

KIC 010067340

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})
010067340-01	OBS	No	638.379363	224.387840	2111.8	5.428	24.4	7.6	0.32	3407	1.47	0.01
010067340-02	OBS	No	345.161189	238.570055	1871.5	13.136	15.5	6.7	0.32	3407	1.44	0.03
010067340-03	OBS	No	396.787463	459.896158	2423.0	4.388	14.8	6.6	0.32	3407	1.79	0.02
010067340-04	OBS	No	227.390338	214.978229	1314.9	3.665	13.9	6.3	0.32	3407	1.20	0.05
010067340-05	OBS	No	640.353440	226.233368	2386.7	5.270	14.0	8.2	0.32	3407	1.57	0.01
010067340-06	OBS	No	474.946108	561.719411	2073.5	7.158	12.7	6.8	0.32	3407	1.46	0.02
010067340-07	OBS	No	254.021862	205.267117	1723.0	7.888	10.3	7.1	0.32	3407	1.37	0.04
010067340-08	OBS	No	513.372761	283.587764	904.9	5.000	11.9	-1.0	0.32	3407	0.96	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010067340-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

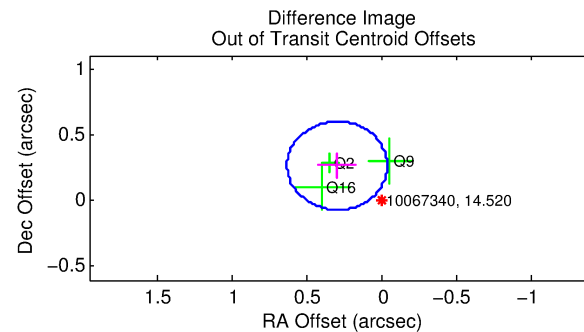
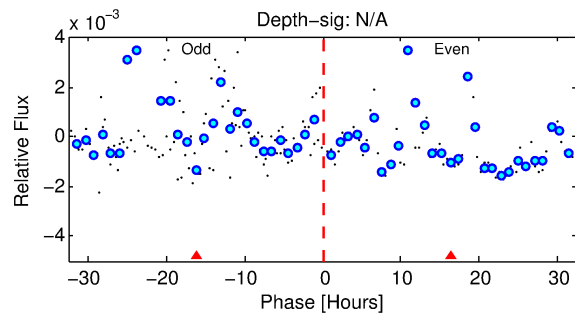
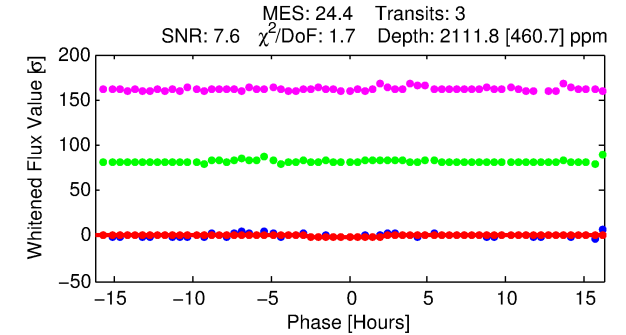
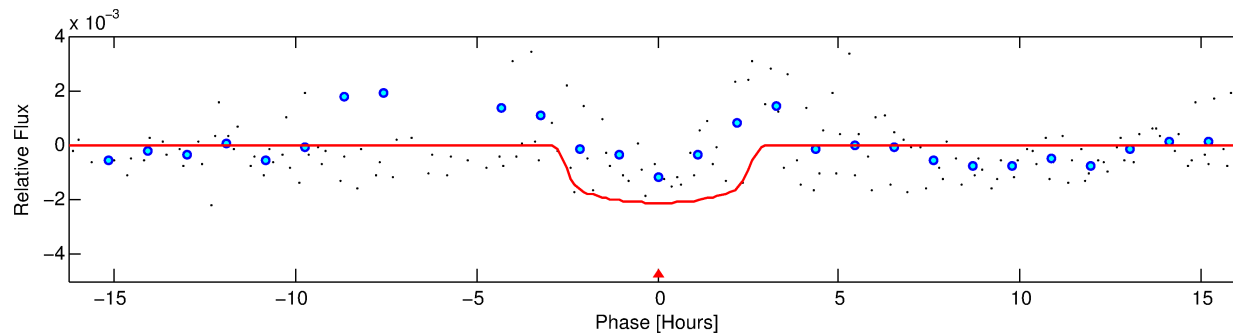
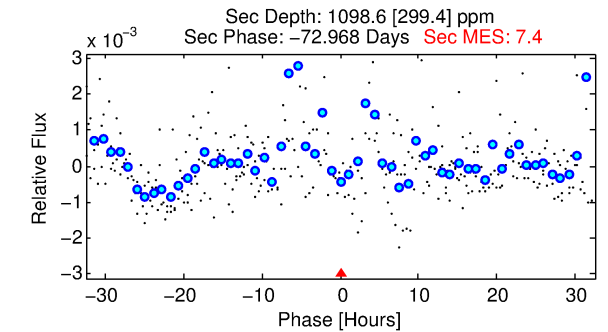
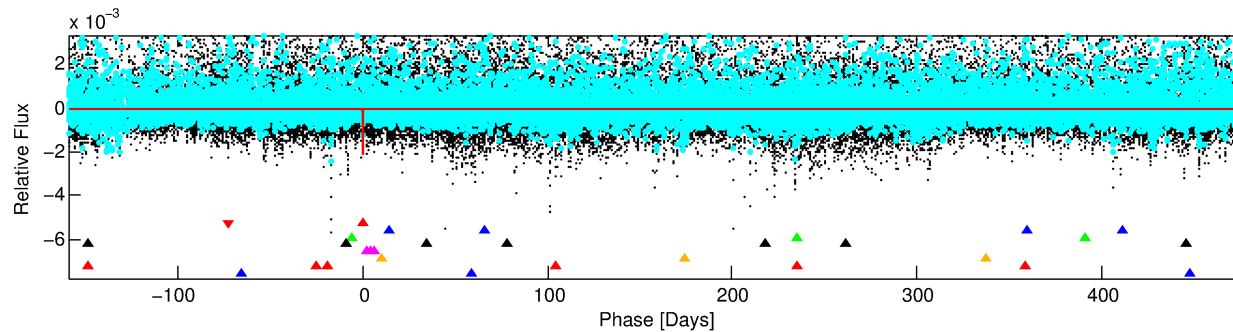
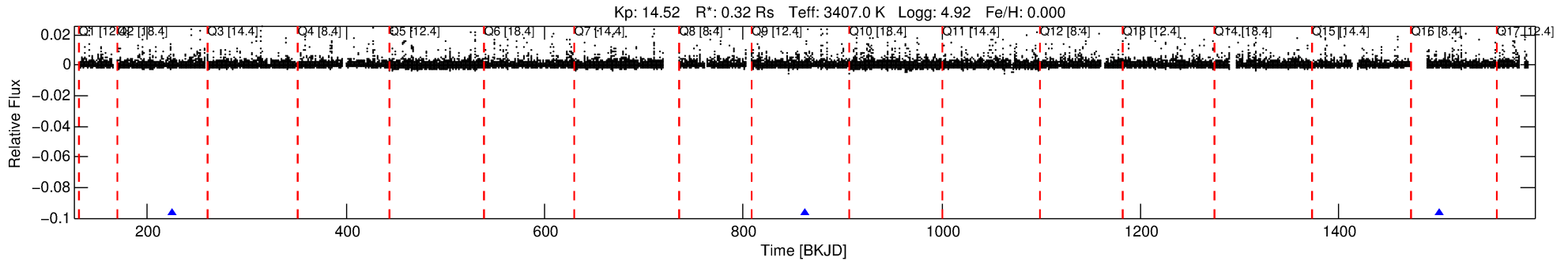
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010067340-01

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 1 of 8 Period: 638.379 d



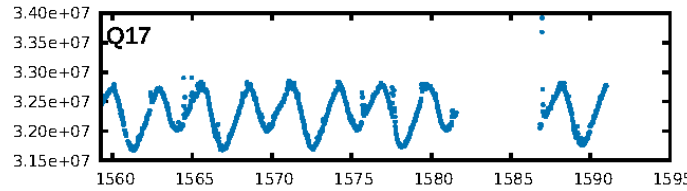
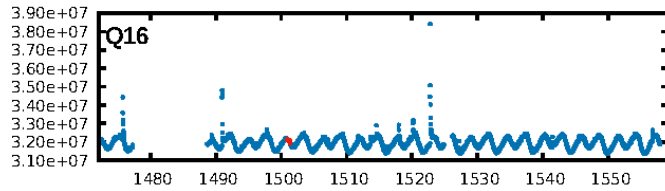
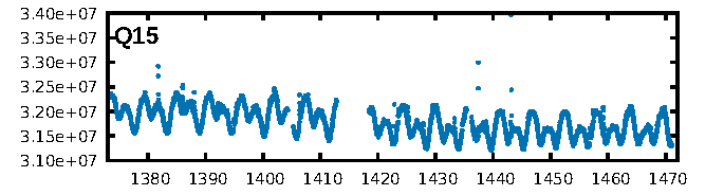
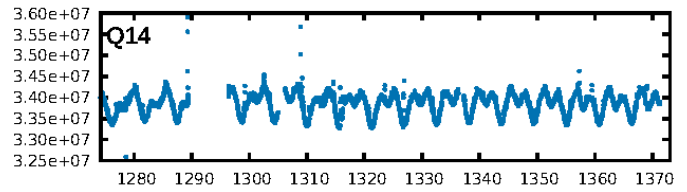
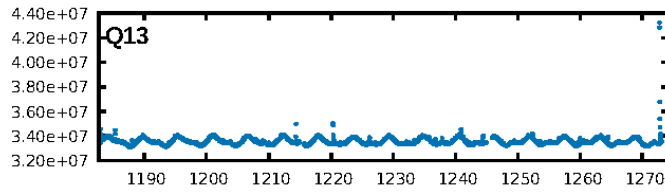
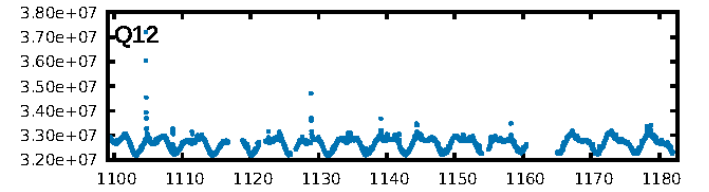
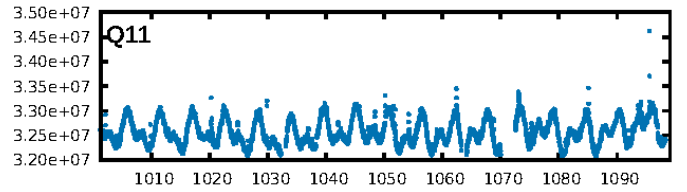
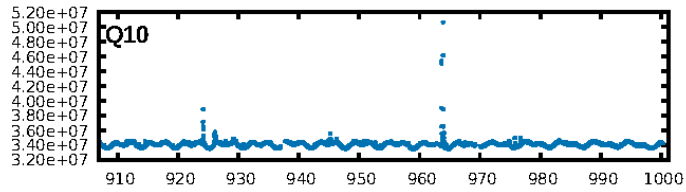
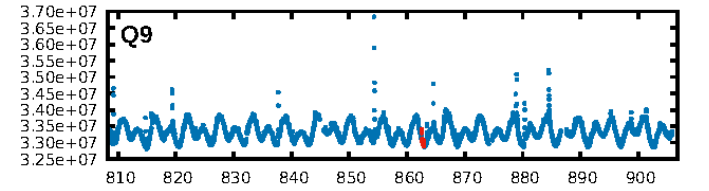
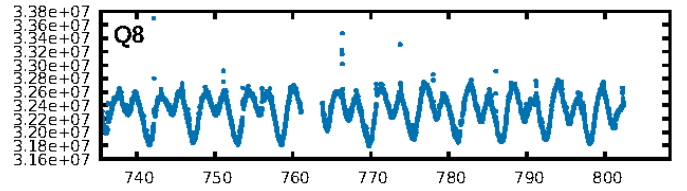
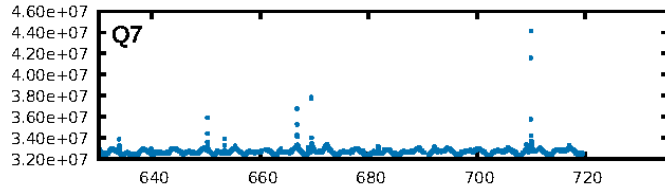
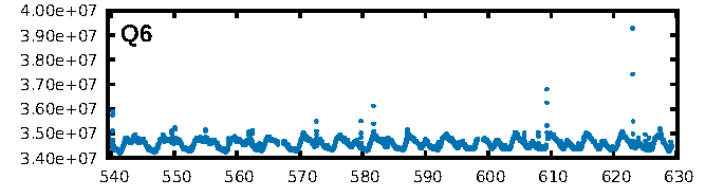
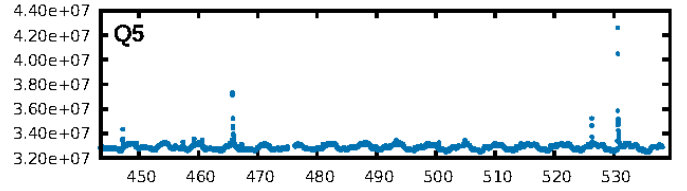
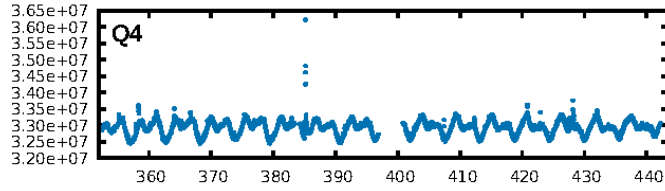
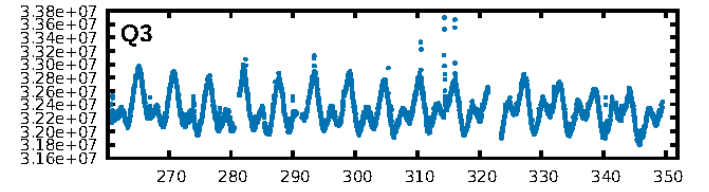
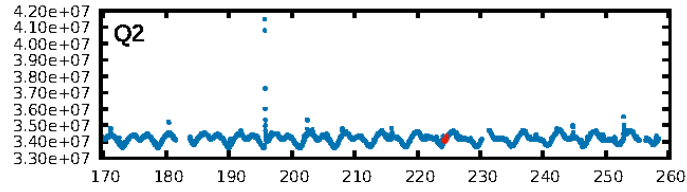
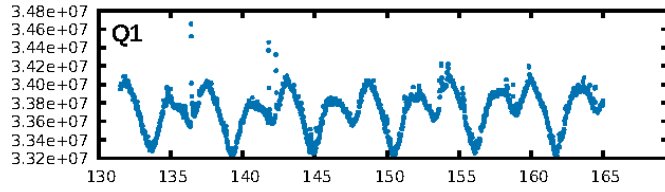
DV Fit Results:

Period = 638.37936 [0.00728] d
Epoch = 224.3878 [0.0109] BKJD
Rp/R* = 0.0415 [0.0431]
a/R* = 935.66 [4061.94]
b = 0.01 [300.94]
Seff = 0.01 [0.00]
Teq = 86 [2] K
Rp = 1.47 [1.53] Re
a = 0.9934 [0.0797] AU
Ag = 277055.66 [581251.39] [0.48σ]
Teffp = 3045 [1596] K [1.85σ]

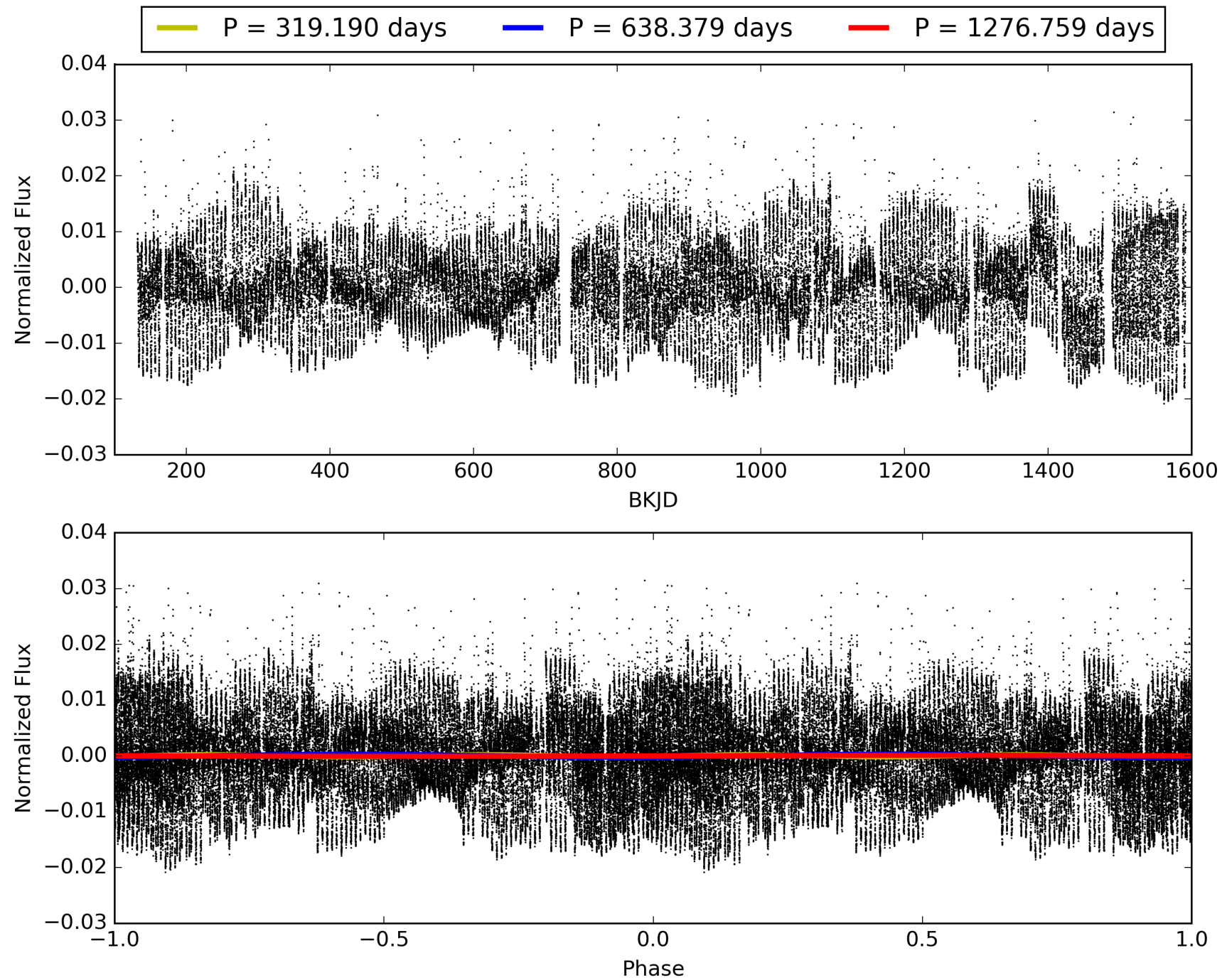
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [406.53σ]
LongPeriod-sig: 100.0% [6.26σ]
ModelChiSquare2-sig: 61.6%
ModelChiSquareGof-sig: 94.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4807
Centroid-sig: 73.5%
Centroid-so: 0.306 arcsec [0.66σ]
OotOffset-rm: 0.395 arcsec [3.55σ]
KicOffset-rm: 0.399 arcsec [2.42σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 010067340-01, PDC Light Curves

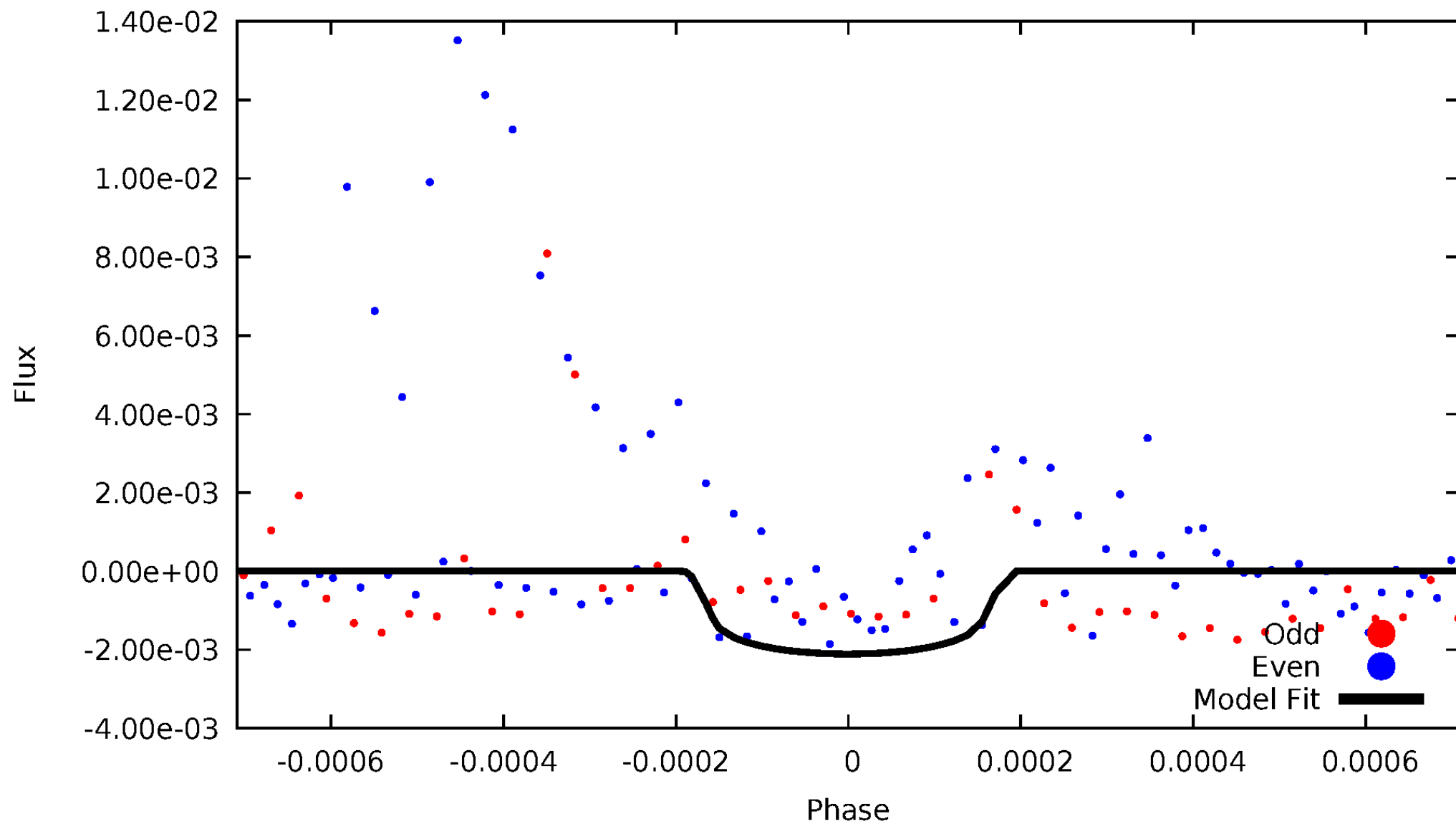


TCE 010067340-01



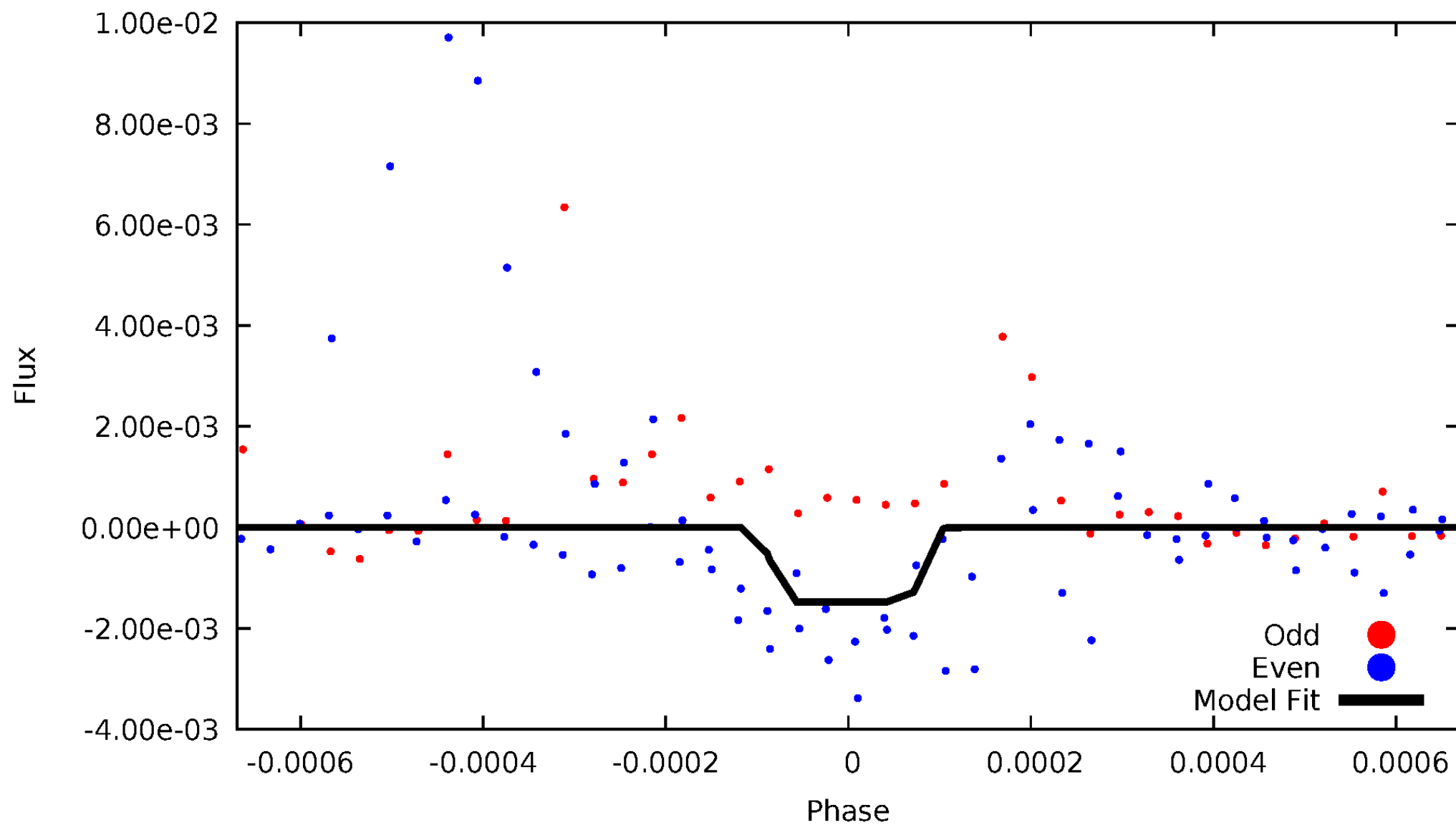
DV Odd/Even

TCE 010067340-01



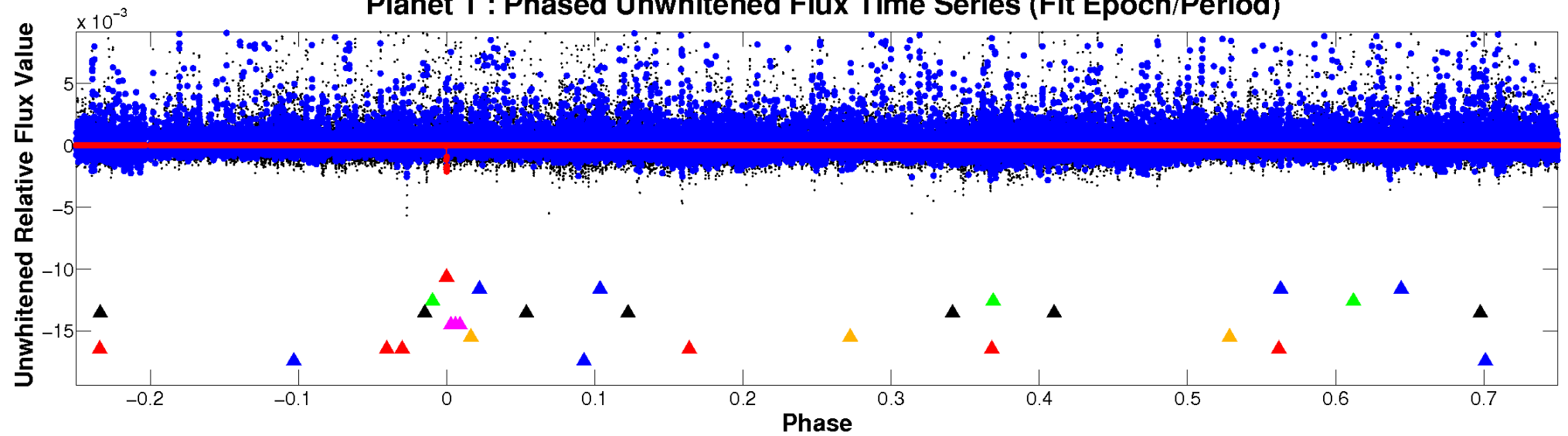
ALT Odd/Even

TCE 010067340-01

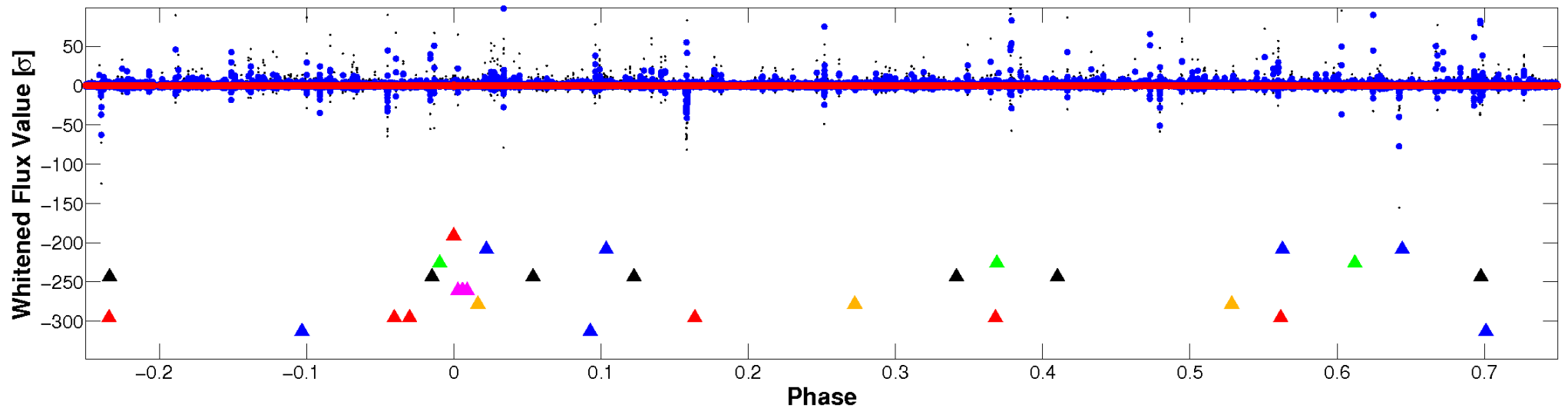


Non-Whitened Vs. Whitened Light Curve

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

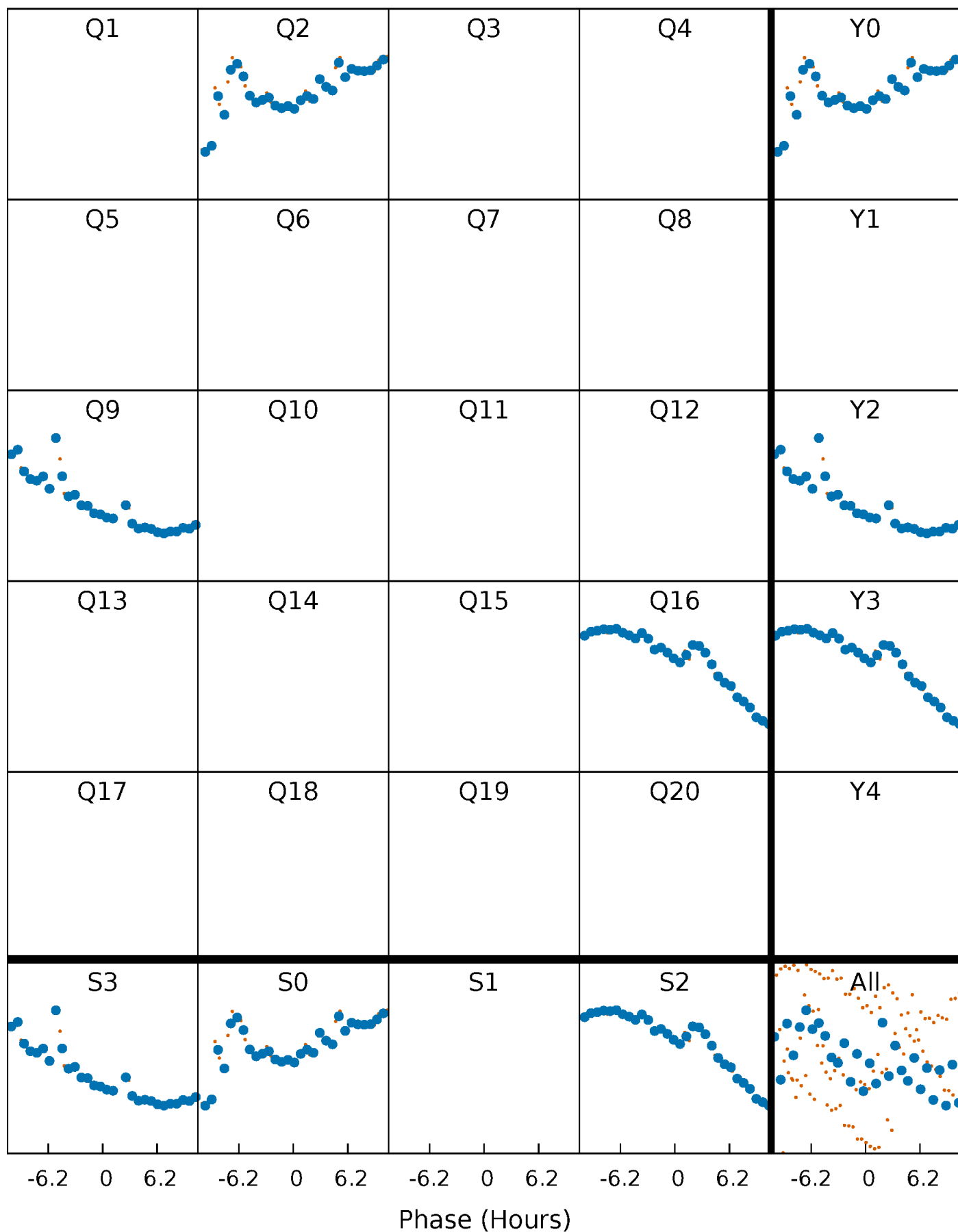


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



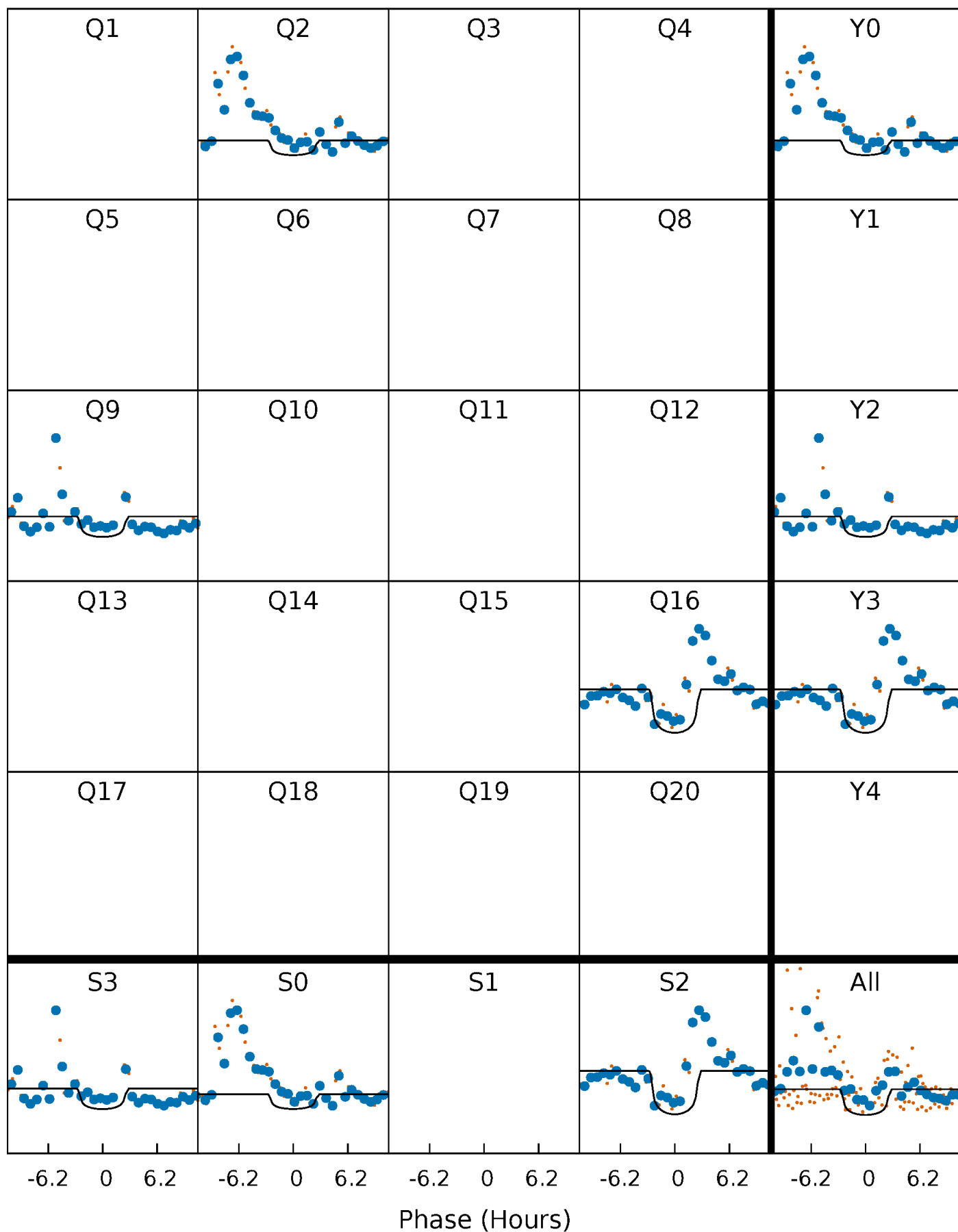
PDC Quarter-Phased Transit Curves

TCE 010067340-01 P=638.379363 Days $T_0=224.387840$ (BKJD)



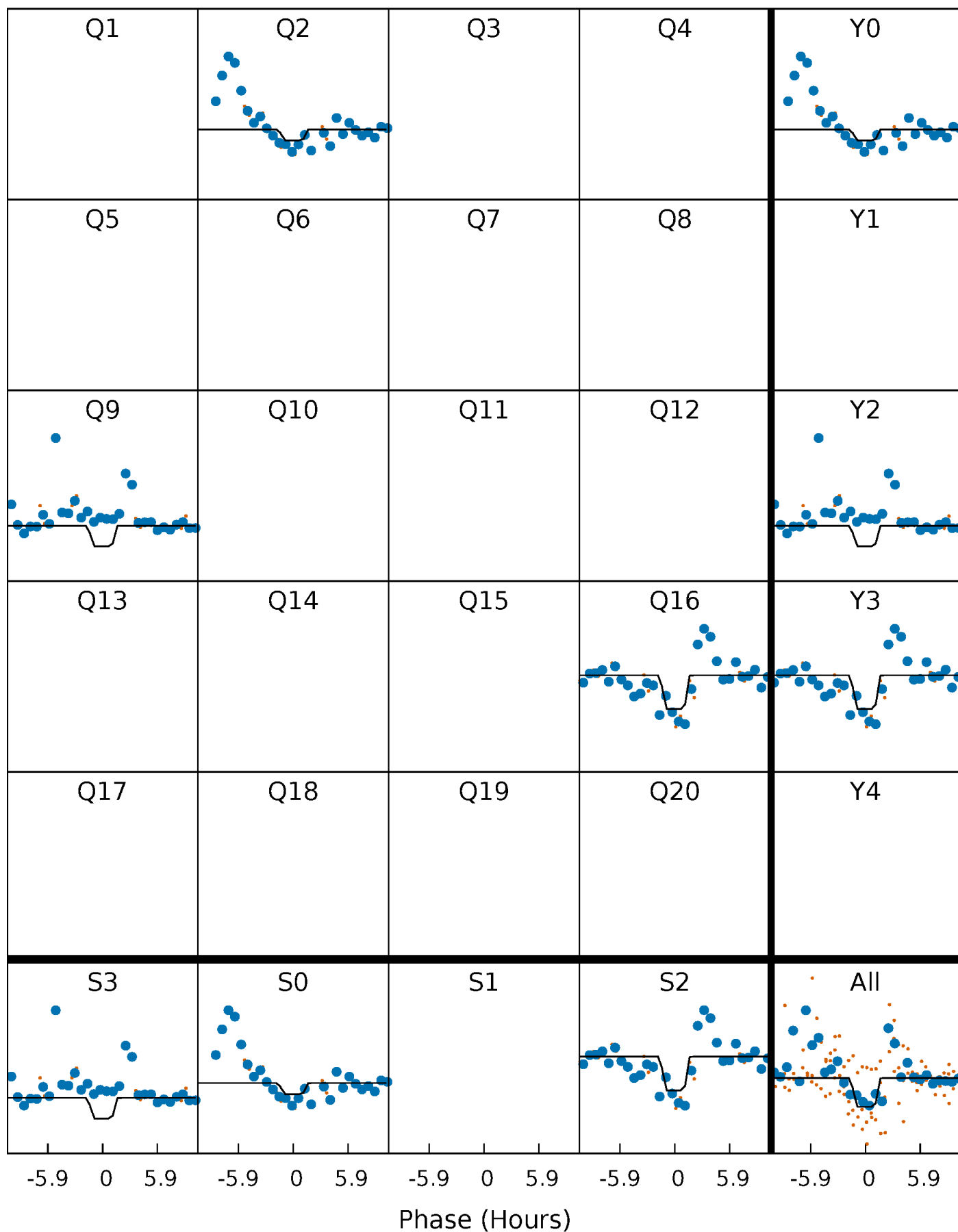
DV Quarter-Phased Transit Curves

TCE 010067340-01 P=638.379363 Days $T_0=224.387840$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

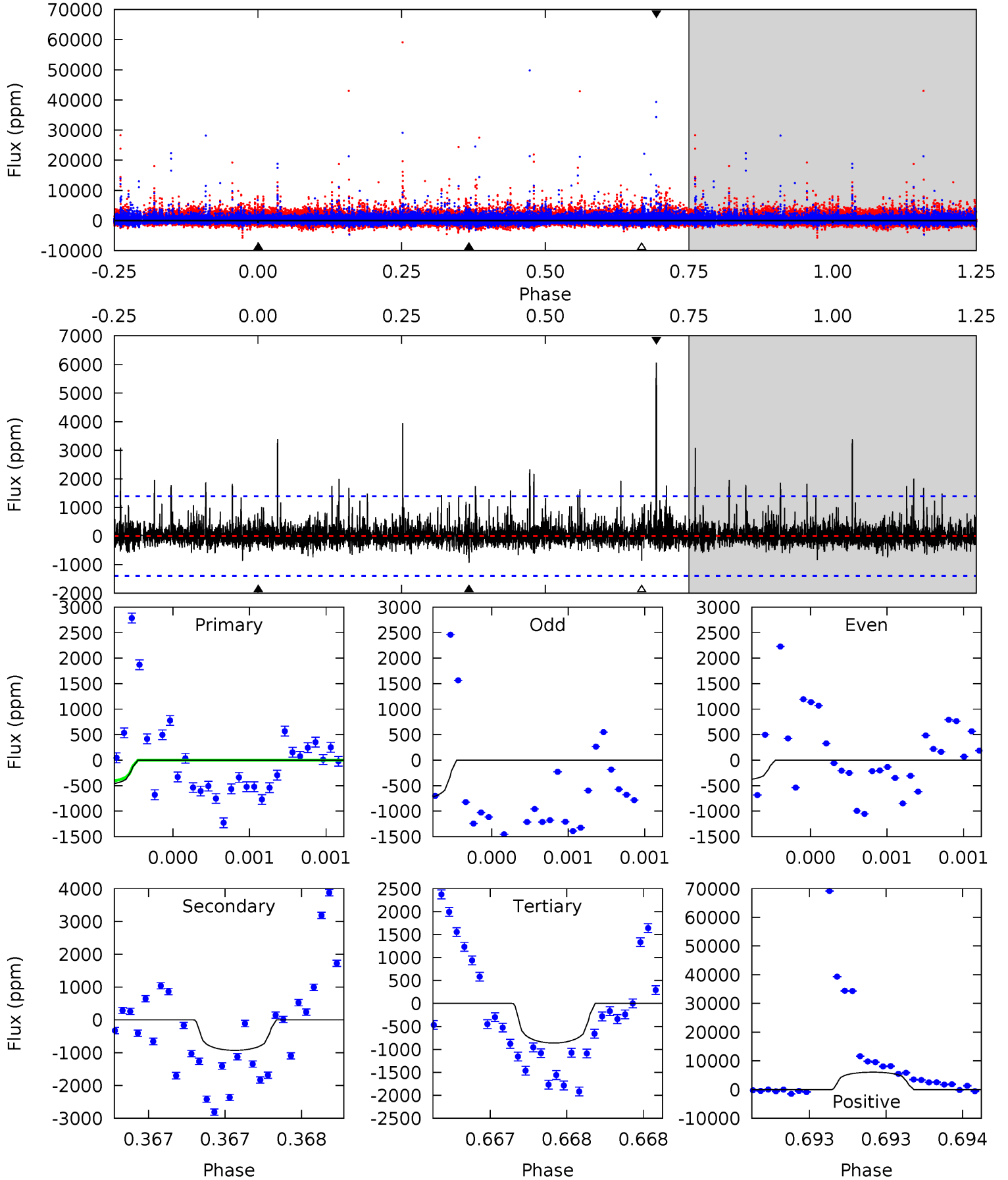
TCE 010067340-01 P=638.364848 Days $T_0=224.398490$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-01, P = 638.379363 Days, E = 224.387840 Days

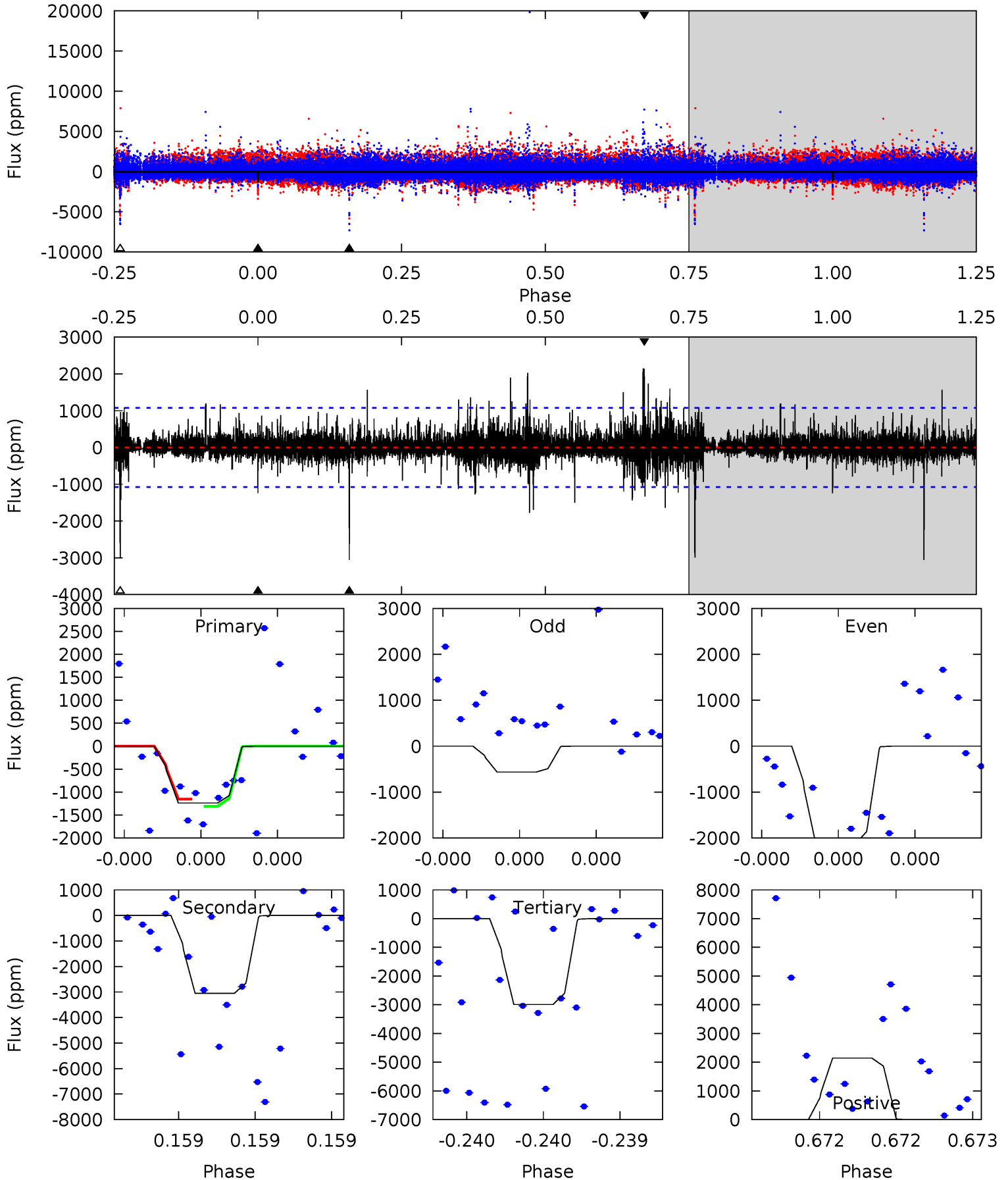
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.97	3.74	3.47	24.4	5.63	3.57	1.34	-1.50	-22.5	0.27	-20.7	0.23	0.74	0.87	0.33



Alt Model-Shift Uniqueness Test

010067340-01, P = 638.364848 Days, E = 224.398490 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.59	16.2	15.9	11.4	5.74	3.73	1.41	-9.32	-4.81	0.33	4.84	3.12	0.67	0.41	0.41



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-929 ± 248	$1.75^{+1.38}_{-1.14}$	120^{+2}_{-3}	2931^{+1188}_{-430}	$160545^{+1177747}_{-114470}$
Alt.	-3054 ± 188	$1.69^{+1.48}_{-1.08}$	120^{+3}_{-3}	3549^{+1656}_{-589}	$567963^{+3807200}_{-401086}$

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

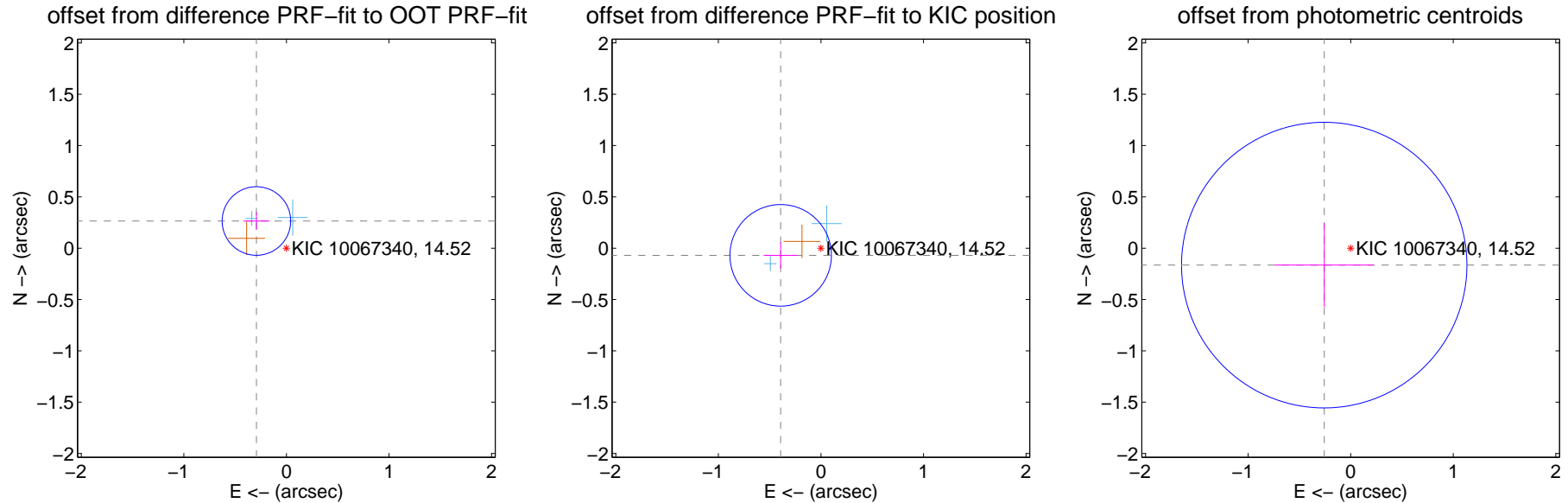
DV Centroid Data

Supplemental centroid analysis for 010067340-01. Kepler magnitude: 14.52. Transit SNR 7.57

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.395 ± 0.111	3.55	0.293 ± 0.128	0.265 ± 0.086
PRF-fit source offset from KIC position	0.399 ± 0.165	2.42	0.393 ± 0.166	-0.070 ± 0.128
photometric centroid source offset	0.31 ± 0.46	0.66	0.26 ± 0.48	-0.16 ± 0.41



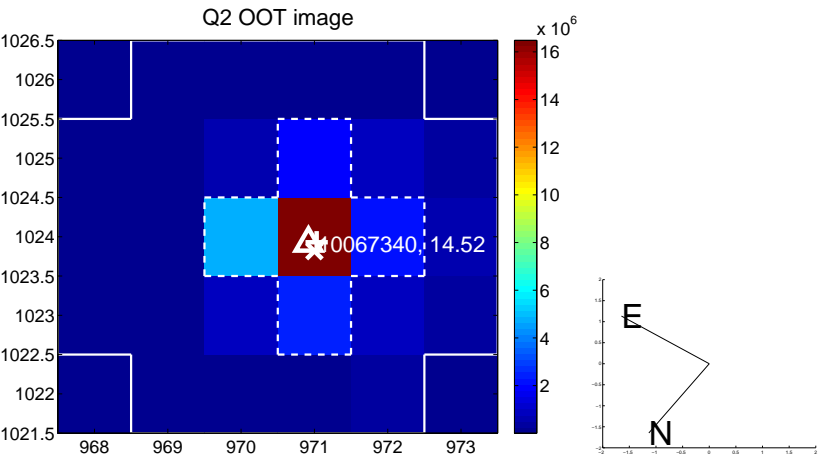
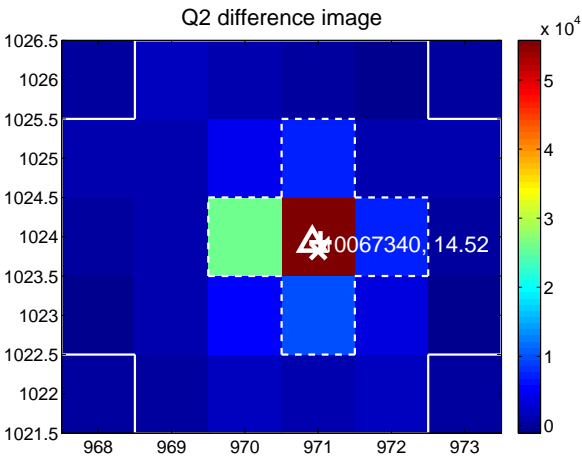
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

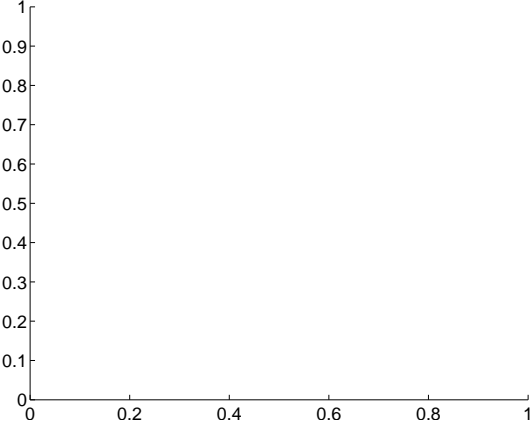
Q1 no difference image



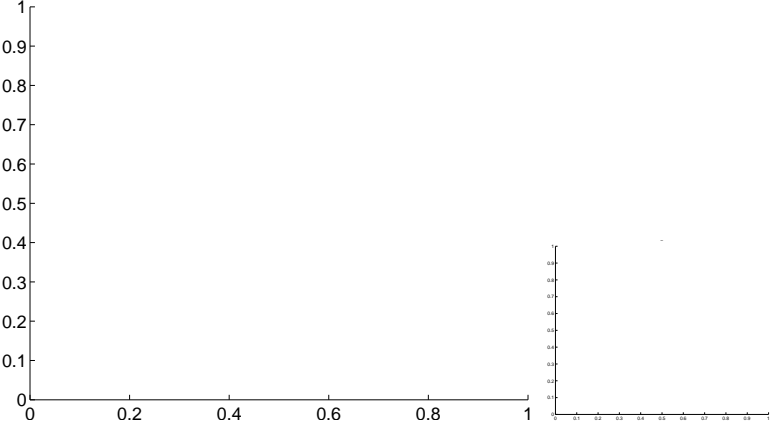
Q1 no OOT image



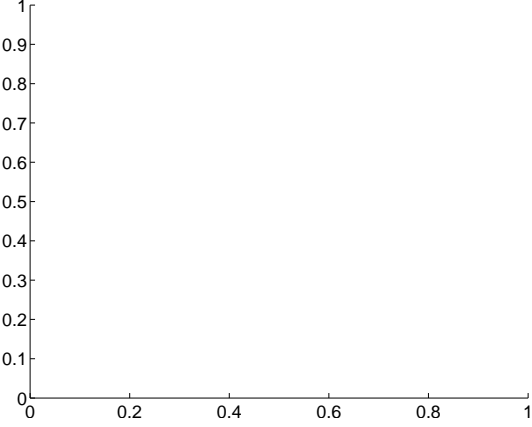
Q3 no difference image



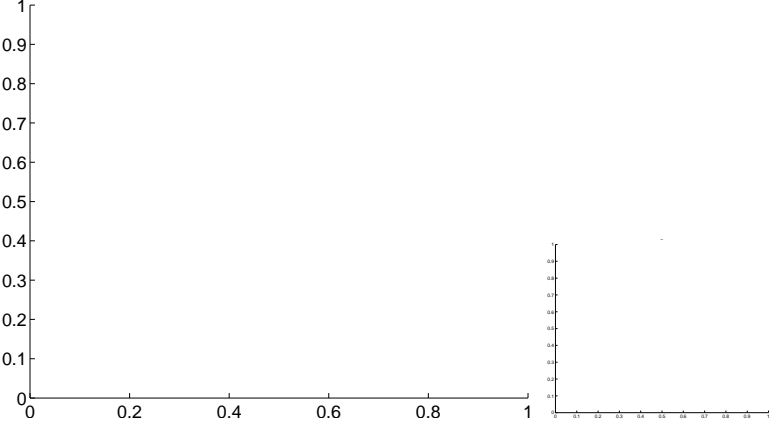
Q3 no OOT image



Q4 no difference image



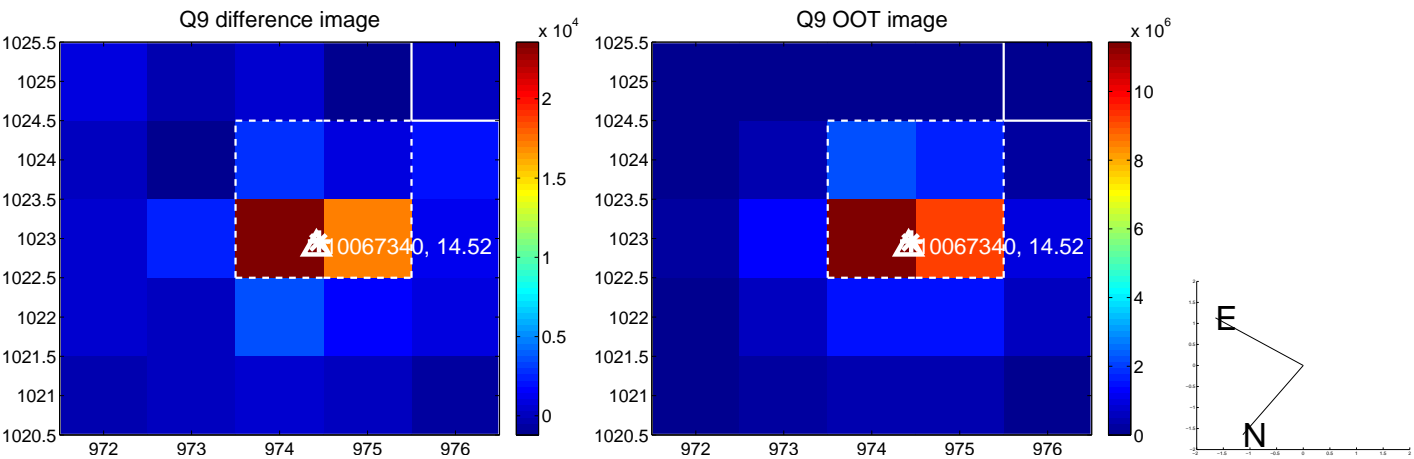
Q4 no OOT image



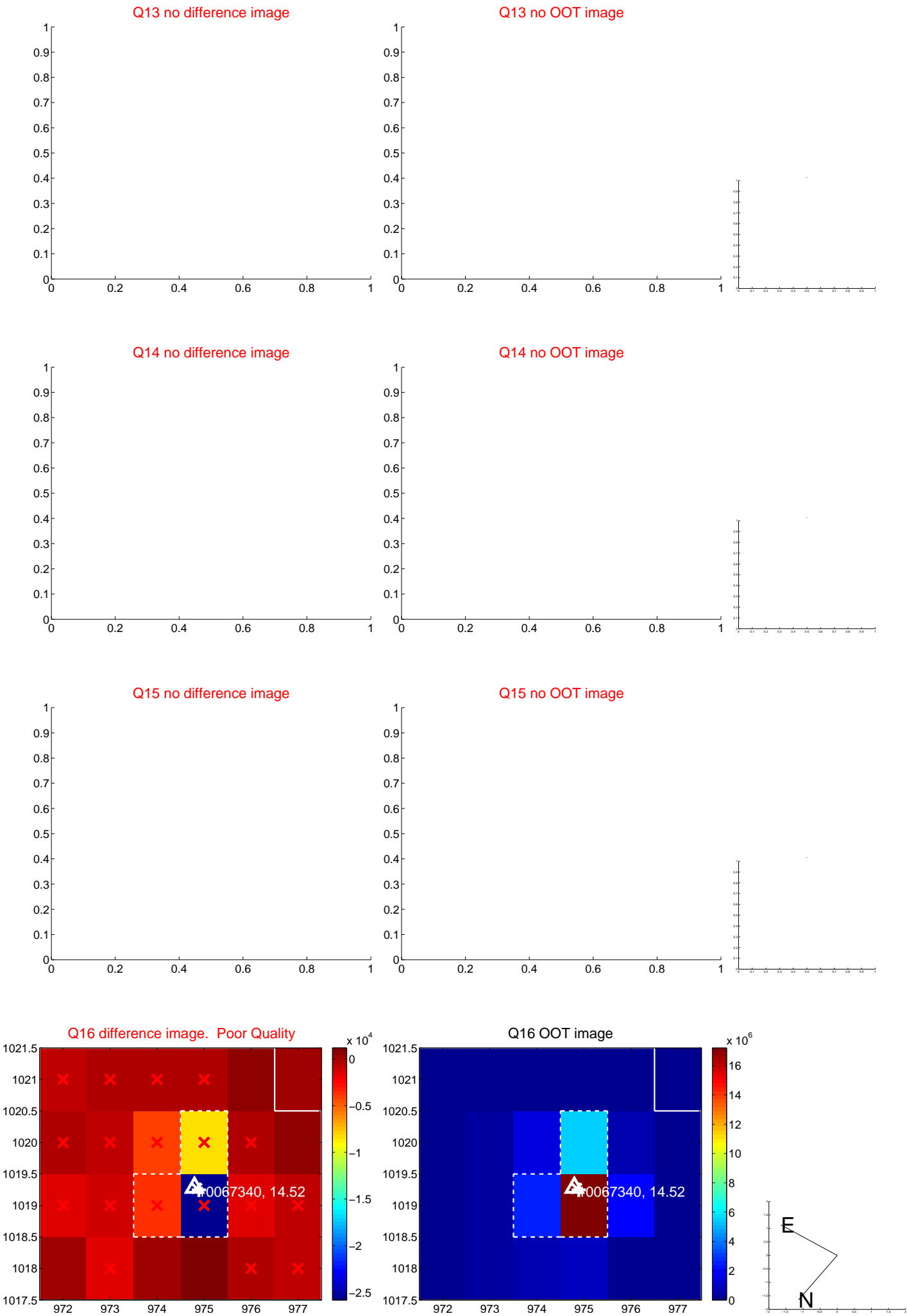
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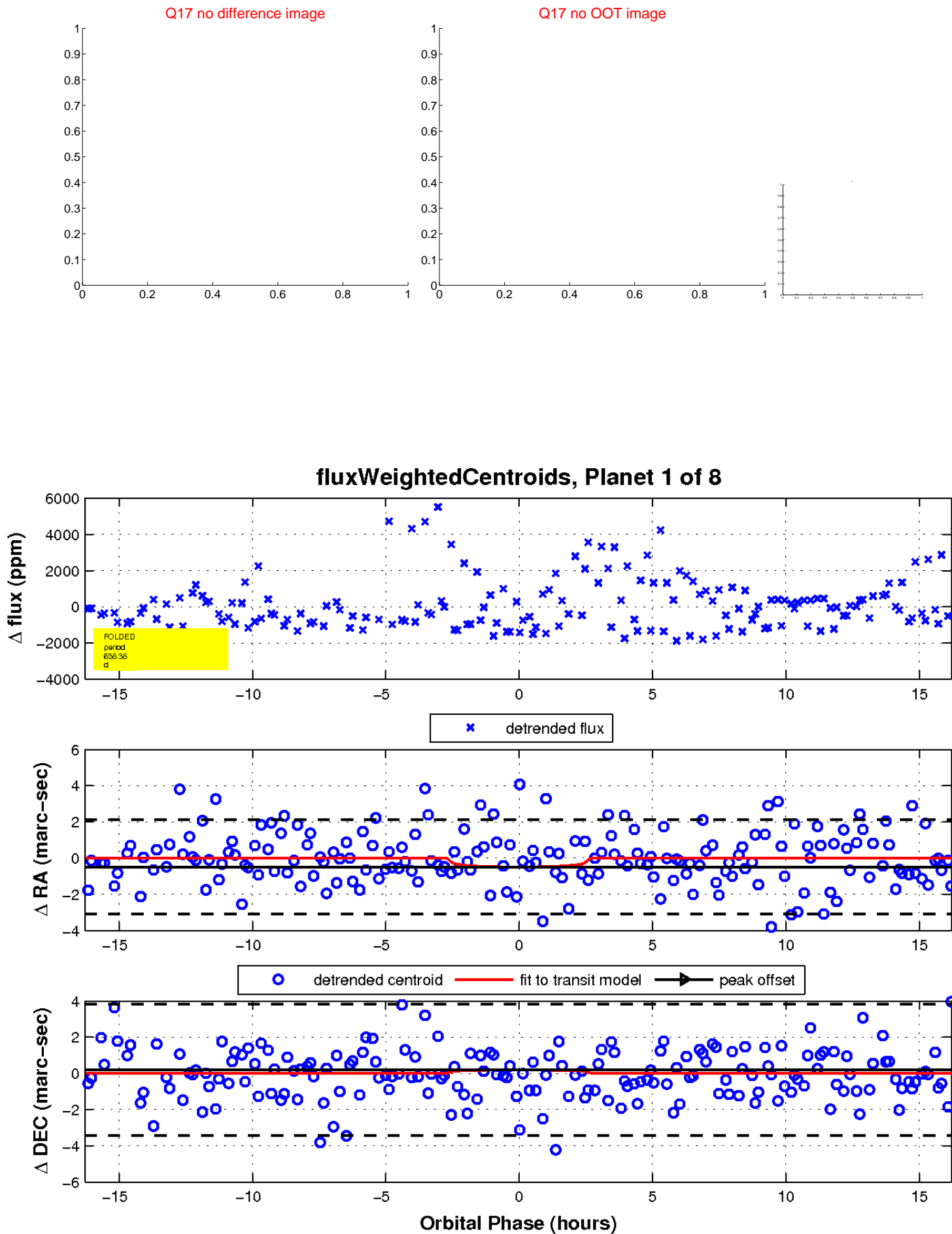
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white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

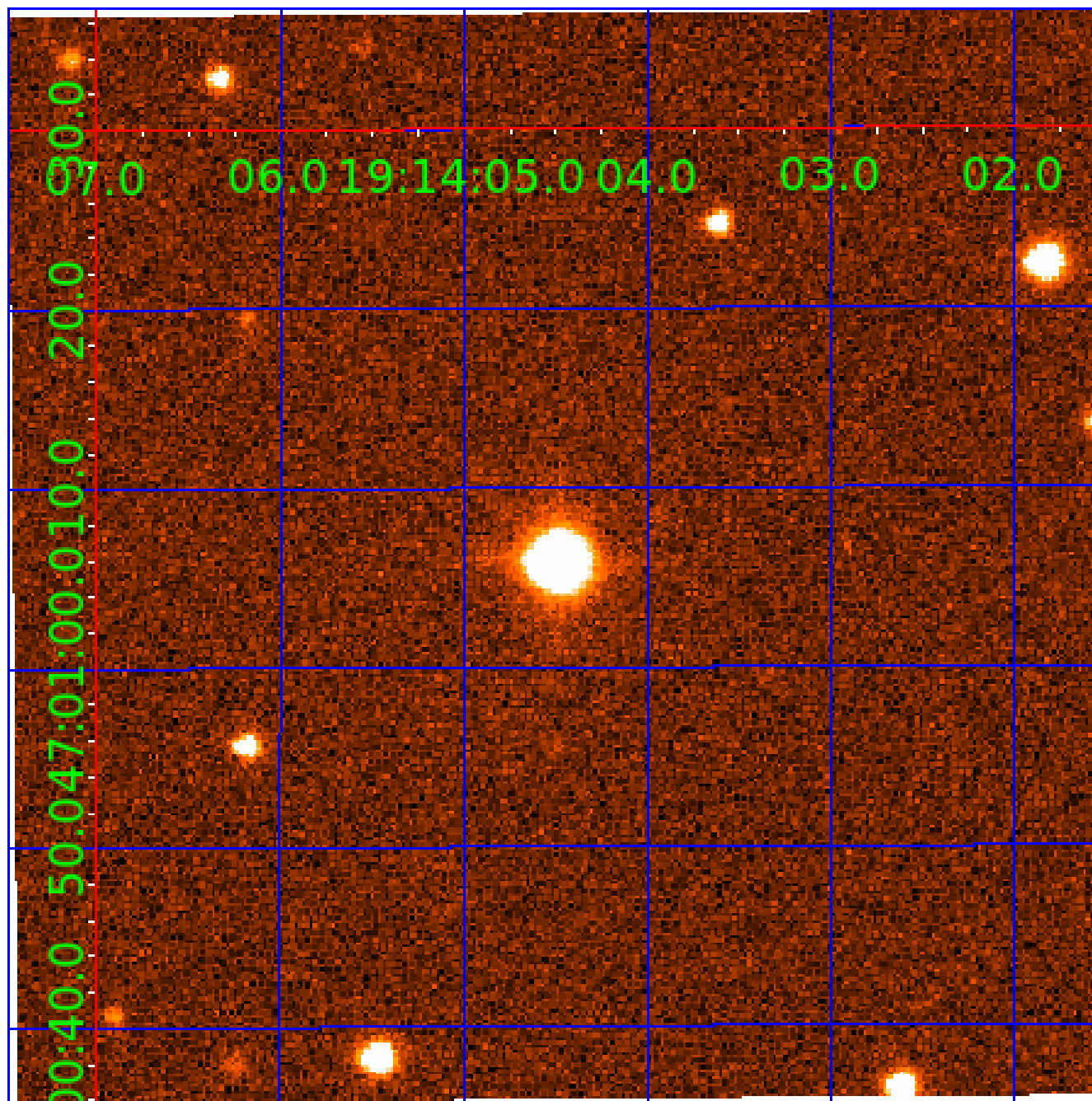


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UKIRT Image

Declination



KIC 010067340

Q1-17 DR25 TCE Parameters

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Robovetter Results

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010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

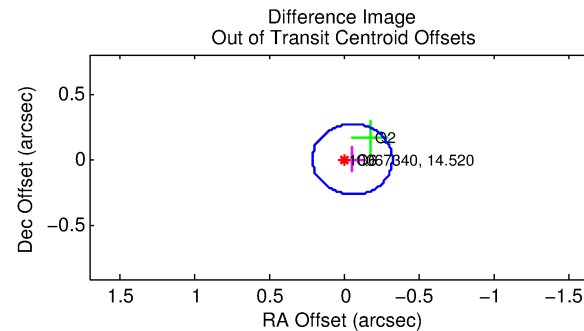
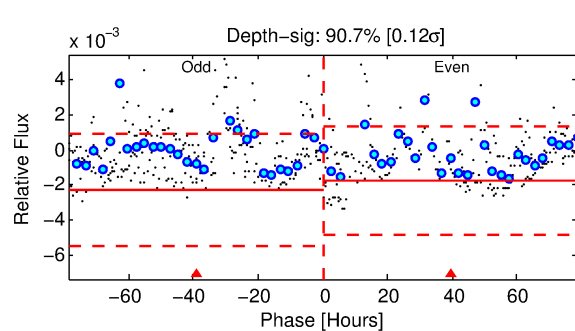
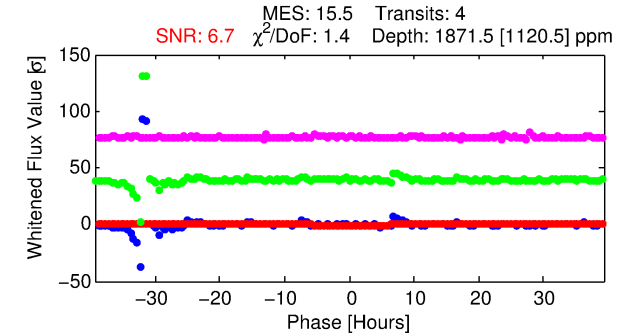
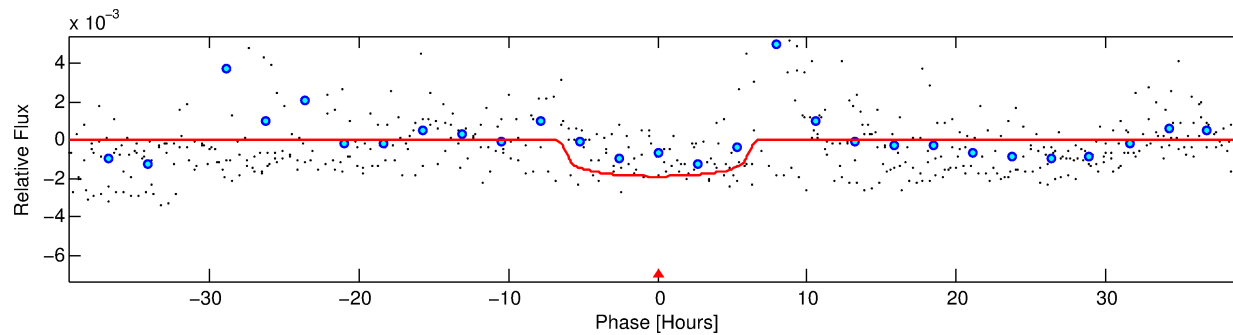
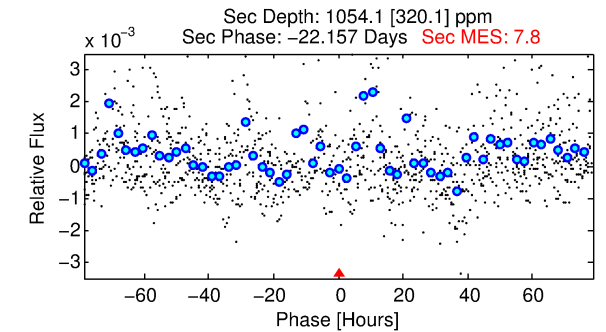
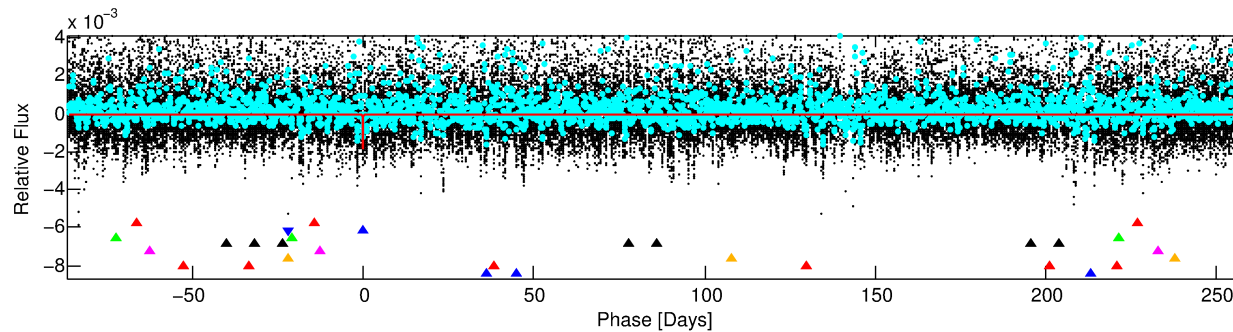
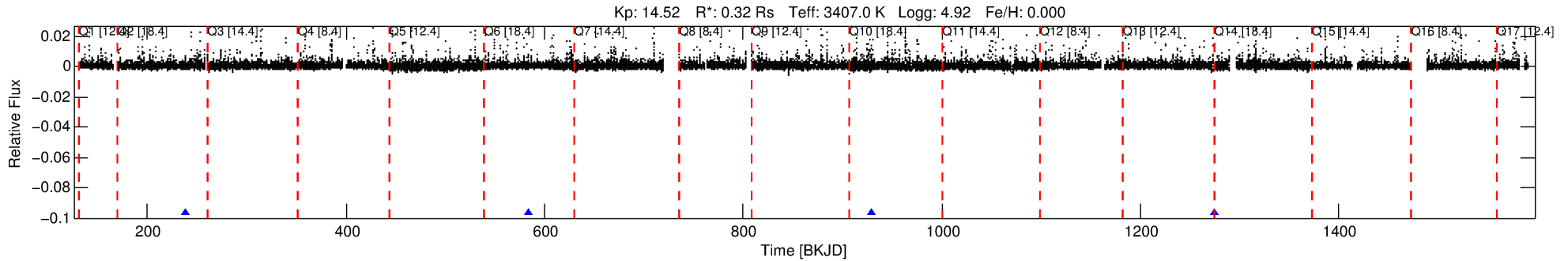
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010067340-02

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 2 of 8 Period: 345.161 d



DV Fit Results:

Period = 345.16119 [0.02820] d
Epoch = 238.5701 [0.0460] BKJD
Rp/R* = 0.0406 [0.0279]
a/R* = 178.95 [431.30]
b = 0.54 [3.22]
Seff = 0.03 [0.00]
Teq = 105 [3] K
Rp = 1.44 [1.00] Re
a = 0.6593 [0.0529] AU
Ag = 122270.42 [172346.88] [0.71σ]
Teffp = 3046 [1071] K [2.74σ]

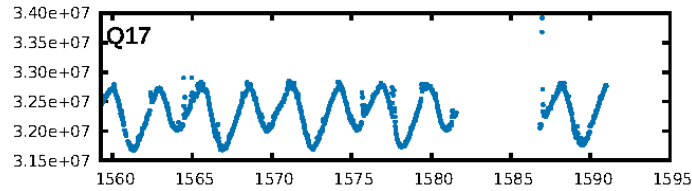
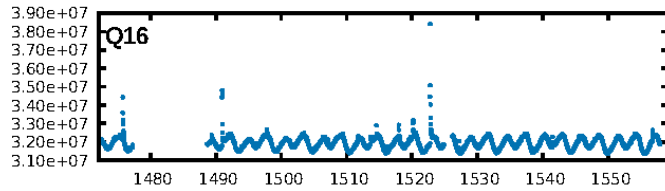
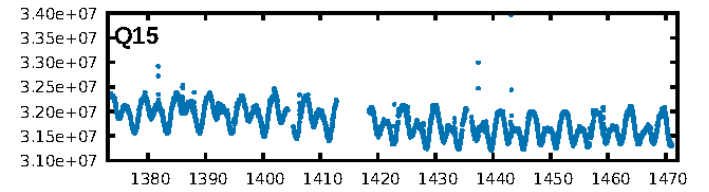
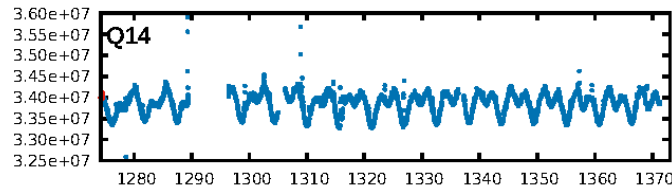
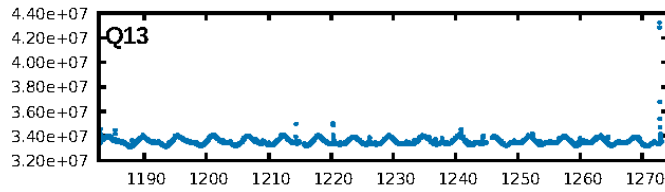
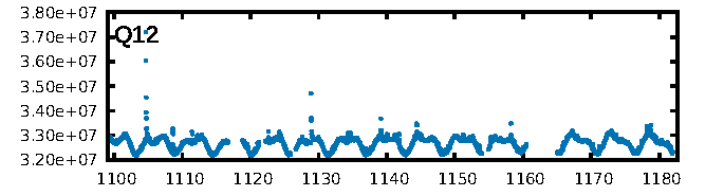
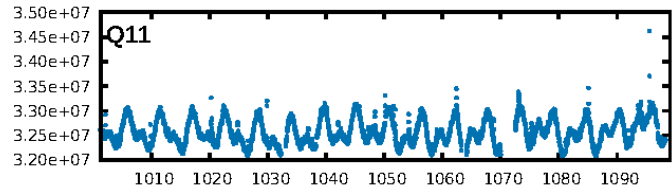
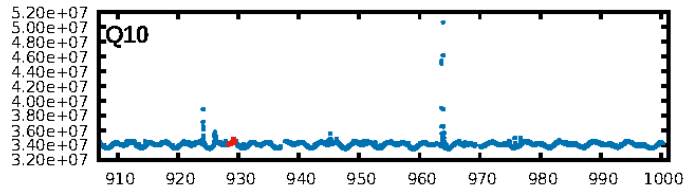
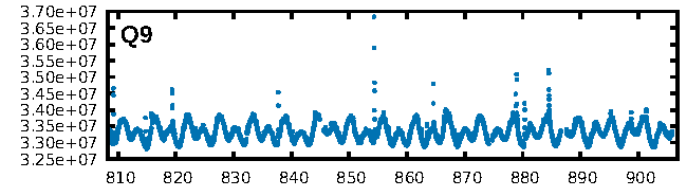
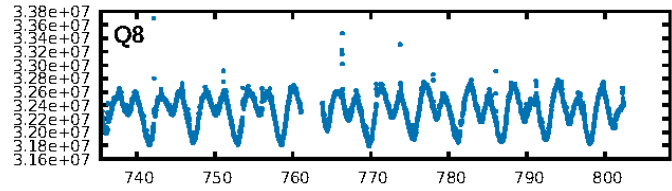
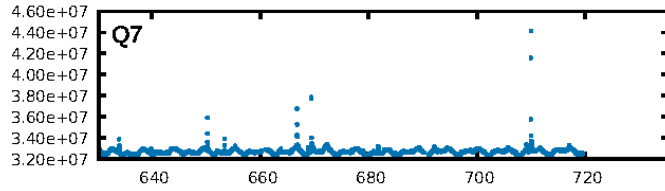
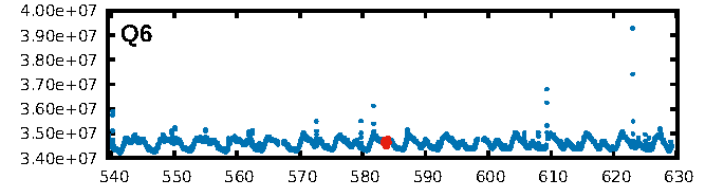
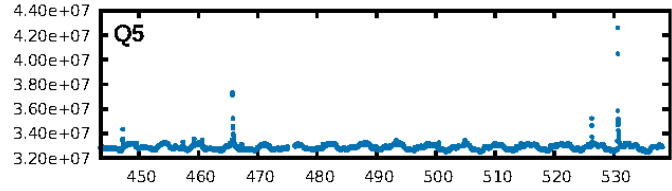
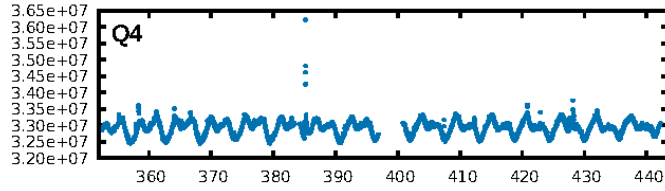
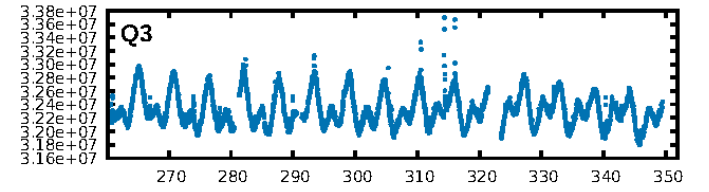
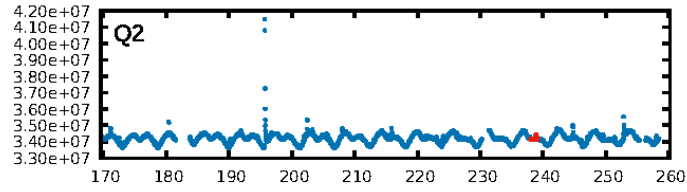
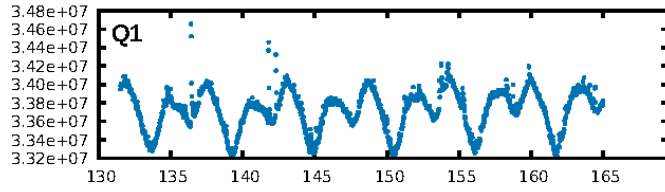
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [142.76σ]
LongPeriod-sig: 100.0% [89.47σ]
ModelChiSquare2-sig: 1.7%
ModelChiSquareGof-sig: 98.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.243
Centroid-sig: 45.3%
Centroid-so: 0.321 arcsec [0.79σ]
OotOffset-rm: 0.059 arcsec [0.67σ]
KicOffset-rm: 0.309 arcsec [3.23σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

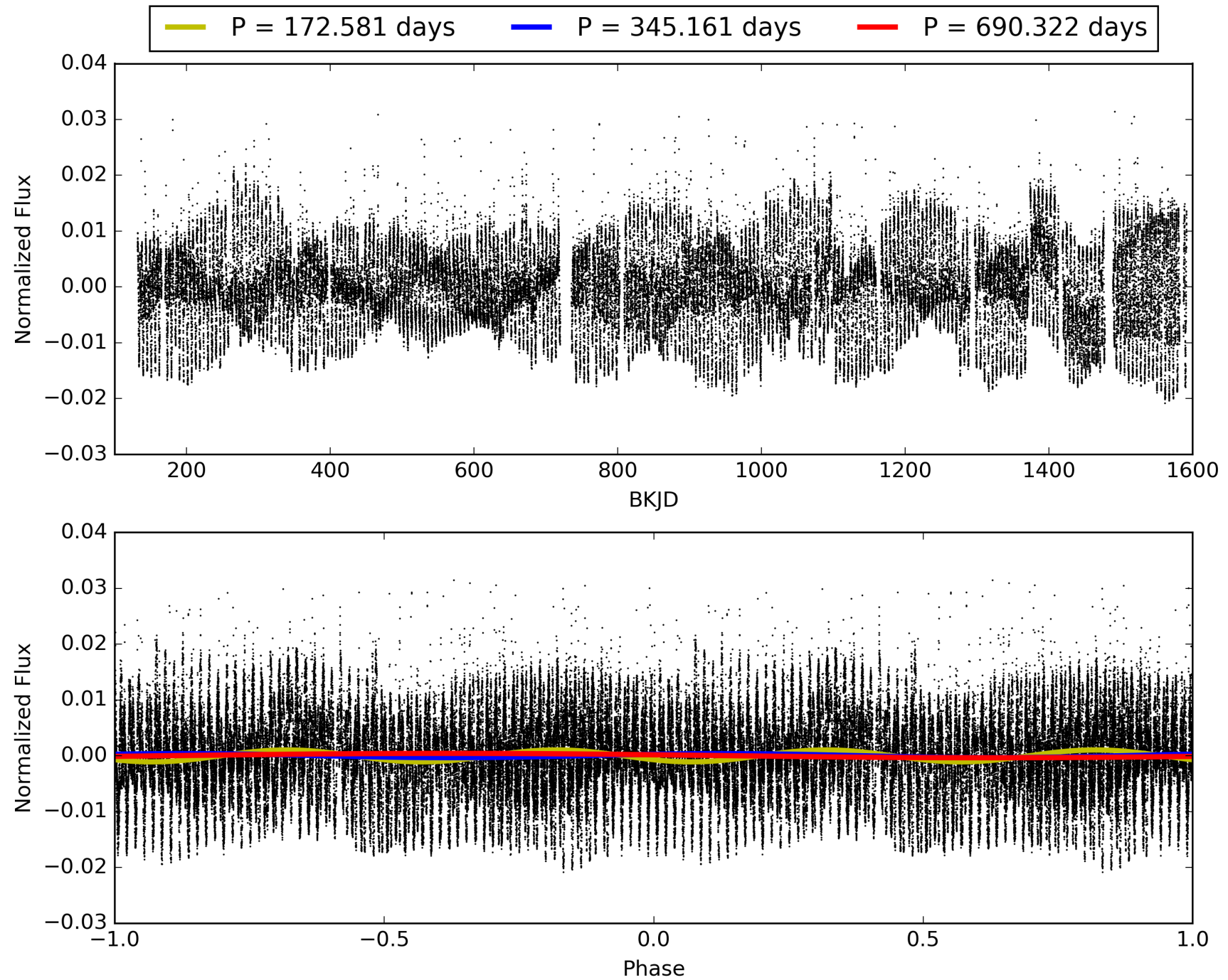
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:41:54 Z

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

TCE 010067340-02, PDC Light Curves

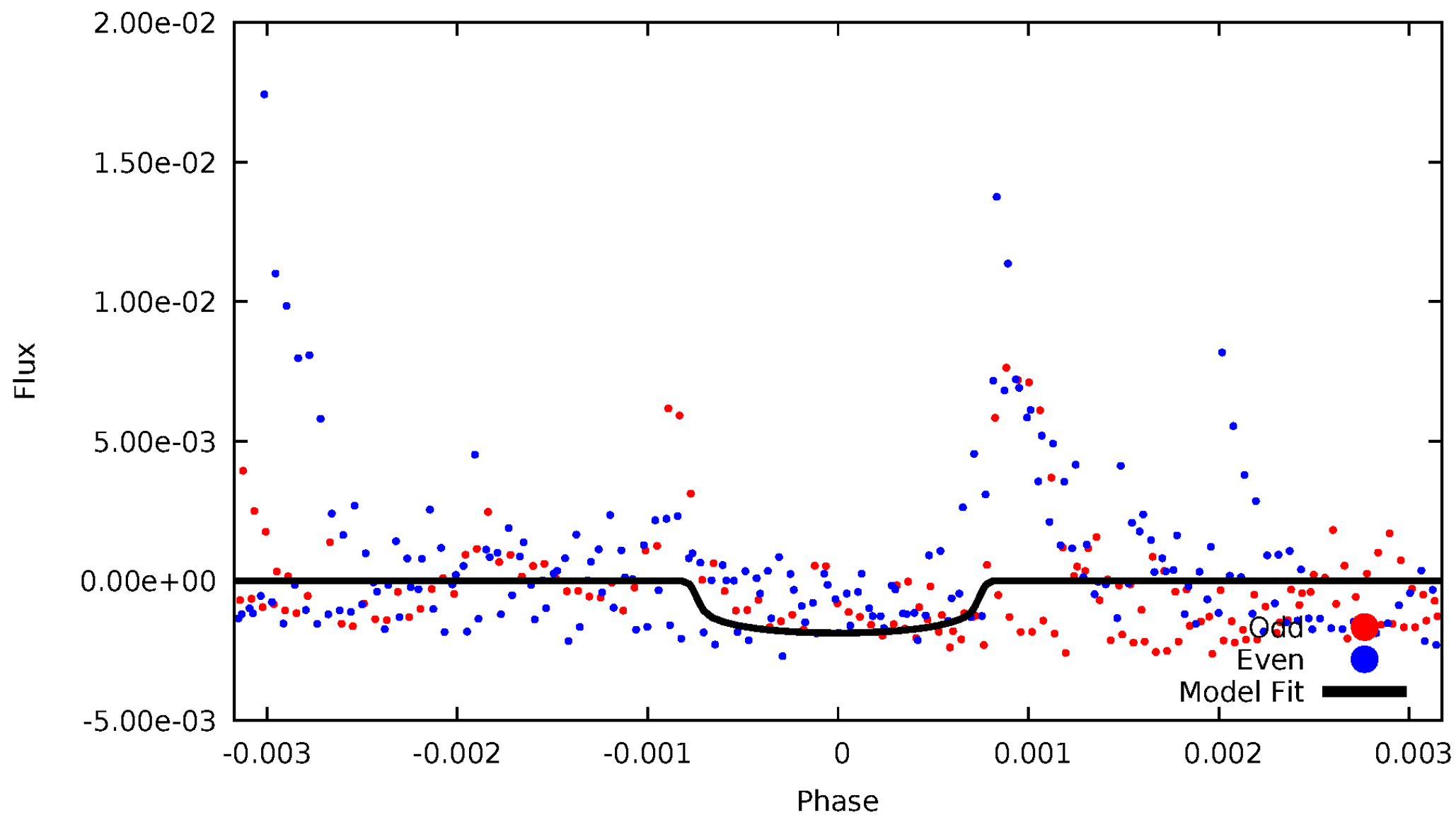


TCE 010067340-02



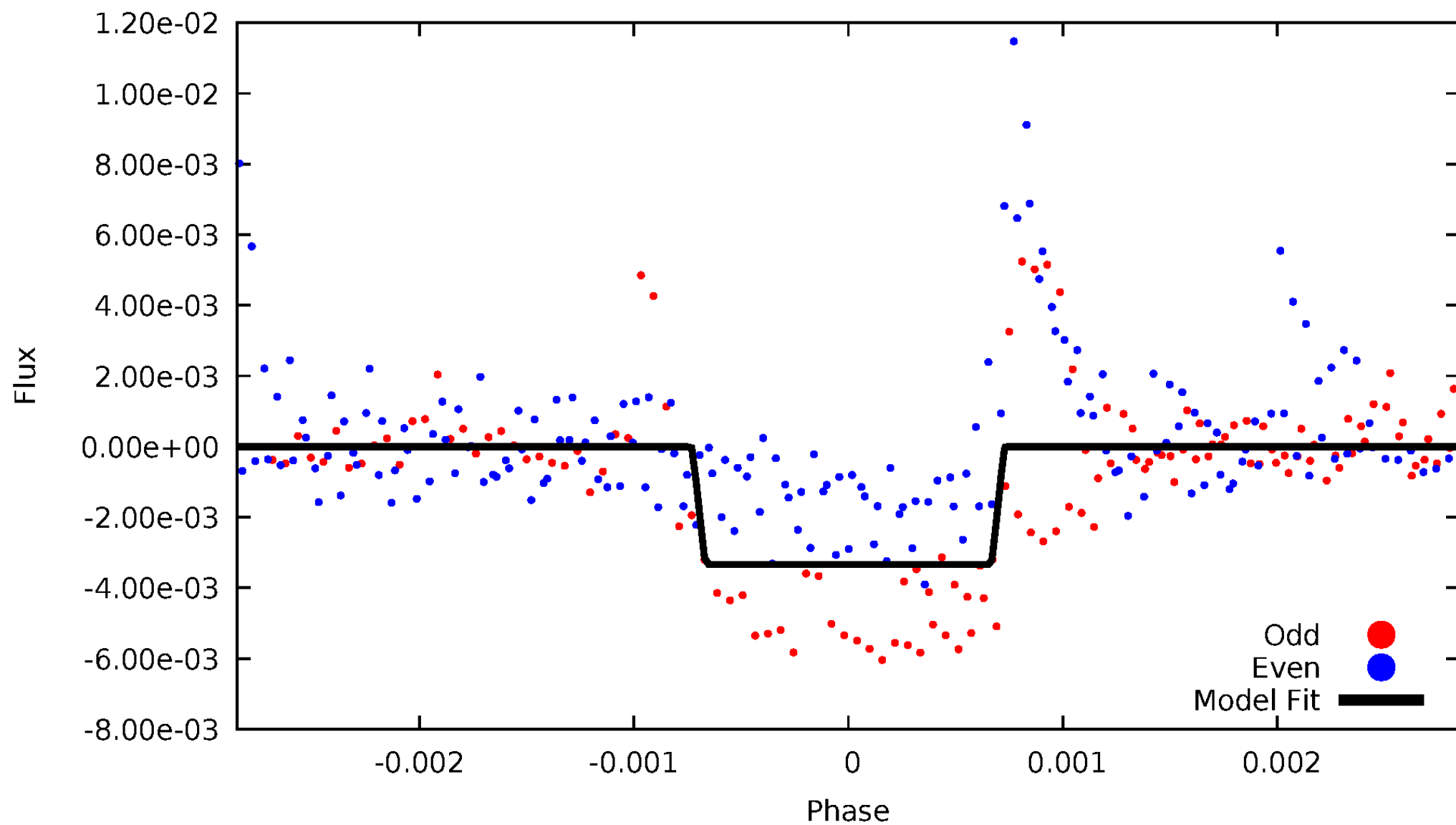
DV Odd/Even

TCE 010067340-02



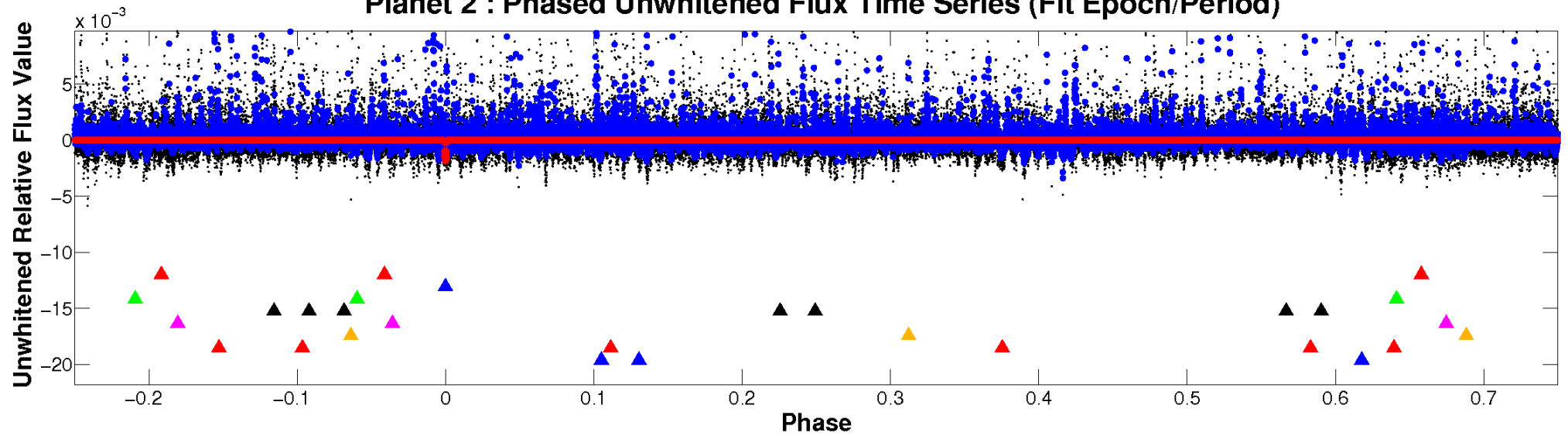
ALT Odd/Even

TCE 010067340-02

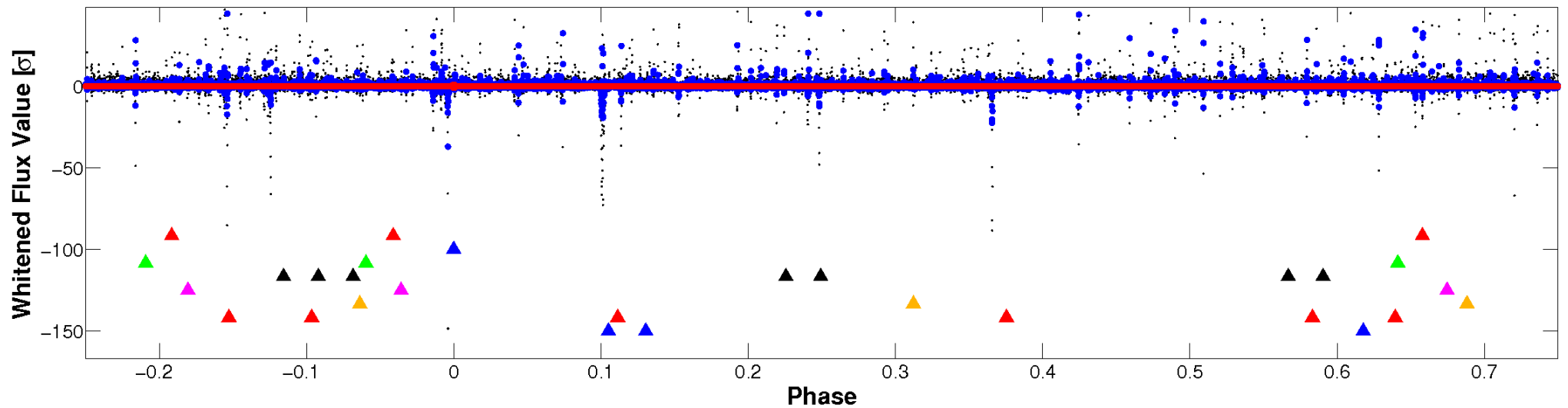


Non-Whitened Vs. Whitened Light Curve

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

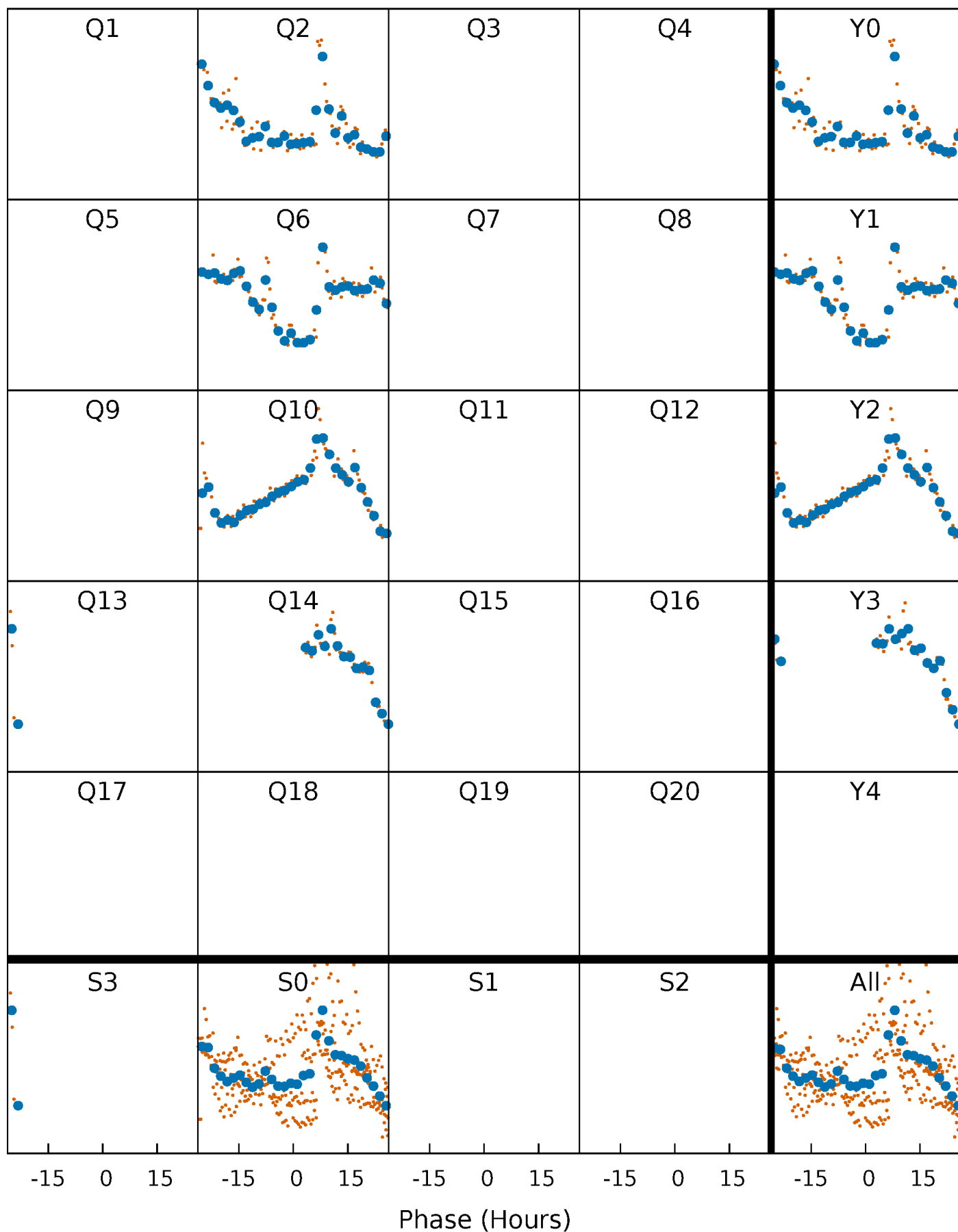


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



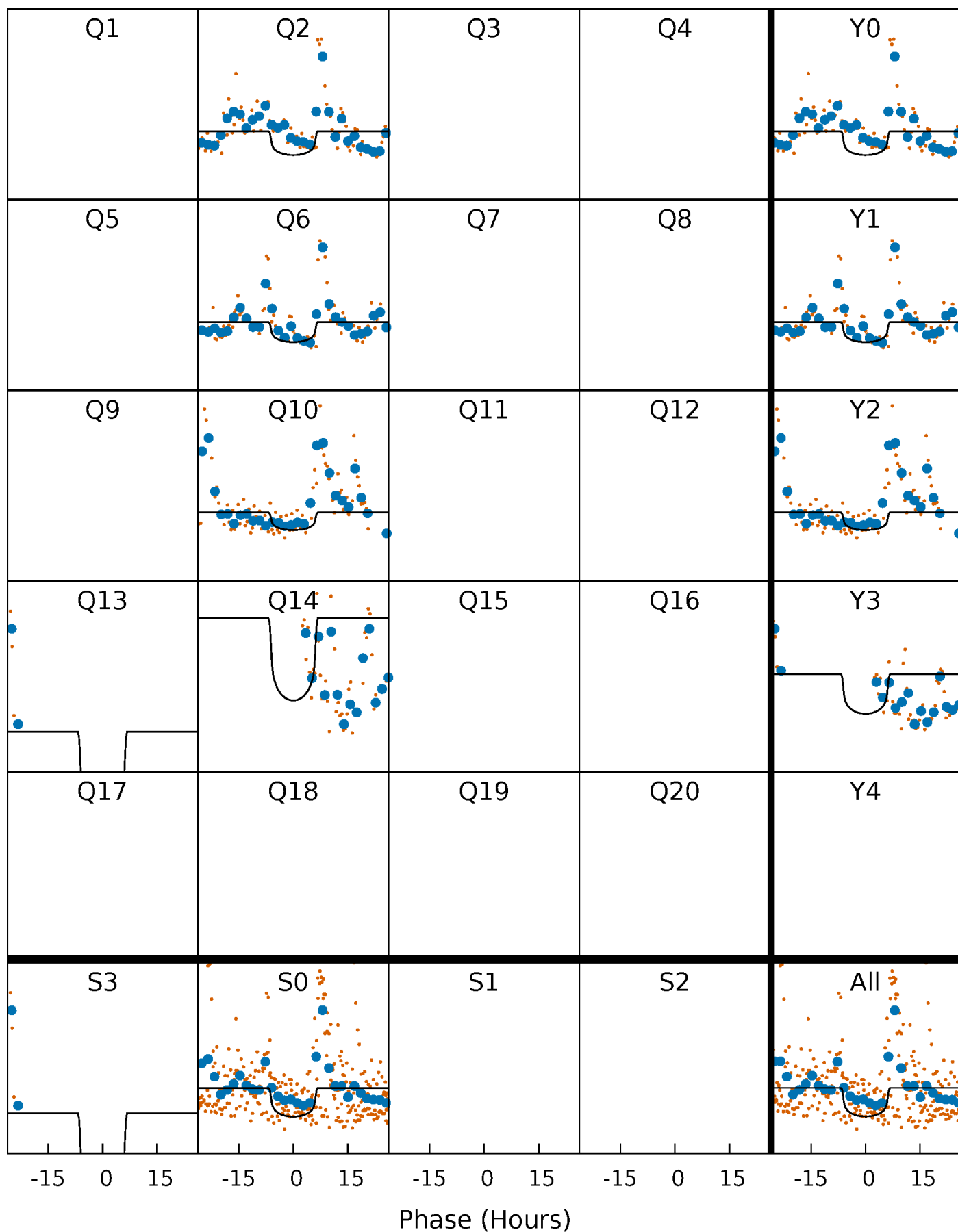
PDC Quarter-Phased Transit Curves

TCE 010067340-02 P=345.161189 Days $T_0=238.570055$ (BKJD)



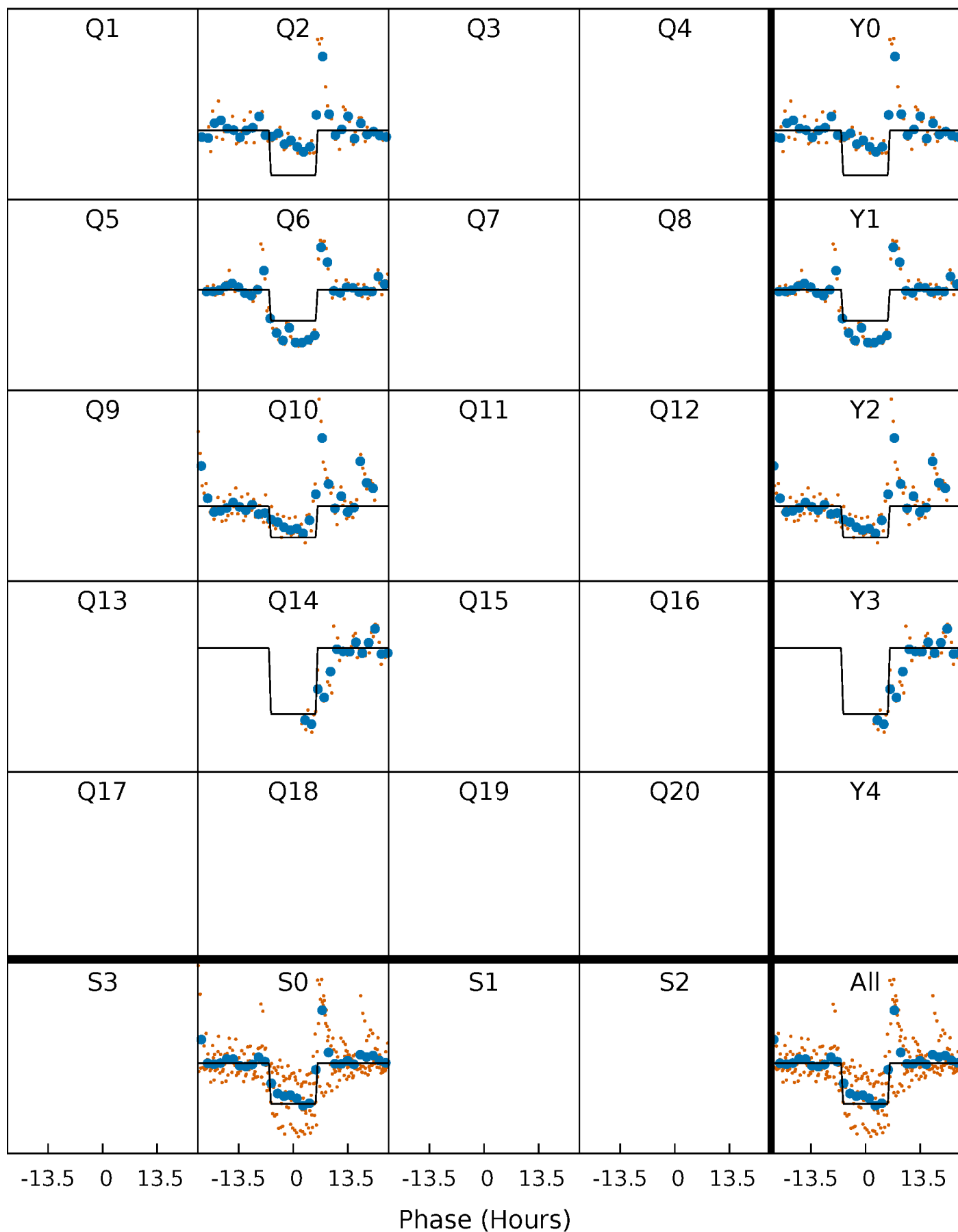
DV Quarter-Phased Transit Curves

TCE 010067340-02 P=345.161189 Days $T_0=238.570055$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

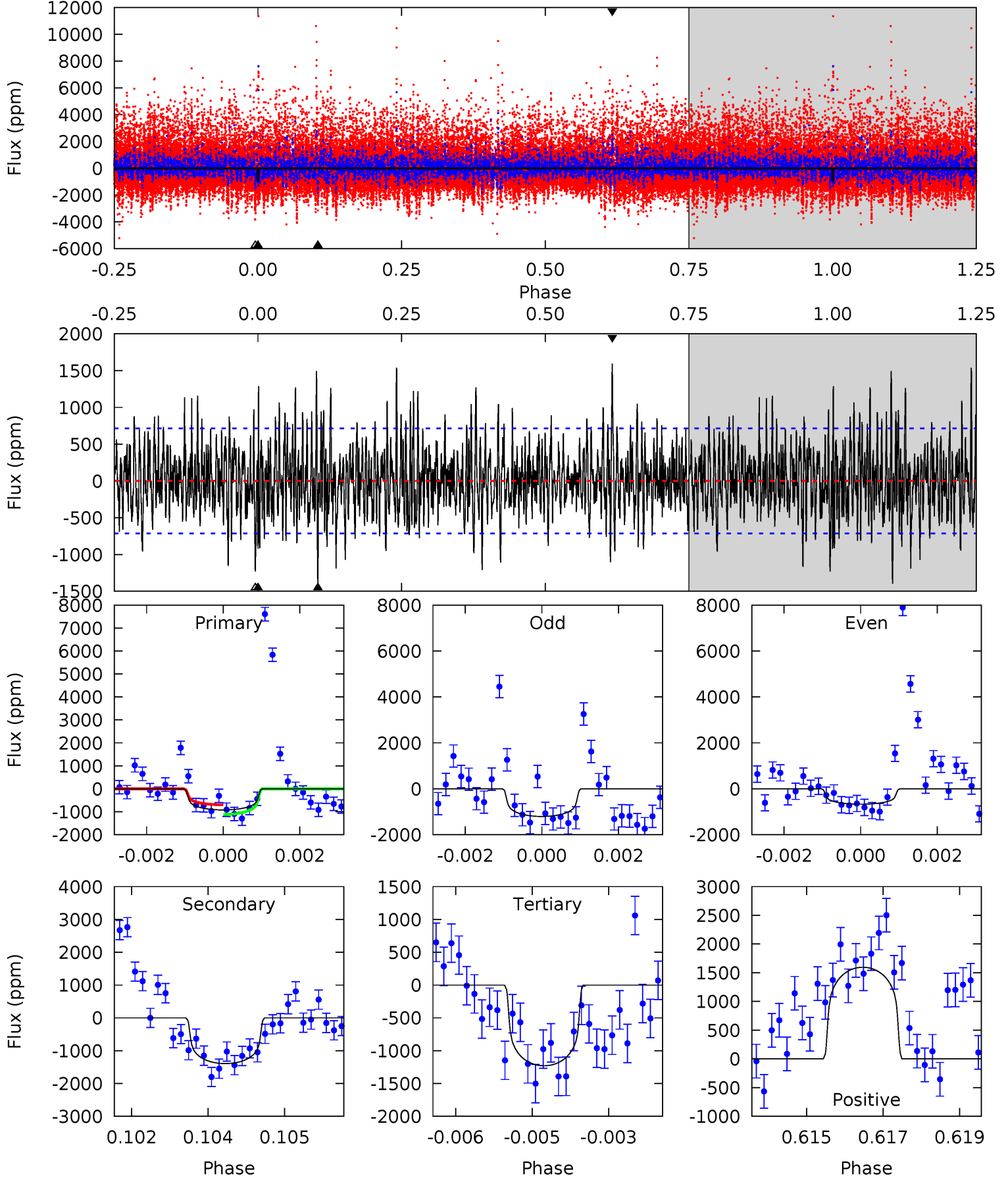
TCE 010067340-02 $P=345.156884$ Days $T_0=238.600228$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-02, P = 345.161189 Days, E = 238.570055 Days

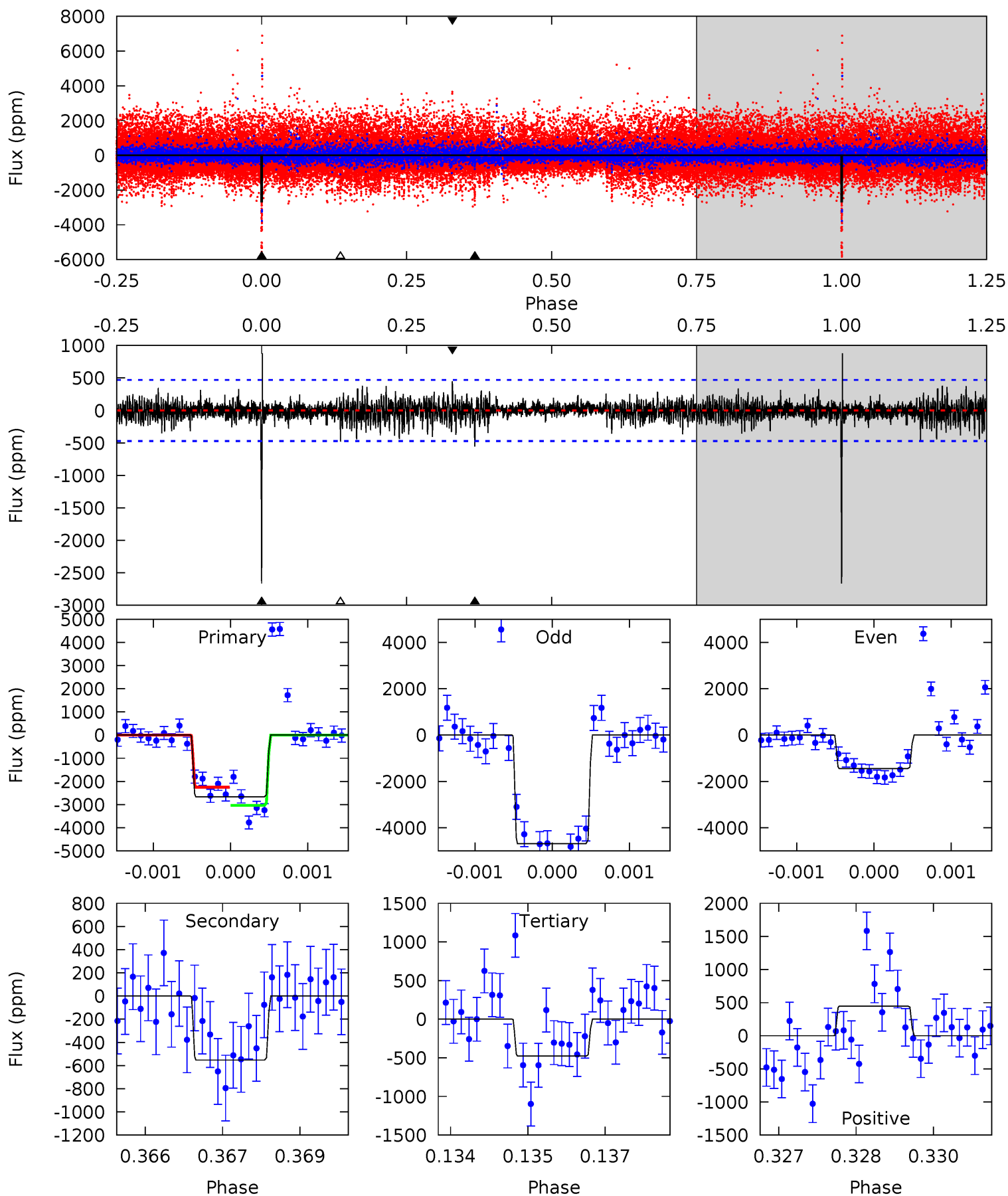
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.92	10.5	9.24	12.0	5.37	3.16	2.88	-2.32	-5.07	1.23	-1.52	1.55	0.98	0.53	1.60



Alt Model-Shift Uniqueness Test

010067340-02, P = 345.156884 Days, E = 238.600228 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.4	6.32	5.46	5.13	5.39	3.19	1.15	25.0	25.3	0.86	1.19	17.3	1.05	0.25	4.51



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1394 ± 133	$1.50^{+0.91}_{-0.81}$	147^{+3}_{-3}	3280^{+977}_{-423}	$148505^{+561001}_{-89094}$
Alt.	-553 ± 87	$2.09^{+0.98}_{-0.98}$	147^{+3}_{-3}	2637^{+491}_{-248}	30994^{+82285}_{-16722}

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 $A_{obs} \gg 1.0$

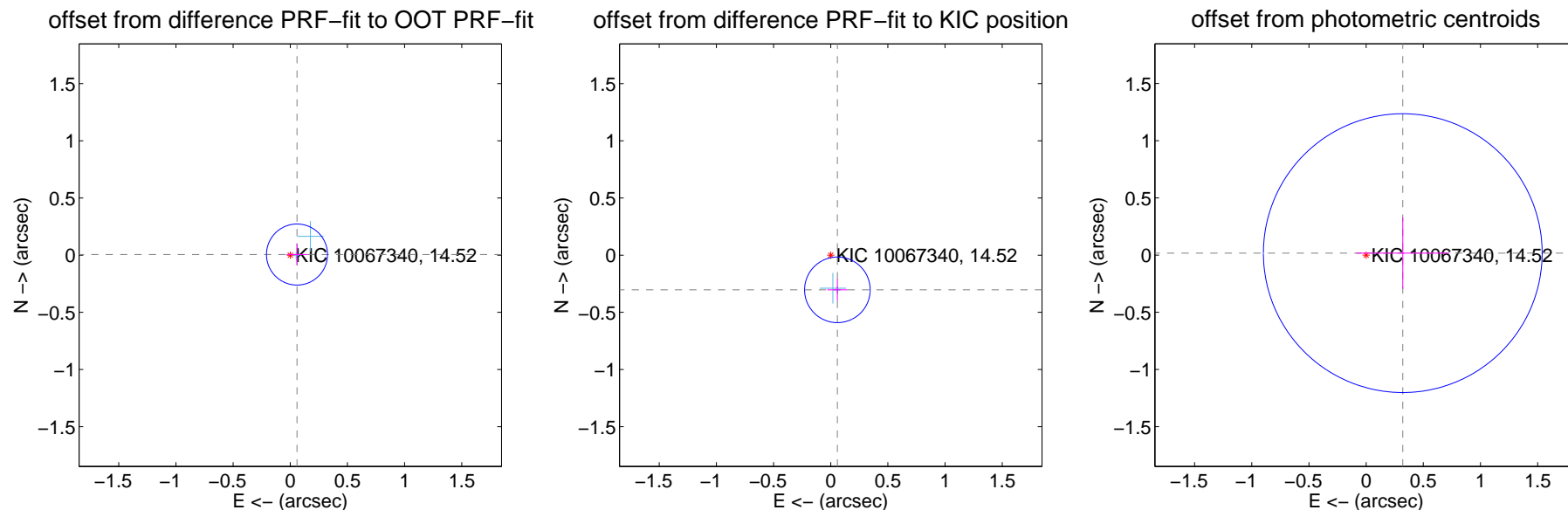
DV Centroid Data

Supplemental centroid analysis for 010067340-02. Kepler magnitude: 14.52. Transit SNR 6.73

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.059 ± 0.089	0.67	-0.059 ± 0.089	0.005 ± 0.096
PRF-fit source offset from KIC position	0.309 ± 0.096	3.23	-0.058 ± 0.089	-0.303 ± 0.096
photometric centroid source offset	0.32 ± 0.41	0.79	-0.32 ± 0.41	0.02 ± 0.31



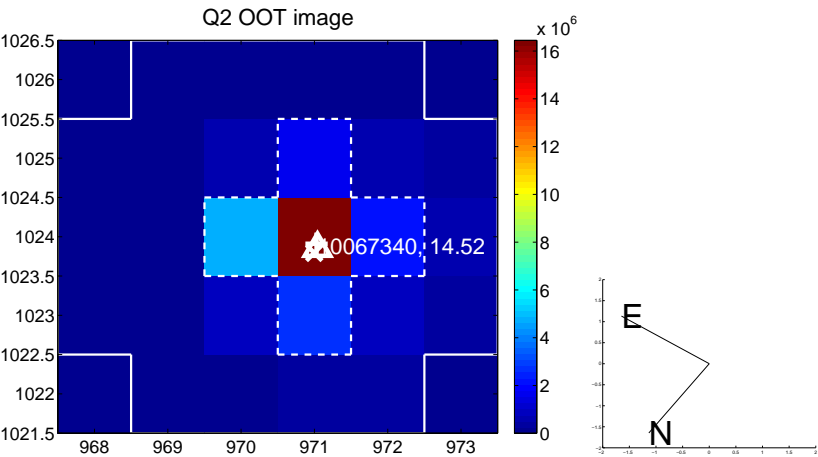
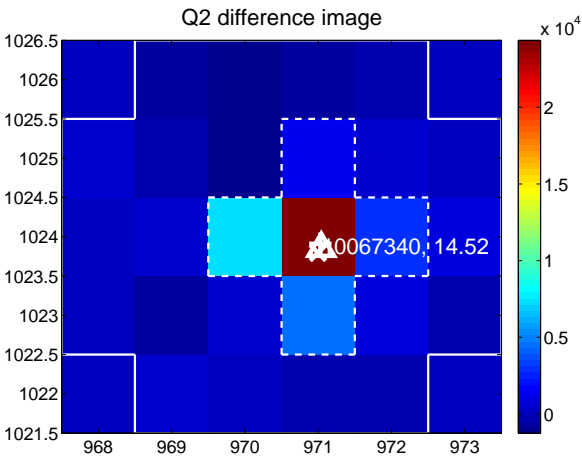
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

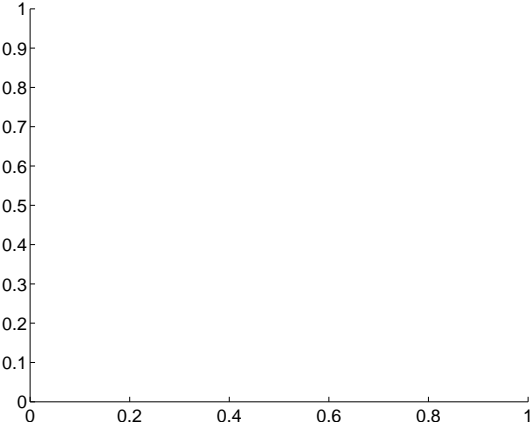
Q1 no difference image



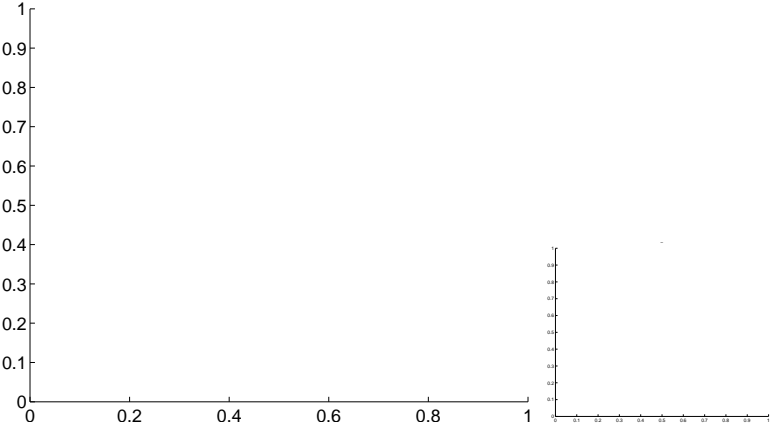
Q1 no OOT image



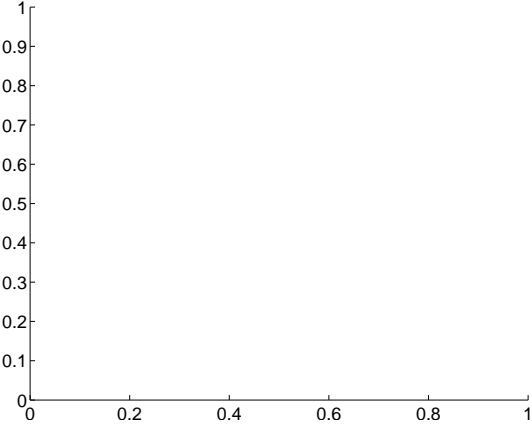
Q3 no difference image



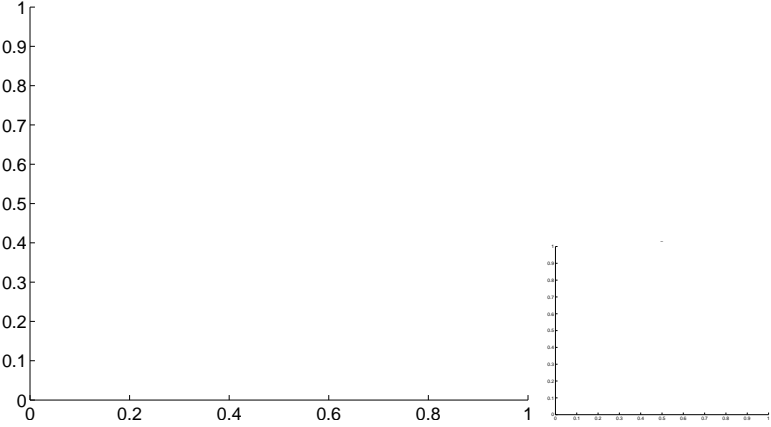
Q3 no OOT image



Q4 no difference image



Q4 no OOT image



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

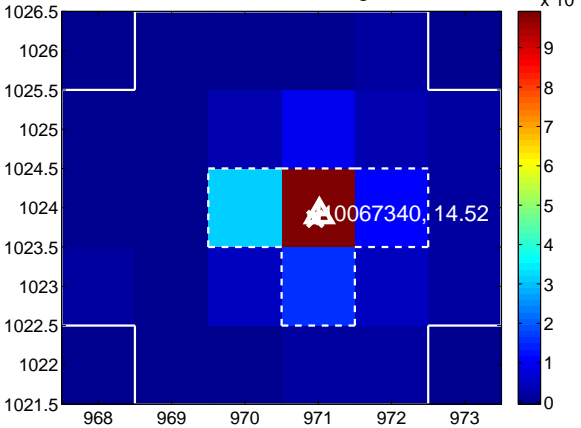
Q5 no difference image



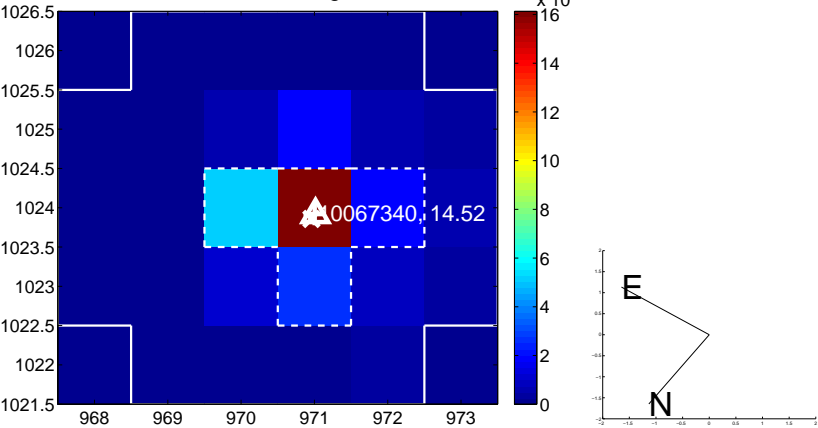
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image



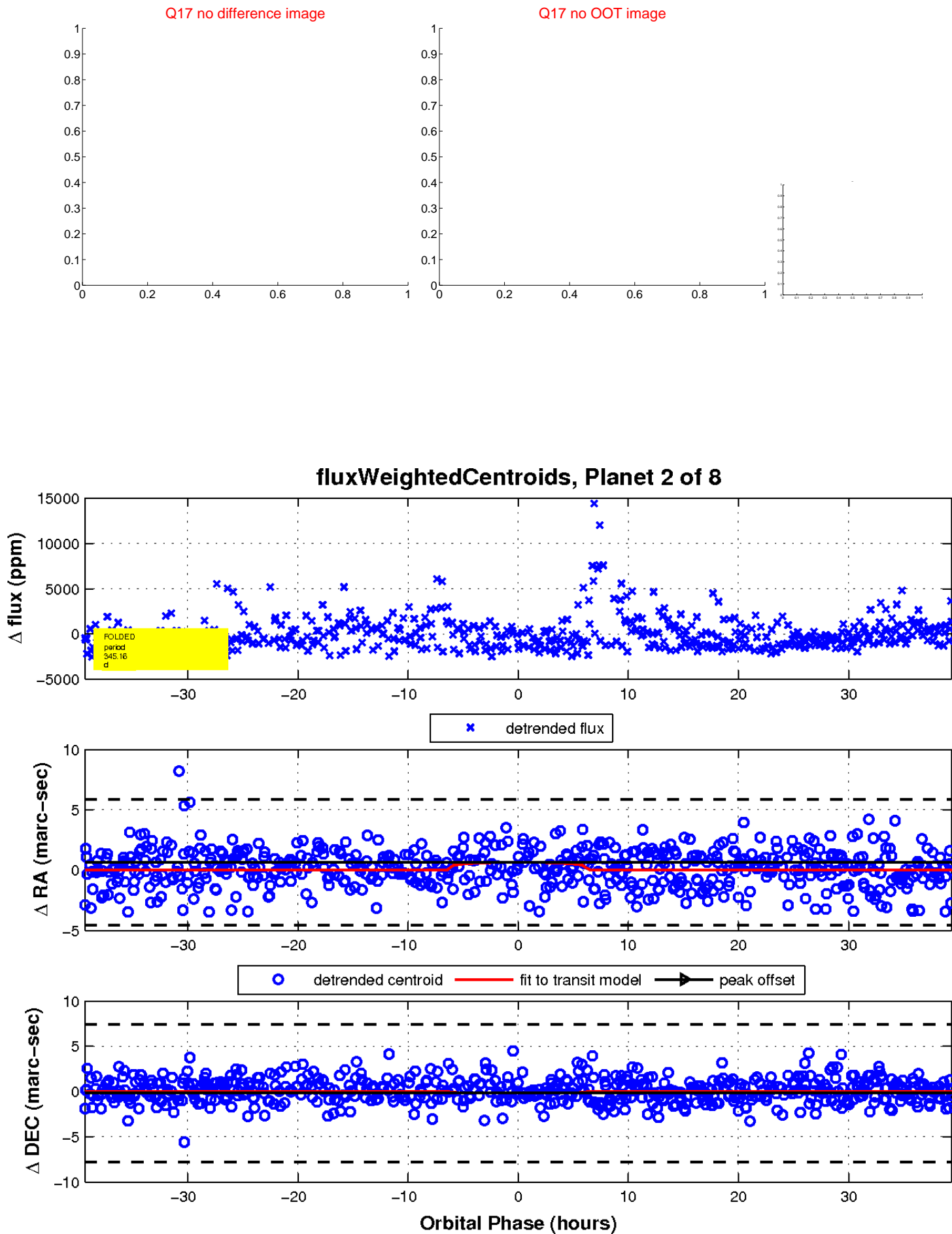
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

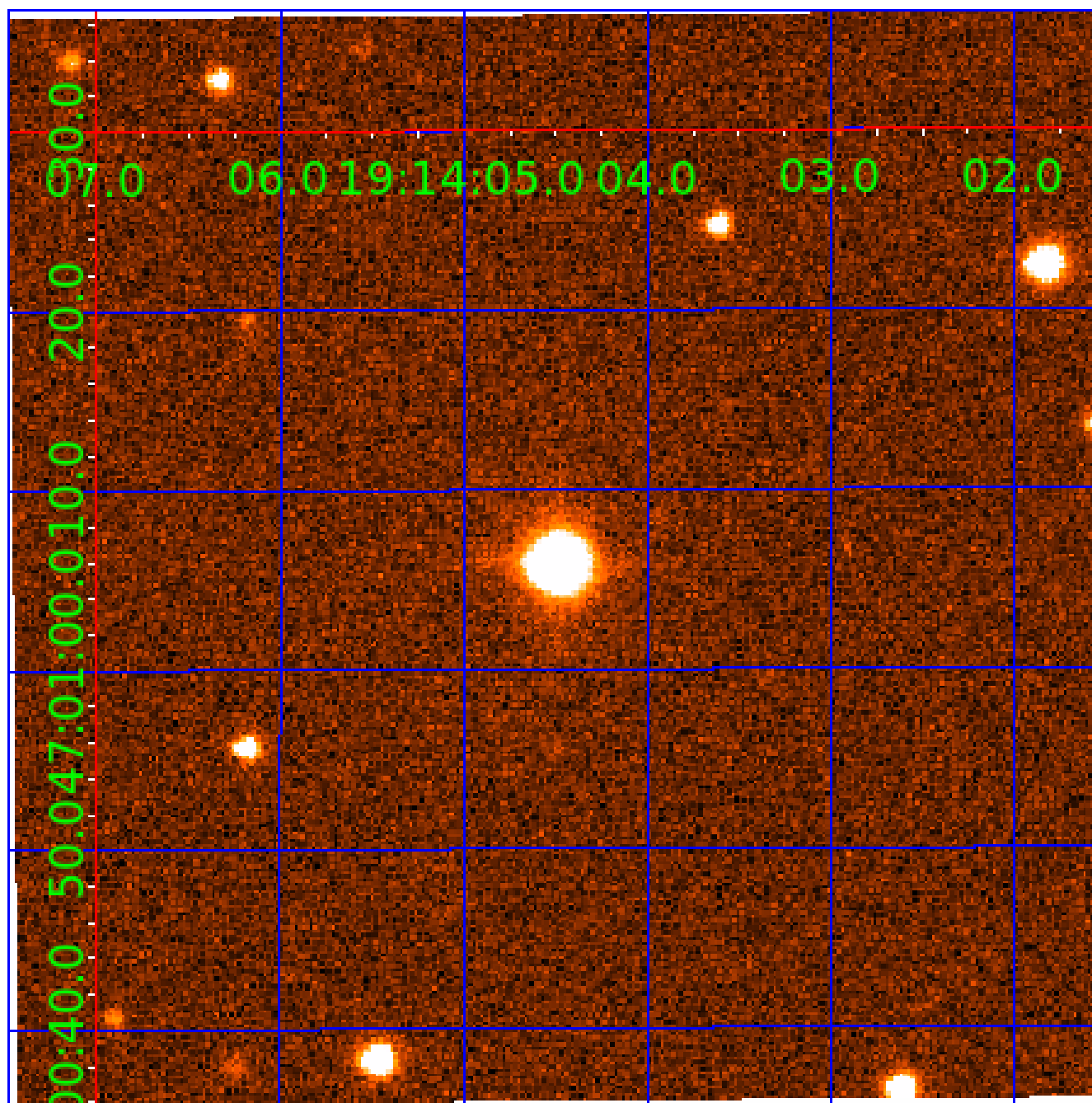


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010067340

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})
010067340-01	OBS	No	638.379363	224.387840	2111.8	5.428	24.4	7.6	0.32	3407	1.47	0.01
010067340-02	OBS	No	345.161189	238.570055	1871.5	13.136	15.5	6.7	0.32	3407	1.44	0.03
010067340-03	OBS	No	396.787463	459.896158	2423.0	4.388	14.8	6.6	0.32	3407	1.79	0.02
010067340-04	OBS	No	227.390338	214.978229	1314.9	3.665	13.9	6.3	0.32	3407	1.20	0.05
010067340-05	OBS	No	640.353440	226.233368	2386.7	5.270	14.0	8.2	0.32	3407	1.57	0.01
010067340-06	OBS	No	474.946108	561.719411	2073.5	7.158	12.7	6.8	0.32	3407	1.46	0.02
010067340-07	OBS	No	254.021862	205.267117	1723.0	7.888	10.3	7.1	0.32	3407	1.37	0.04
010067340-08	OBS	No	513.372761	283.587764	904.9	5.000	11.9	-1.0	0.32	3407	0.96	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010067340-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

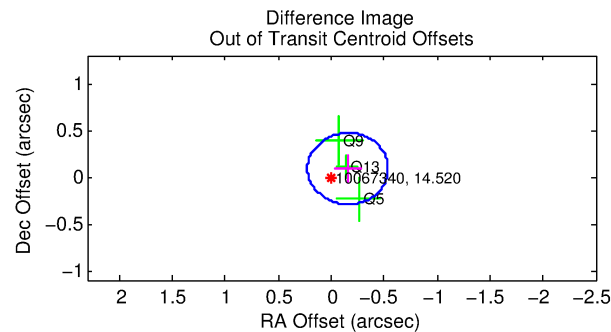
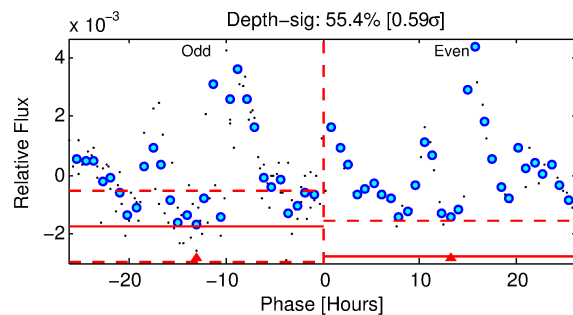
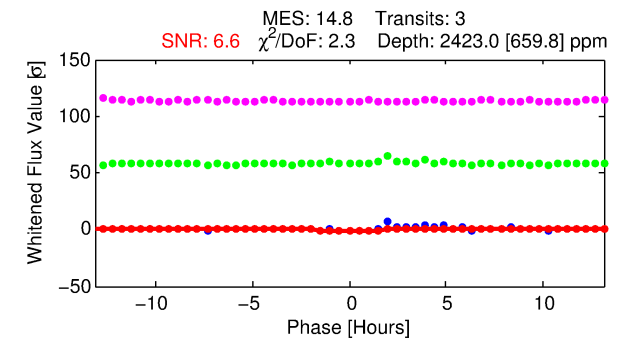
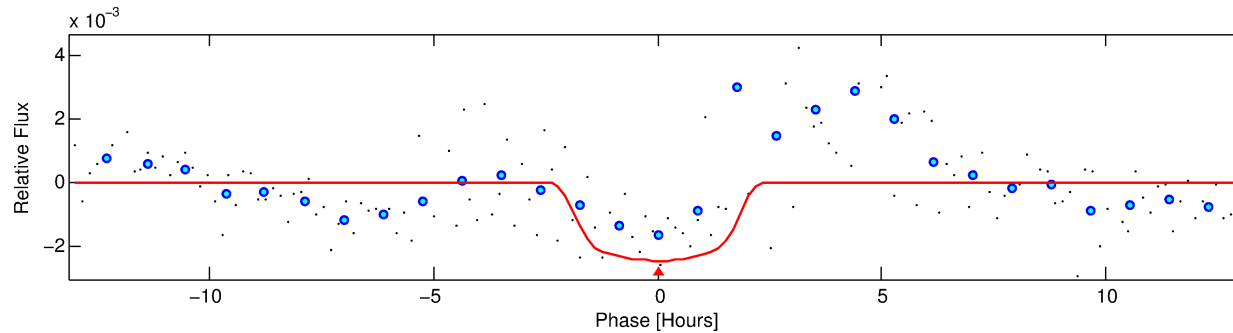
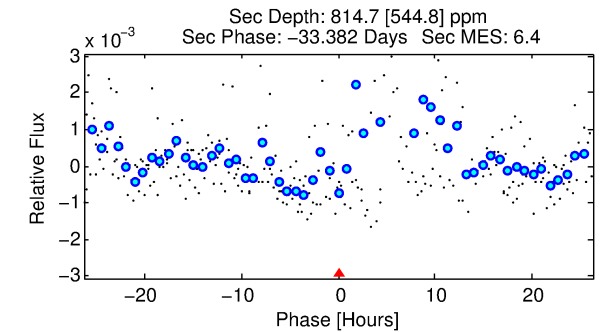
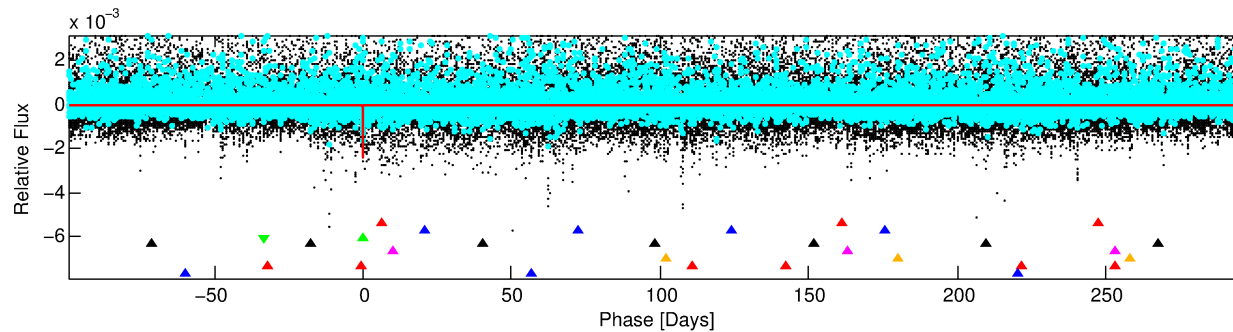
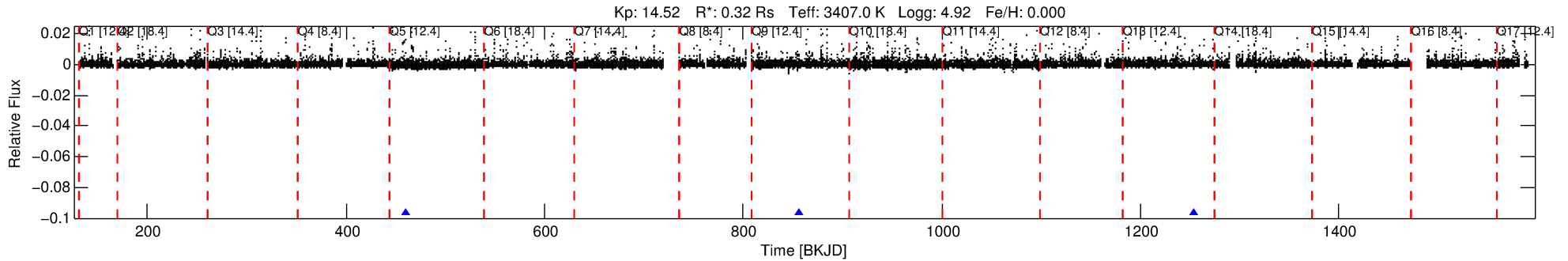
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010067340-03

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 3 of 8 Period: 396.787 d



DV Fit Results:

Period = 396.78746 [0.01135] d
Epoch = 459.8962 [0.0162] BKJD
Rp/R* = 0.0506 [0.0147]
a/R* = 454.48 [437.67]
b = 0.82 [0.38]
Seff = 0.02 [0.00]
Teq = 101 [3] K
Rp = 1.79 [0.56] Re
a = 0.7235 [0.0580] AU
Ag = 73295.51 [65415.47] [1.12σ]
Teffp = 2559 [568] K [4.33σ]

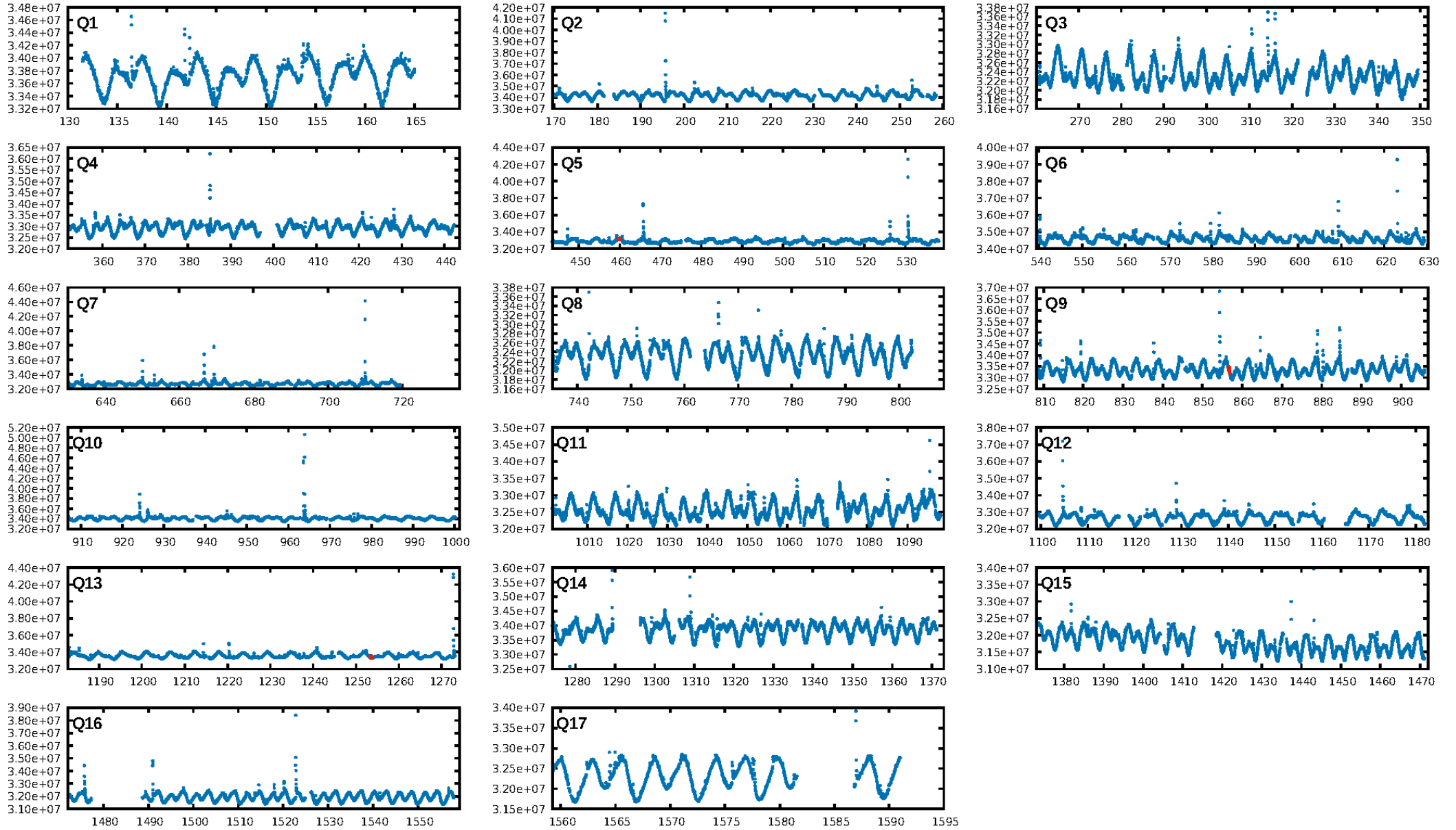
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [89.47σ]
LongPeriod-sig: 100.0% [223.41σ]
ModelChiSquare2-sig: 2.3%
ModelChiSquareGof-sig: 2.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 8.926
Centroid-sig: 8.6%
Centroid-so: 0.620 arcsec [1.38σ]
OotOffset-rm: 0.182 arcsec [1.43σ]
KicOffset-rm: 0.169 arcsec [1.34σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

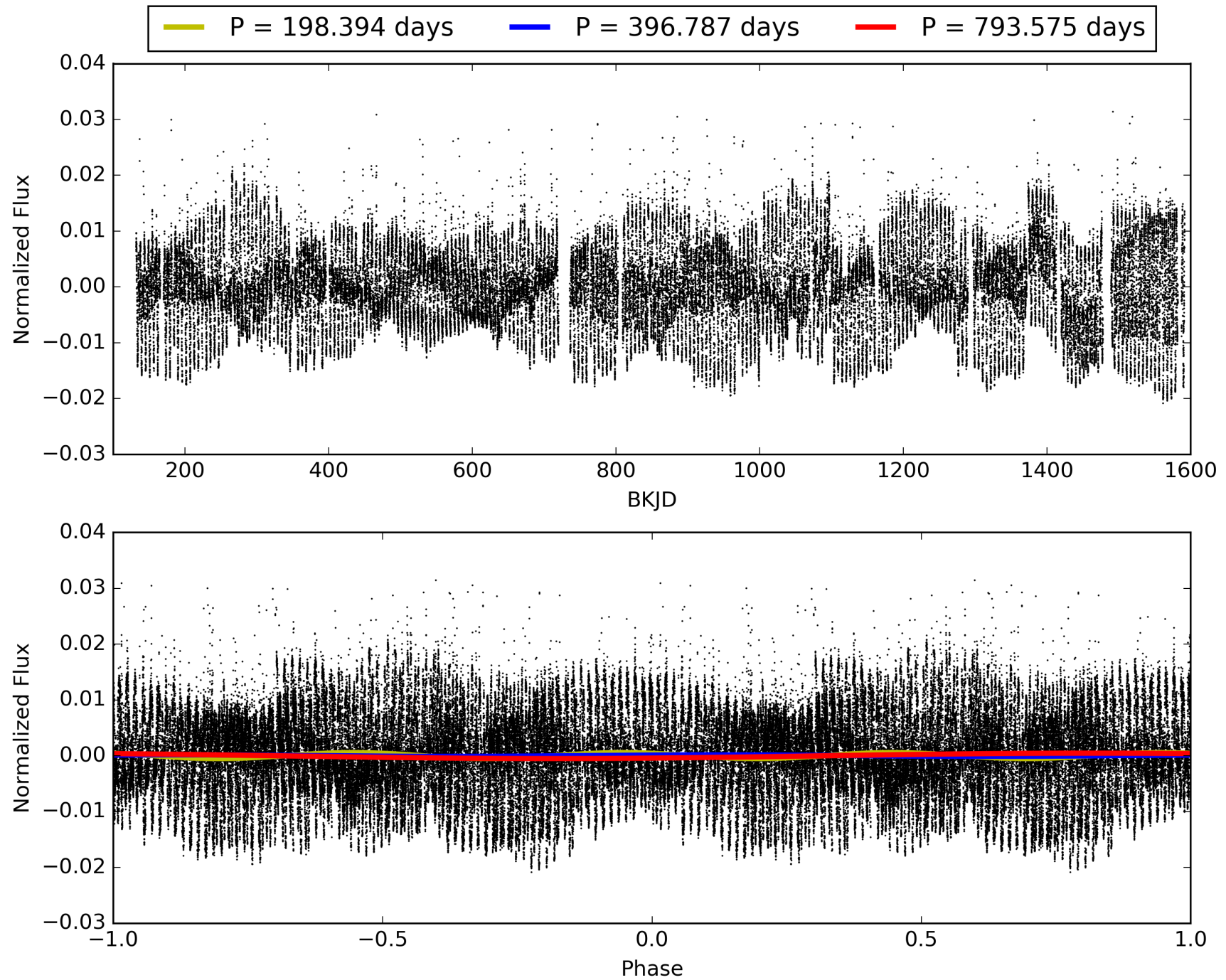
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:42:08 Z

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

TCE 010067340-03, PDC Light Curves

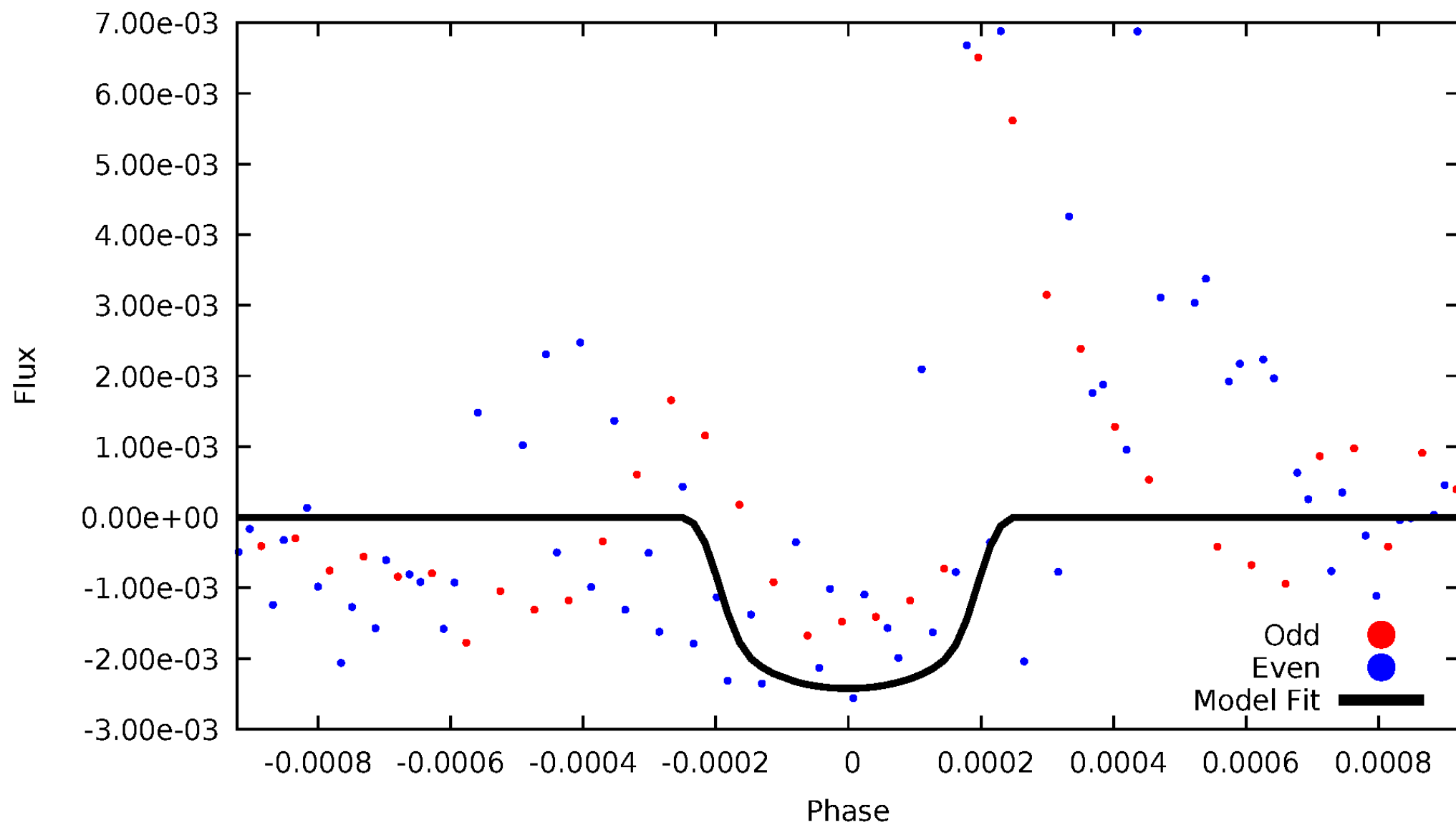


TCE 010067340-03



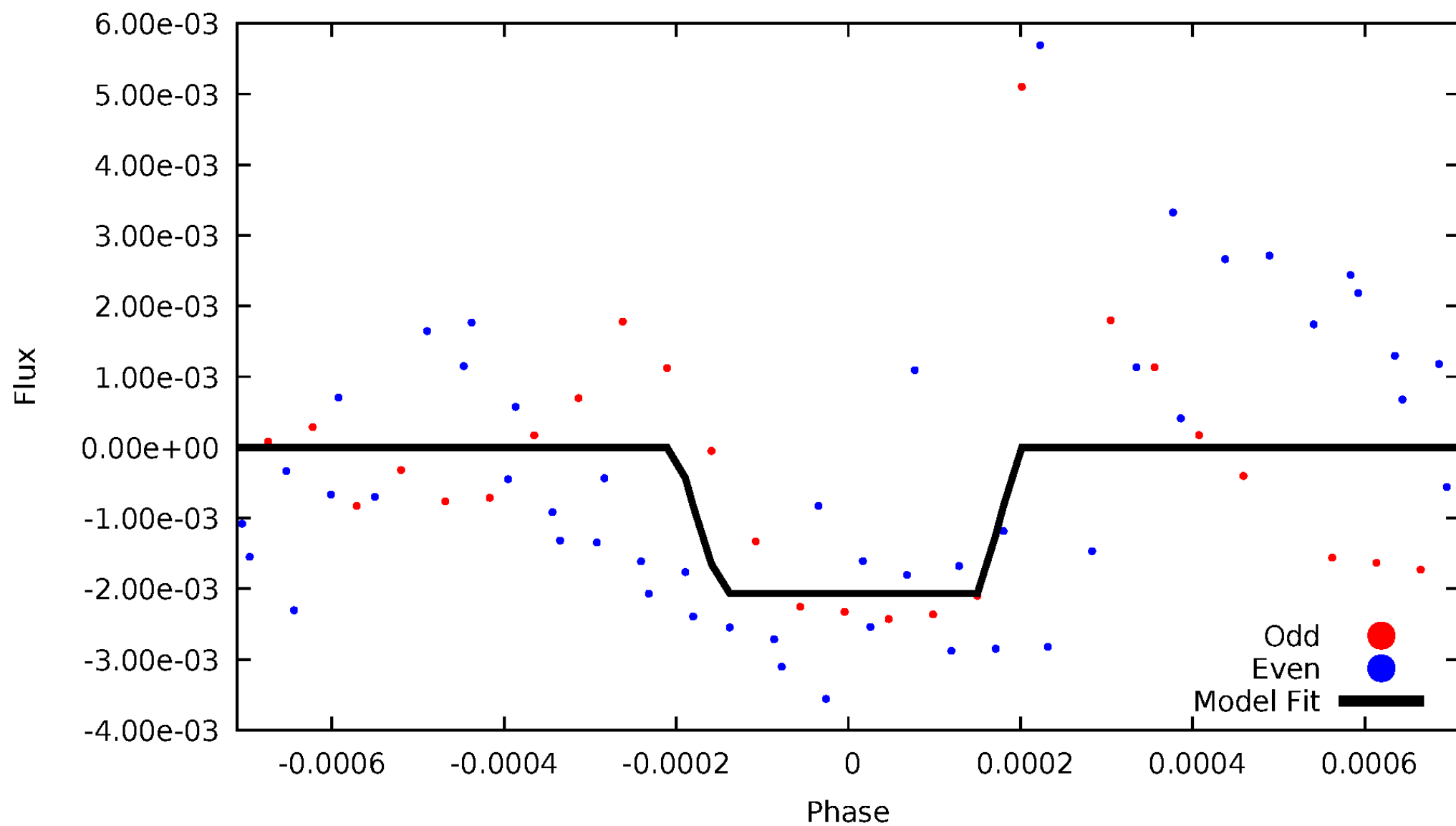
DV Odd/Even

TCE 010067340-03



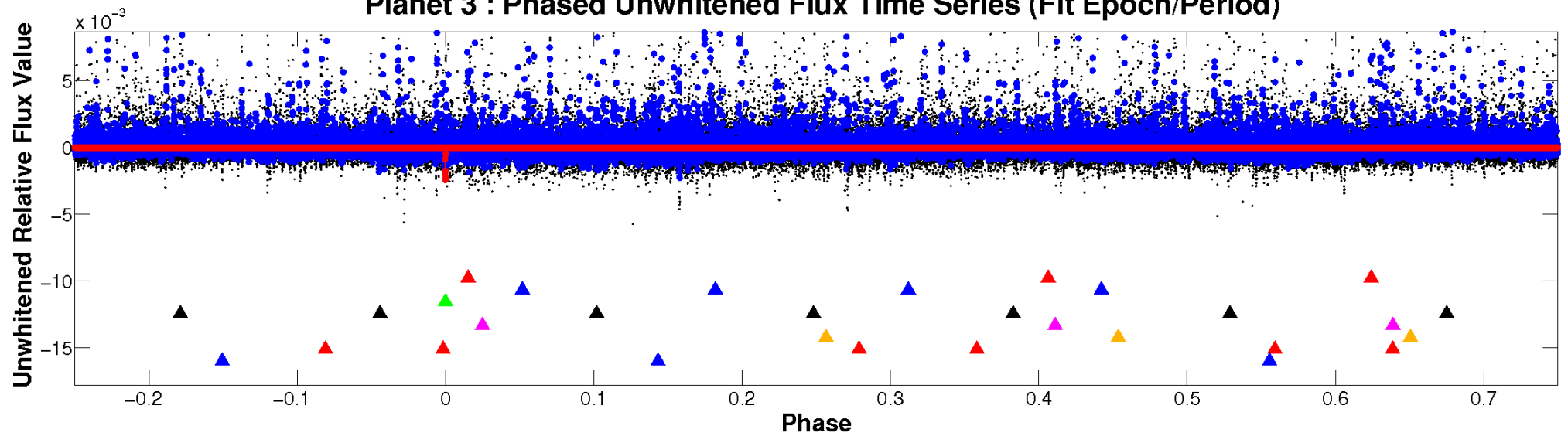
ALT Odd/Even

TCE 010067340-03

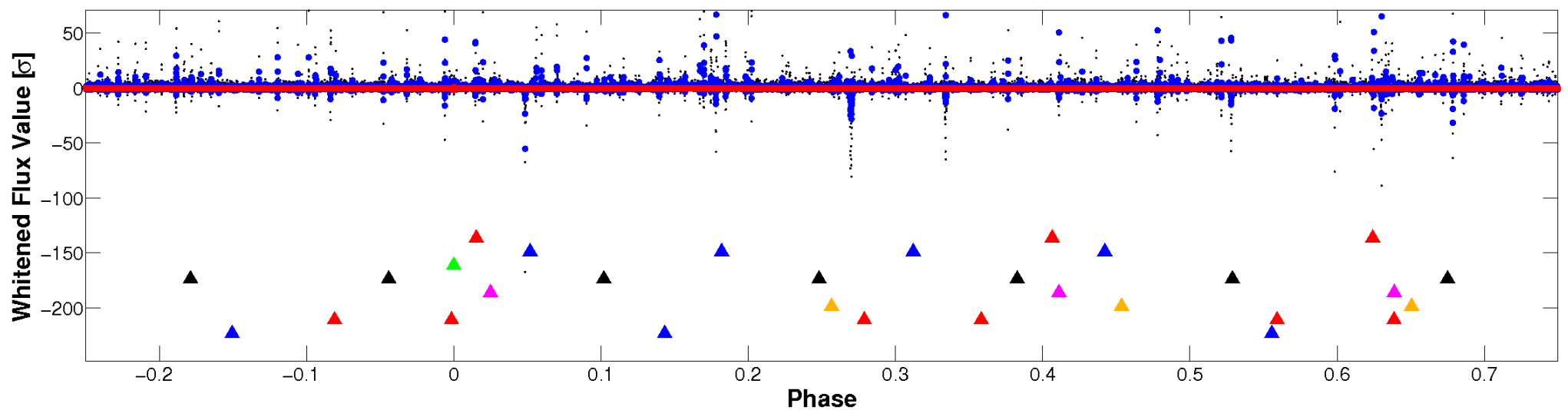


Non-Whitened Vs. Whitened Light Curve

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

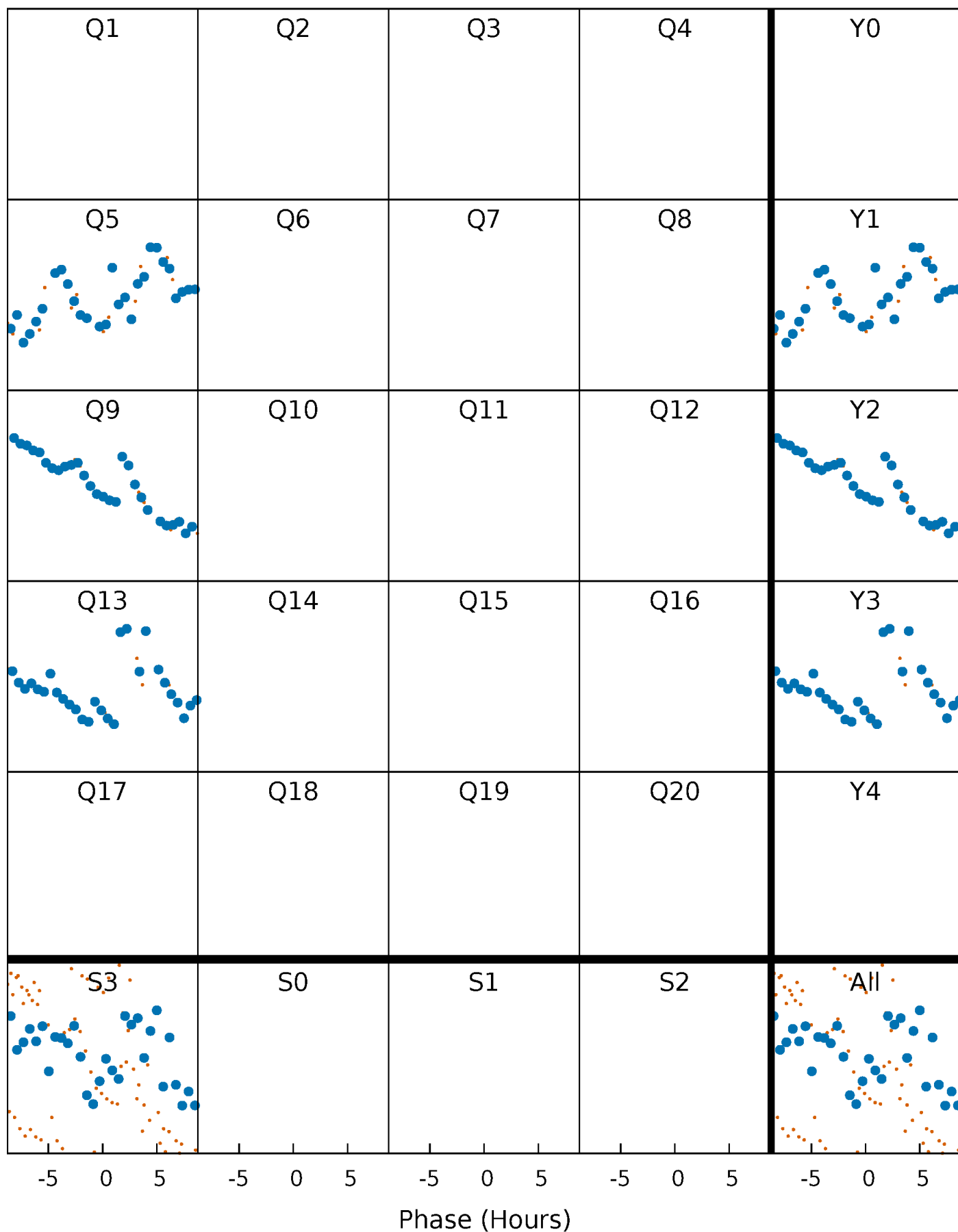


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



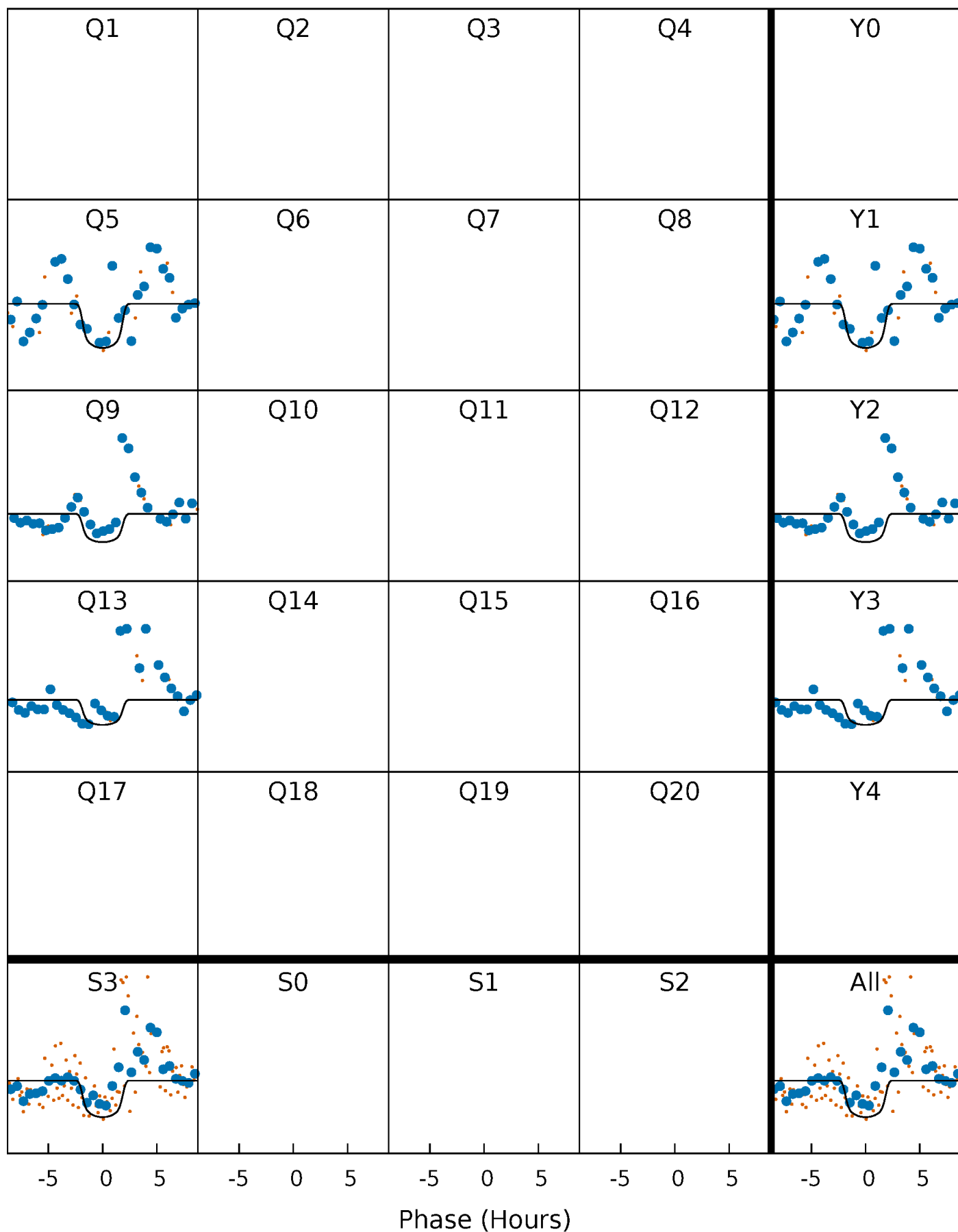
PDC Quarter-Phased Transit Curves

TCE 010067340-03 $P=396.787463$ Days $T_0=459.896158$ (BKJD)



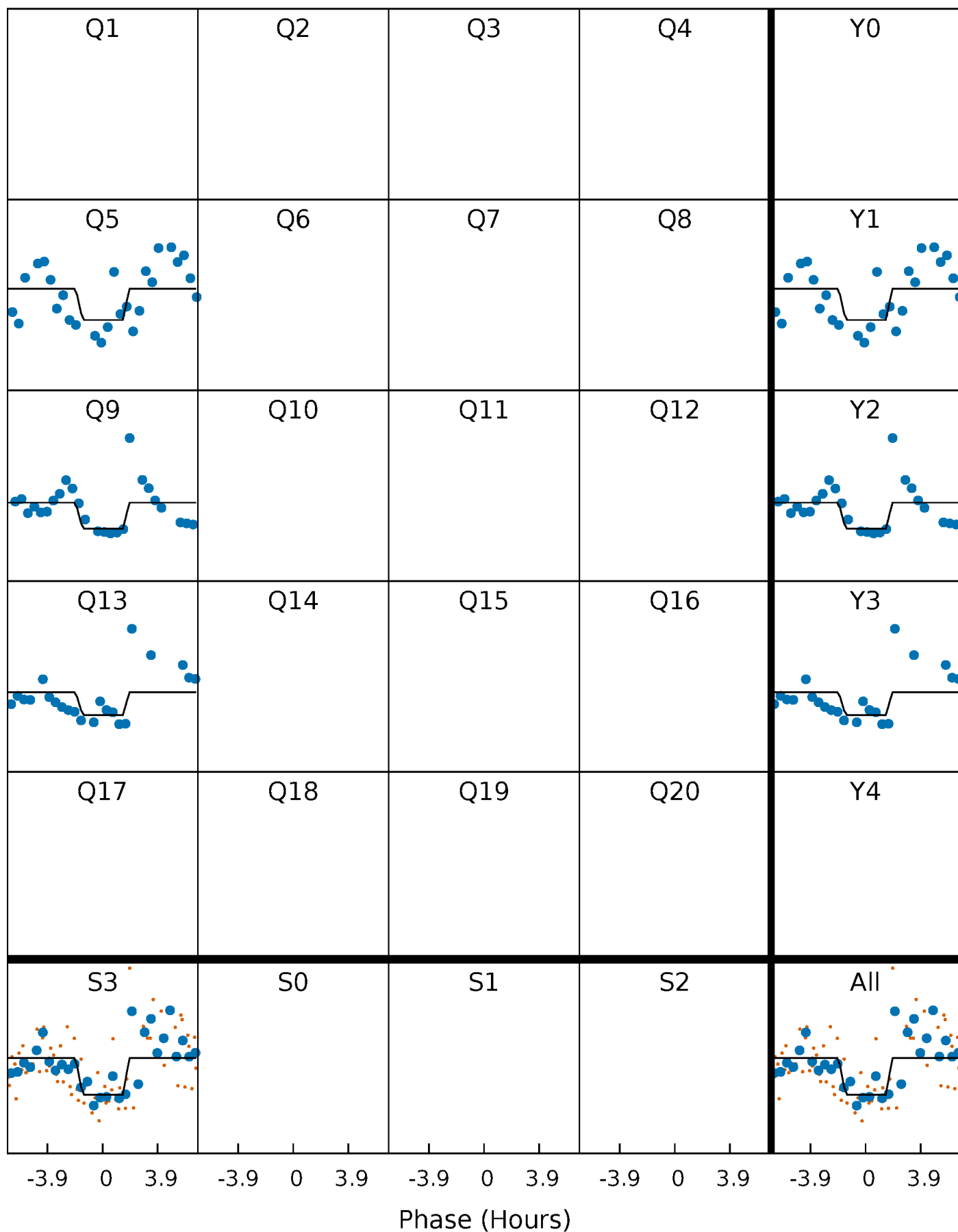
DV Quarter-Phased Transit Curves

TCE 010067340-03 $P=396.787463$ Days $T_0=459.896158$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

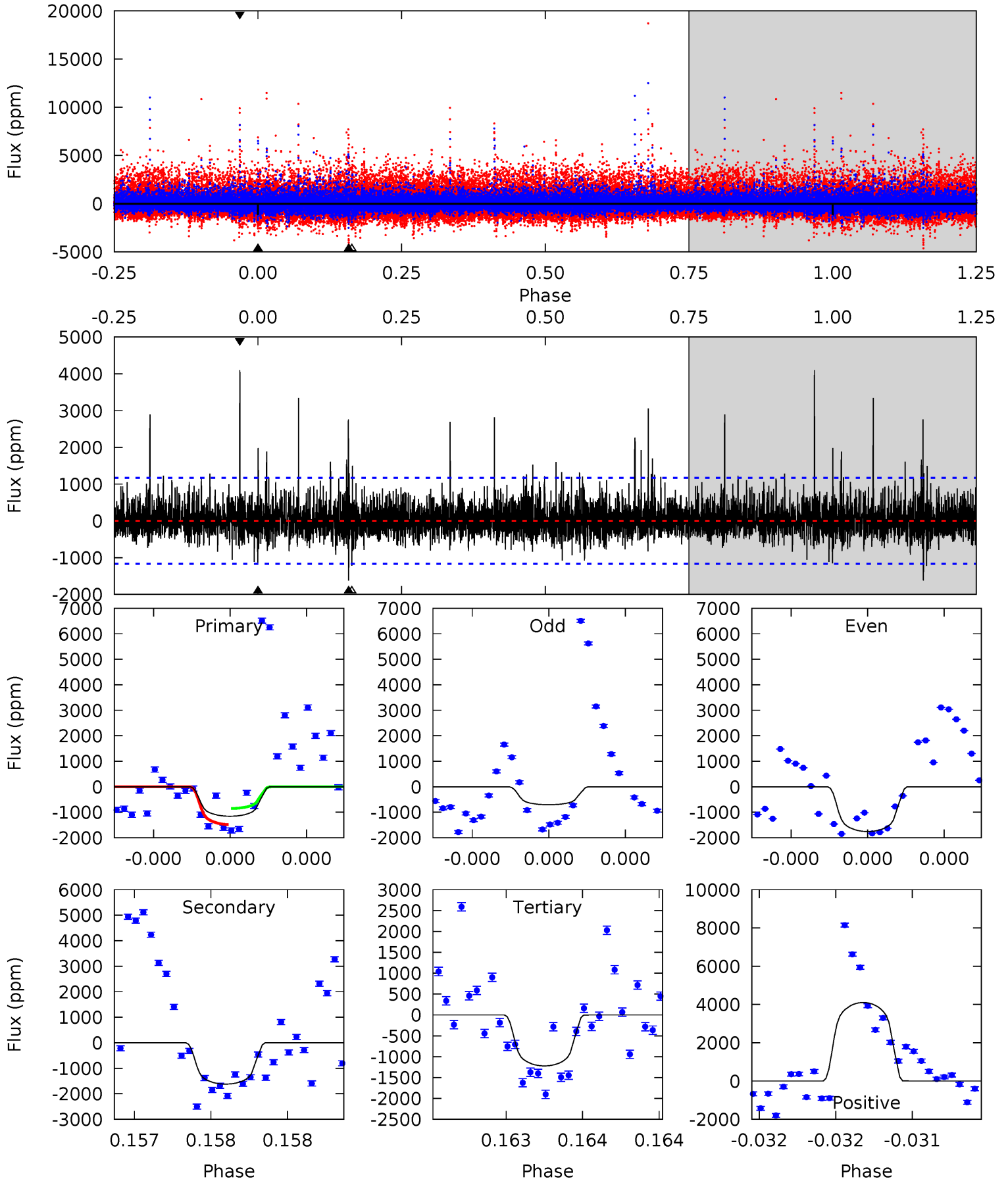
TCE 010067340-03 $P=396.772057$ Days $T_0=459.909426$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-03, $P = 396.787463$ Days, $E = 63.108695$ Days

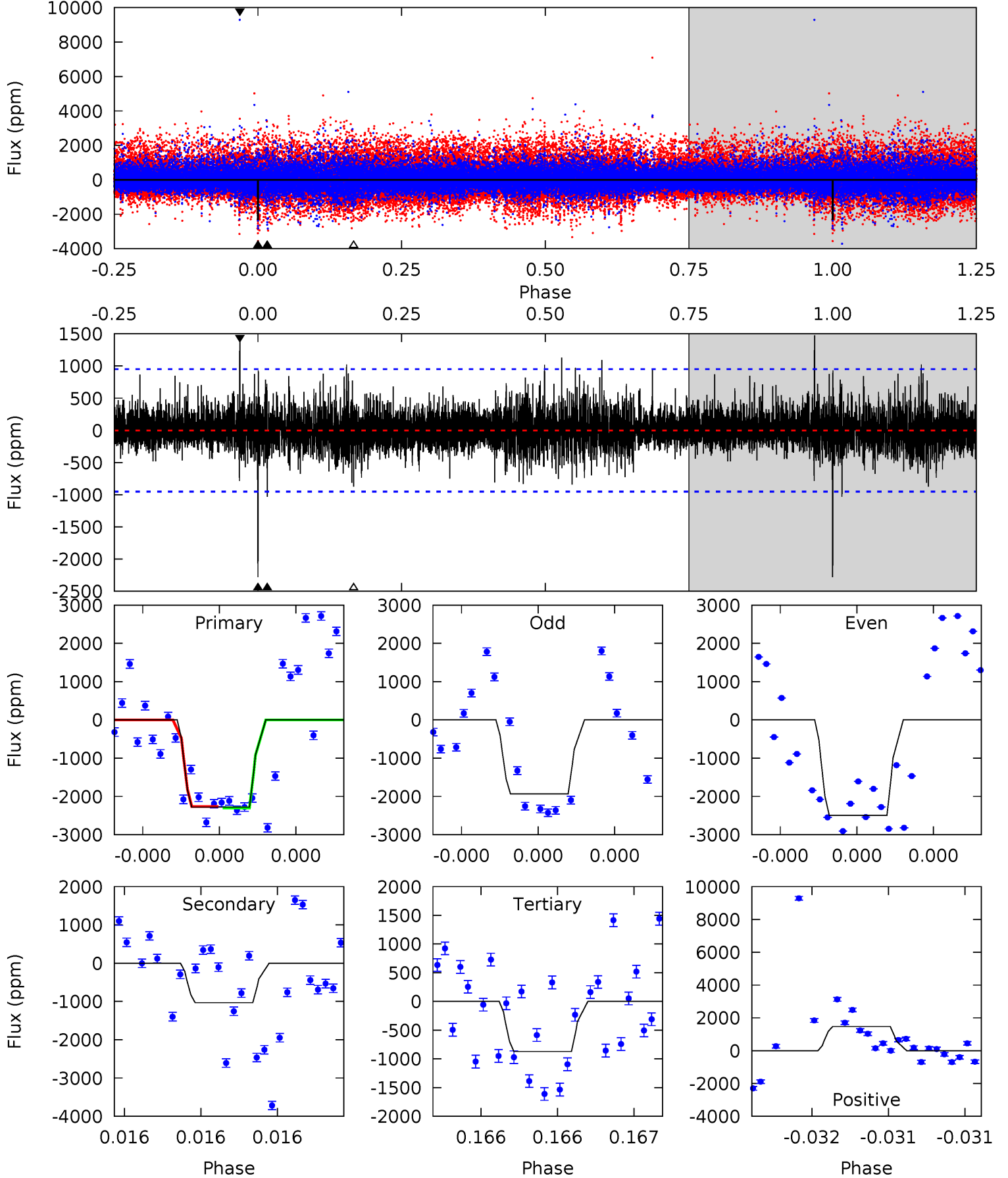
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.52	7.73	5.83	19.6	5.58	3.49	1.68	-0.31	-14.1	1.90	-11.9	1.32	1.14	0.72	1.52



Alt Model-Shift Uniqueness Test

010067340-03, P = 396.772057 Days, E = 63.137369 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	6.10	5.14	8.71	5.62	3.55	1.26	8.32	4.76	0.95	-2.61	1.43	1.00	0.39	0.10



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1620 ± 209	$1.78^{+0.54}_{-0.53}$	140^{+3}_{-3}	3185^{+357}_{-231}	$148717^{+159114}_{-60799}$
Alt.	-1032 ± 169	$1.58^{+0.54}_{-0.51}$	140^{+3}_{-3}	3087^{+371}_{-256}	$121166^{+140111}_{-57227}$

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

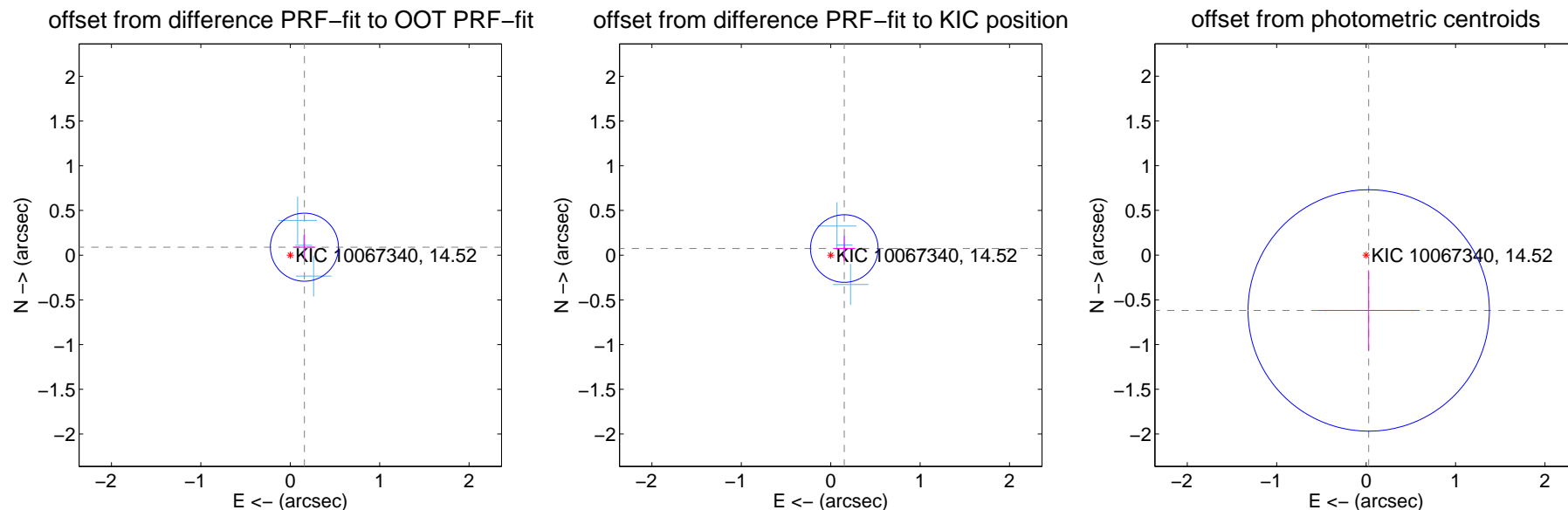
DV Centroid Data

Supplemental centroid analysis for 010067340-03. Kepler magnitude: 14.52. Transit SNR 6.61

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.00 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.182 ± 0.127	1.43	-0.158 ± 0.123	0.089 ± 0.140
PRF-fit source offset from KIC position	0.169 ± 0.126	1.34	-0.152 ± 0.123	0.074 ± 0.140
photometric centroid source offset	0.62 ± 0.45	1.38	-0.03 ± 0.57	-0.62 ± 0.45

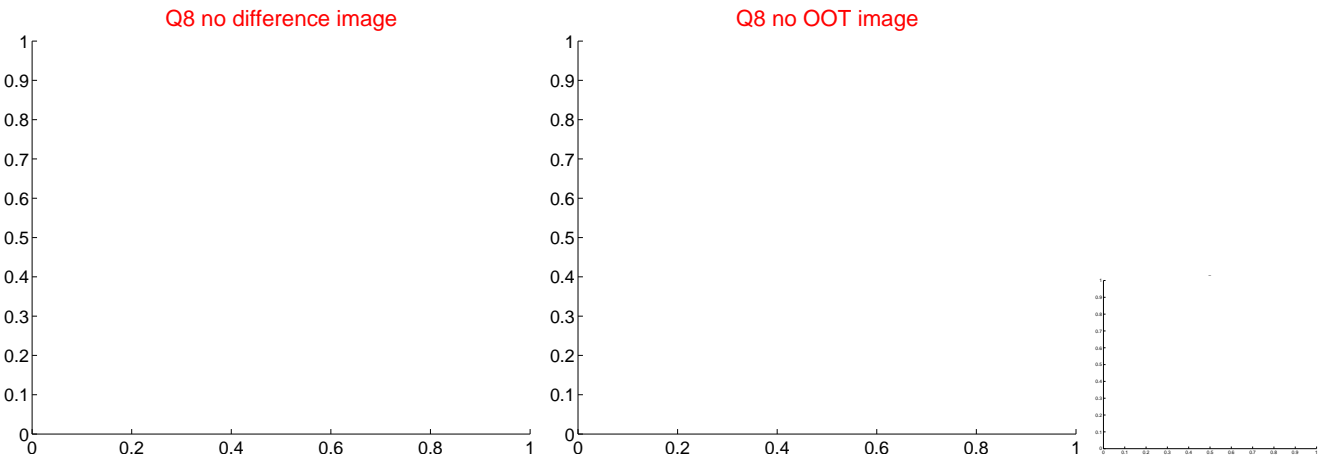
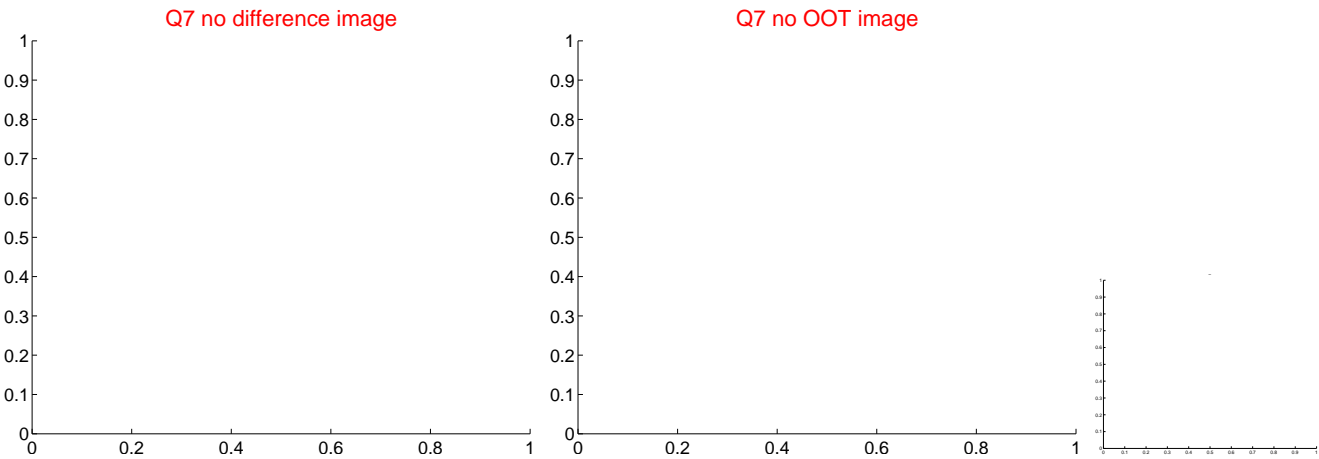
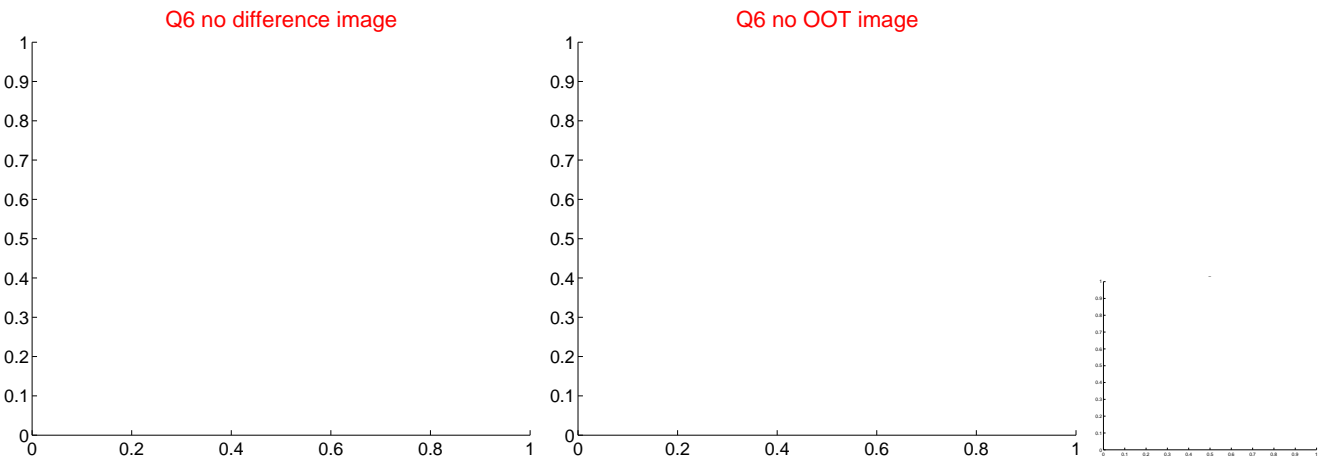
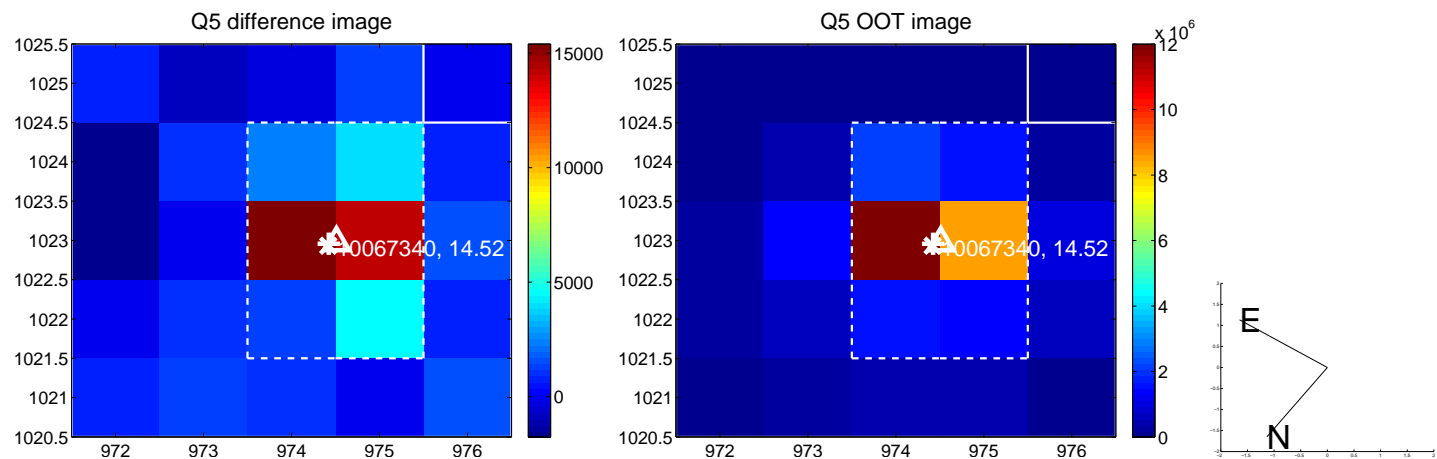


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

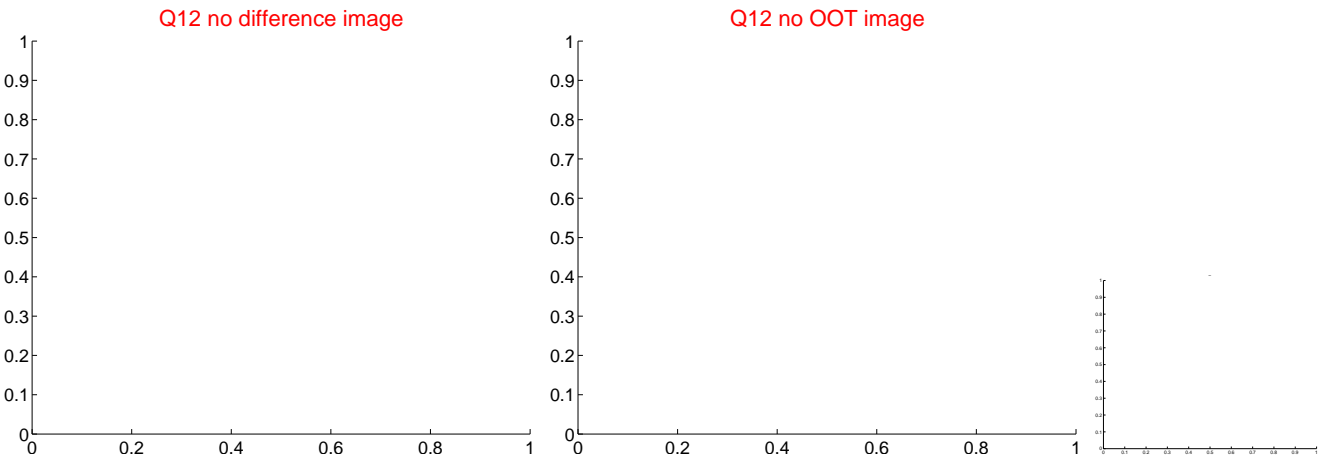
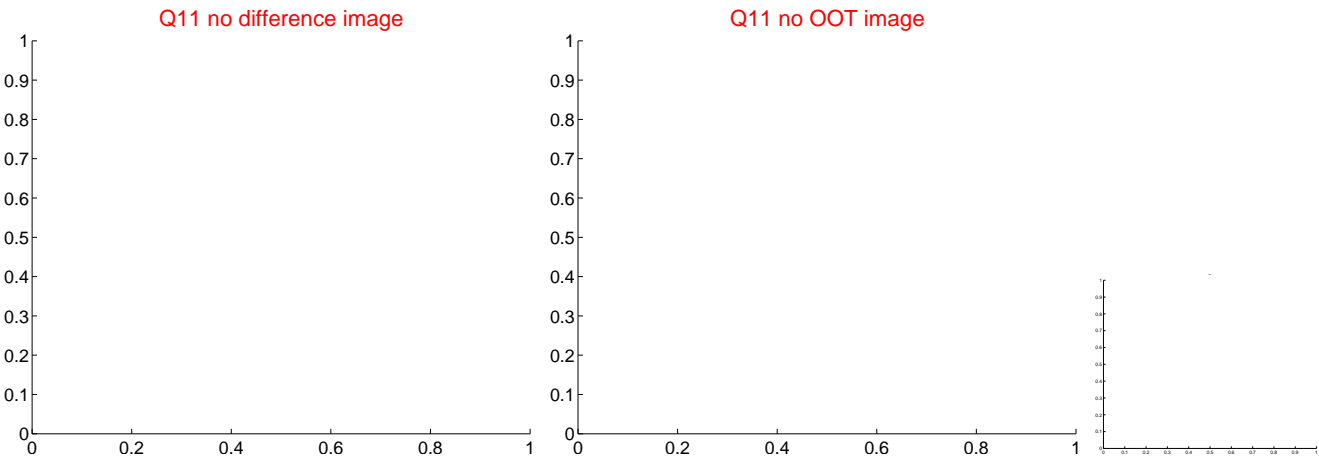
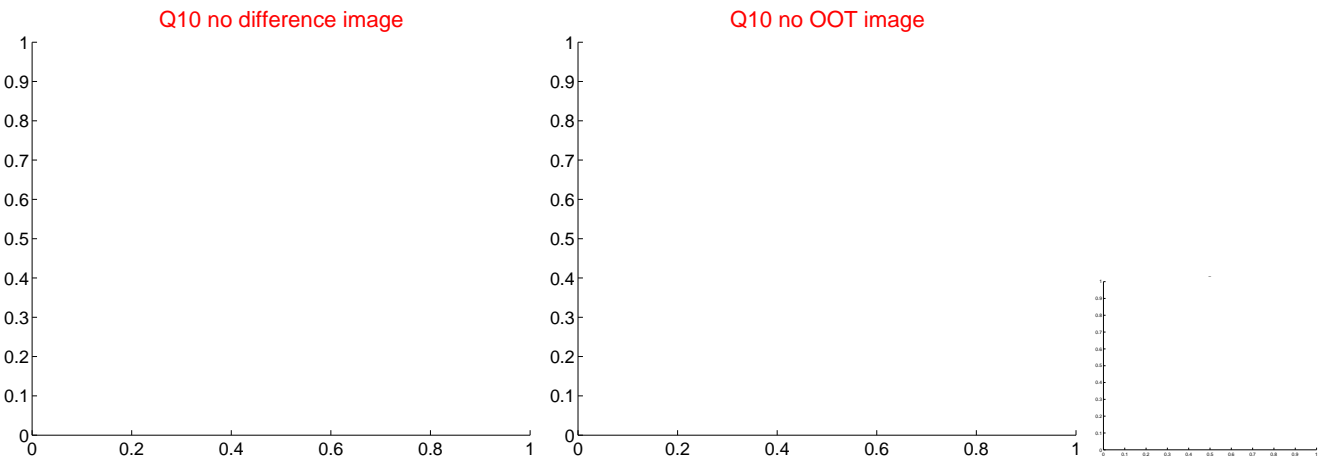
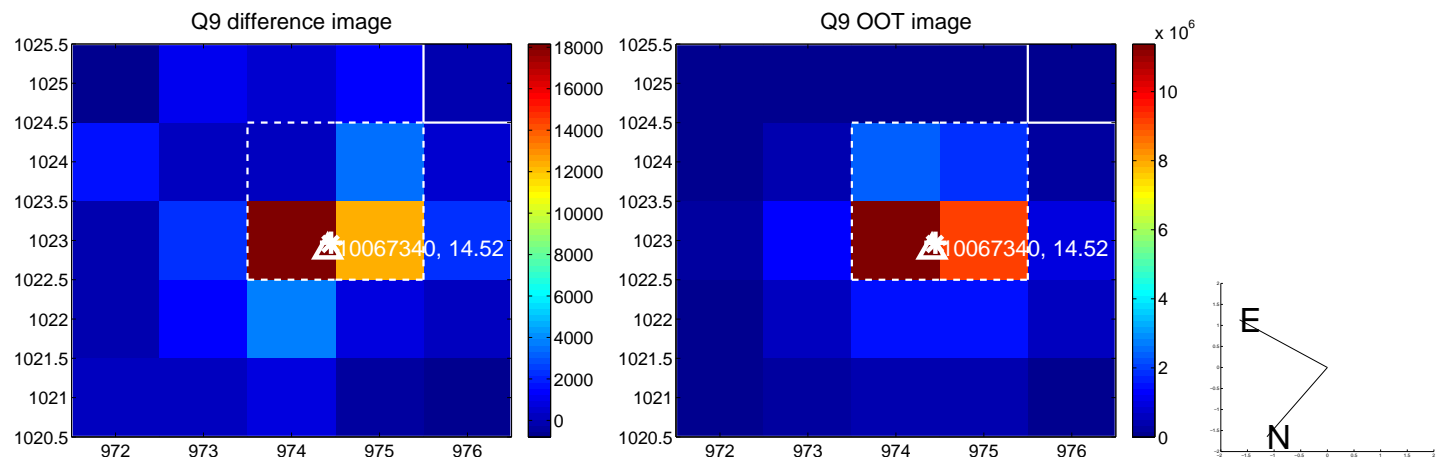
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



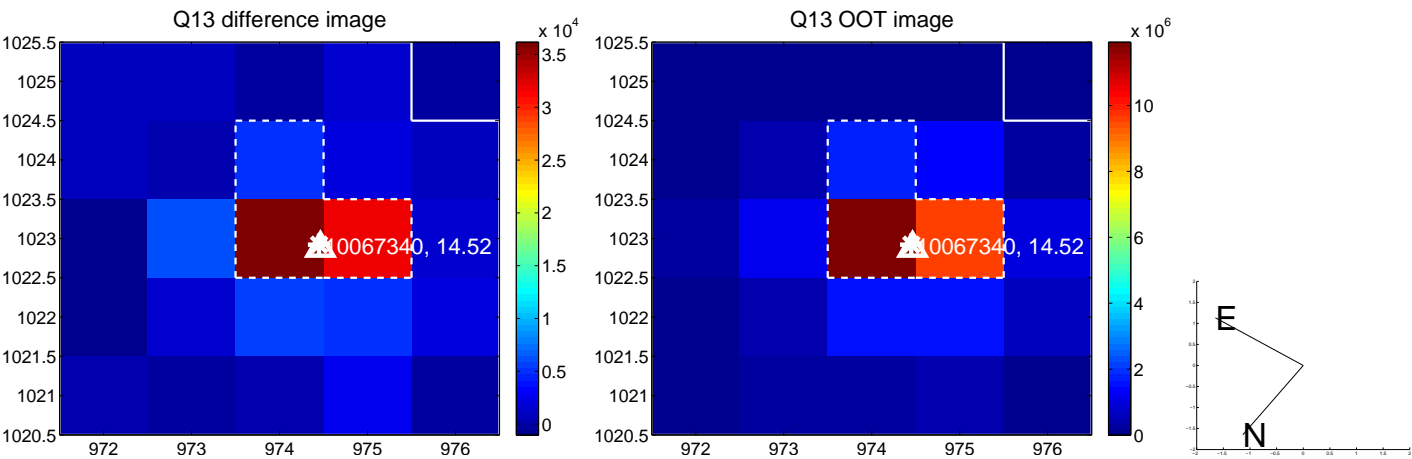
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



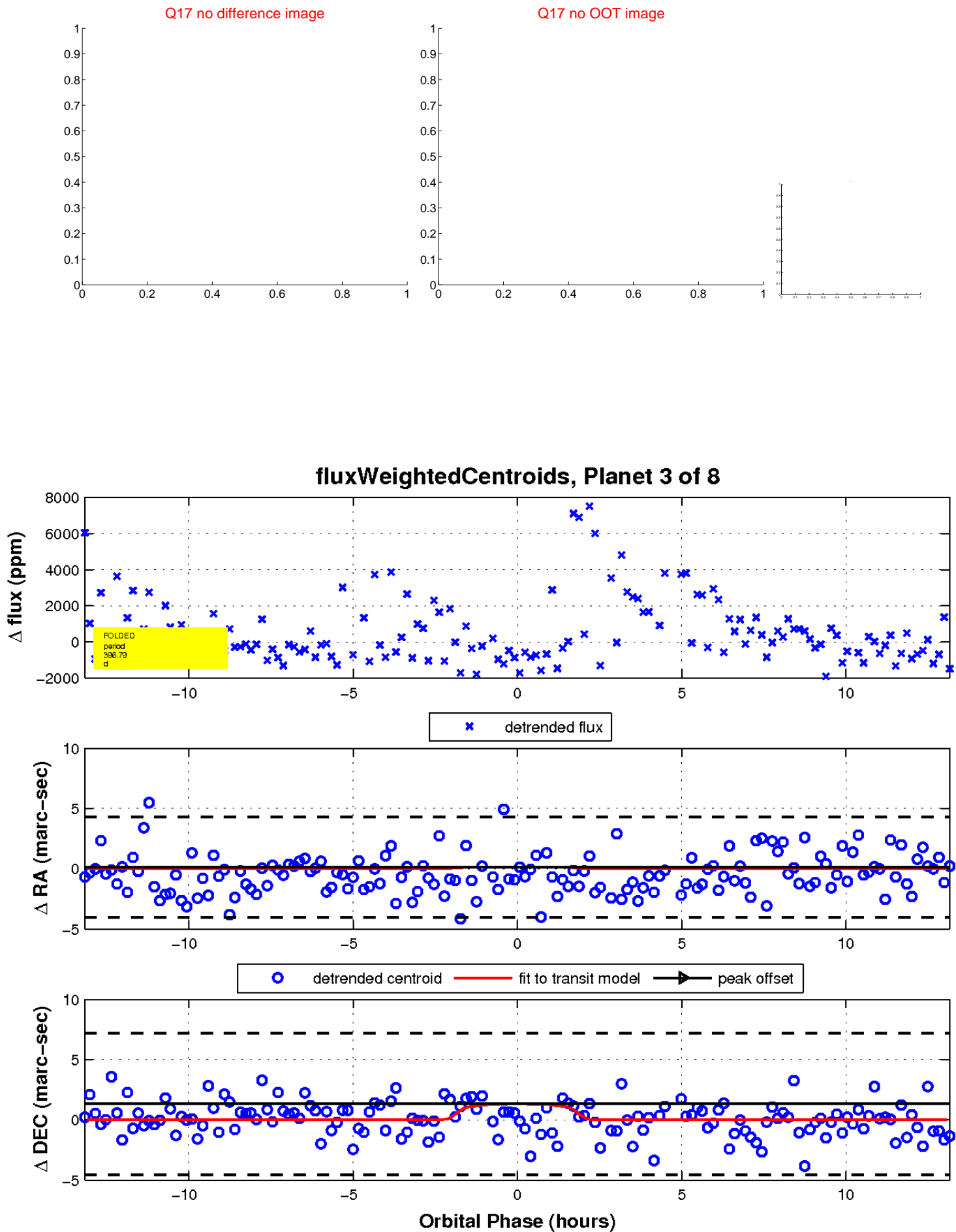
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

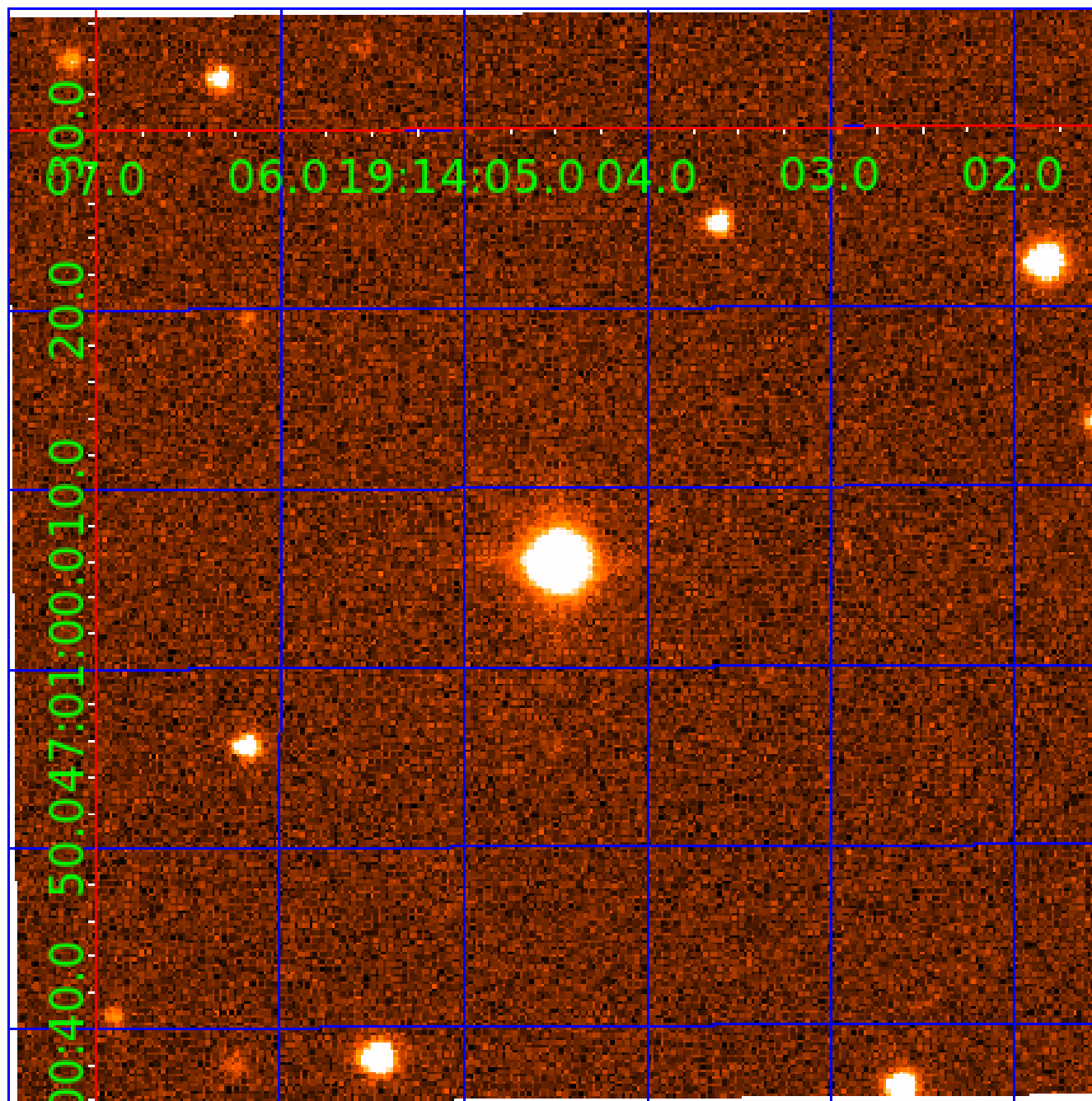


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010067340

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})
010067340-01	OBS	No	638.379363	224.387840	2111.8	5.428	24.4	7.6	0.32	3407	1.47	0.01
010067340-02	OBS	No	345.161189	238.570055	1871.5	13.136	15.5	6.7	0.32	3407	1.44	0.03
010067340-03	OBS	No	396.787463	459.896158	2423.0	4.388	14.8	6.6	0.32	3407	1.79	0.02
010067340-04	OBS	No	227.390338	214.978229	1314.9	3.665	13.9	6.3	0.32	3407	1.20	0.05
010067340-05	OBS	No	640.353440	226.233368	2386.7	5.270	14.0	8.2	0.32	3407	1.57	0.01
010067340-06	OBS	No	474.946108	561.719411	2073.5	7.158	12.7	6.8	0.32	3407	1.46	0.02
010067340-07	OBS	No	254.021862	205.267117	1723.0	7.888	10.3	7.1	0.32	3407	1.37	0.04
010067340-08	OBS	No	513.372761	283.587764	904.9	5.000	11.9	-1.0	0.32	3407	0.96	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010067340-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

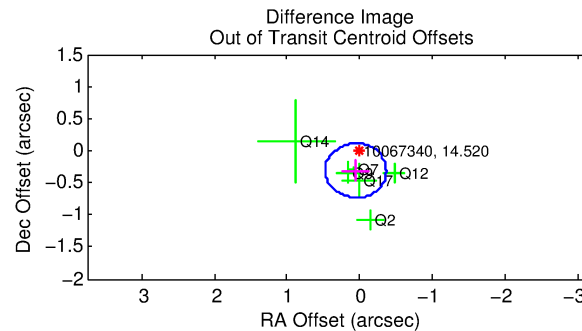
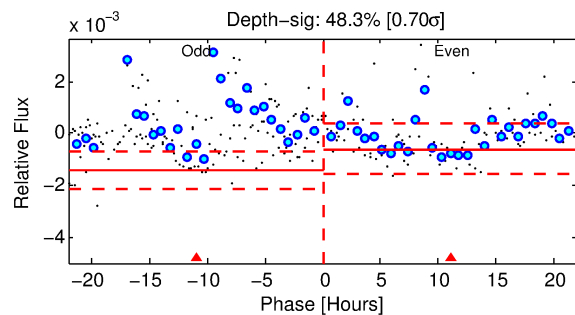
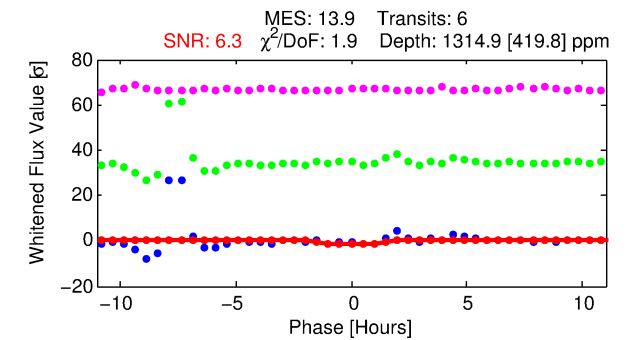
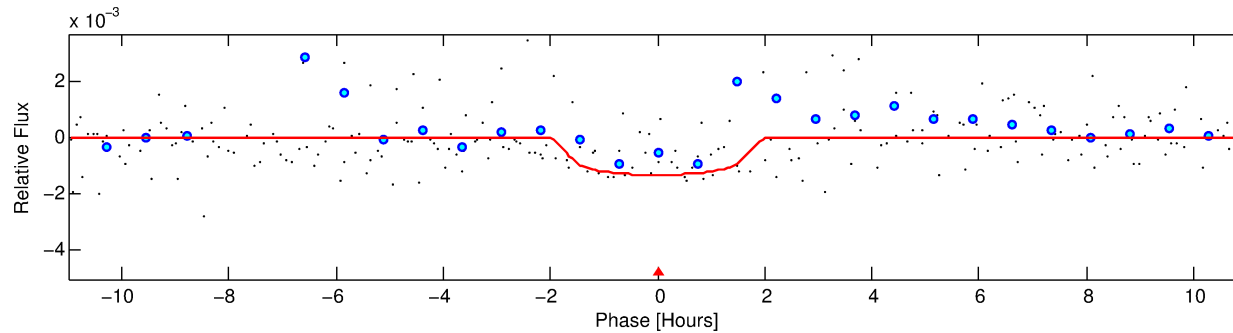
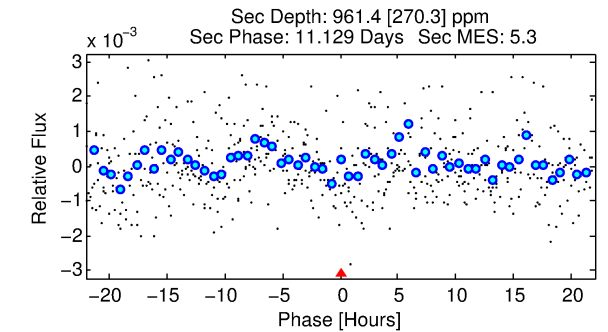
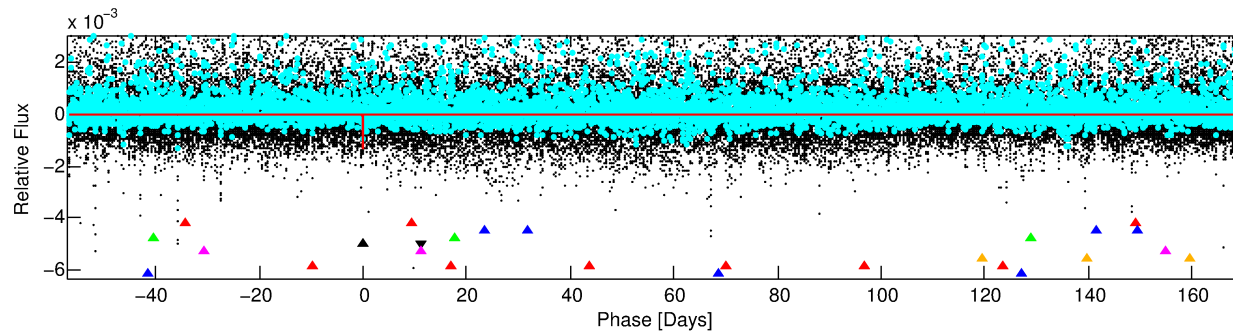
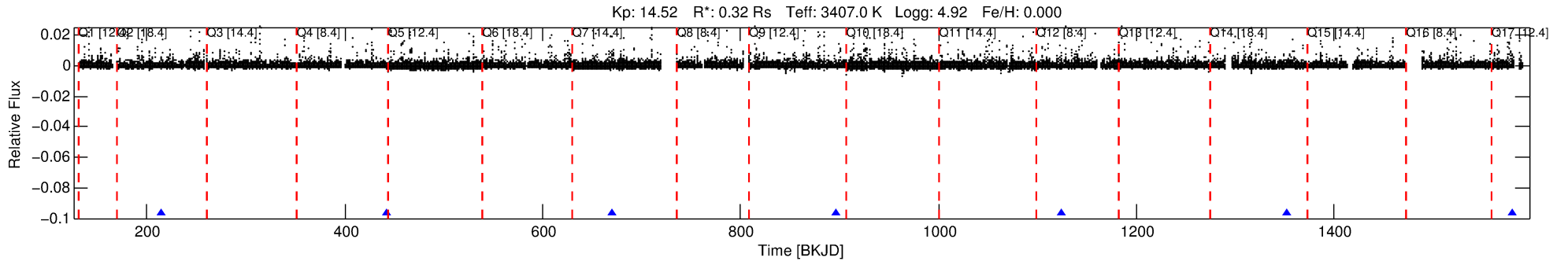
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010067340-04

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 4 of 8 Period: 227.390 d



DV Fit Results:

Period = 227.39034 [0.00404] d
Epoch = 214.9782 [0.0182] BKJD
Rp/R* = 0.0340 [0.0768]
a/R* = 423.12 [4035.84]
b = 0.52 [13.35]
Seff = 0.05 [0.01]
Teq = 121 [3] K
Rp = 1.20 [2.72] Re
a = 0.4992 [0.0400] AU
Ag = 91330.96 [413813.12] [0.22σ]
Teffp = 3255 [3686] K [0.85σ]

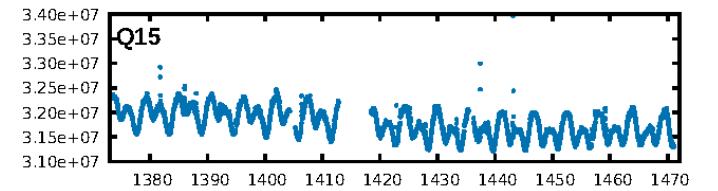
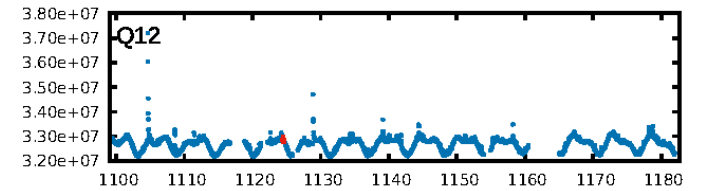
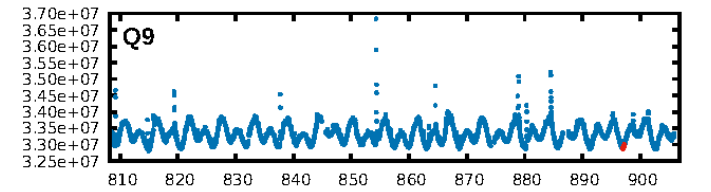
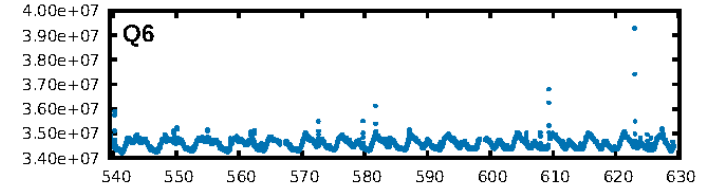
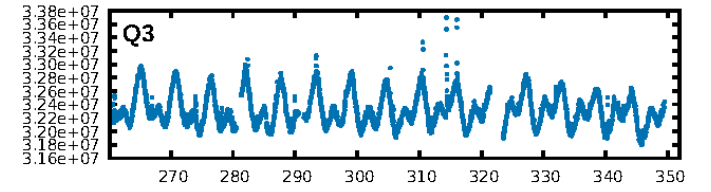
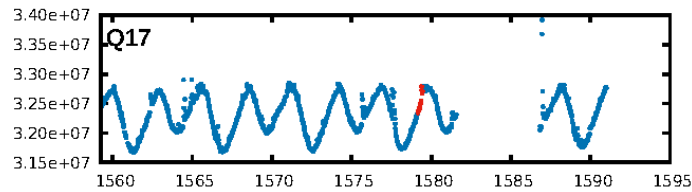
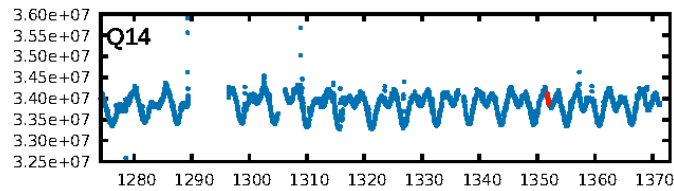
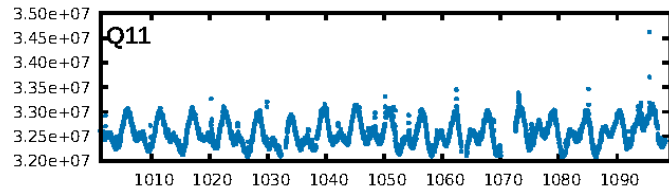
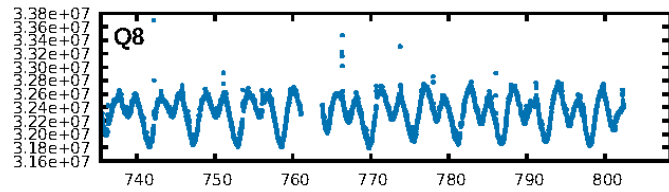
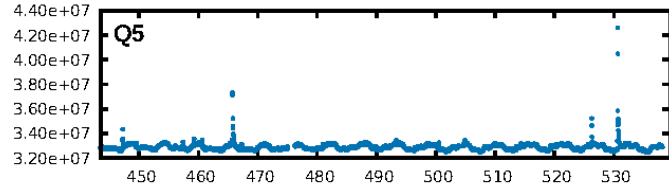
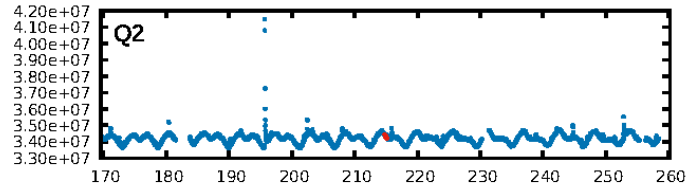
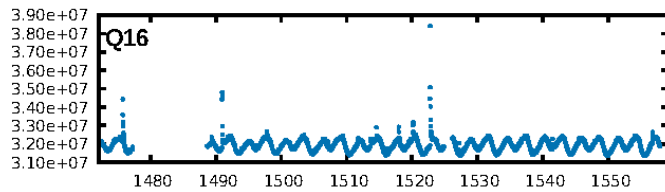
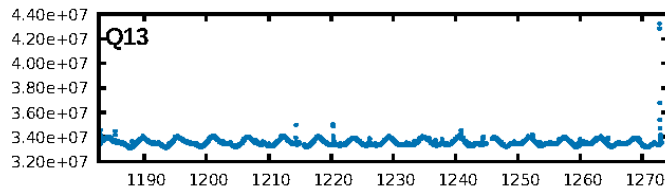
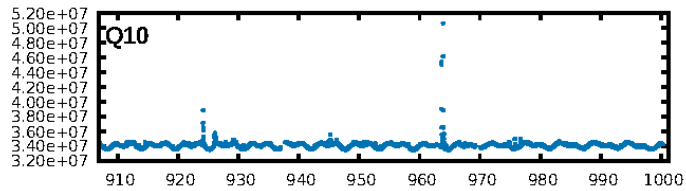
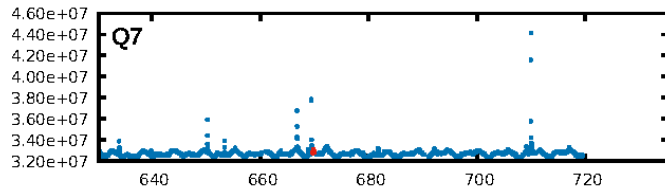
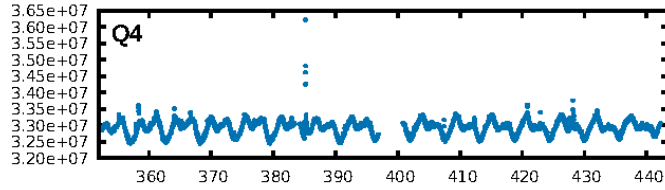
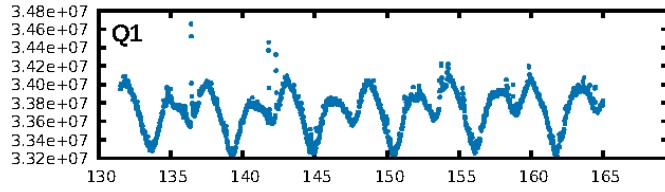
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [73.48σ]
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 34.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.09619
Centroid-sig: 0.9%
Centroid-so: 1.134 arcsec [1.86σ]
OotOffset-rm: 0.315 arcsec [2.24σ]
KicOffset-rm: 0.437 arcsec [2.79σ]
OotOffset-st: 2/1/1/2 [6]
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DiffImageQuality-fgm: 0.83 [5/6]
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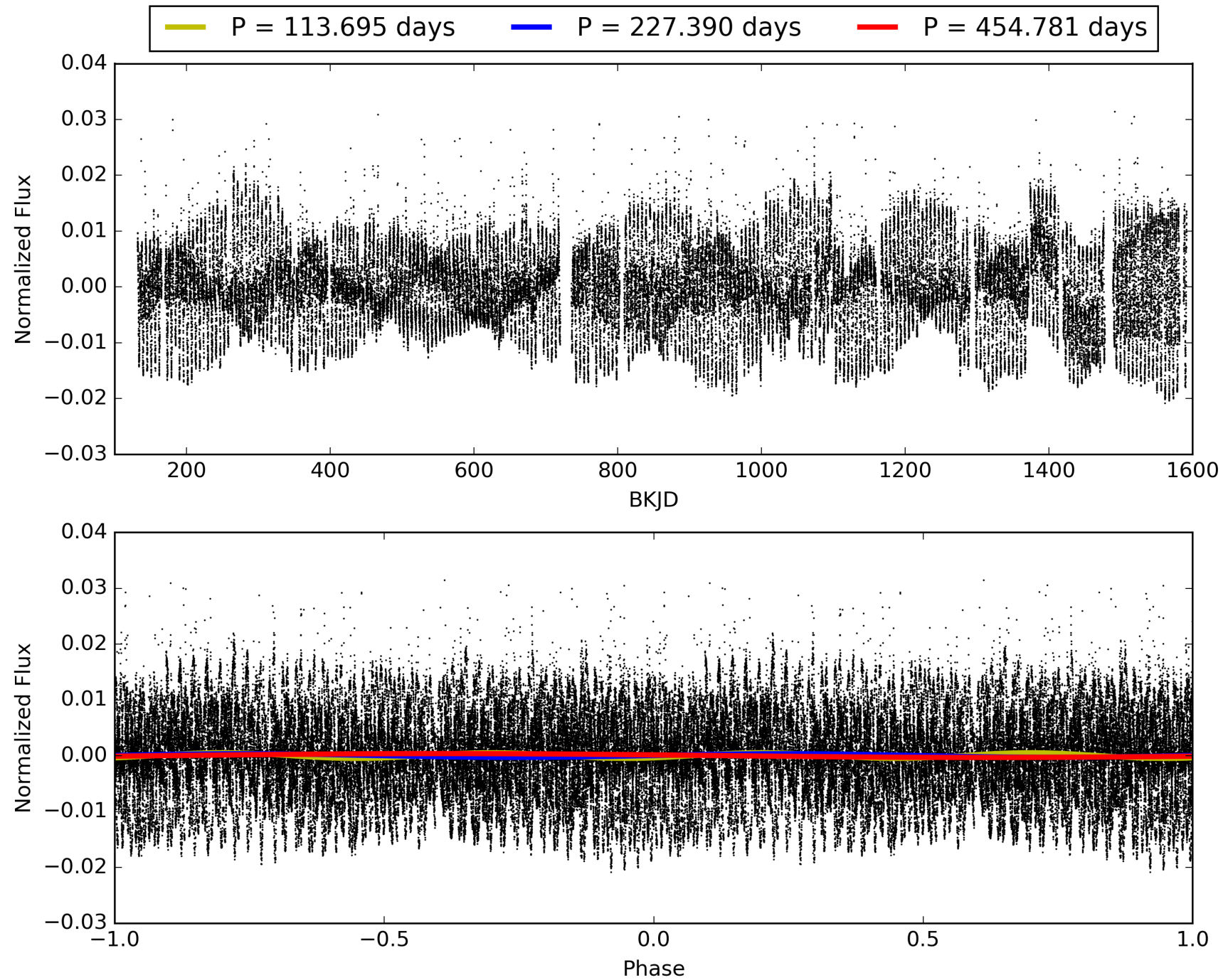
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:42:20 Z

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

TCE 010067340-04, PDC Light Curves

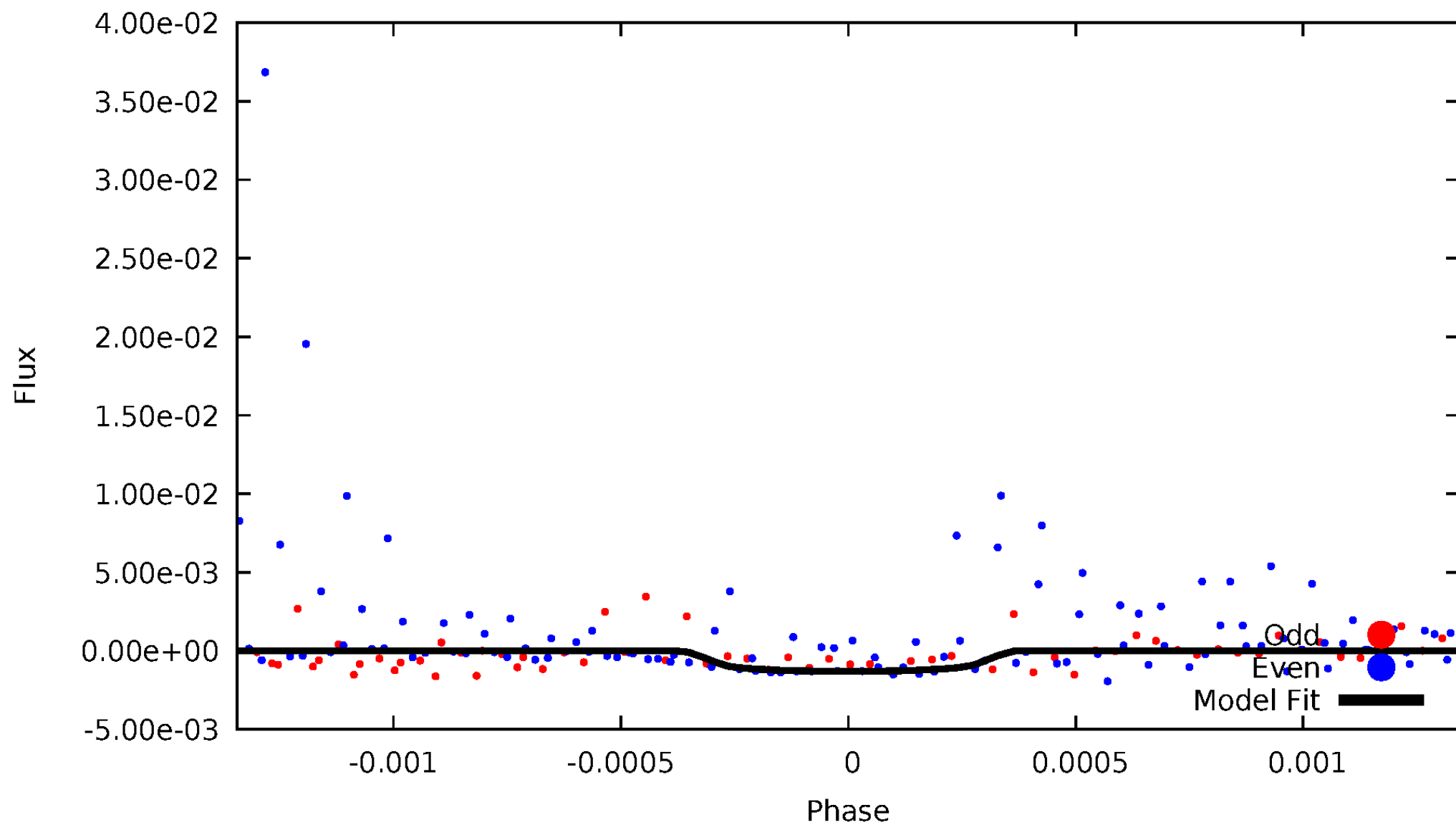


TCE 010067340-04



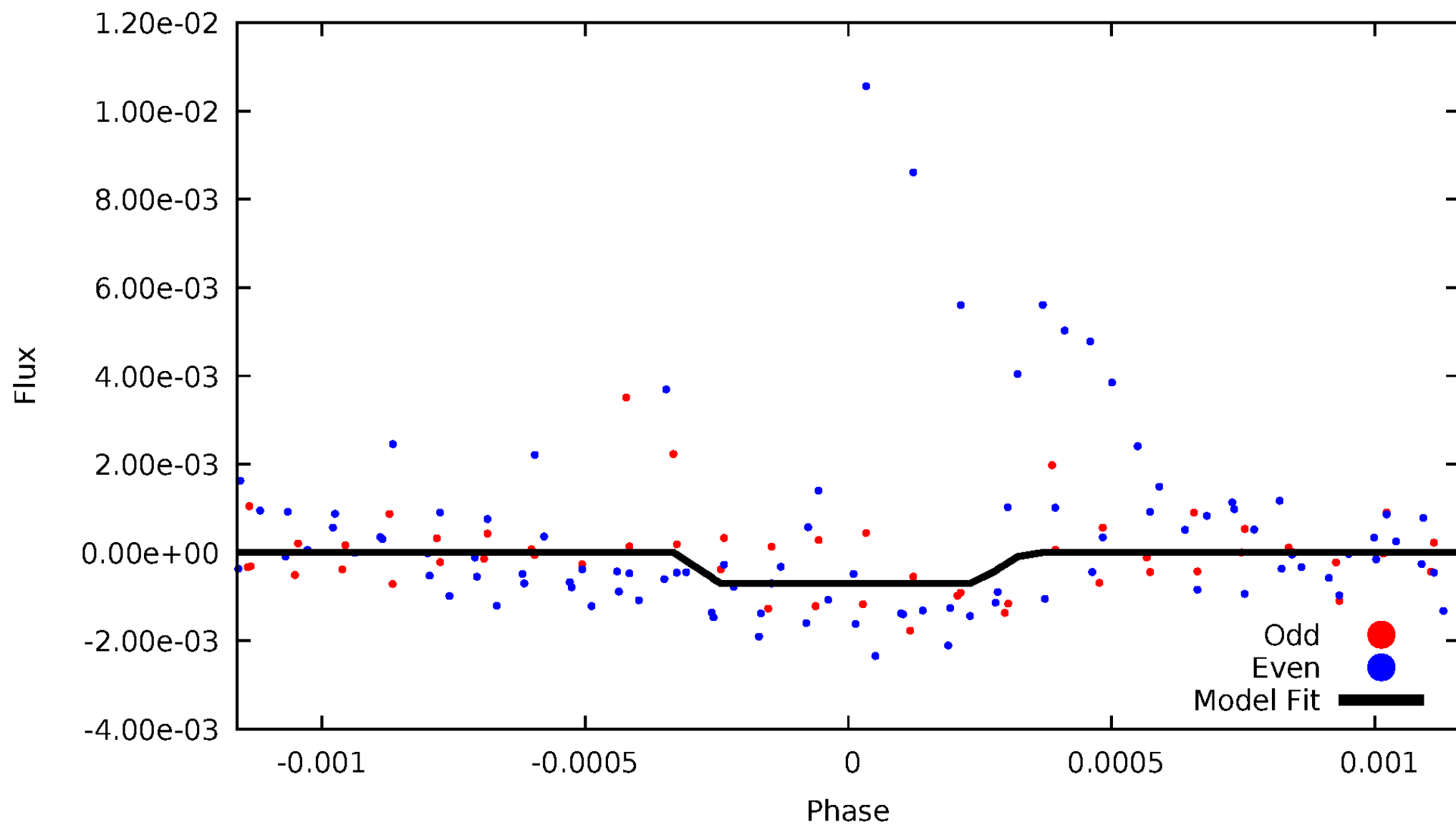
DV Odd/Even

TCE 010067340-04



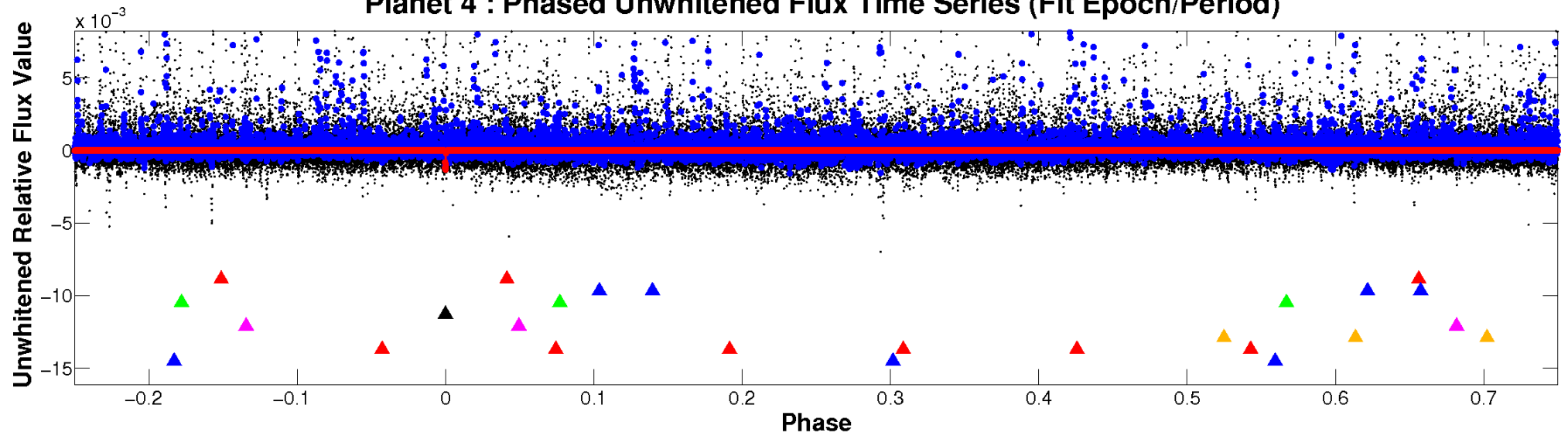
ALT Odd/Even

TCE 010067340-04

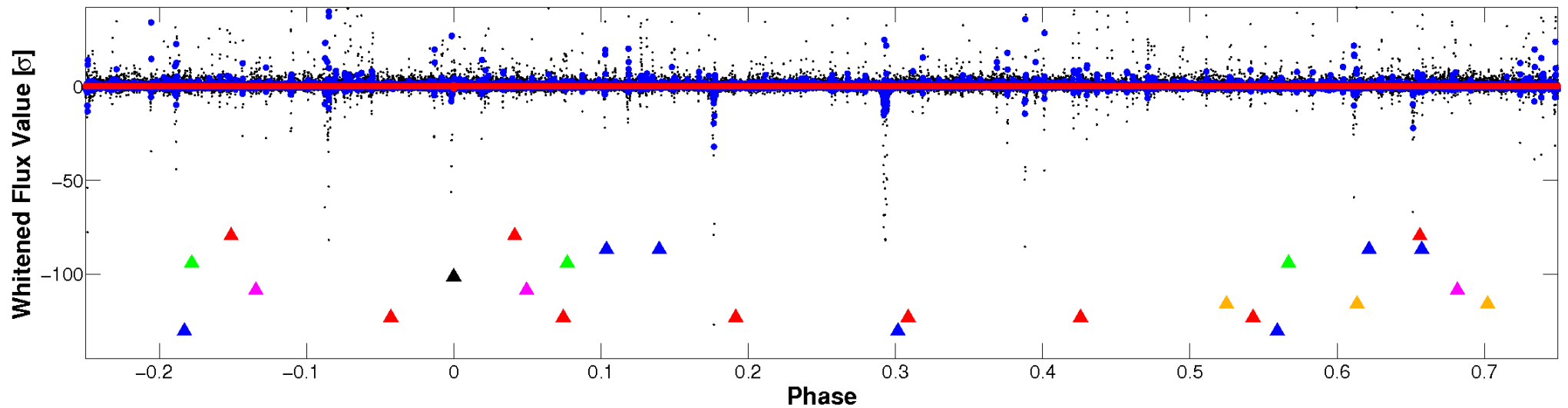


Non-Whitened Vs. Whitened Light Curve

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

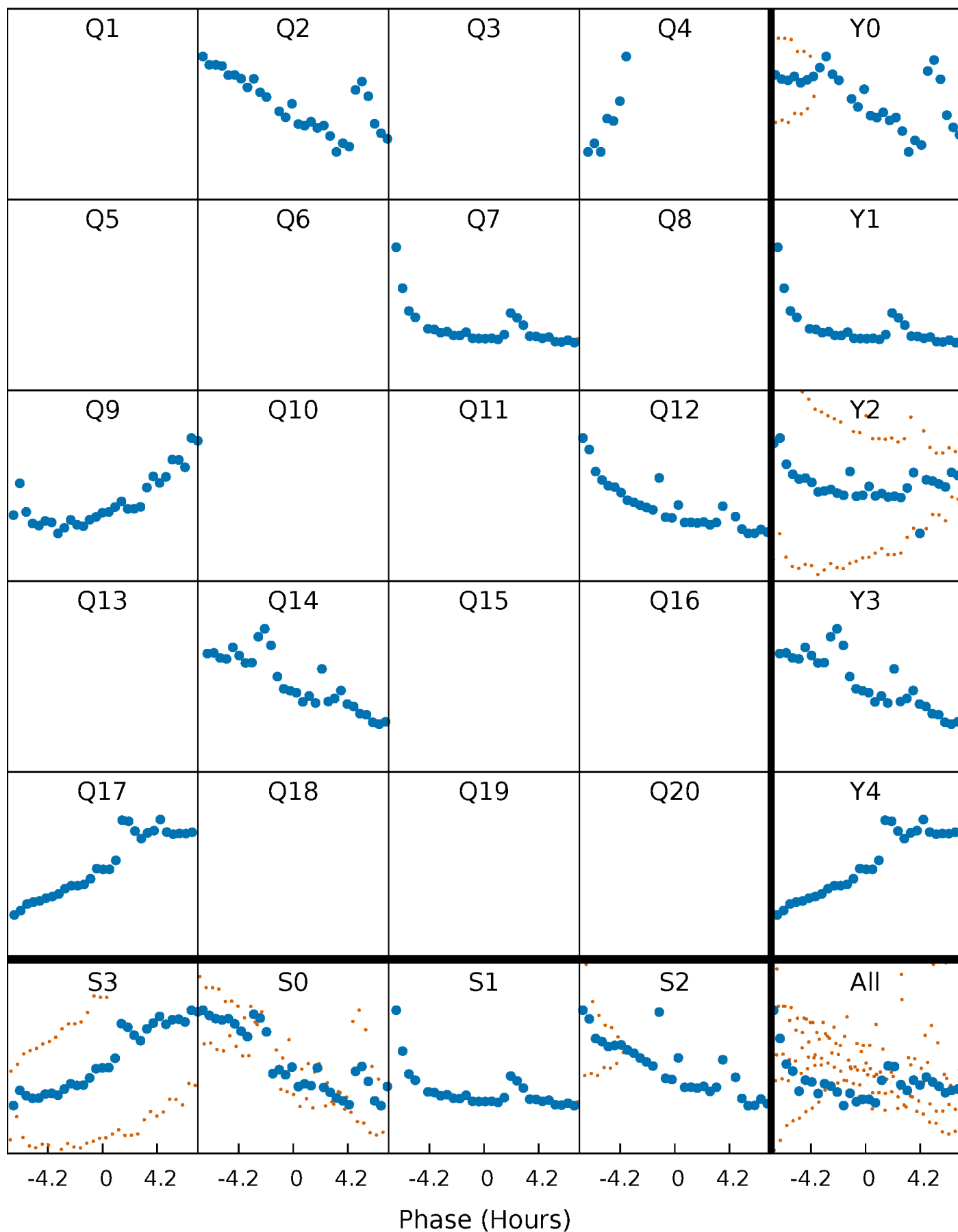


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



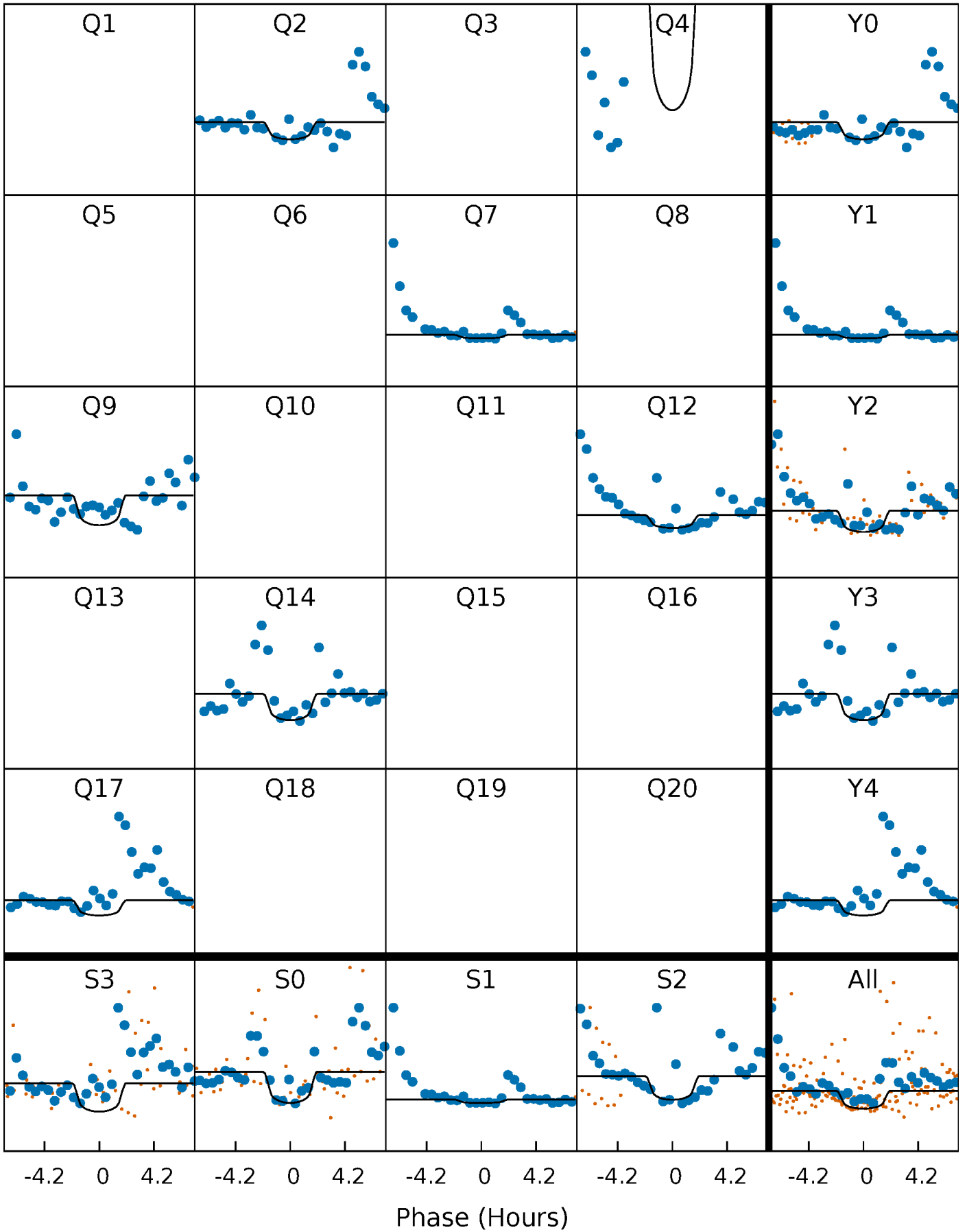
PDC Quarter-Phased Transit Curves

TCE 010067340-04 P=227.390338 Days $T_0=214.978229$ (BKJD)



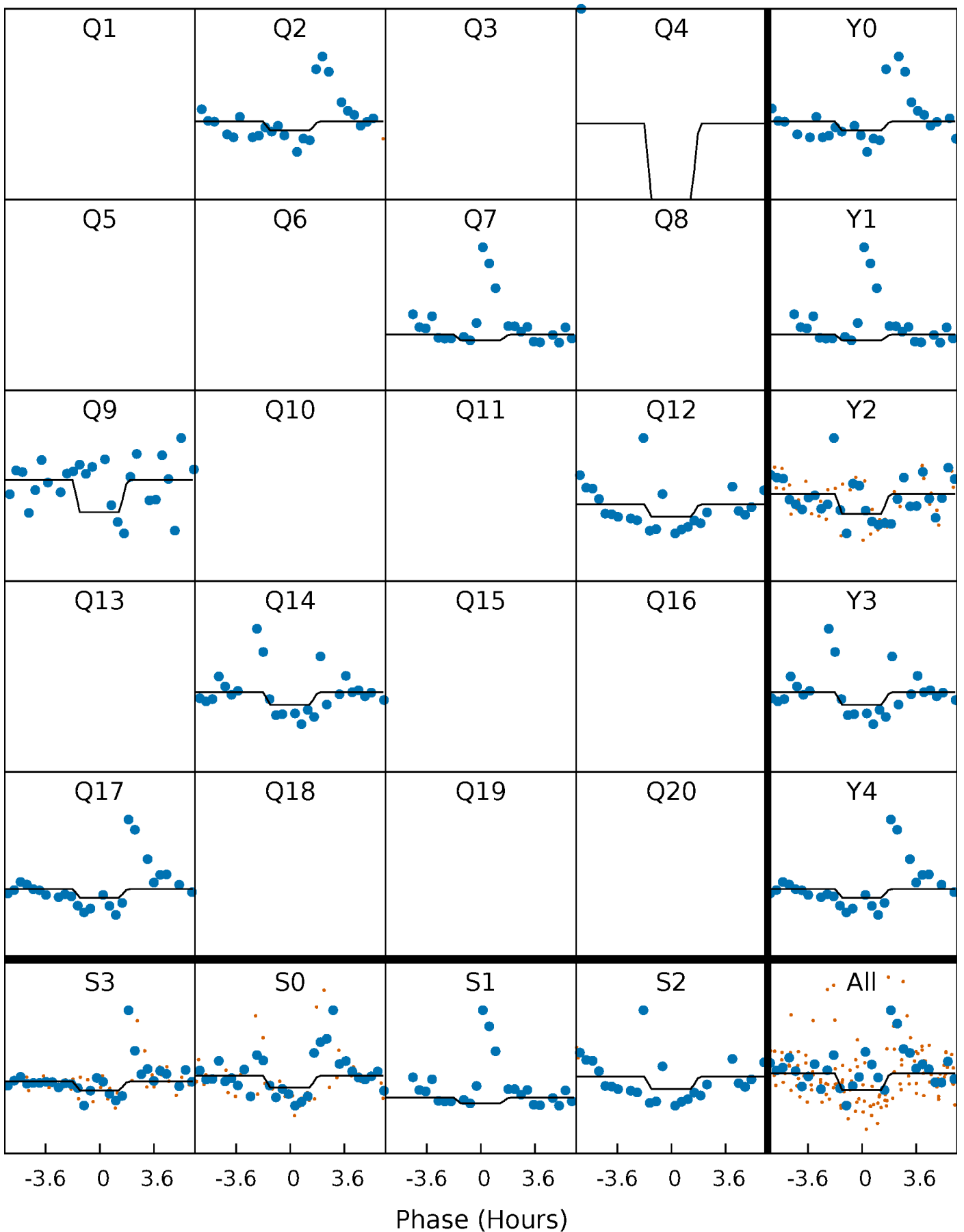
DV Quarter-Phased Transit Curves

TCE 010067340-04 P=227.390338 Days $T_0=214.978229$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

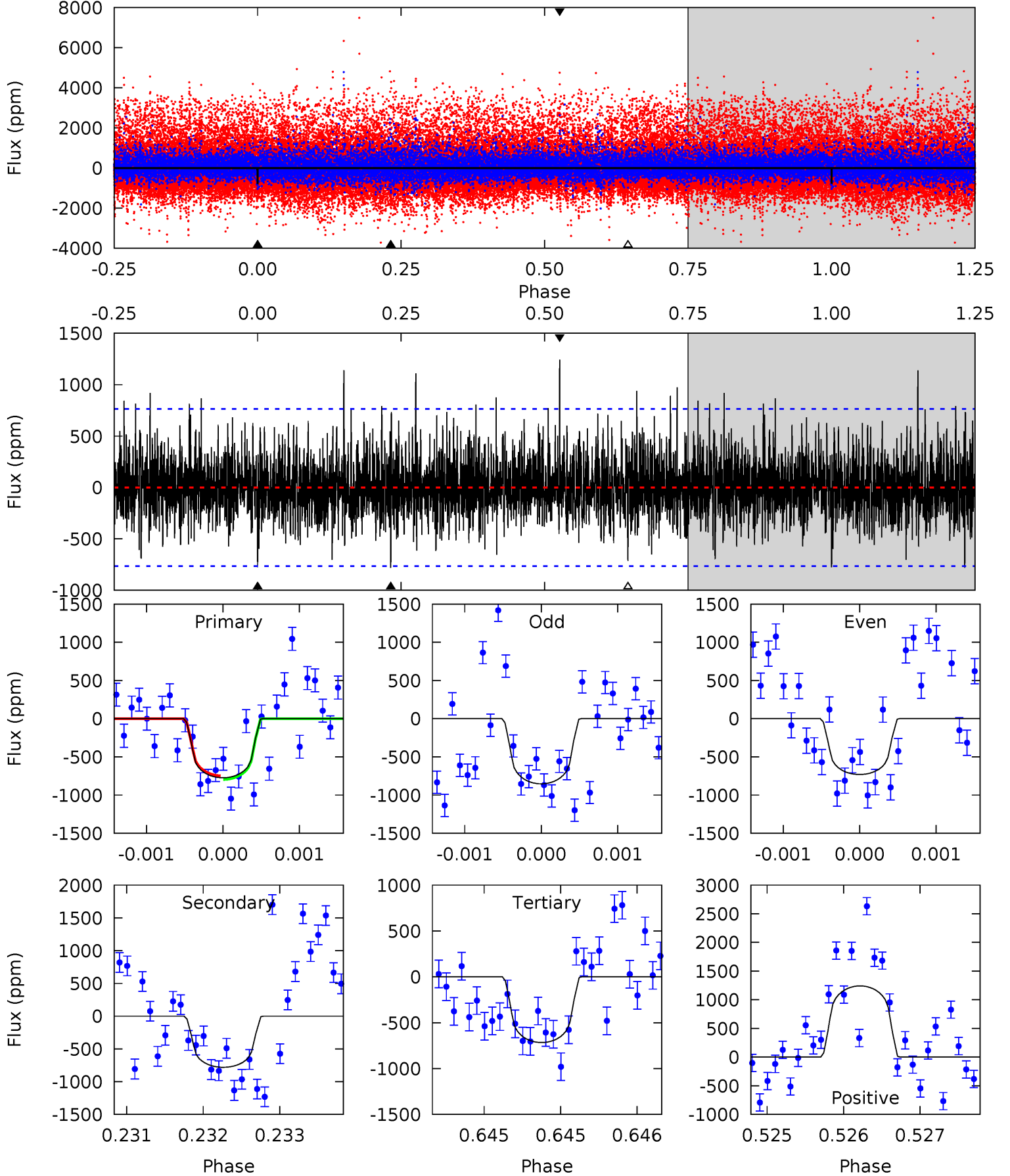
TCE 010067340-04 P=227.365714 Days $T_0=215.096106$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-04, P = 227.390338 Days, E = 214.978229 Days

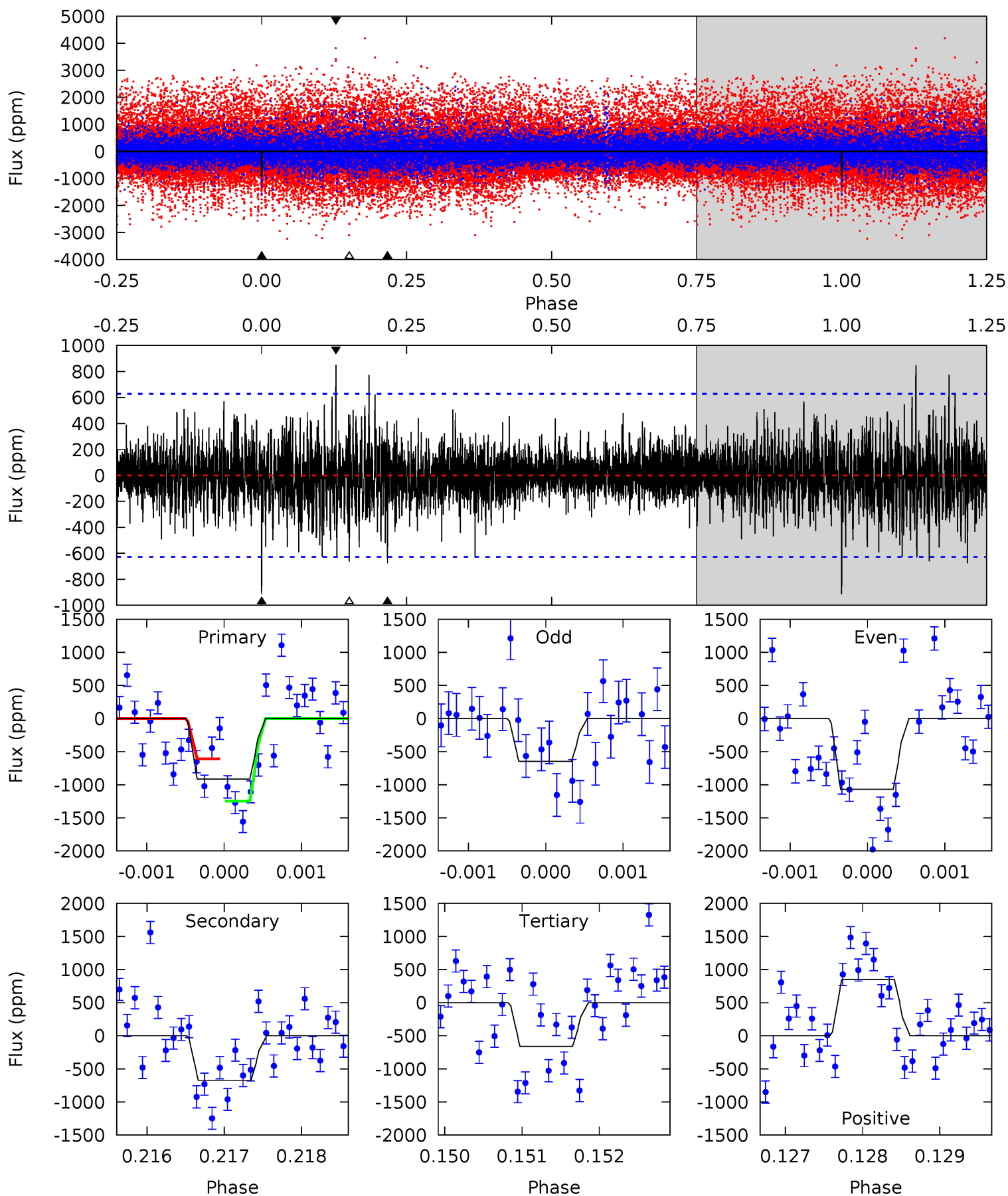
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.57	5.62	5.15	8.93	5.50	3.37	1.70	0.41	-3.37	0.47	-3.31	0.37	0.59	0.61	0.17



Alt Model-Shift Uniqueness Test

010067340-04, P = 227.365714 Days, E = 215.096106 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.03	5.94	5.81	7.46	5.52	3.39	1.32	2.22	0.57	0.13	-1.52	1.69	0.13	0.48	2.80



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-781 ± 139	$2.20^{+2.33}_{-1.47}$	169^{+4}_{-4}	2714^{+995}_{-441}	$22222^{+174143}_{-17044}$
Alt.	-676 ± 114	$2.30^{+1.98}_{-1.57}$	169^{+4}_{-4}	2648^{+1072}_{-398}	$17912^{+169340}_{-13066}$

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

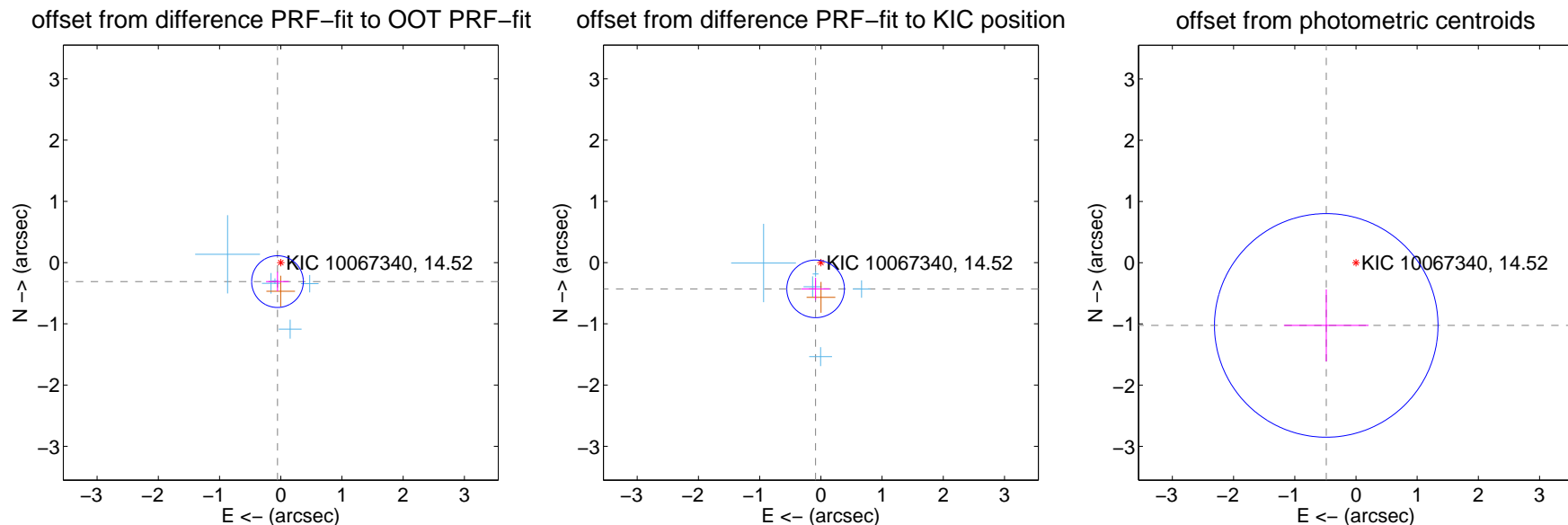
DV Centroid Data

Supplemental centroid analysis for 010067340-04. Kepler magnitude: 14.52. Transit SNR 6.30

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.315 ± 0.141	2.24	0.054 ± 0.186	-0.311 ± 0.158
PRF-fit source offset from KIC position	0.437 ± 0.157	2.79	0.086 ± 0.230	-0.429 ± 0.182
photometric centroid source offset	1.13 ± 0.61	1.86	0.49 ± 0.69	-1.03 ± 0.59



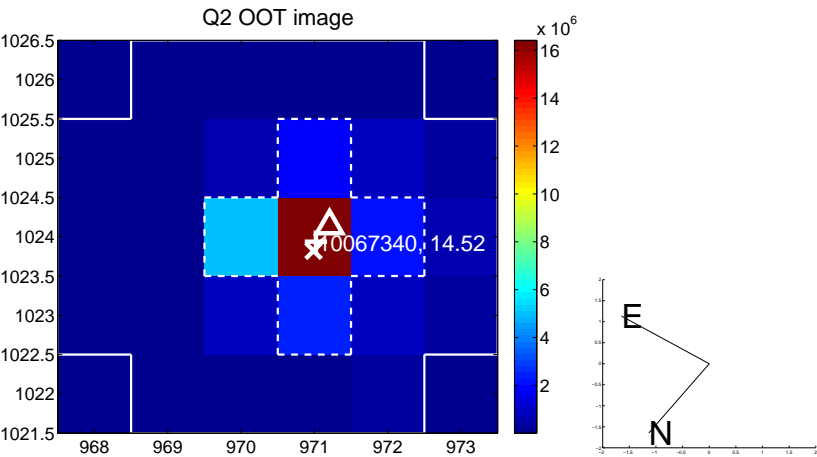
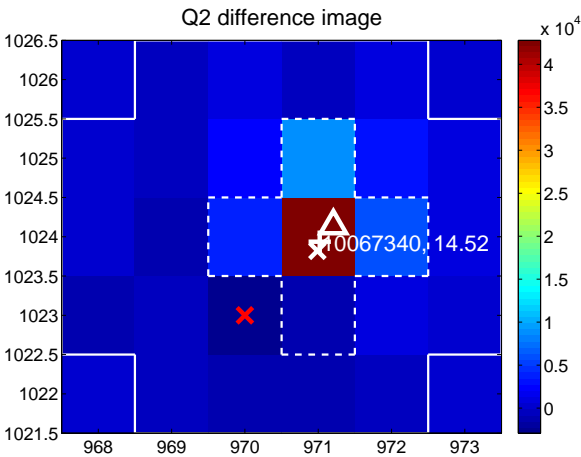
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

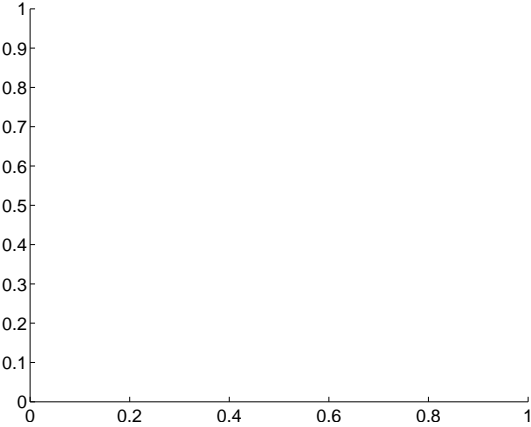
Q1 no difference image



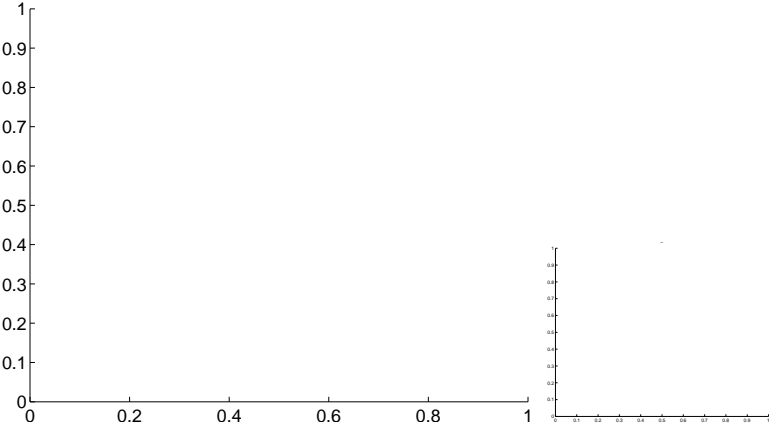
Q1 no OOT image



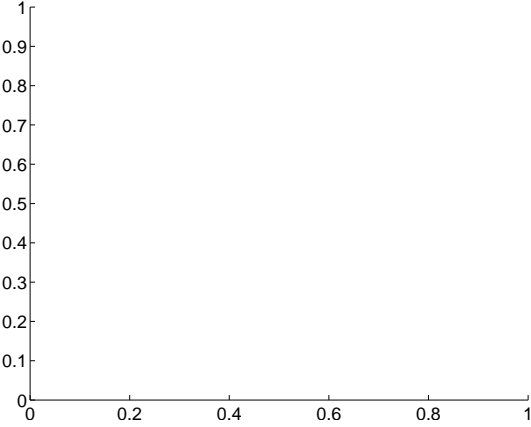
Q3 no difference image



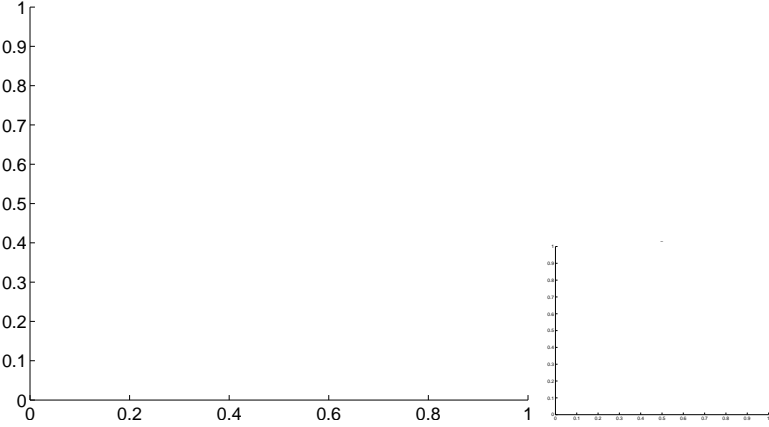
Q3 no OOT image



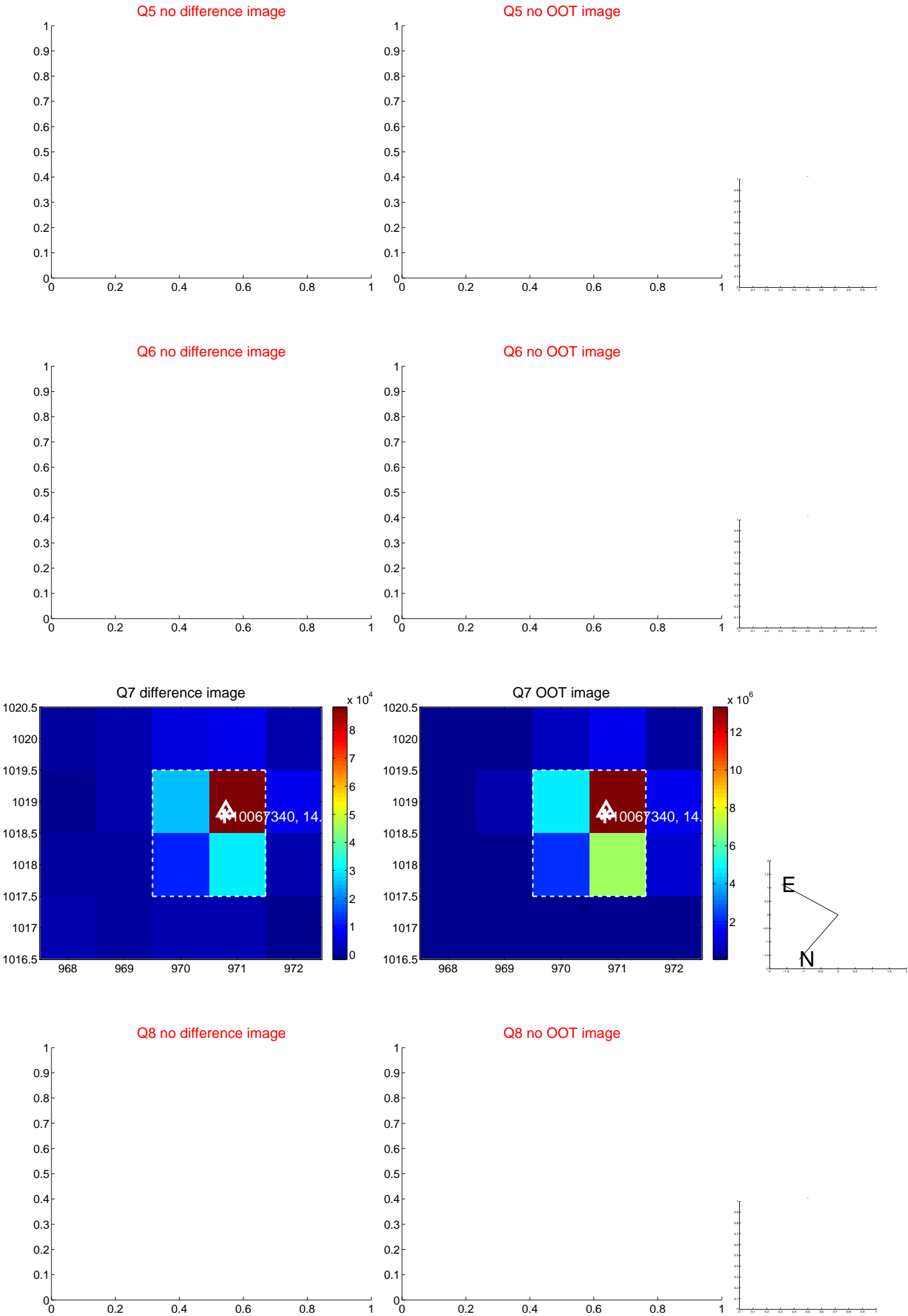
Q4 no difference image



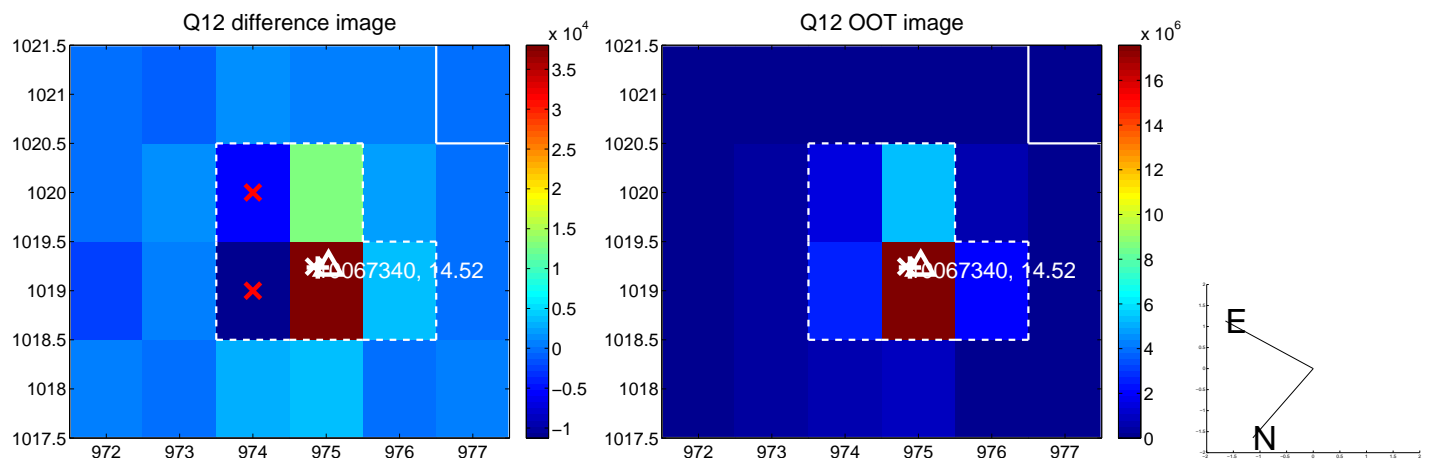
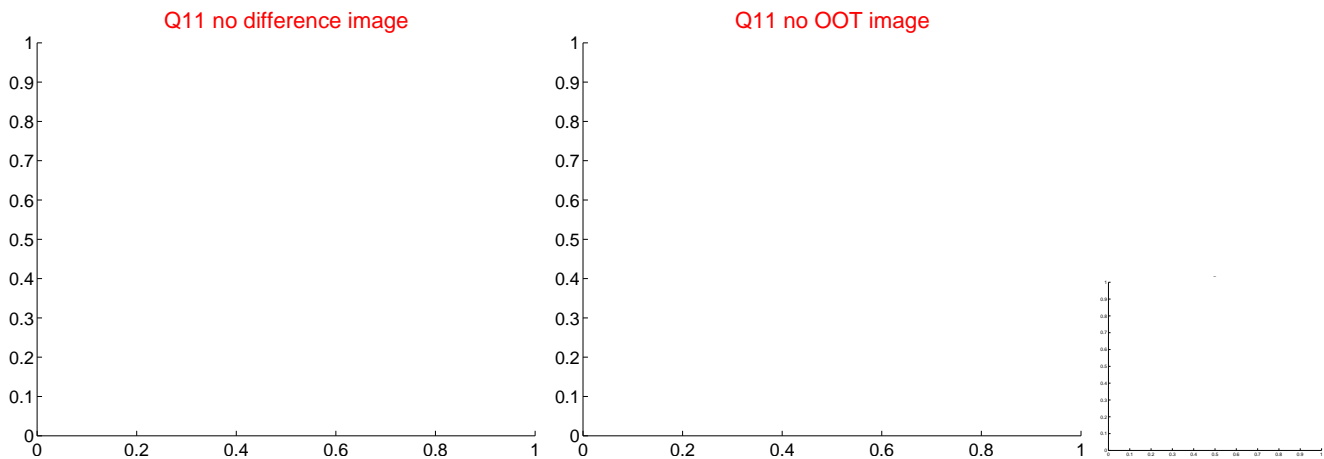
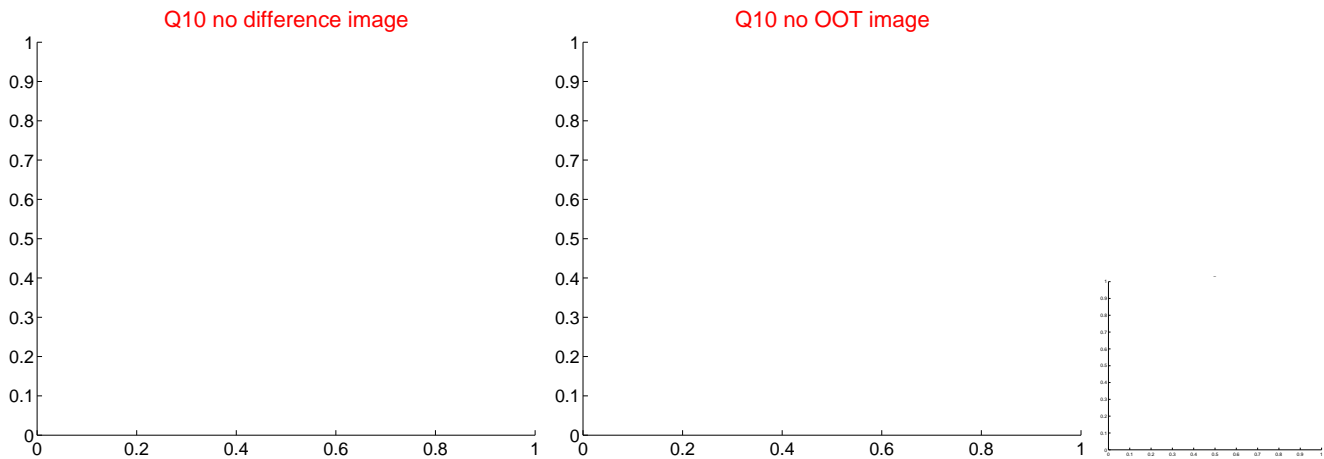
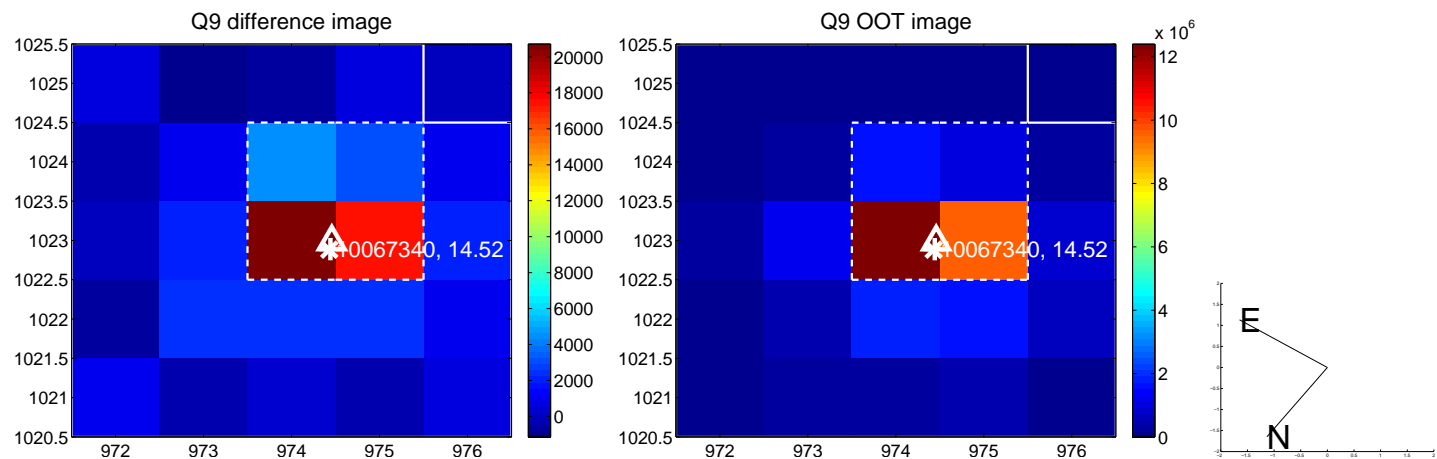
Q4 no OOT image



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



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.

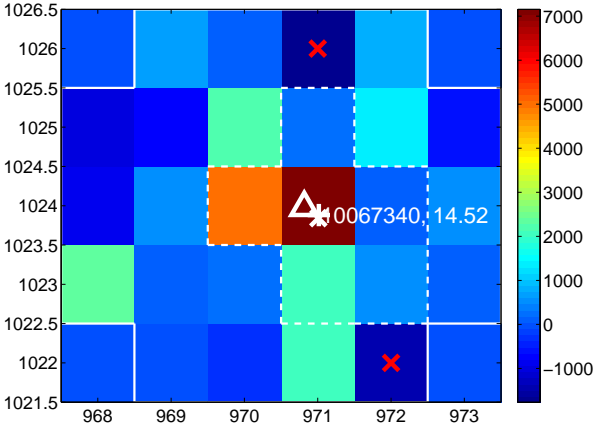
Q13 no difference image



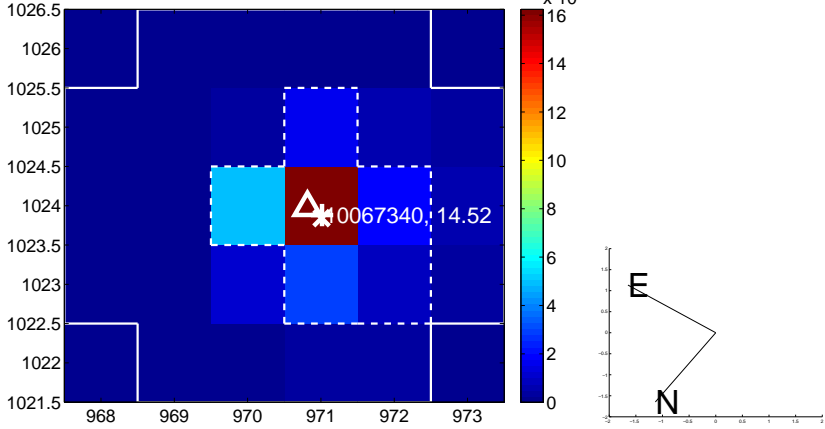
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



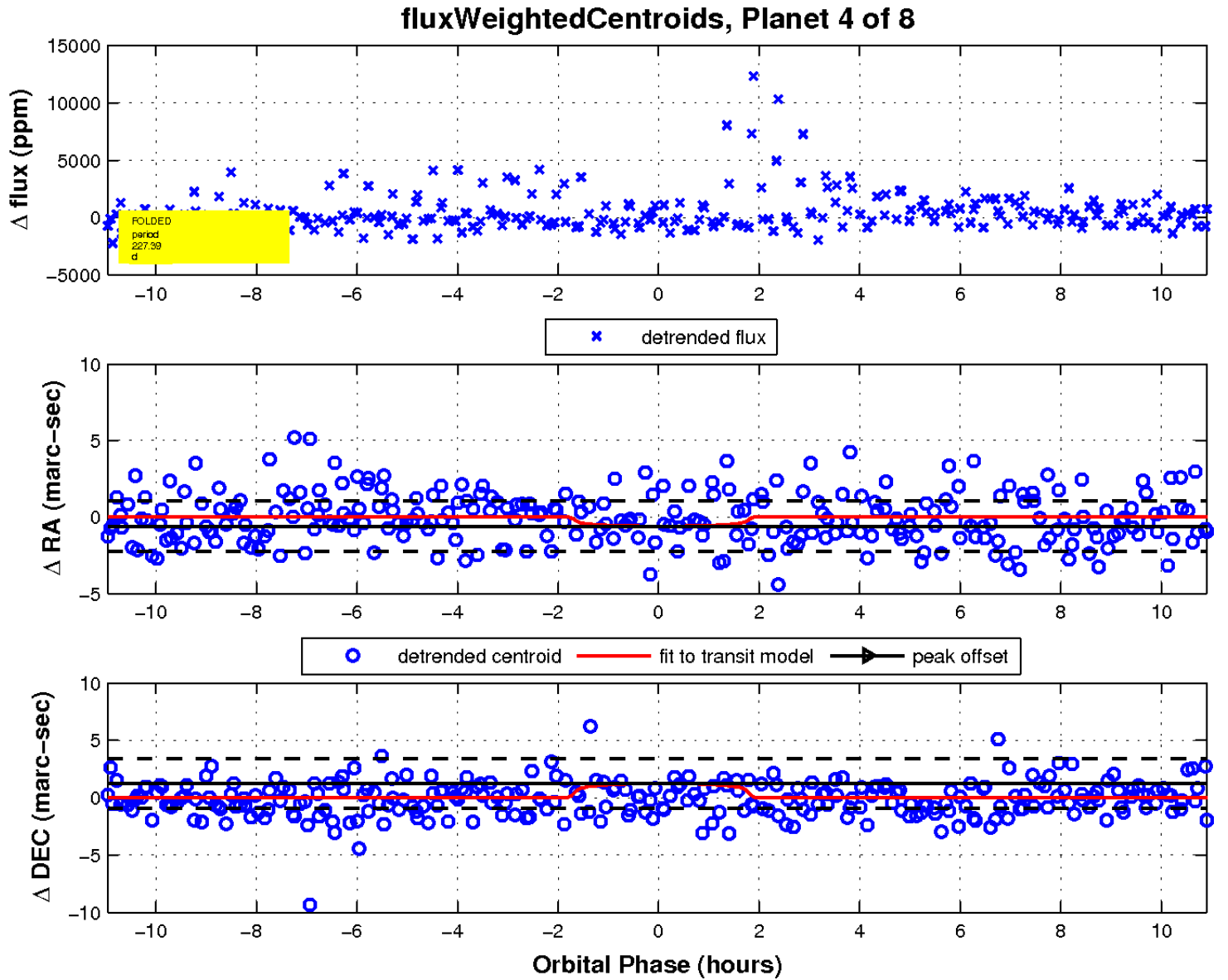
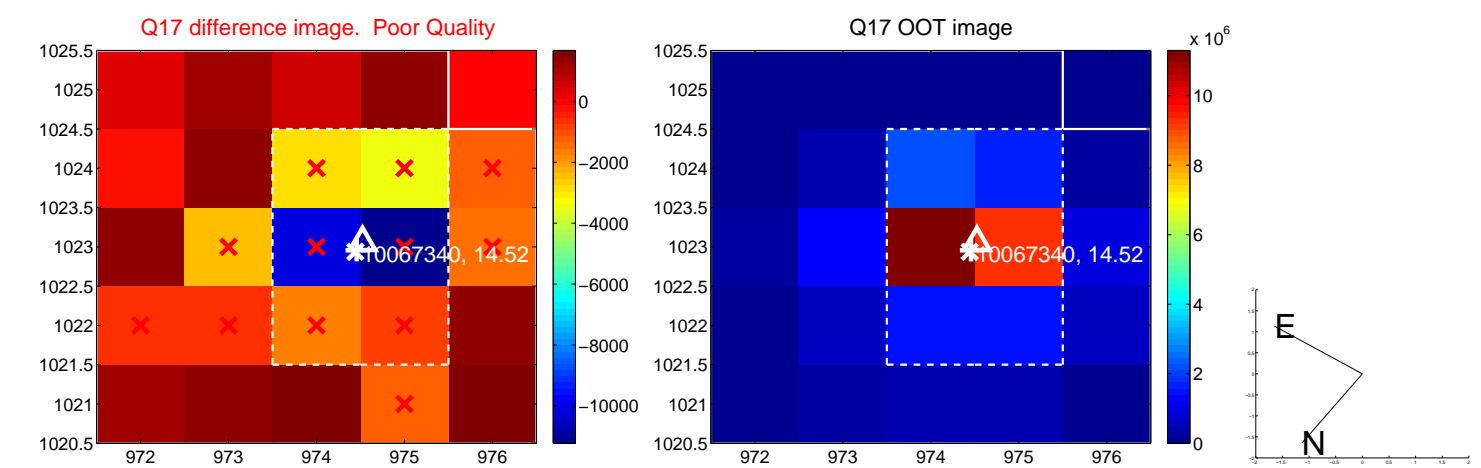
Q16 no difference image



Q16 no OOT image

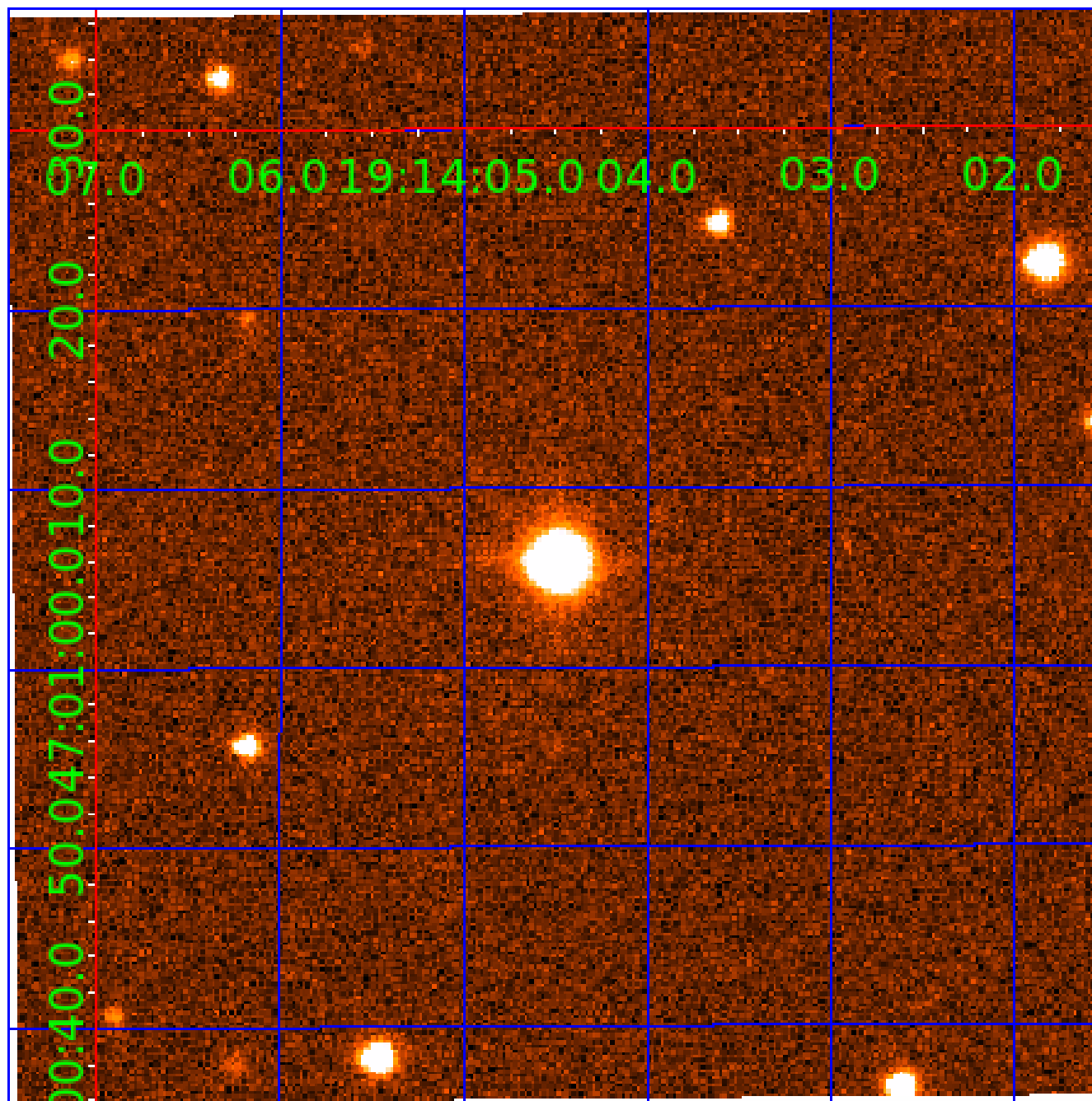


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010067340

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})
010067340-01	OBS	No	638.379363	224.387840	2111.8	5.428	24.4	7.6	0.32	3407	1.47	0.01
010067340-02	OBS	No	345.161189	238.570055	1871.5	13.136	15.5	6.7	0.32	3407	1.44	0.03
010067340-03	OBS	No	396.787463	459.896158	2423.0	4.388	14.8	6.6	0.32	3407	1.79	0.02
010067340-04	OBS	No	227.390338	214.978229	1314.9	3.665	13.9	6.3	0.32	3407	1.20	0.05
010067340-05	OBS	No	640.353440	226.233368	2386.7	5.270	14.0	8.2	0.32	3407	1.57	0.01
010067340-06	OBS	No	474.946108	561.719411	2073.5	7.158	12.7	6.8	0.32	3407	1.46	0.02
010067340-07	OBS	No	254.021862	205.267117	1723.0	7.888	10.3	7.1	0.32	3407	1.37	0.04
010067340-08	OBS	No	513.372761	283.587764	904.9	5.000	11.9	-1.0	0.32	3407	0.96	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010067340-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

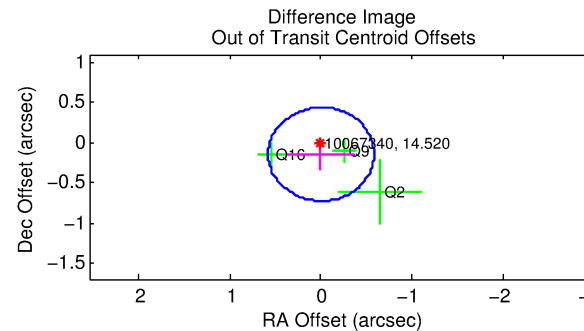
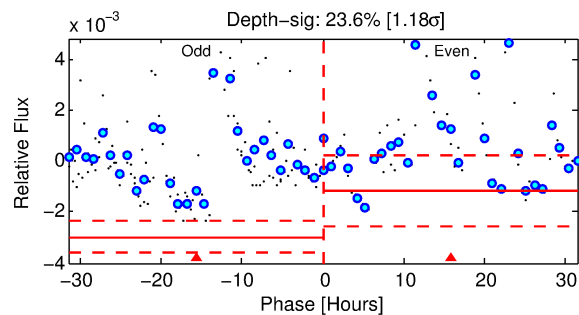
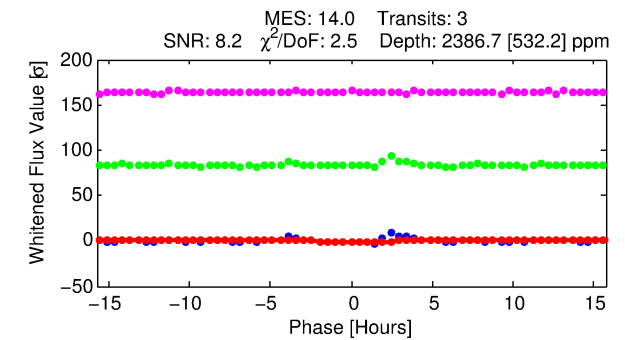
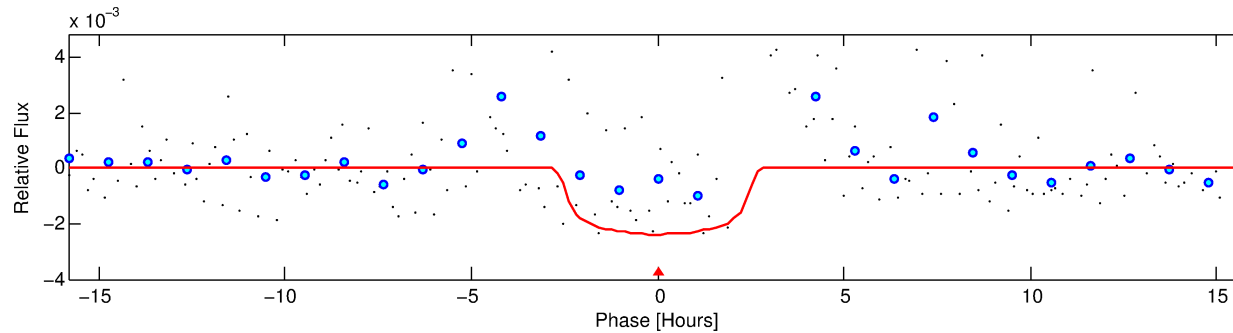
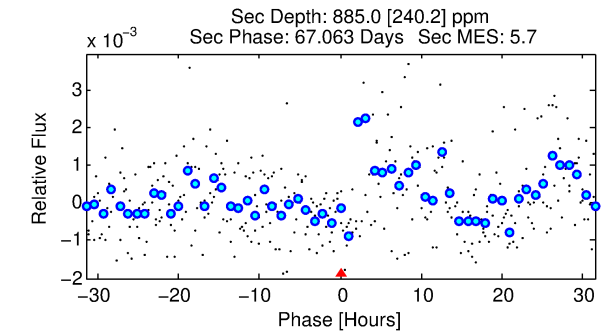
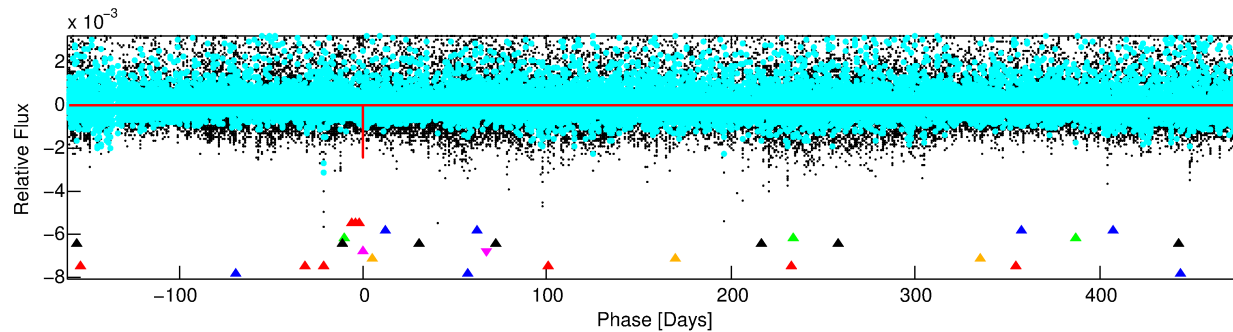
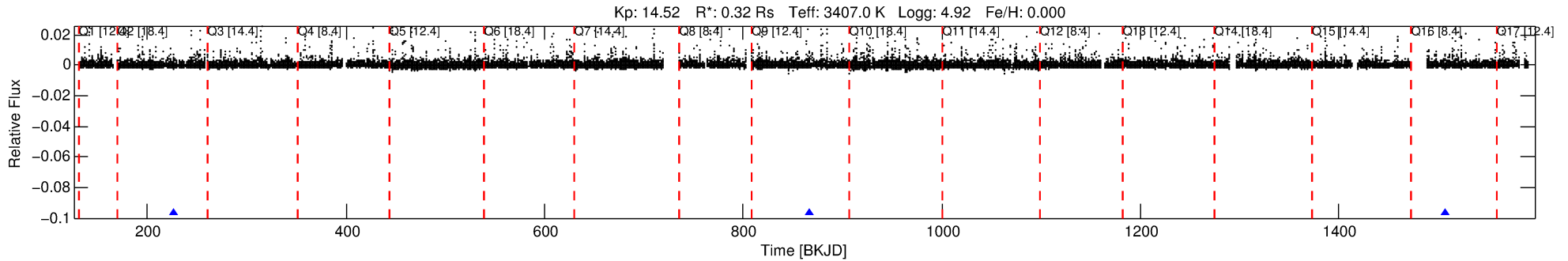
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010067340-05

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 5 of 8 Period: 640.353 d



DV Fit Results:

Period = 640.35344 [0.00836] d
Epoch = 226.2334 [0.0117] BKJD
Rp/R* = 0.0445 [0.0408]
a/R* = 938.05 [3568.22]
b = 0.26 [13.46]
Seff = 0.01 [0.00]
Teq = 86 [2] K
Rp = 1.57 [1.45] Re
a = 0.9954 [0.0798] AU
Ag = 195007.30 [362267.73] [0.54σ]
Teffp = 2786 [1293] K [2.09σ]

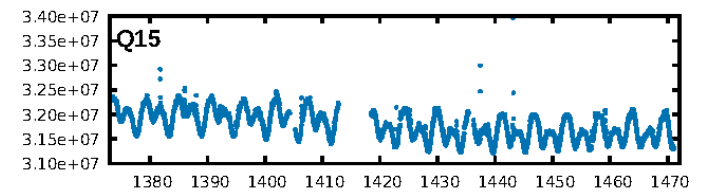
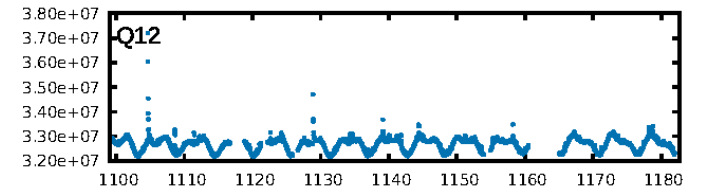
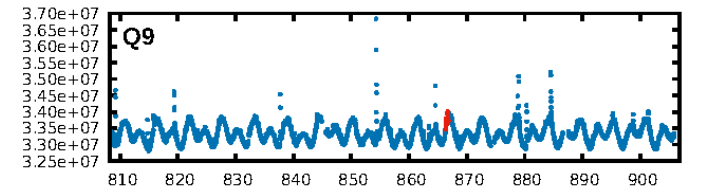
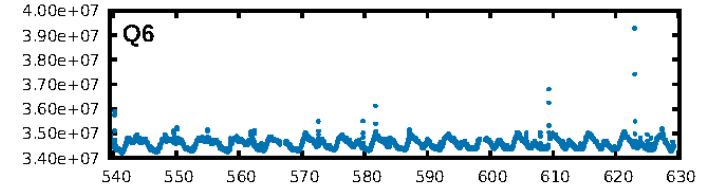
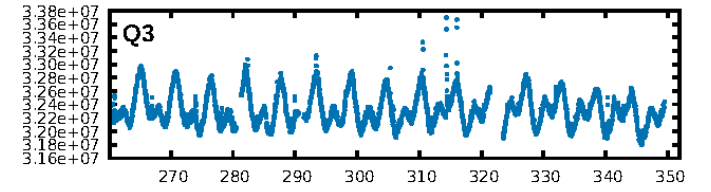
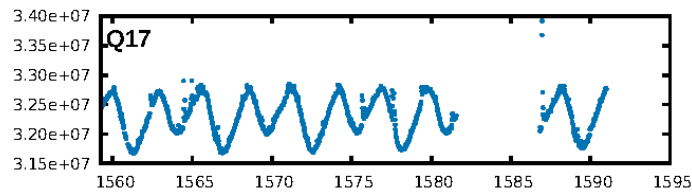
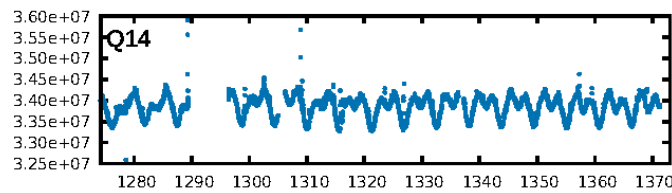
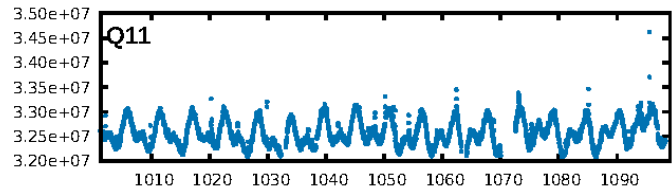
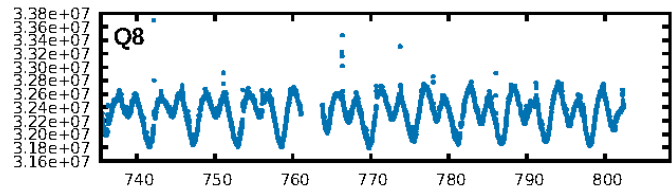
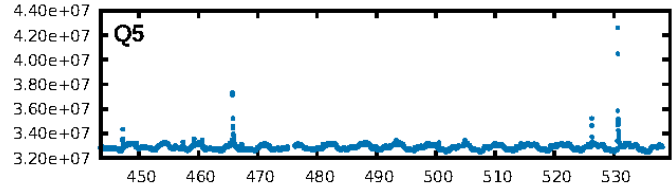
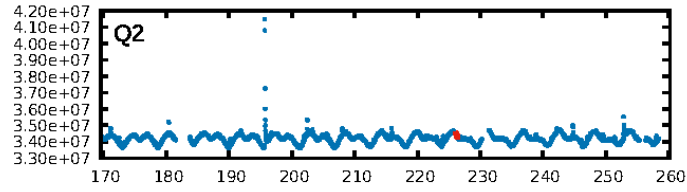
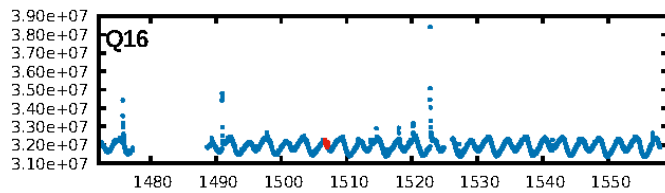
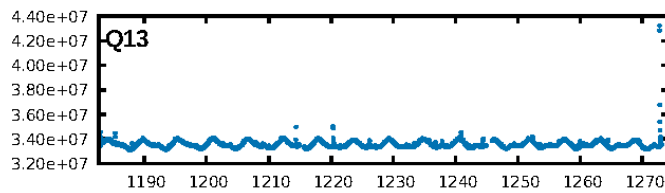
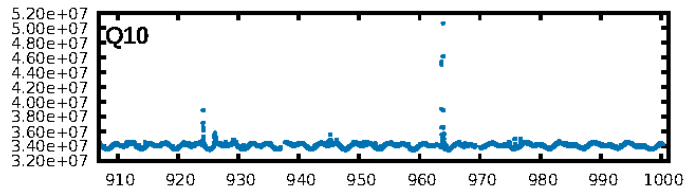
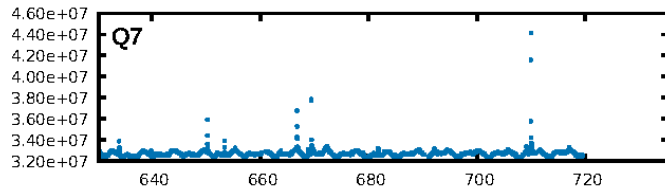
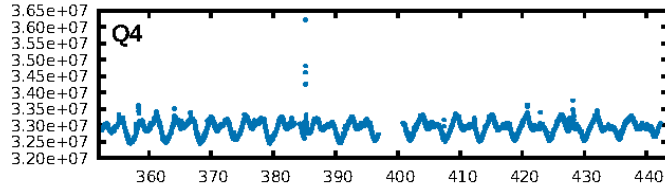
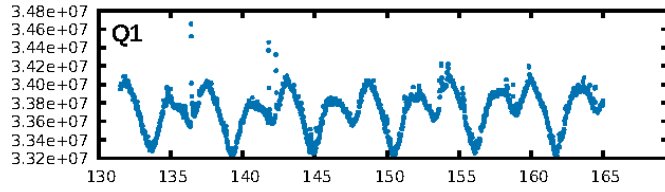
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.26σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.8%
ModelChiSquareGof-sig: 12.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.5704
Centroid-sig: 65.3%
Centroid-so: 0.248 arcsec [0.68σ]
OotOffset-rm: 0.146 arcsec [0.75σ]
KicOffset-rm: 0.183 arcsec [0.49σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

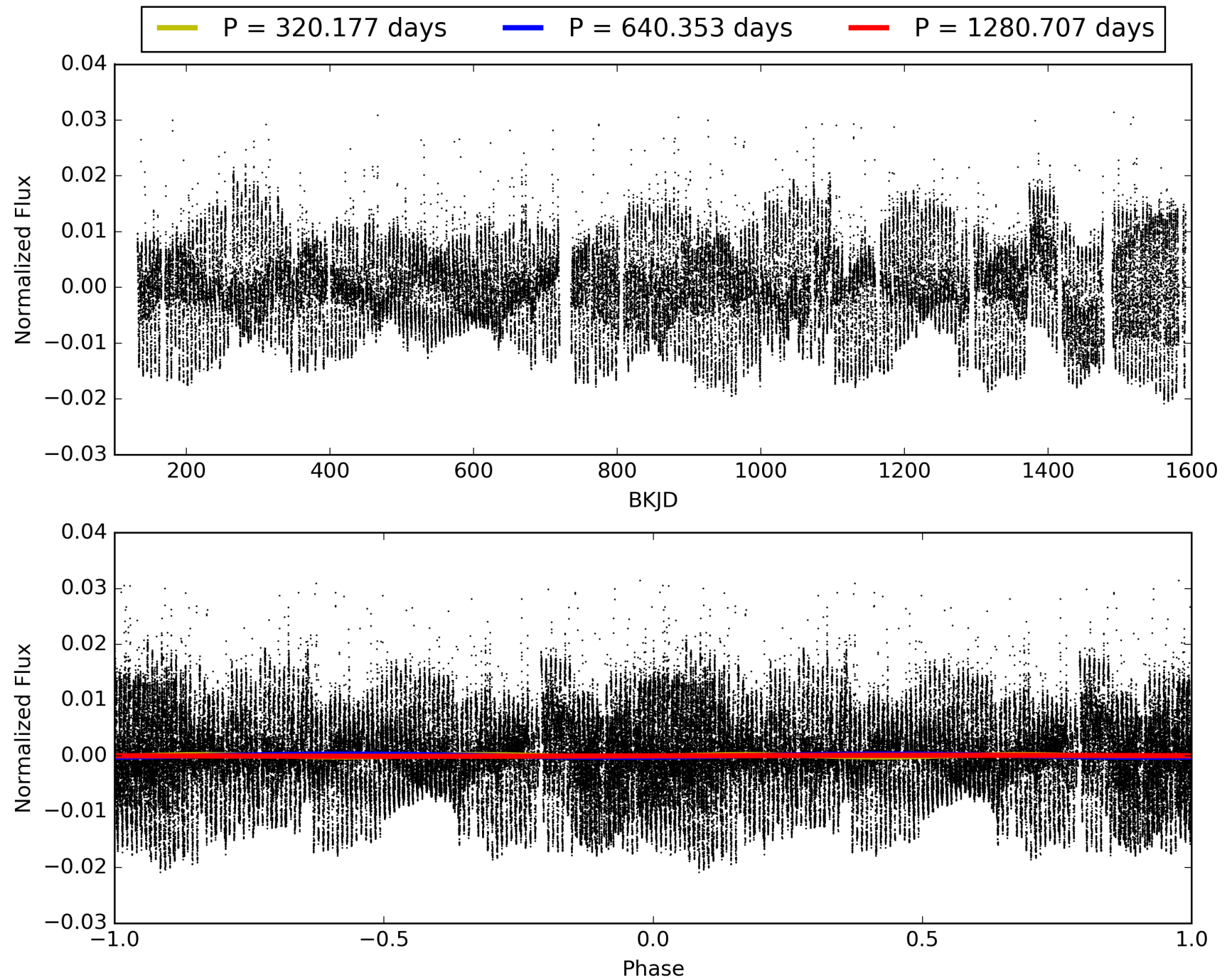
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:42:37 Z

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

TCE 010067340-05, PDC Light Curves

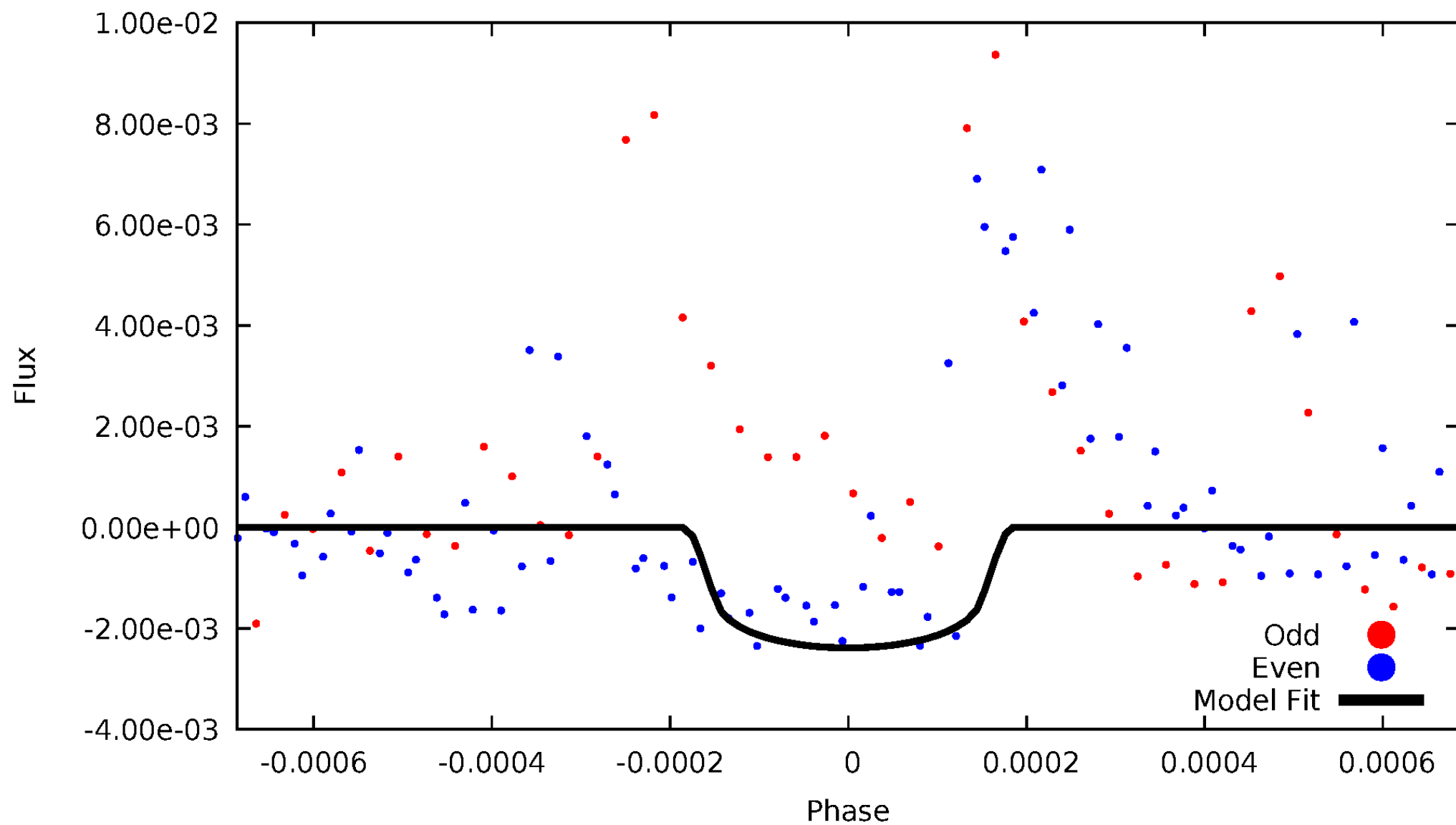


TCE 010067340-05



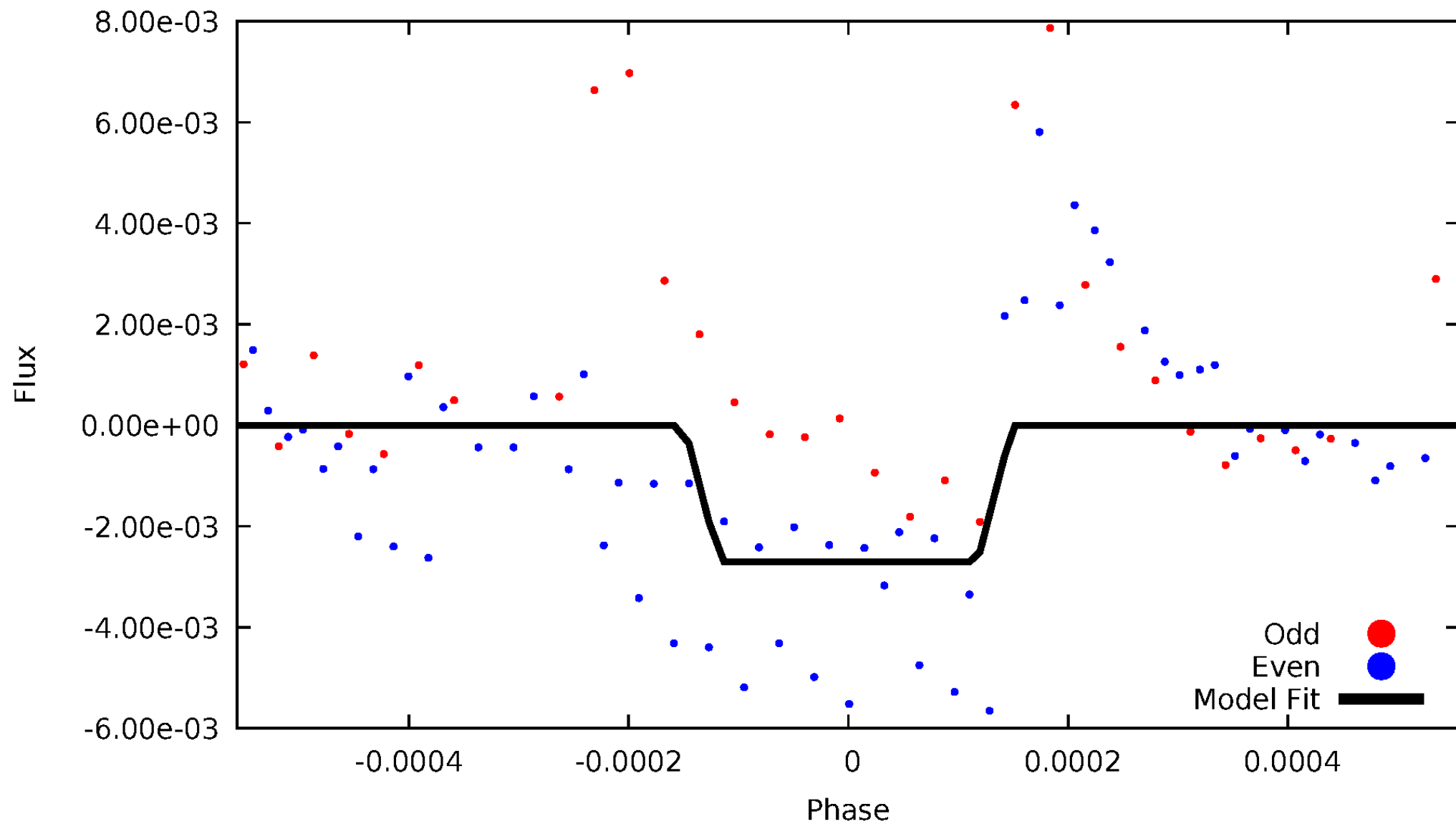
DV Odd/Even

TCE 010067340-05



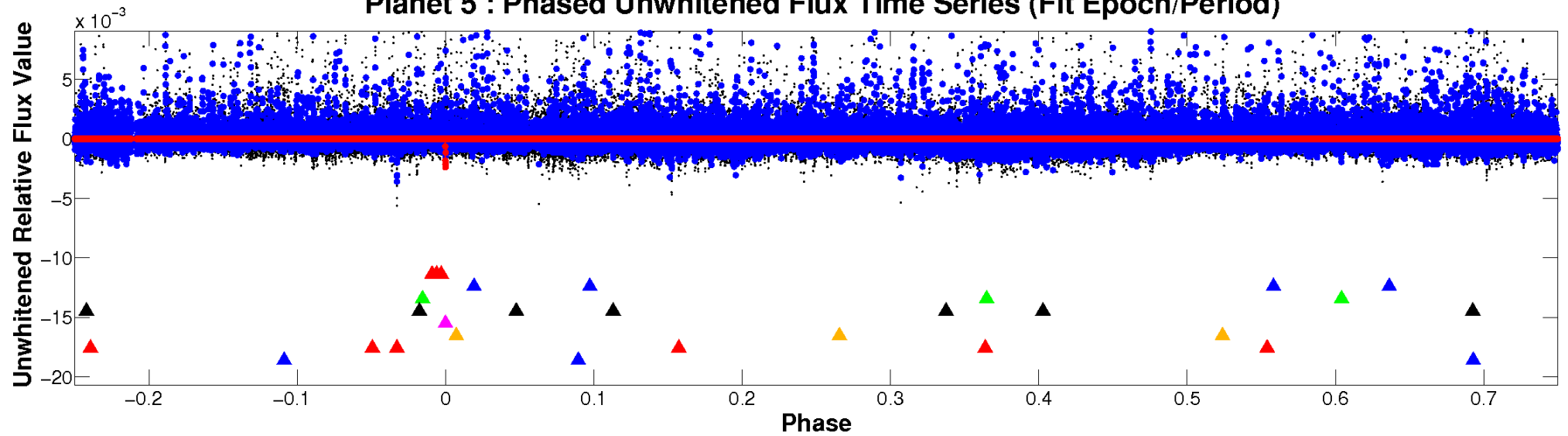
ALT Odd/Even

TCE 010067340-05

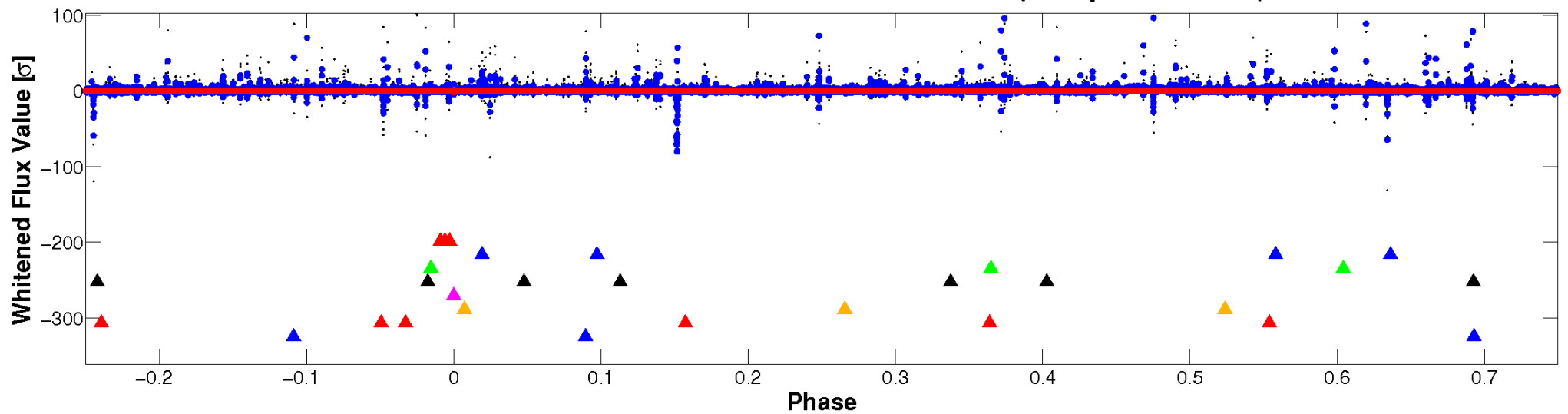


Non-Whitened Vs. Whitened Light Curve

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

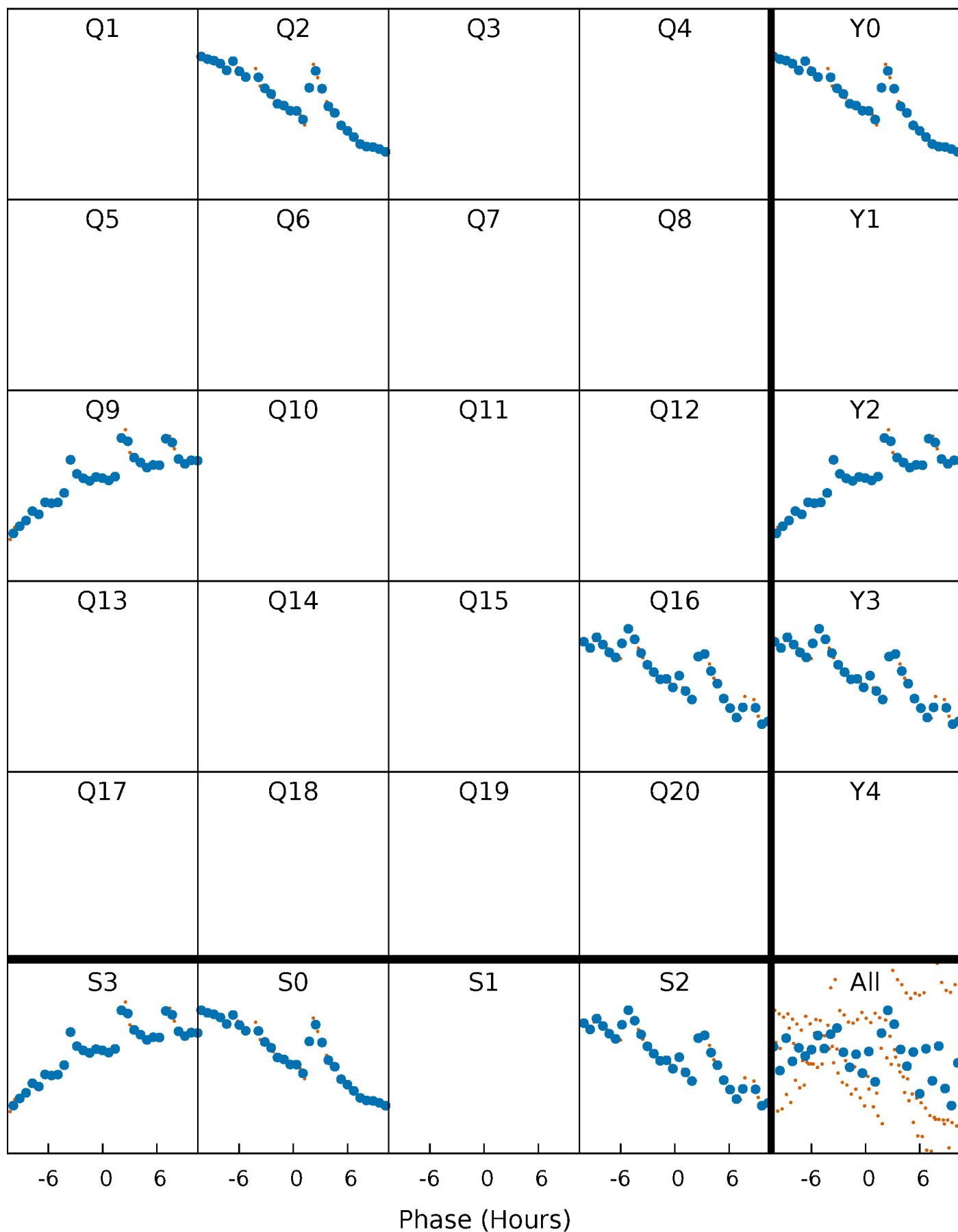


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



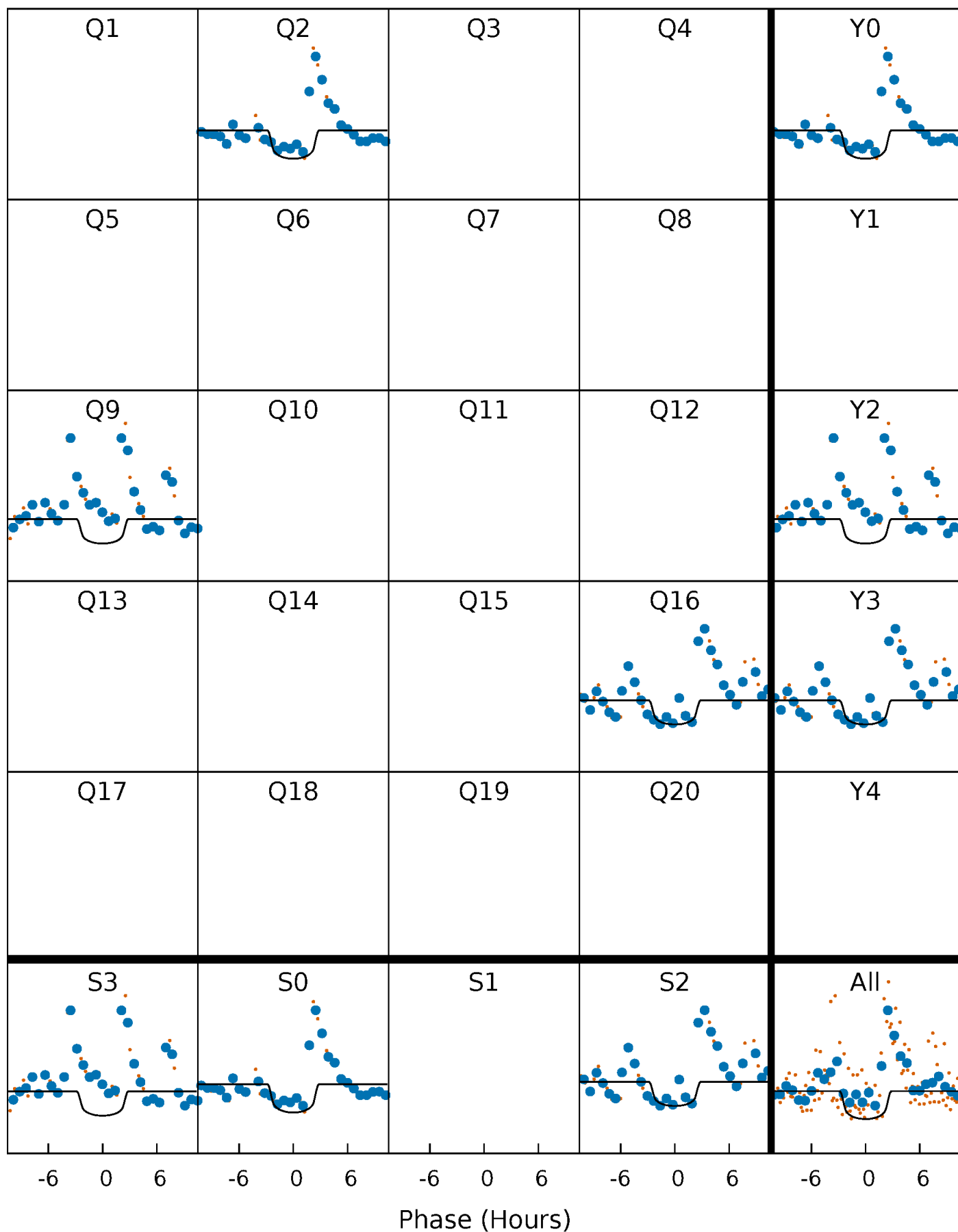
PDC Quarter-Phased Transit Curves

TCE 010067340-05 $P=640.353440$ Days $T_0=226.233369$ (BKJD)



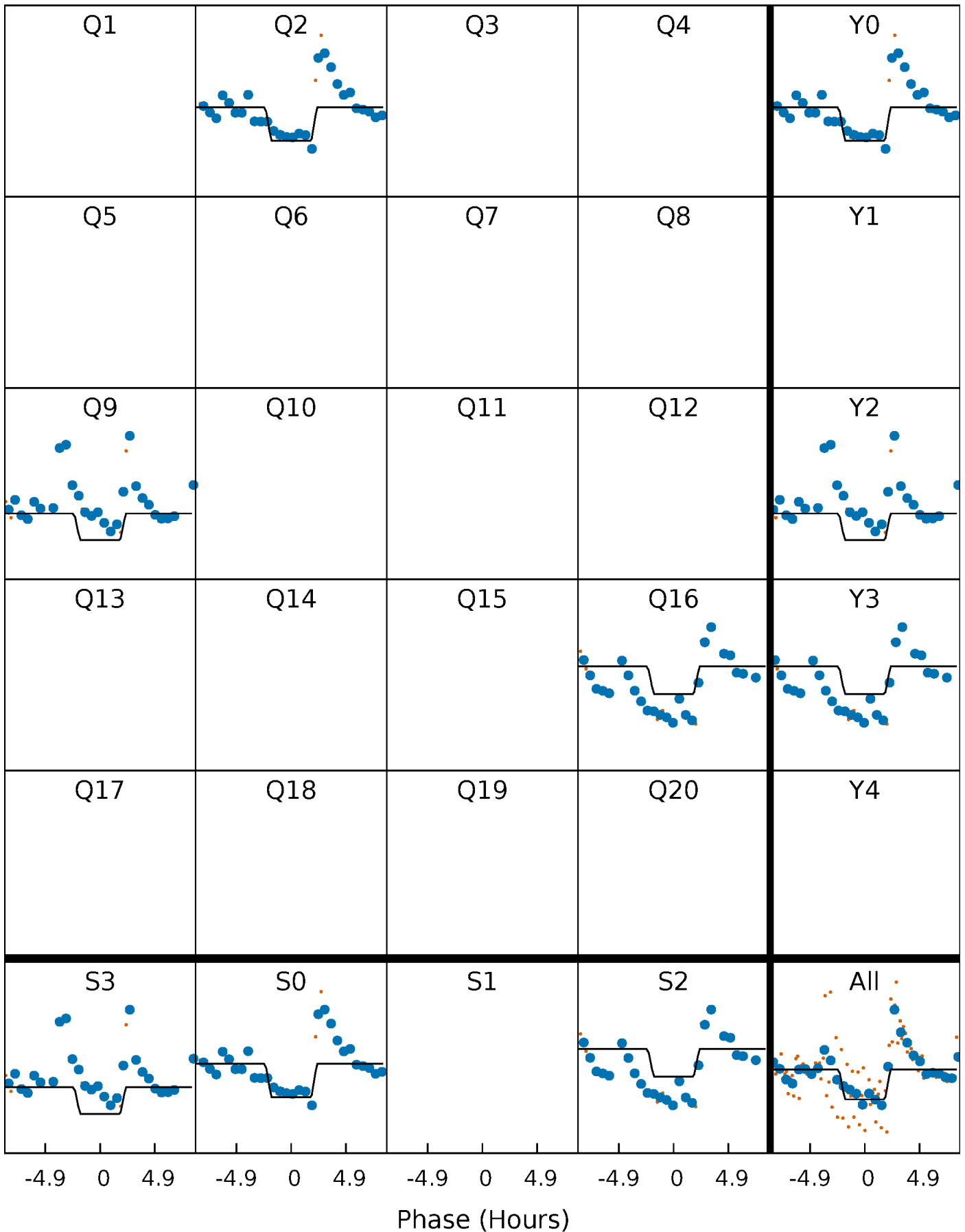
DV Quarter-Phased Transit Curves

TCE 010067340-05 $P=640.353440$ Days $T_0=226.233369$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

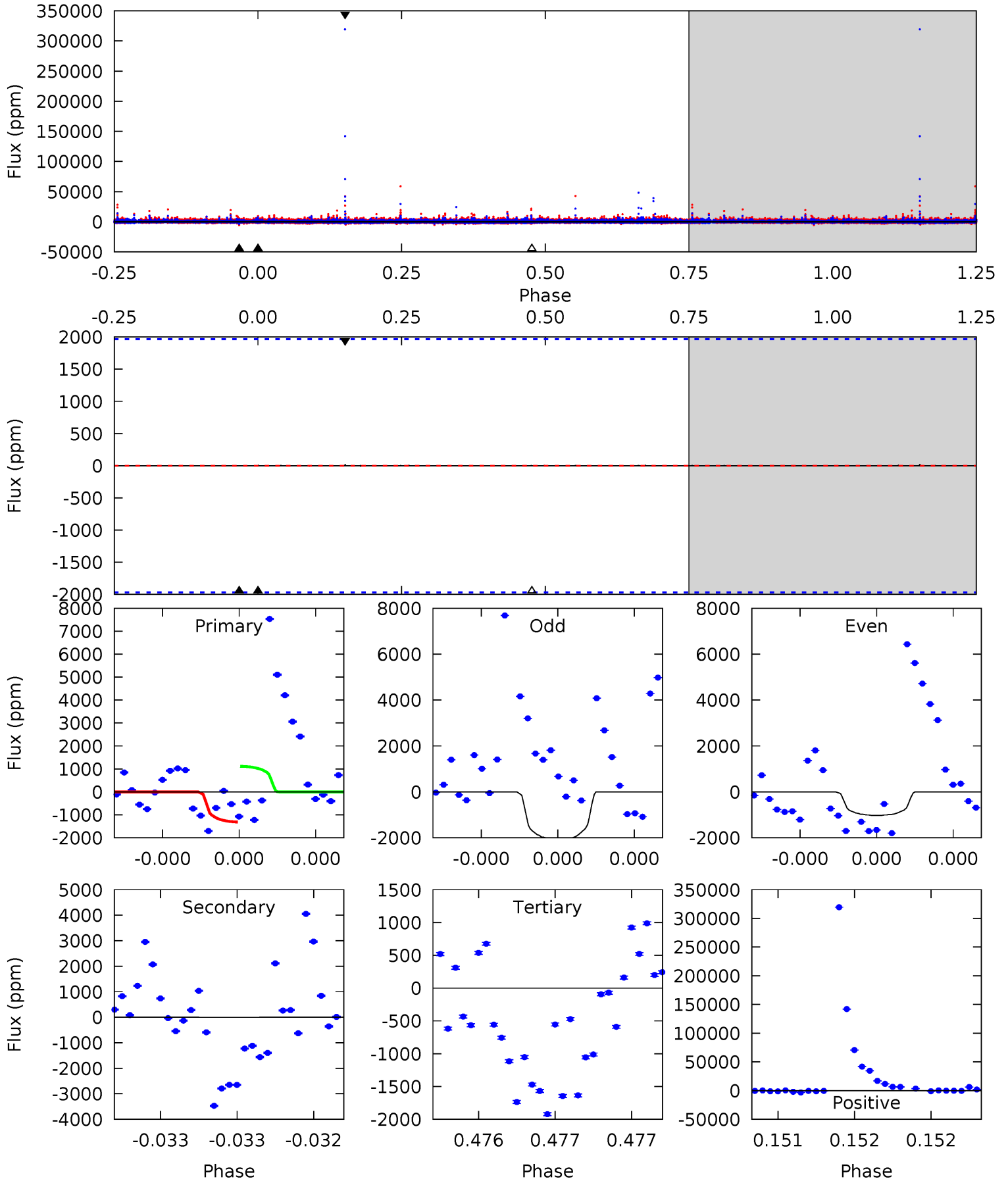
TCE 010067340-05 $P=640.360526$ Days $T_0=226.214371$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-05, P = 640.353440 Days, E = 226.233369 Days

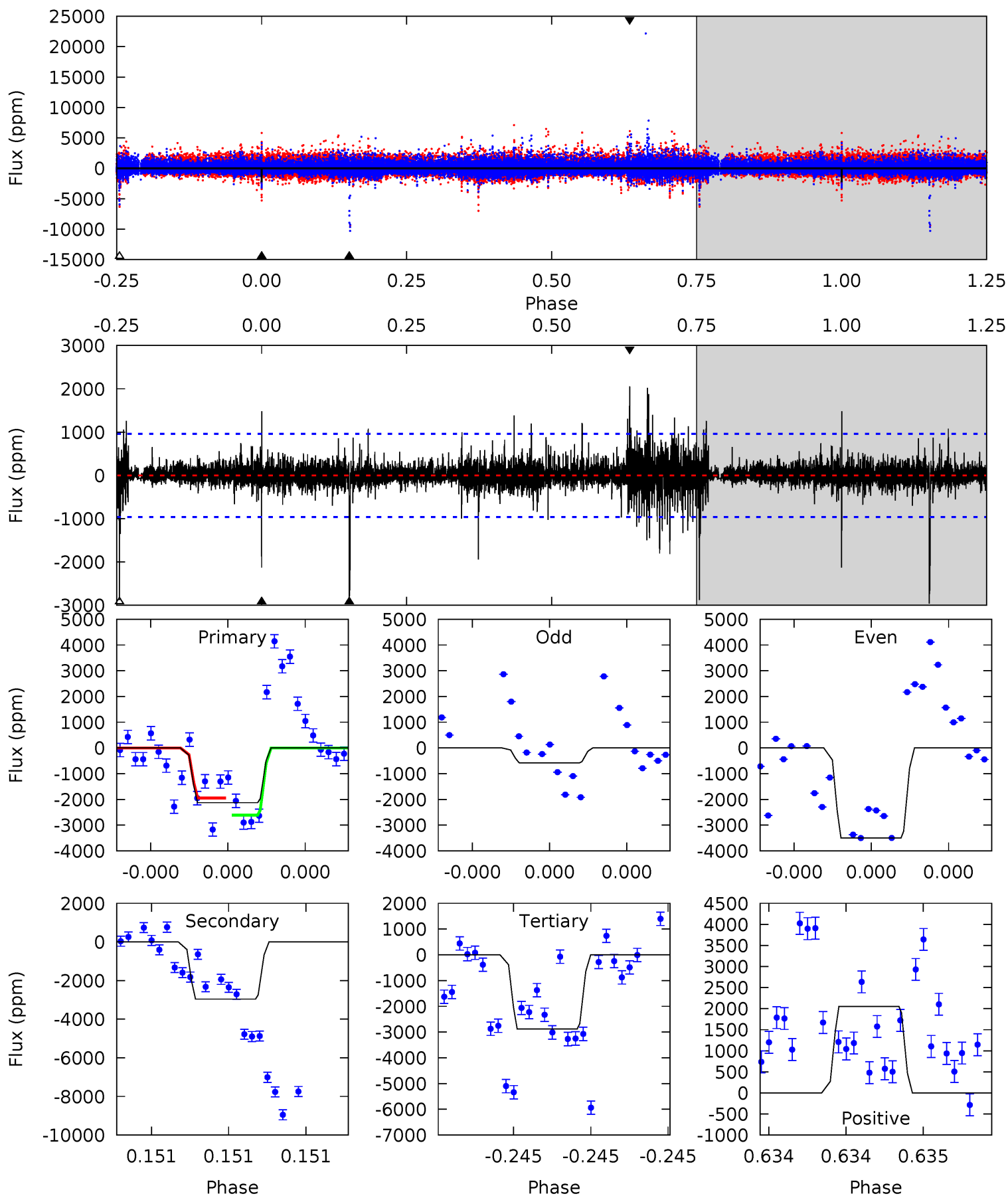
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0.05	5.63	3.56	0.00	0	-0.05	0	-0.05	0.79	-0.26	0.95	0.42



Alt Model-Shift Uniqueness Test

010067340-05, P = 640.360526 Days, E = 226.214371 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	17.4	17.0	12.1	5.67	3.63	1.44	-4.44	0.44	0.47	5.35	6.69	1.15	0.41	1.92



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1 ± 350	$1.93^{+1.26}_{-1.19}$	120^{+3}_{-3}	-1731^{+4351}_{-974}	$-1396.537^{+67688.353}_{-88019.979}$
Alt.	-2958 ± 170	$2.08^{+1.36}_{-1.27}$	119^{+3}_{-3}	3315^{+1209}_{-437}	$377947^{+2013779}_{-239807}$

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

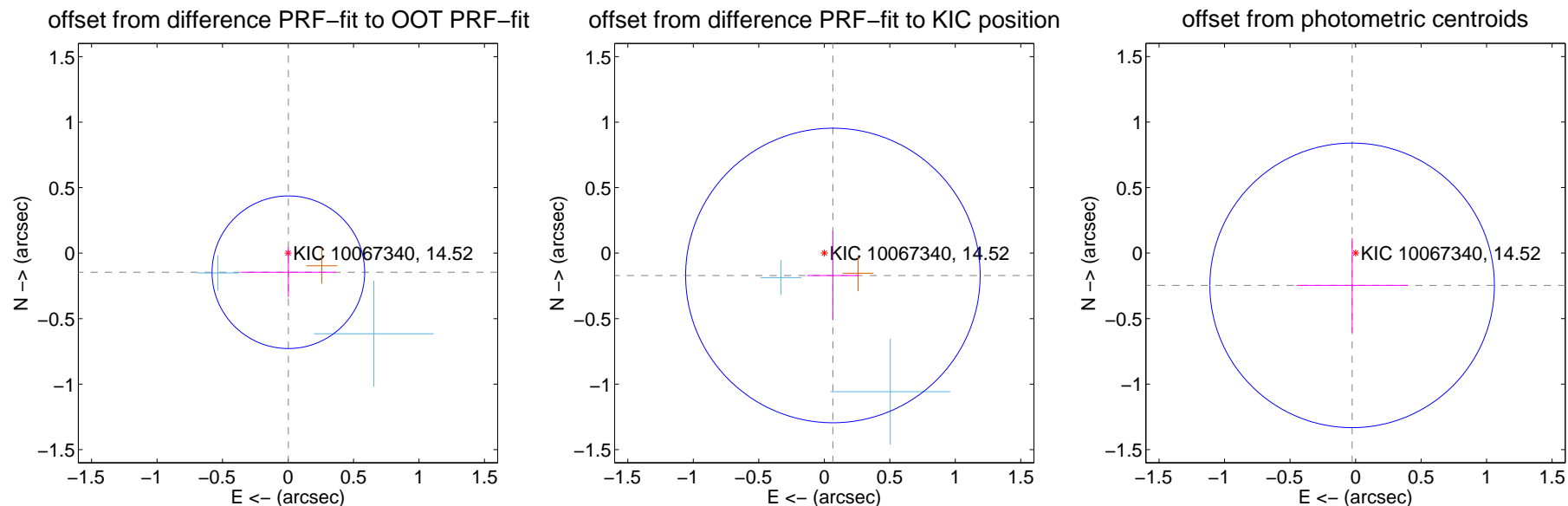
DV Centroid Data

Supplemental centroid analysis for 010067340-05. Kepler magnitude: 14.52. Transit SNR 8.19

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.146 ± 0.194	0.75	-0.003 ± 0.361	-0.146 ± 0.189
PRF-fit source offset from KIC position	0.183 ± 0.375	0.49	-0.066 ± 0.197	-0.170 ± 0.340
photometric centroid source offset	0.25 ± 0.36	0.68	0.03 ± 0.42	-0.25 ± 0.36



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

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

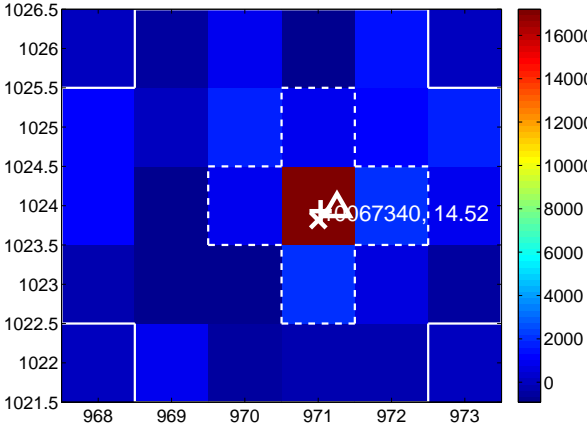
Q1 no difference image



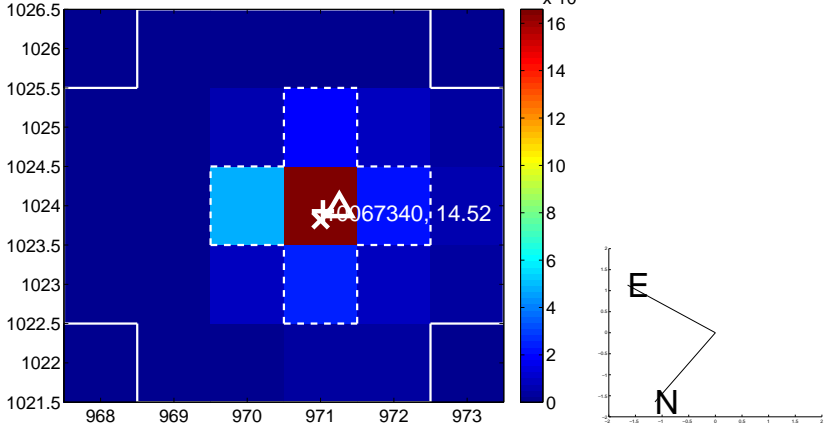
Q1 no OOT image



Q2 difference image



Q2 OOT image



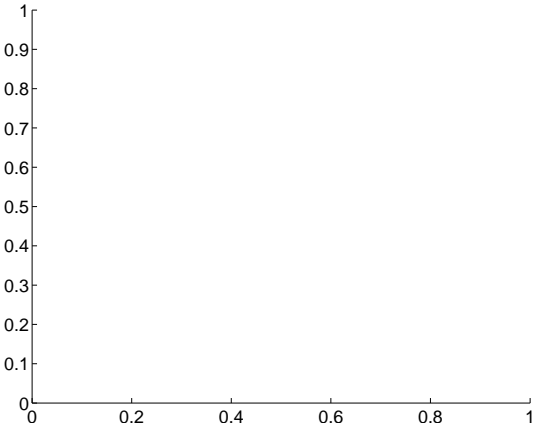
Q3 no difference image



Q3 no OOT image



Q4 no difference image



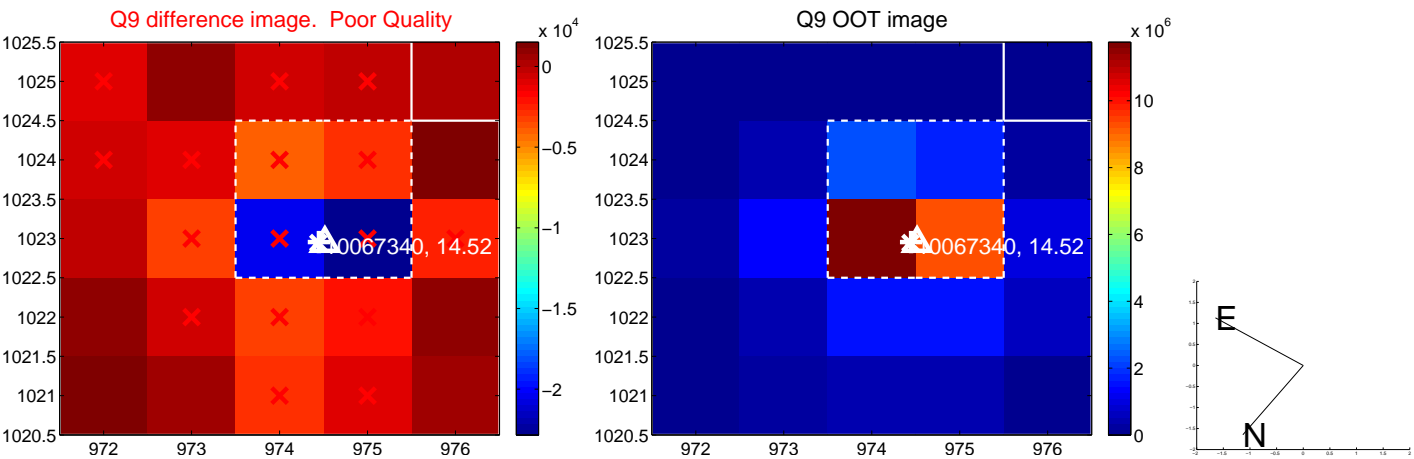
Q4 no OOT image



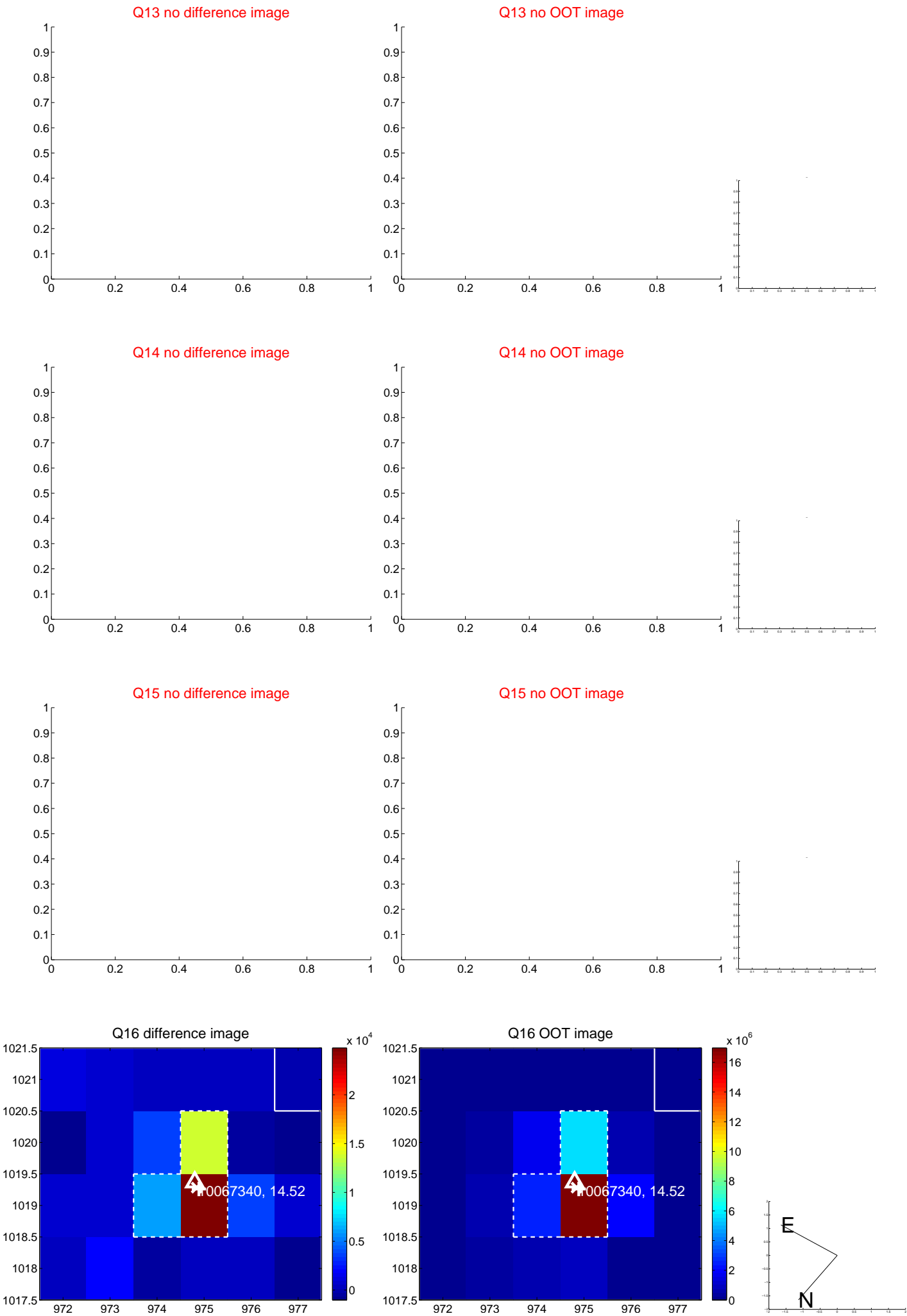
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



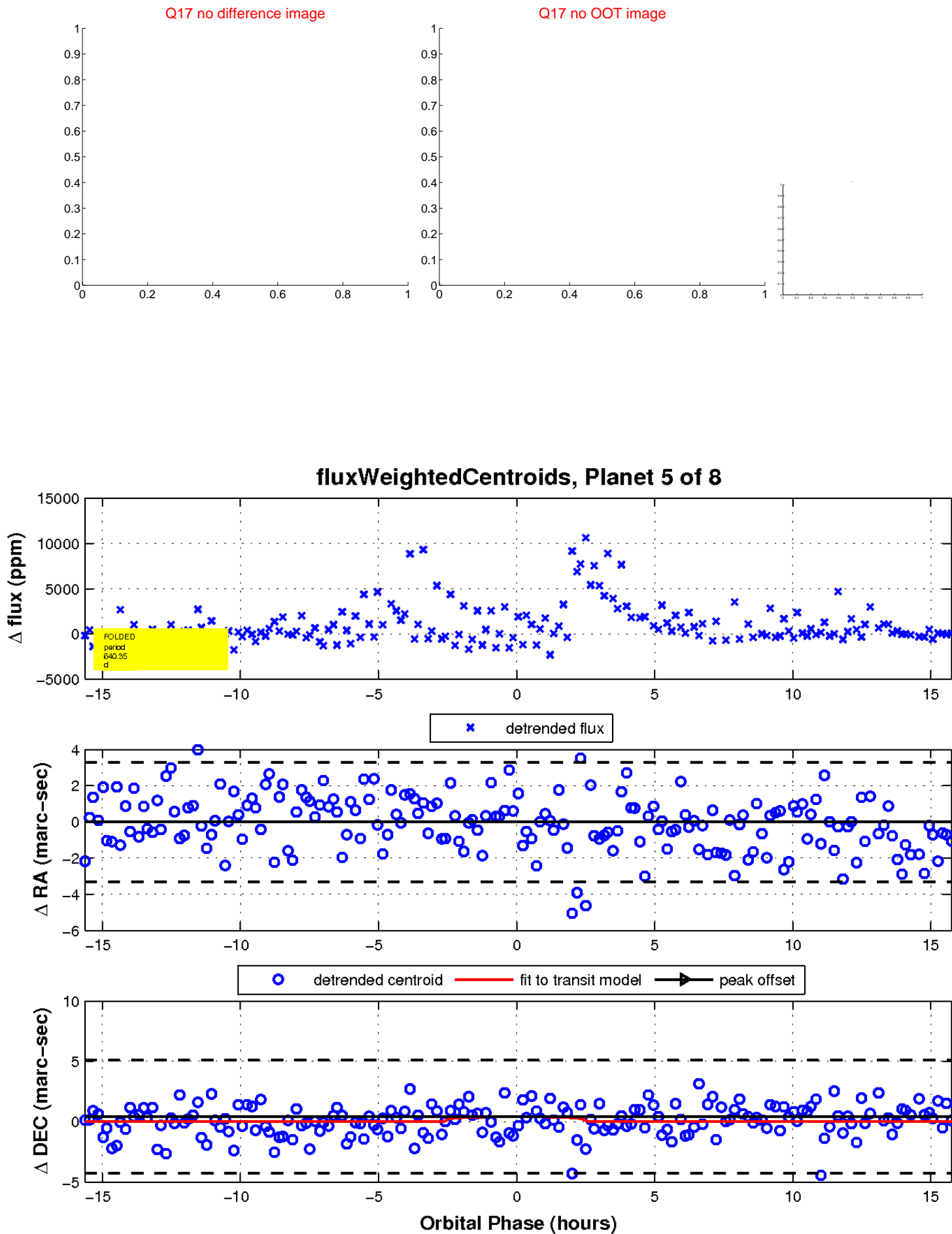
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

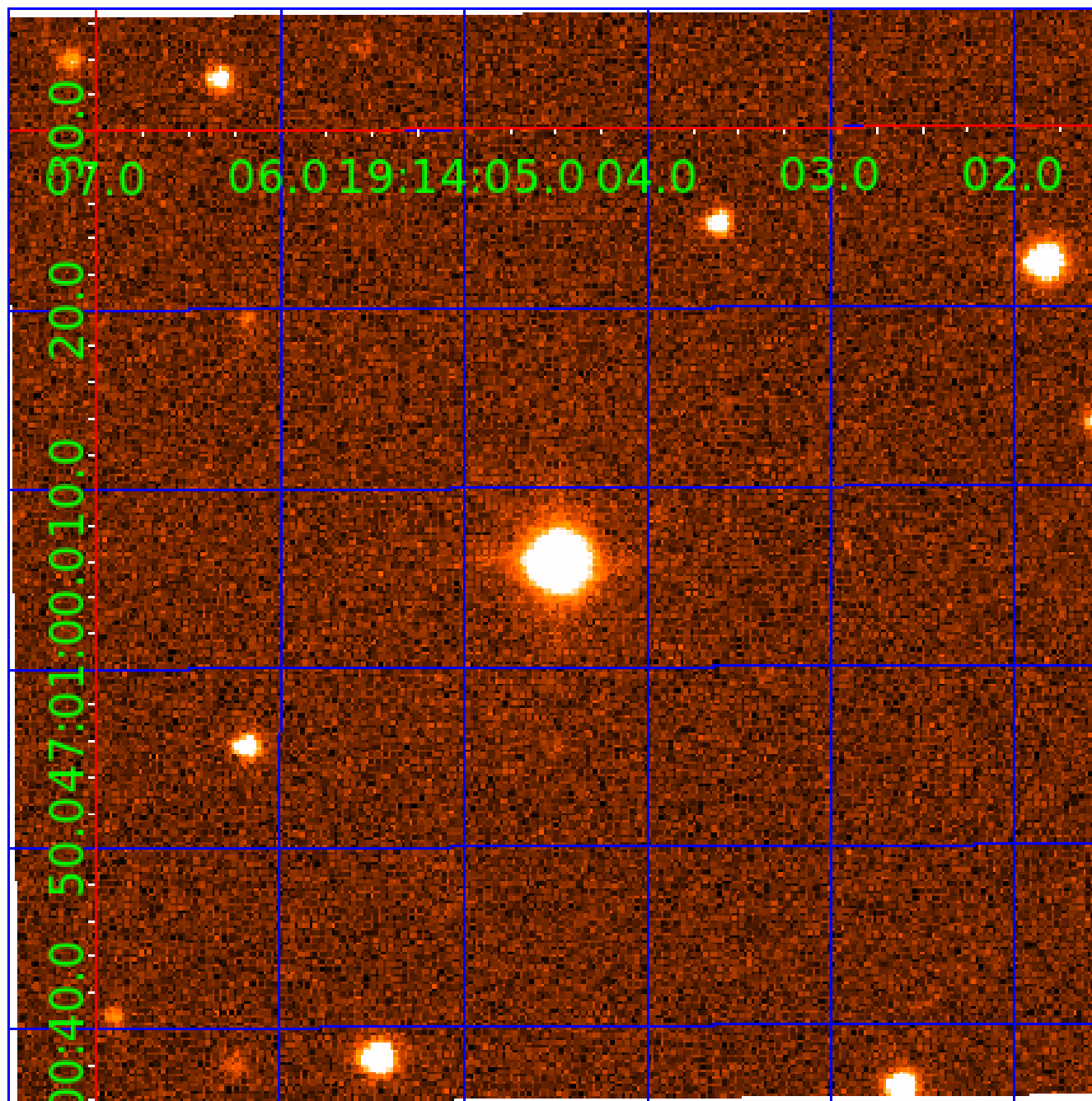


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010067340

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})
010067340-01	OBS	No	638.379363	224.387840	2111.8	5.428	24.4	7.6	0.32	3407	1.47	0.01
010067340-02	OBS	No	345.161189	238.570055	1871.5	13.136	15.5	6.7	0.32	3407	1.44	0.03
010067340-03	OBS	No	396.787463	459.896158	2423.0	4.388	14.8	6.6	0.32	3407	1.79	0.02
010067340-04	OBS	No	227.390338	214.978229	1314.9	3.665	13.9	6.3	0.32	3407	1.20	0.05
010067340-05	OBS	No	640.353440	226.233368	2386.7	5.270	14.0	8.2	0.32	3407	1.57	0.01
010067340-06	OBS	No	474.946108	561.719411	2073.5	7.158	12.7	6.8	0.32	3407	1.46	0.02
010067340-07	OBS	No	254.021862	205.267117	1723.0	7.888	10.3	7.1	0.32	3407	1.37	0.04
010067340-08	OBS	No	513.372761	283.587764	904.9	5.000	11.9	-1.0	0.32	3407	0.96	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010067340-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

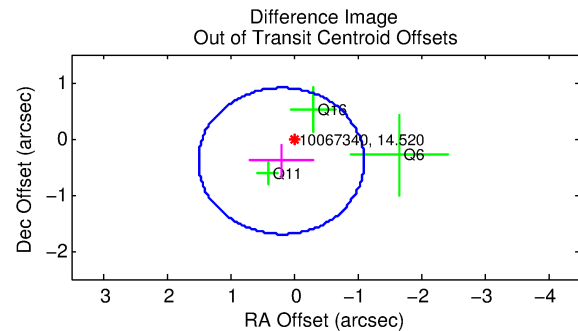
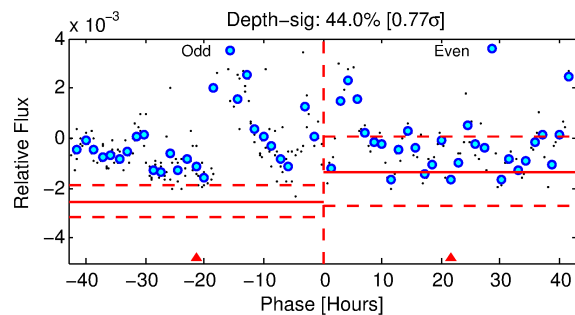
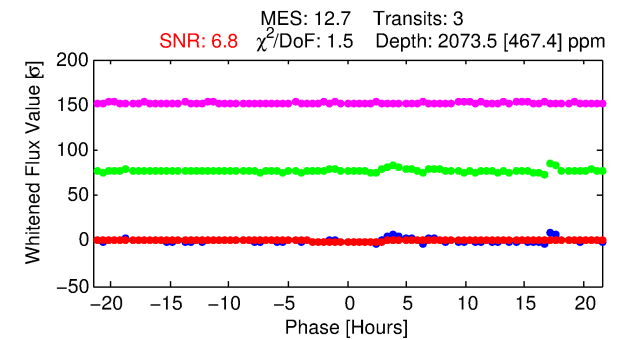
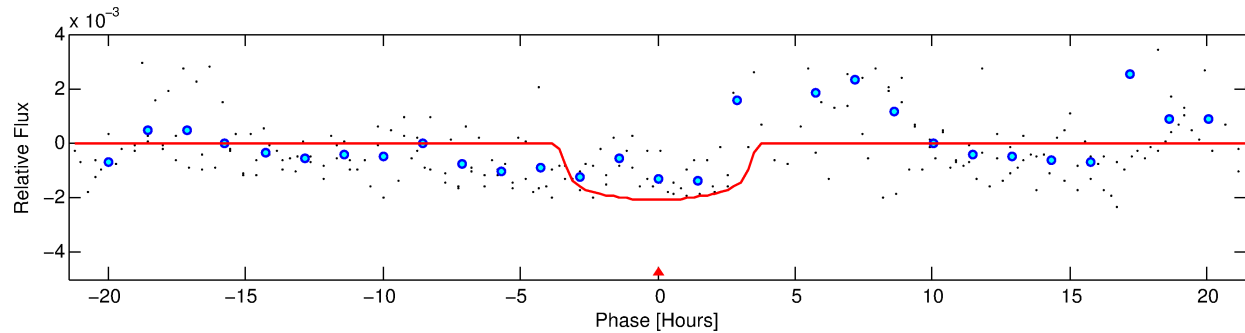
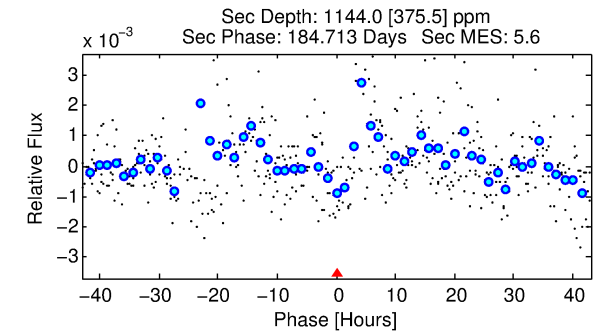
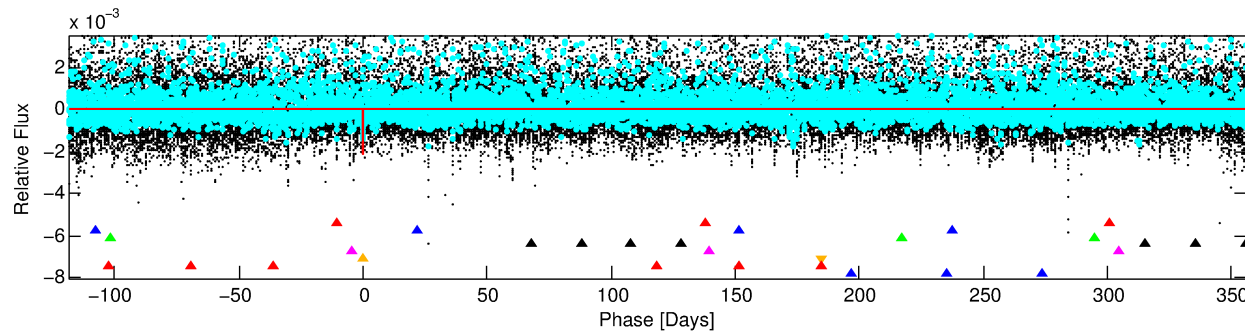
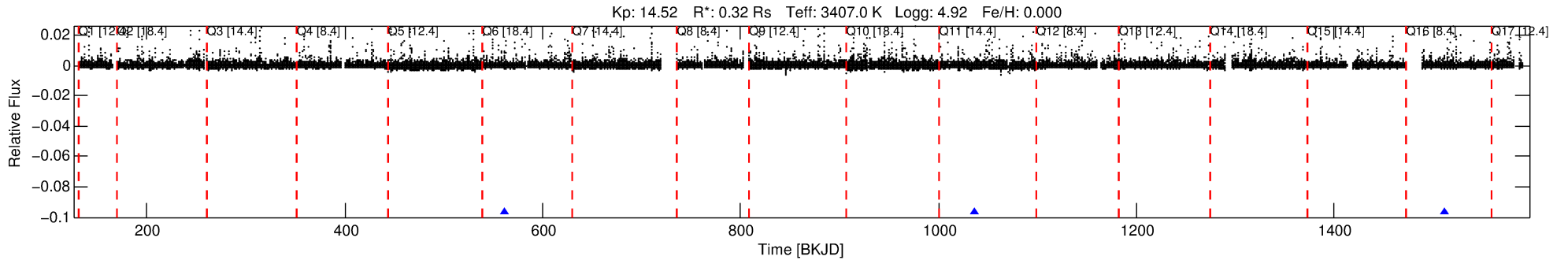
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010067340-06

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 6 of 8 Period: 474.946 d



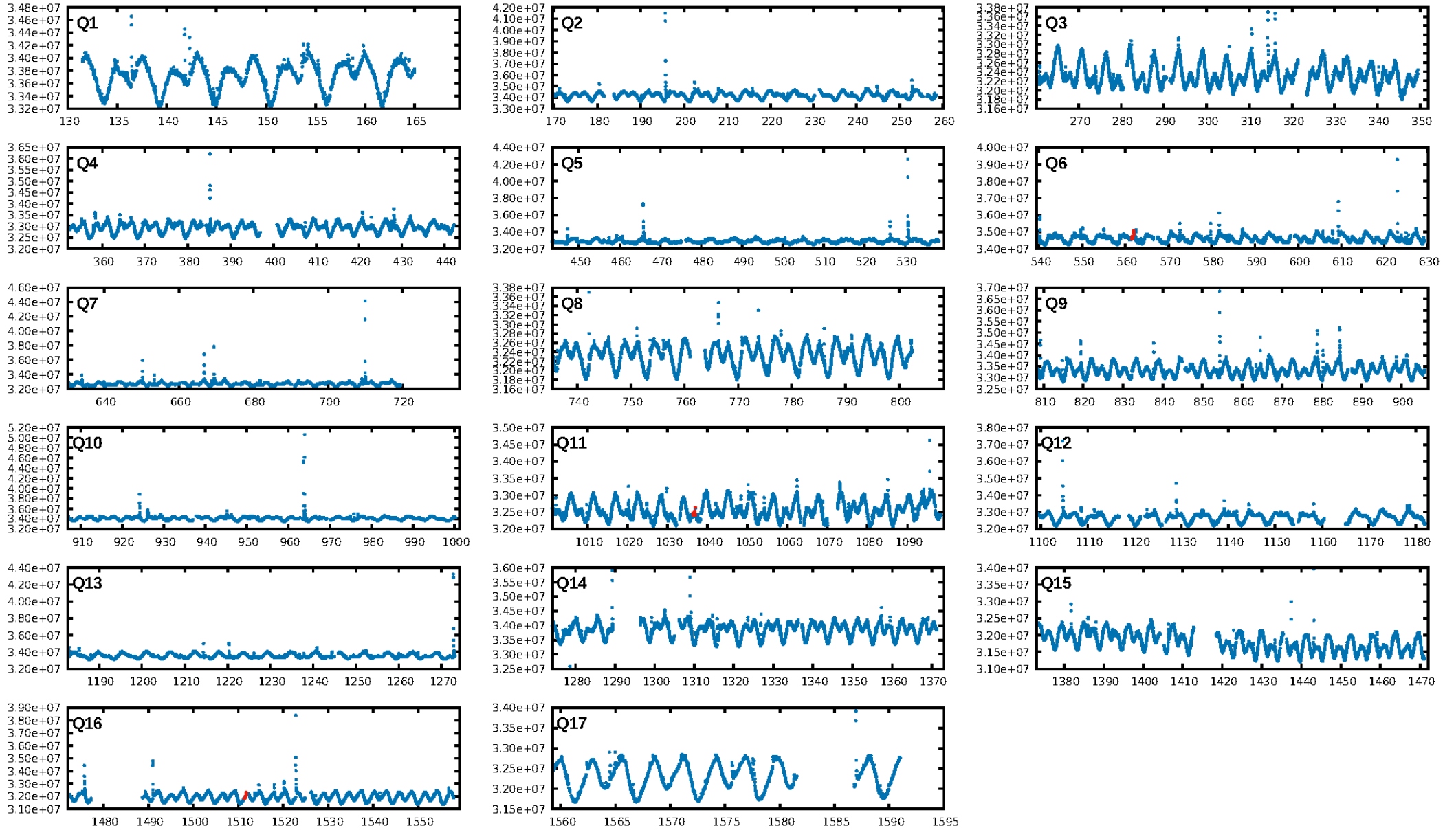
DV Fit Results:

Period = 474.94611 [0.00762] d
Epoch = 561.7194 [0.0106] BKJD
Rp/R* = 0.0413 [0.0499]
a/R* = 517.39 [2619.74]
b = 0.21 [23.64]
Seff = 0.02 [0.00]
Teq = 95 [3] K
Rp = 1.46 [1.77] Re
a = 0.8156 [0.0654] AU
Ag = 196189.59 [478814.89] [0.41σ]
Teffp = 3083 [1880] K [1.59σ]

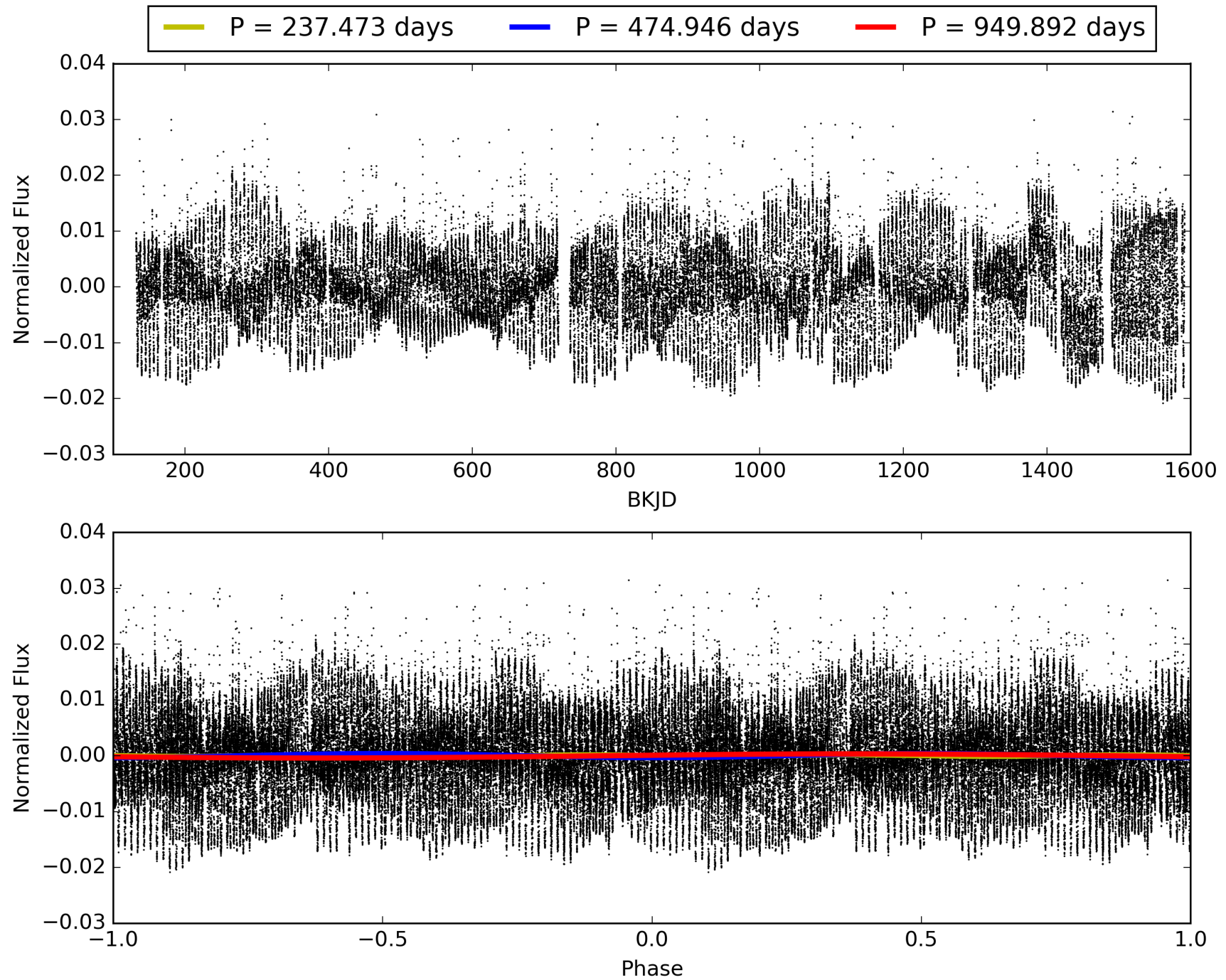
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [223.41σ]
LongPeriod-sig: 100.0% [105.62σ]
ModelChiSquare2-sig: 5.7%
ModelChiSquareGof-sig: 80.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.233
Centroid-sig: 87.1%
Centroid-so: 0.071 arcsec [0.16σ]
OotOffset-rm: 0.445 arcsec [1.02σ]
KicOffset-rm: 0.313 arcsec [0.81σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 010067340-06, PDC Light Curves

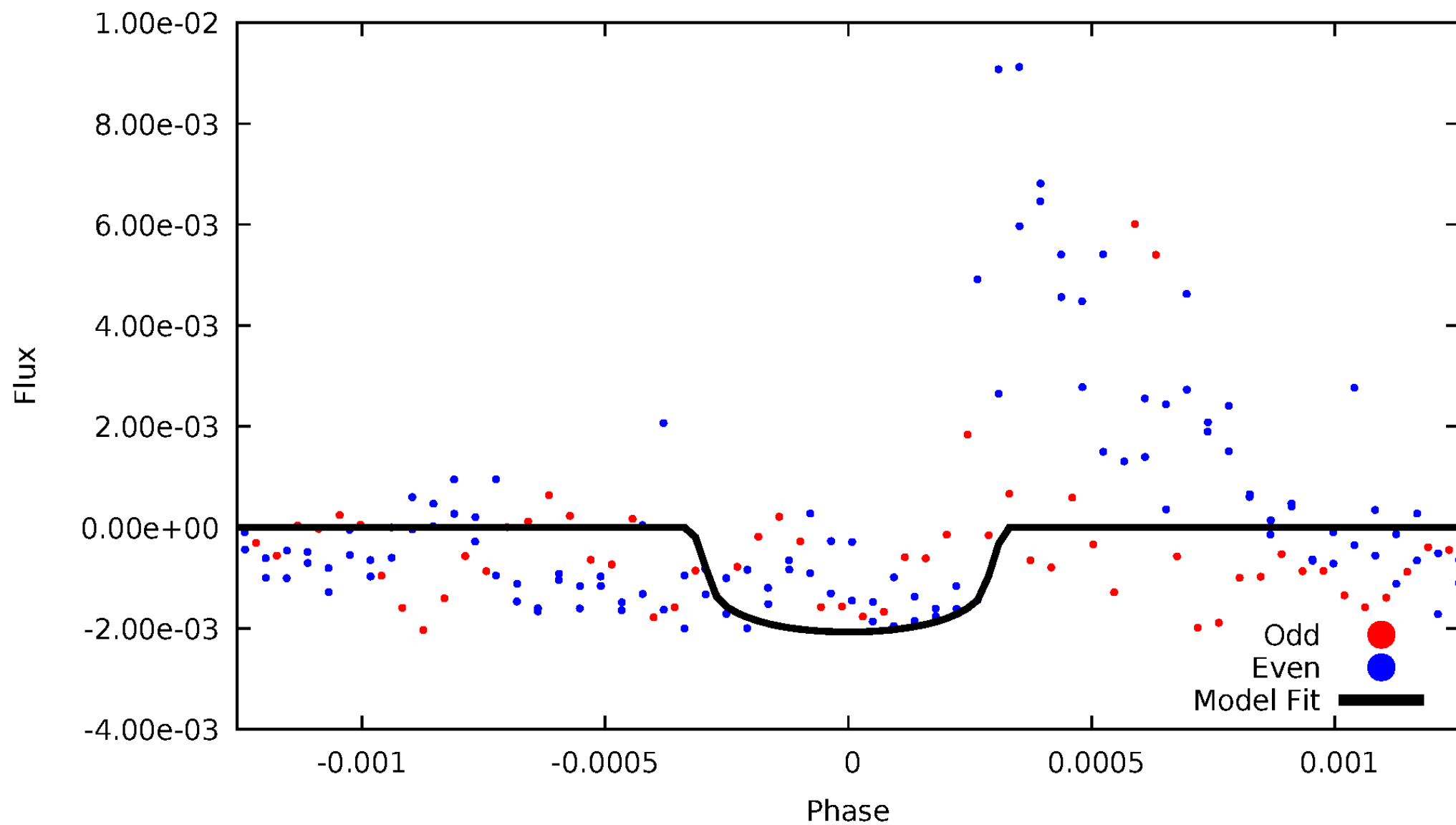


TCE 010067340-06



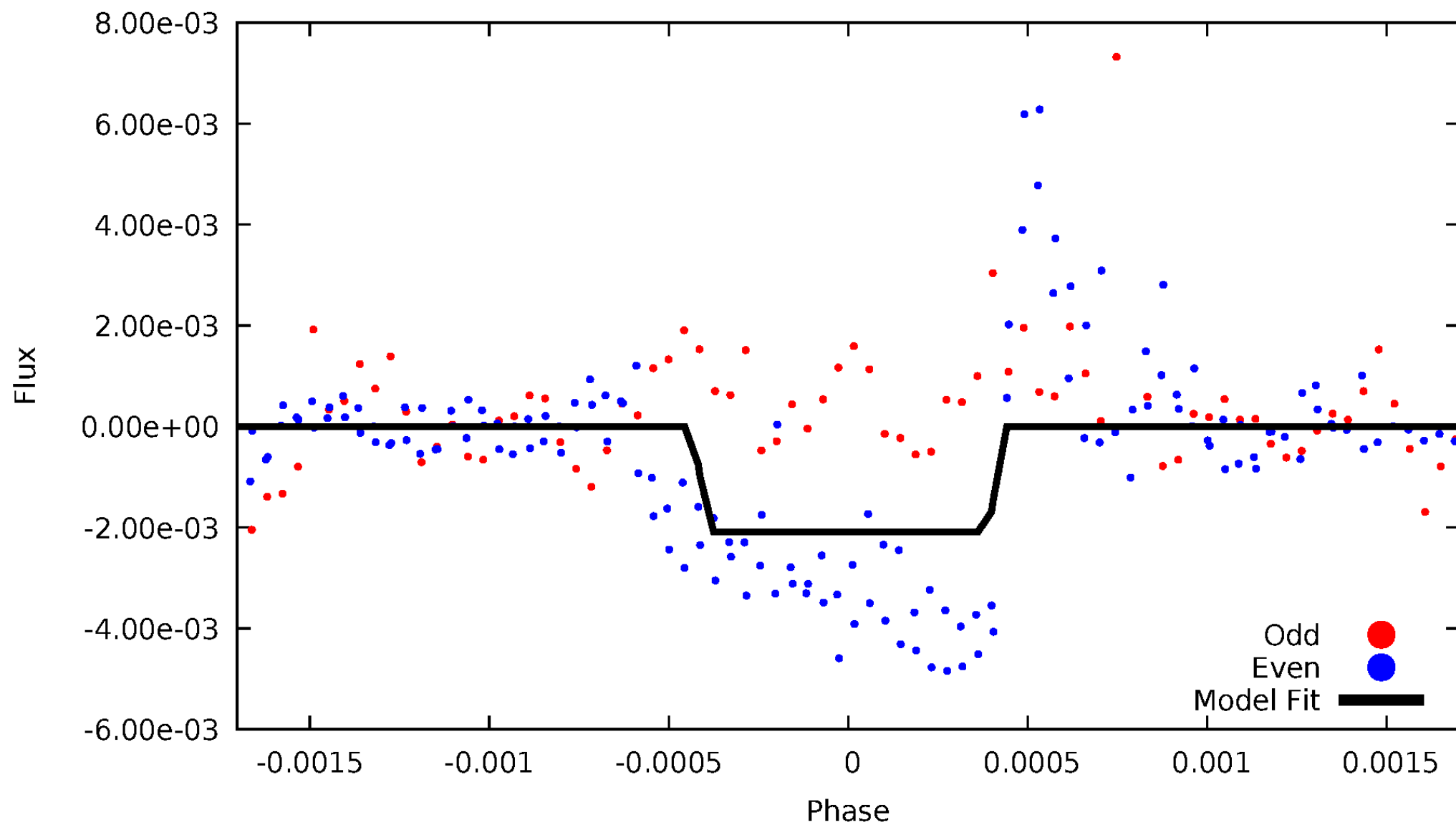
DV Odd/Even

TCE 010067340-06



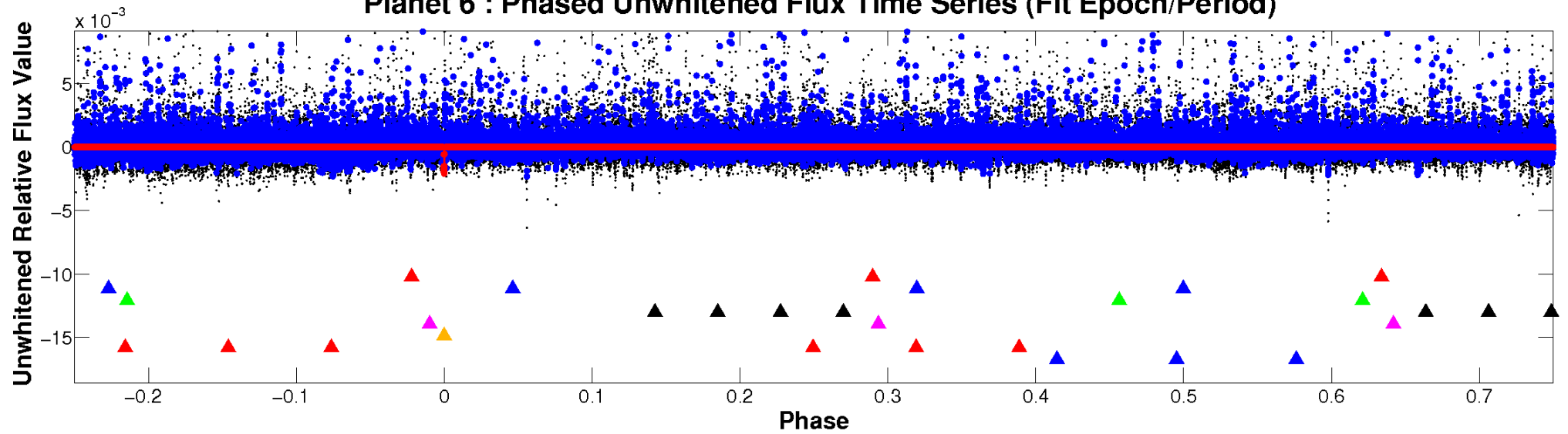
ALT Odd/Even

TCE 010067340-06

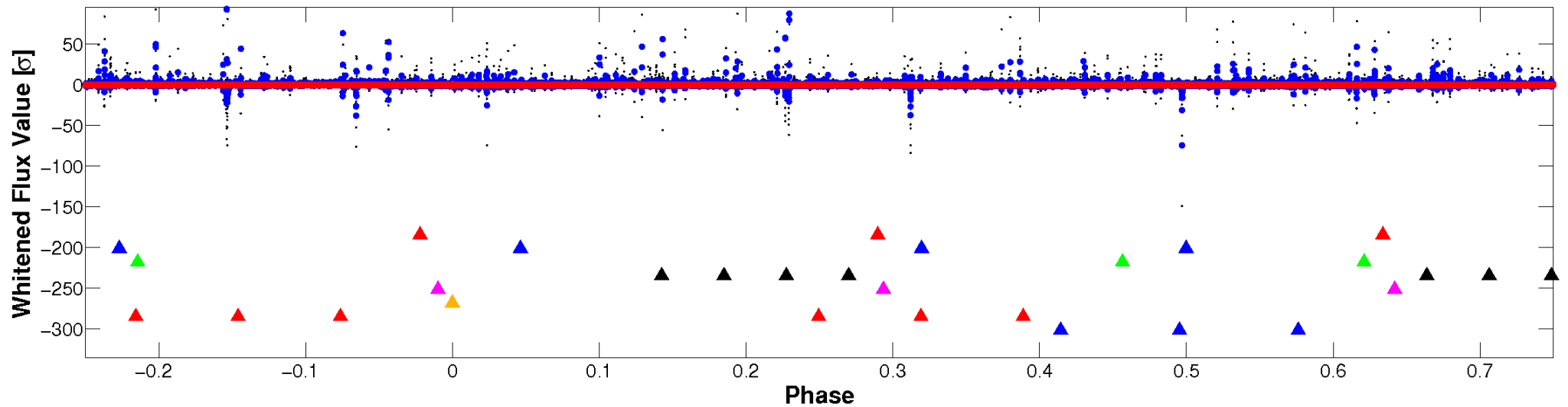


Non-Whitened Vs. Whitened Light Curve

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

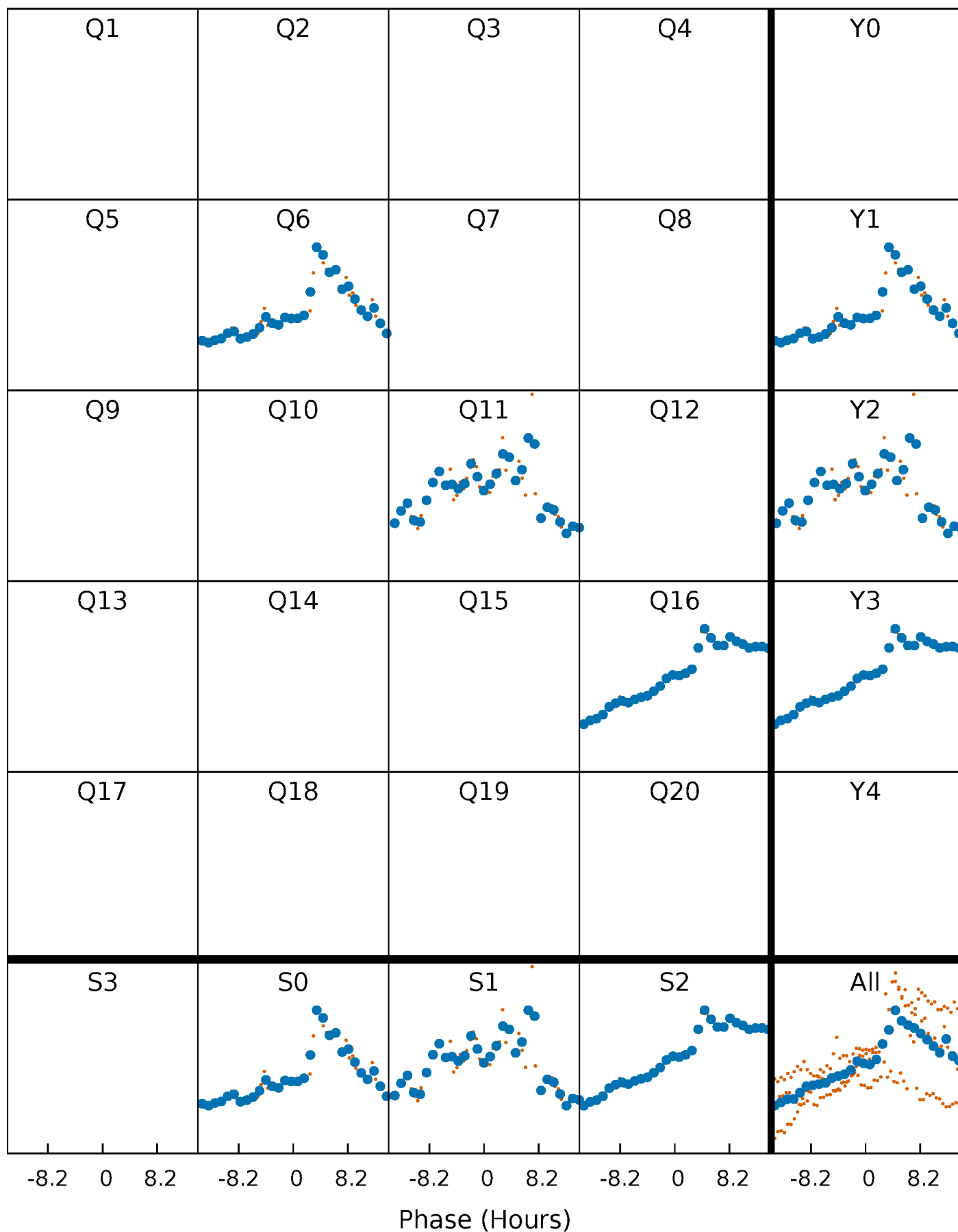


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



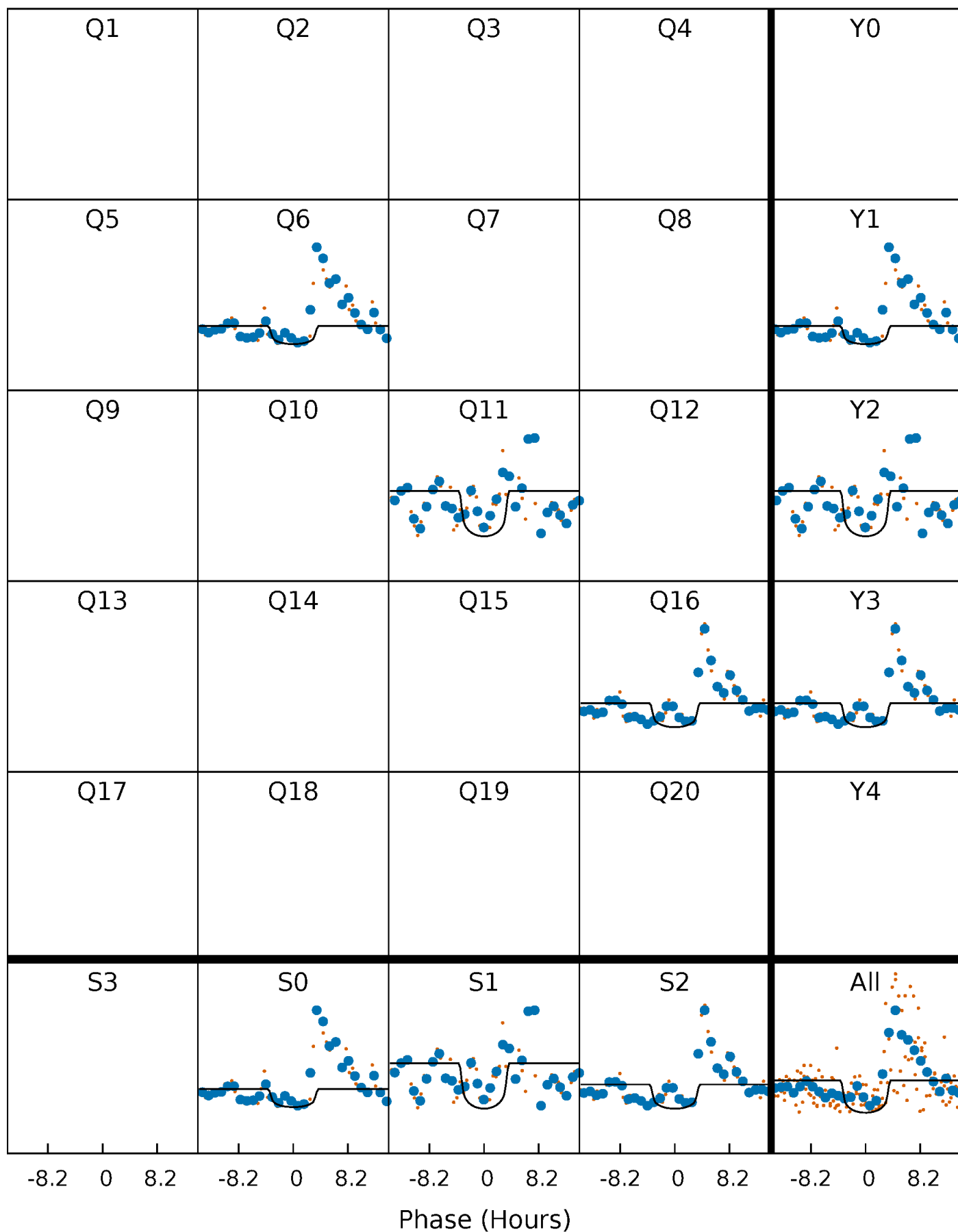
PDC Quarter-Phased Transit Curves

TCE 010067340-06 P=474.946108 Days $T_0=561.719411$ (BKJD)



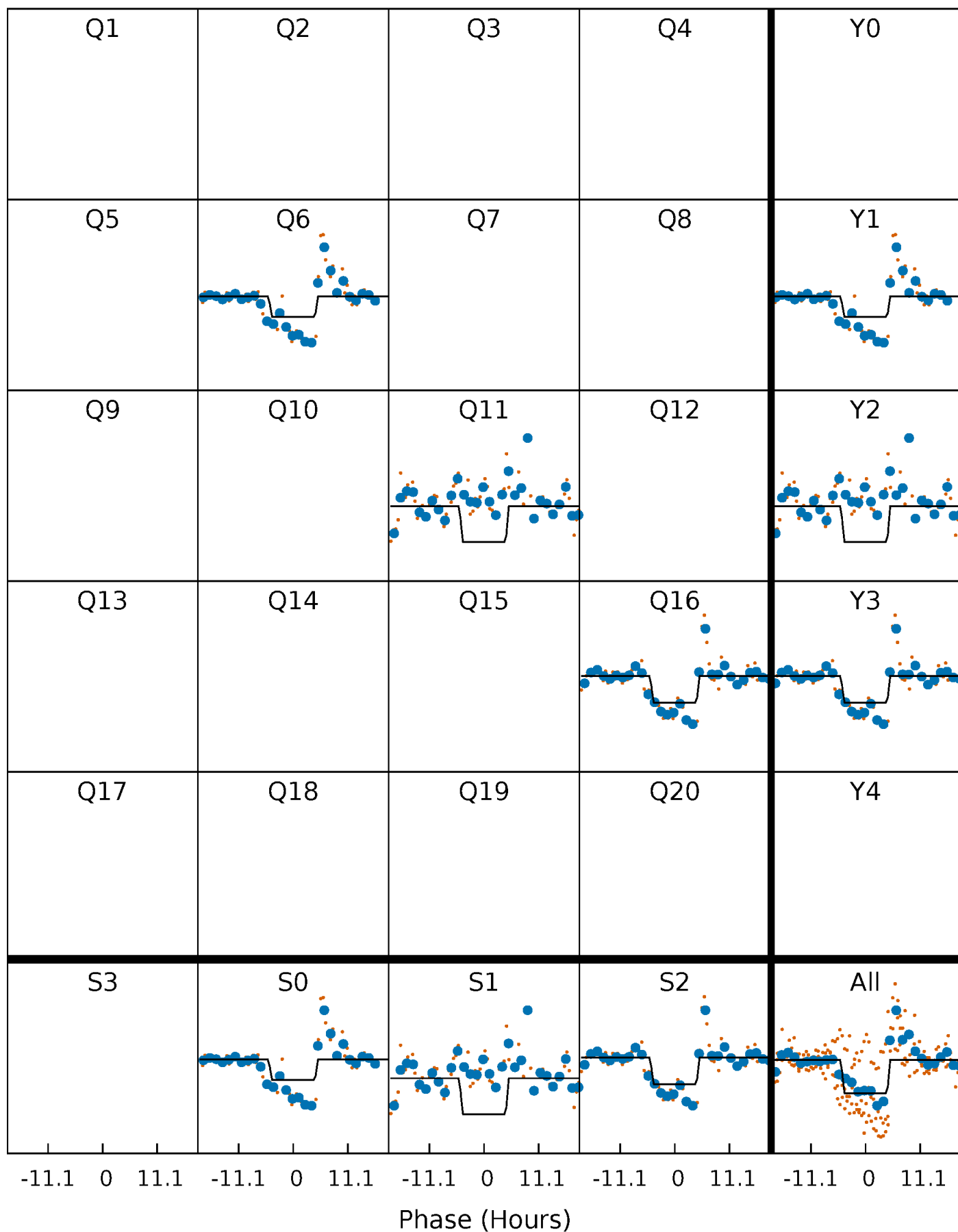
DV Quarter-Phased Transit Curves

TCE 010067340-06 P=474.946108 Days $T_0=561.719411$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

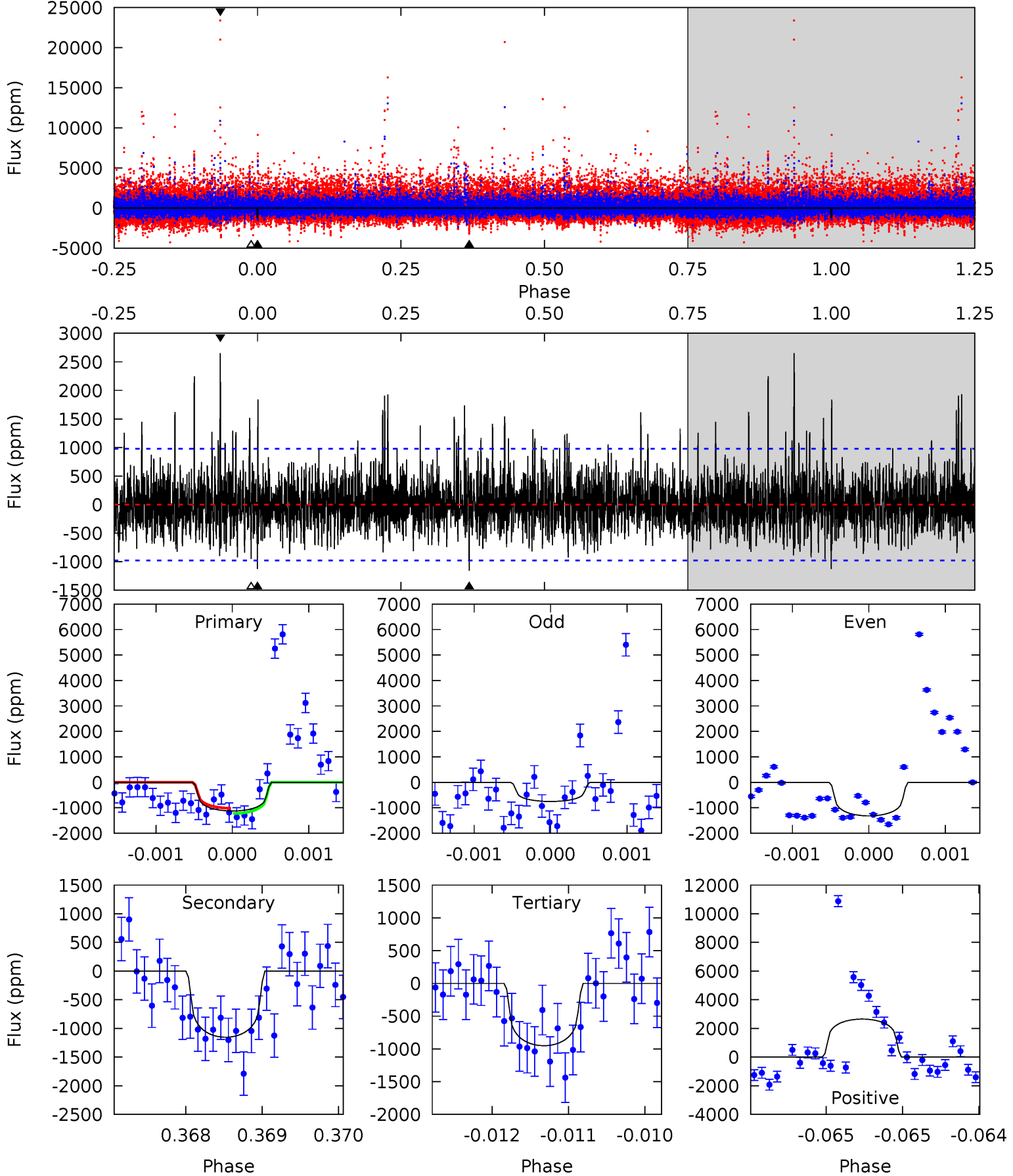
TCE 010067340-06 P=474.957669 Days $T_0=561.633010$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-06, $P = 474.946108$ Days, $E = 86.773303$ Days

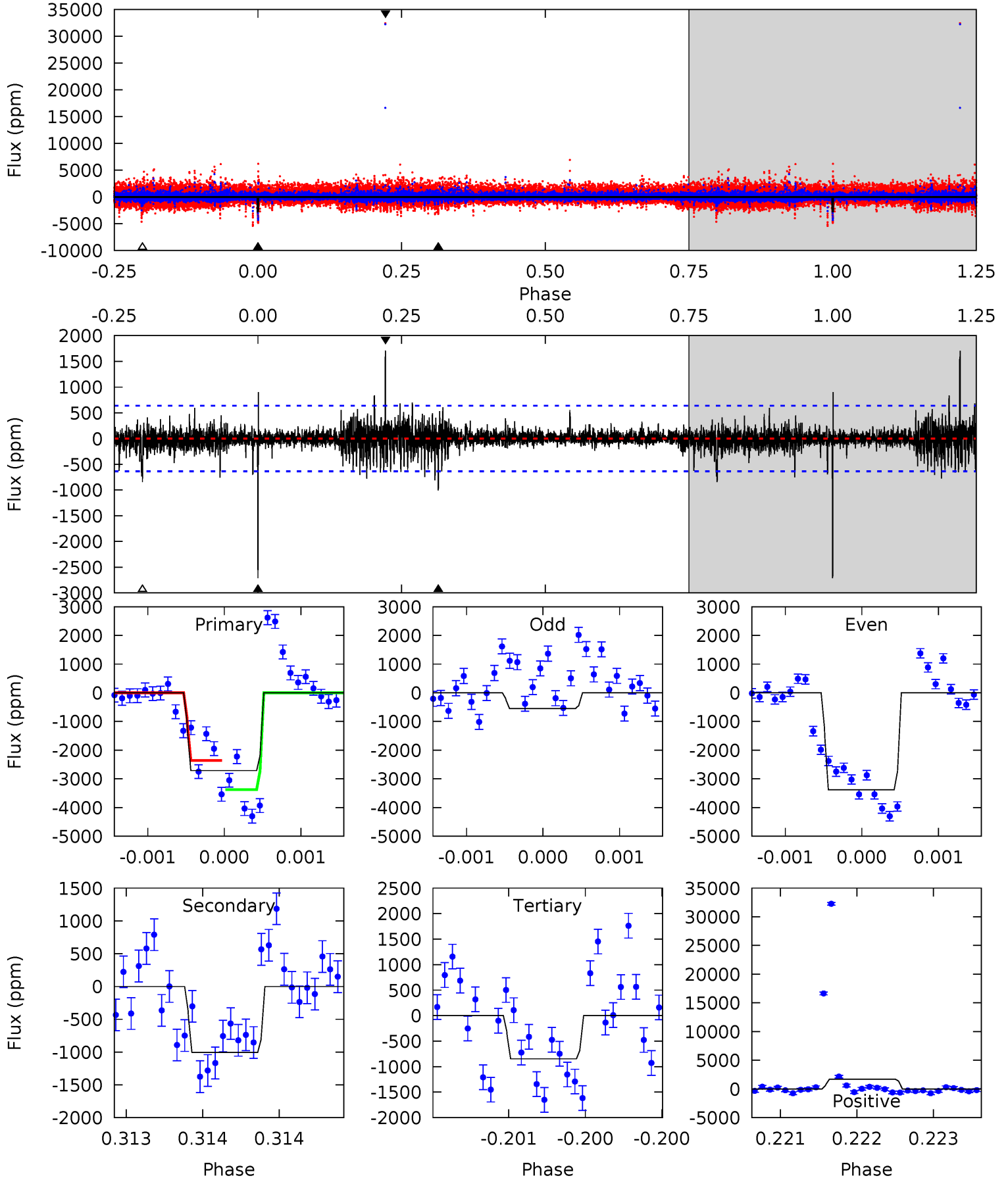
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.37	6.54	5.39	15.0	5.53	3.41	2.05	0.98	-8.64	1.15	-8.47	0.45	0.95	0.70	0.59



Alt Model-Shift Uniqueness Test

010067340-06, P = 474.957669 Days, E = 86.675341 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.4	8.65	7.29	14.7	5.48	3.33	1.29	16.1	8.68	1.36	-6.03	11.0	0.68	0.39	4.30



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1154 ± 177	$2.01^{+1.47}_{-1.26}$	132^{+3}_{-3}	2937^{+1069}_{-405}	$108459^{+680404}_{-74142}$
Alt.	-1004 ± 116	$2.00^{+1.49}_{-1.24}$	132^{+3}_{-3}	2874^{+1009}_{-384}	$93308^{+511000}_{-62691}$

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

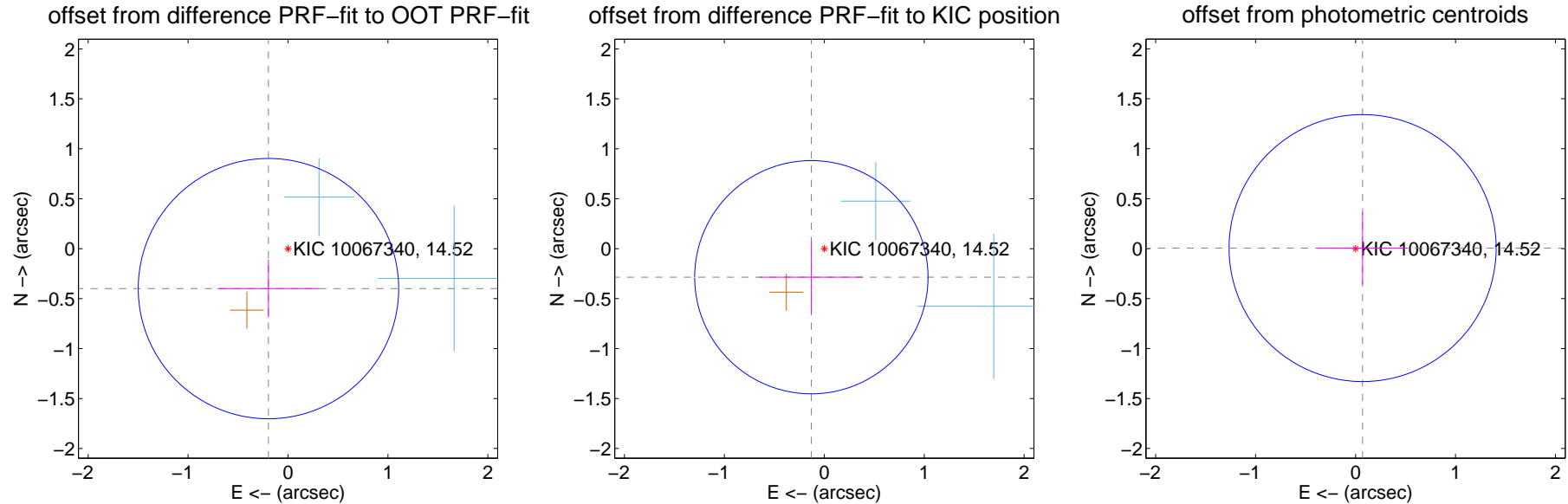
DV Centroid Data

Supplemental centroid analysis for 010067340-06. Kepler magnitude: 14.52. Transit SNR 6.75

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.445 ± 0.434	1.02	0.196 ± 0.509	-0.400 ± 0.290
PRF-fit source offset from KIC position	0.313 ± 0.389	0.81	0.129 ± 0.518	-0.285 ± 0.368
photometric centroid source offset	0.07 ± 0.45	0.16	-0.07 ± 0.45	0.01 ± 0.36



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

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



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

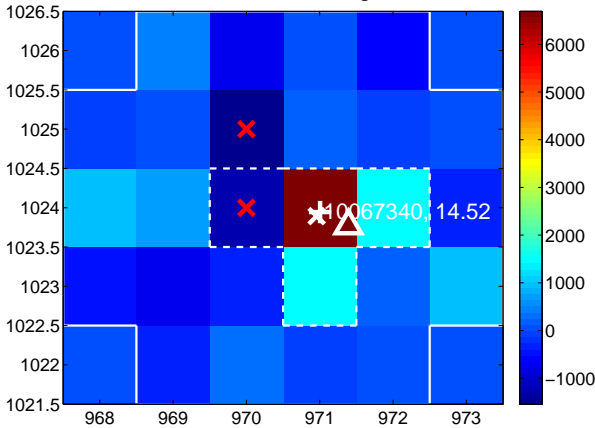
Q5 no difference image



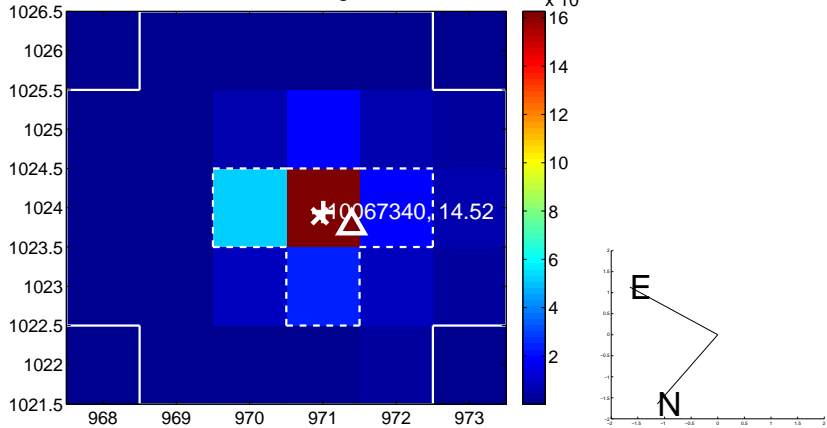
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



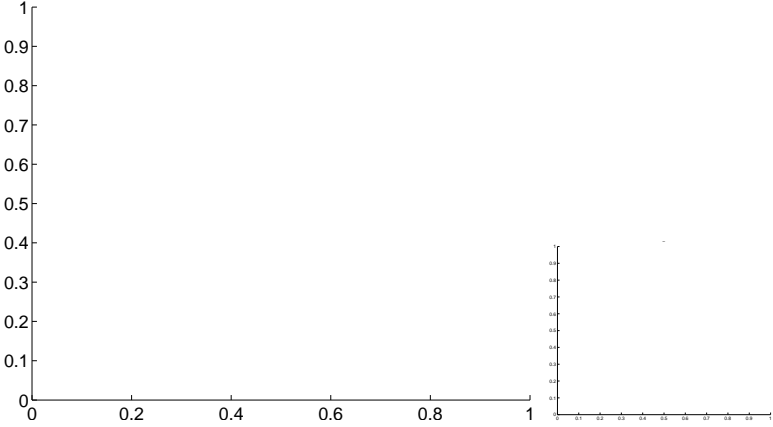
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

Q9 no difference image



Q9 no OOT image



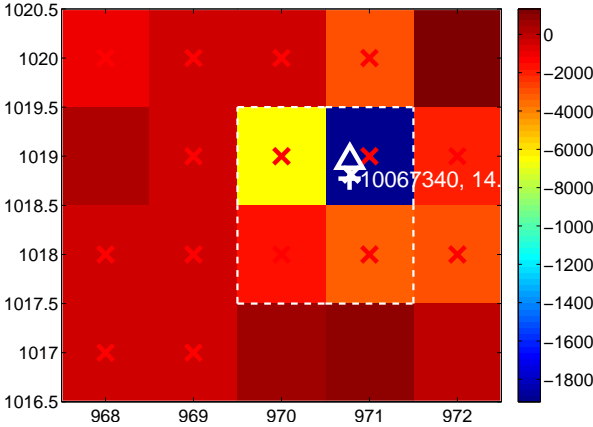
Q10 no difference image



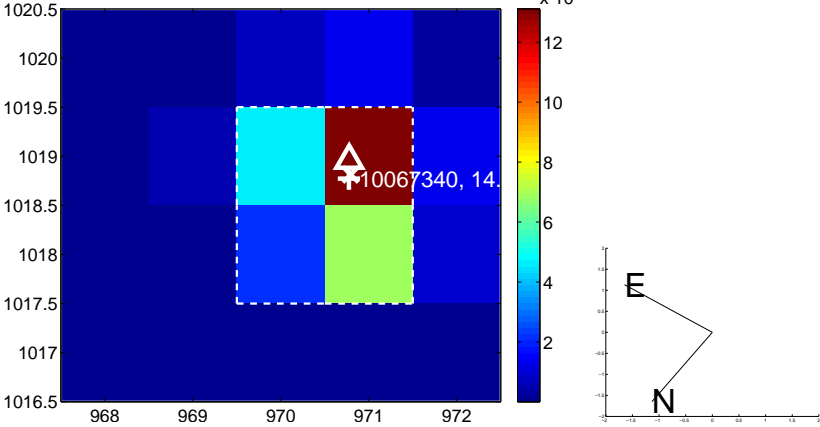
Q10 no OOT image



Q11 difference image. Poor Quality



Q11 OOT image



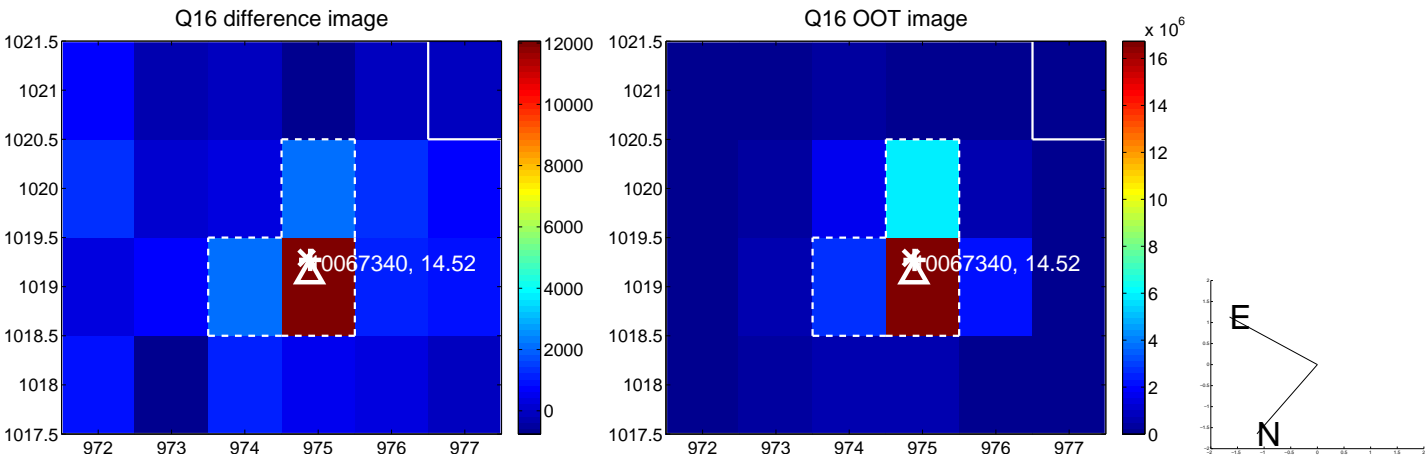
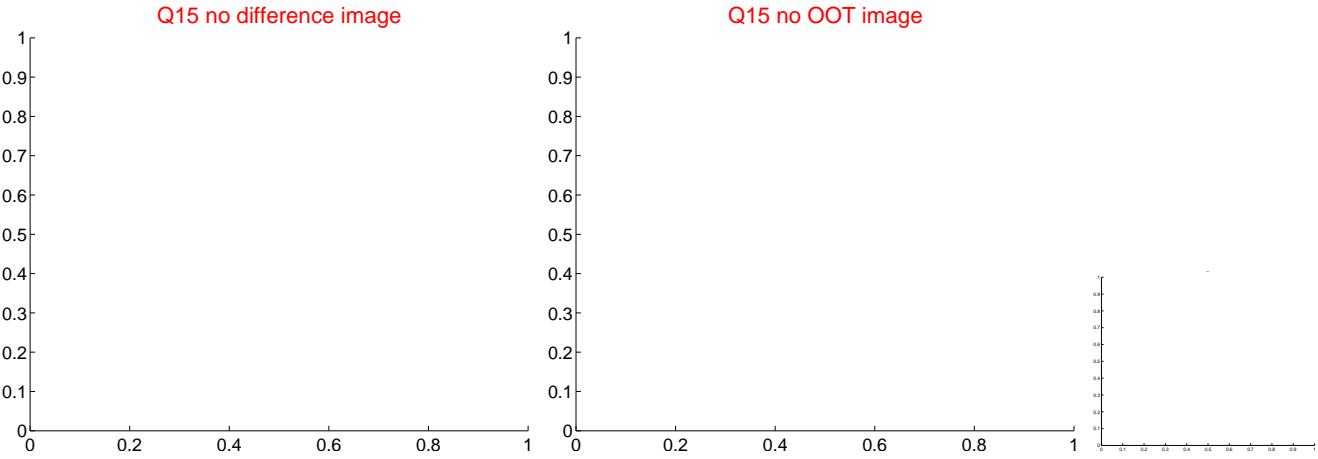
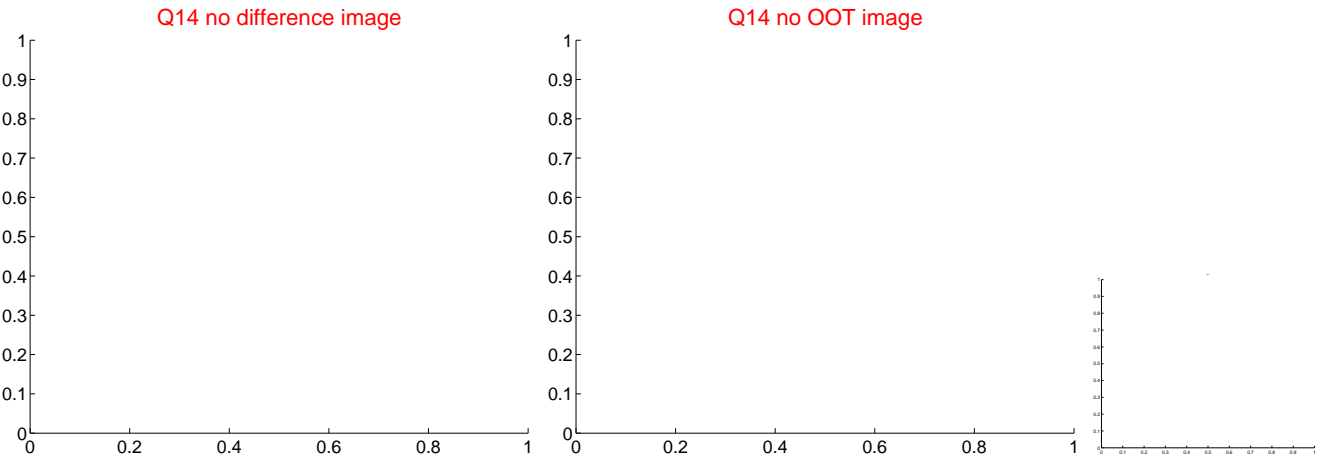
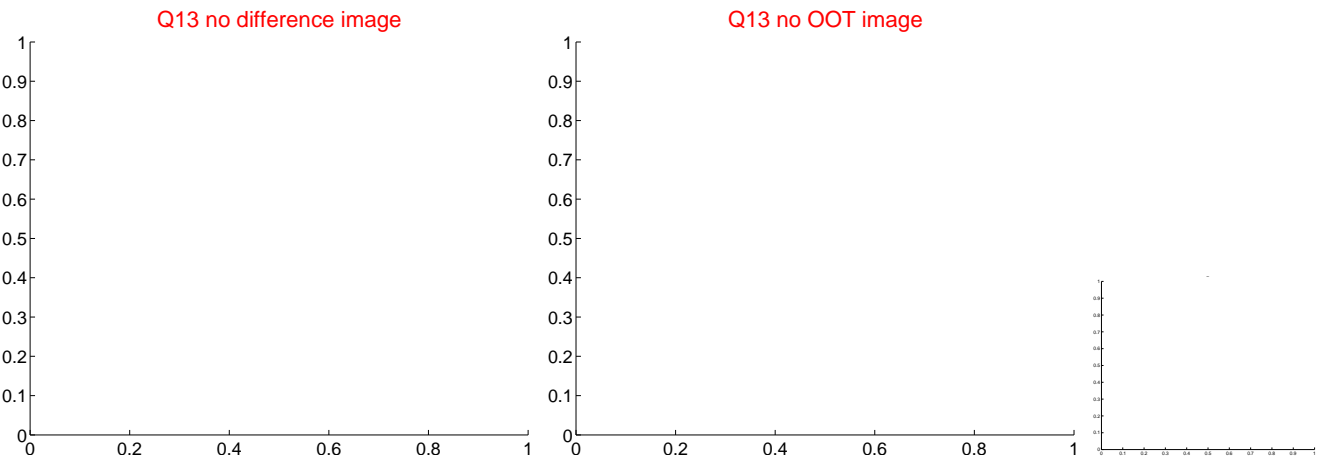
Q12 no difference image



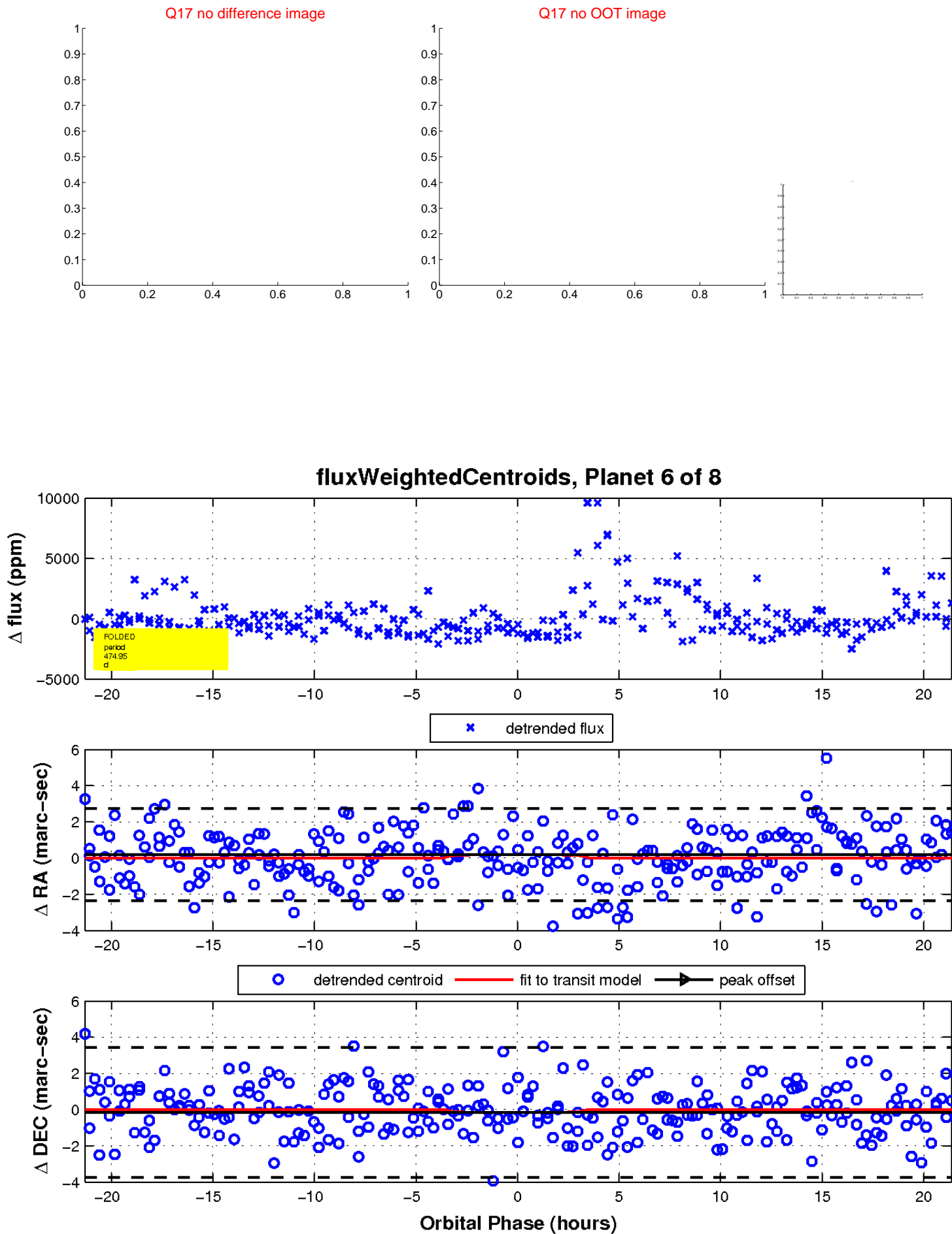
Q12 no OOT image



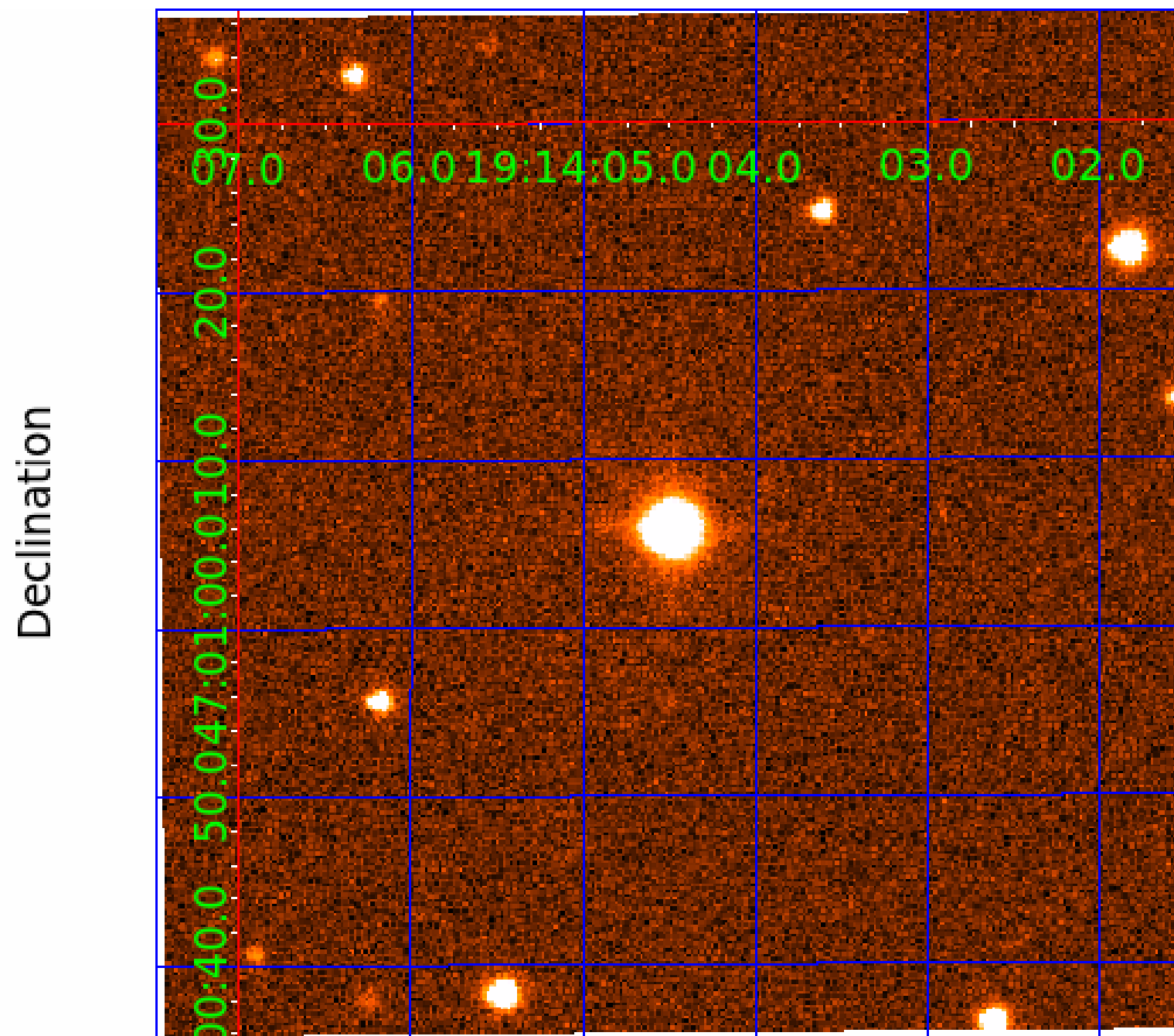
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image



KIC 010067340

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})
010067340-01	OBS	No	638.379363	224.387840	2111.8	5.428	24.4	7.6	0.32	3407	1.47	0.01
010067340-02	OBS	No	345.161189	238.570055	1871.5	13.136	15.5	6.7	0.32	3407	1.44	0.03
010067340-03	OBS	No	396.787463	459.896158	2423.0	4.388	14.8	6.6	0.32	3407	1.79	0.02
010067340-04	OBS	No	227.390338	214.978229	1314.9	3.665	13.9	6.3	0.32	3407	1.20	0.05
010067340-05	OBS	No	640.353440	226.233368	2386.7	5.270	14.0	8.2	0.32	3407	1.57	0.01
010067340-06	OBS	No	474.946108	561.719411	2073.5	7.158	12.7	6.8	0.32	3407	1.46	0.02
010067340-07	OBS	No	254.021862	205.267117	1723.0	7.888	10.3	7.1	0.32	3407	1.37	0.04
010067340-08	OBS	No	513.372761	283.587764	904.9	5.000	11.9	-1.0	0.32	3407	0.96	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010067340-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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

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

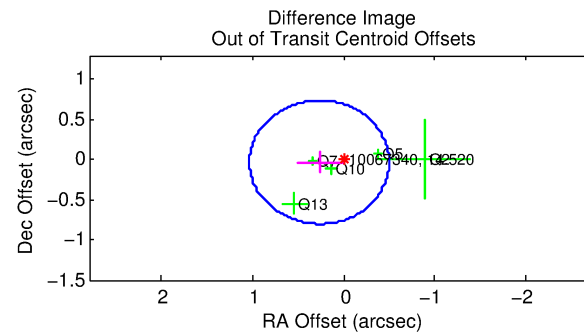
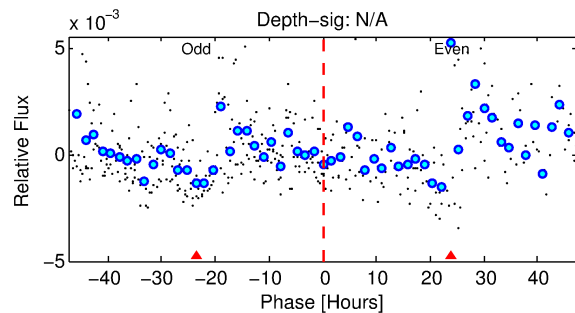
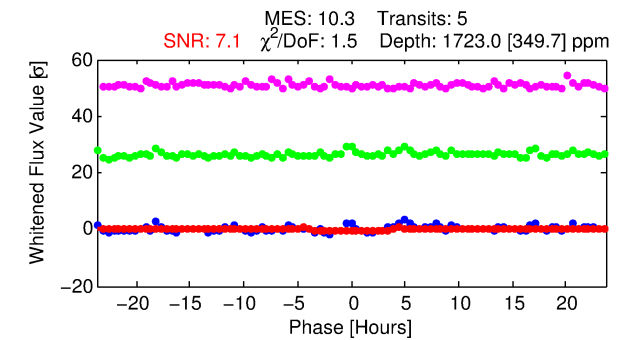
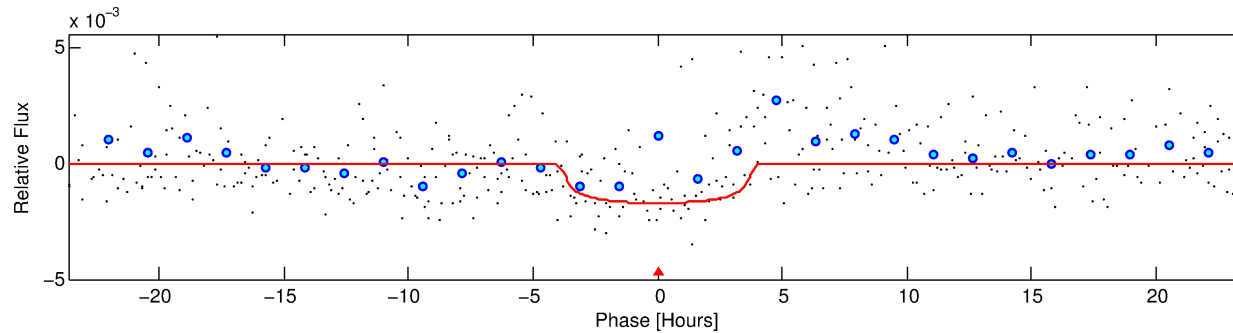
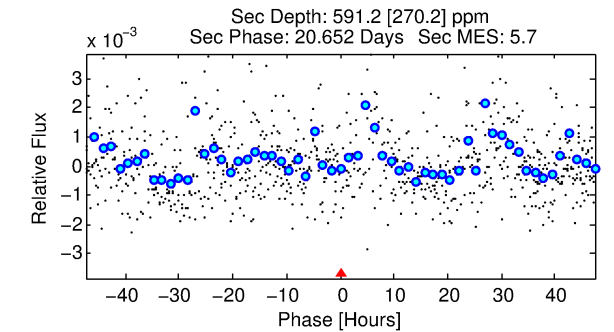
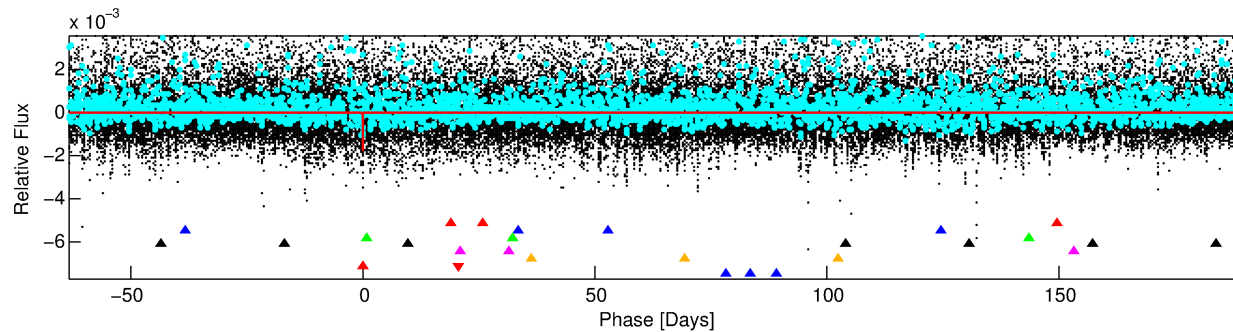
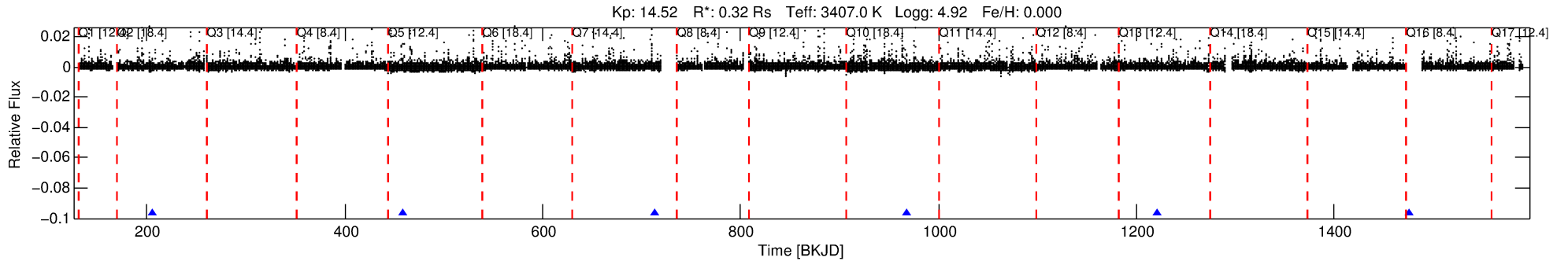
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010067340-07

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 7 of 8 Period: 254.022 d



DV Fit Results:

Period = 254.02186 [0.00536] d
Epoch = 205.2671 [0.0137] BKJD
Rp/R* = 0.0388 [0.0213]
a/R* = 221.61 [491.10]
b = 0.52 [3.14]
Seff = 0.04 [0.00]
Teq = 117 [3] K
Rp = 1.37 [0.77] Re
a = 0.5374 [0.0431] AU
Ag = 49803.29 [59323.48] [0.84σ]
Teffp = 2696 [801] K [3.22σ]

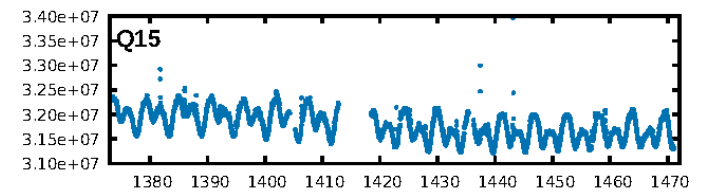
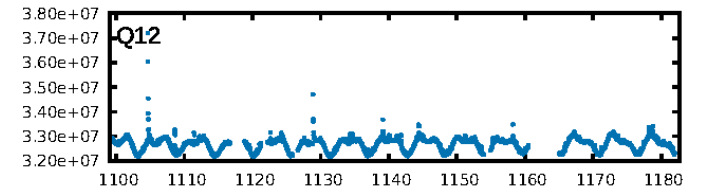
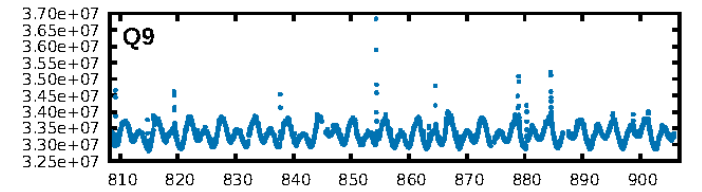
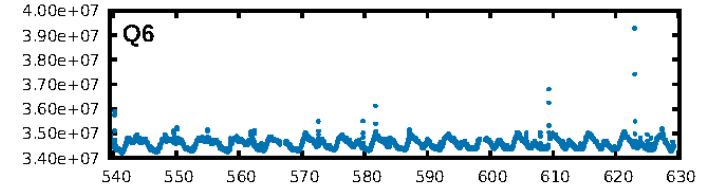
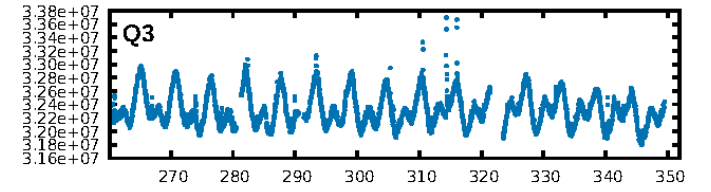
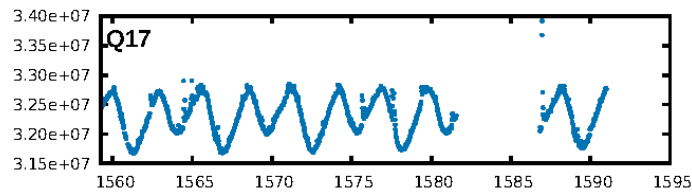
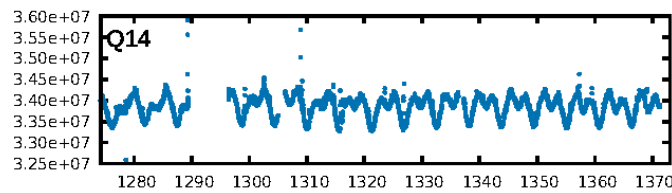
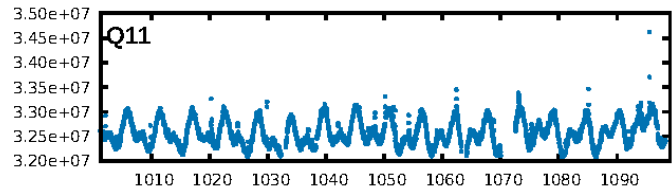
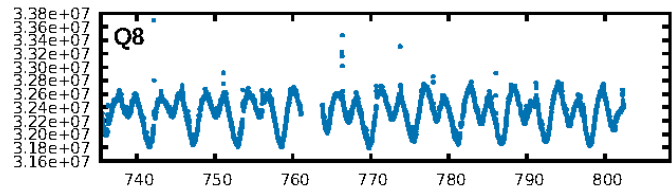
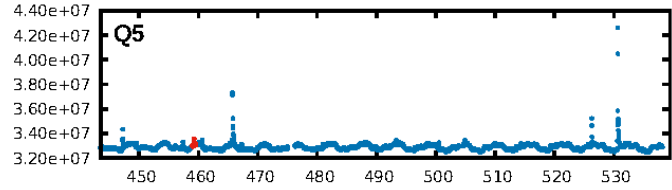
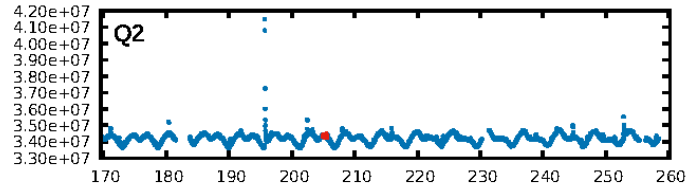
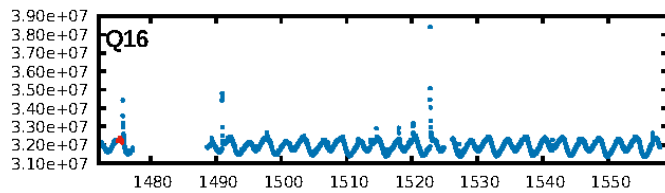
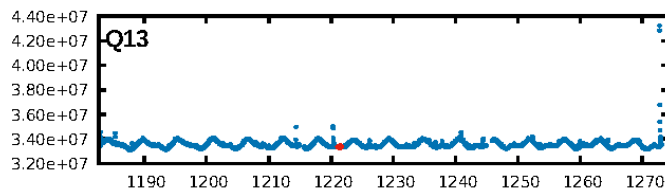
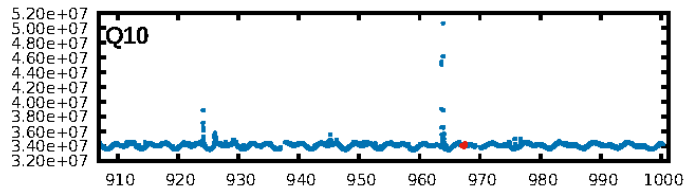
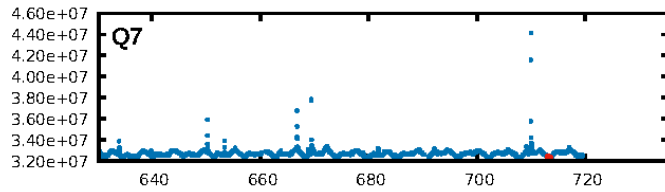
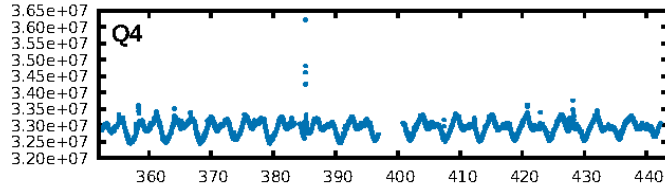
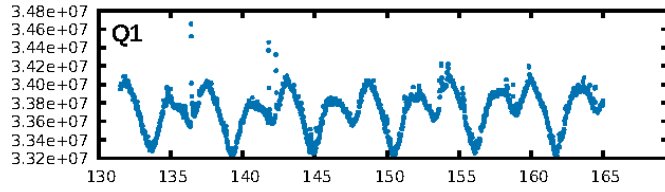
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [73.48σ]
LongPeriod-sig: 100.0% [142.76σ]
ModelChiSquare2-sig: 23.8%
ModelChiSquareGof-sig: 78.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1.318
Centroid-sig: 68.2%
Centroid-so: 0.298 arcsec [0.67σ]
OotOffset-rm: 0.268 arcsec [1.05σ]
OotOffset-st: 2/1/0/2 [5]
KicOffset-rm: 0.275 arcsec [1.52σ]
KicOffset-st: 2/1/0/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.80 [4/5]

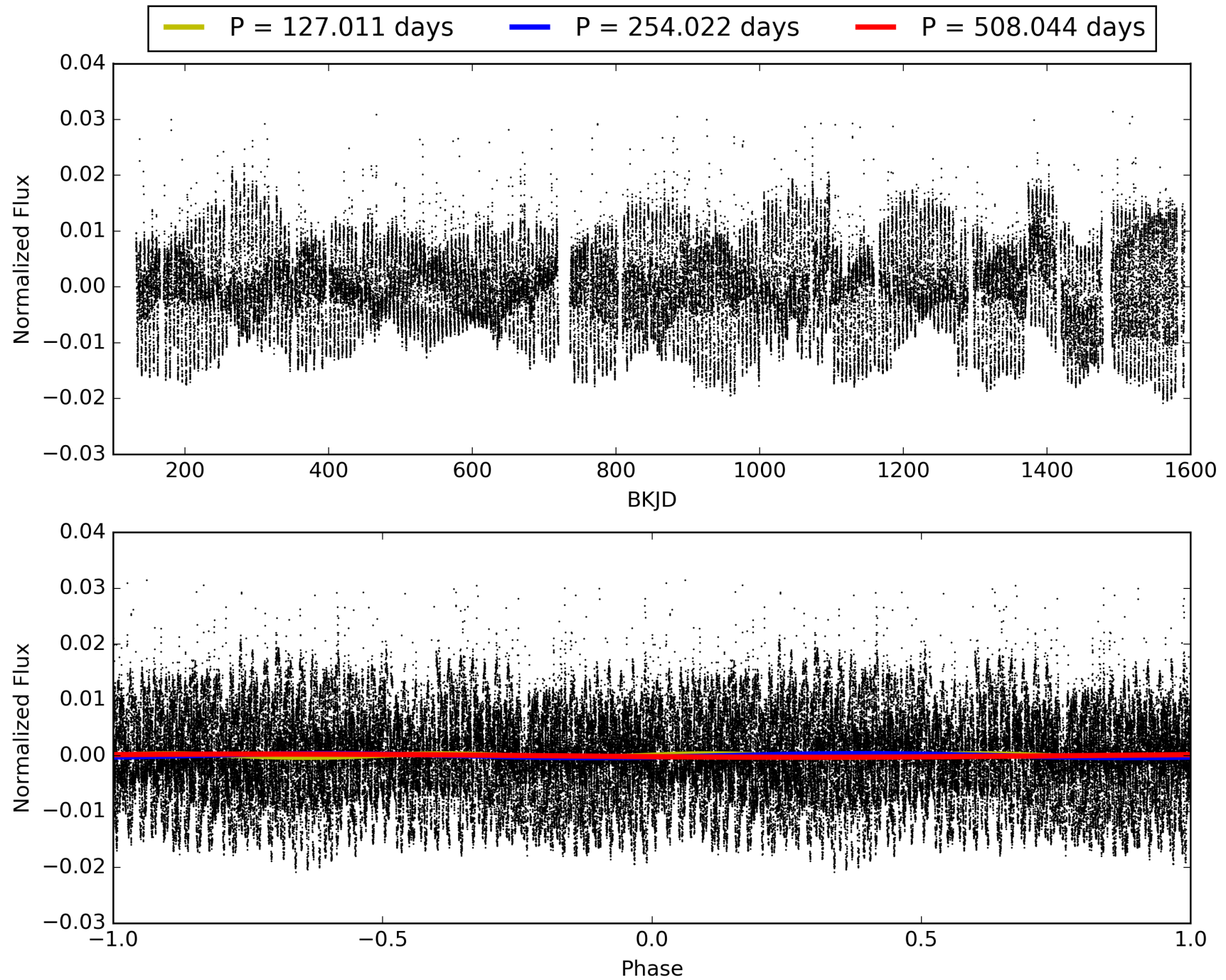
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:42:57 Z

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

TCE 010067340-07, PDC Light Curves

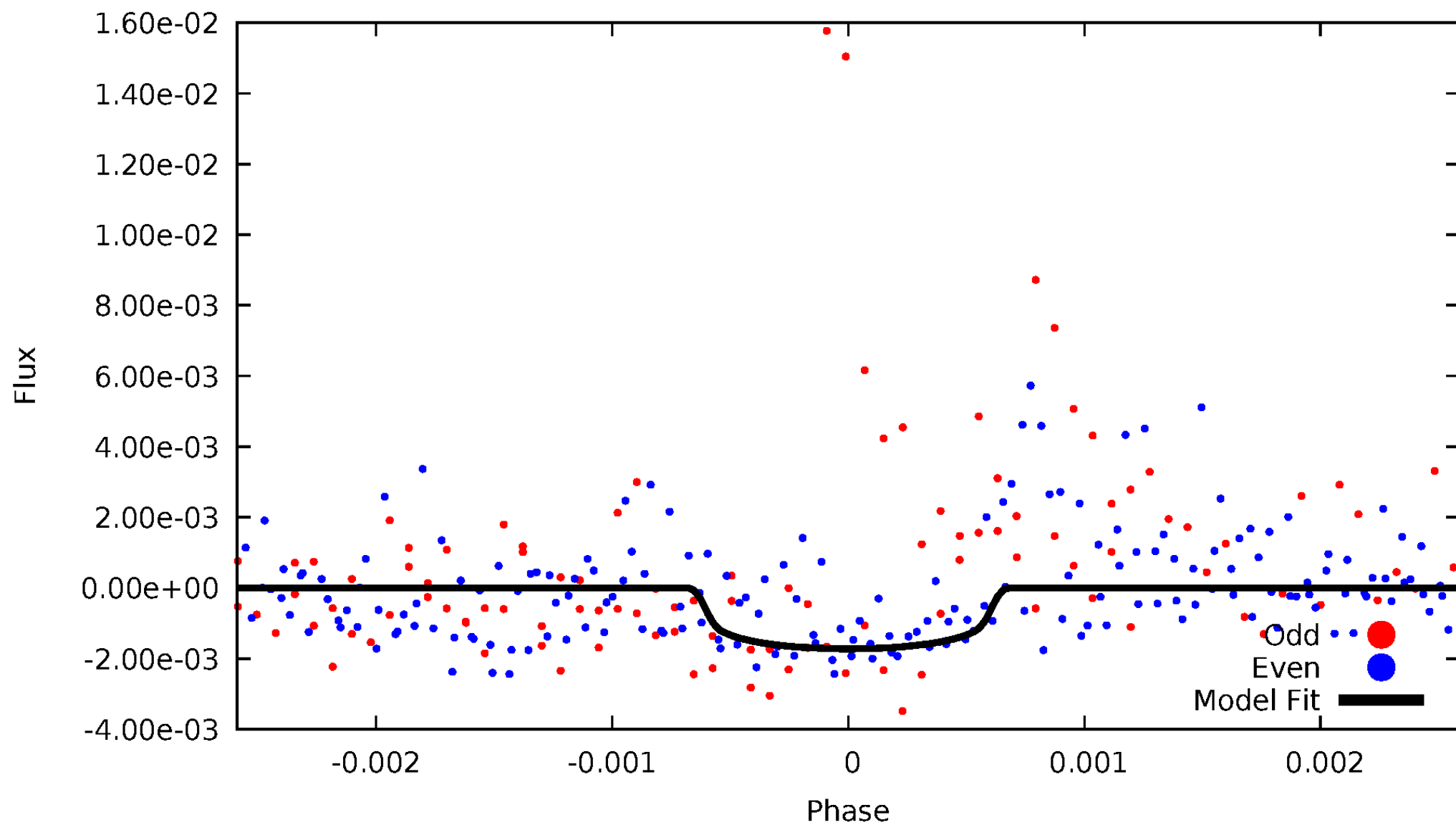


TCE 010067340-07



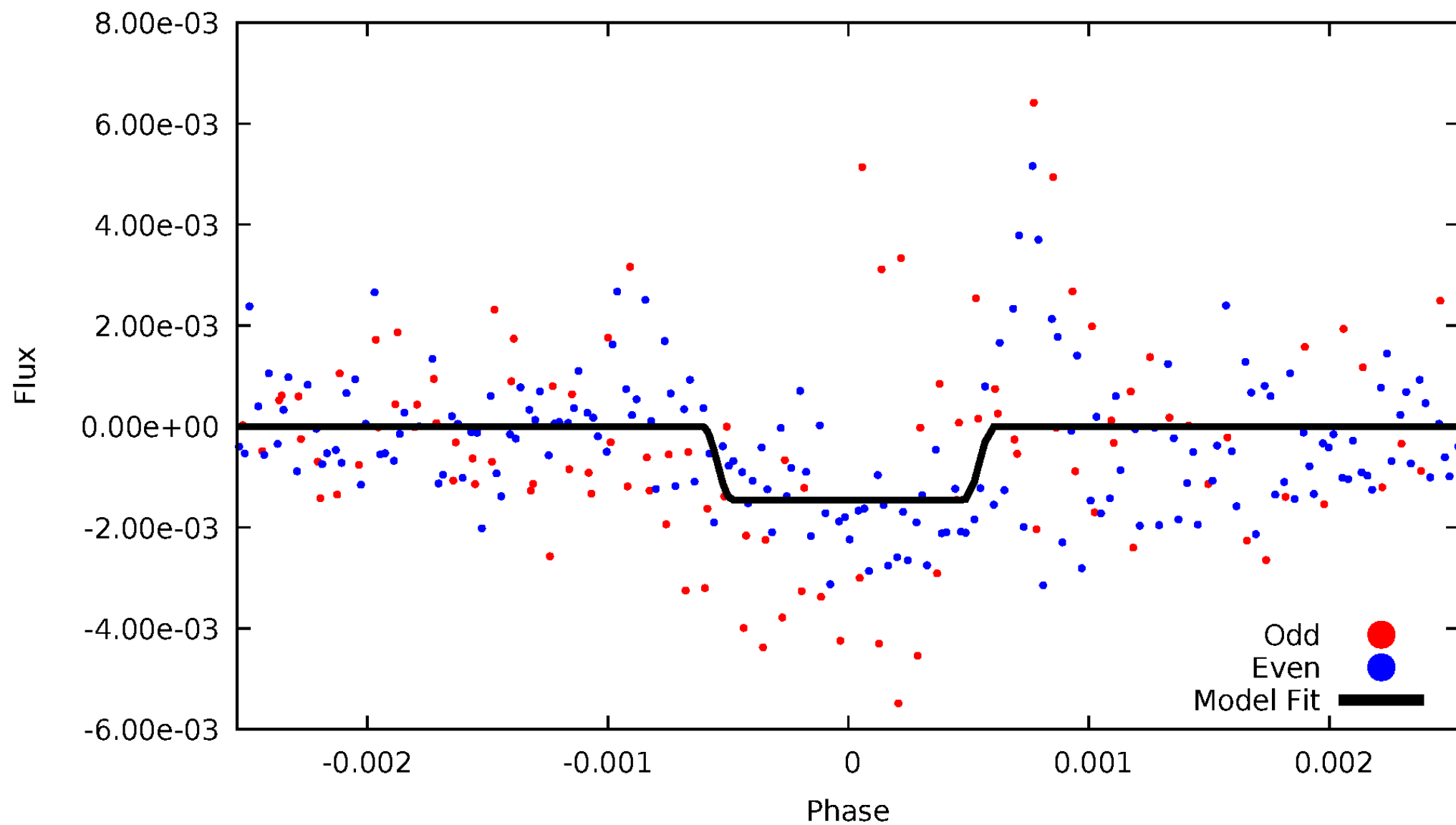
DV Odd/Even

TCE 010067340-07



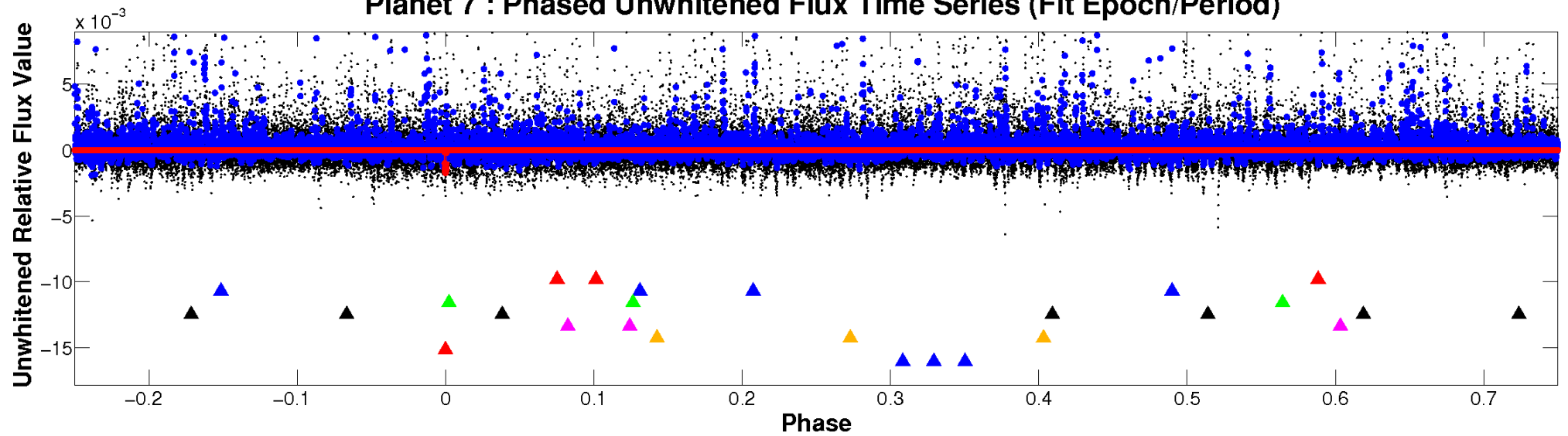
ALT Odd/Even

TCE 010067340-07

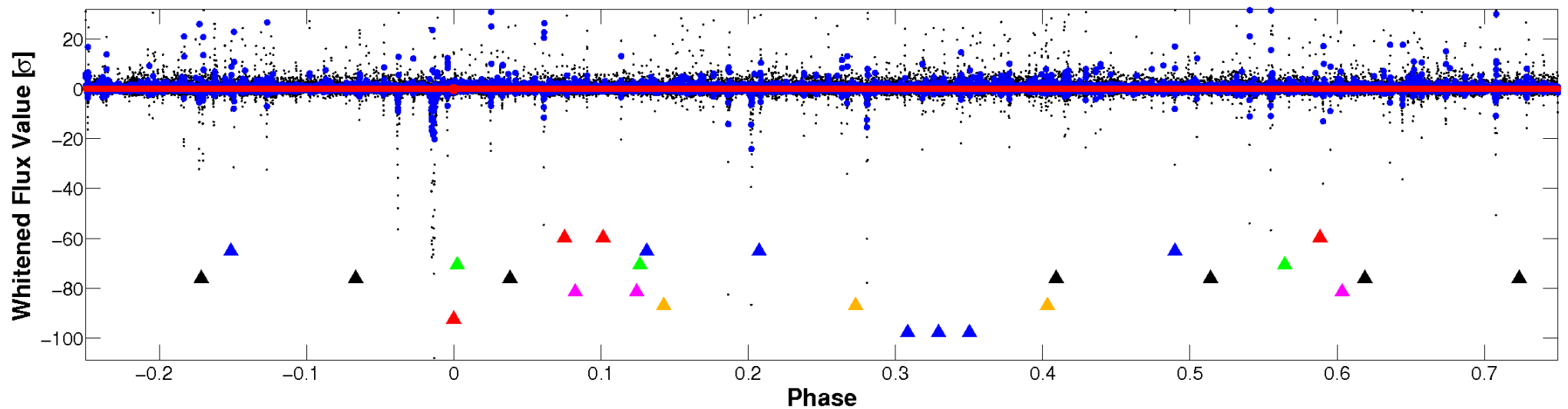


Non-Whitened Vs. Whitened Light Curve

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

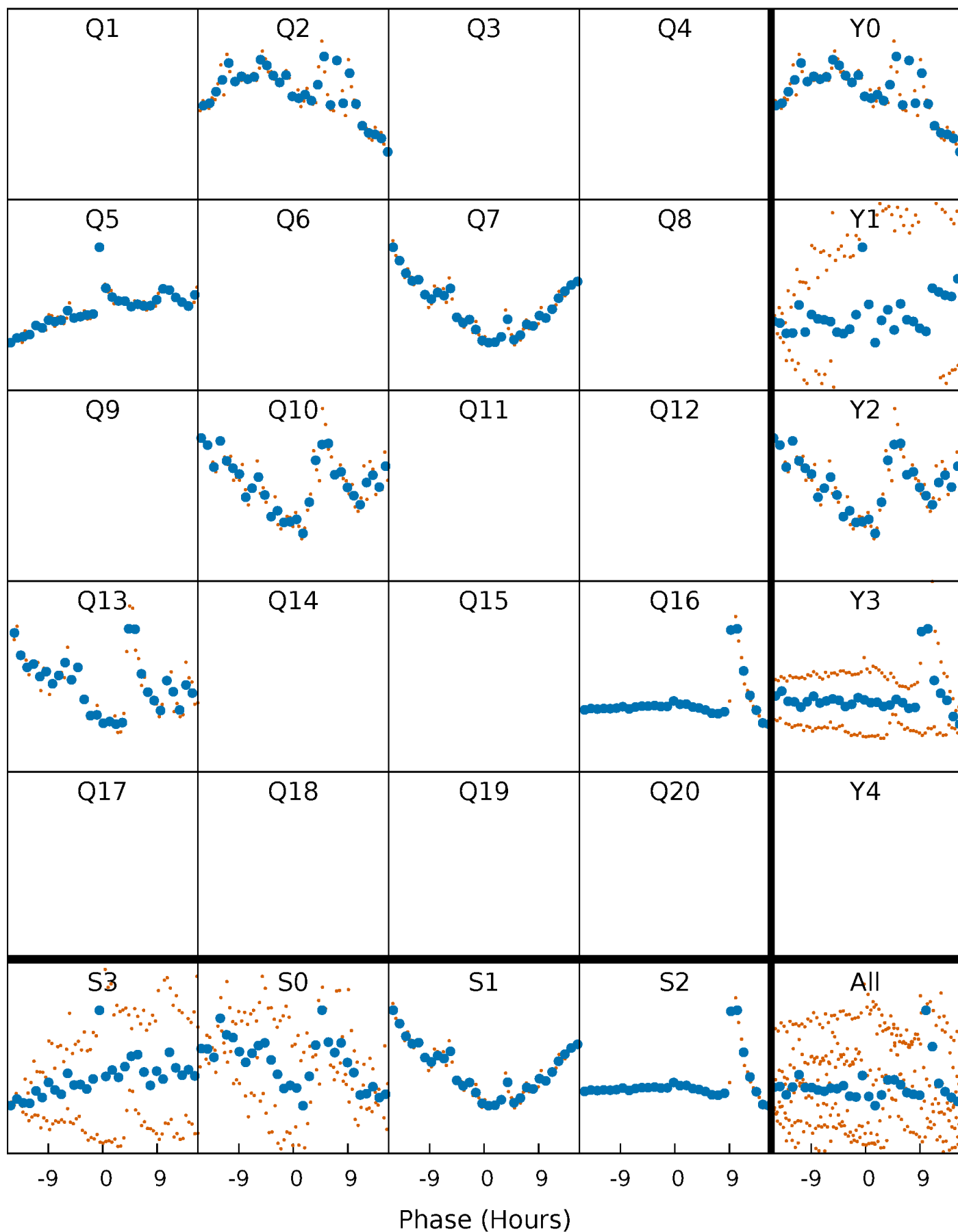


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



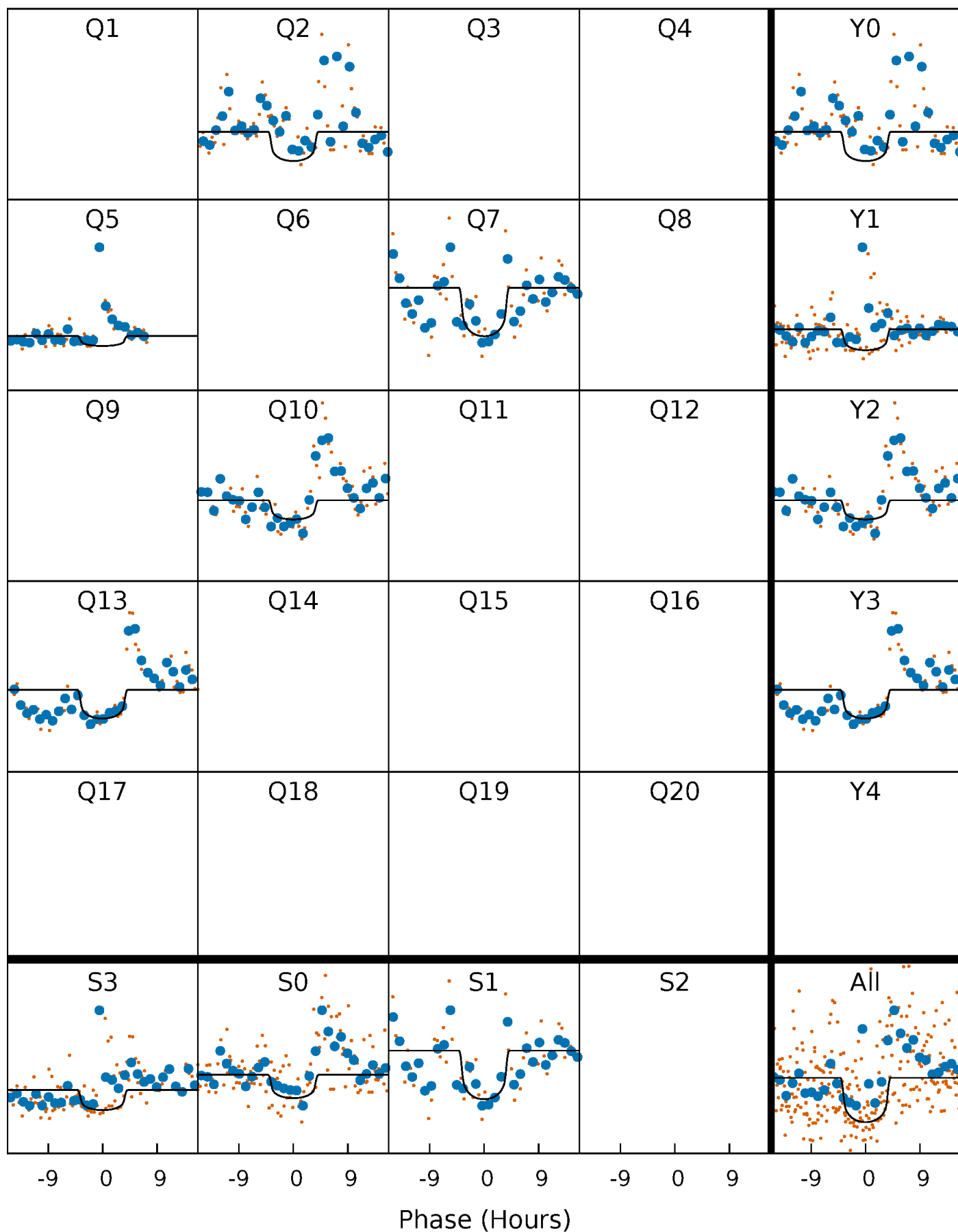
PDC Quarter-Phased Transit Curves

TCE 010067340-07 $P=254.021862$ Days $T_0=205.267117$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 010067340-07 $P=254.021862$ Days $T_0=205.267117$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

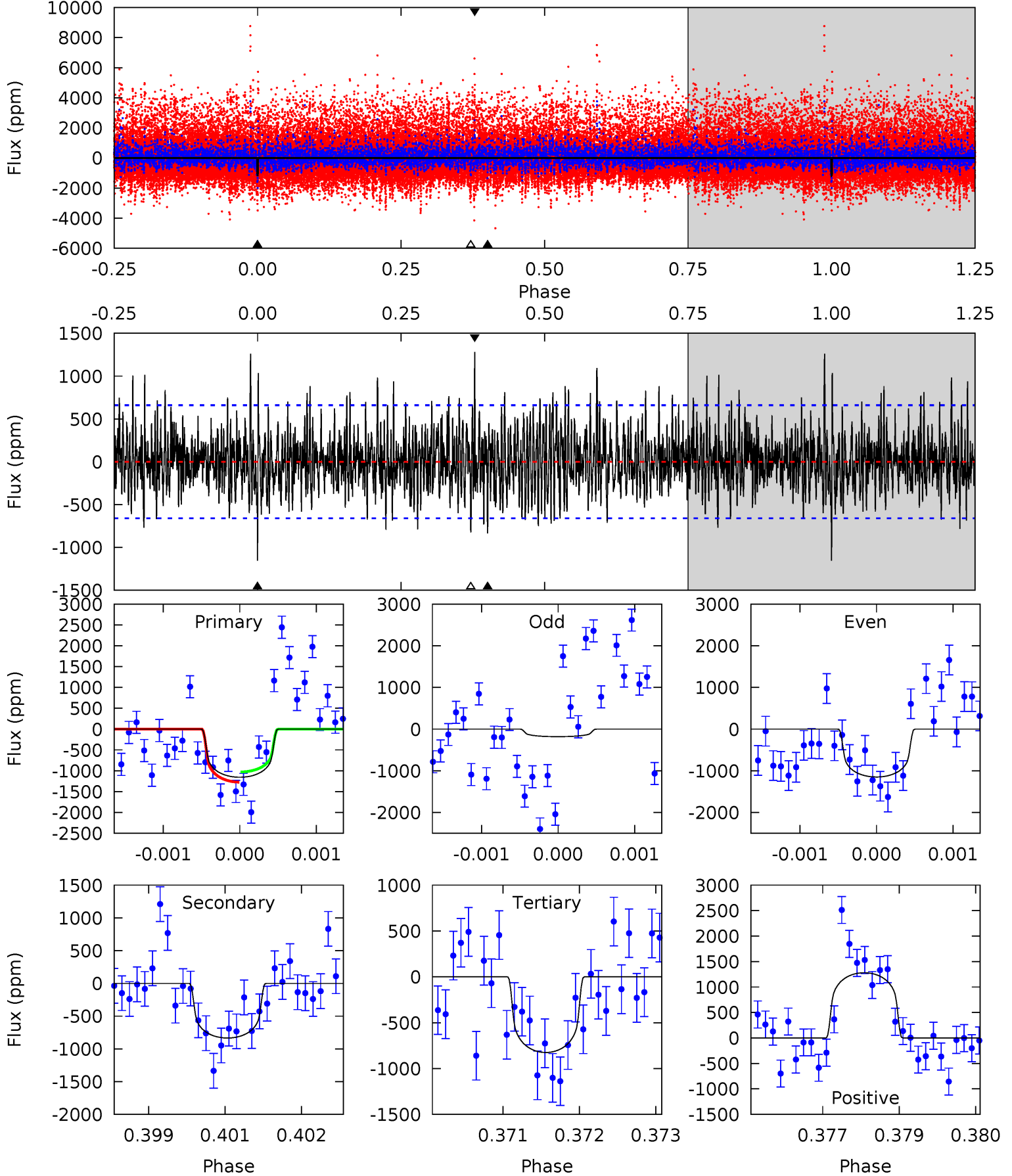
TCE 010067340-07 P=254.023207 Days $T_0=205.268677$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-07, P = 254.021862 Days, E = 205.267117 Days

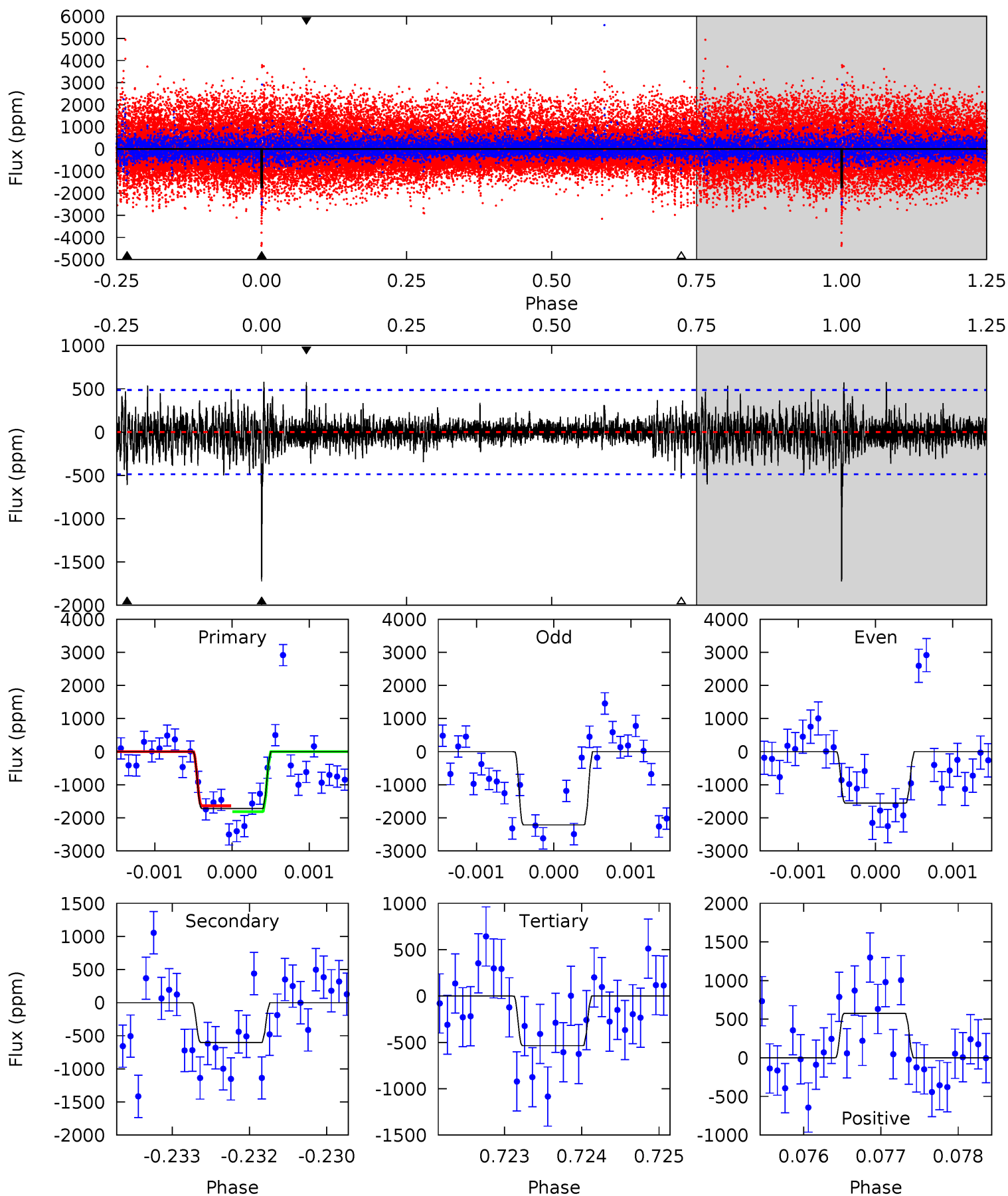
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.45	6.82	6.75	10.5	5.40	3.20	2.34	2.70	-1.03	0.07	-3.65	3.48	0.17	0.53	0



Alt Model-Shift Uniqueness Test

010067340-07, P = 254.023207 Days, E = 205.268677 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	6.72	5.97	6.41	5.42	3.24	1.33	13.2	12.8	0.75	0.31	3.48	0.96	0.25	1.00



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-834±122	$1.41^{+0.72}_{-0.70}$	163^{+4}_{-4}	3080^{+717}_{-330}	$66011^{+193207}_{-37496}$
Alt.	-603±90	$1.38^{+0.72}_{-0.66}$	162^{+4}_{-4}	2973^{+646}_{-331}	$51294^{+130927}_{-30228}$

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 $A_{obs} \gg 1.0$

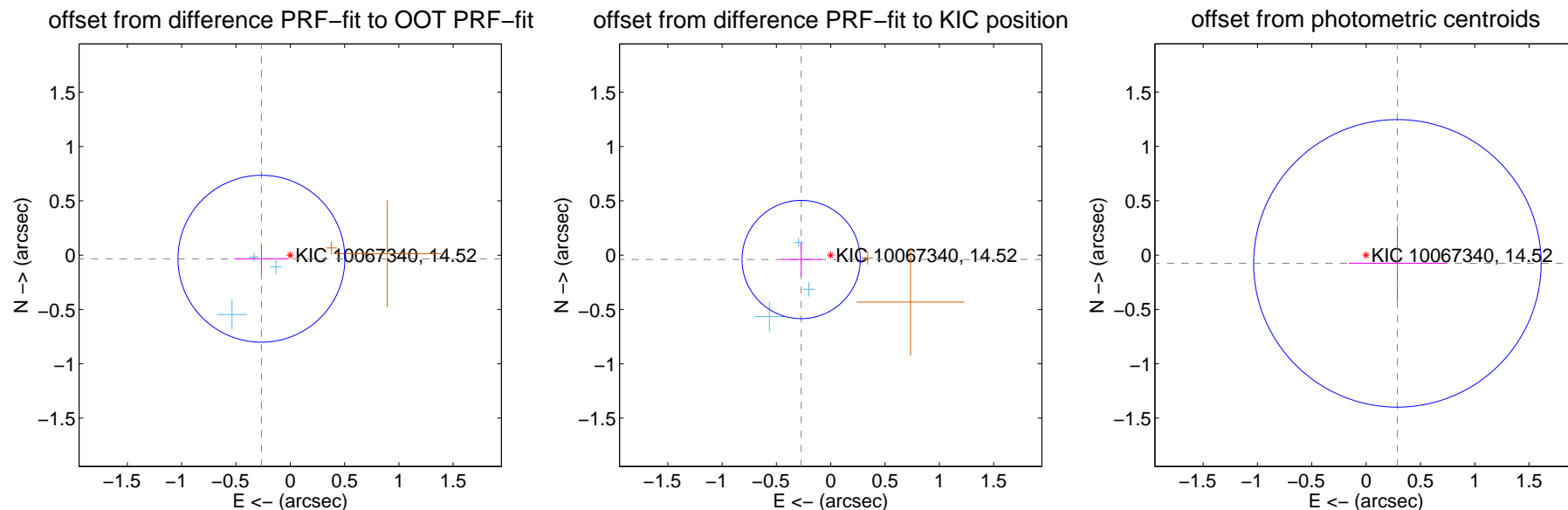
DV Centroid Data

Supplemental centroid analysis for 010067340-07. Kepler magnitude: 14.52. Transit SNR 7.06

There are 3 quarters with good PRF difference image offsets

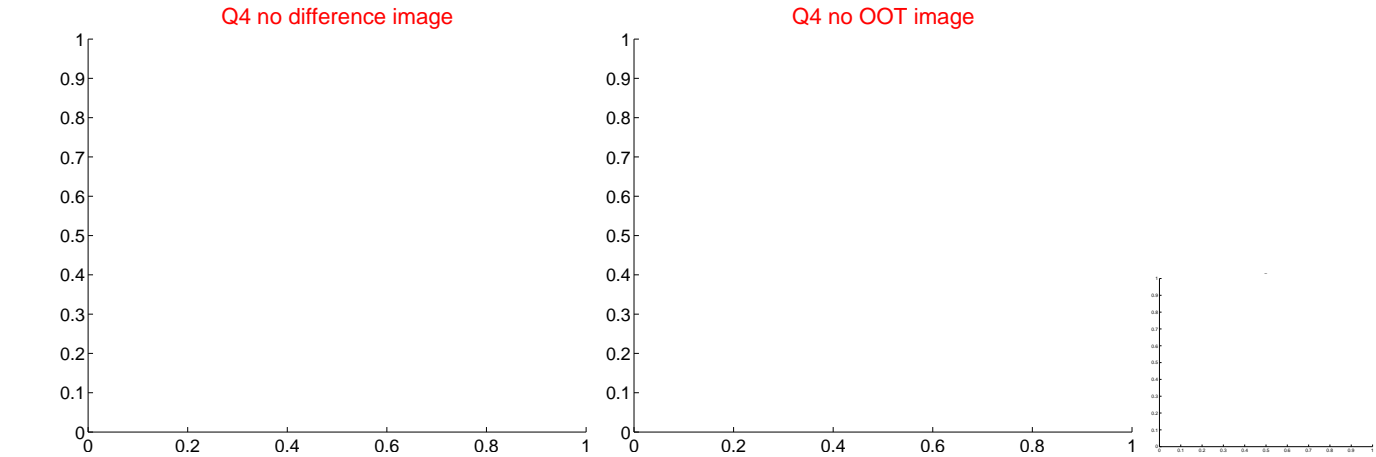
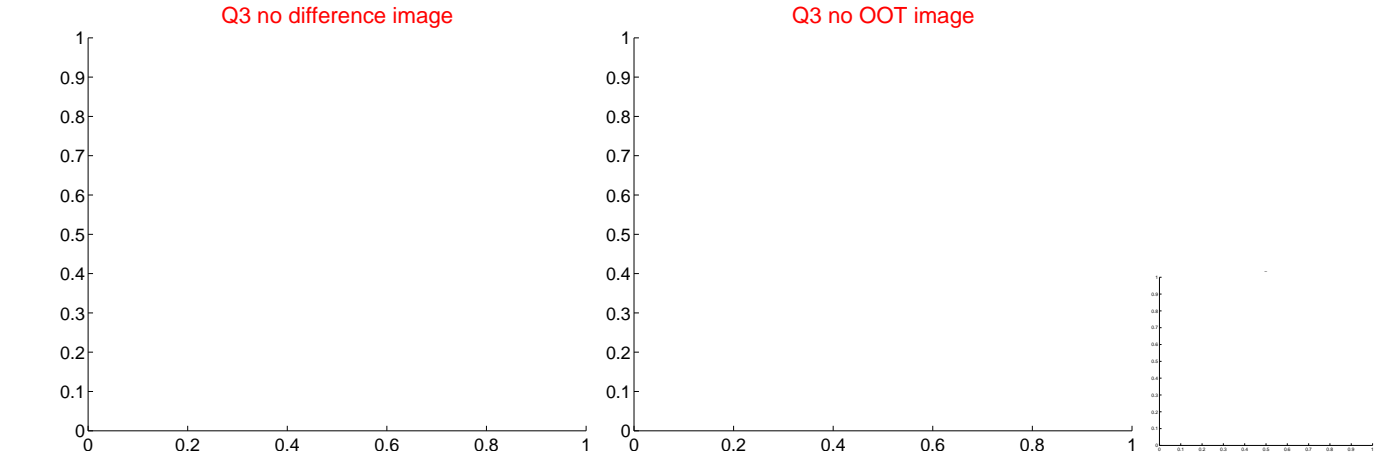
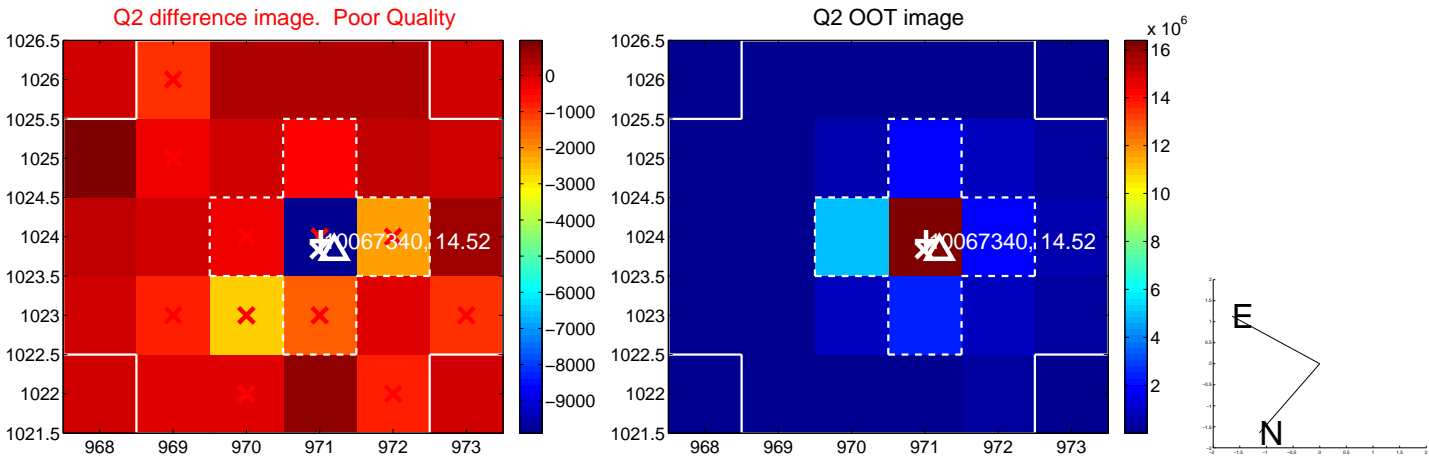
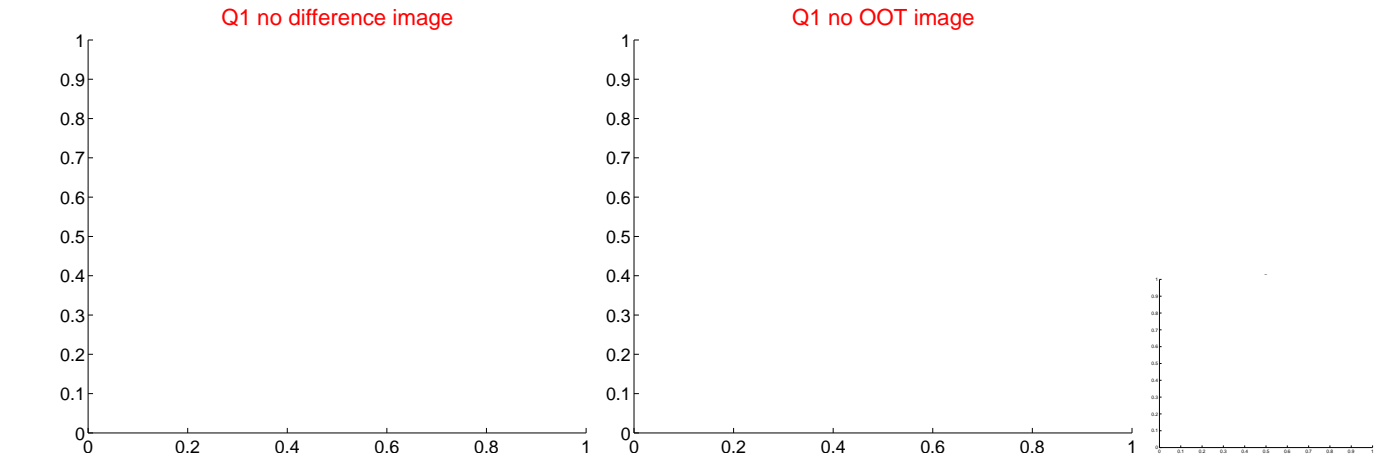
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.268 ± 0.256	1.05	0.266 ± 0.249	-0.033 ± 0.127
PRF-fit source offset from KIC position	0.275 ± 0.181	1.52	0.272 ± 0.182	-0.040 ± 0.155
photometric centroid source offset	0.30 ± 0.44	0.67	-0.29 ± 0.45	-0.08 ± 0.35

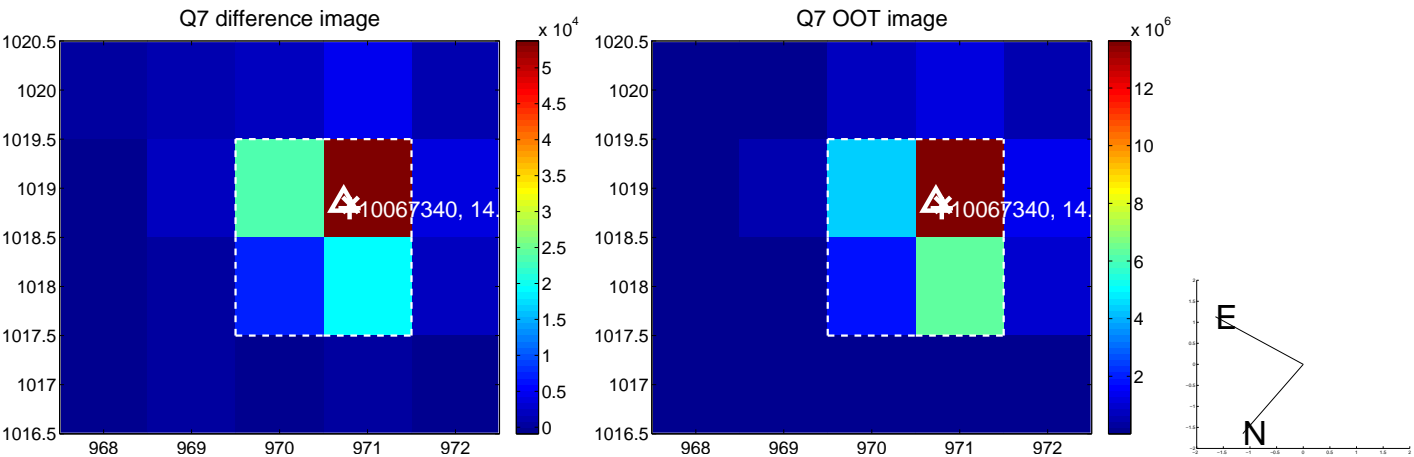
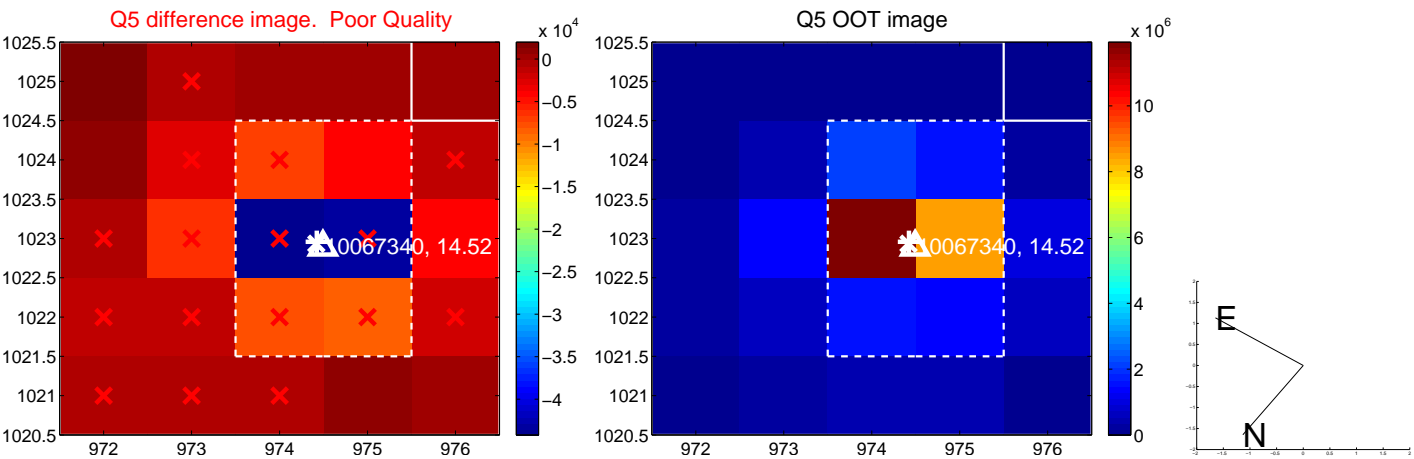


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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

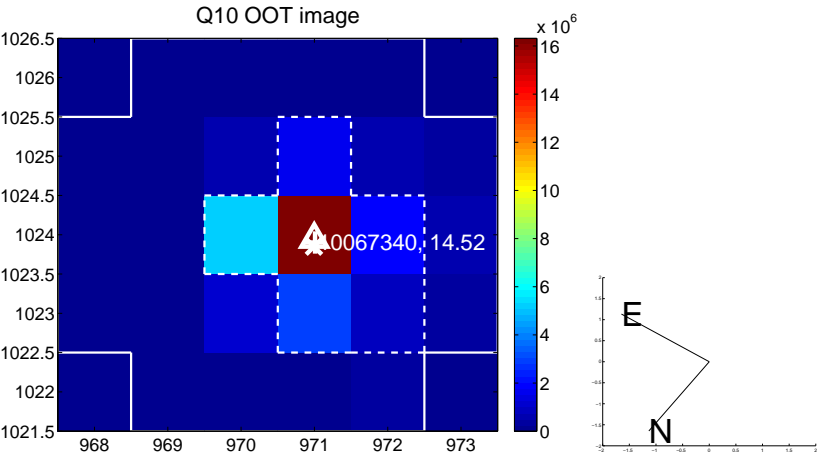
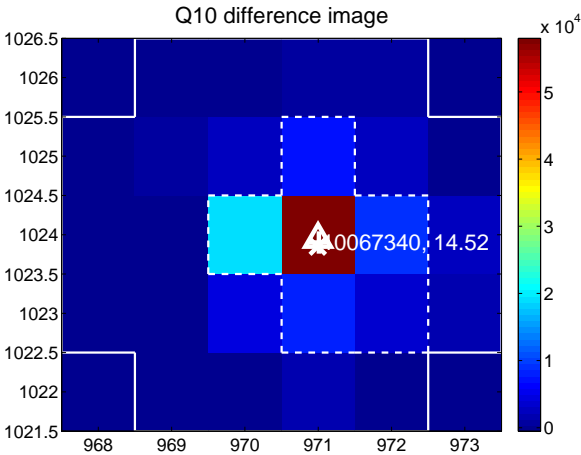


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

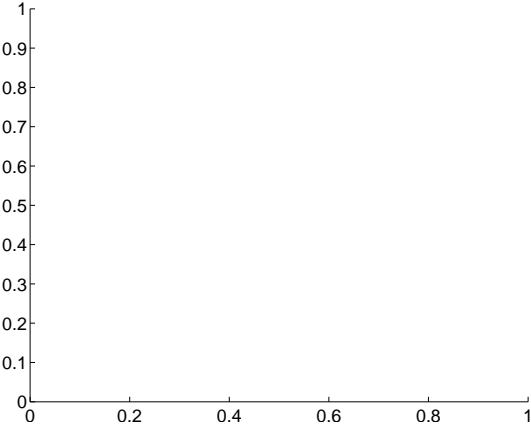
Q9 no difference image



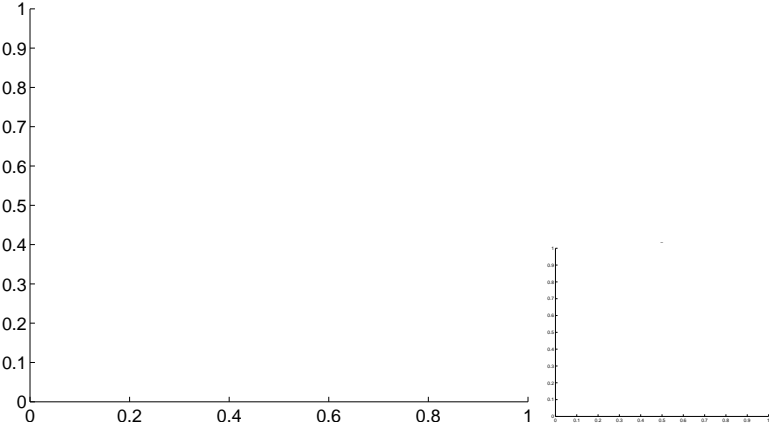
Q9 no OOT image



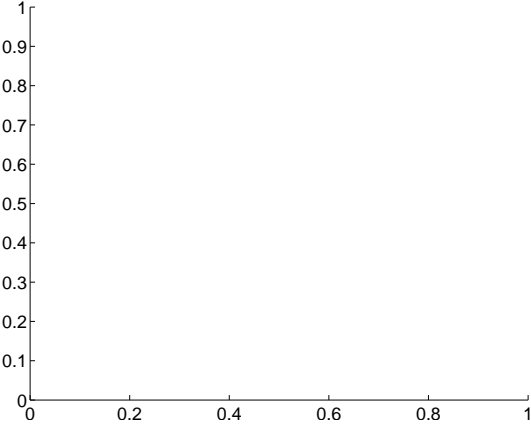
Q11 no difference image



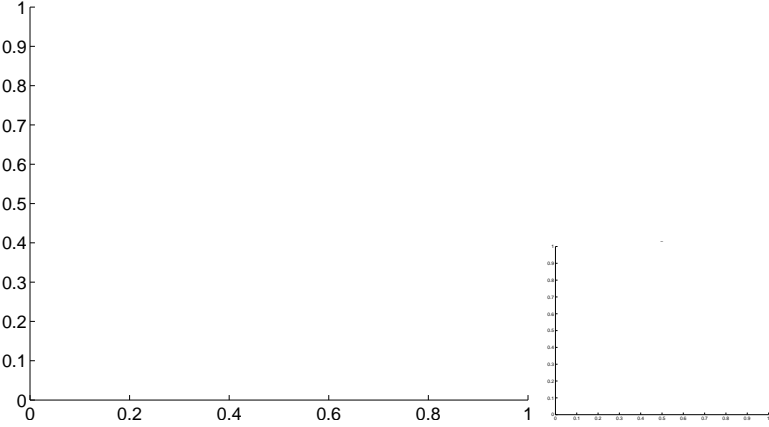
Q11 no OOT image



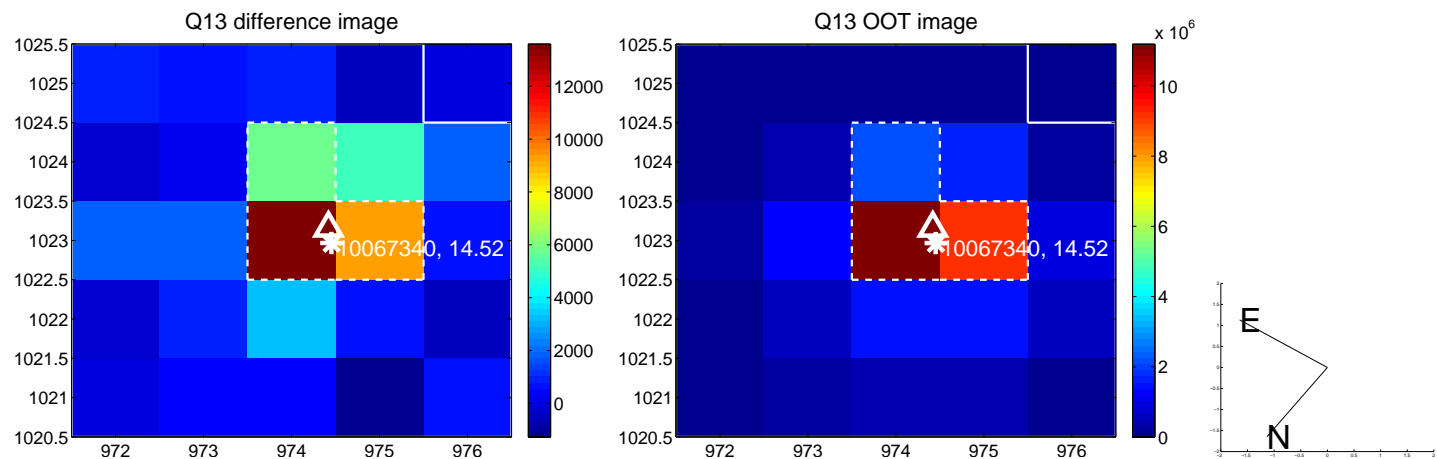
Q12 no difference image



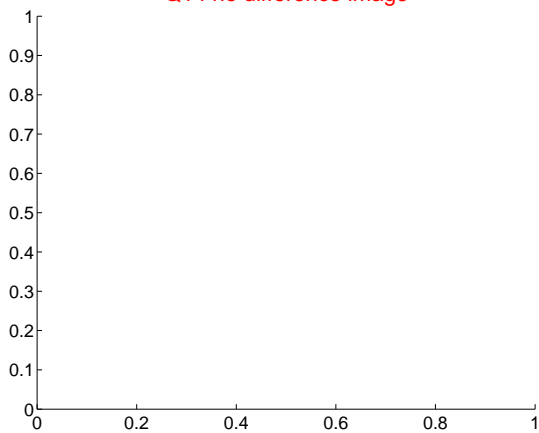
Q12 no OOT image



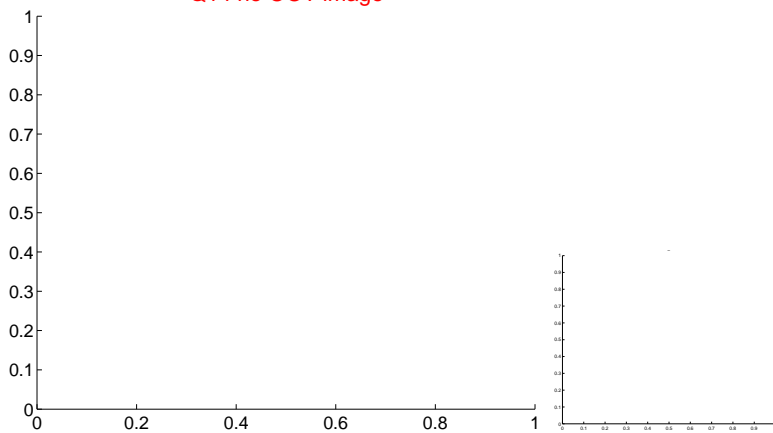
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



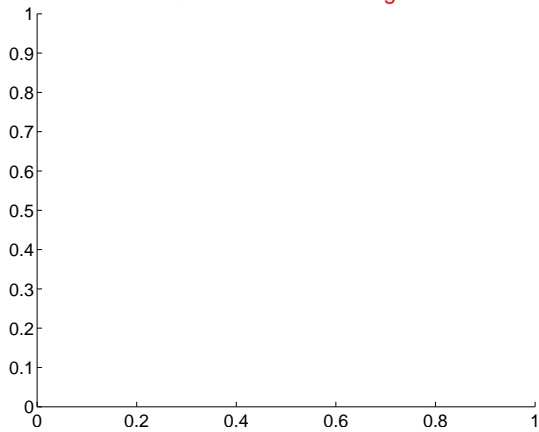
Q14 no difference image



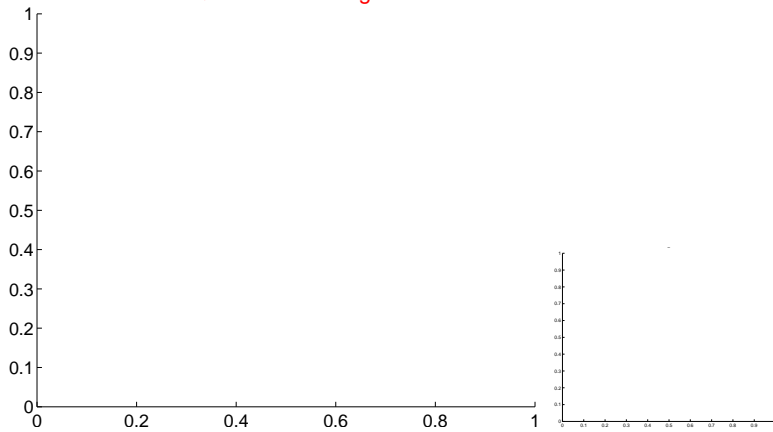
Q14 no OOT image



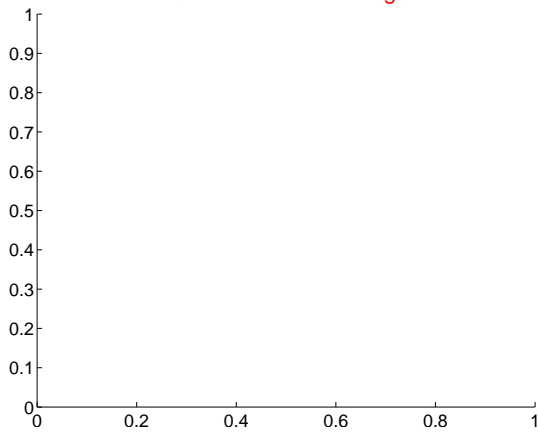
Q15 no difference image



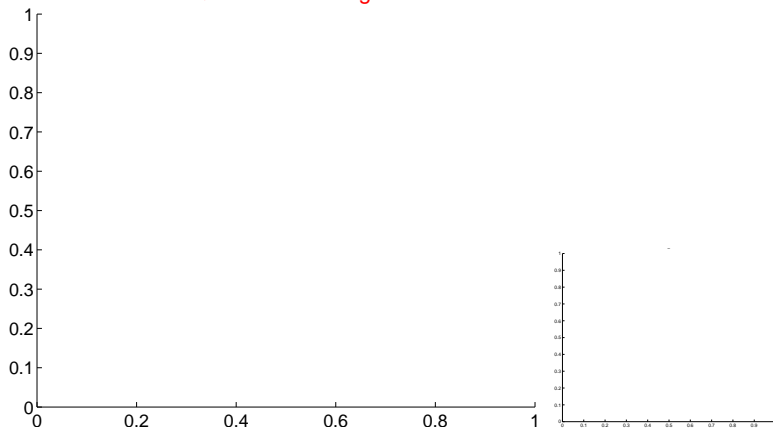
Q15 no OOT image



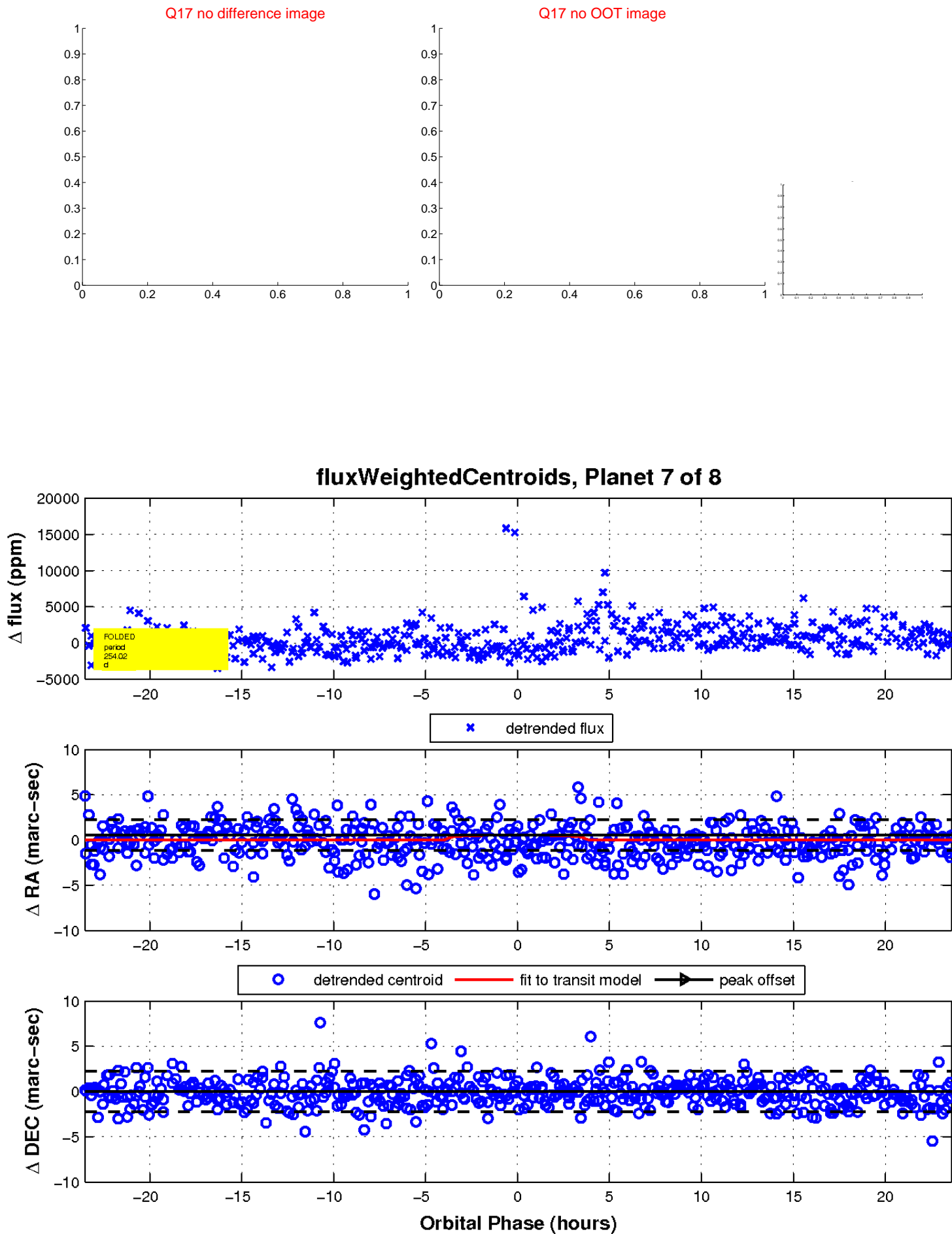
Q16 no difference image



Q16 no OOT image

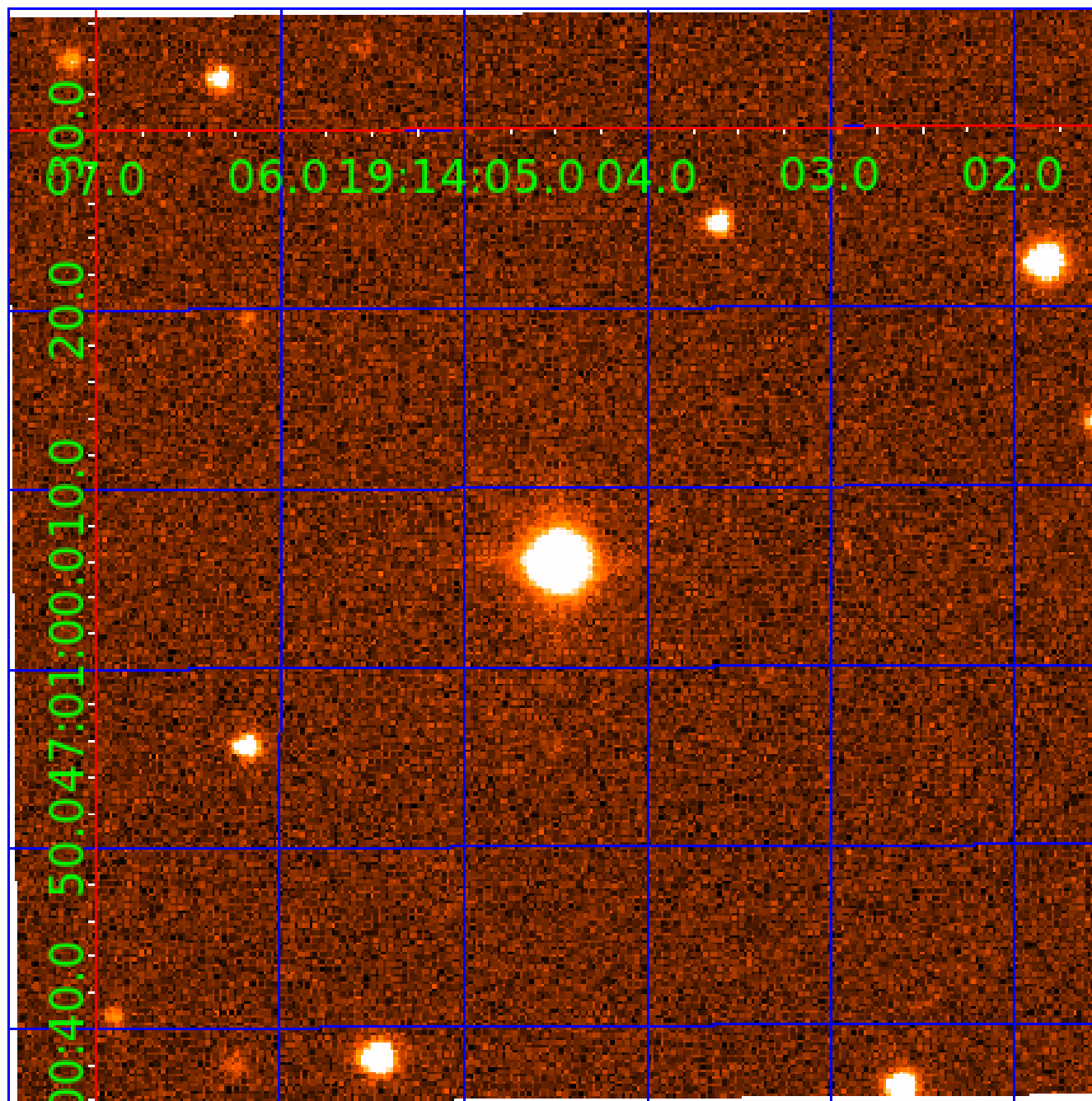


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010067340

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})
010067340-01	OBS	No	638.379363	224.387840	2111.8	5.428	24.4	7.6	0.32	3407	1.47	0.01
010067340-02	OBS	No	345.161189	238.570055	1871.5	13.136	15.5	6.7	0.32	3407	1.44	0.03
010067340-03	OBS	No	396.787463	459.896158	2423.0	4.388	14.8	6.6	0.32	3407	1.79	0.02
010067340-04	OBS	No	227.390338	214.978229	1314.9	3.665	13.9	6.3	0.32	3407	1.20	0.05
010067340-05	OBS	No	640.353440	226.233368	2386.7	5.270	14.0	8.2	0.32	3407	1.57	0.01
010067340-06	OBS	No	474.946108	561.719411	2073.5	7.158	12.7	6.8	0.32	3407	1.46	0.02
010067340-07	OBS	No	254.021862	205.267117	1723.0	7.888	10.3	7.1	0.32	3407	1.37	0.04
010067340-08	OBS	No	513.372761	283.587764	904.9	5.000	11.9	-1.0	0.32	3407	0.96	0.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010067340-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010067340-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
010067340-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
010067340-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010067340-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010067340-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
010067340-07	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
010067340-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS

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.

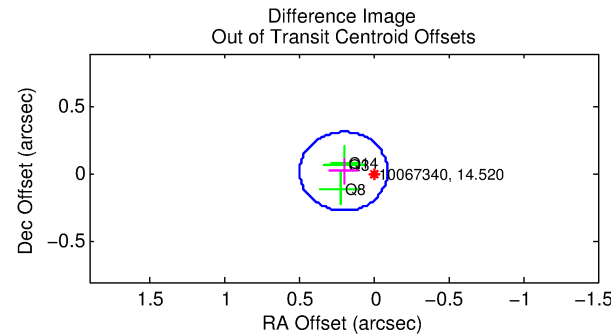
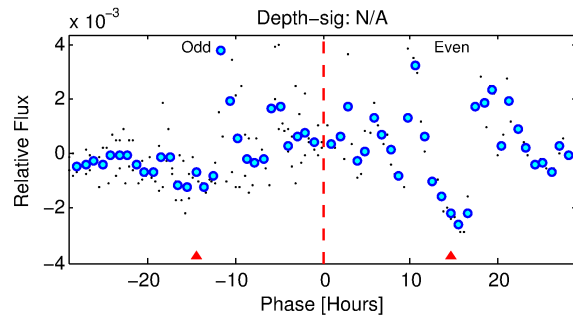
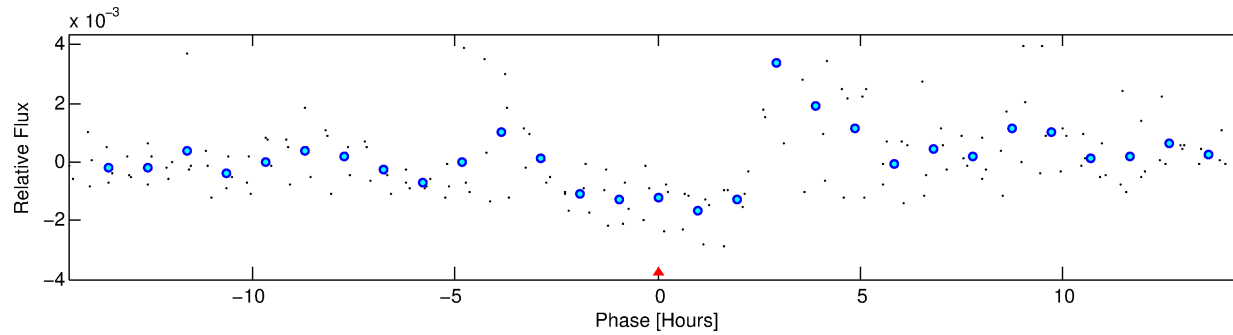
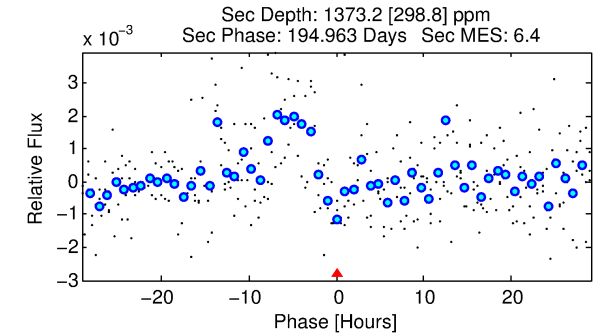
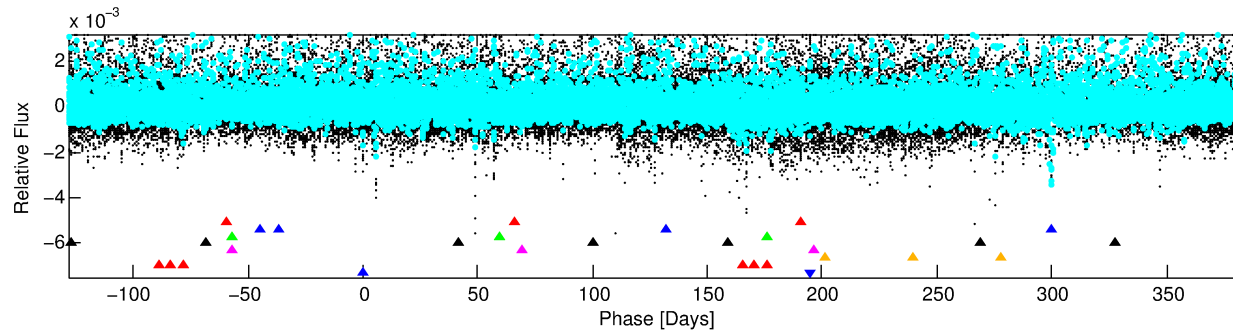
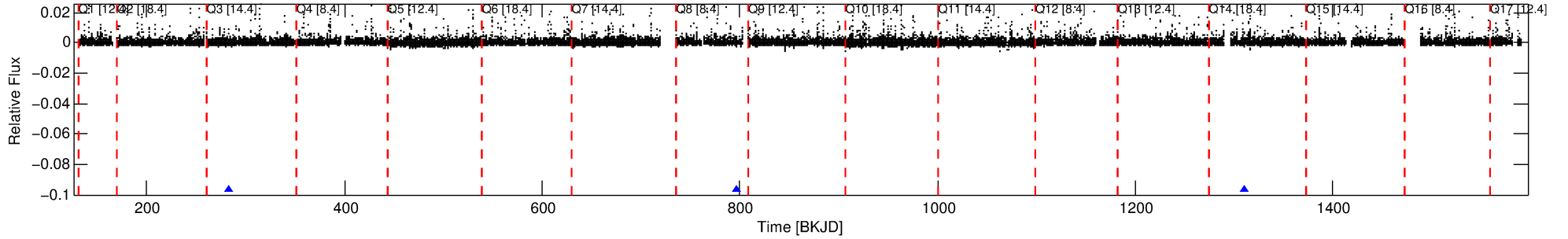
Ephemeris Match Information For 010067340-08

No Significant Match Found

DV One-Page Summary

KIC: 10067340 Candidate: 8 of 8 Period: 513.373 d

Kp: 14.52 R*: 0.32 Rs Teff: 3407.0 K Logg: 4.92 Fe/H: 0.000



TPS TCE Results:

Period = 513.37276 d
Epoch = 283.5878 BKJD

DV fit results are unavailable

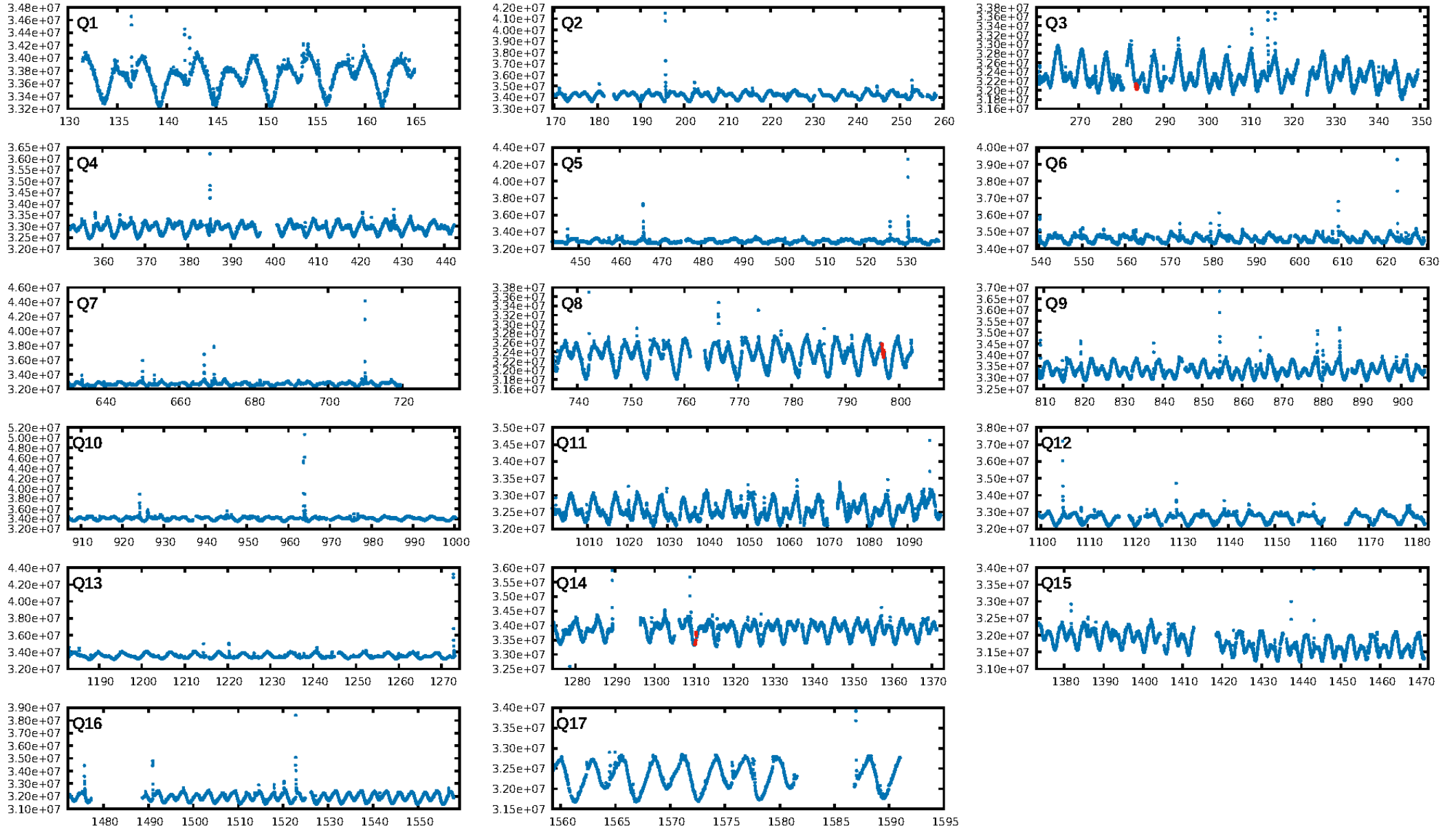
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [105.62σ]
LongPeriod-sig: 100.0% [406.53σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.393
Centroid-sig: 49.0%
Centroid-so: 0.202 arcsec [0.47σ]
OotOffset-rm: 0.201 arcsec [2.06σ]
KicOffset-rm: 0.186 arcsec [1.71σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

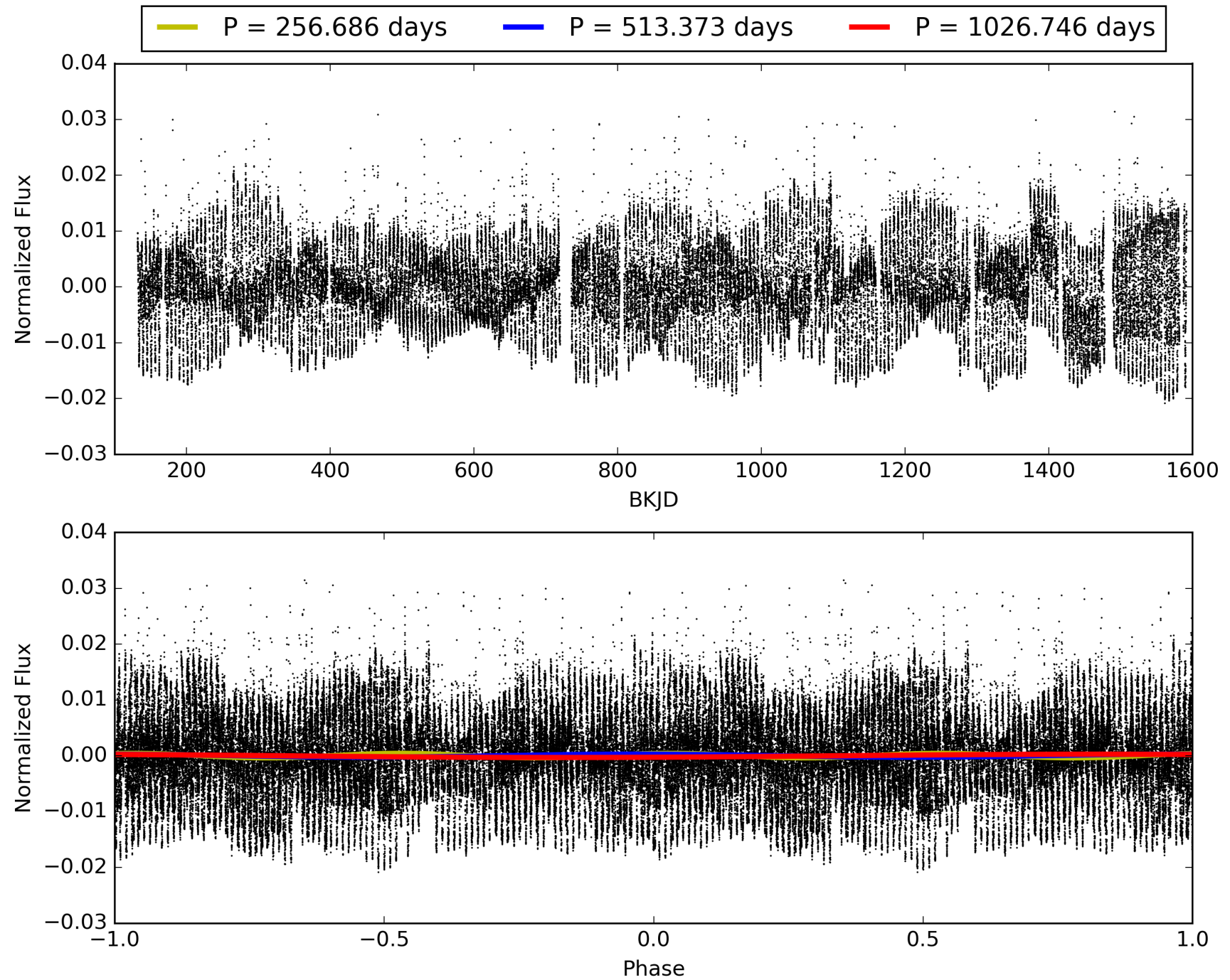
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:43:13 Z

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

TCE 010067340-08, PDC Light Curves

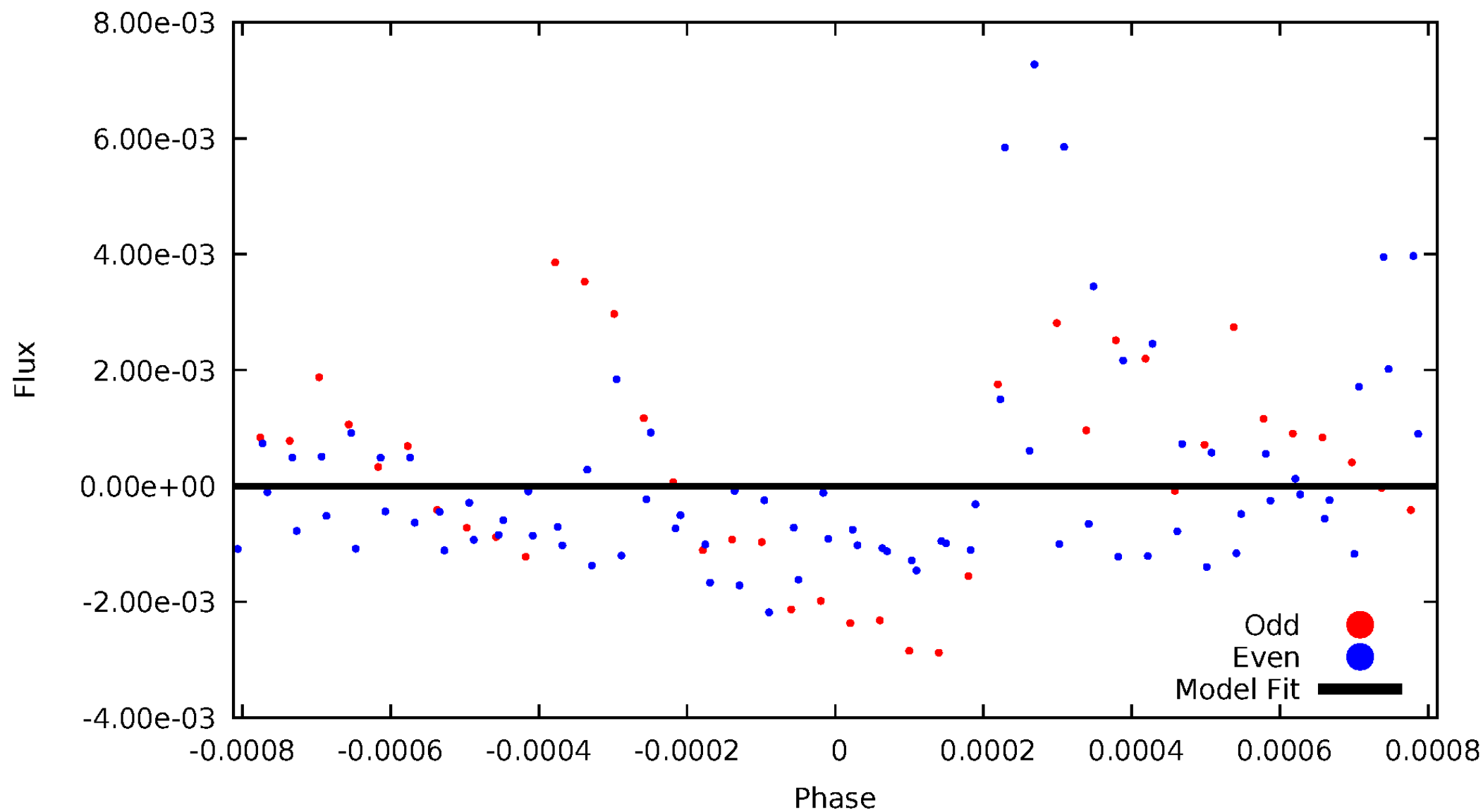


TCE 010067340-08



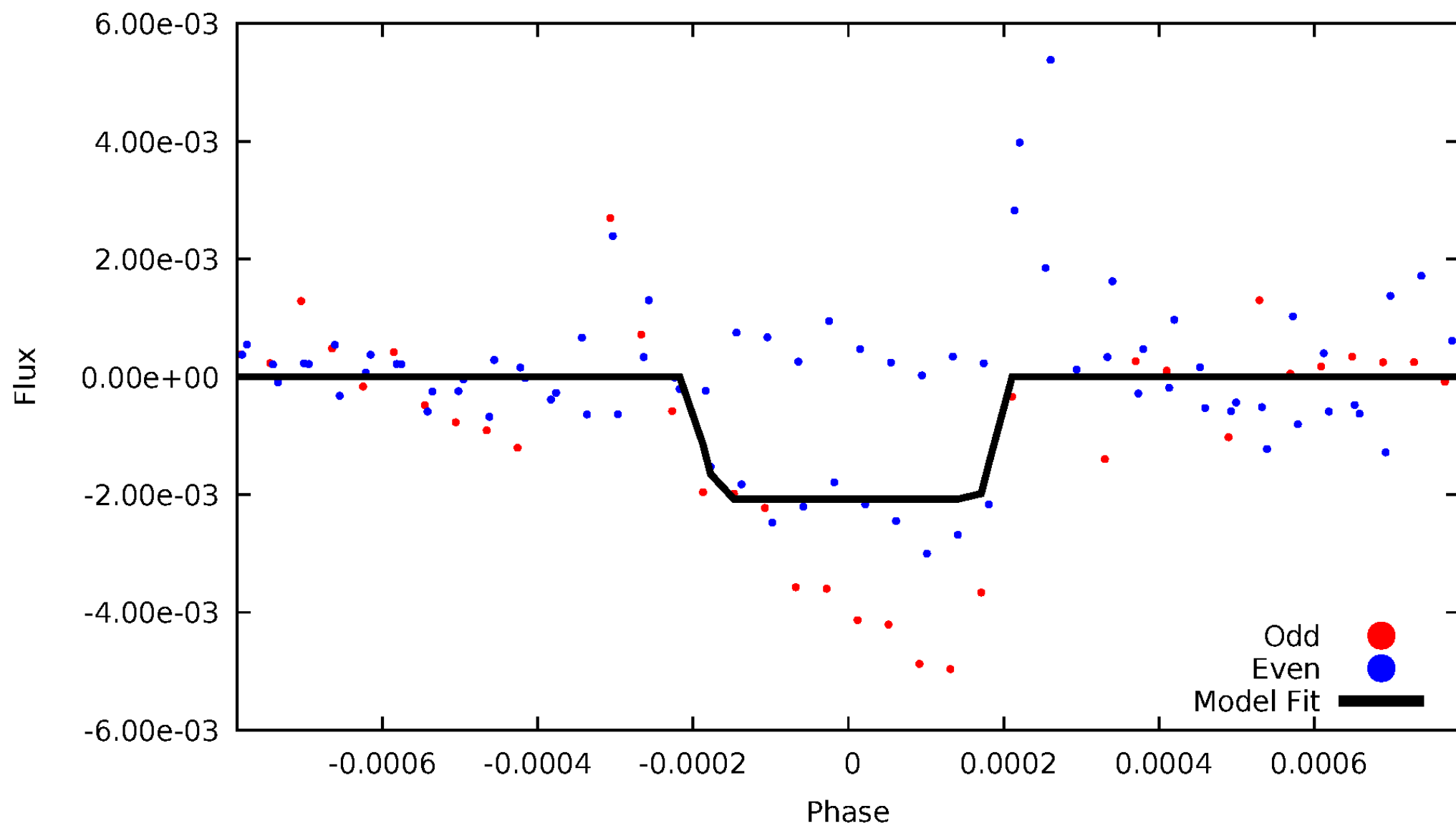
DV Odd/Even

TCE 010067340-08



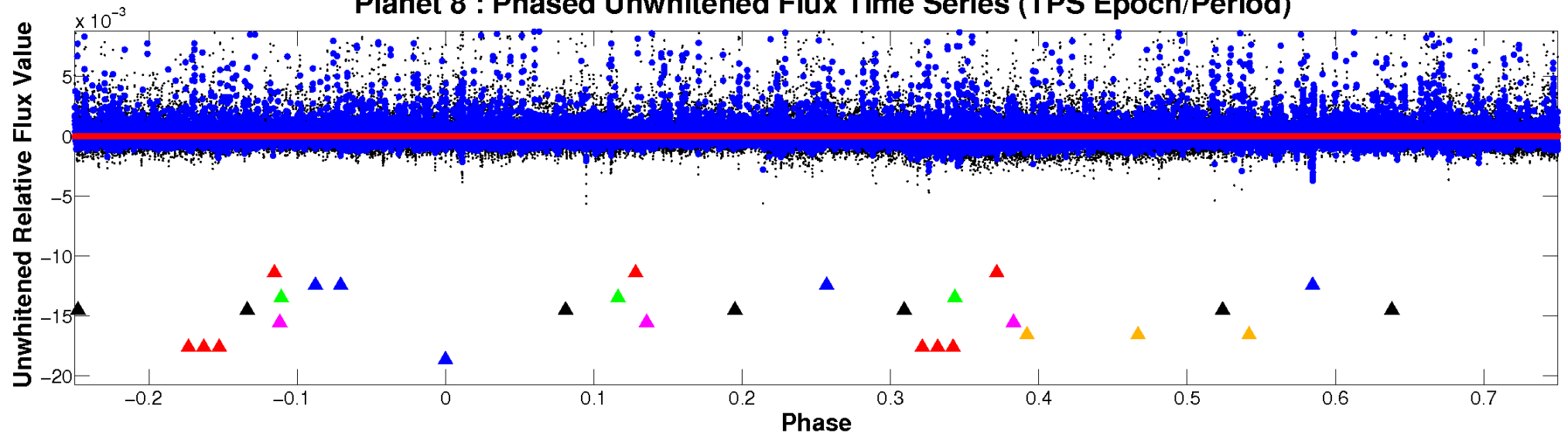
ALT Odd/Even

TCE 010067340-08



Non-Whitened Vs. Whitened Light Curve

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

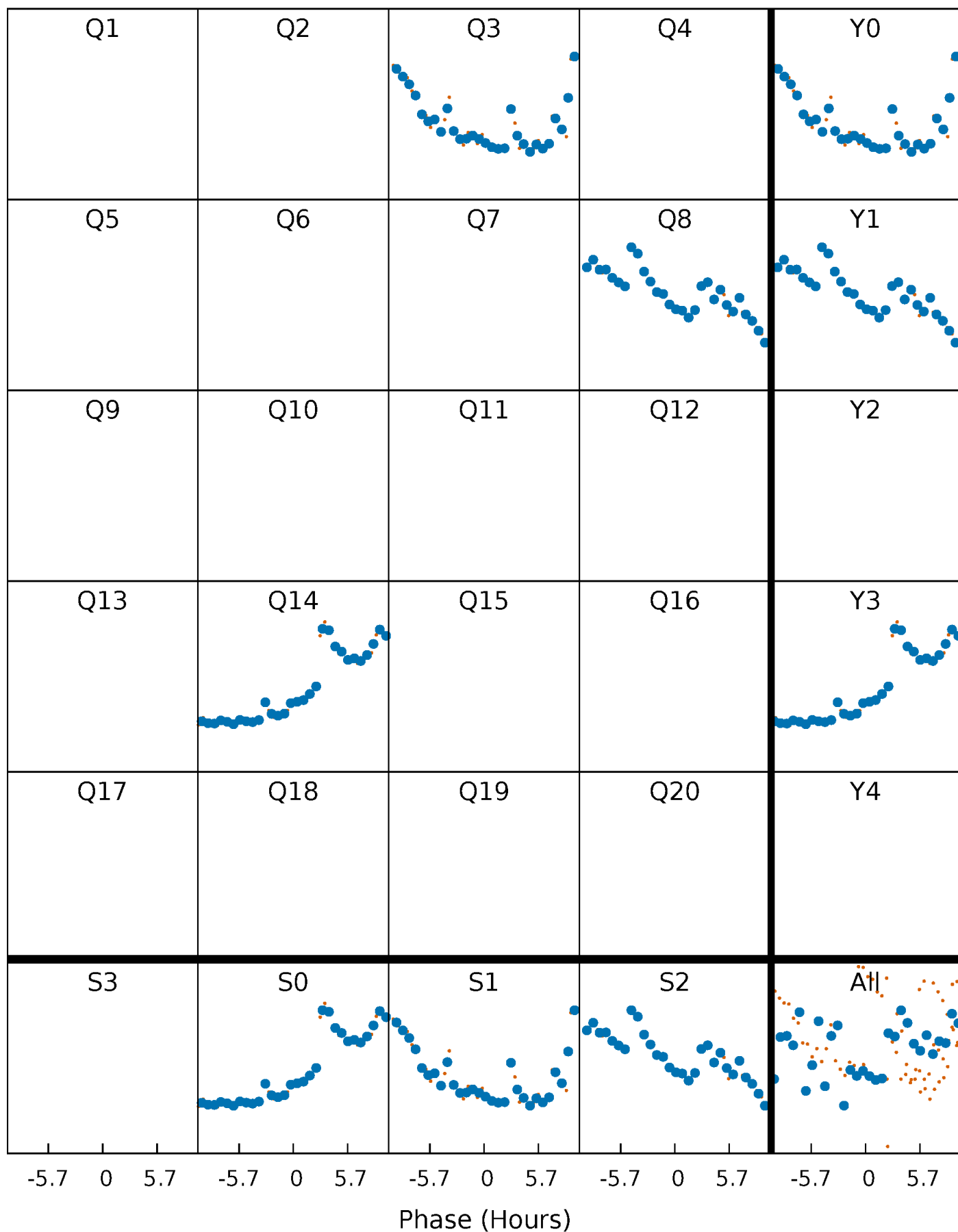


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



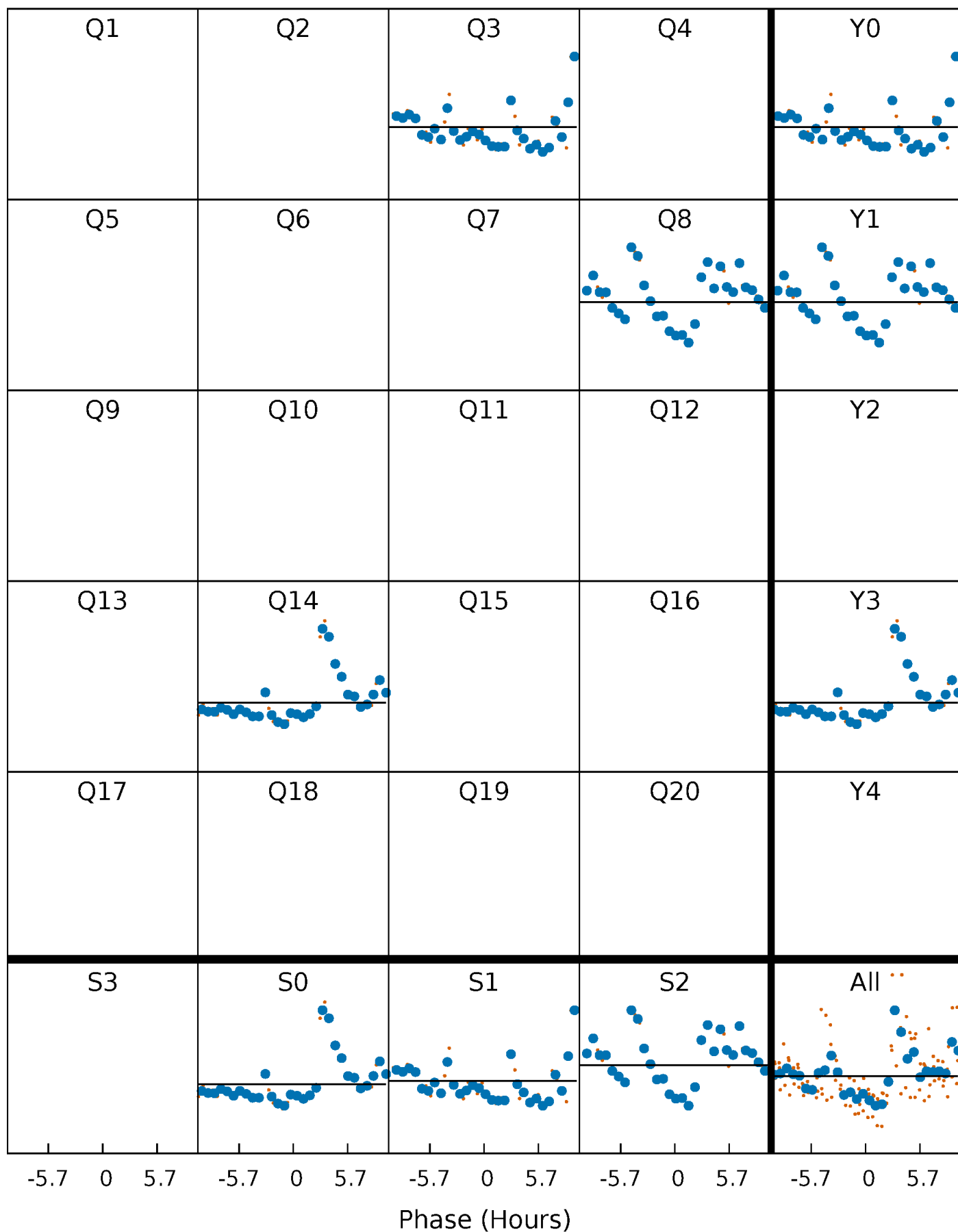
PDC Quarter-Phased Transit Curves

TCE 010067340-08 $P=513.372761$ Days $T_0=283.587764$ (BKJD)



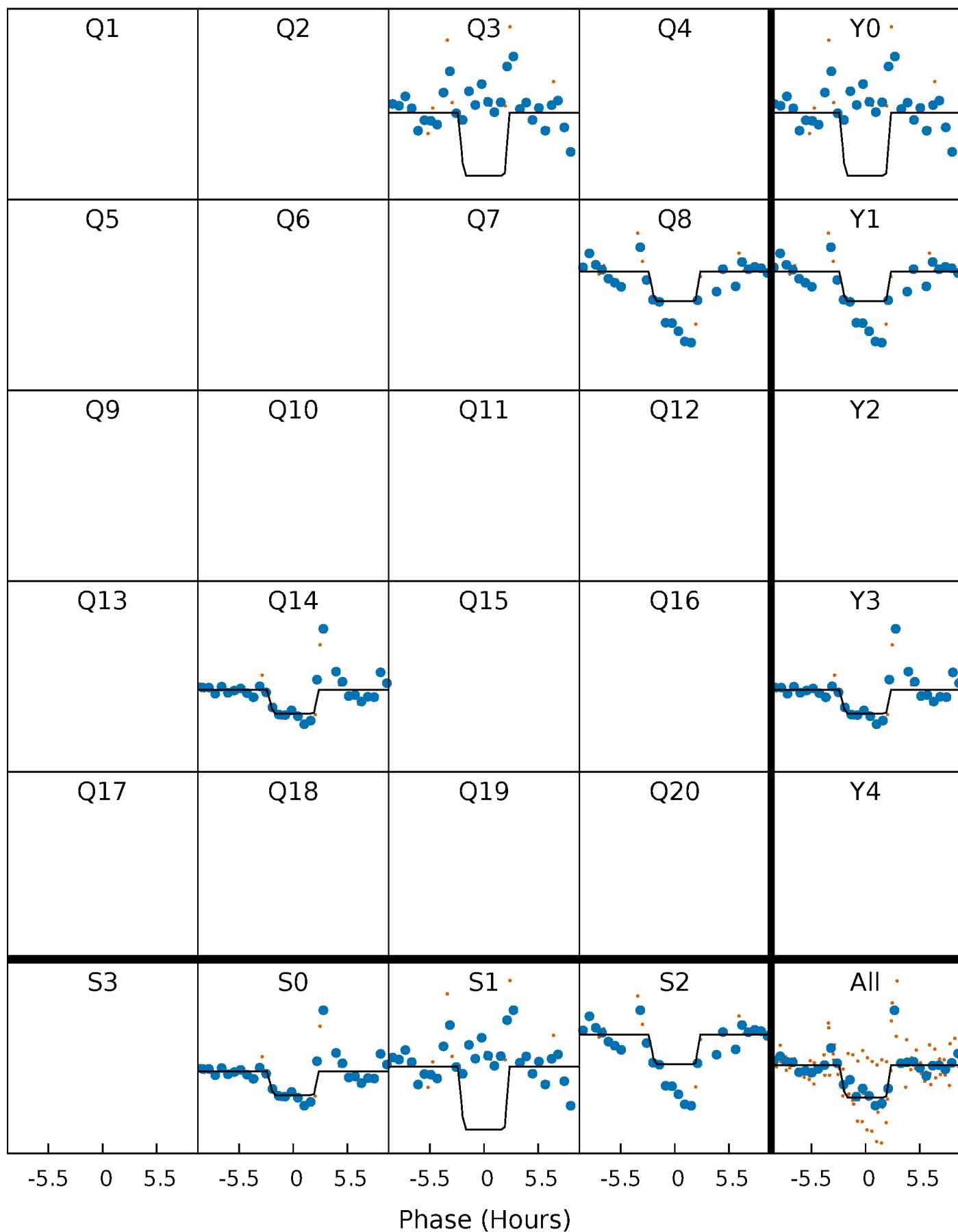
DV Quarter-Phased Transit Curves

TCE 010067340-08 $P=513.372761$ Days $T_0=283.587764$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

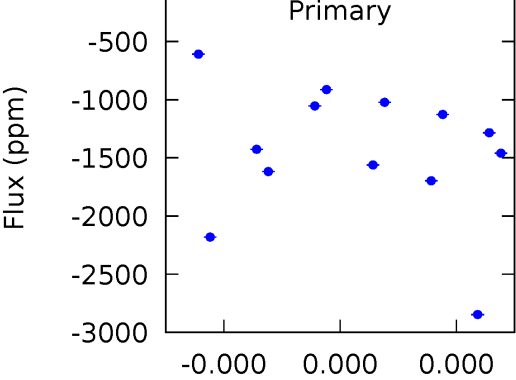
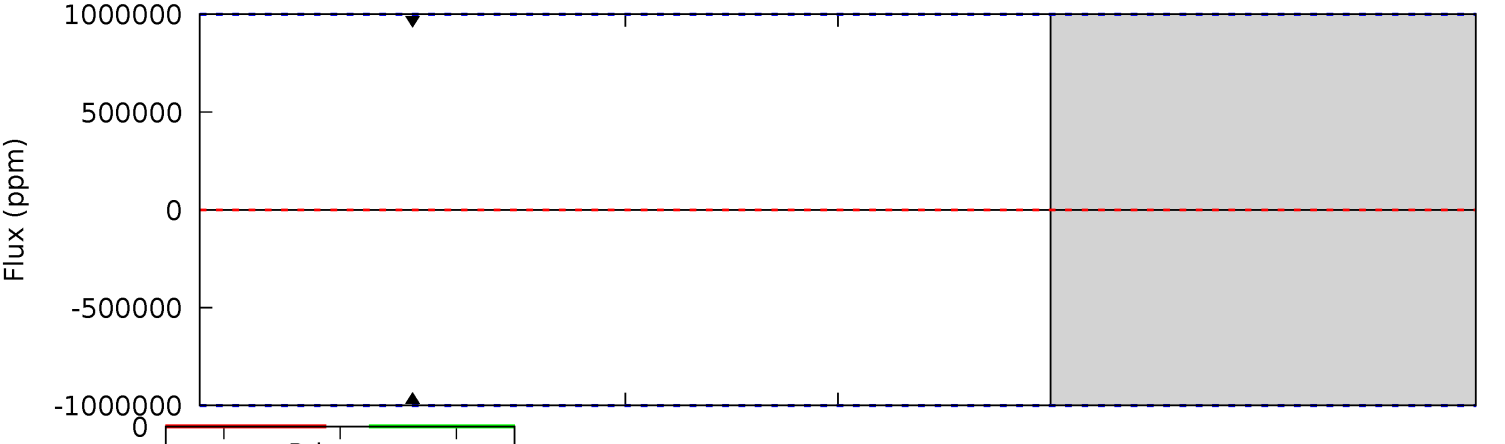
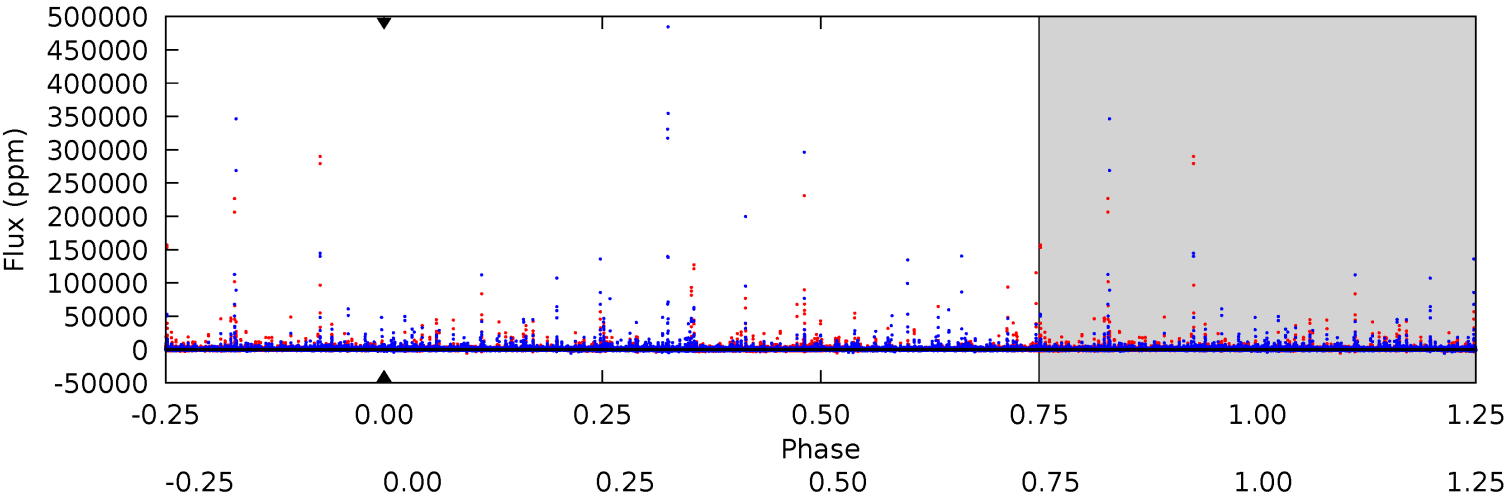
TCE 010067340-08 P=513.372761 Days $T_0=283.592019$ (BKJD)



DV Model-Shift Uniqueness Test

010067340-08, P = 513.372761 Days, E = 283.587764 Days

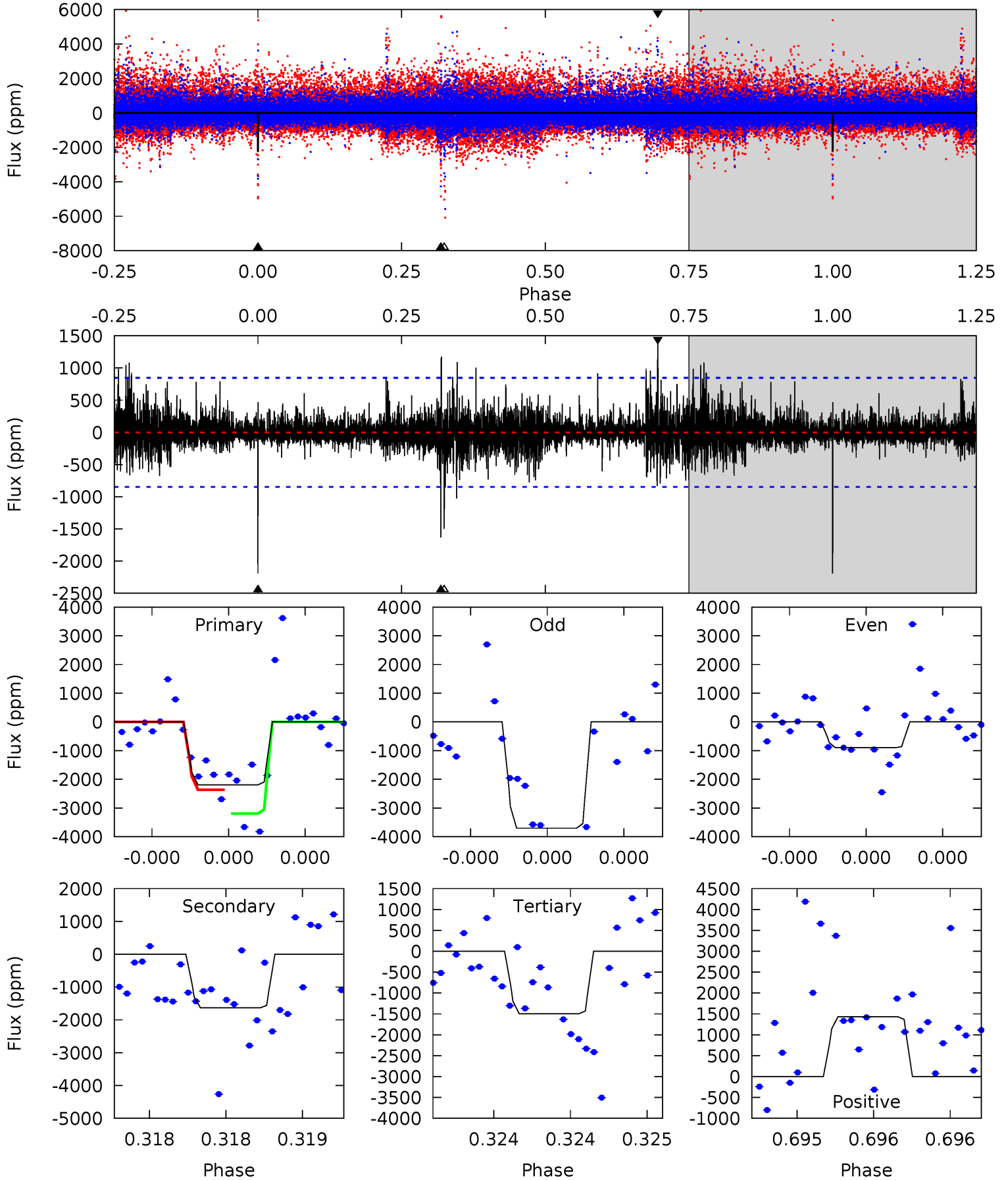
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010067340-08, P = 513.372761 Days, E = 283.592019 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	10.8	9.94	9.51	5.63	3.56	1.29	4.63	5.06	0.90	1.34	7.46	0.80	0.39	2.47



Stellar Parameters For KIC 010067340

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3407^{+44}_{-40}	$4.923^{+0.046}_{-0.032}$	$0.000^{+0.100}_{-0.100}$	$0.324^{+0.031}_{-0.035}$	$0.320^{+0.040}_{-0.040}$	$13.280^{+3.179}_{-1.918}$
	+1%/-1%	+1%/-1%	+inf%/-inf%	+10%/-11%	+12%/-12%	+24%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 010067340-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$2.99^{+2.94}_{-2.05}$	128^{+3}_{-3}	2634^{+4073}_{-8805}	$55736^{+9148769}_{-7005007}$
Alt.	-1632 ± 150	$2.97^{+2.87}_{-2.04}$	129^{+3}_{-3}	2756^{+1176}_{-417}	$74507^{+685022}_{-55099}$

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

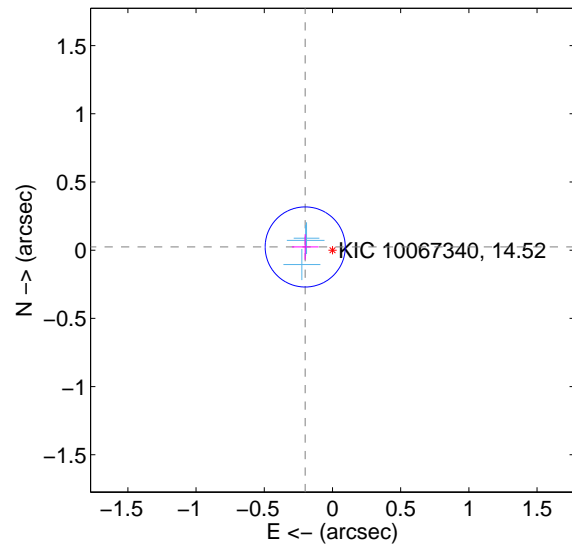
Supplemental centroid analysis for 010067340-08. Kepler magnitude: 14.52. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

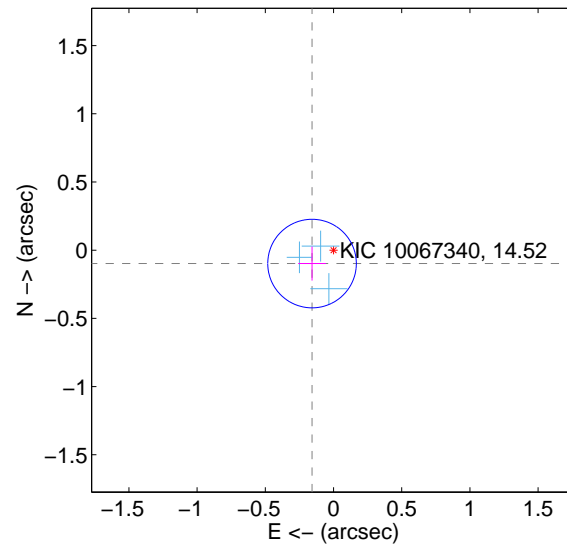
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.201 ± 0.098	2.06	0.200 ± 0.098	0.024 ± 0.094
PRF-fit source offset from KIC position	0.186 ± 0.108	1.71	0.157 ± 0.101	-0.098 ± 0.125
photometric centroid source offset	0.20 ± 0.43	0.47	0.13 ± 0.46	0.16 ± 0.40

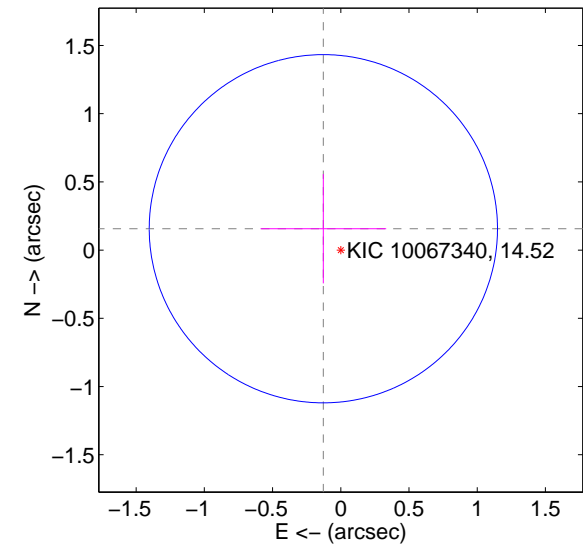
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



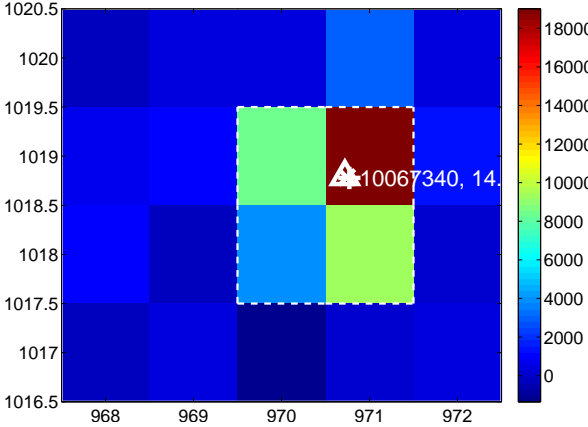
Q2 no difference image



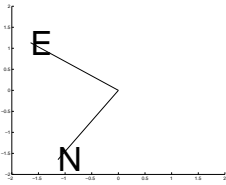
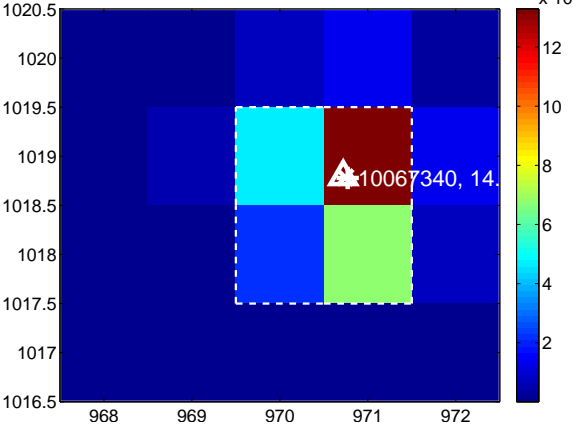
Q2 no OOT image



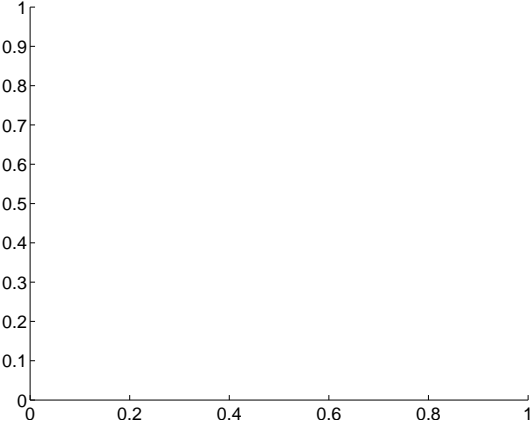
Q3 difference image



Q3 OOT image



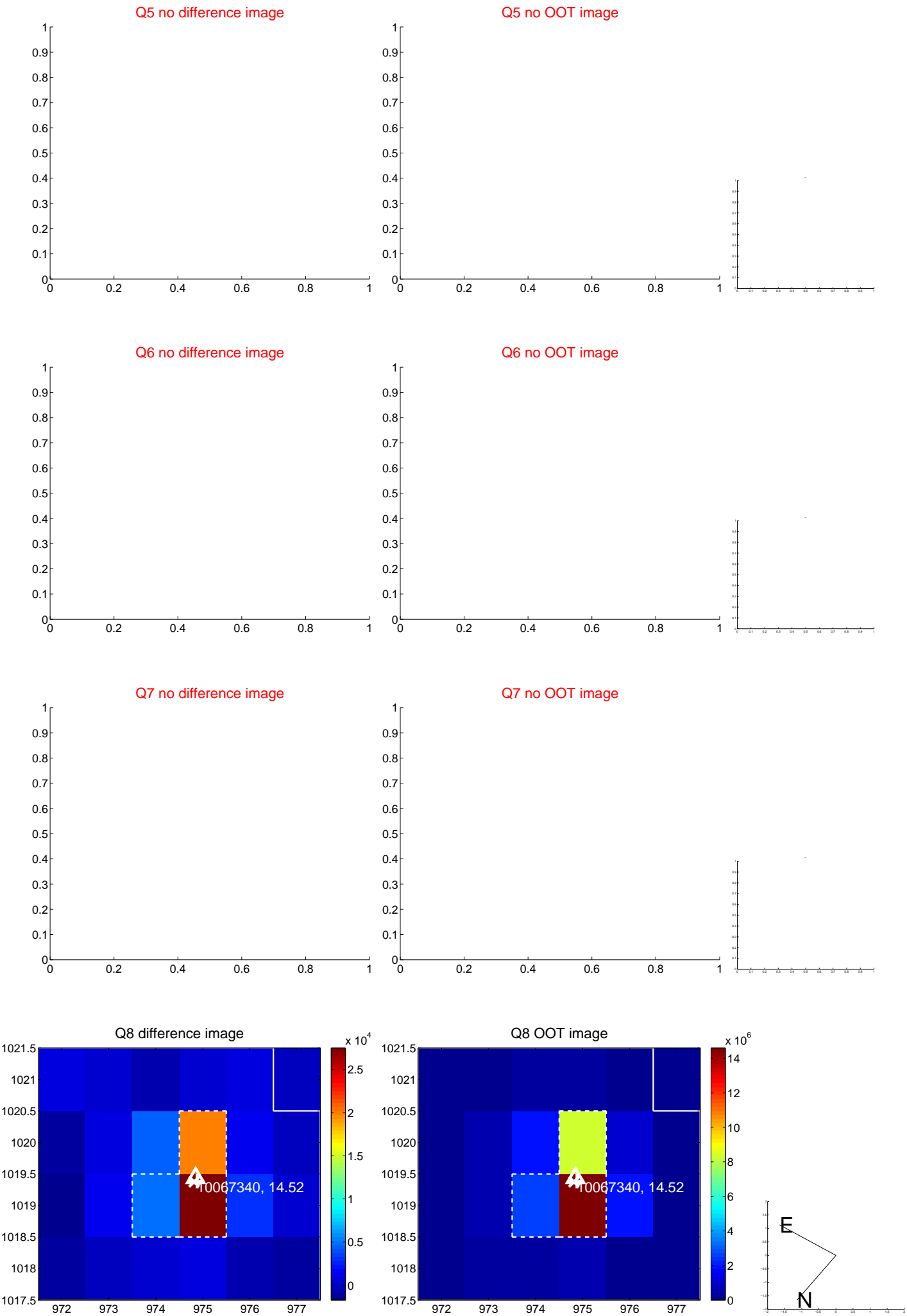
Q4 no difference image



Q4 no OOT image



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



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.

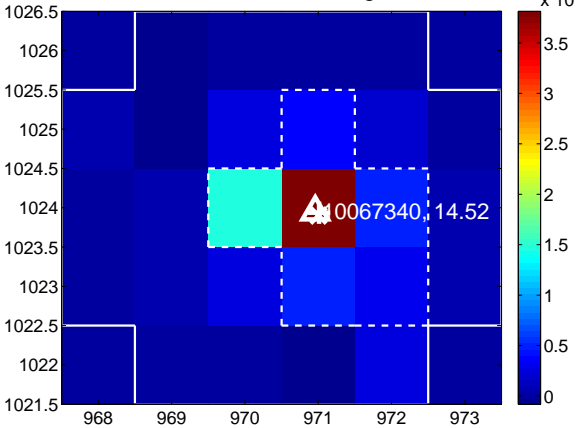
Q13 no difference image



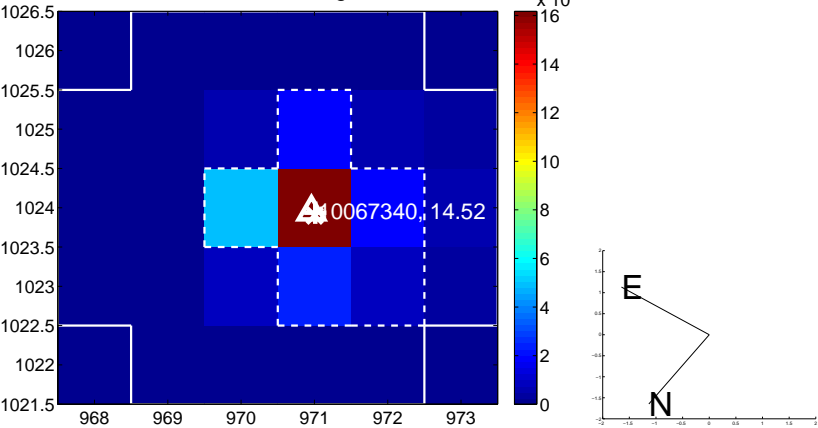
Q13 no OOT image



Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



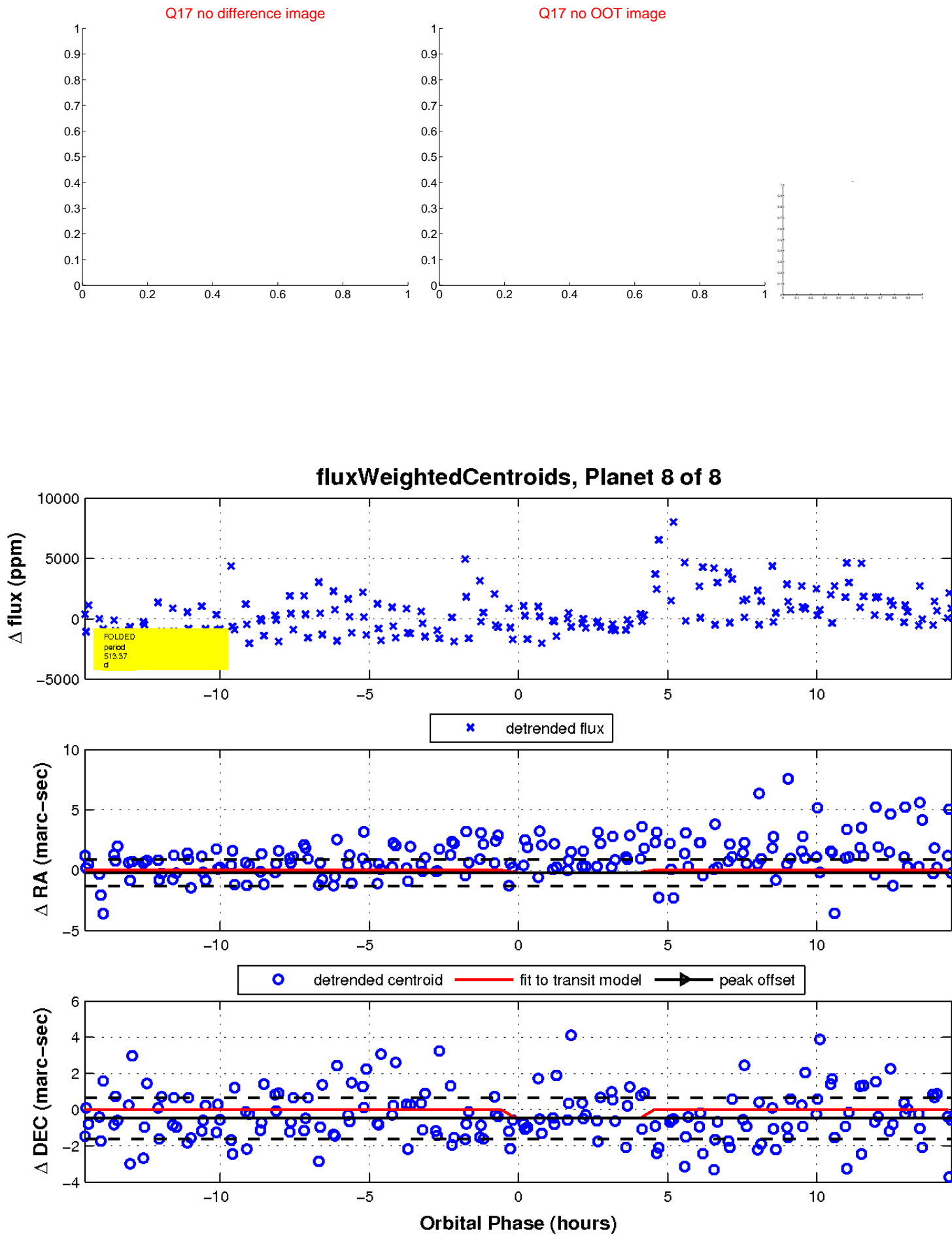
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

