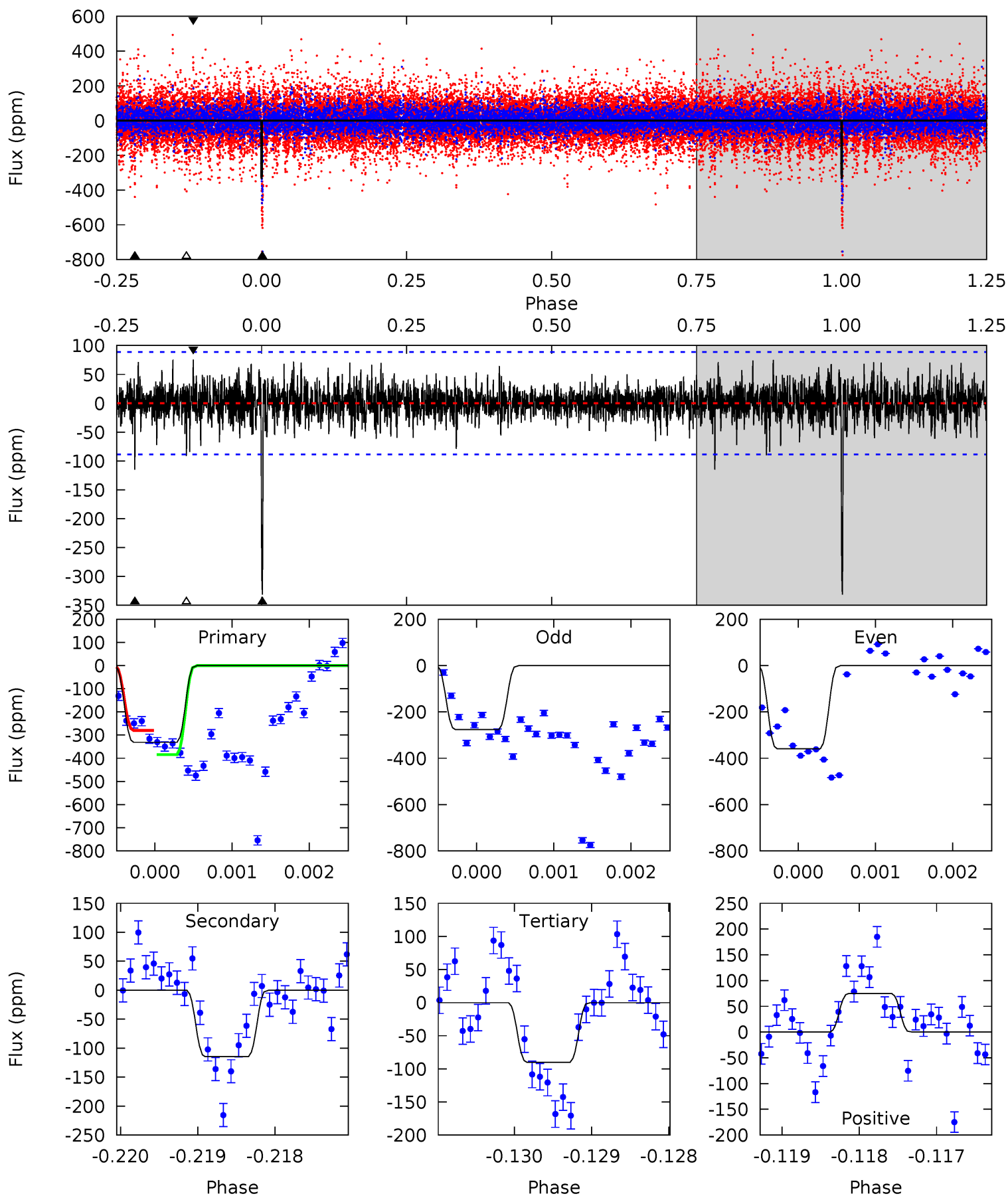
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.43	6.34	6.10	4.98	5.28	3.02	1.54	2.33	3.44	0.25	1.36	4.27	0.94	0.37	6.81



Alt Model-Shift Uniqueness Test

008745924-03, $P = 168.467891$ Days, $E = 47.214060$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	7.00	5.50	4.57	5.42	3.23	1.30	14.7	15.7	1.50	2.44	2.29	1.20	0.18	3.20



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-100 ± 16	$2.99^{+1.53}_{-1.37}$	855^{+44}_{-72}	6858^{+3038}_{-1196}	2989^{+6690}_{-1688}
Alt.	-115 ± 16	$6.40^{+1.95}_{-1.71}$	853^{+47}_{-77}	4933^{+674}_{-439}	753^{+637}_{-322}

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

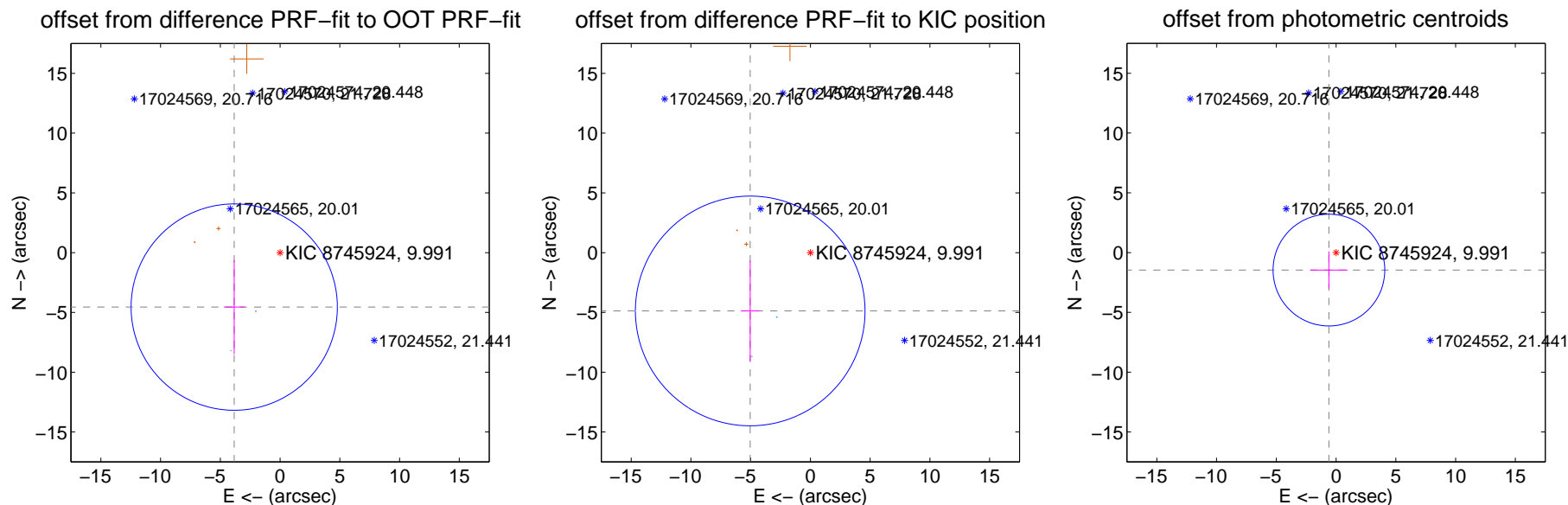
DV Centroid Data

Supplemental centroid analysis for 008745924-03. **Kepler magnitude: 9.99.** Transit SNR 2.86

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.954 ± 2.877	2.07	3.836 ± 0.868	-4.554 ± 3.930
PRF-fit source offset from KIC position	7.011 ± 3.203	2.19	5.037 ± 0.778	-4.877 ± 4.206
photometric centroid source offset	1.58 ± 1.56	1.02	0.60 ± 1.56	-1.46 ± 1.56



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.

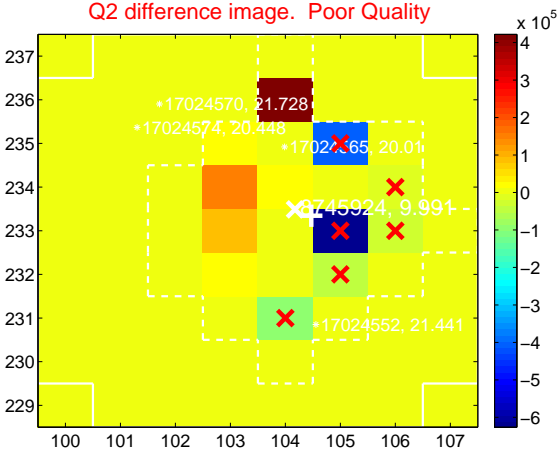
Q1 no difference image



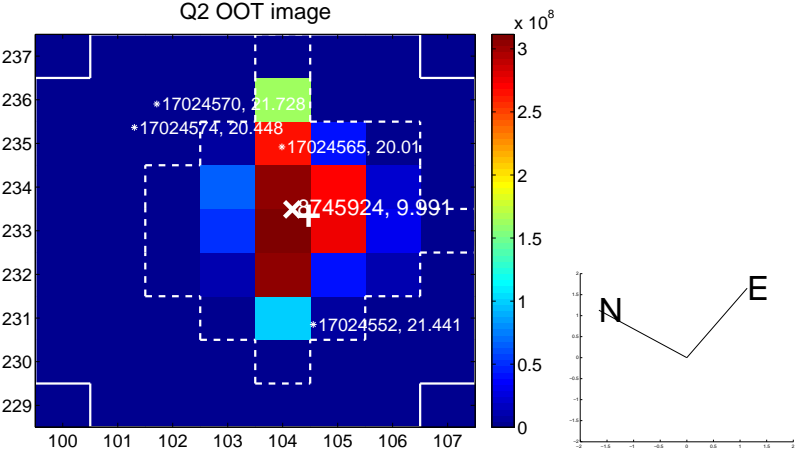
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



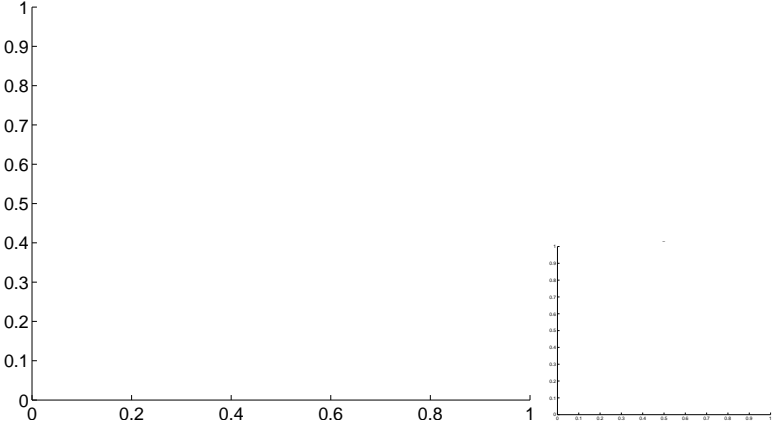
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

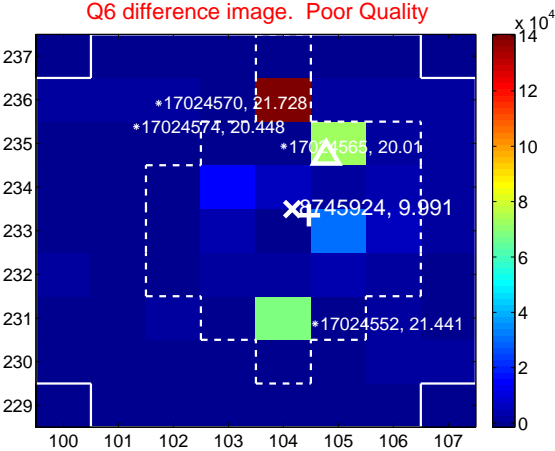
Q5 no difference image



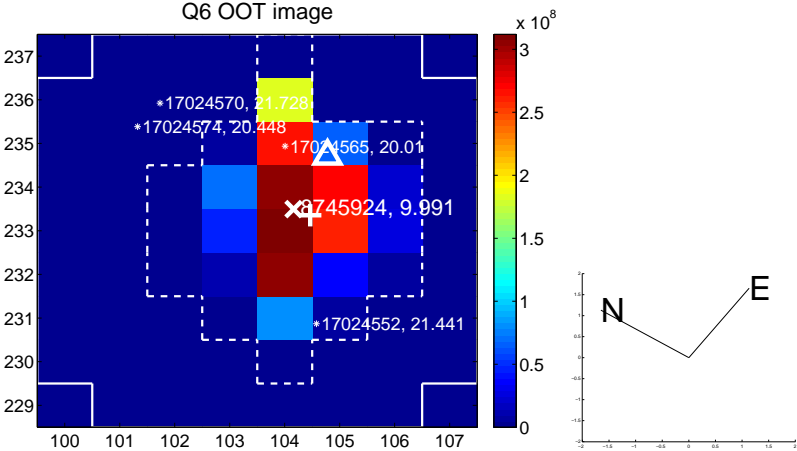
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



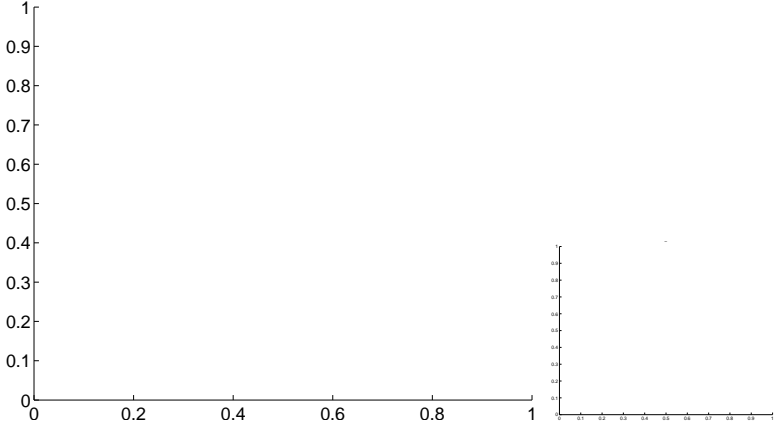
Q7 no OOT image



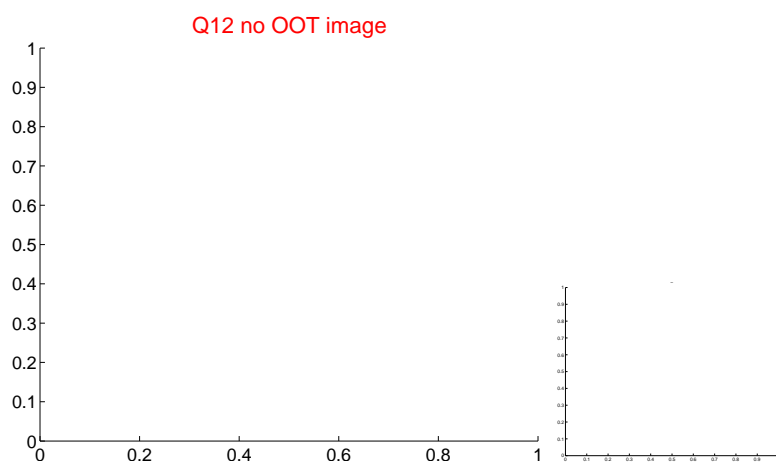
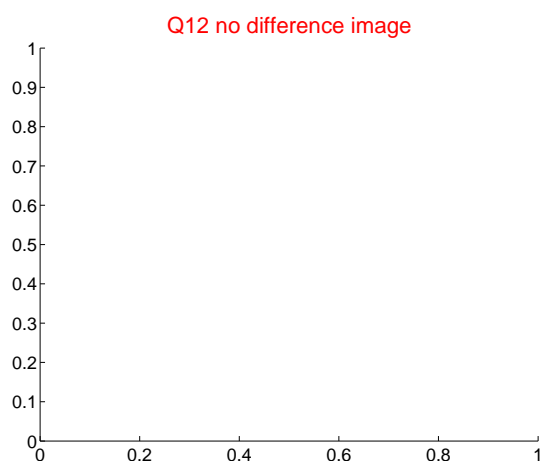
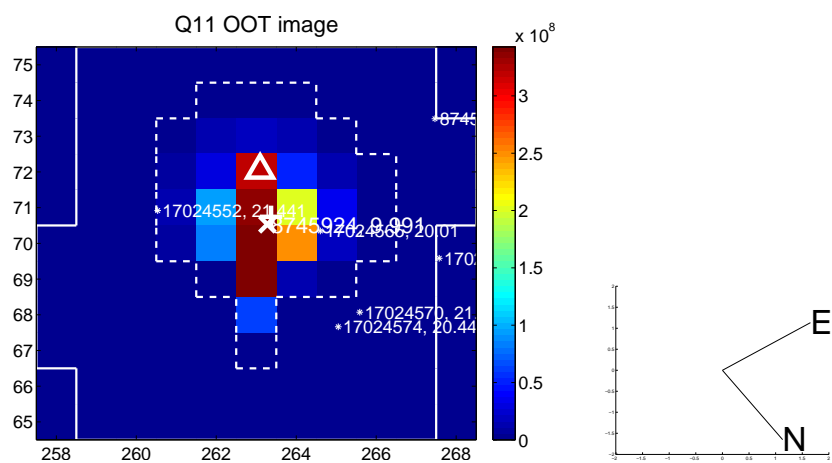
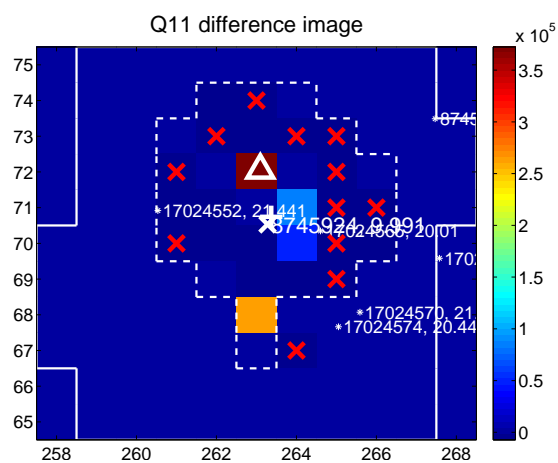
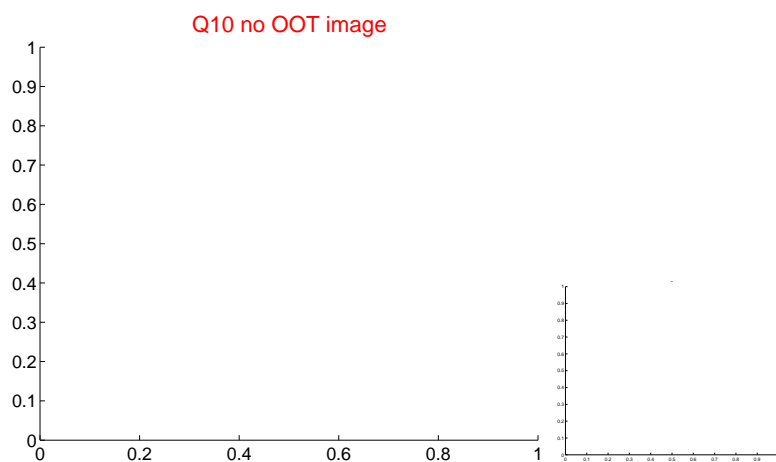
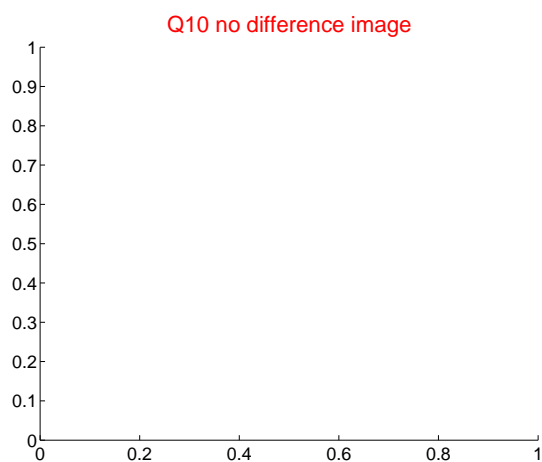
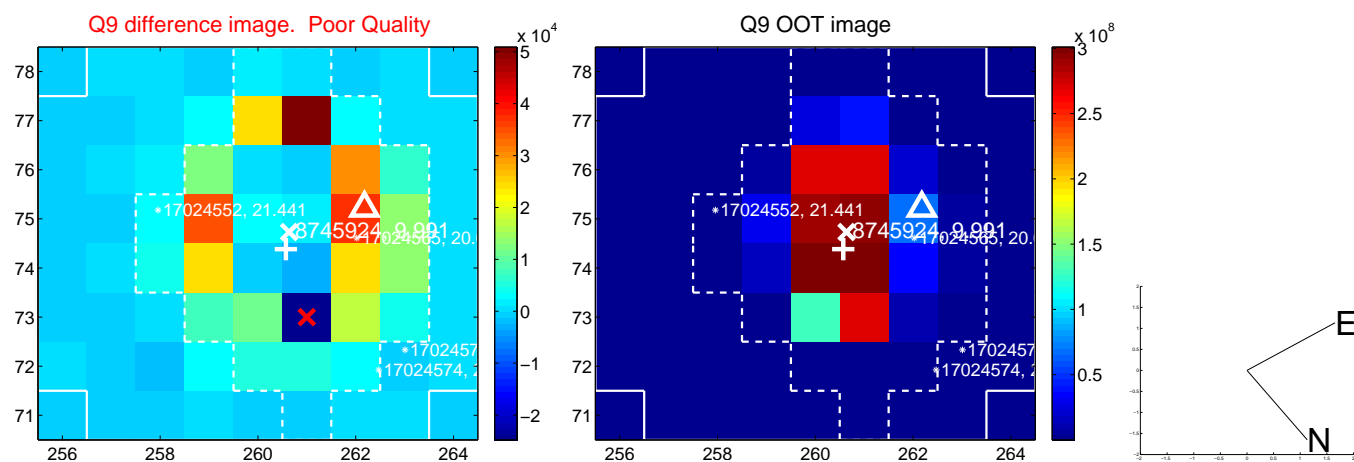
Q8 no difference image



Q8 no OOT image



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.

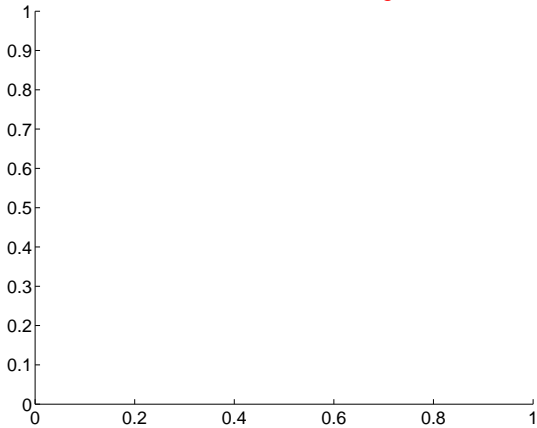
Q13 no difference image



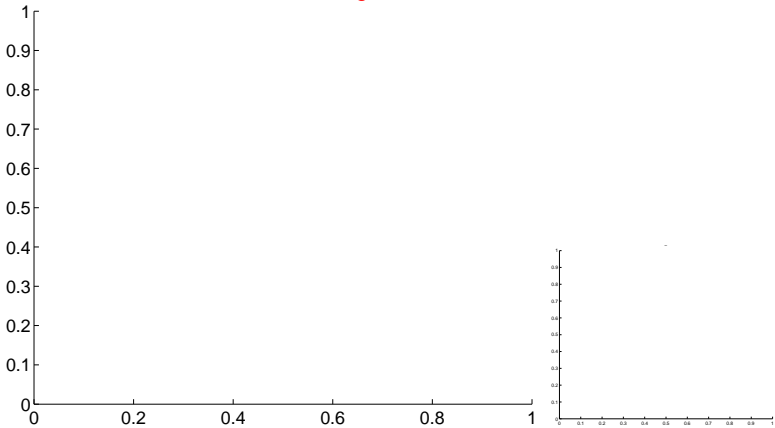
Q13 no OOT image



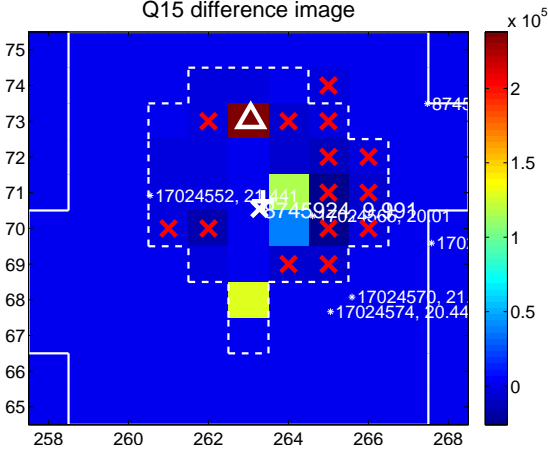
Q14 no difference image



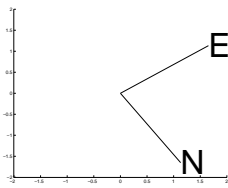
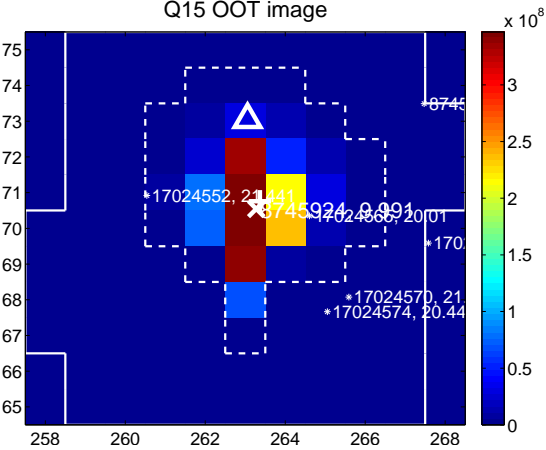
Q14 no OOT image



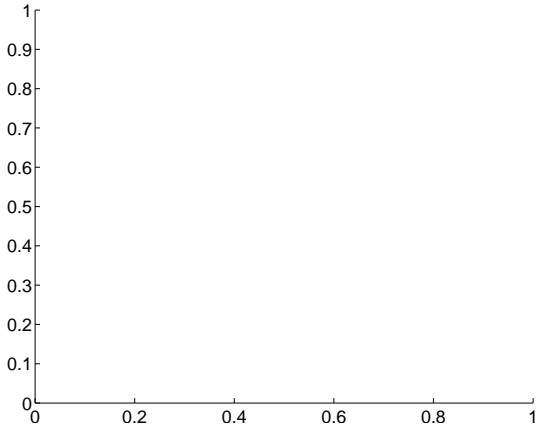
Q15 difference image



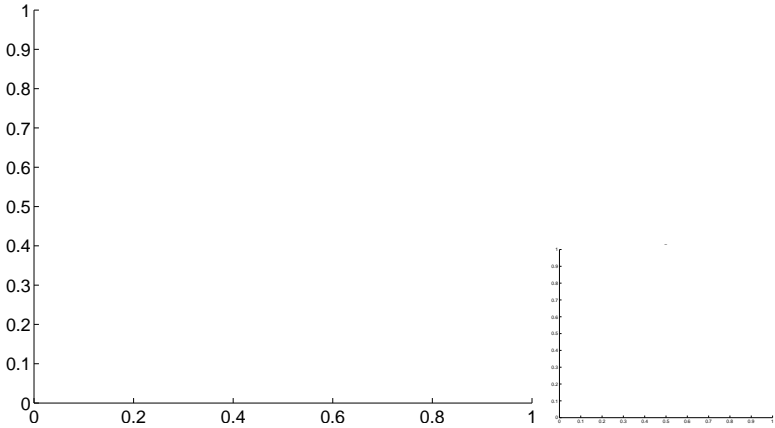
Q15 OOT image



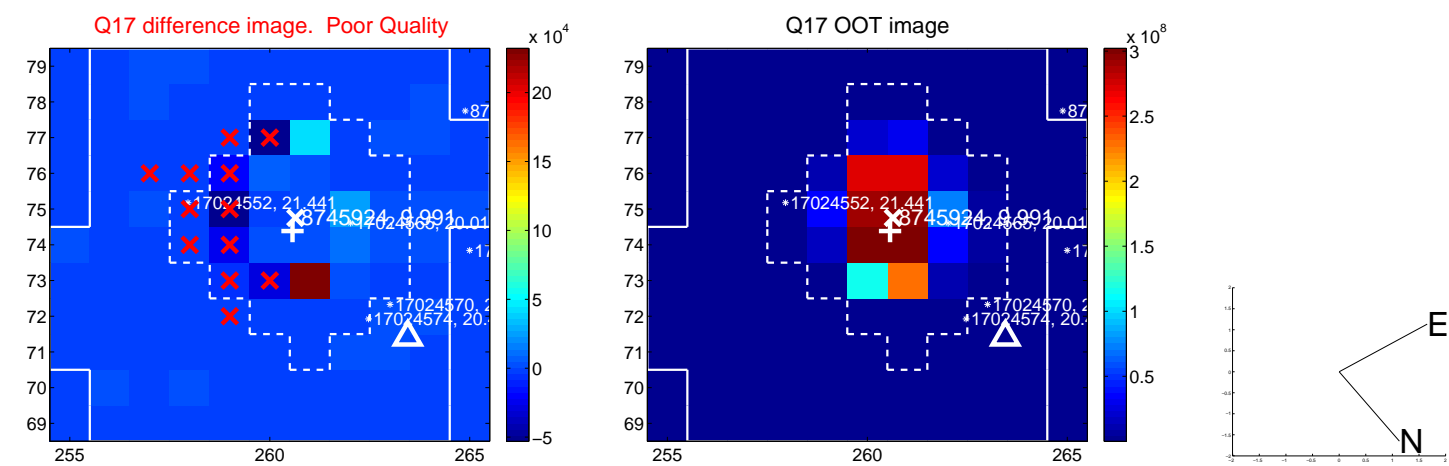
Q16 no difference image



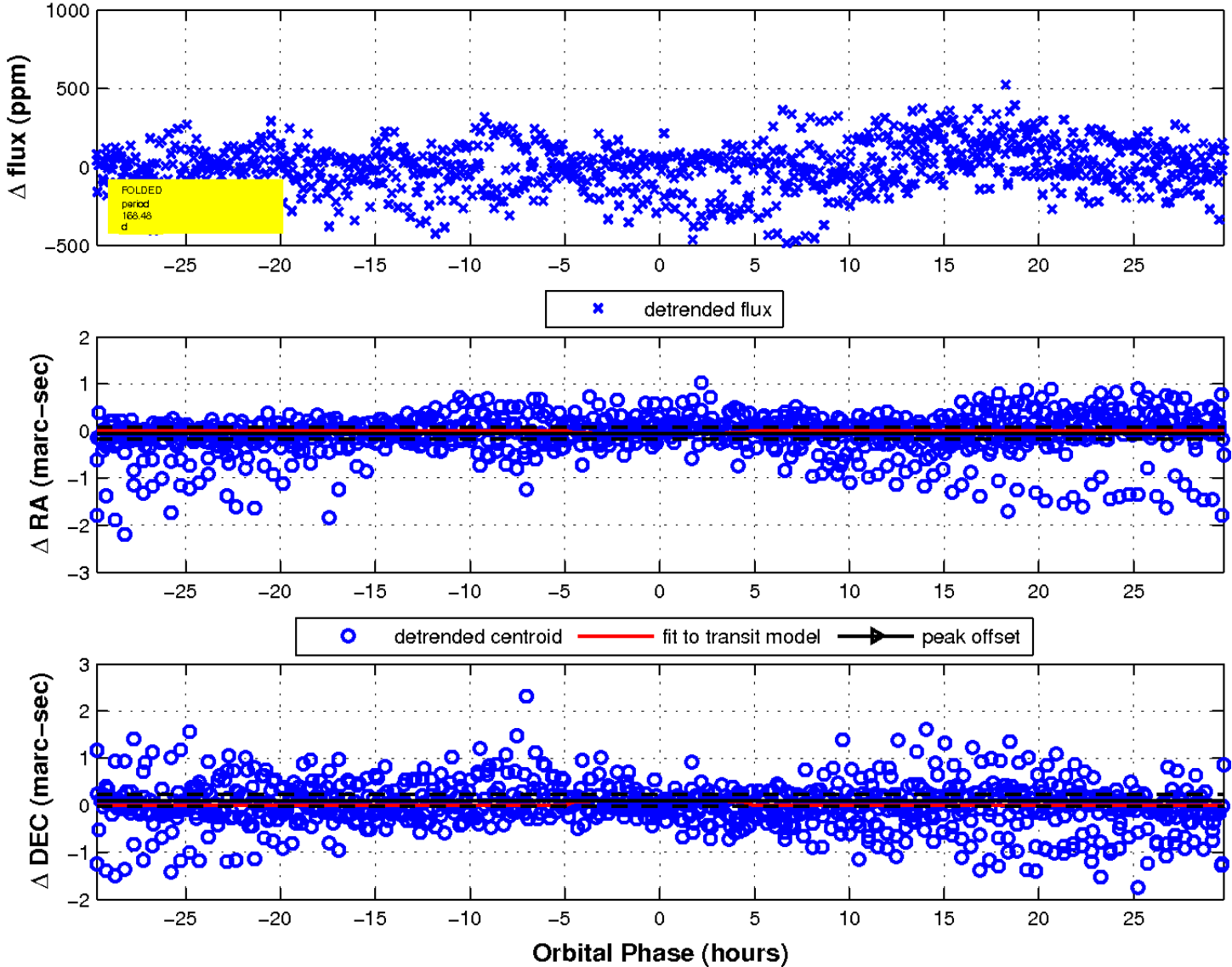
Q16 no OOT image



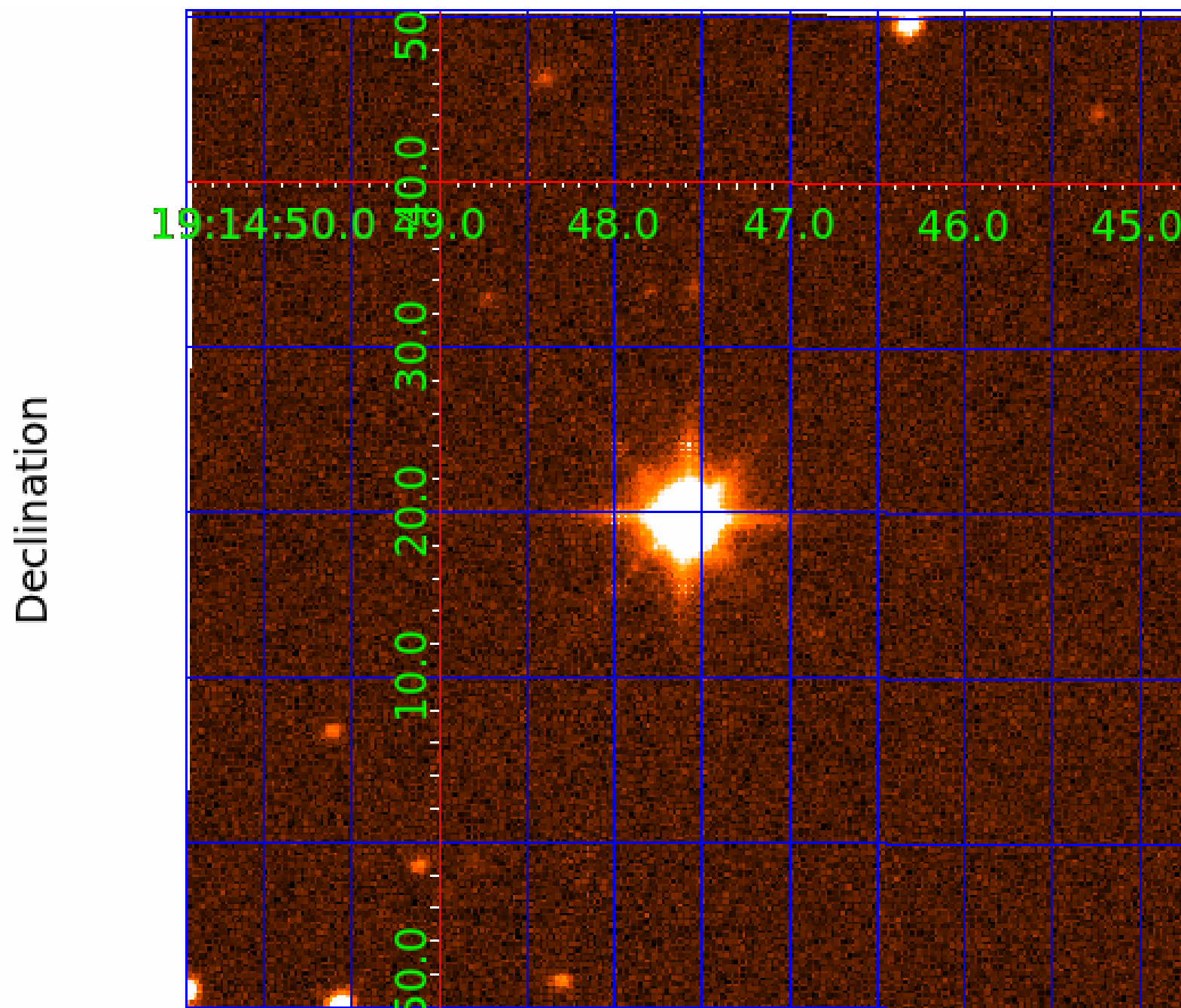
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 10



UKIRT Image



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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

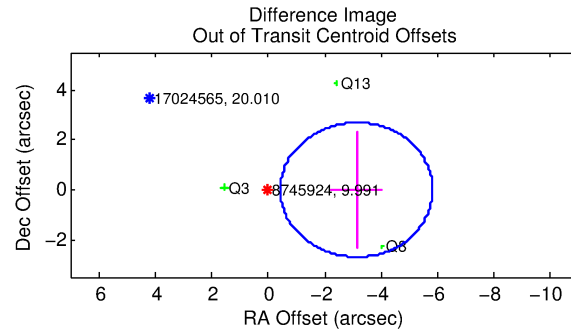
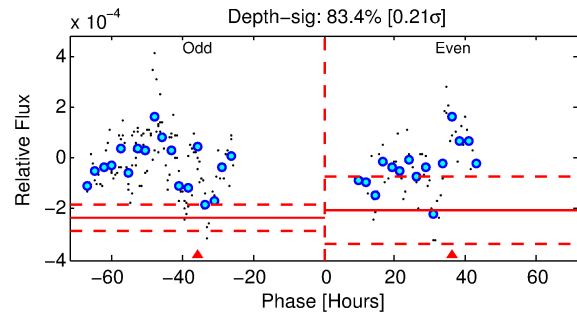
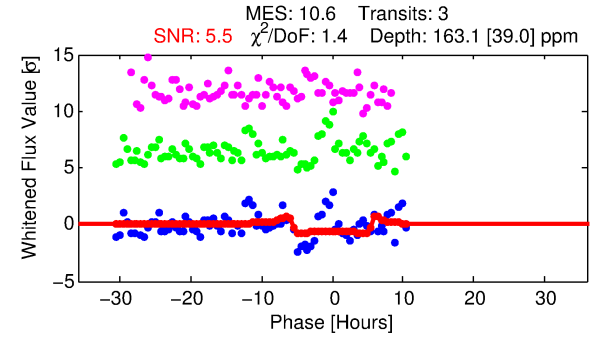
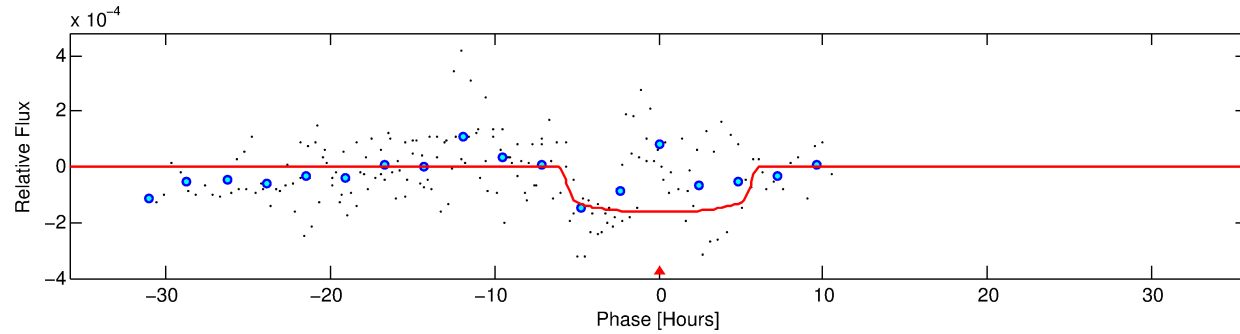
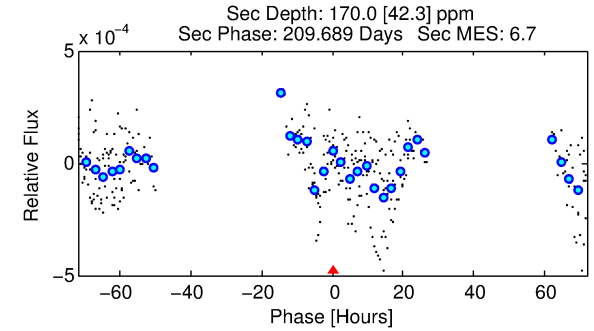
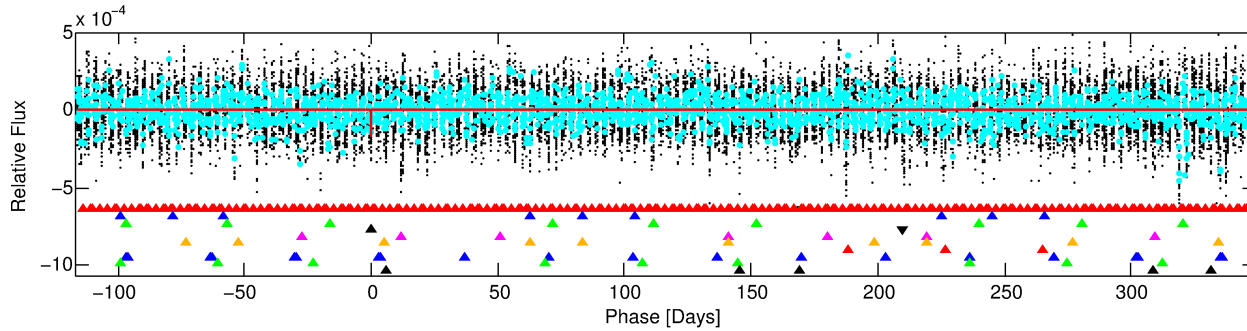
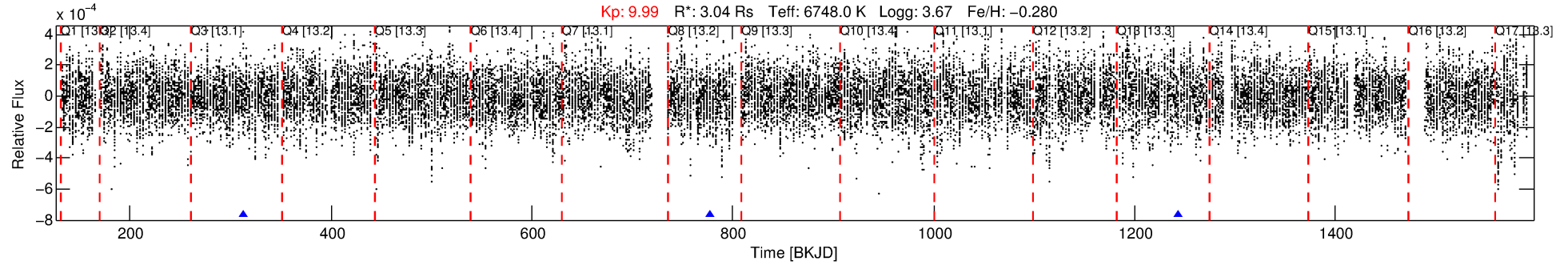
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-04

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 4 of 10 Period: 465.163 d



DV Fit Results:

Period = 465.16261 [0.01351] d
Epoch = 312.6647 [0.0204] BKJD
 $R_p/R^* = 0.0134$ [0.0031]
 $a/R^* = 149.33$ [153.77]
 $b = 0.88$ [0.27]
 $S_{\text{eff}} = 9.21$ [5.18]
 $T_{\text{eq}} = 444$ [62] K
 $R_p = 4.45$ [1.93] R_e
 $a = 1.3637$ [0.4746] AU
 $A_g = 8787.78$ [6648.65] [1.32σ]
 $T_{\text{eff}} = 6650$ [887] K [6.98σ]

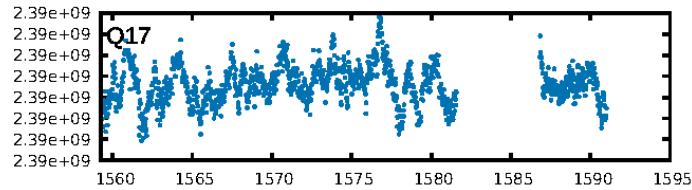
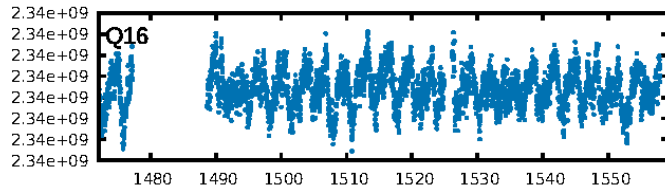
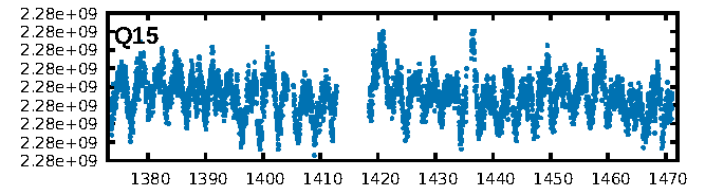
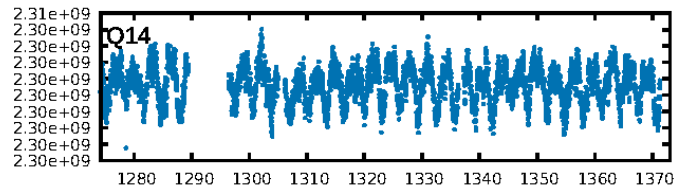
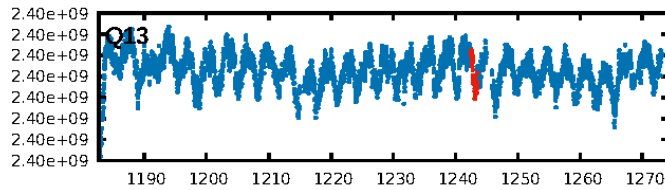
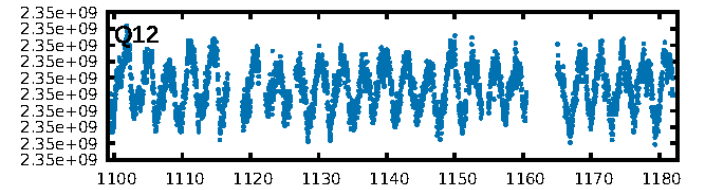
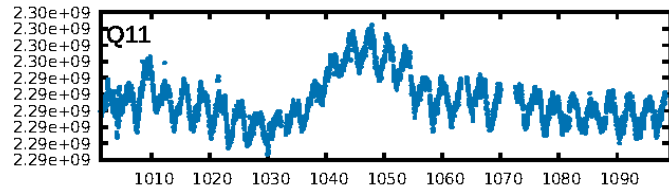
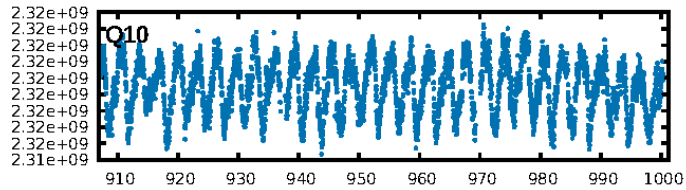
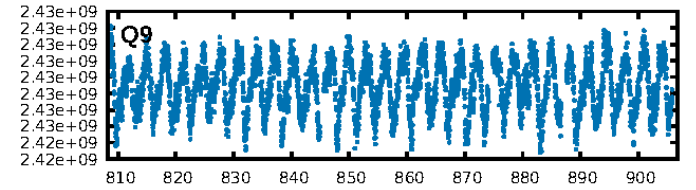
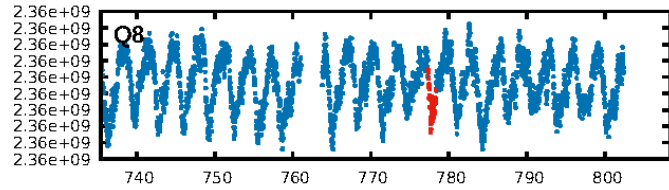
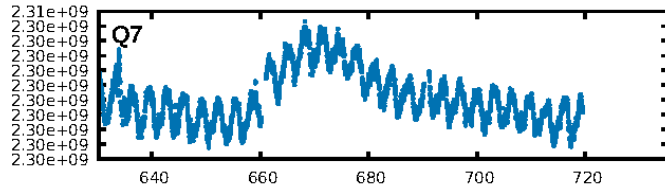
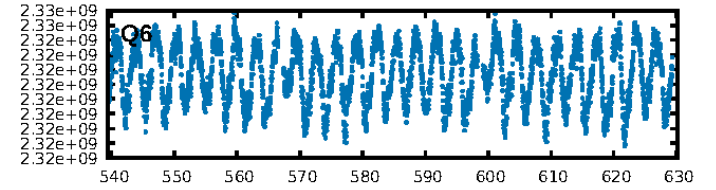
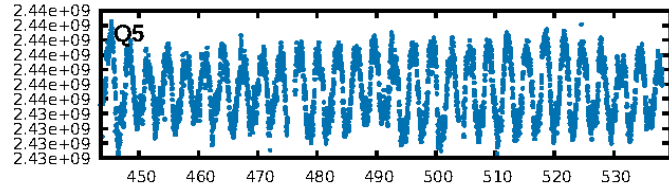
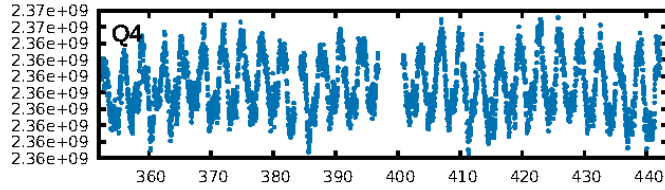
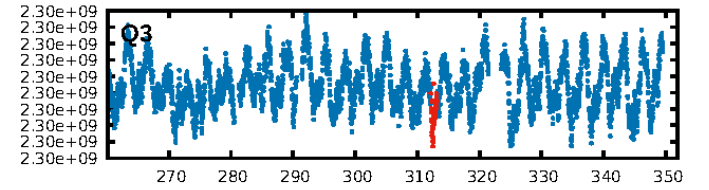
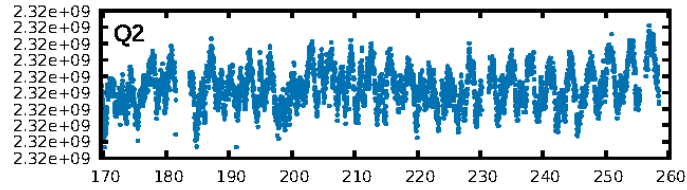
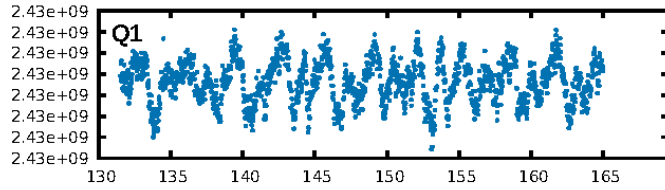
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [283.39σ]
LongPeriod-sig: 100.0% [46.05σ]
ModelChiSquare2-sig: 14.4%
ModelChiSquareGof-sig: 63.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.505
Centroid-sig: 54.5%
Centroid-so: 0.485 arcsec [0.46σ]
OotOffset-rm: 3.128 arcsec [3.48σ]
KicOffset-rm: 3.654 arcsec [2.55σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.33 [1/3]

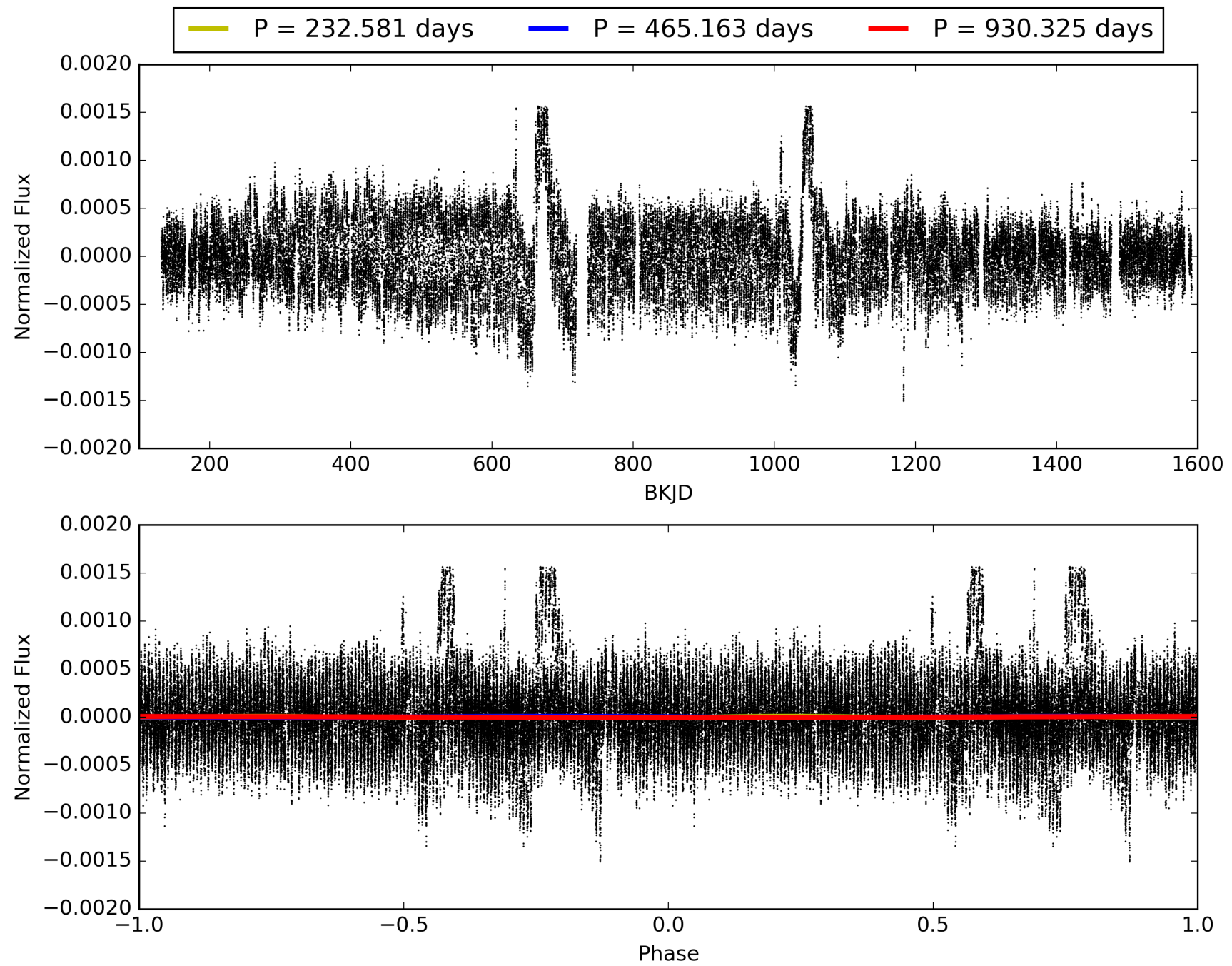
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:56:01 Z

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

TCE 008745924-04, PDC Light Curves

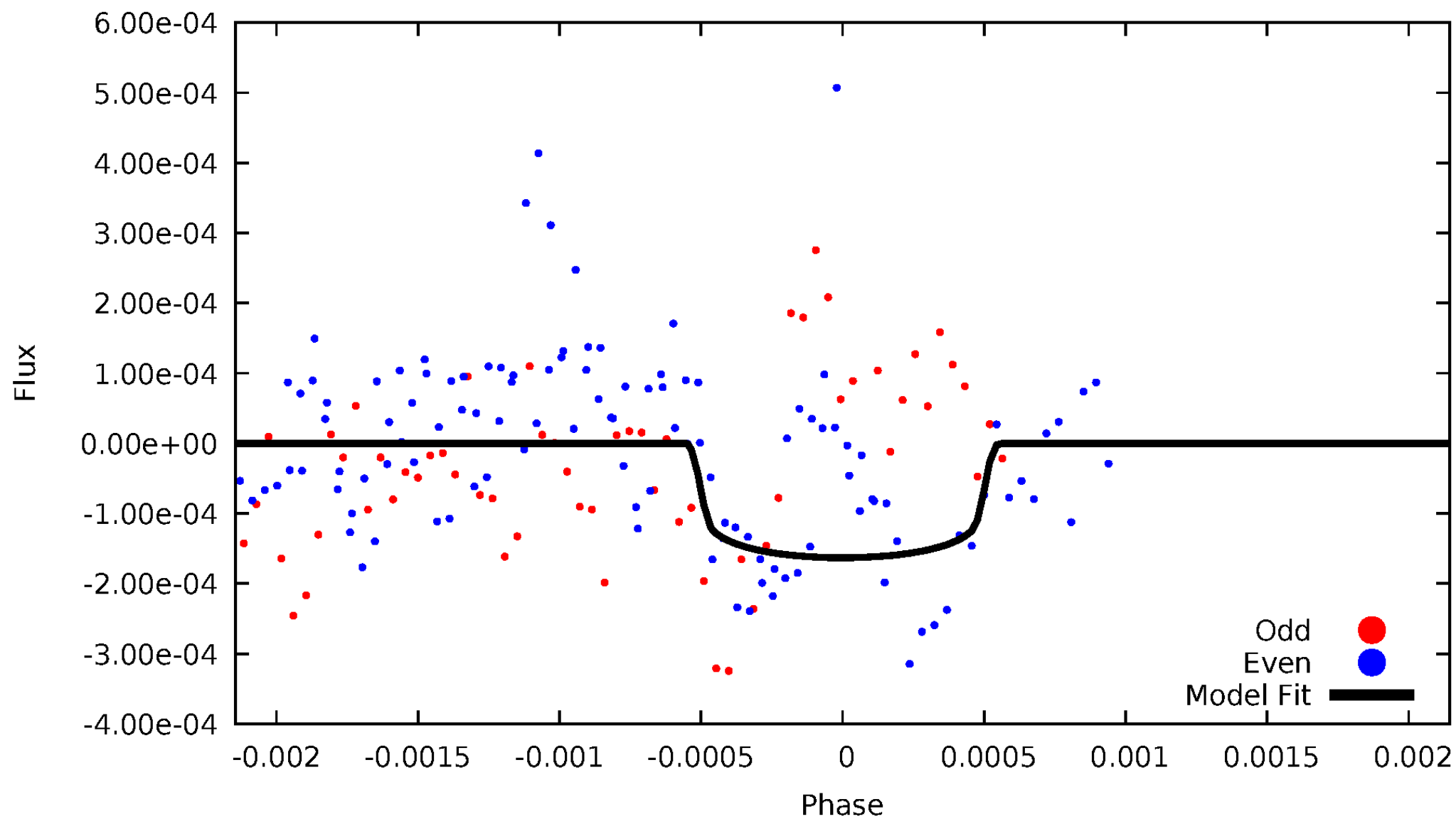


TCE 008745924-04



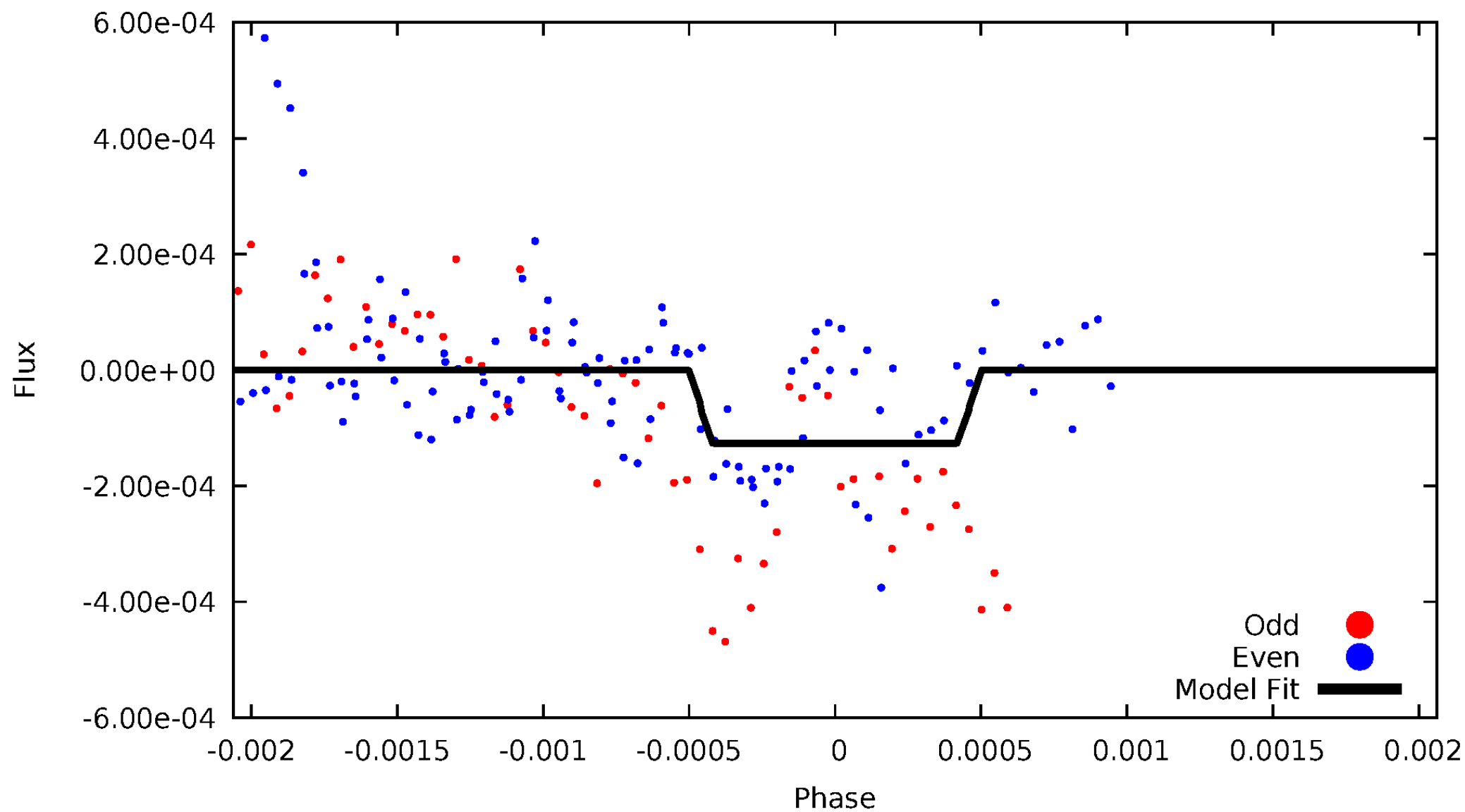
DV Odd/Even

TCE 008745924-04



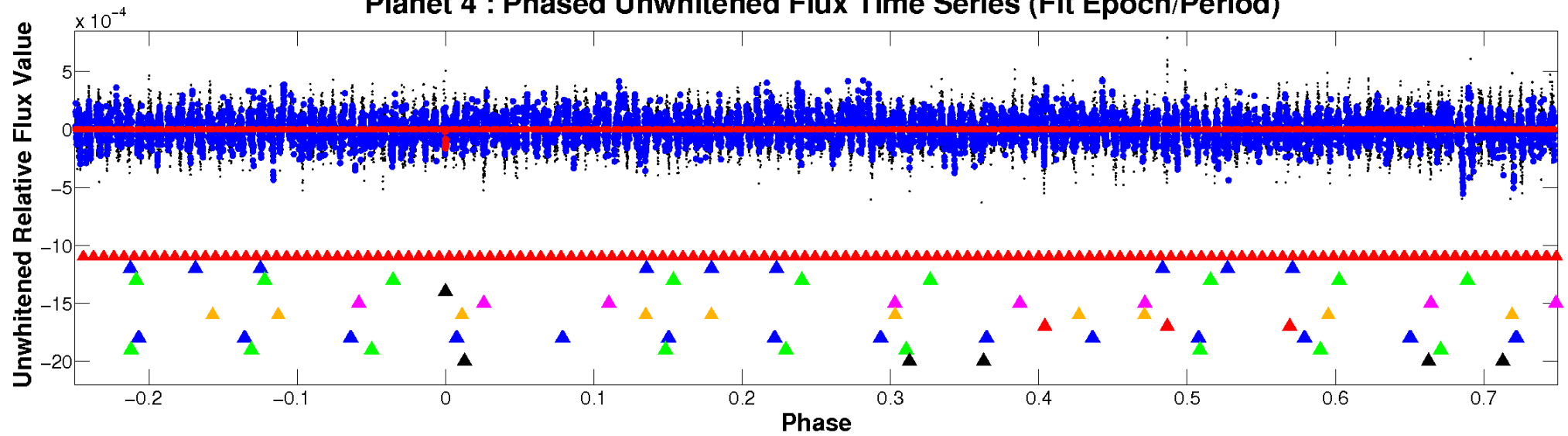
ALT Odd/Even

TCE 008745924-04

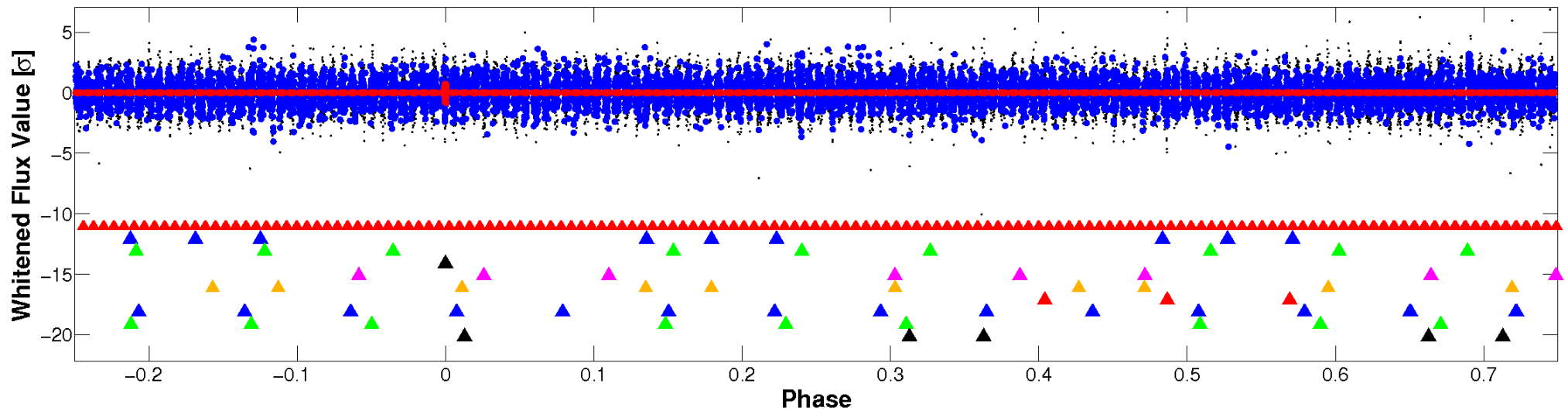


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

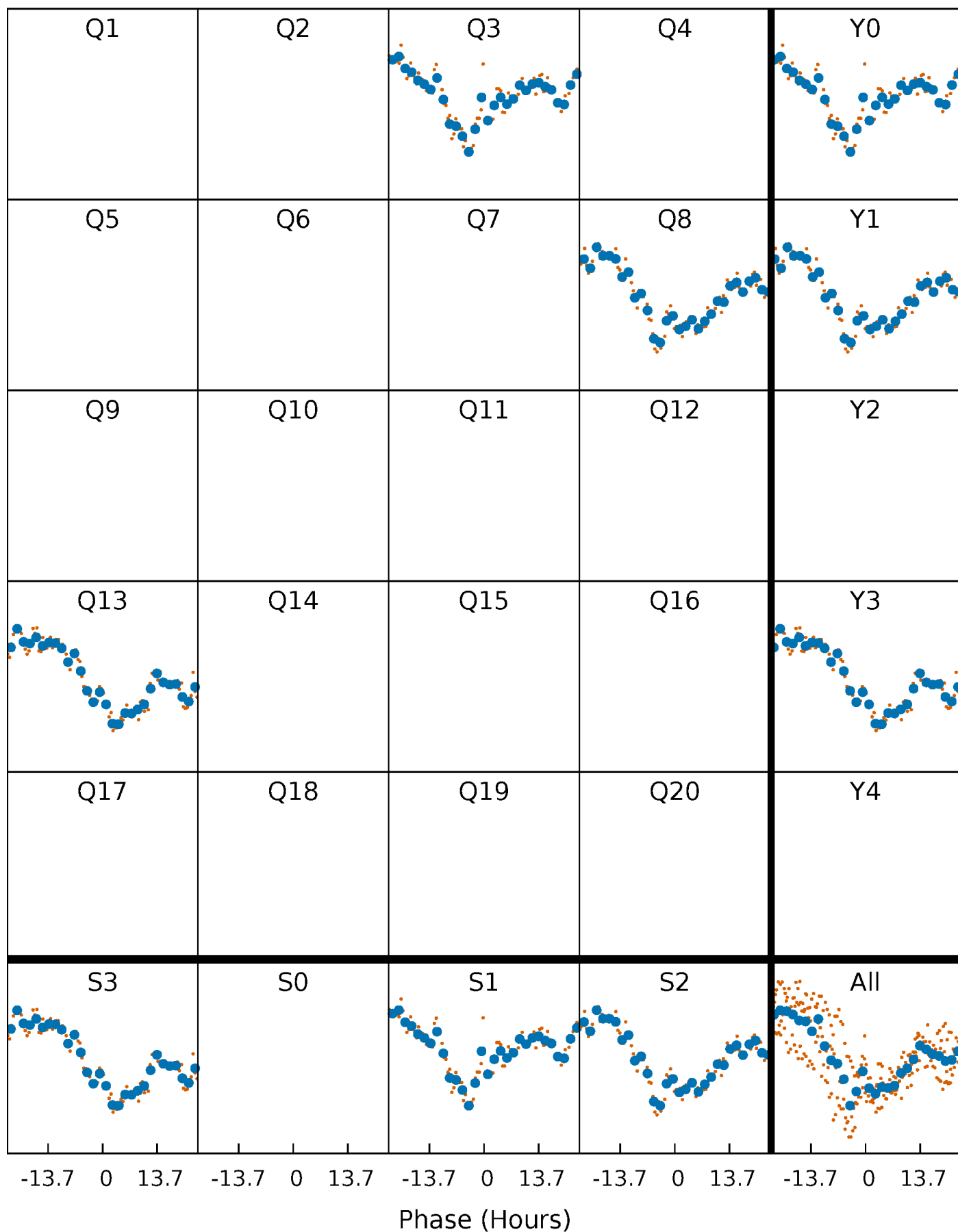


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



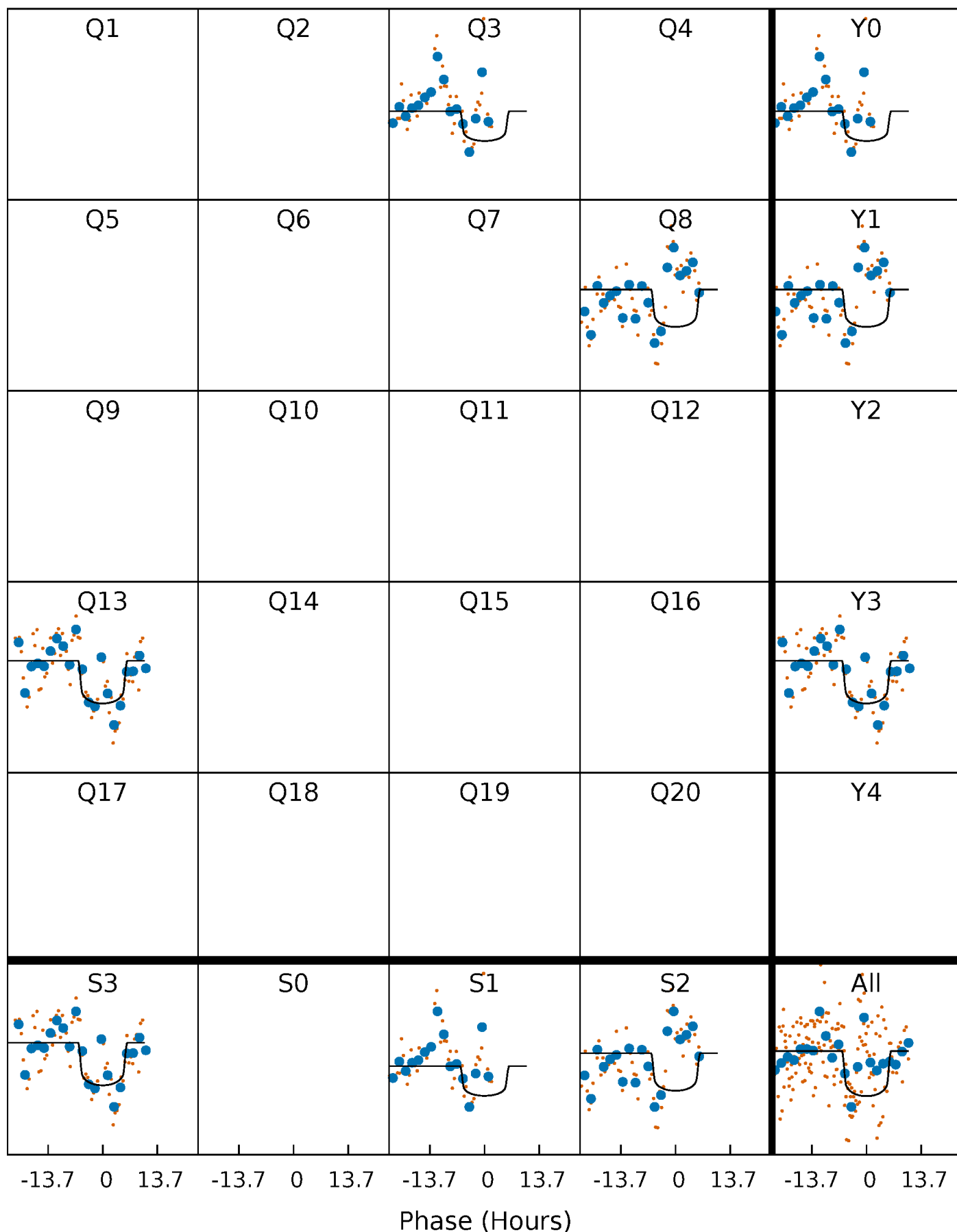
PDC Quarter-Phased Transit Curves

TCE 008745924-04 $P=465.162607$ Days $T_0=312.664742$ (BKJD)



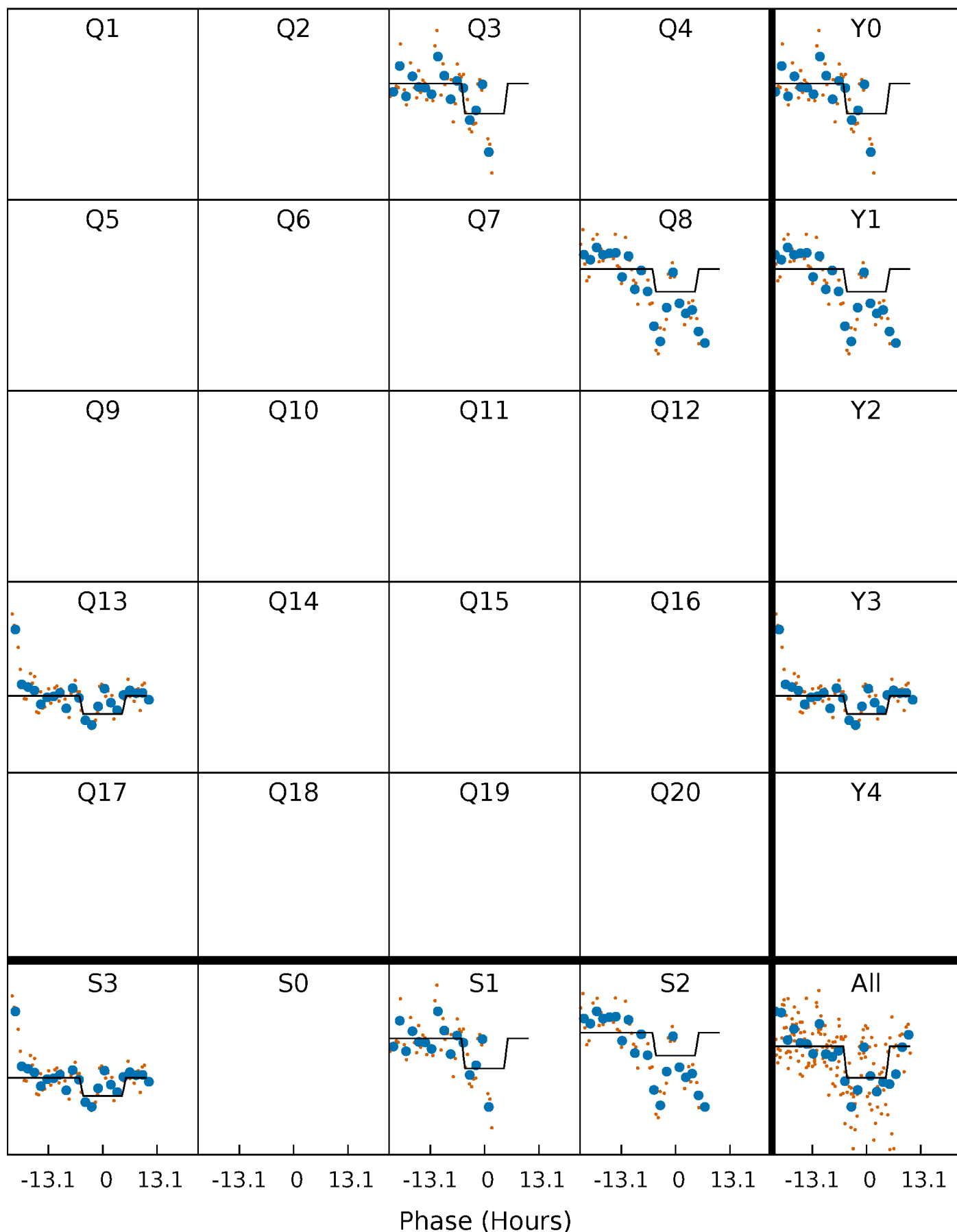
DV Quarter-Phased Transit Curves

TCE 008745924-04 P=465.162607 Days $T_0=312.664742$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

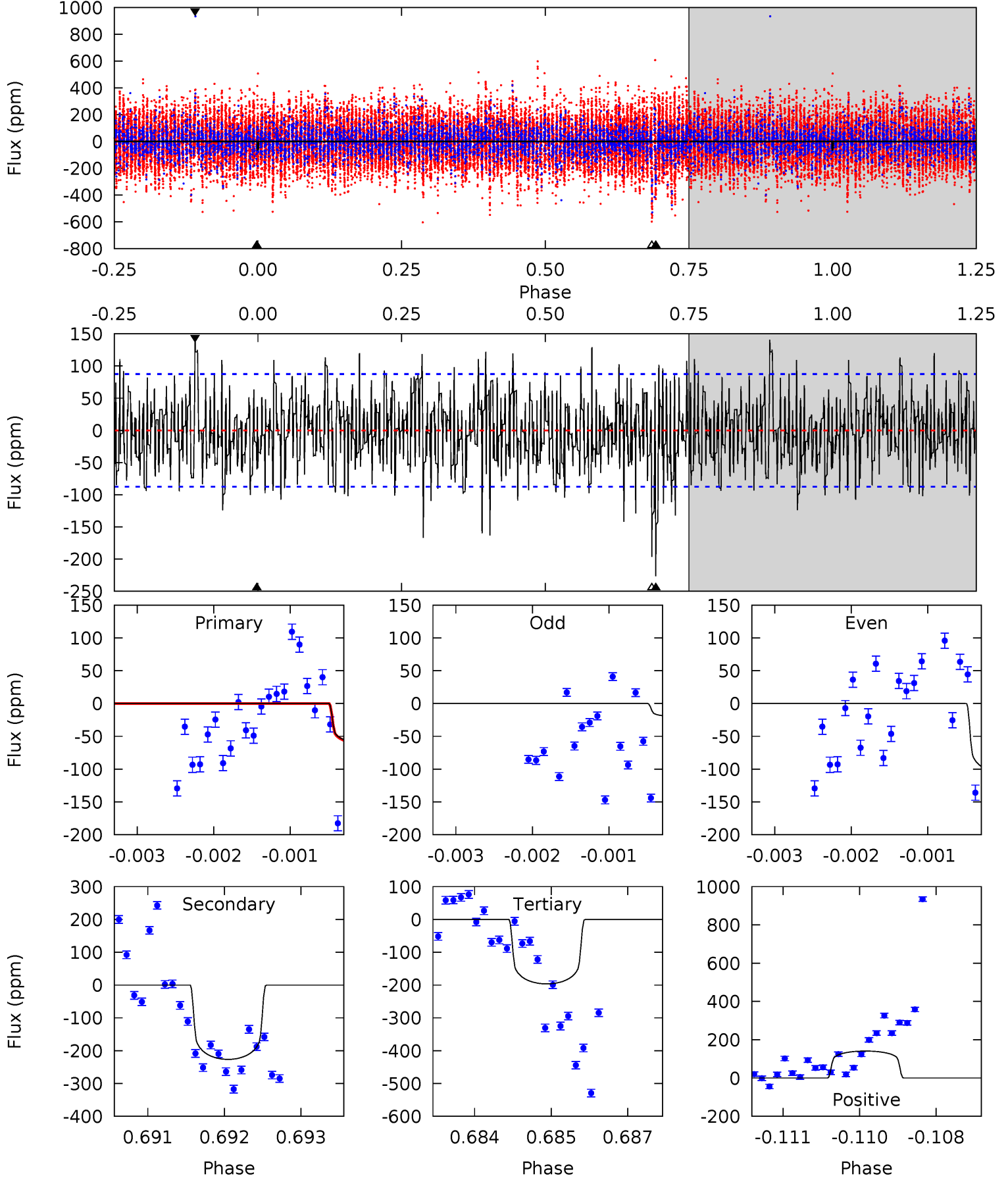
TCE 008745924-04 P=465.172403 Days $T_0=312.642918$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-04, P = 465.162607 Days, E = 312.664742 Days

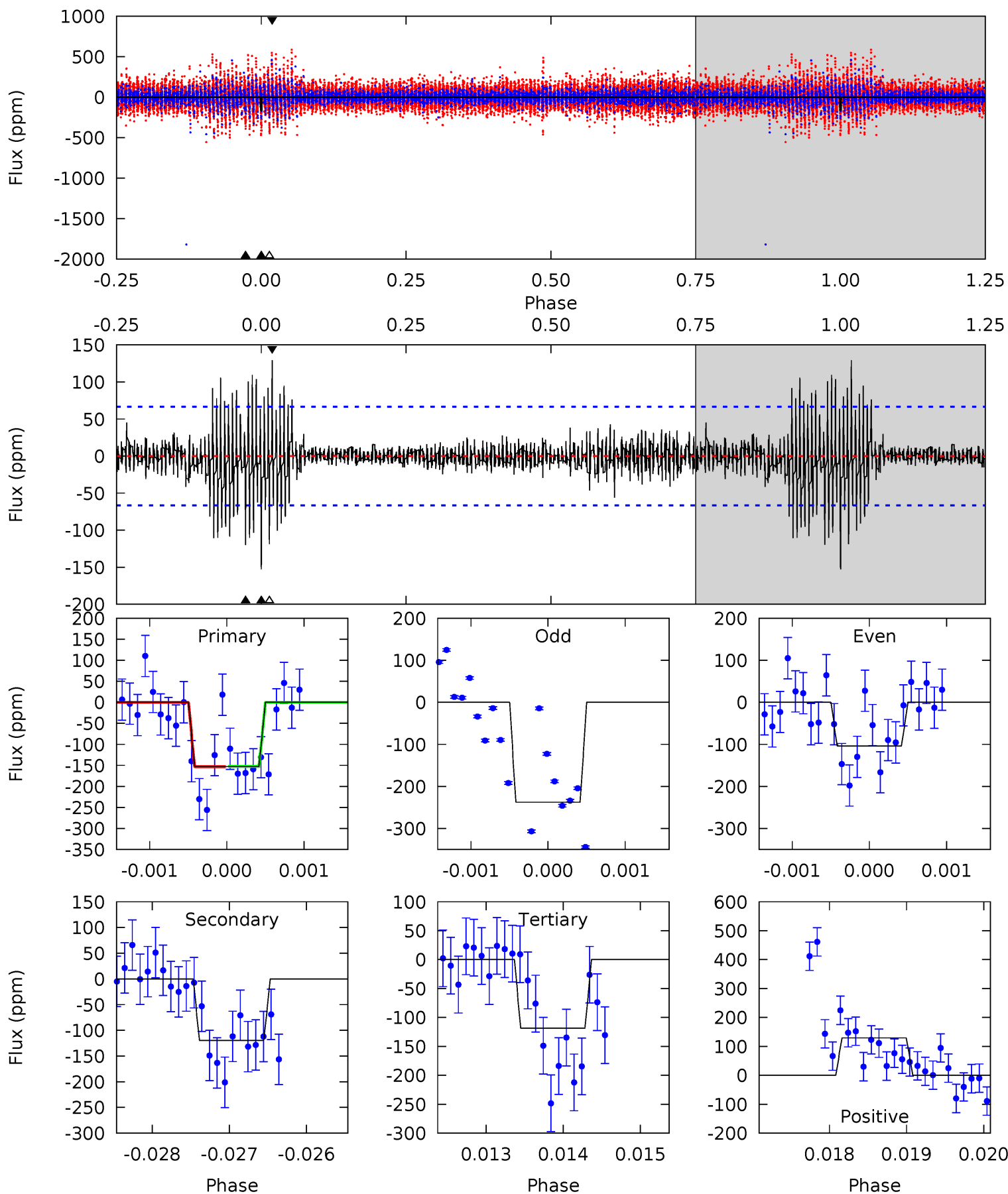
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.75	14.1	12.2	8.75	5.43	3.26	2.85	-8.44	-4.99	1.87	5.32	2.52	1.45	0.38	0.08



Alt Model-Shift Uniqueness Test

008745924-04, P = 465.172403 Days, E = 312.642918 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	9.82	9.72	10.6	5.45	3.29	1.69	2.80	1.92	0.09	-0.79	5.15	1.14	0.46	0.03



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-227 ± 16	$4.22^{+1.26}_{-1.17}$	607^{+33}_{-51}	7165^{+1330}_{-796}	13130^{+12002}_{-5082}
Alt.	-120 ± 12	$3.38^{+1.23}_{-0.98}$	608^{+32}_{-56}	6651^{+1375}_{-754}	10568^{+10776}_{-4736}

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 $A_{obs} \gg 1.0$

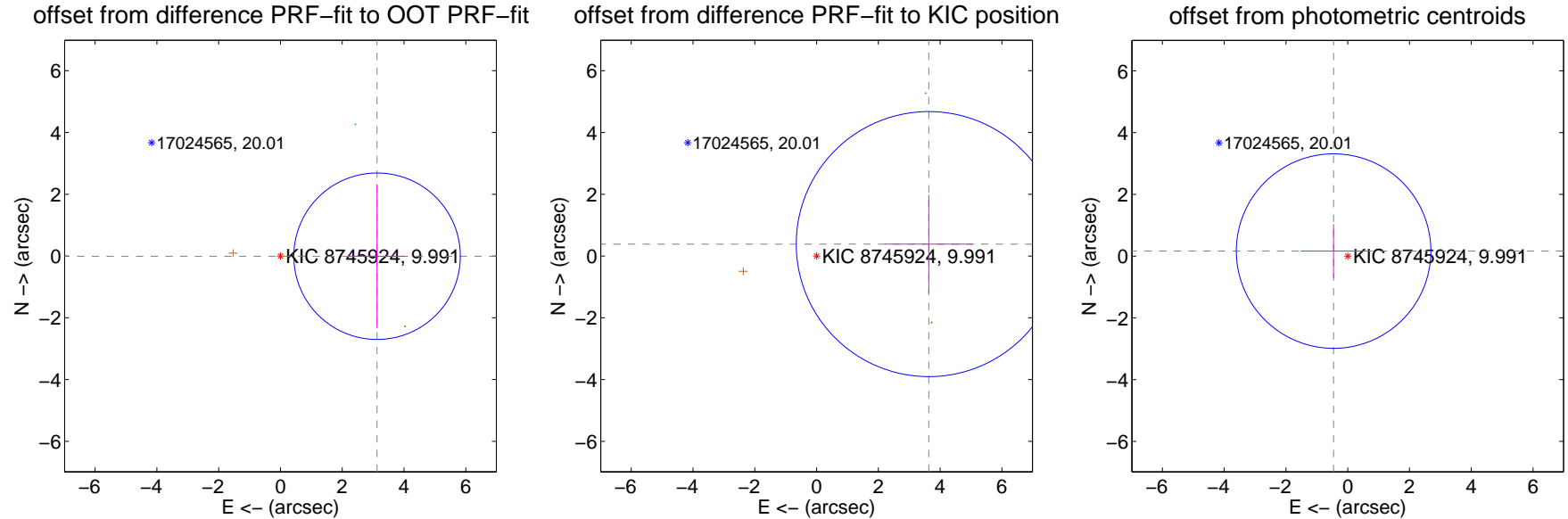
DV Centroid Data

Supplemental centroid analysis for 008745924-04. **Kepler magnitude: 9.99.** Transit SNR 5.54

There are 1 quarters with good PRF difference image offsets

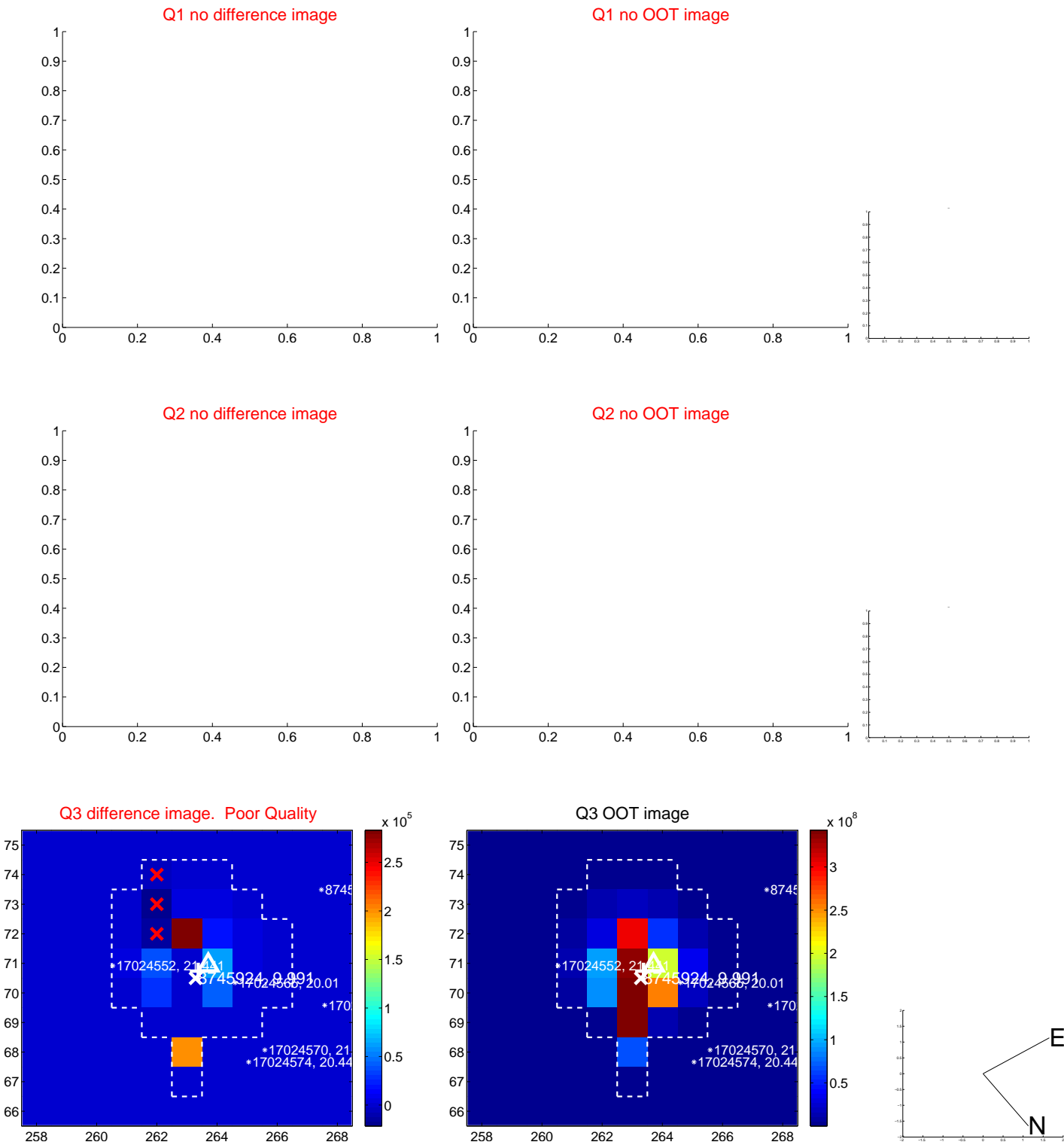
The direct PRF centroid is offset from the target star catalog position by about 1.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.128 ± 0.899	3.48	-3.128 ± 0.898	-0.007 ± 2.331
PRF-fit source offset from KIC position	3.654 ± 1.431	2.55	-3.633 ± 1.429	0.386 ± 1.594
photometric centroid source offset	0.49 ± 1.05	0.46	0.46 ± 1.07	0.16 ± 0.87

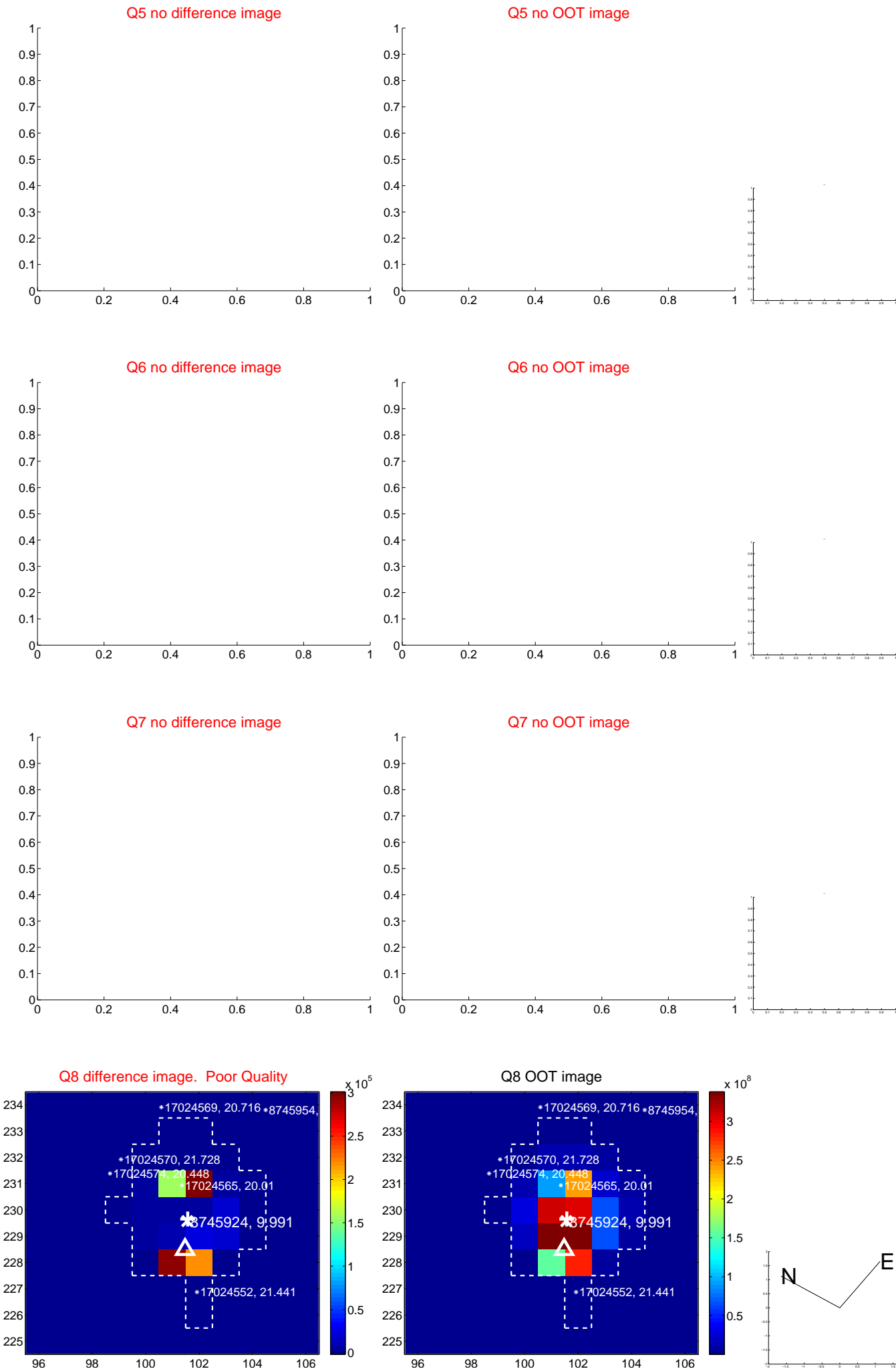


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



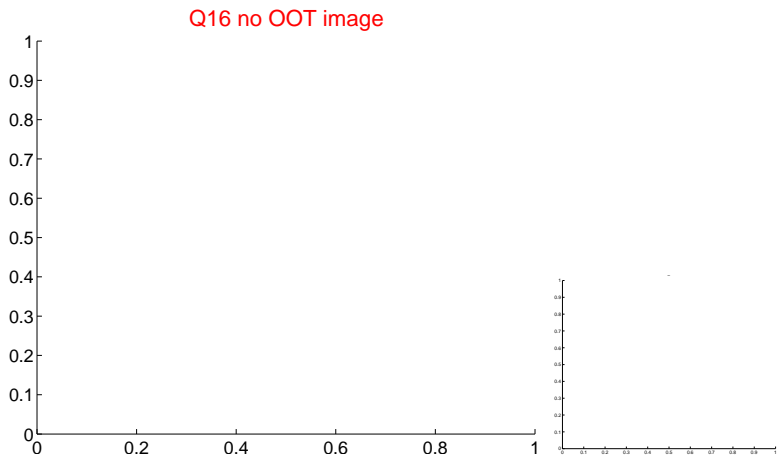
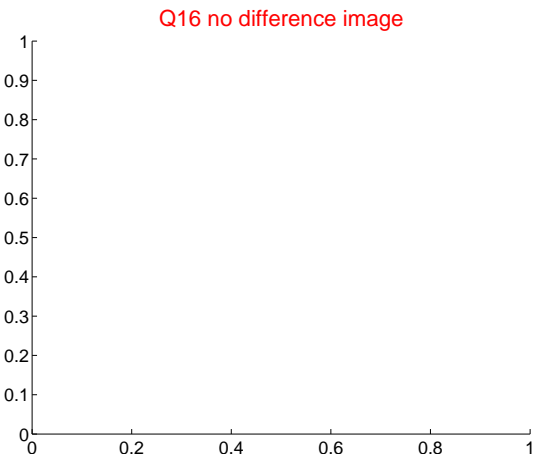
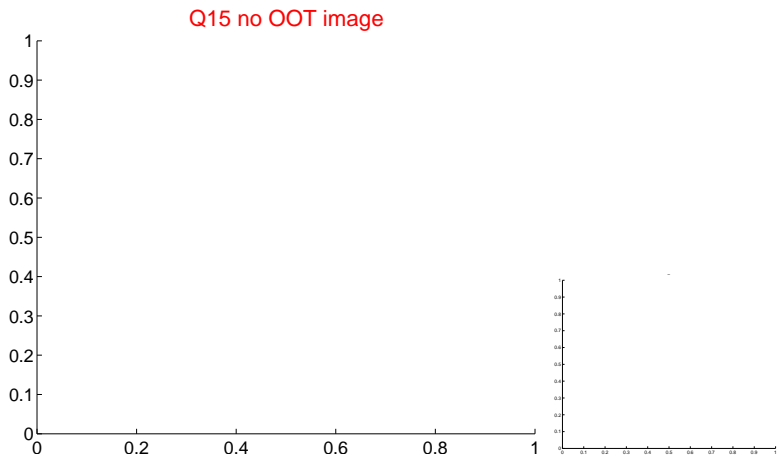
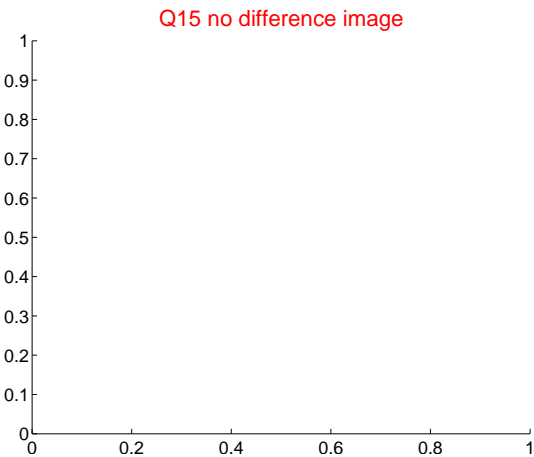
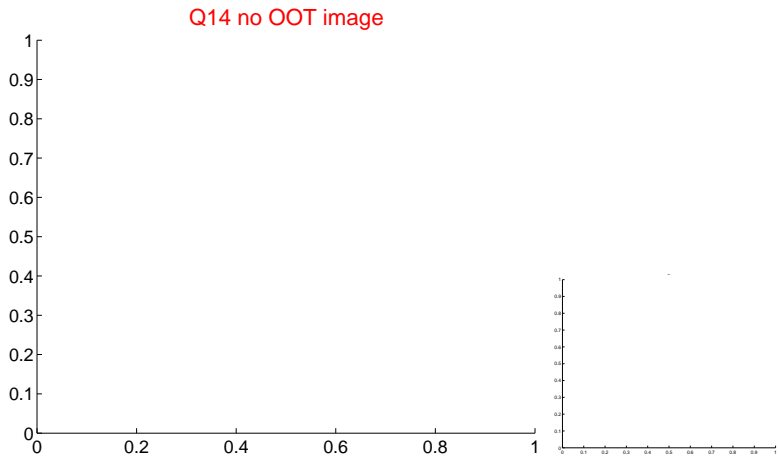
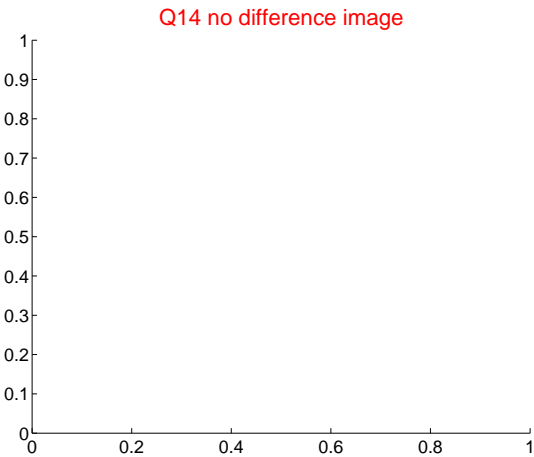
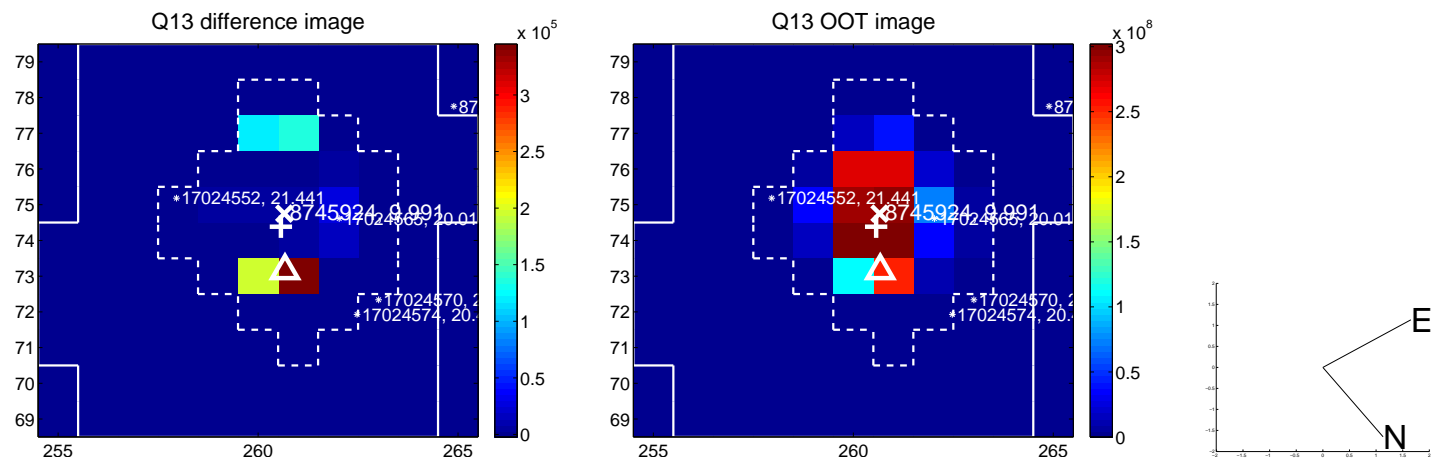
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



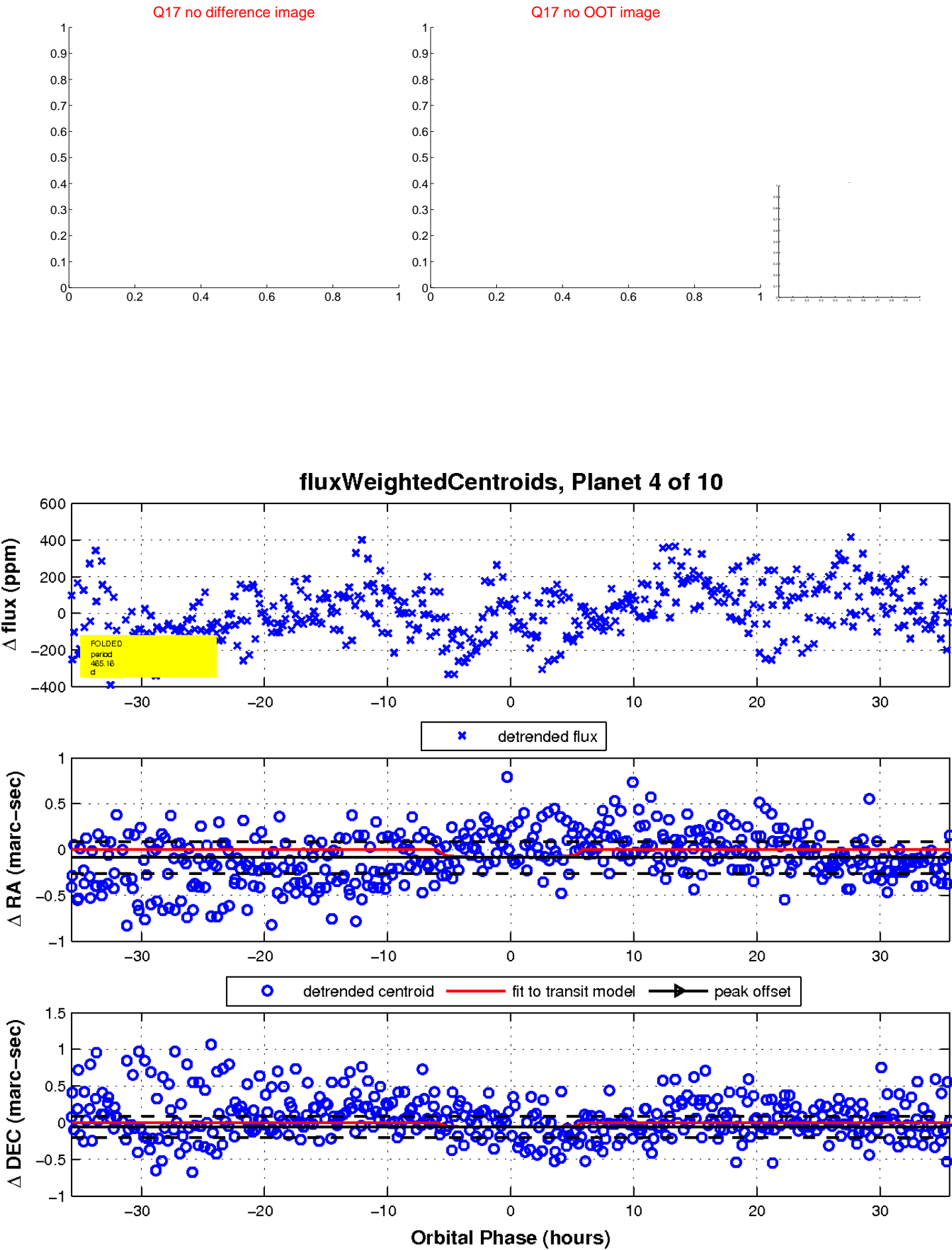
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



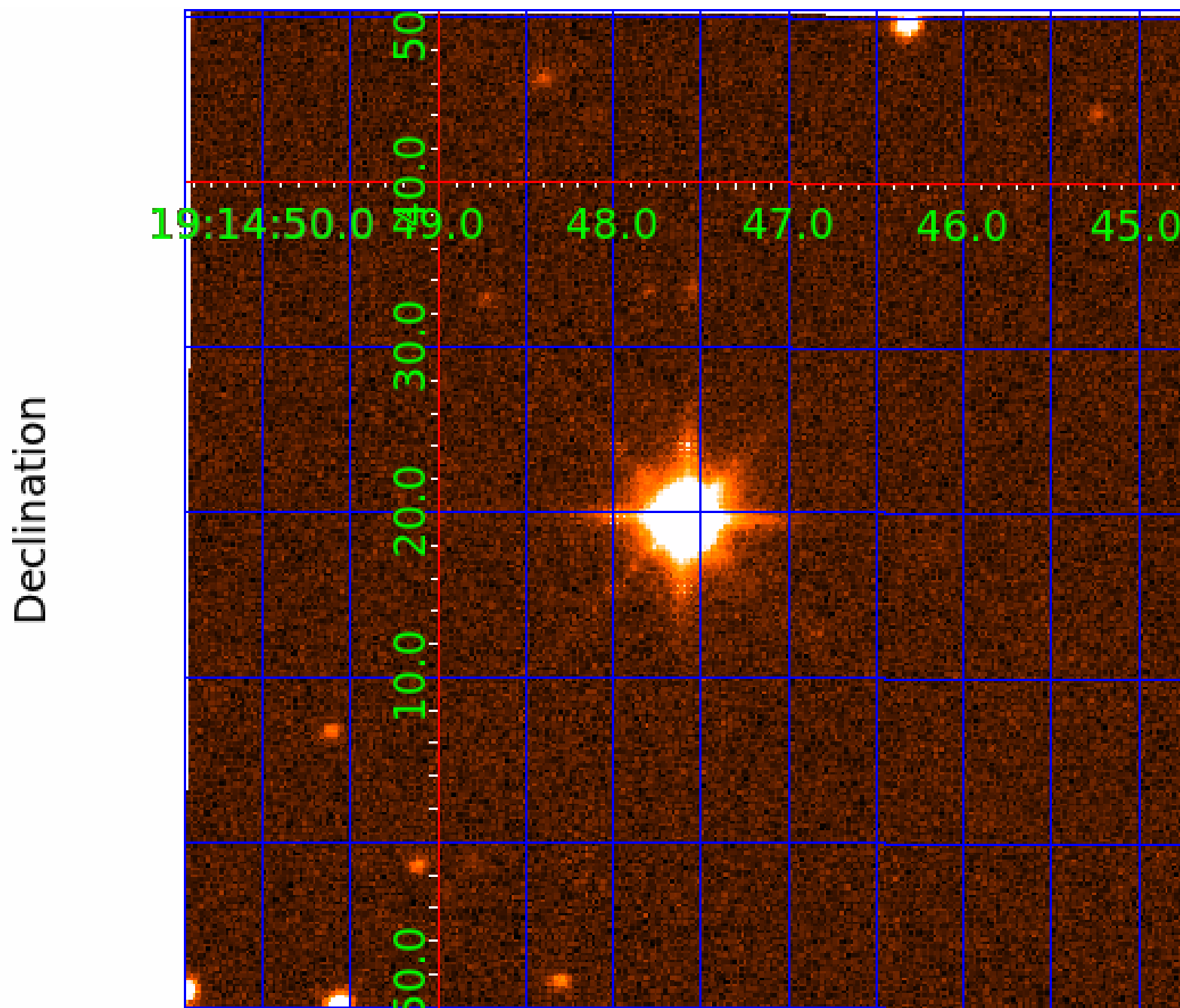
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

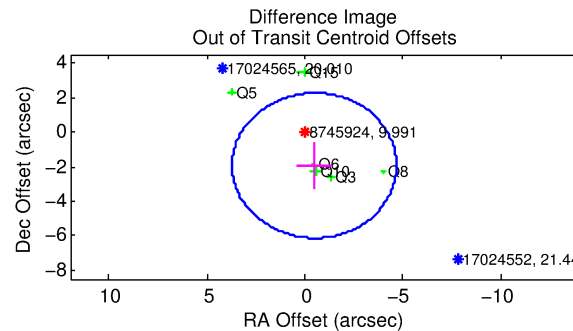
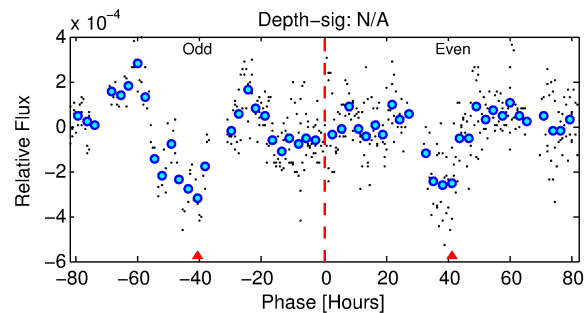
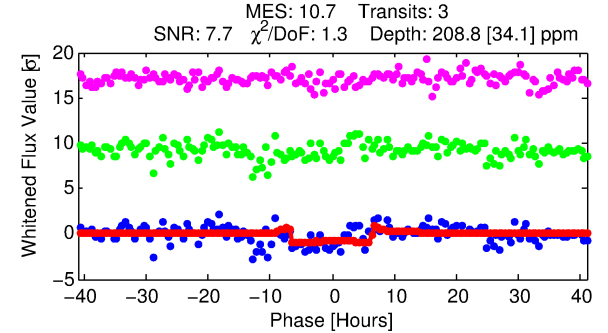
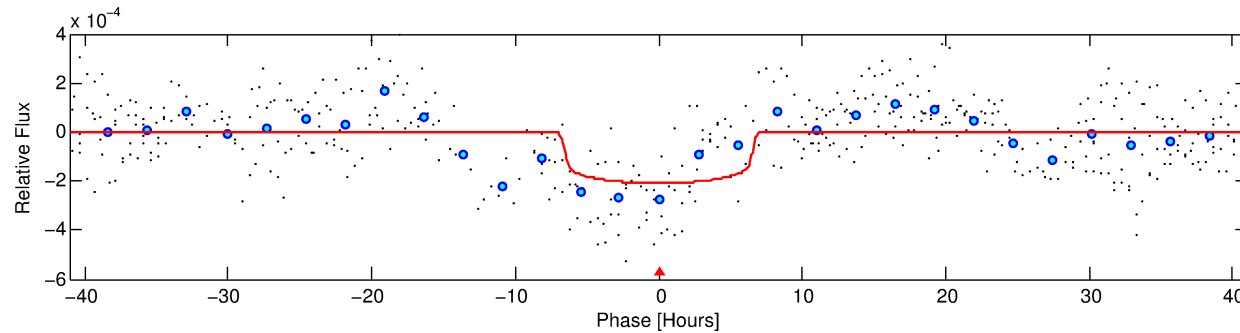
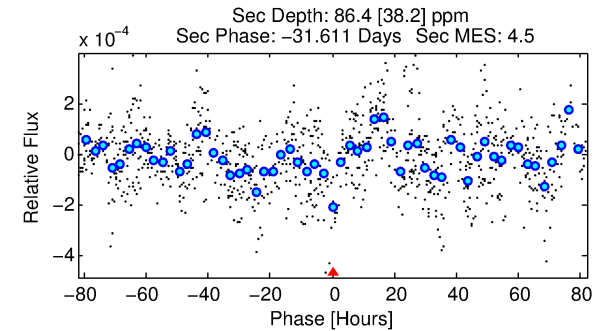
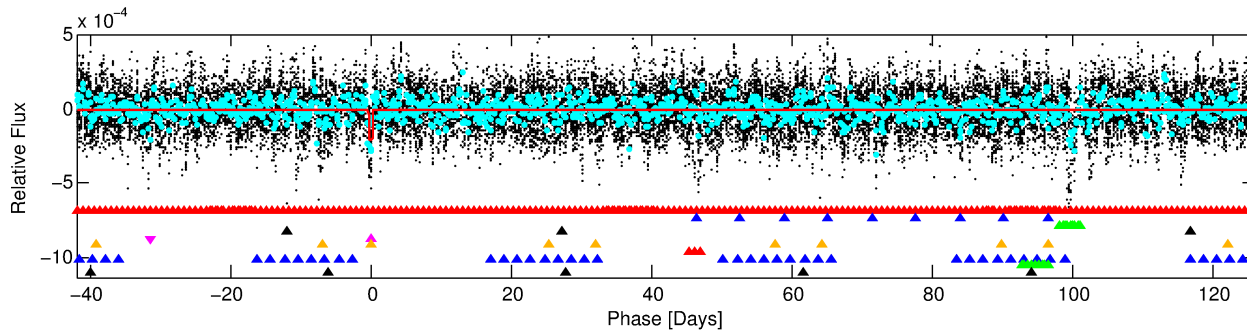
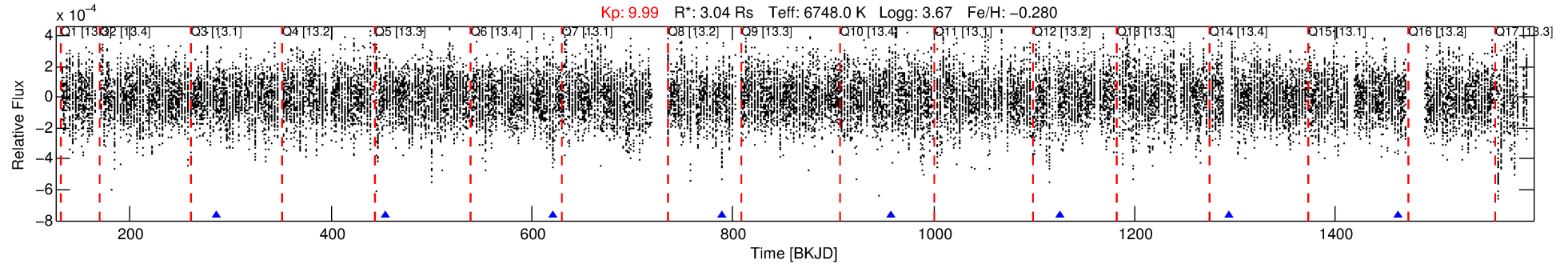
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-05

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 5 of 10 Period: 168.123 d



DV Fit Results:

Period = 168.12257 [0.00378] d
Epoch = 285.4853 [0.0191] BKJD
Rp/R* = 0.0145 [0.0036]
a/R* = 61.44 [80.04]
b = 0.78 [0.68]
Seff = 35.79 [20.13]
Teq = 624 [88] K
Rp = 4.80 [2.14] Re
a = 0.6920 [0.2408] AU
Ag = 988.15 [853.56] [1.16σ]
Teffp = 5406 [915] K [5.20σ]

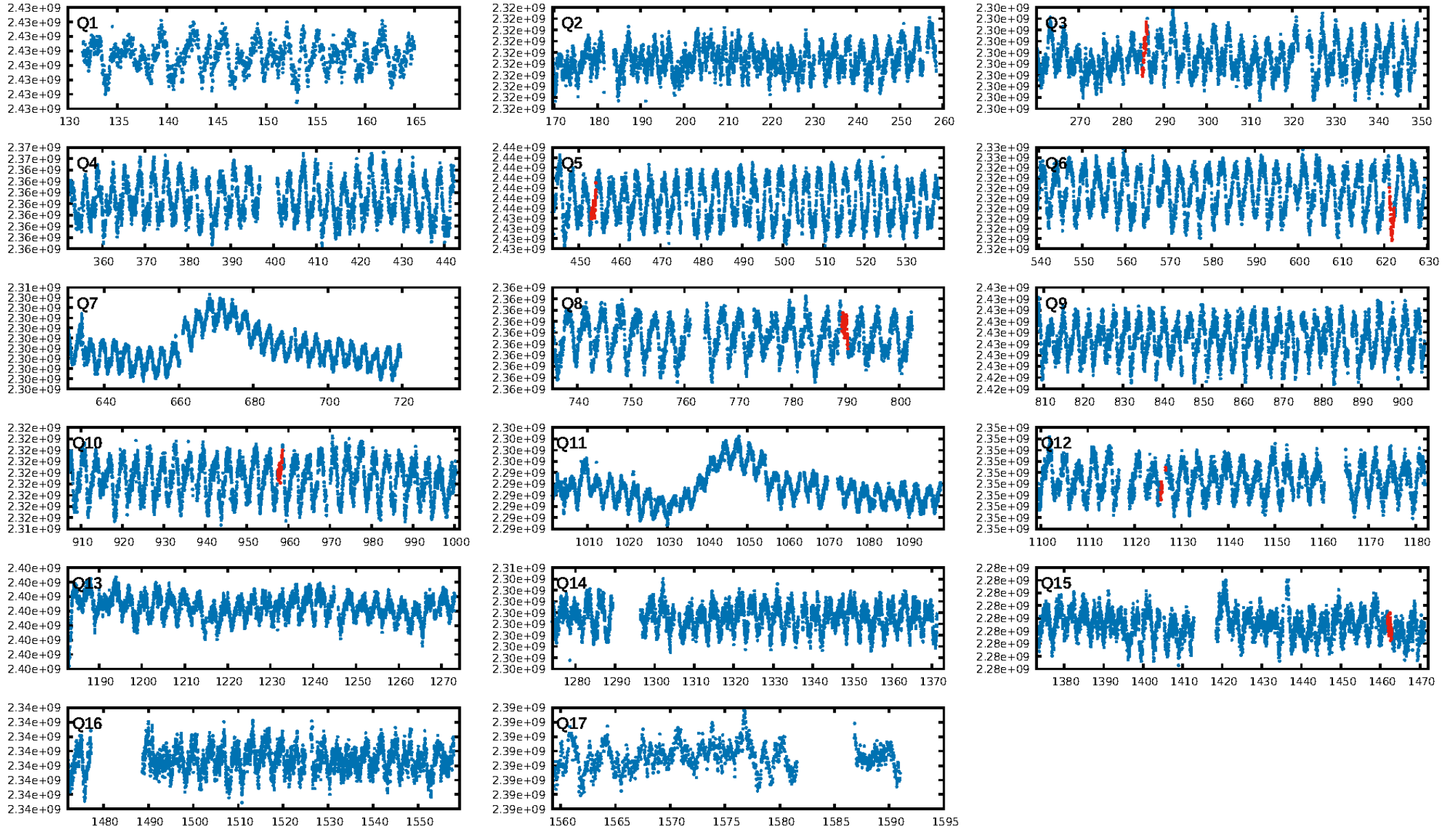
DV Diagnostic Results:

ShortPeriod-sig: 58.8% [0.82σ]
LongPeriod-sig: 38.6% [0.50σ]
ModelChiSquare2-sig: 20.4%
ModelChiSquareGof-sig: 35.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4341
Centroid-sig: 25.2%
Centroid-so: 0.873 arcsec [1.34σ]
OotOffset-rm: 1.994 arcsec [1.43σ]
OotOffset-st: 2/2/1/1 [6]
KicOffset-rm: 2.388 arcsec [2.14σ]
KicOffset-st: 2/2/1/1 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.17 [1/6]

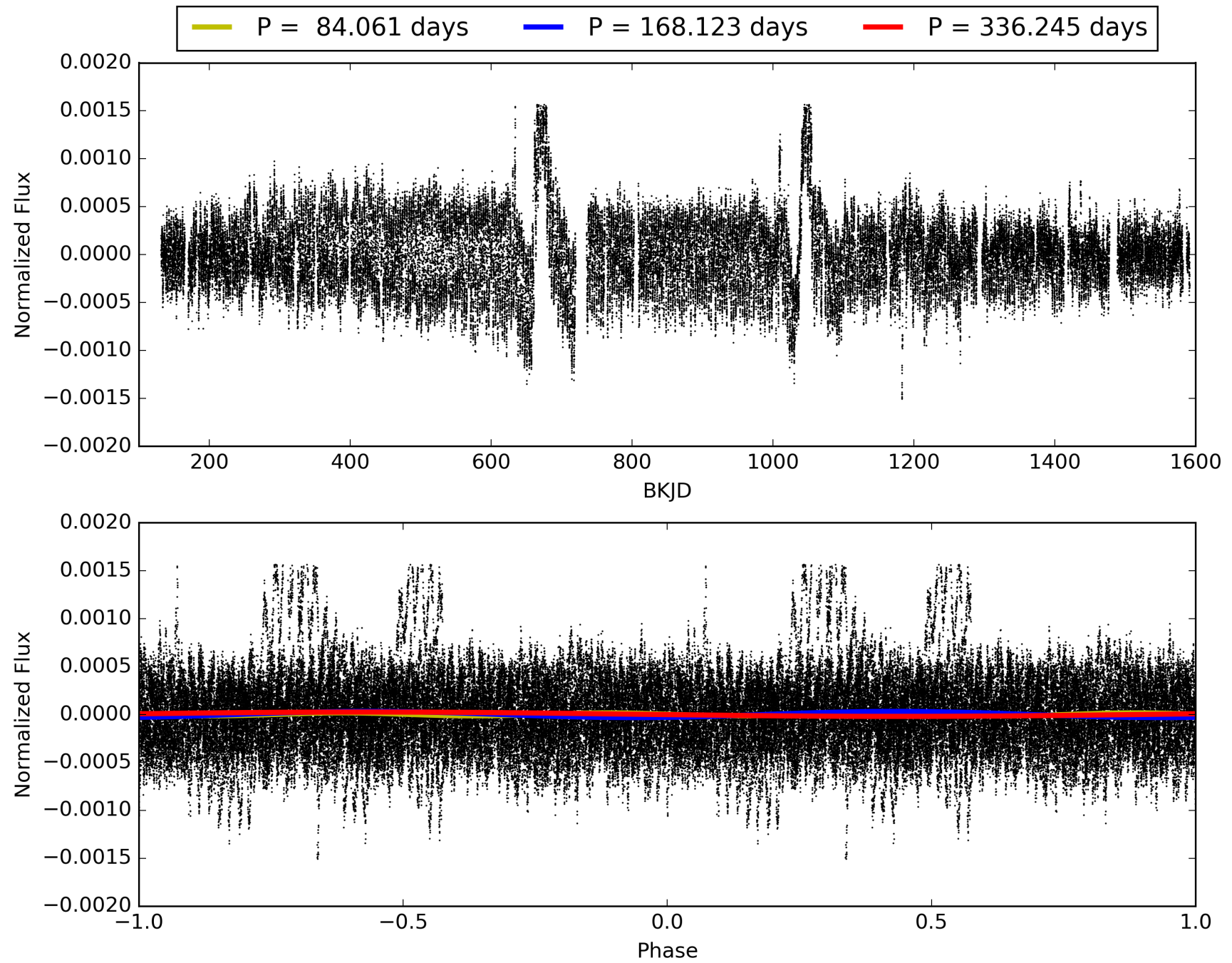
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:56:06 Z

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

TCE 008745924-05, PDC Light Curves

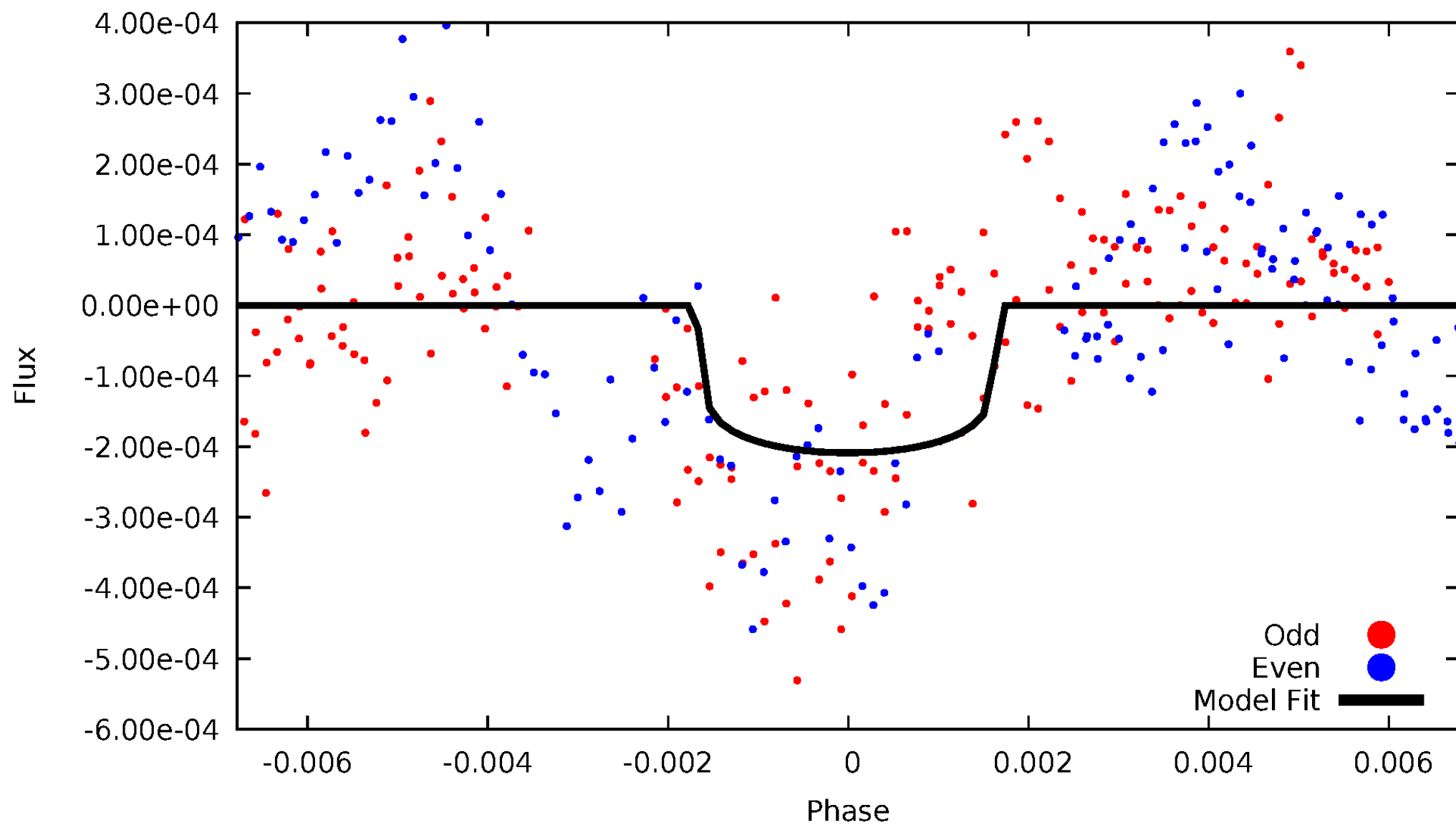


TCE 008745924-05



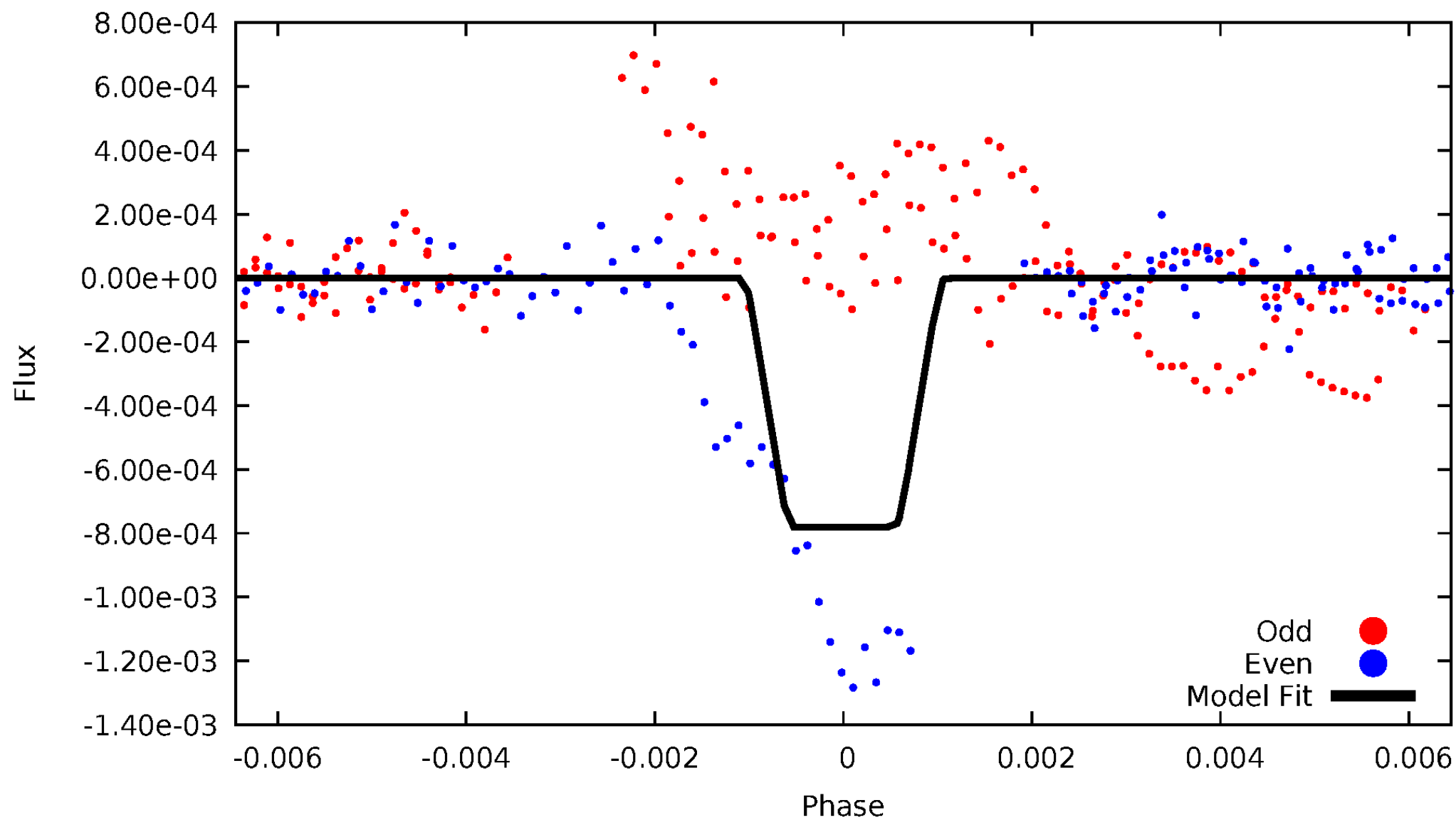
DV Odd/Even

TCE 008745924-05



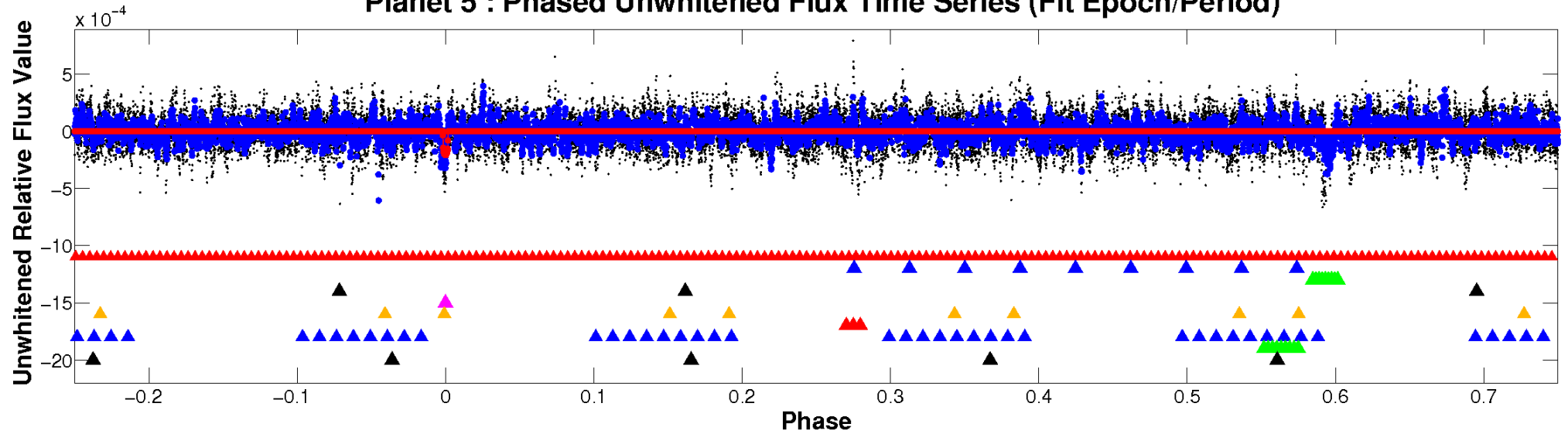
ALT Odd/Even

TCE 008745924-05

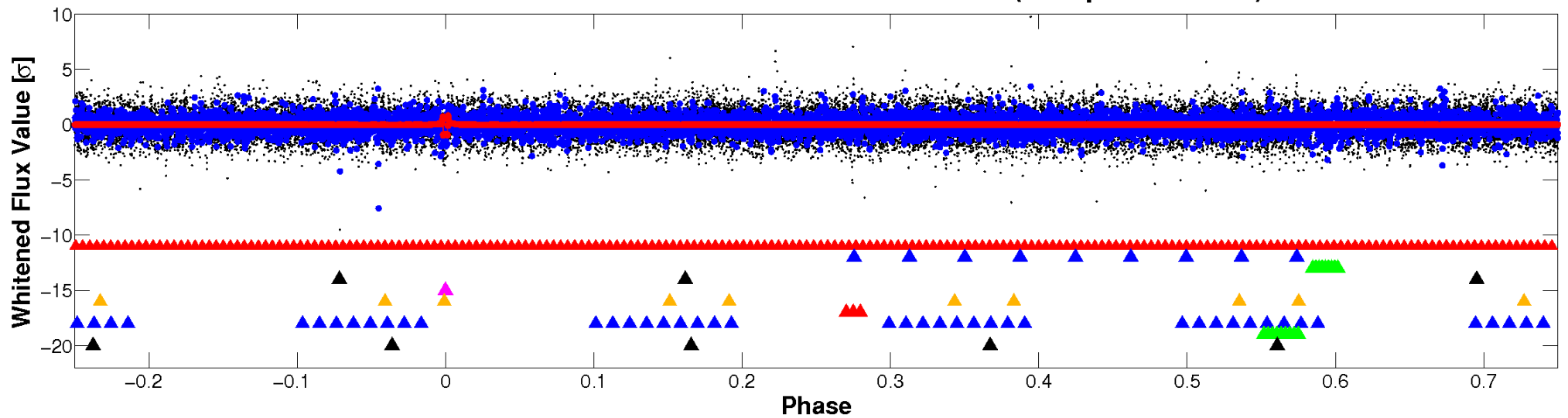


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

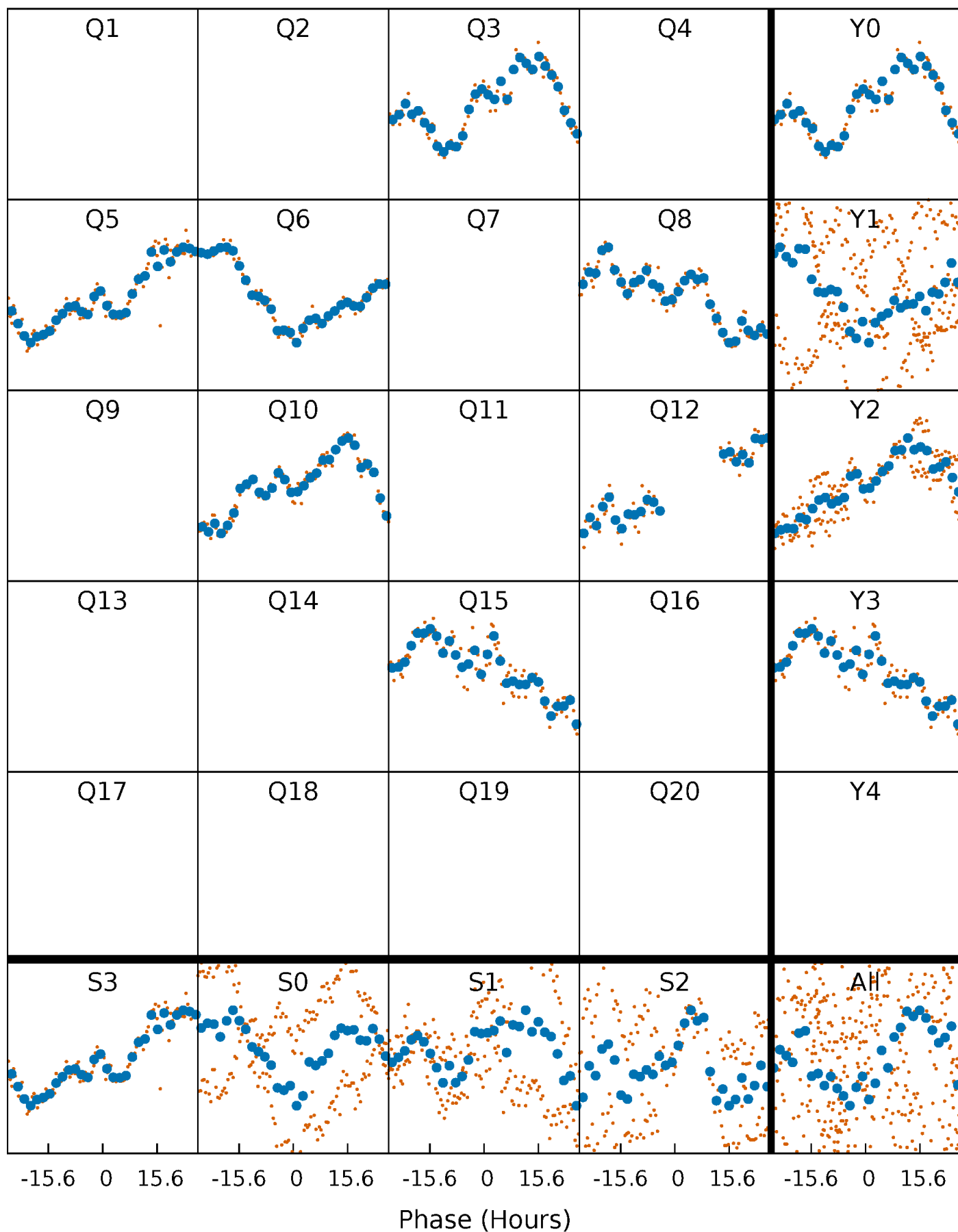


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



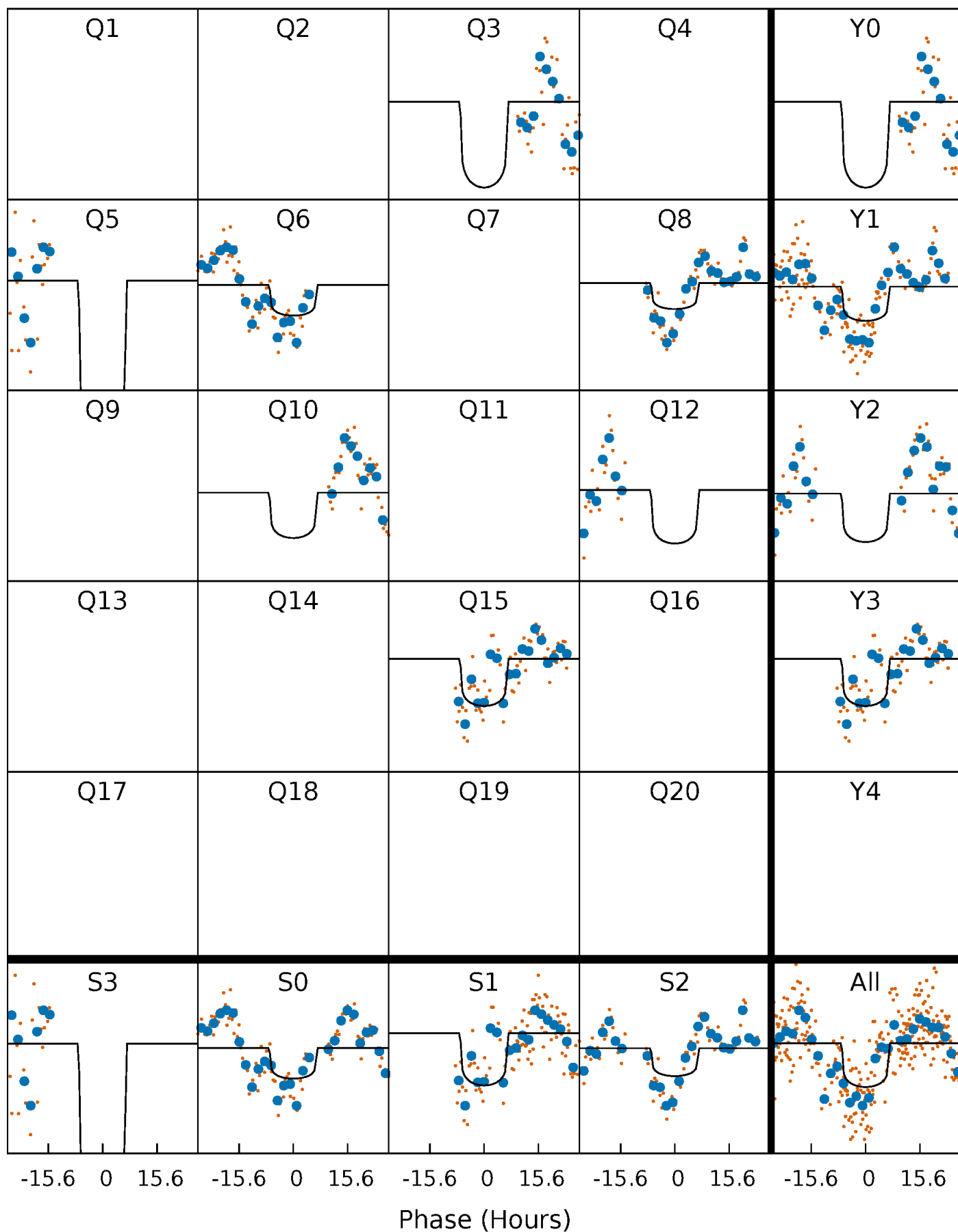
PDC Quarter-Phased Transit Curves

TCE 008745924-05 P=168.122572 Days $T_0=285.485290$ (BKJD)



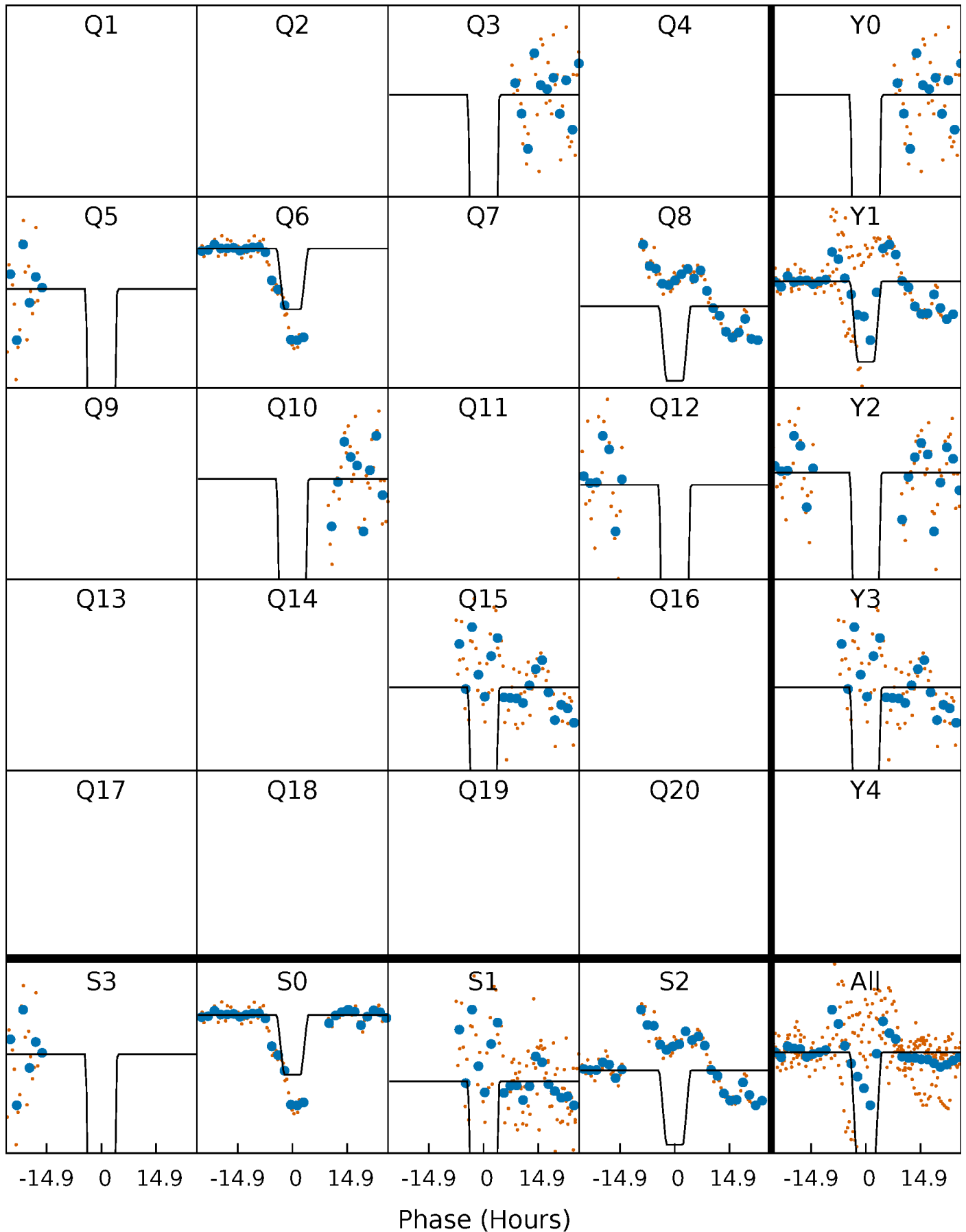
DV Quarter-Phased Transit Curves

TCE 008745924-05 $P=168.122572$ Days $T_0=285.485290$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

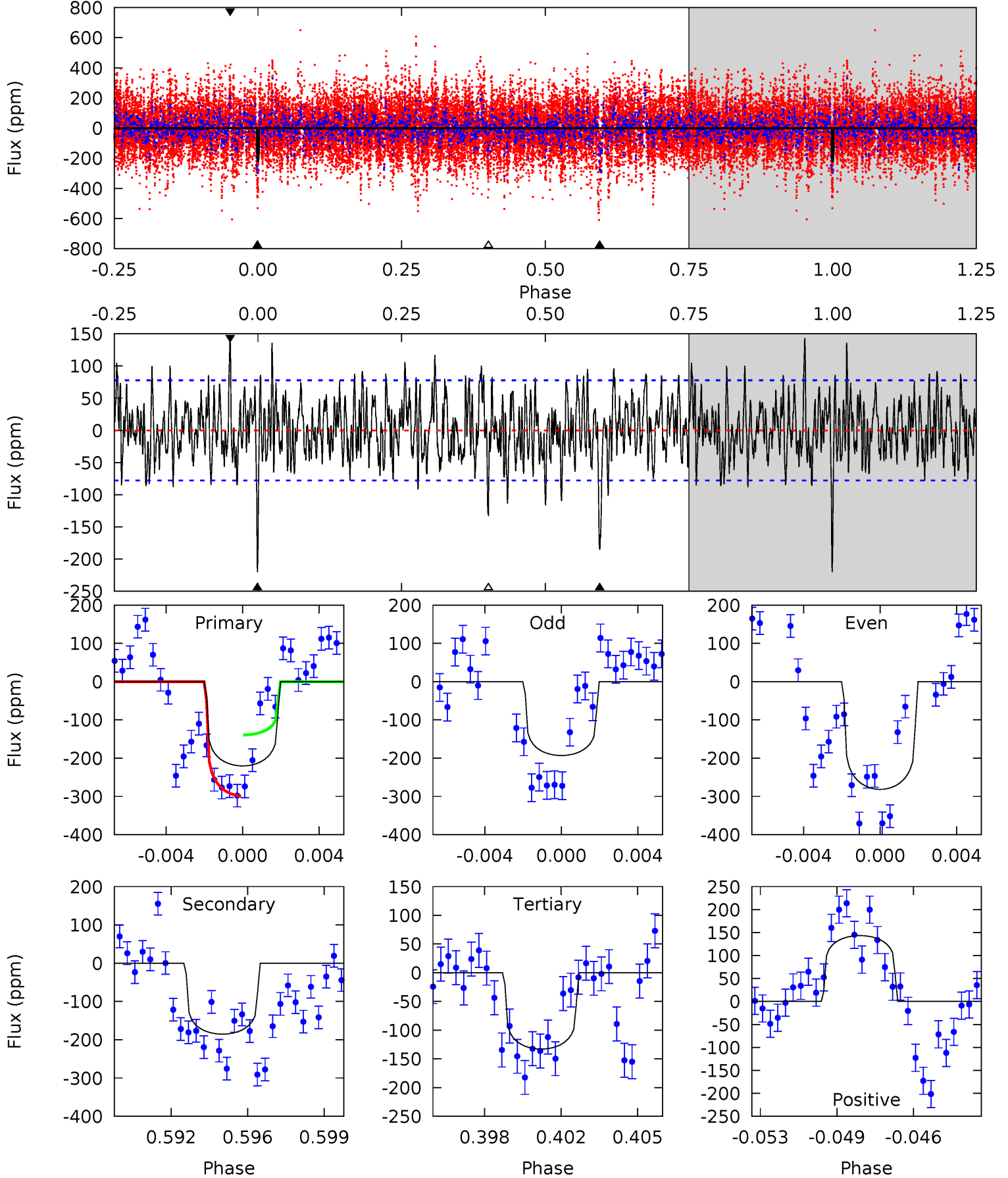
TCE 008745924-05 P=168.106898 Days $T_0=285.565969$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-05, P = 168.122572 Days, E = 117.362718 Days

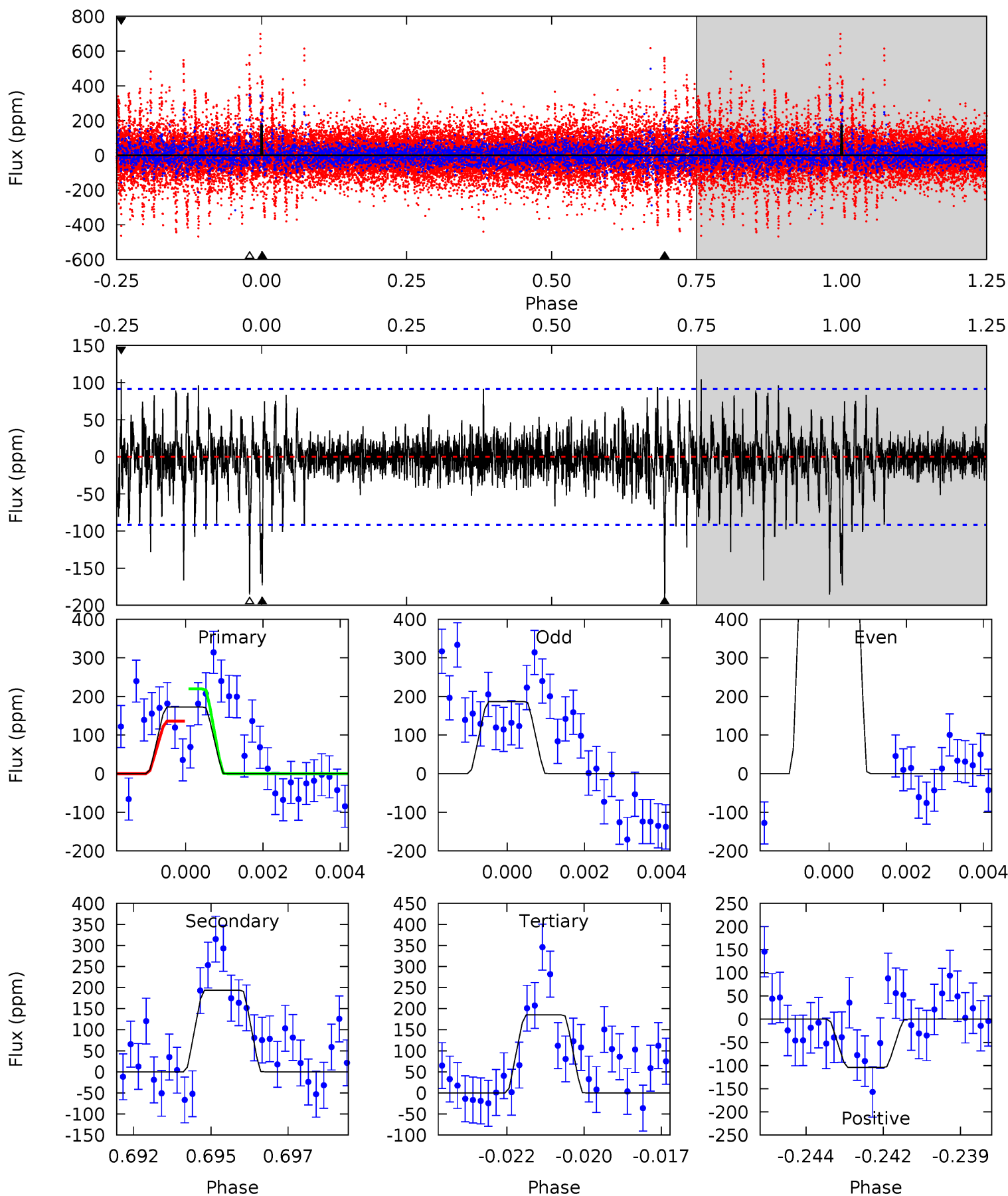
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	12.5	8.94	9.64	5.22	2.92	2.67	5.87	5.17	3.52	2.82	2.67	0.89	0.39	5.33



Alt Model-Shift Uniqueness Test

008745924-05, P = 168.106898 Days, E = 117.459071 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	11.2	10.7	6.03	5.31	3.06	1.55	-0.72	3.99	0.49	5.20	29.7	-3.44	0.35	0



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-185 ± 15	$4.52^{+1.49}_{-1.30}$	850^{+45}_{-73}	6490^{+1217}_{-770}	2388^{+2267}_{-1035}
Alt.	-194 ± 17	$8.94^{+1.70}_{-2.01}$	851^{+46}_{-71}	4829^{+311}_{-261}	646^{+381}_{-188}

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

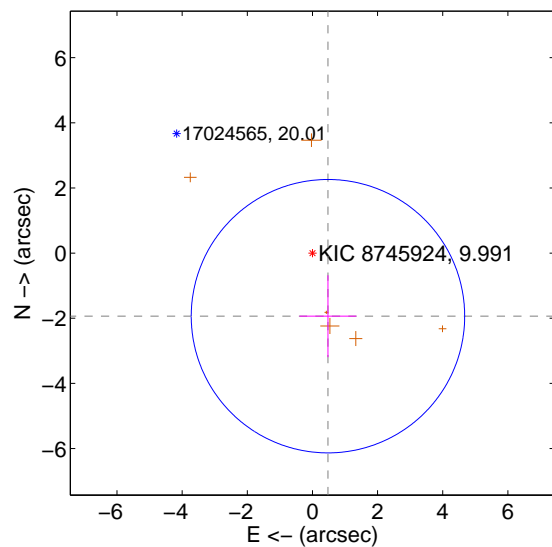
Supplemental centroid analysis for 008745924-05. **Kepler magnitude: 9.99.** Transit SNR 7.69

There are 0 quarters with good PRF difference image offsets

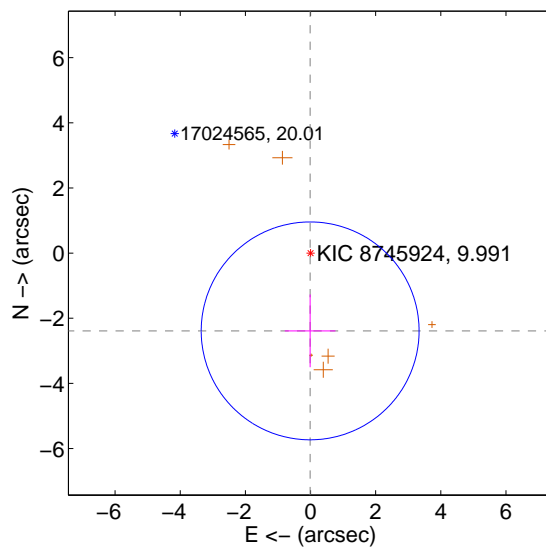
The direct PRF centroid is offset from the target star catalog position by about 0.99 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.994 ± 1.399	1.43	-0.476 ± 0.874	-1.937 ± 1.257
PRF-fit source offset from KIC position	2.388 ± 1.115	2.14	0.012 ± 0.777	-2.388 ± 1.117
photometric centroid source offset	0.87 ± 0.65	1.34	-0.76 ± 0.68	-0.44 ± 0.58

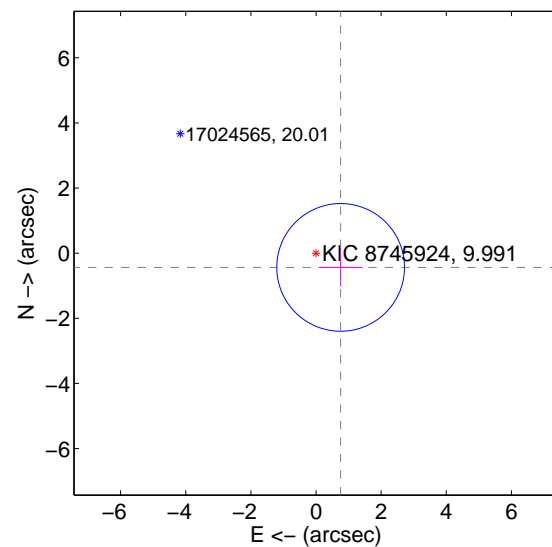
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

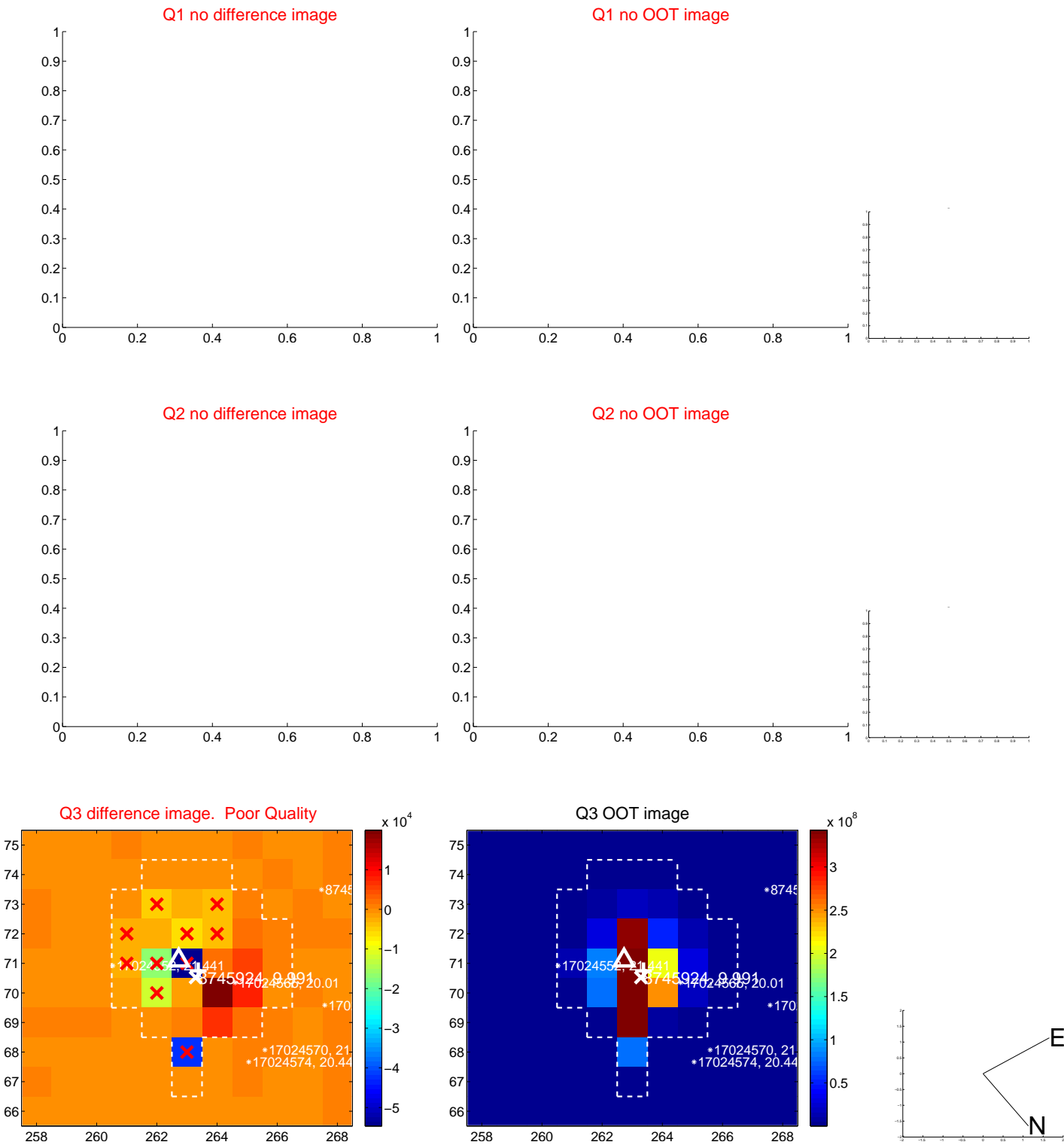


offset from photometric centroids

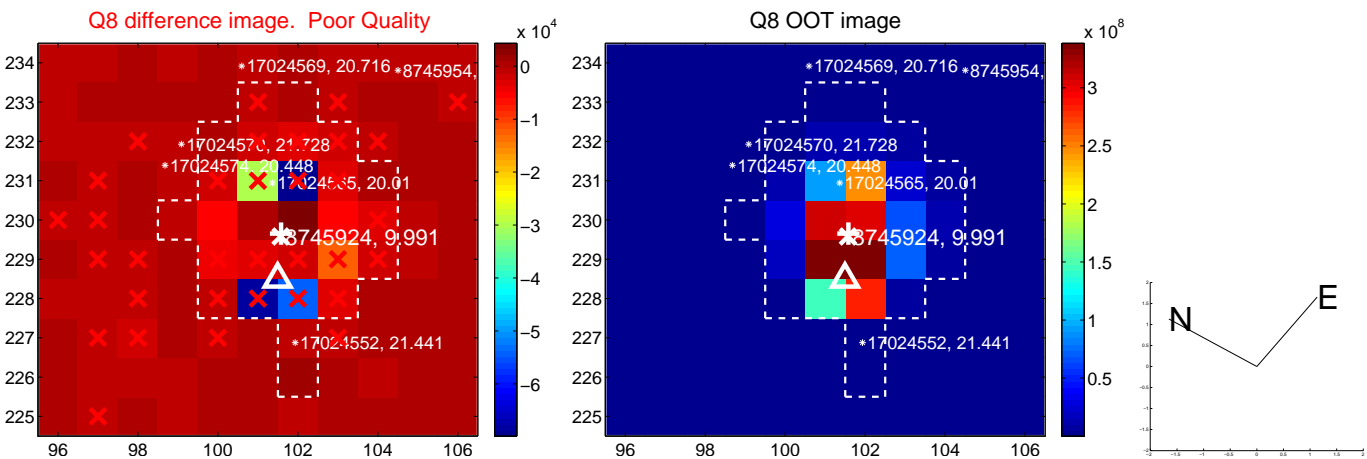
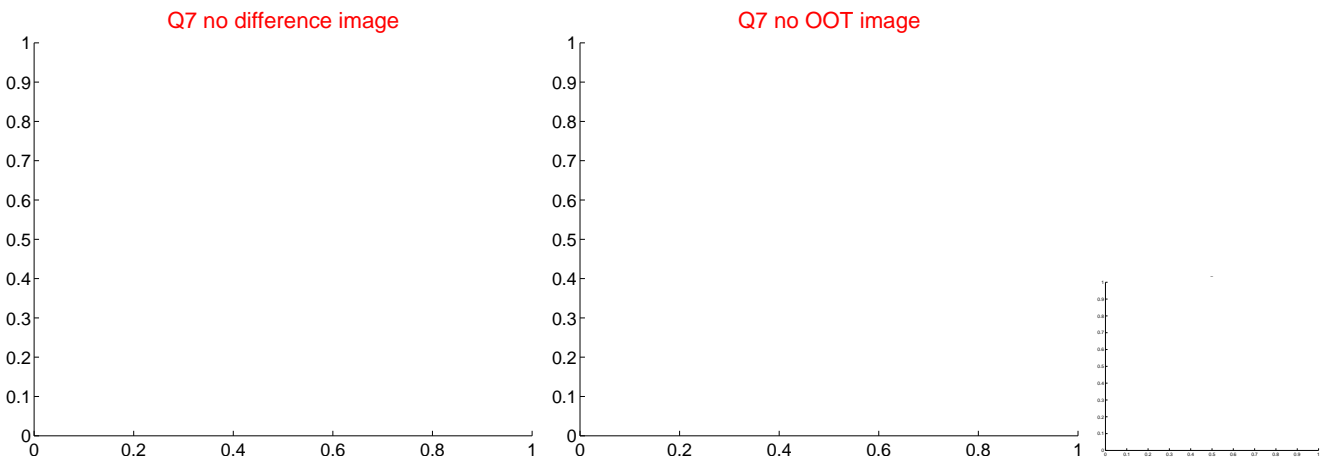
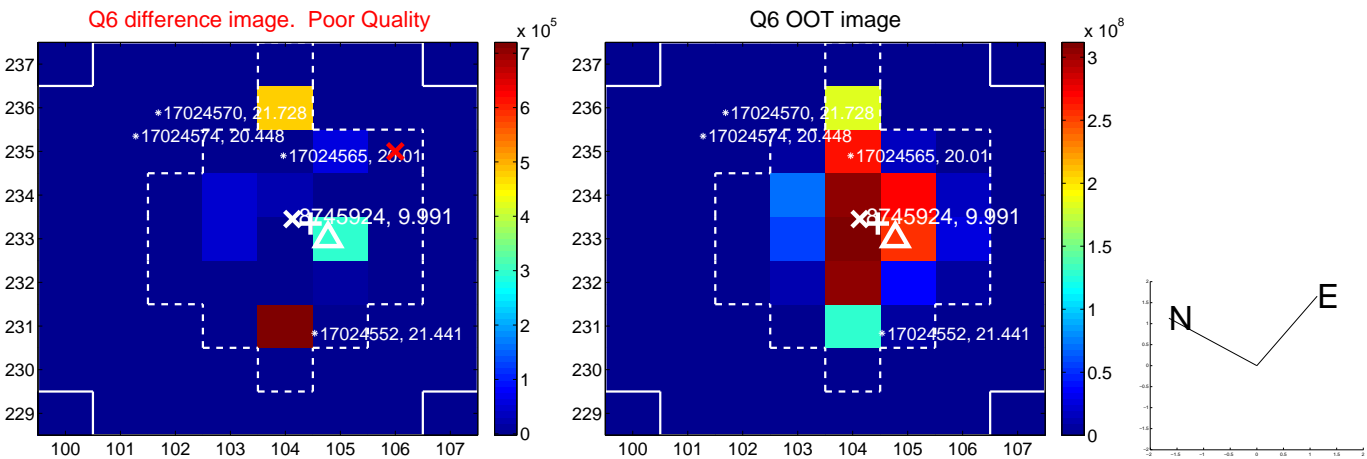
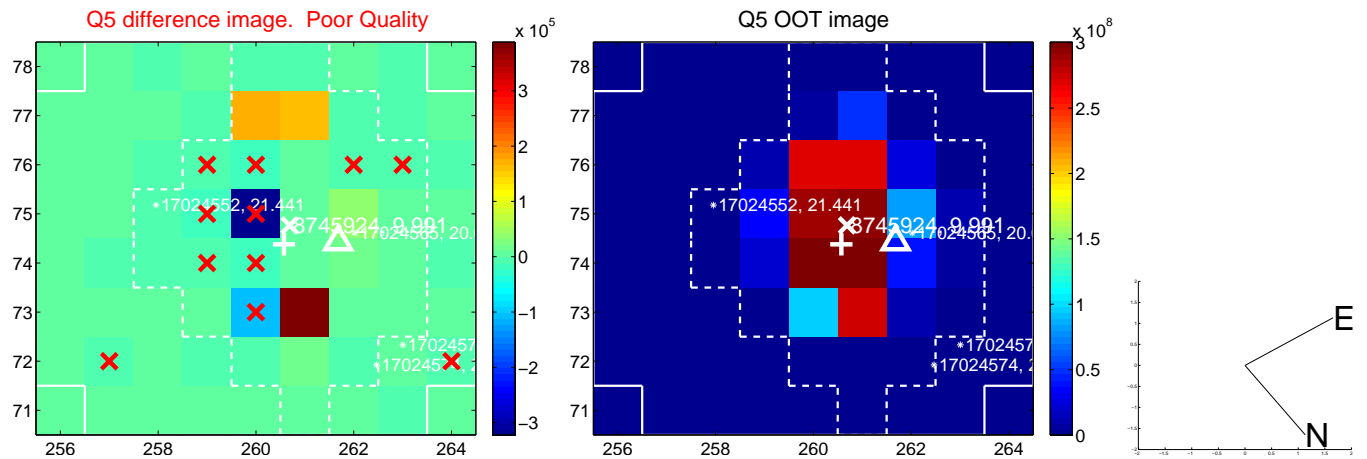


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

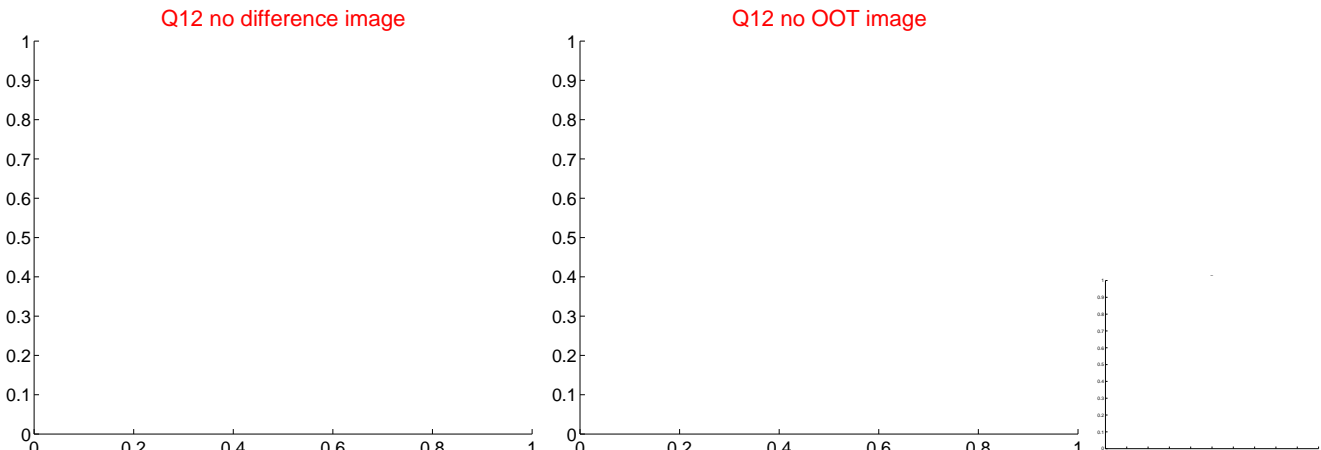
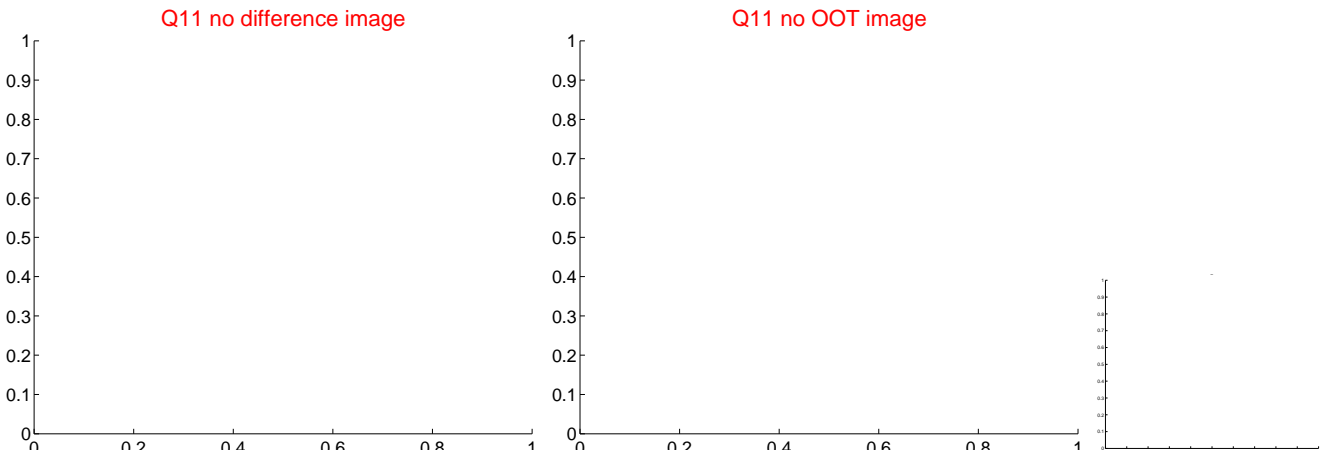
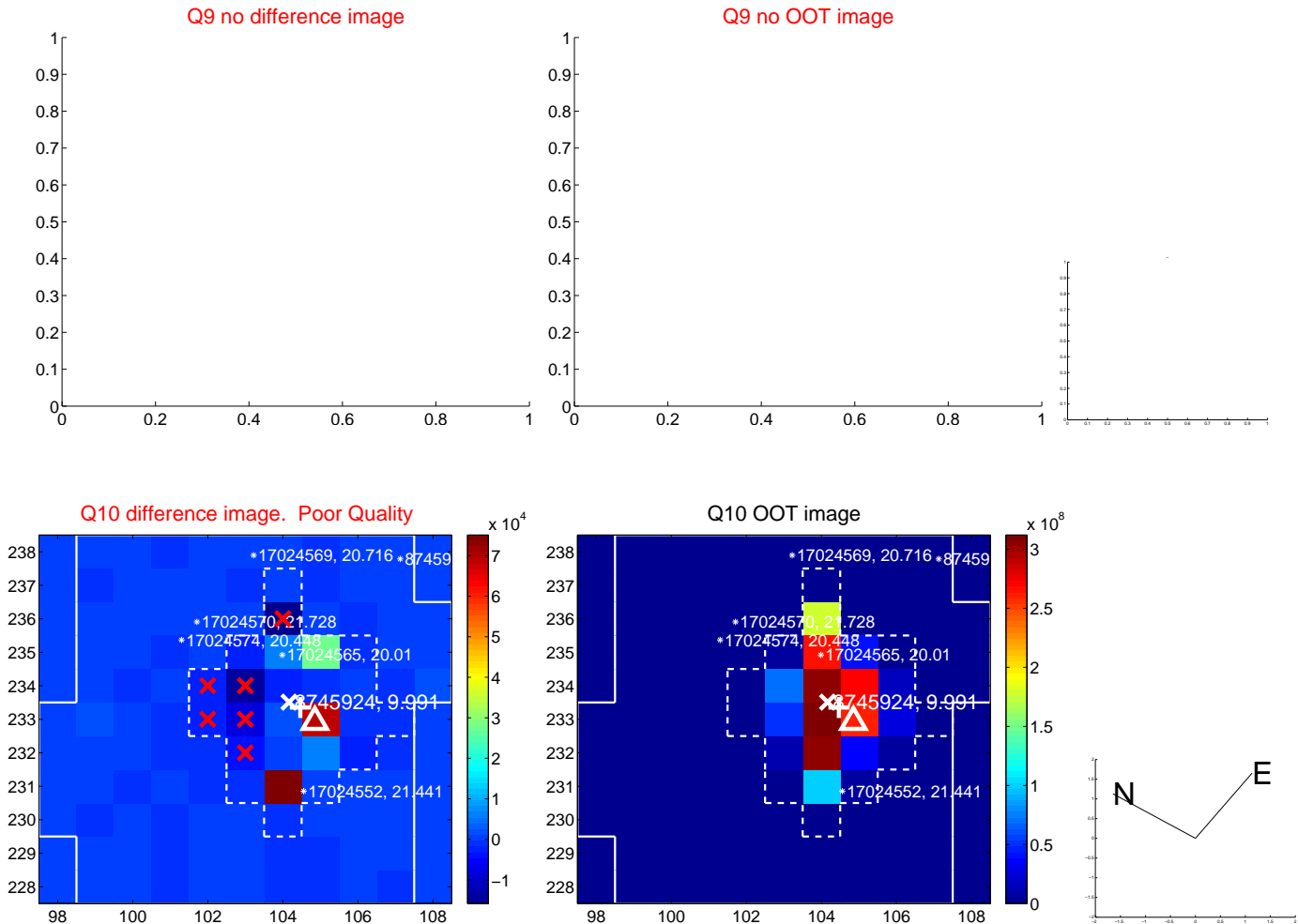
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



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

Q13 no difference image



Q13 no OOT image



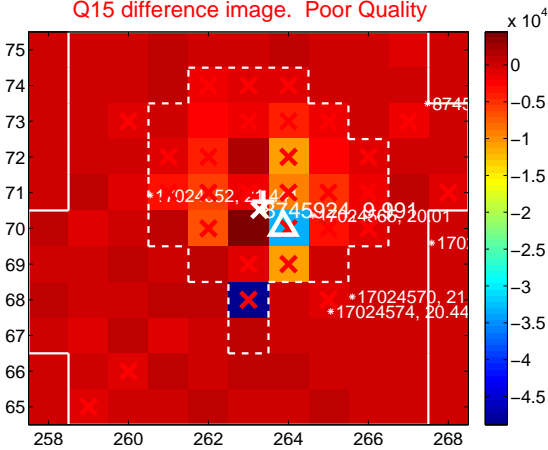
Q14 no difference image



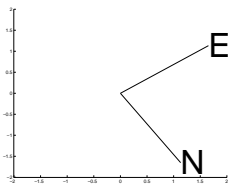
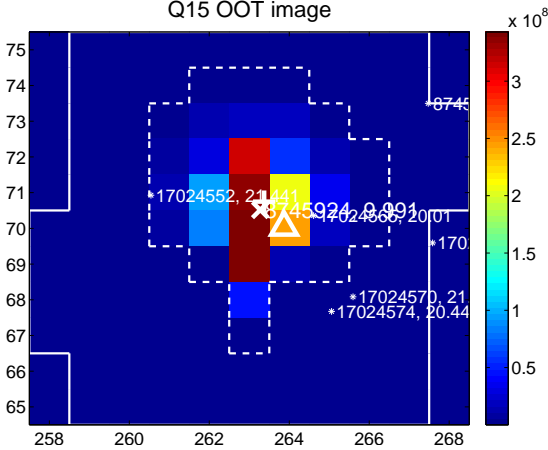
Q14 no OOT image



Q15 difference image. Poor Quality



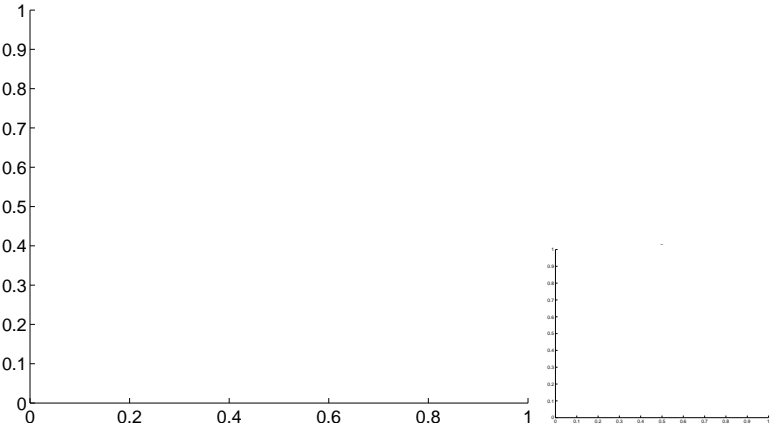
Q15 OOT image



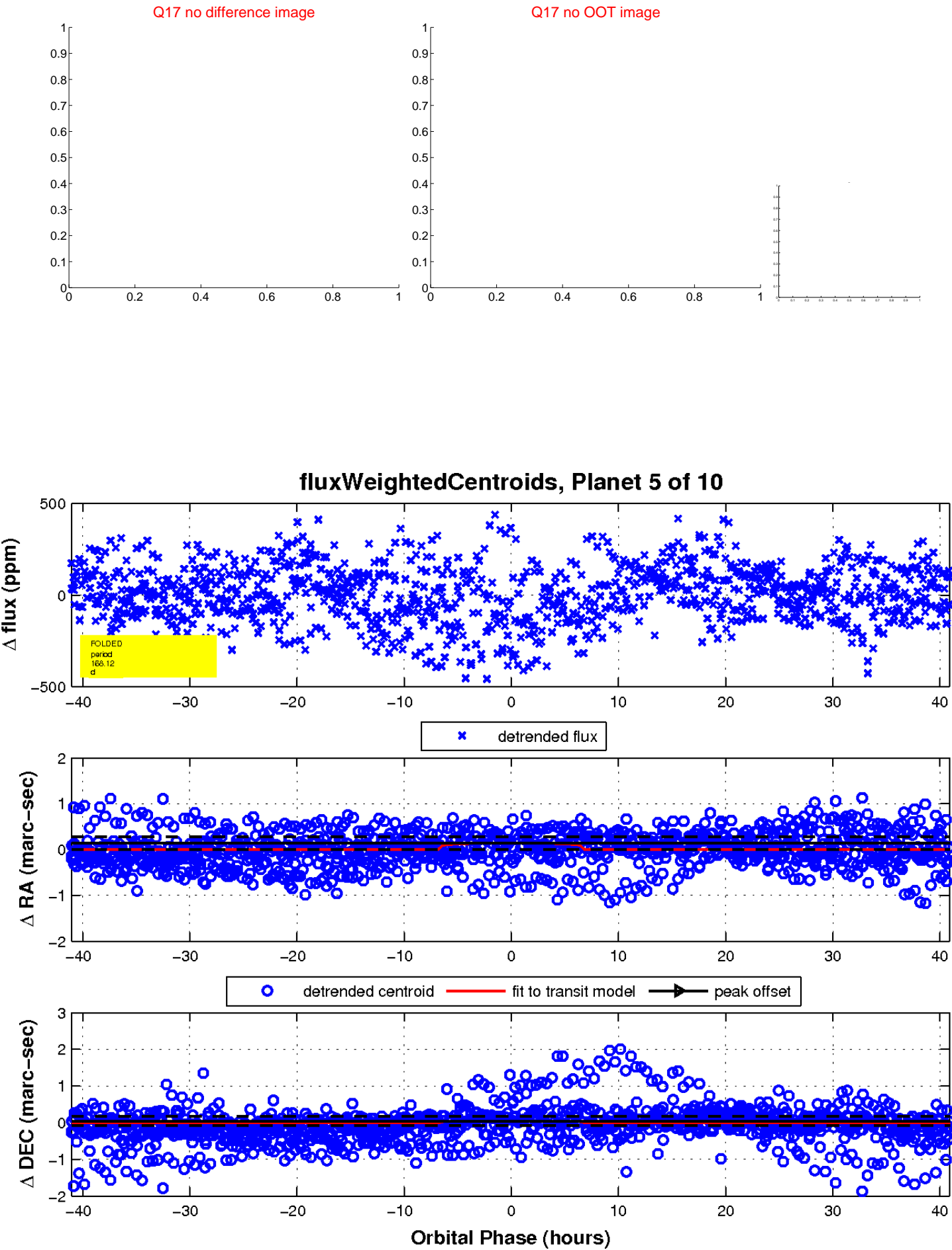
Q16 no difference image



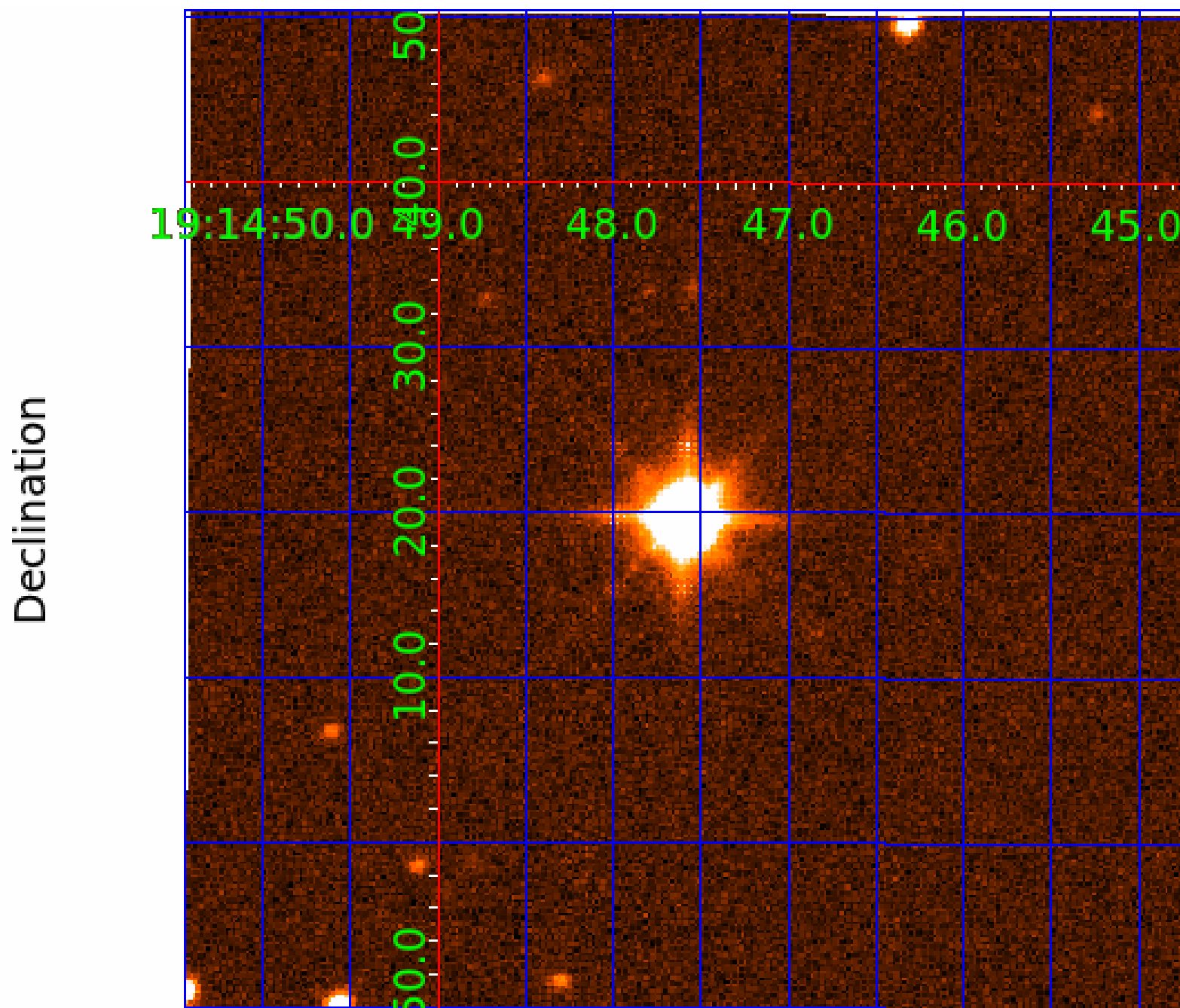
Q16 no OOT image



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



UKIRT Image



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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

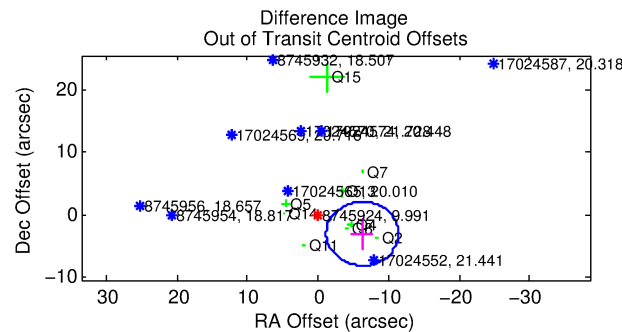
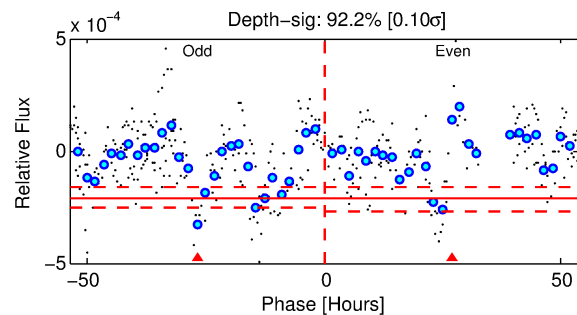
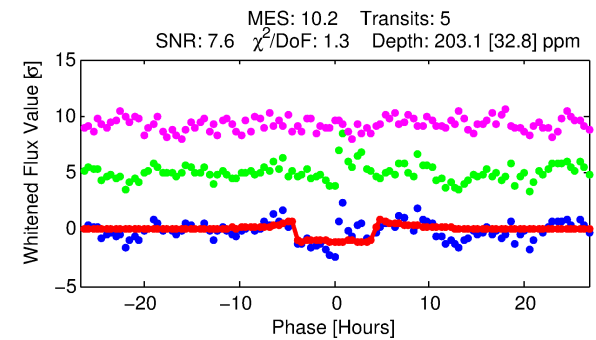
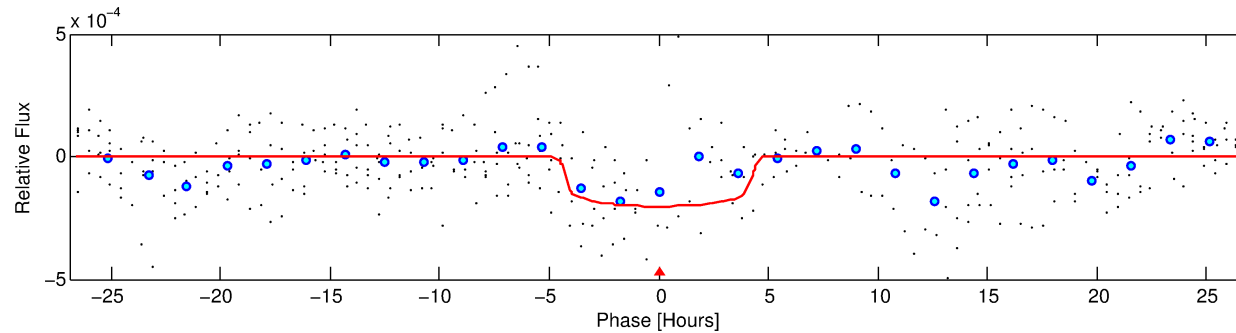
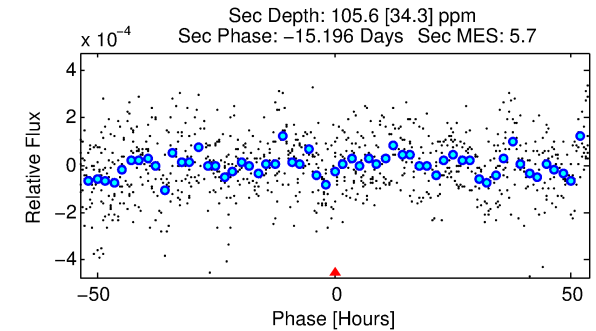
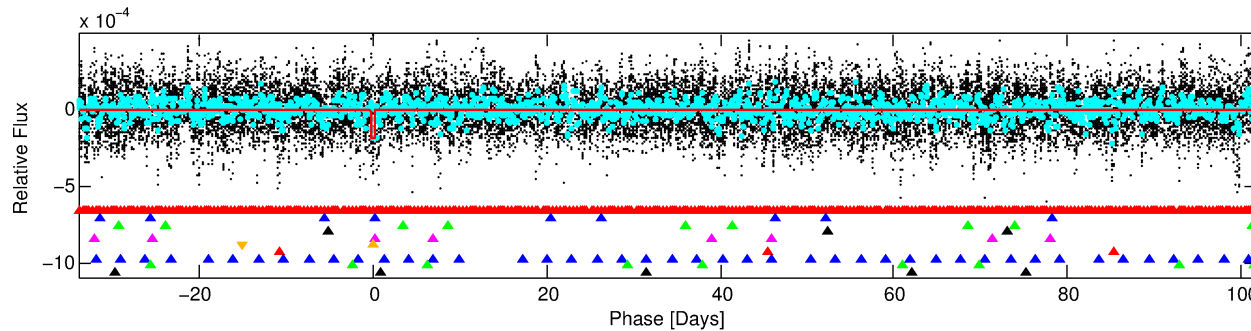
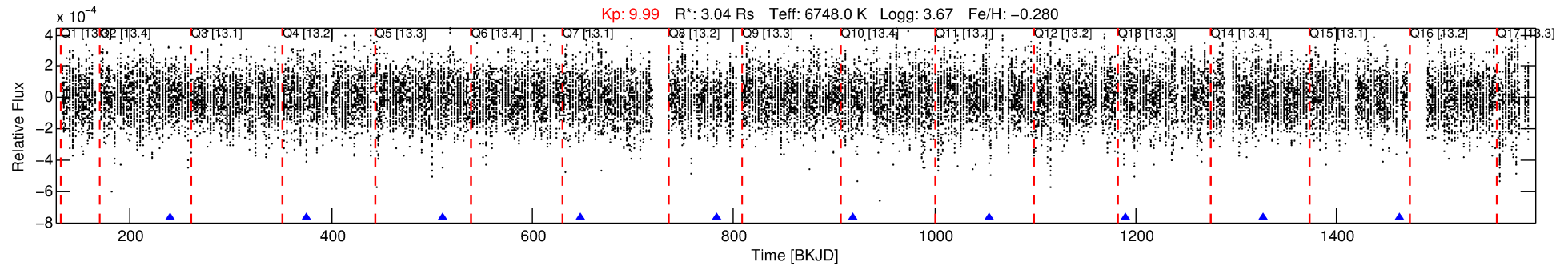
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-06

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 6 of 10 Period: 135.843 d



DV Fit Results:

Period = 135.84262 [0.00296] d
Epoch = 239.6287 [0.0138] BKJD
Rp/R* = 0.0144 [0.0046]
a/R* = 73.41 [129.08]
b = 0.79 [0.84]
Seff = 47.55 [26.74]
Teff = 670 [94] K
Rp = 4.76 [2.33] Re
a = 0.6003 [0.2089] AU
Ag = 923.93 [835.55] [1.10σ]
Teffp = 5708 [1039] K [4.83σ]

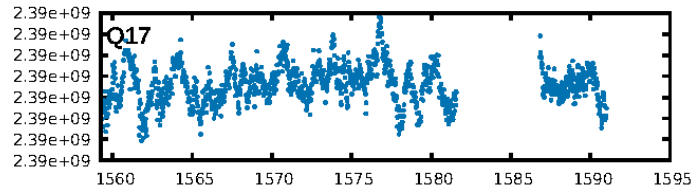
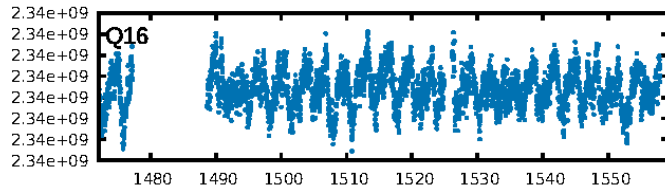
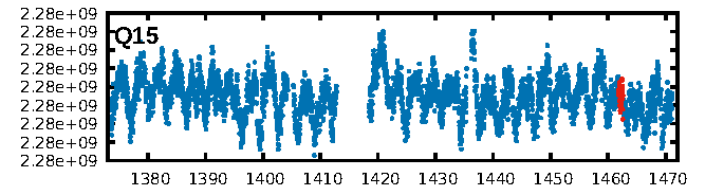
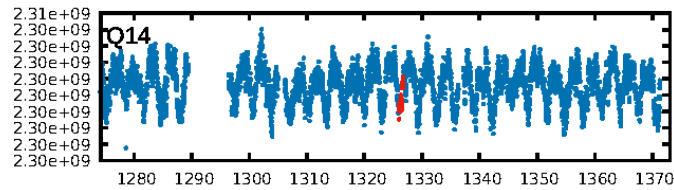
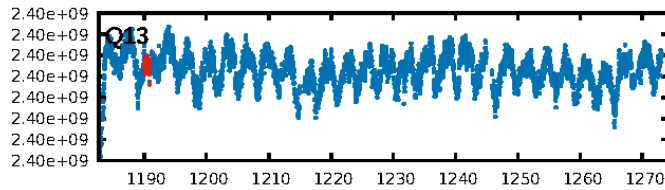
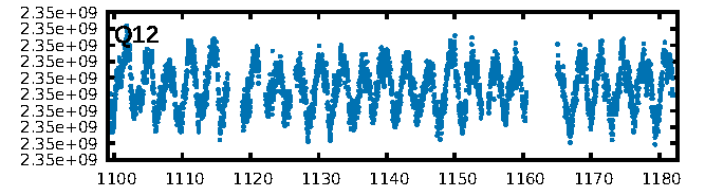
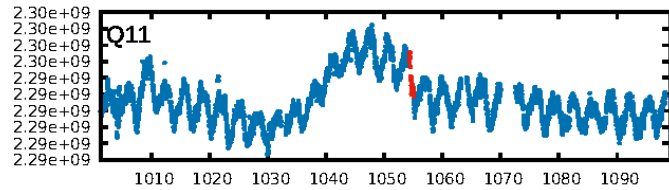
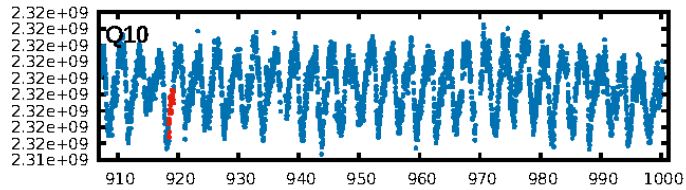
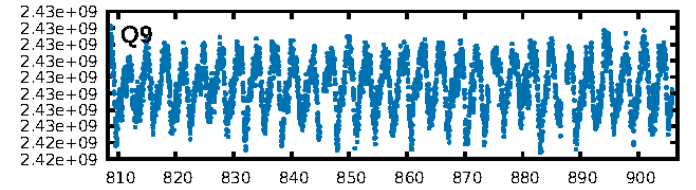
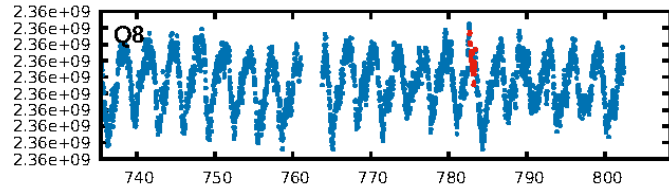
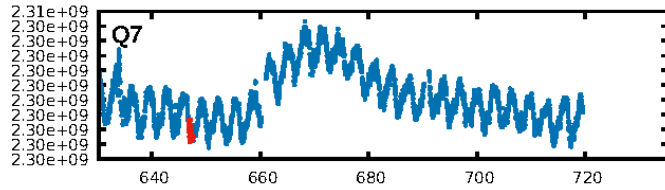
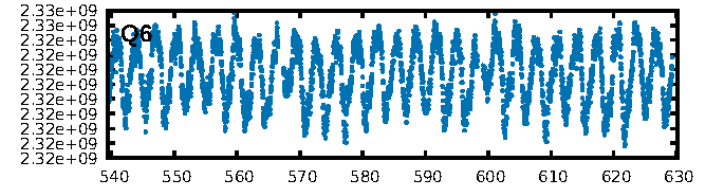
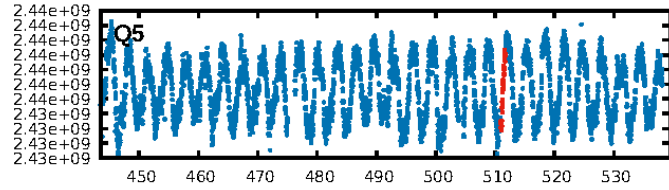
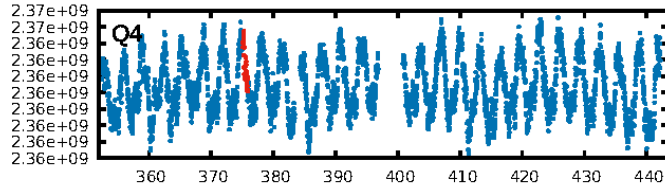
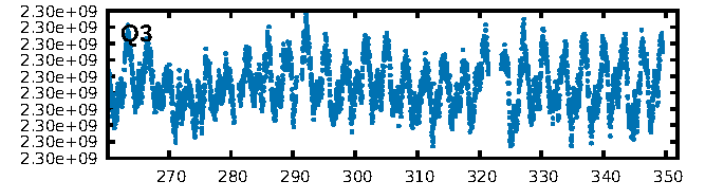
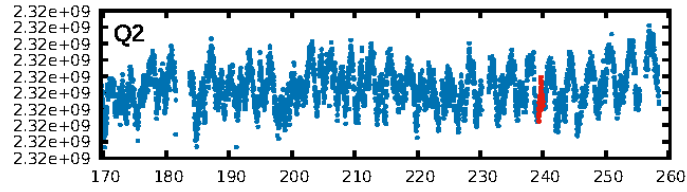
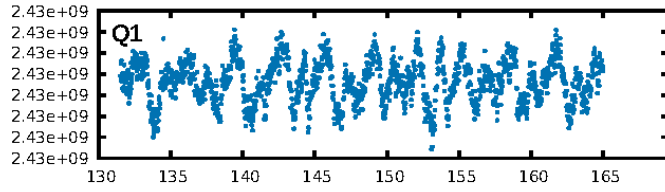
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [250.79σ]
LongPeriod-sig: 100.0% [62.53σ]
ModelChiSquare2-sig: 3.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.2089
Centroid-sig: 76.8%
Centroid-so: 0.384 arcsec [0.82σ]
OotOffset-rm: 6.987 arcsec [4.10σ]
KicOffset-rm: 6.935 arcsec [3.38σ]
OotOffset-st: 2/3/2/2 [9]
KicOffset-st: 2/3/2/2 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.20 [2/10]

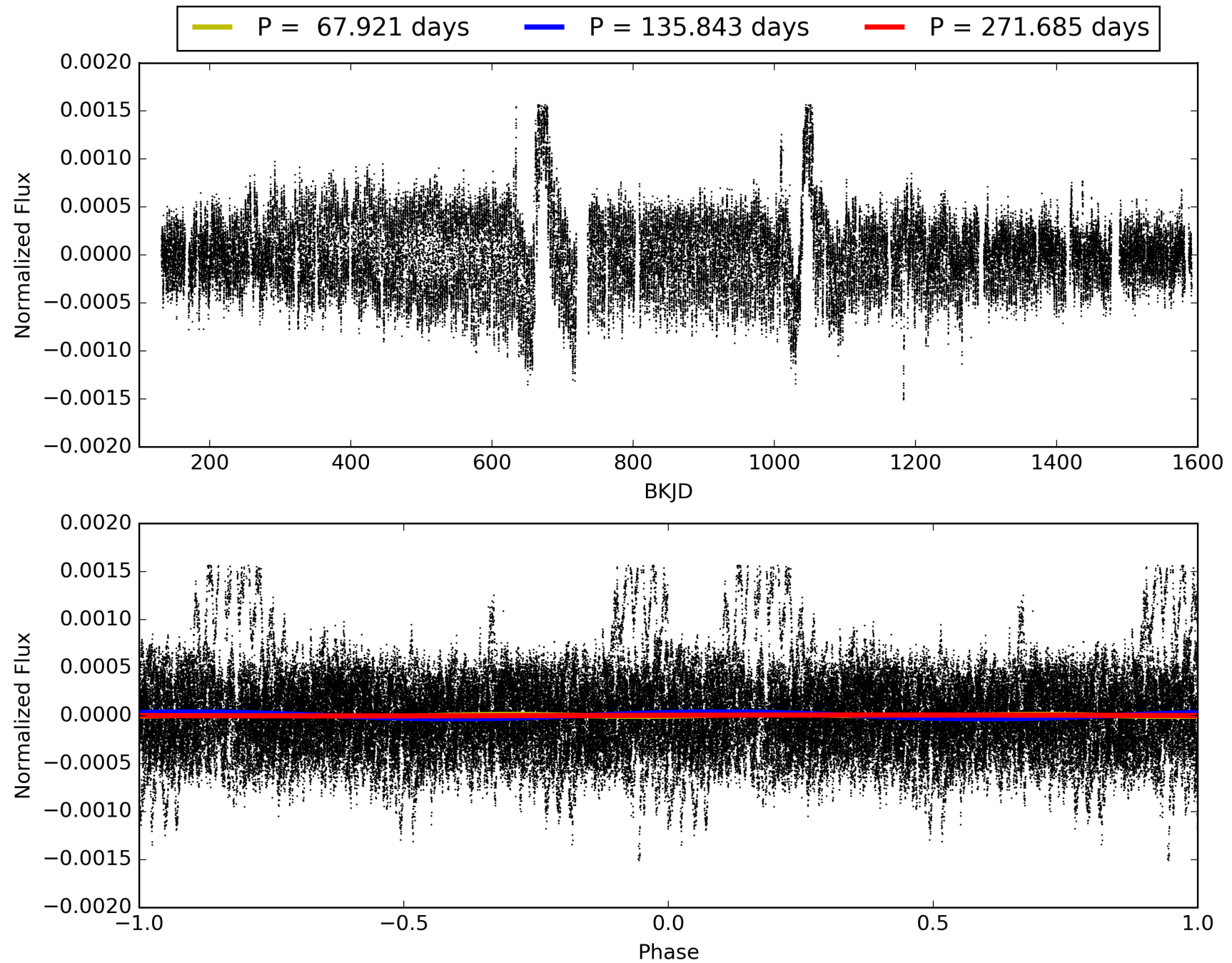
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:56:11 Z

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

TCE 008745924-06, PDC Light Curves

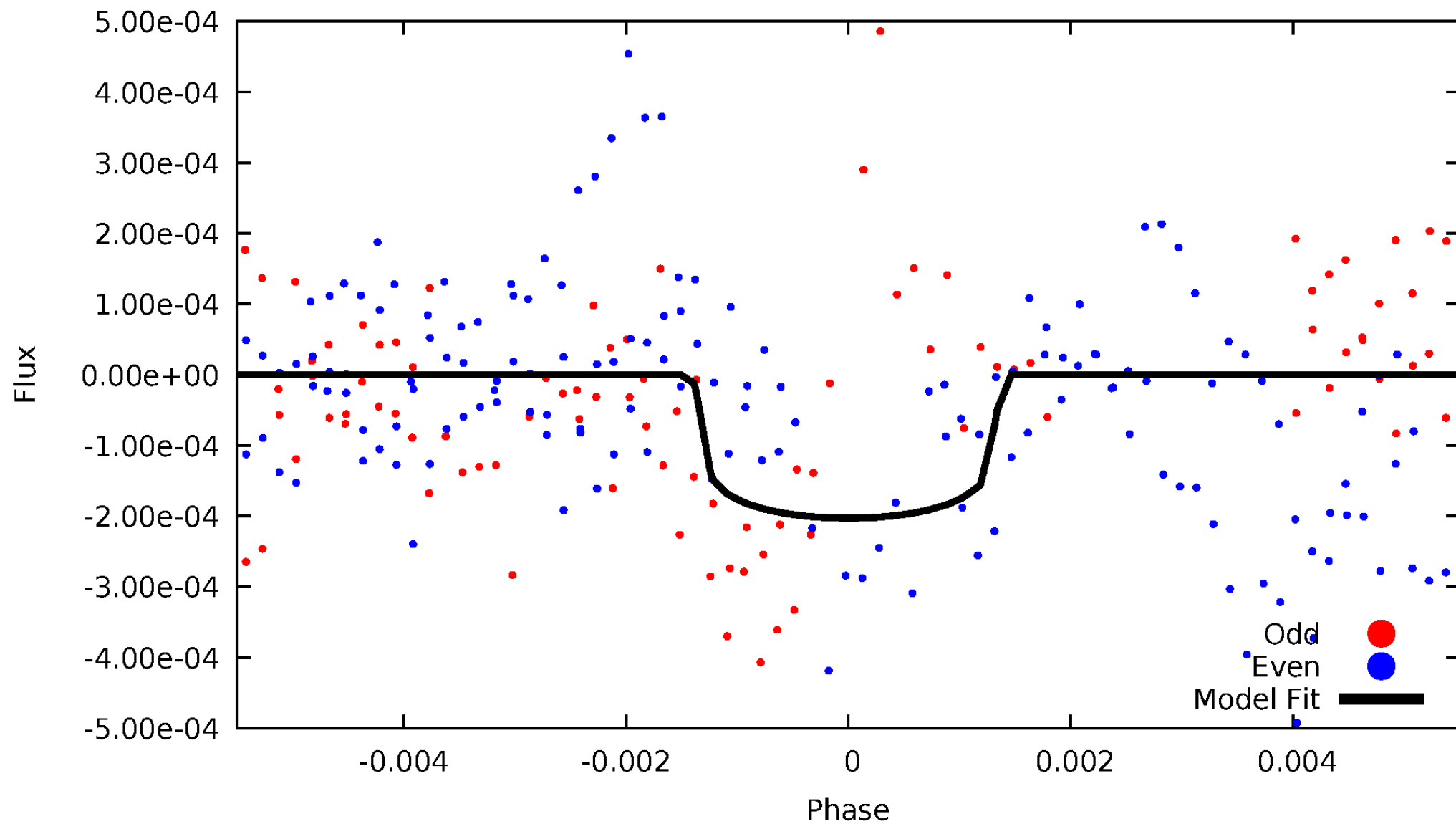


TCE 008745924-06



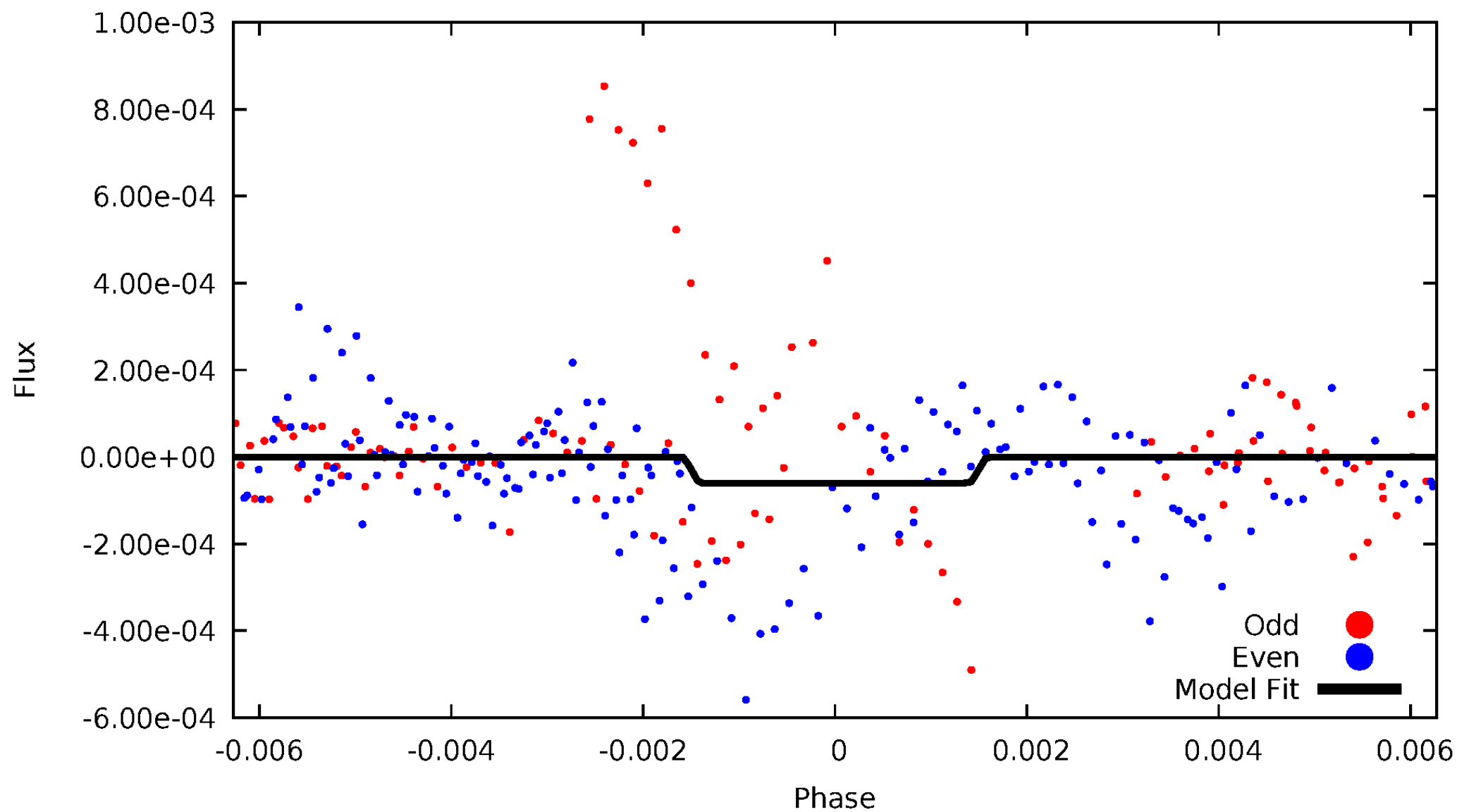
DV Odd/Even

TCE 008745924-06



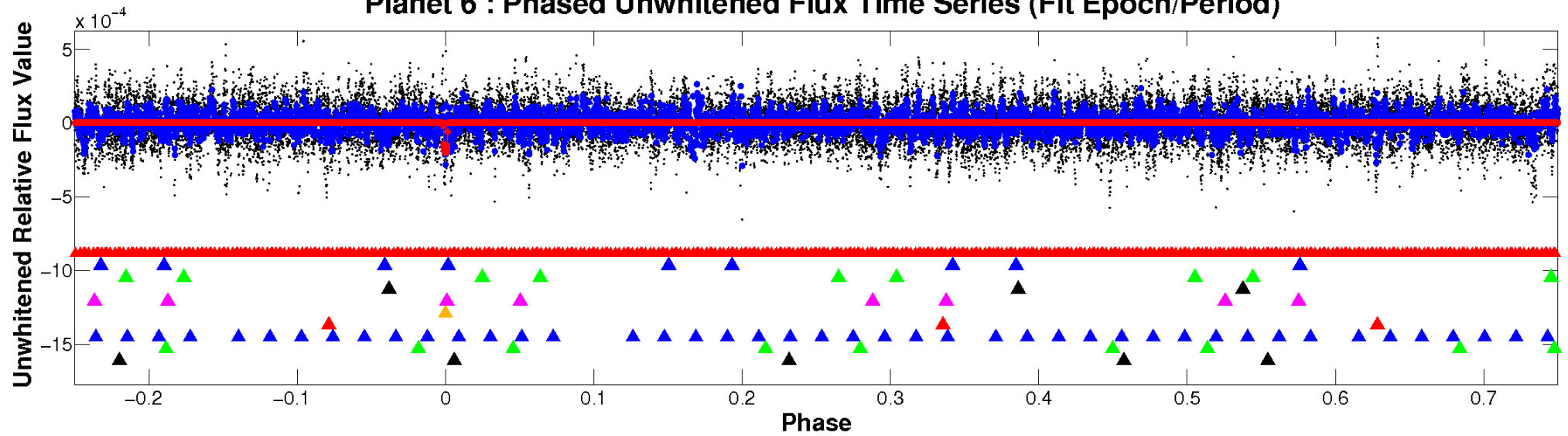
ALT Odd/Even

TCE 008745924-06

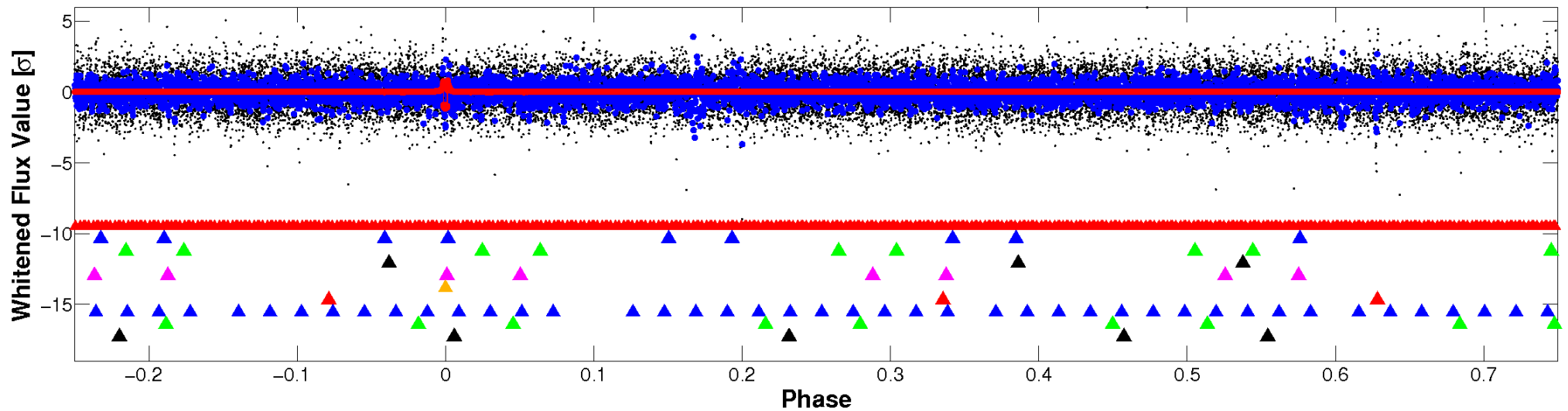


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

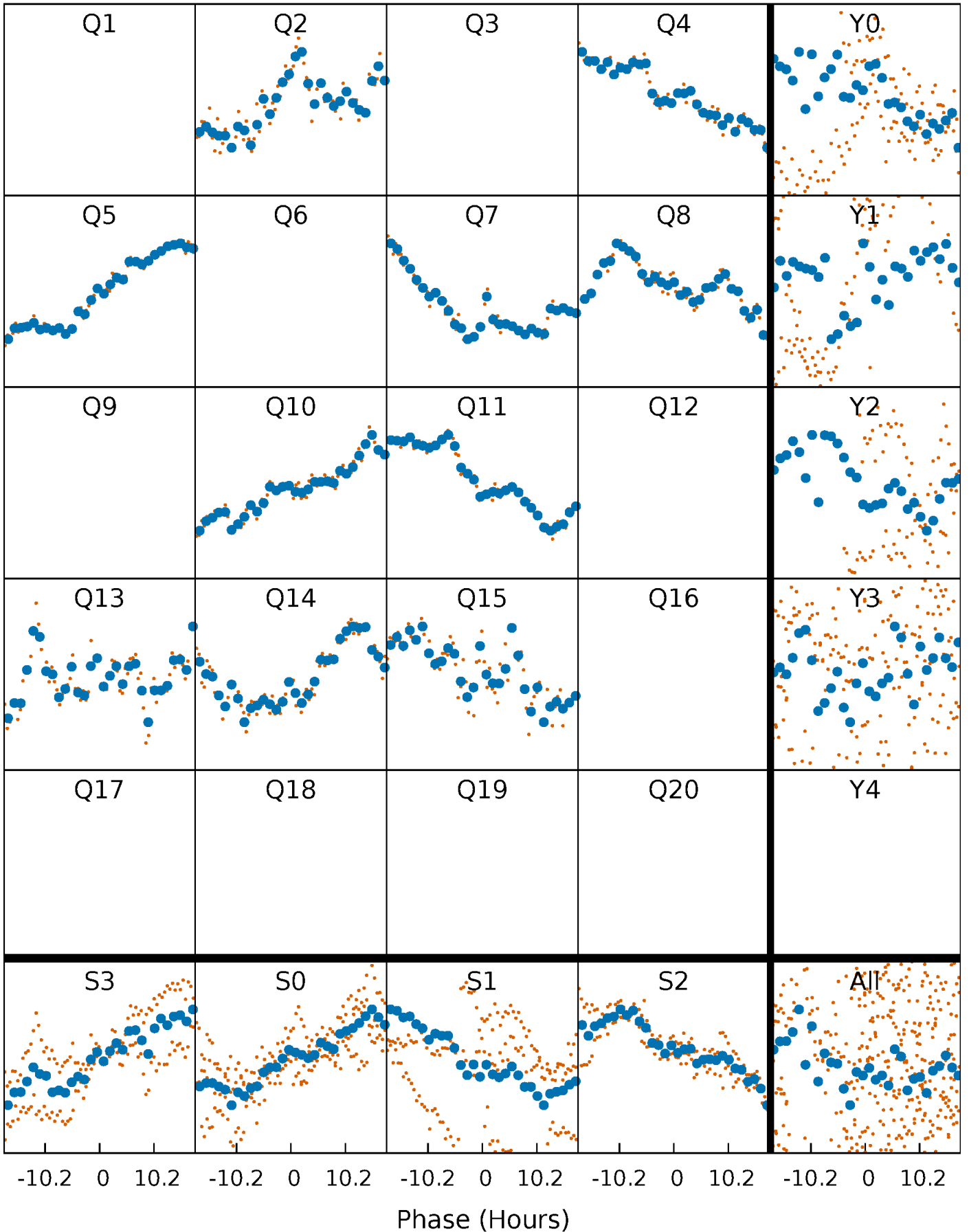


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



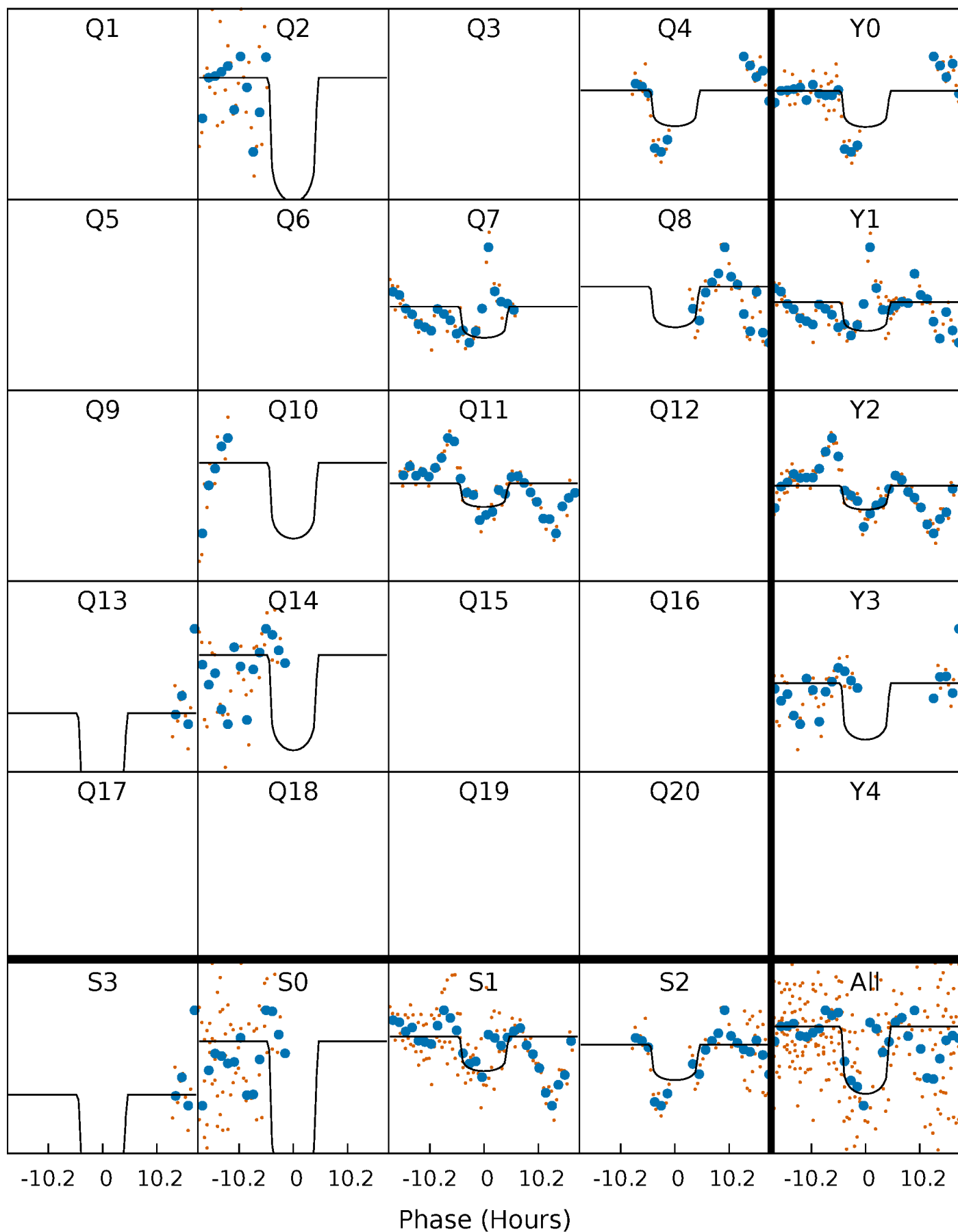
PDC Quarter-Phased Transit Curves

TCE 008745924-06 P=135.842619 Days $T_0=239.628666$ (BKJD)



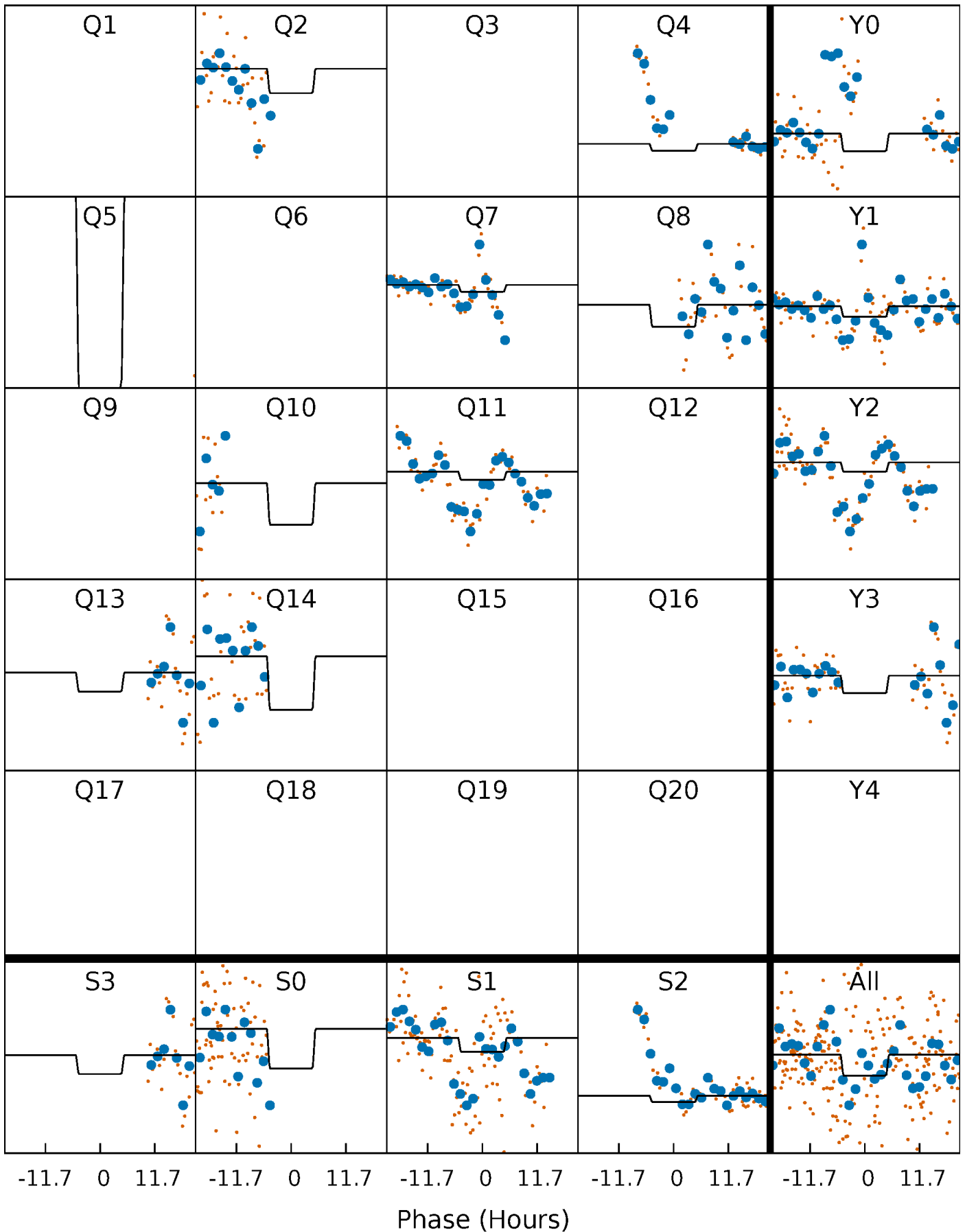
DV Quarter-Phased Transit Curves

TCE 008745924-06 P=135.842619 Days $T_0=239.628666$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

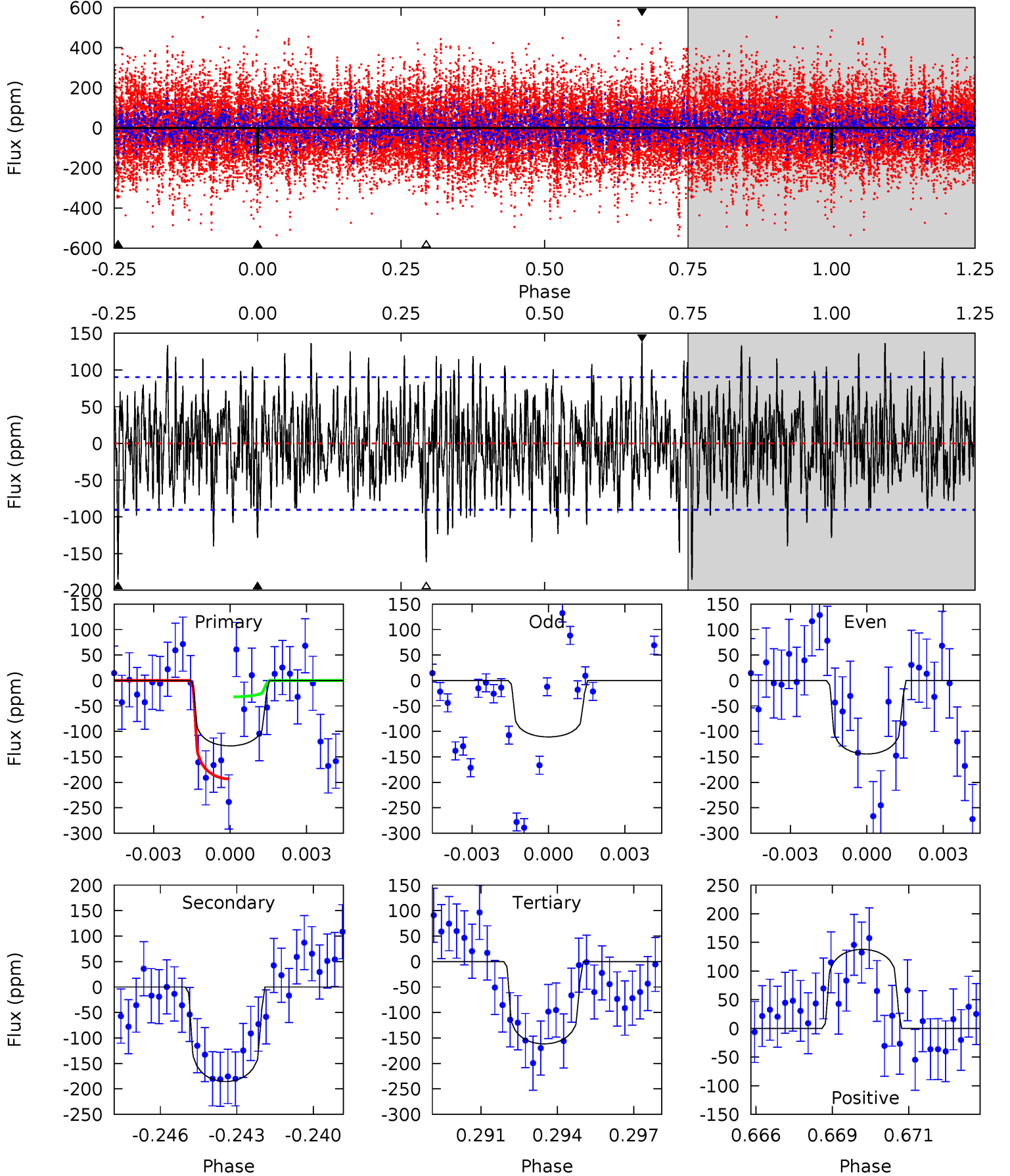
TCE 008745924-06 P=135.859990 Days $T_0=239.626655$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-06, P = 135.842619 Days, E = 103.786047 Days

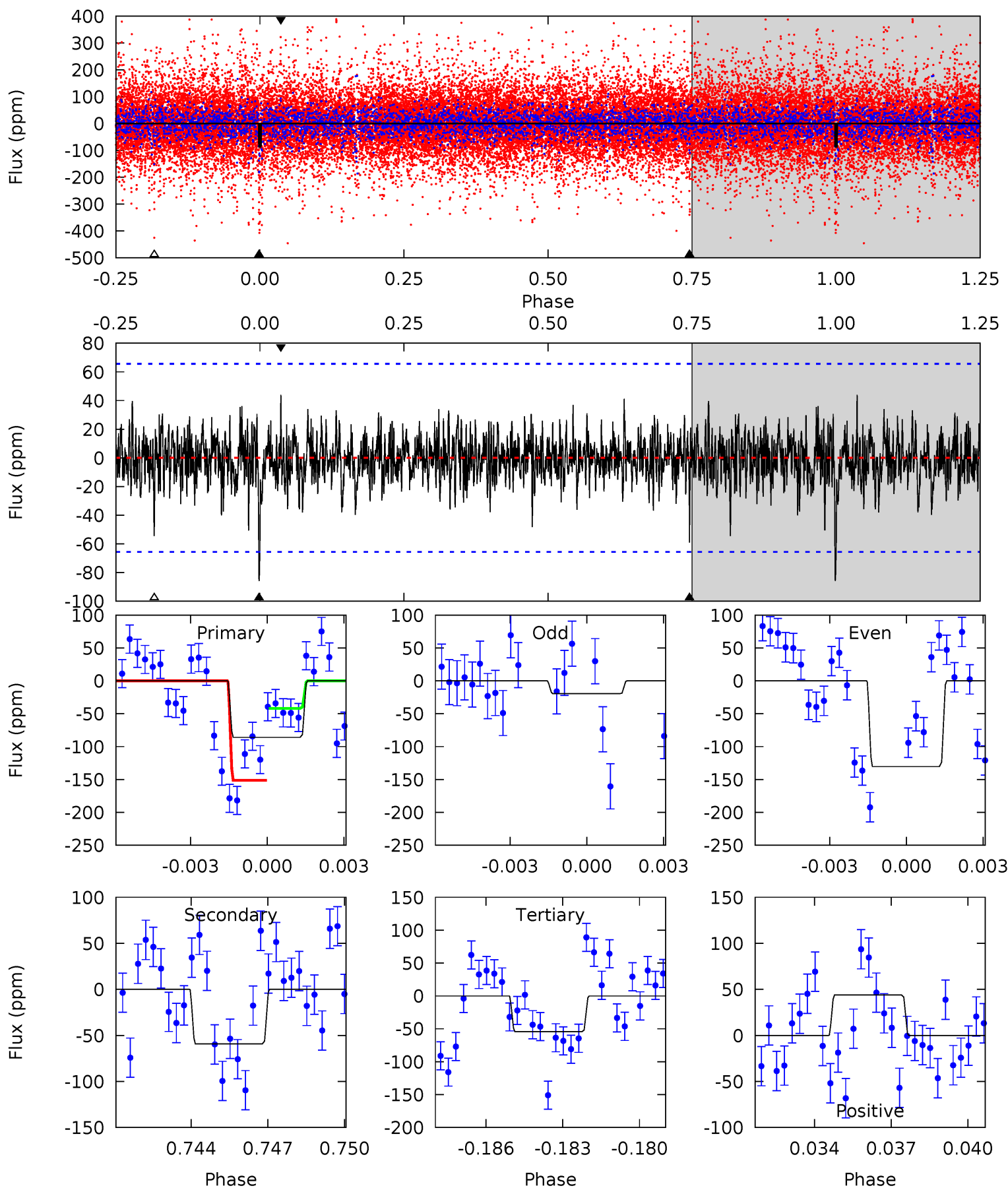
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.47	10.8	9.41	8.03	5.26	2.98	2.68	-1.94	-0.55	1.39	2.77	0.98	0.92	0.43	4.65



Alt Model-Shift Uniqueness Test

008745924-06, P = 135.859990 Days, E = 103.766665 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.87	4.73	4.36	3.51	5.25	2.96	1.03	2.52	3.36	0.38	1.22	4.46	0.43	0.34	4.34



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-185 ± 17	$4.50^{+1.69}_{-1.65}$	915^{+47}_{-83}	6508^{+1606}_{-880}	1804^{+2627}_{-836}
Alt.	-59 ± 12	$2.44^{+1.43}_{-1.34}$	915^{+49}_{-84}	6547^{+4031}_{-1308}	1936^{+7841}_{-1192}

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

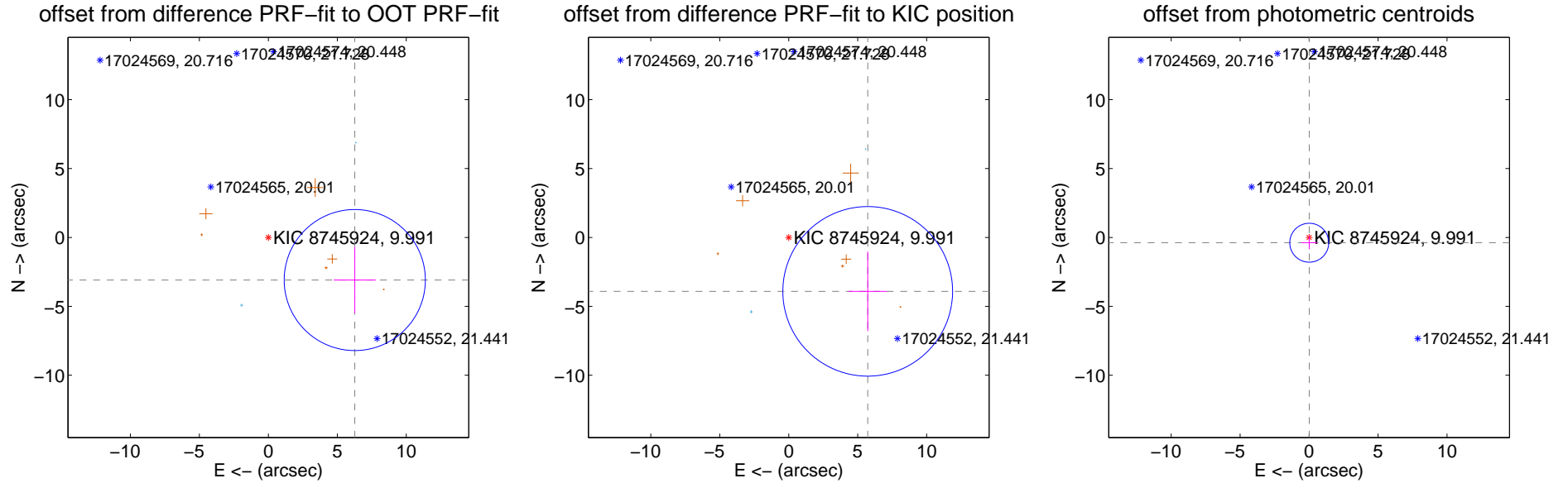
DV Centroid Data

Supplemental centroid analysis for 008745924-06. **Kepler magnitude: 9.99.** Transit SNR 7.63

There are 2 quarters with good PRF difference image offsets

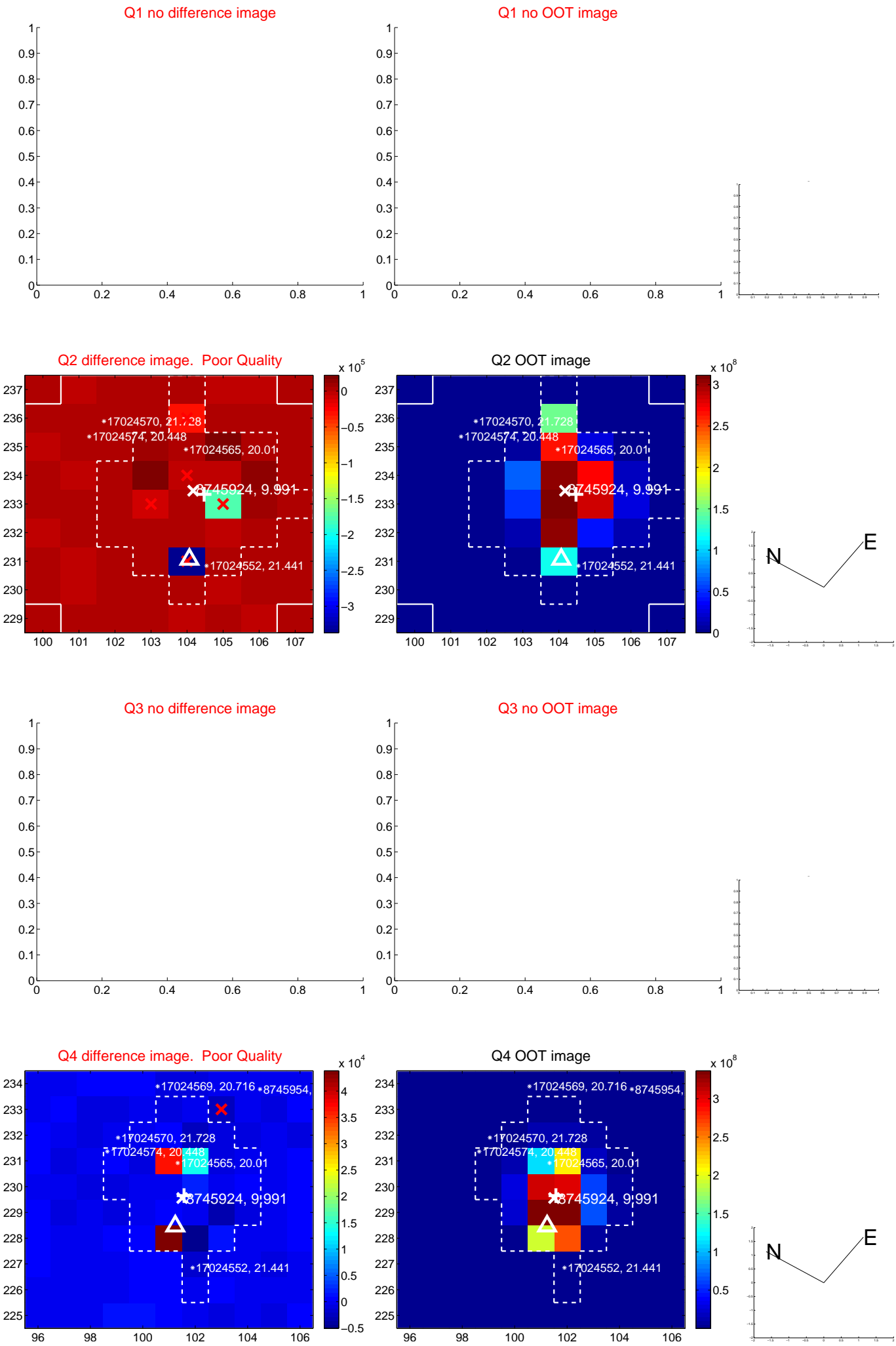
The direct PRF centroid is offset from the target star catalog position by about 0.99 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.987 ± 1.706	4.10	-6.266 ± 1.526	-3.092 ± 2.406
PRF-fit source offset from KIC position	6.935 ± 2.051	3.38	-5.726 ± 1.394	-3.912 ± 2.891
photometric centroid source offset	0.38 ± 0.47	0.82	-0.01 ± 0.58	-0.38 ± 0.47

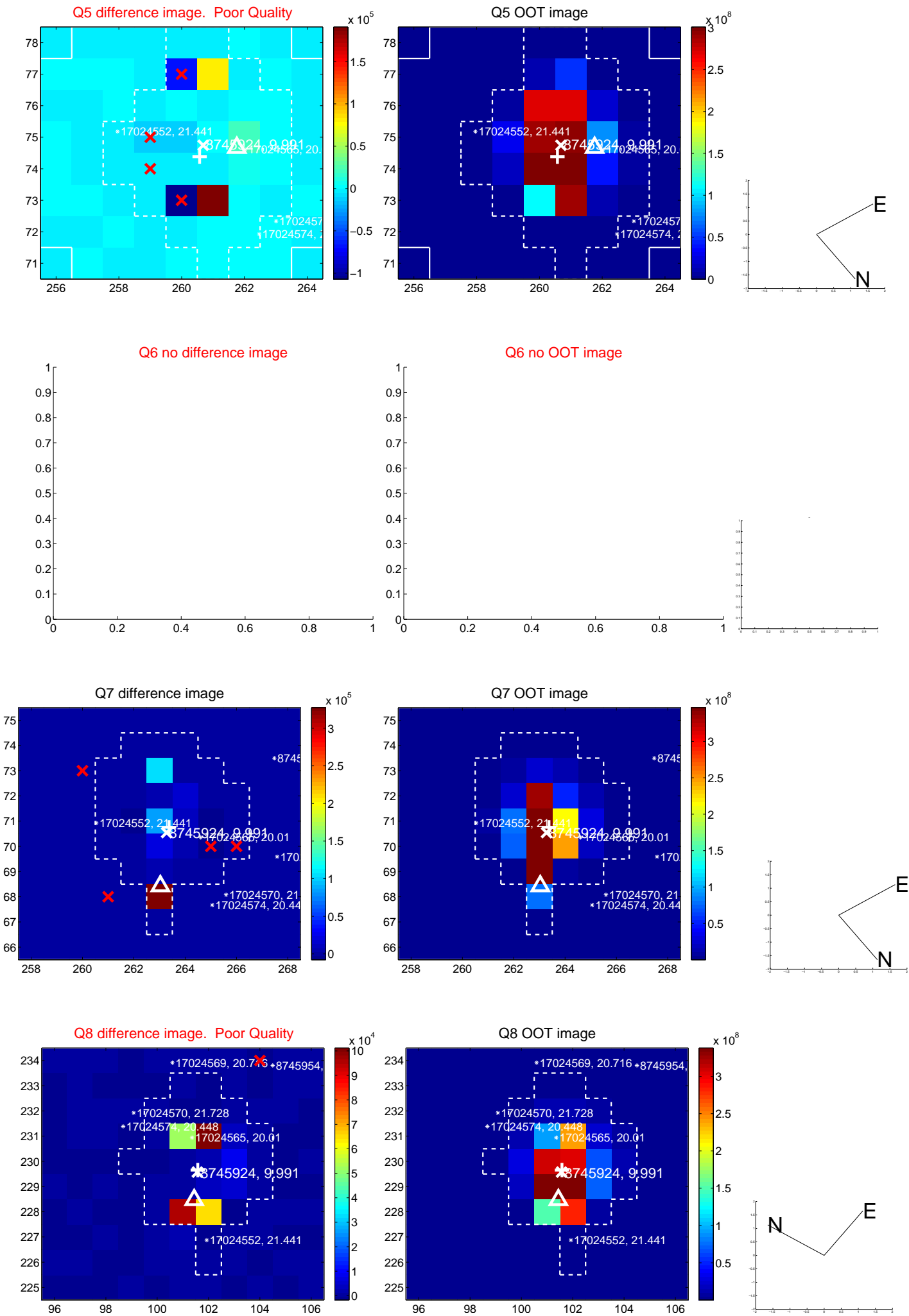


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

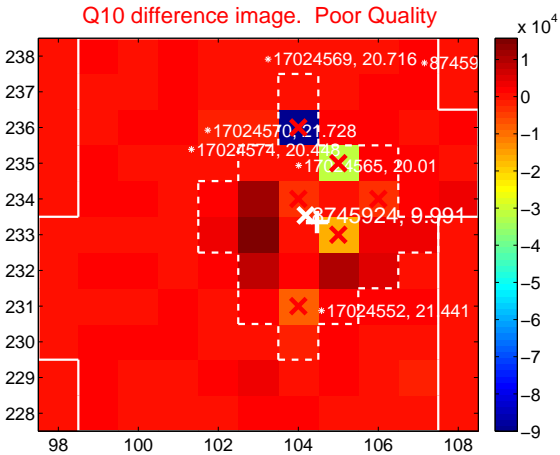
Q9 no difference image



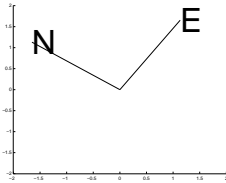
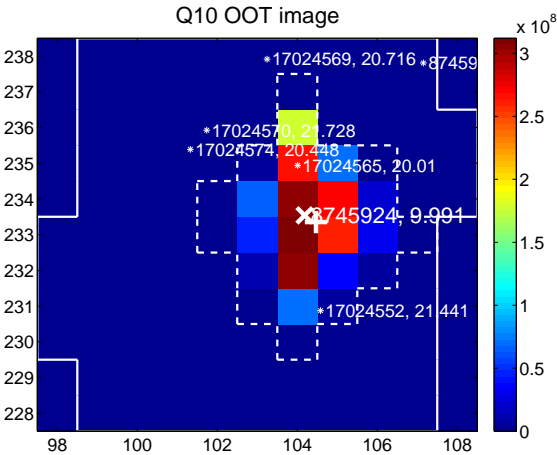
Q9 no OOT image



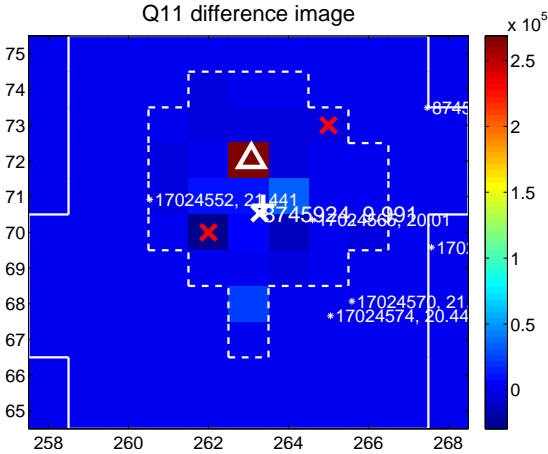
Q10 difference image. Poor Quality



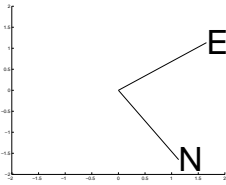
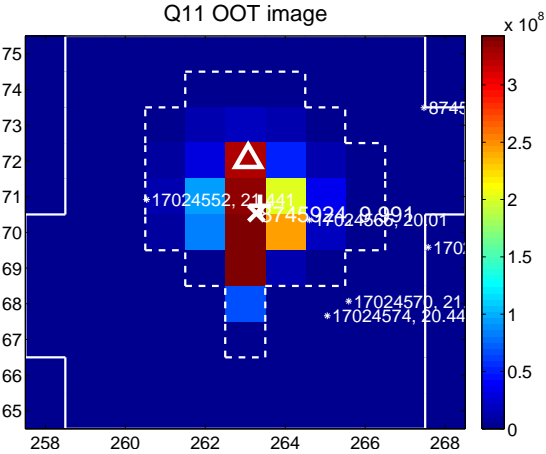
Q10 OOT image



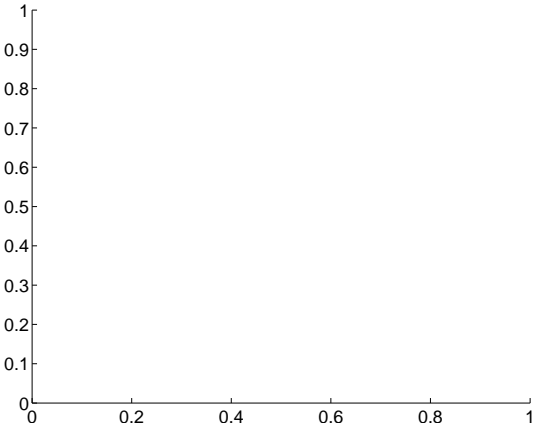
Q11 difference image



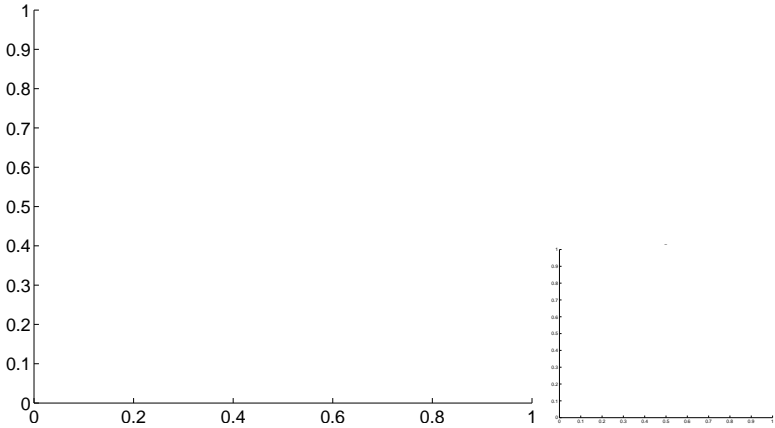
Q11 OOT image



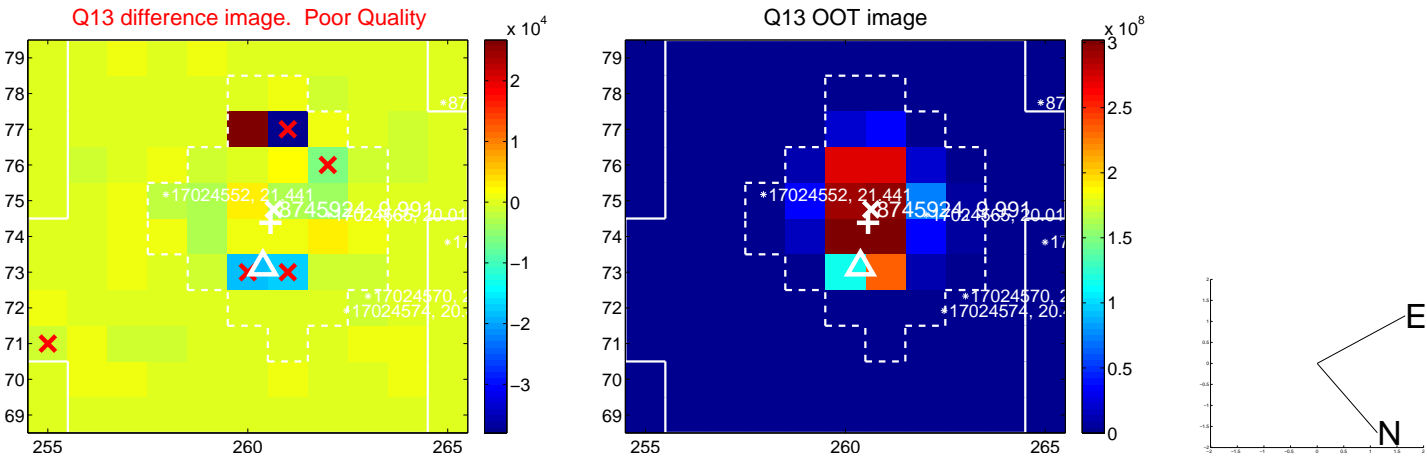
Q12 no difference image



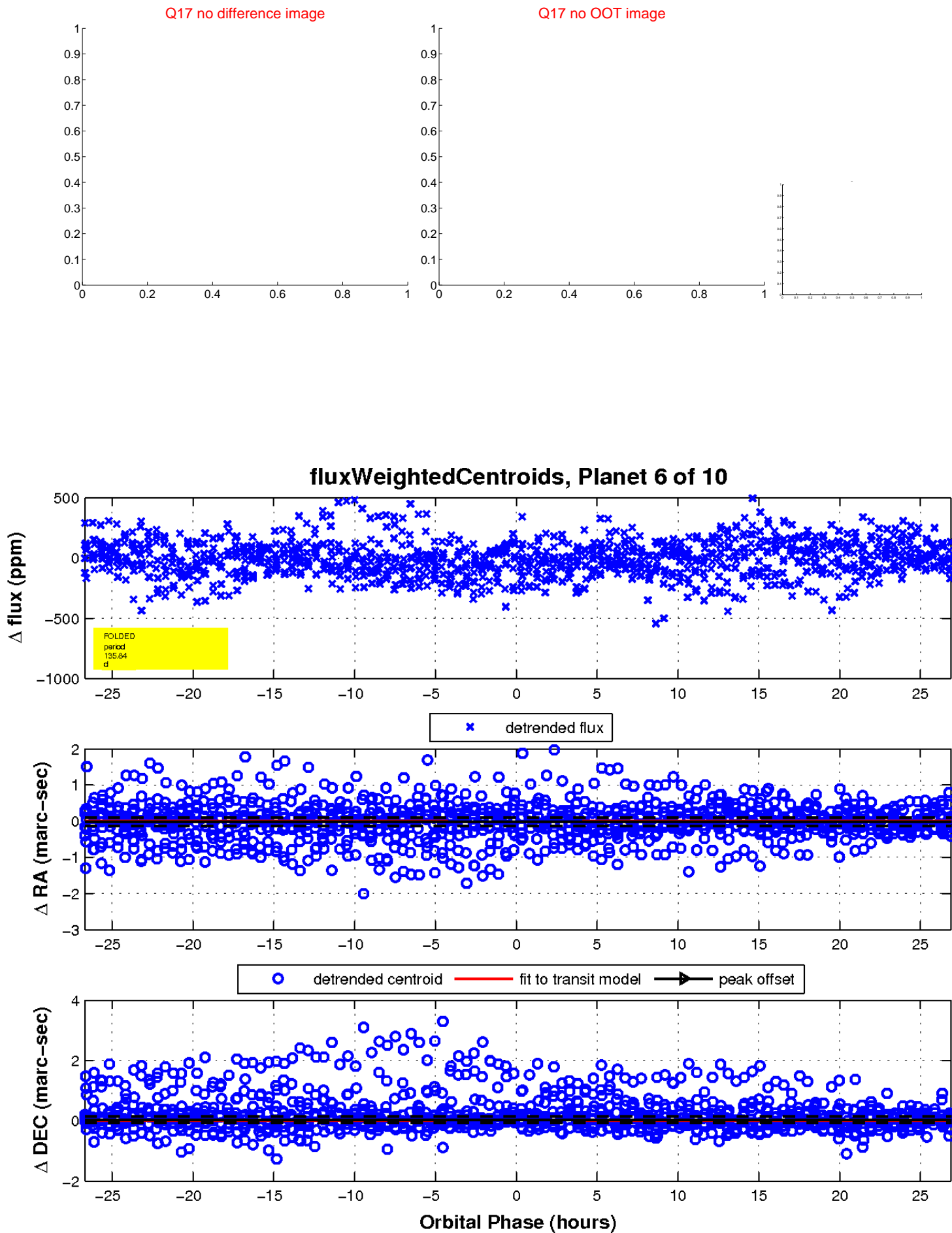
Q12 no OOT image



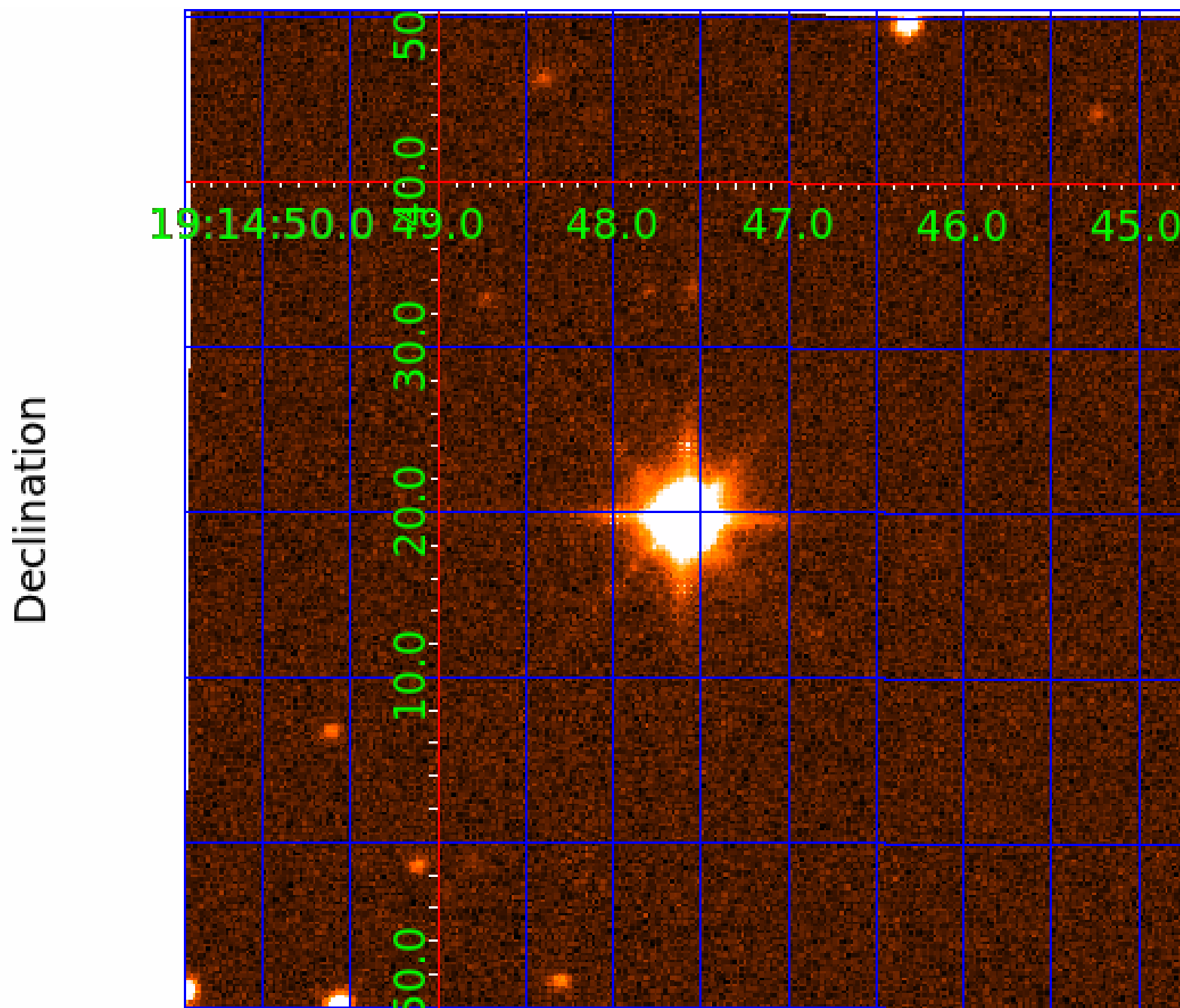
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

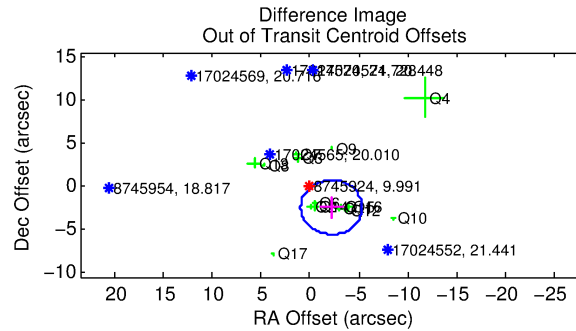
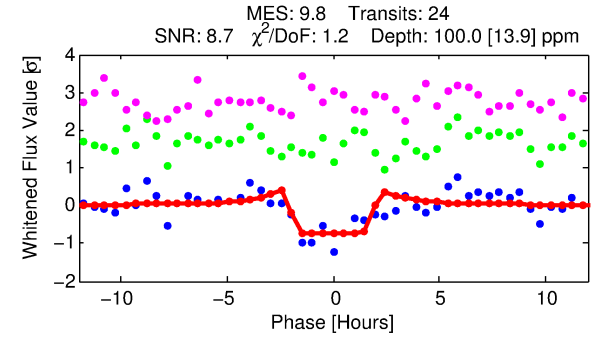
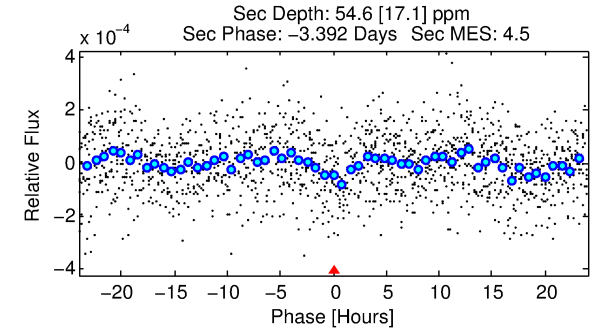
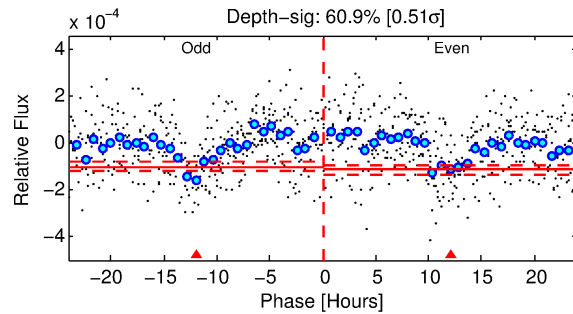
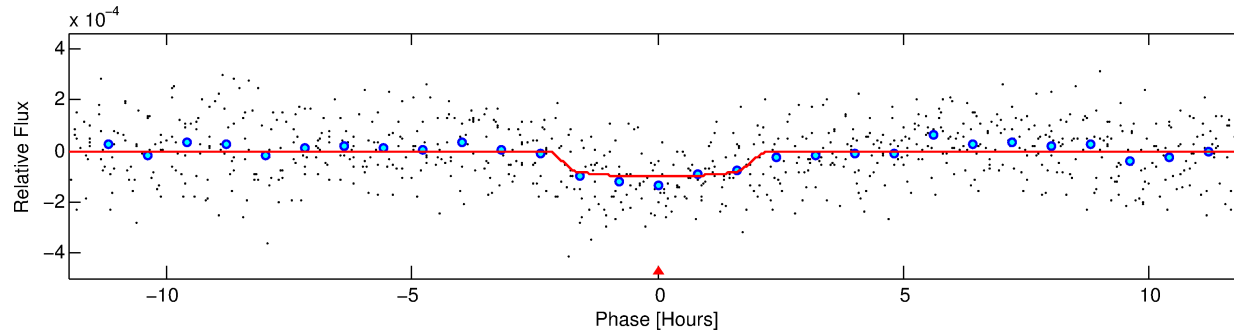
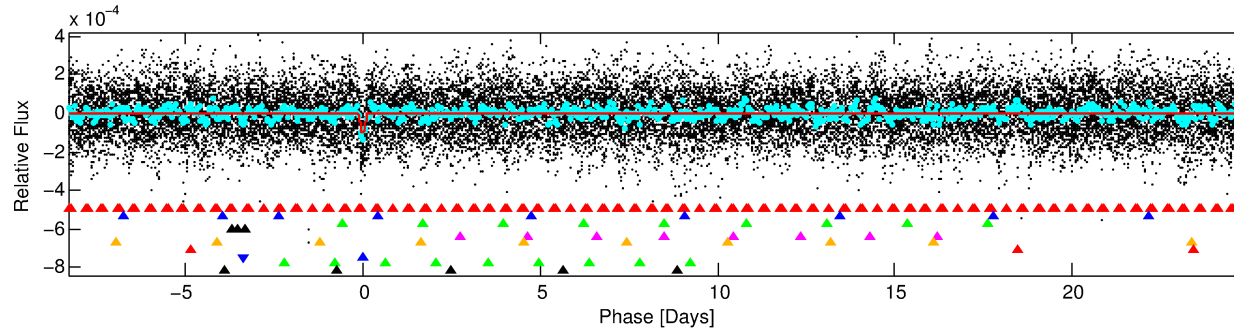
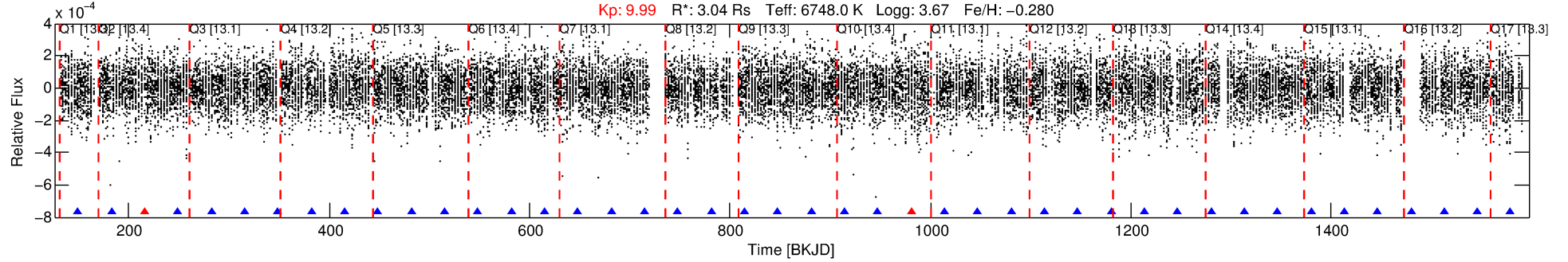
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-08

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 8 of 10 Period: 33.240 d



DV Fit Results:

Period = 33.24009 [0.00029] d
Epoch = 149.7780 [0.0069] BKJD
 $R_p/R^* = 0.0098$ [0.0039]
 $a/R^* = 47.37$ [110.13]
 $b = 0.68$ [1.85]
 $\text{Seff} = 310.70$ [174.73]
 $T_{\text{eq}} = 1071$ [151] K
 $R_p = 3.24$ [1.77] R_e
 $a = 0.2348$ [0.0817] AU
 $A_g = 157.90$ [161.60] [0.97 σ]
 $T_{\text{eff}} = 5867$ [1278] K [3.73 σ]

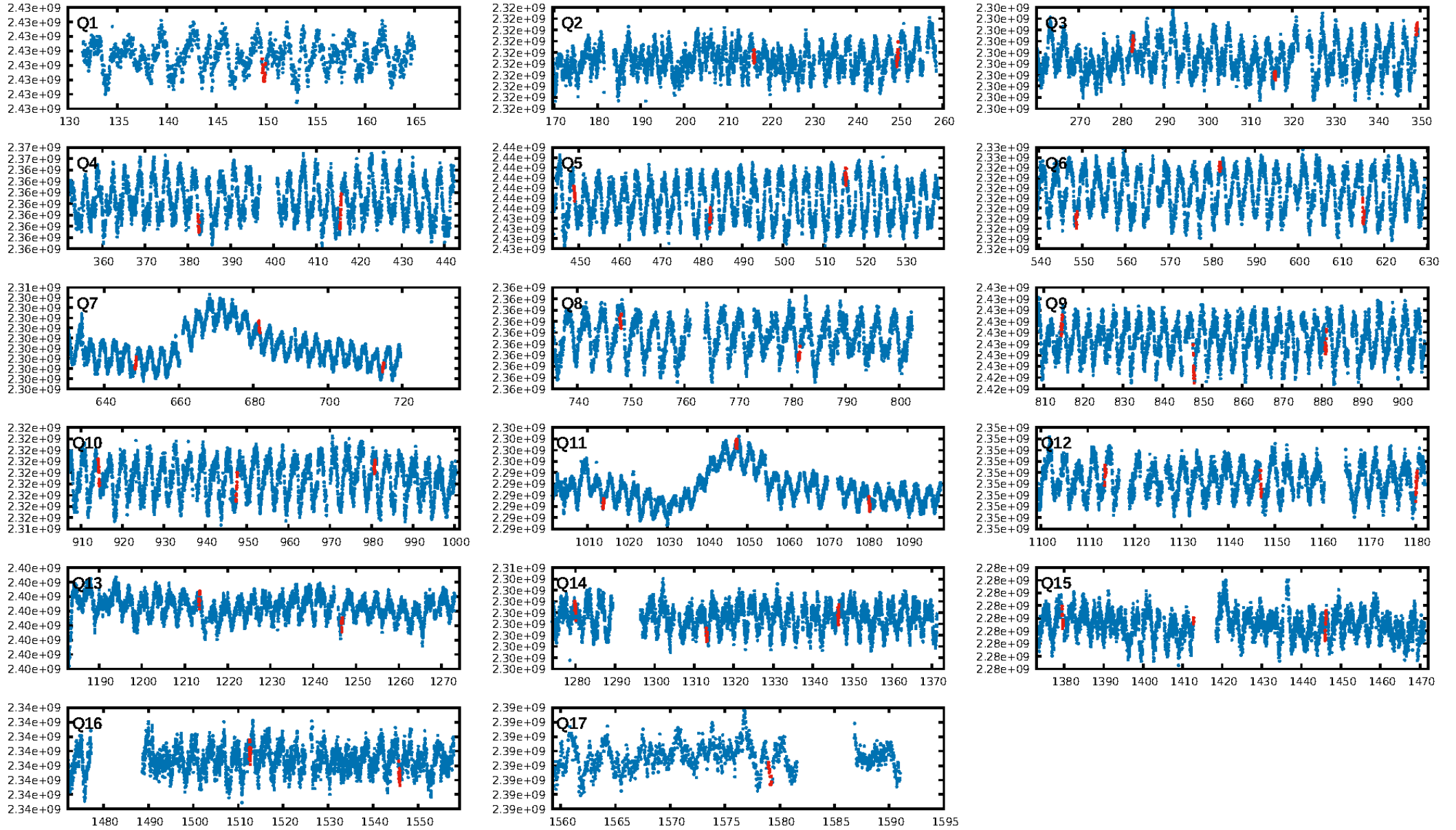
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [48.32 σ]
LongPeriod-sig: 100.0% [250.79 σ]
ModelChiSquare2-sig: 33.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.91 [21/23]
GhostDiagnostic-chr: -1.628
Centroid-sig: 0.0%
Centroid-so: 1.002 arcsec [1.95 σ]
OotOffset-rm: 3.272 arcsec [3.13 σ]
KicOffset-rm: 4.421 arcsec [4.11 σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.20 [3/15]
DiffImageOverlap-fno: 0.88 [15/17]

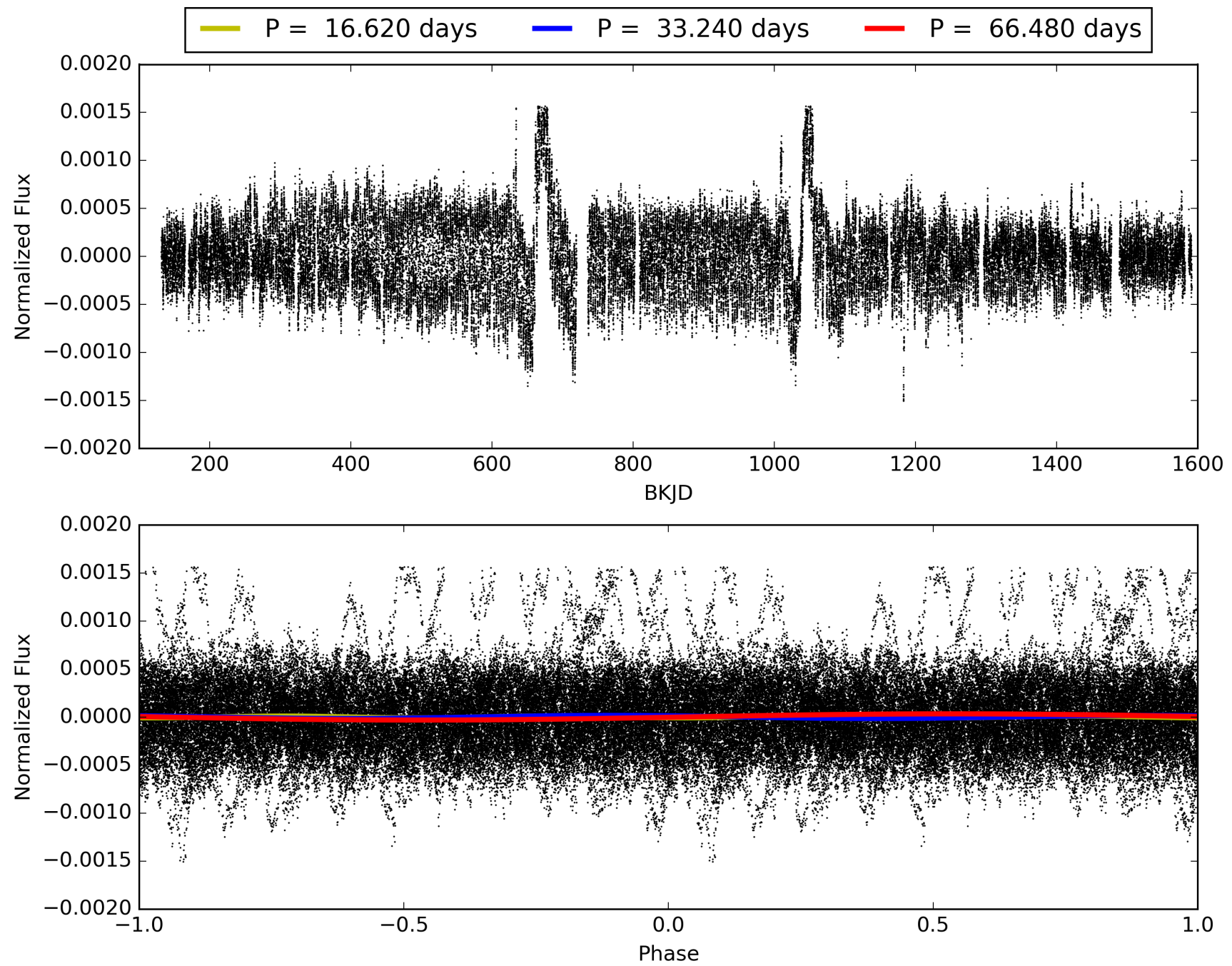
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:56:21 Z

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

TCE 008745924-08, PDC Light Curves

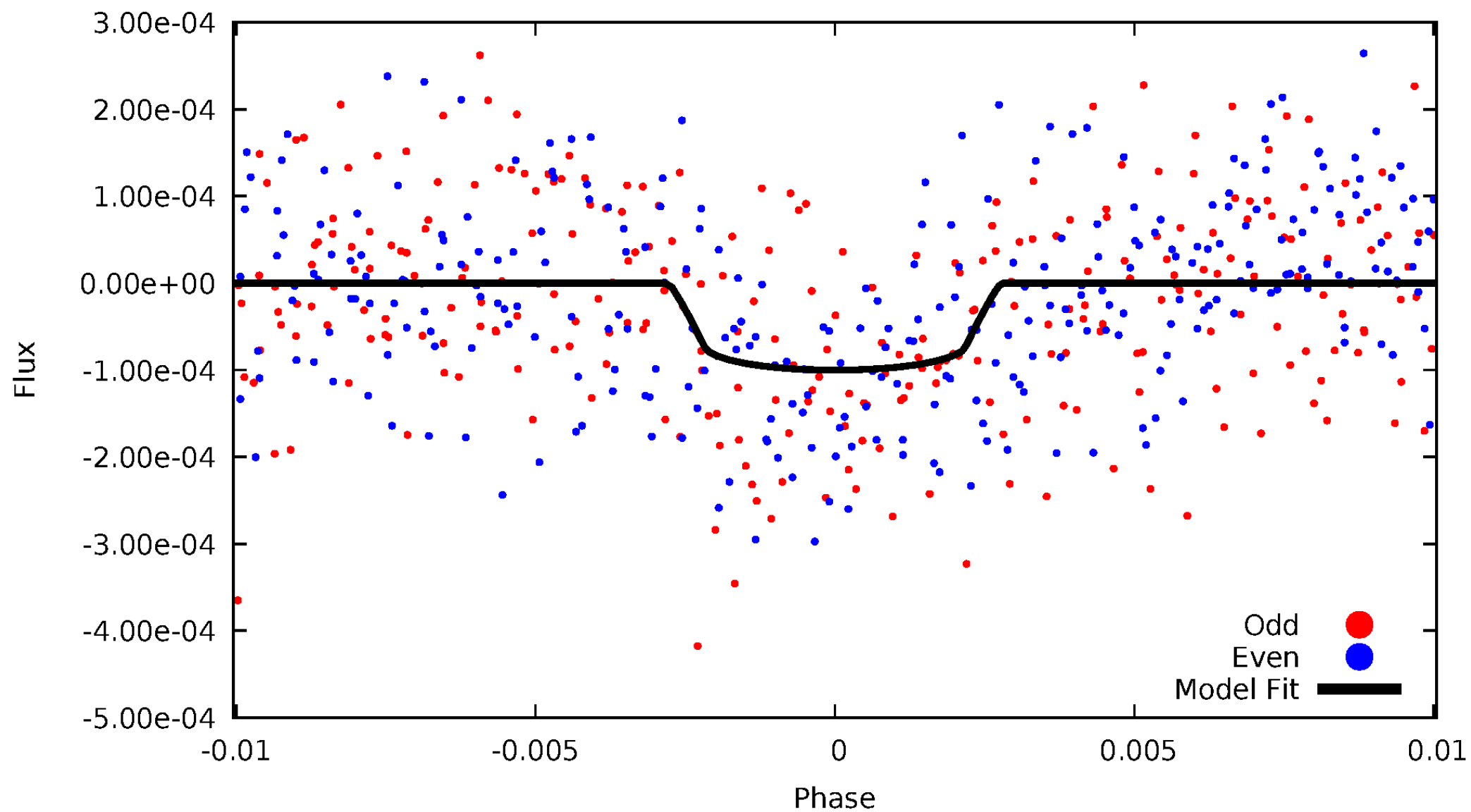


TCE 008745924-08



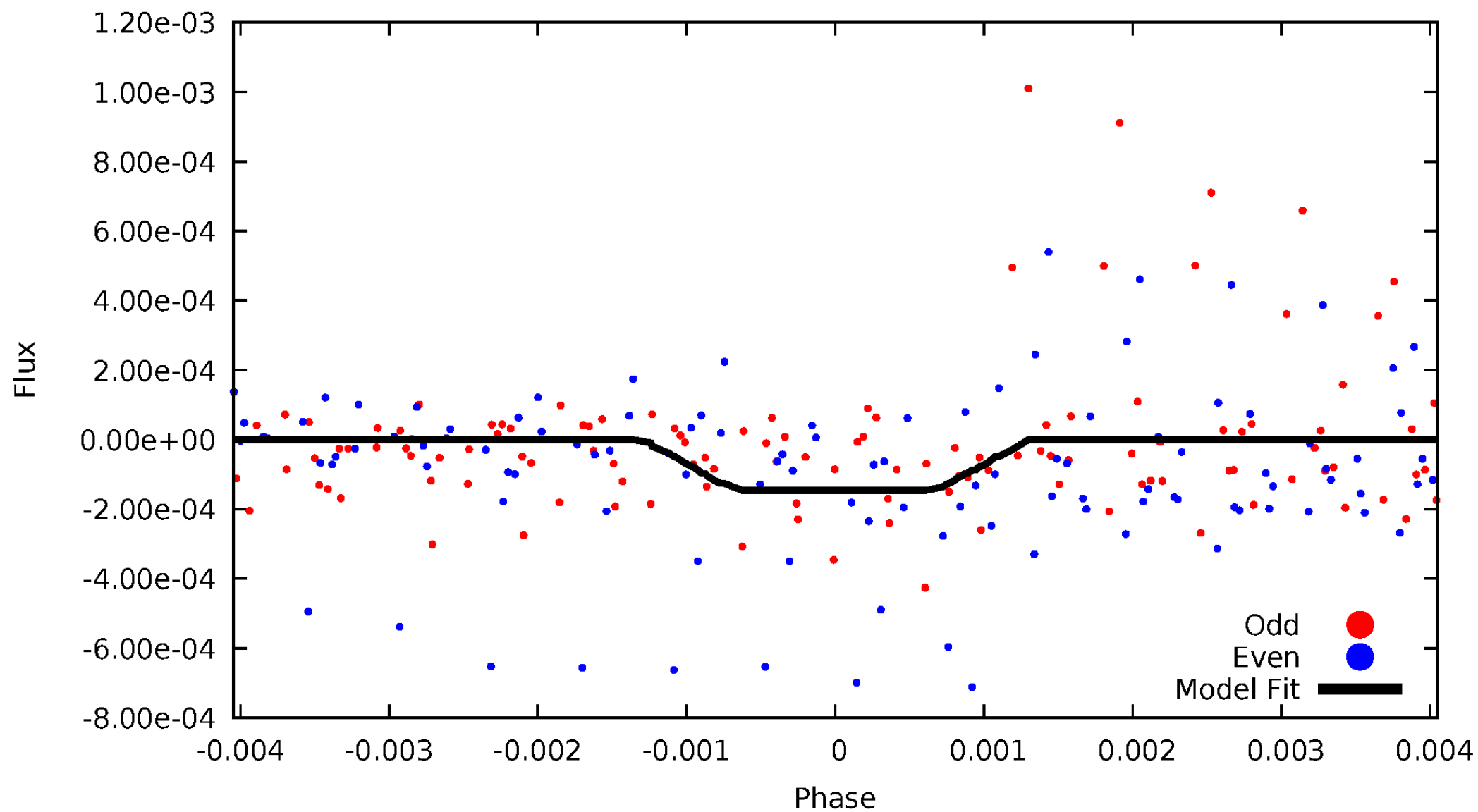
DV Odd/Even

TCE 008745924-08



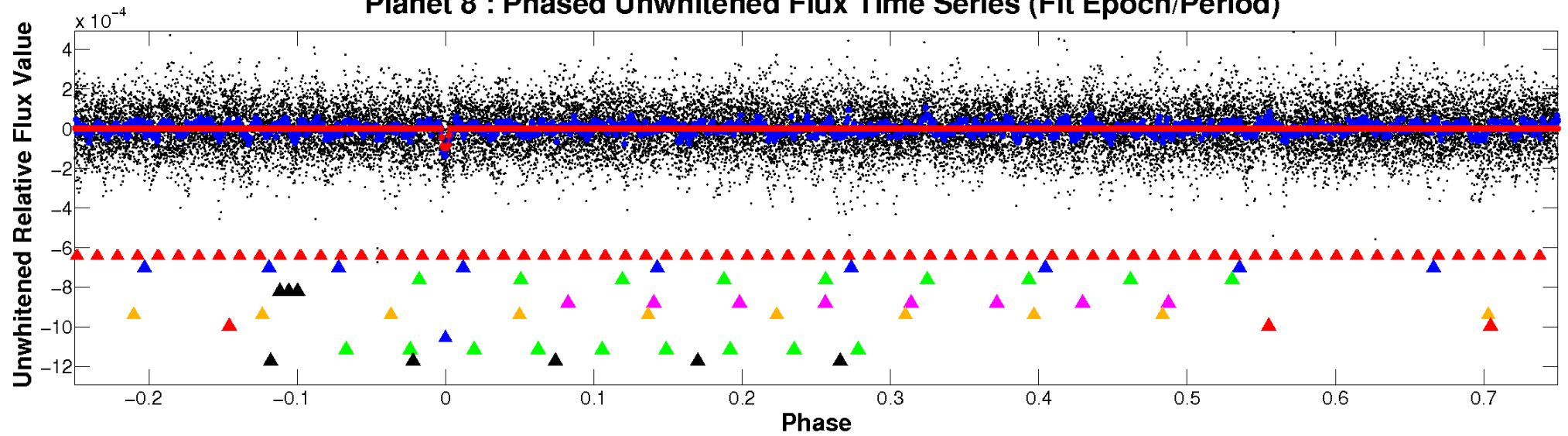
ALT Odd/Even

TCE 008745924-08

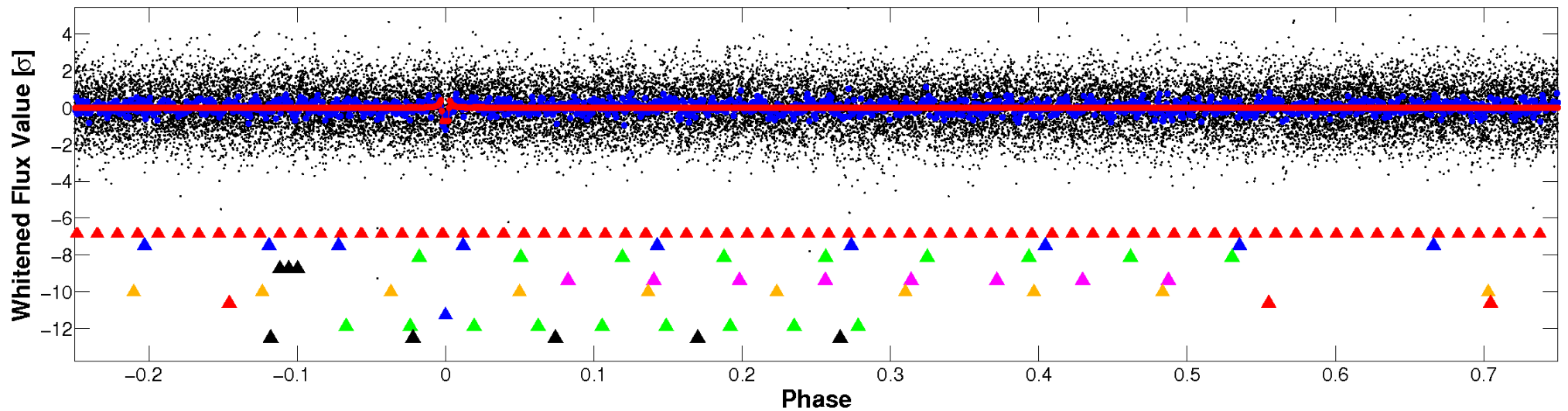


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

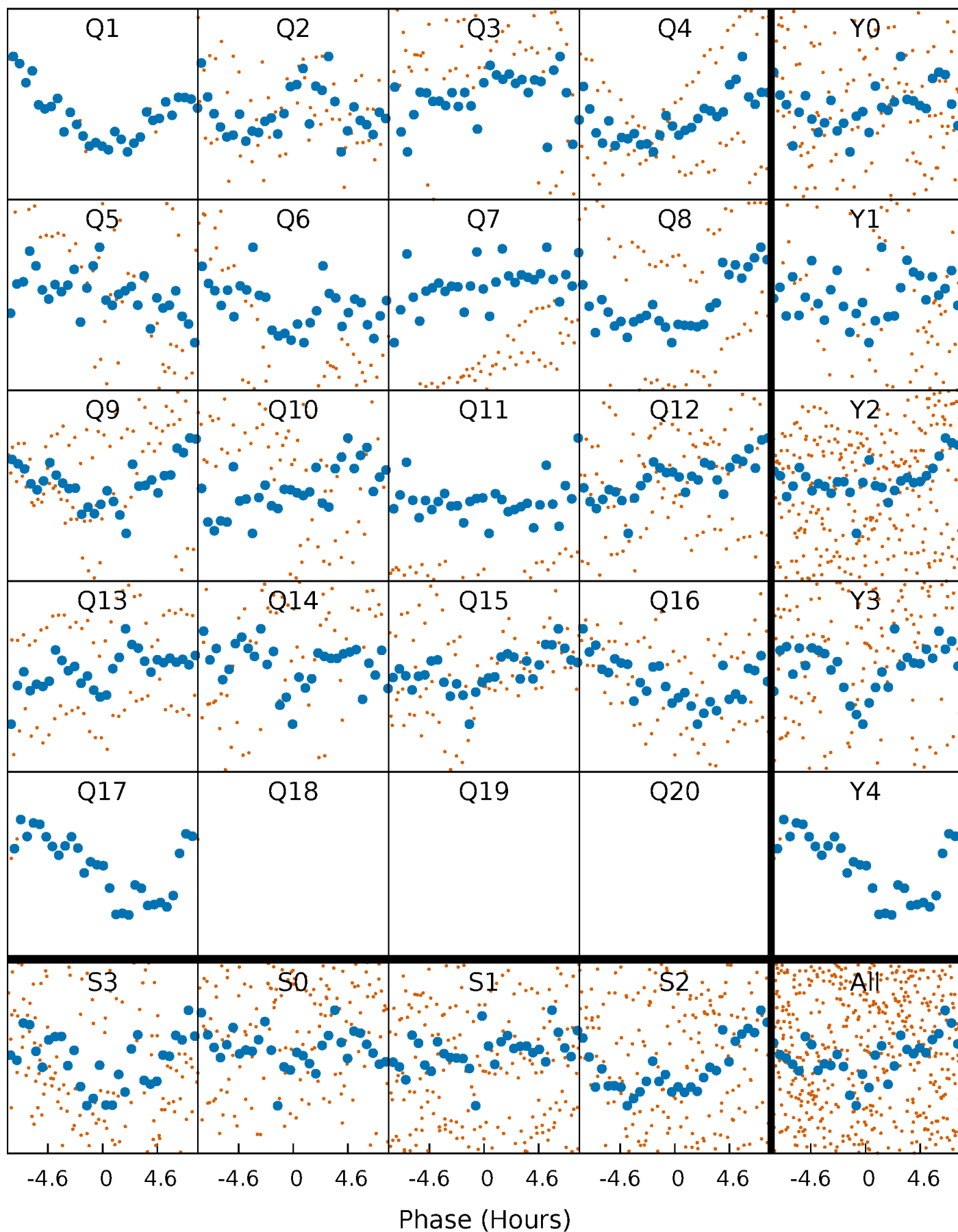


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



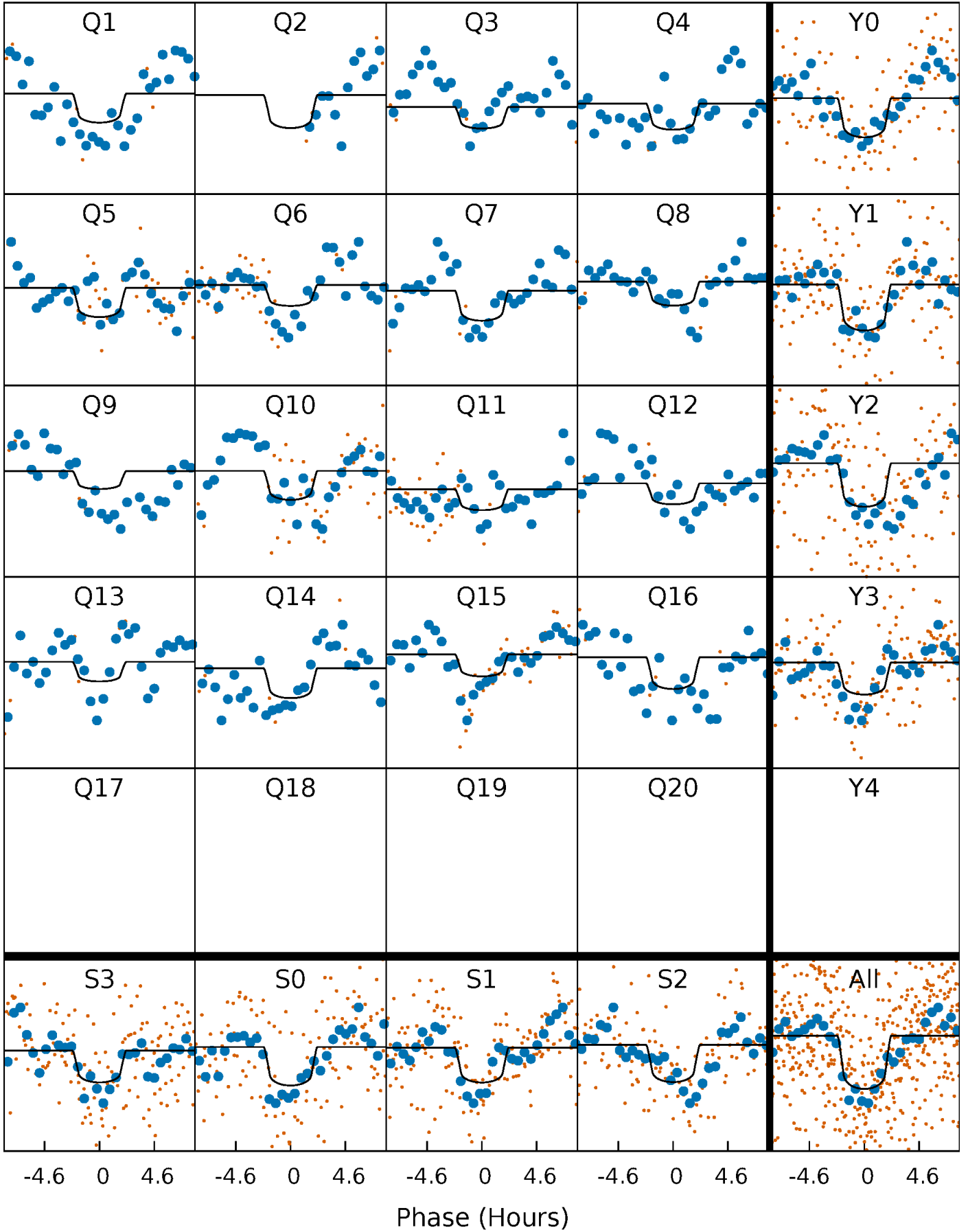
PDC Quarter-Phased Transit Curves

TCE 008745924-08 P= 33.240089 Days $T_0=149.778045$ (BKJD)



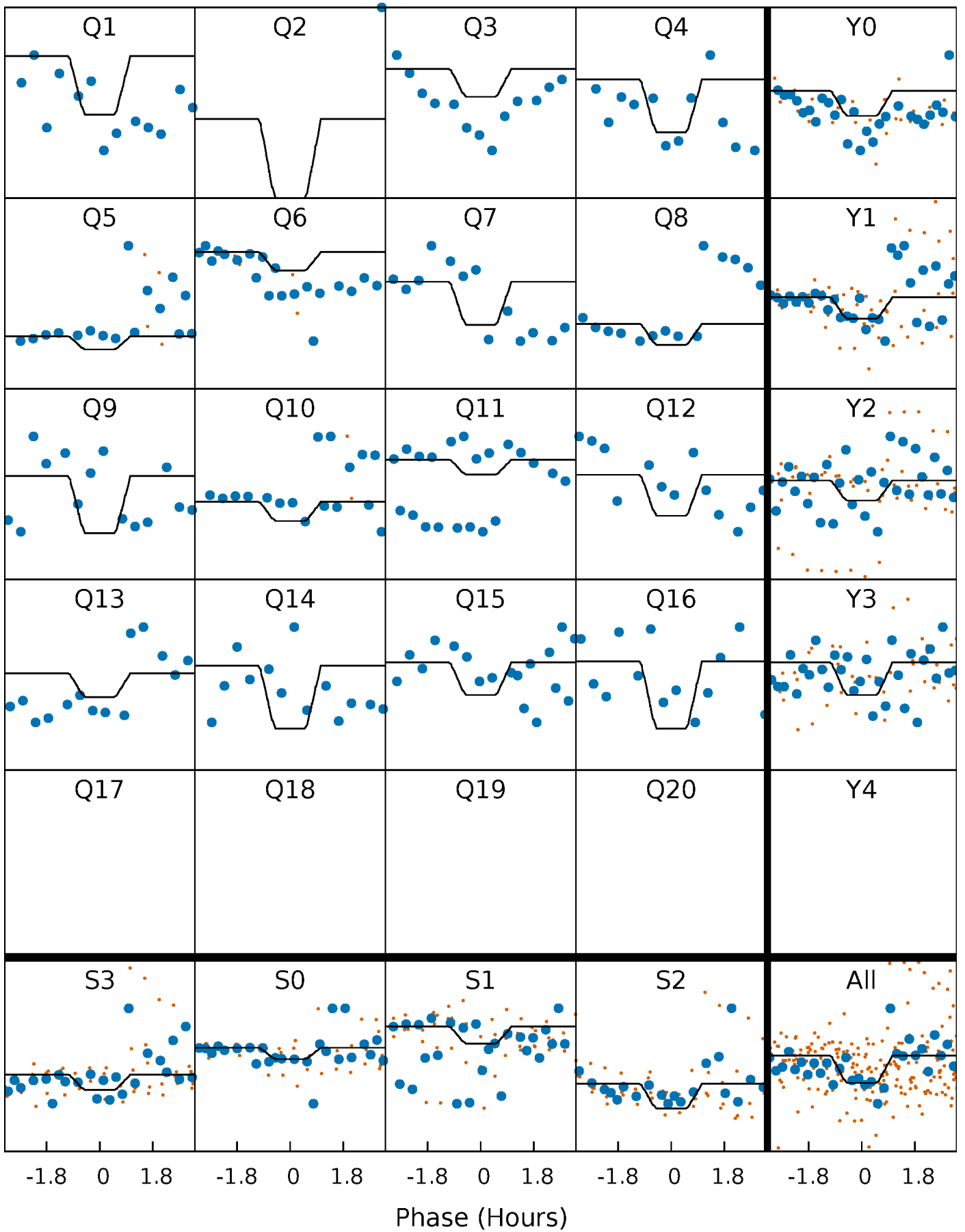
DV Quarter-Phased Transit Curves

TCE 008745924-08 $P = 33.240089$ Days $T_0 = 149.778045$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

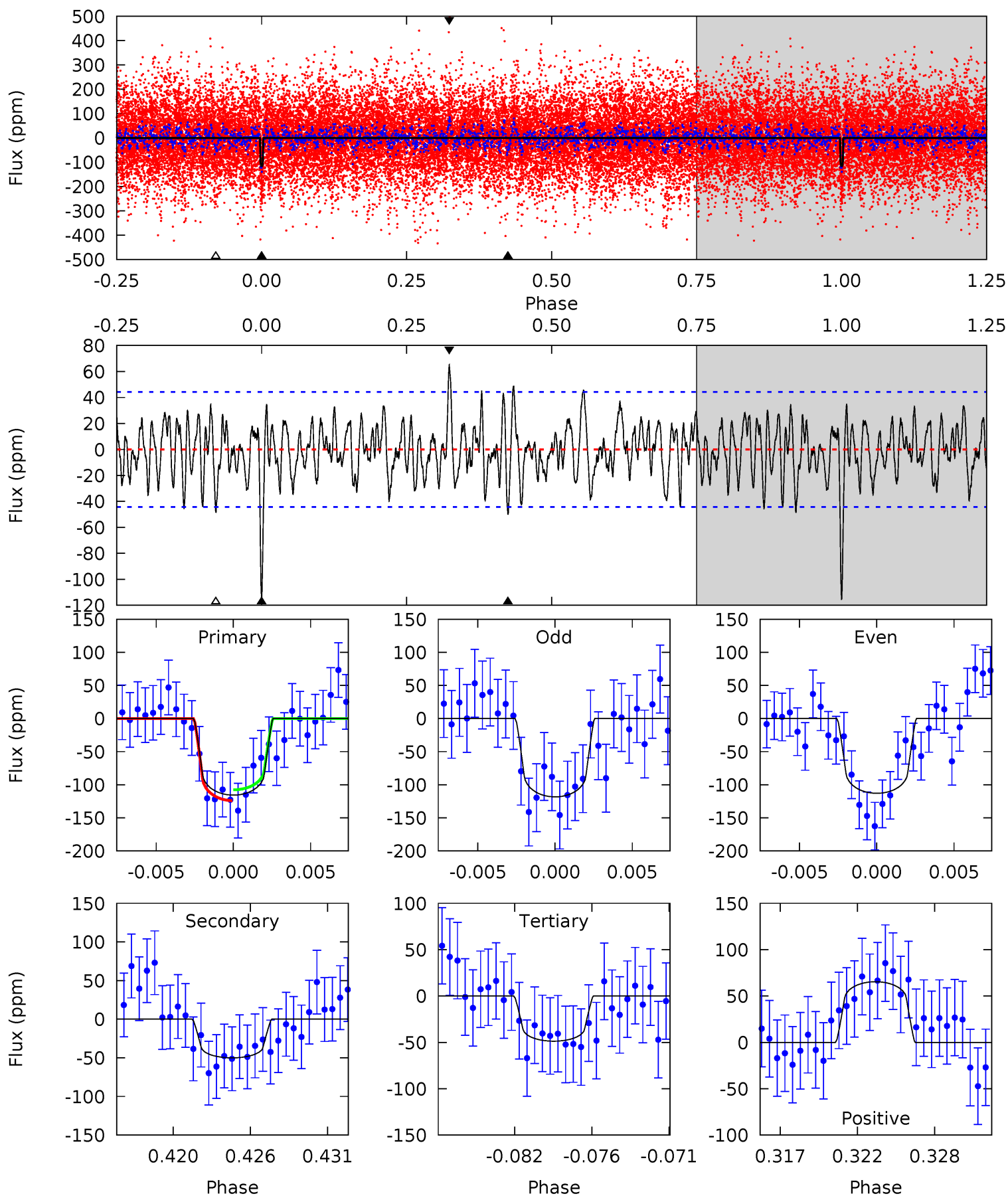
TCE 008745924-08 P= 33.238495 Days $T_0=149.711910$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-08, P = 33.240089 Days, E = 116.537956 Days

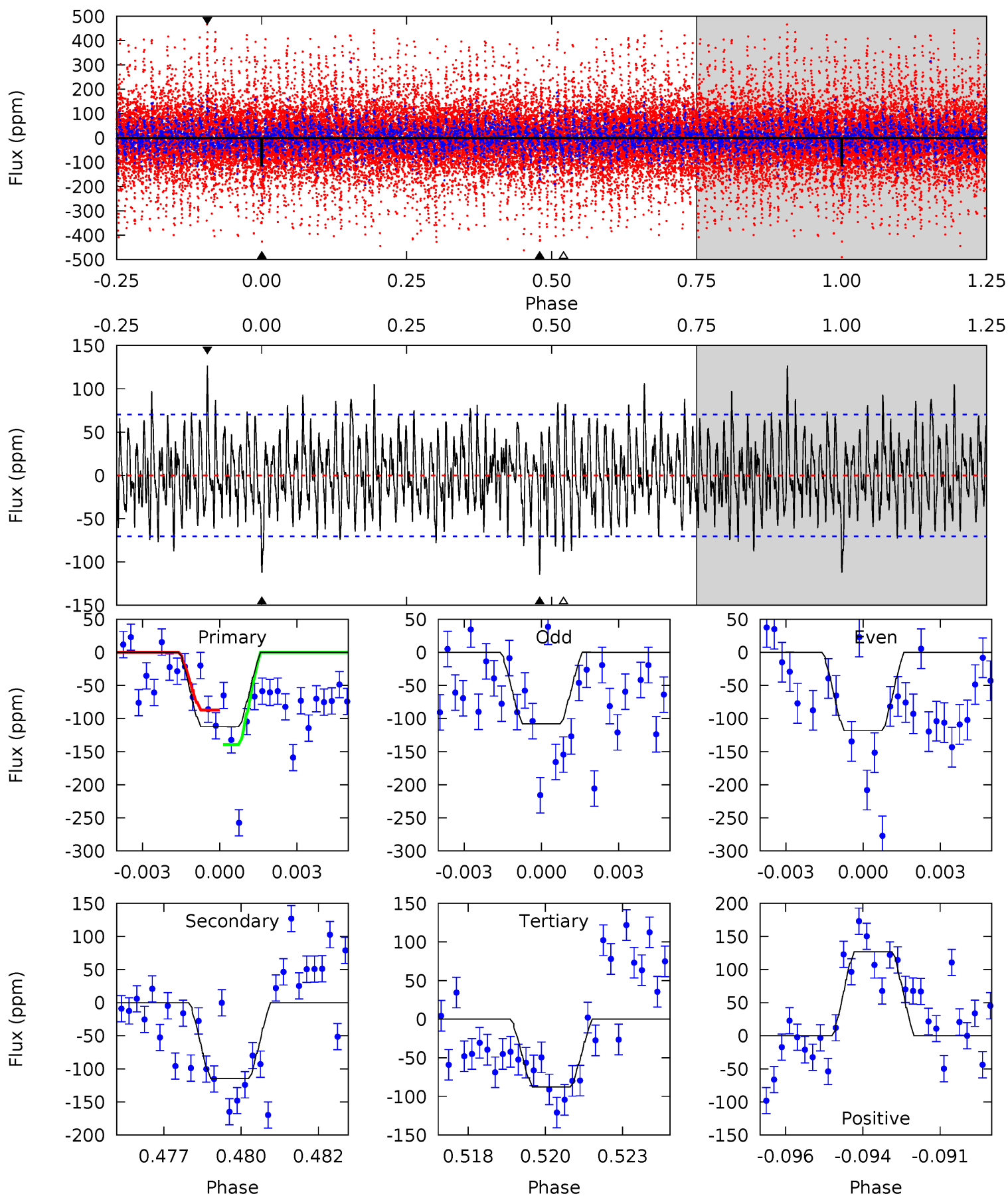
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	5.81	5.66	7.59	5.14	2.78	2.07	7.77	5.84	0.15	-1.78	0.31	0.97	0.36	0.96



Alt Model-Shift Uniqueness Test

008745924-08, P = 33.238495 Days, E = 116.473415 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.43	8.61	6.59	9.51	5.28	3.02	2.60	1.84	-1.08	2.03	-0.90	0.39	2.35	0.52	1.98



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-50 ± 9	$3.00^{+1.35}_{-1.24}$	1462^{+83}_{-130}	5706^{+1703}_{-800}	171^{+318}_{-90}
Alt.	-115 ± 13	$3.64^{+1.56}_{-1.18}$	1456^{+85}_{-143}	6320^{+1344}_{-867}	260^{+292}_{-125}

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

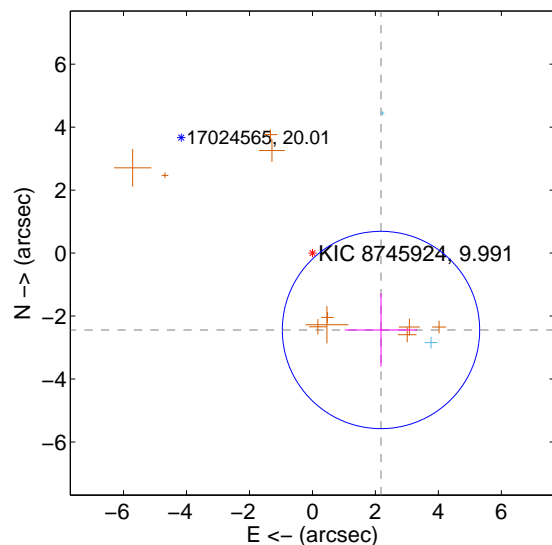
Supplemental centroid analysis for 008745924-08. **Kepler magnitude: 9.99.** Transit SNR 8.67

There are 3 quarters with good PRF difference image offsets

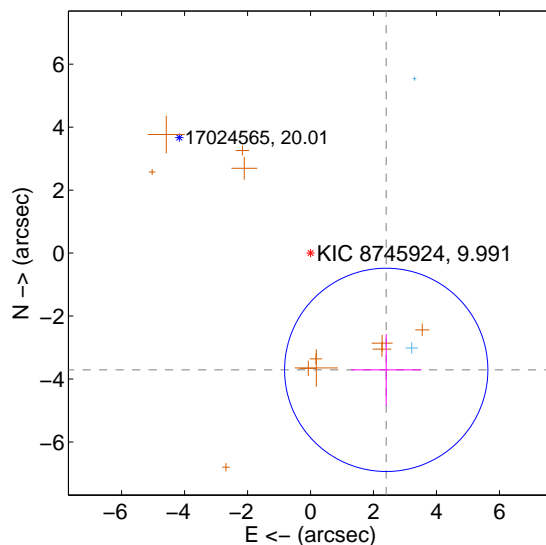
The direct PRF centroid is offset from the target star catalog position by about 1.53 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.272 ± 1.045	3.13	-2.178 ± 1.147	-2.442 ± 1.161
PRF-fit source offset from KIC position	4.421 ± 1.076	4.11	-2.405 ± 1.115	-3.709 ± 1.135
photometric centroid source offset	1.00 ± 0.51	1.95	0.48 ± 0.56	0.88 ± 0.50

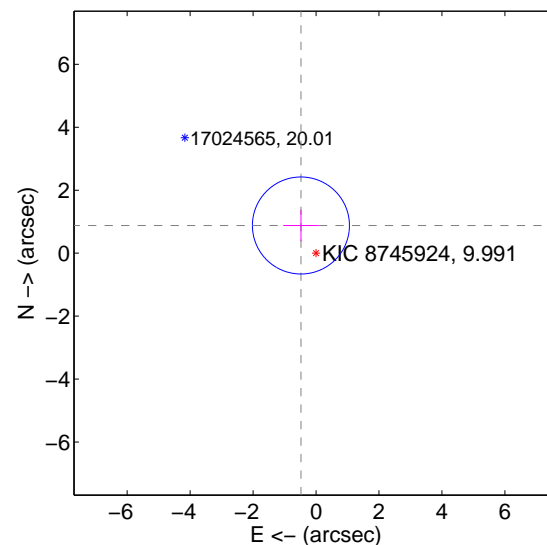
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

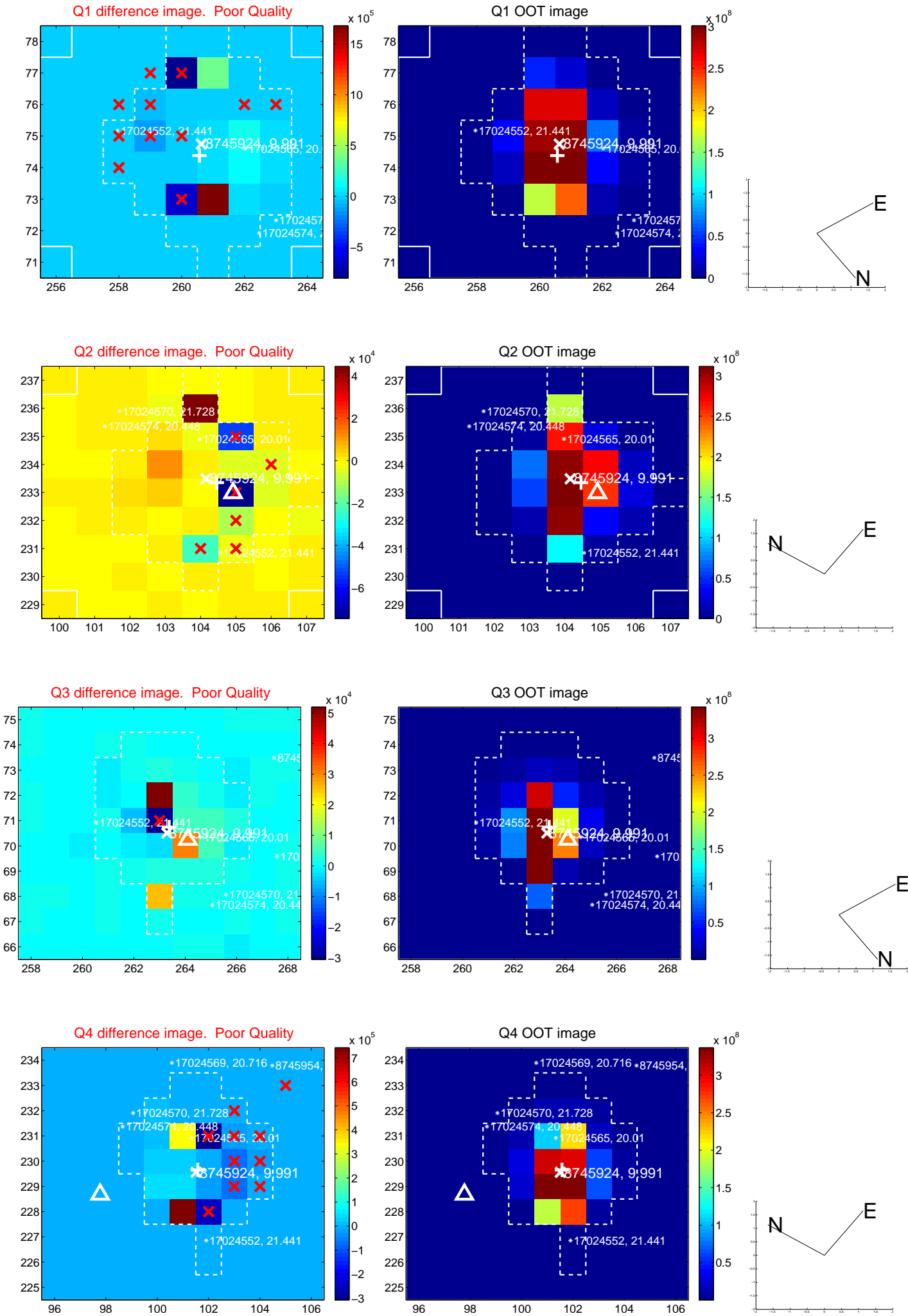


offset from photometric centroids

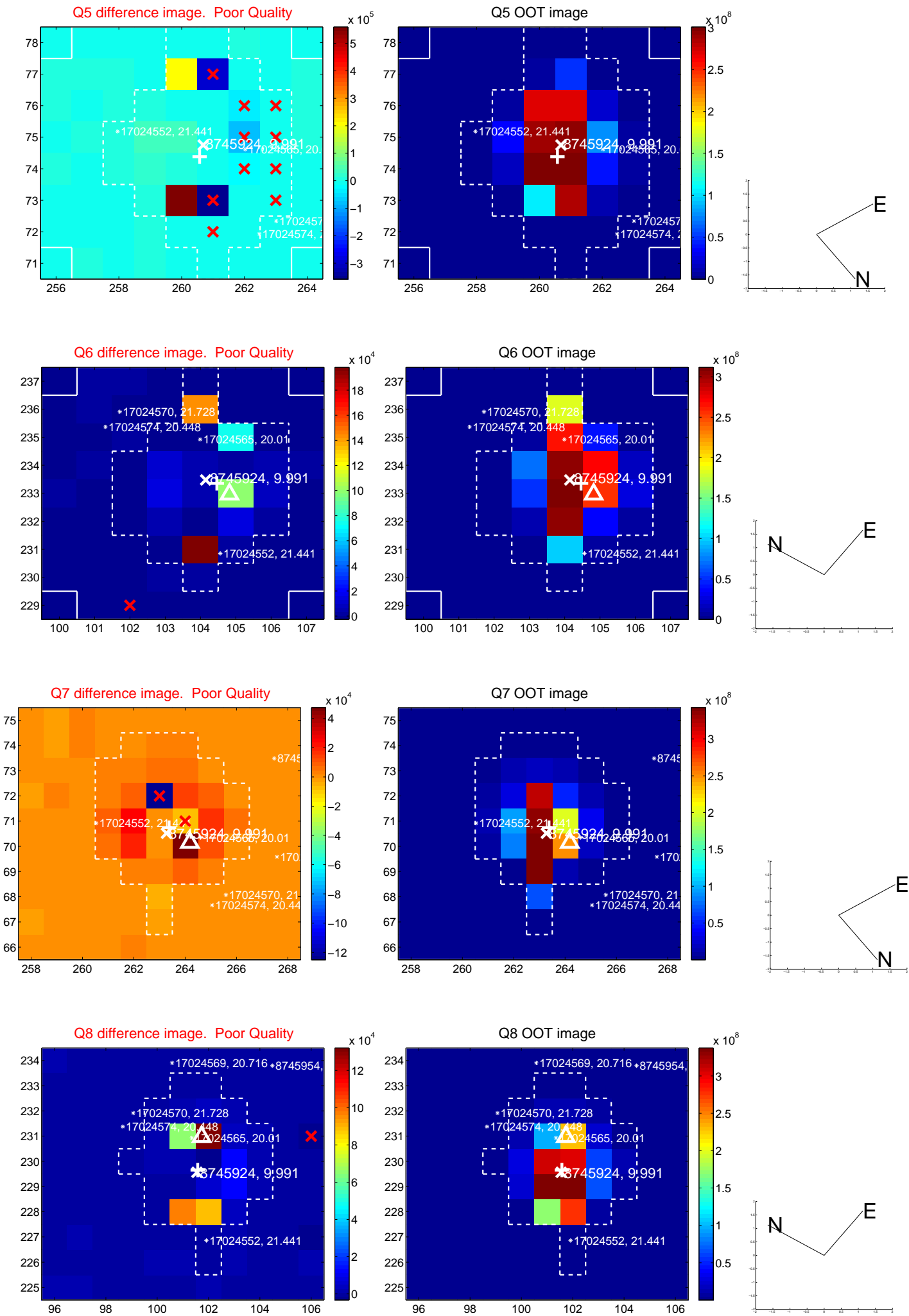


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

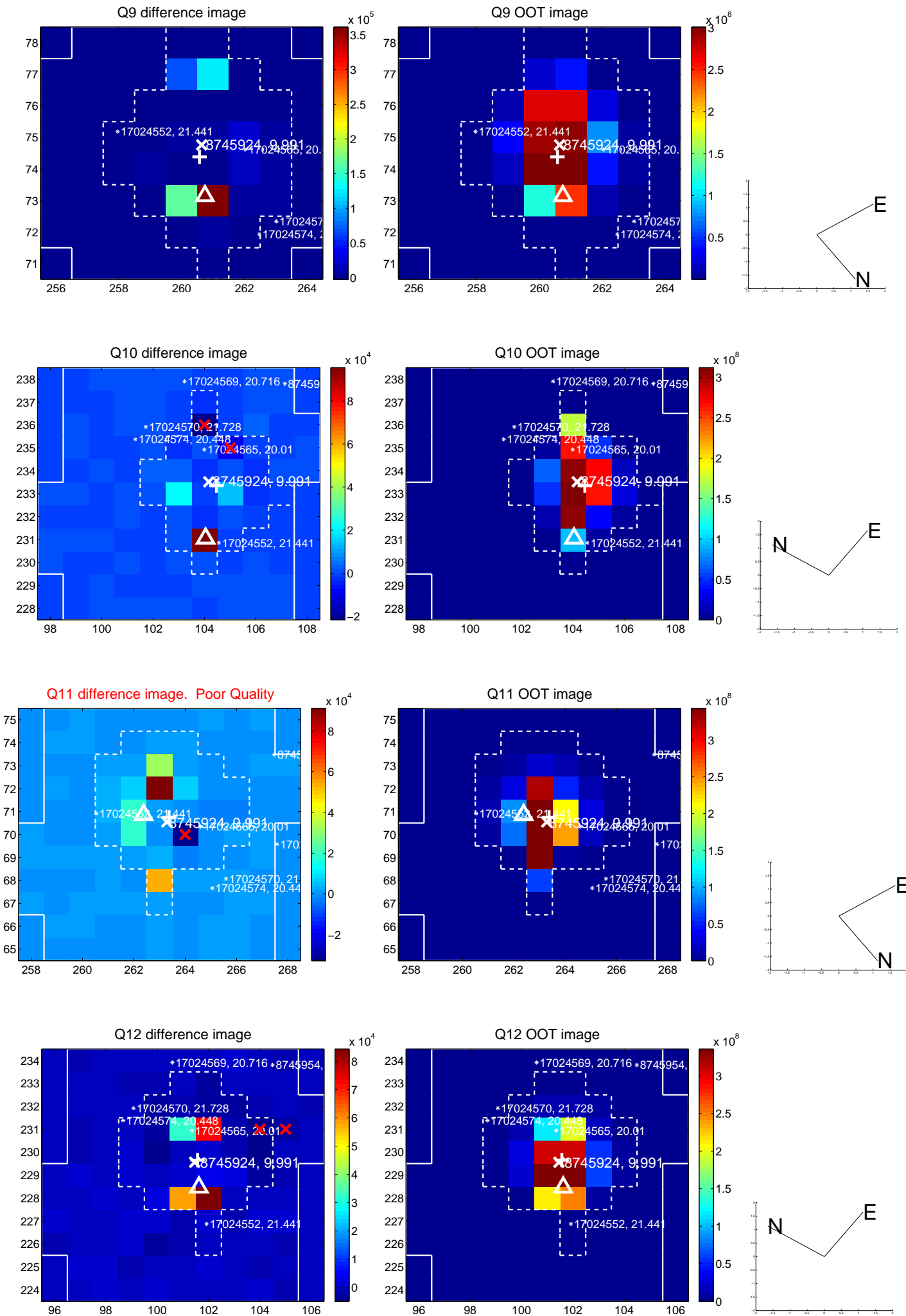
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



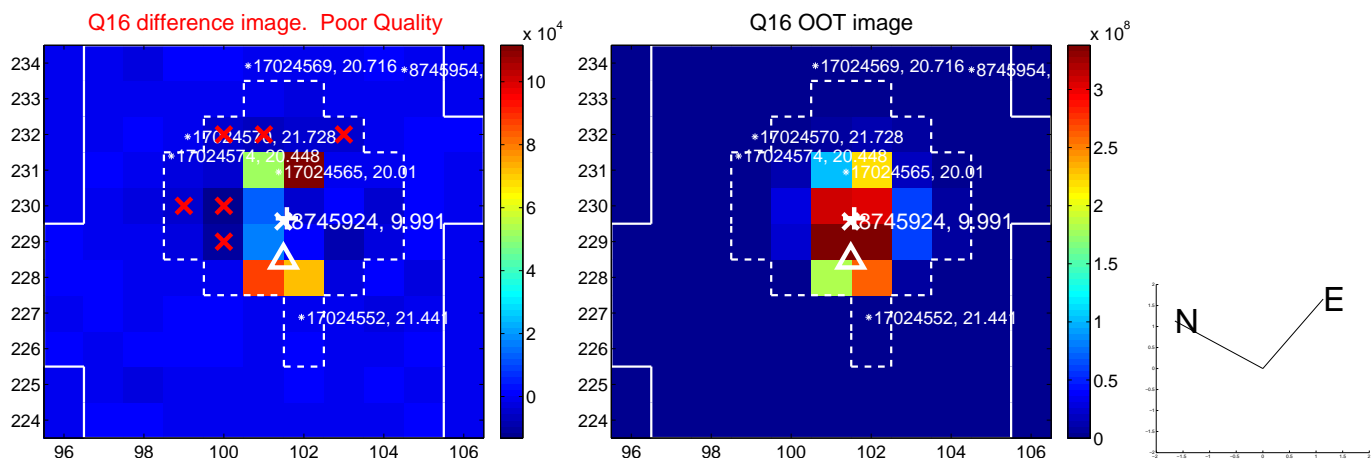
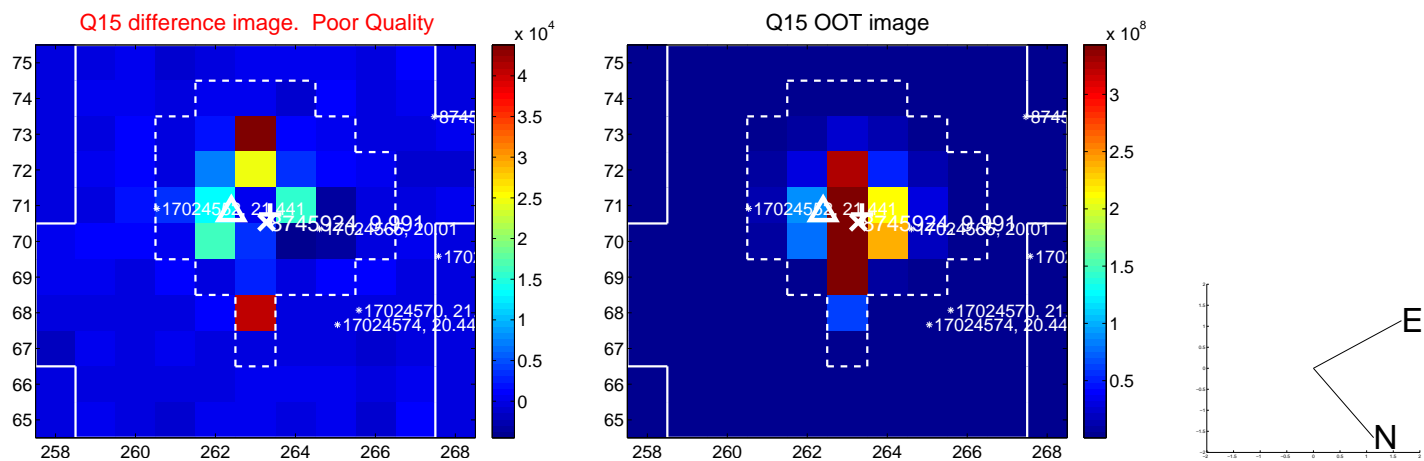
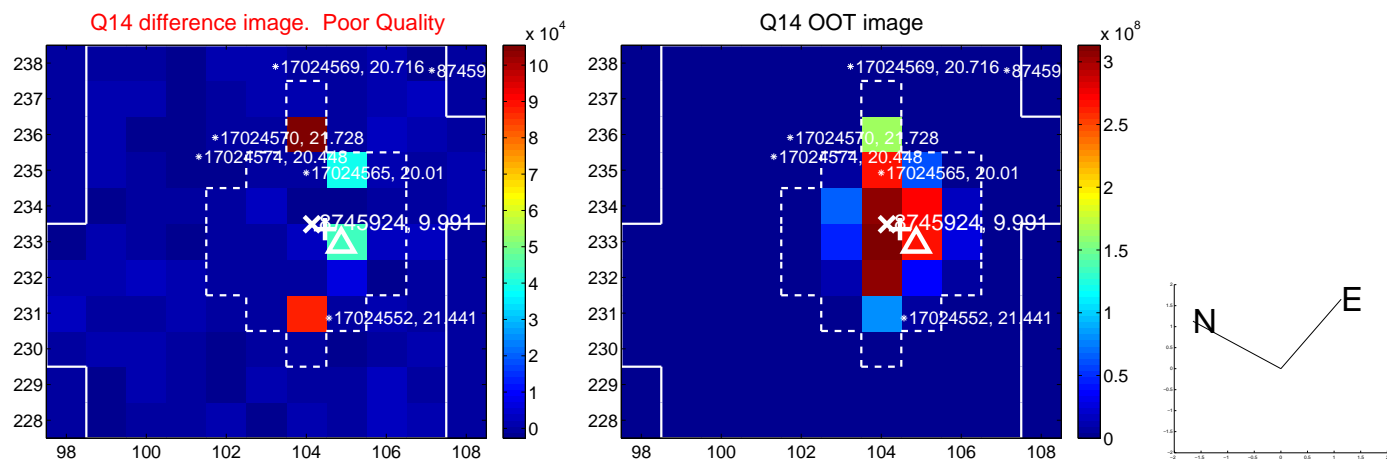
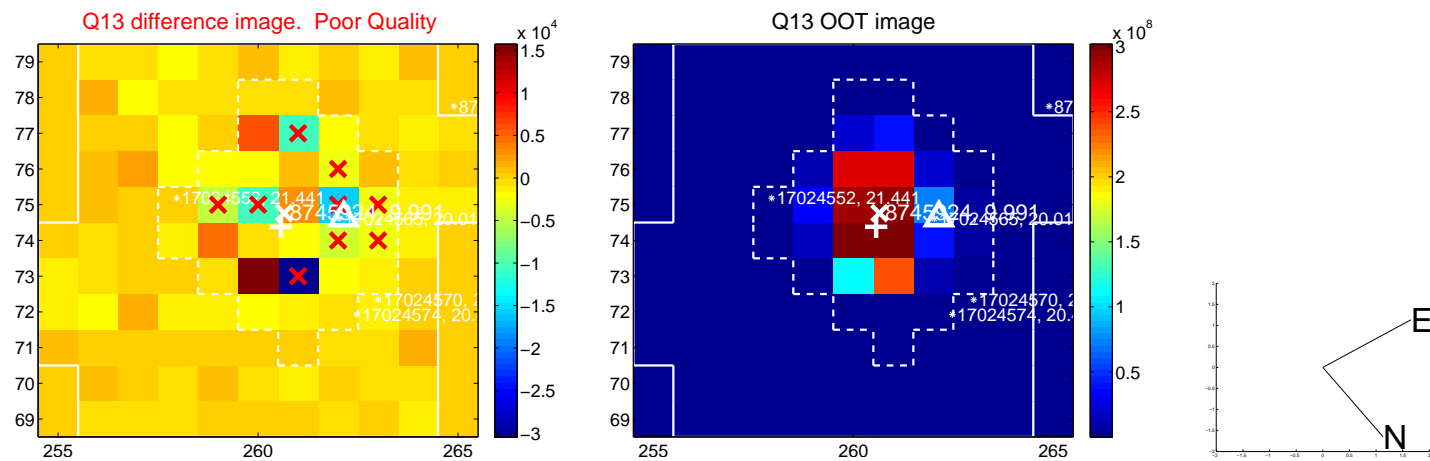
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



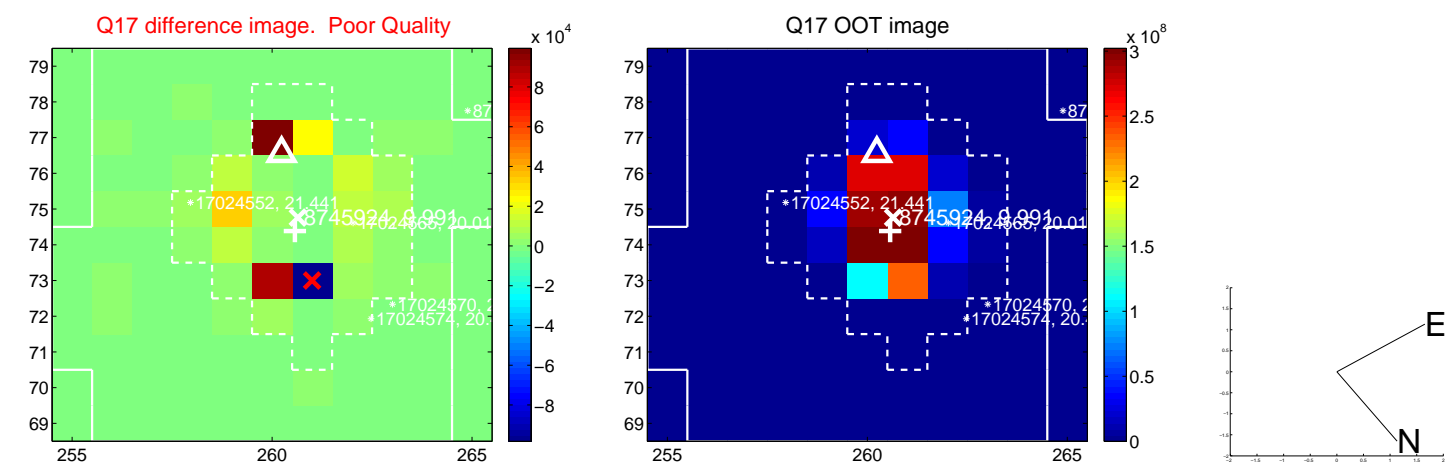
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



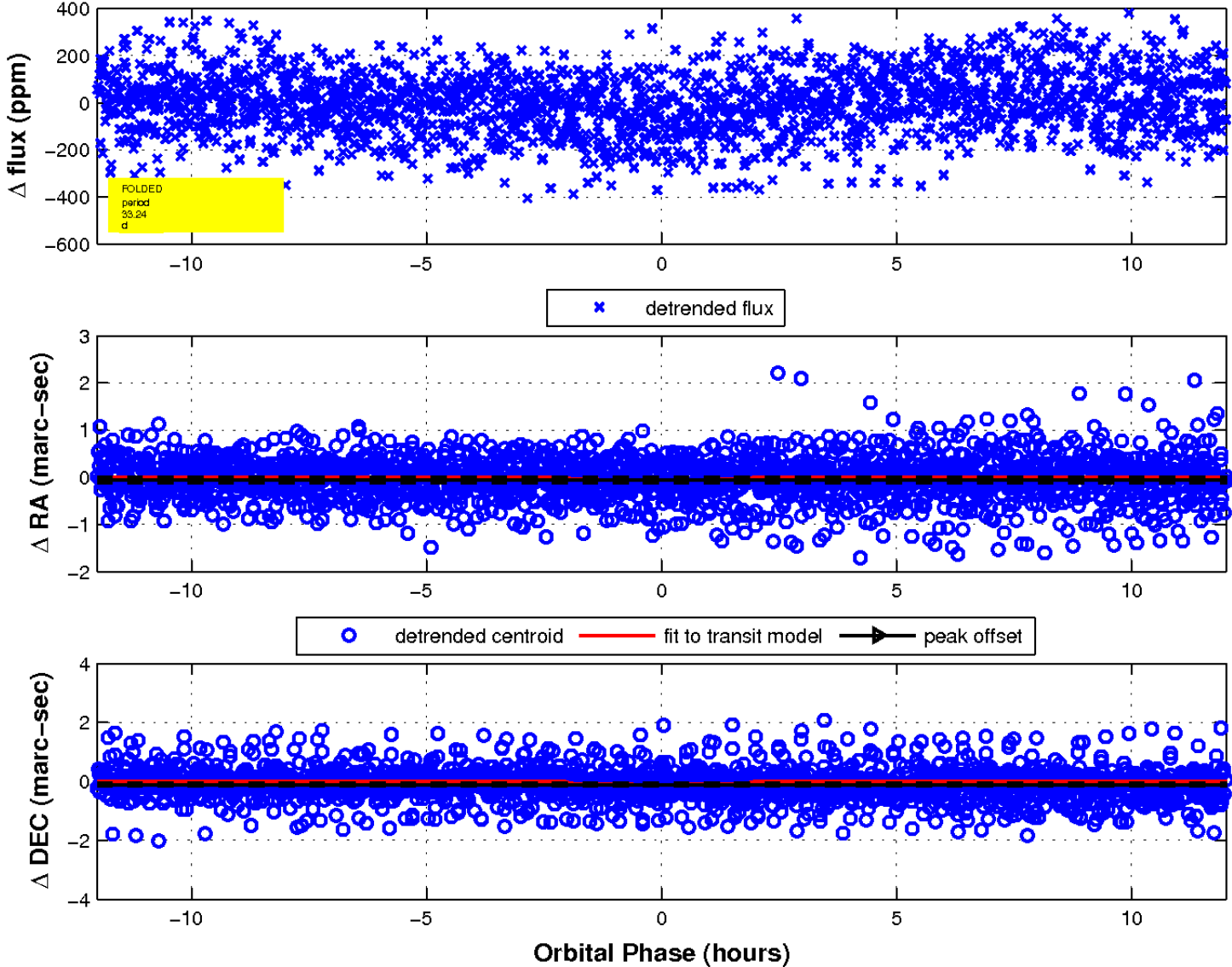
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



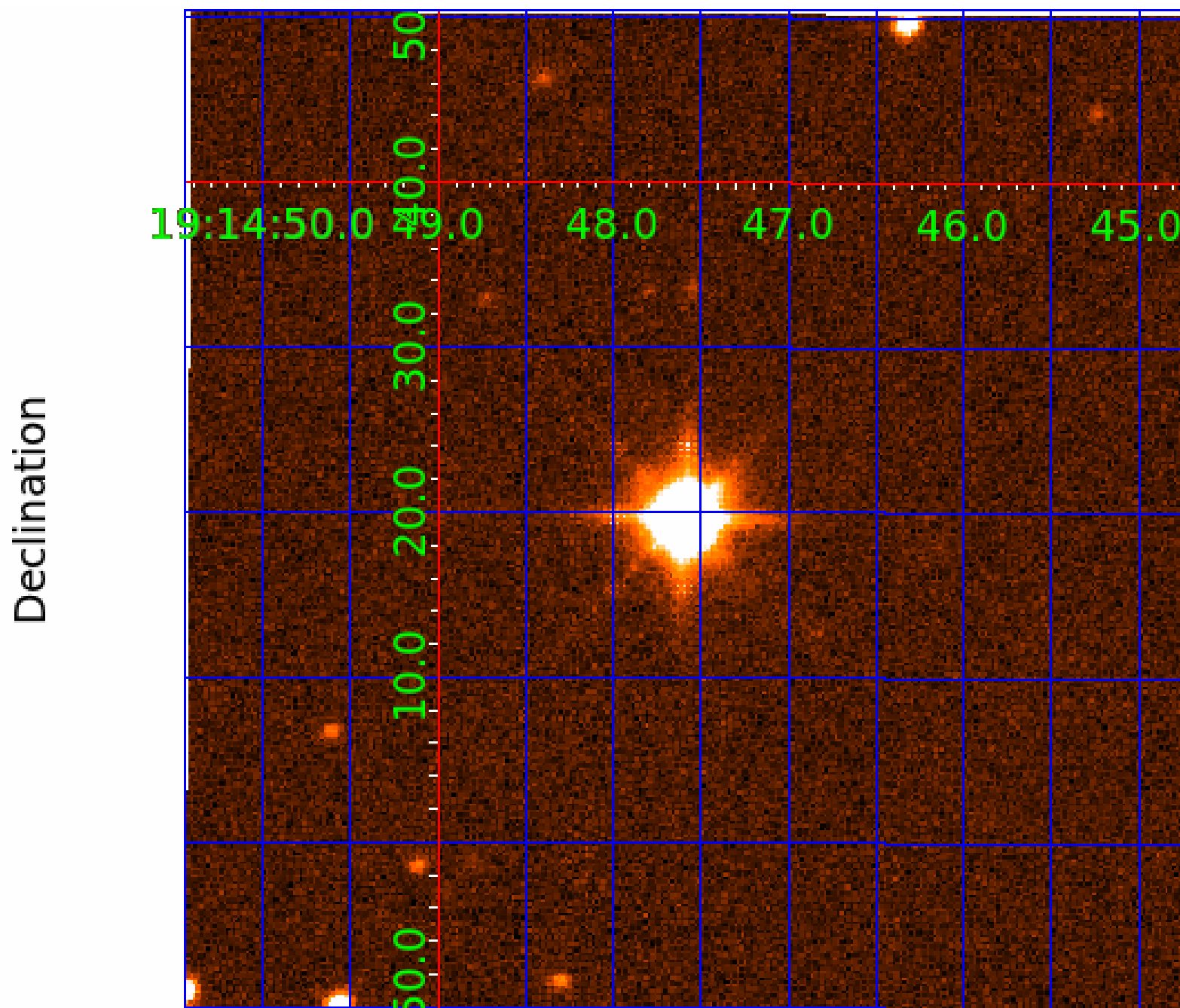
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 8 of 10



UKIRT Image



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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

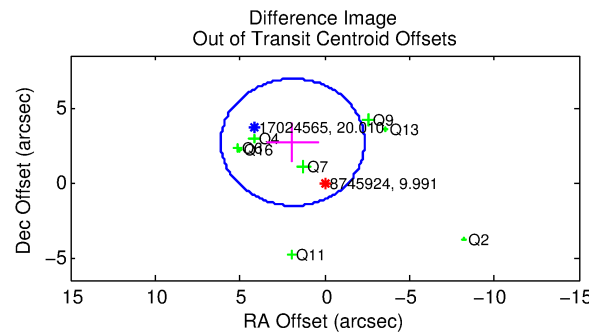
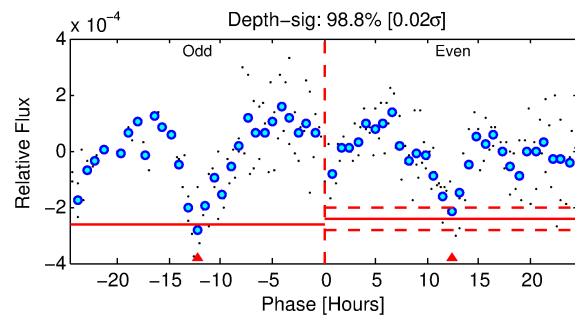
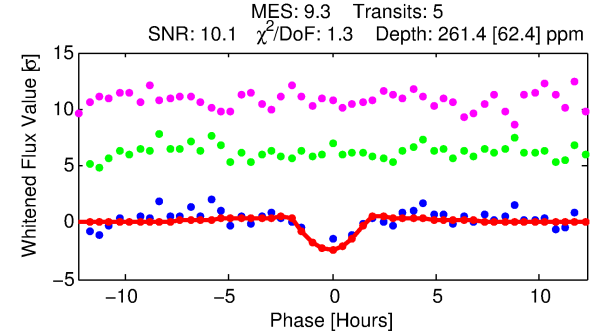
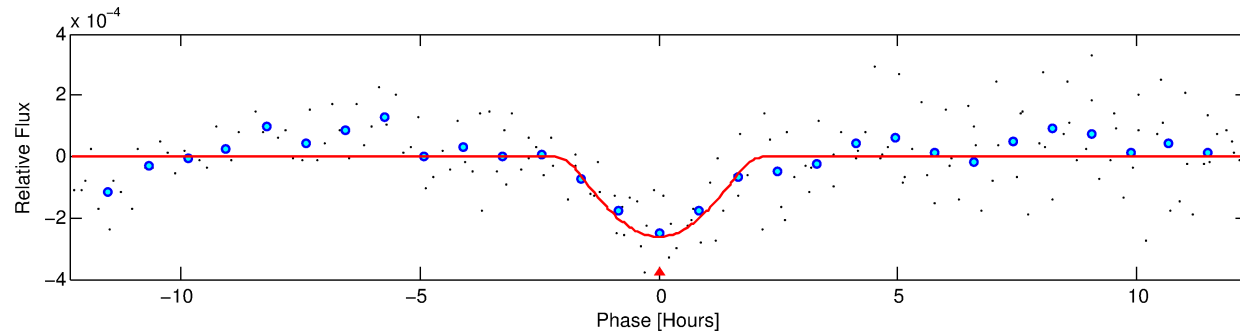
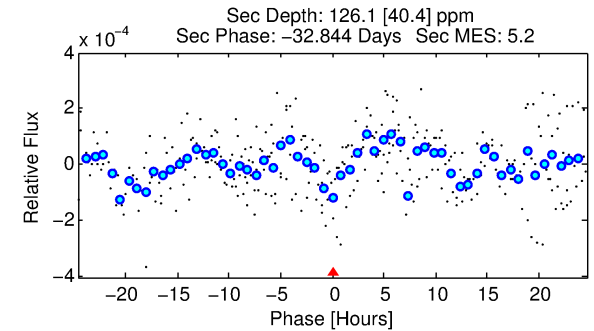
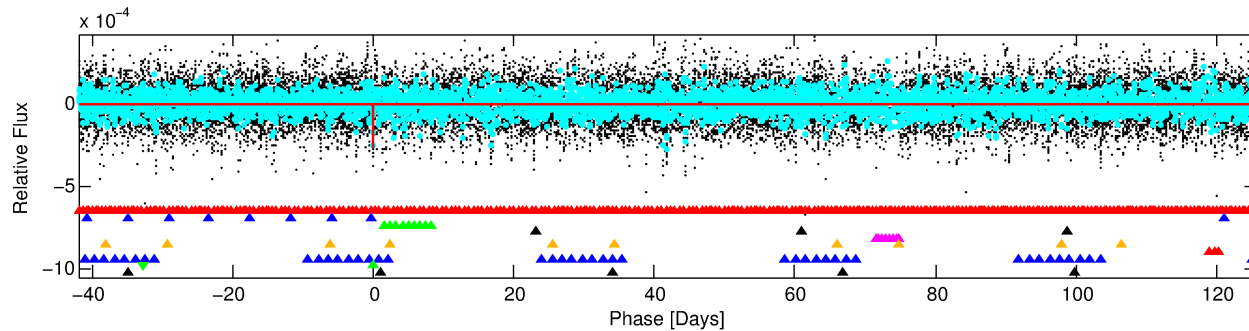
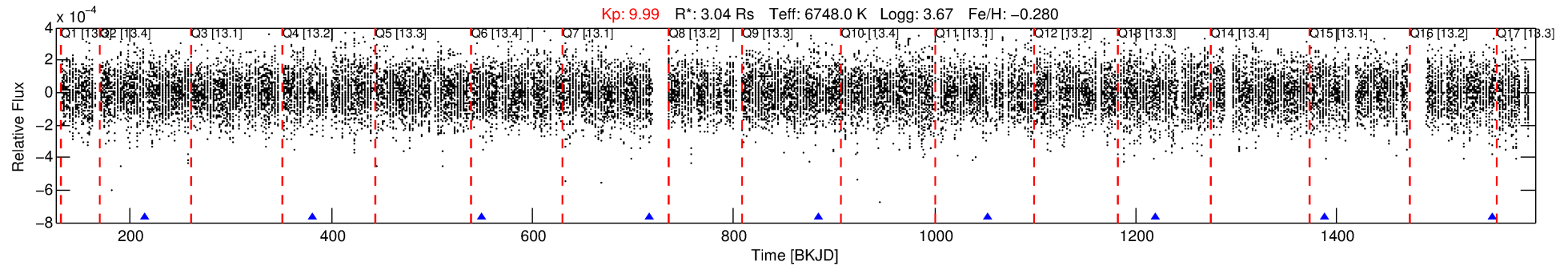
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-09

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 9 of 10 Period: 167.635 d



DV Fit Results:

Period = 167.63462 [0.00200] d
Epoch = 214.0334 [0.0100] BKJD
Rp/R* = 0.0244 [0.0399]
a/R* = 78.88 [45.30]
b = 0.99 [0.07]
Seff = 35.93 [20.20]
Teq = 624 [88] K
Rp = 8.10 [13.55] Re
a = 0.6906 [0.2403] AU
Ag = 504.30 [1676.11] [0.30σ]
Teffp = 4574 [3751] K [1.05σ]

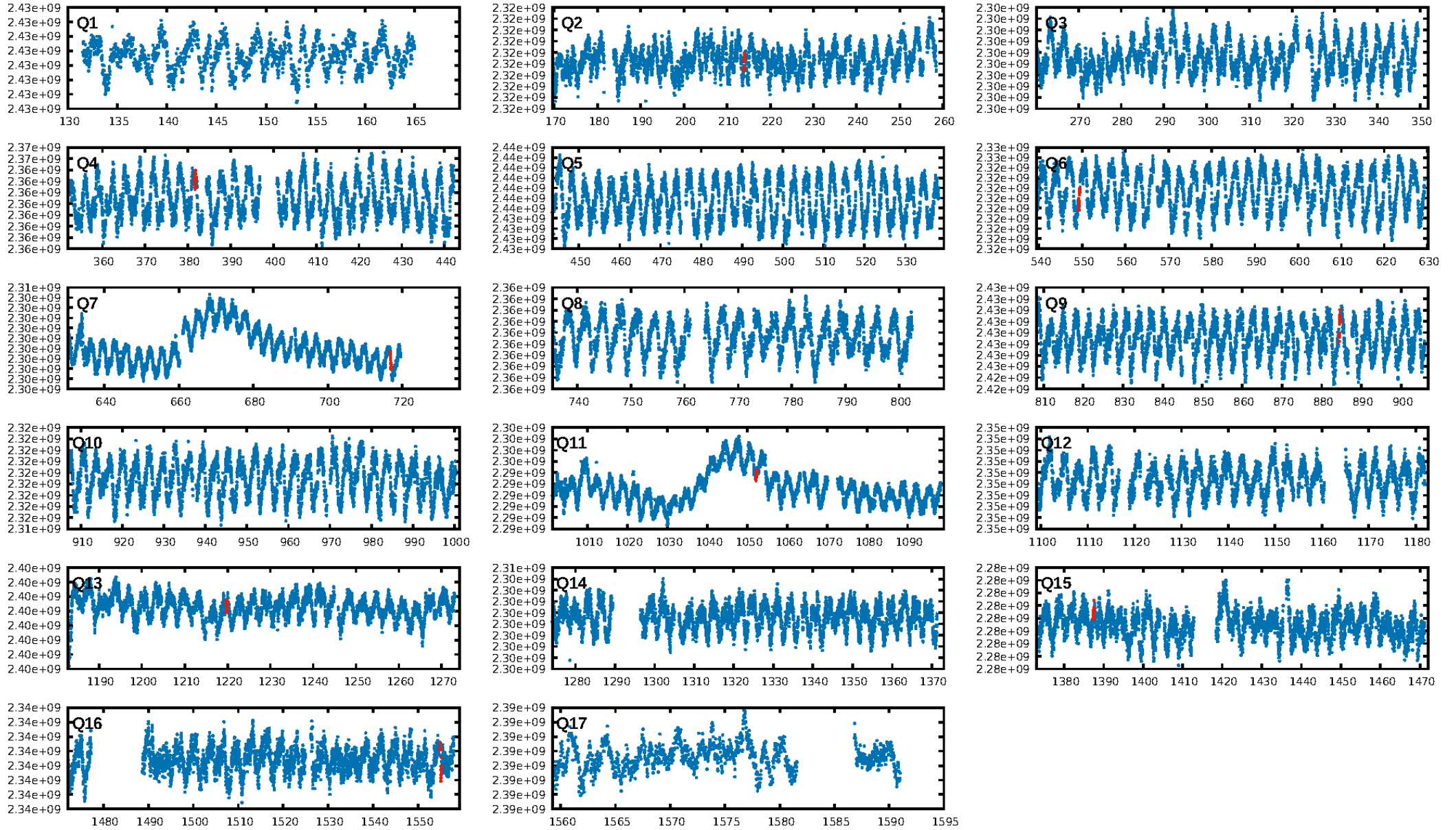
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [23.09σ]
LongPeriod-sig: 58.8% [0.82σ]
ModelChiSquare2-sig: 98.5%
ModelChiSquareGof-sig: 98.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.09722
Centroid-sig: 93.8%
Centroid-so: 0.322 arcsec [0.64σ]
OotOffset-rm: 3.285 arcsec [2.33σ]
OotOffset-st: 2/2/2 [8]
KicOffset-rm: 2.726 arcsec [1.93σ]
KicOffset-st: 2/2/2 [8]
DiffImageQuality-fgm: 0.25 [2/8]
DiffImageOverlap-fno: 0.62 [5/8]

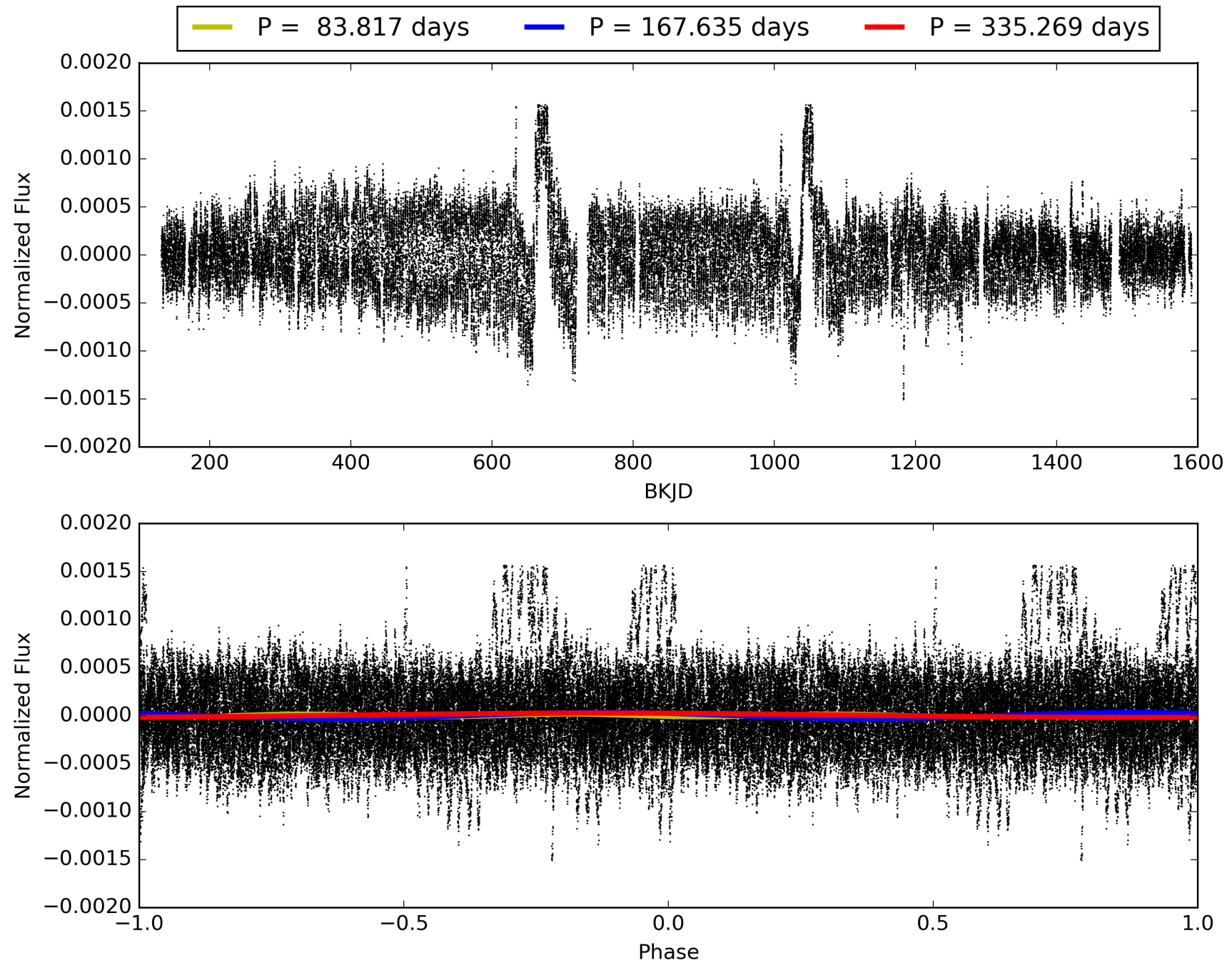
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:56:27 Z

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

TCE 008745924-09, PDC Light Curves

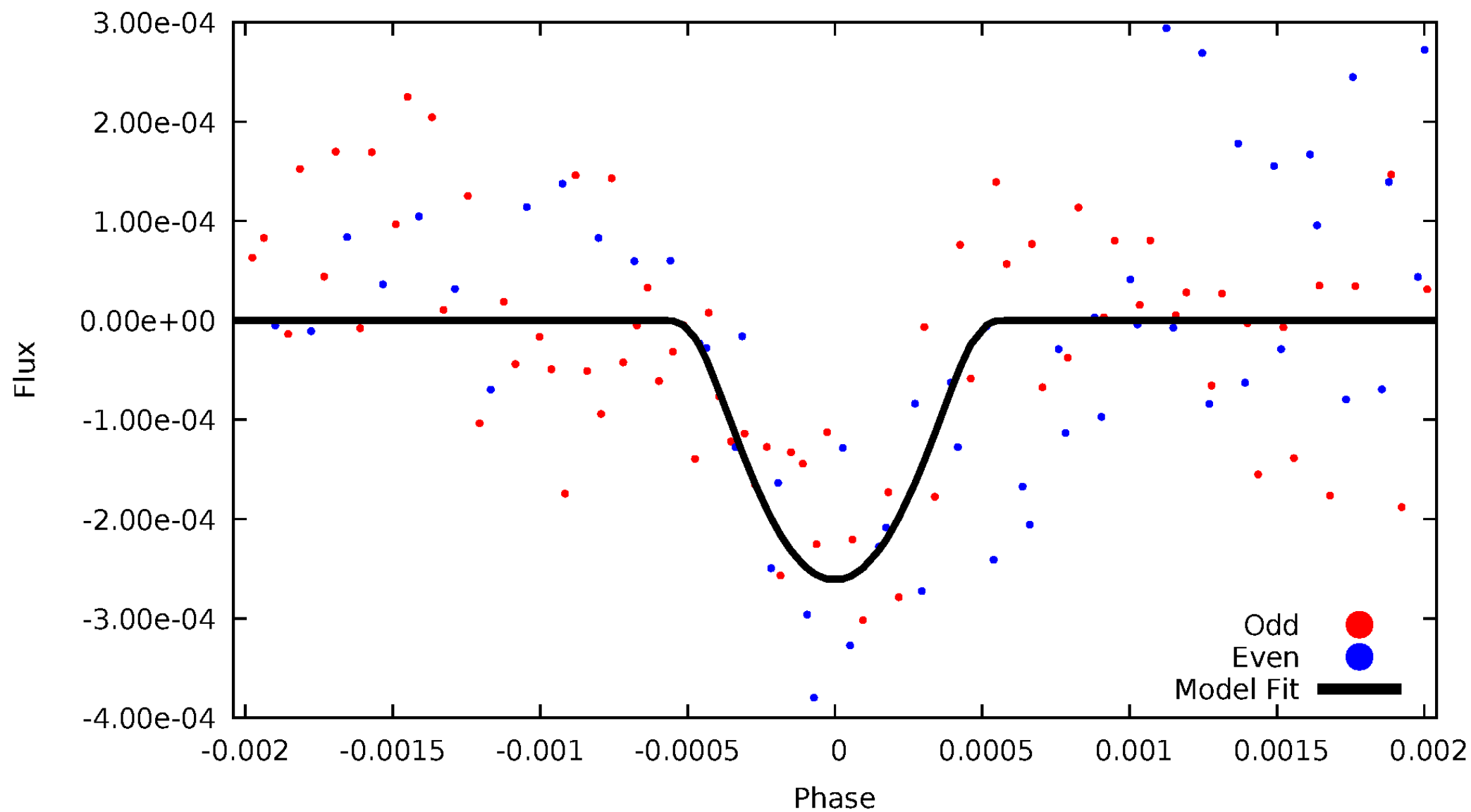


TCE 008745924-09



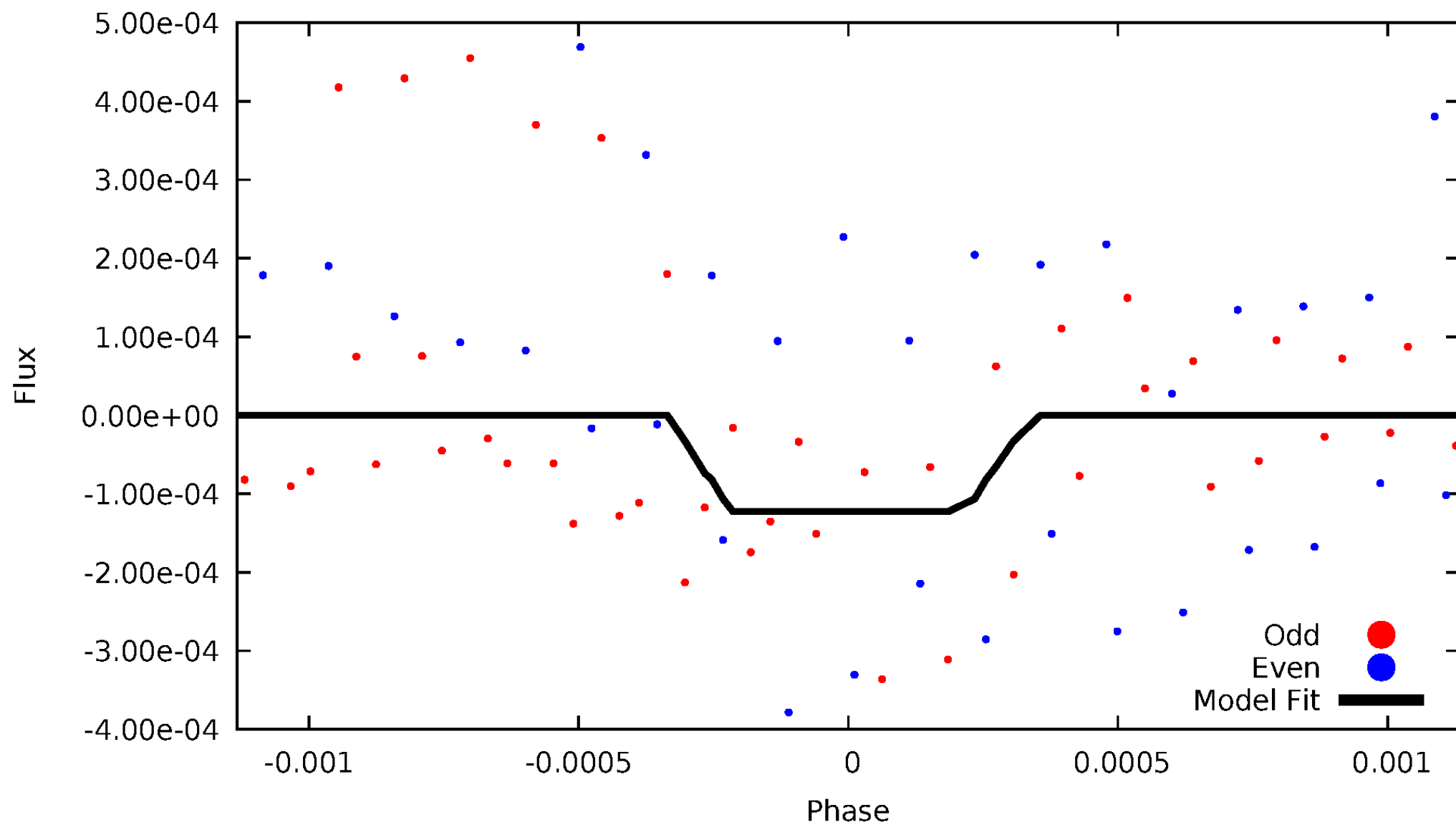
DV Odd/Even

TCE 008745924-09



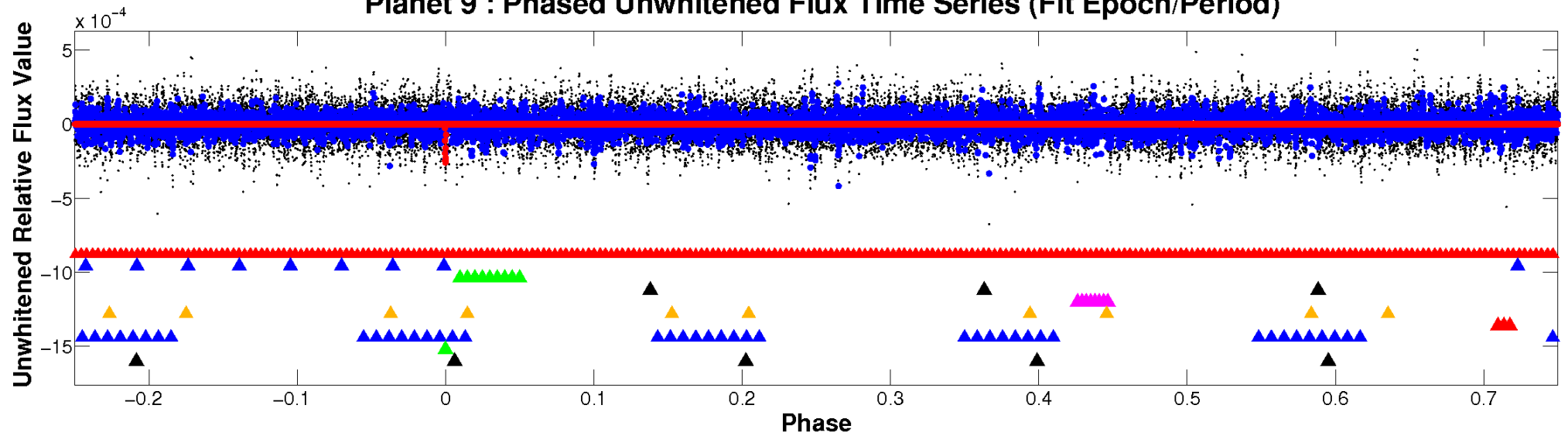
ALT Odd/Even

TCE 008745924-09

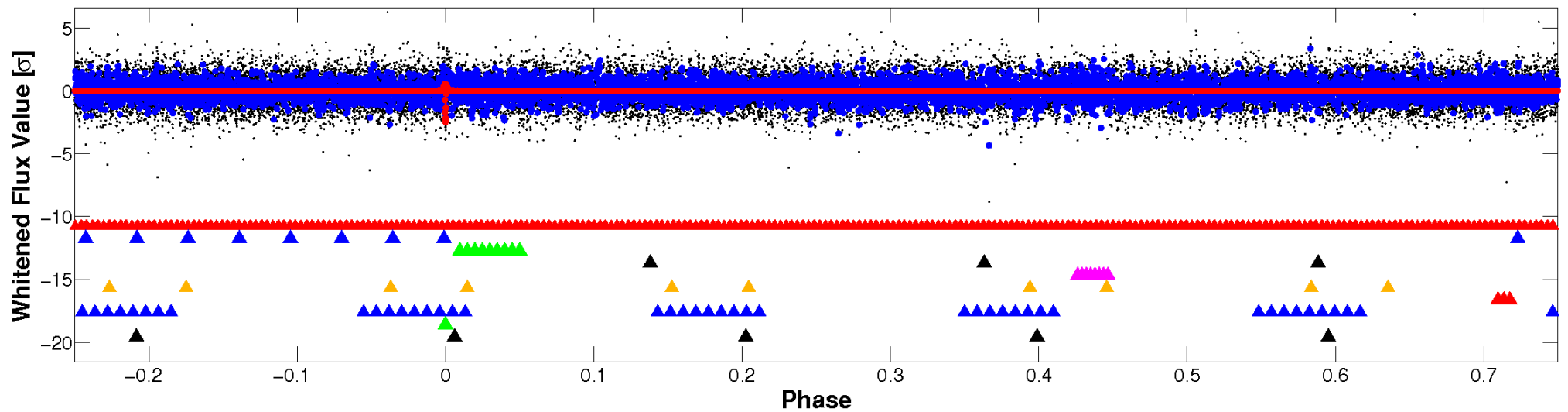


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

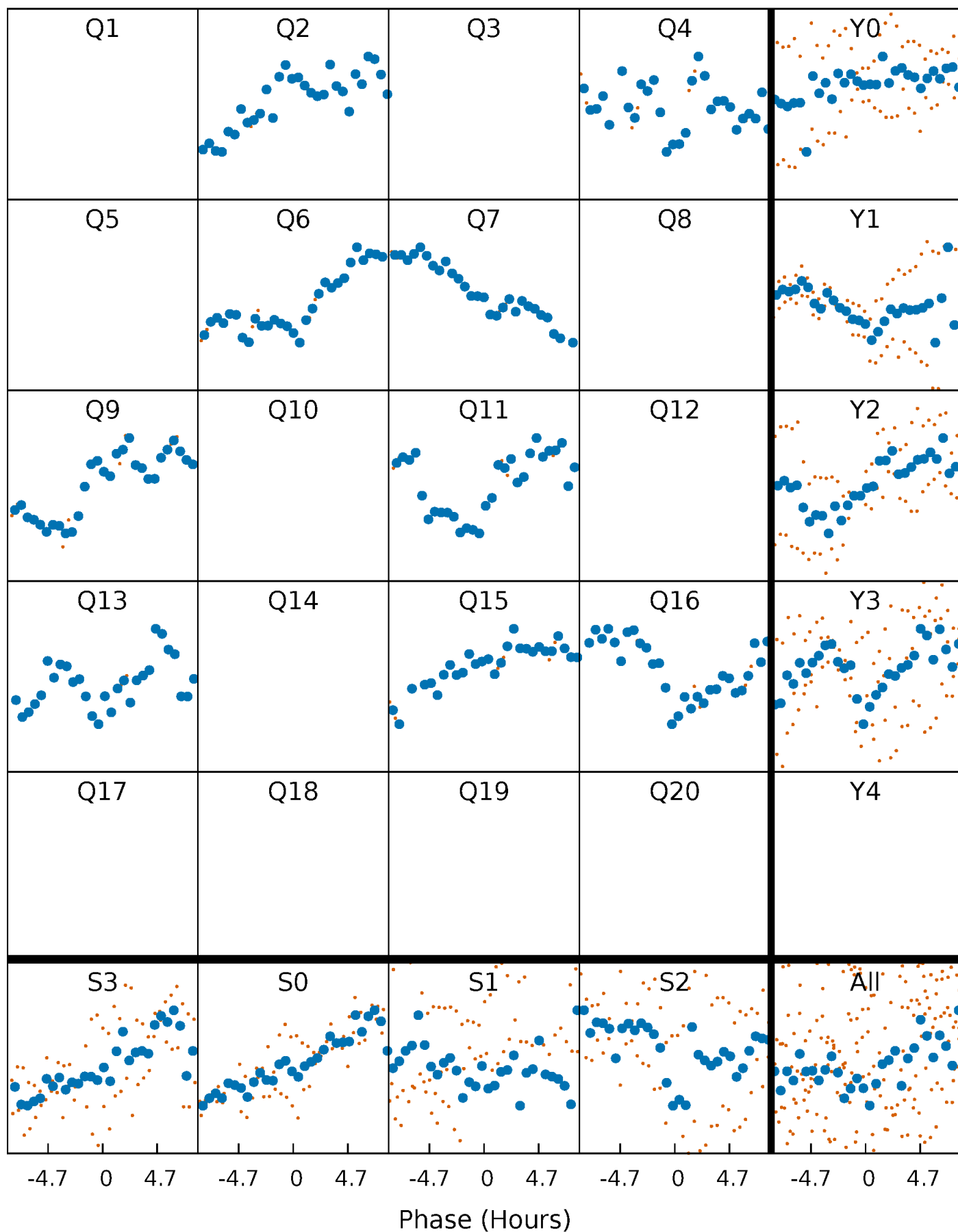


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



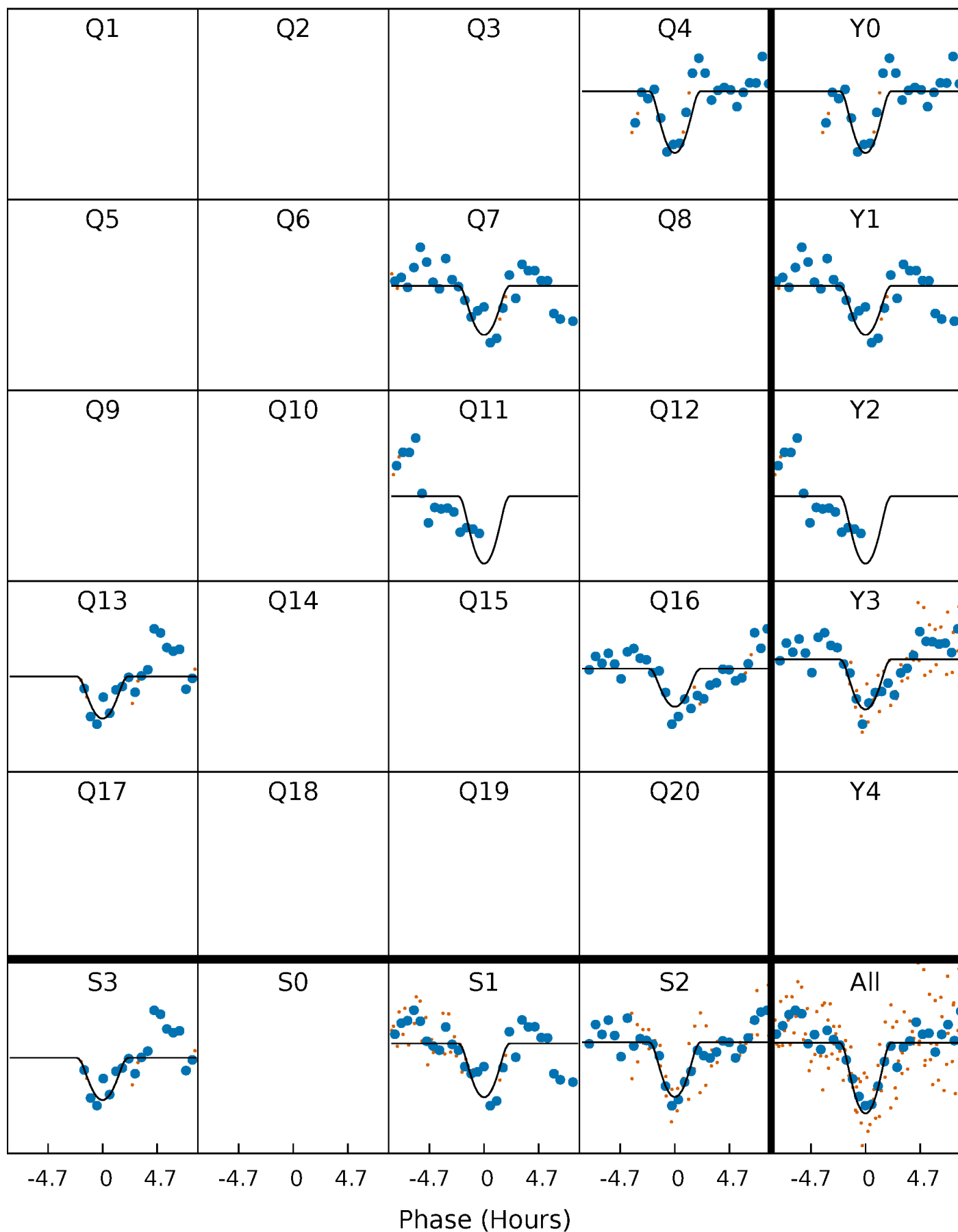
PDC Quarter-Phased Transit Curves

TCE 008745924-09 P=167.634615 Days $T_0=214.033419$ (BKJD)



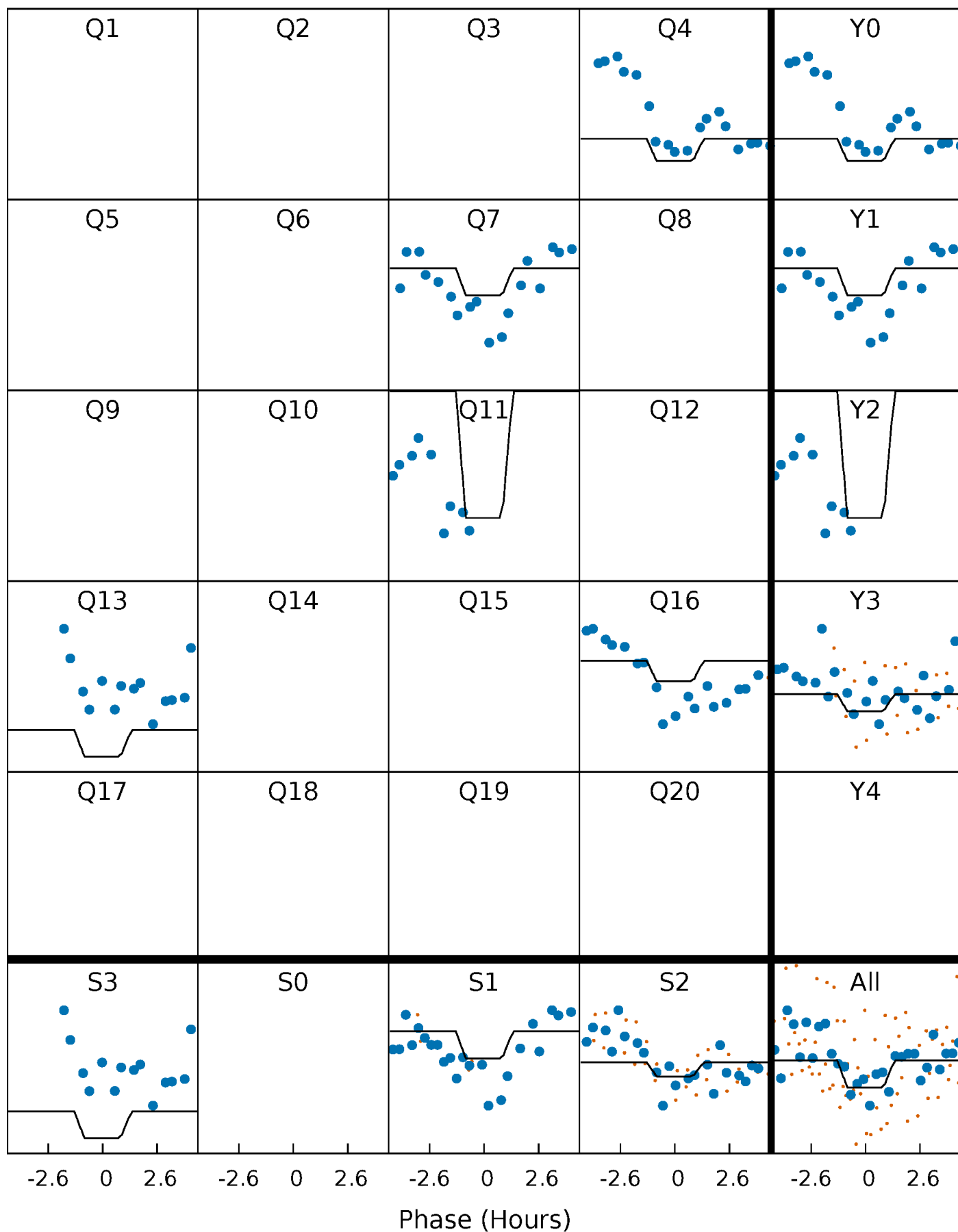
DV Quarter-Phased Transit Curves

TCE 008745924-09 P=167.634615 Days $T_0=214.033419$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

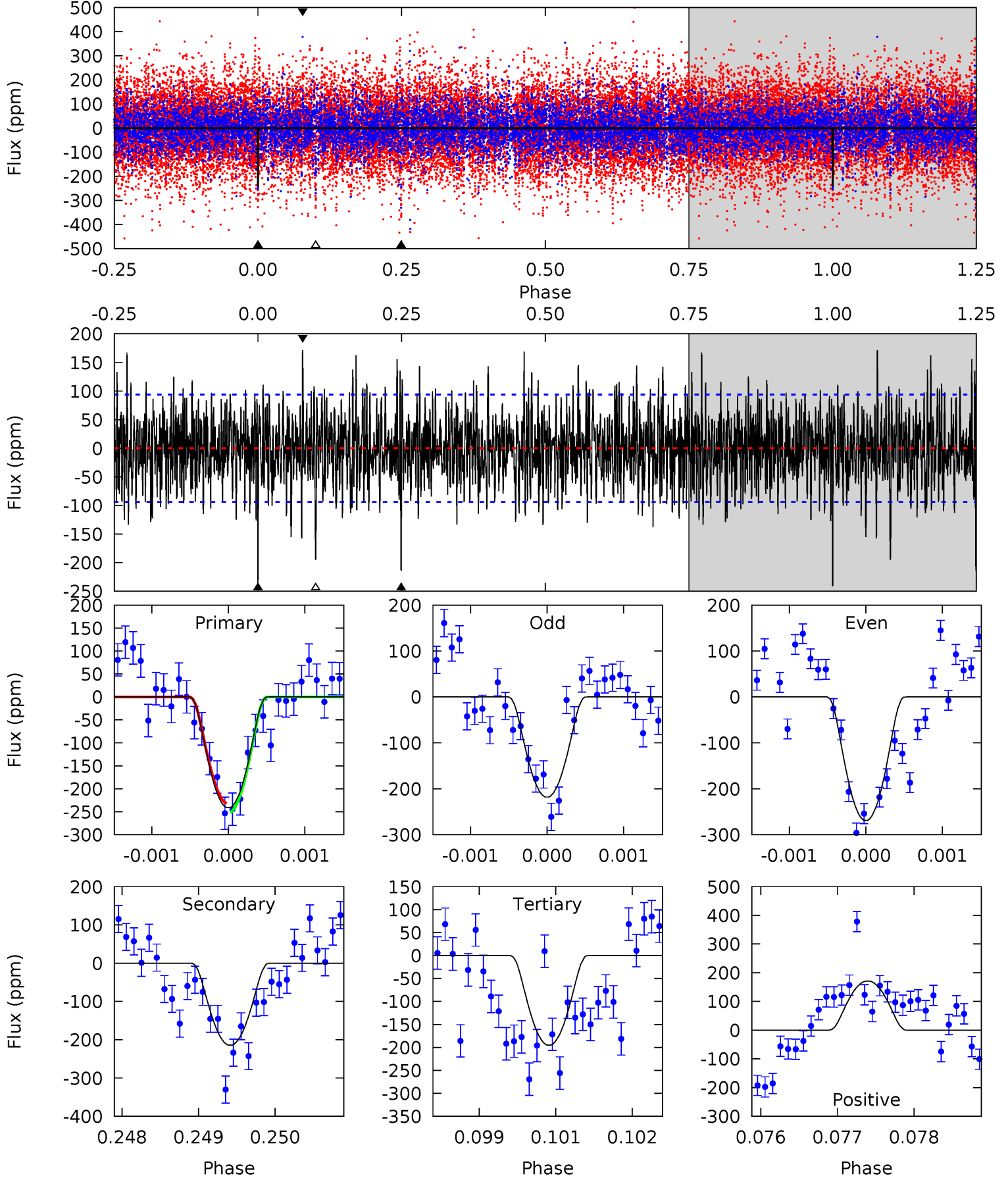
TCE 008745924-09 P=167.634866 Days $T_0=214.038109$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-09, P = 167.634615 Days, E = 46.398804 Days

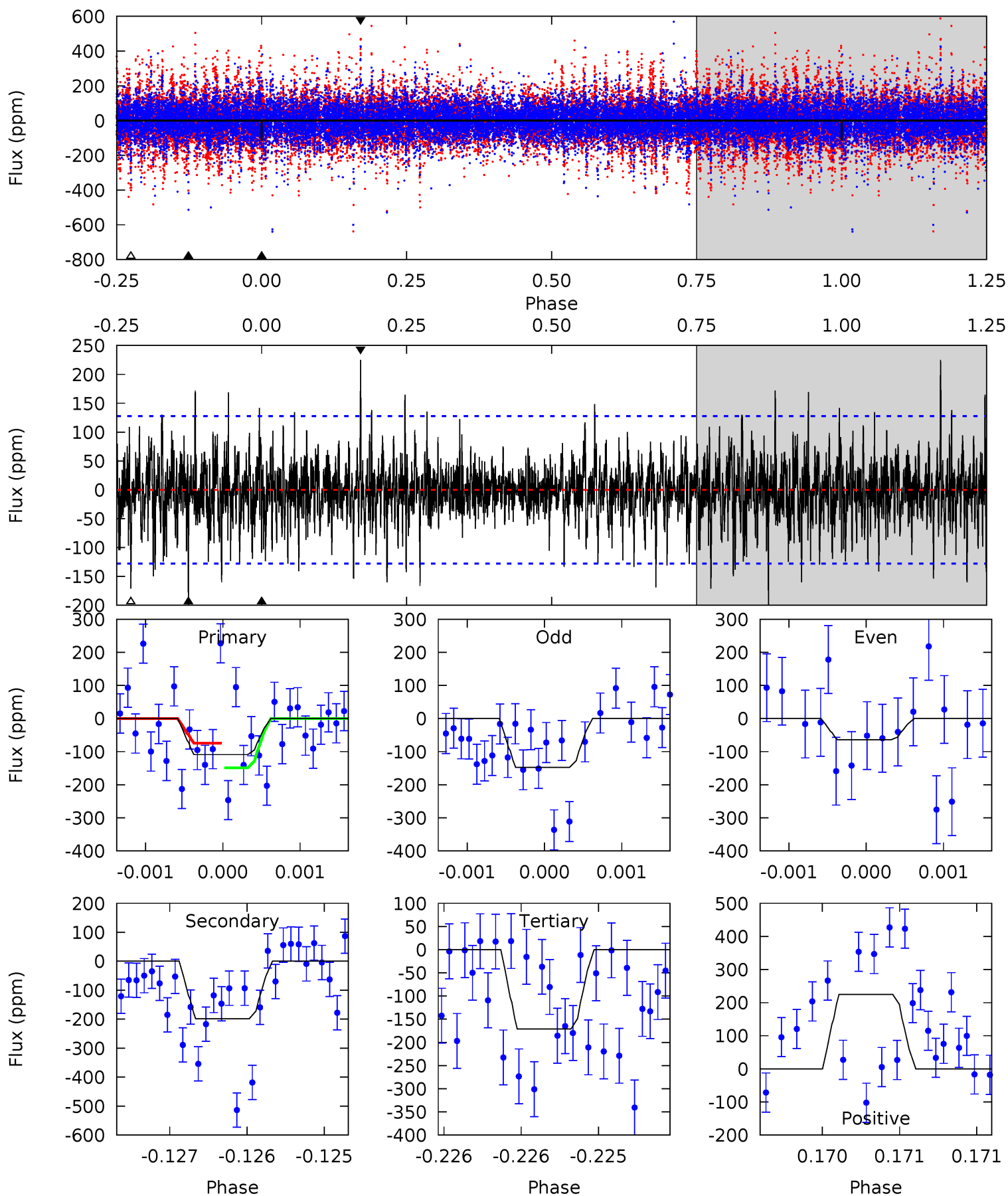
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	12.4	11.3	9.90	5.43	3.26	2.91	2.67	4.06	1.11	2.50	1.47	0.99	0.41	0.57



Alt Model-Shift Uniqueness Test

008745924-09, P = 167.634866 Days, E = 46.403243 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.75	8.62	7.44	9.77	5.55	3.44	1.84	-2.69	-5.03	1.18	-1.15	1.76	0.76	0.53	1.64



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-214±17	$11.61^{+11.24}_{-7.91}$	853^{+43}_{-76}	4376^{+3453}_{-862}	411^{+3895}_{-299}
Alt.	-198±23	$9.49^{+10.62}_{-6.52}$	852^{+49}_{-78}	4665^{+3660}_{-1077}	584^{+5534}_{-453}

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

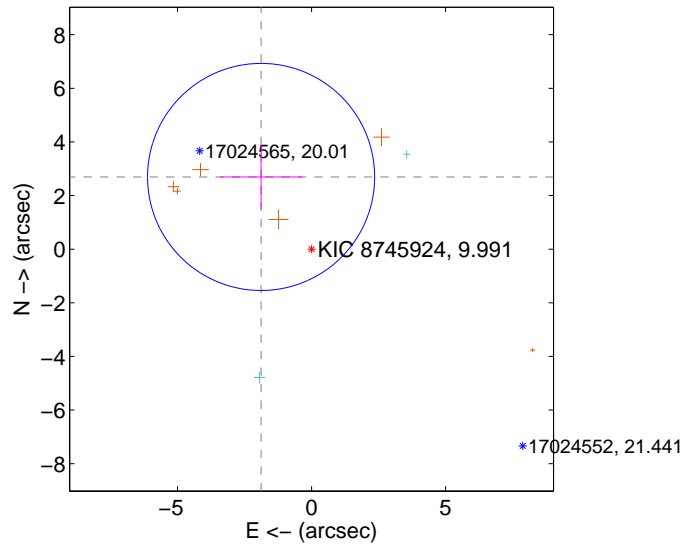
Supplemental centroid analysis for 008745924-09. **Kepler magnitude: 9.99.** Transit SNR 10.12

There are 2 quarters with good PRF difference image offsets

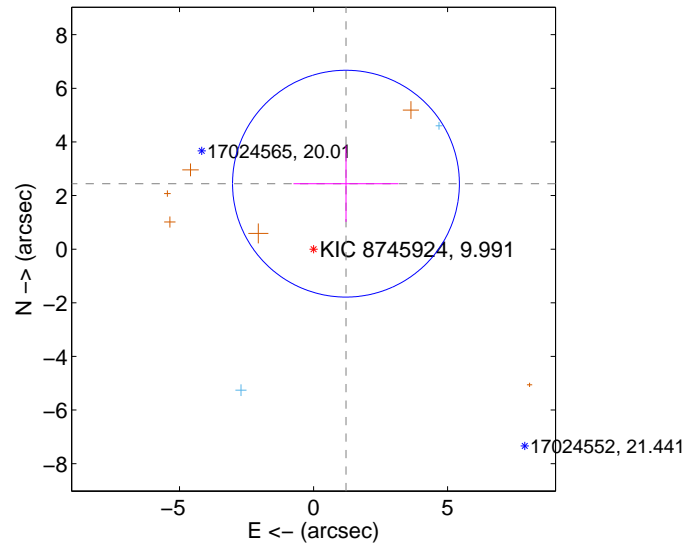
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.285 ± 1.412	2.33	1.881 ± 1.537	2.693 ± 1.198
PRF-fit source offset from KIC position	2.726 ± 1.410	1.93	-1.209 ± 1.958	2.443 ± 1.425
photometric centroid source offset	0.32 ± 0.50	0.64	-0.20 ± 0.55	-0.25 ± 0.47

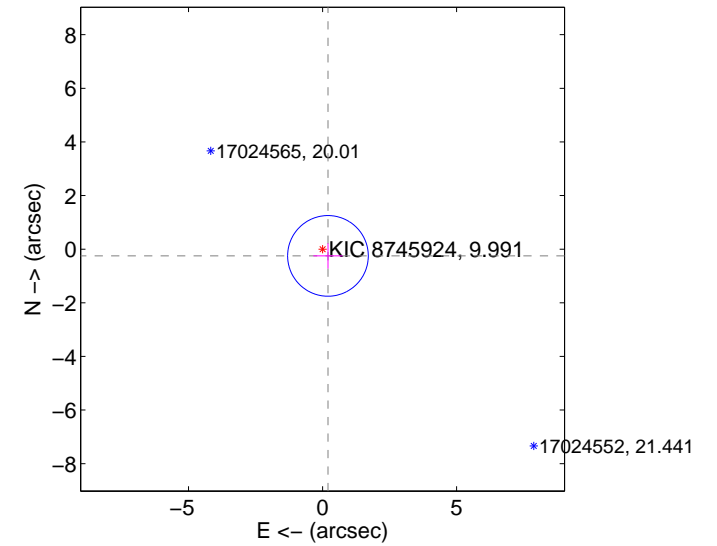
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

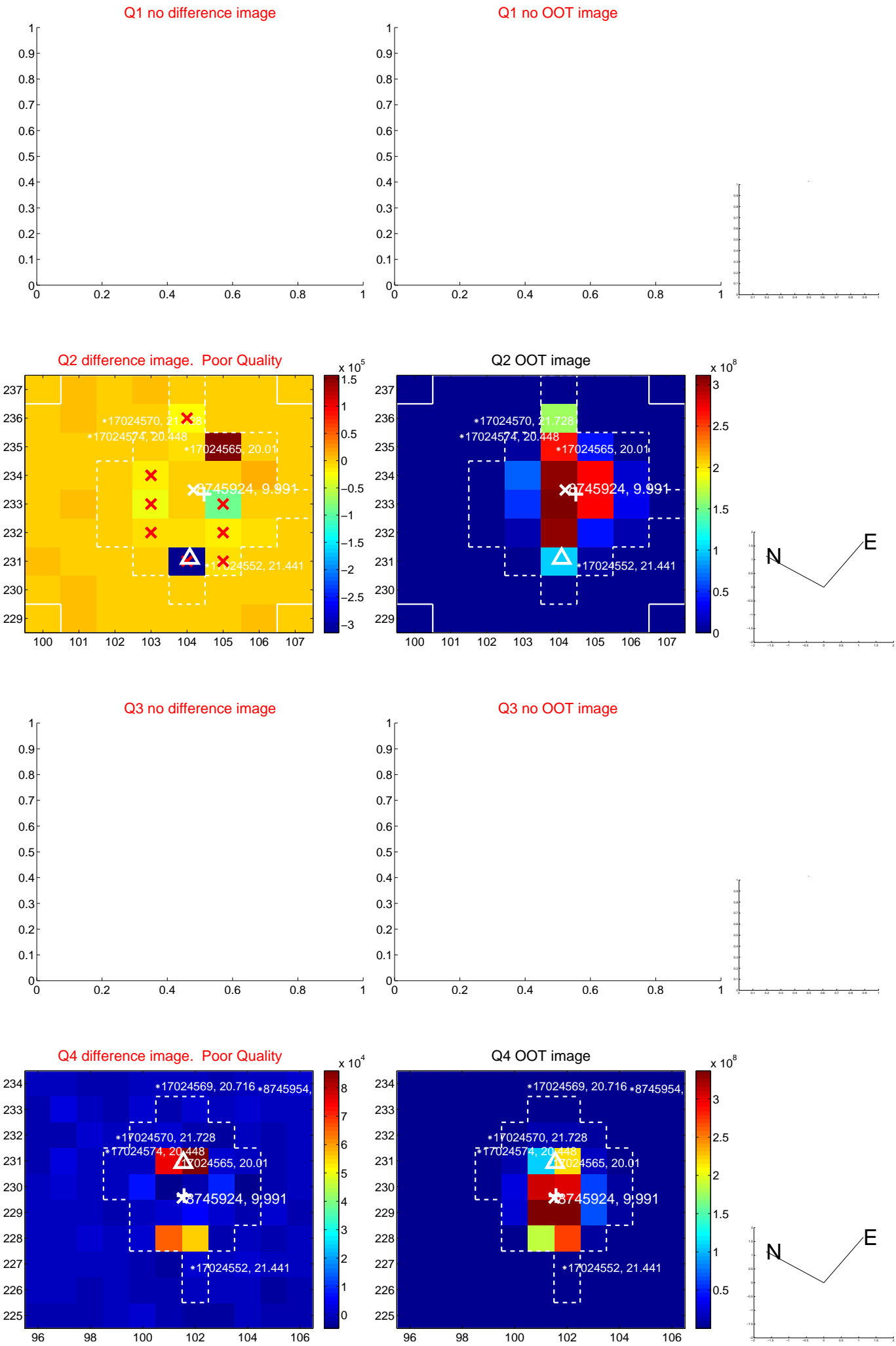


offset from photometric centroids



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.

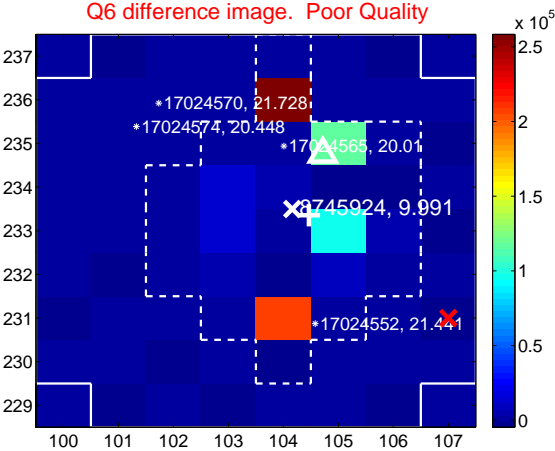
Q5 no difference image



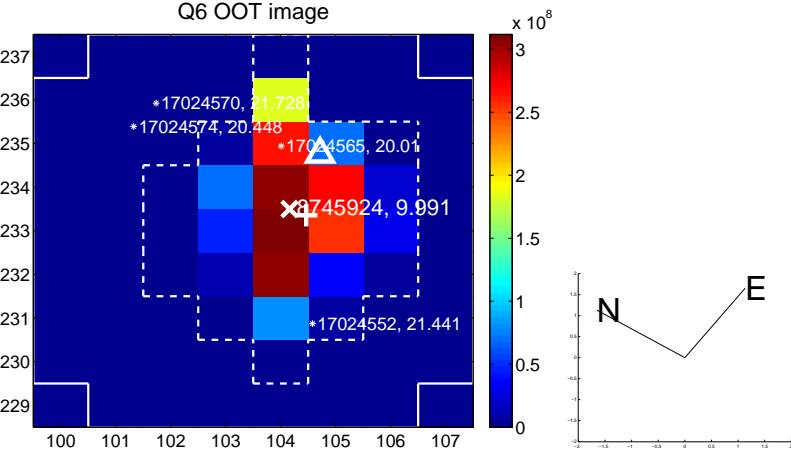
Q5 no OOT image



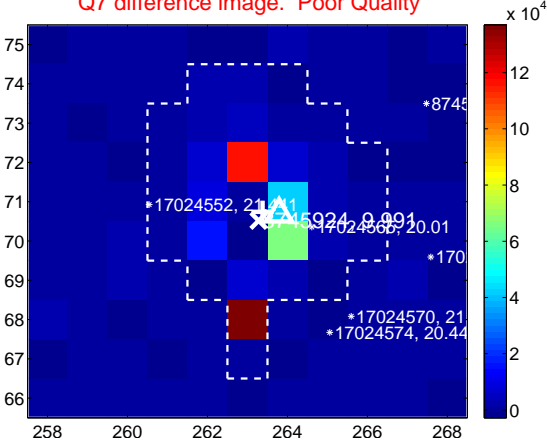
Q6 difference image. Poor Quality



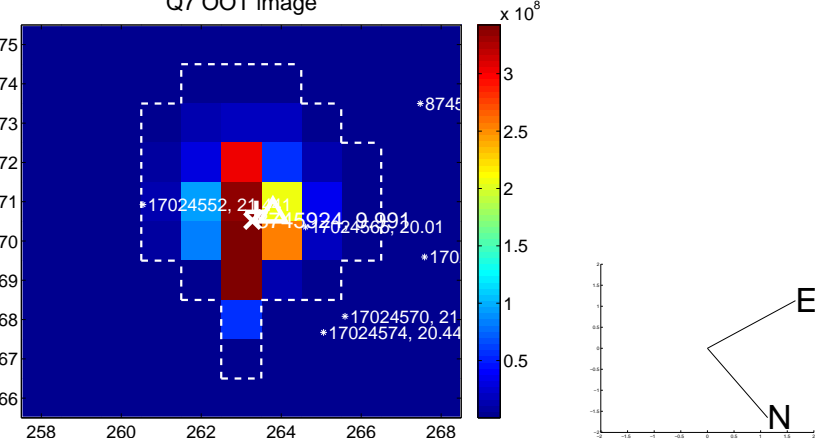
Q6 OOT image



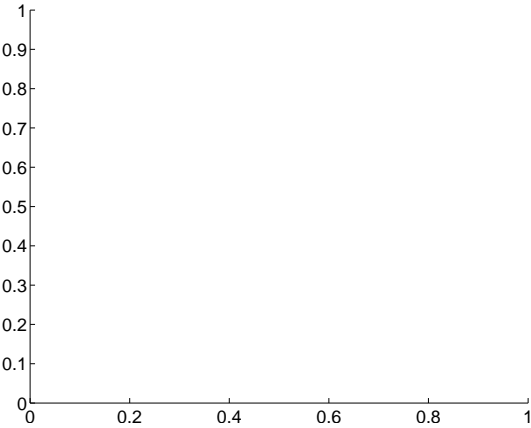
Q7 difference image. Poor Quality



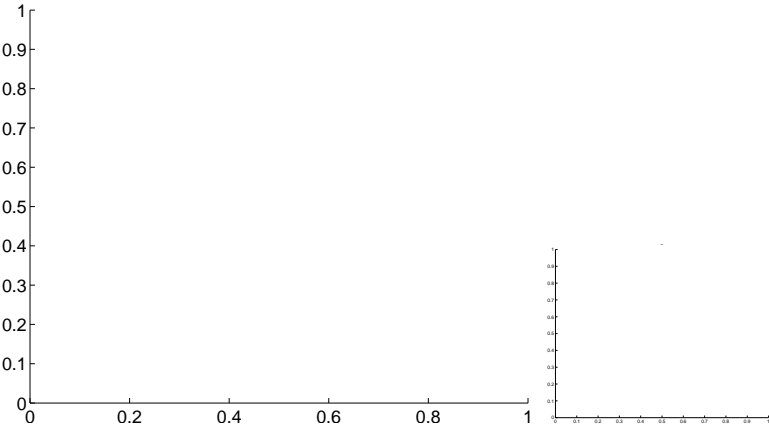
Q7 OOT image



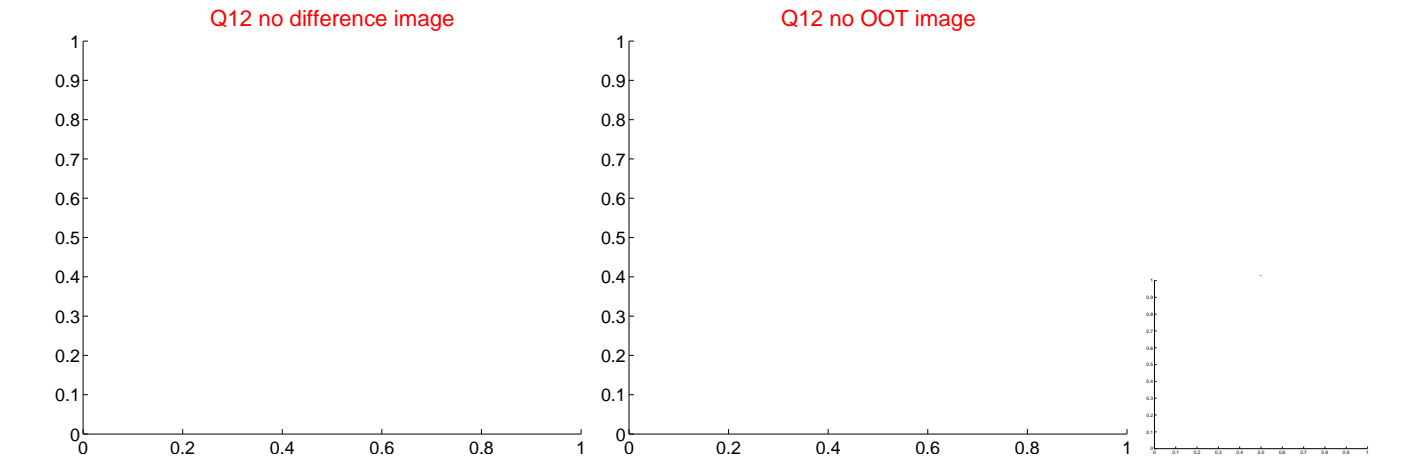
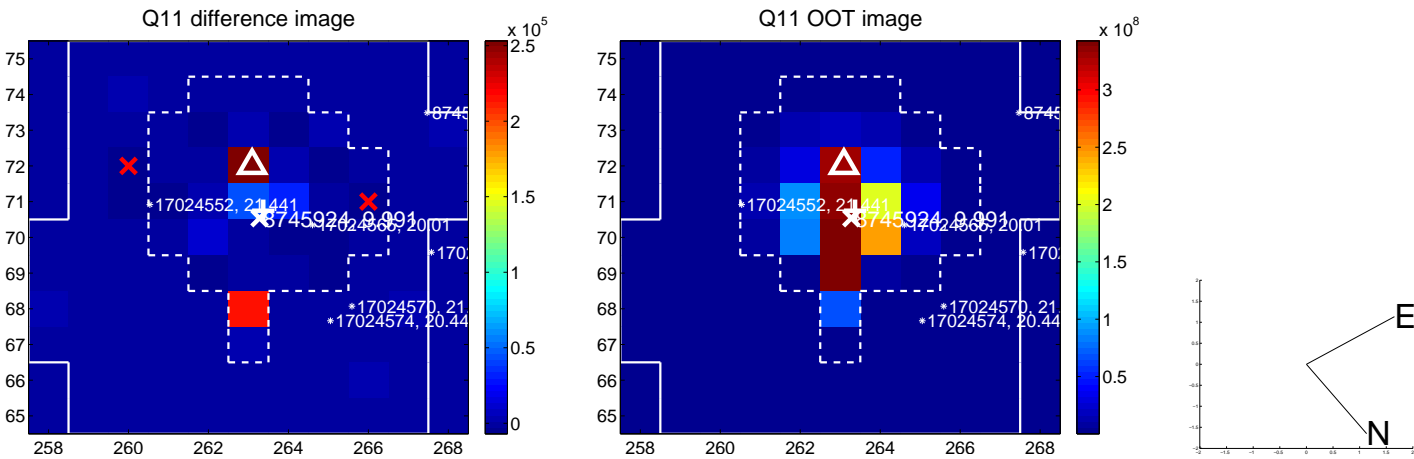
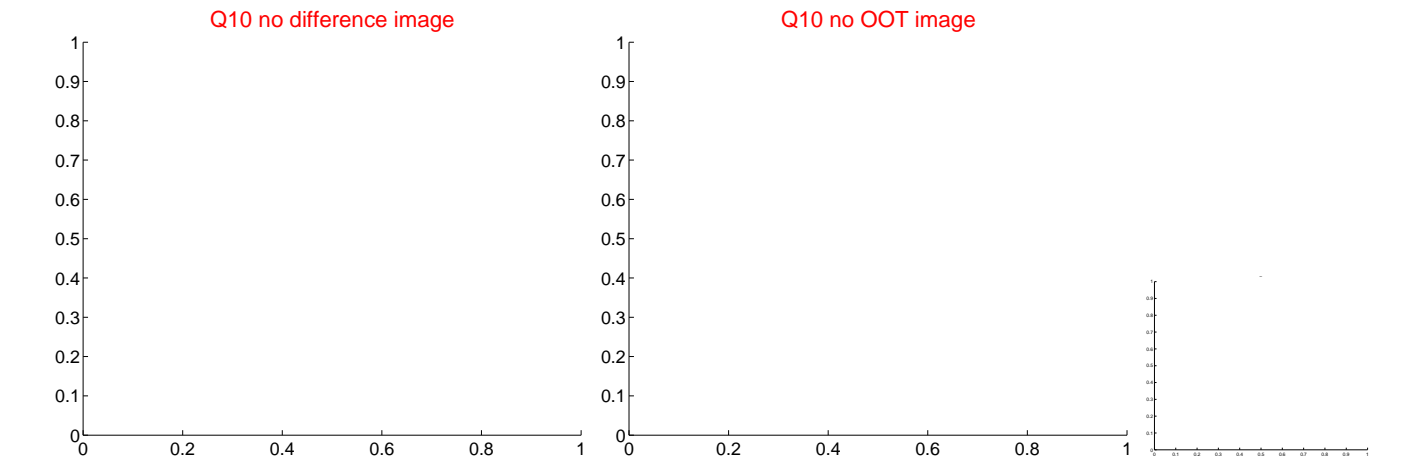
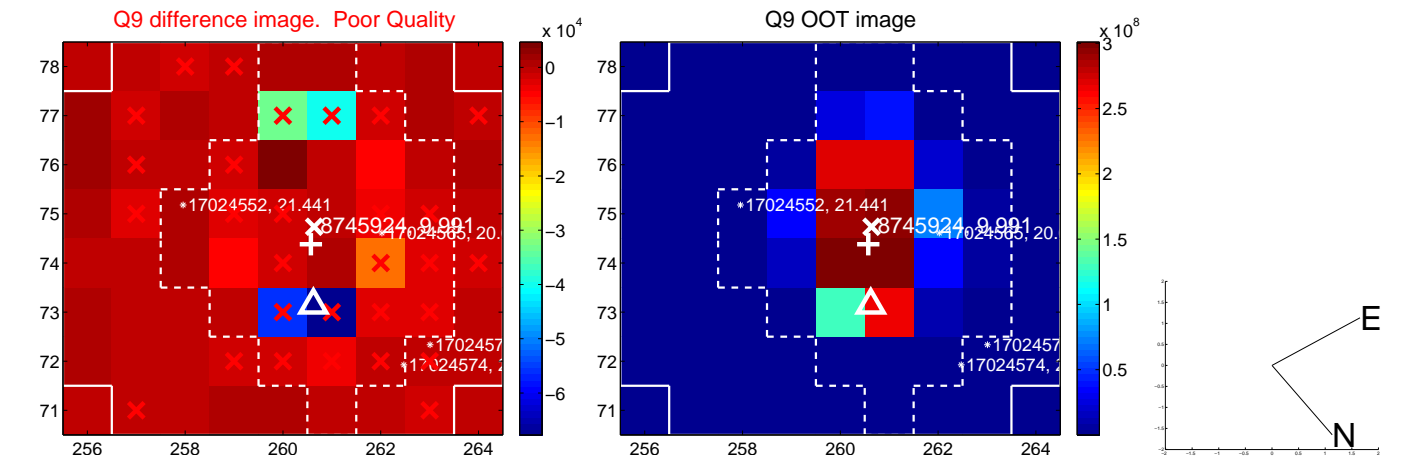
Q8 no difference image



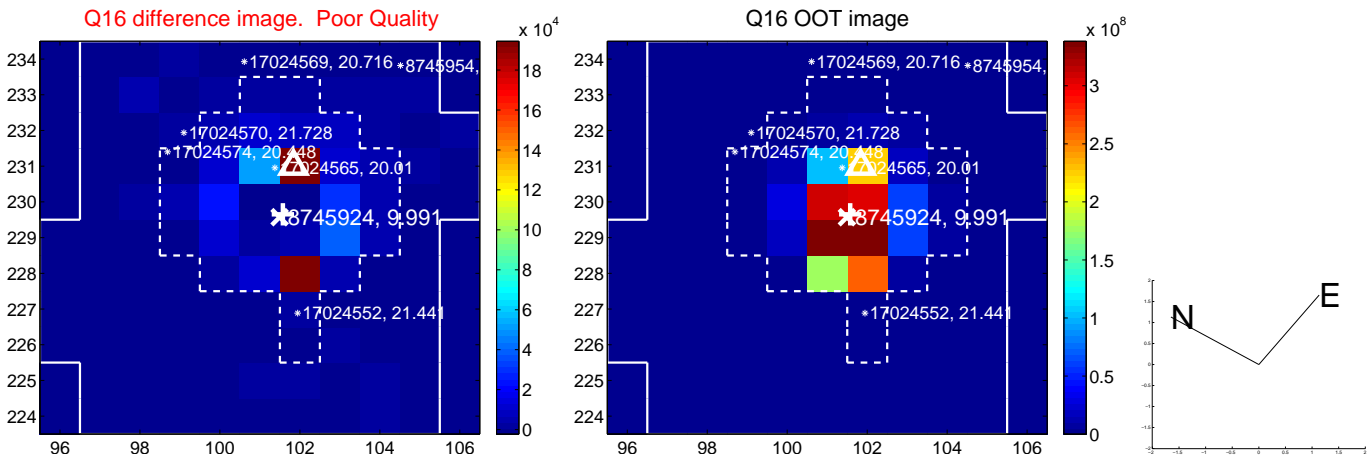
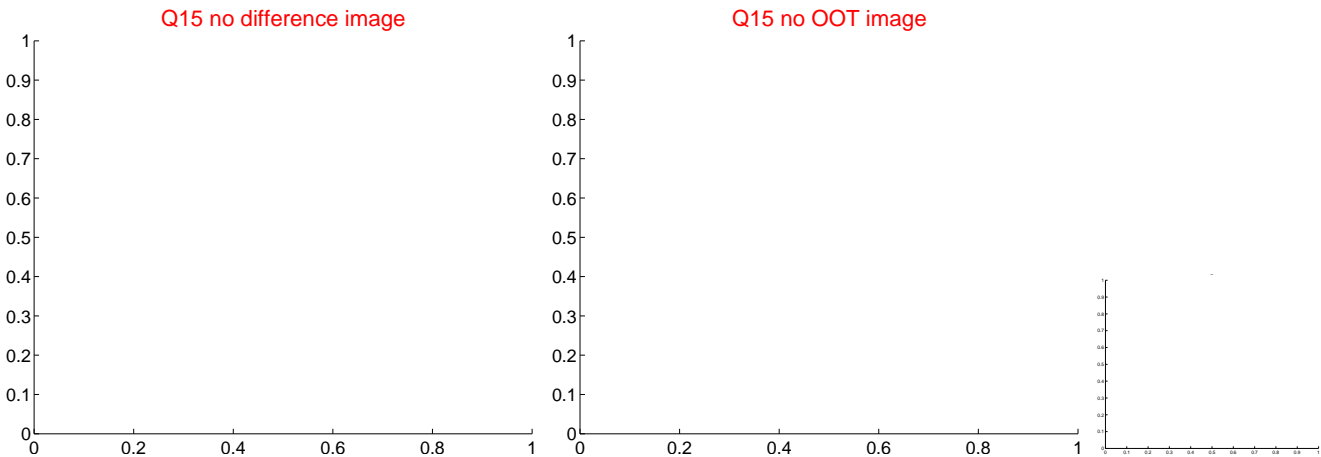
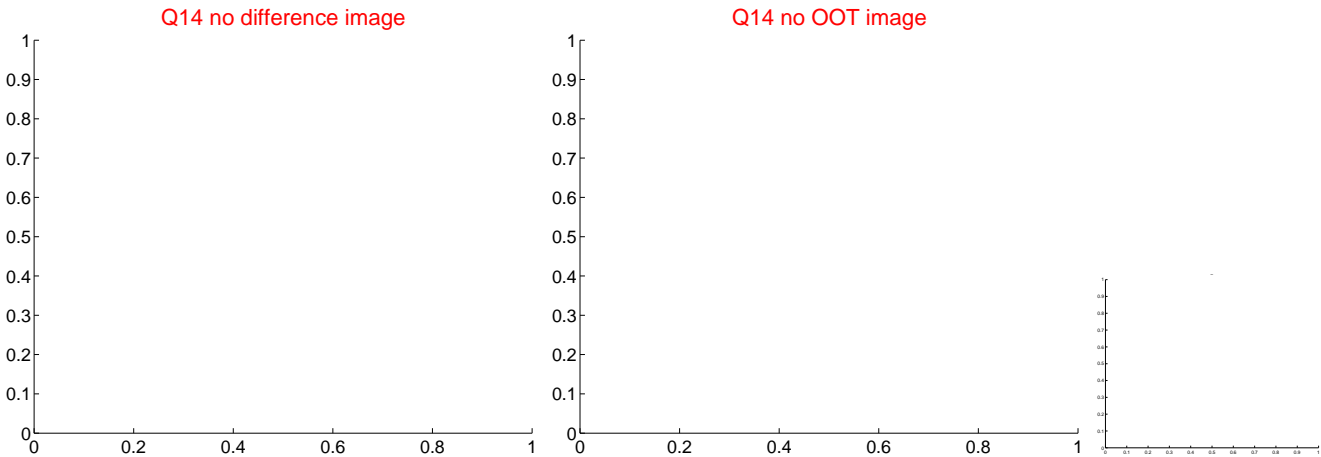
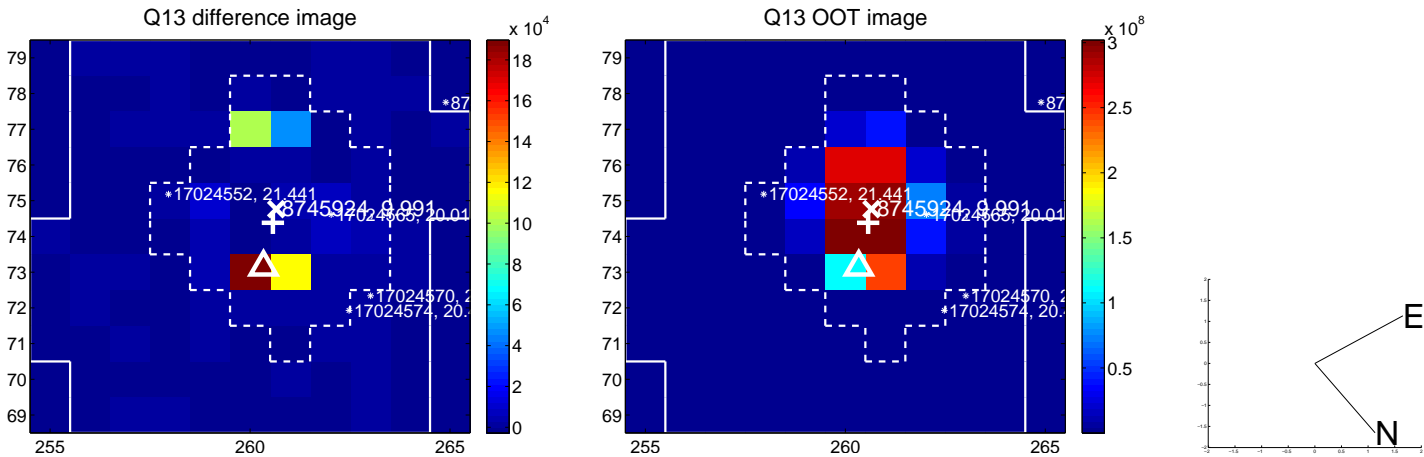
Q8 no OOT image



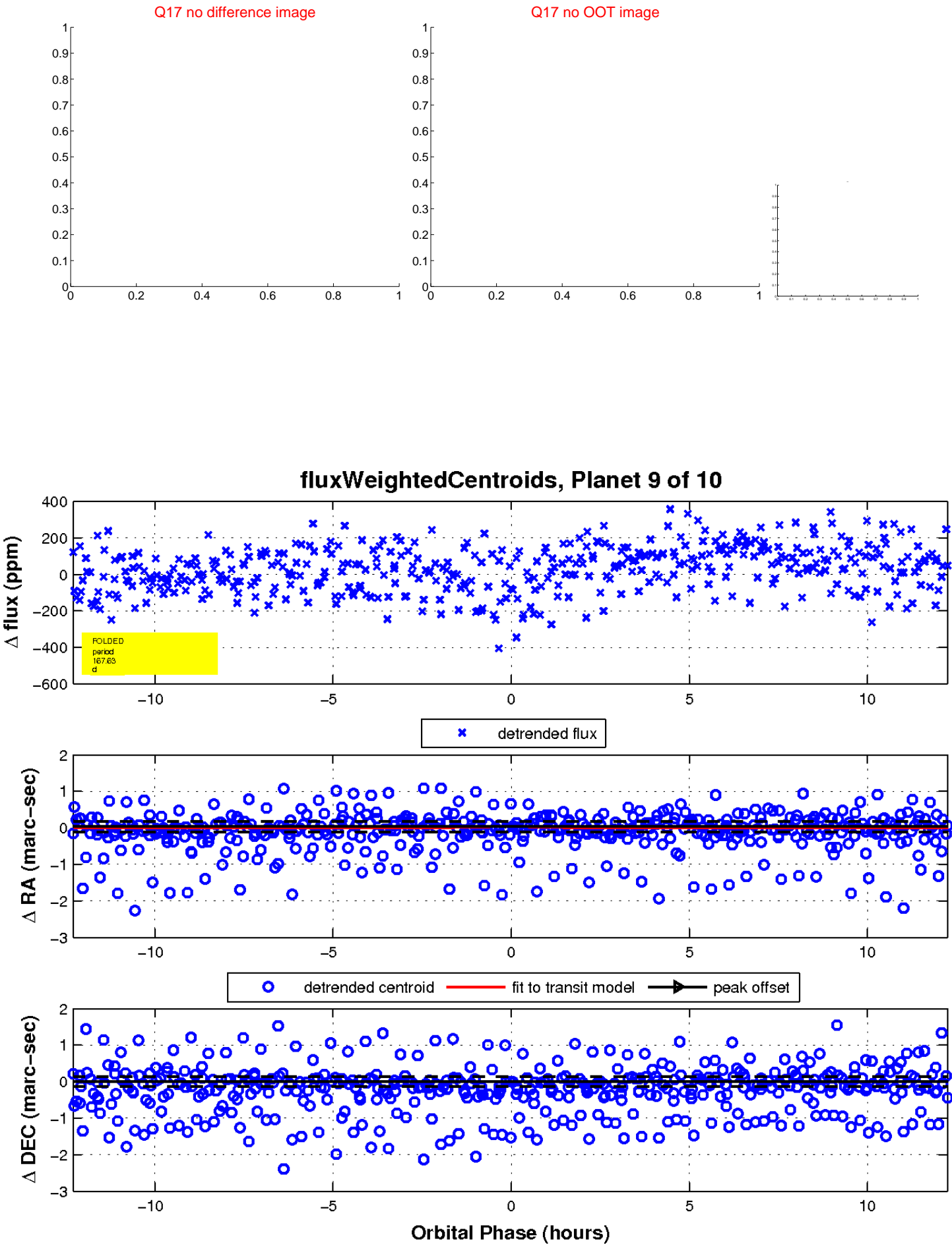
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



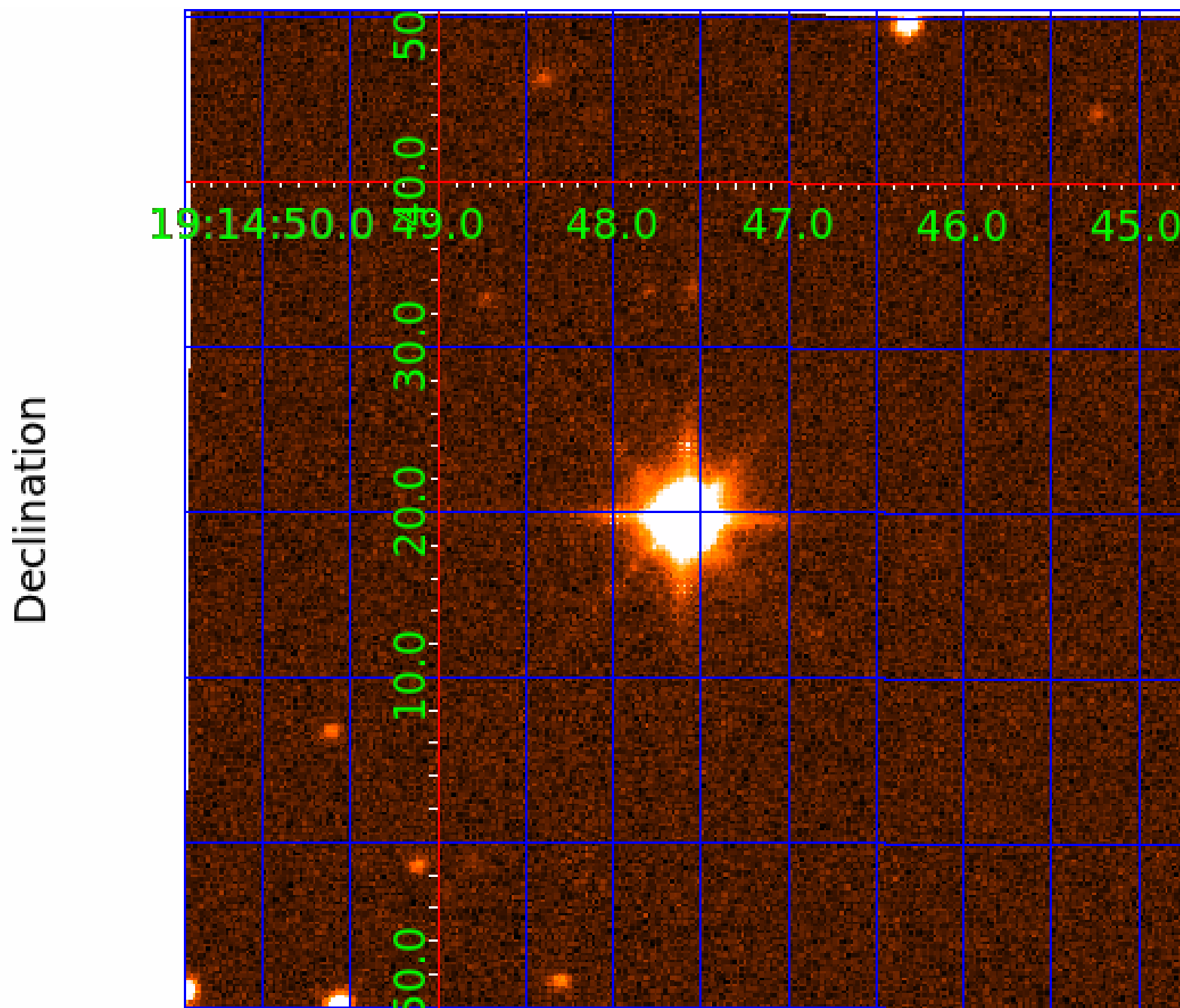
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



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})
008745924-01	OBS	No	3.187289	131.982687	10.6	14.379	8.0	3.3	3.04	6748	1.14	7079.39
008745924-02	OBS	No	161.850559	213.863106	171.9	4.391	14.6	6.4	3.04	6748	4.54	37.65
008745924-03	OBS	No	168.477736	215.669126	78.5	9.921	10.6	2.9	3.04	6748	3.13	35.69
008745924-04	OBS	No	465.162607	312.664742	163.1	11.969	10.6	5.5	3.04	6748	4.45	9.21
008745924-05	OBS	No	168.122572	285.485290	208.8	13.685	10.7	7.7	3.04	6748	4.80	35.79
008745924-06	OBS	No	135.842619	239.628666	203.1	8.964	10.2	7.6	3.04	6748	4.76	47.55
008745924-08	OBS	No	33.240089	149.778045	100.0	4.006	9.8	8.7	3.04	6748	3.24	310.70
008745924-09	OBS	No	167.634615	214.033419	261.4	4.105	9.3	10.1	3.04	6748	8.10	35.93
008745924-10	OBS	No	302.351637	179.099903	155.2	6.846	9.2	5.9	3.04	6748	4.36	16.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008745924-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV— INCONSISTENT_TRANS—CENT_SATURATED—HALO_GHOST
008745924-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008745924-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
008745924-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
008745924-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED— HALO_GHOST
008745924-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
008745924-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_SATURATED—HALO_GHOST
008745924-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

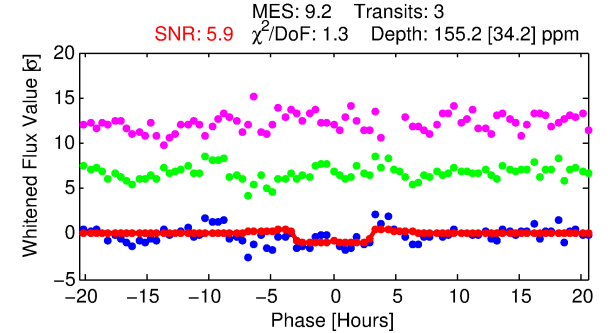
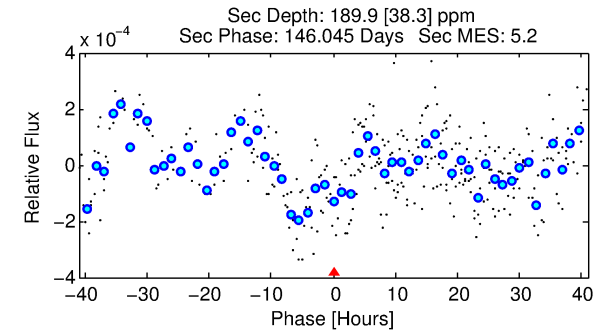
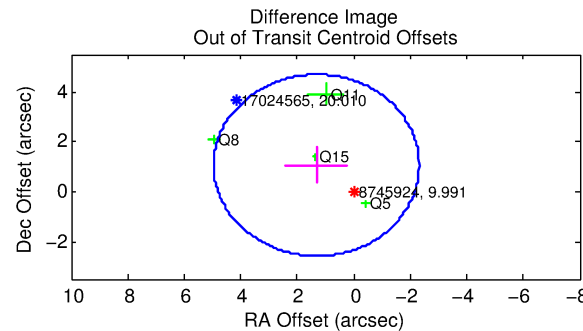
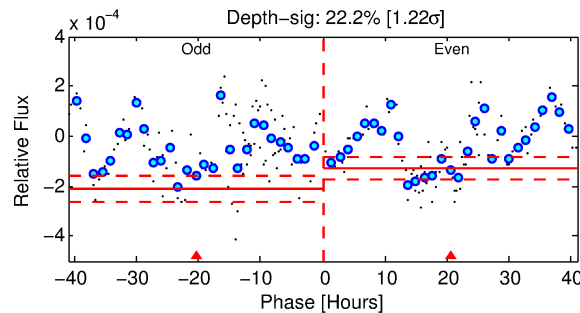
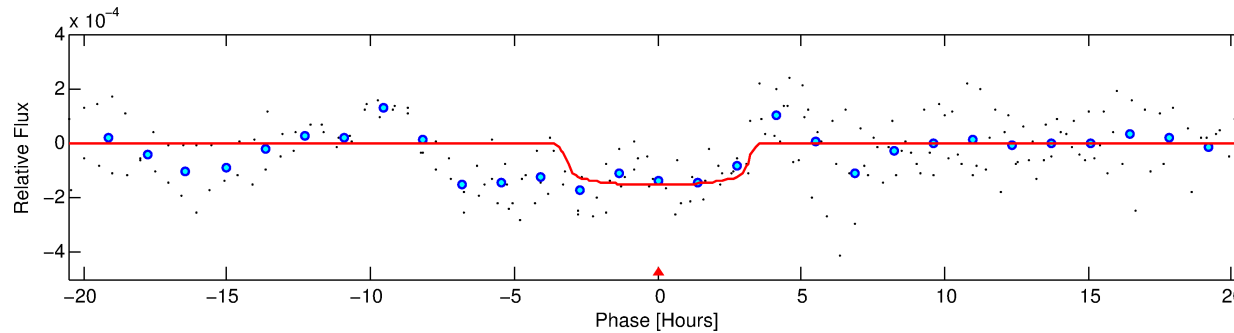
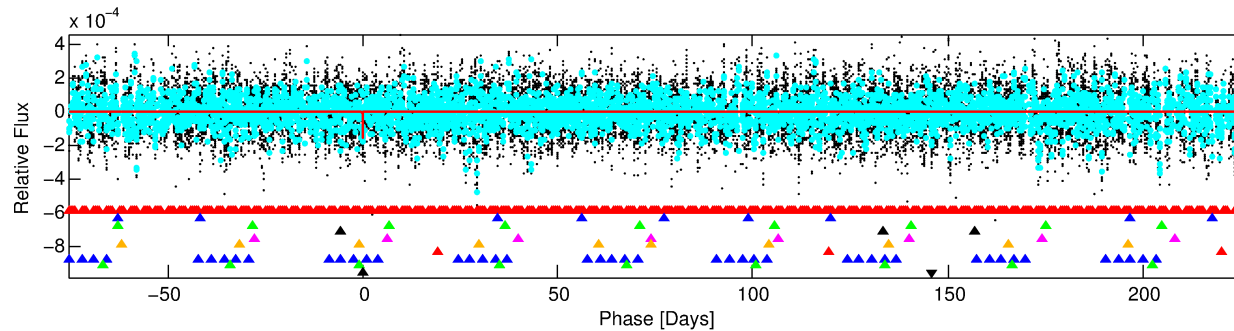
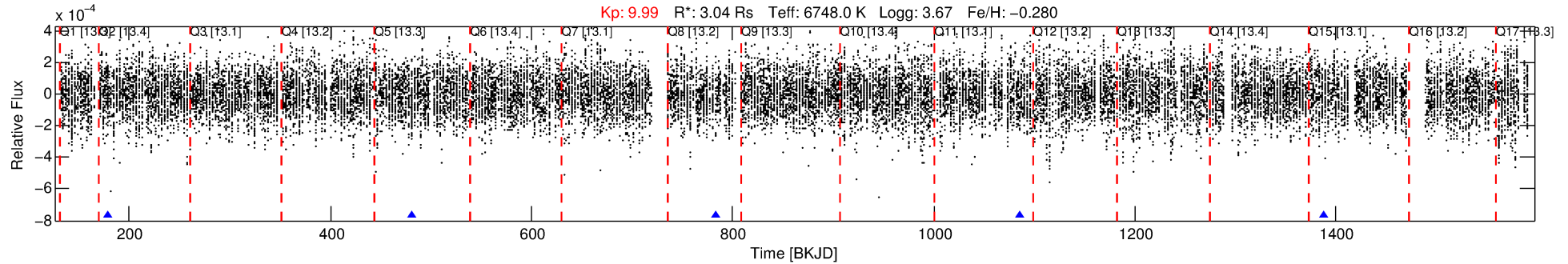
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008745924-10

No Significant Match Found

DV One-Page Summary

KIC: 8745924 Candidate: 10 of 10 Period: 302.352 d



DV Fit Results:

Period = 302.35164 [0.01058] d
Epoch = 179.0999 [0.0251] BKJD
Rp/R* = 0.0131 [0.0077]
a/R* = 166.53 [569.39]
b = 0.88 [0.84]
Seff = 16.36 [9.20]
Teq = 513 [72] K
Rp = 4.35 [3.02] Re
a = 1.0233 [0.3561] AU
Ag = 5769.15 [7570.94] [0.76 σ]
Teffp = 6911 [2069] K [3.09 σ]

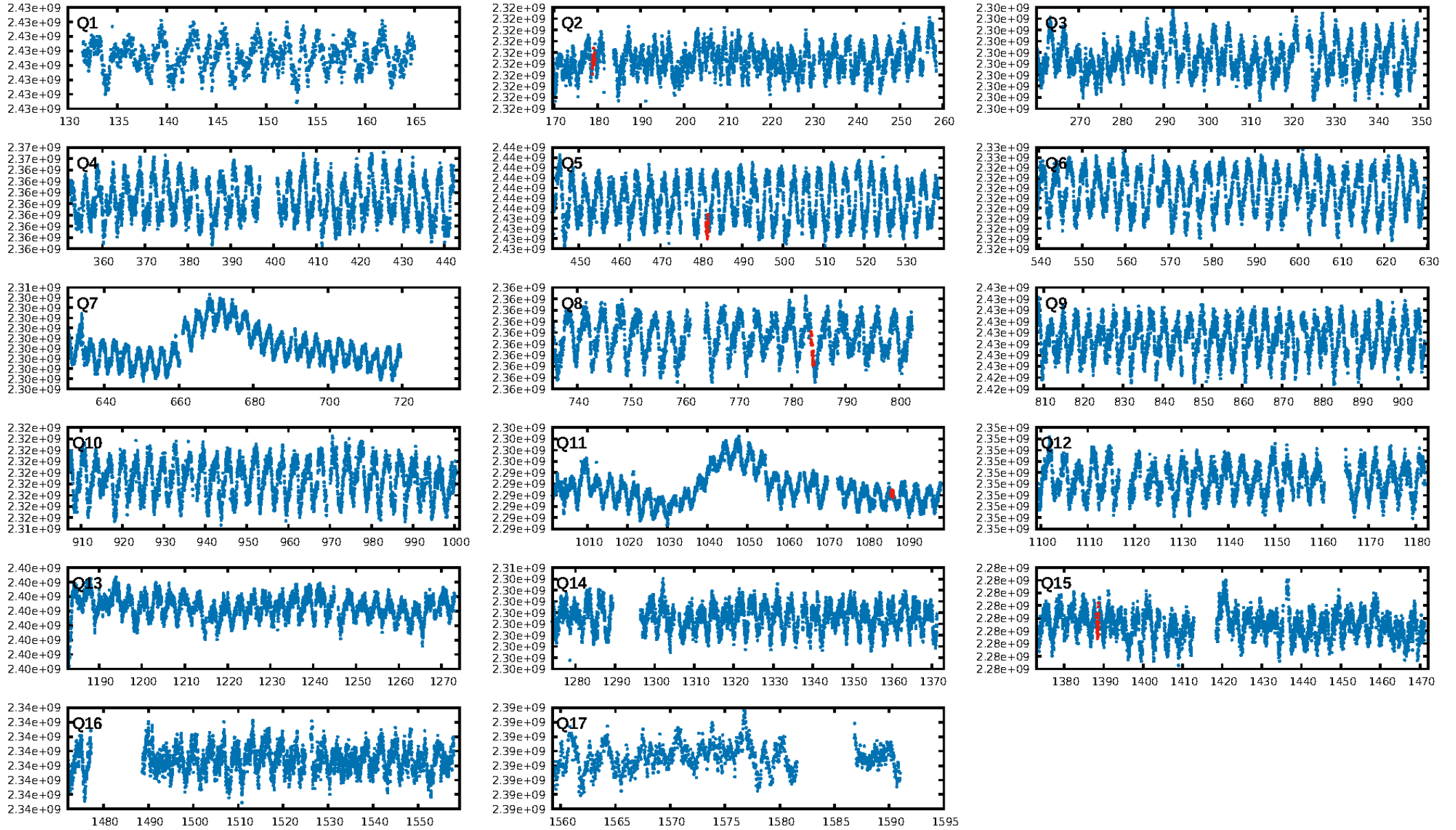
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [266.56 σ]
LongPeriod-sig: 100.0% [283.39 σ]
ModelChiSquare2-sig: 56.9%
ModelChiSquareGof-sig: 90.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 5.202
Centroid-sig: 0.5%
Centroid-so: 1.844 arcsec [1.82 σ]
OotOffset-rm: 1.689 arcsec [1.39 σ]
KicOffset-rm: 1.919 arcsec [1.50 σ]
OotOffset-st: 0/2/1/1 [4]
KicOffset-st: 0/2/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.60 [3/5]

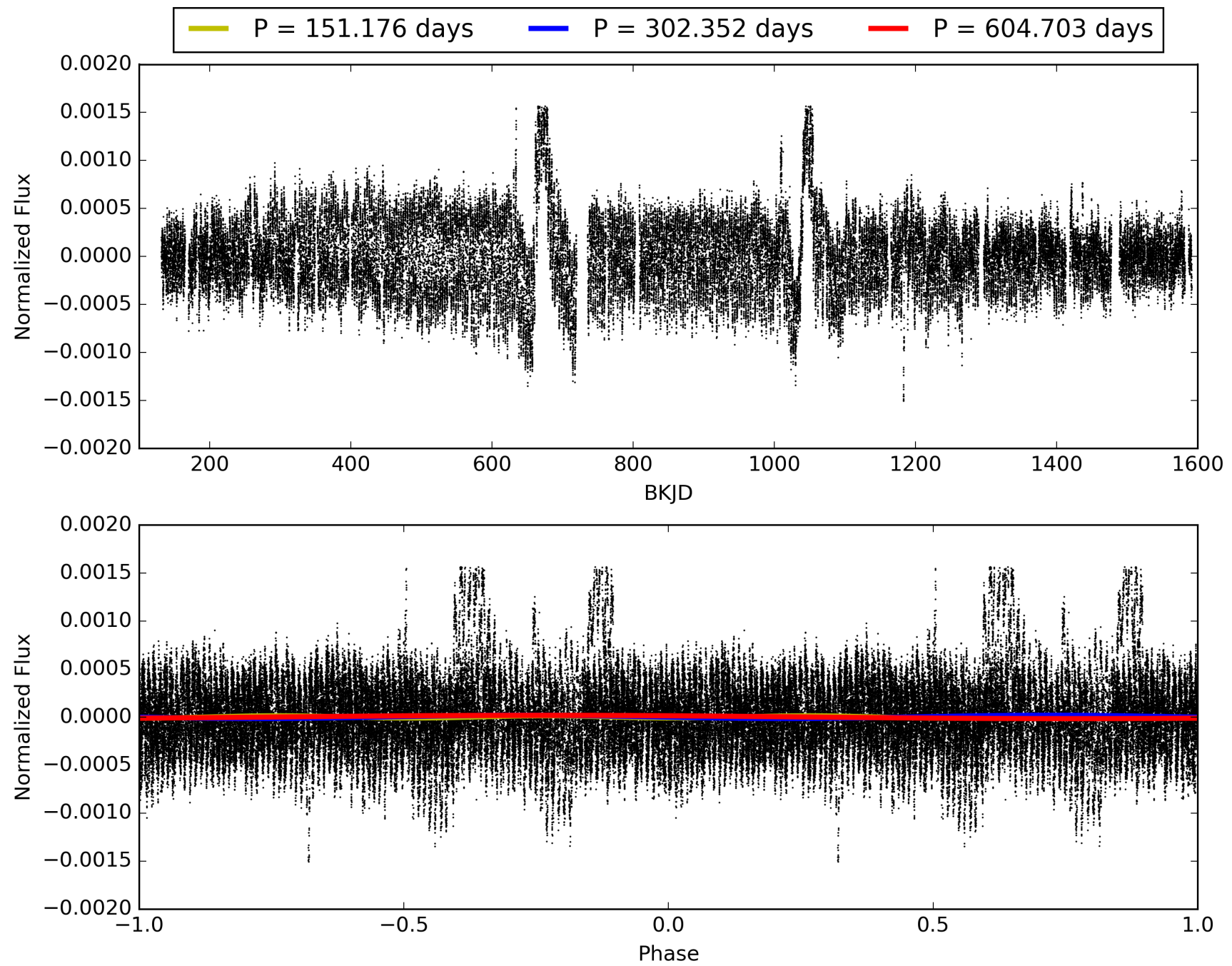
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:56:34 Z

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

TCE 008745924-10, PDC Light Curves

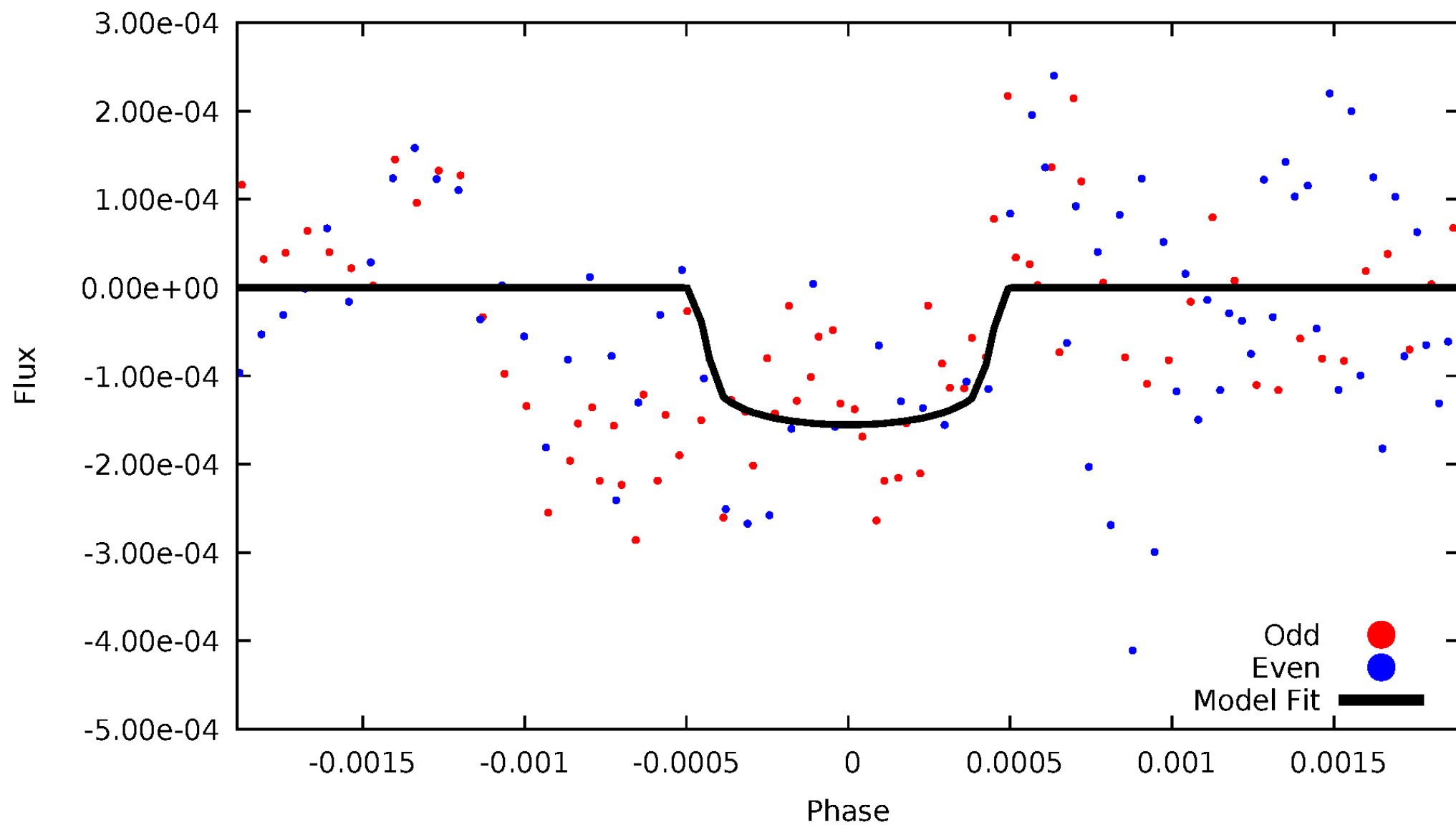


TCE 008745924-10



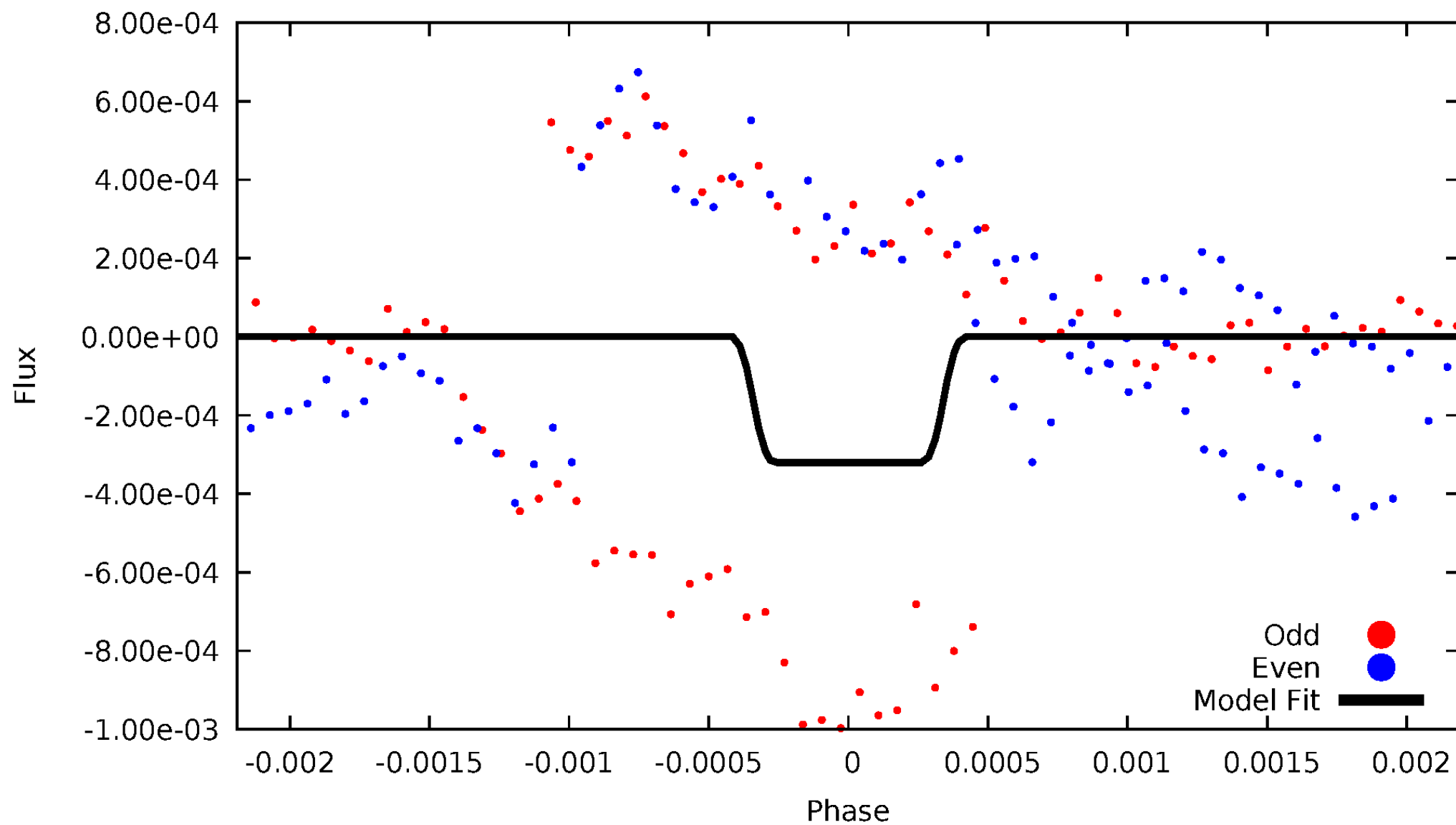
DV Odd/Even

TCE 008745924-10



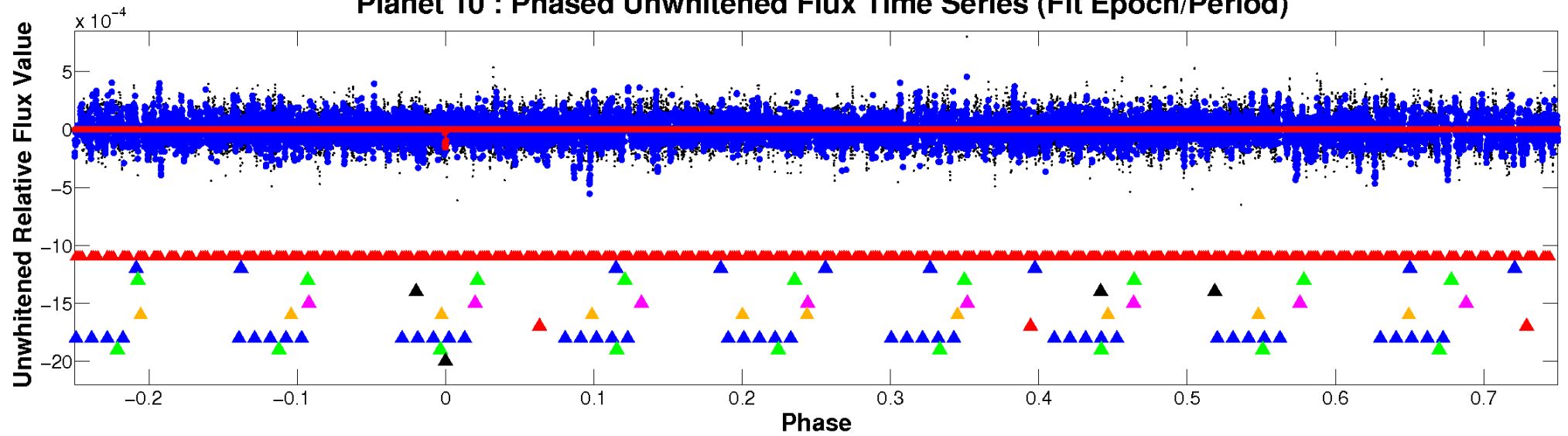
ALT Odd/Even

TCE 008745924-10

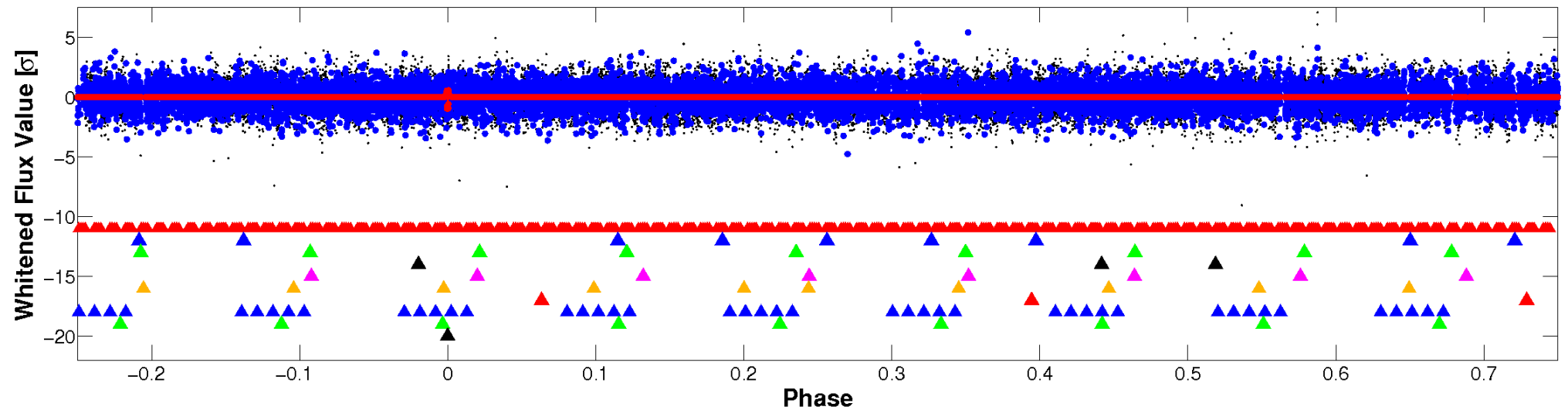


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

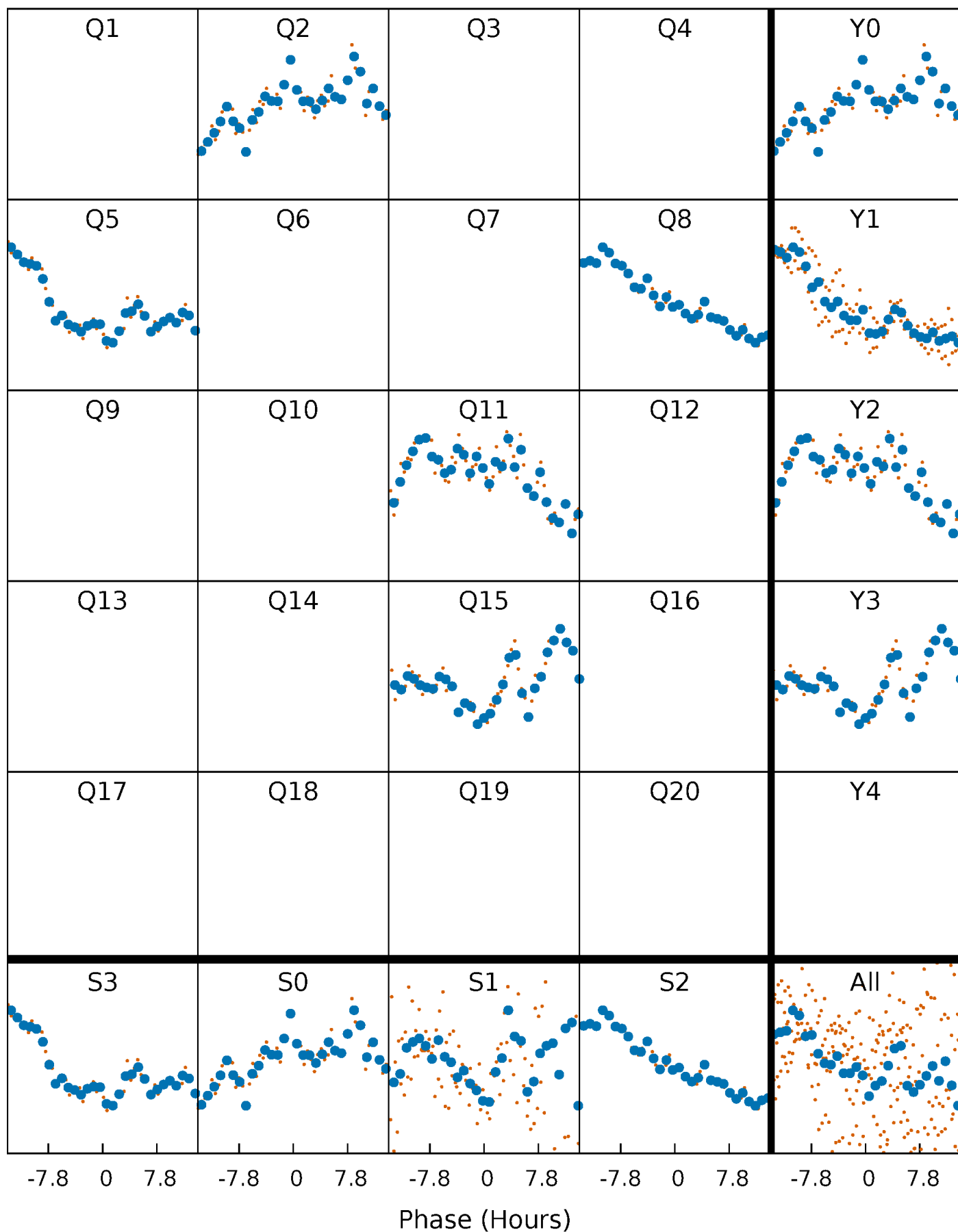


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



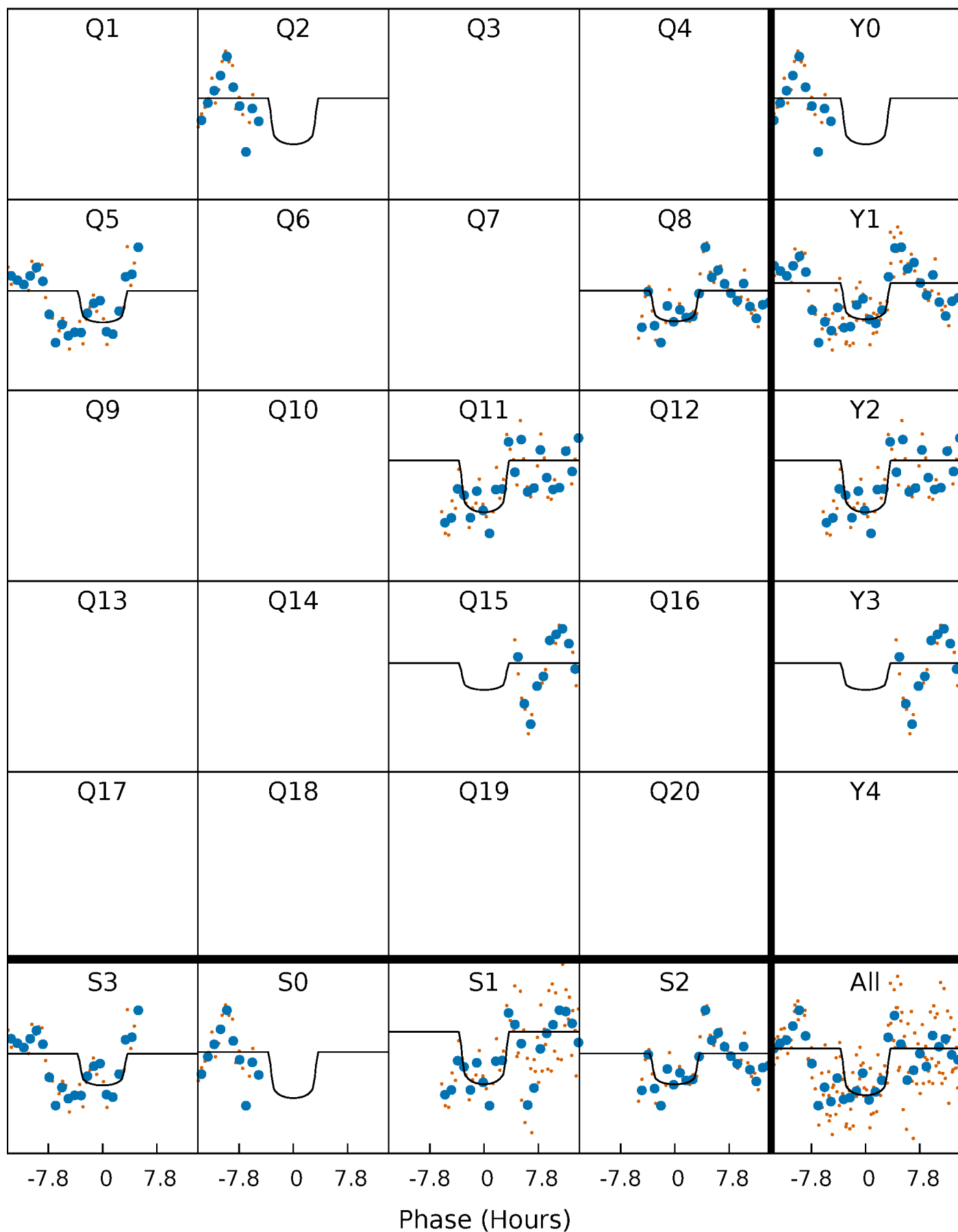
PDC Quarter-Phased Transit Curves

TCE 008745924-10 P=302.351637 Days $T_0=179.099903$ (BKJD)



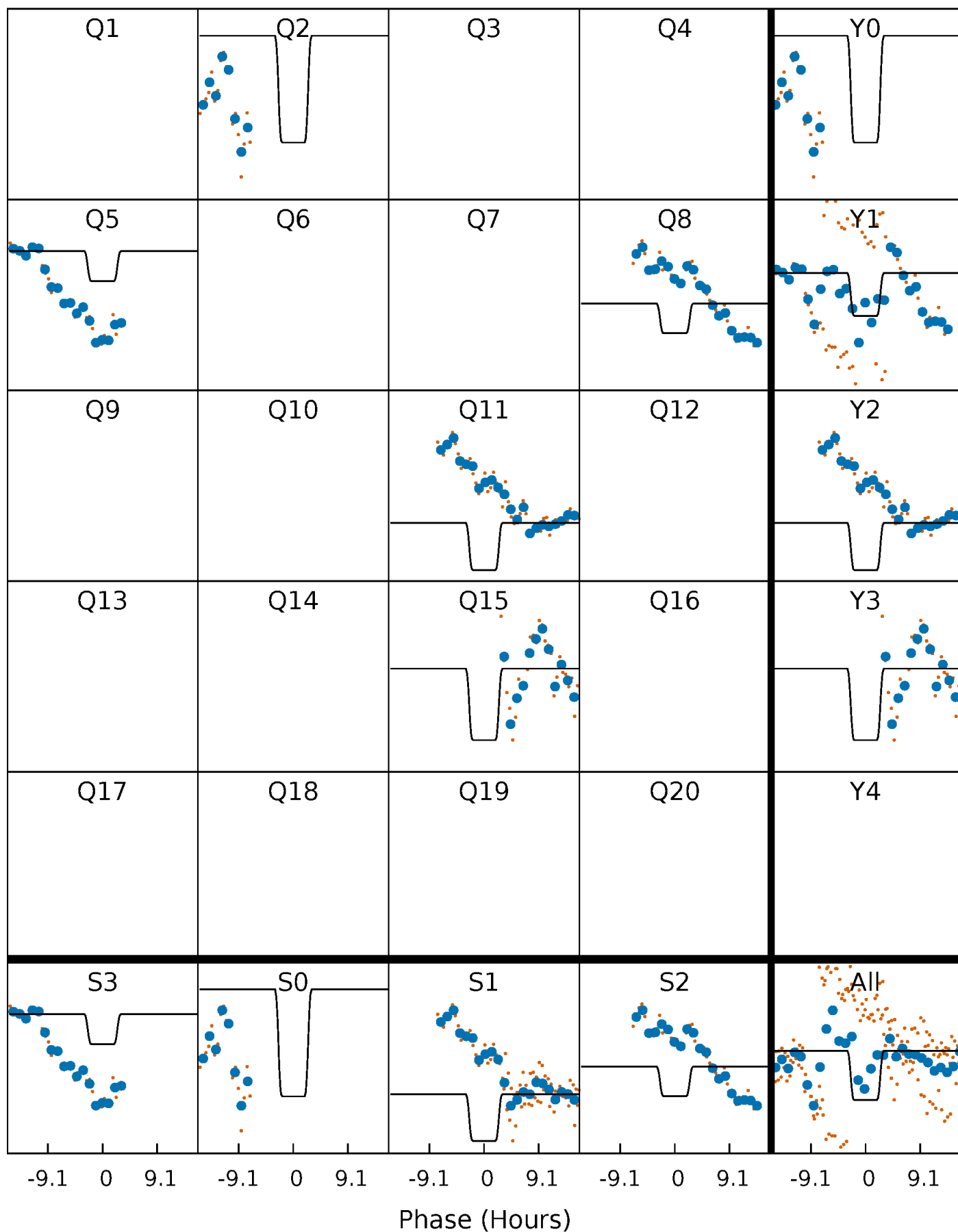
DV Quarter-Phased Transit Curves

TCE 008745924-10 P=302.351637 Days $T_0=179.099903$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

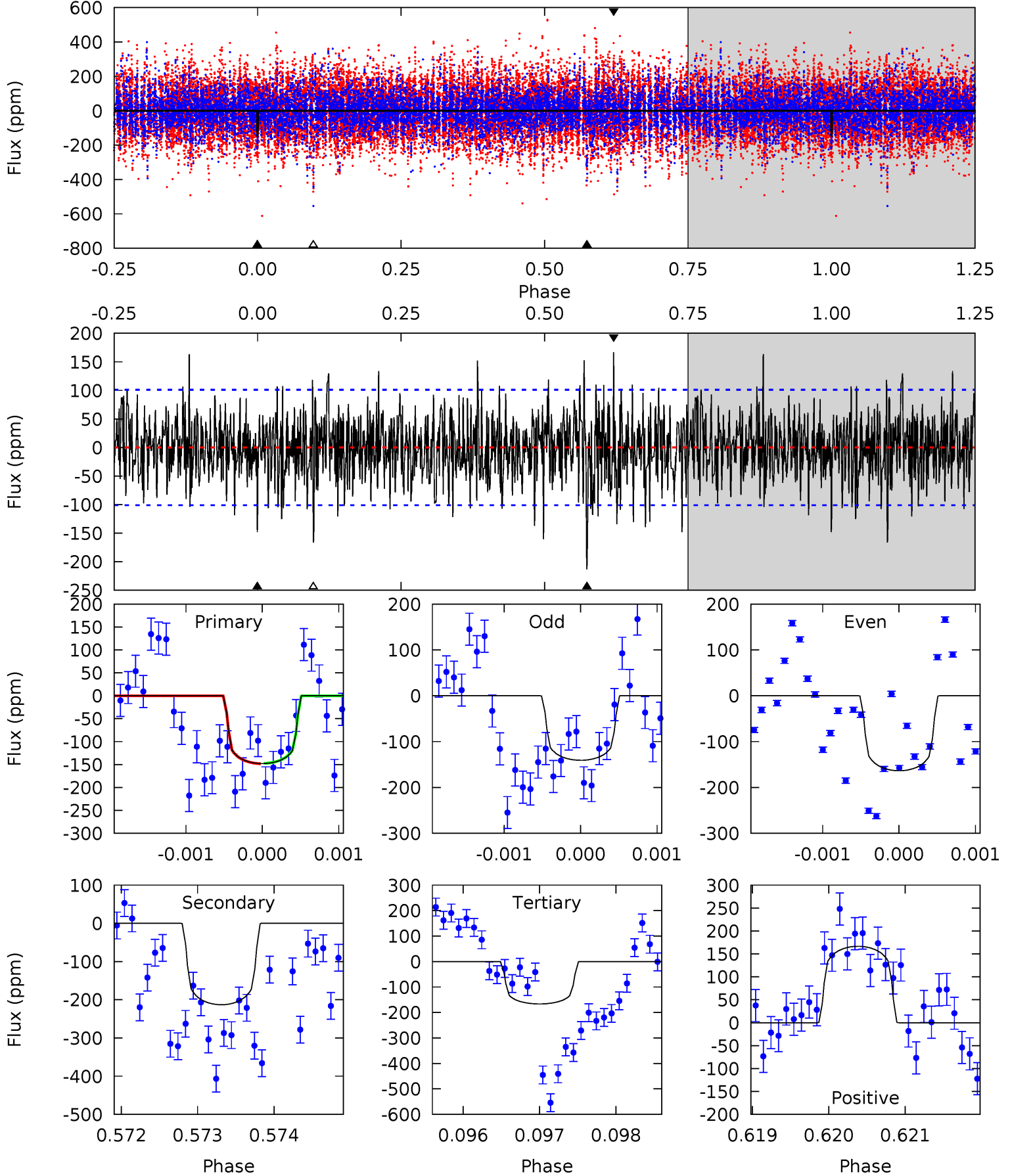
TCE 008745924-10 P=302.348576 Days $T_0=179.178385$ (BKJD)



DV Model-Shift Uniqueness Test

008745924-10, P = 302.351637 Days, E = 179.099903 Days

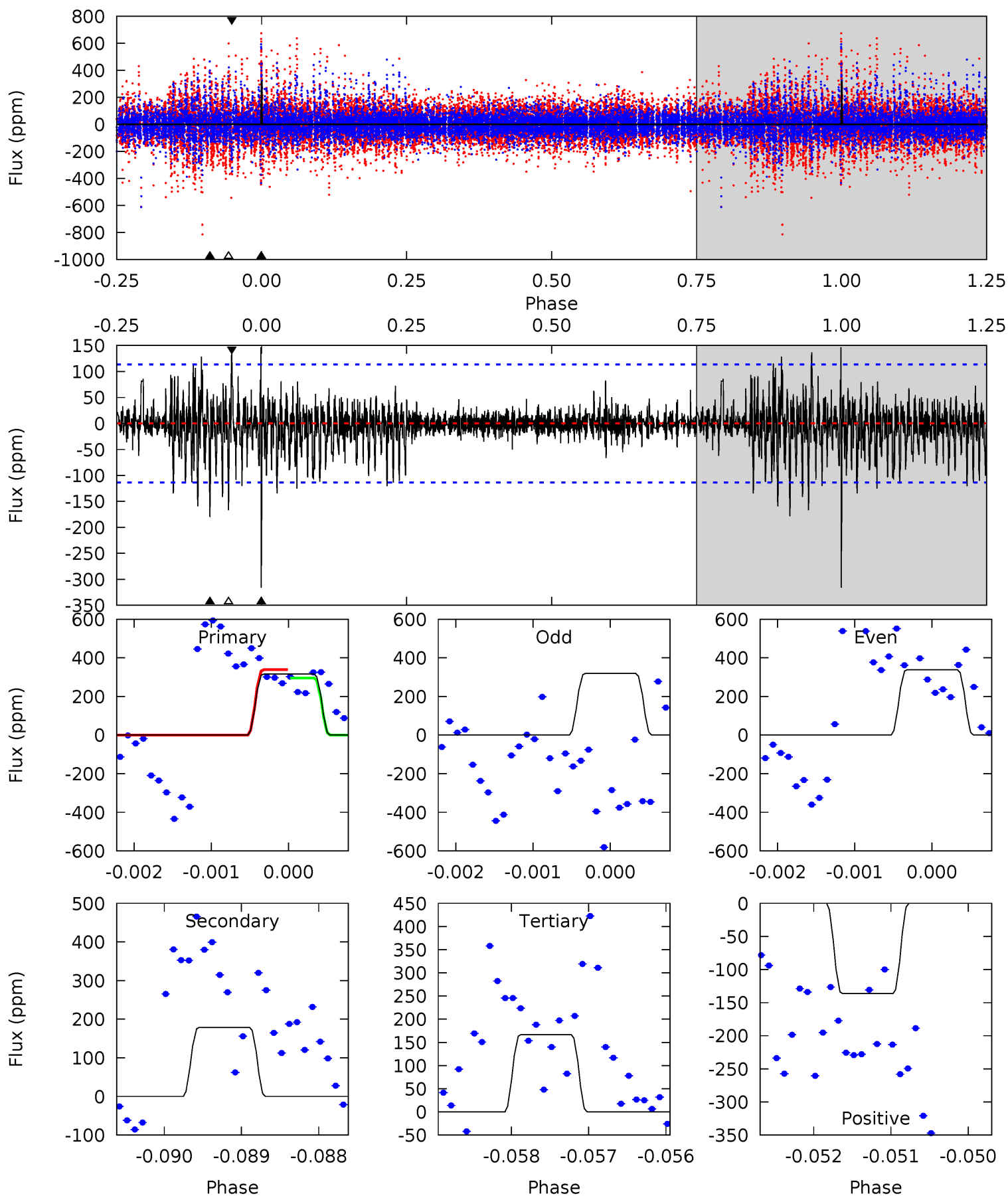
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.98	11.5	8.98	8.98	5.46	3.30	2.38	-1.00	-1.00	2.51	2.50	0.58	1.00	0.44	0.02



Alt Model-Shift Uniqueness Test

008745924-10, P = 302.348576 Days, E = 179.178385 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	8.64	8.06	6.60	5.49	3.36	1.29	7.23	8.69	0.57	2.04	0.51	-0.34	0.32	1.03



Stellar Parameters For KIC 008745924

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6748^{+151}_{-201}	$3.667^{+0.320}_{-0.080}$	$-0.280^{+0.300}_{-0.250}$	$3.037^{+0.401}_{-1.123}$	$1.560^{+0.235}_{-0.314}$	$0.078^{+0.189}_{-0.021}$
	+2%/-3%	+9%/-2%	+107%/-89%	+13%/-37%	+15%/-20%	+241%/-27%
Source	PHO1	FLK73	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 008745924-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-213 ± 19	$4.19^{+2.76}_{-2.15}$	702^{+37}_{-66}	7106^{+4151}_{-1603}	7282^{+24722}_{-4674}
Alt.	-179 ± 21	$5.48^{+2.57}_{-2.28}$	701^{+38}_{-65}	5828^{+1861}_{-873}	3457^{+6497}_{-1884}

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 $A_{obs} \gg 1.0$

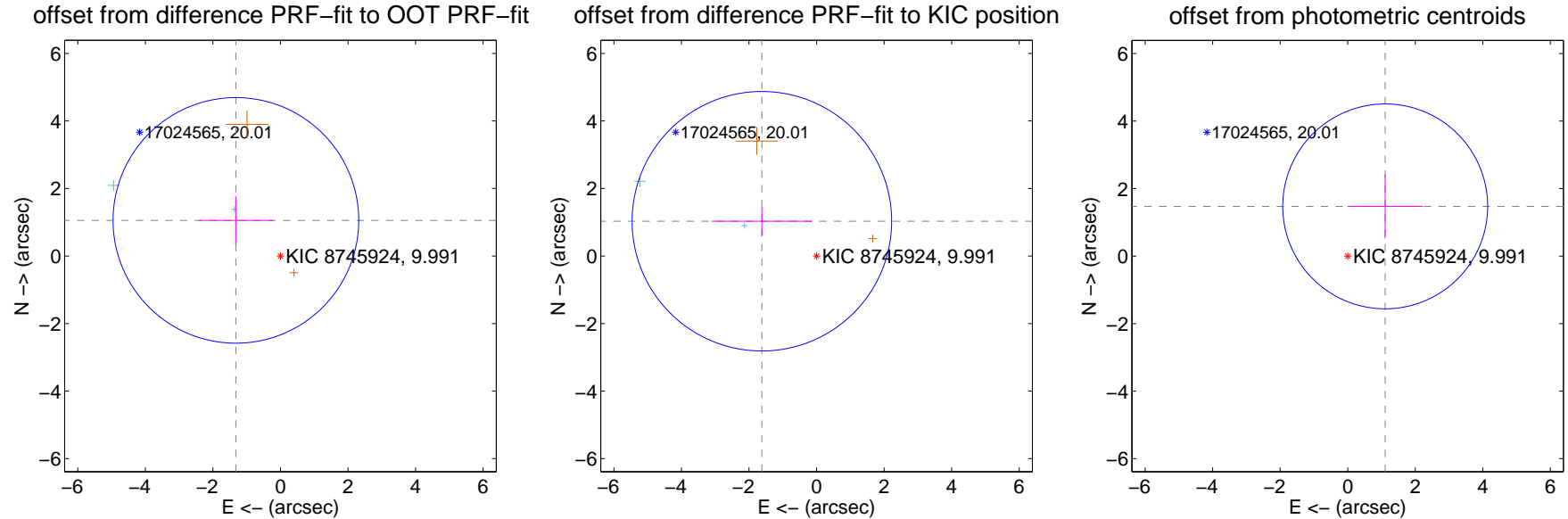
DV Centroid Data

Supplemental centroid analysis for 008745924-10. **Kepler magnitude: 9.99.** Transit SNR 5.94

There are 2 quarters with good PRF difference image offsets

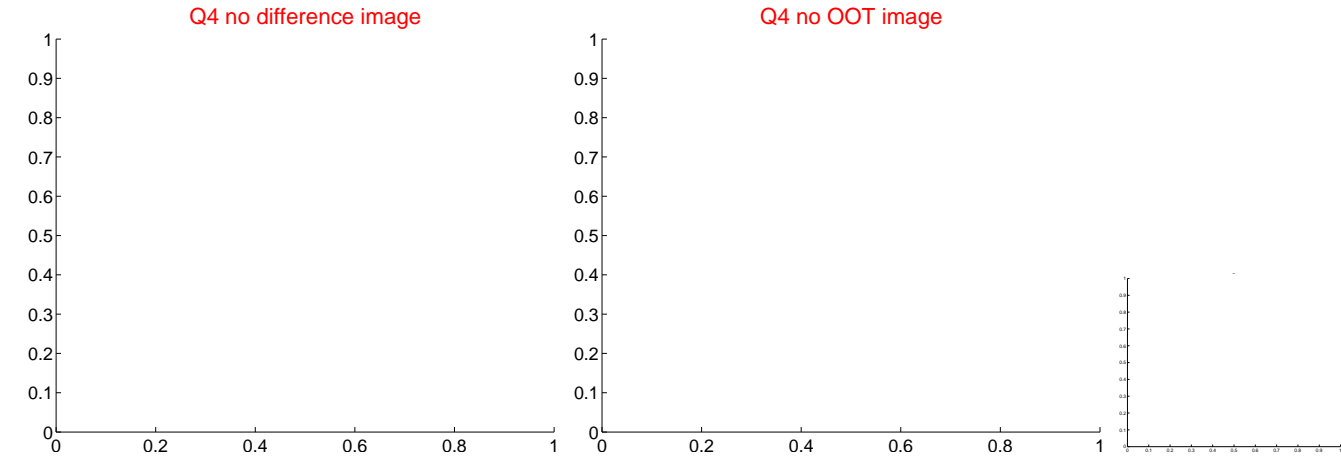
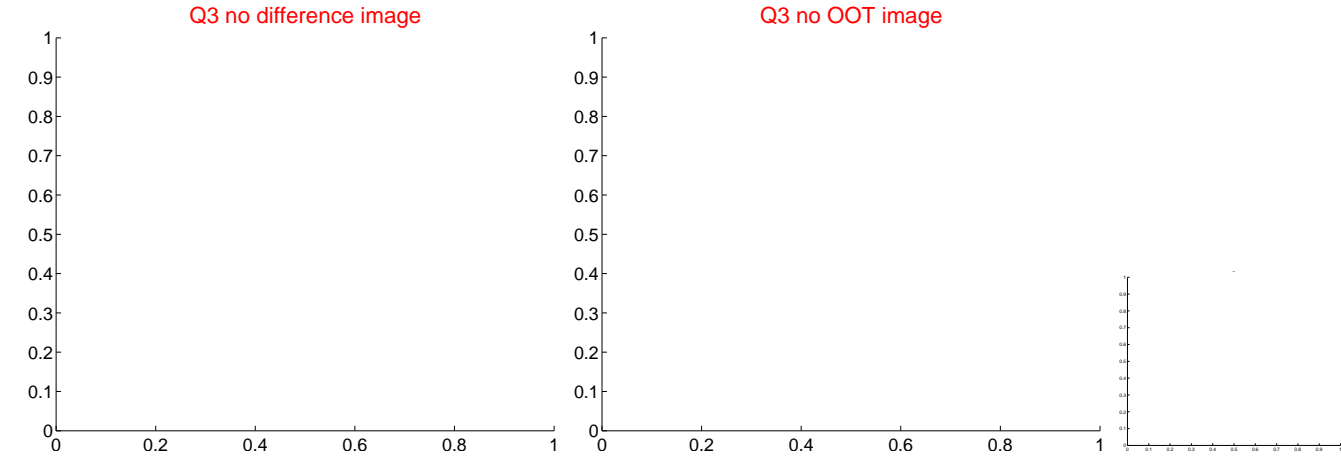
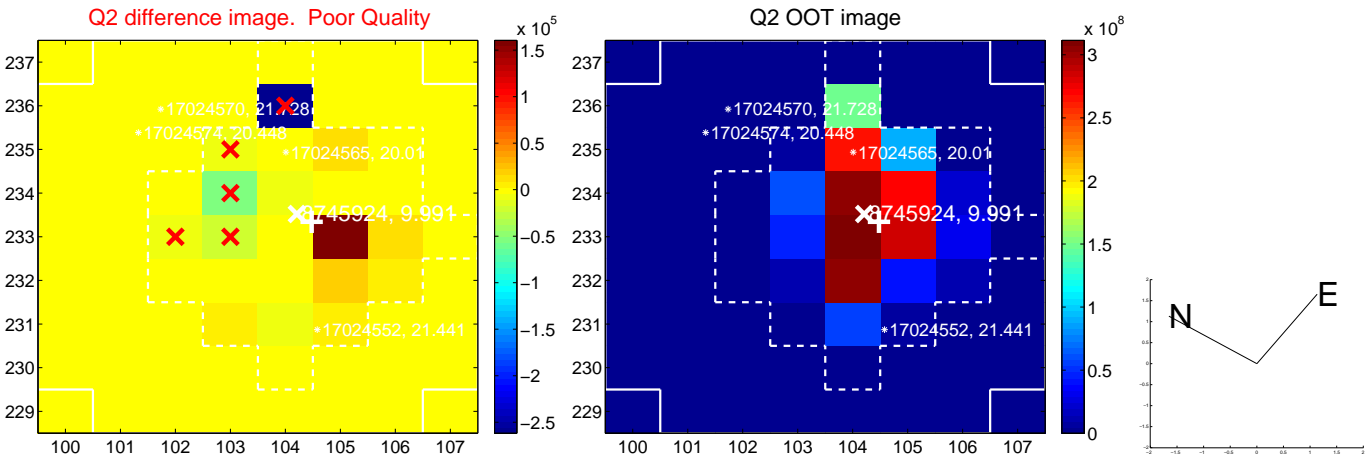
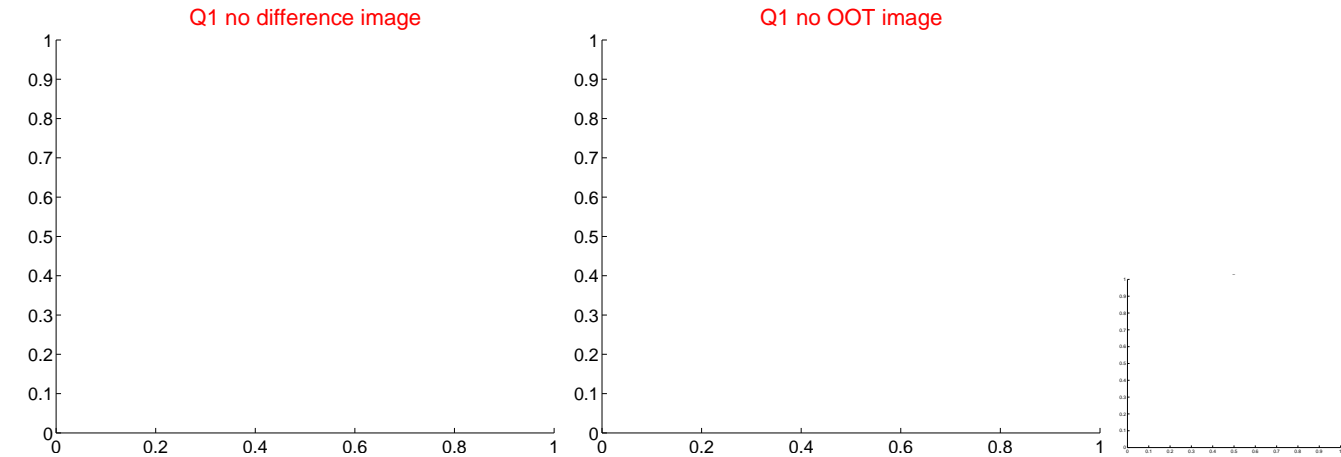
The direct PRF centroid is offset from the target star catalog position by about 0.91 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.689 ± 1.212	1.39	1.319 ± 1.108	1.055 ± 0.710
PRF-fit source offset from KIC position	1.919 ± 1.281	1.50	1.620 ± 1.493	1.030 ± 0.433
photometric centroid source offset	1.84 ± 1.01	1.82	-1.11 ± 1.12	1.47 ± 0.95

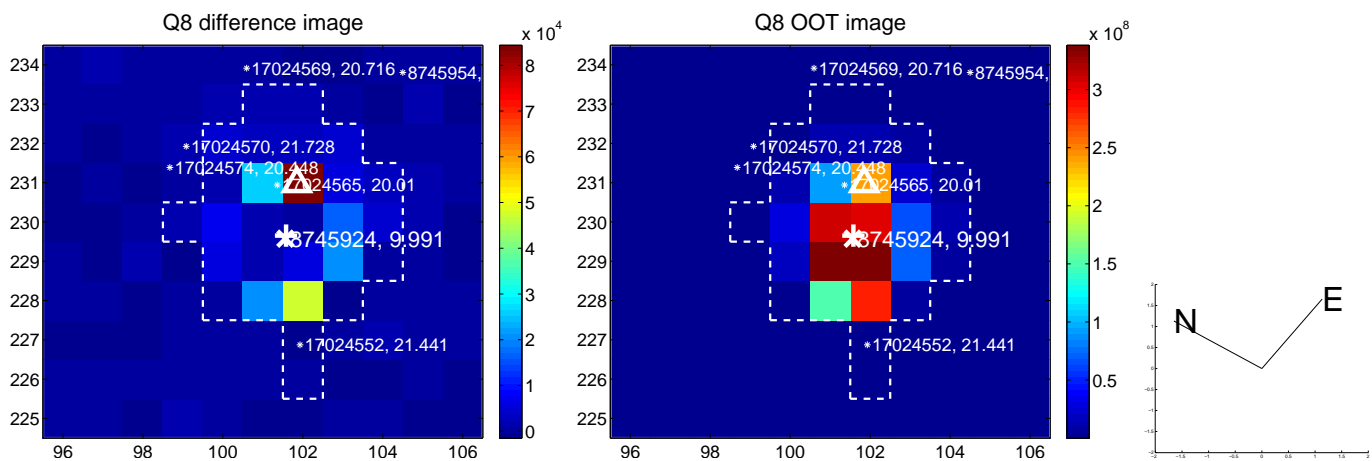
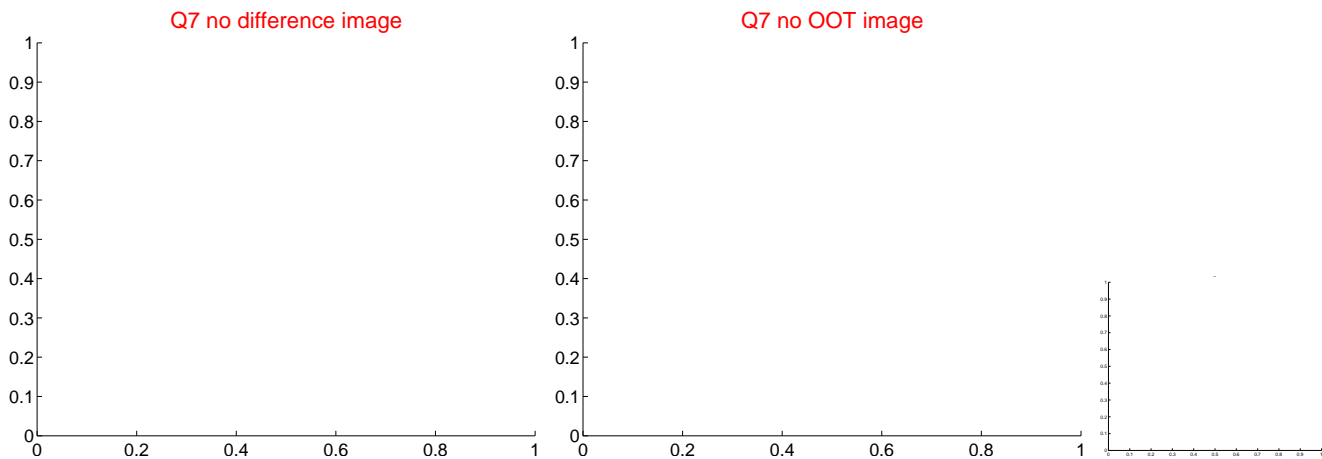
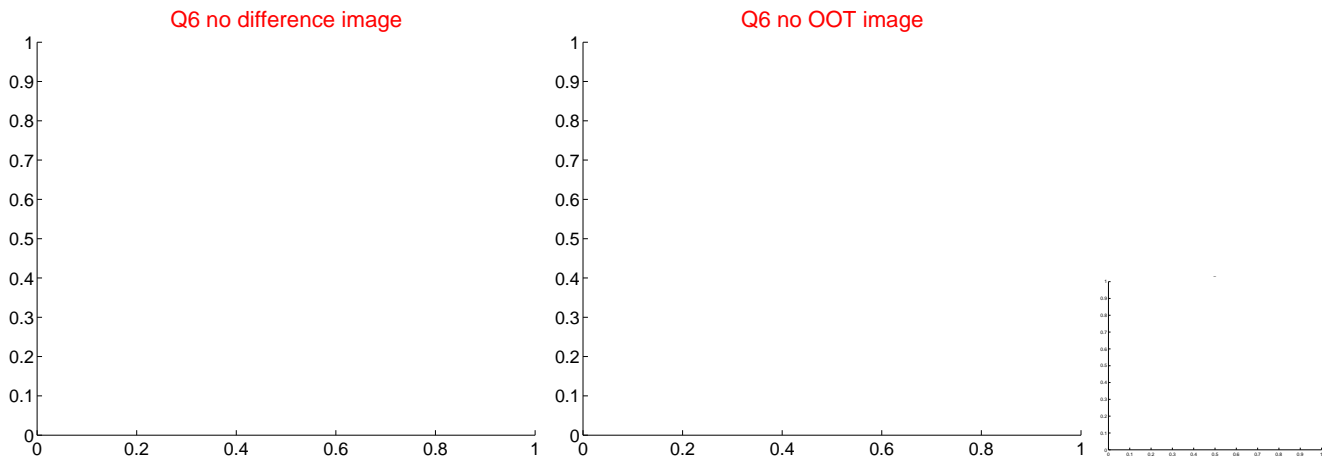
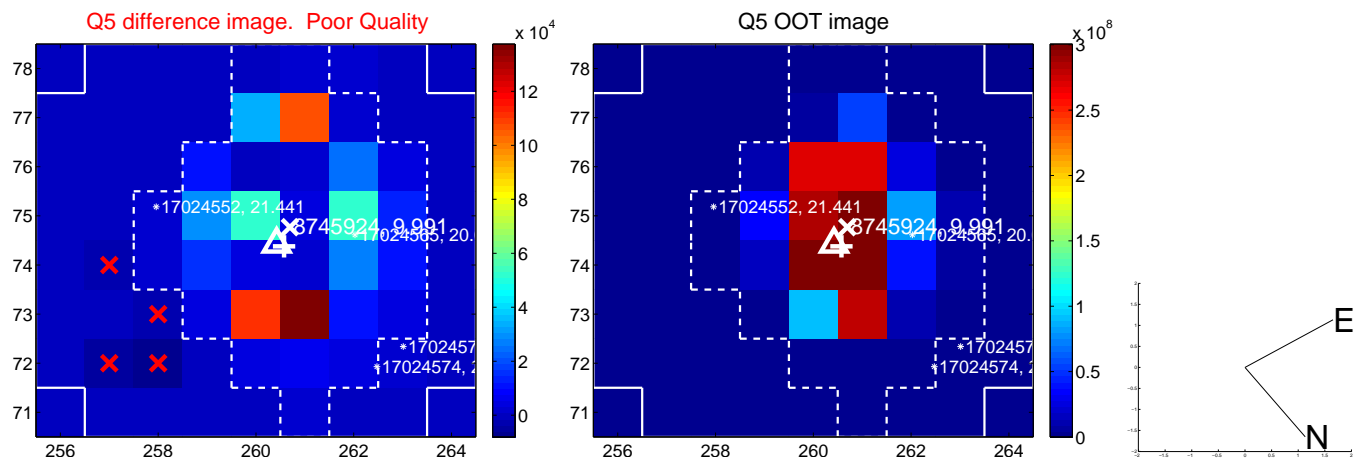


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

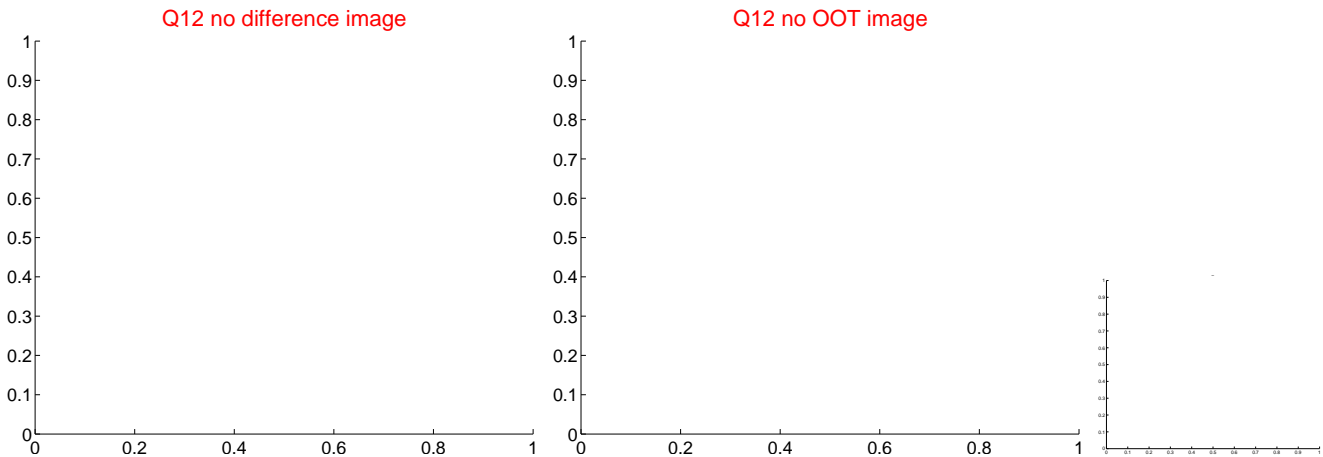
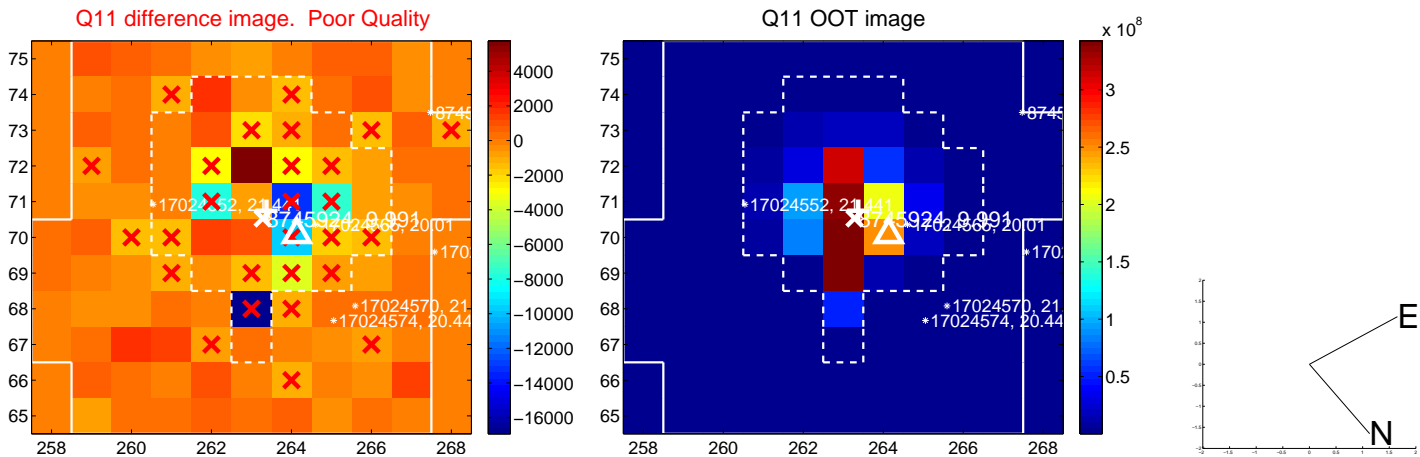
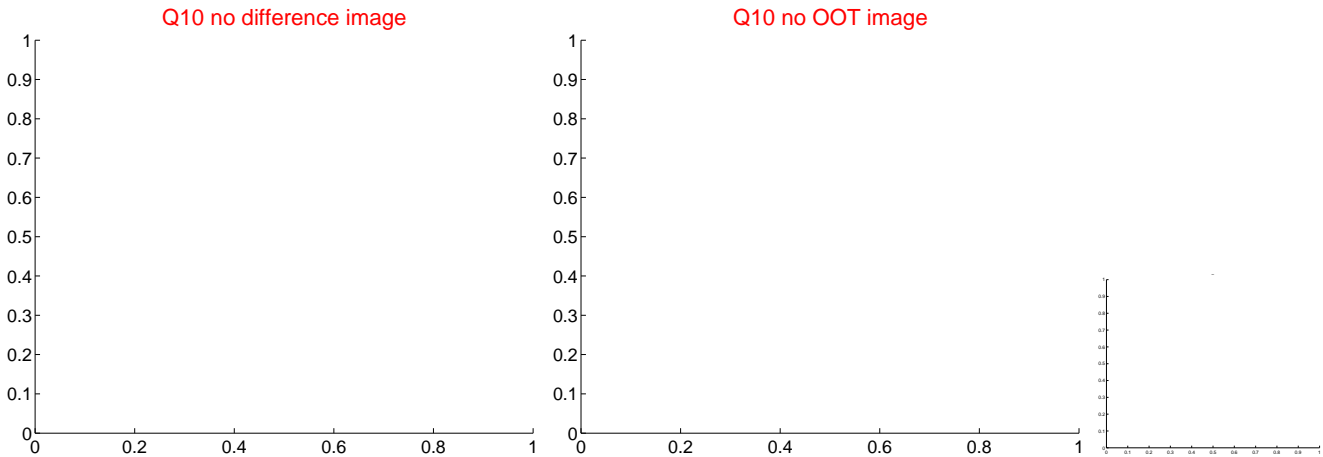
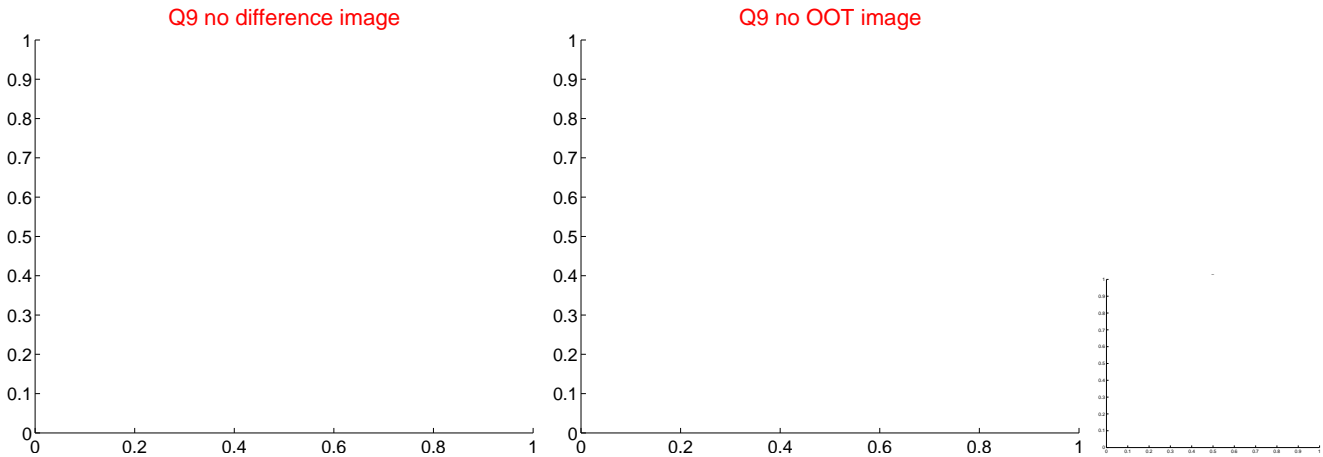
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

Q13 no difference image



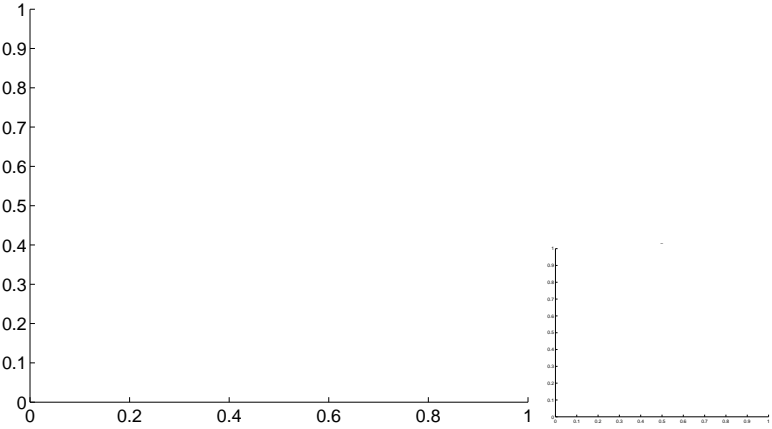
Q13 no OOT image



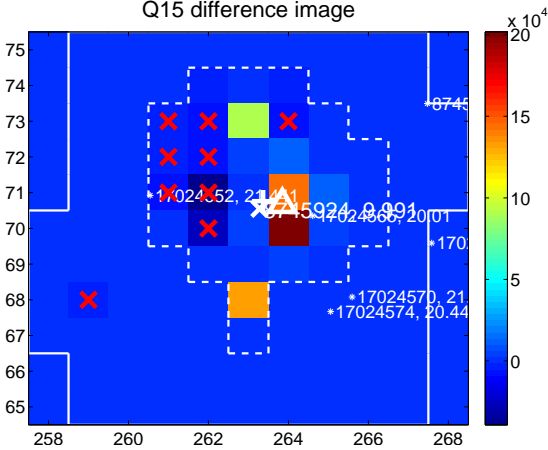
Q14 no difference image



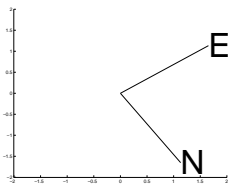
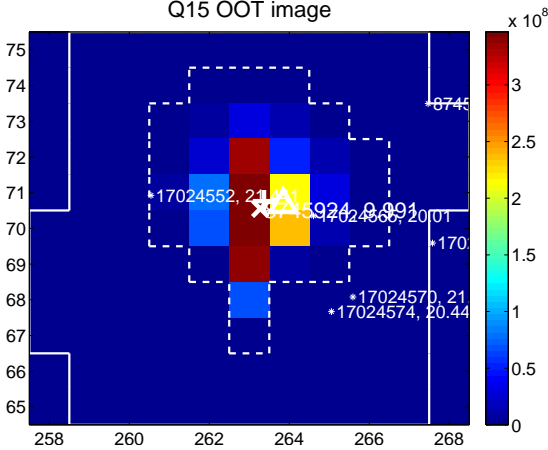
Q14 no OOT image



Q15 difference image



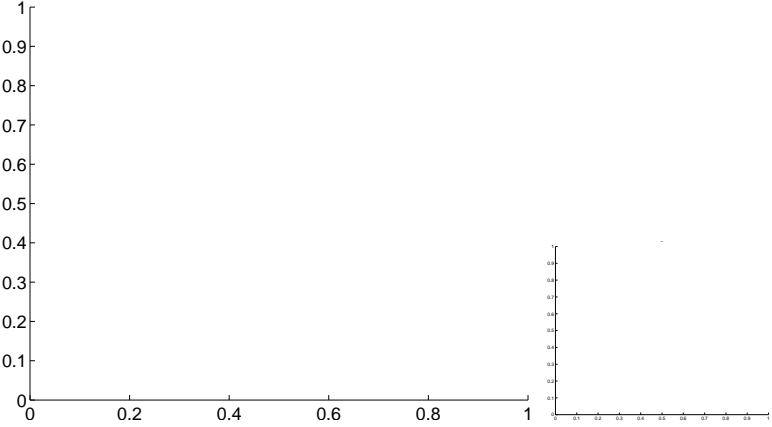
Q15 OOT image



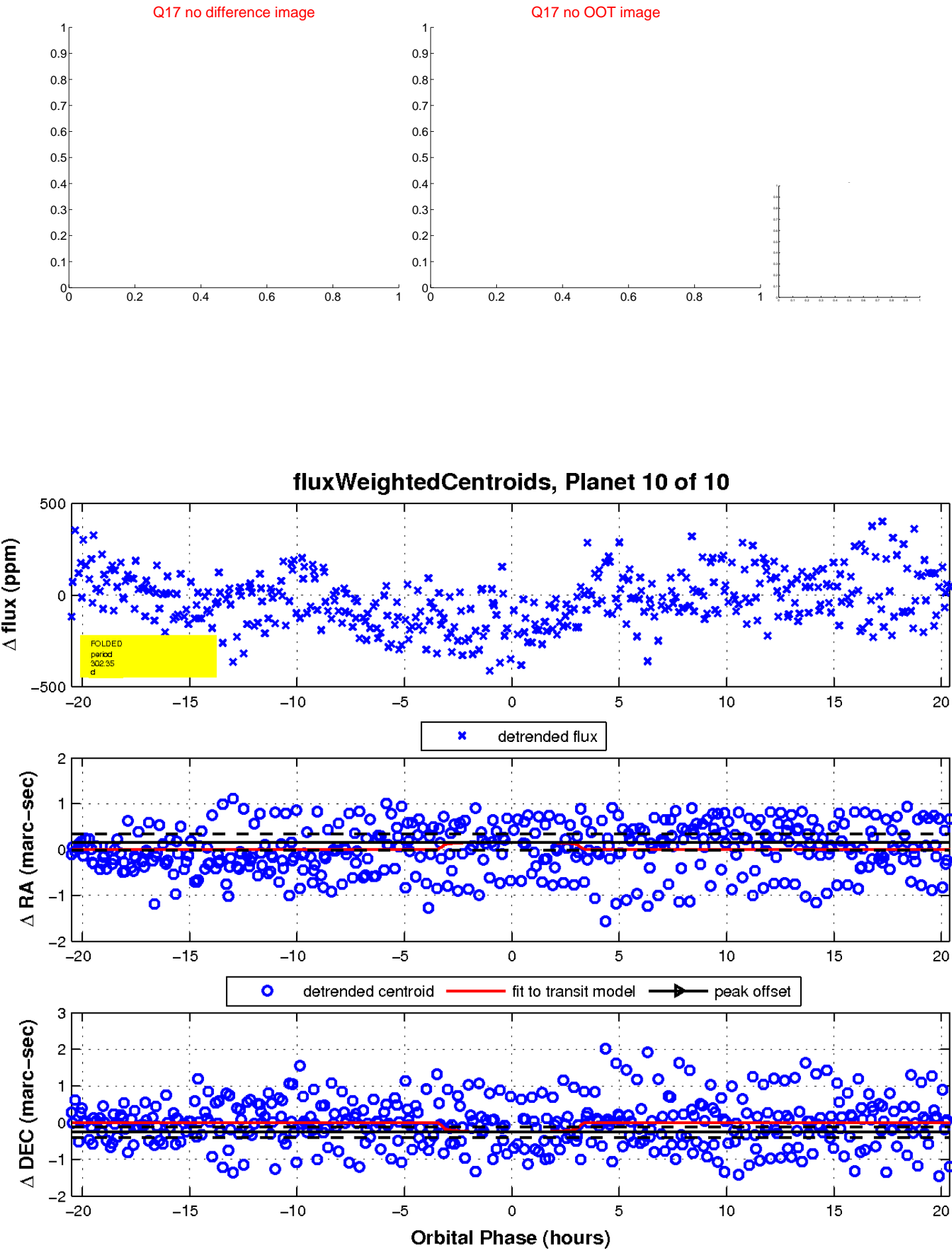
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

