

KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

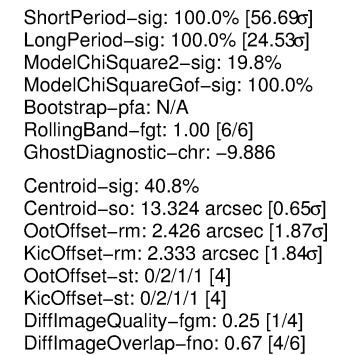
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

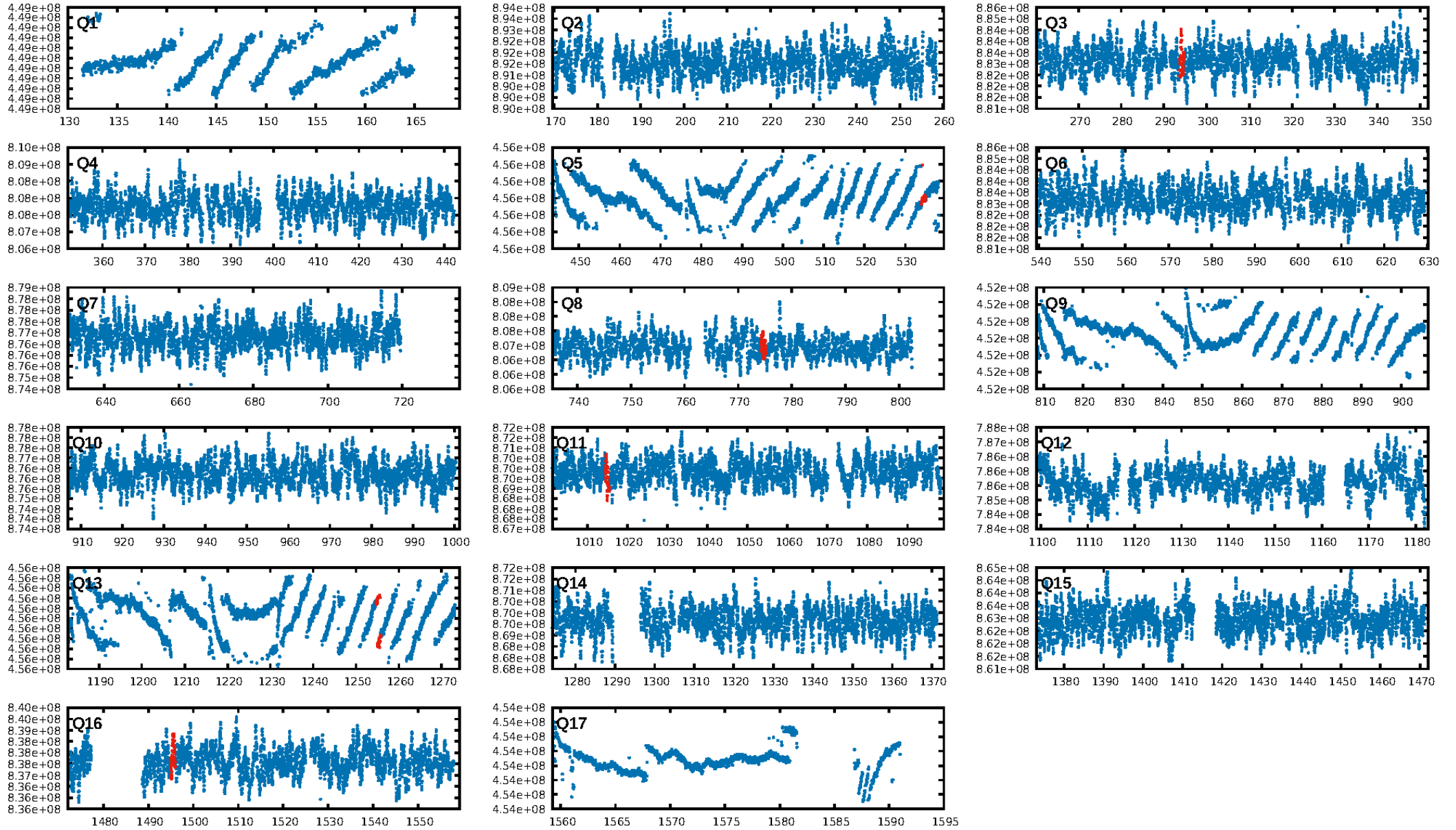
Ephemeris Match Information For 007448051-01

No Significant Match Found

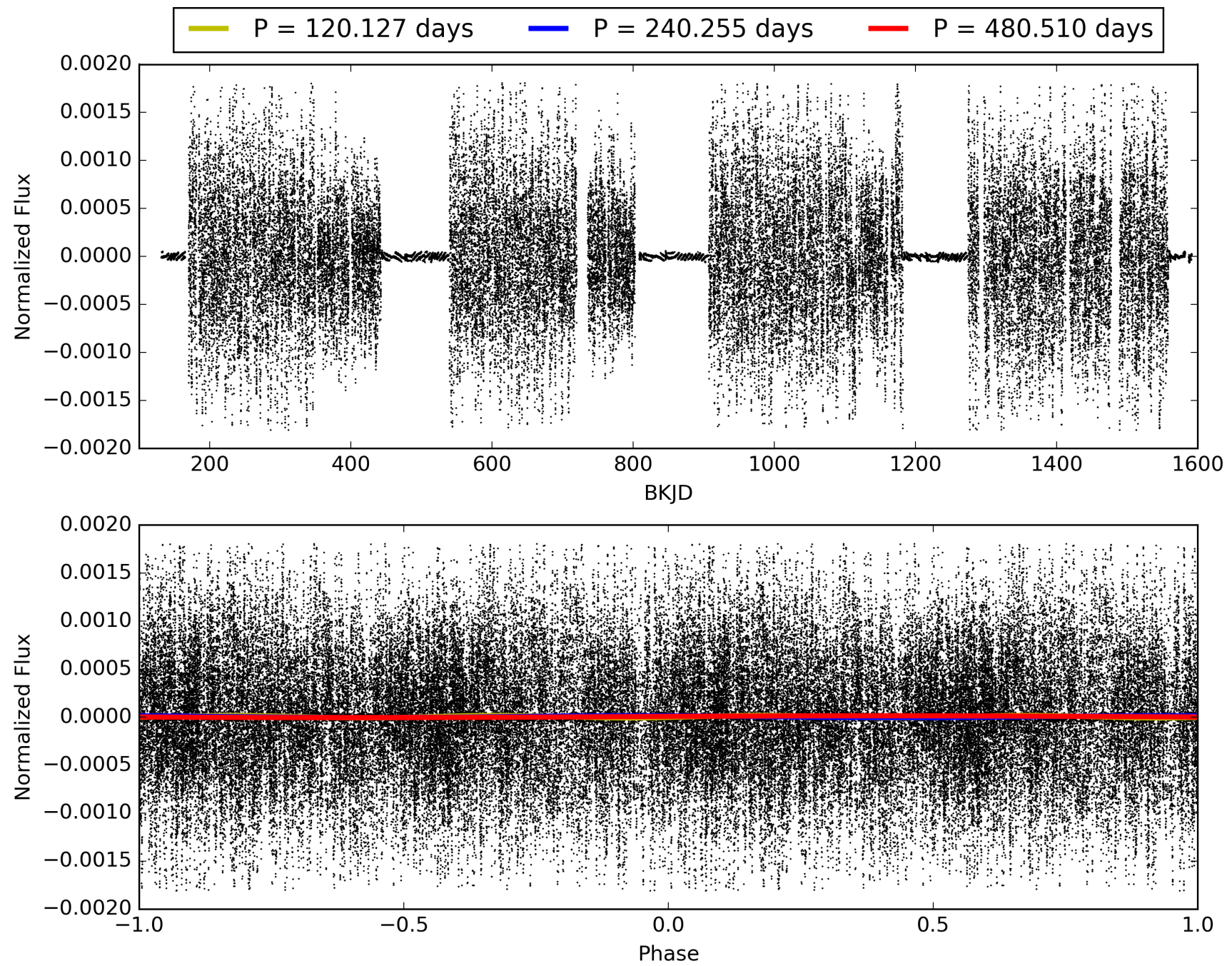
KIC: 7448051 Candidate: 1 of 8 Period: 240.255 d



TCE 007448051-01, PDC Light Curves

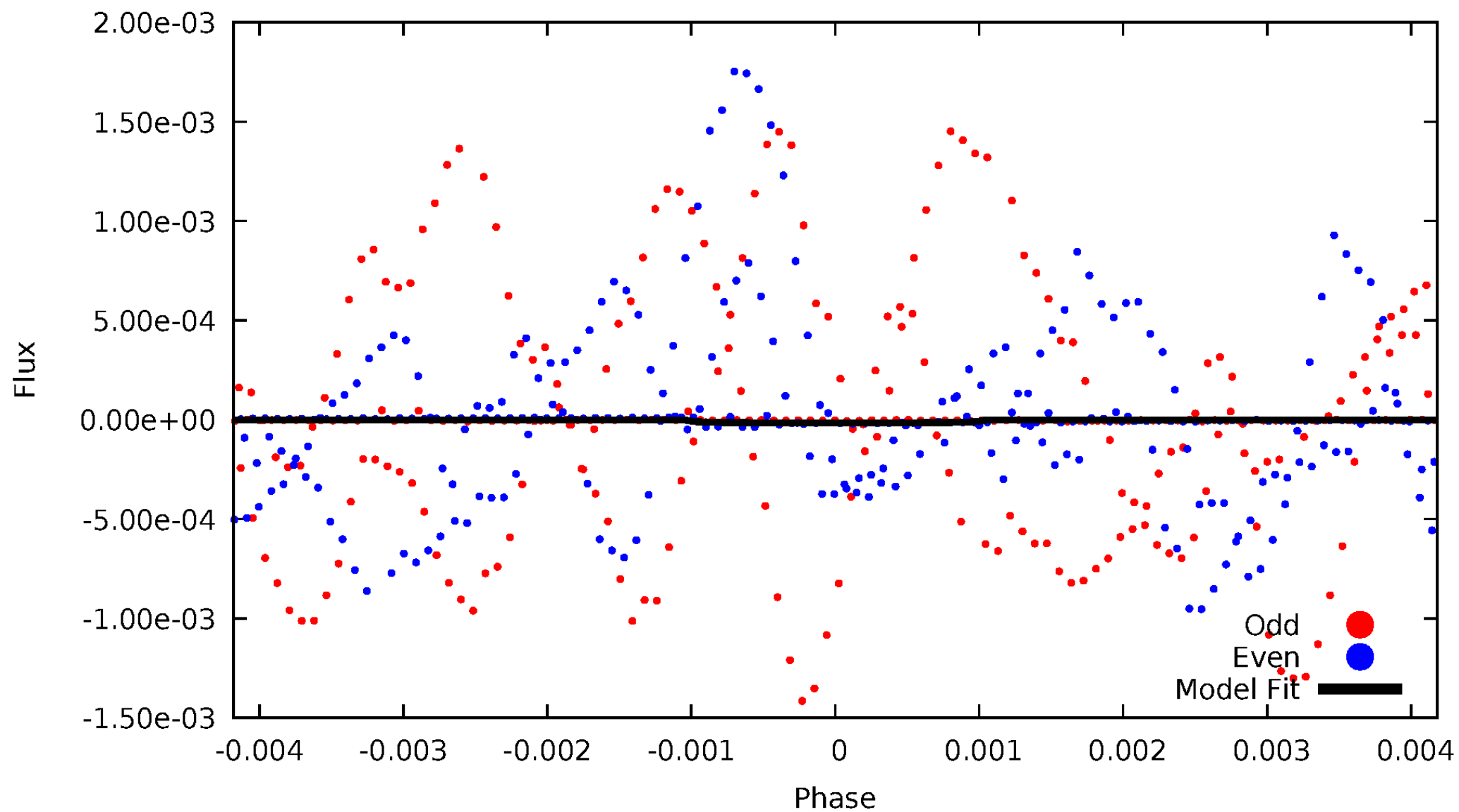


TCE 007448051-01



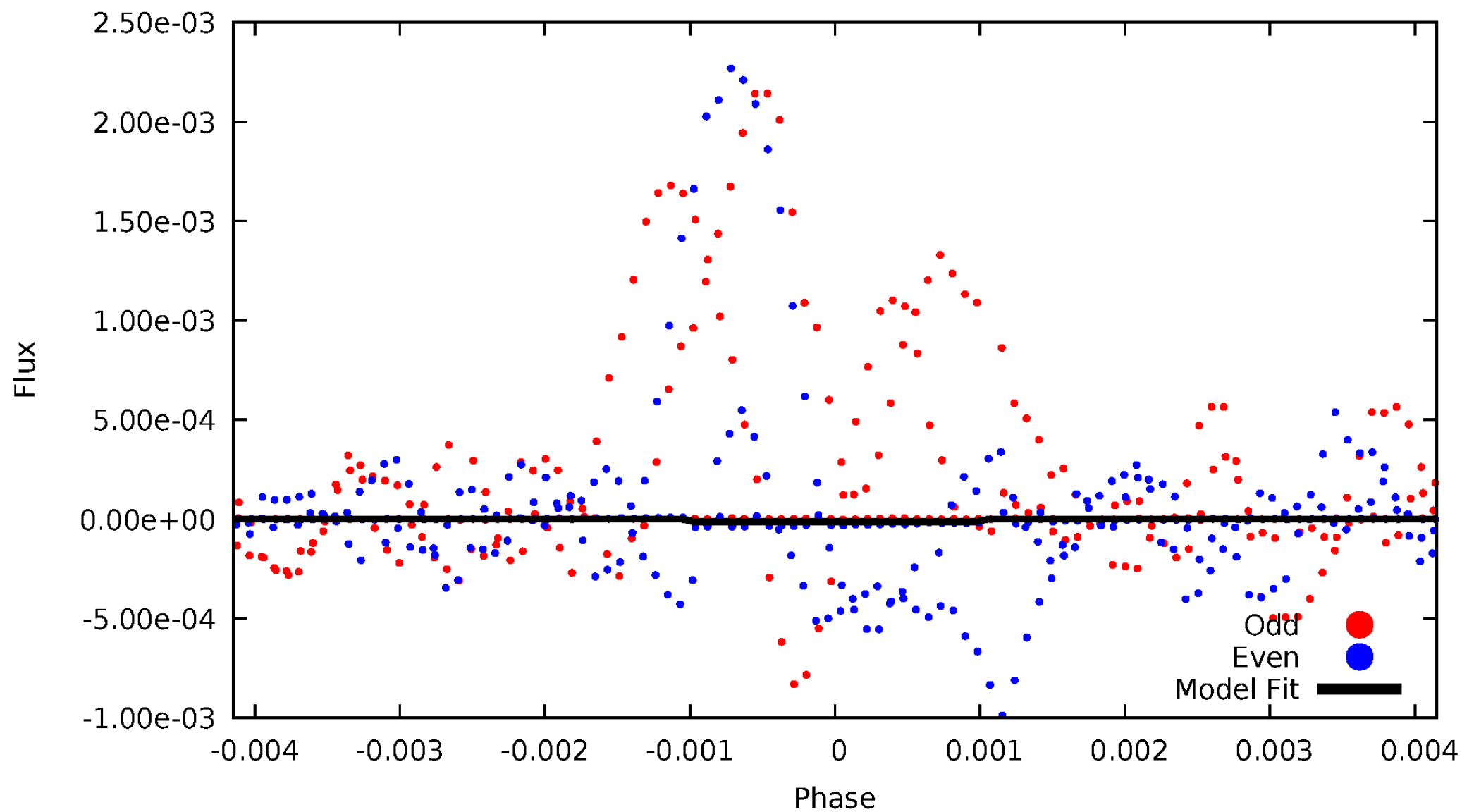
DV Odd/Even

TCE 007448051-01



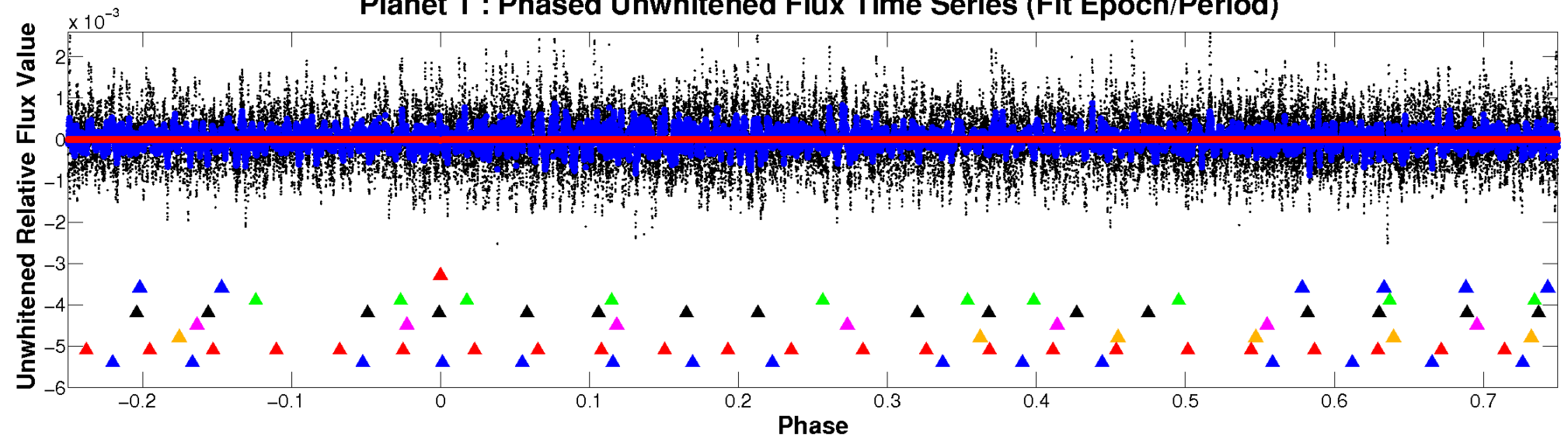
ALT Odd/Even

TCE 007448051-01

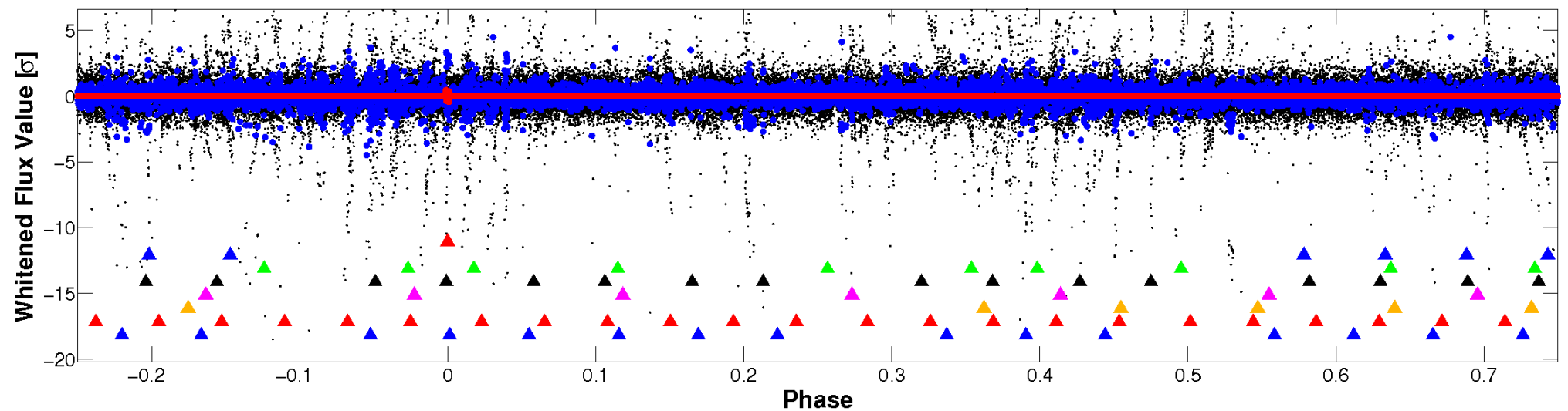


Non-Whitened Vs. Whitened Light Curve

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

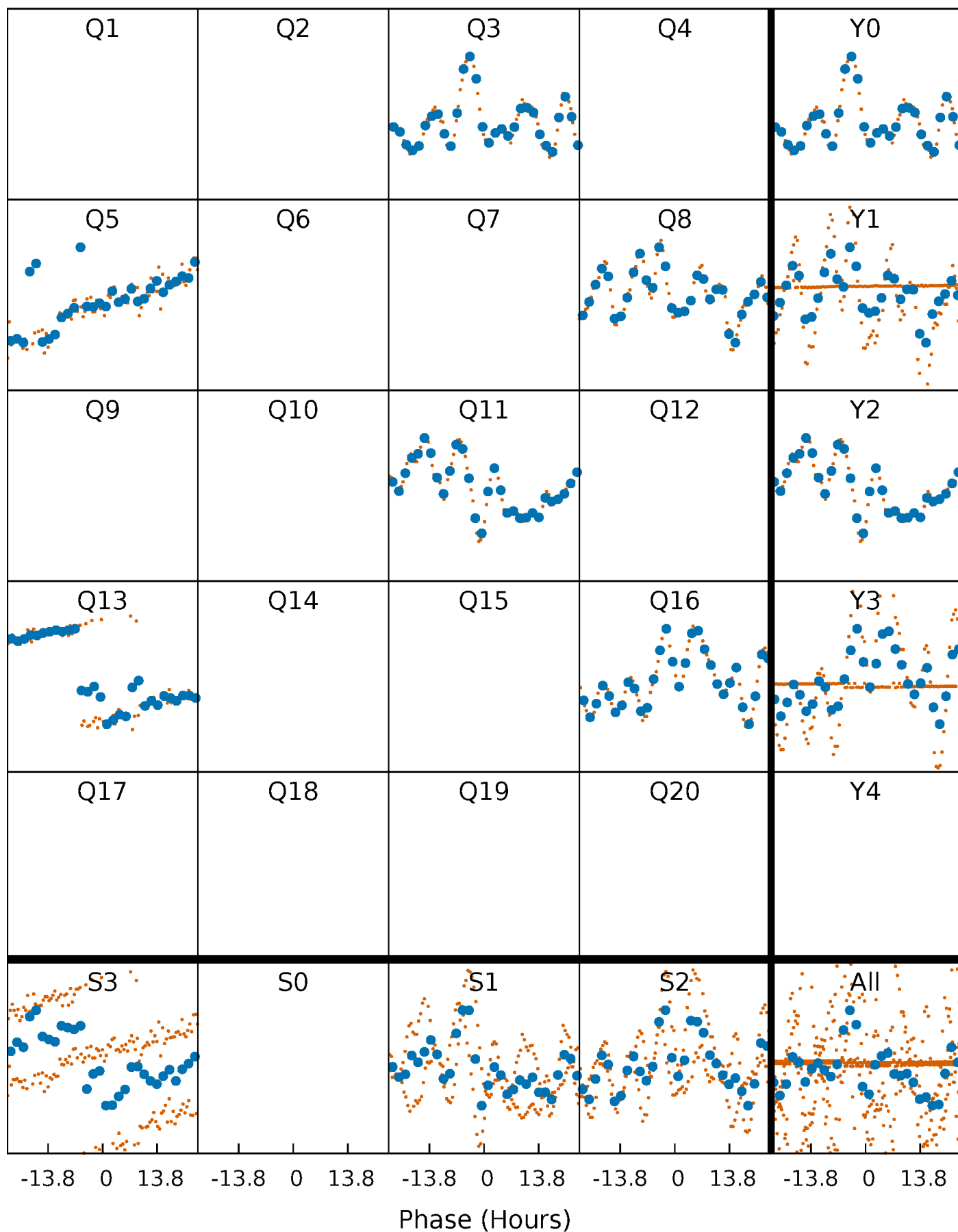


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



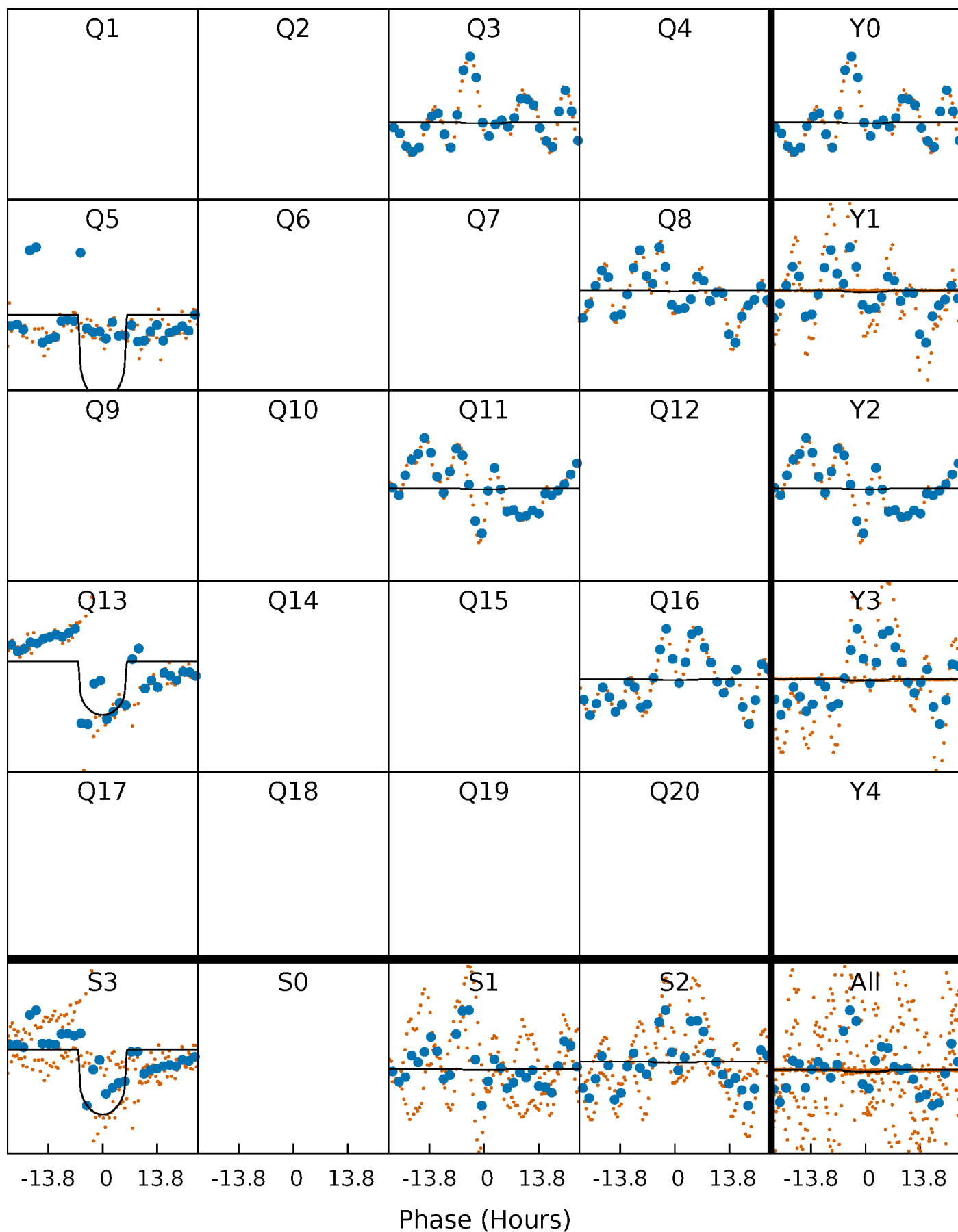
PDC Quarter-Phased Transit Curves

TCE 007448051-01 P=240.254884 Days $T_0=294.209860$ (BKJD)



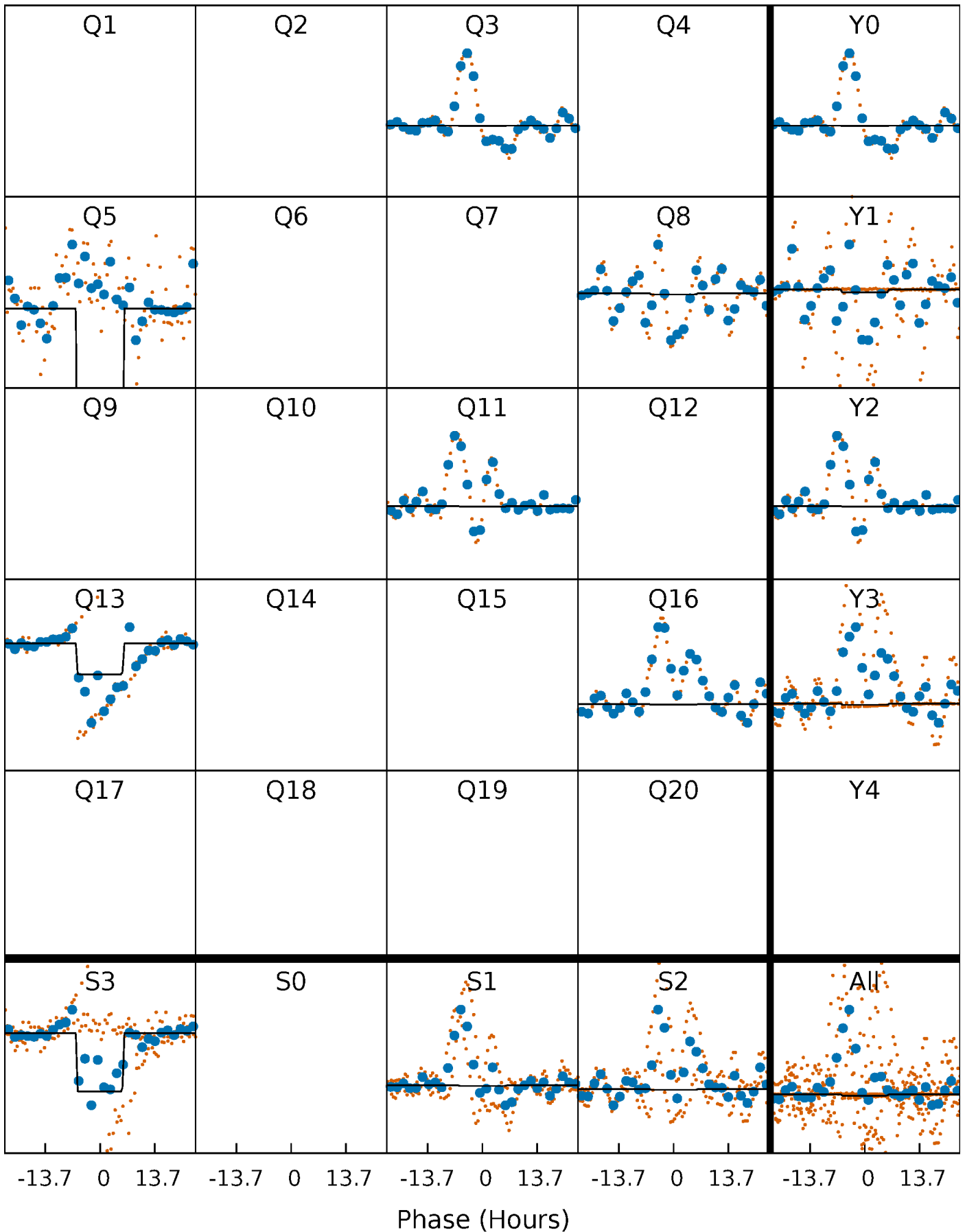
DV Quarter-Phased Transit Curves

TCE 007448051-01 $P=240.254884$ Days $T_0=294.209860$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

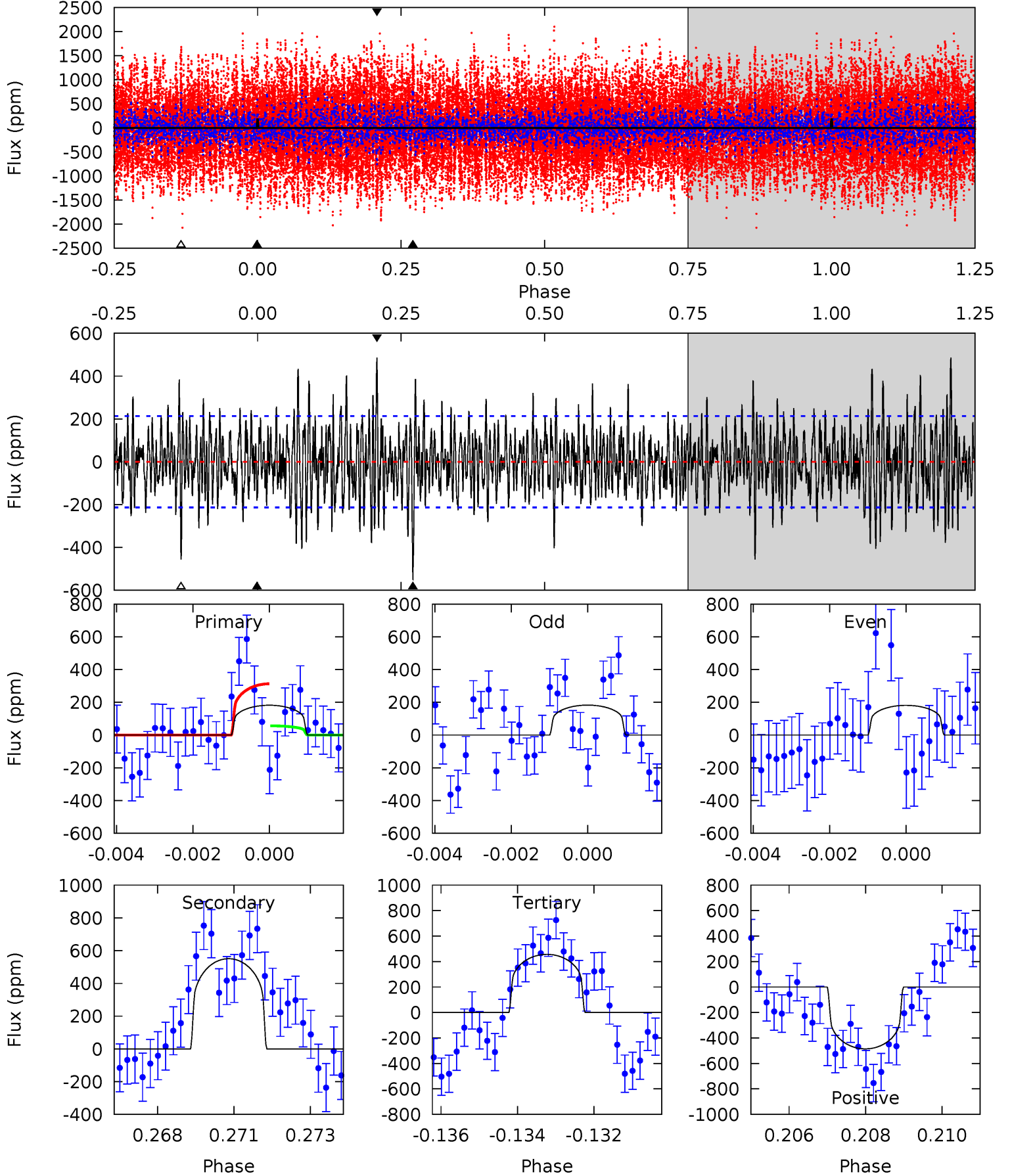
TCE 007448051-01 P=240.257799 Days $T_0=294.213662$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-01, P = 240.254884 Days, E = 53.954976 Days

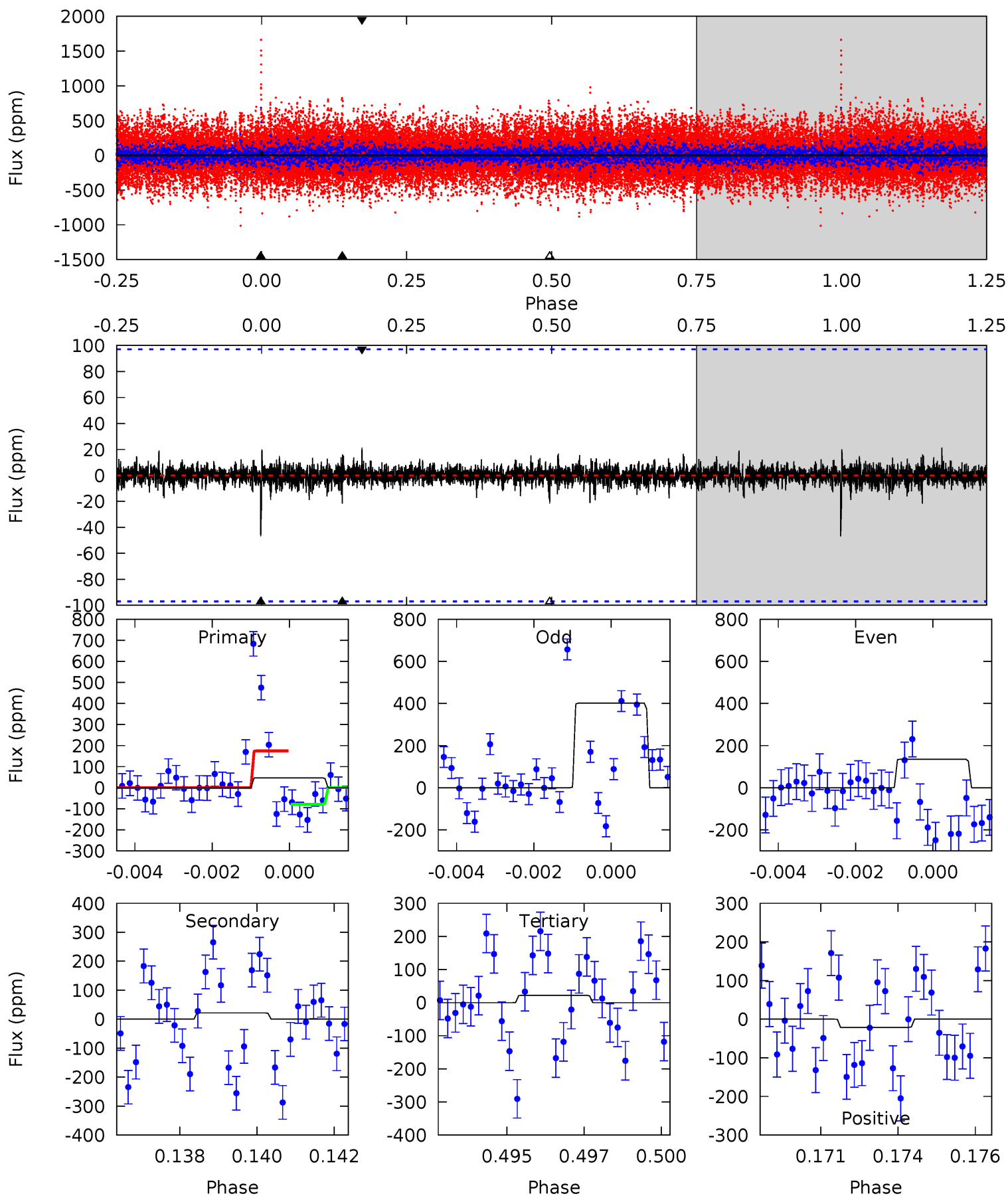
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.54	13.7	11.4	12.1	5.31	3.07	3.18	-6.83	-7.56	2.35	1.62	0.02	14.4	0.47	3.21



Alt Model-Shift Uniqueness Test

007448051-01, P = 240.257799 Days, E = 53.955863 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.56	1.19	1.19	1.16	5.32	3.07	0.25	1.38	1.40	0.00	0.02	7.09	1.70	0.31	2.61



Stellar Parameters For KIC 007448051

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-551 ± 40	$5.84^{+1.16}_{-1.11}$	1040^{+28}_{-22}	11007^{+1914}_{-1197}	6184^{+3118}_{-1685}
Alt.	-22 ± 18	$4.56^{+1.13}_{-1.09}$	1038^{+24}_{-22}	4963^{+1090}_{-1568}	377^{+519}_{-331}

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

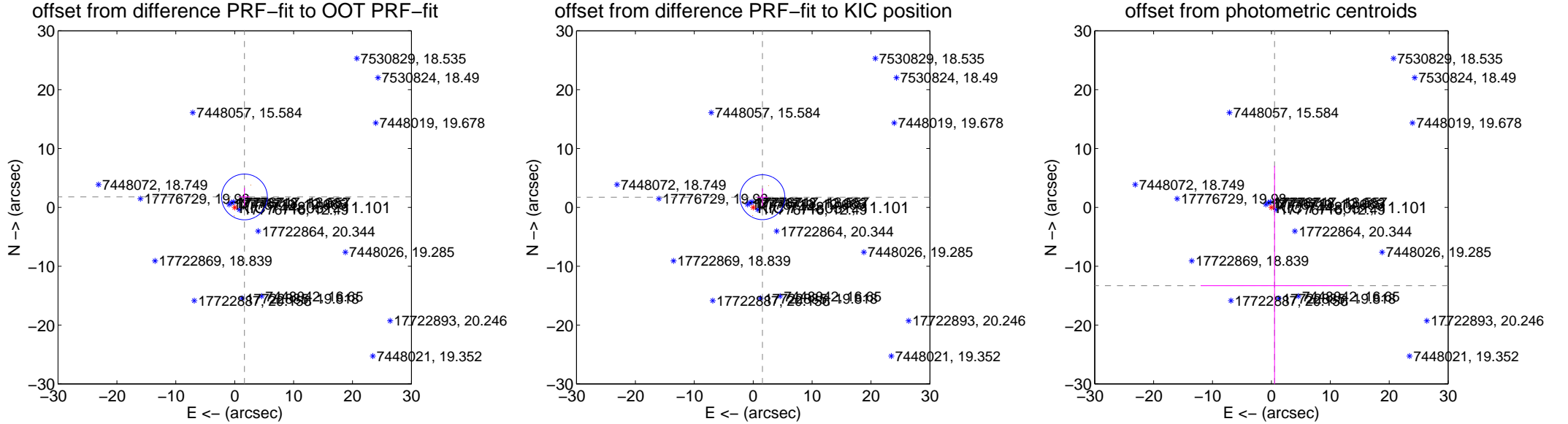
DV Centroid Data

Supplemental centroid analysis for 007448051-01. **Kepler magnitude: 11.10.** Transit SNR 4.35

There are 1 quarters with good PRF difference image offsets

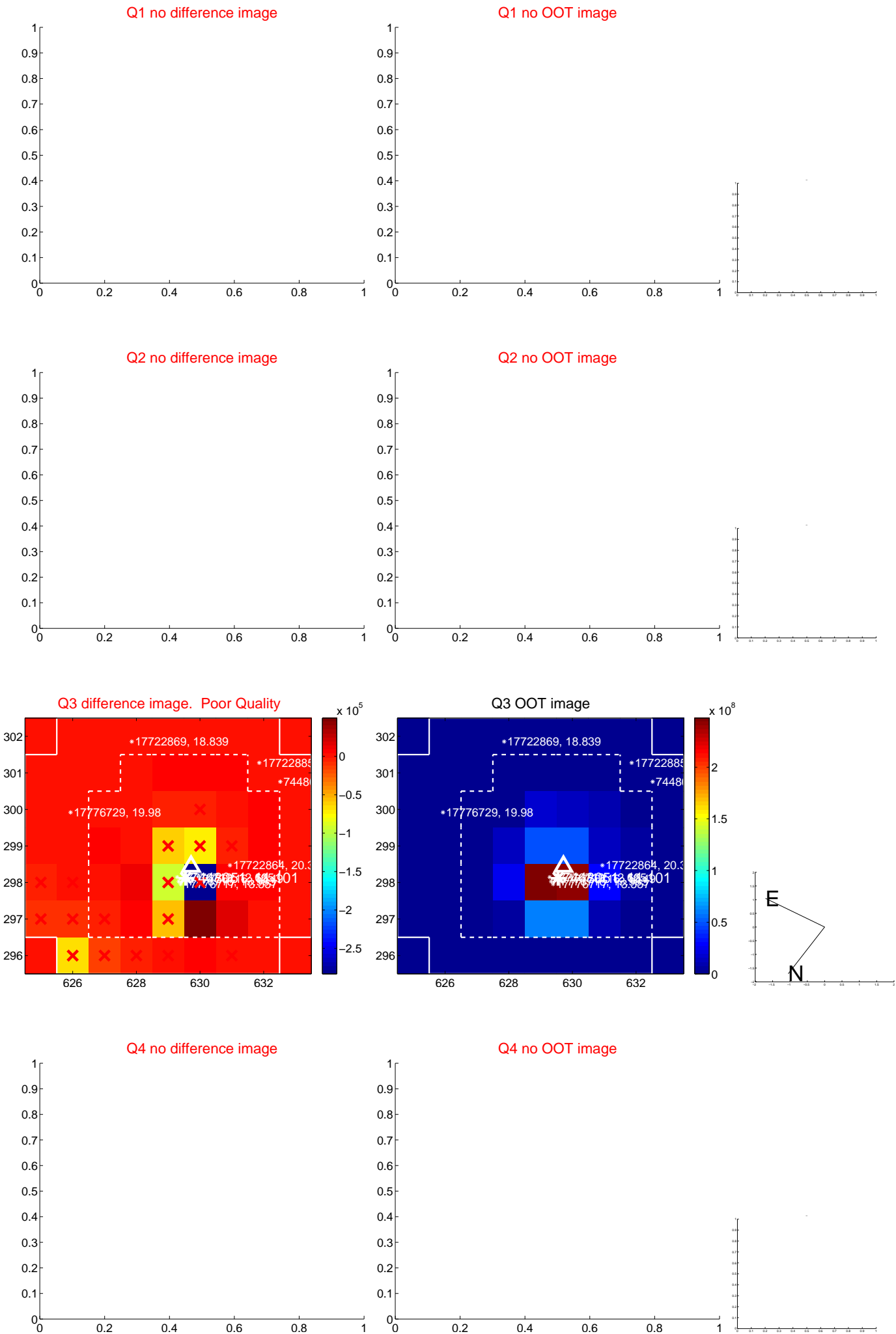
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.426 ± 1.296	1.87	-1.653 ± 0.900	1.776 ± 1.559
PRF-fit source offset from KIC position	2.333 ± 1.270	1.84	-1.568 ± 0.903	1.728 ± 1.506
photometric centroid source offset	13.32 ± 20.35	0.65	-0.53 ± 12.54	-13.31 ± 20.36

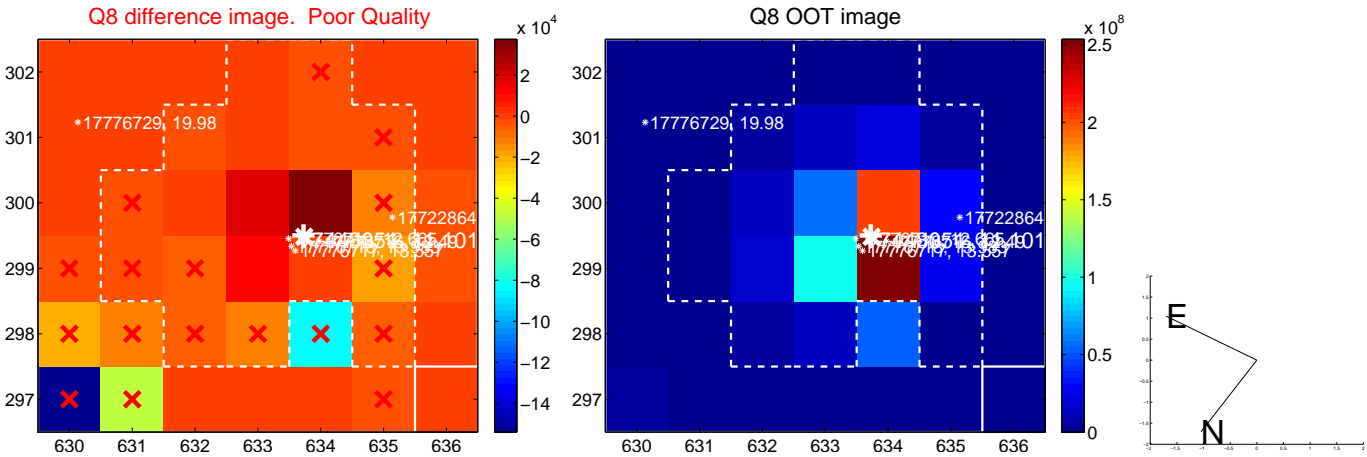
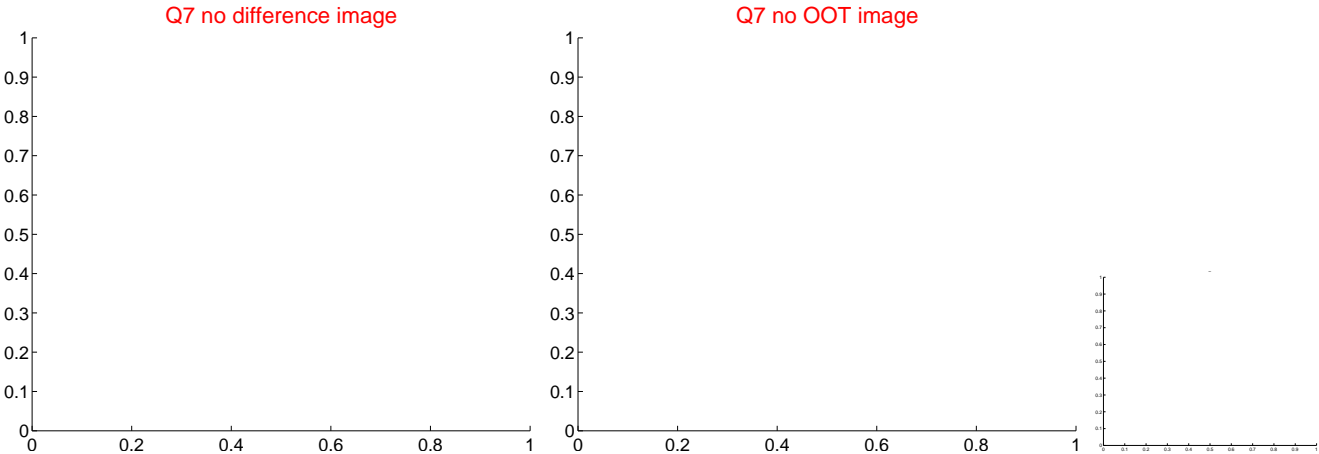
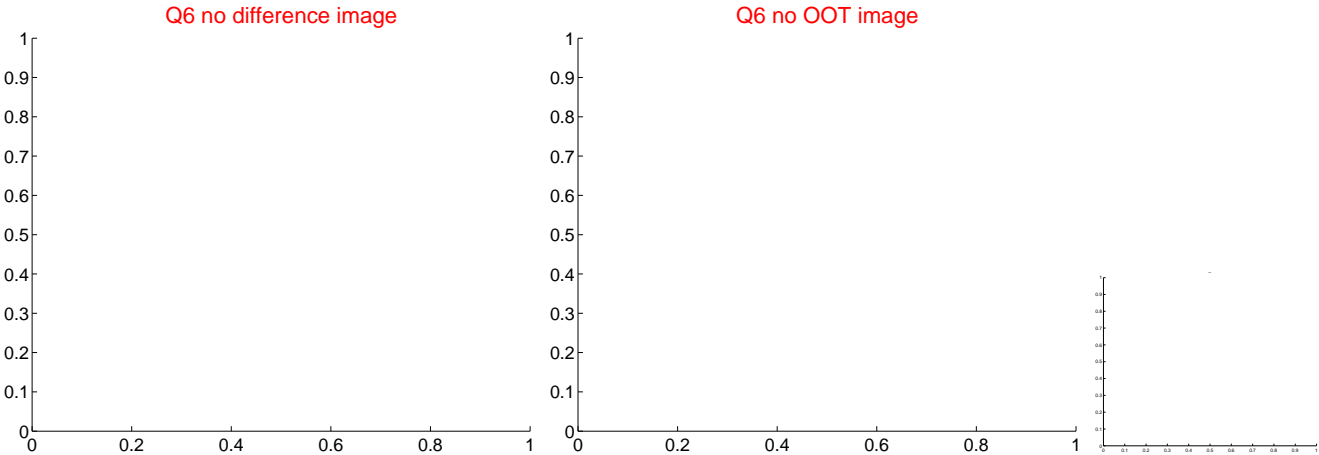
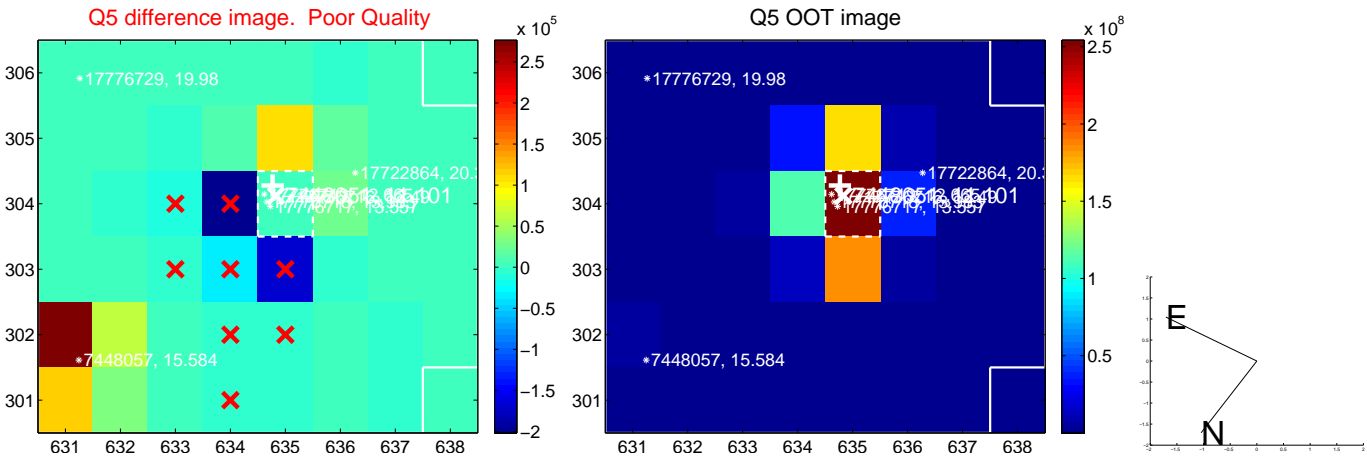


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

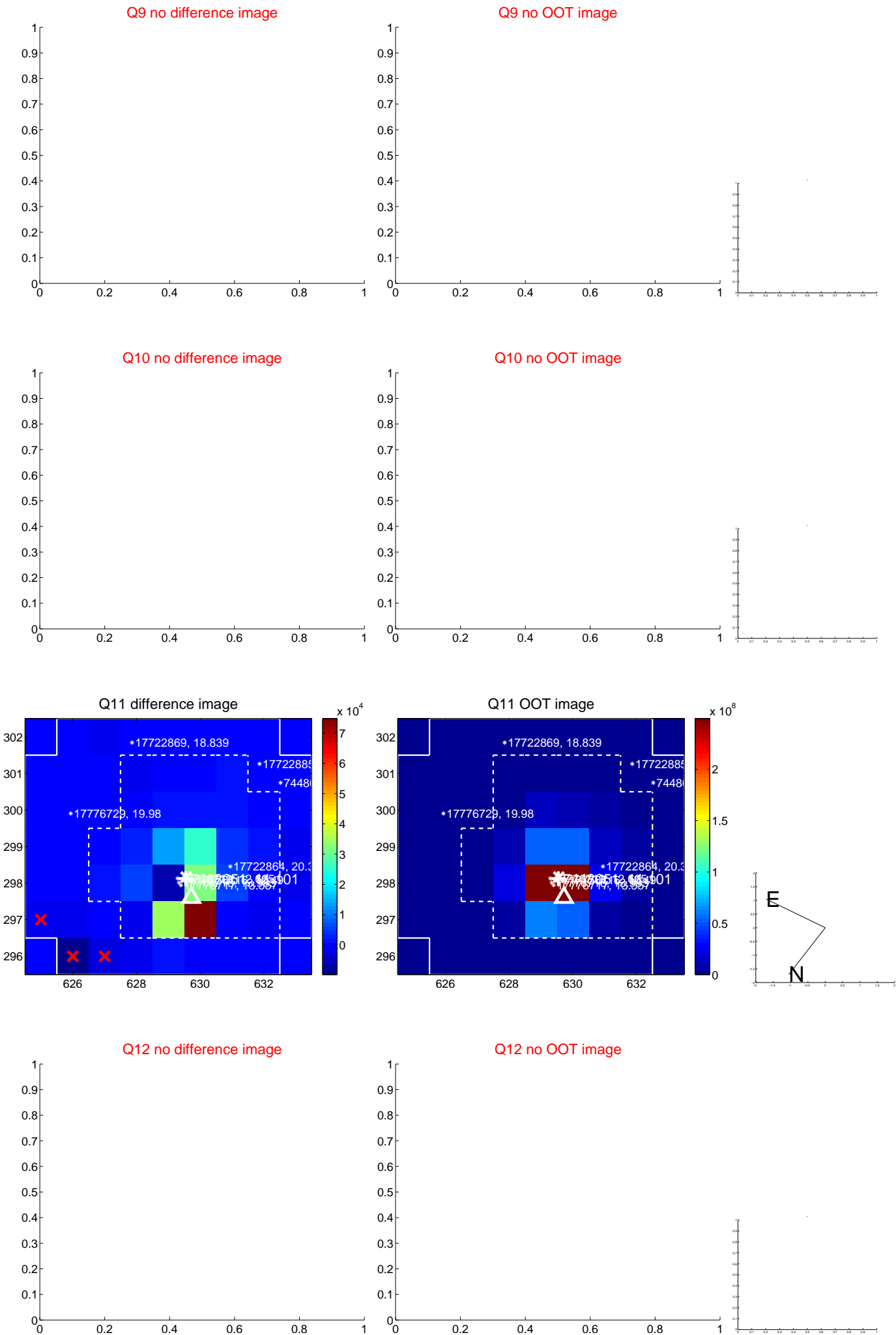
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



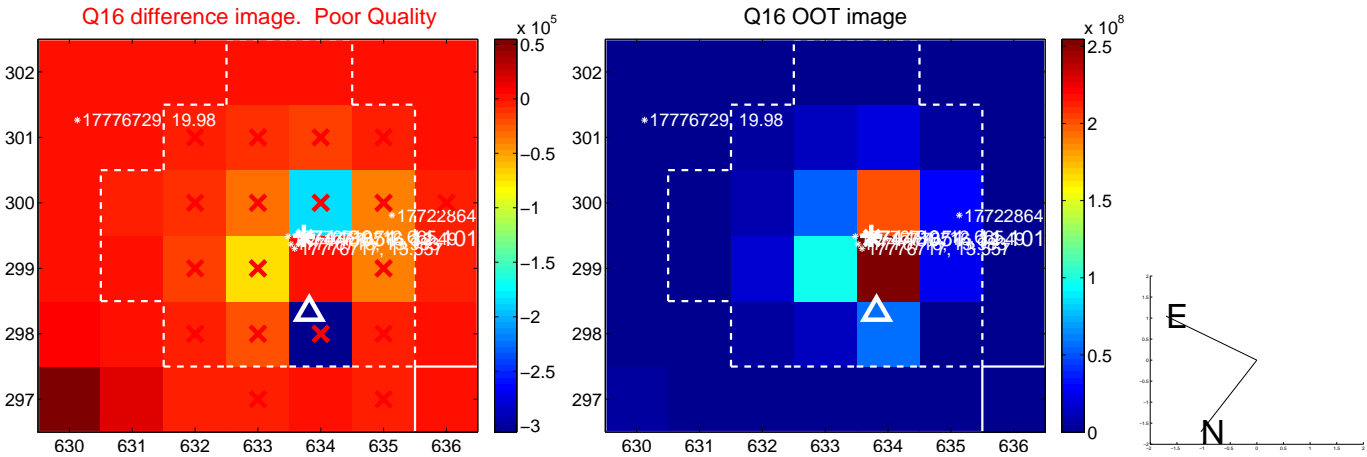
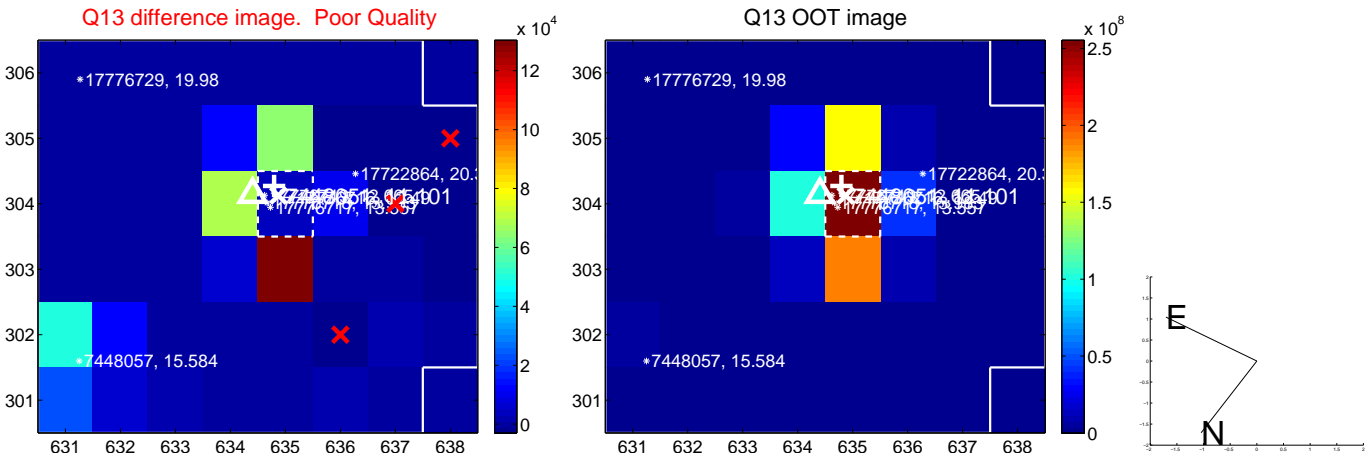
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



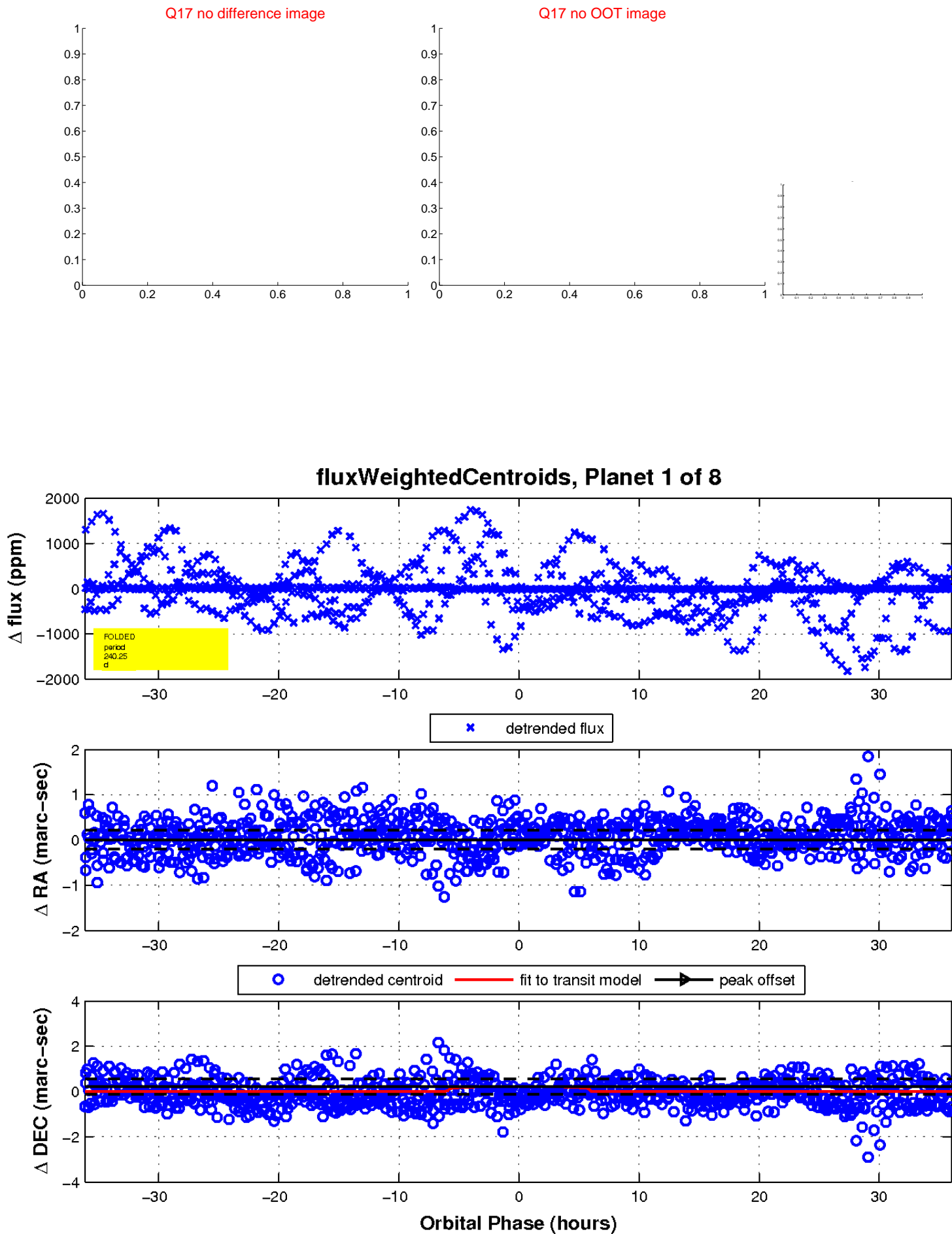
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

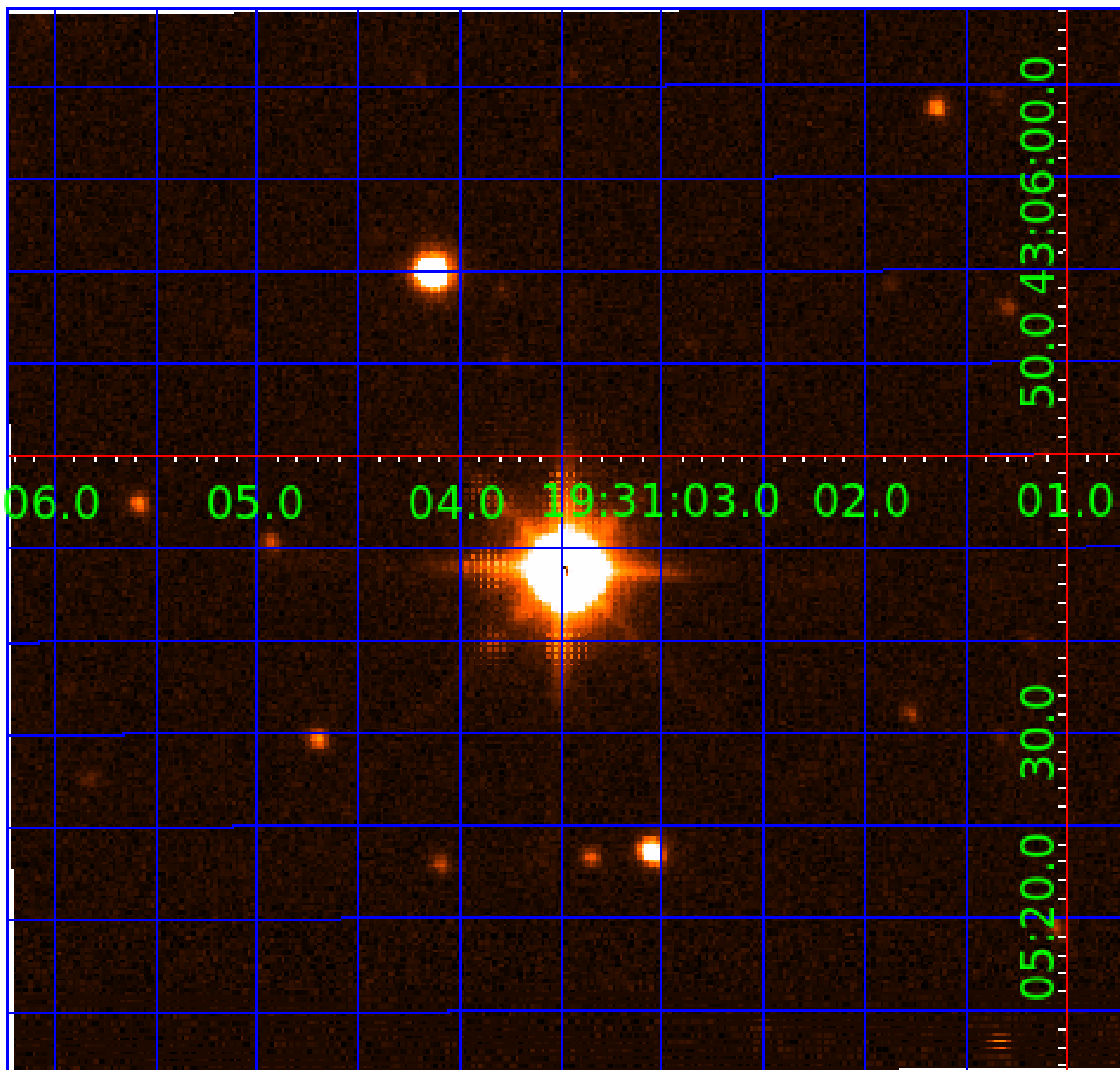


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

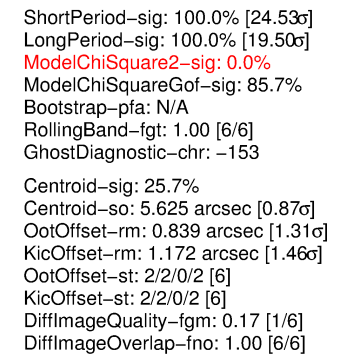
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

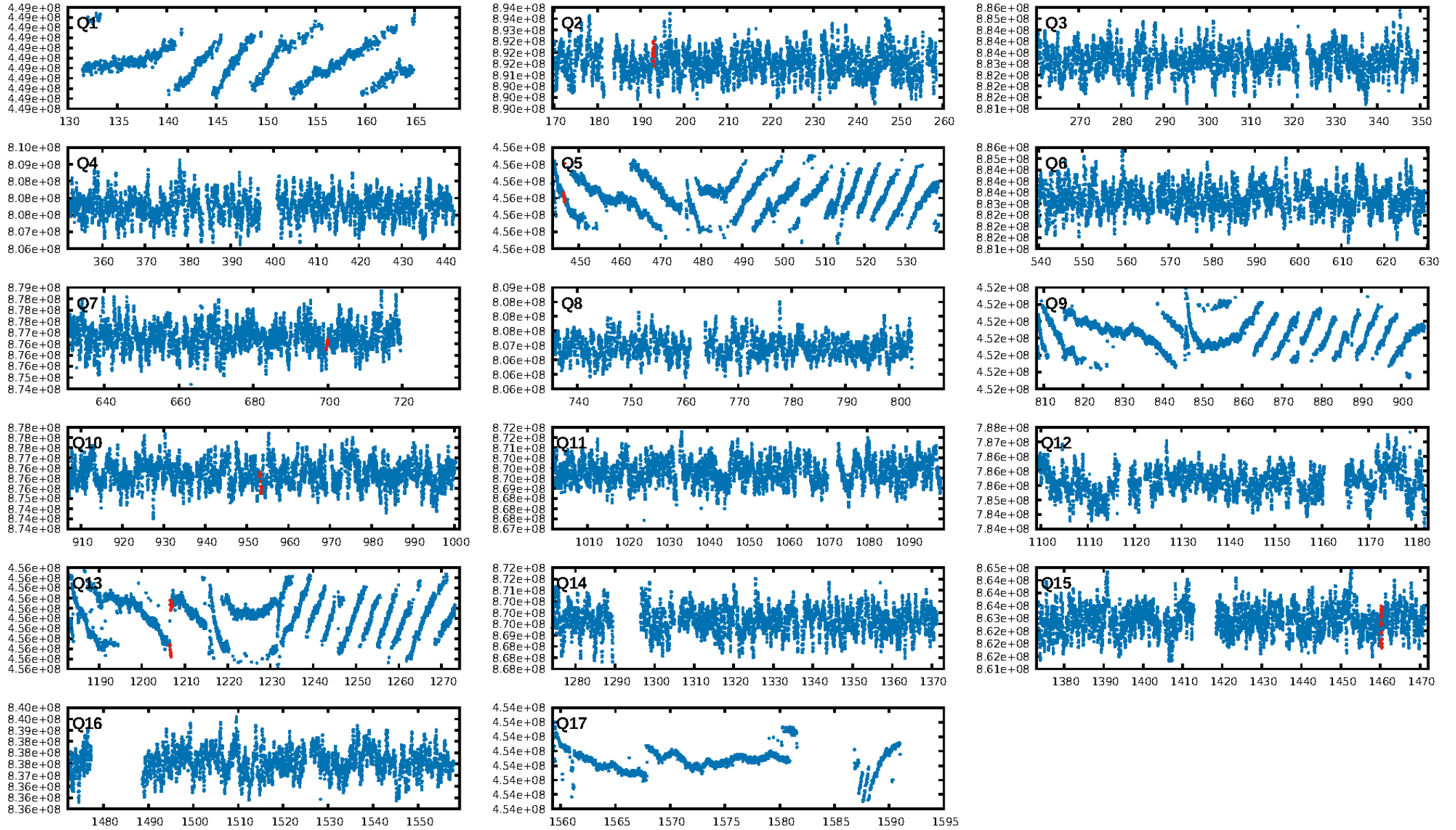
Ephemeris Match Information For 007448051-02

No Significant Match Found

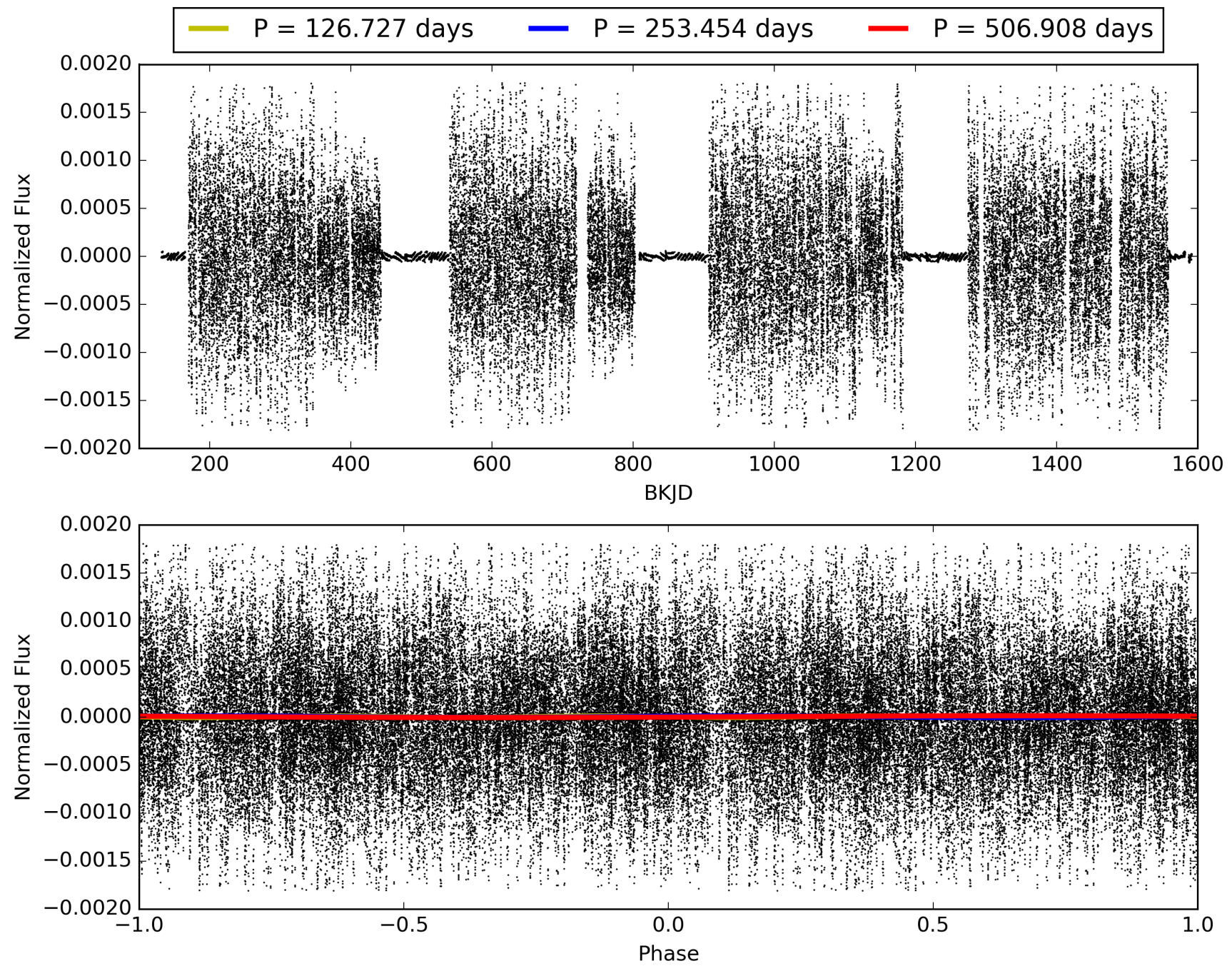
KIC: 7448051 Candidate: 2 of 8 Period: 253.454 d



TCE 007448051-02, PDC Light Curves

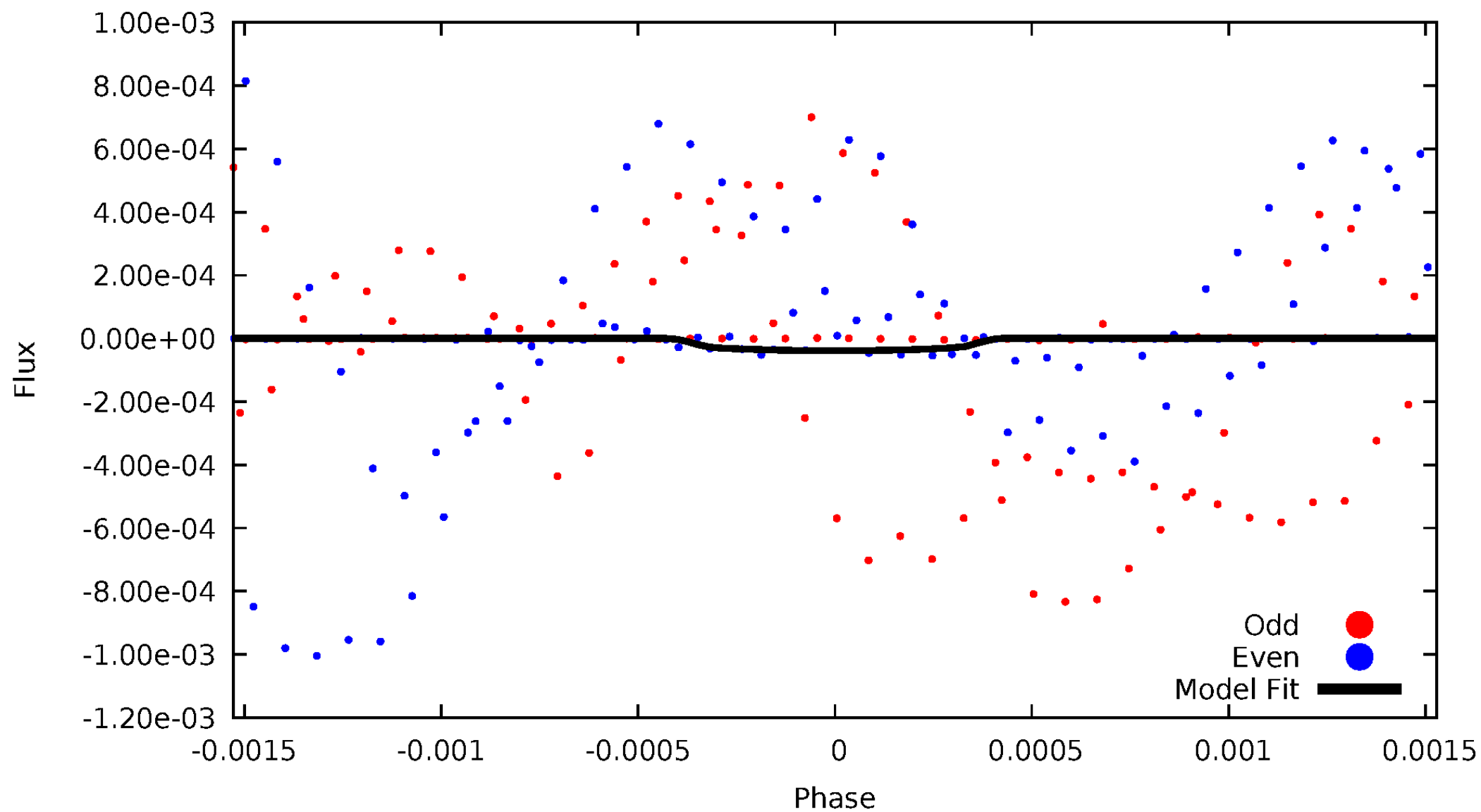


TCE 007448051-02



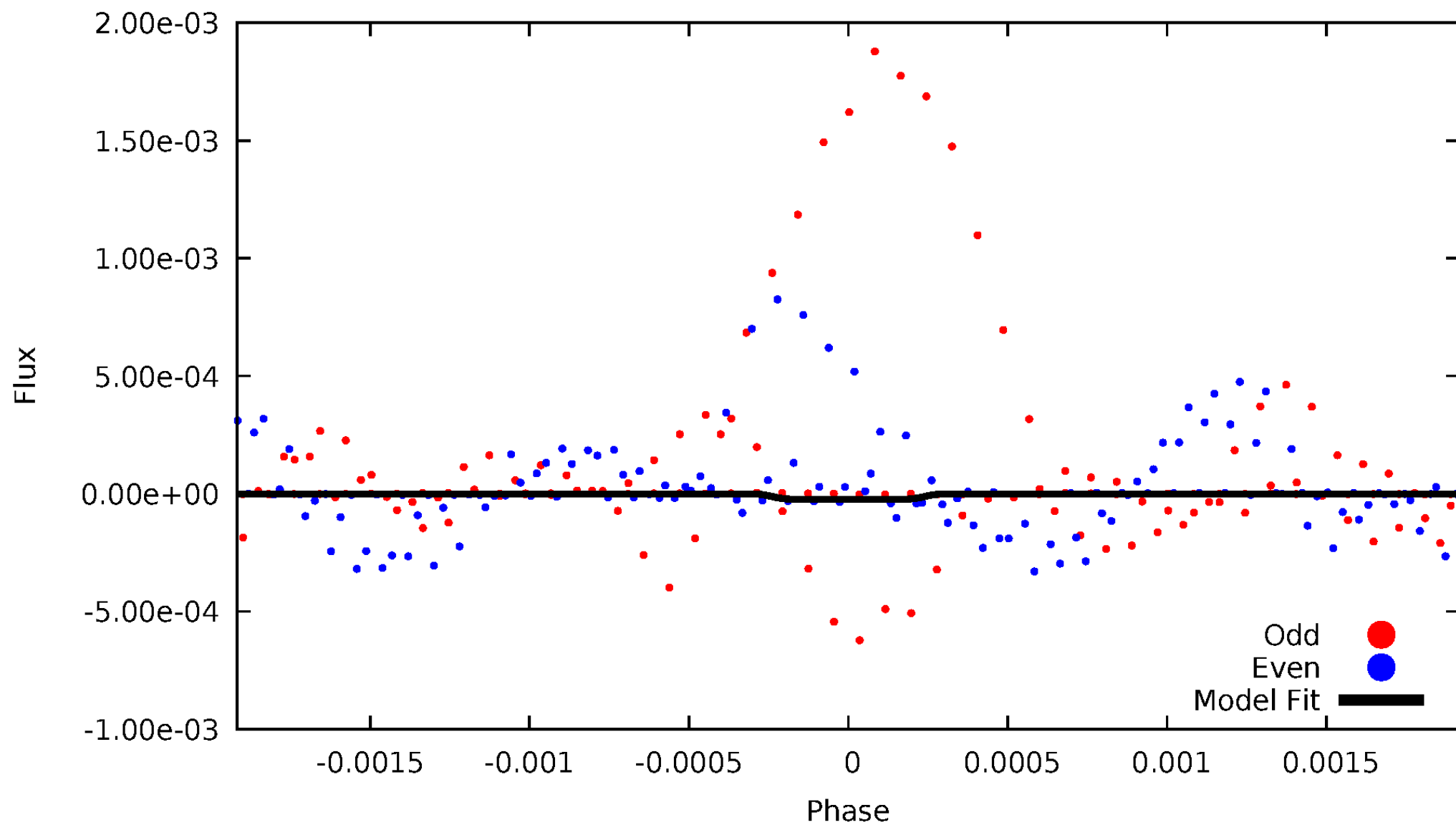
DV Odd/Even

TCE 007448051-02



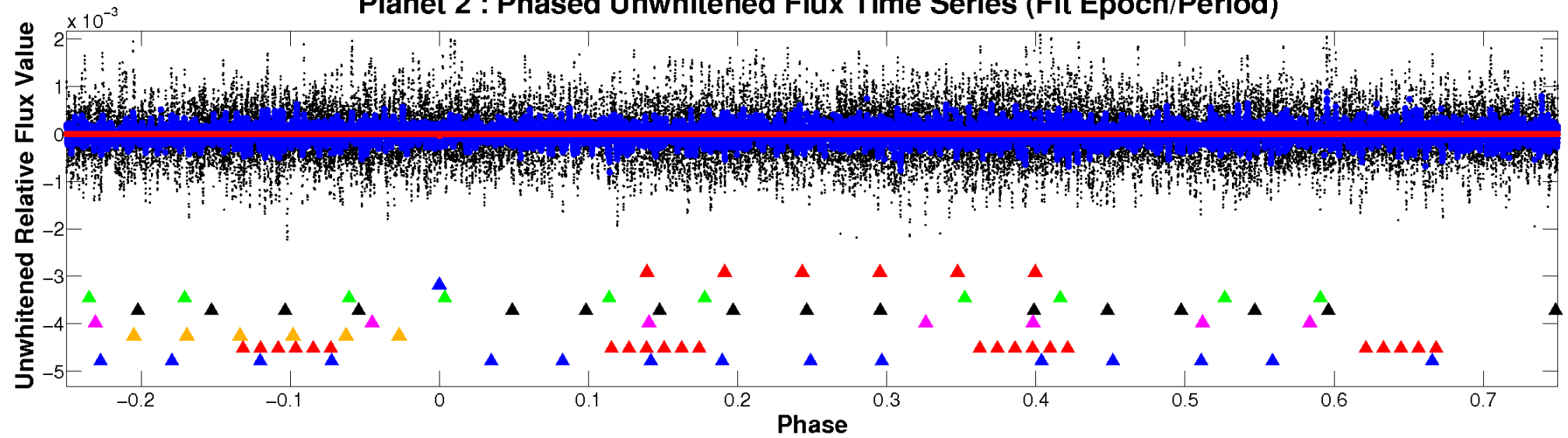
ALT Odd/Even

TCE 007448051-02

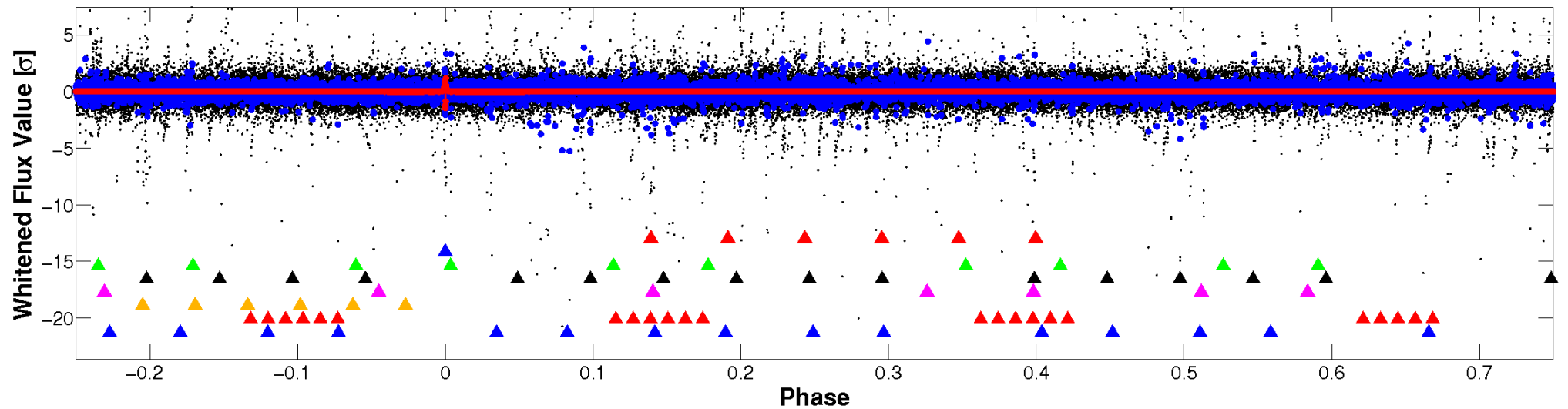


Non-Whitened Vs. Whitened Light Curve

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

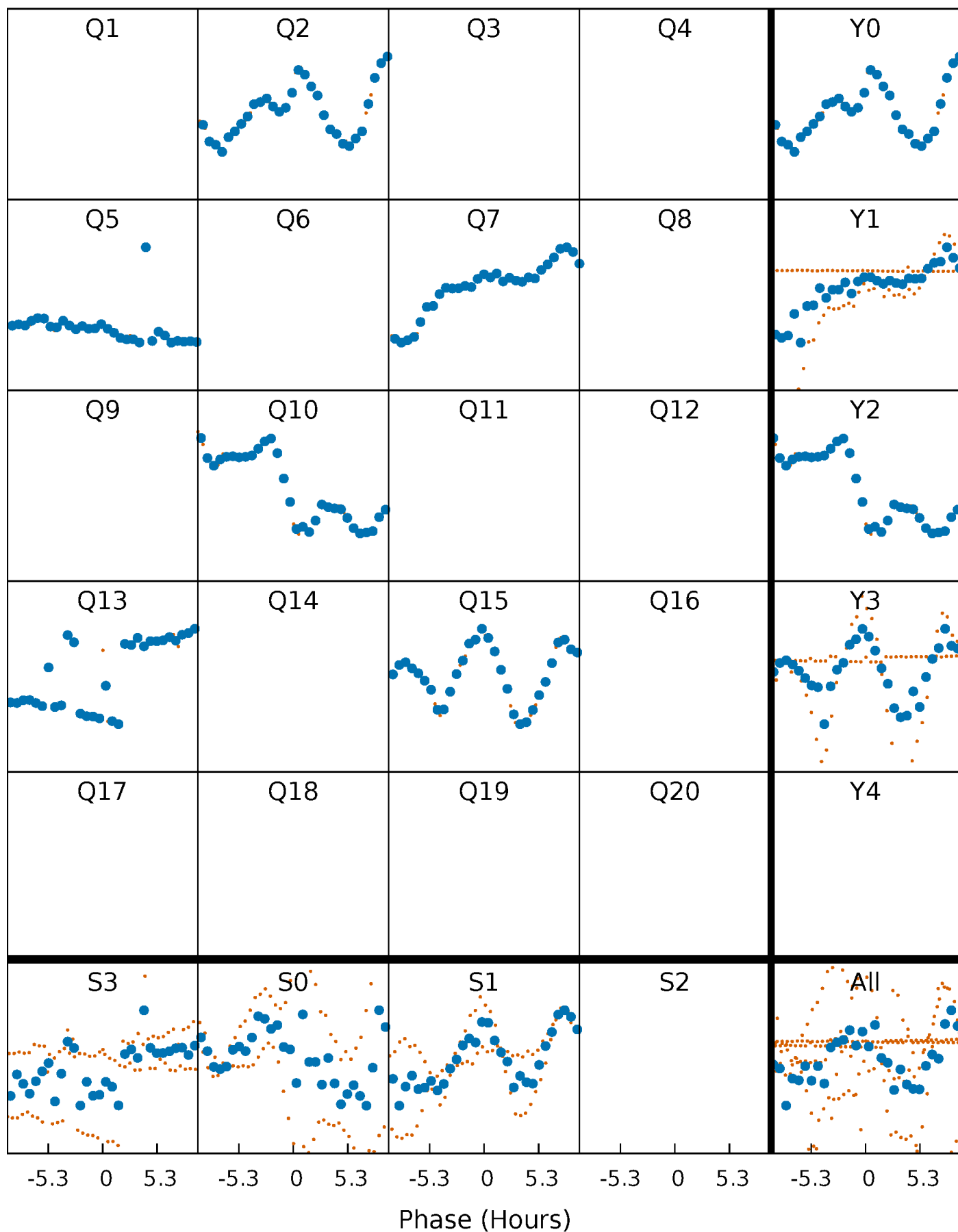


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



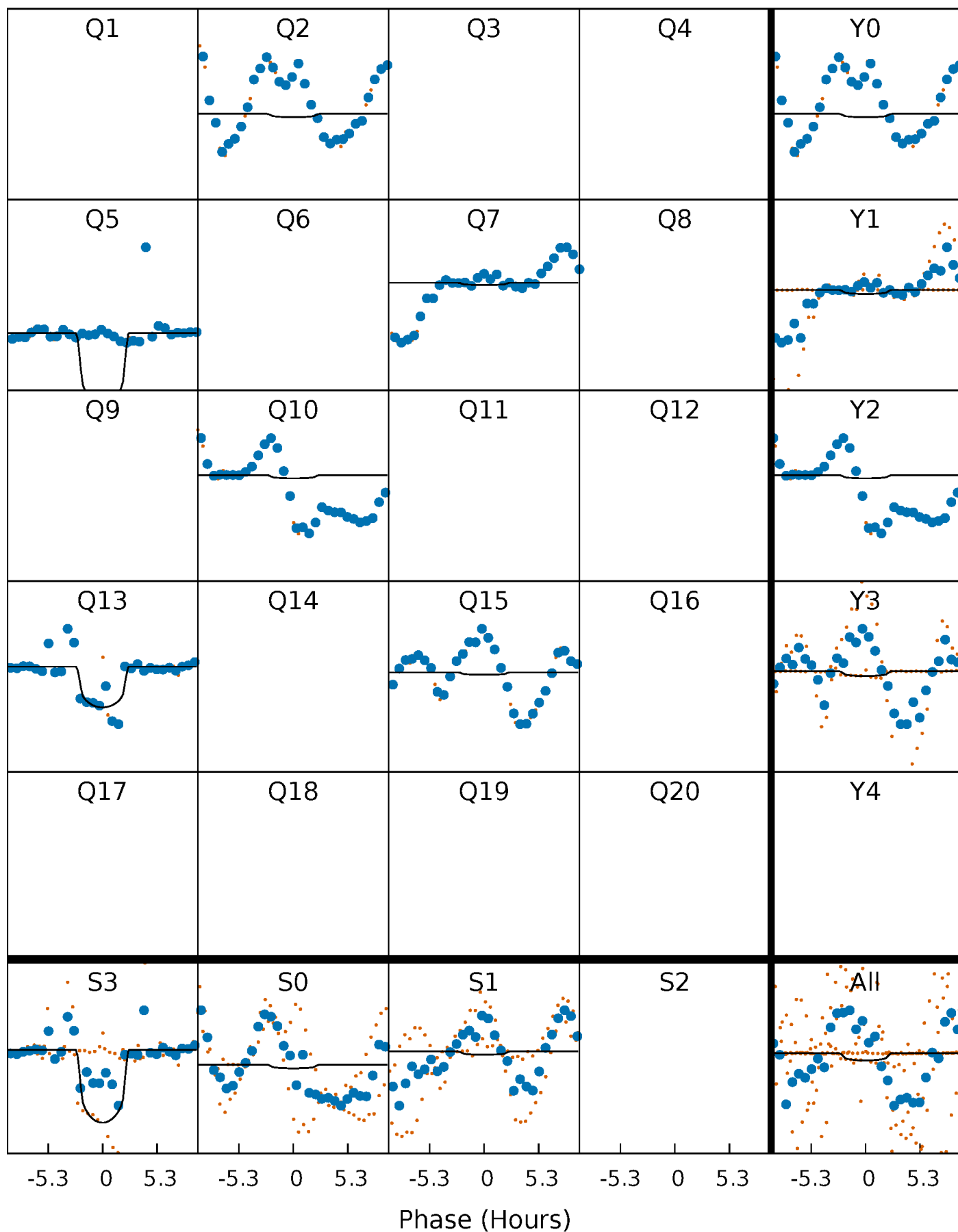
PDC Quarter-Phased Transit Curves

TCE 007448051-02 P=253.454232 Days $T_0=192.928613$ (BKJD)



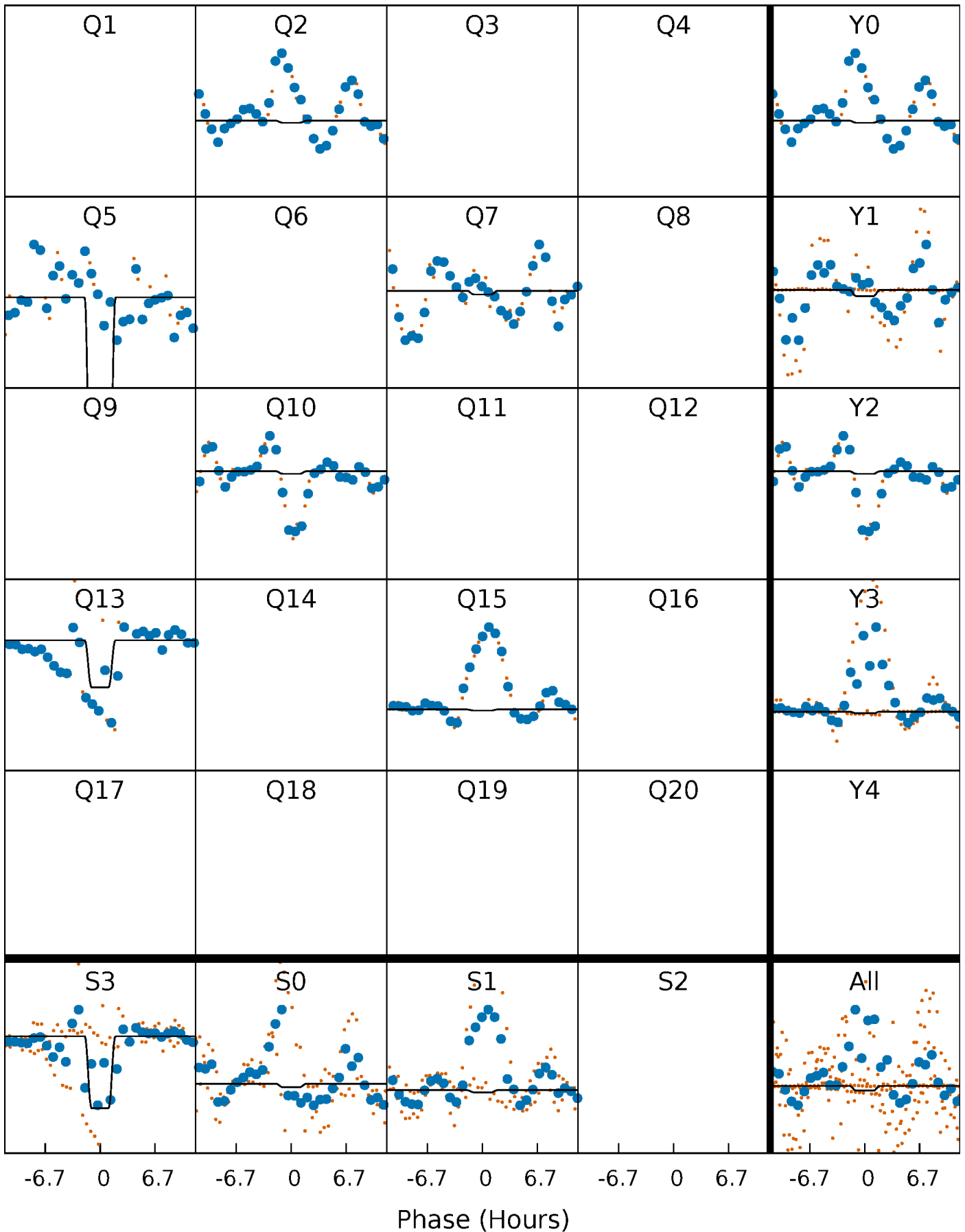
DV Quarter-Phased Transit Curves

TCE 007448051-02 $P=253.454232$ Days $T_0=192.928613$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

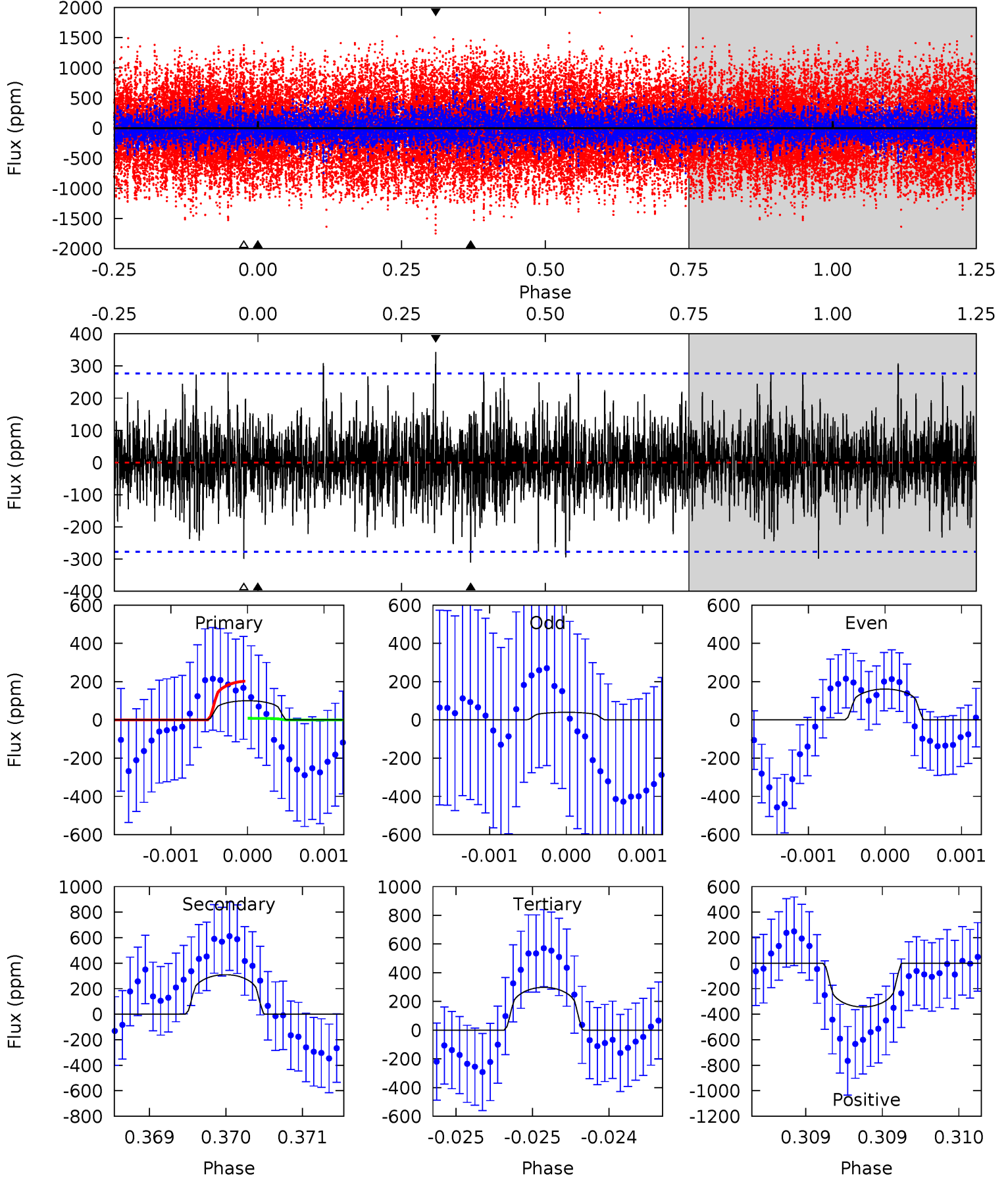
TCE 007448051-02 P=253.429796 Days $T_0=193.014442$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-02, P = 253.454232 Days, E = 192.928613 Days

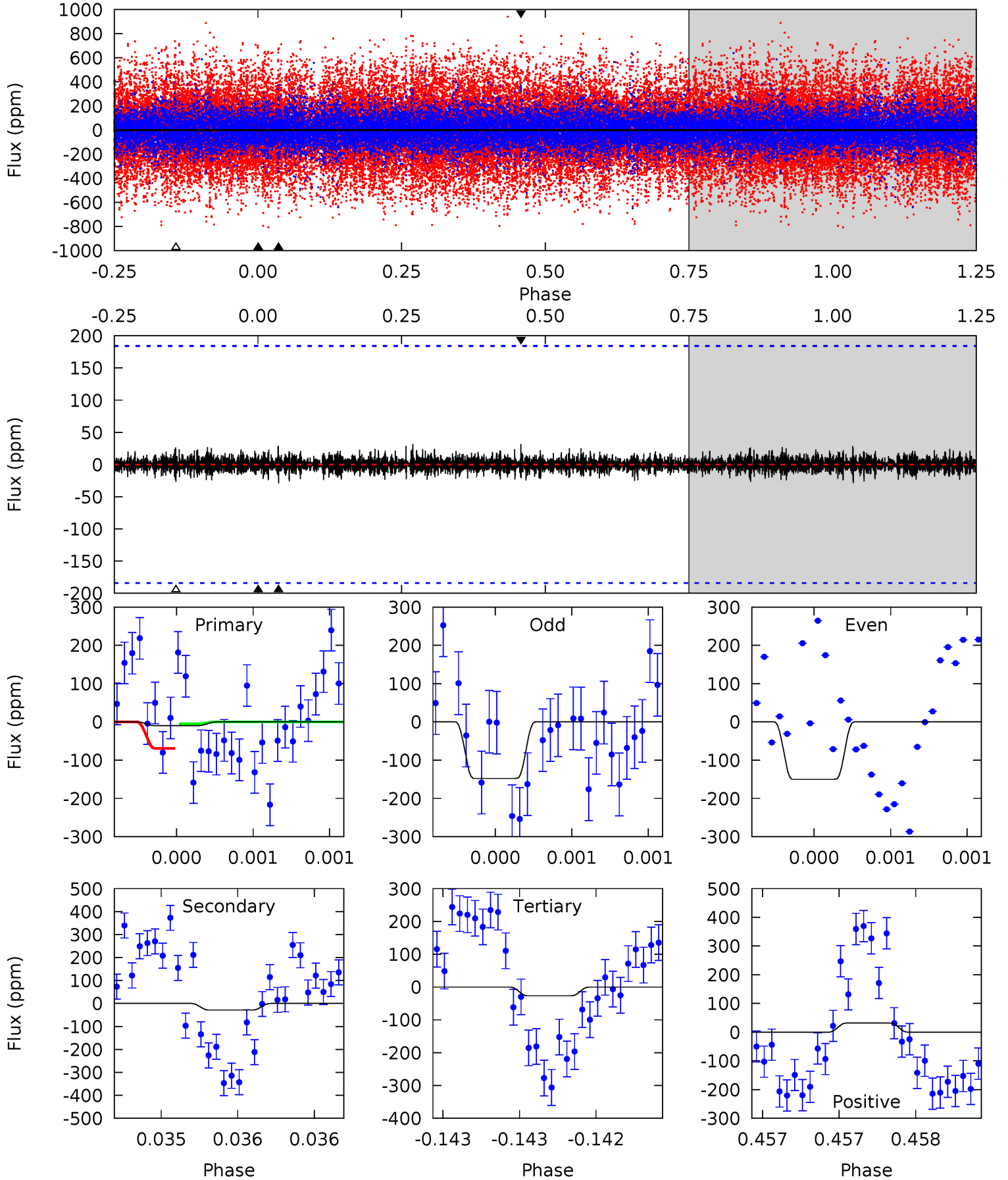
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.99	6.14	5.91	6.80	5.49	3.35	1.57	-3.92	-4.81	0.23	-0.66	1.18	3.71	0.53	1.95



Alt Model-Shift Uniqueness Test

007448051-02, $P = 253.429796$ Days, $E = 193.014442$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.29	0.87	0.80	0.95	5.54	3.43	0.23	-0.51	-0.66	0.07	-0.09	0.03	19.4	0.52	0.97



Stellar Parameters For KIC 007448051

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-310 ± 50	$8.43^{+1.97}_{-1.71}$	1021^{+25}_{-24}	7075^{+1039}_{-731}	1727^{+1067}_{-544}
Alt.	-29 ± 33	$6.09^{+1.67}_{-1.71}$	1021^{+22}_{-23}	4549^{+1218}_{-8261}	261^{+525}_{-343}

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

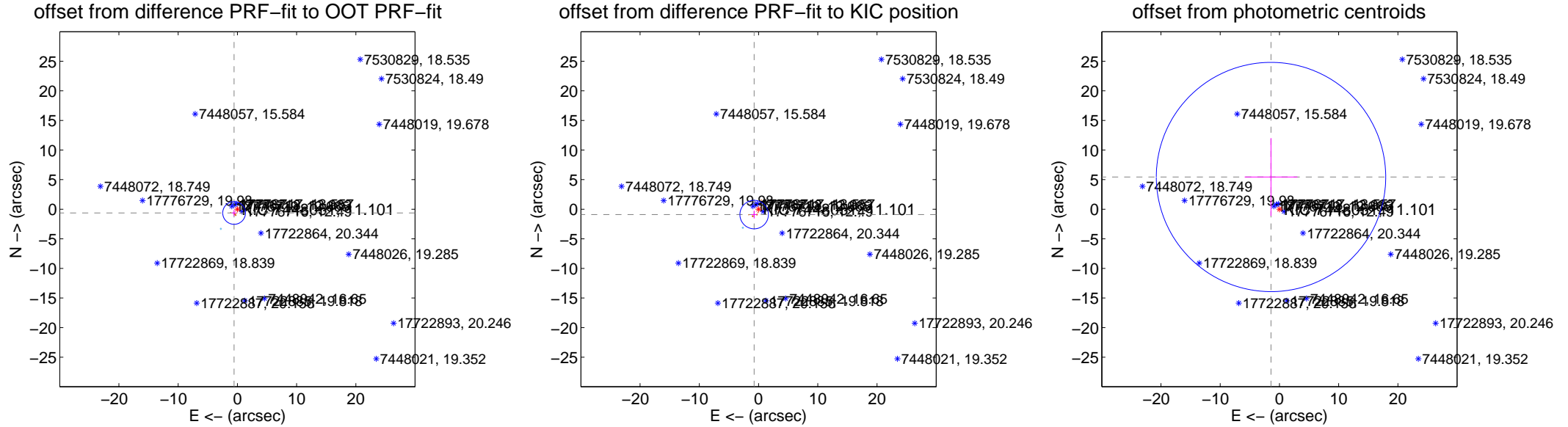
DV Centroid Data

Supplemental centroid analysis for 007448051-02. **Kepler magnitude: 11.10.** Transit SNR 14.50

There are 1 quarters with good PRF difference image offsets

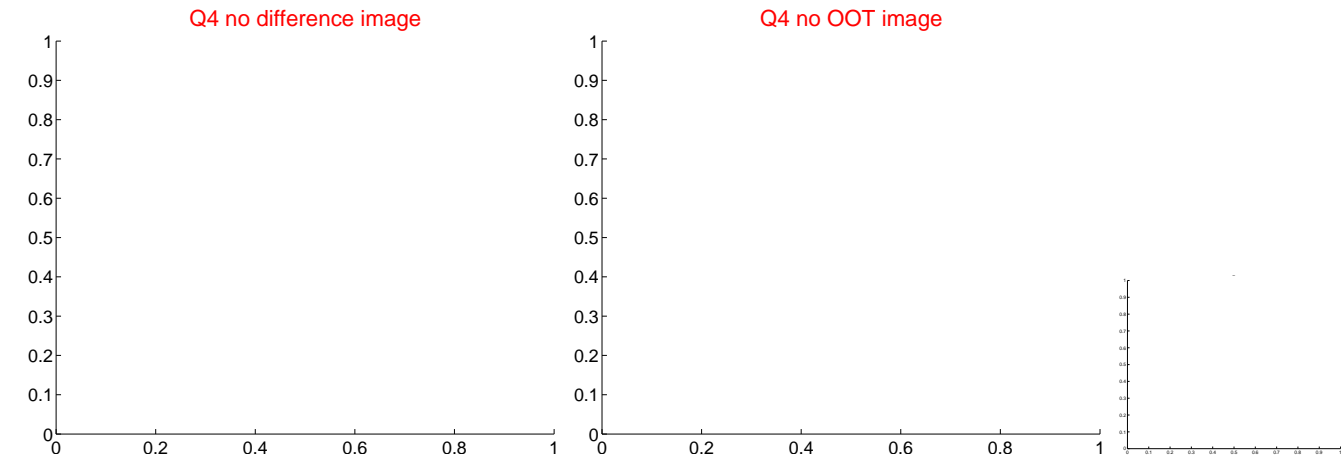
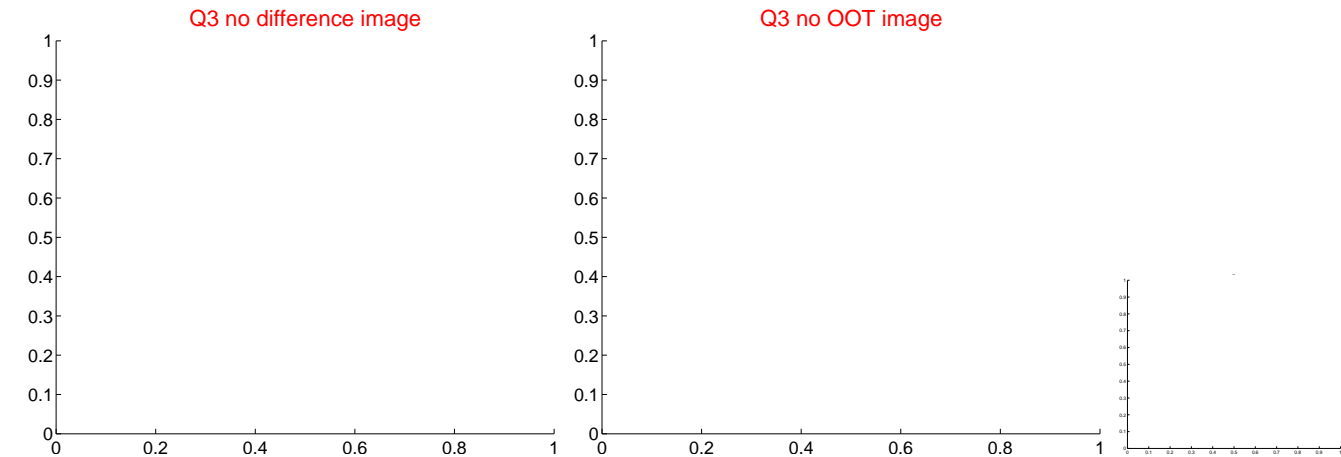
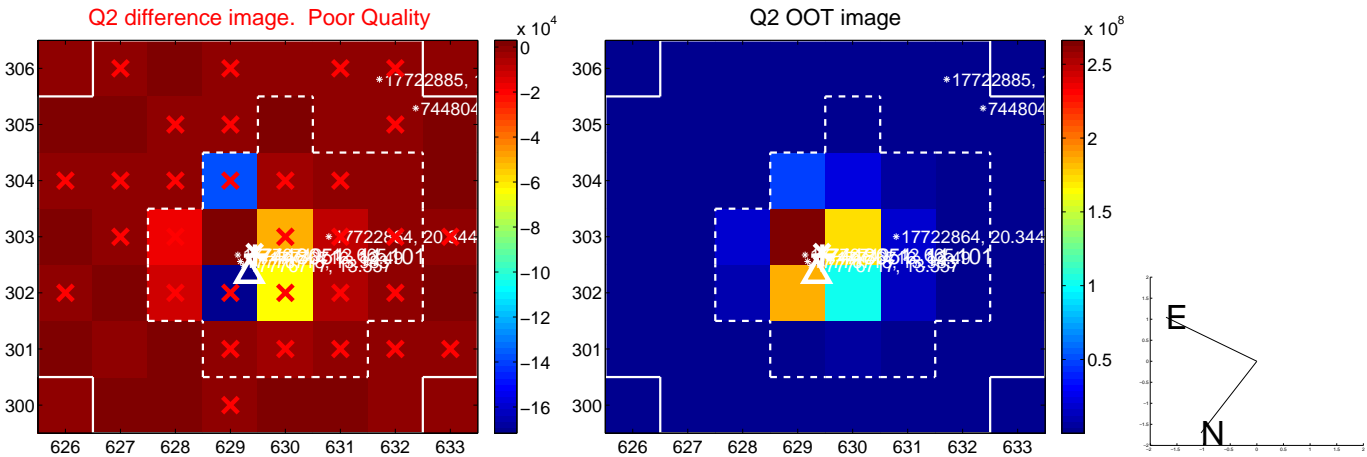
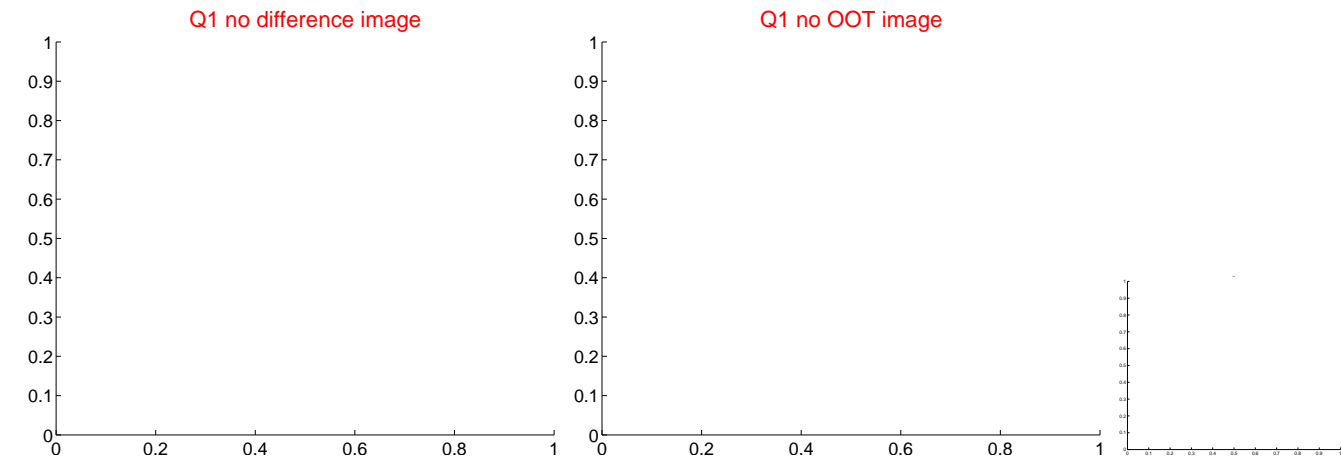
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.839 ± 0.640	1.31	0.555 ± 0.395	-0.629 ± 0.535
PRF-fit source offset from KIC position	1.172 ± 0.802	1.46	0.742 ± 0.470	-0.908 ± 0.667
photometric centroid source offset	5.63 ± 6.45	0.87	1.42 ± 4.45	5.44 ± 6.57

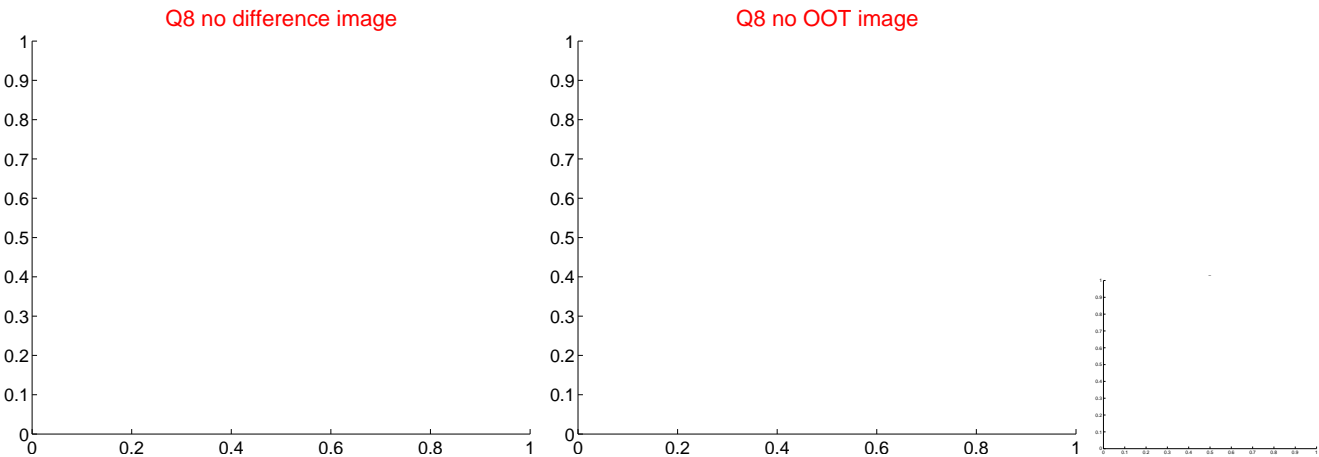
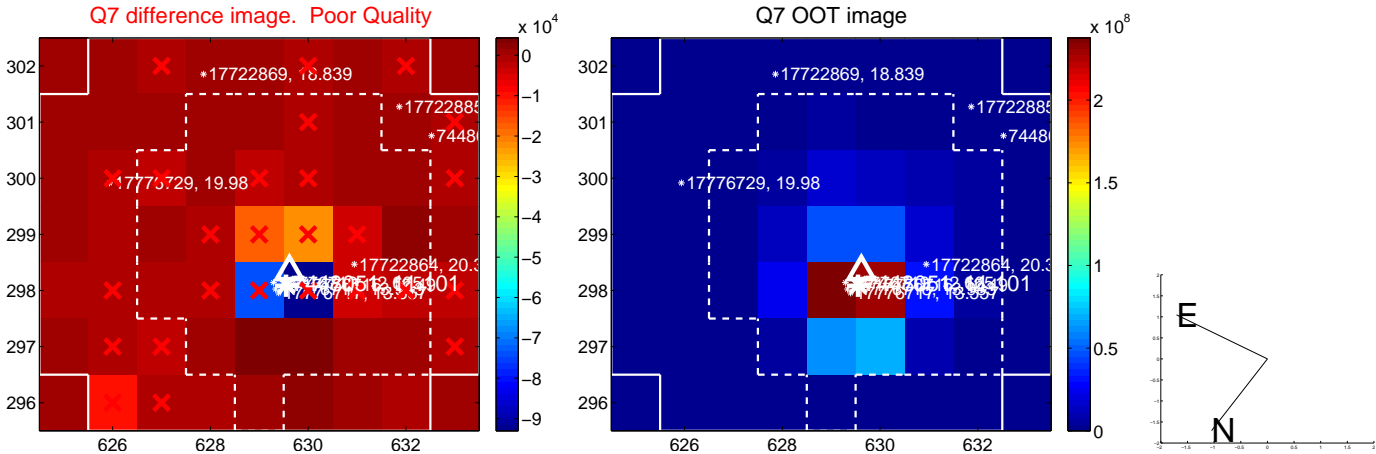
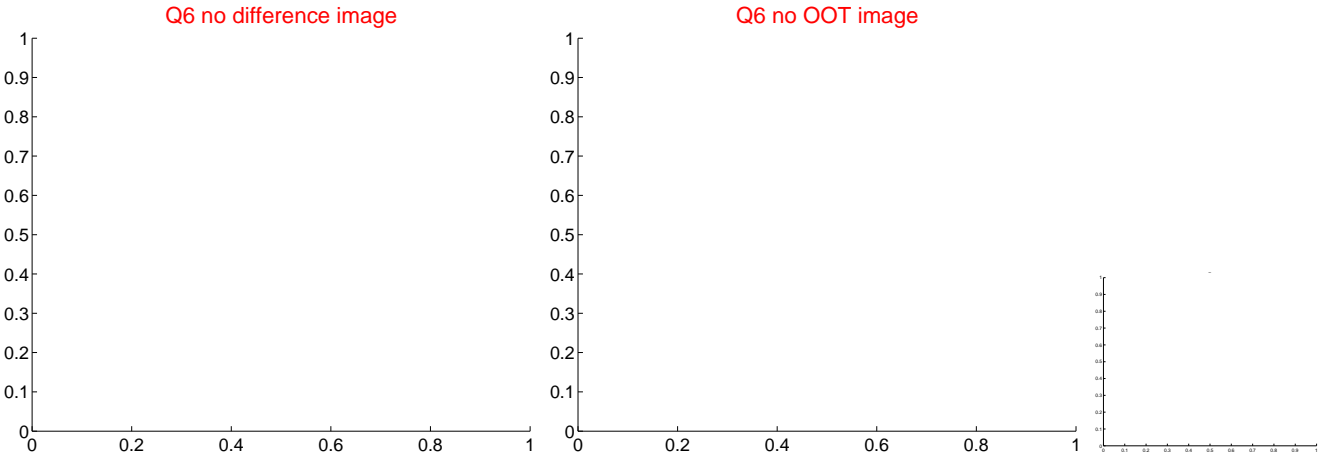
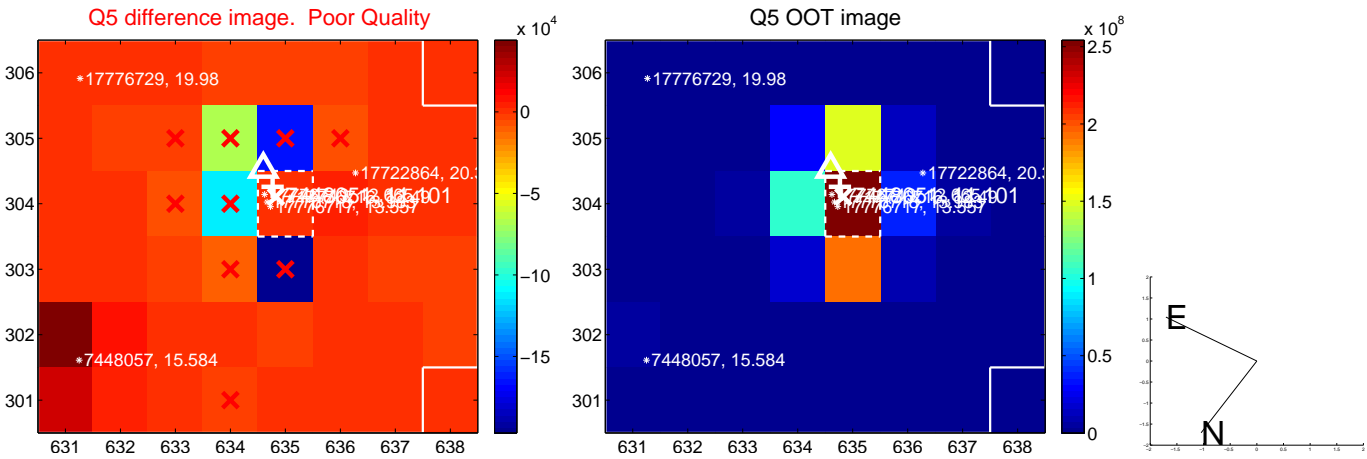


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

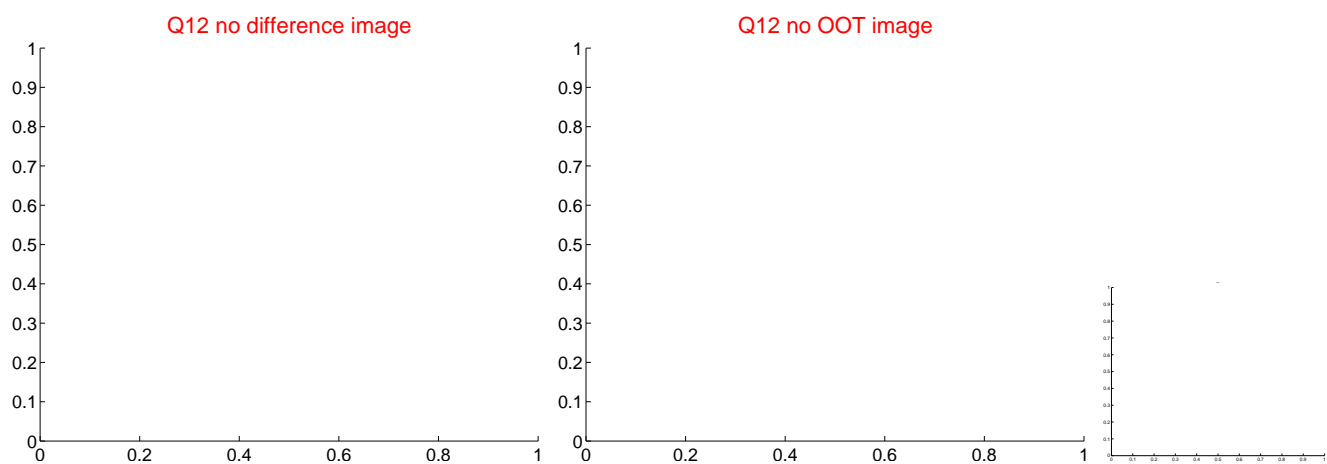
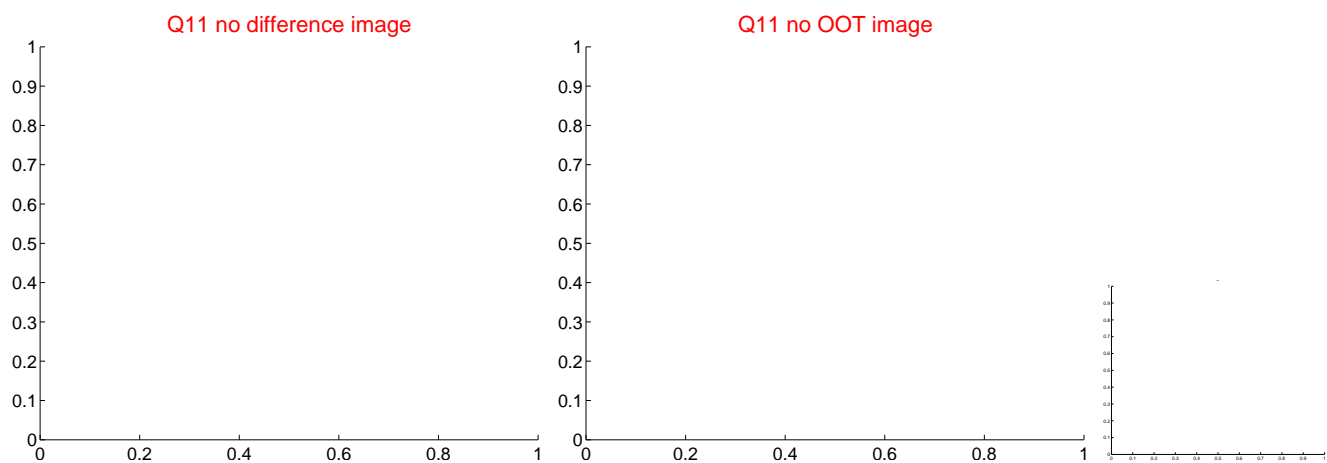
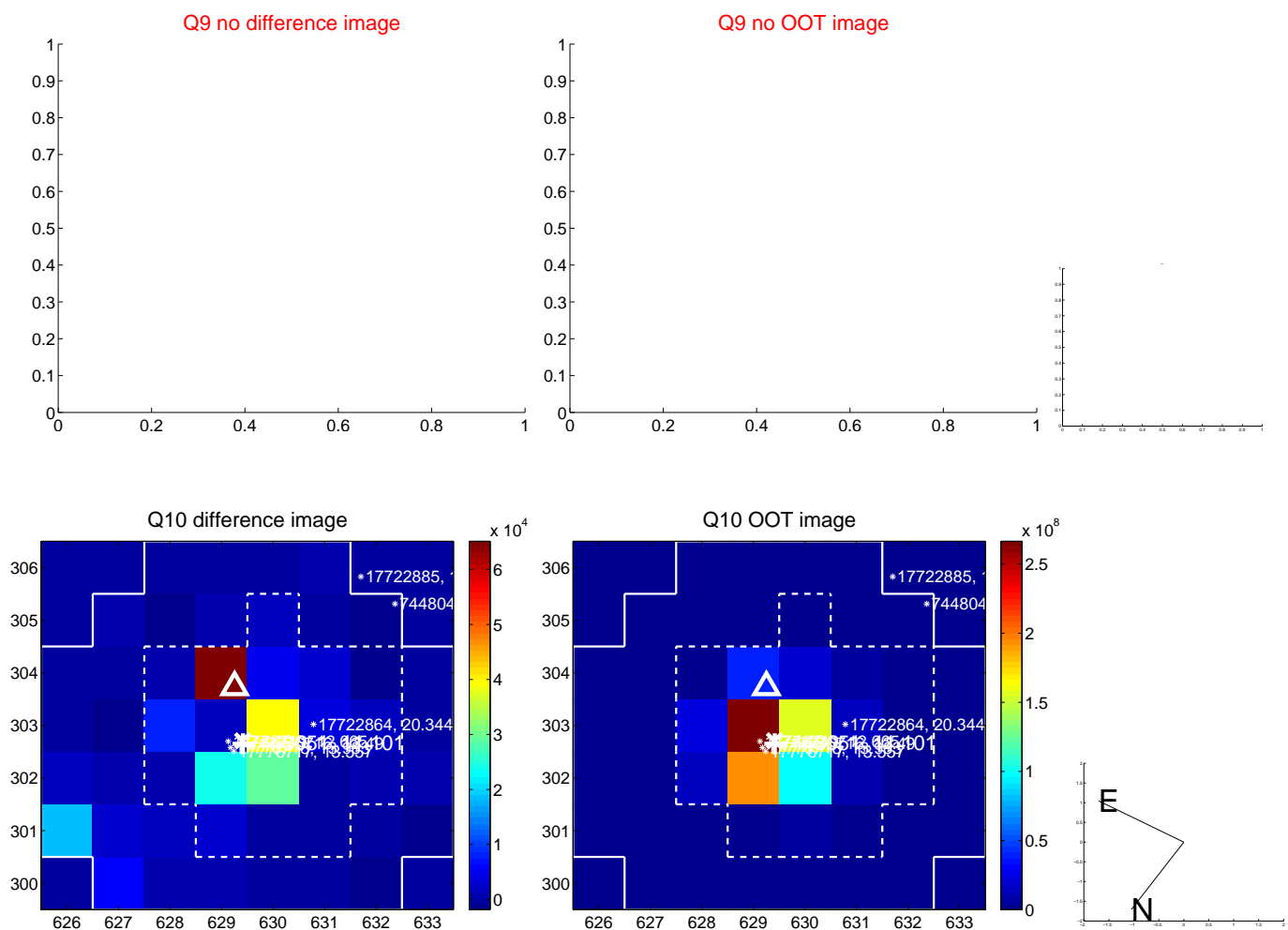
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



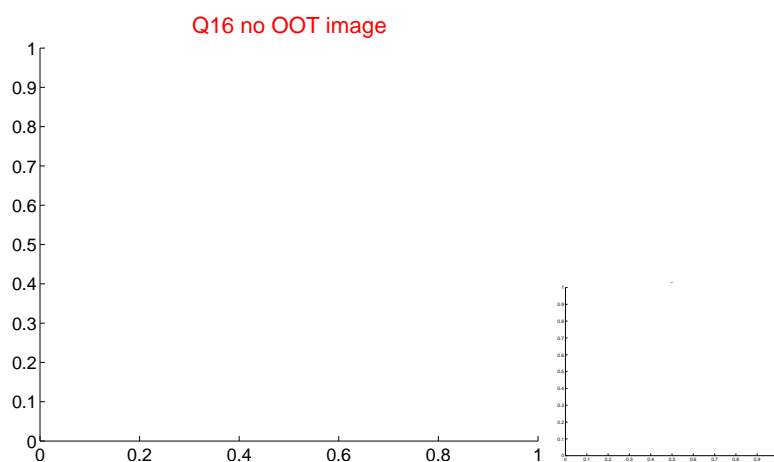
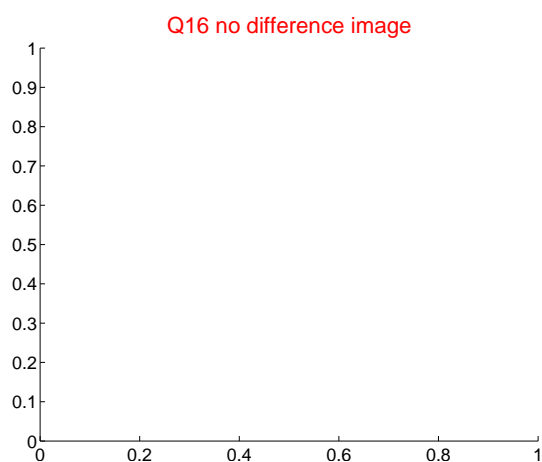
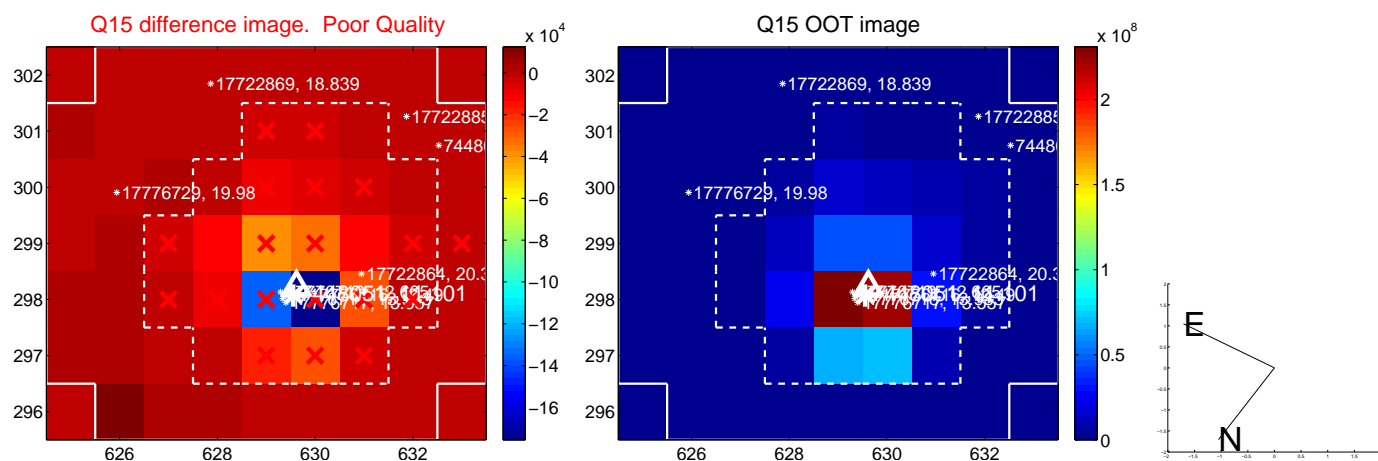
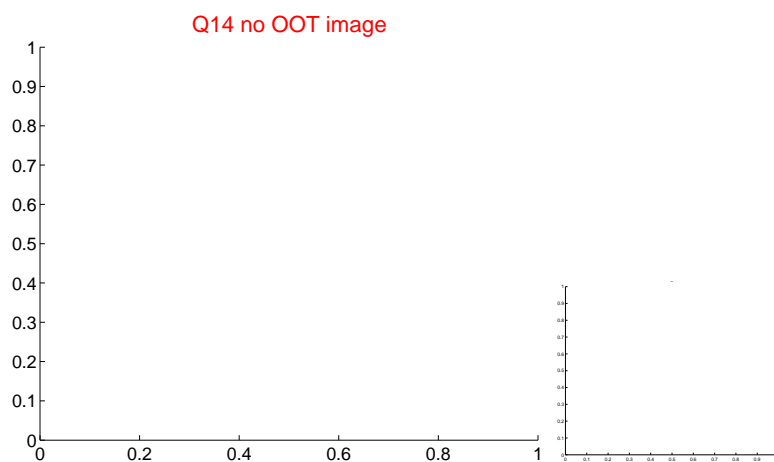
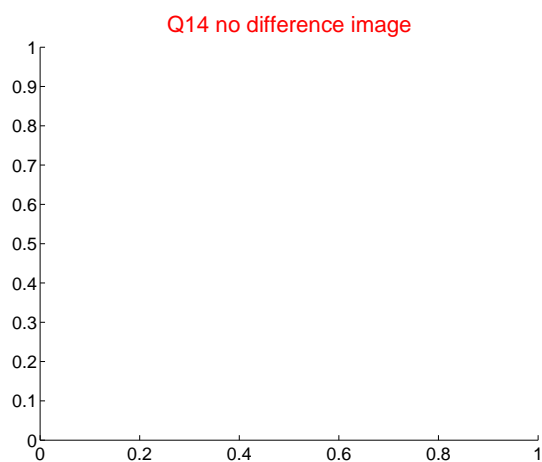
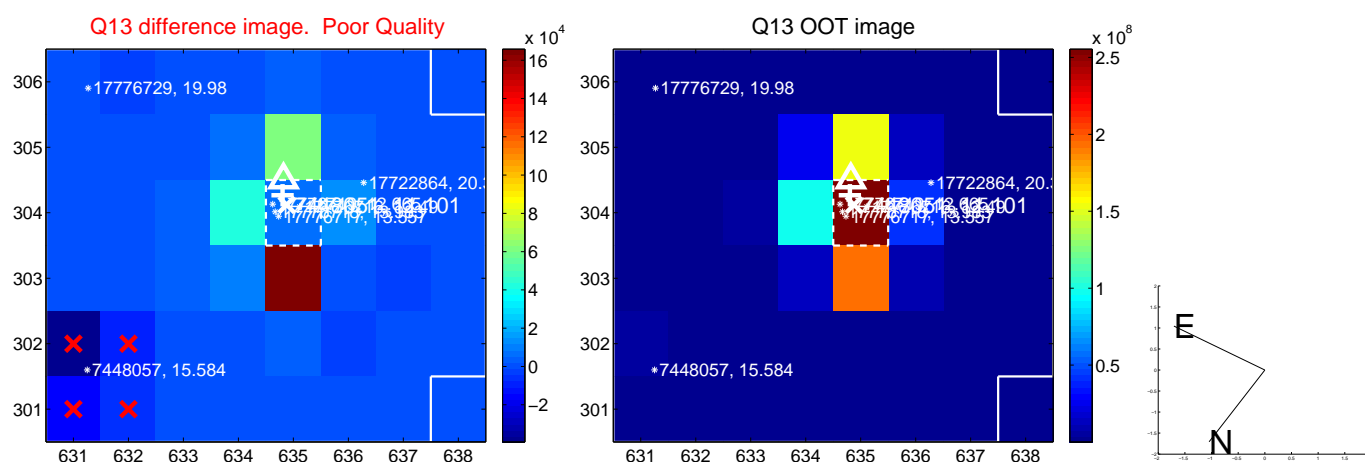
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



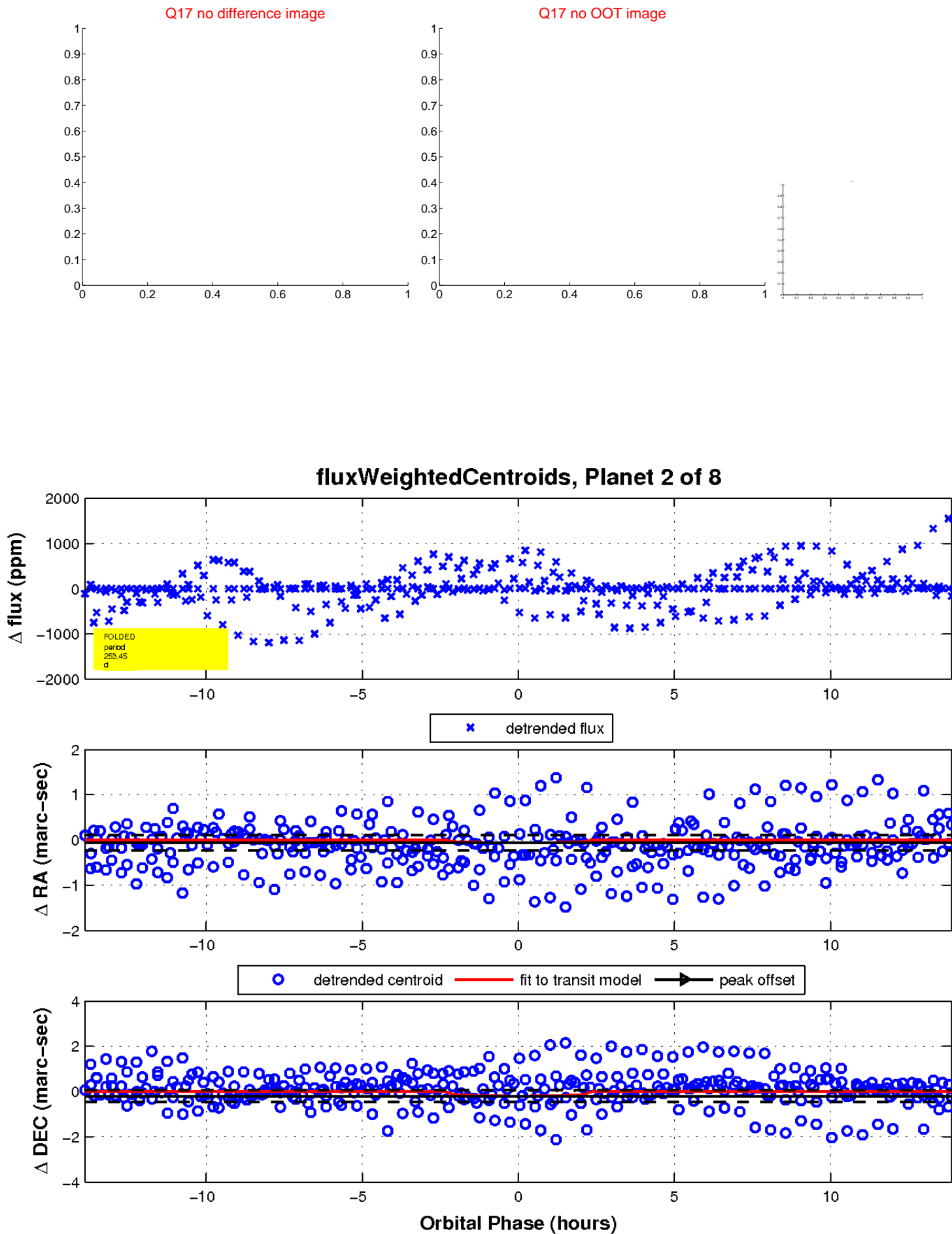
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

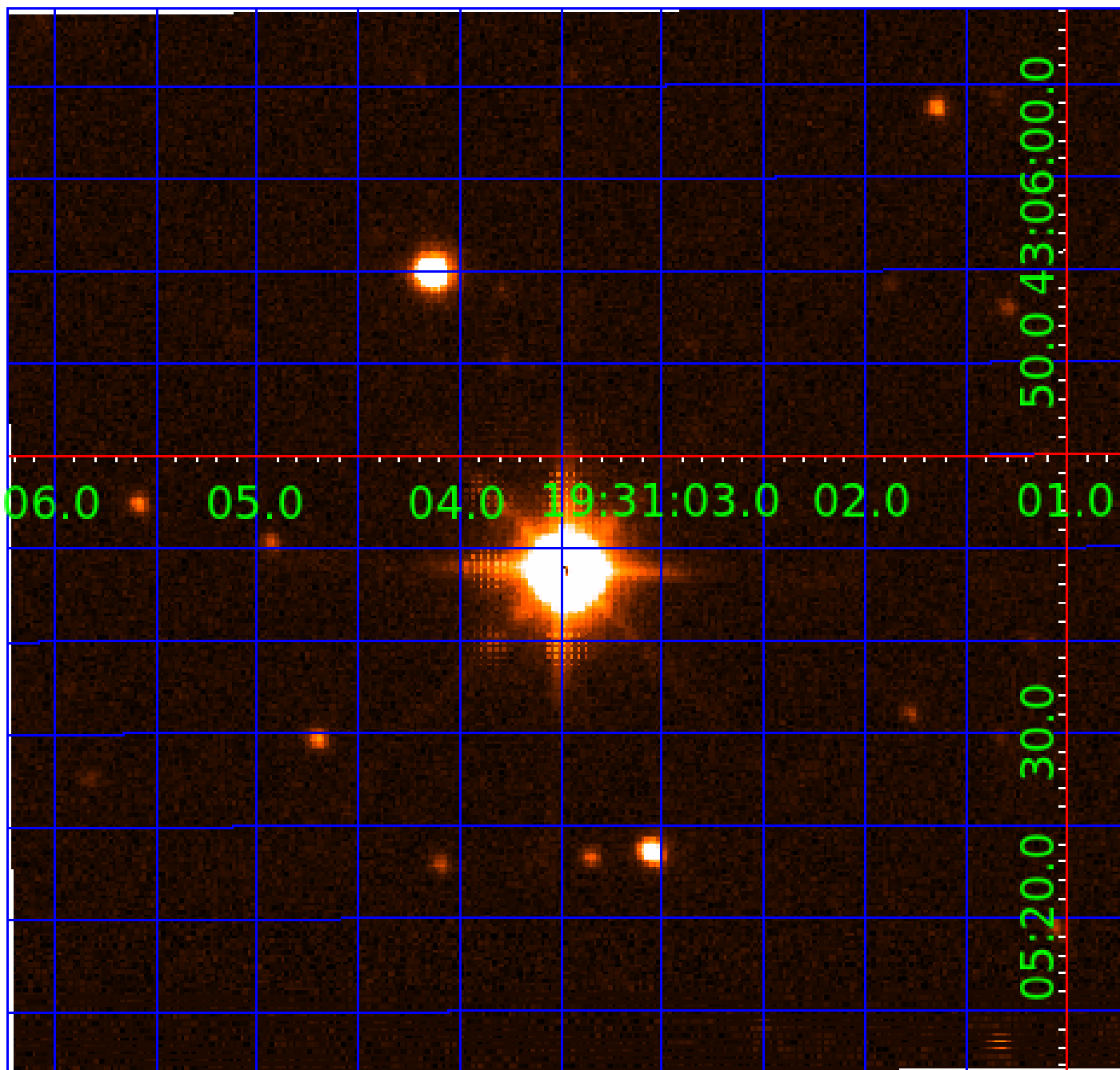


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

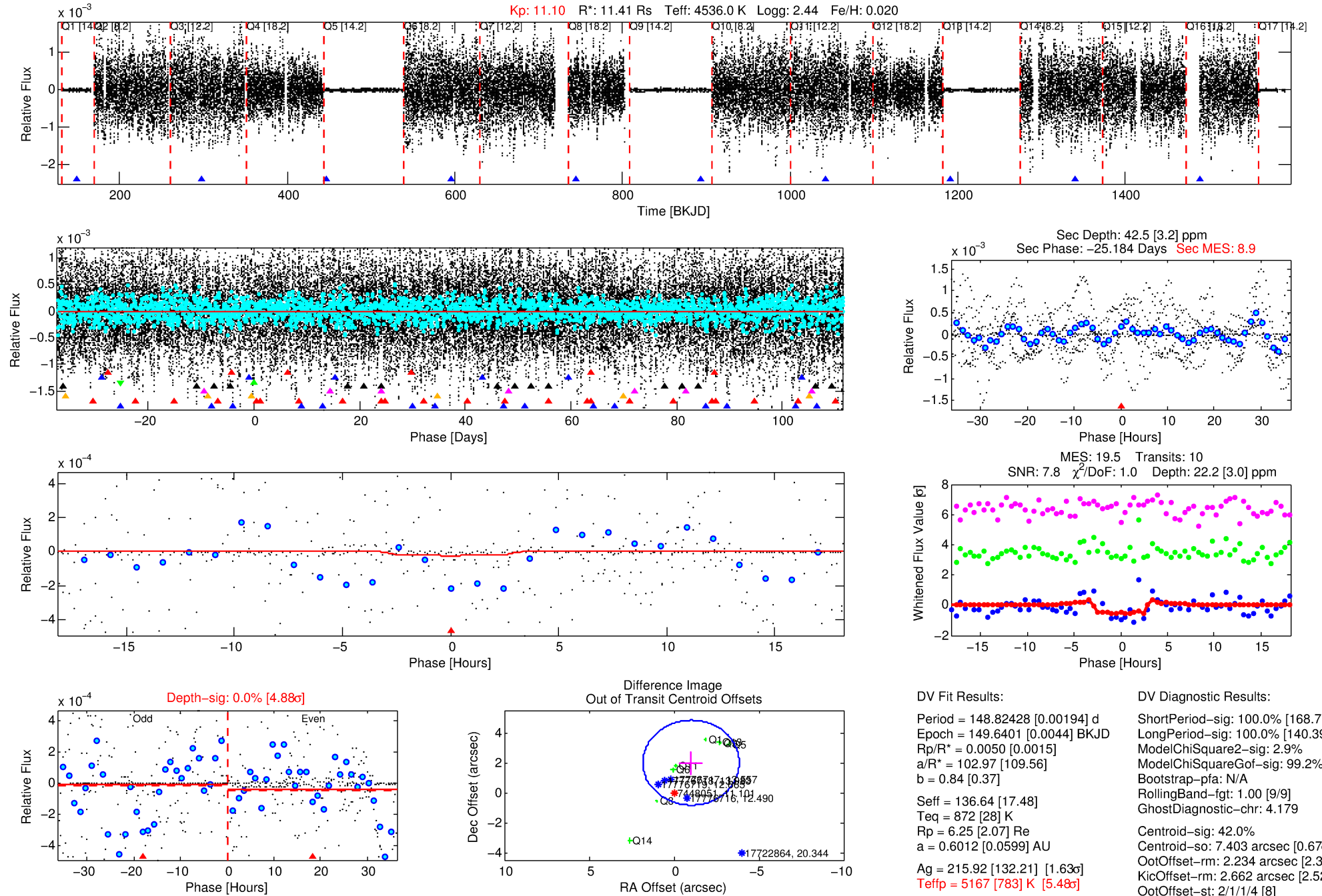
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448051-03

No Significant Match Found

DV One-Page Summary

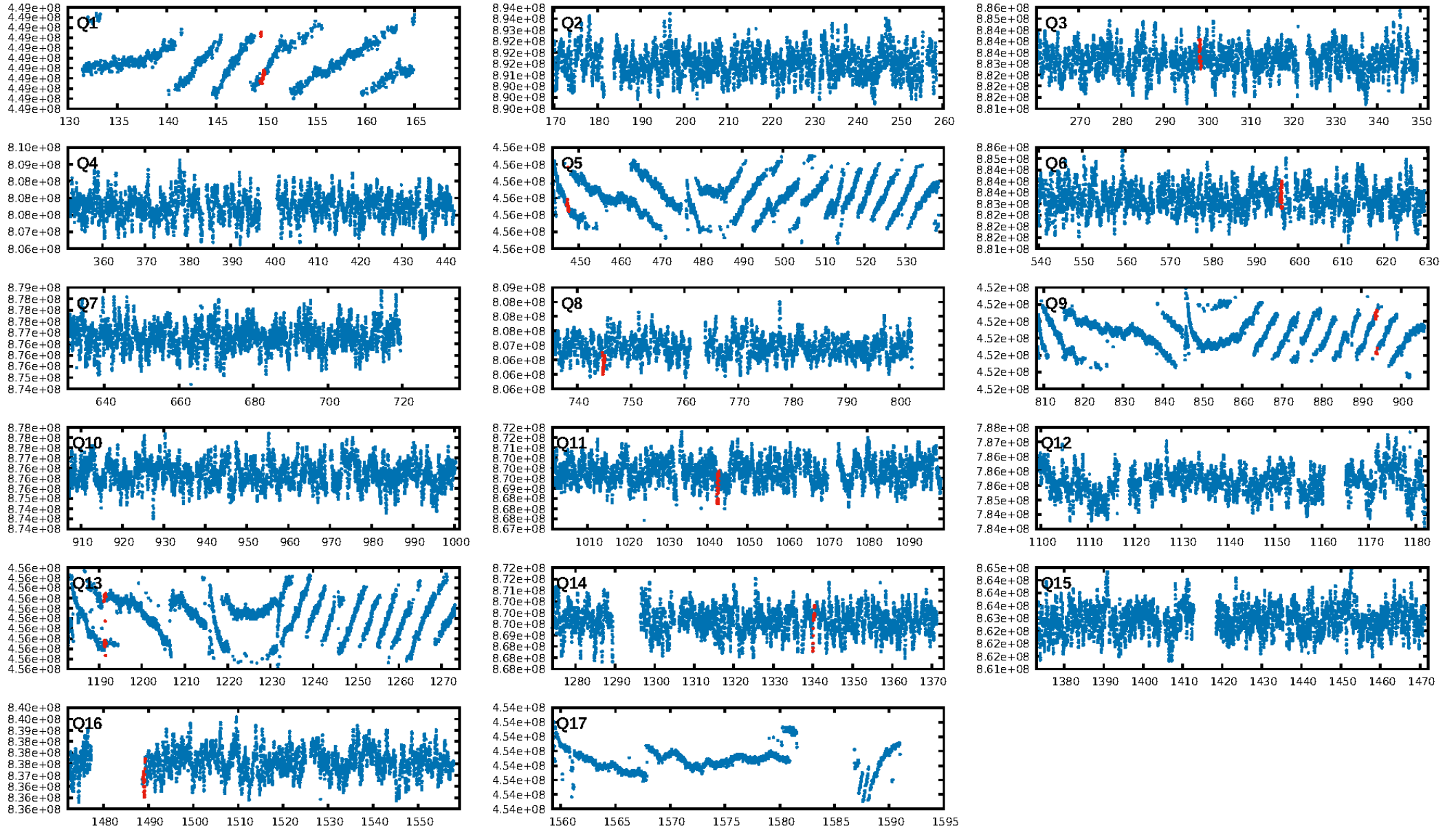
KIC: 7448051 Candidate: 3 of 8 Period: 148.824 d



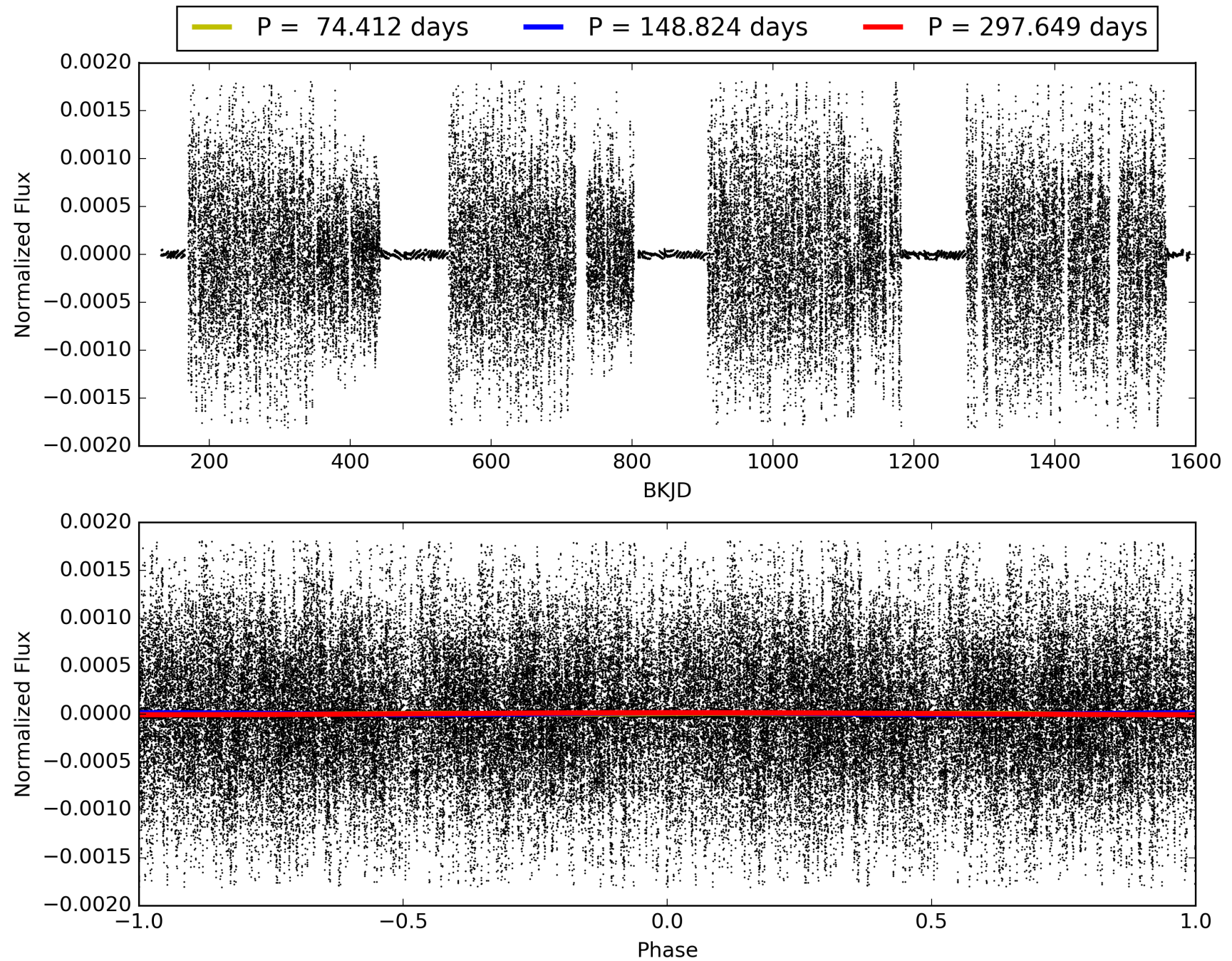
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:52:23 Z

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

TCE 007448051-03, PDC Light Curves

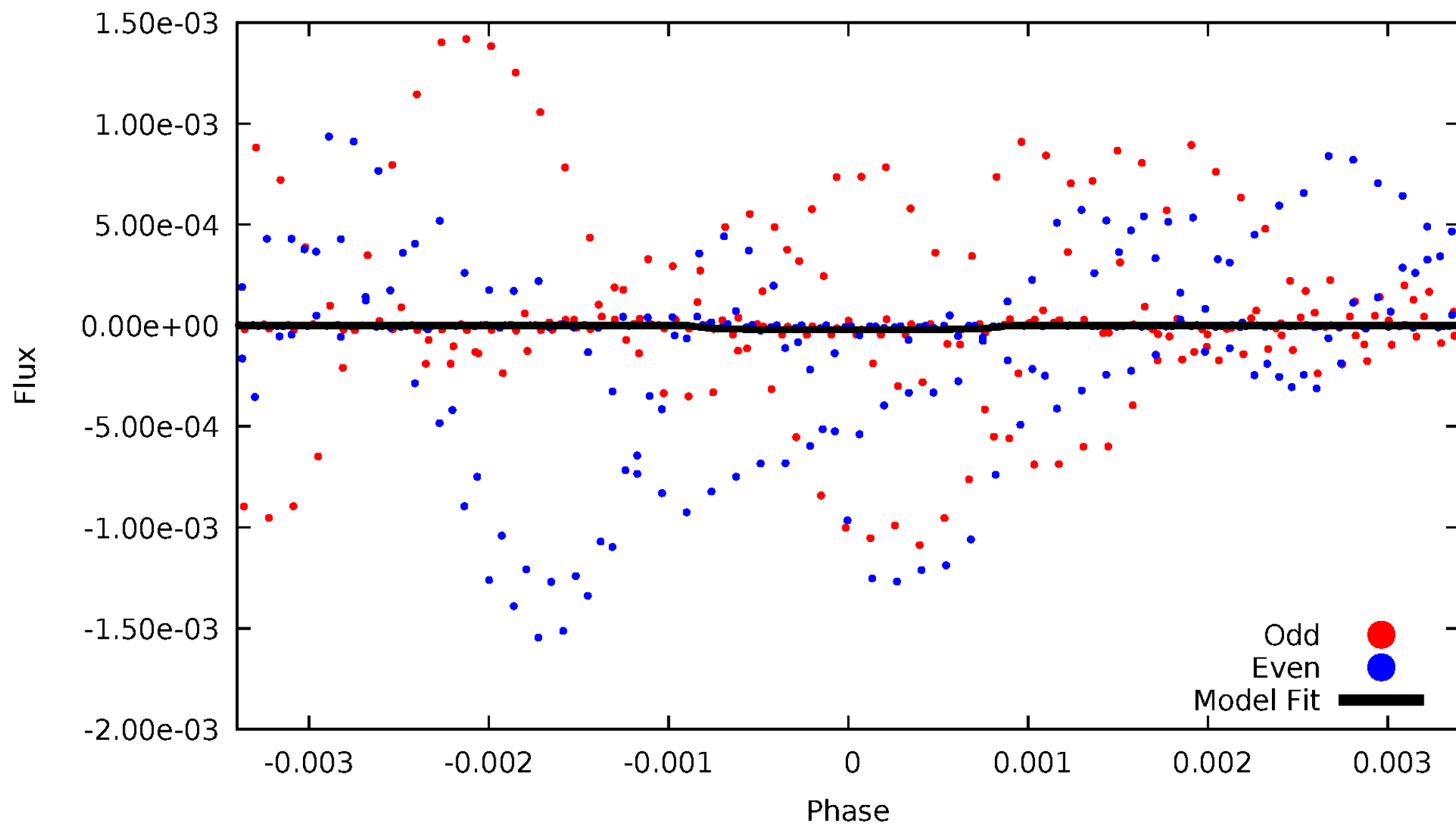


TCE 007448051-03



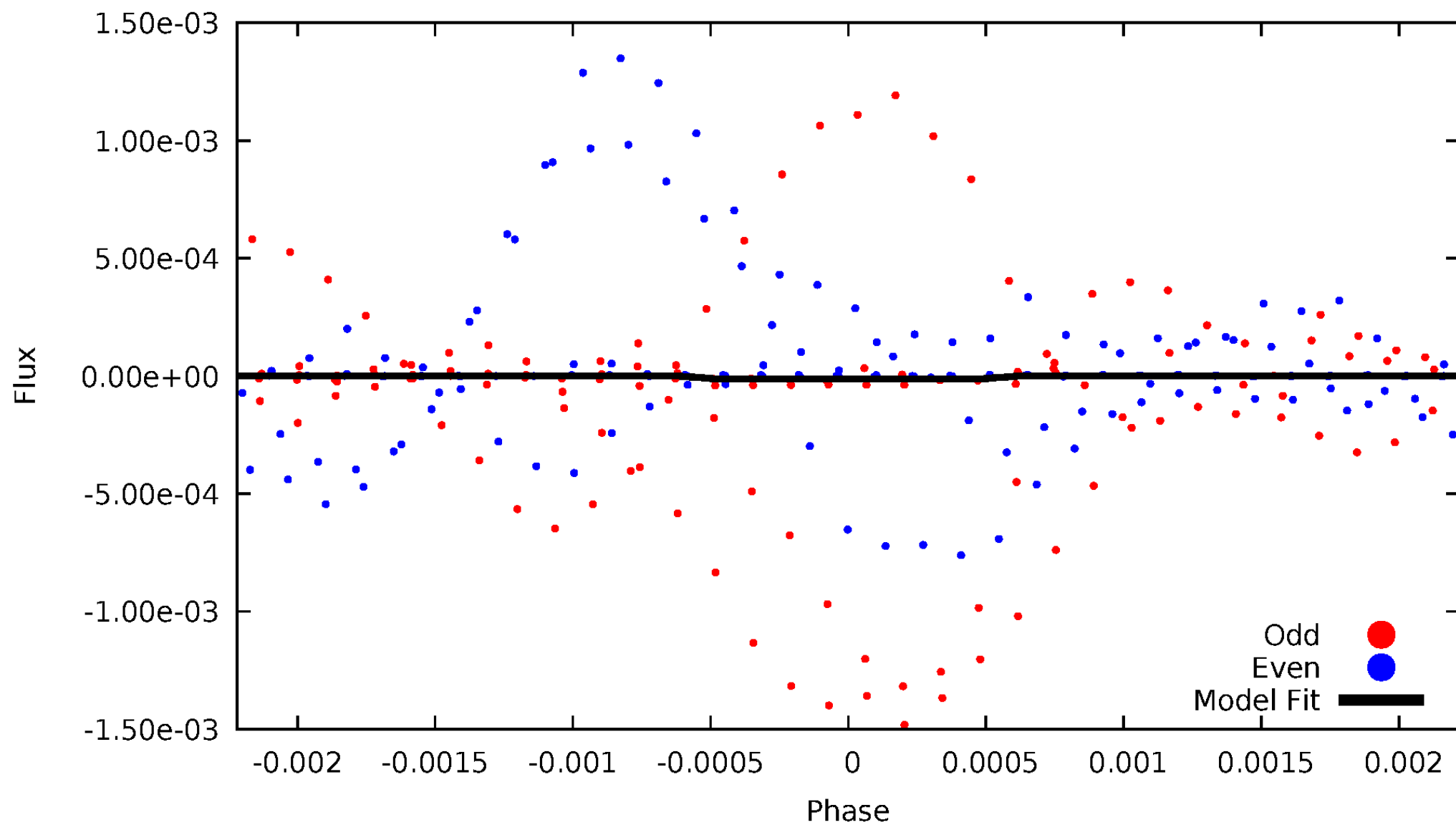
DV Odd/Even

TCE 007448051-03



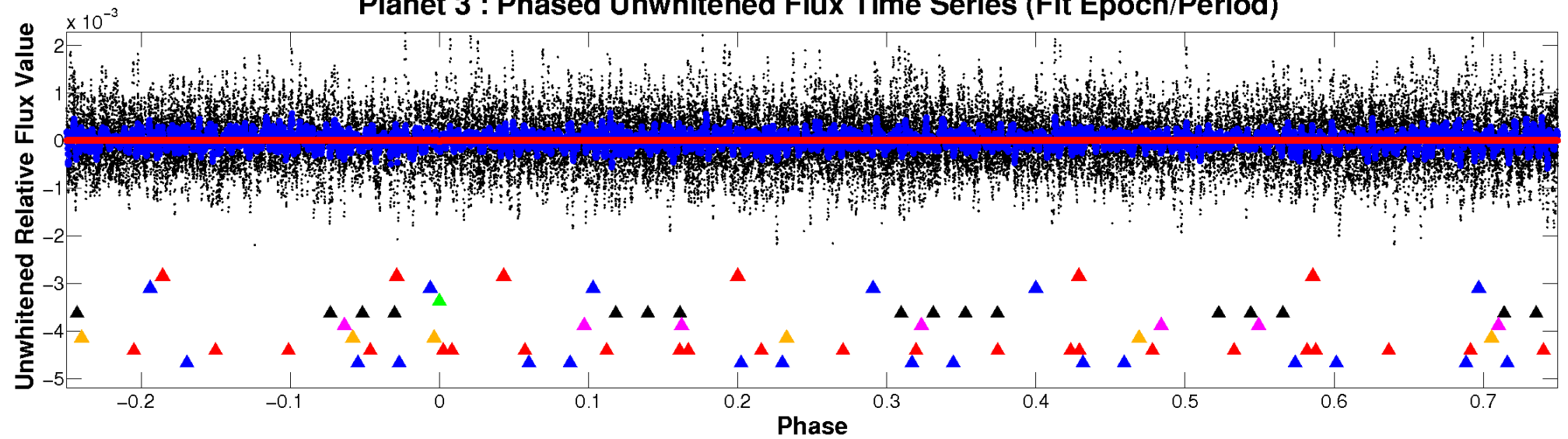
ALT Odd/Even

TCE 007448051-03

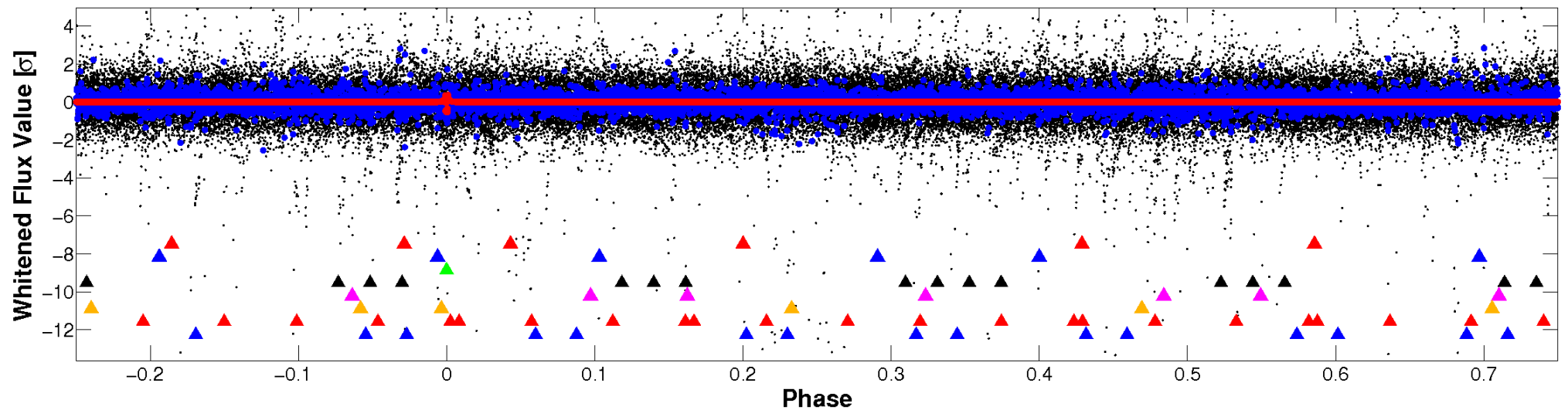


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

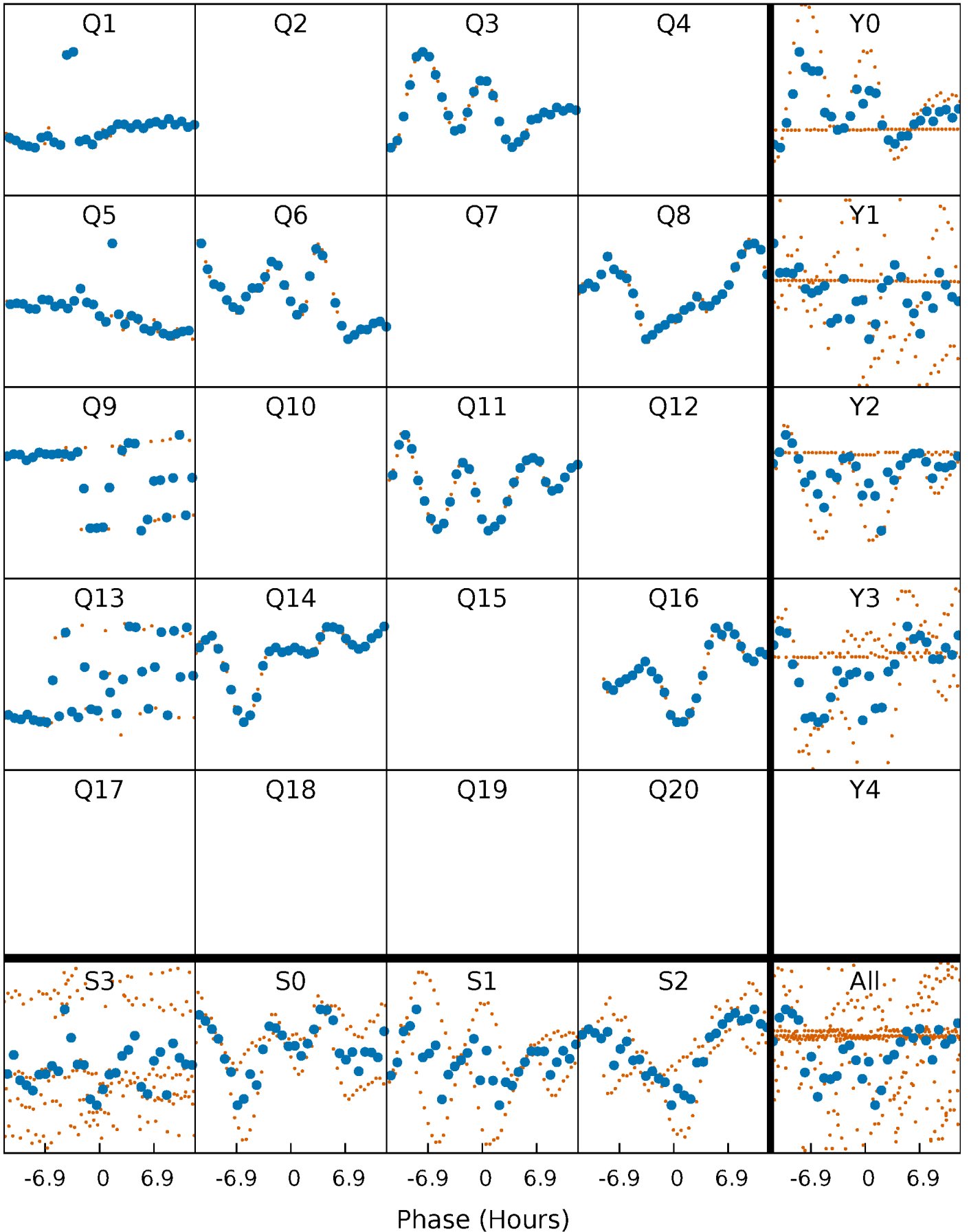


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



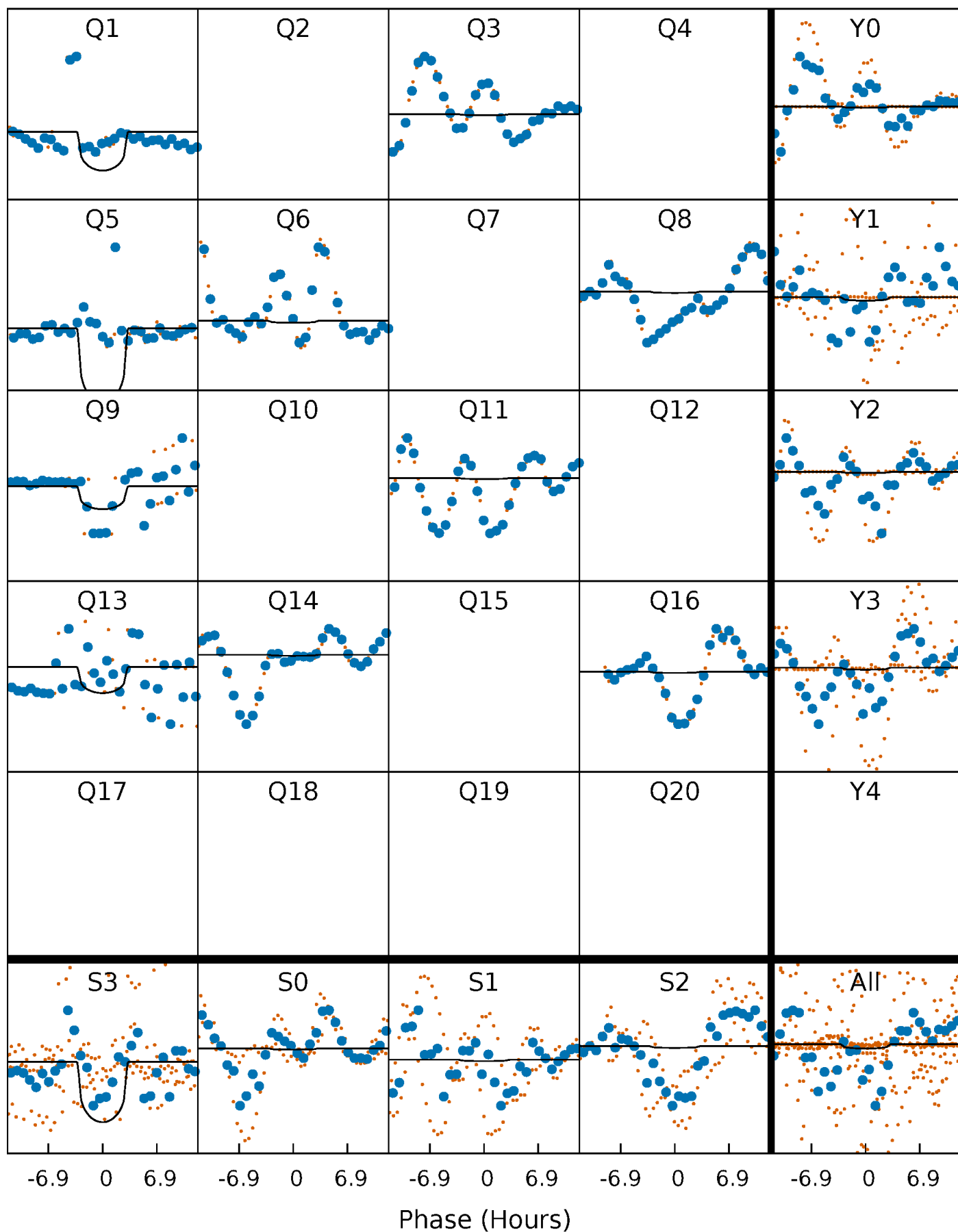
PDC Quarter-Phased Transit Curves

TCE 007448051-03 P=148.824277 Days $T_0=149.640130$ (BKJD)



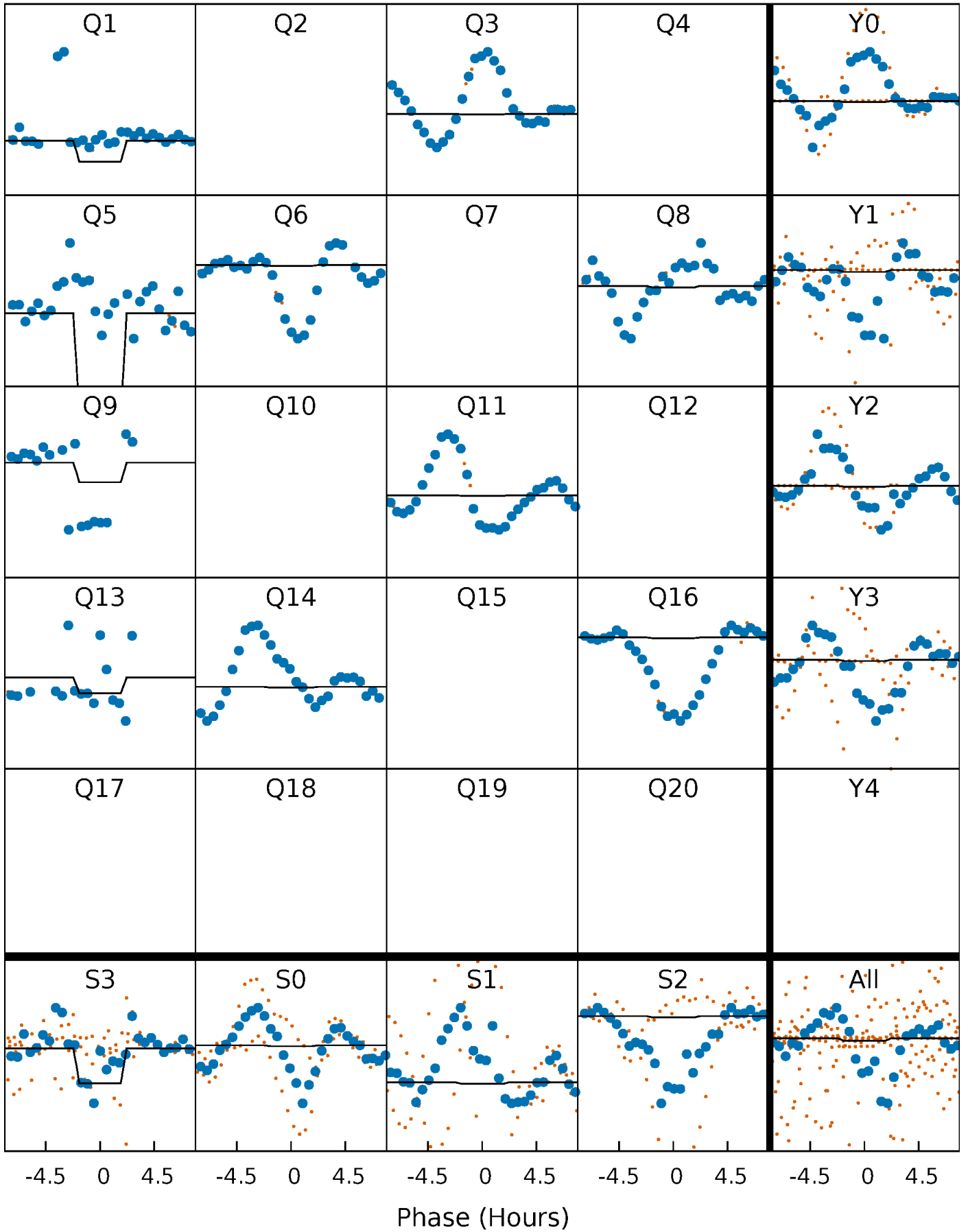
DV Quarter-Phased Transit Curves

TCE 007448051-03 P=148.824277 Days $T_0=149.640130$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

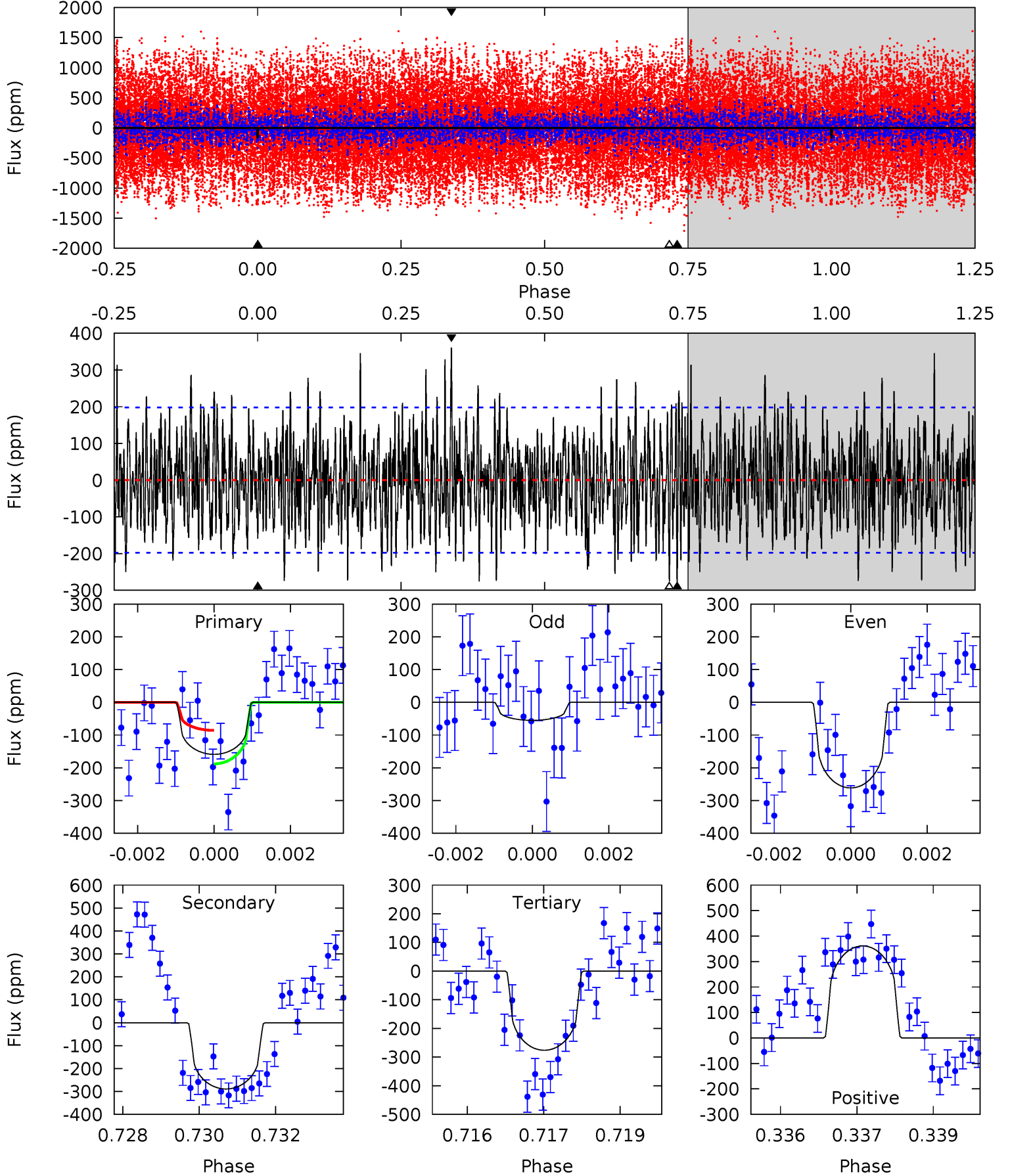
TCE 007448051-03 P=148.827152 Days $T_0=149.642942$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-03, P = 148.824277 Days, E = 0.815853 Days

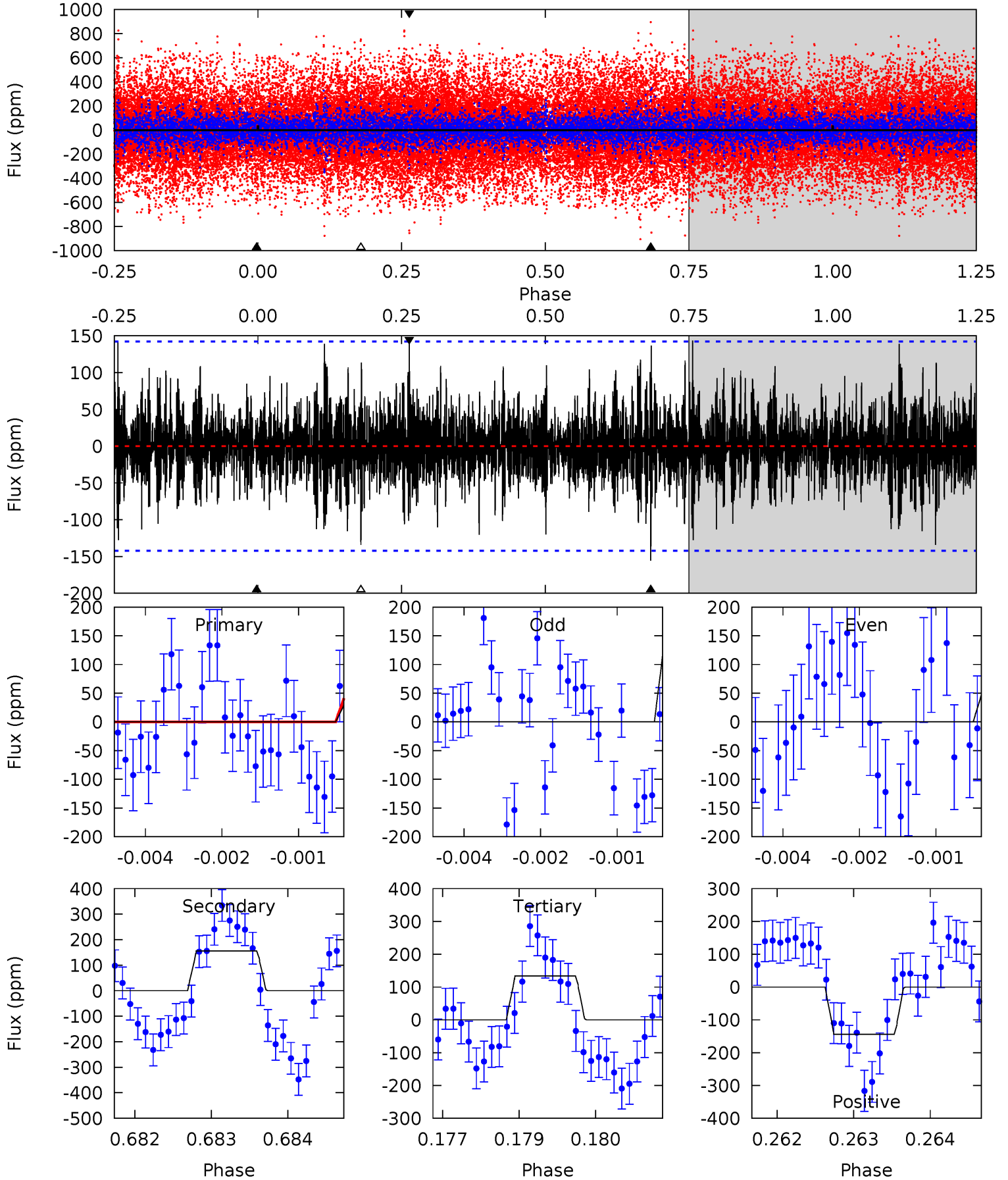
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.29	7.80	7.45	9.75	5.34	3.11	2.73	-3.16	-5.46	0.35	-1.95	2.76	8.21	0.56	1.39



Alt Model-Shift Uniqueness Test

007448051-03, P = 148.827152 Days, E = 0.815790 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.19	5.94	5.11	5.49	5.42	3.24	1.38	-3.92	-4.30	0.83	0.44	1.39	33.4	0.48	0



Stellar Parameters For KIC 007448051

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-289 ± 37	$6.31^{+1.87}_{-1.93}$	1221^{+29}_{-26}	8385^{+2304}_{-1283}	1478^{+1551}_{-603}
Alt.	-156 ± 26	$4.42^{+1.85}_{-1.88}$	1219^{+31}_{-28}	8525^{+4407}_{-1653}	1600^{+3282}_{-840}

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

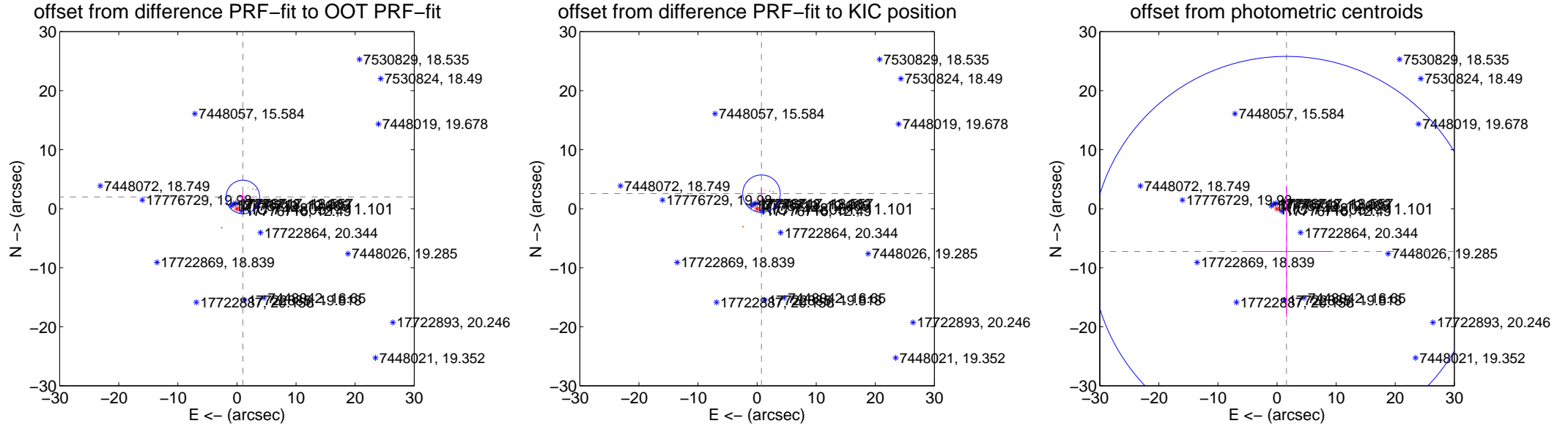
DV Centroid Data

Supplemental centroid analysis for 007448051-03. **Kepler magnitude: 11.10.** Transit SNR 7.78

There are 3 quarters with good PRF difference image offsets

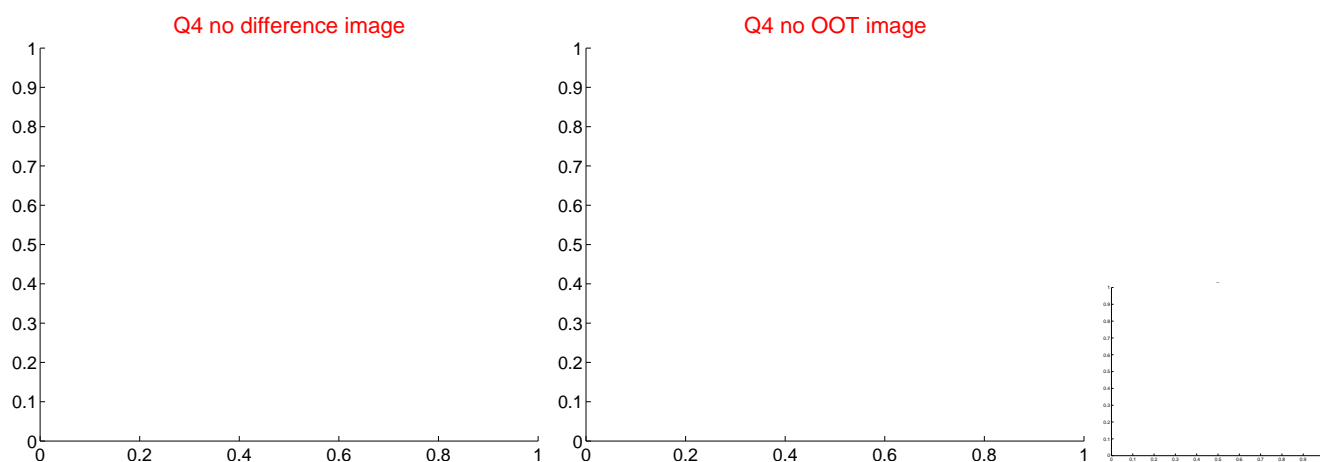
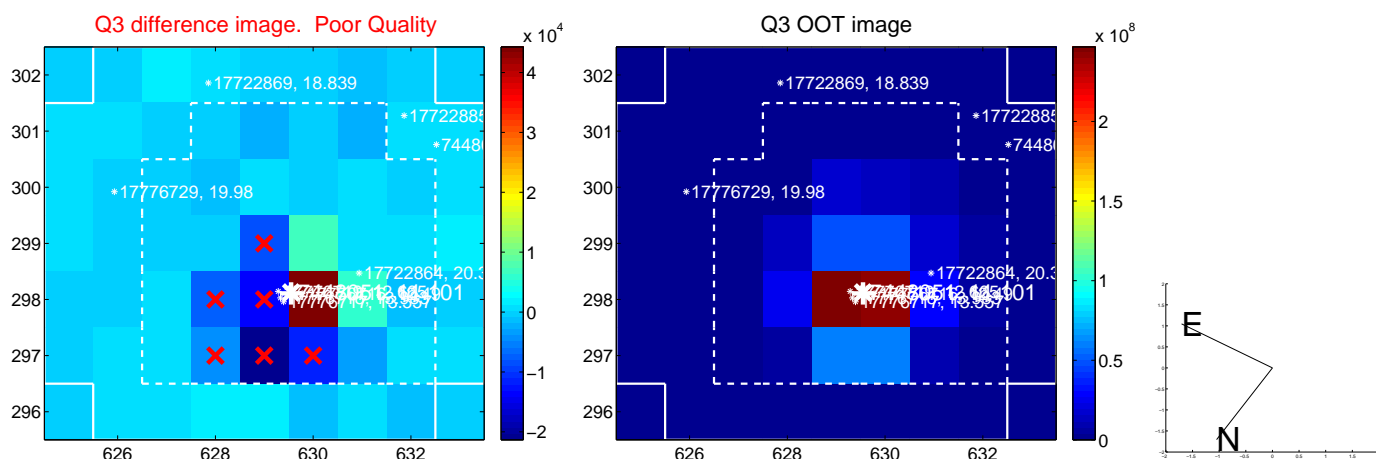
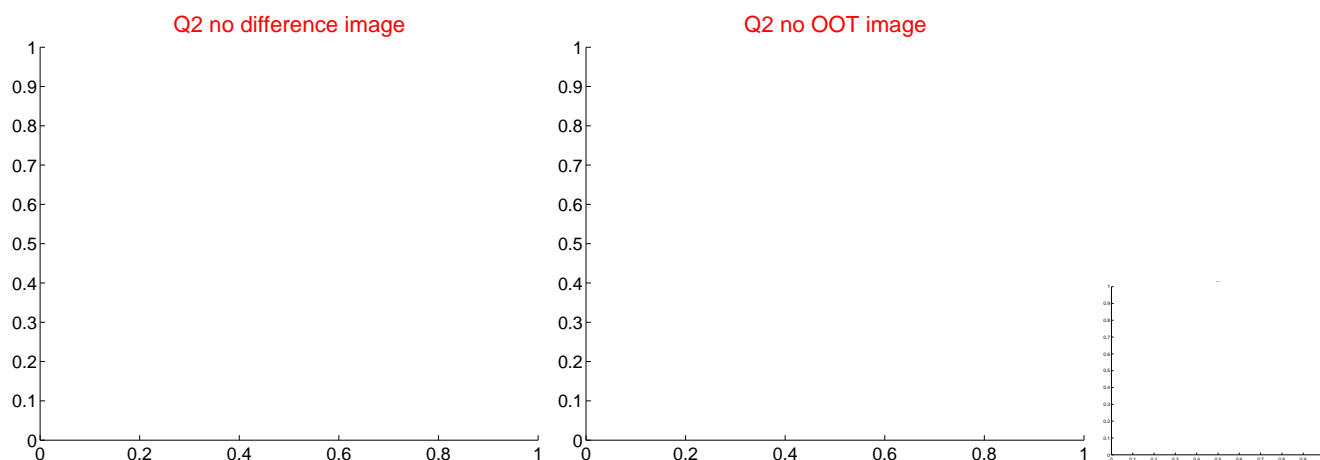
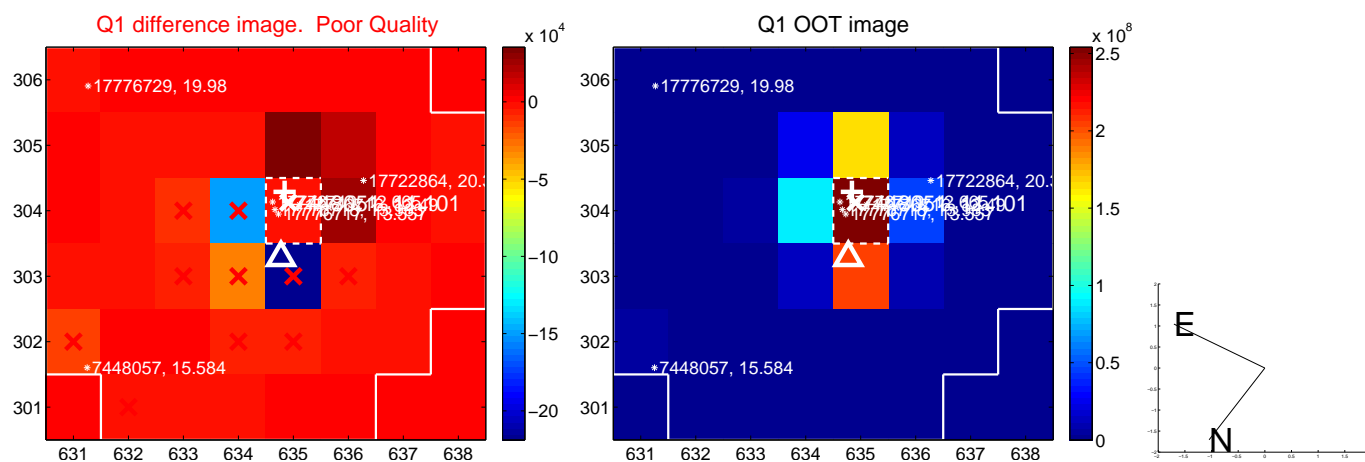
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.234 ± 0.946	2.36	-1.005 ± 0.658	1.995 ± 0.746
PRF-fit source offset from KIC position	2.662 ± 1.057	2.52	-0.734 ± 0.716	2.559 ± 0.902
photometric centroid source offset	7.40 ± 11.01	0.67	-1.60 ± 7.49	-7.23 ± 11.15

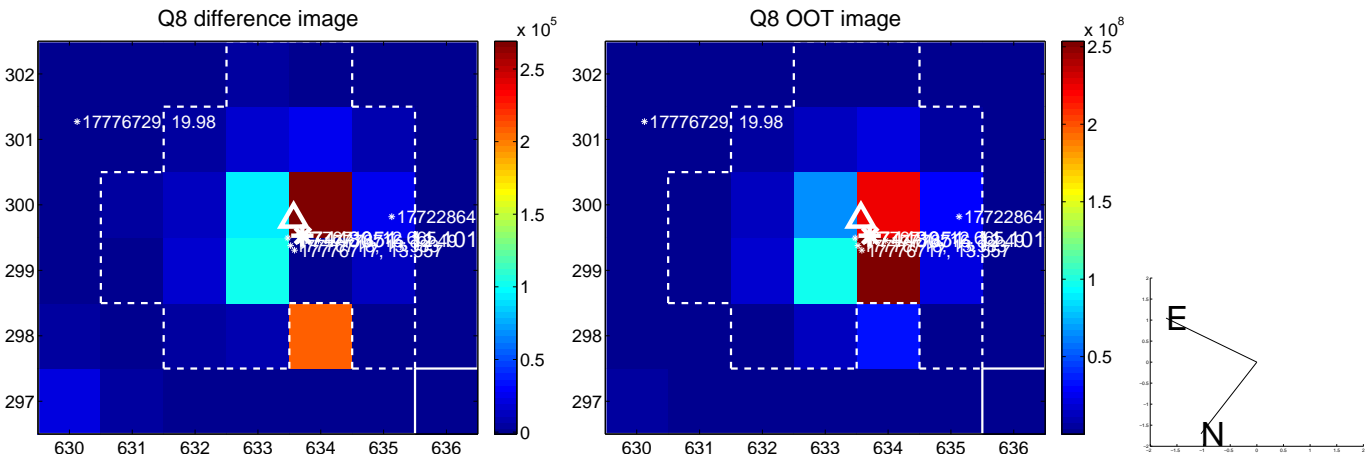
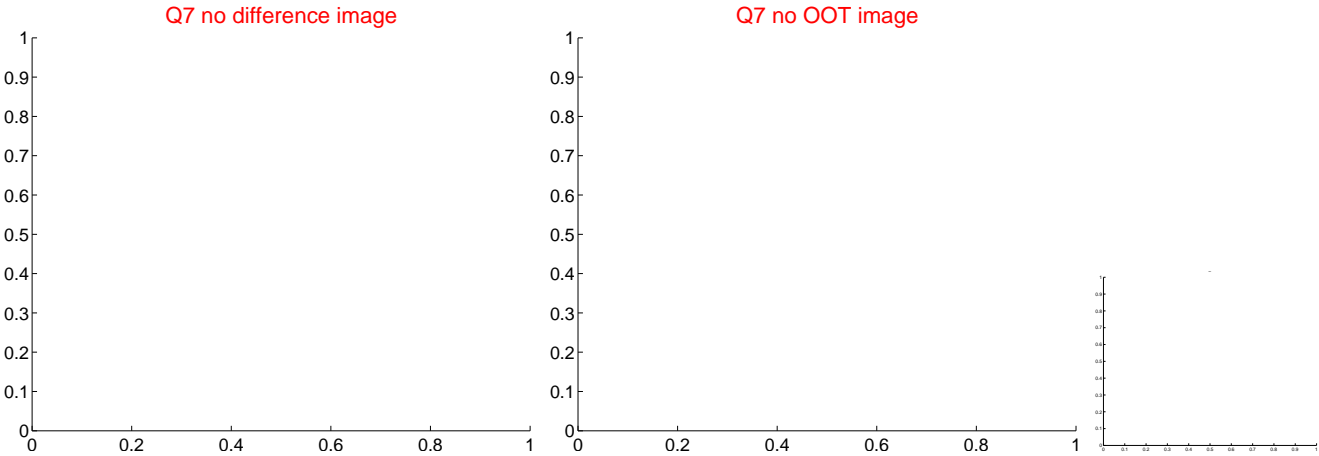
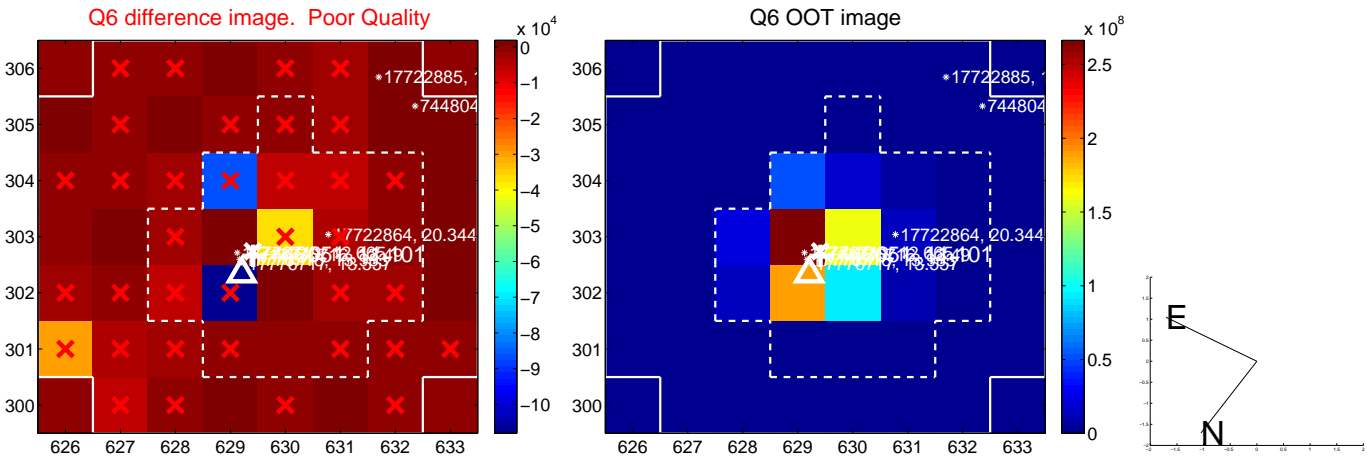
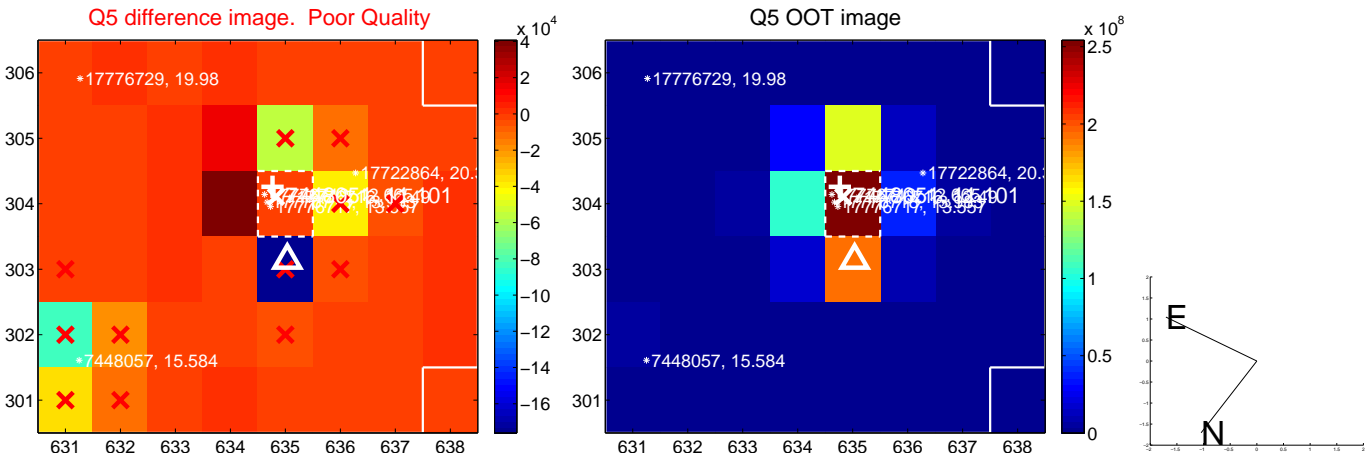


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

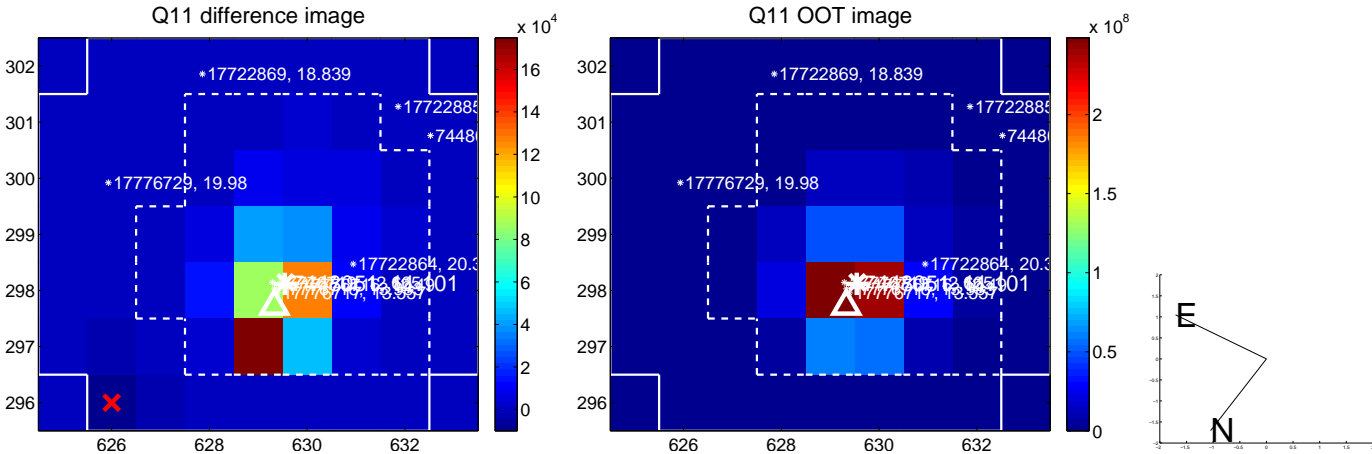
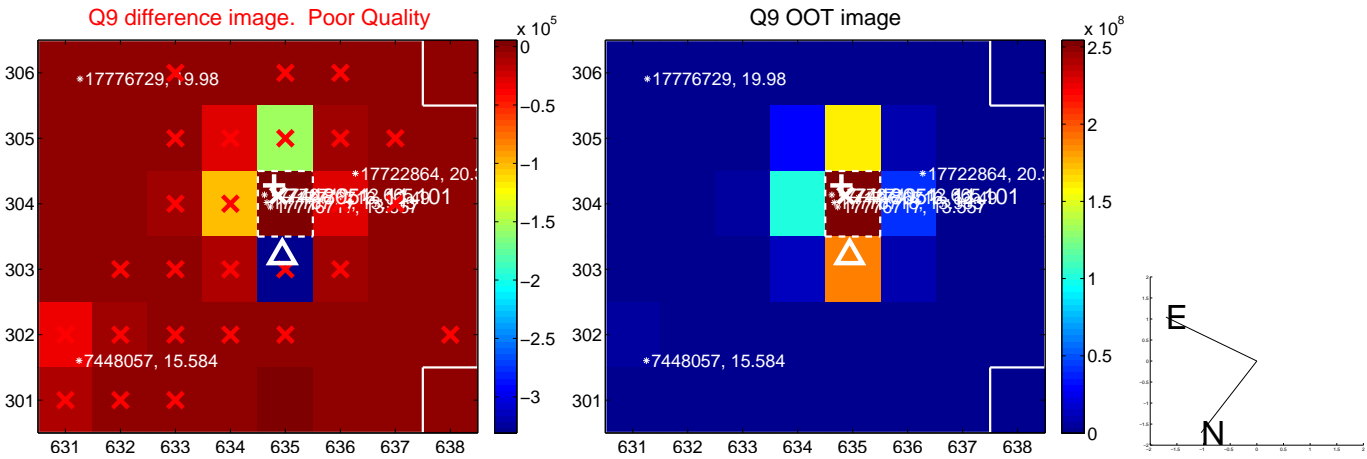
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



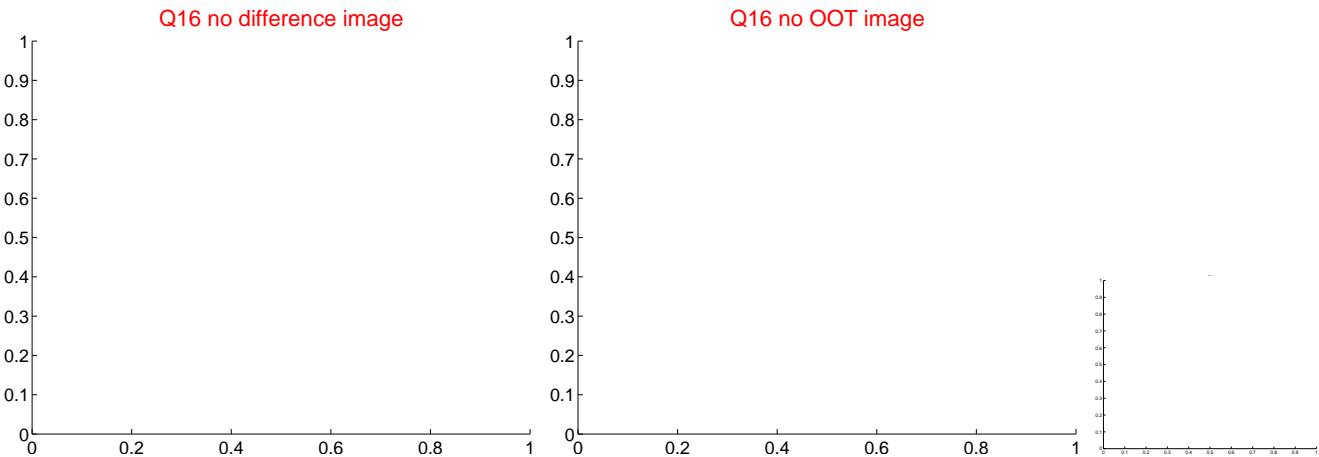
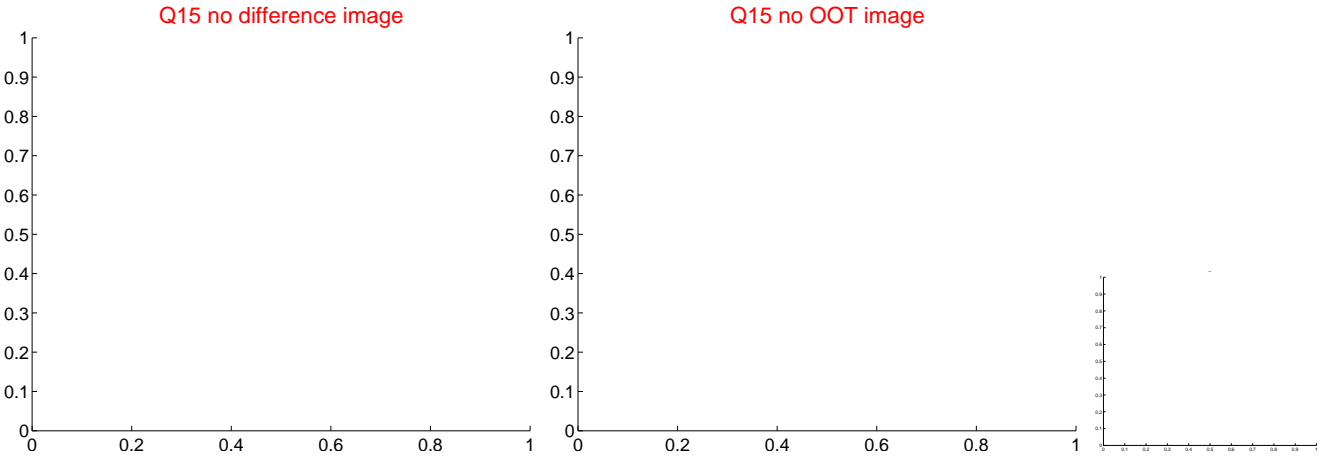
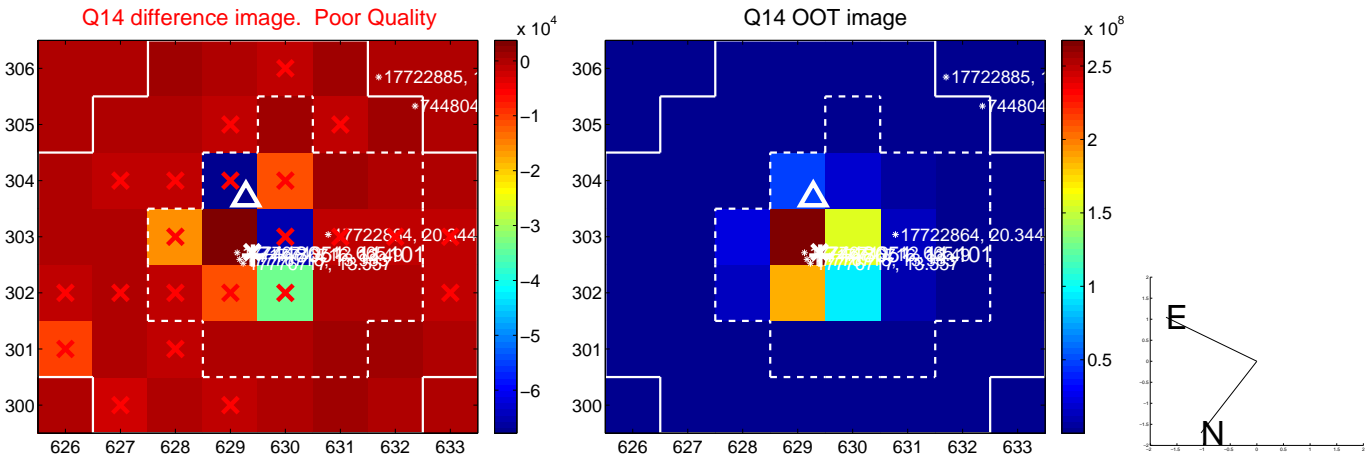
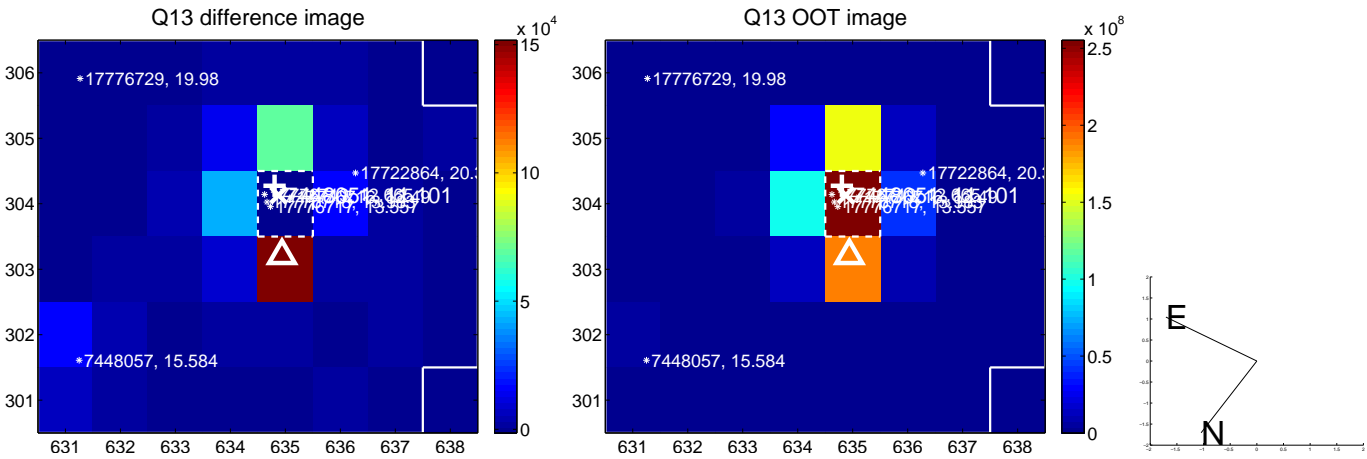
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



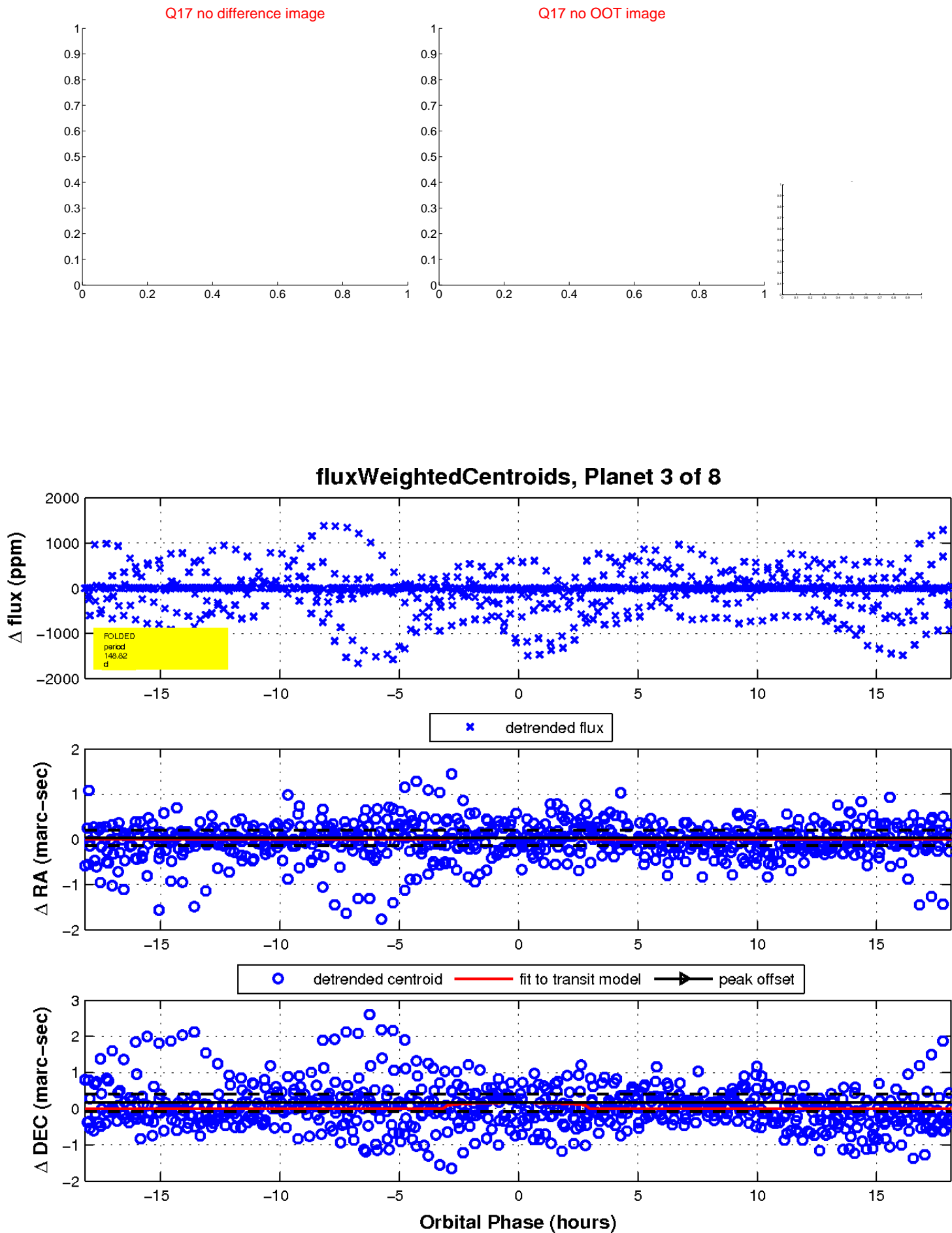
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

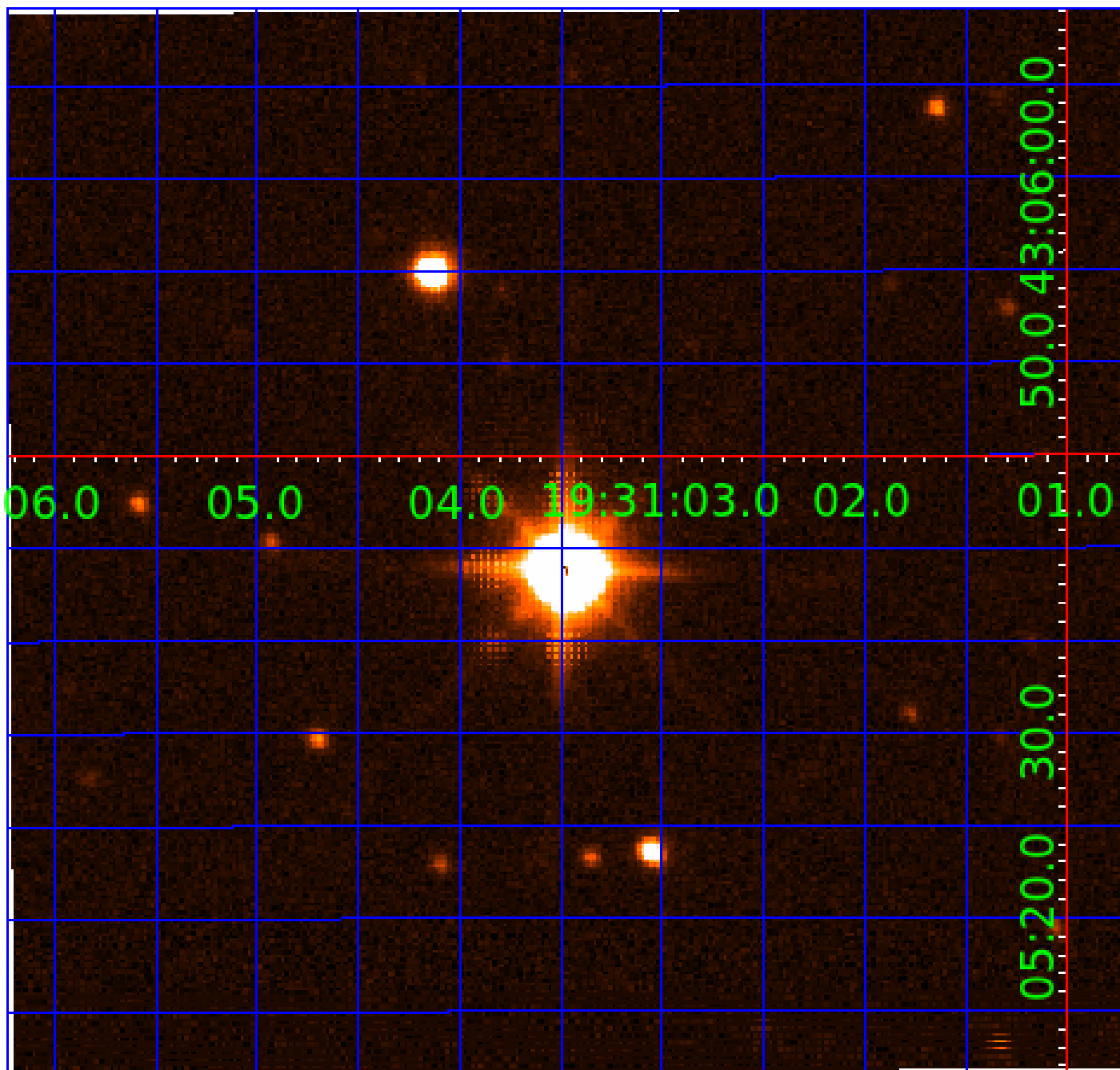


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

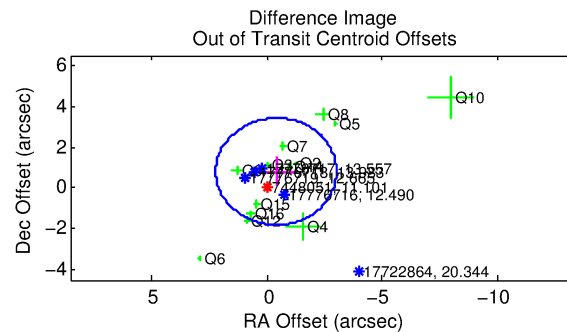
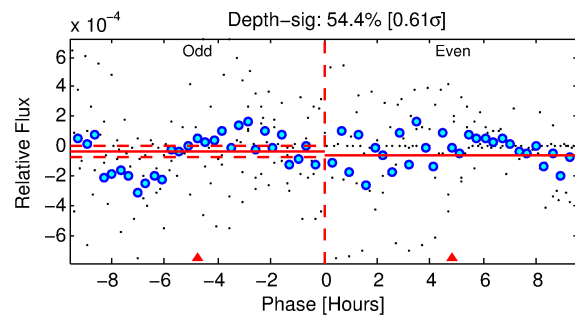
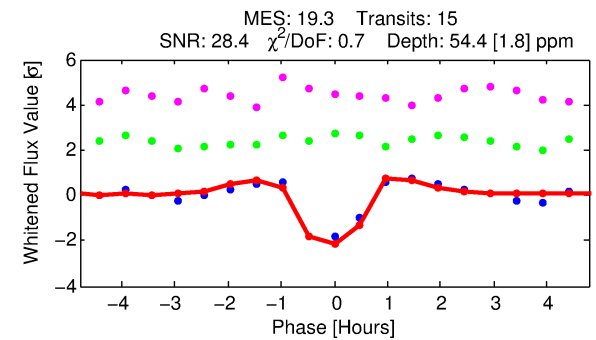
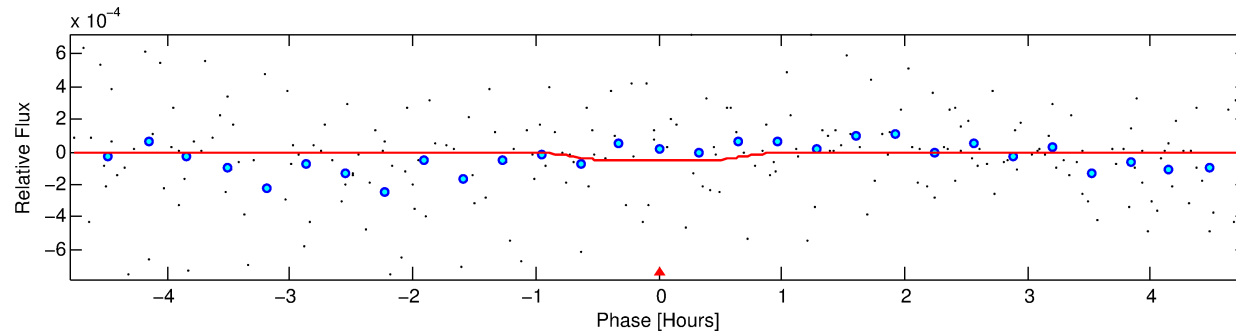
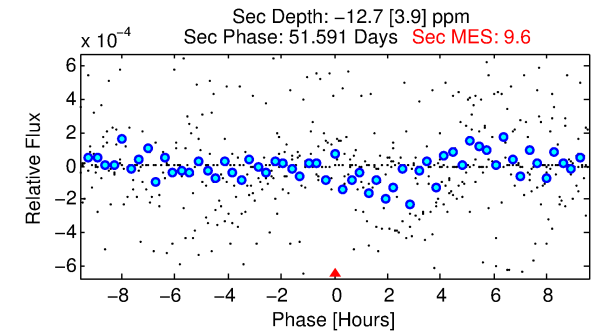
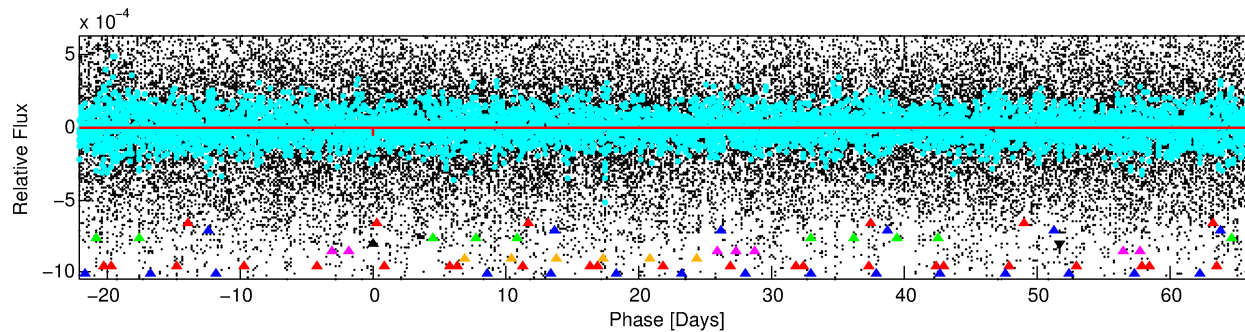
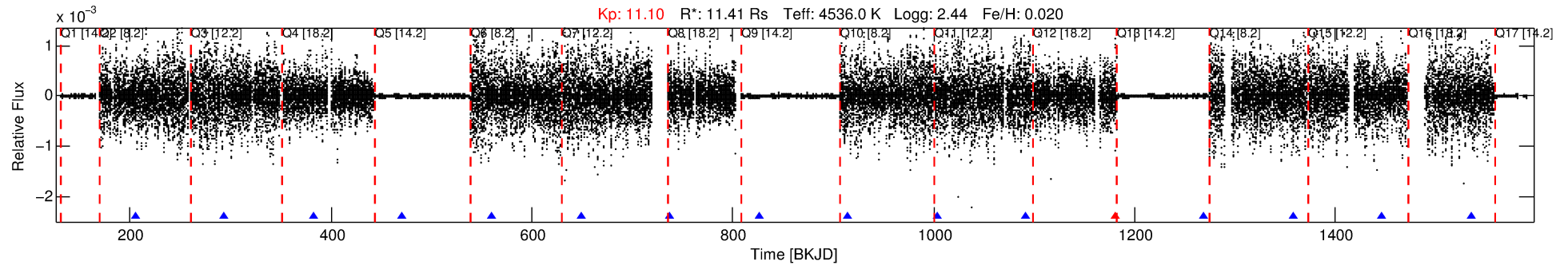
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448051-04

No Significant Match Found

DV One-Page Summary

KIC: 7448051 Candidate: 4 of 8 Period: 88.654 d



DV Fit Results:

Period = 88.65415 [0.00029] d
Epoch = 205.3383 [0.0016] BKJD
Rp/R* = 0.0084 [0.0030]
a/R* = 194.82 [261.30]
b = 0.90 [0.30]
Seff = 272.61 [34.87]
Teq = 1036 [33] K
Rp = 10.40 [4.08] Re
a = 0.4256 [0.0424] AU
Ag = N/A
Teffp = N/A

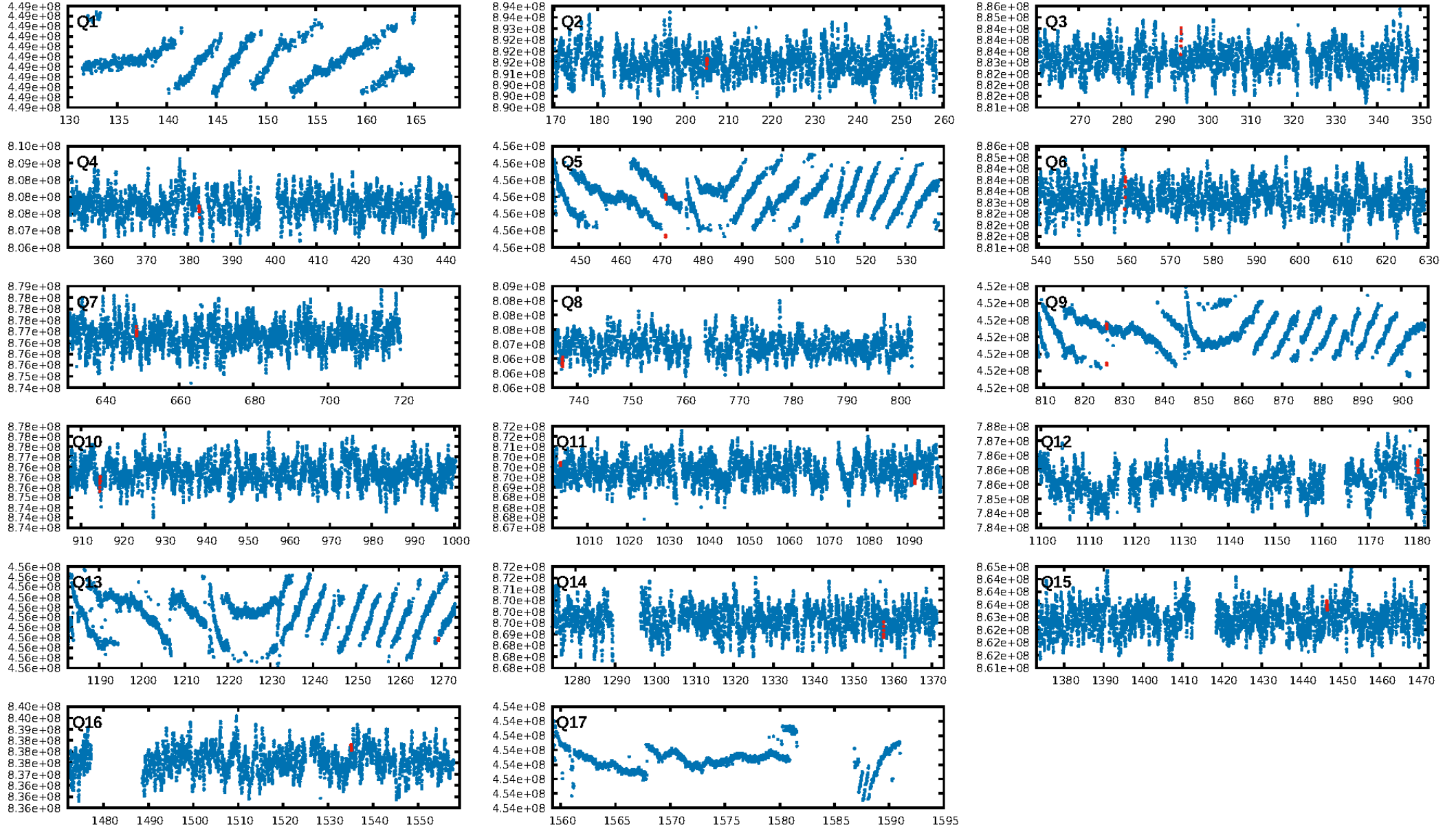
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.94 σ]
LongPeriod-sig: 100.0% [22.29 σ]
ModelChiSquare2-sig: 61.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.93 [14/15]
GhostDiagnostic-chr: -0.3769
Centroid-sig: 63.3%
Centroid-so: 2.017 arcsec [0.58 σ]
OotOffset-rm: 0.904 arcsec [1.04 σ]
OotOffset-st: 4/3/4/2 [13]
KicOffset-rm: 1.455 arcsec [1.63 σ]
KicOffset-st: 4/3/4/2 [13]
DiffImageQuality-fgm: 0.23 [3/13]
DiffImageOverlap-fno: 0.93 [13/14]

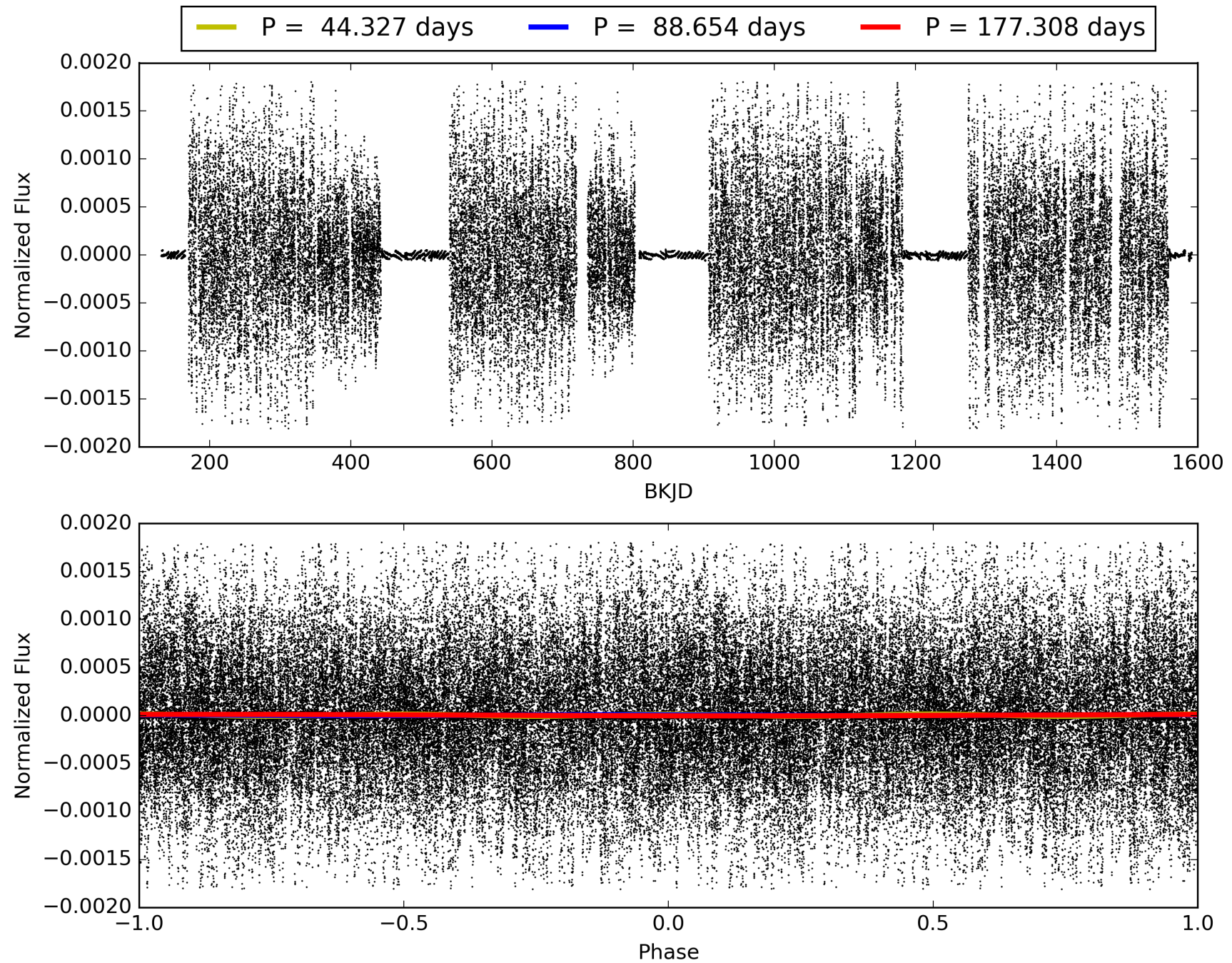
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:52:34 Z

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

TCE 007448051-04, PDC Light Curves

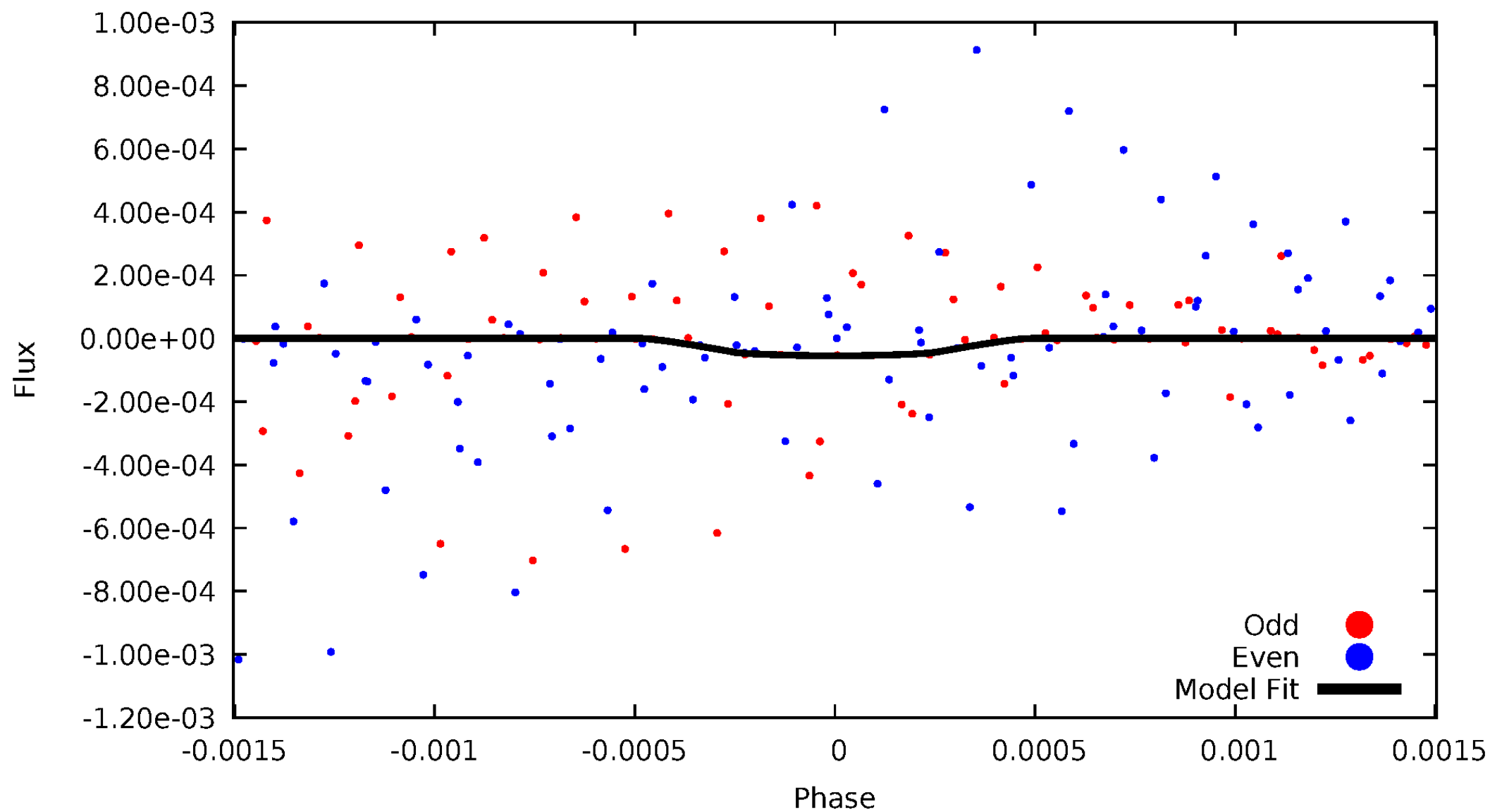


TCE 007448051-04



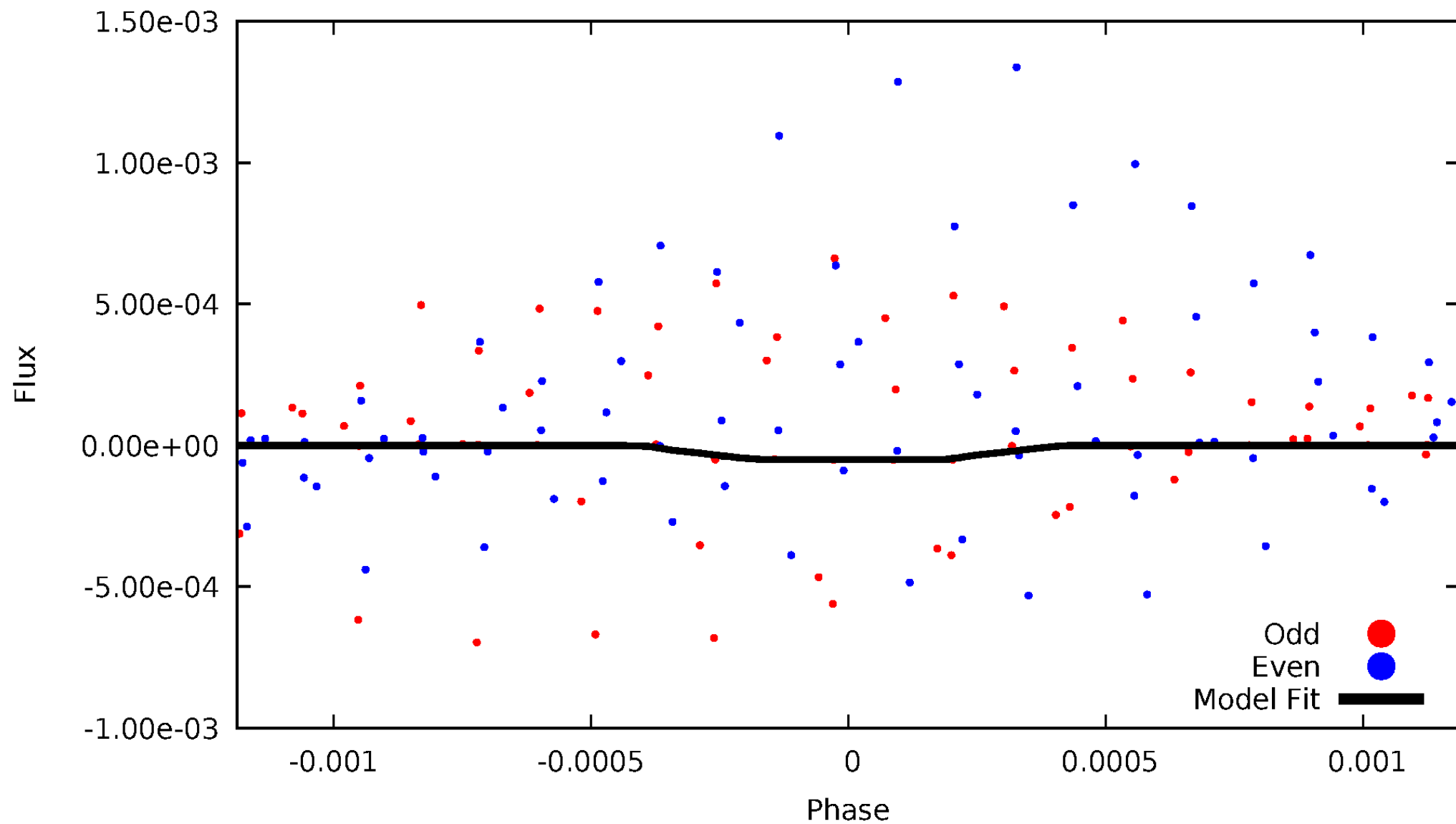
DV Odd/Even

TCE 007448051-04



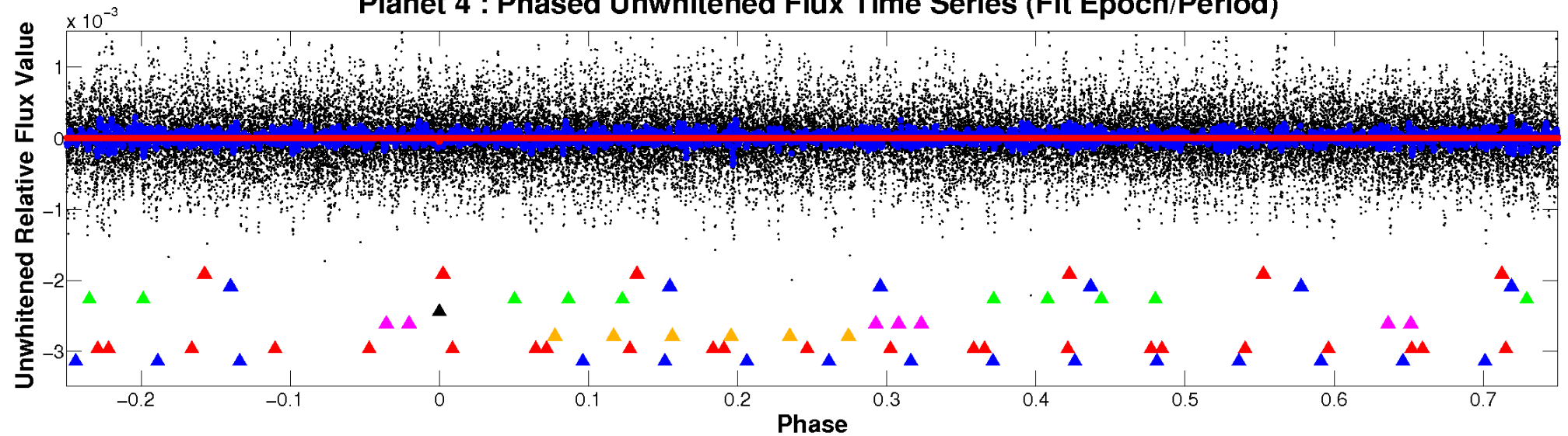
ALT Odd/Even

TCE 007448051-04

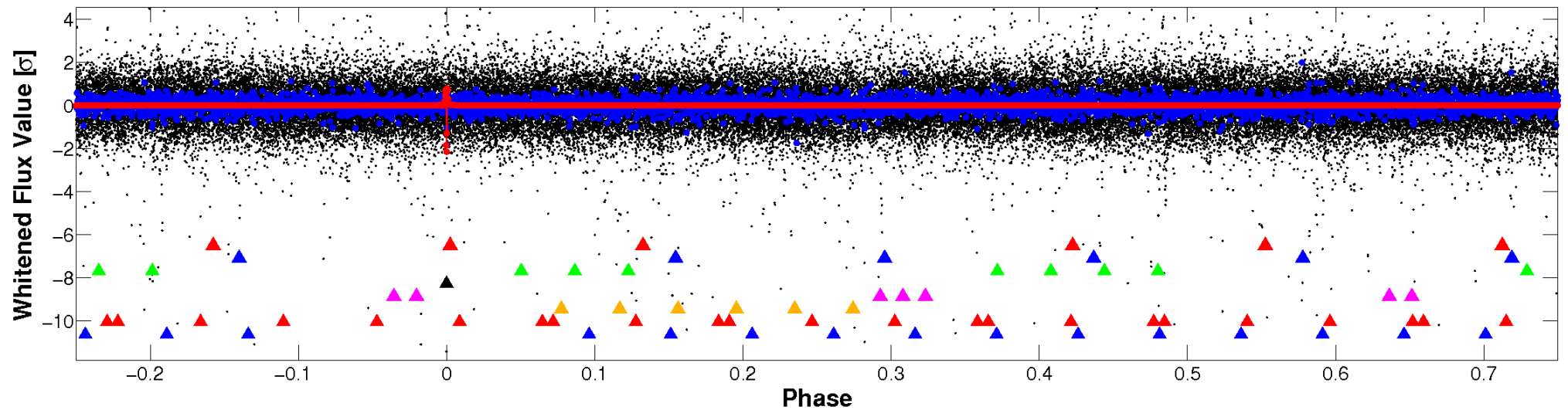


Non-Whitened Vs. Whitened Light Curve

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

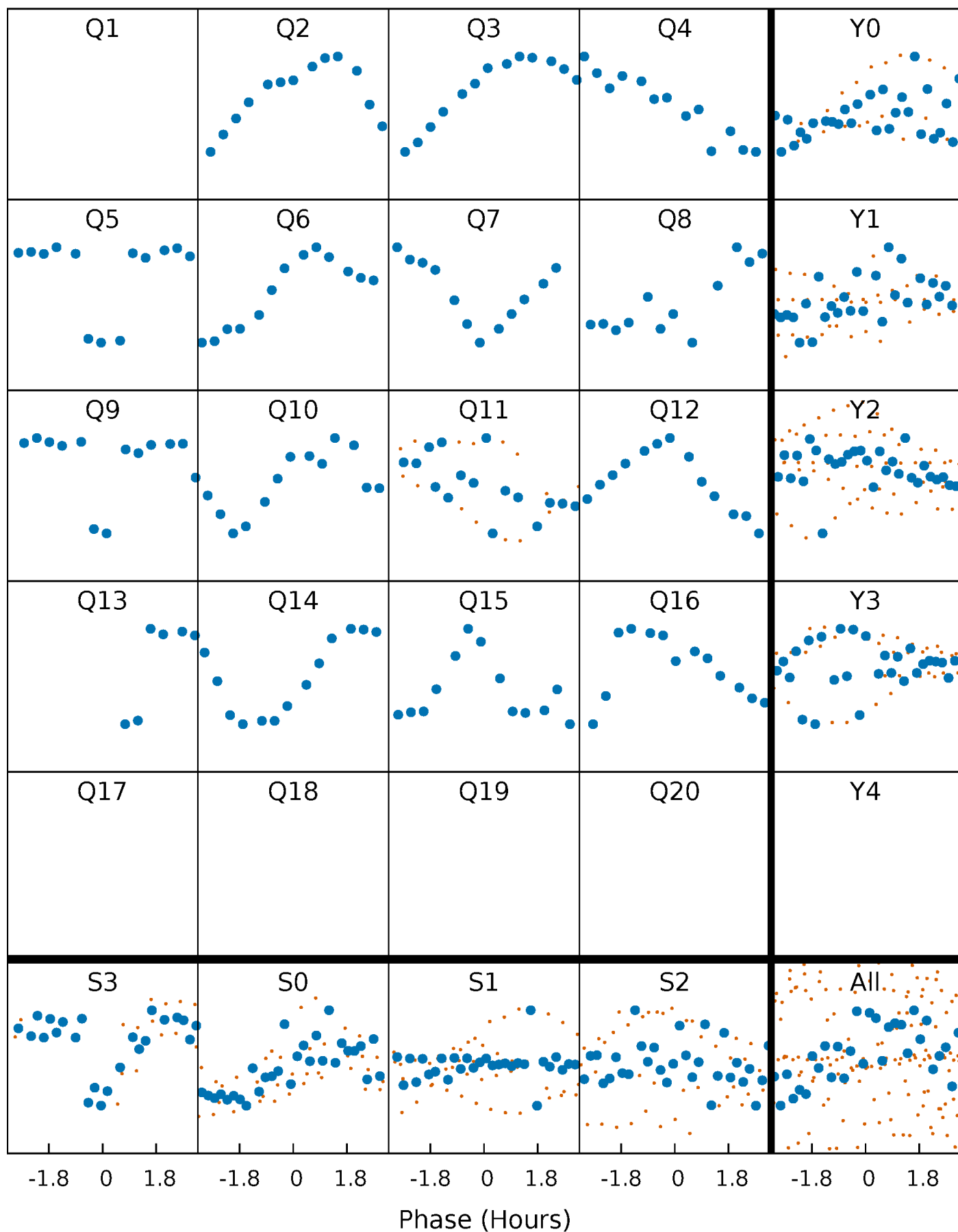


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



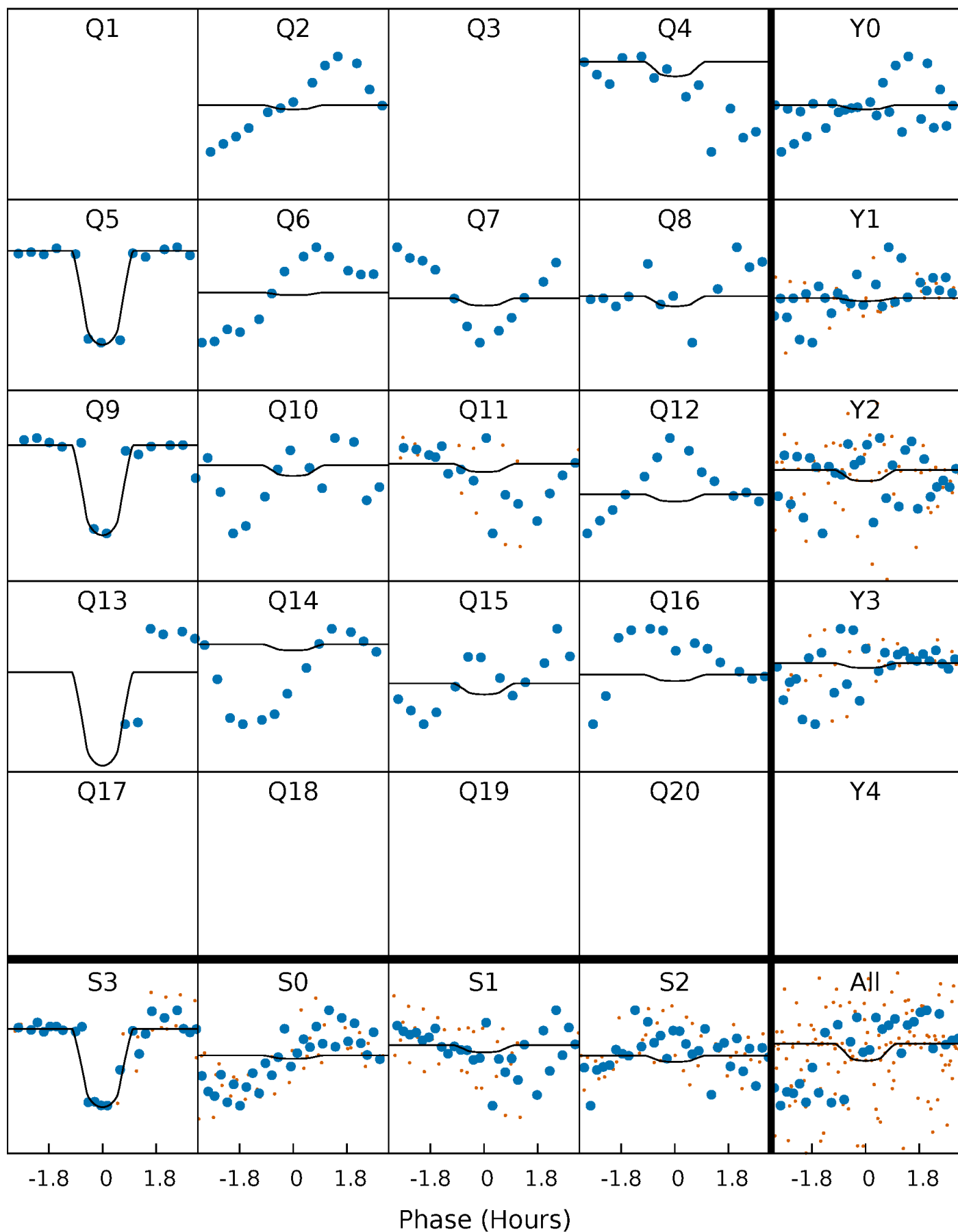
PDC Quarter-Phased Transit Curves

TCE 007448051-04 P= 88.654148 Days $T_0=205.338296$ (BKJD)



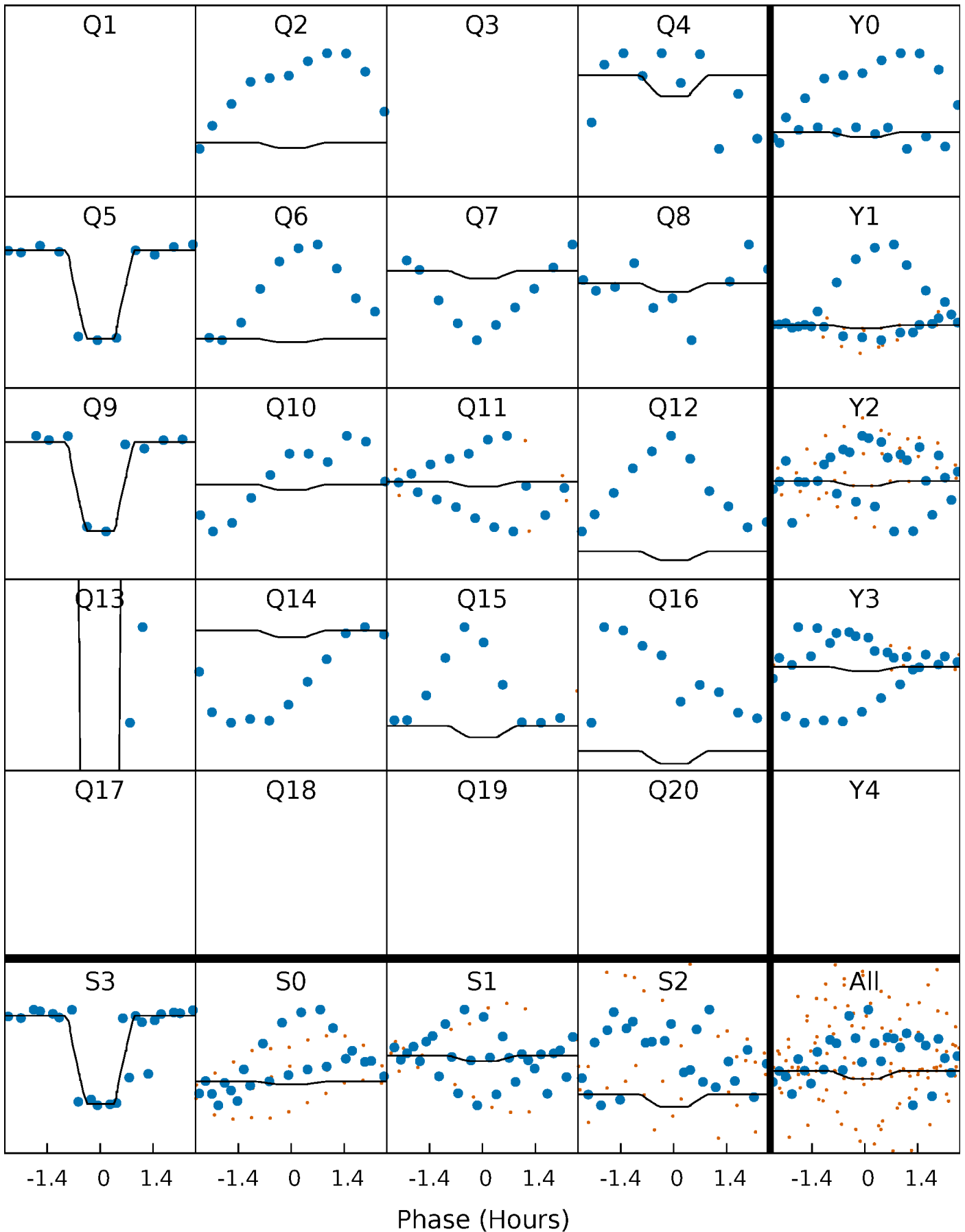
DV Quarter-Phased Transit Curves

TCE 007448051-04 P= 88.654148 Days $T_0=205.338296$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

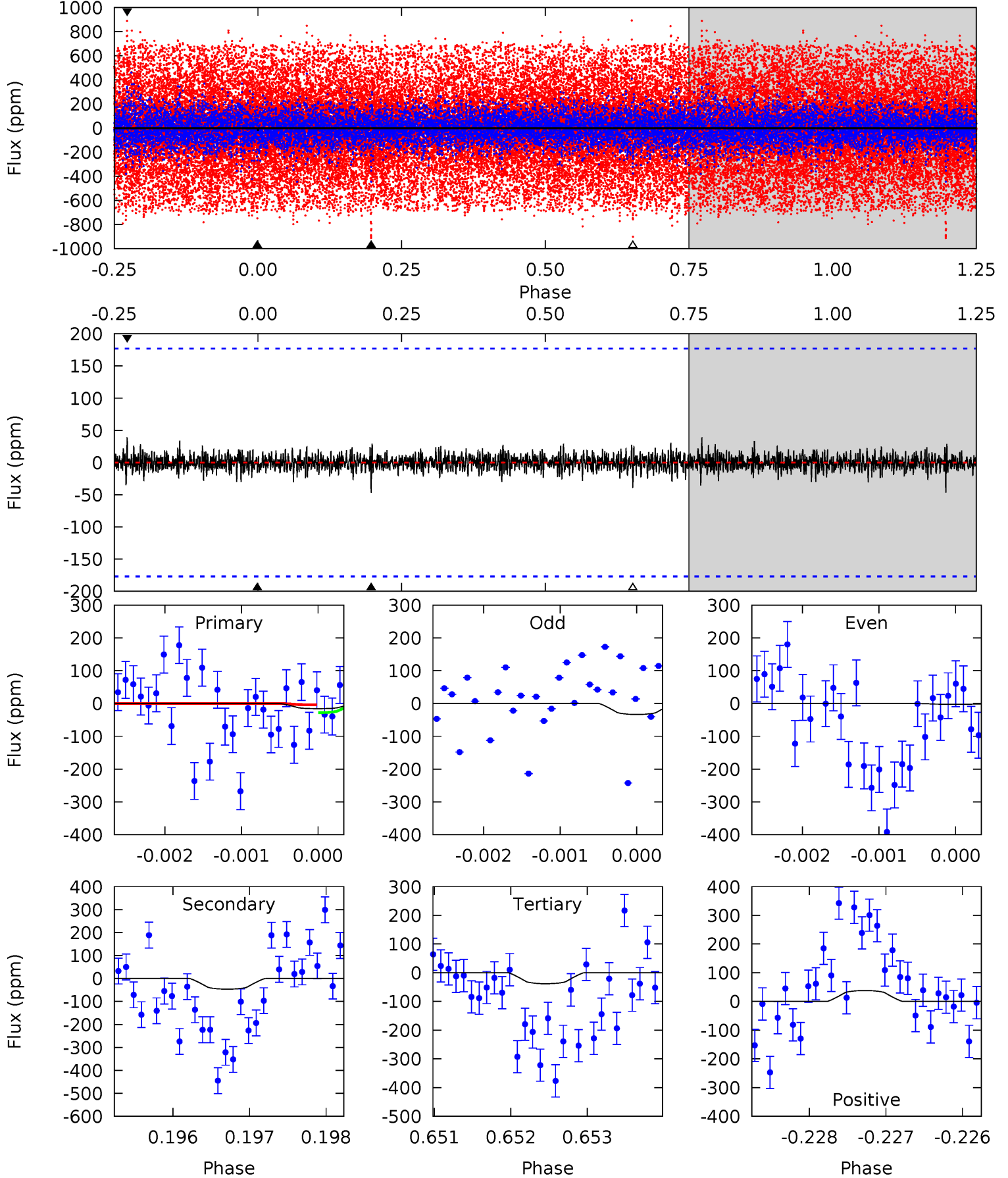
TCE 007448051-04 P= 88.653551 Days $T_0=205.343111$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-04, P = 88.654148 Days, E = 116.684148 Days

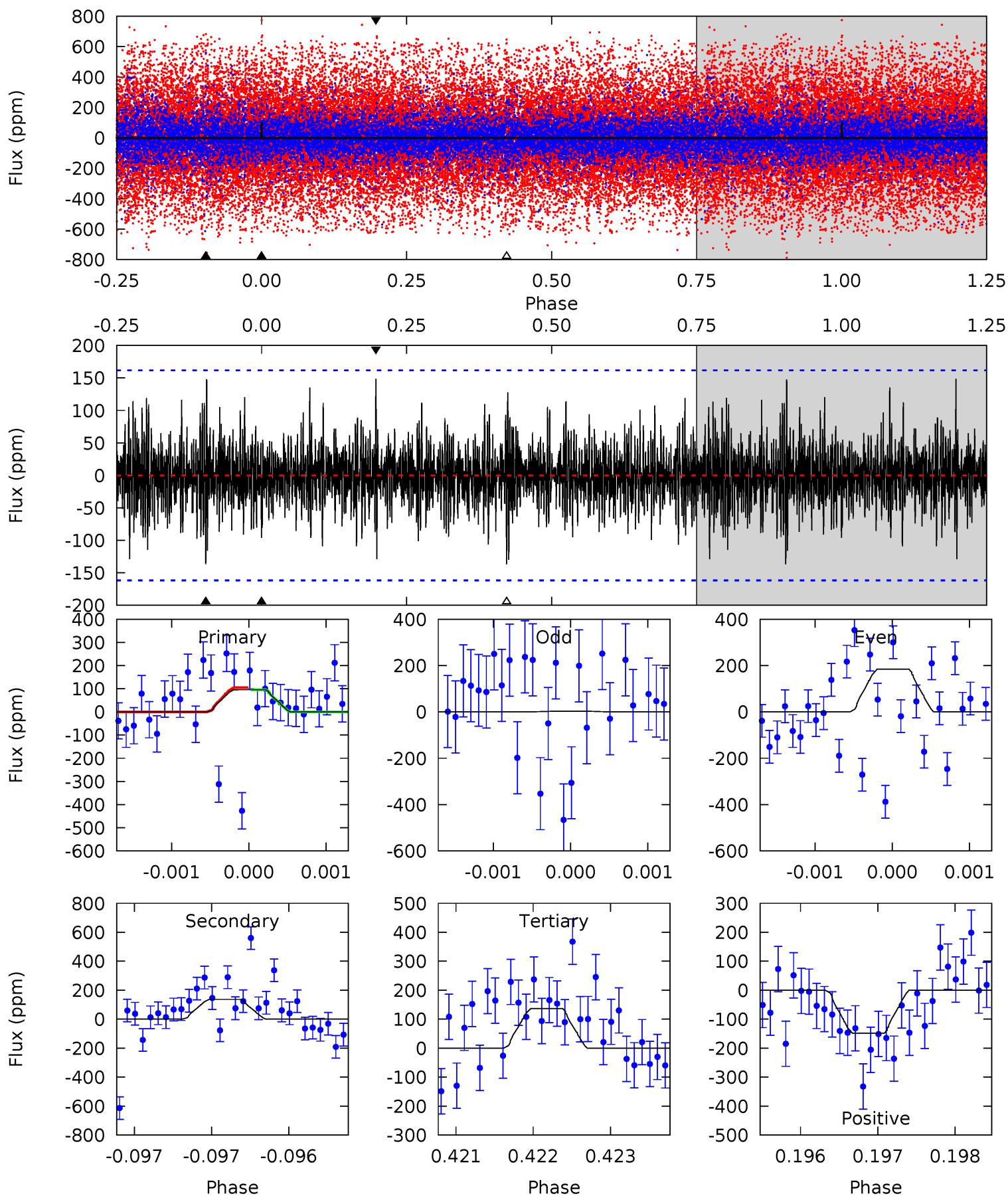
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.49	1.43	1.18	1.17	5.46	3.30	0.29	-0.69	-0.68	0.25	0.26	0.49	-1.15	0.45	0.38



Alt Model-Shift Uniqueness Test

007448051-04, P = 88.653551 Days, E = 116.689560 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.25	4.64	4.64	5.04	5.49	3.35	1.26	-1.39	-1.79	0.00	-0.40	3.03	1.23	0.52	0.15



Stellar Parameters For KIC 007448051

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-47 ± 32	$10.43^{+3.98}_{-3.80}$	1450^{+35}_{-30}	4144^{+970}_{-752}	40^{+80}_{-28}
Alt.	-137 ± 29	$8.82^{+3.86}_{-3.73}$	1448^{+35}_{-31}	5613^{+1869}_{-804}	176^{+348}_{-95}

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 $A_{obs} \gg 1.0$

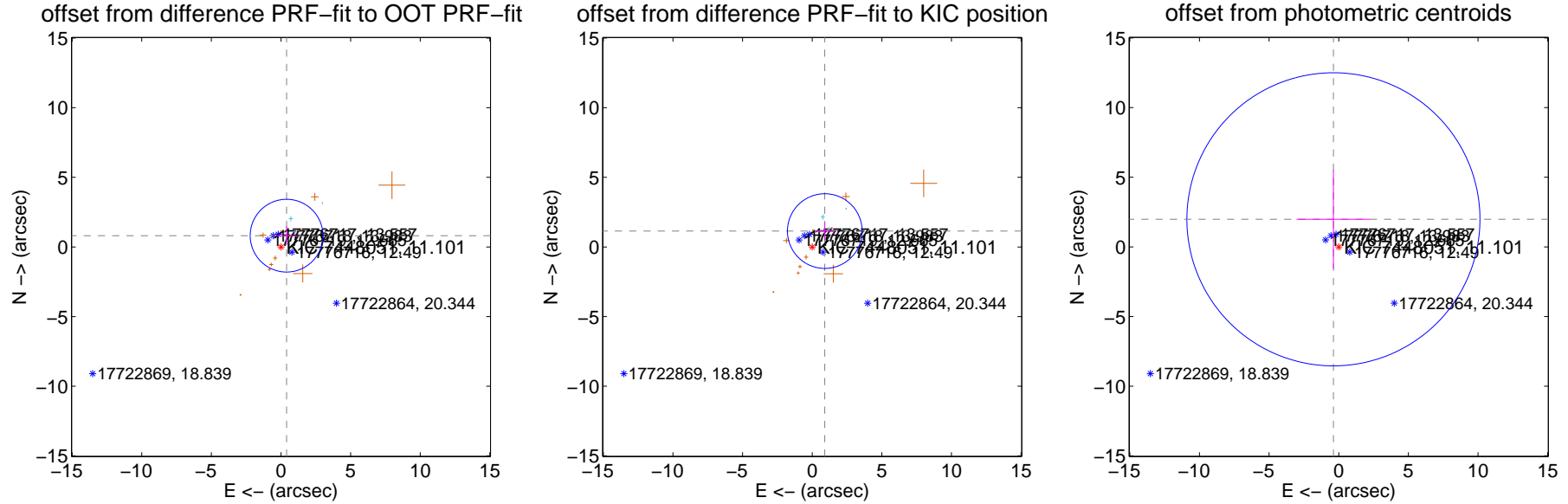
DV Centroid Data

Supplemental centroid analysis for 007448051-04. **Kepler magnitude: 11.10.** Transit SNR 28.35

There are 3 quarters with good PRF difference image offsets

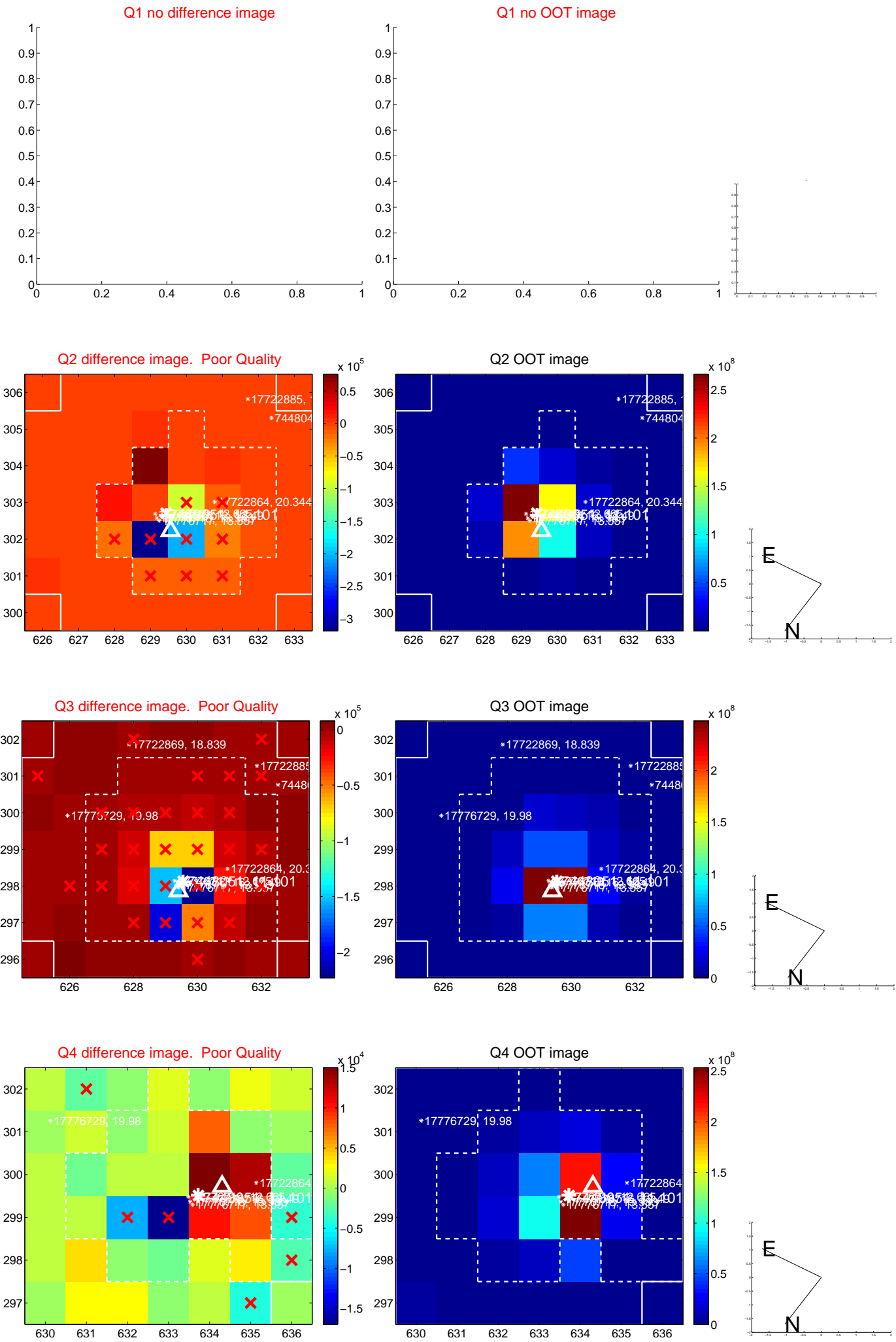
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.904 ± 0.871	1.04	-0.401 ± 0.732	0.811 ± 0.667
PRF-fit source offset from KIC position	1.455 ± 0.894	1.63	-0.904 ± 0.722	1.140 ± 0.640
photometric centroid source offset	2.02 ± 3.51	0.58	0.38 ± 2.64	1.98 ± 3.54

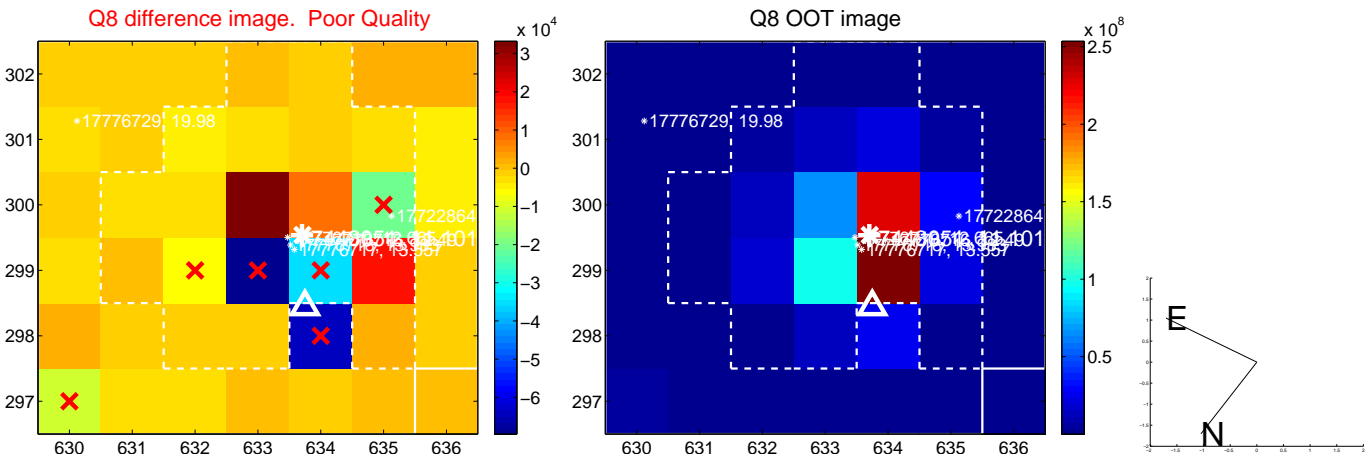
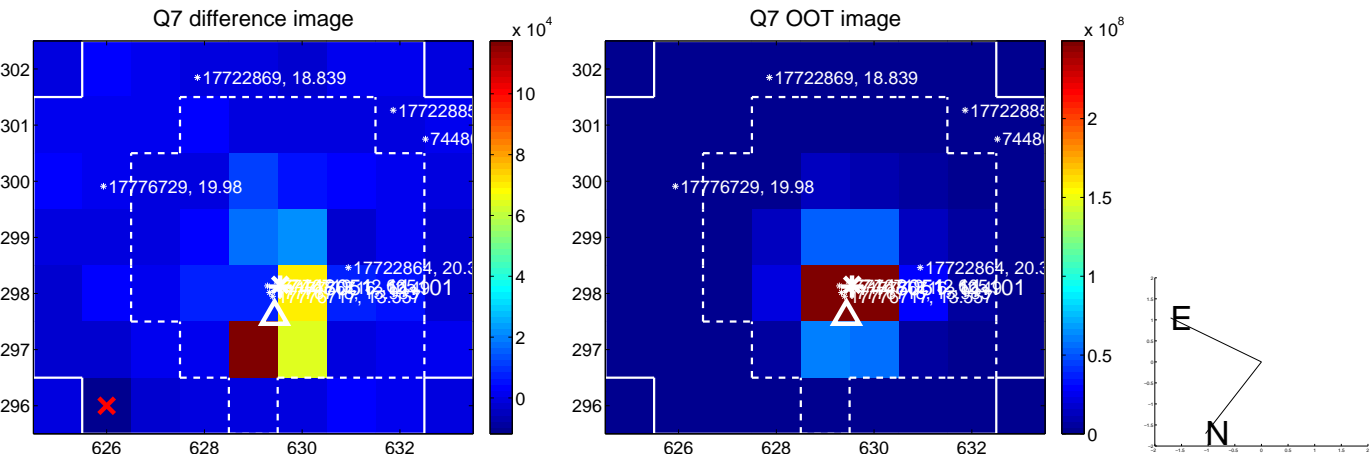
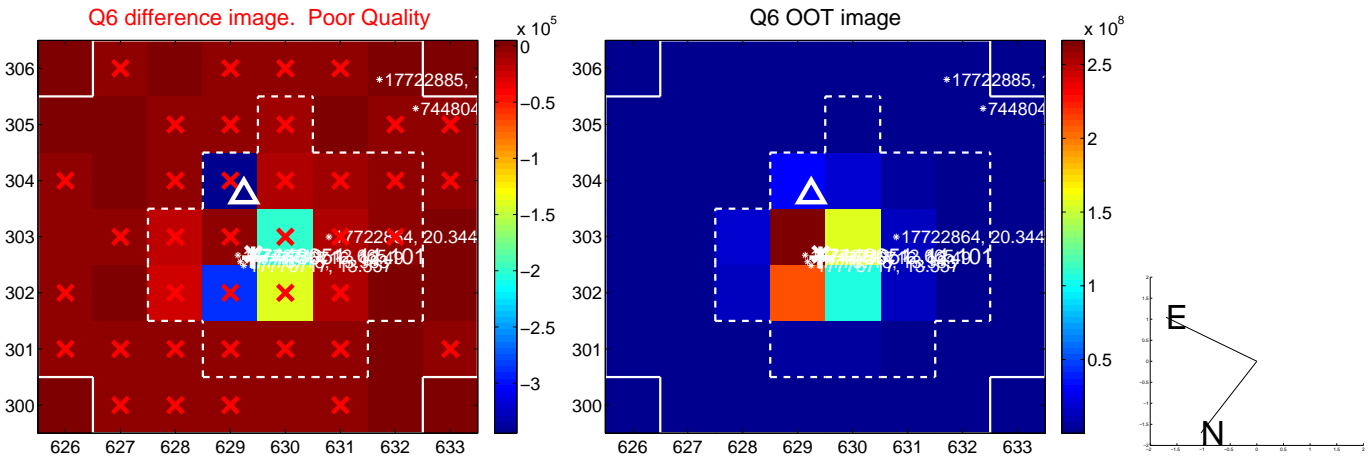
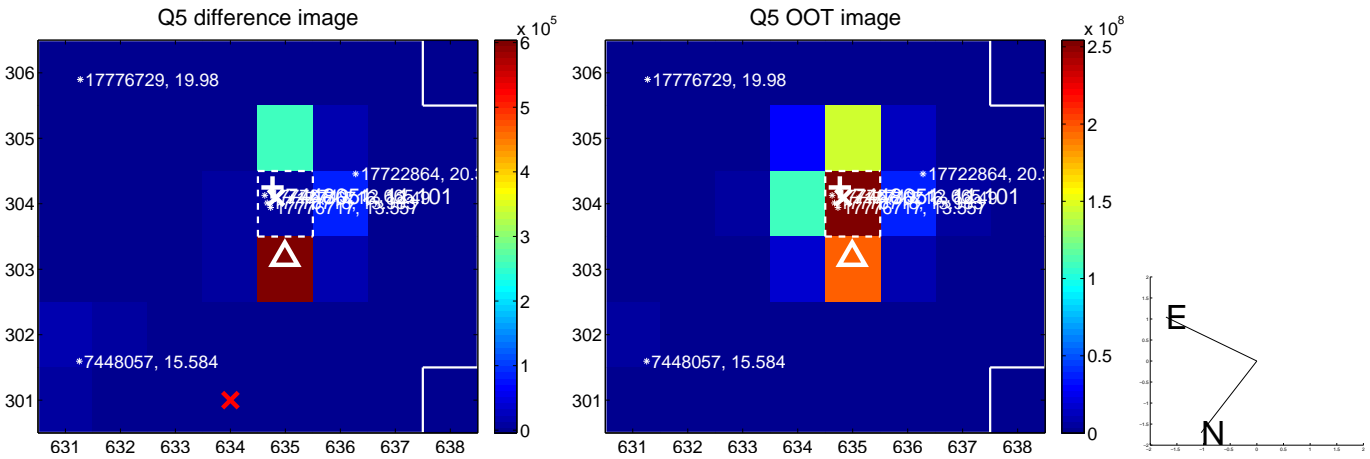


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

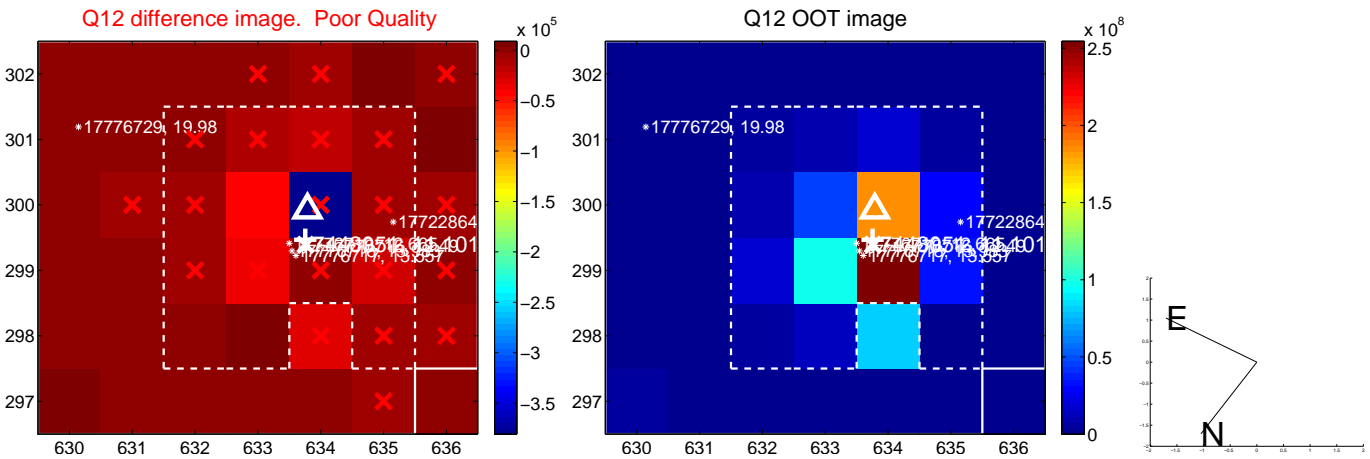
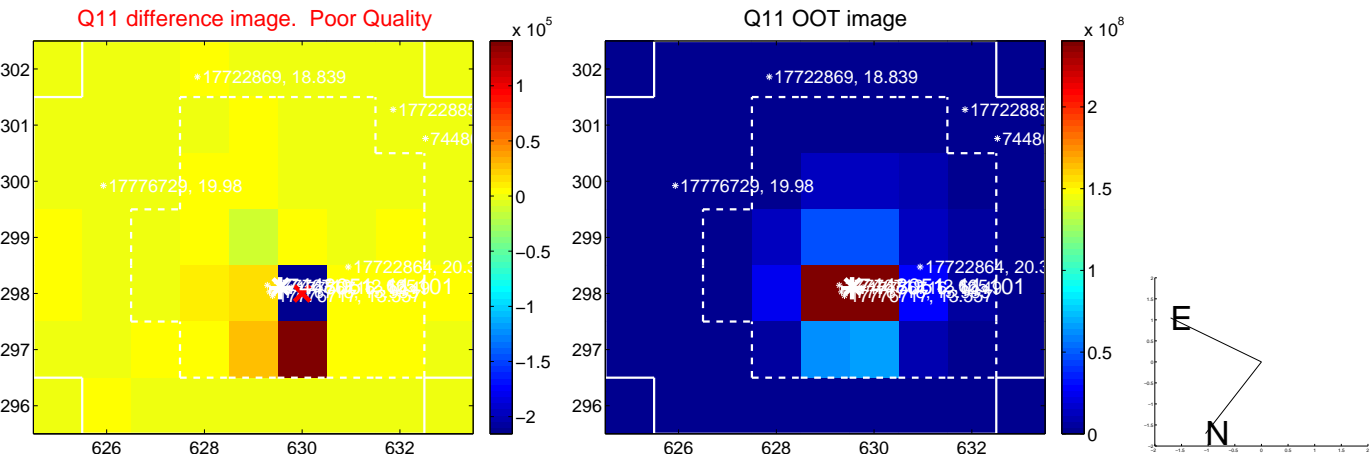
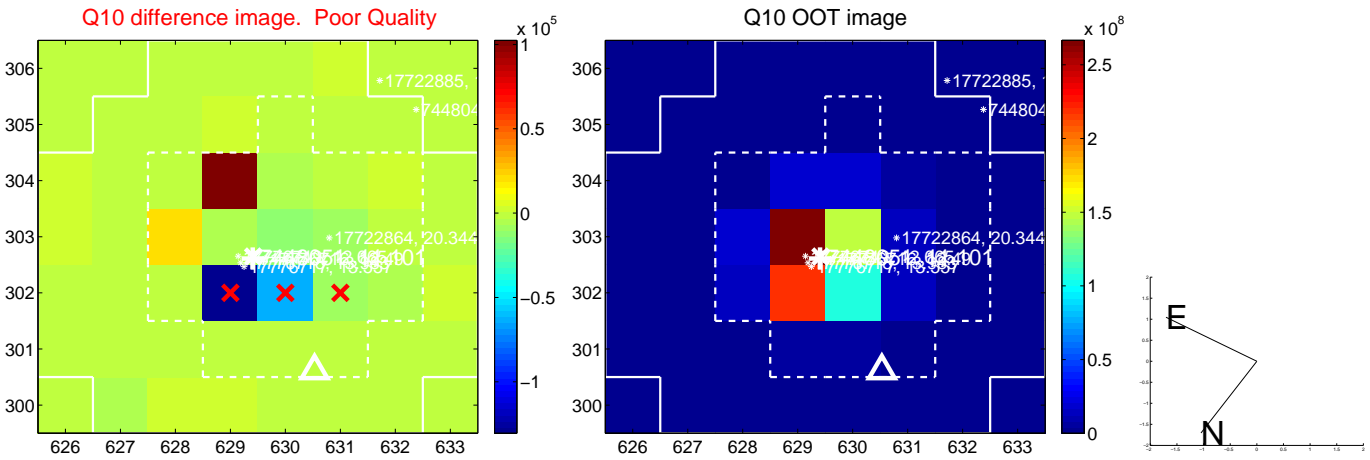
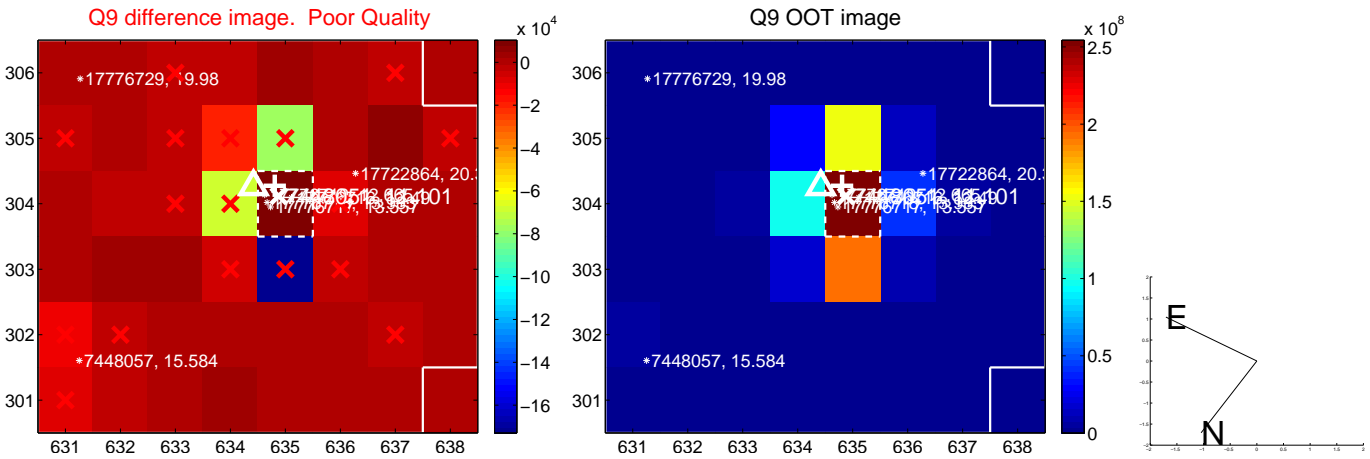
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



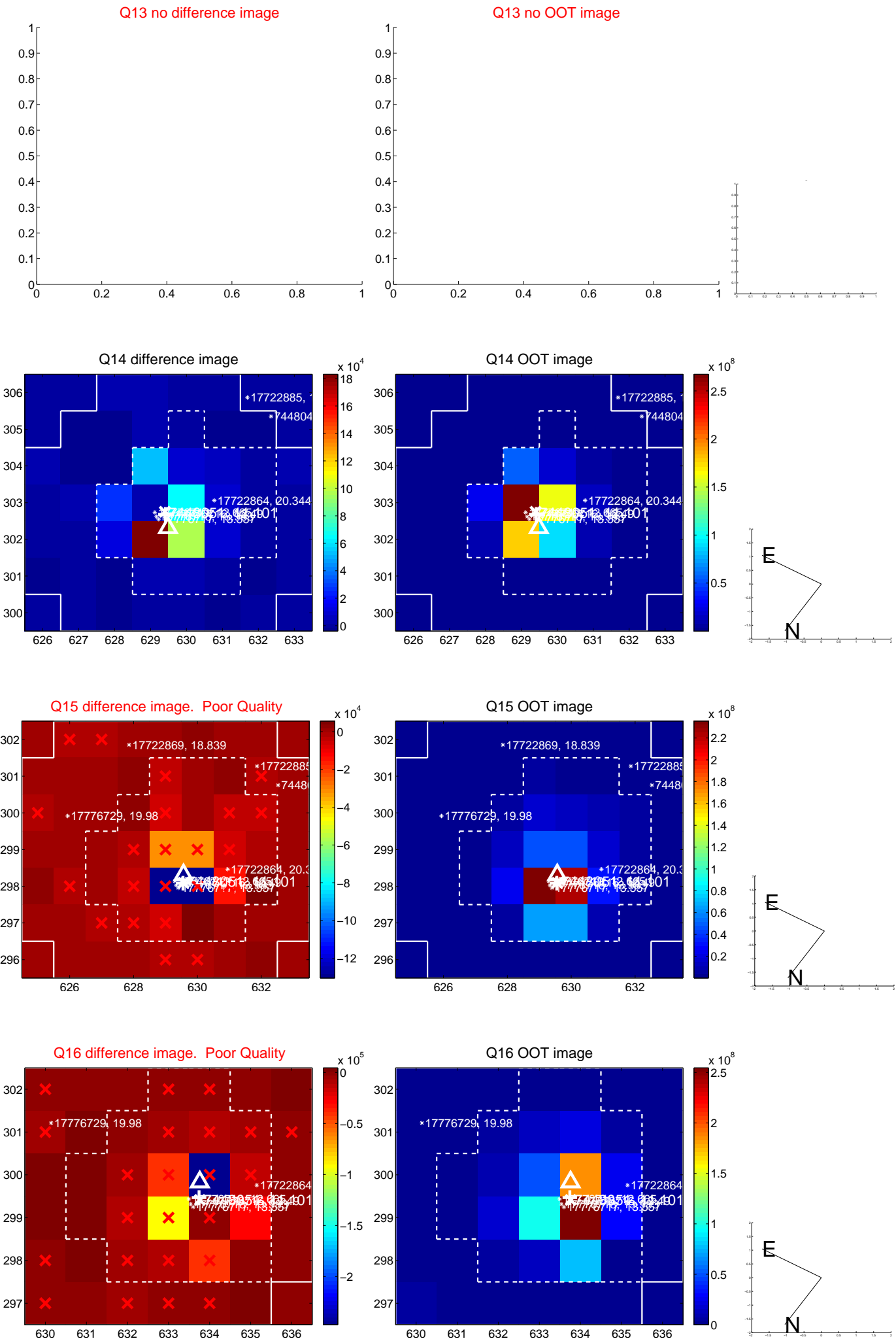
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



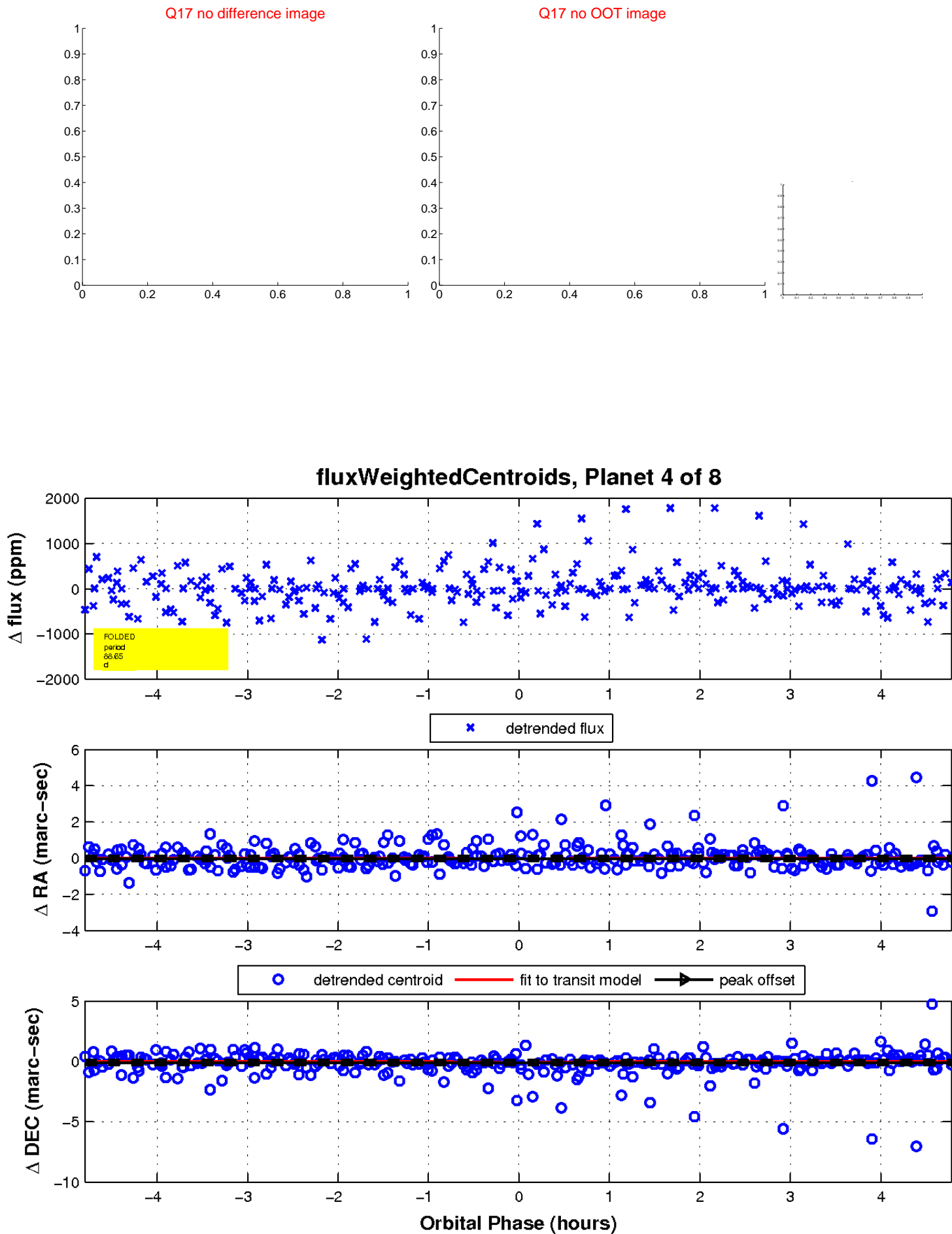
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

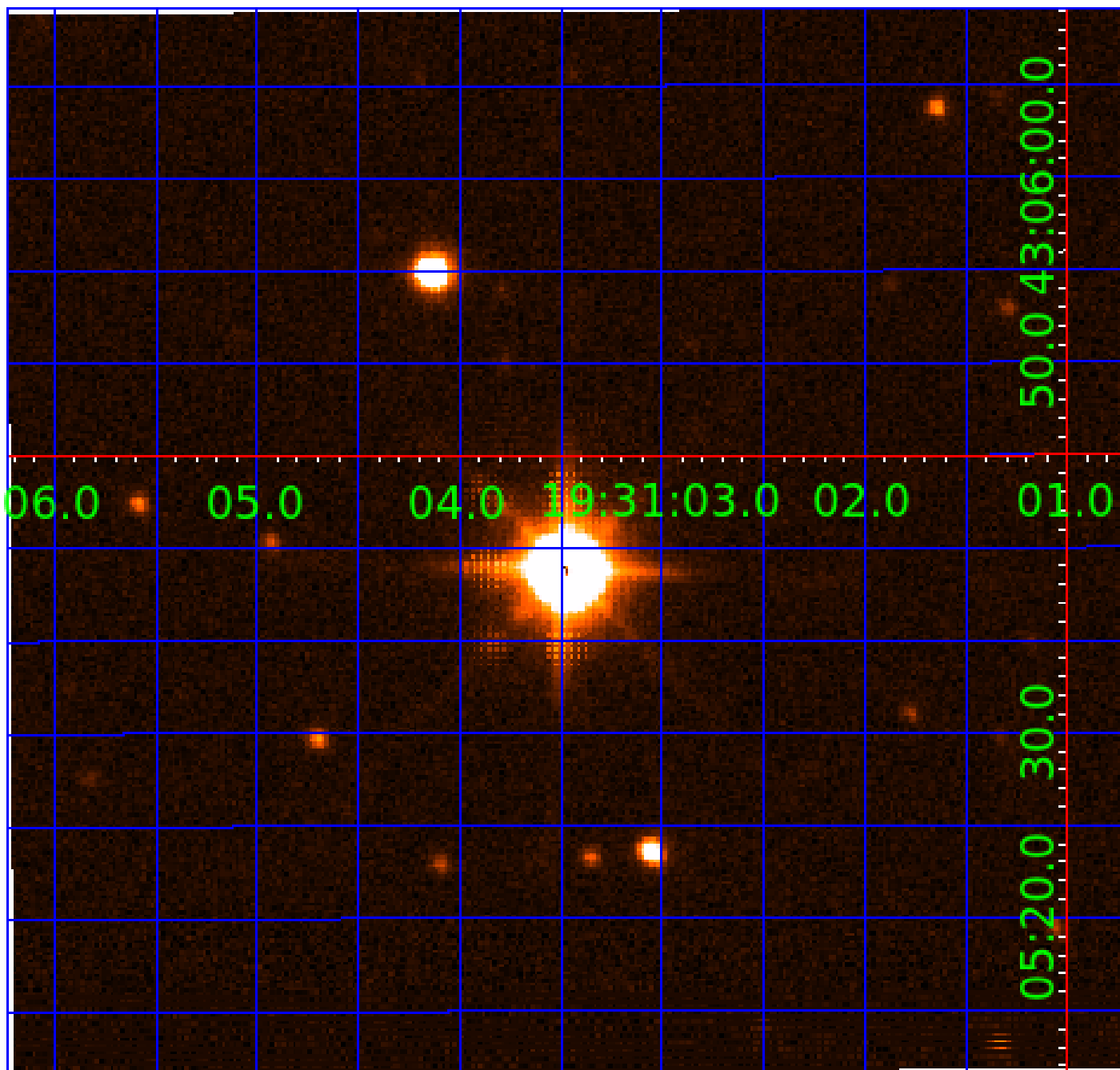


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

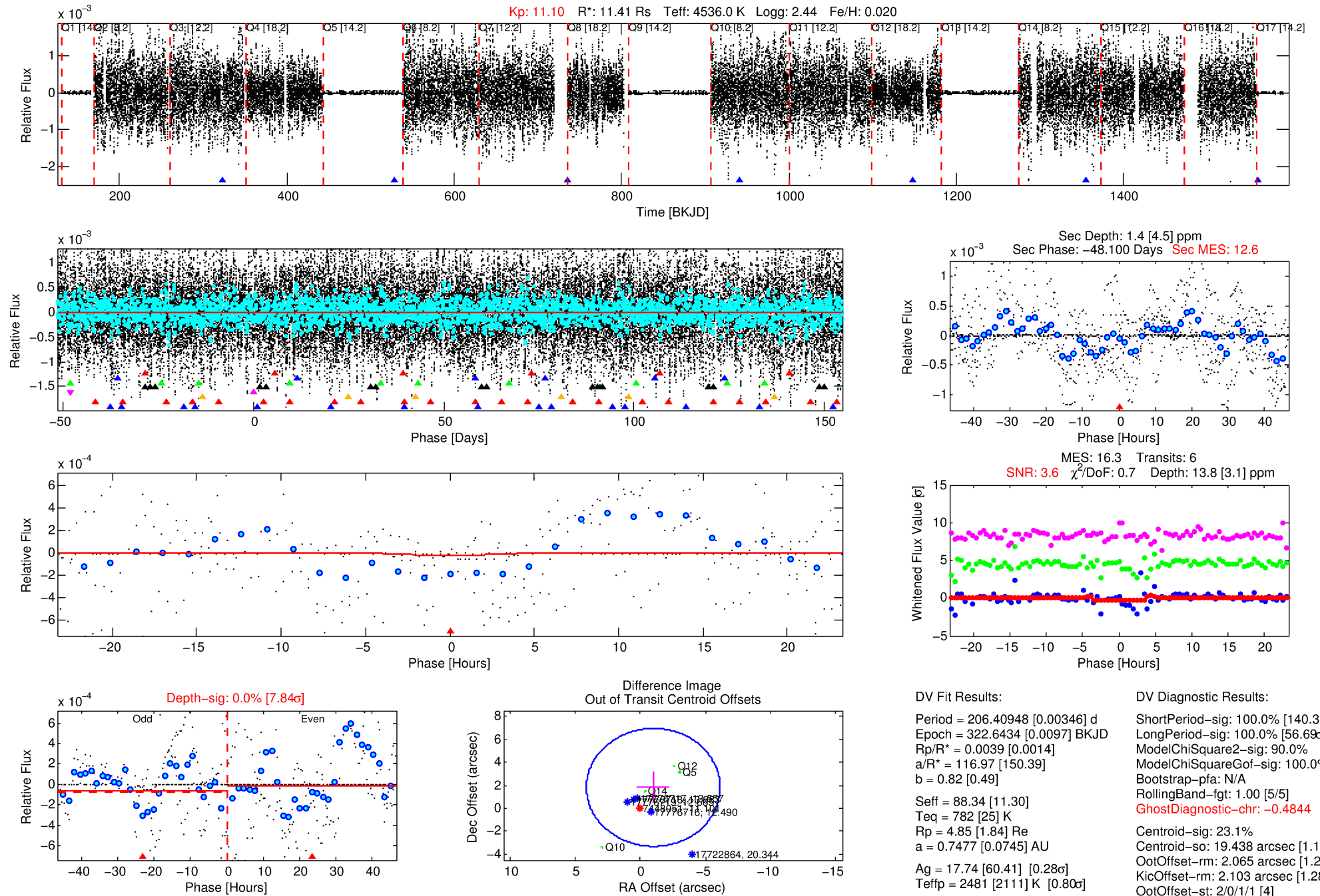
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448051-05

No Significant Match Found

DV One-Page Summary

KIC: 7448051 Candidate: 5 of 8 Period: 206.409 d



DV Fit Results:

Period = 206.40948 [0.00346] d
Epoch = 322.6434 [0.0097] BKJD
Rp/R* = 0.0039 [0.0014]
a/R* = 116.97 [150.39]
b = 0.82 [0.49]
Seff = 88.34 [11.30]
Teff = 782 [25] K
Rp = 4.85 [1.84] Re
a = 0.7477 [0.0745] AU
Ag = 17.74 [60.41] [0.28 σ]
Teffp = 2481 [2111] K [0.80 σ]

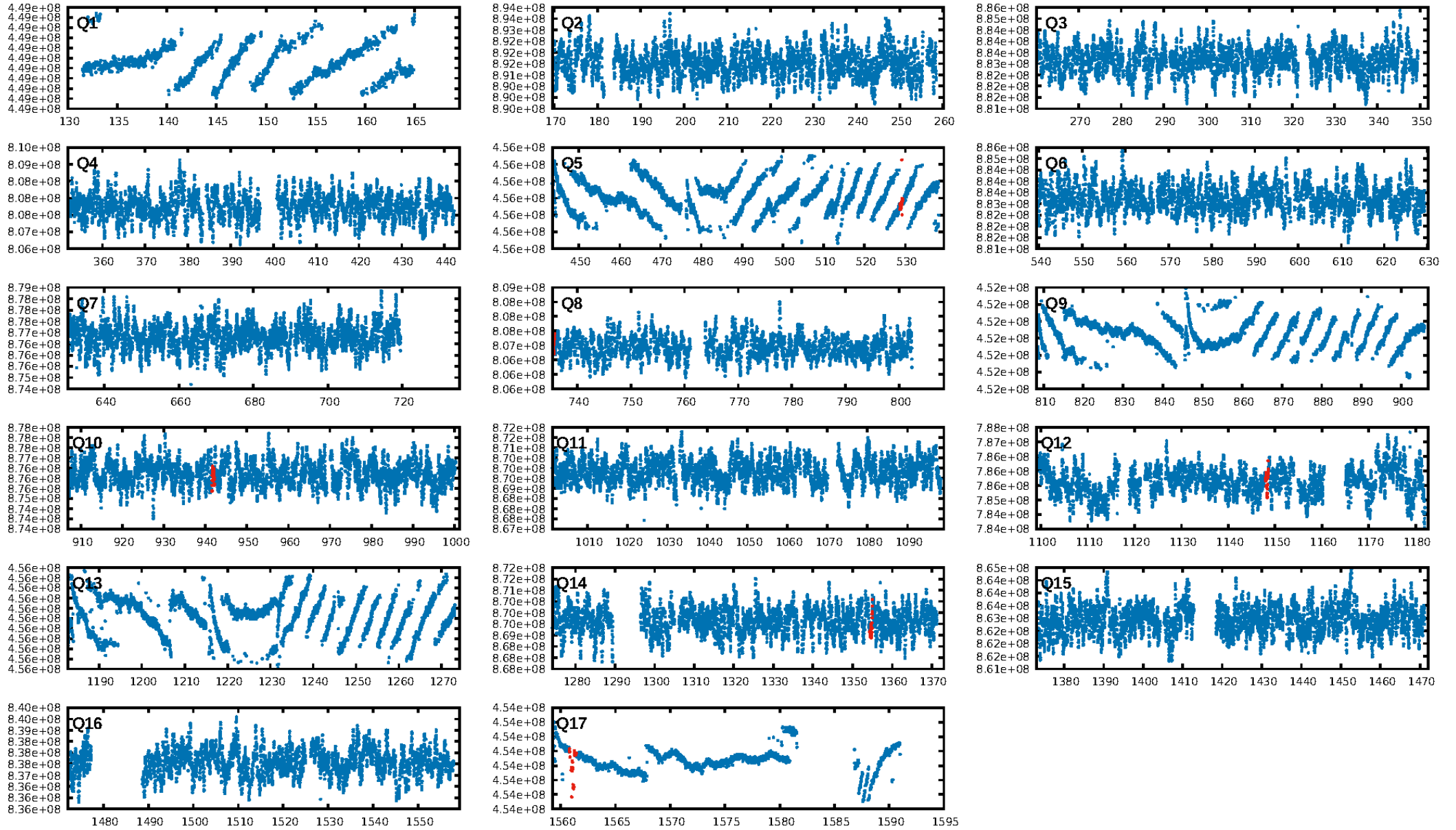
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [140.39 σ]
LongPeriod-sig: 100.0% [56.69 σ]
ModelChiSquare2-sig: 90.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.4844
Centroid-sig: 23.1%
Centroid-so: 19.438 arcsec [1.17 σ]
OotOffset-rm: 2.065 arcsec [1.21 σ]
KicOffset-rm: 2.103 arcsec [1.28 σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

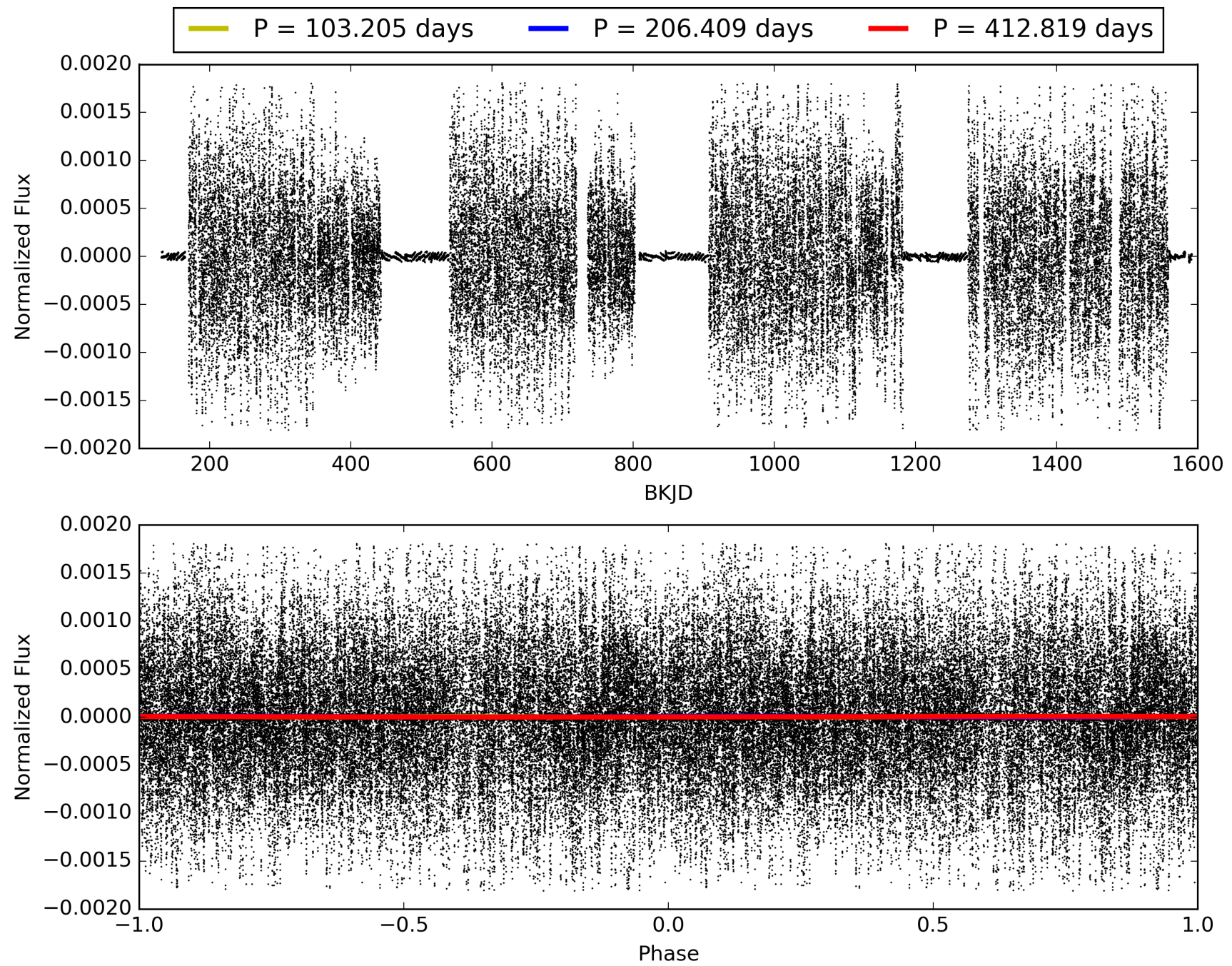
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:52:42 Z

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

TCE 007448051-05, PDC Light Curves

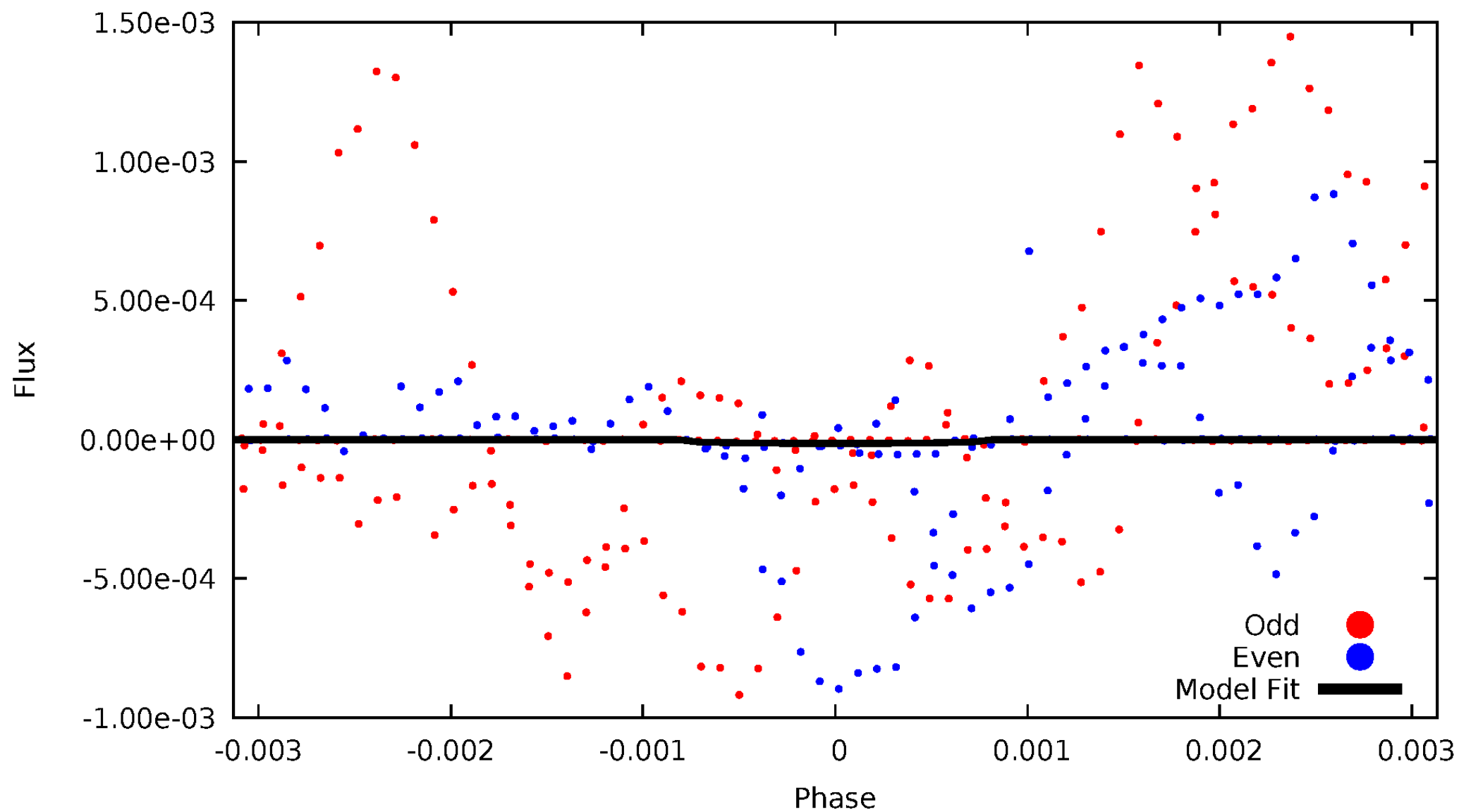


TCE 007448051-05



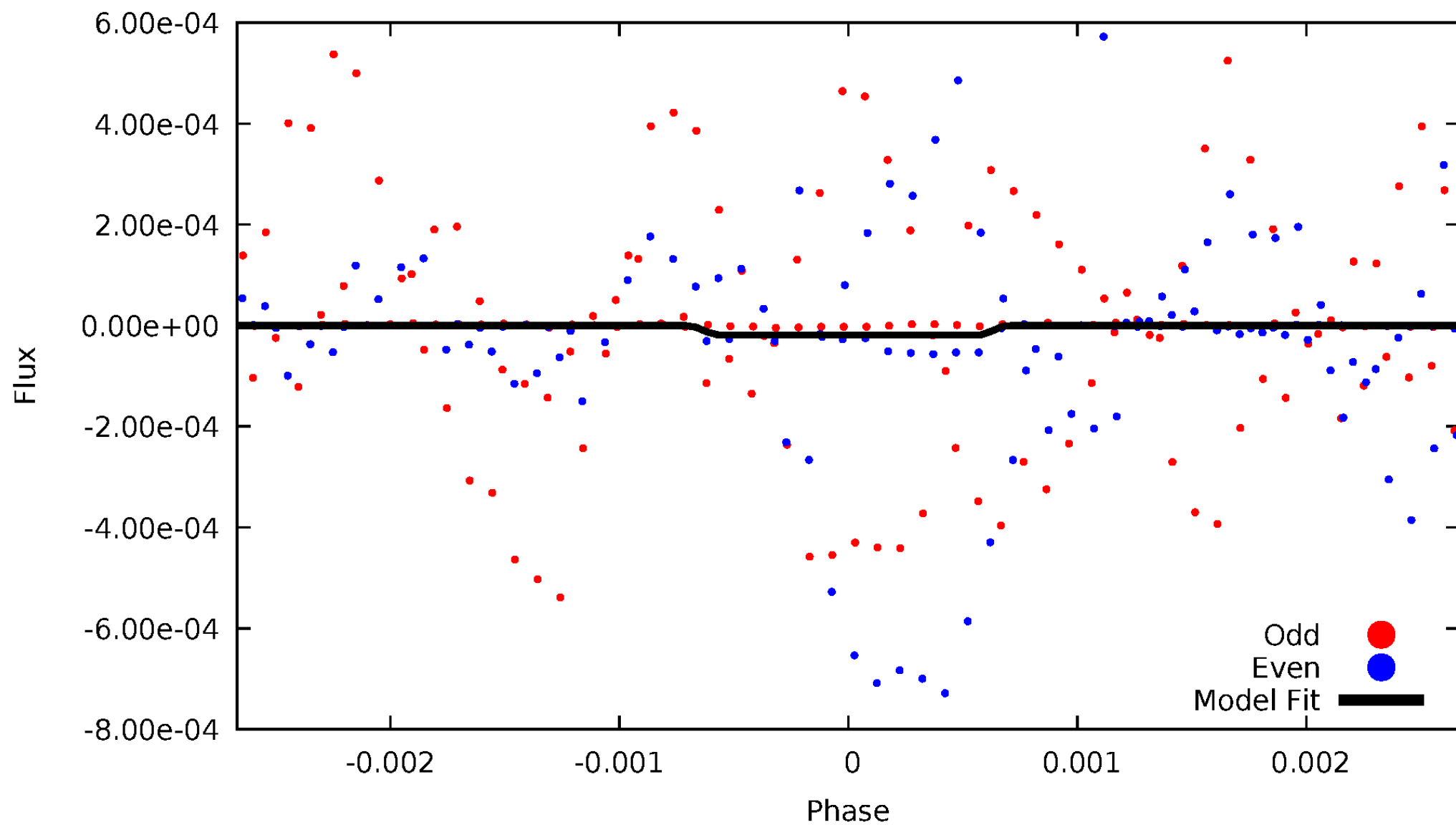
DV Odd/Even

TCE 007448051-05



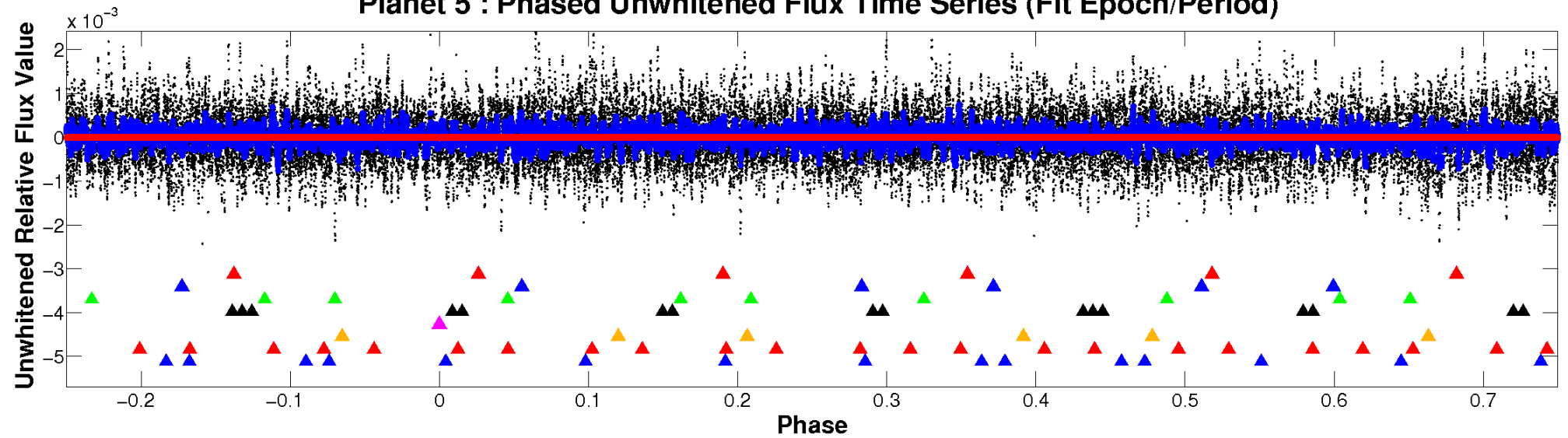
ALT Odd/Even

TCE 007448051-05

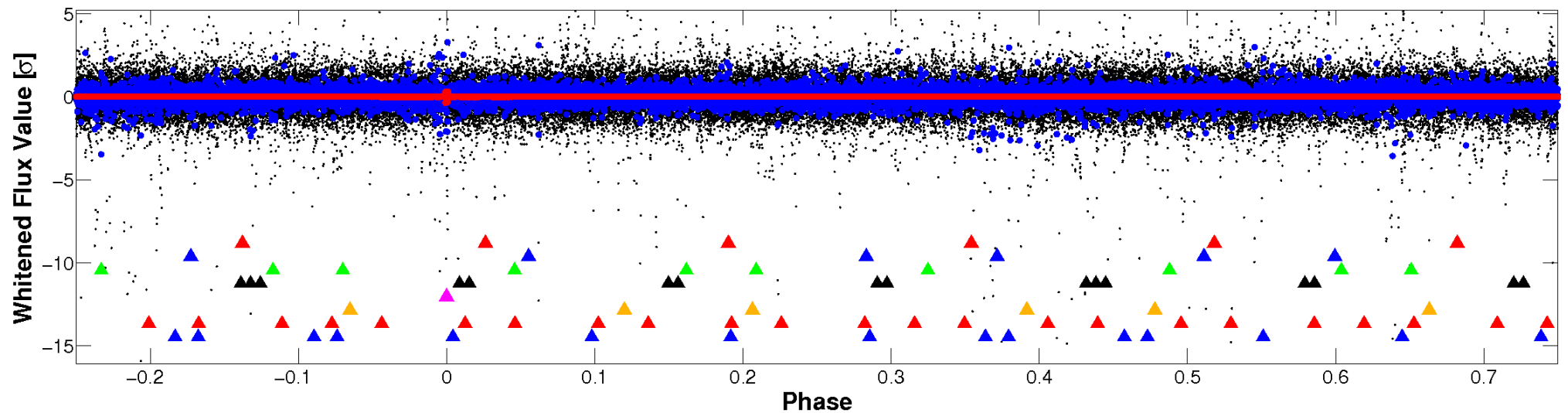


Non-Whitened Vs. Whitened Light Curve

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

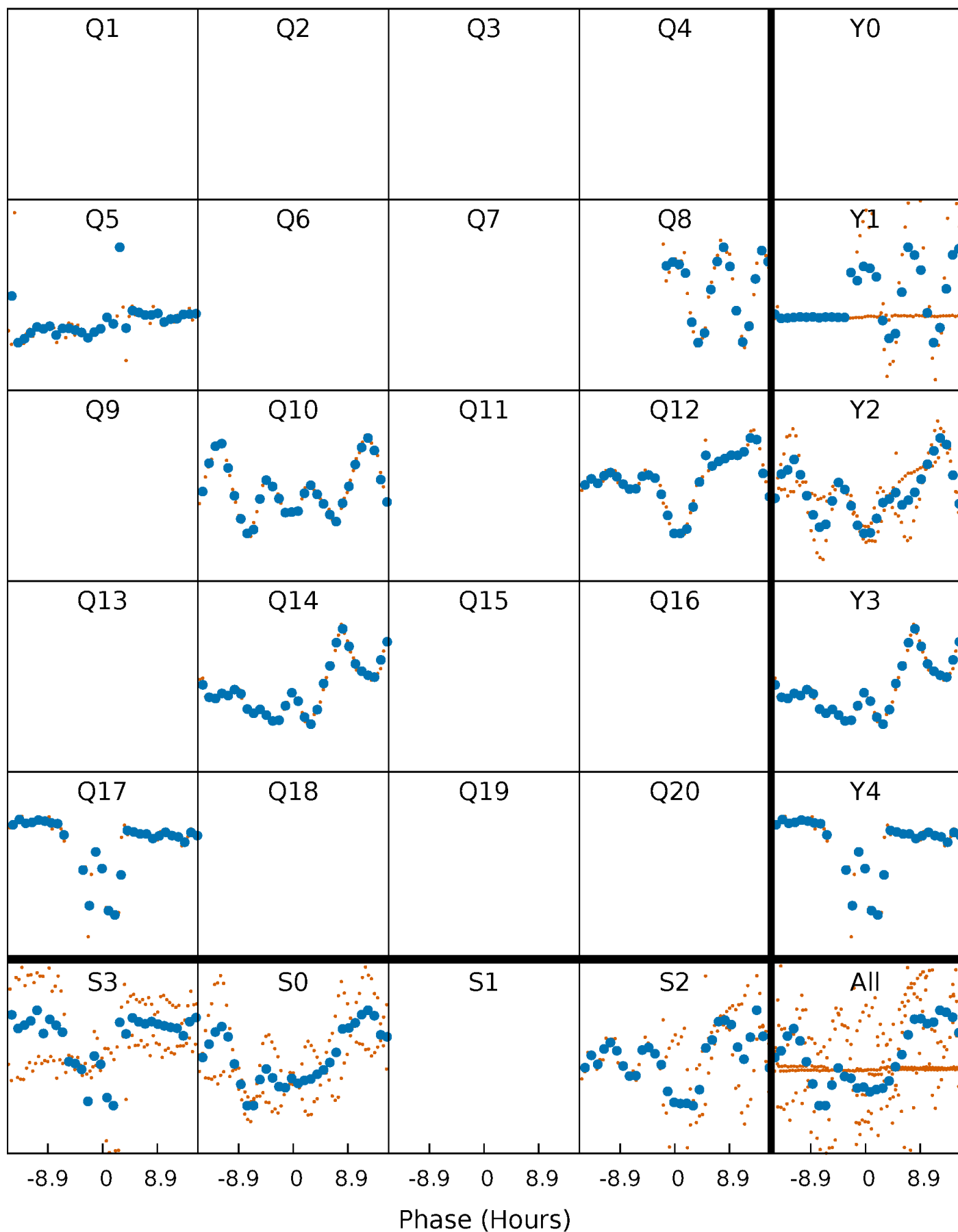


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



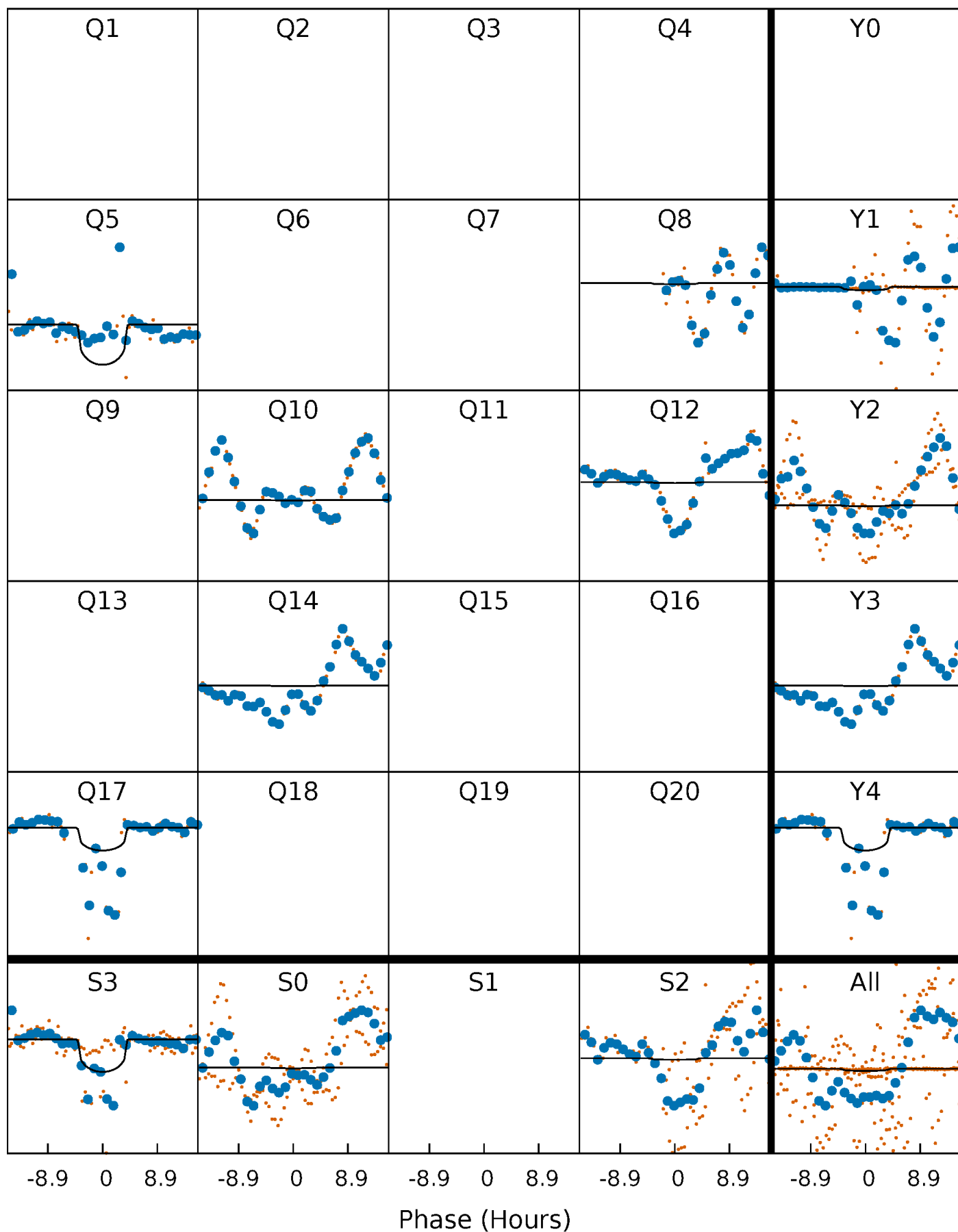
PDC Quarter-Phased Transit Curves

TCE 007448051-05 $P=206.409480$ Days $T_0=322.643362$ (BKJD)



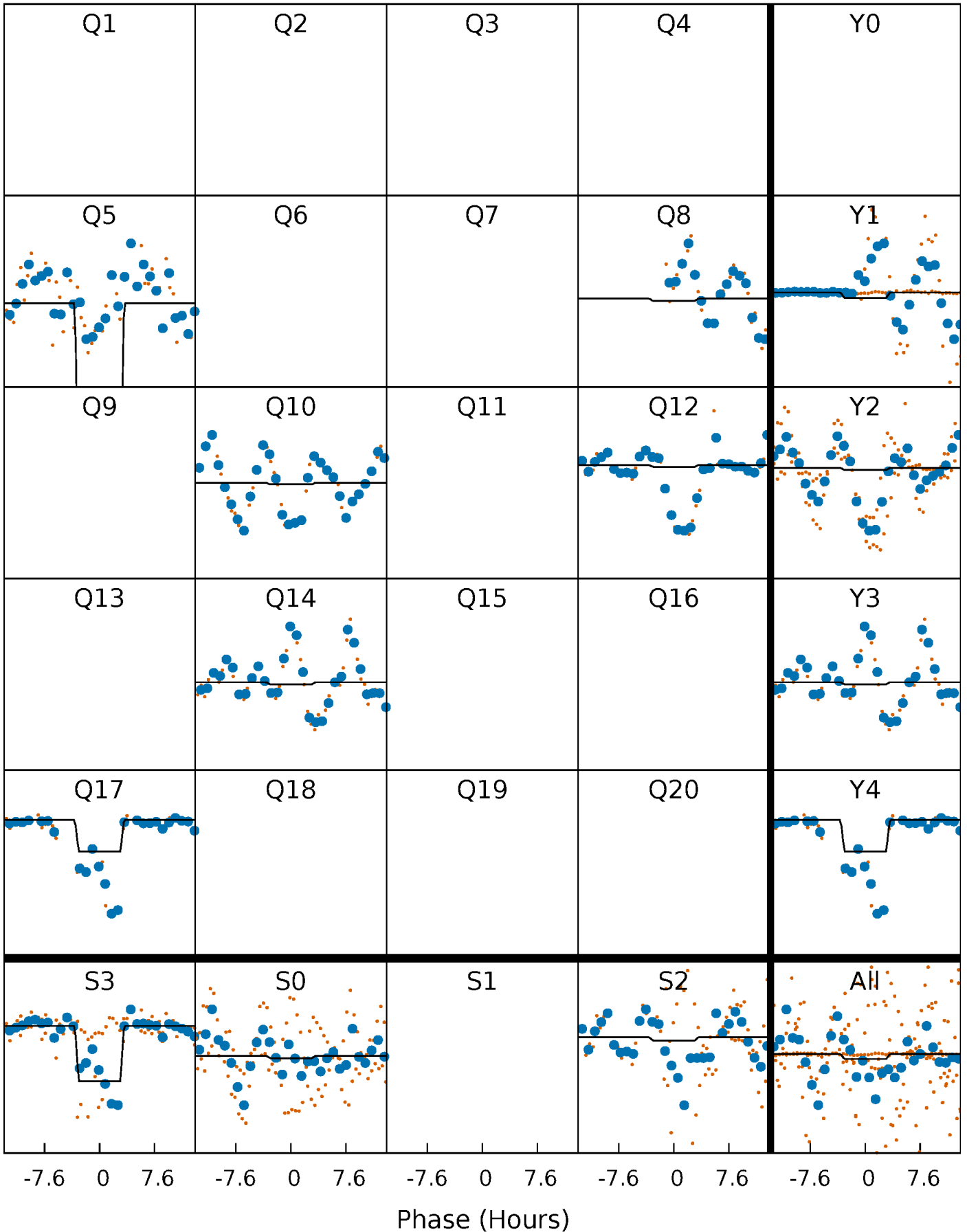
DV Quarter-Phased Transit Curves

TCE 007448051-05 $P=206.409480$ Days $T_0=322.643362$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

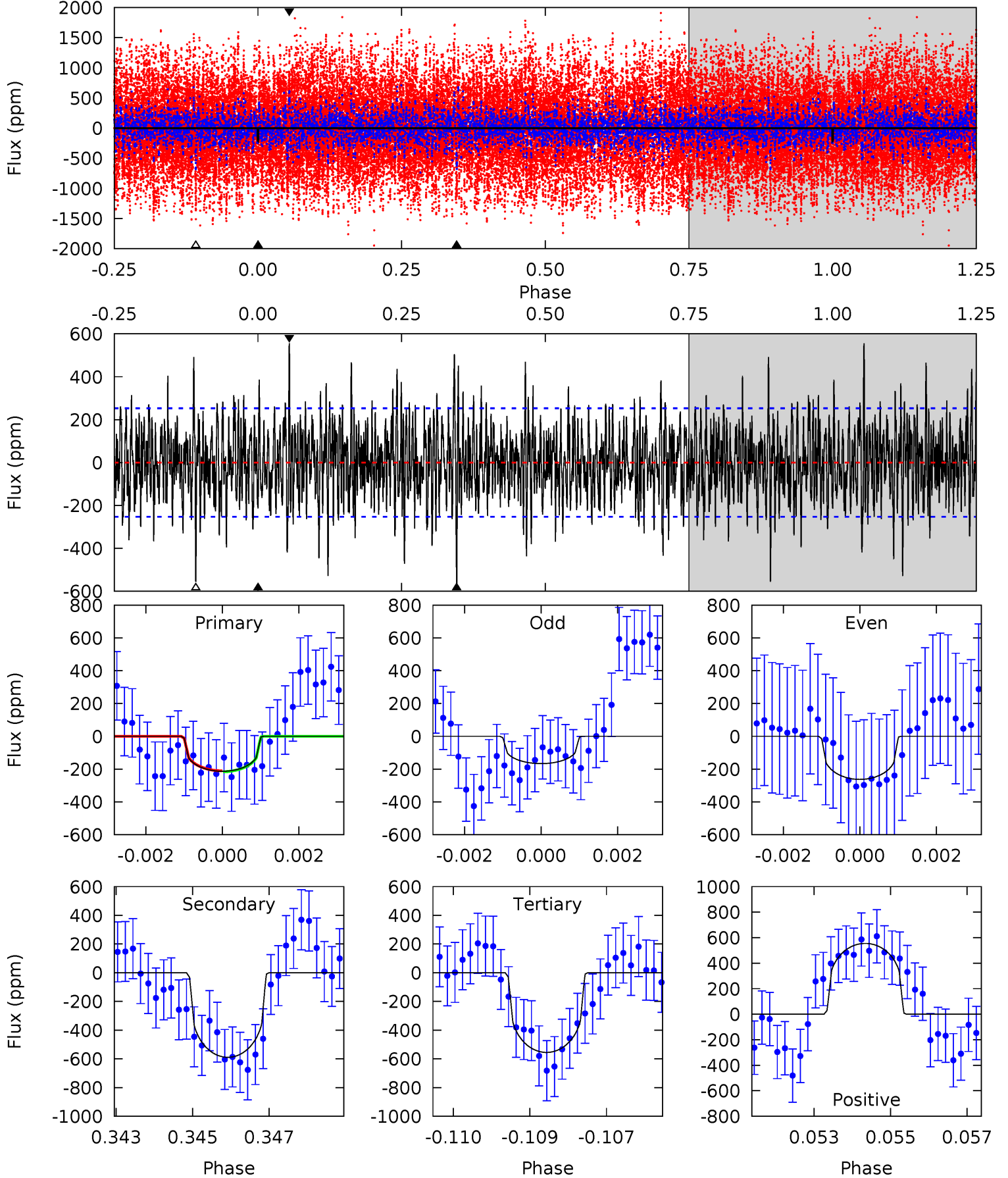
TCE 007448051-05 $P=206.415649$ Days $T_0=322.596592$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-05, P = 206.409480 Days, E = 116.233882 Days

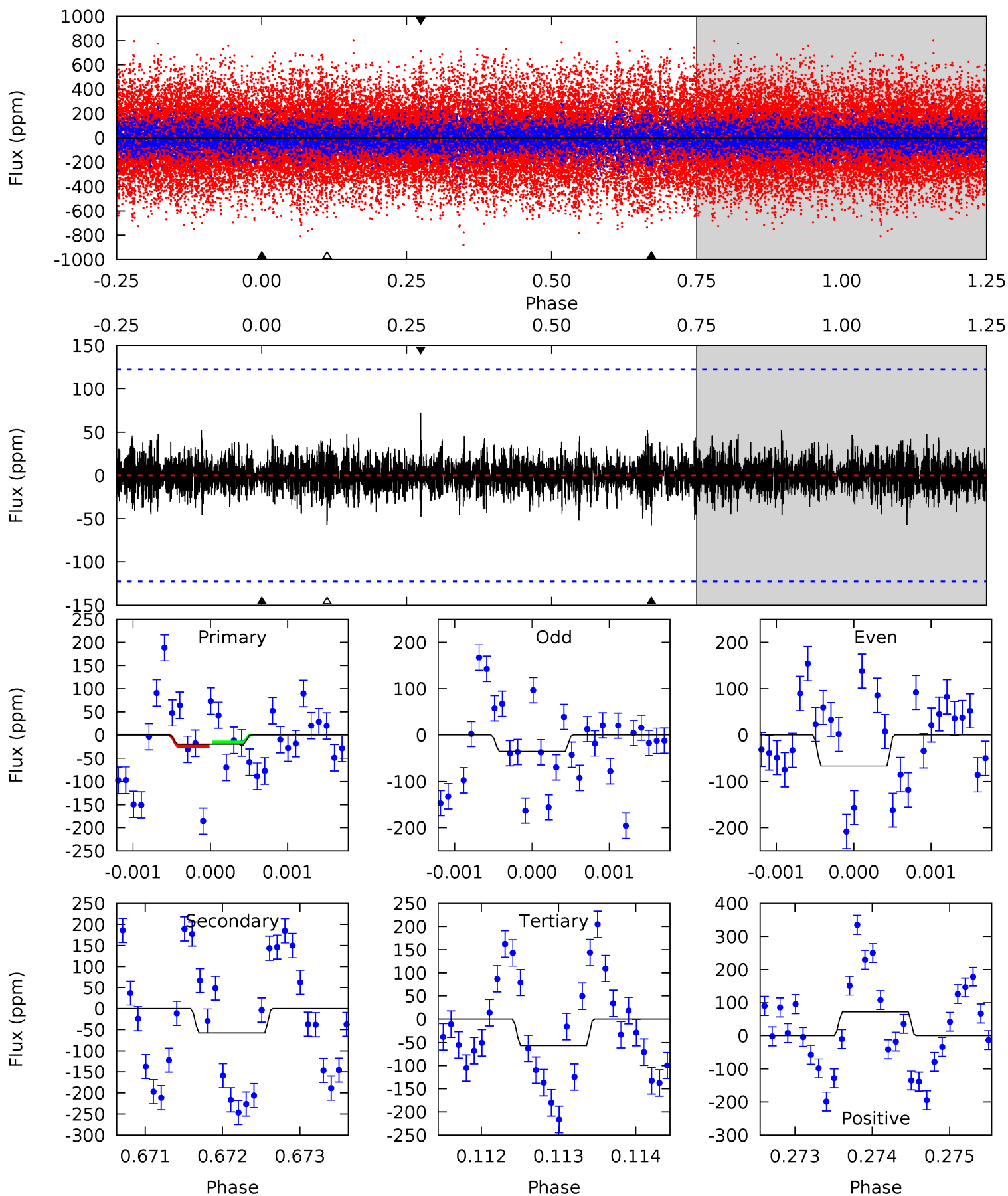
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.53	12.5	11.8	11.8	5.36	3.15	3.14	-7.25	-7.25	0.72	0.72	1.02	2.62	0.49	0.06



Alt Model-Shift Uniqueness Test

007448051-05, $P = 206.415649$ Days, $E = 116.180943$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.88	2.54	2.50	3.16	5.40	3.21	0.66	-1.63	-2.29	0.04	-0.62	0.69	2.64	0.55	0.20



Stellar Parameters For KIC 007448051

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-589 ± 47	$4.92^{+1.70}_{-1.81}$	1093^{+28}_{-23}	13046^{+7343}_{-2657}	7605^{+10657}_{-3341}
Alt.	-58 ± 23	$5.36^{+1.98}_{-1.74}$	1093^{+26}_{-23}	5751^{+1396}_{-863}	597^{+769}_{-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 $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

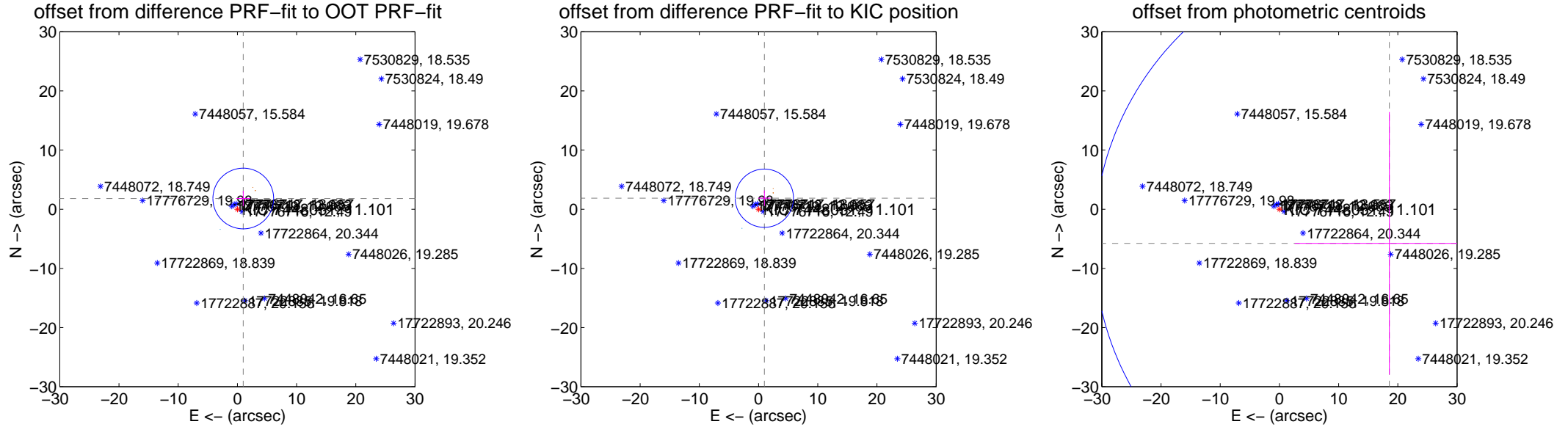
DV Centroid Data

Supplemental centroid analysis for 007448051-05. **Kepler magnitude: 11.10.** Transit SNR 3.63

There are 2 quarters with good PRF difference image offsets

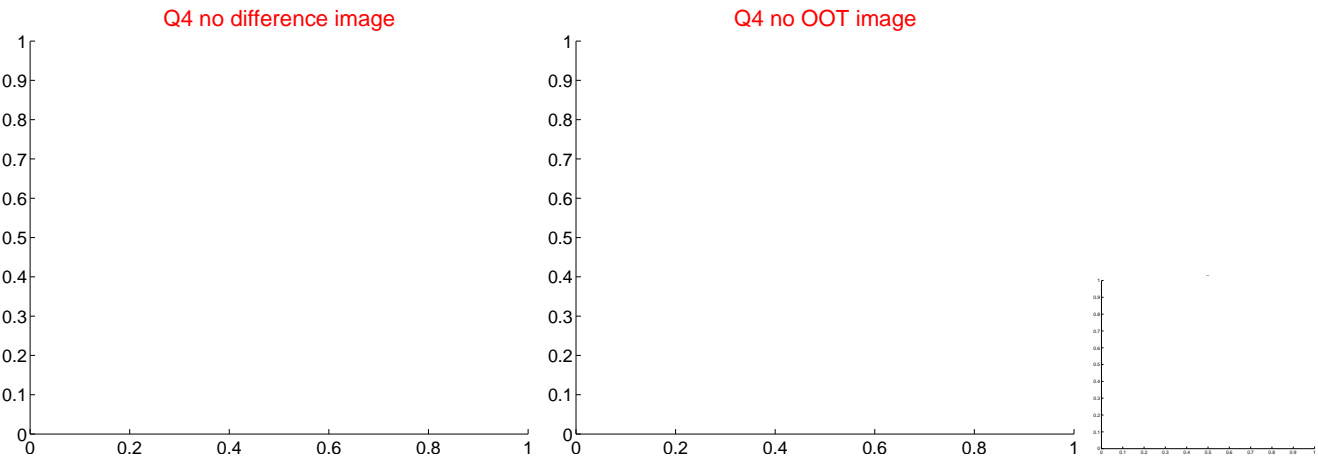
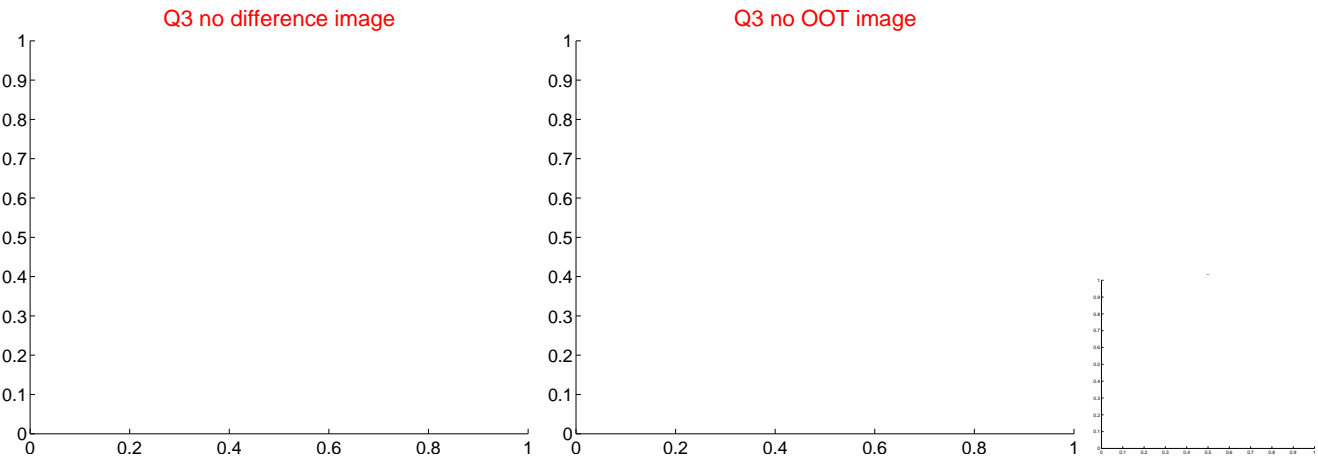
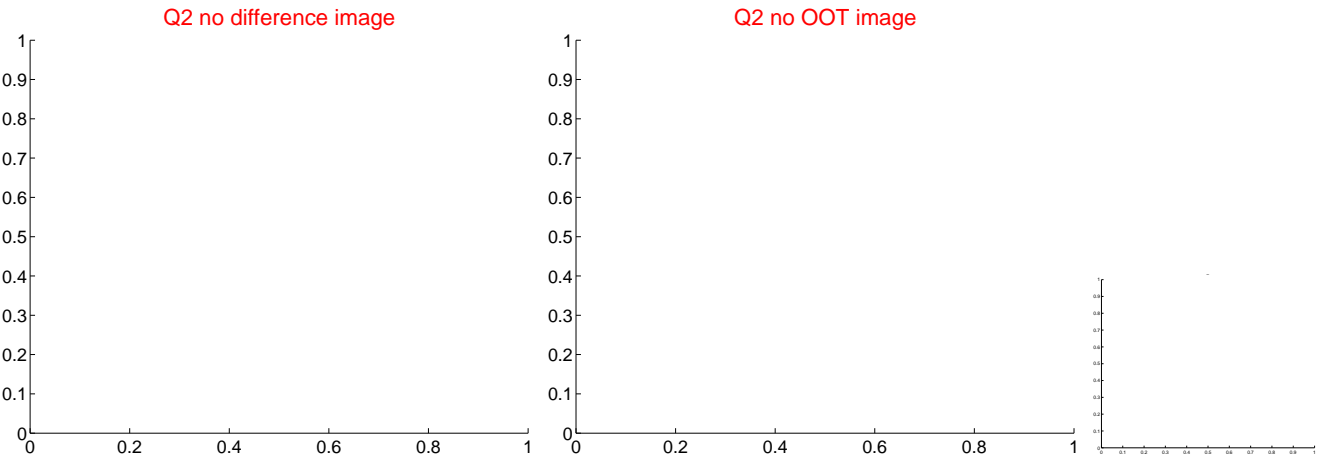
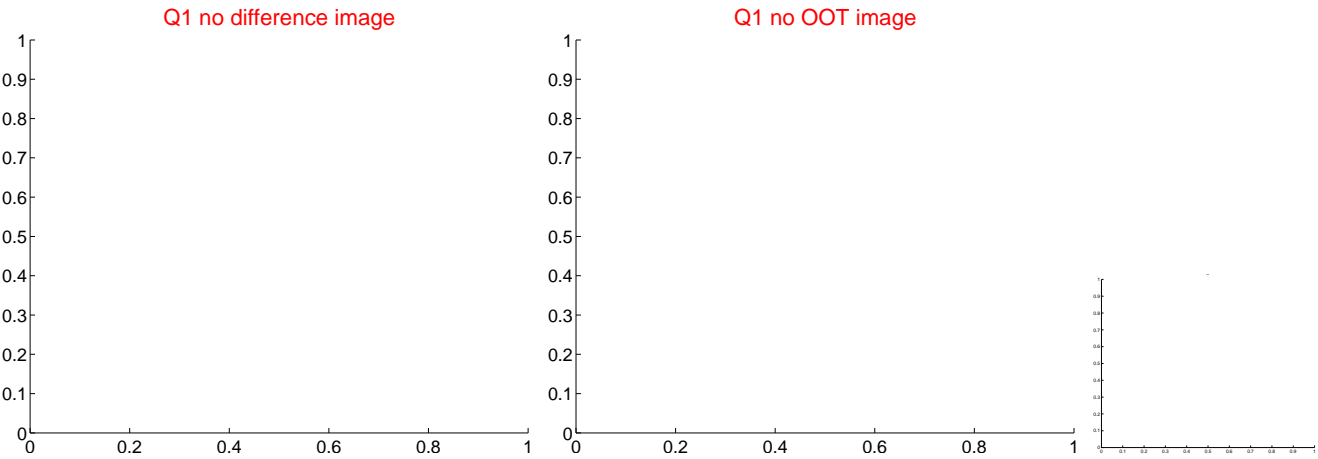
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.065 ± 1.709	1.21	-0.994 ± 1.182	1.810 ± 1.311
PRF-fit source offset from KIC position	2.103 ± 1.642	1.28	-0.981 ± 1.033	1.860 ± 1.317
photometric centroid source offset	19.44 ± 16.63	1.17	-18.56 ± 15.99	-5.77 ± 22.18

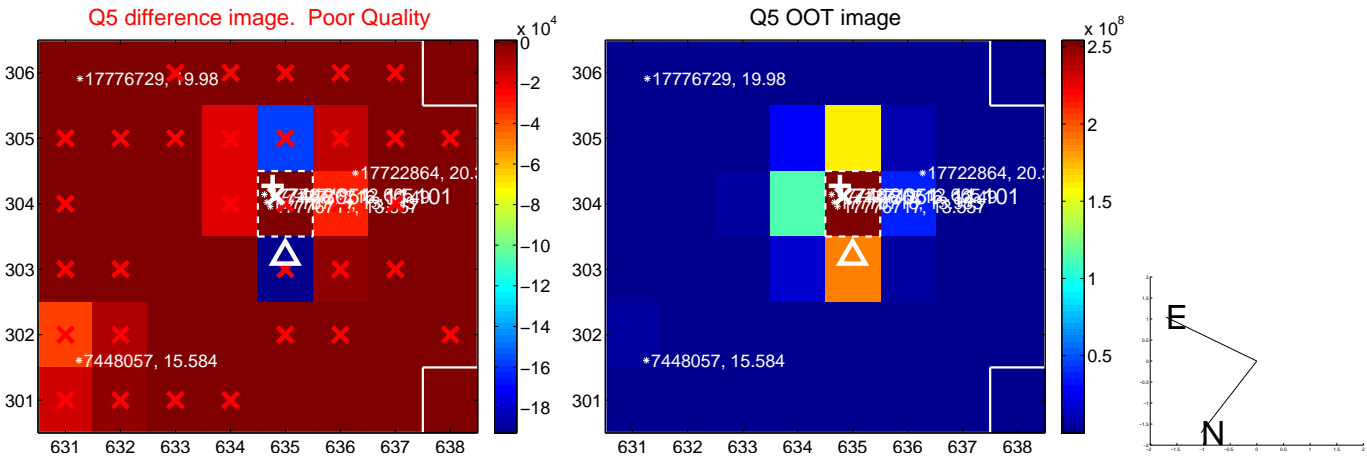


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

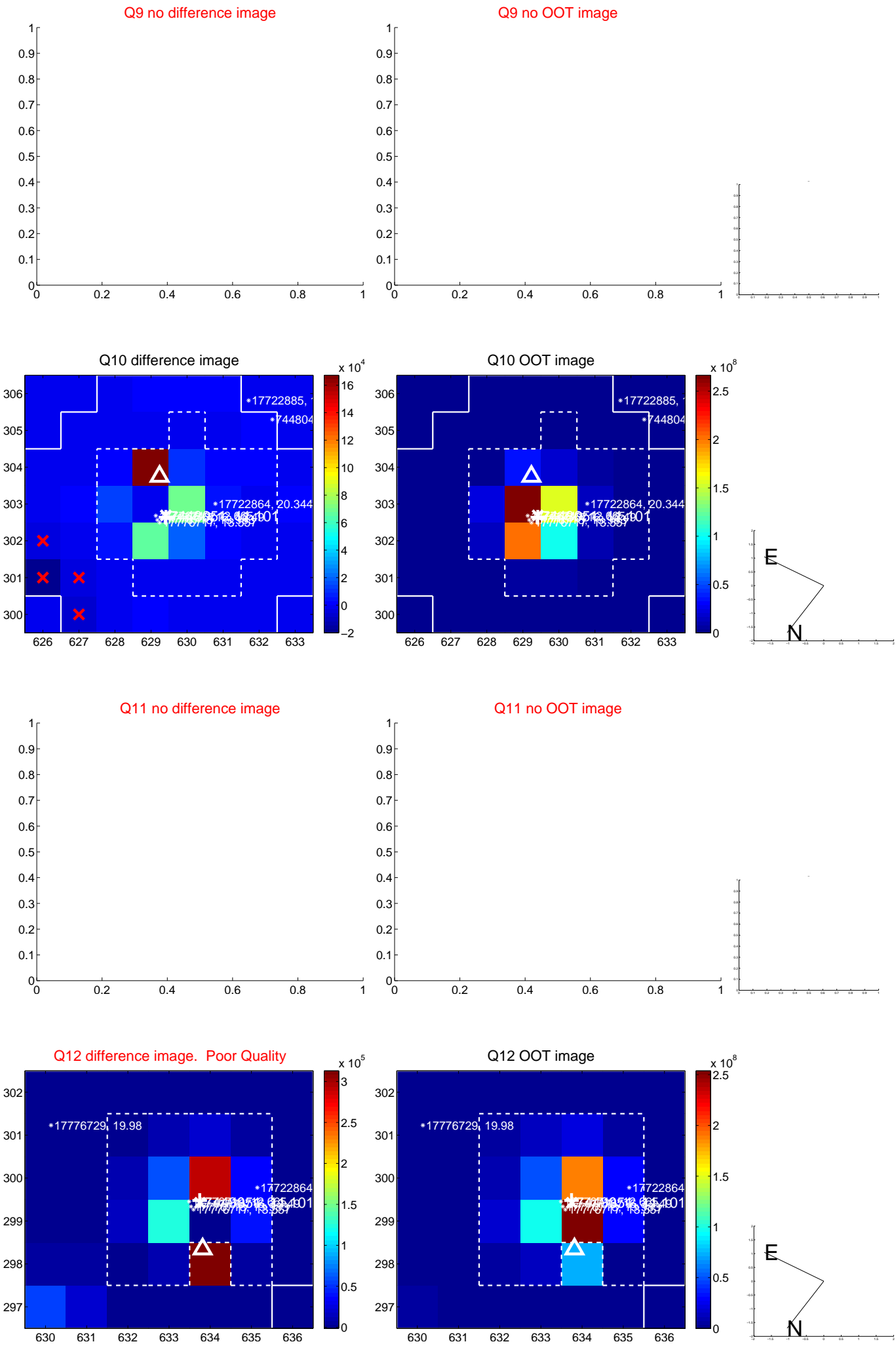
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



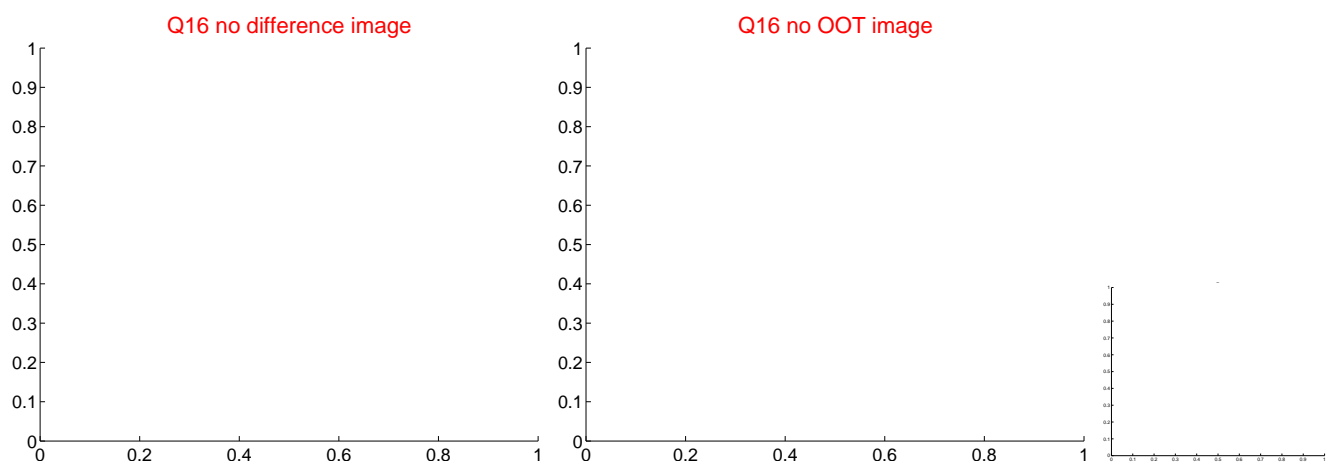
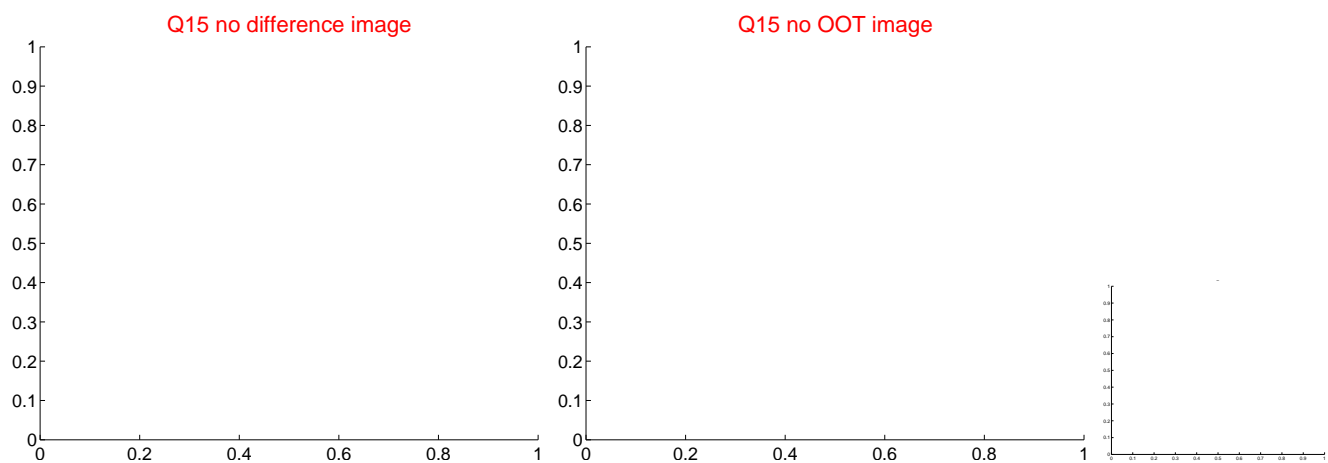
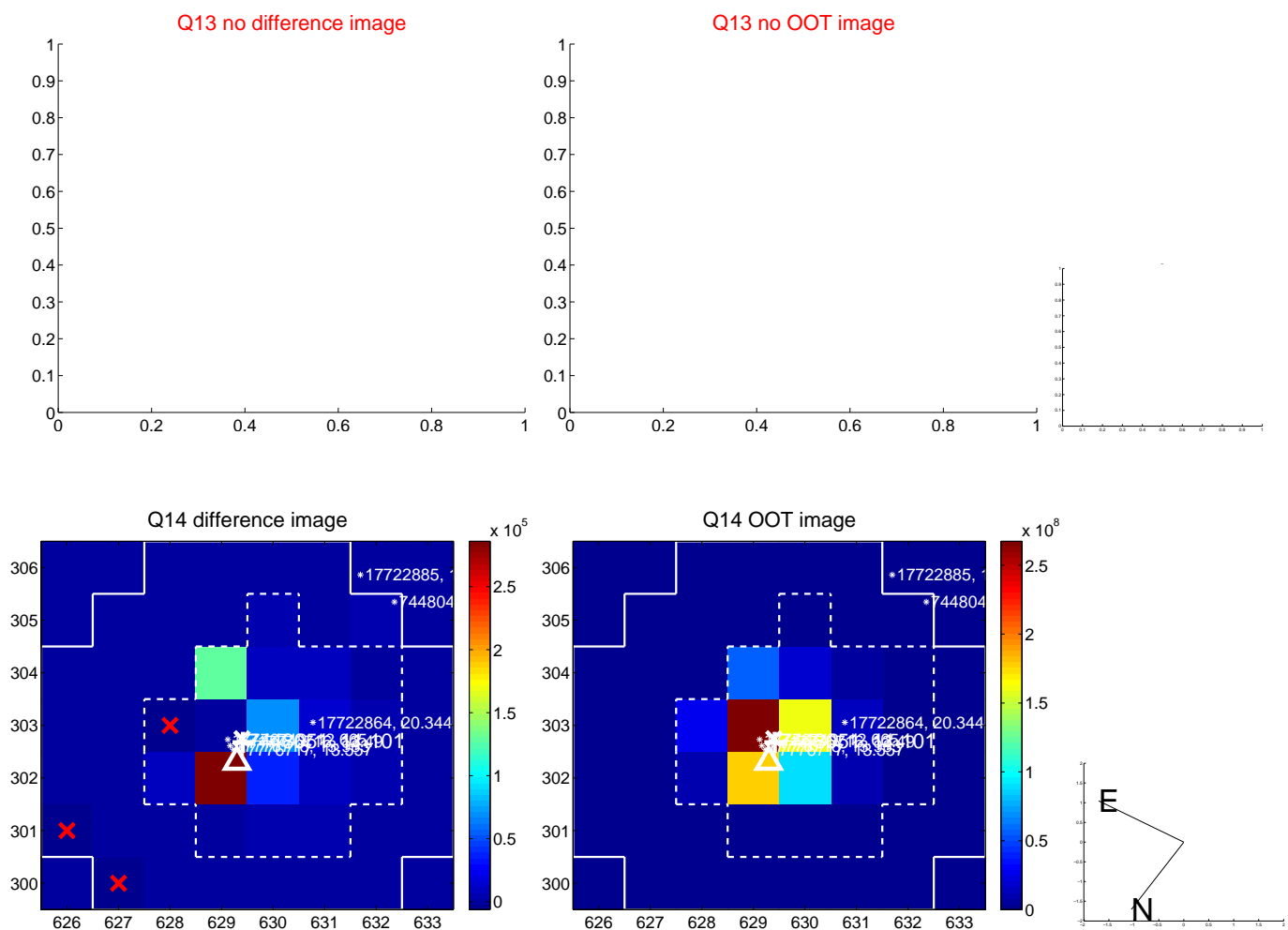
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



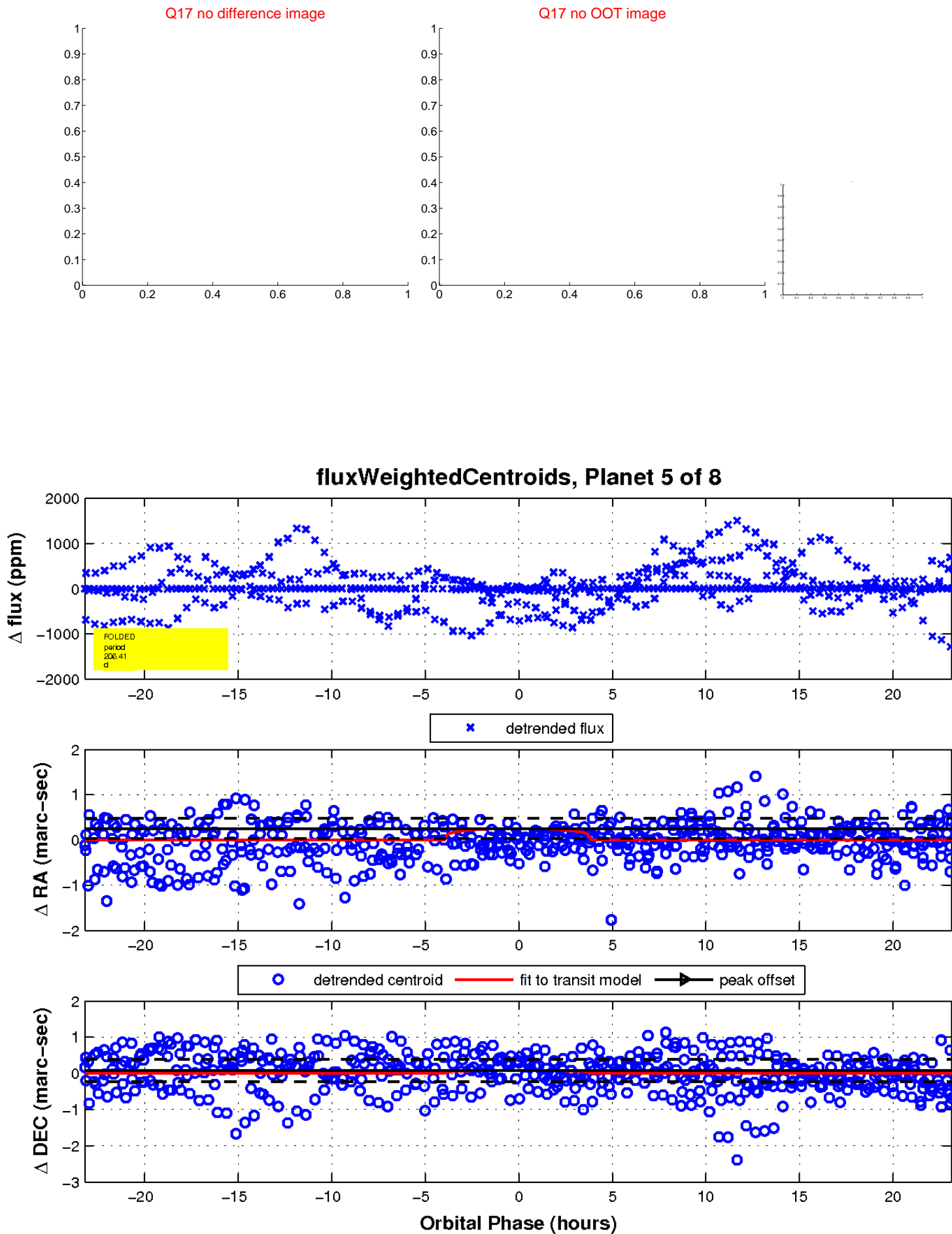
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

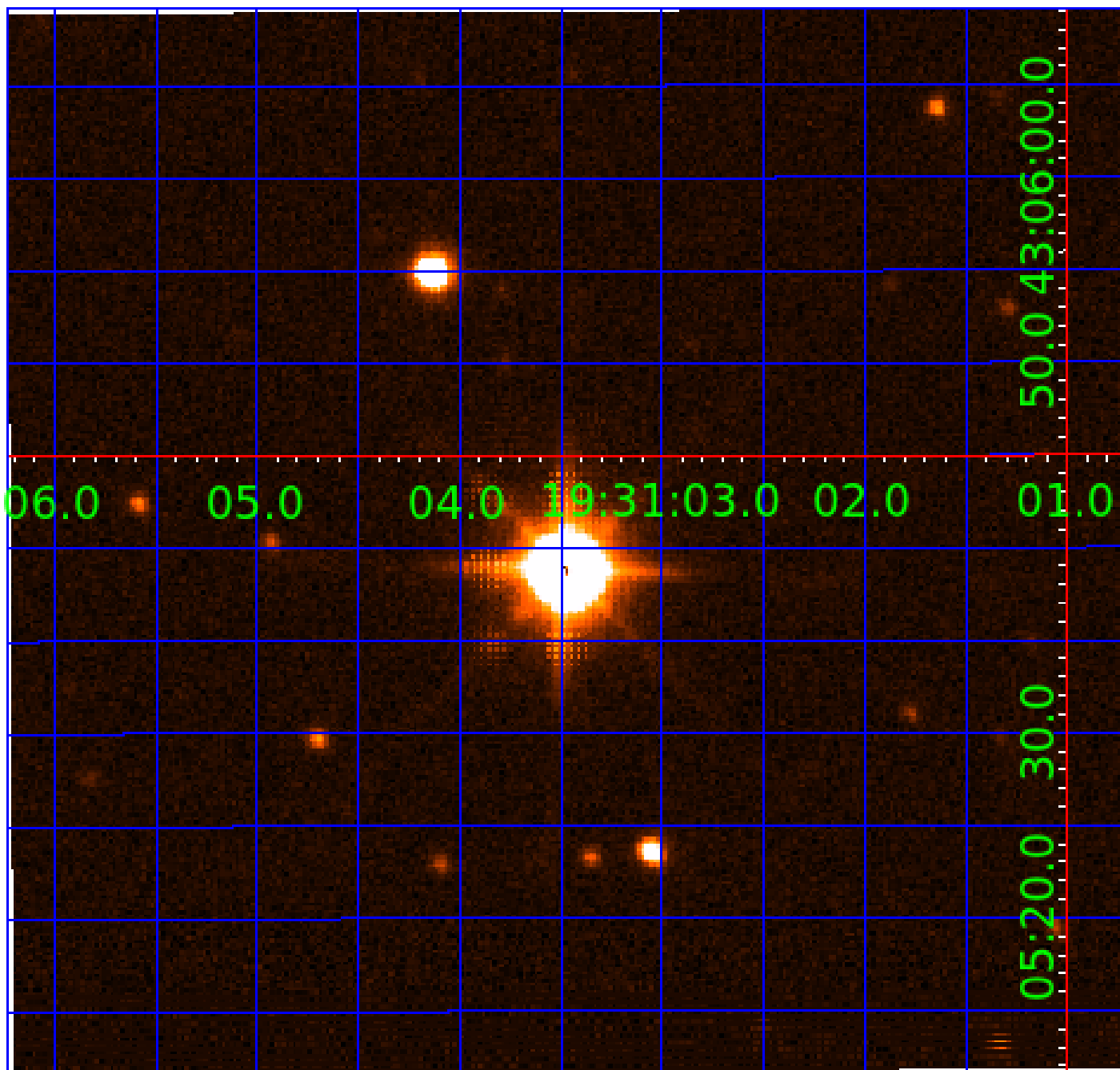


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

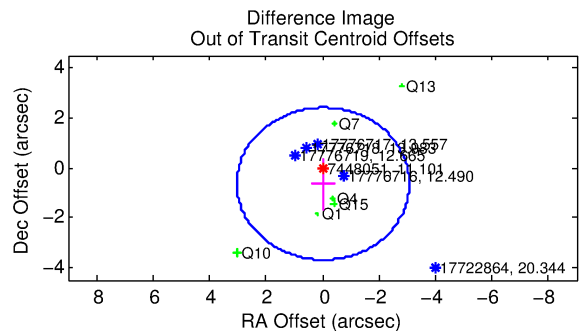
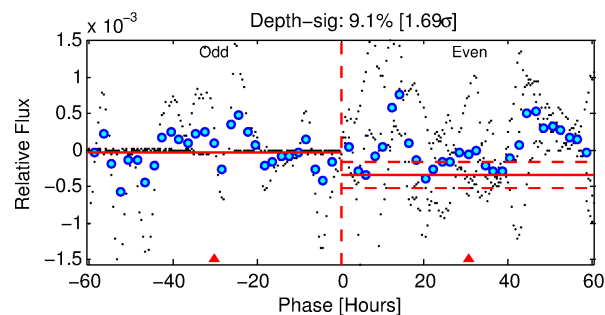
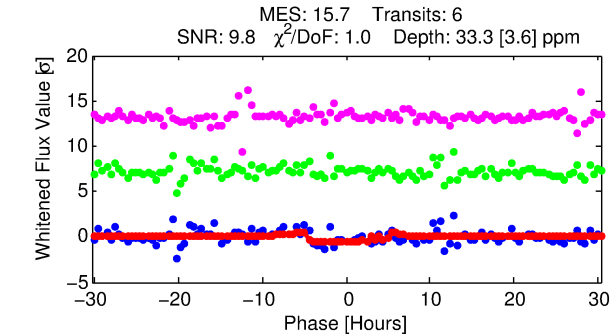
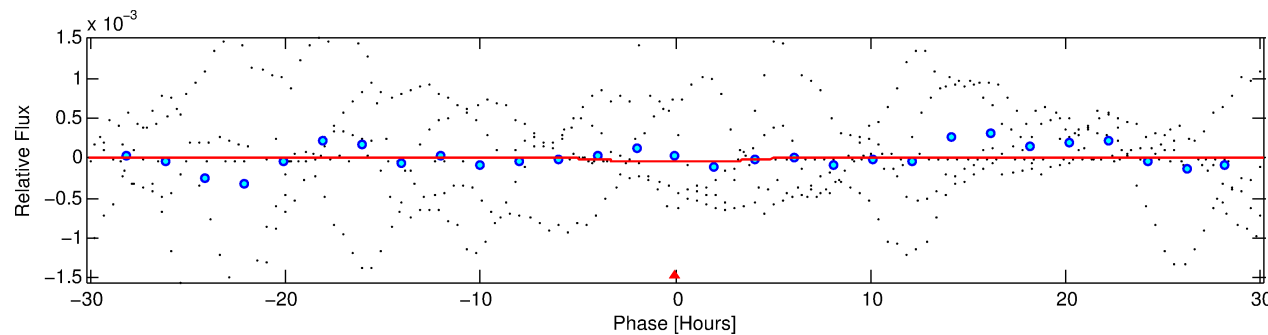
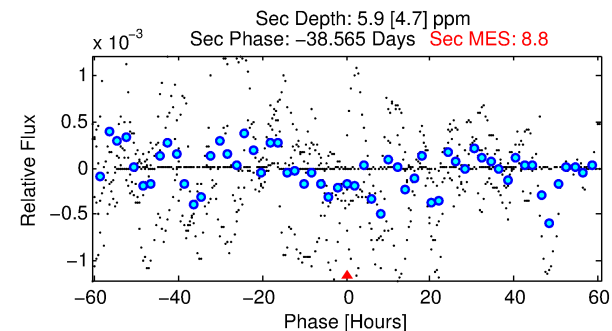
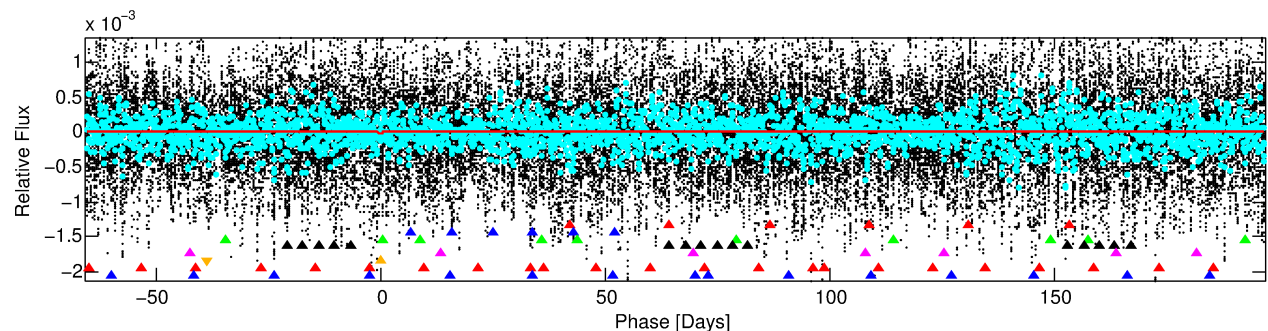
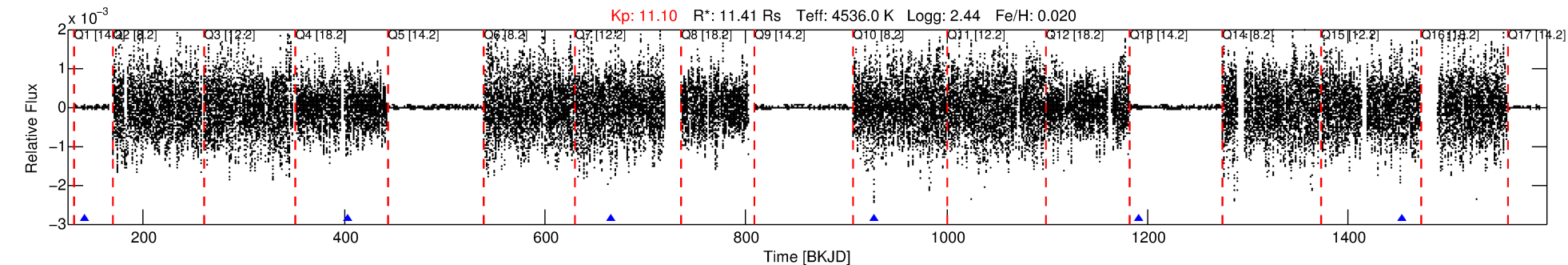
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448051-06

No Significant Match Found

DV One-Page Summary

KIC: 7448051 Candidate: 6 of 8 Period: 262.472 d



DV Fit Results:

Period = 262.47243 [0.00395] d
Epoch = 141.0030 [0.0051] BKJD
Rp/R* = 0.0064 [0.0009]
a/R* = 93.68 [40.41]
b = 0.89 [0.10]
Seff = 64.12 [8.20]
Teff = 722 [23] K
Rp = 8.03 [1.60] Re
a = 0.8776 [0.0875] AU
Ag = 38.65 [32.65] [1.15σ]
Teffp = 2782 [584] K [3.52σ]

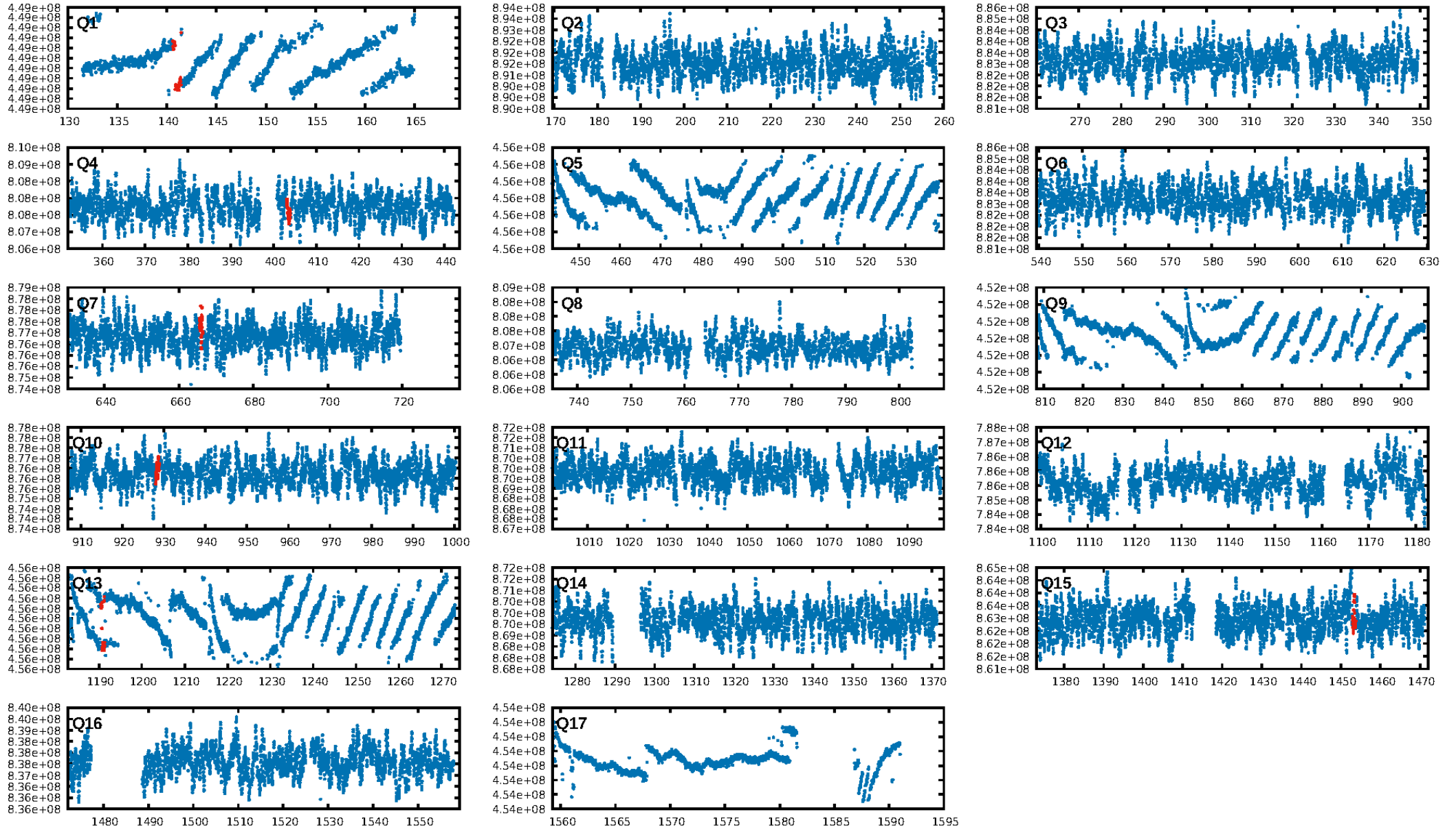
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.50σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 62.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.1709
Centroid-sig: 12.9%
Centroid-so: 8.262 arcsec [1.03σ]
OotOffset-rm: 0.647 arcsec [0.64σ]
KicOffset-rm: 0.823 arcsec [0.79σ]
OotOffset-st: 1/2/1/2 [6]
KicOffset-st: 1/2/1/2 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.83 [5/6]

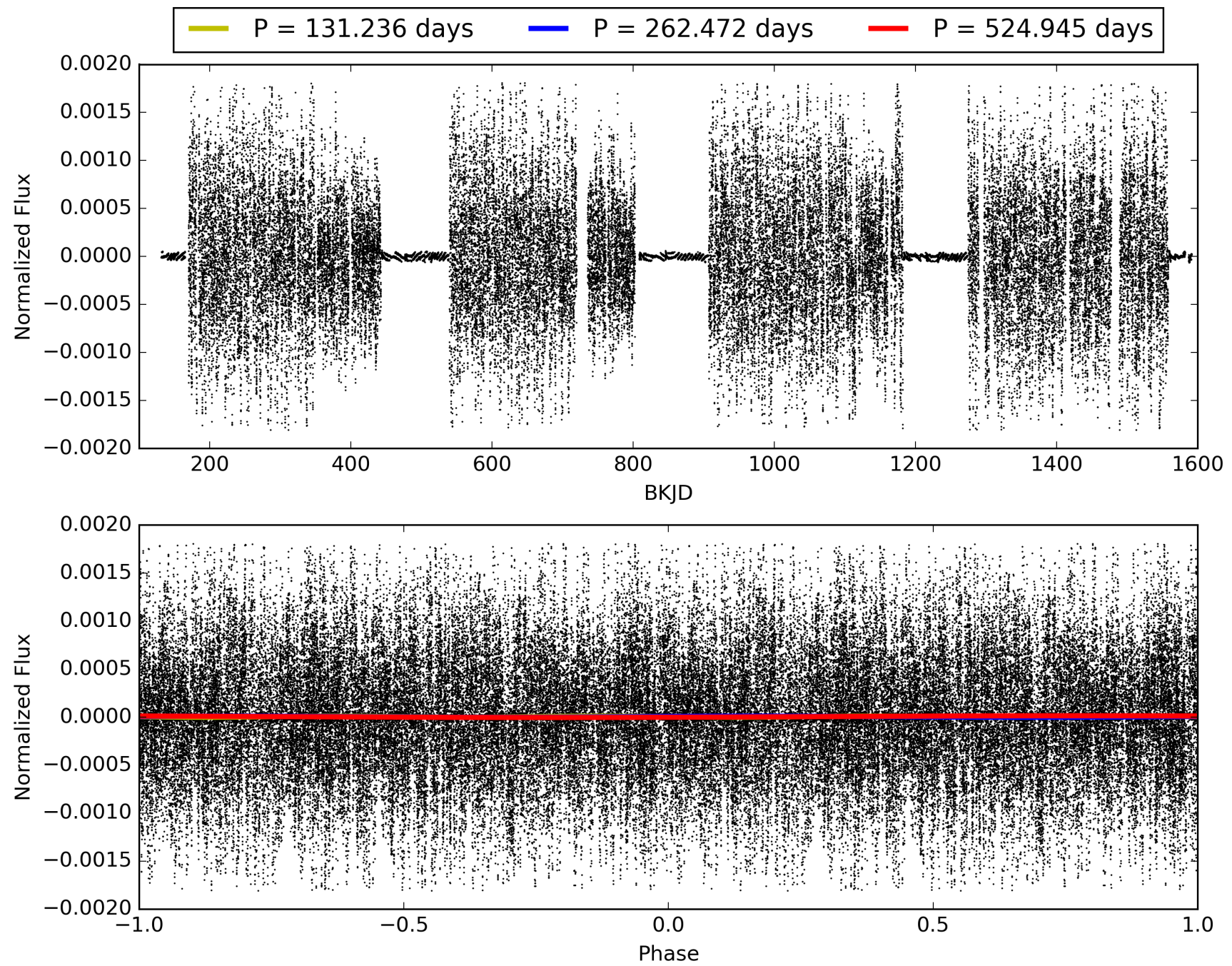
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:52:51 Z

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

TCE 007448051-06, PDC Light Curves

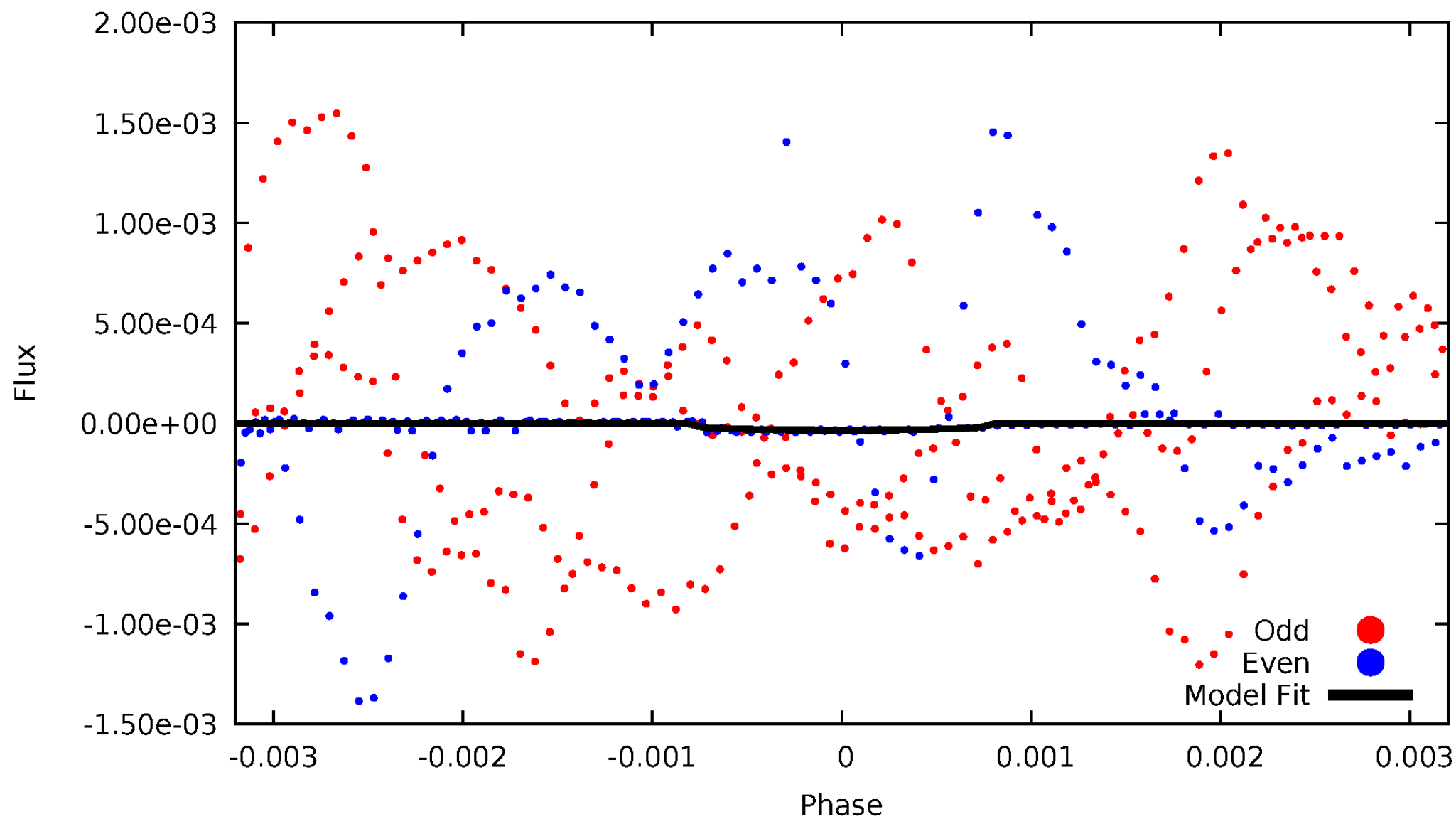


TCE 007448051-06



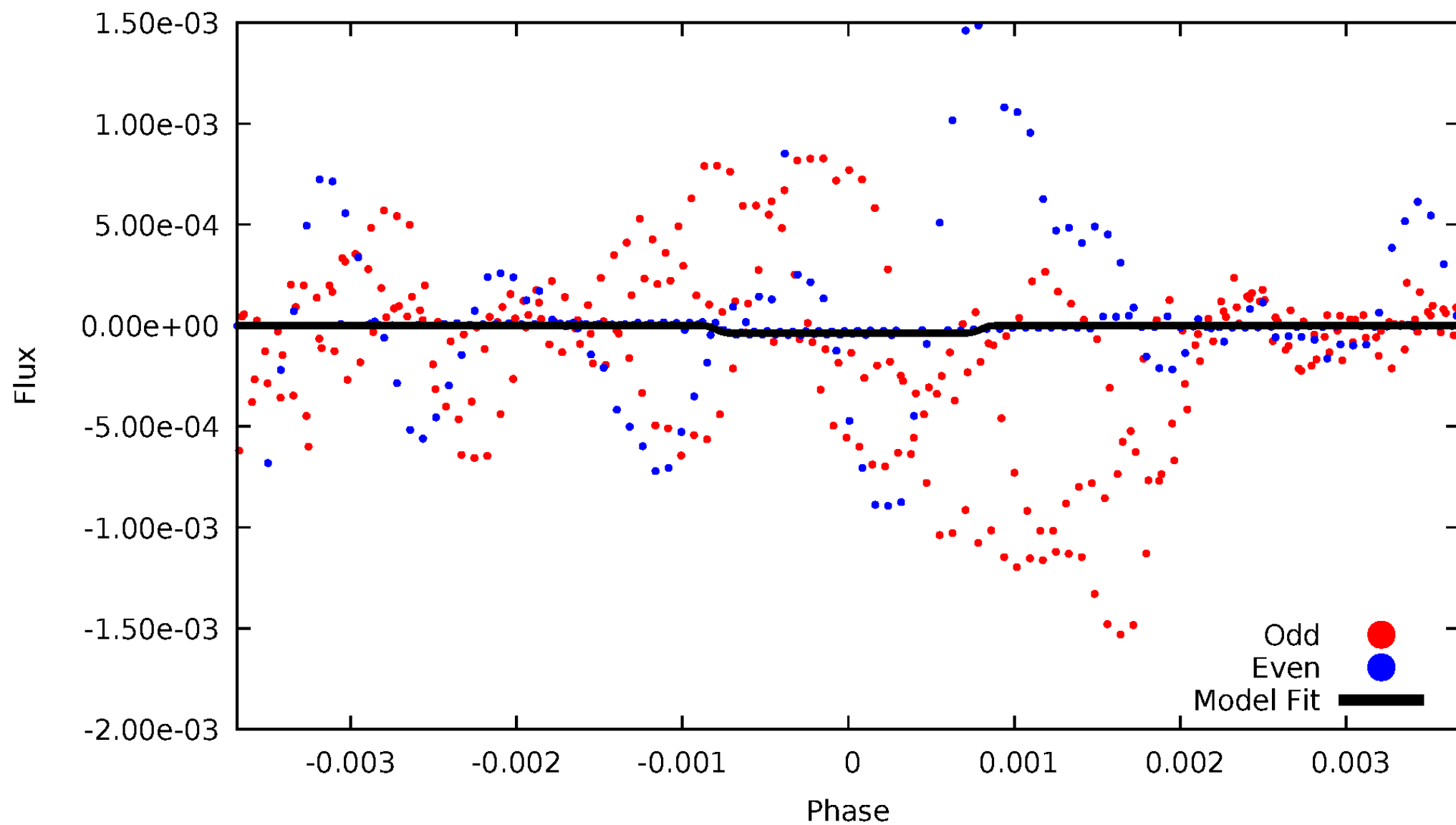
DV Odd/Even

TCE 007448051-06



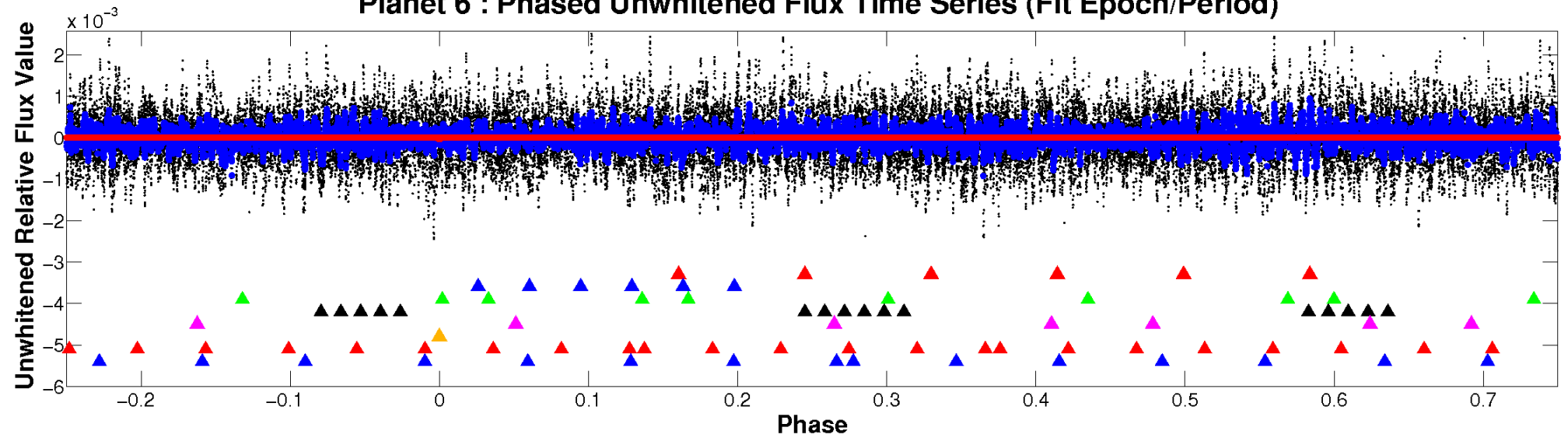
ALT Odd/Even

TCE 007448051-06

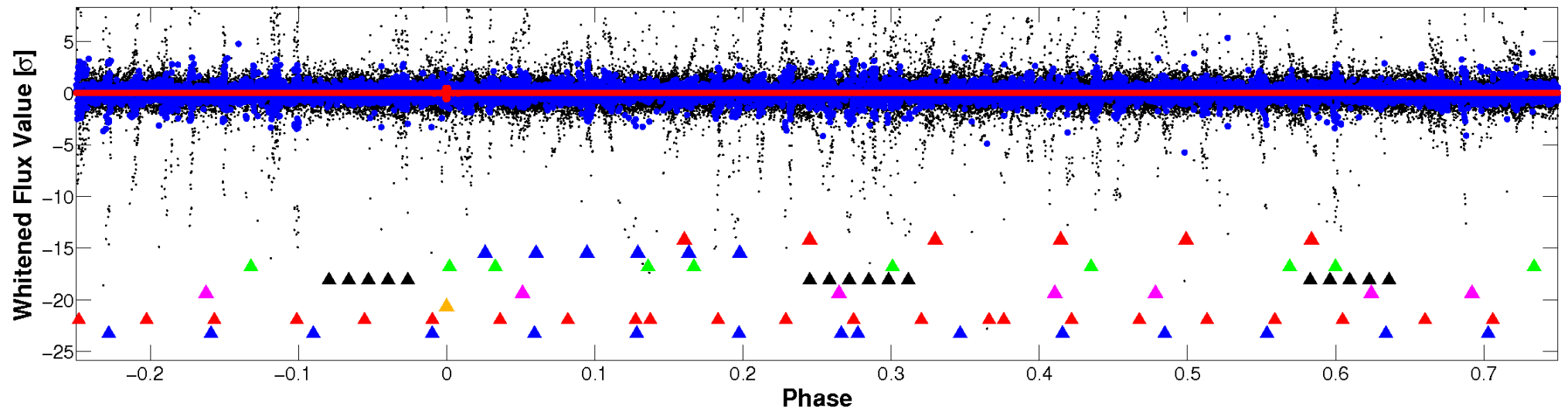


Non-Whitened Vs. Whitened Light Curve

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



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



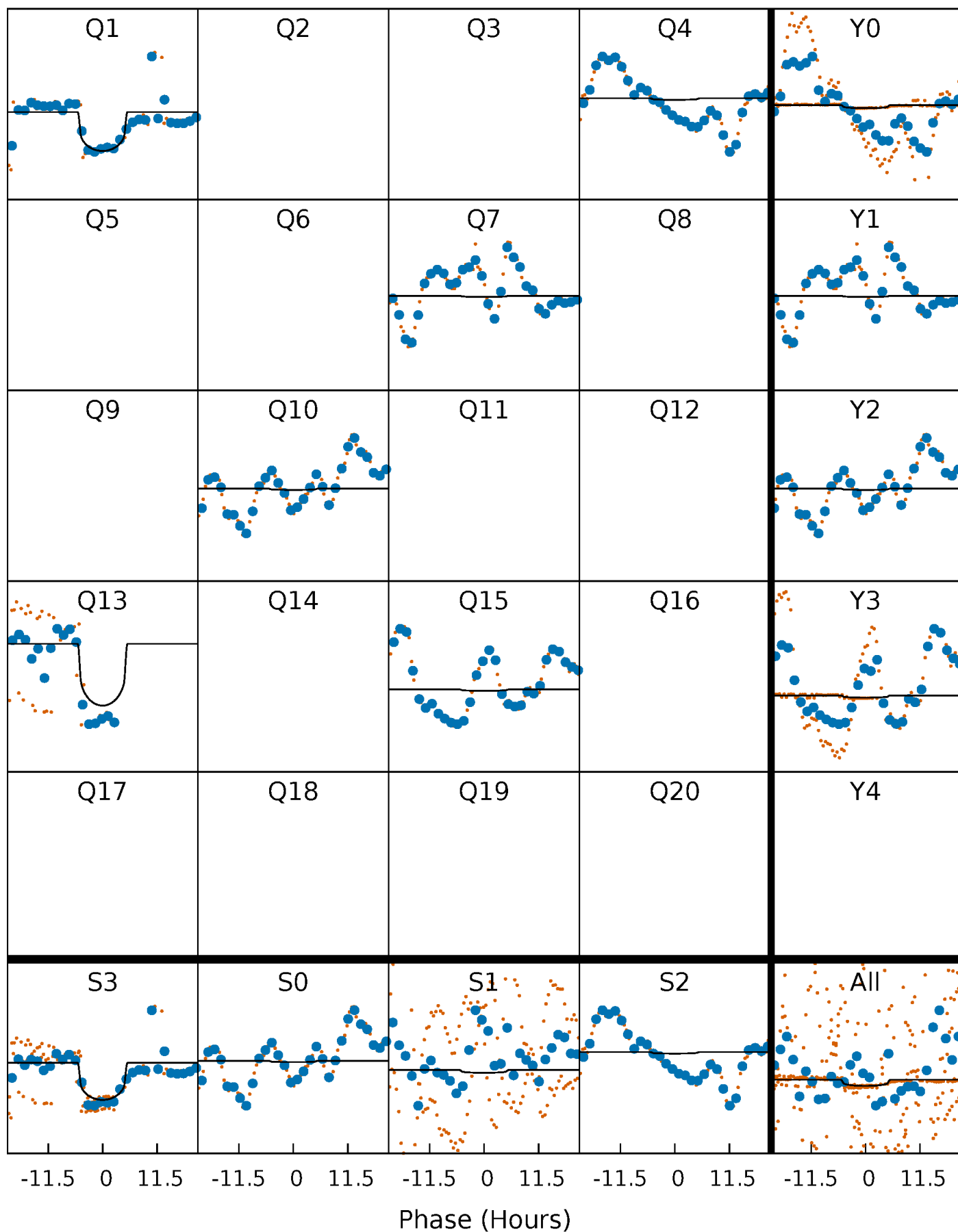
PDC Quarter-Phased Transit Curves

TCE 007448051-06 P=262.472435 Days $T_0=141.002975$ (BKJD)



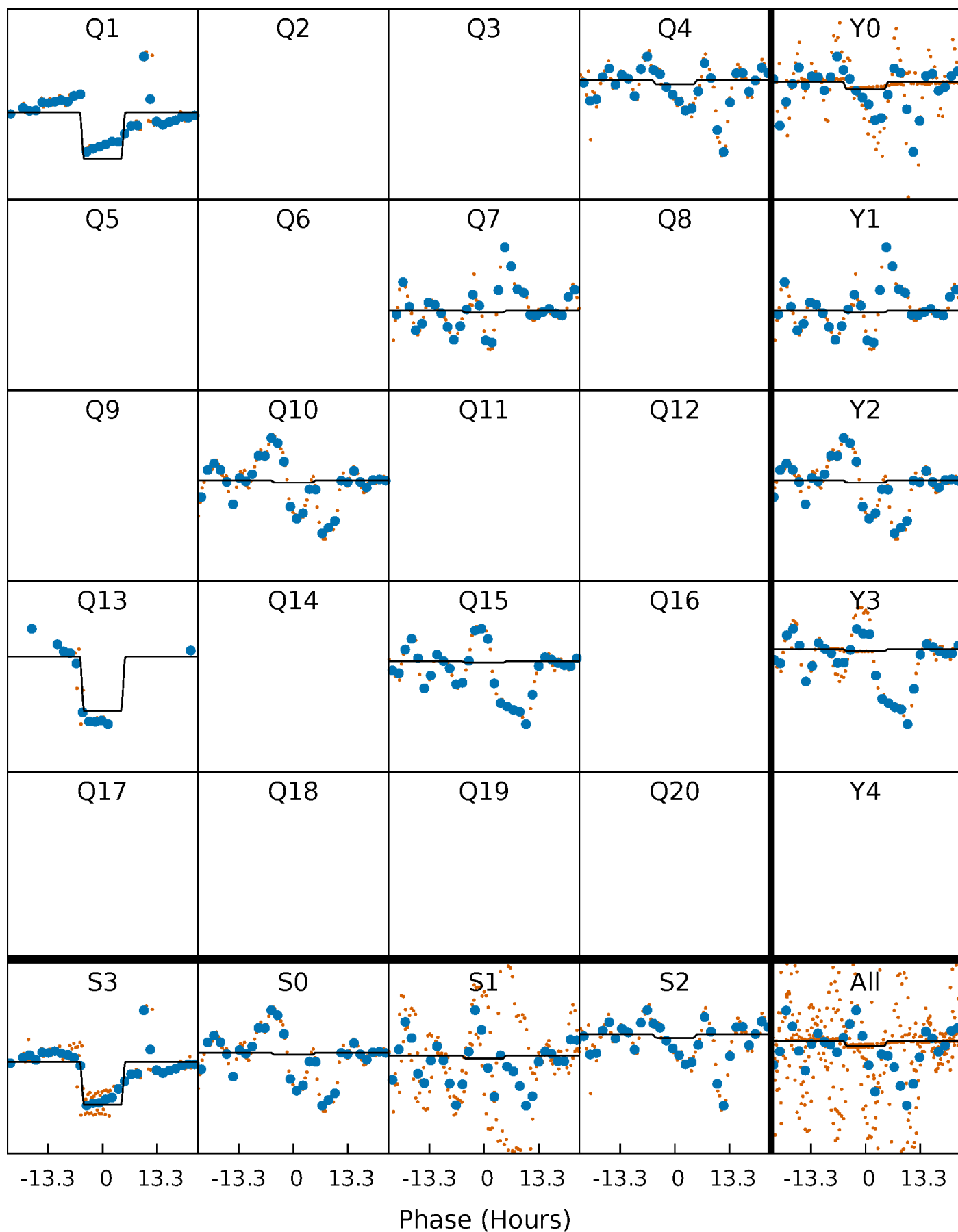
DV Quarter-Phased Transit Curves

TCE 007448051-06 P=262.472435 Days $T_0=141.002975$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

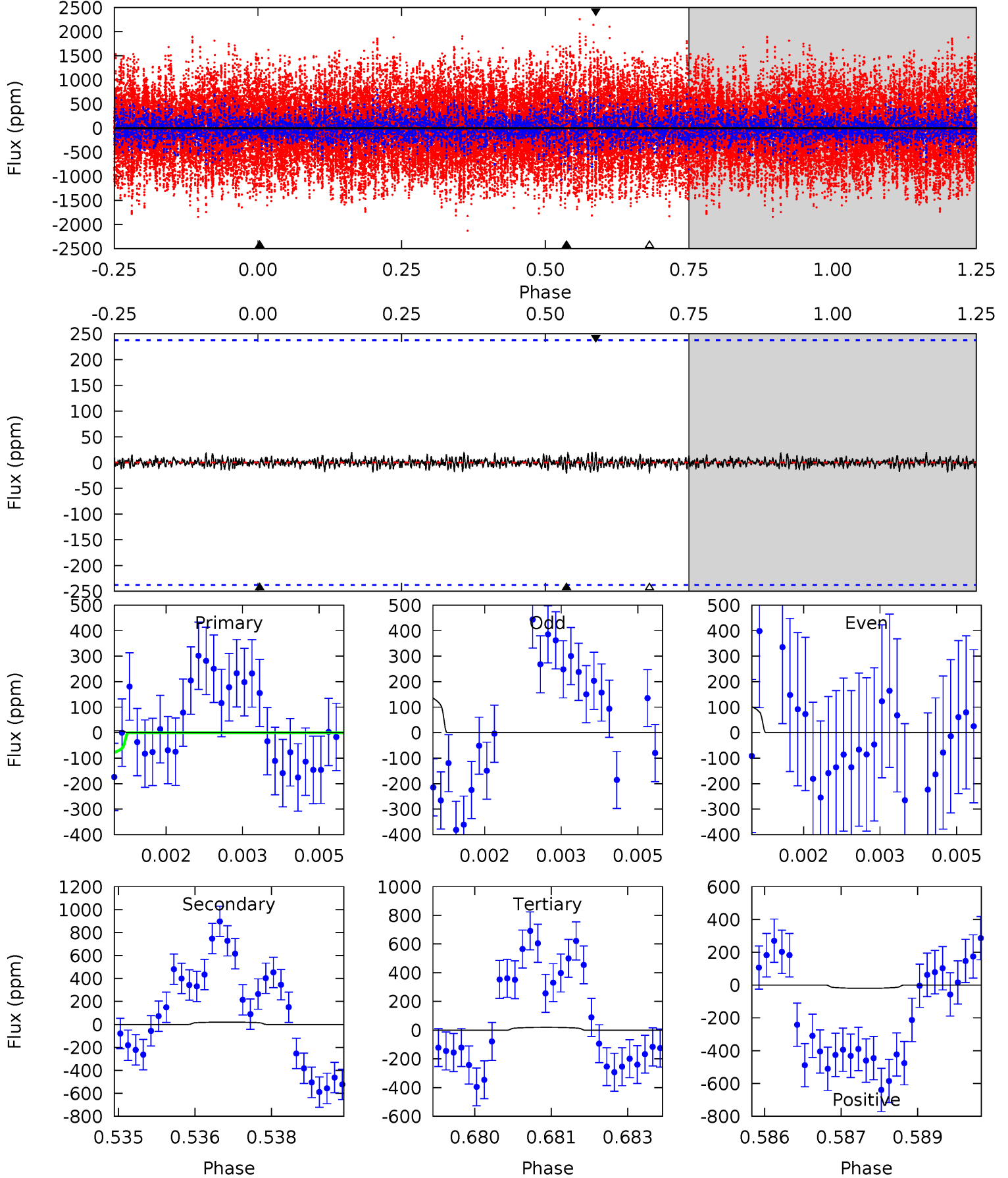
TCE 007448051-06 $P=262.475889$ Days $T_0=141.020224$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-06, $P = 262.472435$ Days, $E = 141.002975$ Days

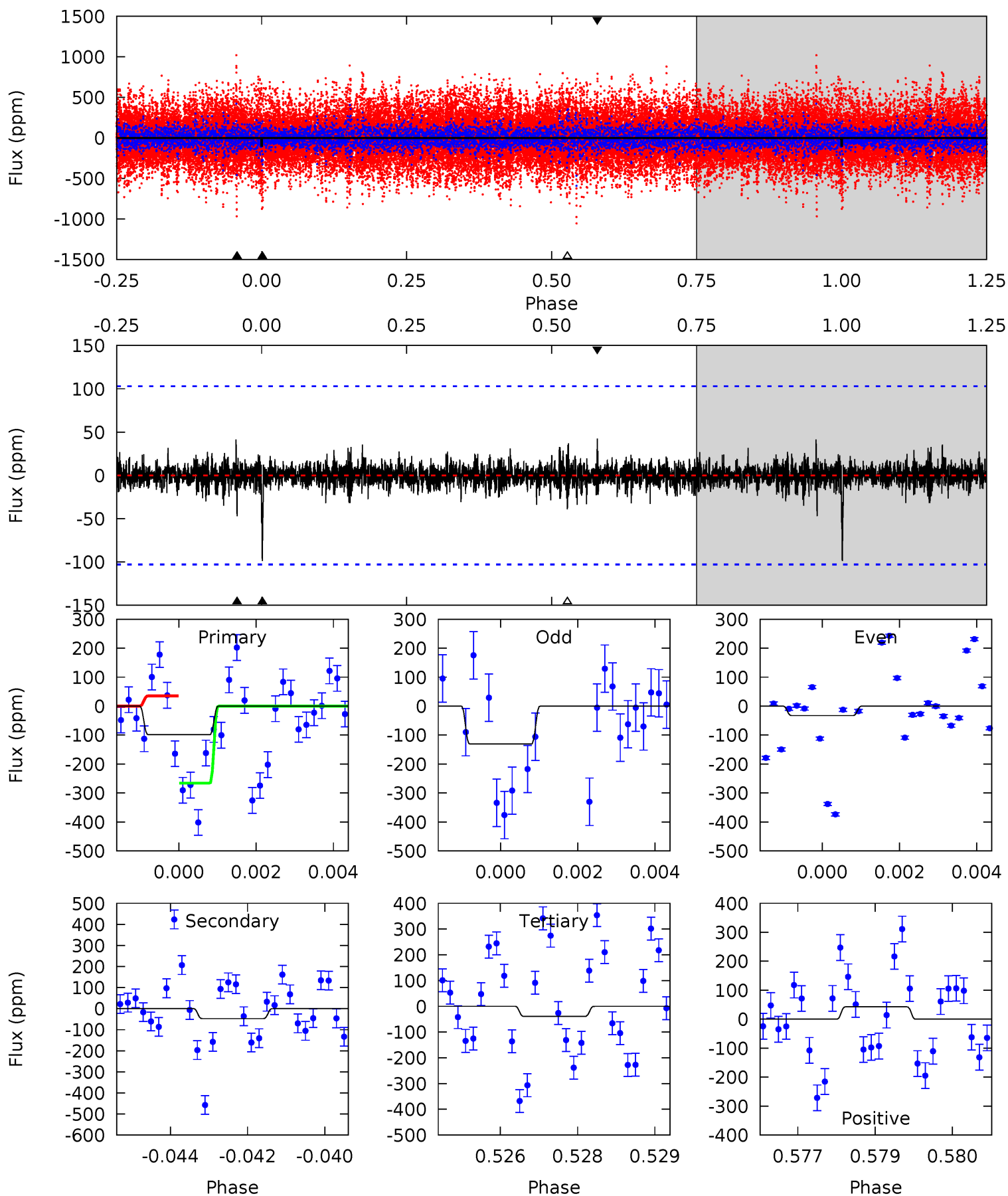
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.21	0.46	0.44	0.45	5.36	3.15	0.13	-0.23	-0.24	0.02	0.01	0.44	-0.18	0.49	0.06



Alt Model-Shift Uniqueness Test

007448051-06, P = 262.475889 Days, E = 141.020224 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.13	2.45	2.03	2.21	5.35	3.13	0.46	3.10	2.92	0.42	0.24	2.49	0.87	0.30	6.01



Stellar Parameters For KIC 007448051

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-20 ± 44	$8.00^{+1.40}_{-1.26}$	1010^{+24}_{-23}	4060^{+982}_{-8080}	152^{+300}_{-294}
Alt.	-47 ± 19	$7.57^{+1.44}_{-1.23}$	1010^{+23}_{-23}	4741^{+533}_{-506}	336^{+225}_{-153}

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

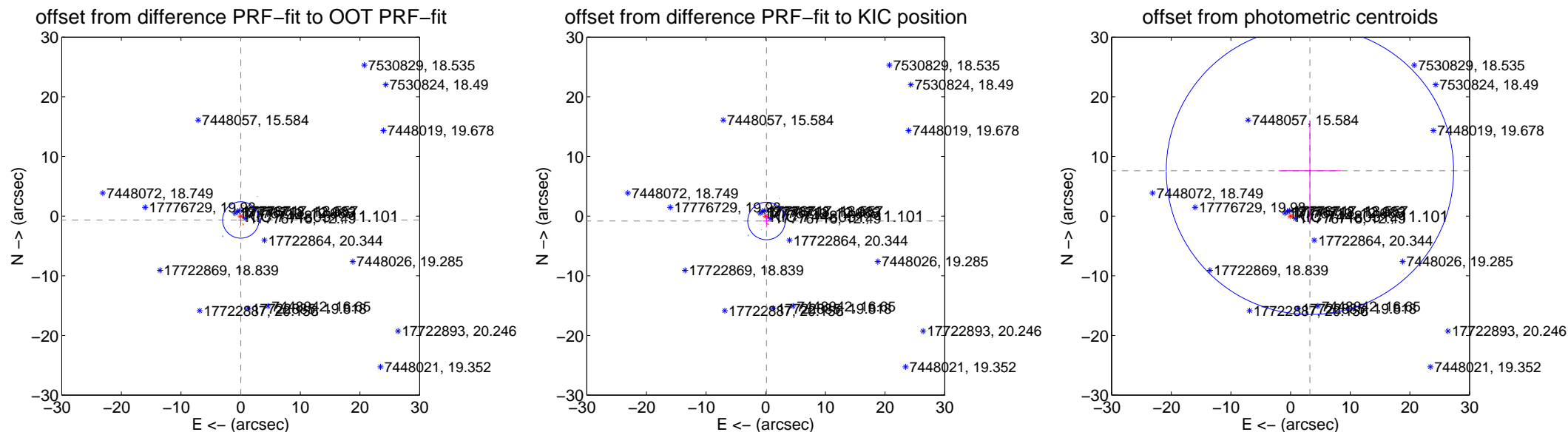
DV Centroid Data

Supplemental centroid analysis for 007448051-06. **Kepler magnitude: 11.10.** Transit SNR 9.82

There are 2 quarters with good PRF difference image offsets

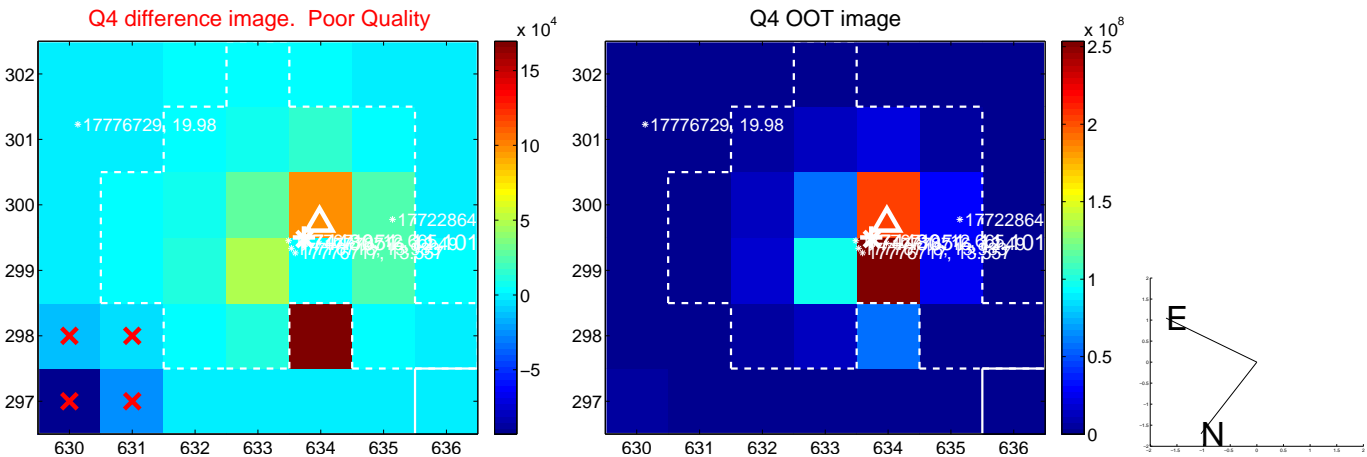
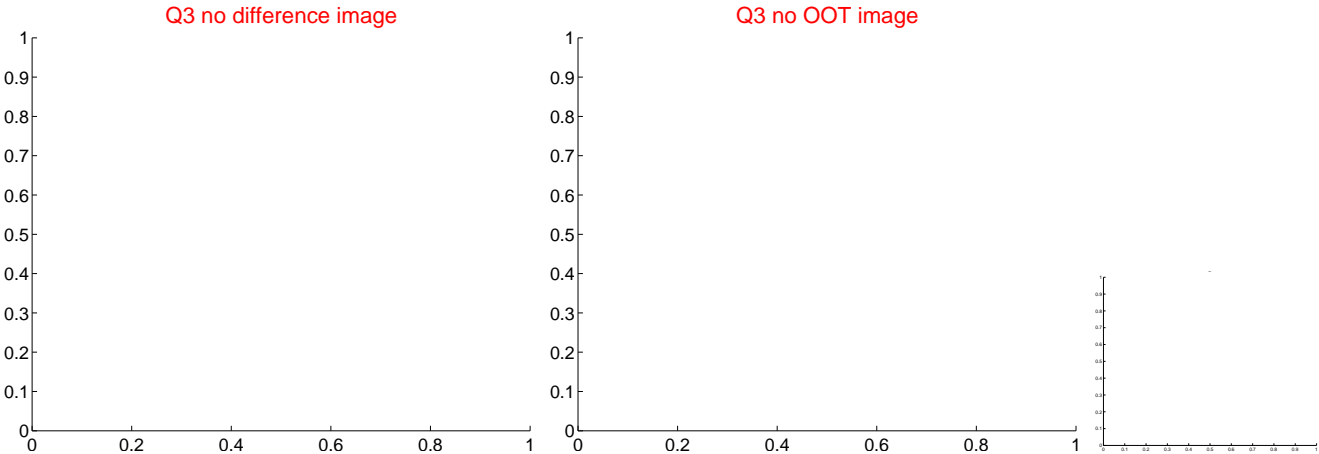
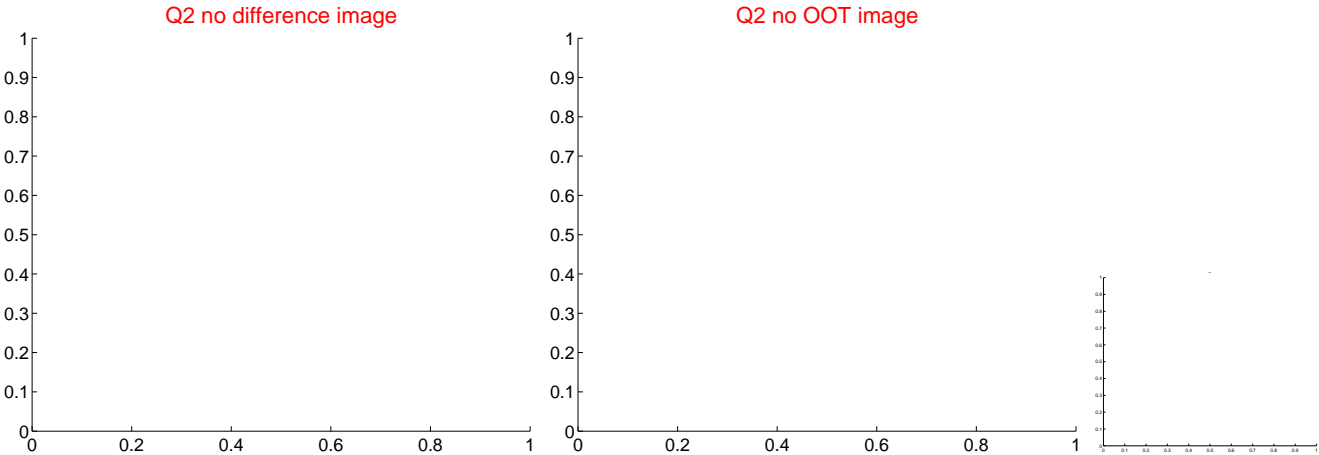
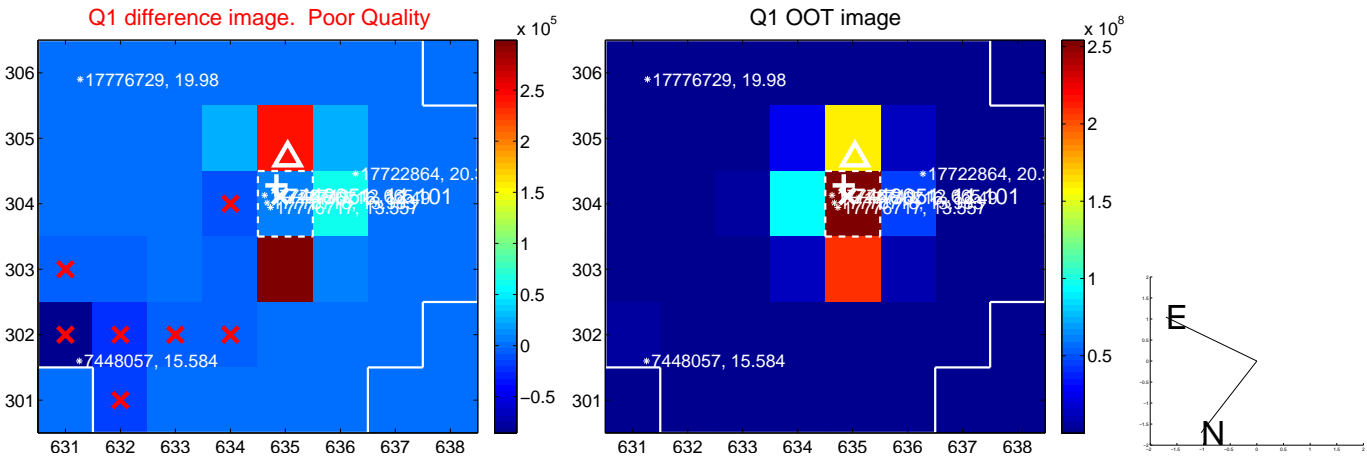
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.647 ± 1.017	0.64	-0.025 ± 0.420	-0.646 ± 1.018
PRF-fit source offset from KIC position	0.823 ± 1.048	0.79	-0.125 ± 0.658	-0.814 ± 1.055
photometric centroid source offset	8.26 ± 8.03	1.03	-3.25 ± 5.22	7.60 ± 8.44

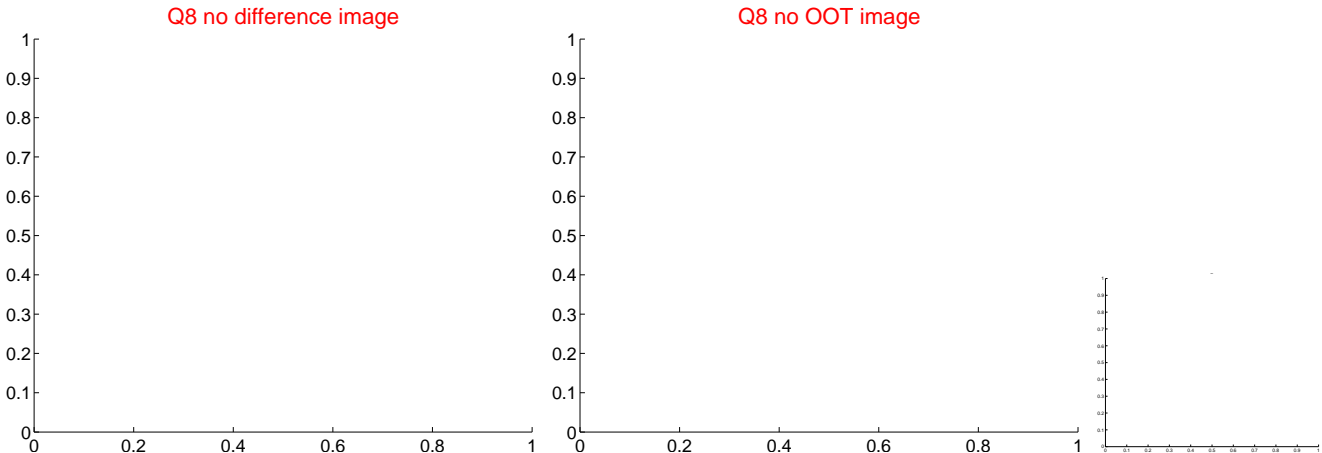
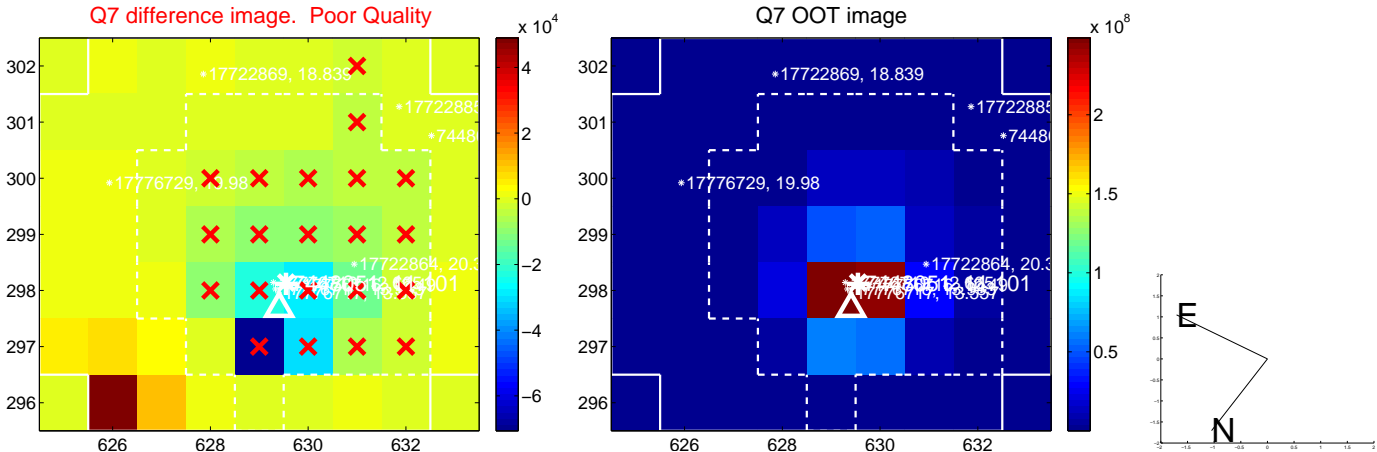
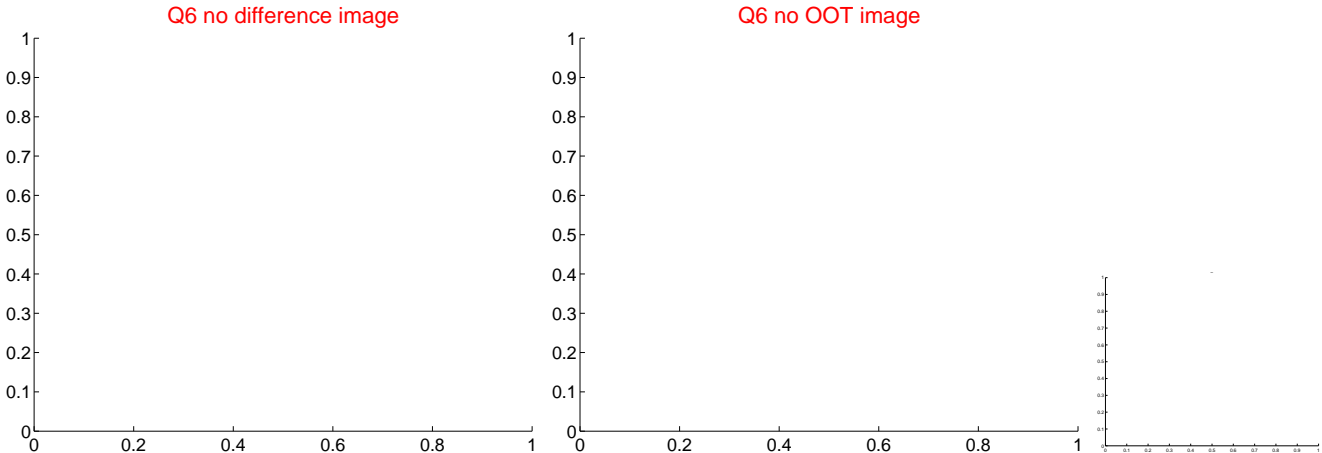
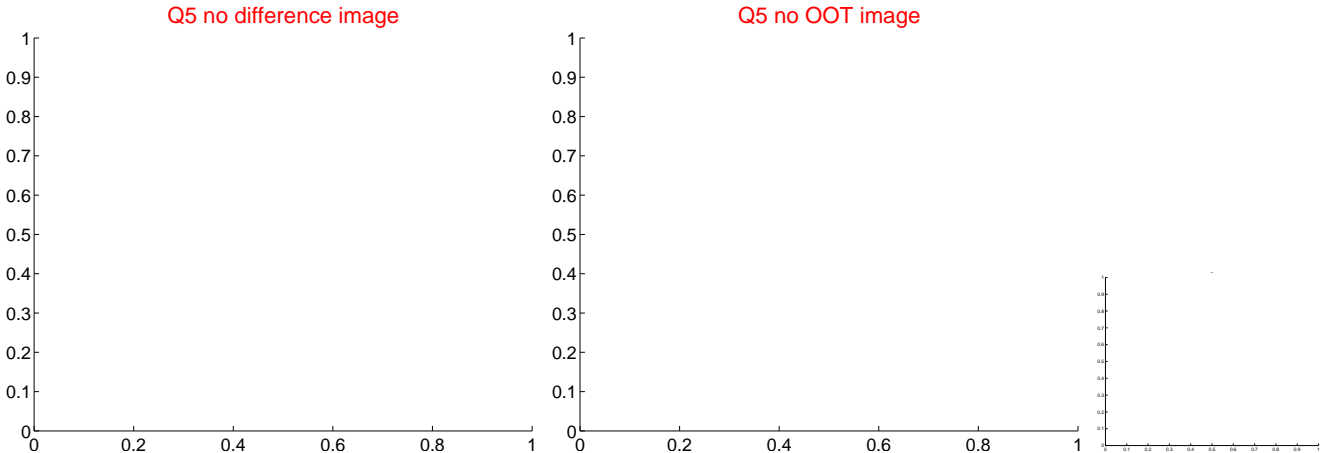


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

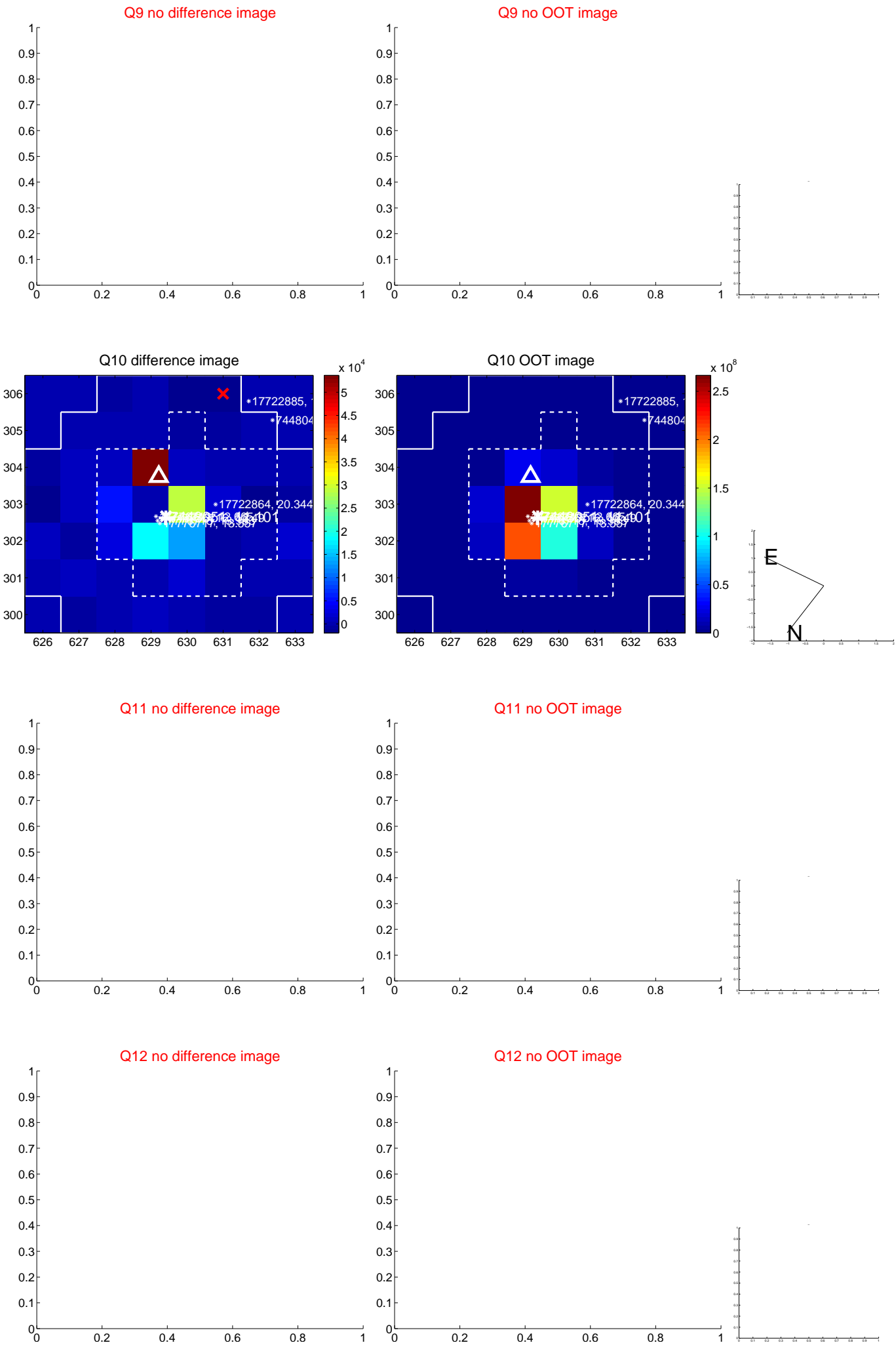
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



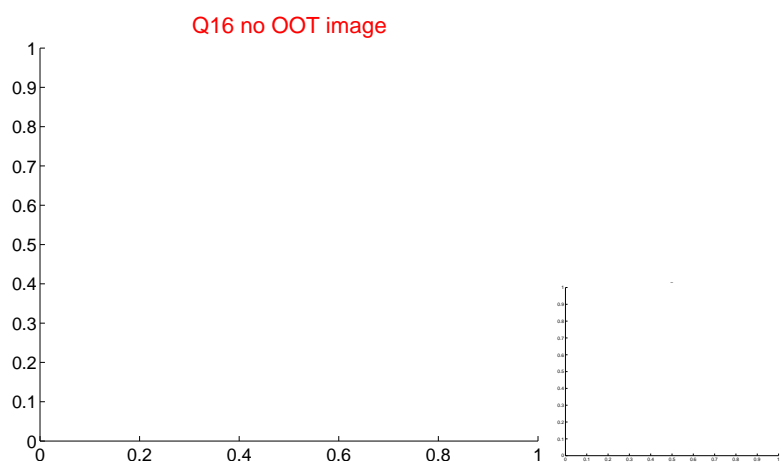
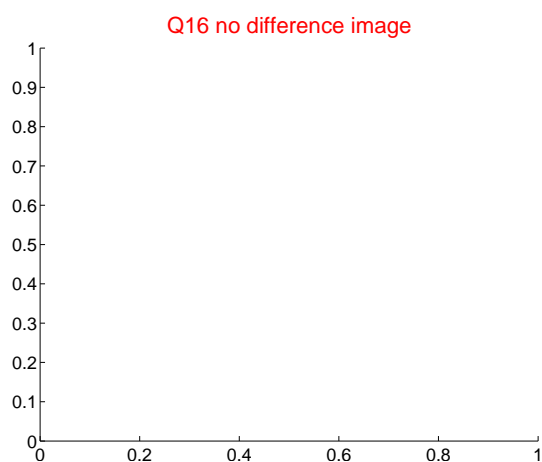
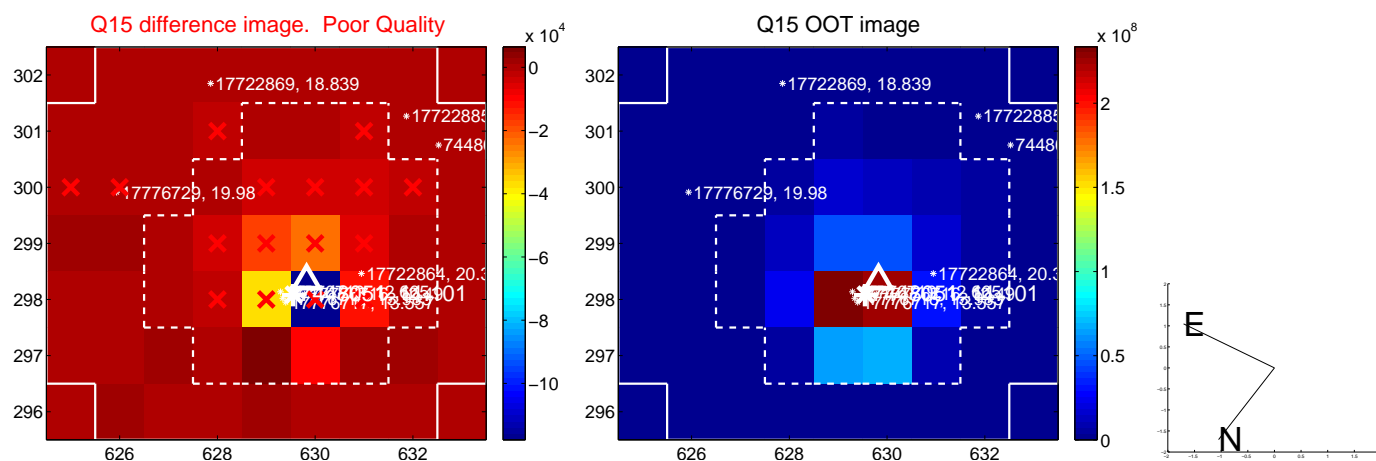
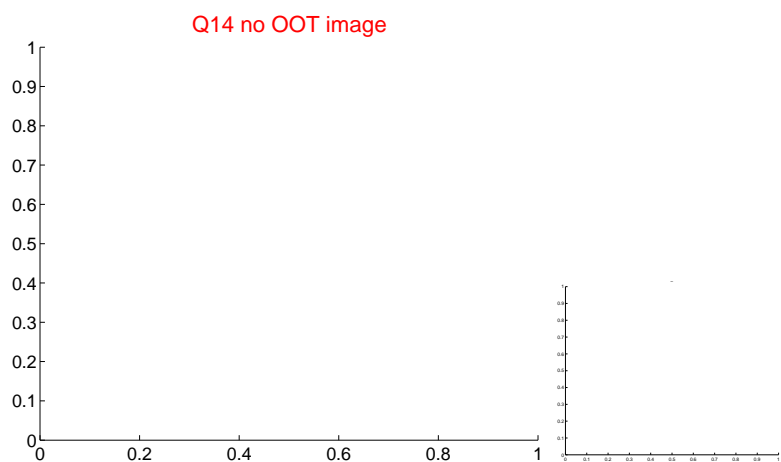
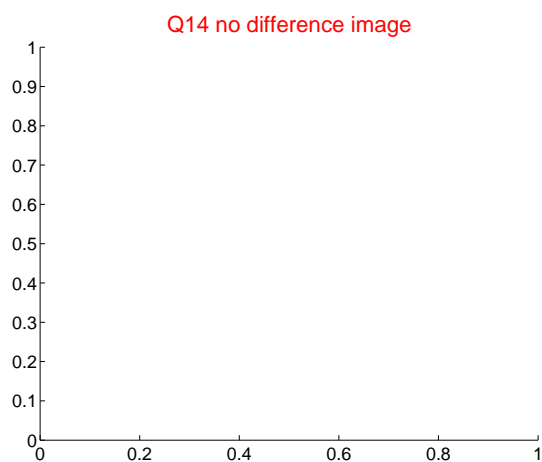
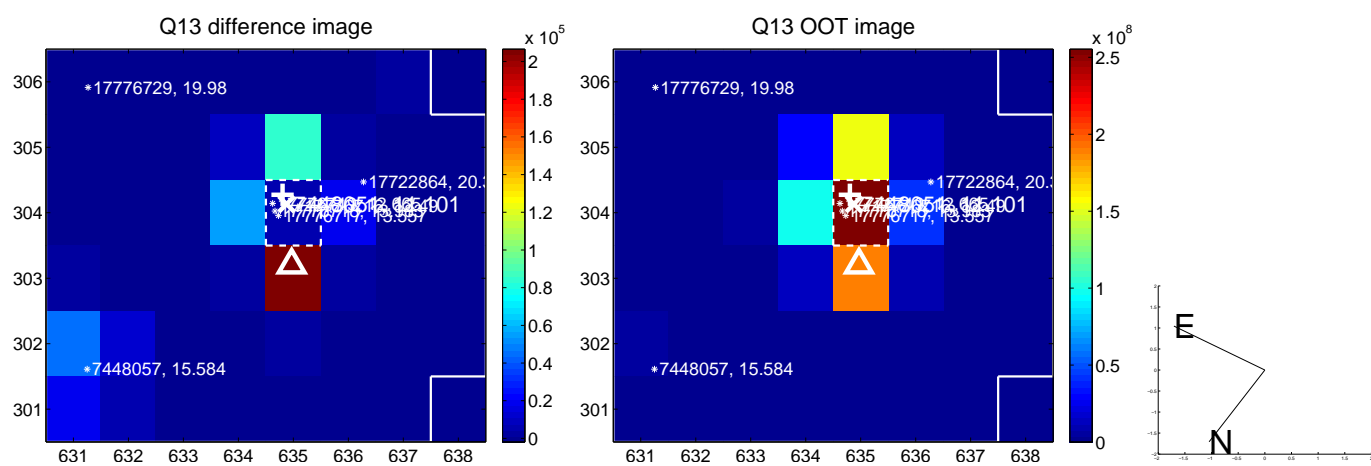
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



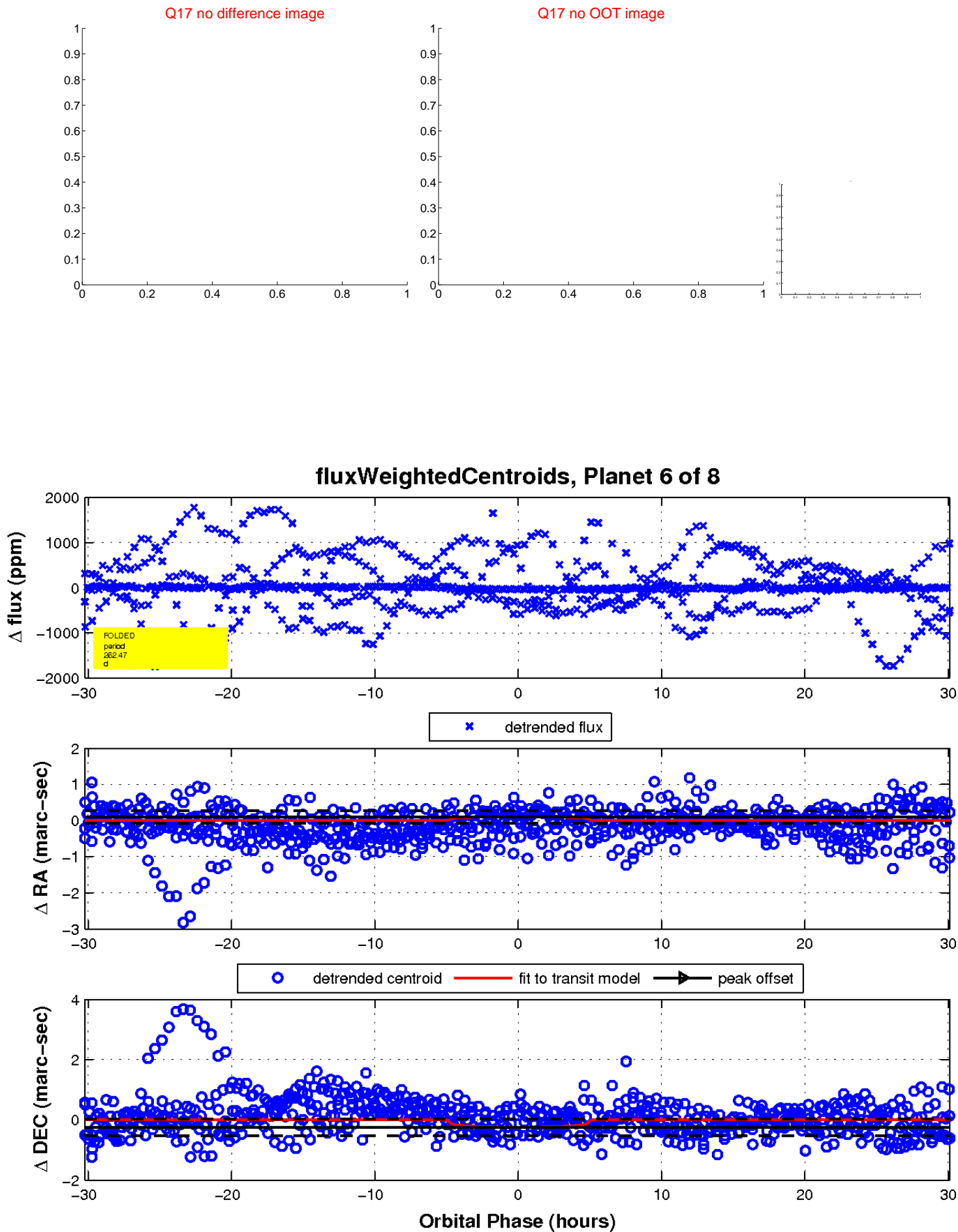
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

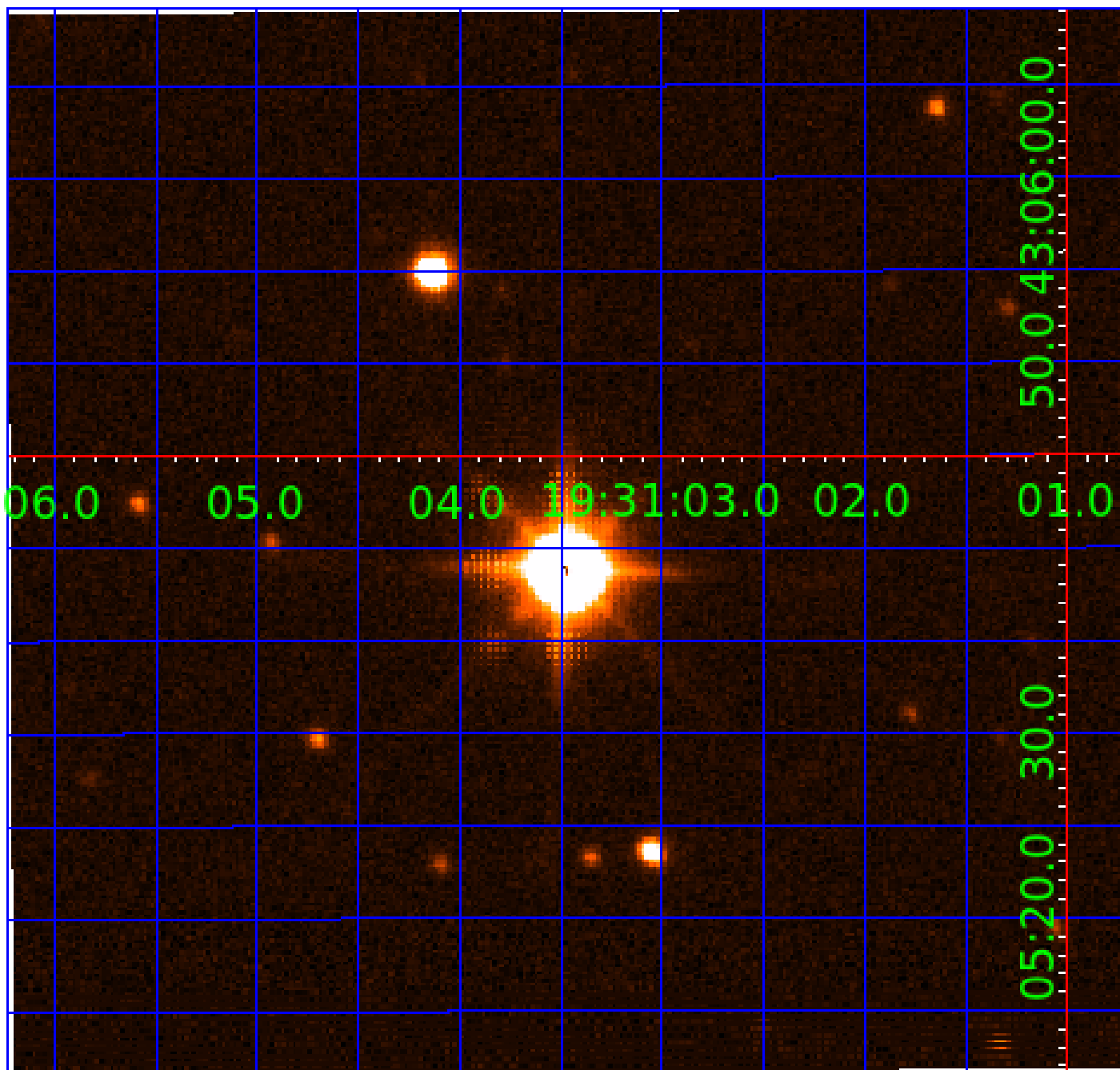


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

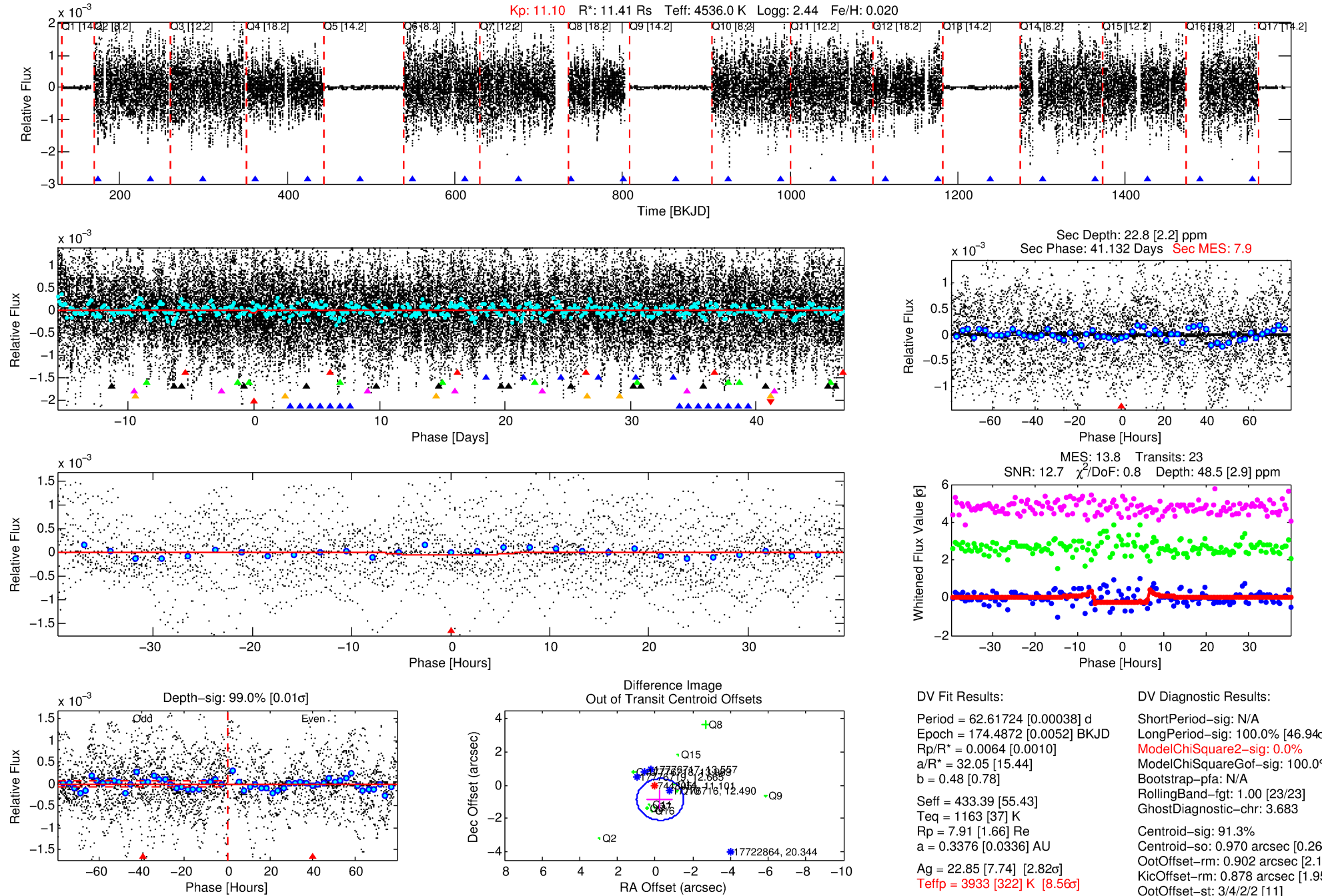
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448051-07

No Significant Match Found

DV One-Page Summary

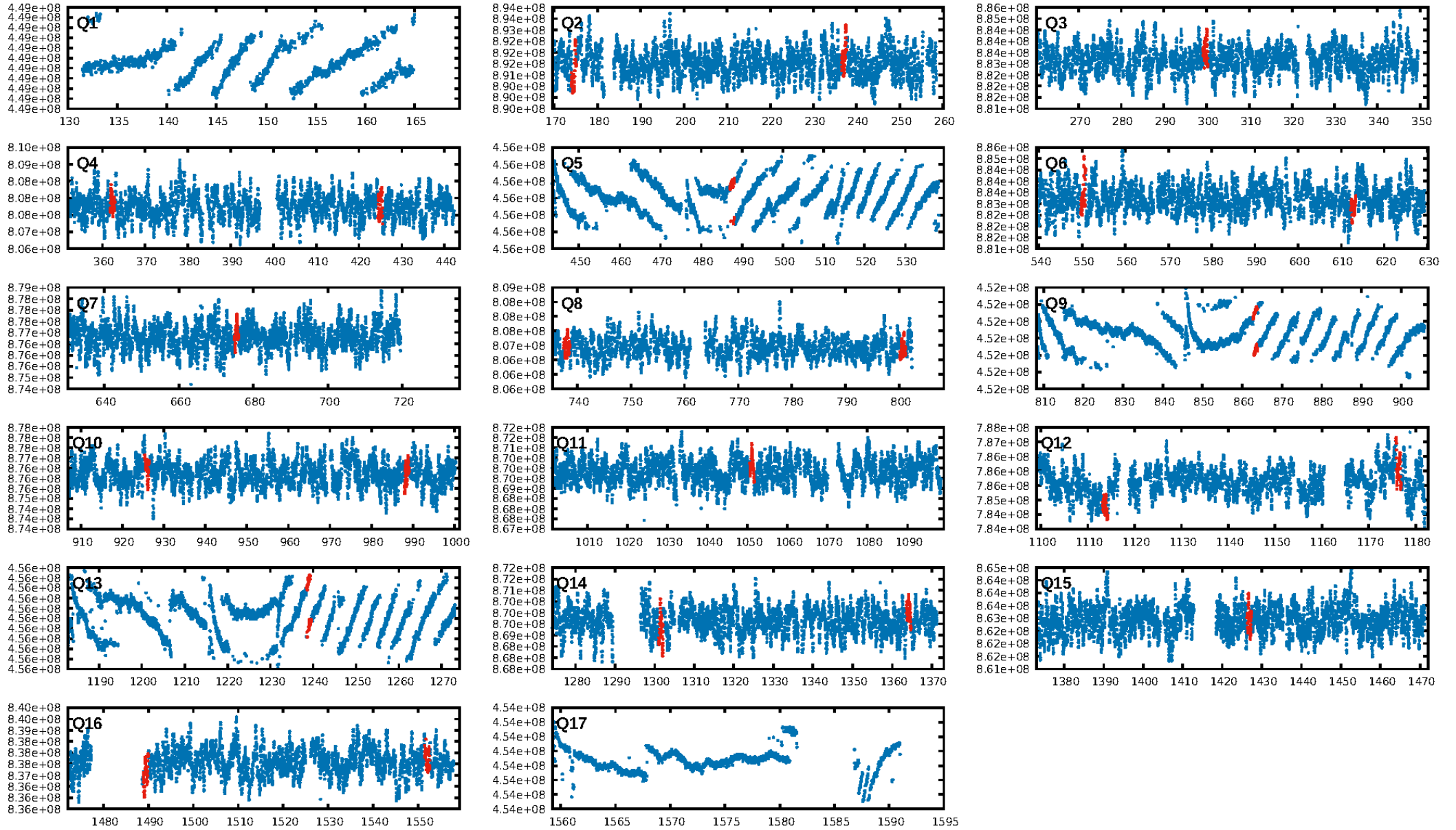
KIC: 7448051 Candidate: 7 of 8 Period: 62.617 d



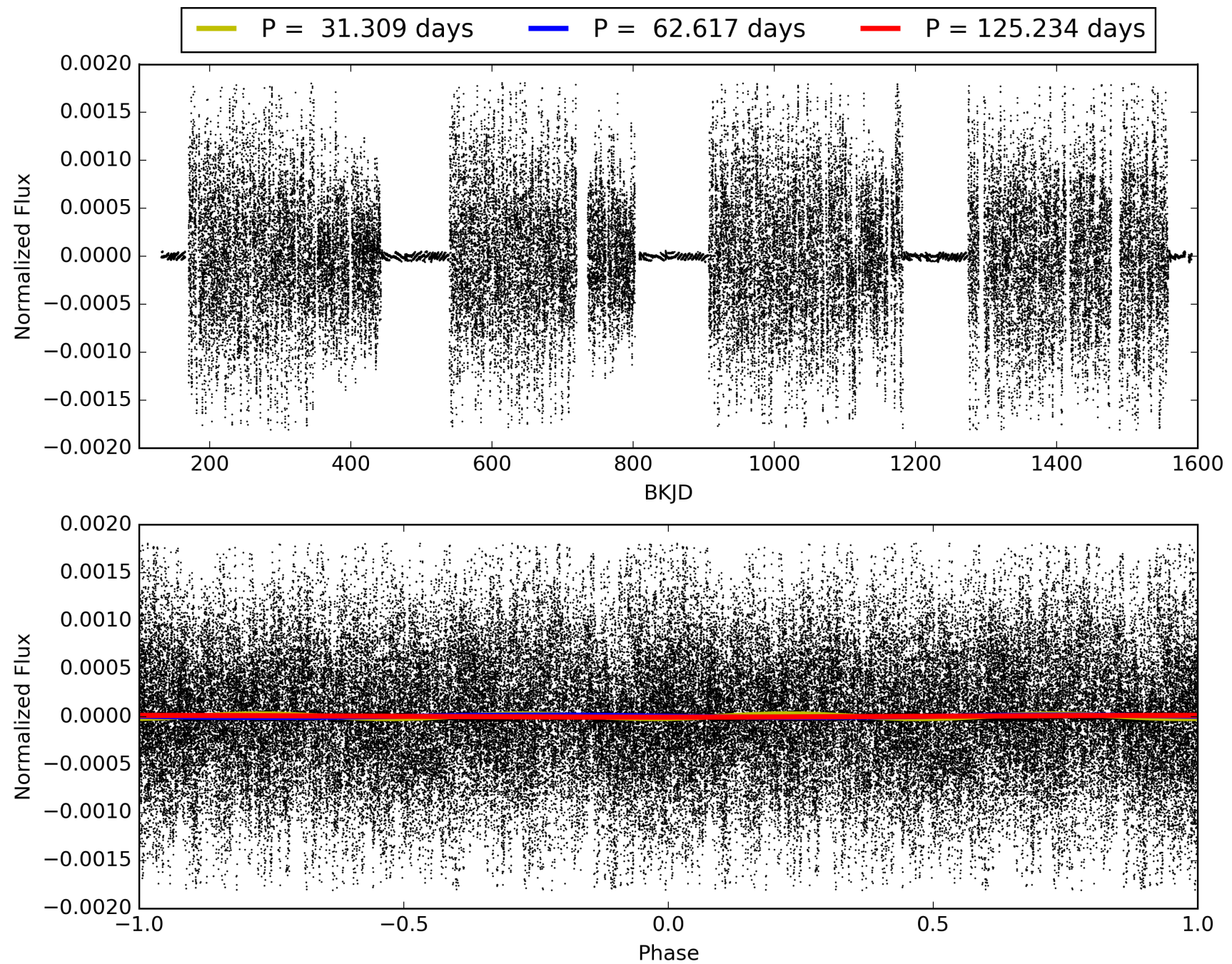
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:52:57 Z

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

TCE 007448051-07, PDC Light Curves

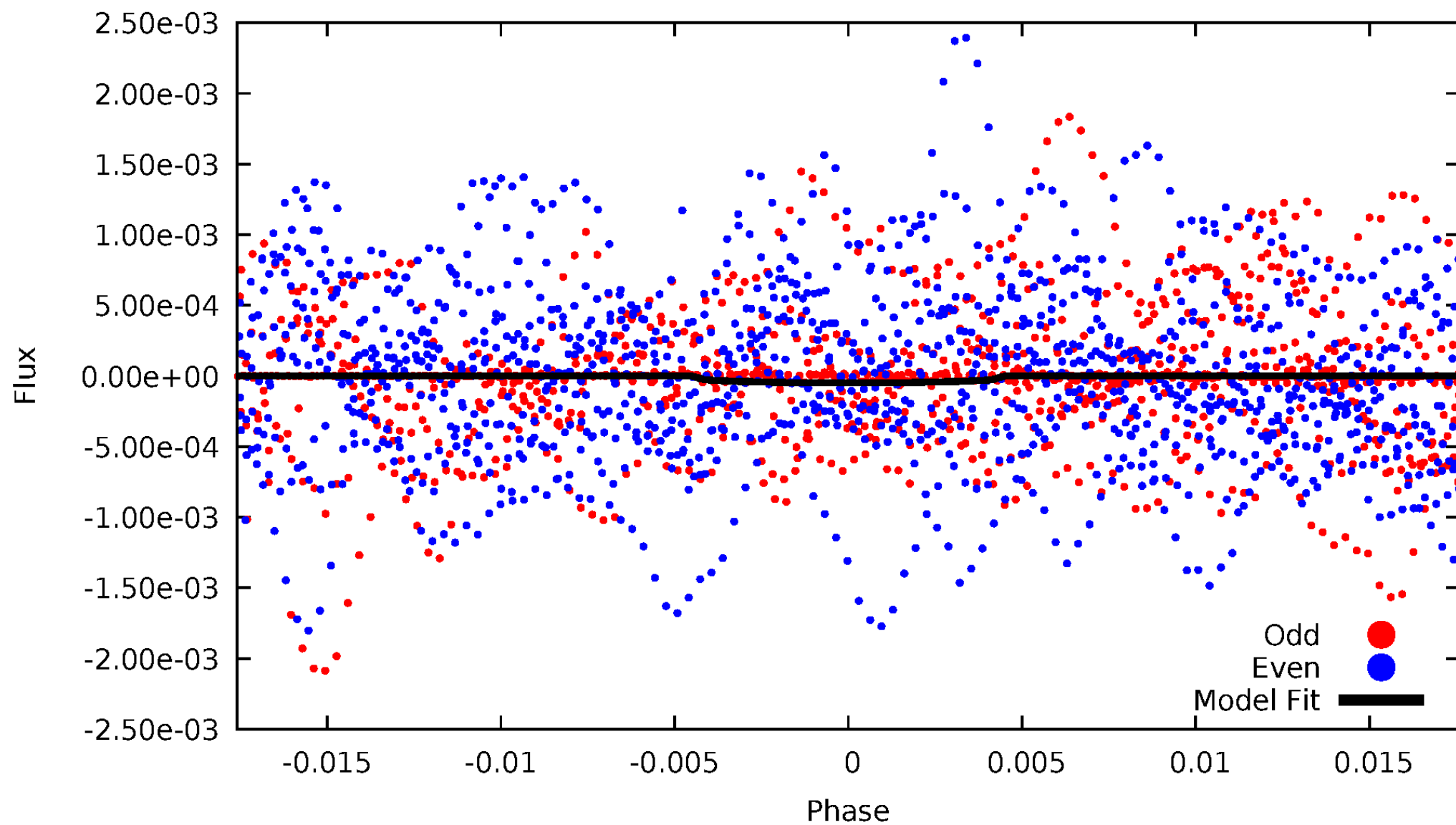


TCE 007448051-07



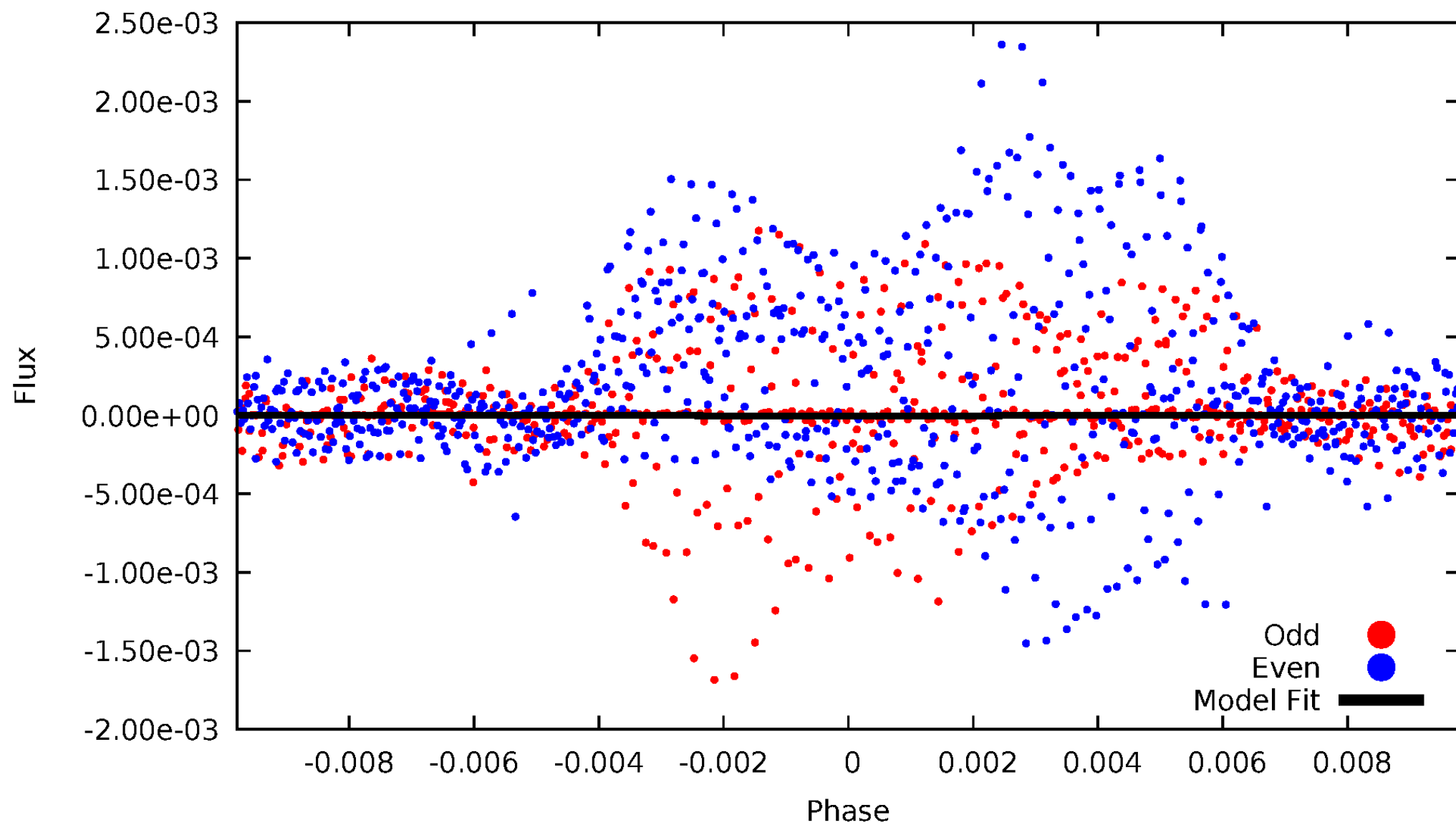
DV Odd/Even

TCE 007448051-07



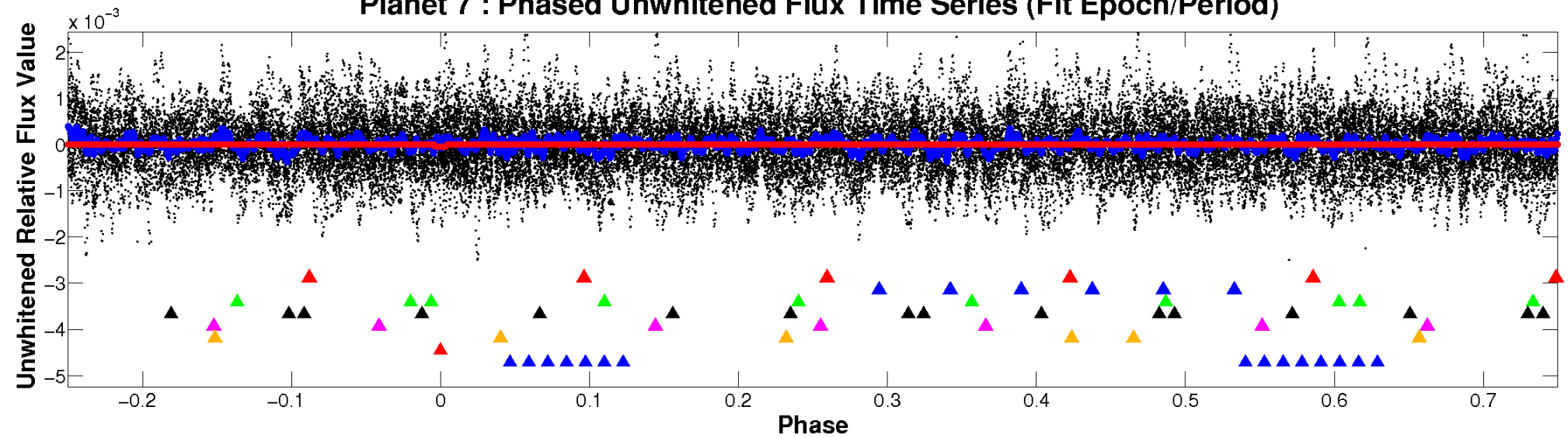
ALT Odd/Even

TCE 007448051-07

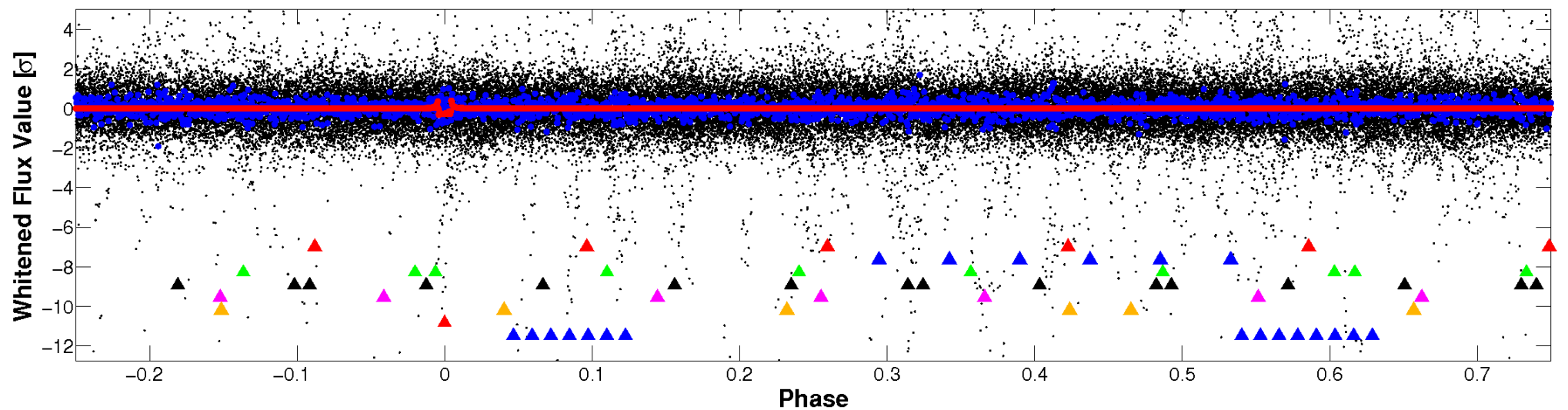


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

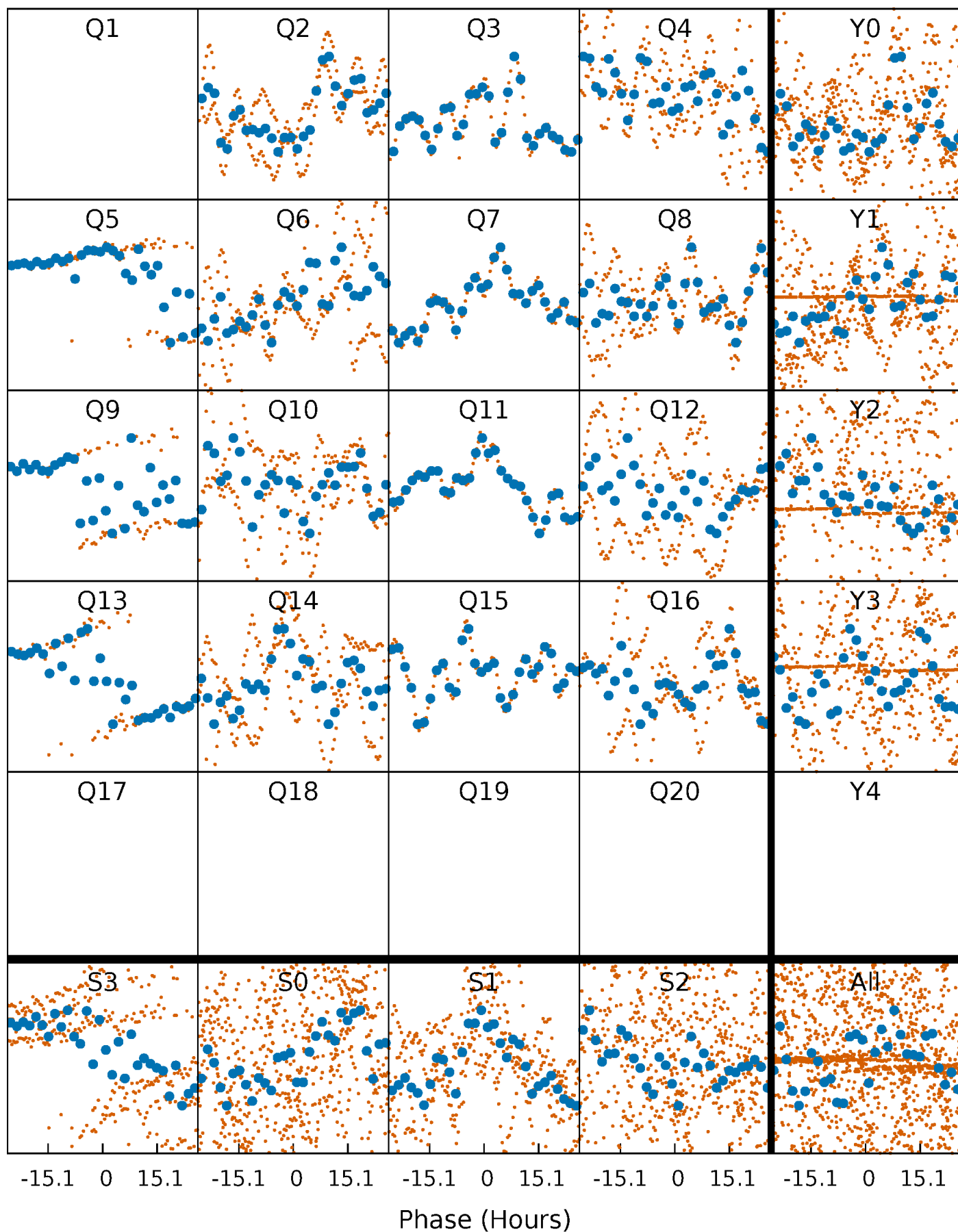


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



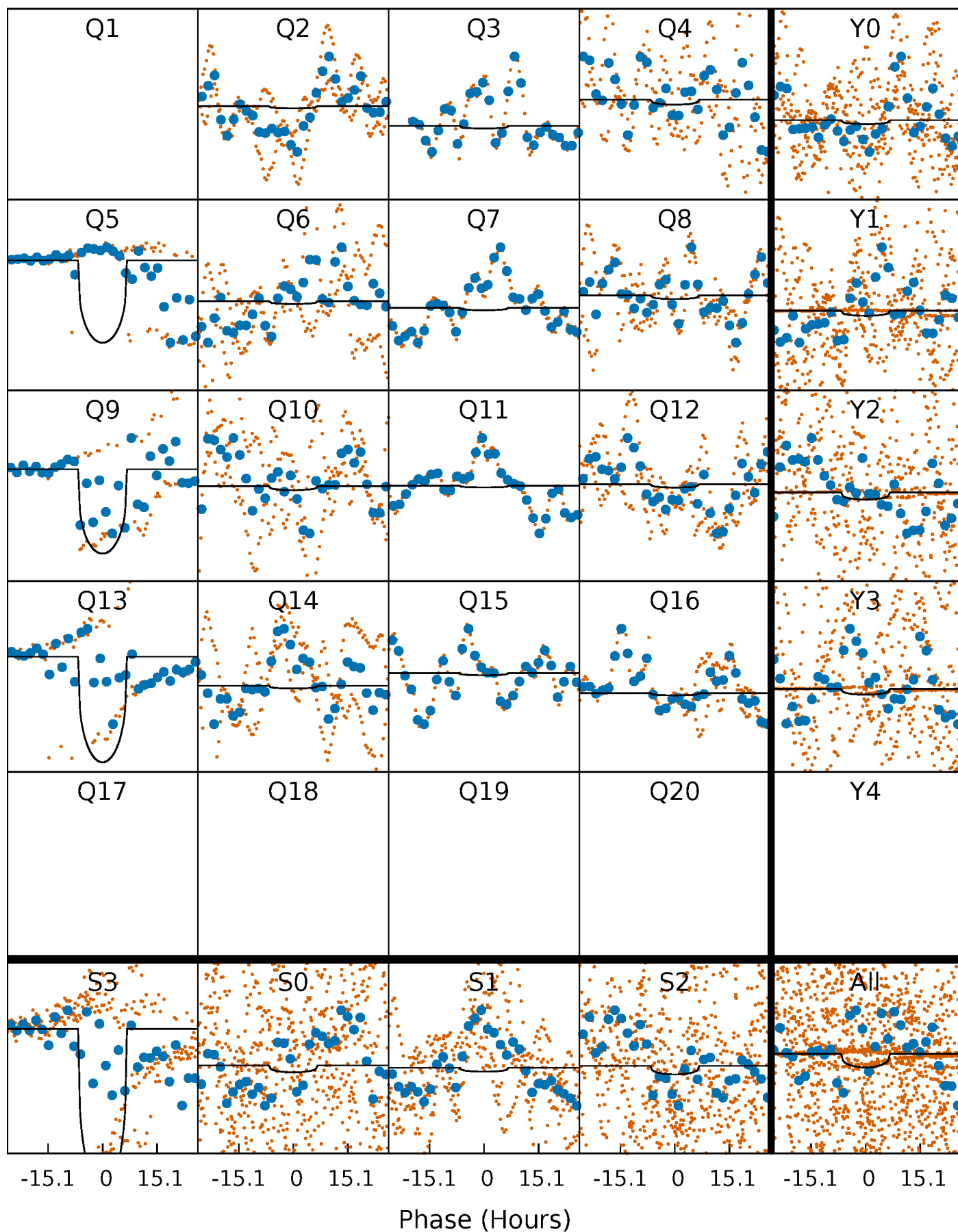
PDC Quarter-Phased Transit Curves

TCE 007448051-07 $P = 62.617242$ Days $T_0 = 174.487154$ (BKJD)



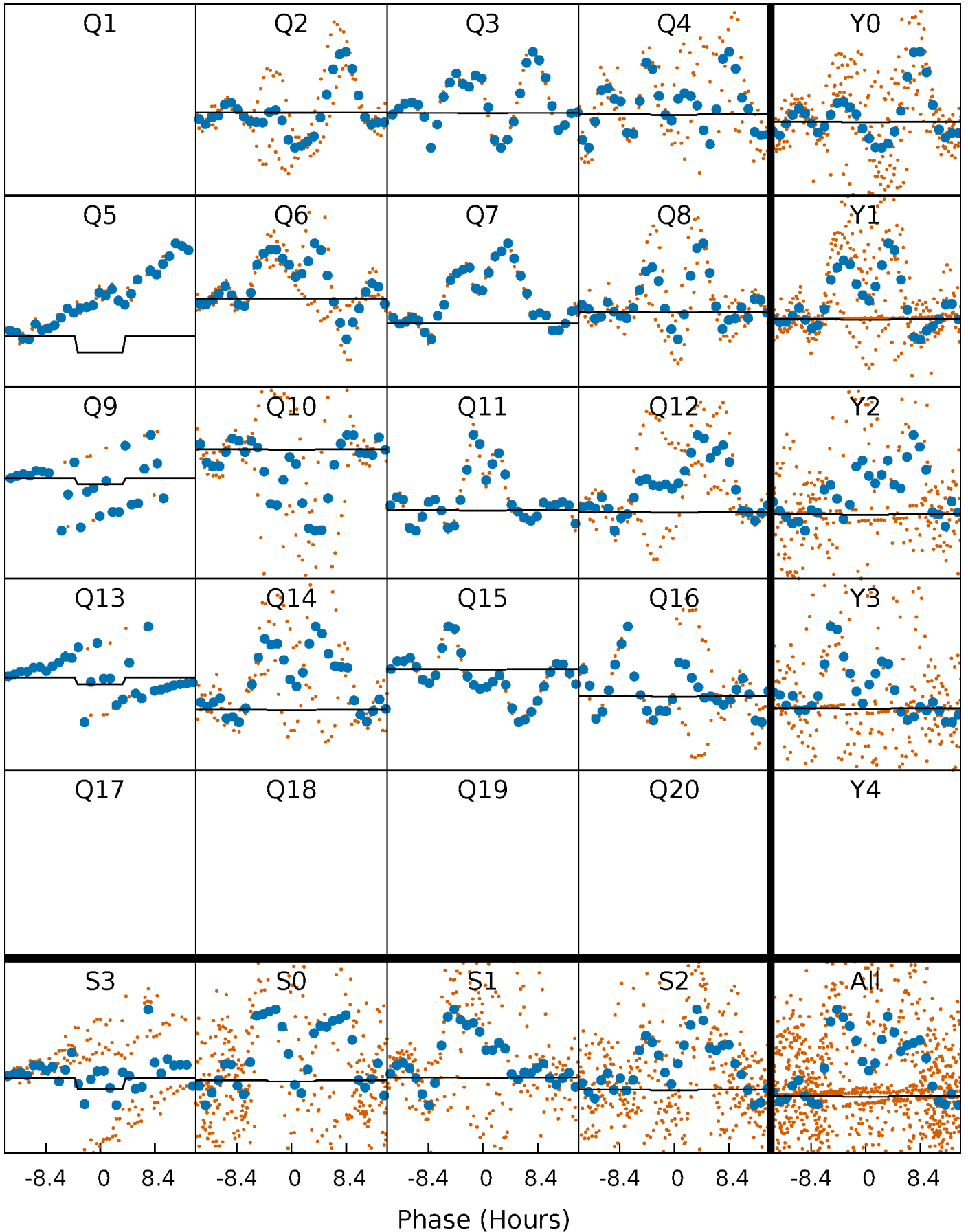
DV Quarter-Phased Transit Curves

TCE 007448051-07 P= 62.617242 Days $T_0=174.487154$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

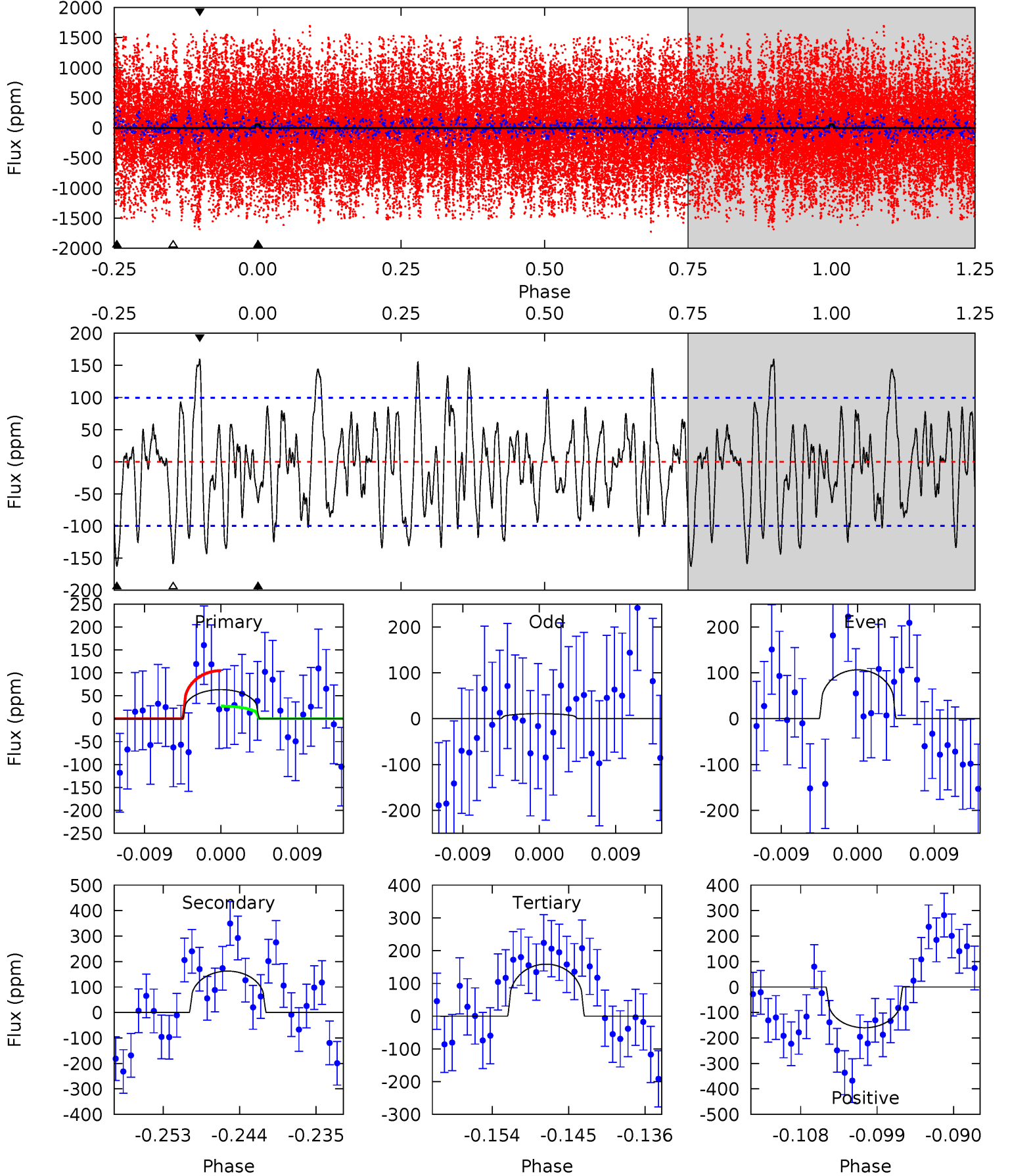
TCE 007448051-07 $P = 62.614731$ Days $T_0 = 174.540022$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-07, P = 62.617242 Days, E = 111.869912 Days

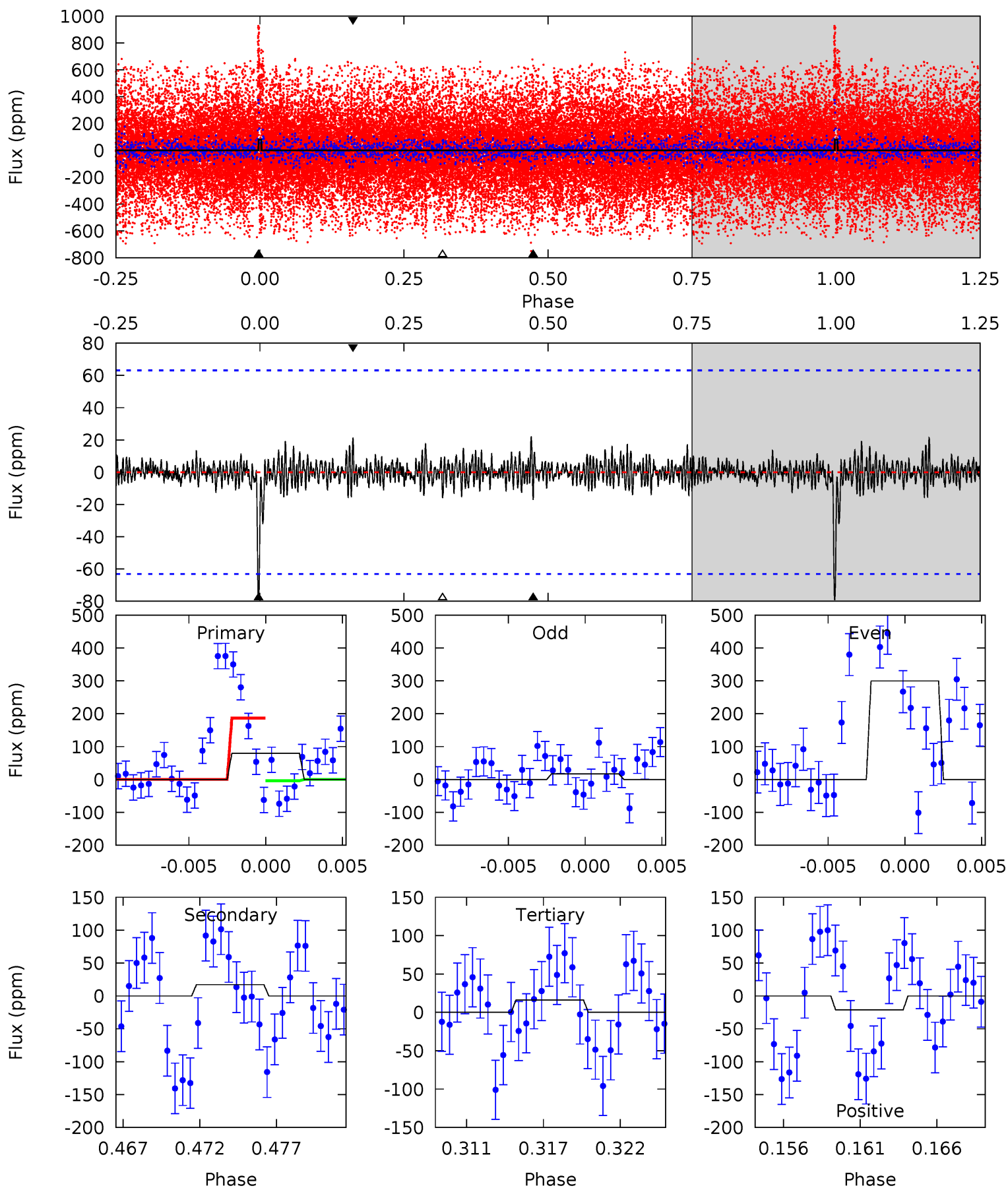
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.21	8.22	8.03	8.10	5.05	2.61	3.07	-4.82	-4.89	0.19	0.12	2.49	-4.33	0.50	1.98



Alt Model-Shift Uniqueness Test

007448051-07, $P = 62.614731$ Days, $E = 111.925291$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.47	1.40	1.31	1.74	5.15	2.80	0.47	5.15	4.72	0.08	-0.35	11.4	1.70	0.22	7.36



Stellar Parameters For KIC 007448051

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-162 ± 20	$7.85^{+1.58}_{-1.31}$	1628^{+42}_{-36}	6223^{+597}_{-521}	167^{+74}_{-48}
Alt.	-17 ± 12	$2.86^{+1.16}_{-1.33}$	1629^{+40}_{-37}	5783^{+2509}_{-1437}	124^{+324}_{-92}

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

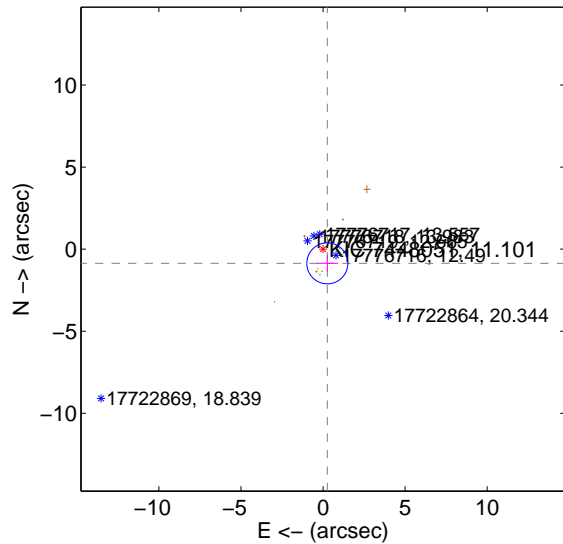
Supplemental centroid analysis for 007448051-07. **Kepler magnitude: 11.10.** Transit SNR 12.68

There are 2 quarters with good PRF difference image offsets

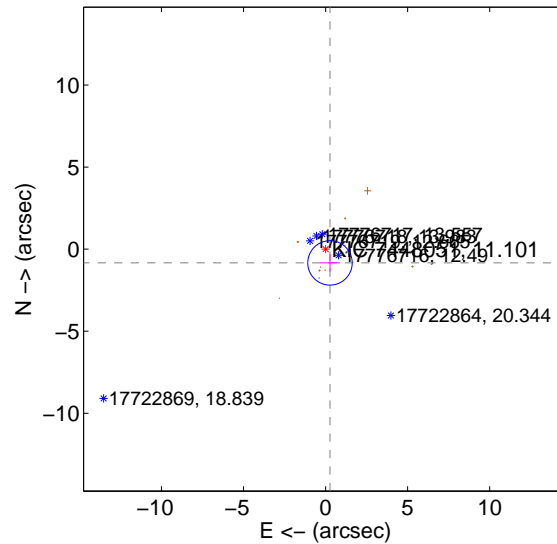
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.902 ± 0.416	2.17	-0.261 ± 0.661	-0.863 ± 0.507
PRF-fit source offset from KIC position	0.878 ± 0.451	1.95	-0.269 ± 0.611	-0.836 ± 0.526
photometric centroid source offset	0.97 ± 3.77	0.26	0.19 ± 2.32	0.95 ± 3.82

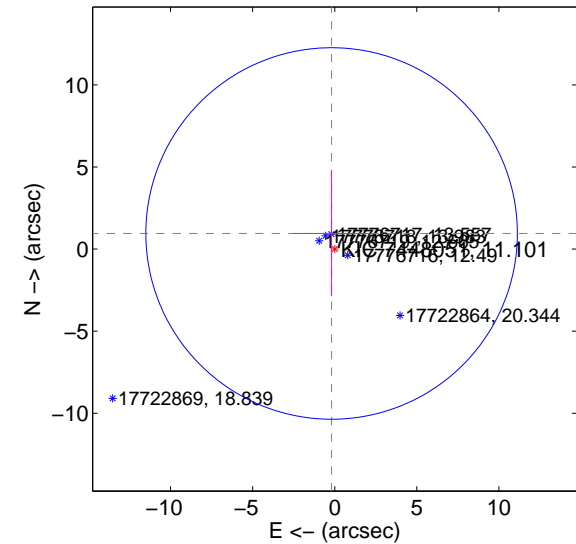
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

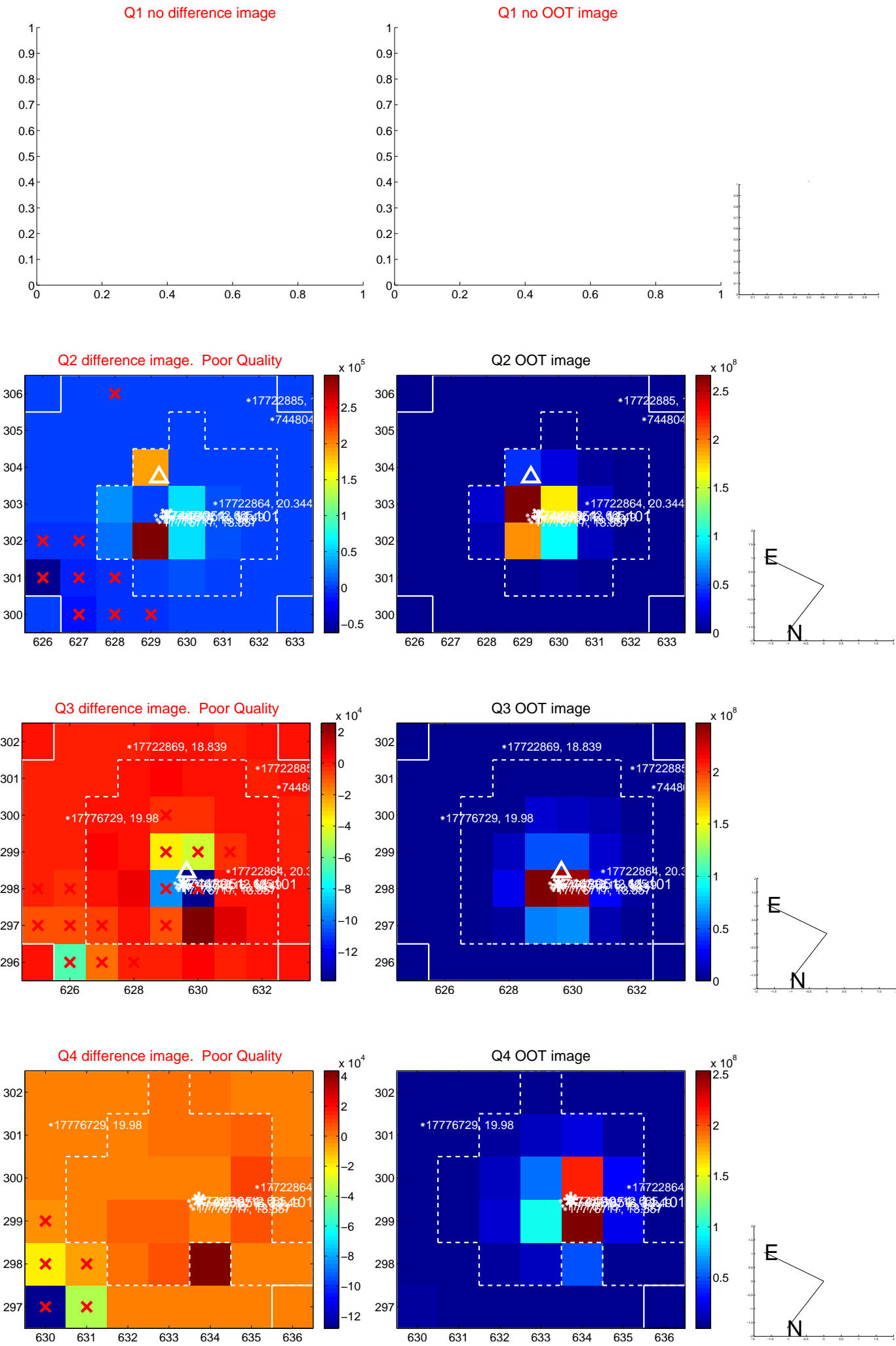


offset from photometric centroids

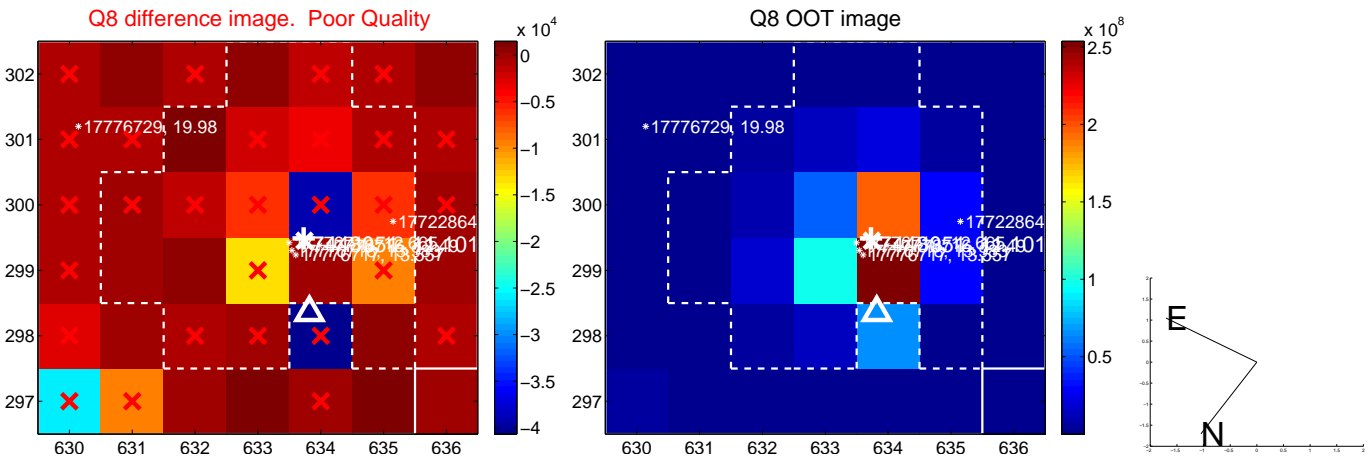
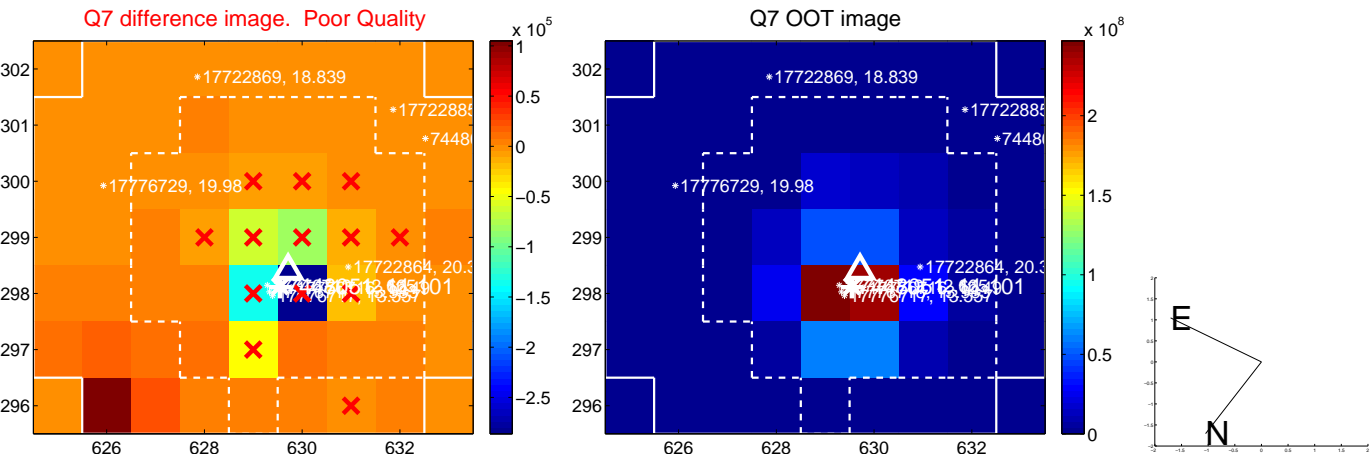
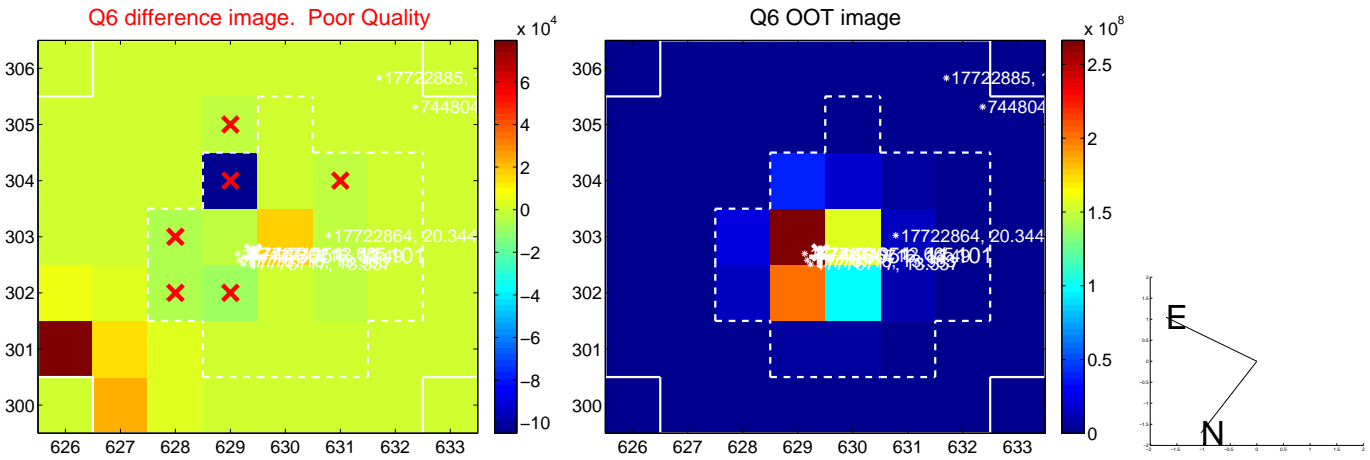
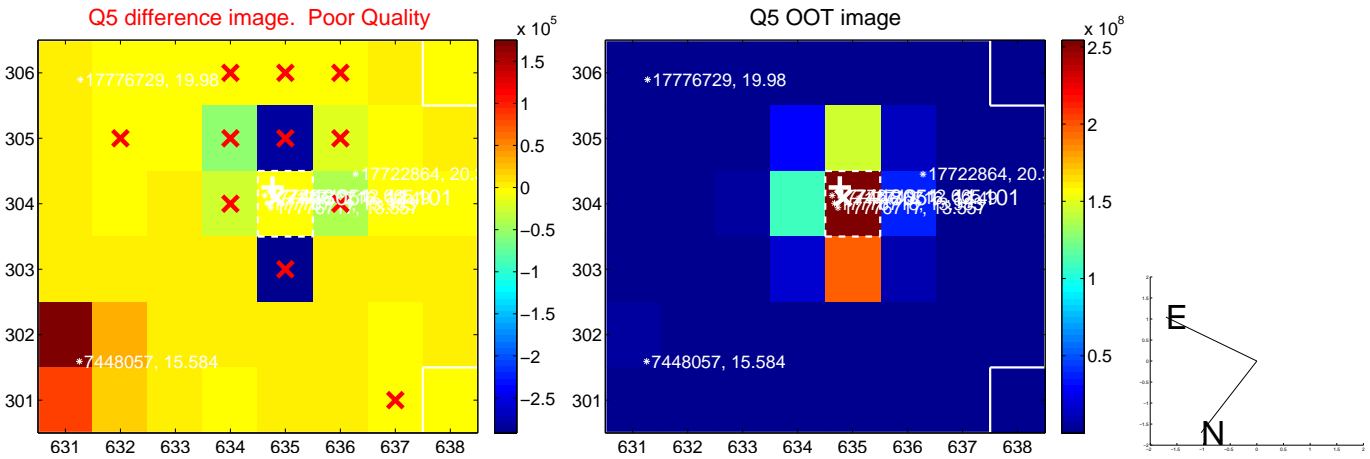


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

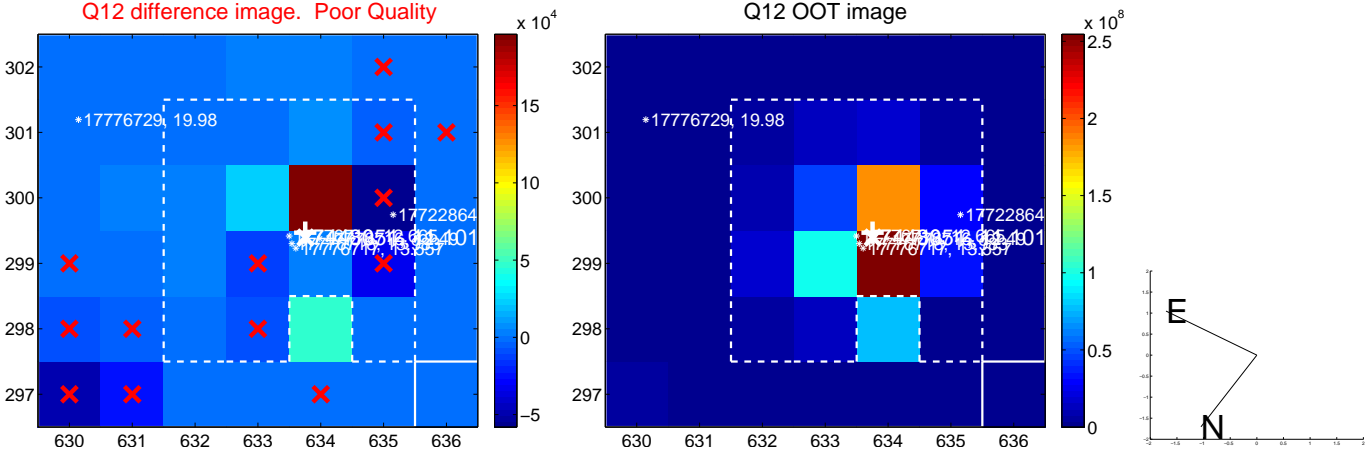
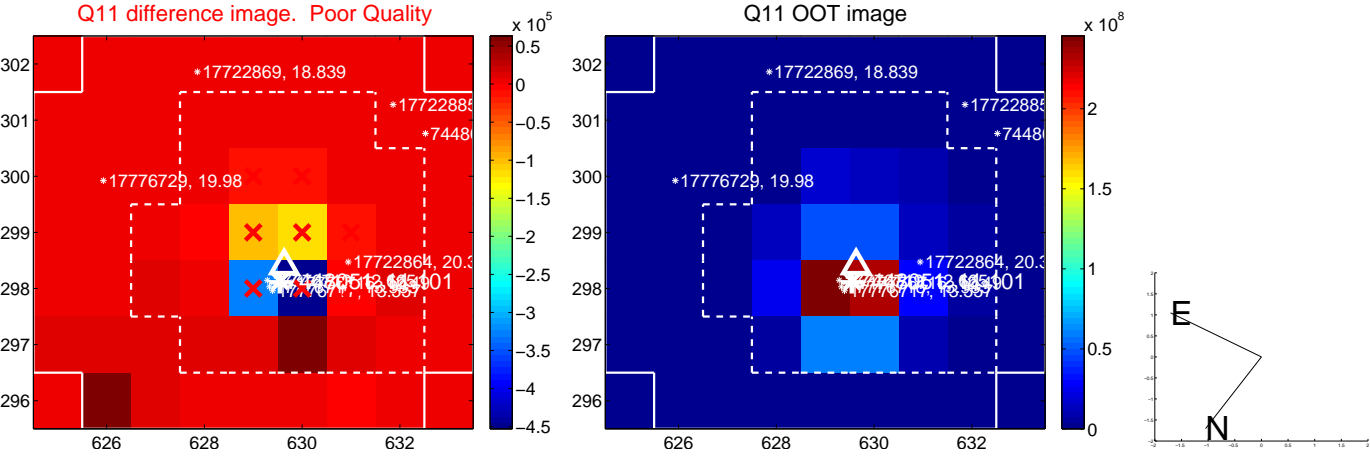
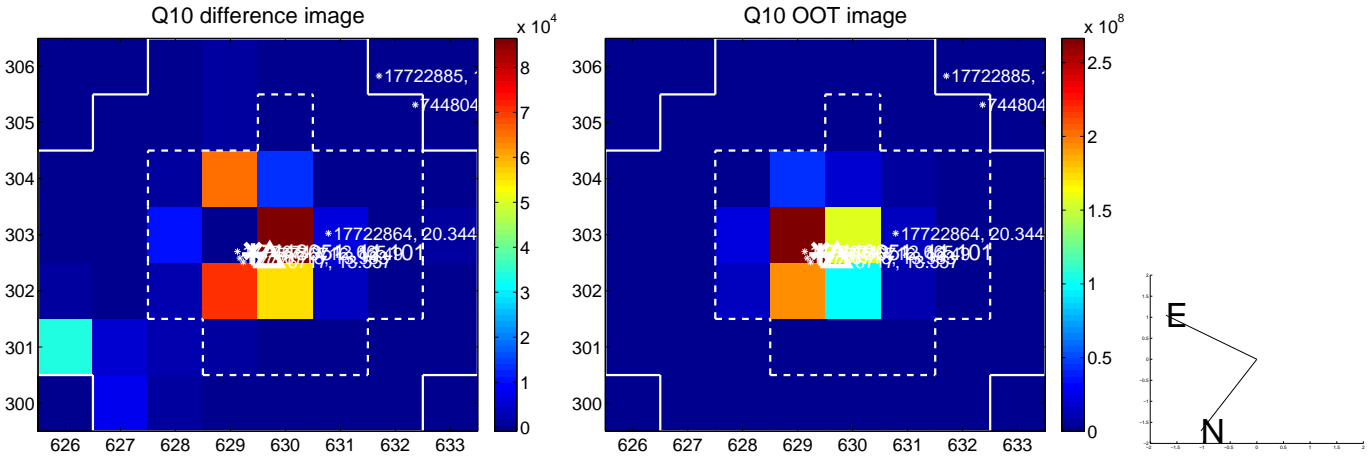
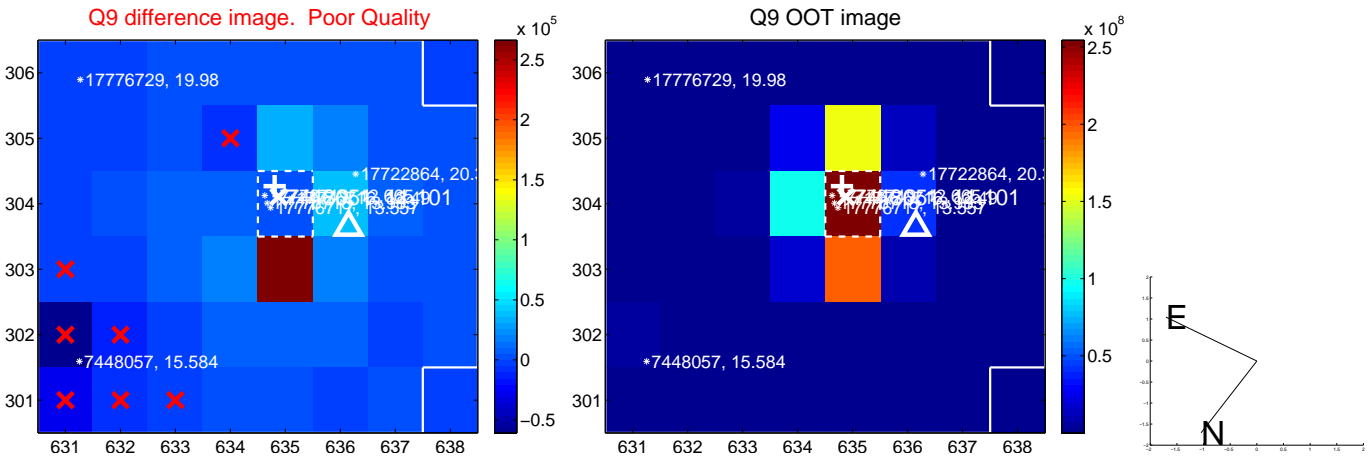
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



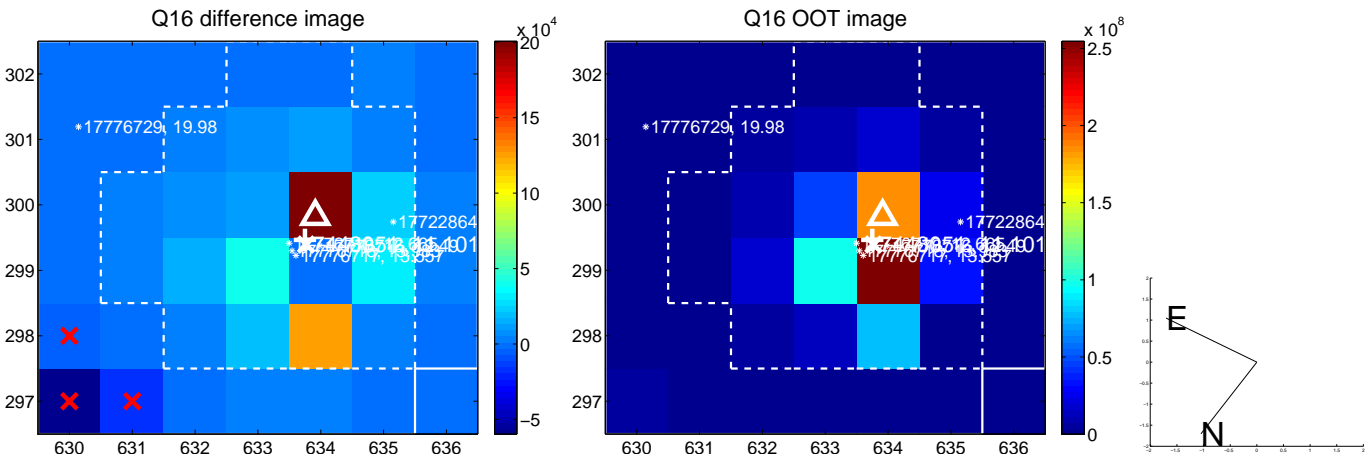
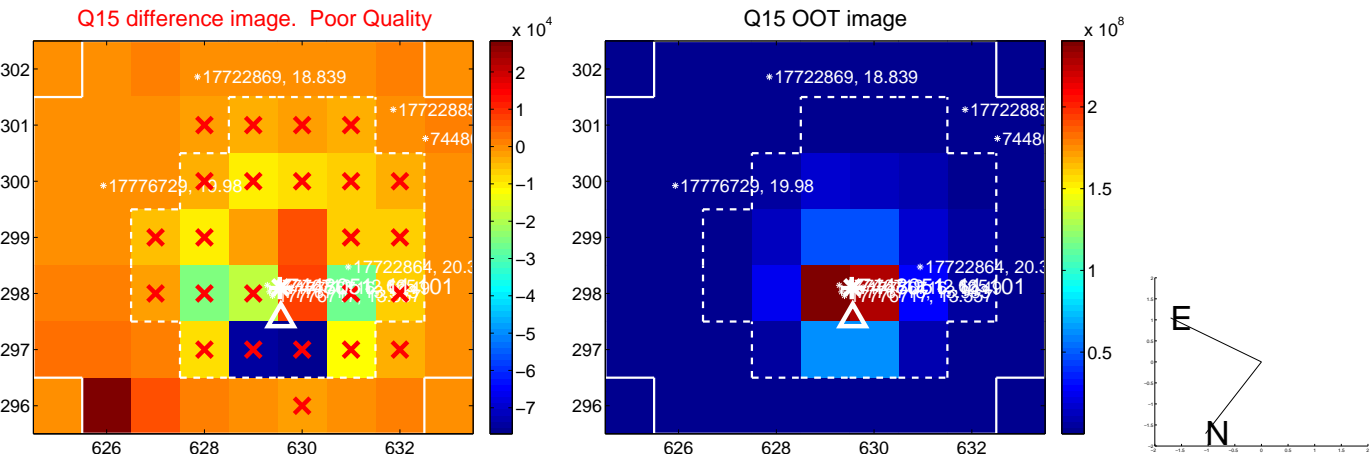
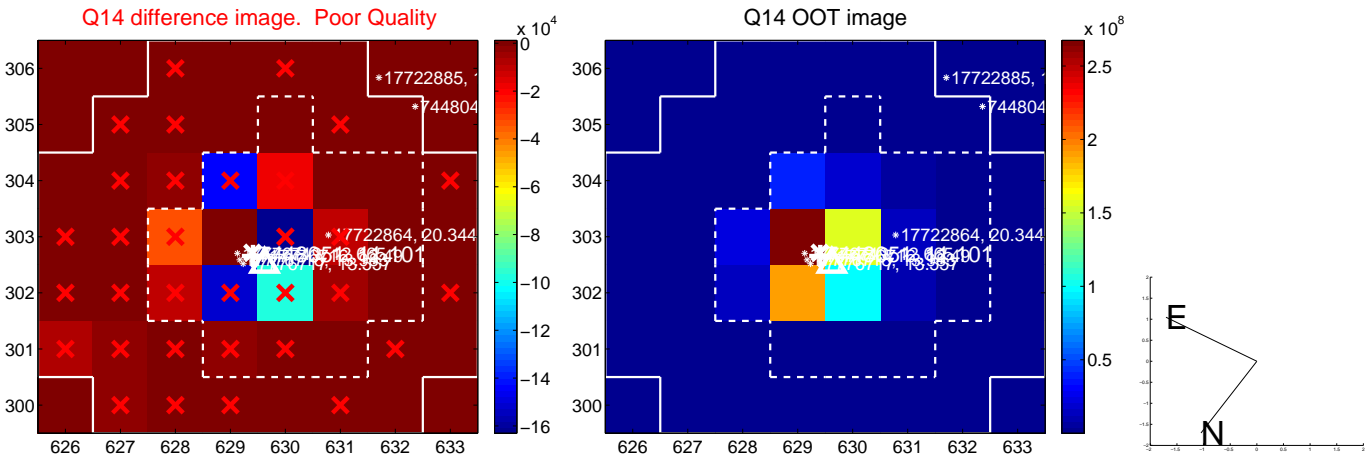
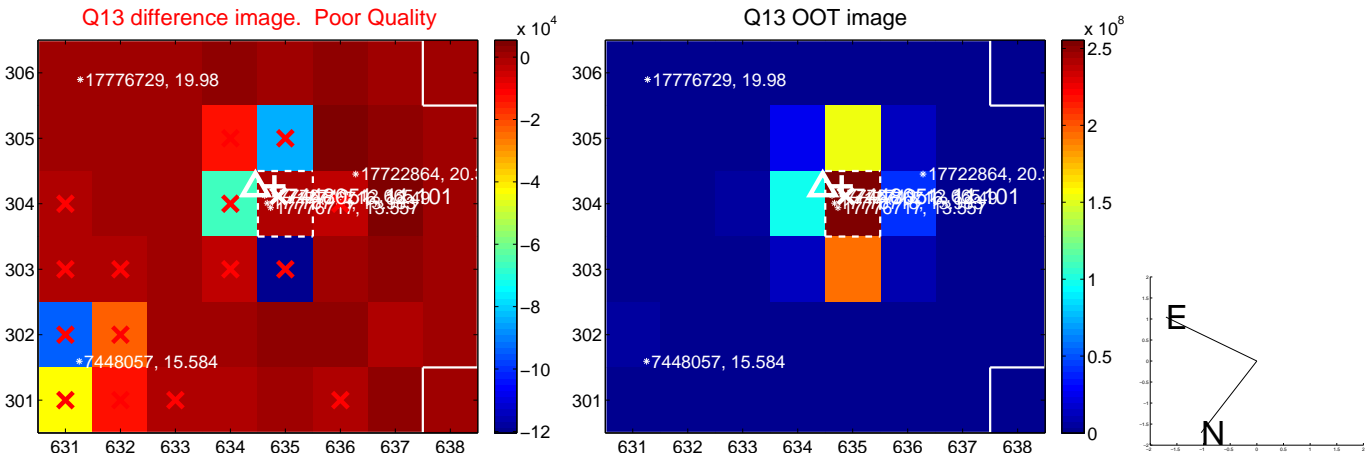
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



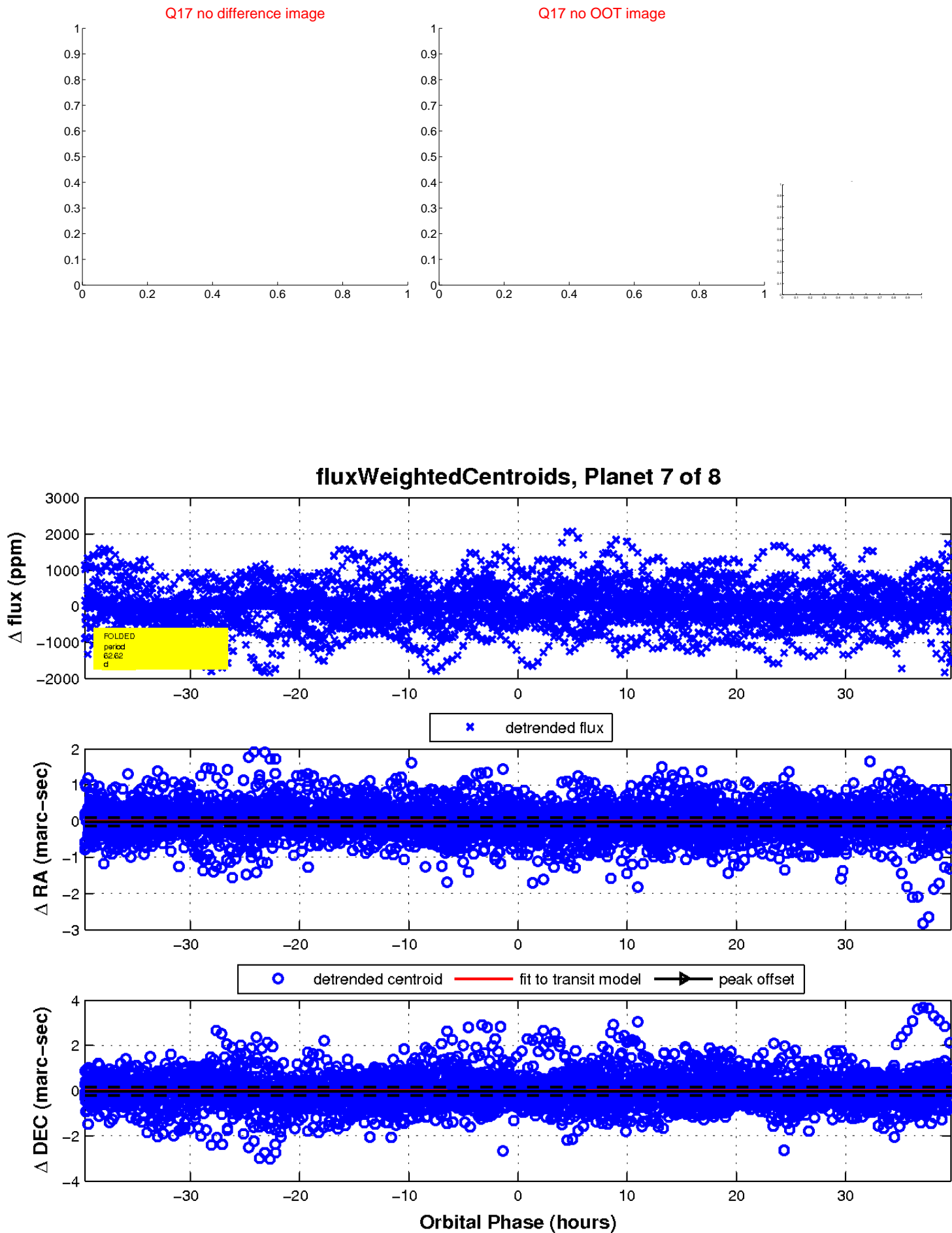
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

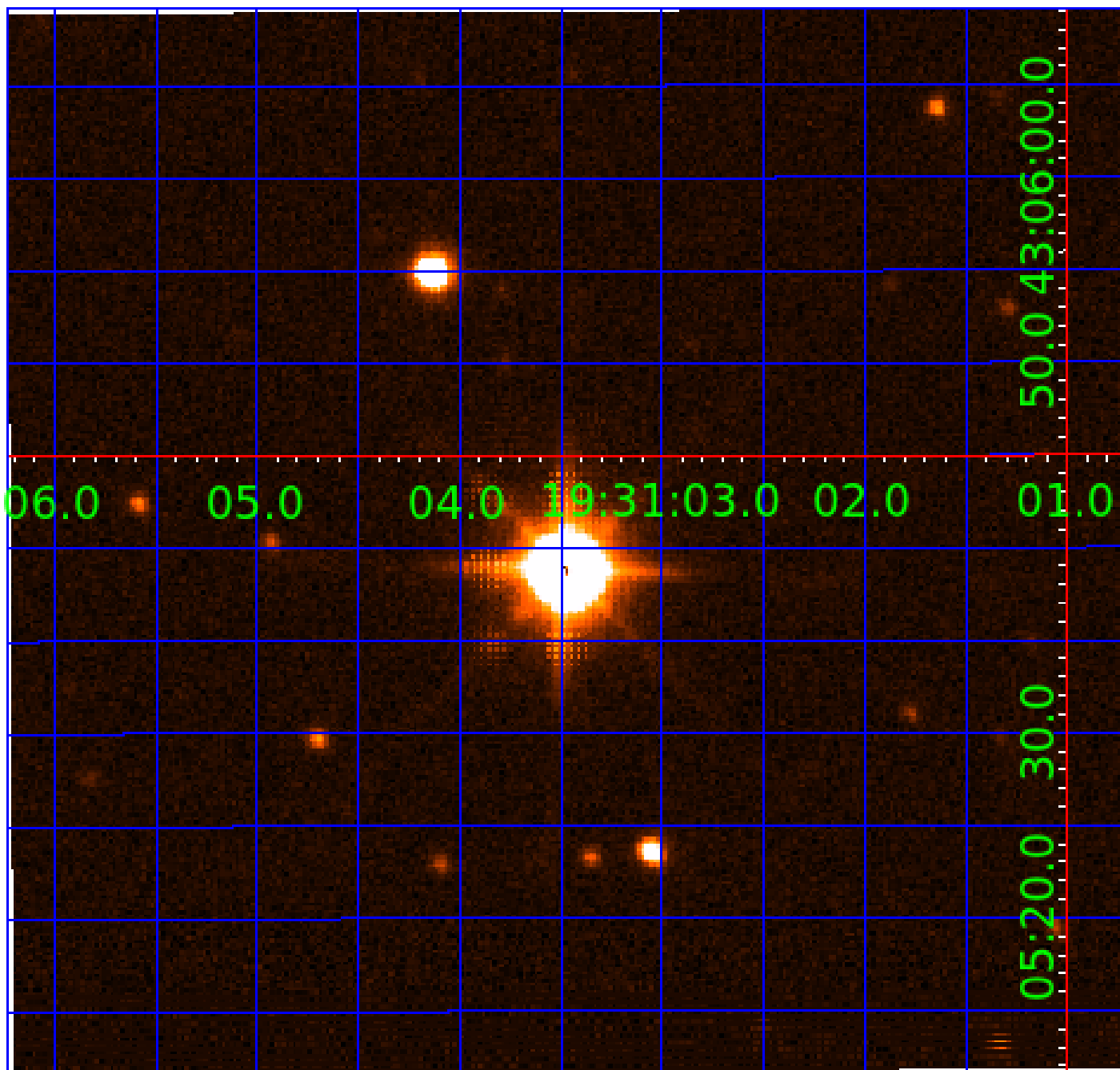


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007448051

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})
007448051-01	OBS	No	240.254884	294.209860	16.8	12.052	34.3	4.3	11.41	4536	5.78	72.15
007448051-02	OBS	No	253.454232	192.928613	38.4	4.645	27.6	14.5	11.41	4536	8.50	67.19
007448051-03	OBS	No	148.824277	149.640130	22.2	6.069	19.5	7.8	11.41	4536	6.25	136.64
007448051-04	OBS	No	88.654148	205.338296	54.4	1.599	19.3	28.4	11.41	4536	10.40	272.61
007448051-05	OBS	No	206.409480	322.643362	13.8	7.751	16.3	3.6	11.41	4536	4.85	88.34
007448051-06	OBS	No	262.472435	141.002975	33.3	10.081	15.7	9.8	11.41	4536	8.03	64.12
007448051-07	OBS	No	62.617242	174.487154	48.5	13.217	13.8	12.7	11.41	4536	7.91	433.39
007448051-08	OBS	No	93.529798	213.868457	174.8	5.000	14.8	-1.0	11.41	4536	14.40	253.83

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007448051-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007448051-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007448051-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED—HALO_GHOST
007448051-07	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
007448051-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

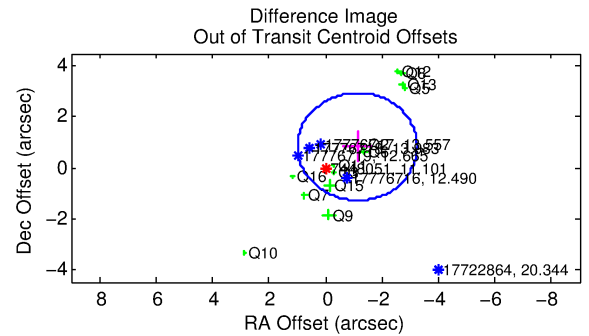
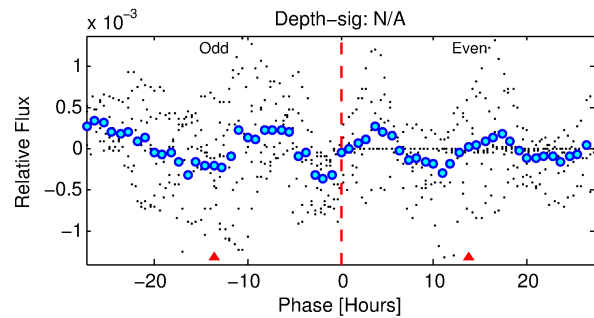
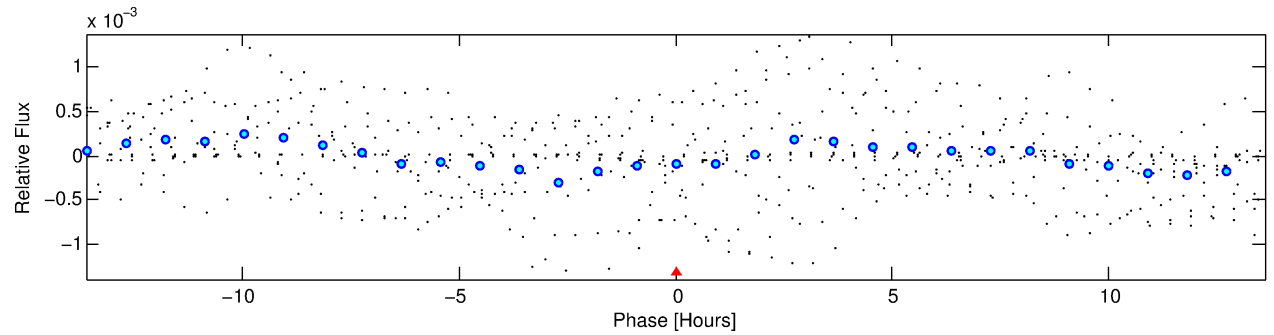
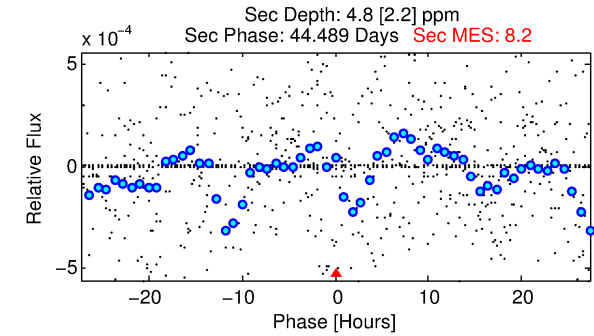
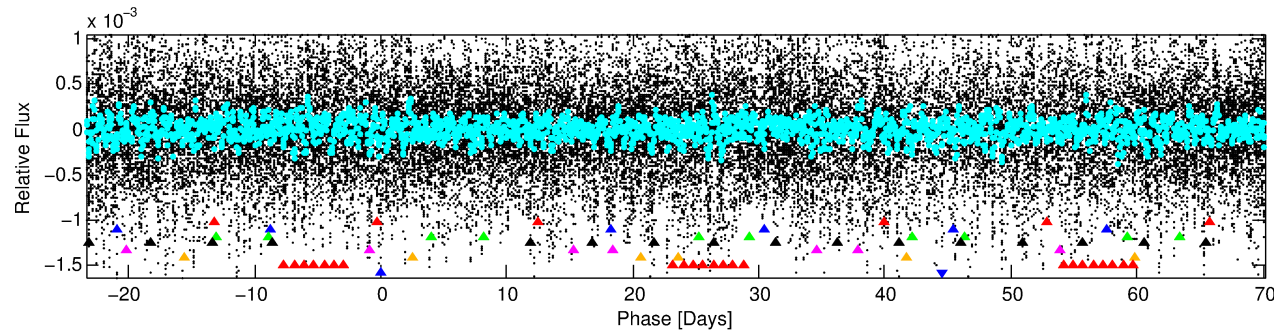
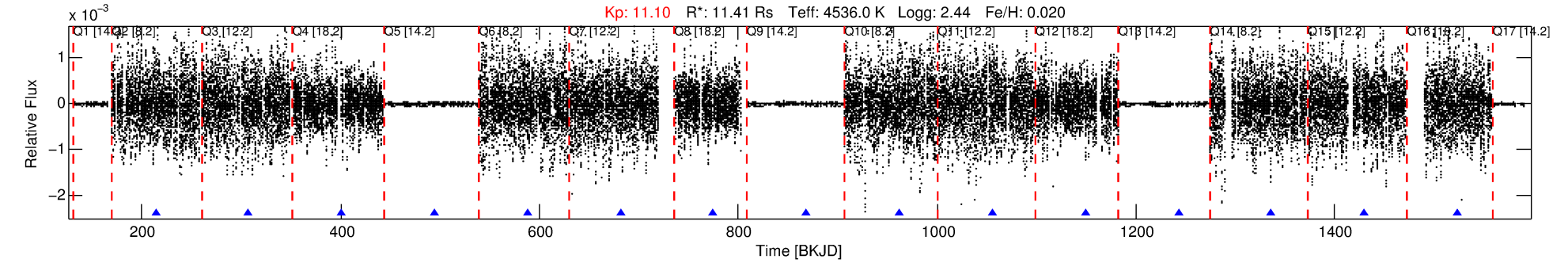
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007448051-08

No Significant Match Found

DV One-Page Summary

KIC: 7448051 Candidate: 8 of 8 Period: 93.530 d



TPS TCE Results:

Period = 93.52980 d
Epoch = 213.8685 BKJD

DV fit results are unavailable

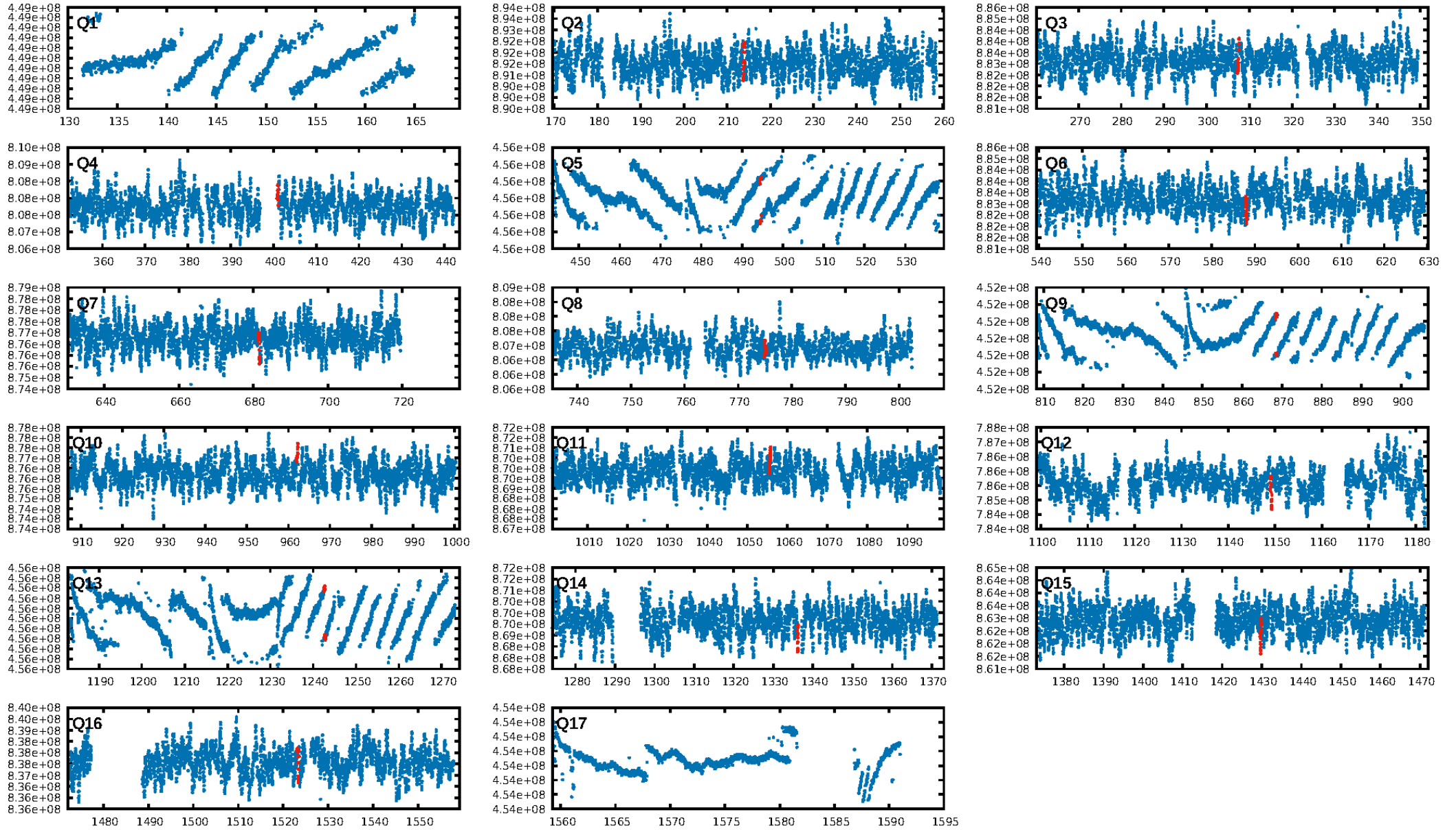
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.29σ]
LongPeriod-sig: 100.0% [168.77σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: -1.082
Centroid-sig: 81.7%
Centroid-so: 2.887 arcsec [0.51σ]
OotOffset-rm: 1.400 arcsec [1.98σ]
KicOffset-rm: 1.385 arcsec [1.90σ]
OotOffset-st: 3/4/3/3 [13]
KicOffset-st: 3/4/3/3 [13]
DiffImageQuality-fgm: 0.54 [7/13]
DiffImageOverlap-fno: 0.92 [12/13]

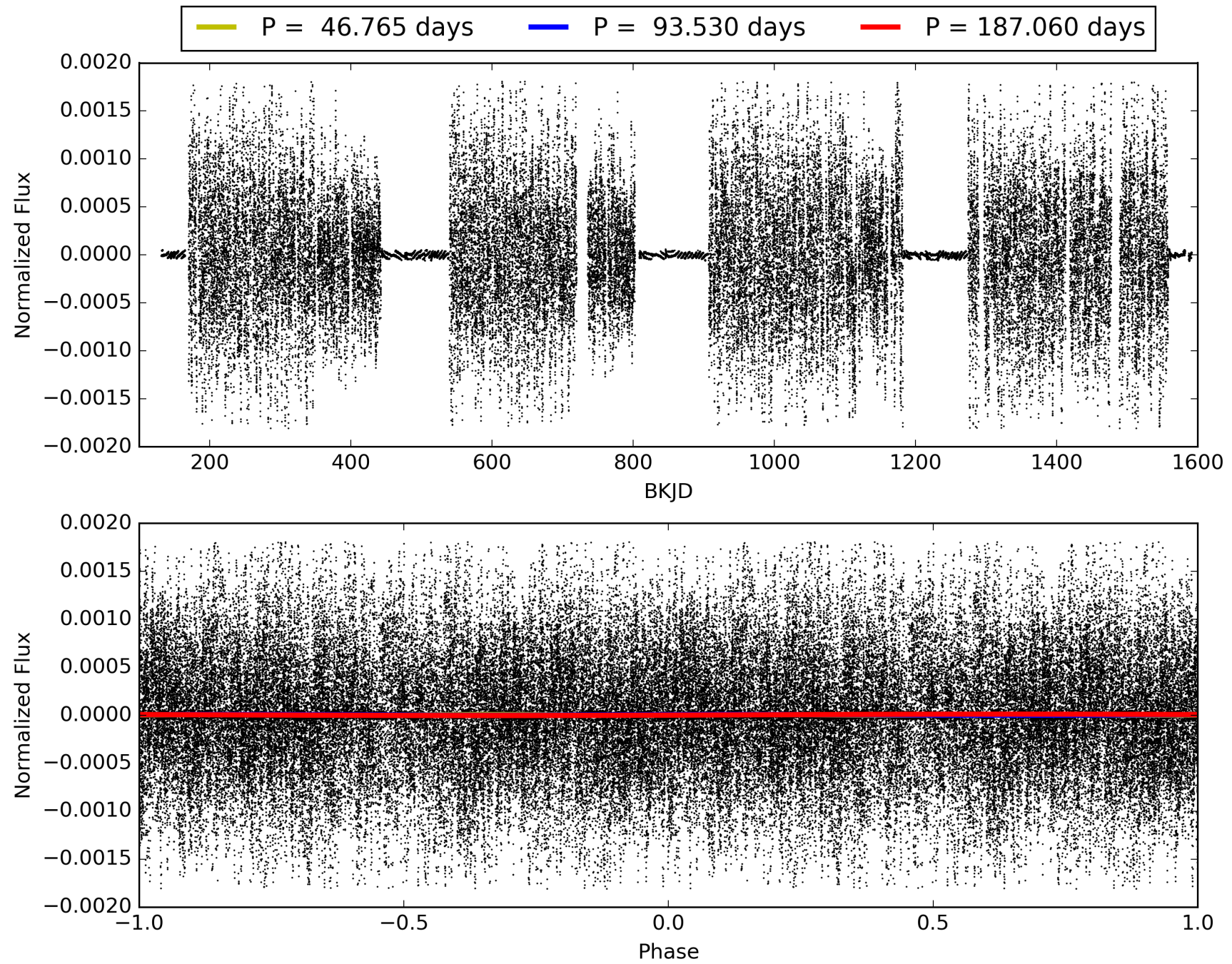
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:53:05 Z

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

TCE 007448051-08, PDC Light Curves

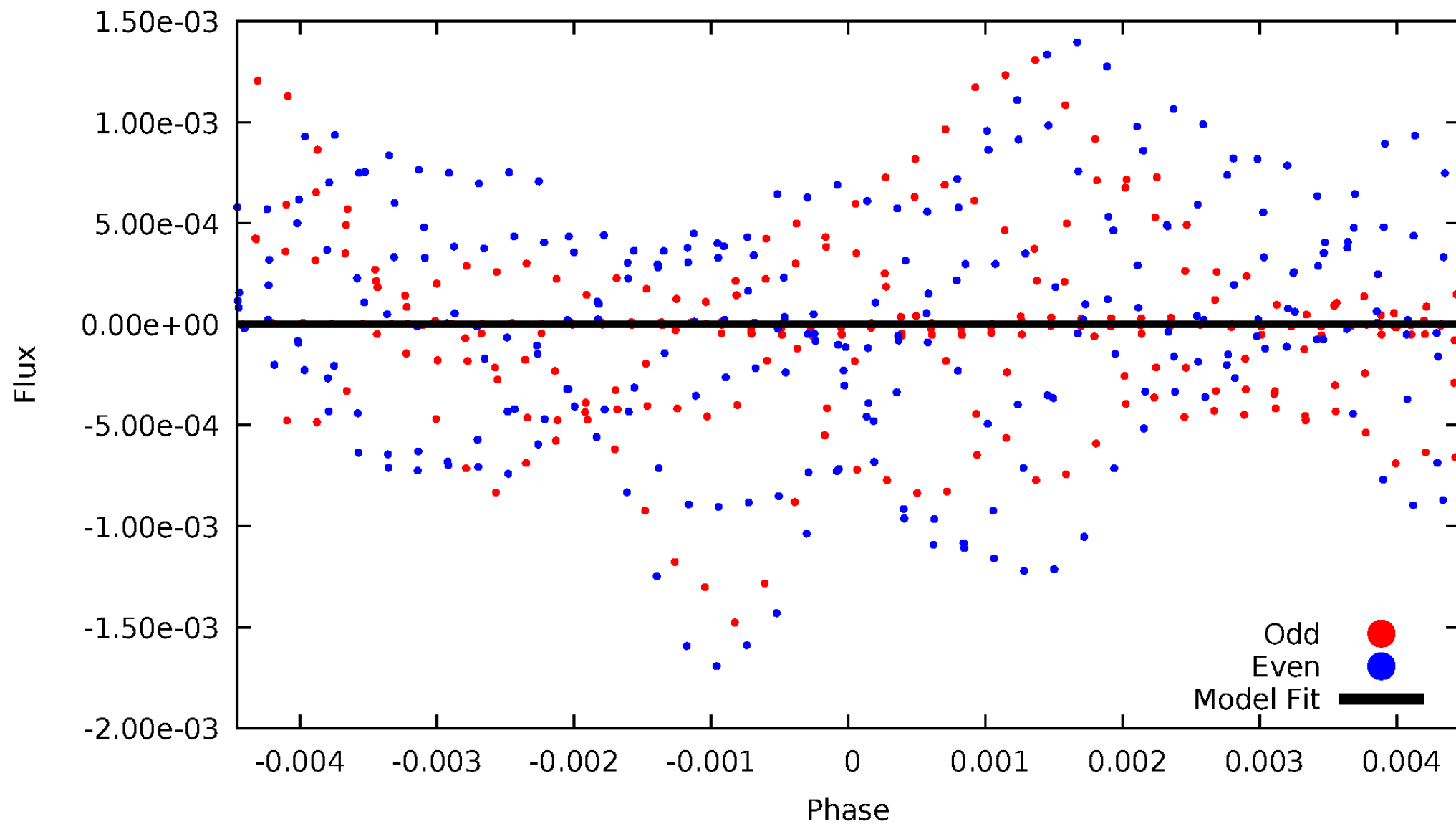


TCE 007448051-08



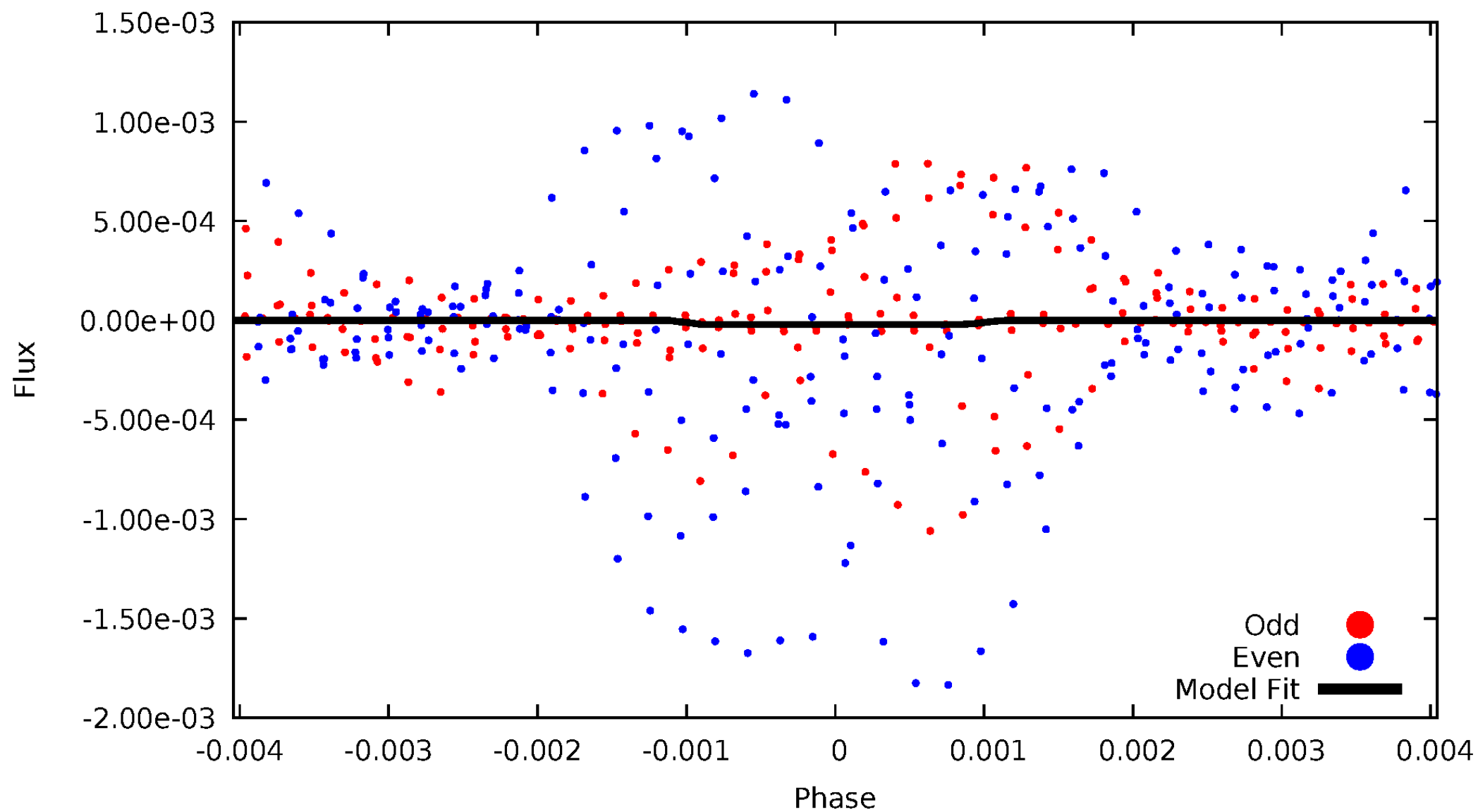
DV Odd/Even

TCE 007448051-08



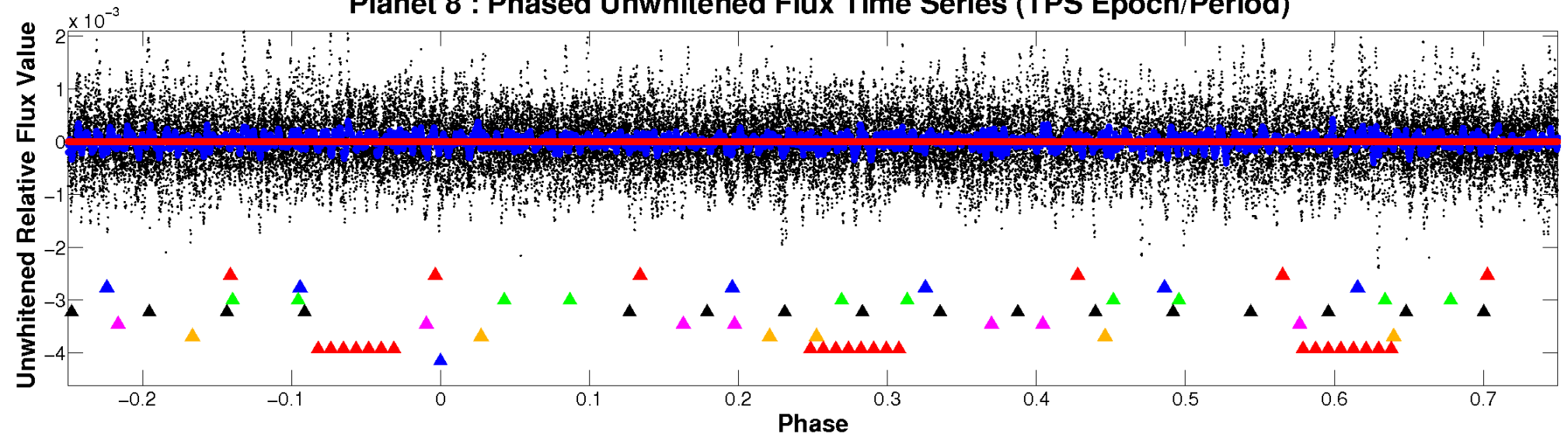
ALT Odd/Even

TCE 007448051-08

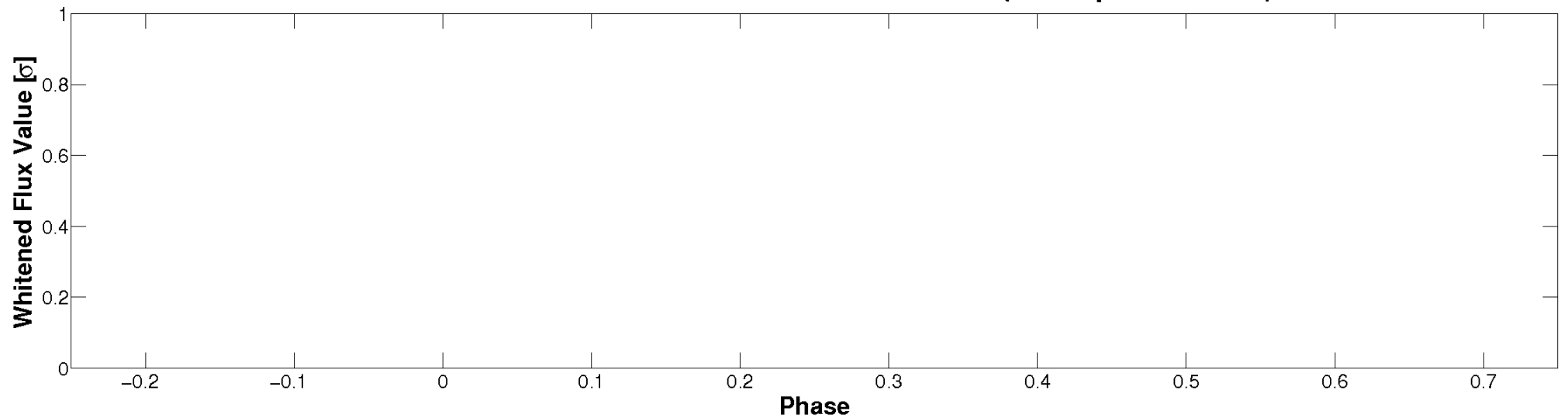


Non-Whitened Vs. Whitened Light Curve

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

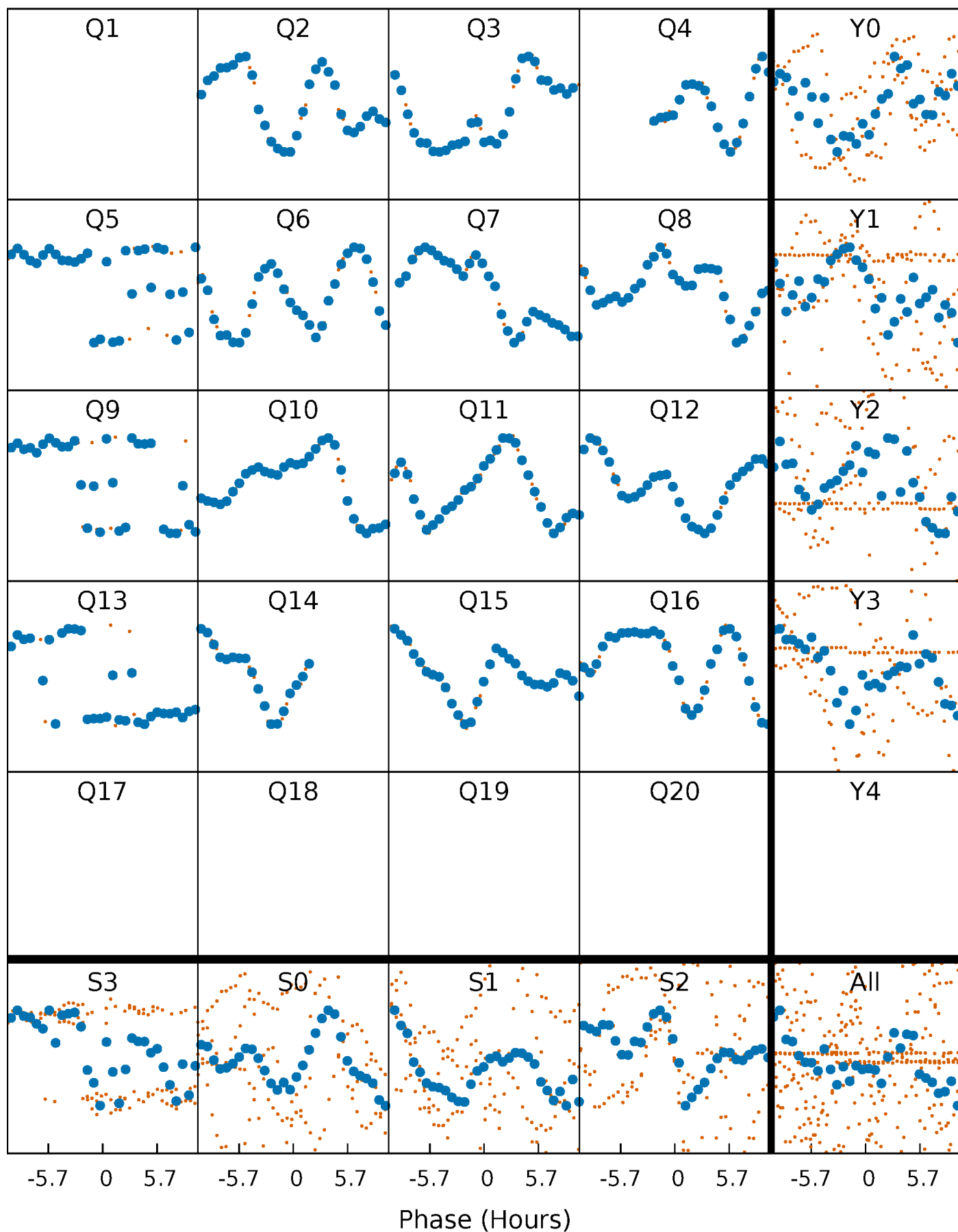


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



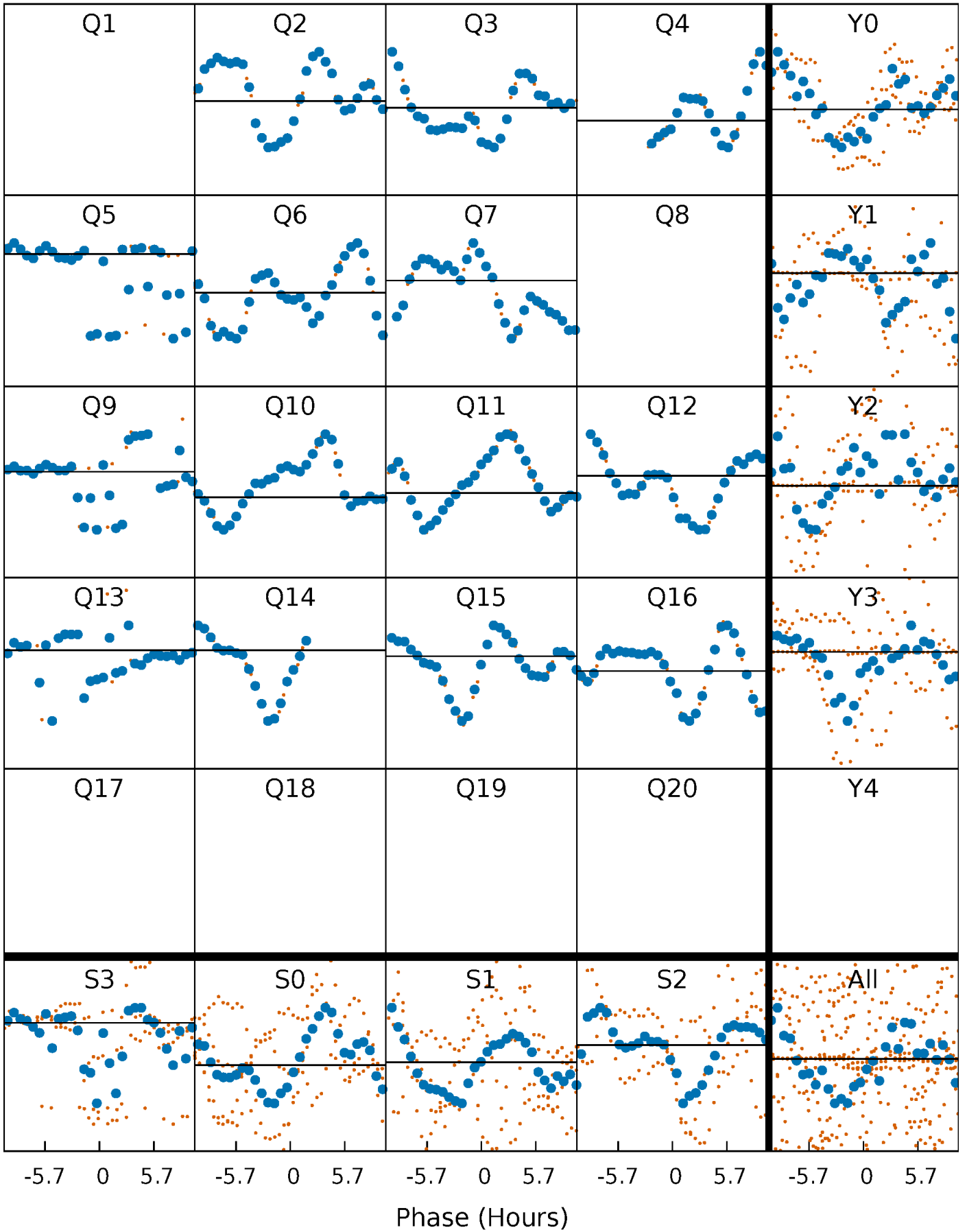
PDC Quarter-Phased Transit Curves

TCE 007448051-08 P= 93.529798 Days $T_0=213.868457$ (BKJD)



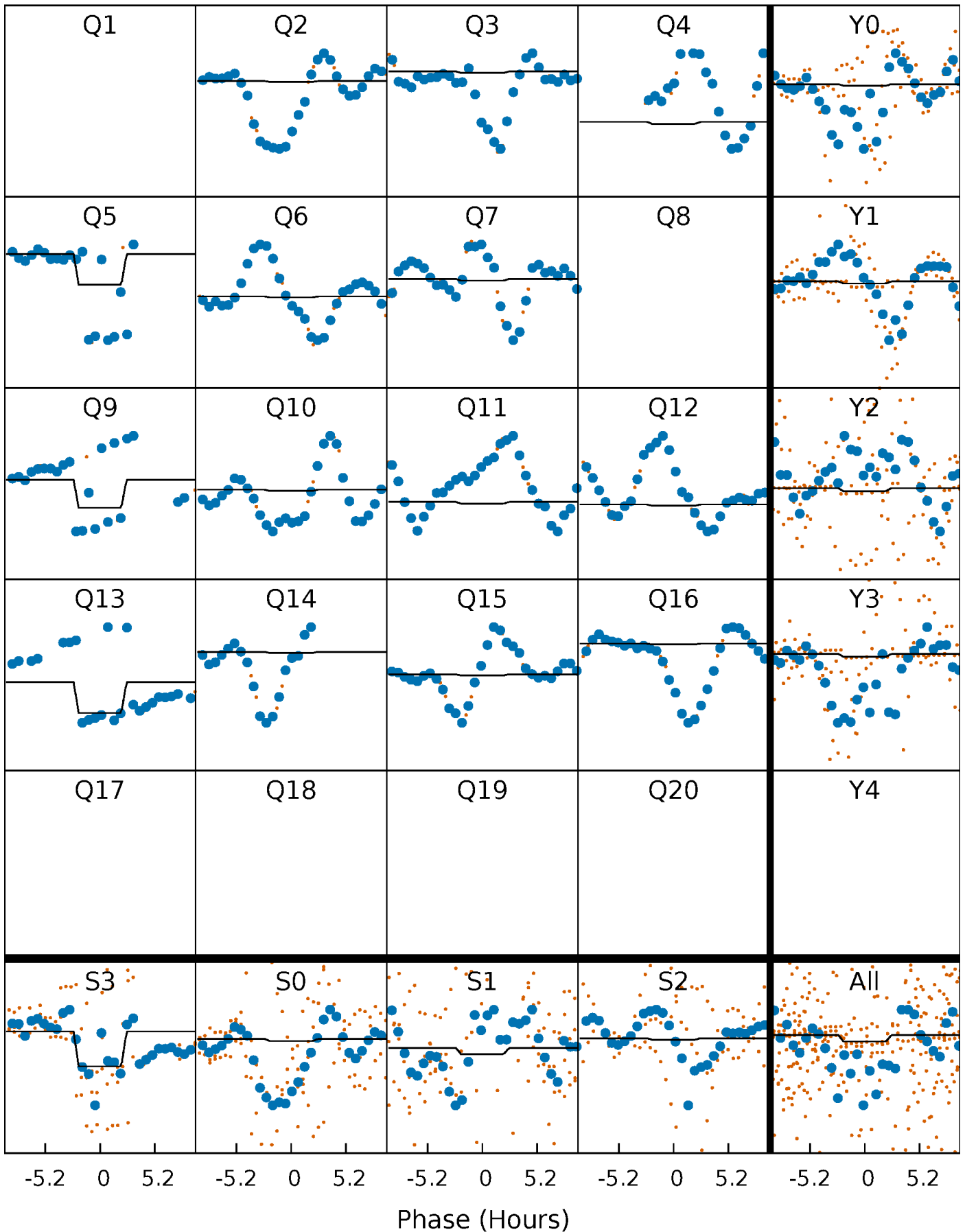
DV Quarter-Phased Transit Curves

TCE 007448051-08 P= 93.529798 Days $T_0=213.868457$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

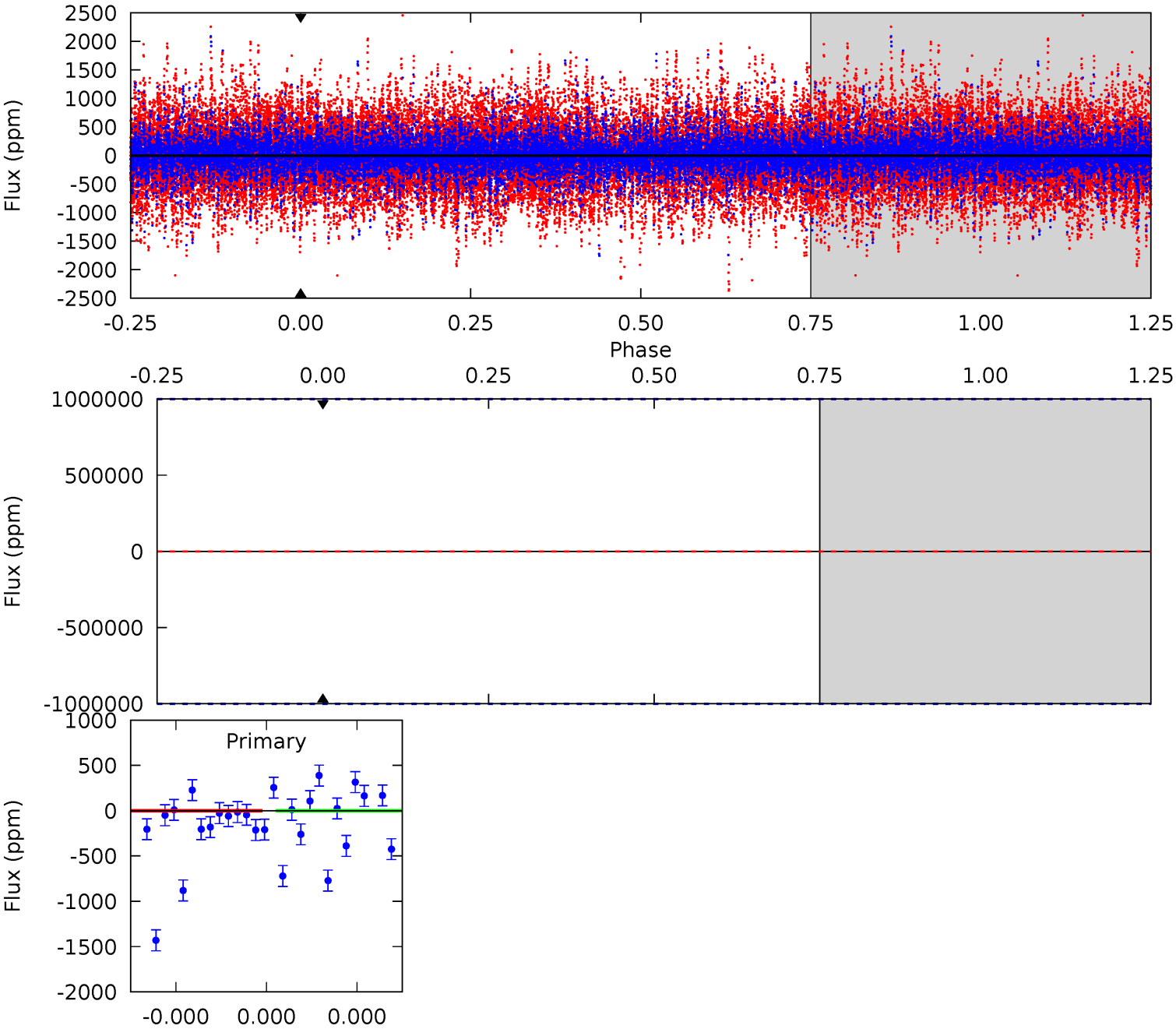
TCE 007448051-08 P= 93.529798 Days $T_0=213.875955$ (BKJD)



DV Model-Shift Uniqueness Test

007448051-08, P = 93.529798 Days, E = 120.338659 Days

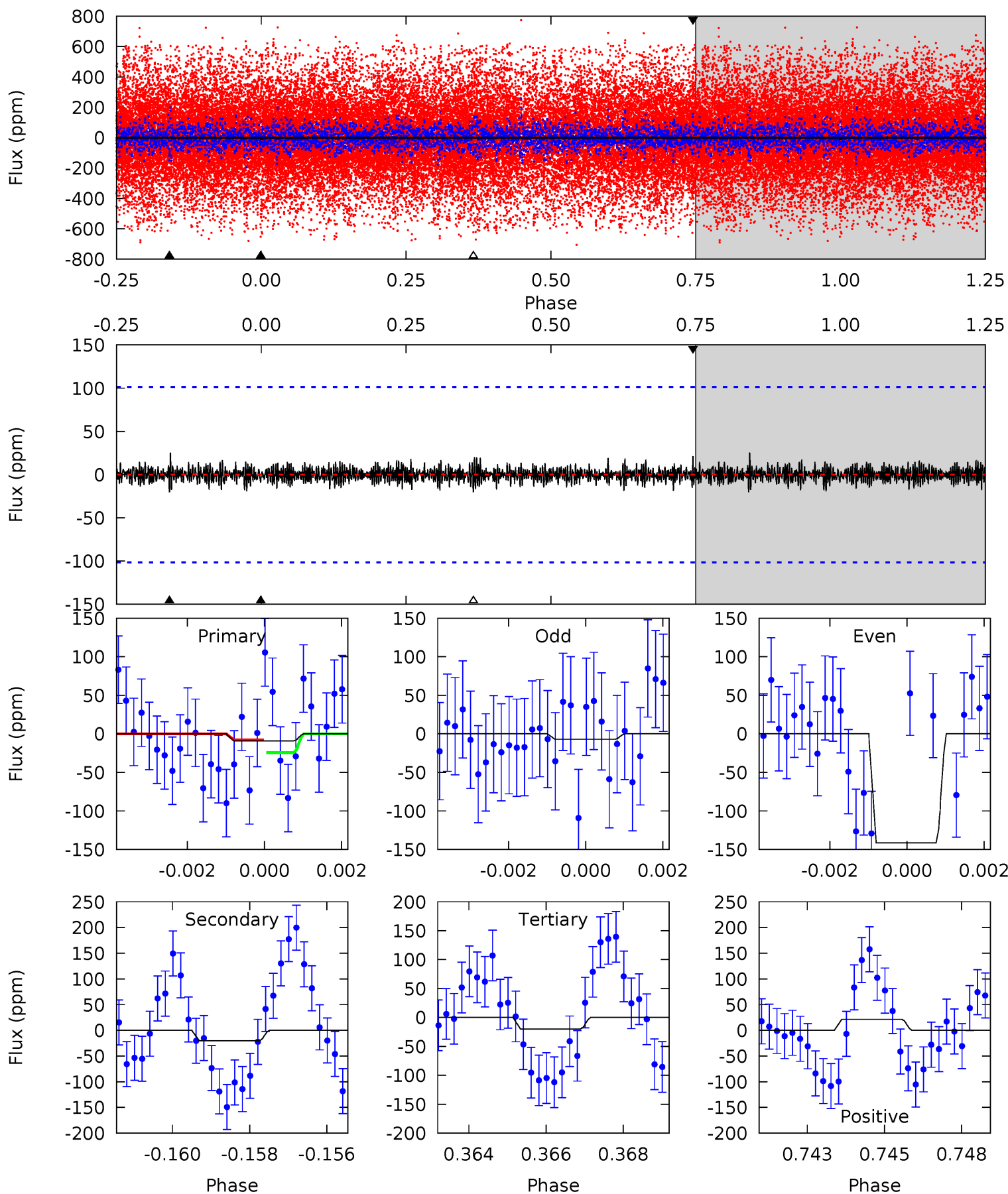
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007448051-08, P = 93.529798 Days, E = 120.346157 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.48	1.06	1.05	1.12	5.30	3.05	0.32	-0.57	-0.64	0.01	-0.06	3.67	5.03	0.56	0



Stellar Parameters For KIC 007448051

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4536^{+74}_{-47}	$2.440^{+0.035}_{-0.031}$	$0.020^{+0.150}_{-0.100}$	$11.411^{+1.643}_{-1.232}$	$1.306^{+0.345}_{-0.251}$	$0.001^{+0.000}_{-0.000}$
	+2%/-1%	+1%/-1%	+750%/-500%	+14%/-11%	+26%/-19%	+19%/-16%
Source	SPE74	AST11	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 007448051-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$94.69^{+95.09}_{-69.11}$	1425^{+32}_{-31}	-4066^{+15172}_{-9442}	$-35.144^{+1781.283}_{-2878.015}$
Alt.	-20 ± 19	$89.75^{+102.58}_{-64.28}$	1425^{+33}_{-32}	-1879^{+4554}_{-227}	$0.197^{+2.526}_{-0.197}$

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

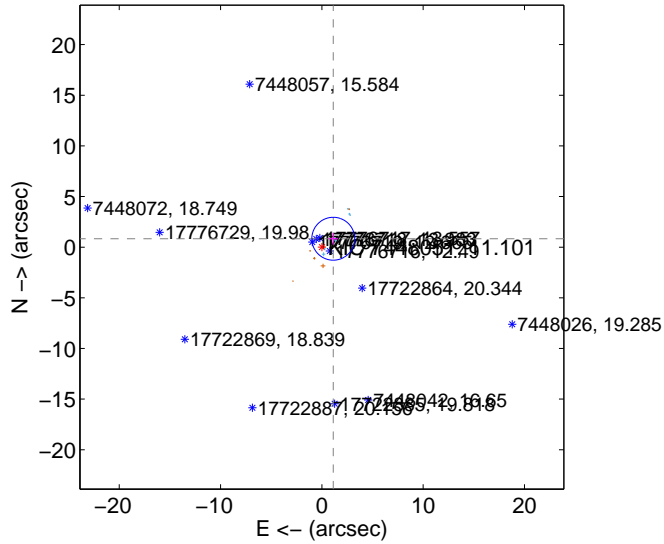
Supplemental centroid analysis for 007448051-08. **Kepler magnitude: 11.10.** Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

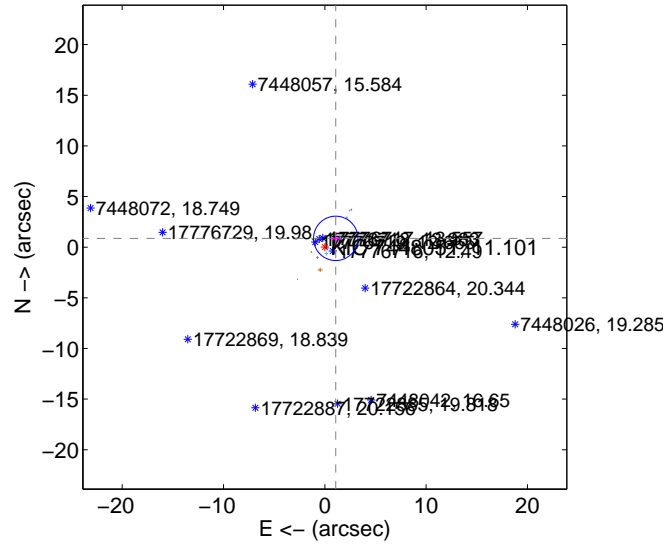
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.400 ± 0.706	1.98	-1.126 ± 0.469	0.832 ± 0.579
PRF-fit source offset from KIC position	1.385 ± 0.730	1.90	-1.078 ± 0.457	0.870 ± 0.621
photometric centroid source offset	2.89 ± 5.67	0.51	-2.88 ± 5.64	0.26 ± 8.47

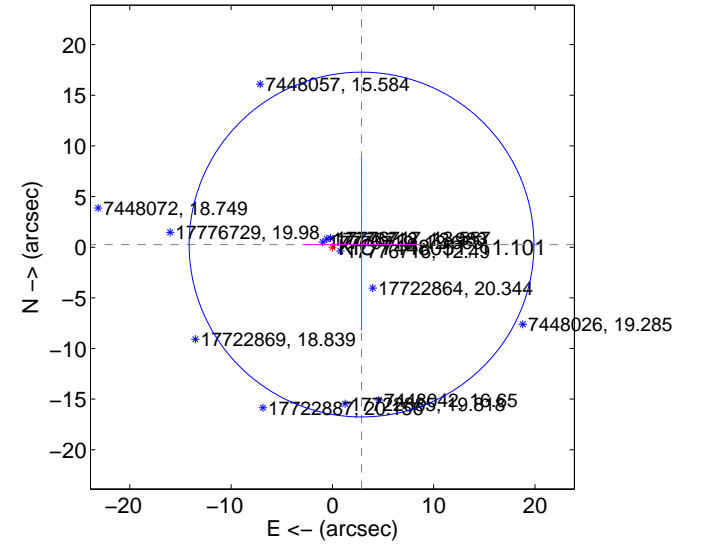
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

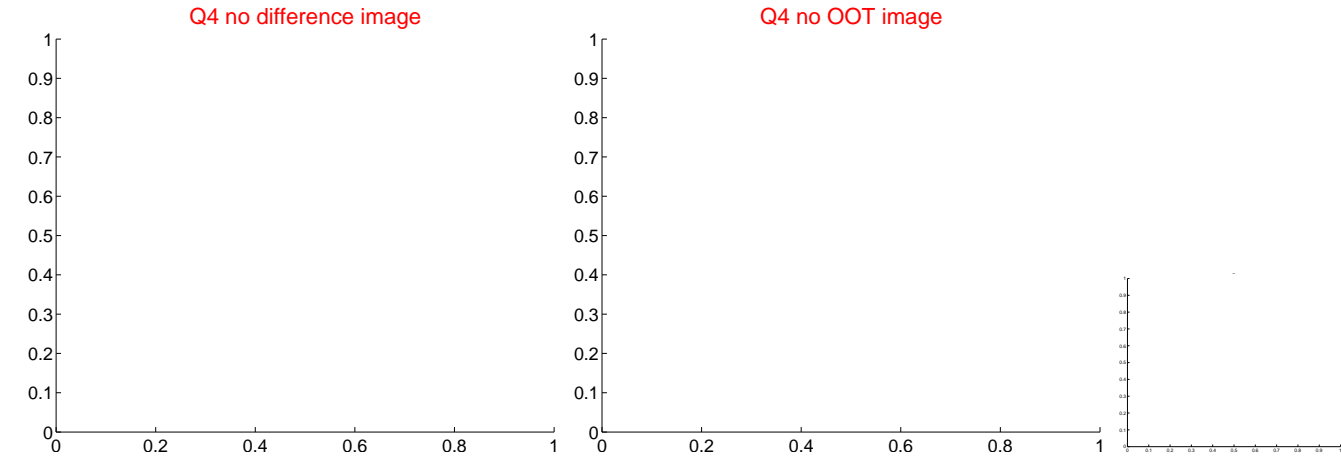
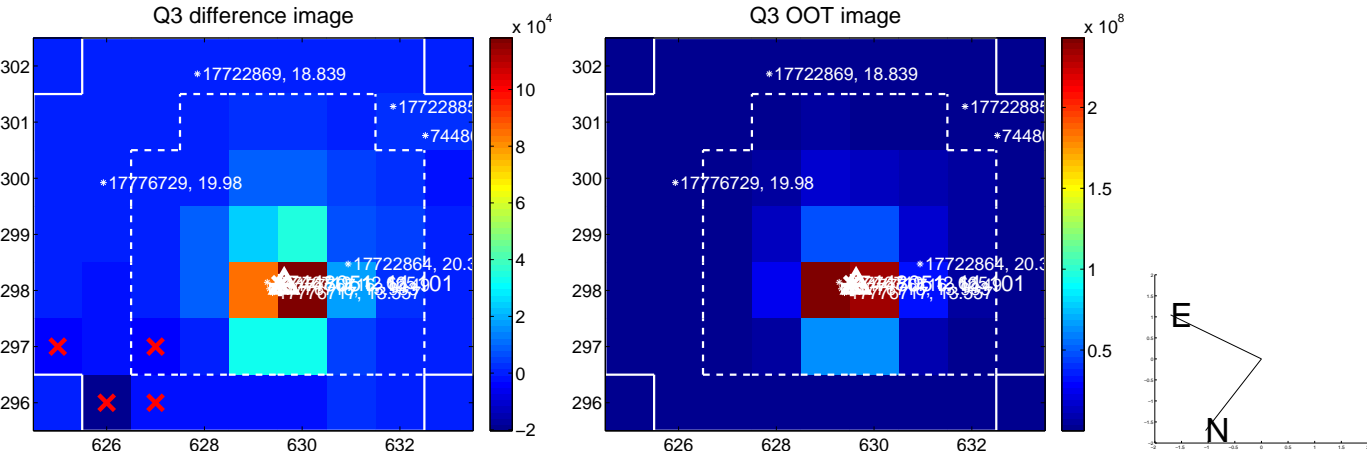
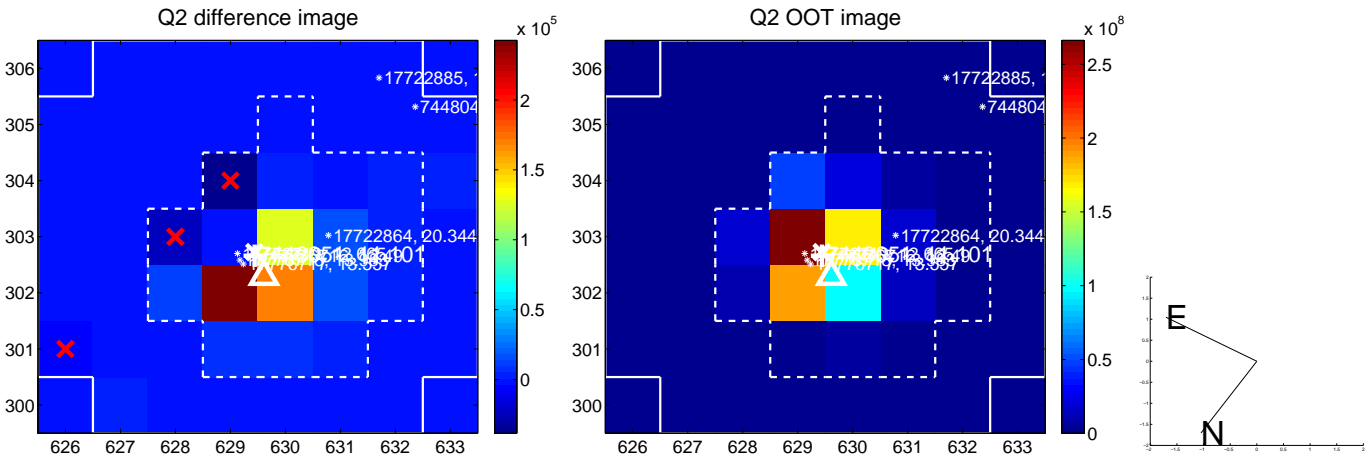


offset from photometric centroids

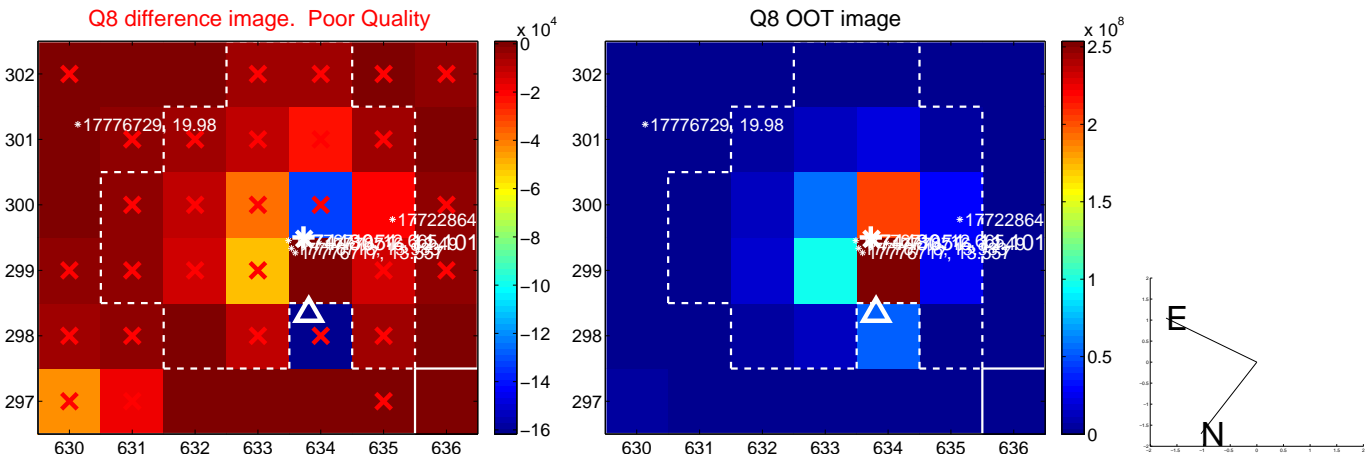
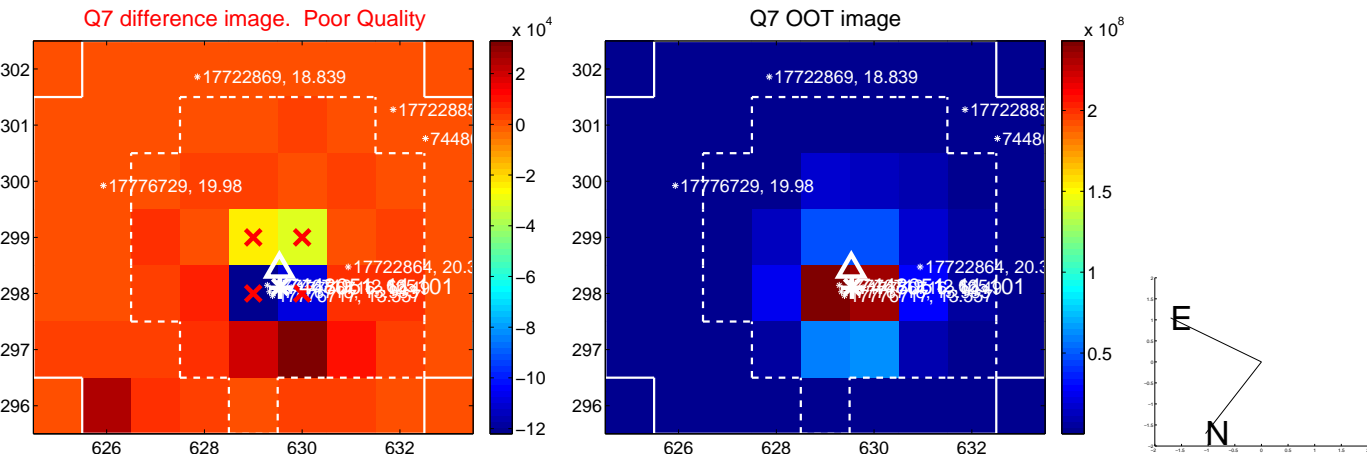
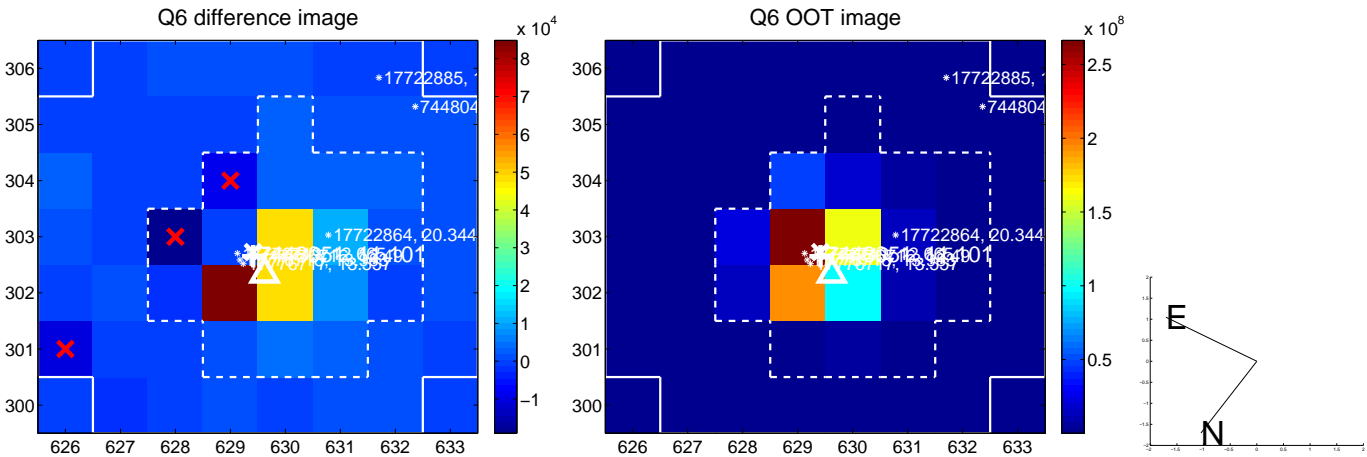
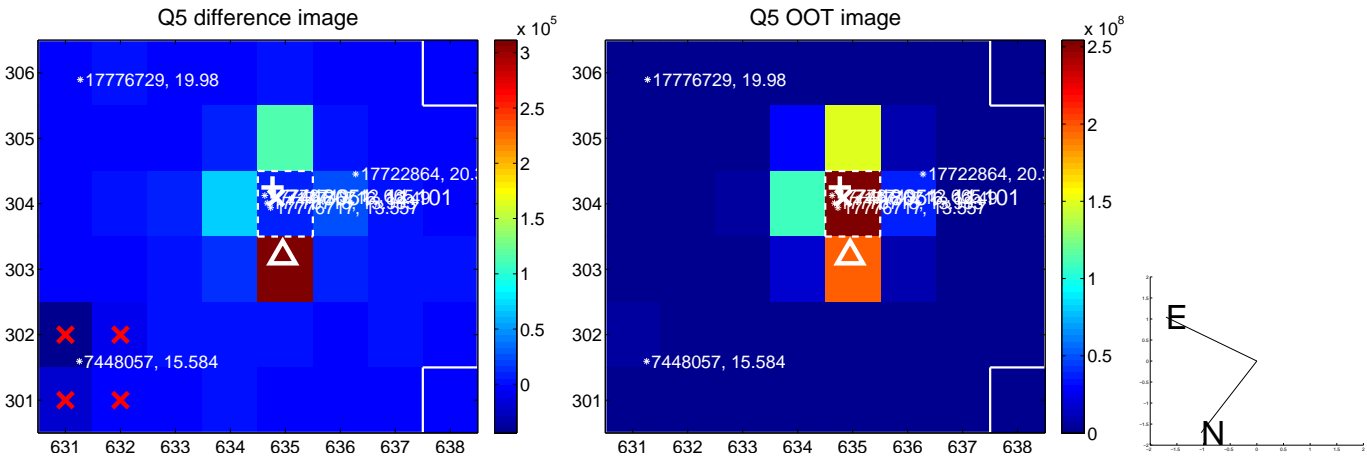


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

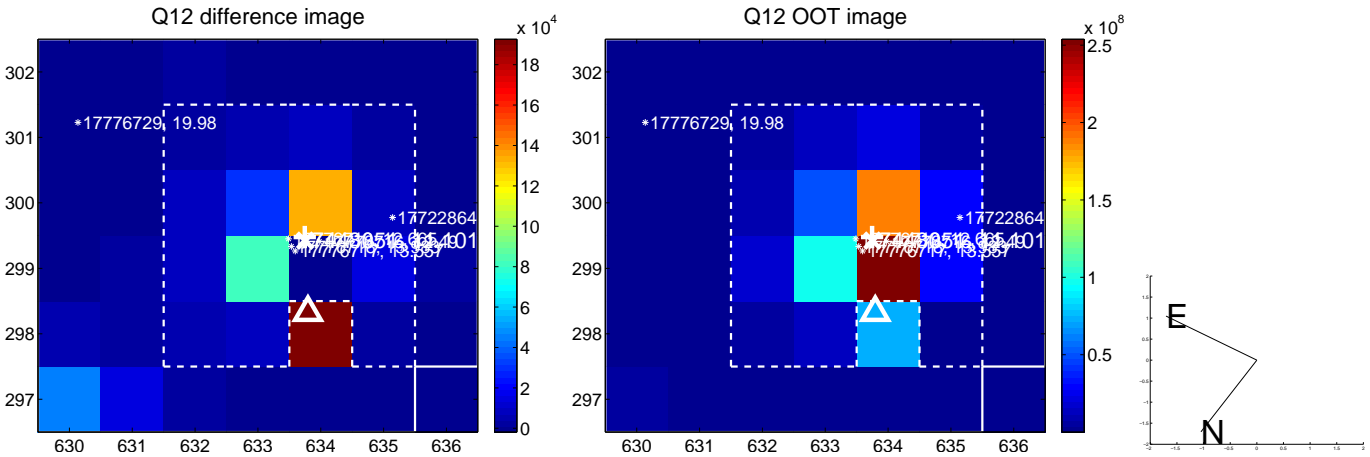
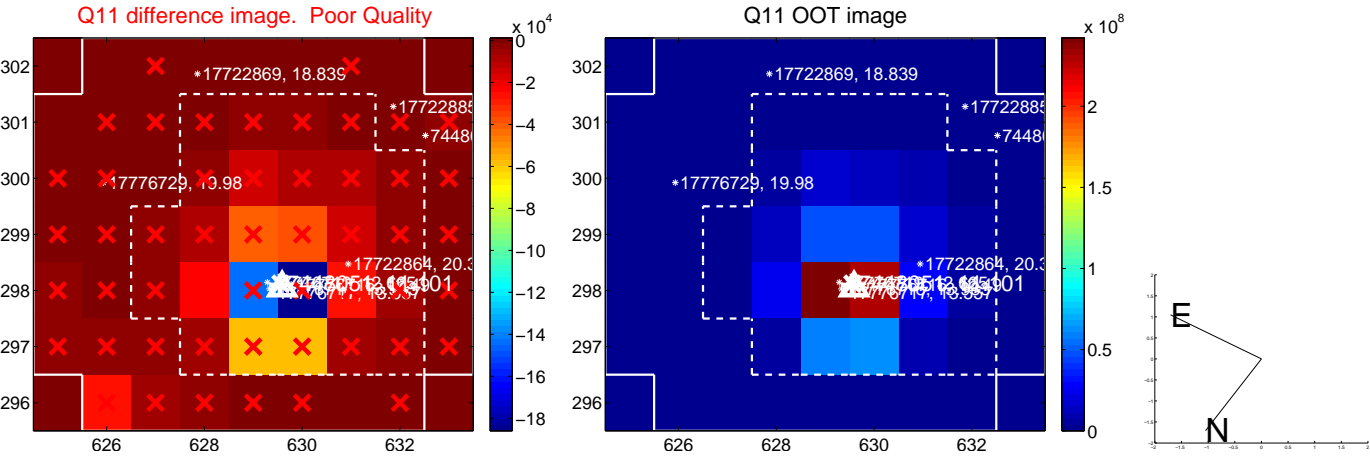
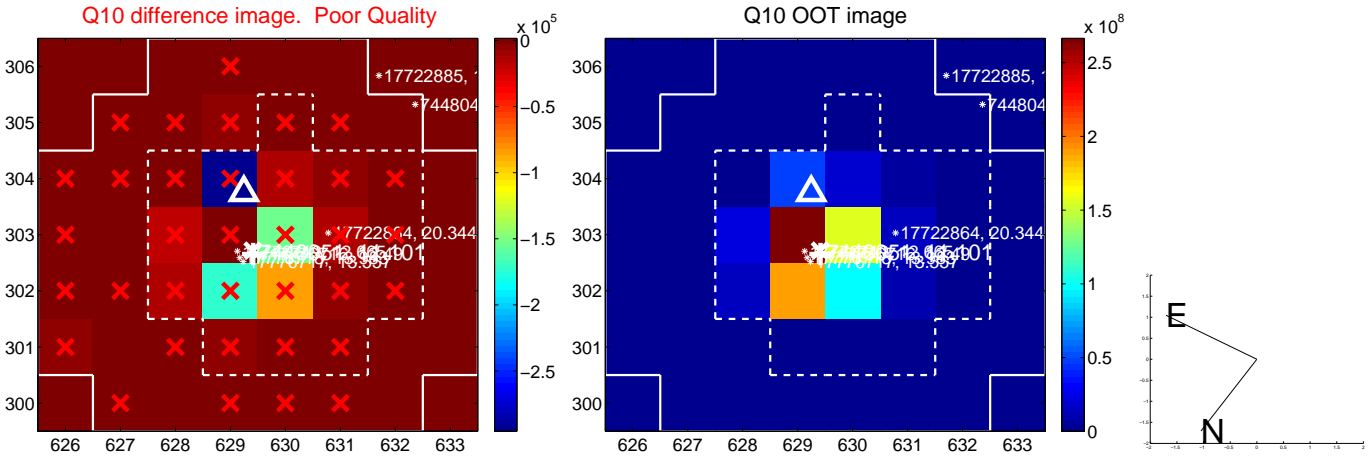
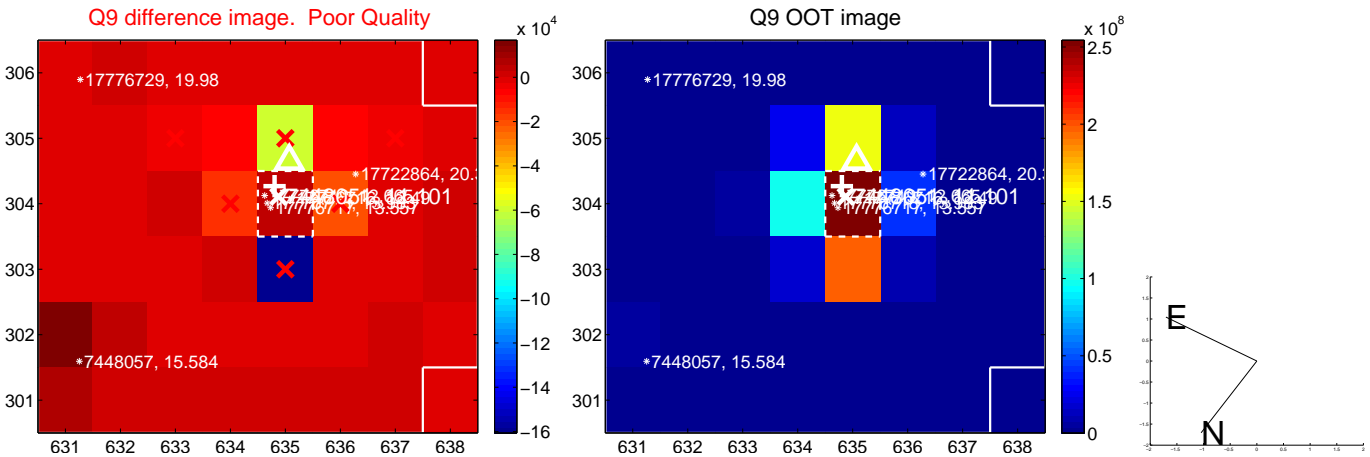
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



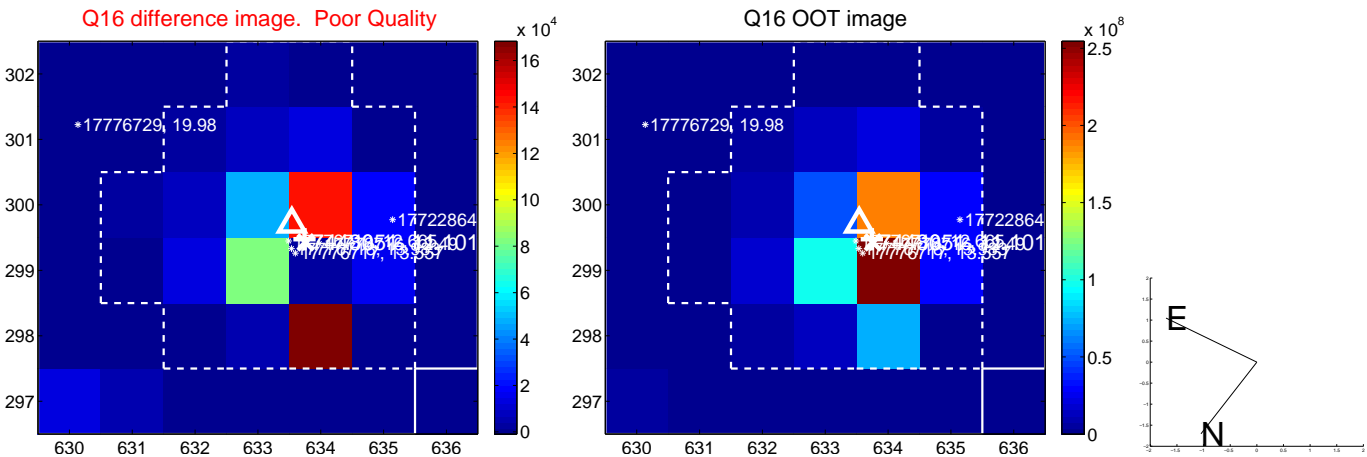
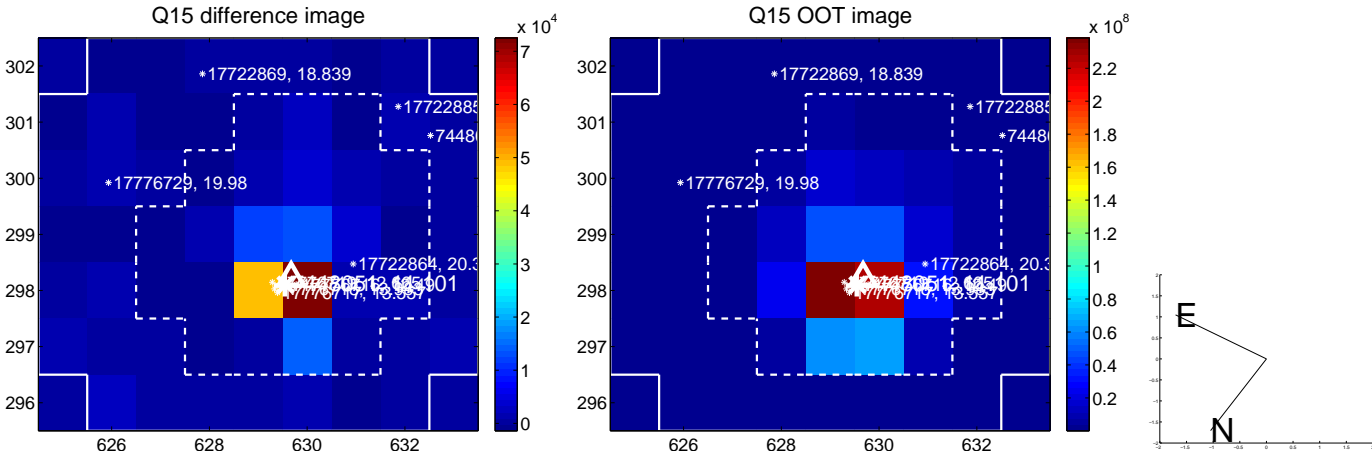
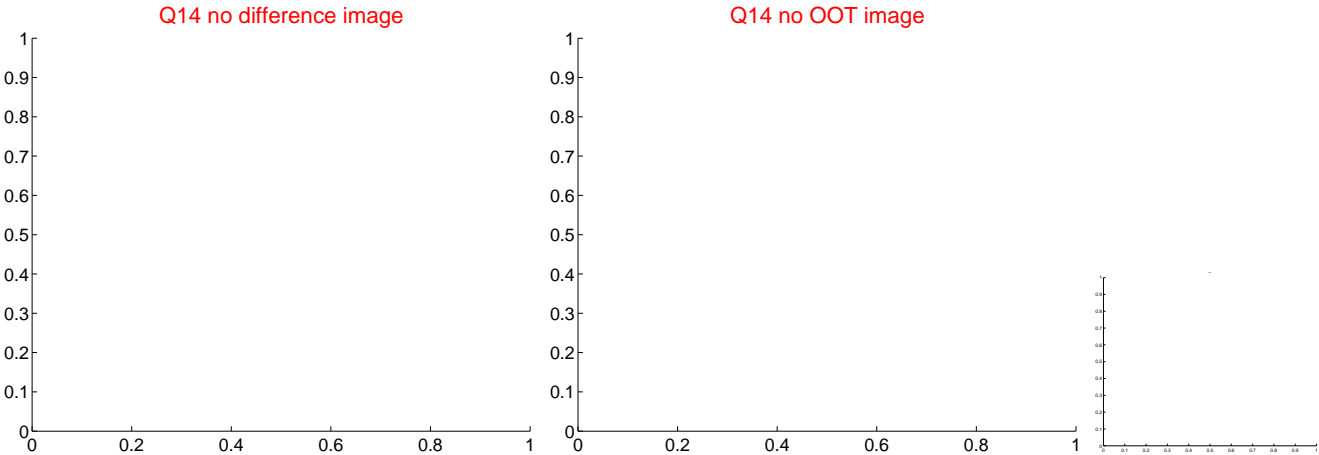
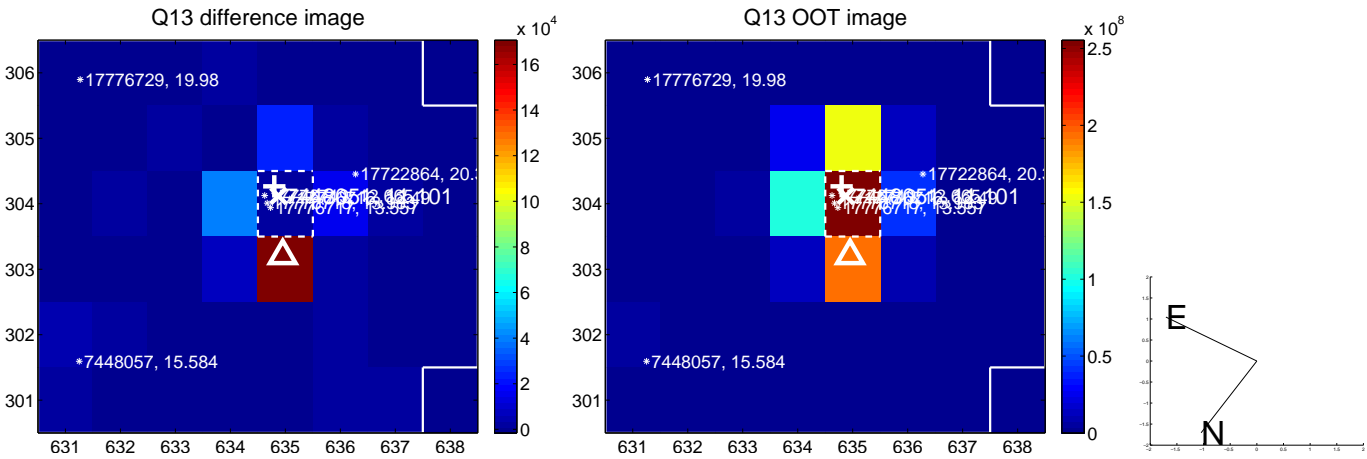
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



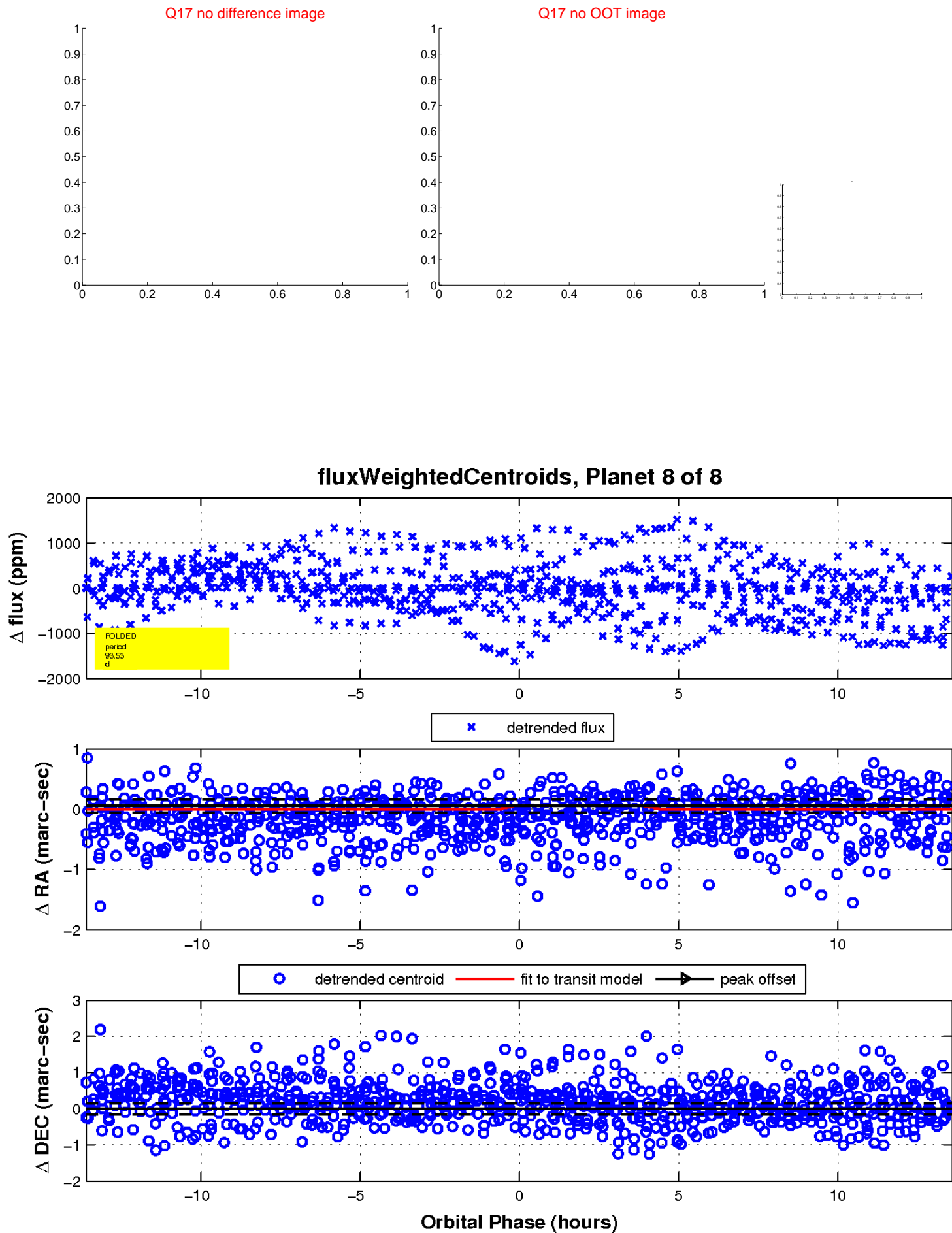
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

