

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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
009468199-03	OBS	No	90.989115	135.710649	8.0	2.964	20.9	3.2	8.90	5043	2.67	160.97
009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

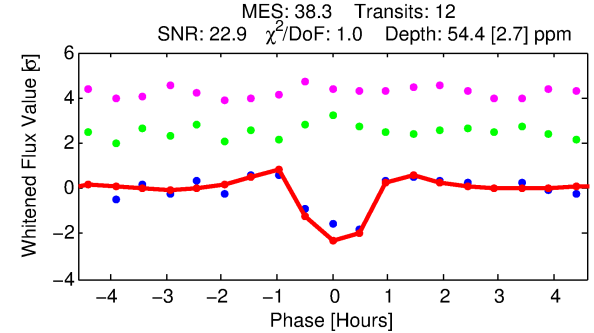
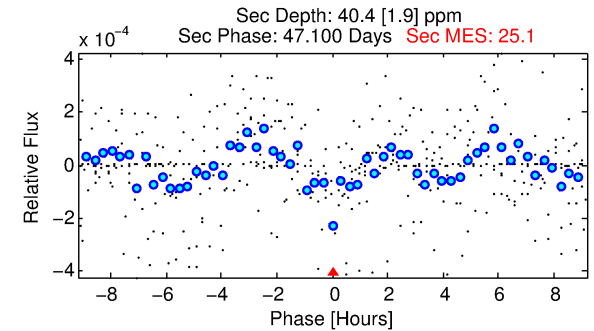
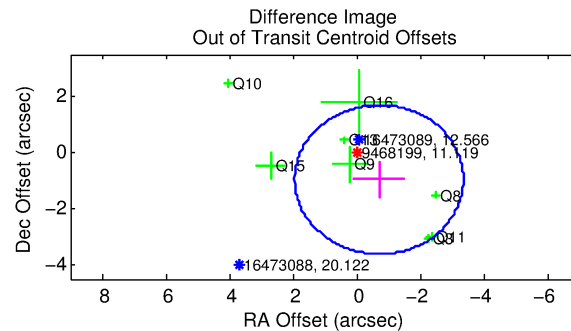
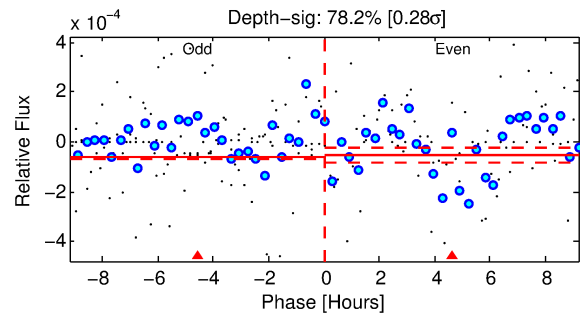
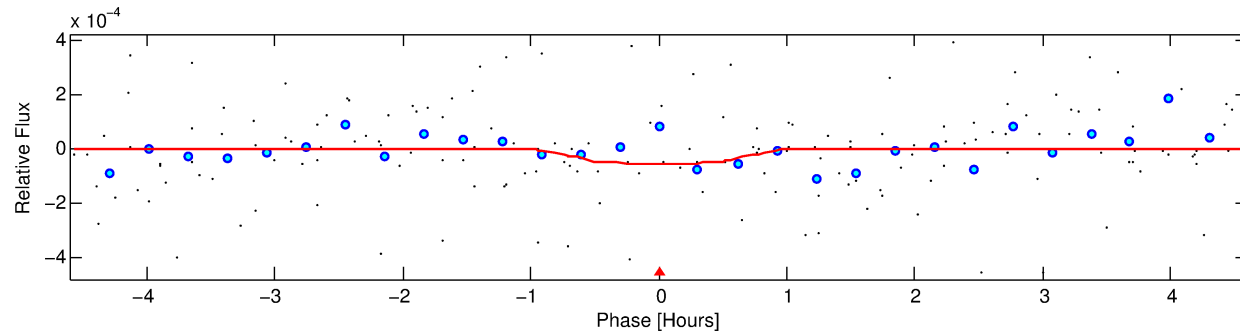
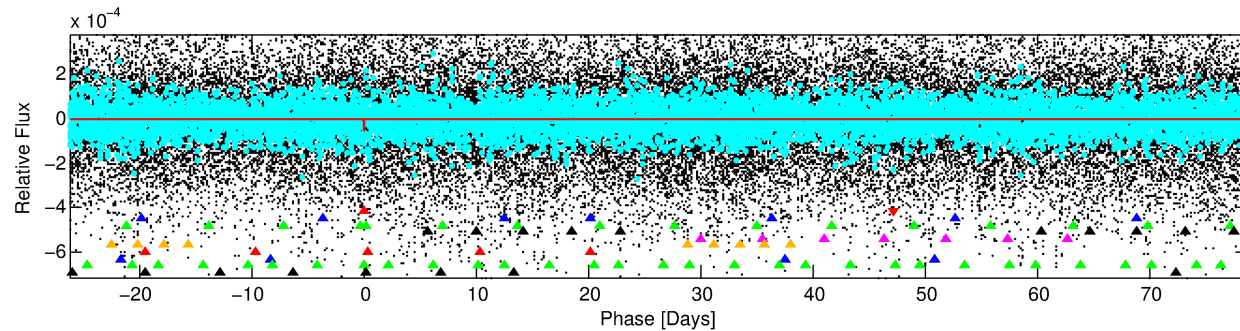
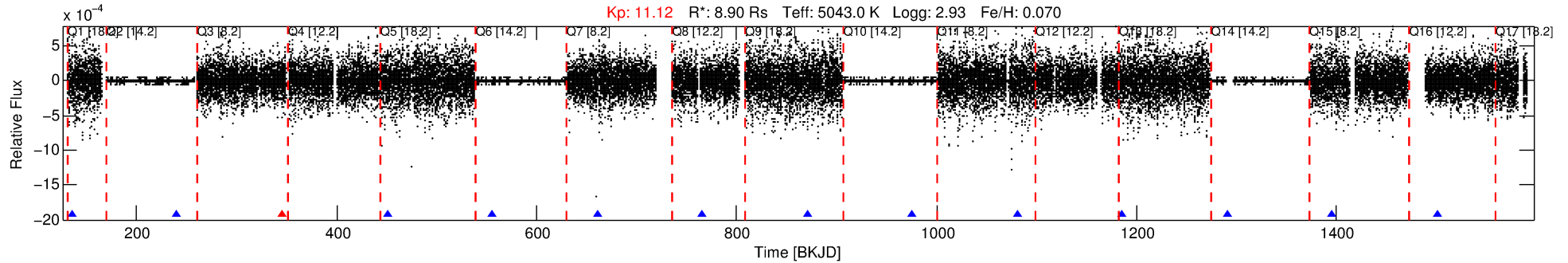
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-01

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 1 of 10 Period: 105.036 d



DV Fit Results:

Period = 105.03609 [0.00039] d
Epoch = 135.4789 [0.0011] BKJD
Rp/R* = 0.0068 [0.0086]
a/R* = 462.04 [1914.24]
b = 0.48 [7.00]
Seff = 132.93 [54.99]
Teff = 866 [90] K
Rp = 6.64 [8.72] Re
a = 0.5880 [0.1746] AU
Ag = 174.56 [444.78] [0.39 σ]
Teffp = 4866 [3063] K [1.31 σ]

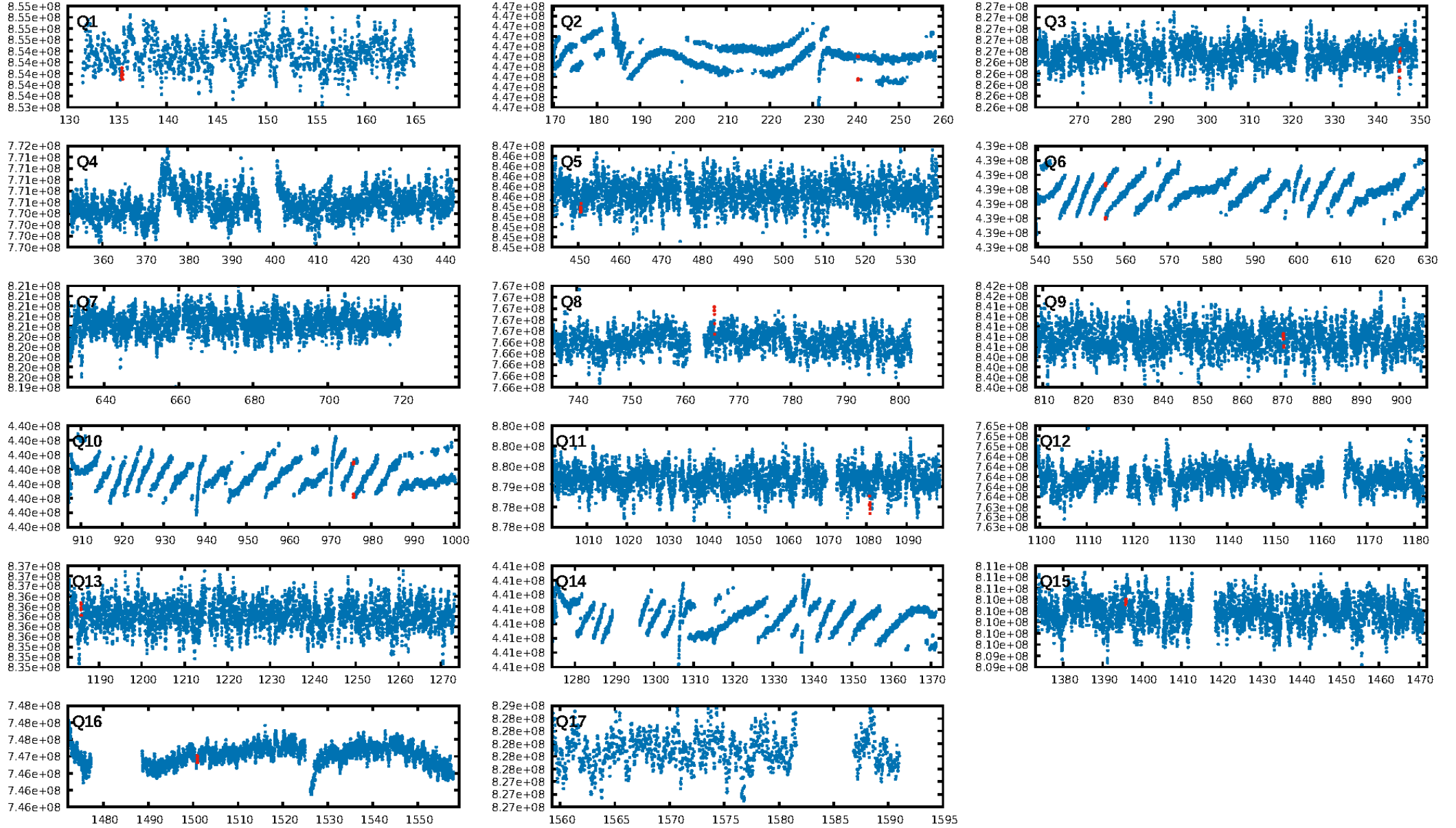
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [100.99 σ]
LongPeriod-sig: 100.0% [468.20 σ]
ModelChiSquare2-sig: 49.3%
ModelChiSquareGof-sig: 83.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.91 [10/11]
GhostDiagnostic-chr: -0.8911
Centroid-sig: 56.9%
Centroid-so: 1.278 arcsec [0.57 σ]
OotOffset-rm: 1.193 arcsec [1.35 σ]
KicOffset-rm: 1.189 arcsec [1.44 σ]
OotOffset-st: 1/3/2/2 [8]
KicOffset-st: 1/3/2/2 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.67 [8/12]

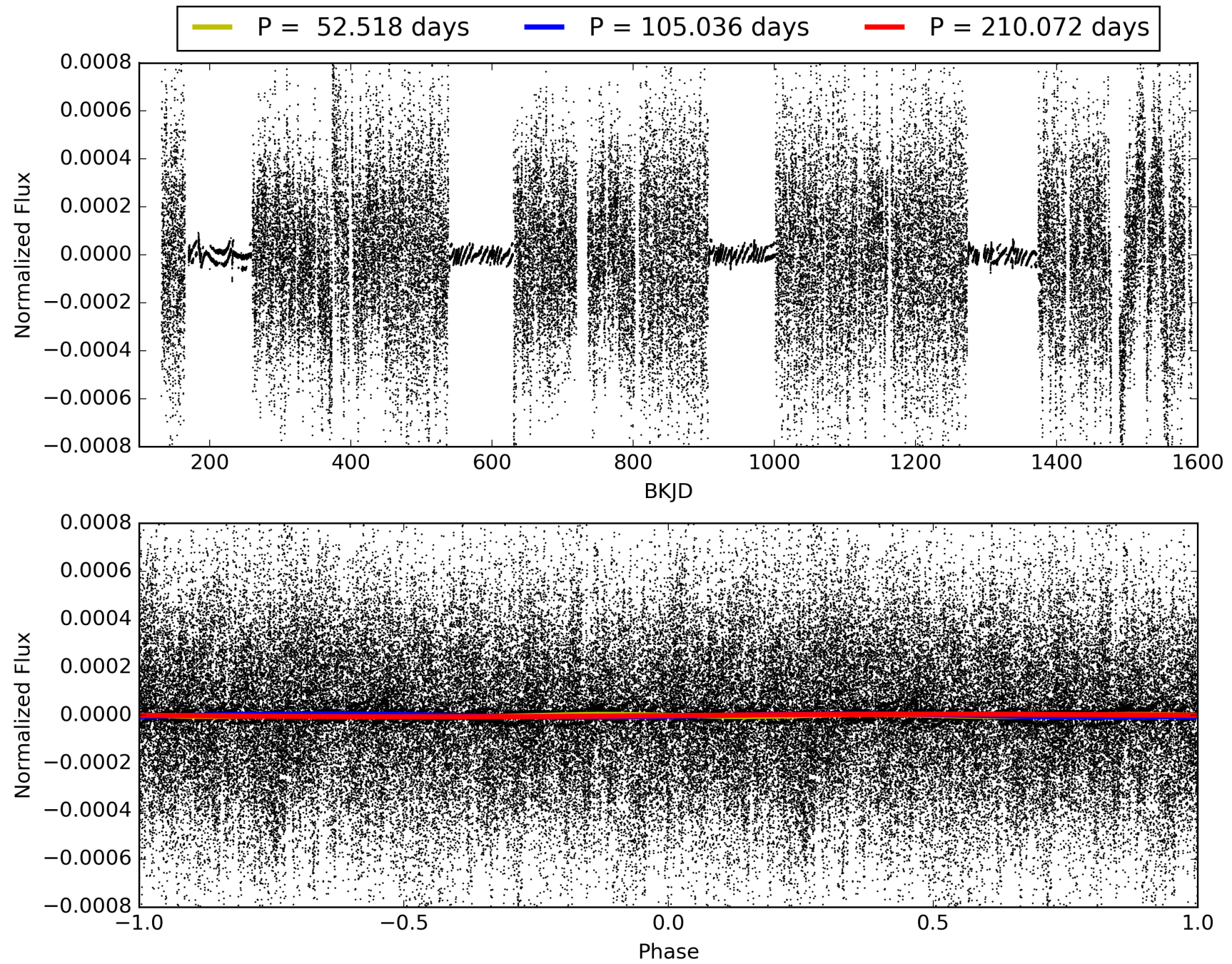
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:51:22 Z

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

TCE 009468199-01, PDC Light Curves

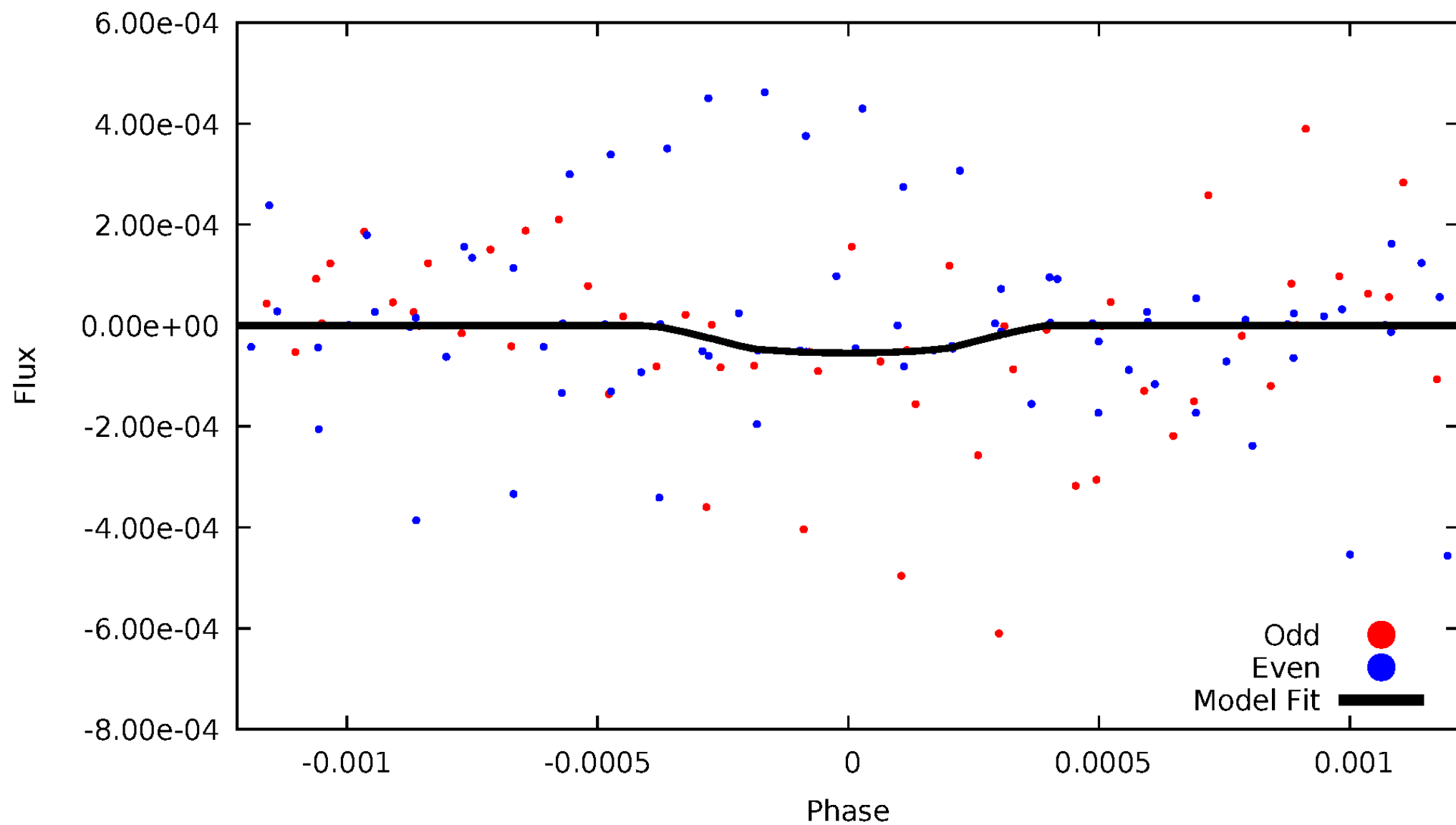


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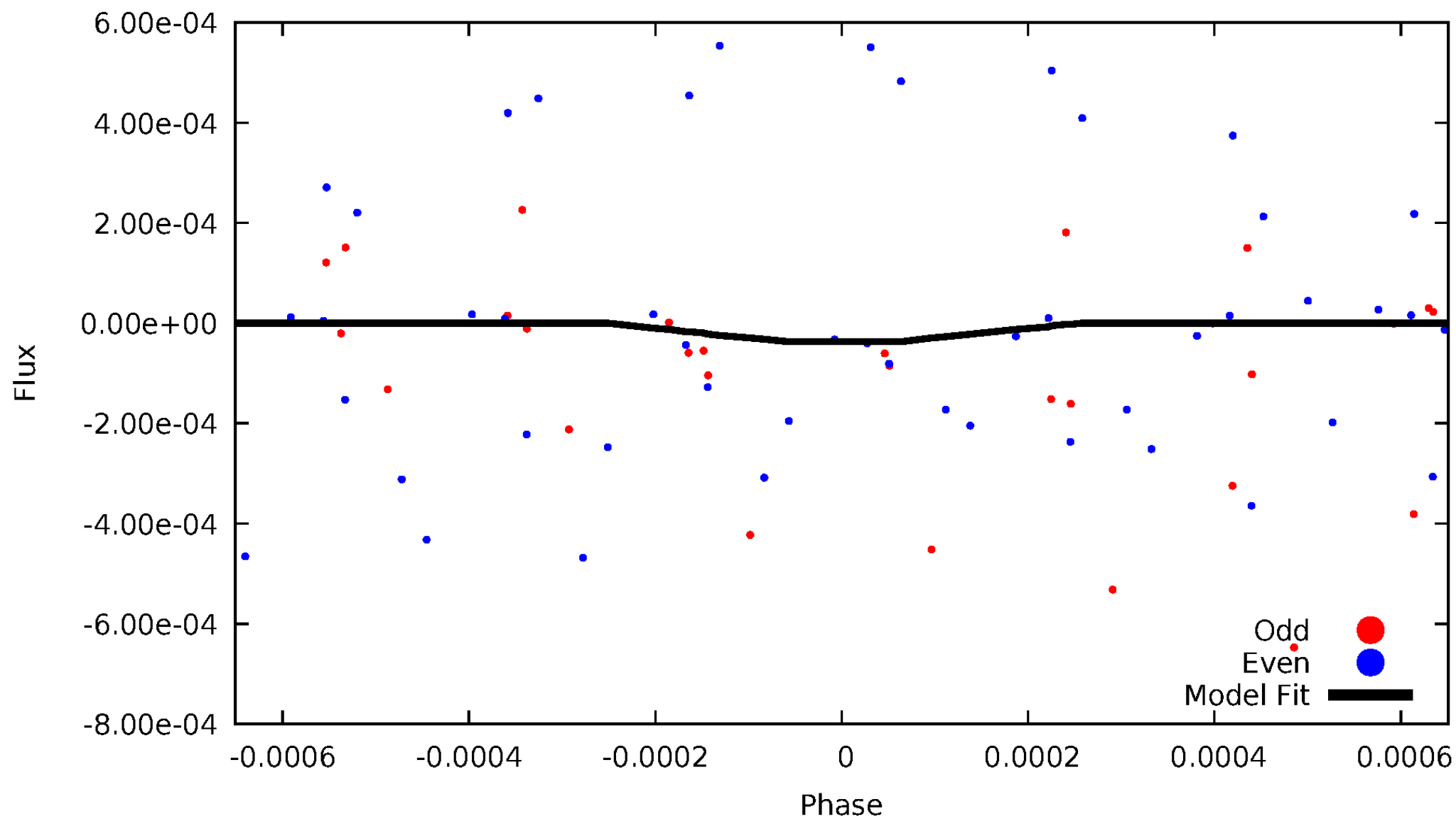
DV Odd/Even

TCE 009468199-01

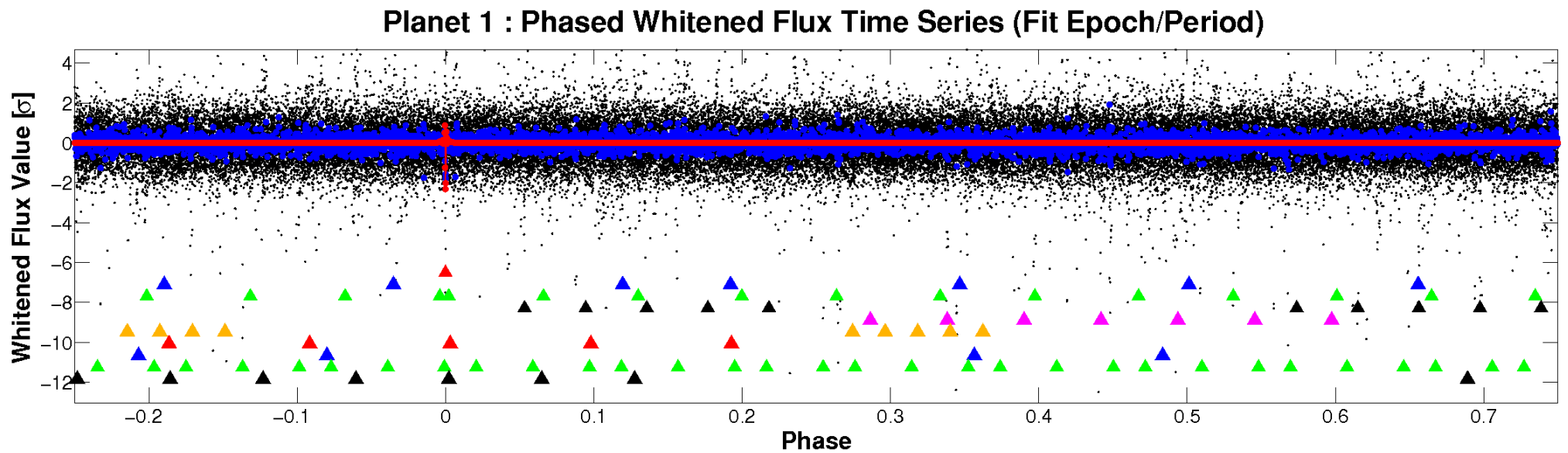
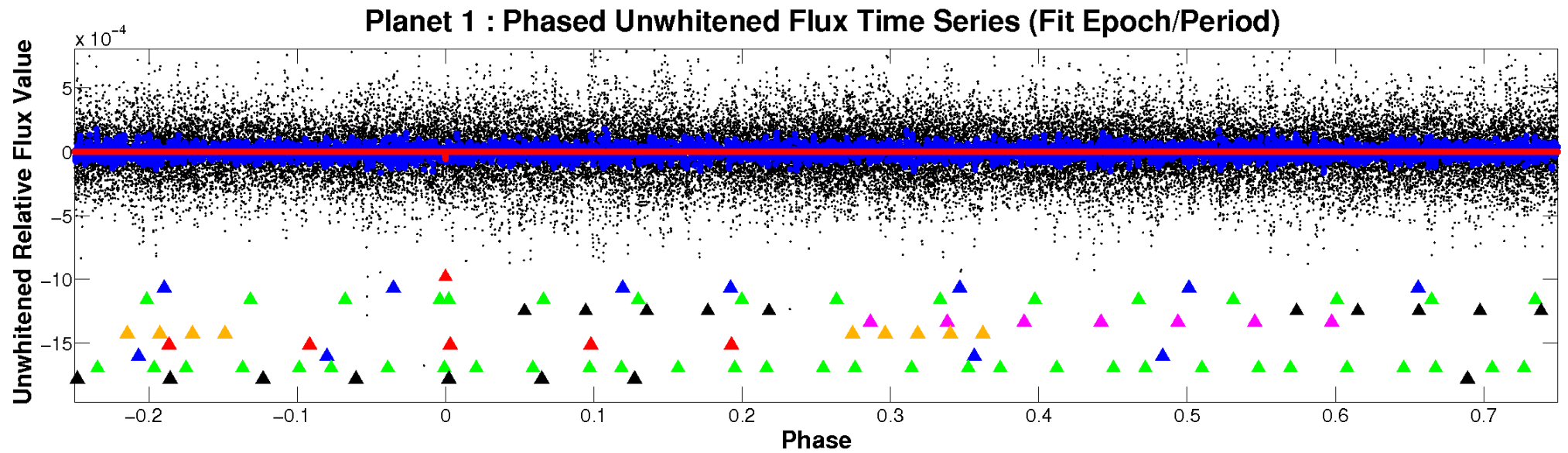


ALT Odd/Even

TCE 009468199-01

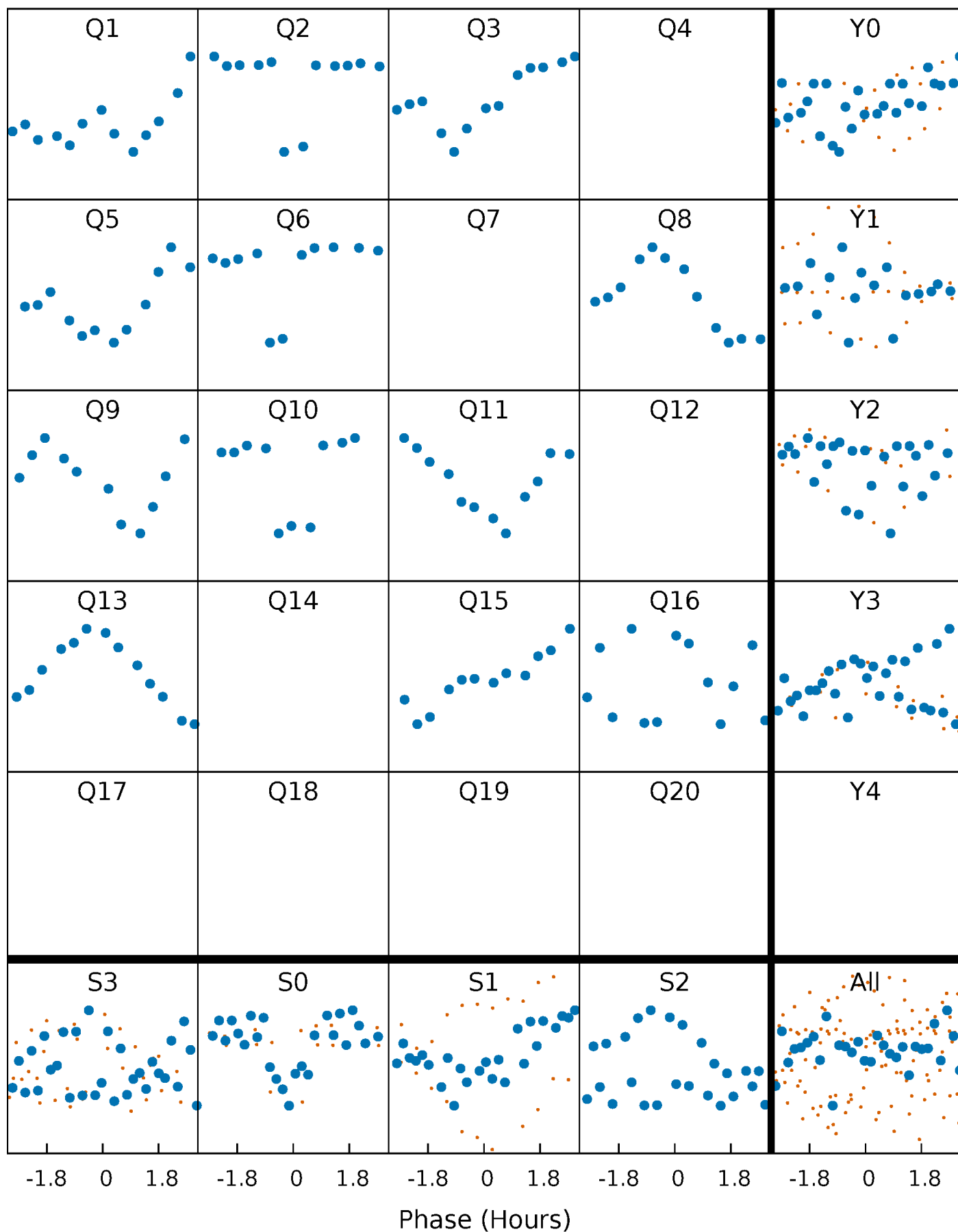


Non-Whitened Vs. Whitened Light Curve



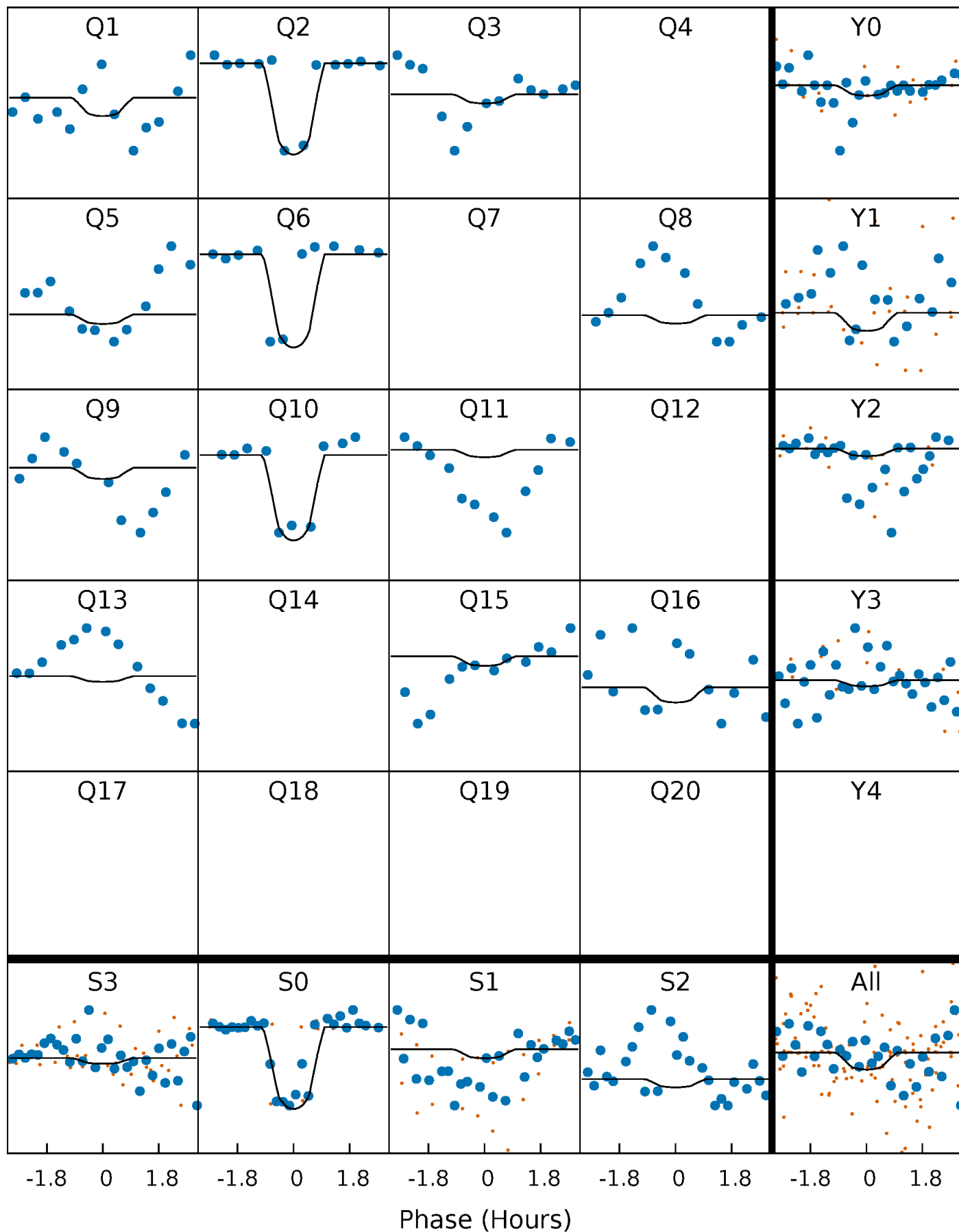
PDC Quarter-Phased Transit Curves

TCE 009468199-01 P=105.036093 Days $T_0=135.478899$ (BKJD)



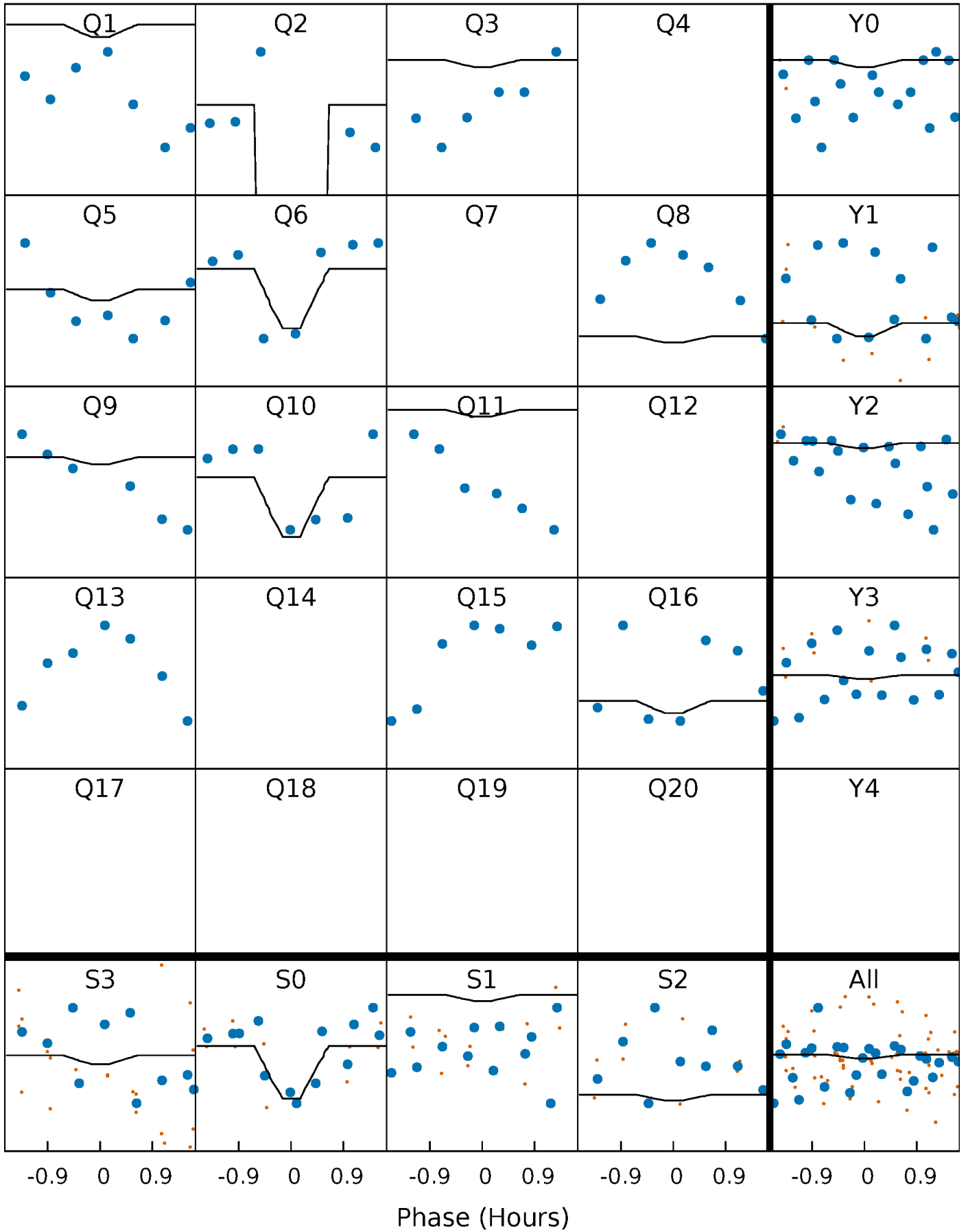
DV Quarter-Phased Transit Curves

TCE 009468199-01 P=105.036093 Days $T_0=135.478899$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

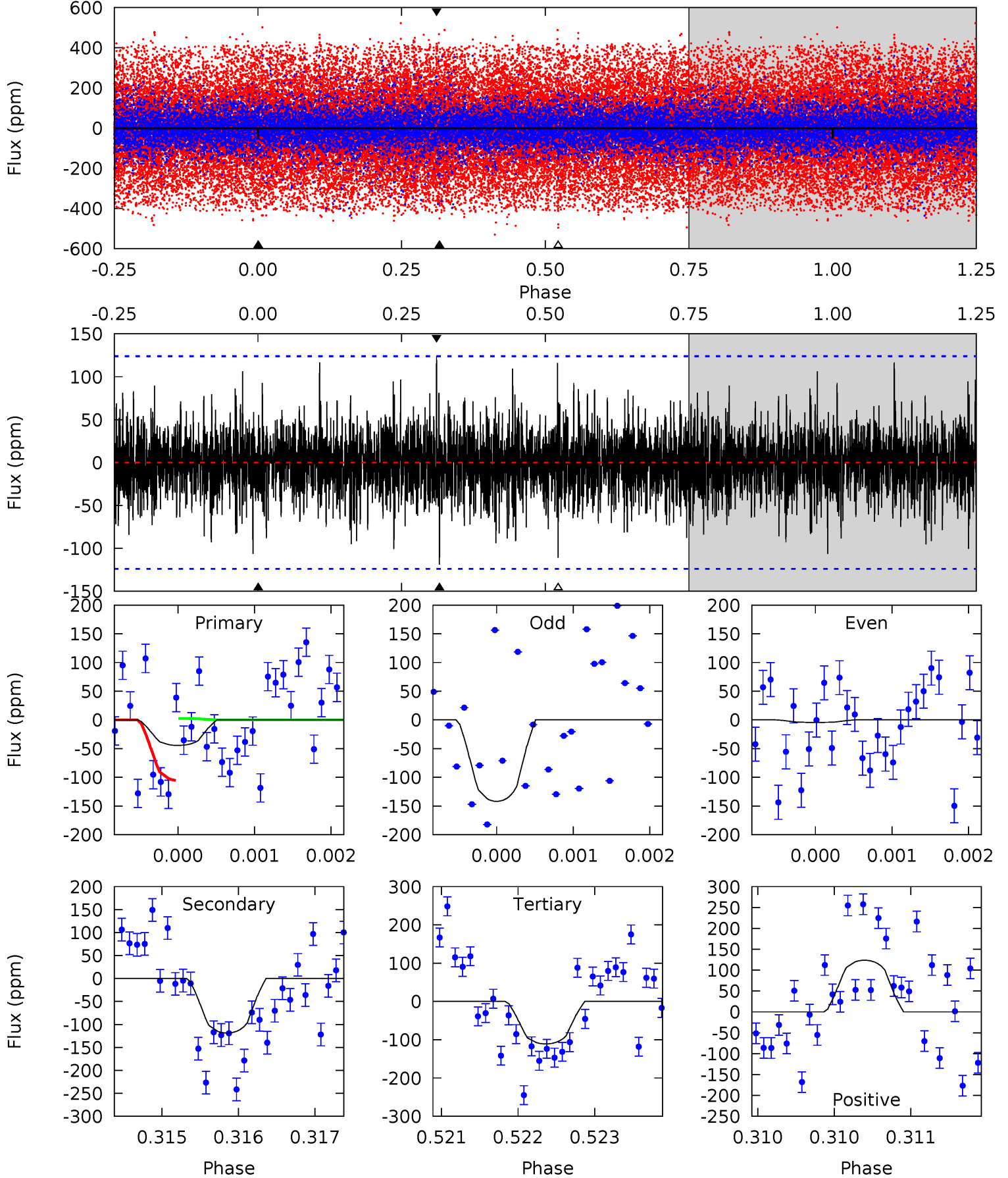
TCE 009468199-01 P=105.034805 Days $T_0=135.471051$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-01, P = 105.036093 Days, E = 30.442806 Days

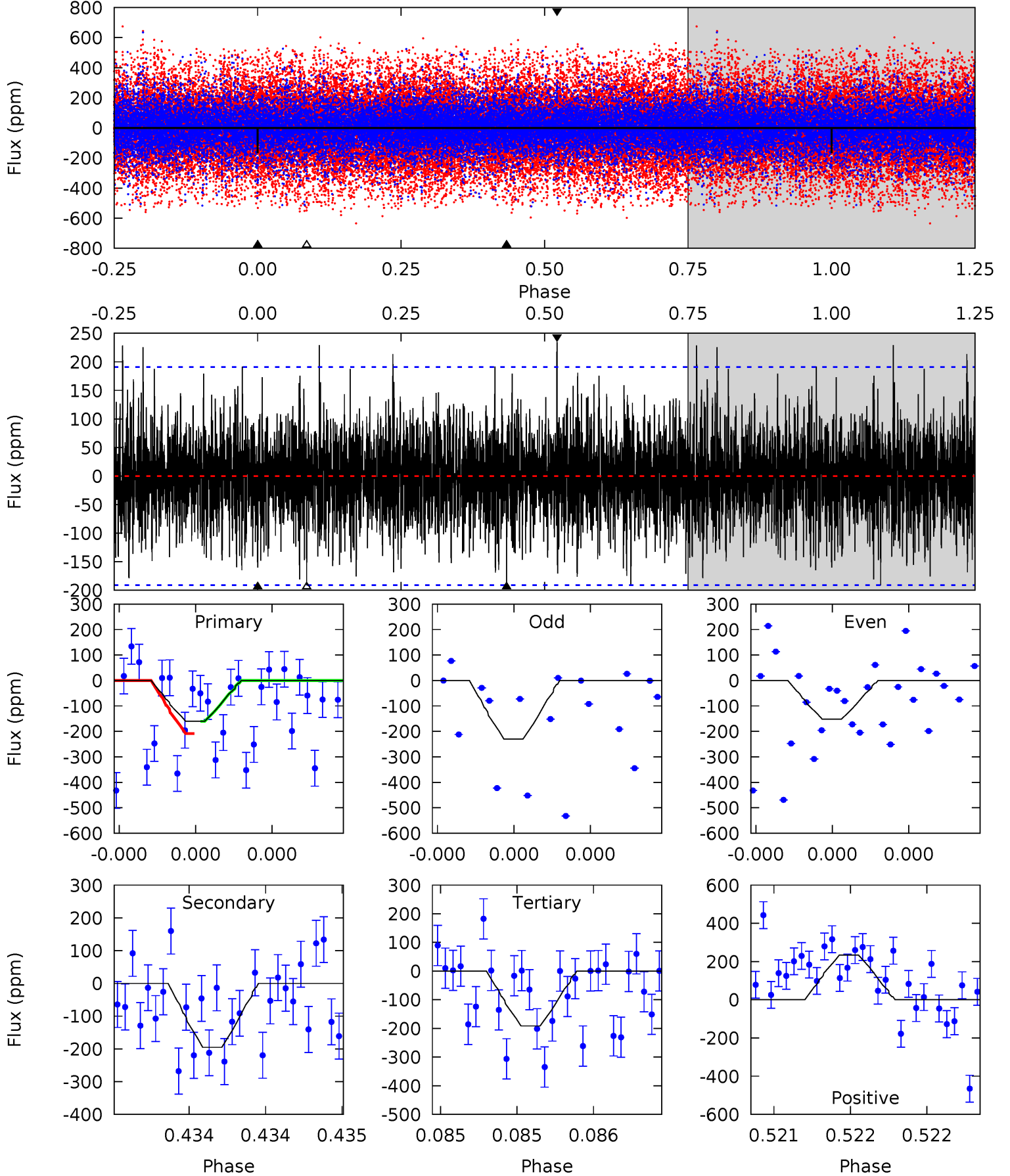
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.97	5.27	4.93	5.49	5.50	3.36	1.31	-2.95	-3.52	0.35	-0.22	2.98	0.36	0.51	2.33



Alt Model-Shift Uniqueness Test

009468199-01, P = 105.034805 Days, E = 30.436246 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.69	5.72	5.61	6.87	5.60	3.52	1.64	-0.92	-2.18	0.11	-1.15	1.11	0.32	0.55	0.69



Stellar Parameters For KIC 009468199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-119 ± 23	$8.04^{+7.75}_{-5.22}$	1195^{+96}_{-82}	5455^{+4220}_{-1172}	318^{+2185}_{-230}
Alt.	-195 ± 34	$8.08^{+7.29}_{-5.29}$	1203^{+85}_{-91}	6195^{+5986}_{-1525}	525^{+3777}_{-378}

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

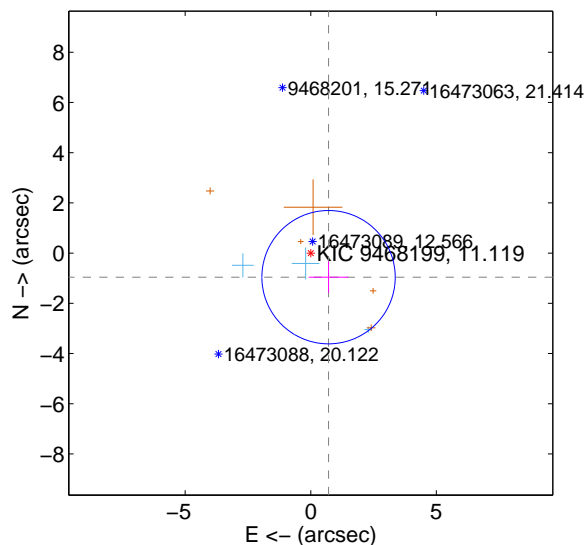
Supplemental centroid analysis for 009468199-01. **Kepler magnitude: 11.12.** Transit SNR 22.91

There are 3 quarters with good PRF difference image offsets

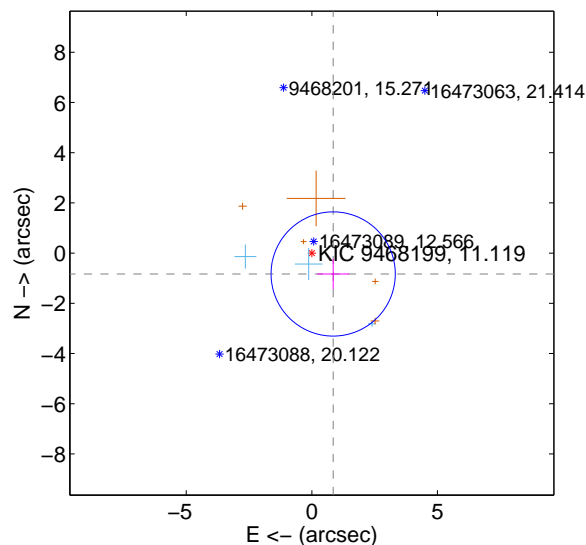
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.193 ± 0.885	1.35	-0.709 ± 0.791	-0.959 ± 0.622
PRF-fit source offset from KIC position	1.189 ± 0.825	1.44	-0.850 ± 0.636	-0.832 ± 0.600
photometric centroid source offset	1.28 ± 2.25	0.57	0.87 ± 2.45	-0.94 ± 2.06

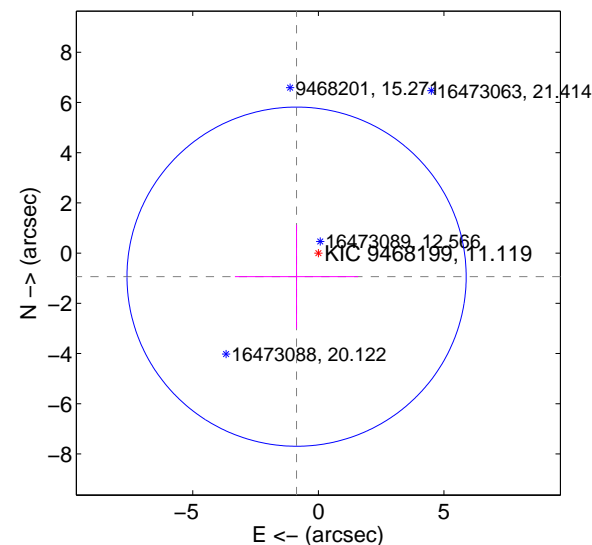
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

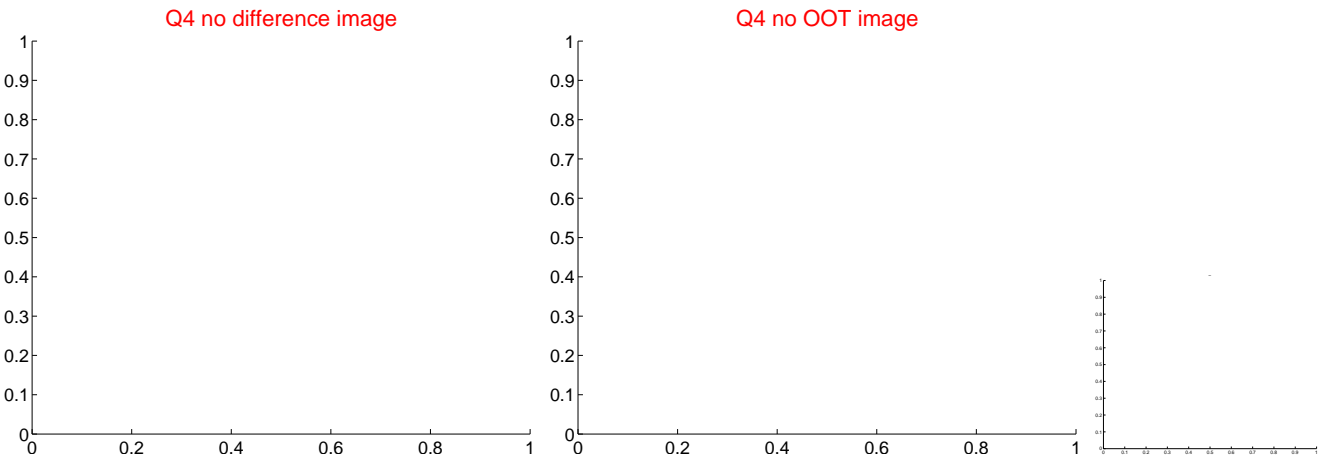
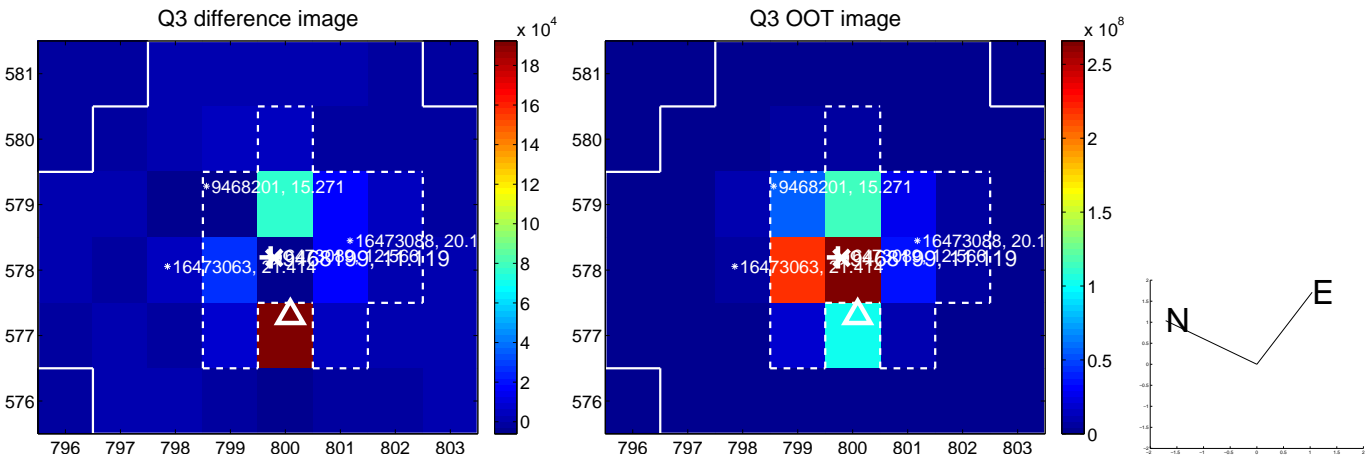
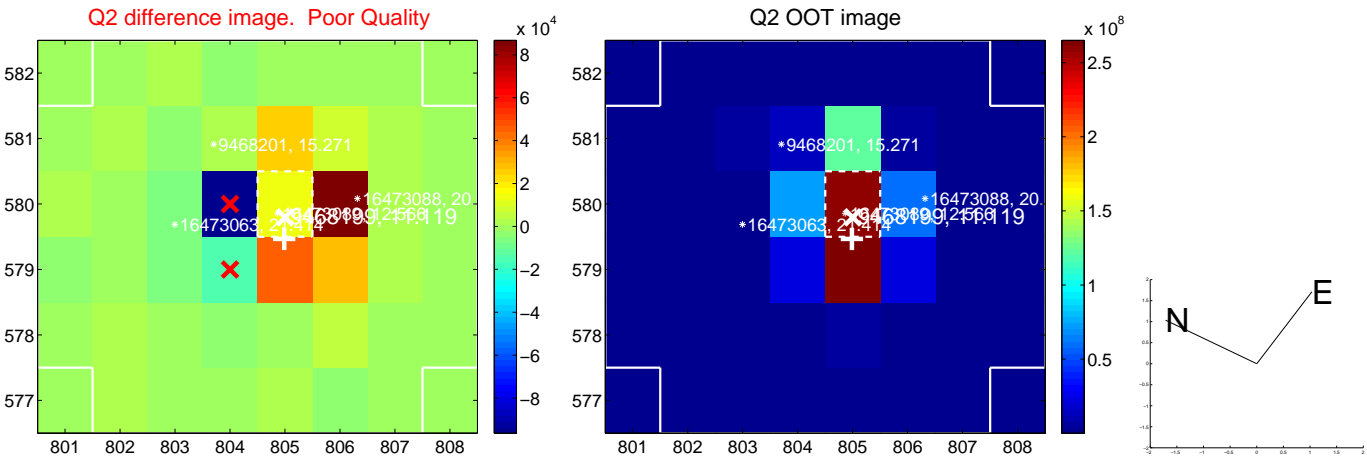
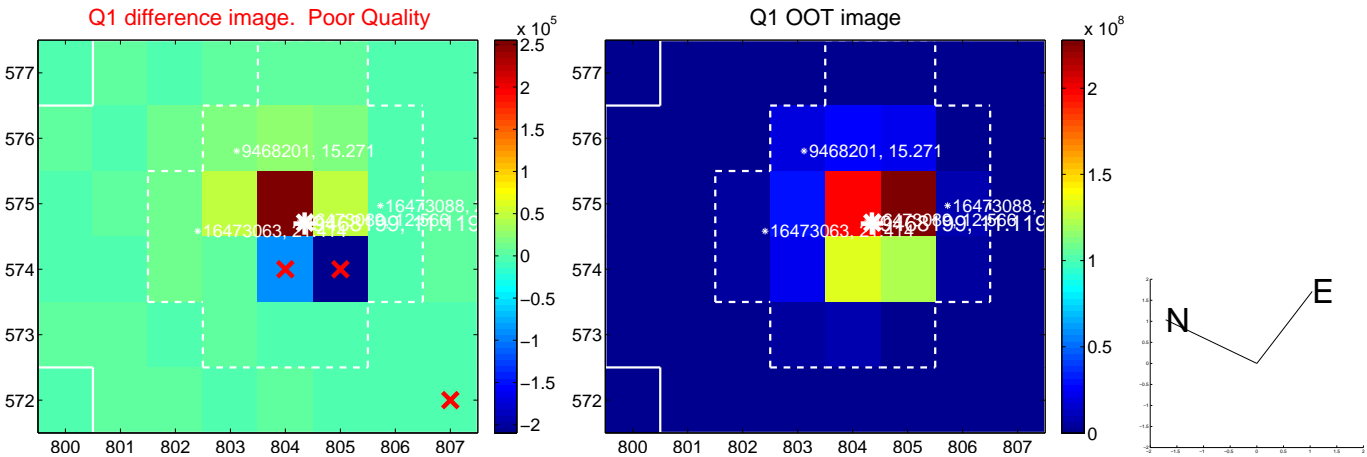


offset from photometric centroids

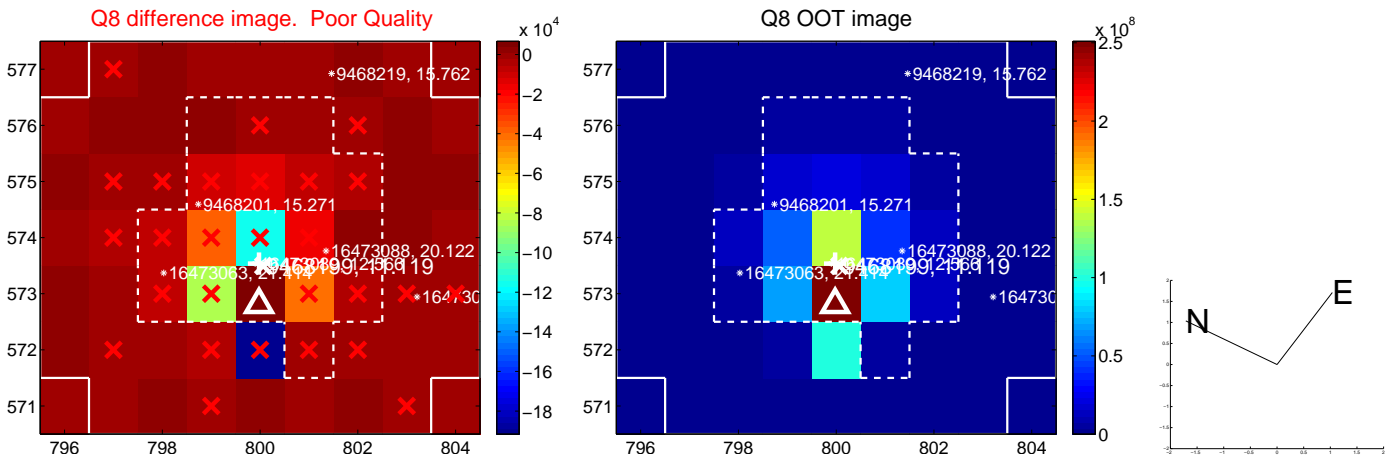
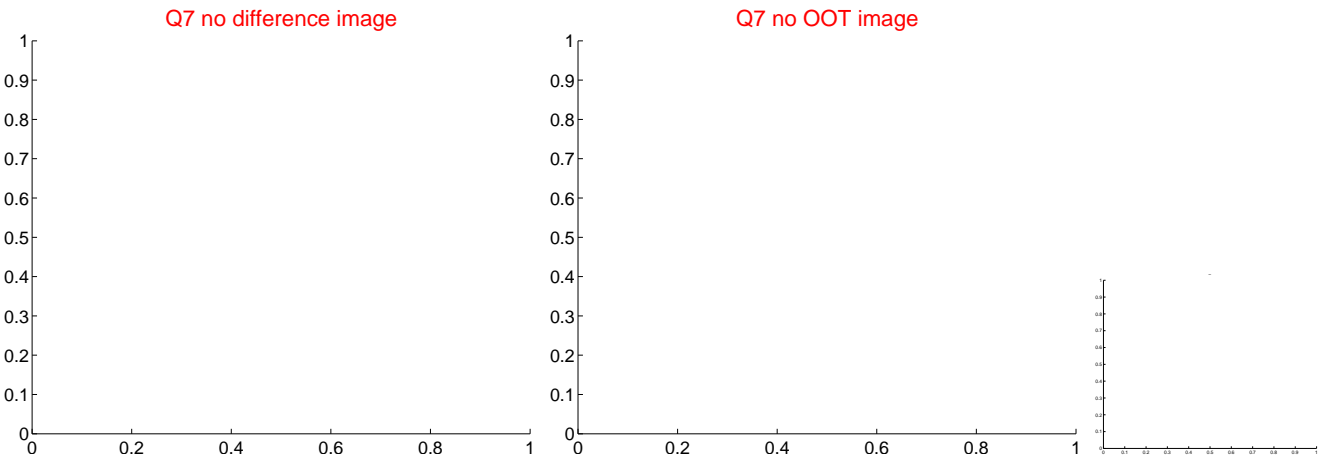
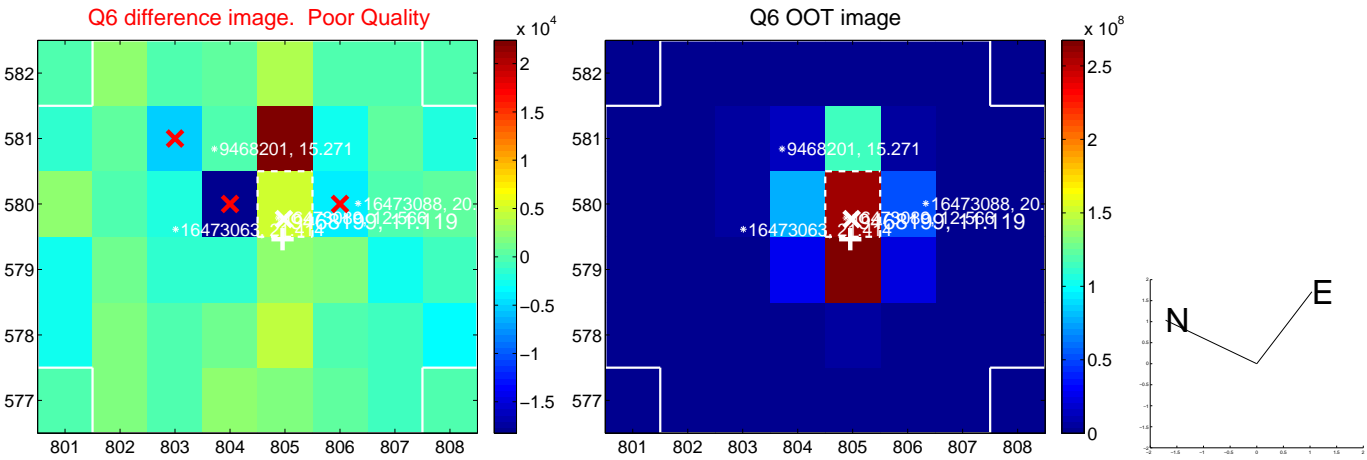
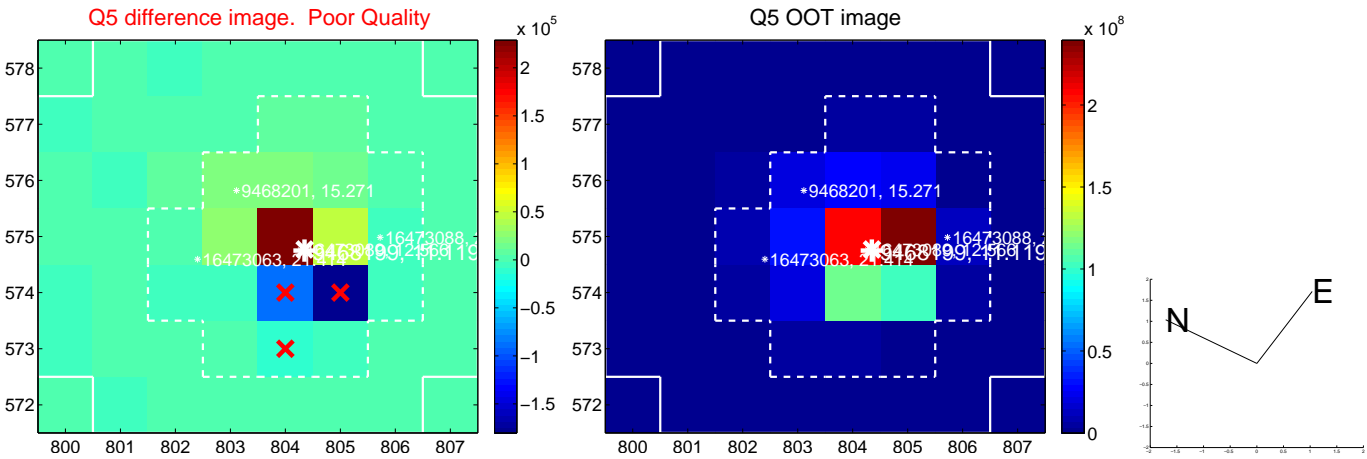


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

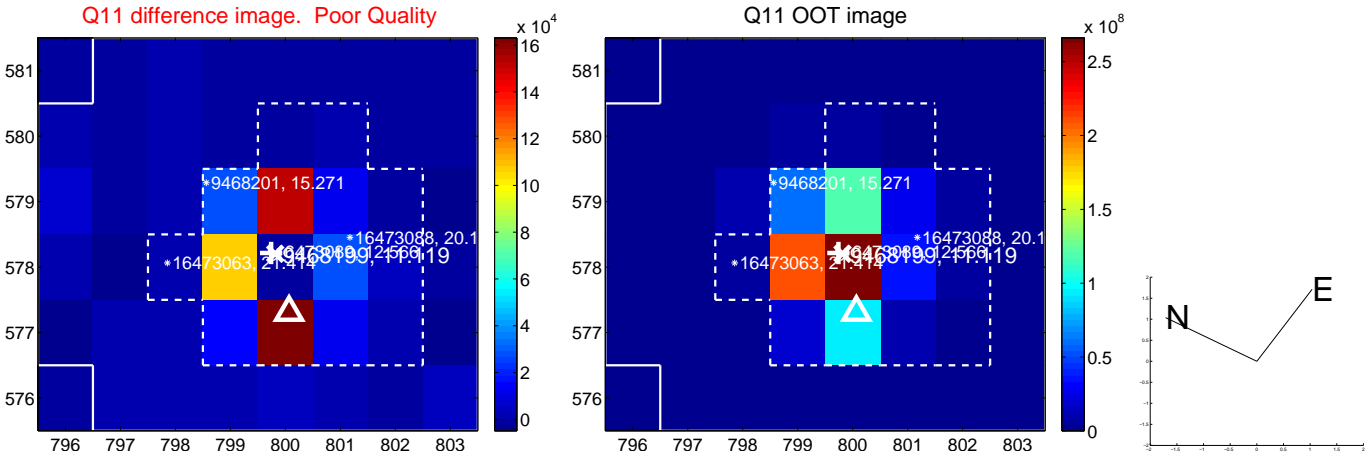
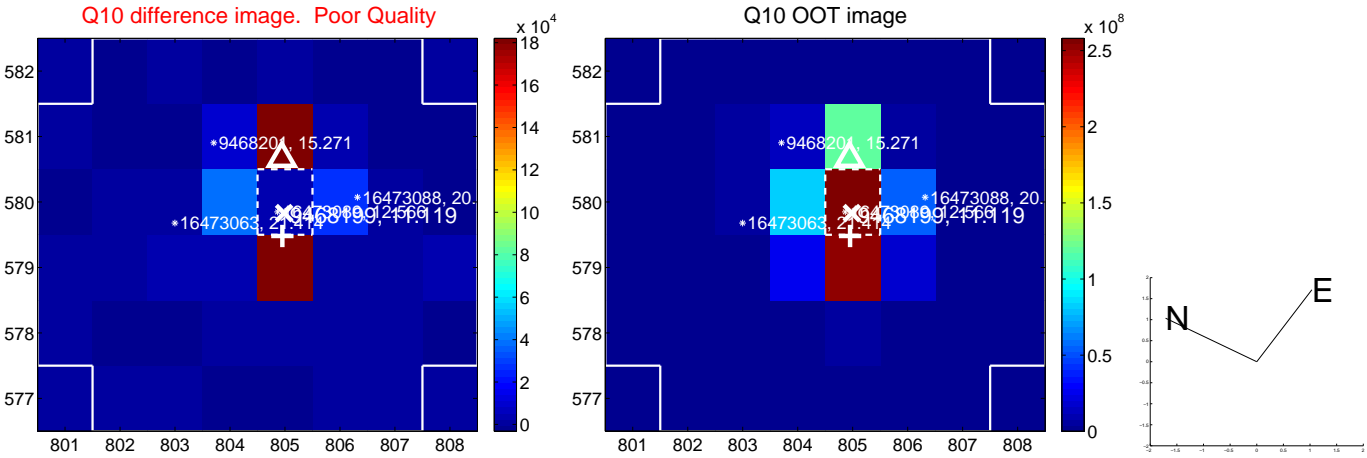
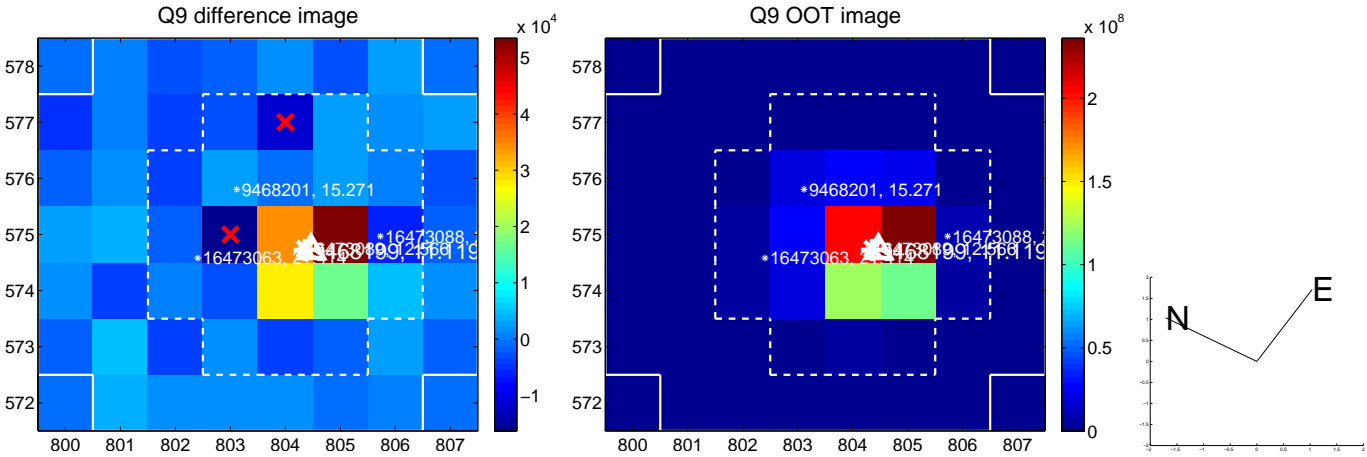
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



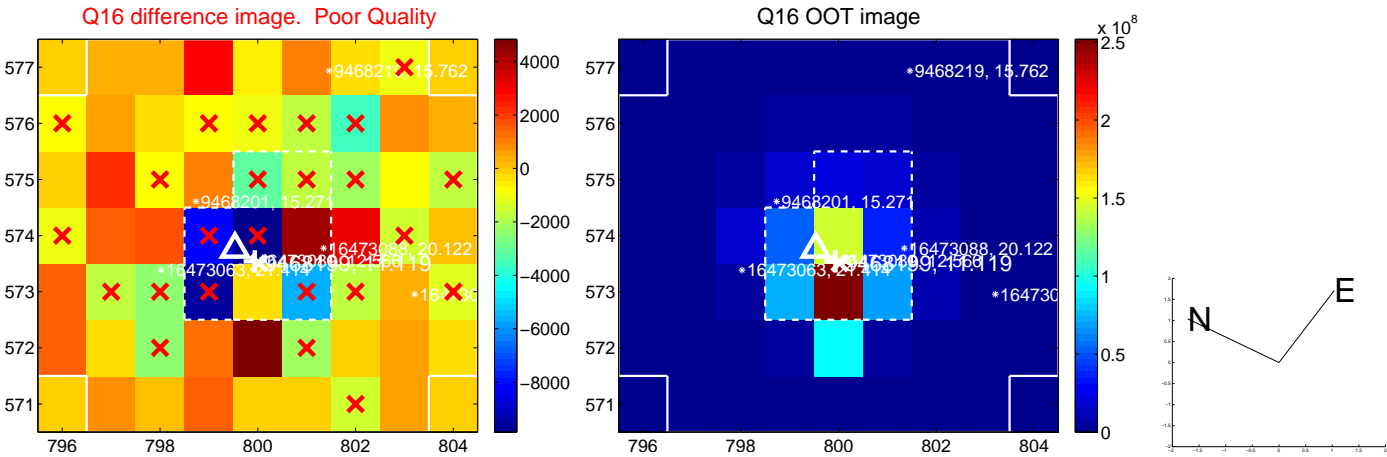
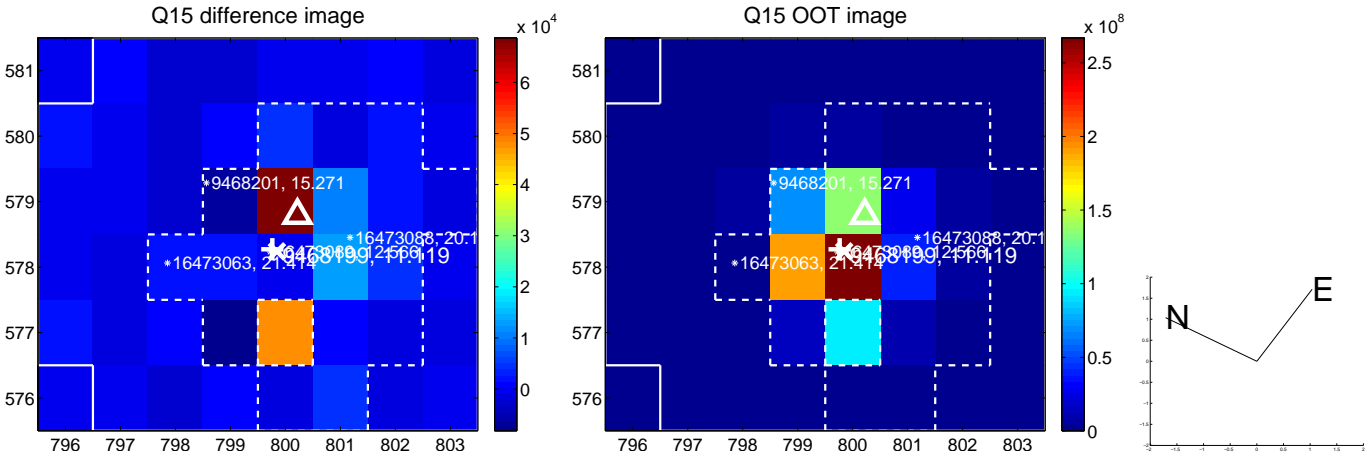
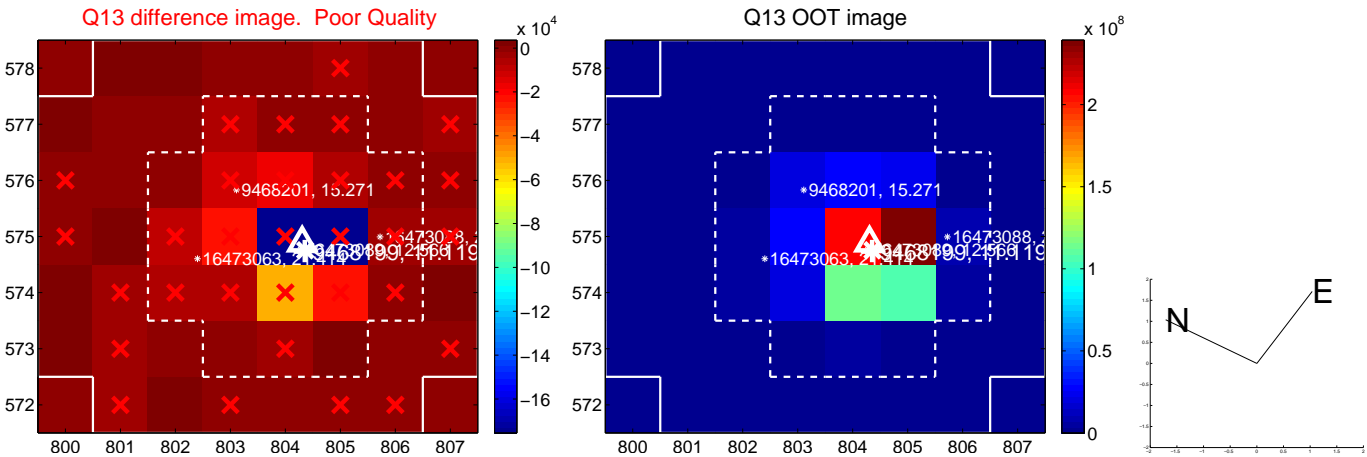
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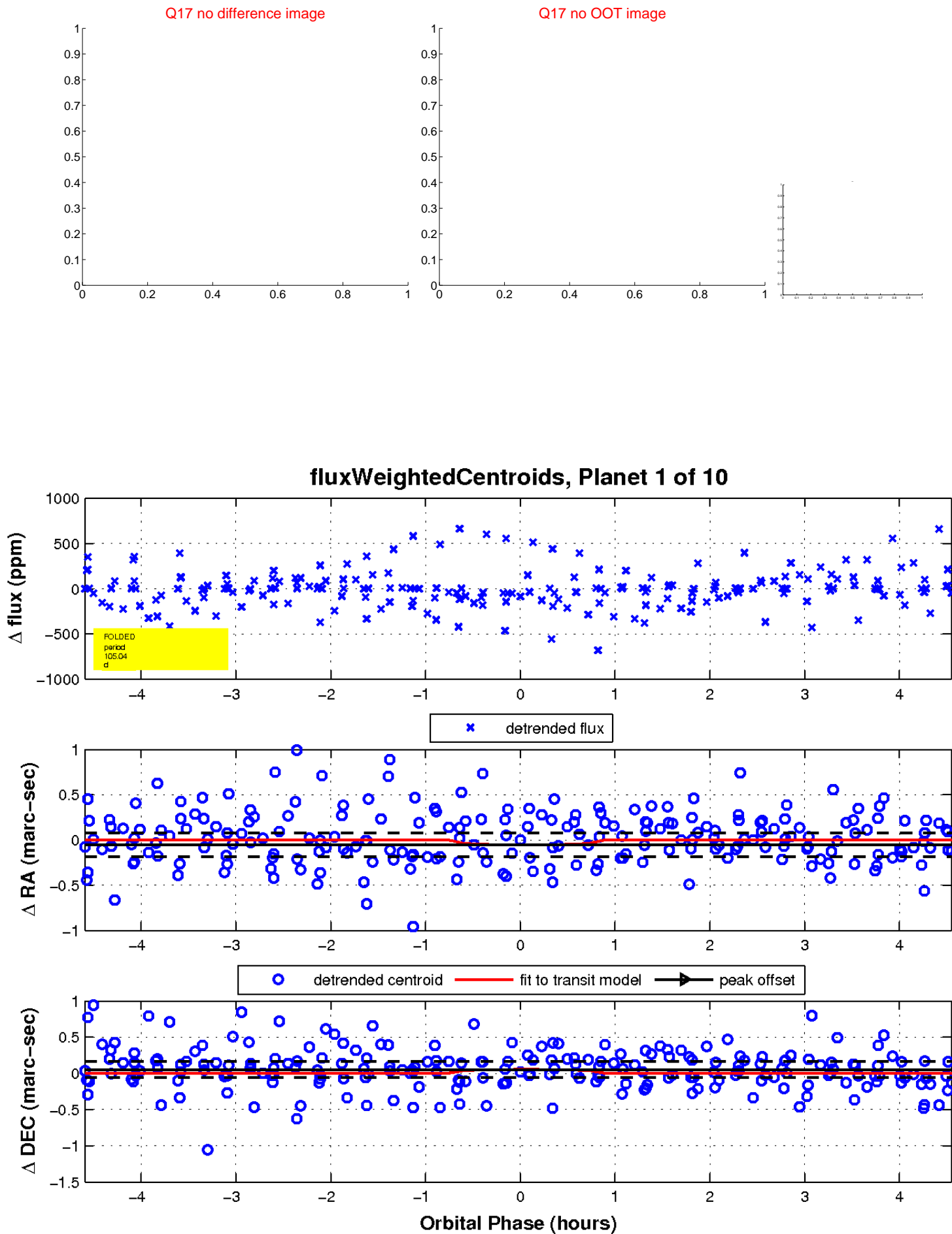
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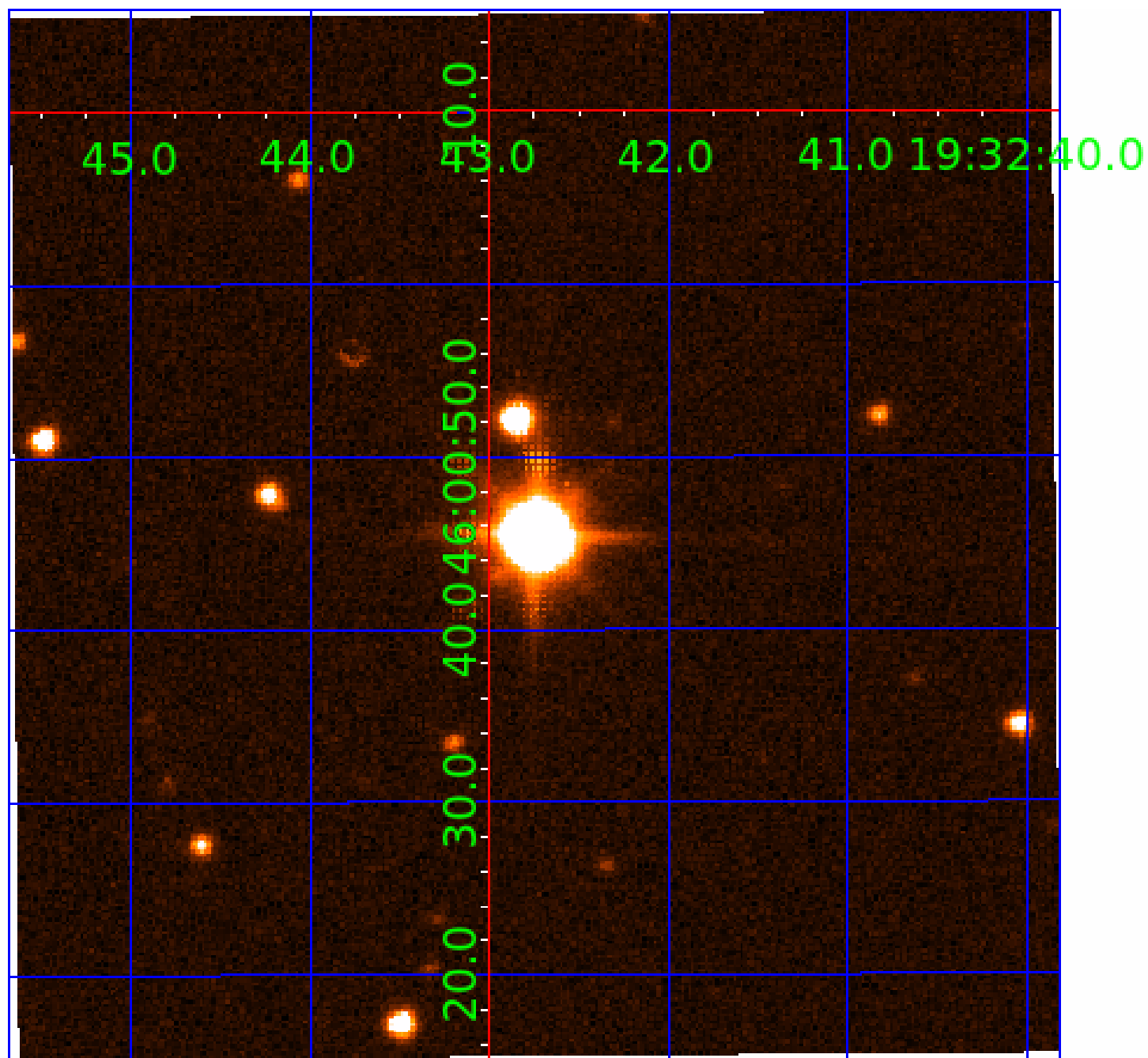


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UKIRT Image

Declination



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009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
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Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

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

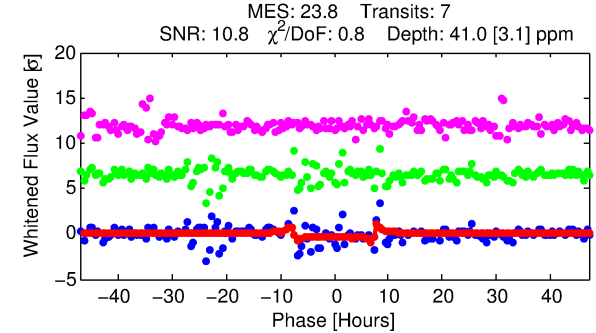
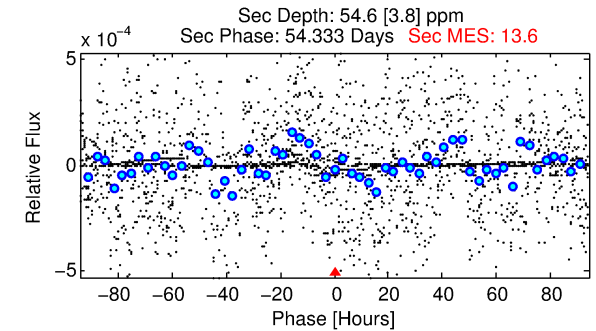
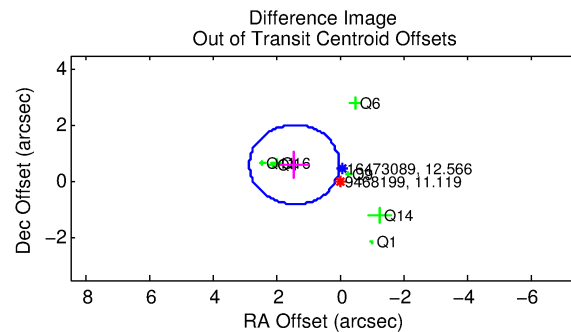
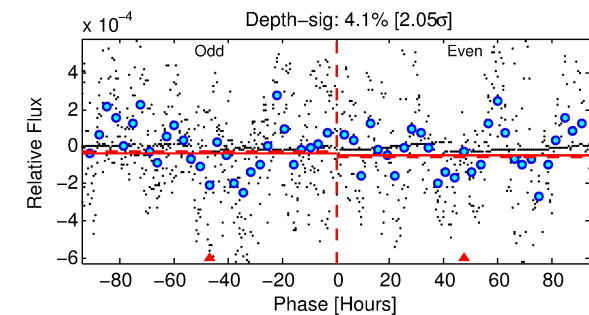
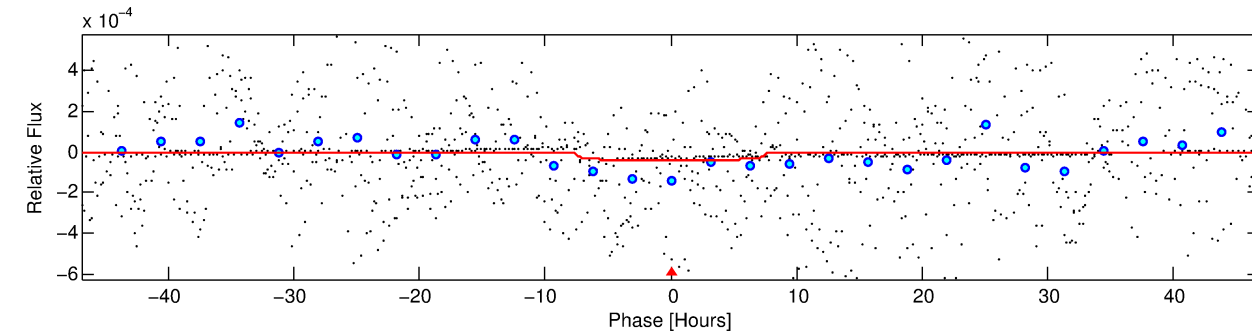
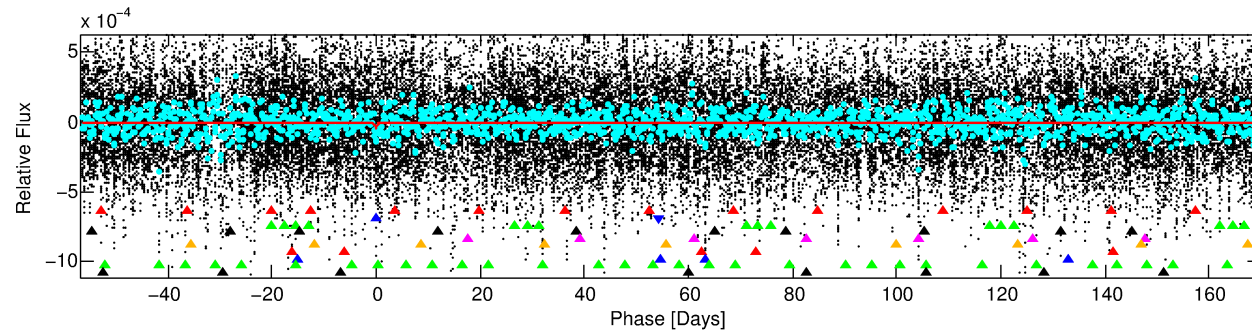
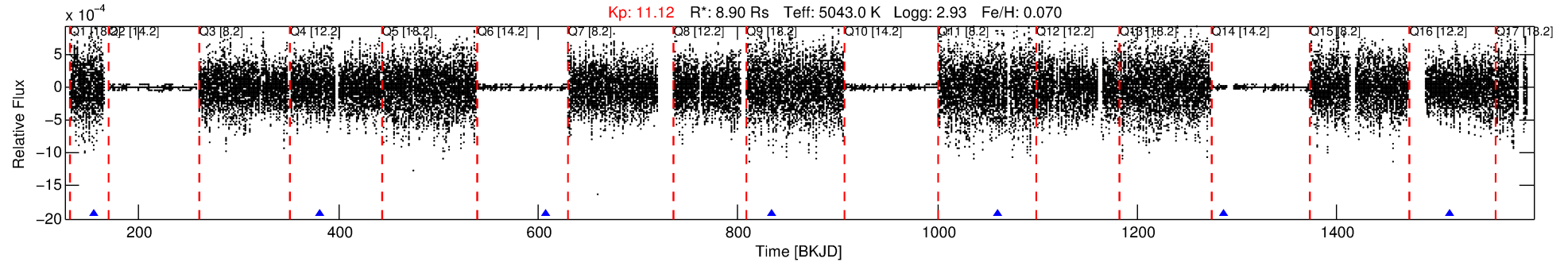
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-02

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 2 of 10 Period: 226.305 d



DV Fit Results:

Period = 226.30499 [0.00120] d
Epoch = 155.6675 [0.0048] BKJD
Rp/R* = 0.0072 [0.0004]
a/R* = 48.02 [5.56]
b = 0.91 [0.02]
Seff = 47.77 [19.76]
Teff = 670 [69] K
Rp = 6.99 [2.68] Re
a = 0.9808 [0.2912] AU
Ag = 590.97 [248.21] [2.38σ]
Teffp = 5110 [204] K [20.58σ]

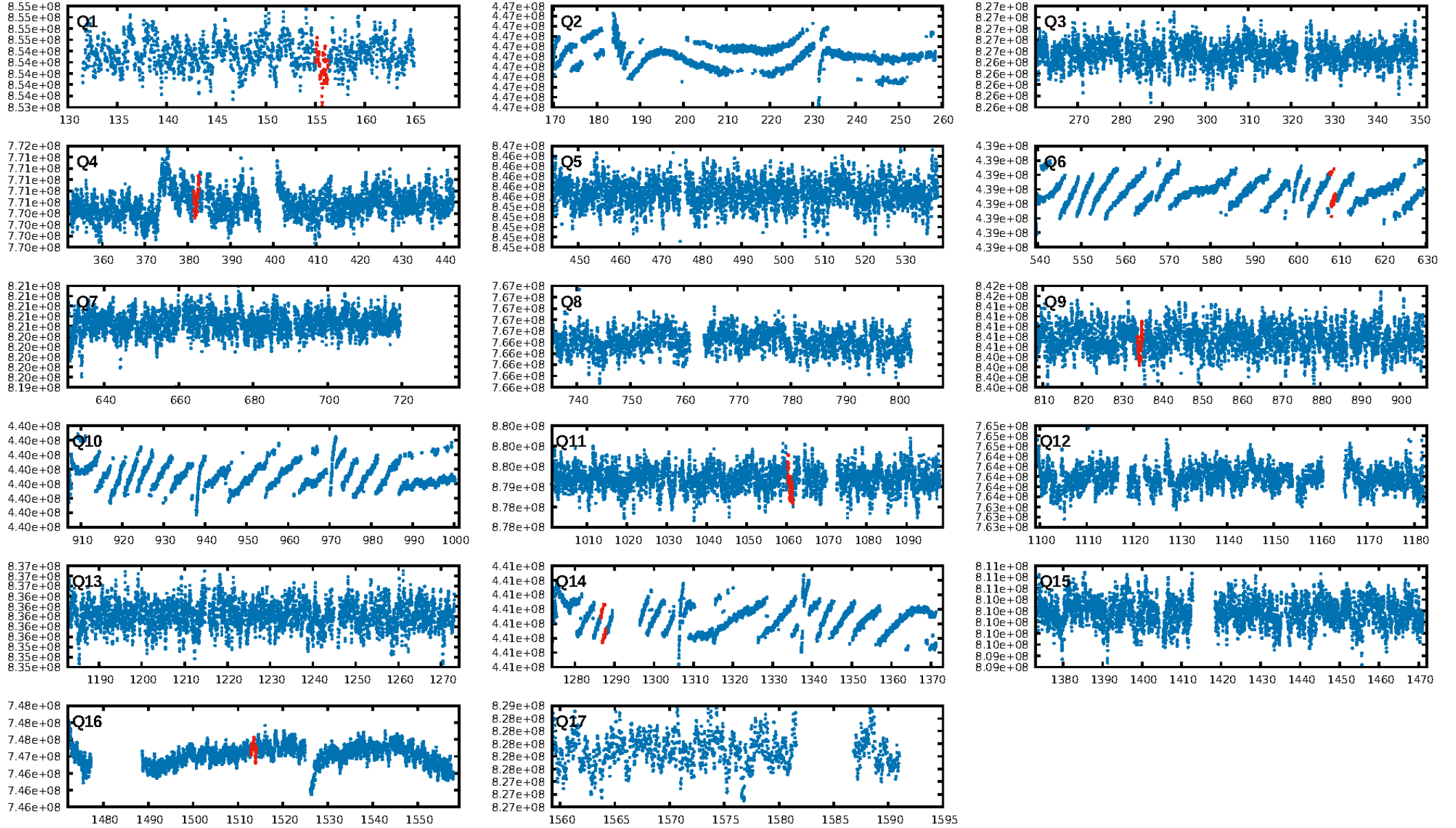
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.41σ]
LongPeriod-sig: 100.0% [89.88σ]
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.804
Centroid-sig: 1.2%
Centroid-so: 3.023 arcsec [1.47σ]
OotOffset-rm: 1.573 arcsec [3.33σ]
KicOffset-rm: 1.523 arcsec [1.96σ]
OotOffset-st: 2/1/2/2 [7]
KicOffset-st: 2/1/2/2 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.86 [6/7]

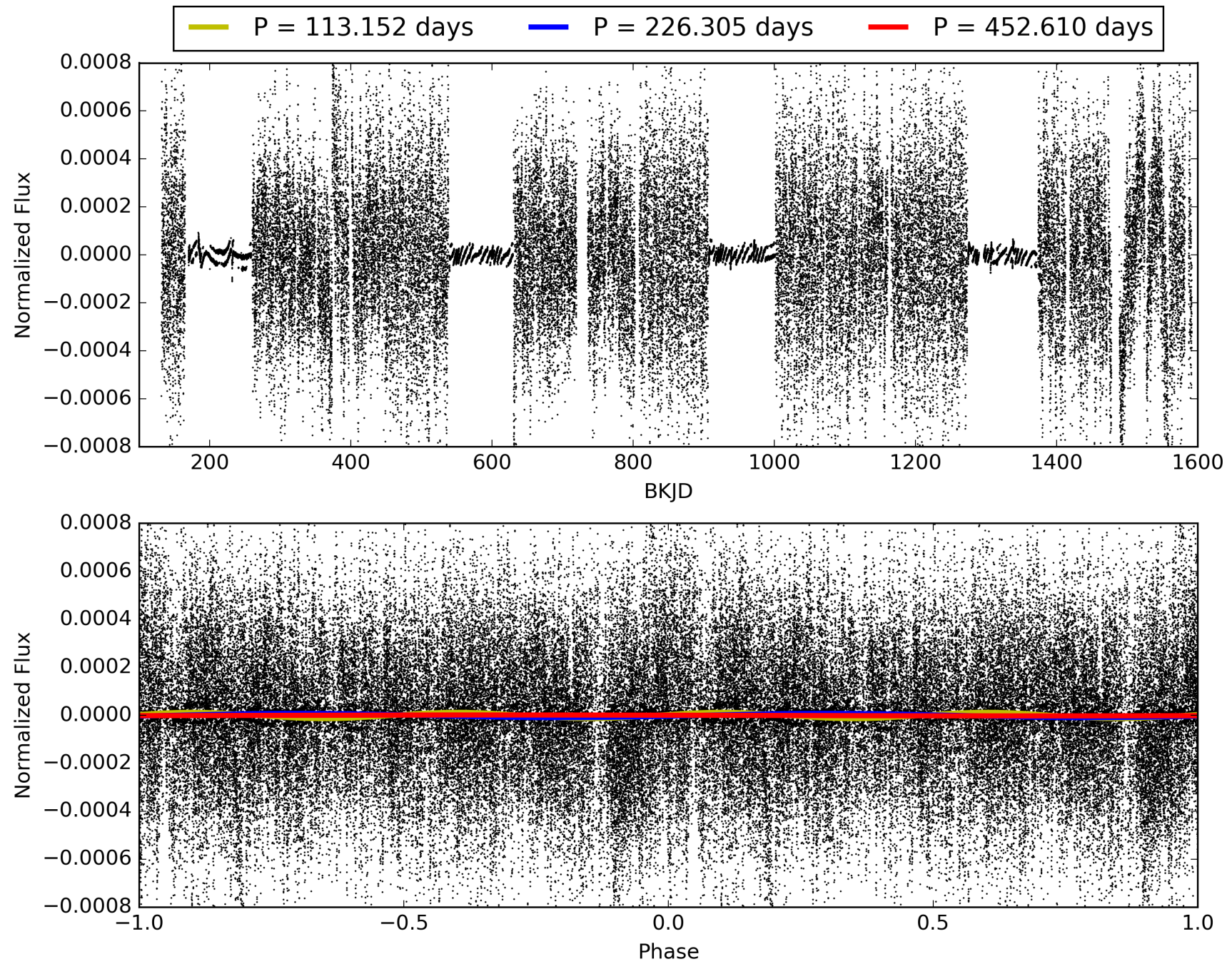
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:51:30 Z

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

TCE 009468199-02, PDC Light Curves

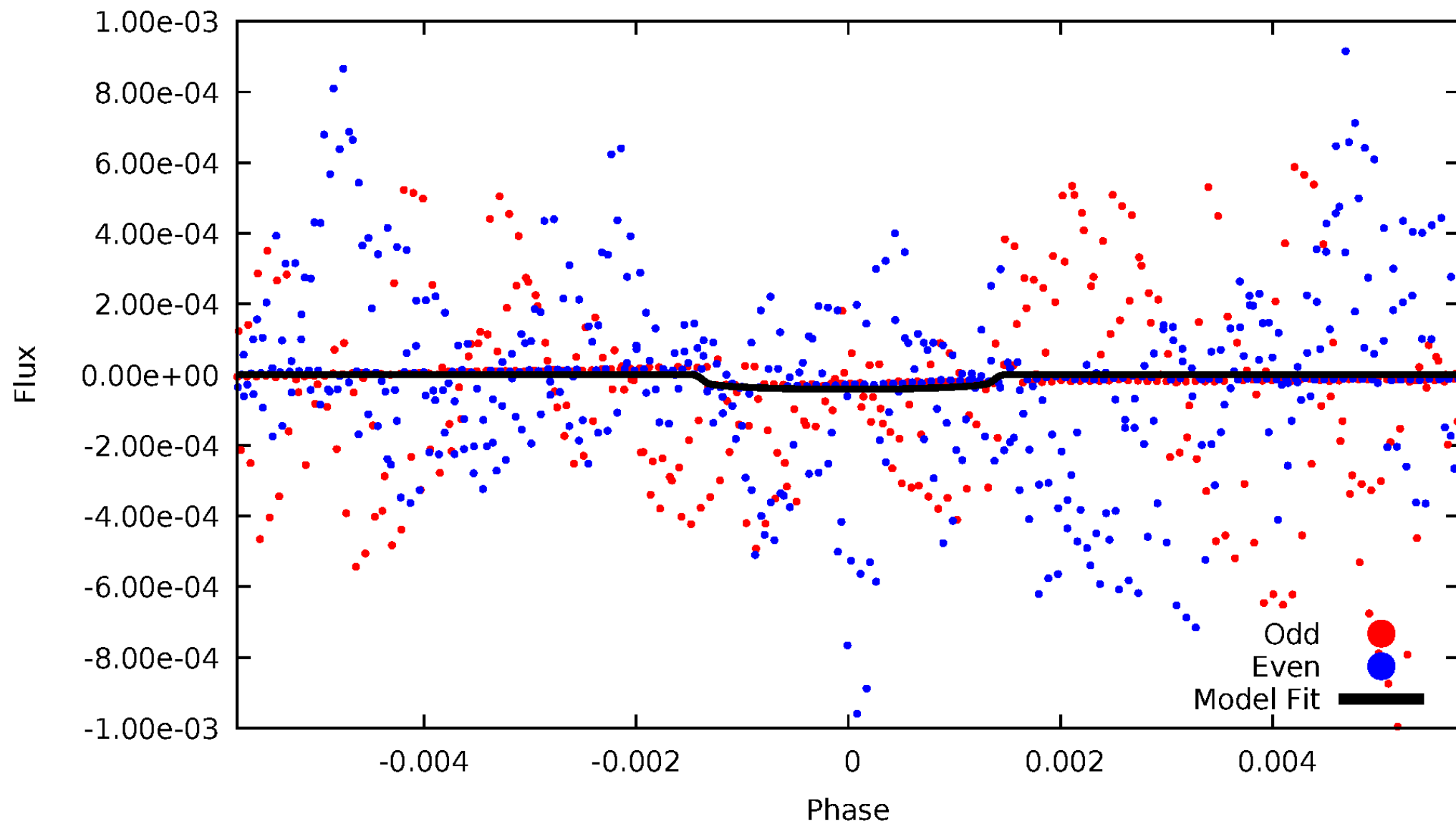


TCE 009468199-02



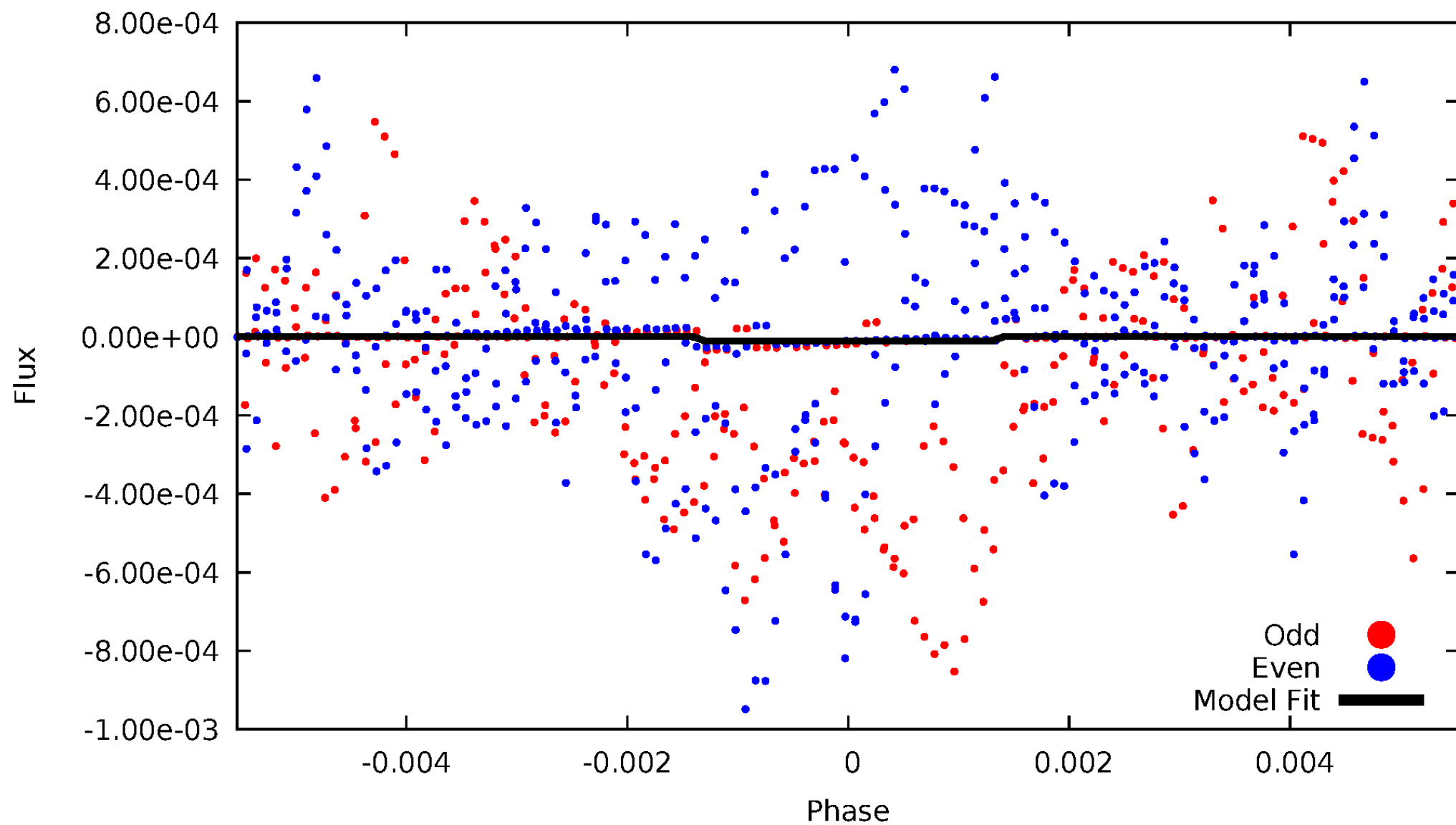
DV Odd/Even

TCE 009468199-02



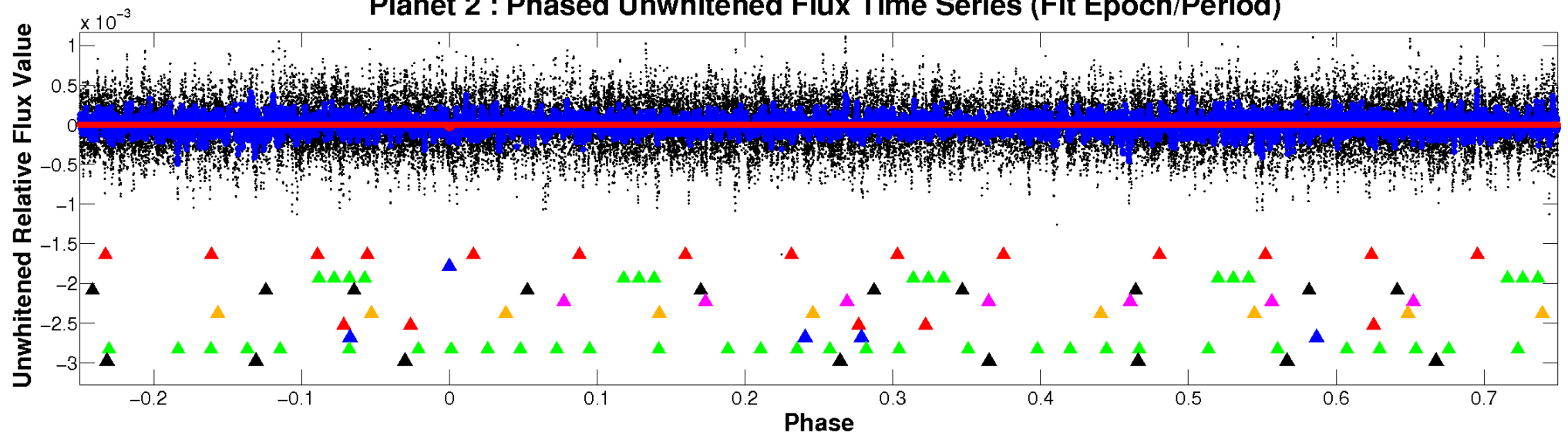
ALT Odd/Even

TCE 009468199-02

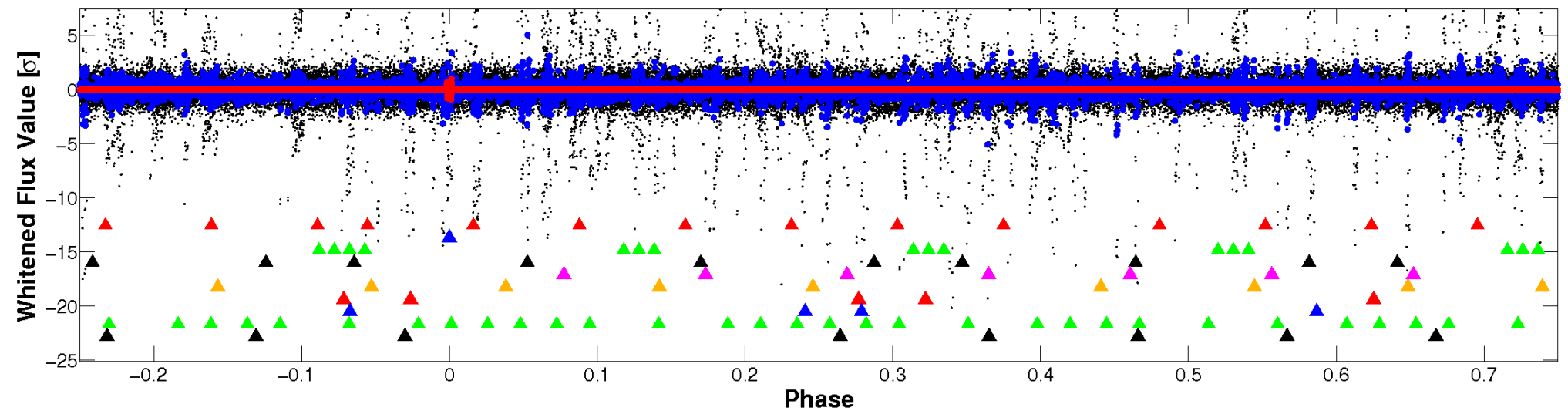


Non-Whitened Vs. Whitened Light Curve

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

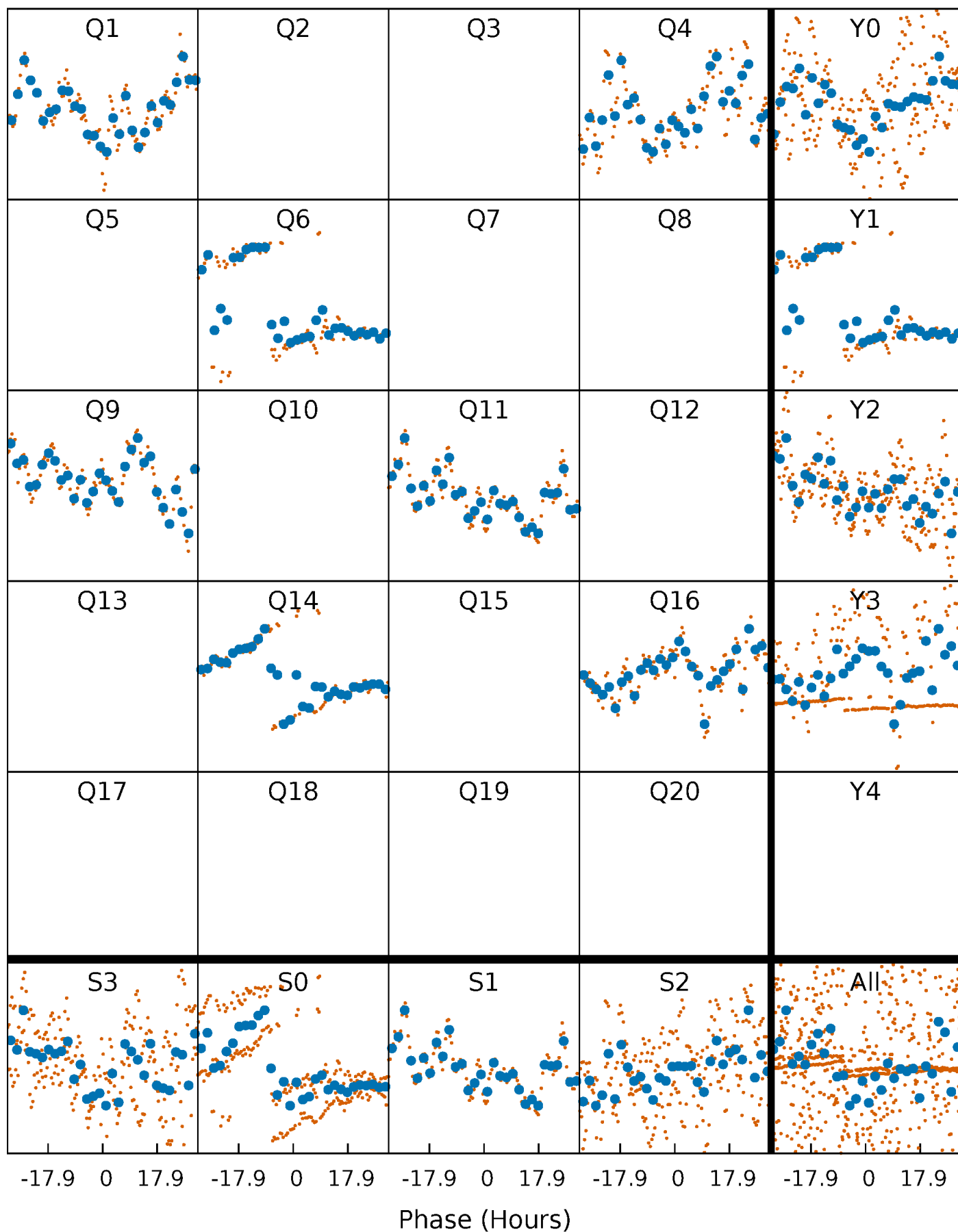


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



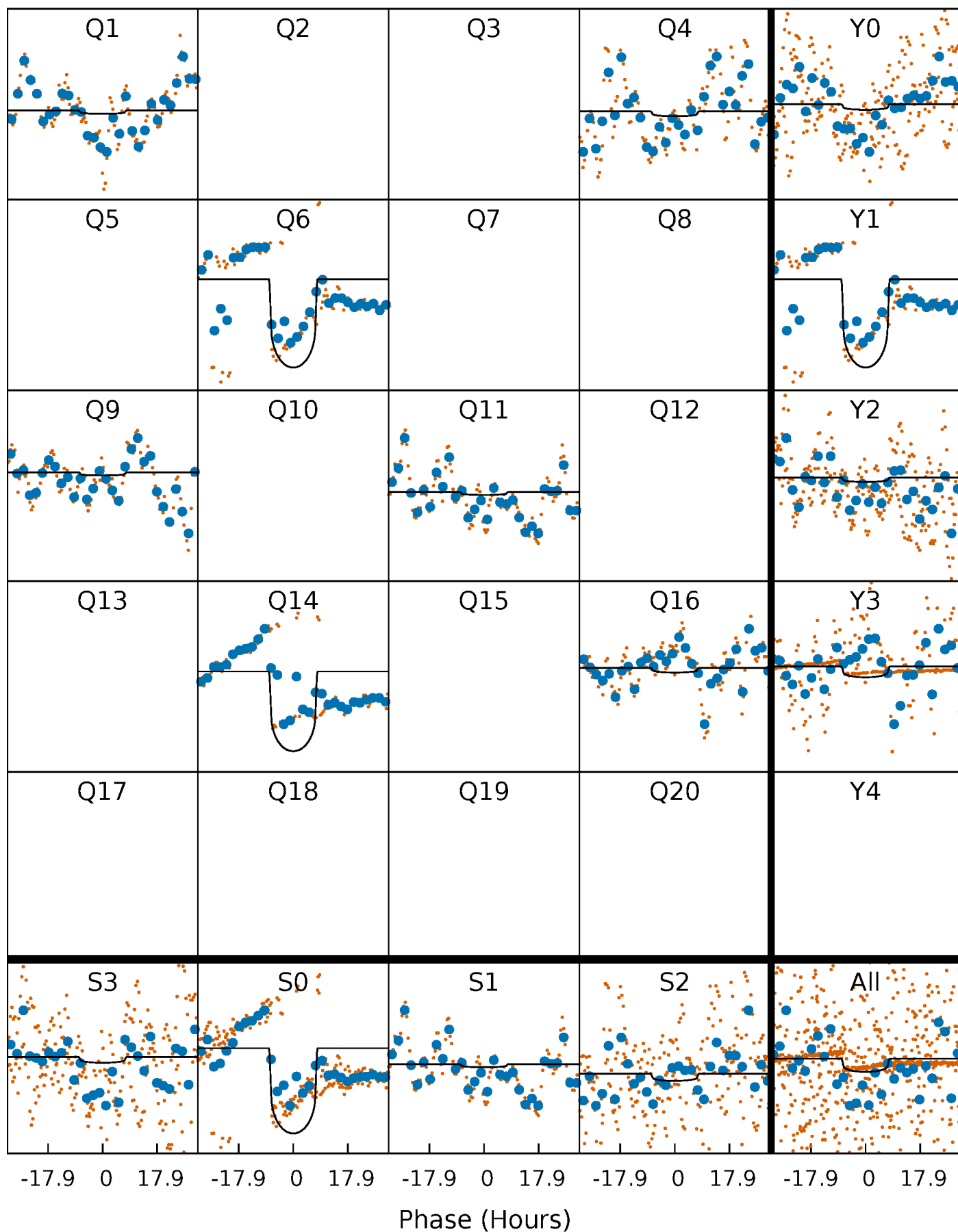
PDC Quarter-Phased Transit Curves

TCE 009468199-02 P=226.304991 Days $T_0=155.667514$ (BKJD)



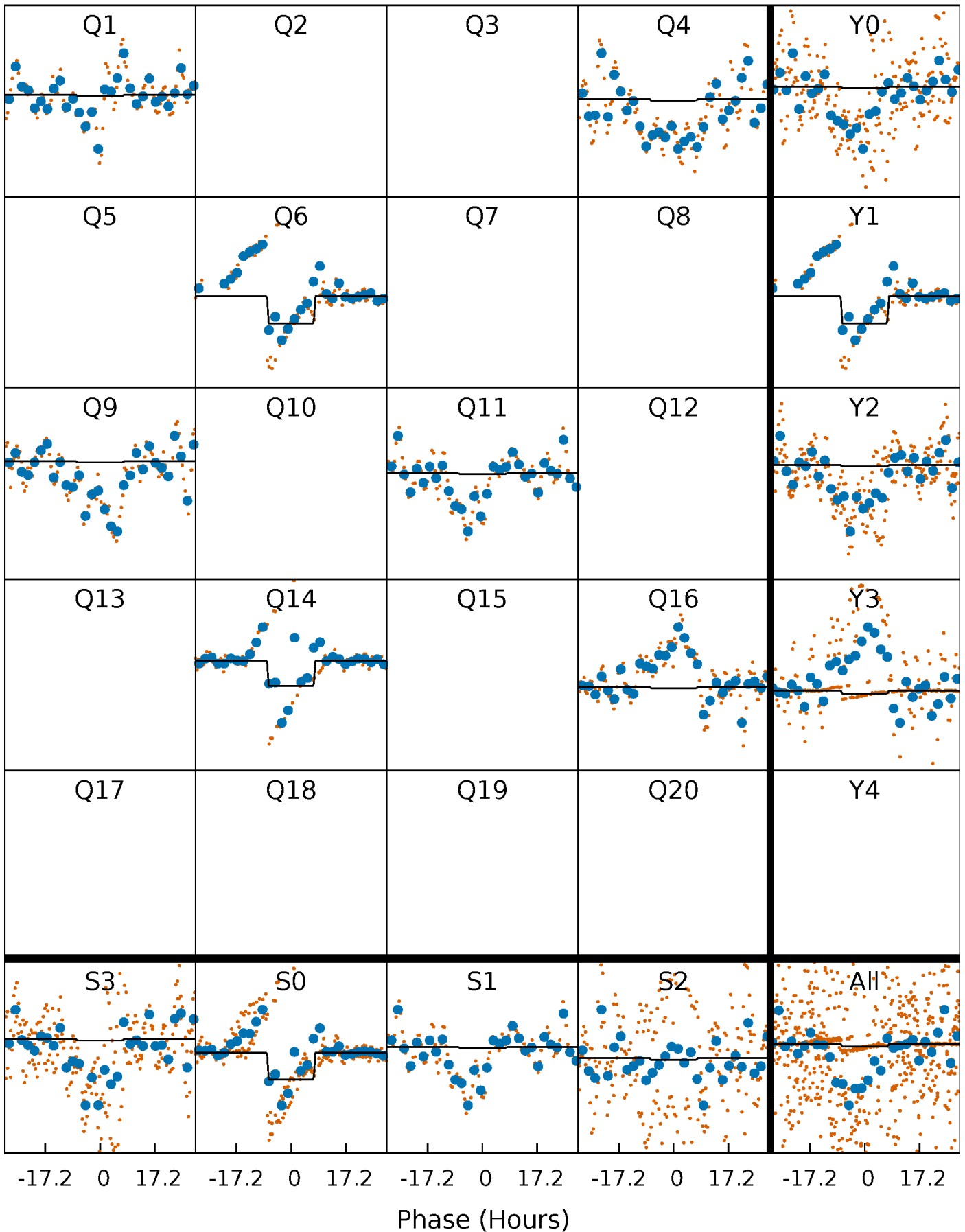
DV Quarter-Phased Transit Curves

TCE 009468199-02 P=226.304991 Days $T_0=155.667514$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

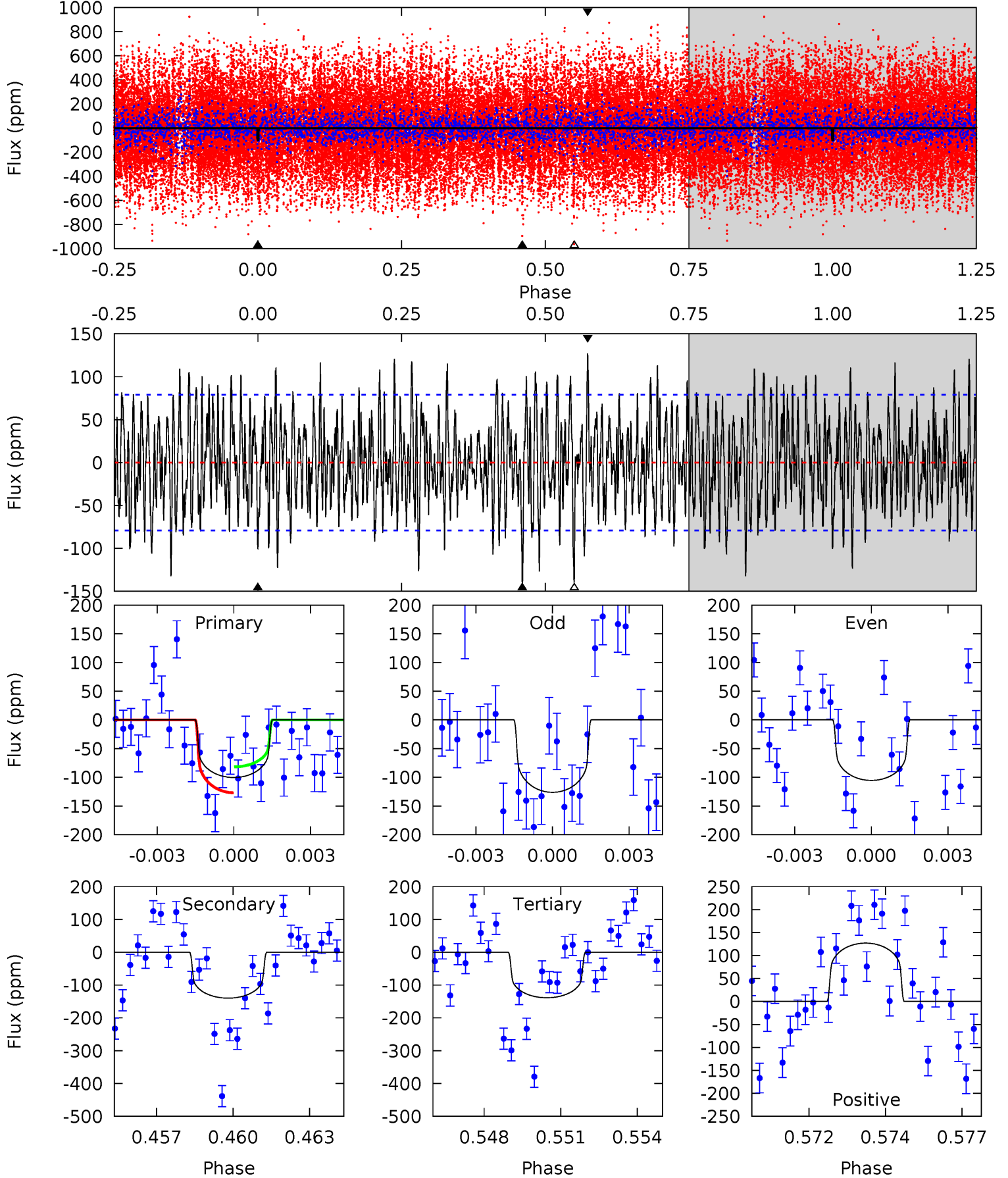
TCE 009468199-02 P=226.301677 Days $T_0=155.692380$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-02, P = 226.304991 Days, E = 155.667514 Days

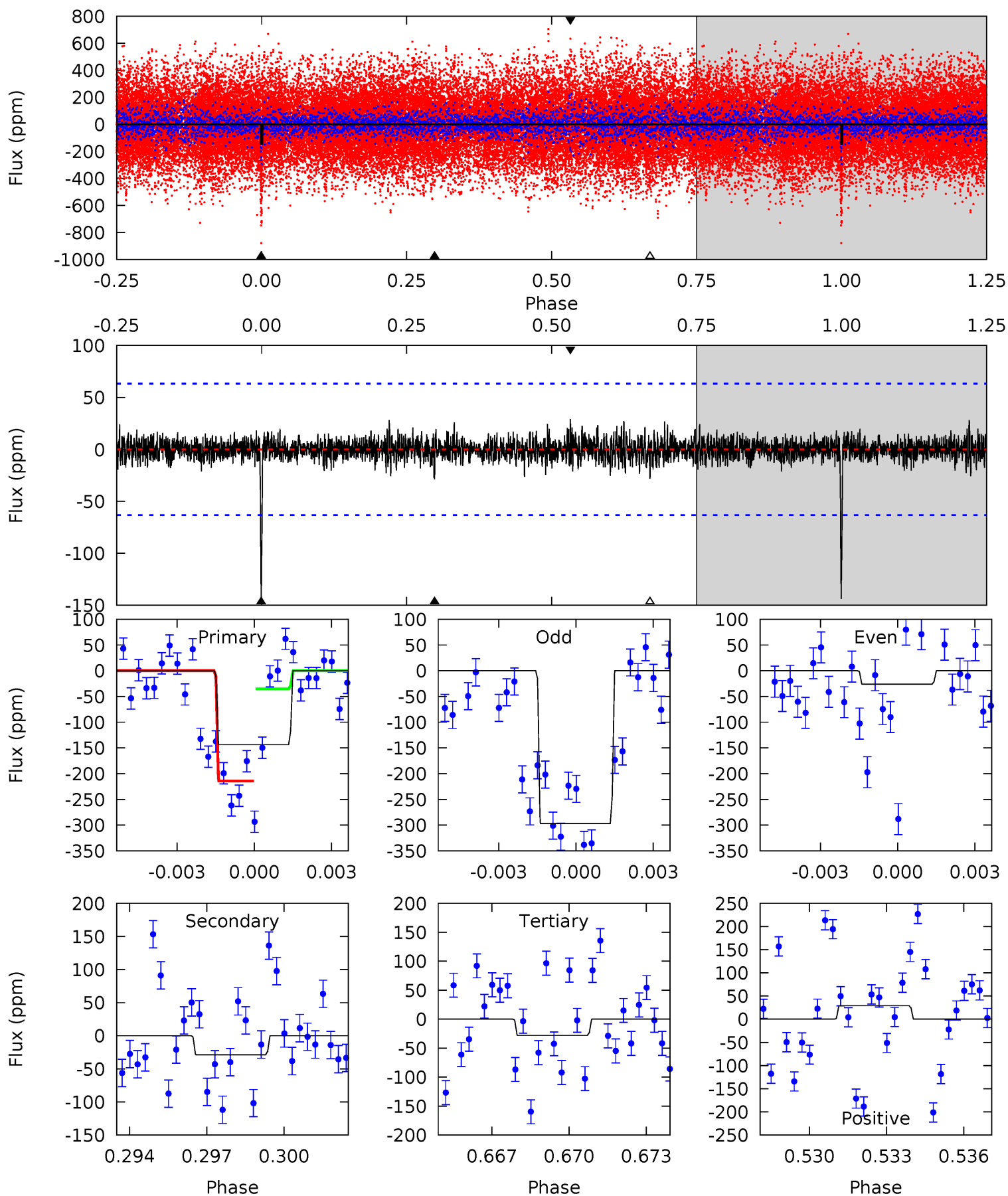
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.67	9.30	9.22	8.44	5.26	2.97	3.01	-2.55	-1.77	0.08	0.86	0.67	0.71	0.48	1.53



Alt Model-Shift Uniqueness Test

009468199-02, P = 226.301677 Days, E = 155.692380 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	2.38	2.34	2.43	5.26	2.99	0.61	9.63	9.53	0.05	-0.05	11.5	1.19	0.17	7.48



Stellar Parameters For KIC 009468199

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-140 ± 15	$7.05^{+1.15}_{-1.37}$	934^{+68}_{-70}	6307^{+250}_{-278}	1480^{+575}_{-389}
Alt.	-29 ± 12	$3.13^{+0.63}_{-0.66}$	927^{+64}_{-66}	6281^{+708}_{-812}	1502^{+978}_{-710}

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 $A_{obs} \gg 1.0$

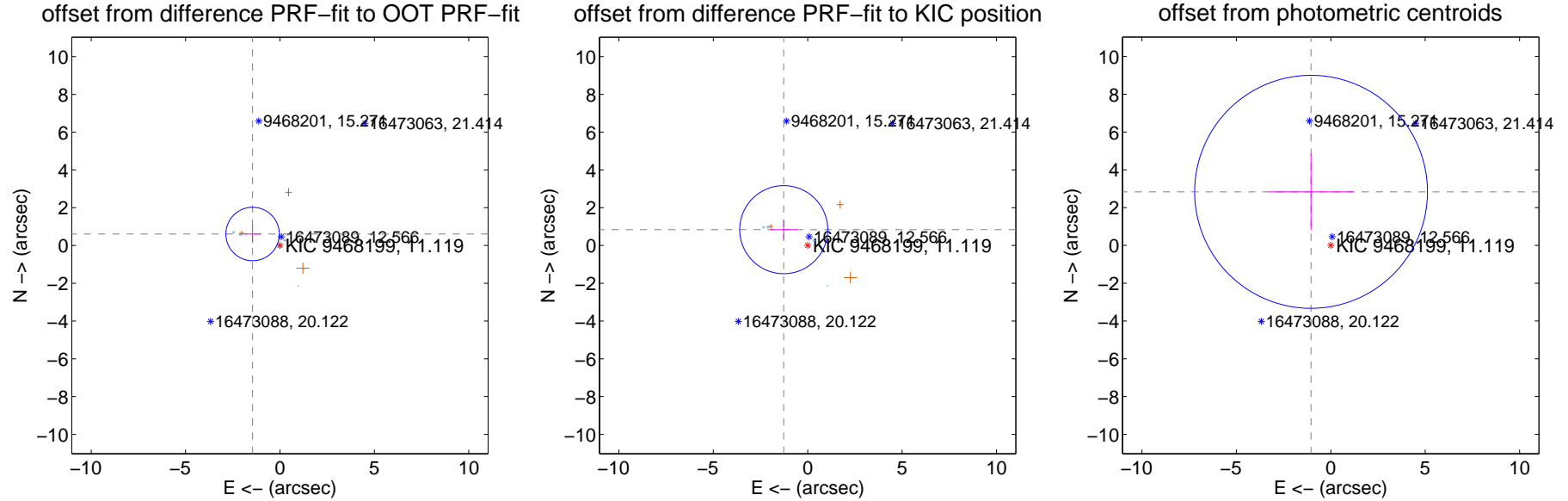
DV Centroid Data

Supplemental centroid analysis for 009468199-02. **Kepler magnitude: 11.12.** Transit SNR 10.78

There are 4 quarters with good PRF difference image offsets

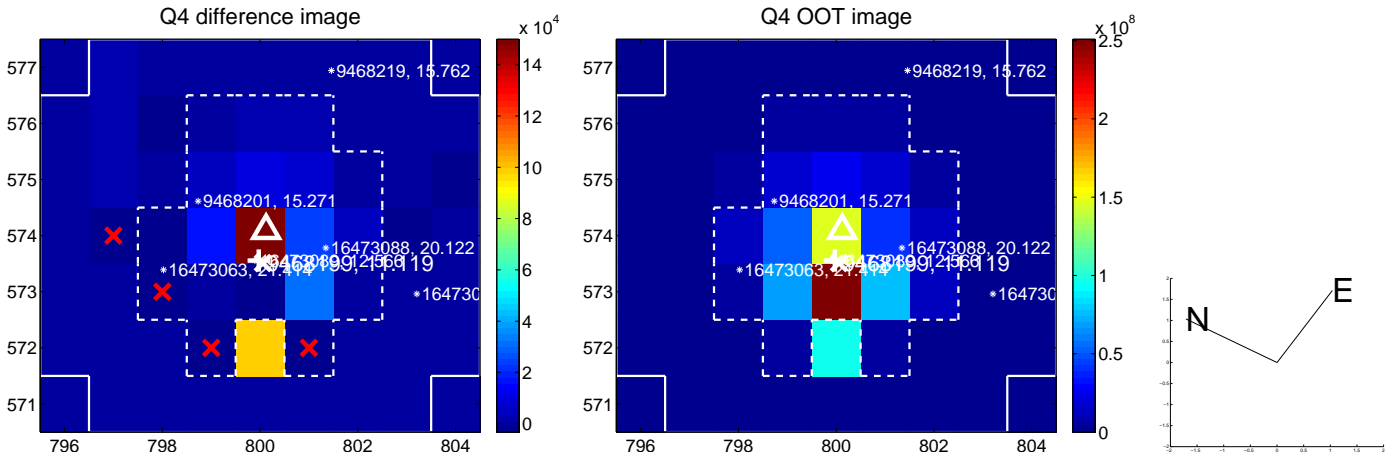
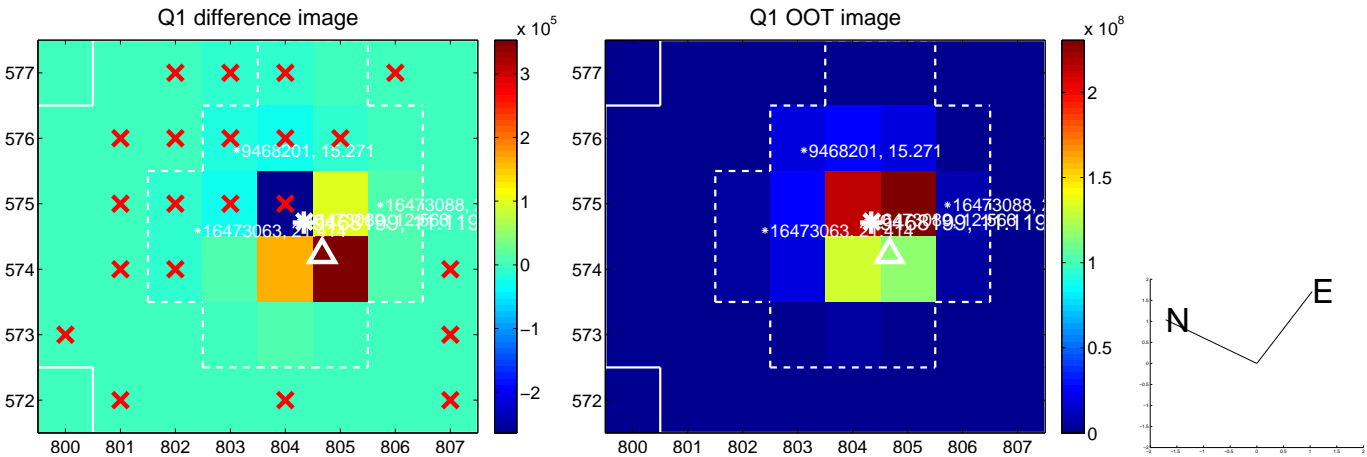
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.573 ± 0.472	3.33	1.451 ± 0.446	0.608 ± 0.474
PRF-fit source offset from KIC position	1.523 ± 0.777	1.96	1.271 ± 0.716	0.839 ± 0.535
photometric centroid source offset	3.02 ± 2.06	1.47	1.04 ± 2.23	2.84 ± 2.03

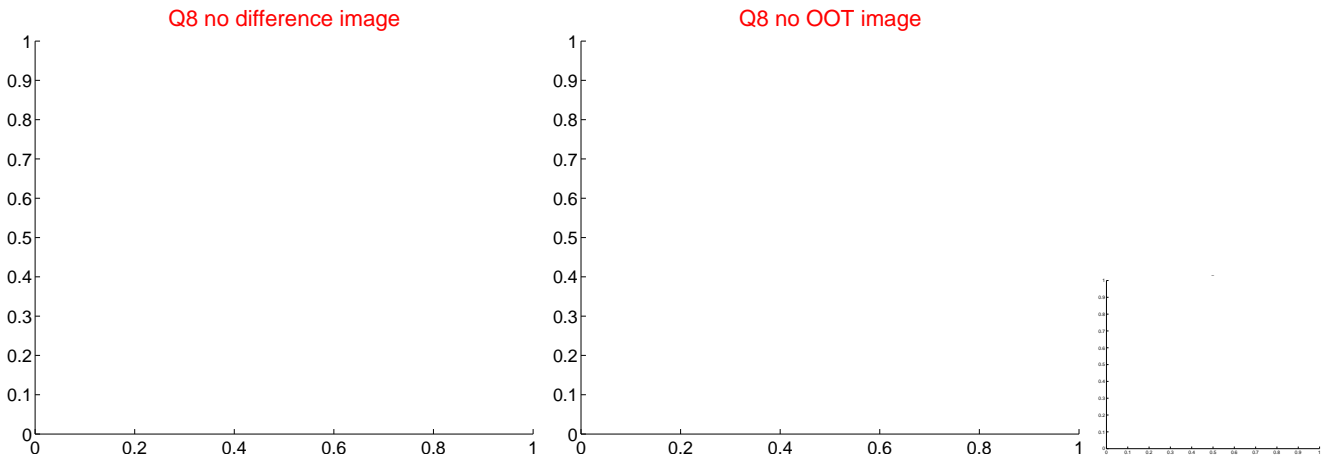
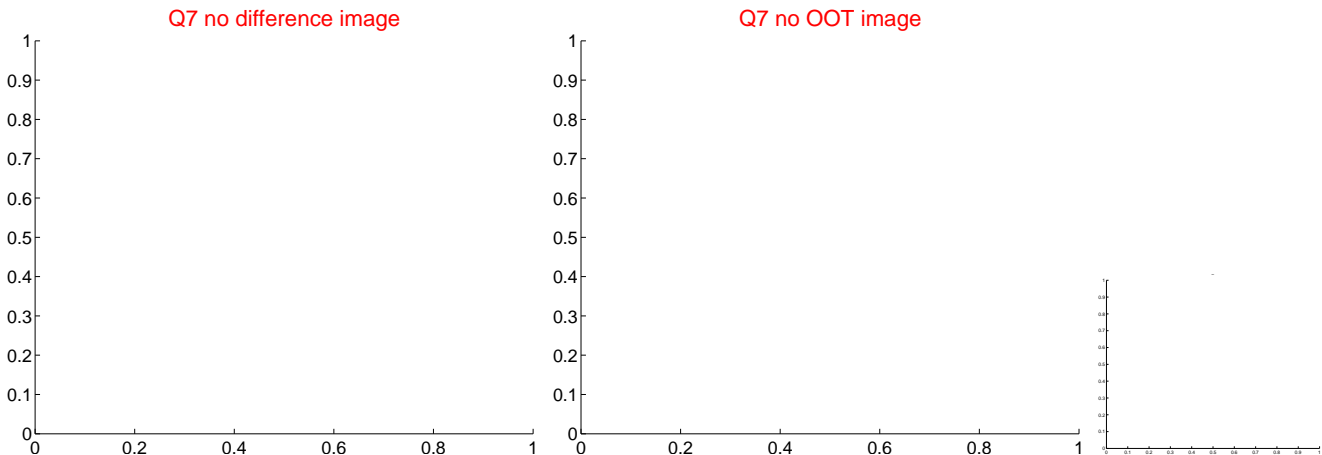
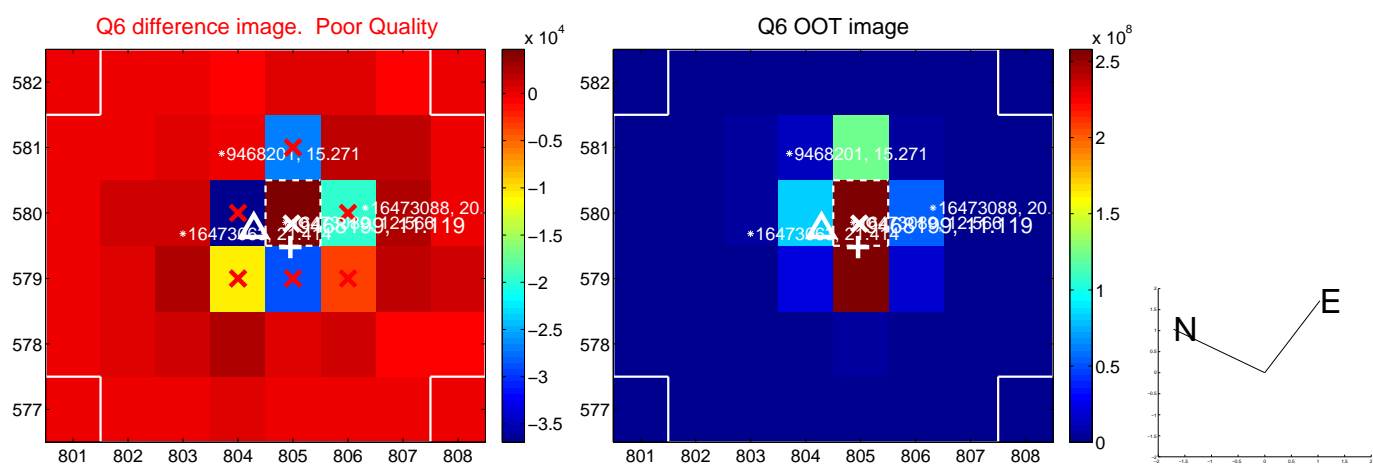
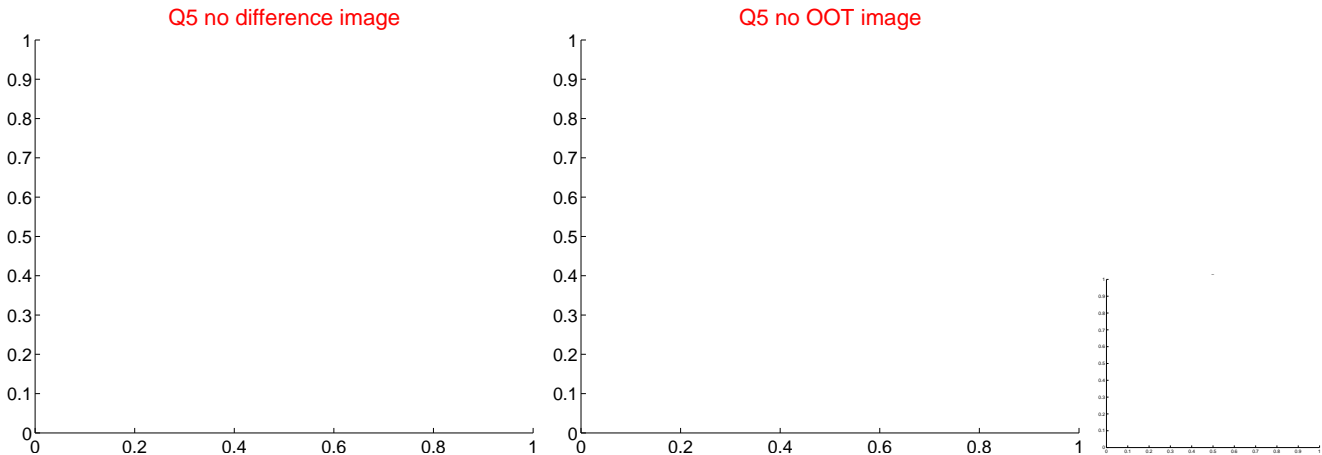


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

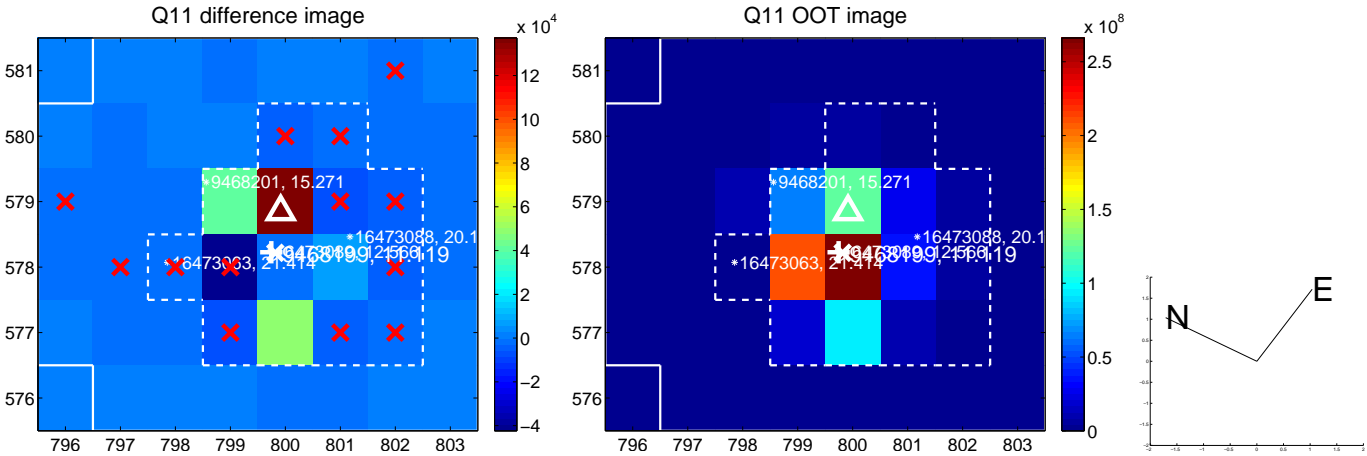
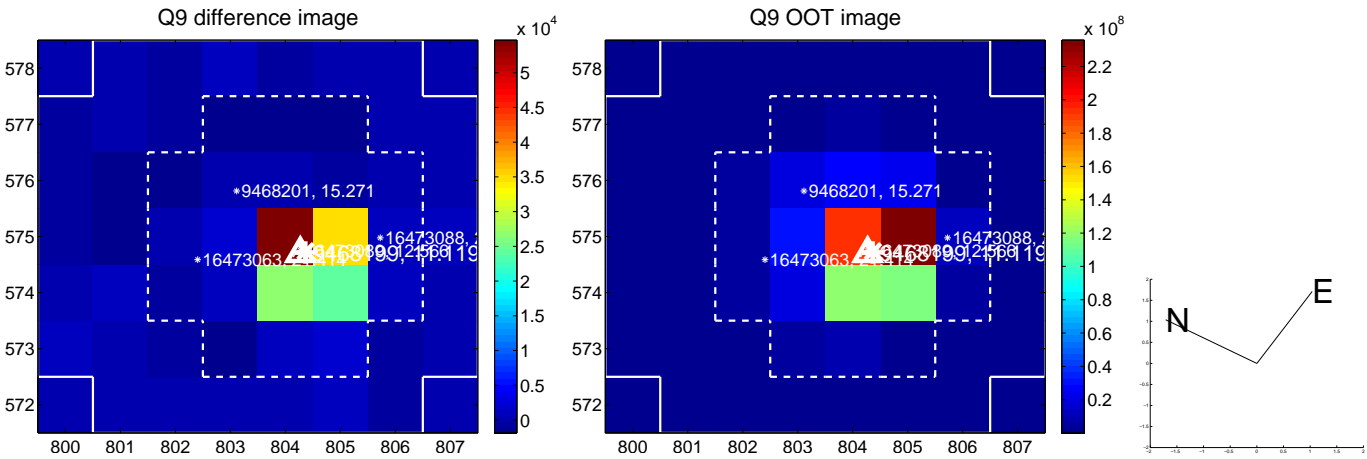
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



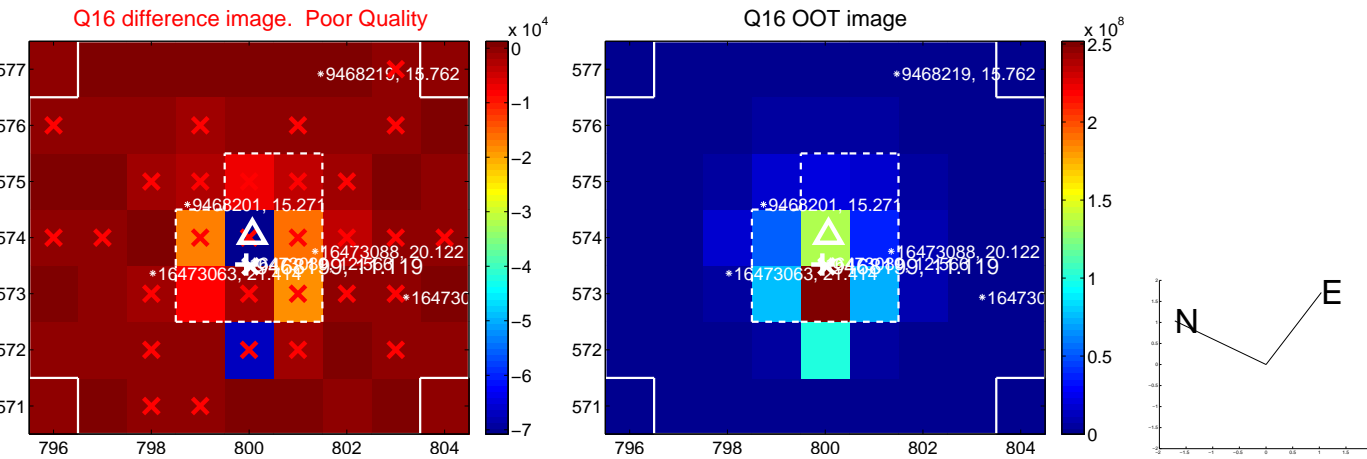
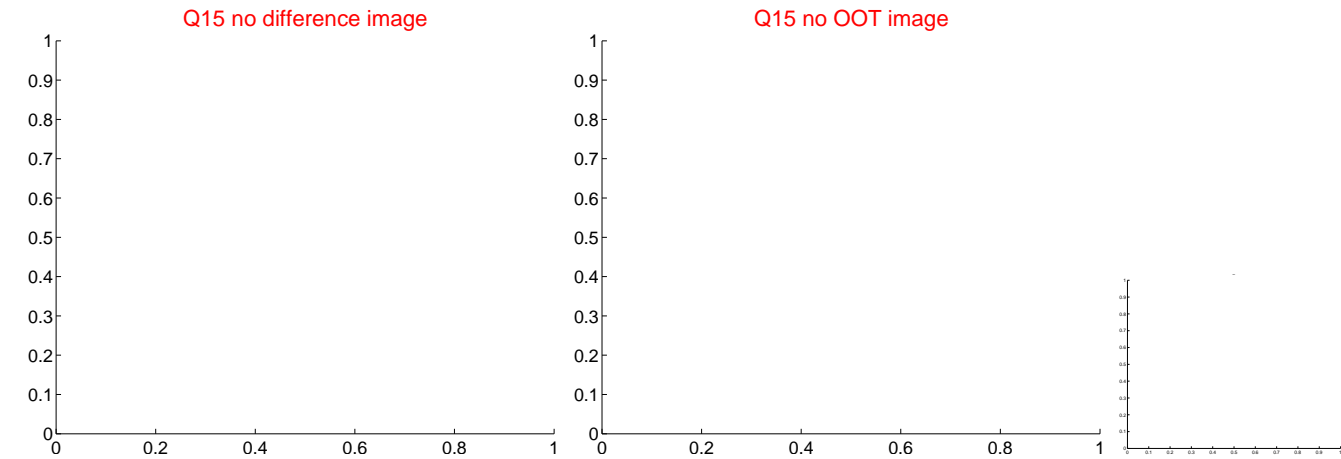
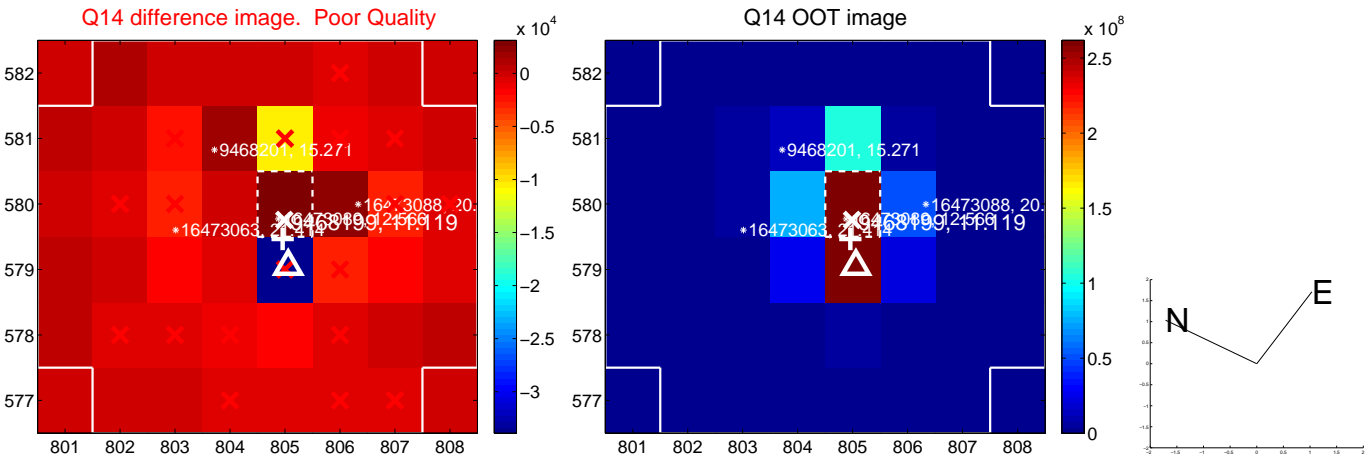
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



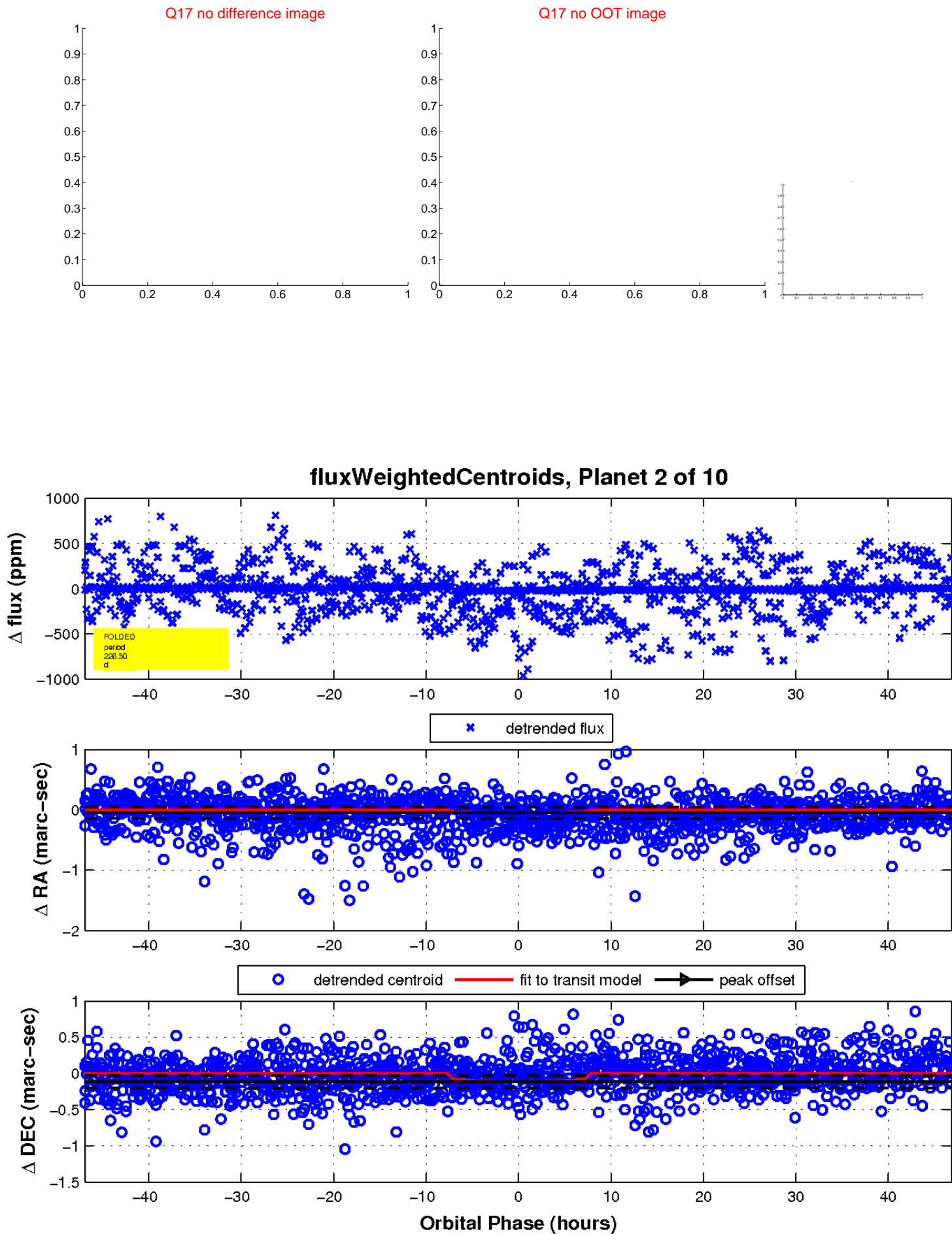
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

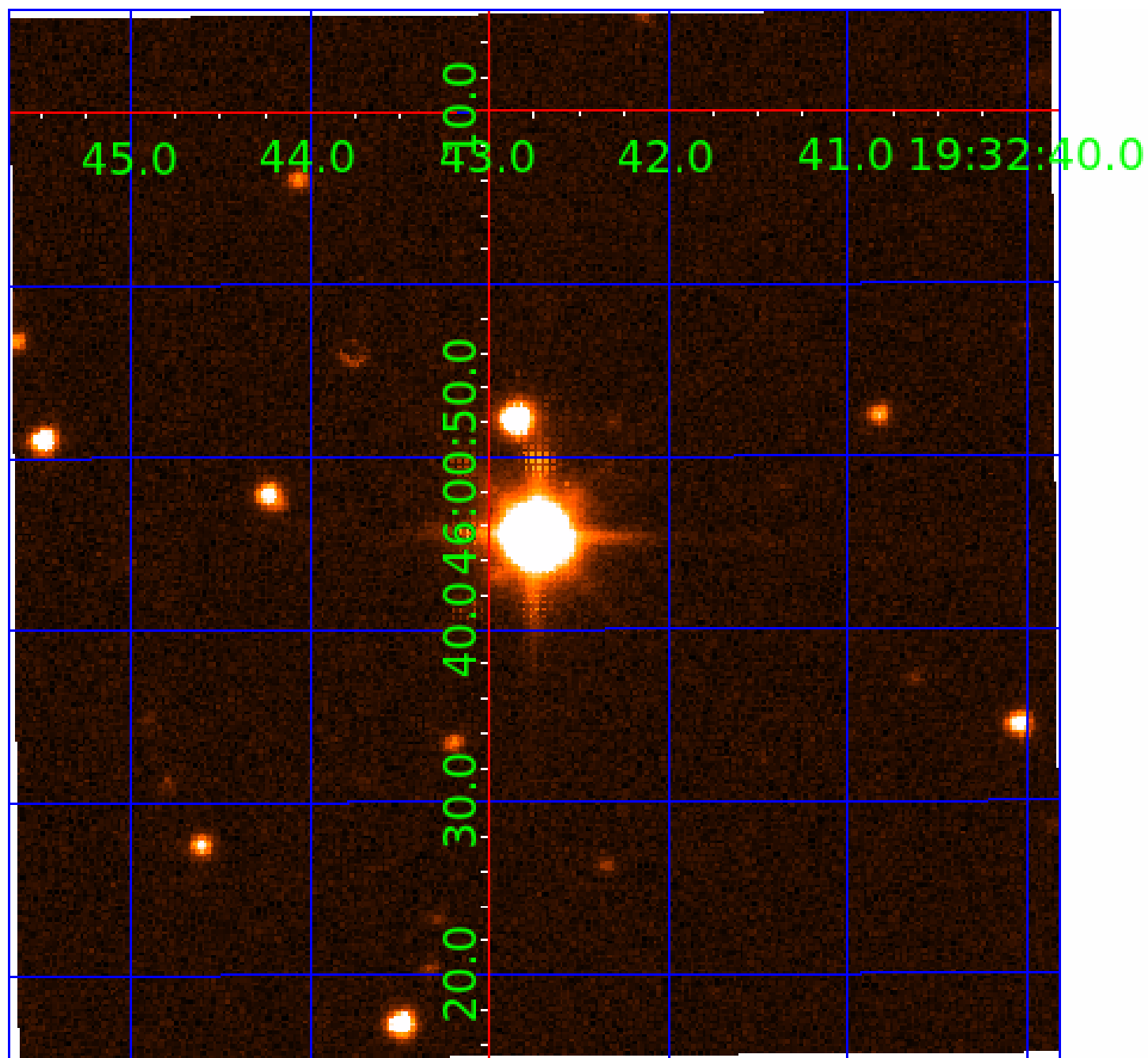


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
009468199-03	OBS	No	90.989115	135.710649	8.0	2.964	20.9	3.2	8.90	5043	2.67	160.97
009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

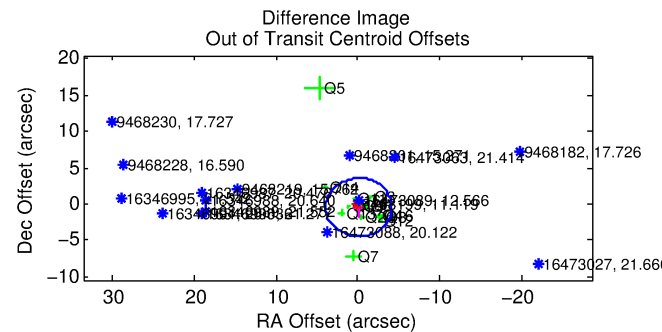
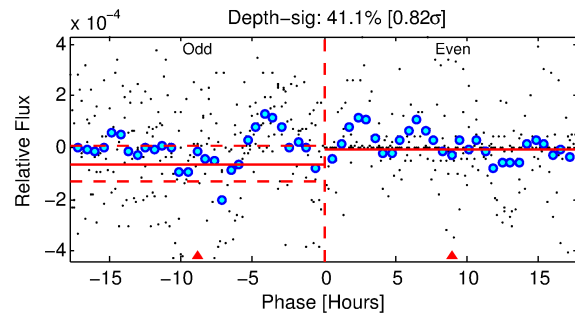
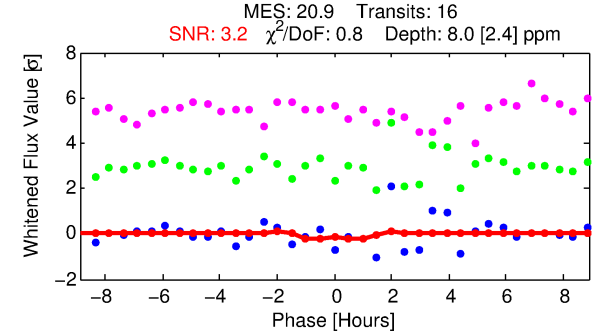
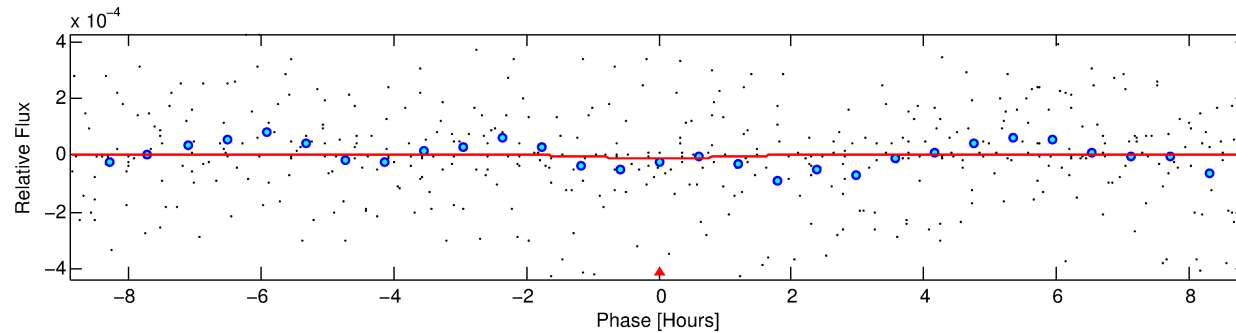
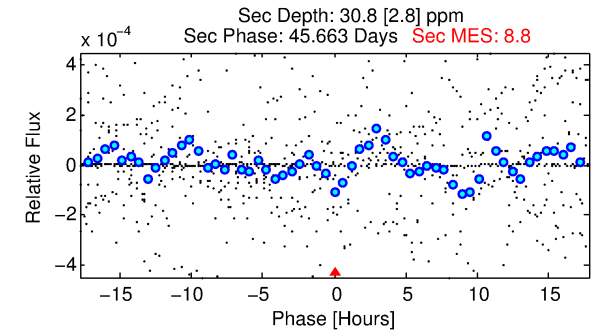
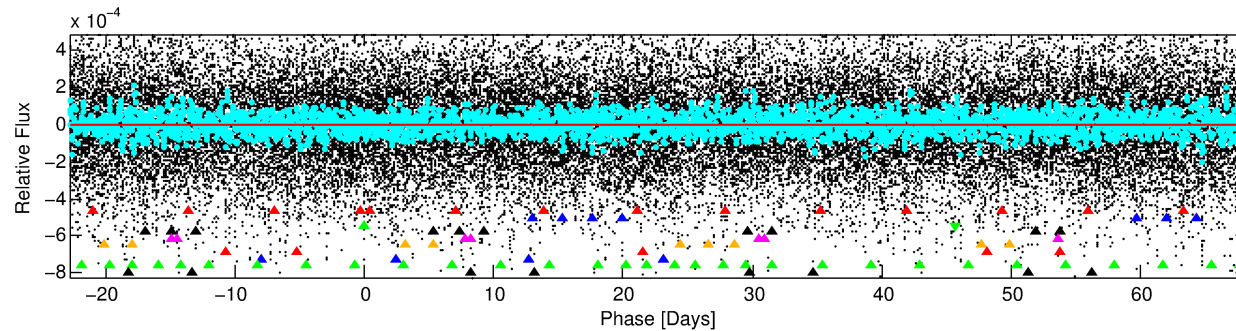
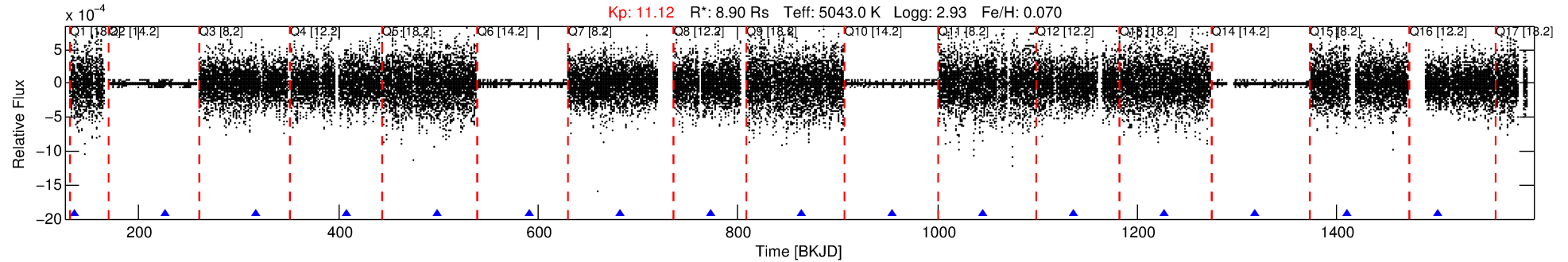
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-03

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 3 of 10 Period: 90.989 d



DV Fit Results:

Period = 90.98912 [0.00124] d
Epoch = 135.7106 [0.0096] BKJD
 $R_p/R^* = 0.0027$ [0.0007]
 $a/R^* = 173.43$ [71.95]
 $b = 0.68$ [0.41]
 $\text{Seff} = 160.97$ [66.59]
 $T_{\text{eq}} = 908$ [94] K
 $R_p = 2.67$ [1.20] R_e
 $a = 0.5343$ [0.1586] AU
 $A_g = 679.50$ [428.93] [1.58 σ]
 $T_{\text{eff}} = 7170$ [892] K [6.98 σ]

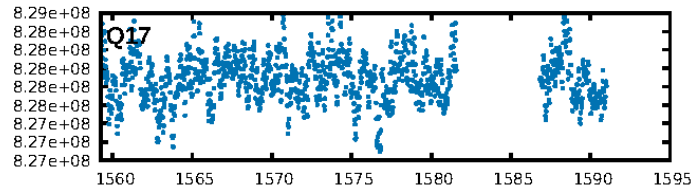
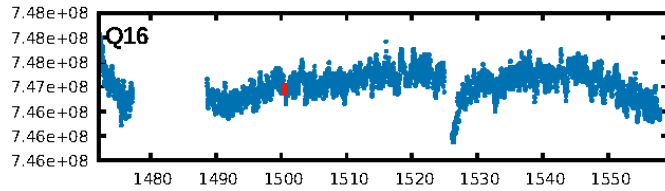
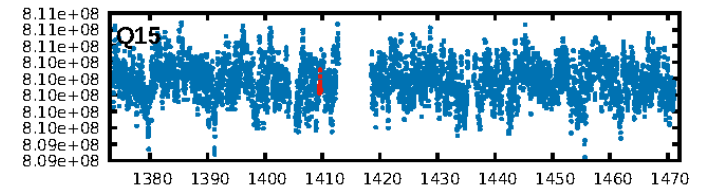
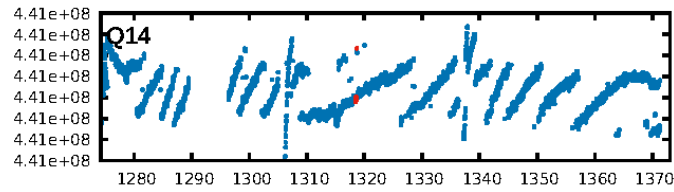
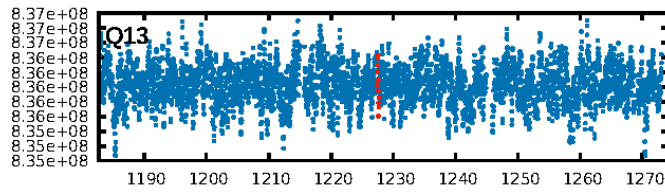
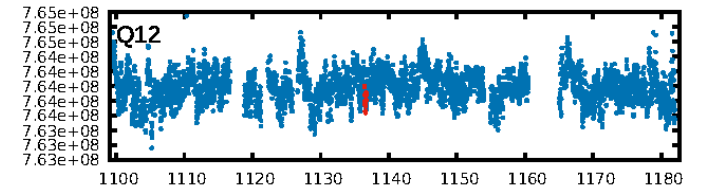
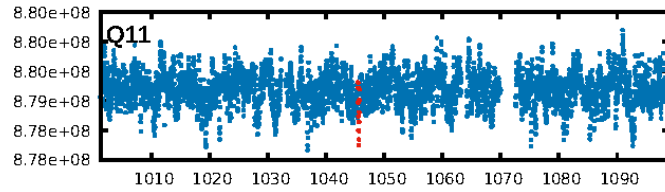
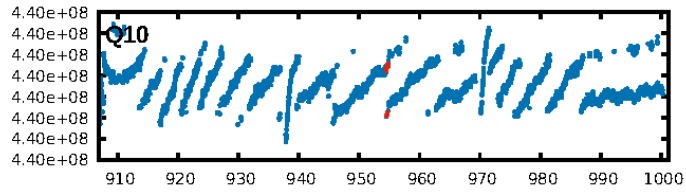
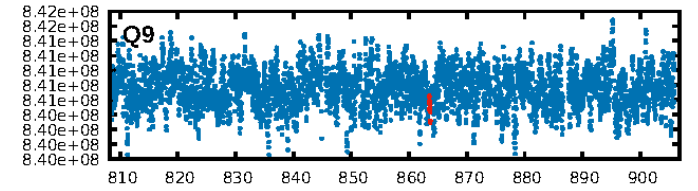
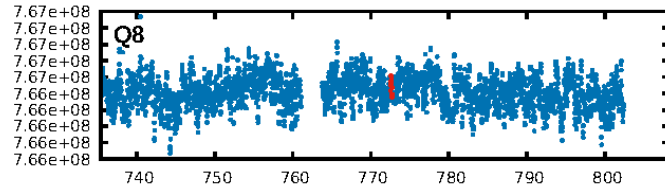
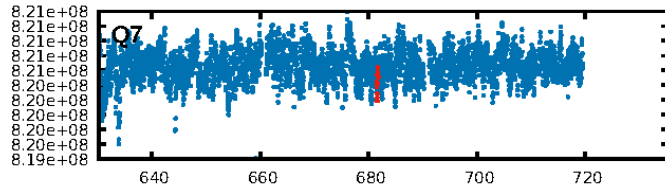
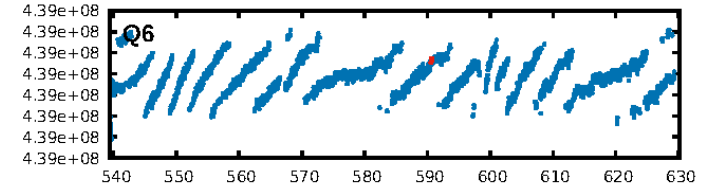
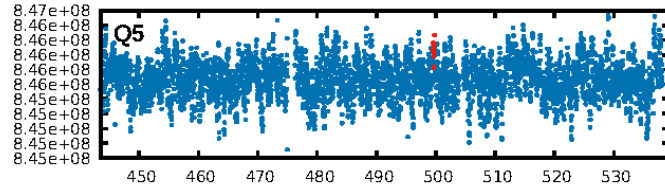
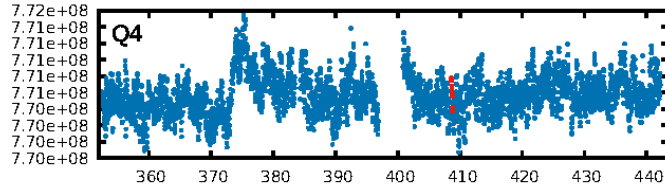
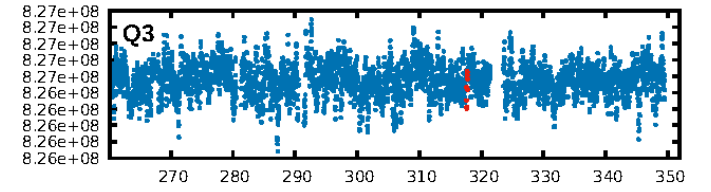
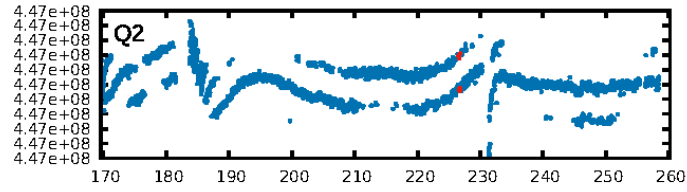
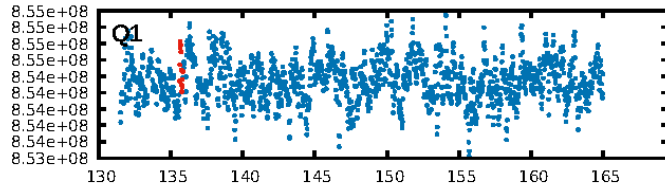
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [319.49 σ]
LongPeriod-sig: 100.0% [100.99 σ]
ModelChiSquare2-sig: 23.3%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: -0.1576
Centroid-sig: 15.6%
Centroid-so: 9.952 arcsec [0.98 σ]
OotOffset-rm: 0.485 arcsec [0.36 σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-rm: 1.021 arcsec [0.73 σ]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.36 [5/14]
DiffImageOverlap-fno: 0.93 [14/15]

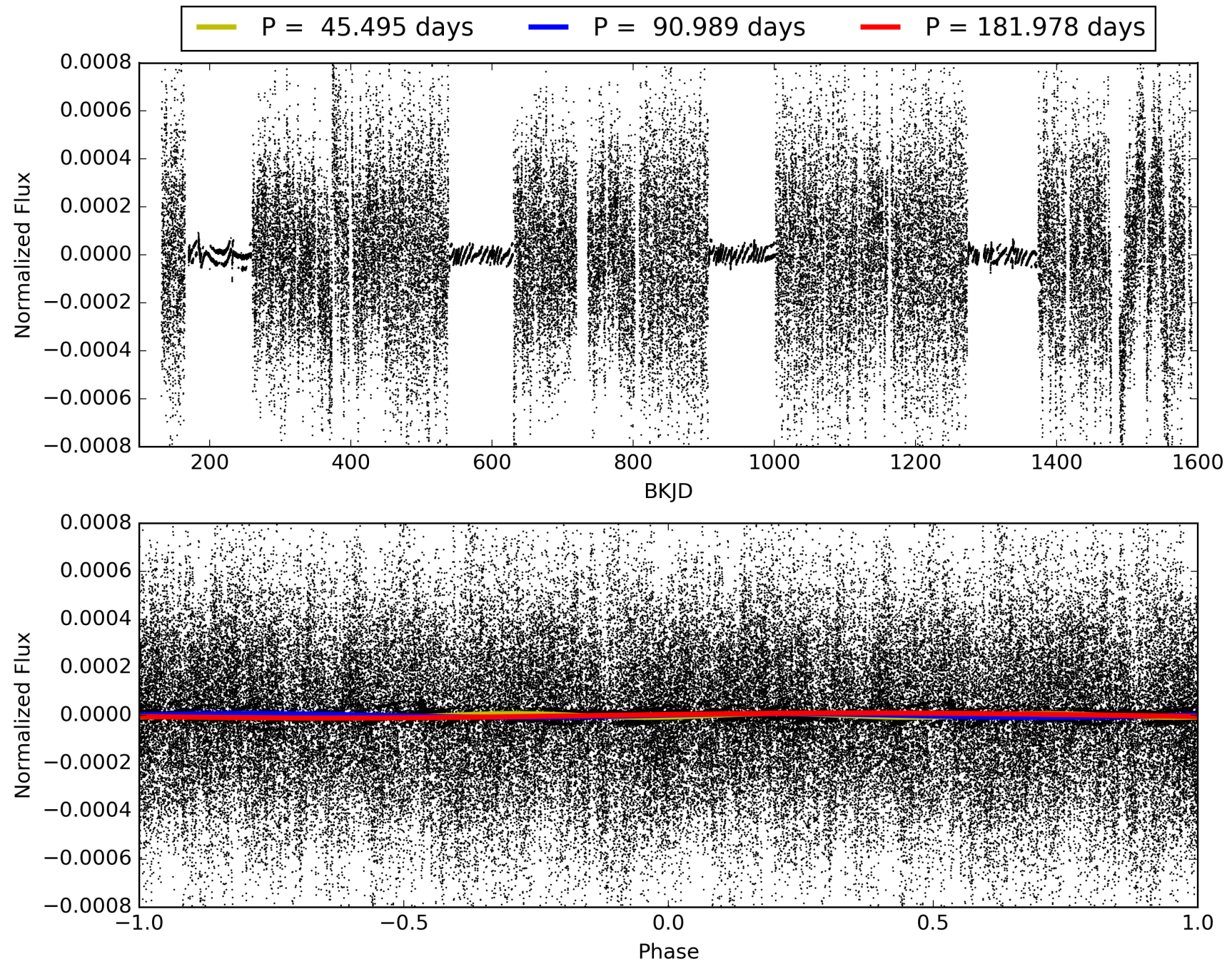
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:51:38 Z

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

TCE 009468199-03, PDC Light Curves

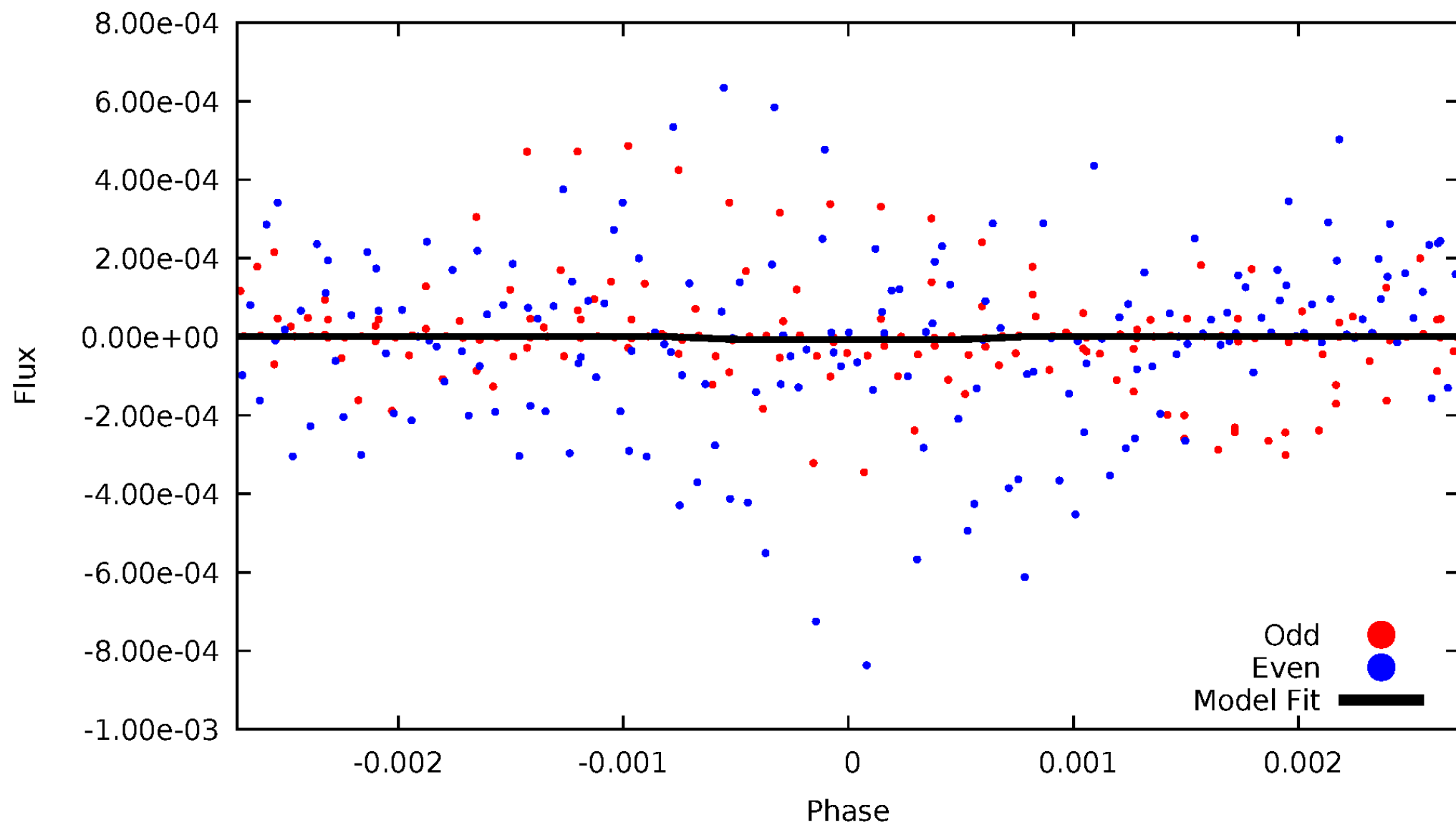


TCE 009468199-03



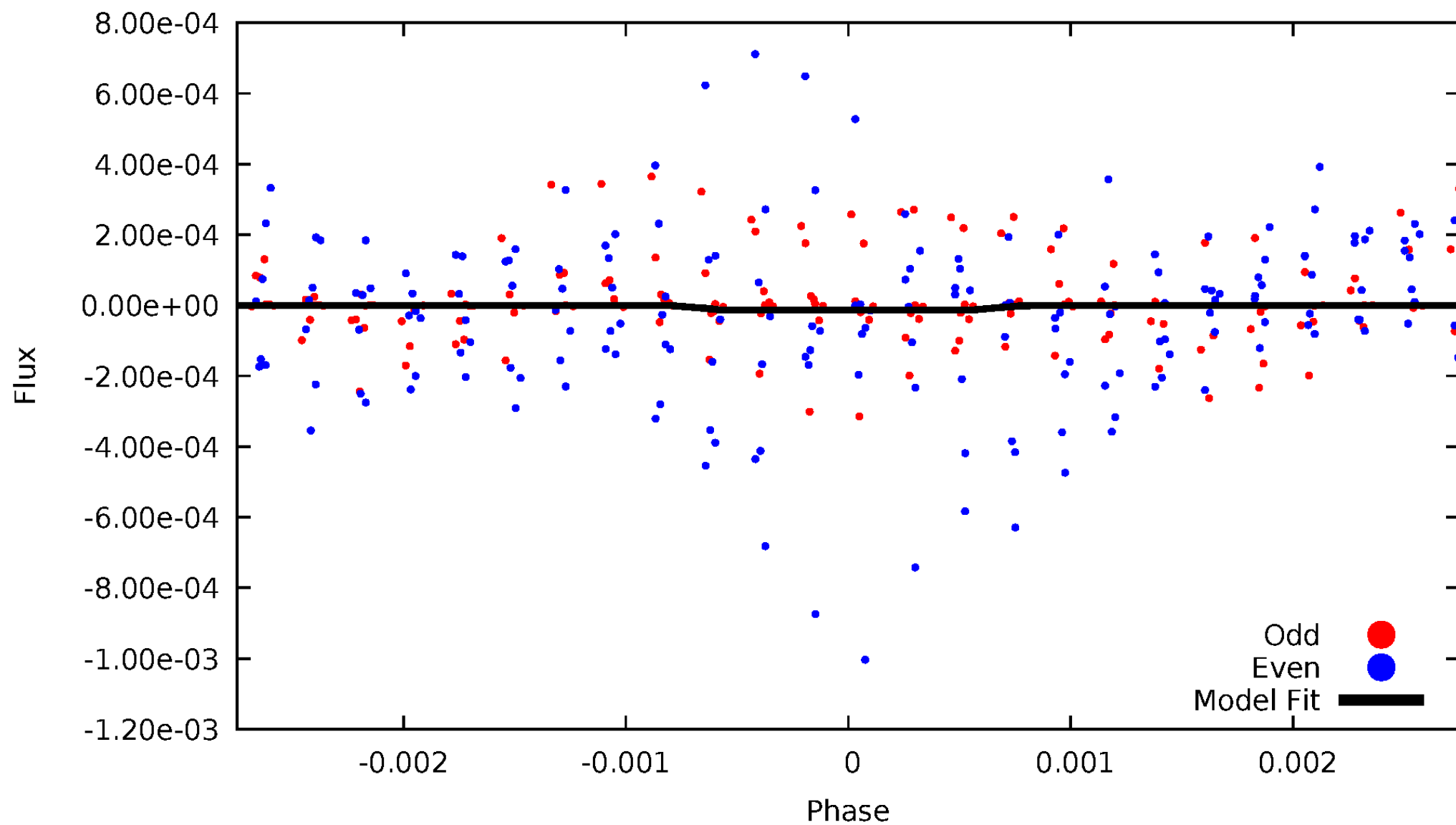
DV Odd/Even

TCE 009468199-03

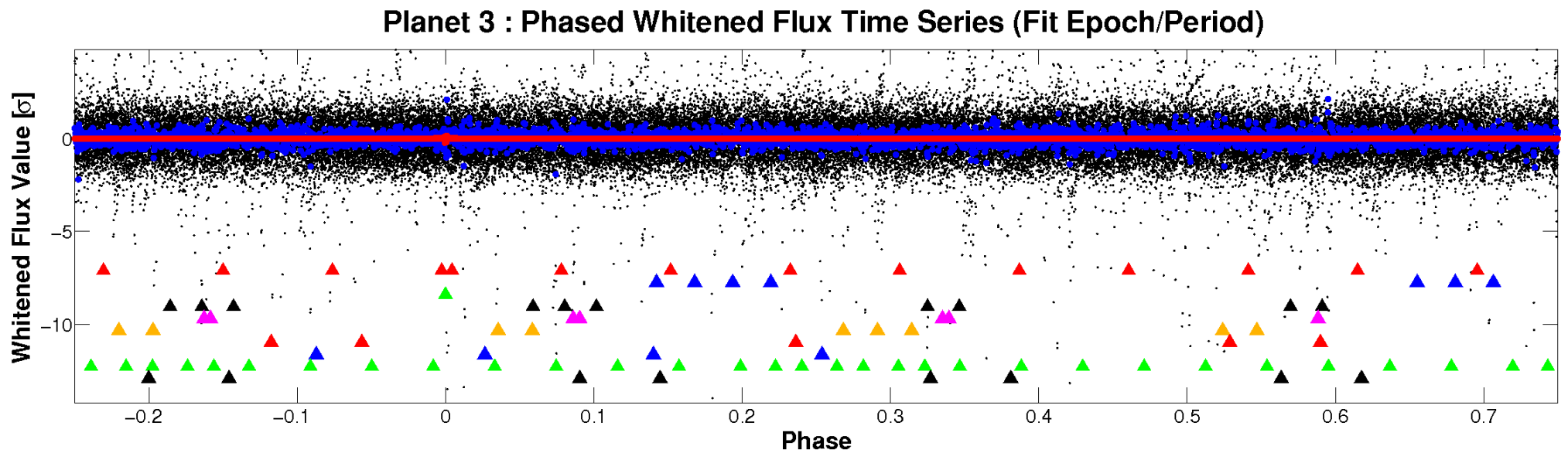
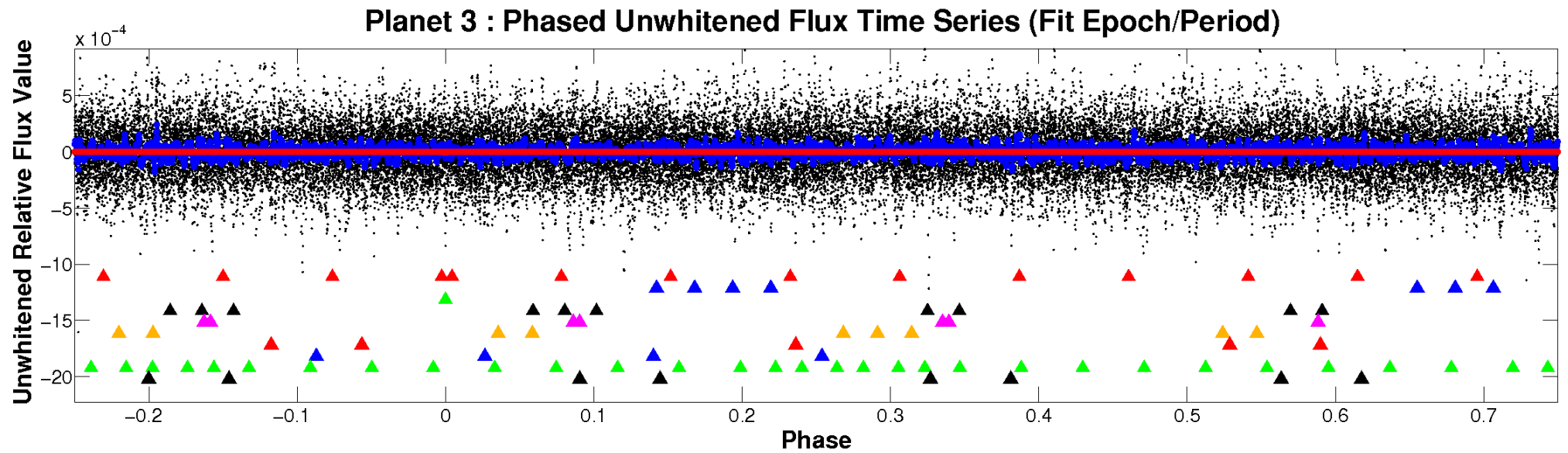


ALT Odd/Even

TCE 009468199-03

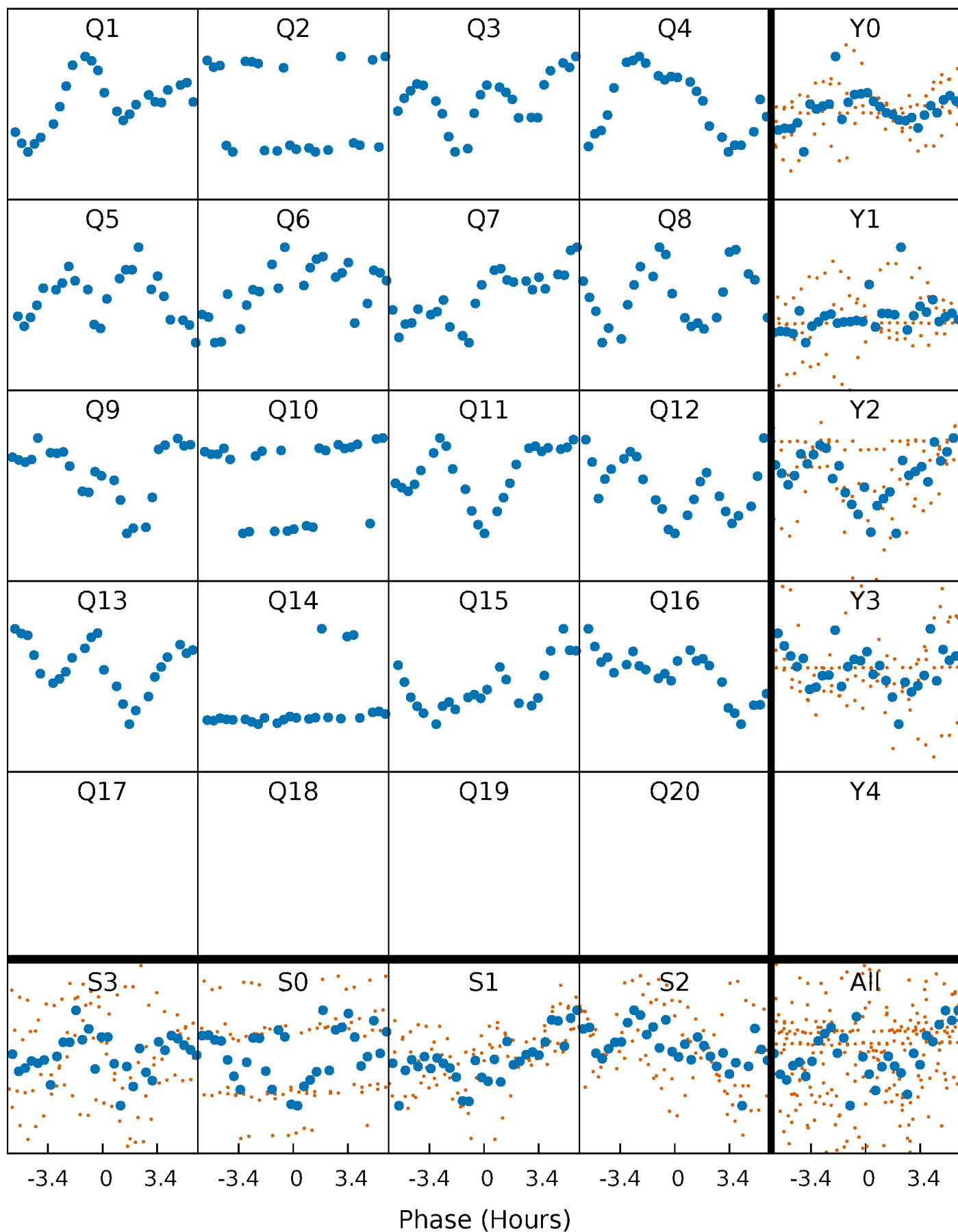


Non-Whitened Vs. Whitened Light Curve



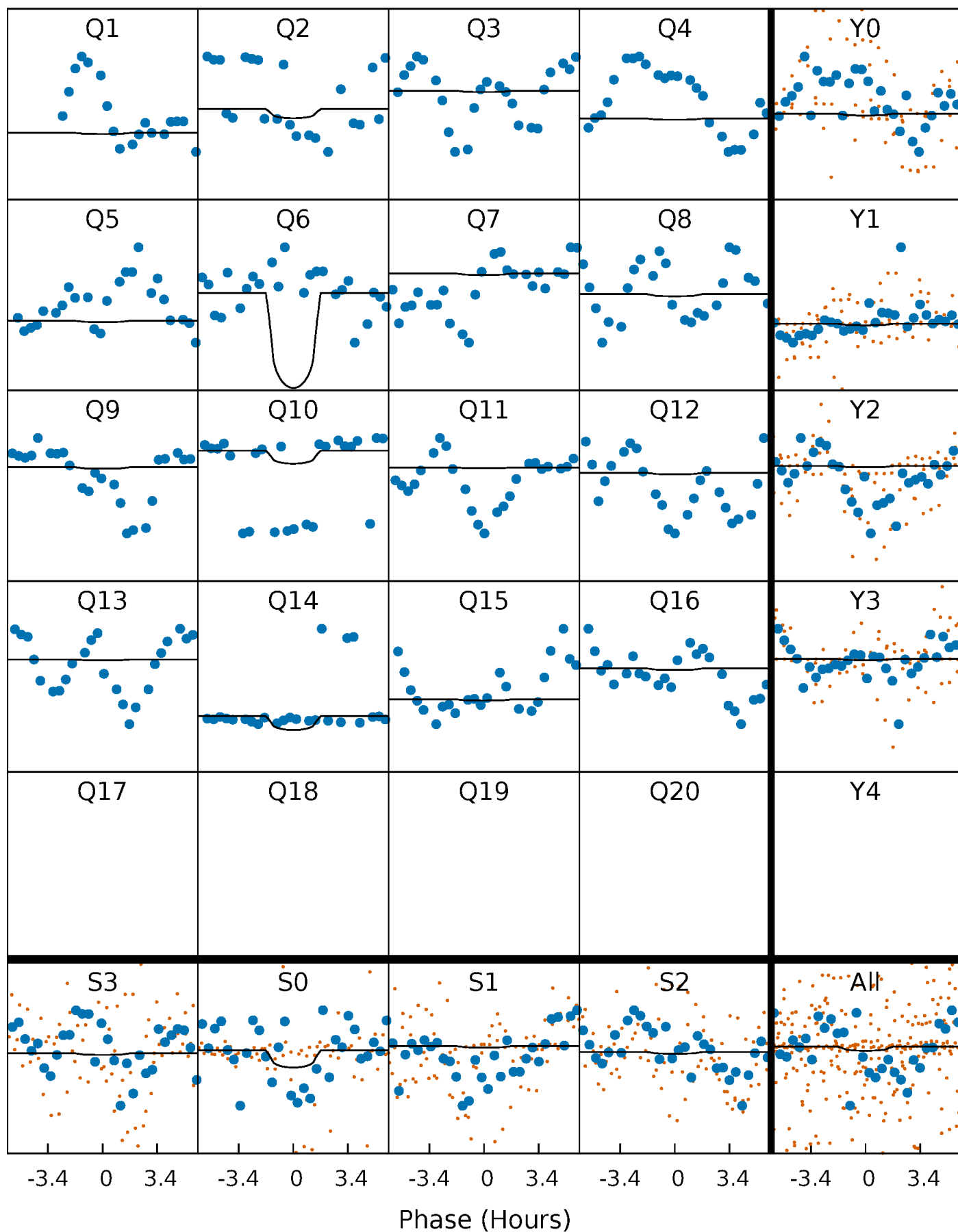
PDC Quarter-Phased Transit Curves

TCE 009468199-03 $P = 90.989115$ Days $T_0 = 135.710649$ (BKJD)



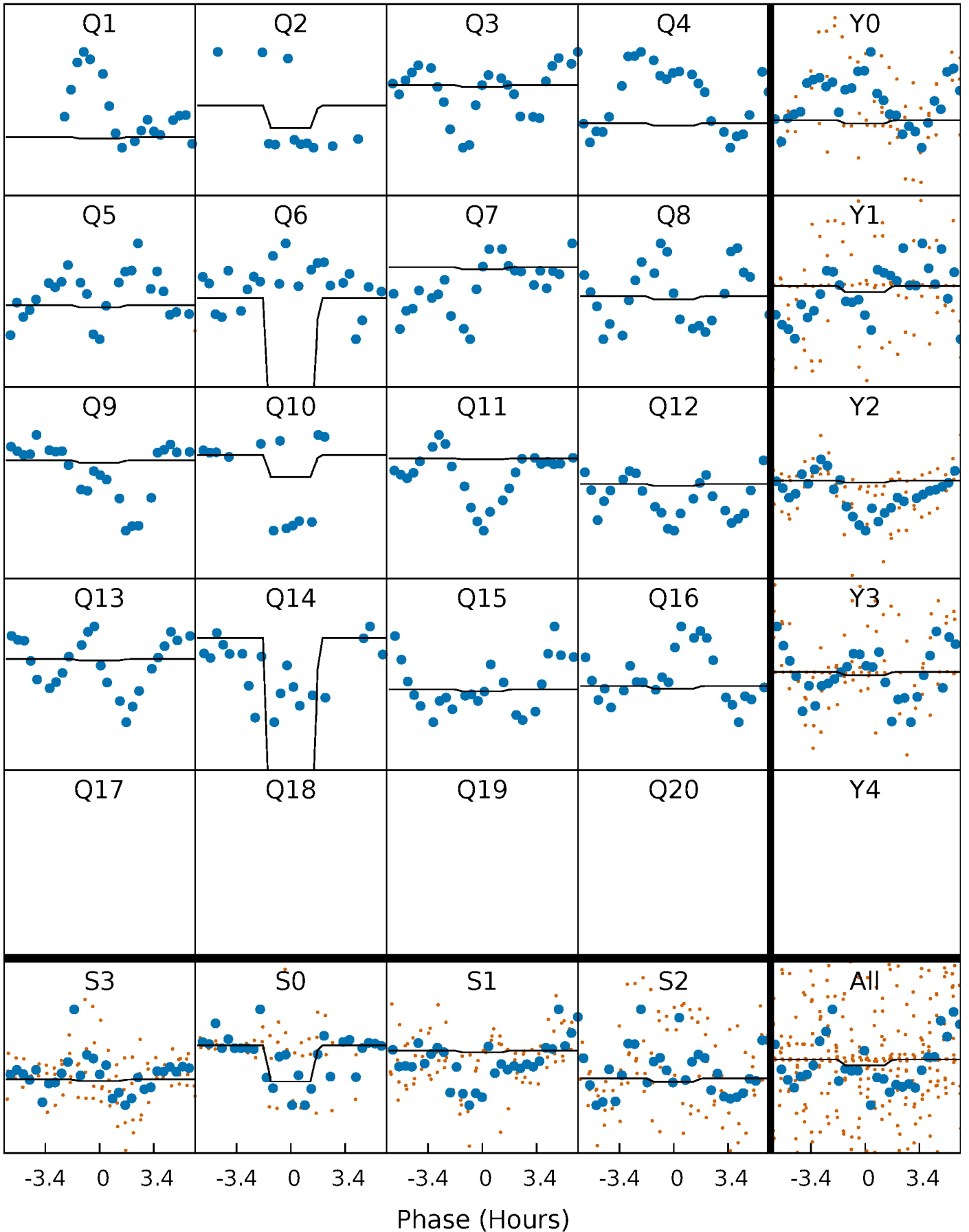
DV Quarter-Phased Transit Curves

TCE 009468199-03 P= 90.989115 Days $T_0=135.710649$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

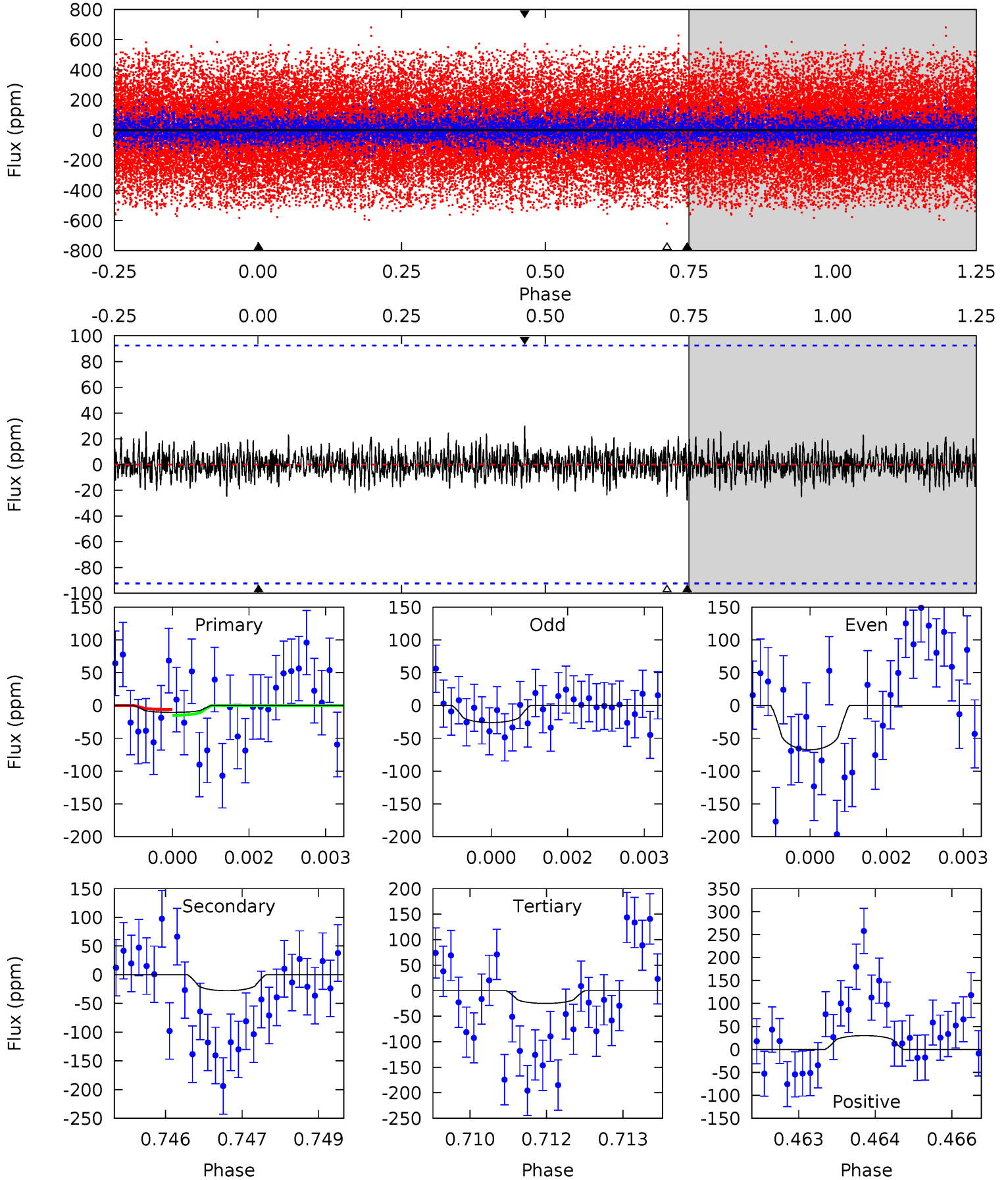
TCE 009468199-03 $P = 90.990394$ Days $T_0 = 135.698357$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-03, P = 90.989115 Days, E = 44.721534 Days

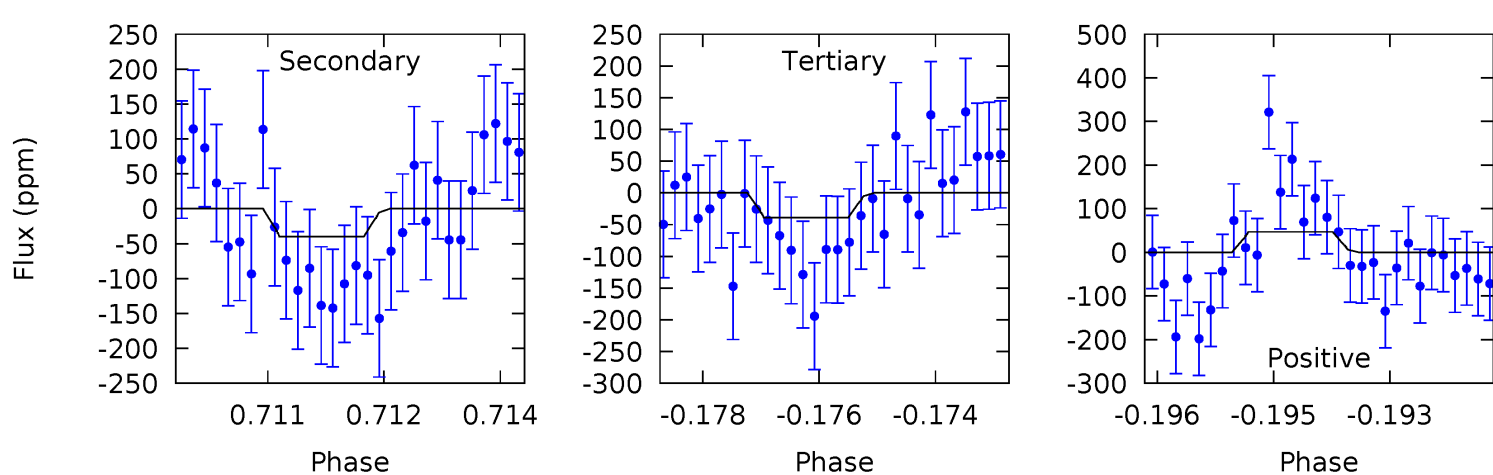
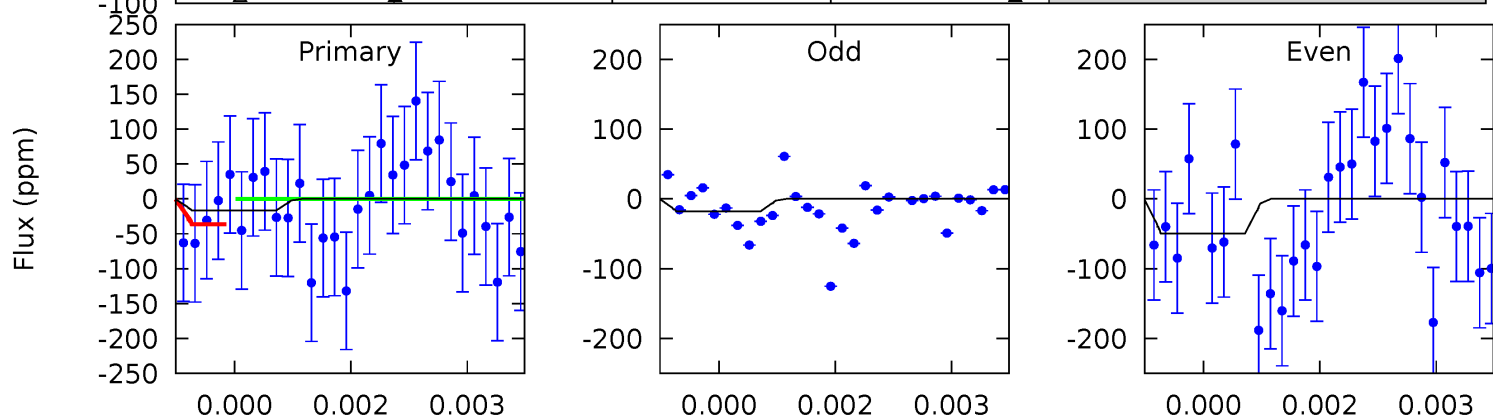
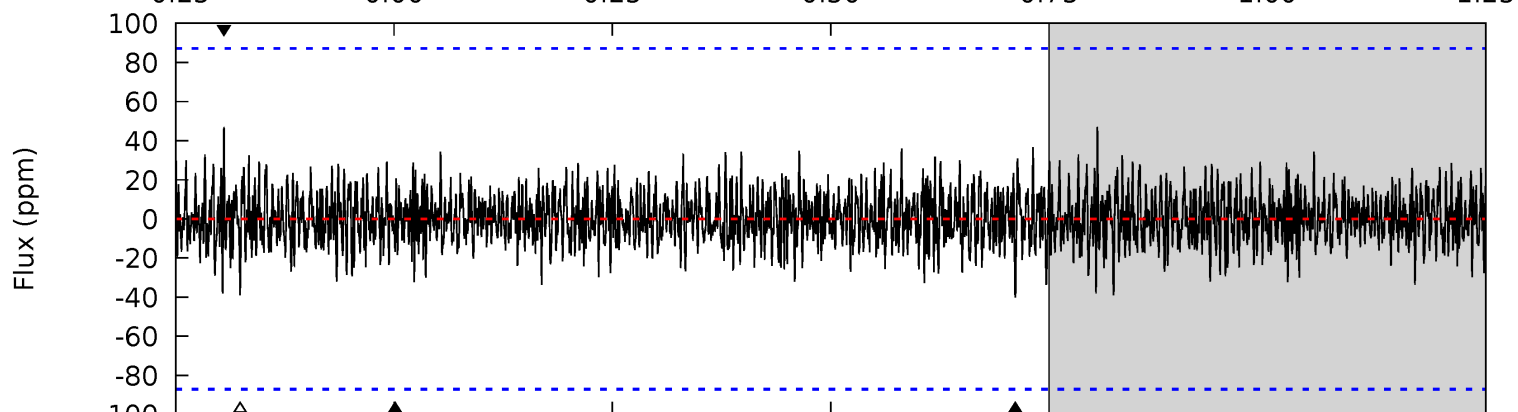
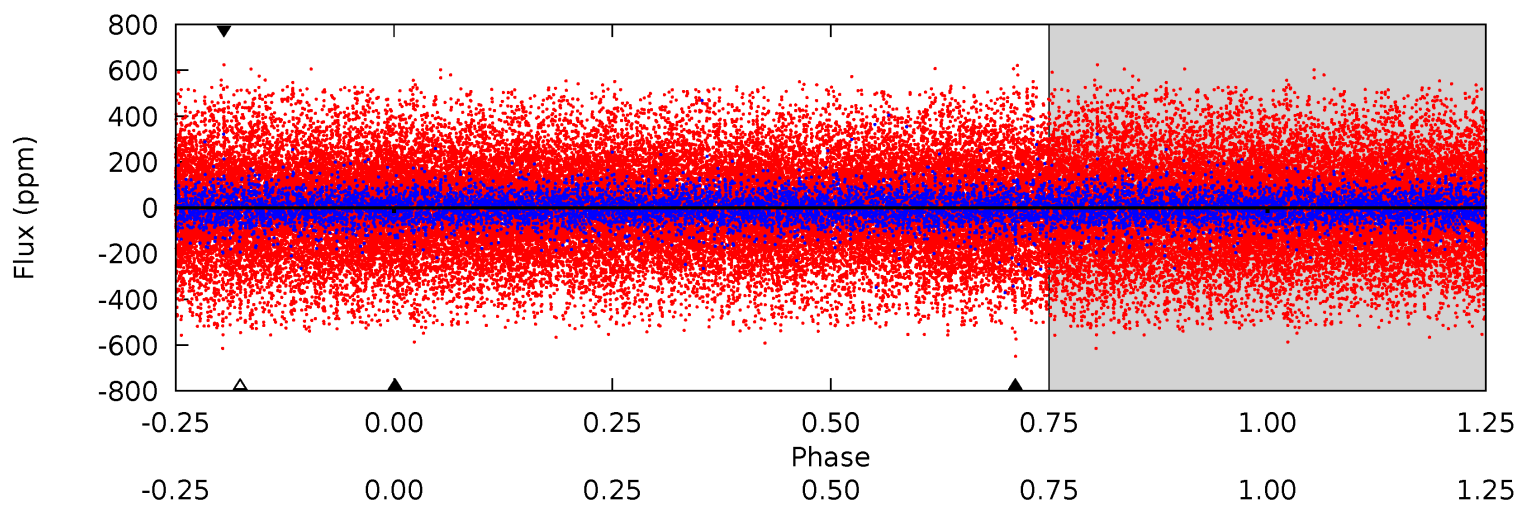
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.61	1.62	1.45	1.75	5.37	3.17	0.45	-0.84	-1.14	0.17	-0.13	1.31	5.33	0.52	0.26



Alt Model-Shift Uniqueness Test

009468199-03, P = 90.990394 Days, E = 44.707963 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.03	2.47	2.41	2.89	5.37	3.16	0.71	-1.38	-1.86	0.07	-0.42	1.12	3.64	0.54	1.11



Stellar Parameters For KIC 009468199

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-28 ± 17	$2.56^{+0.82}_{-0.75}$	1260^{+93}_{-101}	6741^{+1799}_{-1521}	593^{+775}_{-396}
Alt.	-40 ± 16	$3.38^{+0.82}_{-0.84}$	1259^{+84}_{-99}	6505^{+1079}_{-895}	519^{+453}_{-247}

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 $A_{obs} \gg 1.0$

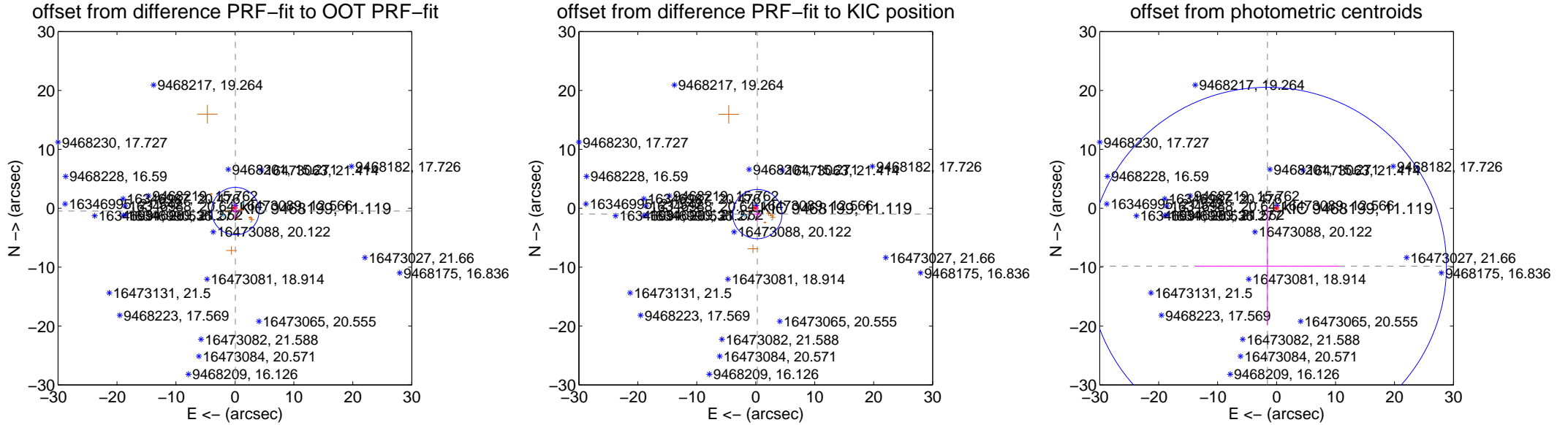
DV Centroid Data

Supplemental centroid analysis for 009468199-03. **Kepler magnitude: 11.12.** Transit SNR 3.23

There are 5 quarters with good PRF difference image offsets

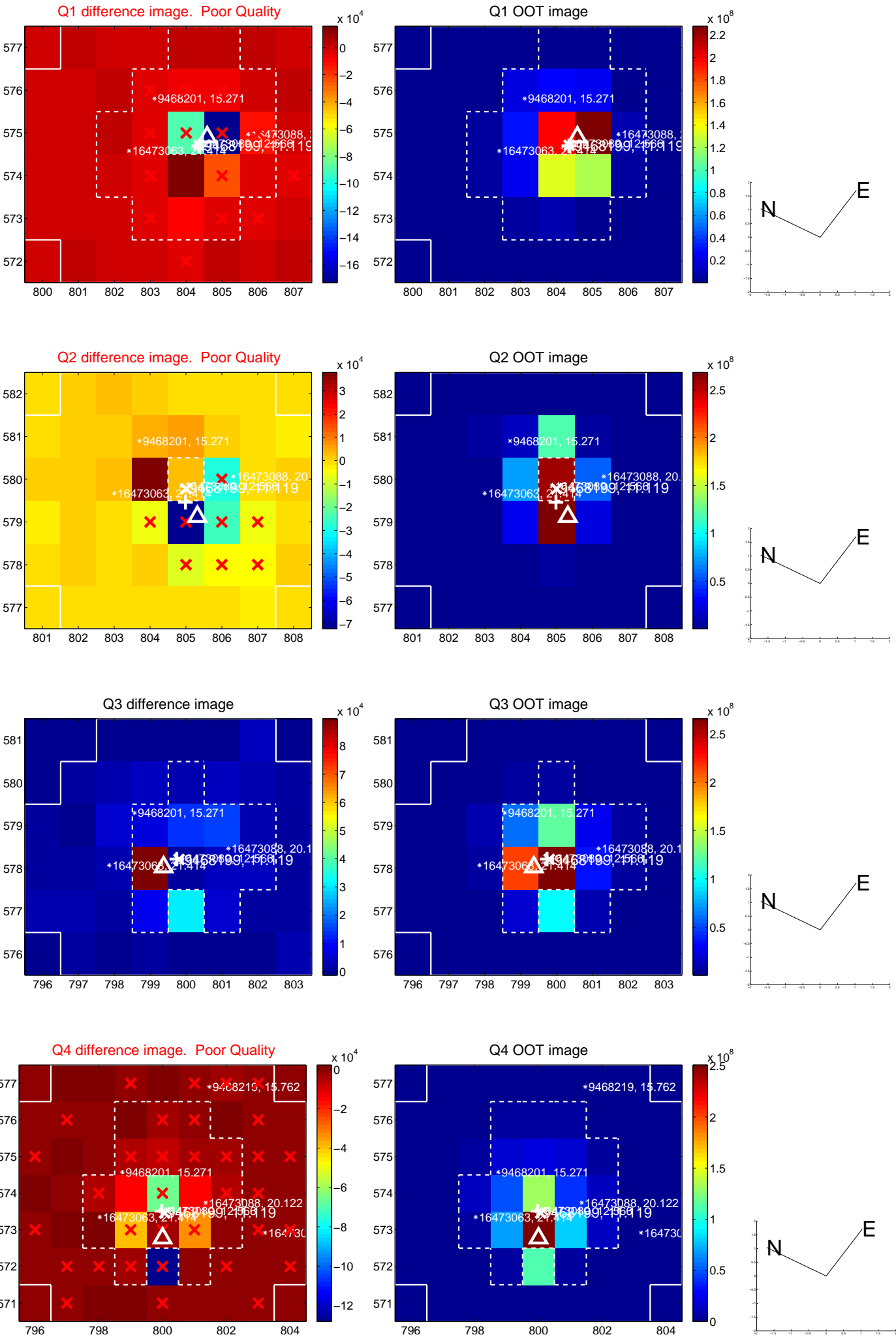
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.485 ± 1.342	0.36	-0.073 ± 0.590	-0.479 ± 1.303
PRF-fit source offset from KIC position	1.021 ± 1.396	0.73	-0.261 ± 0.661	-0.987 ± 1.320
photometric centroid source offset	9.95 ± 10.12	0.98	1.56 ± 12.22	-9.83 ± 10.06

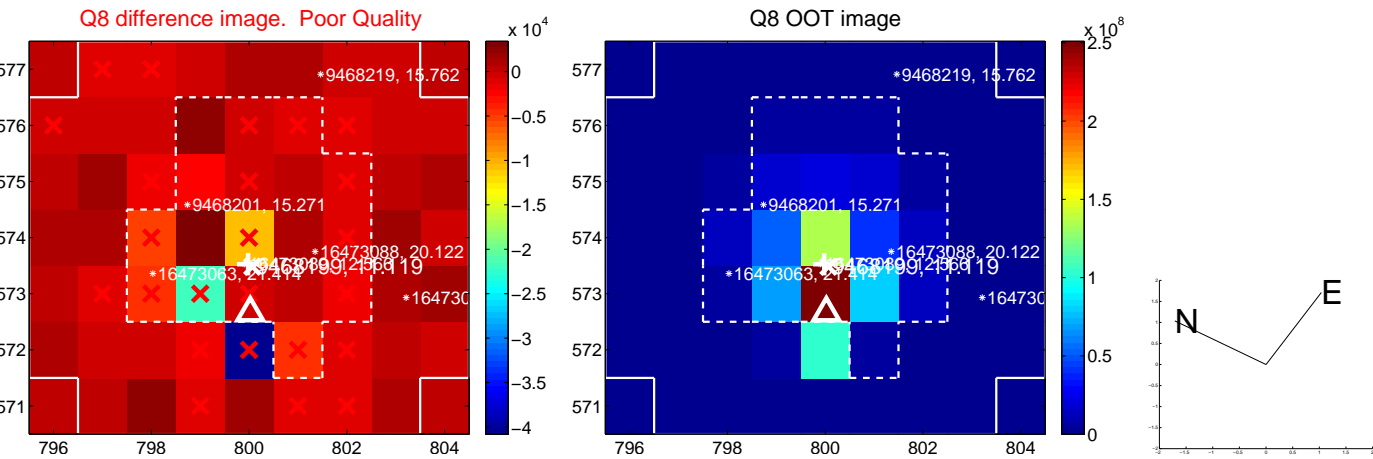
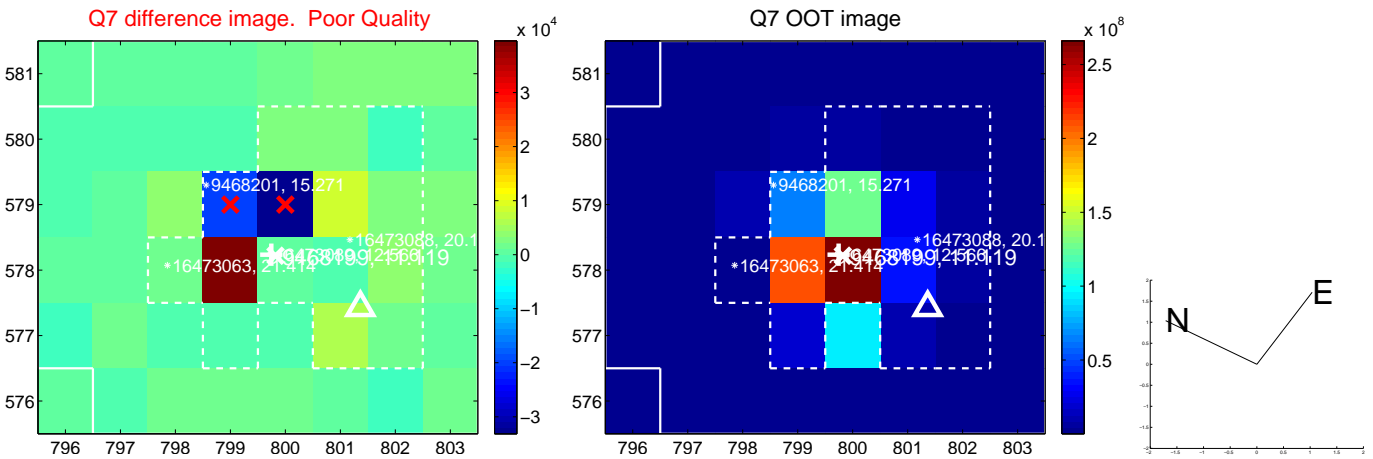
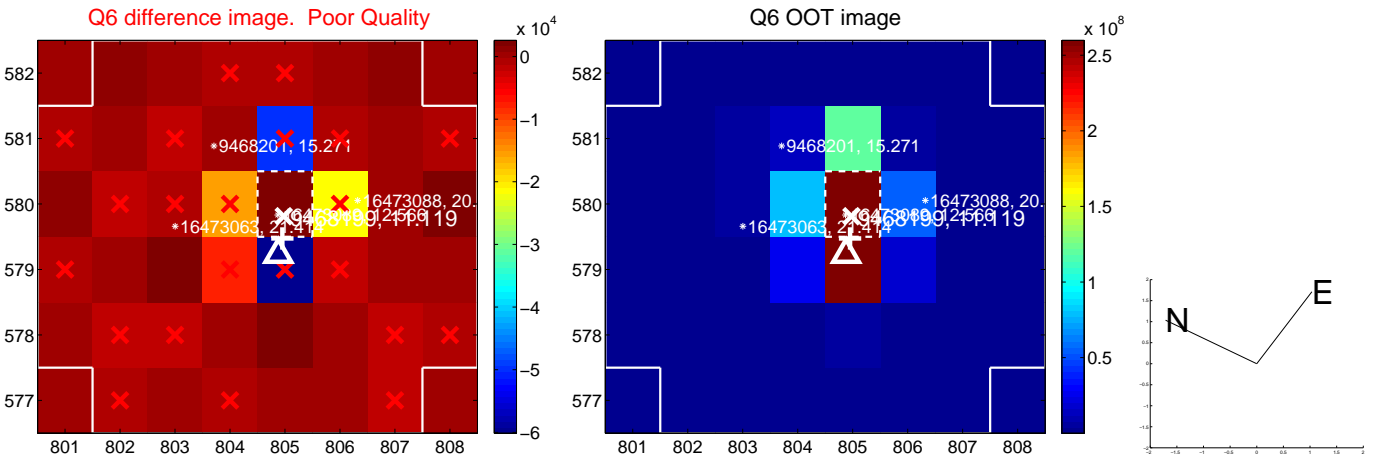
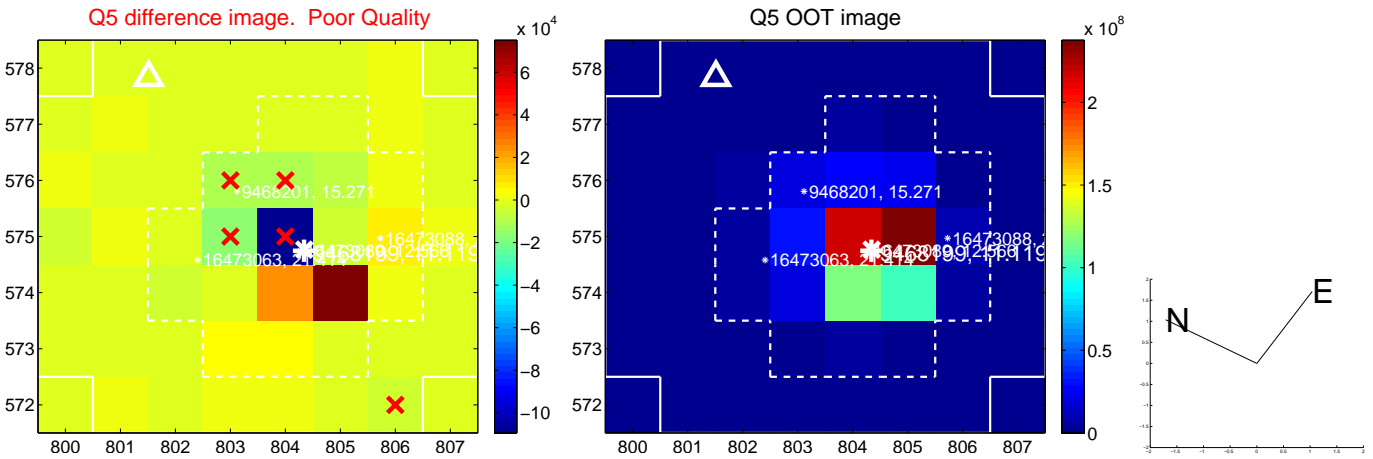


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

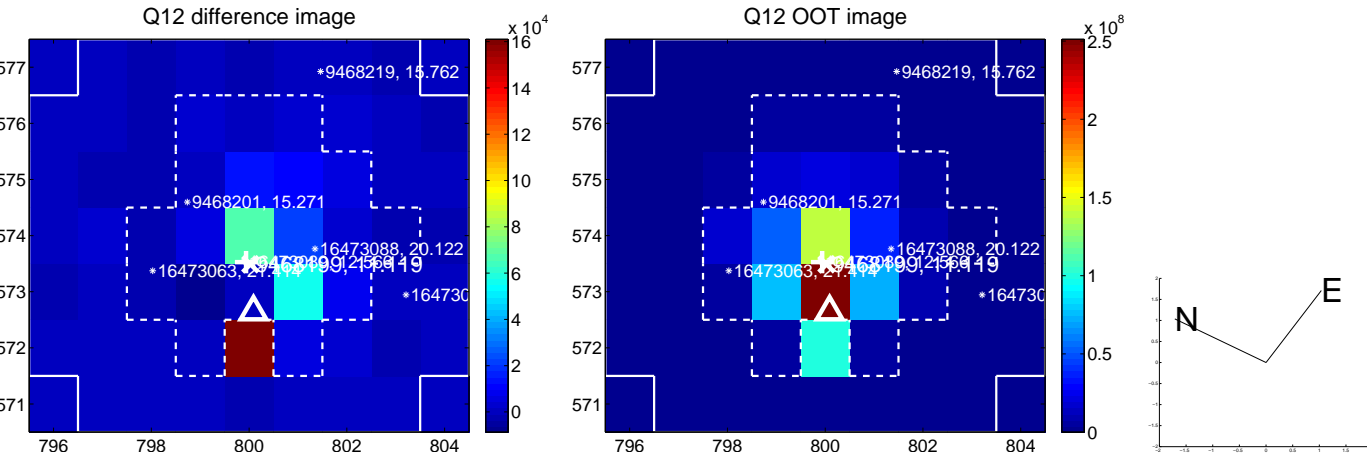
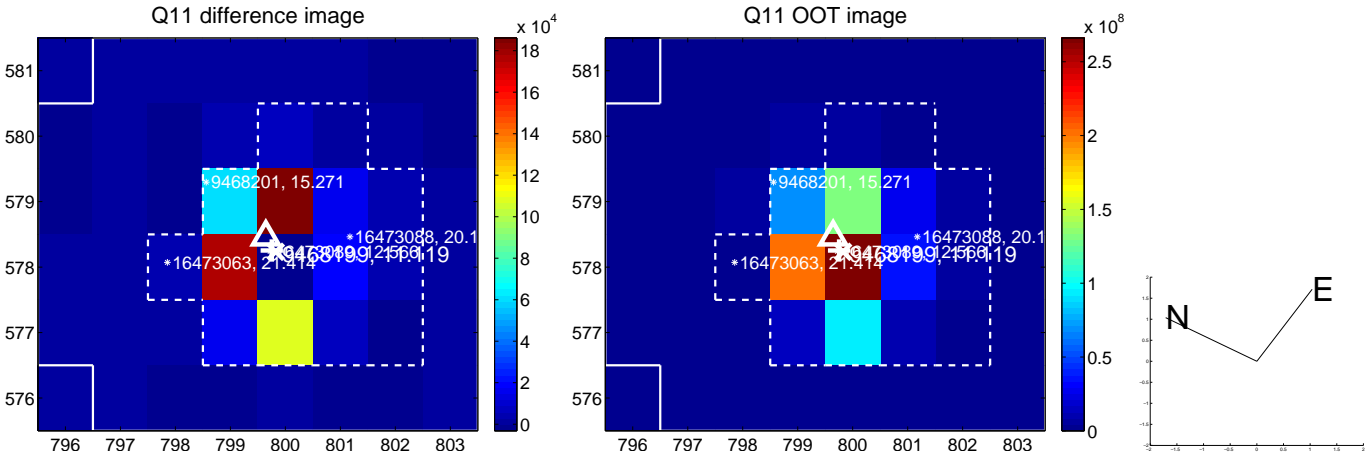
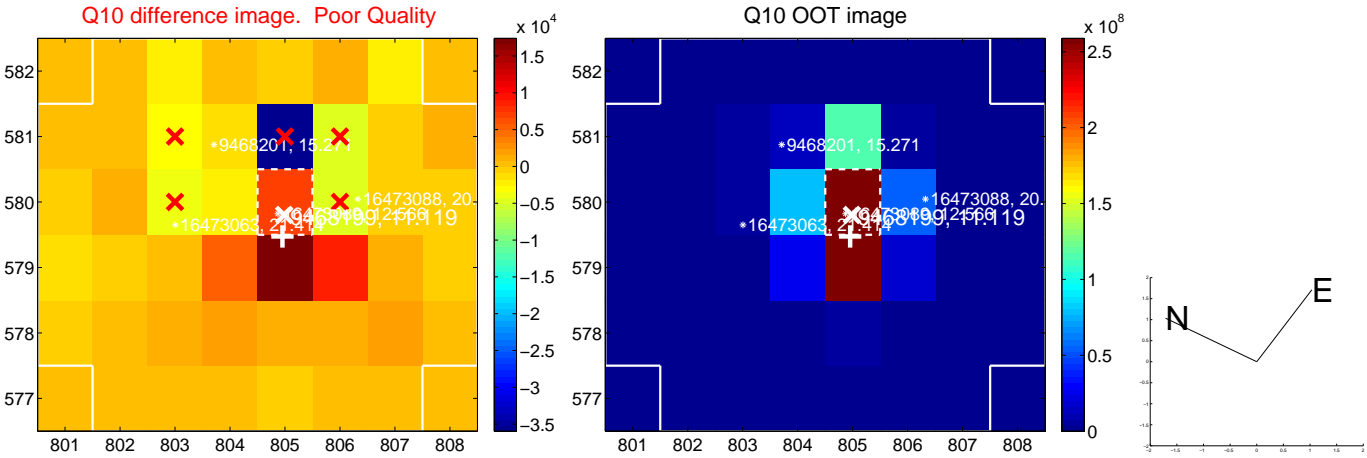
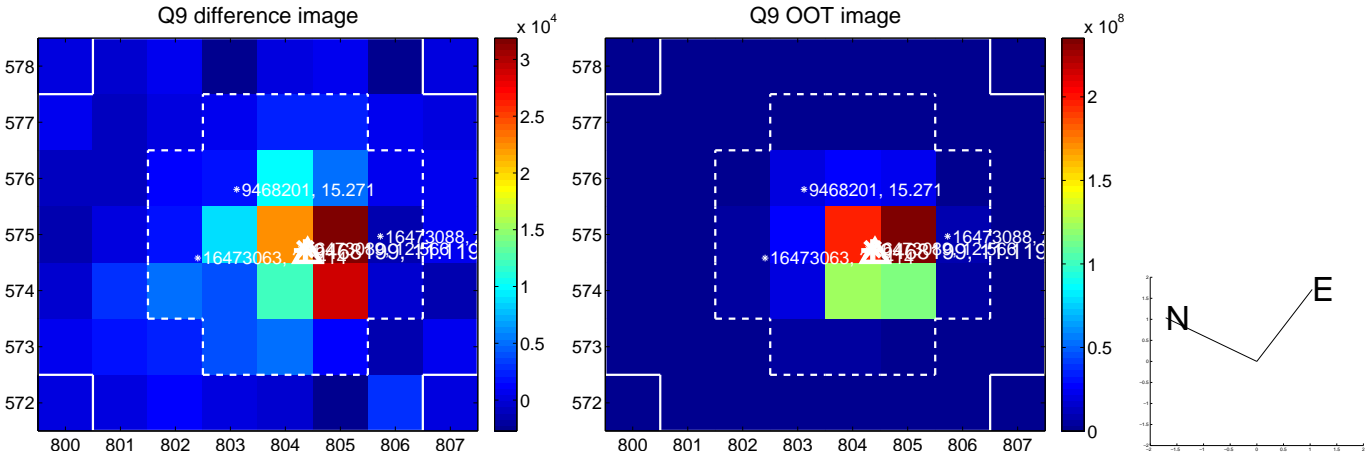
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



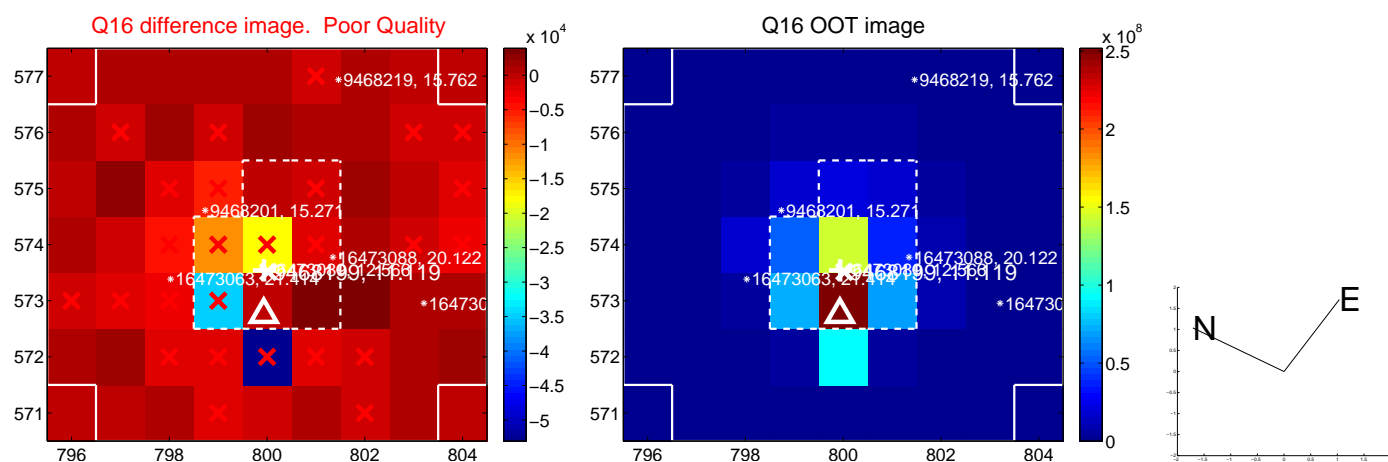
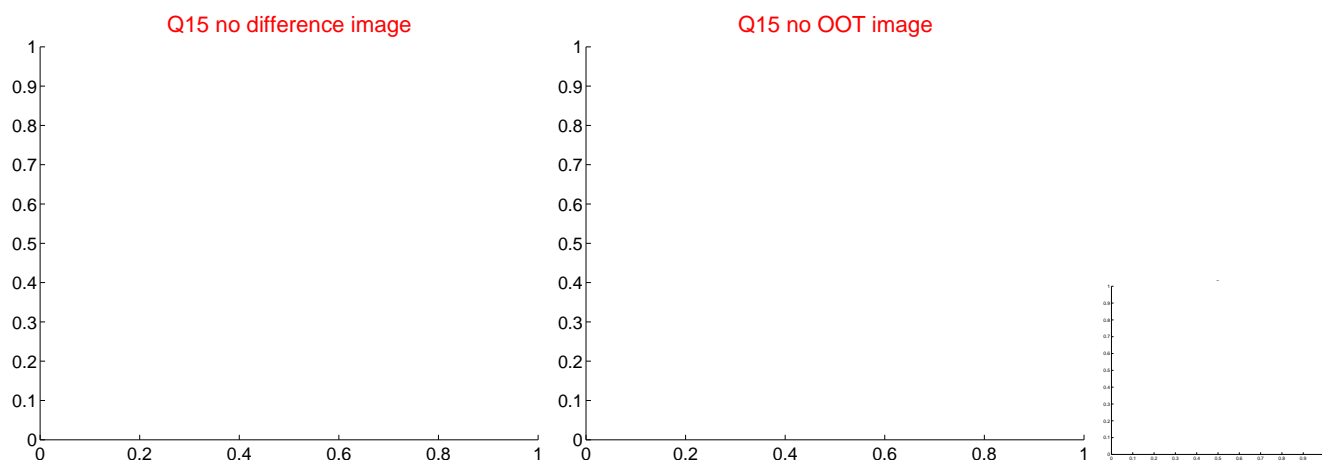
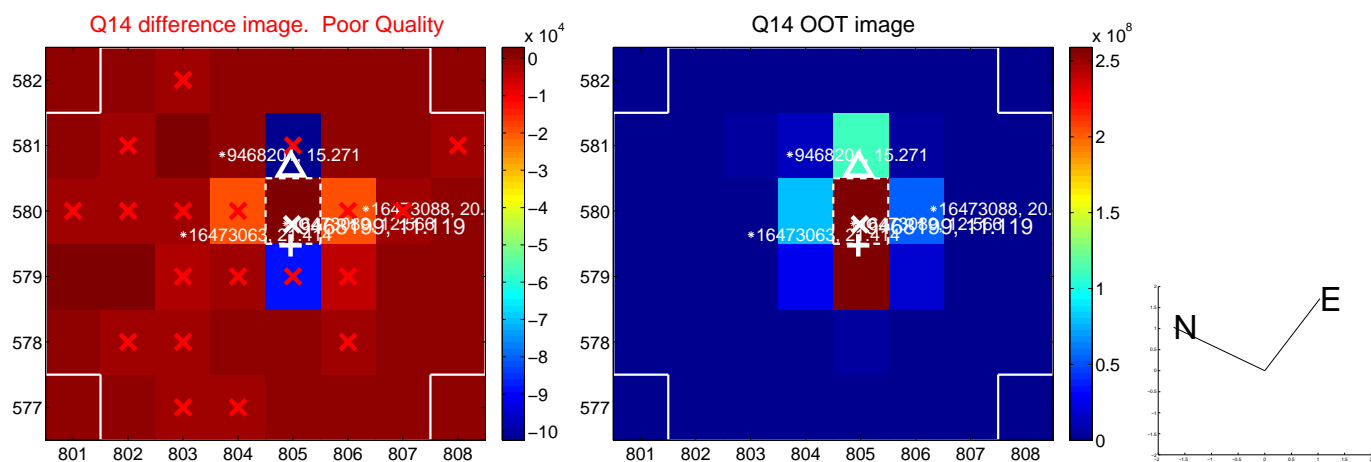
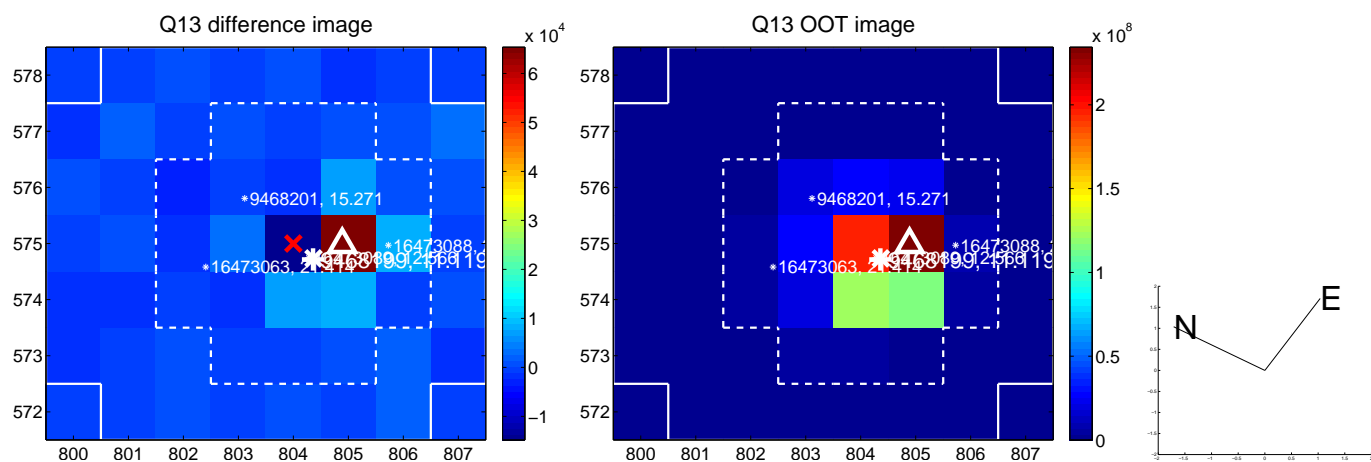
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



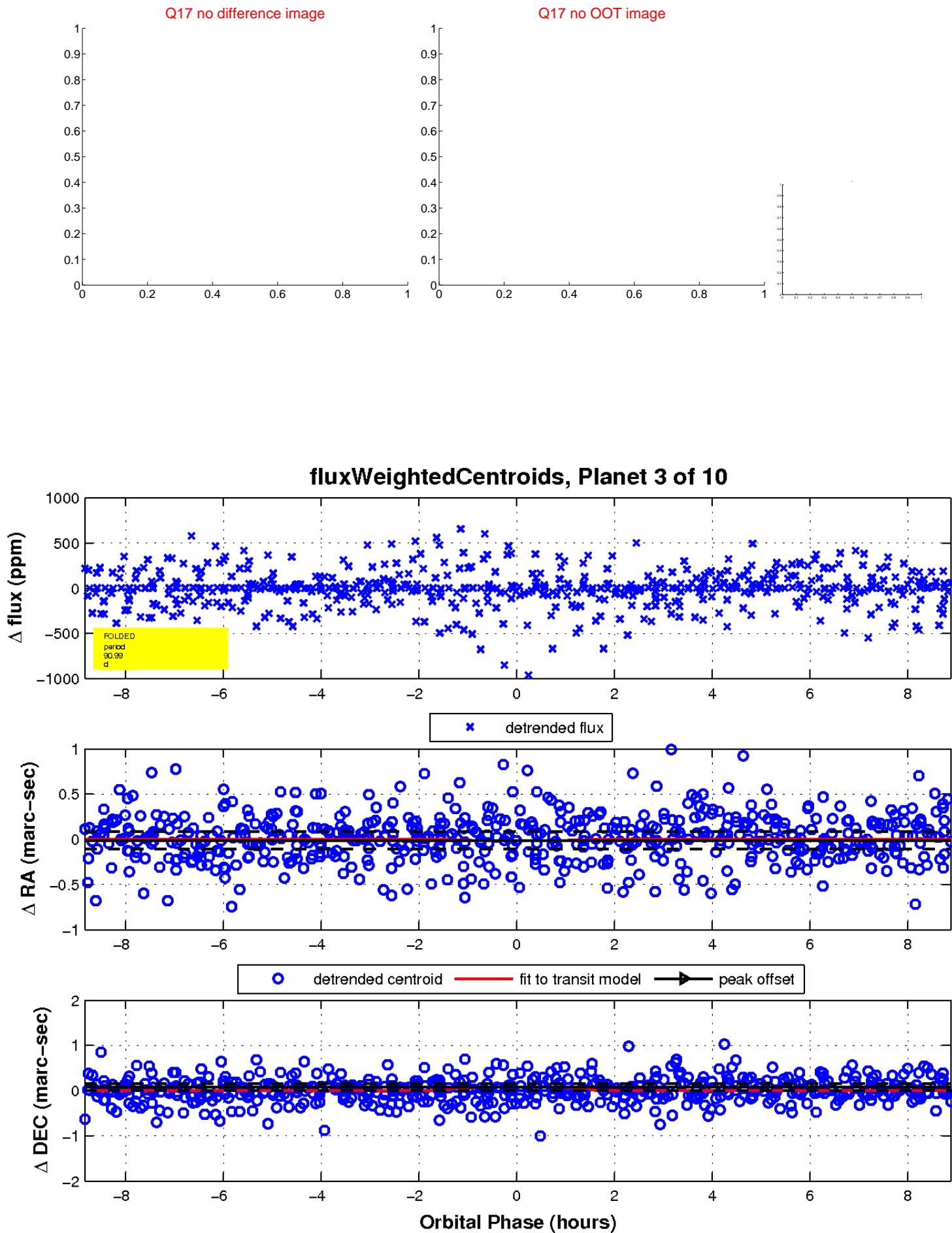
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

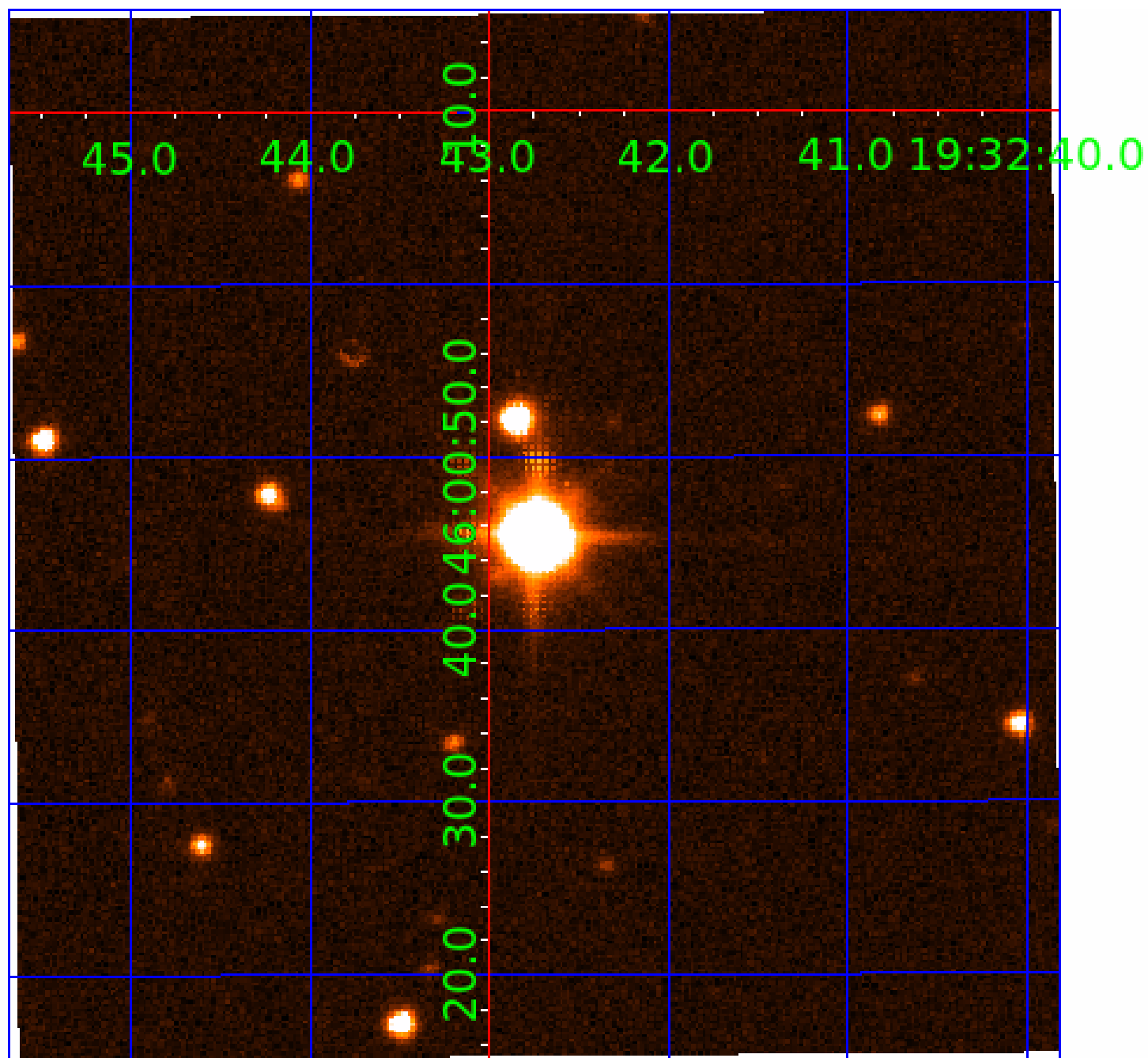


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
009468199-03	OBS	No	90.989115	135.710649	8.0	2.964	20.9	3.2	8.90	5043	2.67	160.97
009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

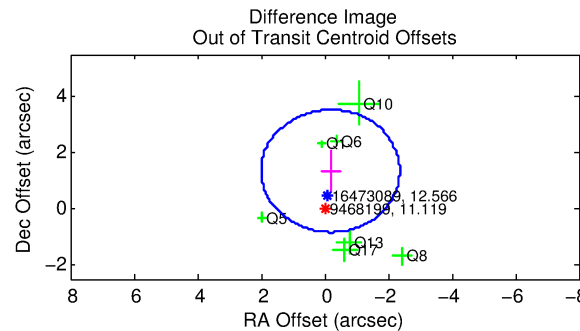
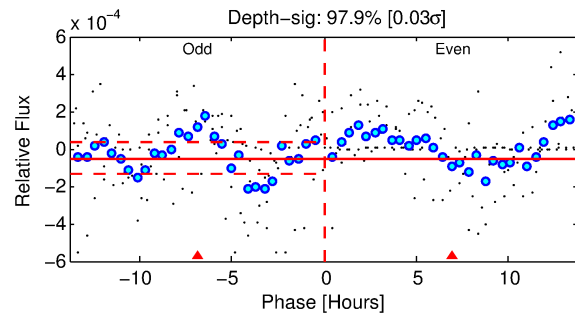
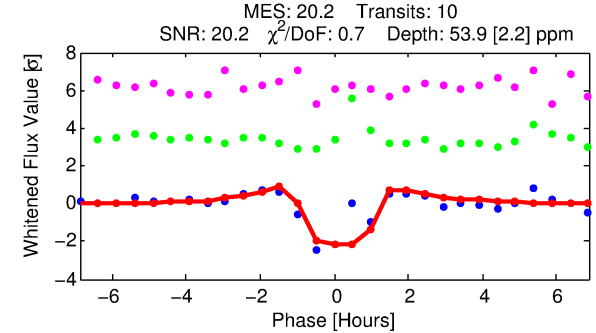
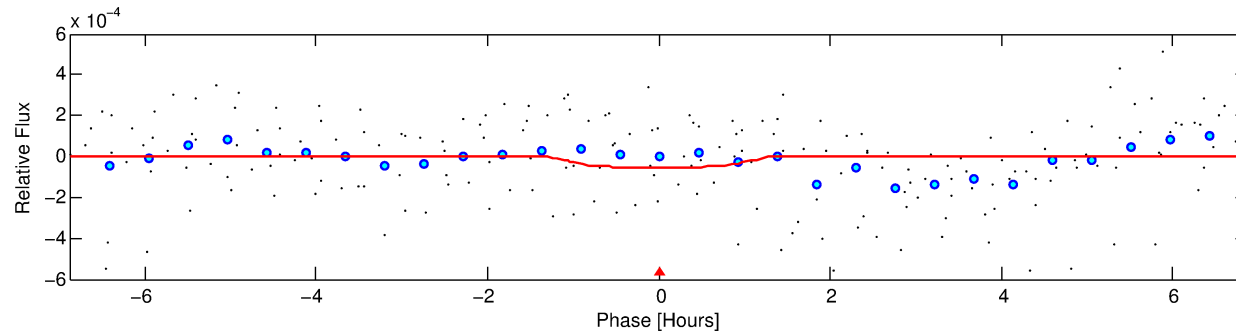
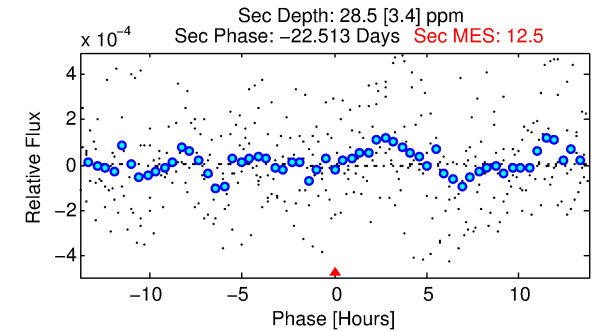
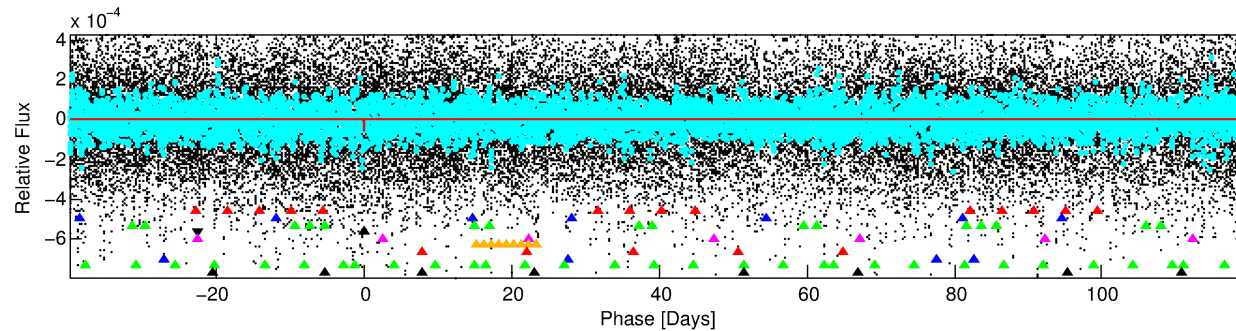
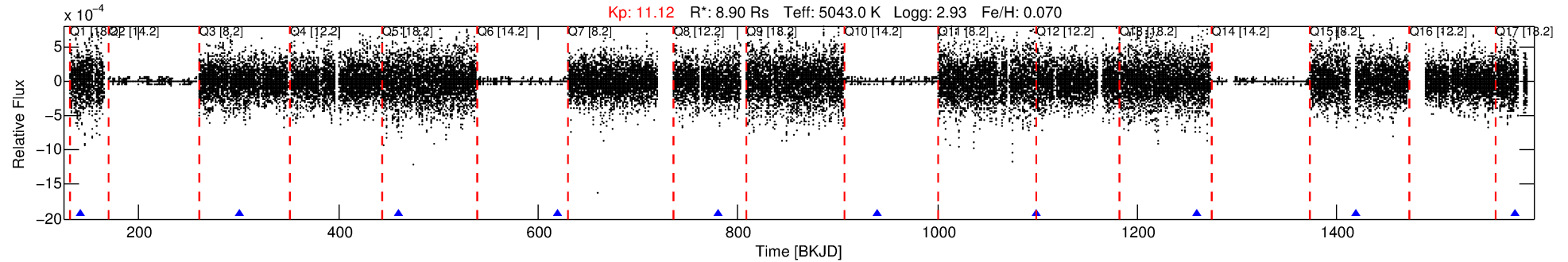
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-04

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 4 of 10 Period: 159.717 d



DV Fit Results:

Period = 159.71736 [0.00076] d
Epoch = 141.0805 [0.0033] BKJD
Rp/R* = 0.0084 [0.0028]
a/R* = 215.96 [302.57]
b = 0.92 [0.23]
Seff = 76.02 [31.45]
Teq = 753 [78] K
Rp = 8.19 [4.11] Re
a = 0.7775 [0.2308] AU
Ag = 141.13 [109.93] [1.27σ]
Teffp = 4012 [677] K [4.78σ]

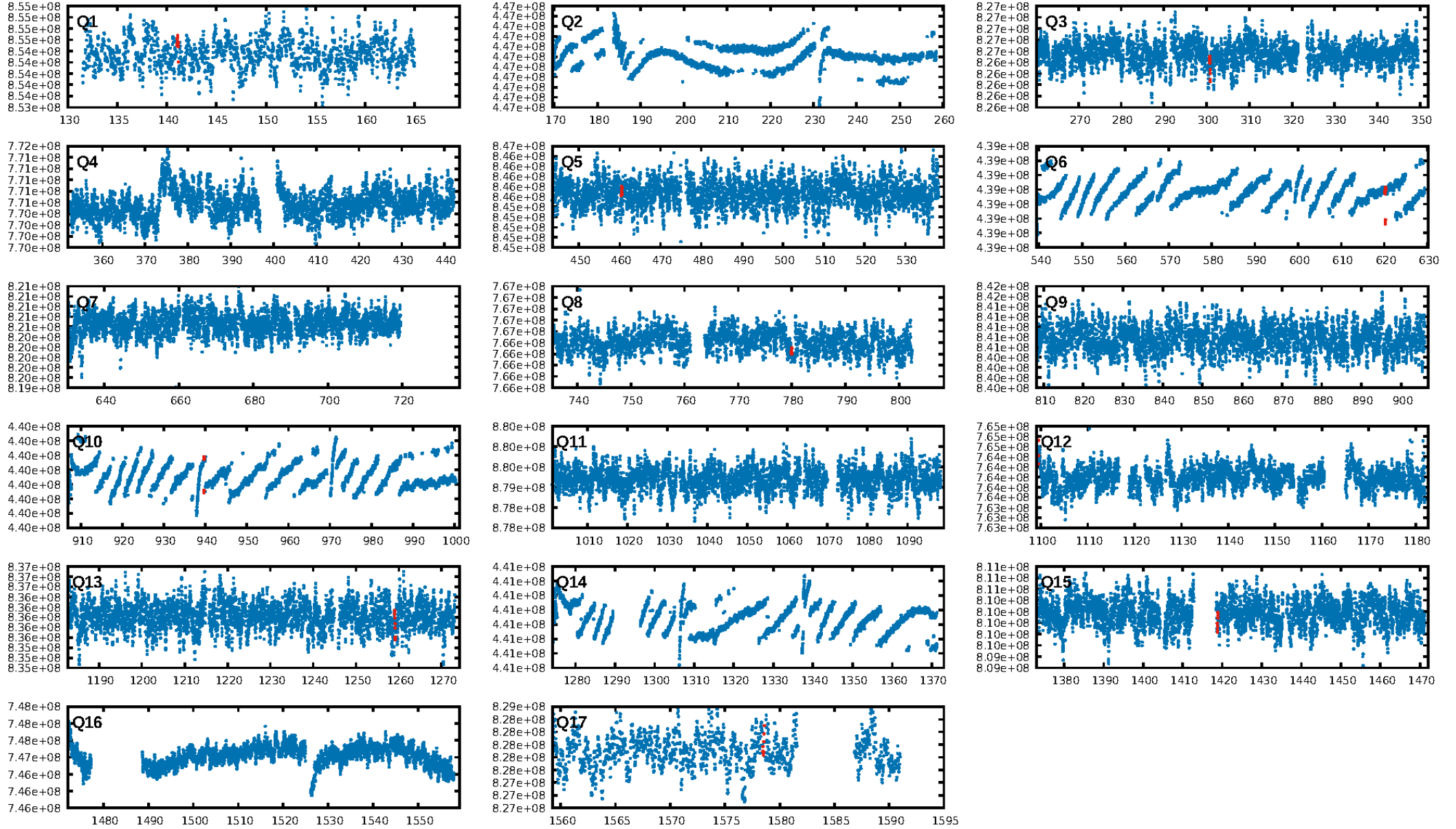
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.49σ]
LongPeriod-sig: 100.0% [177.23σ]
ModelChiSquare2-sig: 48.5%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 0.1024
Centroid-sig: 8.7%
Centroid-so: 3.768 arcsec [1.59σ]
OotOffset-rm: 1.358 arcsec [1.87σ]
OotOffset-st: 2/0/1/4 [7]
KicOffset-rm: 1.191 arcsec [1.67σ]
KicOffset-st: 2/0/1/4 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 1.00 [8/8]

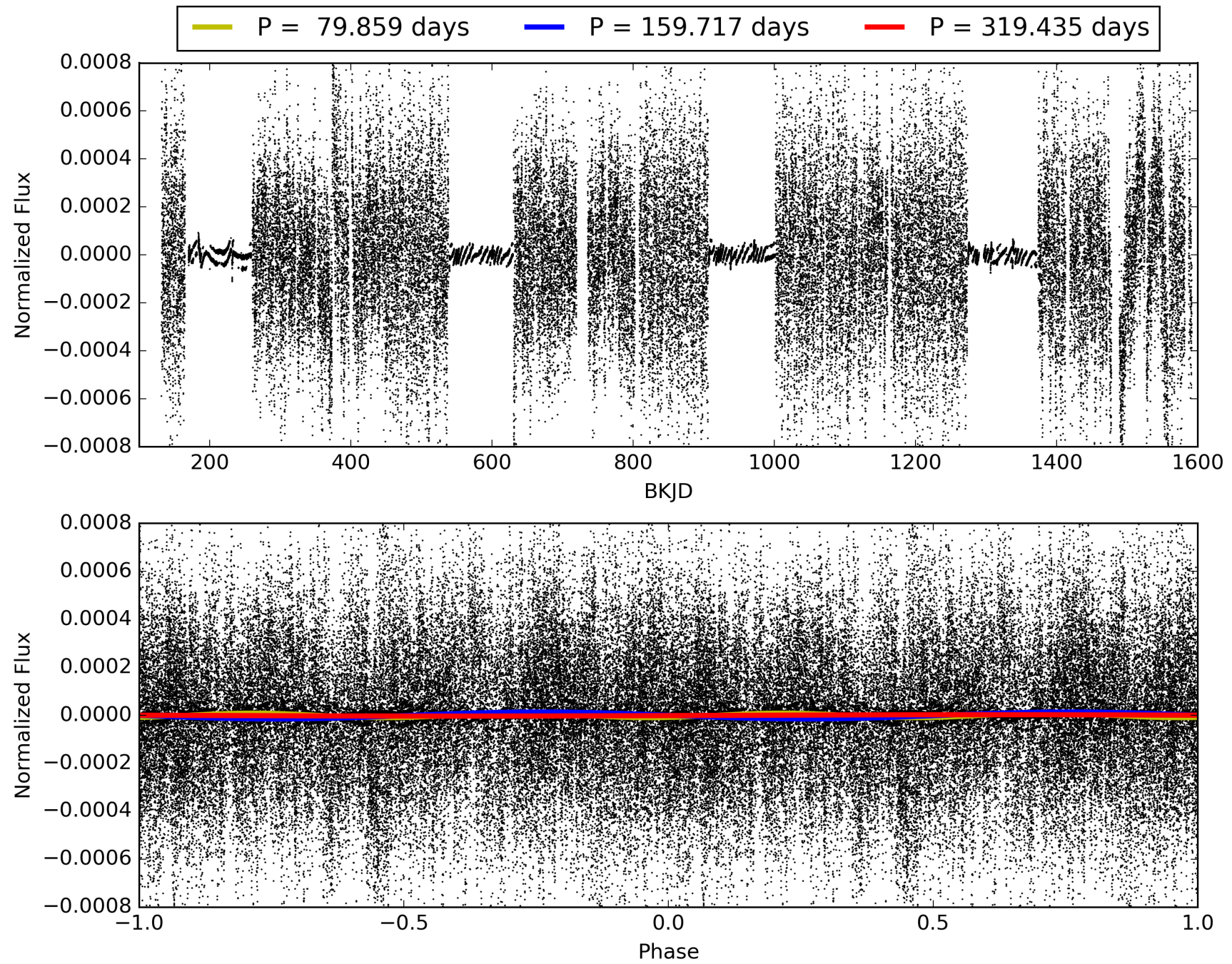
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:51:51 Z

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

TCE 009468199-04, PDC Light Curves

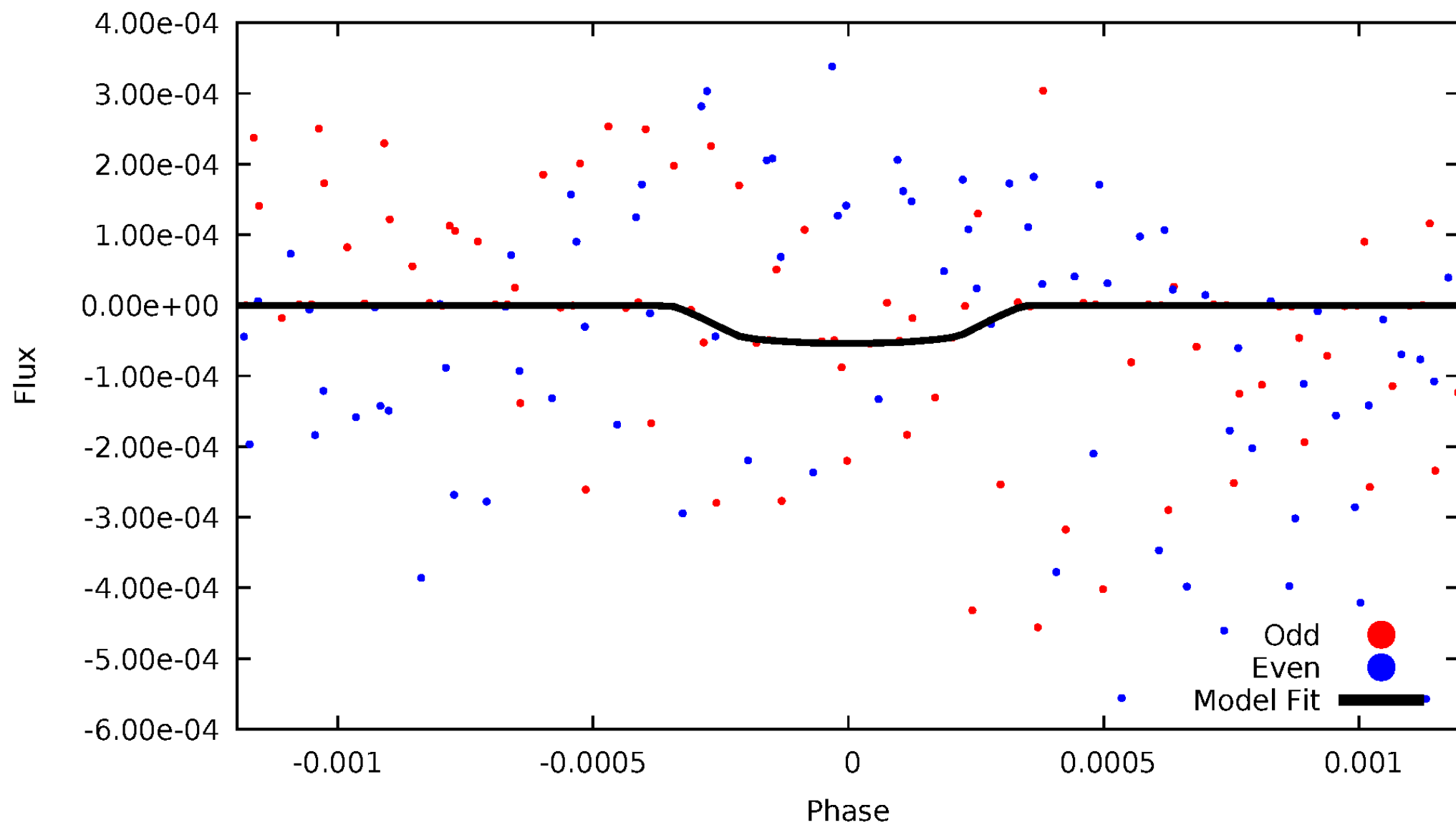


TCE 009468199-04



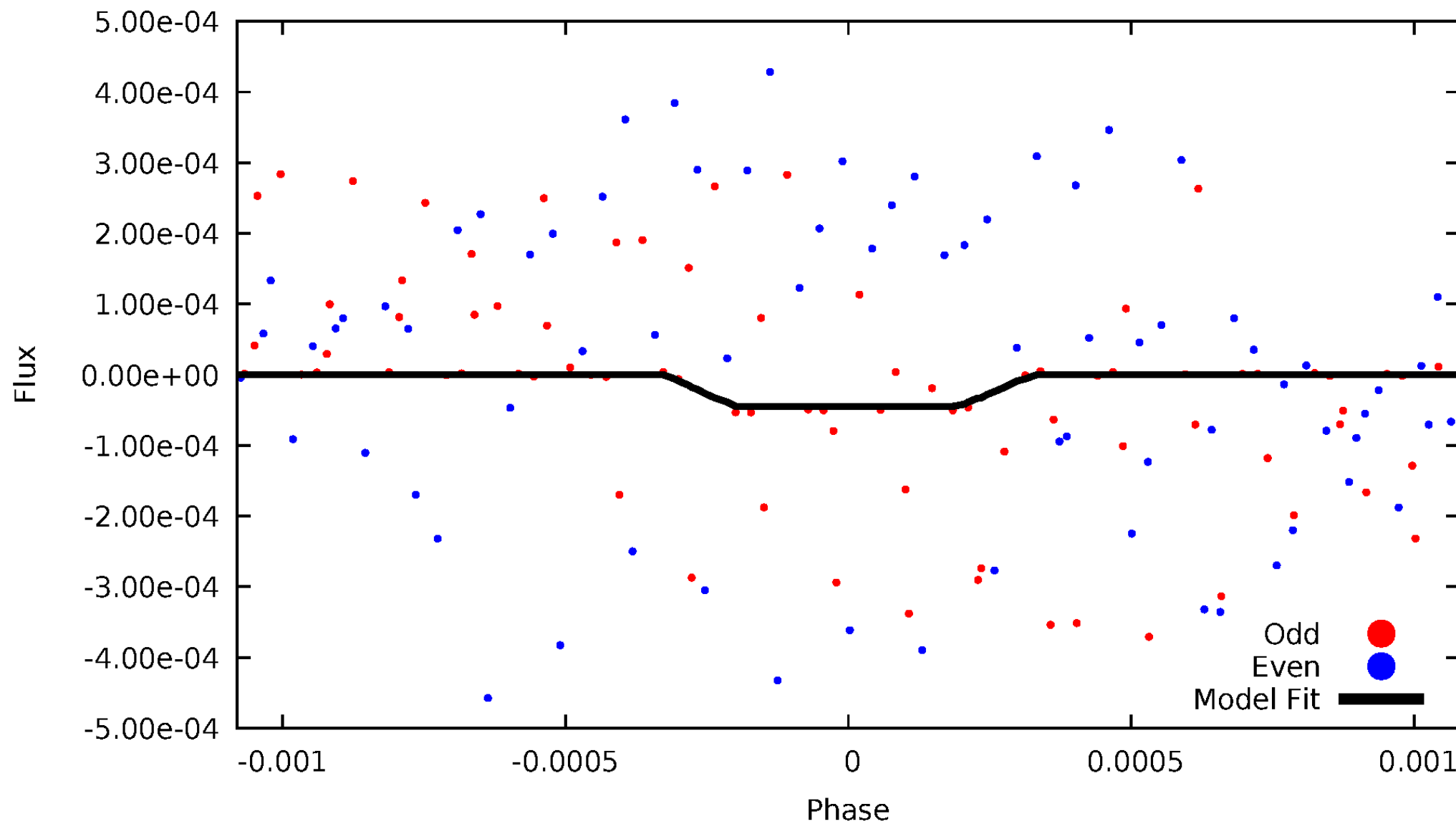
DV Odd/Even

TCE 009468199-04



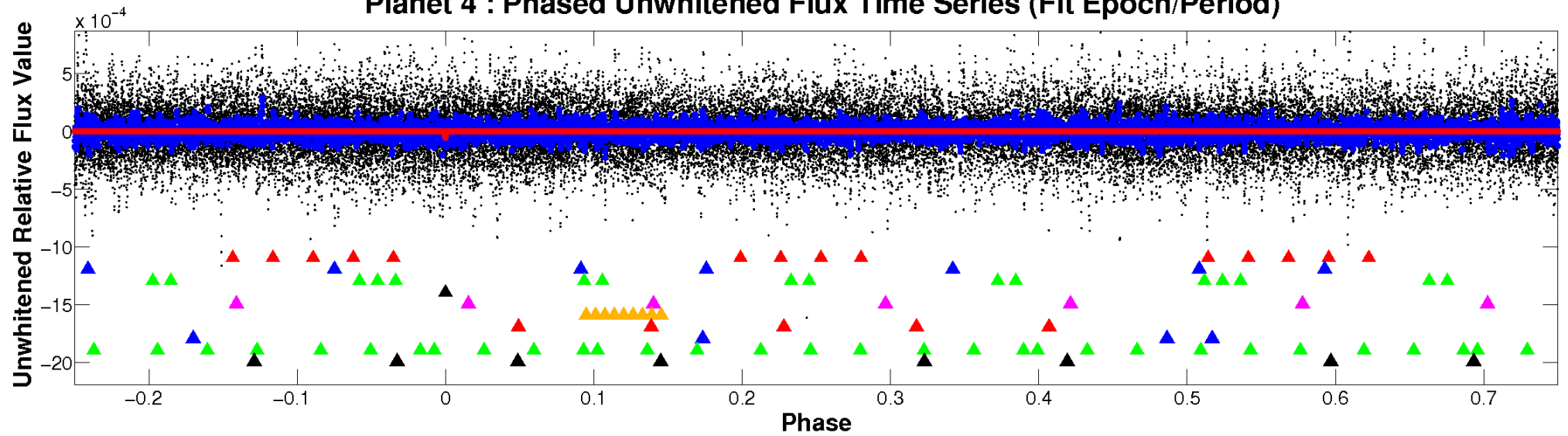
ALT Odd/Even

TCE 009468199-04

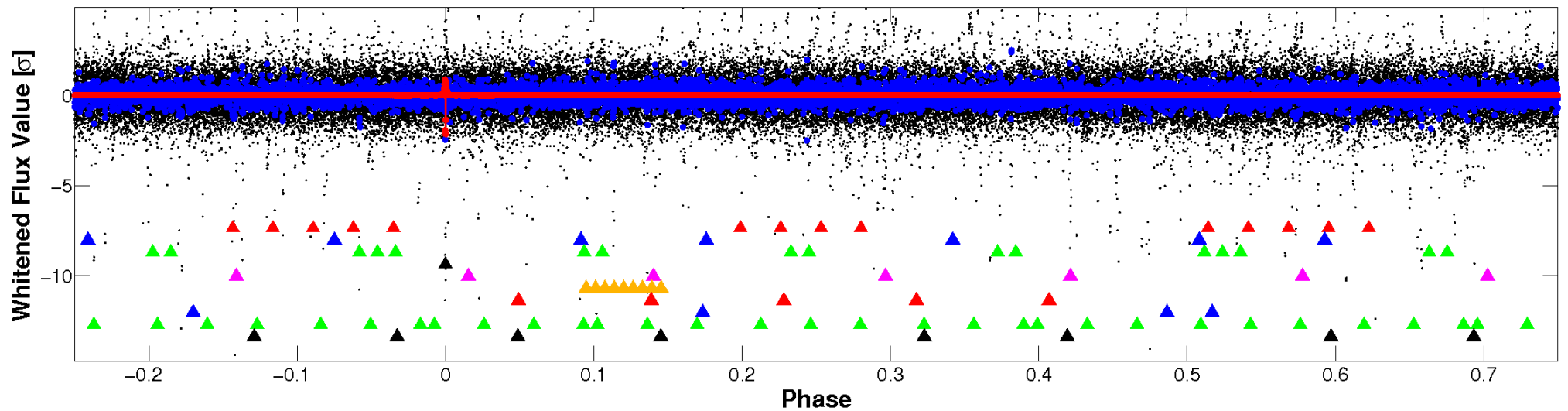


Non-Whitened Vs. Whitened Light Curve

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

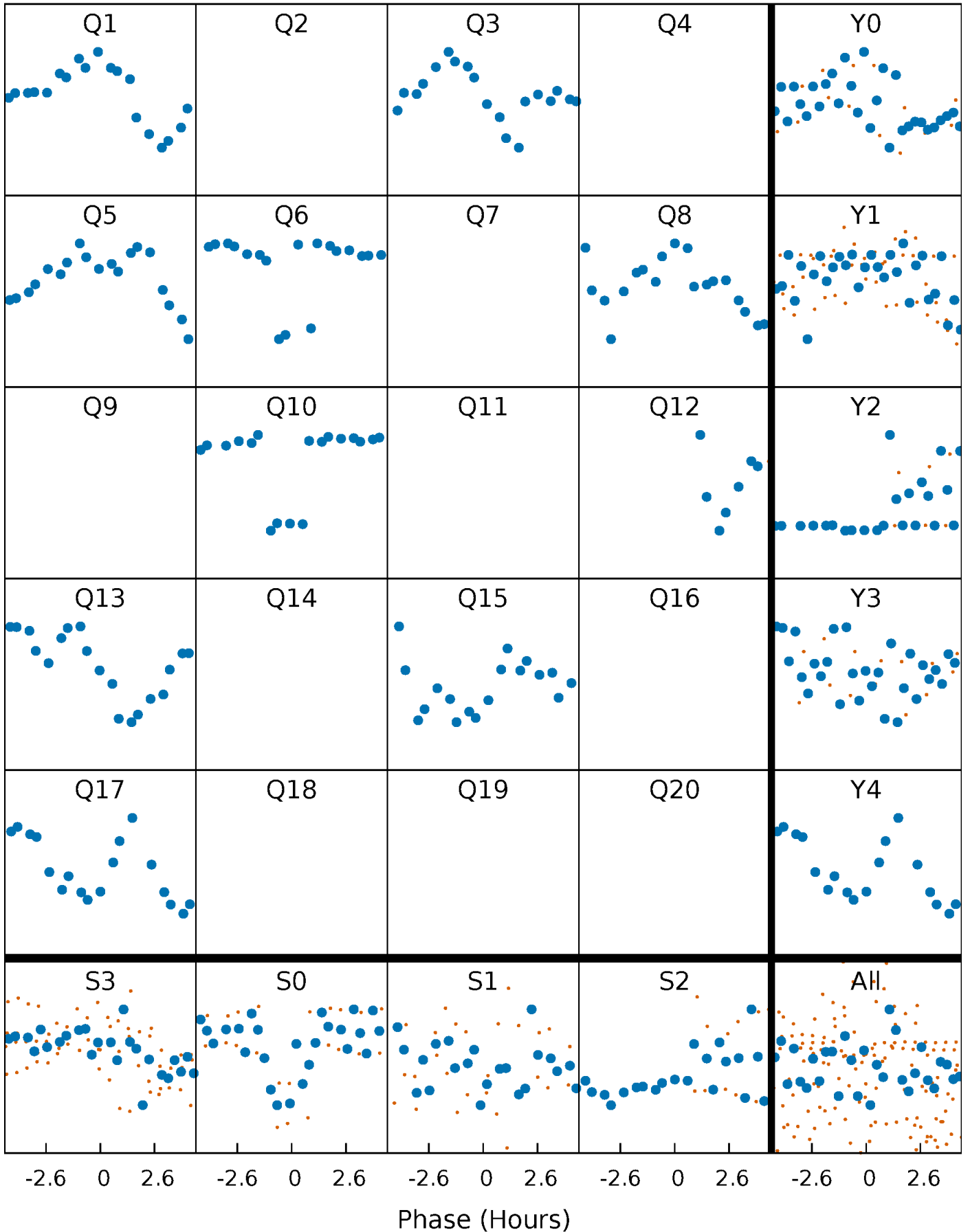


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



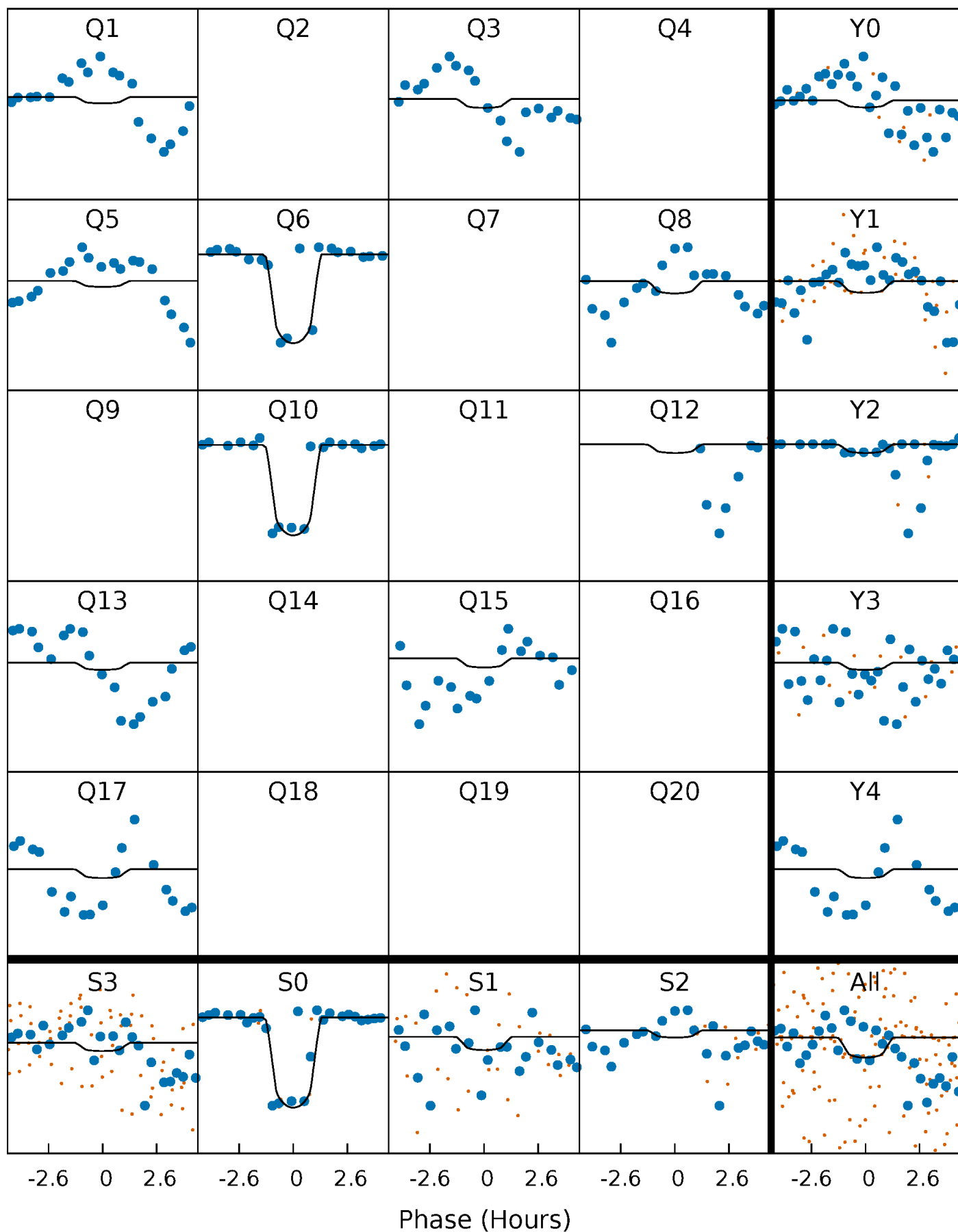
PDC Quarter-Phased Transit Curves

TCE 009468199-04 P=159.717356 Days $T_0=141.080476$ (BKJD)



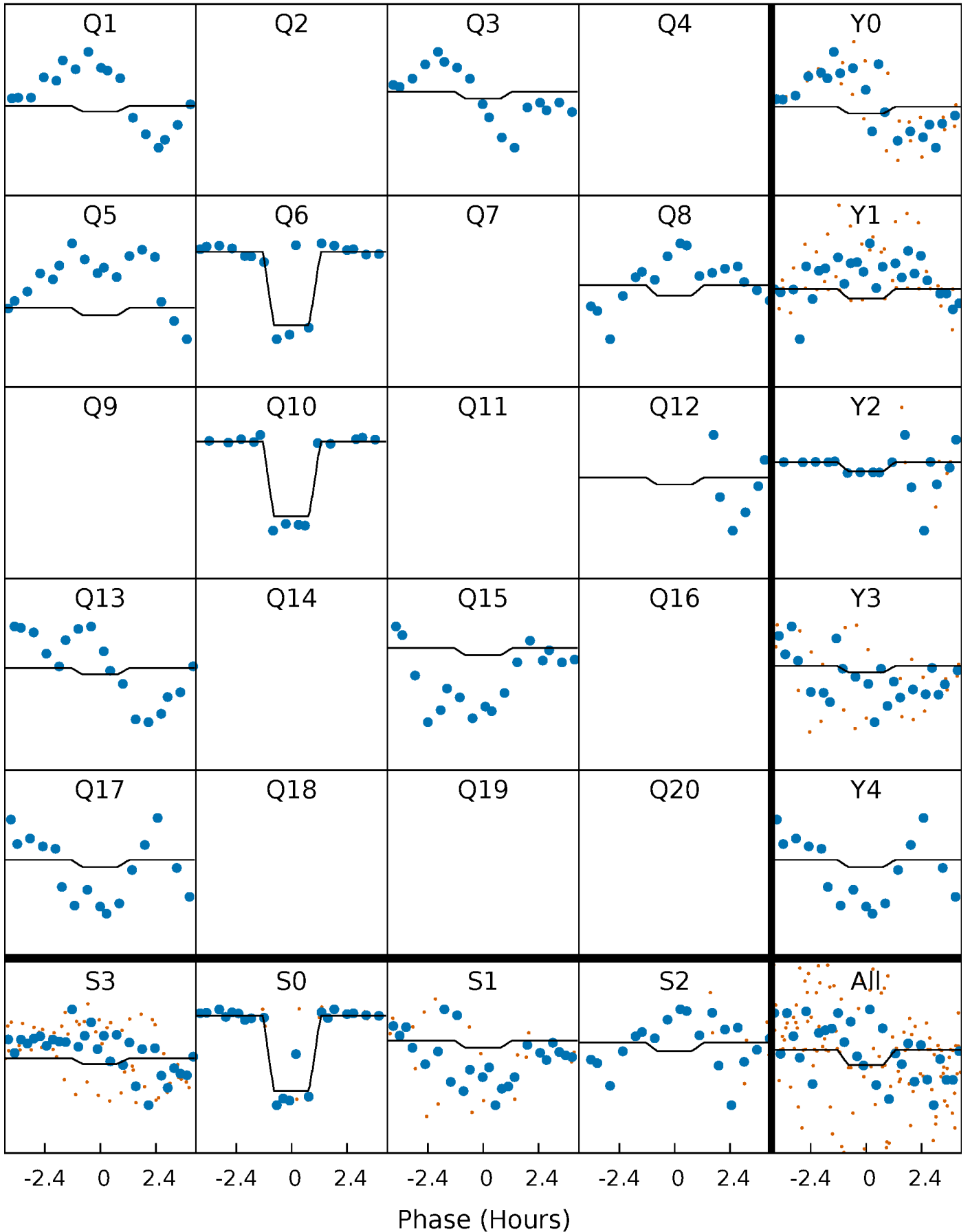
DV Quarter-Phased Transit Curves

TCE 009468199-04 P=159.717356 Days $T_0=141.080476$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

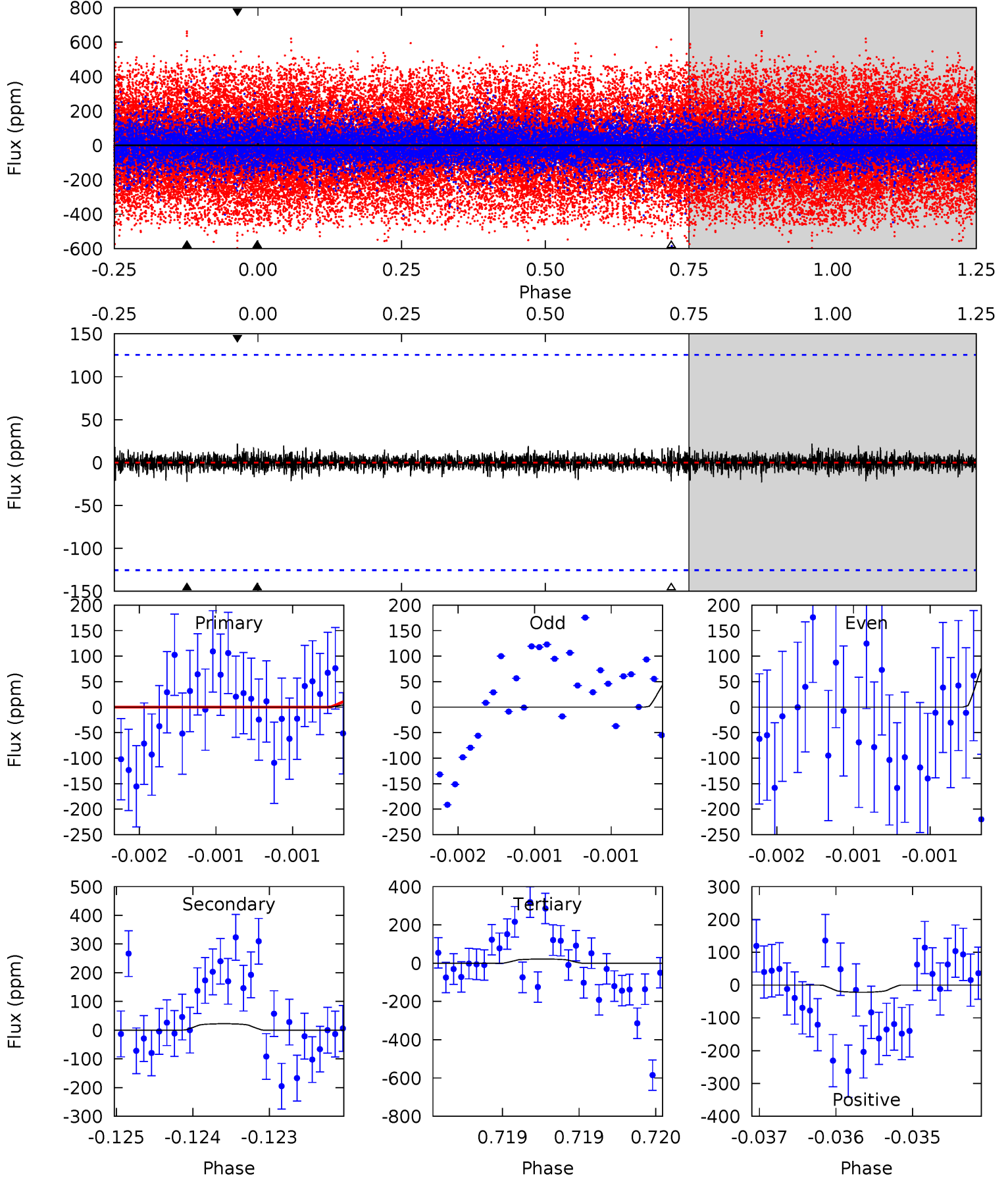
TCE 009468199-04 P=159.711253 Days $T_0=141.097518$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-04, P = 159.717356 Days, E = 141.080476 Days

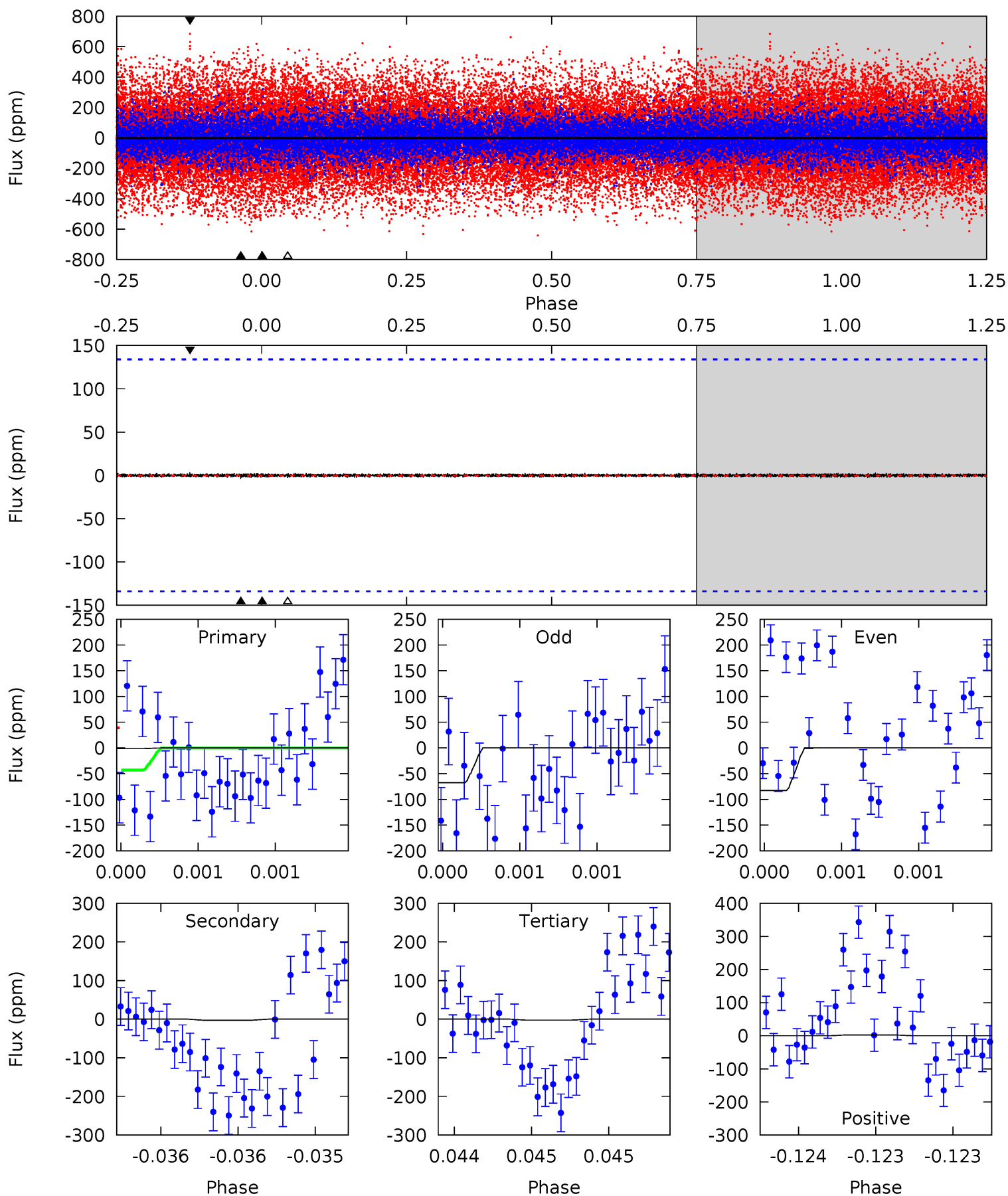
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.27	0.99	0.95	0.97	5.52	3.40	0.24	-0.68	-0.70	0.03	0.02	0.97	-0.17	0.50	0.22



Alt Model-Shift Uniqueness Test

009468199-04, P = 159.711253 Days, E = 141.097518 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.05	0.12	0.10	0.11	5.53	3.41	0.03	-0.05	-0.05	0.02	0.01	0.30	0.07	0.48	0.08



Stellar Parameters For KIC 009468199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-22 ± 23	$7.95^{+3.20}_{-2.79}$	1049^{+78}_{-84}	3962^{+804}_{-1694}	100^{+198}_{-97}
Alt.	-3 ± 24	$6.33^{+3.12}_{-2.70}$	1041^{+73}_{-79}	3136^{+1531}_{-7602}	24^{+250}_{-230}

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

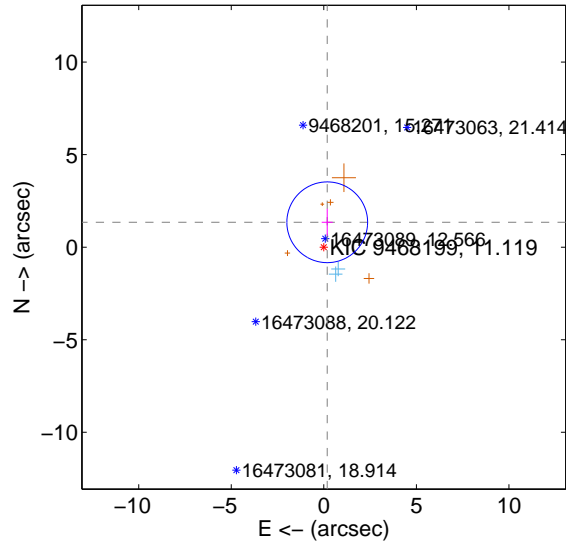
Supplemental centroid analysis for 009468199-04. **Kepler magnitude: 11.12.** Transit SNR 20.20

There are 2 quarters with good PRF difference image offsets

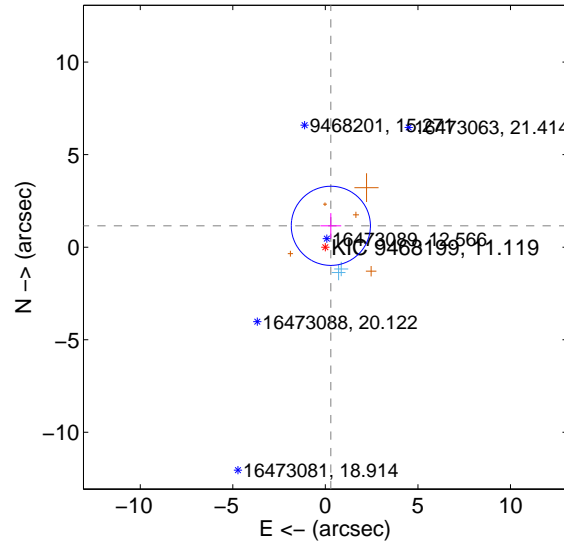
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.358 ± 0.727	1.87	-0.183 ± 0.296	1.345 ± 0.733
PRF-fit source offset from KIC position	1.191 ± 0.713	1.67	-0.295 ± 0.563	1.154 ± 0.685
photometric centroid source offset	3.77 ± 2.37	1.59	3.73 ± 2.38	0.54 ± 2.17

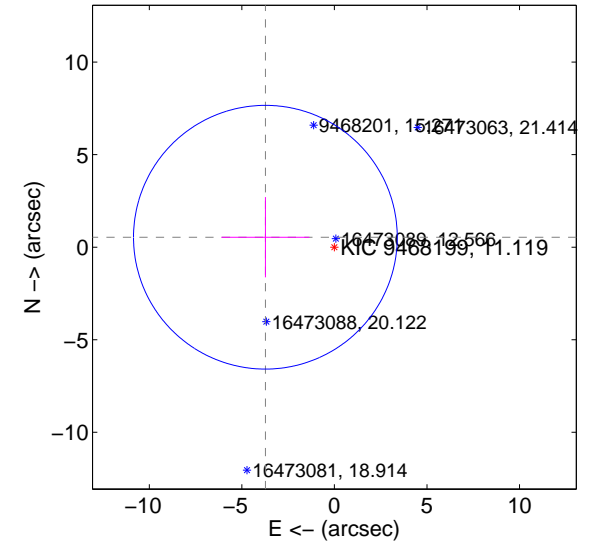
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

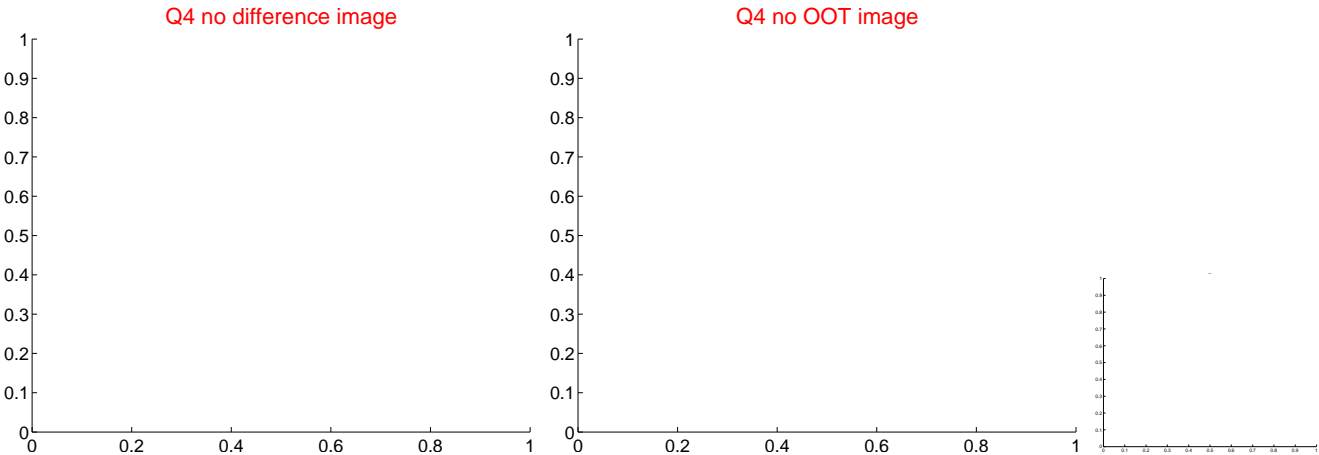
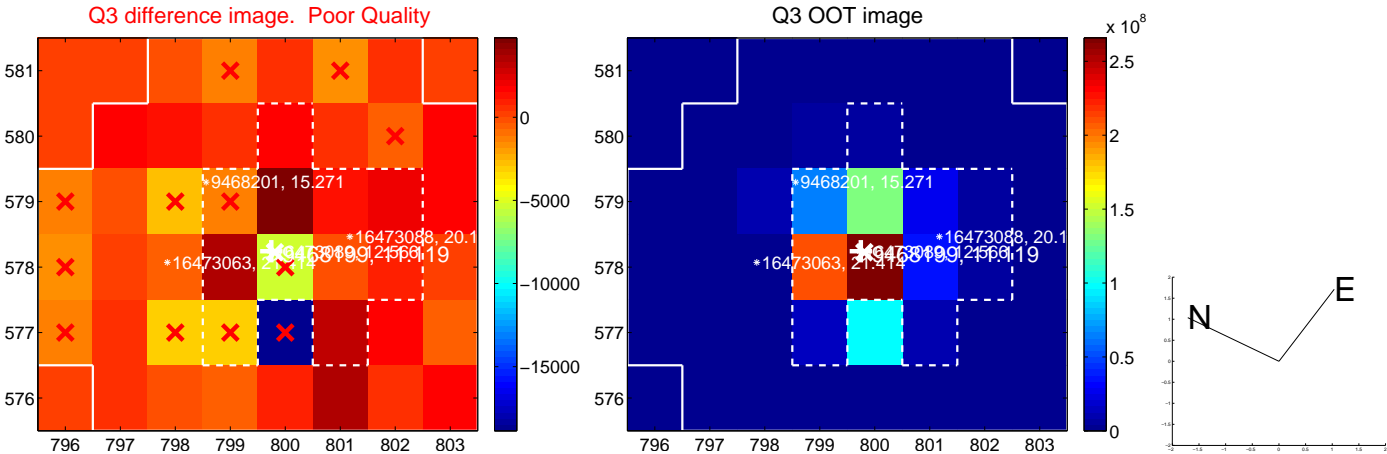
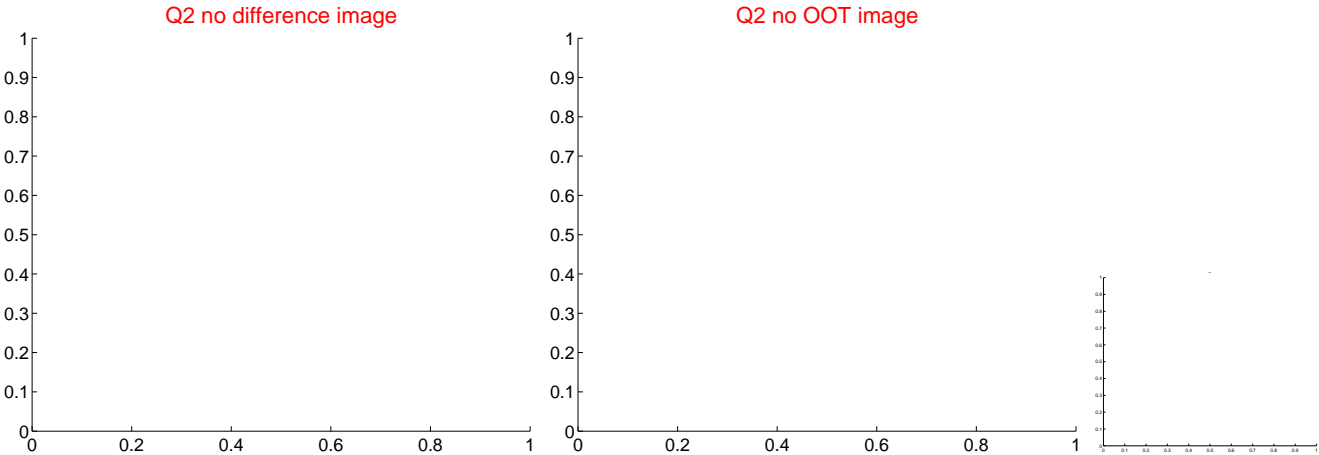
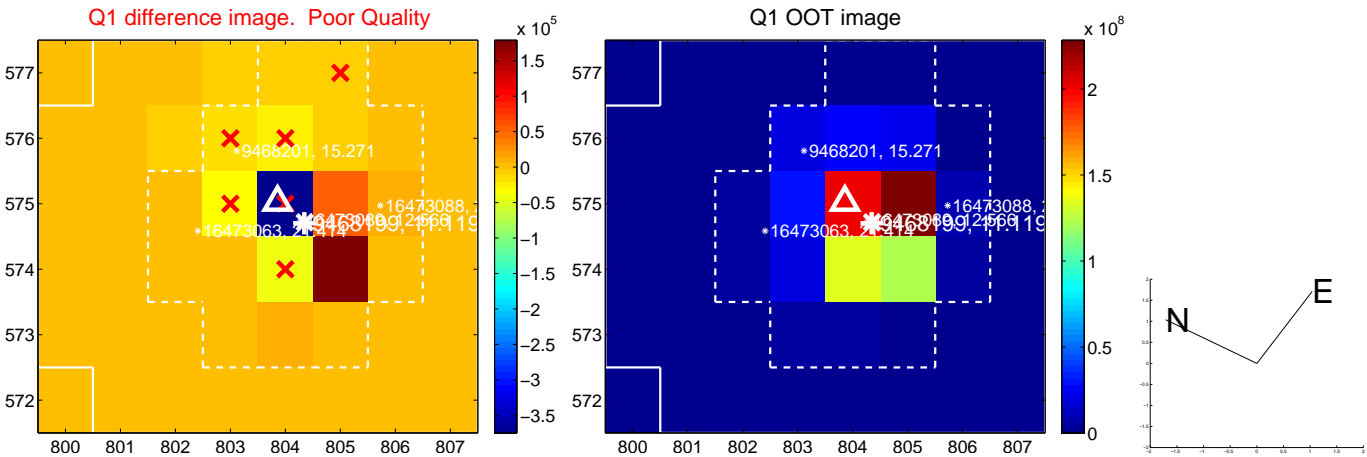


offset from photometric centroids

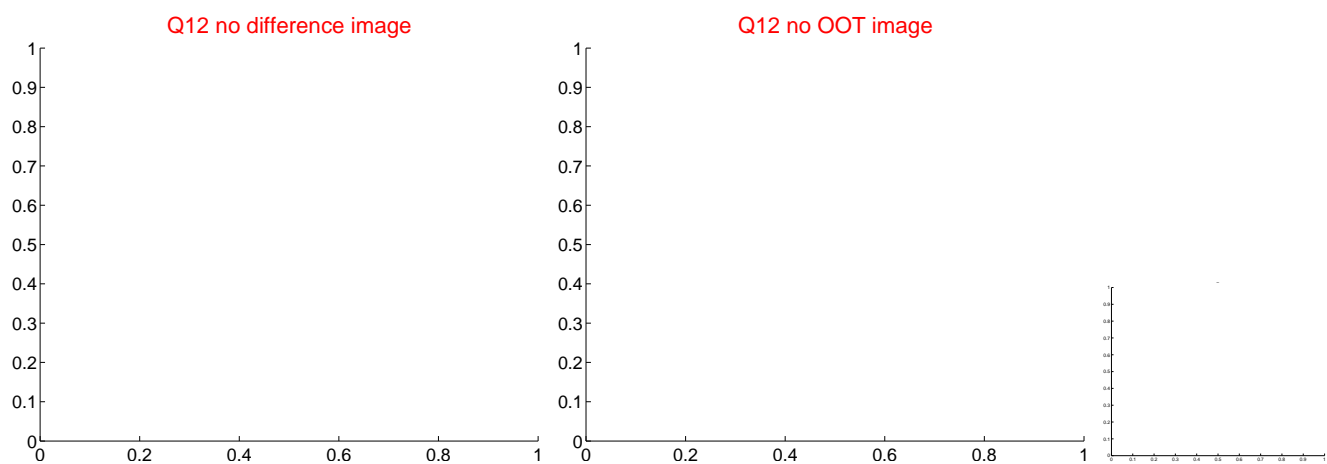
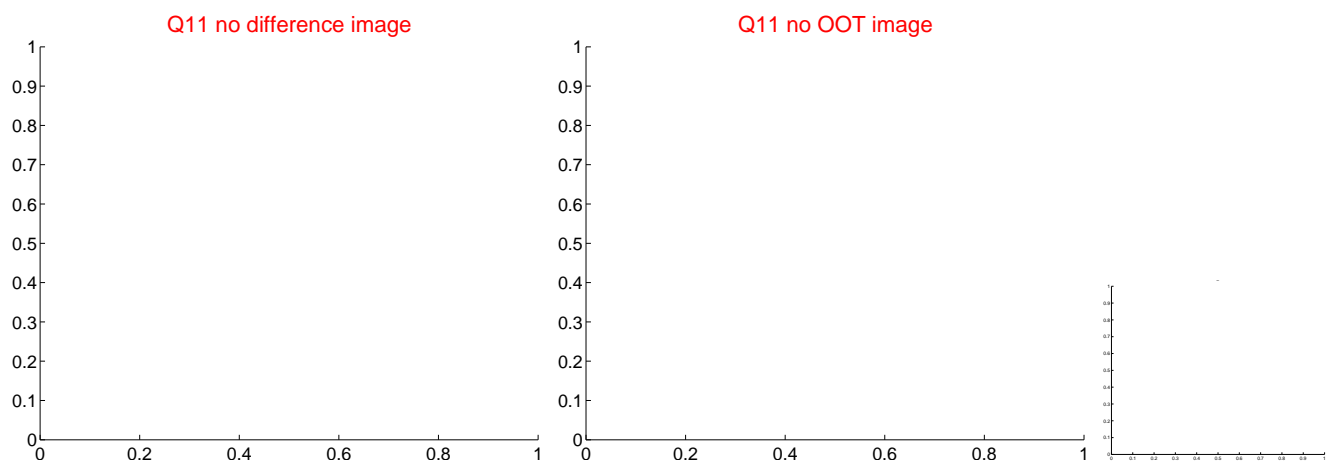
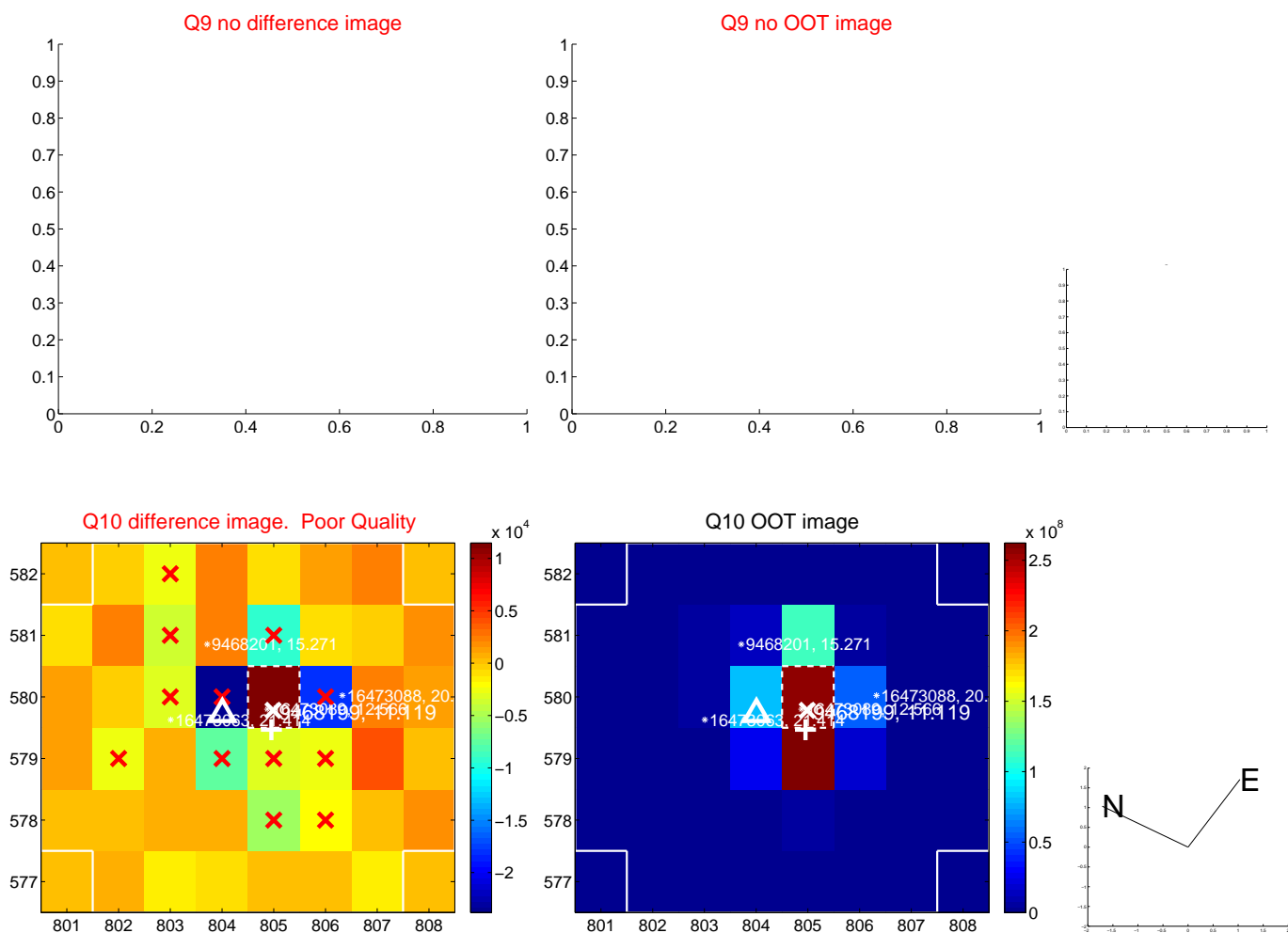


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

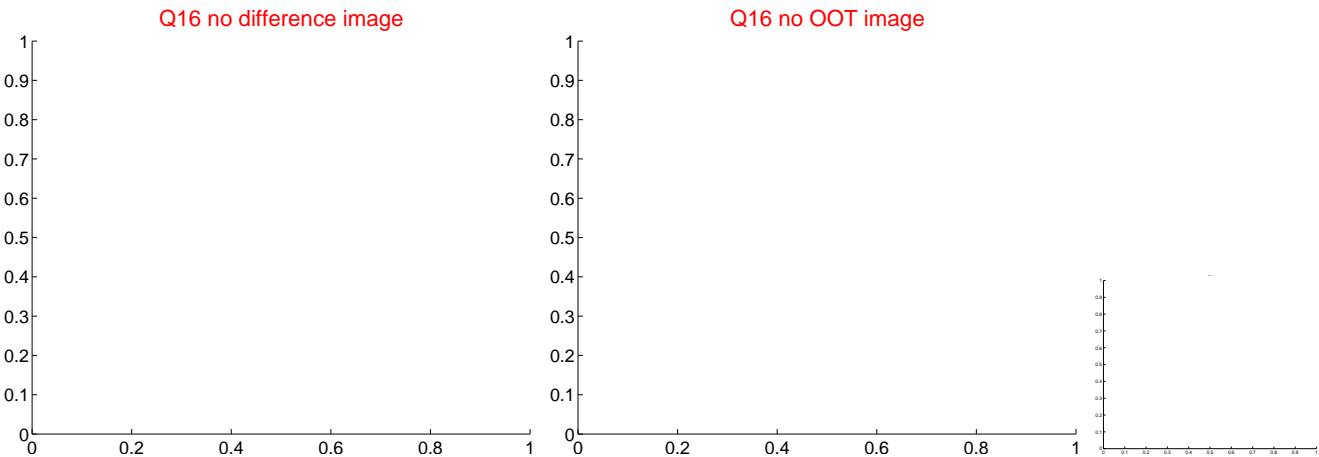
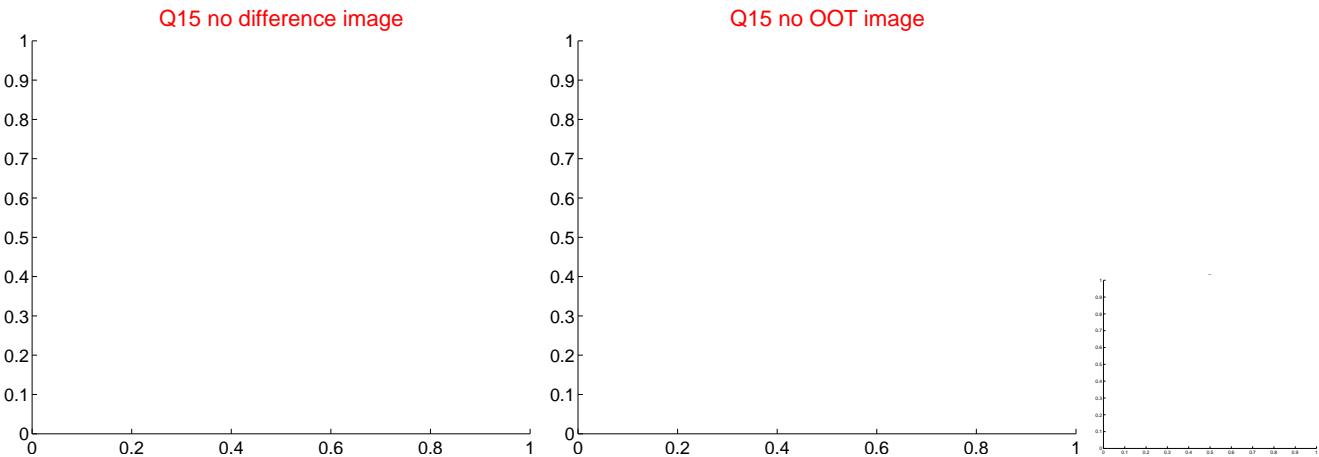
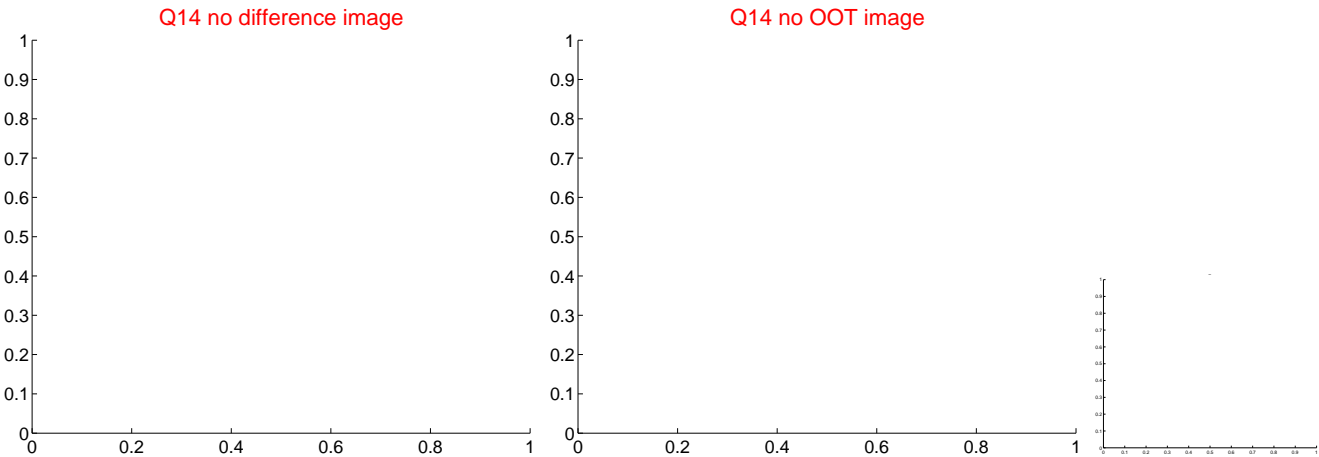
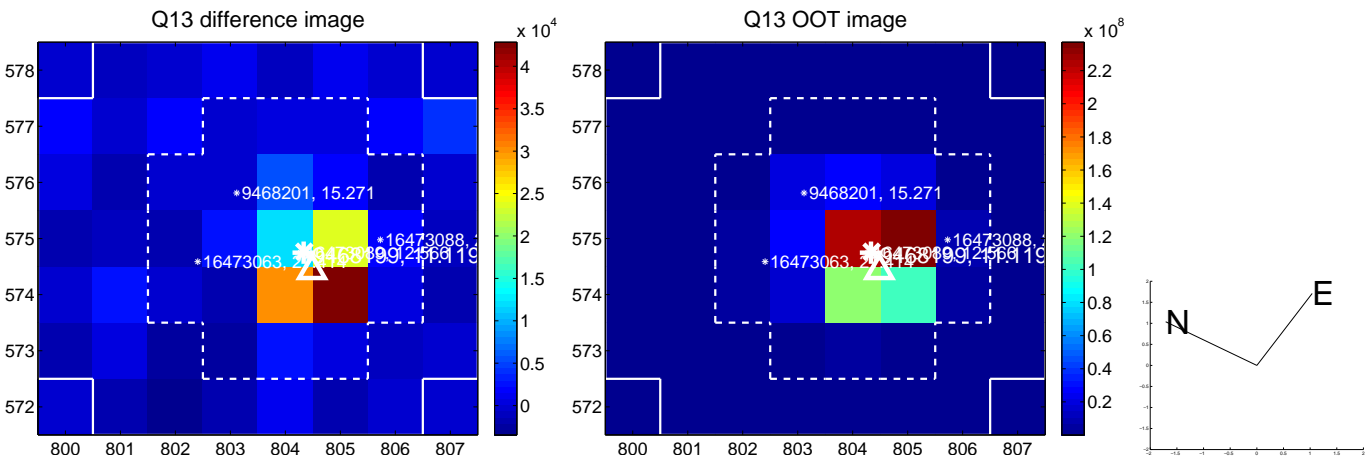
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



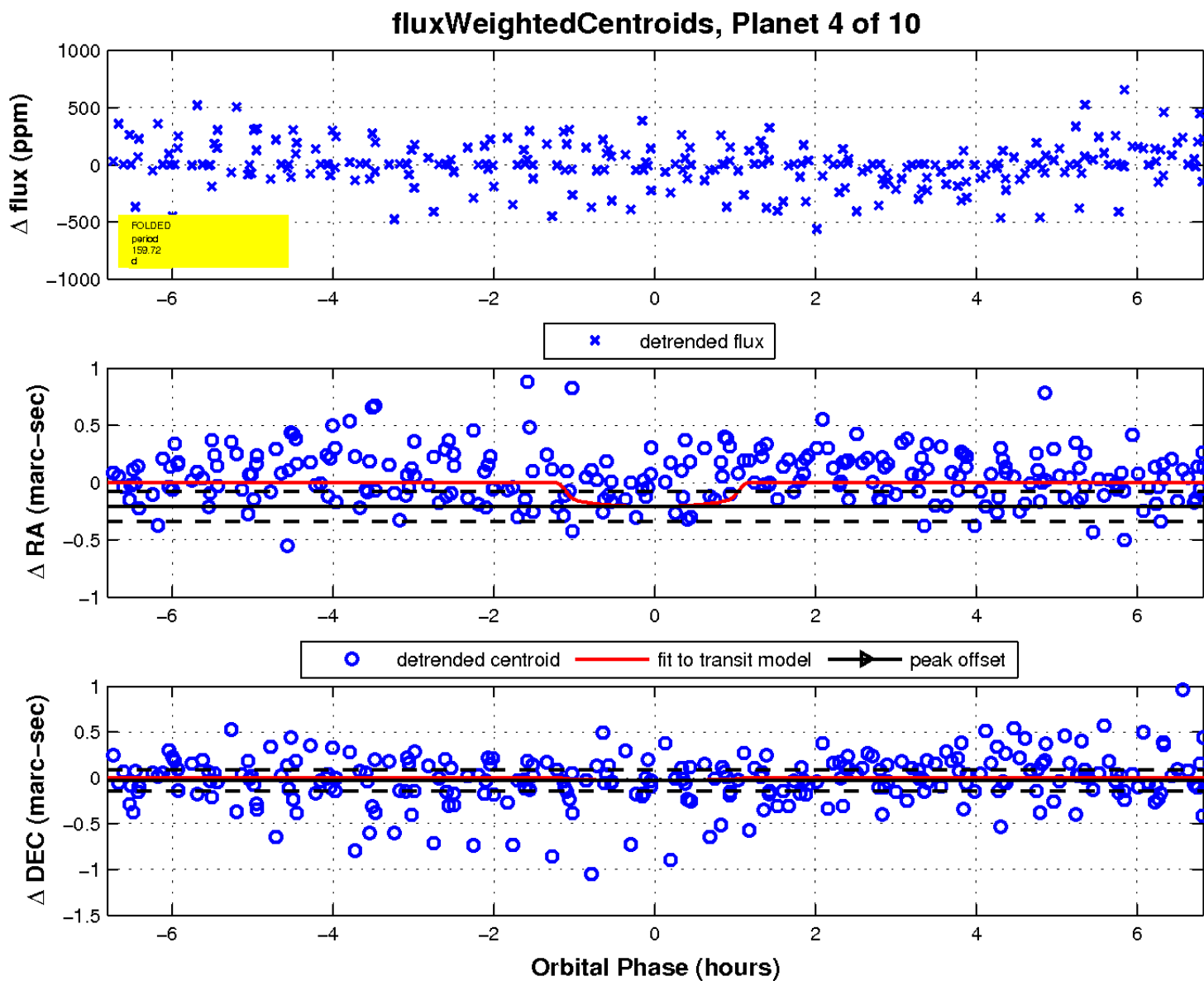
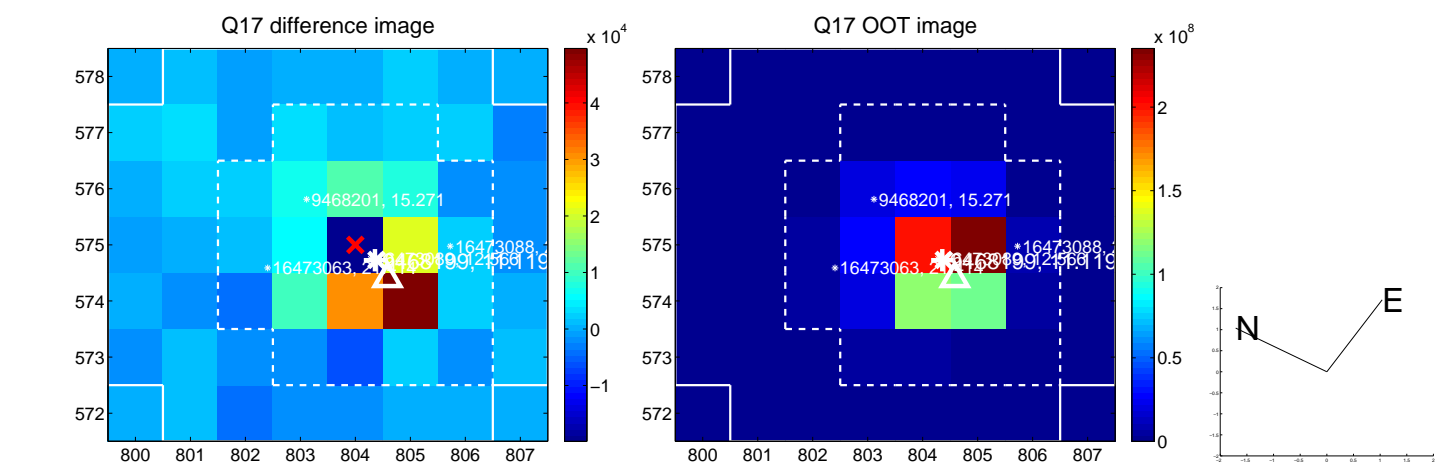
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

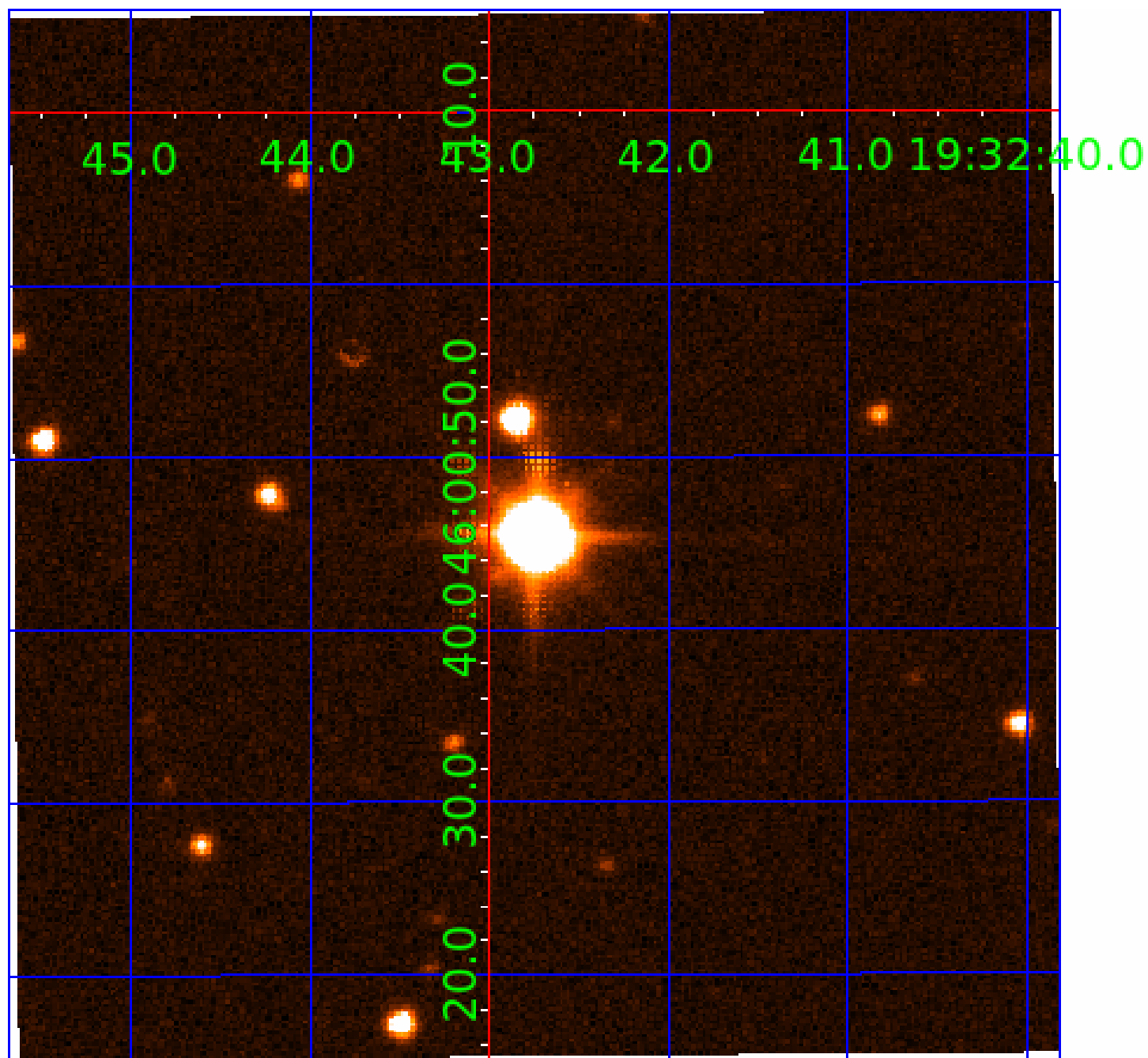


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
009468199-03	OBS	No	90.989115	135.710649	8.0	2.964	20.9	3.2	8.90	5043	2.67	160.97
009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

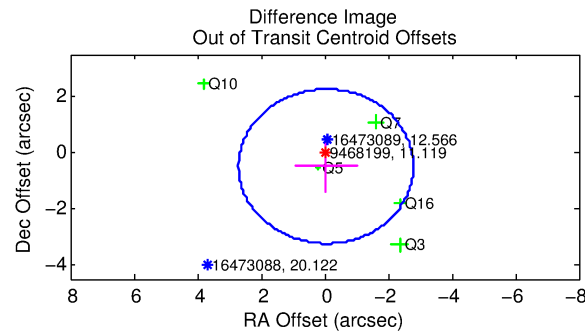
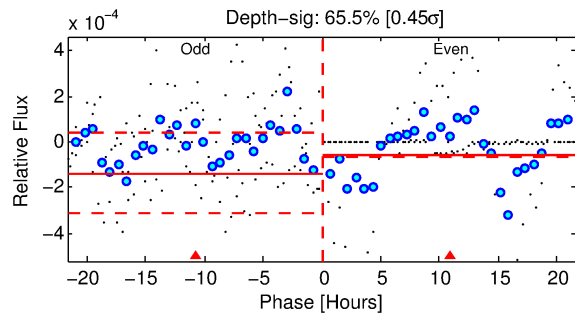
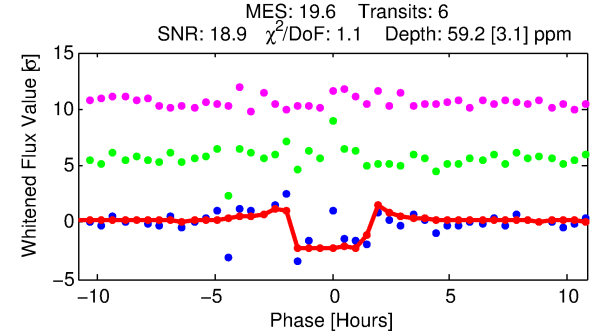
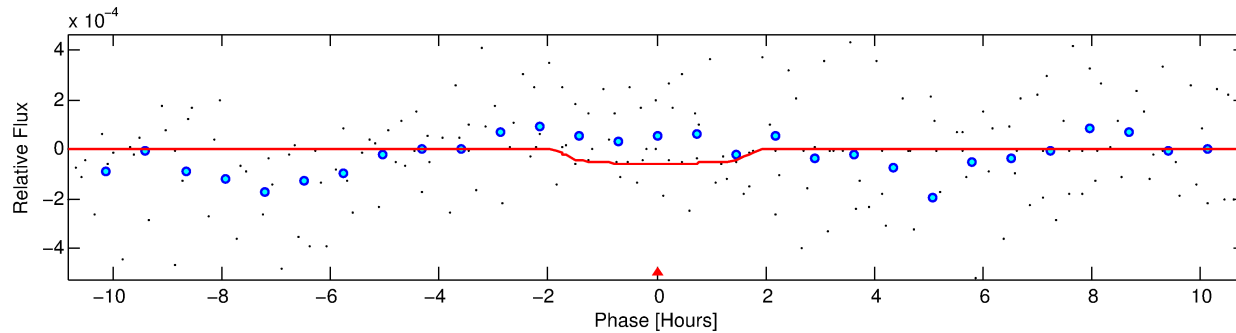
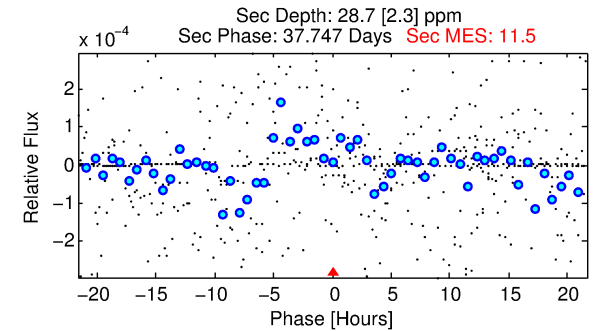
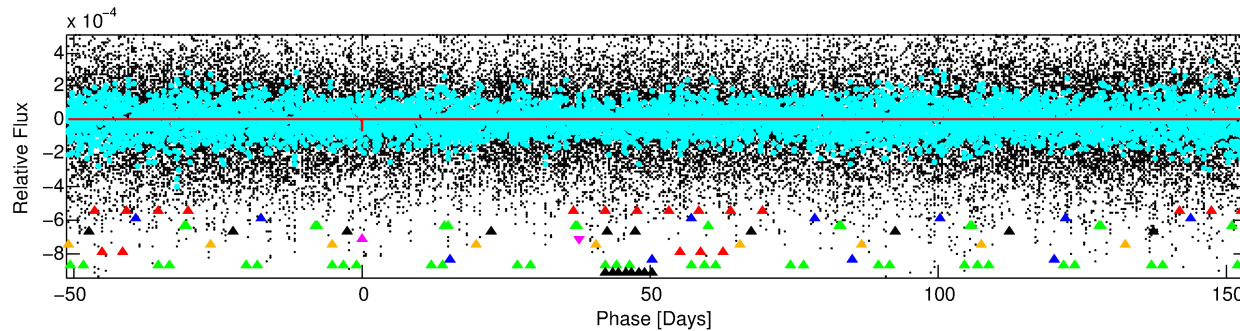
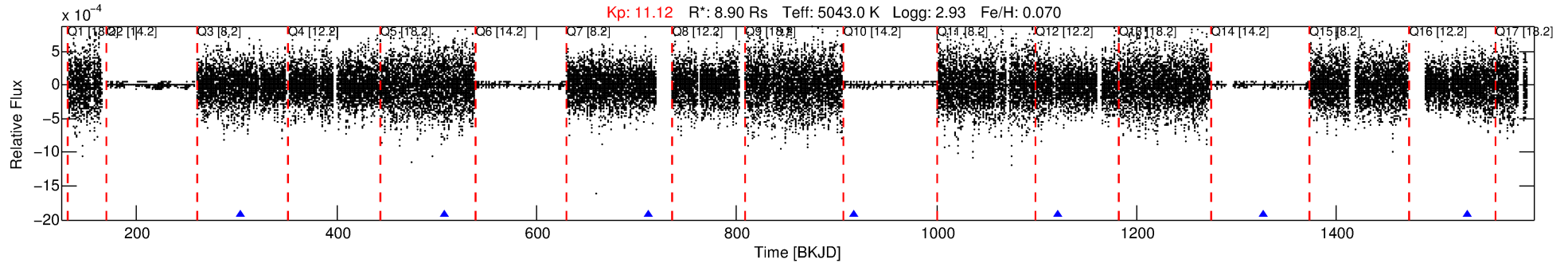
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-05

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 5 of 10 Period: 204.628 d



DV Fit Results:

Period = 204.62776 [0.00135] d
Epoch = 303.2720 [0.0049] BKJD
Rp/R* = 0.0086 [0.0014]
a/R* = 196.71 [126.47]
b = 0.90 [0.14]
Seff = 54.63 [22.60]
Teff = 693 [72] K
Rp = 8.32 [3.43] Re
a = 0.9171 [0.2723] AU
Ag = 191.41 [99.59] [1.91σ]
Teffp = 3987 [345] K [9.34σ]

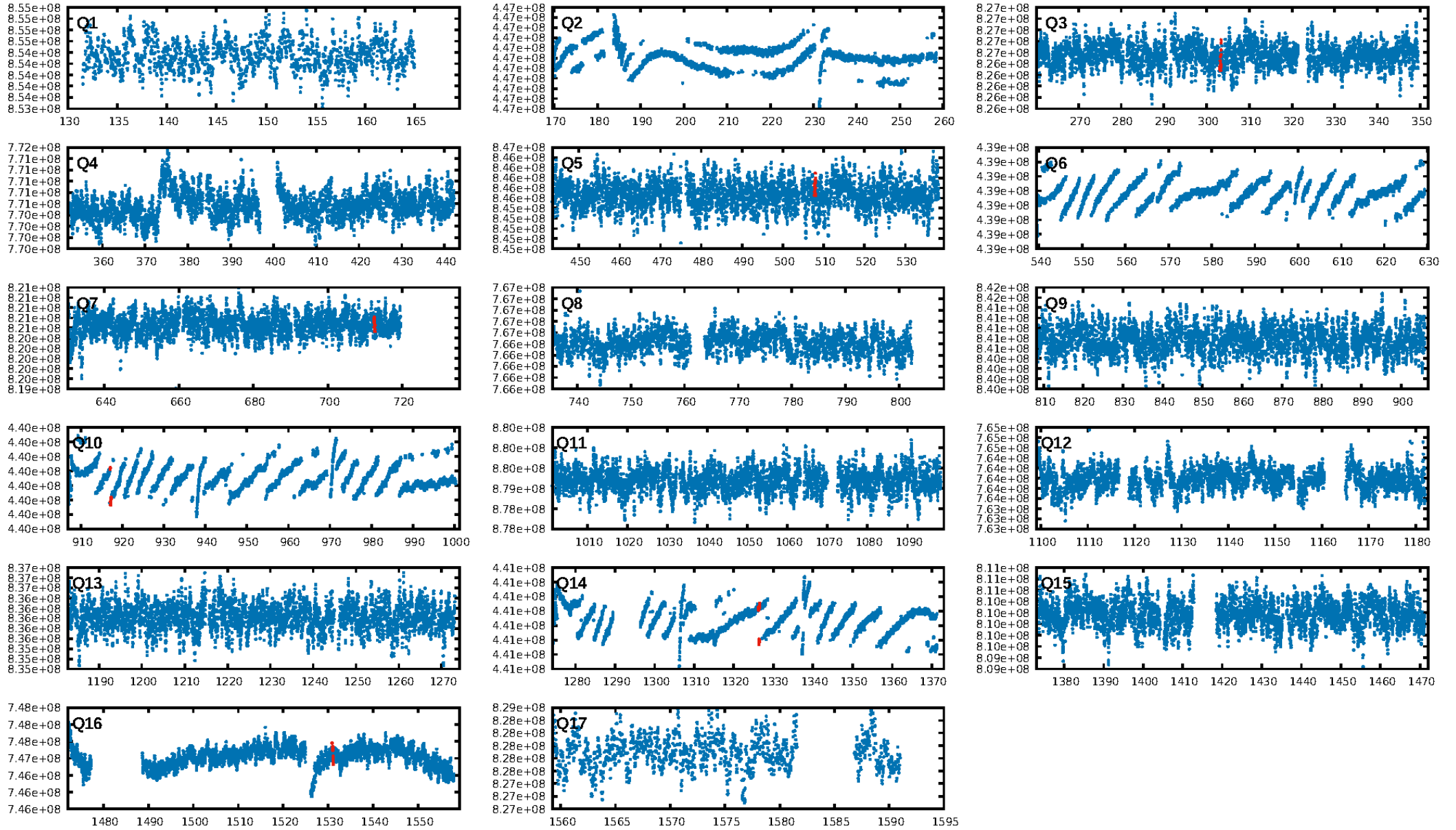
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.15σ]
LongPeriod-sig: 100.0% [32.41σ]
ModelChiSquare2-sig: 14.0%
ModelChiSquareGof-sig: 88.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.1924
Centroid-sig: 16.2%
Centroid-so: 2.800 arcsec [1.11σ]
OotOffset-rm: 0.493 arcsec [0.54σ]
KicOffset-rm: 0.500 arcsec [0.61σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 1.00 [6/6]

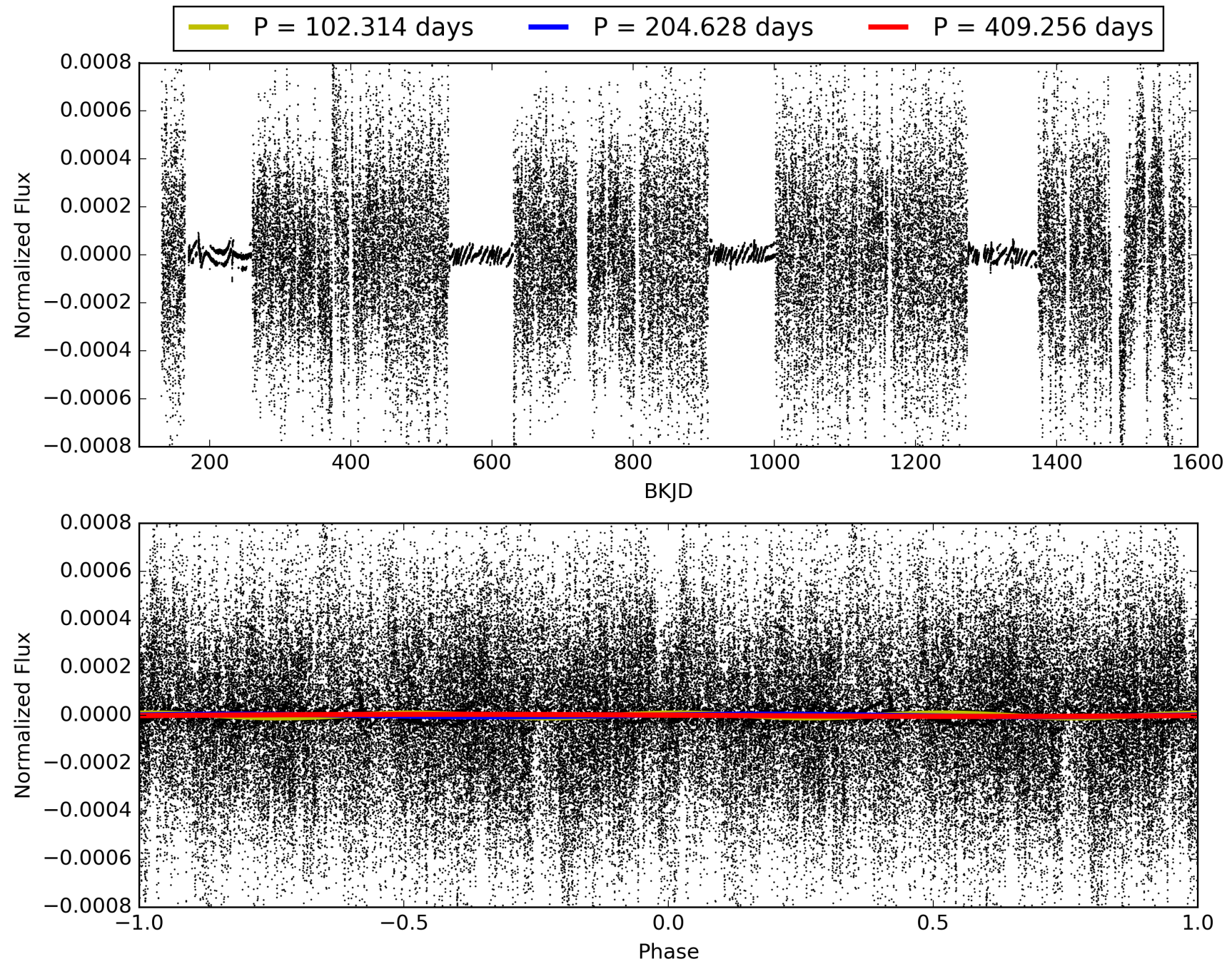
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:52:02 Z

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

TCE 009468199-05, PDC Light Curves

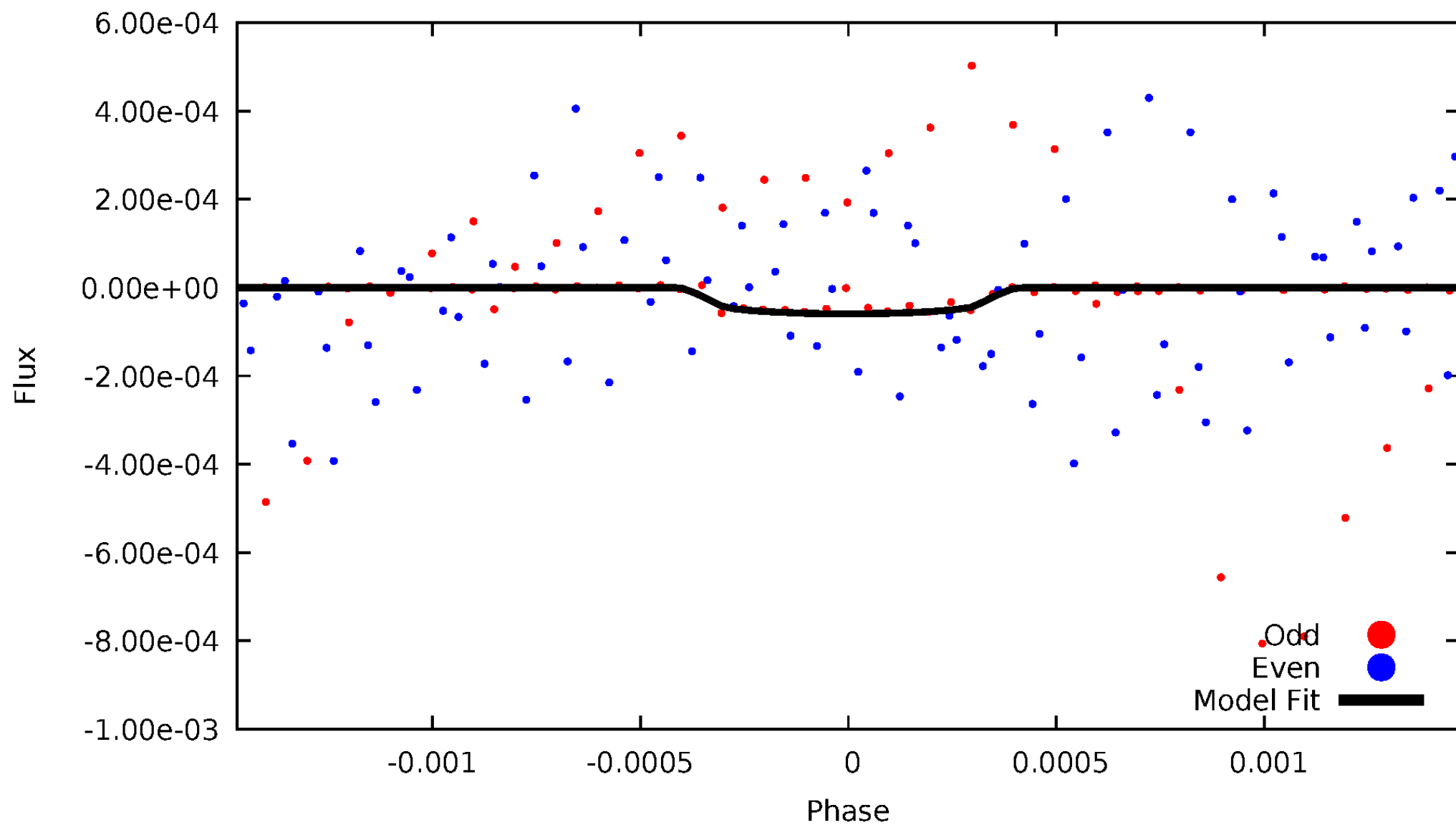


TCE 009468199-05



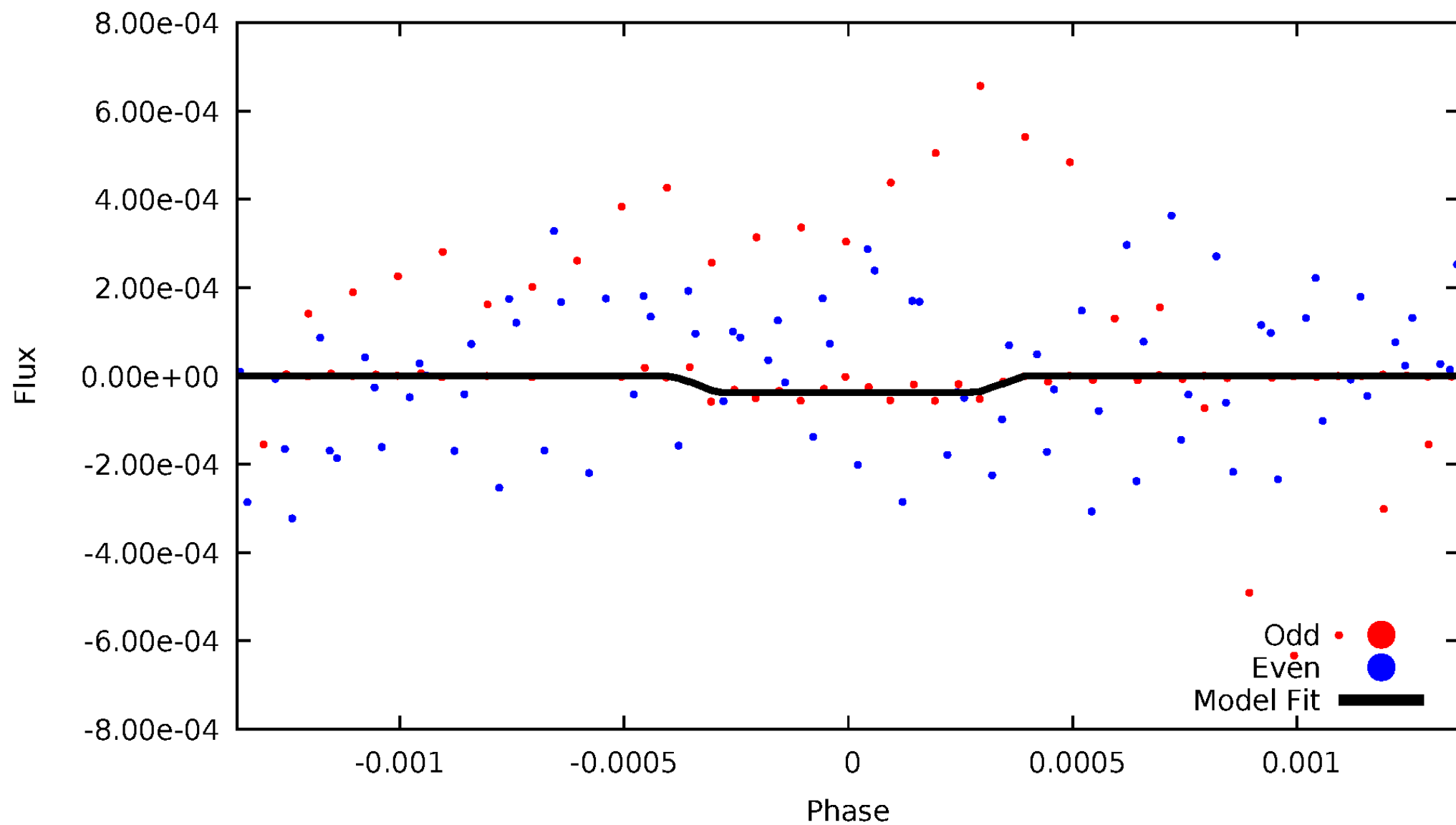
DV Odd/Even

TCE 009468199-05



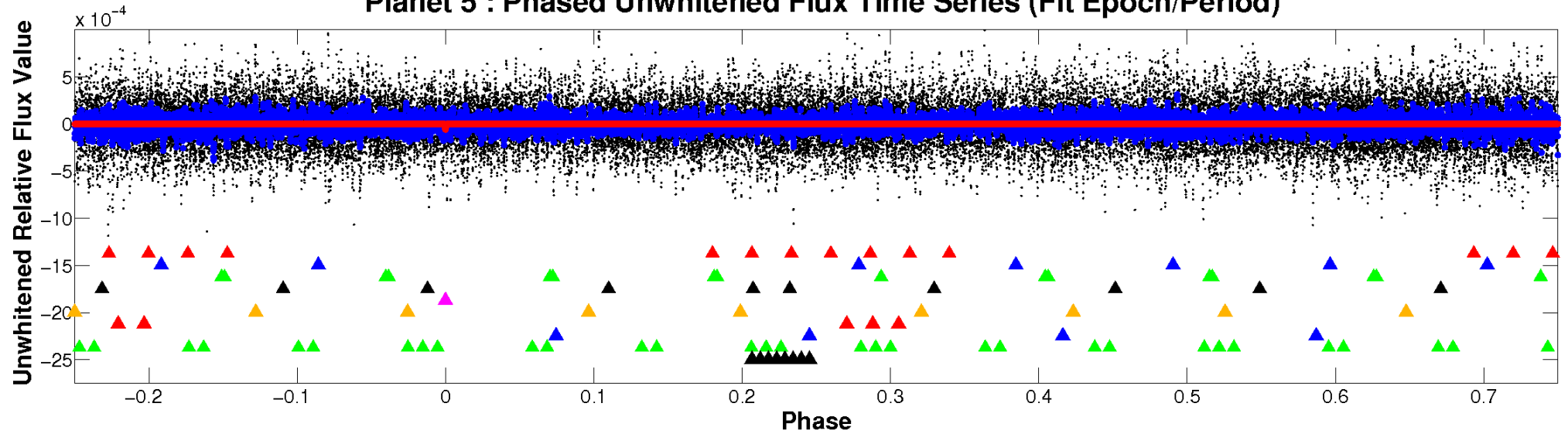
ALT Odd/Even

TCE 009468199-05

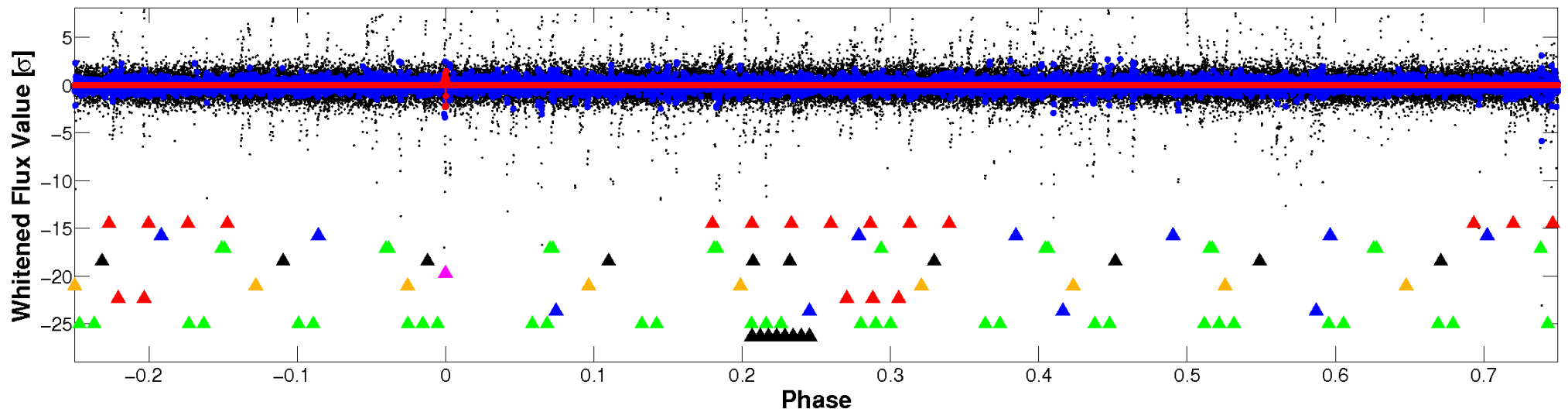


Non-Whitened Vs. Whitened Light Curve

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

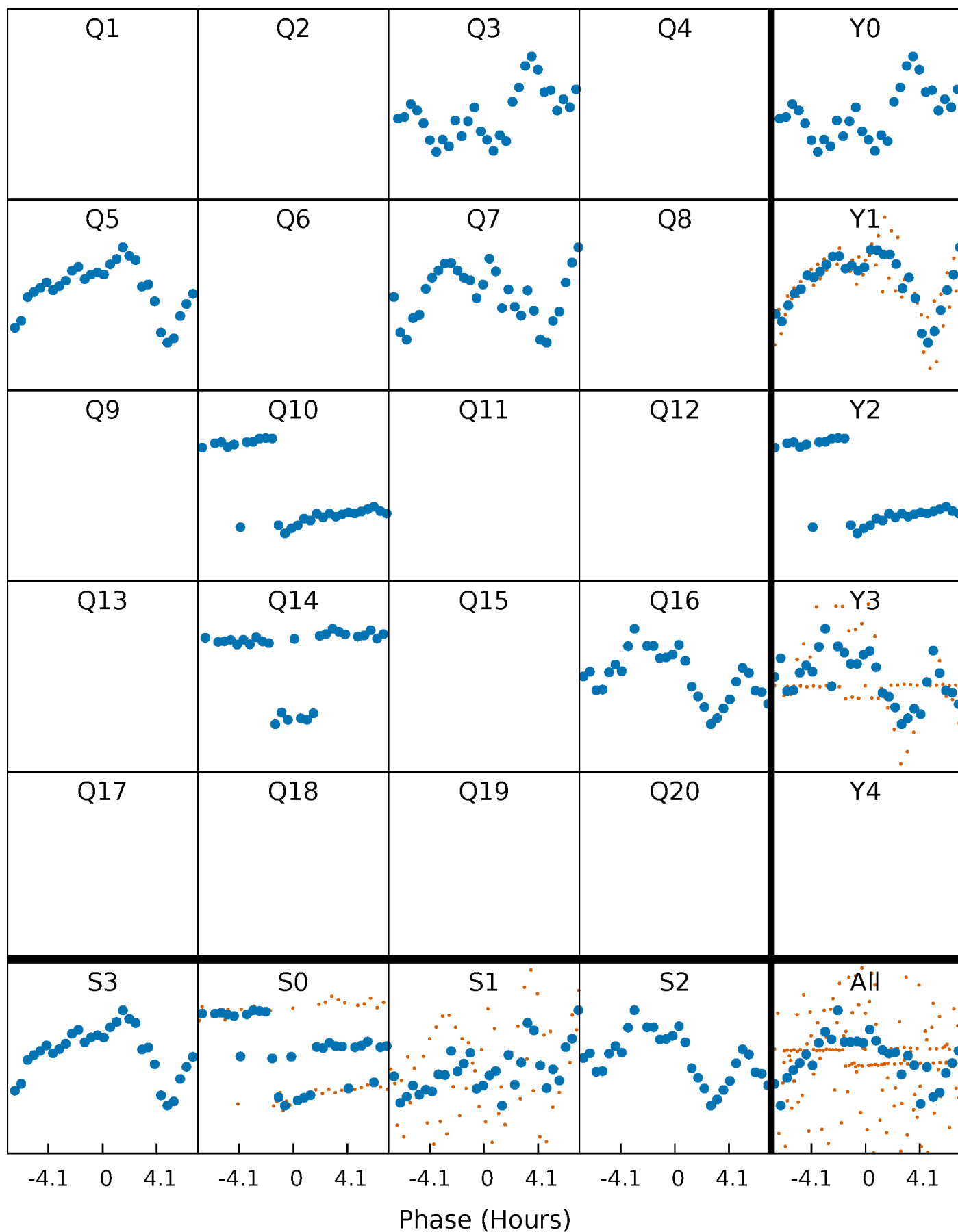


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



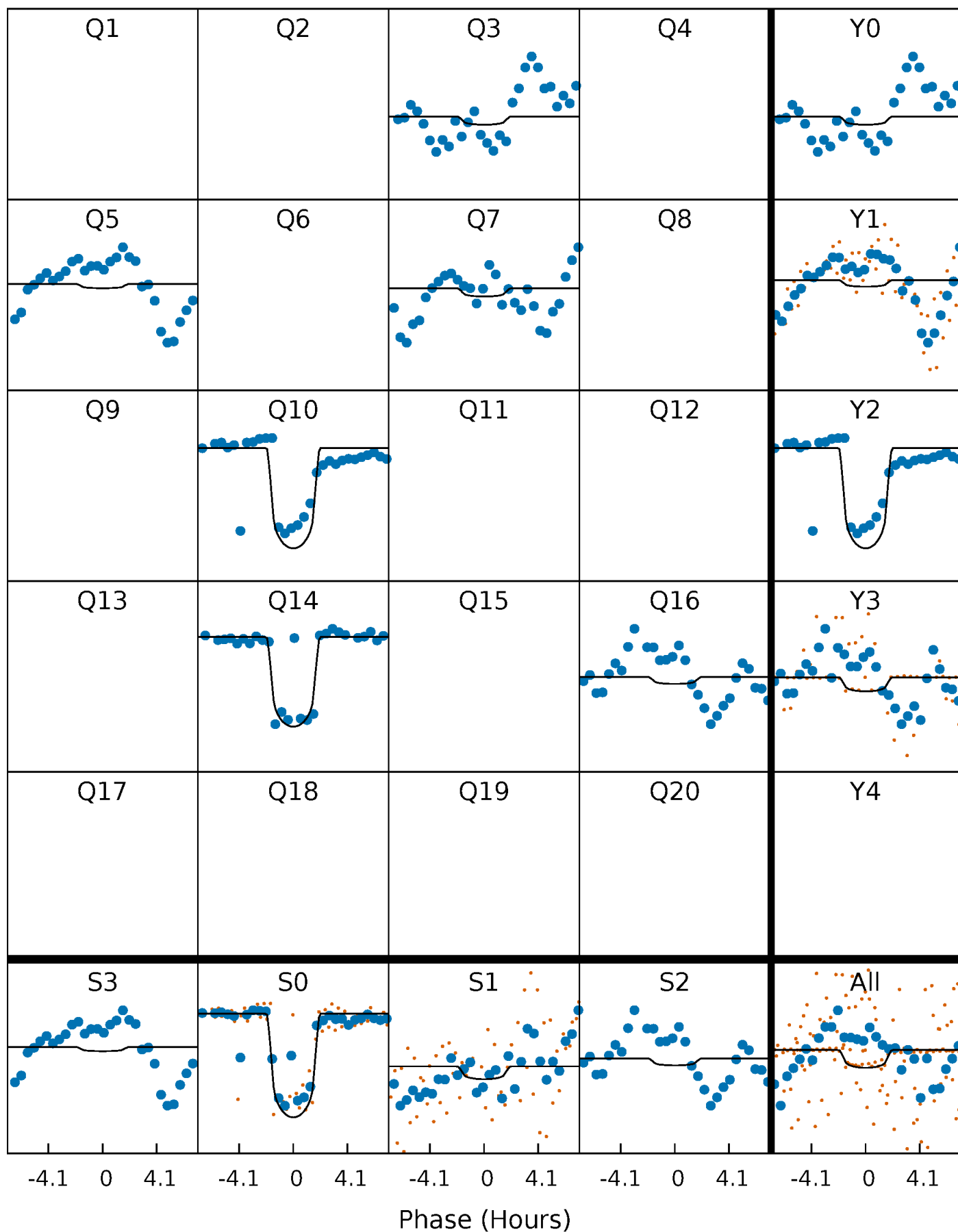
PDC Quarter-Phased Transit Curves

TCE 009468199-05 P=204.627758 Days $T_0=303.272025$ (BKJD)



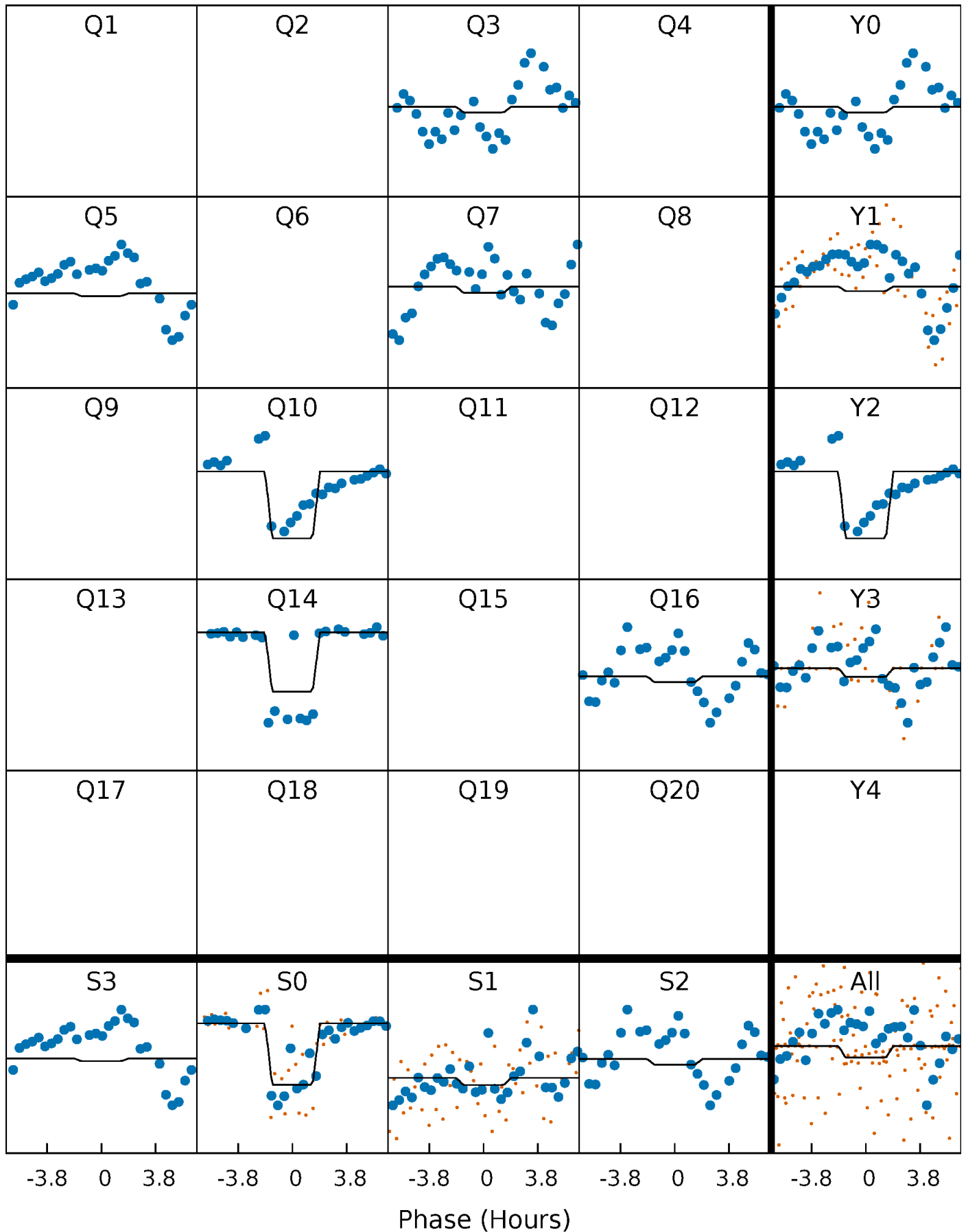
DV Quarter-Phased Transit Curves

TCE 009468199-05 $P=204.627758$ Days $T_0=303.272025$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

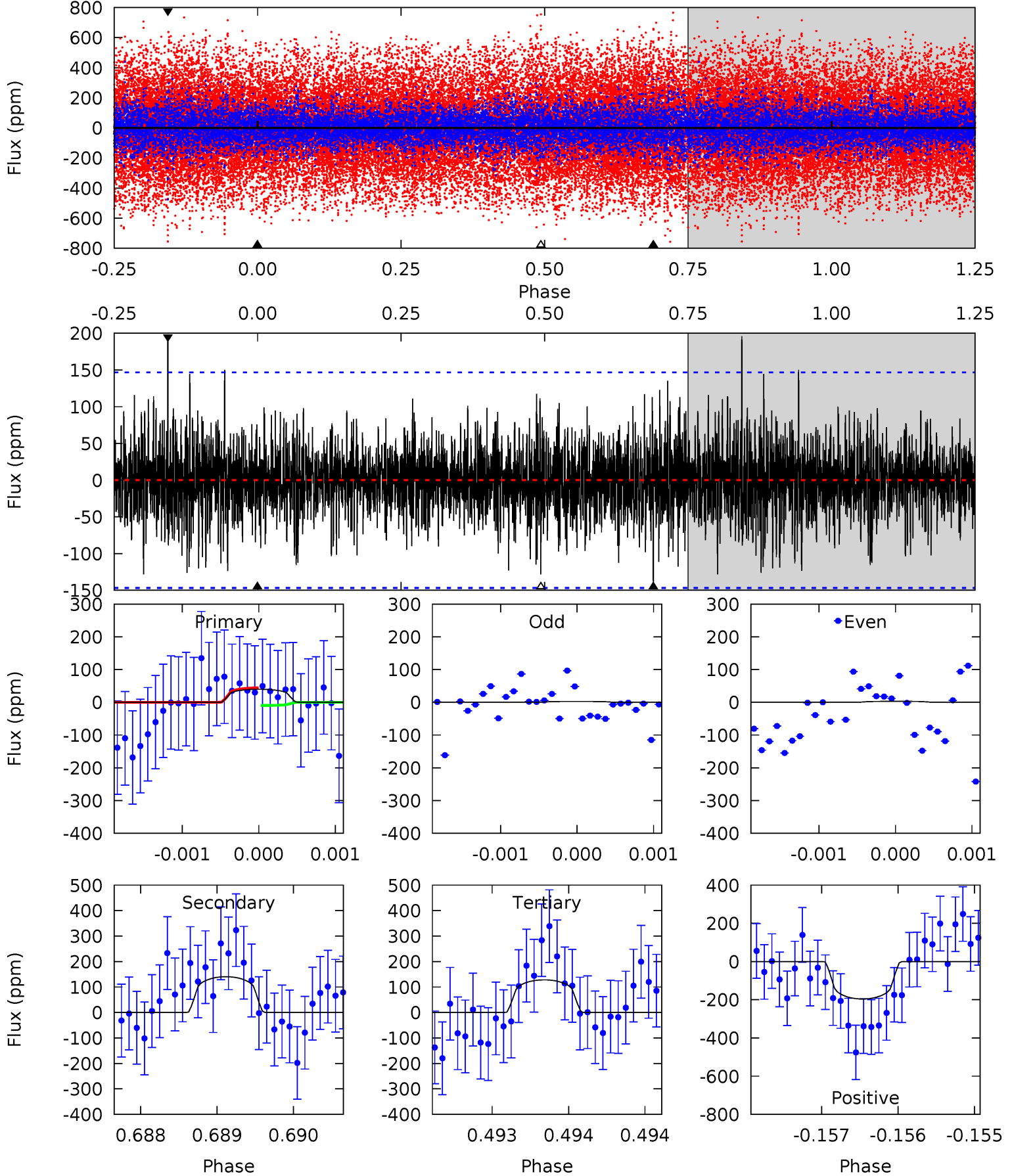
TCE 009468199-05 $P=204.627688$ Days $T_0=303.272597$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-05, P = 204.627758 Days, E = 98.644267 Days

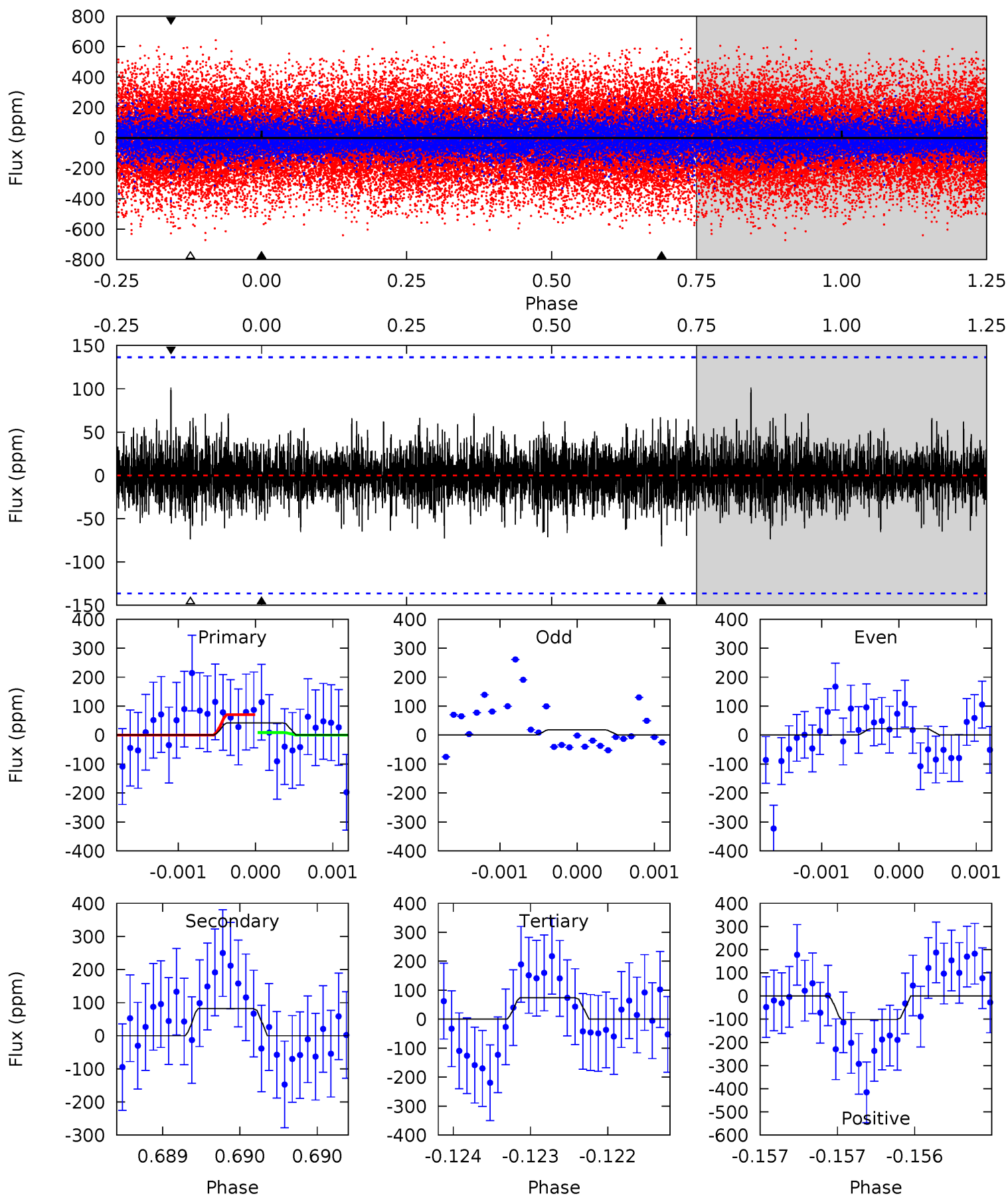
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.49	5.25	4.79	7.33	5.49	3.34	1.45	-3.30	-5.84	0.47	-2.08	0.00	-2.31	0.58	0.65



Alt Model-Shift Uniqueness Test

009468199-05, P = 204.627688 Days, E = 98.644909 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.71	3.29	2.98	4.09	5.50	3.37	0.86	-1.27	-2.38	0.31	-0.80	0.07	2.08	0.55	1.28



Stellar Parameters For KIC 009468199

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-141 ± 27	$8.05^{+1.97}_{-1.98}$	963^{+65}_{-75}	5795^{+624}_{-488}	946^{+616}_{-335}
Alt.	-82 ± 25	$5.86^{+1.75}_{-1.62}$	962^{+67}_{-76}	5962^{+894}_{-732}	1039^{+949}_{-458}

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

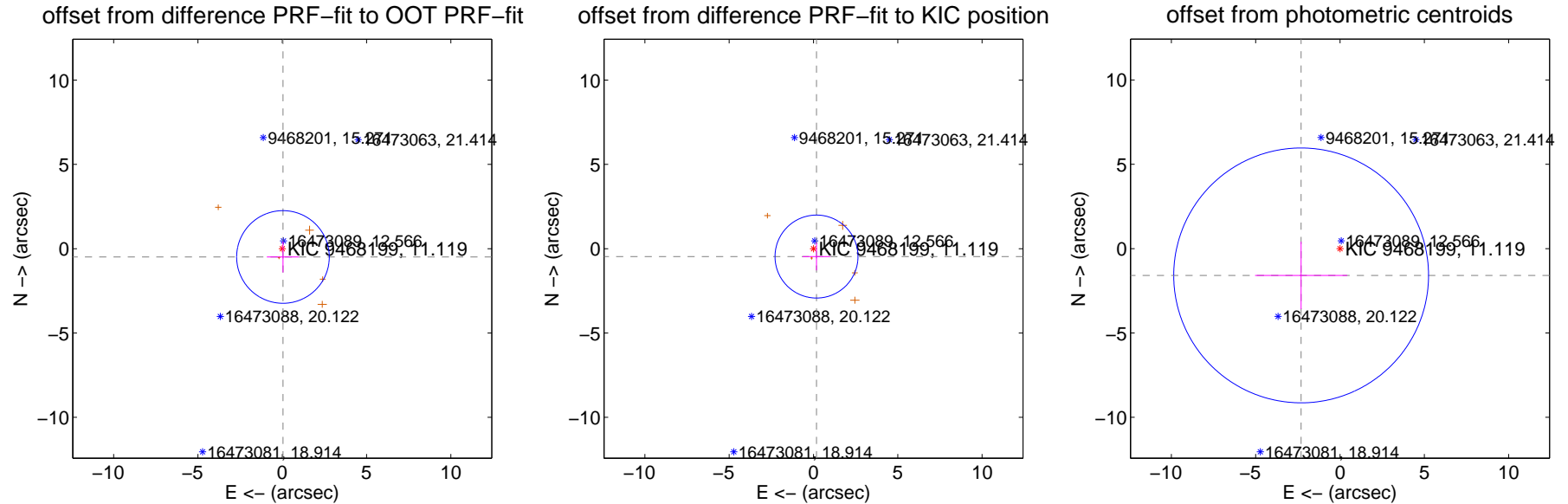
DV Centroid Data

Supplemental centroid analysis for 009468199-05. **Kepler magnitude: 11.12.** Transit SNR 18.94

There are 0 quarters with good PRF difference image offsets

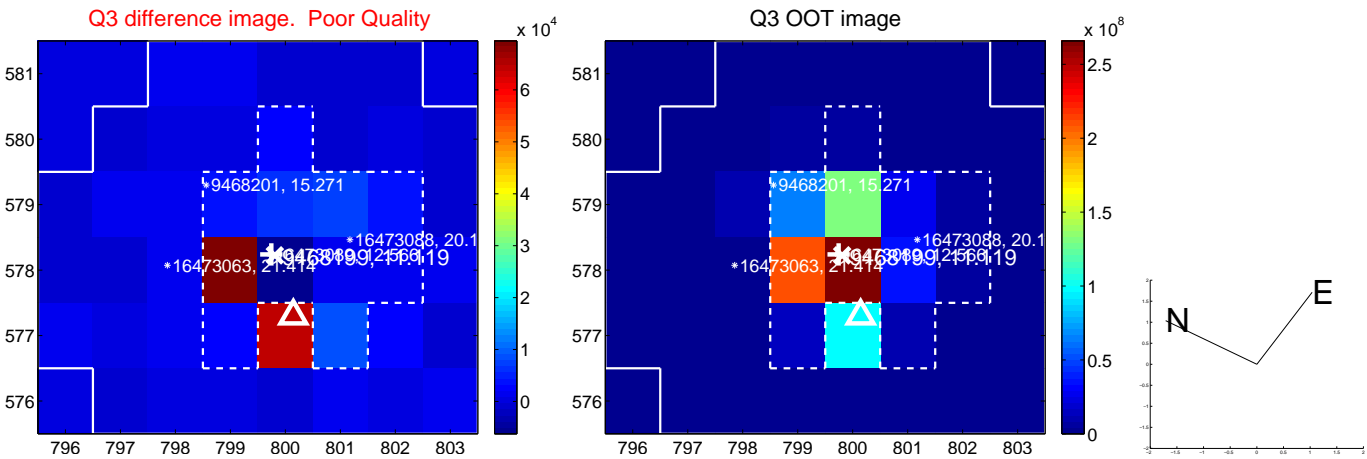
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.493 ± 0.916	0.54	-0.041 ± 0.959	-0.491 ± 0.916
PRF-fit source offset from KIC position	0.500 ± 0.820	0.61	-0.179 ± 0.821	-0.467 ± 0.820
photometric centroid source offset	2.80 ± 2.52	1.11	2.31 ± 2.73	-1.59 ± 2.00

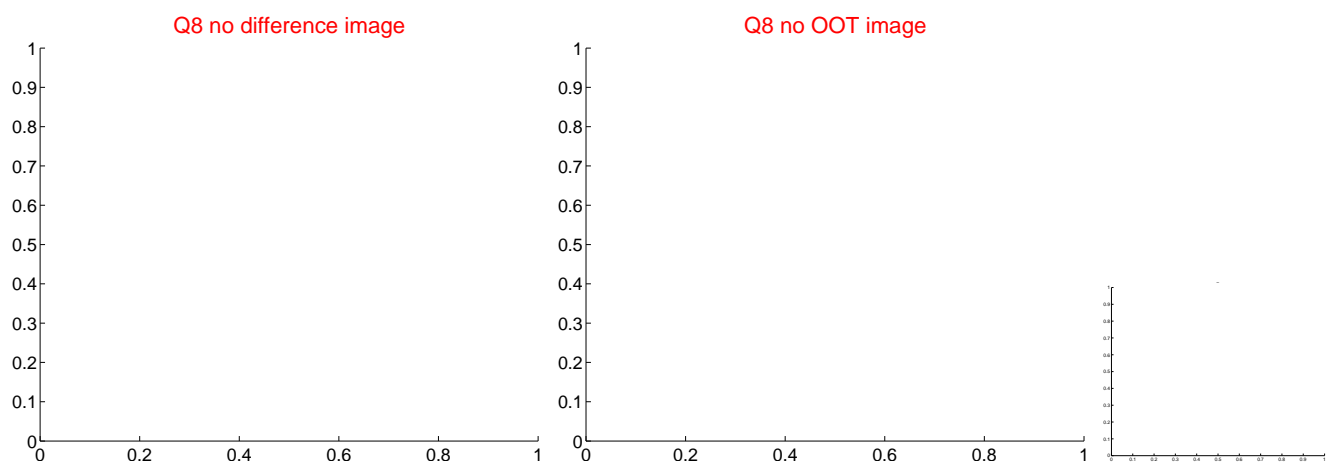
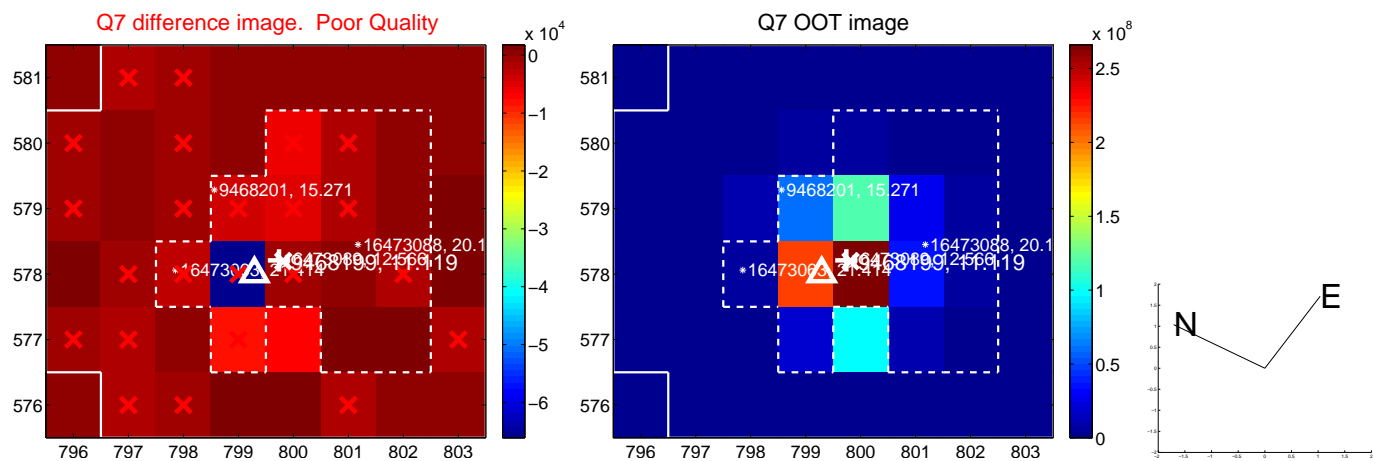
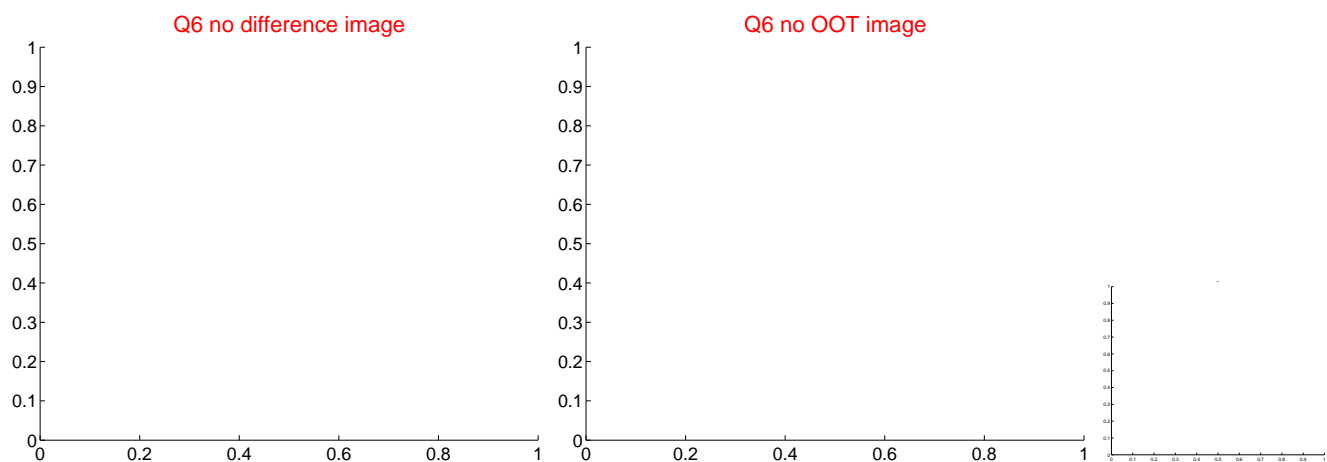
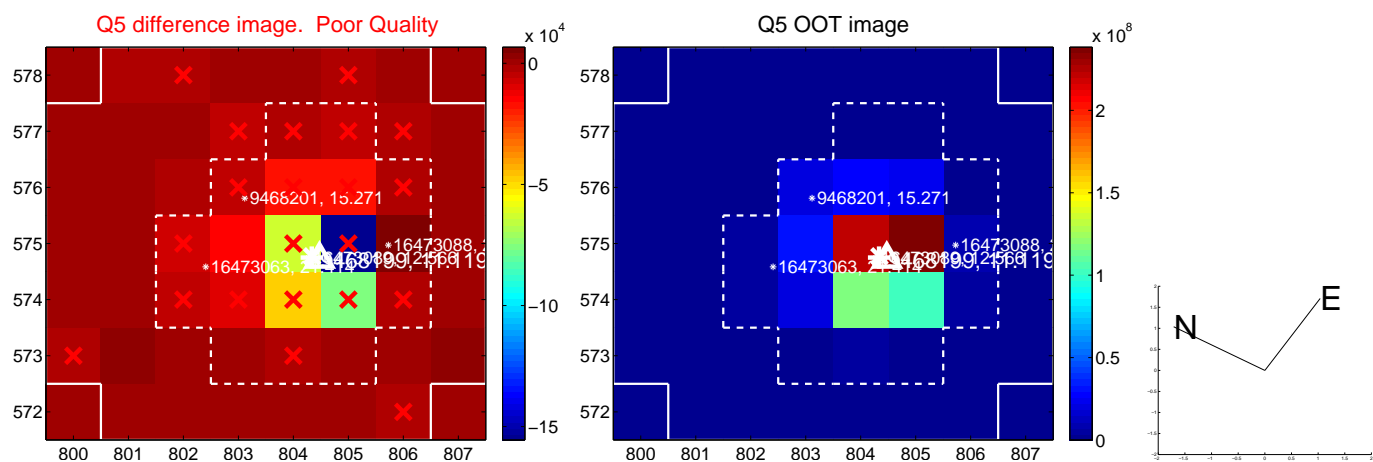


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

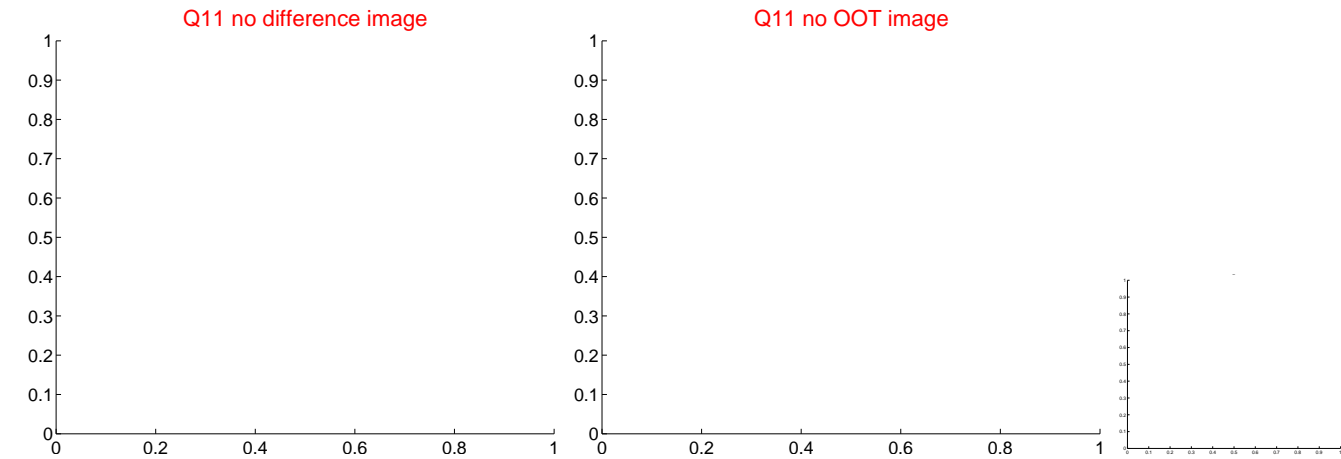
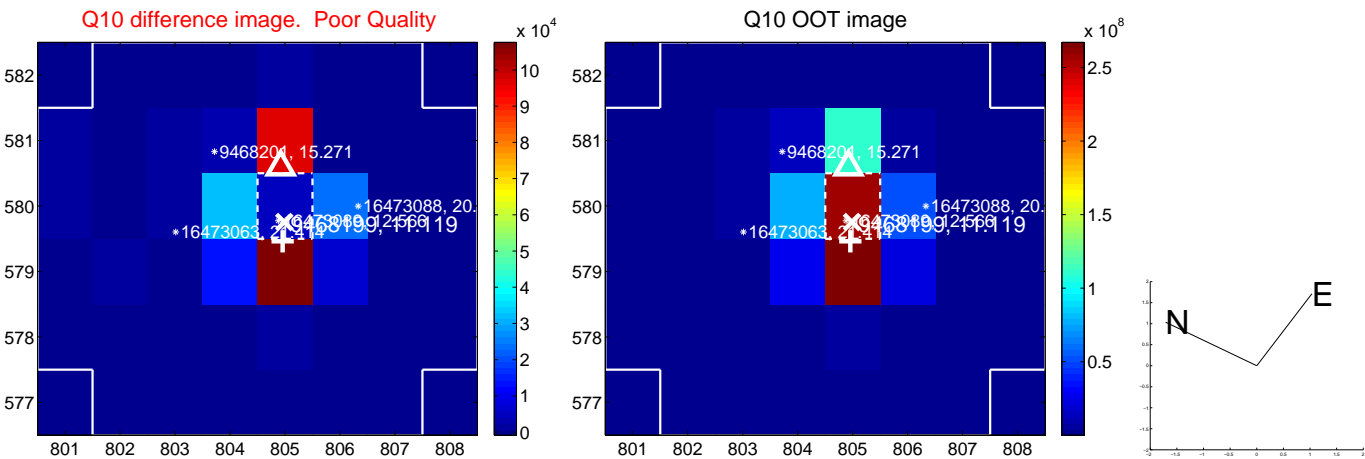
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



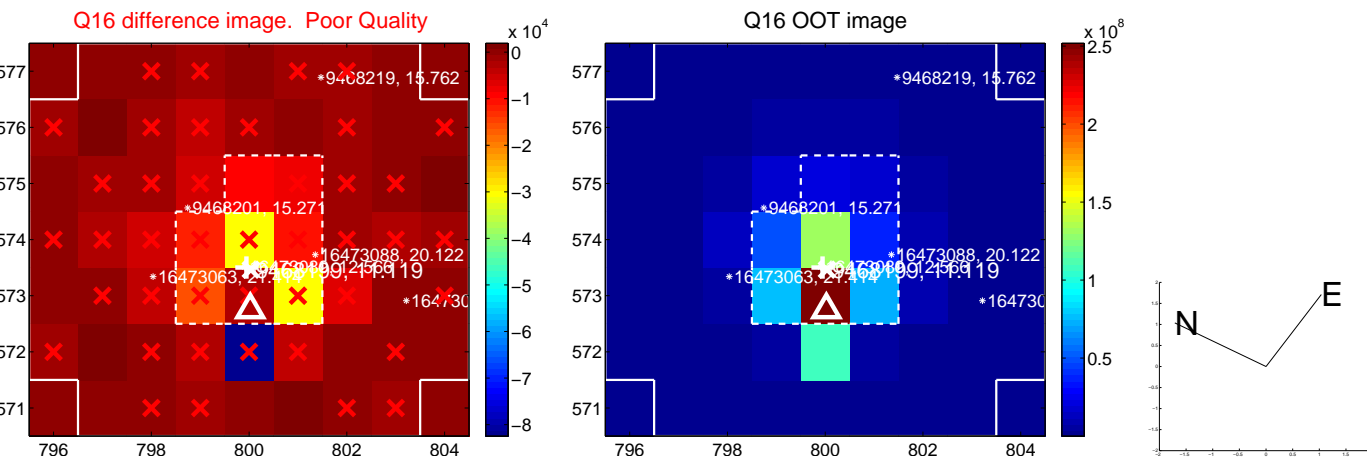
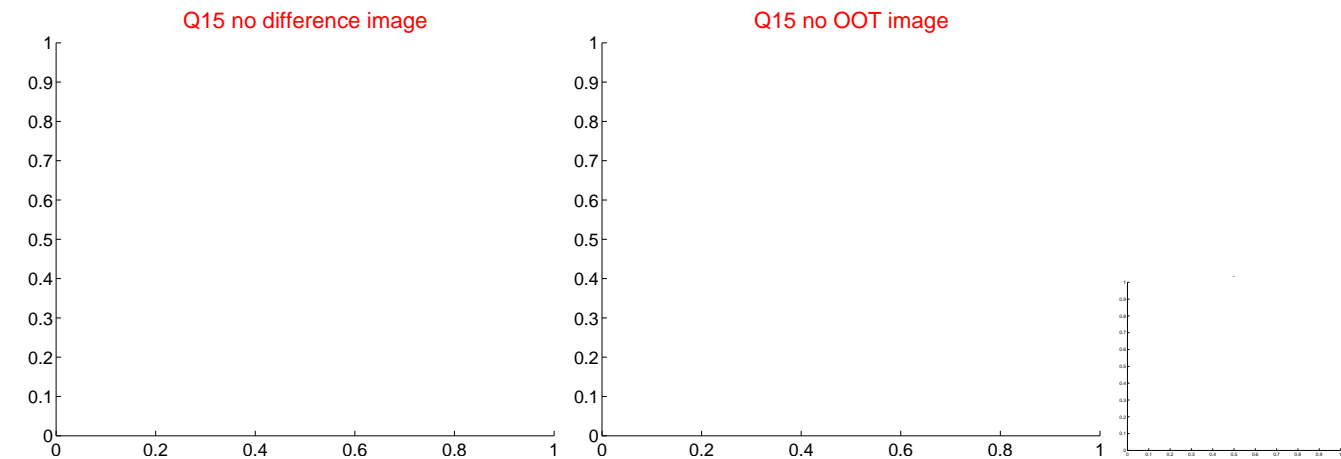
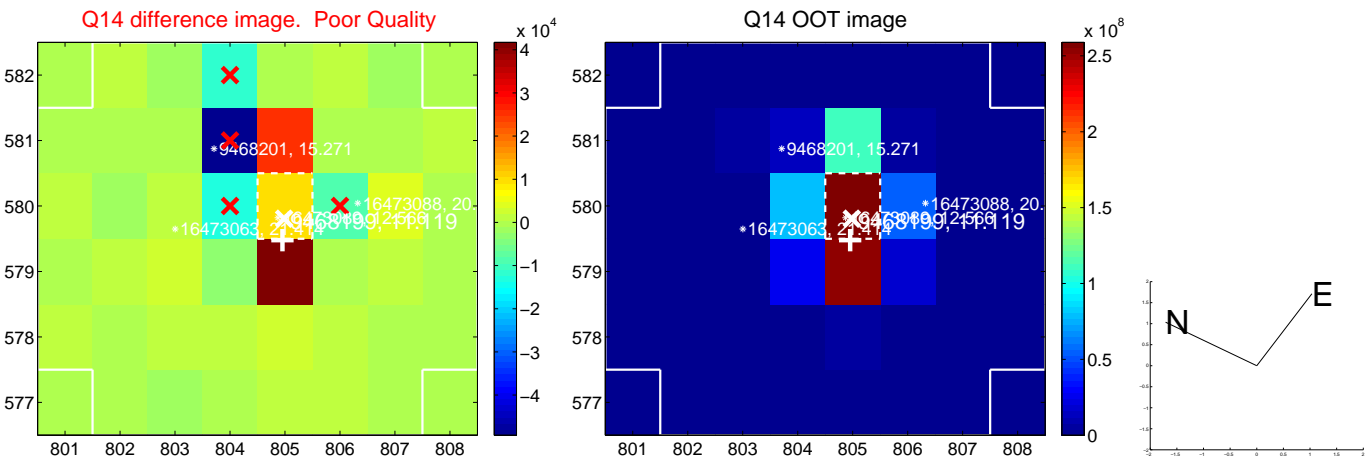
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



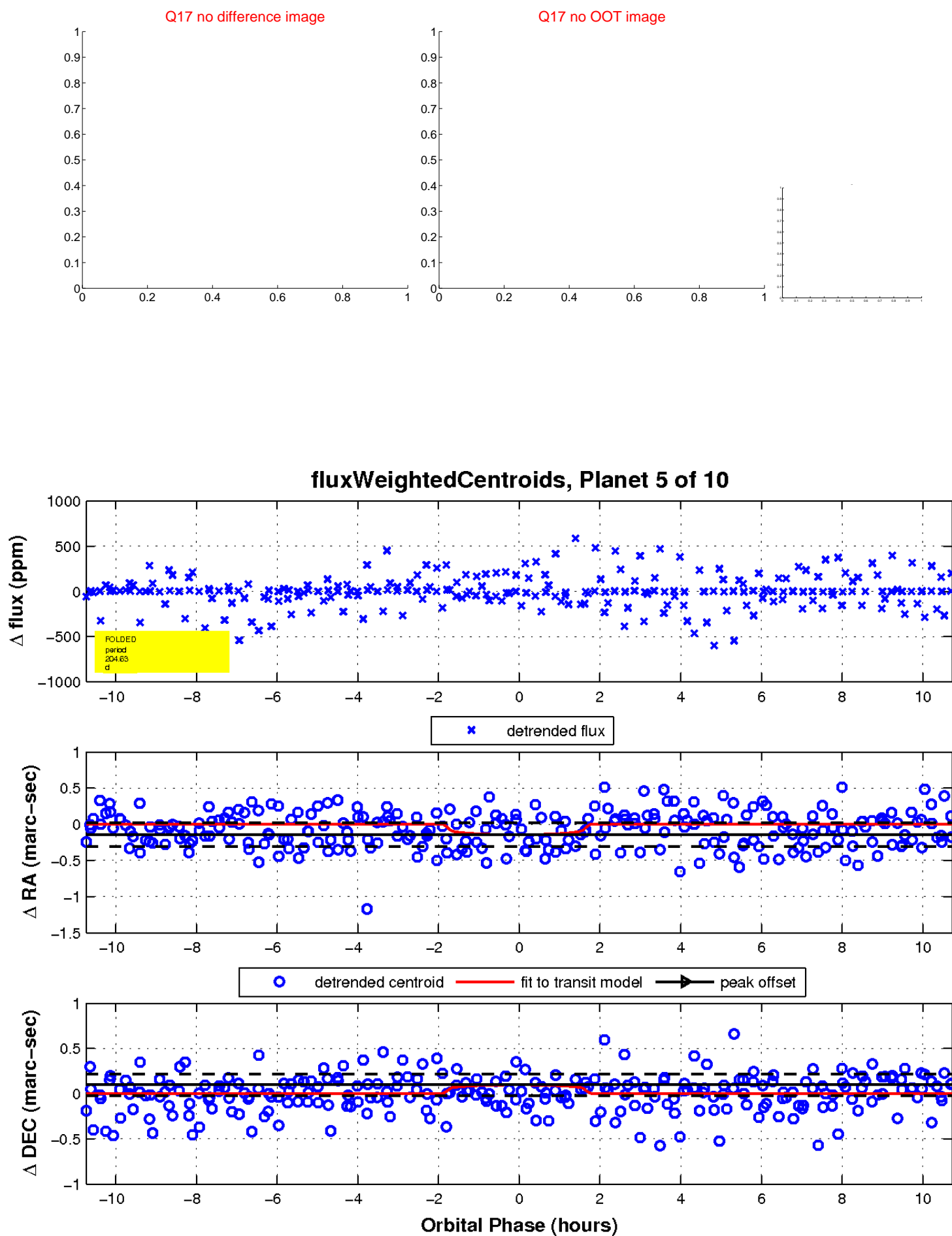
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

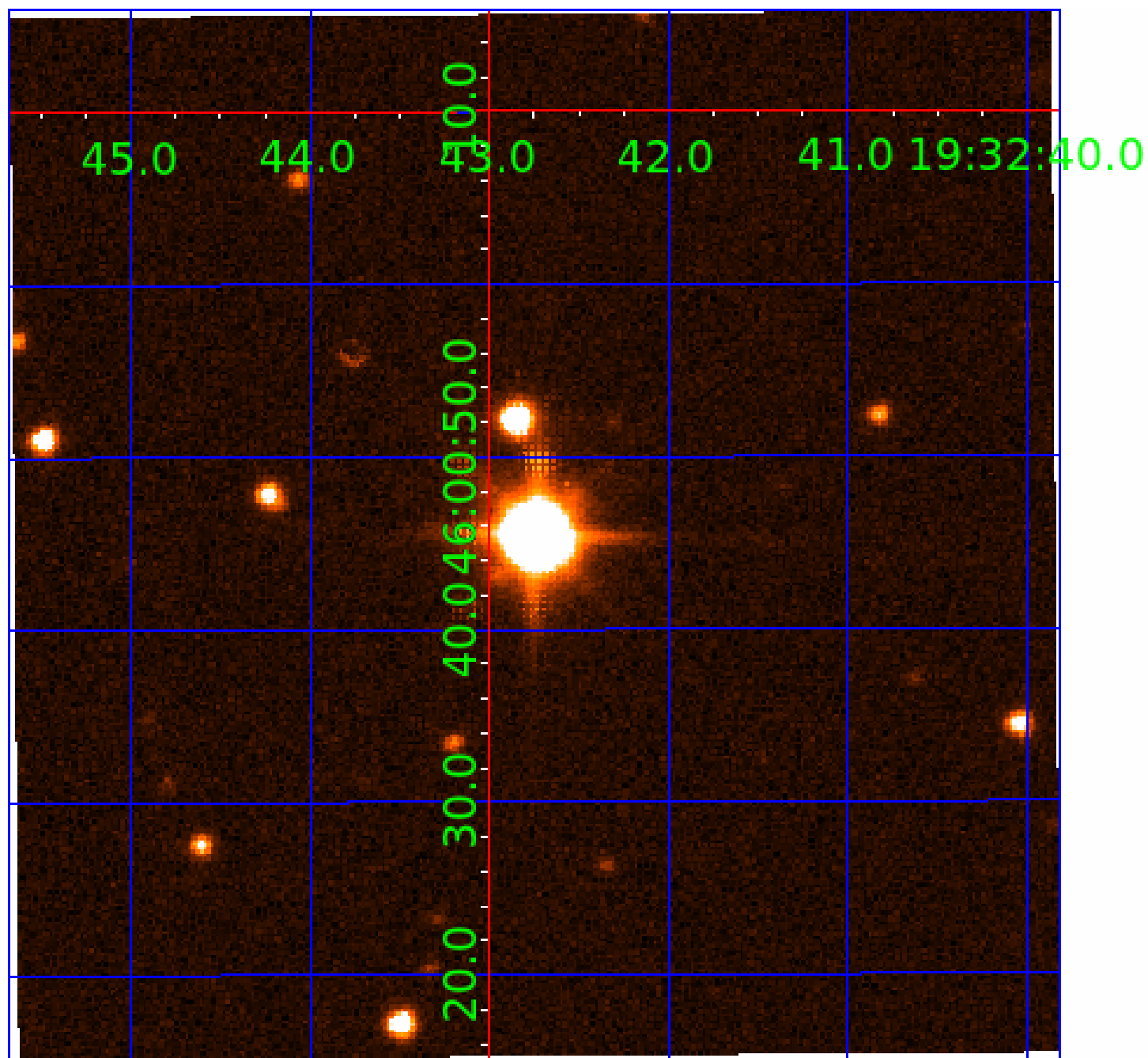


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
009468199-03	OBS	No	90.989115	135.710649	8.0	2.964	20.9	3.2	8.90	5043	2.67	160.97
009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

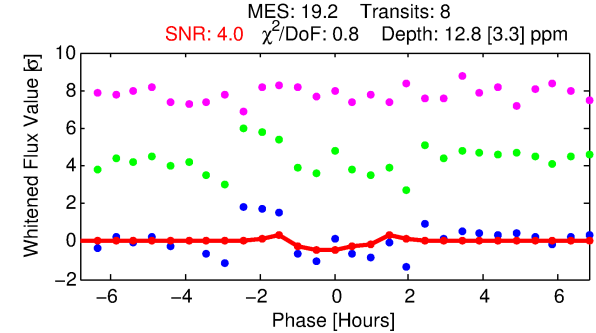
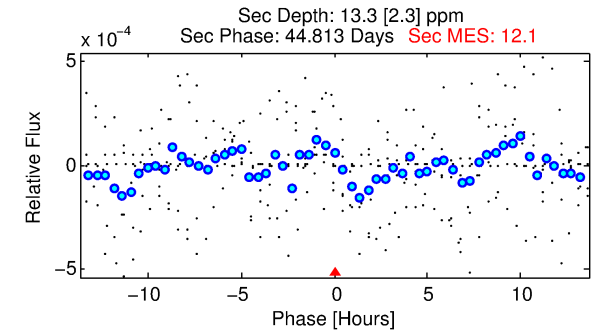
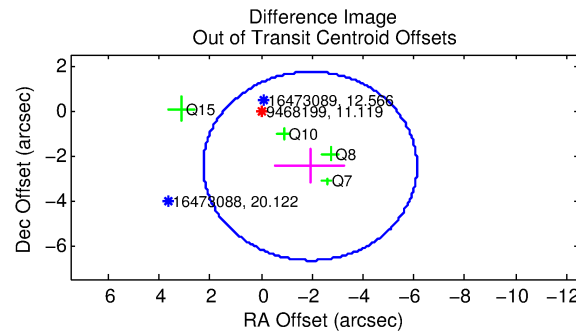
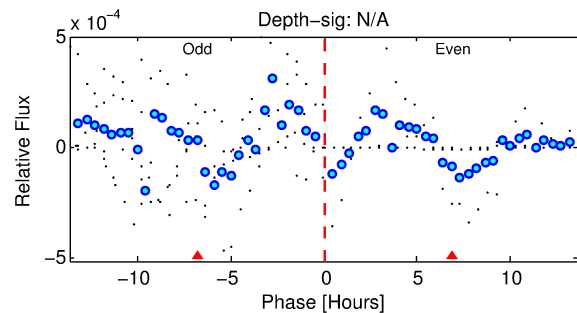
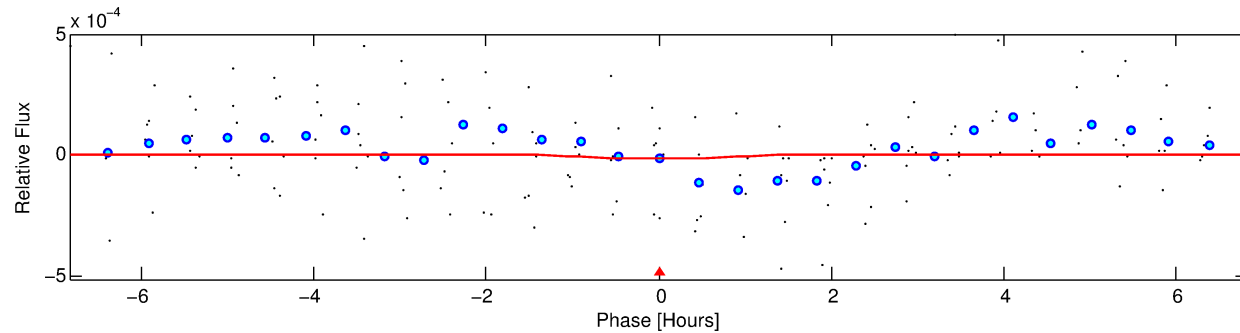
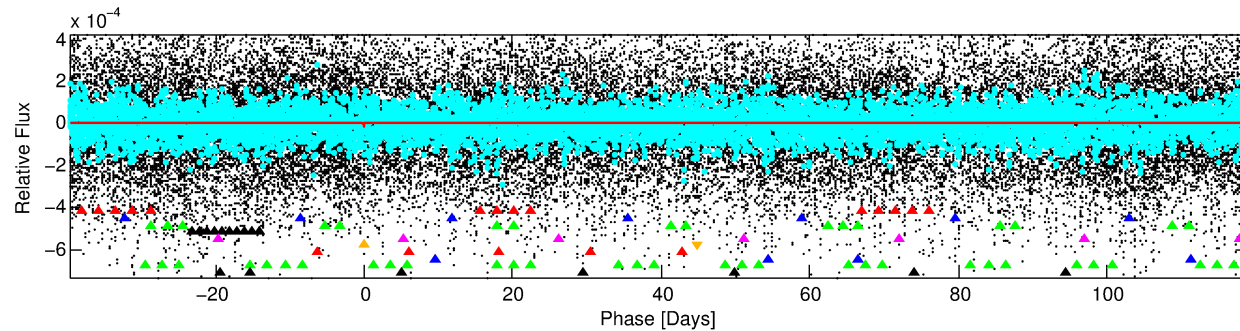
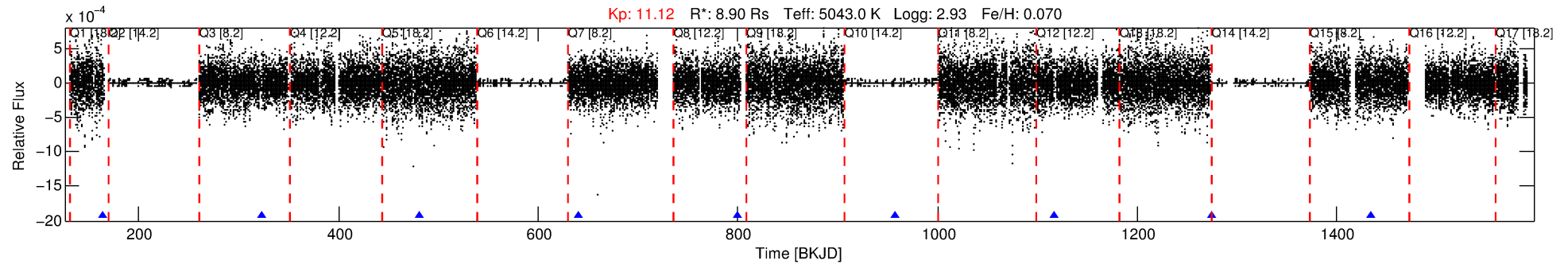
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-06

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 6 of 10 Period: 158.707 d



DV Fit Results:

Period = 158.70726 [0.00344] d
Epoch = 164.3106 [0.0225] BKJD
Rp/R* = 0.0042 [0.0098]
a/R* = 189.33 [2031.70]
b = 0.94 [1.36]
Seff = 76.67 [31.72]
Teq = 755 [78] K
Rp = 4.09 [9.64] Re
a = 0.7742 [0.2299] AU
Ag = 261.49 [1222.13] [0.21σ]
Teffp = 4691 [5462] K [0.72σ]

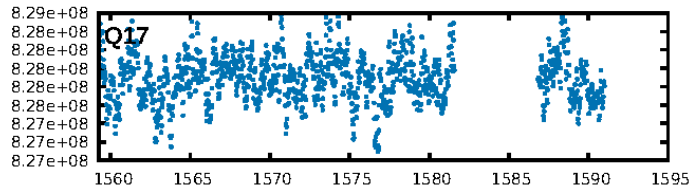
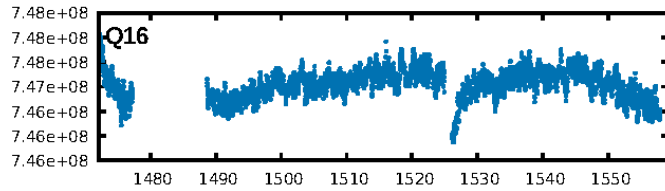
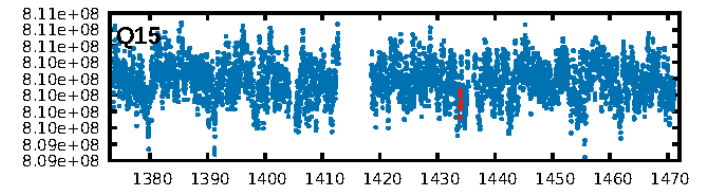
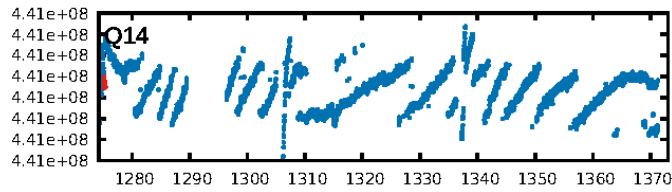
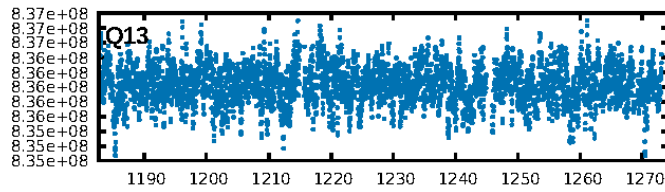
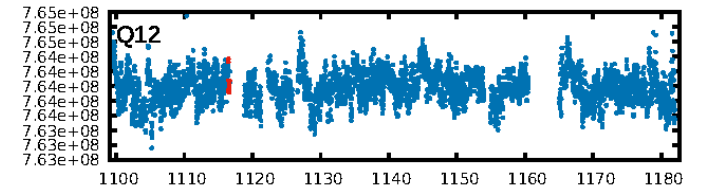
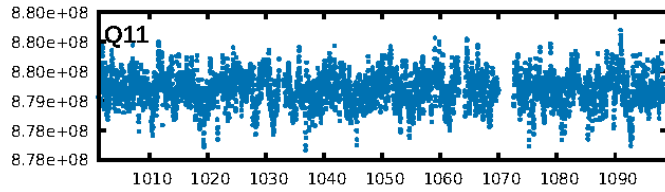
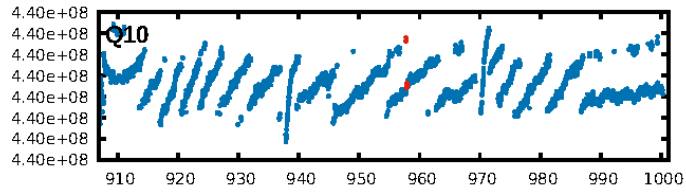
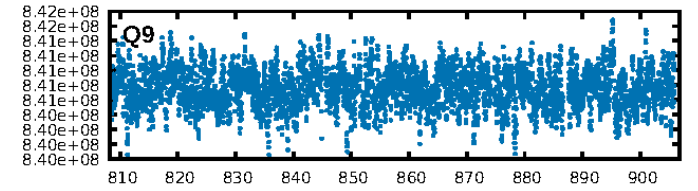
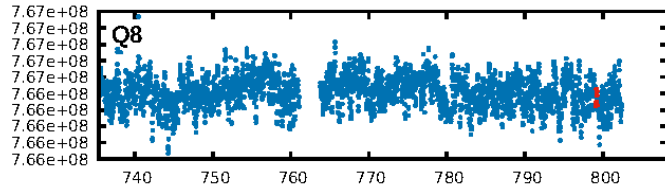
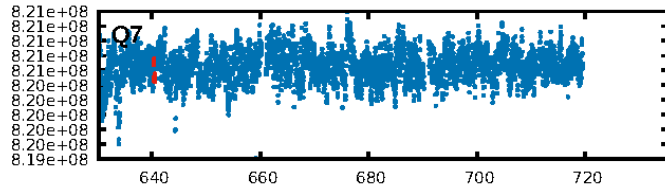
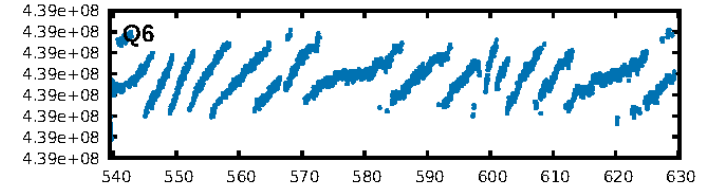
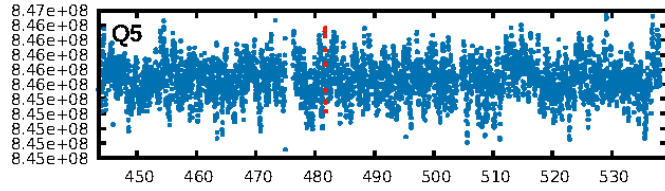
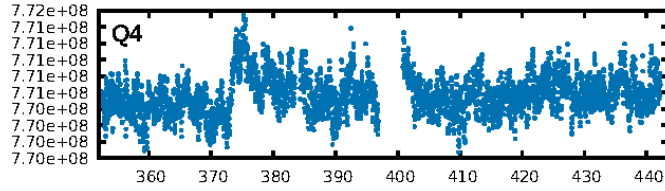
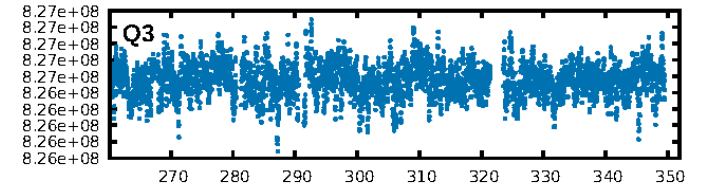
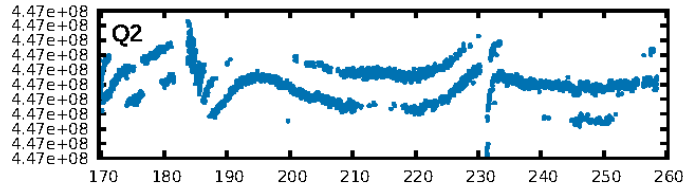
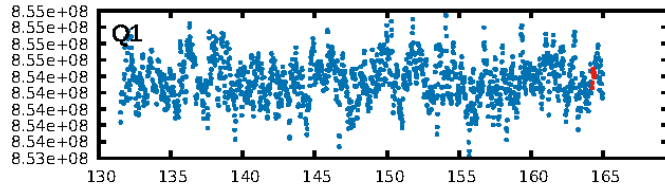
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [468.20σ]
LongPeriod-sig: 100.0% [7.49σ]
ModelChiSquare2-sig: 76.6%
ModelChiSquareGof-sig: 98.3%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -2.942
Centroid-sig: 59.2%
Centroid-so: 7.858 arcsec [0.67σ]
OotOffset-rm: 3.139 arcsec [2.24σ]
KicOffset-rm: 3.394 arcsec [2.76σ]
OotOffset-st: 1/2/1/0 [4]
KicOffset-st: 1/2/1/0 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 1.00 [6/6]

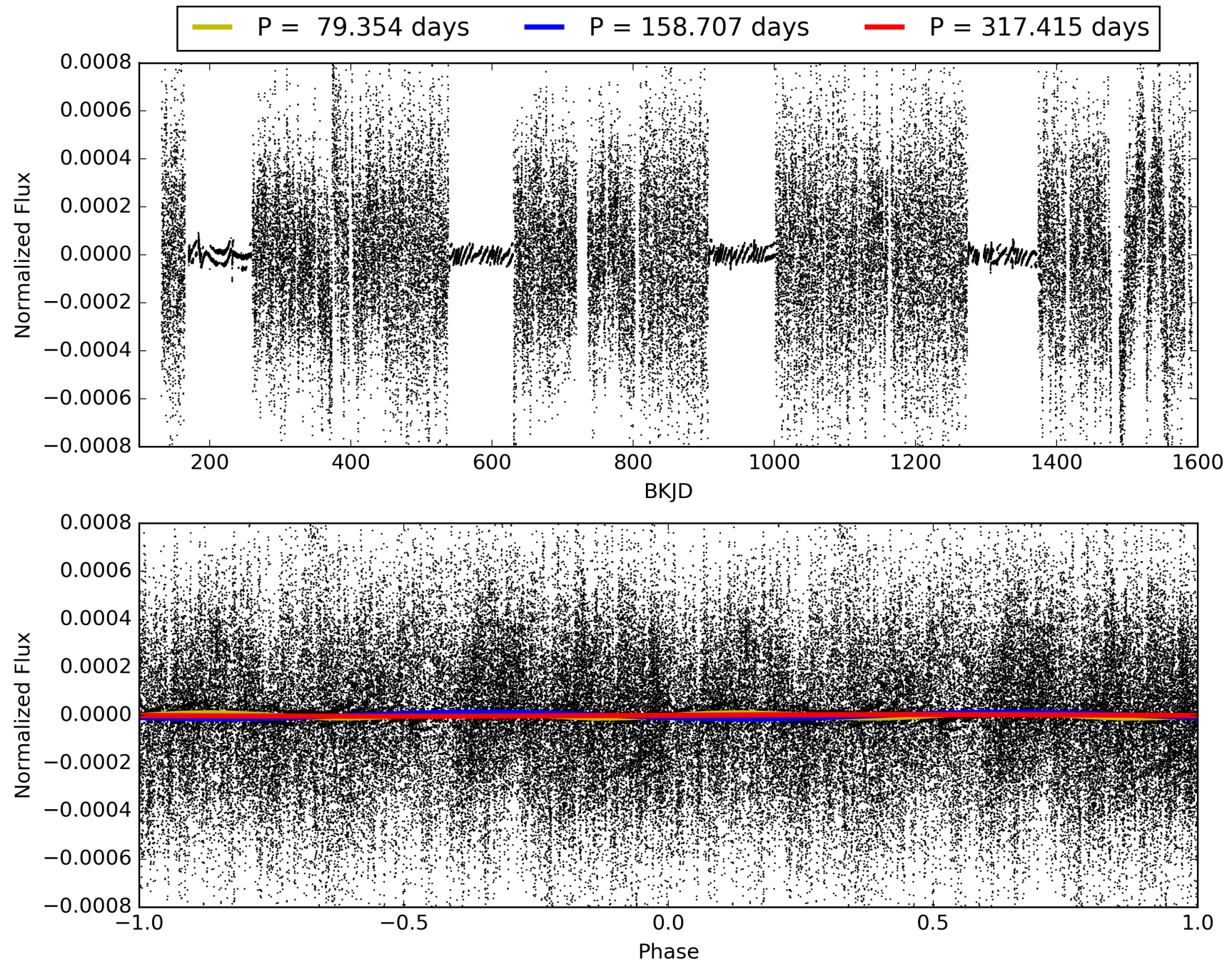
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:52:14 Z

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

TCE 009468199-06, PDC Light Curves

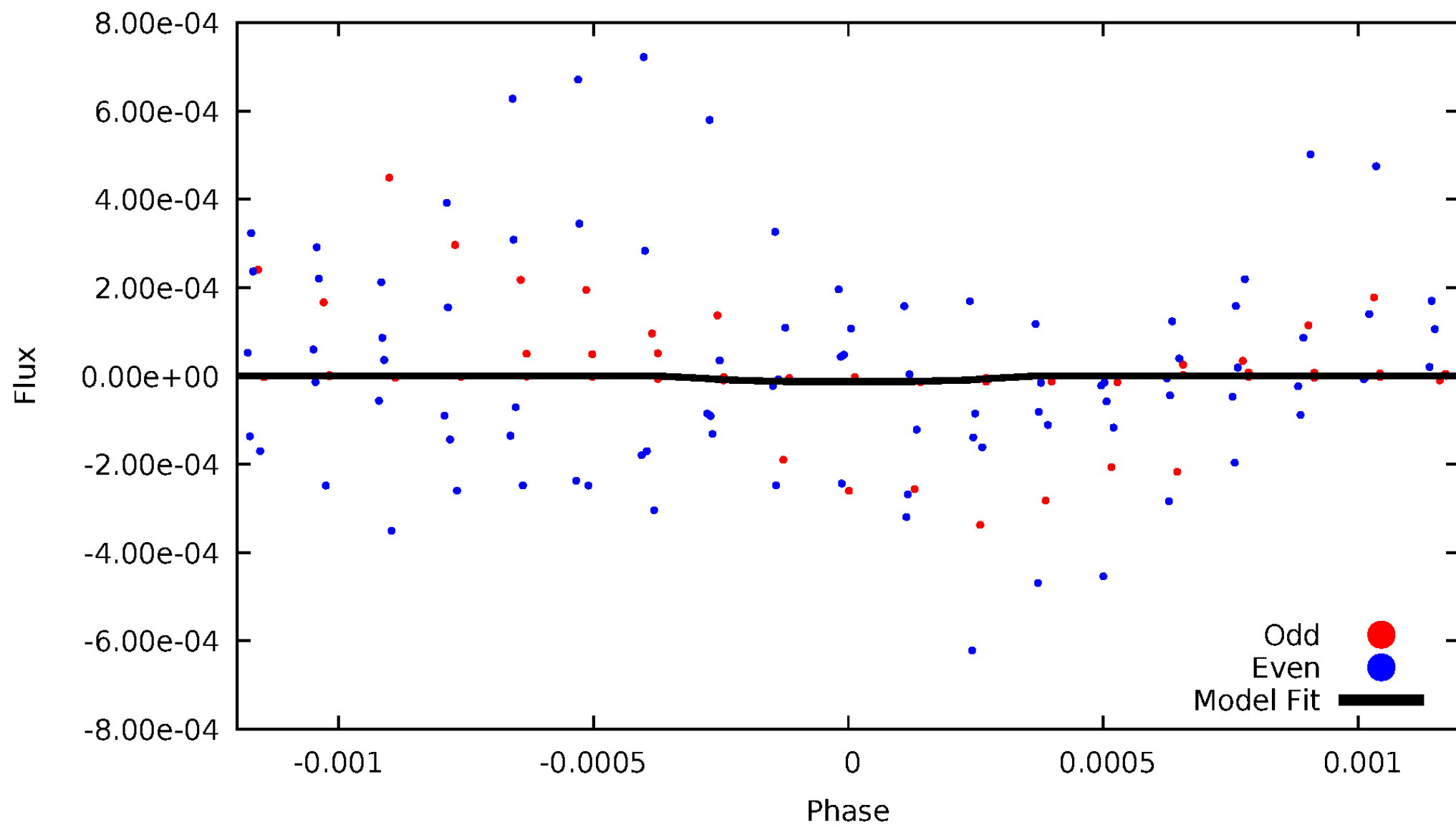


TCE 009468199-06



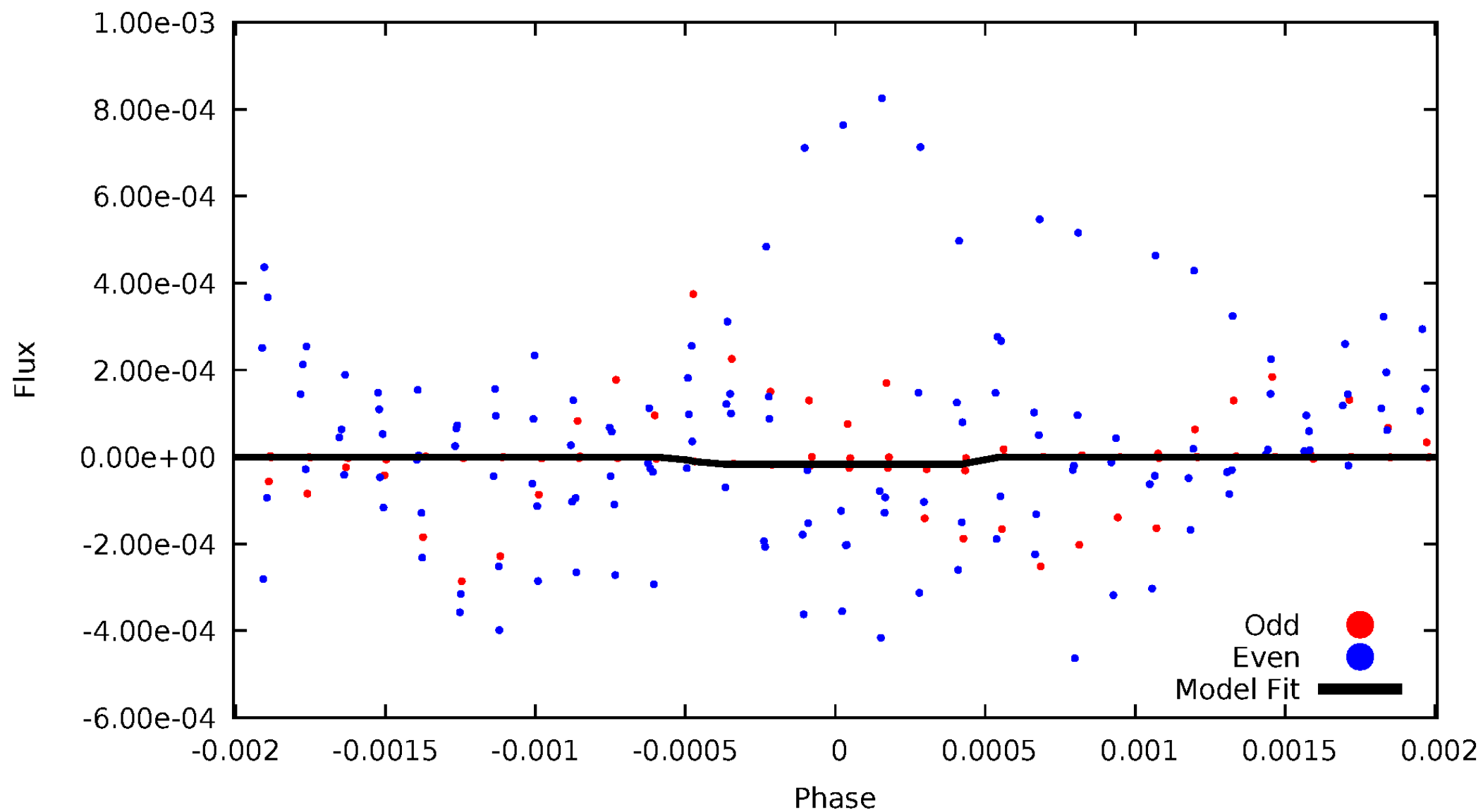
DV Odd/Even

TCE 009468199-06



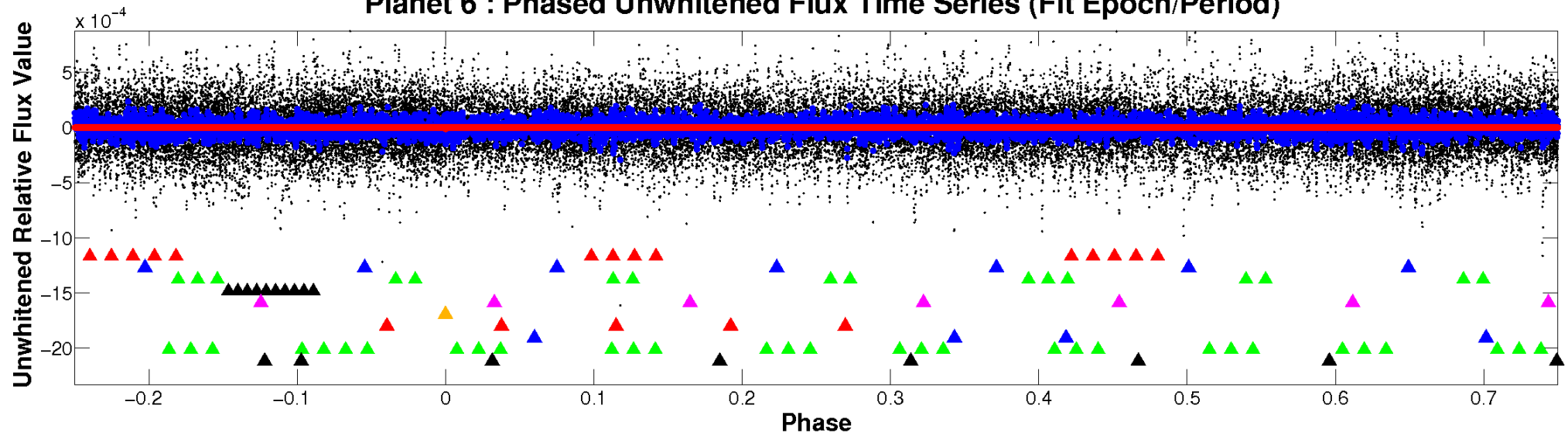
ALT Odd/Even

TCE 009468199-06

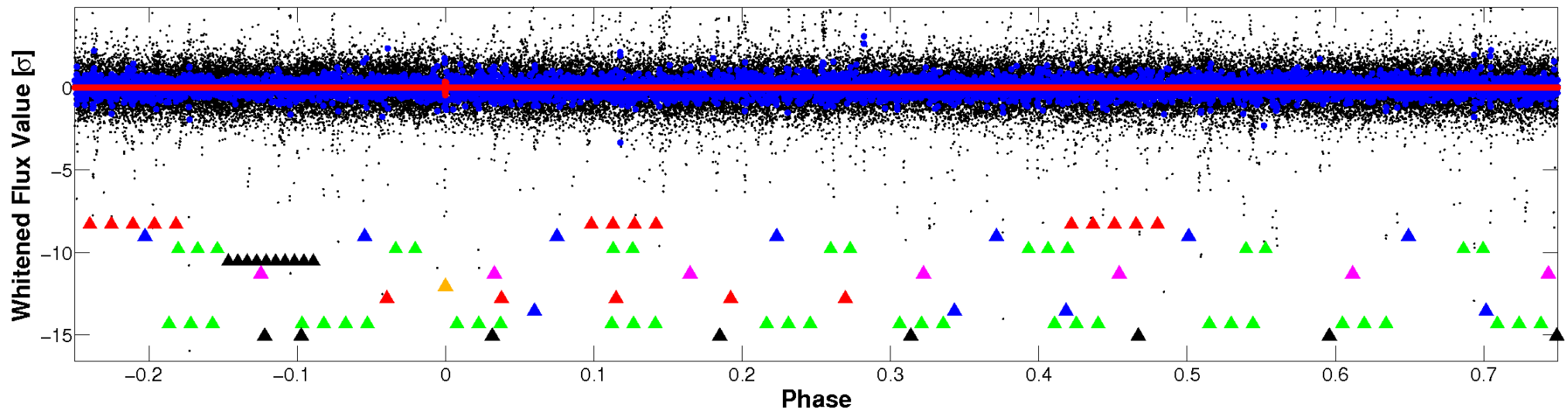


Non-Whitened Vs. Whitened Light Curve

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

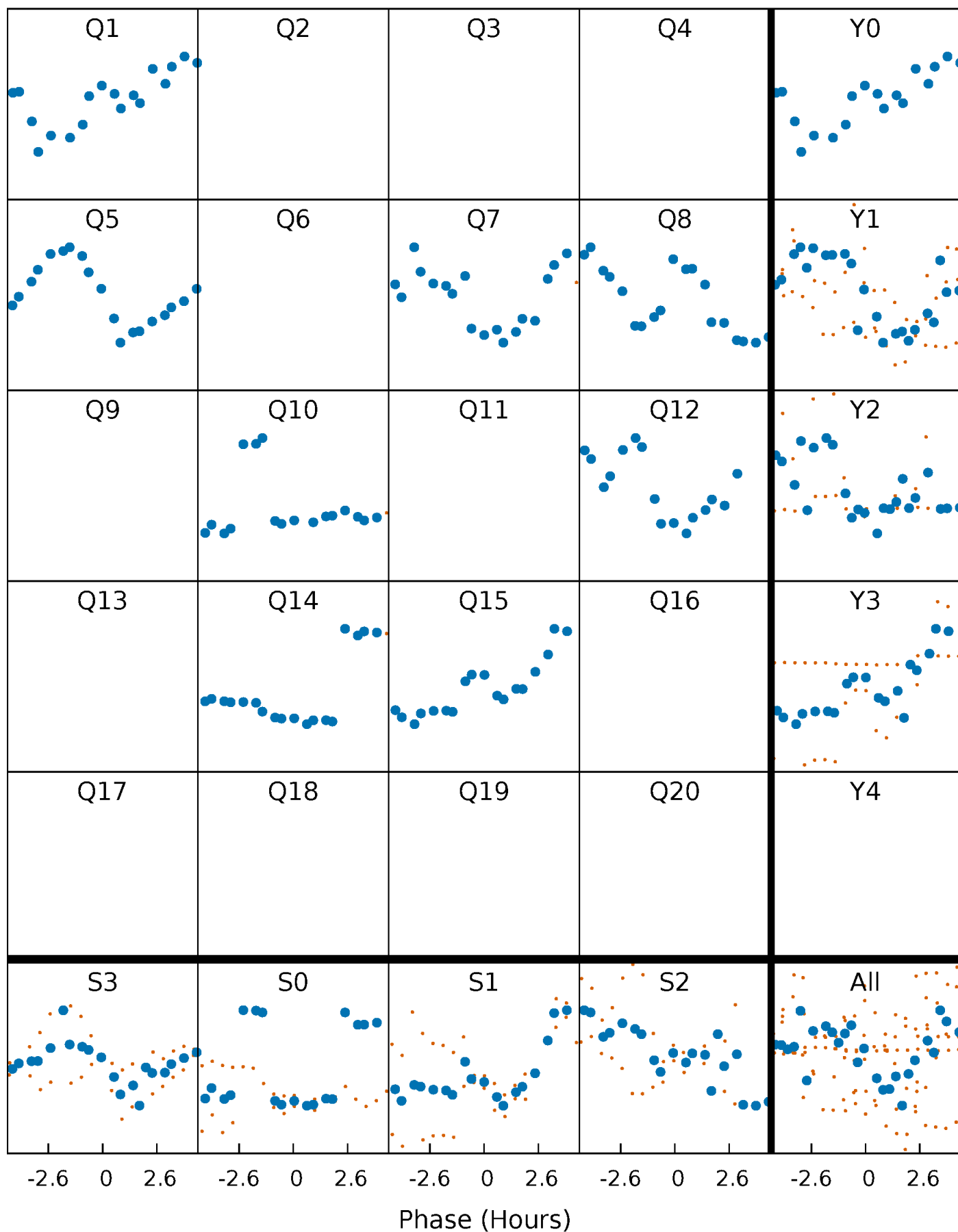


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



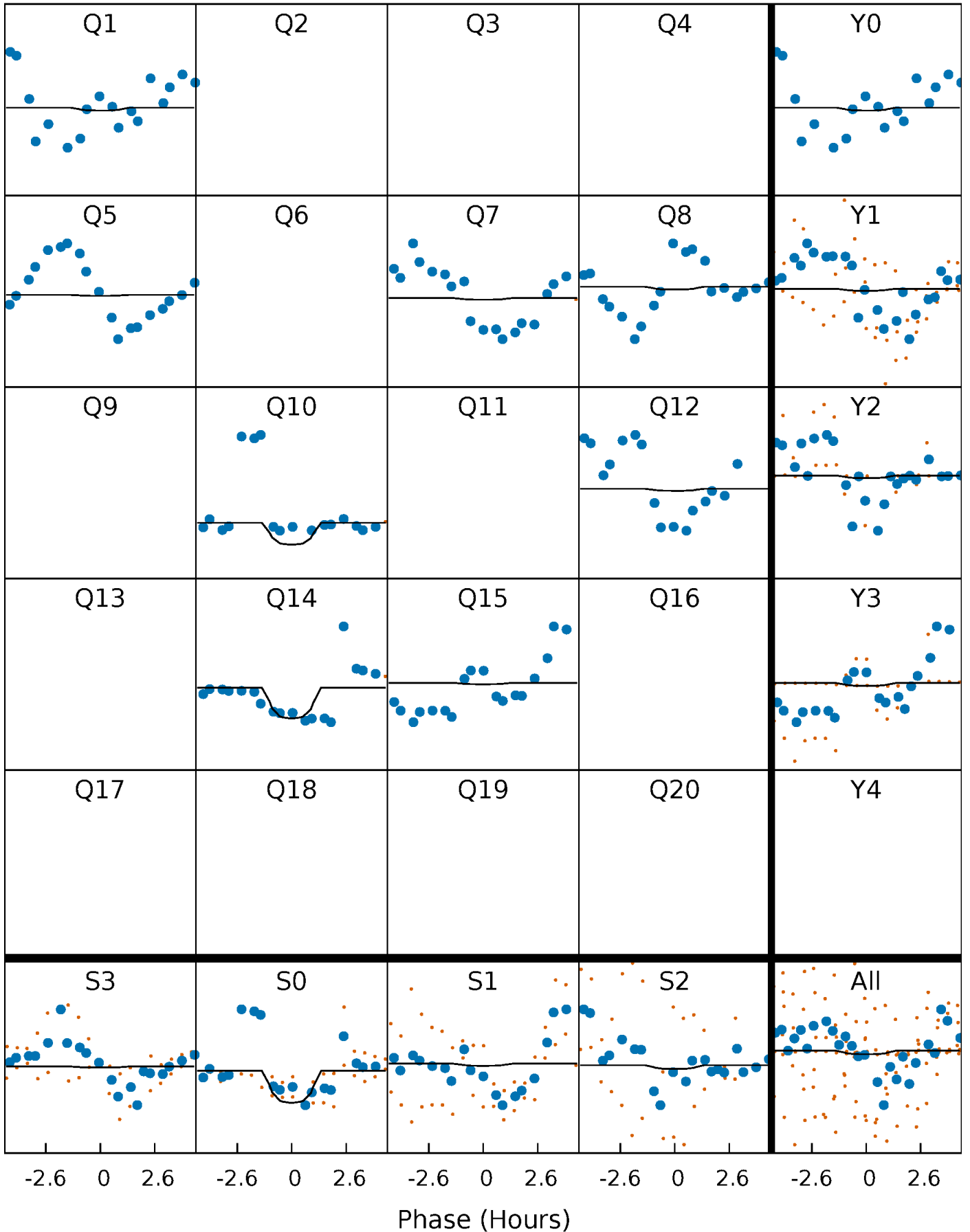
PDC Quarter-Phased Transit Curves

TCE 009468199-06 P=158.707260 Days $T_0=164.310584$ (BKJD)



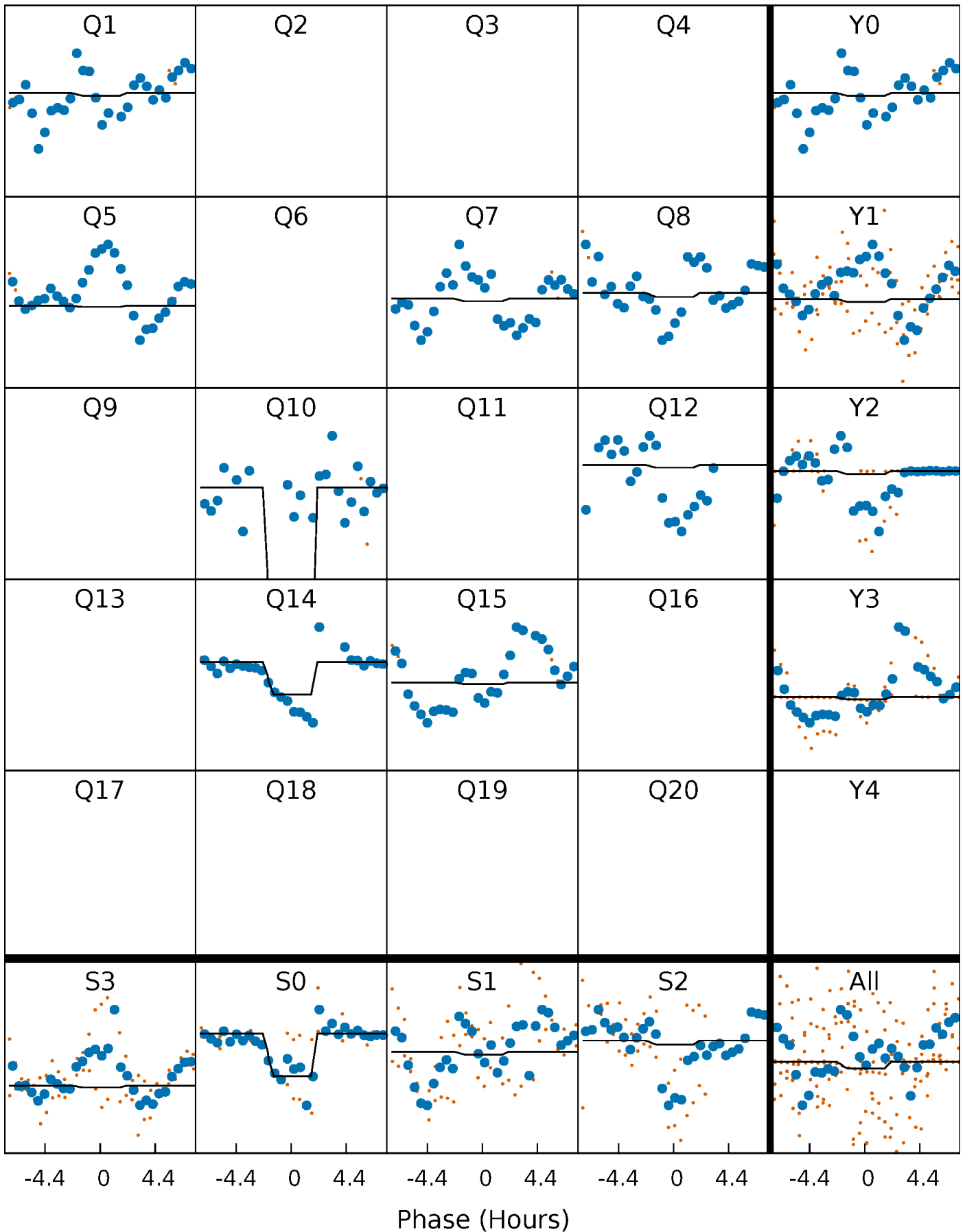
DV Quarter-Phased Transit Curves

TCE 009468199-06 P=158.707260 Days $T_0=164.310584$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

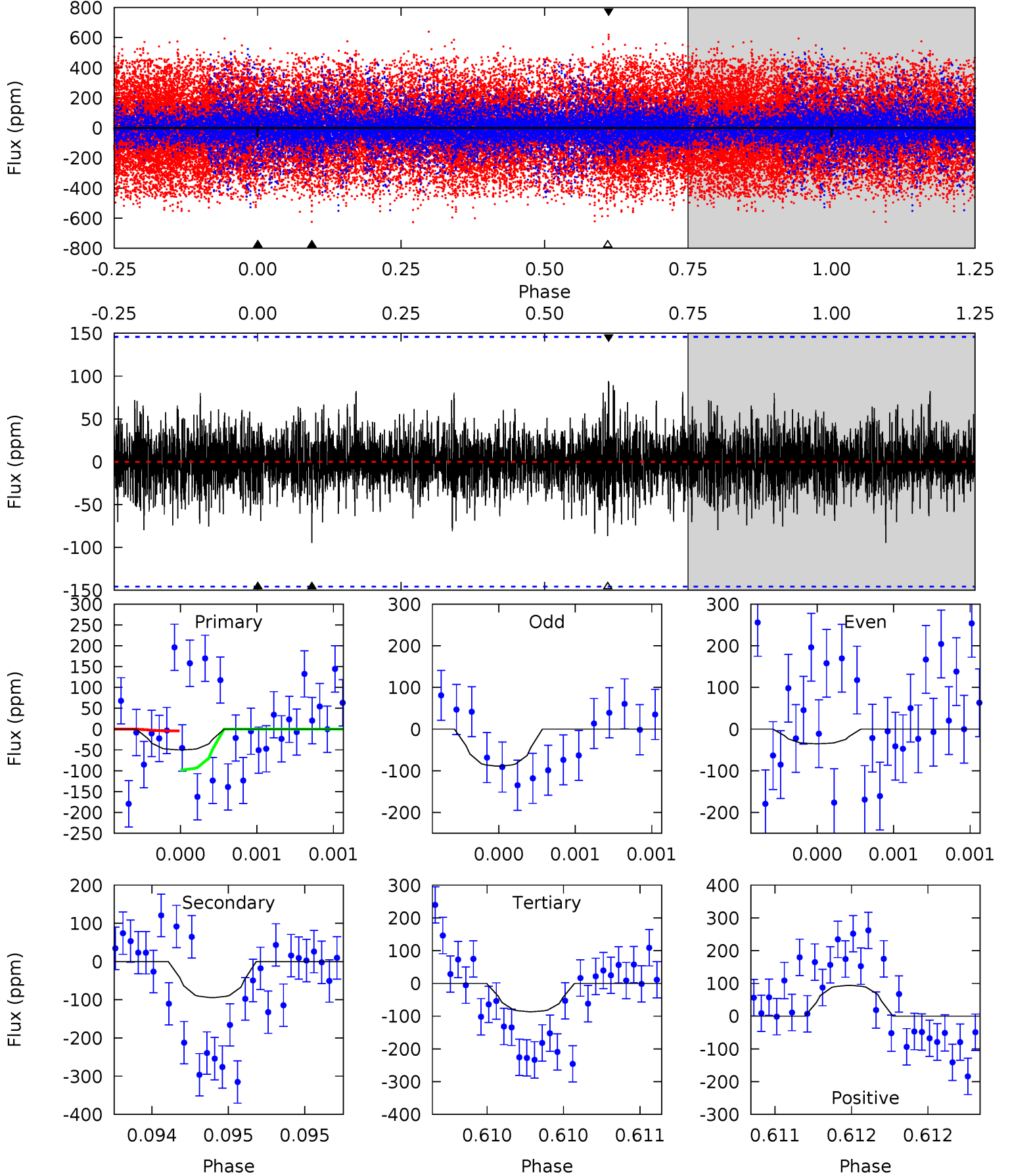
TCE 009468199-06 P=158.727919 Days $T_0=164.180966$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-06, P = 158.707260 Days, E = 5.603324 Days

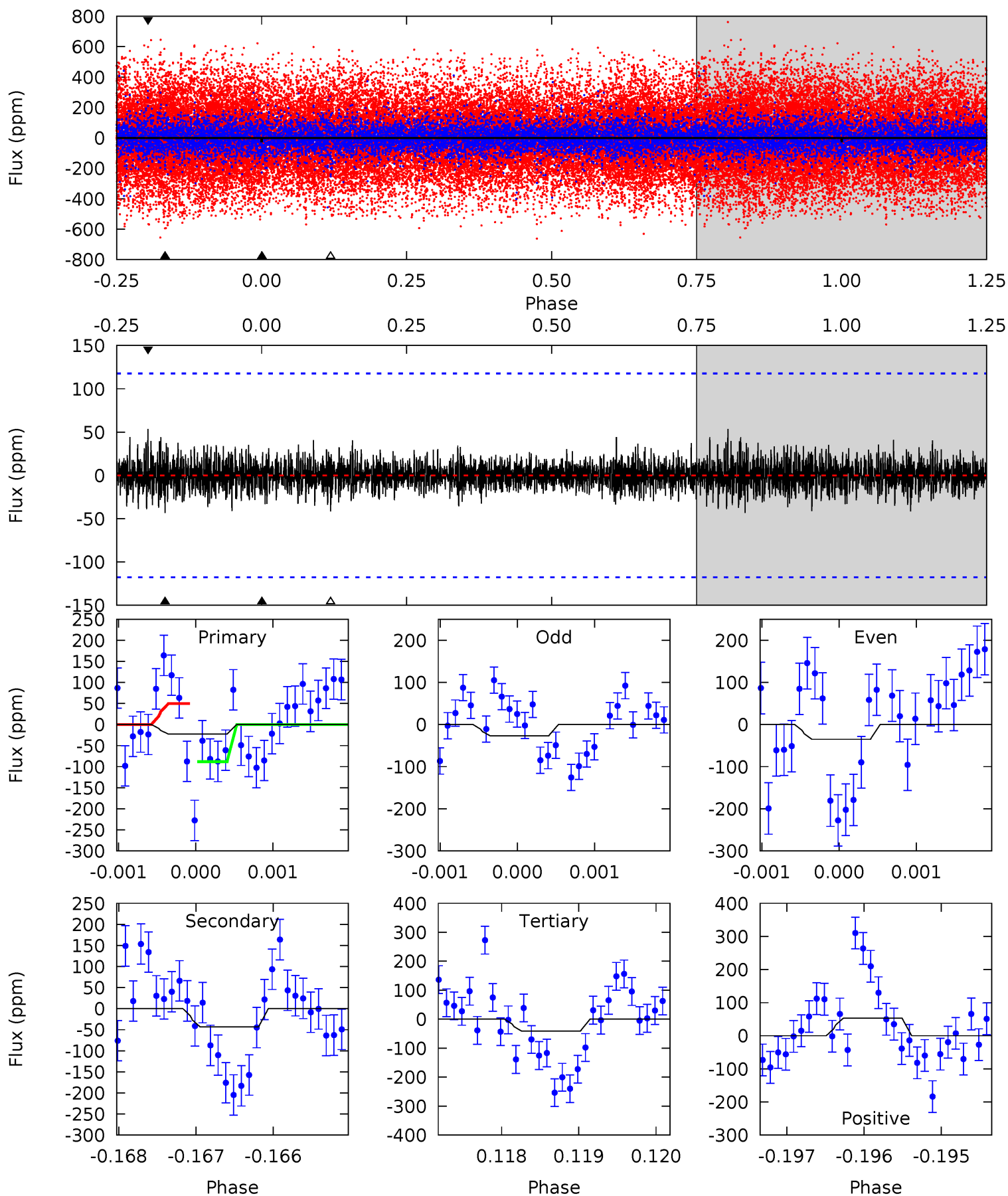
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.90	3.58	3.29	3.57	5.53	3.41	0.88	-1.39	-1.67	0.29	0.01	1.09	2.95	0.50	1.84



Alt Model-Shift Uniqueness Test

009468199-06, P = 158.727919 Days, E = 5.453047 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.05	2.01	1.93	2.47	5.44	3.28	0.57	-0.87	-1.42	0.08	-0.47	0.19	-2.18	0.55	0.90



Stellar Parameters For KIC 009468199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-94 ± 26	$7.90^{+8.33}_{-5.58}$	1048^{+71}_{-80}	5299^{+5691}_{-1266}	481^{+5033}_{-366}
Alt.	-43 ± 22	$7.62^{+8.58}_{-5.28}$	1046^{+77}_{-80}	4540^{+3487}_{-1136}	234^{+2006}_{-193}

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

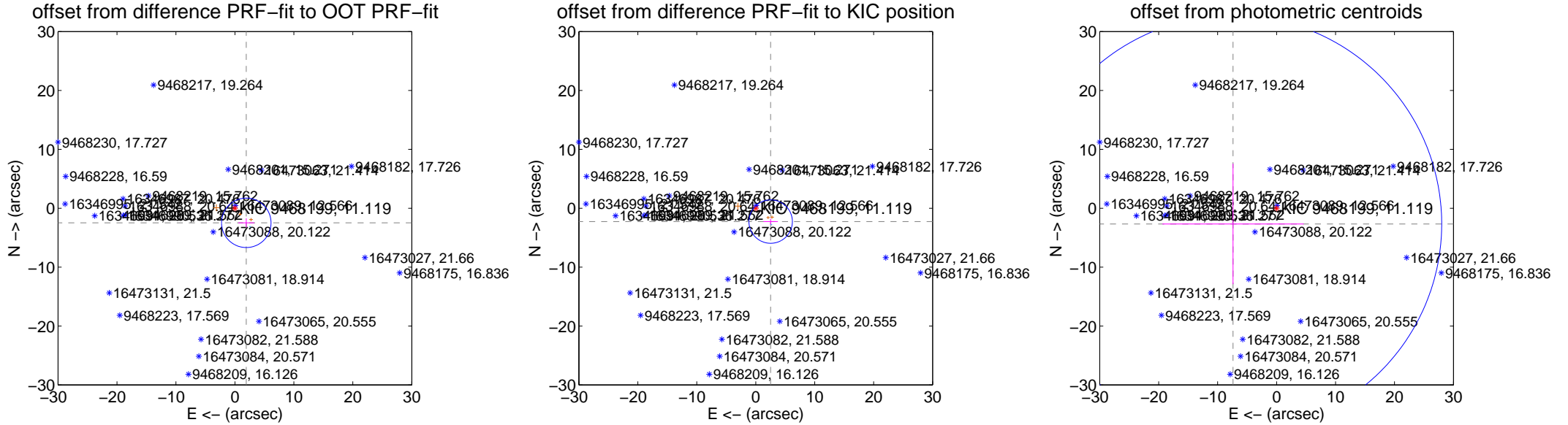
DV Centroid Data

Supplemental centroid analysis for 009468199-06. **Kepler magnitude: 11.12.** Transit SNR 3.96

There are 1 quarters with good PRF difference image offsets

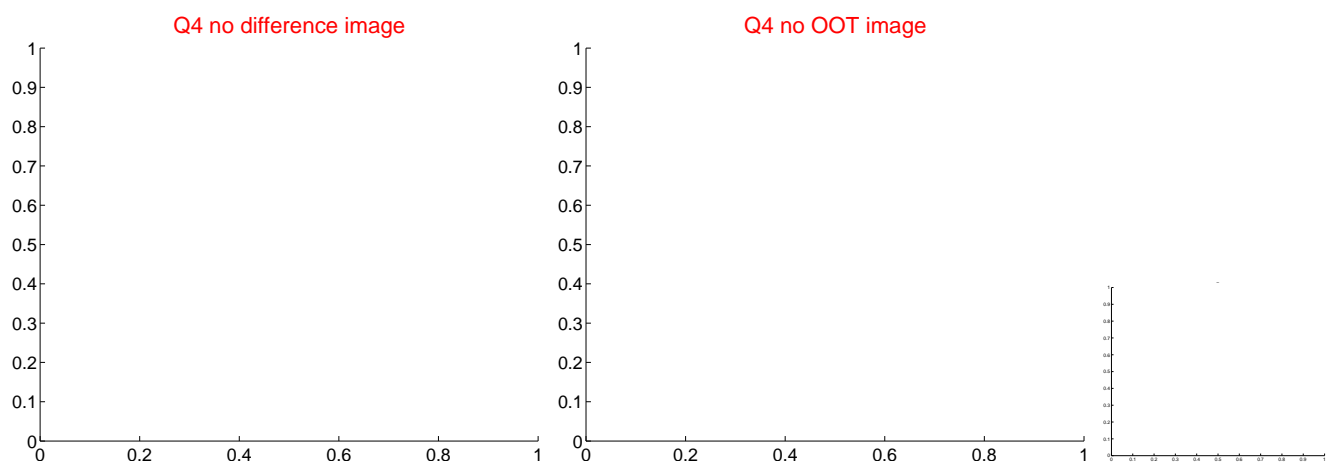
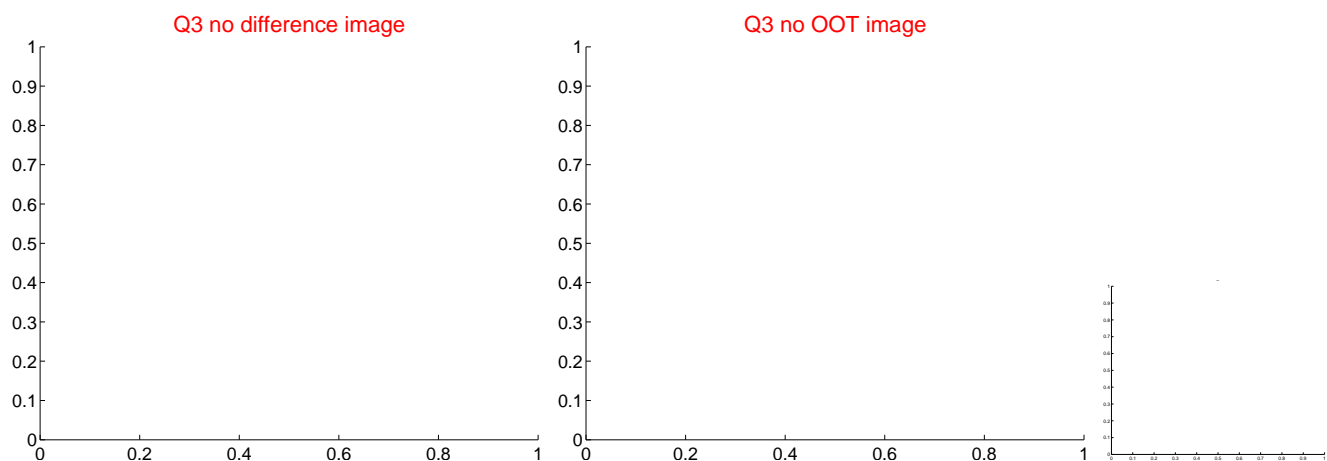
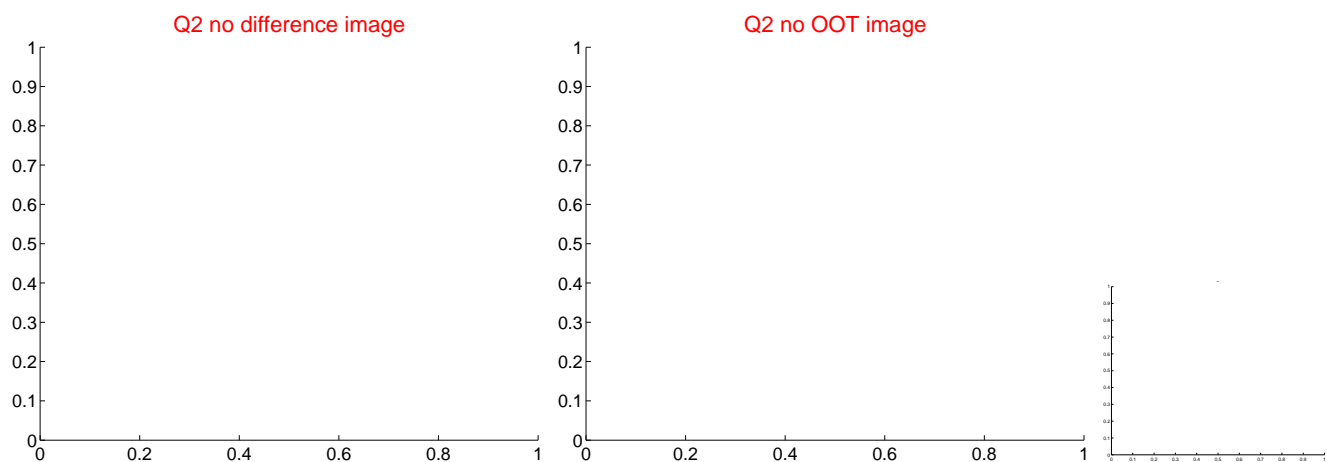
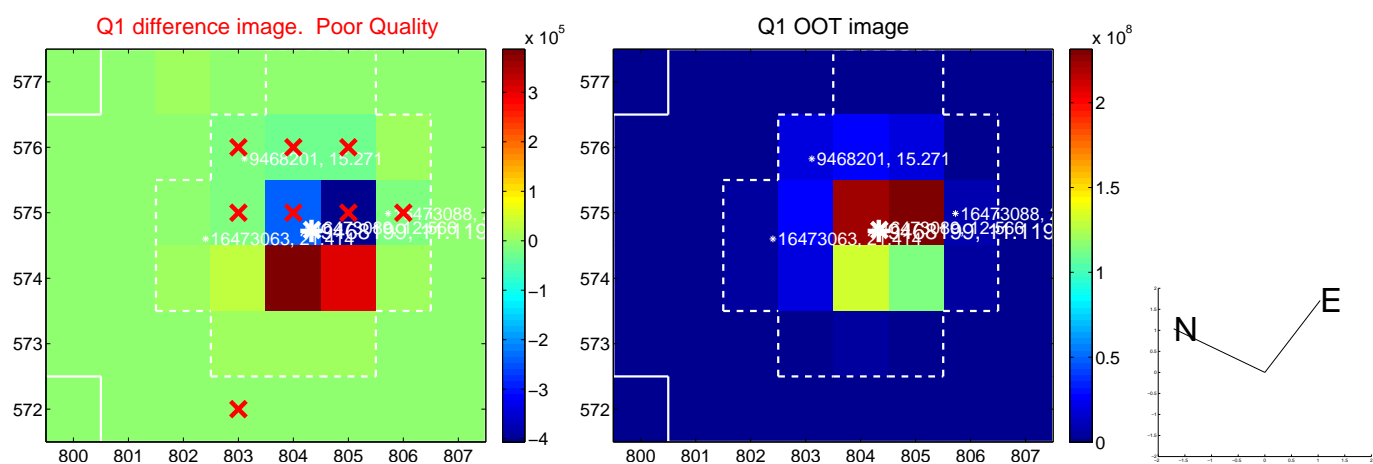
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.139 ± 1.399	2.24	-1.929 ± 1.353	-2.476 ± 0.761
PRF-fit source offset from KIC position	3.394 ± 1.228	2.76	-2.526 ± 1.234	-2.267 ± 0.502
photometric centroid source offset	7.86 ± 11.80	0.67	7.39 ± 11.99	-2.67 ± 10.23

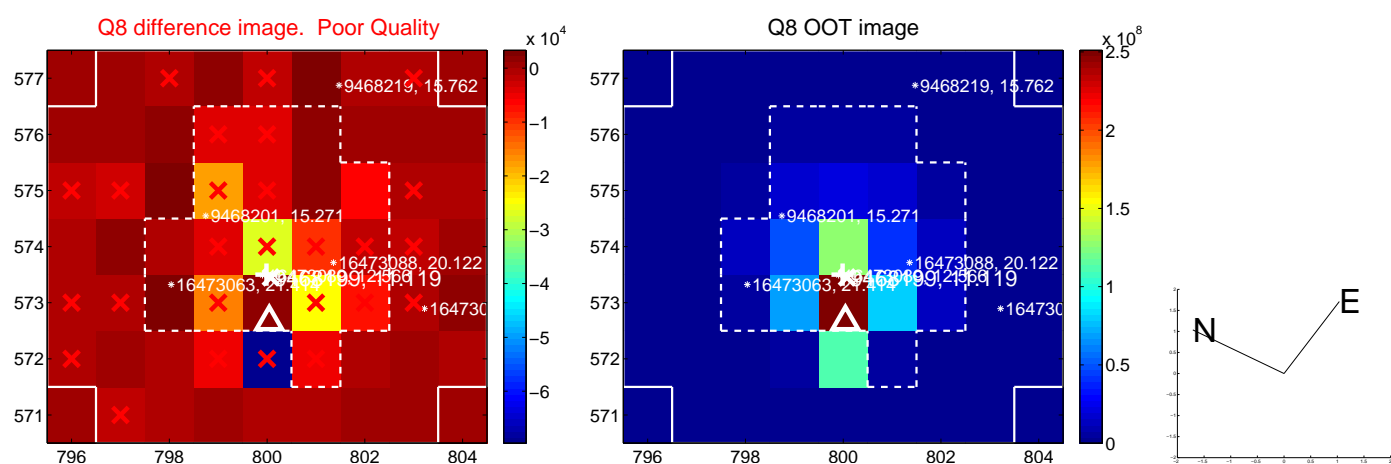
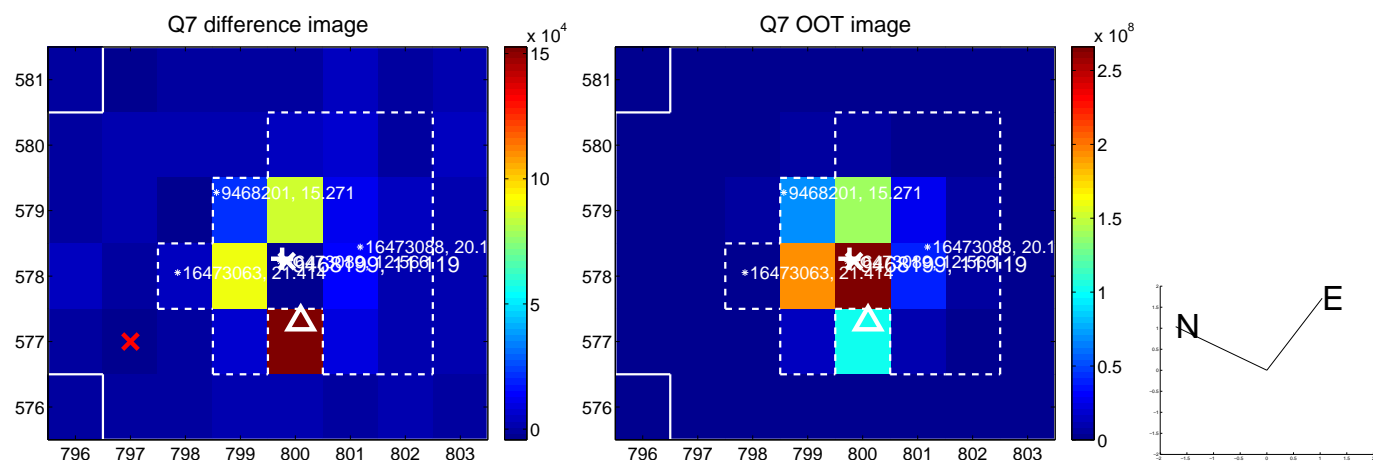
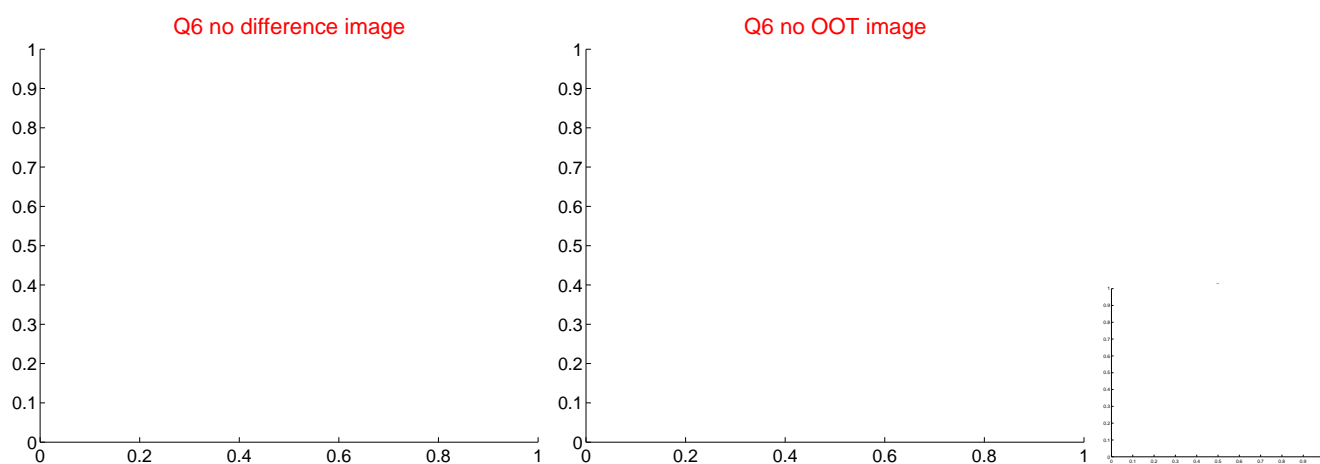
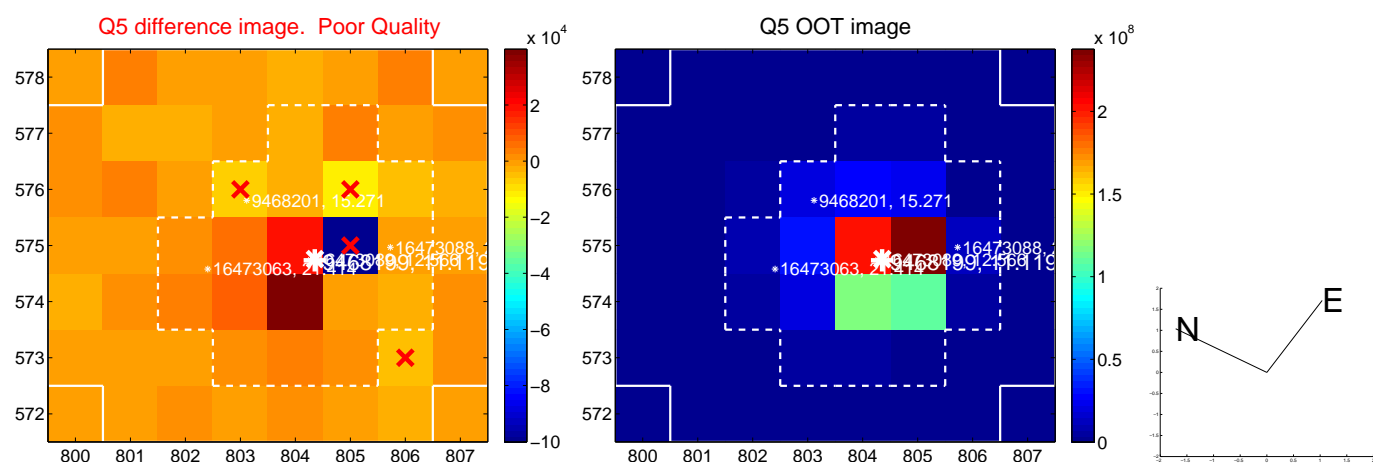


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

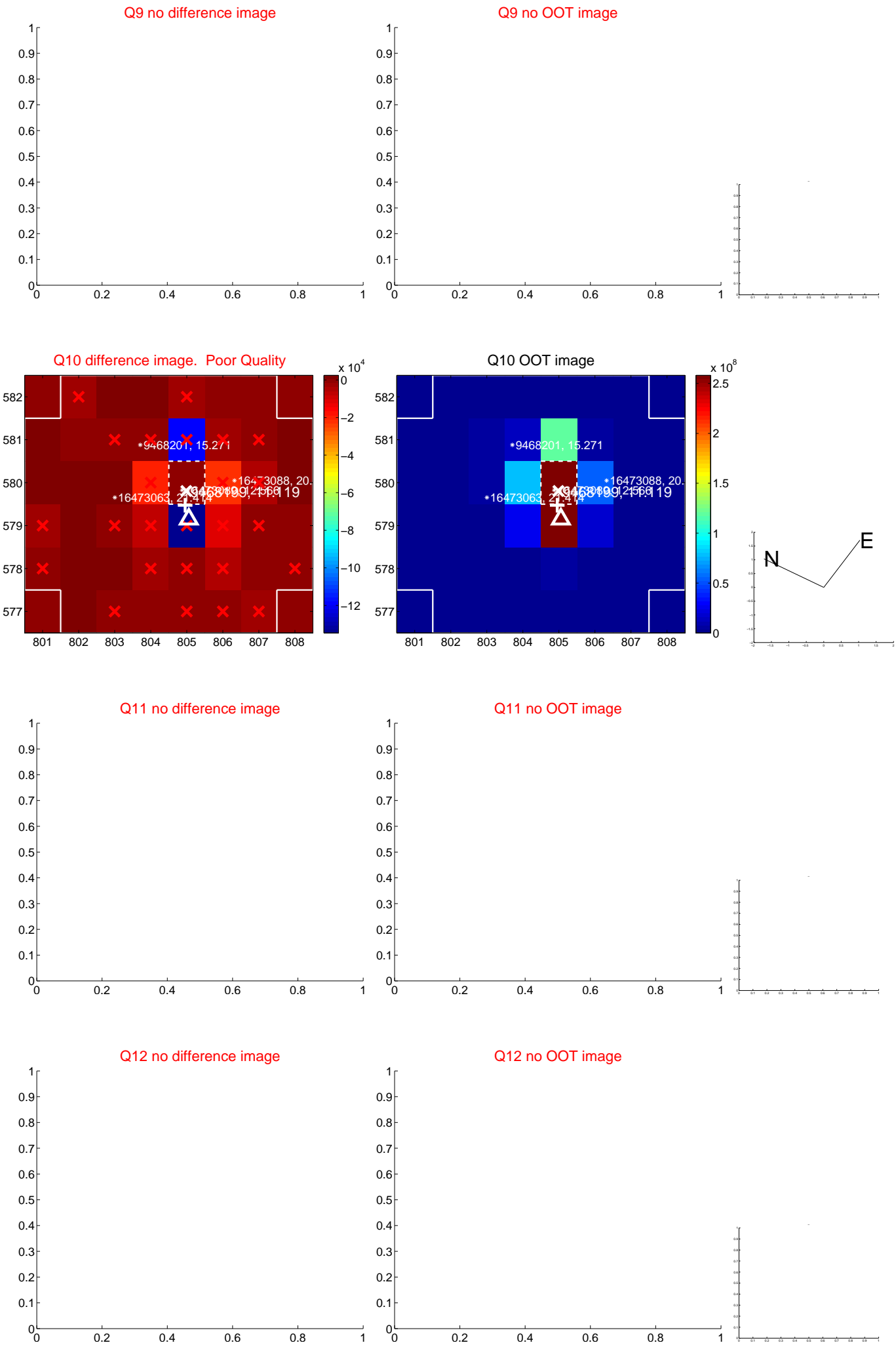
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



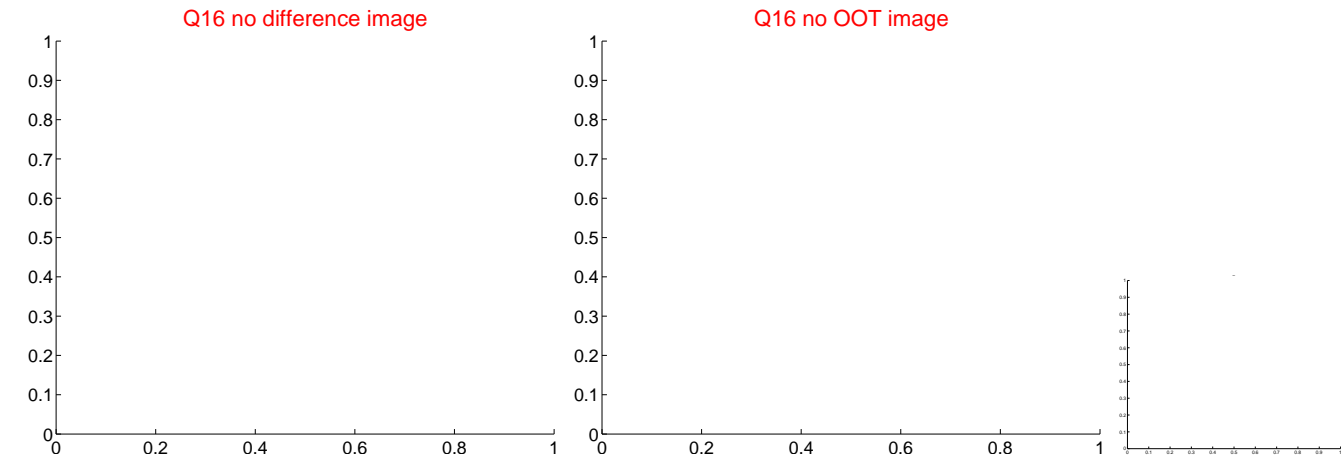
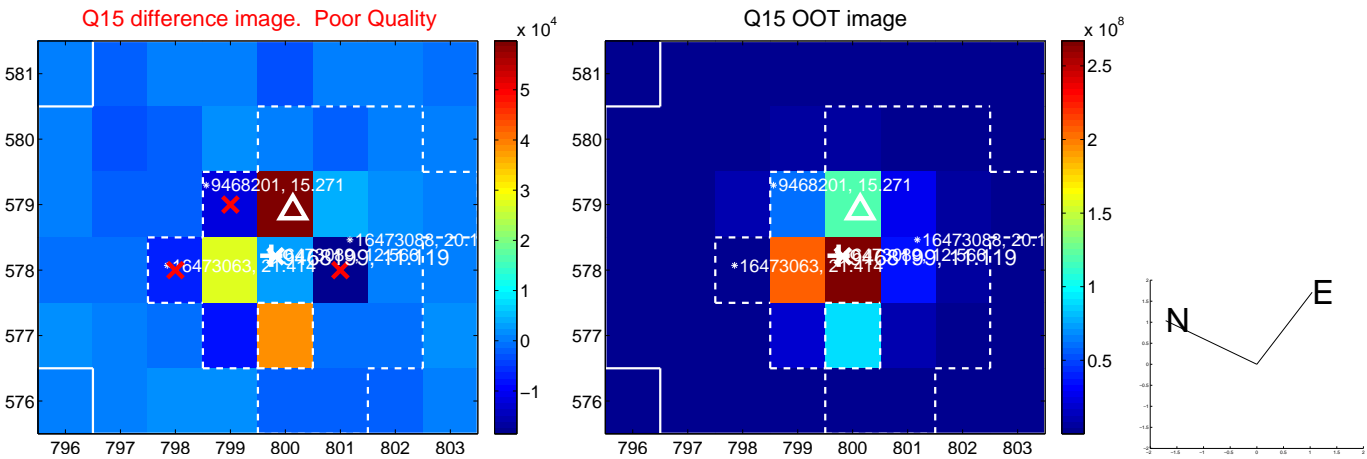
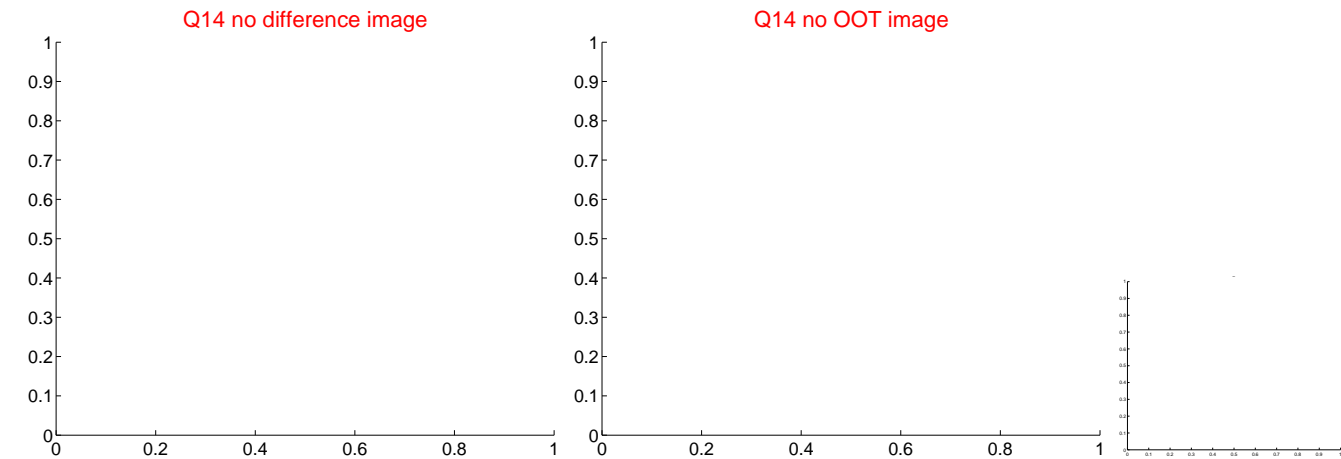
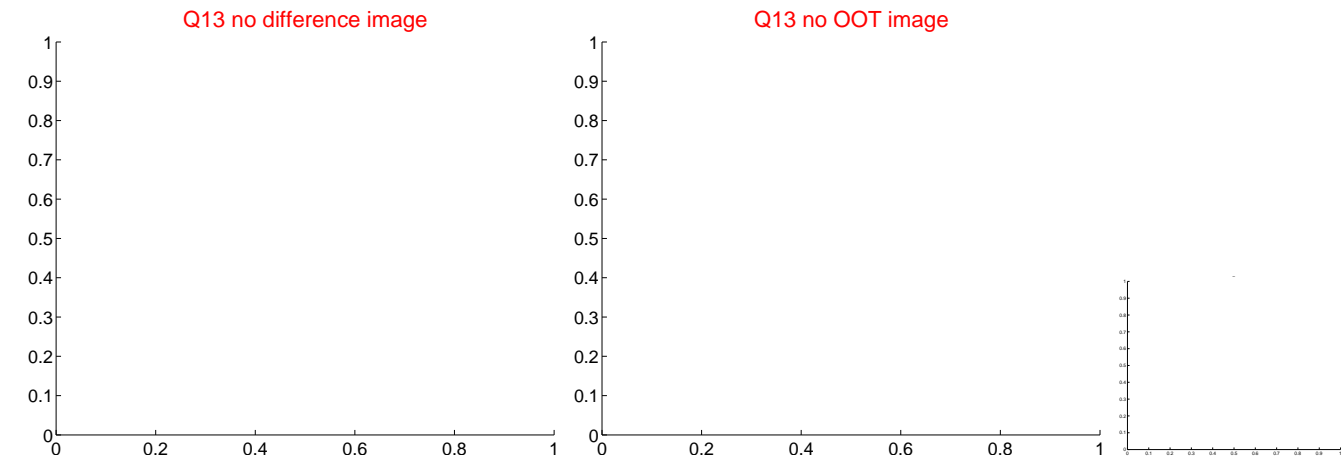
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



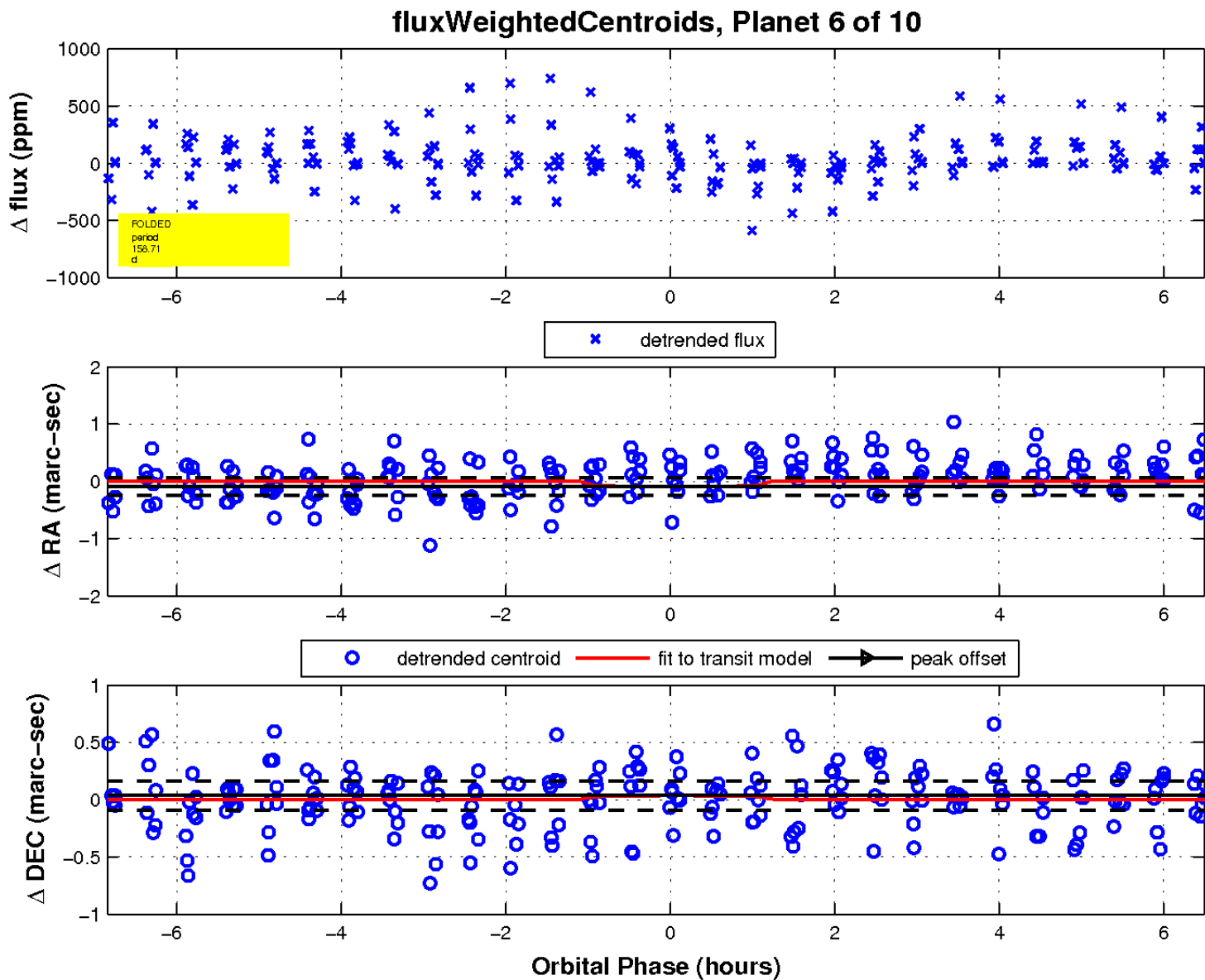
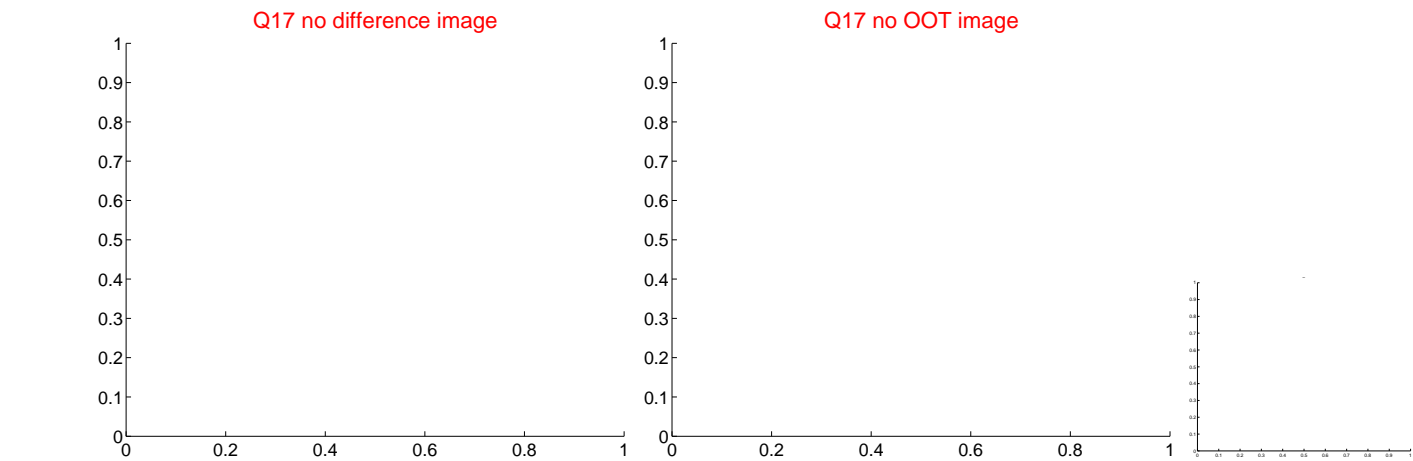
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

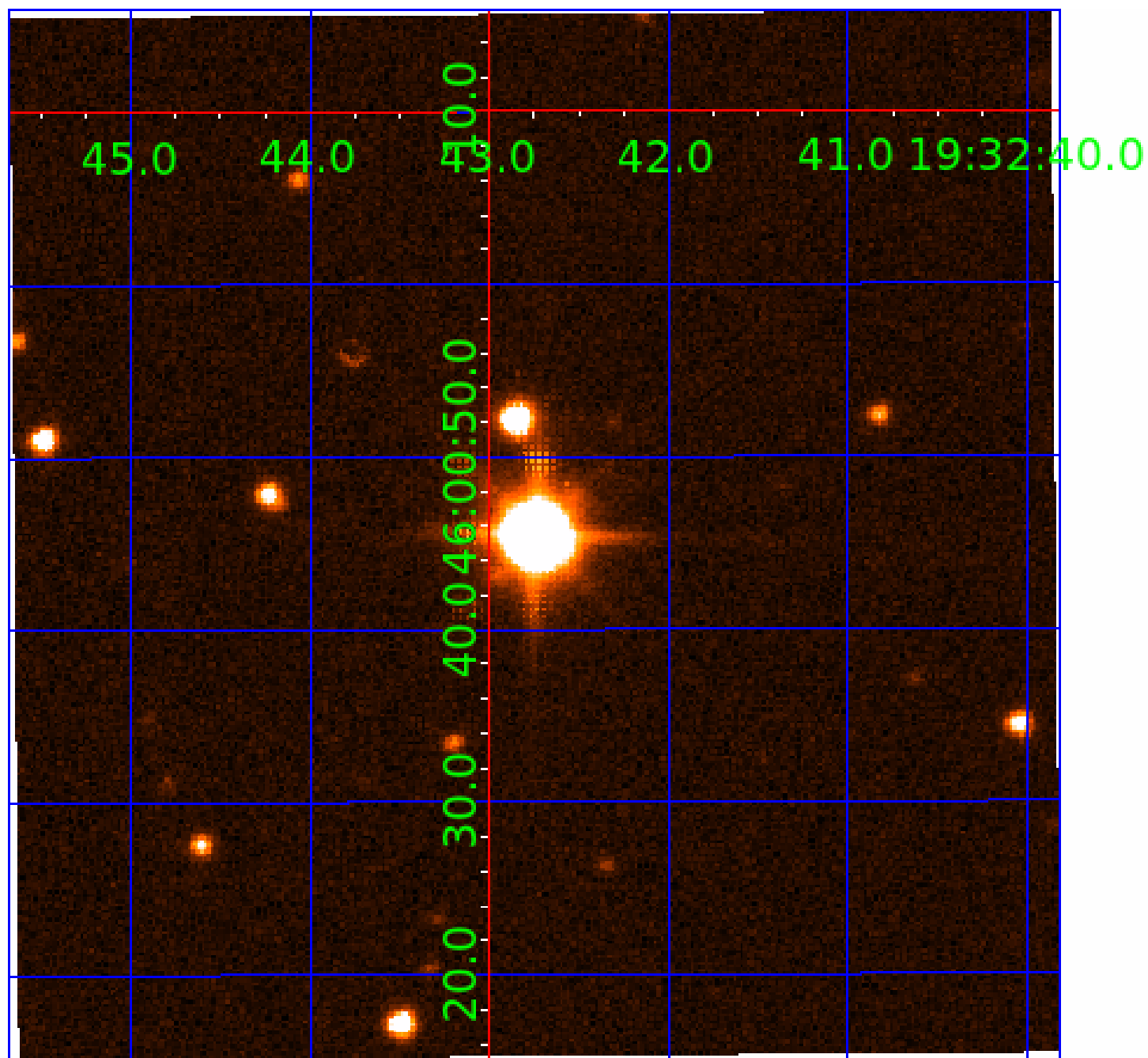


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
009468199-03	OBS	No	90.989115	135.710649	8.0	2.964	20.9	3.2	8.90	5043	2.67	160.97
009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

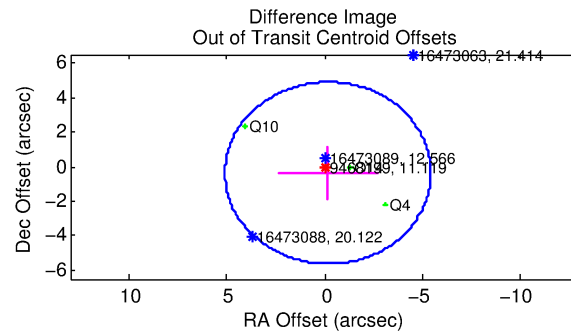
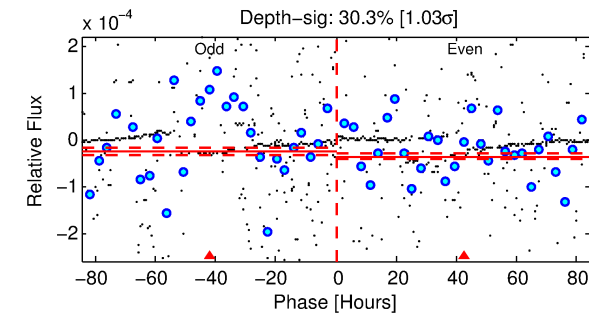
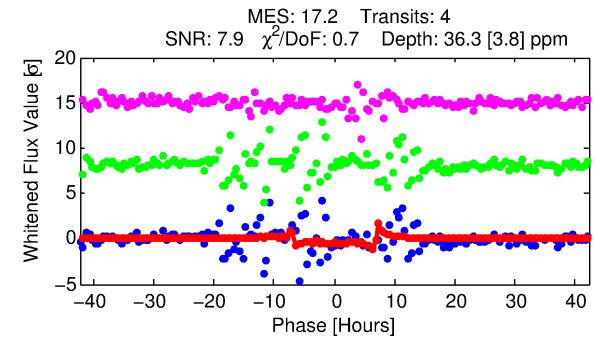
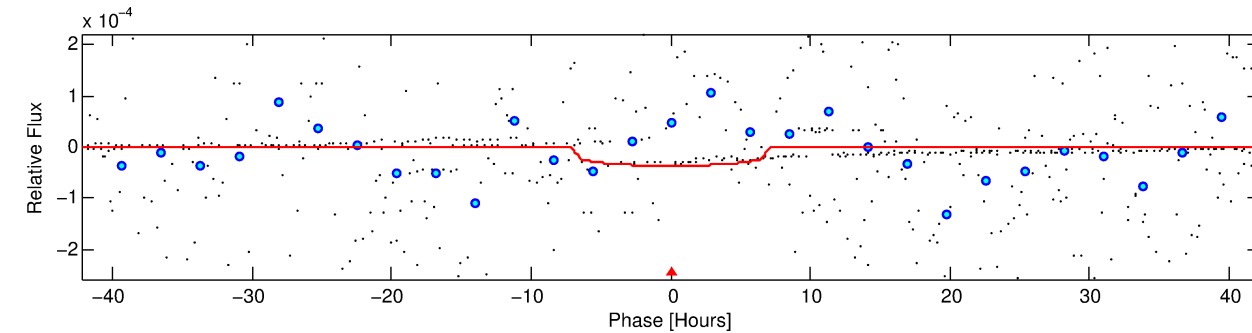
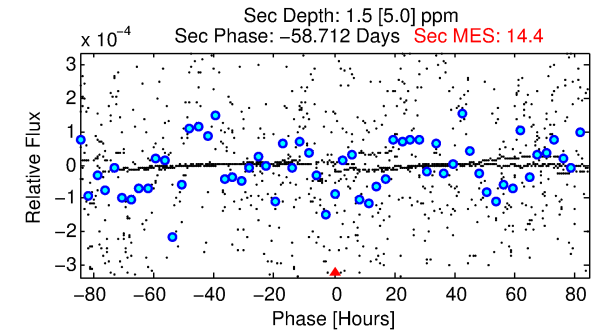
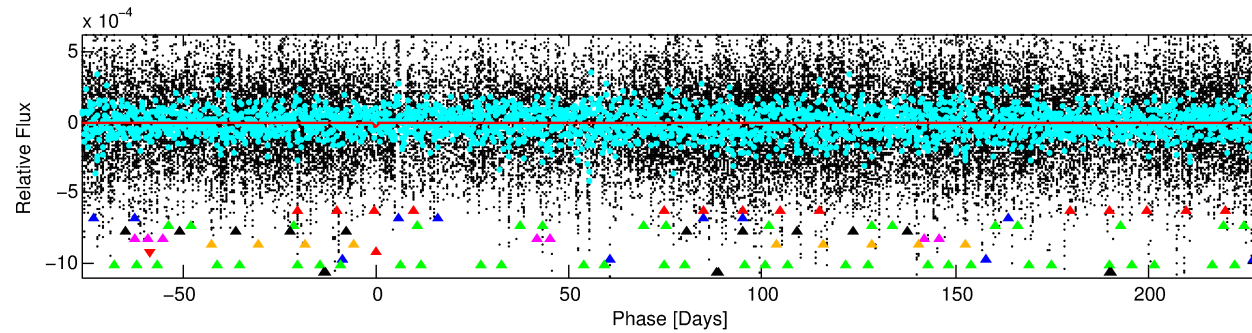
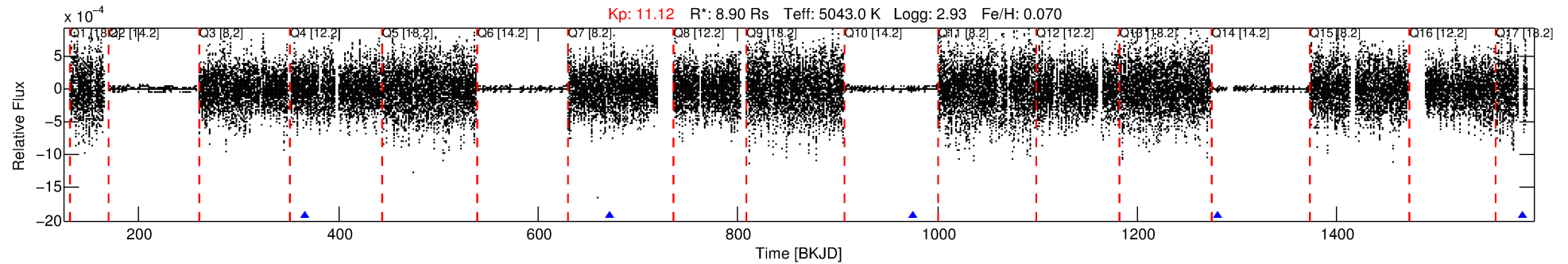
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-07

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 7 of 10 Period: 305.151 d



DV Fit Results:

Period = 305.15116 [0.00515] d
Epoch = 365.8014 [0.0158] BKJD
Rp/R* = 0.0066 [0.0007]
a/R* = 80.39 [26.62]
b = 0.88 [0.08]
Seff = 32.07 [13.27]
Teq = 607 [63] K
Rp = 6.39 [2.50] Re
a = 1.1971 [0.3554] AU
Ag = 29.63 [97.39] [0.29σ]
Teffp = 2189 [1786] K [0.89σ]

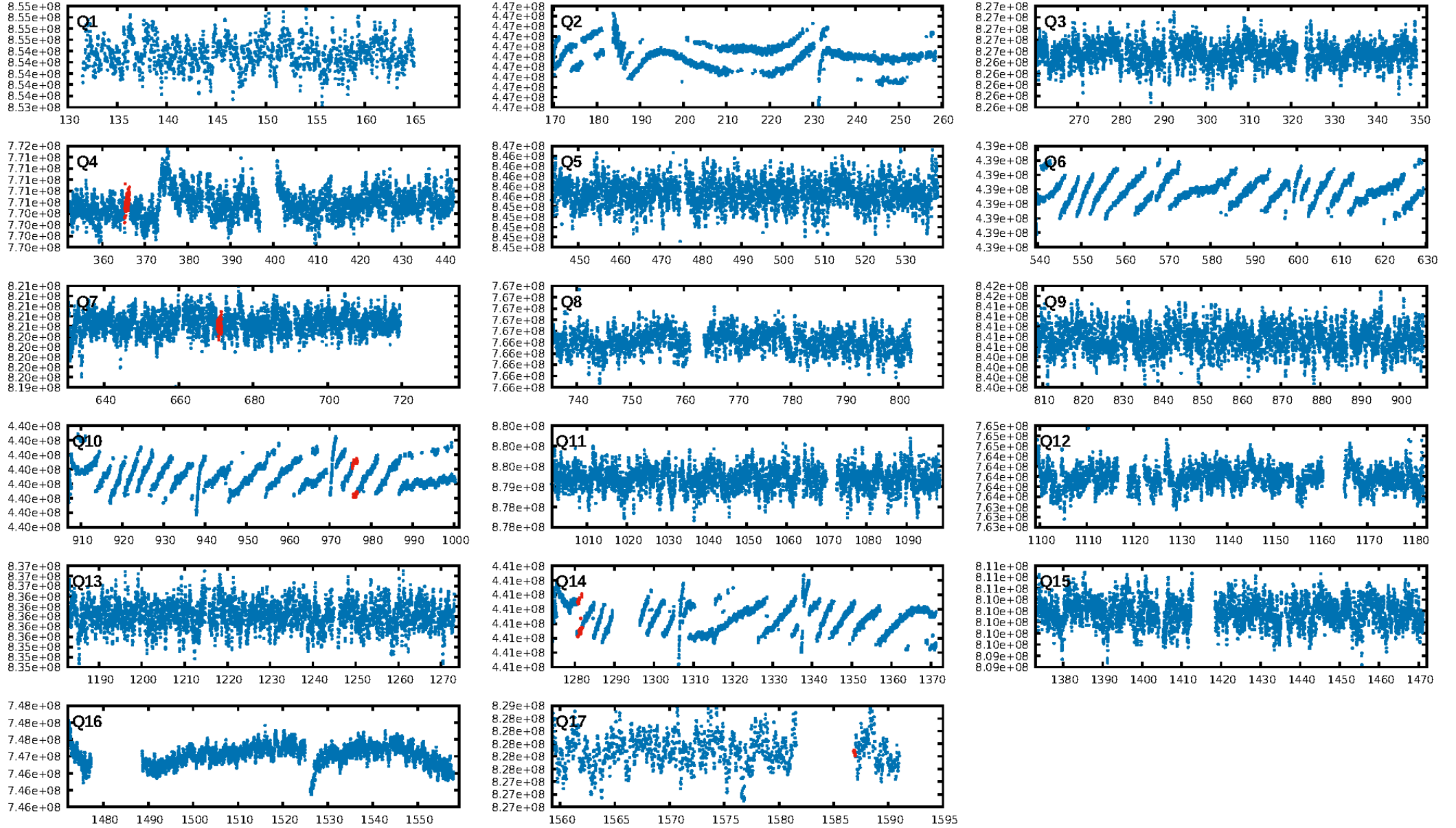
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [89.88σ]
LongPeriod-sig: 100.0% [47.86σ]
ModelChiSquare2-sig: 48.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -2.437
Centroid-sig: 3.0%
Centroid-so: 3.988 arcsec [1.34σ]
OotOffset-rm: 0.402 arcsec [0.23σ]
KicOffset-rm: 0.964 arcsec [0.47σ]
OotOffset-st: 2/0/1/0 [3]
KicOffset-st: 2/0/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.75 [3/4]

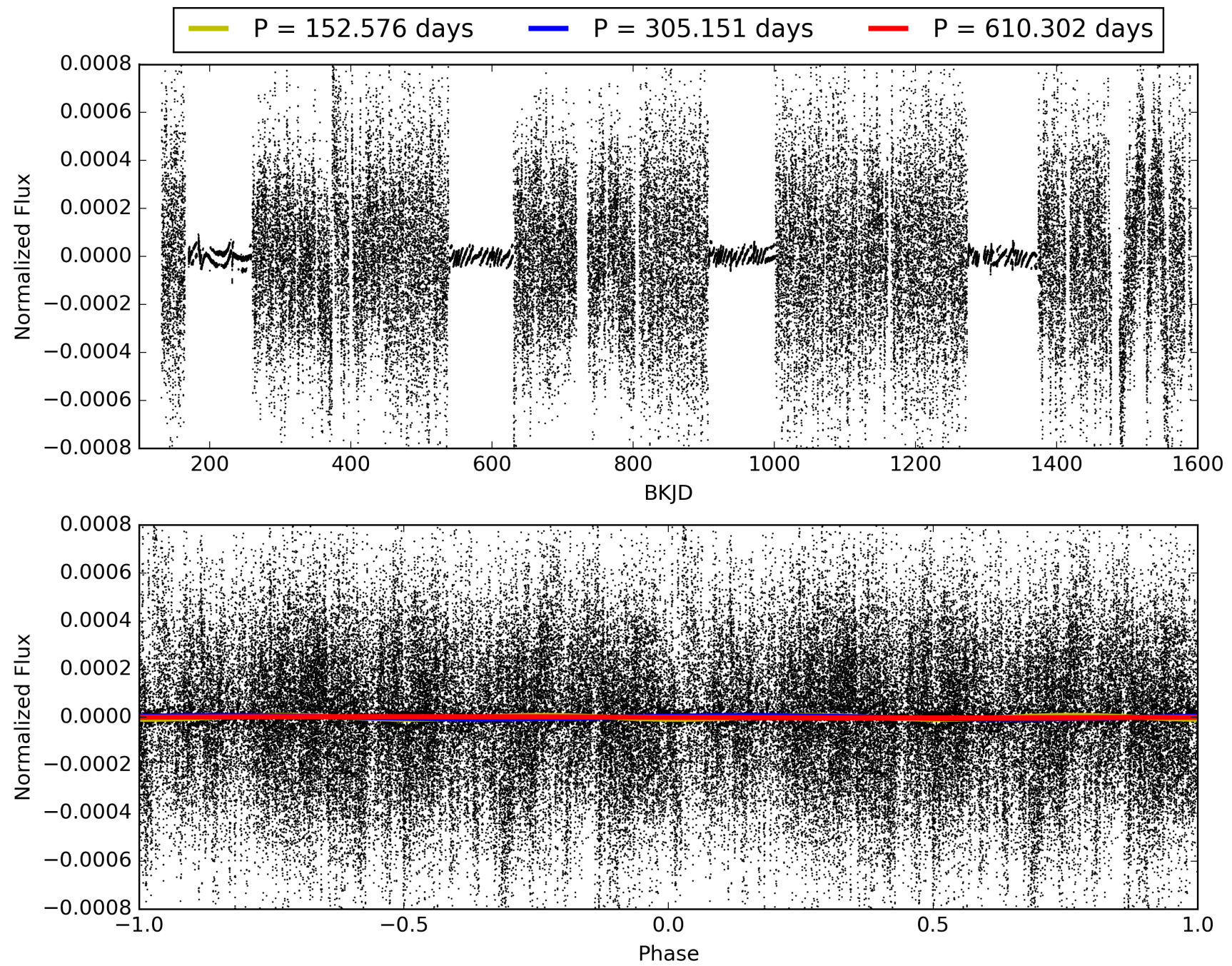
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:52:23 Z

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

TCE 009468199-07, PDC Light Curves

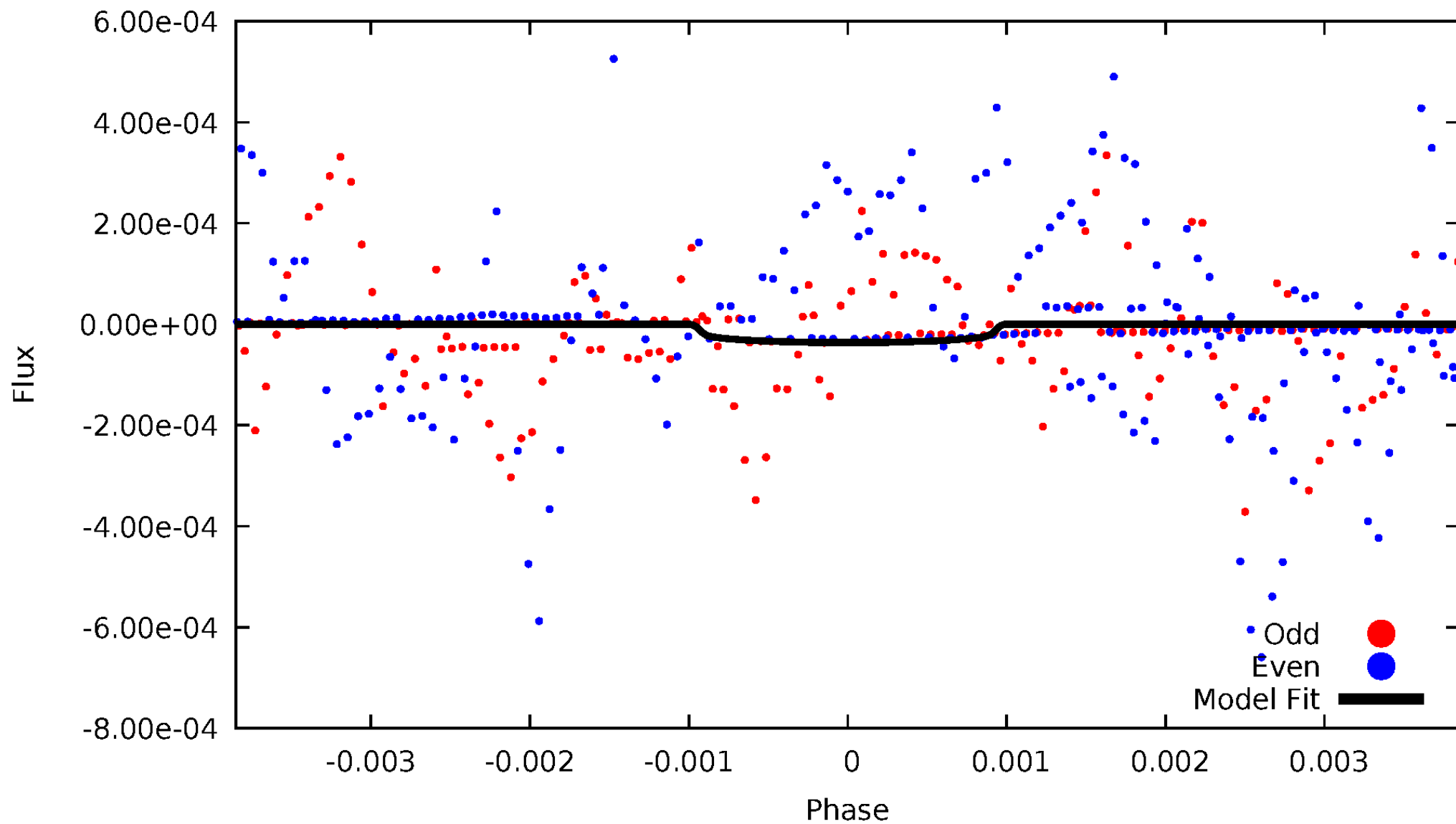


TCE 009468199-07



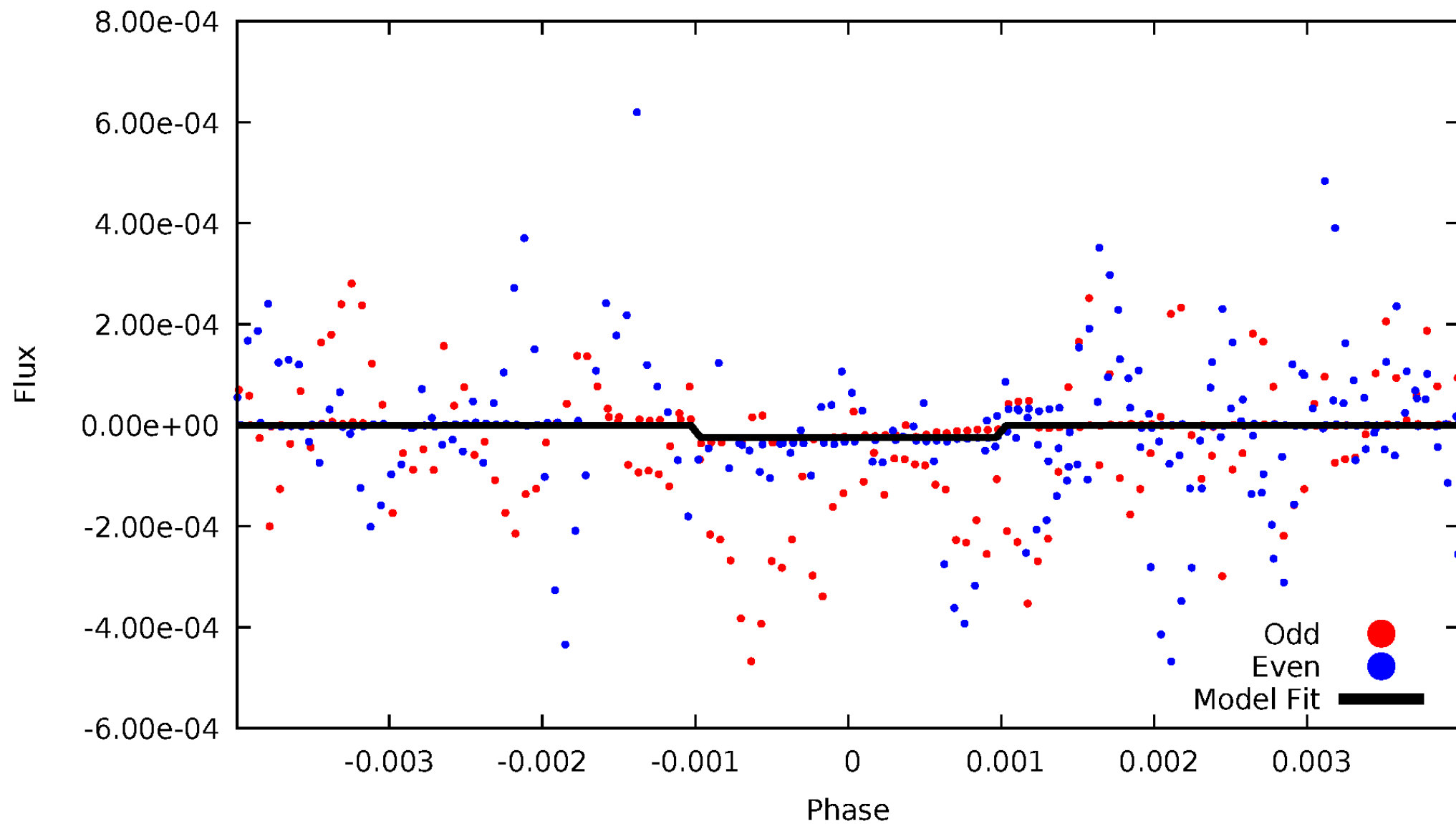
DV Odd/Even

TCE 009468199-07



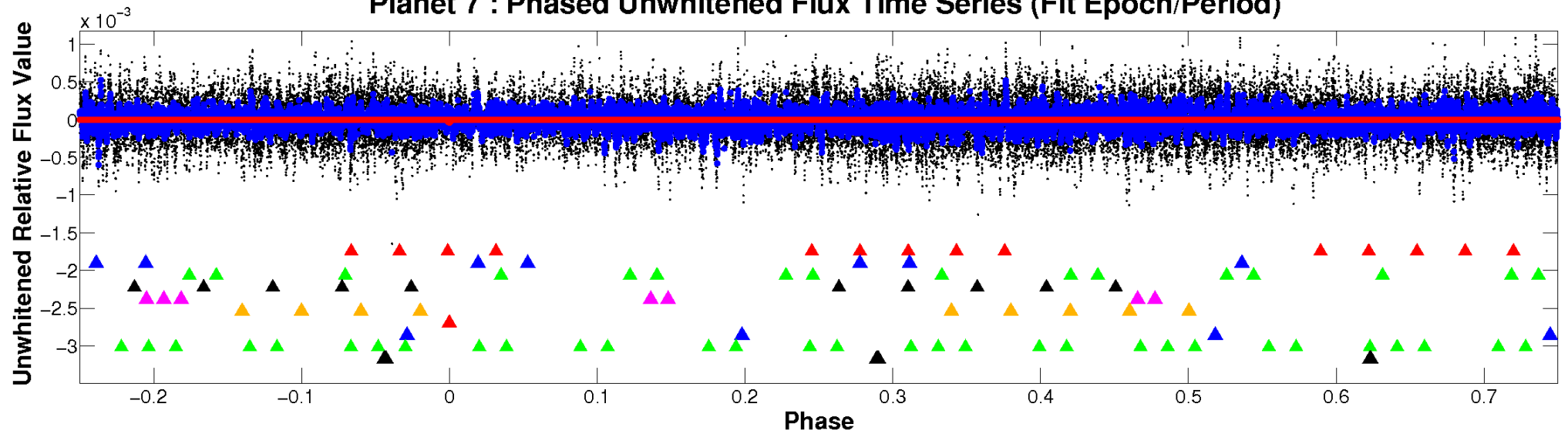
ALT Odd/Even

TCE 009468199-07

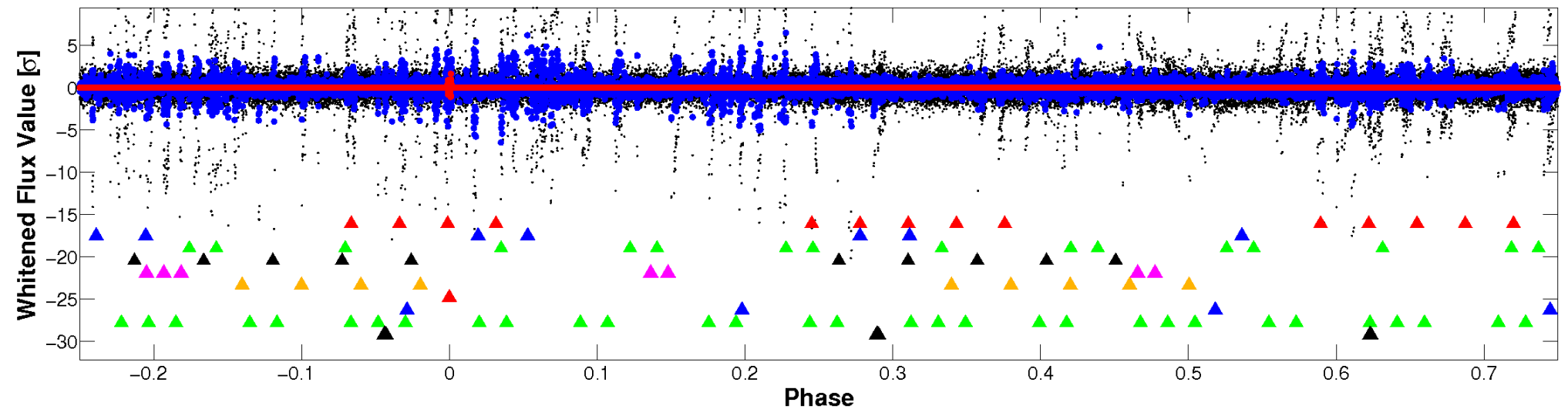


Non-Whitened Vs. Whitened Light Curve

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

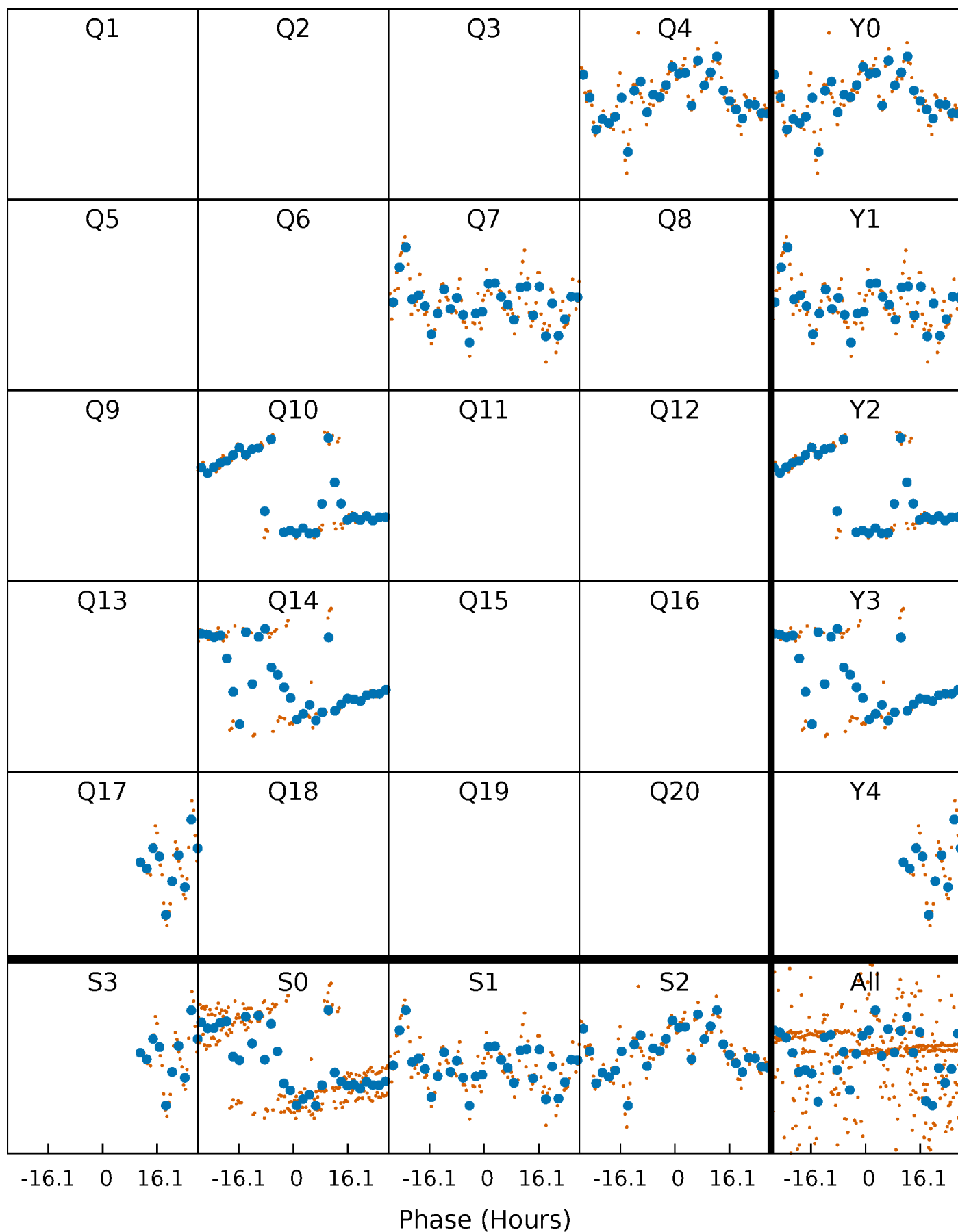


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



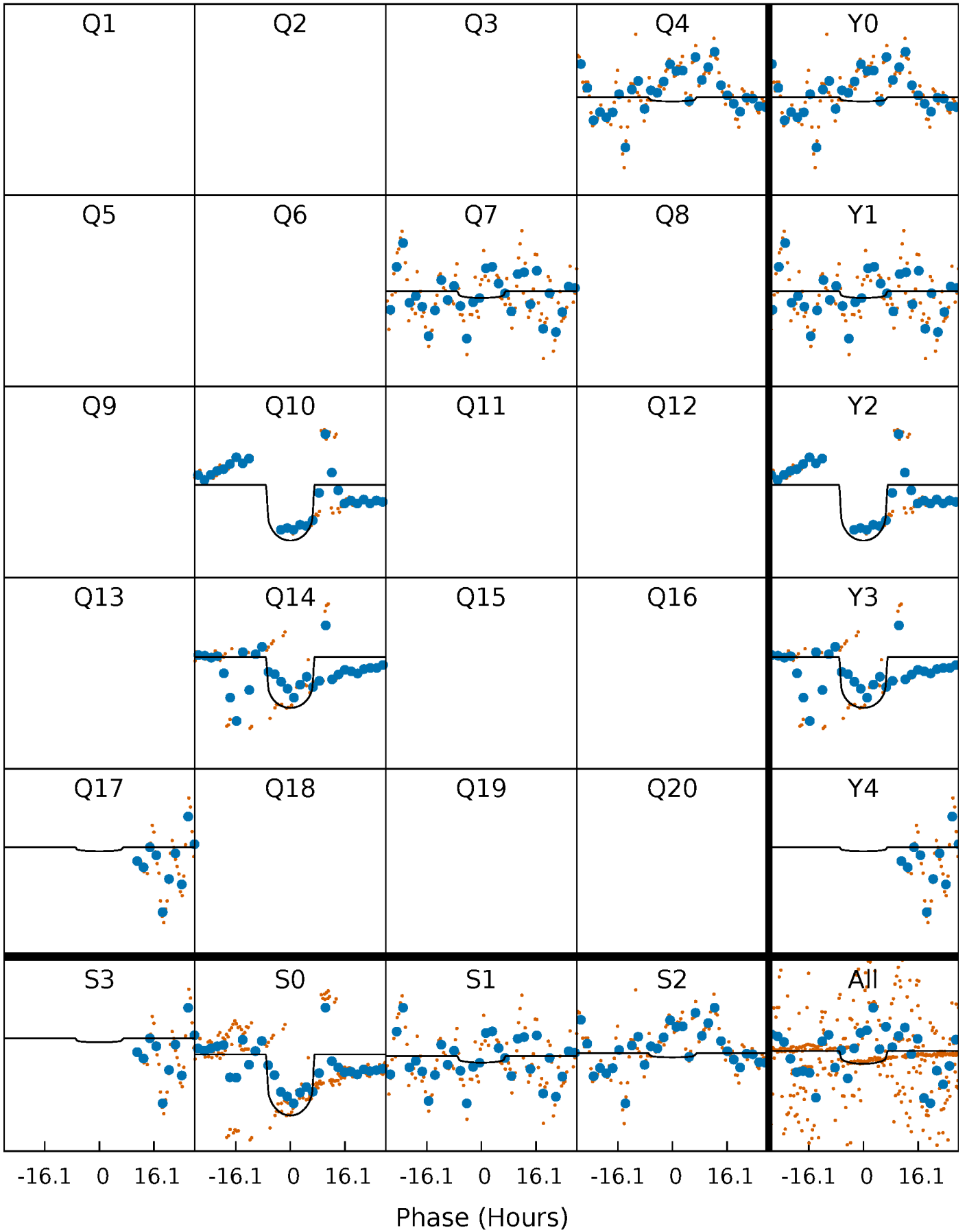
PDC Quarter-Phased Transit Curves

TCE 009468199-07 $P=305.151155$ Days $T_0=365.801371$ (BKJD)



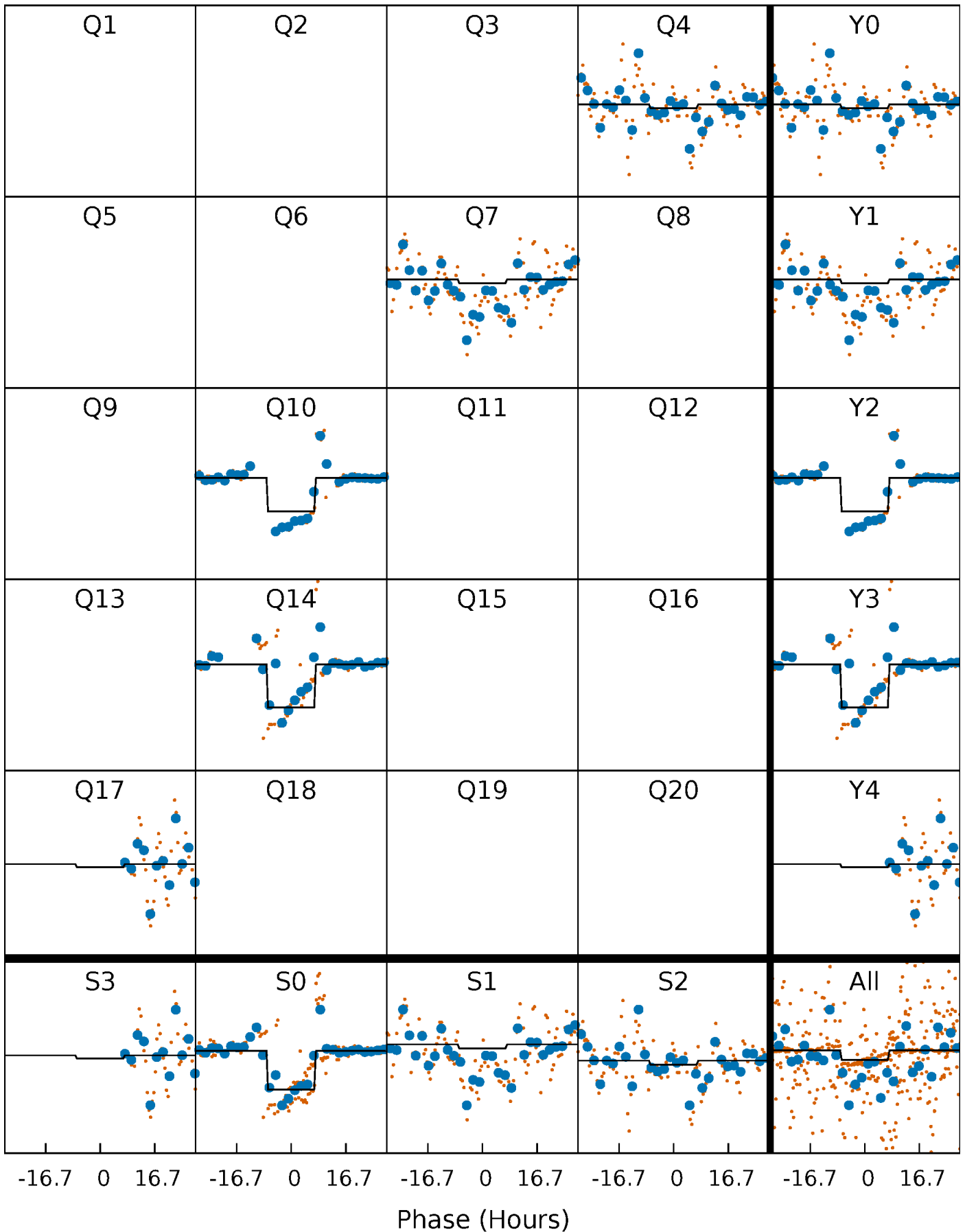
DV Quarter-Phased Transit Curves

TCE 009468199-07 $P=305.151155$ Days $T_0=365.801371$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

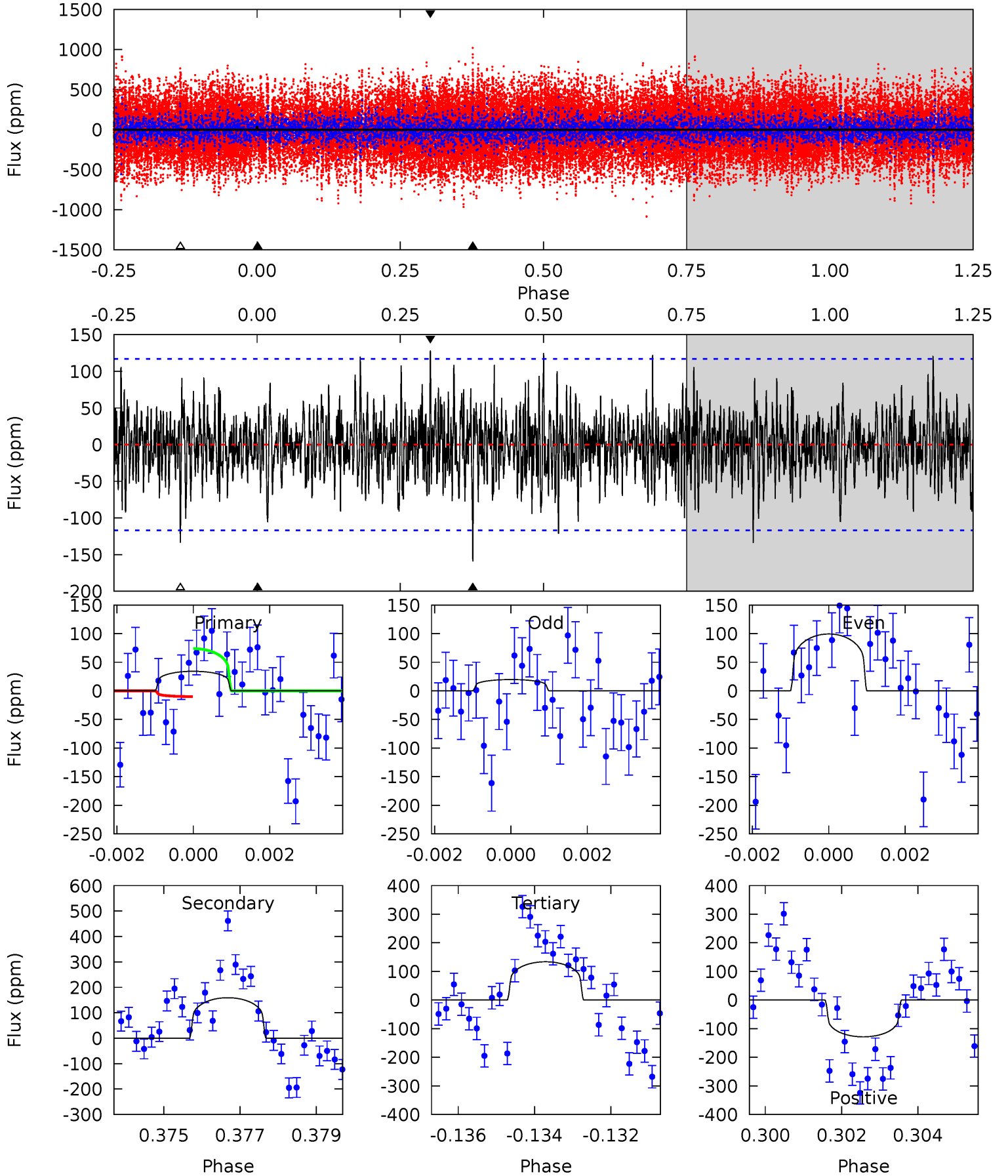
TCE 009468199-07 P=305.195652 Days $T_0=365.773739$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-07, P = 305.151155 Days, E = 60.650216 Days

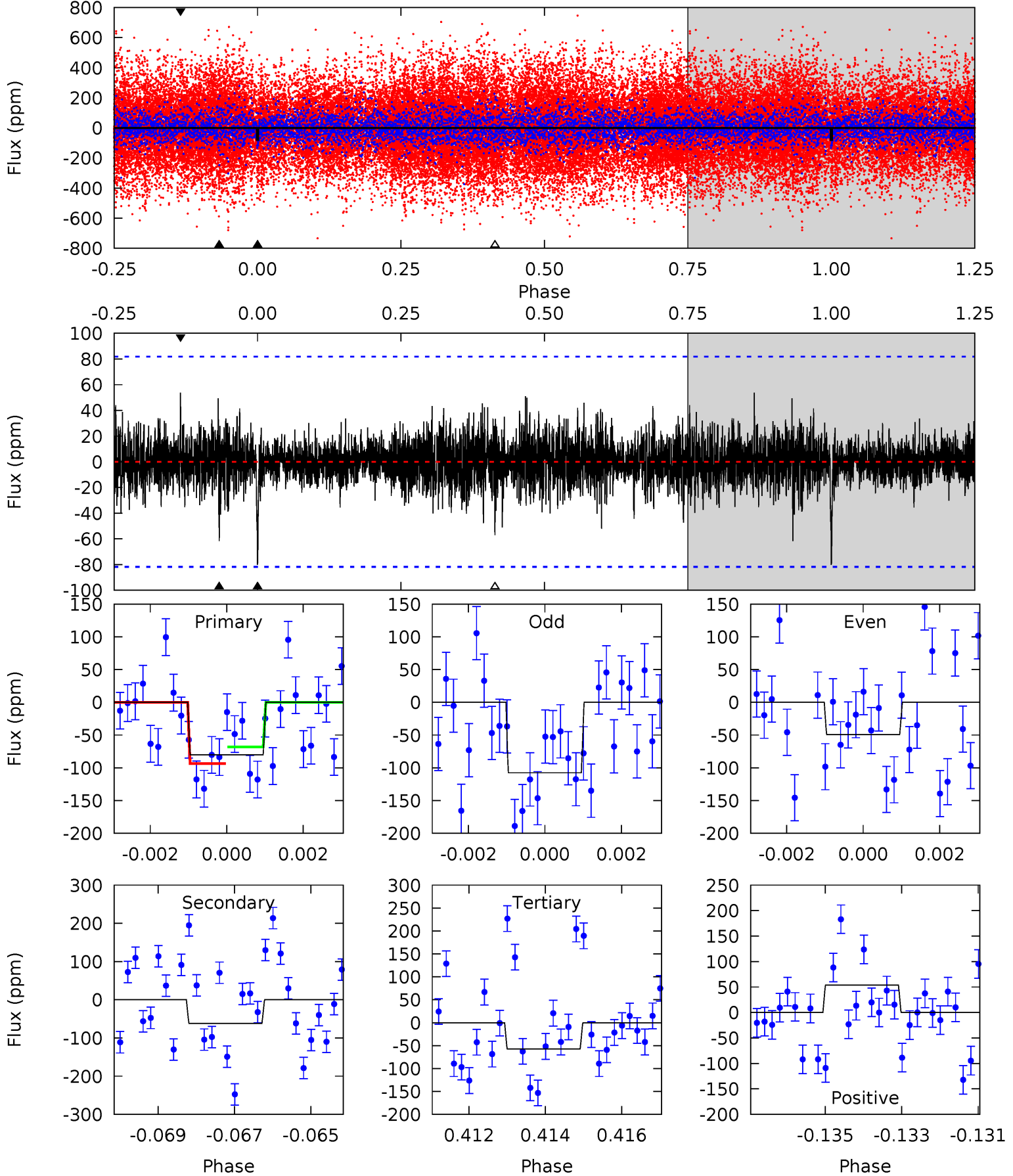
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.56	7.26	6.10	5.86	5.33	3.09	1.62	-4.54	-4.30	1.16	1.40	1.76	-1.33	0.45	1.47



Alt Model-Shift Uniqueness Test

009468199-07, $P = 305.195652$ Days, $E = 60.578087$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.23	4.02	3.72	3.49	5.33	3.09	0.86	1.51	1.73	0.31	0.53	1.86	1.82	0.40	0.84



Stellar Parameters For KIC 009468199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-159 ± 22	$6.29^{+1.31}_{-1.33}$	844^{+59}_{-68}	6827^{+513}_{-457}	3132^{+1343}_{-1012}
Alt.	-62 ± 15	$4.70^{+1.05}_{-1.00}$	844^{+59}_{-65}	6200^{+670}_{-535}	2138^{+1230}_{-788}

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

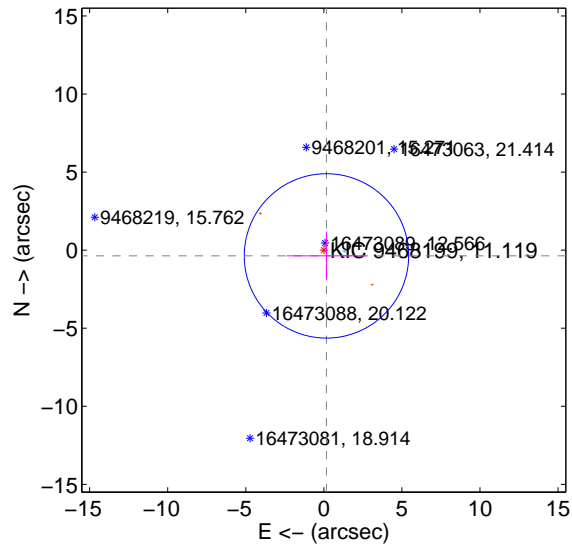
Supplemental centroid analysis for 009468199-07. **Kepler magnitude: 11.12.** Transit SNR 7.94

There are 1 quarters with good PRF difference image offsets

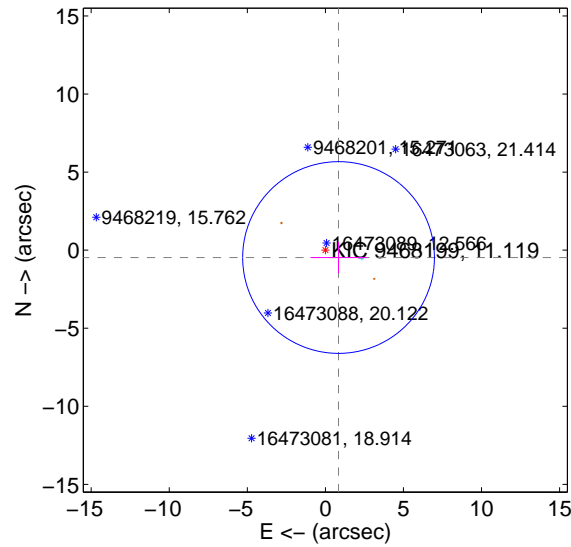
The direct PRF centroid is offset from the target star catalog position by about 1.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.402 ± 1.754	0.23	-0.167 ± 2.545	-0.366 ± 1.540
PRF-fit source offset from KIC position	0.964 ± 2.046	0.47	-0.842 ± 1.798	-0.470 ± 1.011
photometric centroid source offset	3.99 ± 2.97	1.34	-0.88 ± 4.46	3.89 ± 2.88

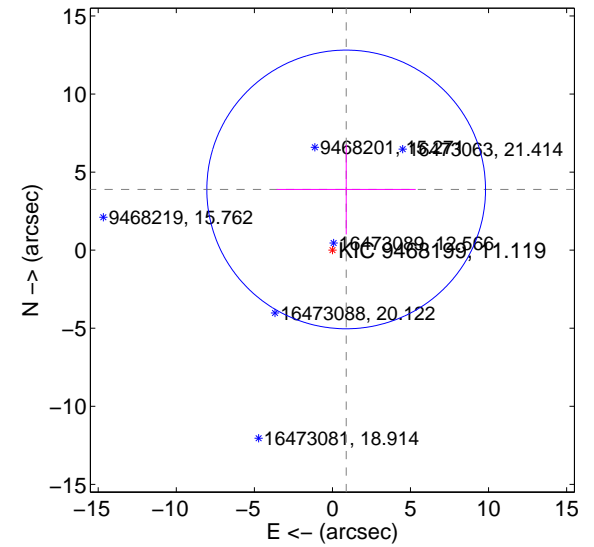
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

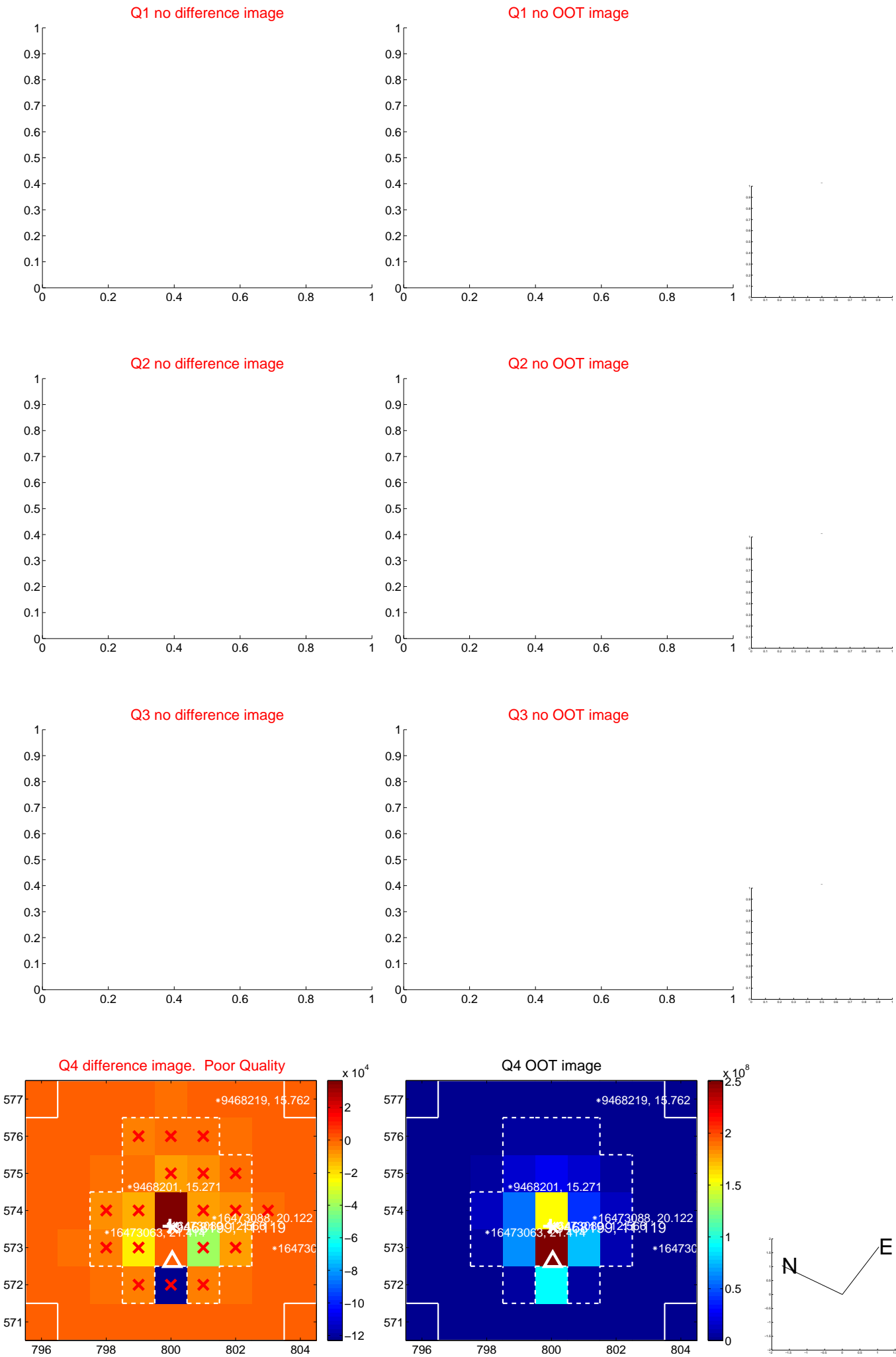


offset from photometric centroids

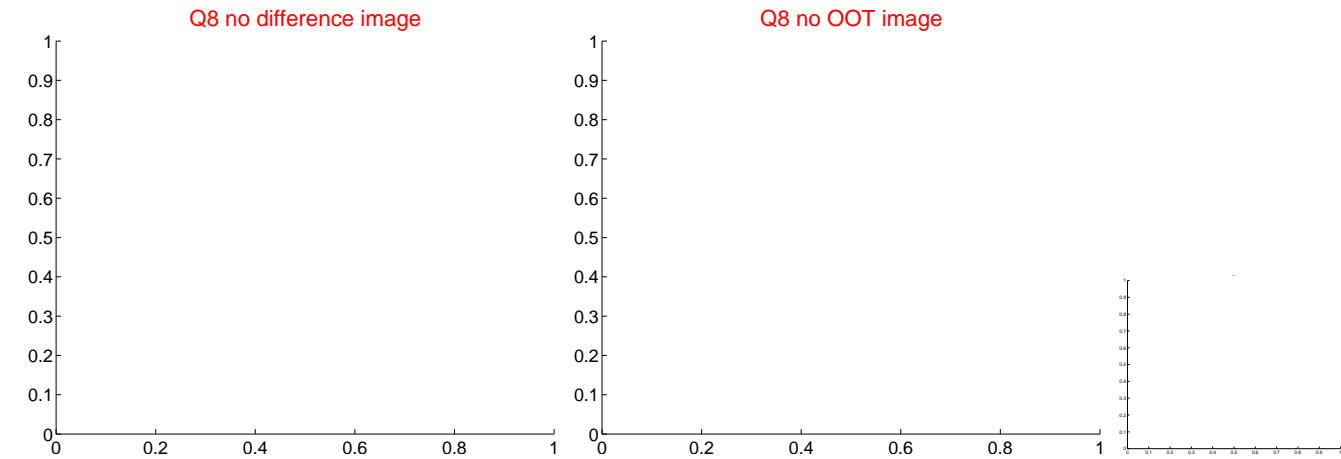
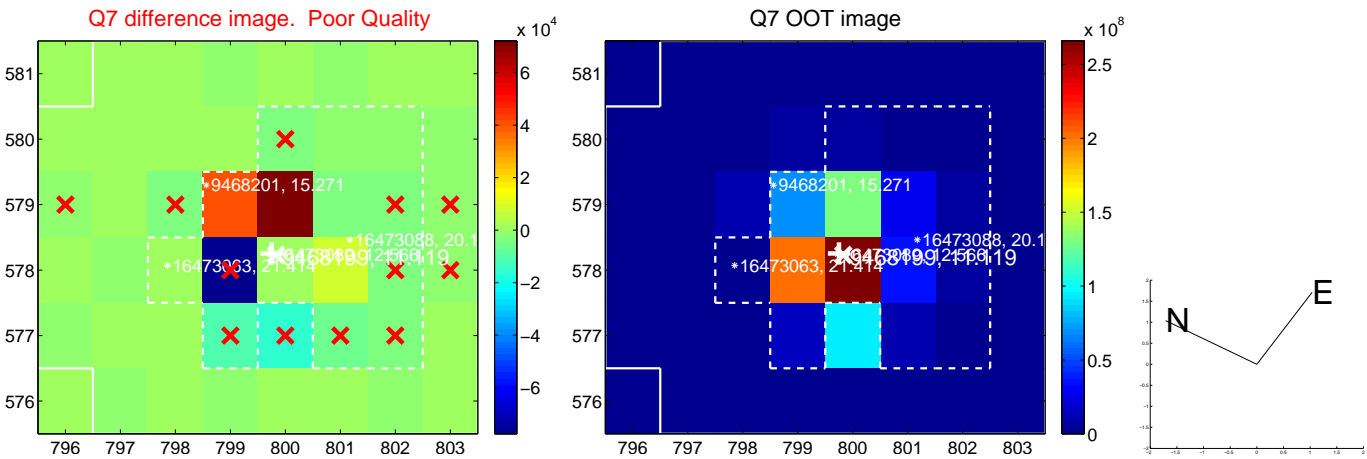
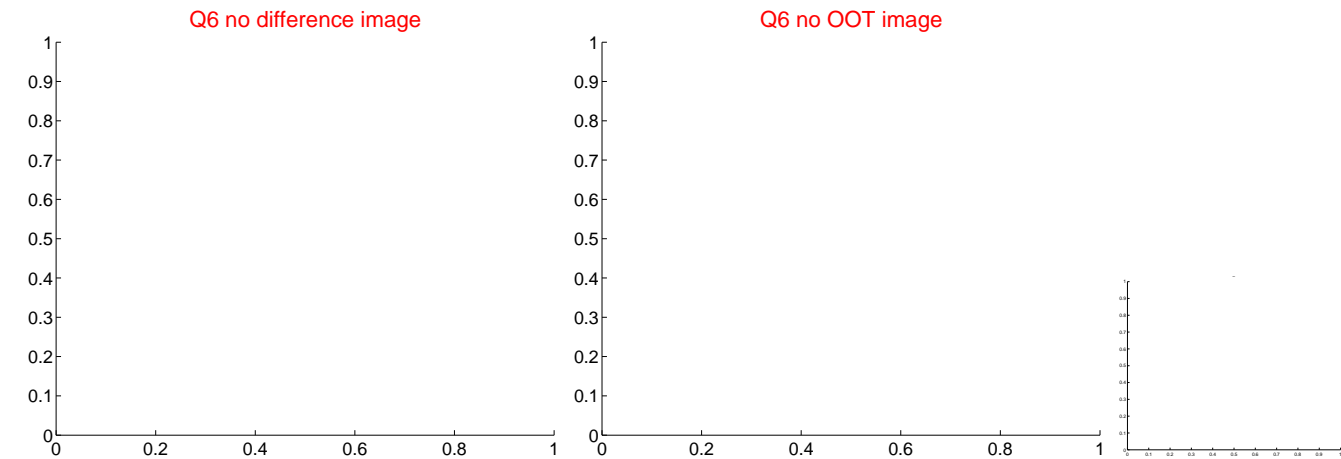
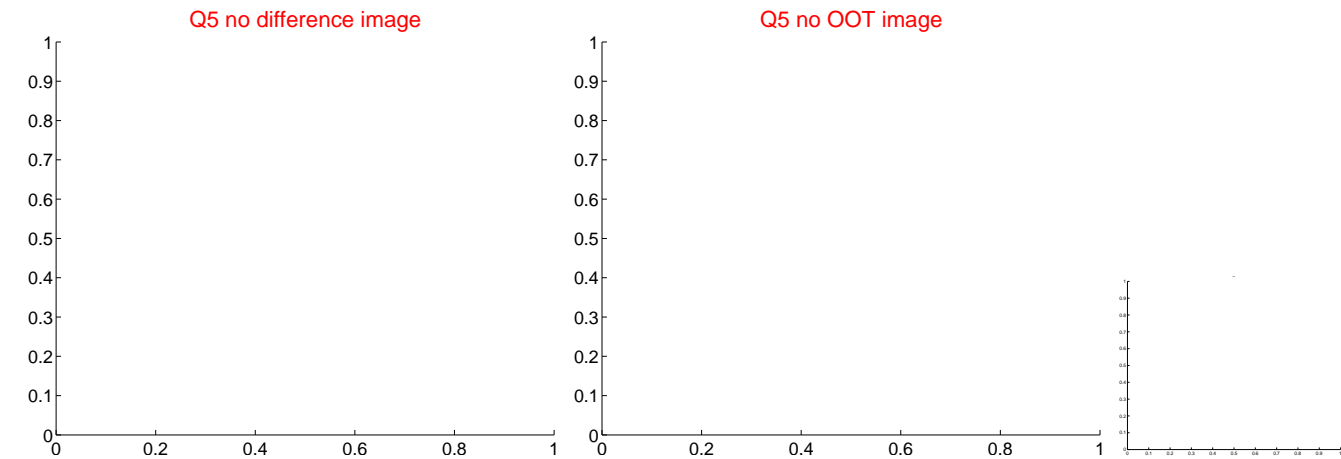


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

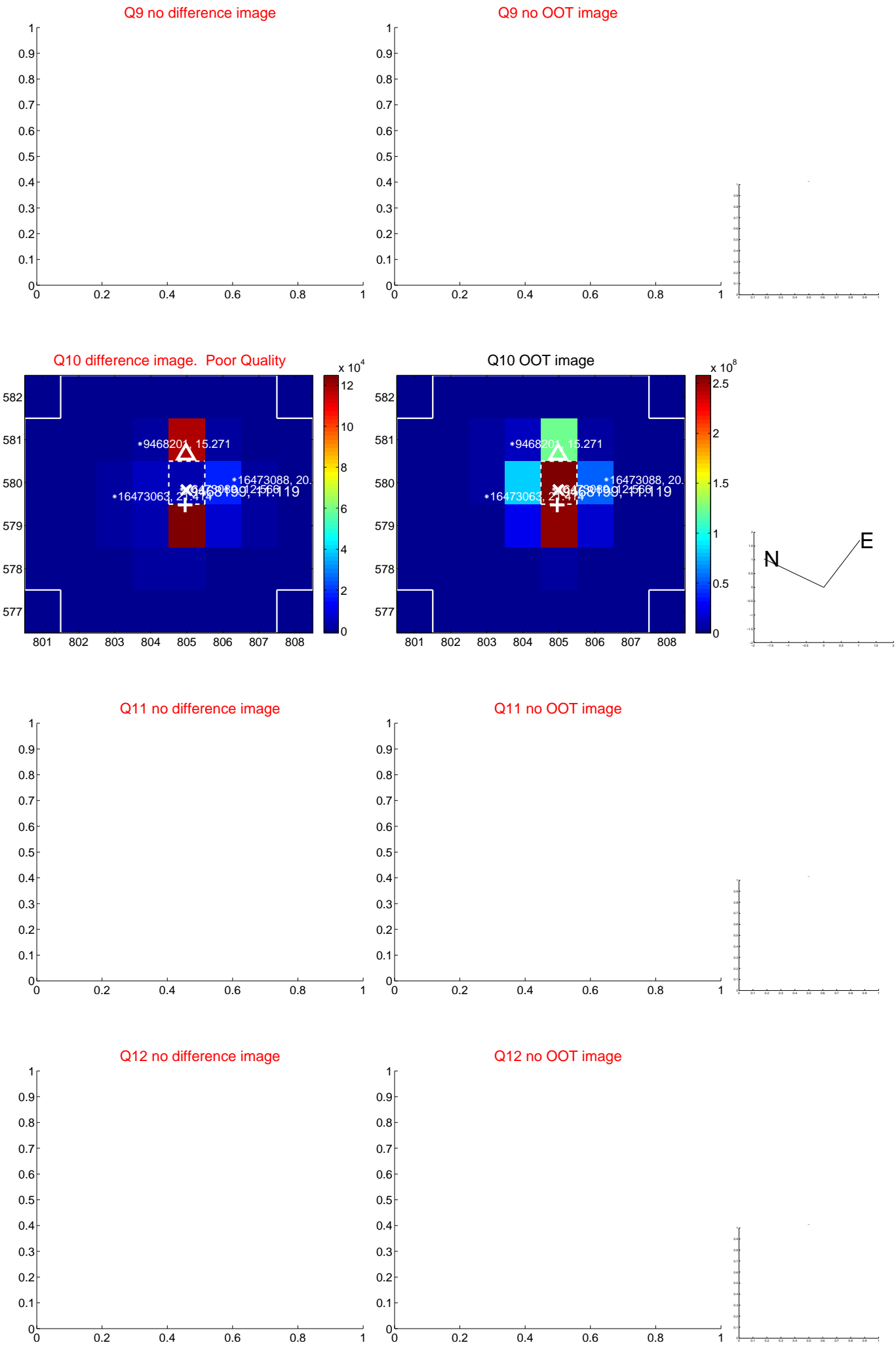
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



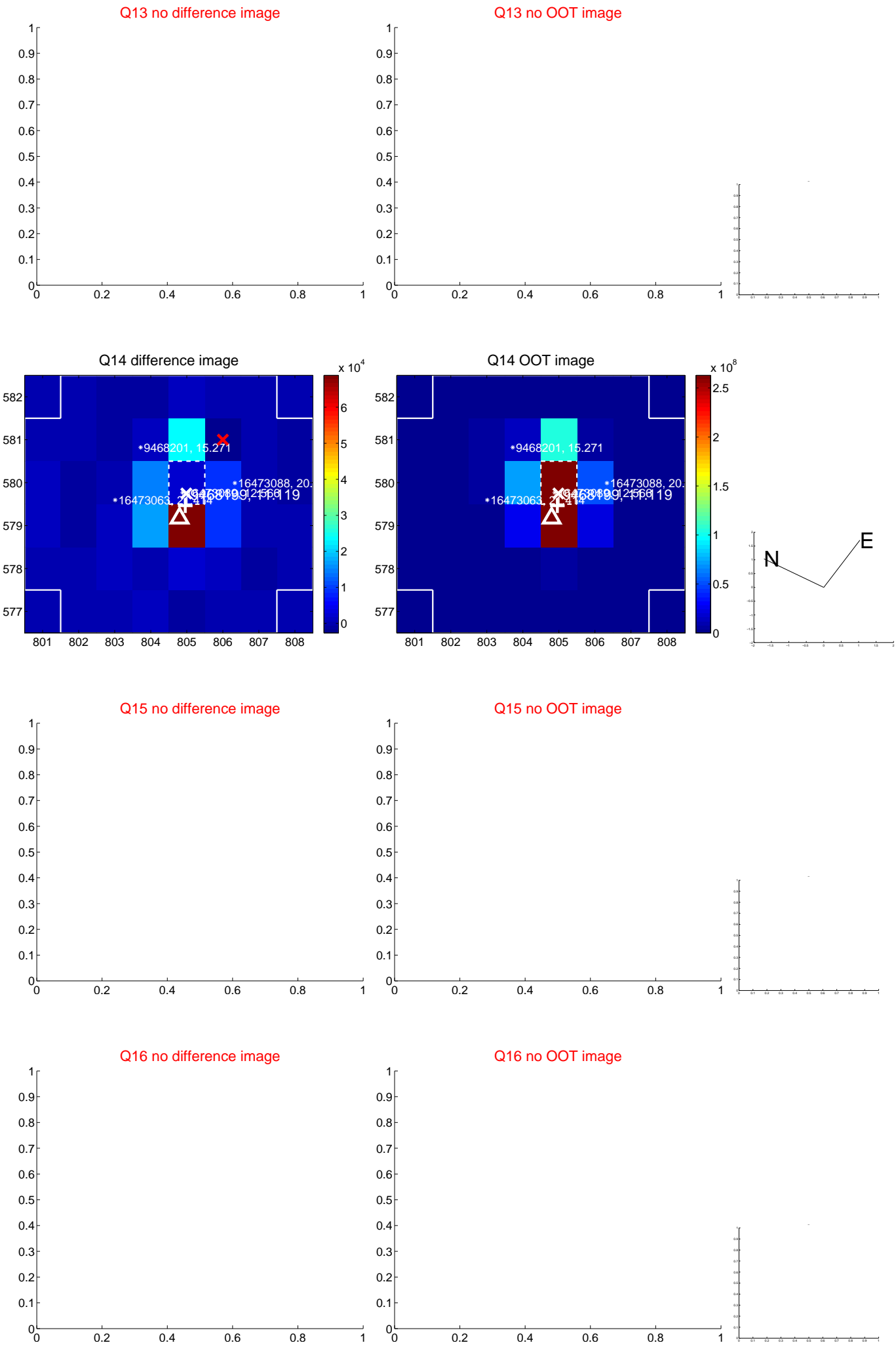
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



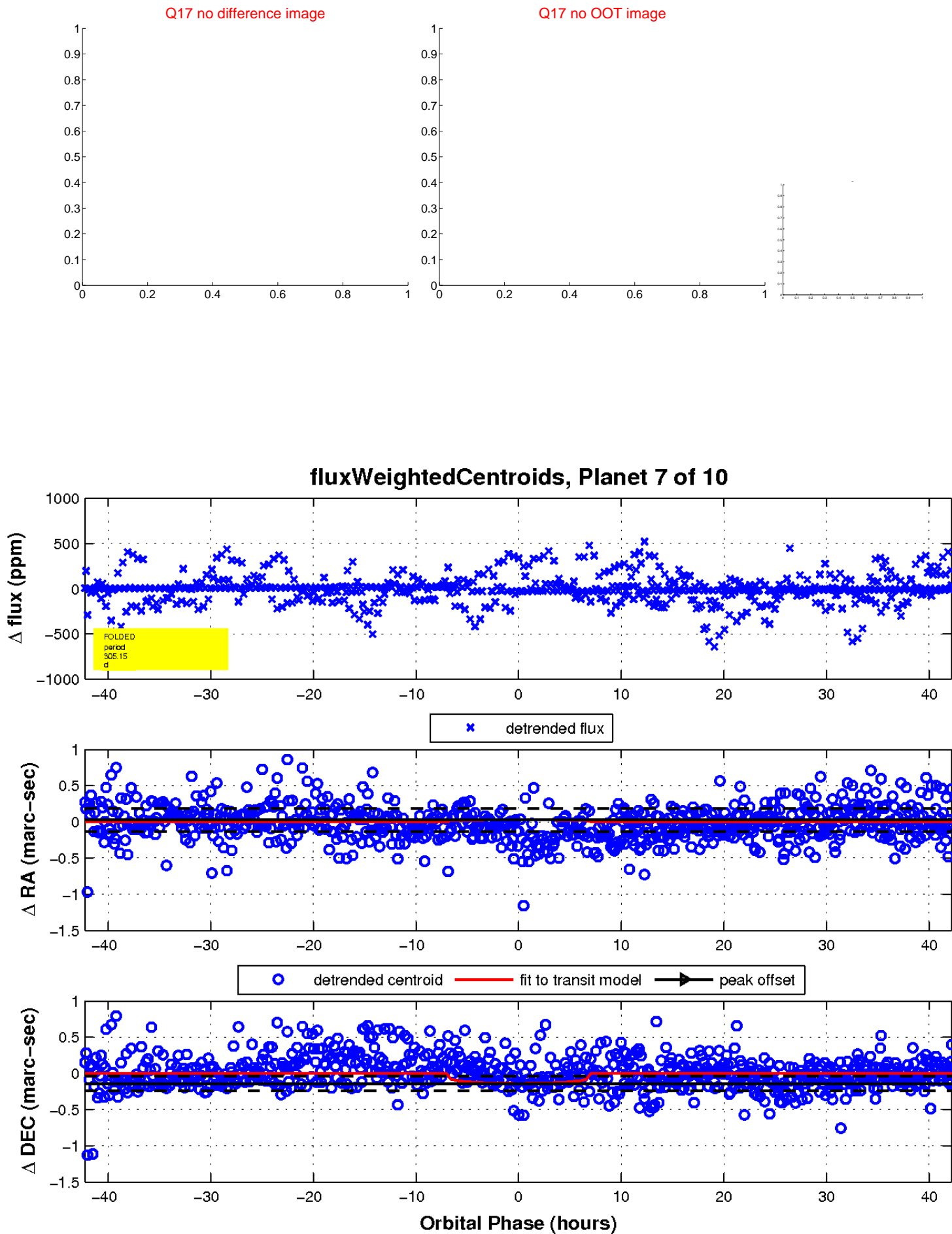
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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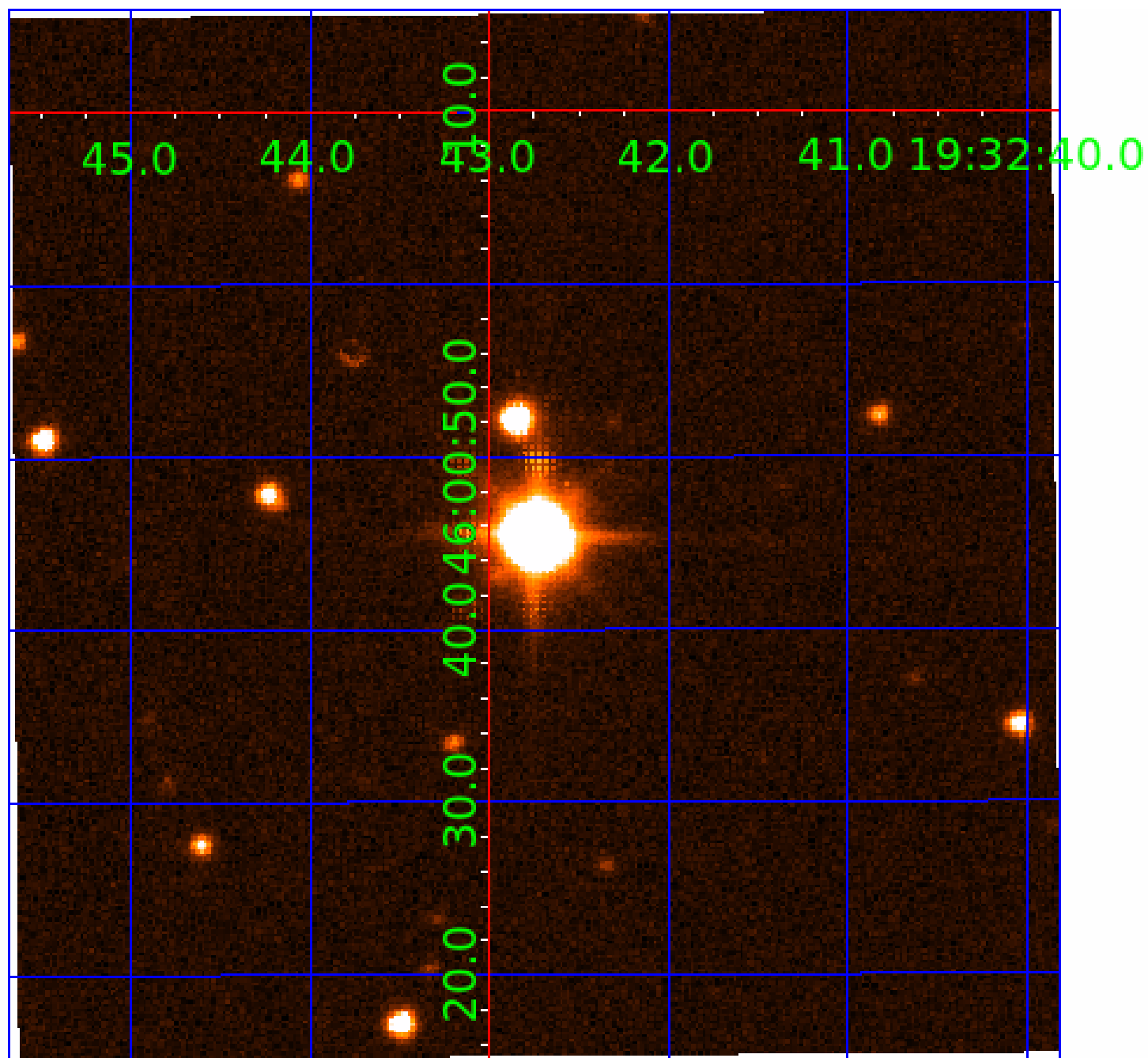


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
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009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

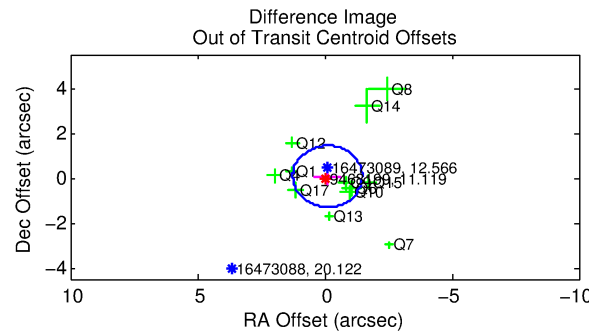
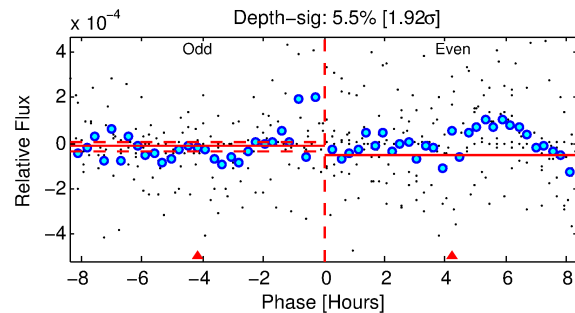
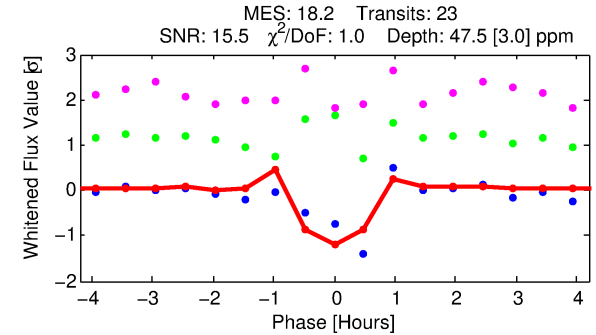
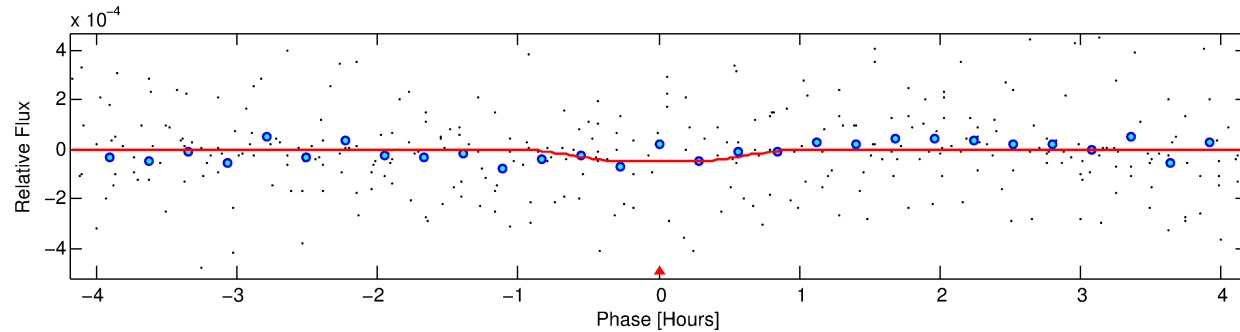
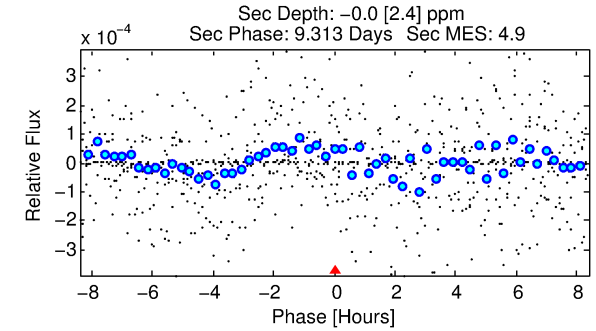
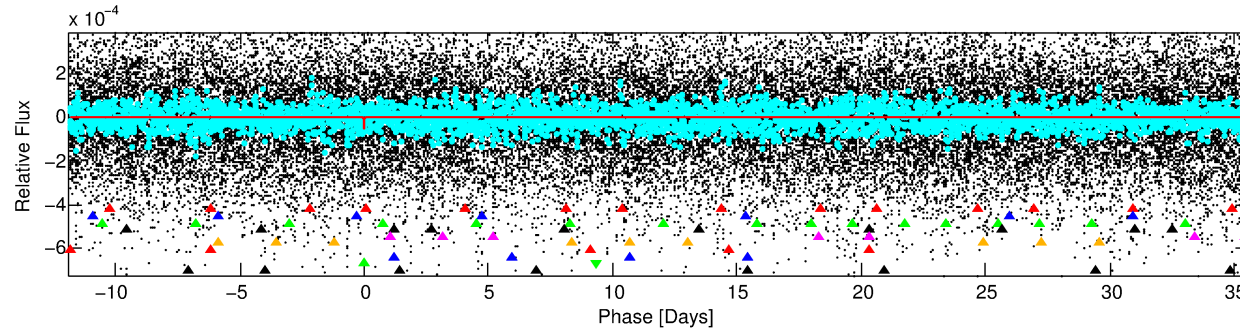
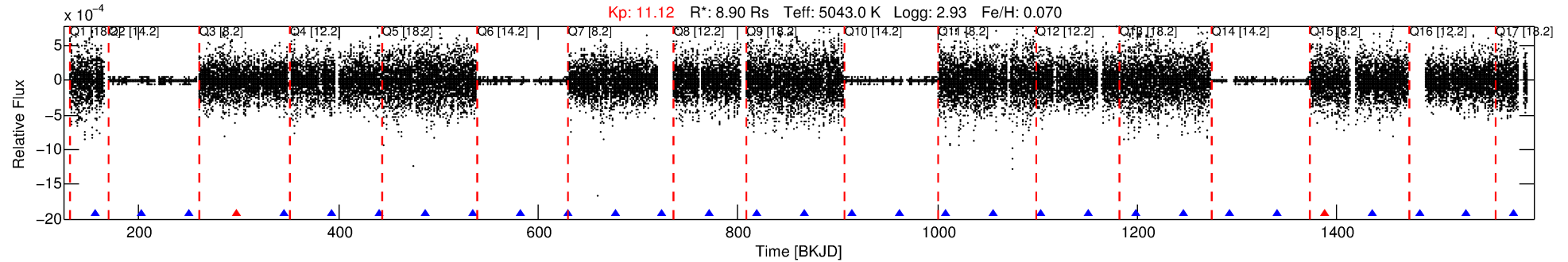
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-09

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 9 of 10 Period: 47.379 d



DV Fit Results:

Period = 47.37909 [0.00031] d
Epoch = 155.9575 [0.0038] BKJD
Rp/R* = 0.0076 [0.0040]
a/R* = 123.75 [255.10]
b = 0.89 [0.51]
Seff = 384.26 [158.96]
Teq = 1129 [117] K
Rp = 7.39 [4.80] Re
a = 0.3458 [0.1027] AU
Ag = N/A
Teffp = N/A

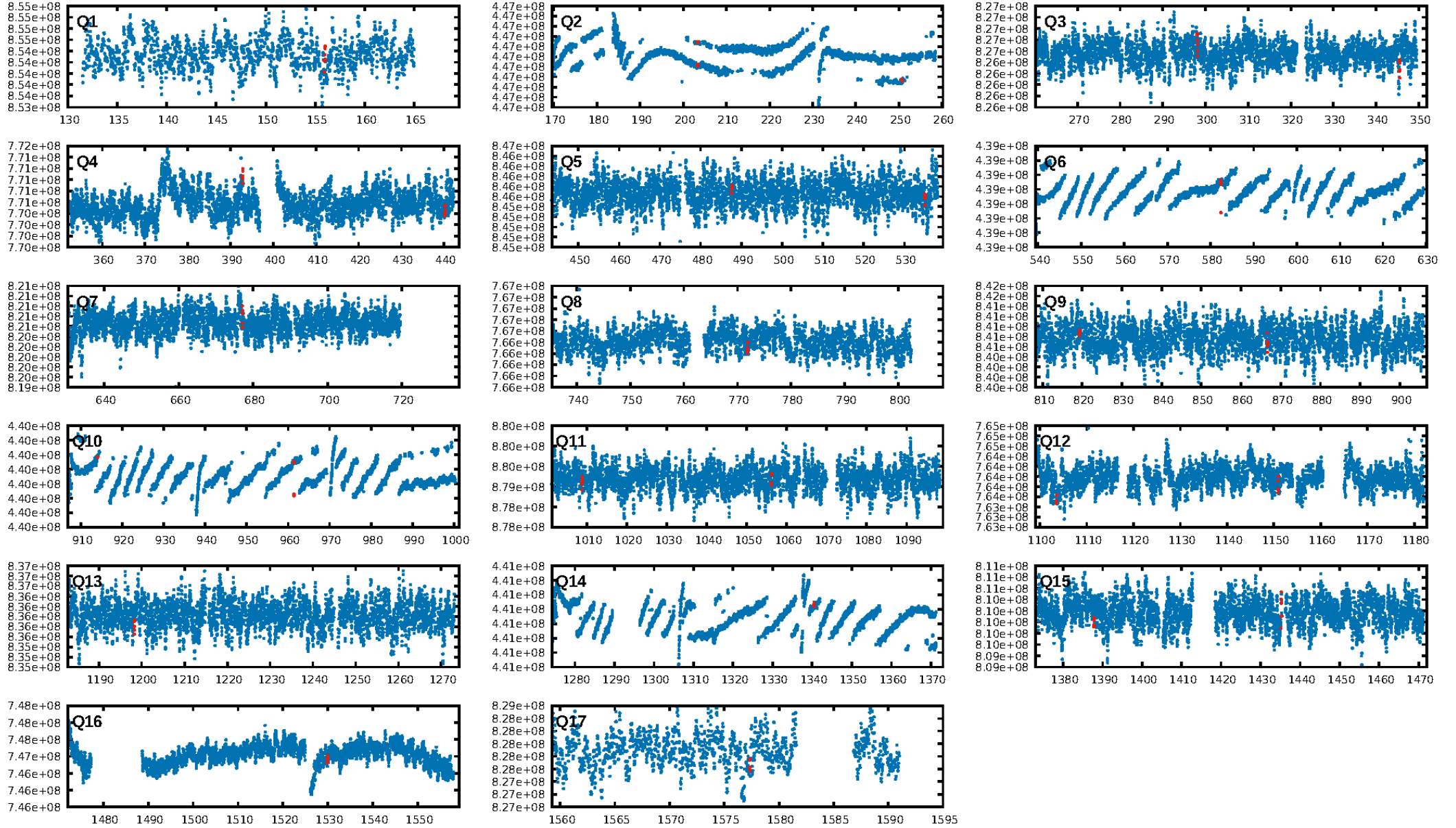
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [319.49σ]
ModelChiSquare2-sig: 27.1%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.91 [20/22]
GhostDiagnostic-chr: -0.629
Centroid-sig: 45.5%
Centroid-so: 1.473 arcsec [0.76σ]
OotOffset-rm: 0.128 arcsec [0.28σ]
KicOffset-rm: 0.435 arcsec [0.80σ]
OotOffset-st: 3/2/3/4 [12]
KicOffset-st: 3/2/3/4 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 0.94 [16/17]

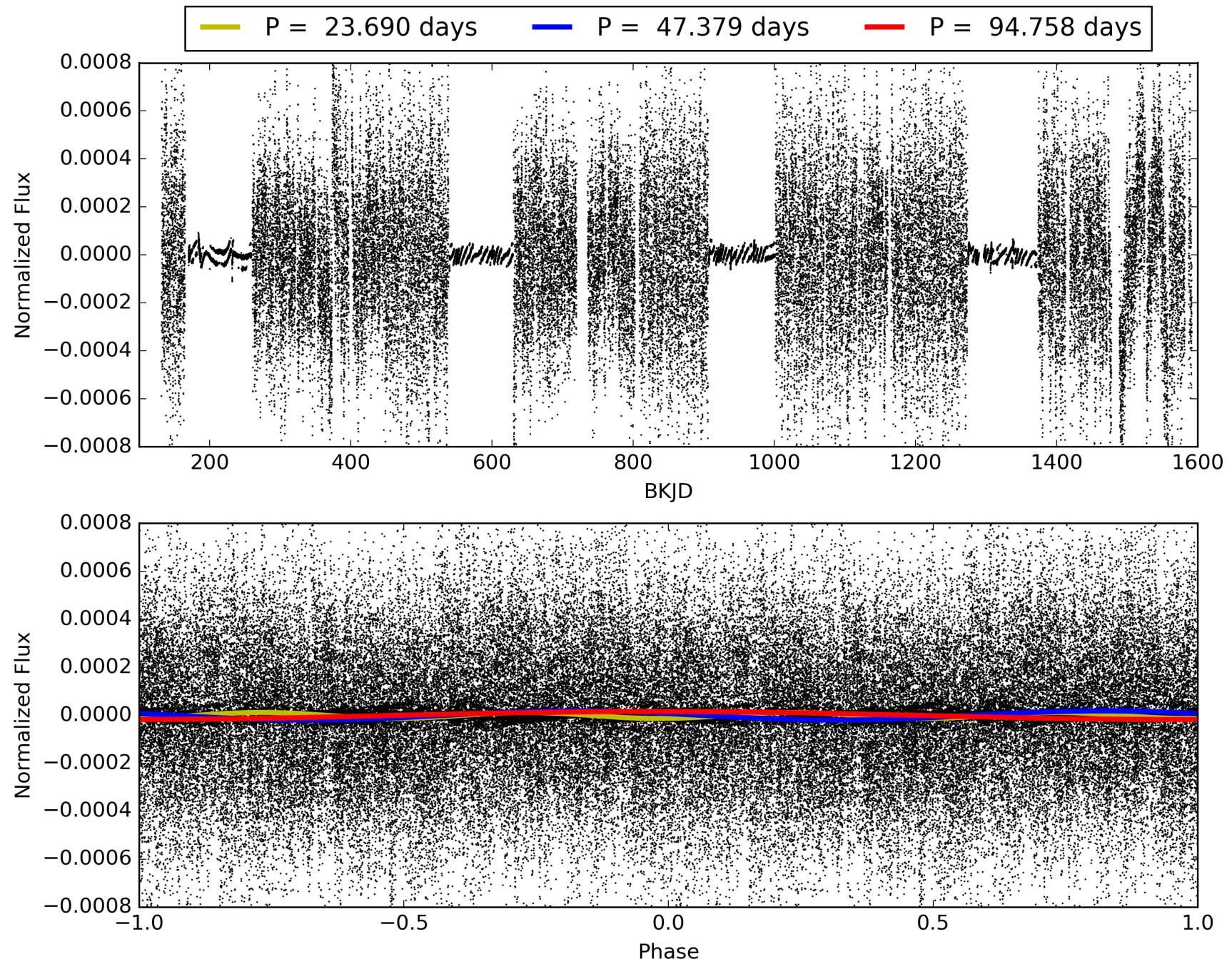
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:52:39 Z

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

TCE 009468199-09, PDC Light Curves

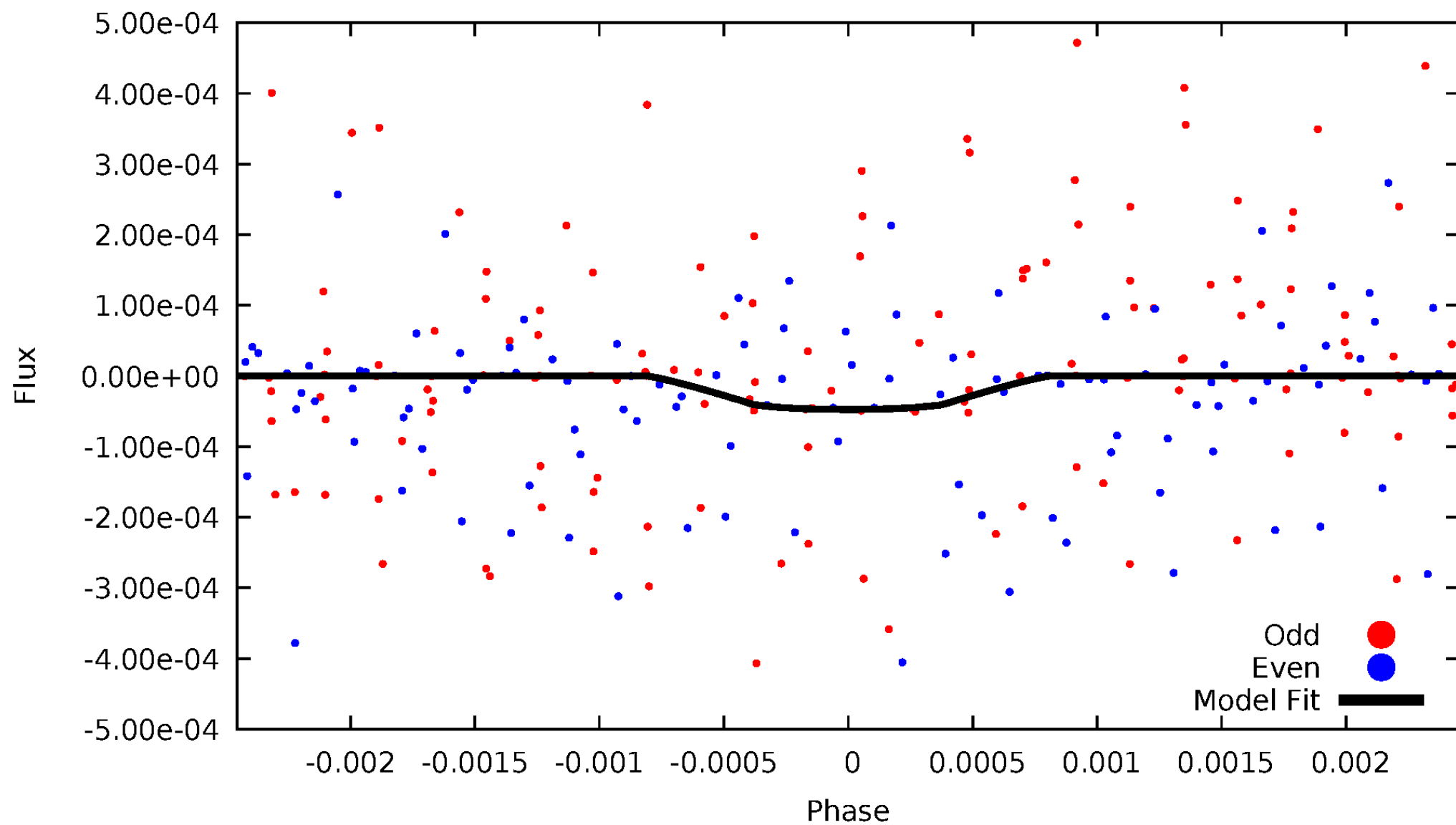


TCE 009468199-09



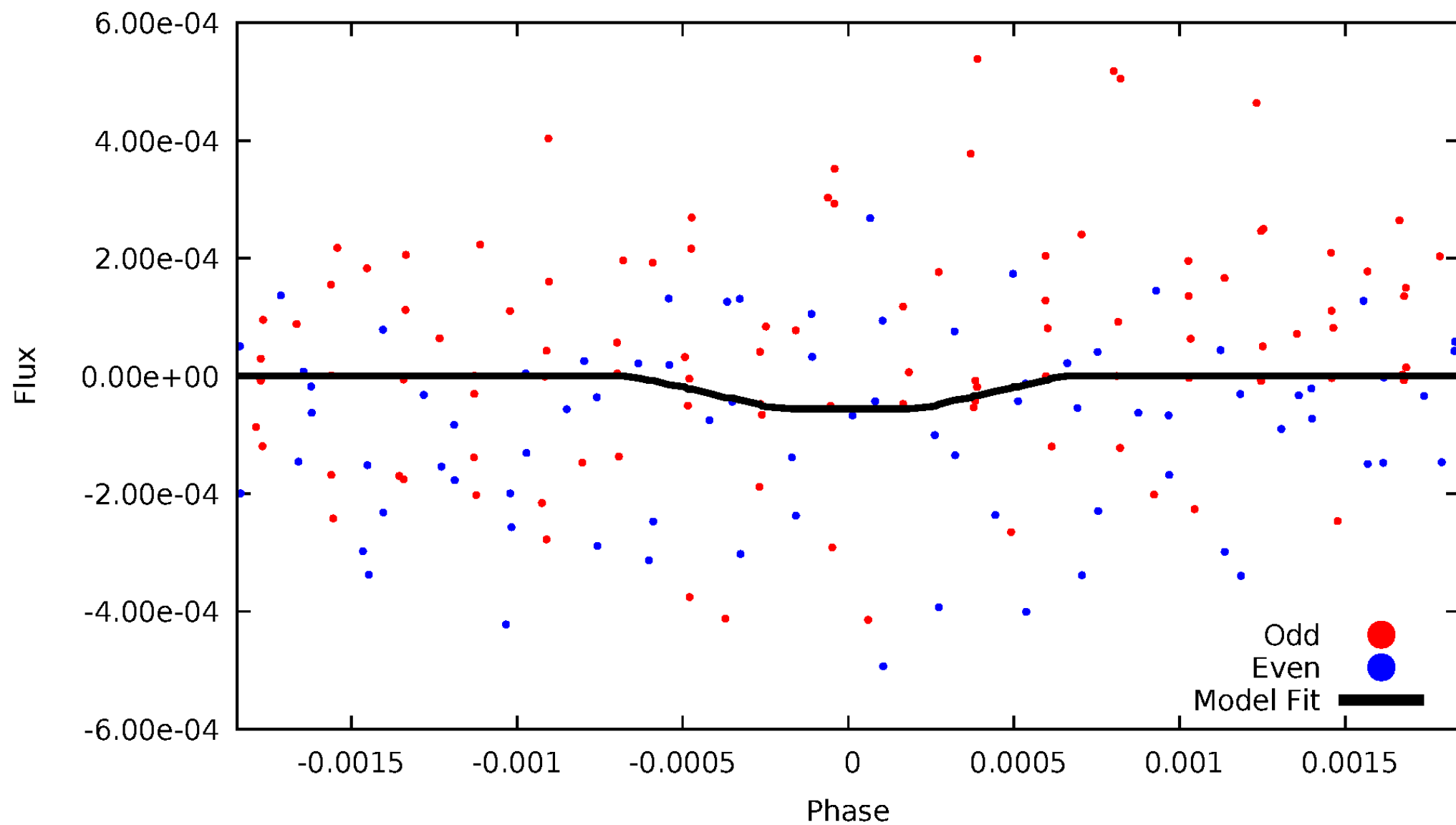
DV Odd/Even

TCE 009468199-09



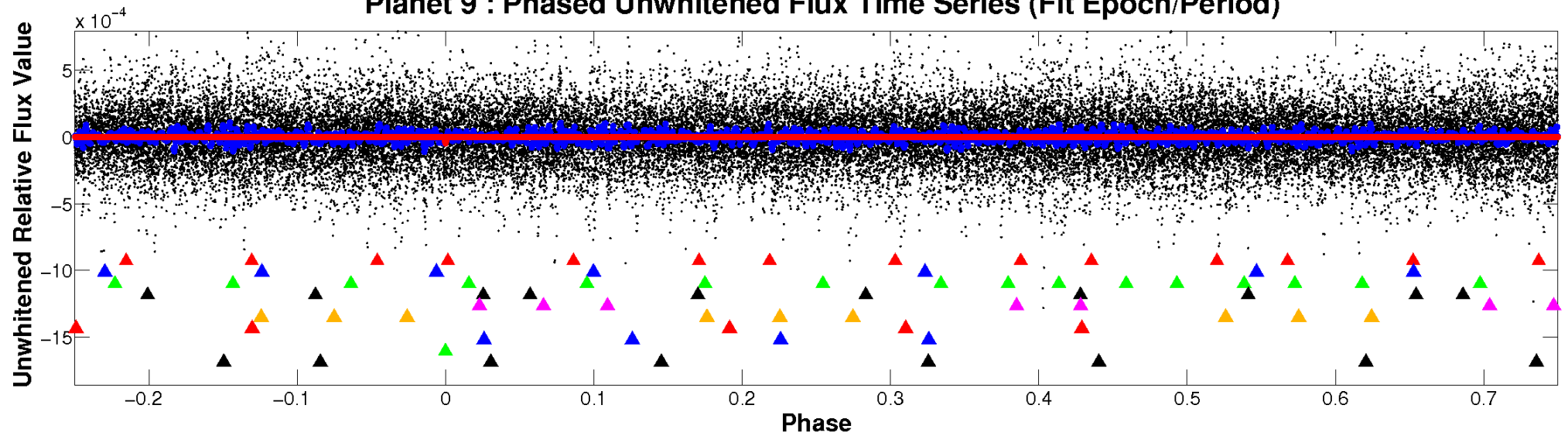
ALT Odd/Even

TCE 009468199-09

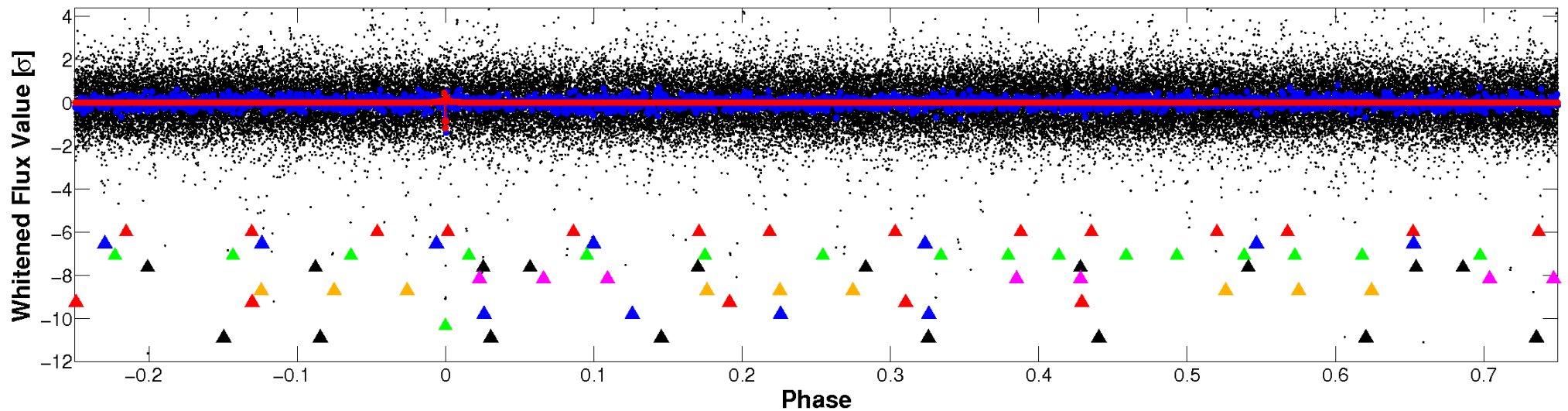


Non-Whitened Vs. Whitened Light Curve

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

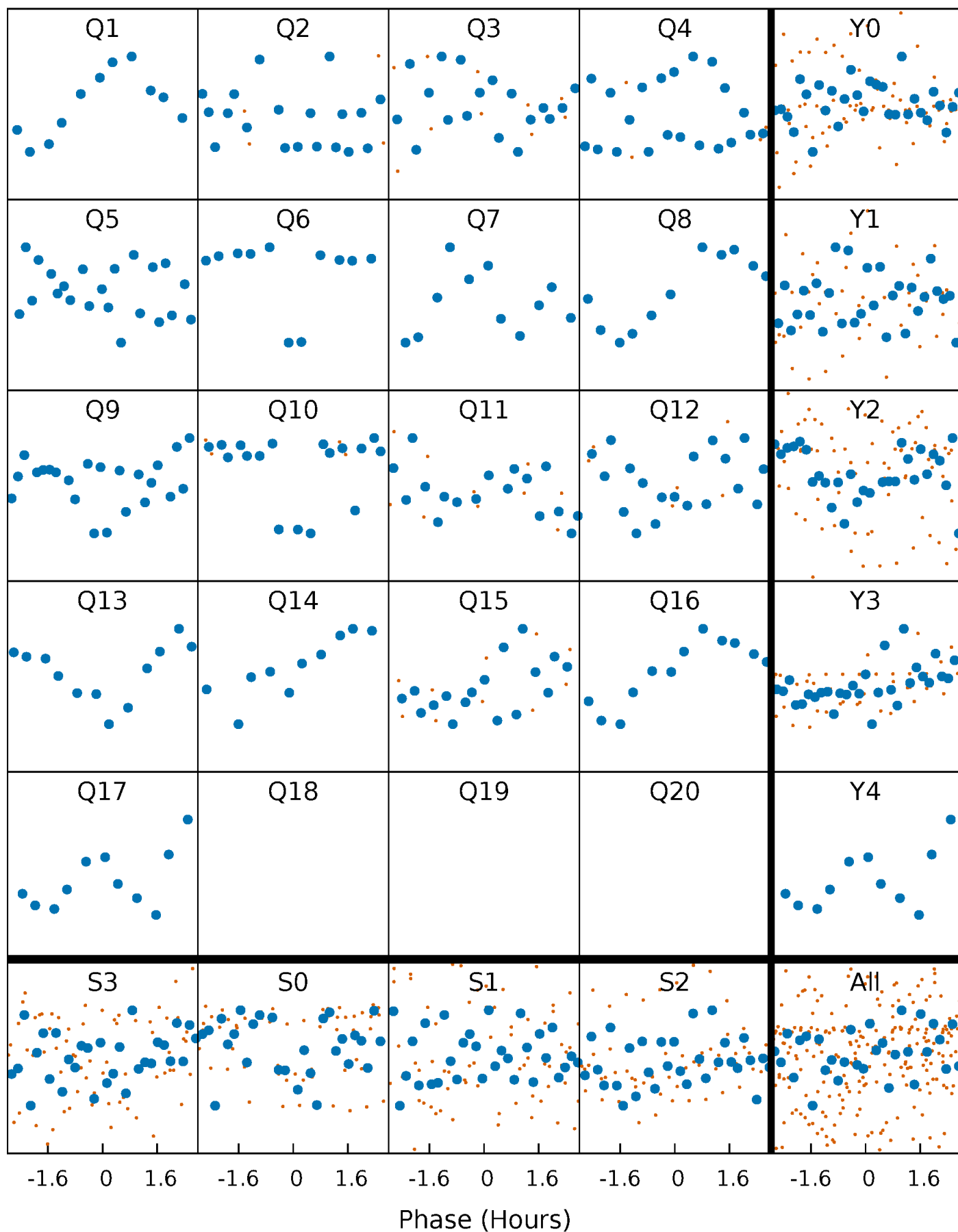


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



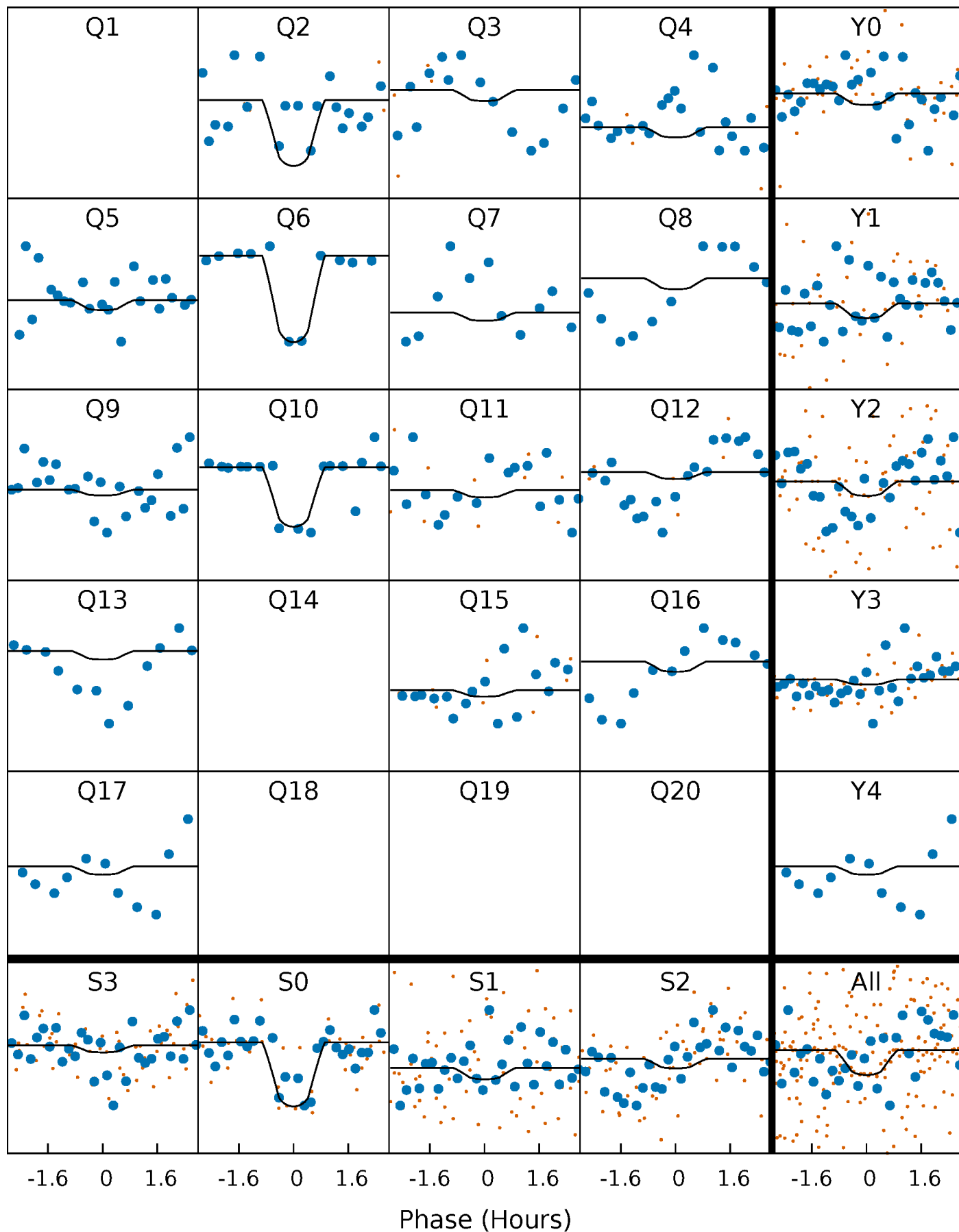
PDC Quarter-Phased Transit Curves

TCE 009468199-09 P= 47.379086 Days $T_0=155.957452$ (BKJD)



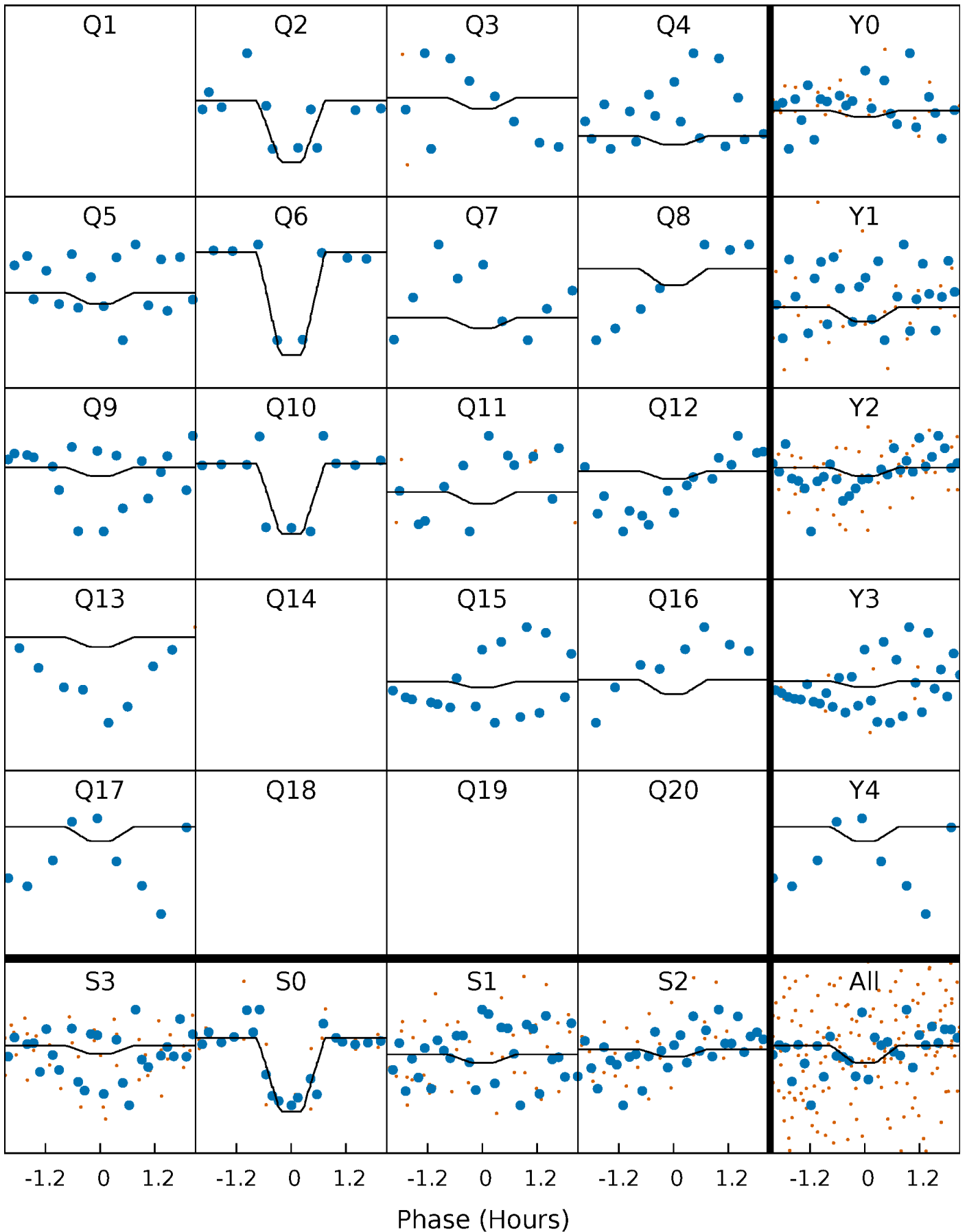
DV Quarter-Phased Transit Curves

TCE 009468199-09 P= 47.379086 Days $T_0=155.957452$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

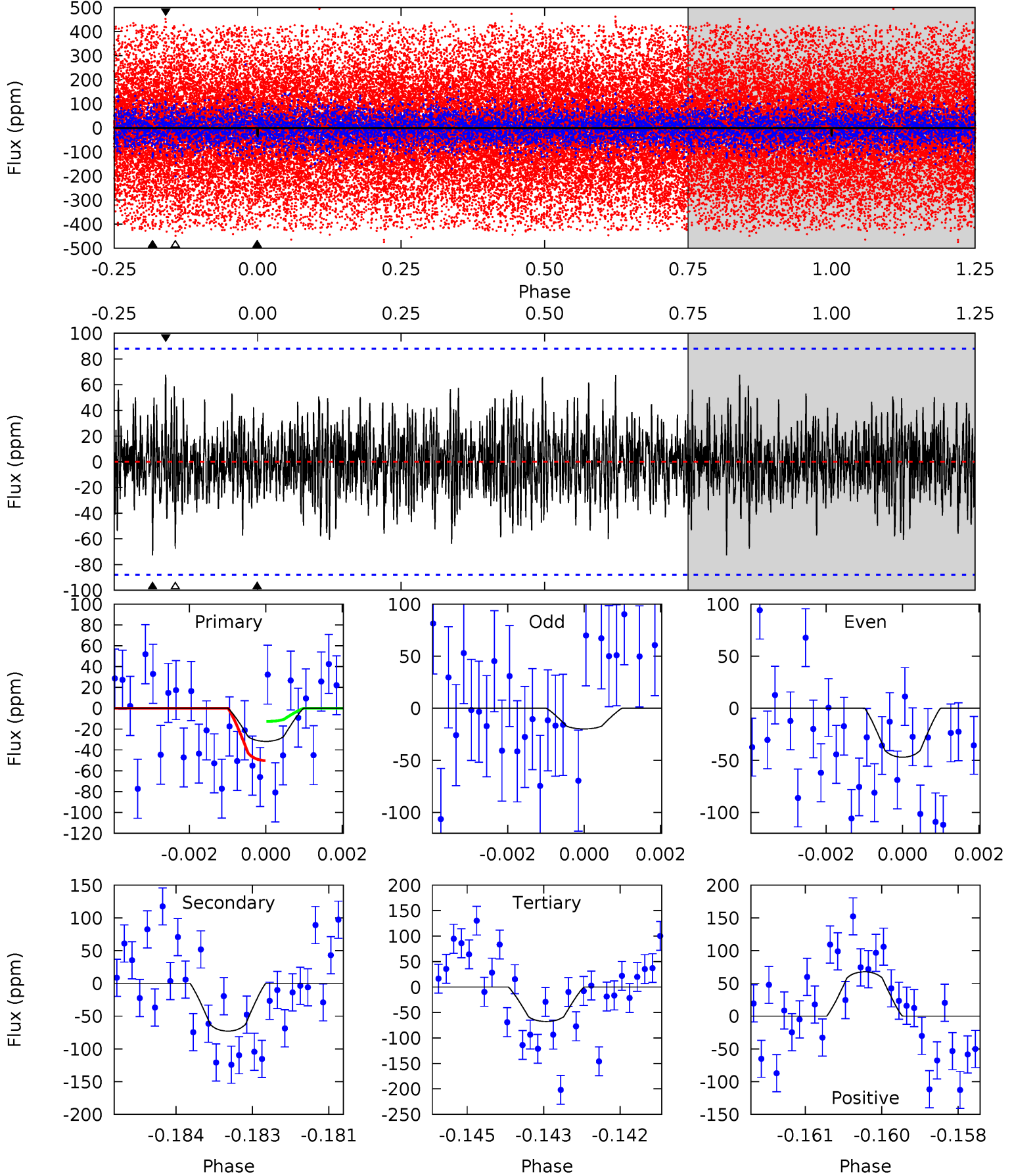
TCE 009468199-09 $P = 47.379150$ Days $T_0 = 155.961323$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-09, $P = 47.379086$ Days, $E = 108.578366$ Days

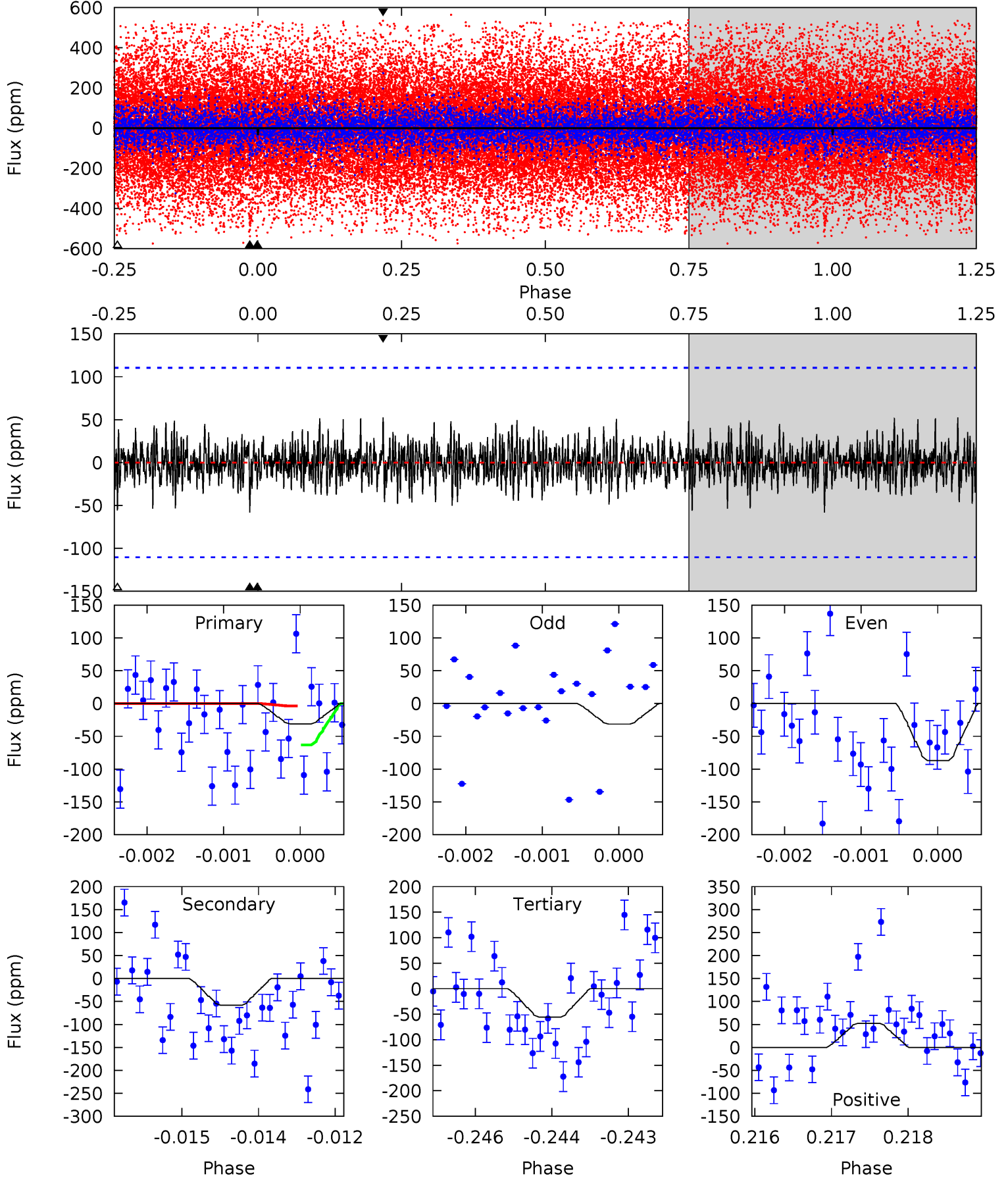
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.94	4.44	4.13	4.13	5.36	3.15	1.28	-2.19	-2.19	0.31	0.31	0.83	1.34	0.48	1.17



Alt Model-Shift Uniqueness Test

009468199-09, P = 47.379150 Days, E = 108.582173 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.52	2.85	2.74	2.57	5.41	3.23	0.81	-1.22	-1.06	0.11	0.28	1.36	0.53	0.47	1.47



Stellar Parameters For KIC 009468199

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-73 ± 16	$7.11^{+4.29}_{-3.62}$	1562^{+108}_{-115}	5236^{+2279}_{-832}	89^{+272}_{-52}
Alt.	-58 ± 20	$6.95^{+4.18}_{-3.65}$	1569^{+110}_{-125}	5073^{+2048}_{-900}	74^{+261}_{-47}

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

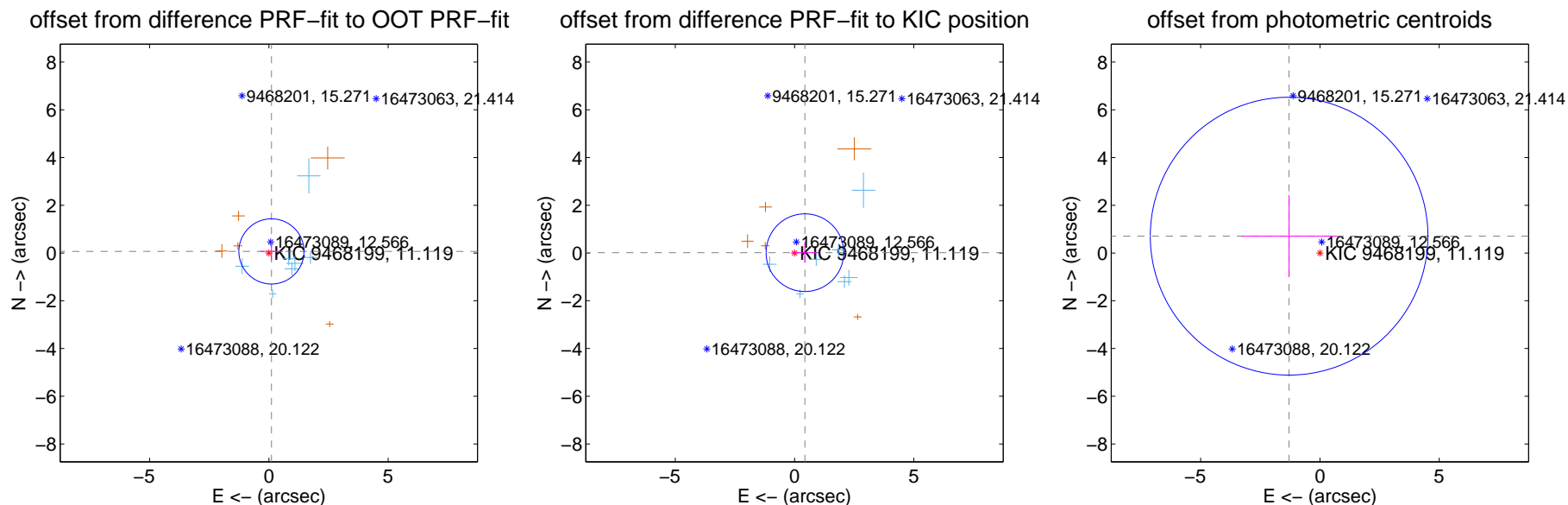
DV Centroid Data

Supplemental centroid analysis for 009468199-09. **Kepler magnitude: 11.12.** Transit SNR 15.55

There are 7 quarters with good PRF difference image offsets

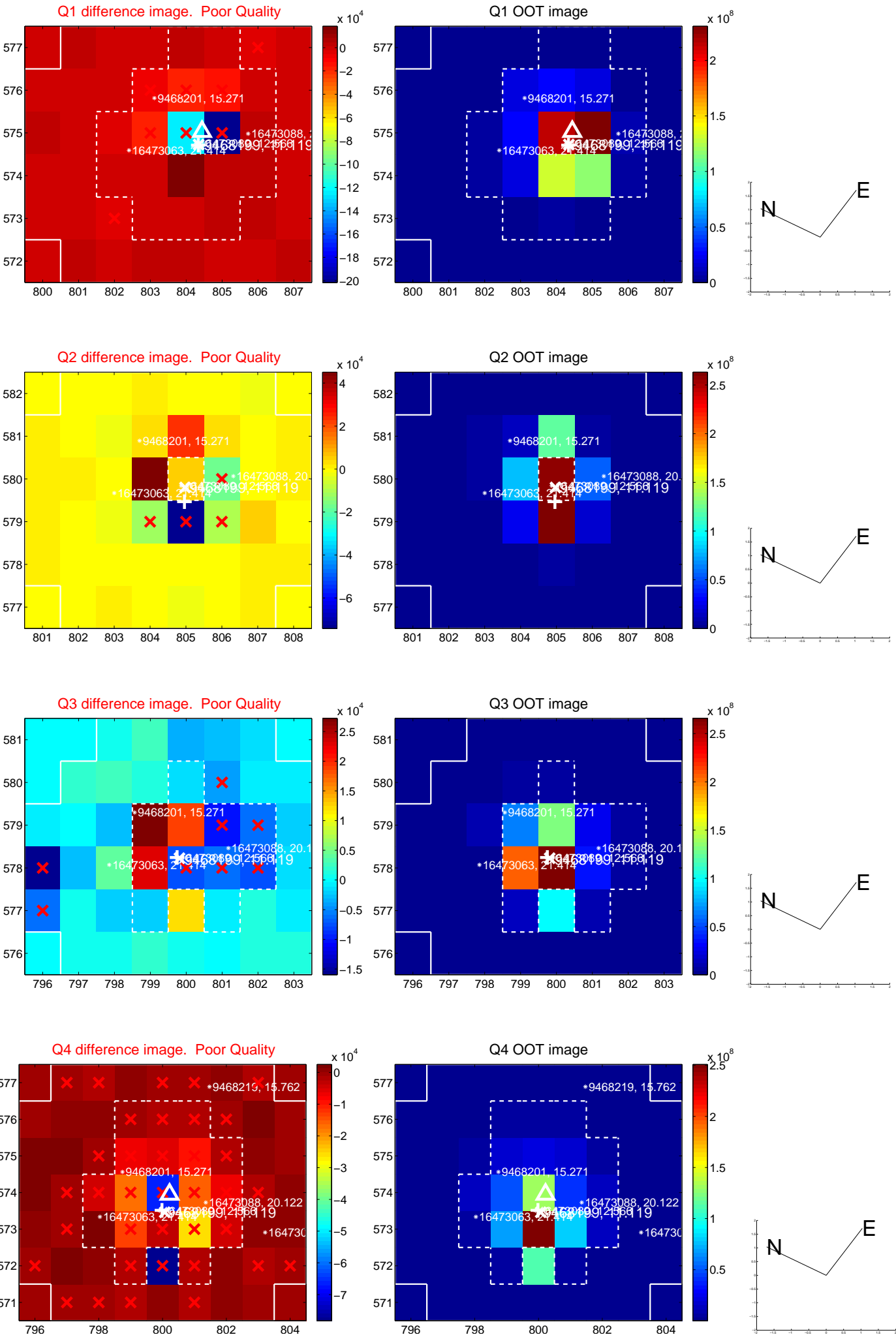
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.128 ± 0.455	0.28	-0.109 ± 0.481	0.067 ± 0.379
PRF-fit source offset from KIC position	0.435 ± 0.542	0.80	-0.434 ± 0.542	0.015 ± 0.423
photometric centroid source offset	1.47 ± 1.94	0.76	1.29 ± 2.00	0.71 ± 1.72

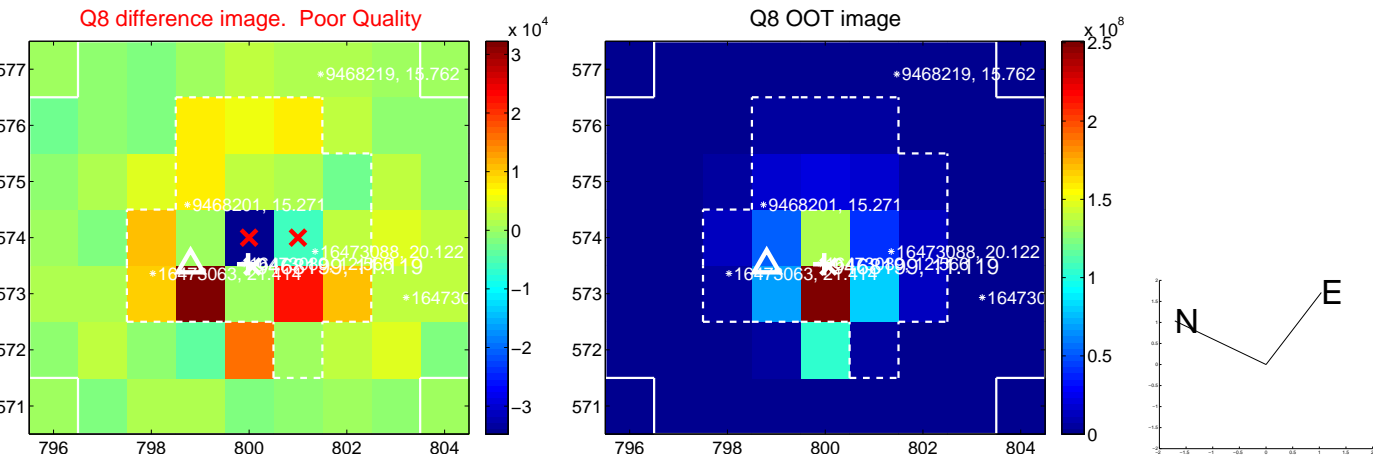
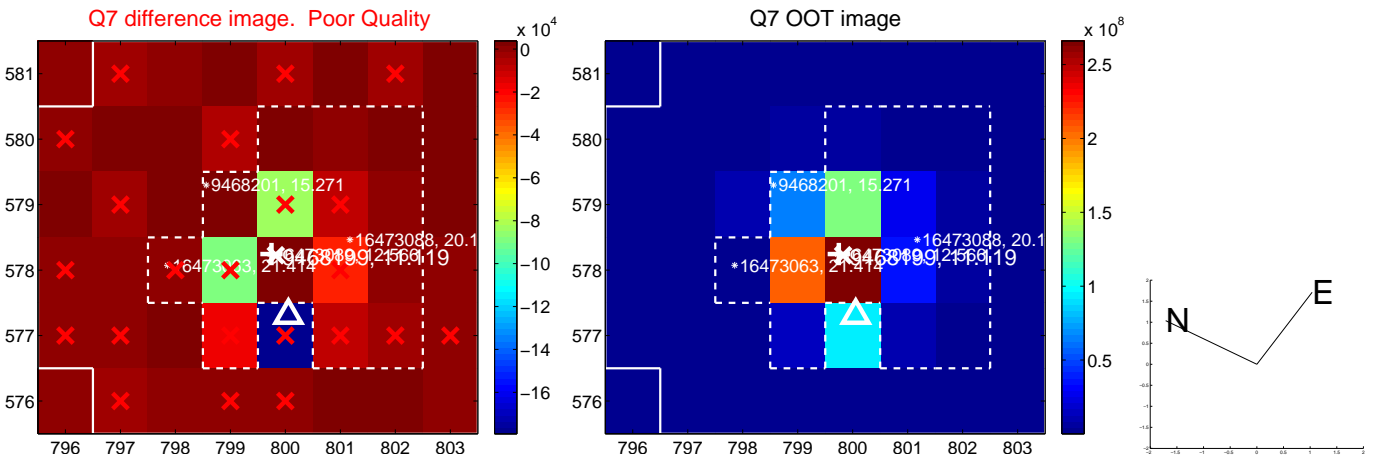
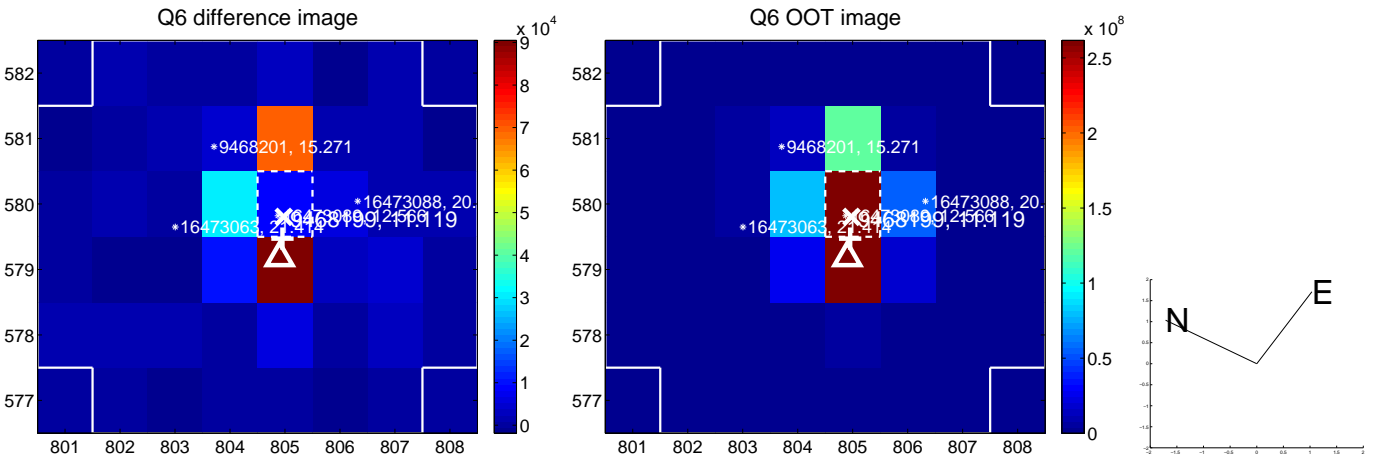
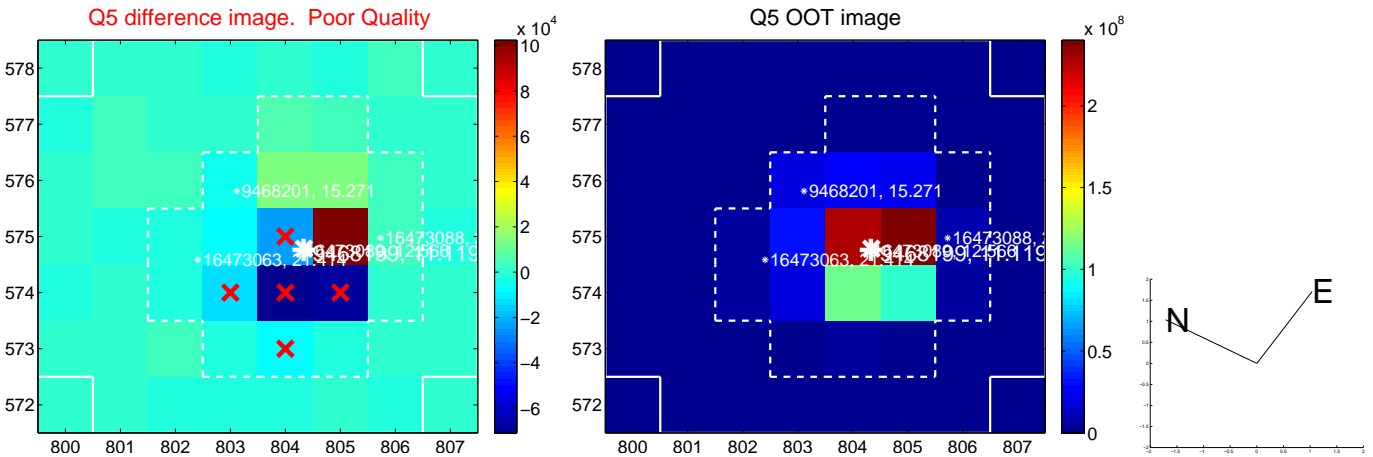


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

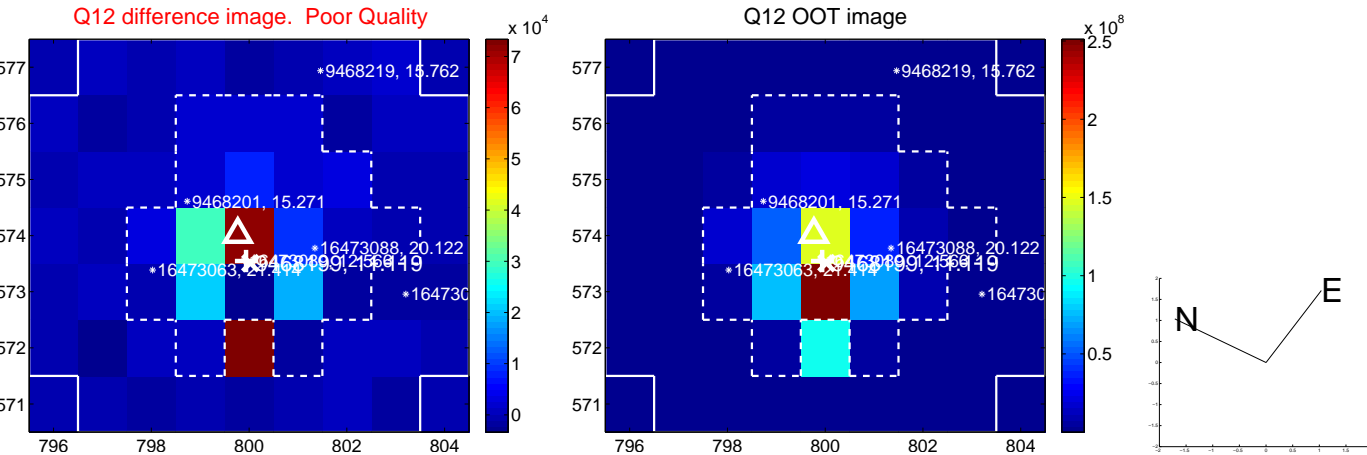
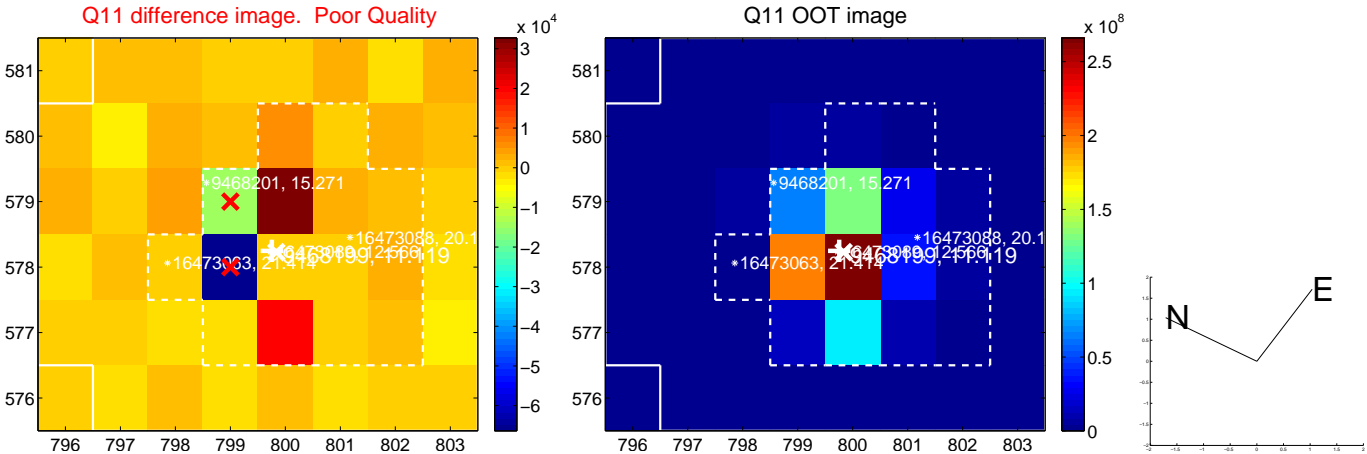
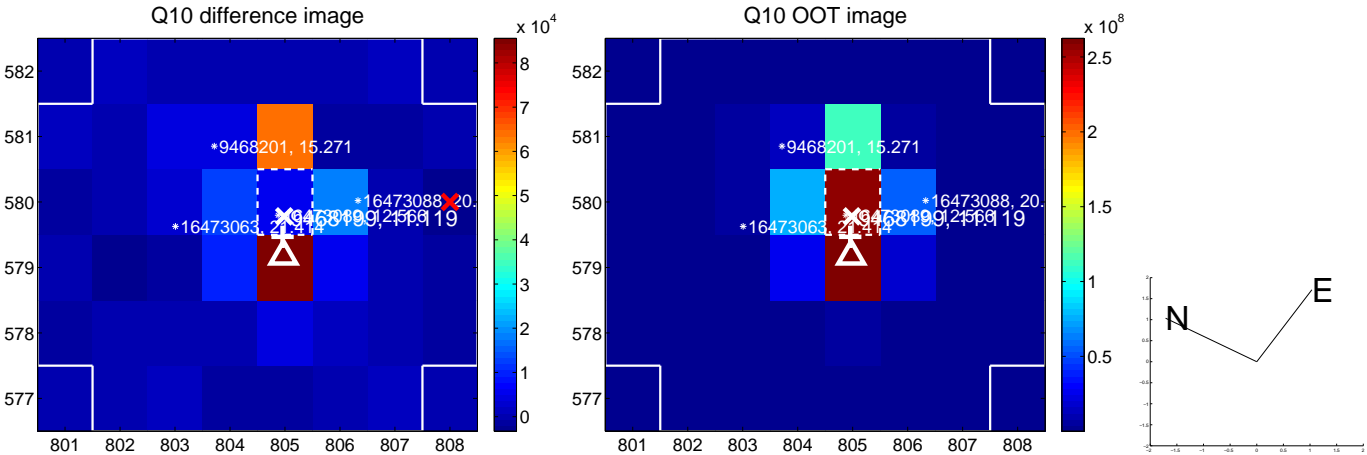
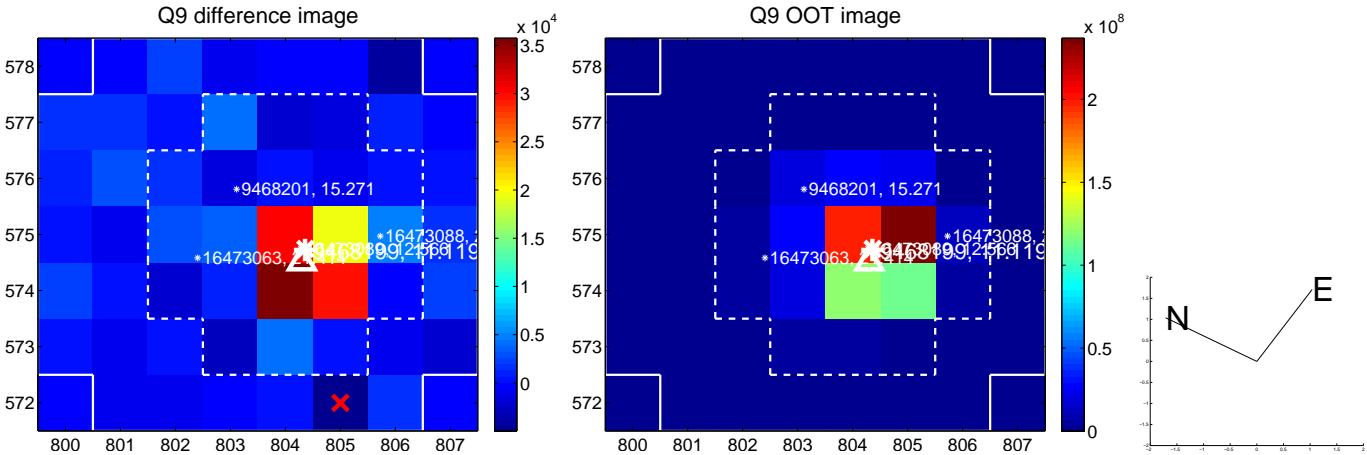
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



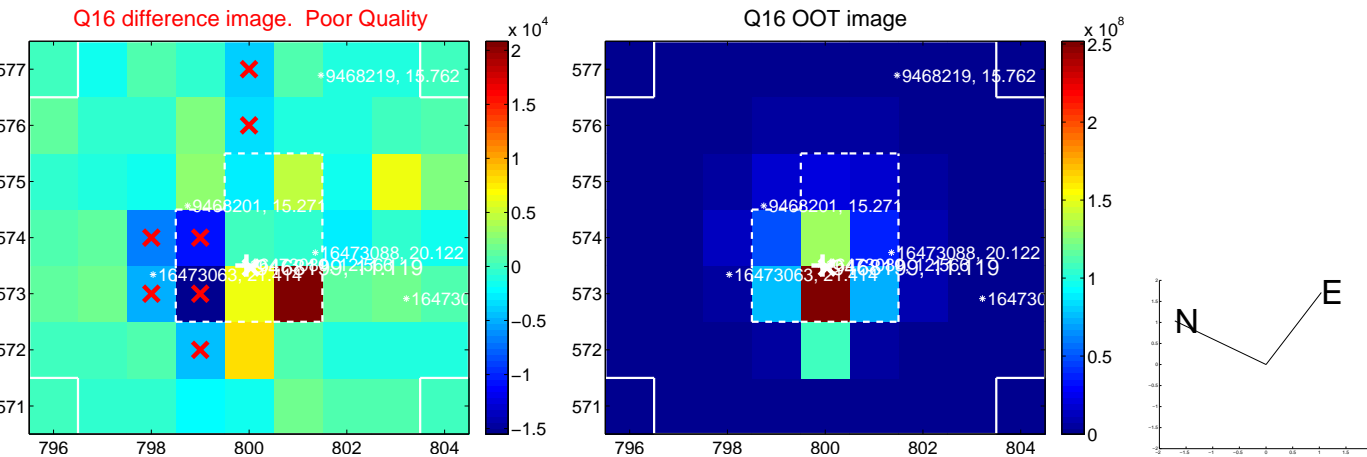
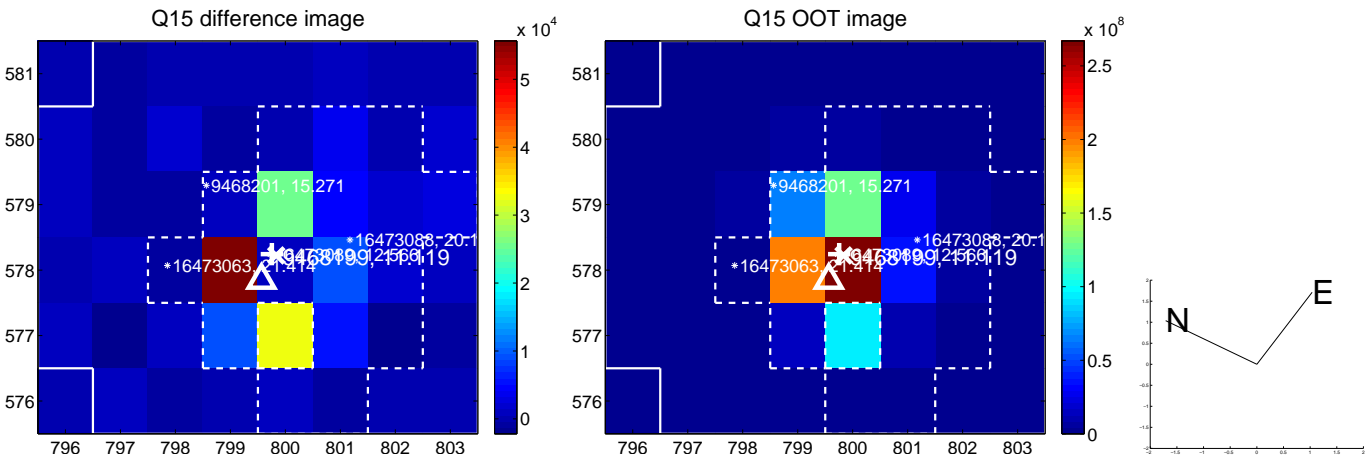
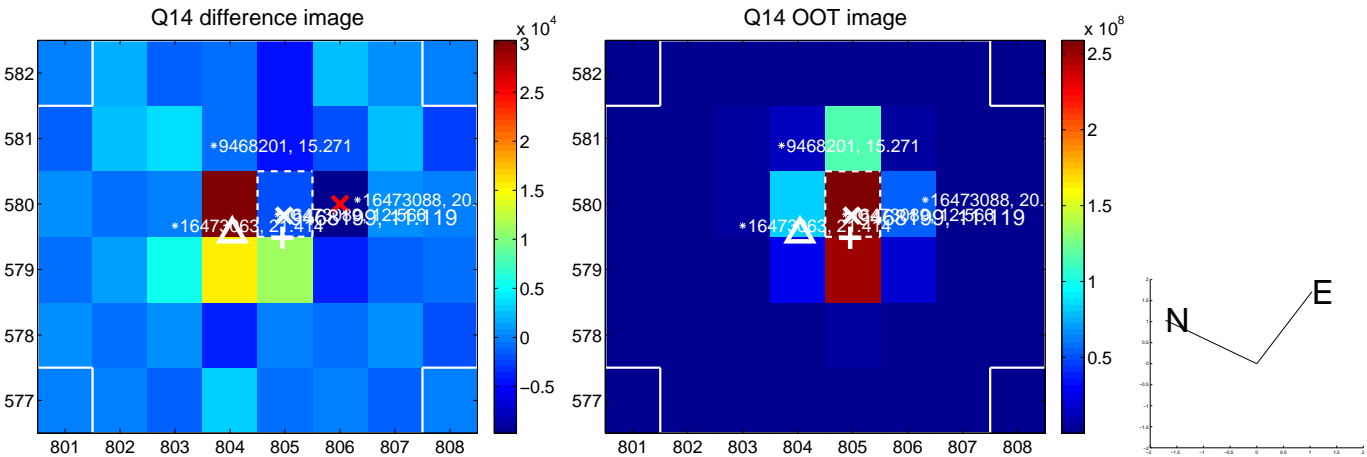
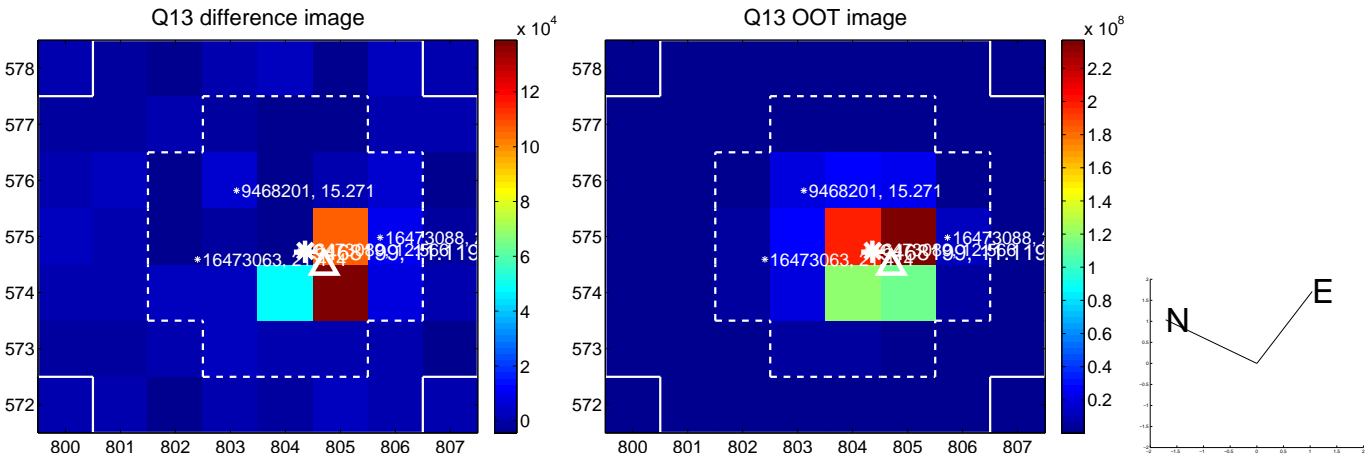
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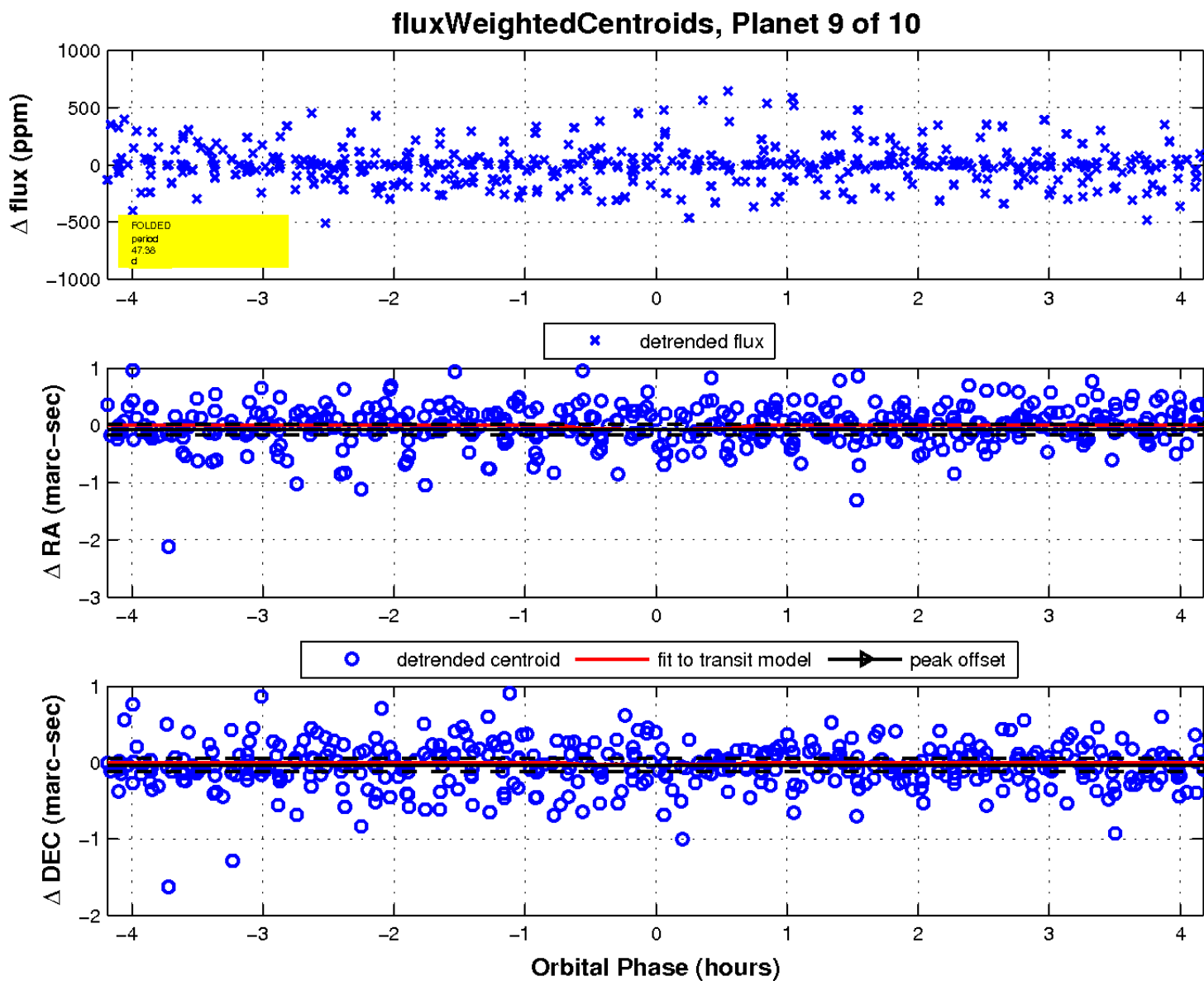
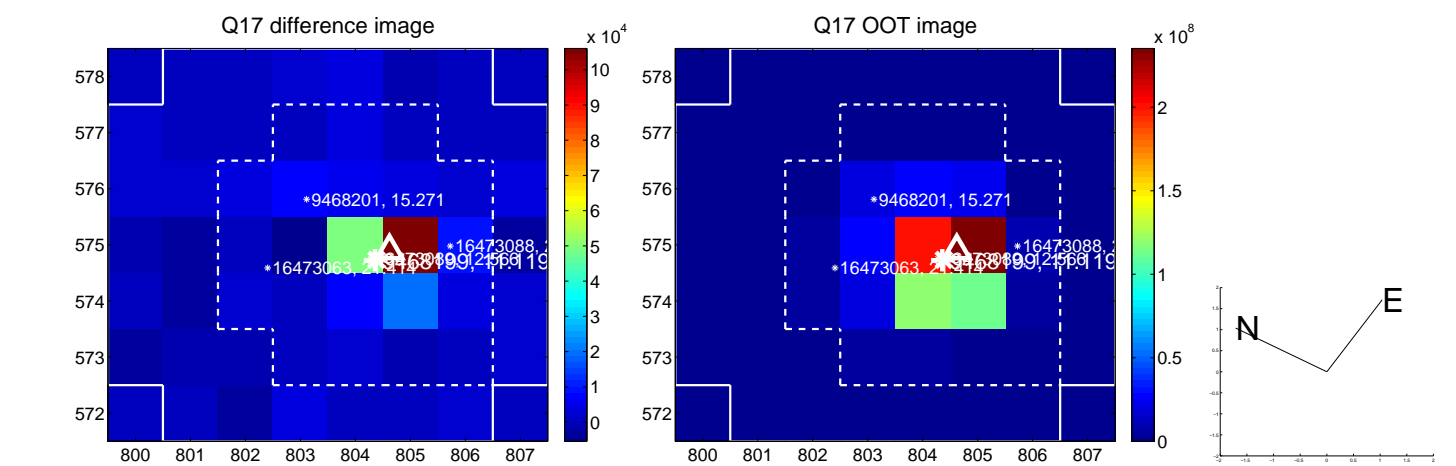
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

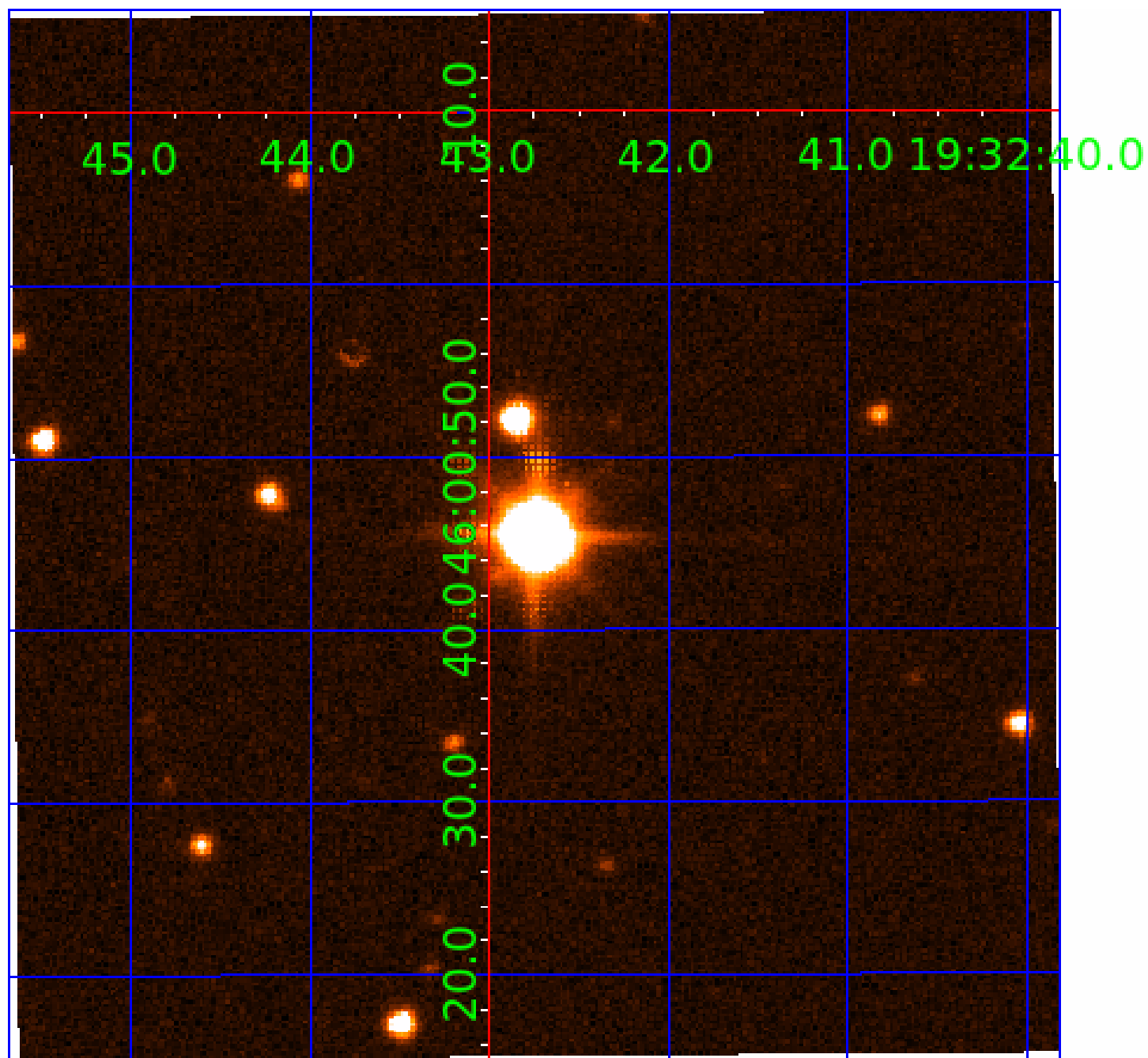


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
009468199-01	OBS	No	105.036093	135.478899	54.4	1.536	38.3	22.9	8.90	5043	6.64	132.93
009468199-02	OBS	No	226.304991	155.667514	41.0	15.641	23.8	10.8	8.90	5043	7.00	47.77
009468199-03	OBS	No	90.989115	135.710649	8.0	2.964	20.9	3.2	8.90	5043	2.67	160.97
009468199-04	OBS	No	159.717357	141.080476	53.9	2.293	20.2	20.2	8.90	5043	8.19	76.02
009468199-05	OBS	No	204.627758	303.272025	59.2	3.608	19.6	18.9	8.90	5043	8.32	54.63
009468199-06	OBS	No	158.707260	164.310584	12.8	2.282	19.2	4.0	8.90	5043	4.09	76.67
009468199-07	OBS	No	305.151155	365.801371	36.3	14.092	17.2	7.9	8.90	5043	6.39	32.07
009468199-09	OBS	No	47.379086	155.957452	47.5	1.396	18.2	15.5	8.90	5043	7.39	384.26
009468199-10	OBS	No	203.493814	148.875032	52.7	5.467	17.5	19.7	8.90	5043	8.00	55.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009468199-01	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—CENT_SATURATED
009468199-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
009468199-03	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_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—HALO_GHOST
009468199-05	OBS	FP	0.00	1	0	1	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—HALO_GHOST
009468199-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
009468199-09	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—CENT_SATURATED
009468199-10	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—CENT_SATURATED

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

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

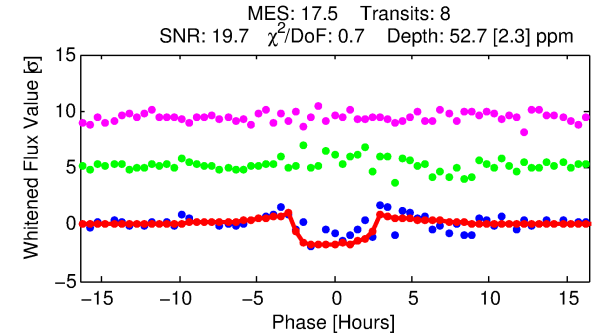
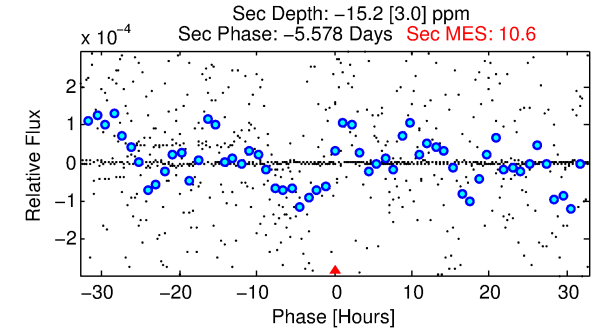
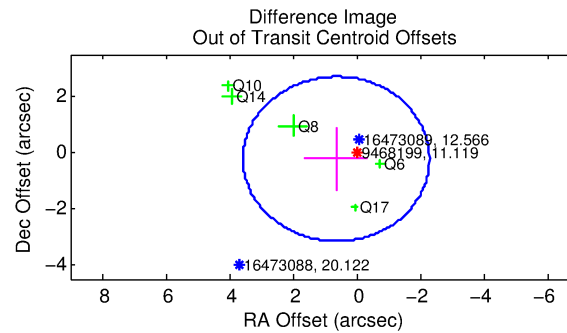
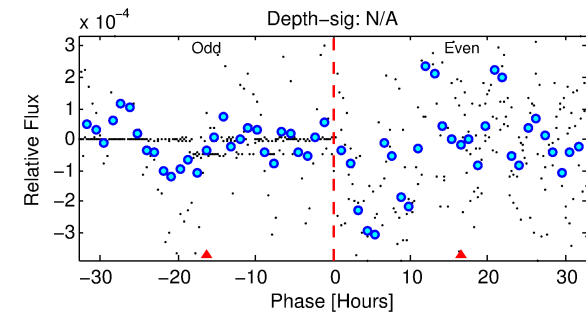
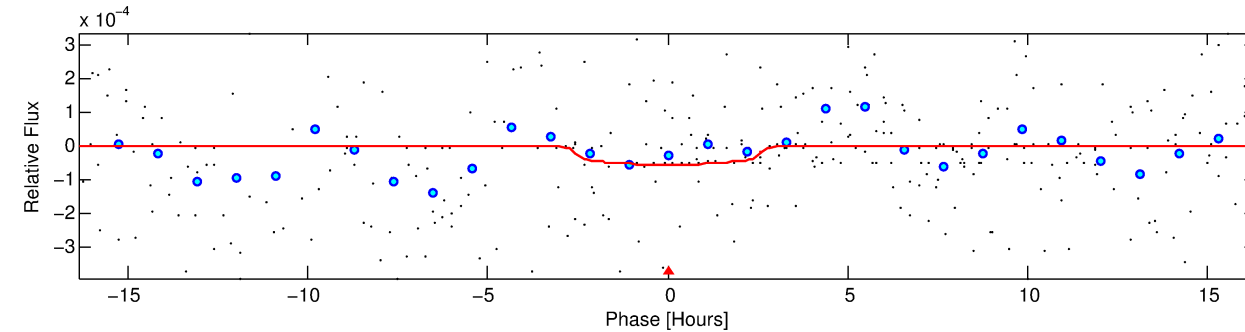
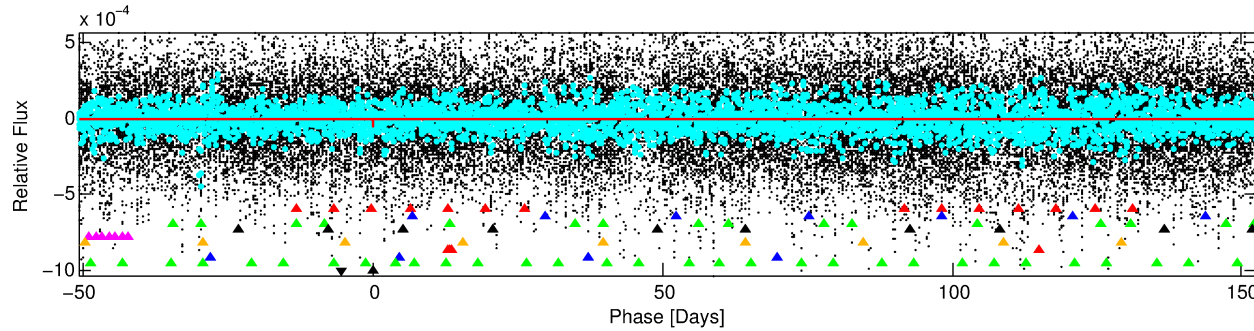
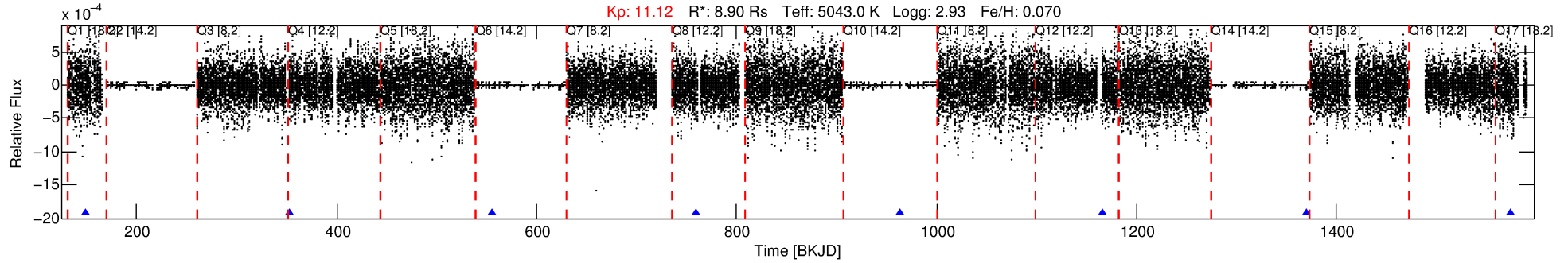
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009468199-10

No Significant Match Found

DV One-Page Summary

KIC: 9468199 Candidate: 10 of 10 Period: 203.494 d



DV Fit Results:

Period = 203.49381 [0.00121] d
Epoch = 148.8750 [0.0043] BKJD
Rp/R* = 0.0082 [0.0009]
a/R* = 120.20 [55.09]
b = 0.92 [0.08]
Seff = 55.04 [22.77]
Teff = 695 [72] K
Rp = 8.00 [3.16] Re
a = 0.9137 [0.2713] AU
Ag = N/A
Teffp = N/A

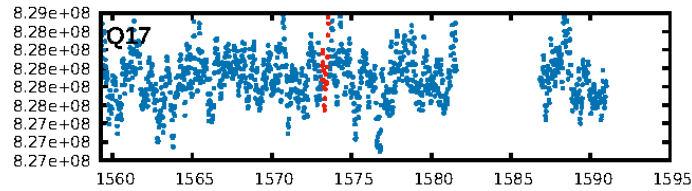
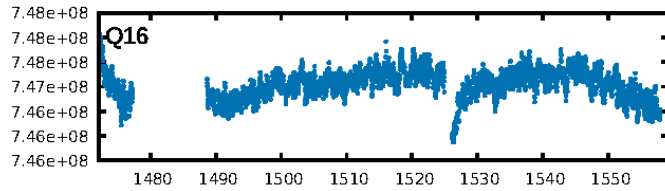
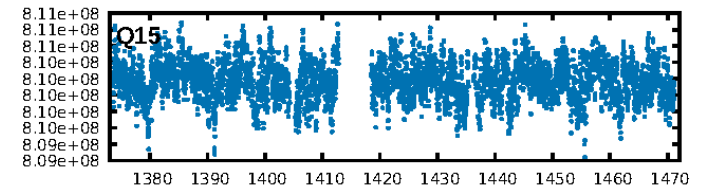
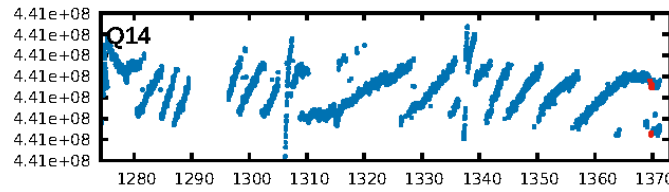
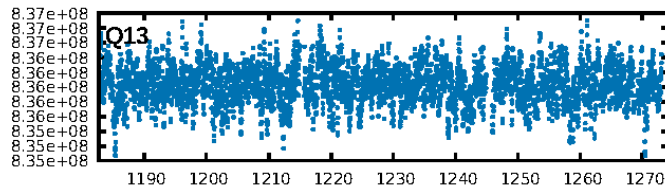
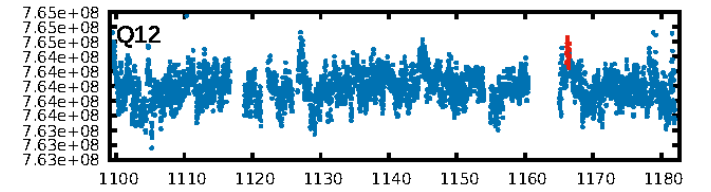
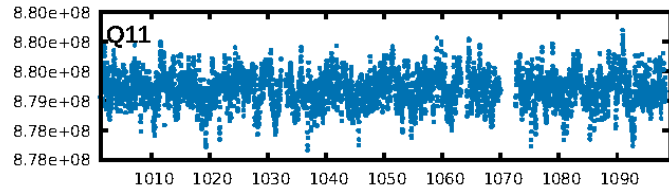
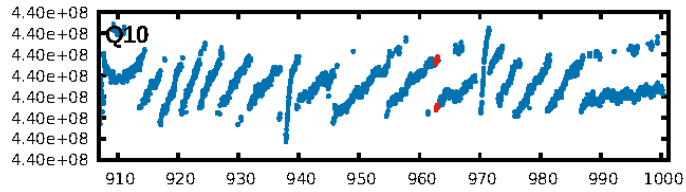
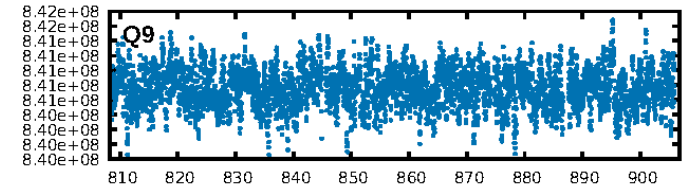
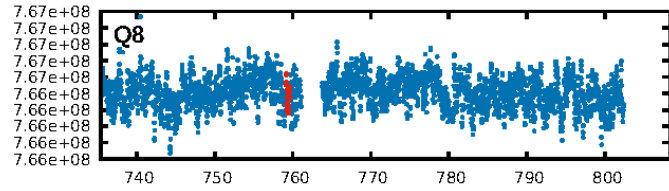
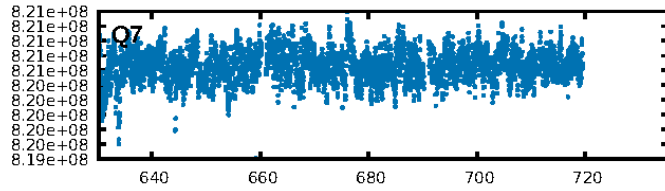
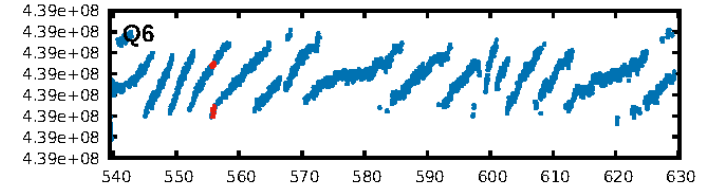
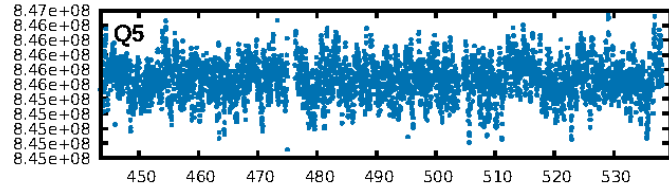
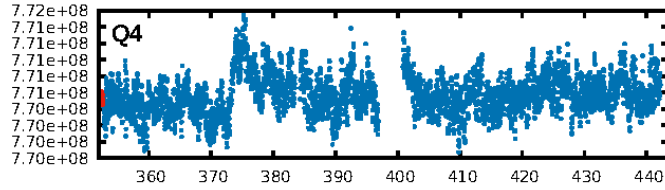
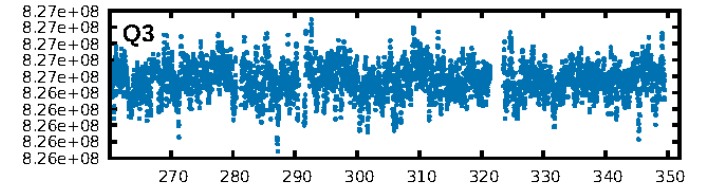
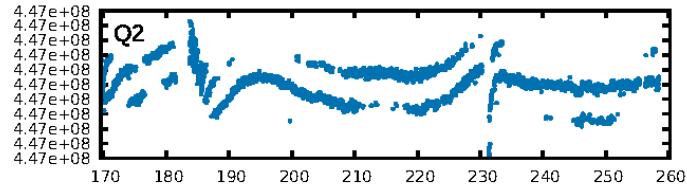
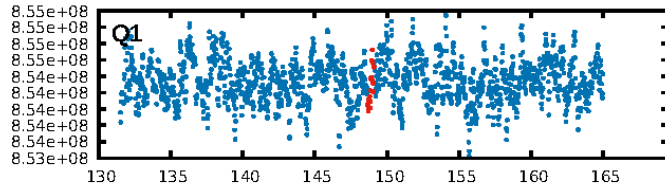
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [177.23σ]
LongPeriod-sig: 100.0% [4.15σ]
ModelChiSquare2-sig: 58.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 18.27
Centroid-sig: 25.5%
Centroid-so: 1.831 arcsec [0.94σ]
OotOffset-rm: 0.673 arcsec [0.69σ]
OotOffset-st: 3/0/1/1 [5]
KicOffset-rm: 0.544 arcsec [0.56σ]
KicOffset-st: 3/0/1/1 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.83 [5/6]

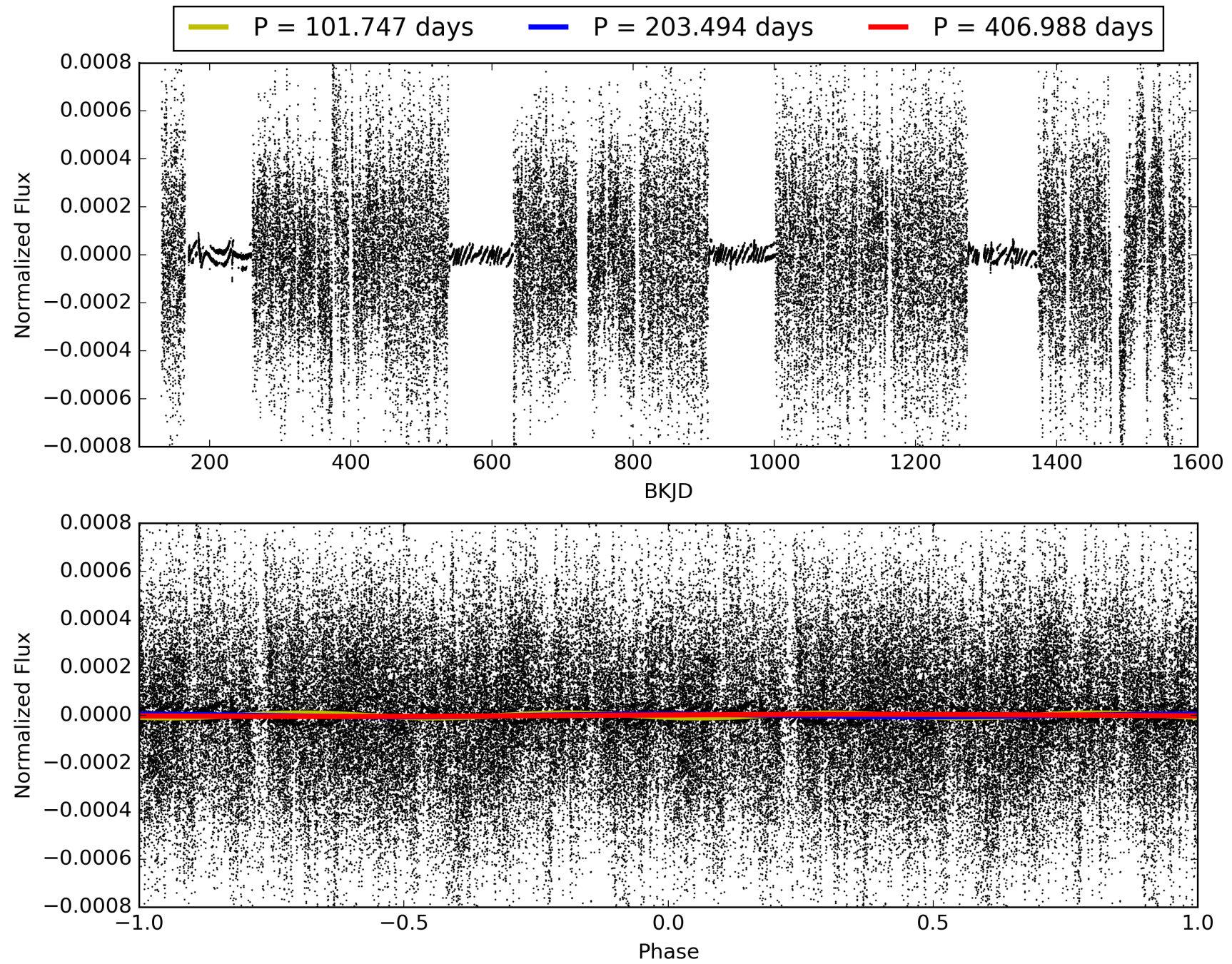
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 18:52:48 Z

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

TCE 009468199-10, PDC Light Curves

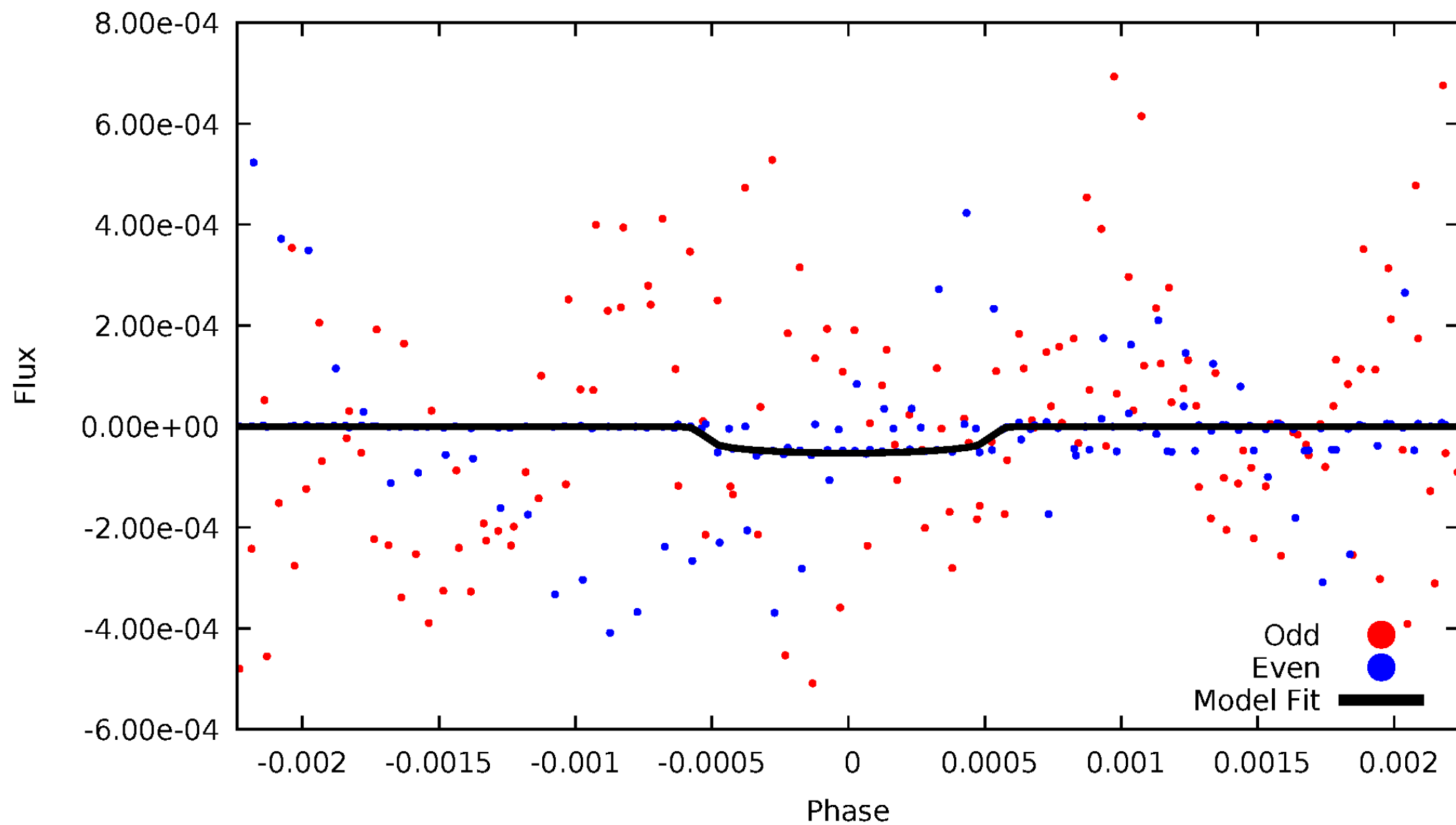


TCE 009468199-10



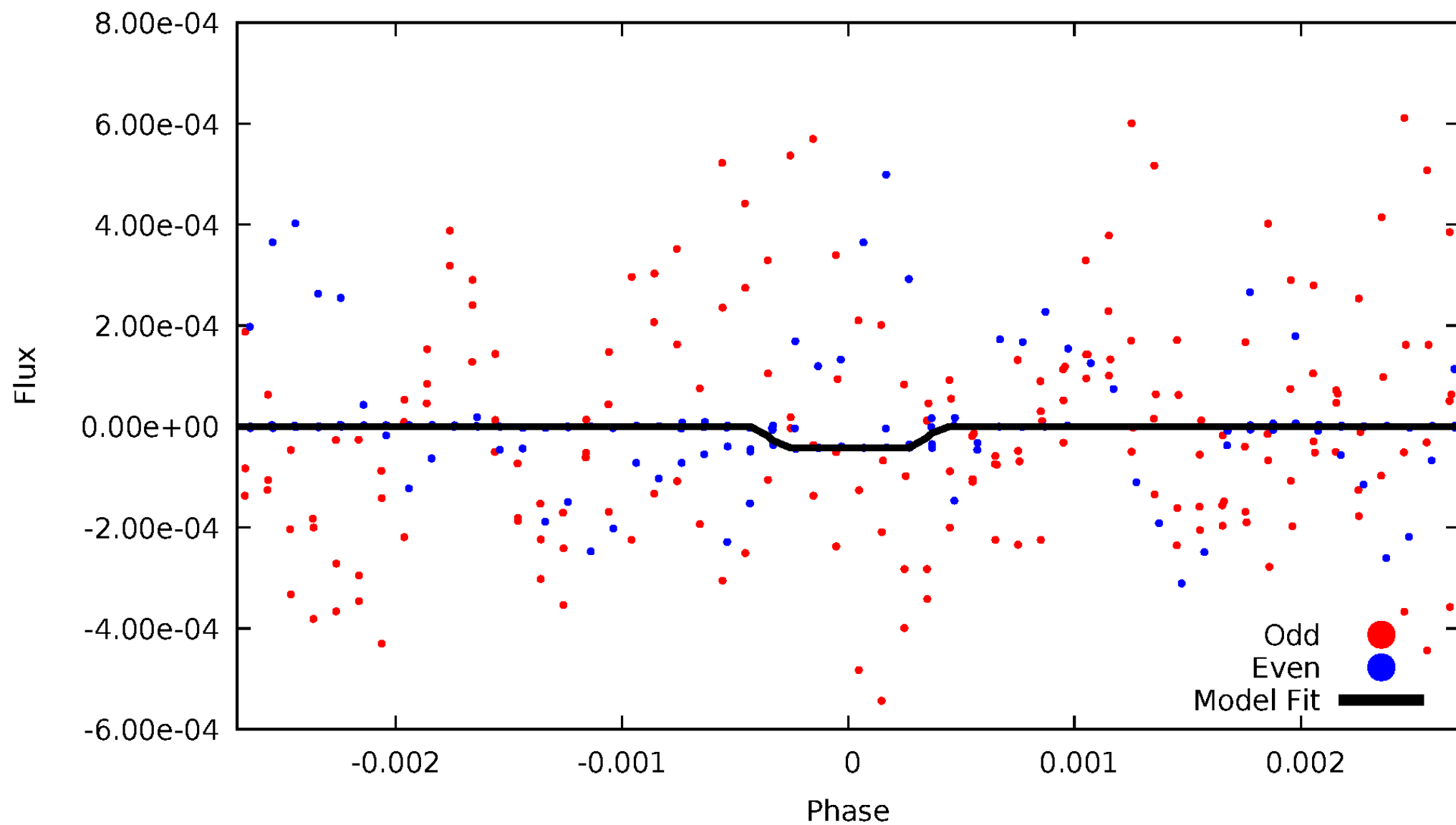
DV Odd/Even

TCE 009468199-10



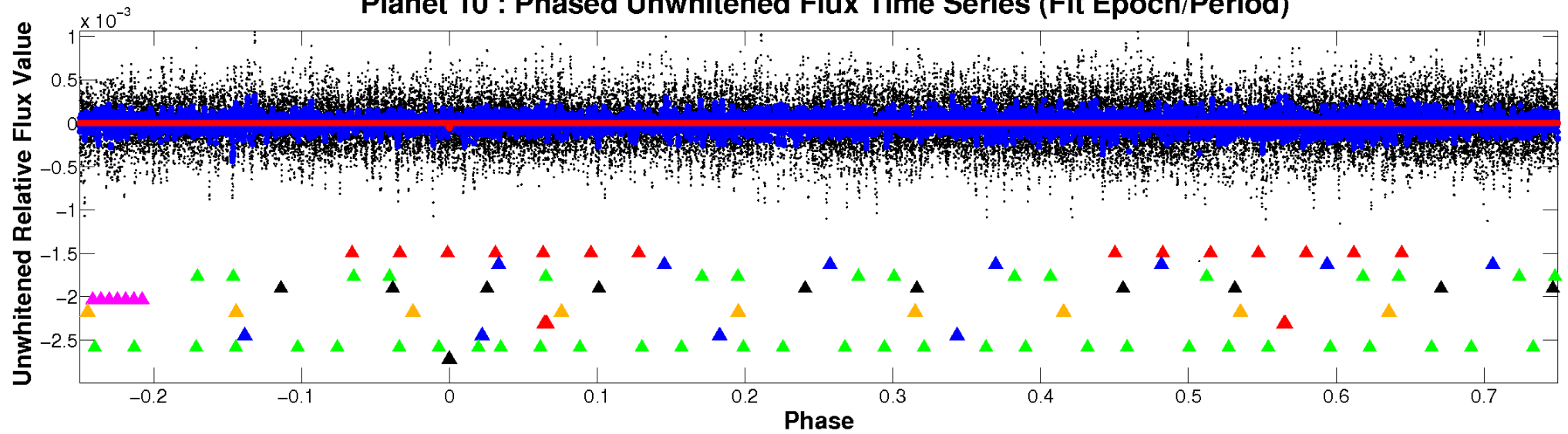
ALT Odd/Even

TCE 009468199-10

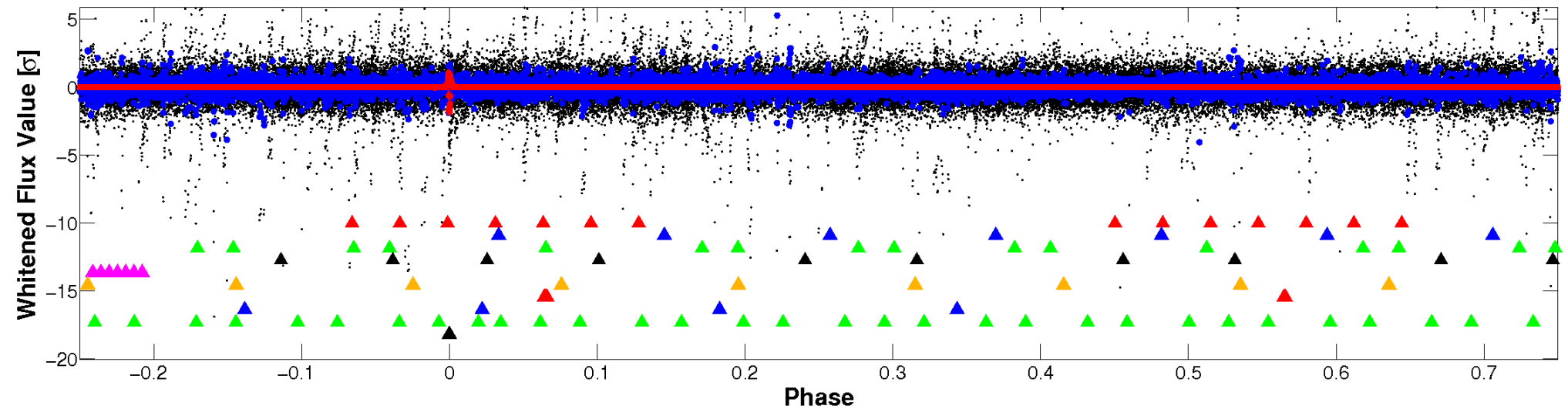


Non-Whitened Vs. Whitened Light Curve

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

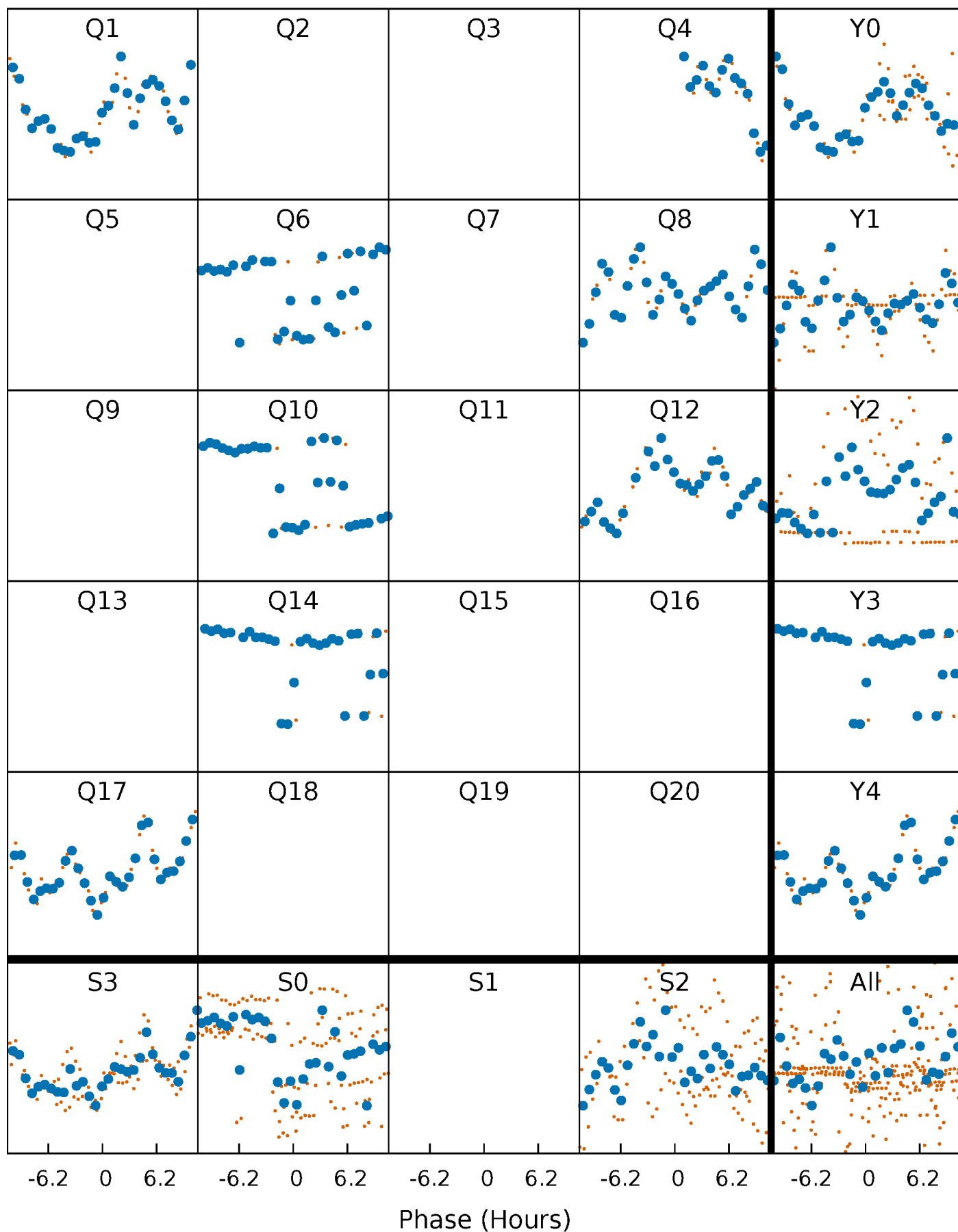


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



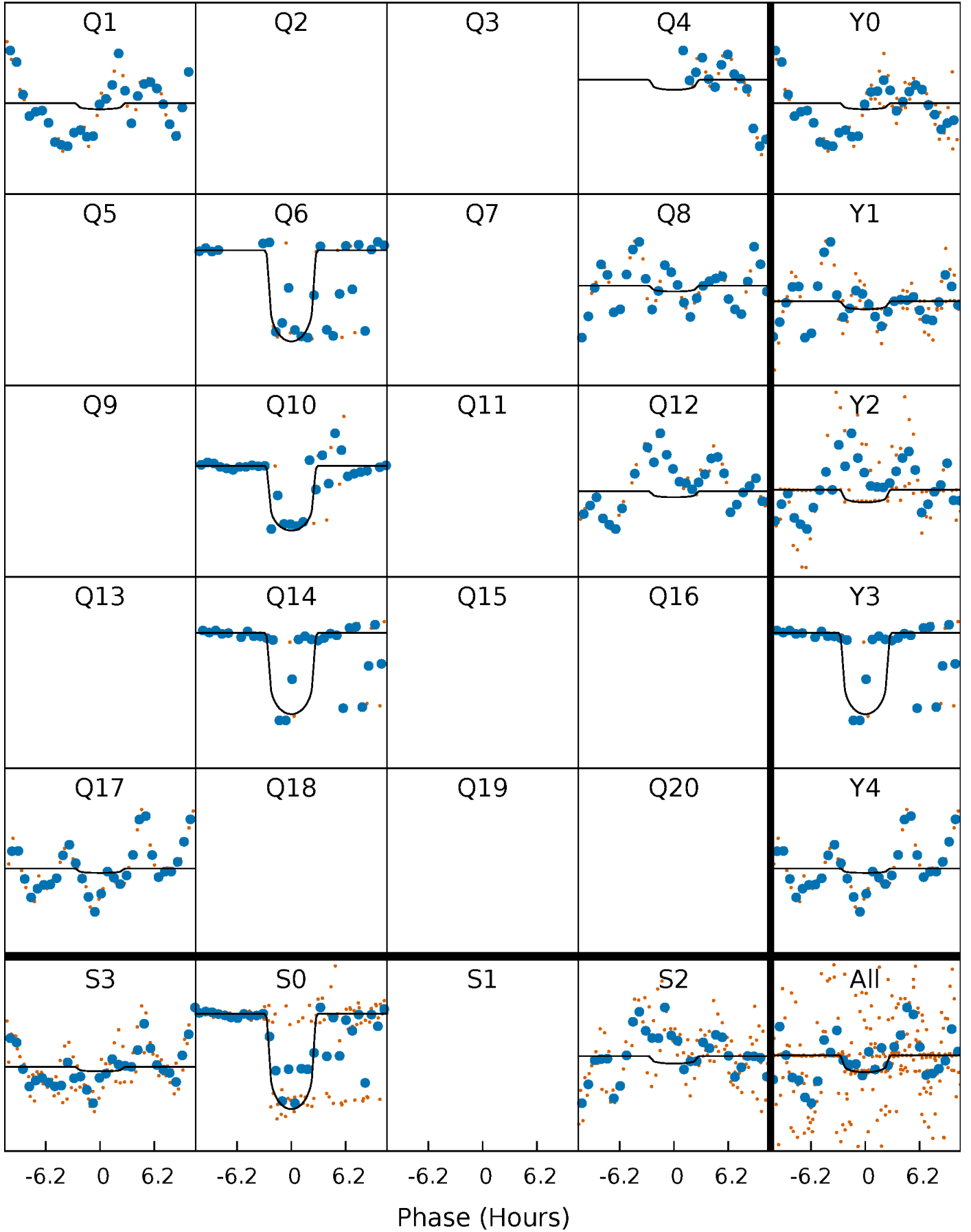
PDC Quarter-Phased Transit Curves

TCE 009468199-10 P=203.493814 Days $T_0=148.875032$ (BKJD)



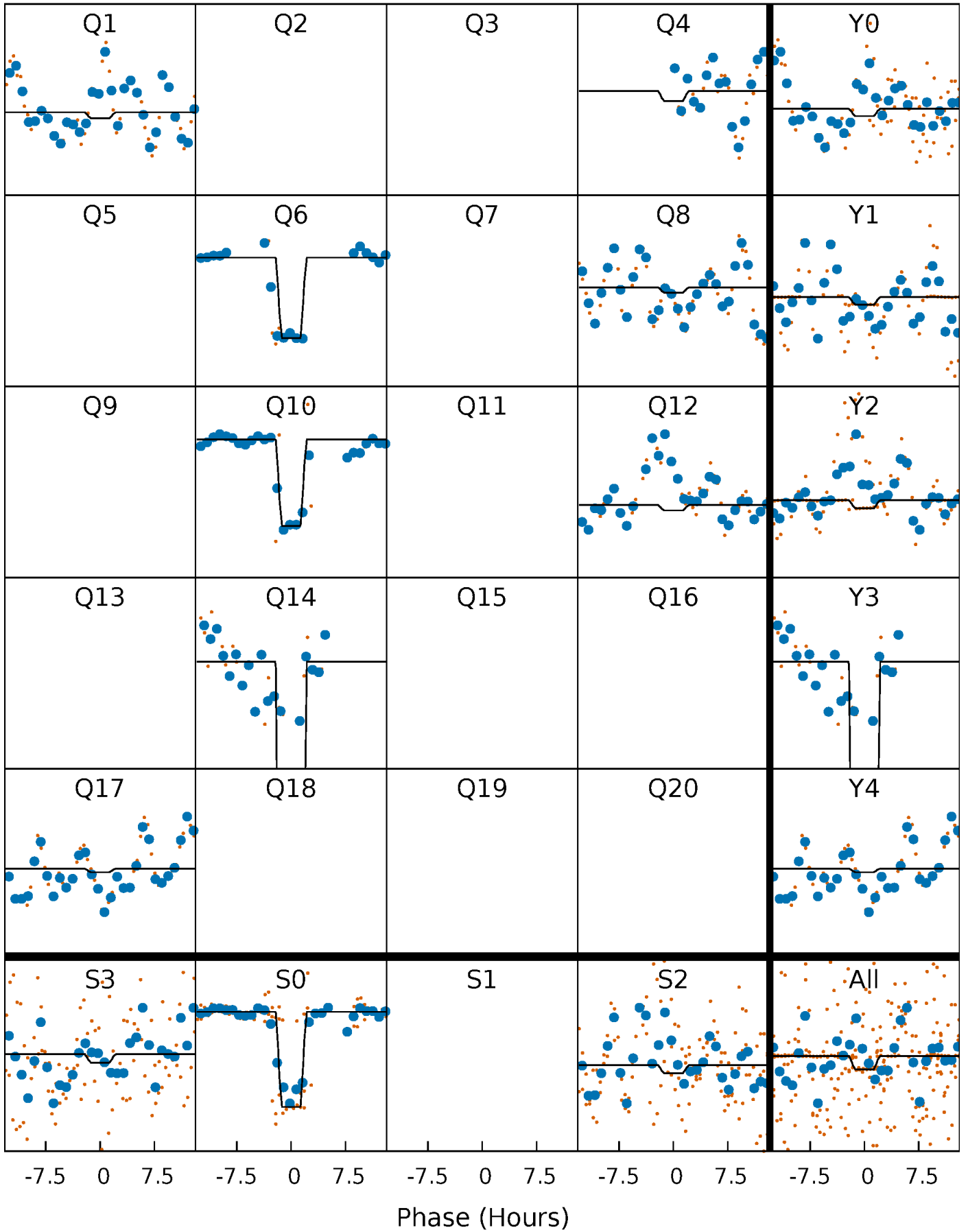
DV Quarter-Phased Transit Curves

TCE 009468199-10 P=203.493814 Days $T_0=148.875032$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

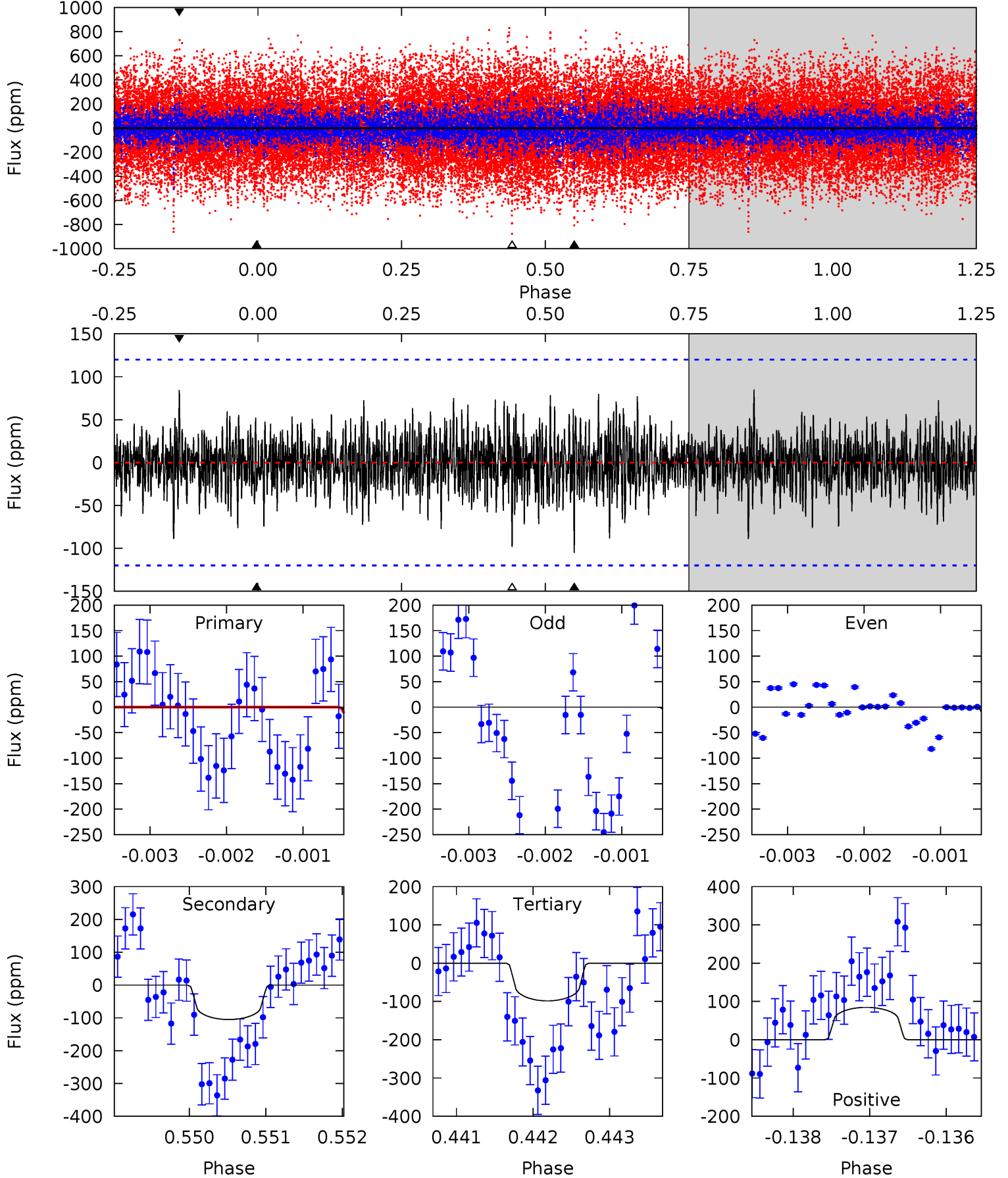
TCE 009468199-10 P=203.478029 Days $T_0=148.928997$ (BKJD)



DV Model-Shift Uniqueness Test

009468199-10, P = 203.493814 Days, E = 148.875032 Days

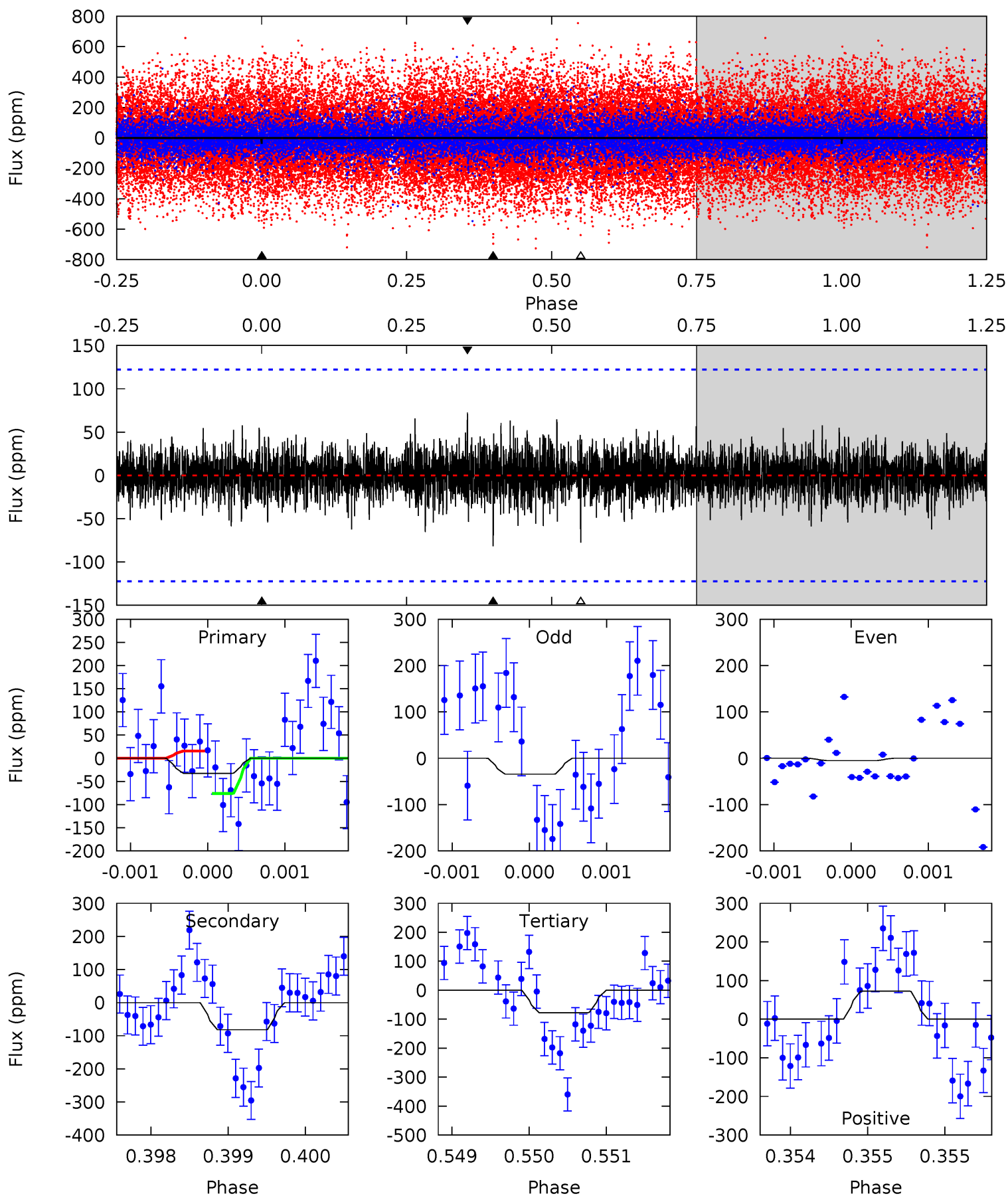
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.25	4.75	4.45	3.82	5.42	3.25	1.15	-3.20	-2.57	0.30	0.93	0.55	0.51	0.45	0.76



Alt Model-Shift Uniqueness Test

009468199-10, P = 203.478029 Days, E = 148.928997 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.46	3.67	3.49	3.27	5.49	3.35	0.83	-2.02	-1.80	0.18	0.41	0.74	-0.11	0.47	1.37



Stellar Parameters For KIC 009468199

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5043^{+22}_{-127}	$2.929^{+0.203}_{-0.166}$	$0.070^{+0.100}_{-0.200}$	$8.905^{+2.762}_{-3.376}$	$2.459^{+0.287}_{-1.146}$	$0.005^{+0.008}_{-0.002}$
	+0%/-3%	+7%/-6%	+143%/-286%	+31%/-38%	+12%/-47%	+167%/-49%
Source	SPE74	SPE74	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 009468199-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-105 ± 22	$7.86^{+1.69}_{-1.74}$	962^{+72}_{-72}	5523^{+420}_{-373}	759^{+433}_{-256}
Alt.	-82 ± 22	$6.17^{+1.59}_{-1.31}$	968^{+67}_{-85}	5811^{+578}_{-556}	931^{+677}_{-363}

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

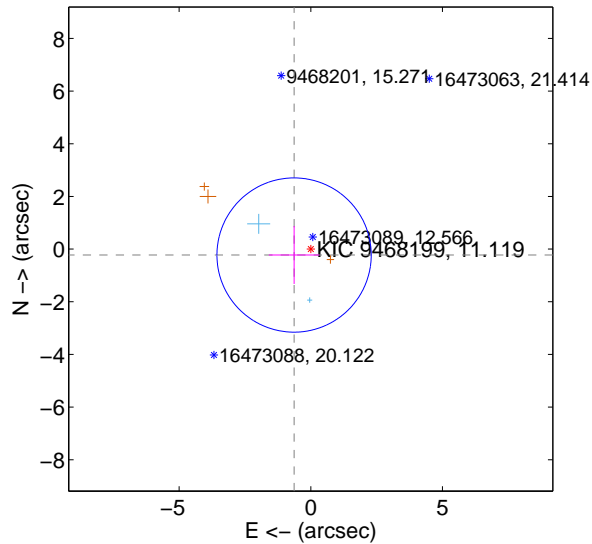
Supplemental centroid analysis for 009468199-10. **Kepler magnitude: 11.12.** Transit SNR 19.73

There are 2 quarters with good PRF difference image offsets

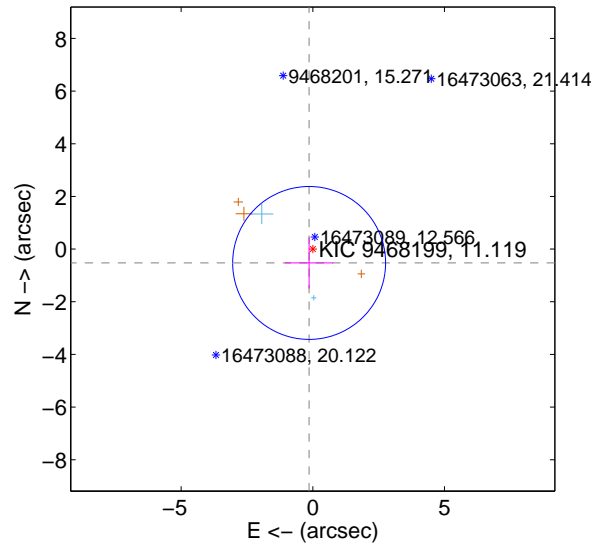
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.673 ± 0.976	0.69	0.634 ± 0.959	-0.226 ± 1.100
PRF-fit source offset from KIC position	0.544 ± 0.968	0.56	0.140 ± 0.922	-0.526 ± 0.971
photometric centroid source offset	1.83 ± 1.94	0.94	1.35 ± 2.13	1.24 ± 1.69

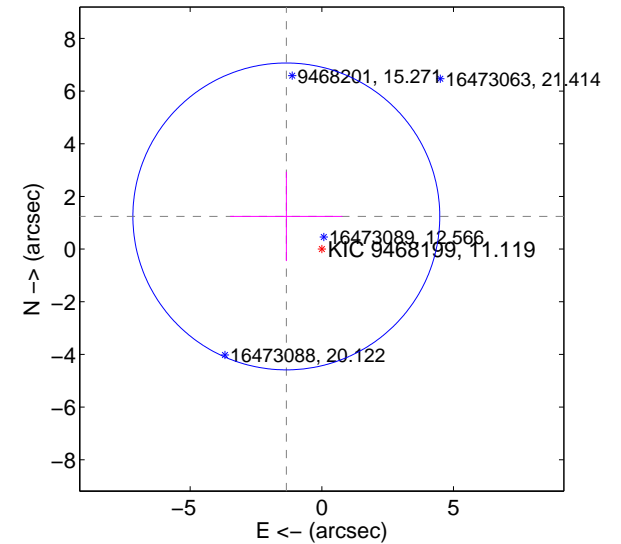
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

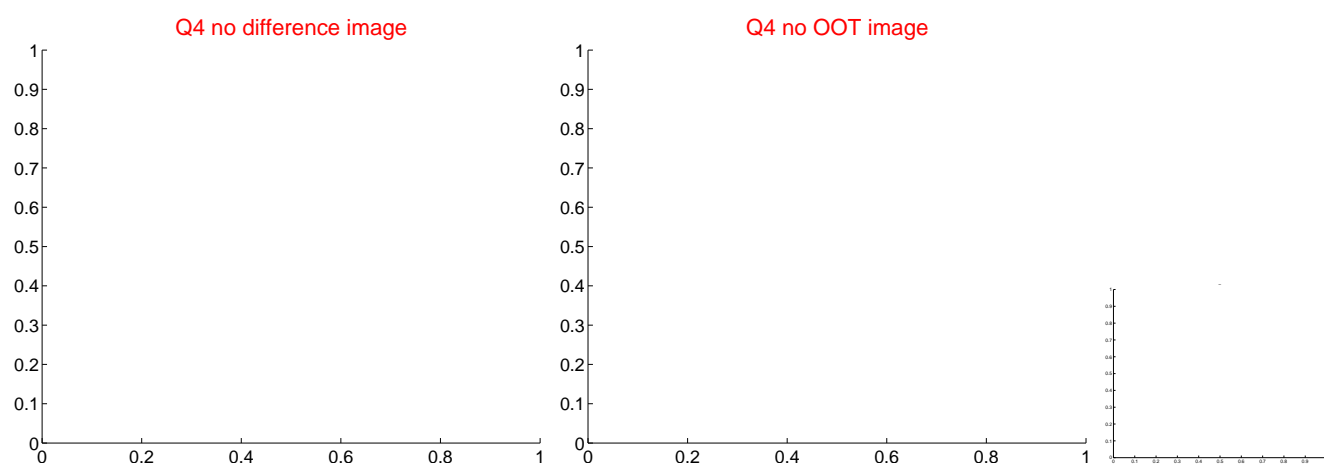
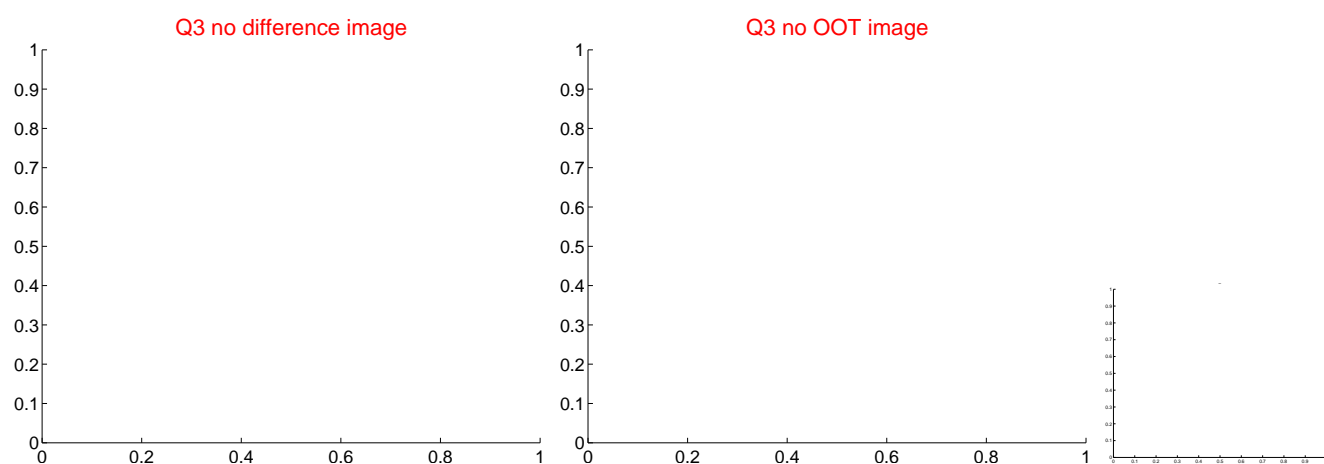
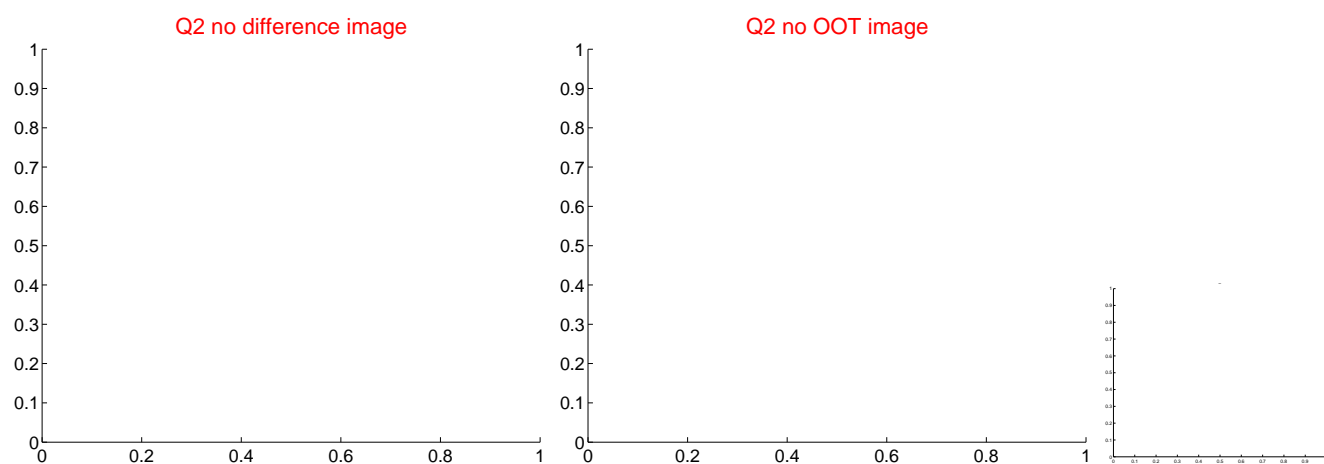
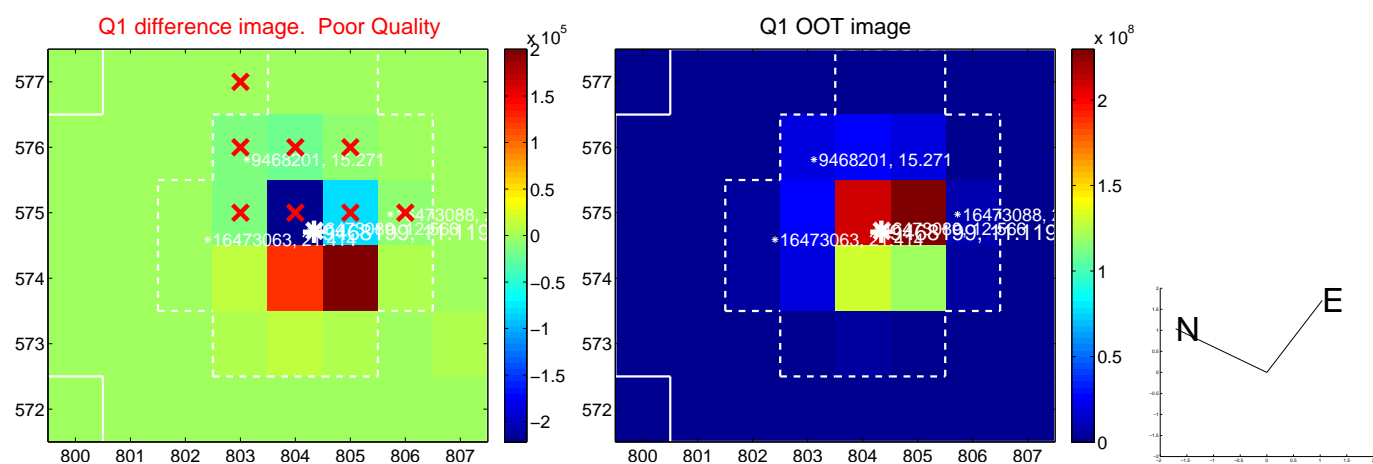


offset from photometric centroids

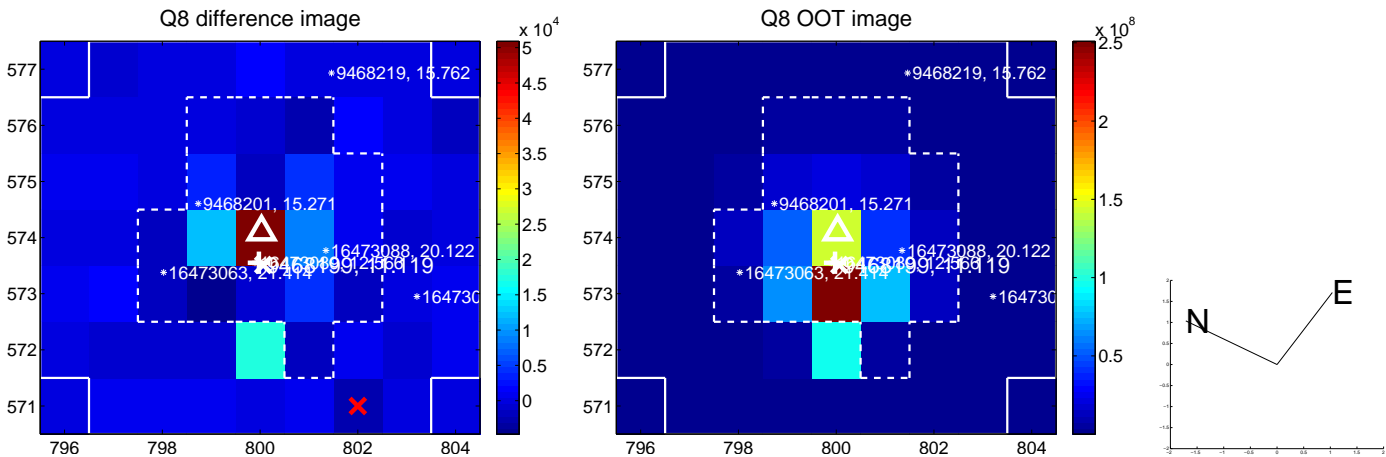
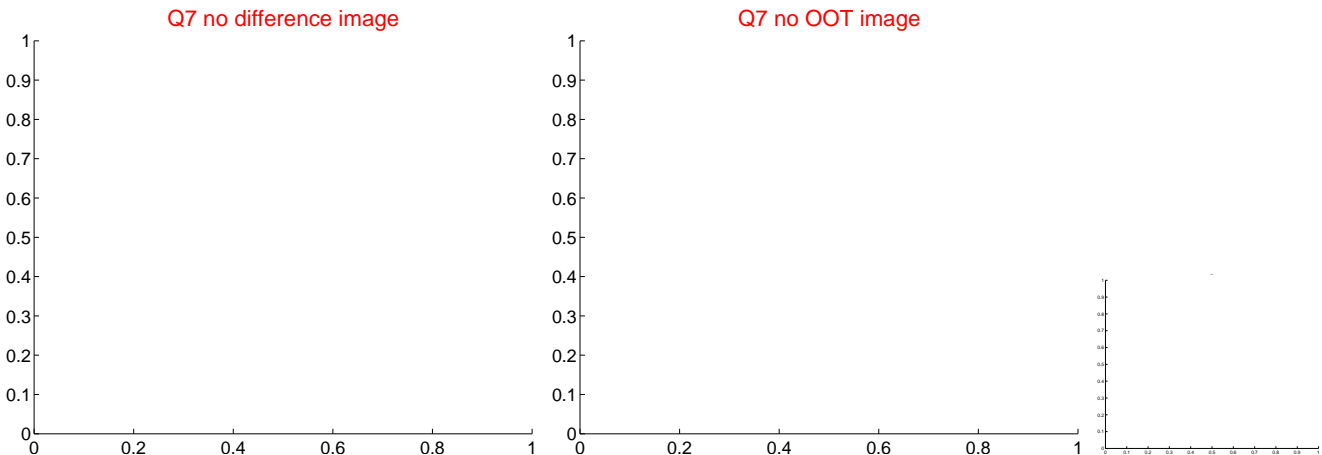
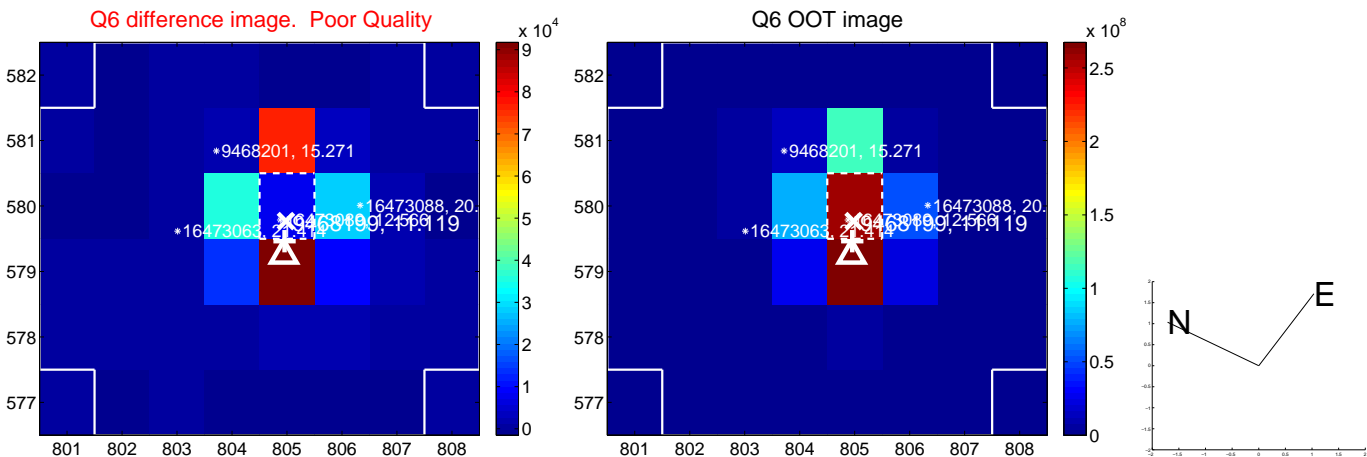
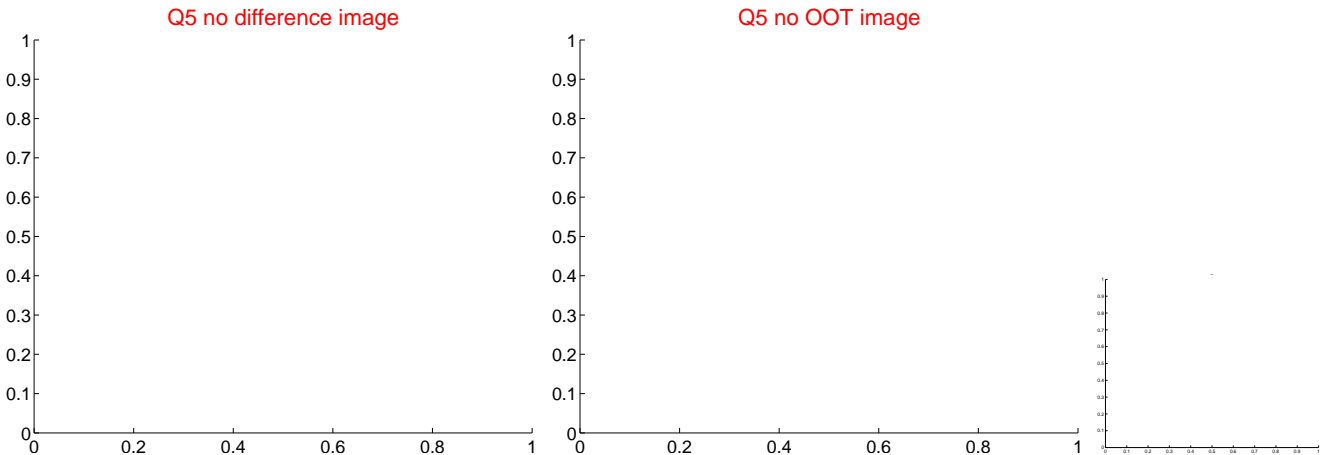


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

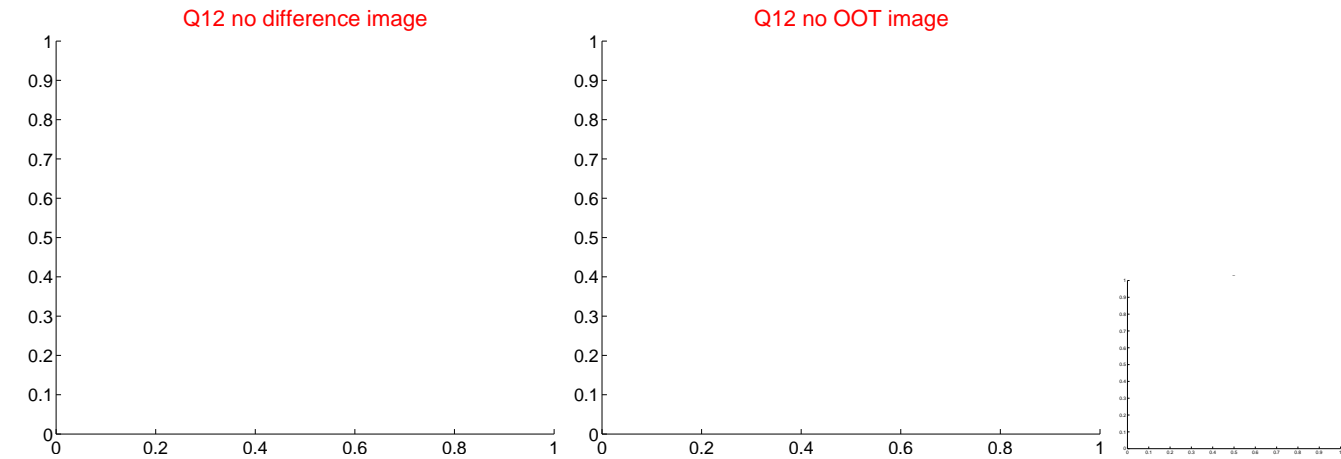
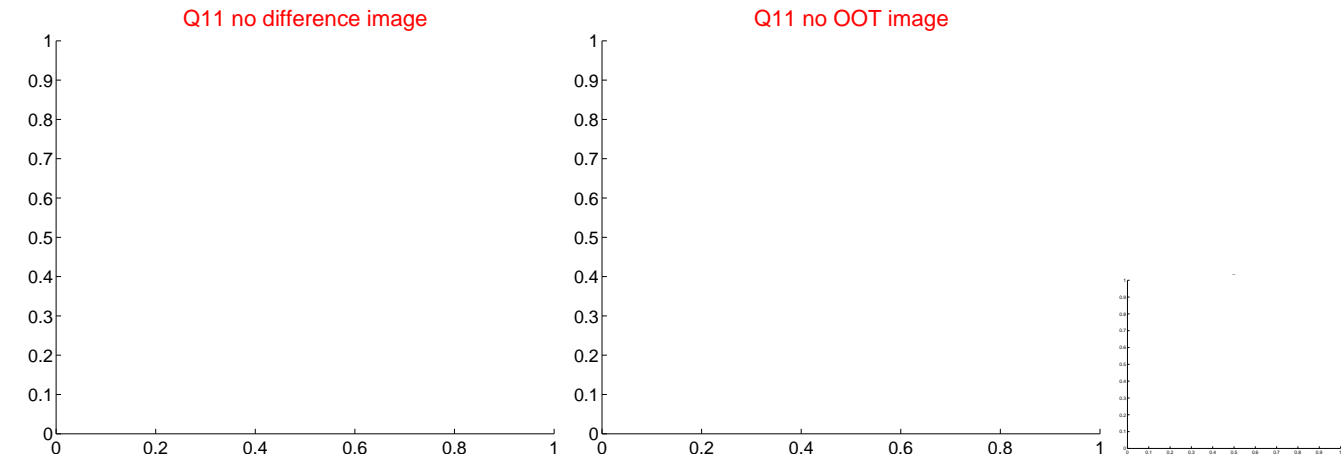
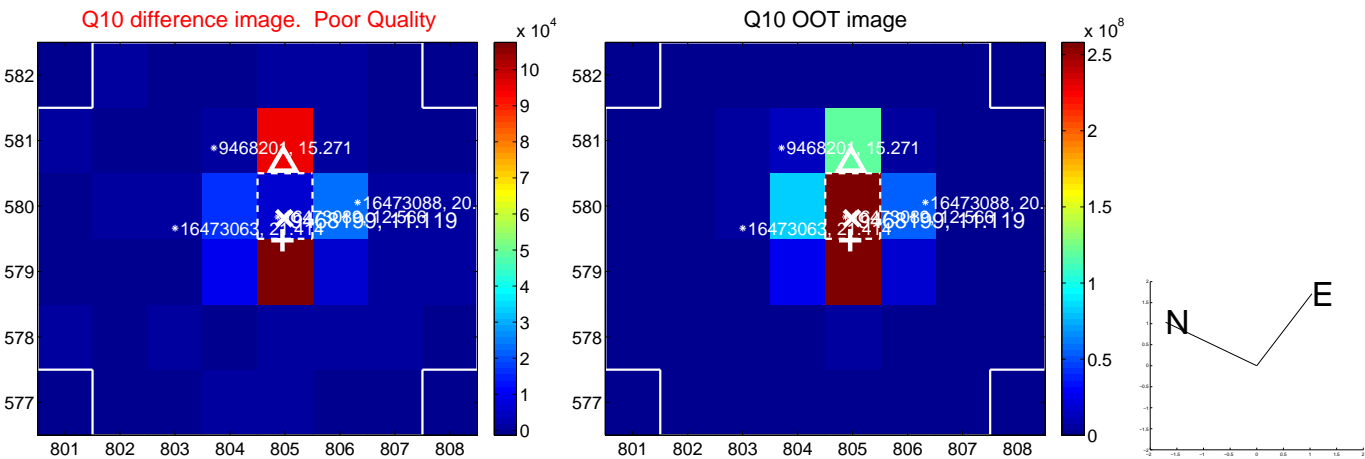
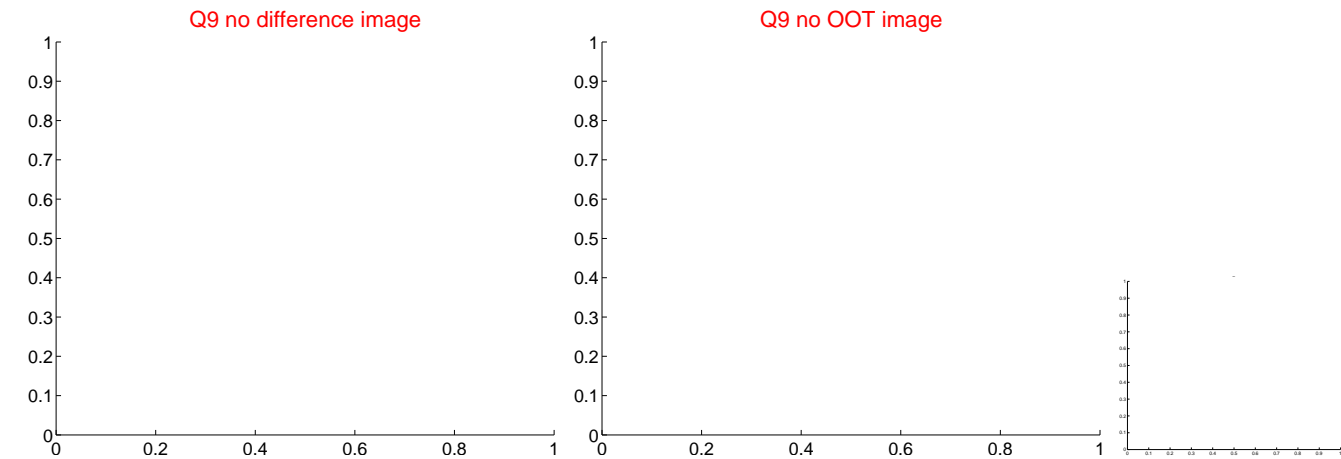
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



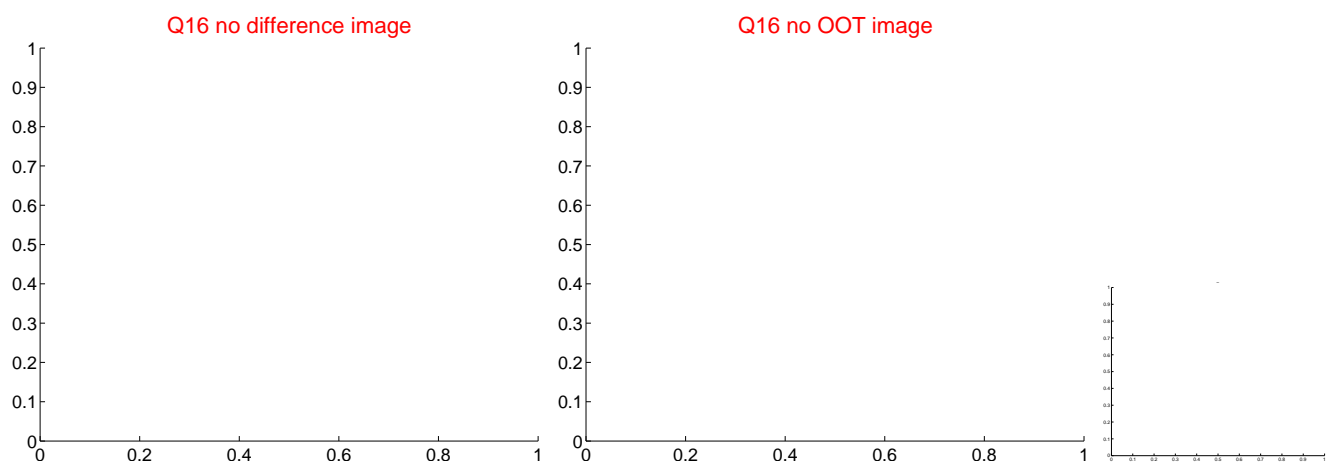
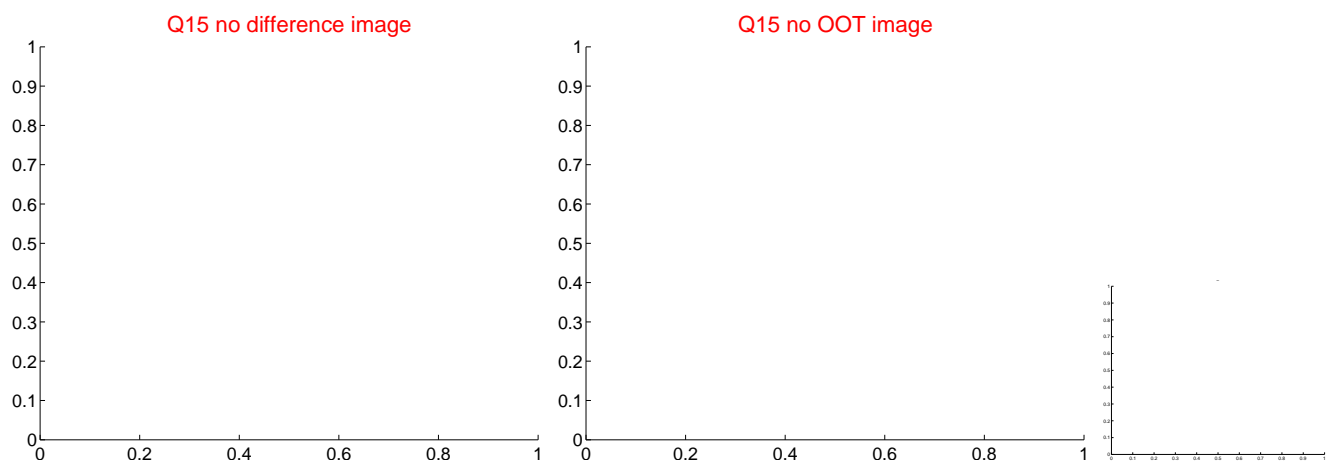
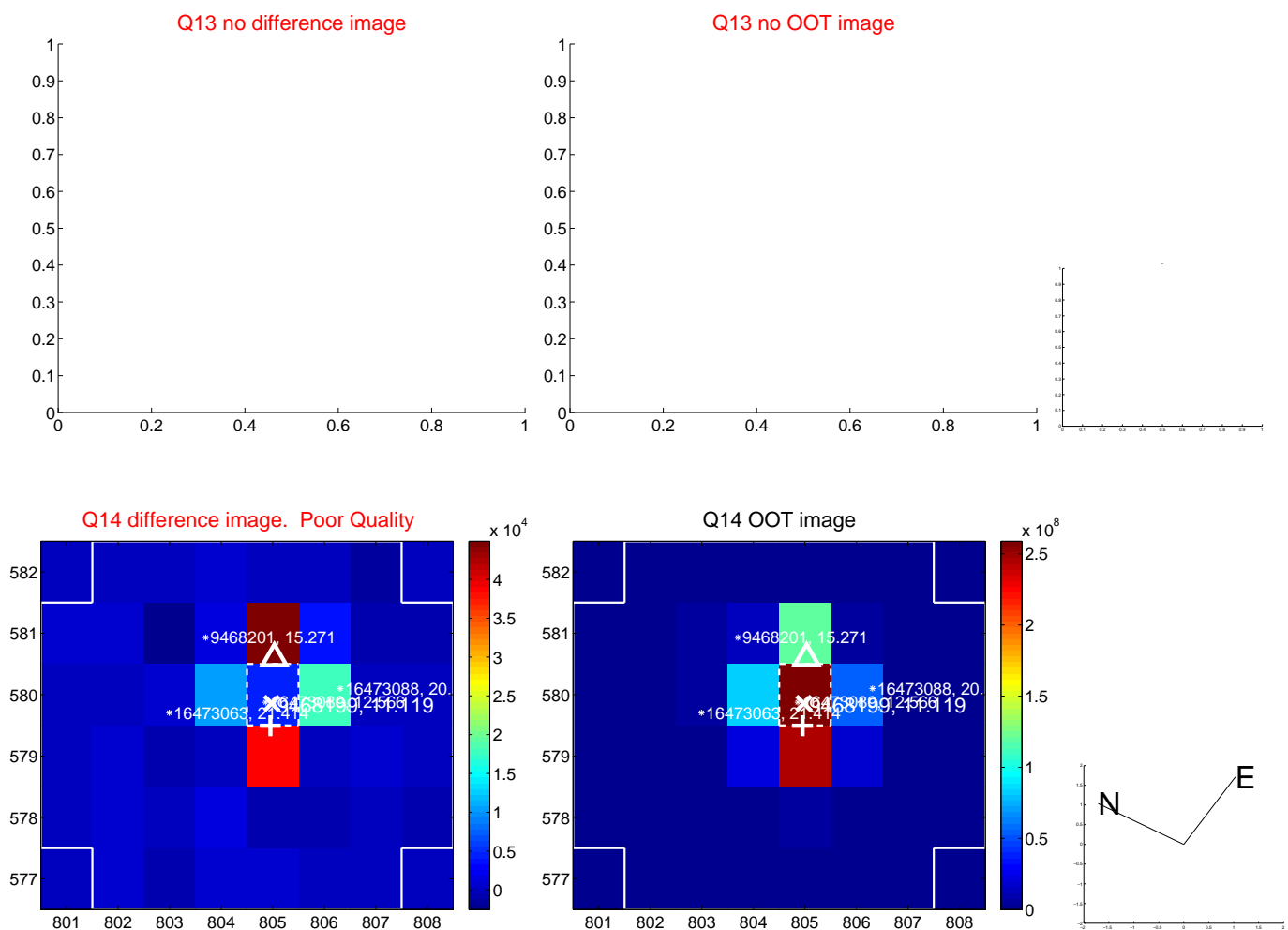
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



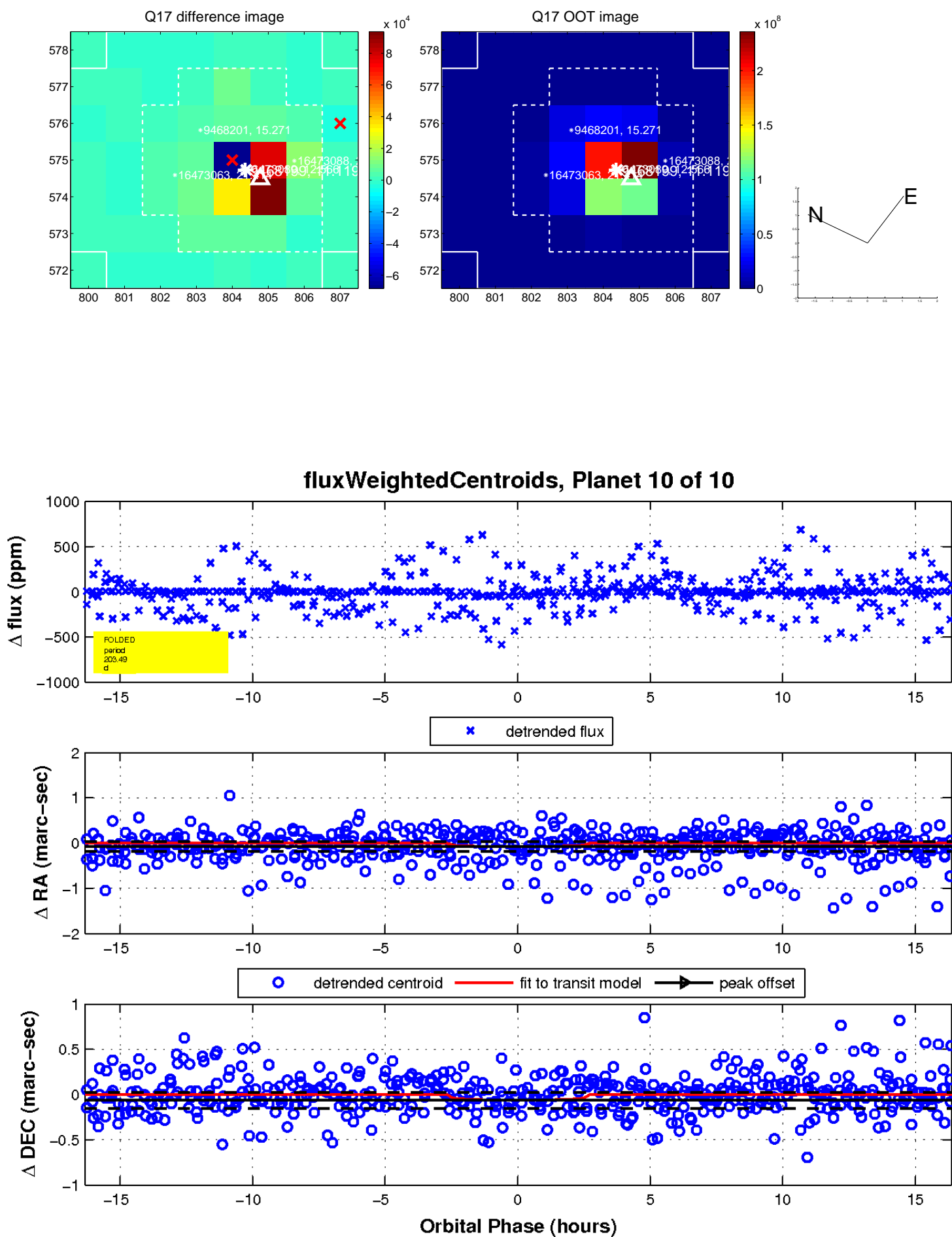
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

