

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})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

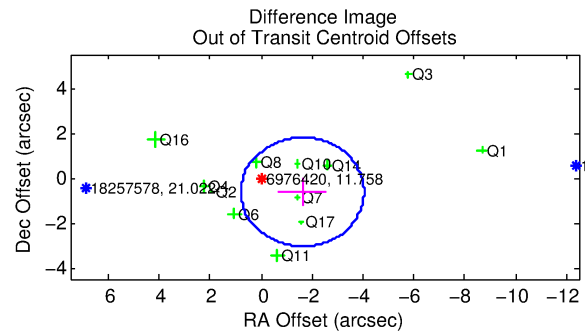
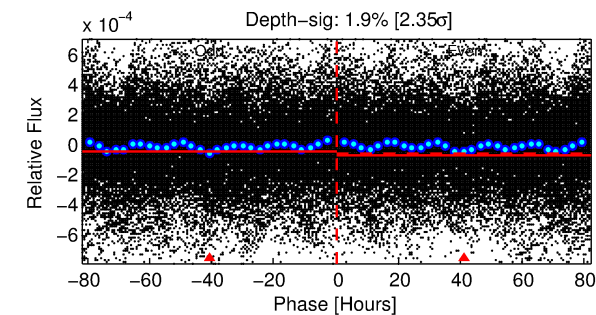
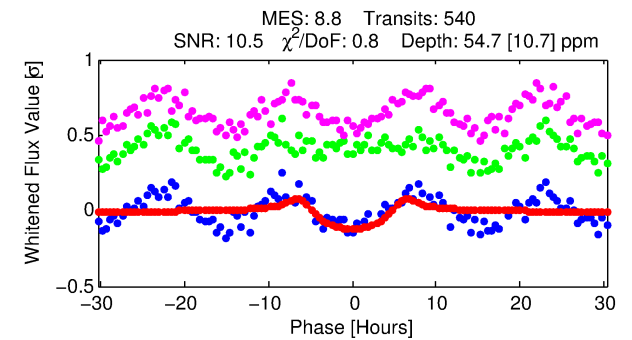
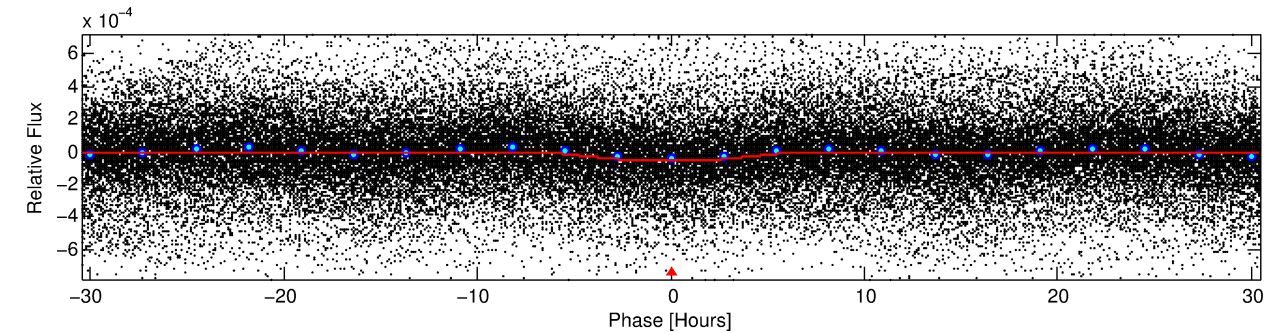
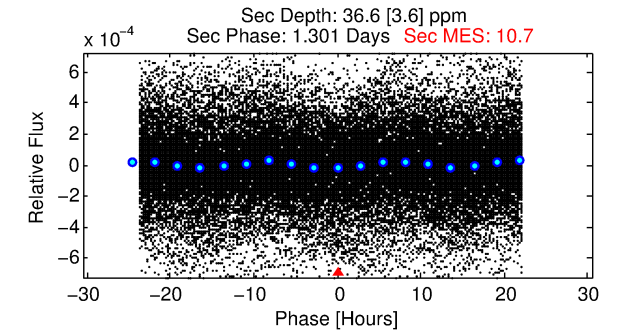
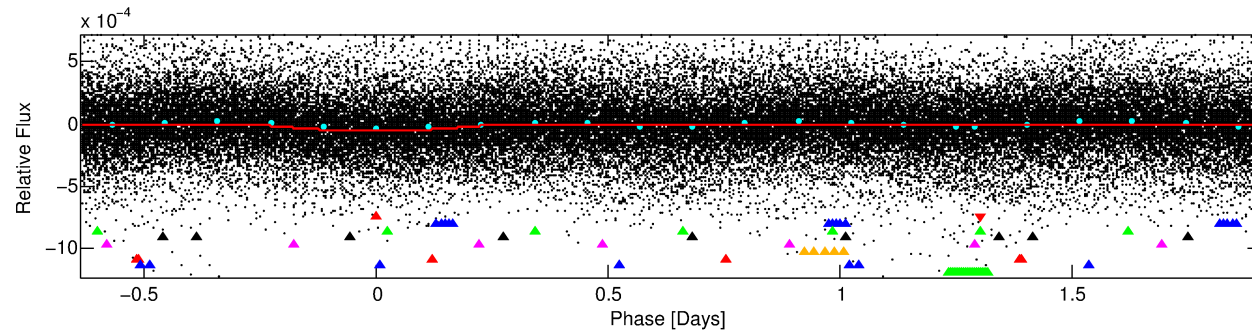
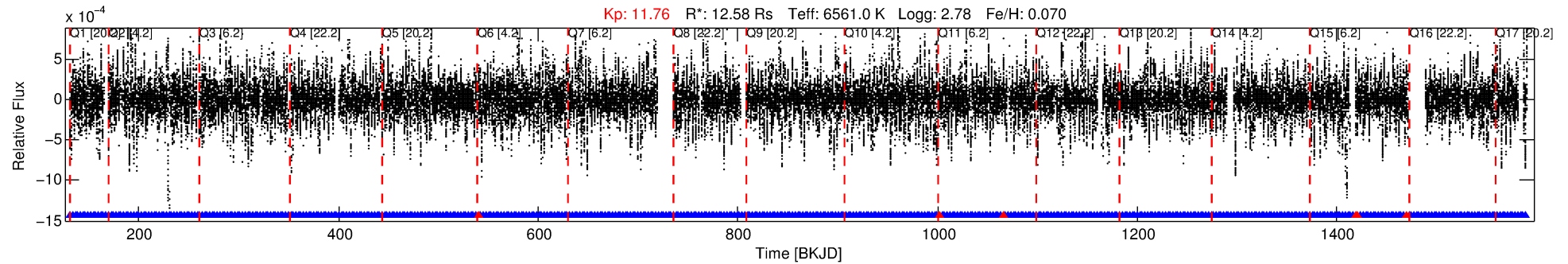
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-01

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 1 of 9 Period: 2.539 d



DV Fit Results:

Period = 2.53861 [0.00005] d
Epoch = 131.5824 [0.0169] BKJD
Rp/R* = 0.0100 [0.0016]
a/R* = 1.03 [0.01]
b = 0.99 [0.00]
Seff = N/A
Teq = N/A
Rp = 13.69 [7.82] Re
a = N/A
Ag = N/A
Teffp = N/A

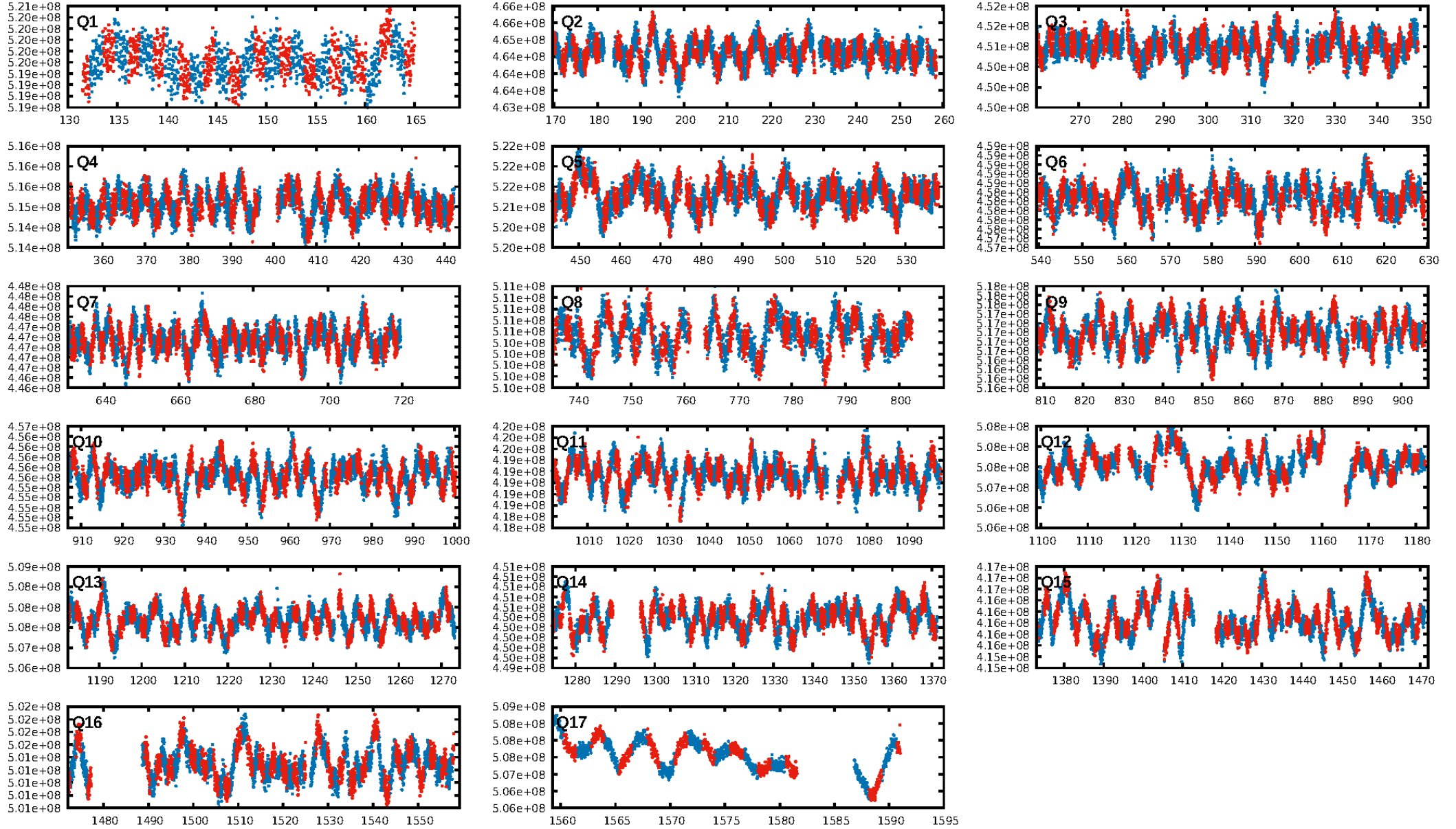
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [509/515]
GhostDiagnostic-chr: 0.434
Centroid-sig: 3.5%
Centroid-so: 2.794 arcsec [2.93σ]
OotOffset-rm: 1.746 arcsec [2.16σ]
KicOffset-rm: 1.397 arcsec [1.34σ]
OotOffset-st: 4/3/3/2 [12]
KicOffset-st: 4/3/3/2 [12]
DiffImageQuality-fgm: 0.33 [4/12]
DiffImageOverlap-fno: 1.00 [17/17]

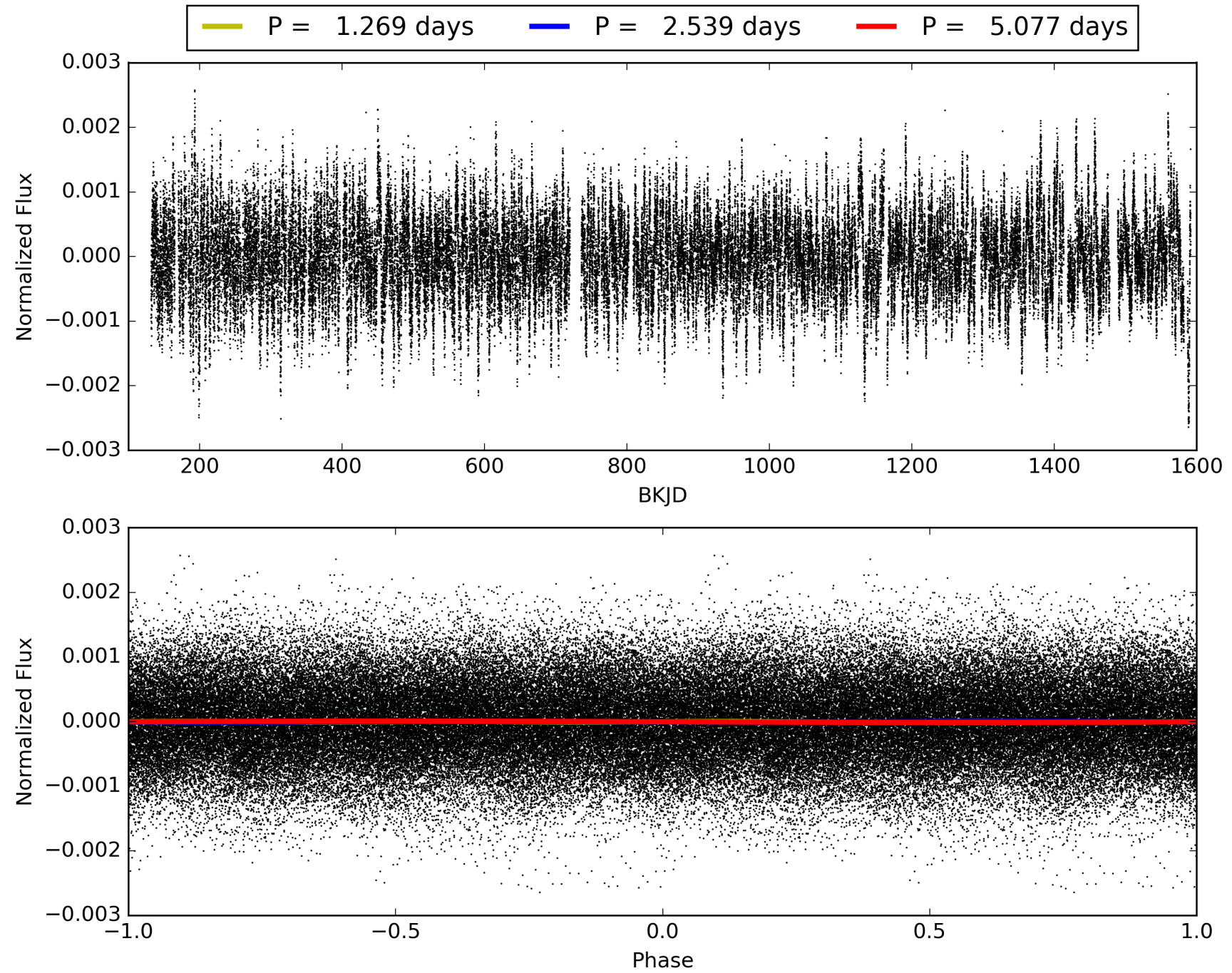
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:15 Z

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

TCE 006976420-01, PDC Light Curves

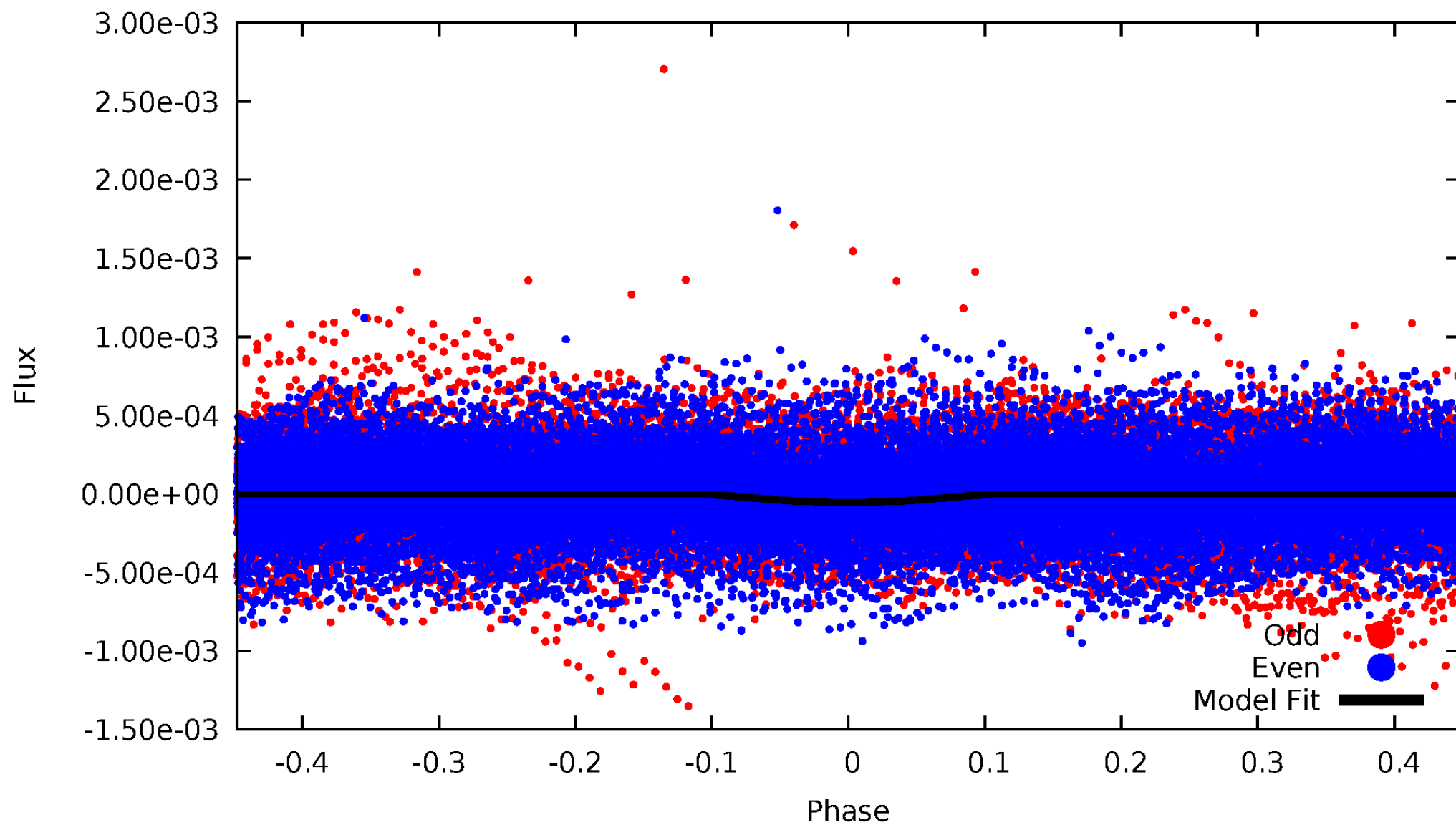


TCE 006976420-01



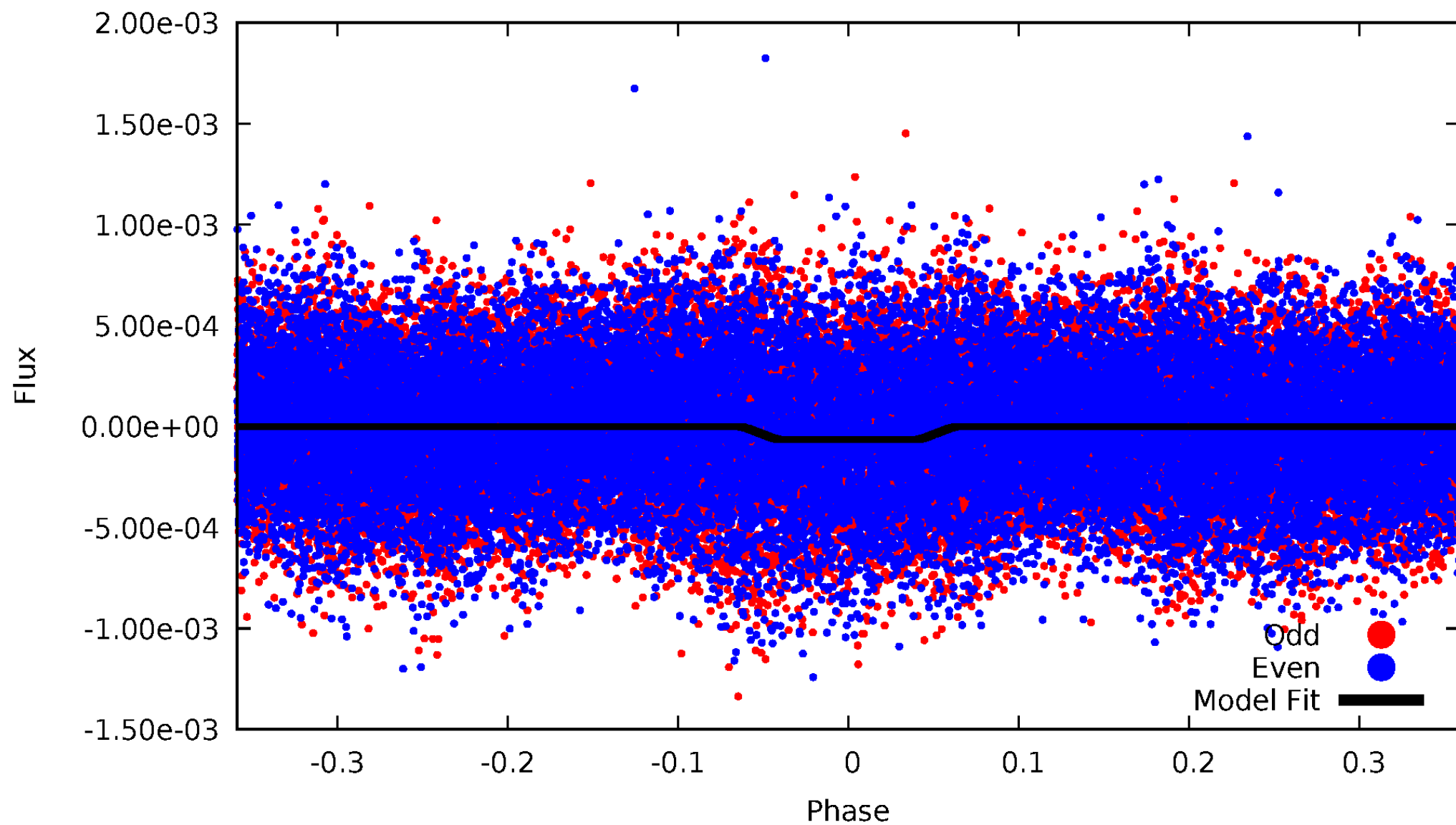
DV Odd/Even

TCE 006976420-01

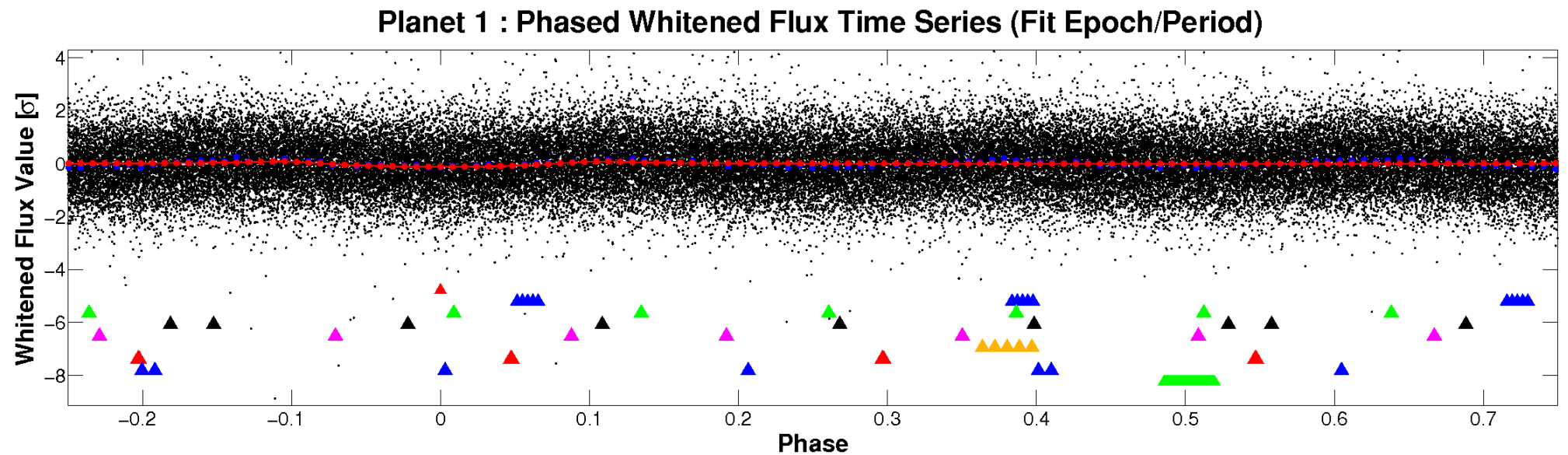
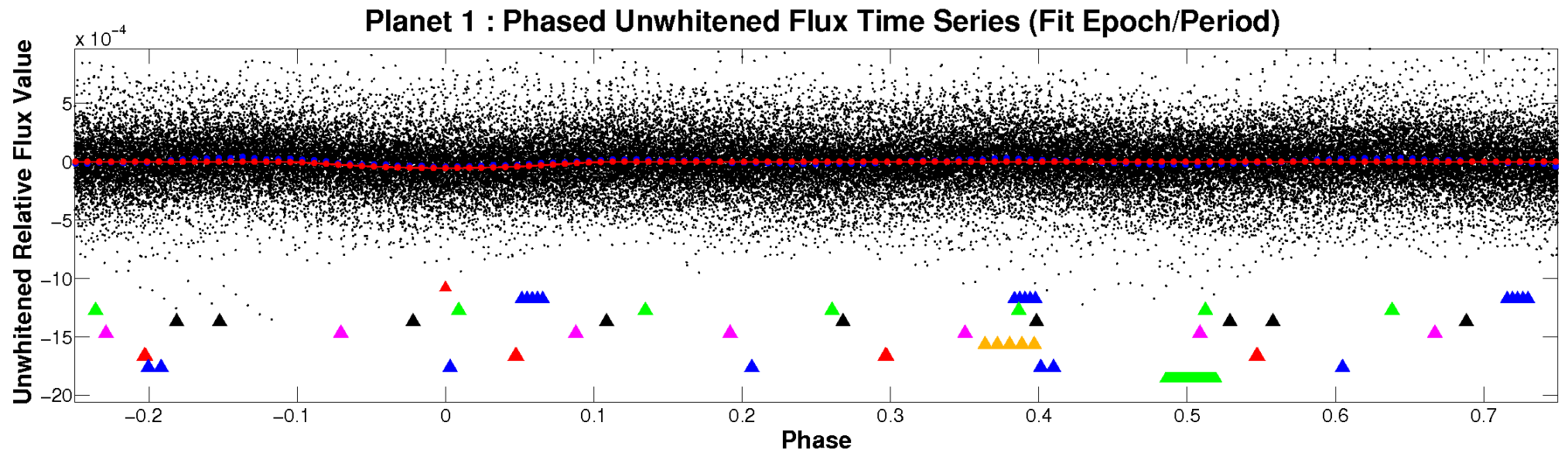


ALT Odd/Even

TCE 006976420-01

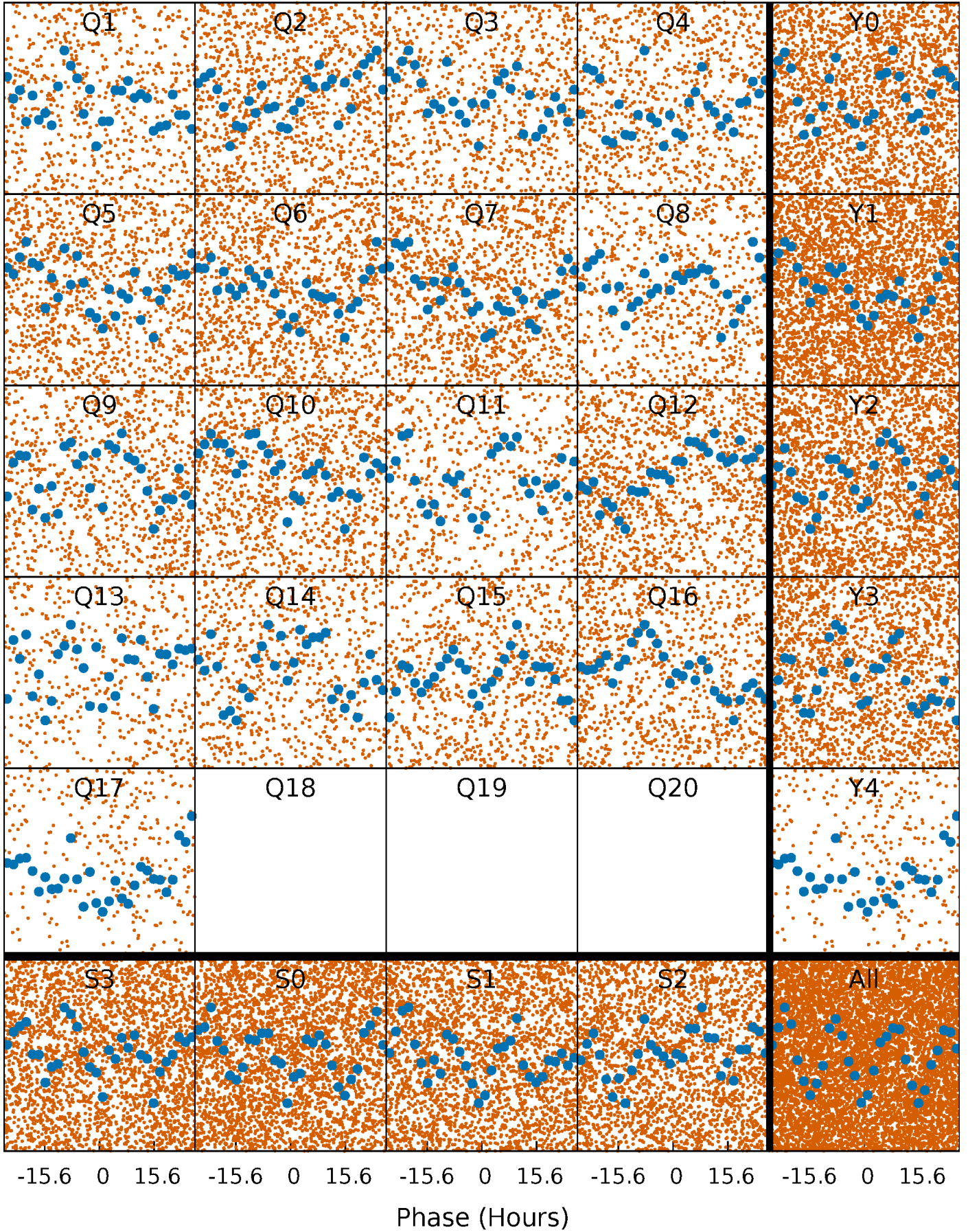


Non-Whitened Vs. Whitened Light Curve



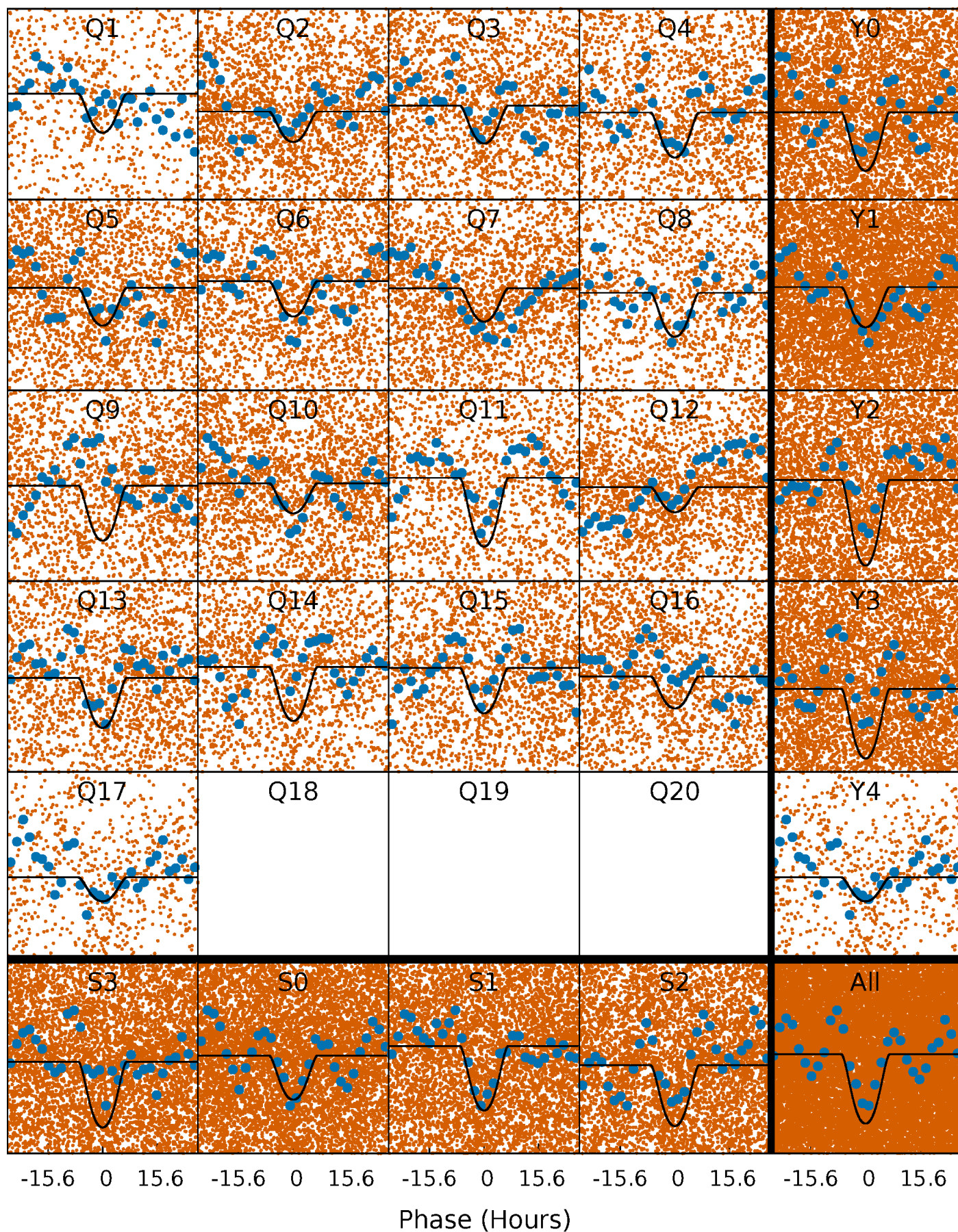
PDC Quarter-Phased Transit Curves

TCE 006976420-01 P= 2.538610 Days $T_0=131.582418$ (BKJD)



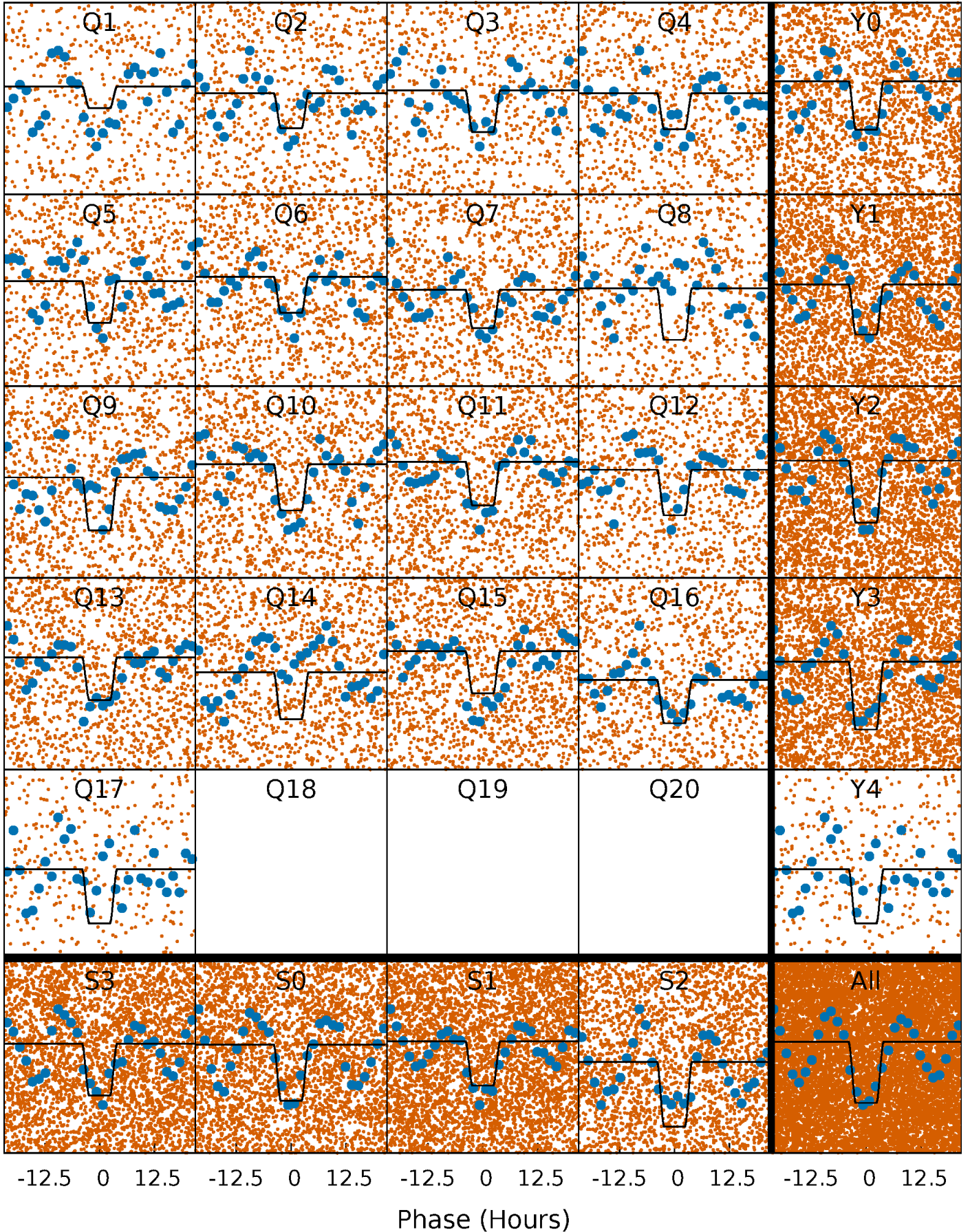
DV Quarter-Phased Transit Curves

TCE 006976420-01 P= 2.538610 Days $T_0=131.582418$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

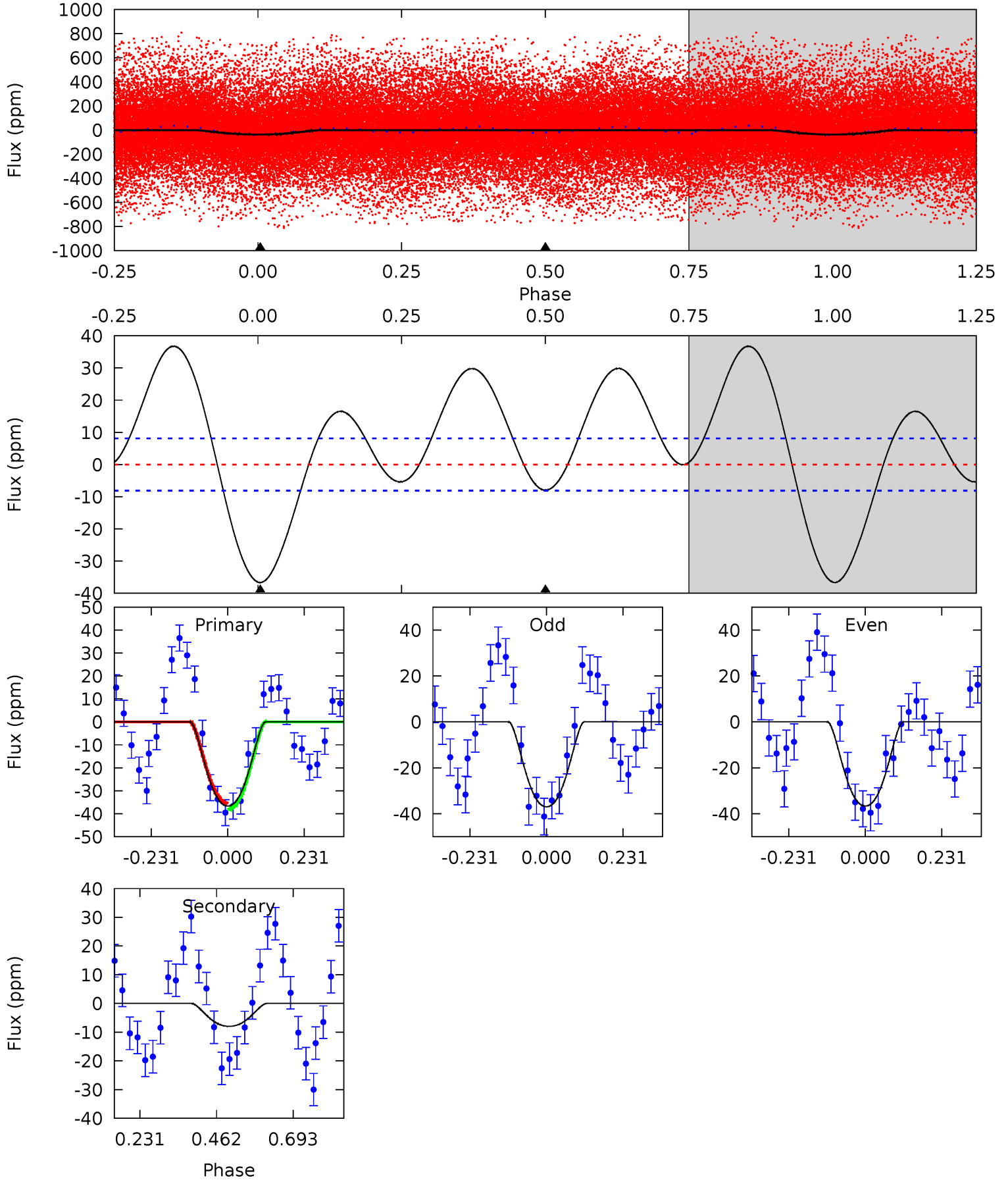
TCE 006976420-01 P= 2.538673 Days $T_0=131.558742$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-01, P = 2.538610 Days, E = 129.043808 Days

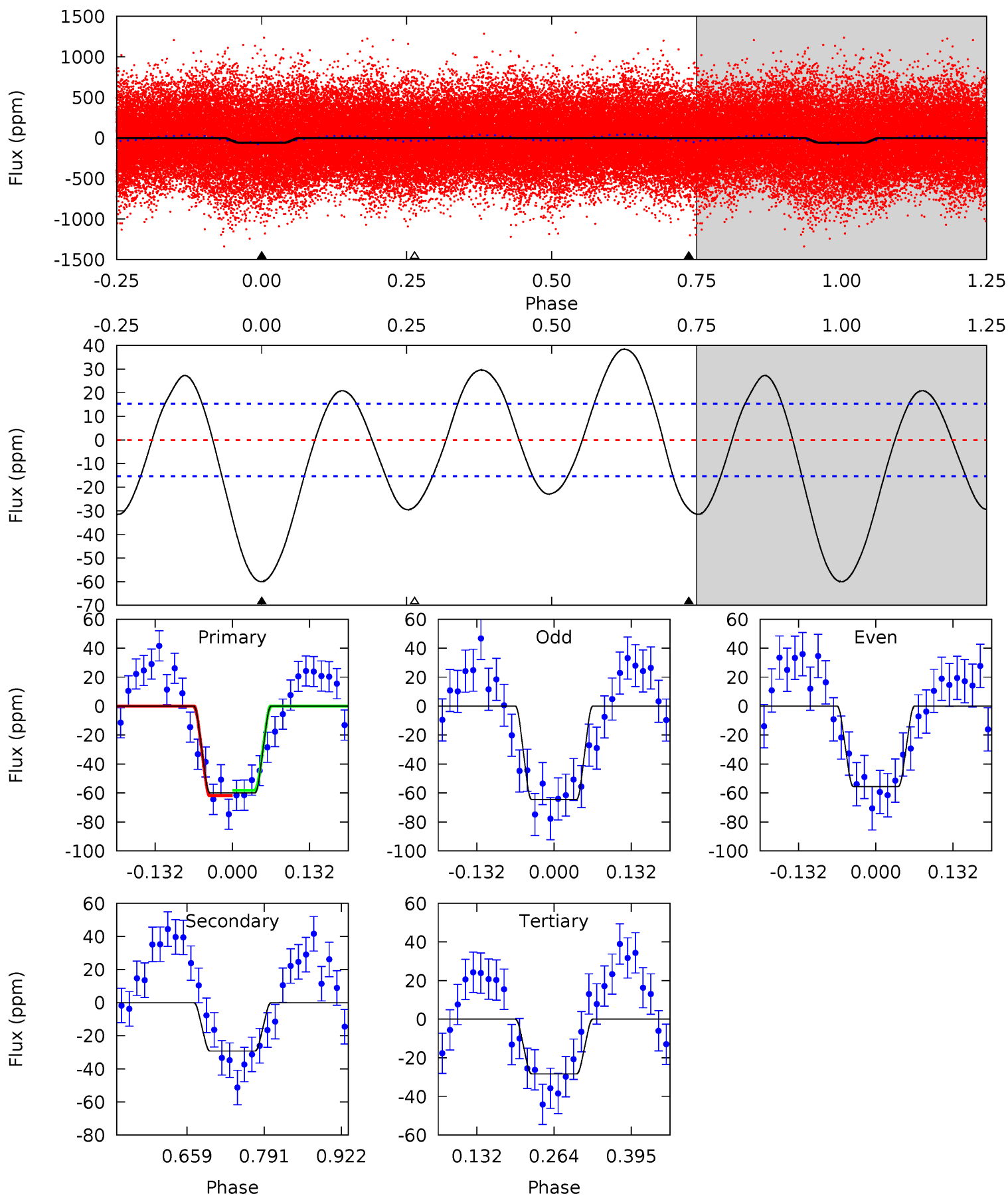
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	4.31	0	0	4.39	1.20	2.23	19.8	19.8	4.31	4.31	0.09	1.43	0.50	0.75



Alt Model-Shift Uniqueness Test

006976420-01, P = 2.538673 Days, E = 129.020069 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	8.62	8.34	0	4.51	1.51	5.71	9.33	17.7	0.28	8.62	1.33	0.89	0.39	0.53



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-8 ± 2	$13.14^{+3.18}_{-3.29}$	5737^{+879}_{-1239}	-4484^{+907}_{-670}	$0.076^{+0.054}_{-0.031}$
Alt.	-29 ± 3	$10.53^{+3.14}_{-3.10}$	5815^{+830}_{-1307}	3835^{+1289}_{-7239}	$0.422^{+0.362}_{-0.171}$

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

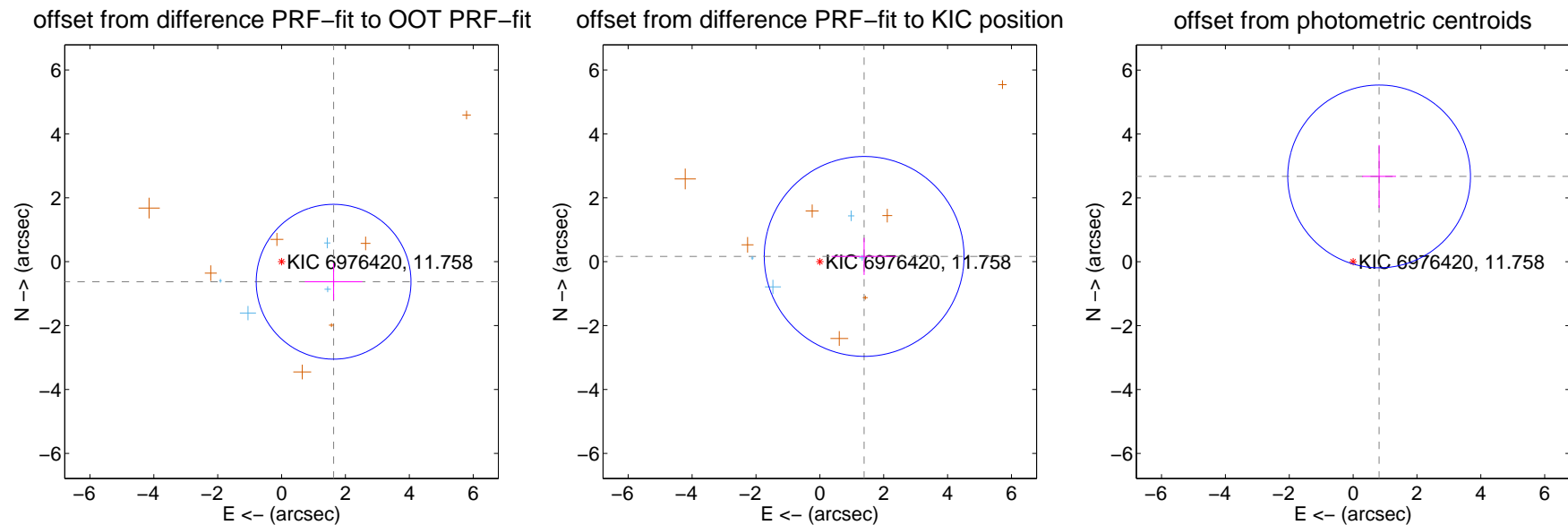
DV Centroid Data

Supplemental centroid analysis for 006976420-01. **Kepler magnitude: 11.76.** Transit SNR 10.53

There are 4 quarters with good PRF difference image offsets

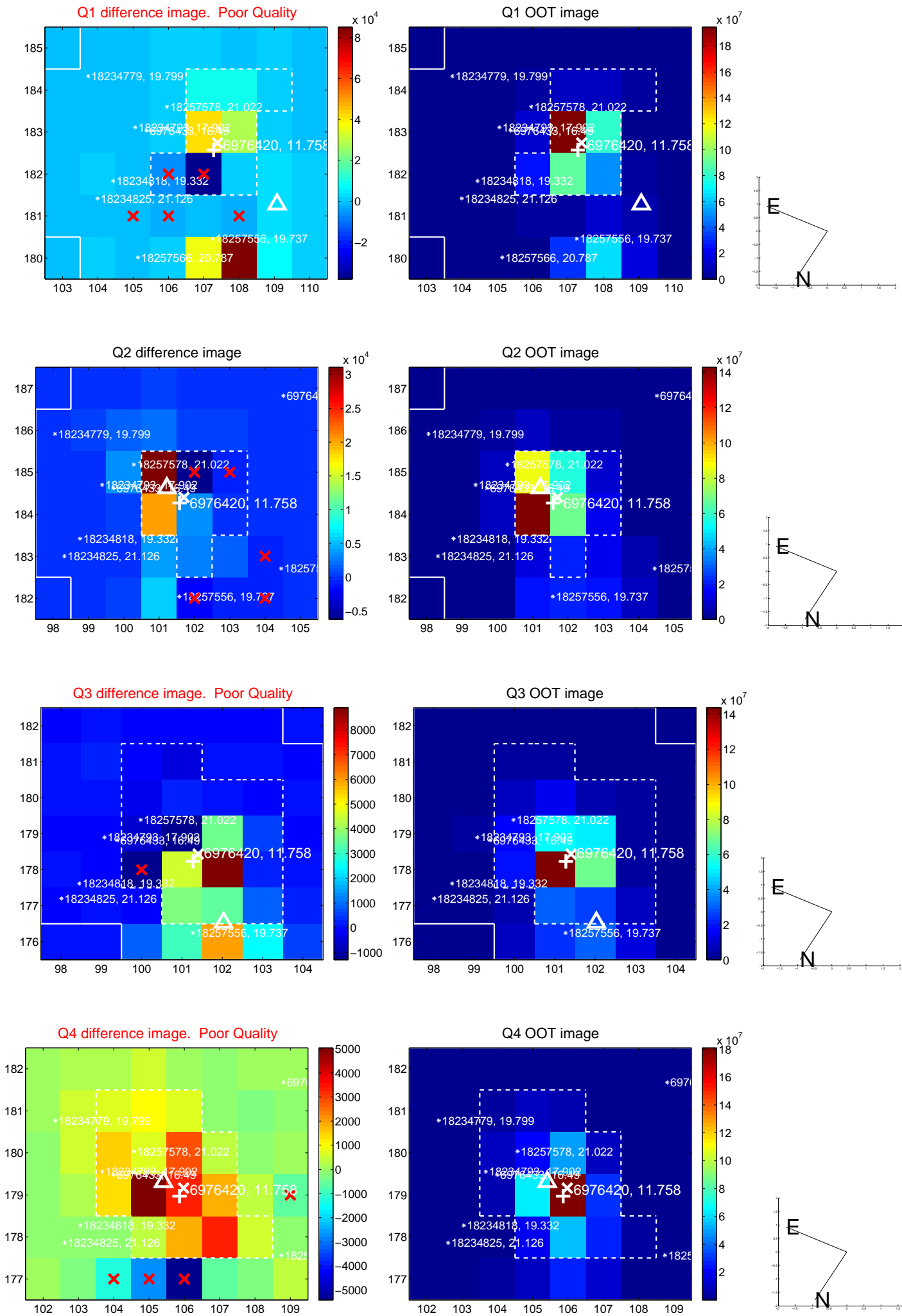
The direct PRF centroid is offset from the target star catalog position by about 0.87 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.746 ± 0.808	2.16	-1.629 ± 0.900	-0.627 ± 0.573
PRF-fit source offset from KIC position	1.397 ± 1.043	1.34	-1.387 ± 1.018	0.165 ± 0.581
photometric centroid source offset	2.79 ± 0.95	2.93	-0.81 ± 0.53	2.67 ± 0.98

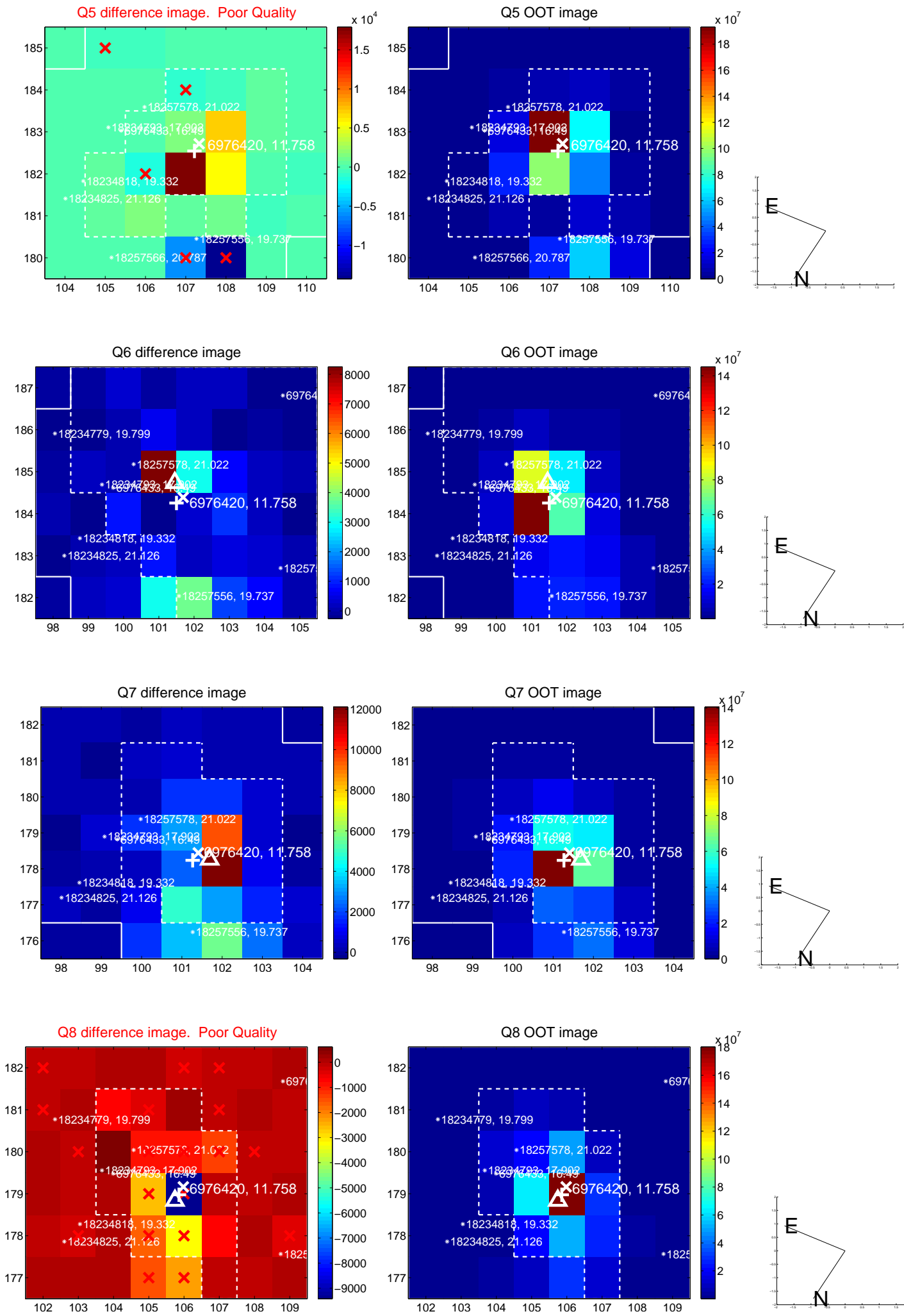


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

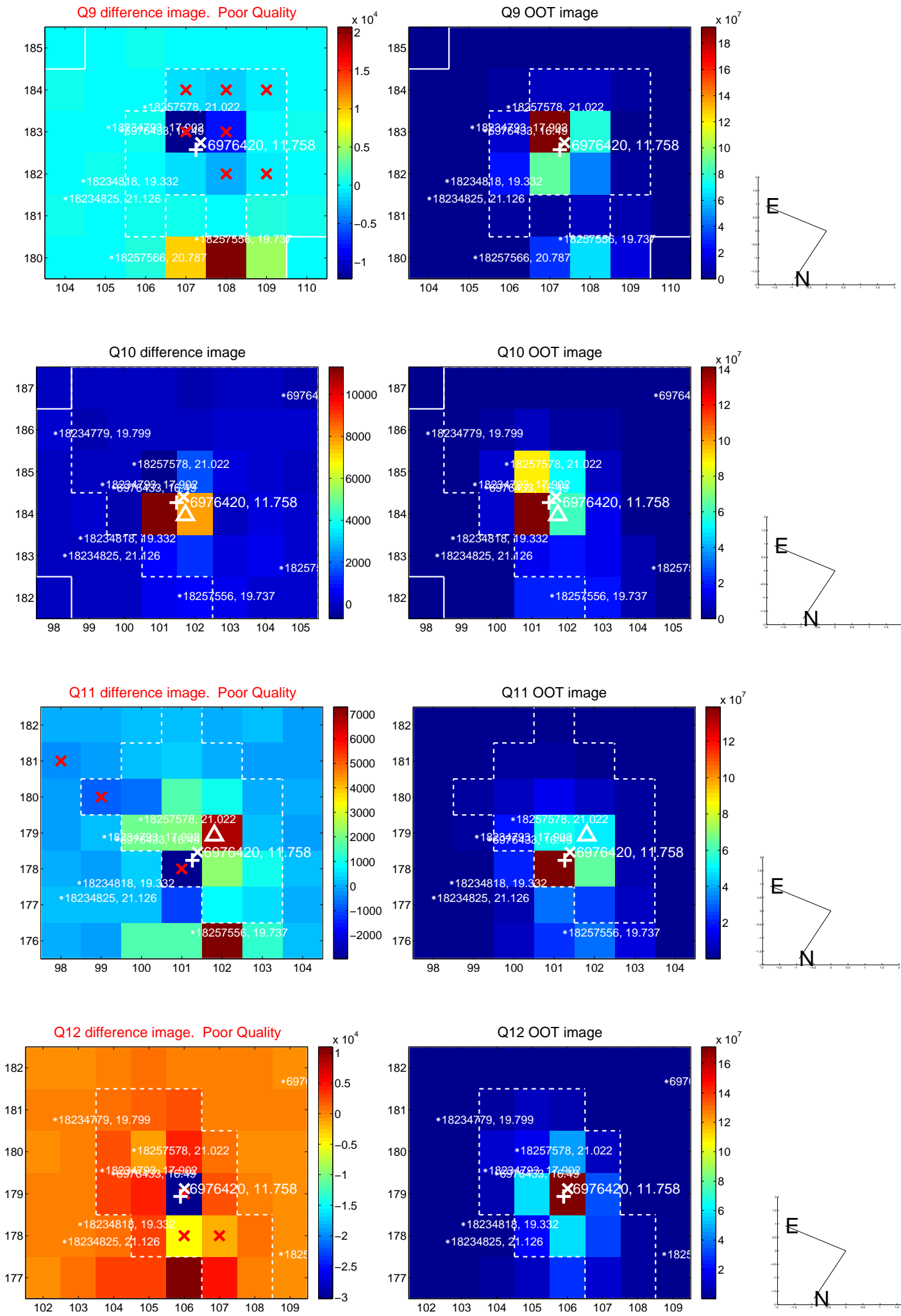
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



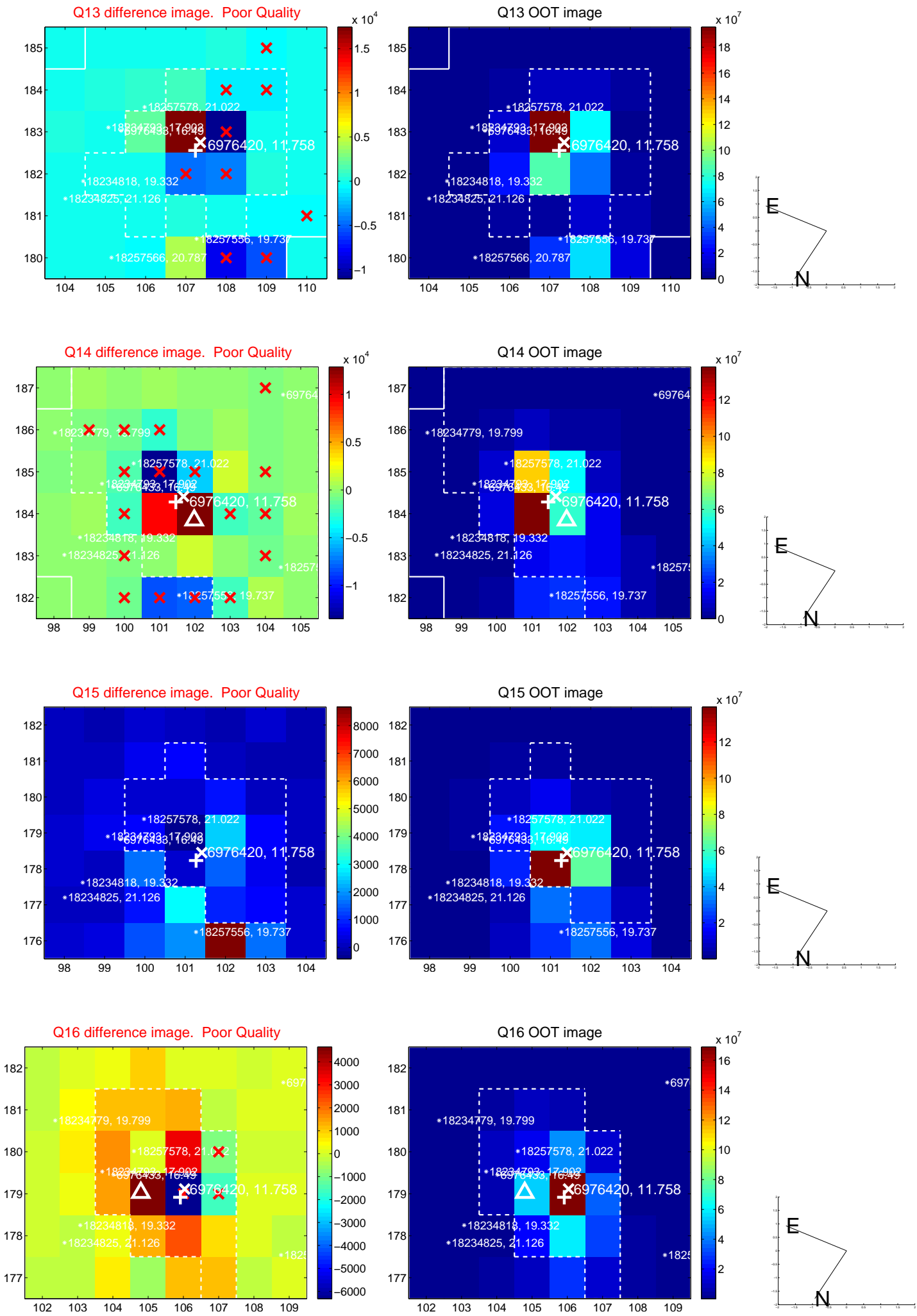
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



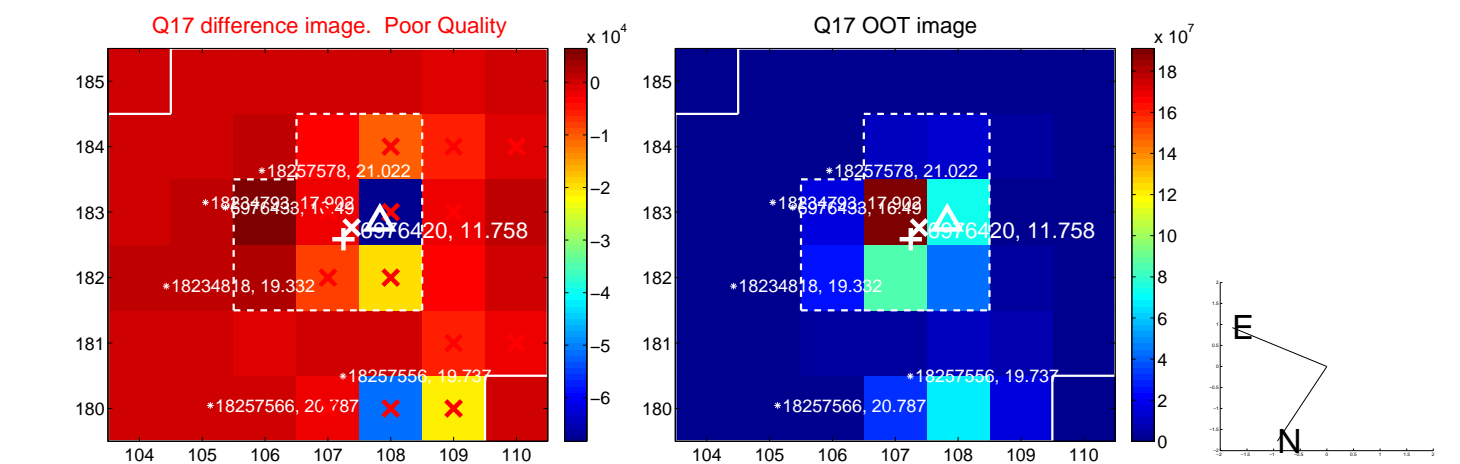
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



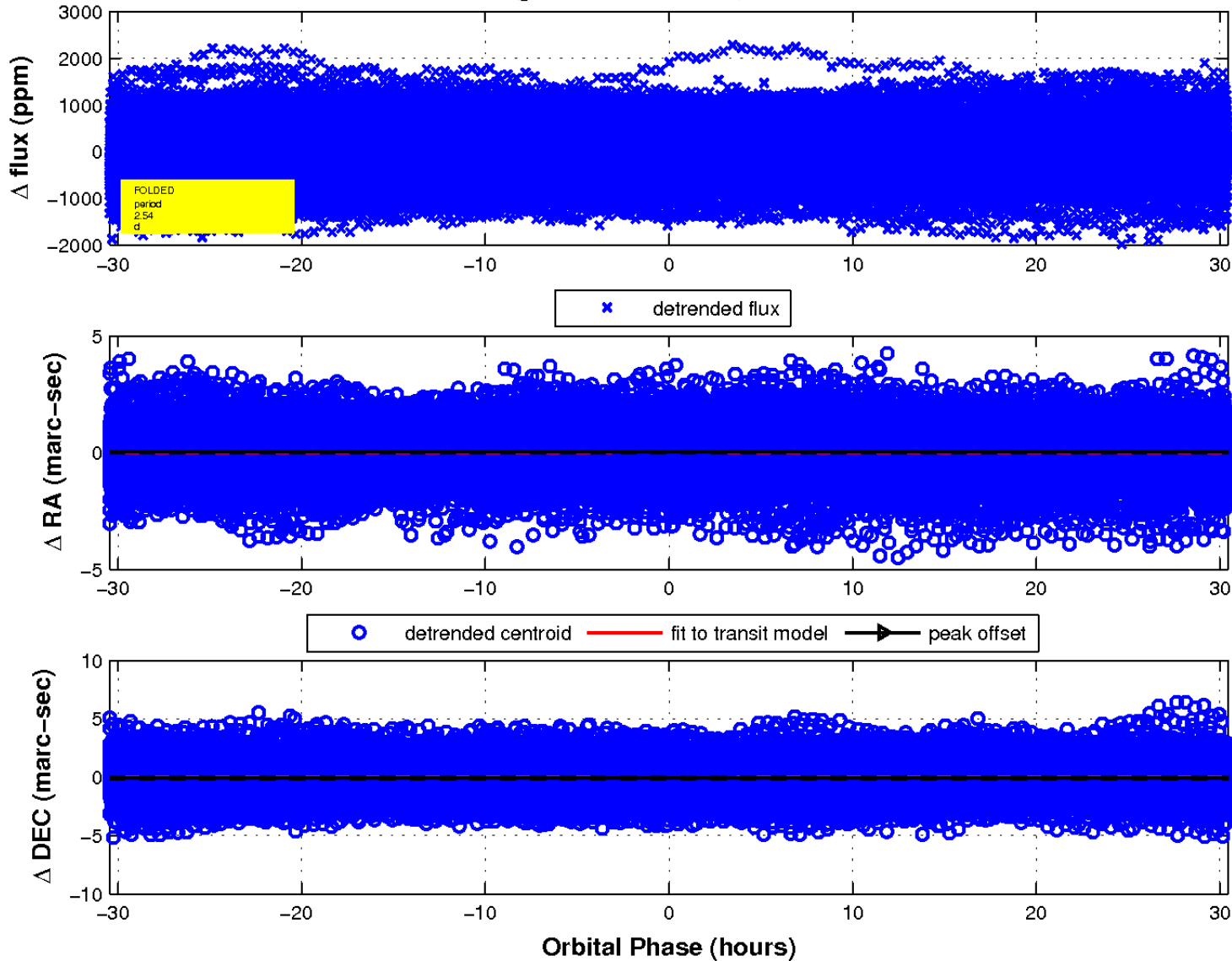
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



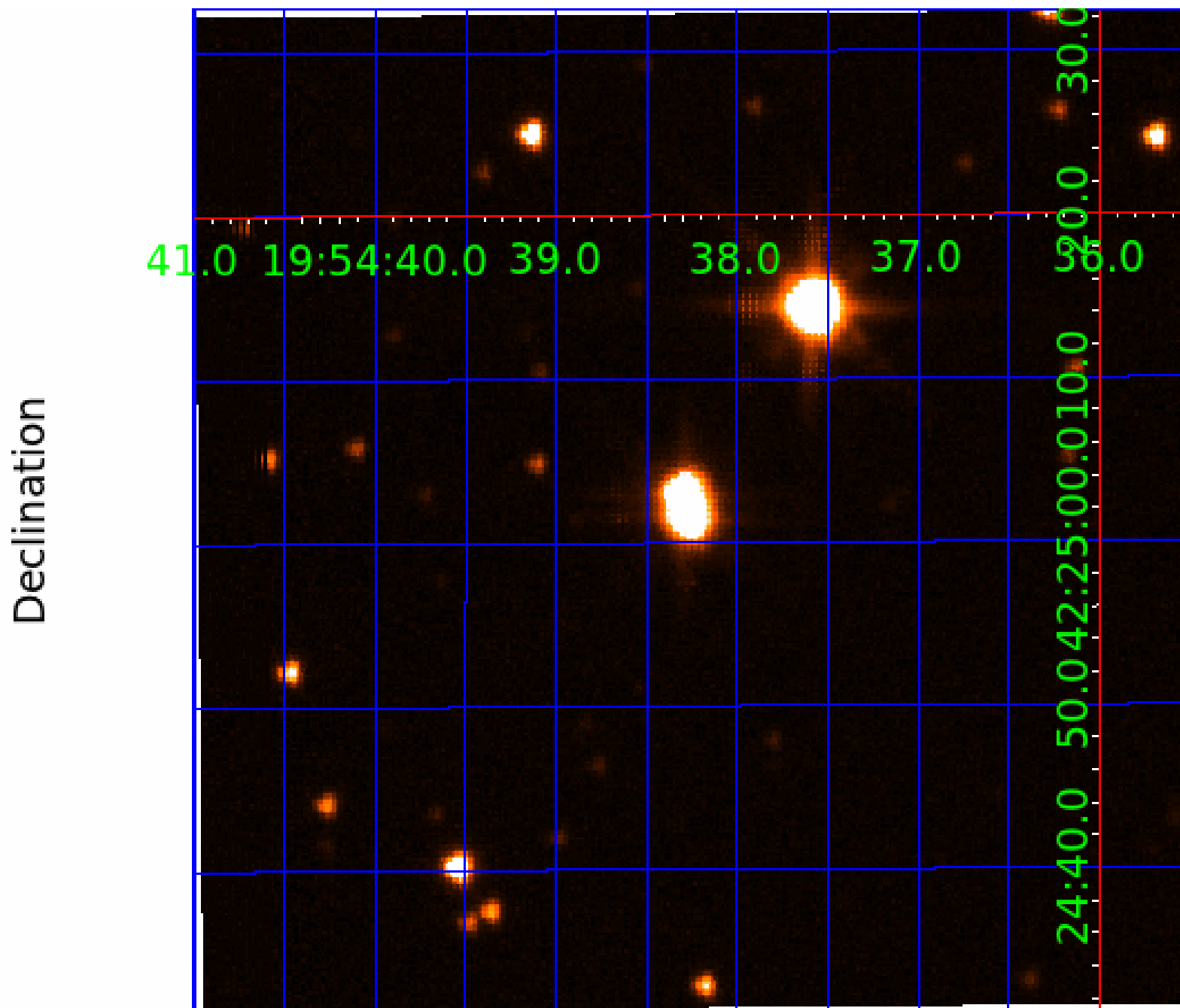
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 9



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

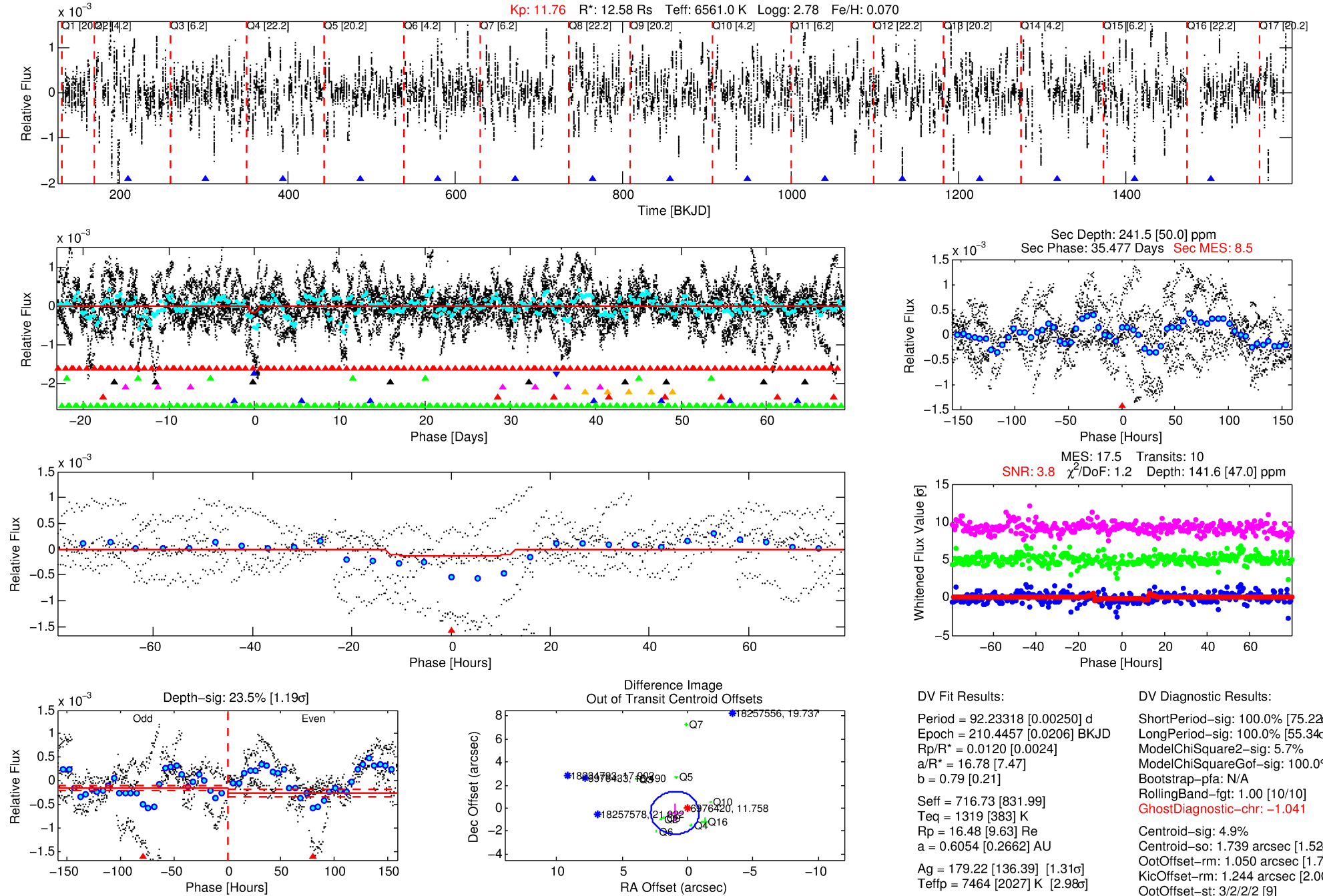
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-02

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 2 of 9 Period: 92.233 d



DV Fit Results:

Period = 92.23318 [0.00250] d
Epoch = 210.4457 [0.0206] BKJD
Rp/R* = 0.0120 [0.0024]
a/R* = 16.78 [7.47]
b = 0.79 [0.21]
Seff = 716.73 [831.99]
Teq = 1319 [383] K
Rp = 16.48 [9.63] Re
a = 0.6054 [0.2662] AU
Ag = 179.22 [136.39] [1.31 σ]
Teffp = 7464 [2027] K [2.98 σ]

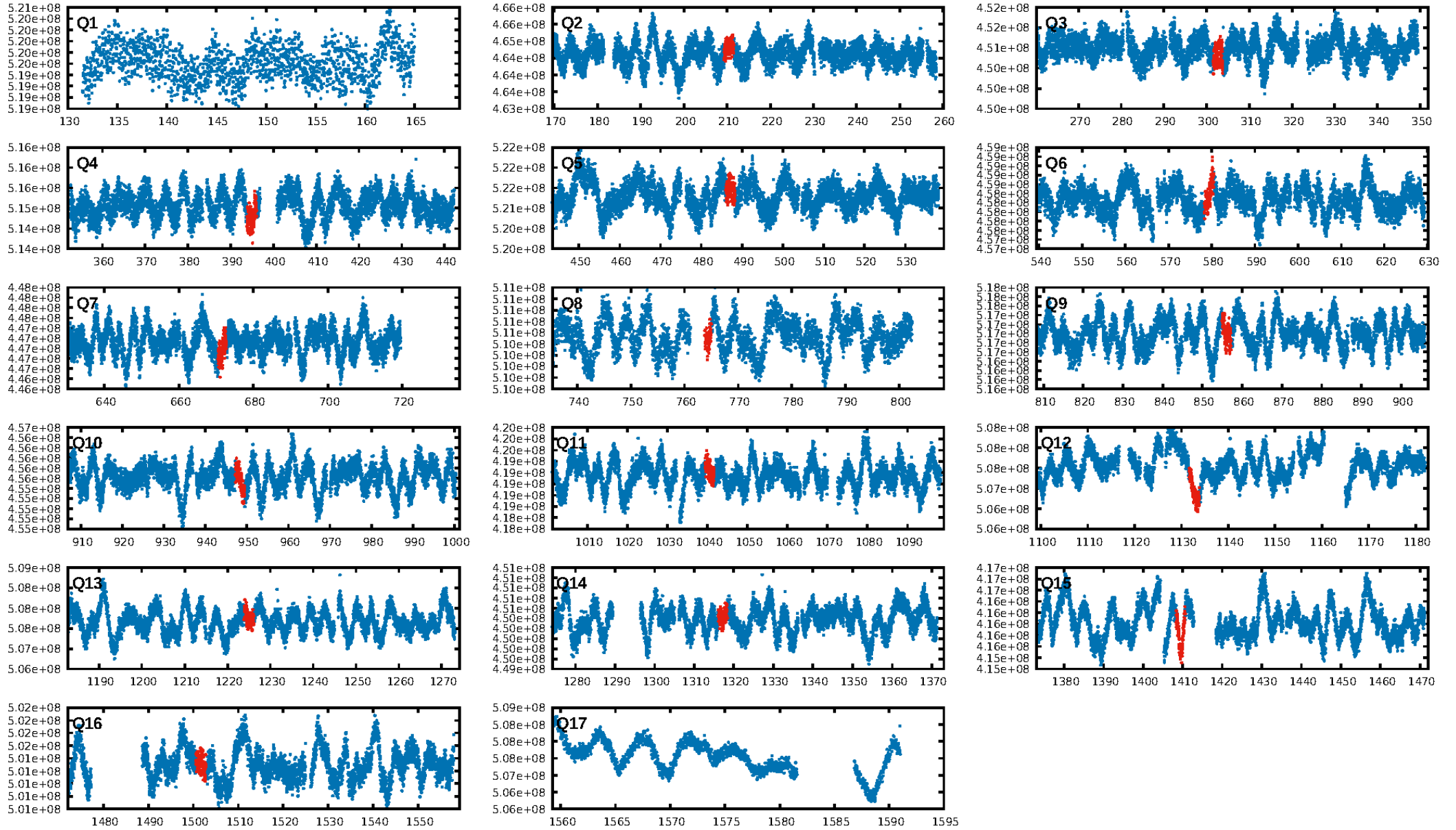
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [75.22 σ]
LongPeriod-sig: 100.0% [55.34 σ]
ModelChiSquare2-sig: 5.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -1.041
Centroid-sig: 4.9%
Centroid-so: 1.739 arcsec [1.52 σ]
OotOffset-rm: 1.050 arcsec [1.70 σ]
KicOffset-rm: 1.244 arcsec [2.00 σ]
OotOffset-st: 3/2/2/2 [9]
KicOffset-st: 3/2/2/2 [9]
DiffImageQuality-fgm: 0.22 [2/9]
DiffImageOverlap-fno: 0.00 [0/10]

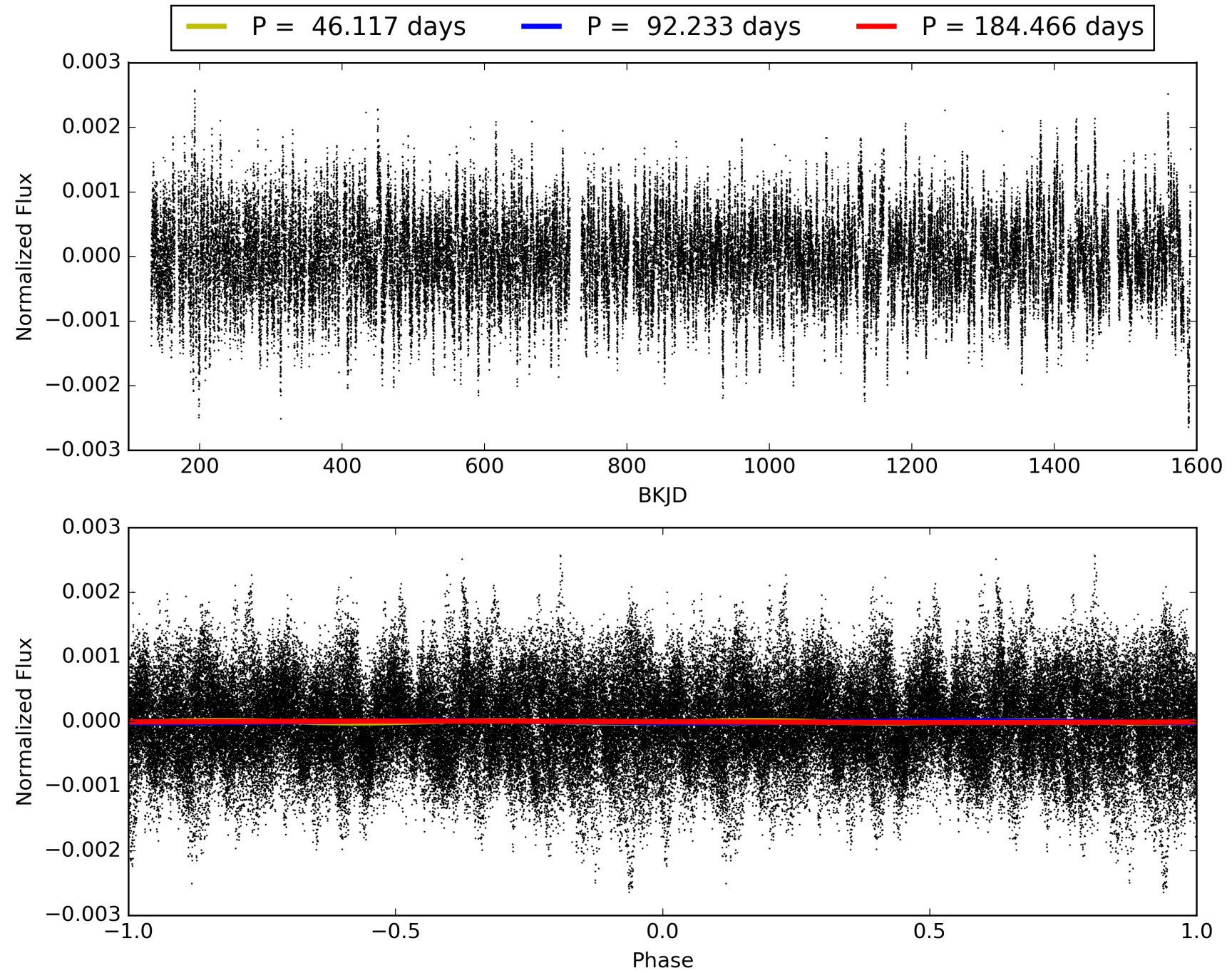
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:26 Z

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

TCE 006976420-02, PDC Light Curves

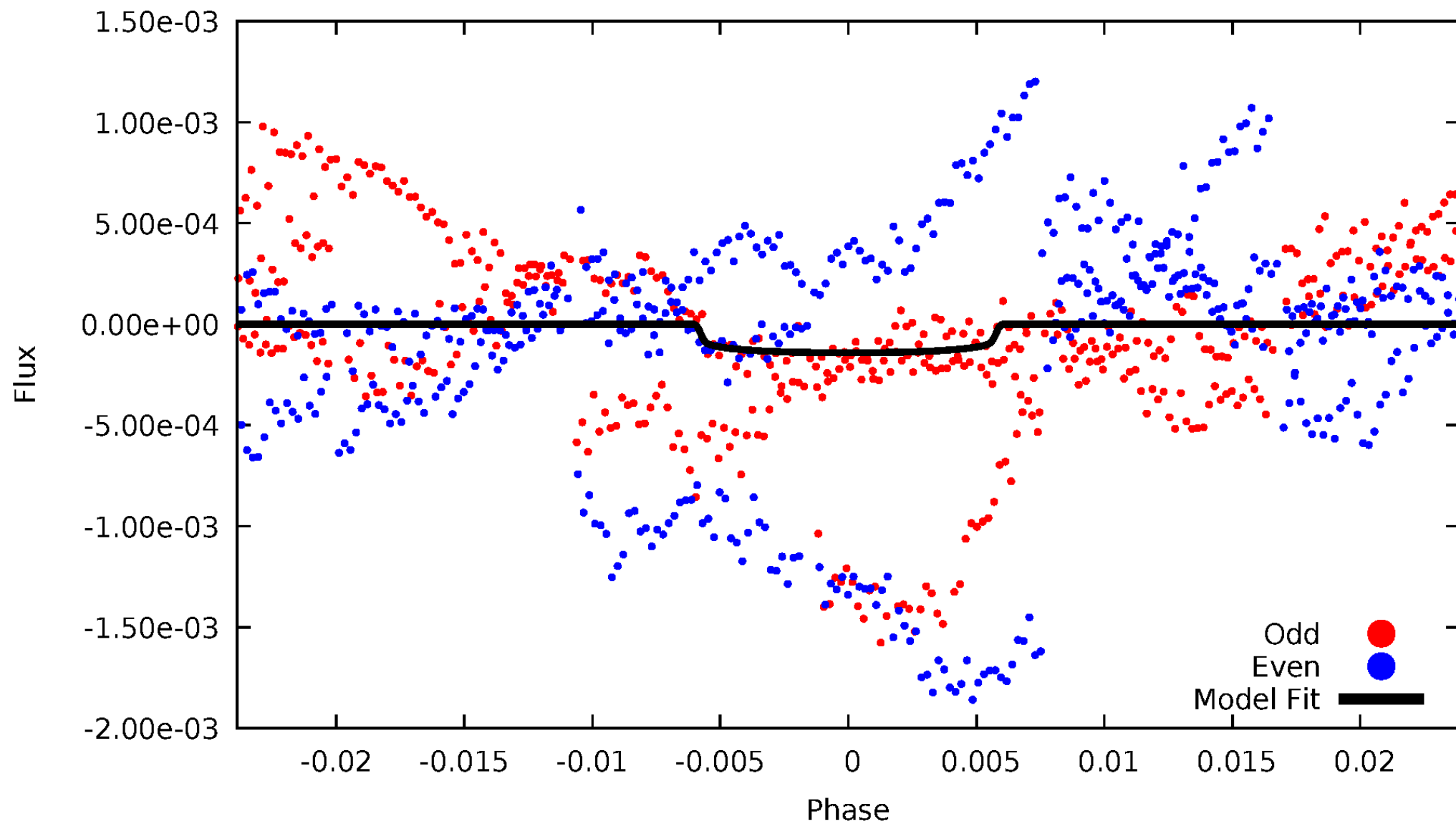


TCE 006976420-02



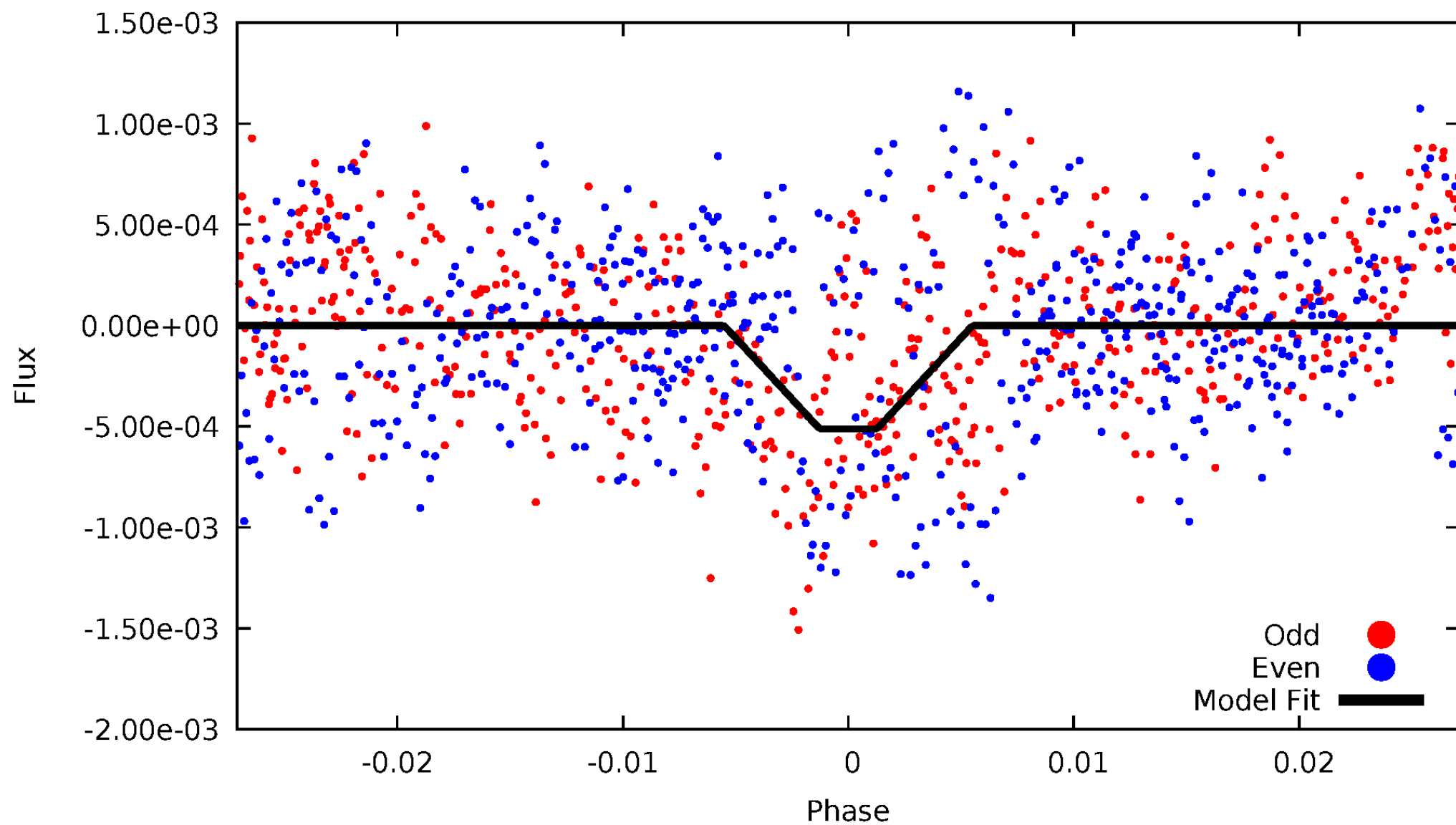
DV Odd/Even

TCE 006976420-02



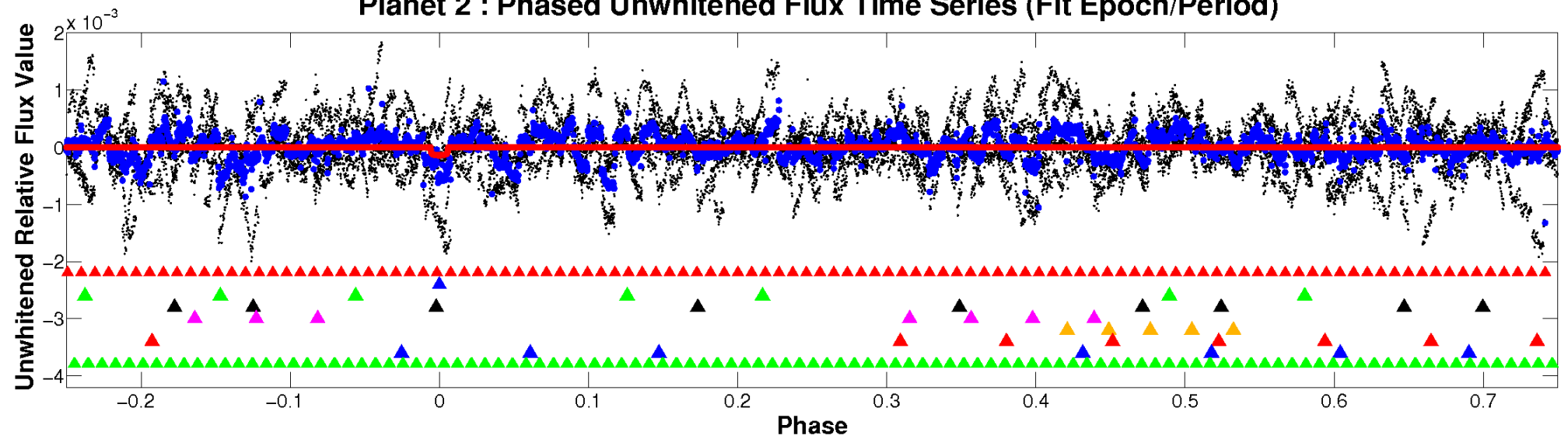
ALT Odd/Even

TCE 006976420-02

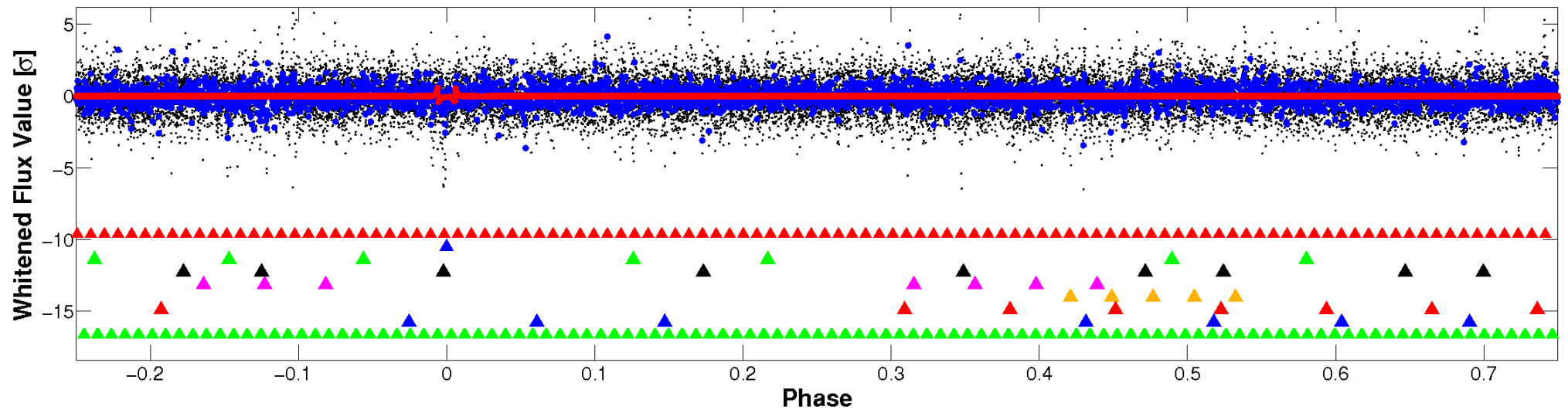


Non-Whitened Vs. Whitened Light Curve

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

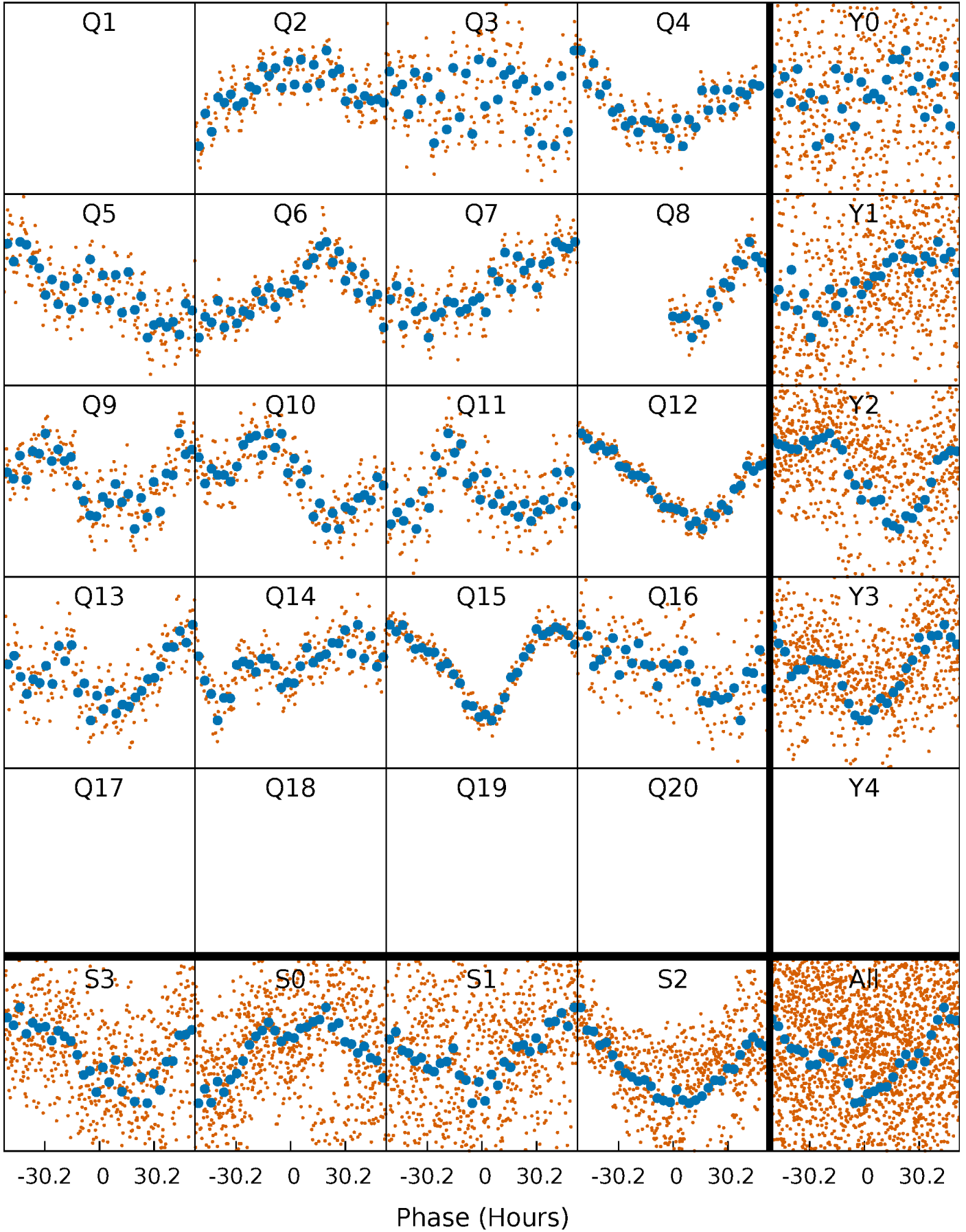


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



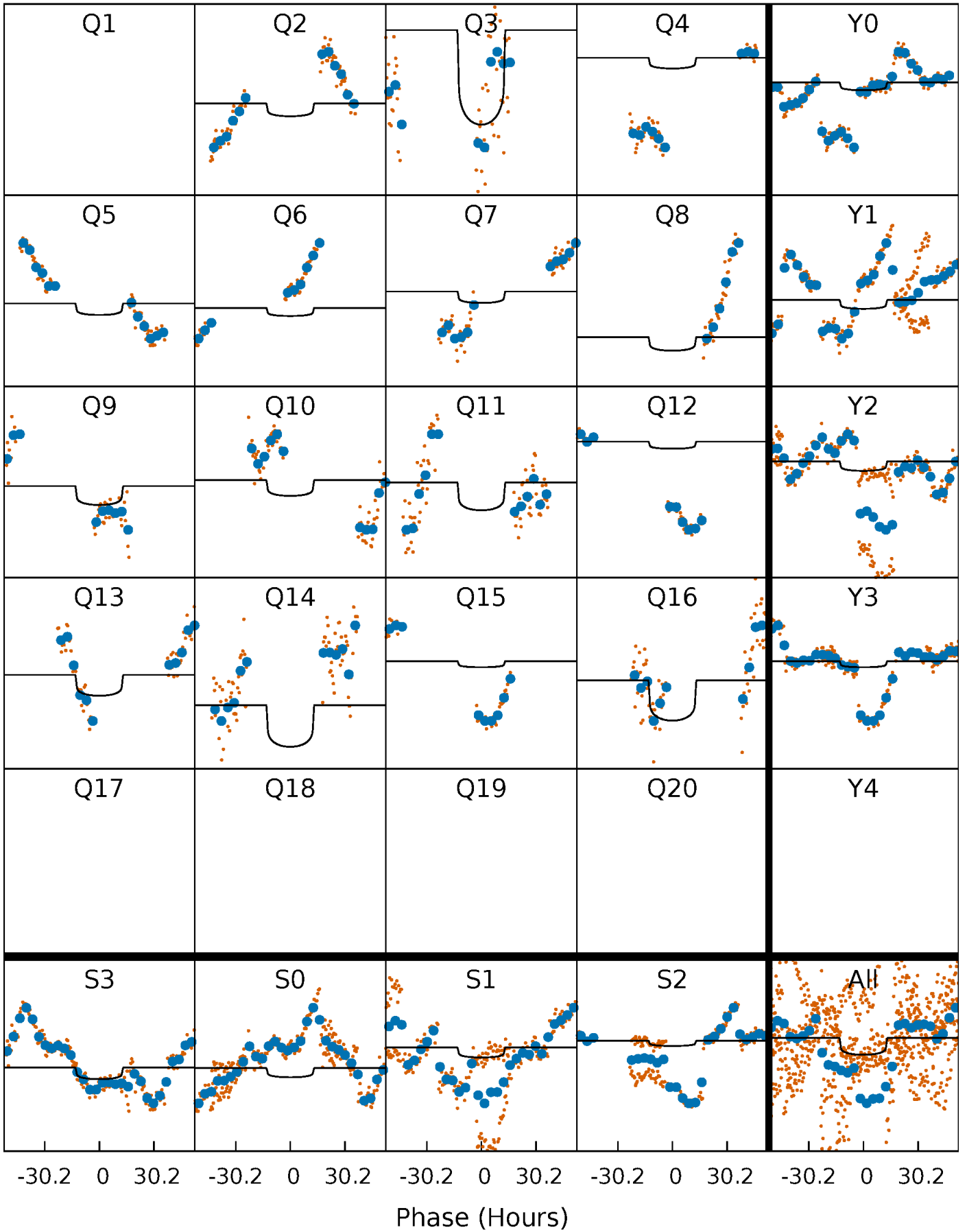
PDC Quarter-Phased Transit Curves

TCE 006976420-02 P= 92.233179 Days $T_0=210.445699$ (BKJD)



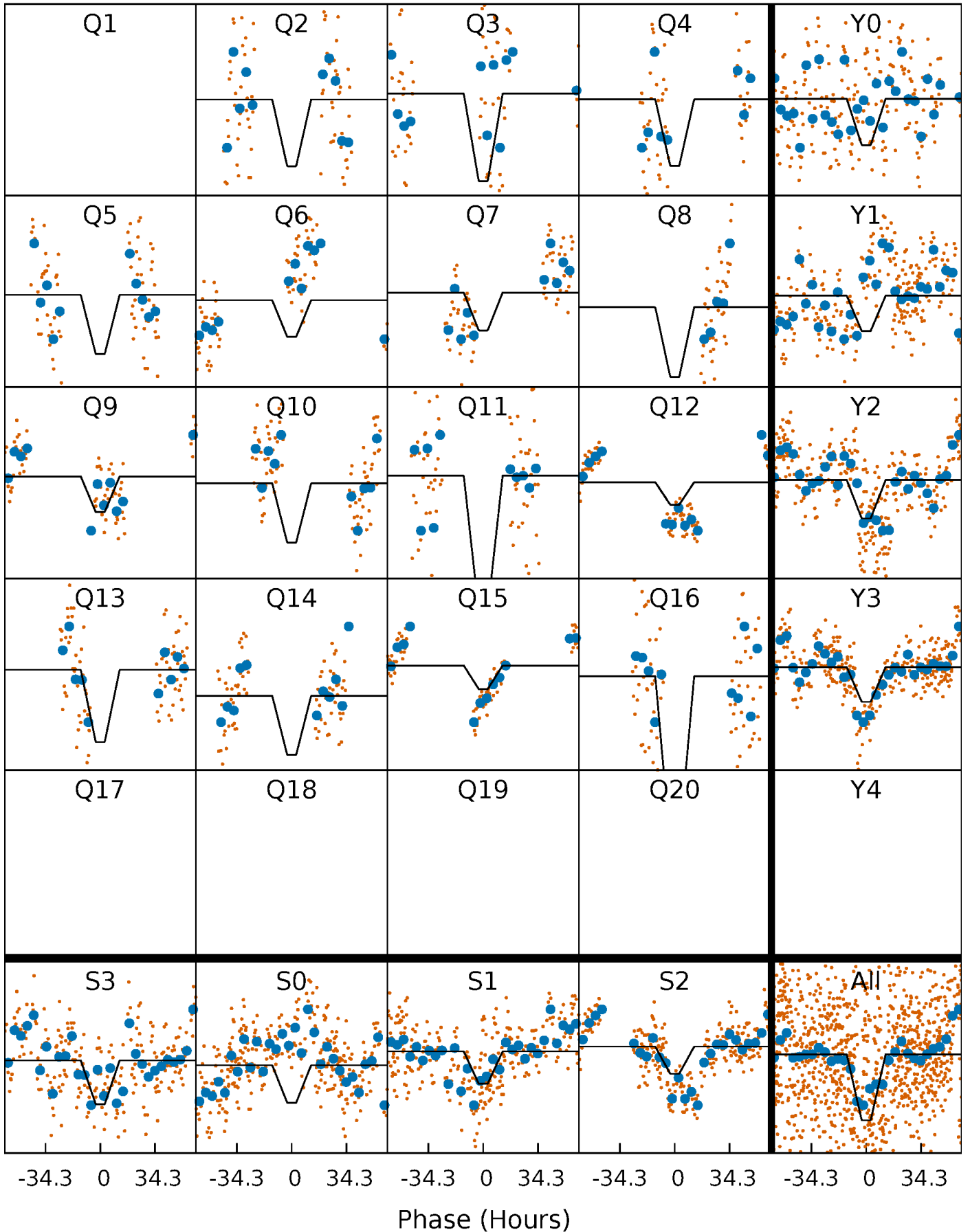
DV Quarter-Phased Transit Curves

TCE 006976420-02 P= 92.233179 Days $T_0=210.445699$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

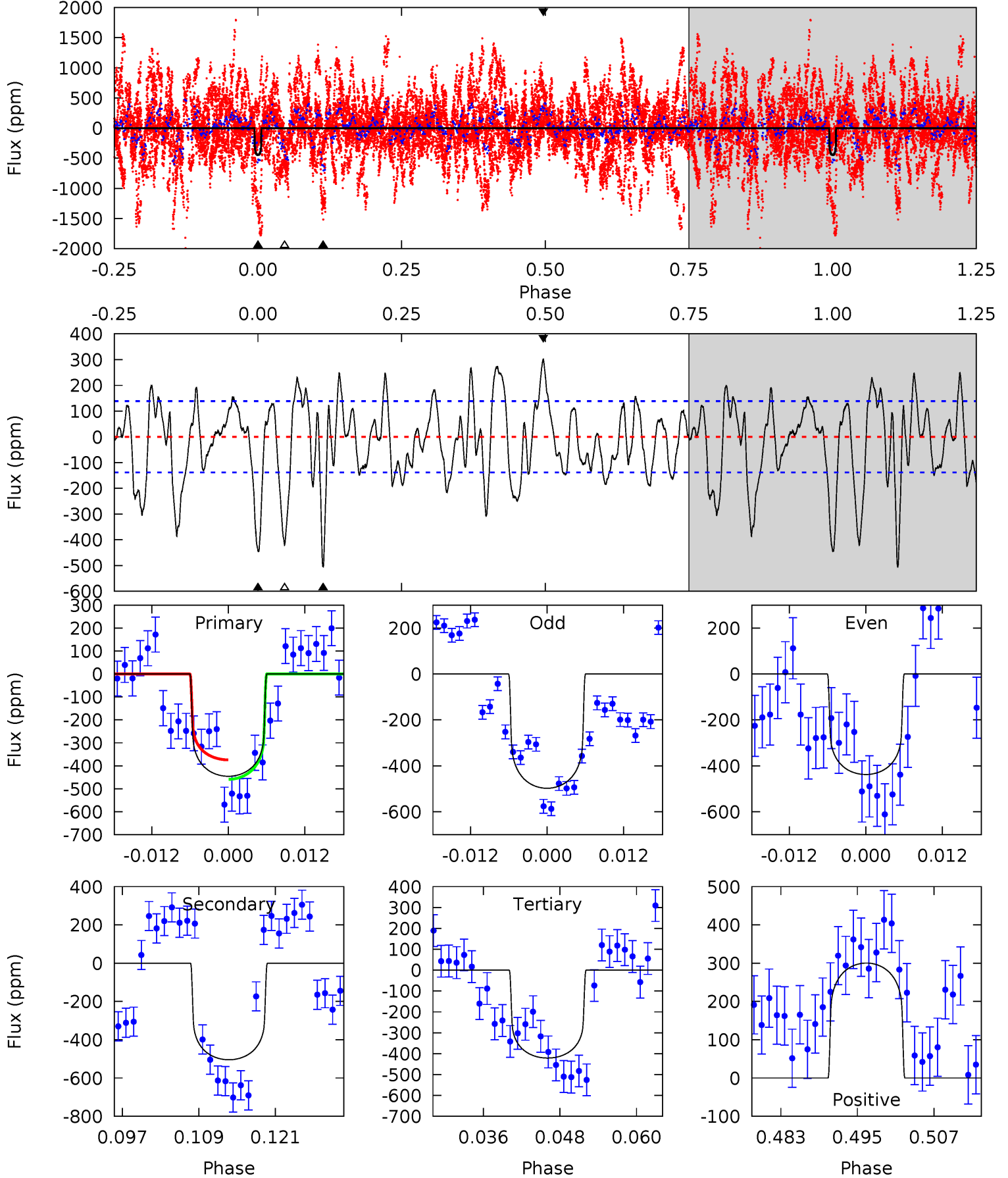
TCE 006976420-02 P= 92.248548 Days $T_0=210.382766$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-02, P = 92.233179 Days, E = 118.212520 Days

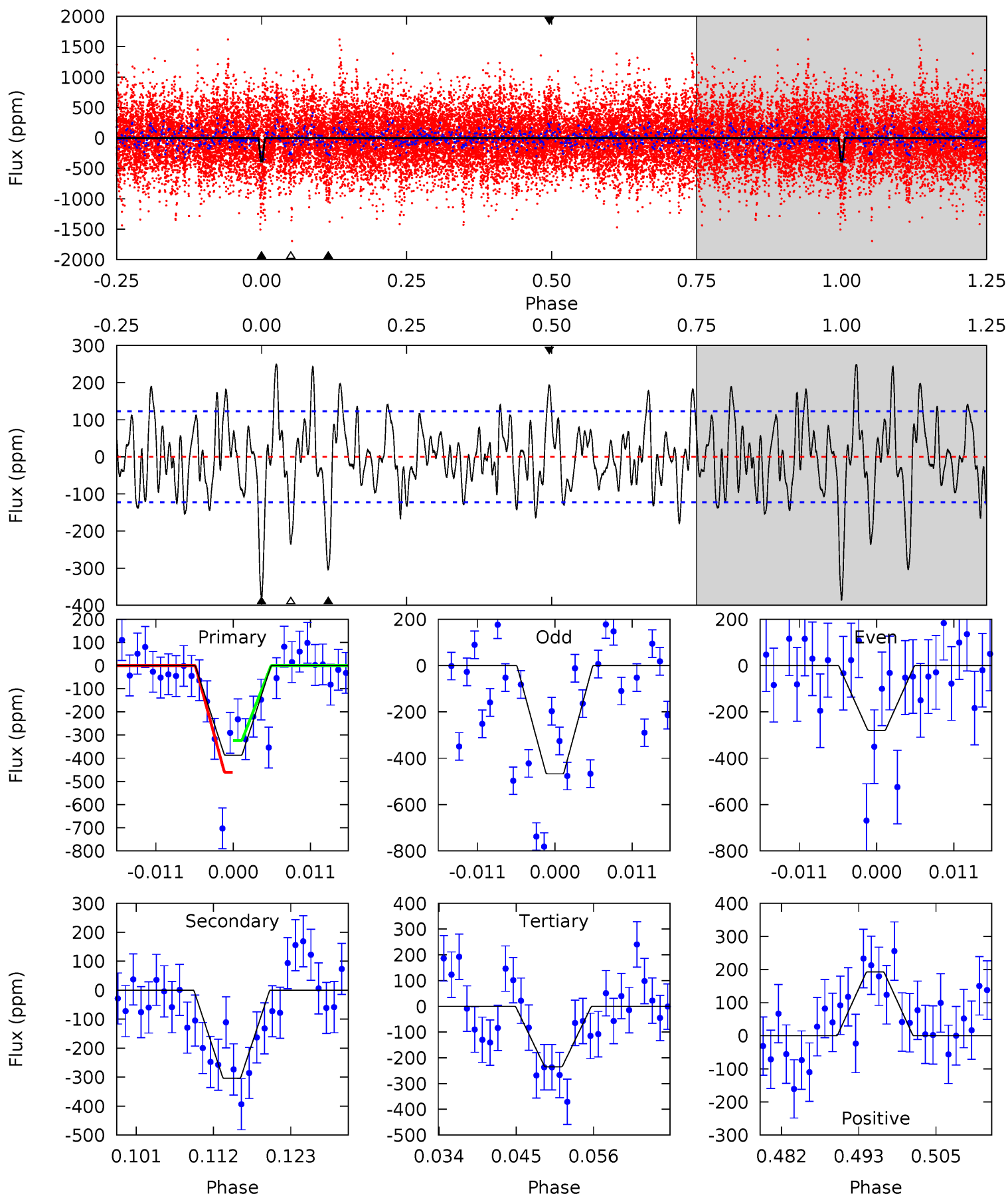
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	18.2	15.2	10.8	4.99	2.51	4.77	0.88	5.23	3.00	7.35	1.09	2.07	0.37	1.52



Alt Model-Shift Uniqueness Test

006976420-02, P = 92.248548 Days, E = 118.134218 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	12.4	9.60	7.89	5.00	2.54	3.18	6.22	7.94	2.84	4.55	3.82	0.80	0.39	2.81



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-505 ± 28	$16.15^{+4.47}_{-4.74}$	1755^{+245}_{-394}	9017^{+2143}_{-2467}	373^{+329}_{-133}
Alt.	-304 ± 24	$30.56^{+5.45}_{-7.47}$	1767^{+239}_{-408}	5647^{+566}_{-1172}	64^{+38}_{-19}

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 $A_{obs} \gg 1.0$

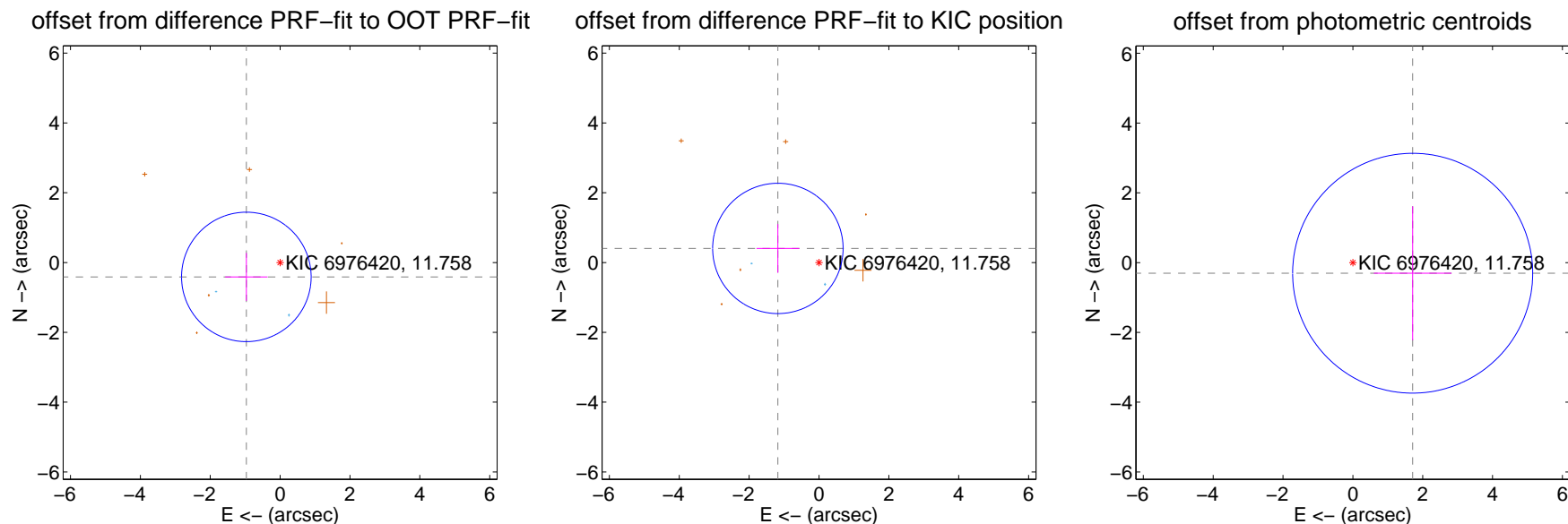
DV Centroid Data

Supplemental centroid analysis for 006976420-02. **Kepler magnitude: 11.76.** Transit SNR 3.81

There are 2 quarters with good PRF difference image offsets

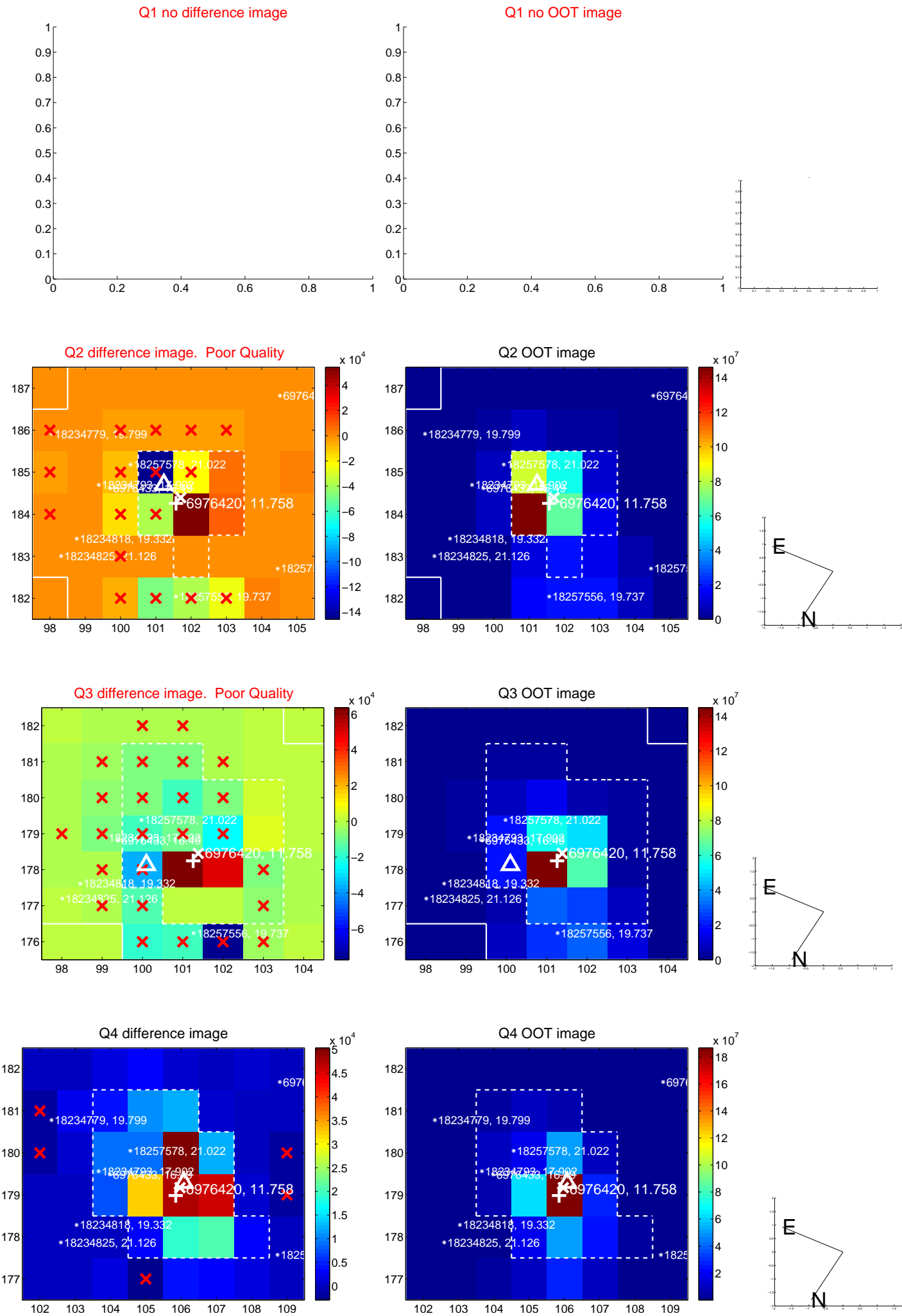
The direct PRF centroid is offset from the target star catalog position by about 0.93 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.050 ± 0.618	1.70	0.966 ± 0.605	-0.412 ± 0.687
PRF-fit source offset from KIC position	1.244 ± 0.622	2.00	1.177 ± 0.613	0.405 ± 0.697
photometric centroid source offset	1.74 ± 1.15	1.52	-1.71 ± 1.11	-0.30 ± 1.92

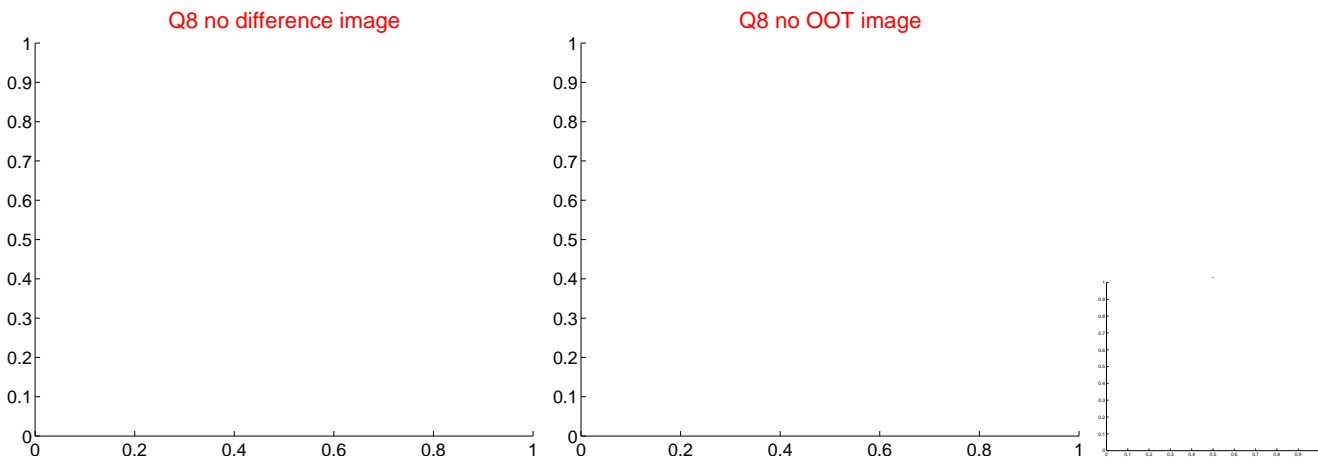
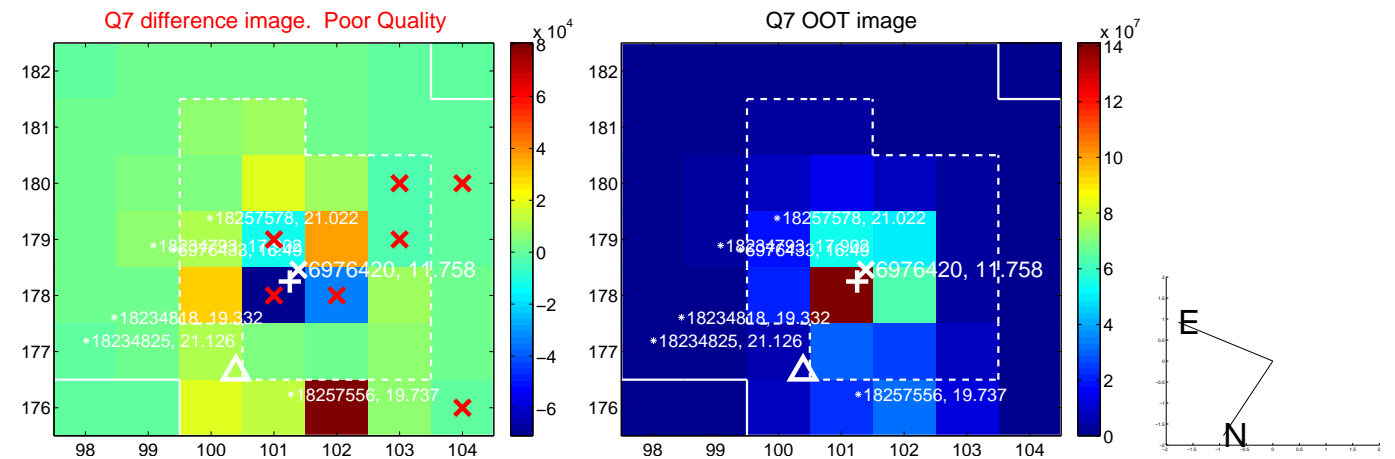
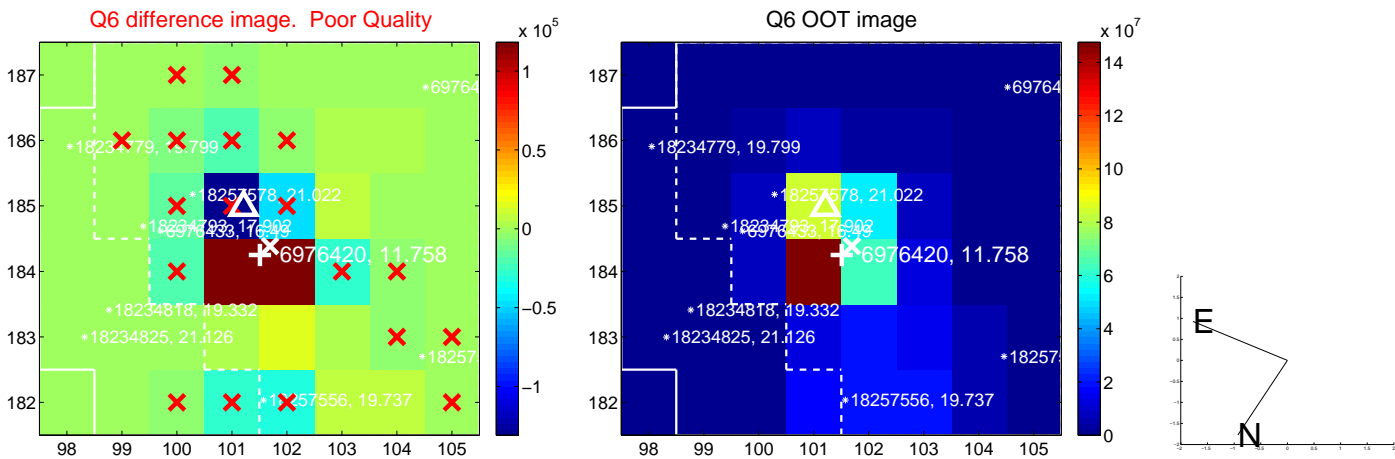
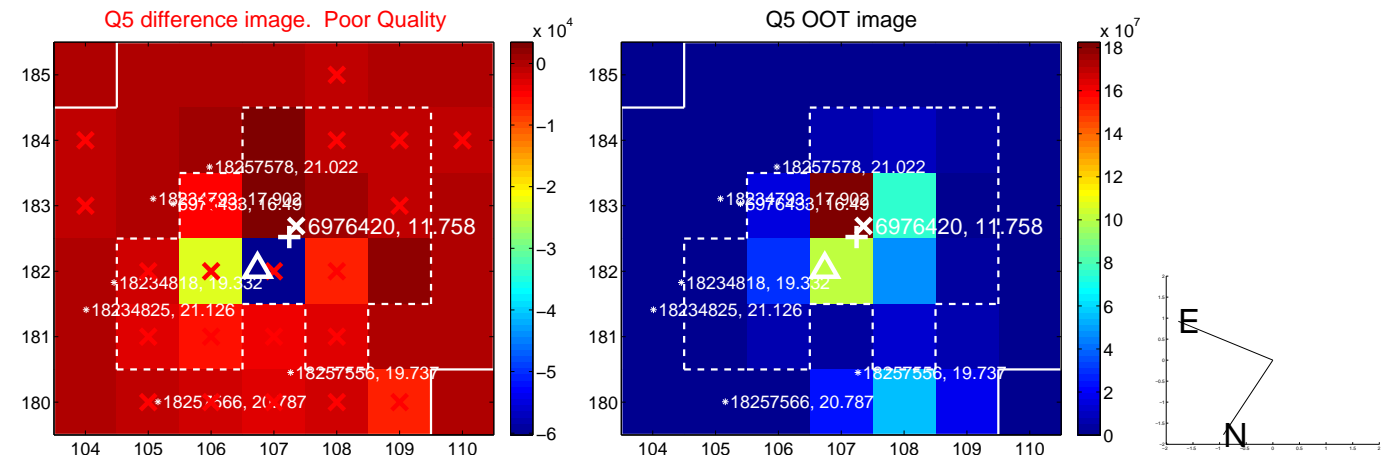


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

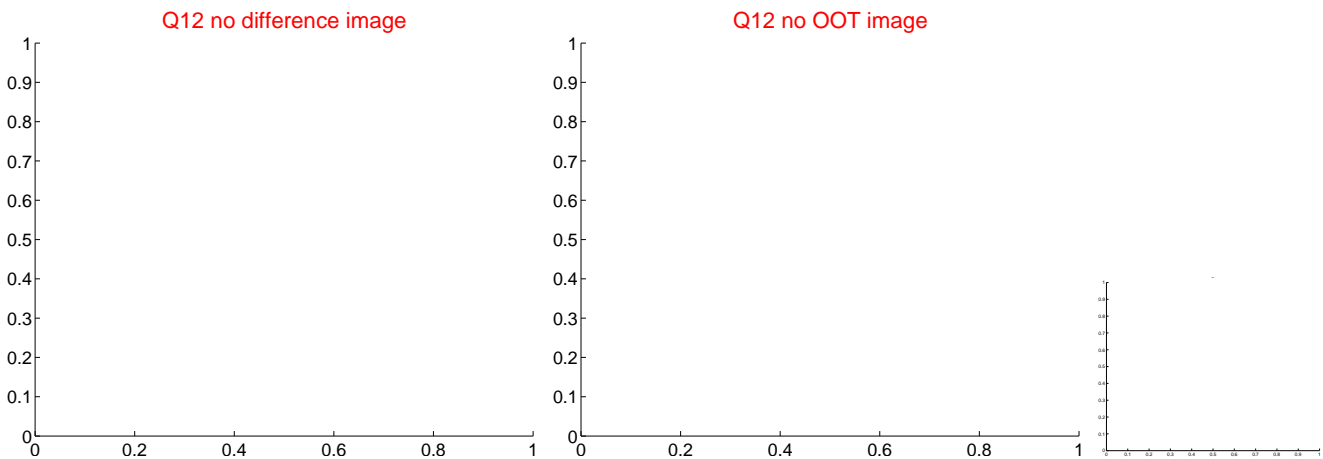
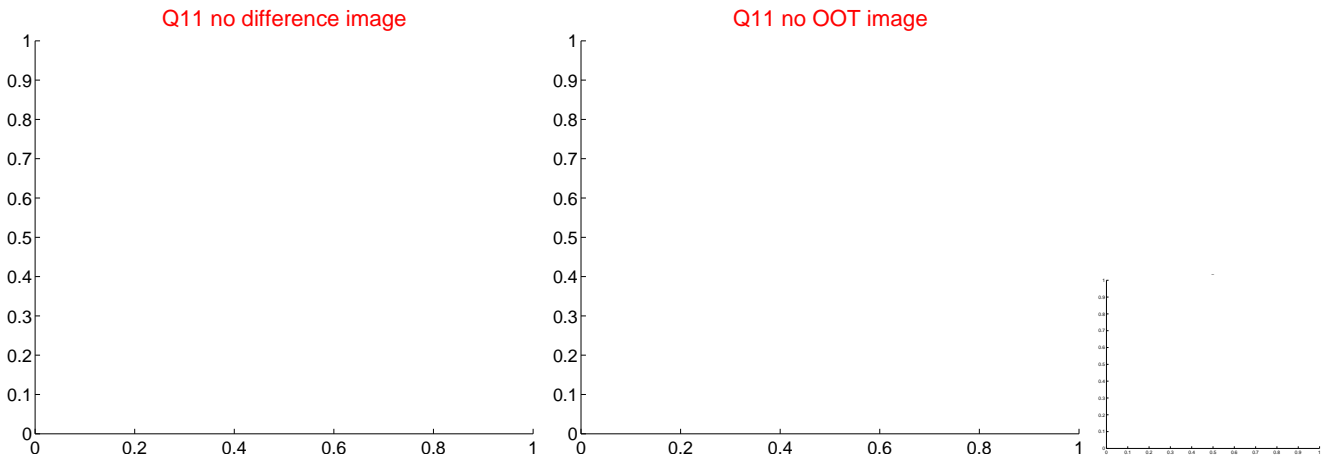
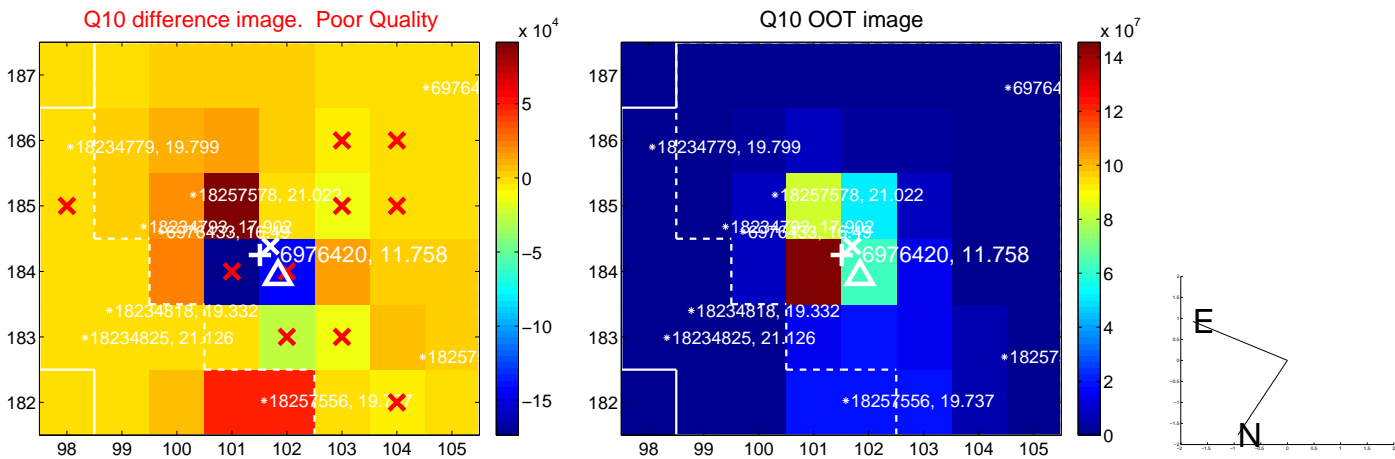
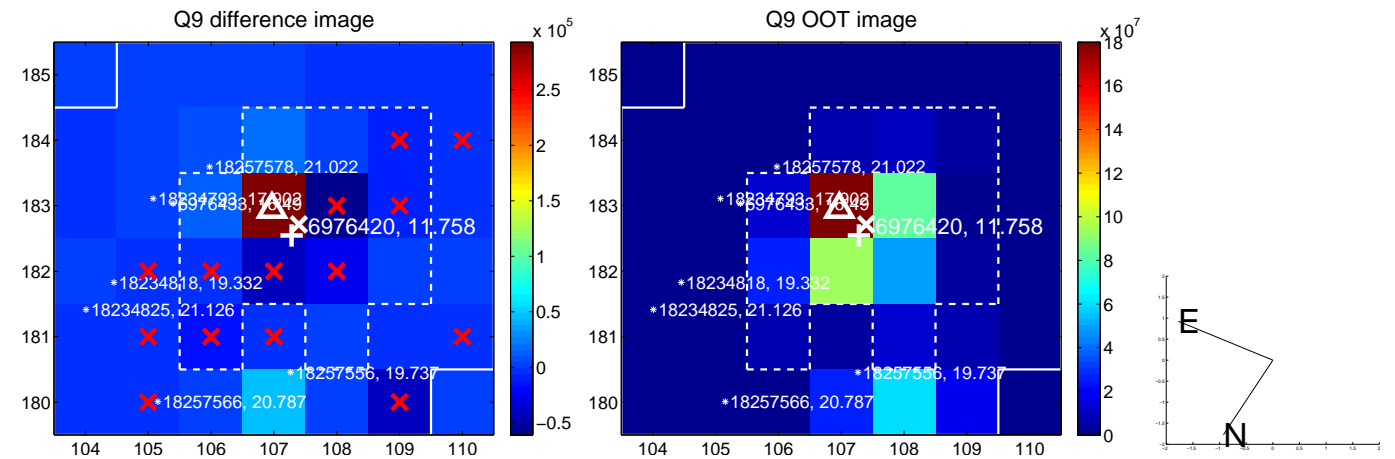
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



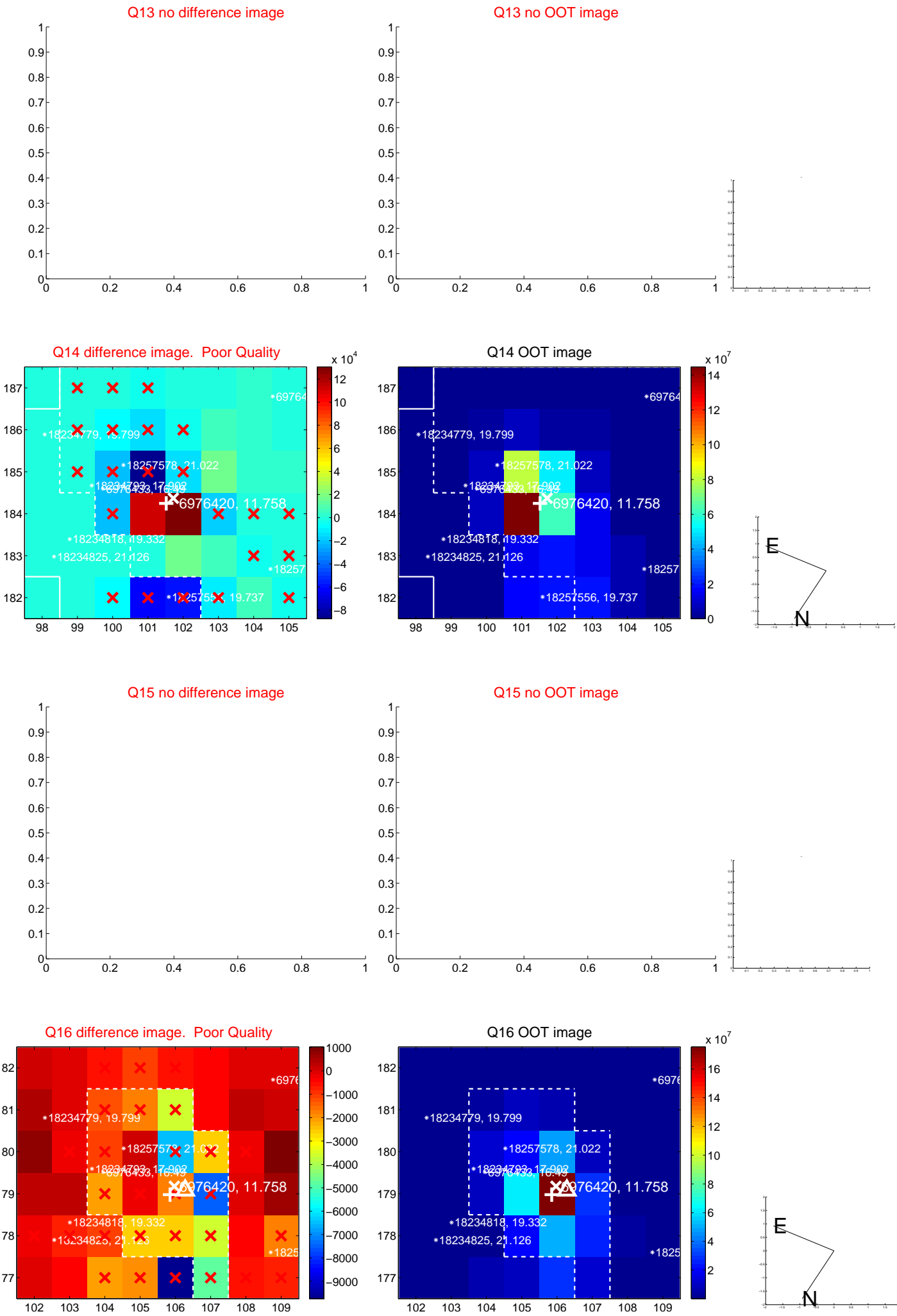
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



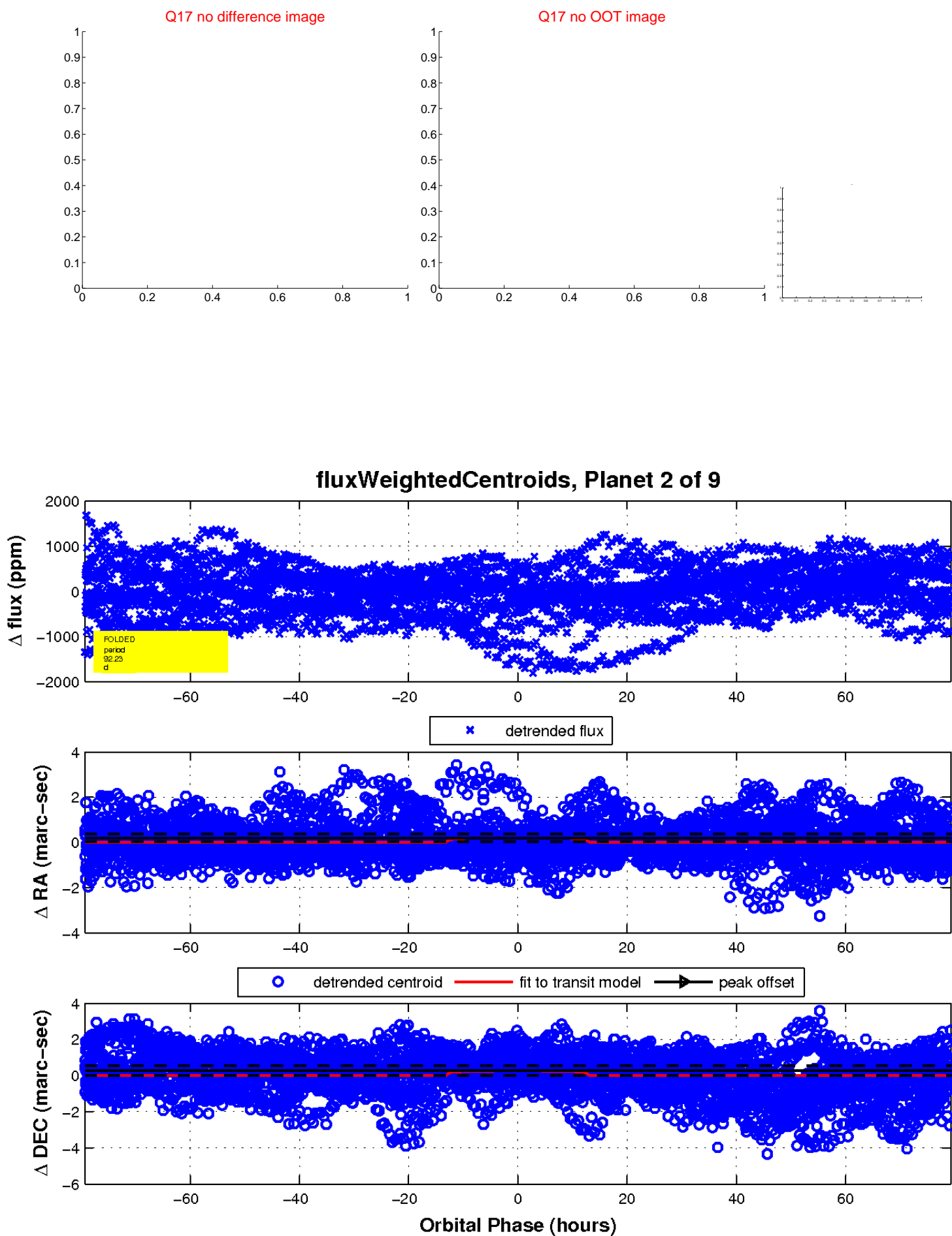
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



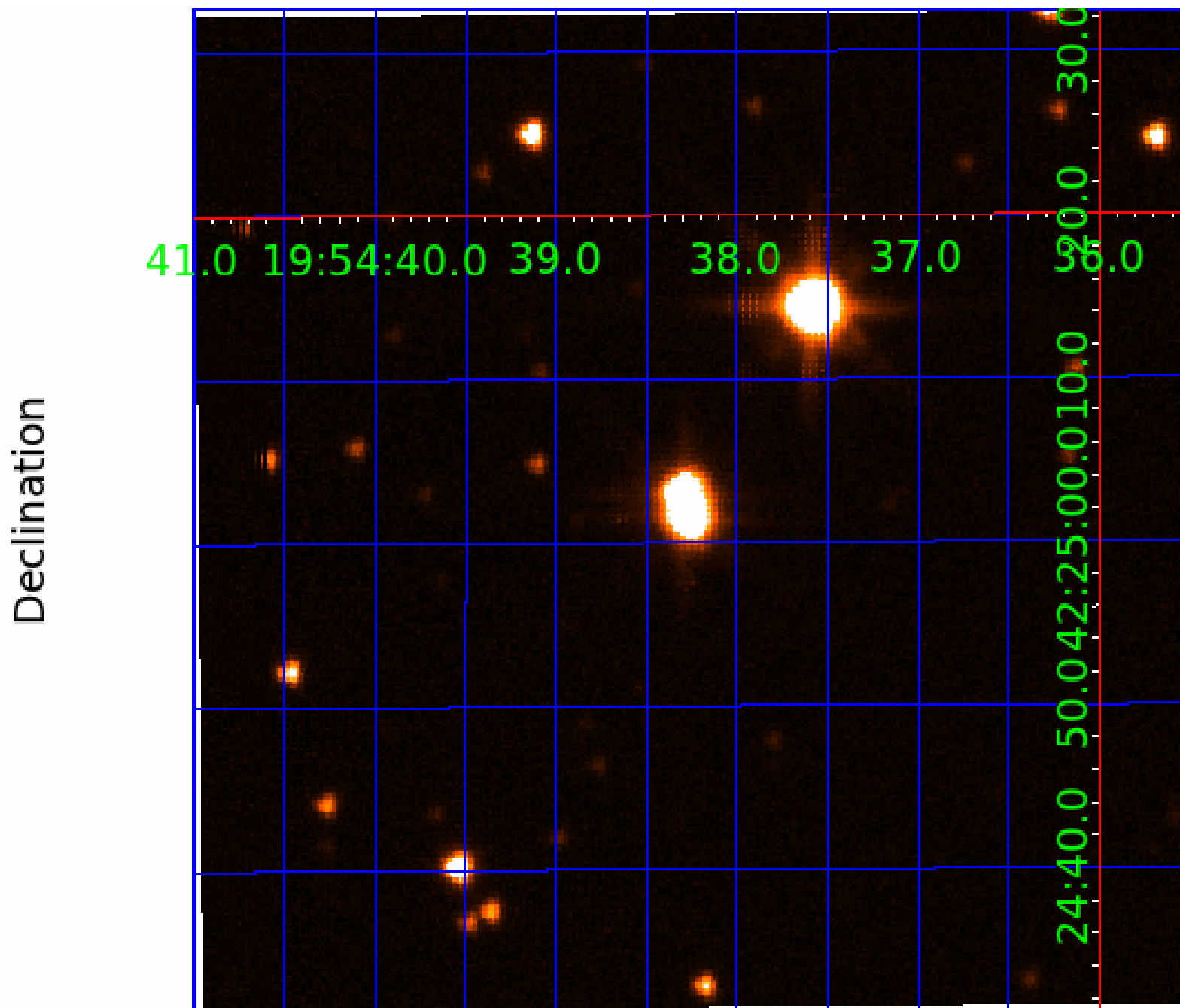
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

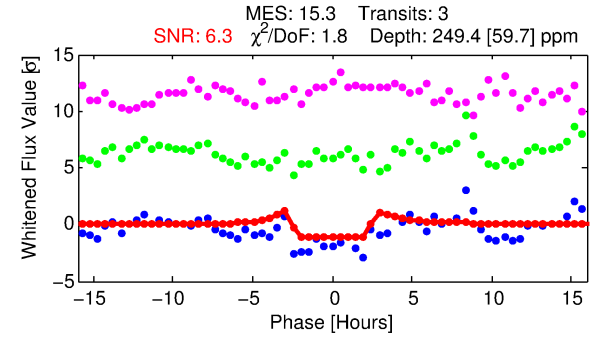
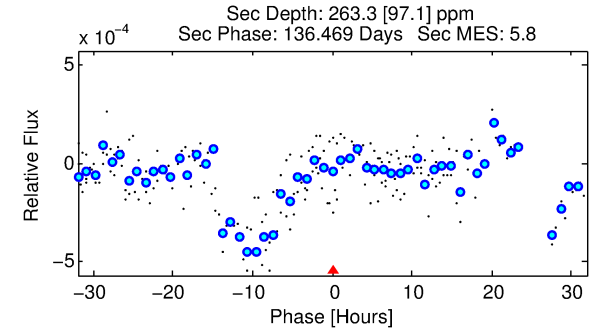
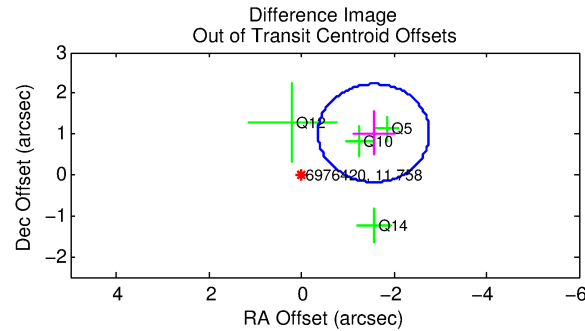
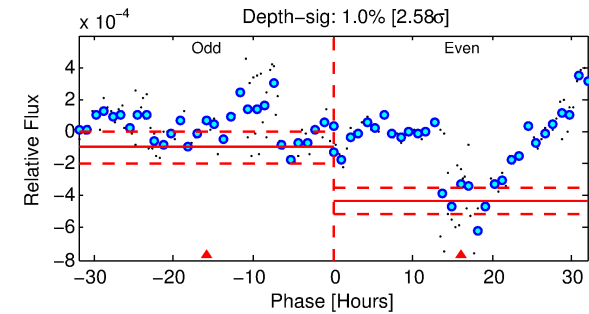
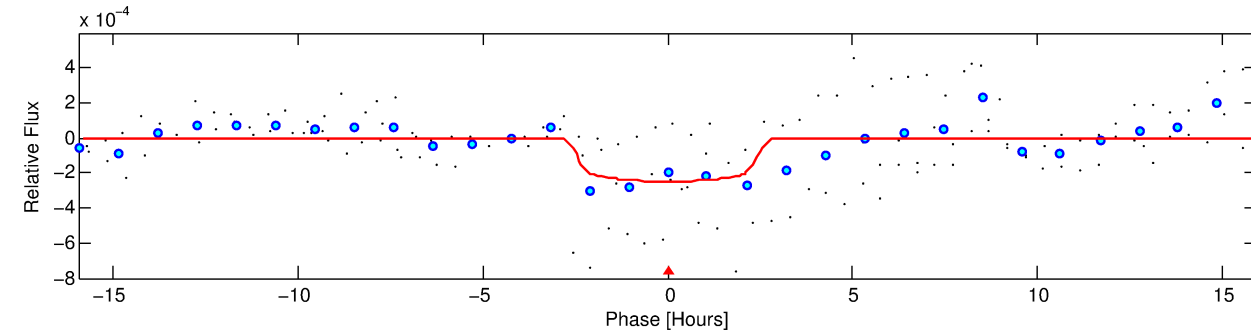
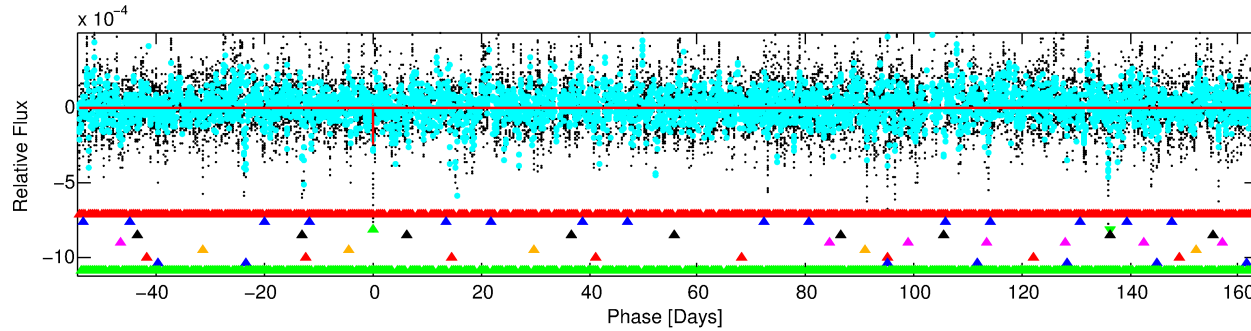
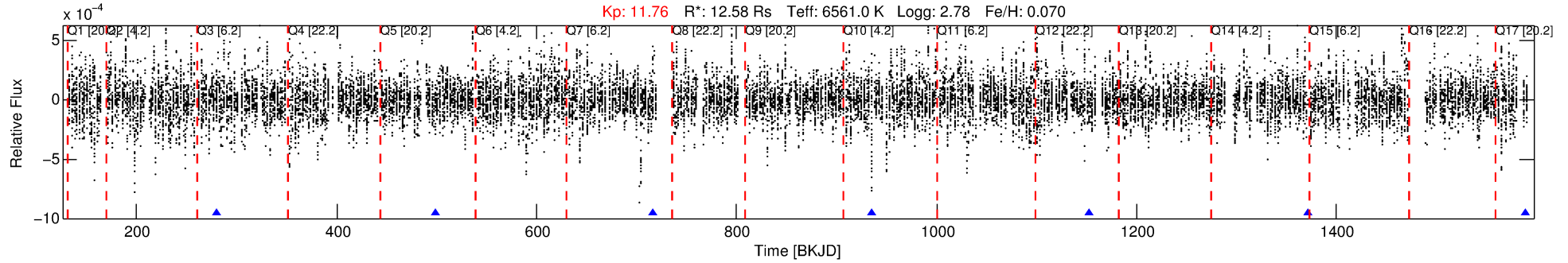
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-03

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 3 of 9 Period: 218.001 d



DV Fit Results:

Period = 218.00090 [0.00863] d
Epoch = 280.7615 [0.0202] BKJD
Rp/R* = 0.0164 [0.0094]
a/R* = 170.29 [546.57]
b = 0.86 [0.99]
Seff = 227.65 [264.26]
Teq = 990 [287] K
Rp = 22.54 [17.86] Re
a = 1.0742 [0.4724] AU
Ag = 328.91 [443.61] [0.74 σ]
Teffp = 6522 [2536] K [2.17 σ]

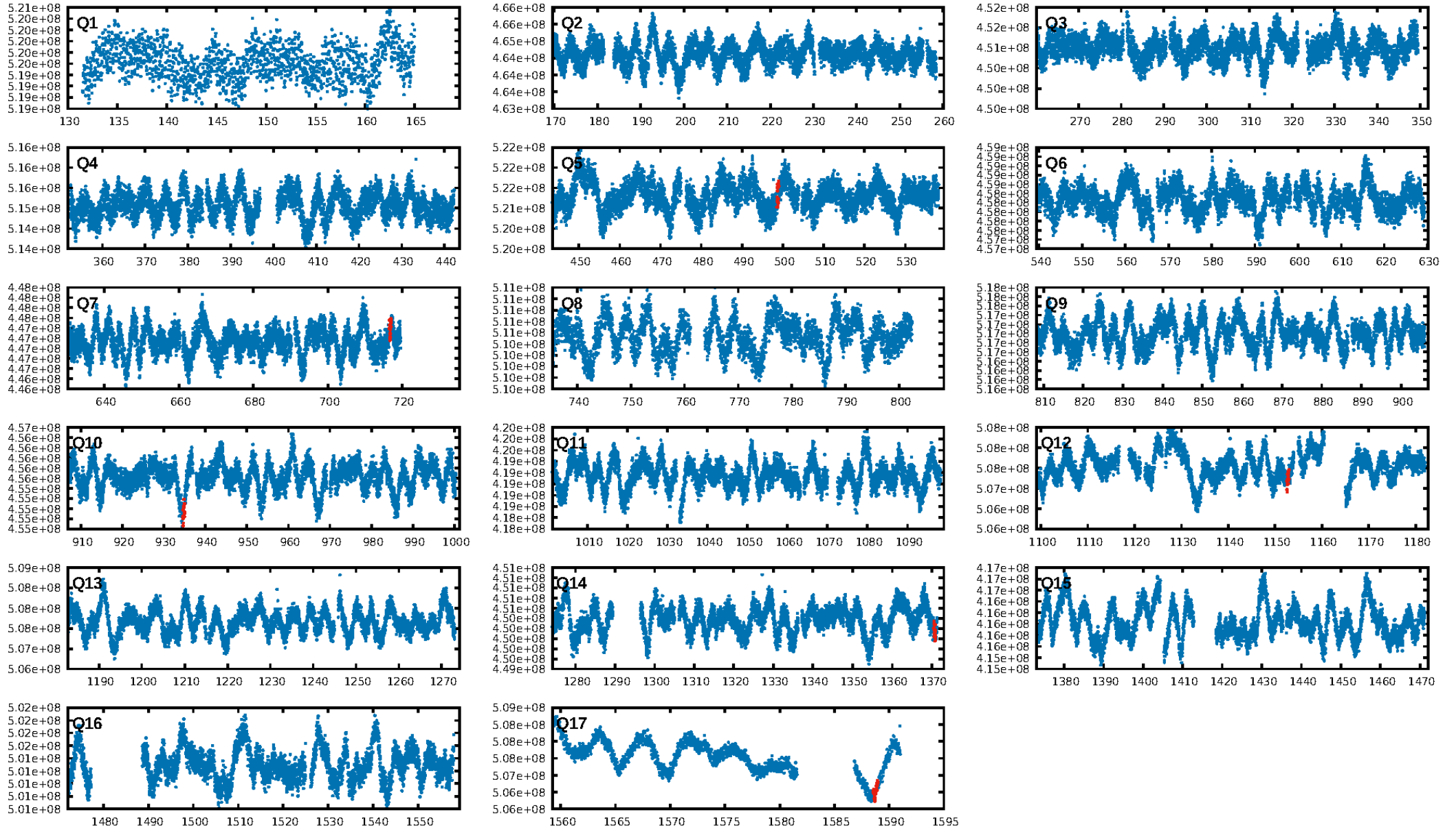
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.05 σ]
LongPeriod-sig: 100.0% [8.68 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 2.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5339
Centroid-sig: 11.3%
Centroid-so: 0.356 arcsec [0.35 σ]
OotOffset-rm: 1.865 arcsec [4.65 σ]
KicOffset-rm: 2.228 arcsec [4.99 σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/6]

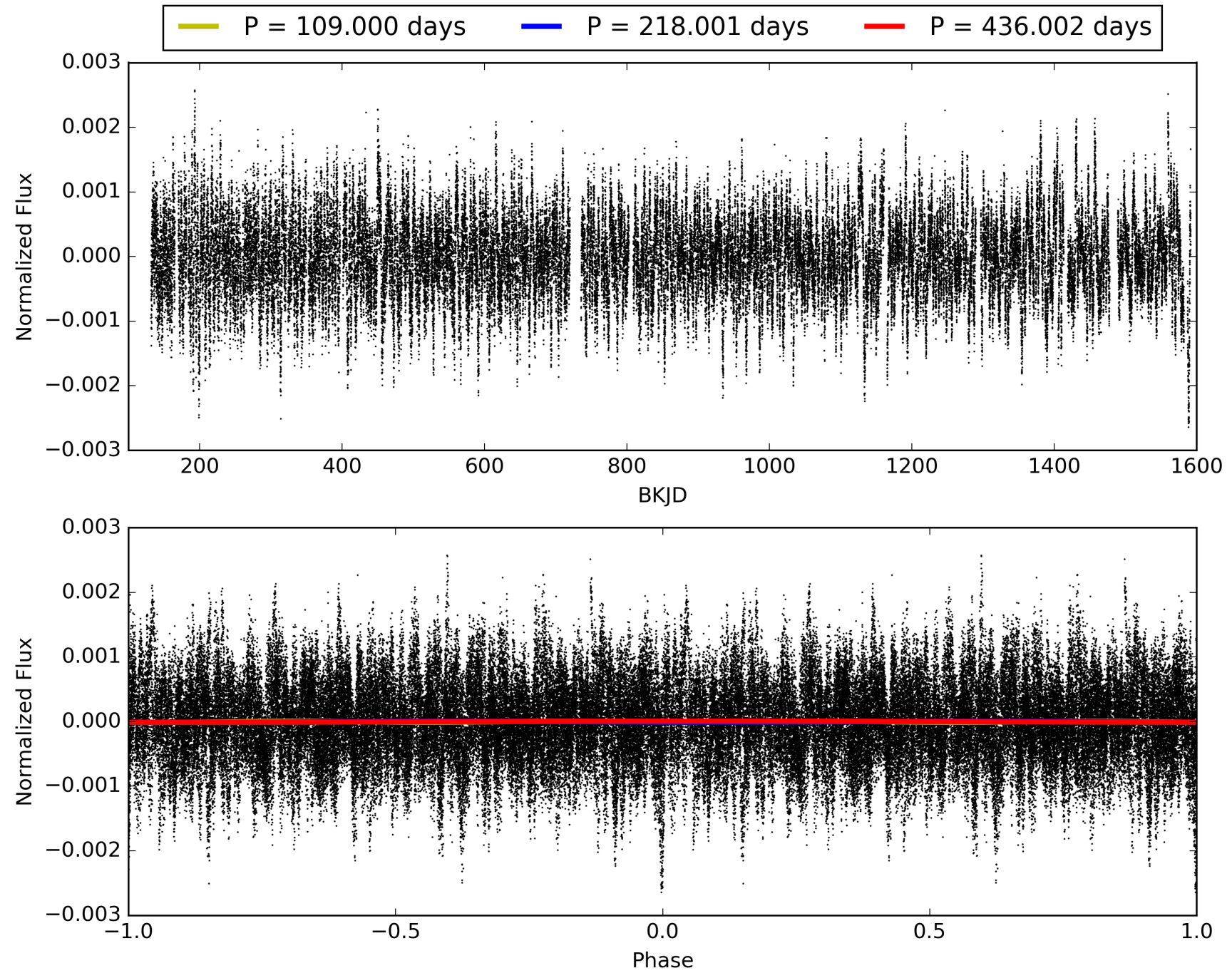
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:32 Z

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

TCE 006976420-03, PDC Light Curves

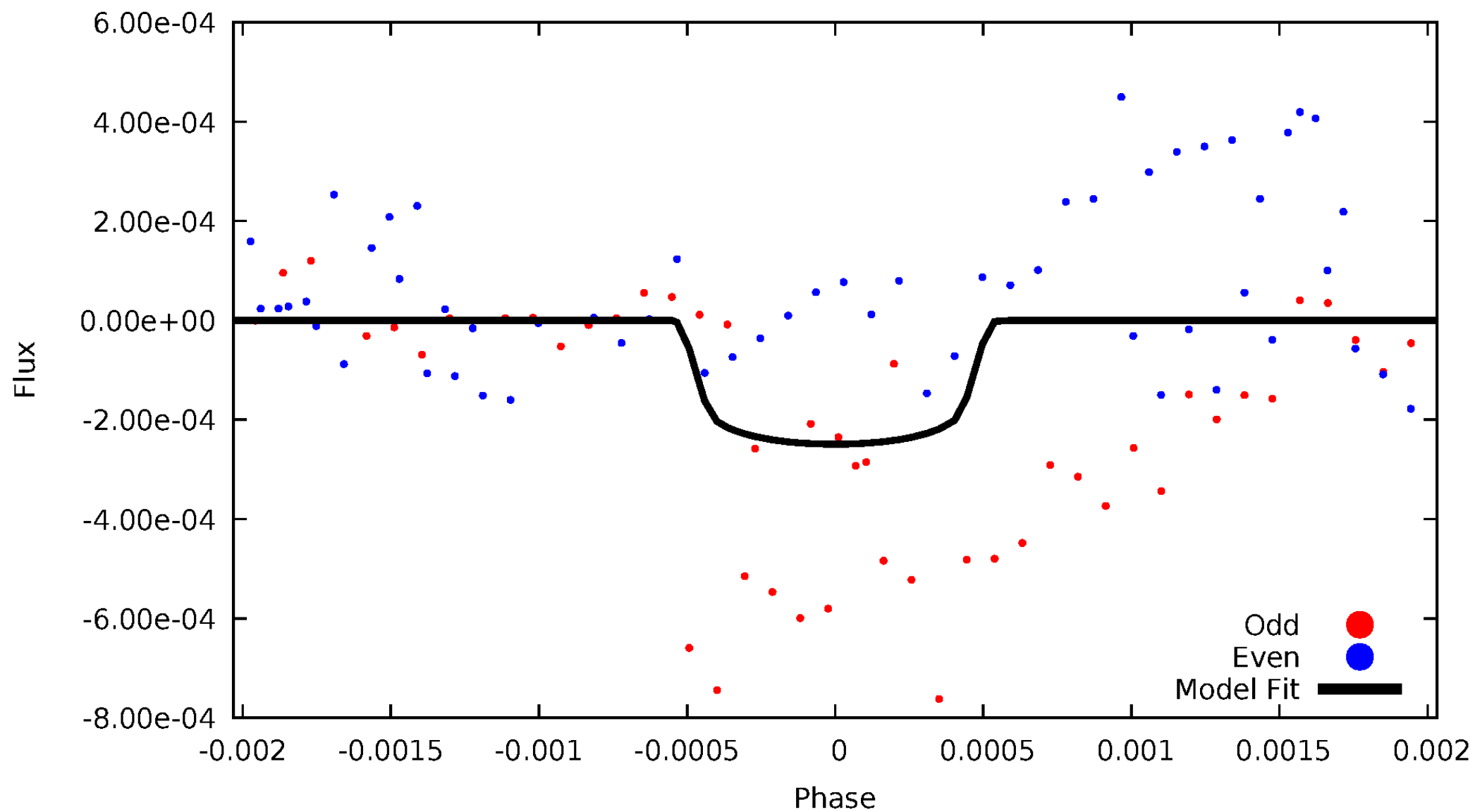


TCE 006976420-03



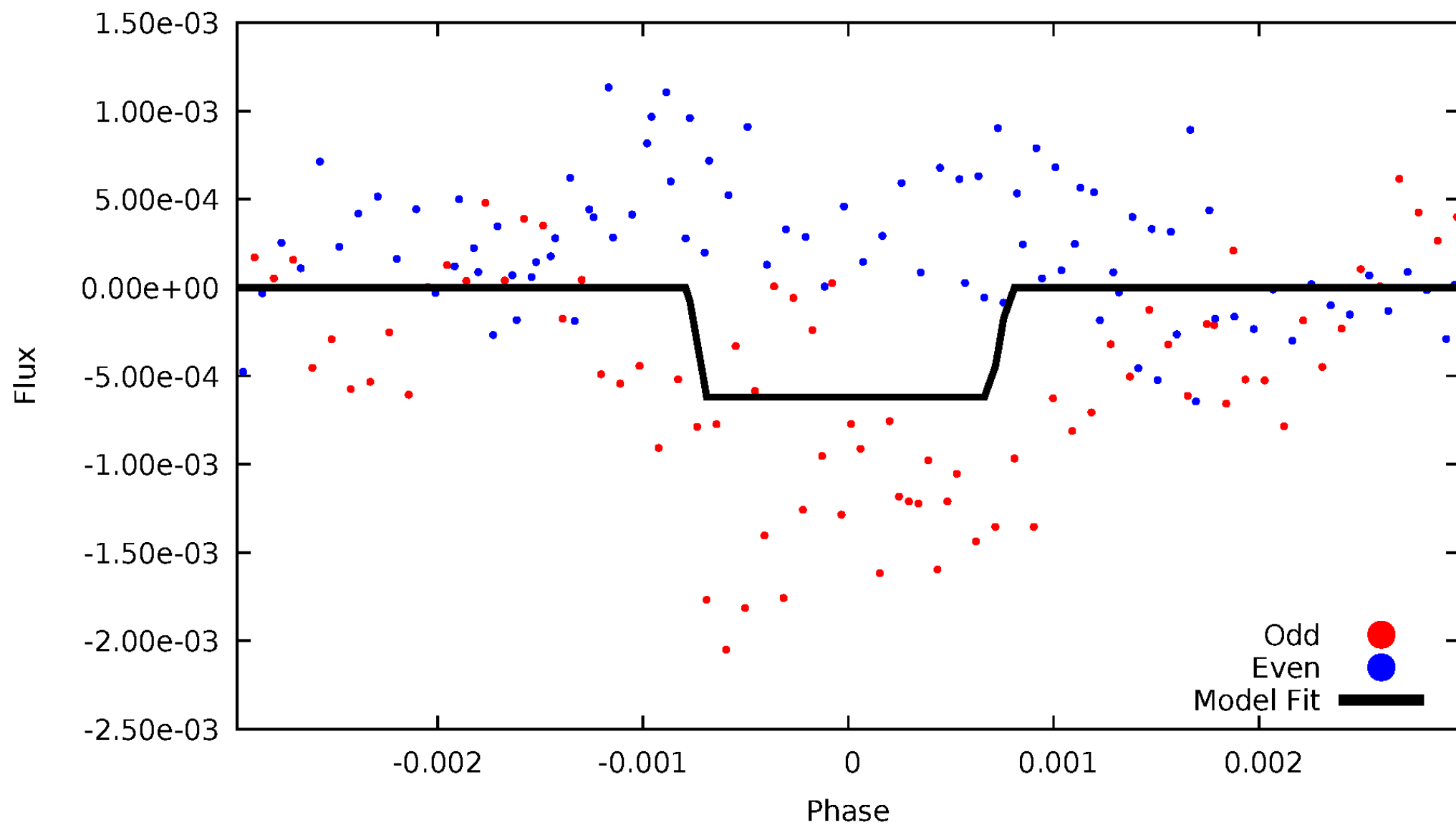
DV Odd/Even

TCE 006976420-03

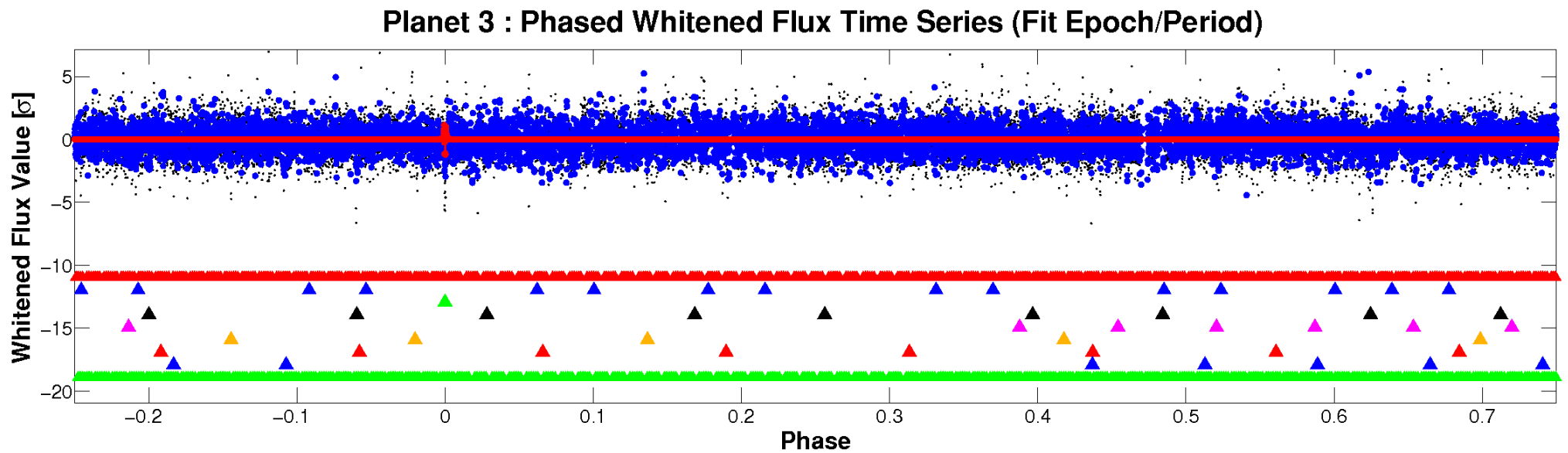
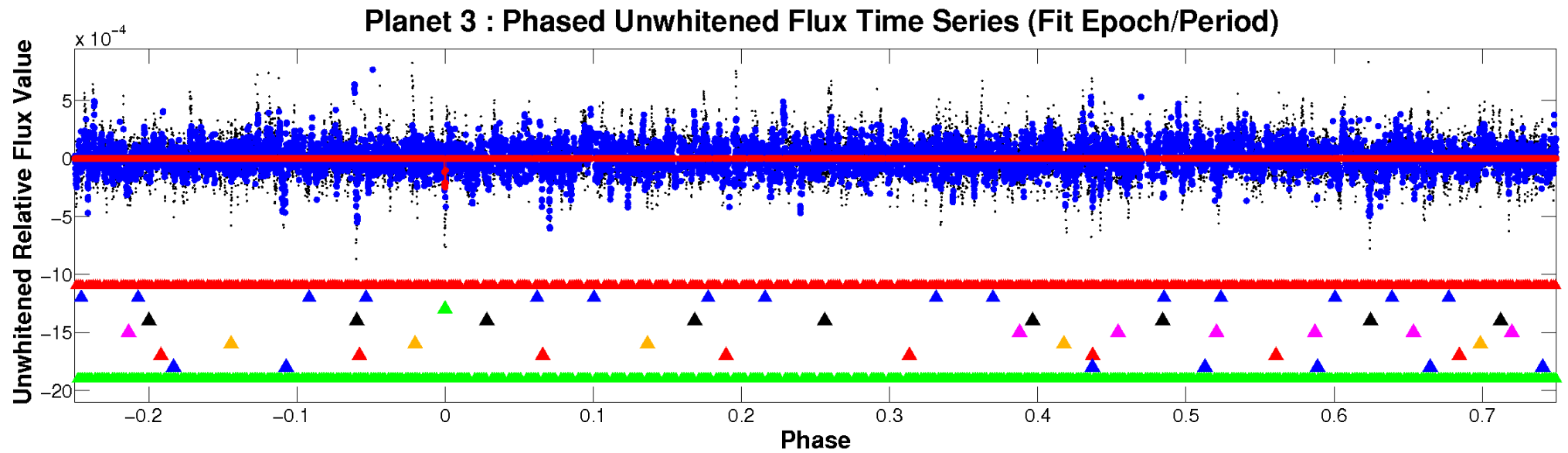


ALT Odd/Even

TCE 006976420-03

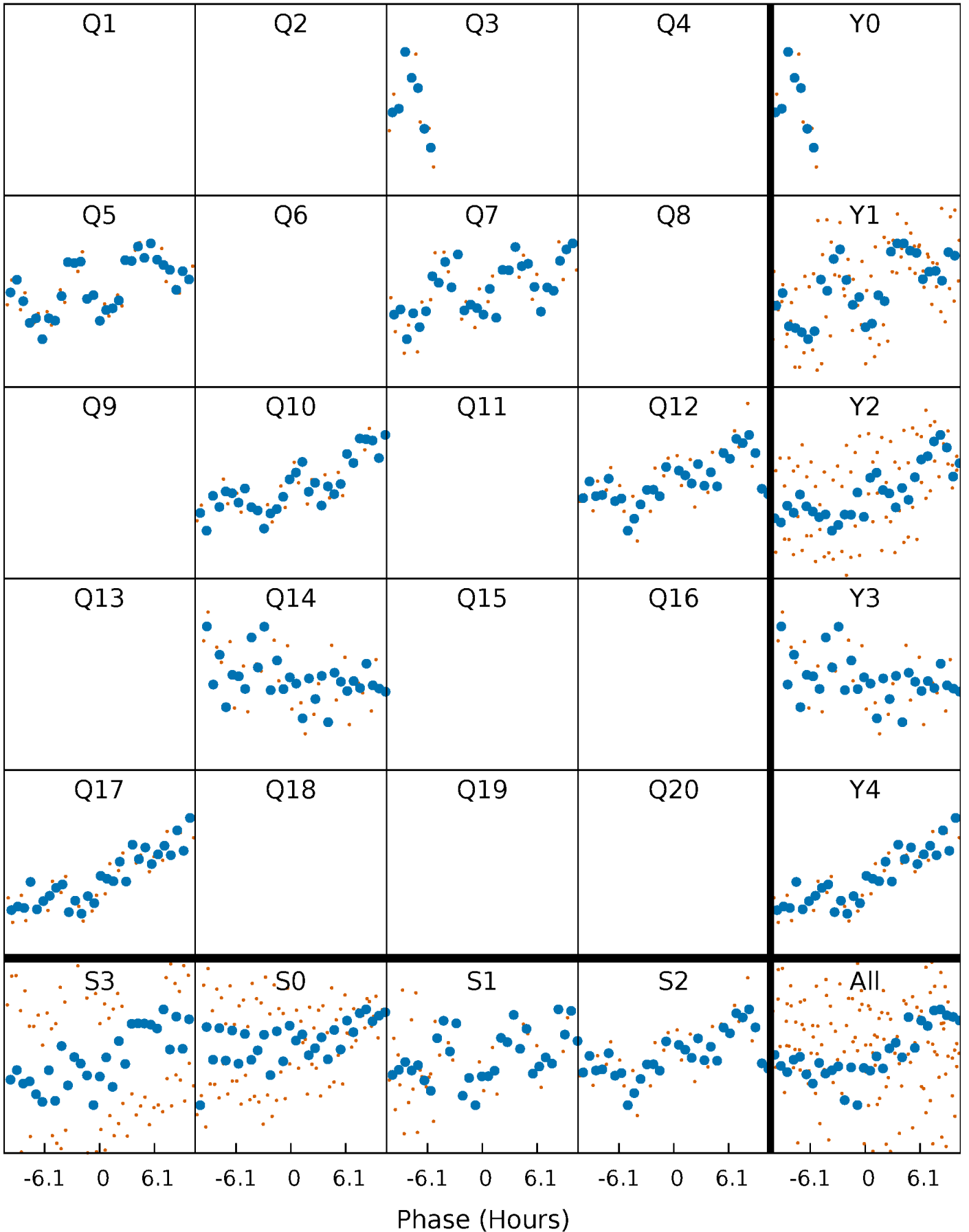


Non-Whitened Vs. Whitened Light Curve



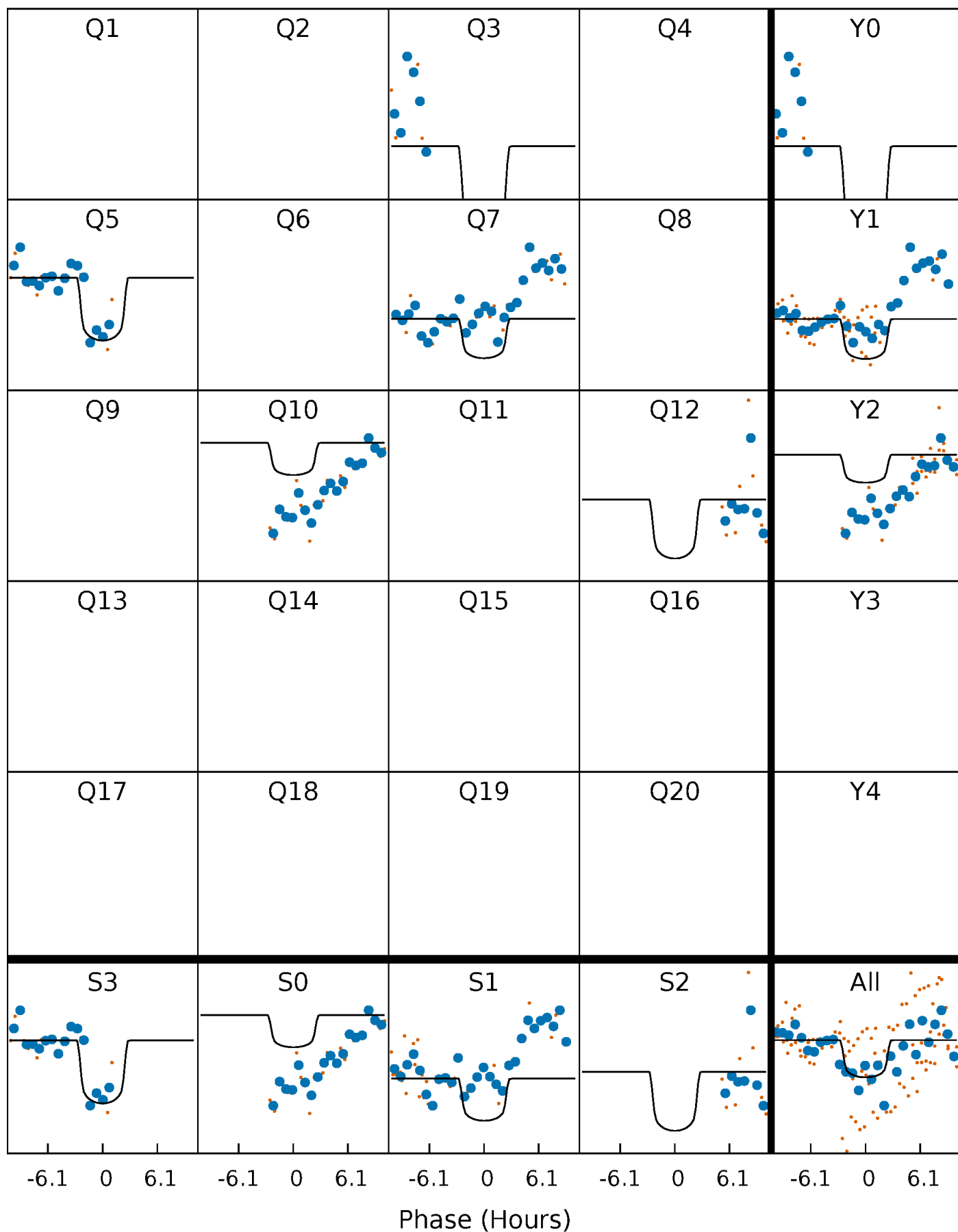
PDC Quarter-Phased Transit Curves

TCE 006976420-03 P=218.000900 Days $T_0=280.761533$ (BKJD)



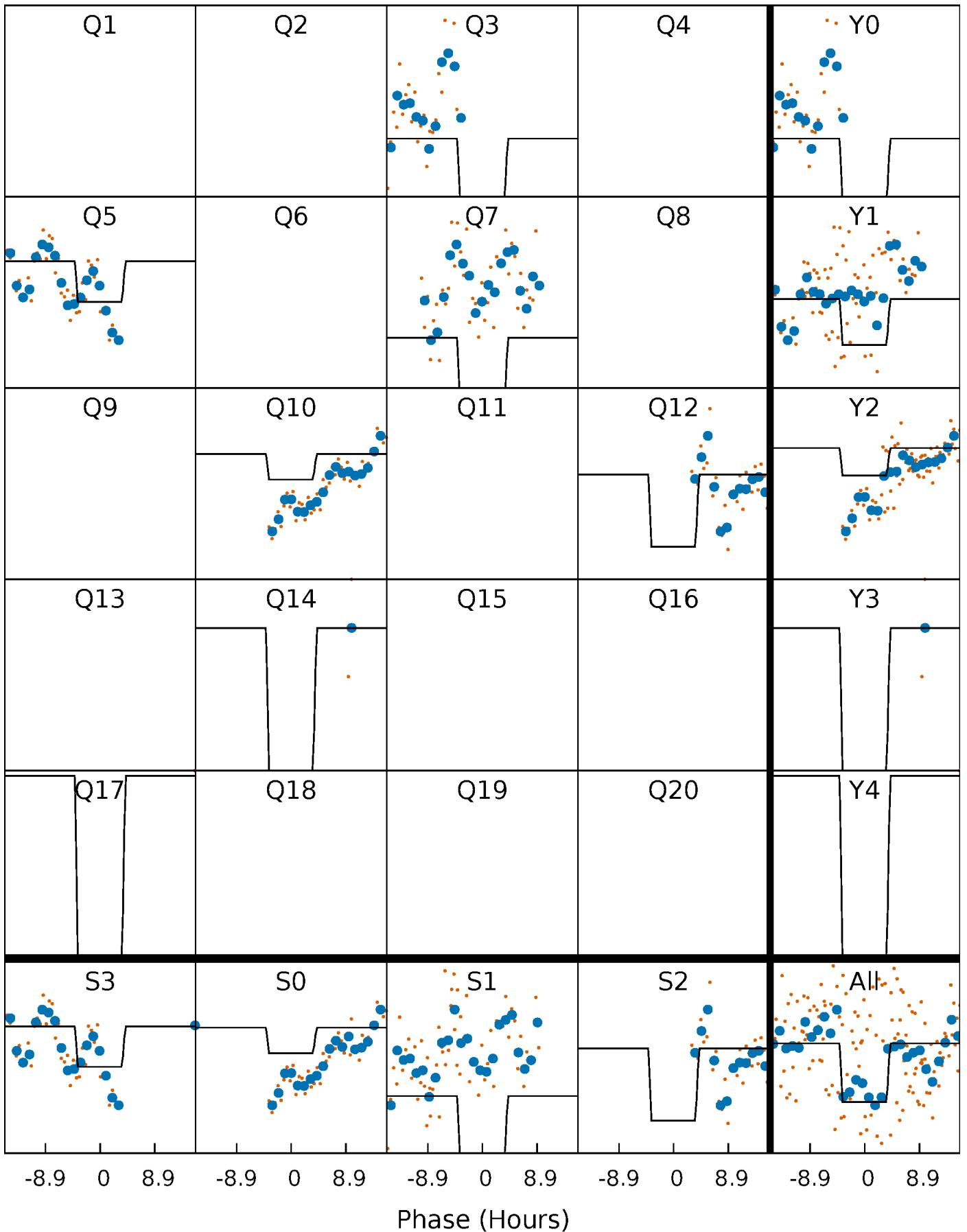
DV Quarter-Phased Transit Curves

TCE 006976420-03 P=218.000900 Days $T_0=280.761533$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

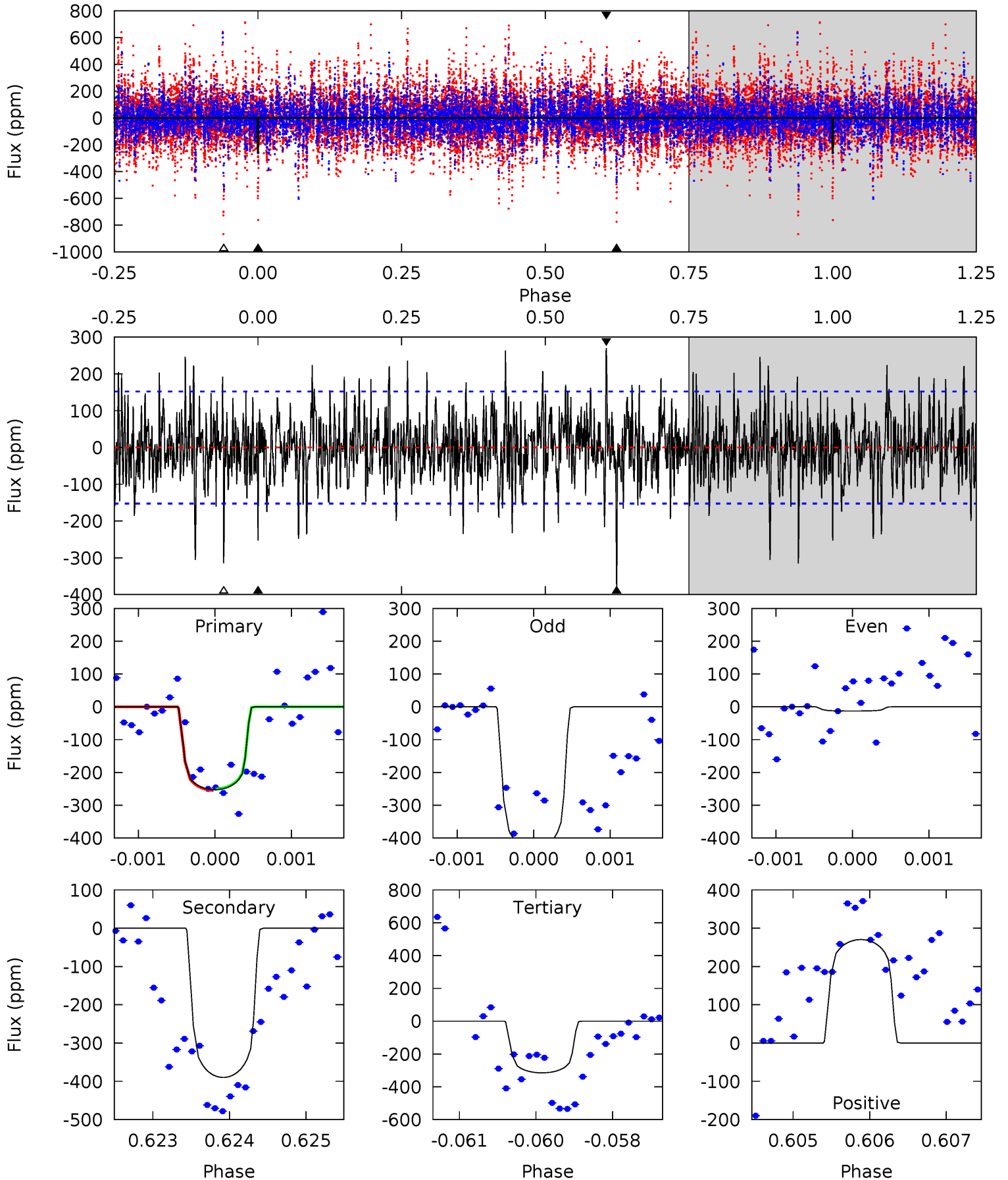
TCE 006976420-03 P=218.053330 Days $T_0=280.647237$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-03, P = 218.000900 Days, E = 62.760633 Days

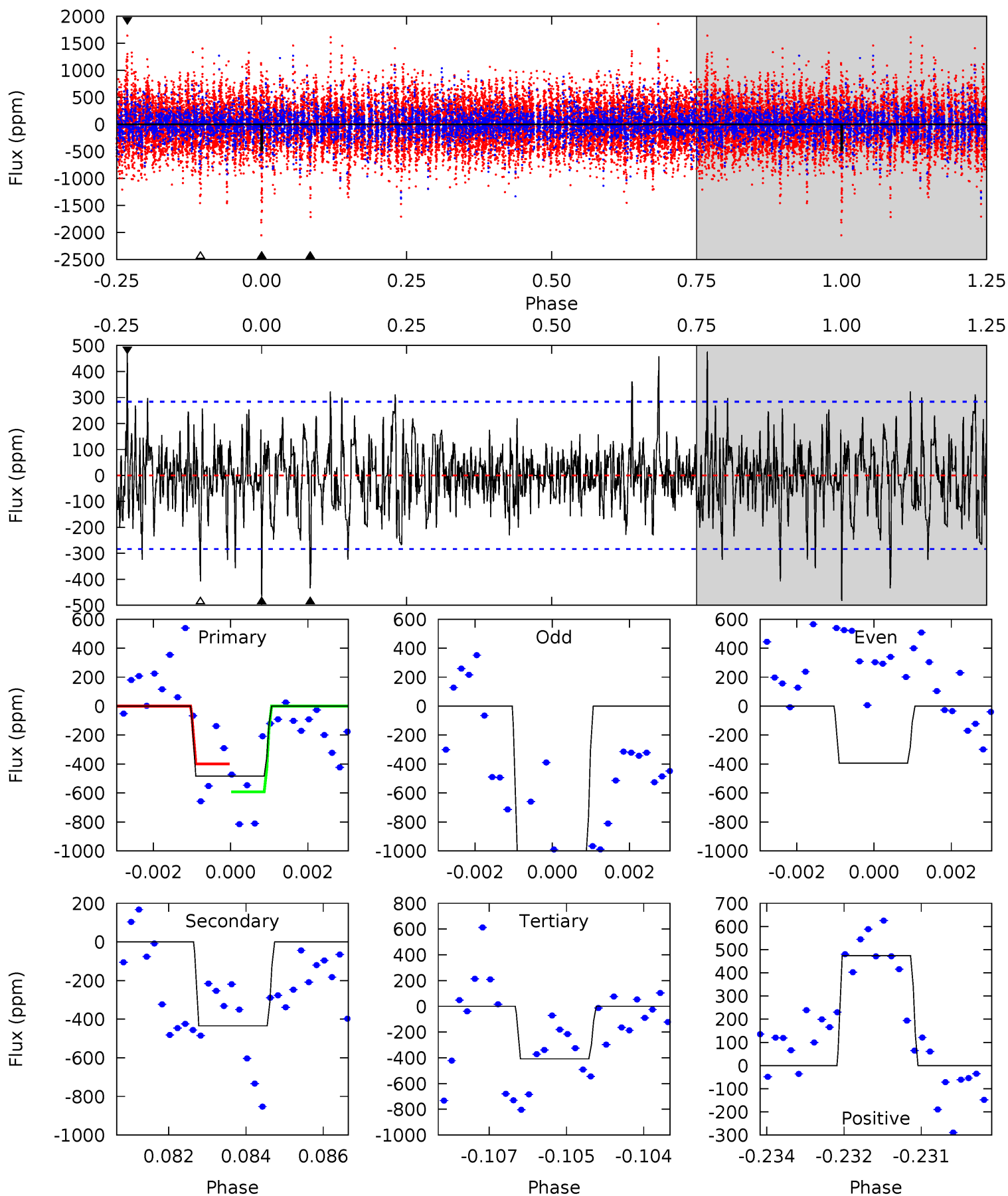
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.02	13.9	11.2	9.64	5.43	3.26	2.58	-2.23	-0.63	2.67	4.27	7.45	1.48	0.41	0.08



Alt Model-Shift Uniqueness Test

006976420-03, P = 218.053330 Days, E = 62.593907 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.17	8.24	7.74	8.99	5.38	3.17	1.90	1.42	0.17	0.50	-0.75	6.40	1.29	0.50	1.79



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-390 ± 28	$22.42^{+12.63}_{-11.10}$	1301^{+194}_{-286}	6630^{+3463}_{-1635}	478^{+1210}_{-283}
Alt.	-435 ± 53	$32.43^{+15.21}_{-14.00}$	1322^{+192}_{-307}	5635^{+1928}_{-1233}	248^{+461}_{-134}

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

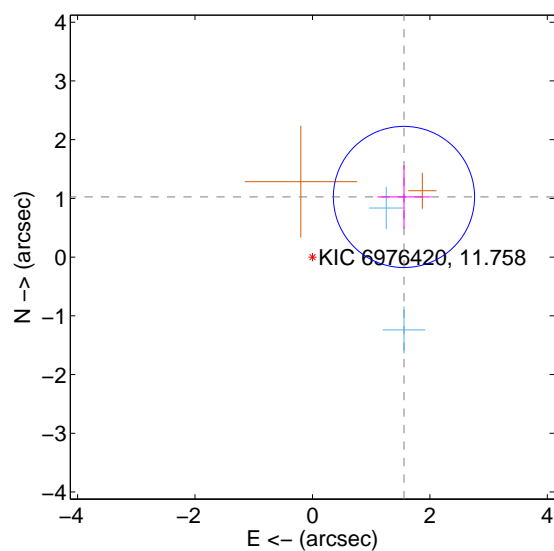
Supplemental centroid analysis for 006976420-03. **Kepler magnitude: 11.76.** Transit SNR 6.28

There are 2 quarters with good PRF difference image offsets

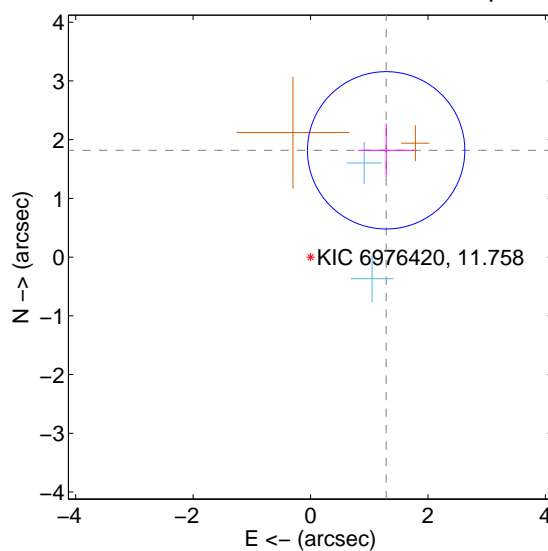
The direct PRF centroid is offset from the target star catalog position by about 1.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.865 ± 0.401	4.65	-1.559 ± 0.450	1.024 ± 0.537
PRF-fit source offset from KIC position	2.228 ± 0.447	4.99	-1.288 ± 0.476	1.819 ± 0.457
photometric centroid source offset	0.36 ± 1.03	0.35	-0.20 ± 0.79	0.30 ± 1.12

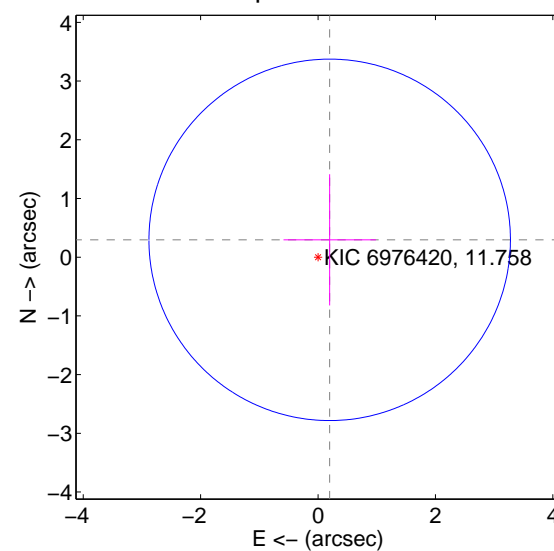
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

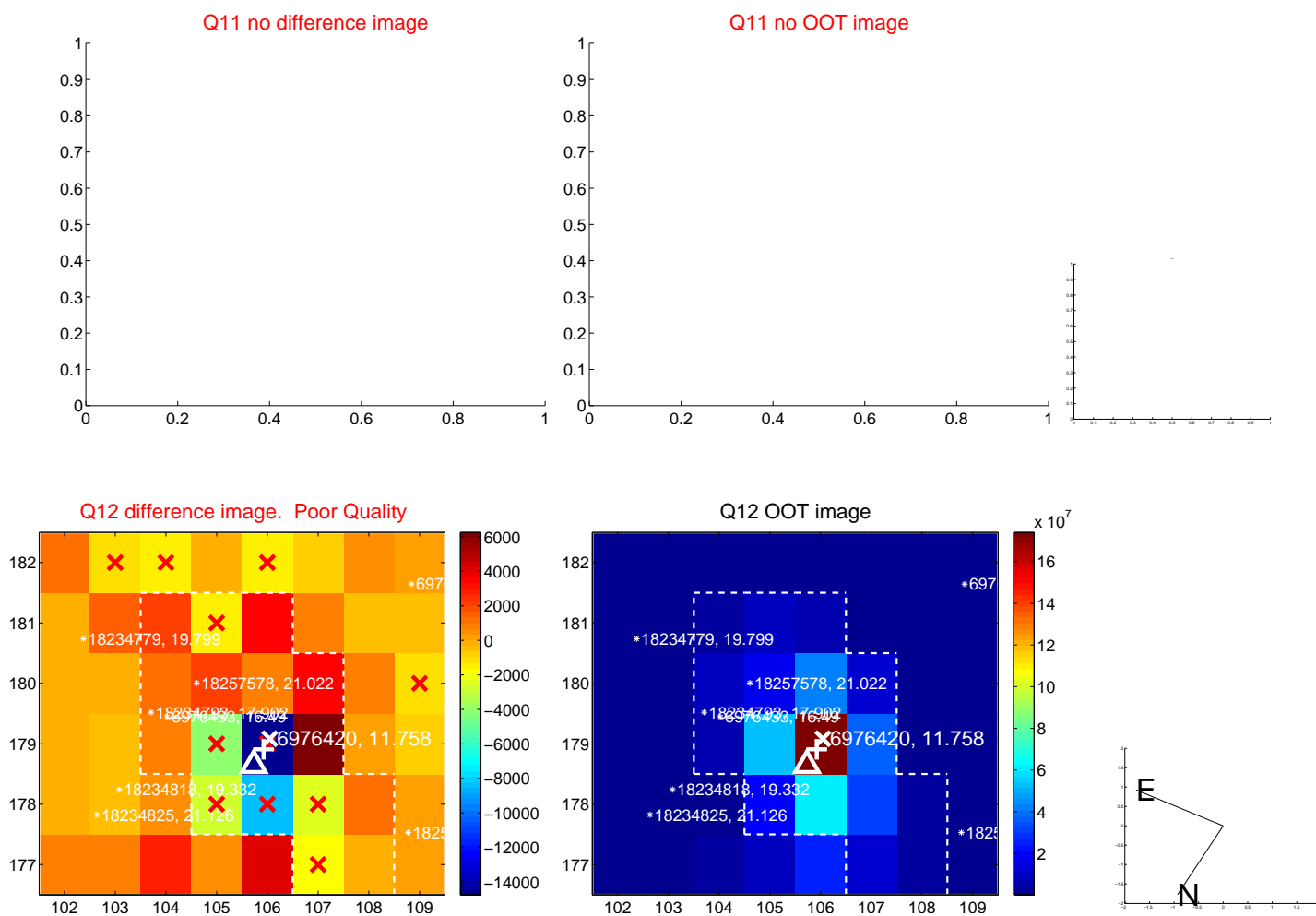
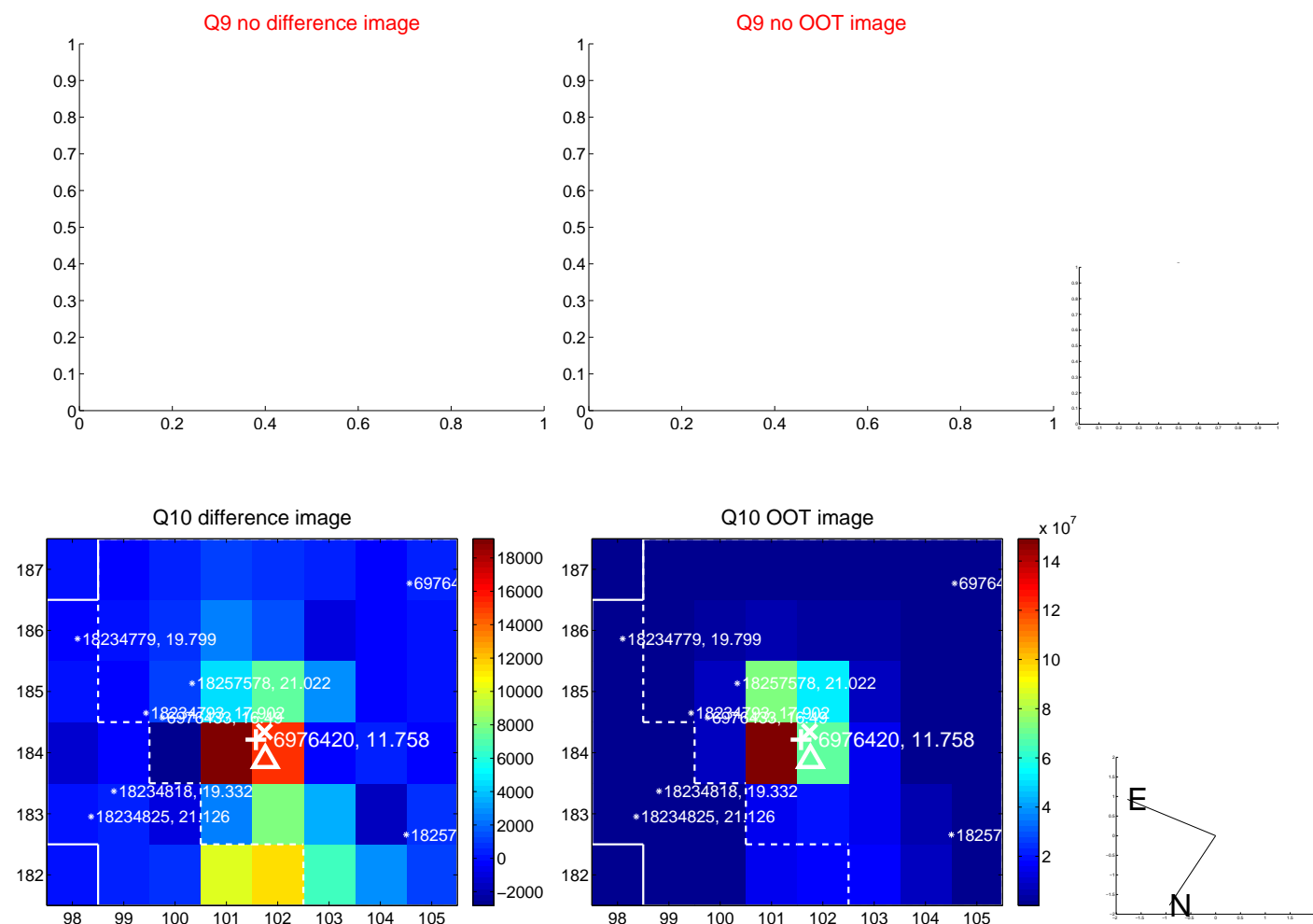


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

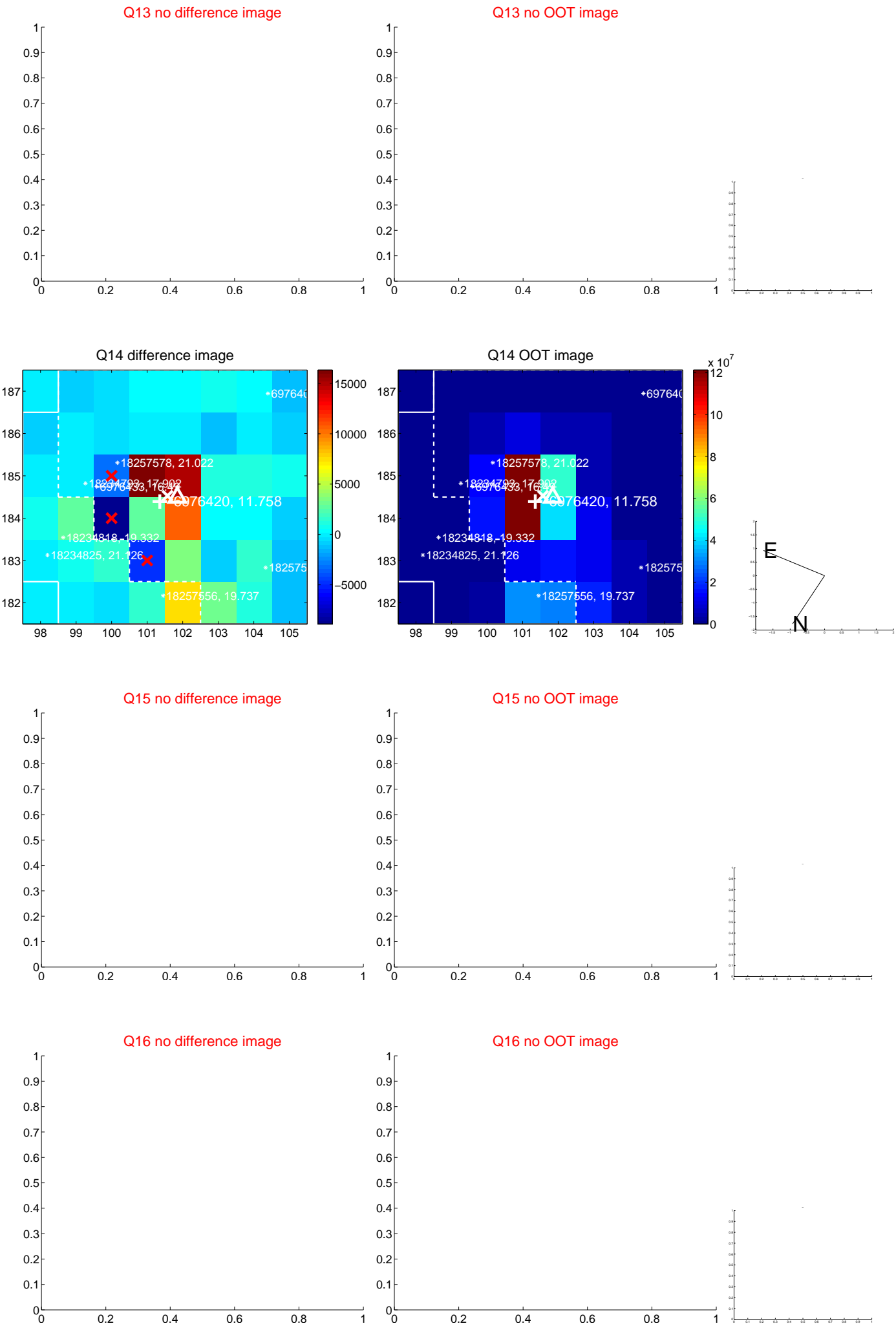
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



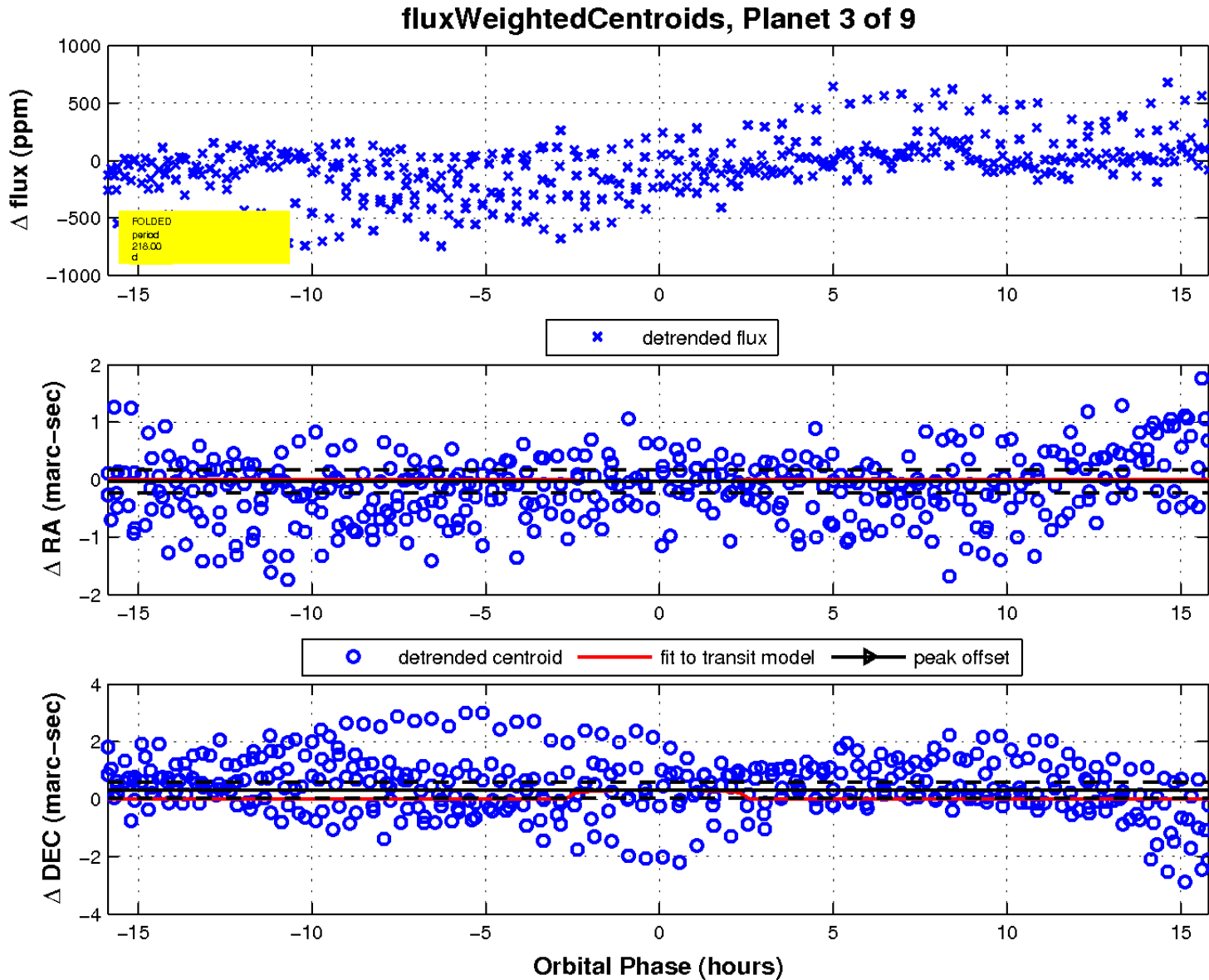
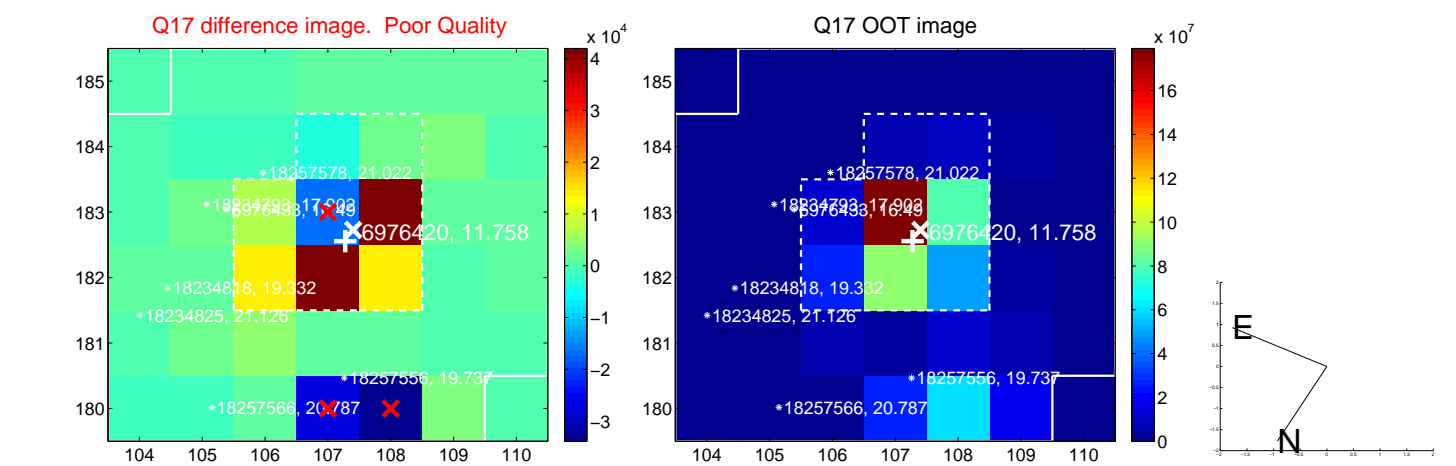
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



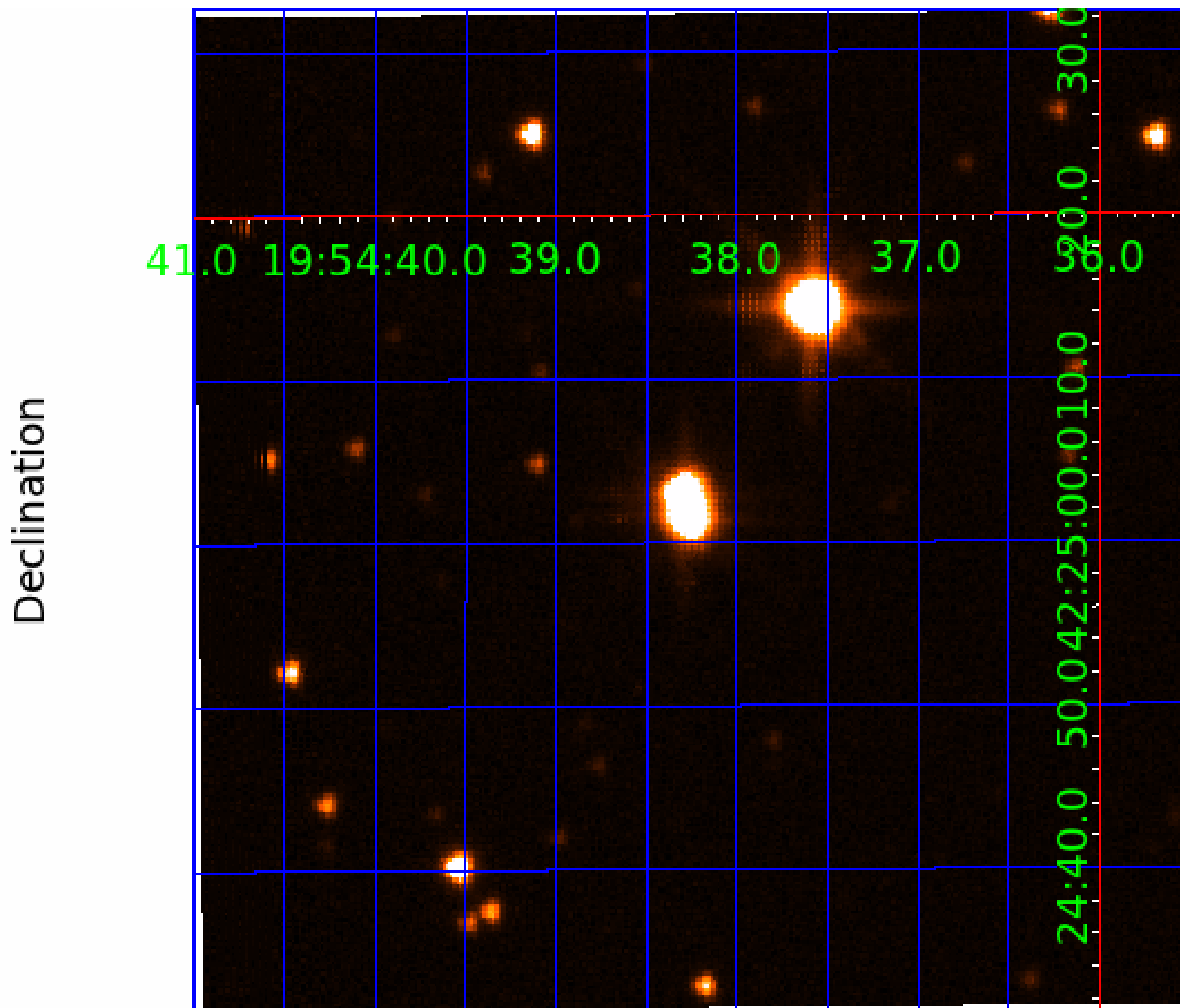
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

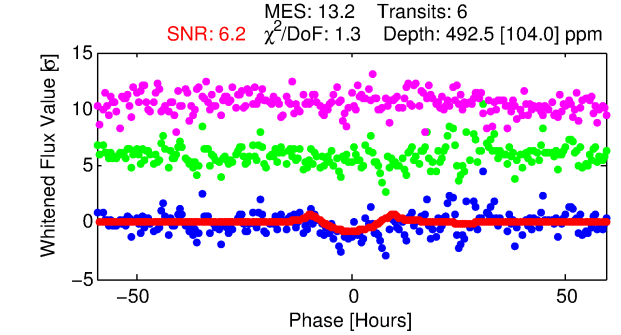
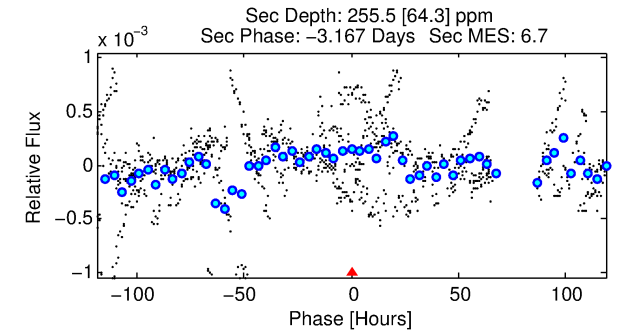
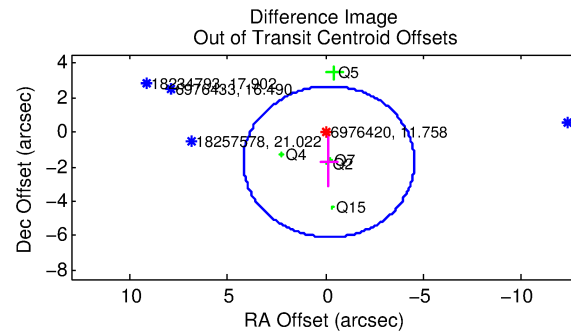
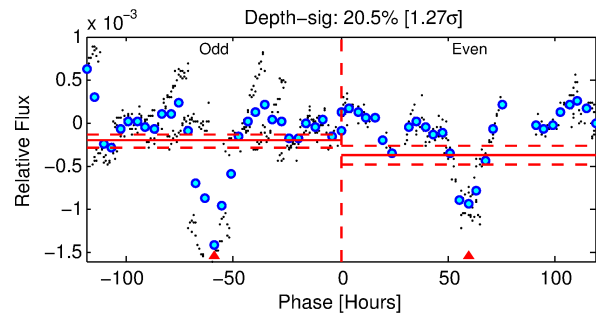
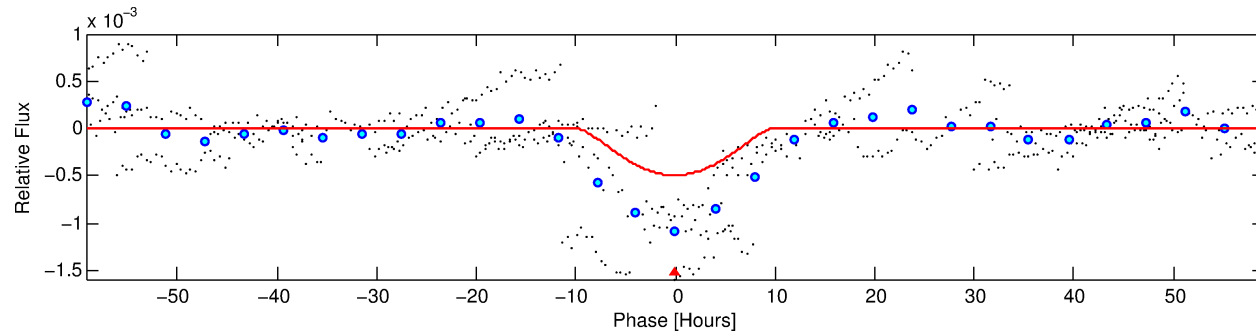
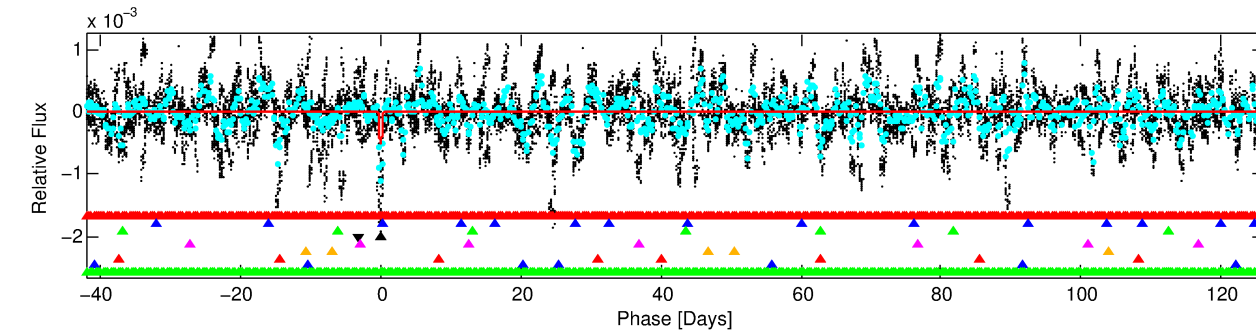
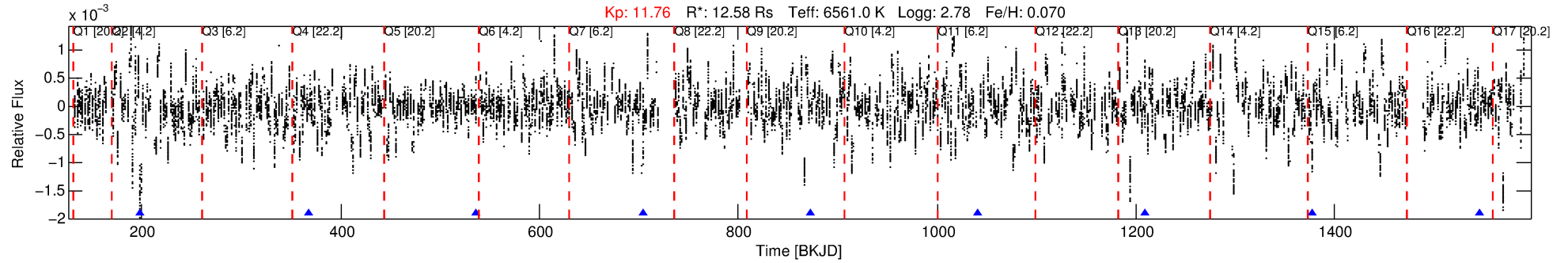
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-04

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 4 of 9 Period: 168.284 d



DV Fit Results:

Period = 168.28405 [0.00965] d
Epoch = 198.9290 [0.0428] BKJD
Rp/R* = 0.0384 [0.0616]
a/R* = 18.49 [7.41]
b = 1.00 [0.09]
Seff = 321.48 [373.18]
Teff = 1080 [313] K
Rp = 52.68 [89.32] Re
a = 0.9040 [0.3975] AU
Ag = 41.39 [135.63] [0.30 σ]
Teffp = 4234 [3564] K [0.88 σ]

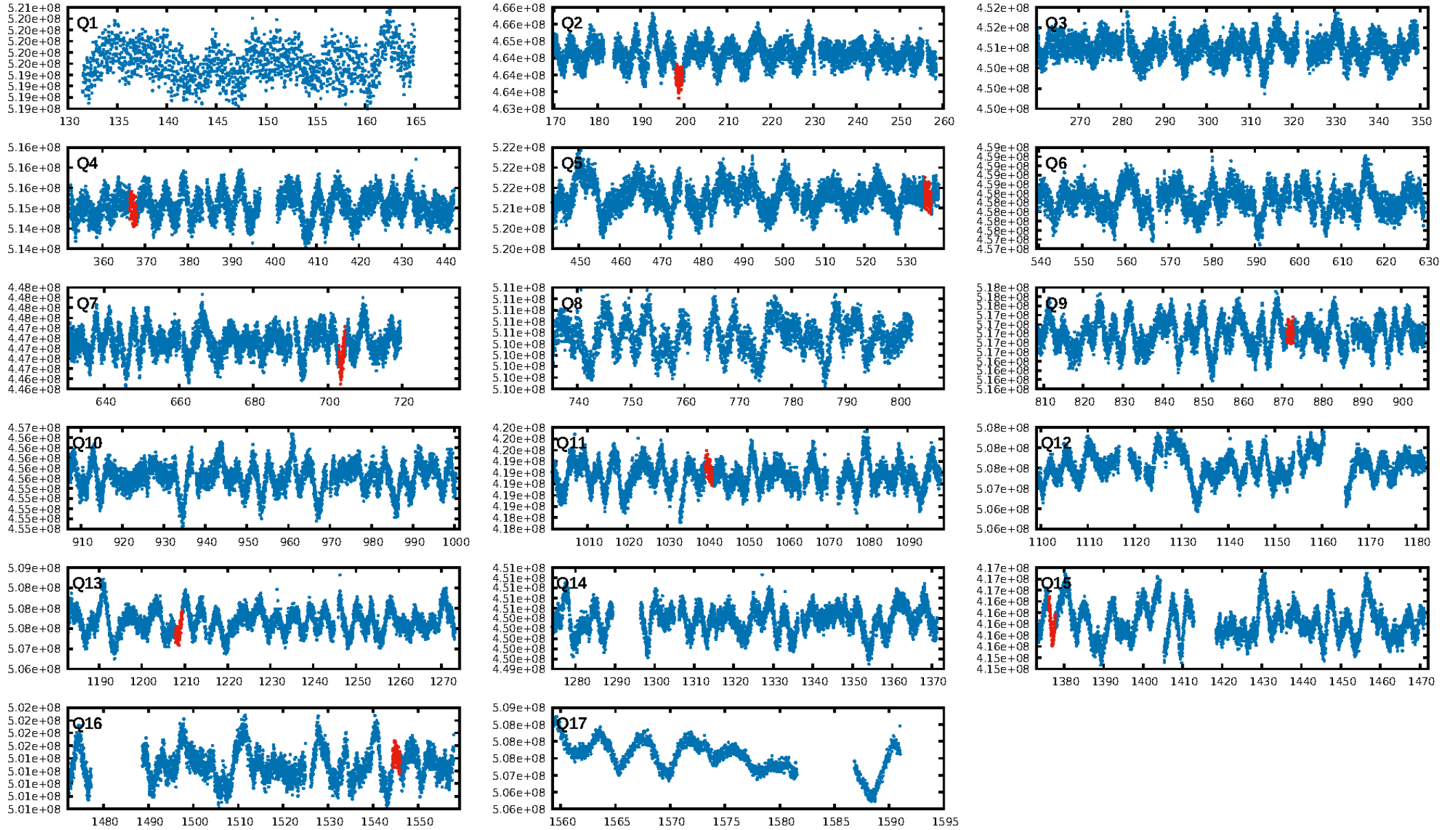
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.34 σ]
LongPeriod-sig: 100.0% [12.86 σ]
ModelChiSquare2-sig: 78.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.1769
Centroid-sig: 37.3%
Centroid-so: 0.672 arcsec [0.61 σ]
OotOffset-rm: 1.723 arcsec [1.18 σ]
KicOffset-rm: 0.929 arcsec [0.75 σ]
OotOffset-st: 1/2/1/1 [5]
KicOffset-st: 1/2/1/1 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.00 [0/7]

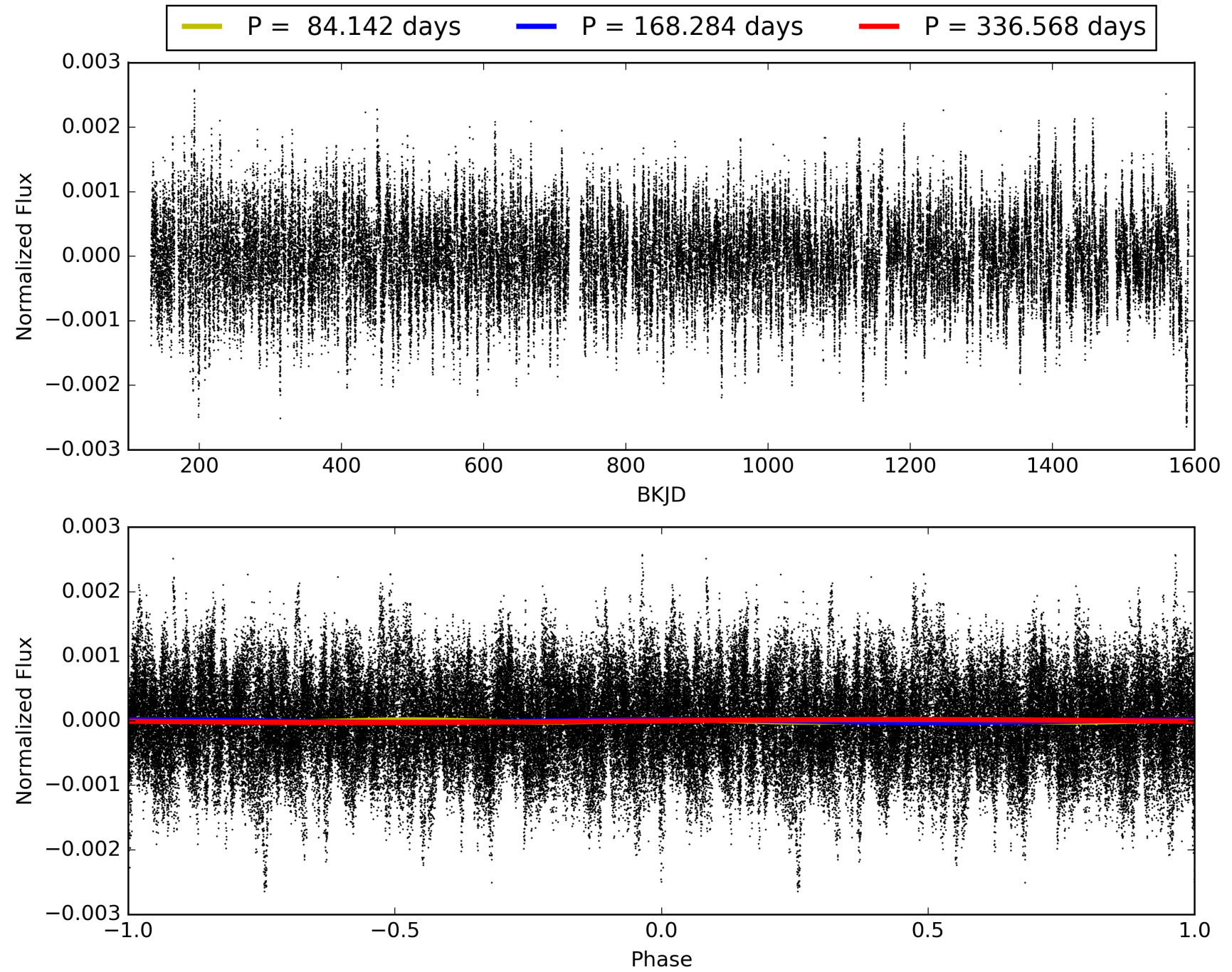
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:36 Z

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

TCE 006976420-04, PDC Light Curves

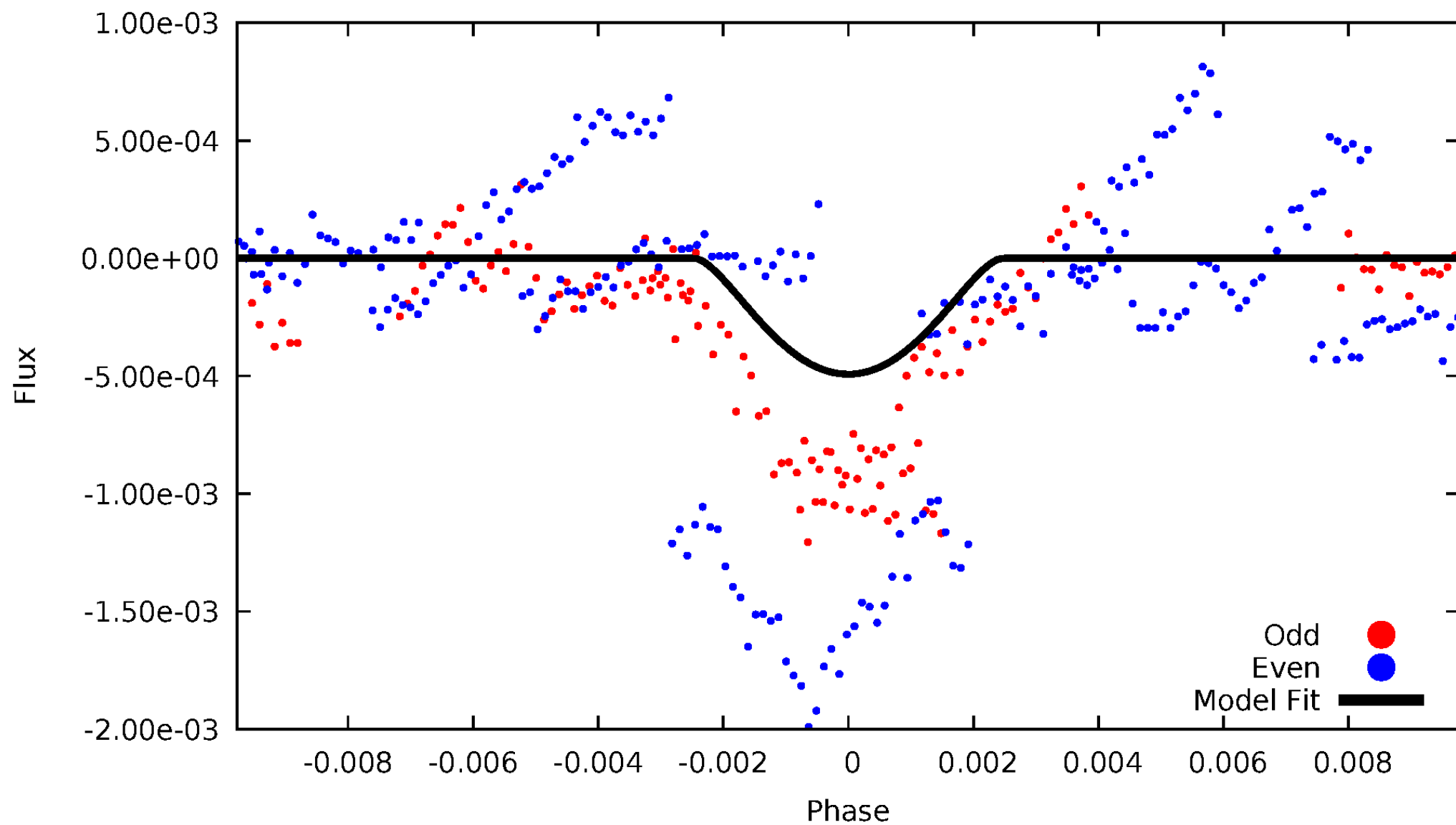


TCE 006976420-04



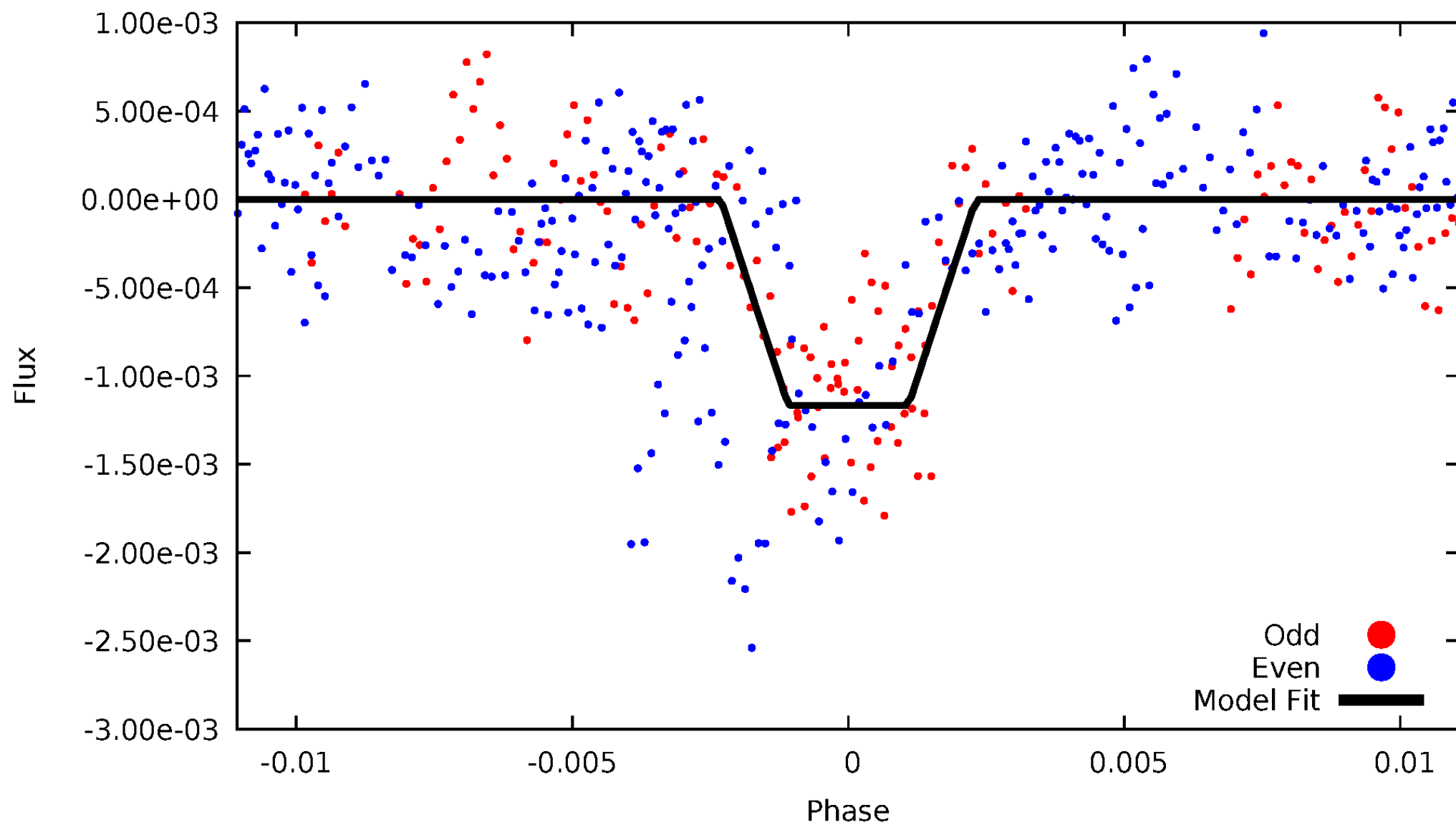
DV Odd/Even

TCE 006976420-04



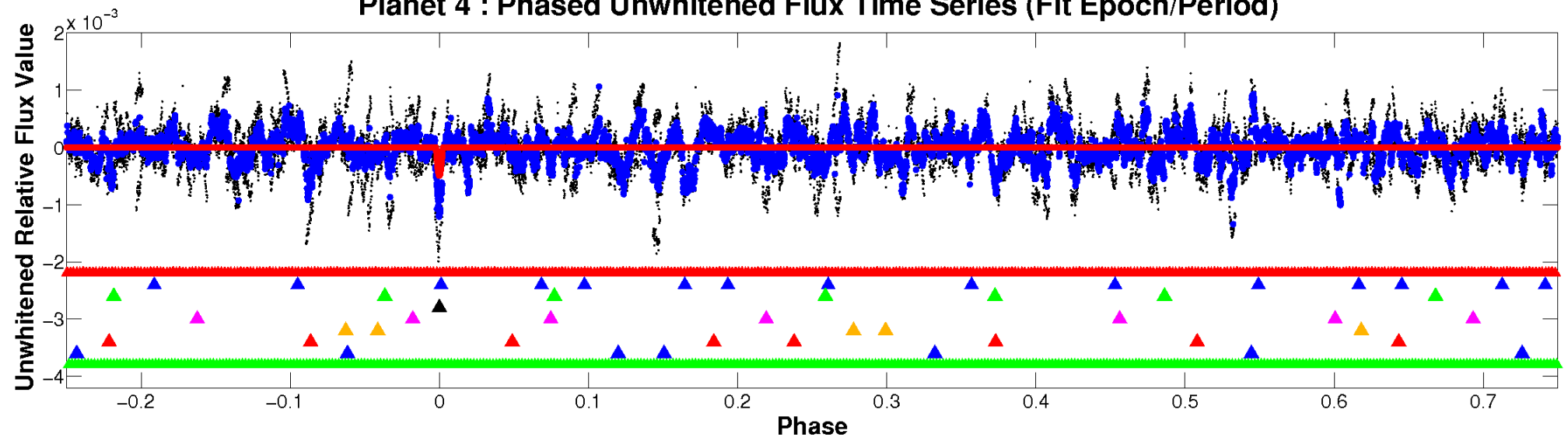
ALT Odd/Even

TCE 006976420-04

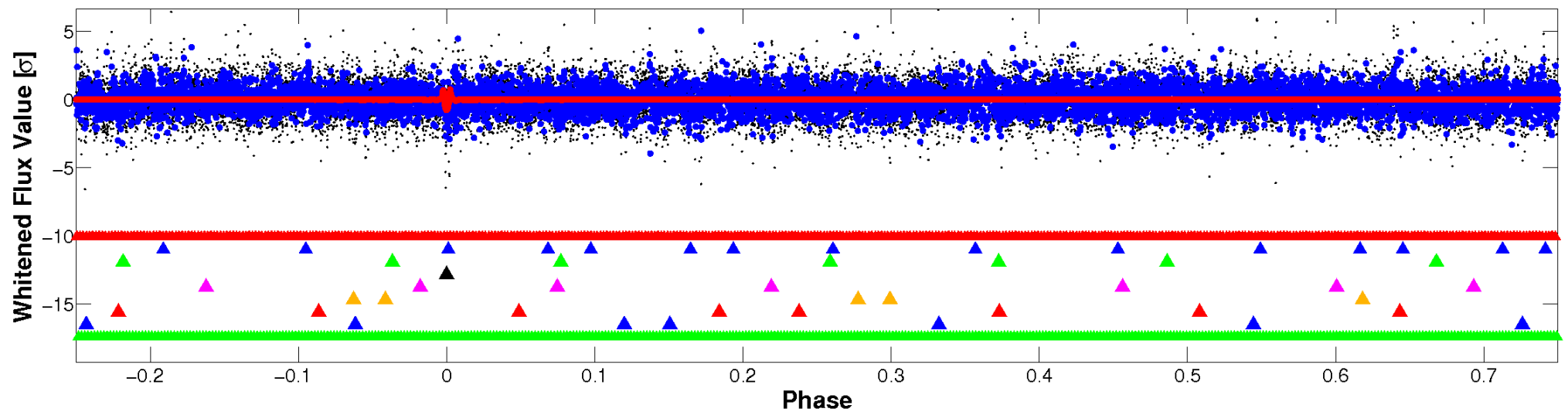


Non-Whitened Vs. Whitened Light Curve

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

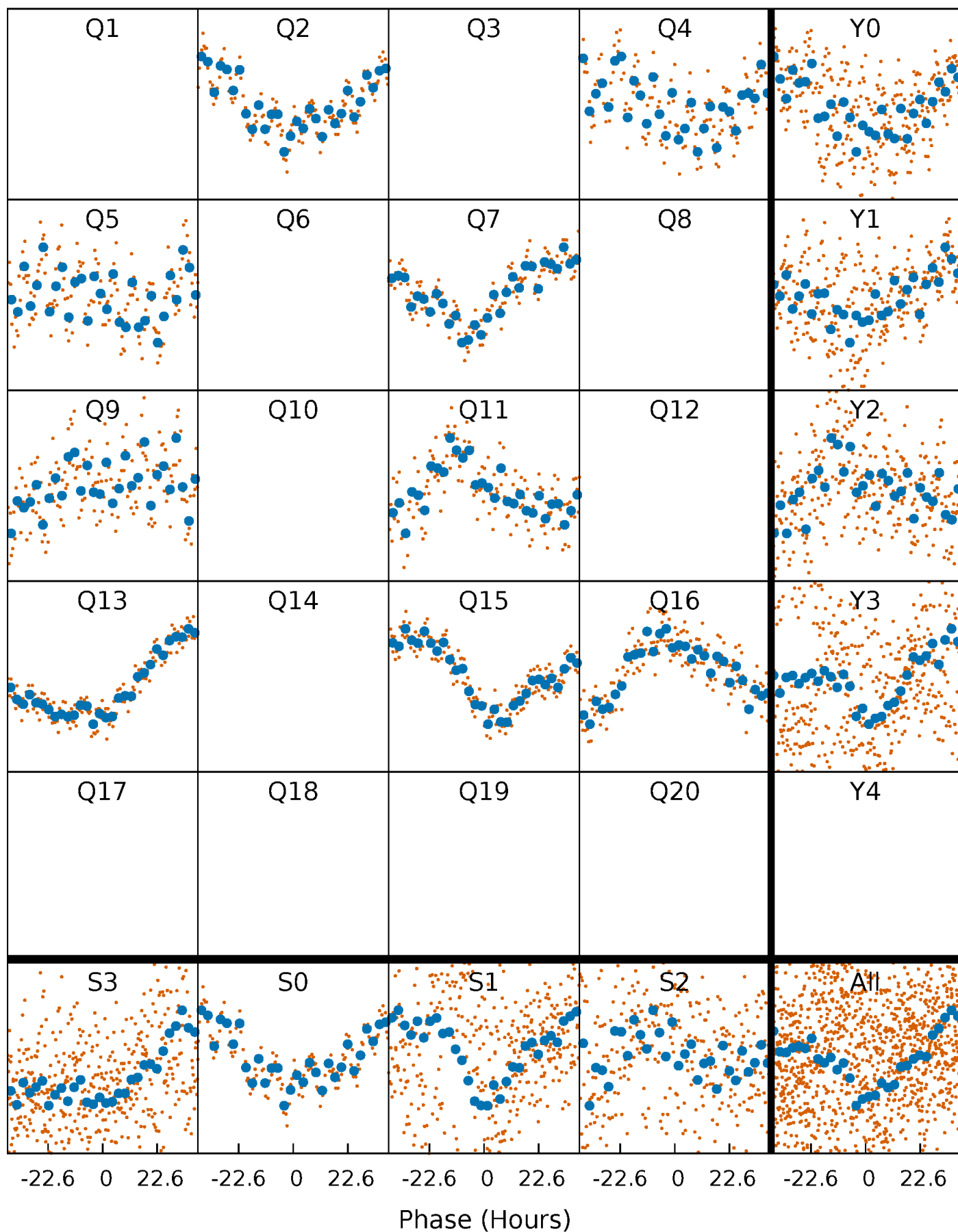


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



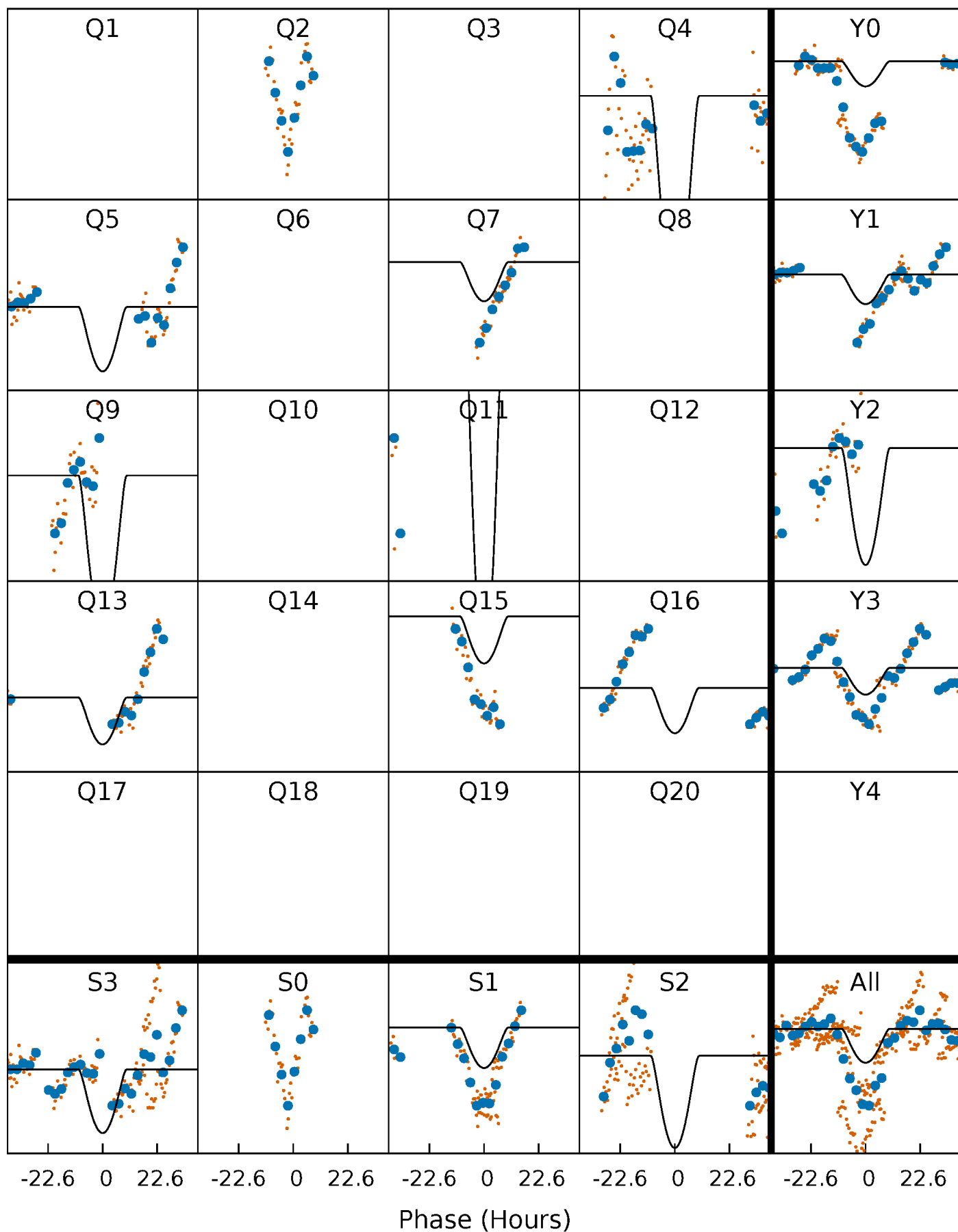
PDC Quarter-Phased Transit Curves

TCE 006976420-04 P=168.284055 Days $T_0=198.928961$ (BKJD)



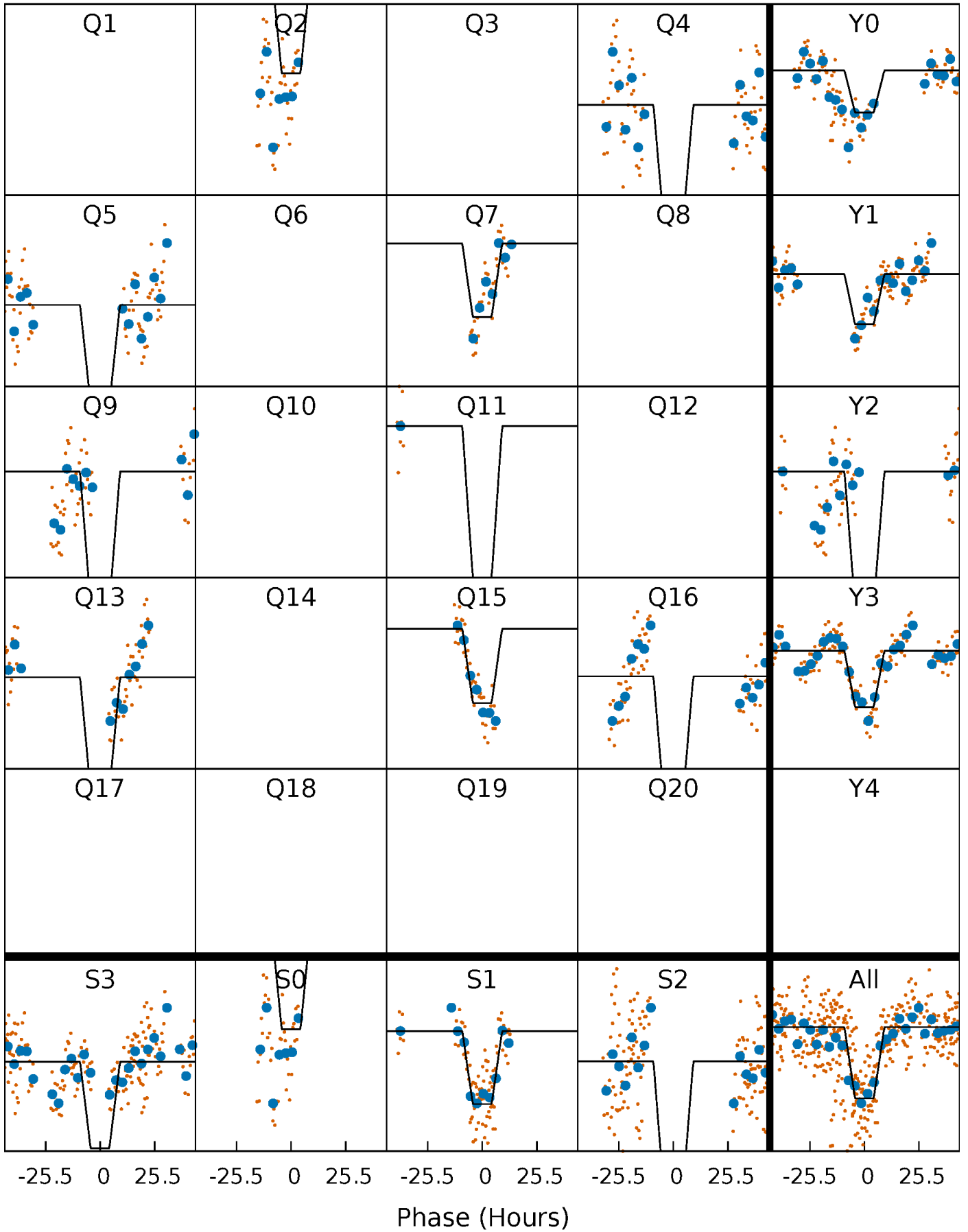
DV Quarter-Phased Transit Curves

TCE 006976420-04 P=168.284055 Days $T_0=198.928961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

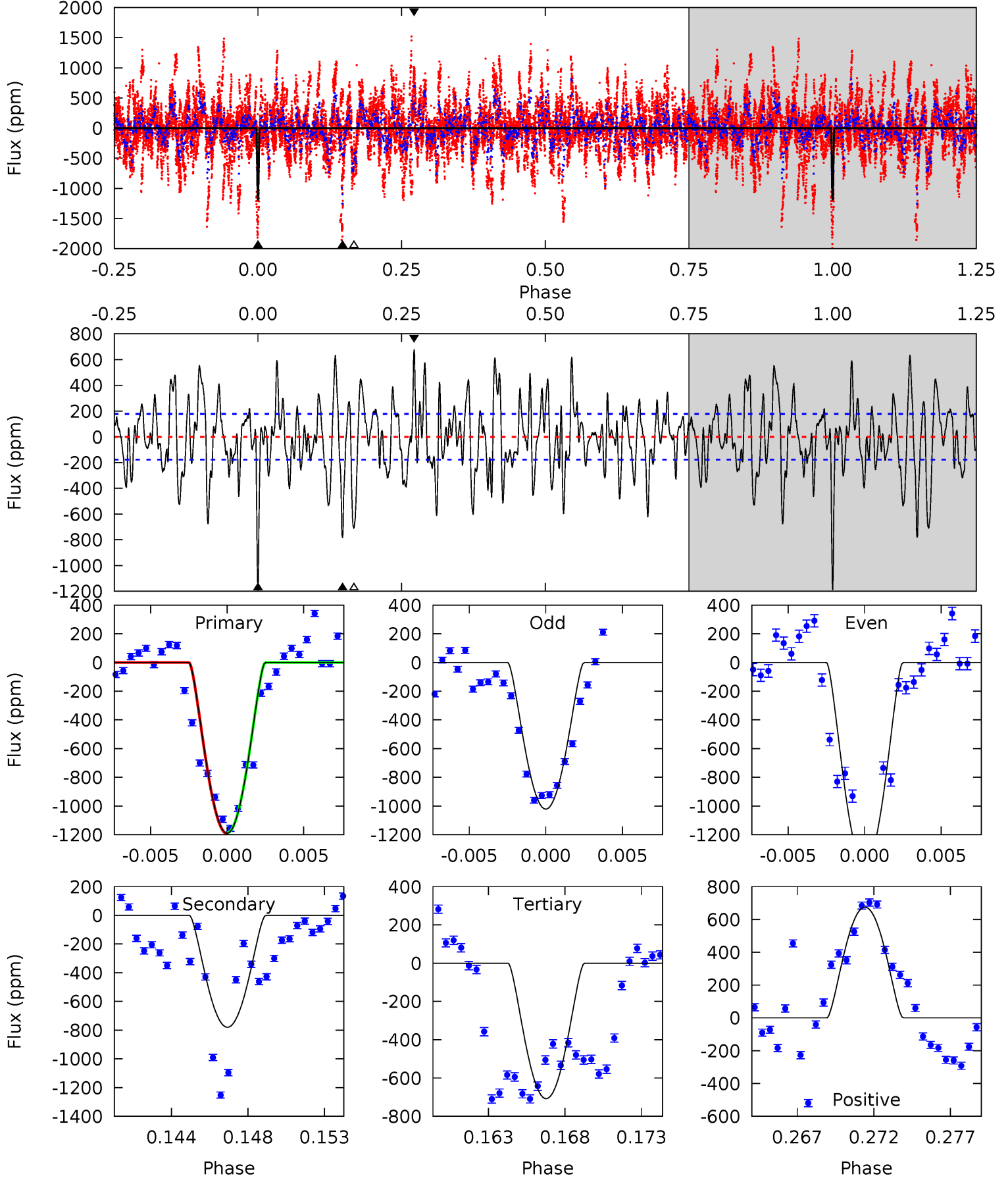
TCE 006976420-04 P=168.256744 Days $T_0=199.116732$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-04, P = 168.284055 Days, E = 30.644906 Days

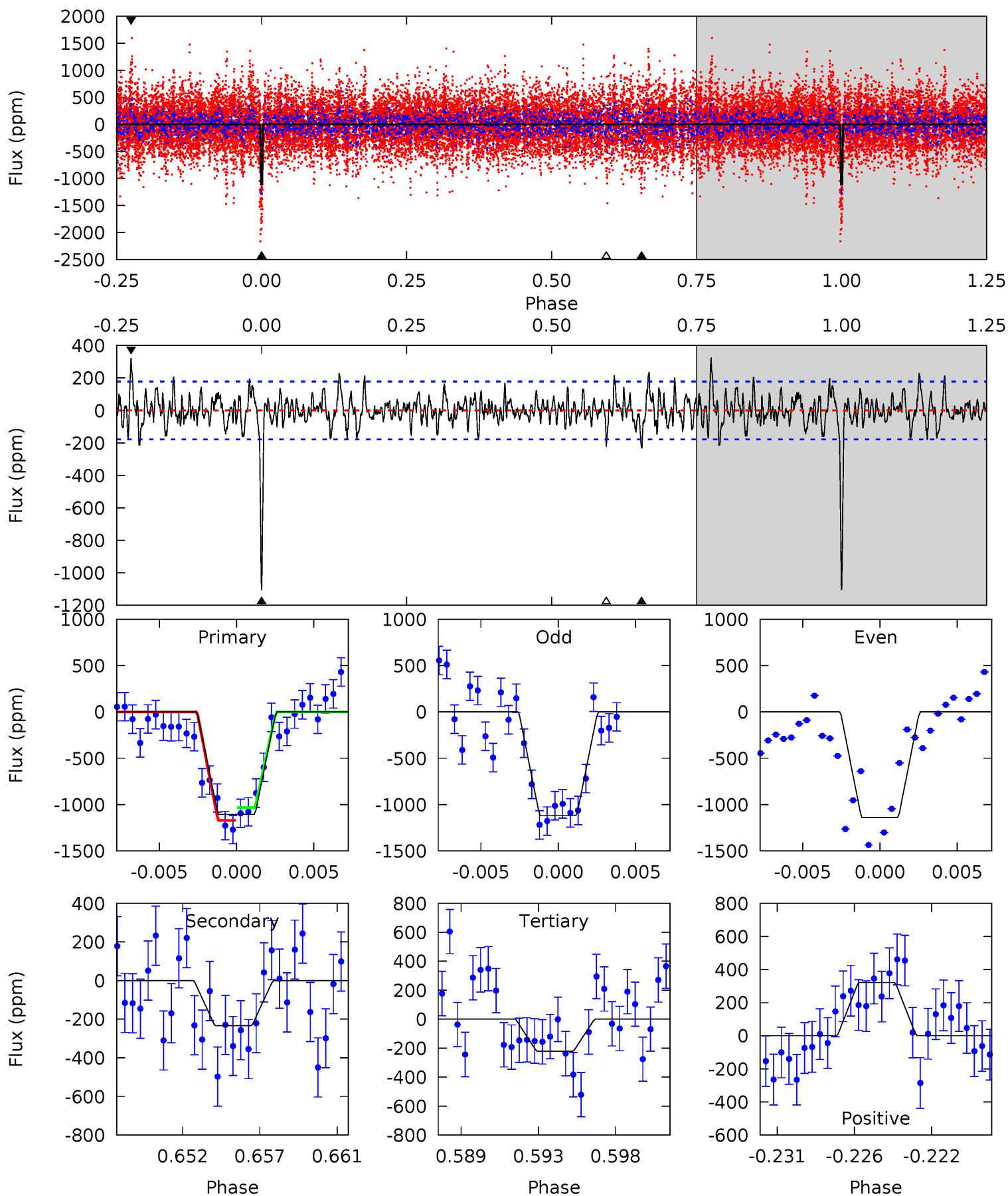
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.7	22.7	20.6	19.6	5.16	2.81	7.05	14.0	15.0	2.09	3.06	5.60	0.99	0.36	0.07



Alt Model-Shift Uniqueness Test

006976420-04, P = 168.256744 Days, E = 30.859988 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.2	6.80	6.43	9.35	5.18	2.84	2.14	25.7	22.8	0.37	-2.55	0.30	0.86	0.23	1.98



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-780 ± 34	$76.04^{+74.57}_{-53.54}$	1425^{+217}_{-335}	4390^{+3136}_{-1051}	57^{+549}_{-42}
Alt.	-234 ± 34	$71.92^{+75.00}_{-46.49}$	1440^{+202}_{-338}	3597^{+1916}_{-749}	18^{+134}_{-14}

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

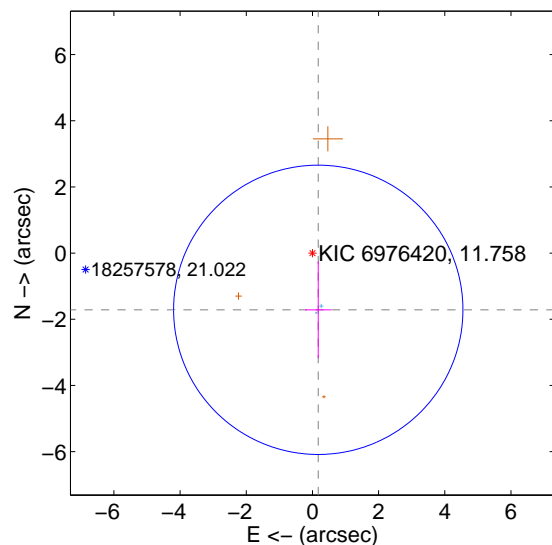
Supplemental centroid analysis for 006976420-04. **Kepler magnitude: 11.76.** Transit SNR 6.18

There are 2 quarters with good PRF difference image offsets

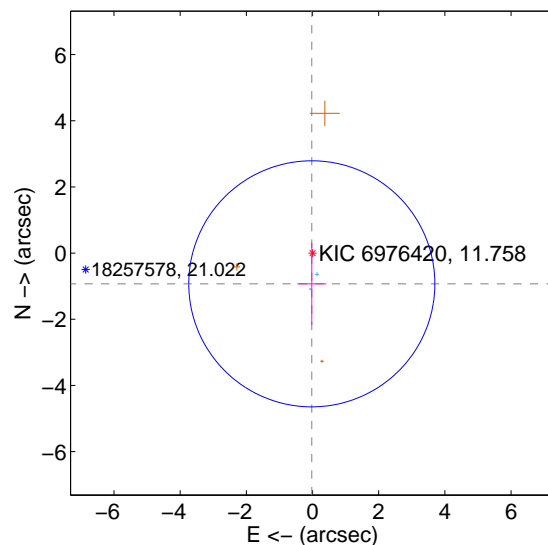
The direct PRF centroid is offset from the target star catalog position by about 1.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.723 ± 1.457	1.18	-0.176 ± 0.399	-1.714 ± 1.460
PRF-fit source offset from KIC position	0.929 ± 1.240	0.75	0.022 ± 0.440	-0.929 ± 1.239
photometric centroid source offset	0.67 ± 1.09	0.61	-0.48 ± 0.69	0.47 ± 1.40

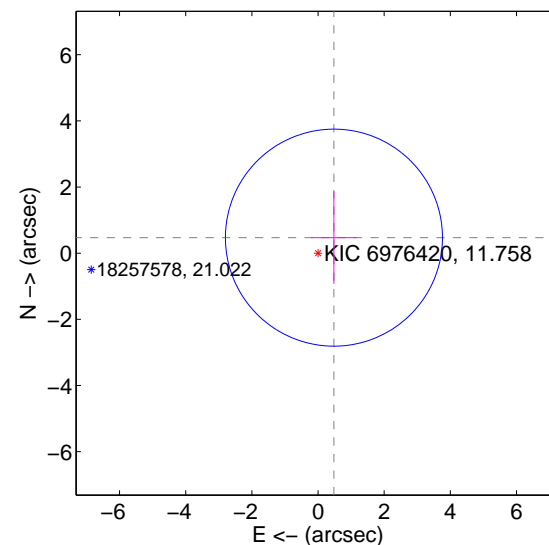
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

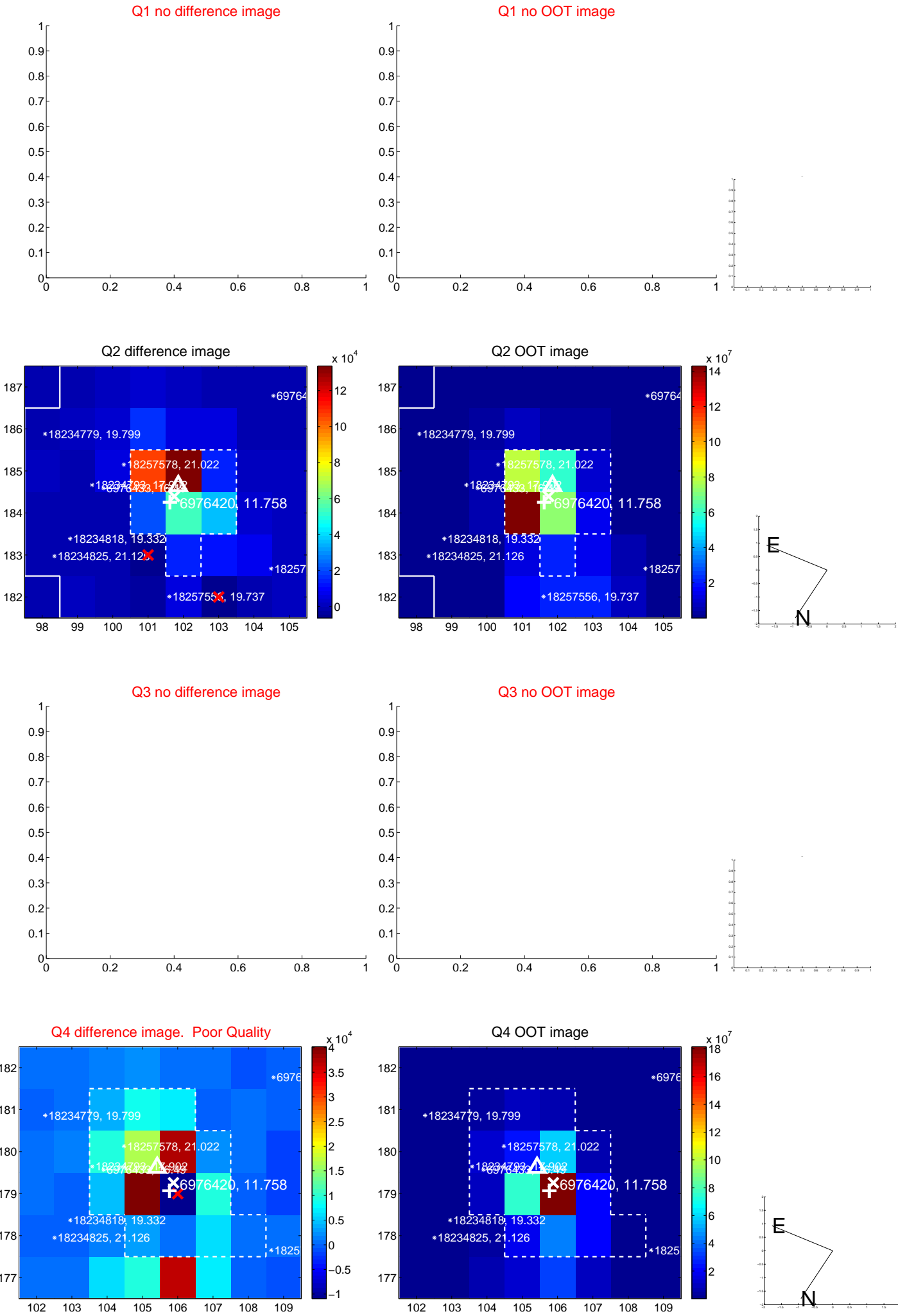


offset from photometric centroids

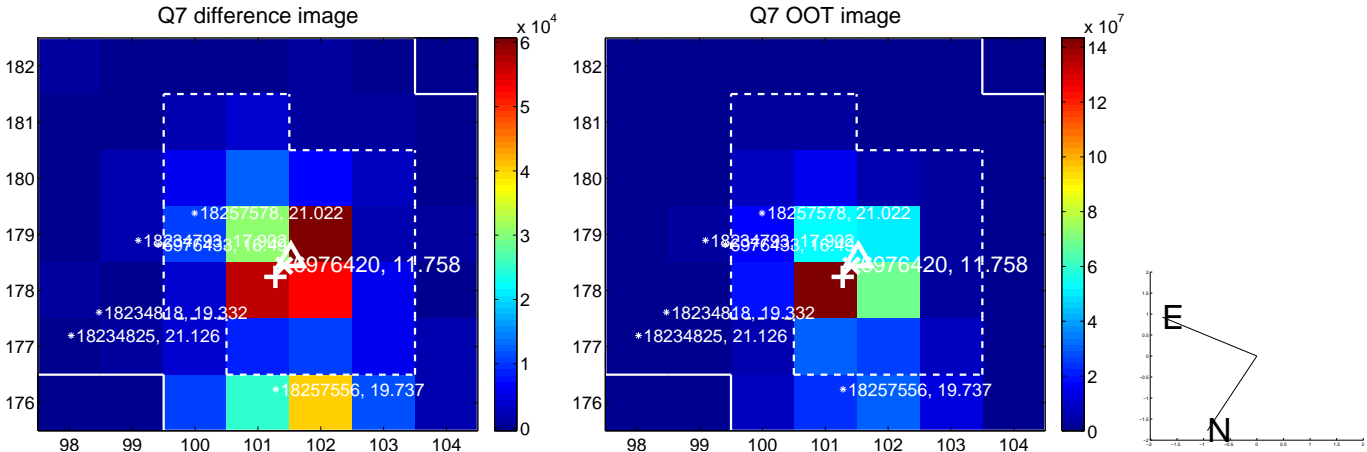
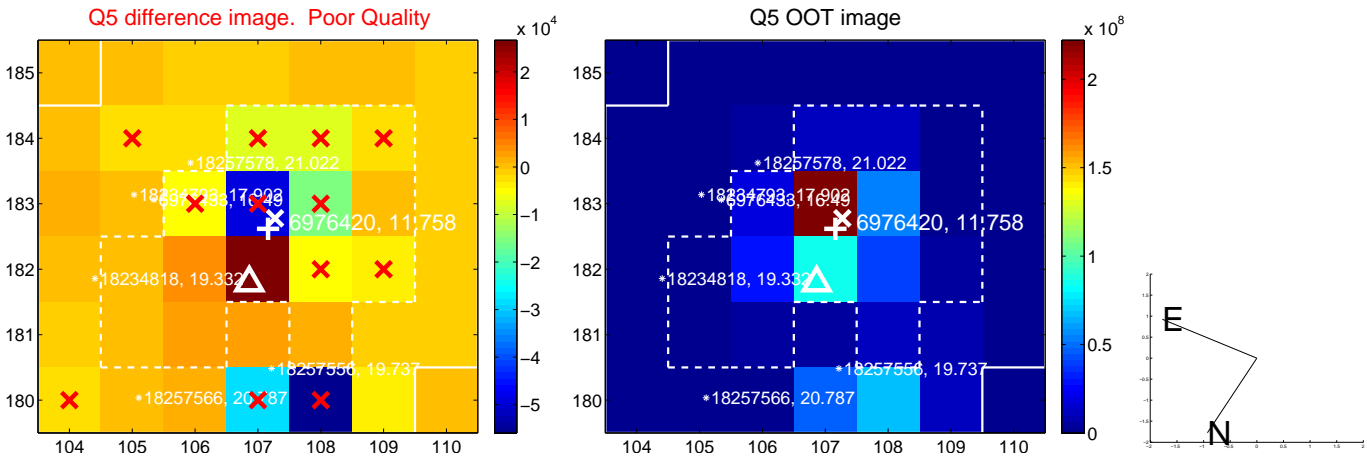


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

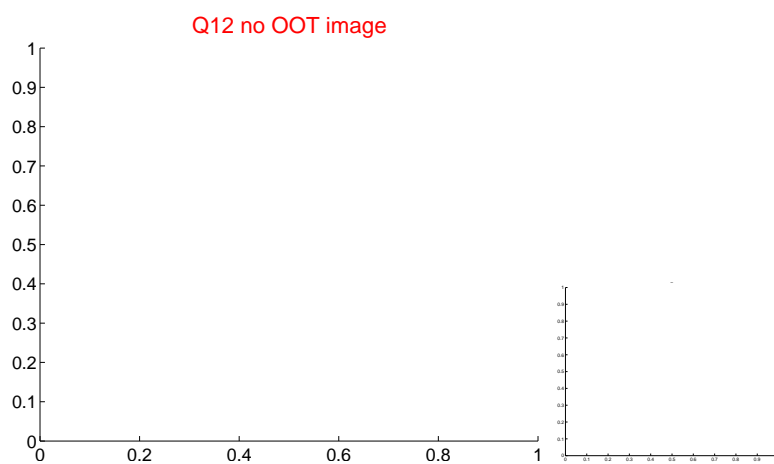
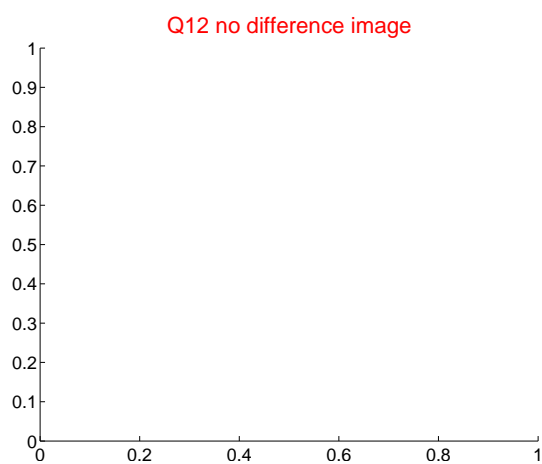
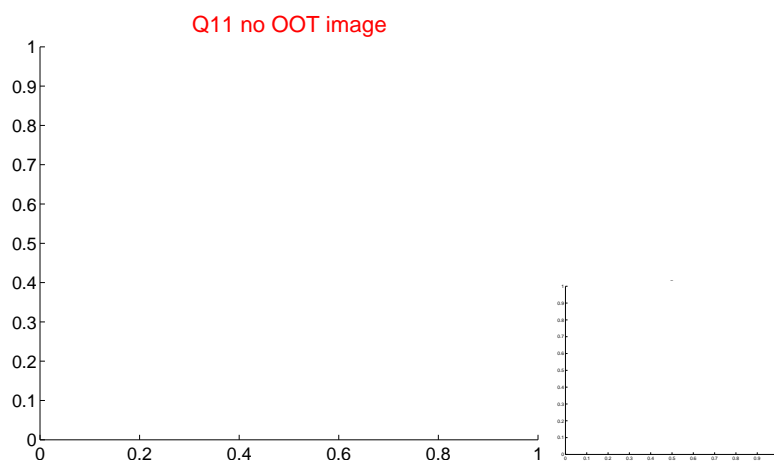
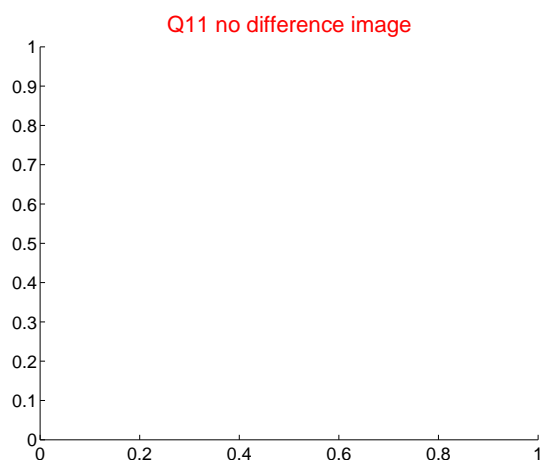
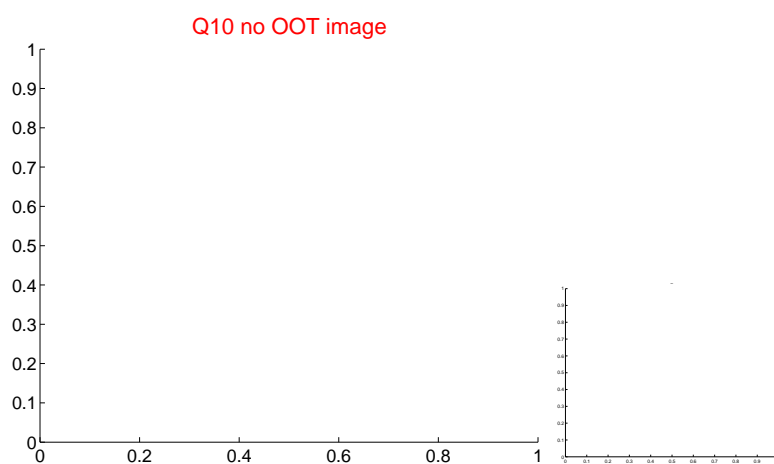
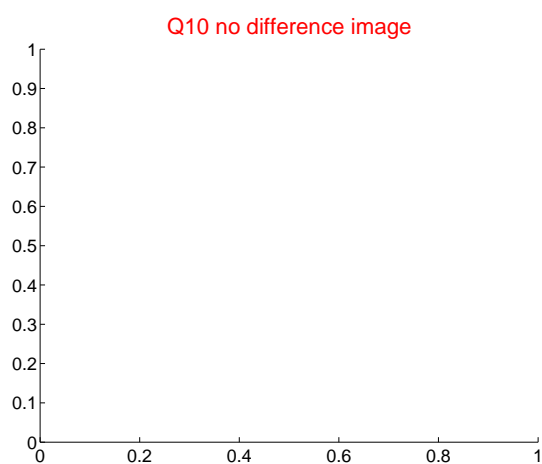
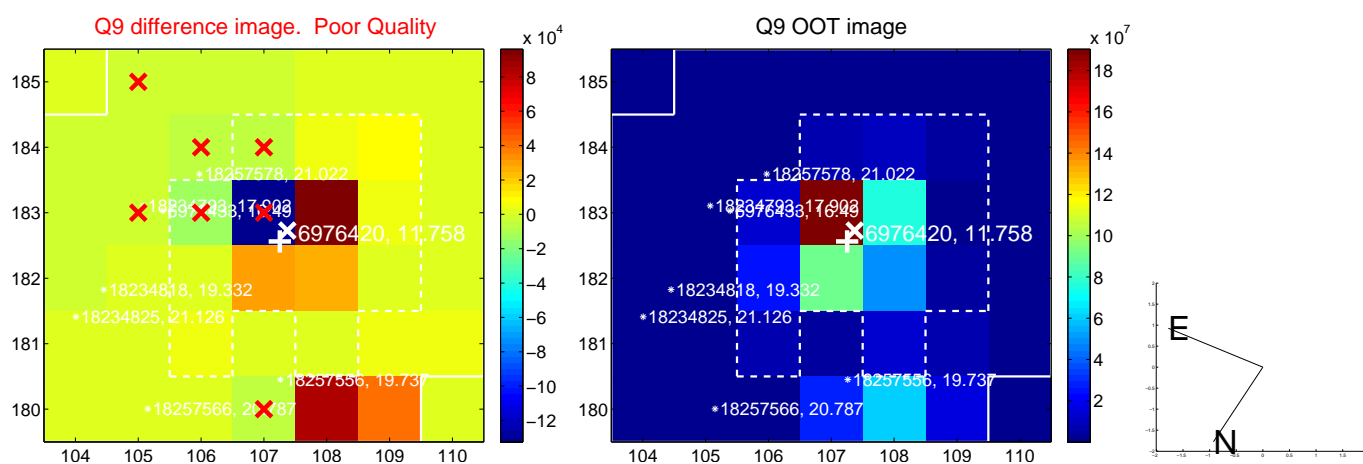
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



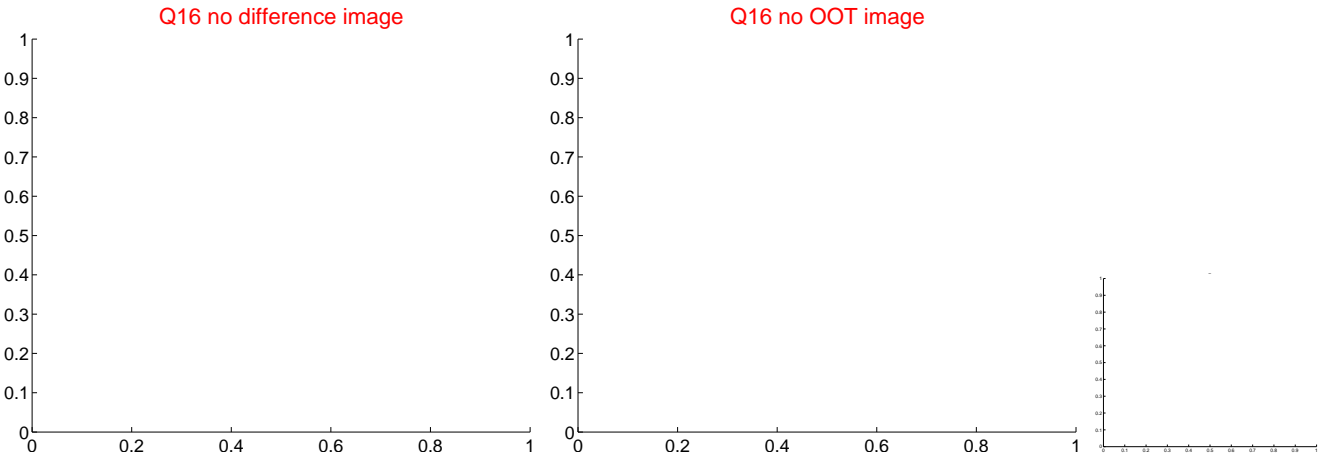
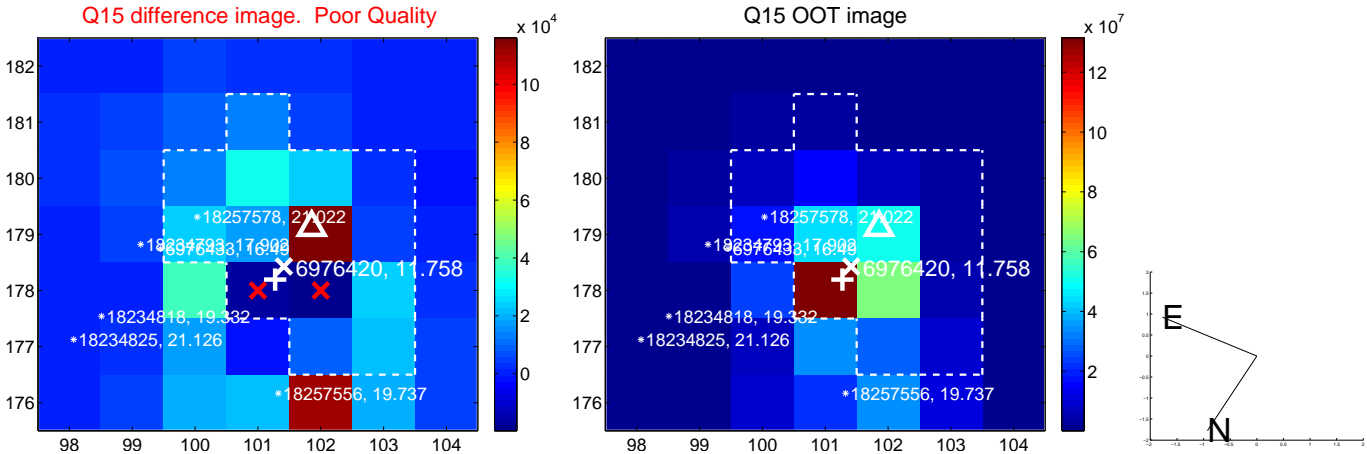
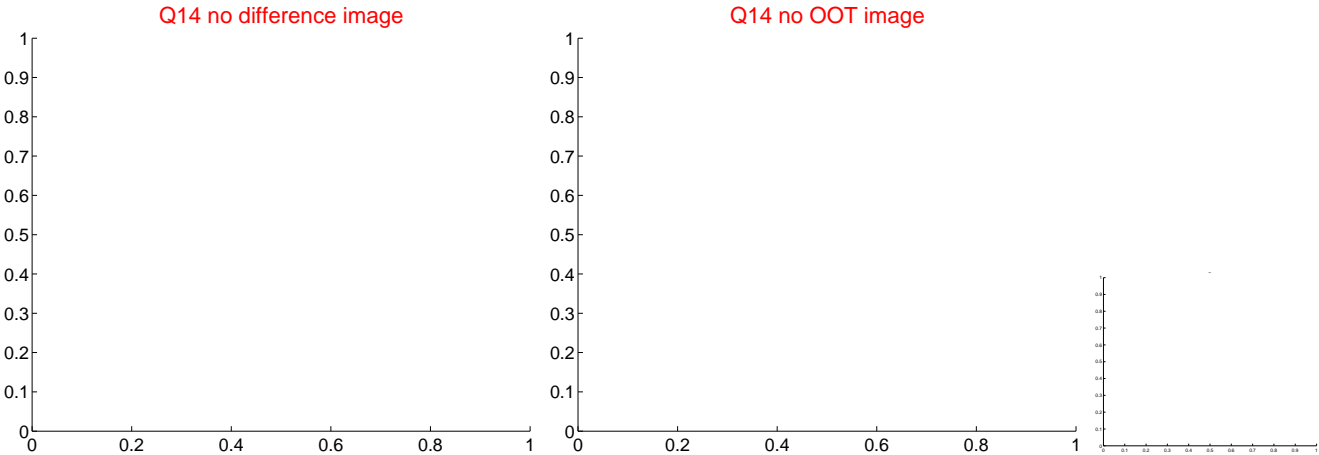
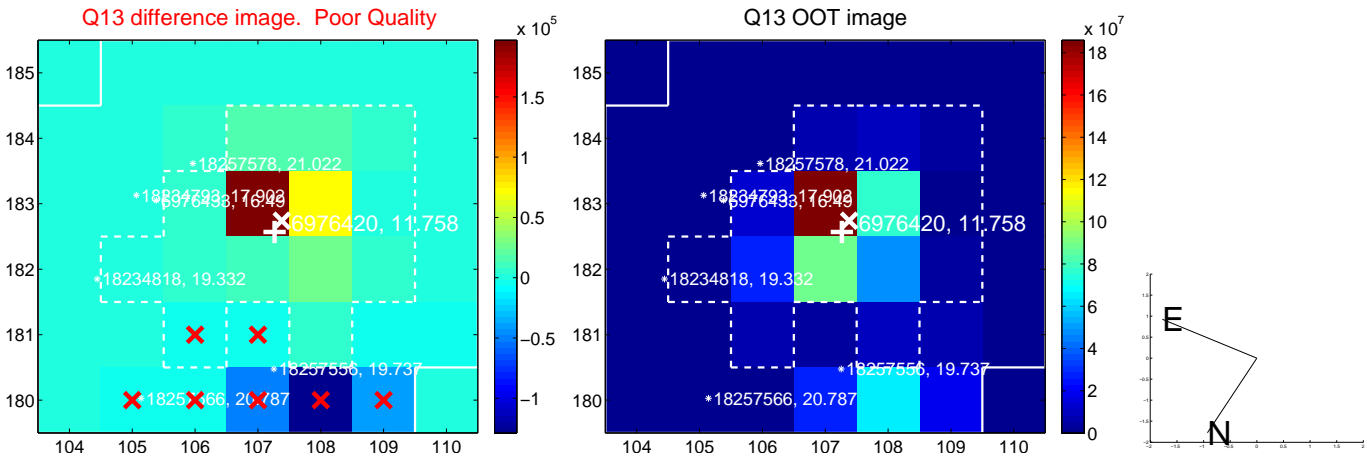
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



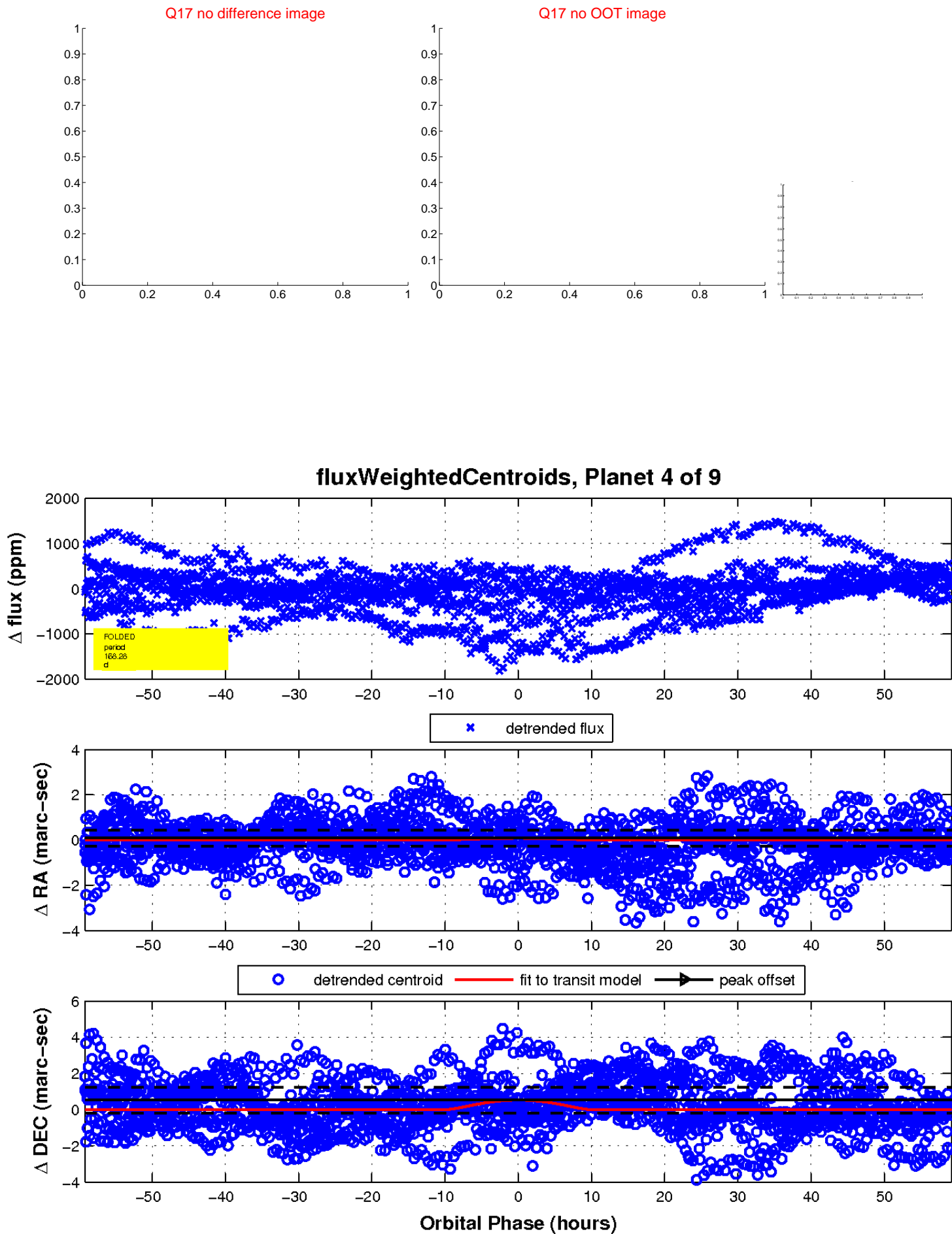
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



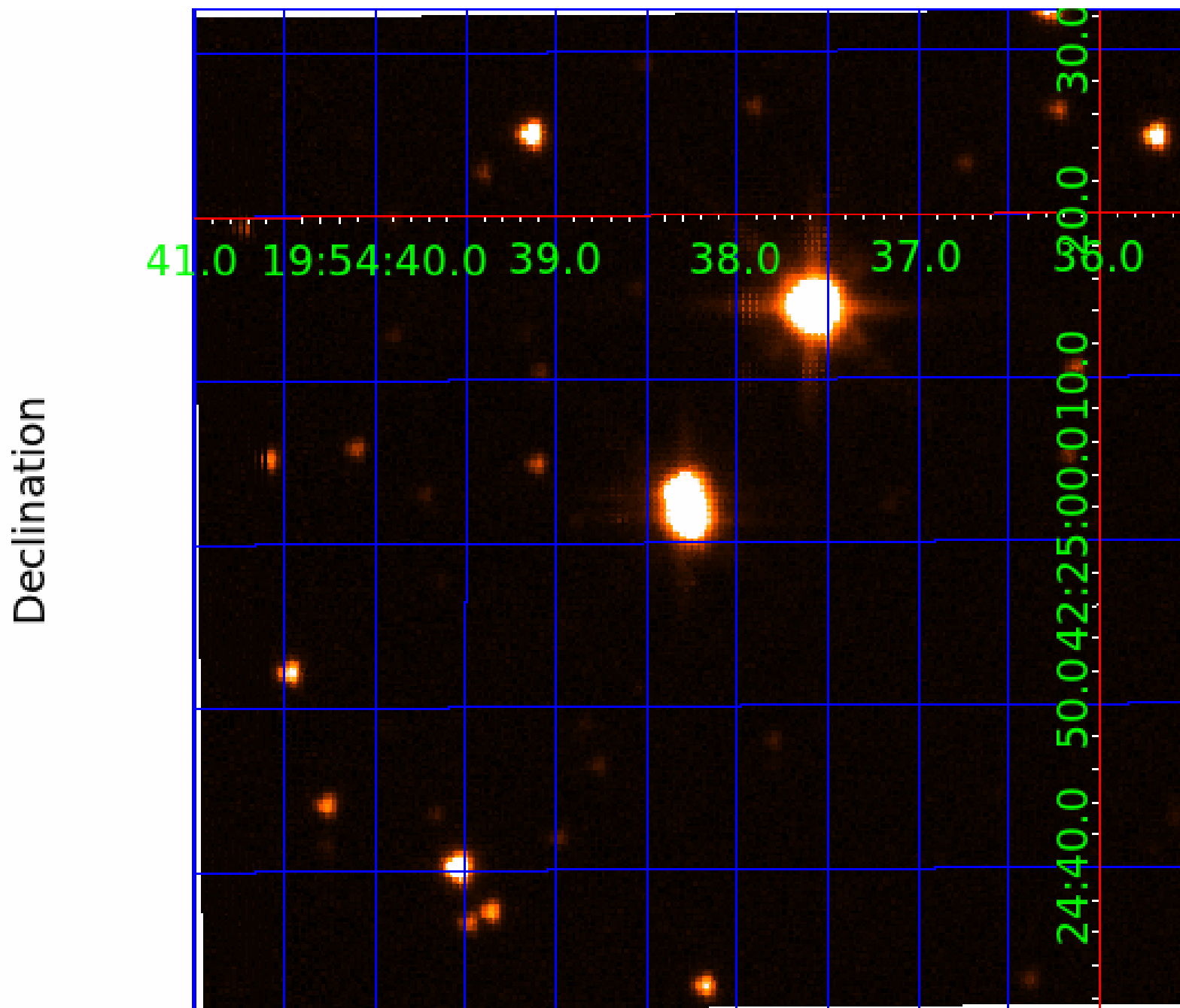
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

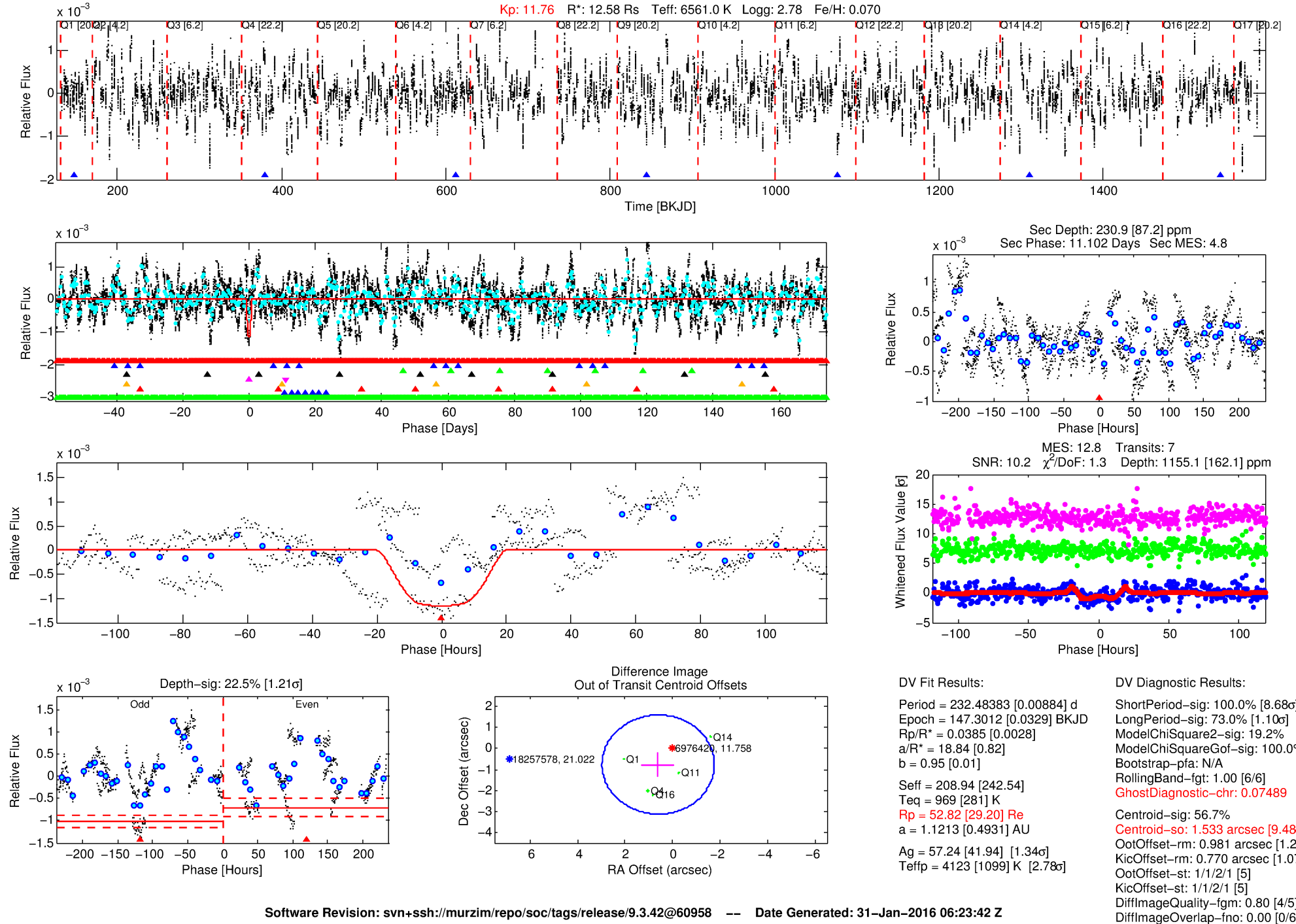
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-05

No Significant Match Found

DV One-Page Summary

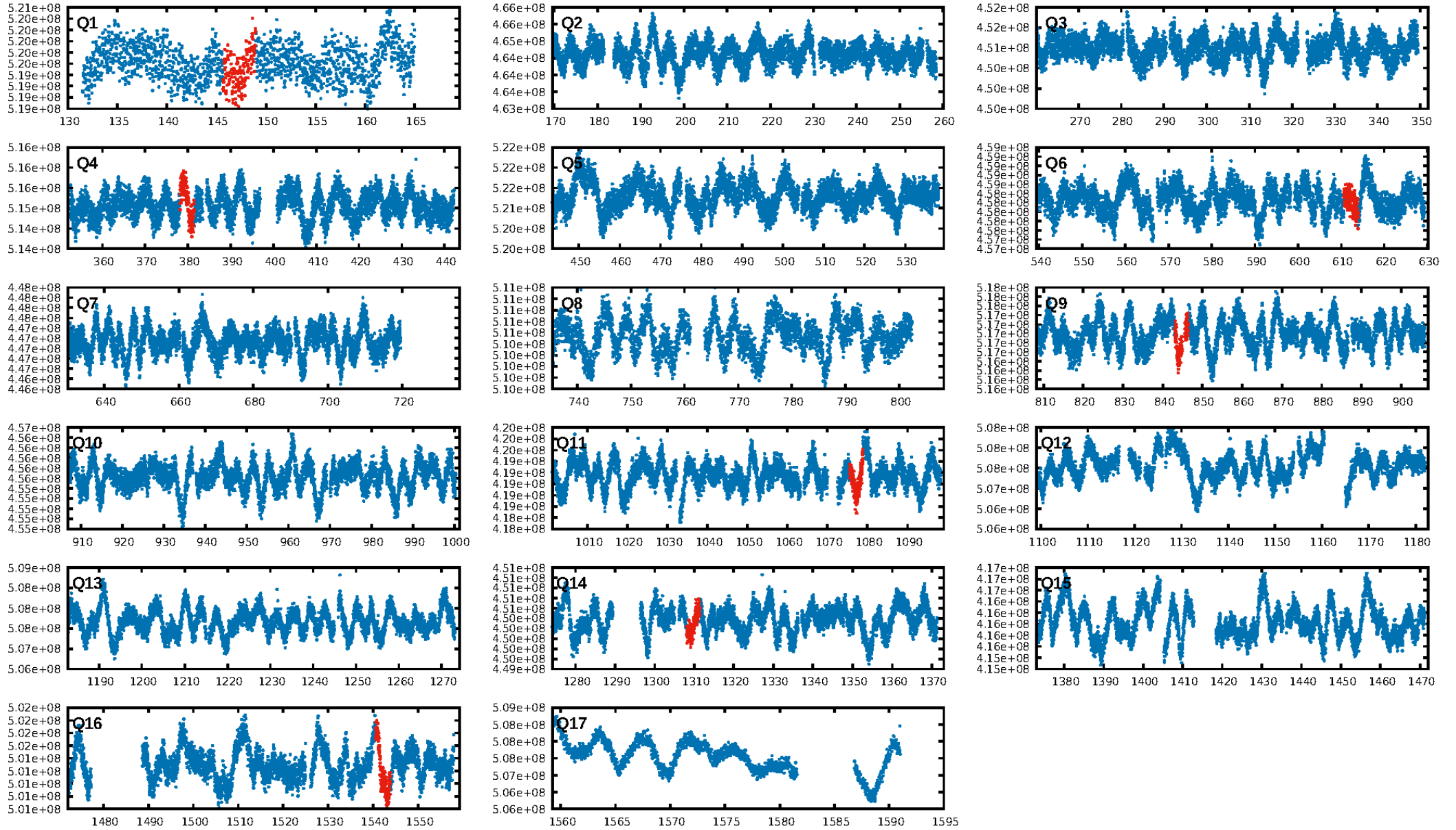
KIC: 6976420 Candidate: 5 of 9 Period: 232.484 d



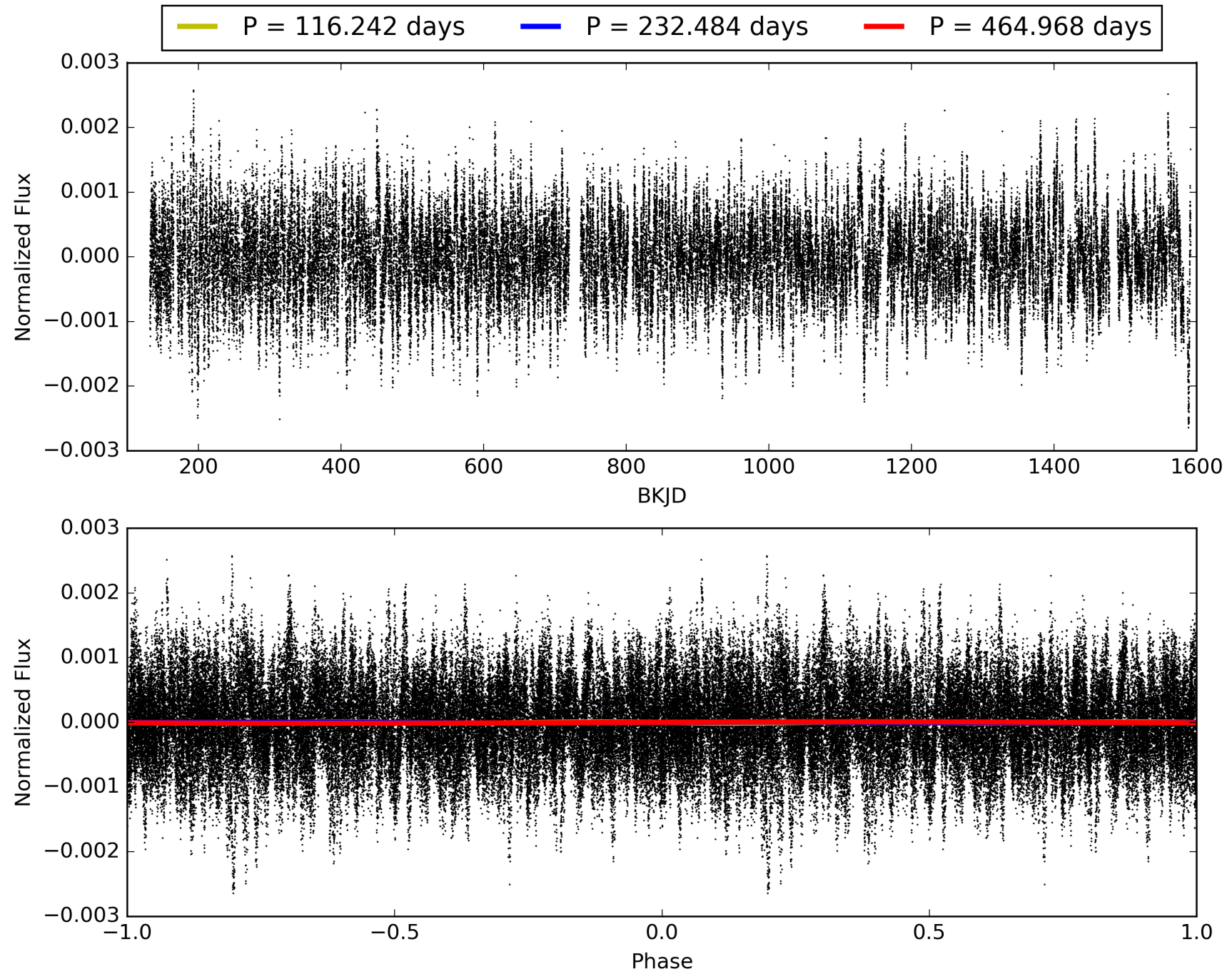
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:42 Z

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

TCE 006976420-05, PDC Light Curves

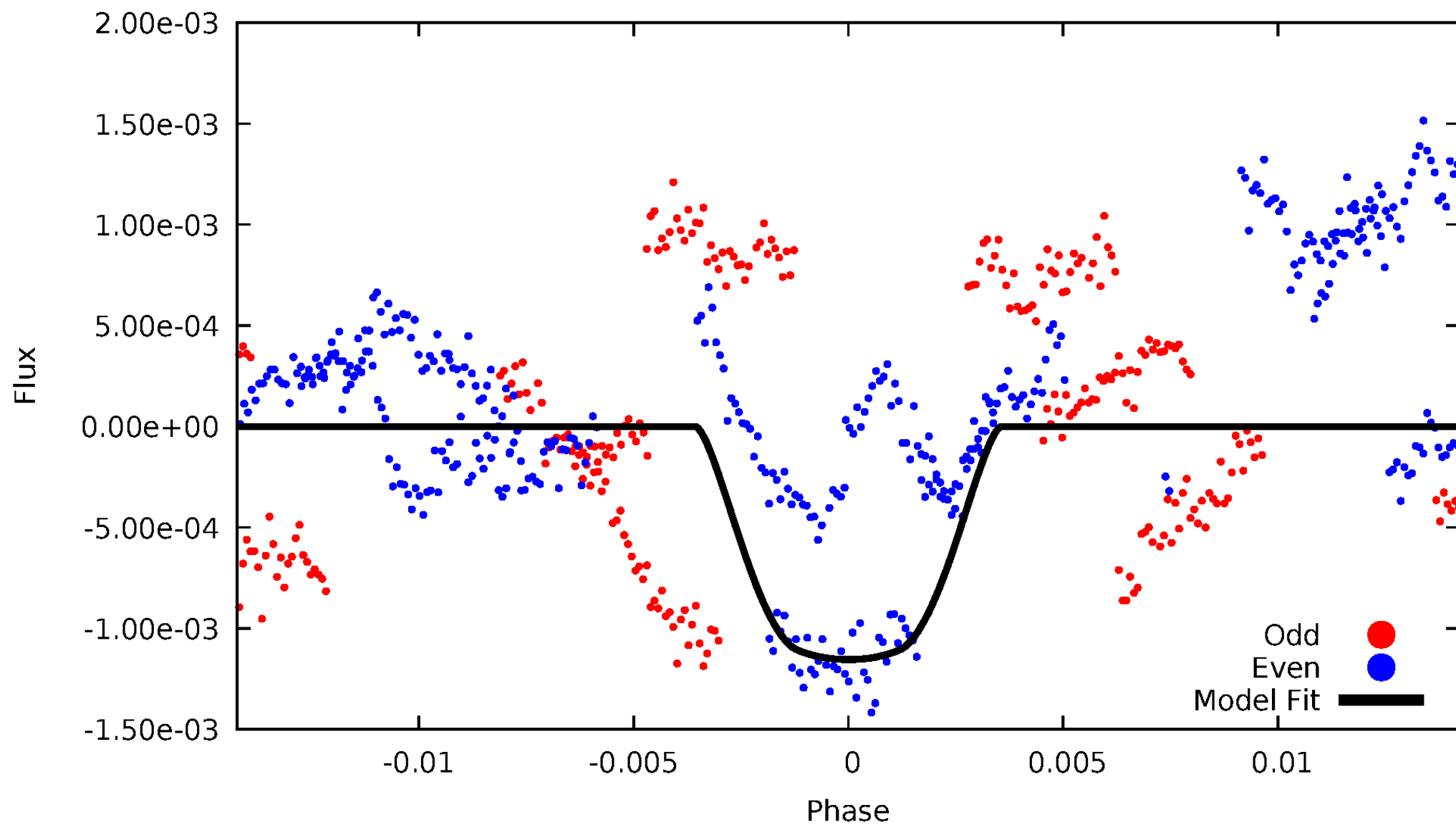


TCE 006976420-05



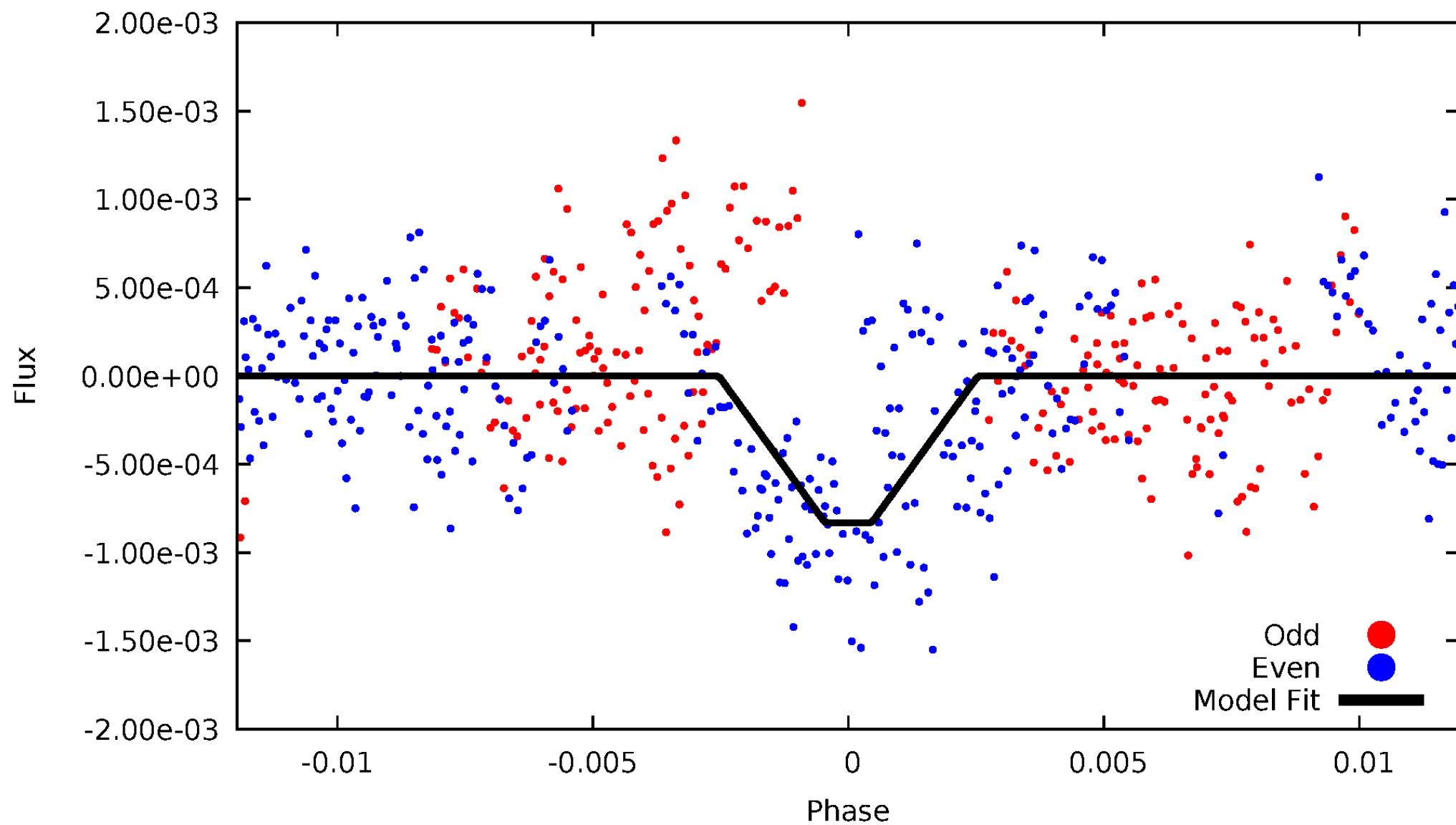
DV Odd/Even

TCE 006976420-05



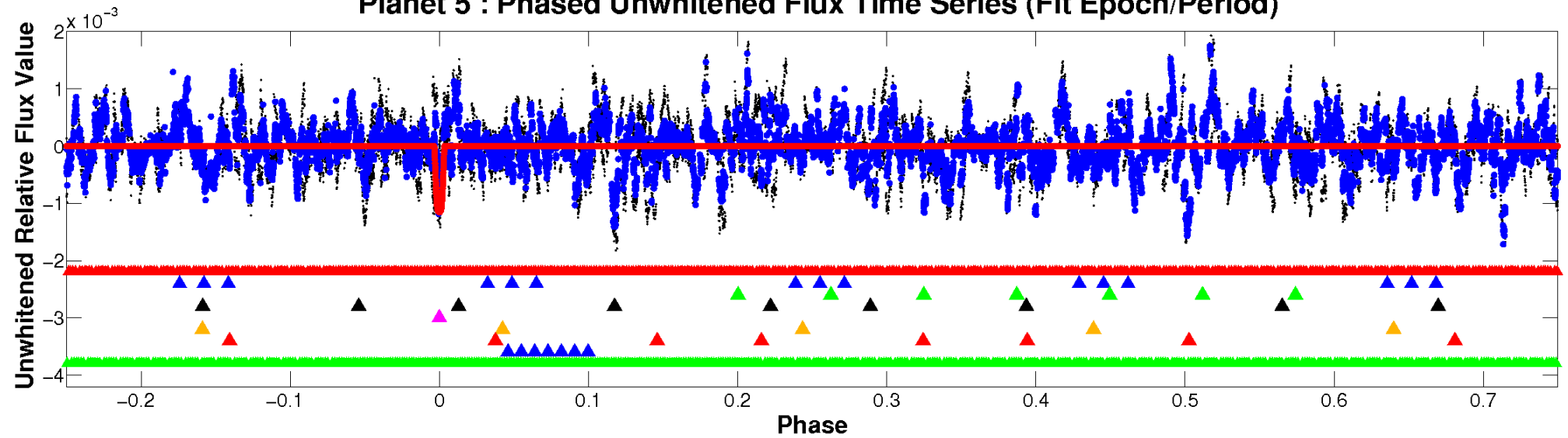
ALT Odd/Even

TCE 006976420-05

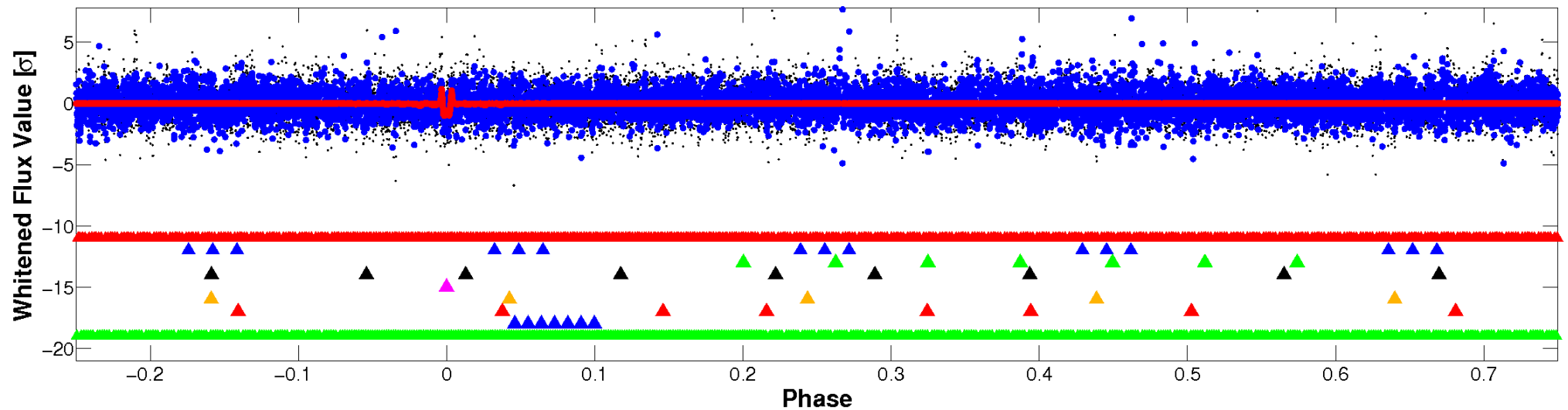


Non-Whitened Vs. Whitened Light Curve

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

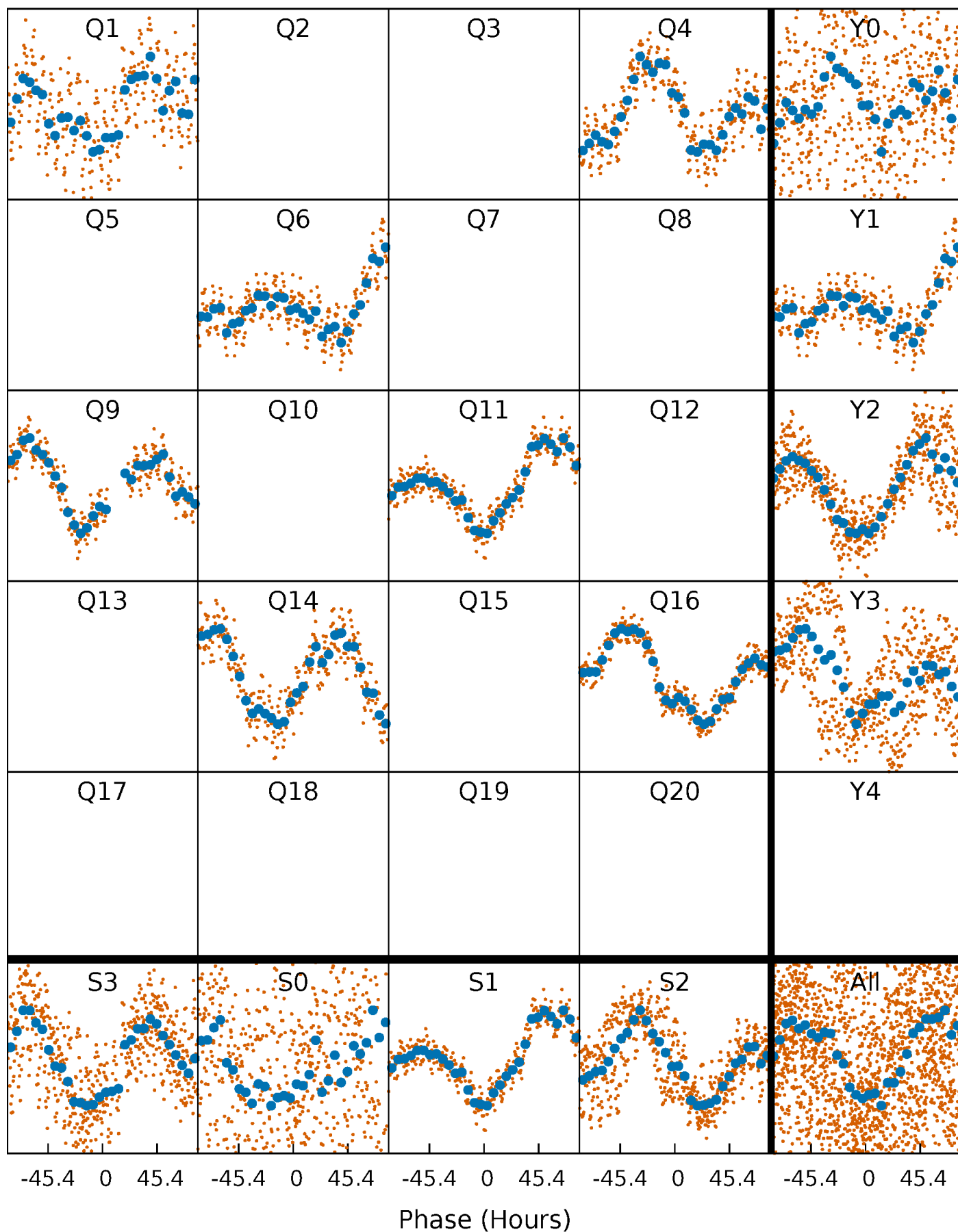


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



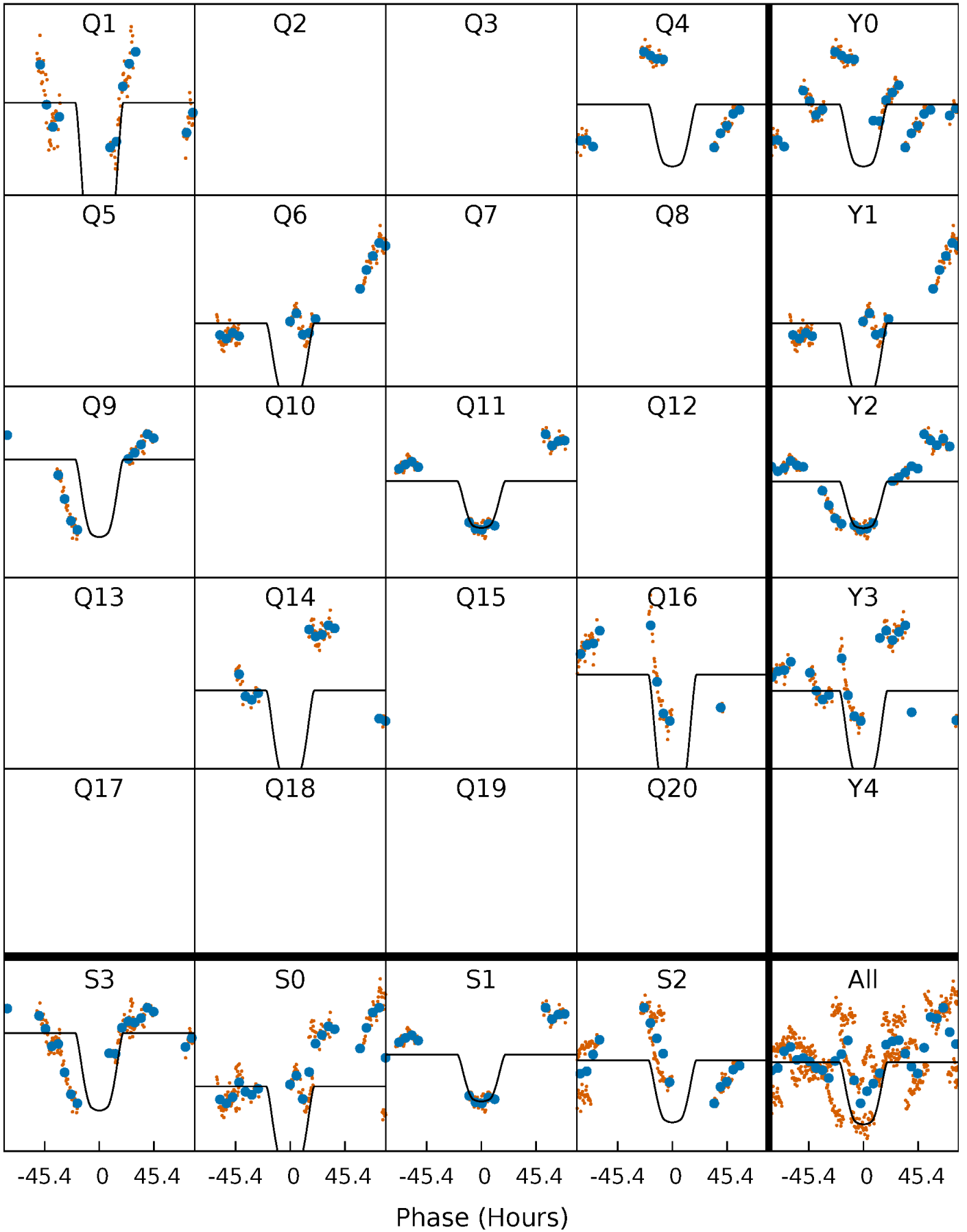
PDC Quarter-Phased Transit Curves

TCE 006976420-05 $P=232.483826$ Days $T_0=147.301235$ (BKJD)



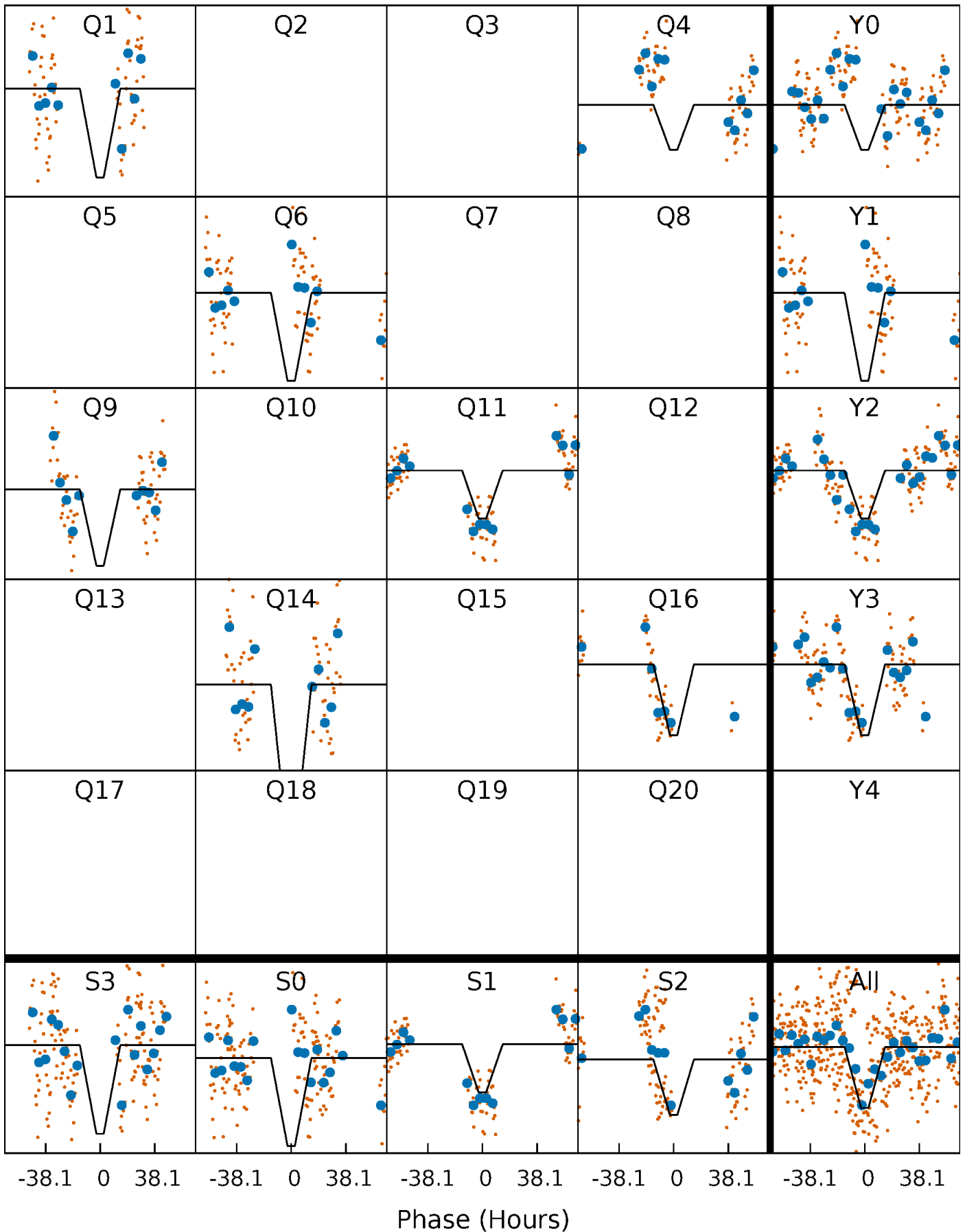
DV Quarter-Phased Transit Curves

TCE 006976420-05 $P=232.483826$ Days $T_0=147.301235$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

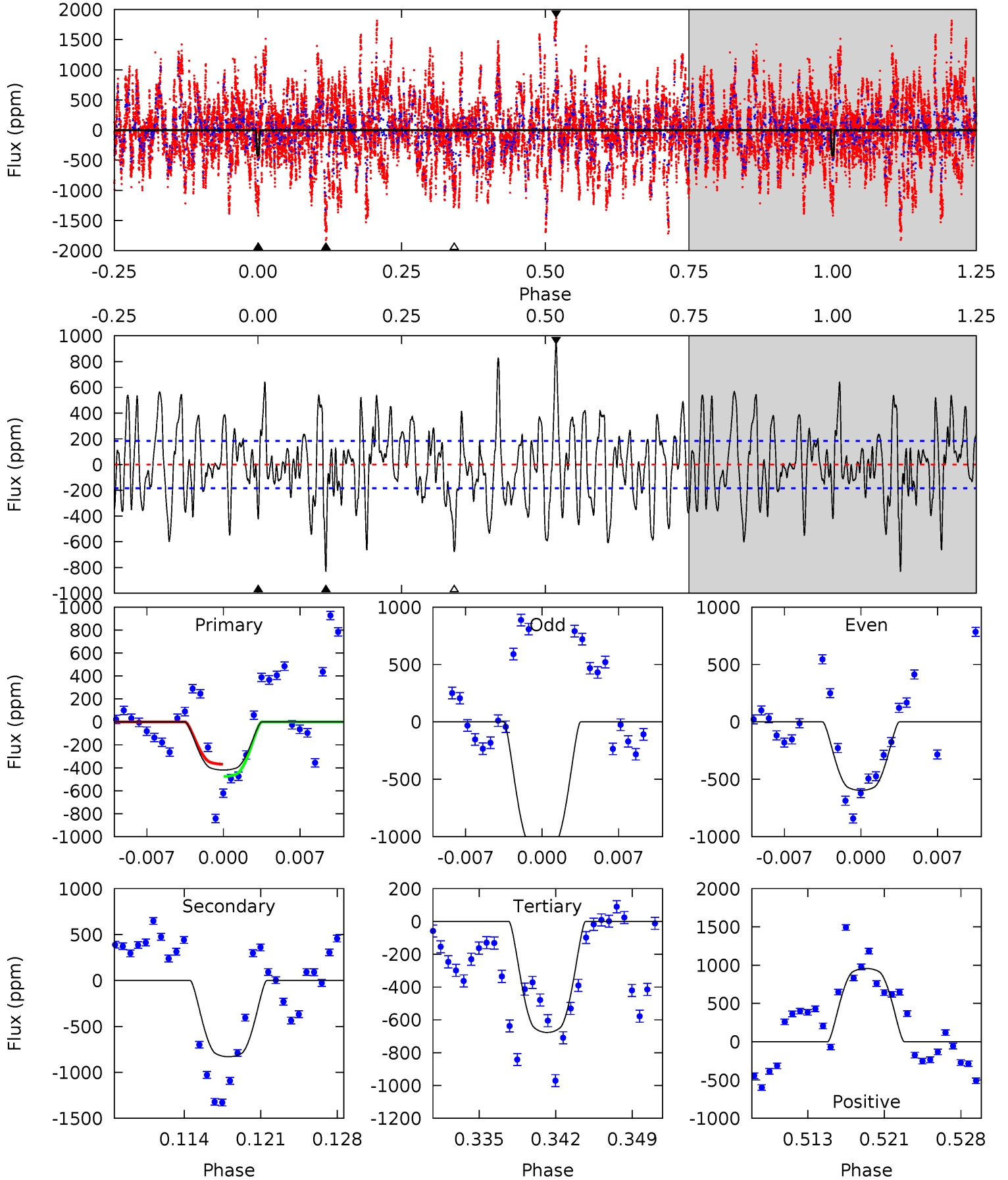
TCE 006976420-05 $P=232.506668$ Days $T_0=147.196188$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-05, P = 232.483826 Days, E = 147.301235 Days

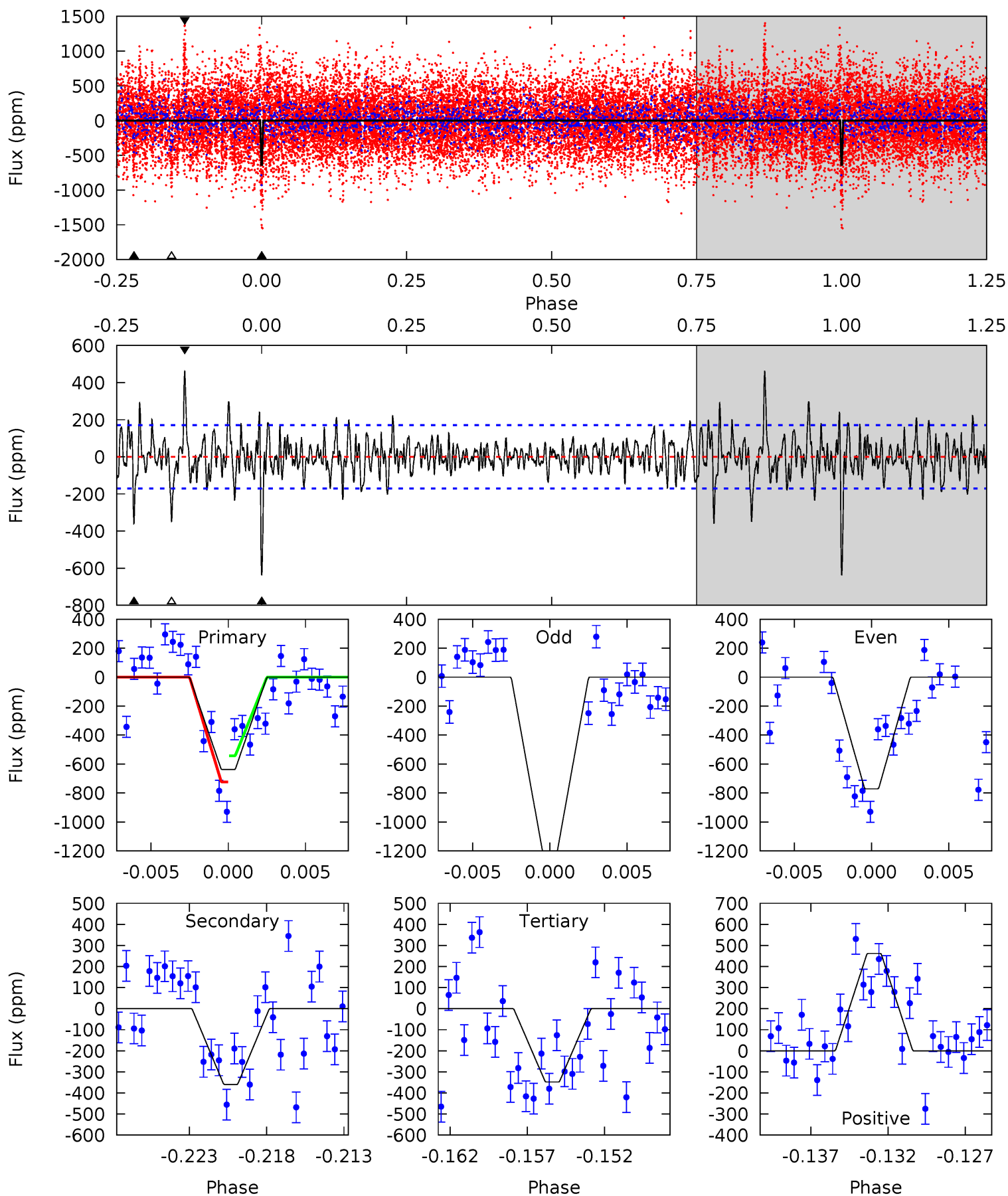
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	23.0	18.7	26.5	5.09	2.69	7.41	-7.13	-14.9	4.24	-3.52	5.85	2.18	0.54	1.49



Alt Model-Shift Uniqueness Test

006976420-05, P = 232.506668 Days, E = 147.196188 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	10.9	10.5	14.0	5.16	2.80	2.46	8.76	5.32	0.34	-3.10	4.91	0.42	0.42	2.73



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-830 ± 36	$52.80^{+8.08}_{-12.74}$	1290^{+178}_{-287}	5582^{+446}_{-1121}	200^{+119}_{-48}
Alt.	-360 ± 33	$39.16^{+6.92}_{-10.40}$	1294^{+185}_{-326}	5251^{+477}_{-1081}	160^{+92}_{-46}

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 $A_{obs} \gg 1.0$

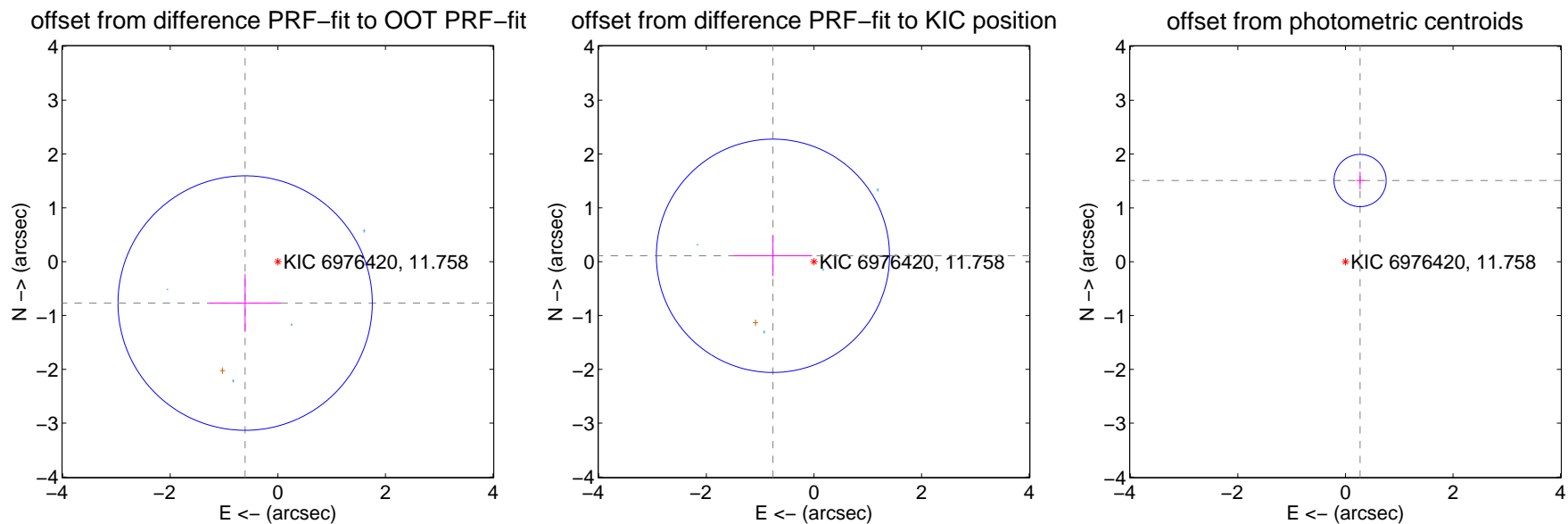
DV Centroid Data

Supplemental centroid analysis for 006976420-05. **Kepler magnitude: 11.76.** Transit SNR 10.19

There are 4 quarters with good PRF difference image offsets

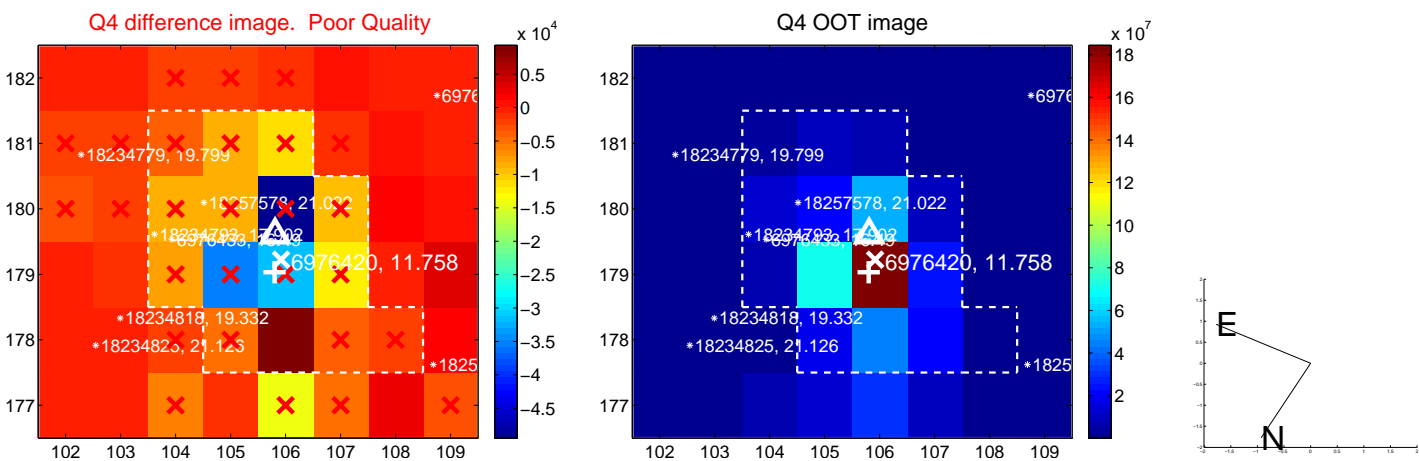
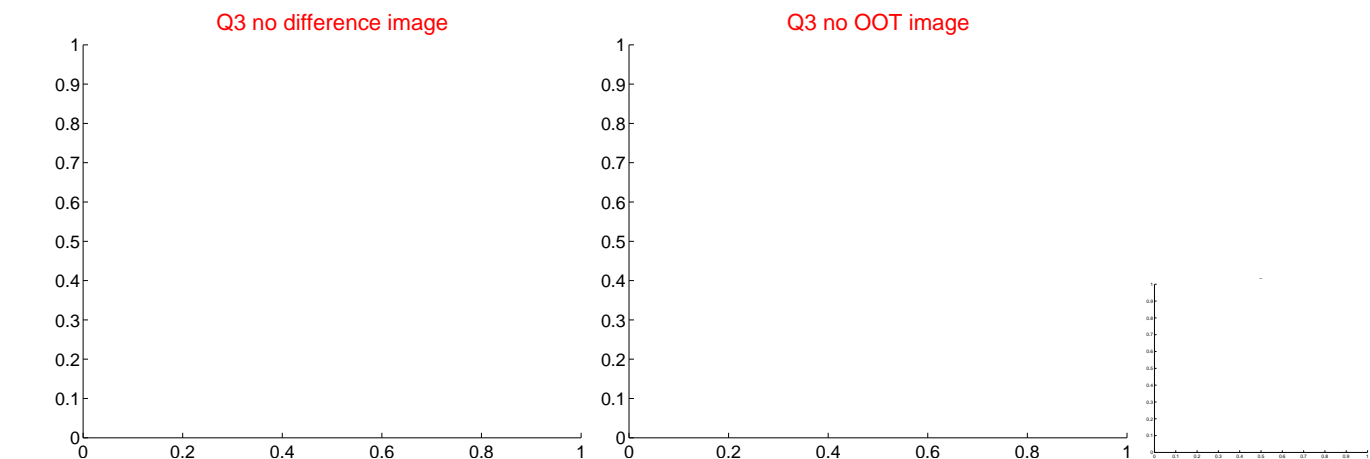
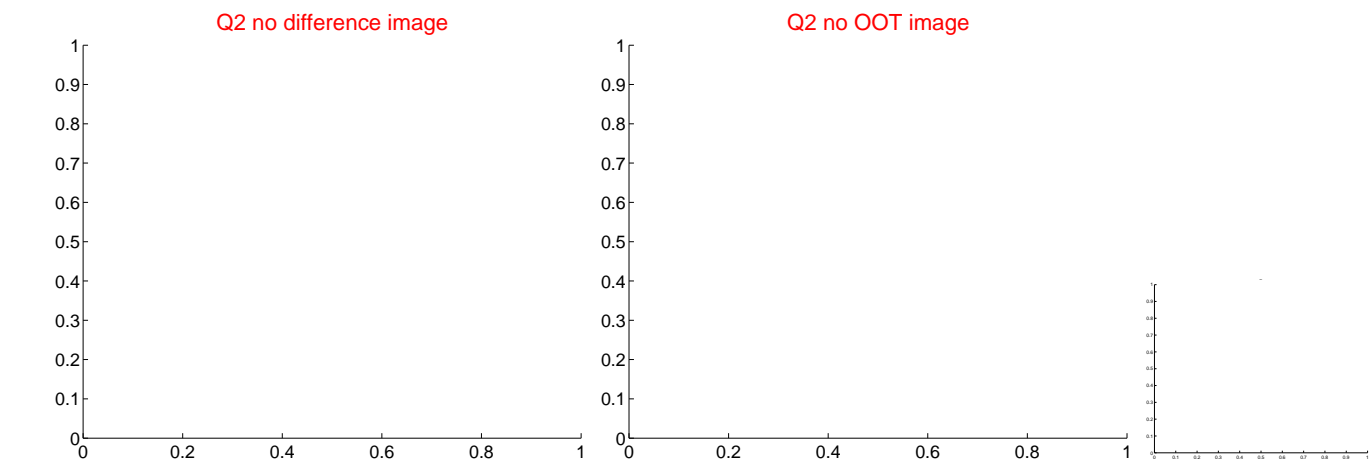
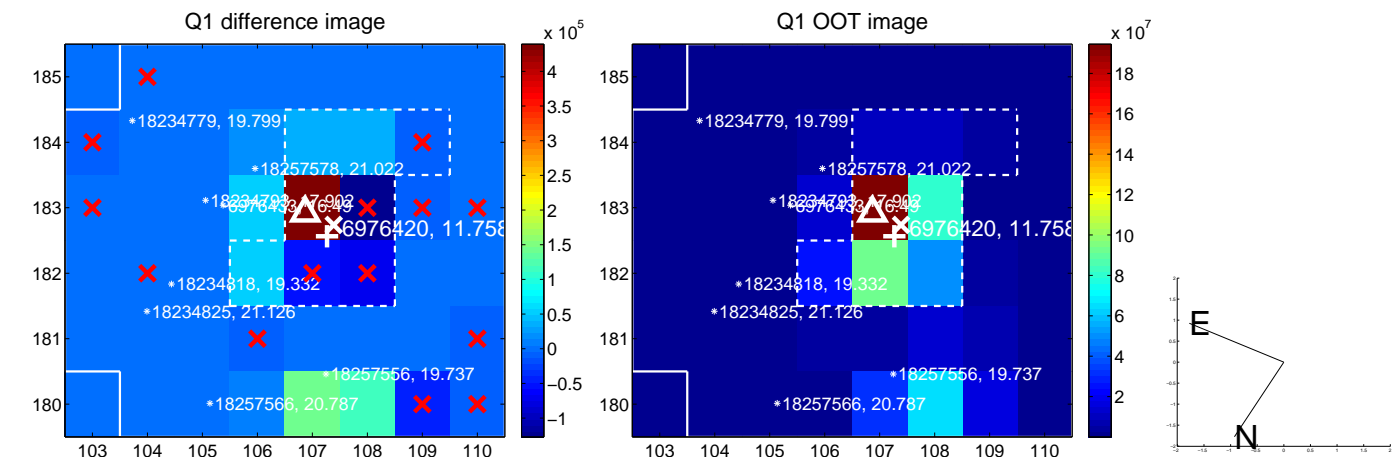
The direct PRF centroid is offset from the target star catalog position by about 0.91 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.981 ± 0.788	1.24	0.608 ± 0.667	-0.769 ± 0.536
PRF-fit source offset from KIC position	0.770 ± 0.722	1.07	0.763 ± 0.728	0.109 ± 0.376
photometric centroid source offset	1.53 ± 0.16	9.48	-0.27 ± 0.07	1.51 ± 0.16

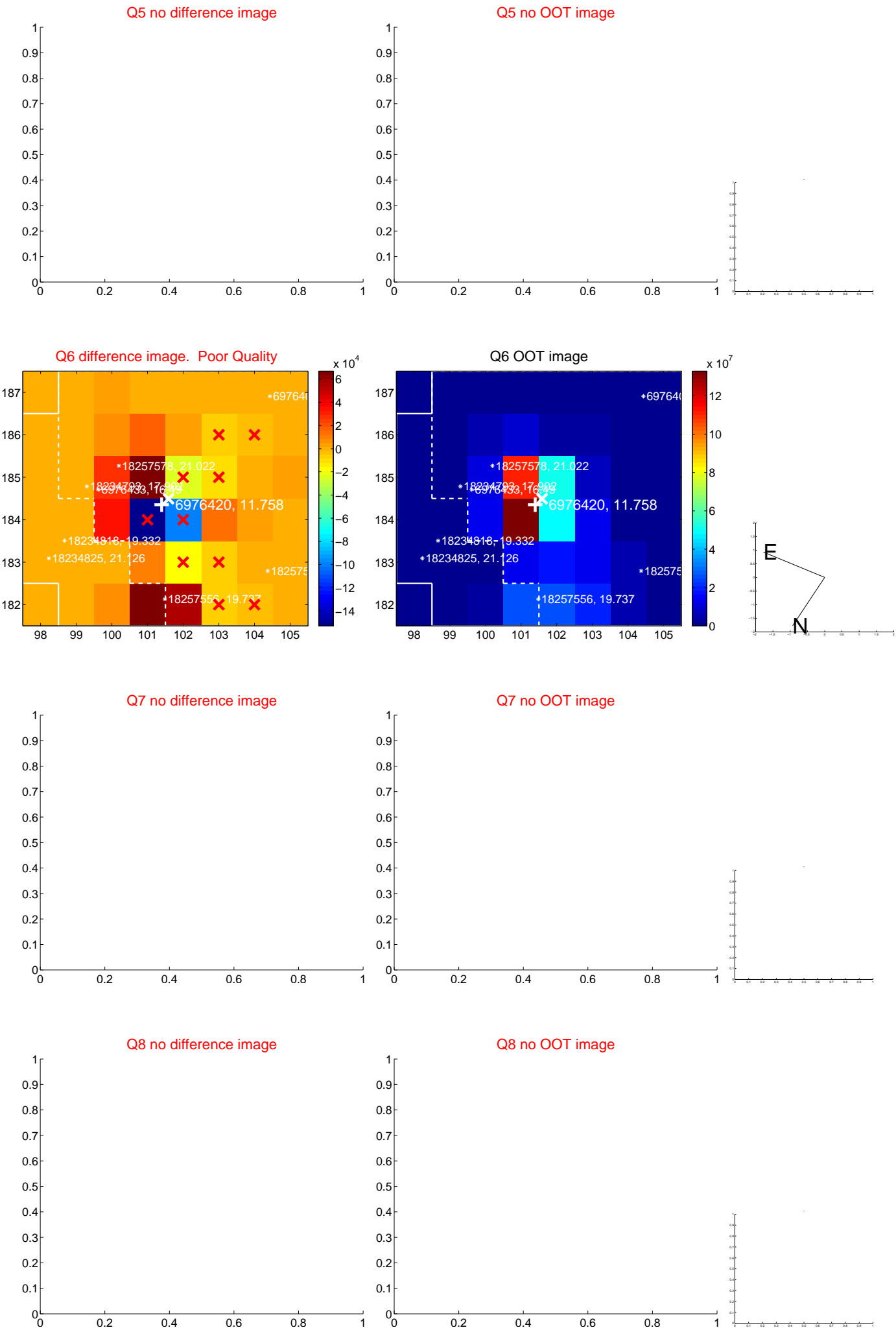


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

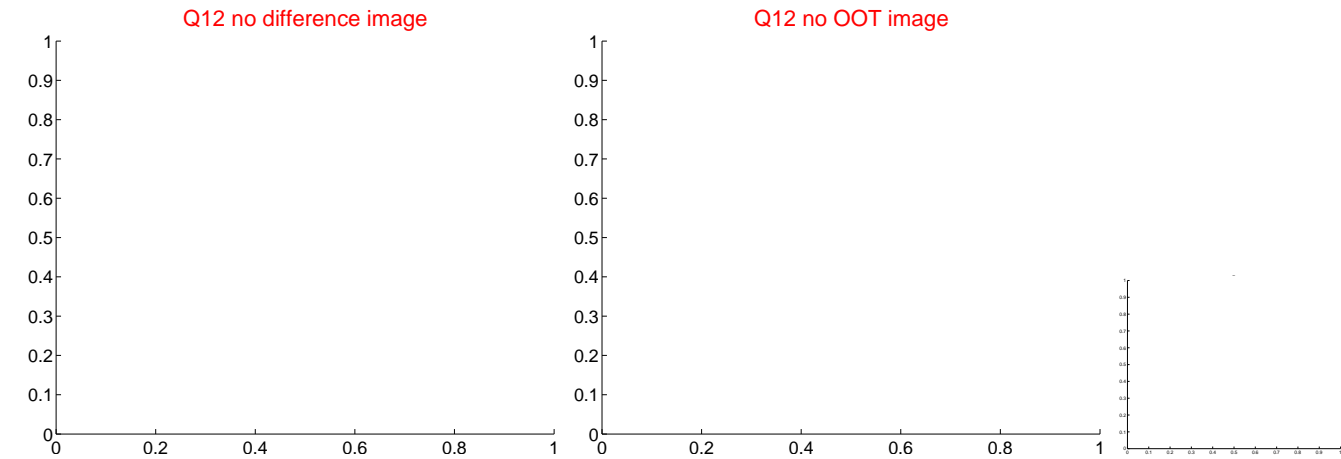
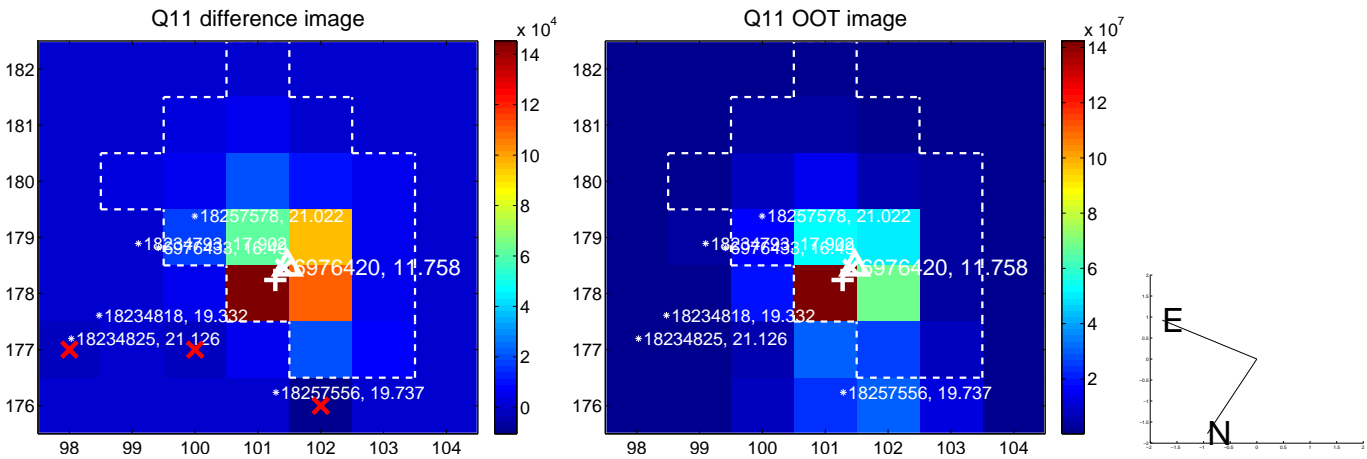
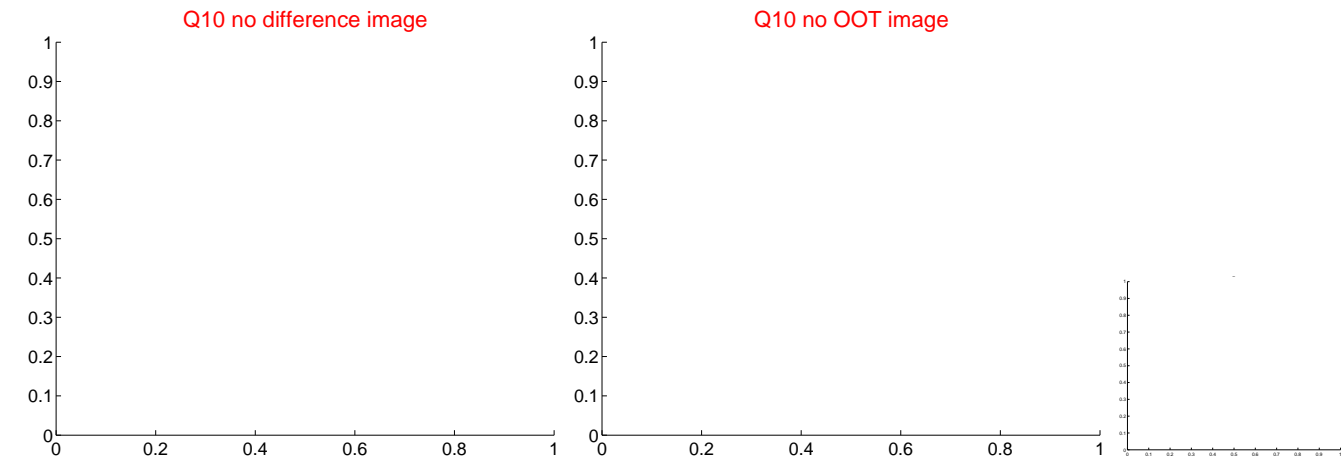
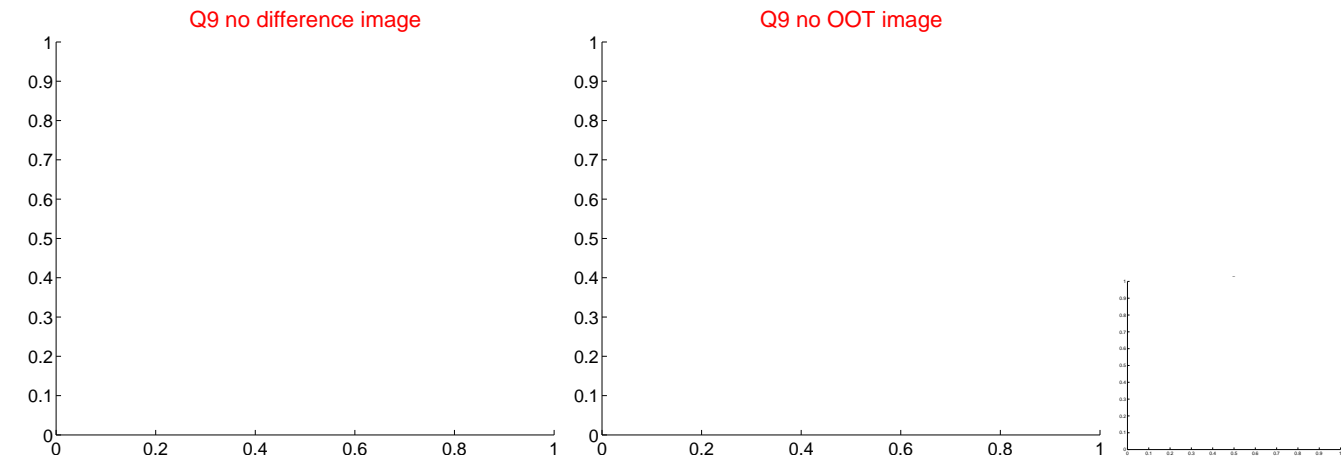
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



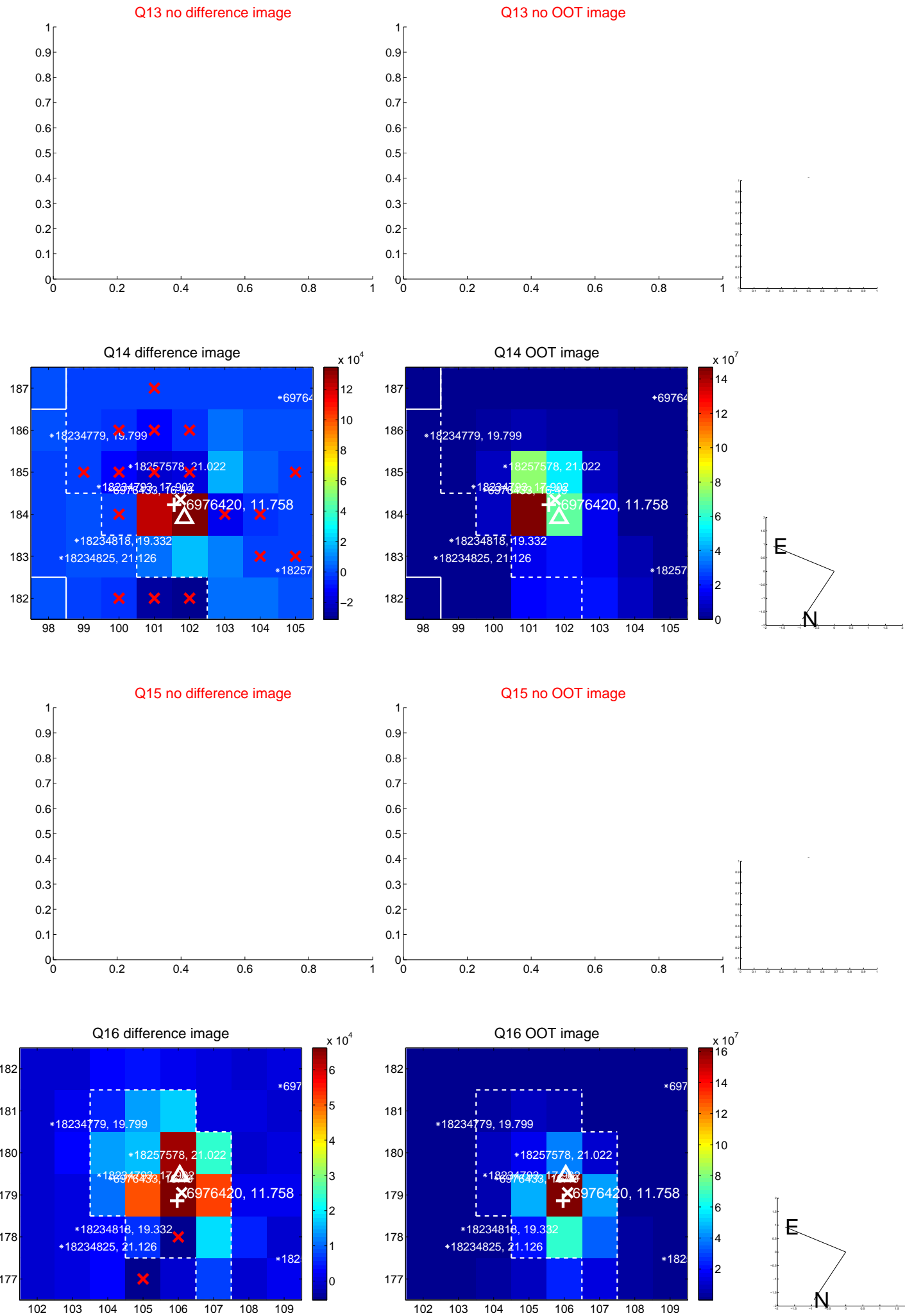
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



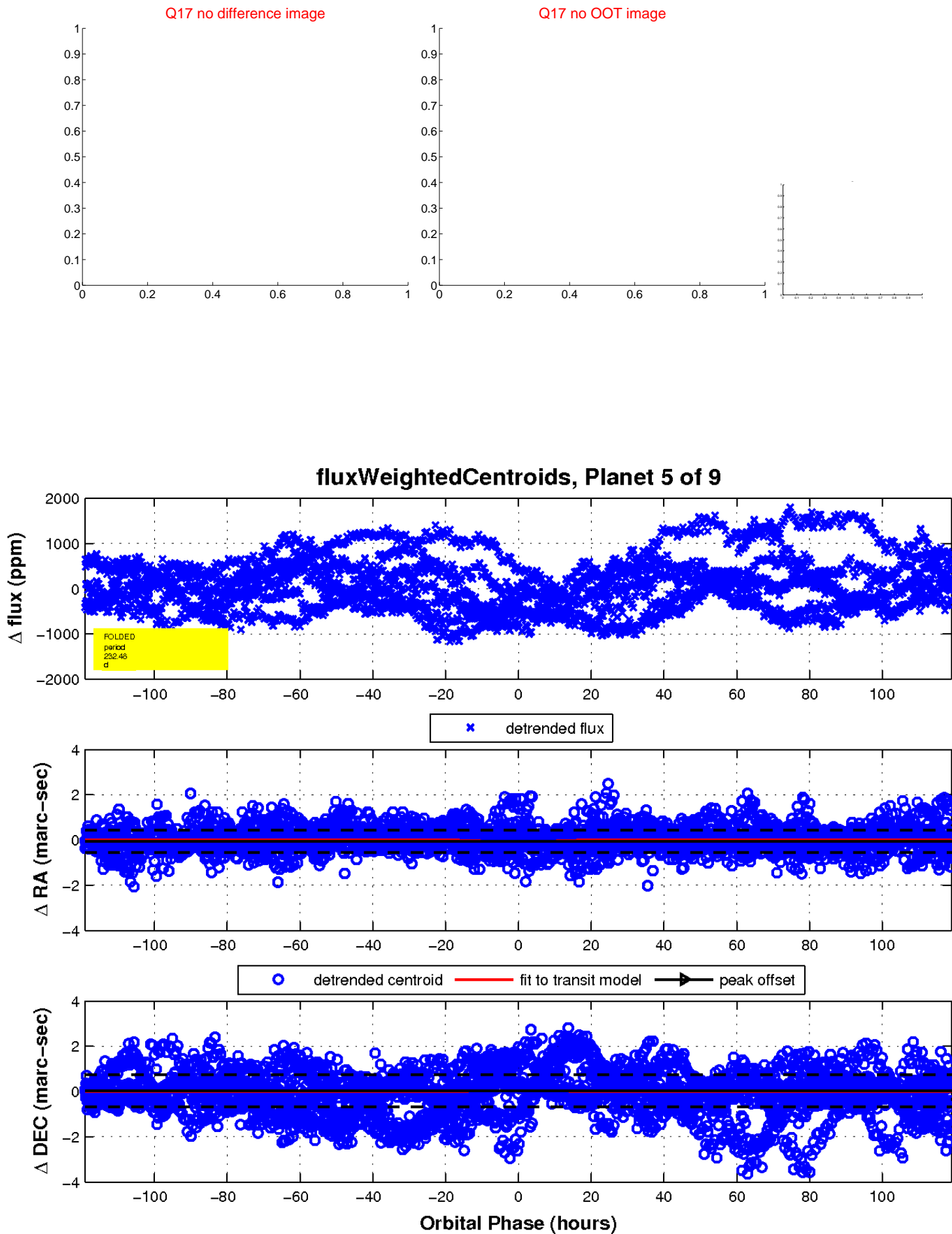
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



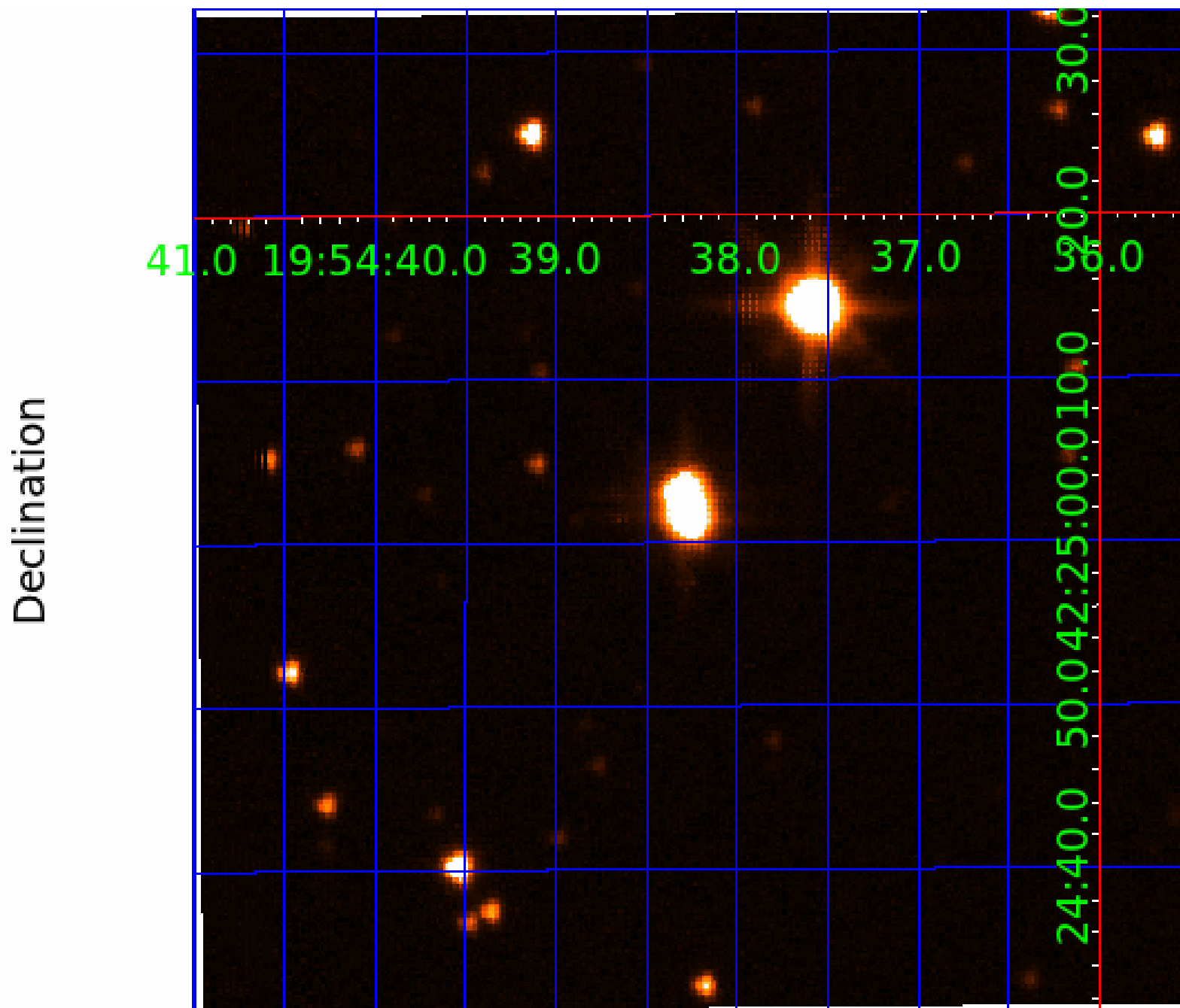
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

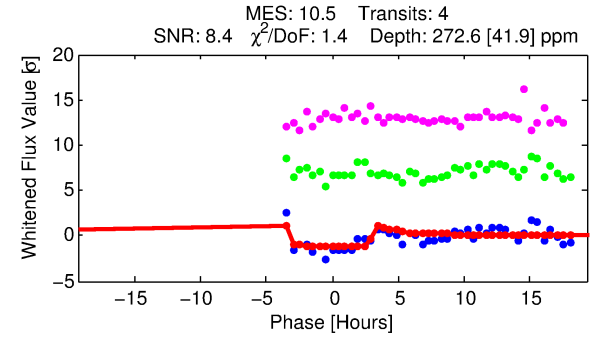
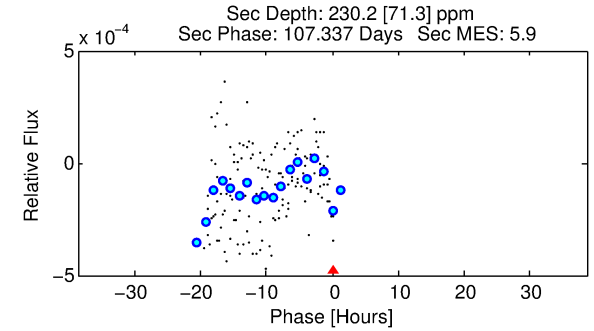
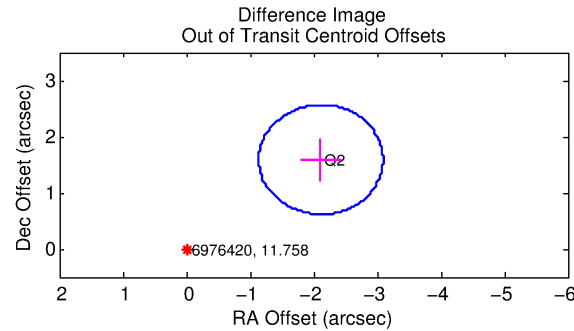
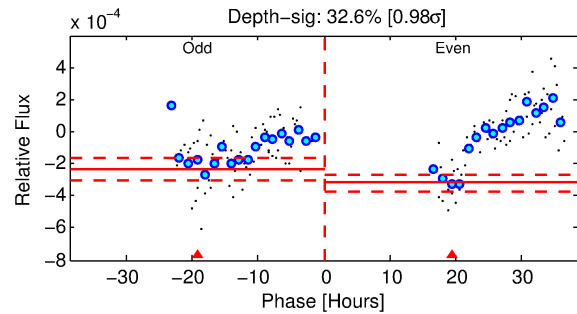
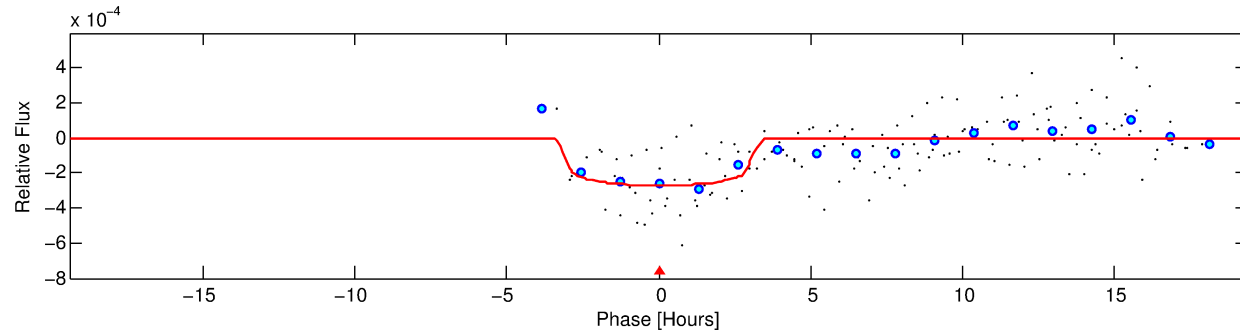
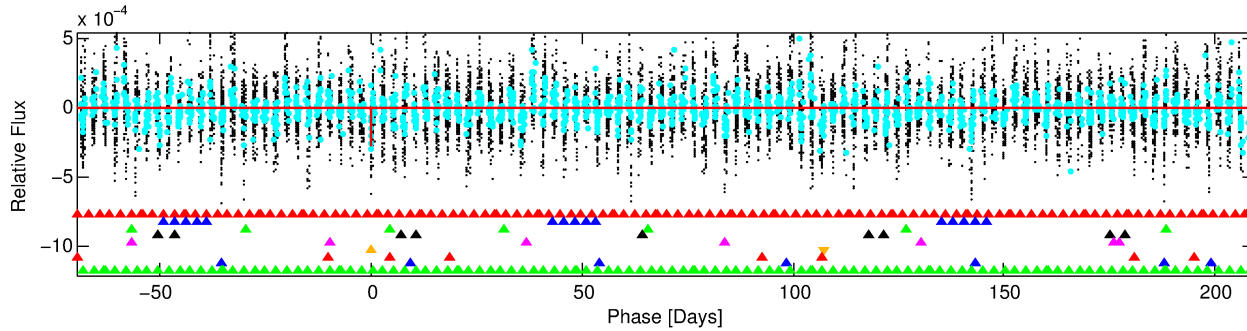
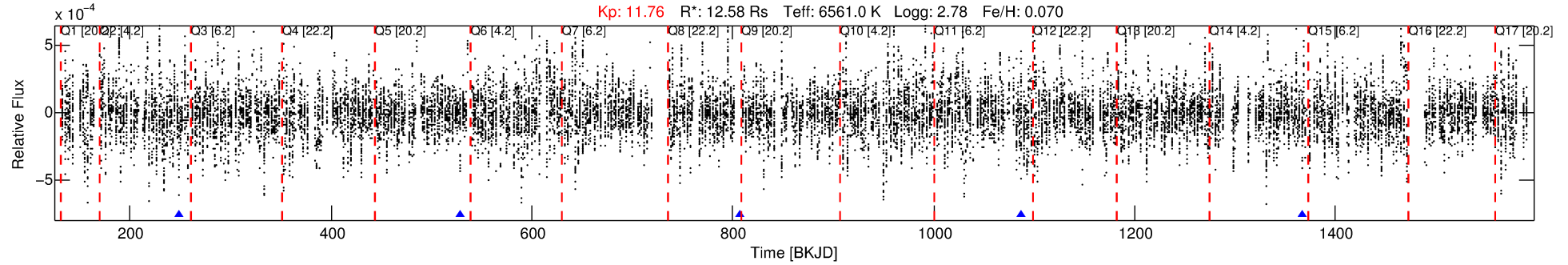
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-06

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 6 of 9 Period: 279.268 d



DV Fit Results:

Period = 279.26807 [0.00411] d
Epoch = 249.2820 [0.0138] BKJD
Rp/R* = 0.0163 [0.0103]
a/R* = 233.98 [820.86]
b = 0.73 [2.26]
Seff = 163.62 [189.94]
Teq = 912 [265] K
Rp = 22.40 [18.67] Re
a = 1.2671 [0.5572] AU
Ag = 405.30 [580.14] [0.70 σ]
Teffp = 6327 [2575] K [2.09 σ]

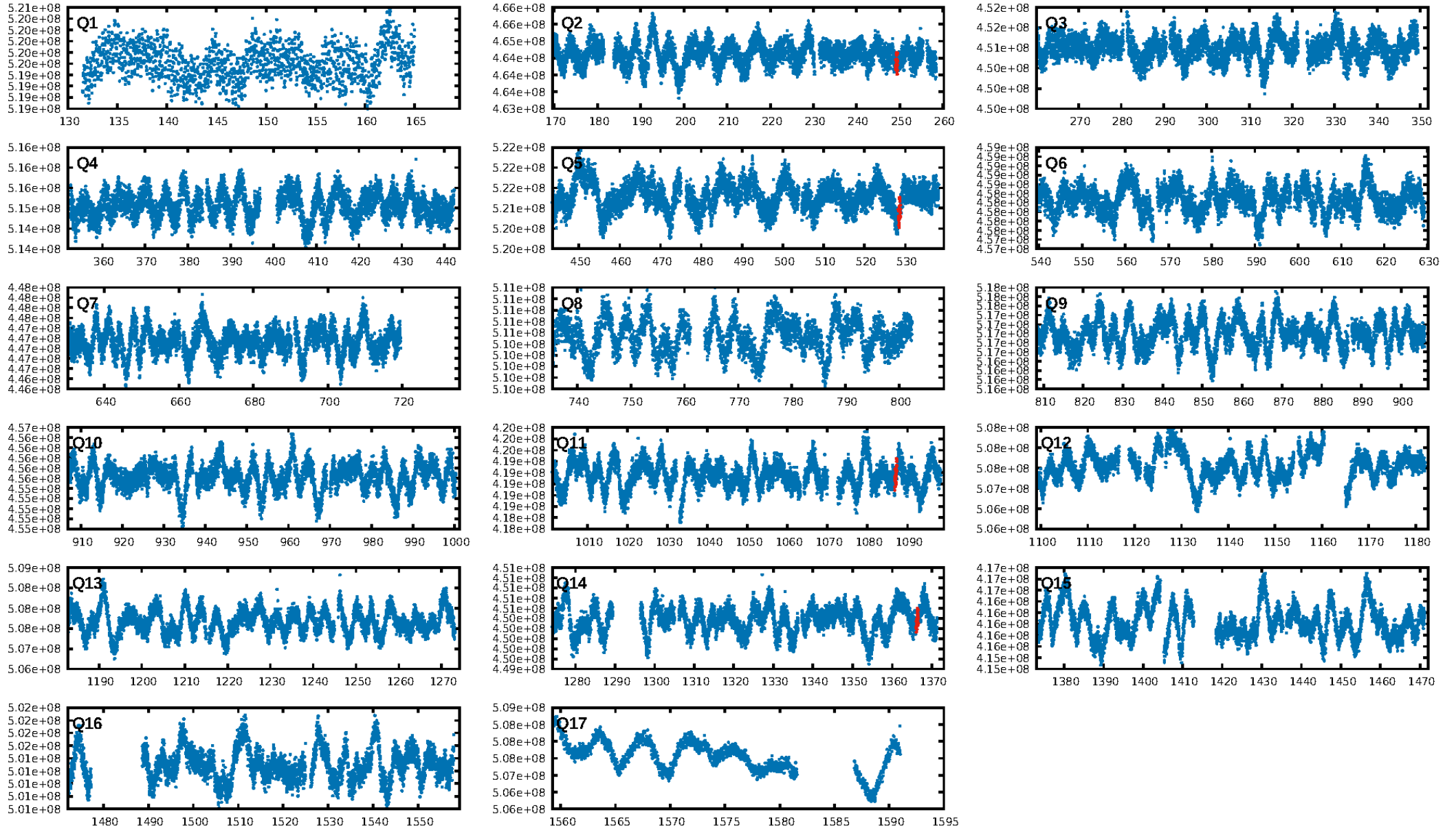
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.50 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 69.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6703
Centroid-sig: 0.9%
Centroid-so: 4.827 arcsec [2.58 σ]
OotOffset-rm: 2.645 arcsec [8.12 σ]
KicOffset-rm: 3.005 arcsec [8.84 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/4]

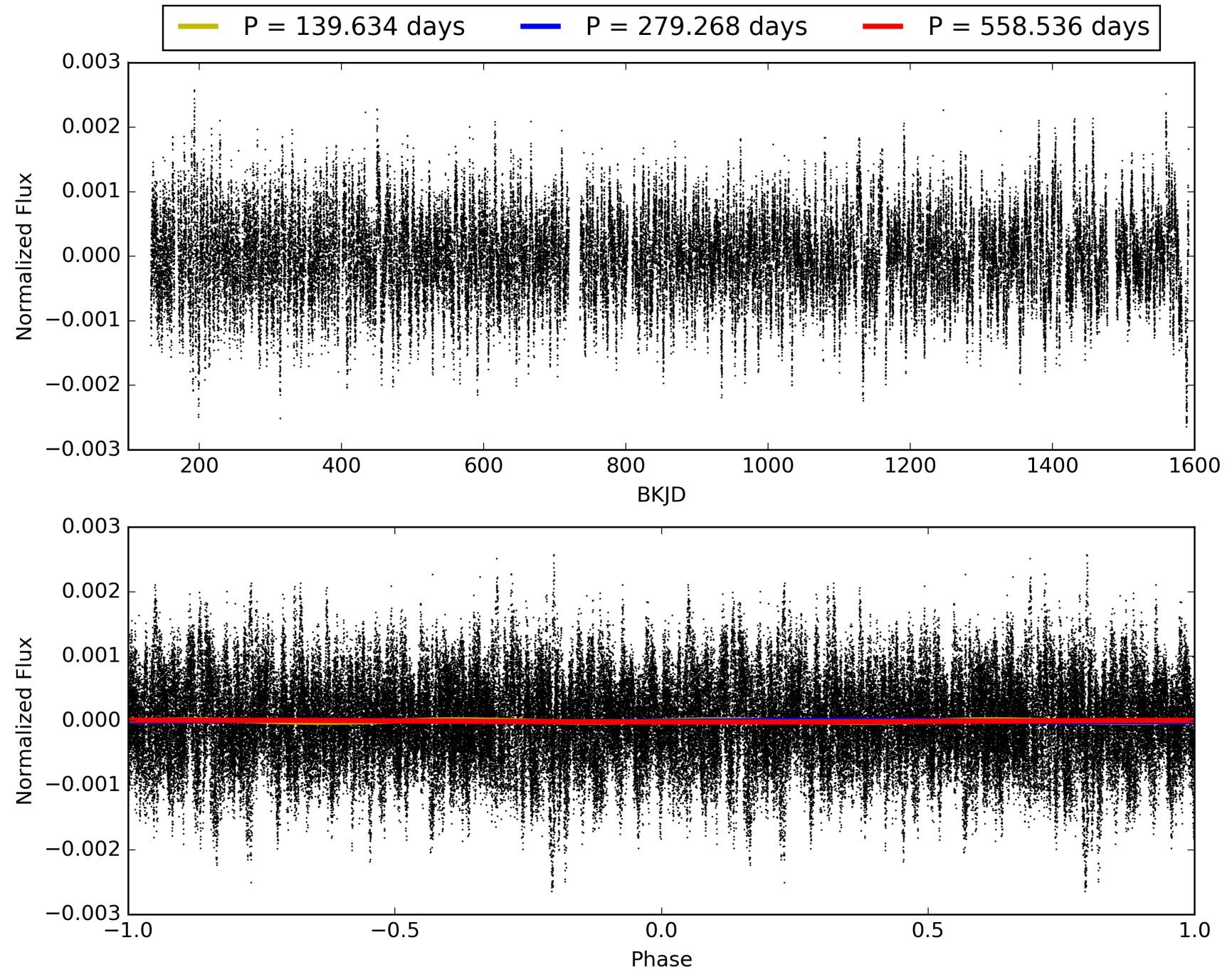
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:47 Z

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

TCE 006976420-06, PDC Light Curves

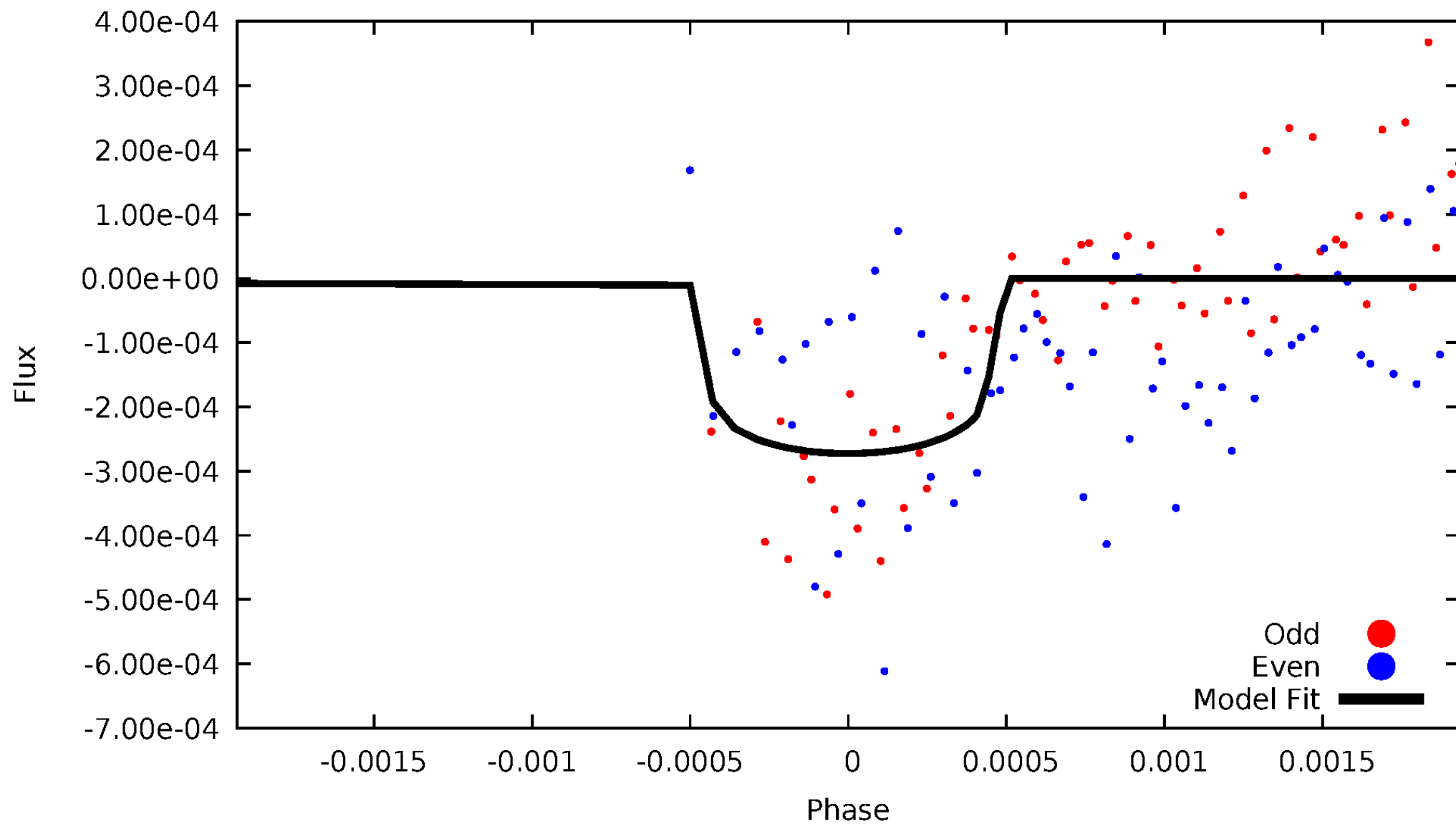


TCE 006976420-06



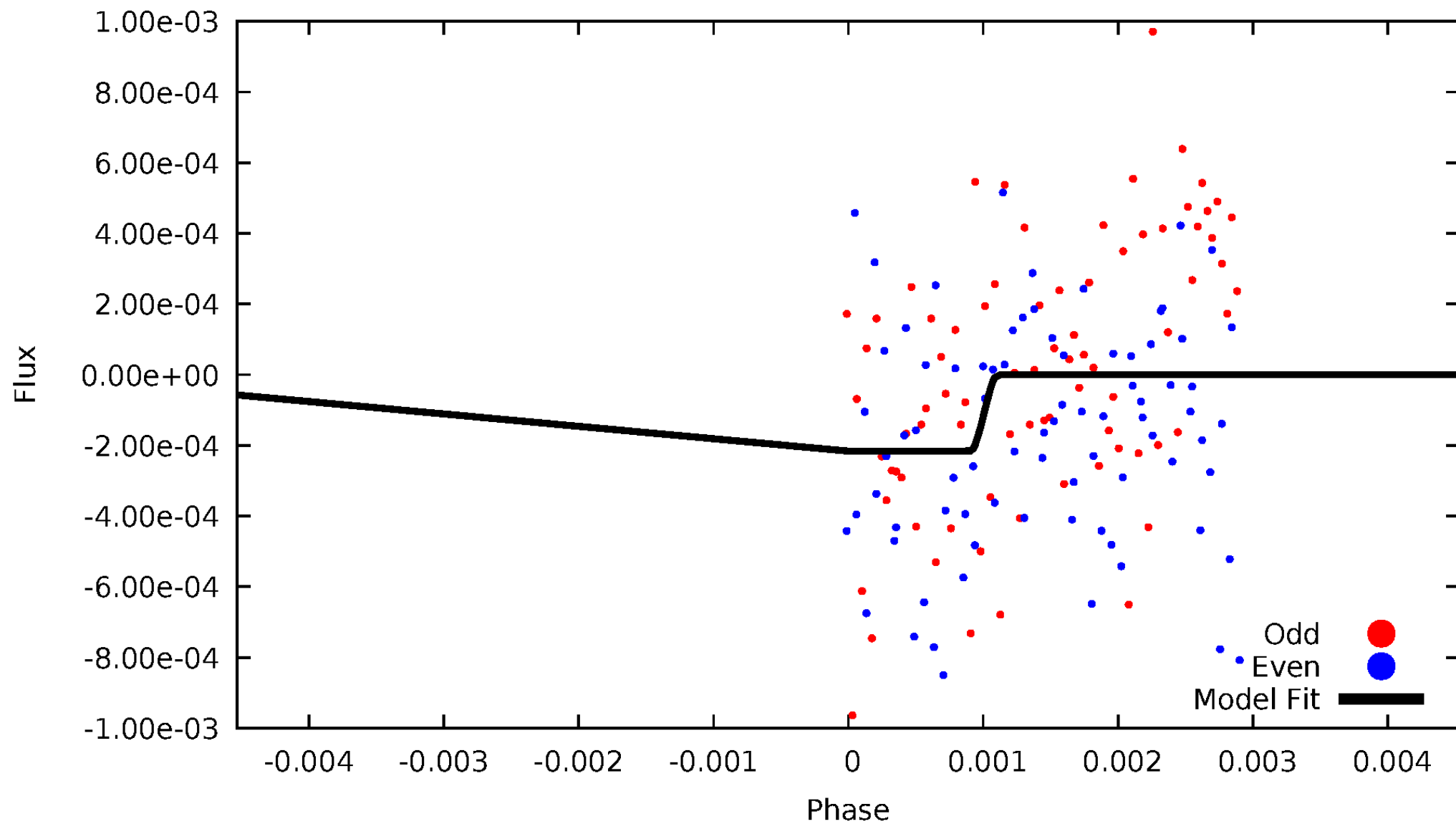
DV Odd/Even

TCE 006976420-06



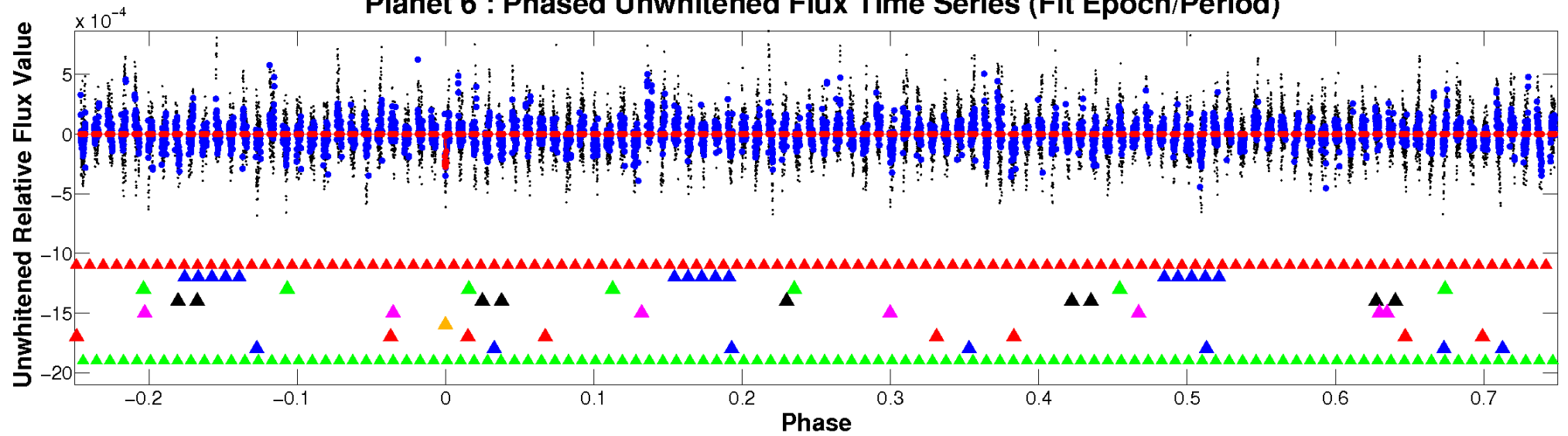
ALT Odd/Even

TCE 006976420-06

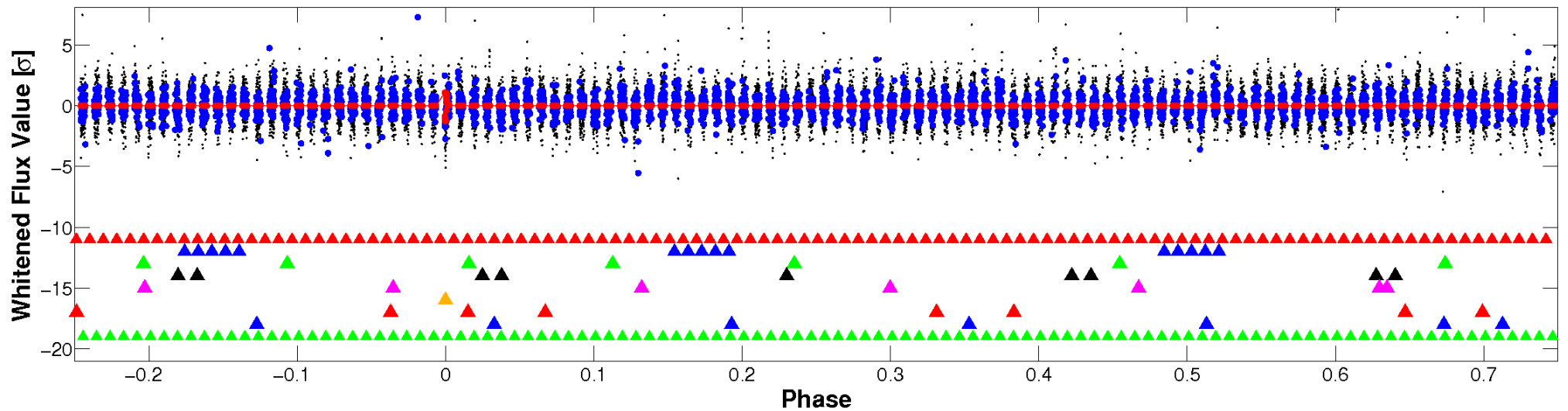


Non-Whitened Vs. Whitened Light Curve

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

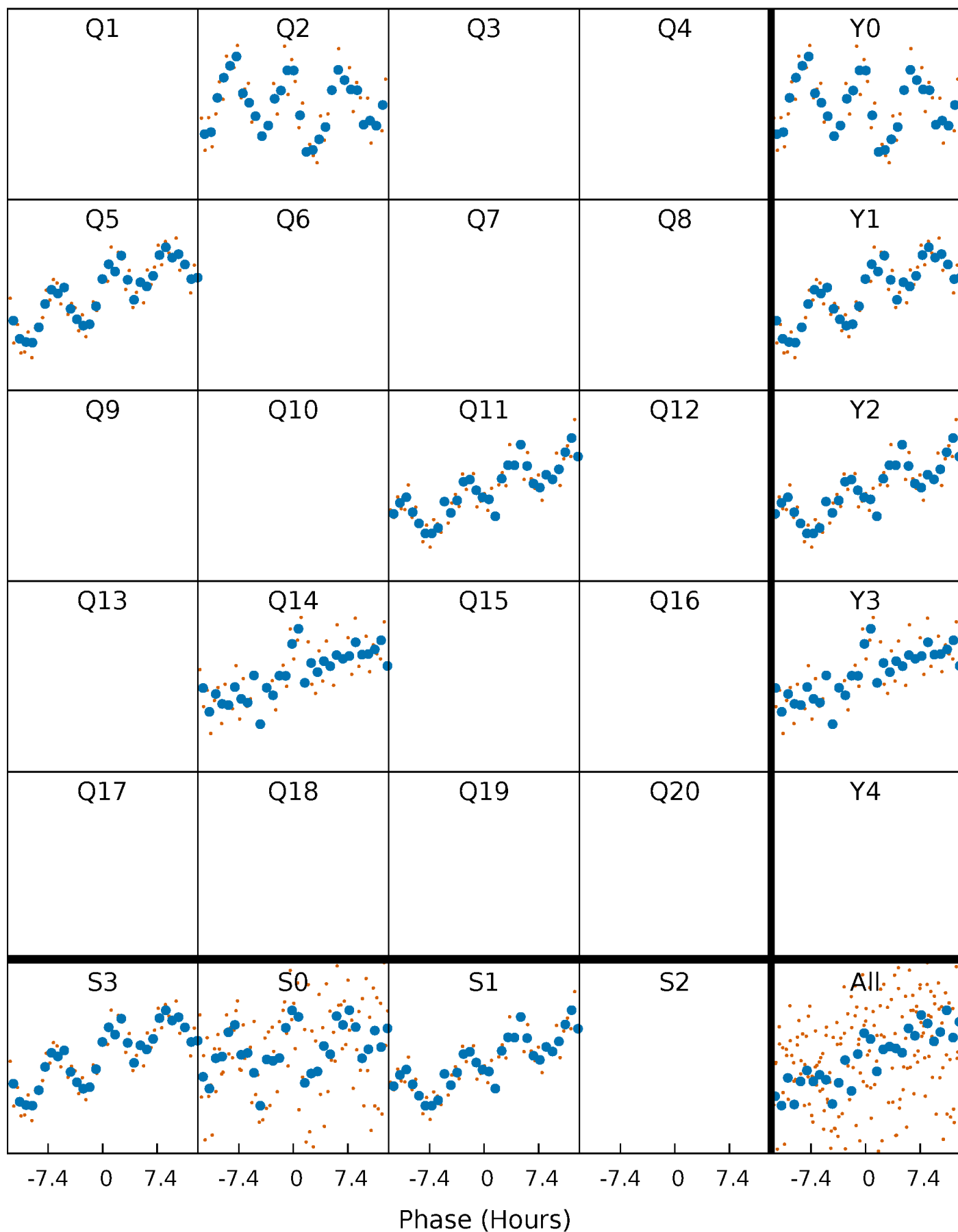


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



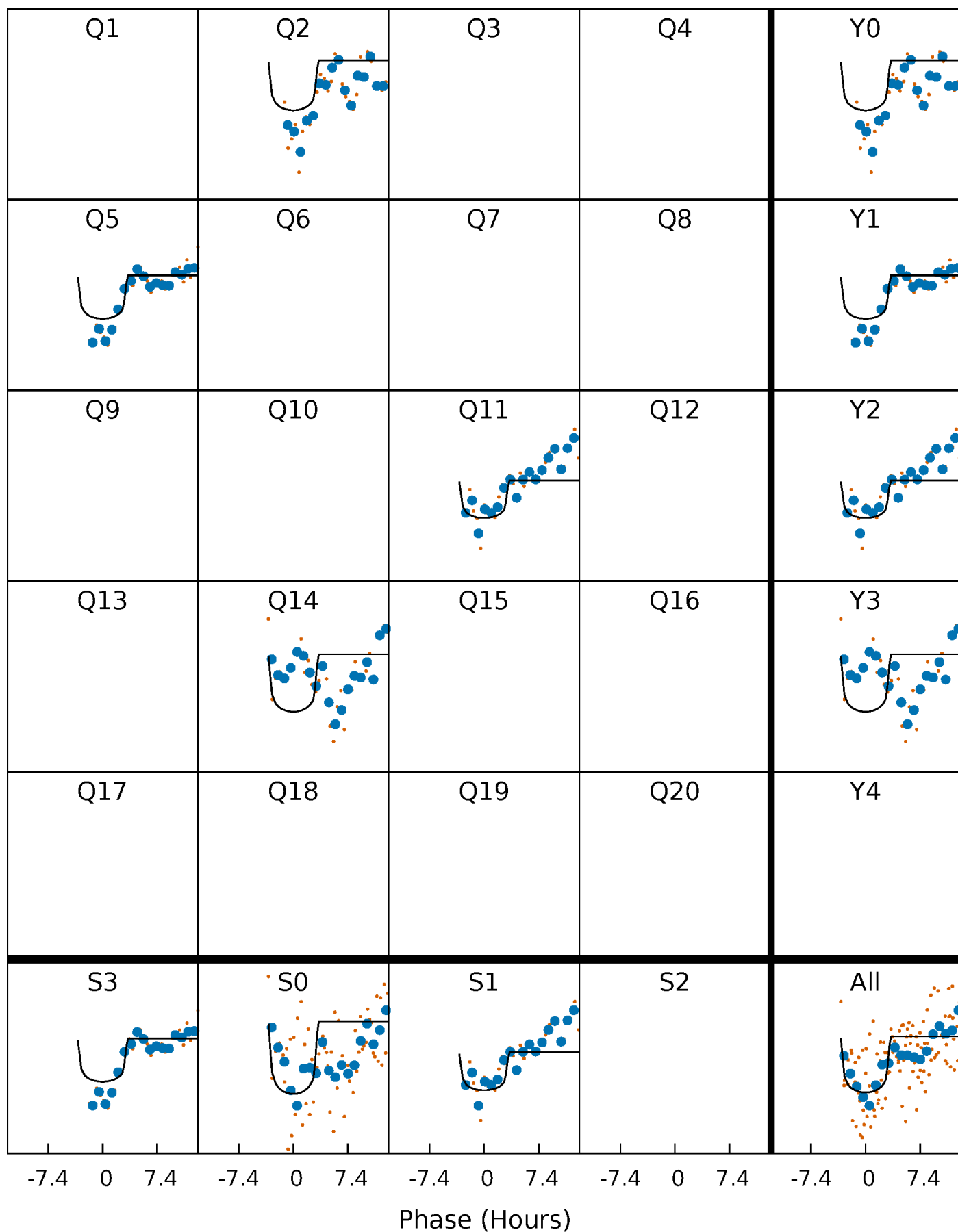
PDC Quarter-Phased Transit Curves

TCE 006976420-06 P=279.268075 Days $T_0=249.282049$ (BKJD)



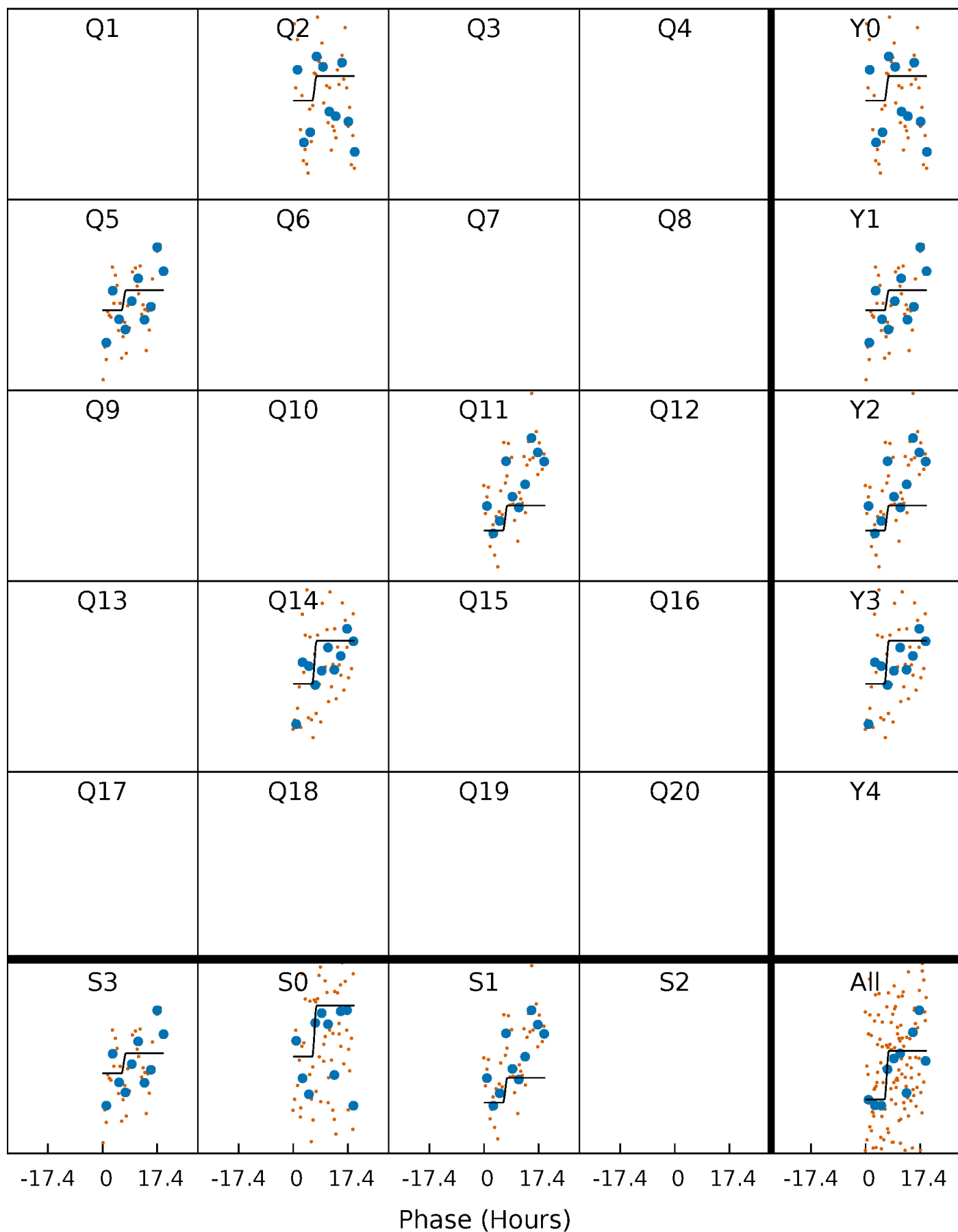
DV Quarter-Phased Transit Curves

TCE 006976420-06 $P=279.268075$ Days $T_0=249.282049$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

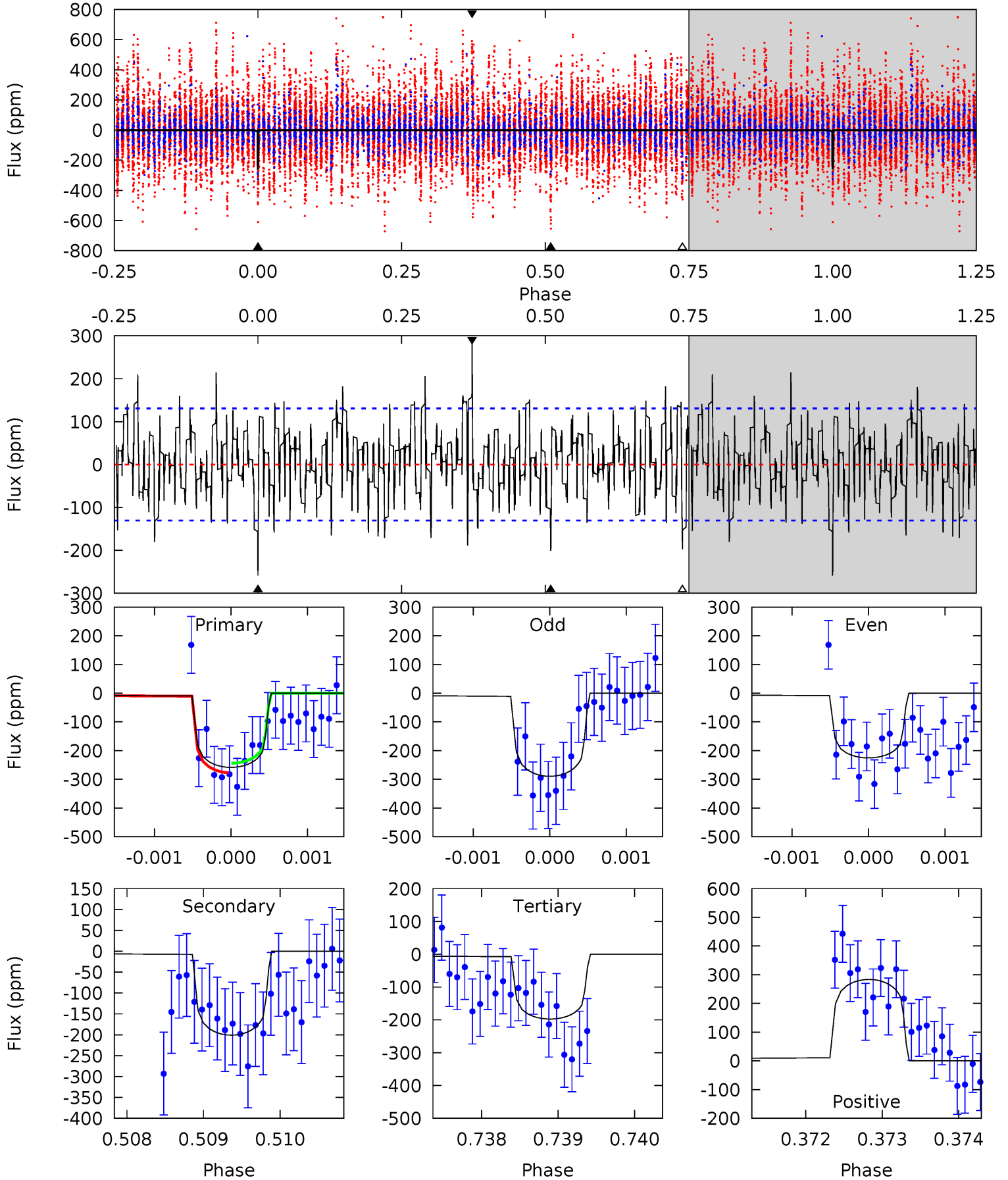
TCE 006976420-06 P=279.249770 Days $T_0=249.218782$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-06, P = 279.268075 Days, E = 249.282049 Days

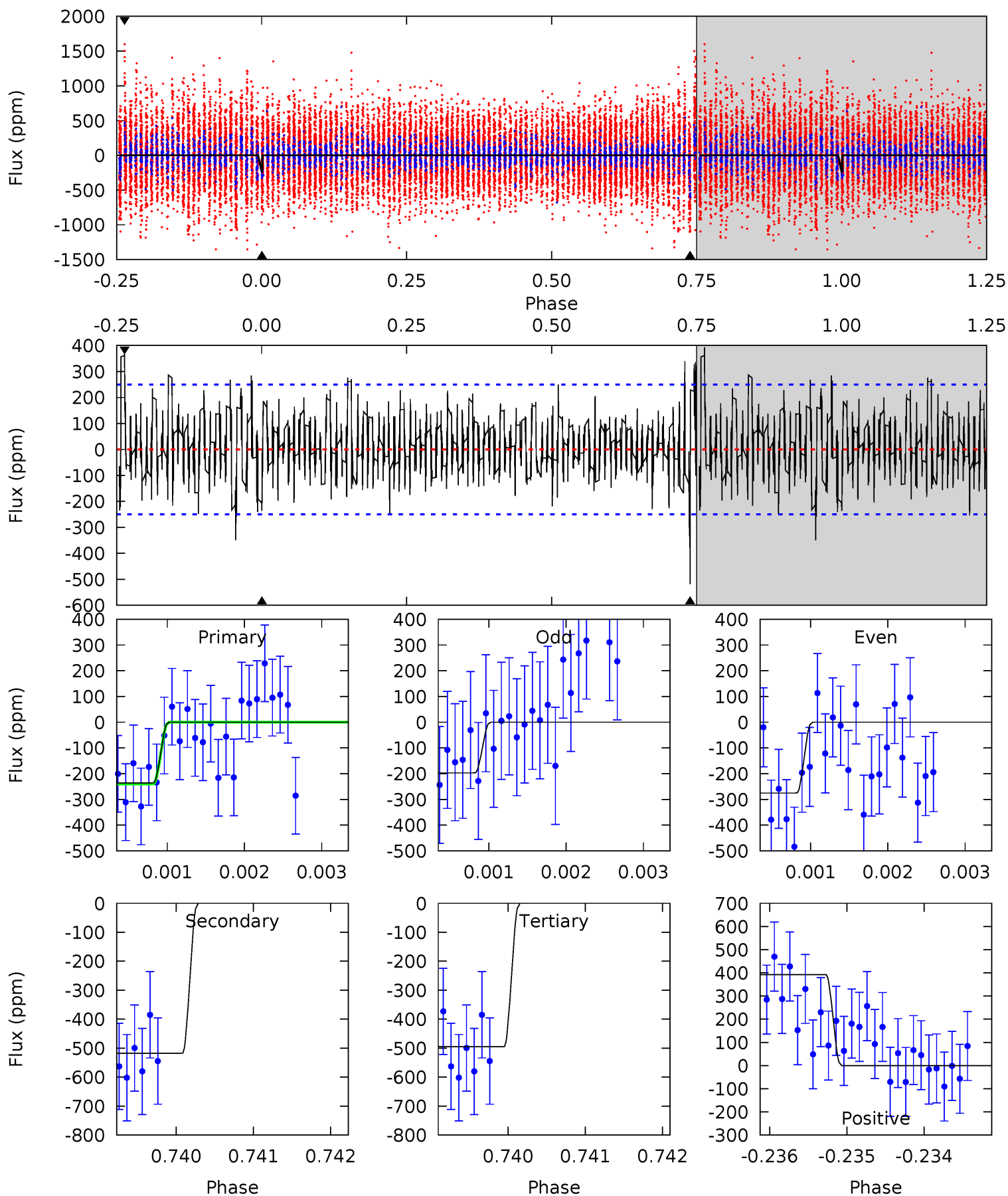
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	8.40	8.25	11.9	5.45	3.30	2.78	2.55	-1.05	0.14	-3.46	1.34	0.92	0.52	0.69



Alt Model-Shift Uniqueness Test

006976420-06, P = 279.249770 Days, E = 249.218782 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.14	11.3	10.8	8.55	5.43	3.26	1.99	-5.65	-3.41	0.49	2.73	0.86	0.86	0.43	0.28



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-201±24	$22.59^{+14.45}_{-12.69}$	1211^{+171}_{-286}	5608^{+3125}_{-1461}	330^{+1281}_{-204}
Alt.	-518±46	$20.32^{+13.13}_{-11.79}$	1207^{+181}_{-306}	7673^{+6344}_{-2357}	1084^{+4672}_{-692}

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 $A_{obs} \gg 1.0$

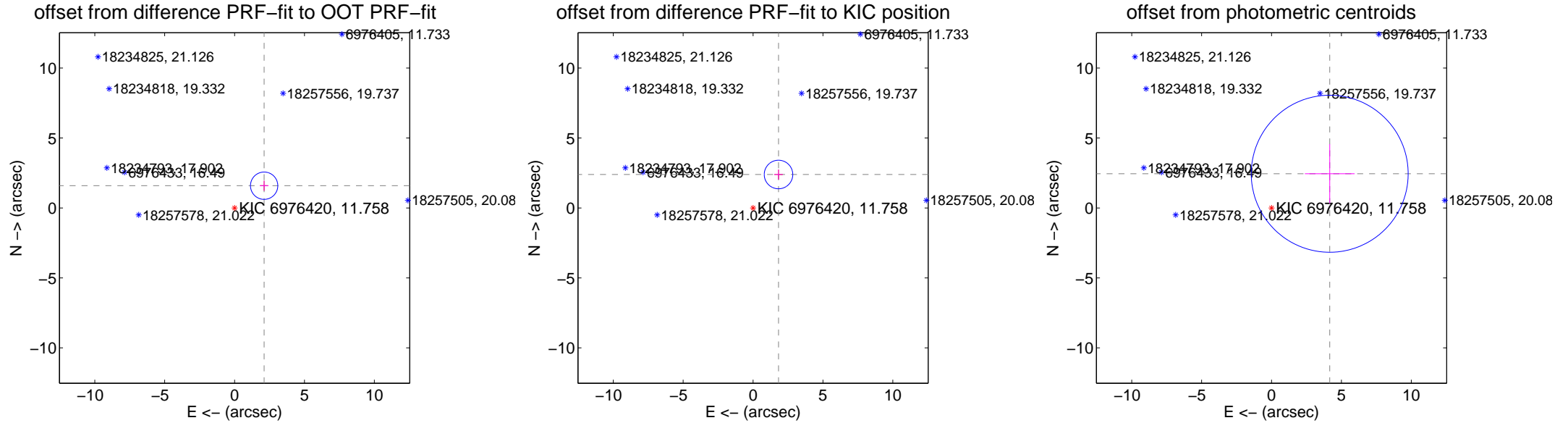
DV Centroid Data

Supplemental centroid analysis for 006976420-06. **Kepler magnitude: 11.76.** Transit SNR 8.39

There are 0 quarters with good PRF difference image offsets

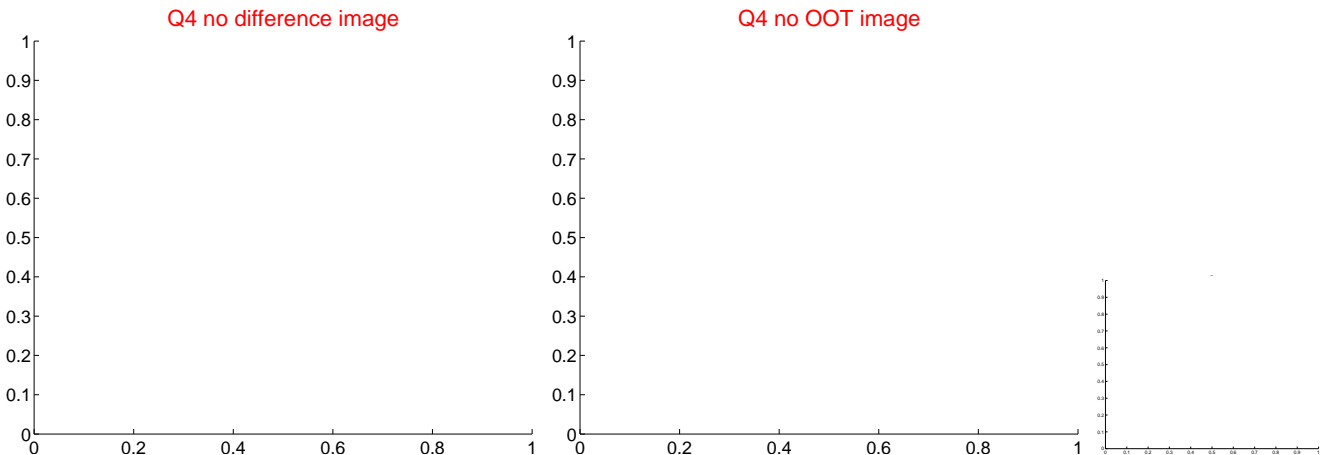
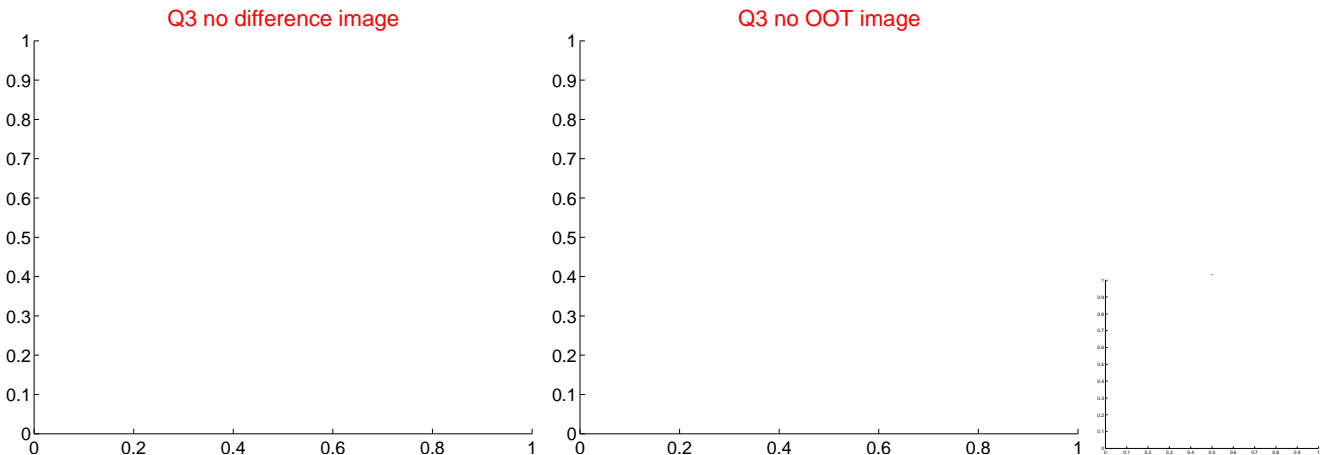
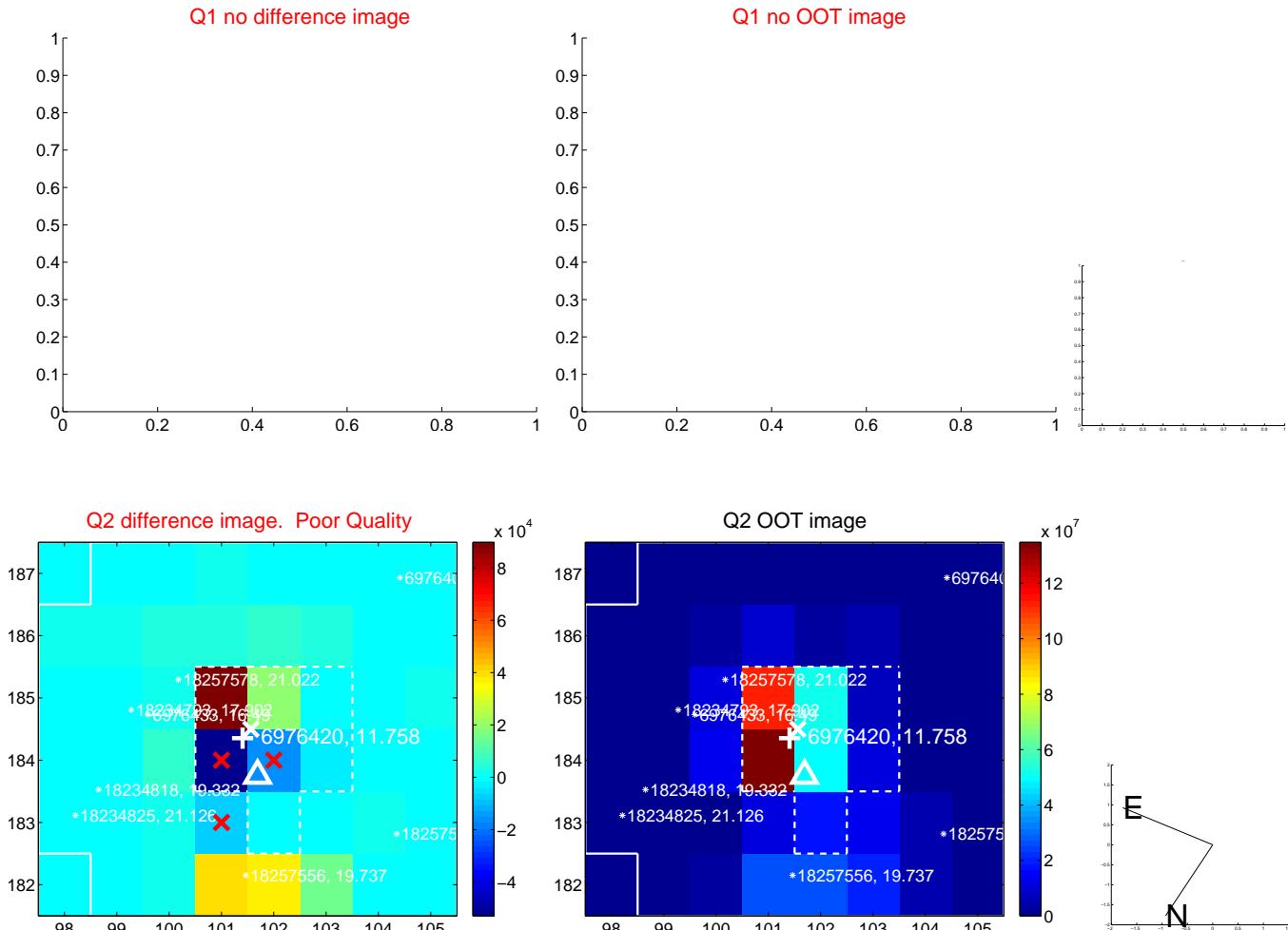
The direct PRF centroid is offset from the target star catalog position by about 0.85 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.645 ± 0.326	8.12	-2.114 ± 0.305	1.590 ± 0.359
PRF-fit source offset from KIC position	3.005 ± 0.340	8.84	-1.821 ± 0.305	2.390 ± 0.359
photometric centroid source offset	4.83 ± 1.87	2.58	-4.16 ± 1.78	2.45 ± 2.12

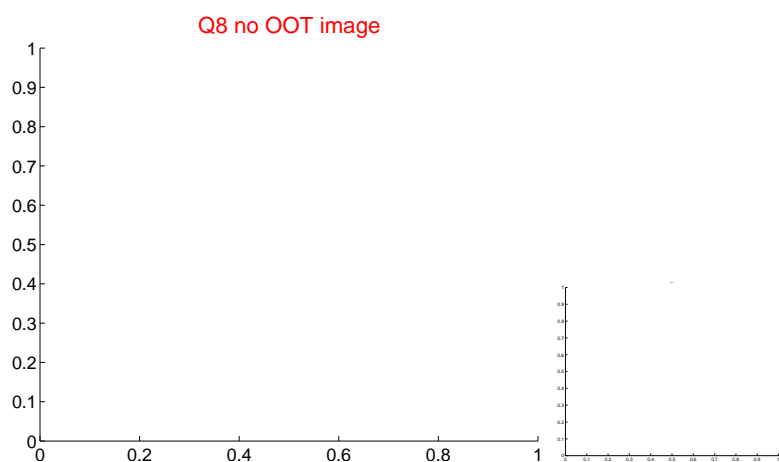
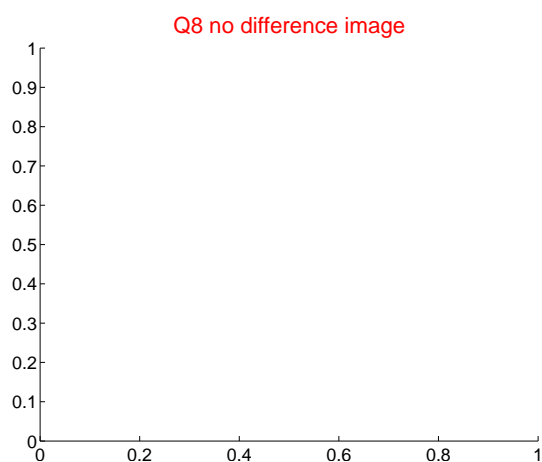
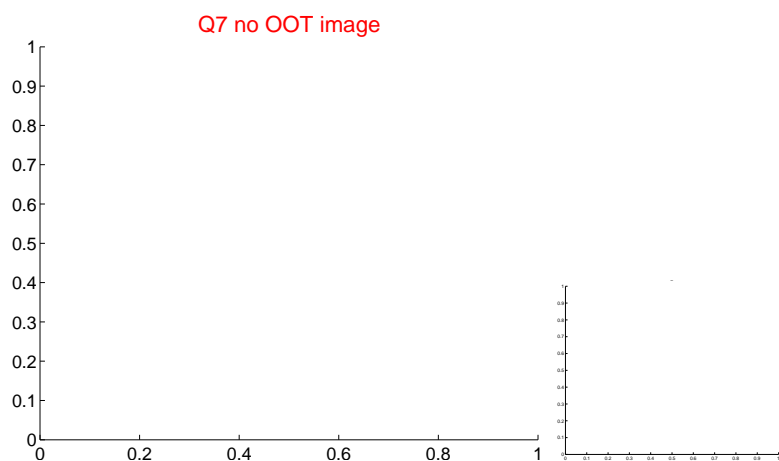
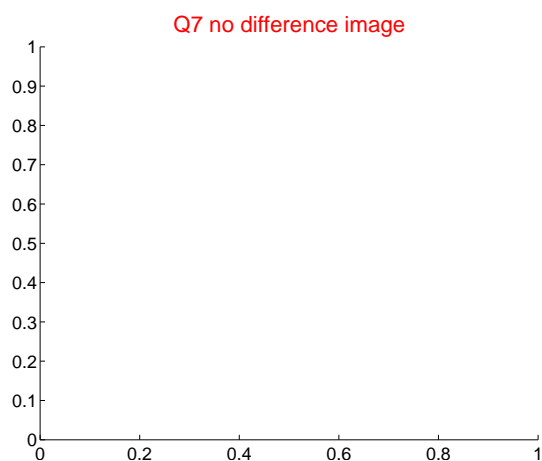
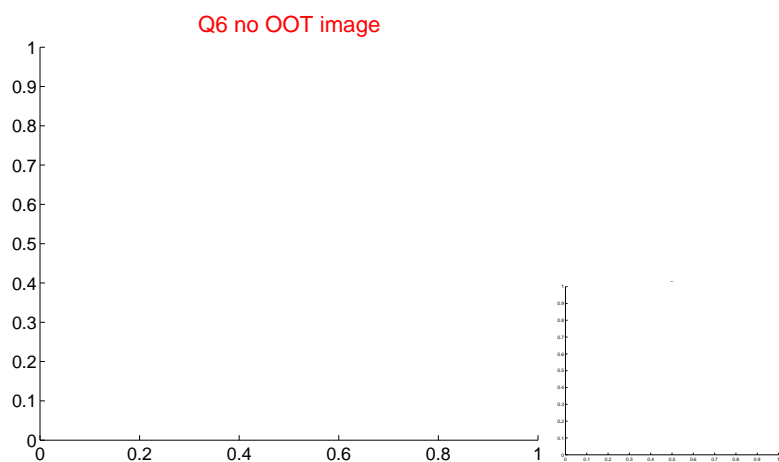
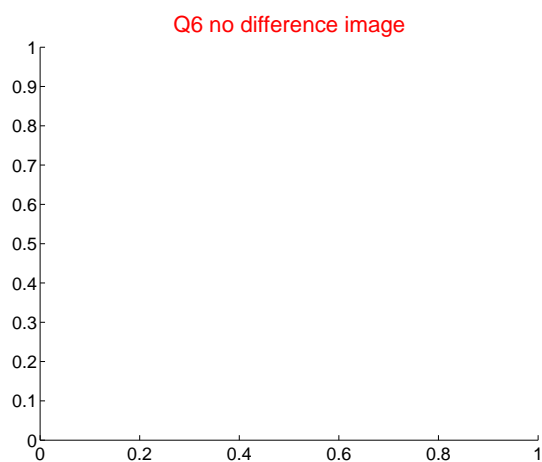
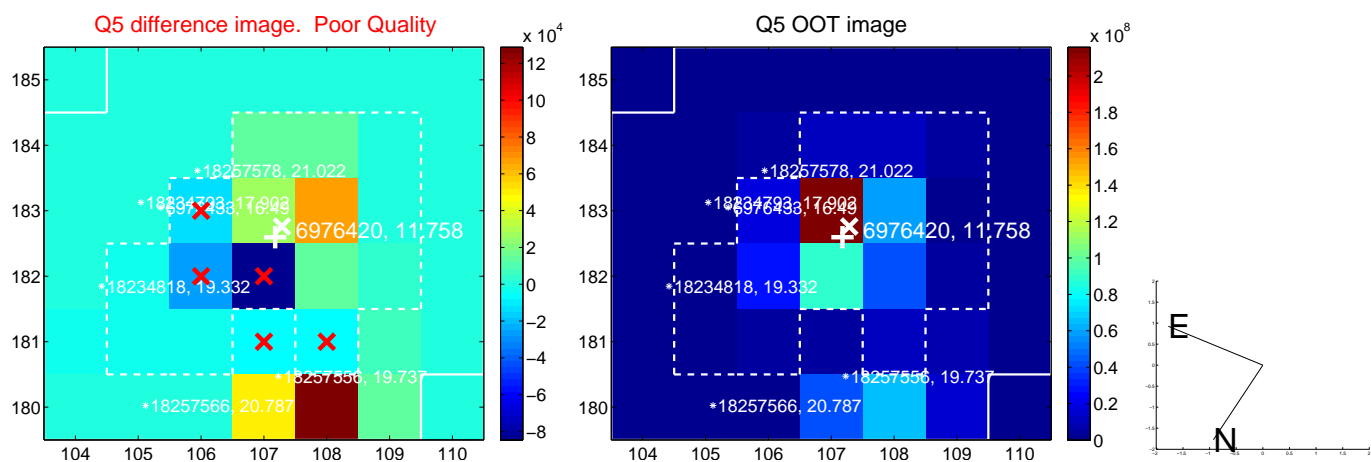


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

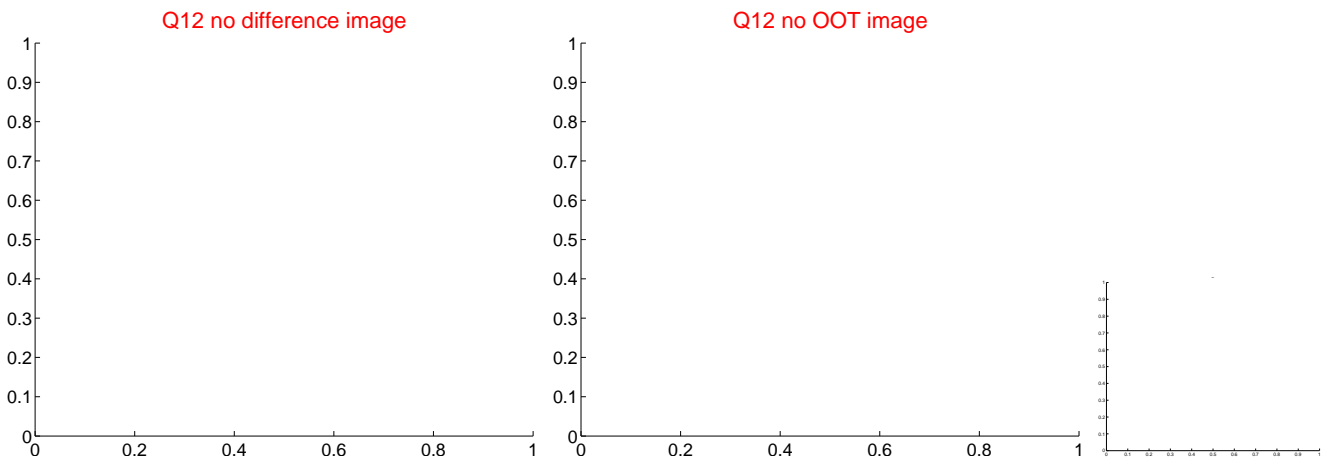
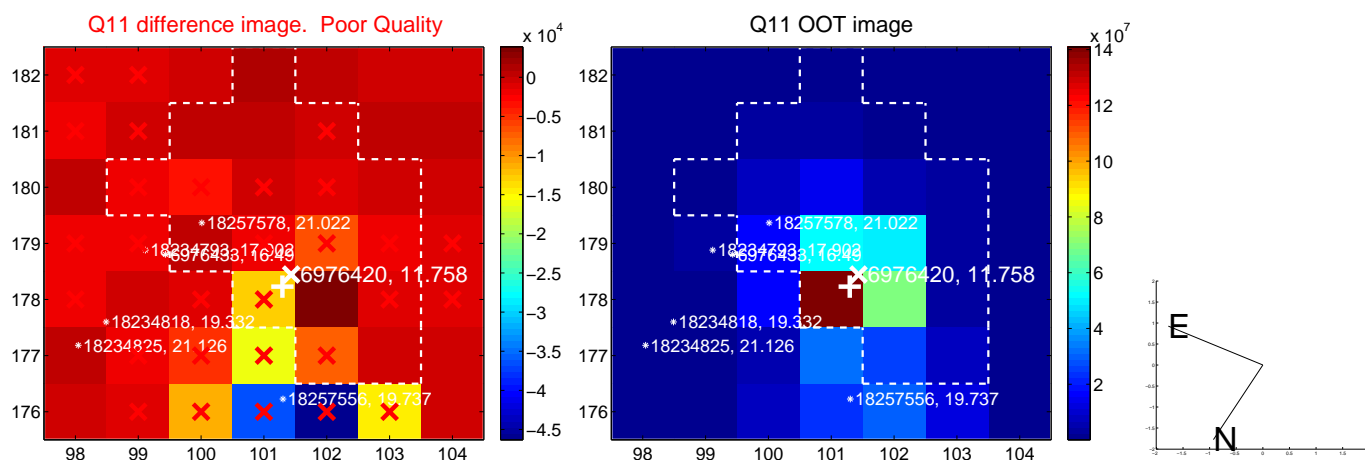
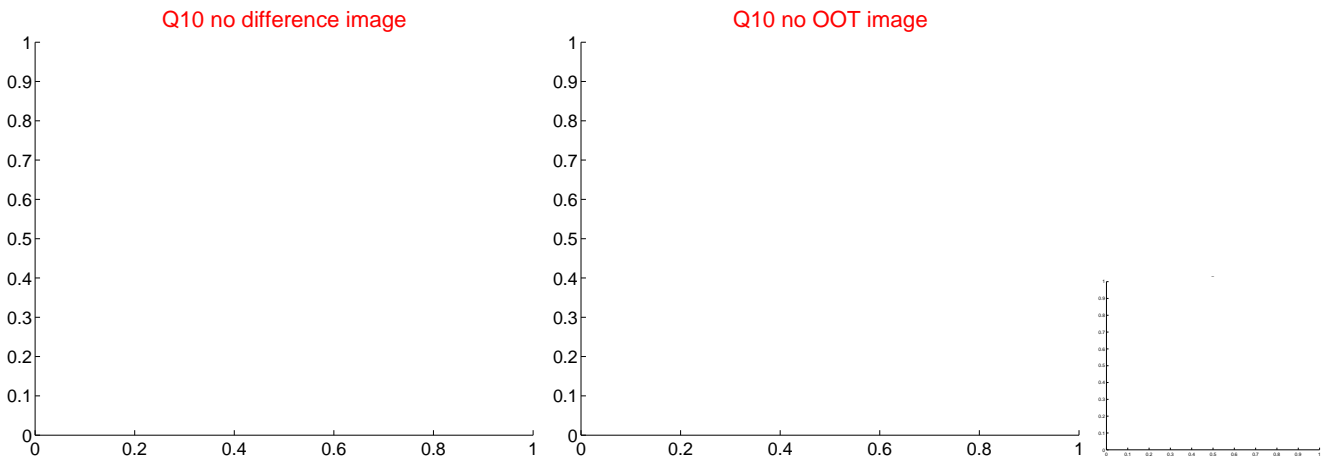
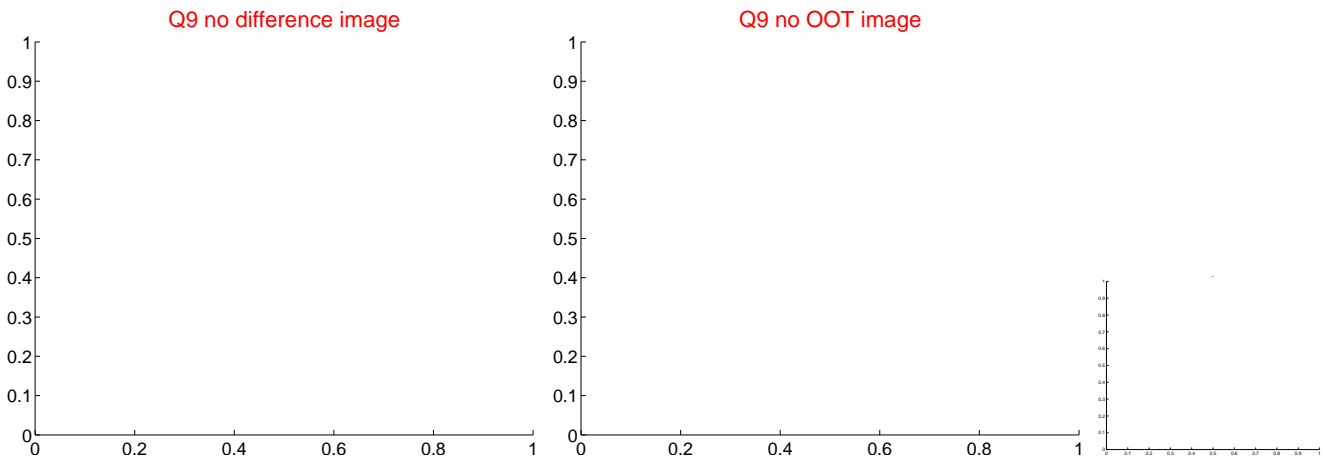
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



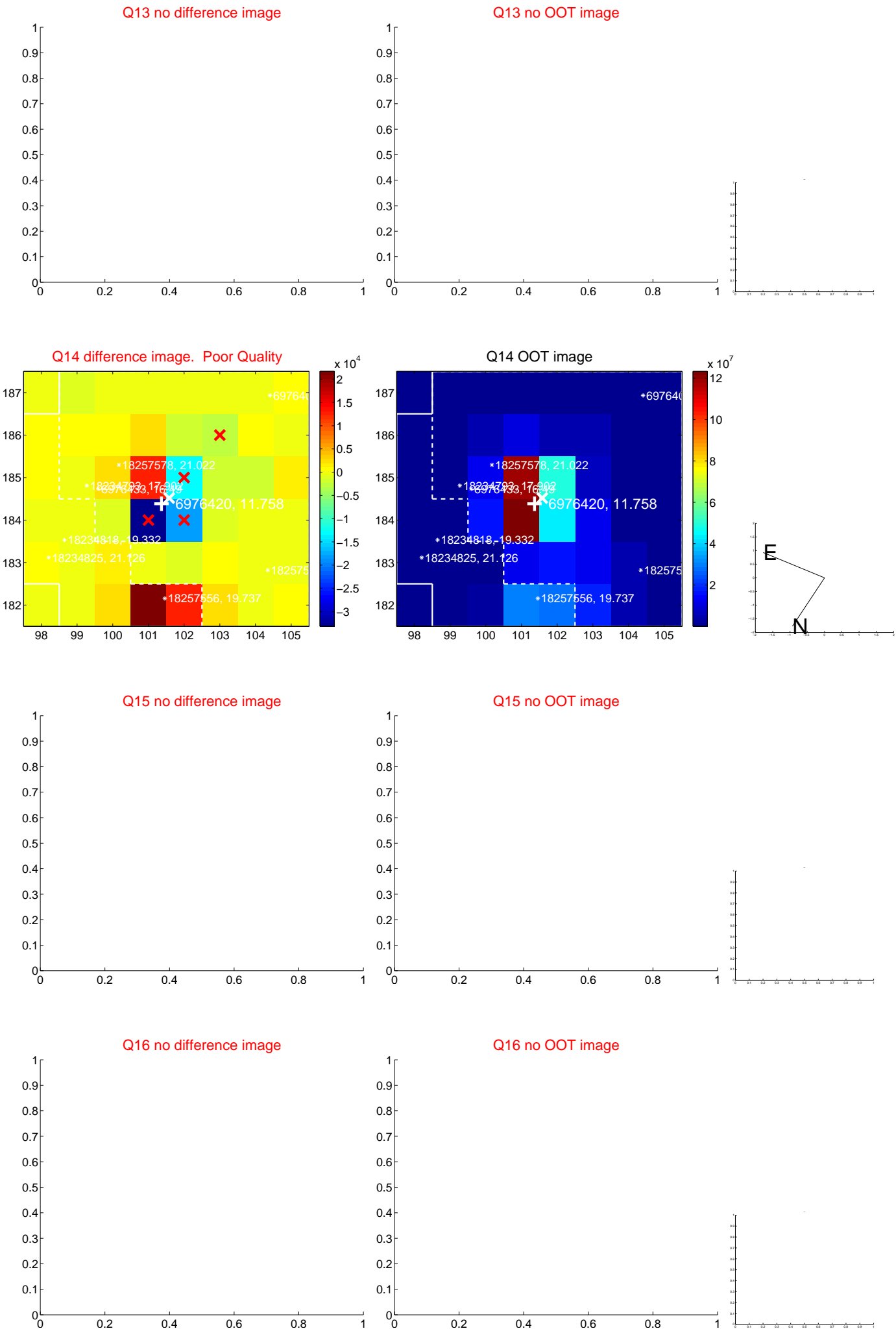
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



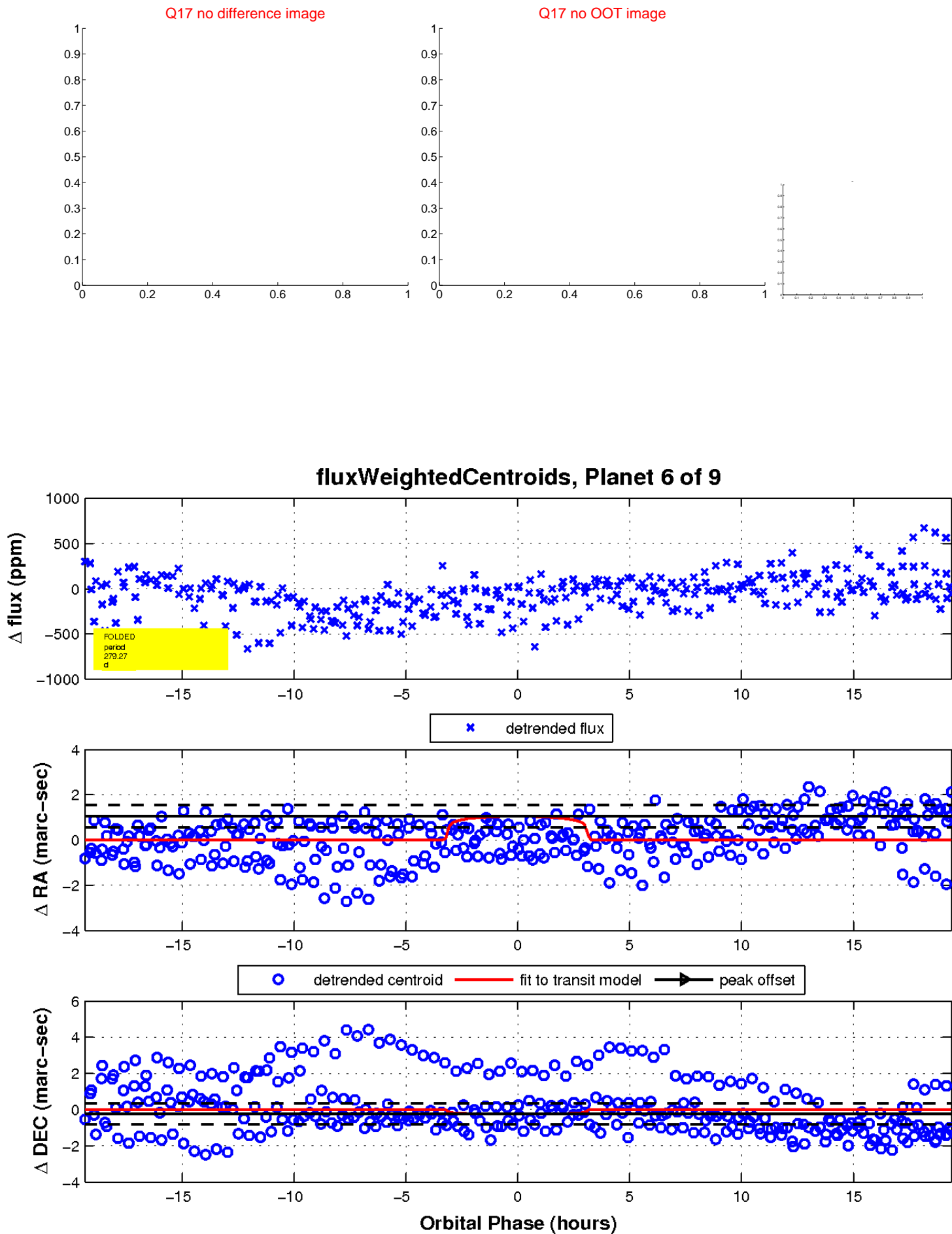
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



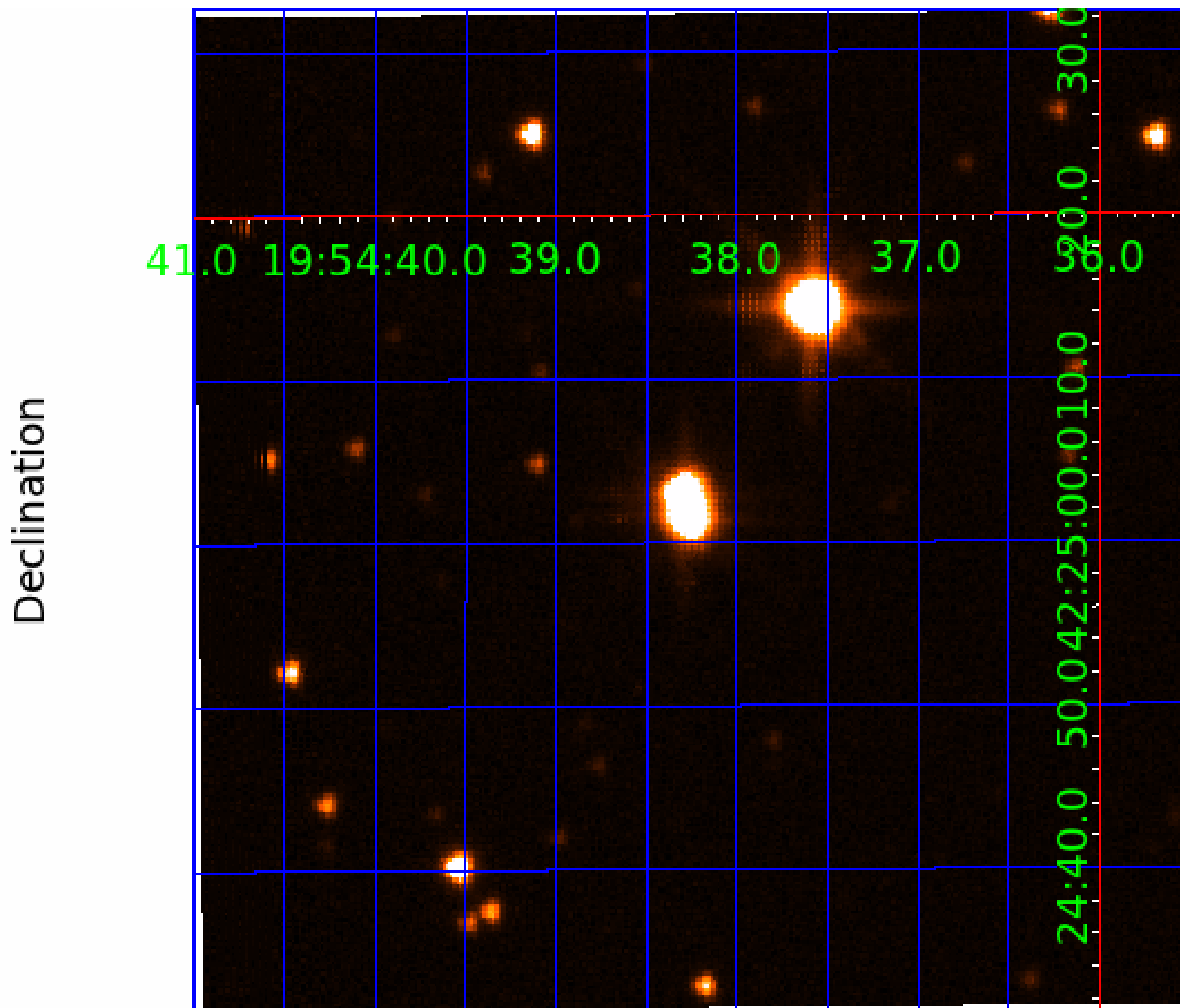
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

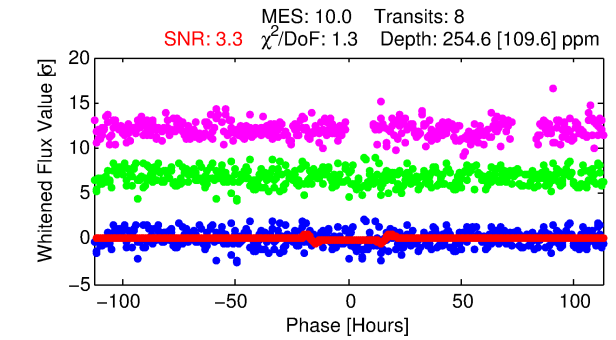
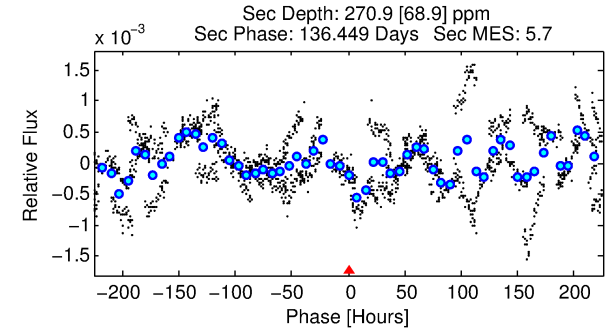
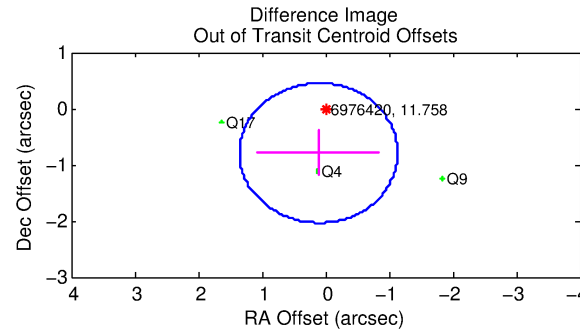
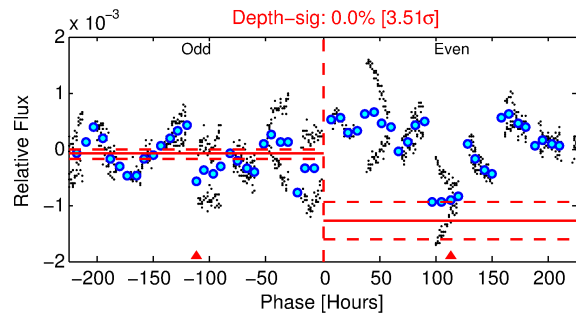
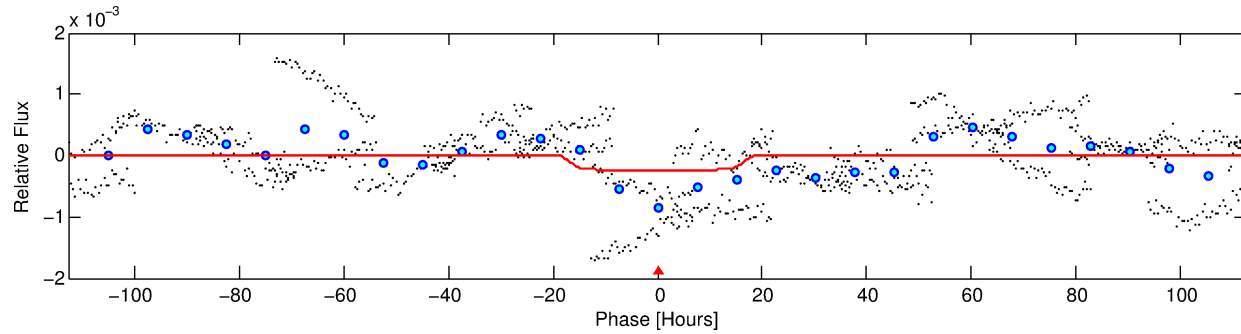
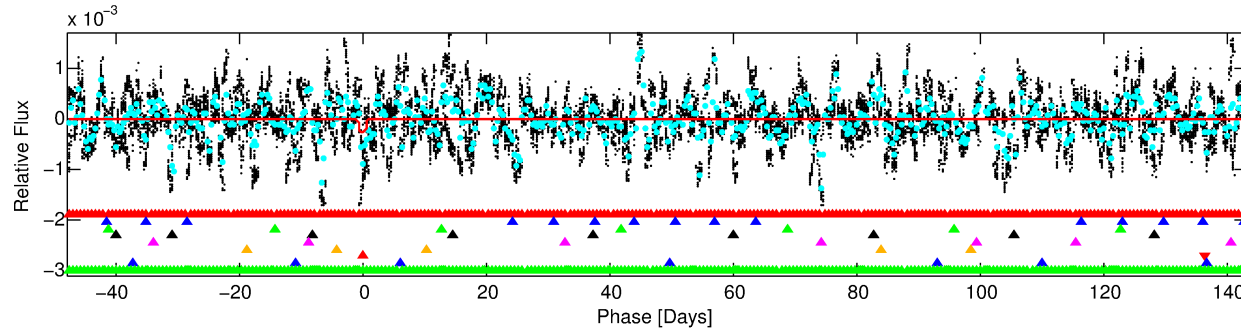
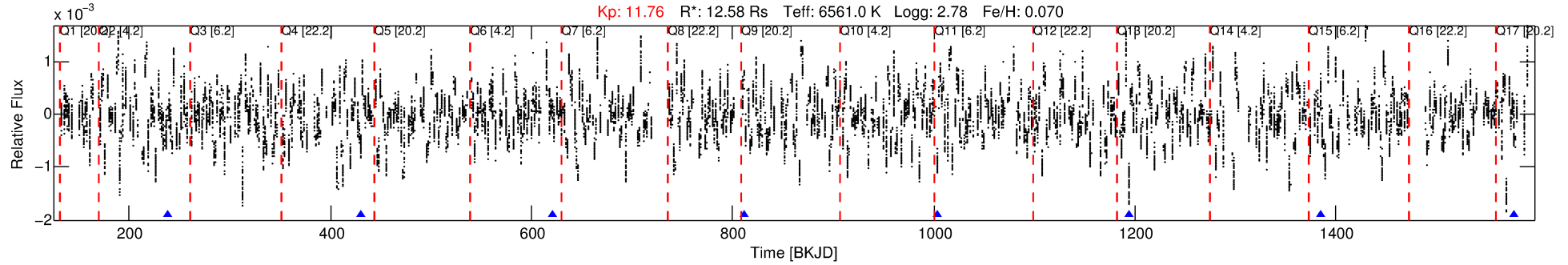
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-07

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 7 of 9 Period: 191.031 d



DV Fit Results:

Period = 191.03082 [0.01307] d
Epoch = 238.9570 [0.0538] BKJD
Rp/R* = 0.0174 [0.0039]
a/R* = 16.62 [3.47]
b = 0.92 [0.03]
Seff = 271.48 [315.14]
Teq = 1035 [300] K
Rp = 23.89 [14.14] Re
a = 0.9837 [0.4326] AU
Ag = 252.76 [202.08] [1.25σ]
Teffp = 6381 [1776] K [2.97σ]

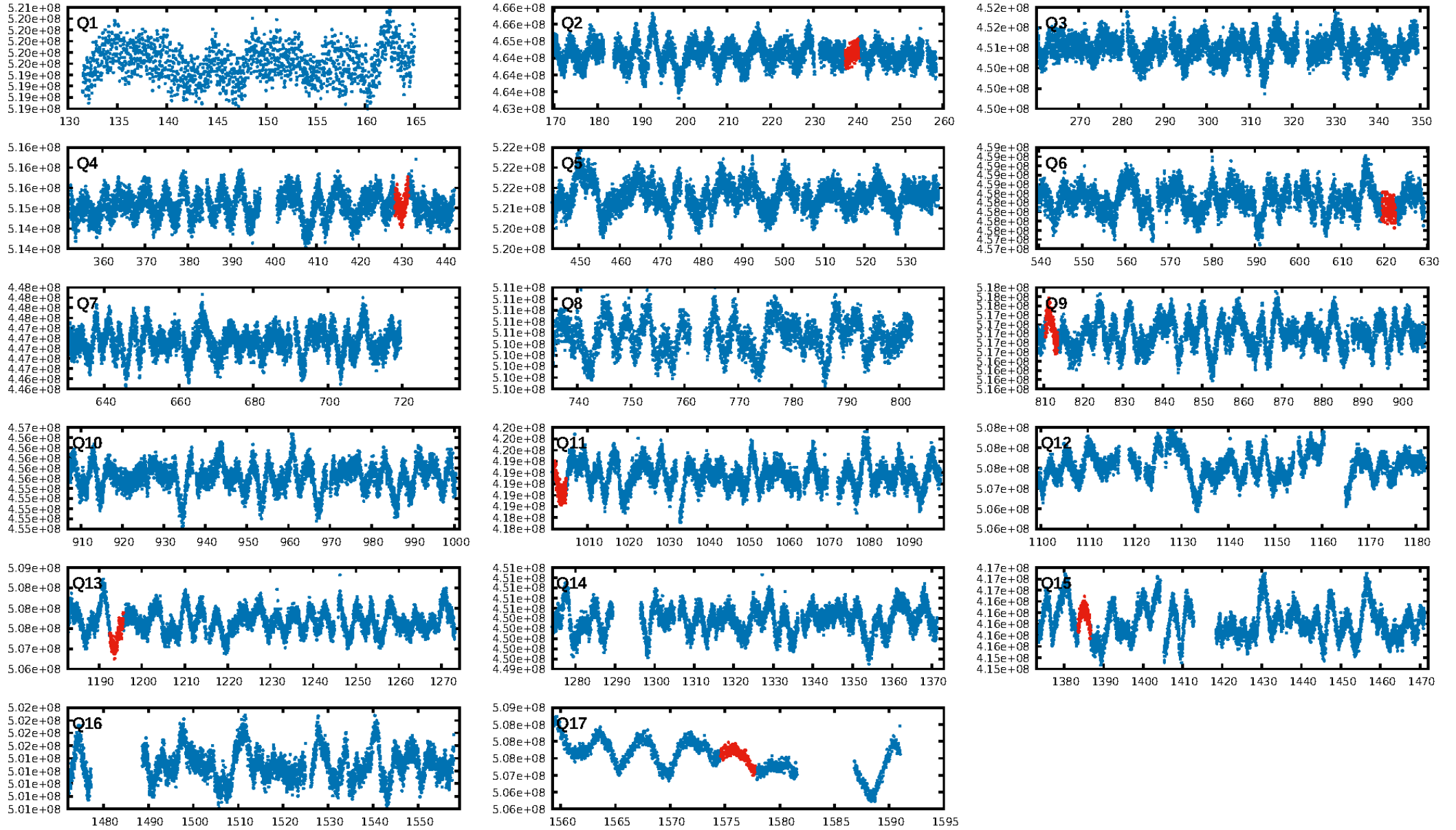
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.86σ]
LongPeriod-sig: 100.0% [17.05σ]
ModelChiSquare2-sig: 8.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 4.91
Centroid-sig: 3.3%
Centroid-so: 2.747 arcsec [3.40σ]
OotOffset-rm: 0.801 arcsec [1.93σ]
KicOffset-rm: 0.223 arcsec [0.22σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/5]

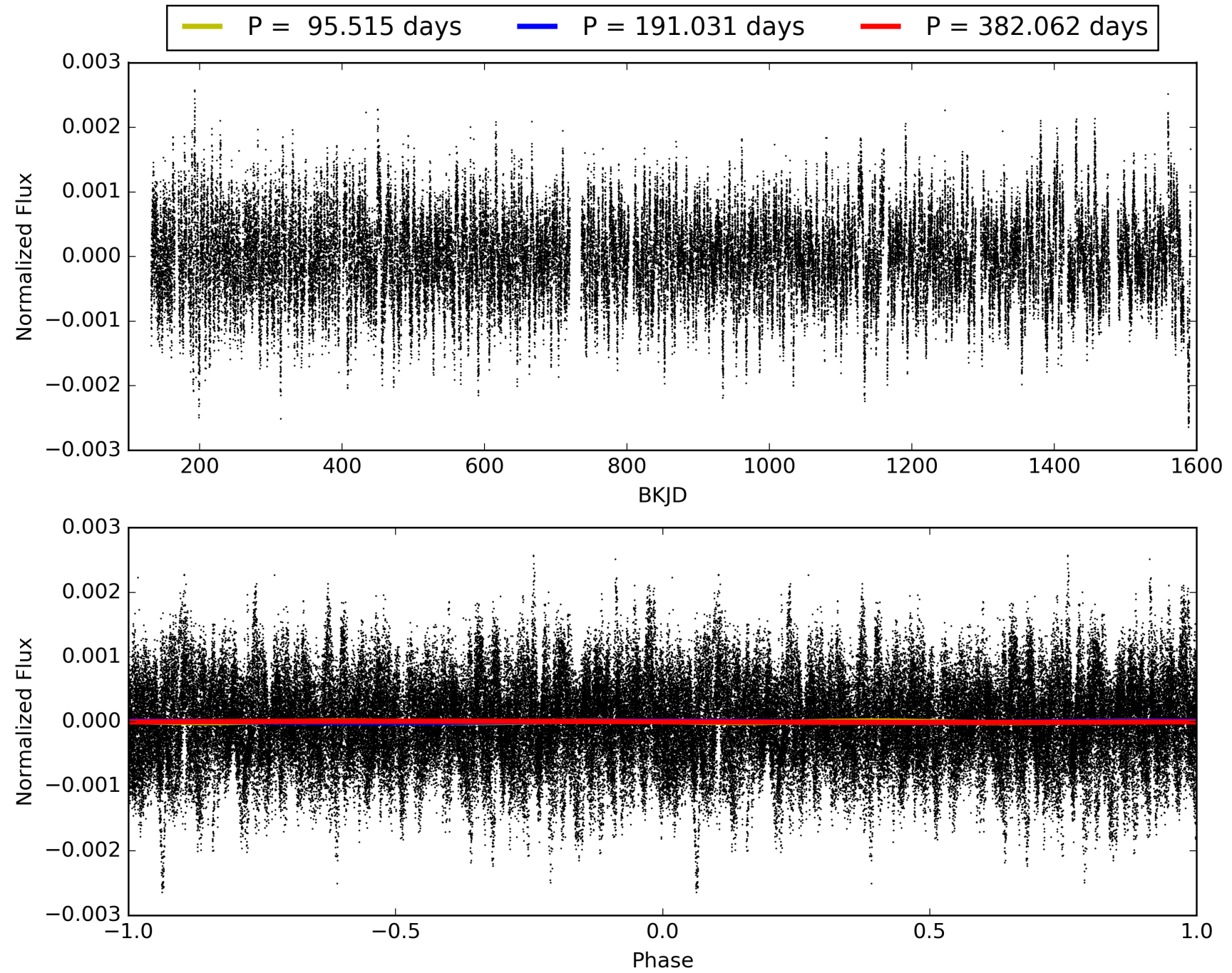
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:52 Z

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

TCE 006976420-07, PDC Light Curves

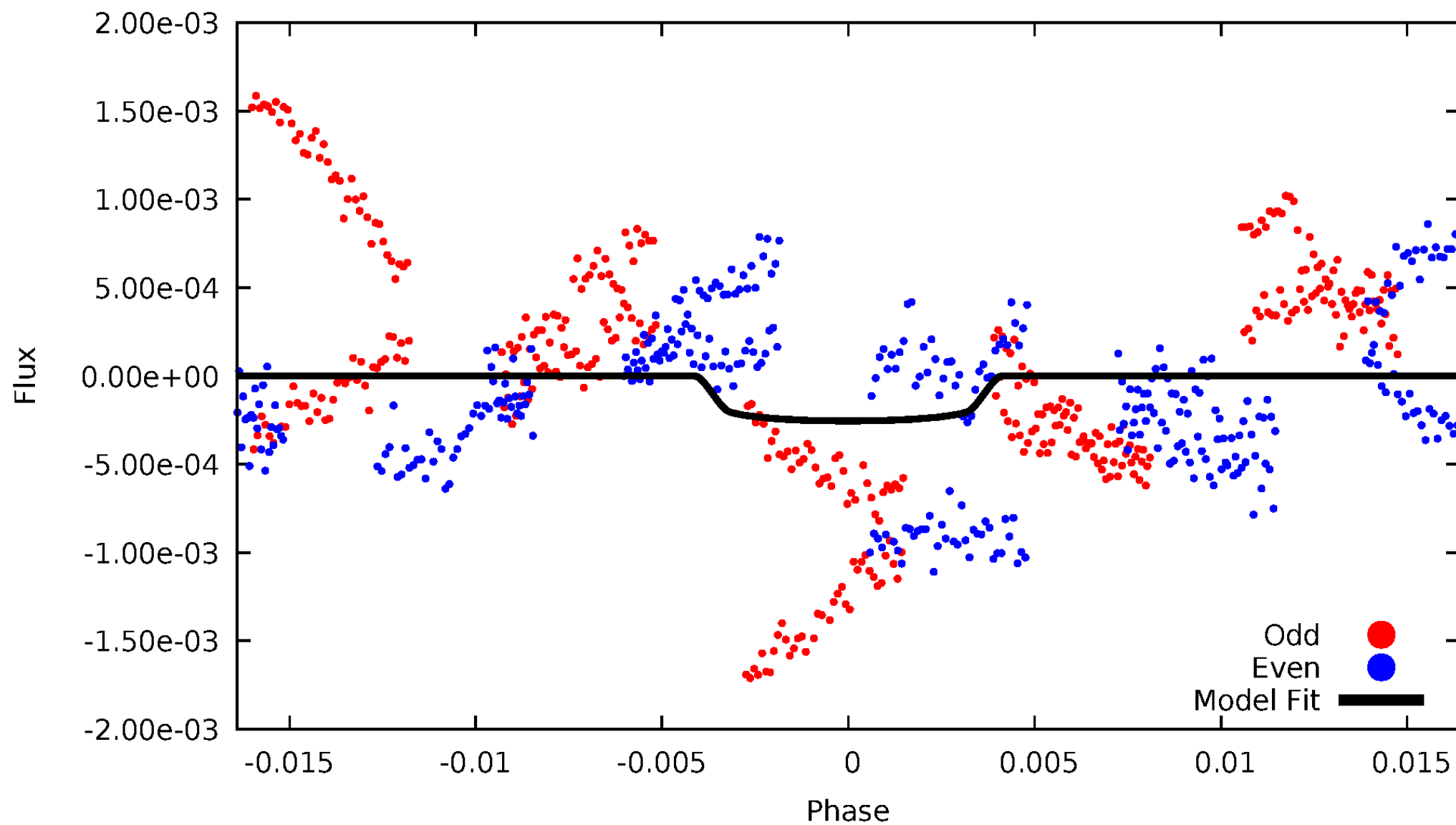


TCE 006976420-07



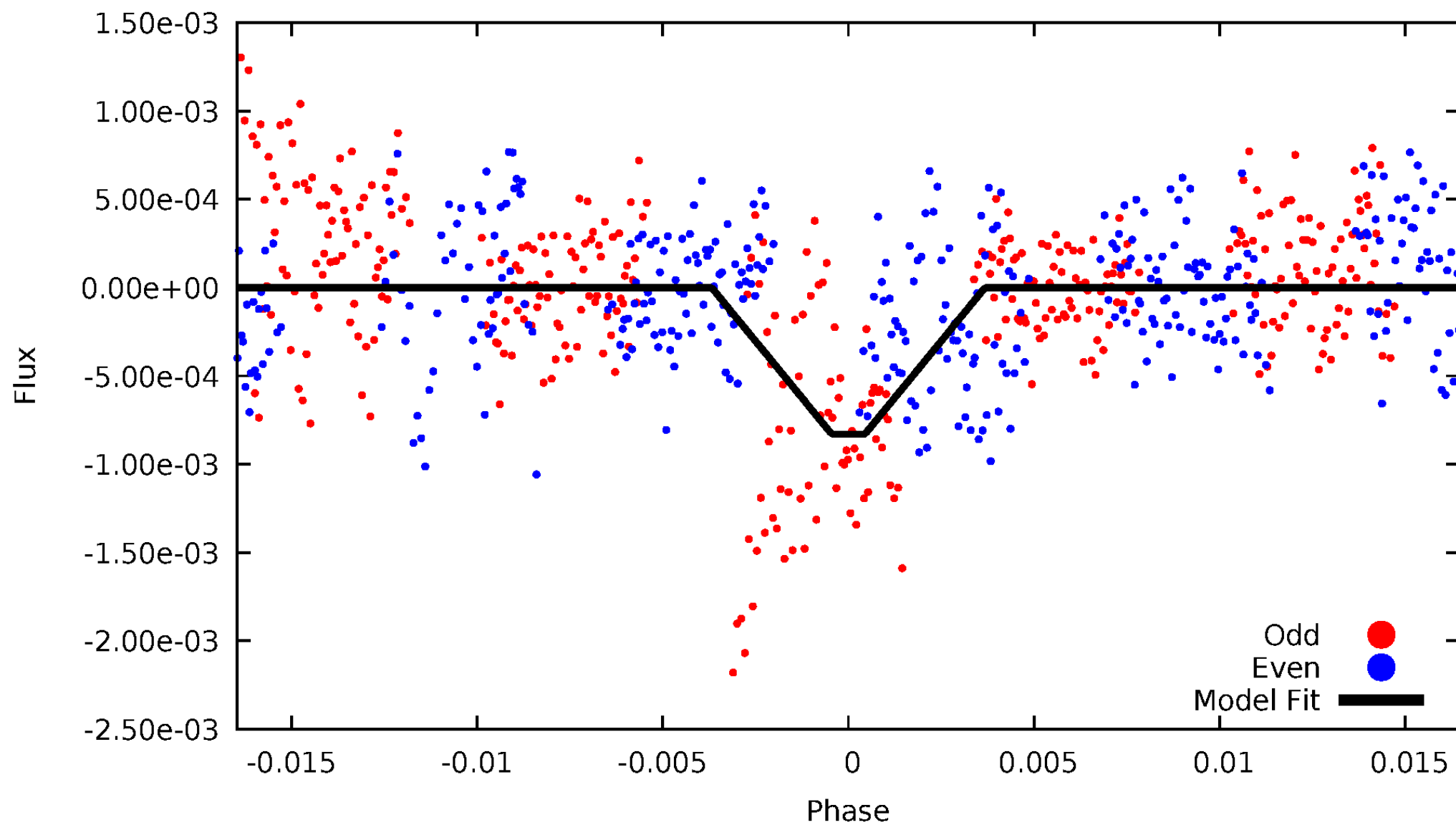
DV Odd/Even

TCE 006976420-07



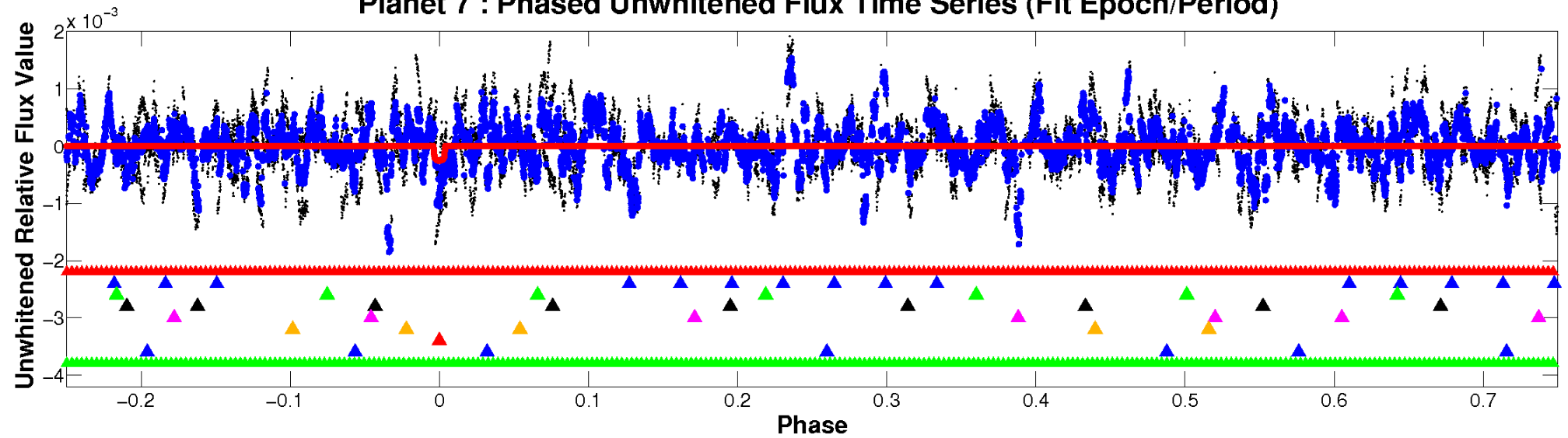
ALT Odd/Even

TCE 006976420-07

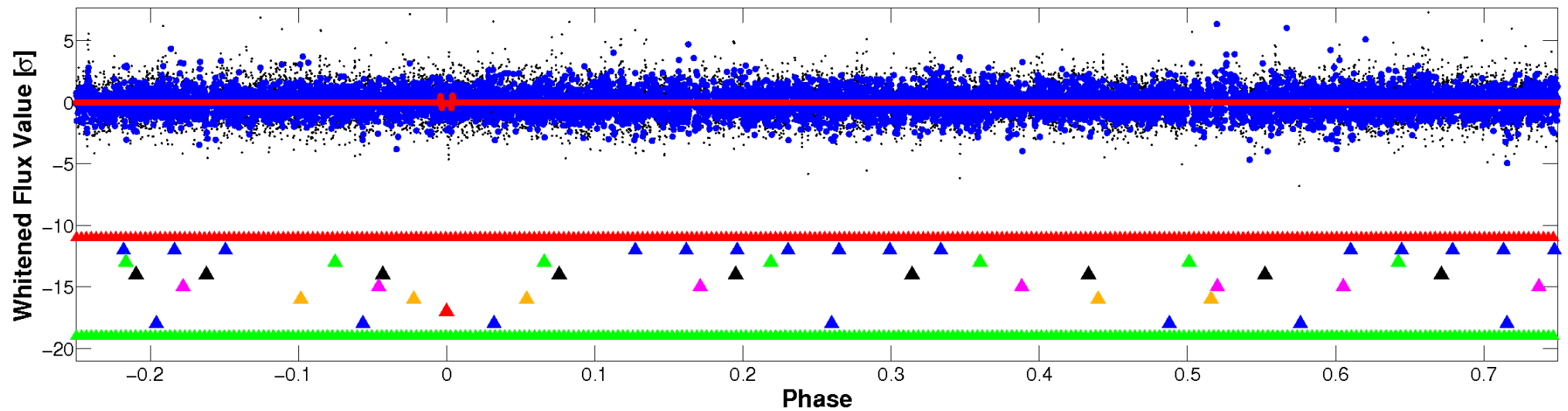


Non-Whitened Vs. Whitened Light Curve

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

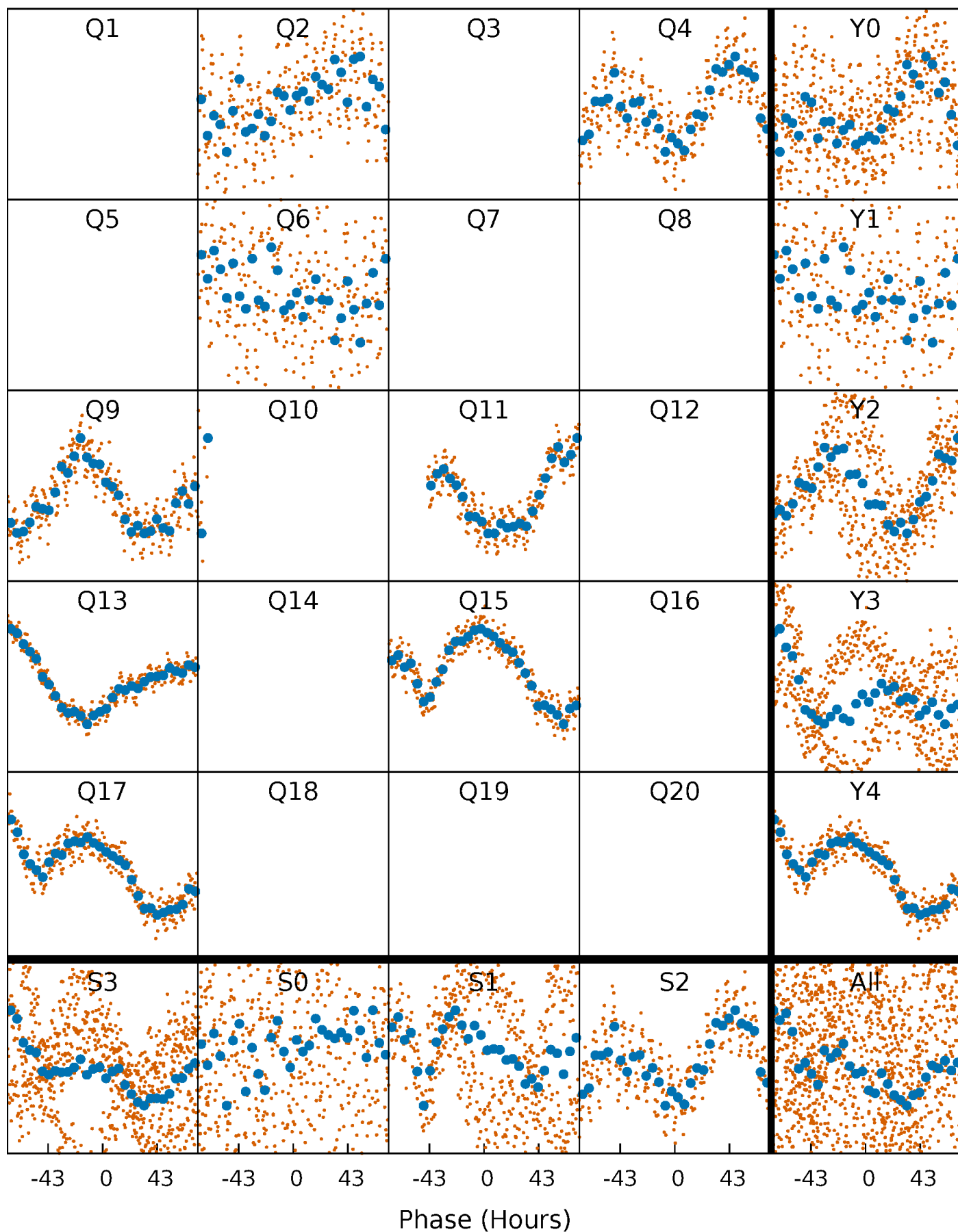


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



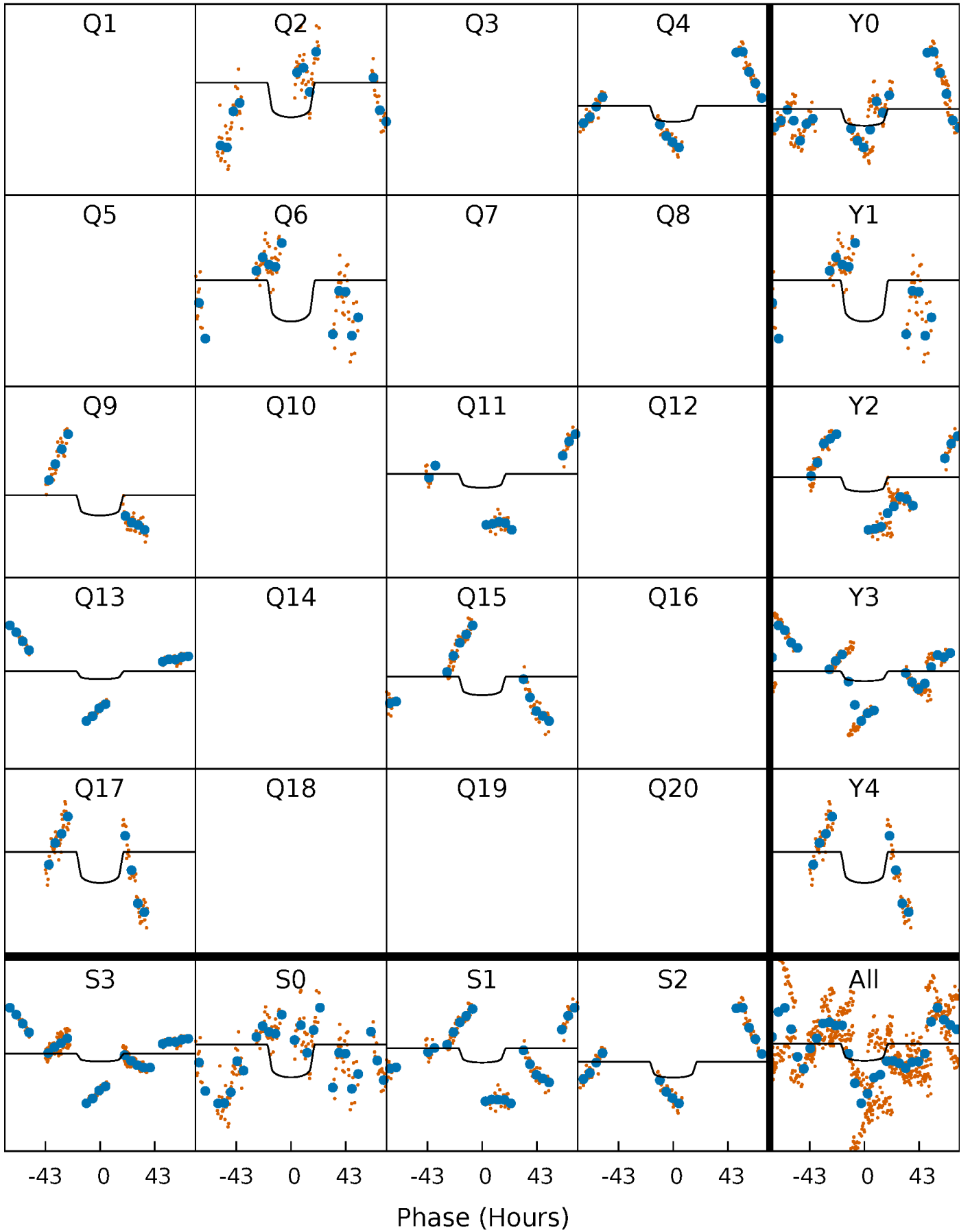
PDC Quarter-Phased Transit Curves

TCE 006976420-07 $P=191.030818$ Days $T_0=238.957018$ (BKJD)



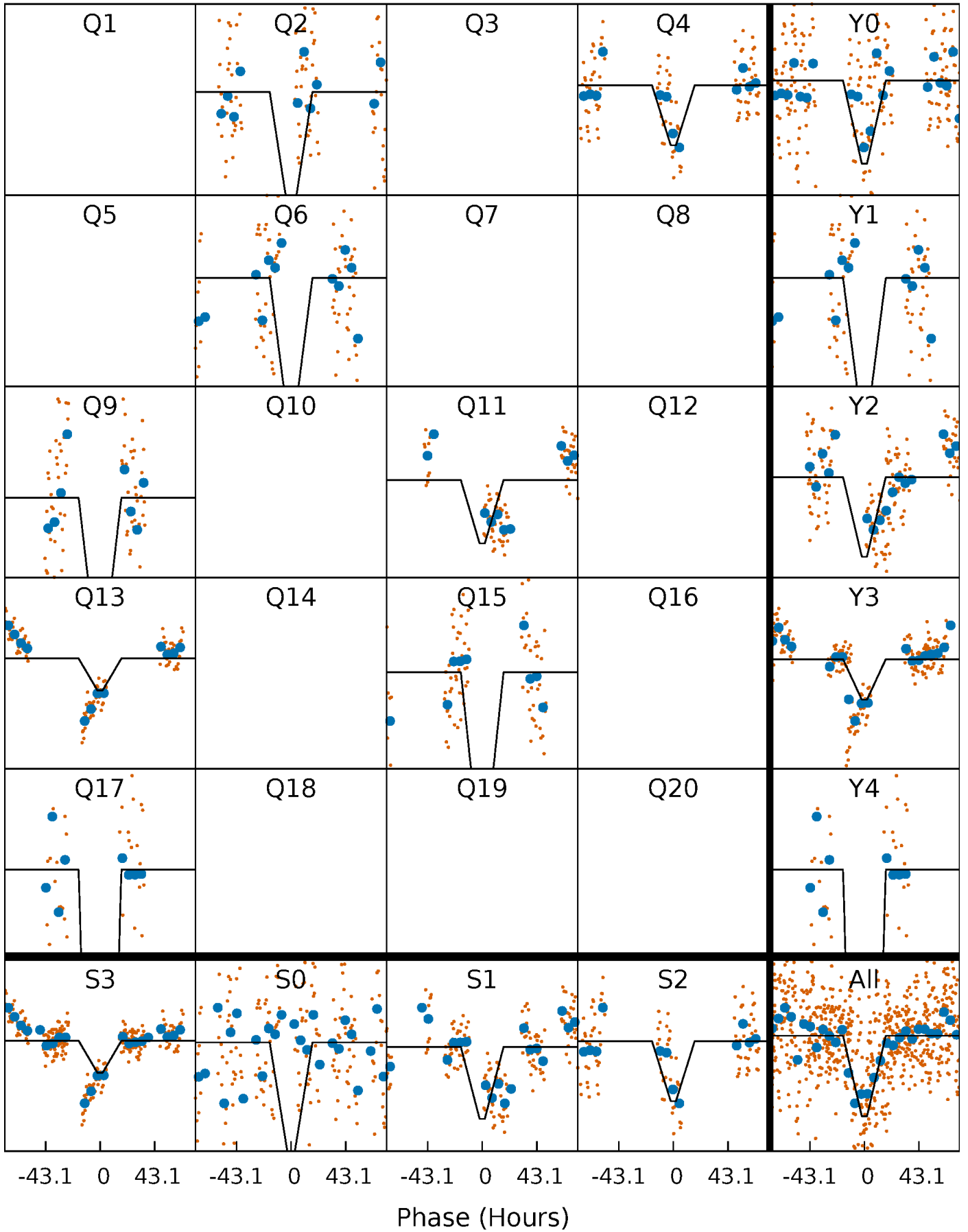
DV Quarter-Phased Transit Curves

TCE 006976420-07 $P=191.030818$ Days $T_0=238.957018$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

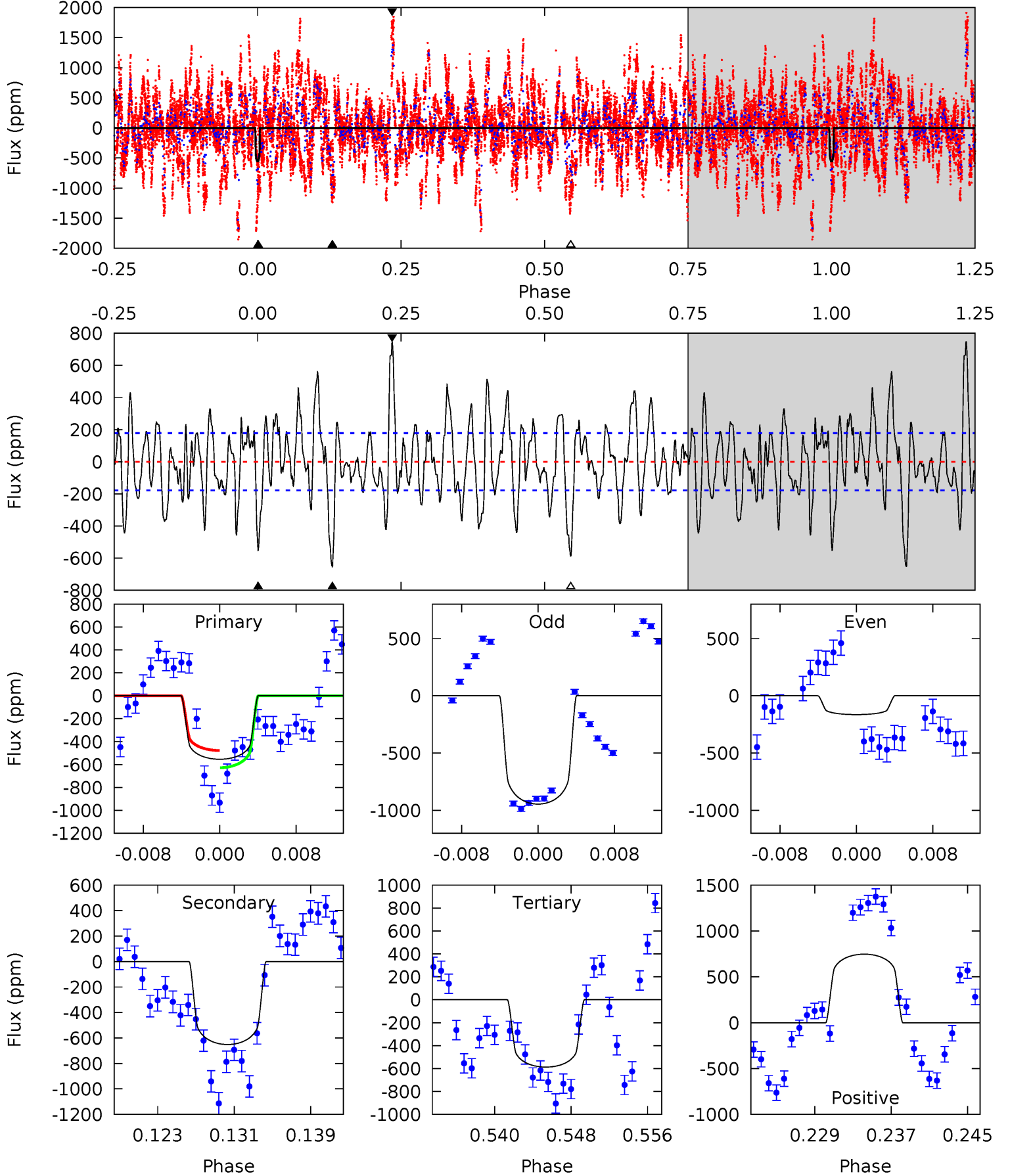
TCE 006976420-07 P=191.046975 Days $T_0=238.945218$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-07, P = 191.030818 Days, E = 47.926200 Days

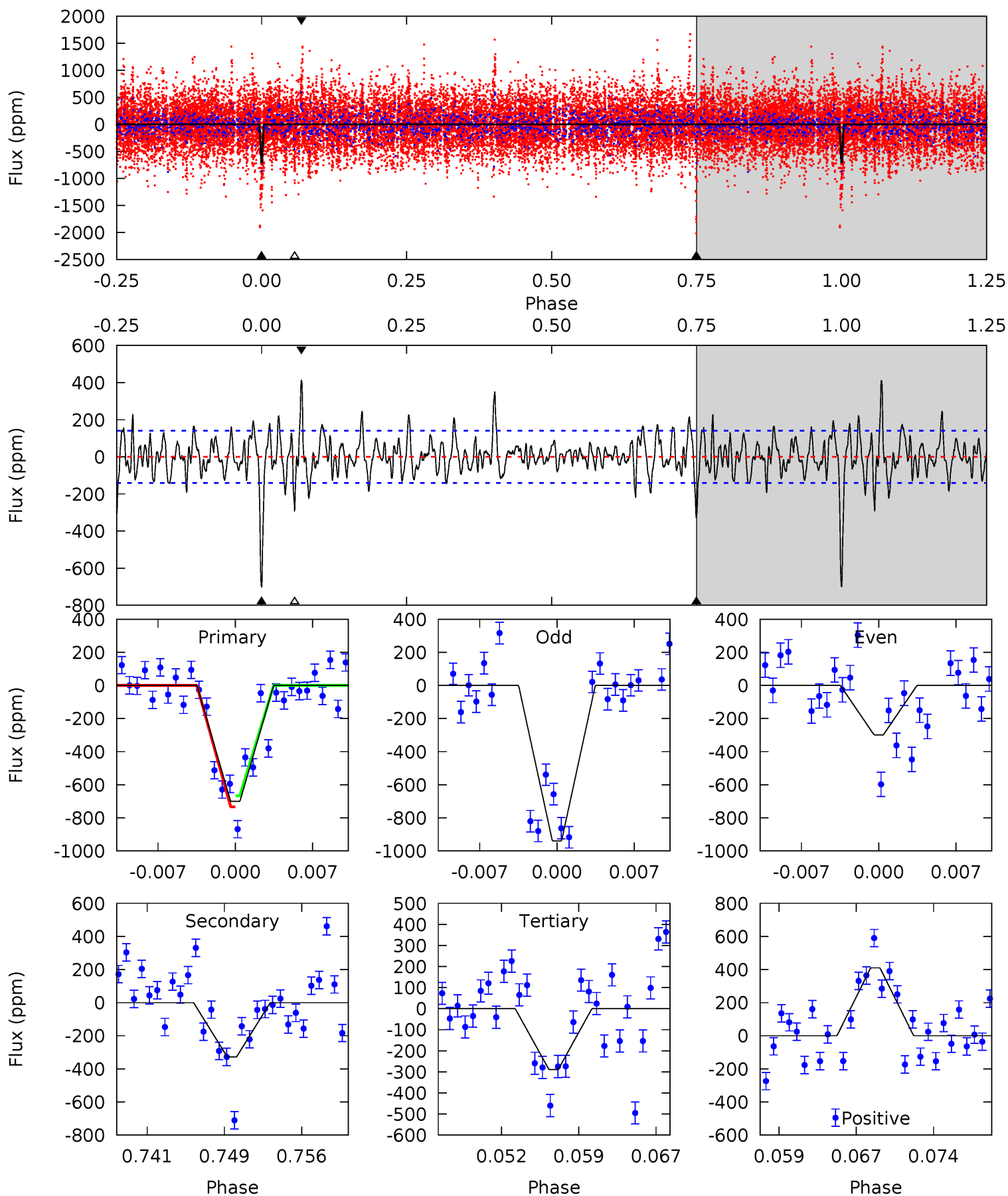
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	18.5	16.7	21.3	5.06	2.64	5.86	-0.95	-5.49	1.82	-2.72	11.2	0.56	0.53	2.16



Alt Model-Shift Uniqueness Test

006976420-07, P = 191.046975 Days, E = 47.898243 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	11.8	10.4	14.8	5.08	2.68	3.05	14.8	10.5	1.41	-2.95	11.8	-1.67	0.37	1.20



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-651 ± 35	$22.83^{+7.32}_{-6.38}$	1404^{+185}_{-340}	7877^{+1722}_{-2109}	637^{+520}_{-258}
Alt.	-328 ± 28	$38.33^{+8.63}_{-9.74}$	1369^{+207}_{-328}	5099^{+548}_{-1009}	116^{+79}_{-39}

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

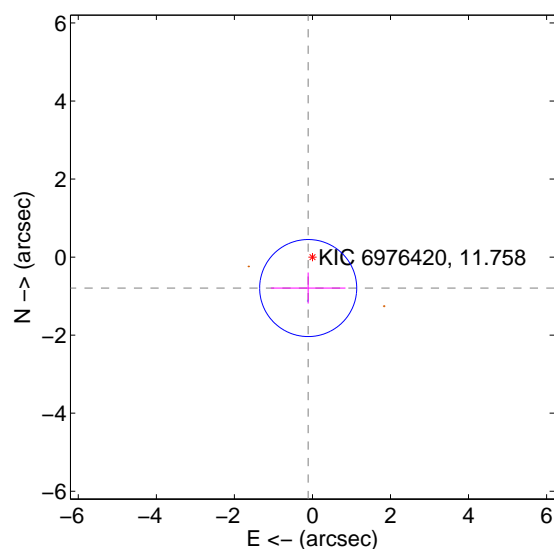
Supplemental centroid analysis for 006976420-07. **Kepler magnitude: 11.76.** Transit SNR 3.32

There are 1 quarters with good PRF difference image offsets

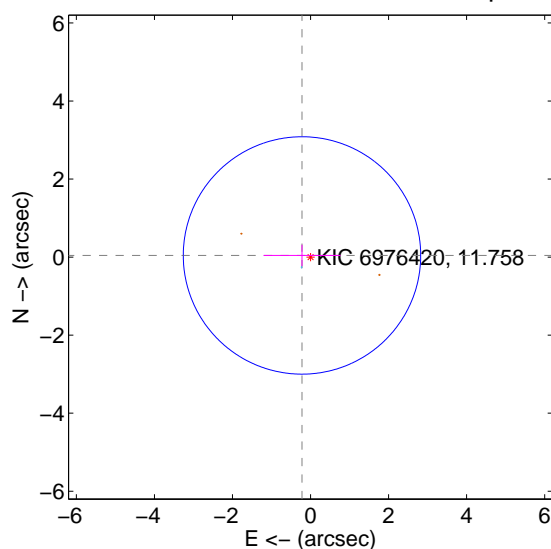
The direct PRF centroid is offset from the target star catalog position by about 0.85 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.801 ± 0.415	1.93	0.109 ± 0.957	-0.793 ± 0.397
PRF-fit source offset from KIC position	0.223 ± 1.014	0.22	0.219 ± 0.988	0.042 ± 0.272
photometric centroid source offset	2.75 ± 0.81	3.40	-0.49 ± 0.28	2.70 ± 0.82

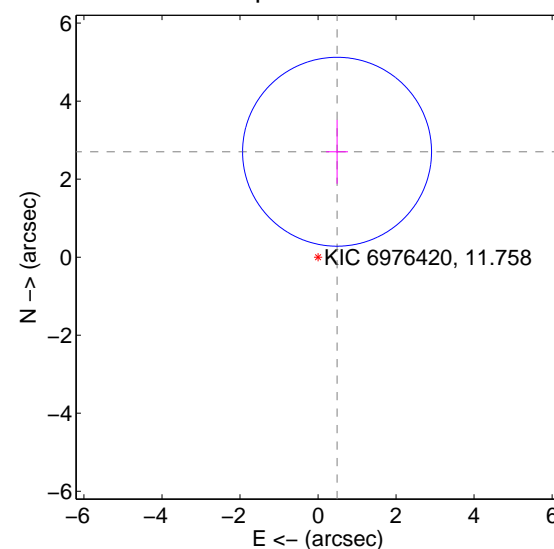
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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

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

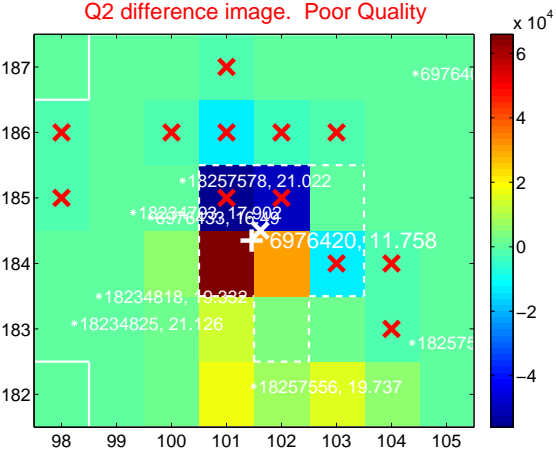
Q1 no difference image



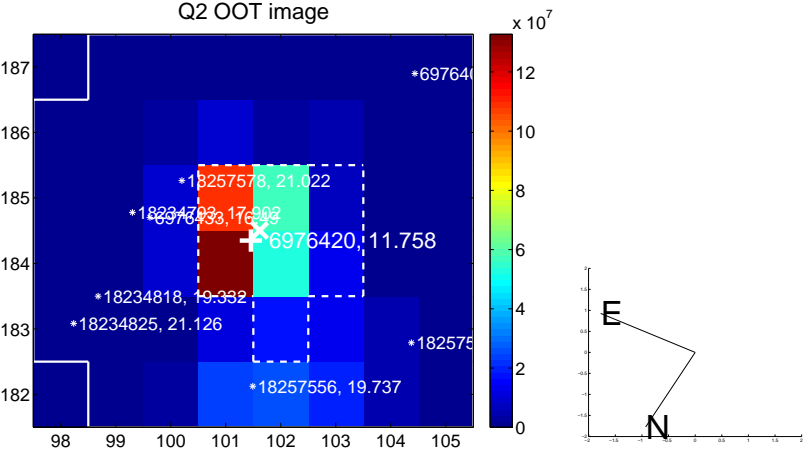
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



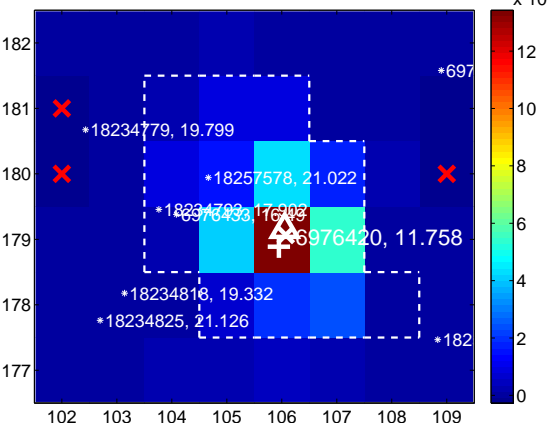
Q3 no difference image



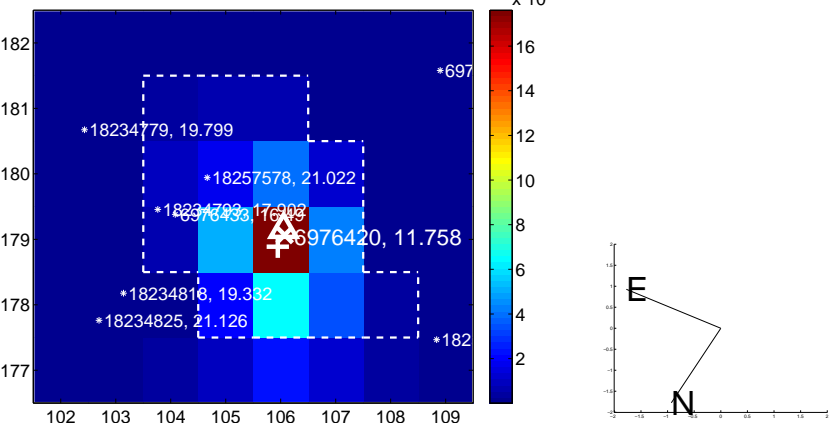
Q3 no OOT image



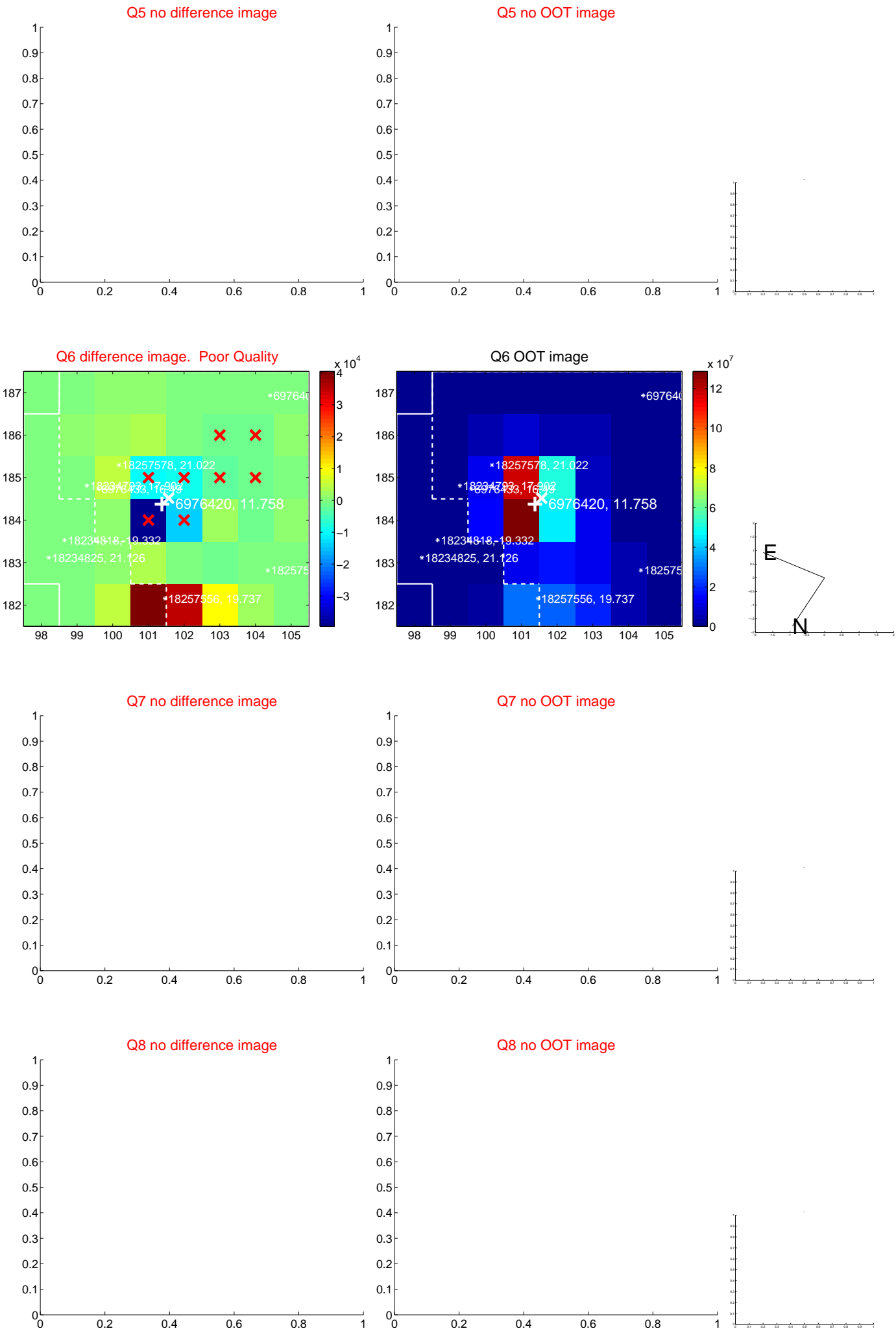
Q4 difference image



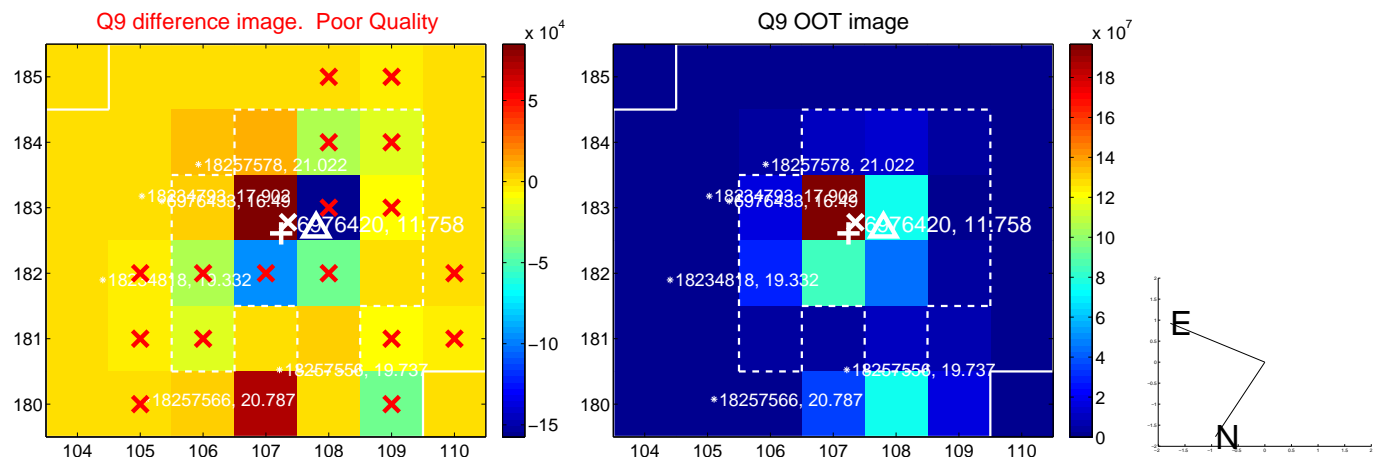
Q4 OOT image



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



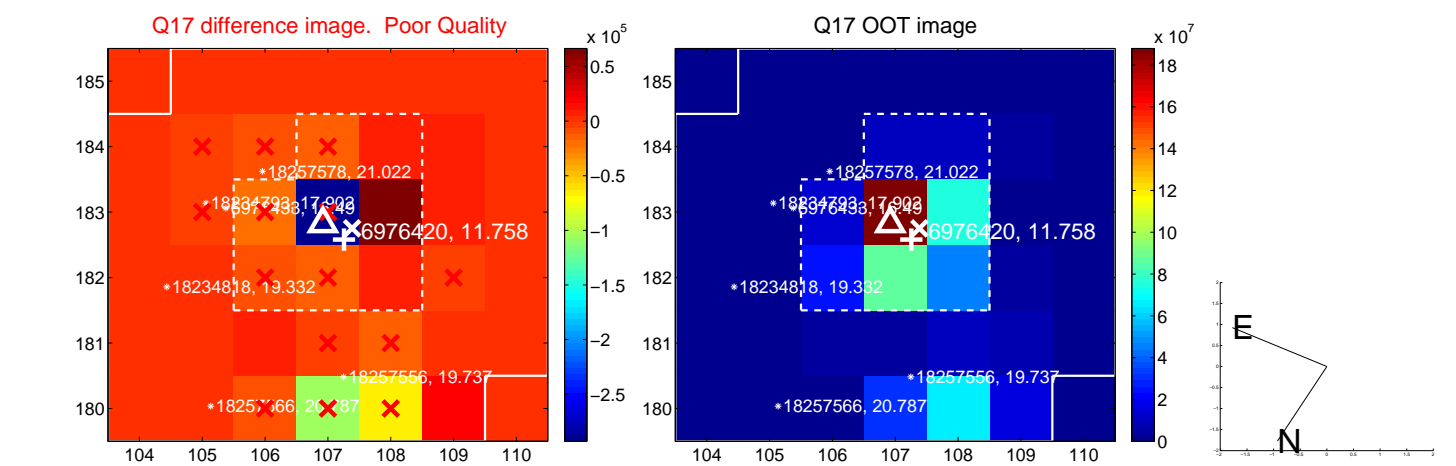
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



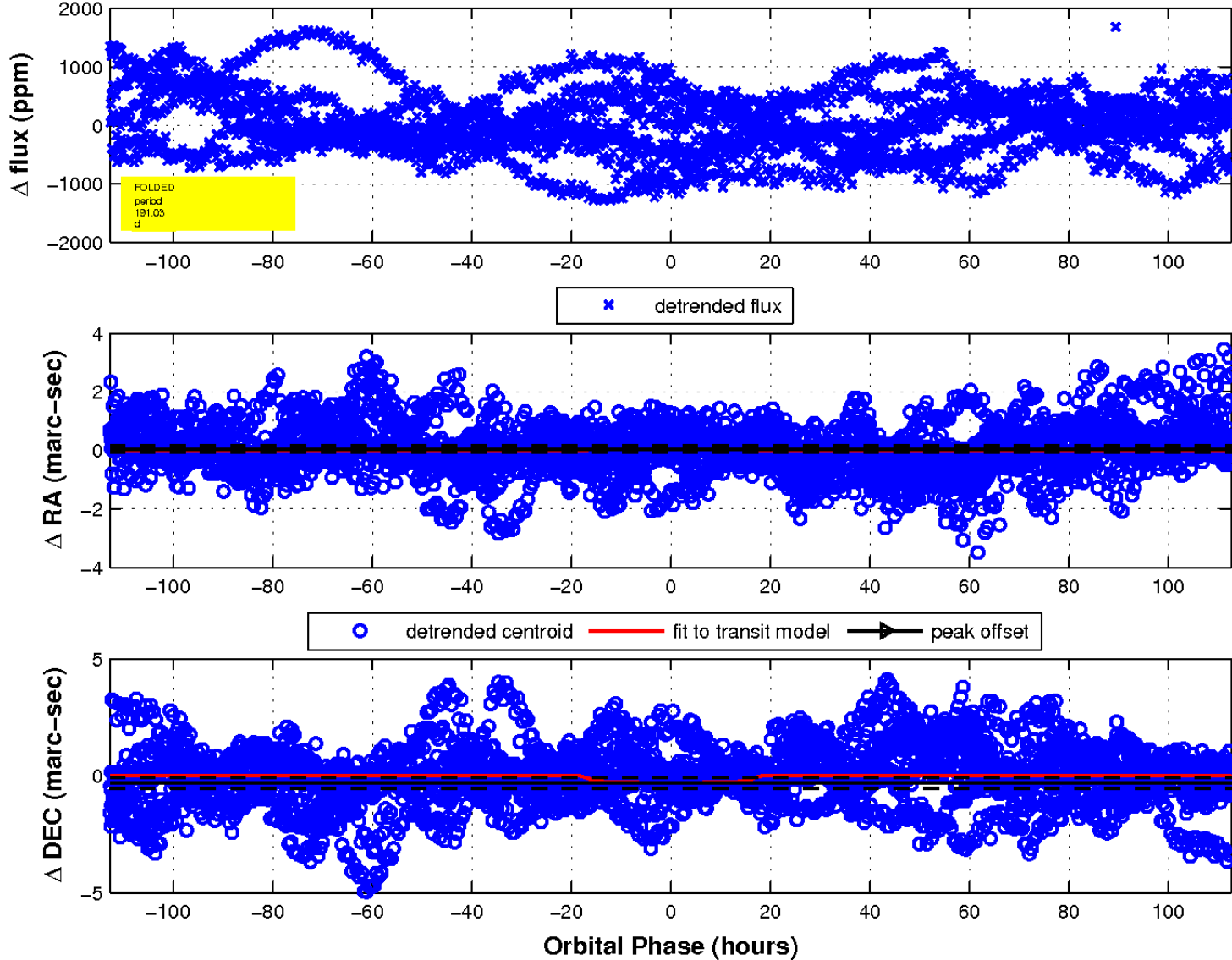
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



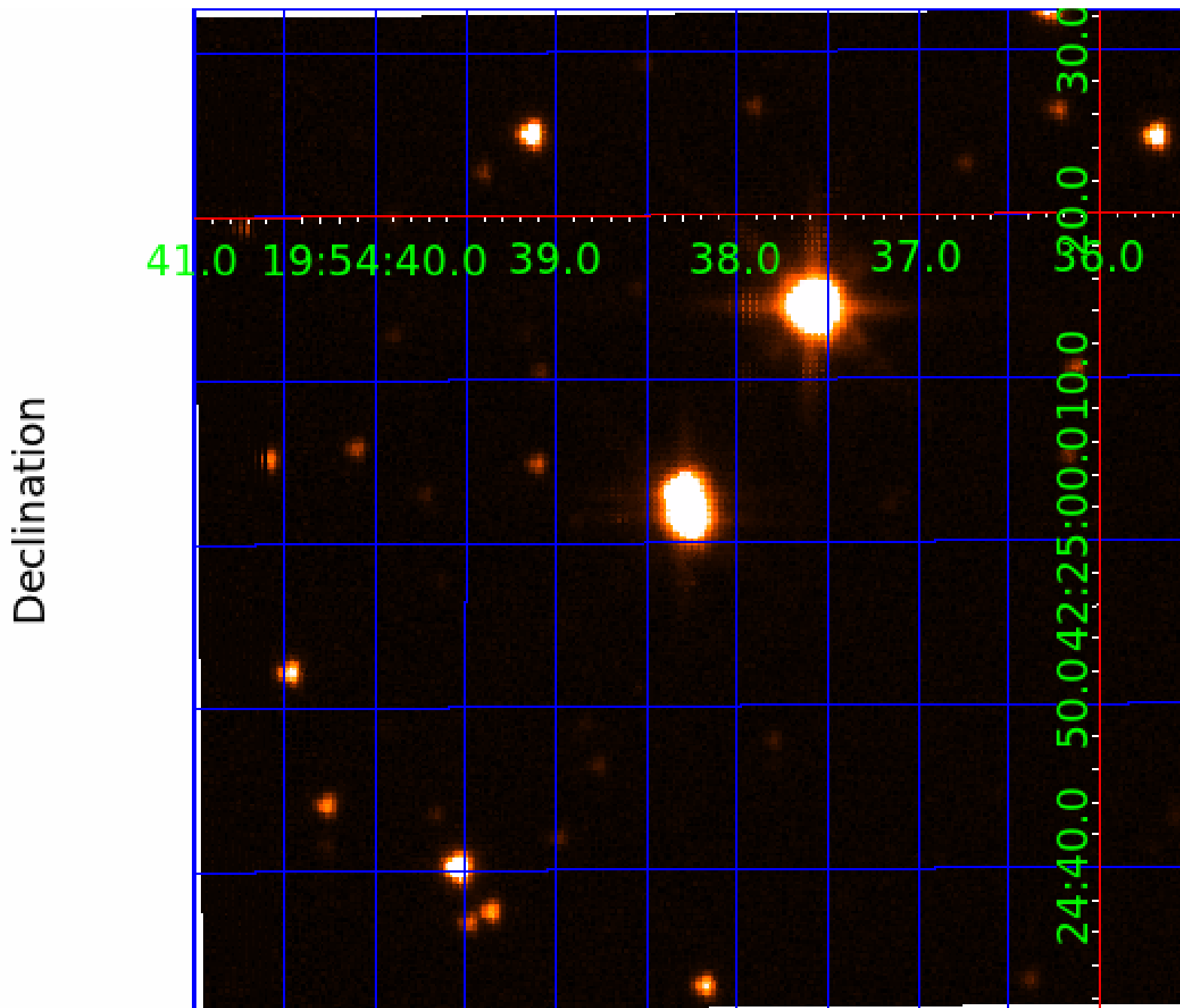
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 7 of 9



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

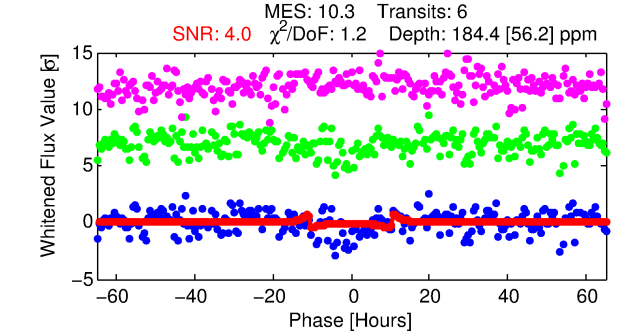
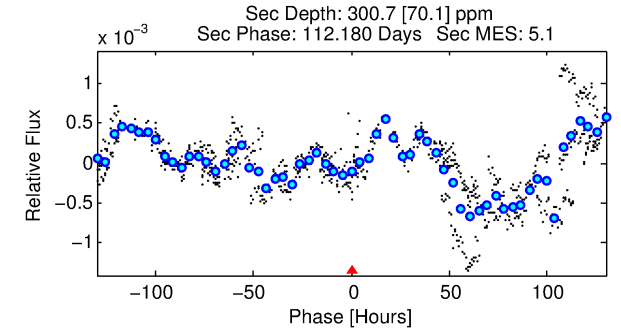
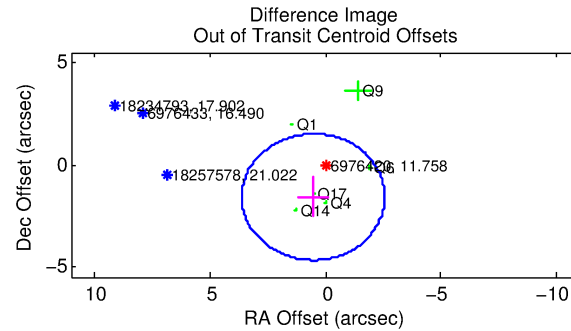
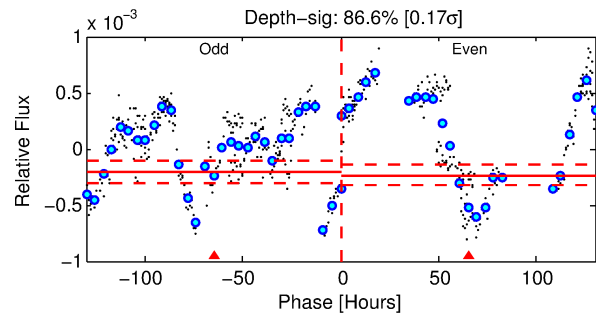
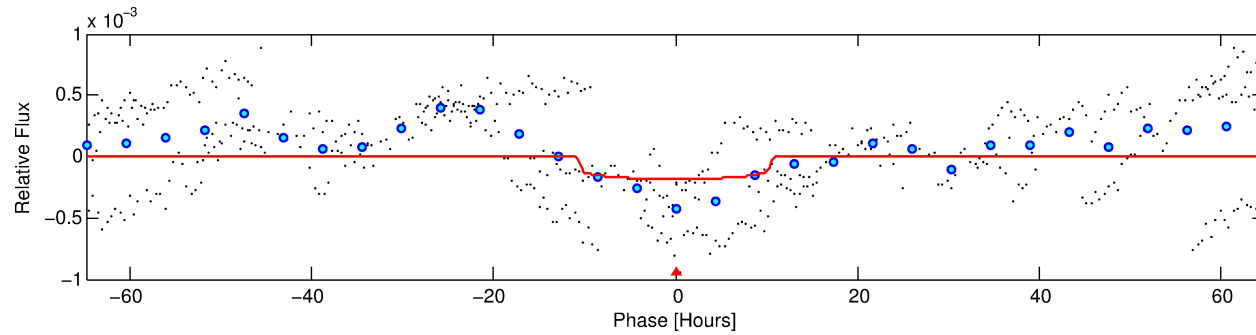
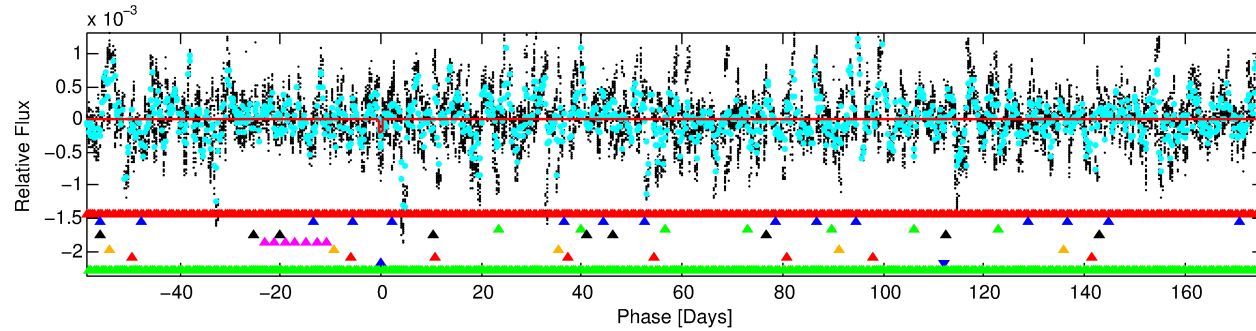
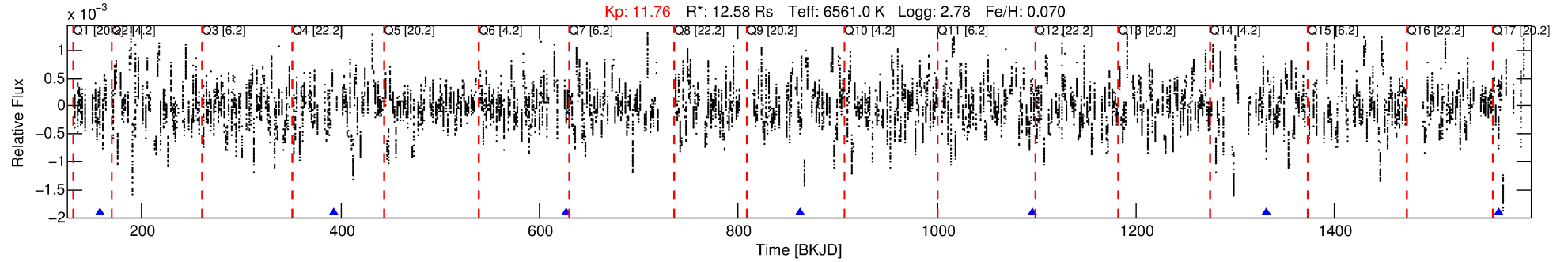
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-08

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 8 of 9 Period: 234.563 d



DV Fit Results:

Period = 234.56315 [0.00429] d
Epoch = 158.0094 [0.0153] BKJD
Rp/R* = 0.0131 [0.0036]
a/R* = 66.30 [73.71]
b = 0.62 [1.10]
Seff = 206.47 [239.68]
Teff = 967 [281] K
Rp = 17.98 [11.05] Re
a = 1.1280 [0.4961] AU
Ag = 651.06 [558.57] [1.16 σ]
Teffp = 7549 [2182] K [2.99 σ]

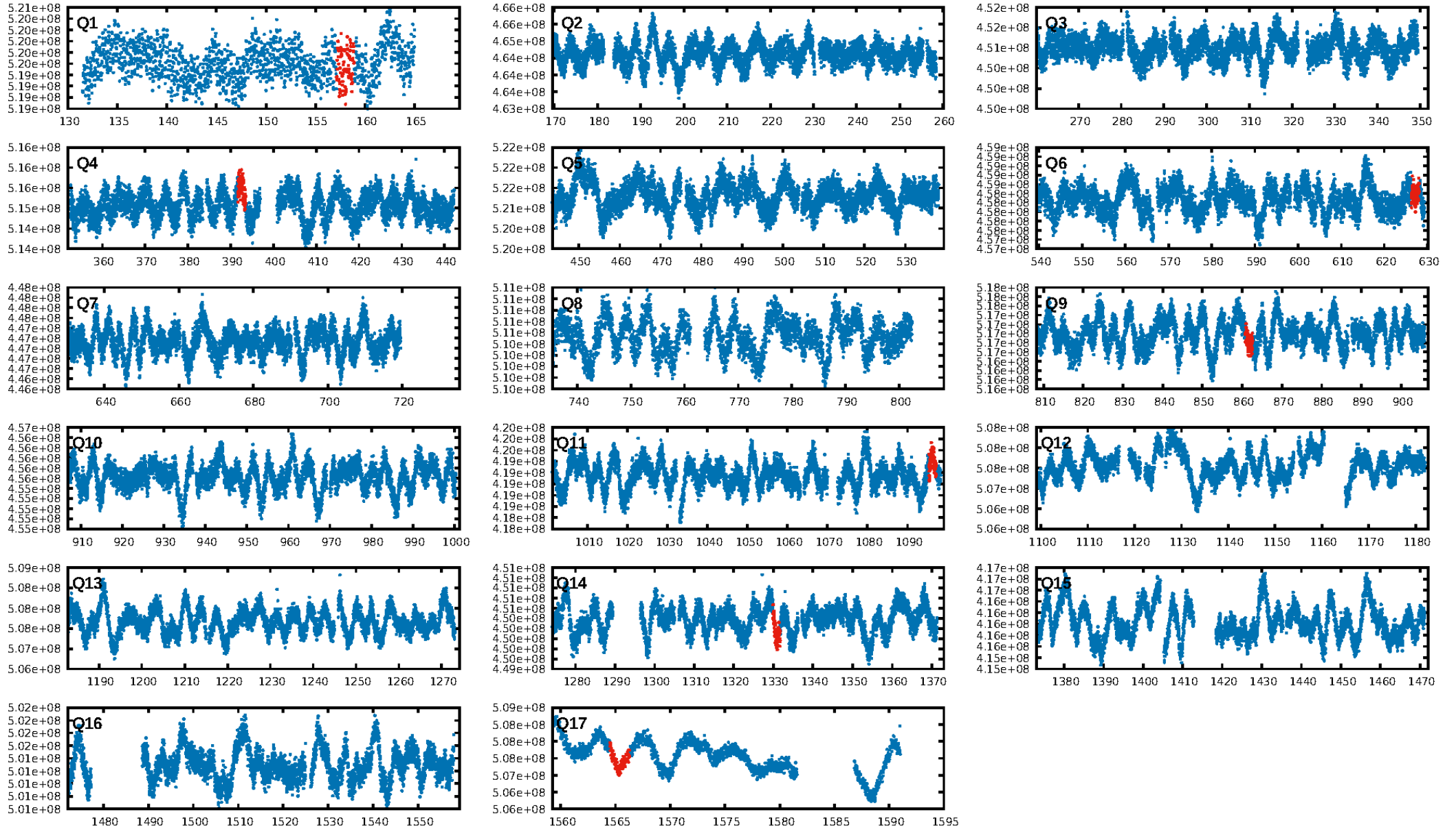
DV Diagnostic Results:

ShortPeriod-sig: 73.0% [1.10 σ]
LongPeriod-sig: 100.0% [47.50 σ]
ModelChiSquare2-sig: 6.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.2524
Centroid-sig: 15.9%
Centroid-so: 1.063 arcsec [1.44 σ]
OotOffset-rm: 1.674 arcsec [1.62 σ]
KicOffset-rm: 1.034 arcsec [1.33 σ]
OotOffset-st: 2/0/1/3 [6]
KicOffset-st: 2/0/1/3 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.00 [0/6]

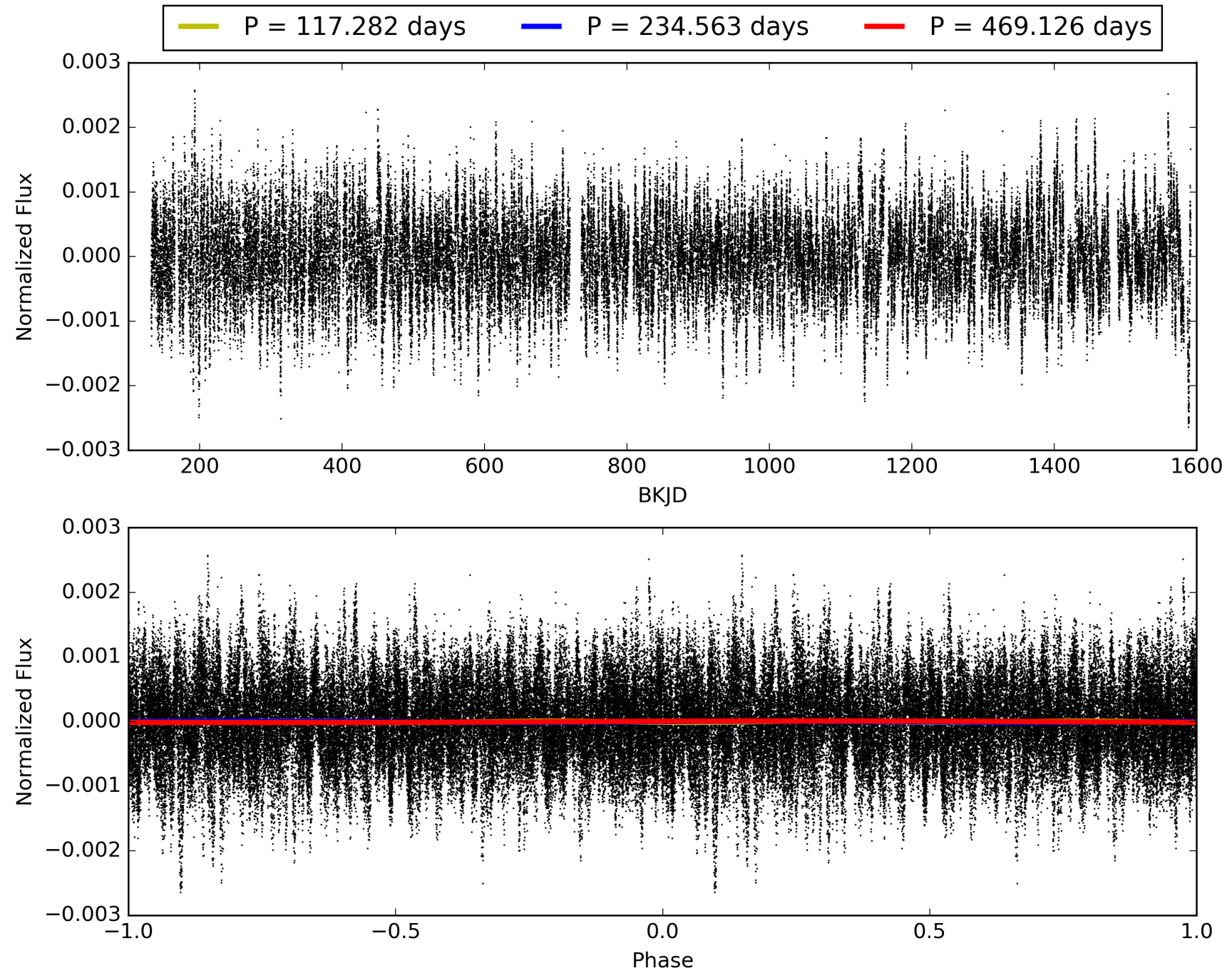
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:23:57 Z

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

TCE 006976420-08, PDC Light Curves

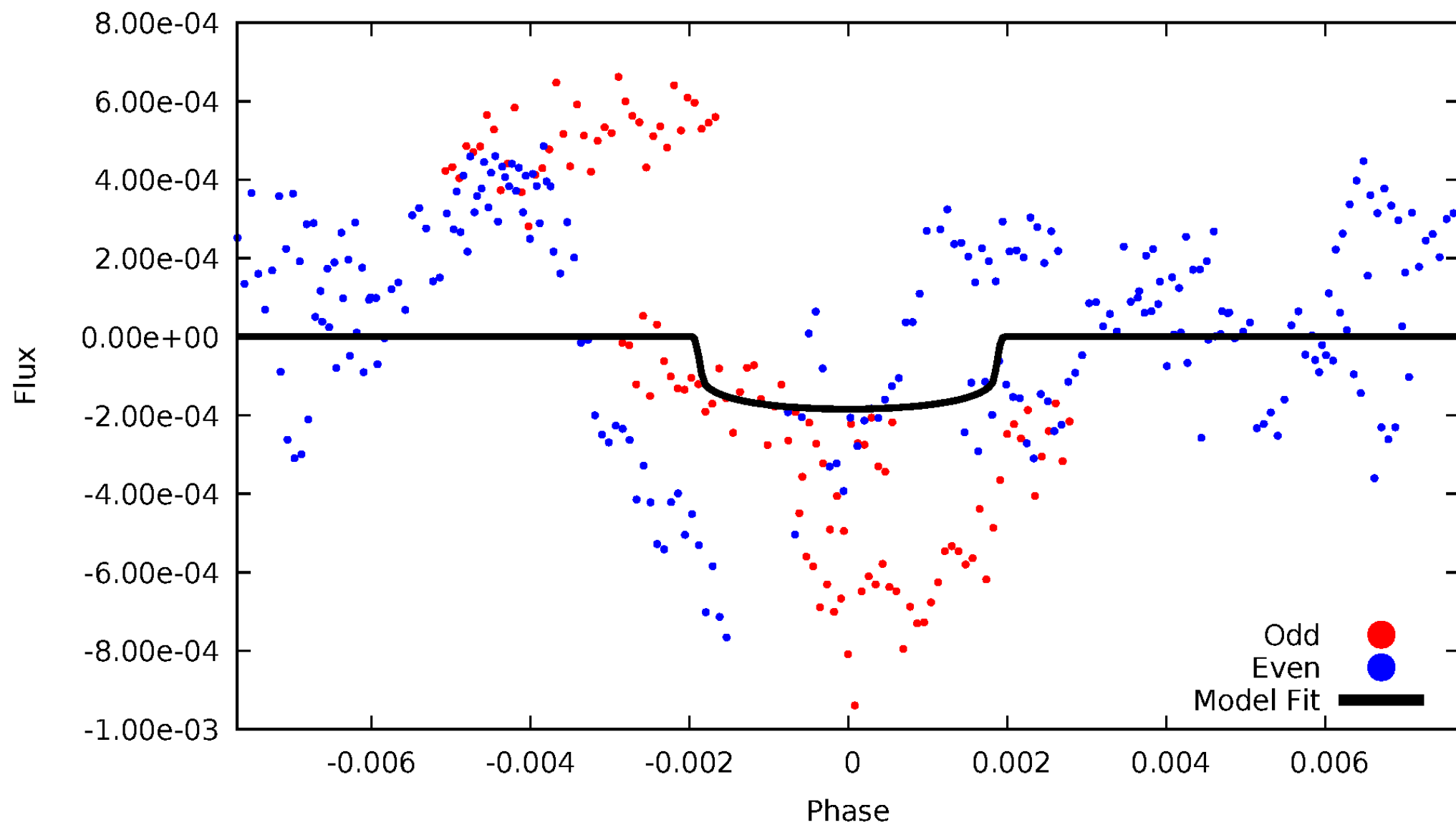


TCE 006976420-08



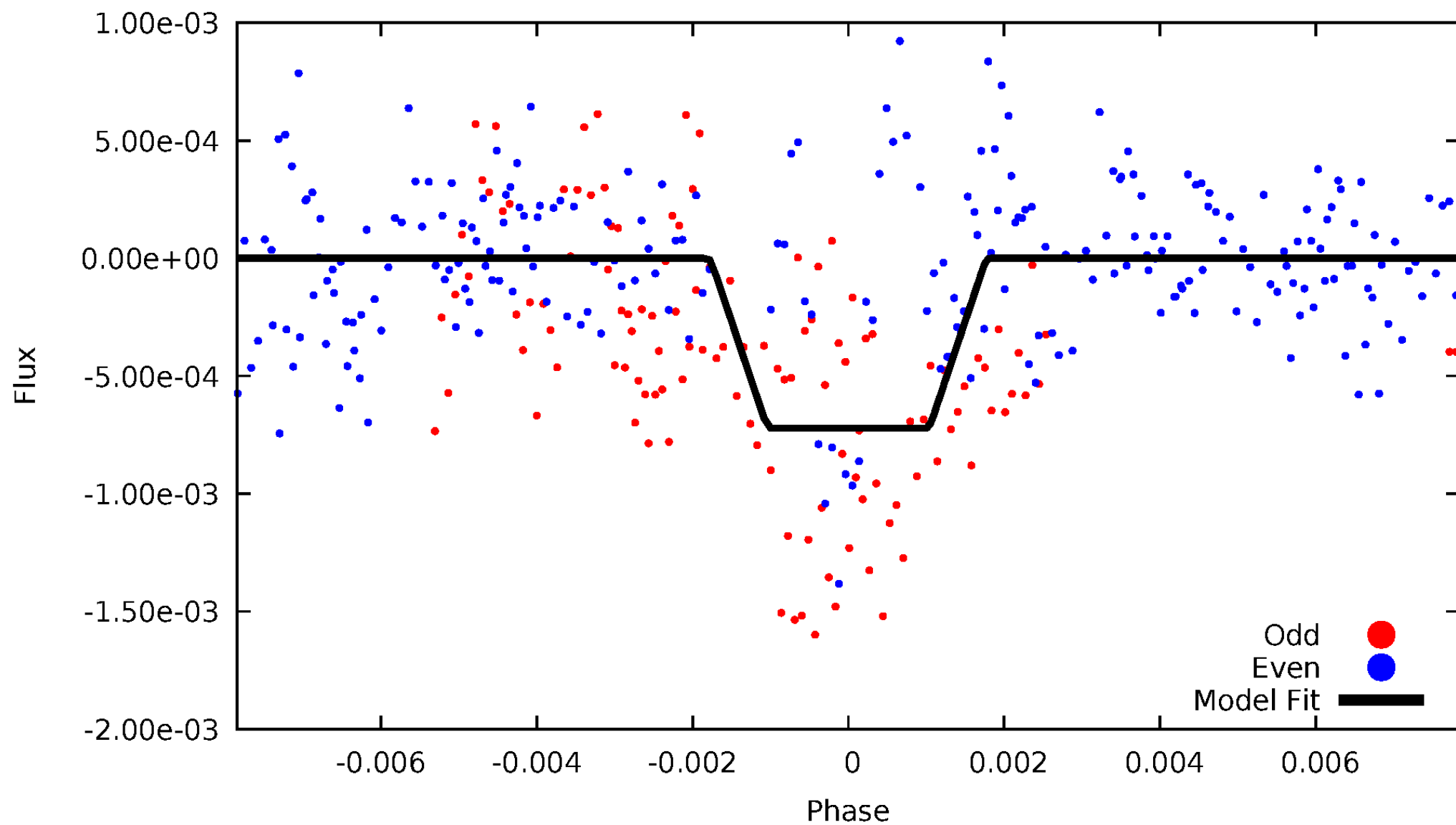
DV Odd/Even

TCE 006976420-08



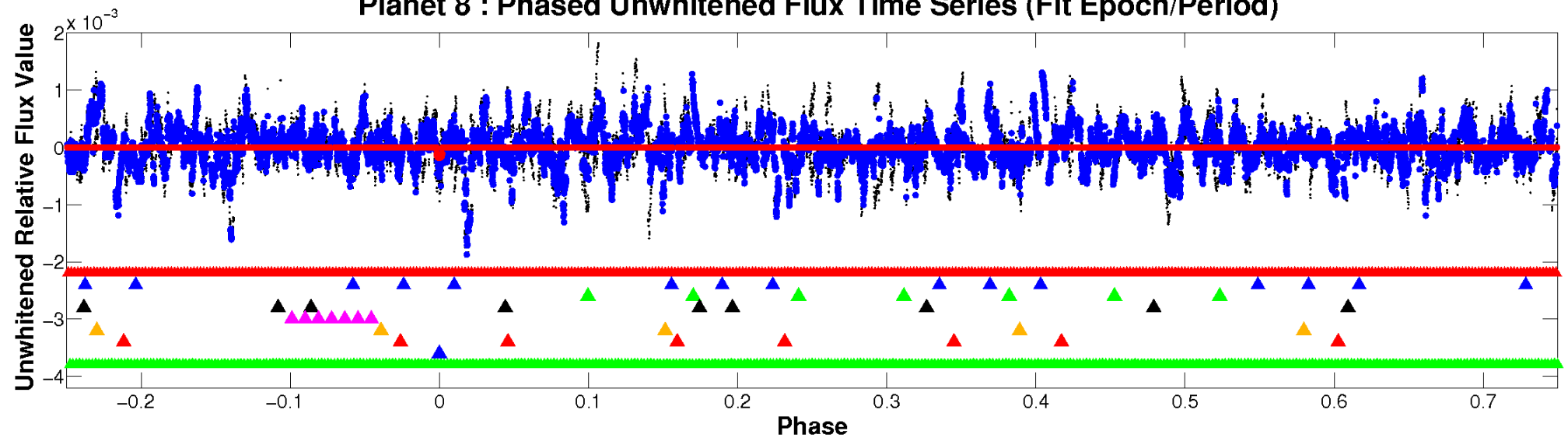
ALT Odd/Even

TCE 006976420-08

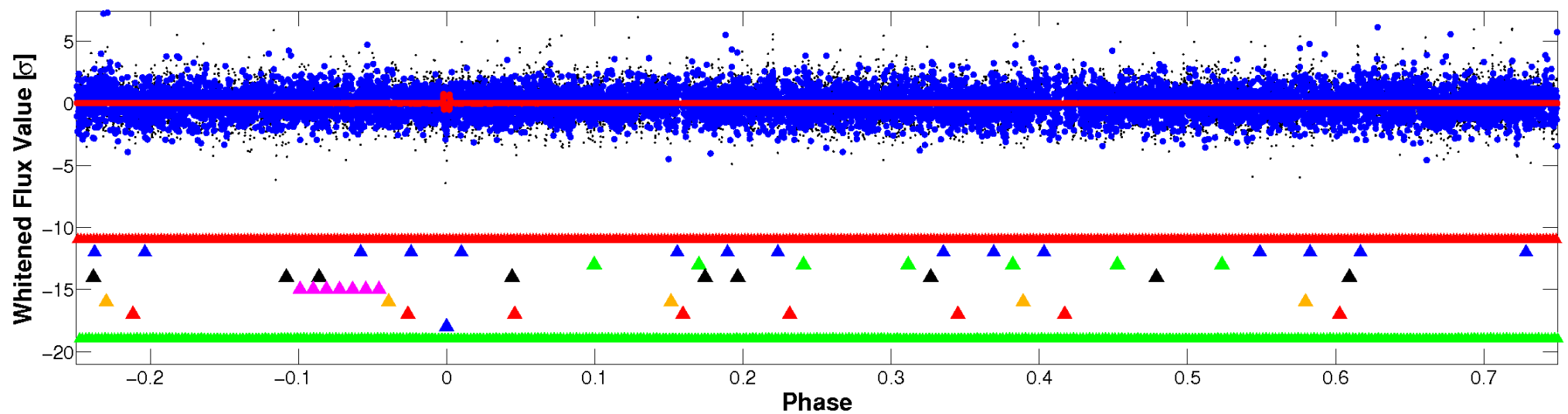


Non-Whitened Vs. Whitened Light Curve

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

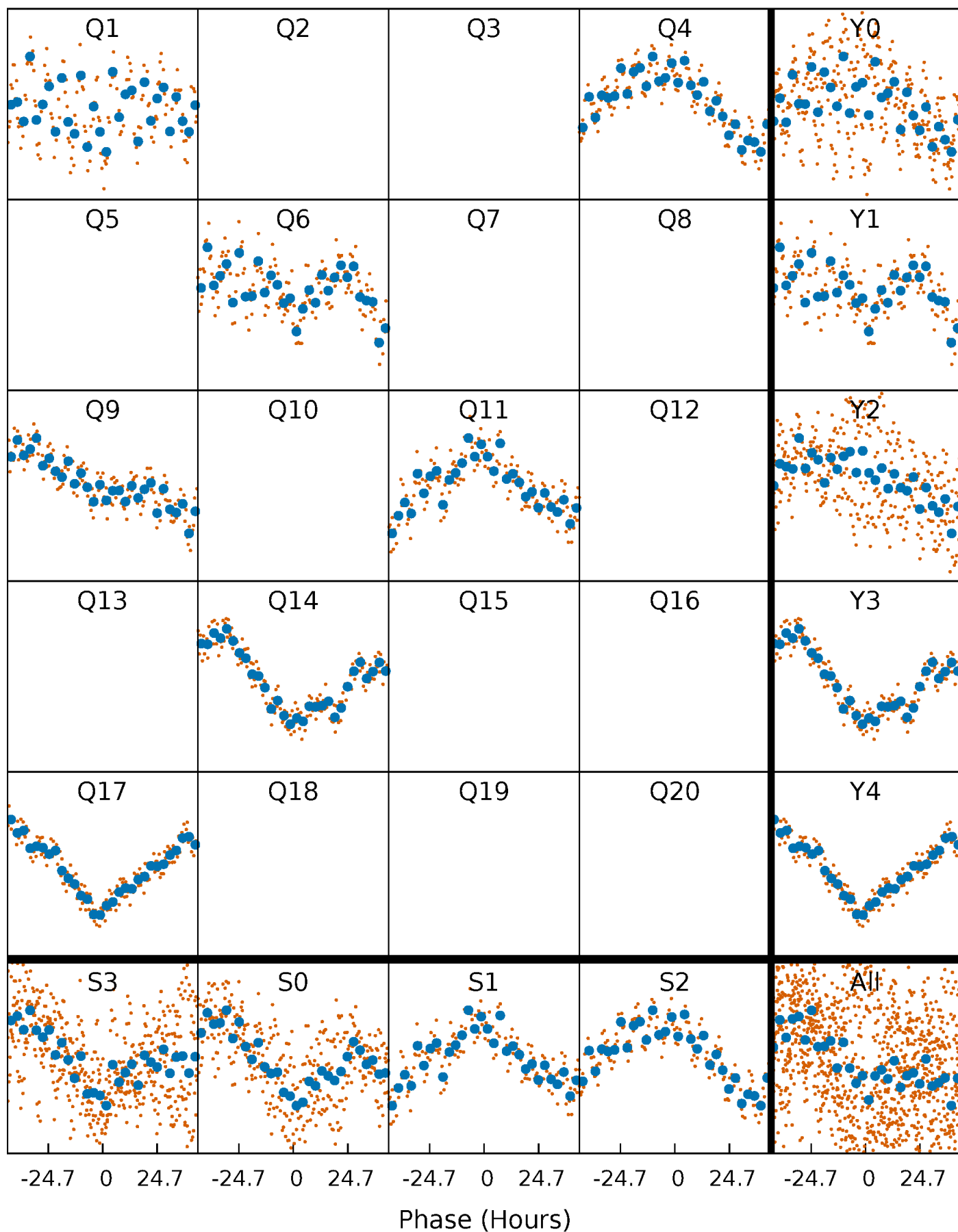


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



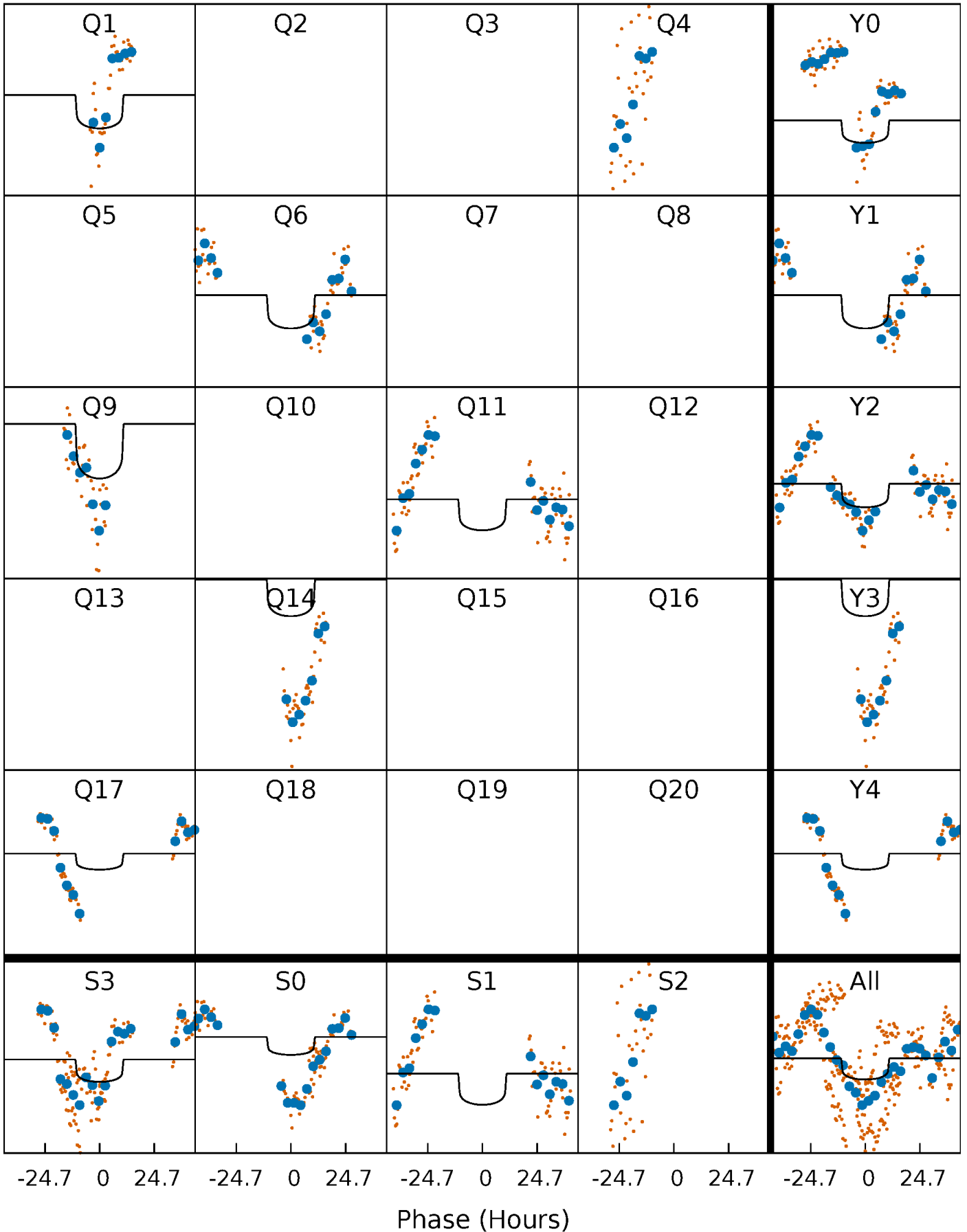
PDC Quarter-Phased Transit Curves

TCE 006976420-08 $P=234.563146$ Days $T_0=158.009376$ (BKJD)



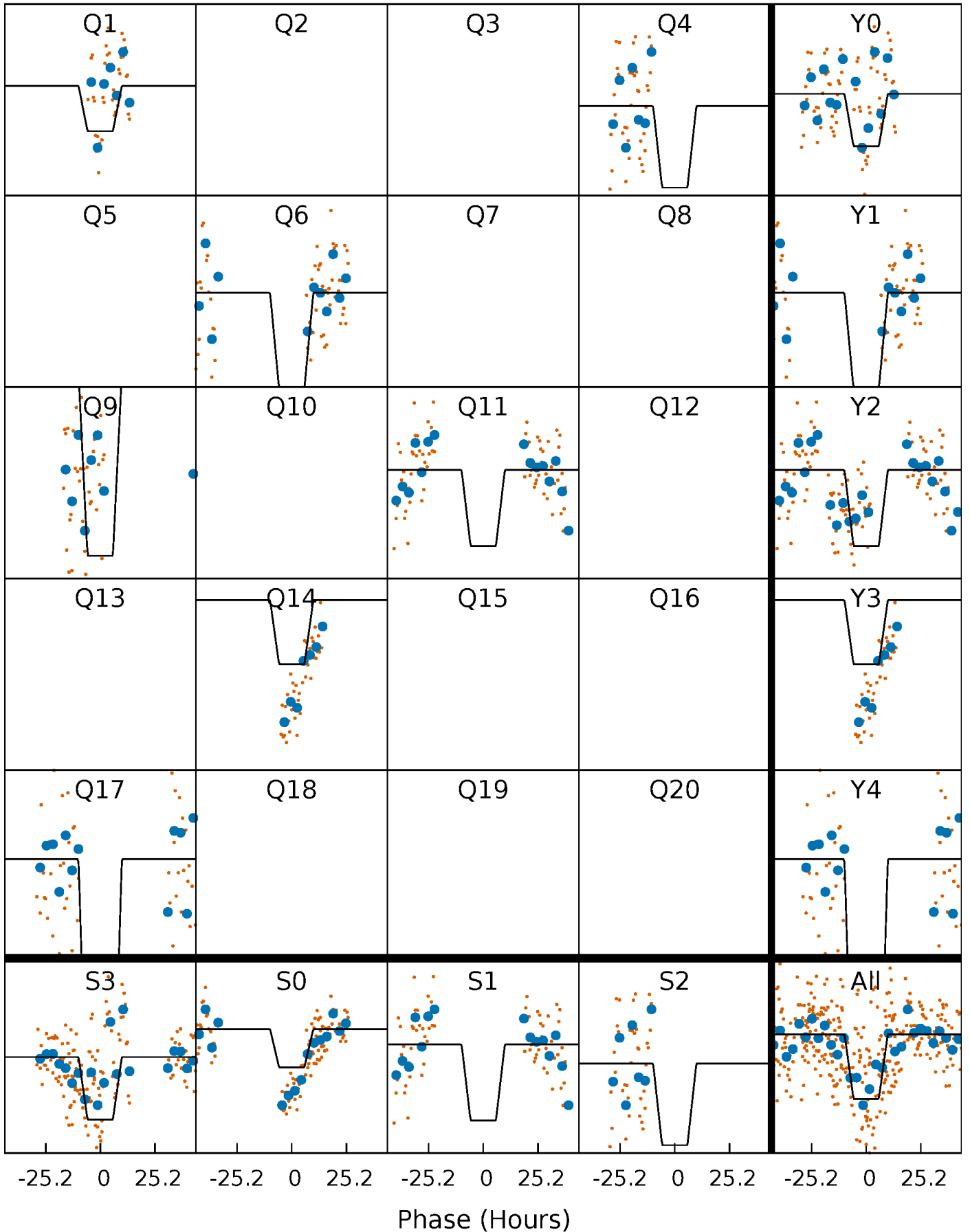
DV Quarter-Phased Transit Curves

TCE 006976420-08 $P=234.563146$ Days $T_0=158.009376$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

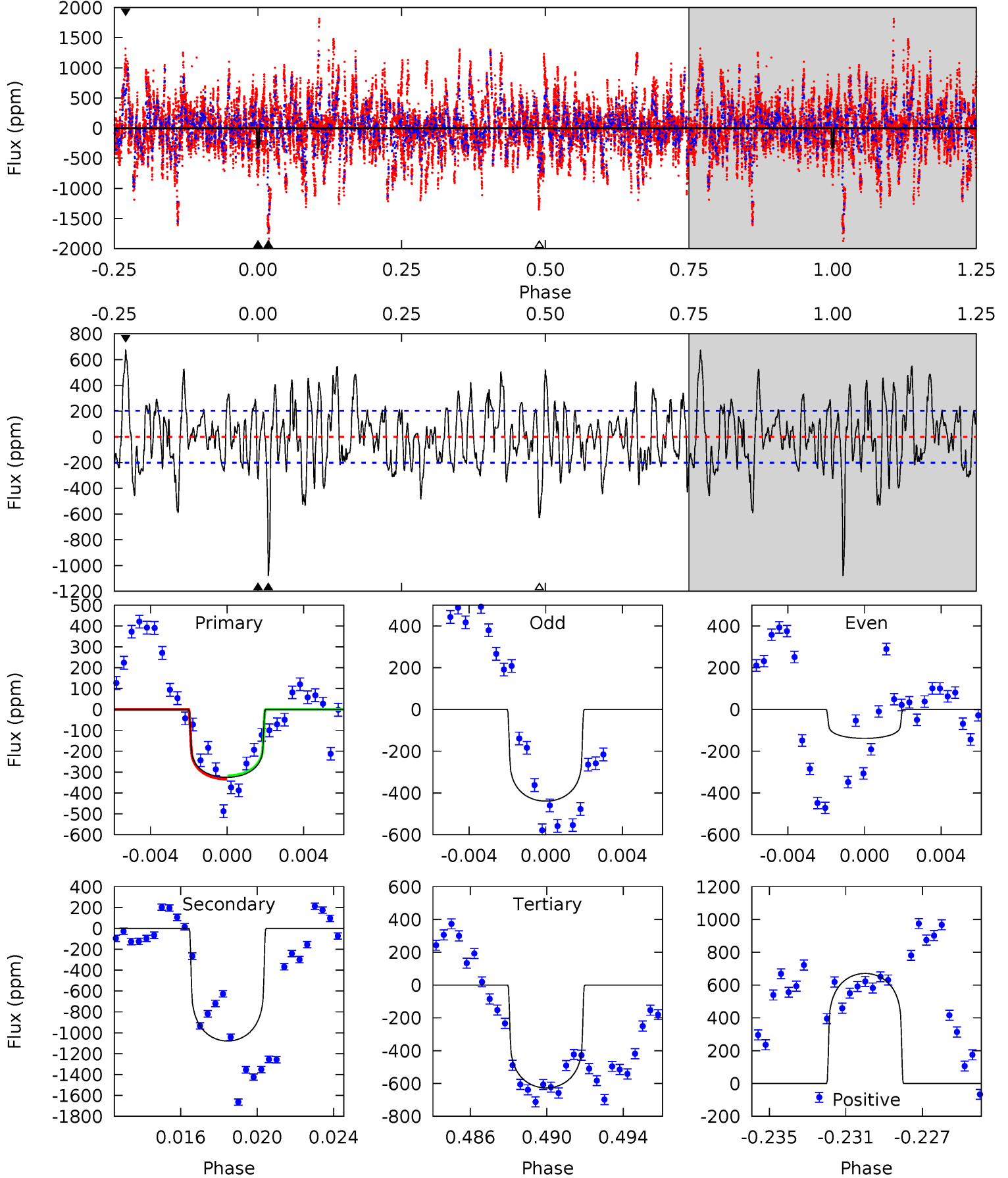
TCE 006976420-08 P=234.563646 Days $T_0=158.064636$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-08, P = 234.563146 Days, E = 158.009376 Days

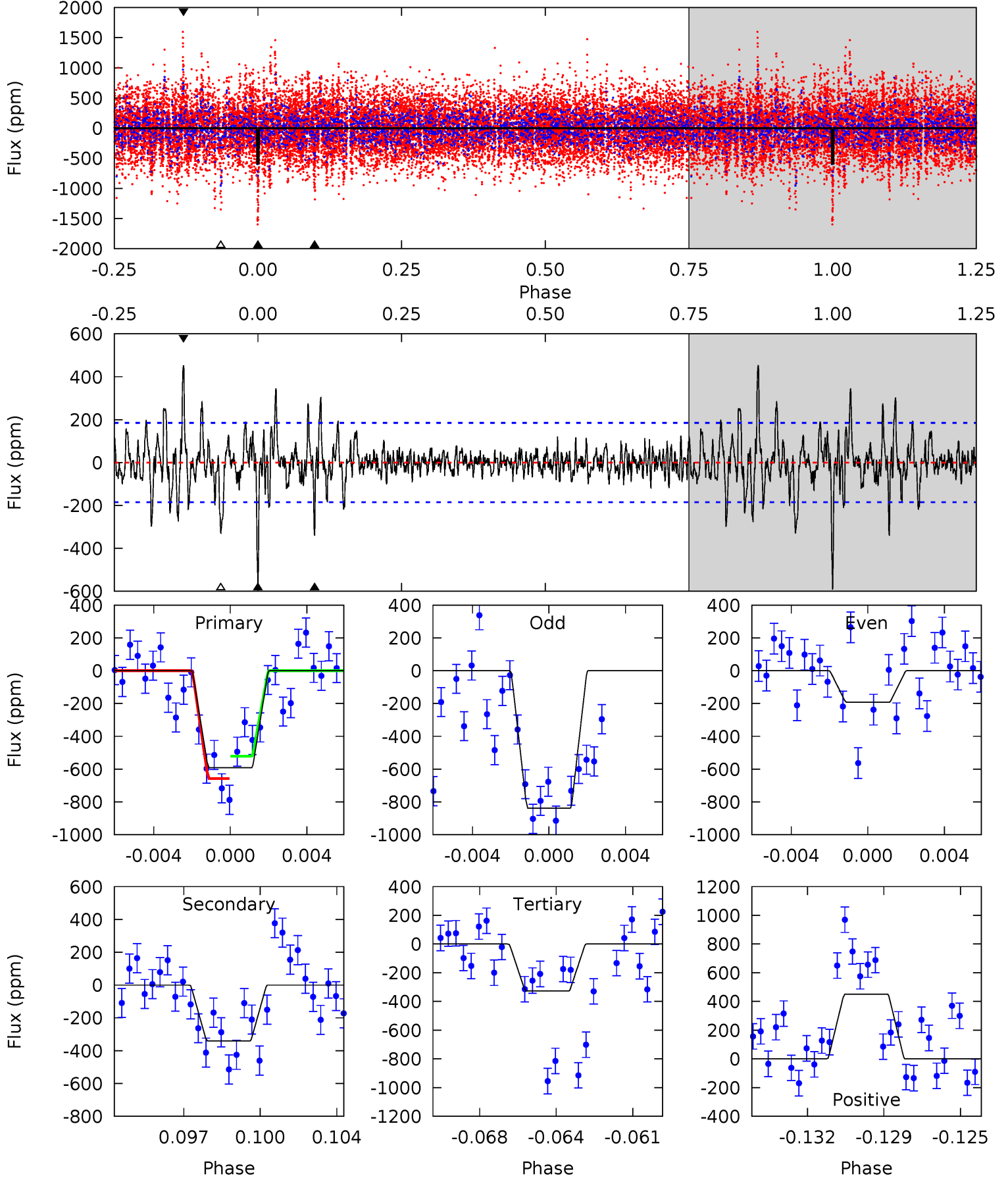
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.39	27.8	16.2	17.3	5.20	2.88	5.49	-7.78	-8.91	11.7	10.5	3.81	0.89	0.38	0.21



Alt Model-Shift Uniqueness Test

006976420-08, P = 234.563646 Days, E = 158.064636 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	9.60	9.24	12.7	5.22	2.91	2.18	7.45	3.95	0.36	-3.14	8.98	1.27	0.43	1.91



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1079 ± 39	$16.94^{+6.91}_{-5.77}$	1284^{+180}_{-276}	11177^{+4537}_{-3421}	2470^{+2840}_{-1157}
Alt.	-340 ± 35	$36.62^{+7.73}_{-9.42}$	1287^{+184}_{-320}	5295^{+584}_{-1093}	175^{+118}_{-57}

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 $A_{obs} \gg 1.0$

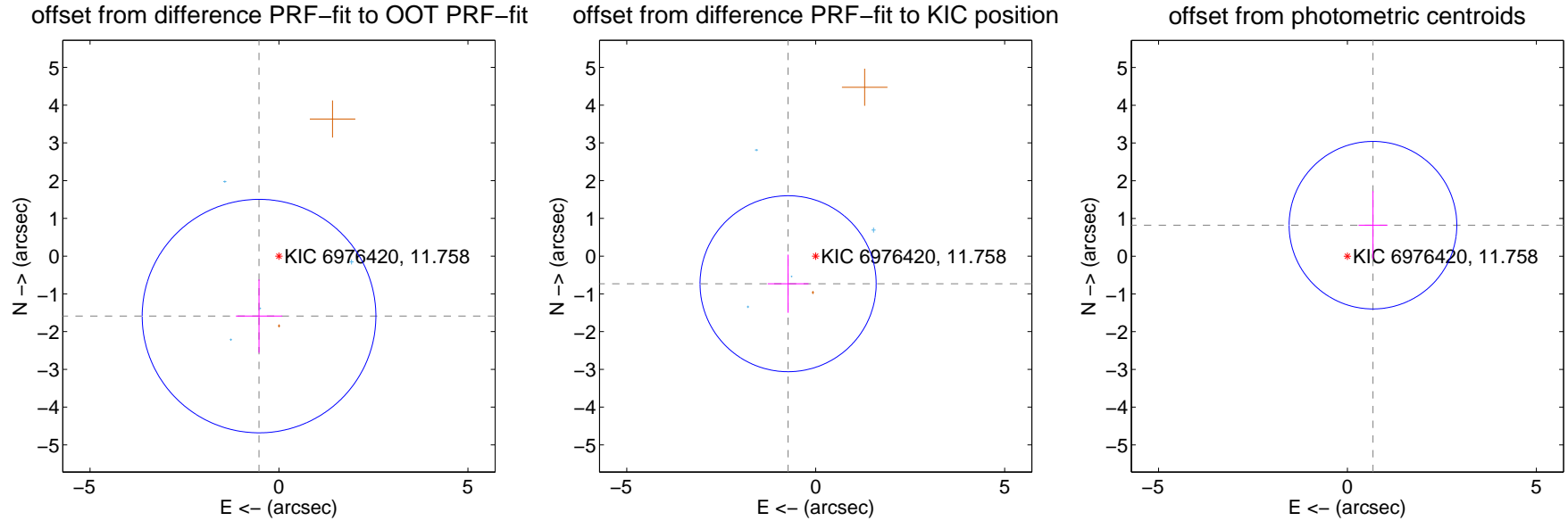
DV Centroid Data

Supplemental centroid analysis for 006976420-08. **Kepler magnitude: 11.76.** Transit SNR 4.03

There are 4 quarters with good PRF difference image offsets

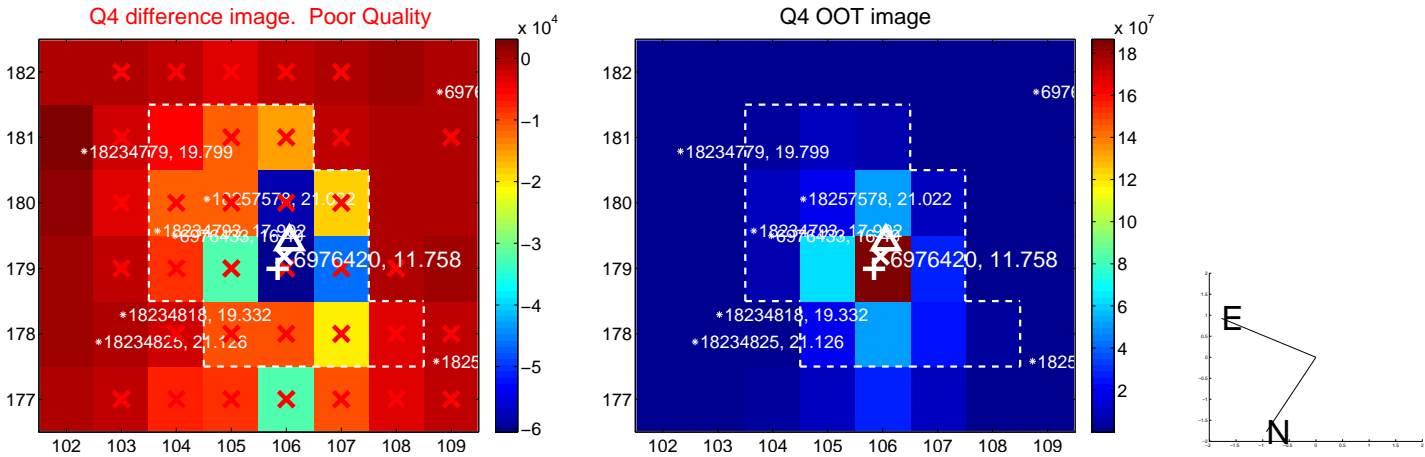
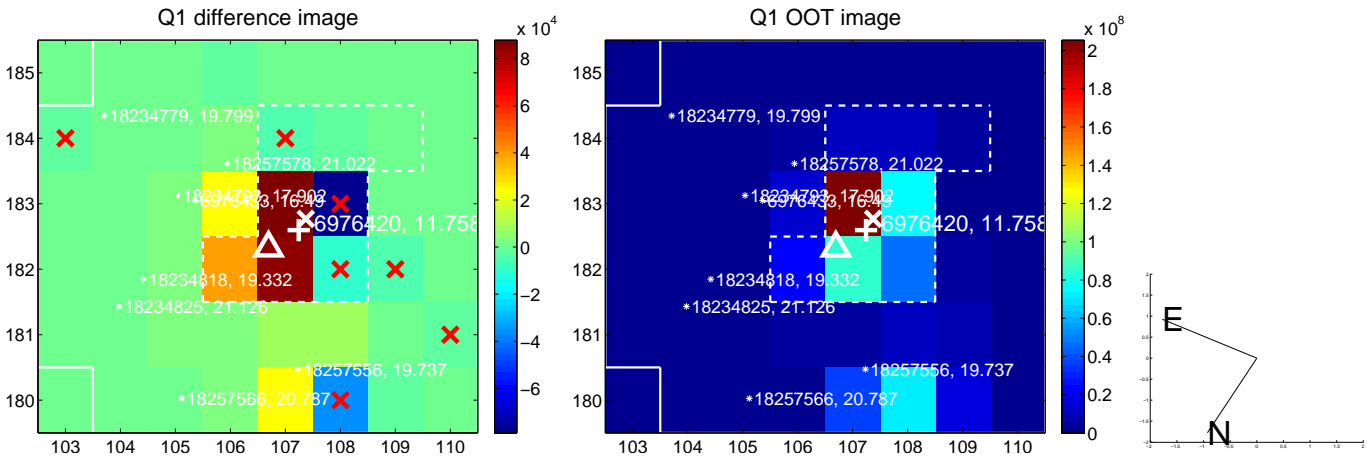
The direct PRF centroid is offset from the target star catalog position by about 0.86 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.674 ± 1.031	1.62	0.528 ± 0.613	-1.588 ± 0.970
PRF-fit source offset from KIC position	1.034 ± 0.777	1.33	0.731 ± 0.541	-0.731 ± 0.769
photometric centroid source offset	1.06 ± 0.74	1.44	-0.67 ± 0.38	0.82 ± 0.90

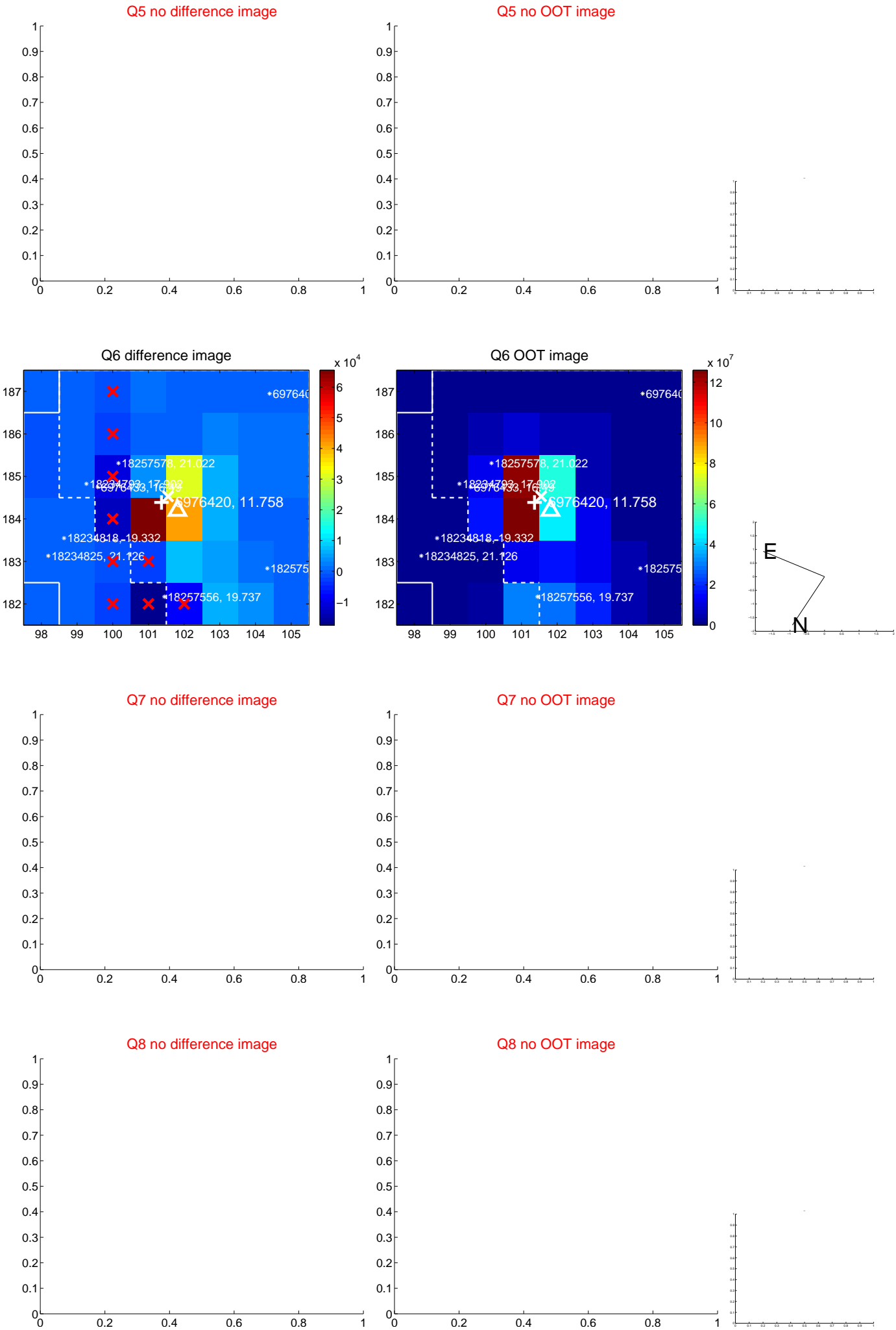


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

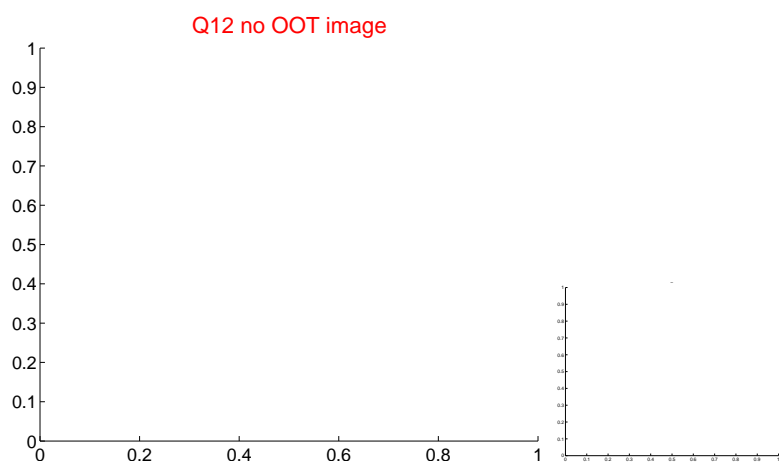
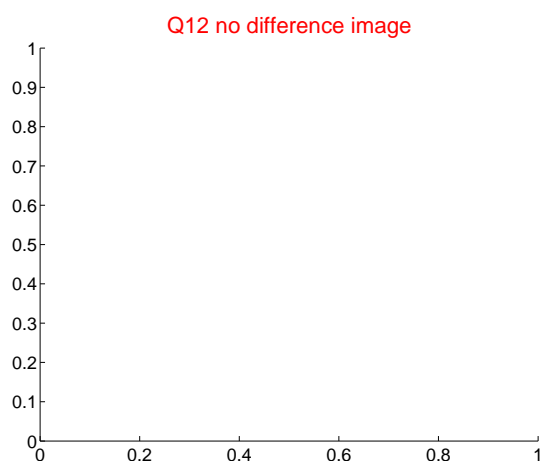
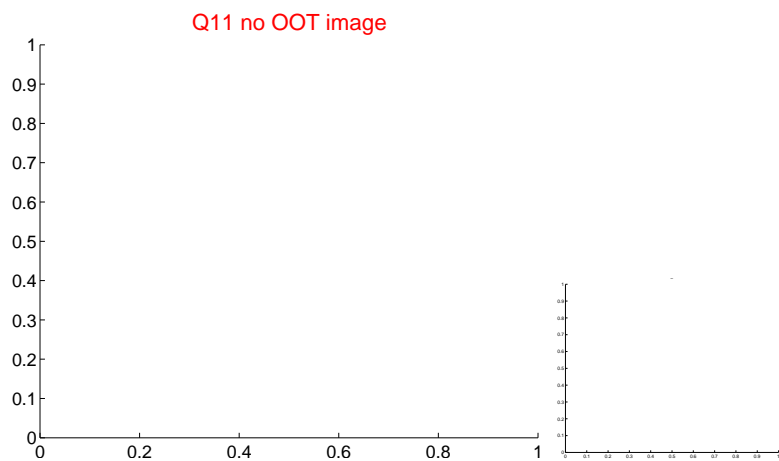
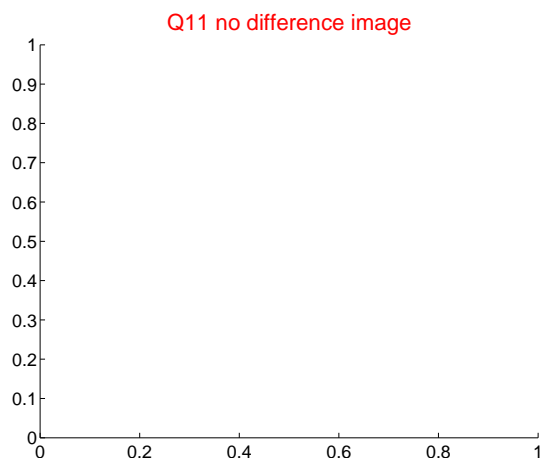
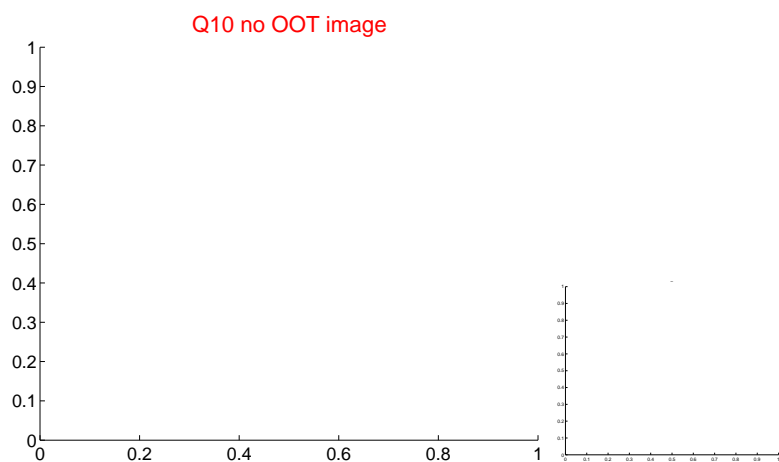
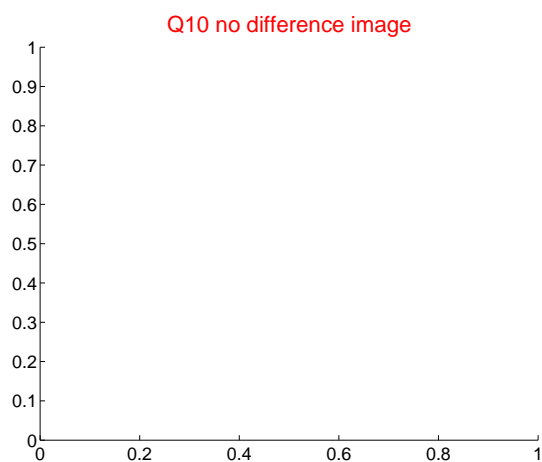
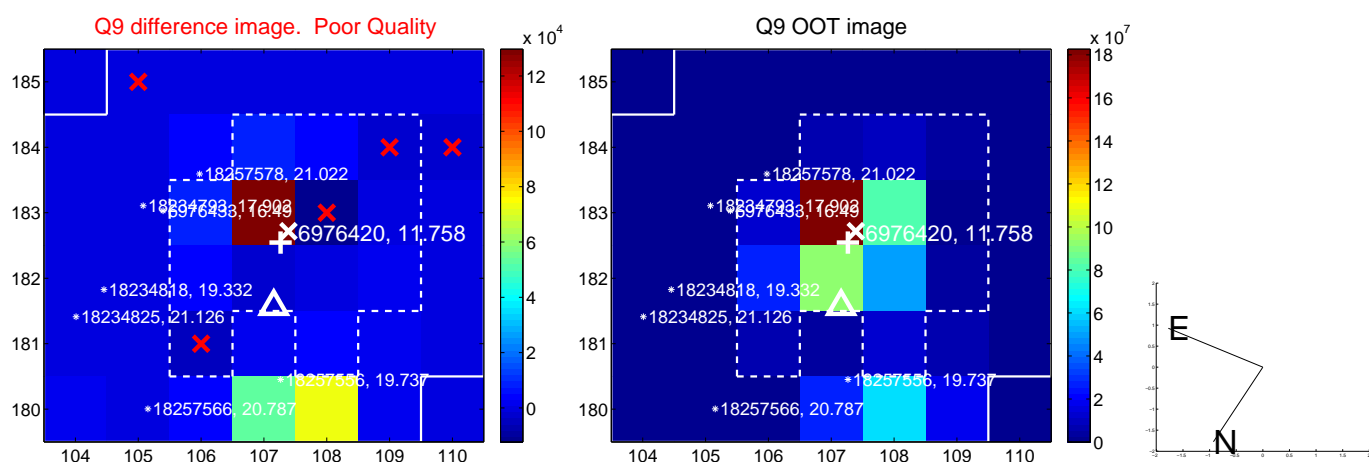
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



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

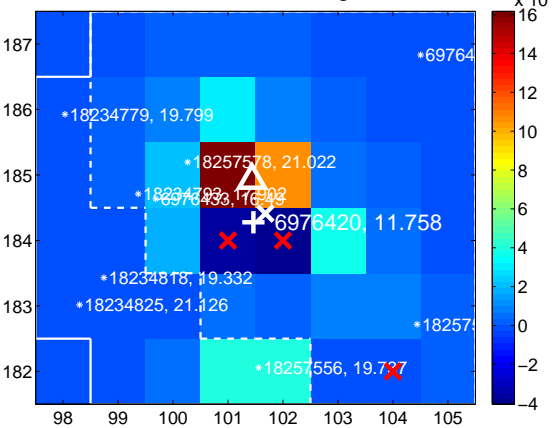
Q13 no difference image



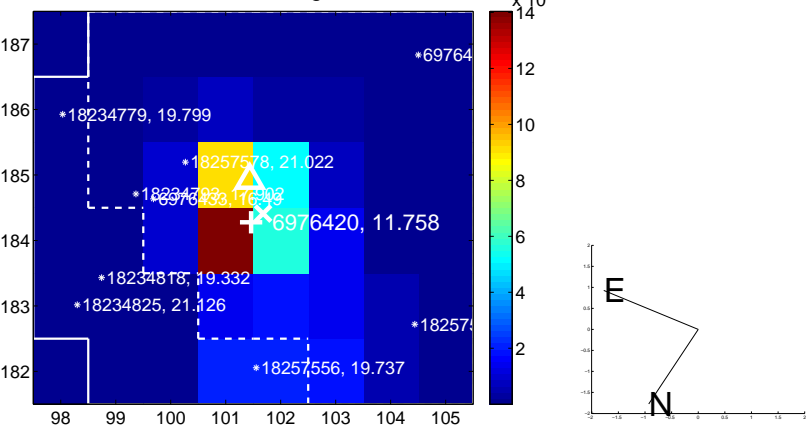
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



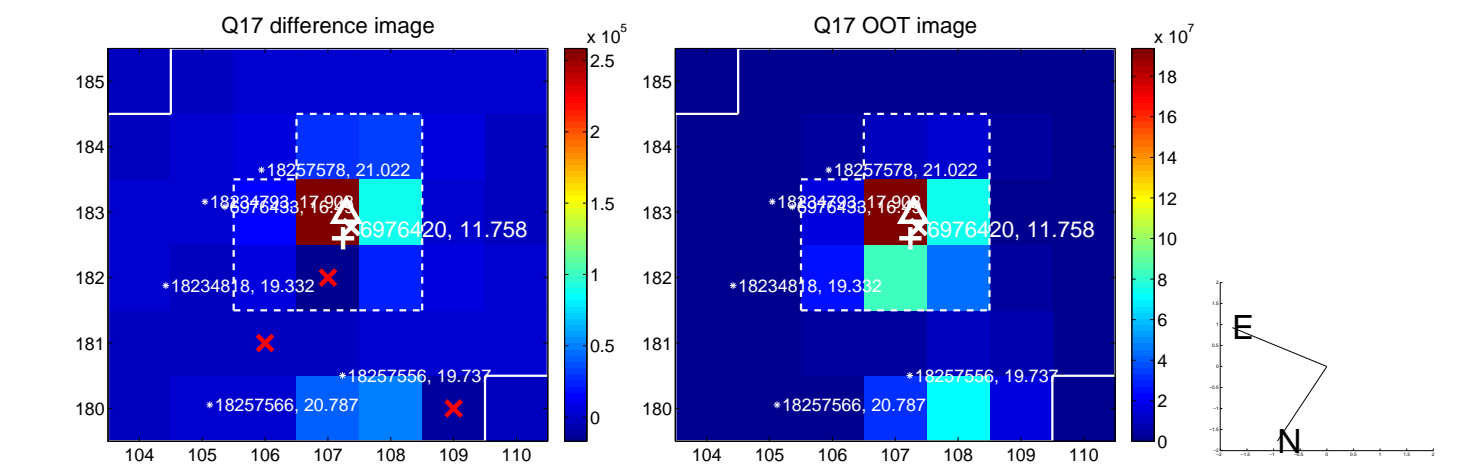
Q16 no difference image



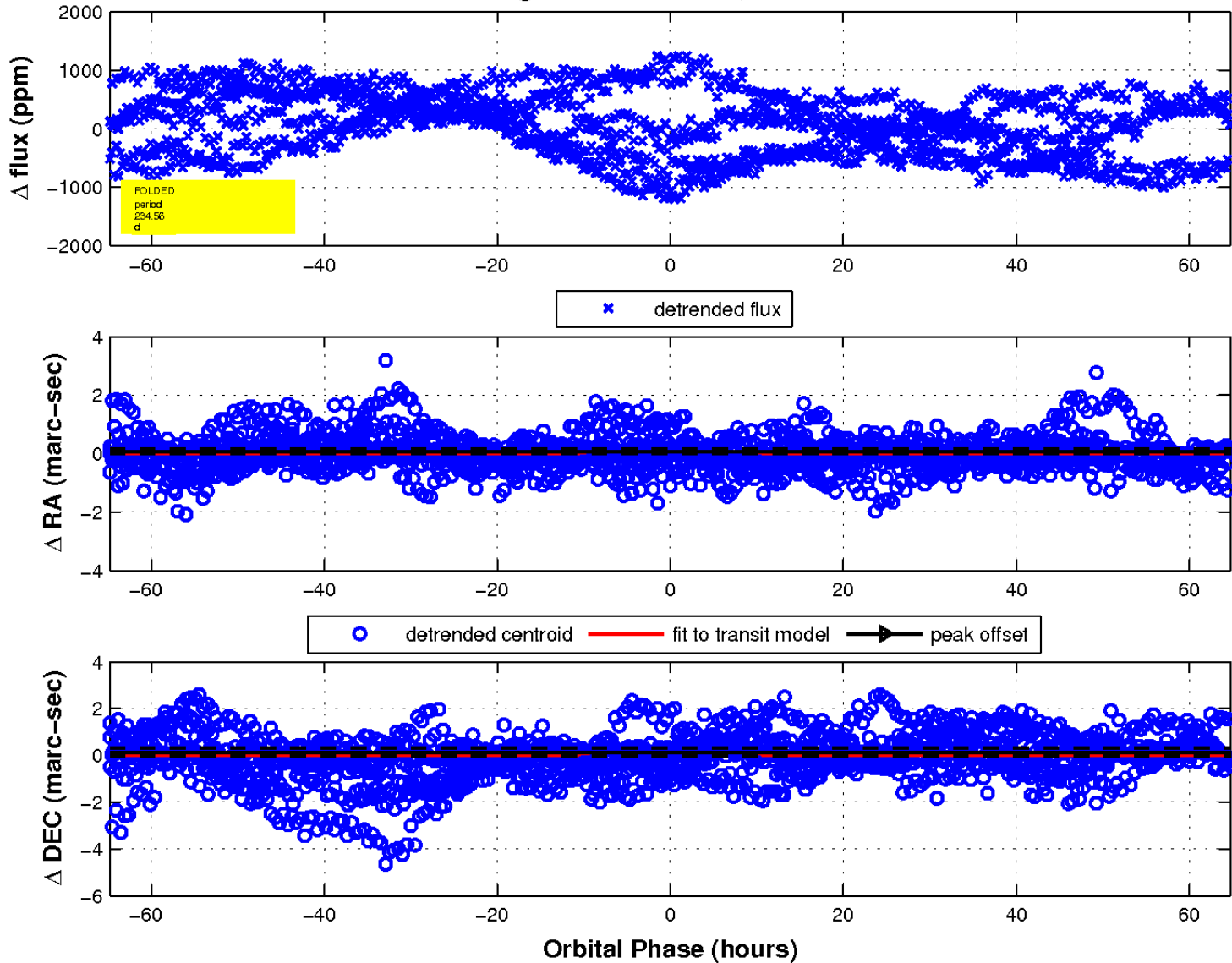
Q16 no OOT image



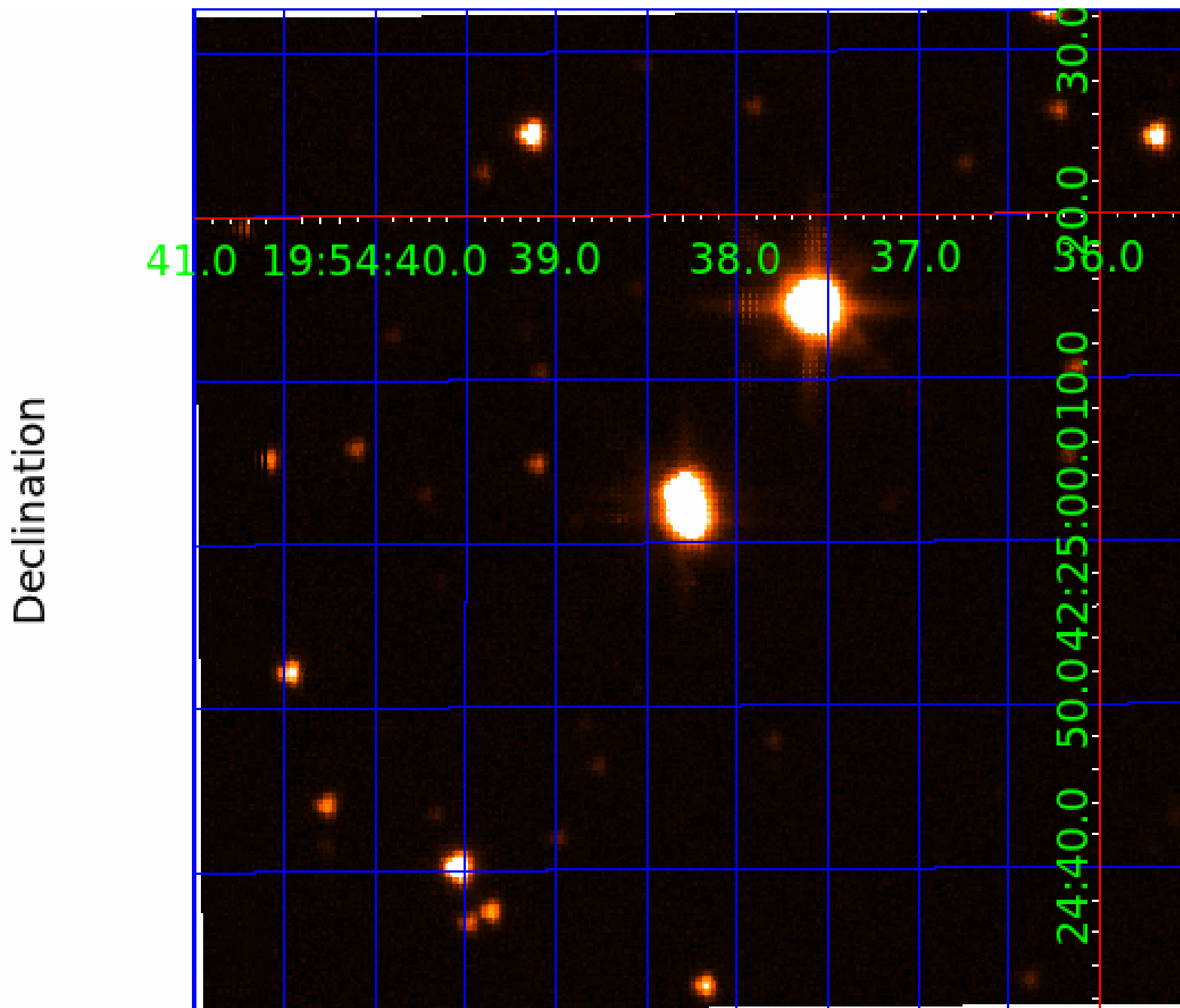
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 8 of 9



UKIRT Image



Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
006976420-01	OBS	No	2.538610	131.582418	54.7	13.638	8.8	10.5	12.58	6561	13.69	0.00
006976420-02	OBS	No	92.233179	210.445699	141.6	26.426	17.5	3.8	12.58	6561	16.48	716.73
006976420-03	OBS	No	218.000900	280.761533	249.4	5.313	15.3	6.3	12.58	6561	22.54	227.65
006976420-04	OBS	No	168.284055	198.928961	492.5	19.737	13.2	6.2	12.58	6561	52.68	321.48
006976420-05	OBS	No	232.483826	147.301235	1155.1	39.692	12.8	10.2	12.58	6561	52.82	208.94
006976420-06	OBS	No	279.268075	249.282049	272.6	6.476	10.5	8.4	12.58	6561	22.40	163.62
006976420-07	OBS	No	191.030818	238.957018	254.6	37.601	10.0	3.3	12.58	6561	23.89	271.48
006976420-08	OBS	No	234.563146	158.009376	184.4	21.640	10.3	4.0	12.58	6561	17.98	206.47
006976420-09	OBS	No	2.538761	132.814714	30.7	10.989	9.5	10.1	12.58	6561	8.14	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006976420-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_KIC_POS
006976420-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006976420-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006976420-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
006976420-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006976420-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006976420-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS

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

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

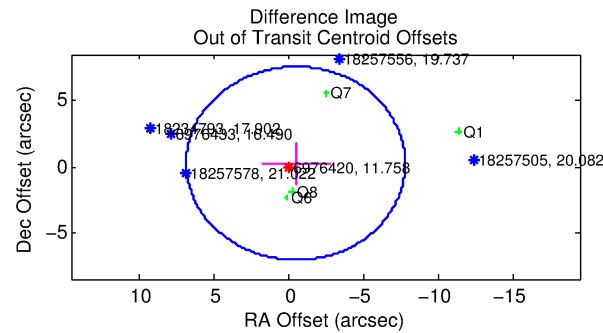
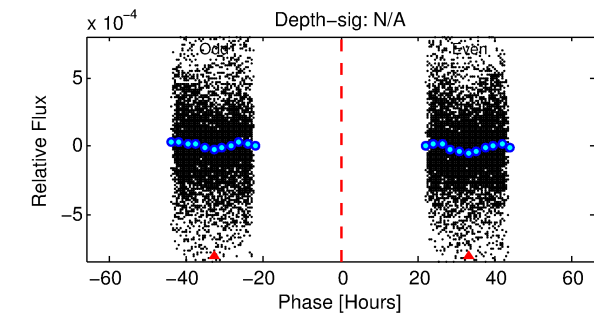
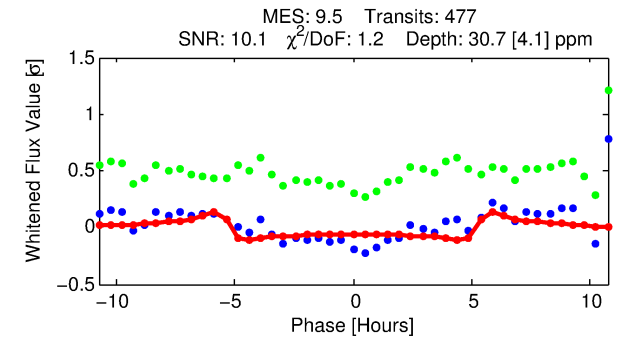
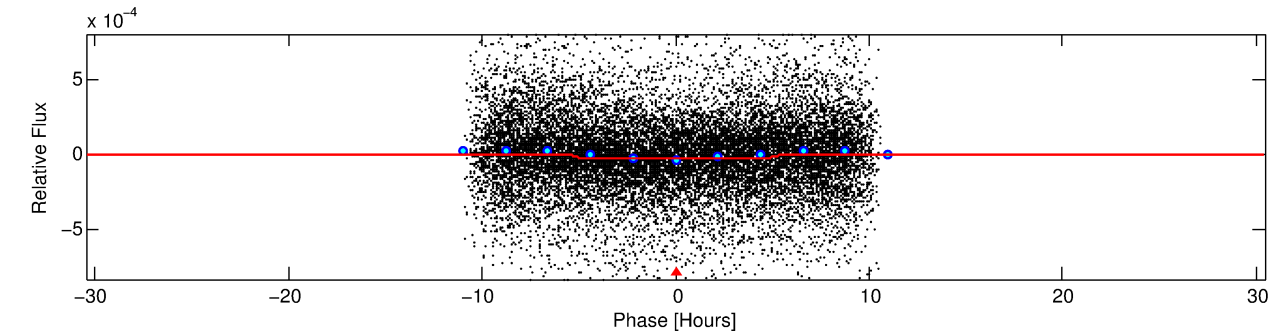
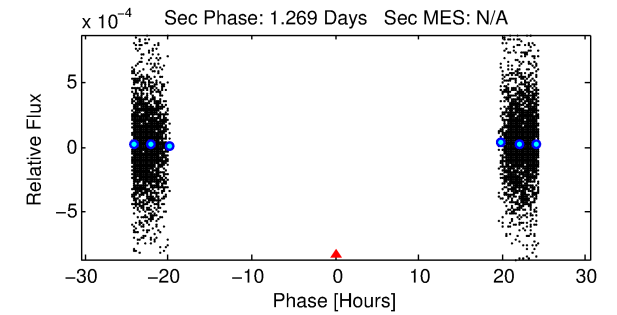
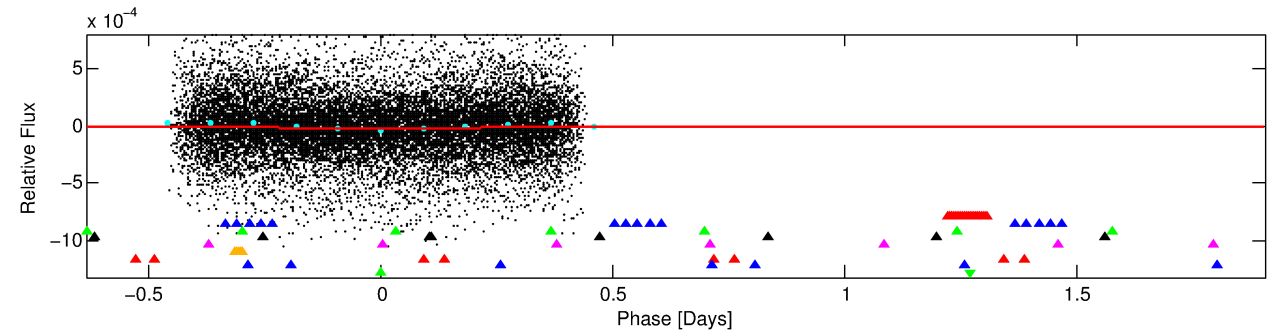
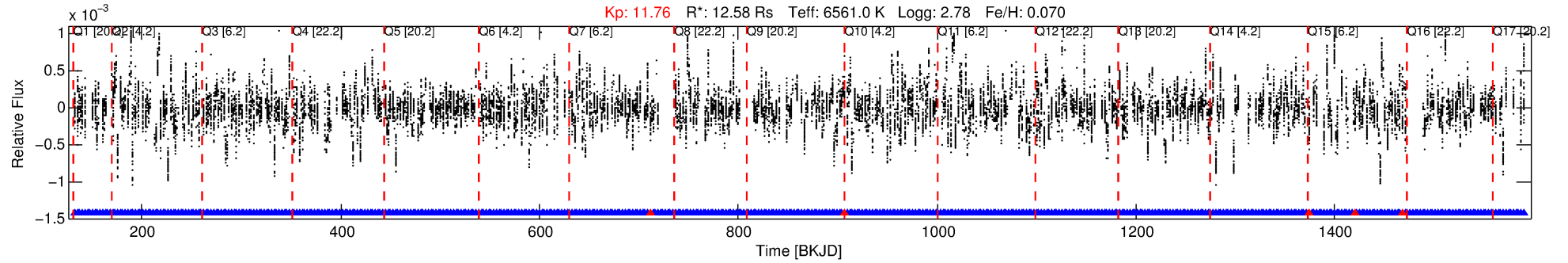
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006976420-09

No Significant Match Found

DV One-Page Summary

KIC: 6976420 Candidate: 9 of 9 Period: 2.539 d



DV Fit Results:

Period = 2.53876 [0.00002] d
Epoch = 132.8147 [0.0041] BKJD
Rp/R* = 0.0059 [0.0007]
a/R* = 1.22 [0.23]
b = 0.90 [0.12]
Seff = N/A
Teq = N/A
Rp = 8.14 [4.57] Re
a = N/A

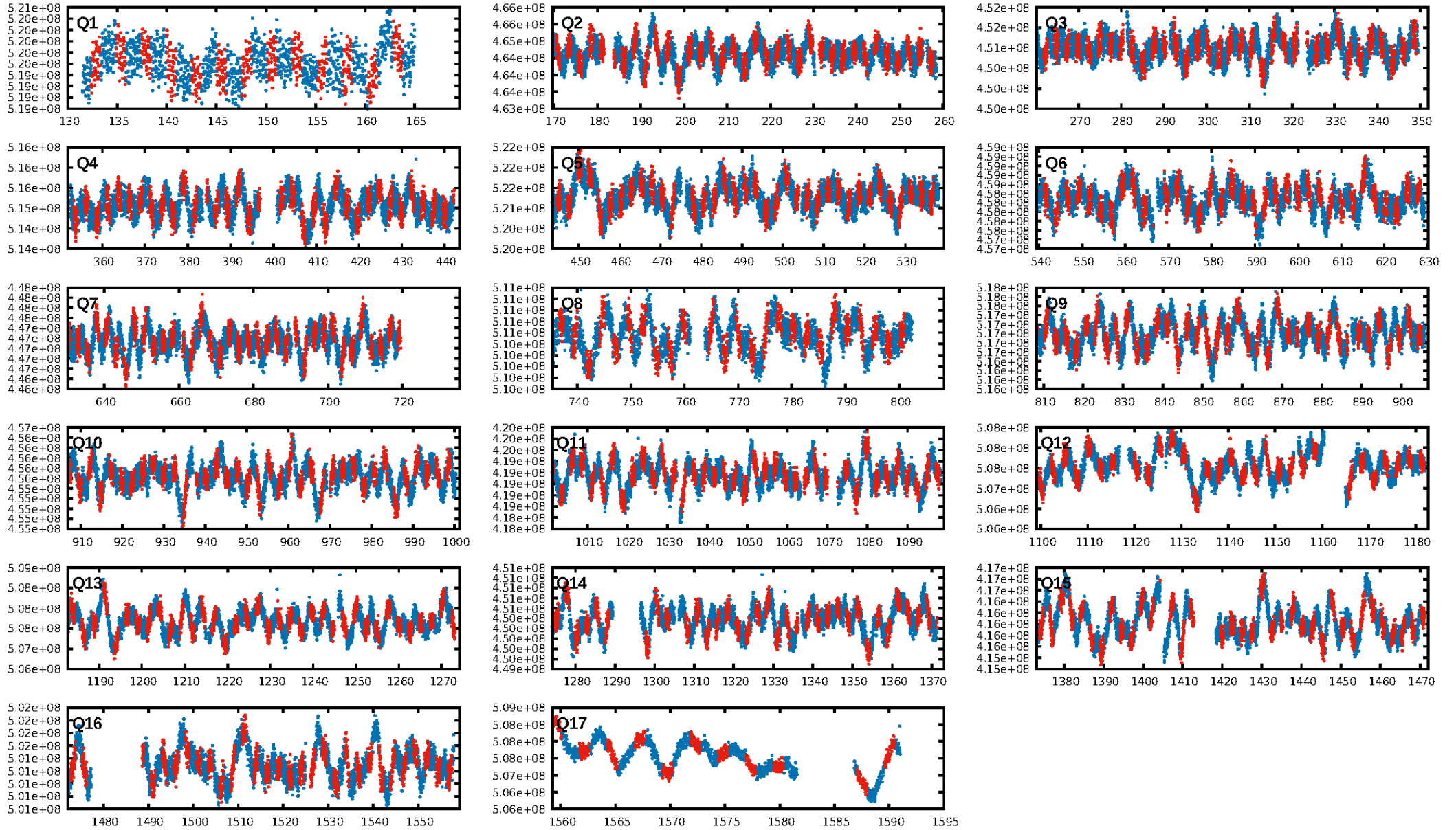
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00e]
LongPeriod-sig: 100.0% [75.22e]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [454/459]
GhostDiagnostic-chr: 1.728
Centroid-sig: 0.4%
Centroid-so: 1.418 arcsec [1.95σ]
OotOffset-rm: 0.574 arcsec [0.24σ]
KicOffset-rm: 2.154 arcsec [0.76σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 1.00 [17/17]

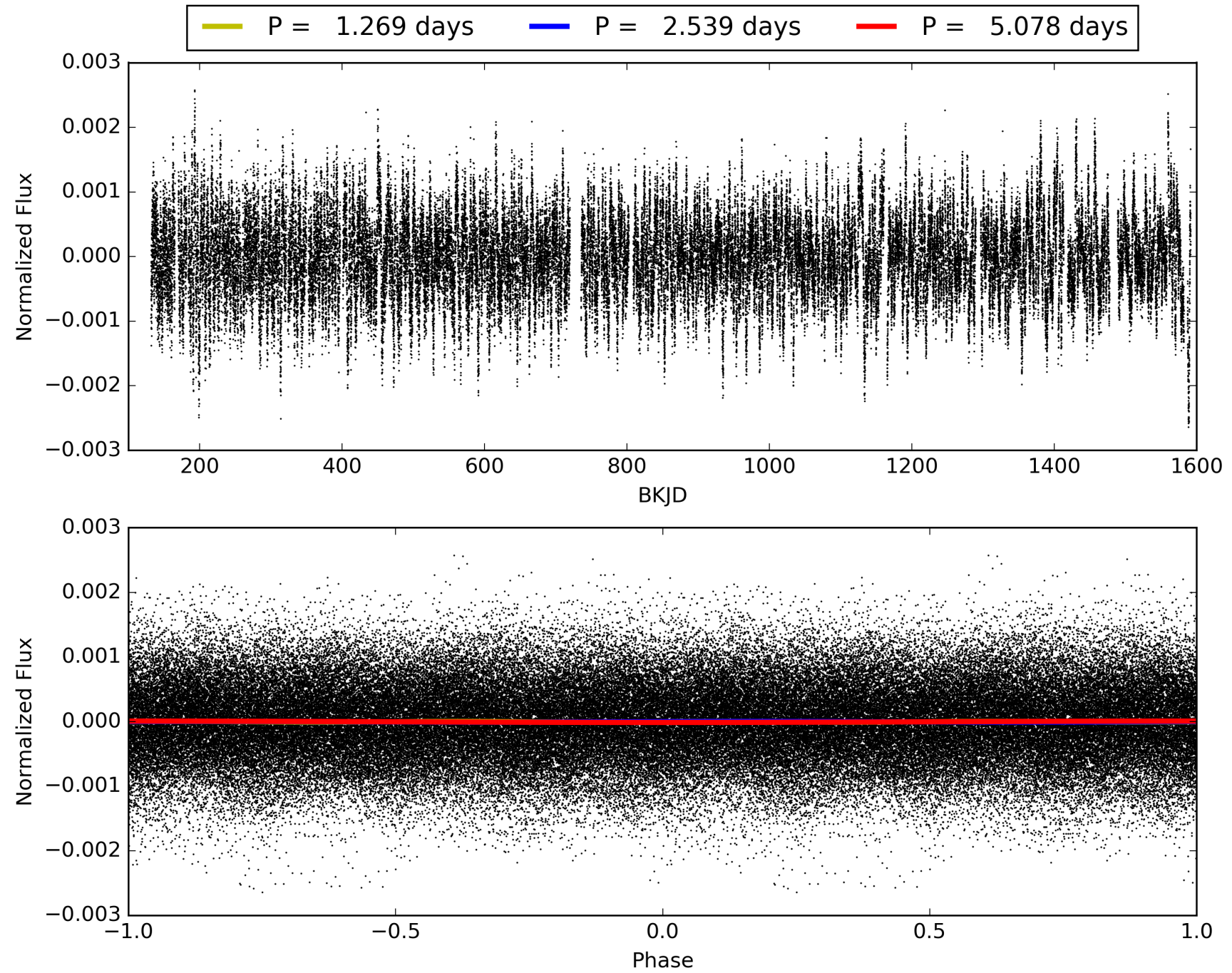
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:24:03 Z

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

TCE 006976420-09, PDC Light Curves

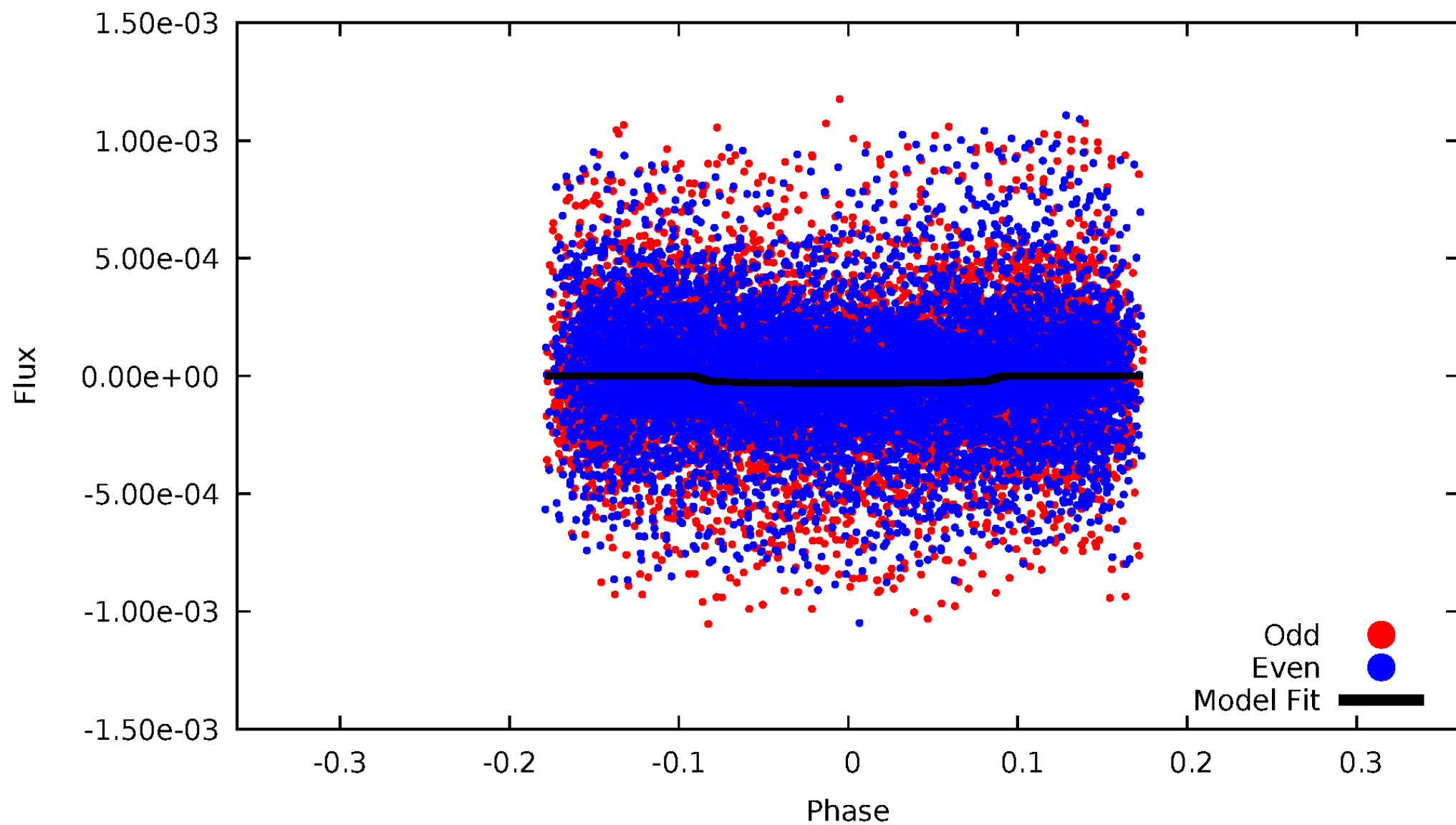


TCE 006976420-09



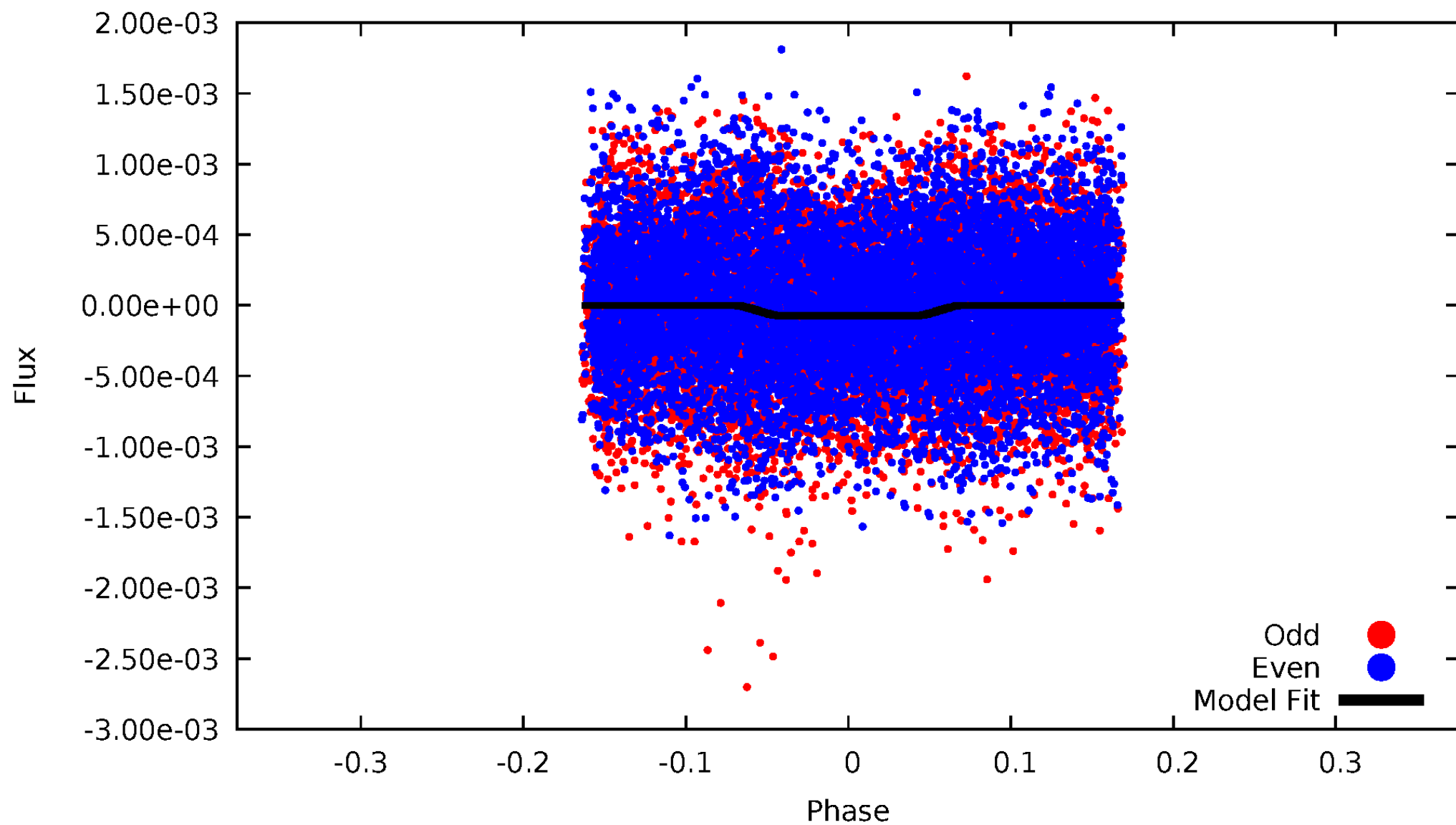
DV Odd/Even

TCE 006976420-09

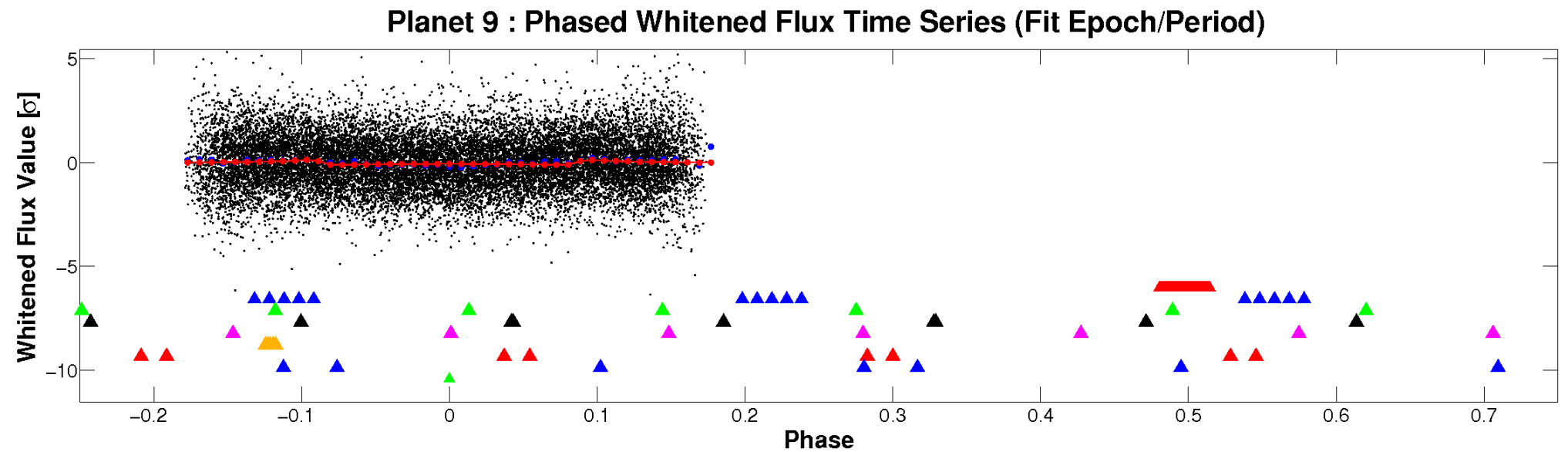
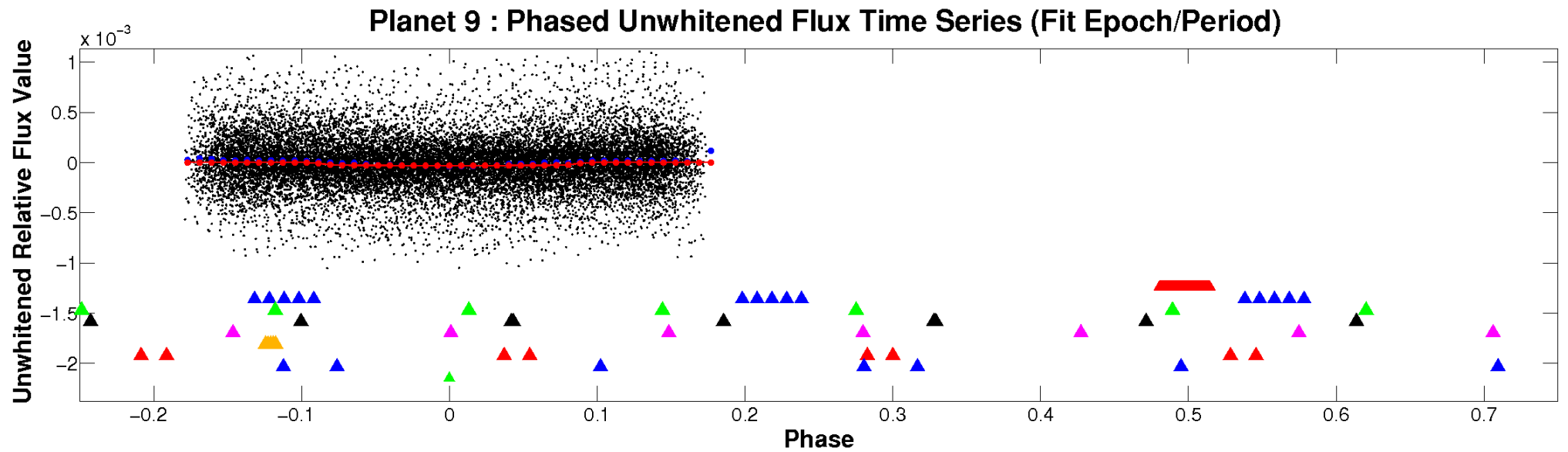


ALT Odd/Even

TCE 006976420-09

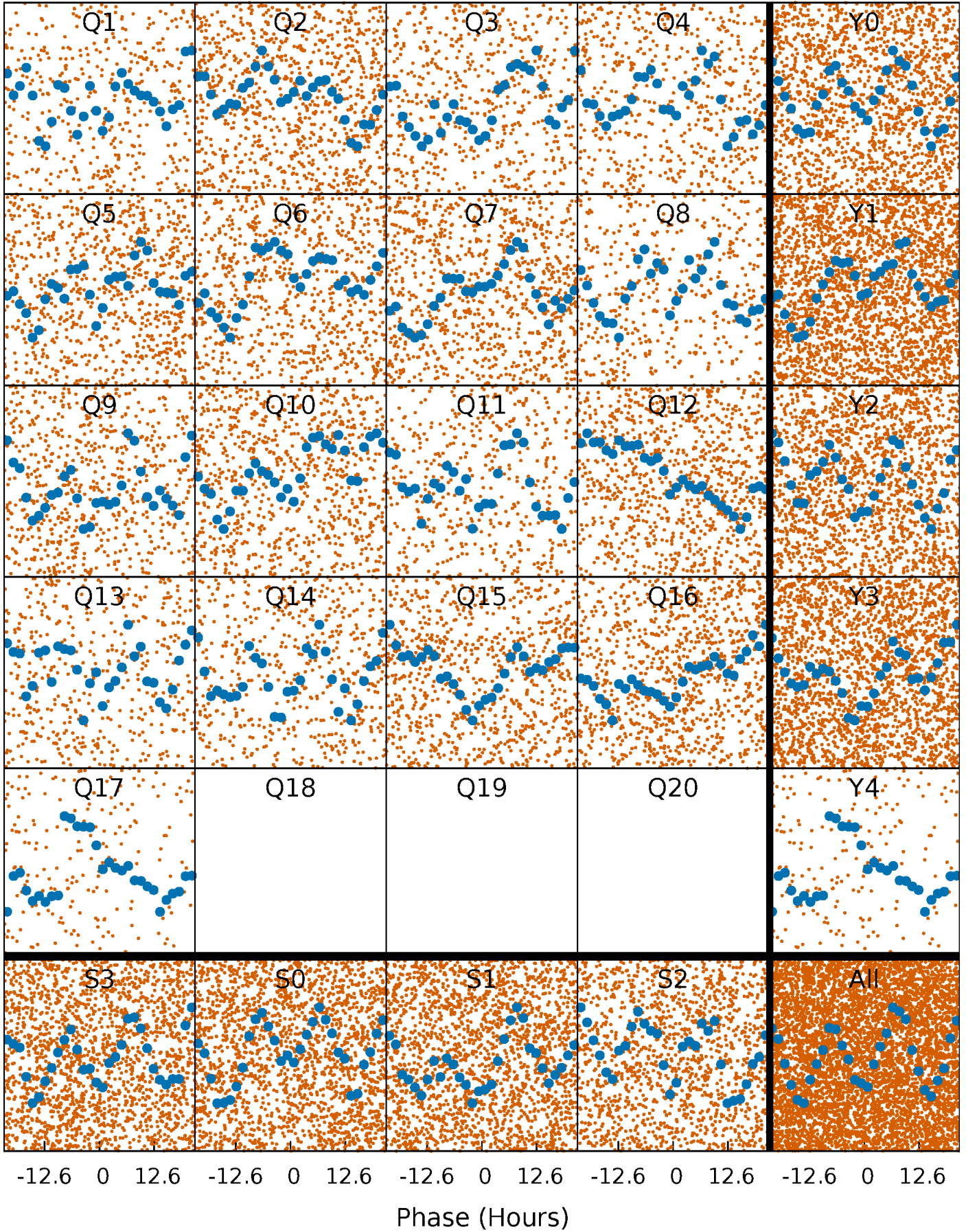


Non-Whitened Vs. Whitened Light Curve



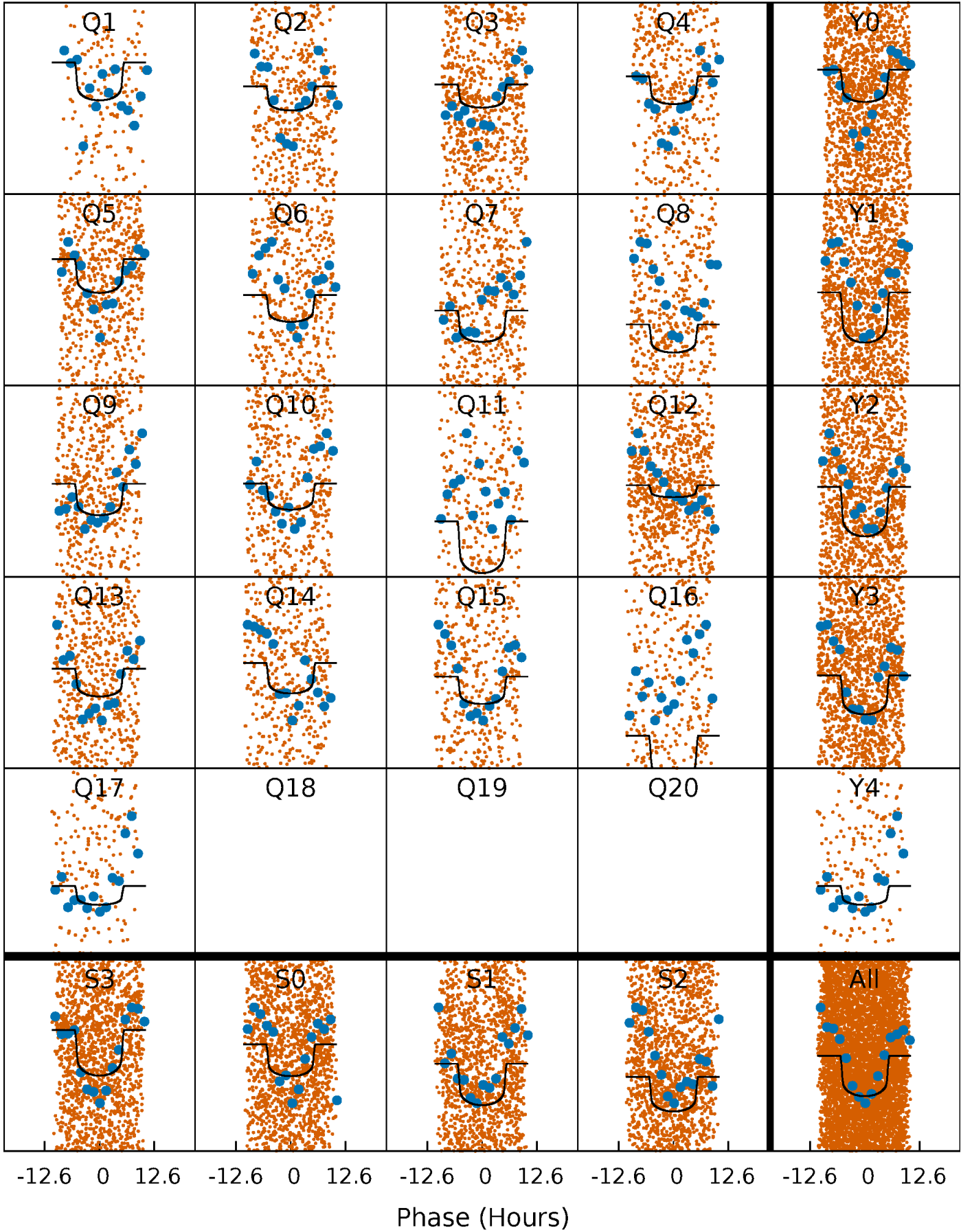
PDC Quarter-Phased Transit Curves

TCE 006976420-09 P= 2.538761 Days $T_0=132.814714$ (BKJD)



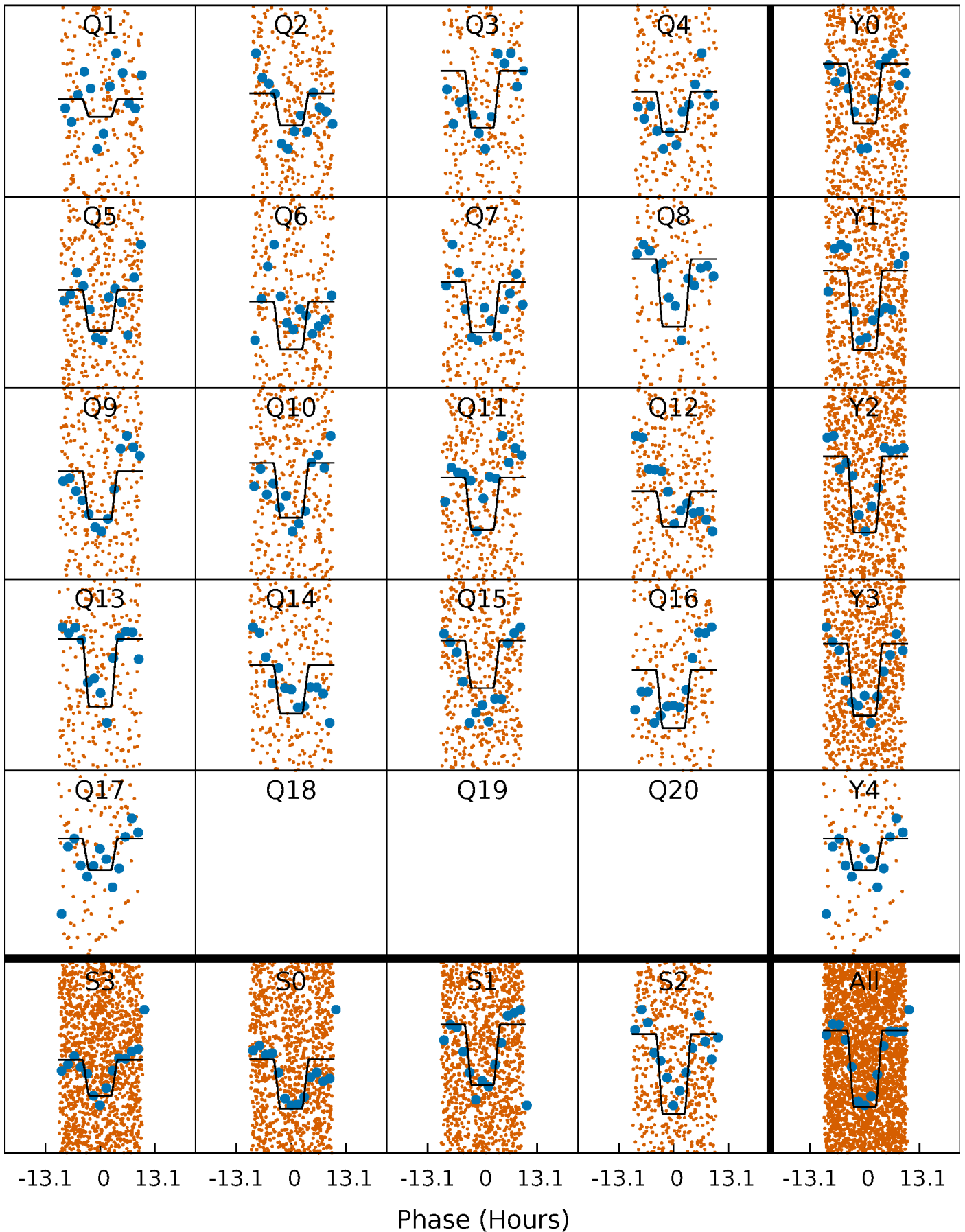
DV Quarter-Phased Transit Curves

TCE 006976420-09 $P = 2.538761$ Days $T_0 = 132.814714$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

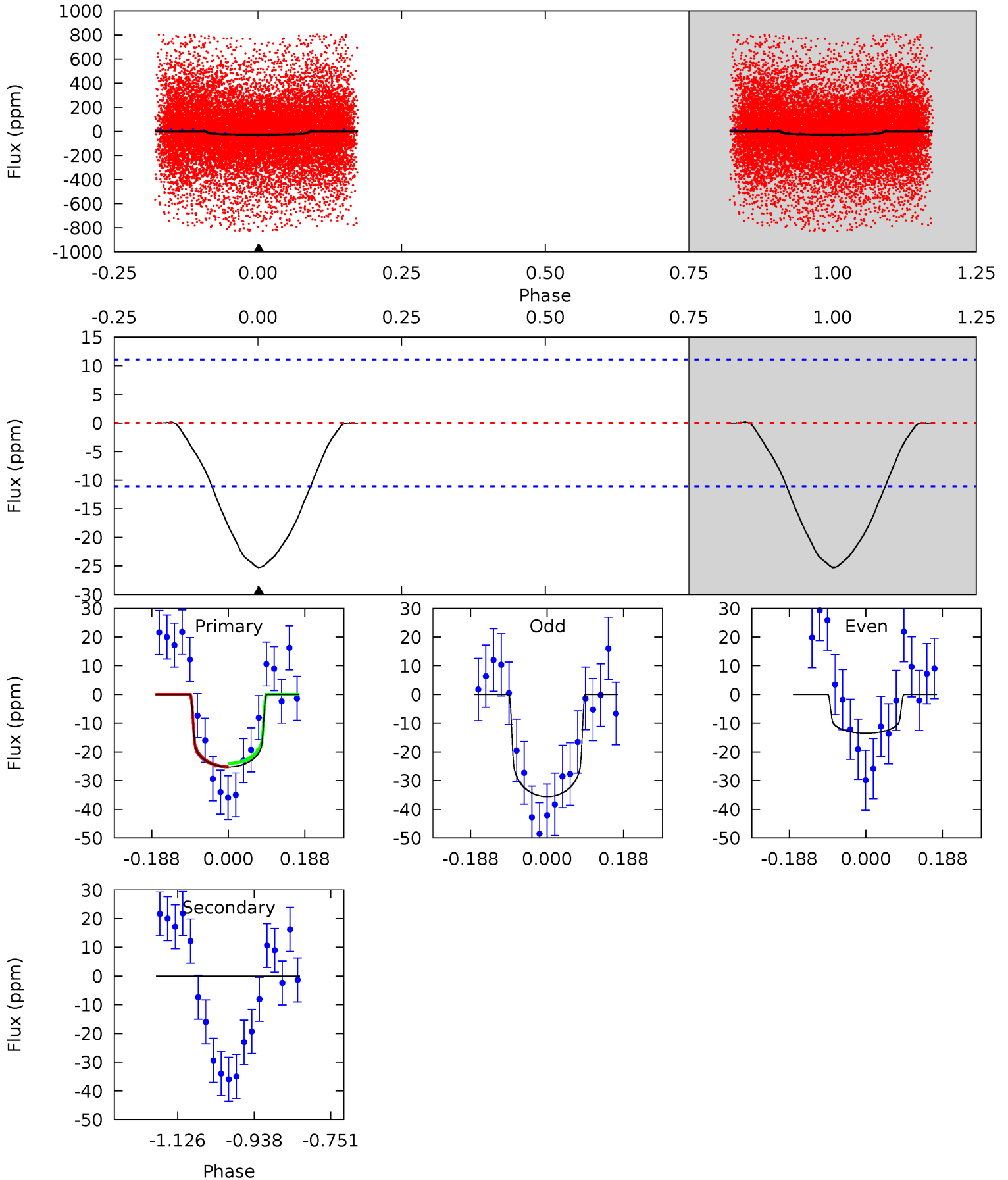
TCE 006976420-09 P= 2.538673 Days $T_0=132.826603$ (BKJD)



DV Model-Shift Uniqueness Test

006976420-09, P = 2.538761 Days, E = 130.275953 Days

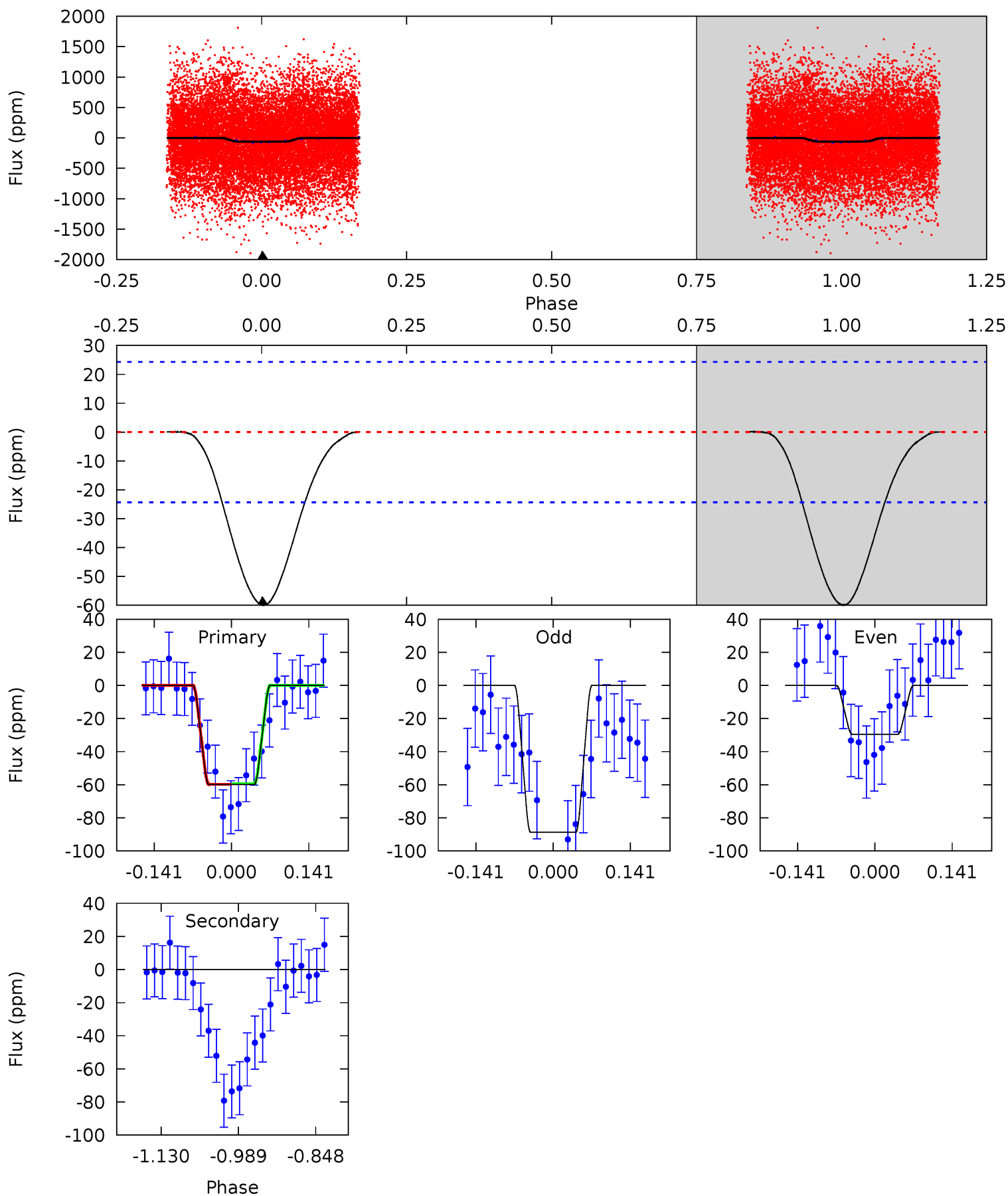
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	0	0	0	4.43	1.32	0.05	10.1	10.1	0	0	4.52	1.10	0.01	0.24



Alt Model-Shift Uniqueness Test

006976420-09, P = 2.538673 Days, E = 130.287930 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	0	0	0	4.49	1.47	0.09	11.1	11.1	0	0	5.46	0.76	0.00	0.03



Stellar Parameters For KIC 006976420

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6561^{+380}_{-1619}	$2.780^{+0.319}_{-0.172}$	$0.070^{+0.150}_{-0.600}$	$12.579^{+2.298}_{-6.893}$	$3.479^{+0.117}_{-2.231}$	$0.002^{+0.009}_{-0.001}$
	+6%/-25%	+11%/-6%	+214%/-857%	+18%/-55%	+3%/-64%	+348%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 006976420-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 3	$7.96^{+1.69}_{-1.92}$	5761^{+857}_{-1298}	-4781^{+948}_{-690}	$0.003^{+0.067}_{-0.068}$
Alt.	0 ± 5	$11.58^{+1.97}_{-2.78}$	5751^{+888}_{-1398}	-4835^{+1082}_{-686}	$-0.005^{+0.072}_{-0.071}$

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

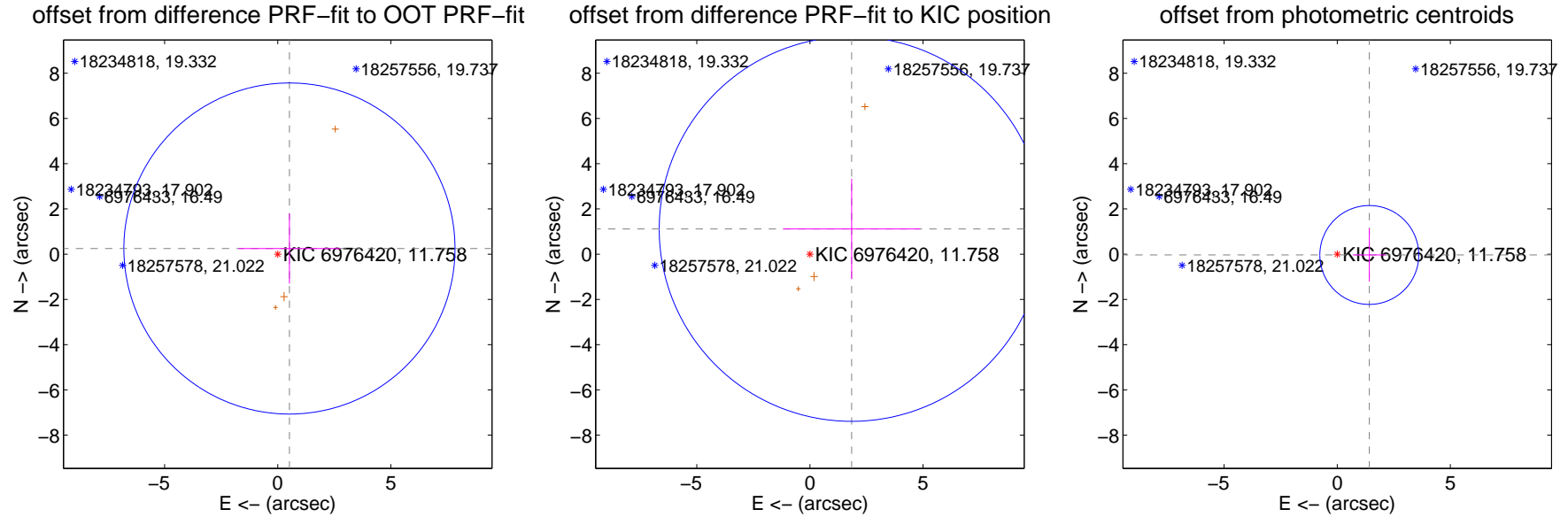
DV Centroid Data

Supplemental centroid analysis for 006976420-09. **Kepler magnitude: 11.76.** Transit SNR 10.08

There are 0 quarters with good PRF difference image offsets

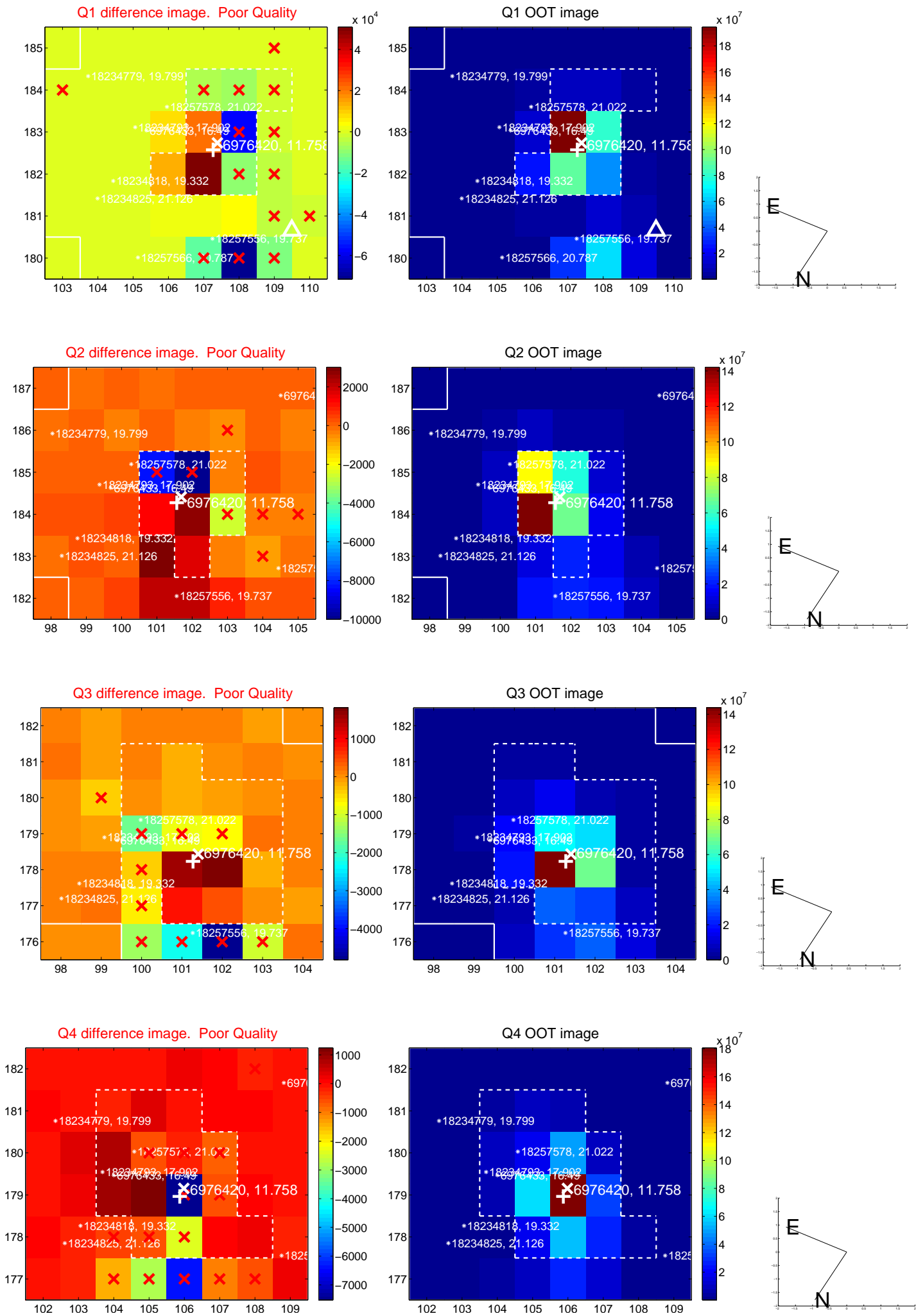
The direct PRF centroid is offset from the target star catalog position by about 0.89 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.574 ± 2.439	0.24	-0.518 ± 2.251	0.249 ± 1.545
PRF-fit source offset from KIC position	2.154 ± 2.835	0.76	-1.844 ± 3.028	1.113 ± 2.218
photometric centroid source offset	1.42 ± 0.73	1.95	-1.42 ± 0.73	-0.04 ± 1.17

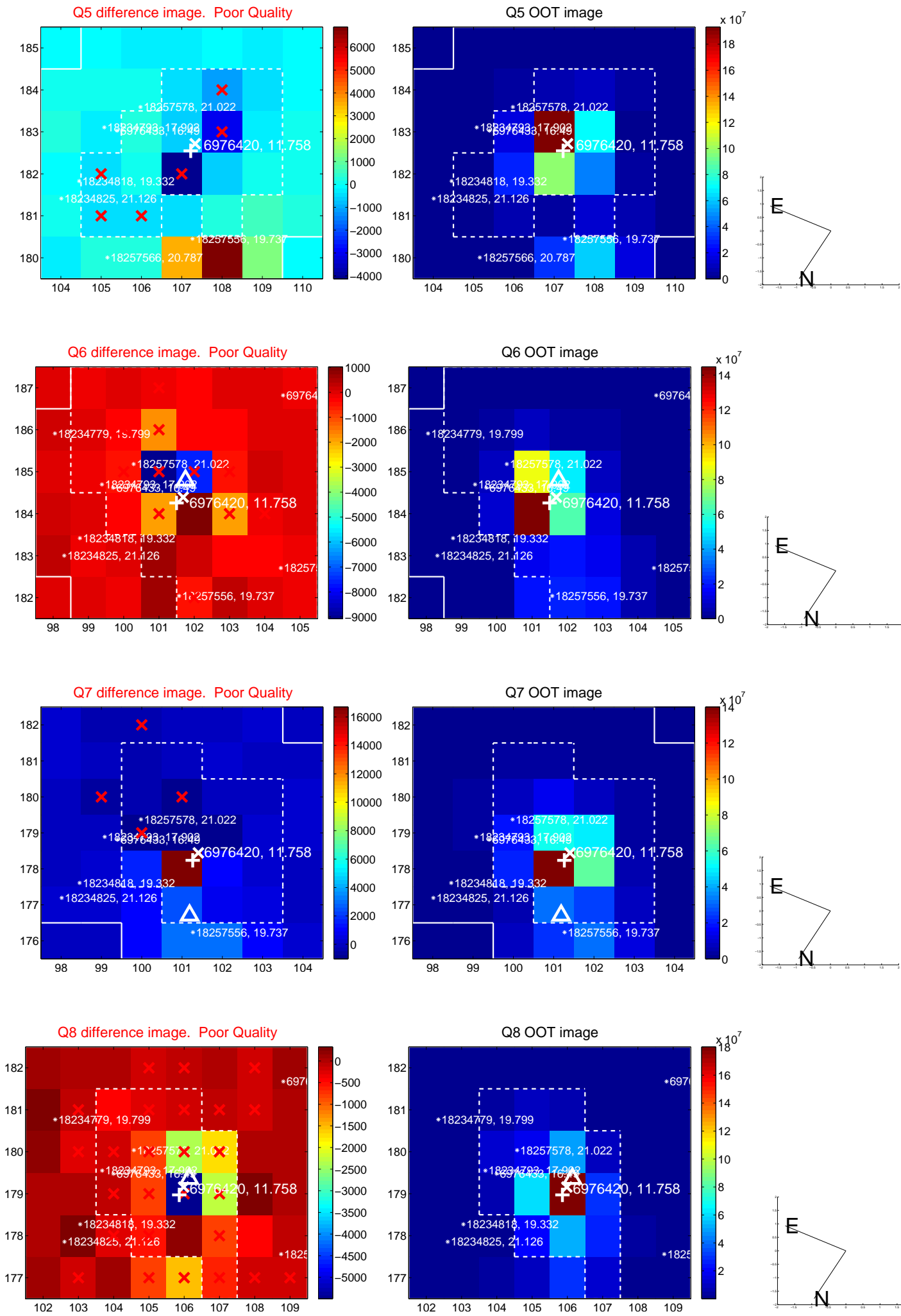


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

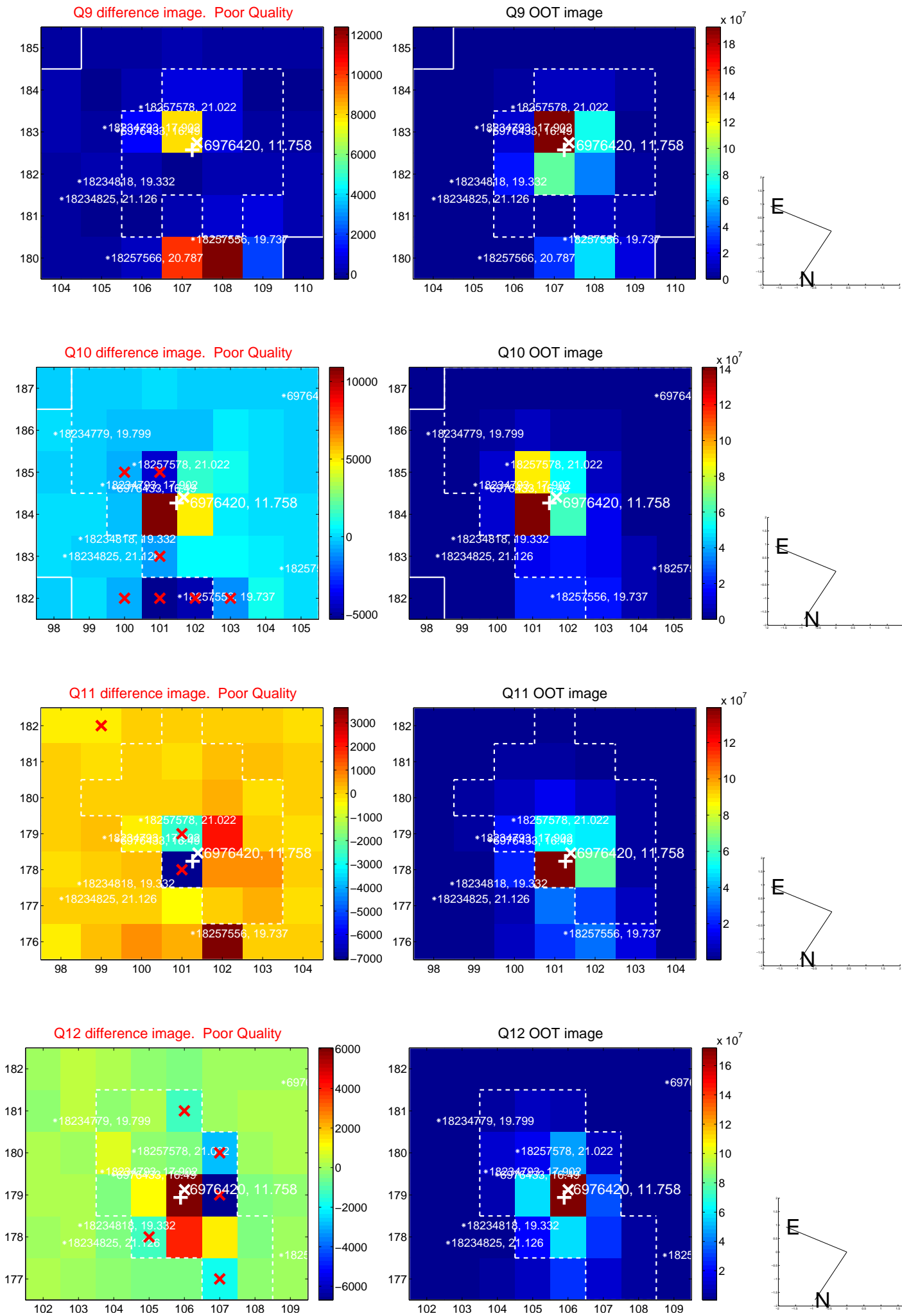
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



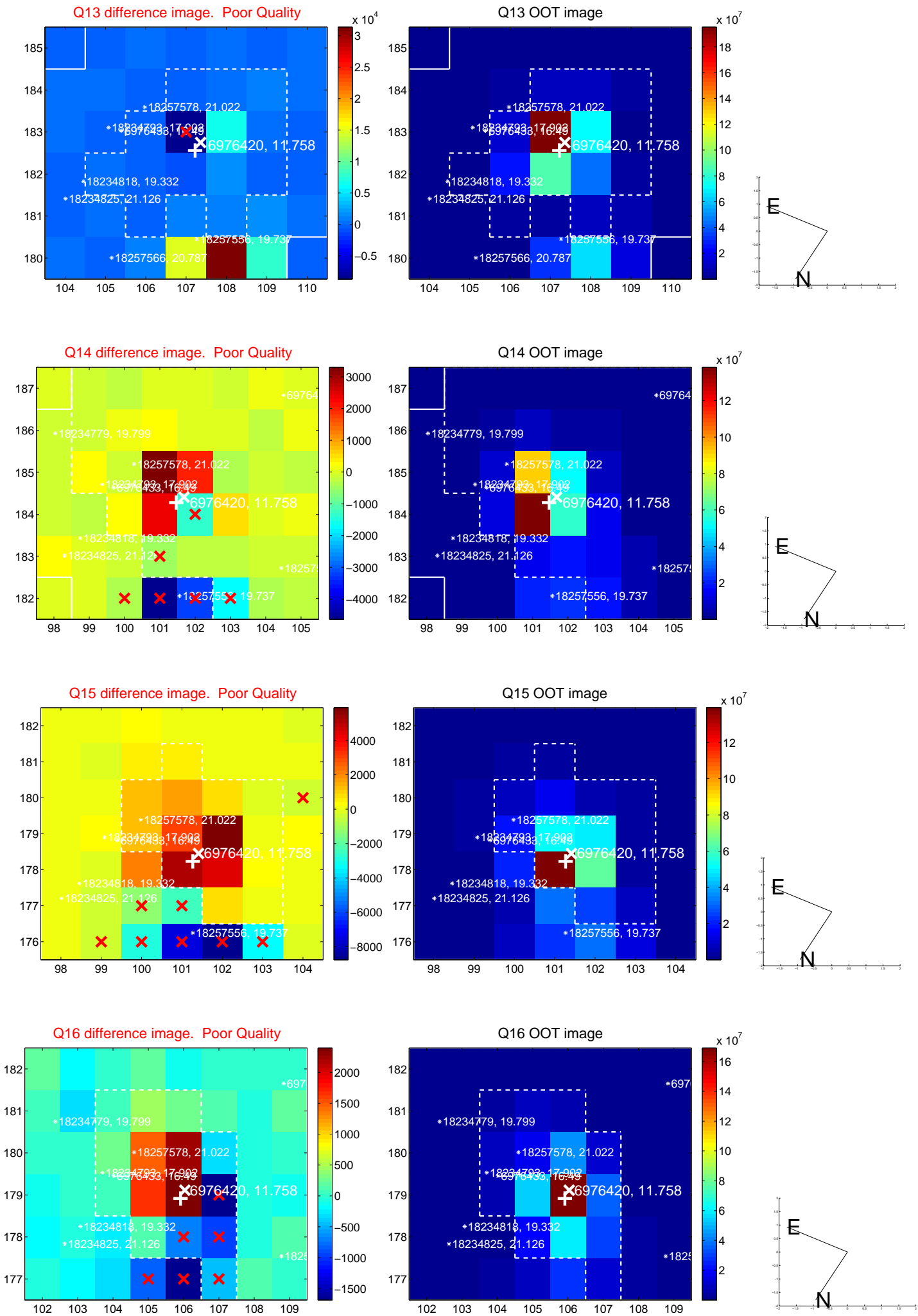
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



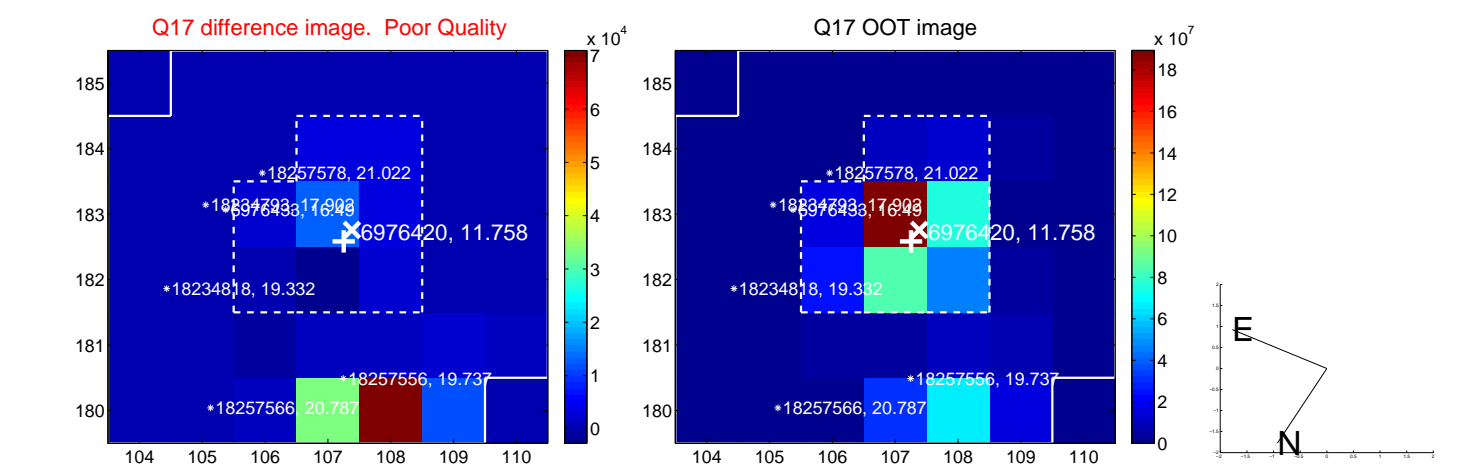
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



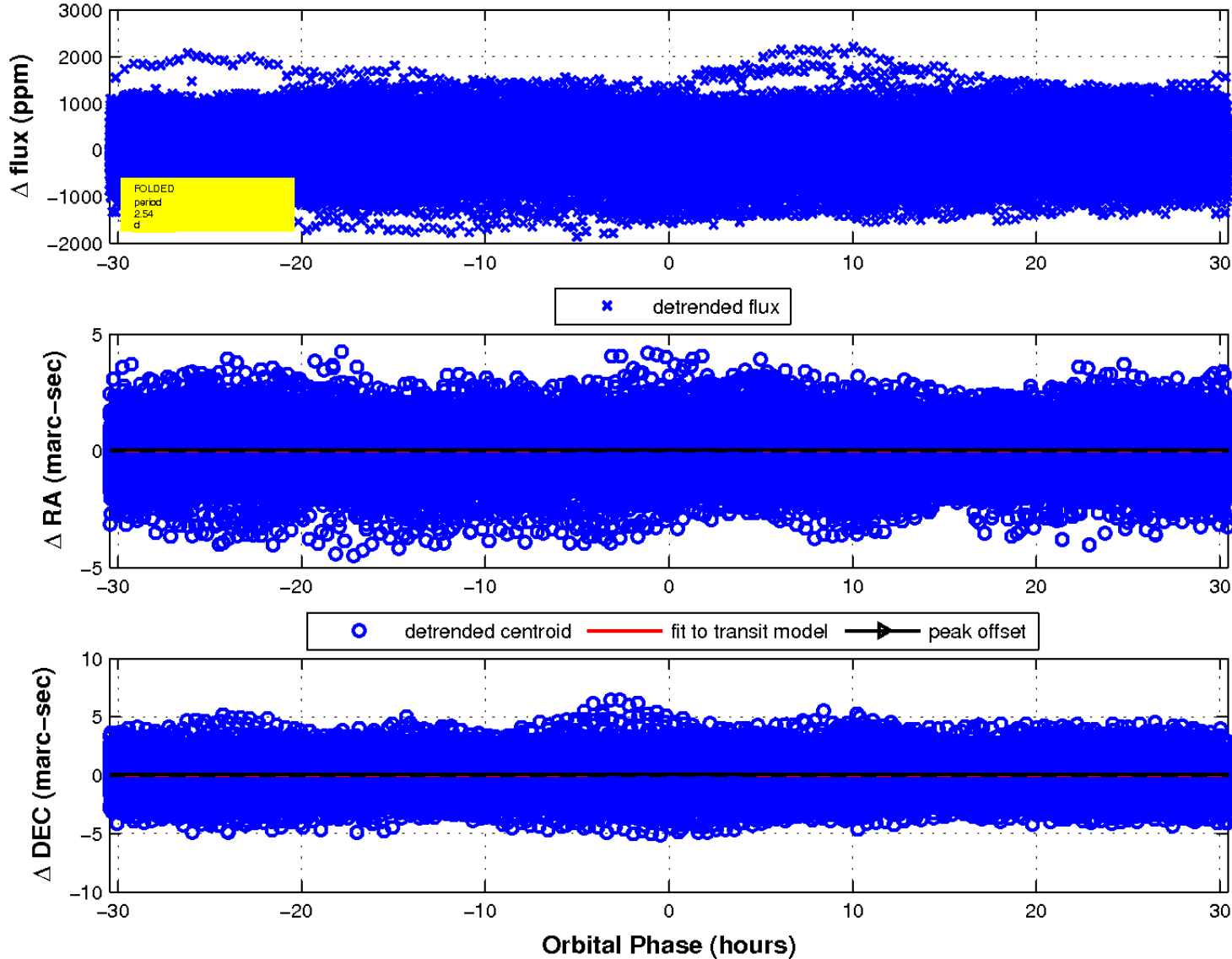
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 9 of 9



UKIRT Image

