

KIC 003330773

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})
003330773-01	OBS	No	0.990779	132.118014	41.2	4.010	8.4	9.8	0.74	4864	0.46	905.85
003330773-02	OBS	No	613.600412	343.696544	4688.0	37.006	15.8	7.6	0.74	4864	6.30	0.17
003330773-03	OBS	No	238.584464	271.443023	825.6	6.436	14.8	7.4	0.74	4864	3.14	0.60
003330773-04	OBS	No	392.191044	486.816683	1076.0	28.132	14.4	4.7	0.74	4864	2.41	0.31
003330773-05	OBS	No	518.179820	466.572896	2460.0	16.313	11.3	8.2	0.74	4864	3.55	0.21
003330773-06	OBS	No	406.194283	213.754569	305.6	4.964	11.0	3.3	0.74	4864	1.55	0.30
003330773-07	OBS	No	569.728389	145.546172	2297.1	19.080	10.3	8.2	0.74	4864	3.97	0.19
003330773-08	OBS	No	247.115893	311.889261	793.1	10.138	9.5	6.1	0.74	4864	2.32	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003330773-01	OBS	FP	0.01	1	0	0	0	LPP_DV
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003330773-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003330773-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
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Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

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

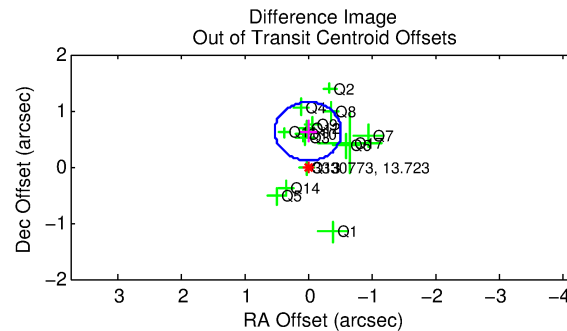
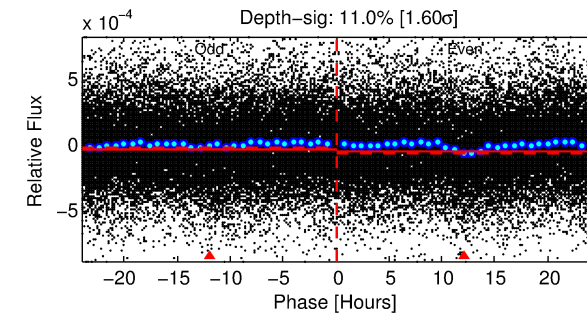
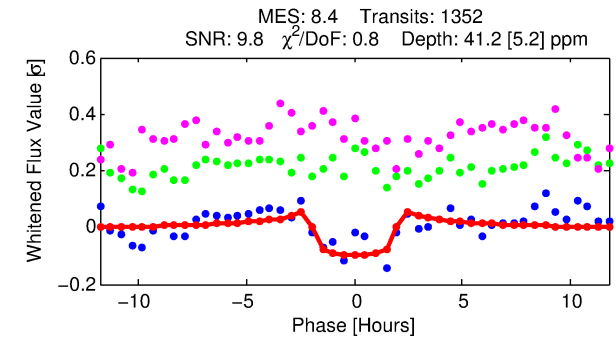
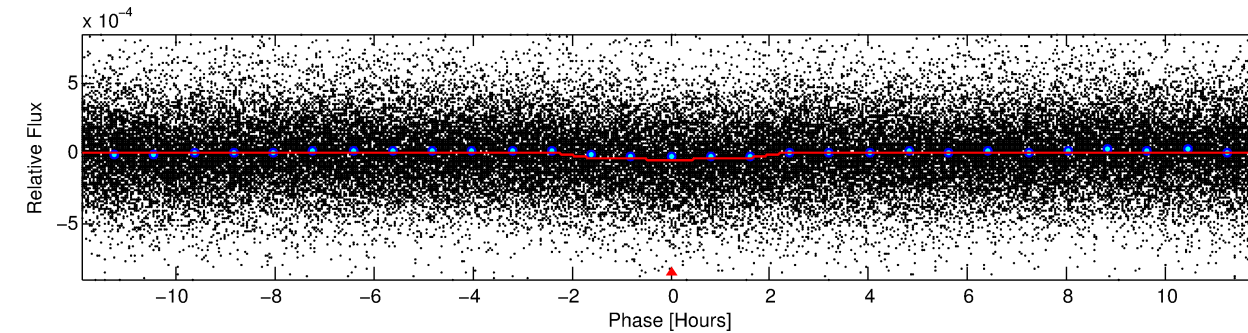
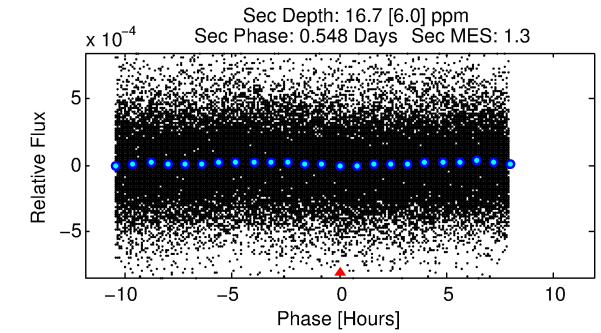
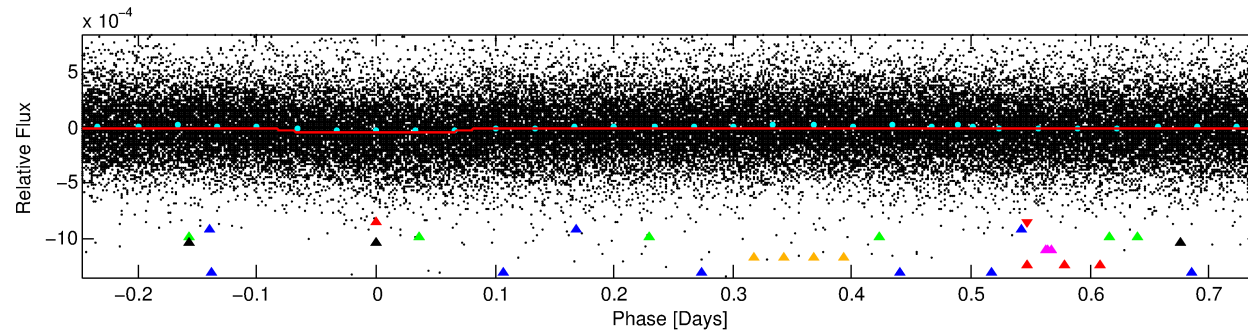
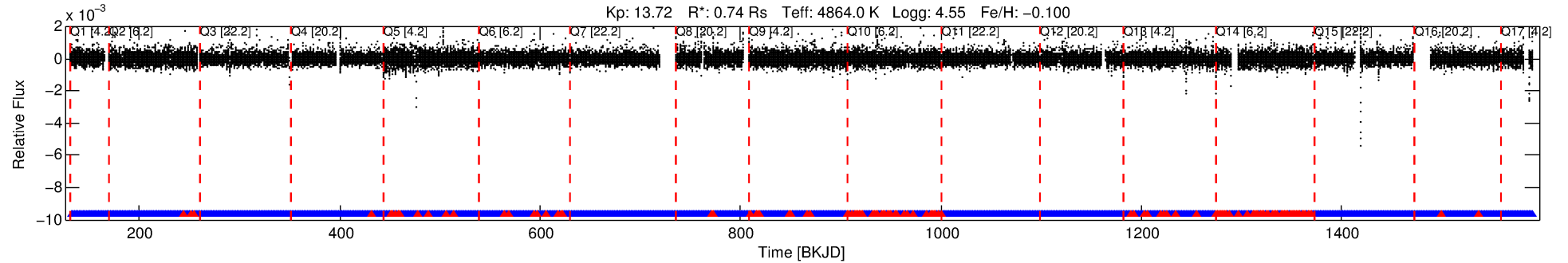
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-01

No Significant Match Found

DV One-Page Summary

KIC: 3330773 Candidate: 1 of 8 Period: 0.991 d



DV Fit Results:

Period = 0.99078 [0.00001] d
Epoch = 132.1180 [0.0034] BKJD
Rp/R* = 0.0057 [0.0050]
a/R* = 1.98 [4.25]
b = 0.12 [24.50]
Seff = 905.85 [152.21]
Teq = 1399 [59] K
Rp = 0.46 [0.40] Re
a = 0.0174 [0.0014] AU
Ag = 13.25 [23.79] [0.51σ]
Teffp = 4126 [1853] K [1.47σ]

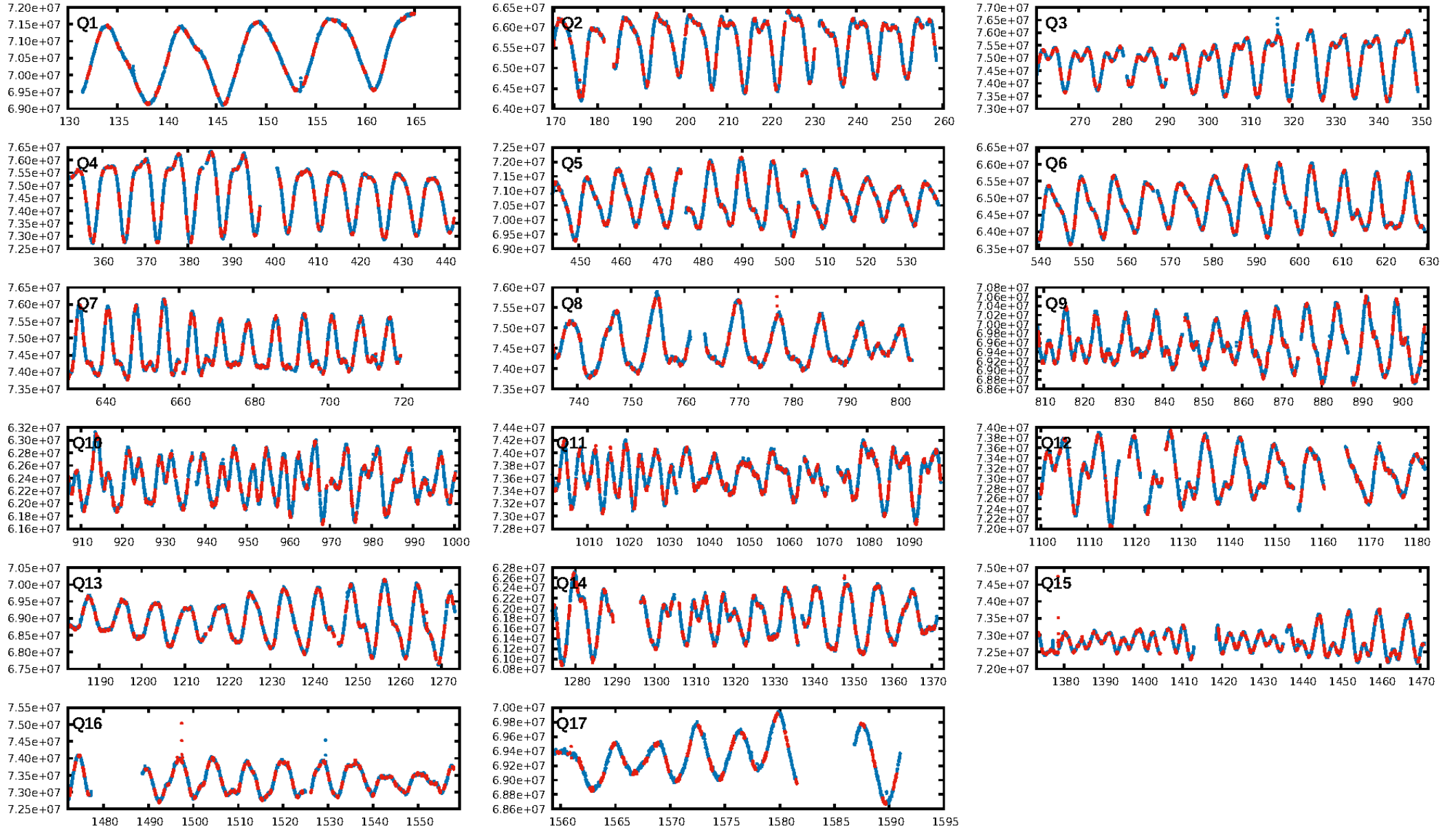
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [751.95σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.87e-15
RollingBand-fgt: 0.90 [1157/1291]
GhostDiagnostic-chr: 0.3988
Centroid-sig: 0.0%
Centroid-so: 2.168 arcsec [2.30σ]
OotOffset-rm: 0.629 arcsec [3.60σ]
KicOffset-rm: 0.587 arcsec [3.12σ]
OotOffset-st: 4/3/3/5 [15]
KicOffset-st: 4/3/3/5 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [17/17]

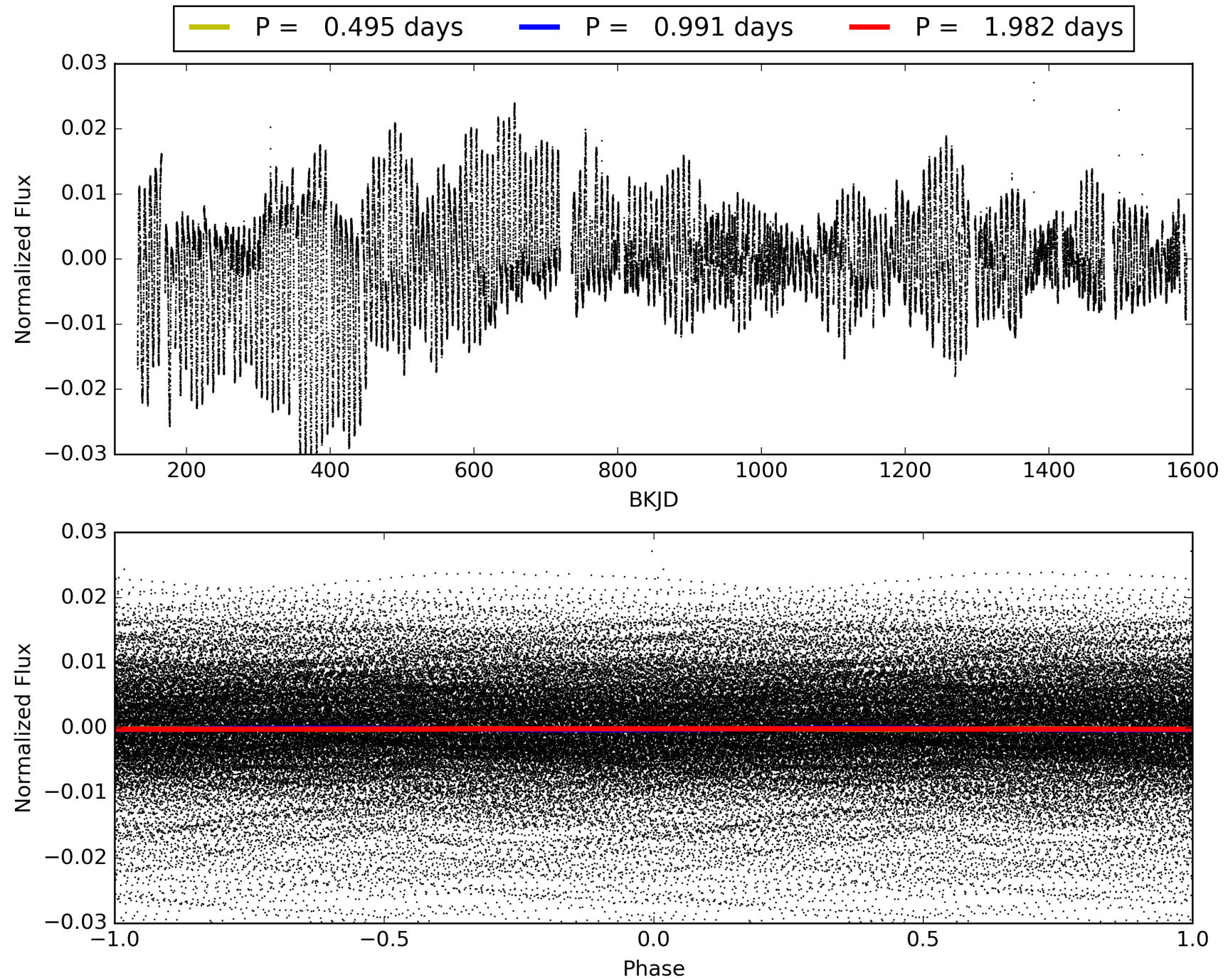
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:45:40 Z

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

TCE 003330773-01, PDC Light Curves

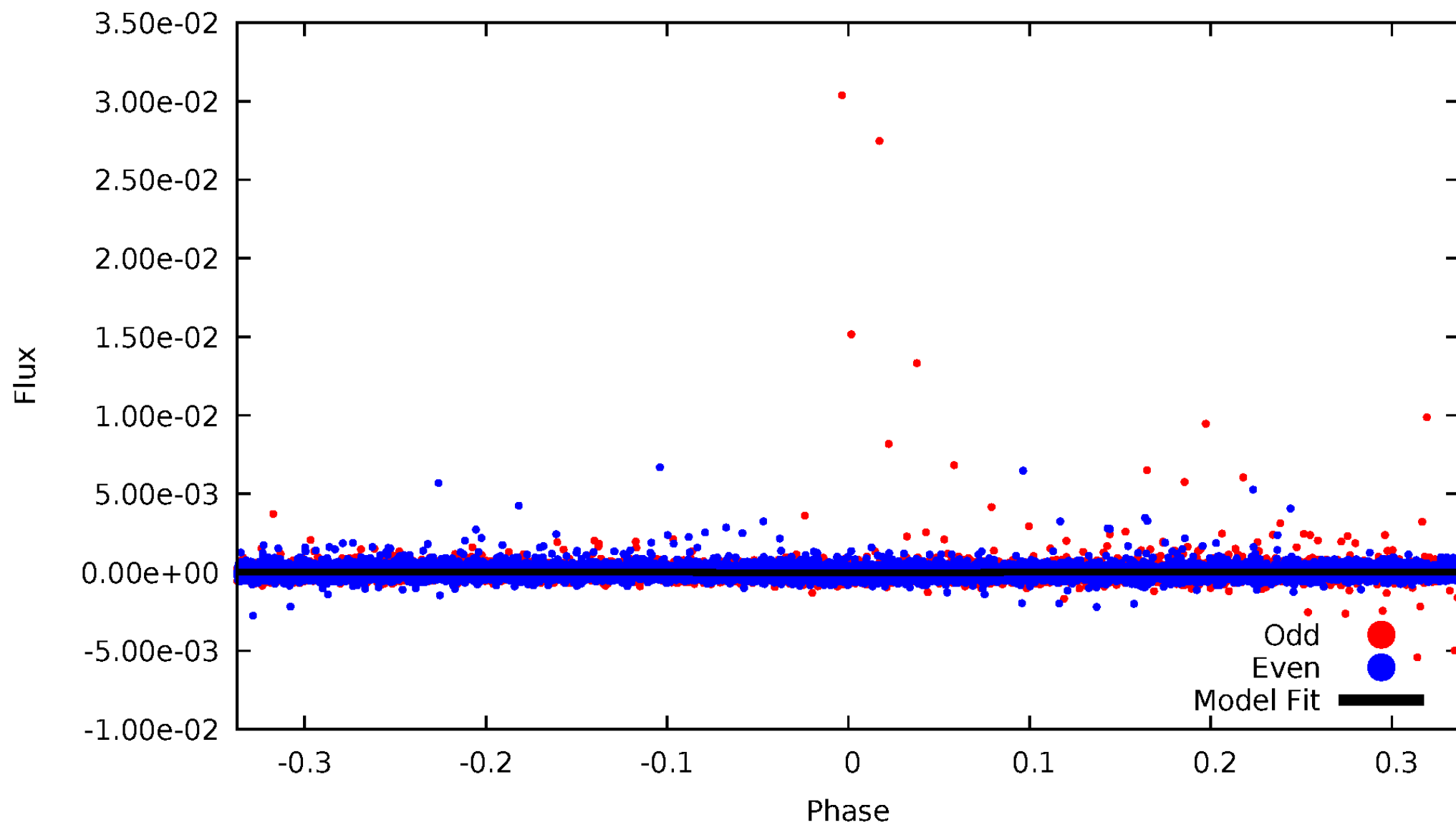


TCE 003330773-01



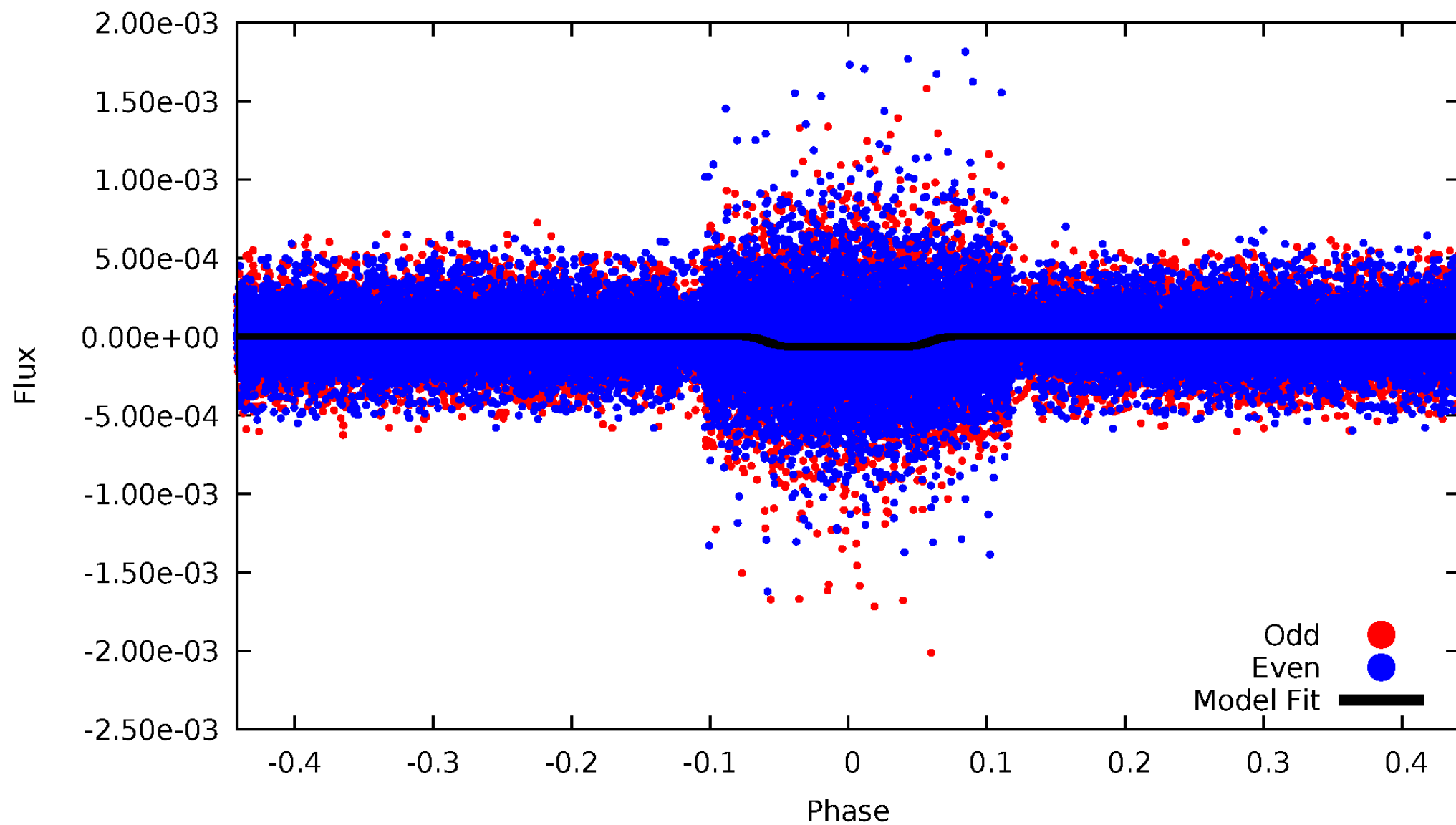
DV Odd/Even

TCE 003330773-01

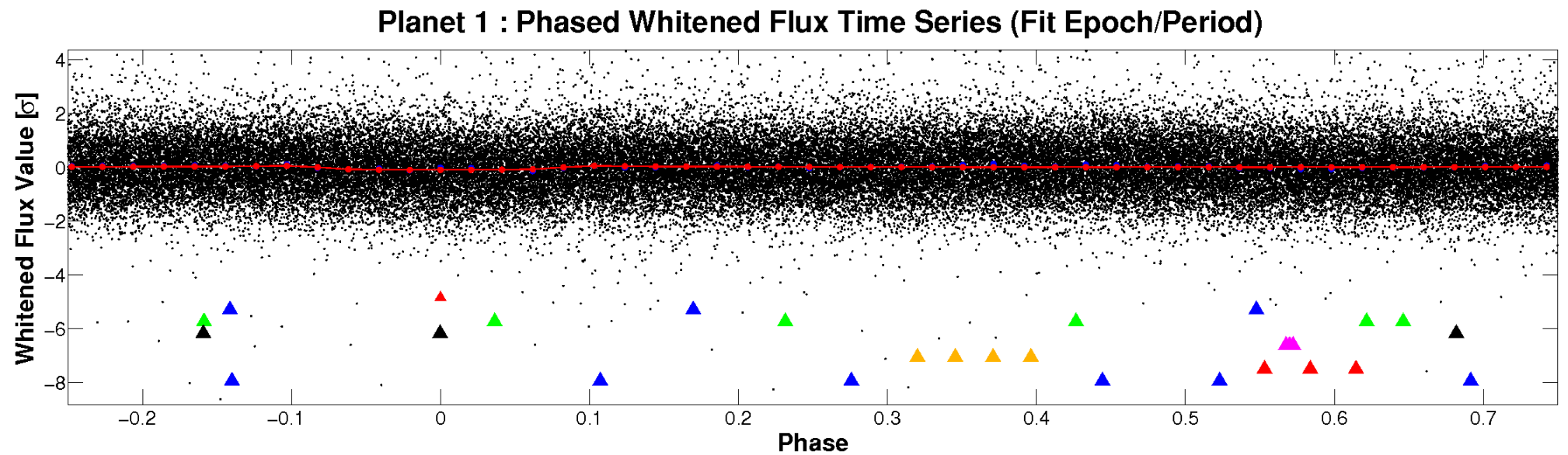
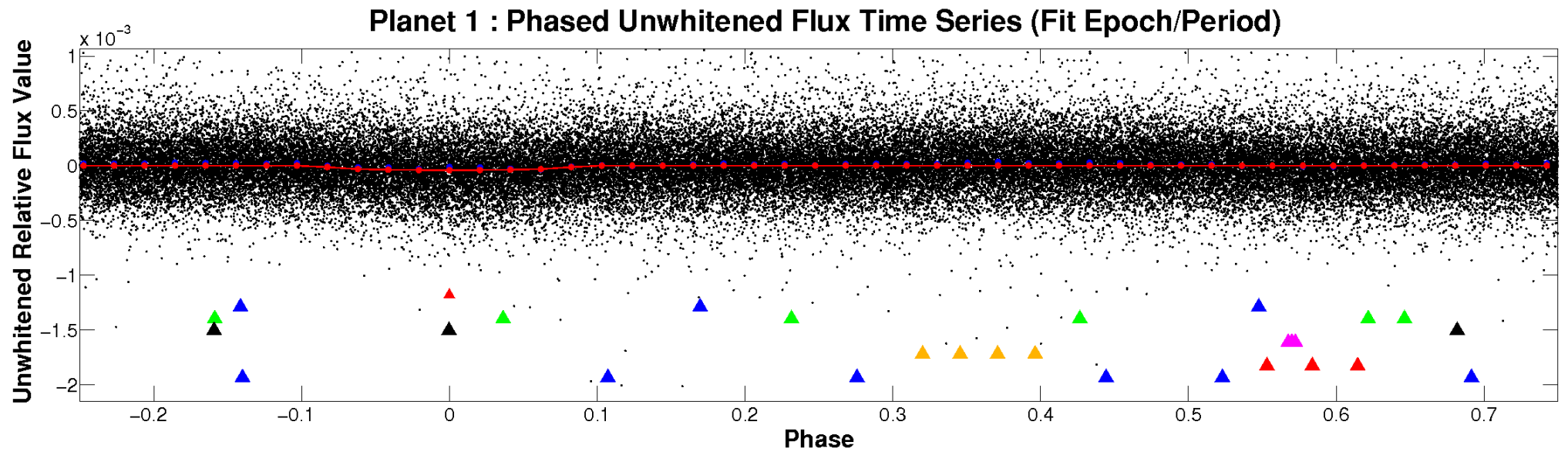


ALT Odd/Even

TCE 003330773-01

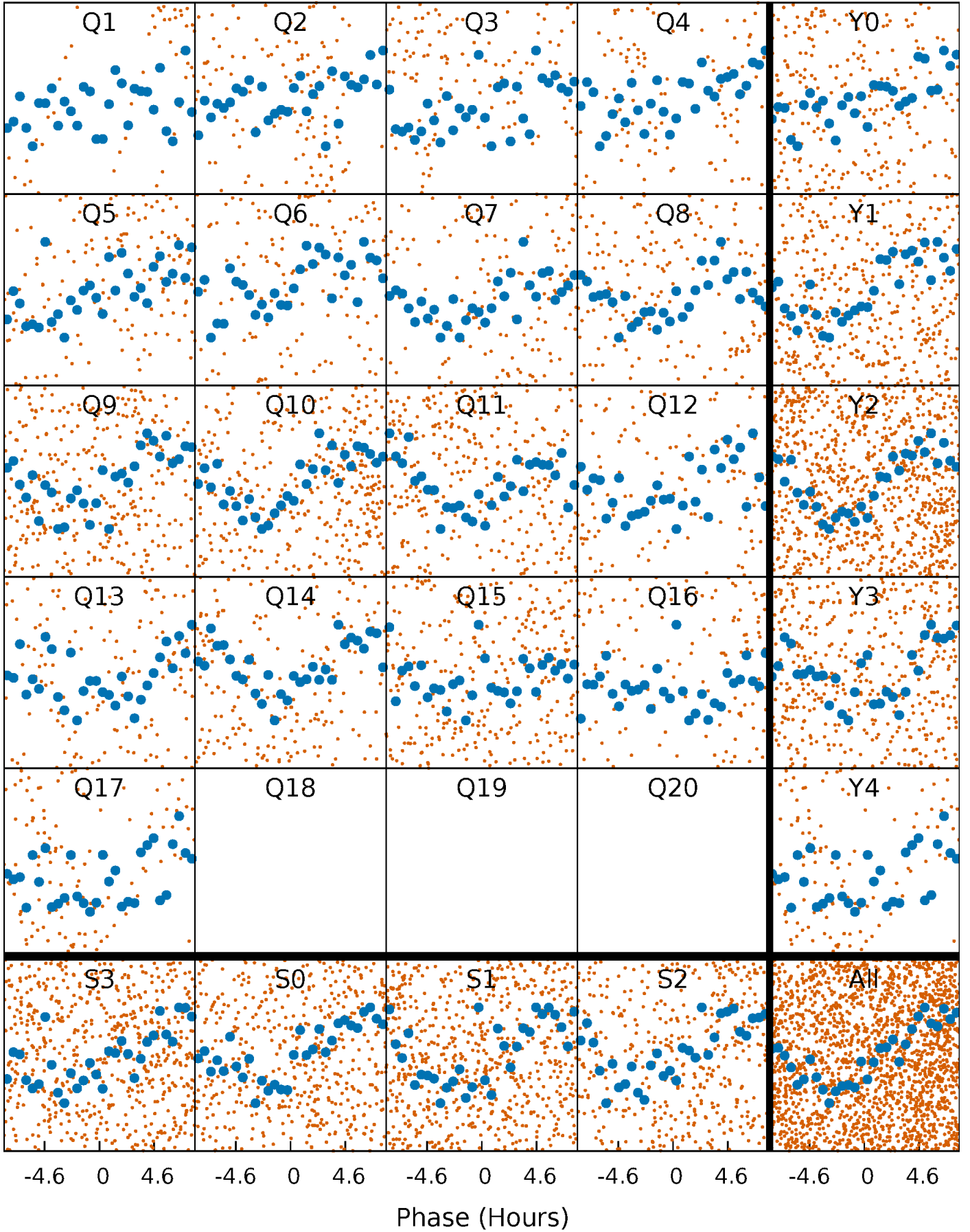


Non-Whitened Vs. Whitened Light Curve



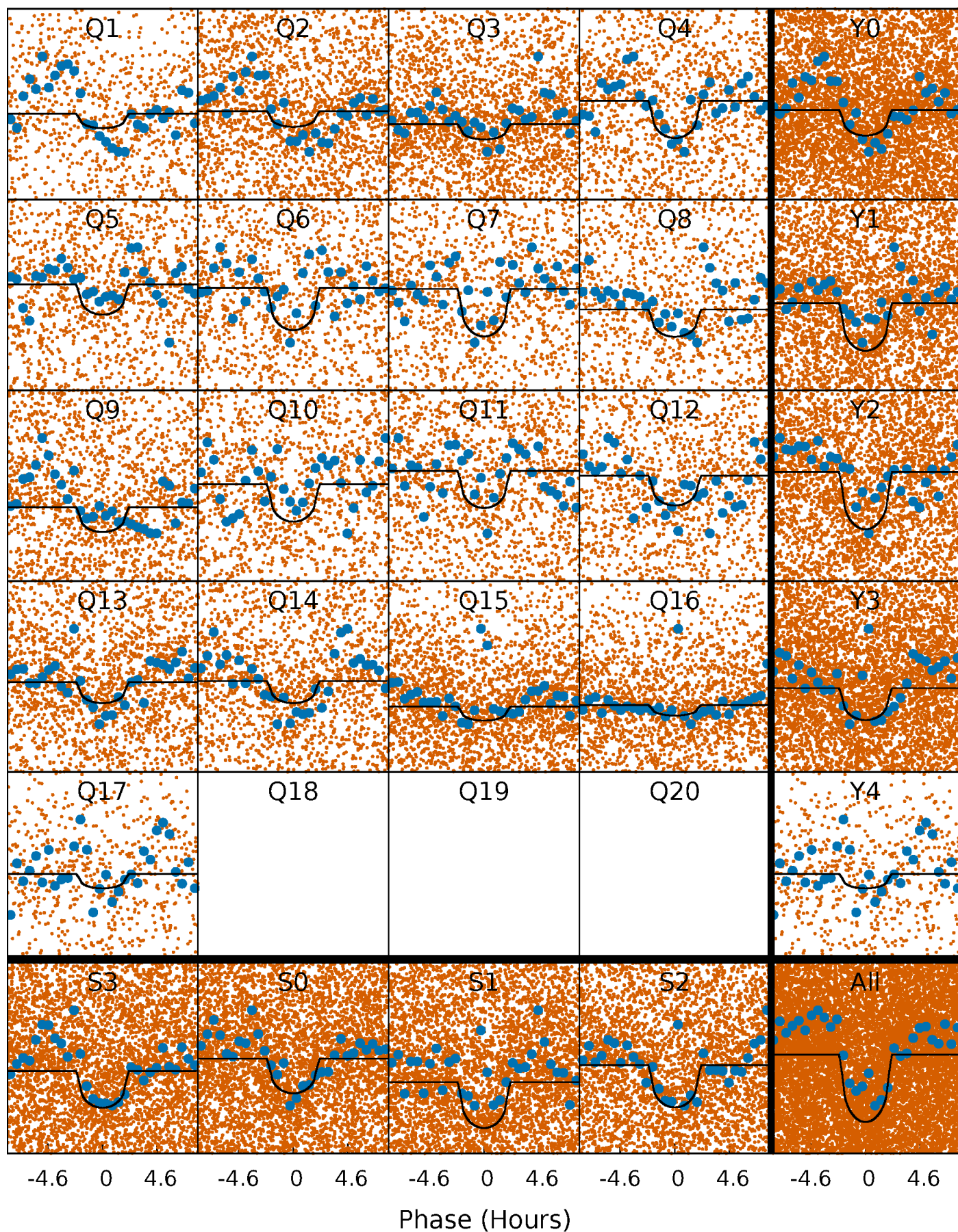
PDC Quarter-Phased Transit Curves

TCE 003330773-01 P= 0.990779 Days $T_0=132.118014$ (BKJD)



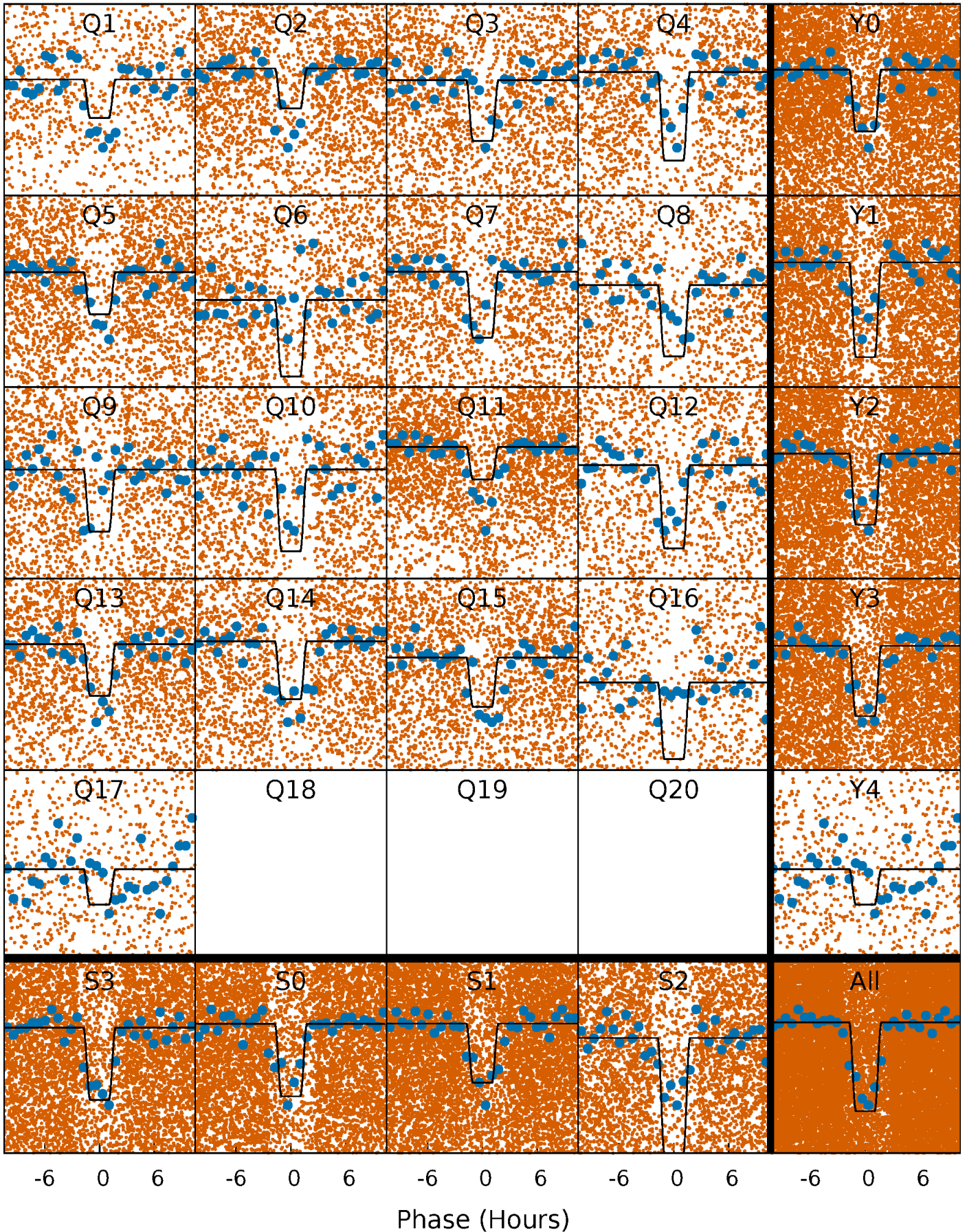
DV Quarter-Phased Transit Curves

TCE 003330773-01 P= 0.990779 Days $T_0=132.118014$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

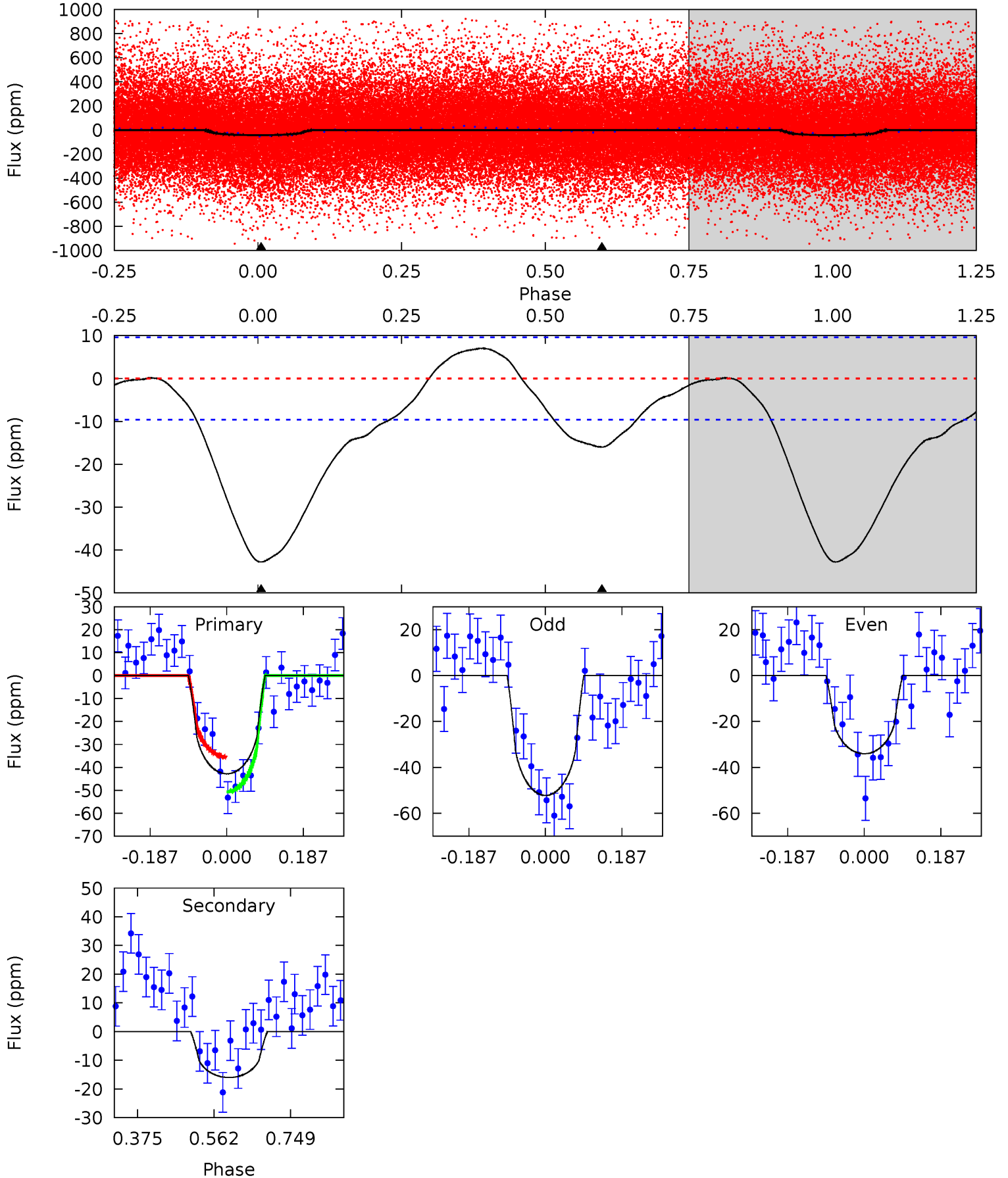
TCE 003330773-01 P= 0.990778 Days $T_0=132.119812$ (BKJD)



DV Model-Shift Uniqueness Test

003330773-01, P = 0.990779 Days, E = 131.127235 Days

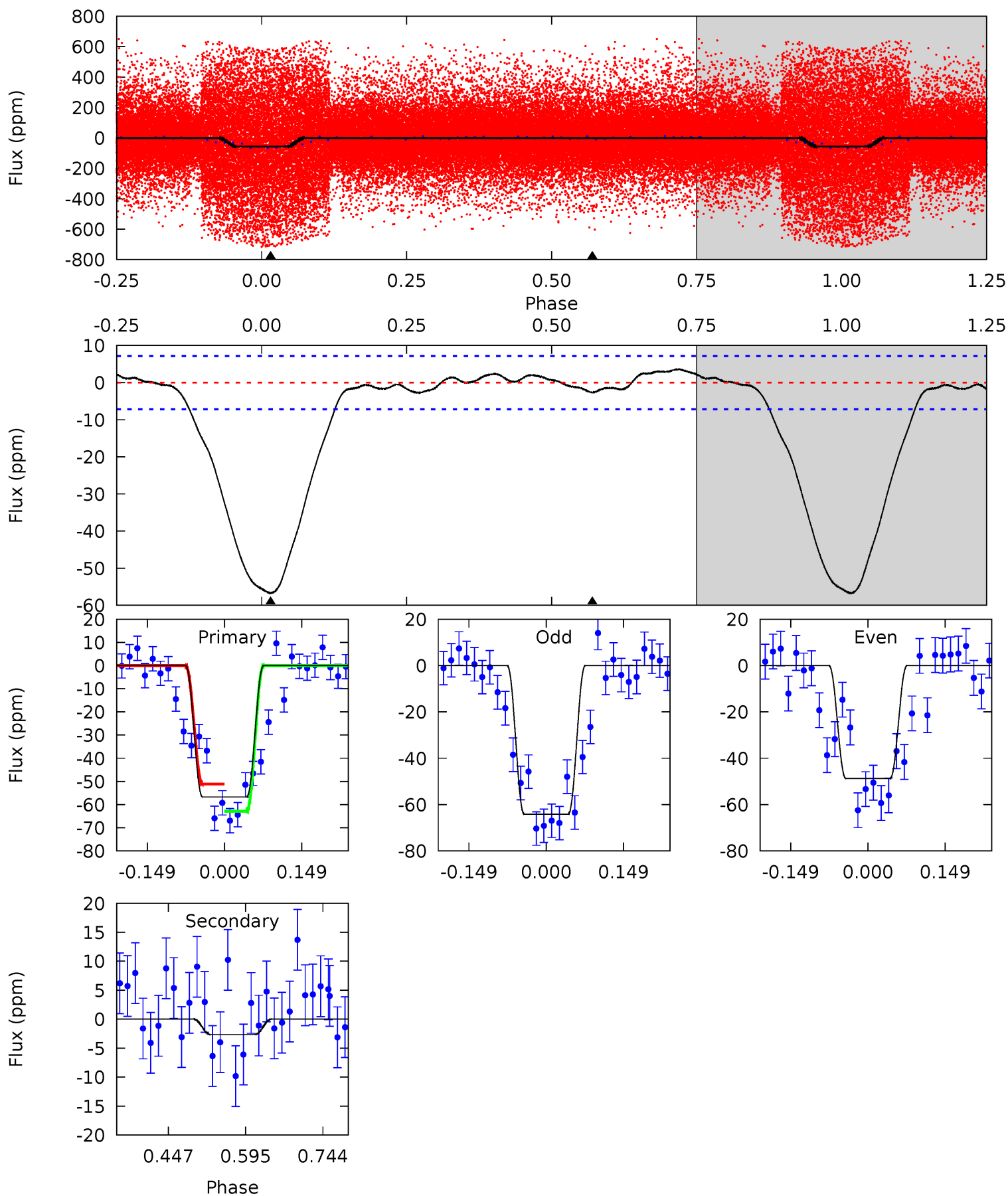
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	7.40	0	0	4.43	1.32	3.00	19.8	19.8	7.40	7.40	4.22	0.61	0.14	3.55



Alt Model-Shift Uniqueness Test

003330773-01, P = 0.990778 Days, E = 131.129034 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.5	1.66	0	0	4.48	1.44	1.03	35.5	35.5	1.66	1.66	4.79	1.28	0.06	3.63



Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 2	$0.53^{+0.39}_{-0.32}$	1949^{+67}_{-66}	4004^{+1866}_{-687}	$9.777^{+48.978}_{-6.493}$
Alt.	-3 ± 2	$0.67^{+0.38}_{-0.36}$	1950^{+66}_{-69}	2665^{+862}_{-4687}	$0.905^{+3.870}_{-0.660}$

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 $A_{obs} \gg 1.0$

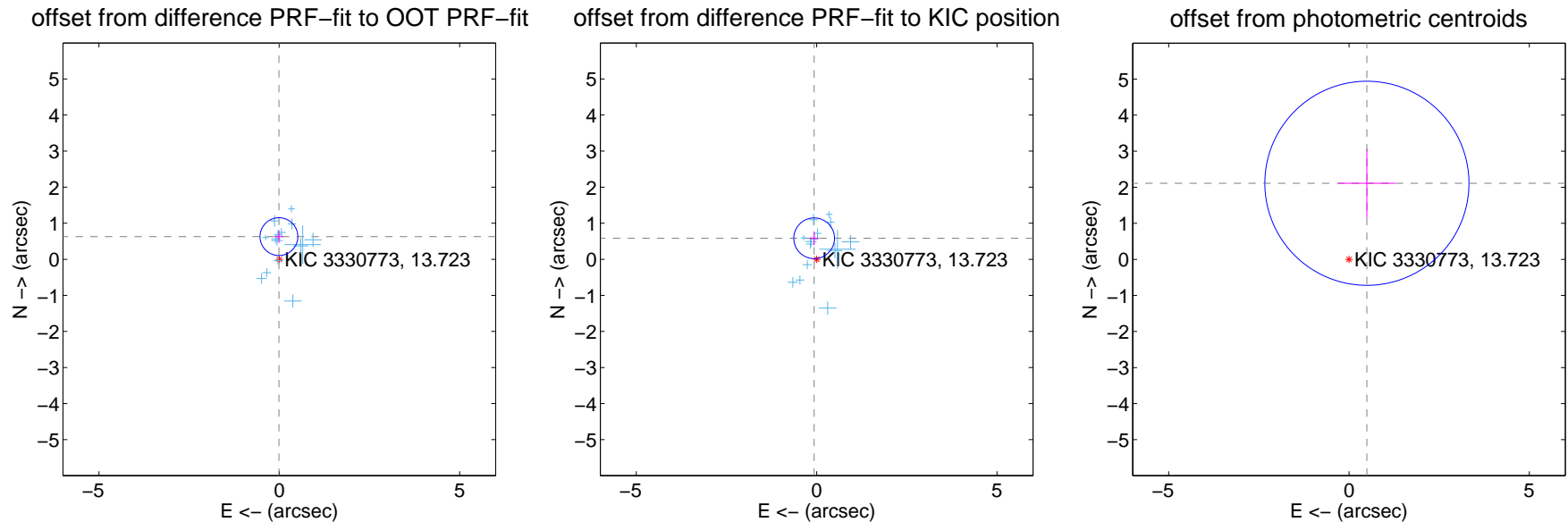
DV Centroid Data

Supplemental centroid analysis for 003330773-01. Kepler magnitude: 13.72. Transit SNR 9.78

There are 15 quarters with good PRF difference image offsets

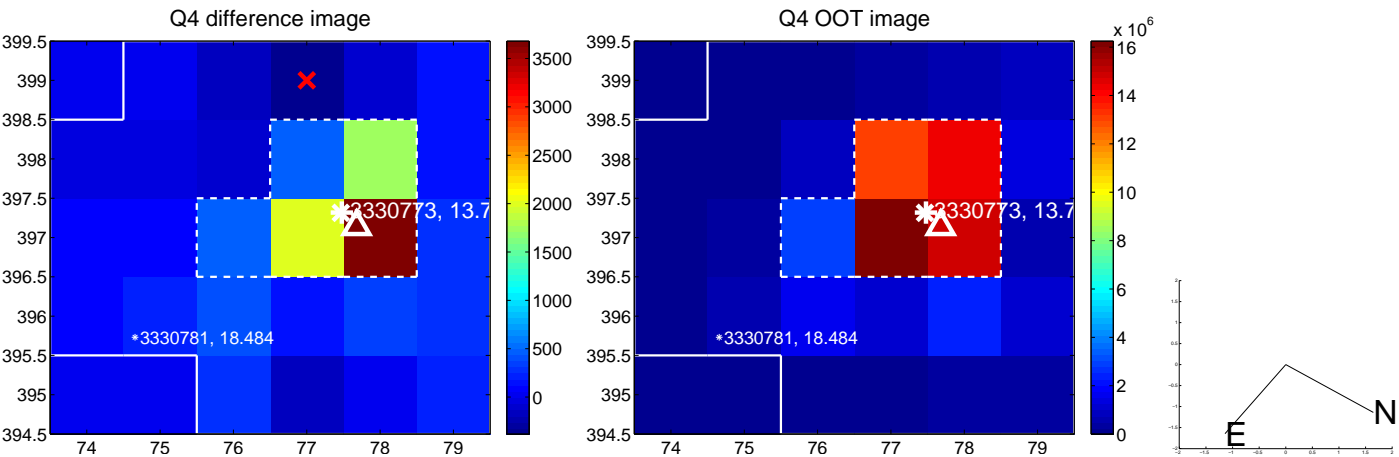
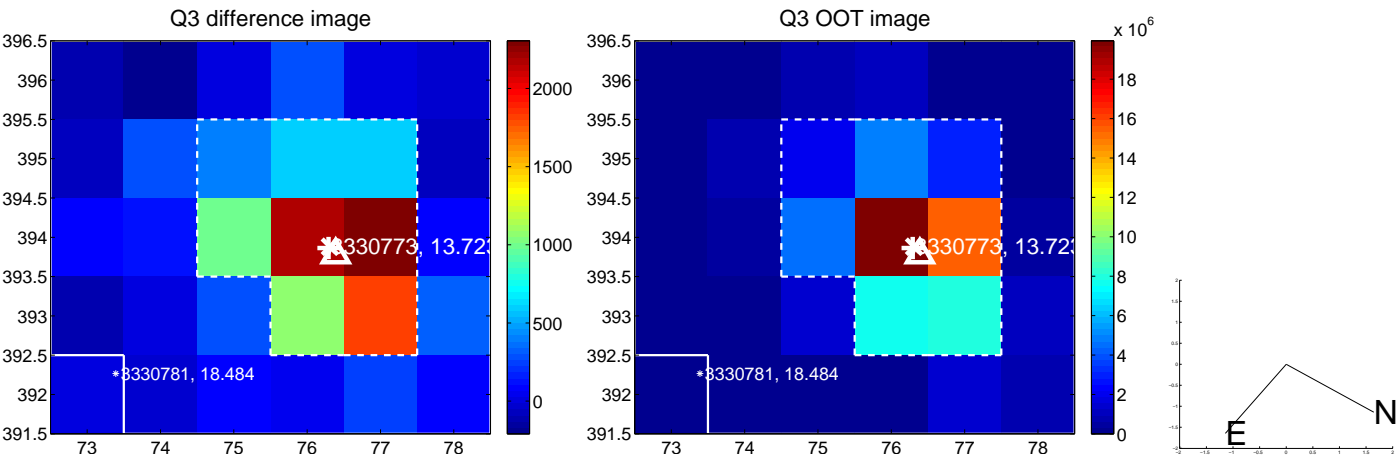
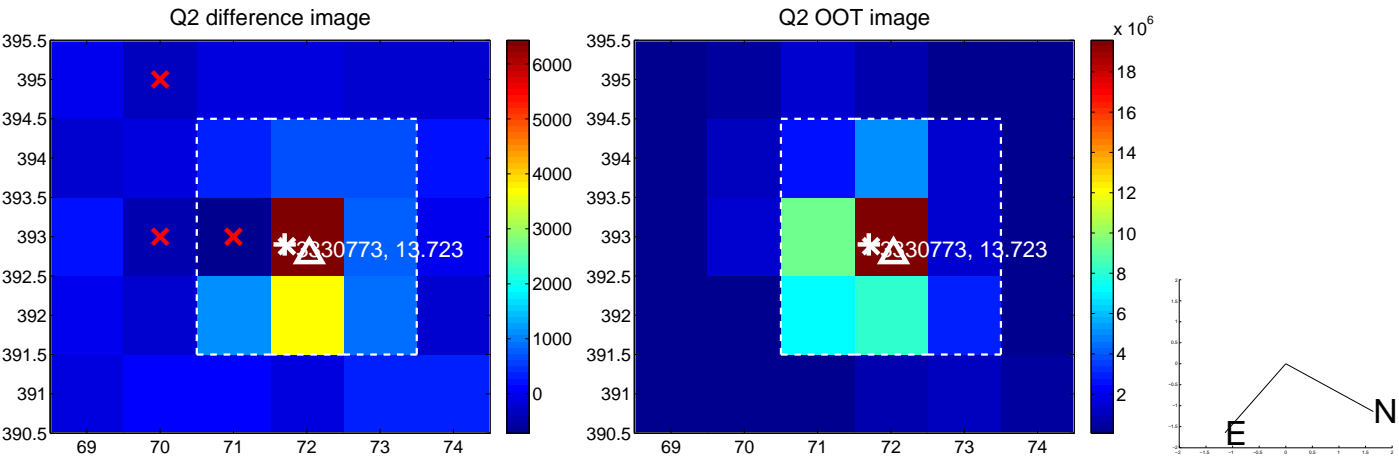
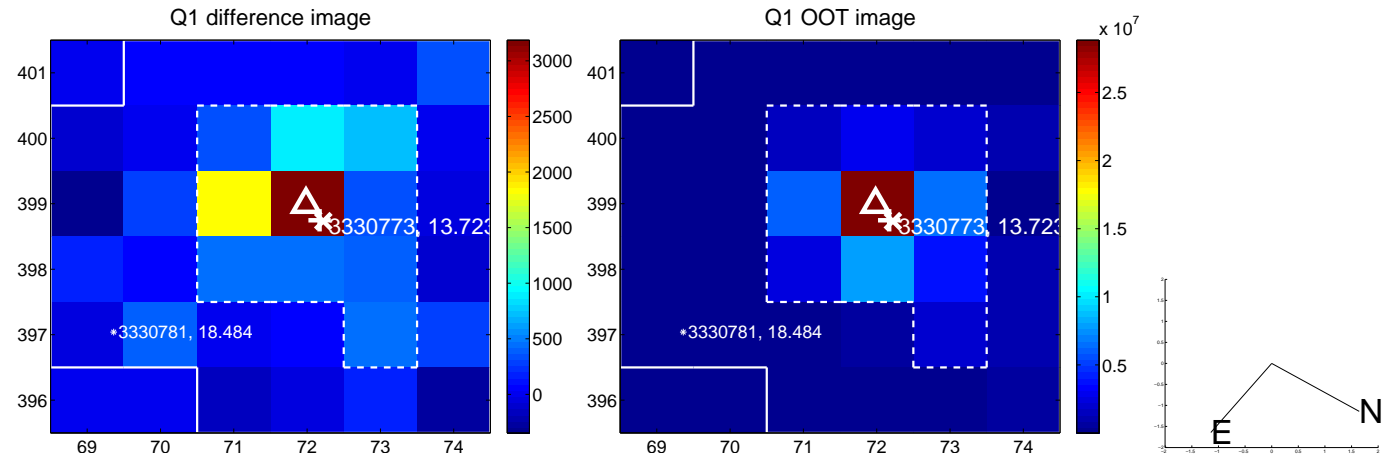
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.629 \pm 0.175	3.60	0.010 \pm 0.121	0.629 \pm 0.175
PRF-fit source offset from KIC position	0.587 \pm 0.188	3.12	0.069 \pm 0.124	0.583 \pm 0.192
photometric centroid source offset	2.17 \pm 0.94	2.30	-0.50 \pm 0.80	2.11 \pm 0.95

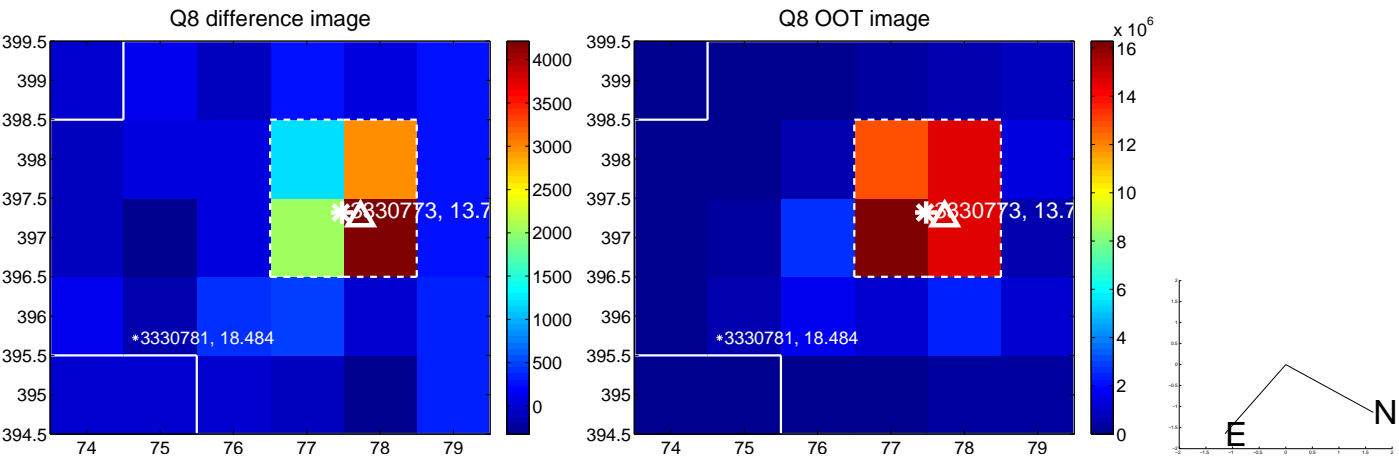
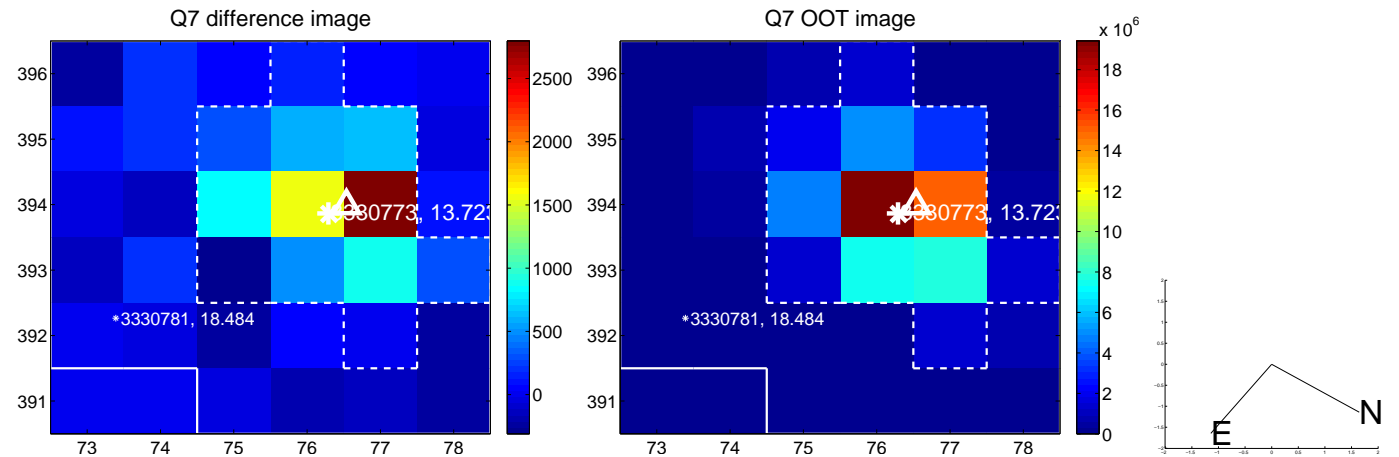
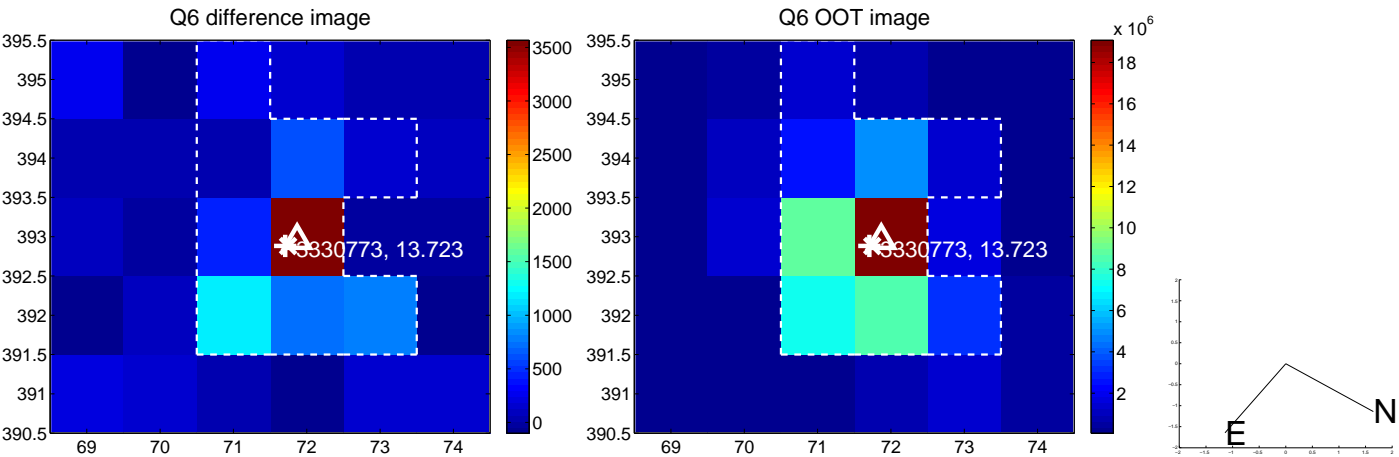
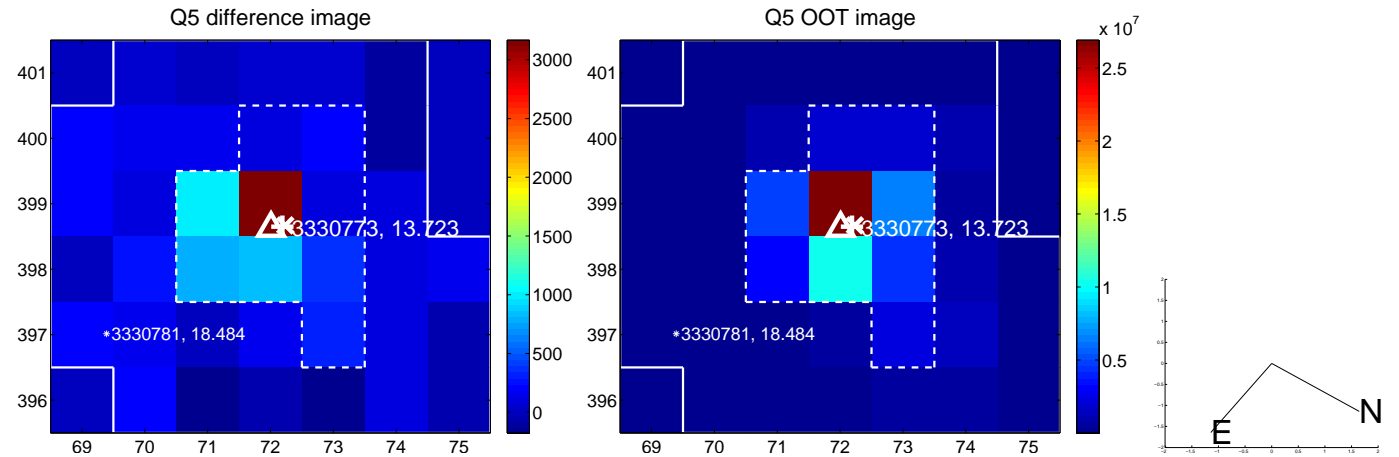


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

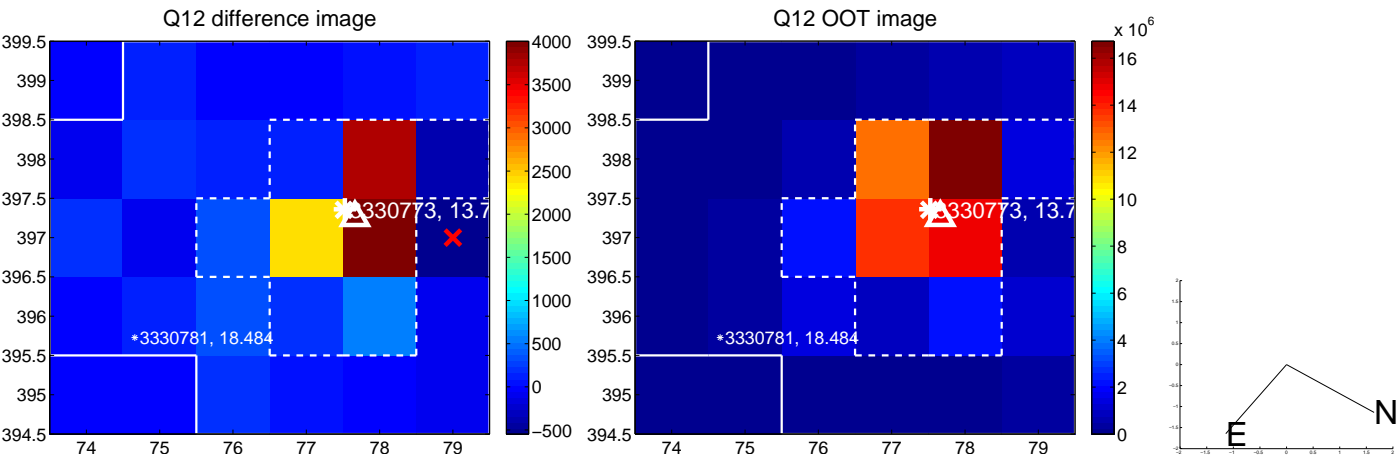
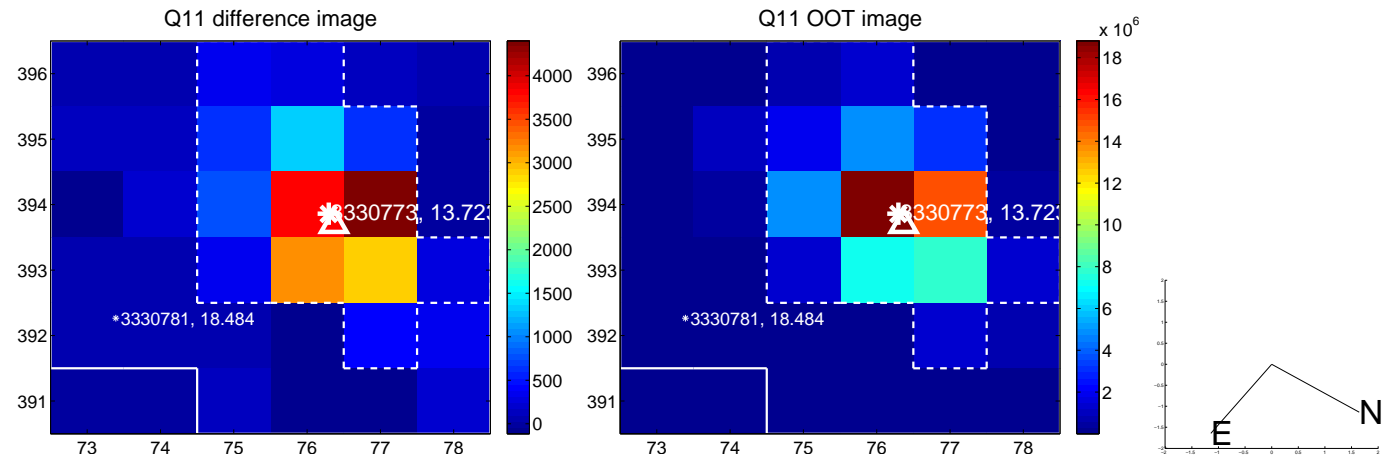
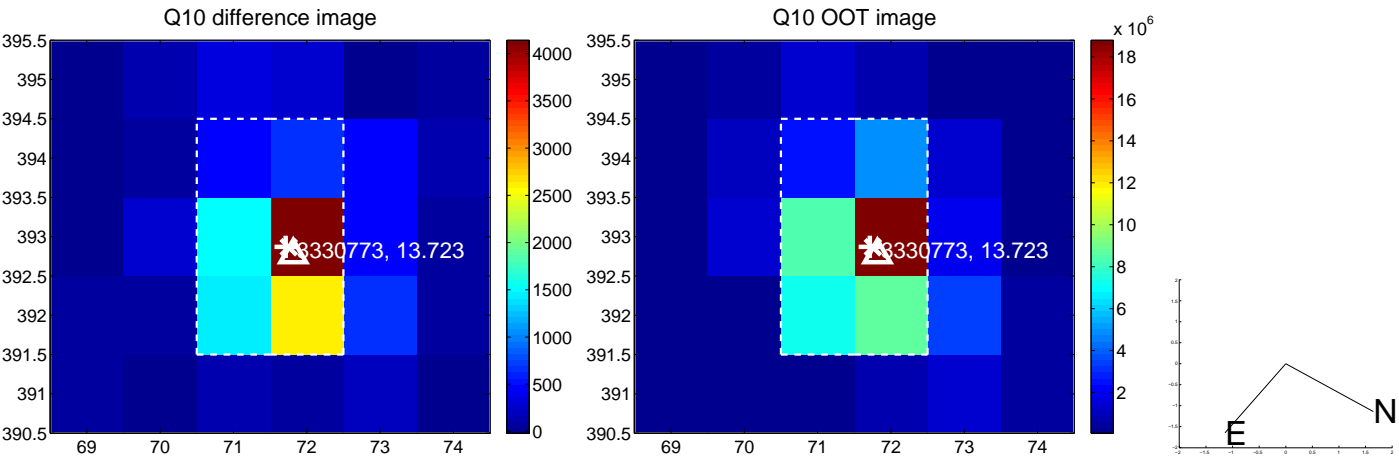
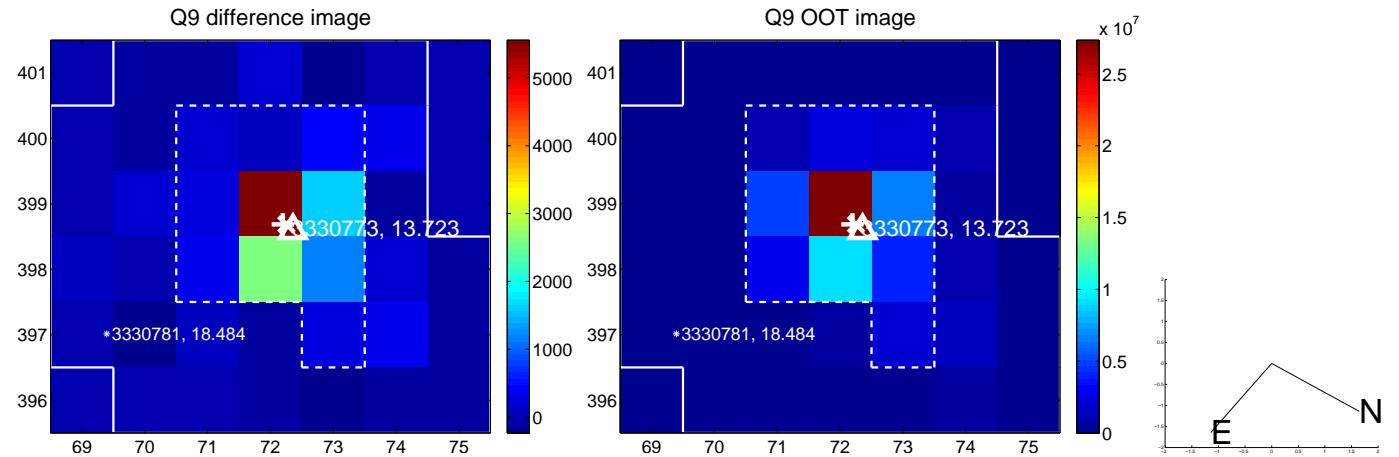
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



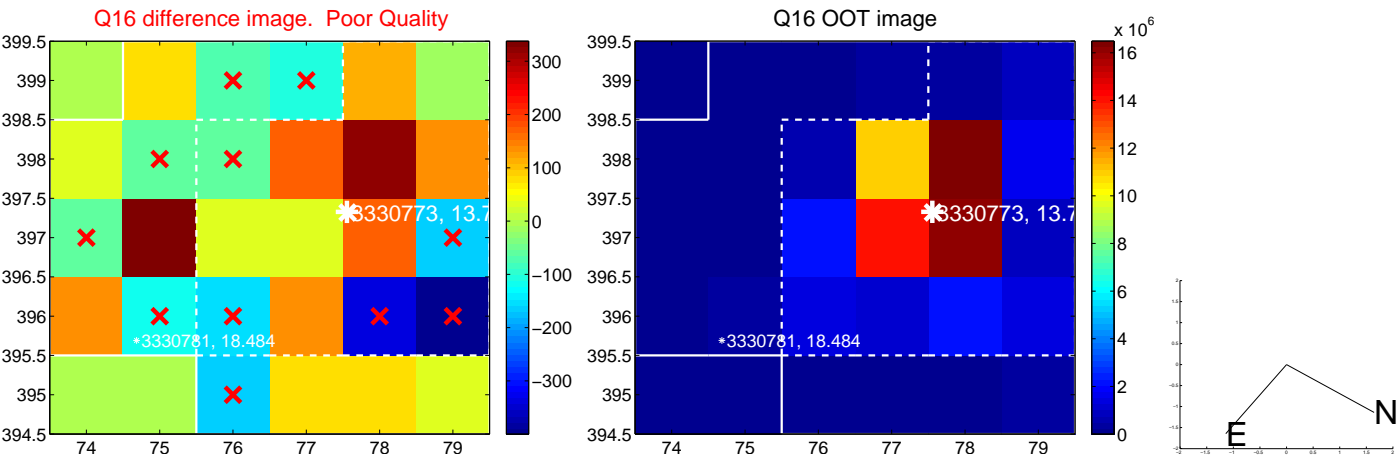
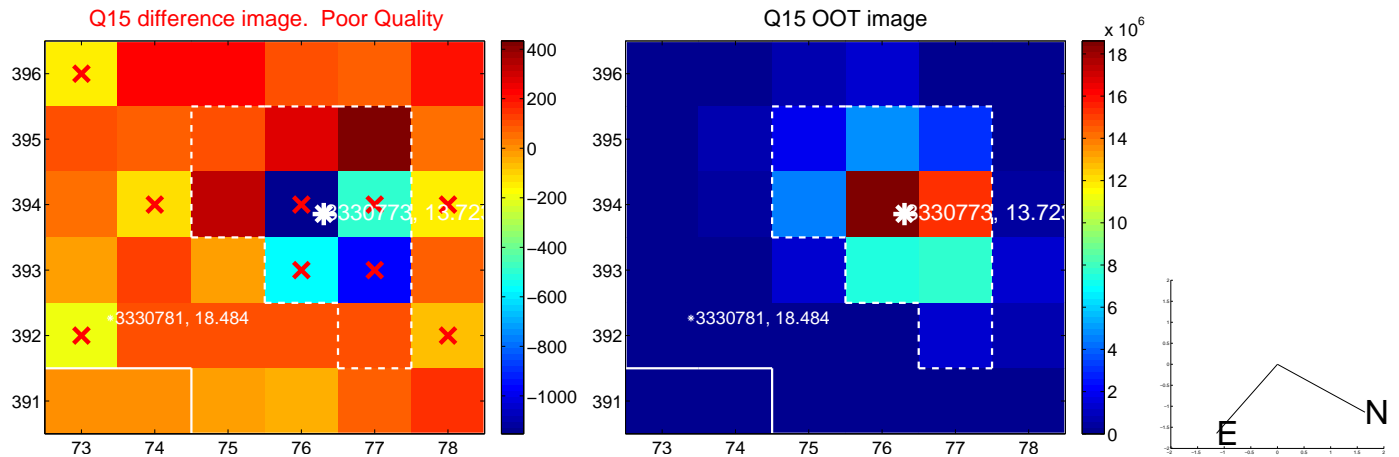
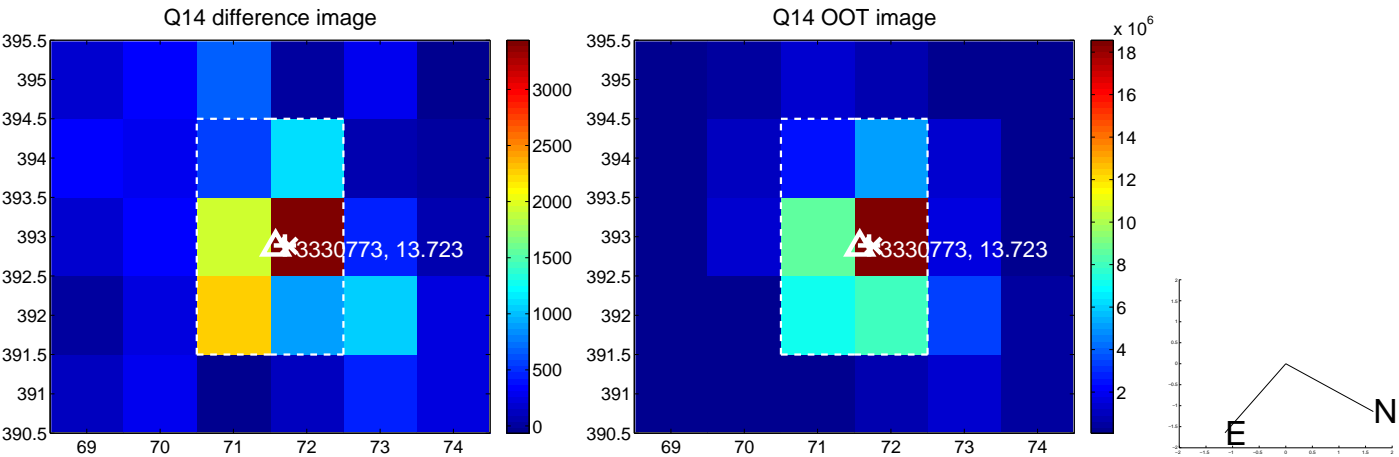
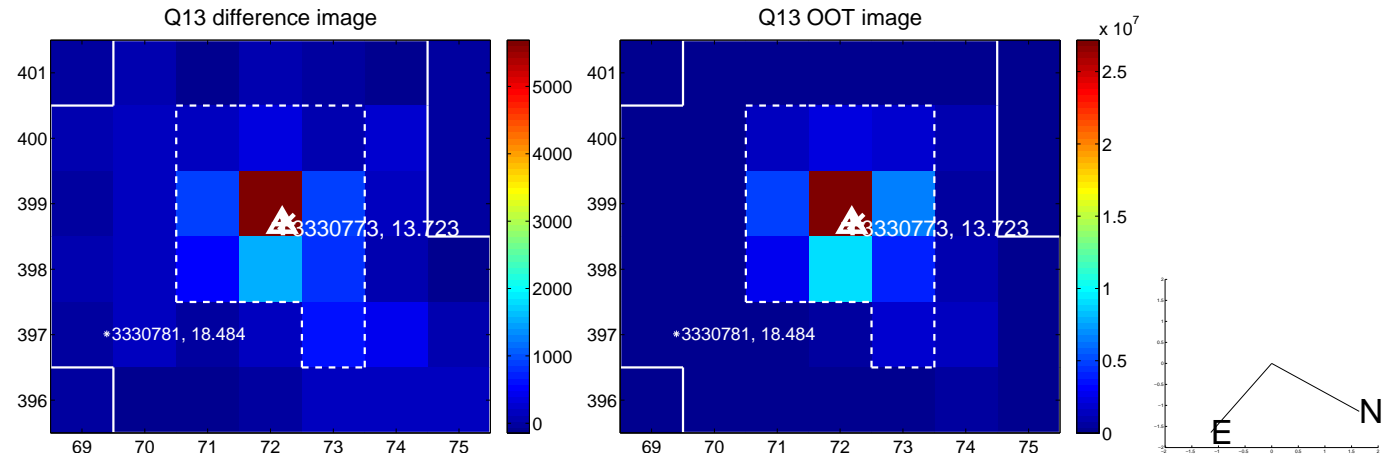
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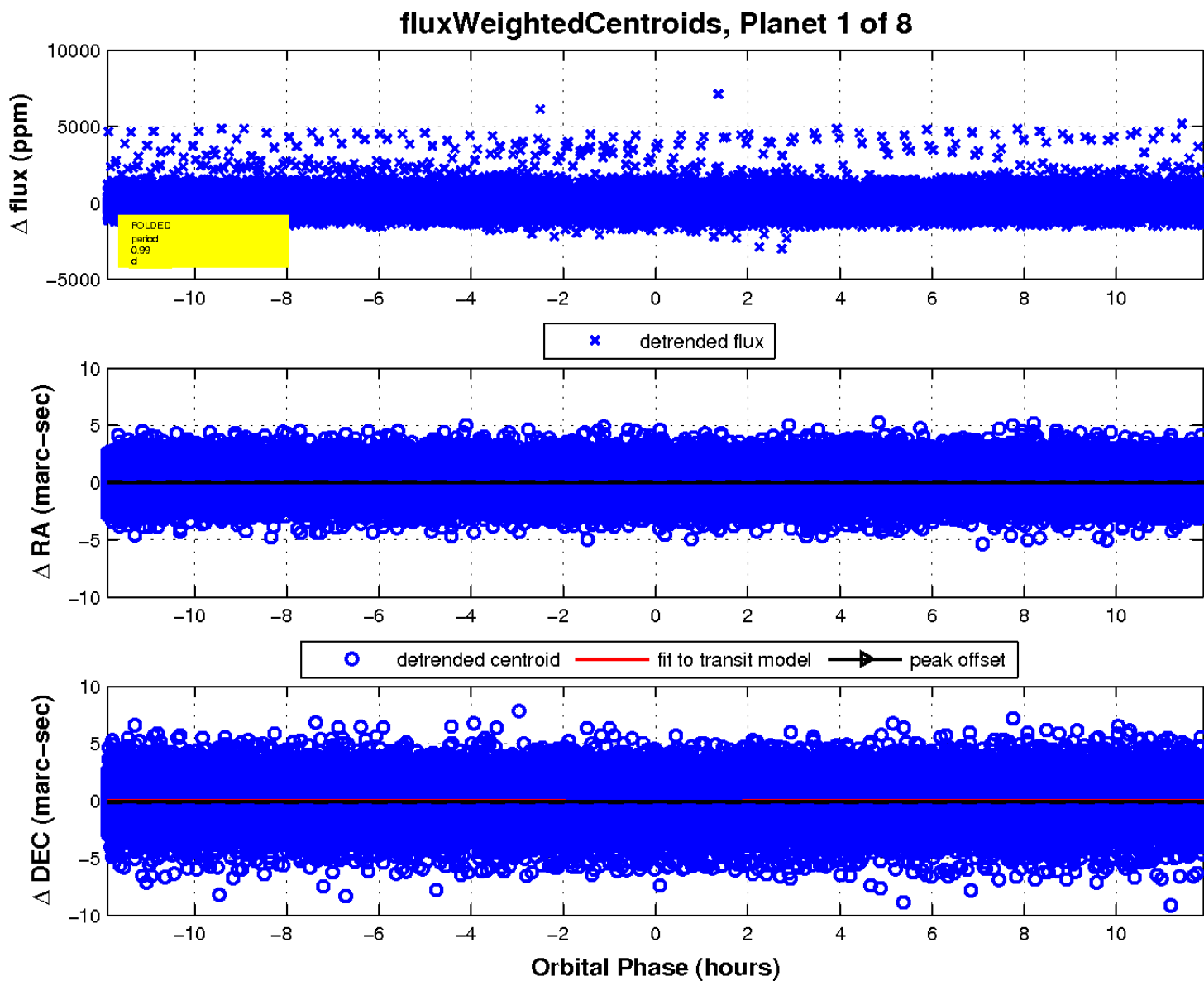
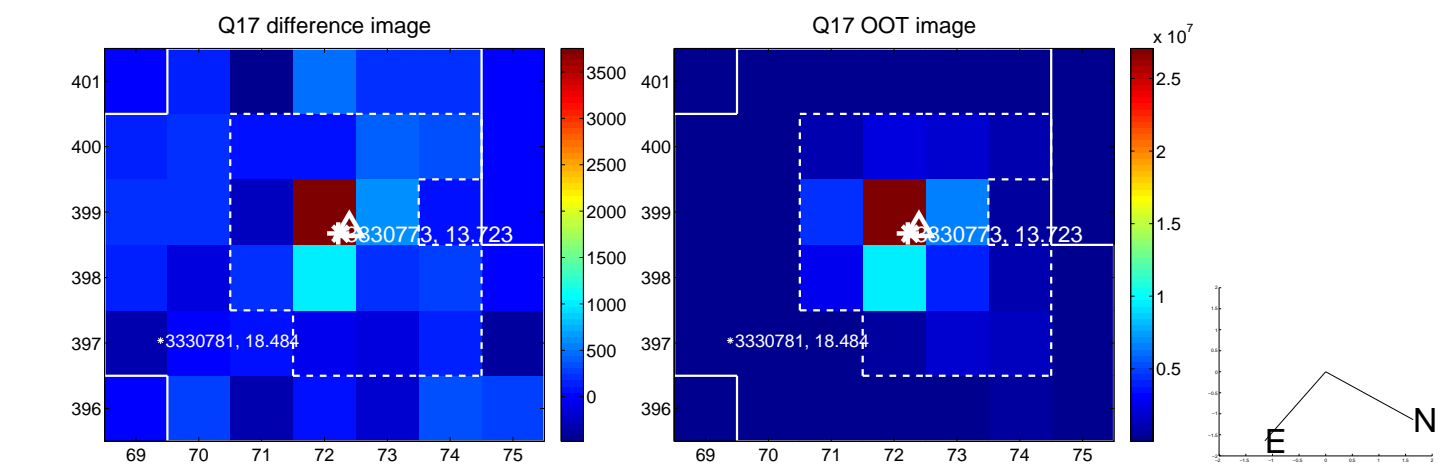
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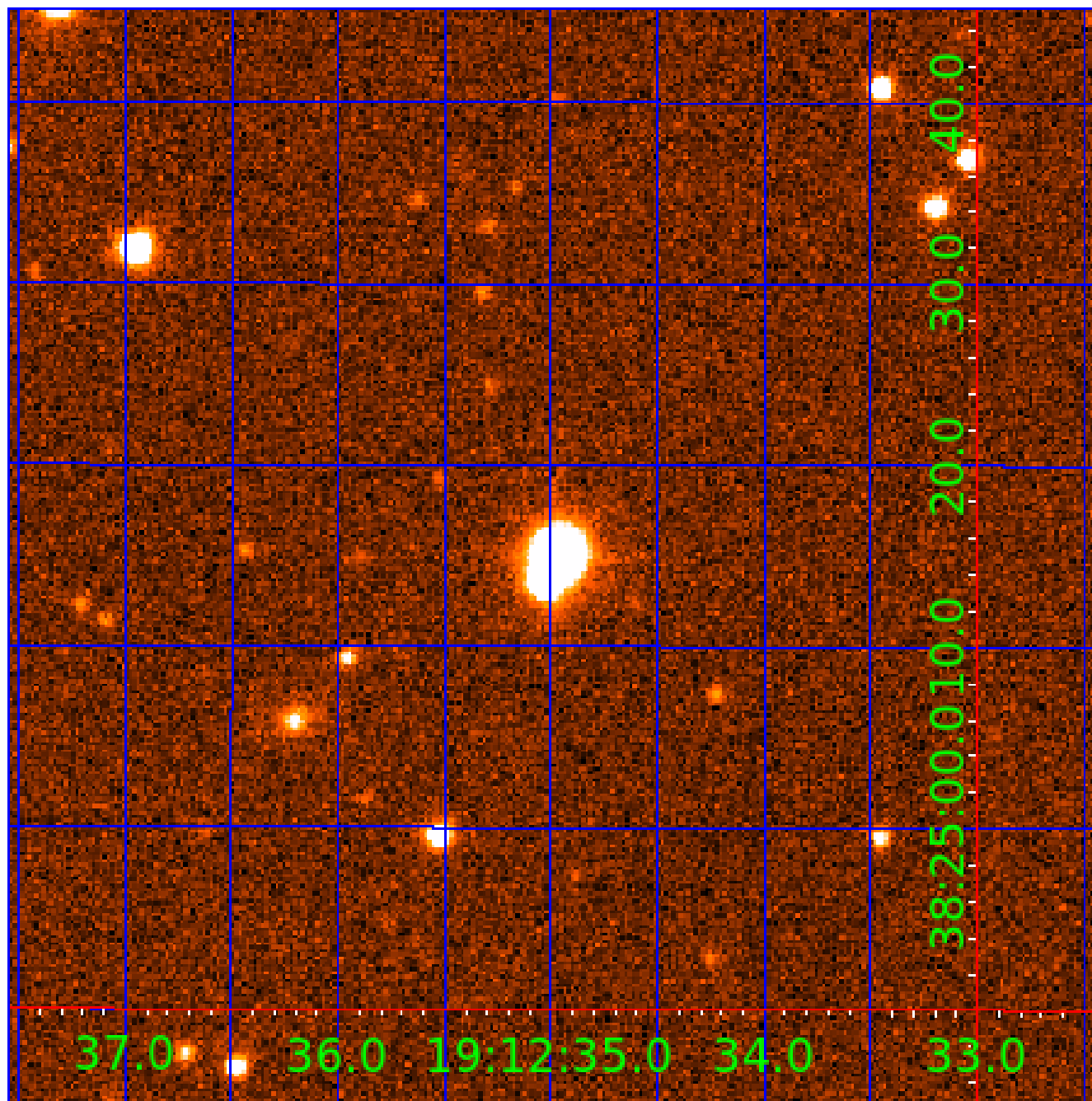


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UKIRT Image

Declination



KIC 003330773

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003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
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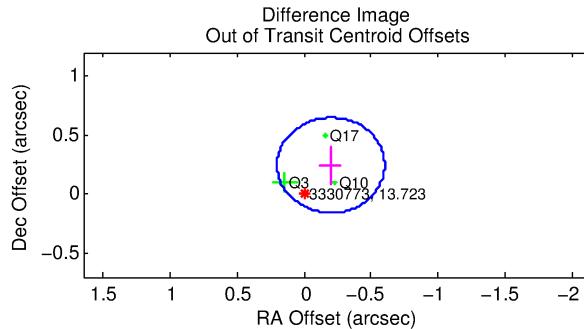
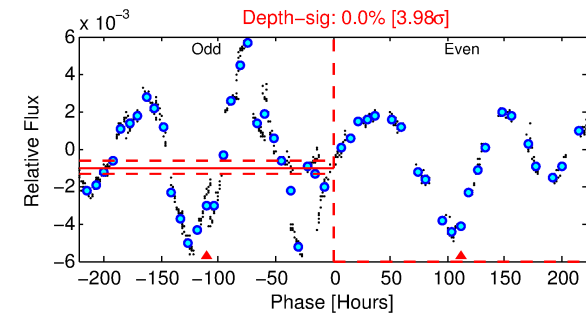
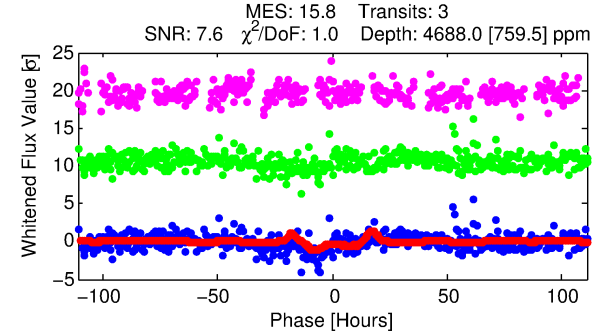
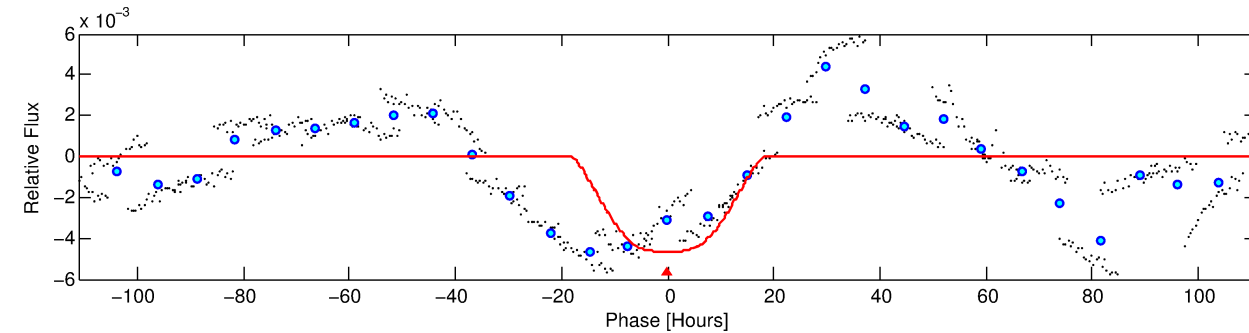
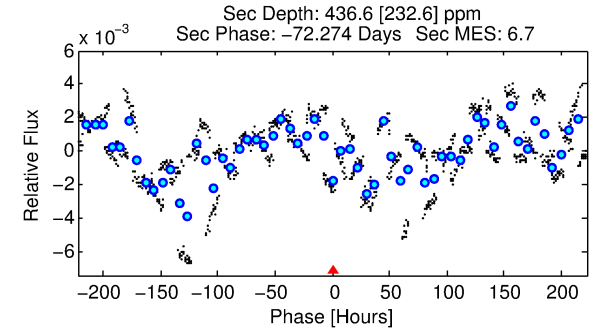
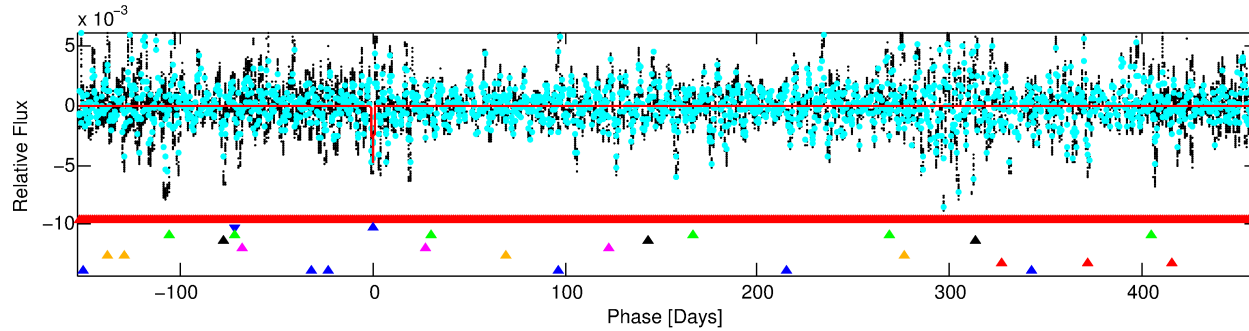
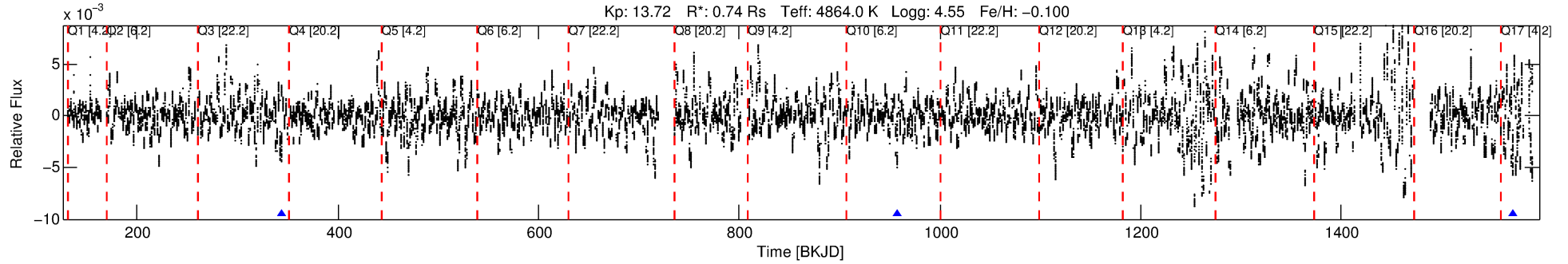
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-02

No Significant Match Found

DV One-Page Summary

KIC: 3330773 Candidate: 2 of 8 Period: 613.600 d



DV Fit Results:

Period = 613.60041 [0.03142] d
Epoch = 343.6965 [0.0392] BKJD
Rp/R* = 0.0780 [0.0065]
a/R* = 73.65 [3.53]
b = 0.91 [0.01]
Seff = 0.17 [0.03]
Teq = 164 [7] K
Rp = 6.30 [0.79] Re
a = 1.2651 [0.1008] AU
Ag = 9689.21 [5524.31] [1.75σ]
Teffp = 2517 [359] K [6.55σ]

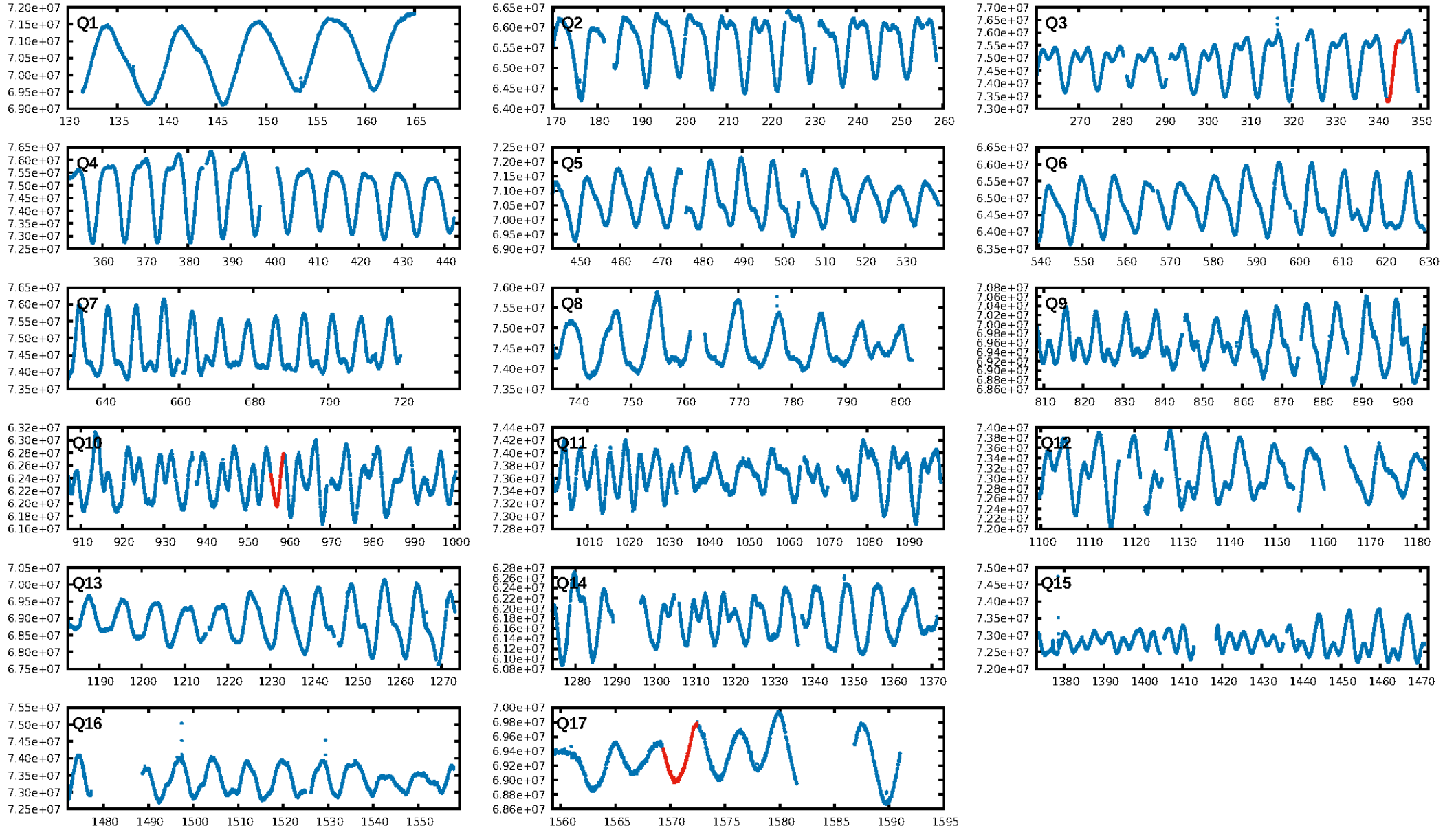
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [25.29σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.88e-17
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.925
Centroid-sig: 80.6%
Centroid-so: 0.150 arcsec [1.03σ]
OotOffset-rm: 0.316 arcsec [2.35σ]
KicOffset-rm: 0.177 arcsec [1.50σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

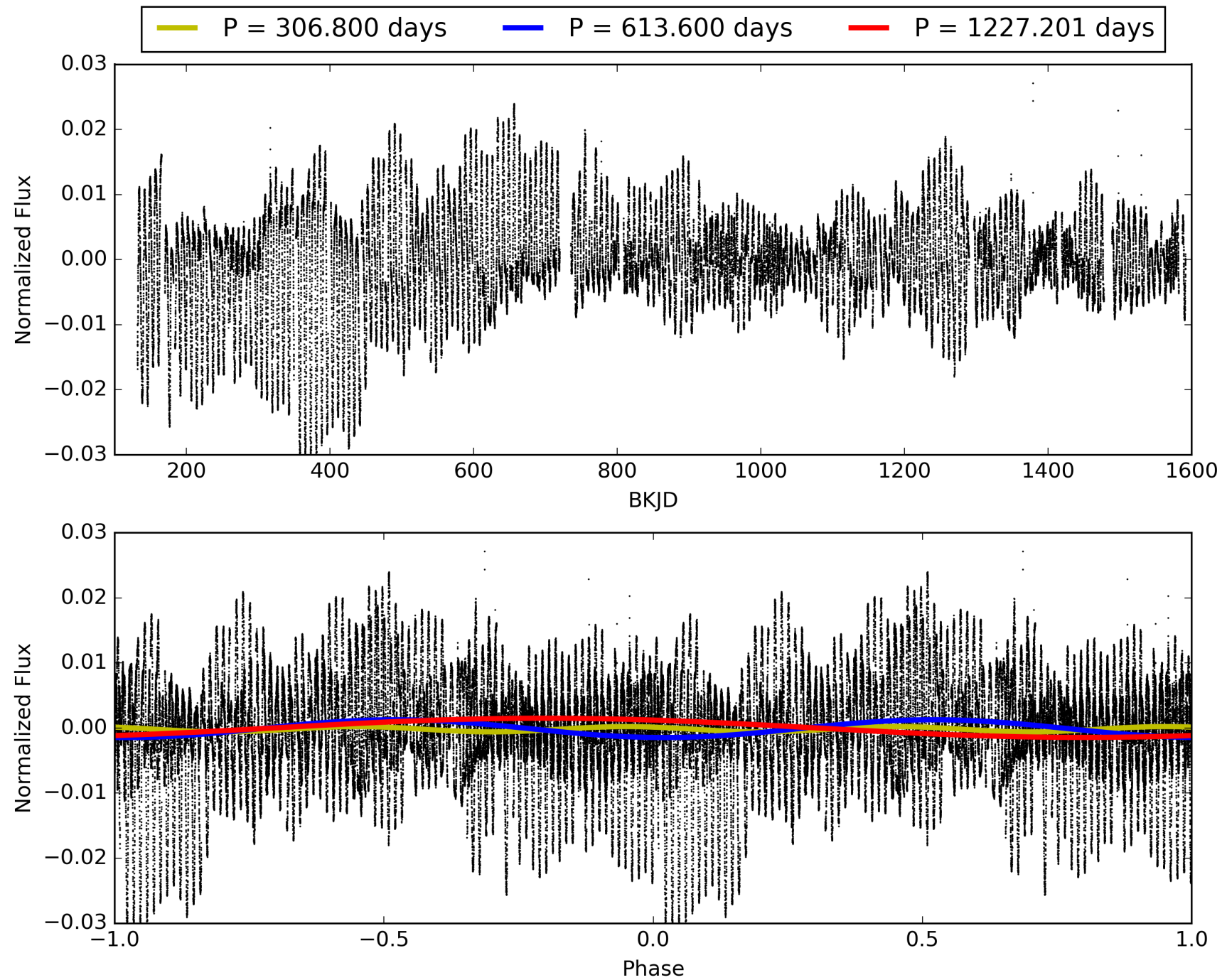
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:45:51 Z

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

TCE 003330773-02, PDC Light Curves

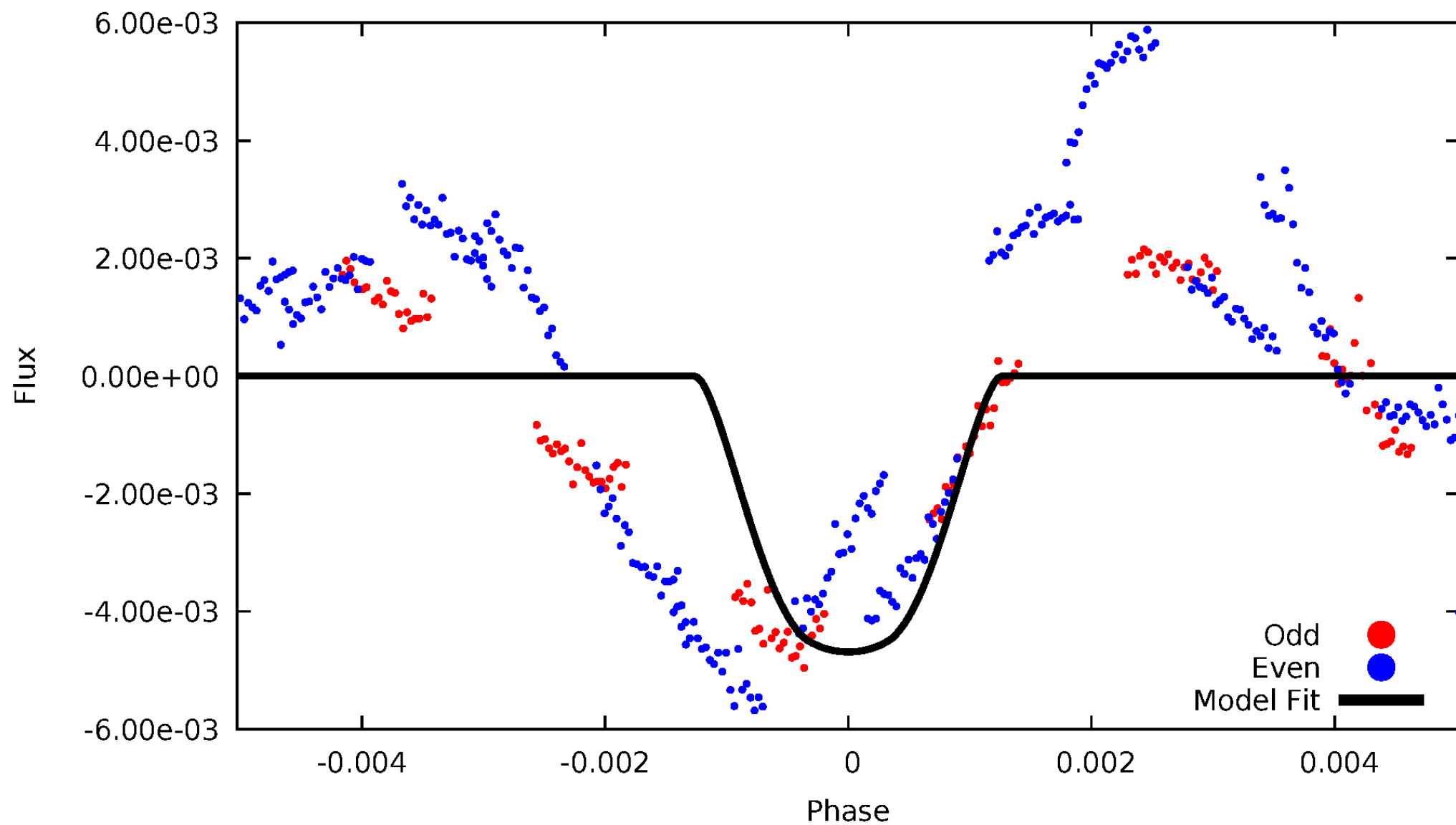


TCE 003330773-02



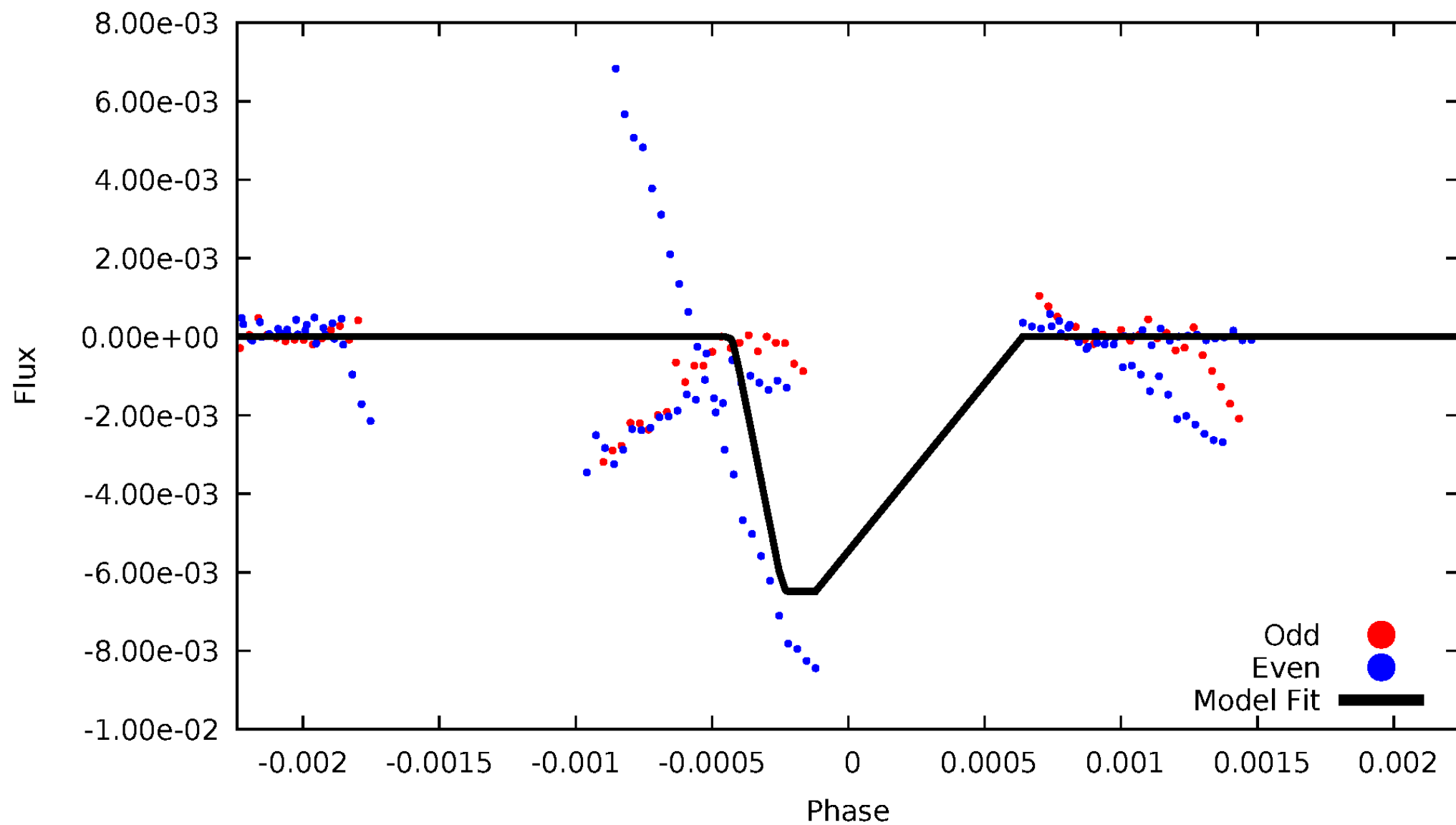
DV Odd/Even

TCE 003330773-02



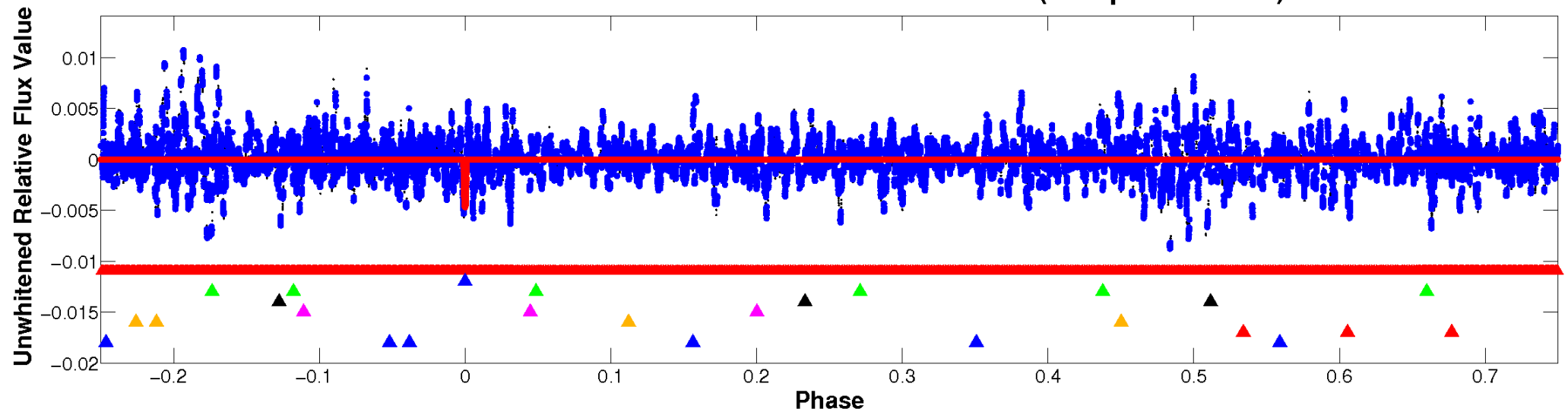
ALT Odd/Even

TCE 003330773-02

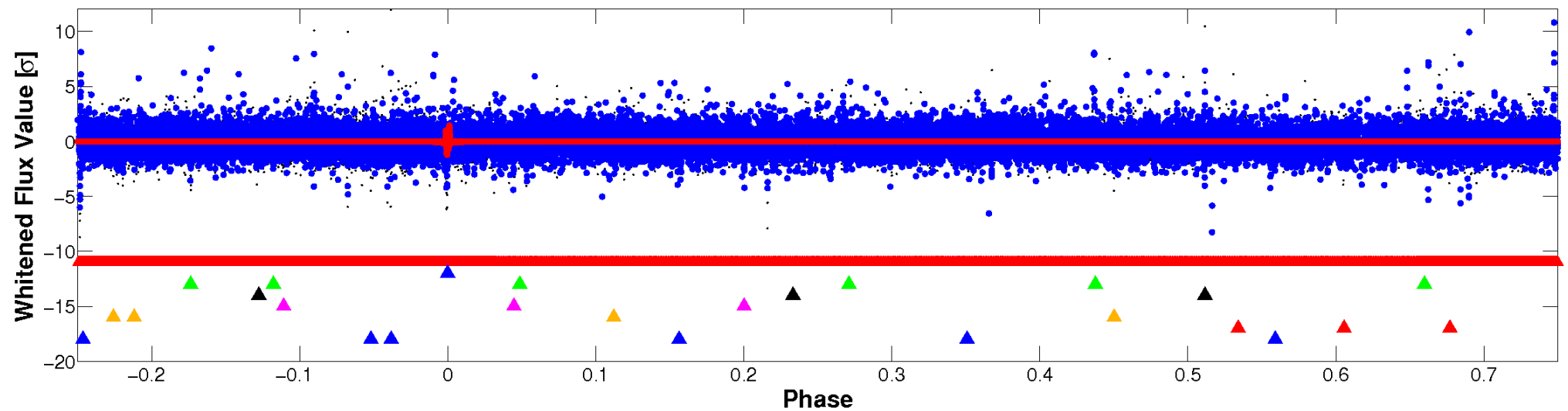


Non-Whitened Vs. Whitened Light Curve

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

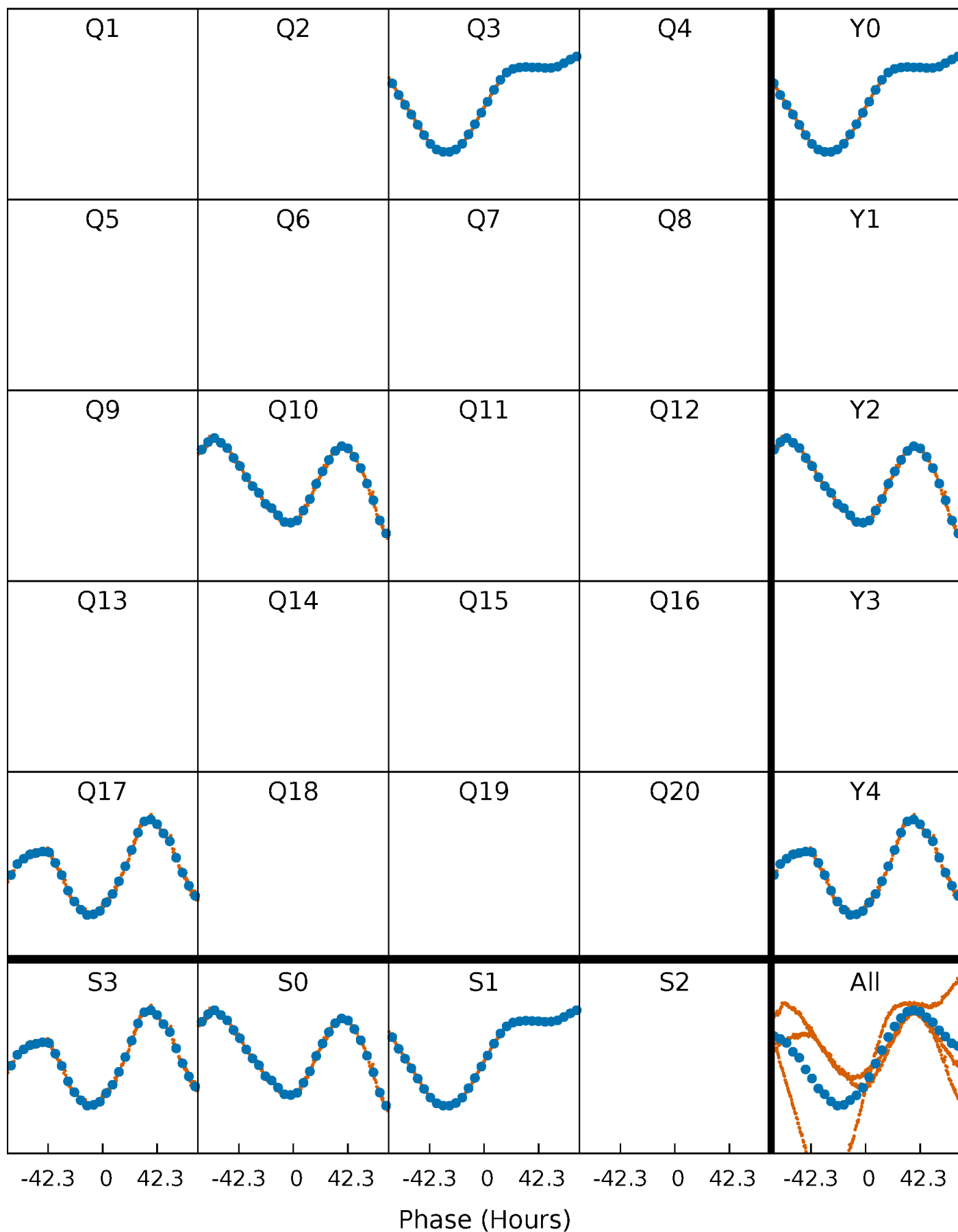


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



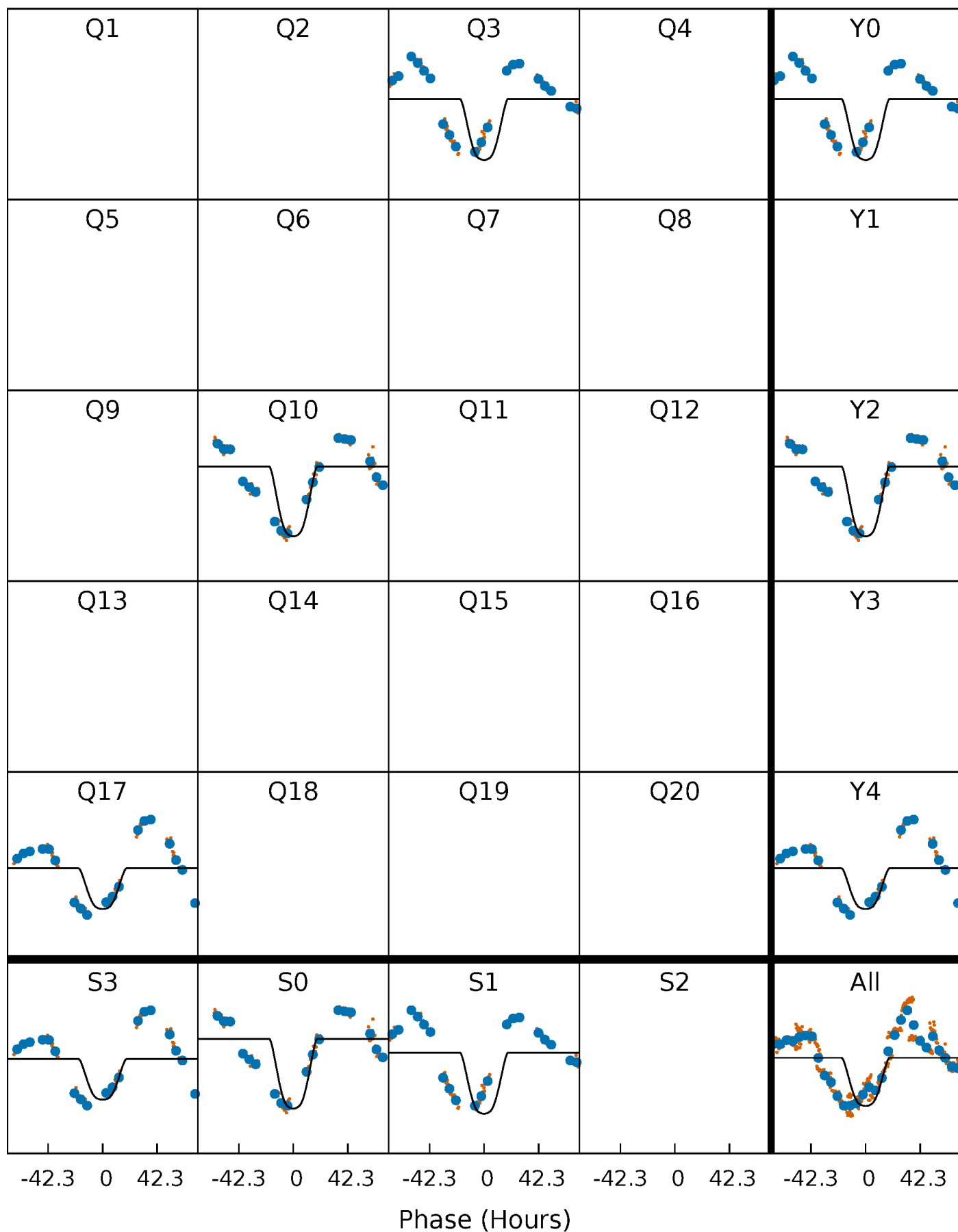
PDC Quarter-Phased Transit Curves

TCE 003330773-02 P=613.600412 Days $T_0=343.696544$ (BKJD)



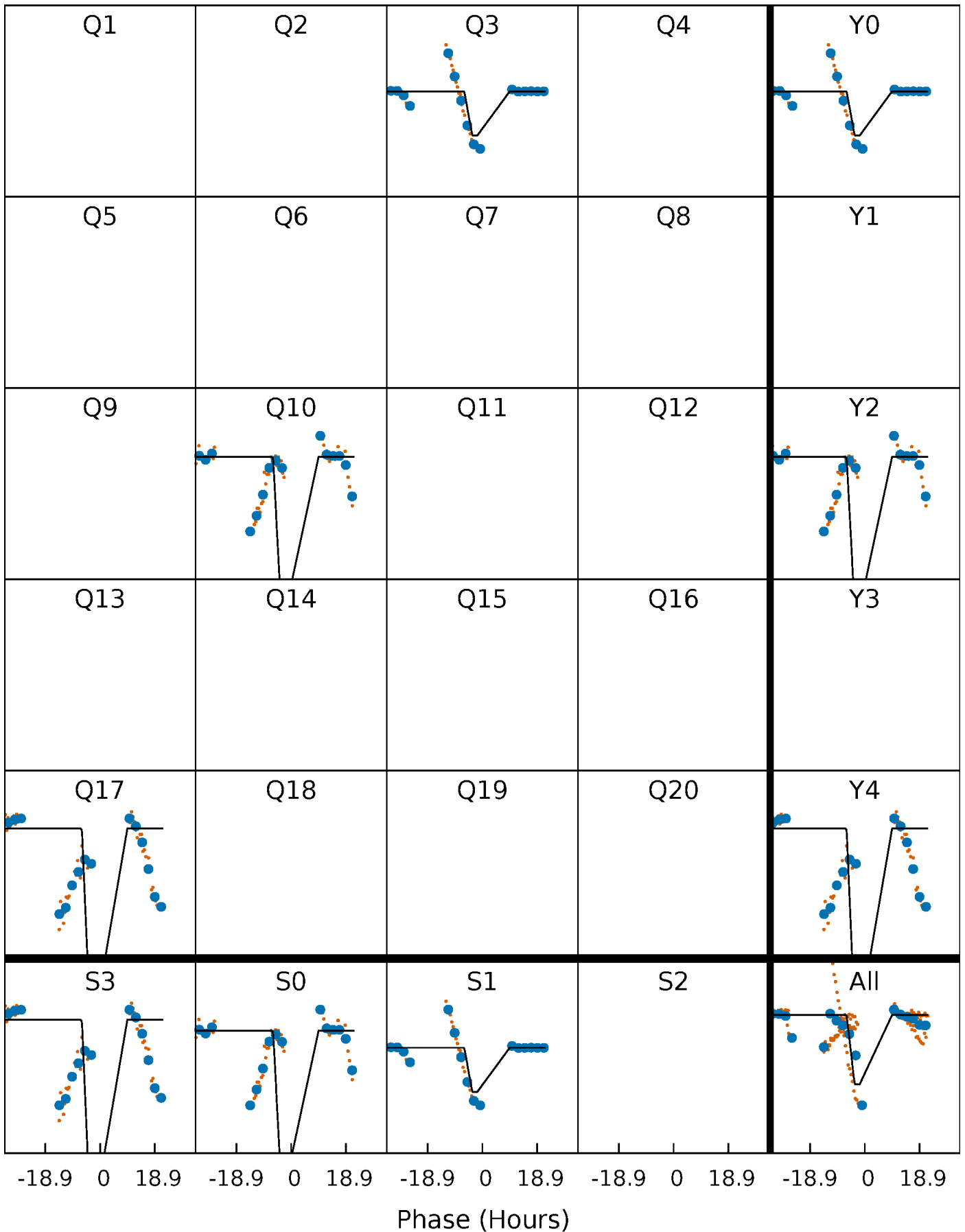
DV Quarter-Phased Transit Curves

TCE 003330773-02 P=613.600412 Days $T_0=343.696544$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

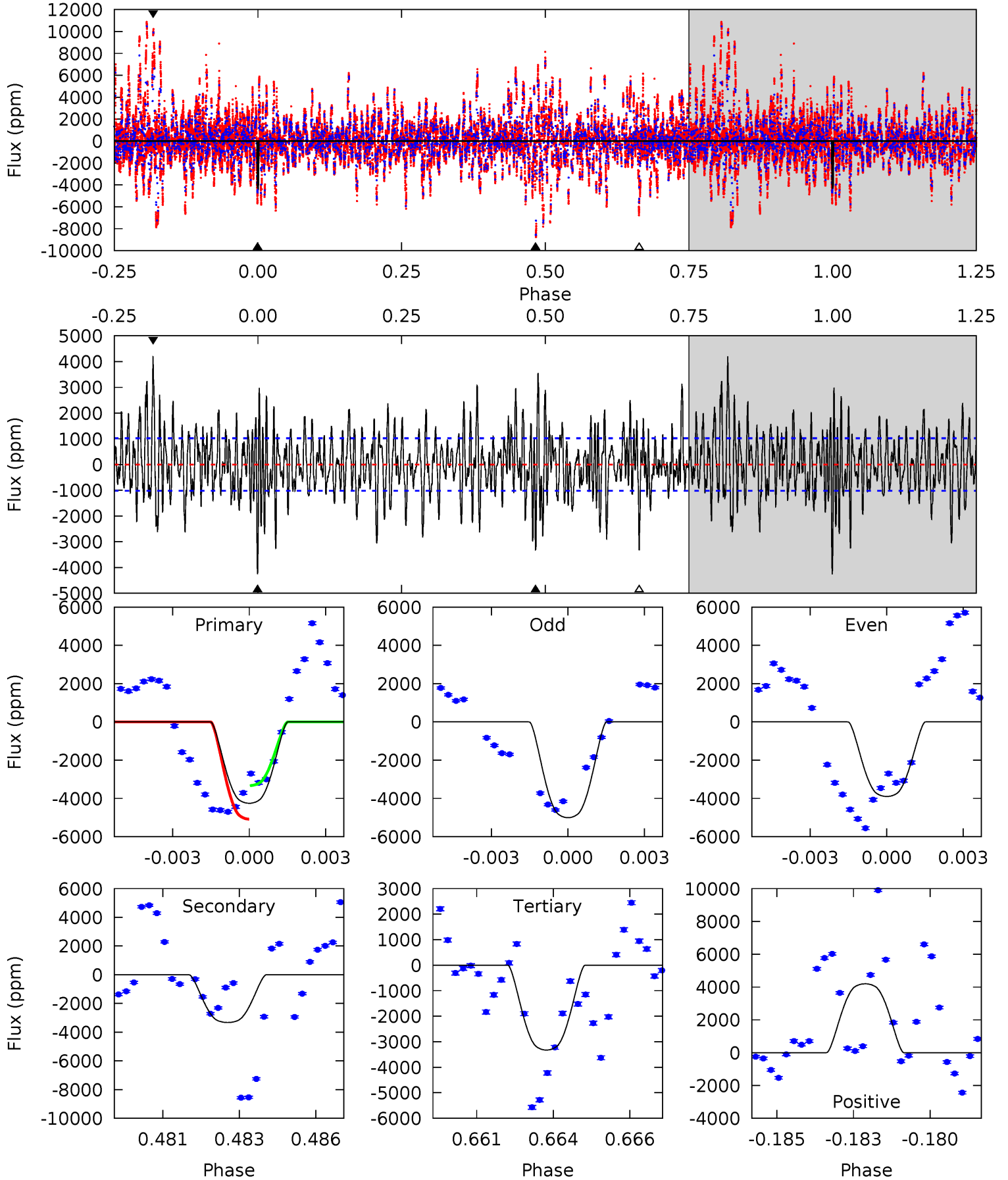
TCE 003330773-02 P=613.326926 Days $T_0=343.949932$ (BKJD)



DV Model-Shift Uniqueness Test

003330773-02, P = 613.600412 Days, E = 343.696544 Days

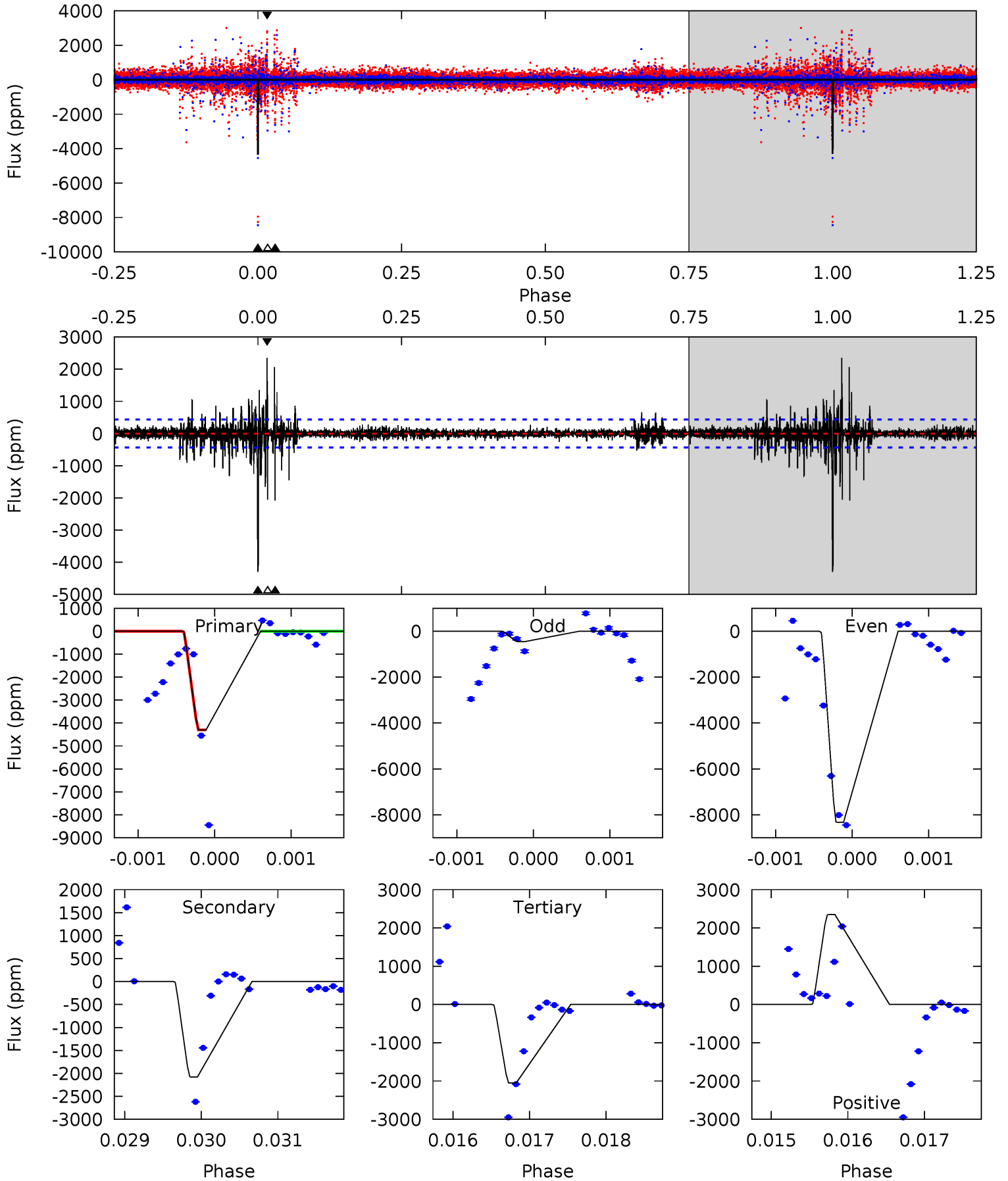
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	17.2	17.2	21.7	5.29	3.02	5.70	4.79	0.28	0.01	-4.51	2.85	0.88	0.50	4.59



Alt Model-Shift Uniqueness Test

003330773-02, P = 613.326926 Days, E = 343.949932 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.7	25.9	25.6	29.3	5.44	3.27	1.80	28.1	24.3	0.32	-3.39	55.0	0	0.35	0



Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3328 ± 193	$6.31^{+0.58}_{-0.65}$	229^{+8}_{-8}	4315^{+199}_{-169}	74236^{+18215}_{-11977}
Alt.	-2078 ± 80	$6.49^{+0.62}_{-0.64}$	228^{+9}_{-8}	3926^{+153}_{-147}	44185^{+9882}_{-7406}

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 $A_{obs} \gg 1.0$

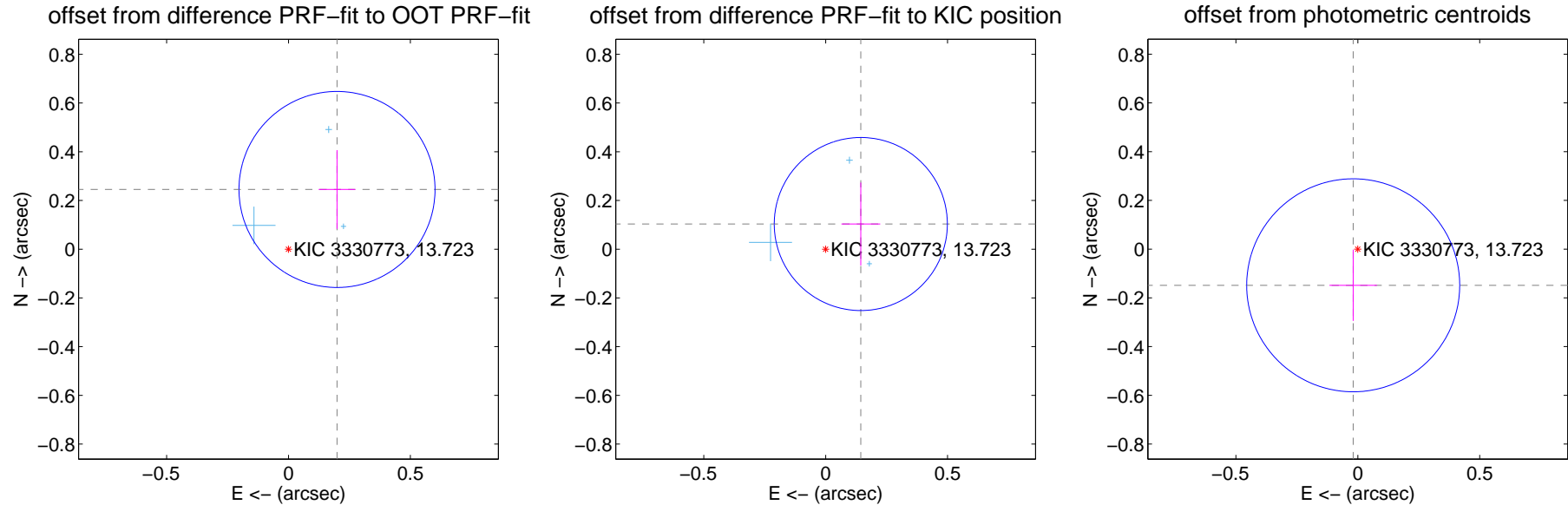
DV Centroid Data

Supplemental centroid analysis for 003330773-02. Kepler magnitude: 13.72. Transit SNR 7.58

There are 3 quarters with good PRF difference image offsets

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

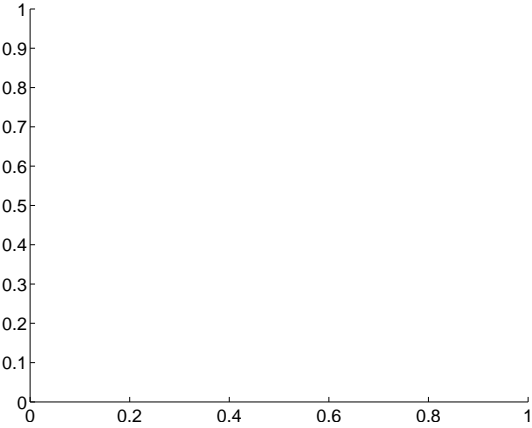
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.316 ± 0.134	2.35	-0.199 ± 0.075	0.245 ± 0.162
PRF-fit source offset from KIC position	0.177 ± 0.118	1.50	-0.144 ± 0.080	0.103 ± 0.170
photometric centroid source offset	0.15 ± 0.15	1.03	0.02 ± 0.10	-0.15 ± 0.15



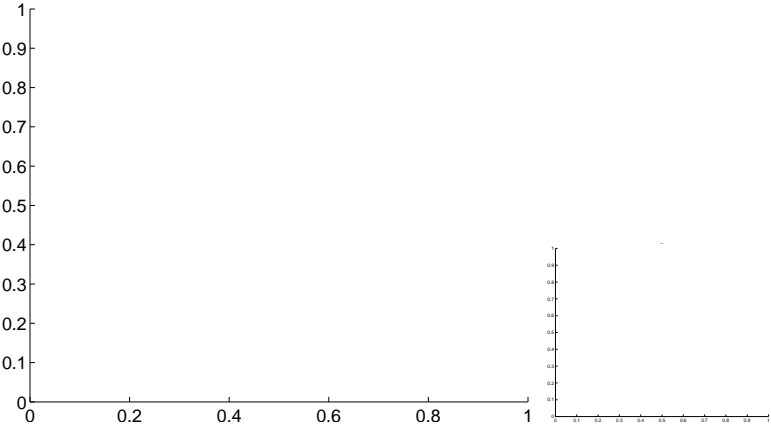
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

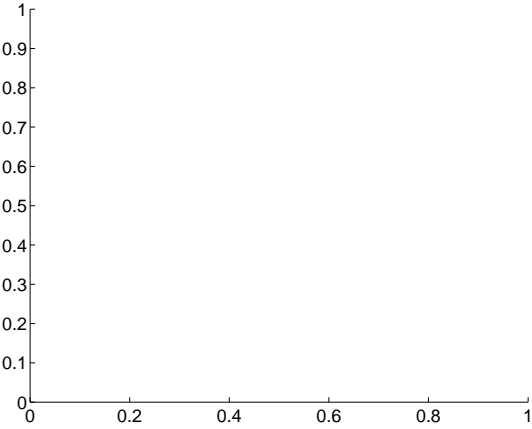
Q1 no difference image



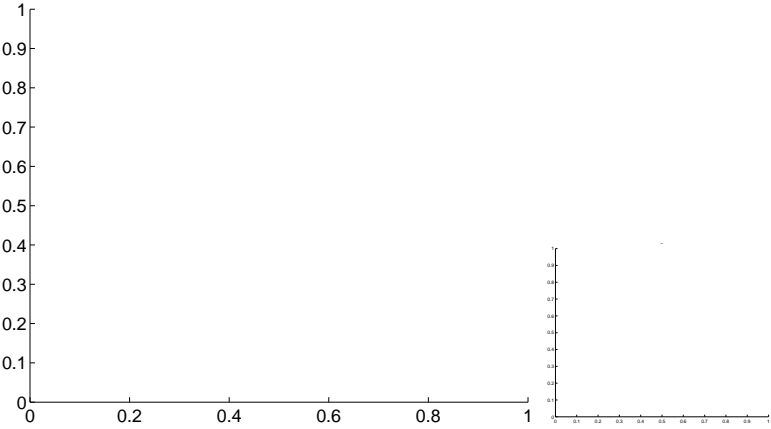
Q1 no OOT image



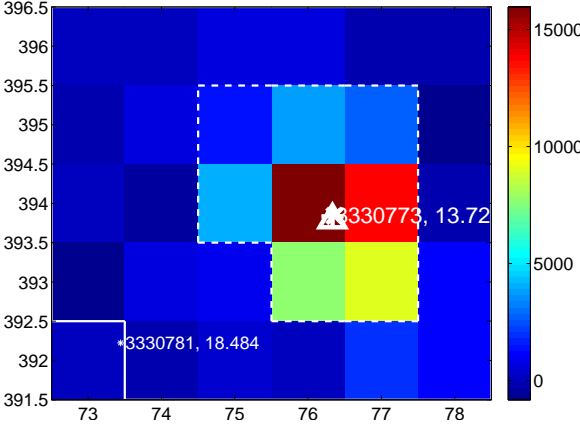
Q2 no difference image



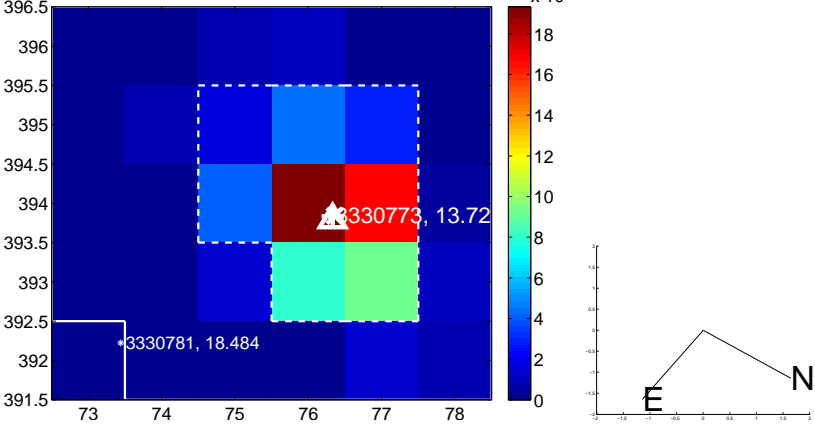
Q2 no OOT image



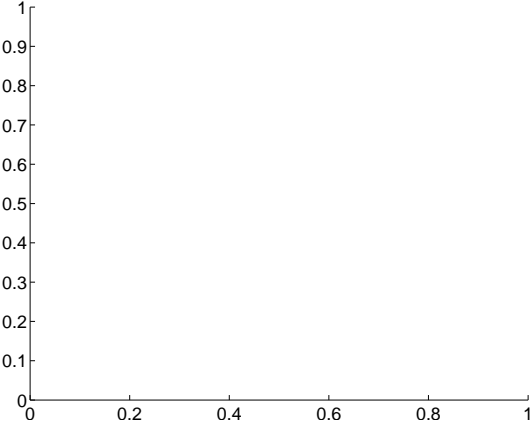
Q3 difference image



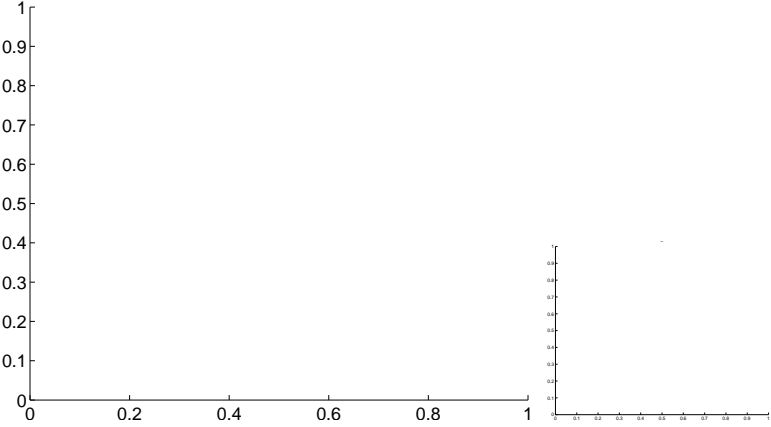
Q3 OOT image



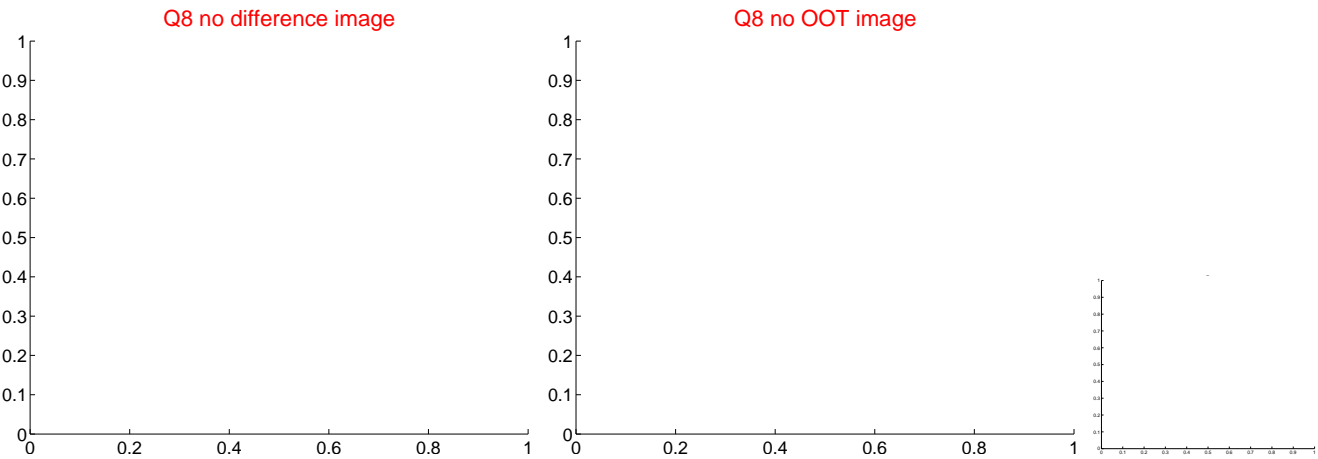
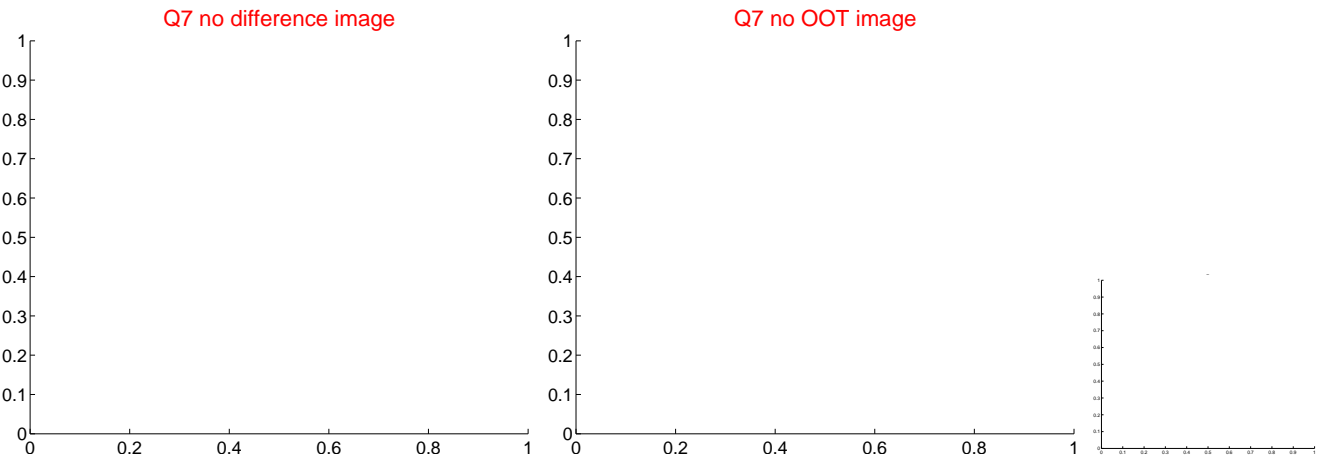
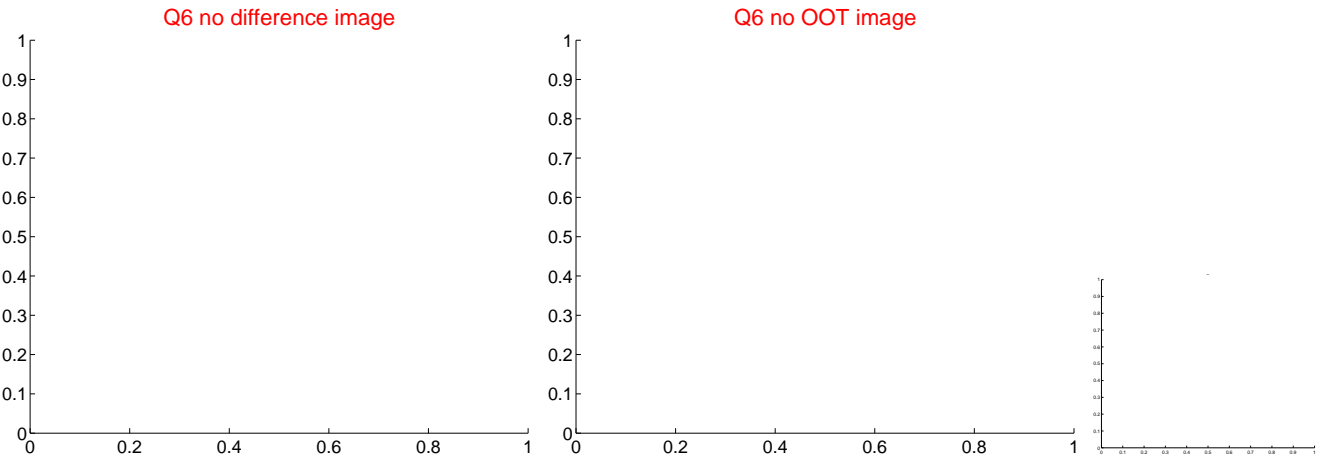
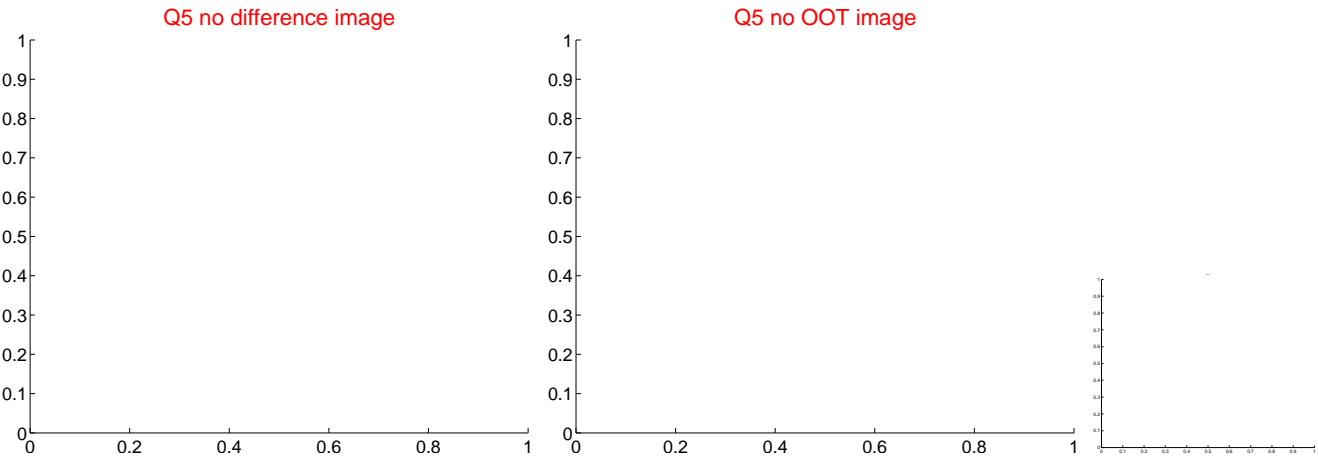
Q4 no difference image



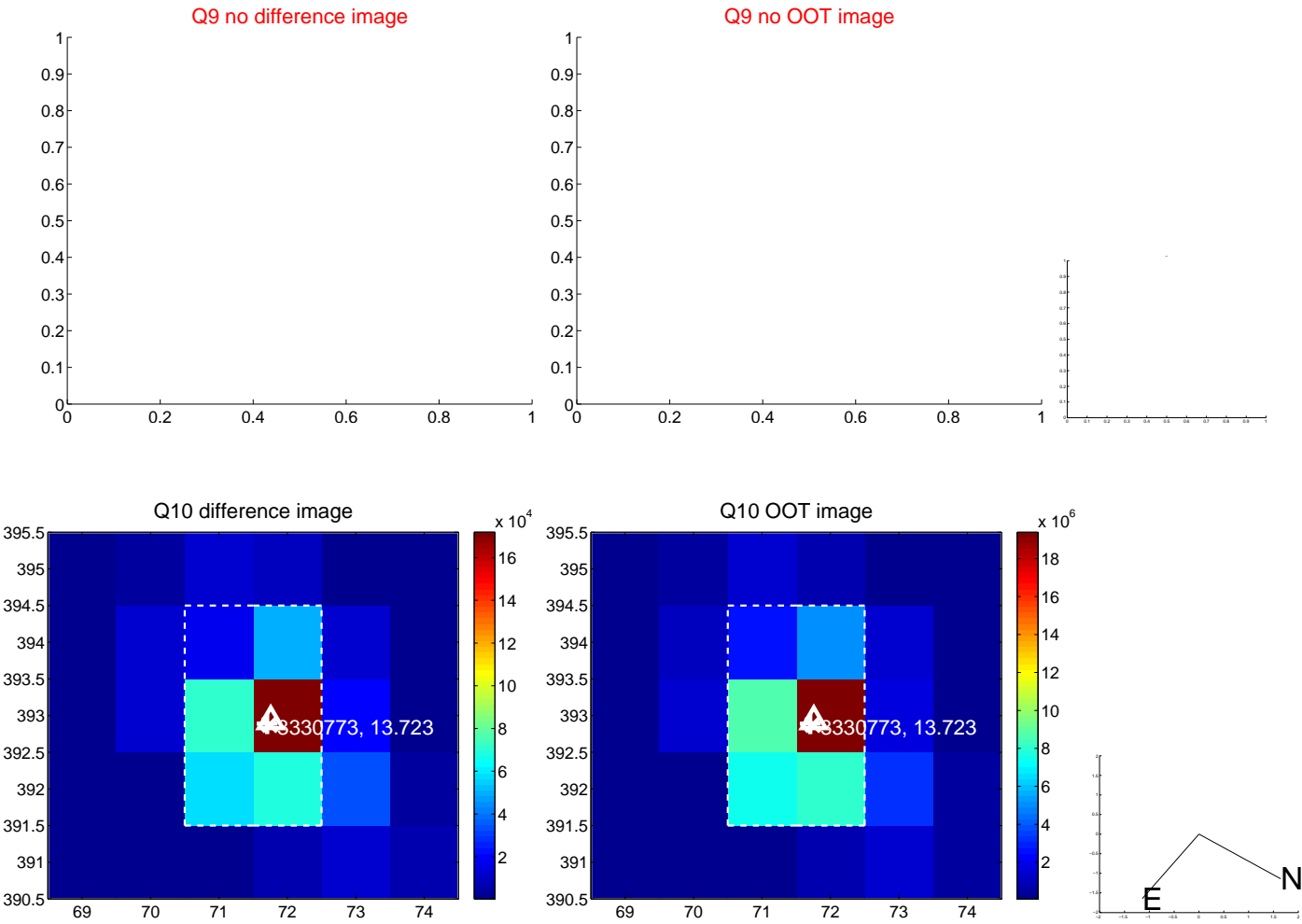
Q4 no OOT image



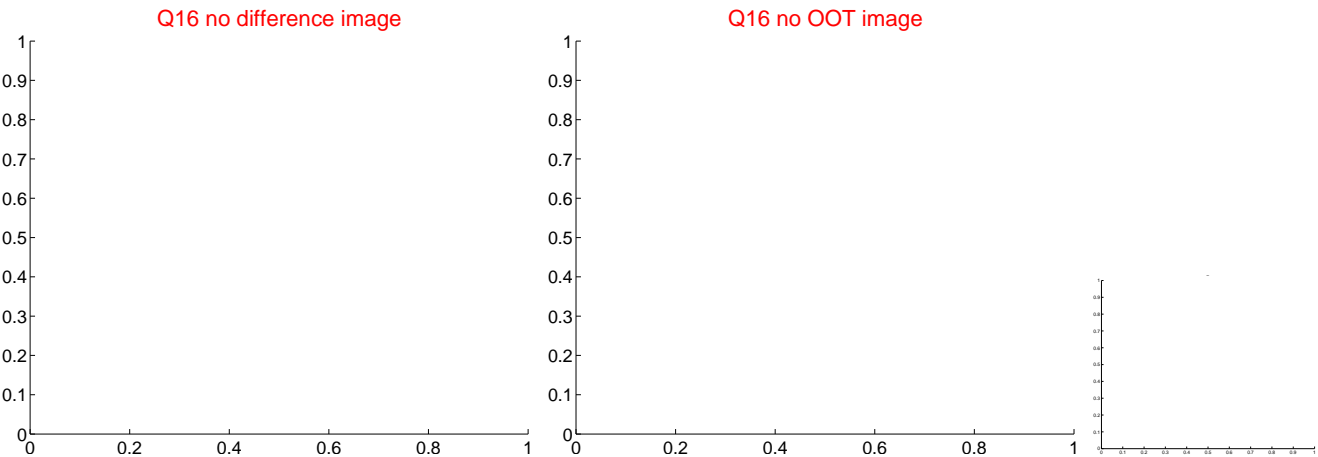
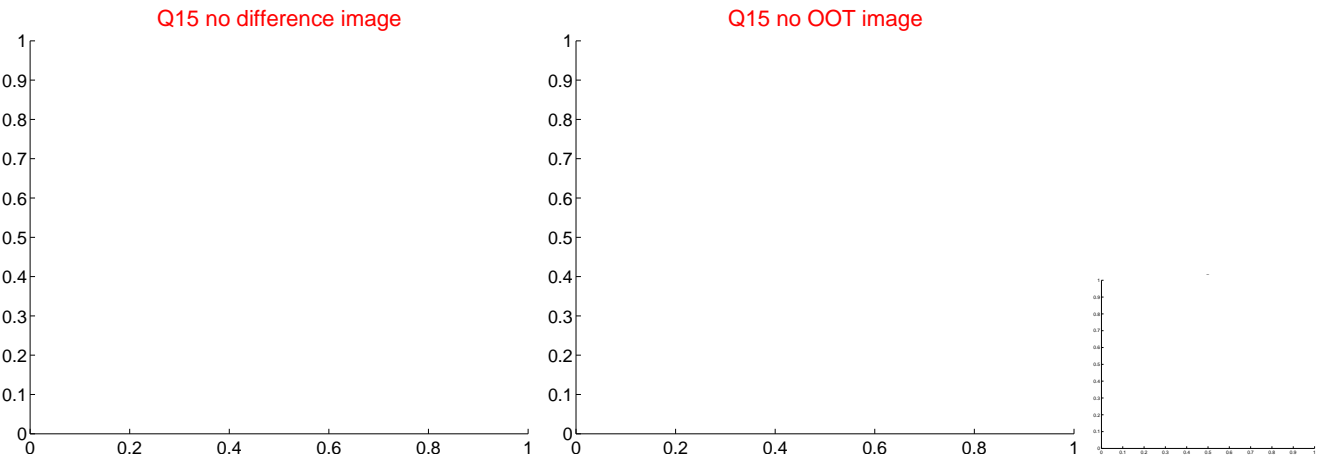
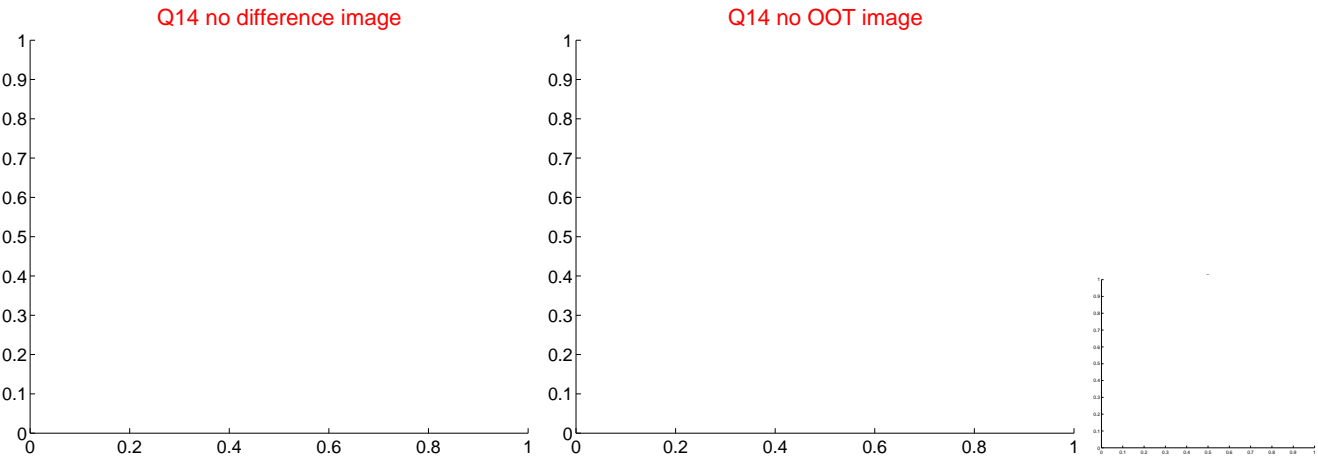
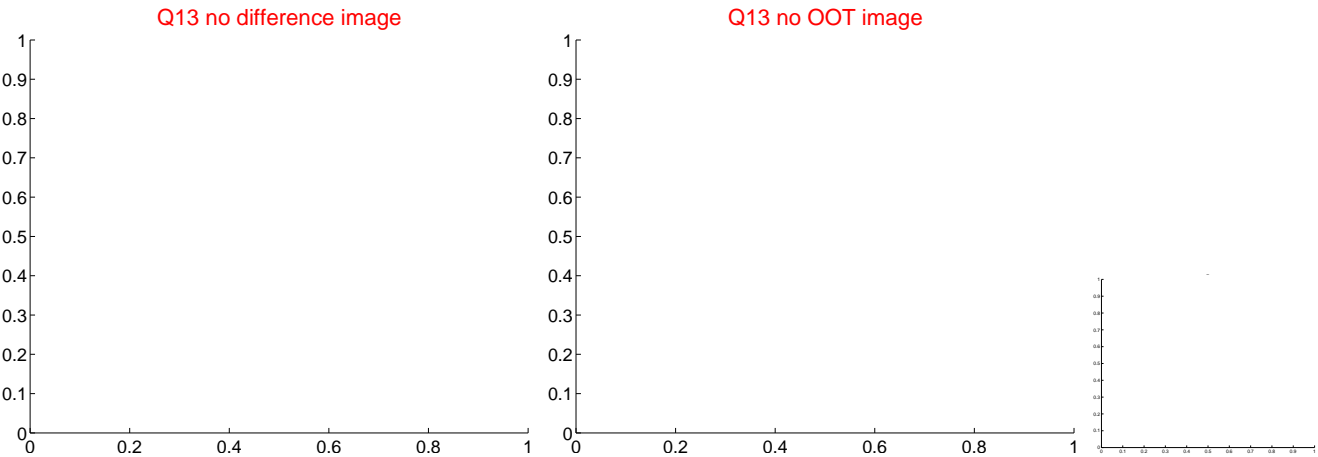
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



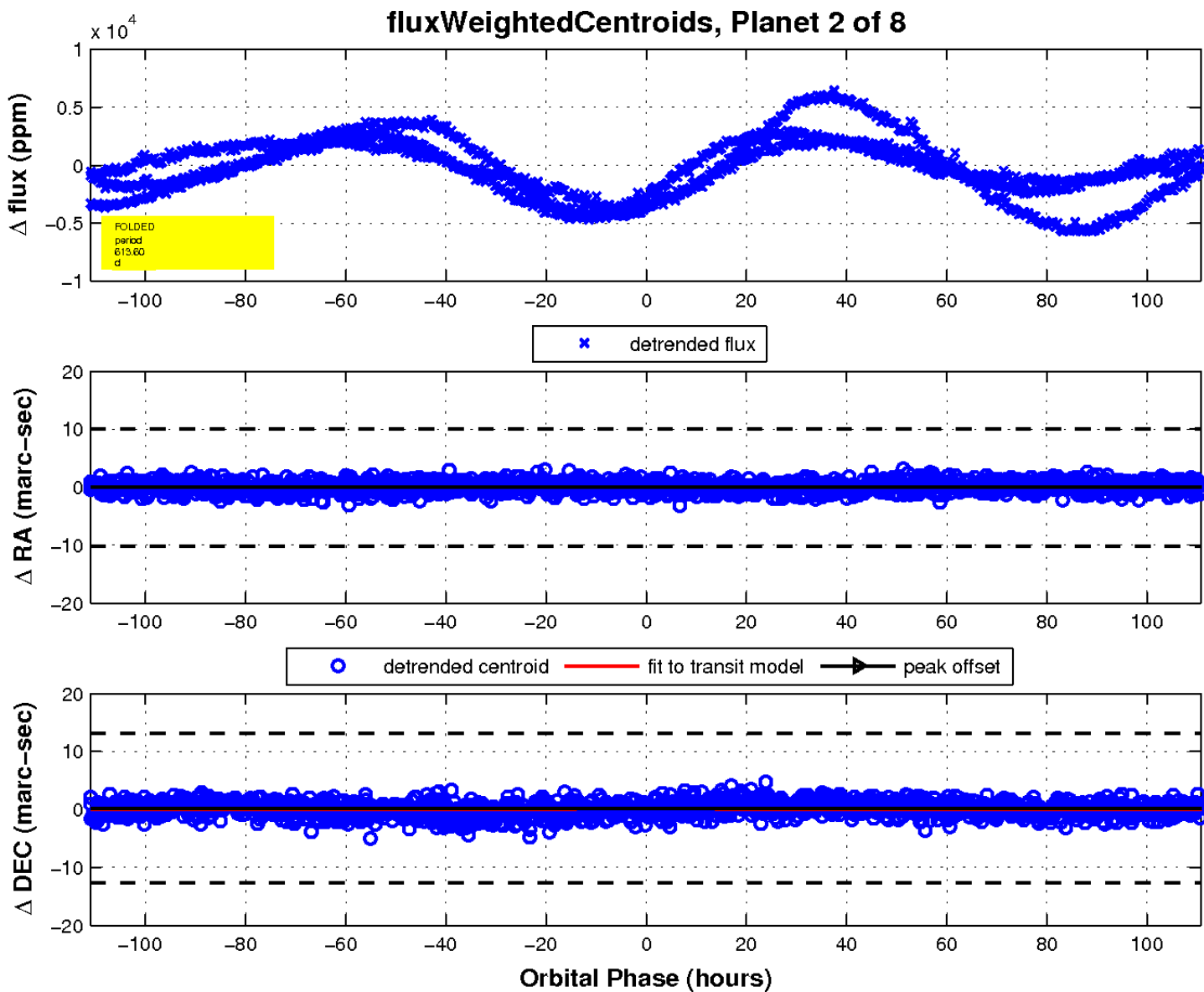
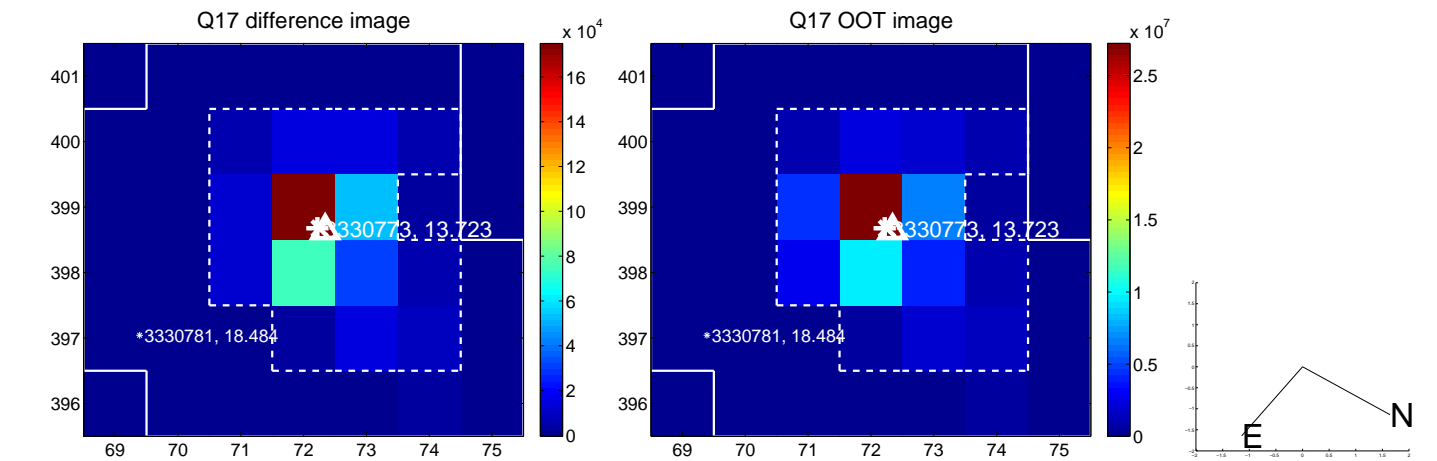
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

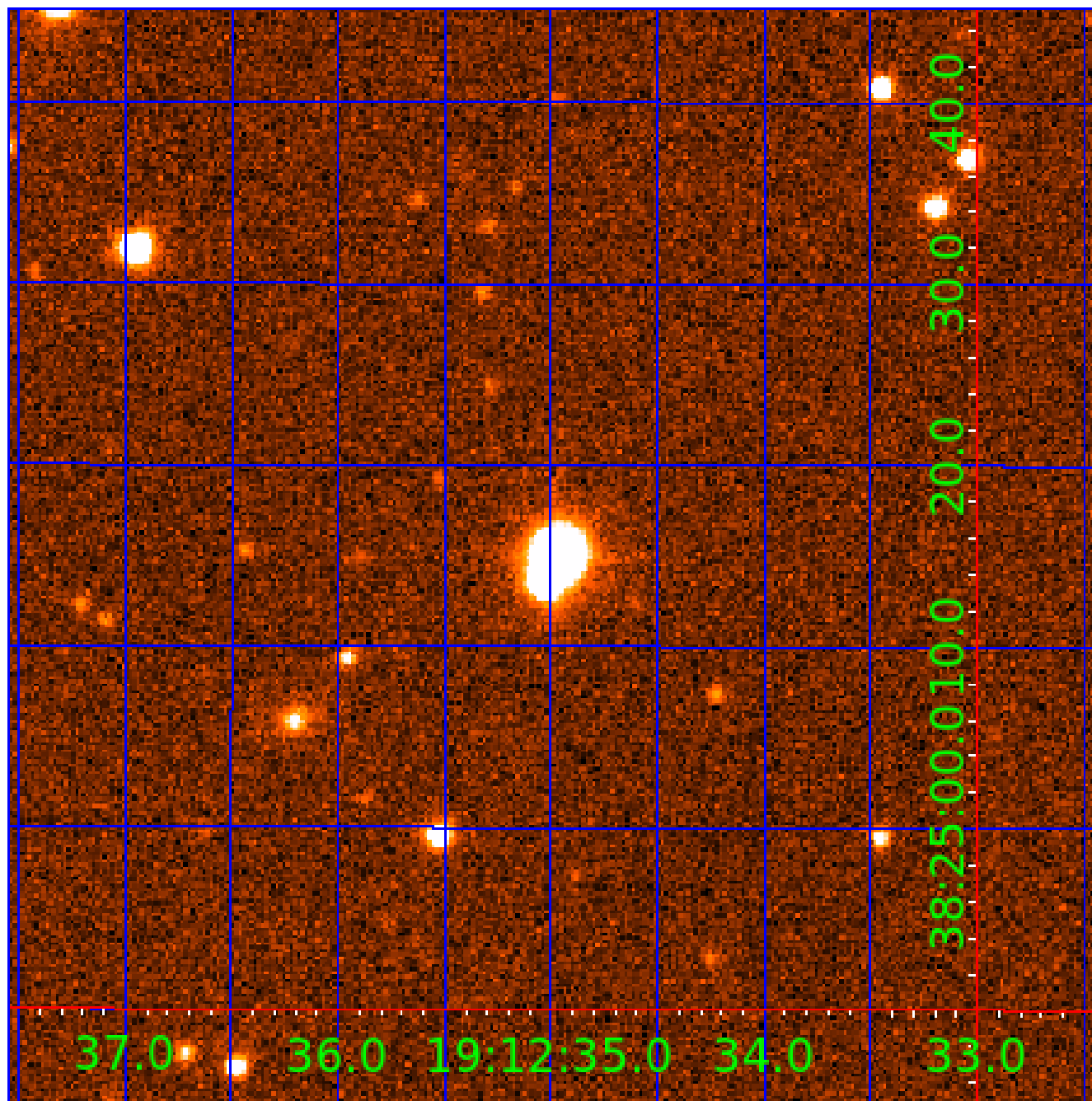


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003330773

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})
003330773-01	OBS	No	0.990779	132.118014	41.2	4.010	8.4	9.8	0.74	4864	0.46	905.85
003330773-02	OBS	No	613.600412	343.696544	4688.0	37.006	15.8	7.6	0.74	4864	6.30	0.17
003330773-03	OBS	No	238.584464	271.443023	825.6	6.436	14.8	7.4	0.74	4864	3.14	0.60
003330773-04	OBS	No	392.191044	486.816683	1076.0	28.132	14.4	4.7	0.74	4864	2.41	0.31
003330773-05	OBS	No	518.179820	466.572896	2460.0	16.313	11.3	8.2	0.74	4864	3.55	0.21
003330773-06	OBS	No	406.194283	213.754569	305.6	4.964	11.0	3.3	0.74	4864	1.55	0.30
003330773-07	OBS	No	569.728389	145.546172	2297.1	19.080	10.3	8.2	0.74	4864	3.97	0.19
003330773-08	OBS	No	247.115893	311.889261	793.1	10.138	9.5	6.1	0.74	4864	2.32	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003330773-01	OBS	FP	0.01	1	0	0	0	LPP_DV
003330773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
003330773-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003330773-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003330773-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

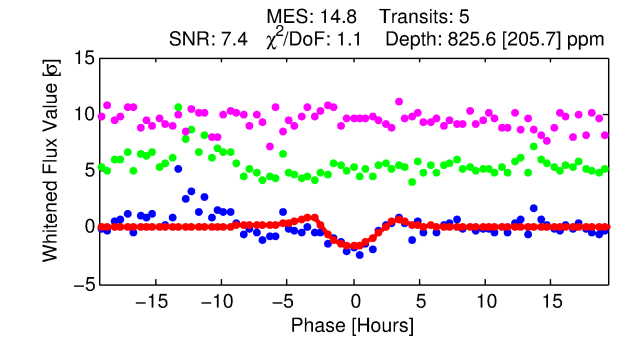
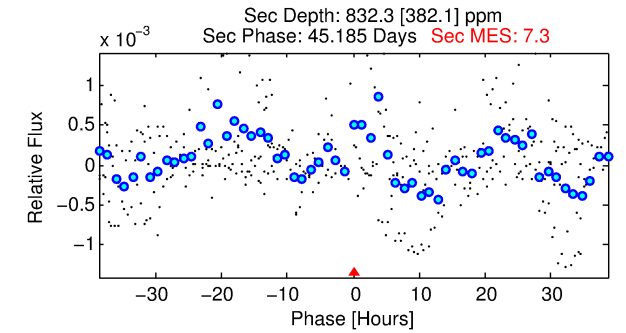
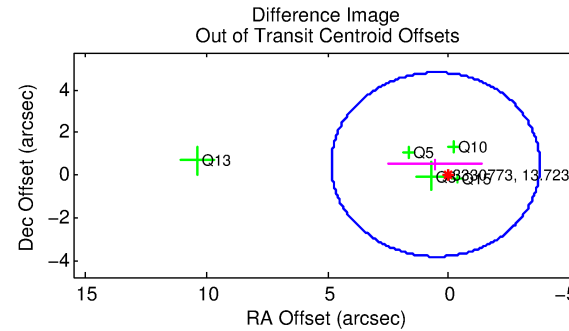
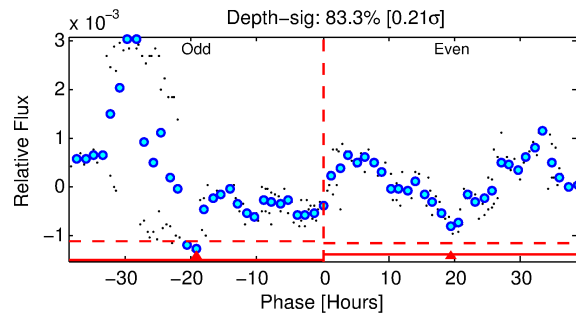
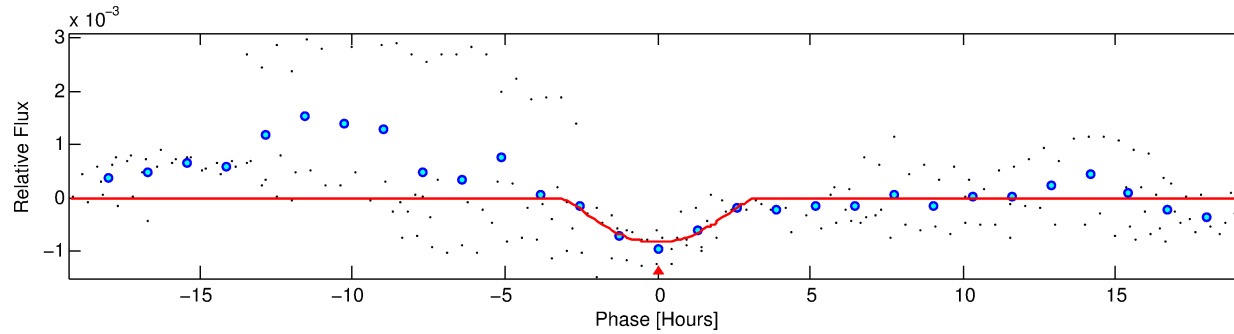
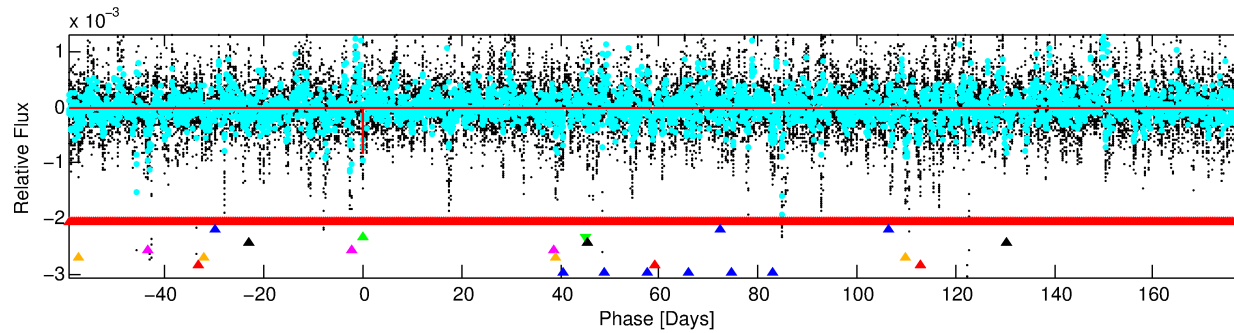
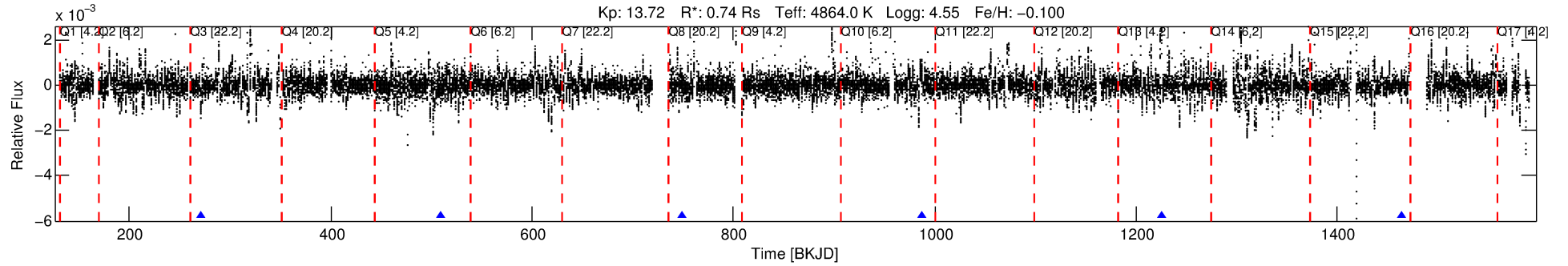
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-03

No Significant Match Found

DV One-Page Summary

KIC: 3330773 Candidate: 3 of 8 Period: 238.584 d



DV Fit Results:

Period = 238.58446 [0.00416] d
Epoch = 271.4430 [0.0136] BKJD
Rp/R* = 0.0389 [0.0214]
a/R* = 103.45 [31.85]
b = 0.97 [0.05]
Seff = 0.60 [0.10]
Teq = 225 [9] K
Rp = 3.14 [1.76] Re
a = 0.6739 [0.0537] AU
Ag = 21075.40 [25294.79] [0.83 σ]
Teffp = 4189 [1257] K [3.15 σ]

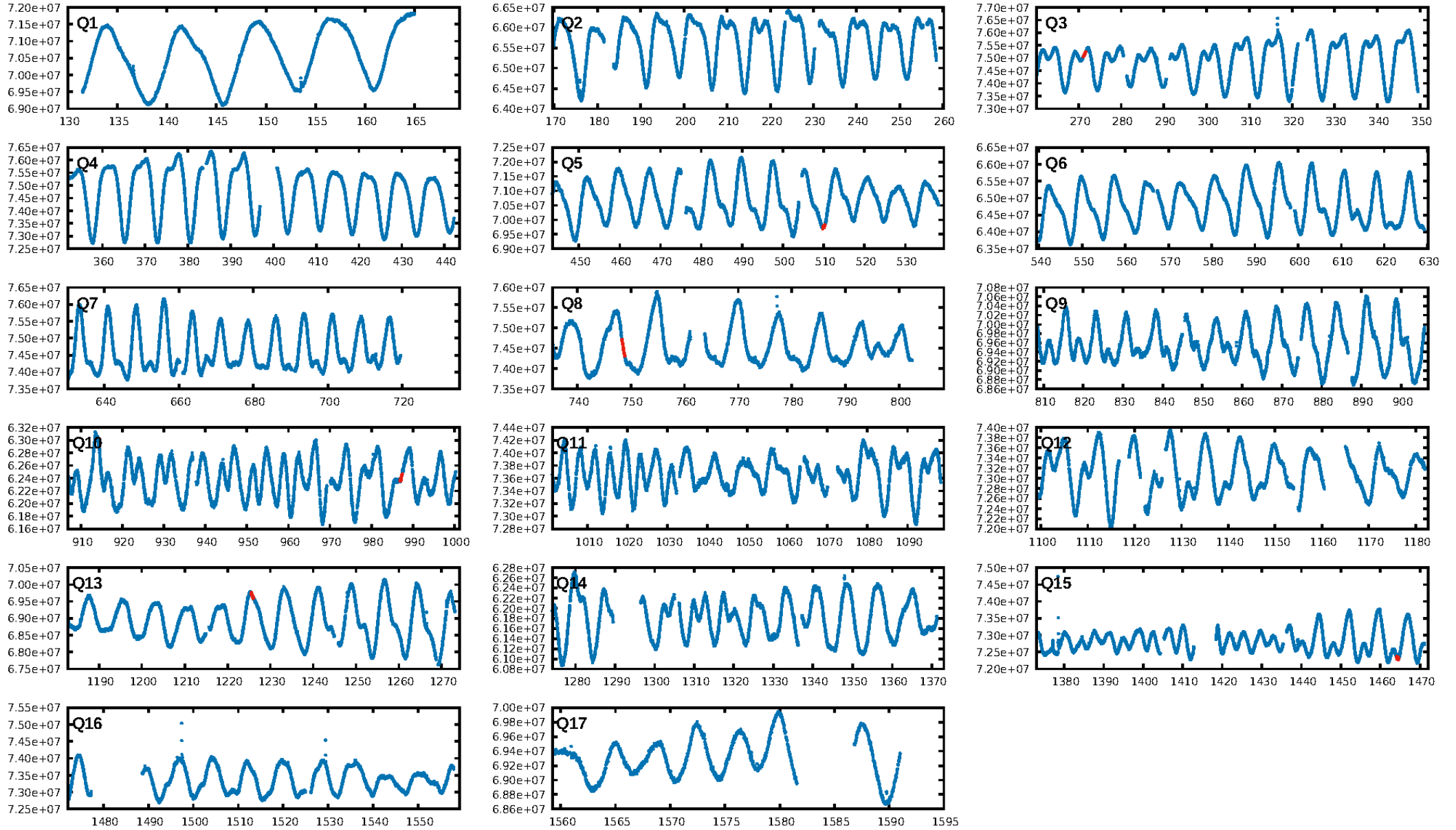
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [751.95 σ]
LongPeriod-sig: 100.0% [17.05 σ]
ModelChiSquare2-sig: 1.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.98e-17
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 5.122
Centroid-sig: 51.8%
Centroid-so: 0.398 arcsec [0.66 σ]
OotOffset-rm: 0.738 arcsec [0.51 σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-rm: 0.745 arcsec [0.59 σ]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 0.00 [0/5]

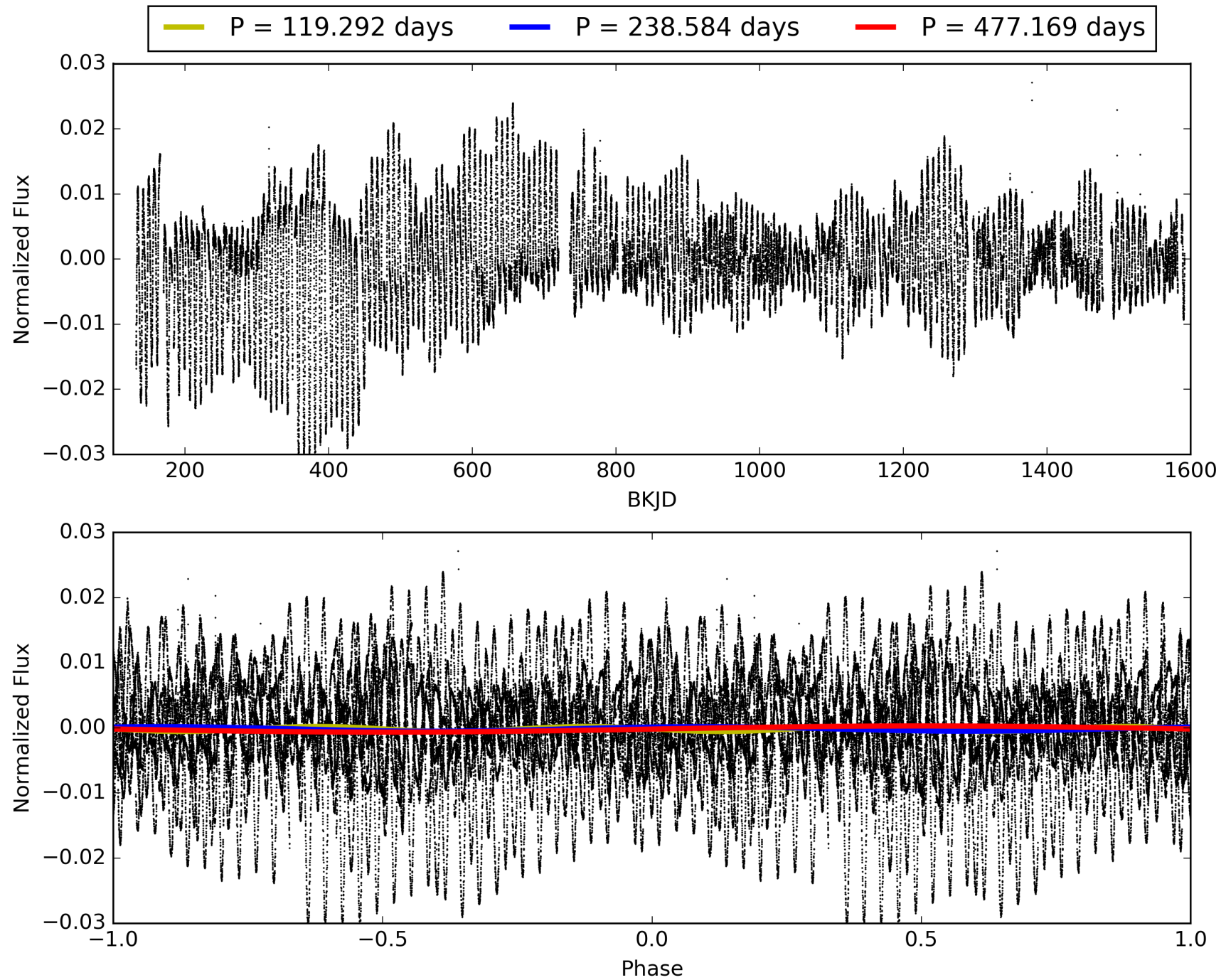
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:45:57 Z

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

TCE 003330773-03, PDC Light Curves

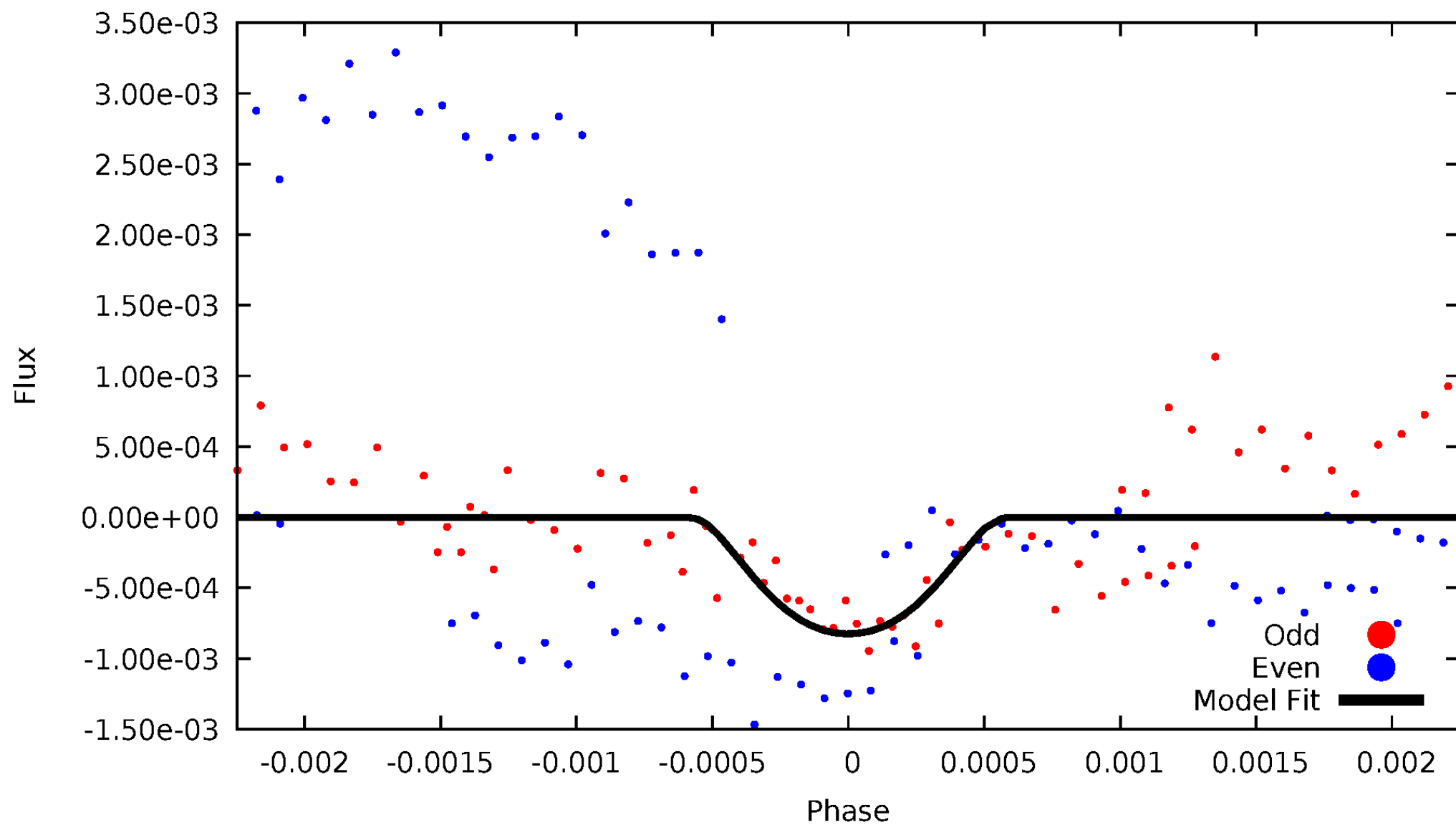


TCE 003330773-03



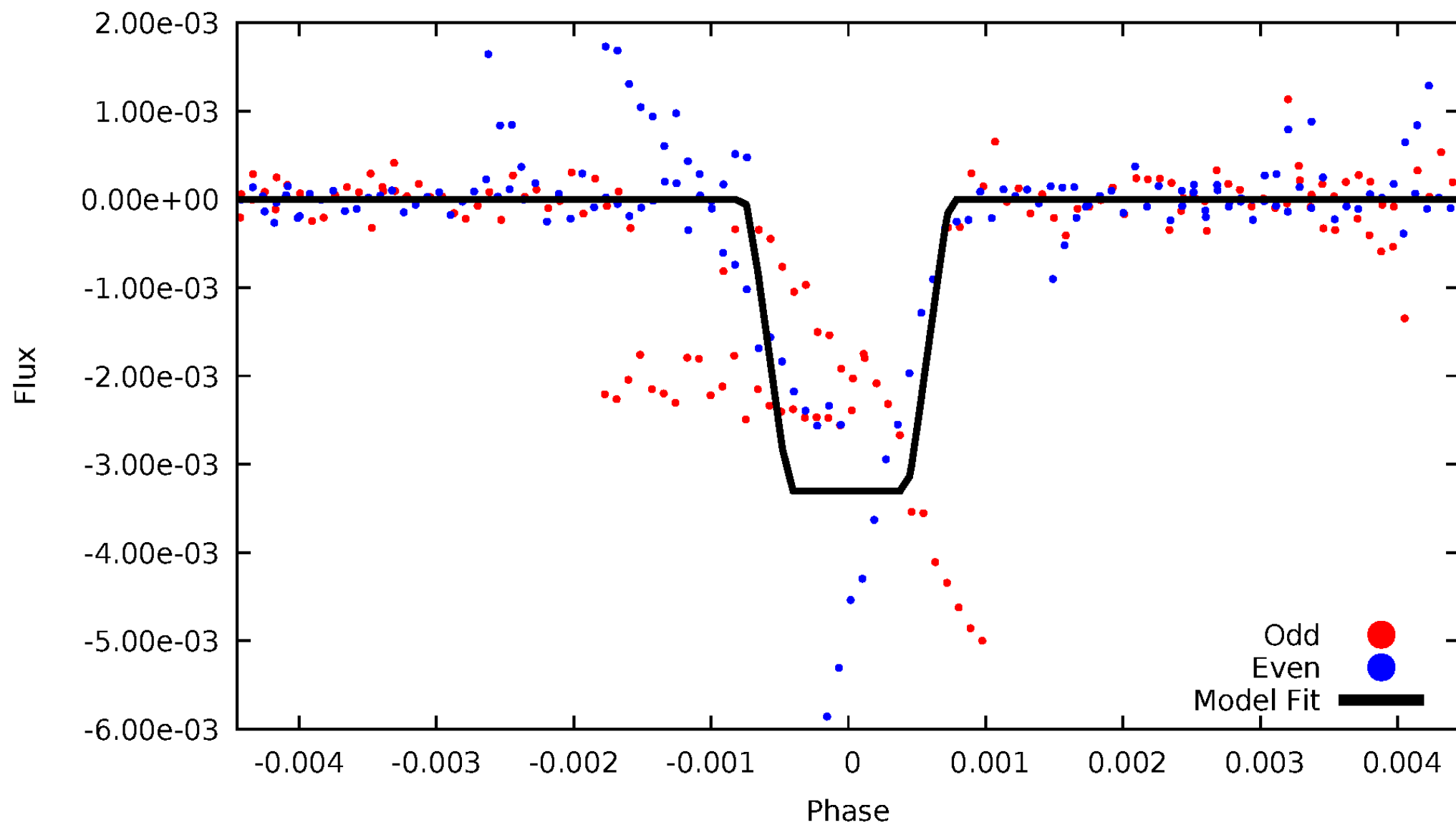
DV Odd/Even

TCE 003330773-03



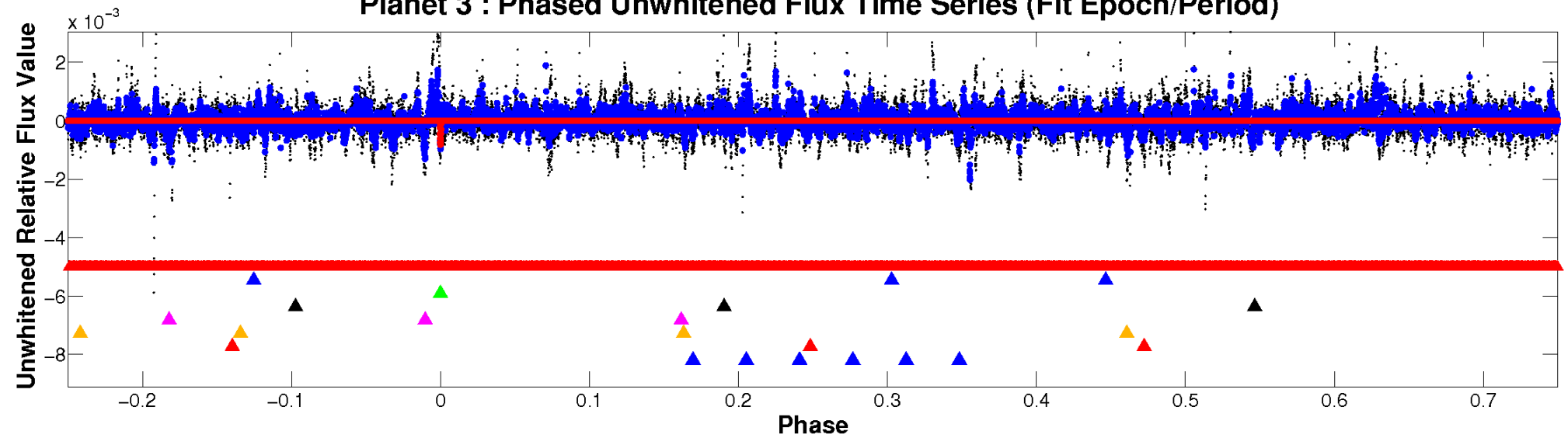
ALT Odd/Even

TCE 003330773-03

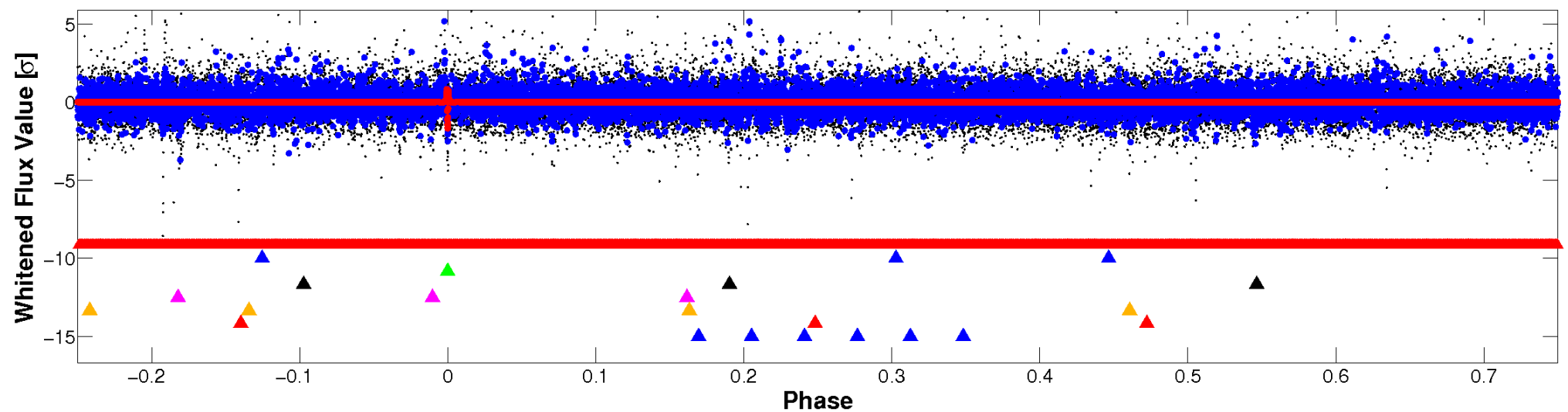


Non-Whitened Vs. Whitened Light Curve

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

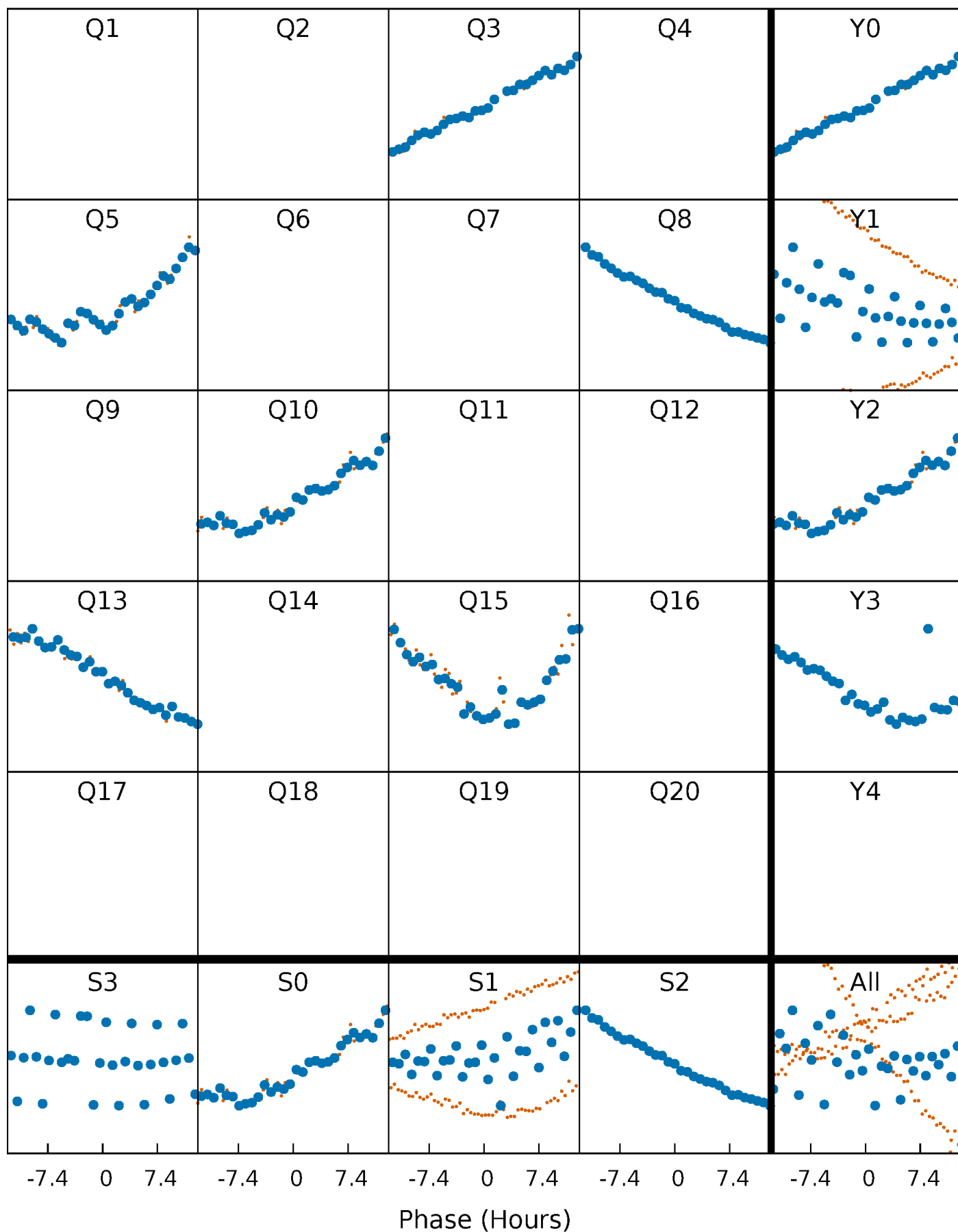


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



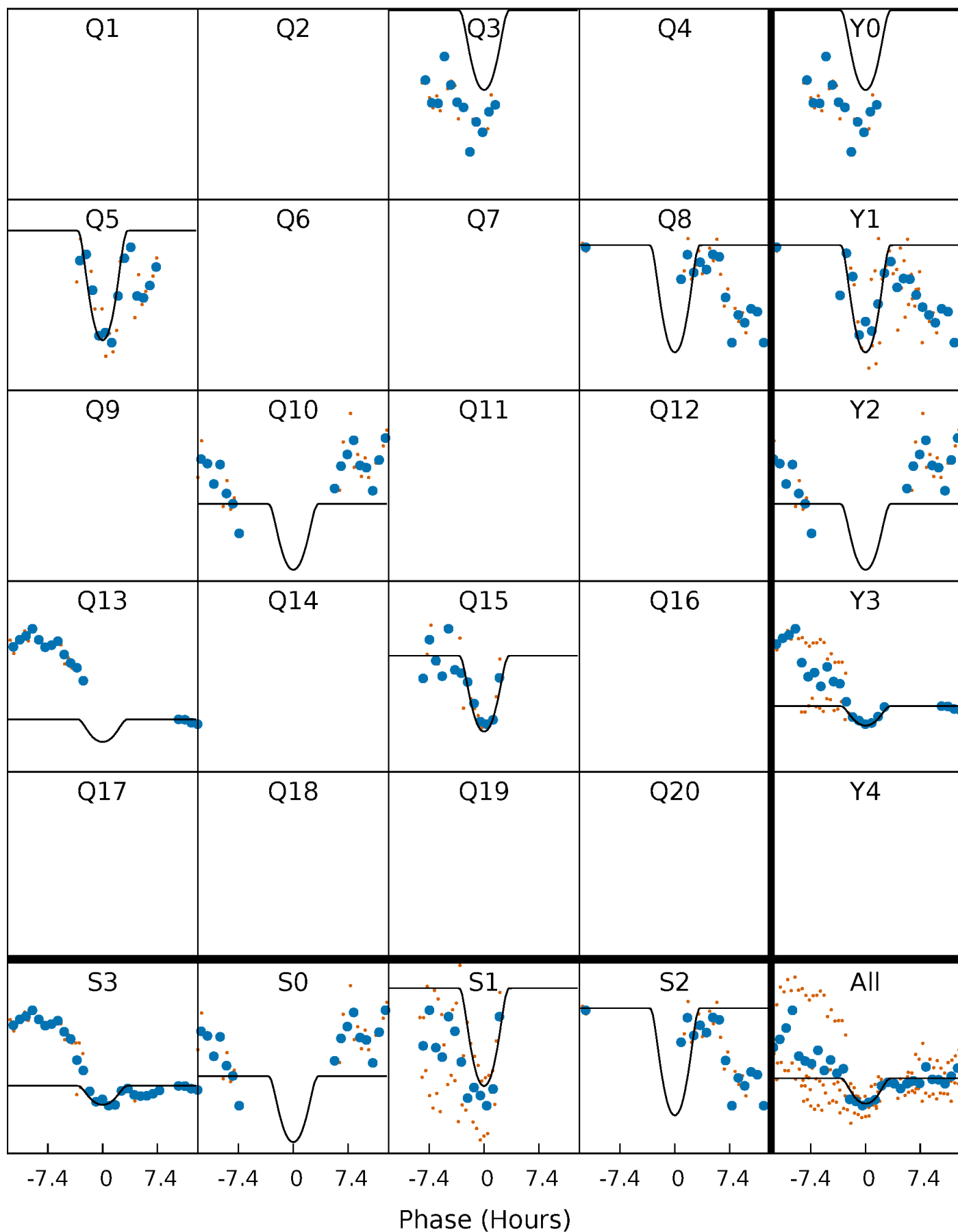
PDC Quarter-Phased Transit Curves

TCE 003330773-03 $P=238.584464$ Days $T_0=271.443023$ (BKJD)



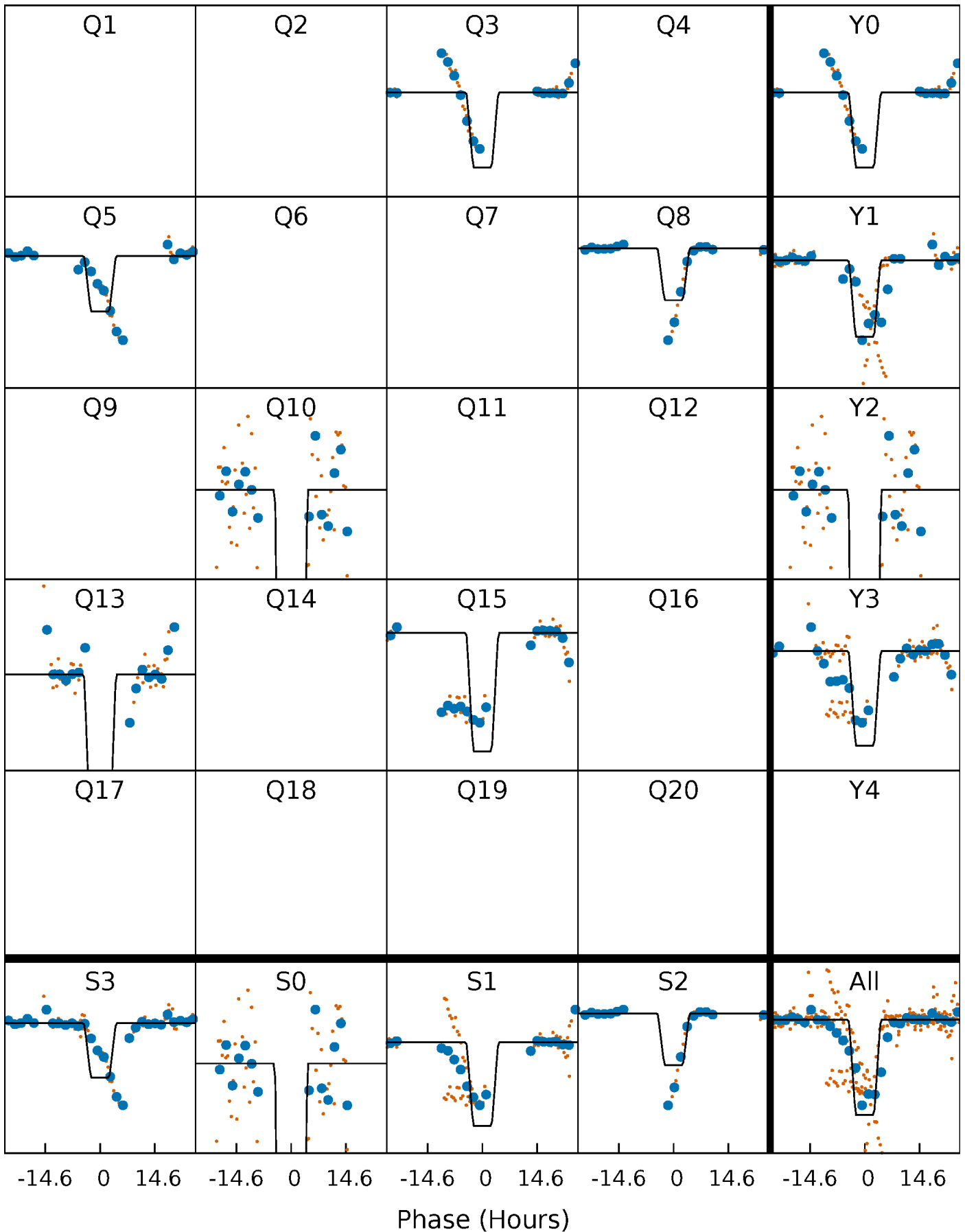
DV Quarter-Phased Transit Curves

TCE 003330773-03 $P=238.584464$ Days $T_0=271.443023$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

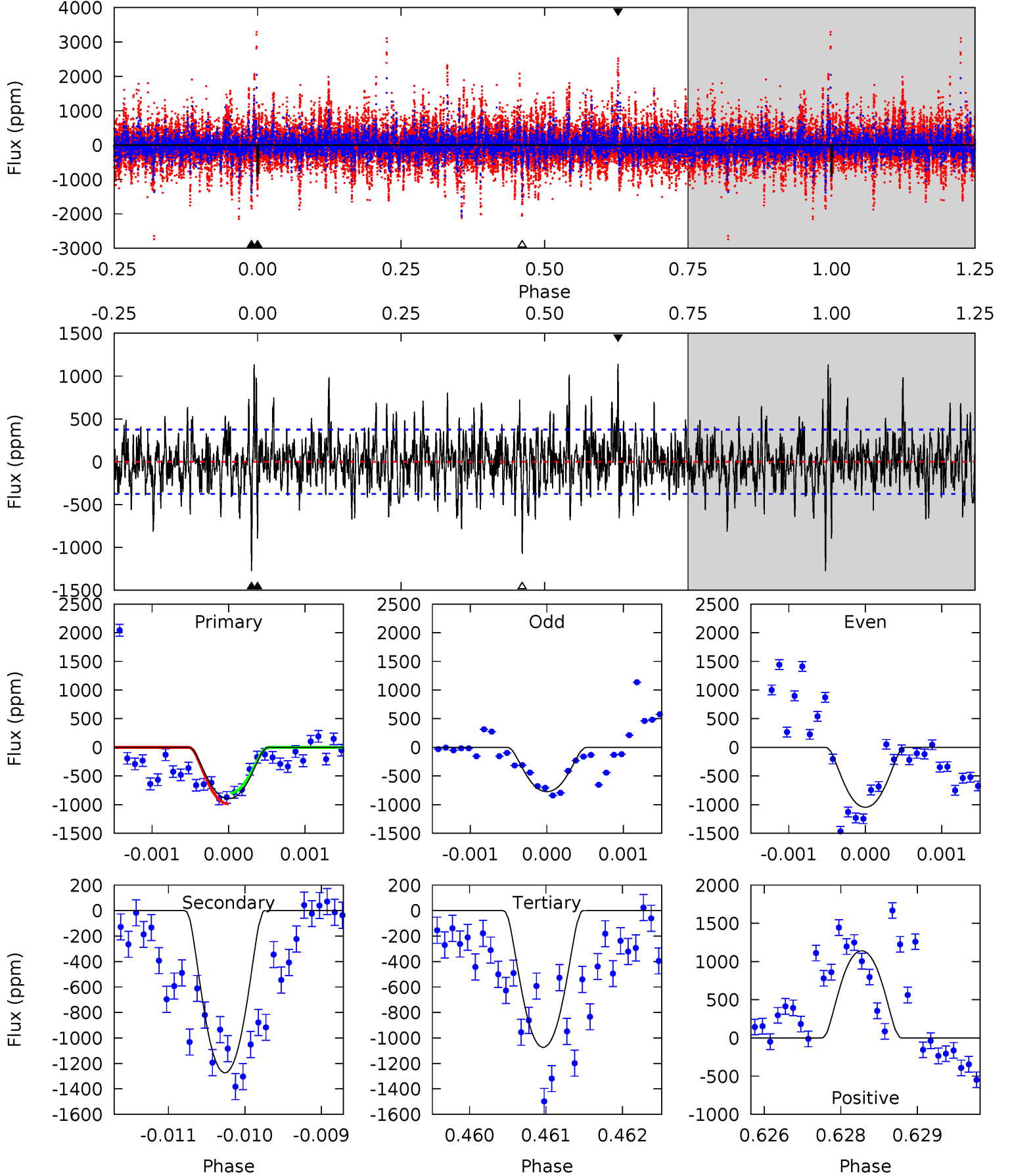
TCE 003330773-03 P=238.582247 Days $T_0=271.516743$ (BKJD)



DV Model-Shift Uniqueness Test

003330773-03, P = 238.584464 Days, E = 32.858559 Days

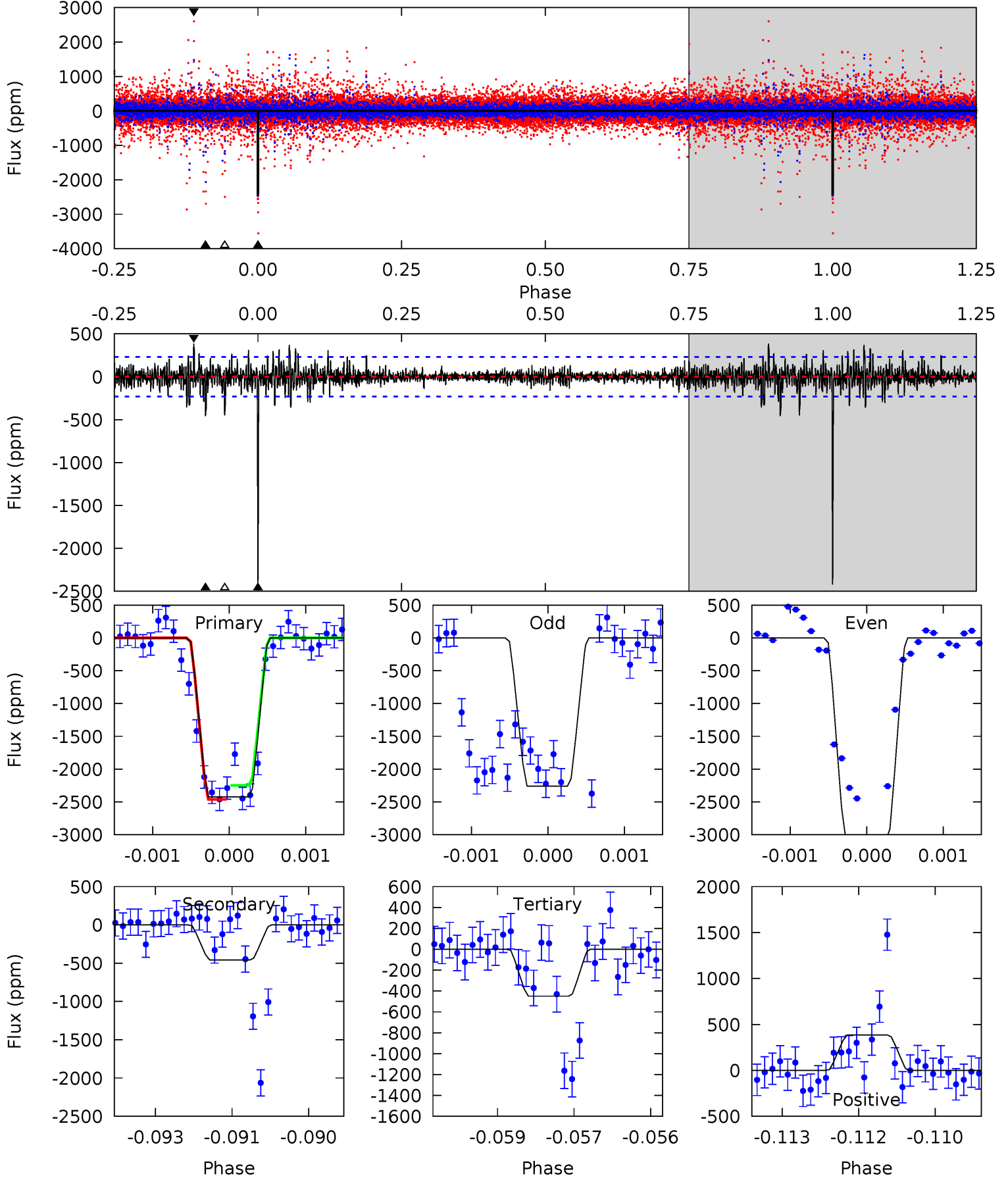
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	18.4	15.5	16.5	5.43	3.25	3.53	-2.56	-3.53	2.89	1.92	1.84	-1.43	0.47	1.34



Alt Model-Shift Uniqueness Test

003330773-03, P = 238.582247 Days, E = 32.934496 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.7	10.7	10.5	9.01	5.38	3.18	1.54	46.2	47.7	0.19	1.70	8.83	1.09	0.14	2.46



Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1274 ± 69	$3.05^{+1.69}_{-1.48}$	313^{+11}_{-11}	4720^{+1727}_{-708}	34638^{+98120}_{-20444}
Alt.	-457 ± 43	$4.66^{+1.77}_{-1.80}$	313^{+12}_{-11}	3404^{+597}_{-311}	5268^{+8768}_{-2452}

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

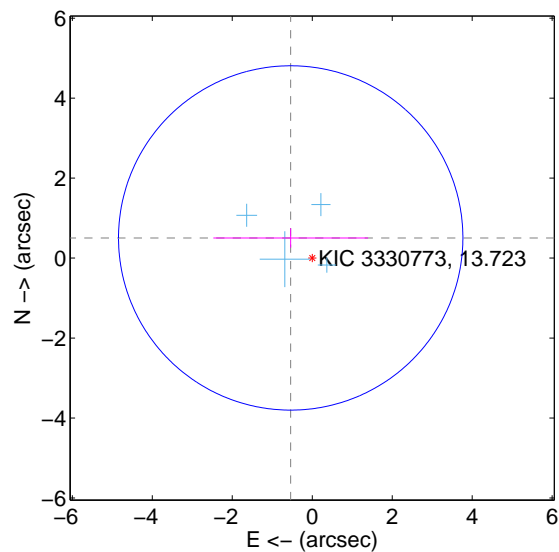
Supplemental centroid analysis for 003330773-03. Kepler magnitude: 13.72. Transit SNR 7.41

There are 4 quarters with good PRF difference image offsets

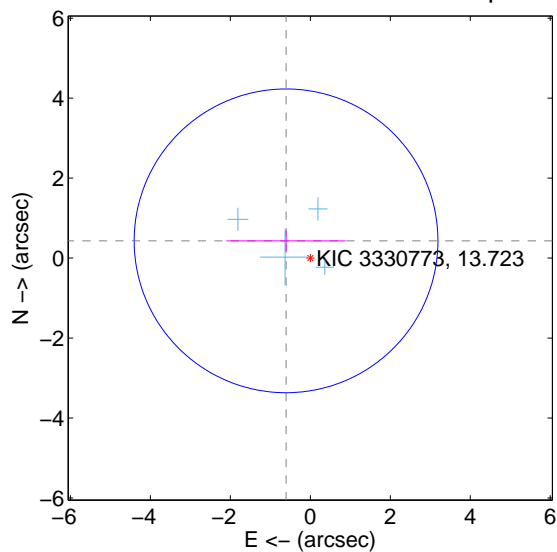
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.738 ± 1.435	0.51	0.539 ± 1.935	0.504 ± 0.242
PRF-fit source offset from KIC position	0.745 ± 1.266	0.59	0.607 ± 1.492	0.431 ± 0.254
photometric centroid source offset	0.40 ± 0.61	0.66	-0.39 ± 0.60	0.09 ± 0.73

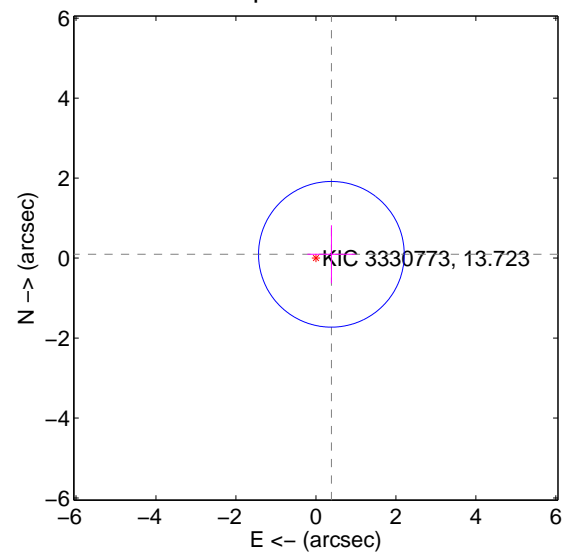
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

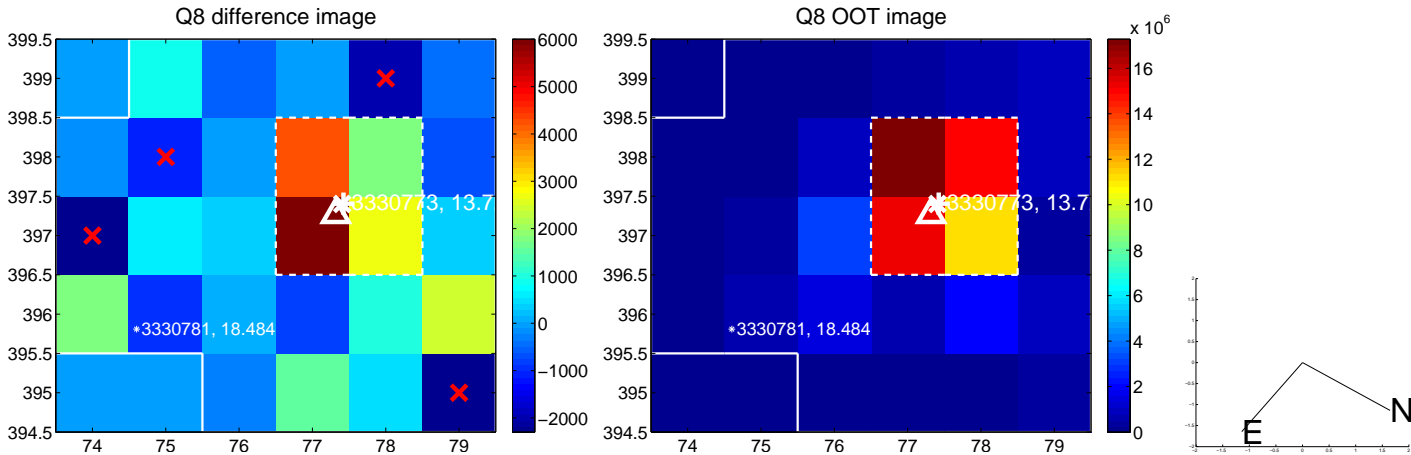
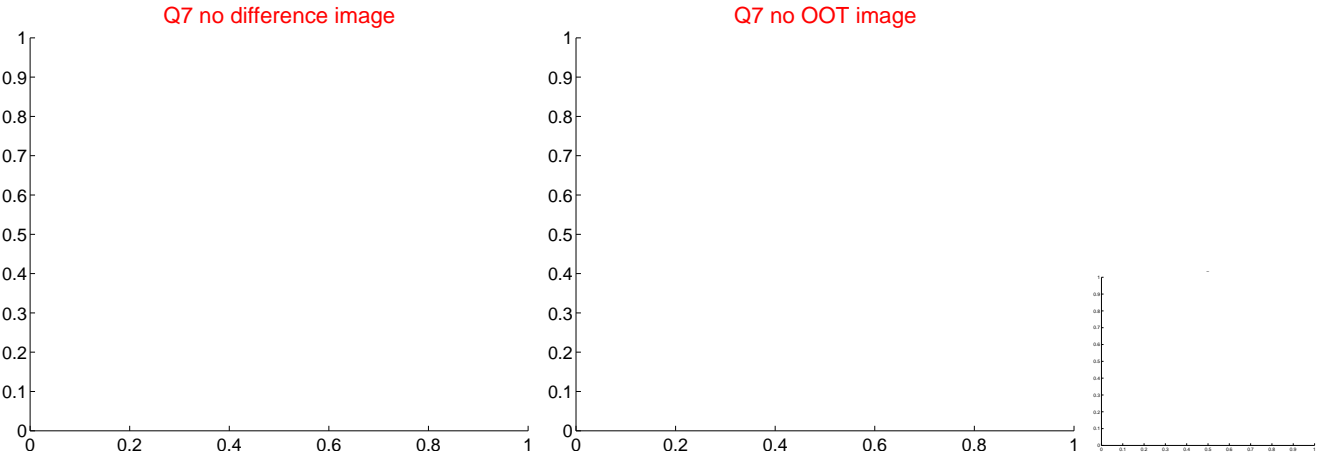
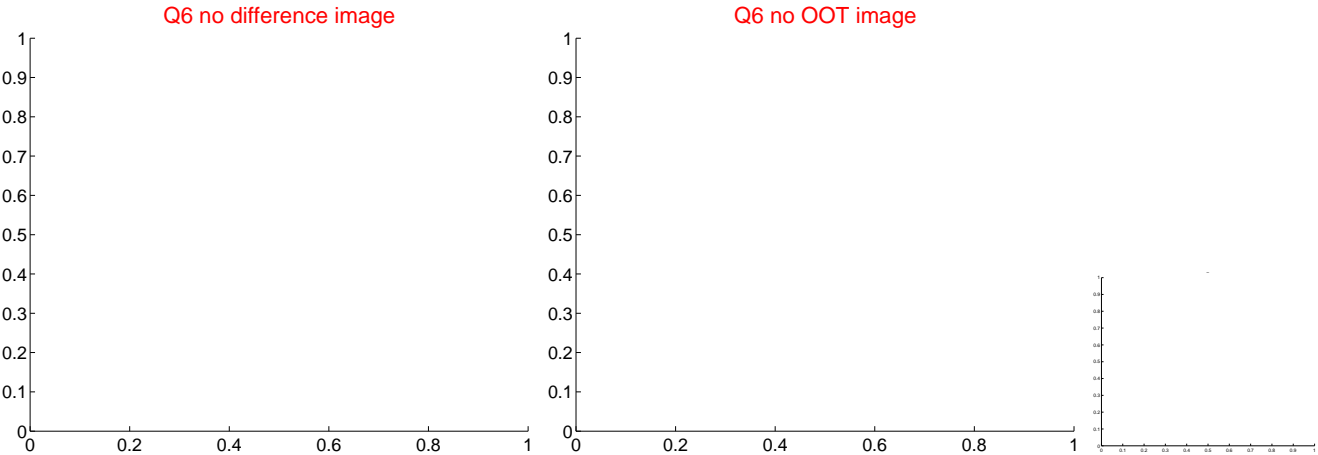
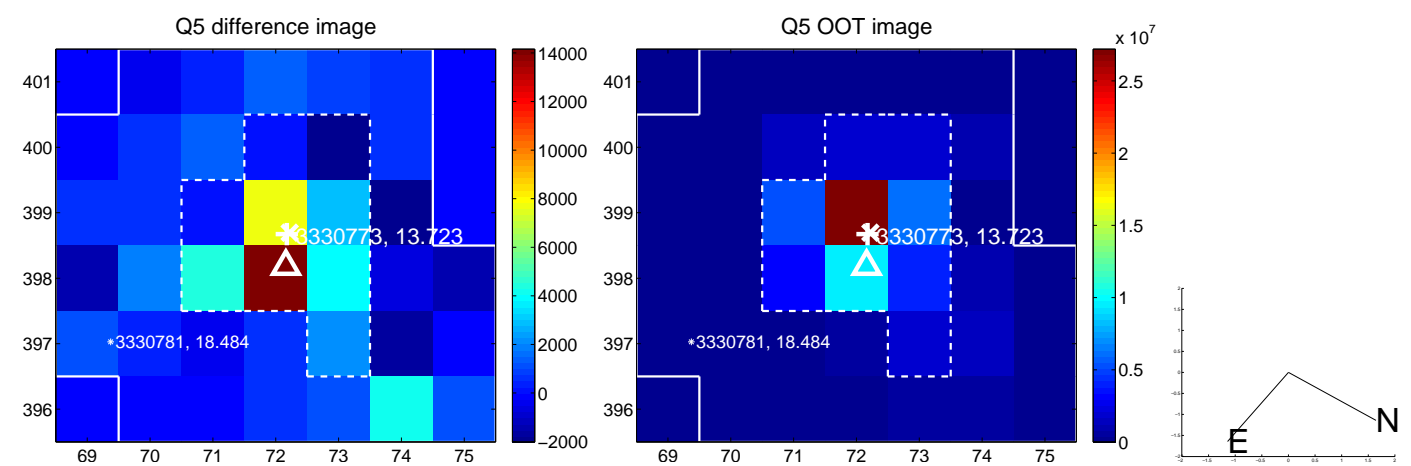


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

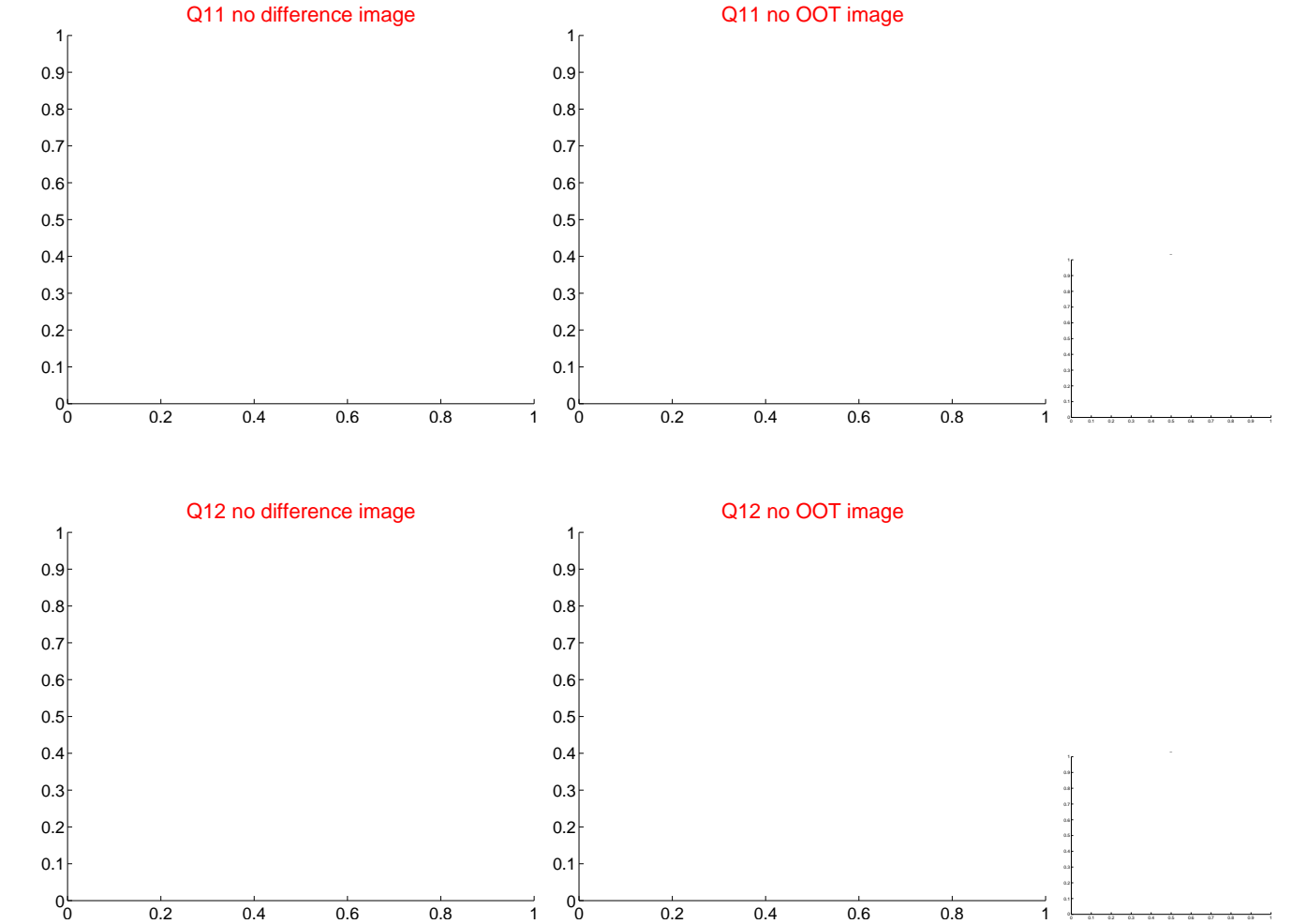
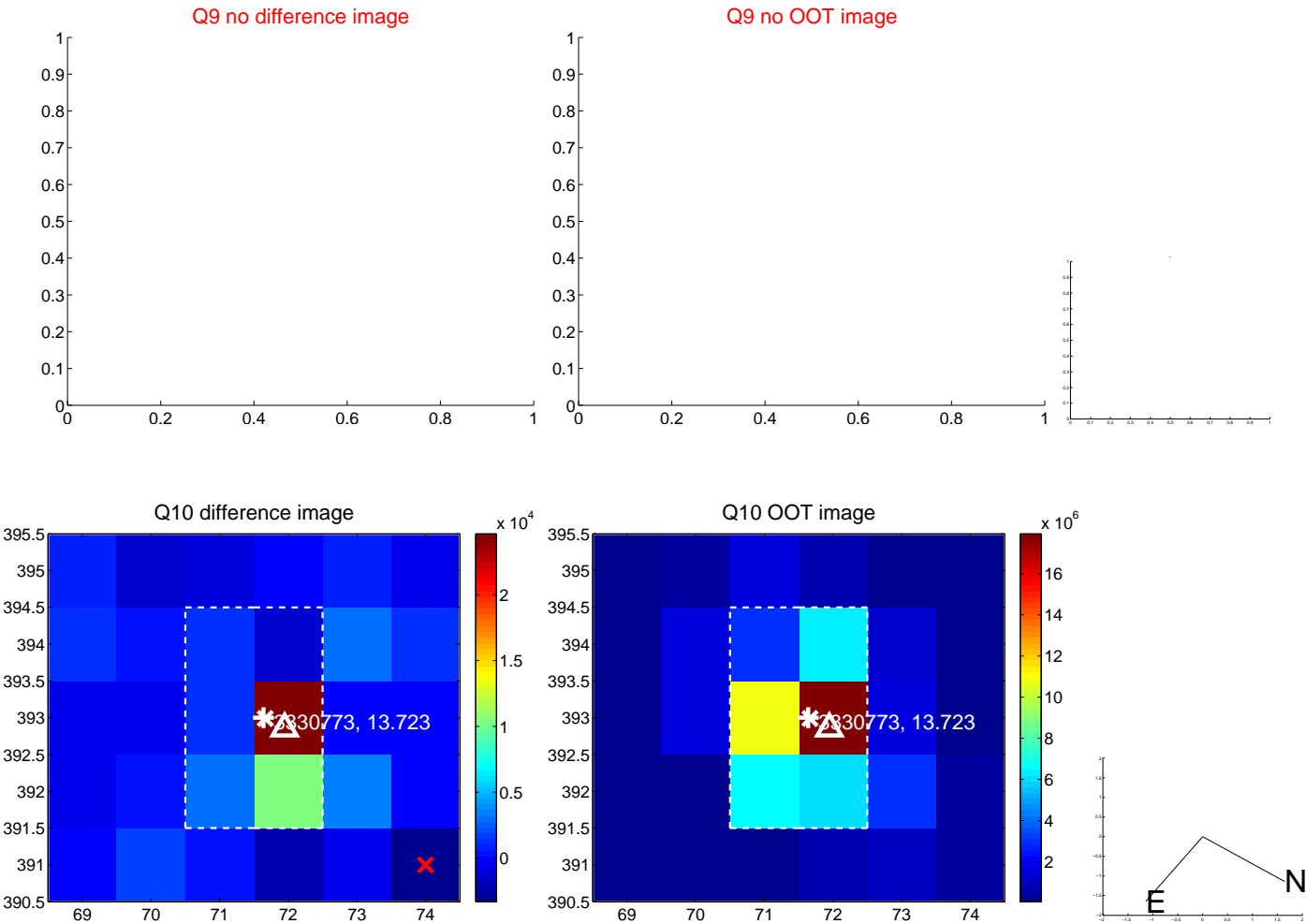
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



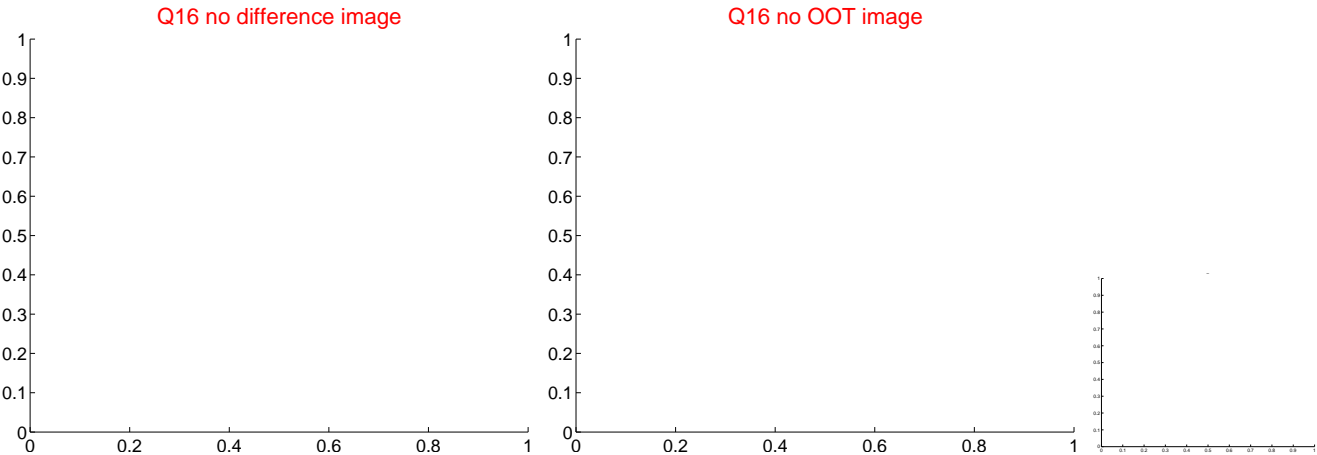
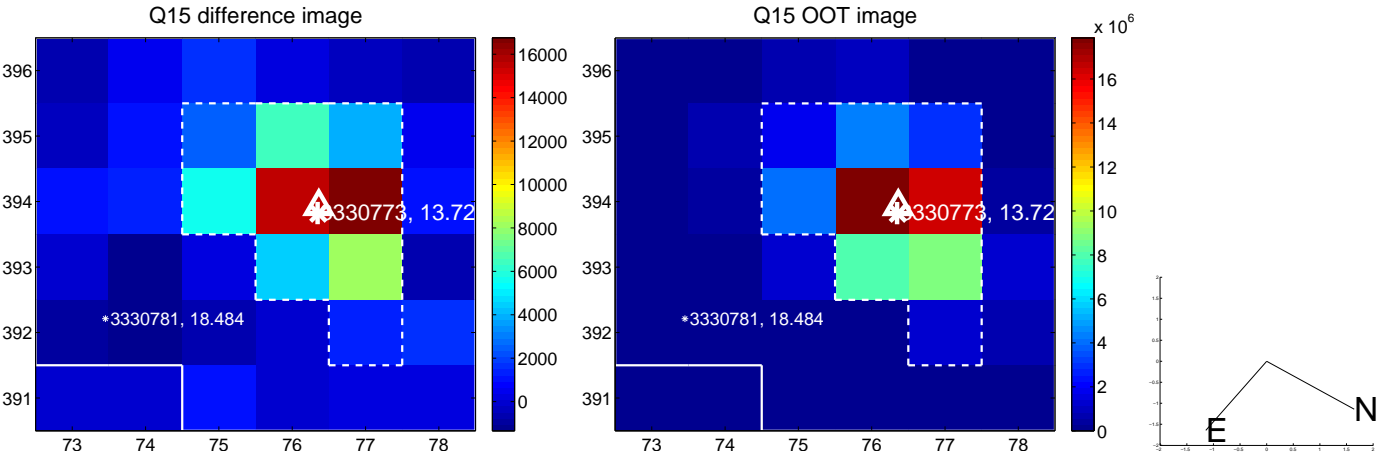
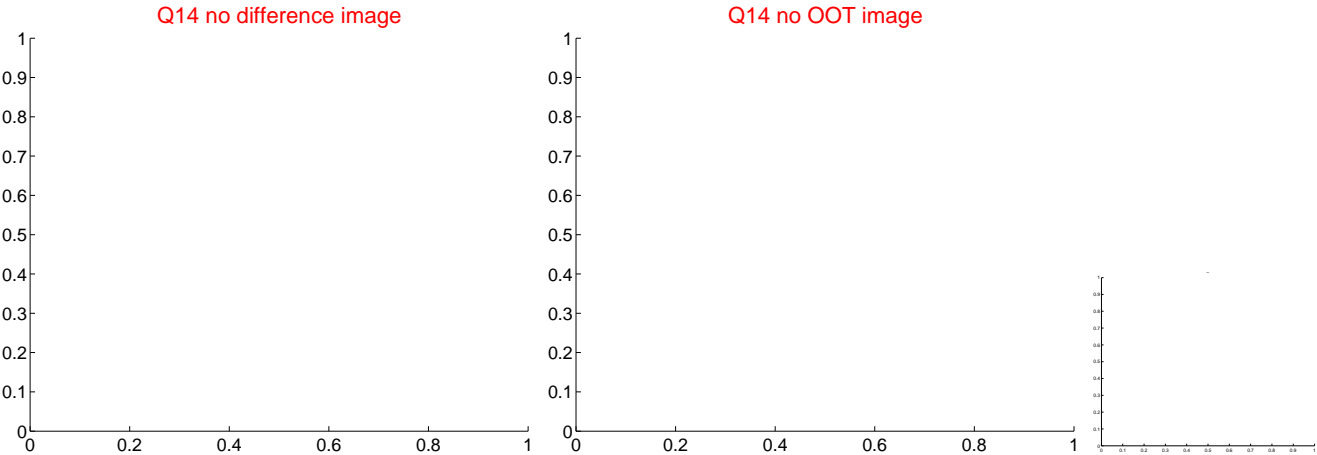
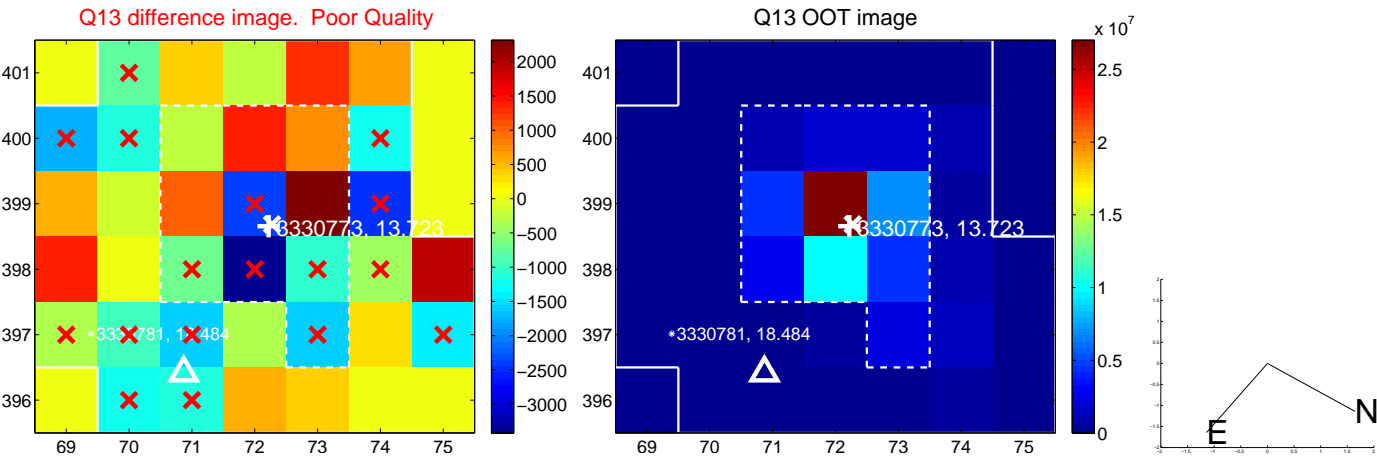
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



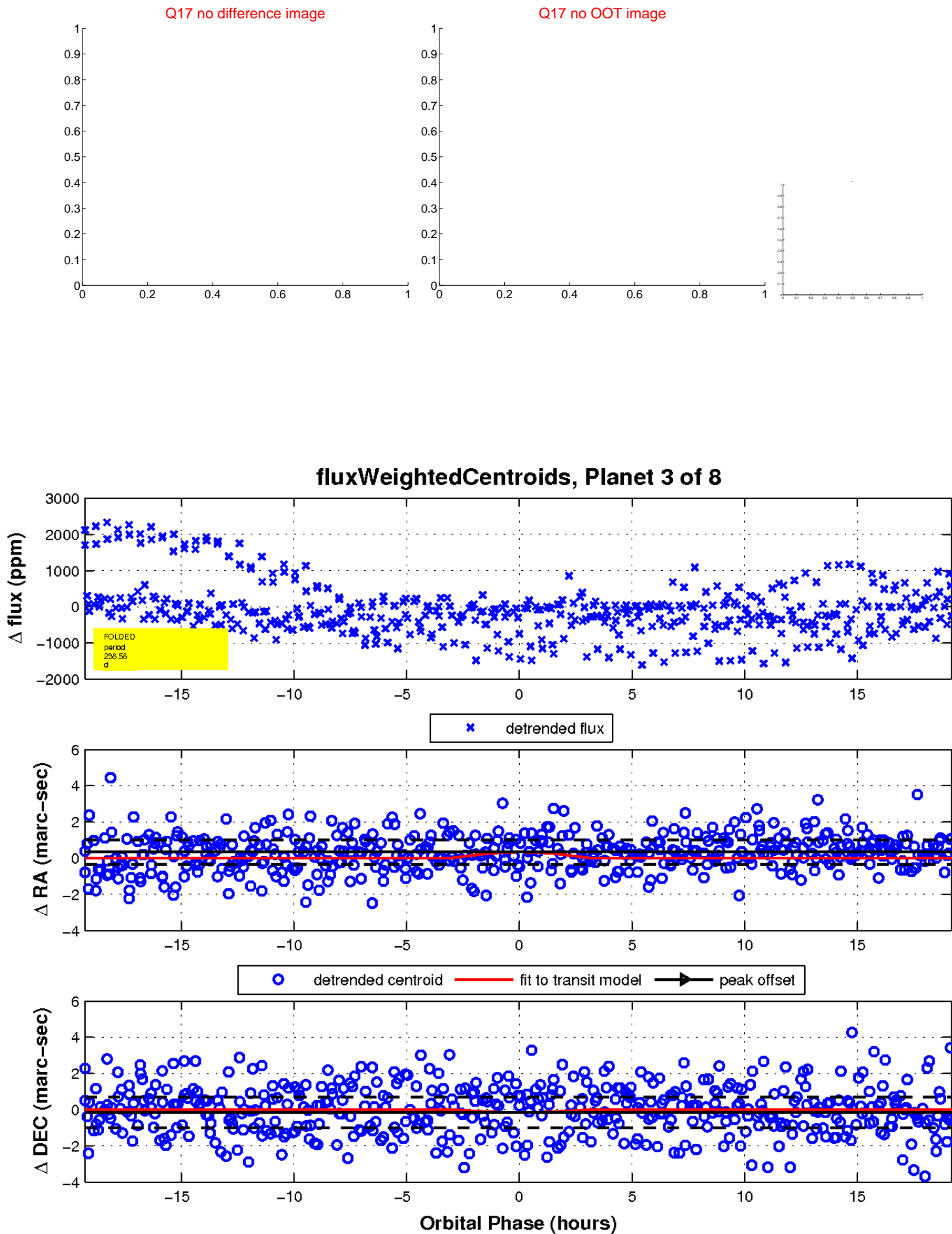
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

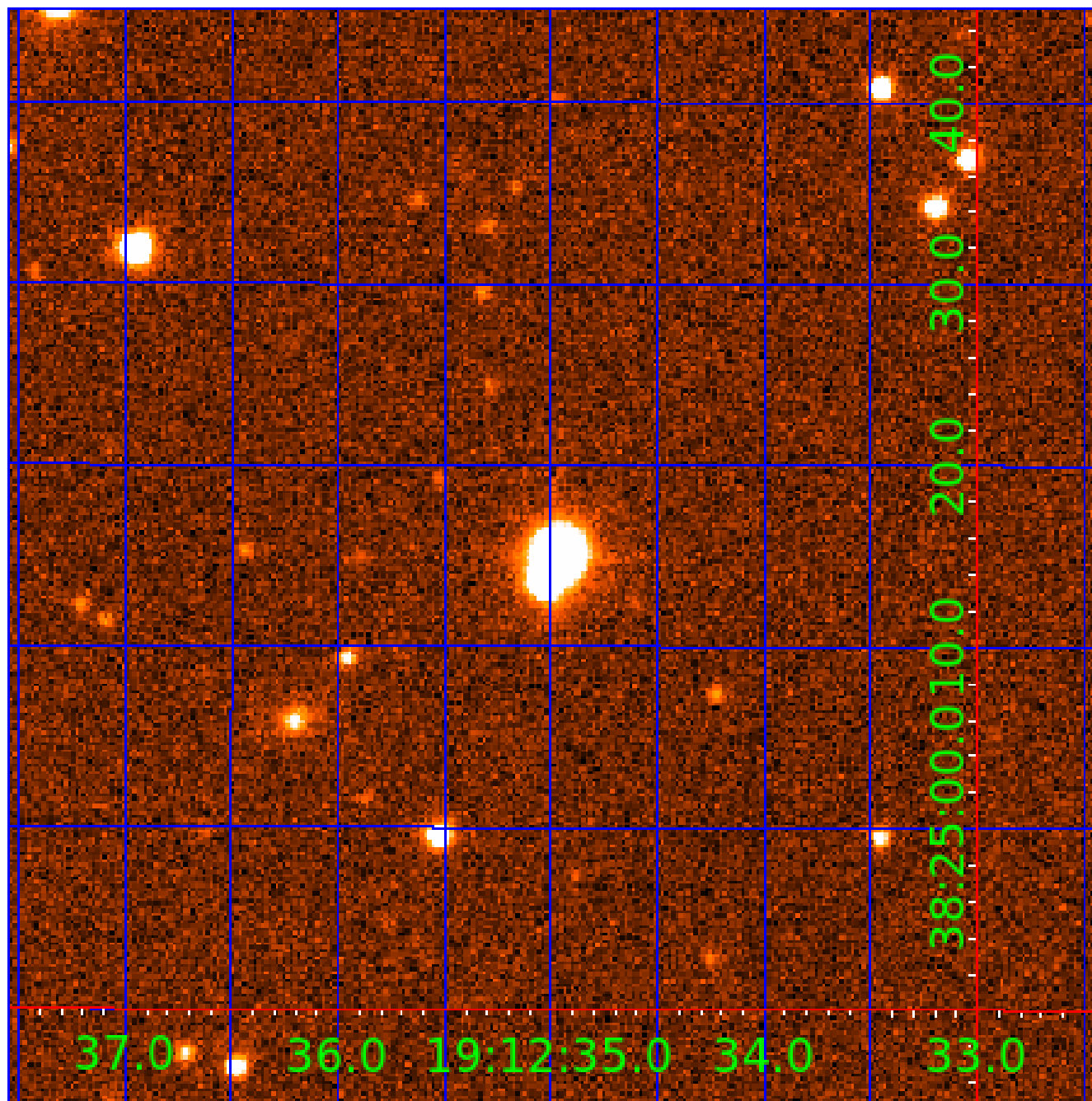


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003330773

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})
003330773-01	OBS	No	0.990779	132.118014	41.2	4.010	8.4	9.8	0.74	4864	0.46	905.85
003330773-02	OBS	No	613.600412	343.696544	4688.0	37.006	15.8	7.6	0.74	4864	6.30	0.17
003330773-03	OBS	No	238.584464	271.443023	825.6	6.436	14.8	7.4	0.74	4864	3.14	0.60
003330773-04	OBS	No	392.191044	486.816683	1076.0	28.132	14.4	4.7	0.74	4864	2.41	0.31
003330773-05	OBS	No	518.179820	466.572896	2460.0	16.313	11.3	8.2	0.74	4864	3.55	0.21
003330773-06	OBS	No	406.194283	213.754569	305.6	4.964	11.0	3.3	0.74	4864	1.55	0.30
003330773-07	OBS	No	569.728389	145.546172	2297.1	19.080	10.3	8.2	0.74	4864	3.97	0.19
003330773-08	OBS	No	247.115893	311.889261	793.1	10.138	9.5	6.1	0.74	4864	2.32	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003330773-01	OBS	FP	0.01	1	0	0	0	LPP_DV
003330773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
003330773-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003330773-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003330773-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

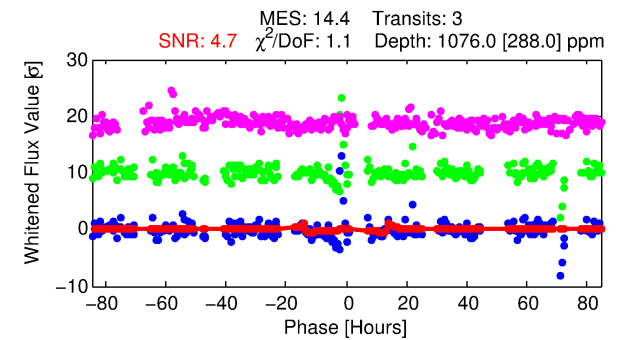
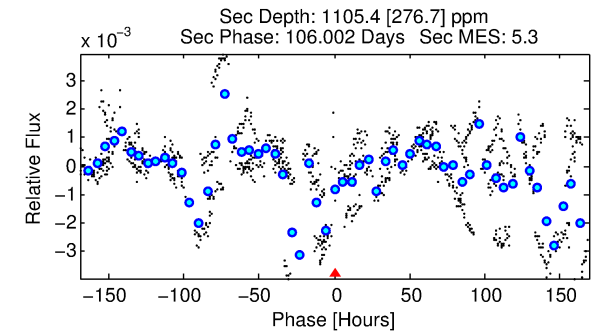
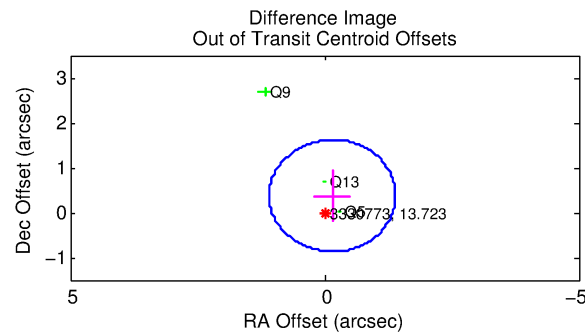
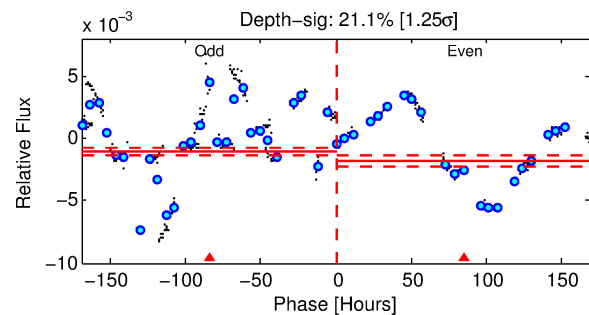
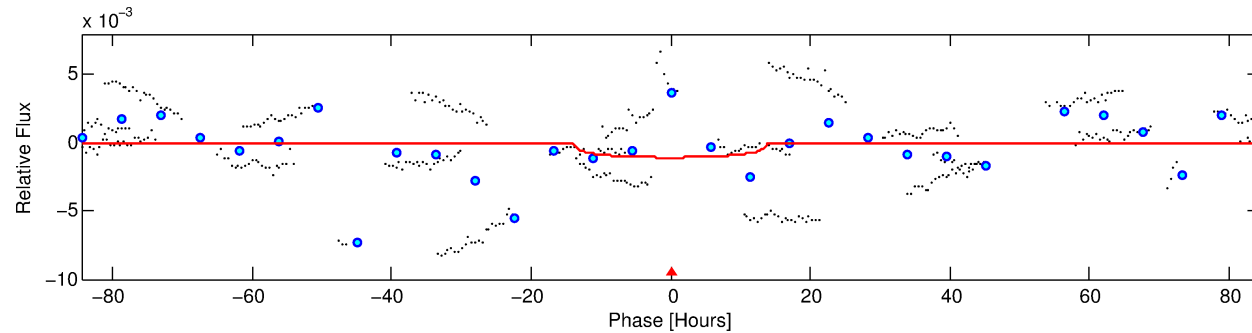
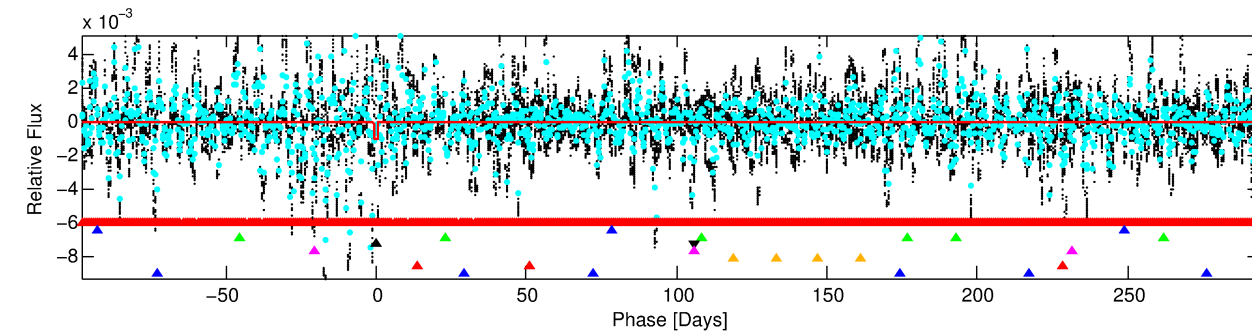
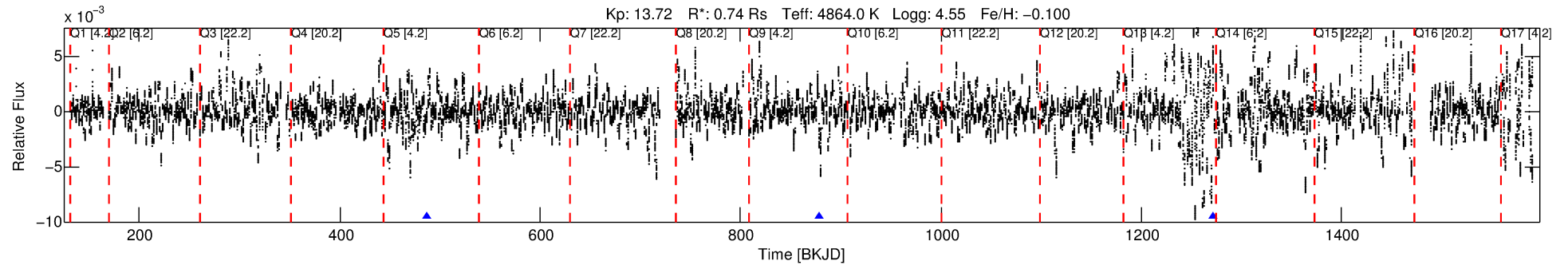
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-04

No Significant Match Found

DV One-Page Summary

KIC: 3330773 Candidate: 4 of 8 Period: 392.191 d



DV Fit Results:

Period = 392.19104 [0.01819] d
Epoch = 486.8167 [0.0139] BKJD
Rp/R* = 0.0298 [0.0066]
a/R* = 100.33 [56.79]
b = 0.42 [1.13]
Seff = 0.31 [0.05]
Teq = 191 [8] K
Rp = 2.41 [0.58] Re
a = 0.9387 [0.0748] AU
Ag = 92485.40 [48414.07] [1.91 σ]
Teffp = 5137 [673] K [7.35 σ]

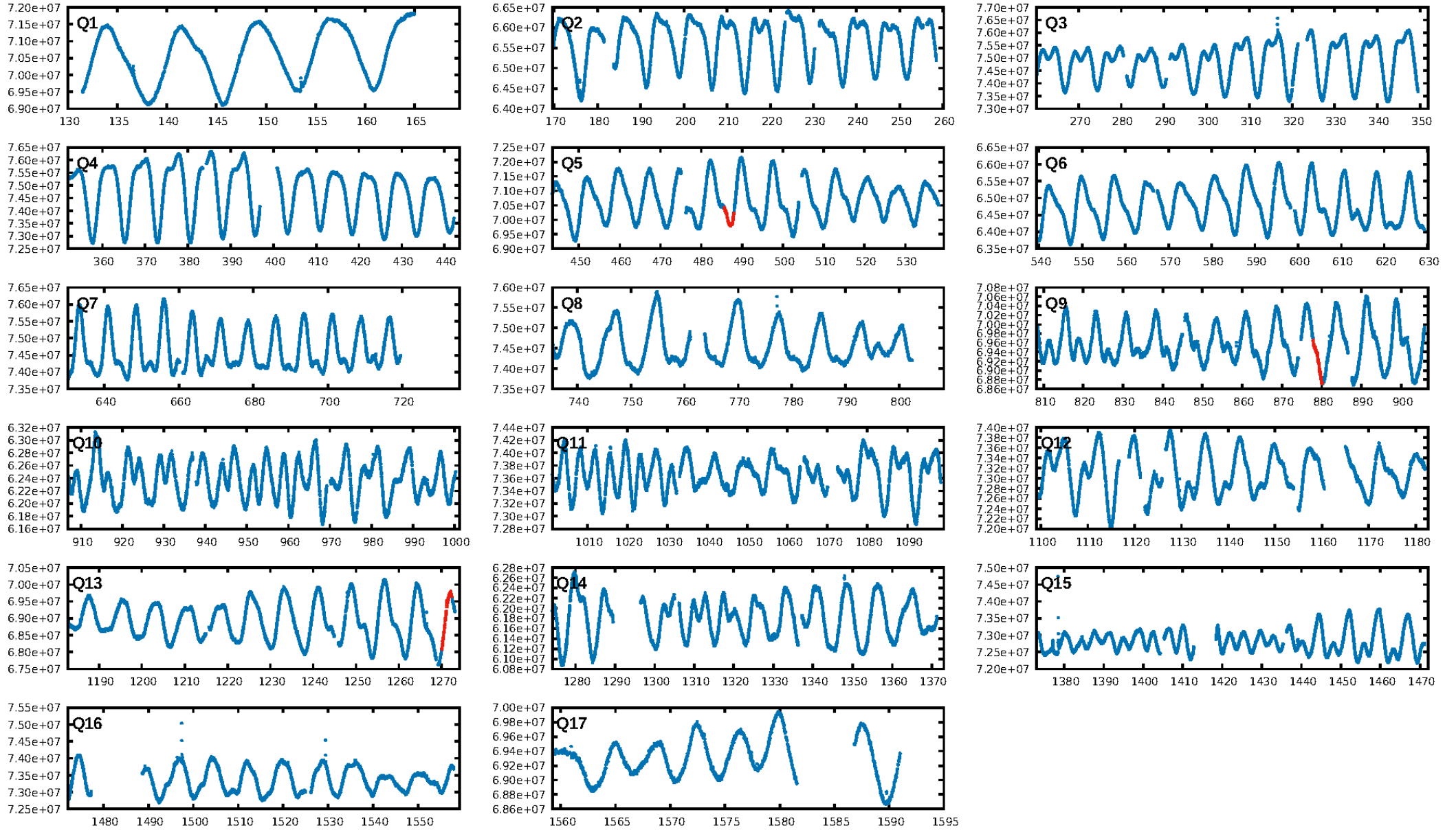
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [116.44 σ]
LongPeriod-sig: 100.0% [11.76 σ]
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.68e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 8.585
Centroid-sig: 0.0%
Centroid-so: 1.758 arcsec [2.93 σ]
OotOffset-rm: 0.404 arcsec [0.97 σ]
KicOffset-rm: 0.257 arcsec [0.54 σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

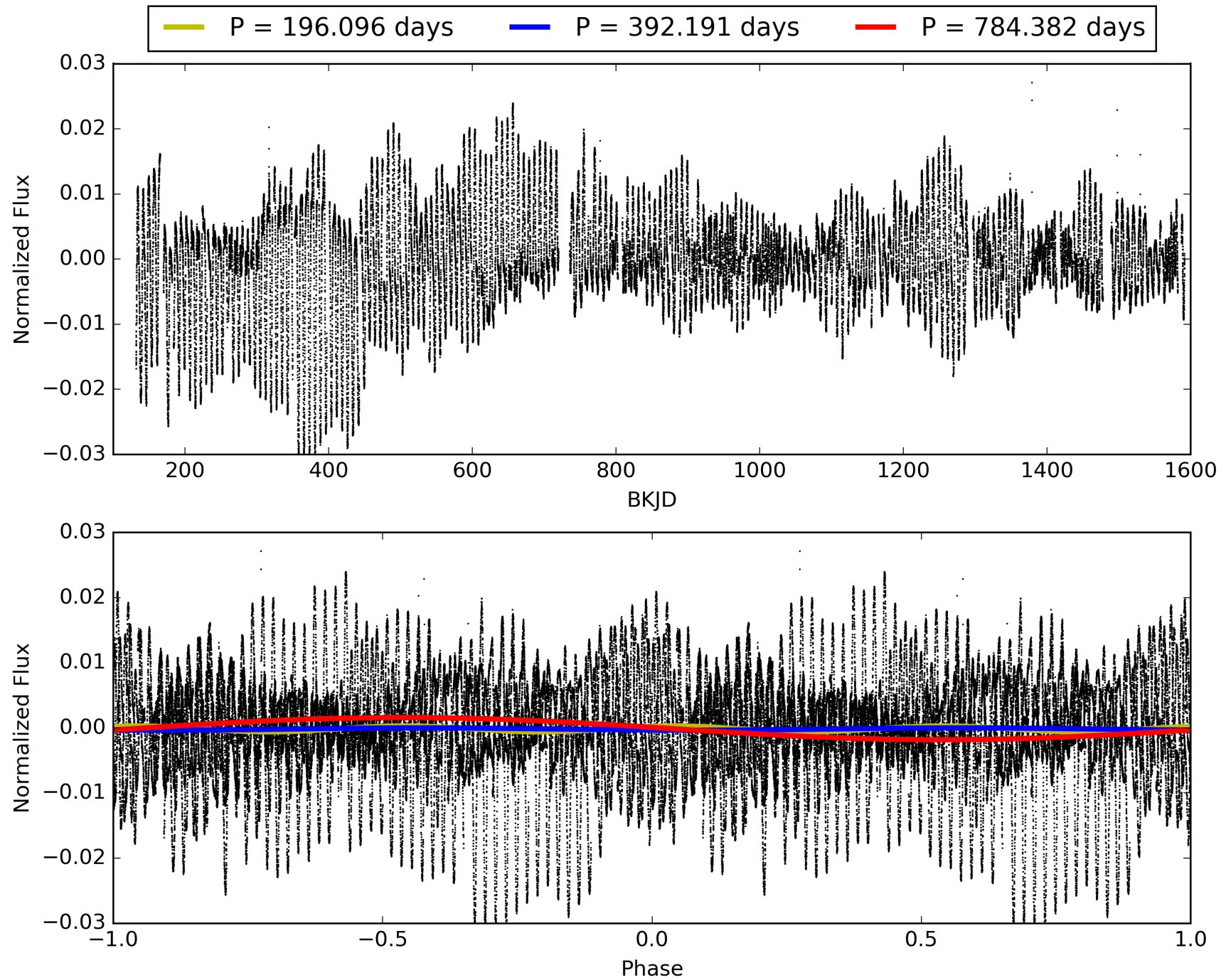
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:46:03 Z

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

TCE 003330773-04, PDC Light Curves

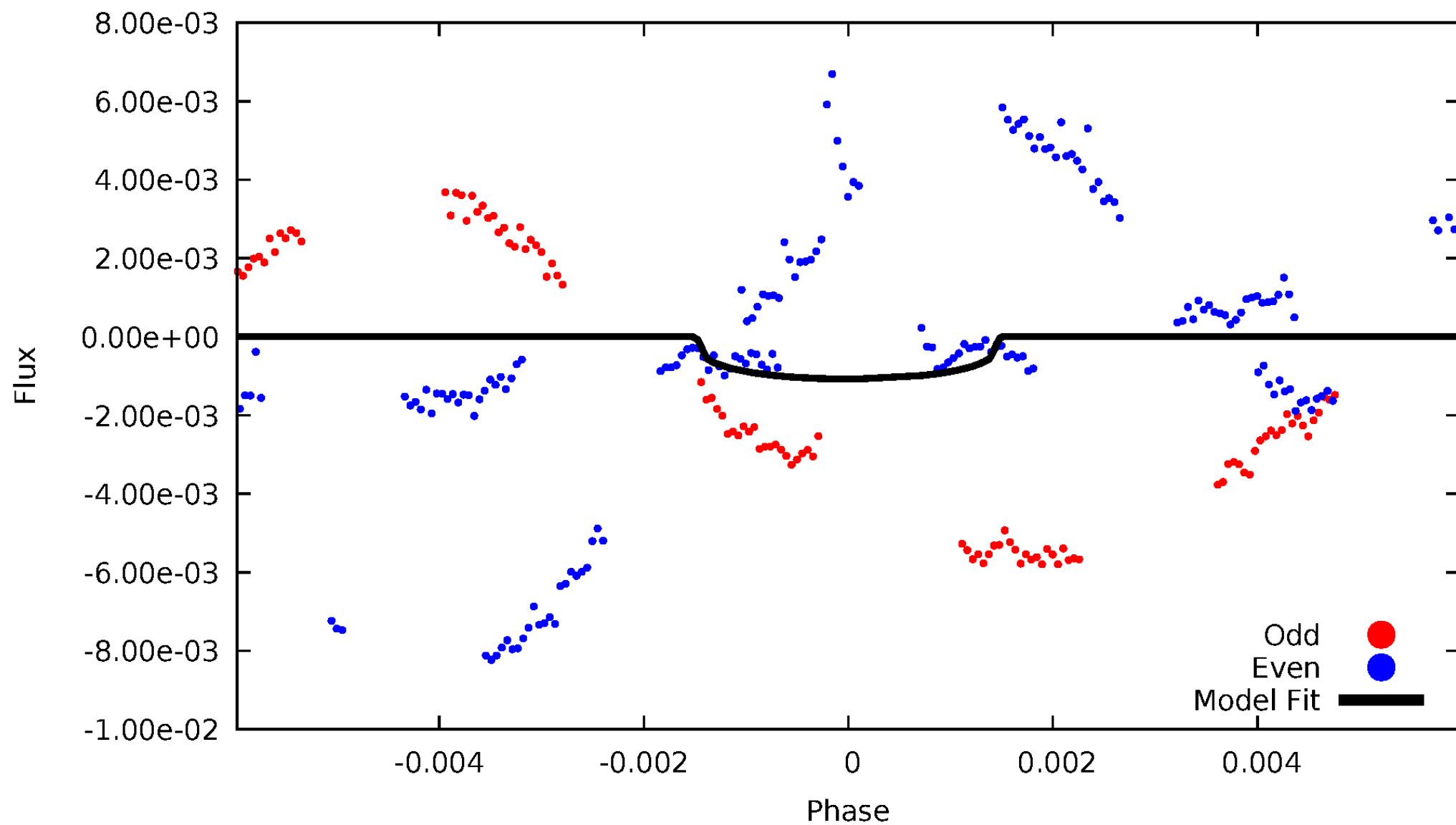


TCE 003330773-04



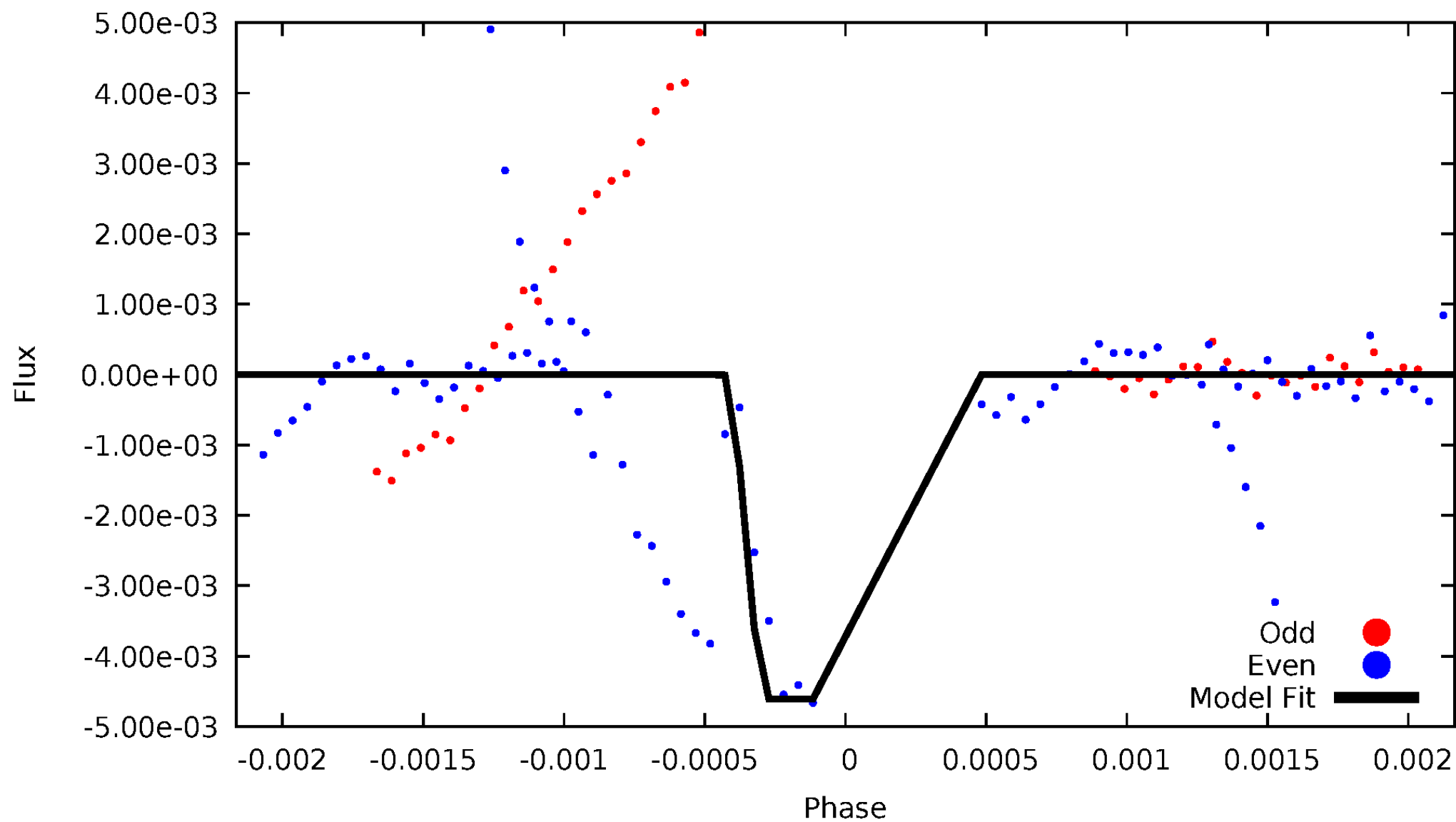
DV Odd/Even

TCE 003330773-04



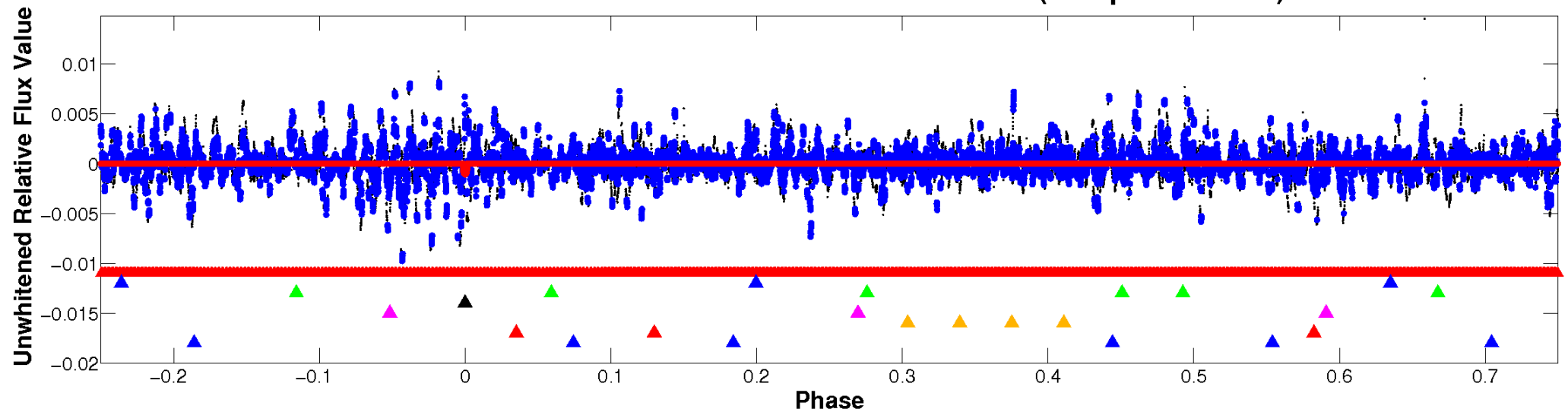
ALT Odd/Even

TCE 003330773-04

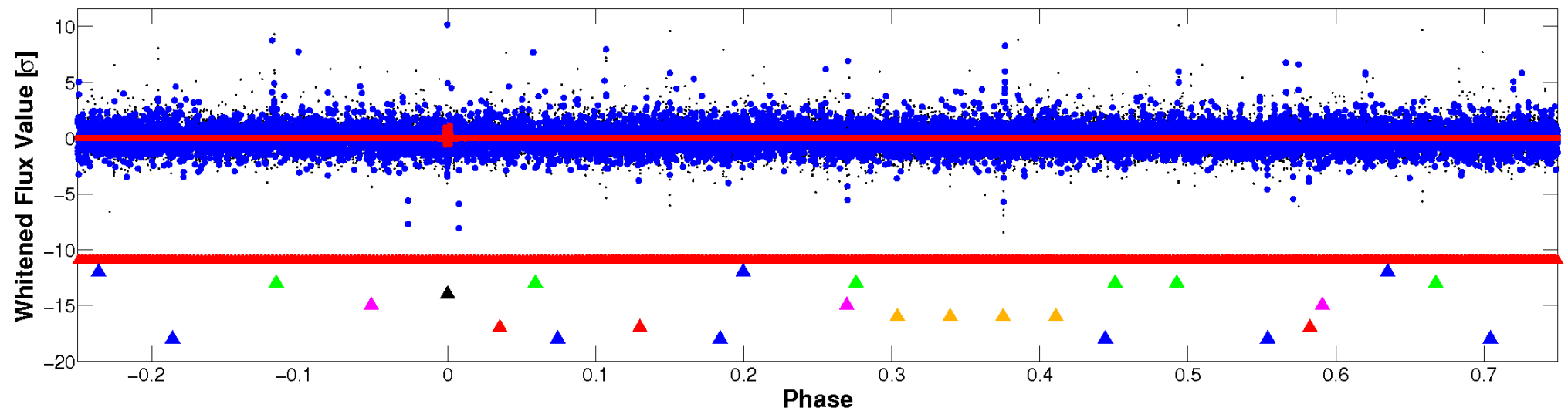


Non-Whitened Vs. Whitened Light Curve

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

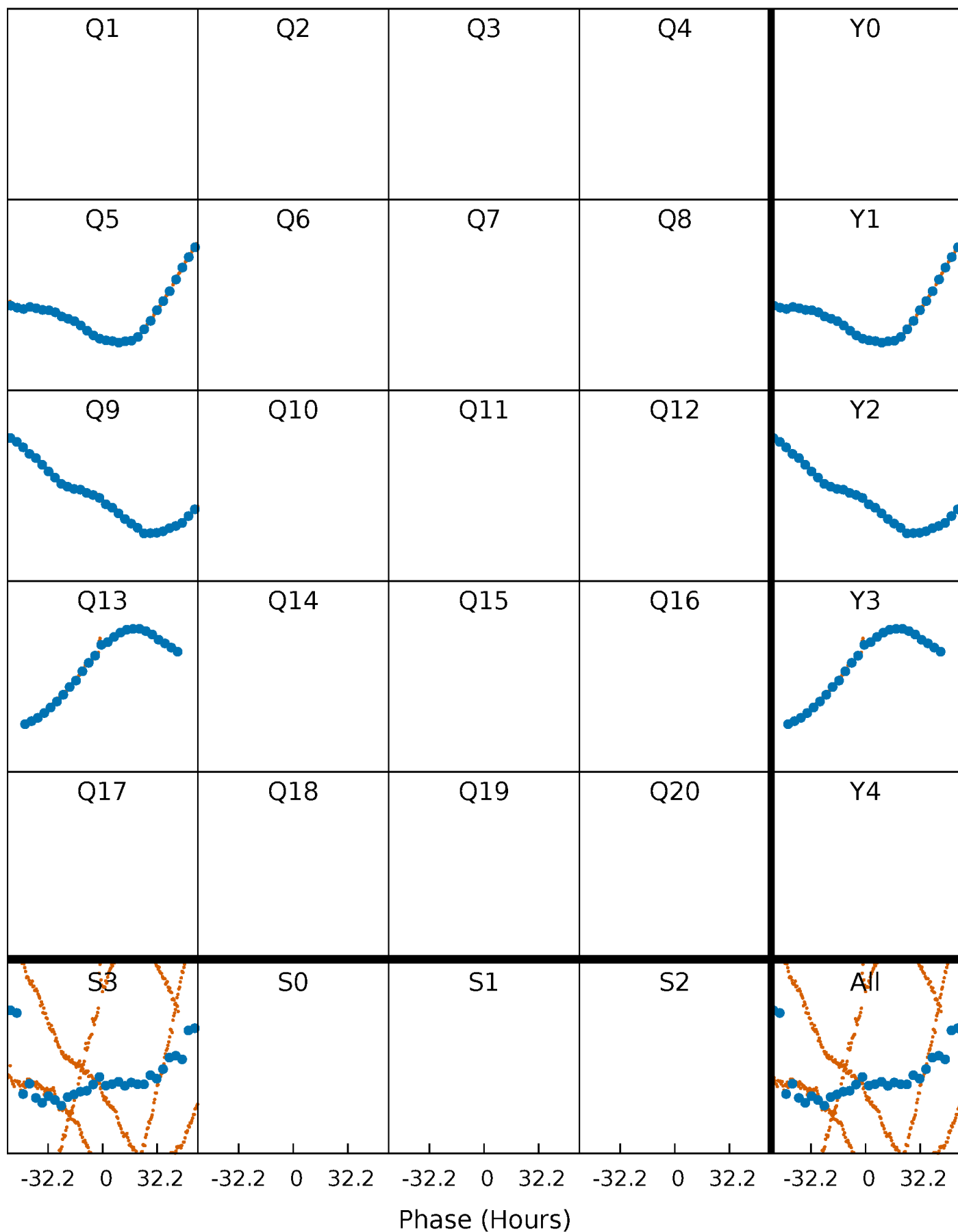


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



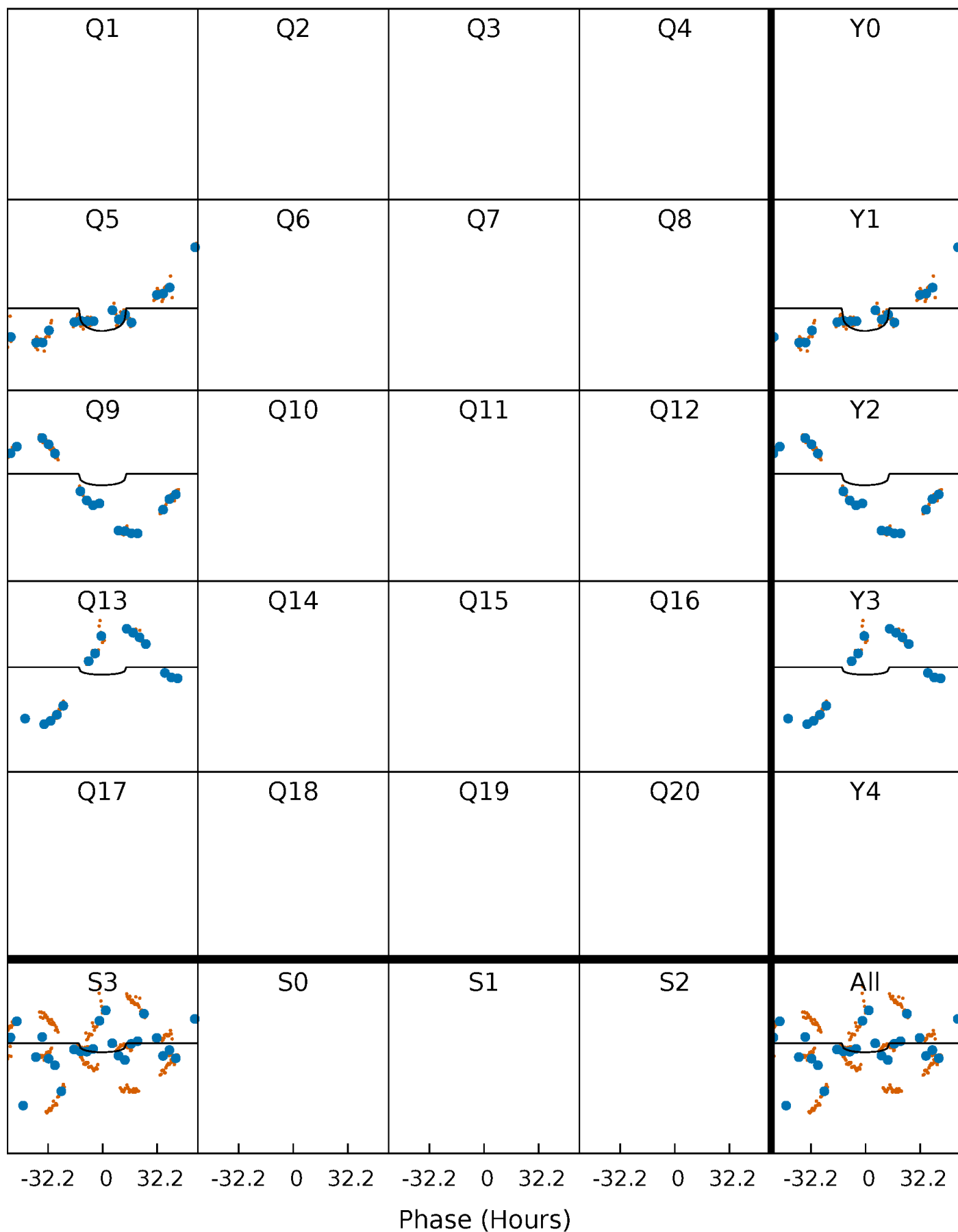
PDC Quarter-Phased Transit Curves

TCE 003330773-04 $P=392.191044$ Days $T_0=486.816683$ (BKJD)



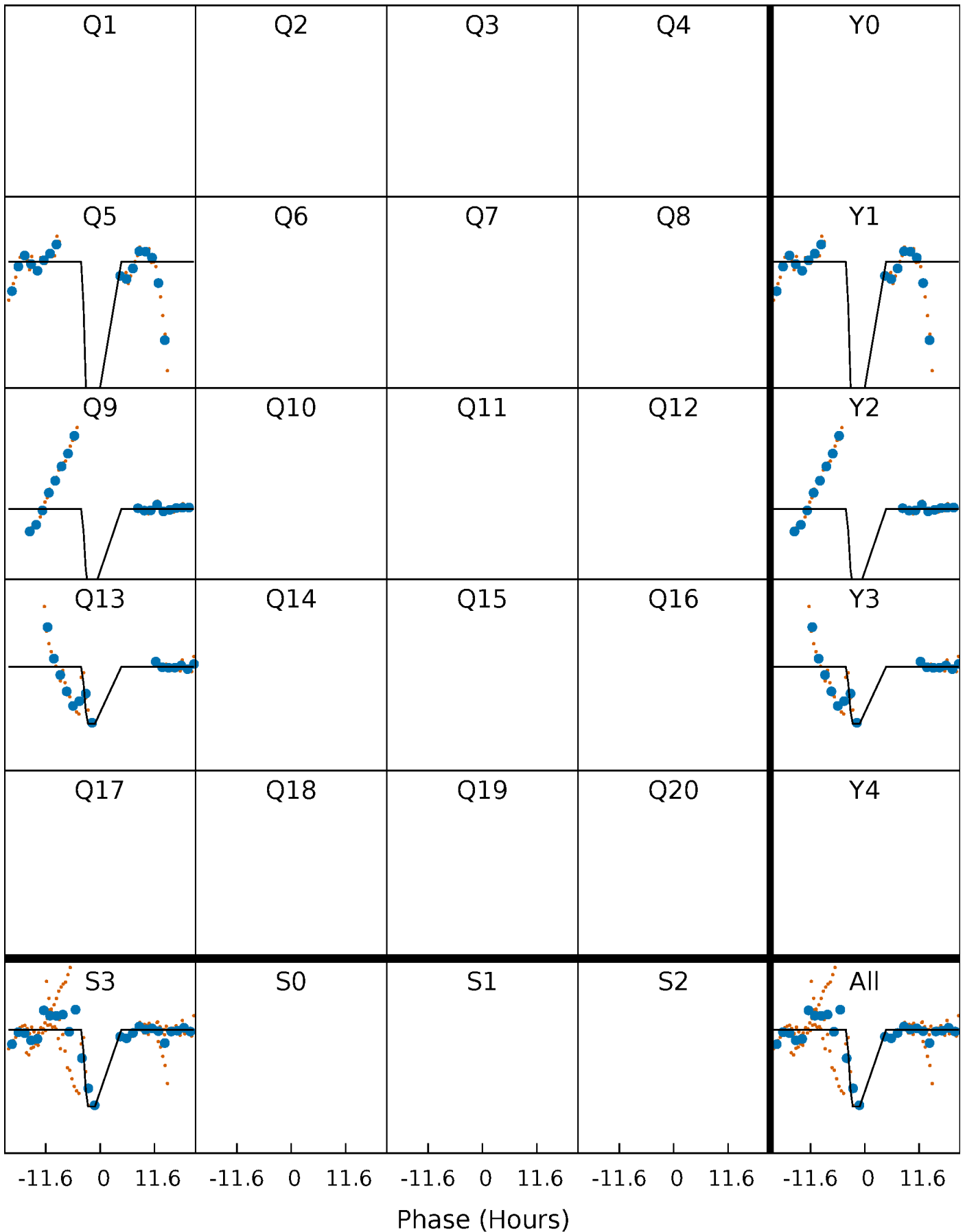
DV Quarter-Phased Transit Curves

TCE 003330773-04 $P=392.191044$ Days $T_0=486.816683$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

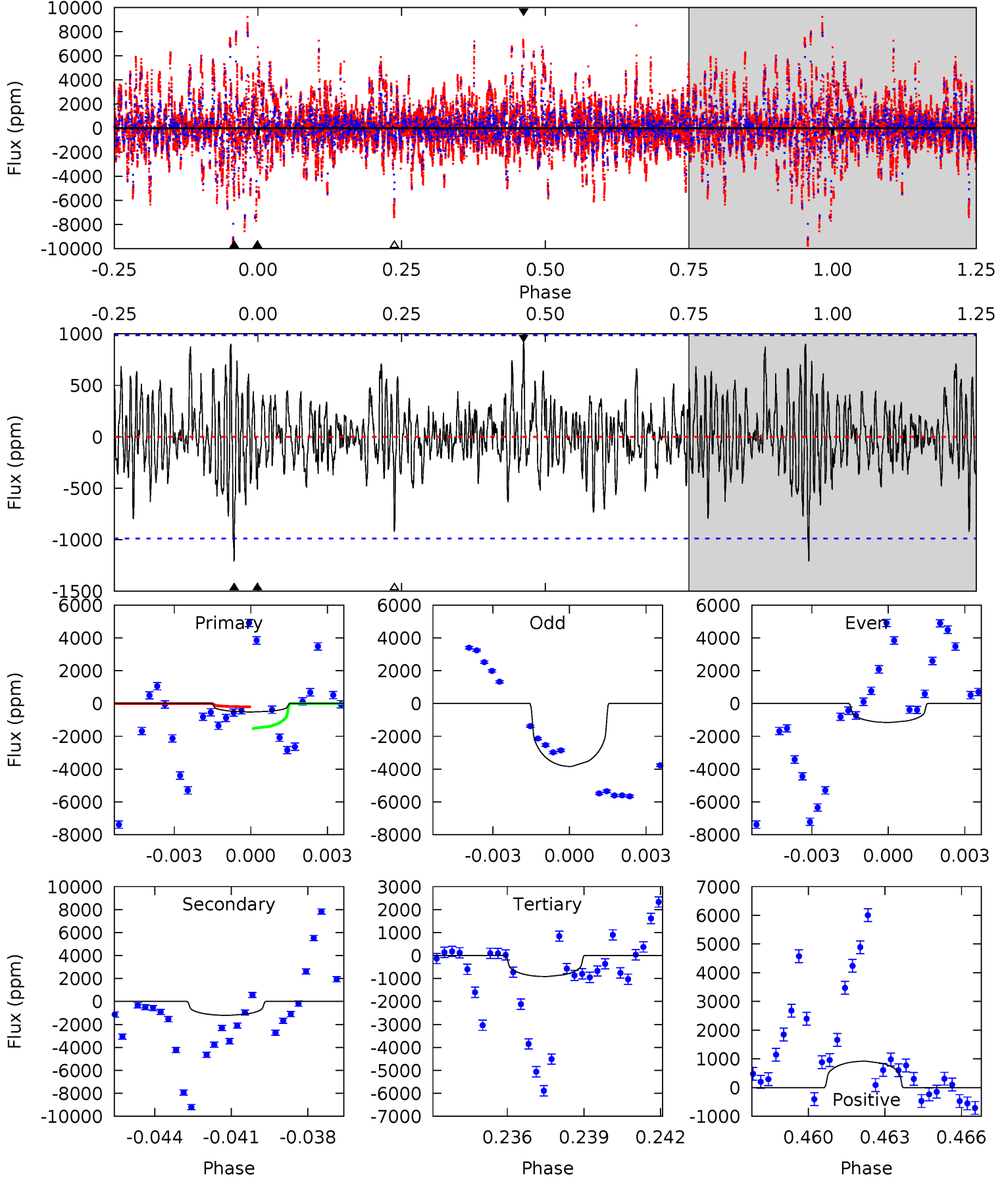
TCE 003330773-04 $P=392.188128$ Days $T_0=486.907696$ (BKJD)



DV Model-Shift Uniqueness Test

003330773-04, P = 392.191044 Days, E = 94.625639 Days

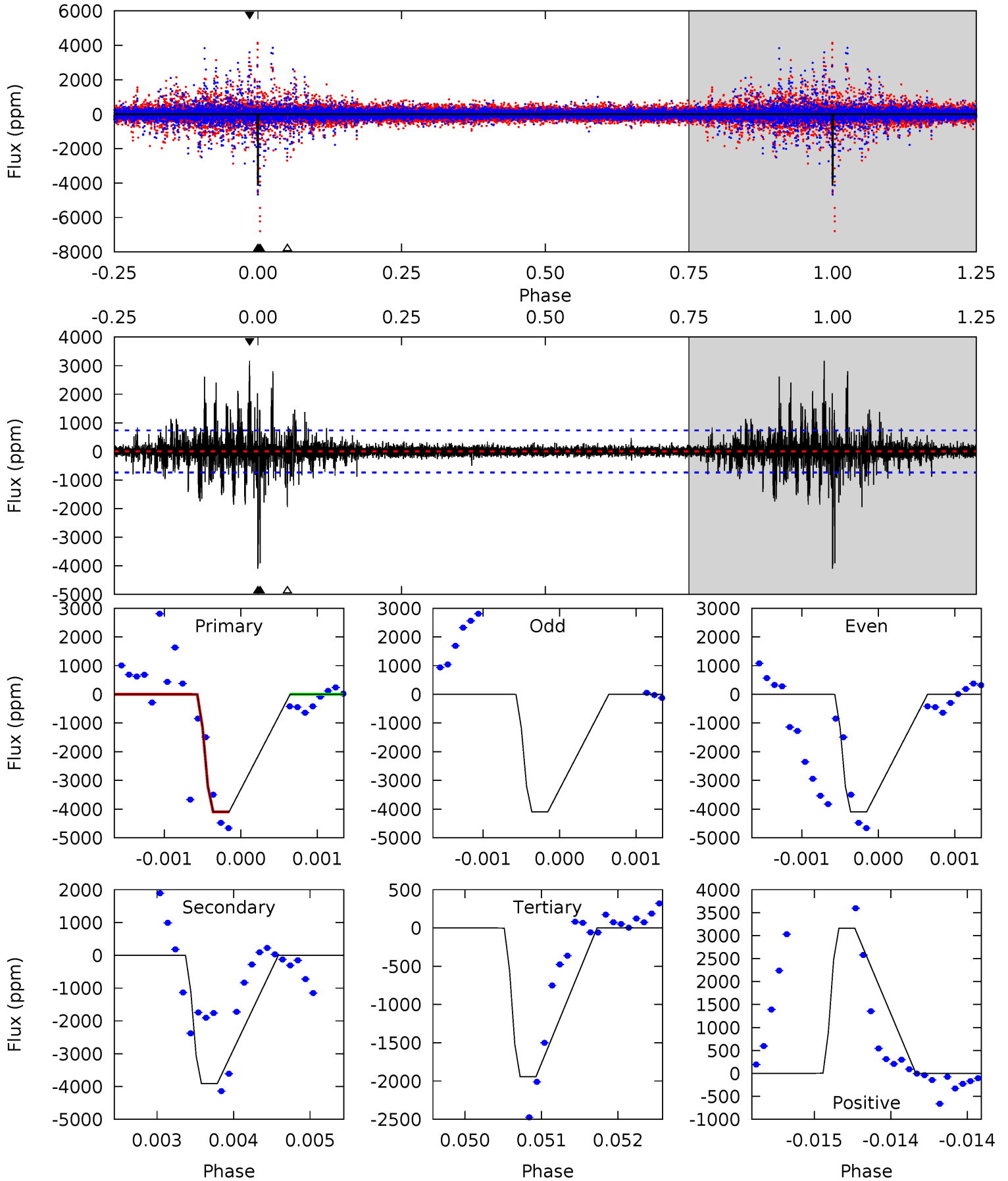
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.73	6.44	4.87	4.89	5.26	2.97	1.40	-2.14	-2.16	1.57	1.55	6.98	0.95	0.43	3.35



Alt Model-Shift Uniqueness Test

003330773-04, P = 392.188128 Days, E = 94.719568 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.7	29.3	14.6	23.7	5.50	3.37	1.51	16.2	7.02	14.8	5.62	0	0	0.44	0



Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1209 ± 188	$2.41^{+0.56}_{-0.53}$	265^{+10}_{-10}	5184^{+633}_{-470}	101334^{+65923}_{-35559}
Alt.	-3910 ± 133	$5.45^{+0.63}_{-0.59}$	265^{+10}_{-9}	4713^{+245}_{-216}	64201^{+16841}_{-11651}

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

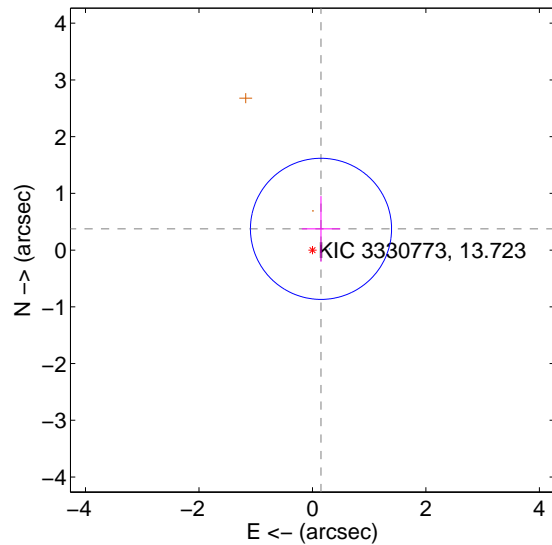
Supplemental centroid analysis for 003330773-04. Kepler magnitude: 13.72. Transit SNR 4.72

There are 1 quarters with good PRF difference image offsets

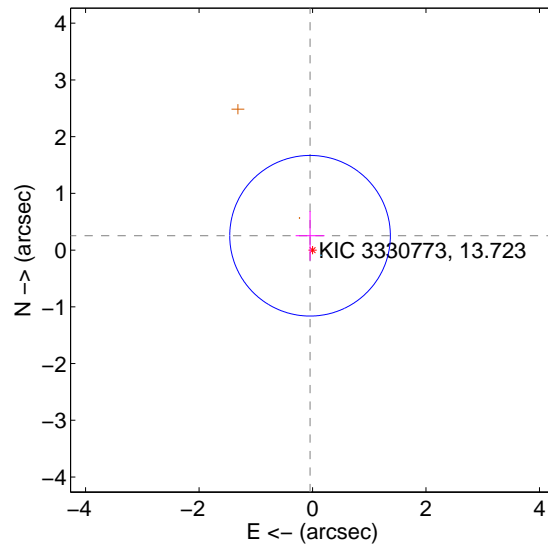
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.404 ± 0.415	0.97	-0.151 ± 0.338	0.375 ± 0.578
PRF-fit source offset from KIC position	0.257 ± 0.472	0.54	0.044 ± 0.254	0.253 ± 0.437
photometric centroid source offset	1.76 ± 0.60	2.93	1.55 ± 0.57	0.83 ± 0.70

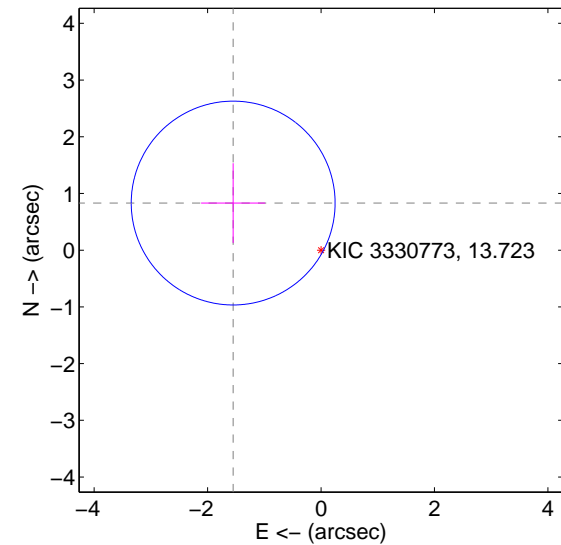
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

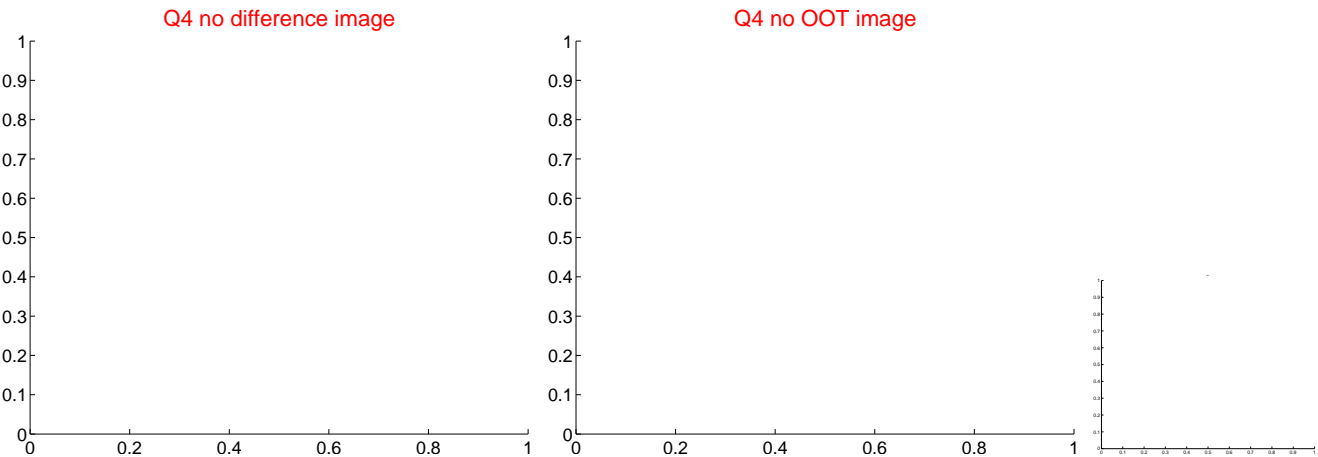
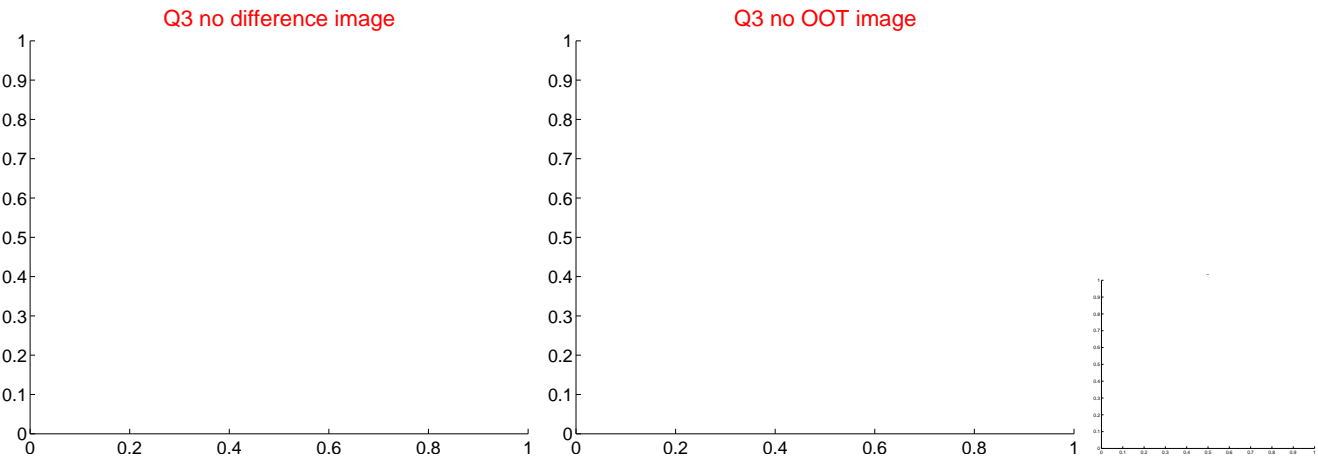
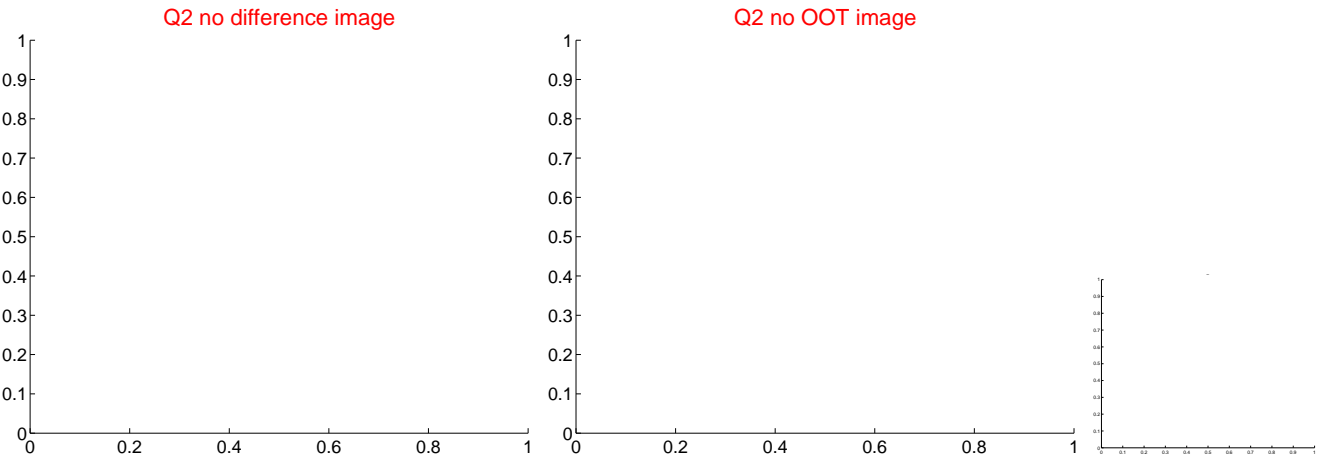
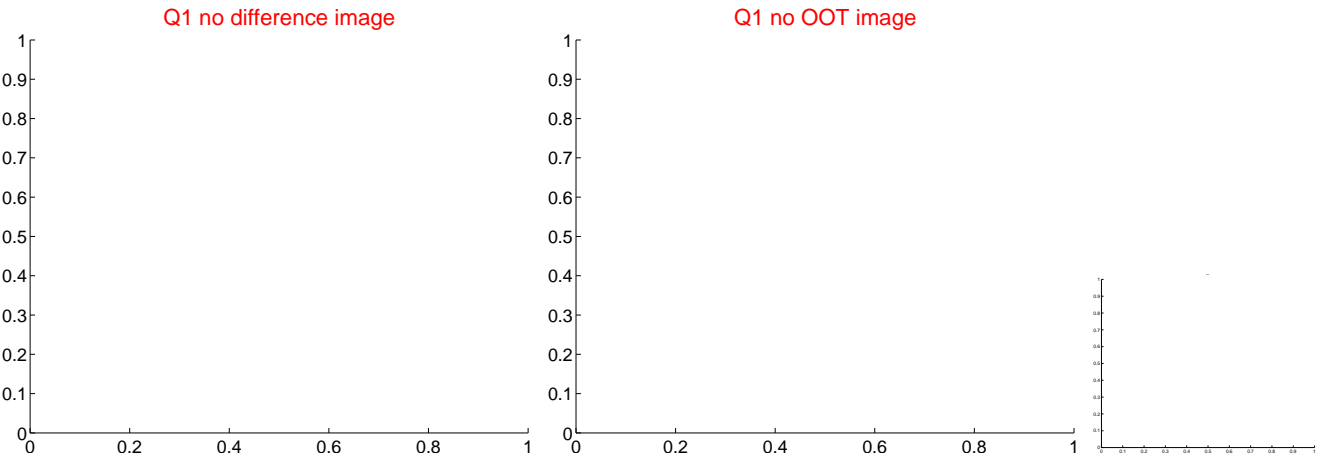


offset from photometric centroids

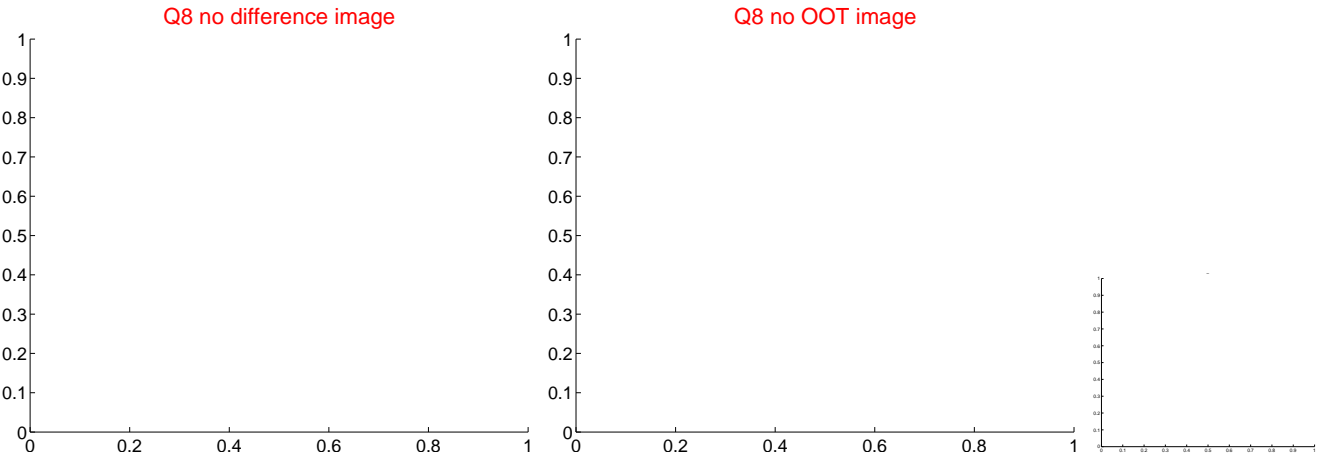
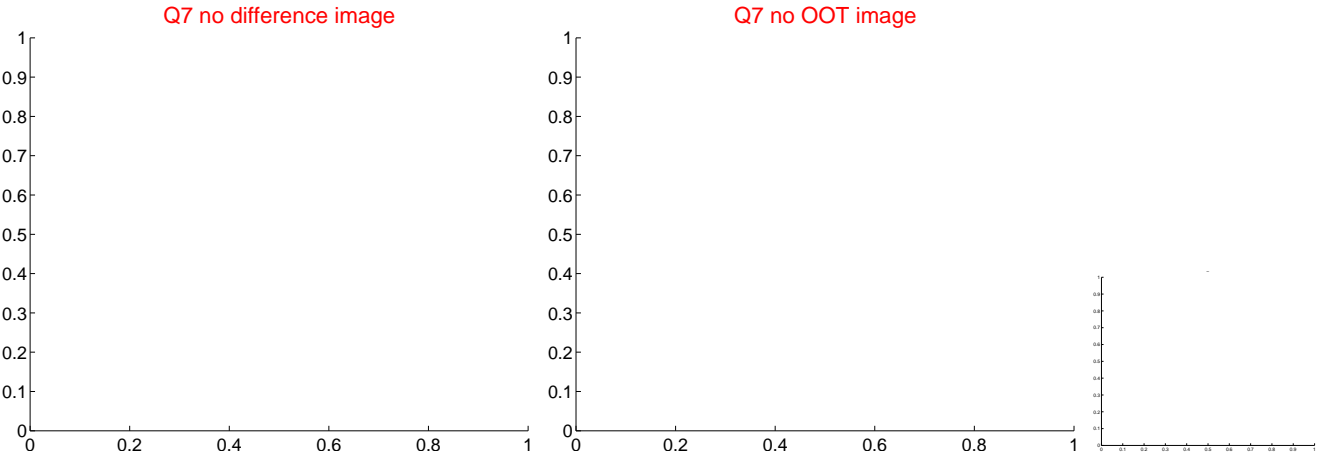
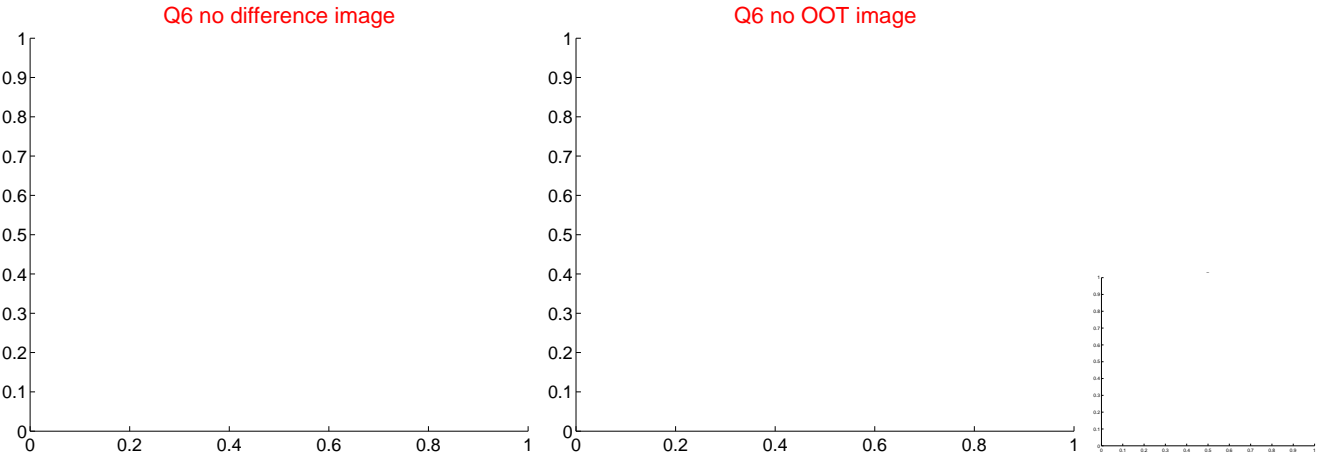
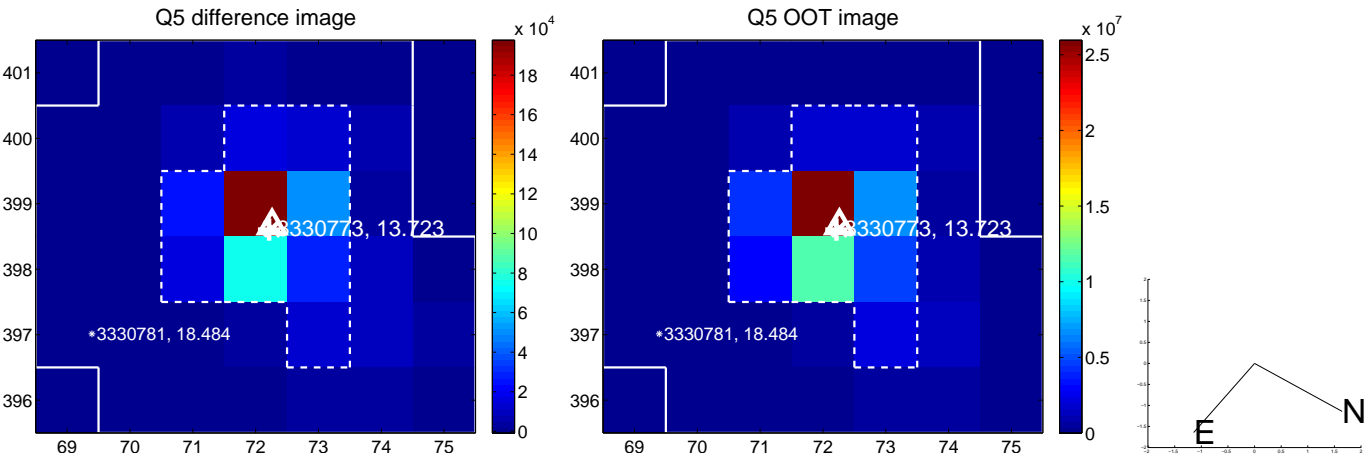


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

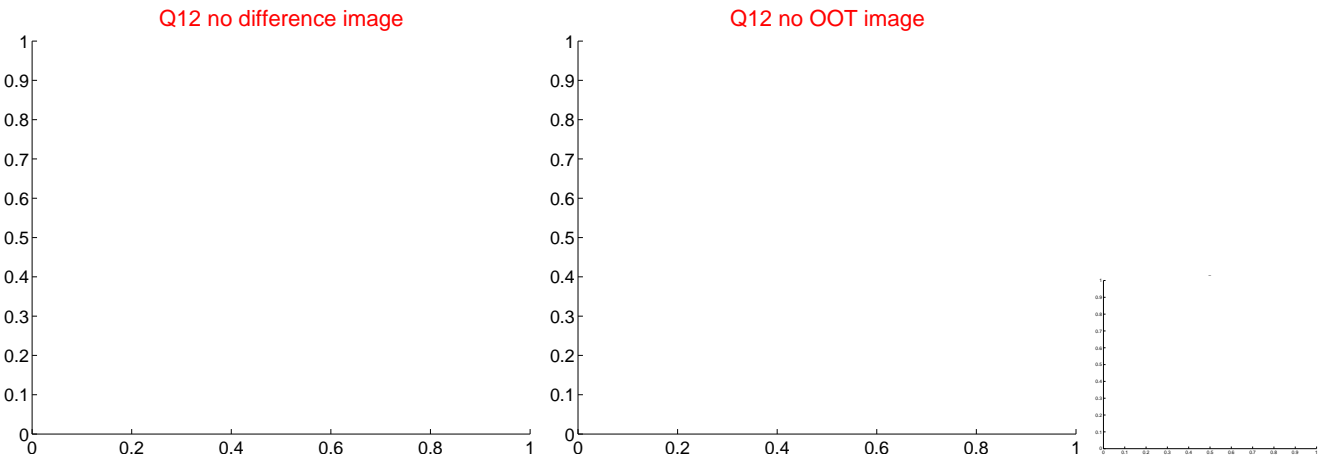
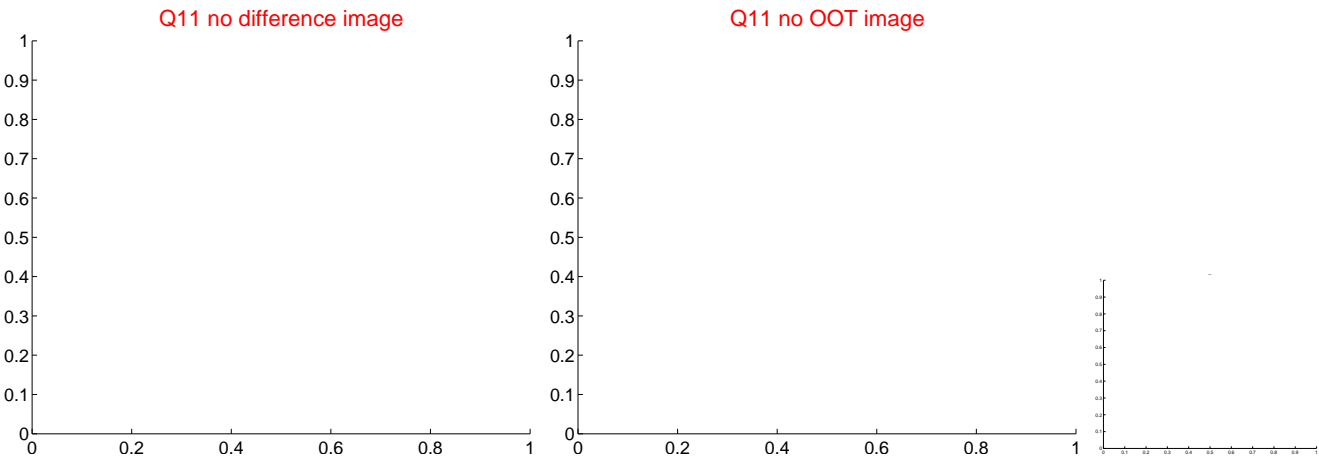
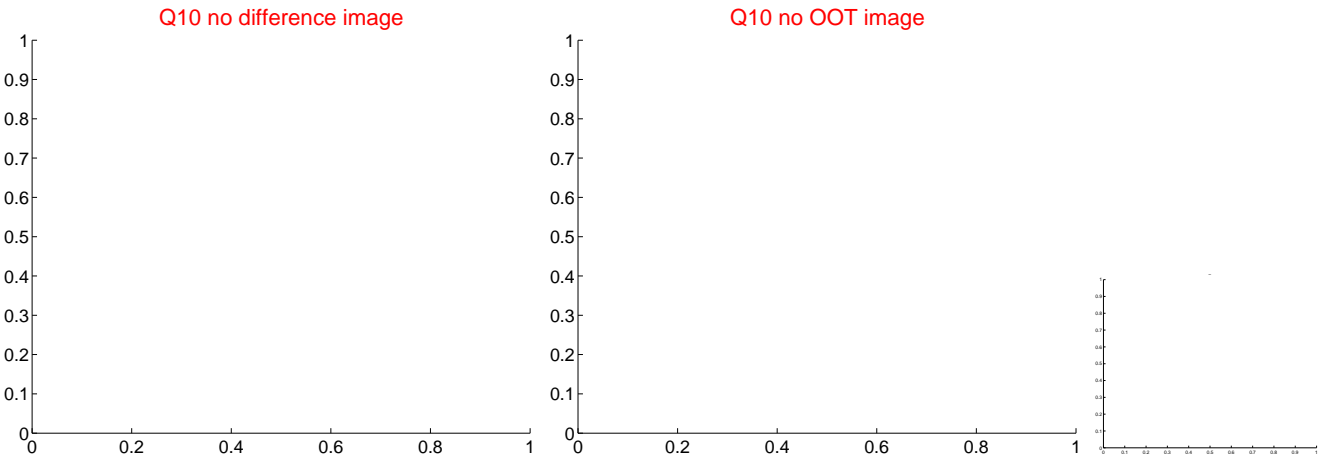
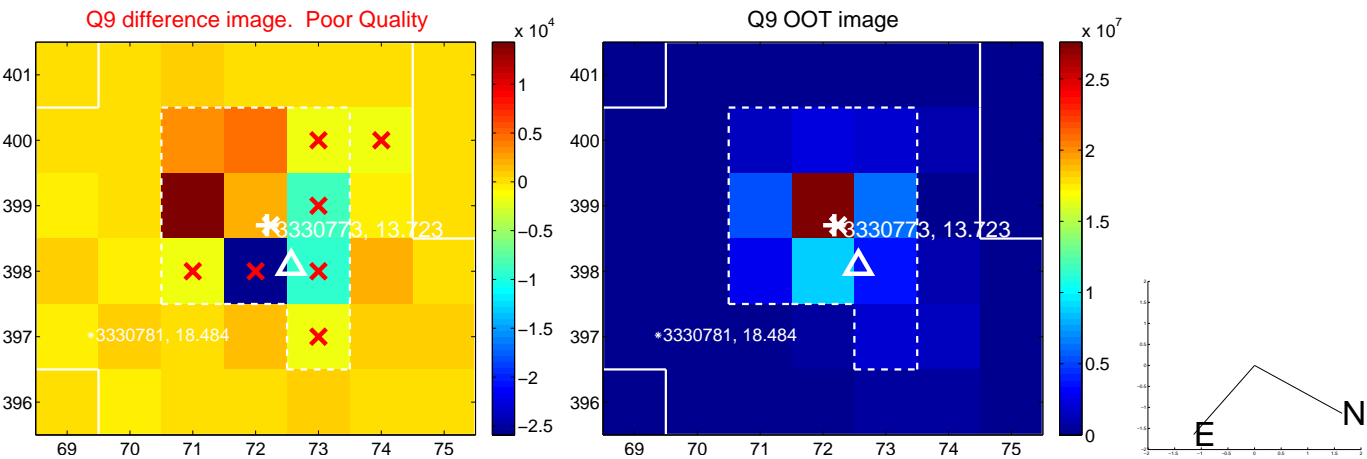
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



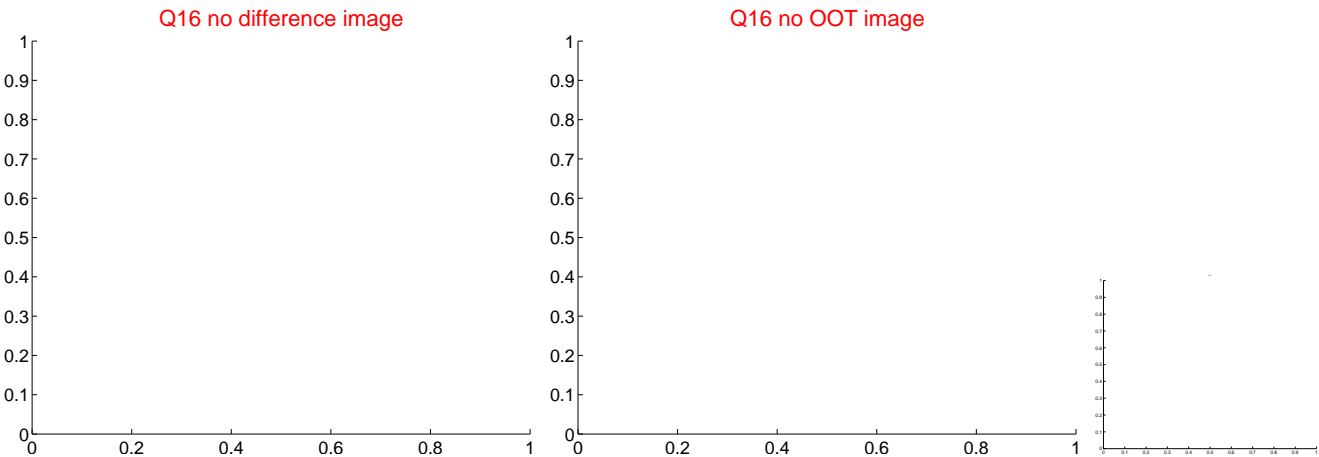
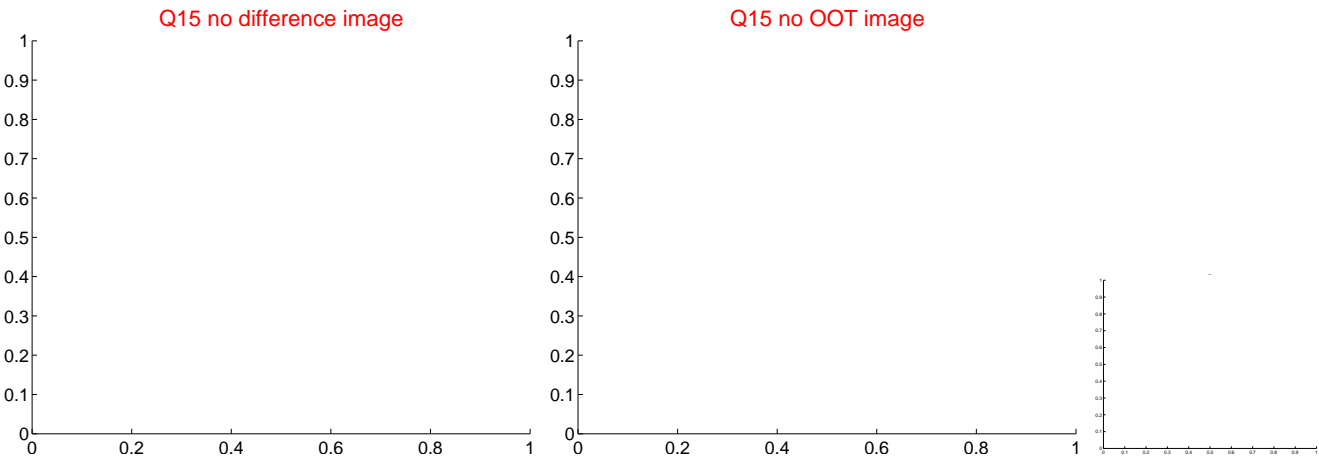
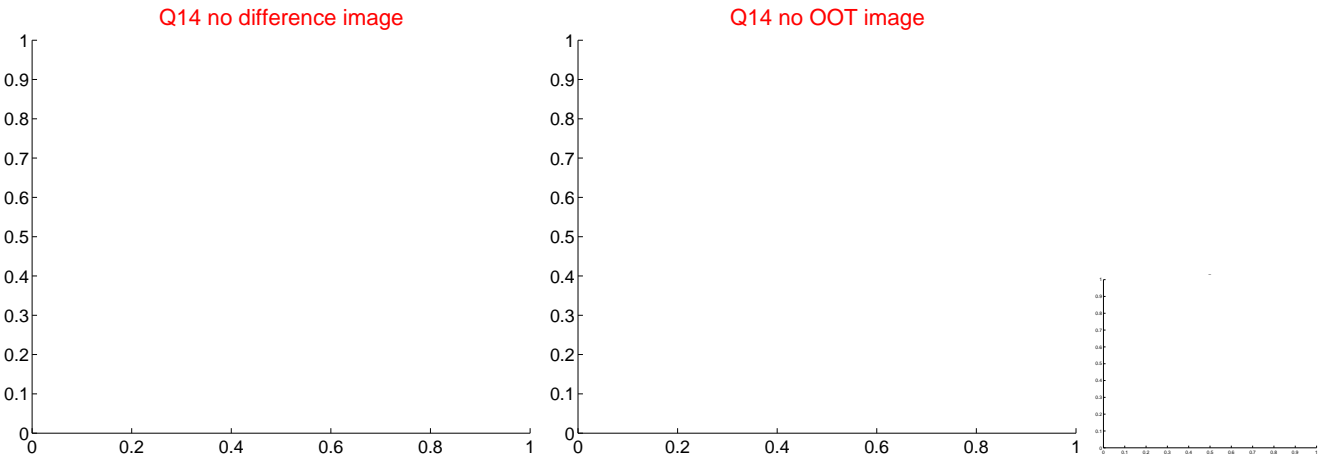
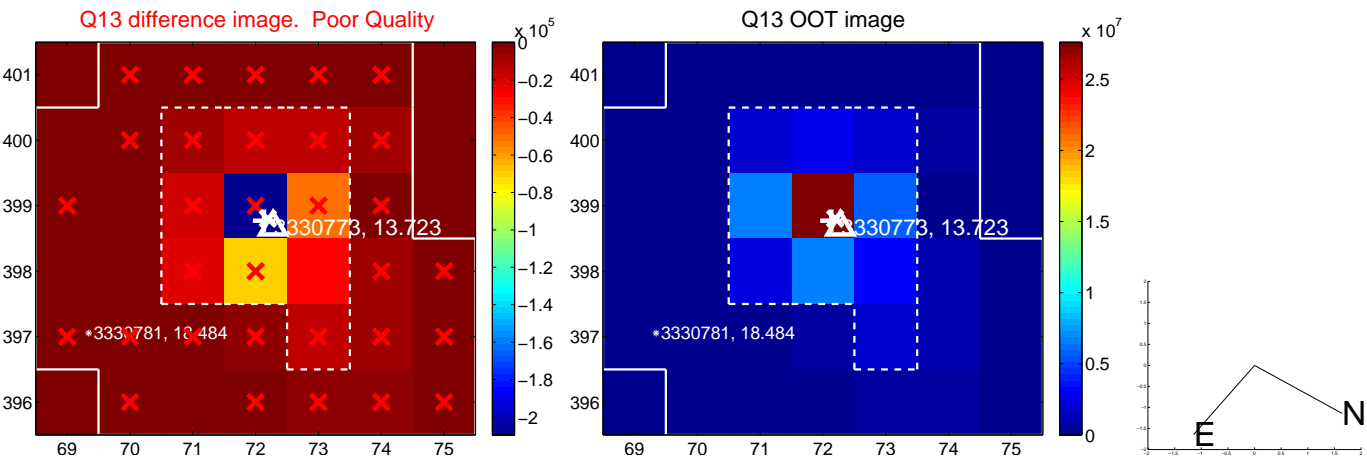
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



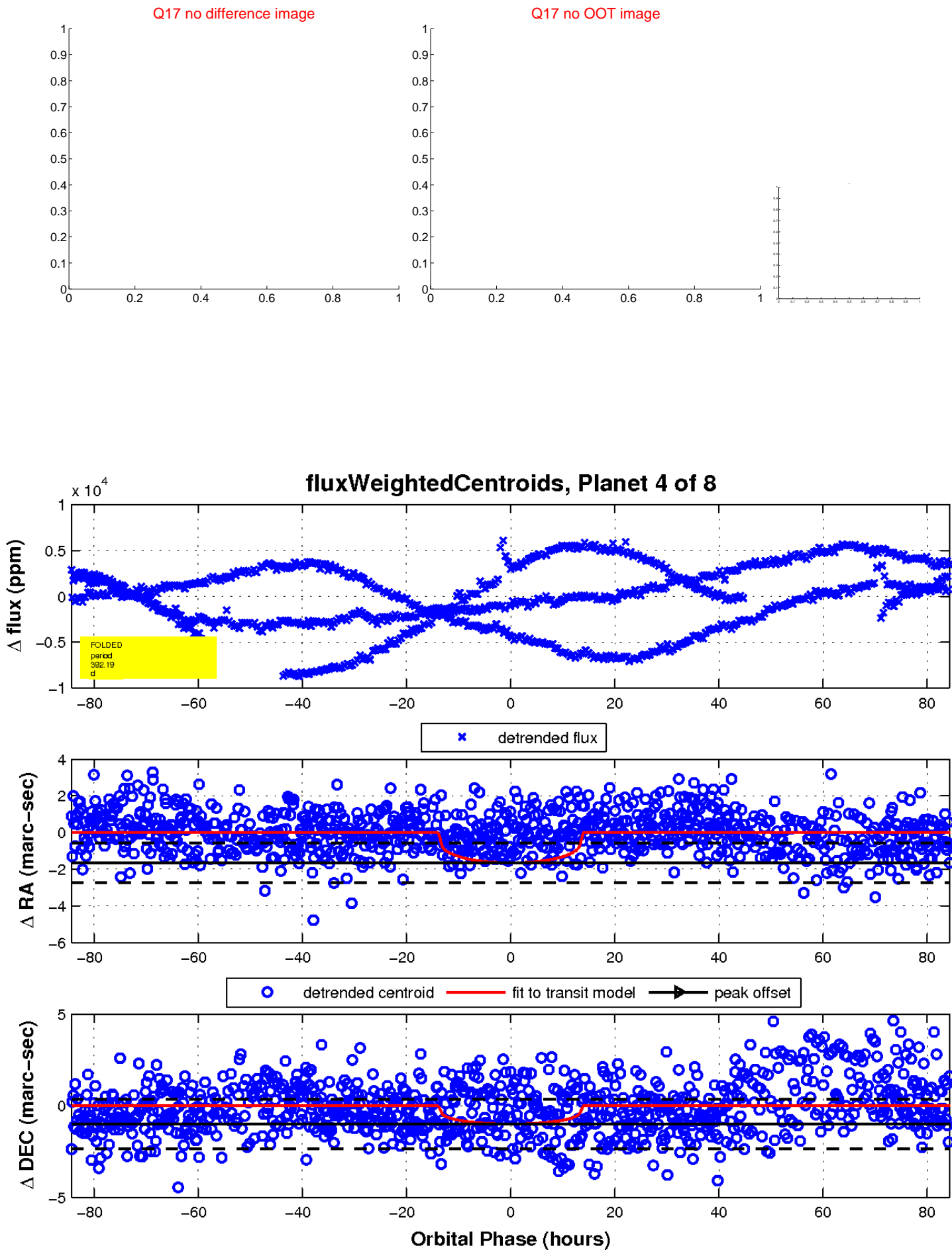
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

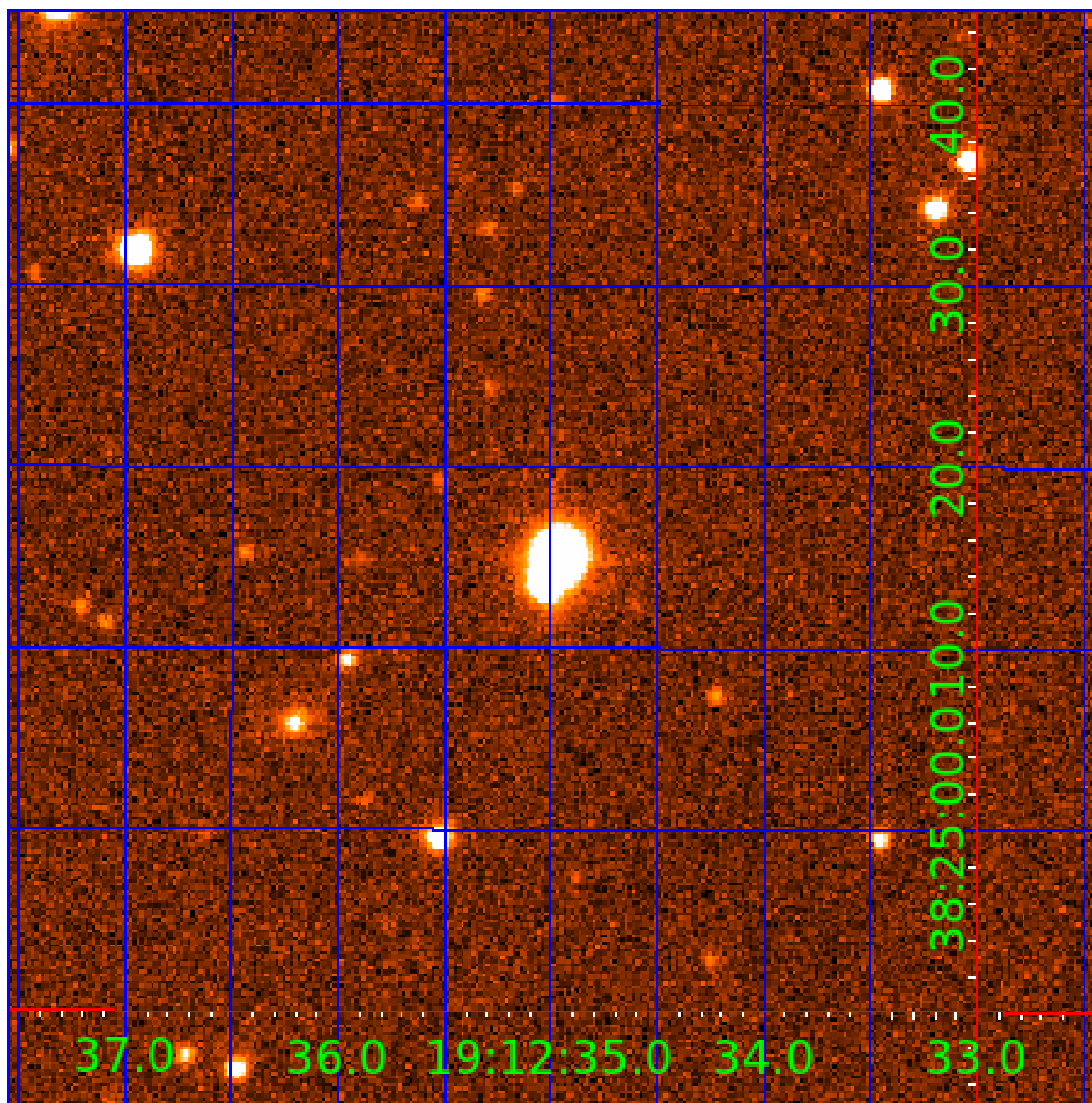


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003330773

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})
003330773-01	OBS	No	0.990779	132.118014	41.2	4.010	8.4	9.8	0.74	4864	0.46	905.85
003330773-02	OBS	No	613.600412	343.696544	4688.0	37.006	15.8	7.6	0.74	4864	6.30	0.17
003330773-03	OBS	No	238.584464	271.443023	825.6	6.436	14.8	7.4	0.74	4864	3.14	0.60
003330773-04	OBS	No	392.191044	486.816683	1076.0	28.132	14.4	4.7	0.74	4864	2.41	0.31
003330773-05	OBS	No	518.179820	466.572896	2460.0	16.313	11.3	8.2	0.74	4864	3.55	0.21
003330773-06	OBS	No	406.194283	213.754569	305.6	4.964	11.0	3.3	0.74	4864	1.55	0.30
003330773-07	OBS	No	569.728389	145.546172	2297.1	19.080	10.3	8.2	0.74	4864	3.97	0.19
003330773-08	OBS	No	247.115893	311.889261	793.1	10.138	9.5	6.1	0.74	4864	2.32	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003330773-01	OBS	FP	0.01	1	0	0	0	LPP_DV
003330773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
003330773-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003330773-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003330773-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

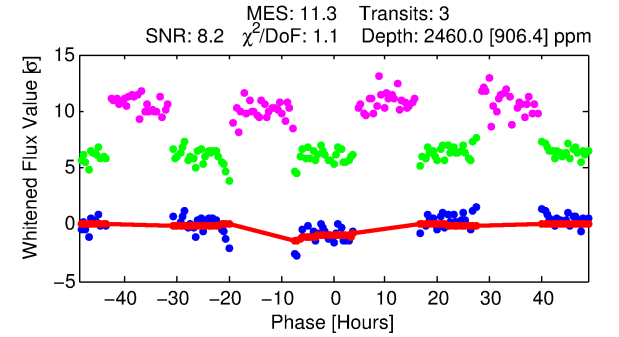
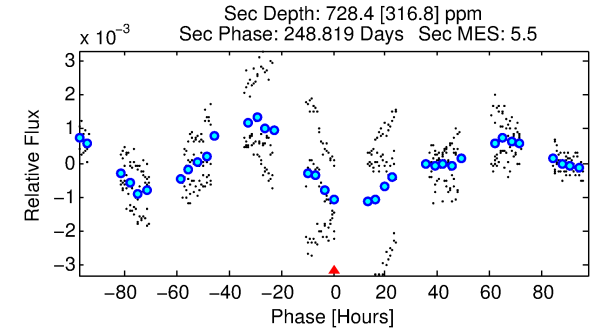
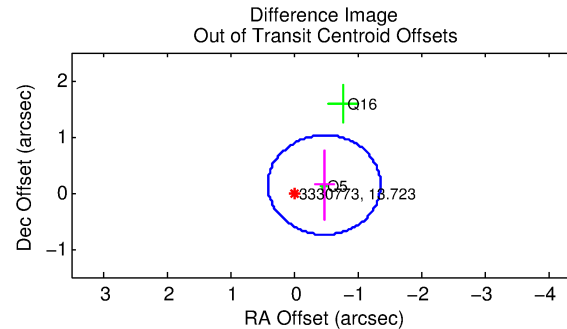
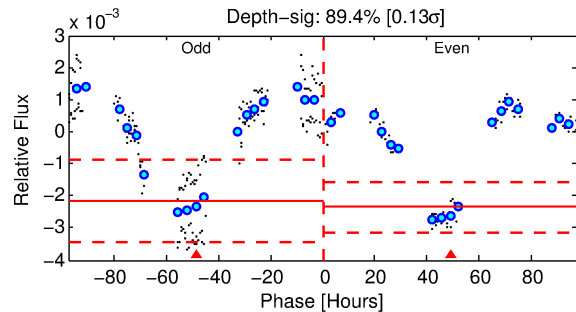
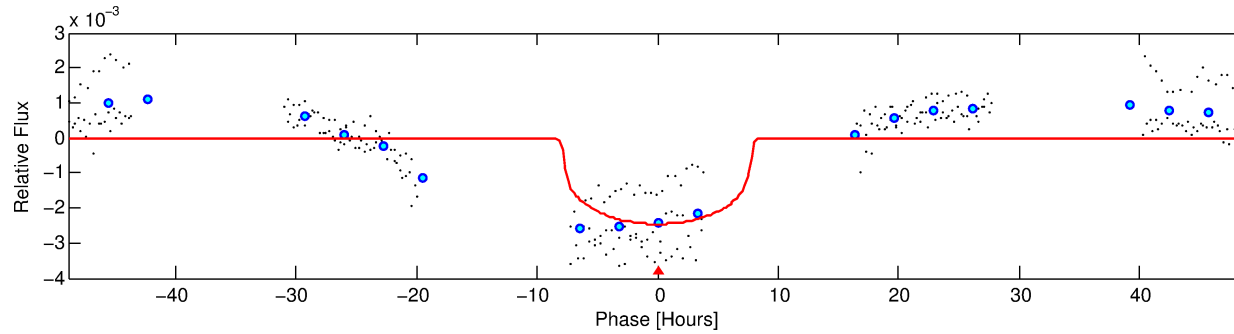
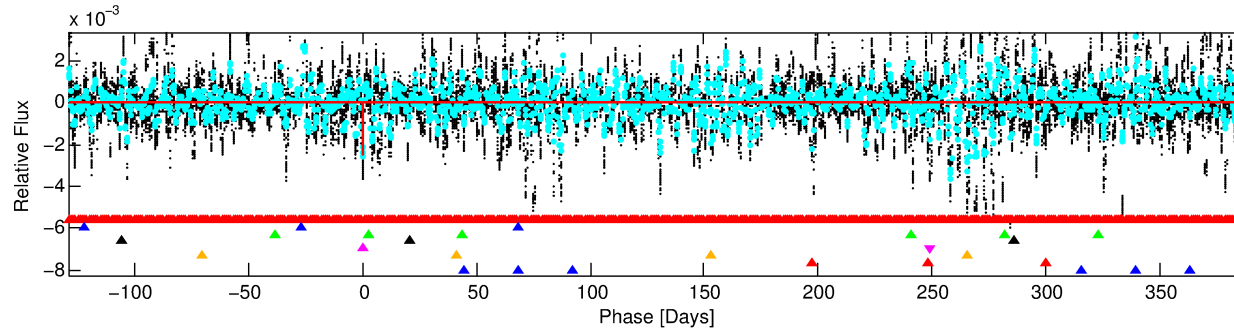
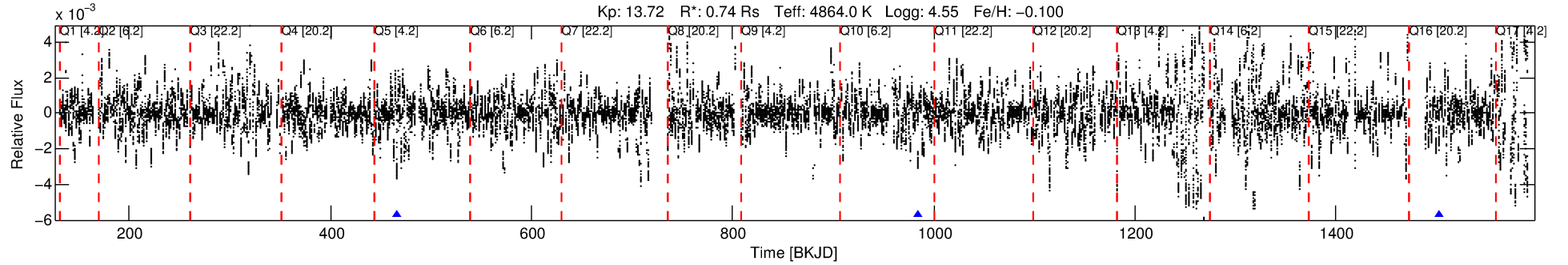
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-05

No Significant Match Found

DV One-Page Summary

KIC: 3330773 Candidate: 5 of 8 Period: 518.180 d



DV Fit Results:

Period = 518.17982 [0.05903] d
Epoch = 466.5729 [0.0891] BKJD
Rp/R* = 0.0439 [0.0252]
a/R* = 250.74 [465.90]
b = 0.15 [12.46]
Seff = 0.21 [0.04]
Teq = 174 [7] K
Rp = 3.55 [2.07] Re
a = 1.1302 [0.0901] AU
Ag = 40647.80 [50162.73] [0.81 σ]
Teffp = 3812 [1176] K [3.09 σ]

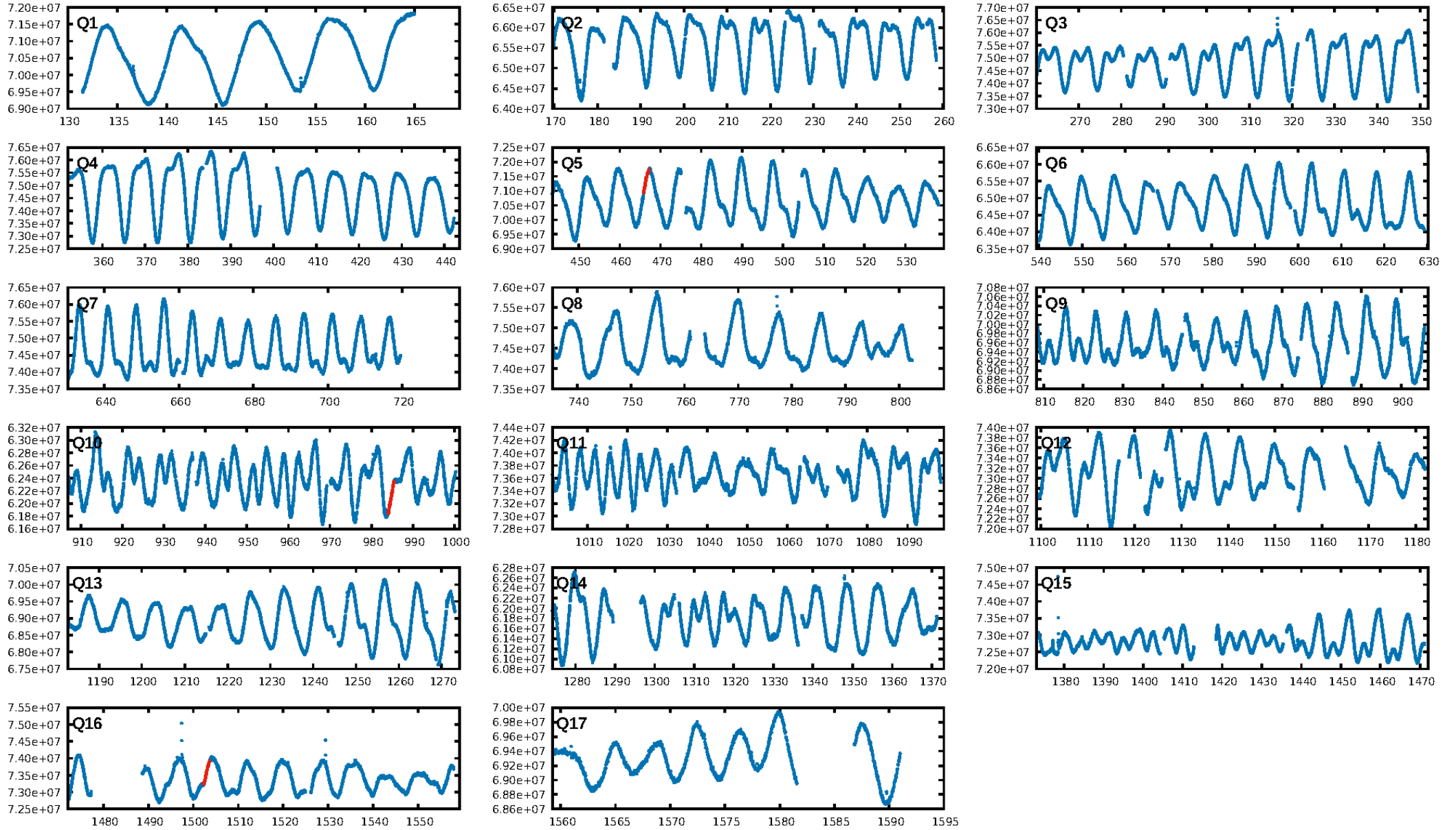
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [157.62 σ]
LongPeriod-sig: 100.0% [49.28 σ]
ModelChiSquare2-sig: 5.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.39e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.561
Centroid-sig: 21.6%
Centroid-so: 0.357 arcsec [1.32 σ]
OotOffset-rm: 0.498 arcsec [1.69 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 0.340 arcsec [1.80 σ]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/3]

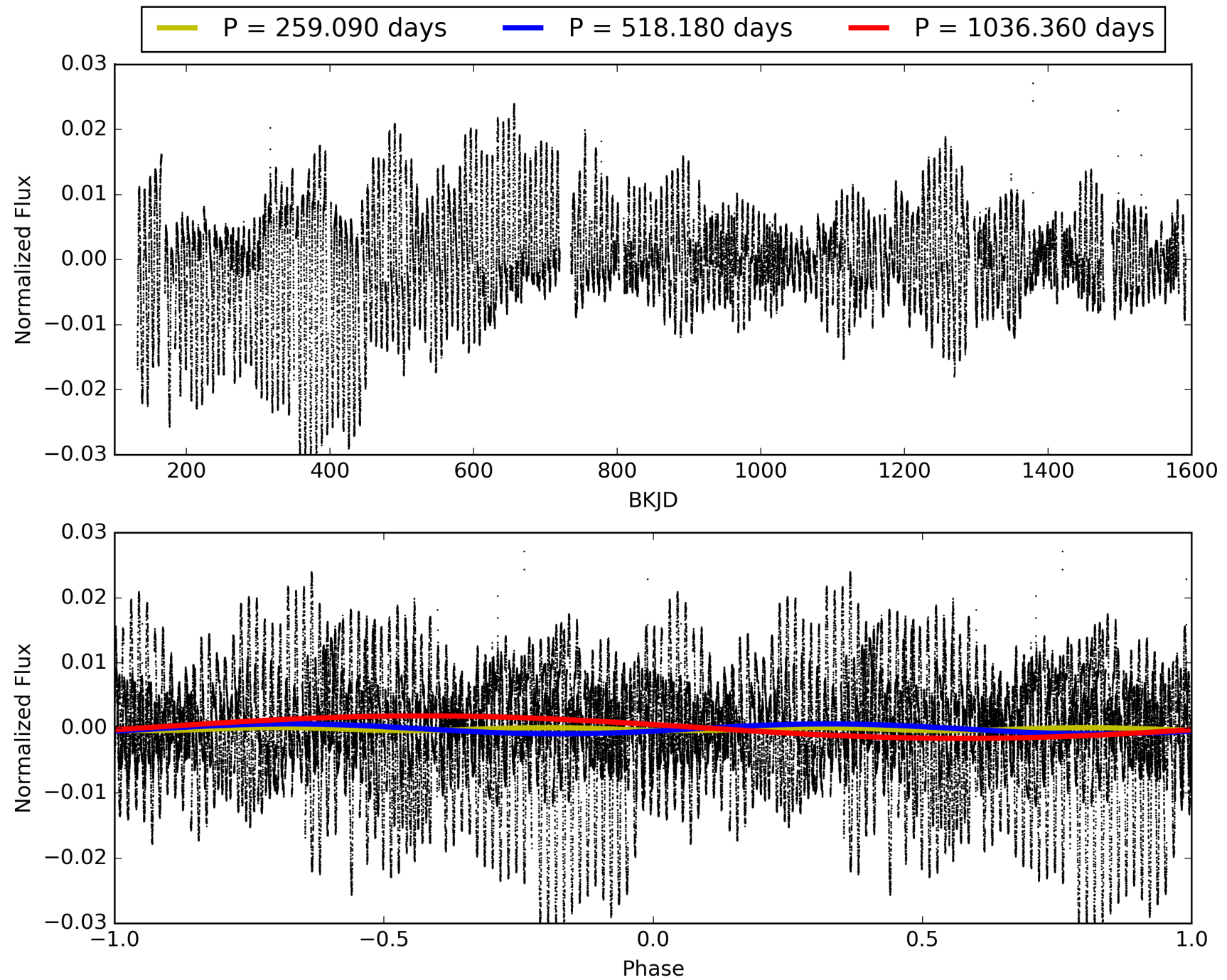
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:46:09 Z

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

TCE 003330773-05, PDC Light Curves

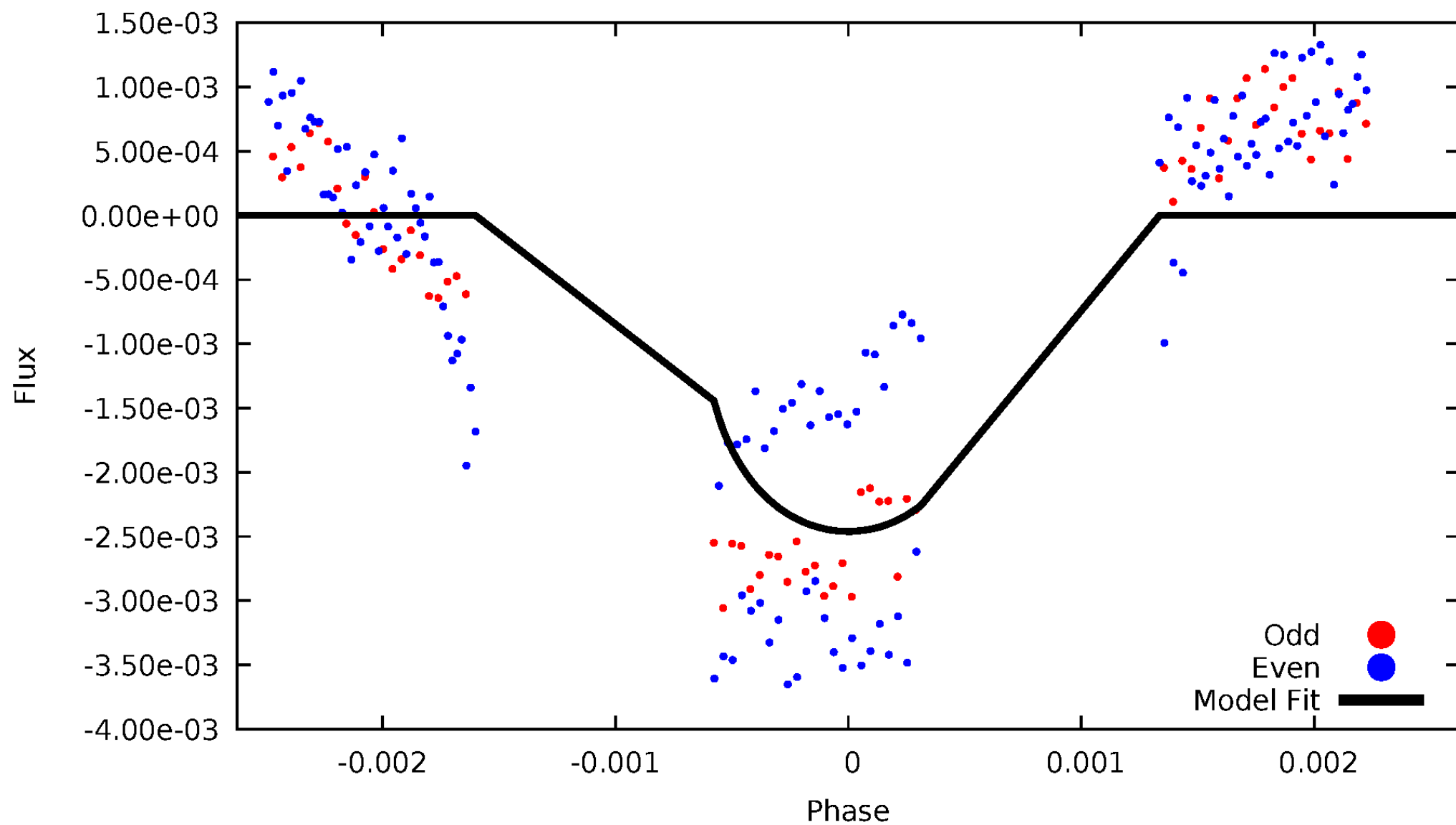


TCE 003330773-05



DV Odd/Even

TCE 003330773-05

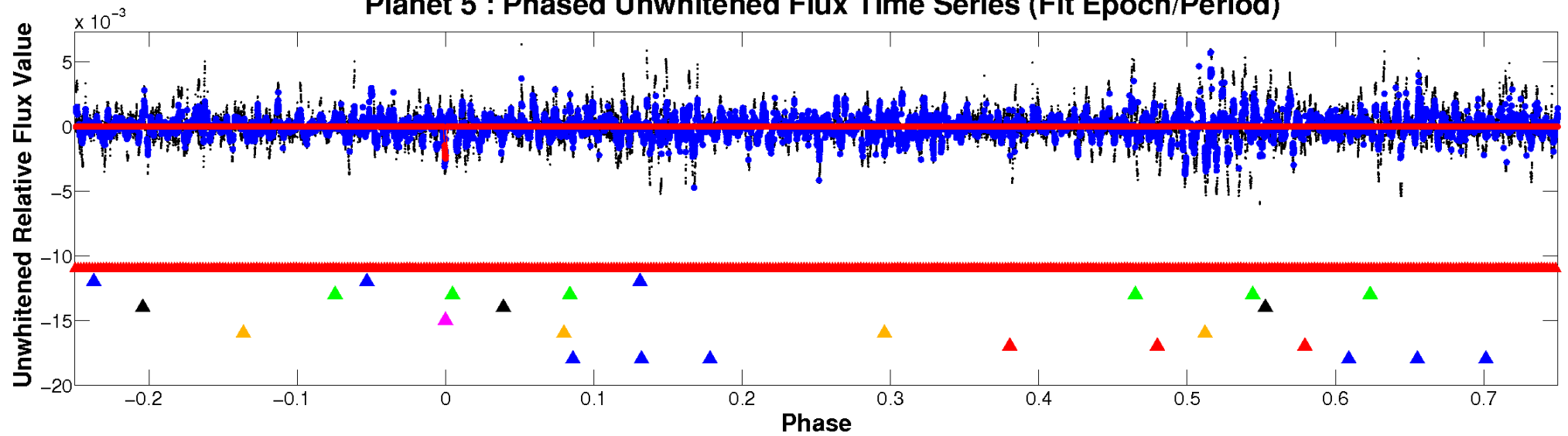


ALT Odd/Even

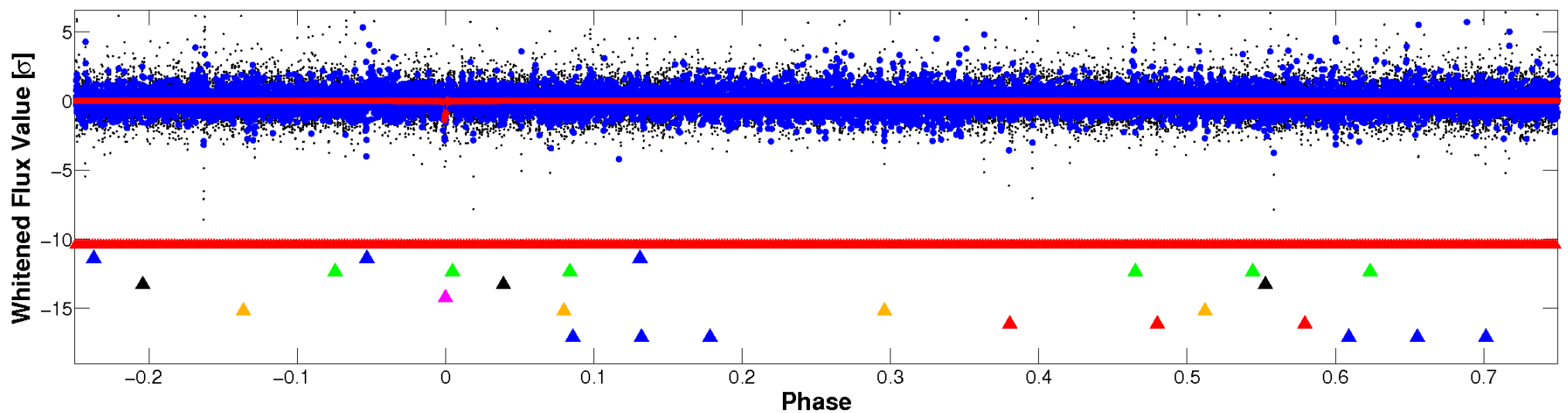
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

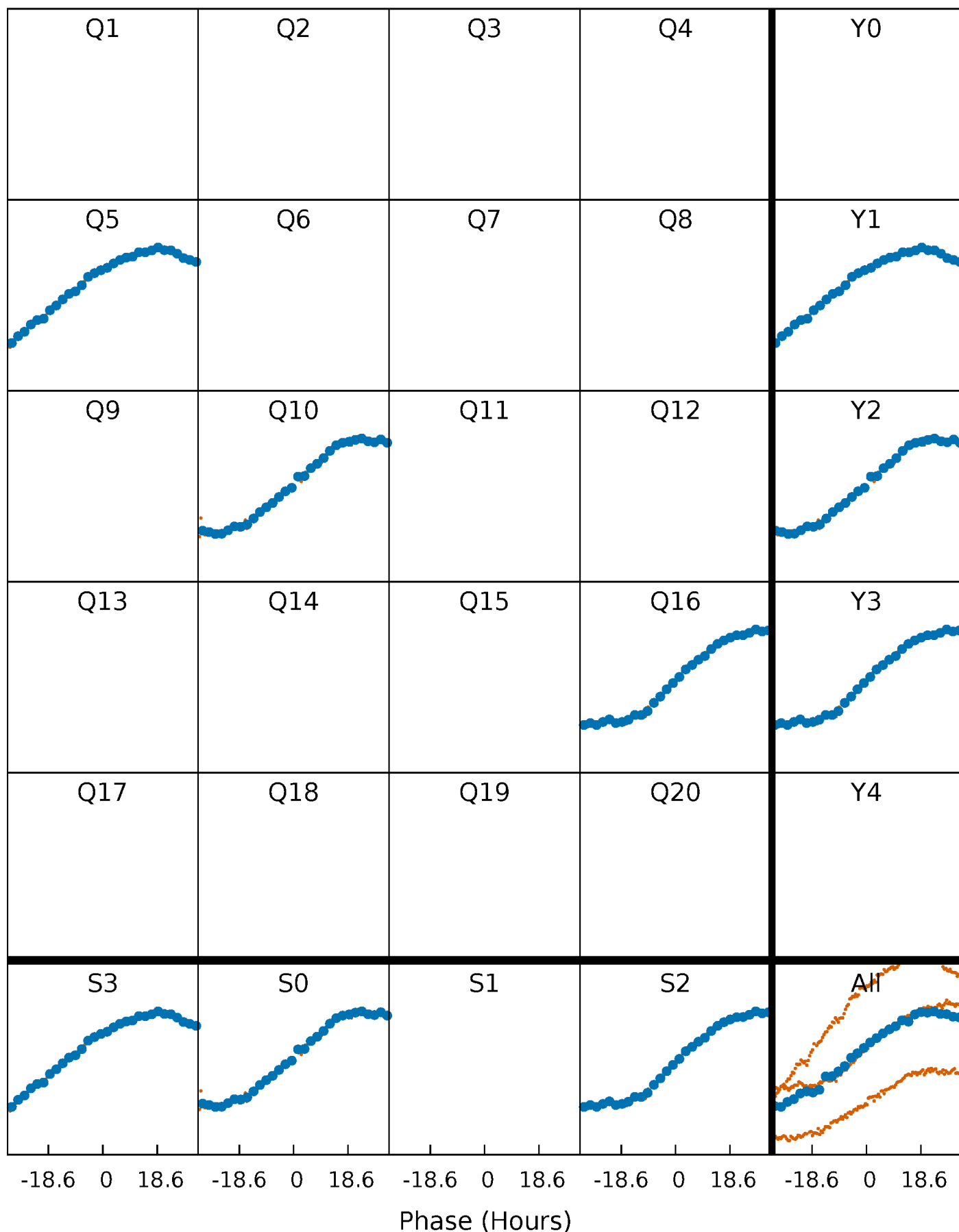


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



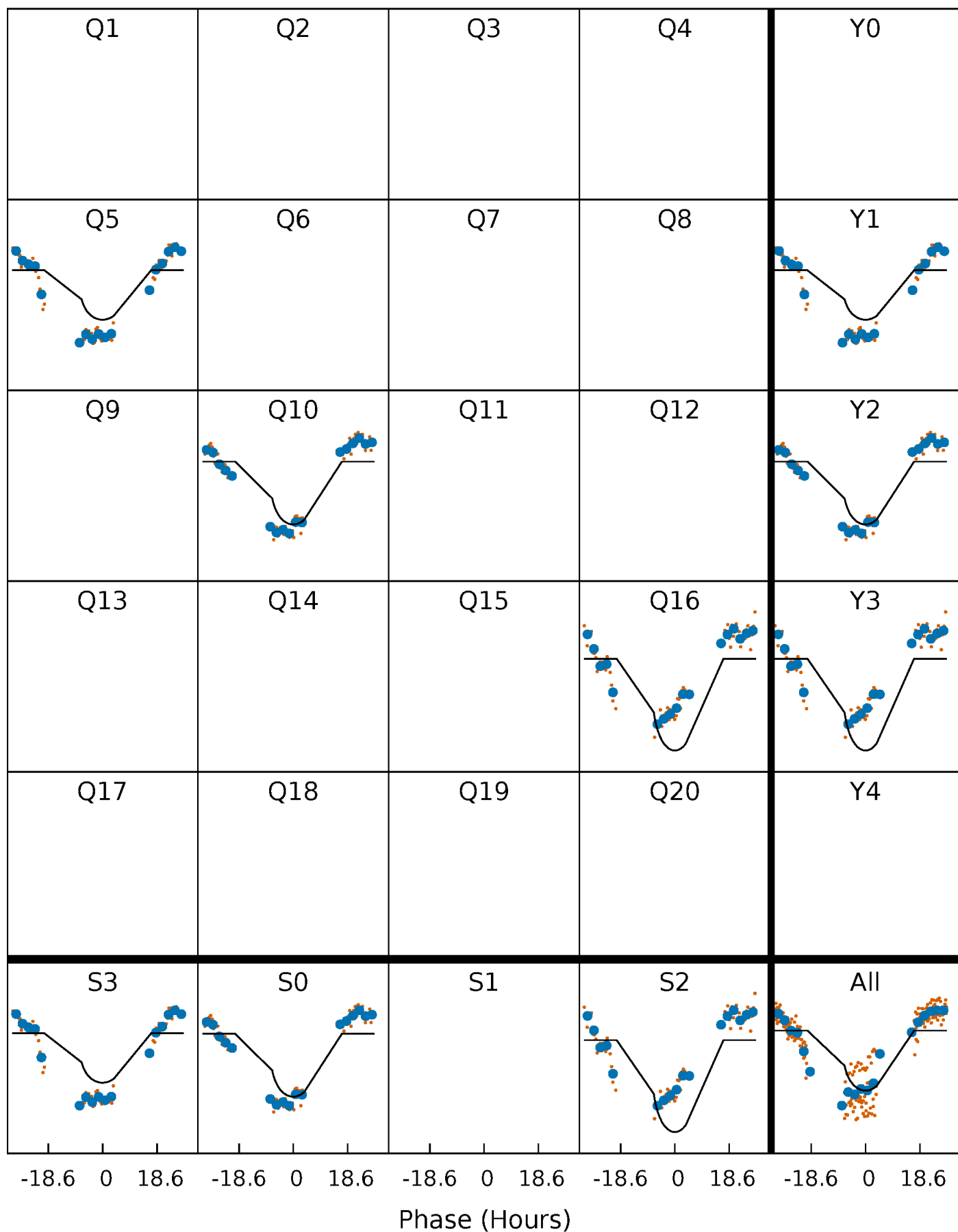
PDC Quarter-Phased Transit Curves

TCE 003330773-05 $P=518.179820$ Days $T_0=466.572896$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 003330773-05 $P=518.179820$ Days $T_0=466.572896$ (BKJD)

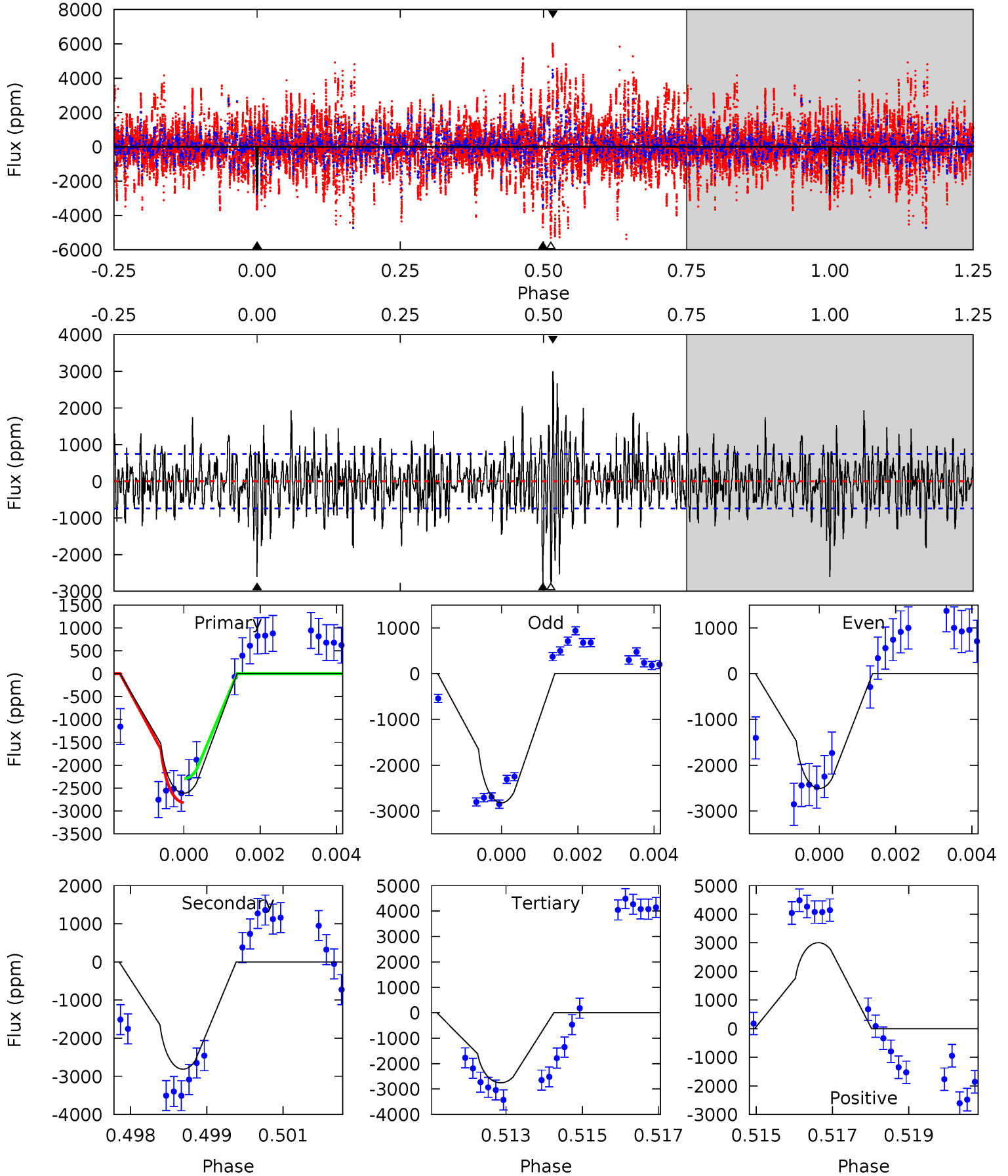


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

003330773-05, P = 518.179820 Days, E = 466.572896 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	20.3	19.8	21.7	5.33	3.10	4.42	-1.02	-2.82	0.42	-1.39	1.07	0.93	0.52	1.85



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2812 ± 139	$3.50^{+2.02}_{-1.91}$	241^{+8}_{-8}	5306^{+2687}_{-914}	$167904^{+637533}_{-101561}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

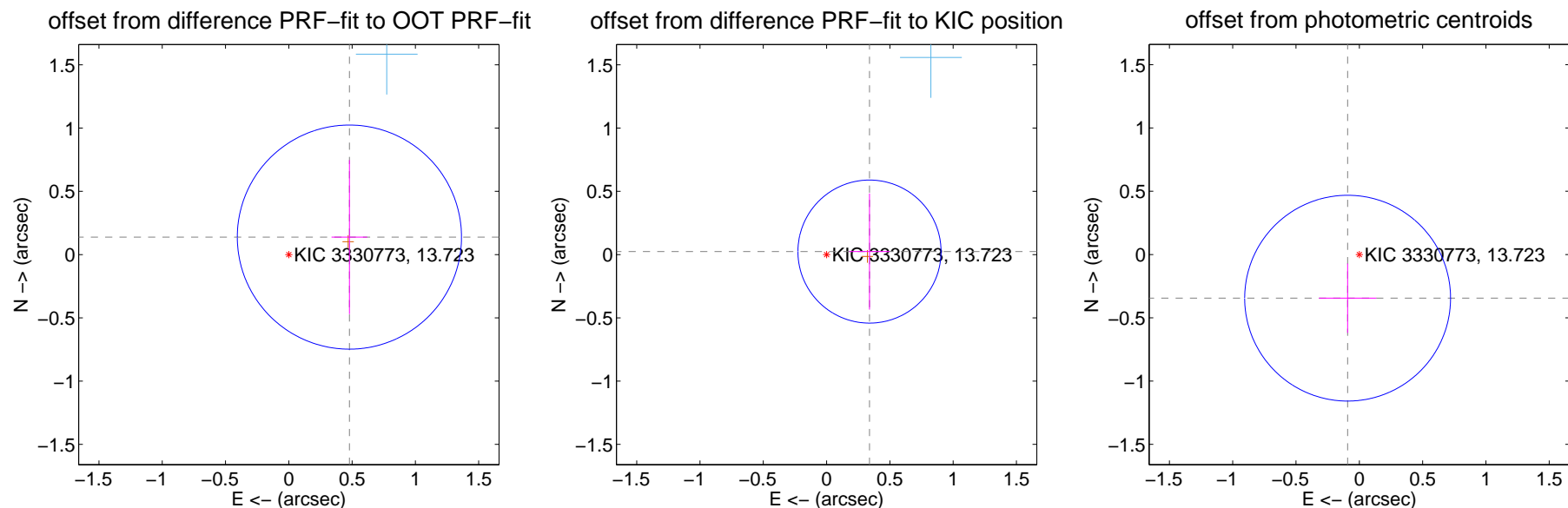
DV Centroid Data

Supplemental centroid analysis for 003330773-05. Kepler magnitude: 13.72. Transit SNR 8.23

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.498 ± 0.295	1.69	-0.479 ± 0.141	0.138 ± 0.609
PRF-fit source offset from KIC position	0.340 ± 0.188	1.80	-0.339 ± 0.159	0.024 ± 0.459
photometric centroid source offset	0.36 ± 0.27	1.32	0.09 ± 0.23	-0.34 ± 0.27

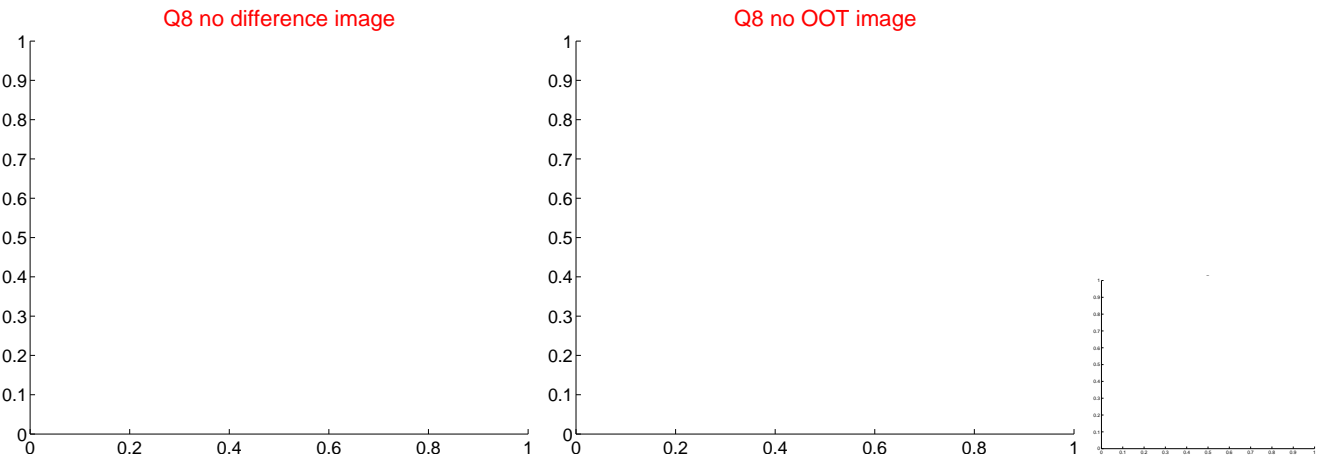
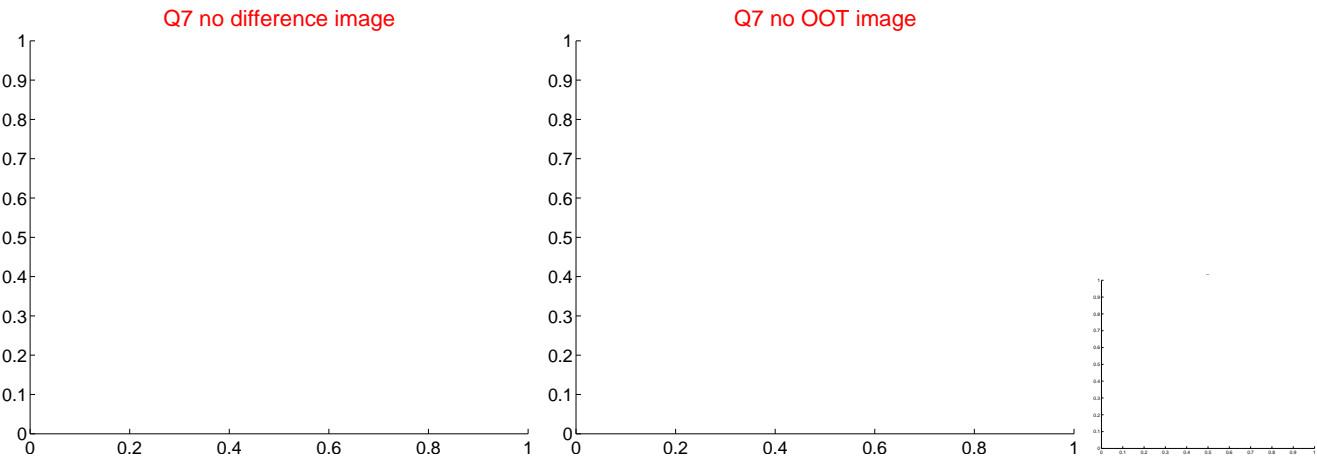
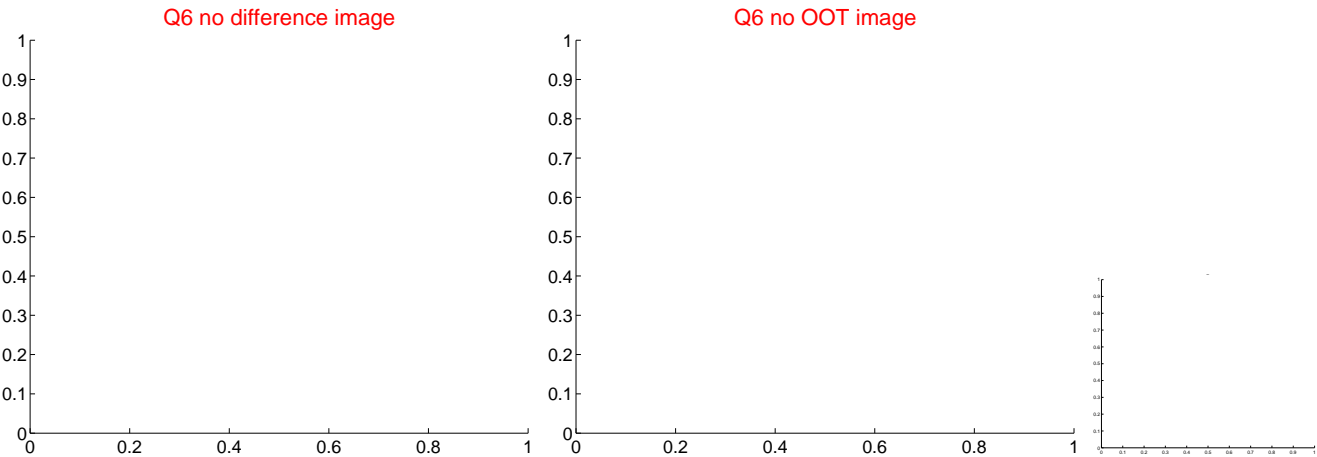
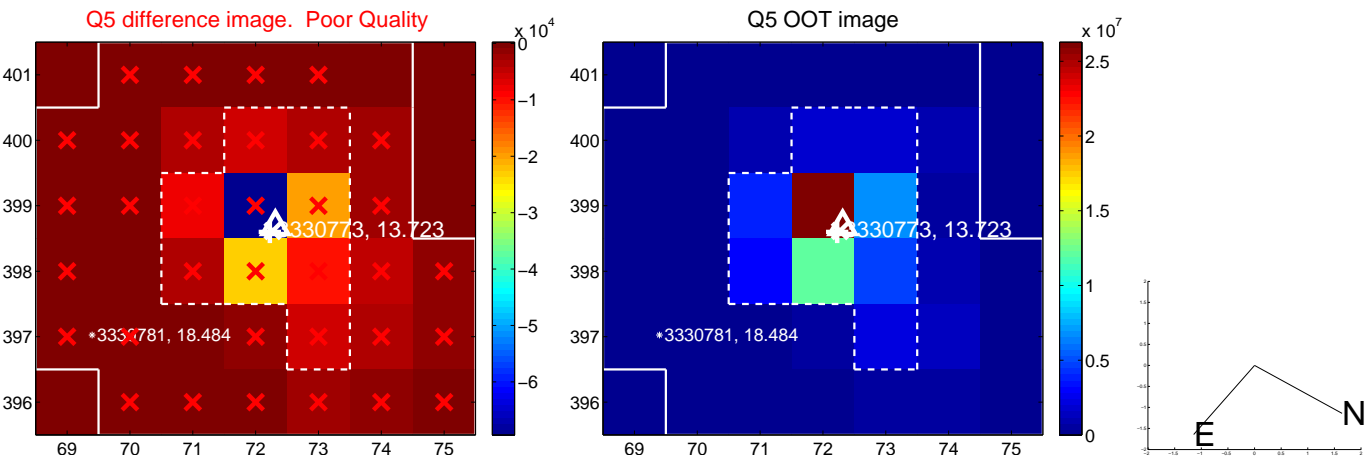


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

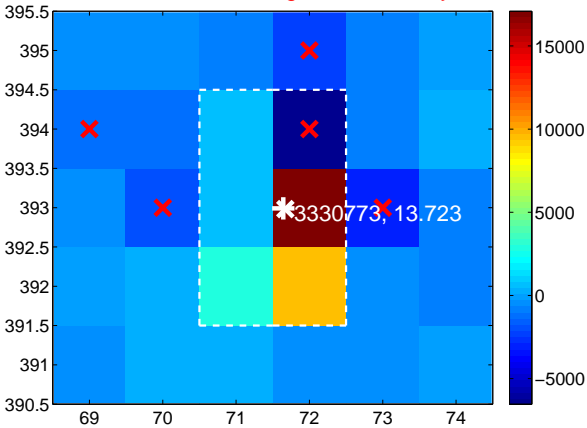
Q9 no difference image



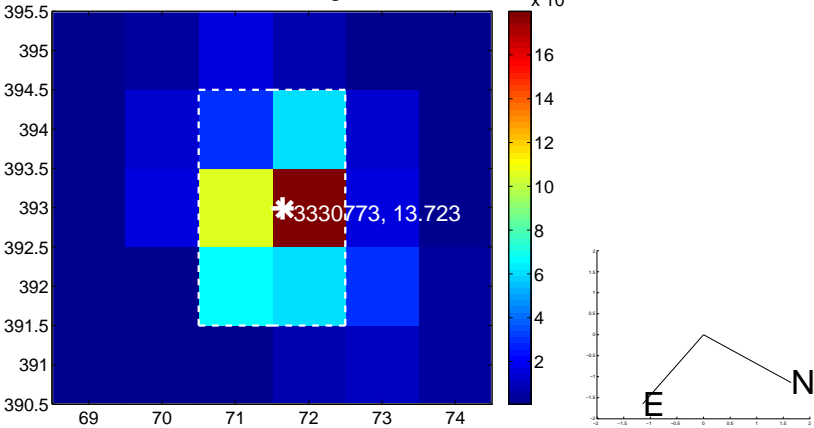
Q9 no OOT image



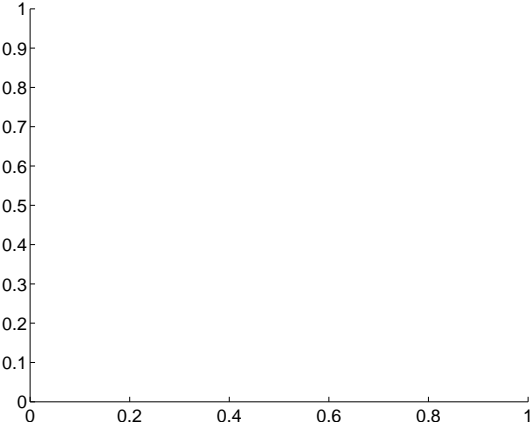
Q10 difference image. Poor Quality



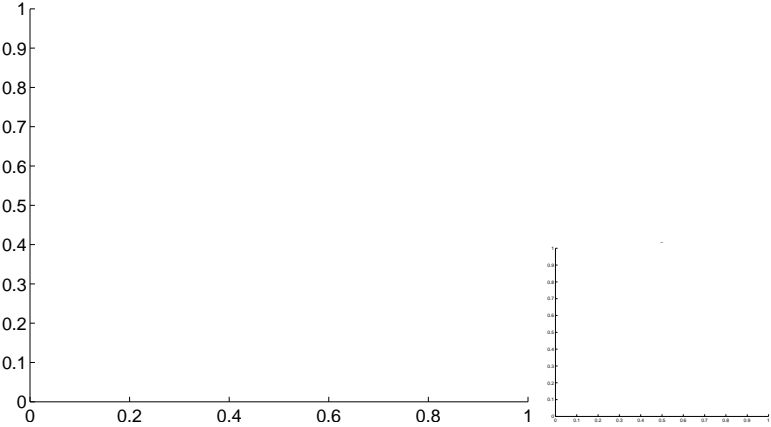
Q10 OOT image



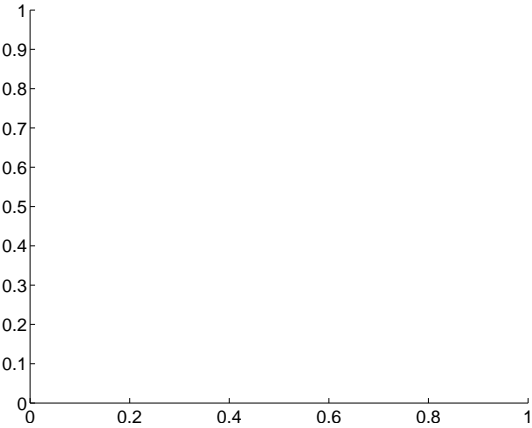
Q11 no difference image



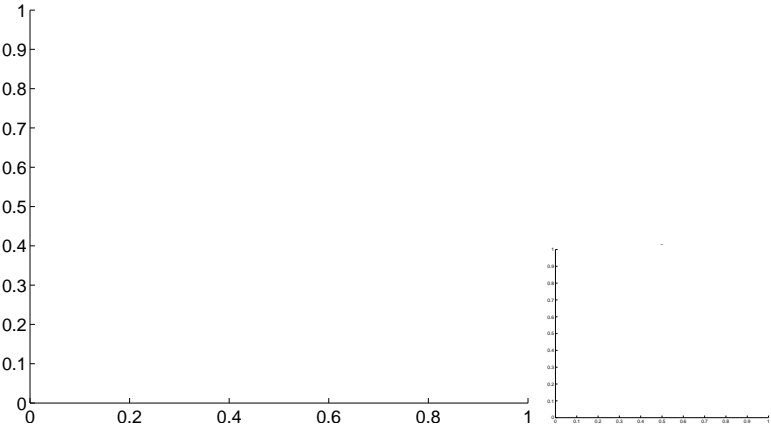
Q11 no OOT image



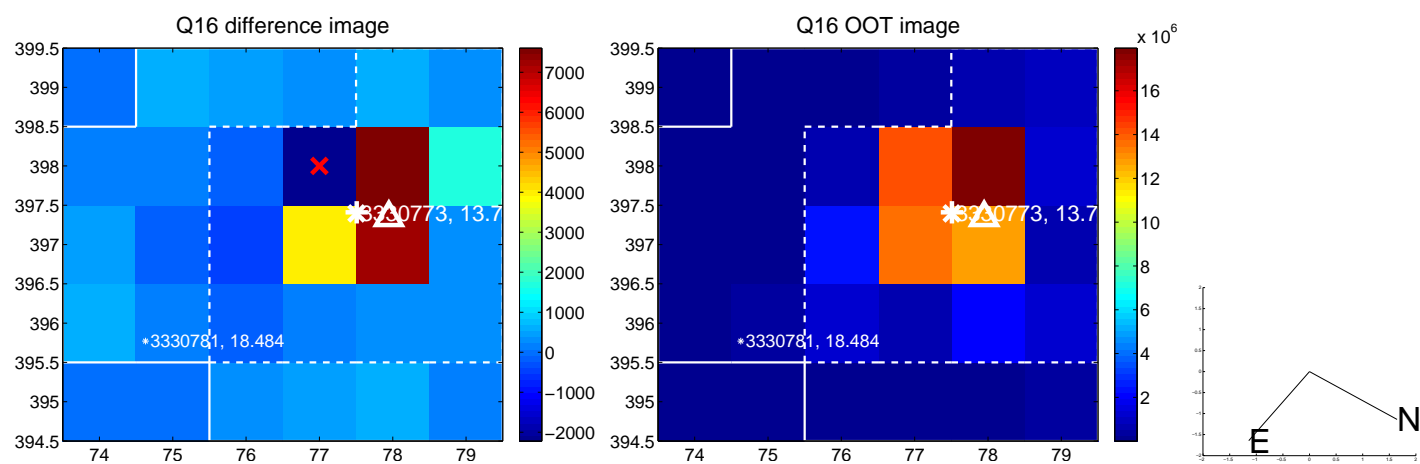
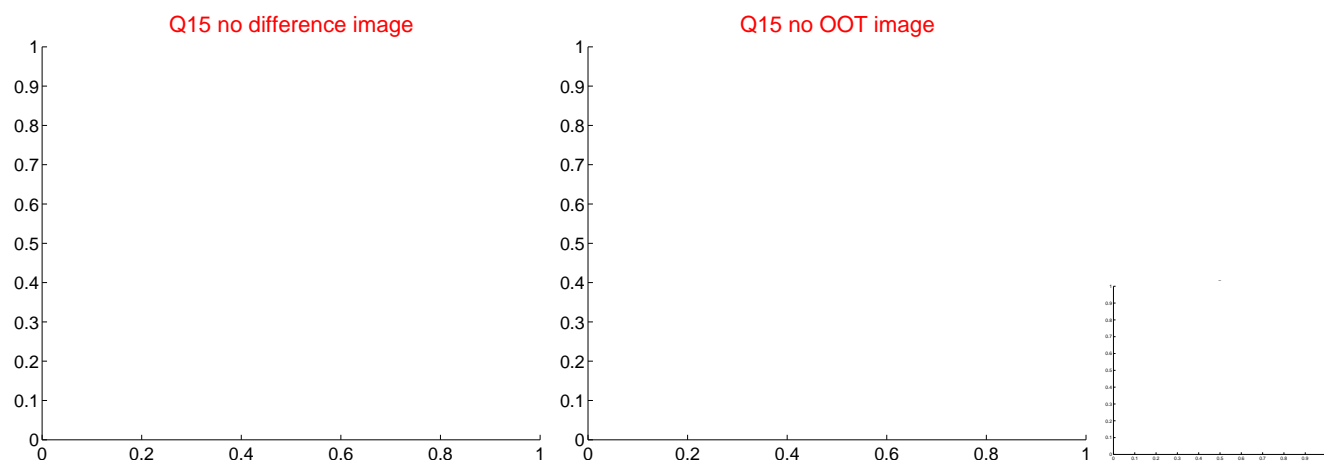
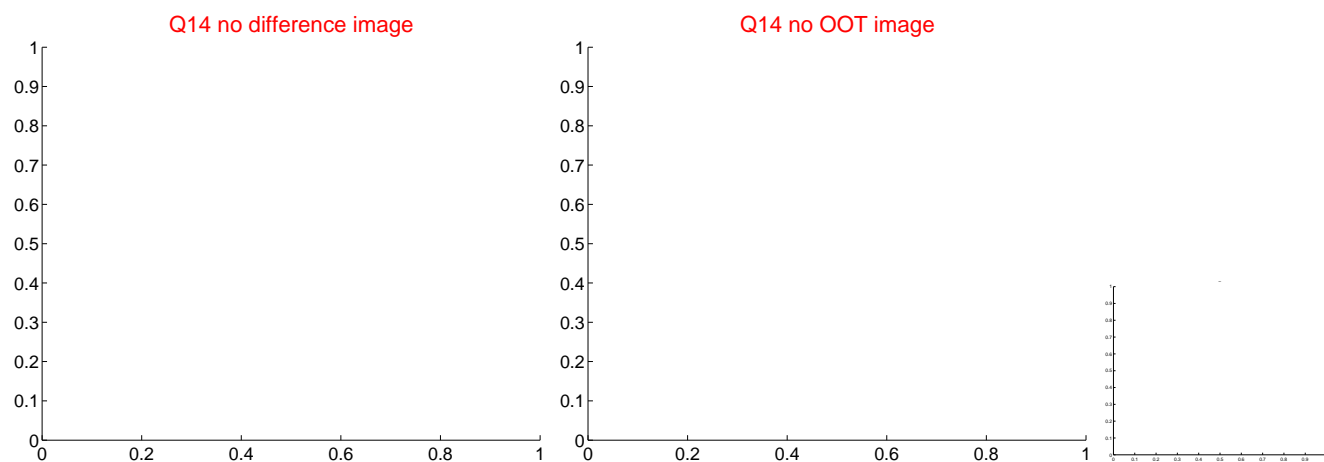
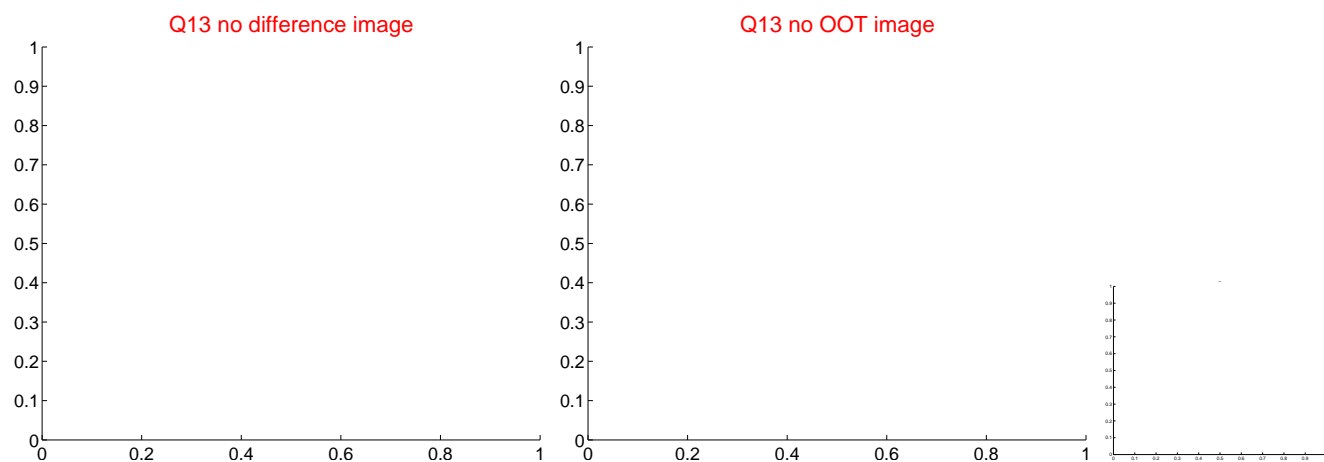
Q12 no difference image



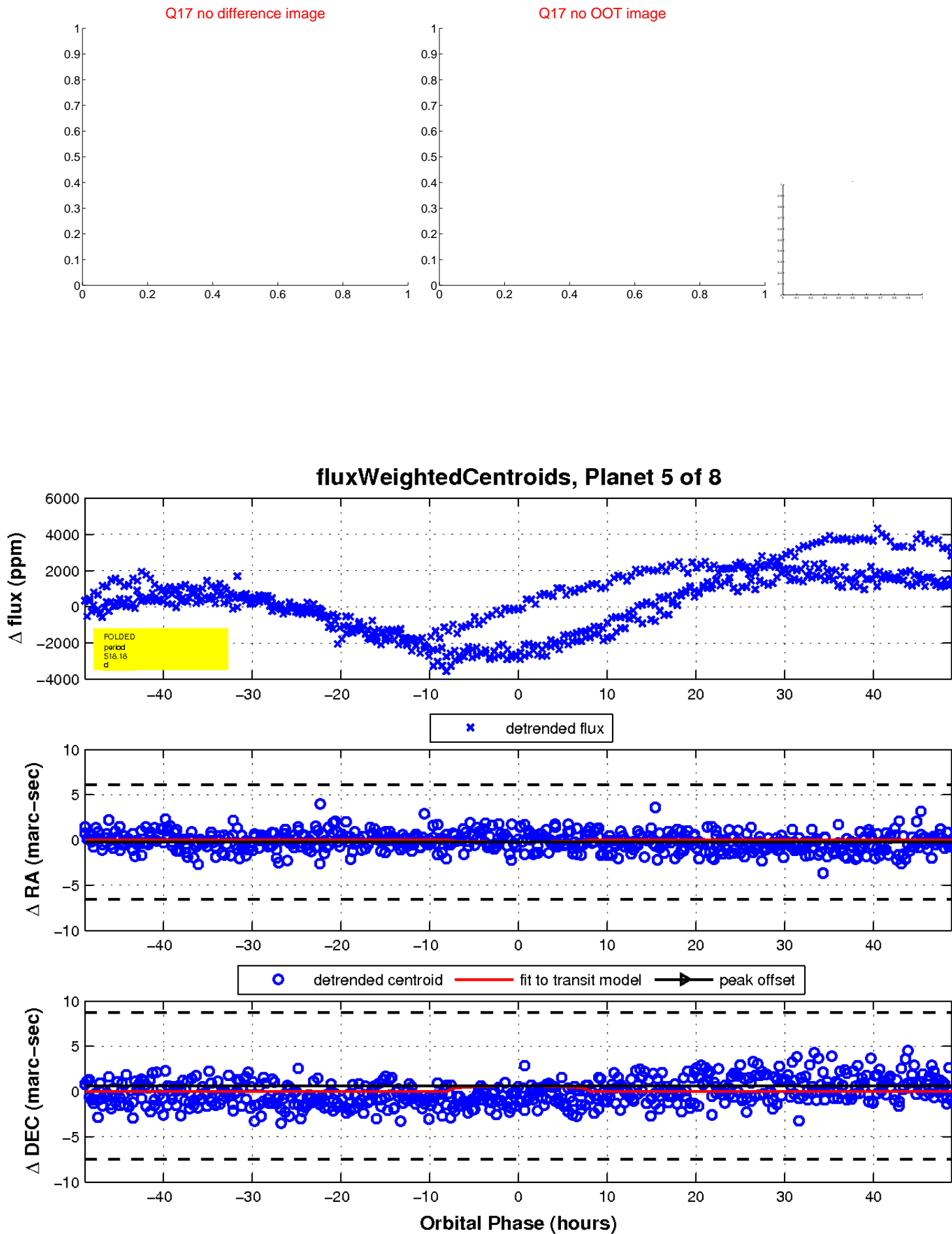
Q12 no OOT image



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

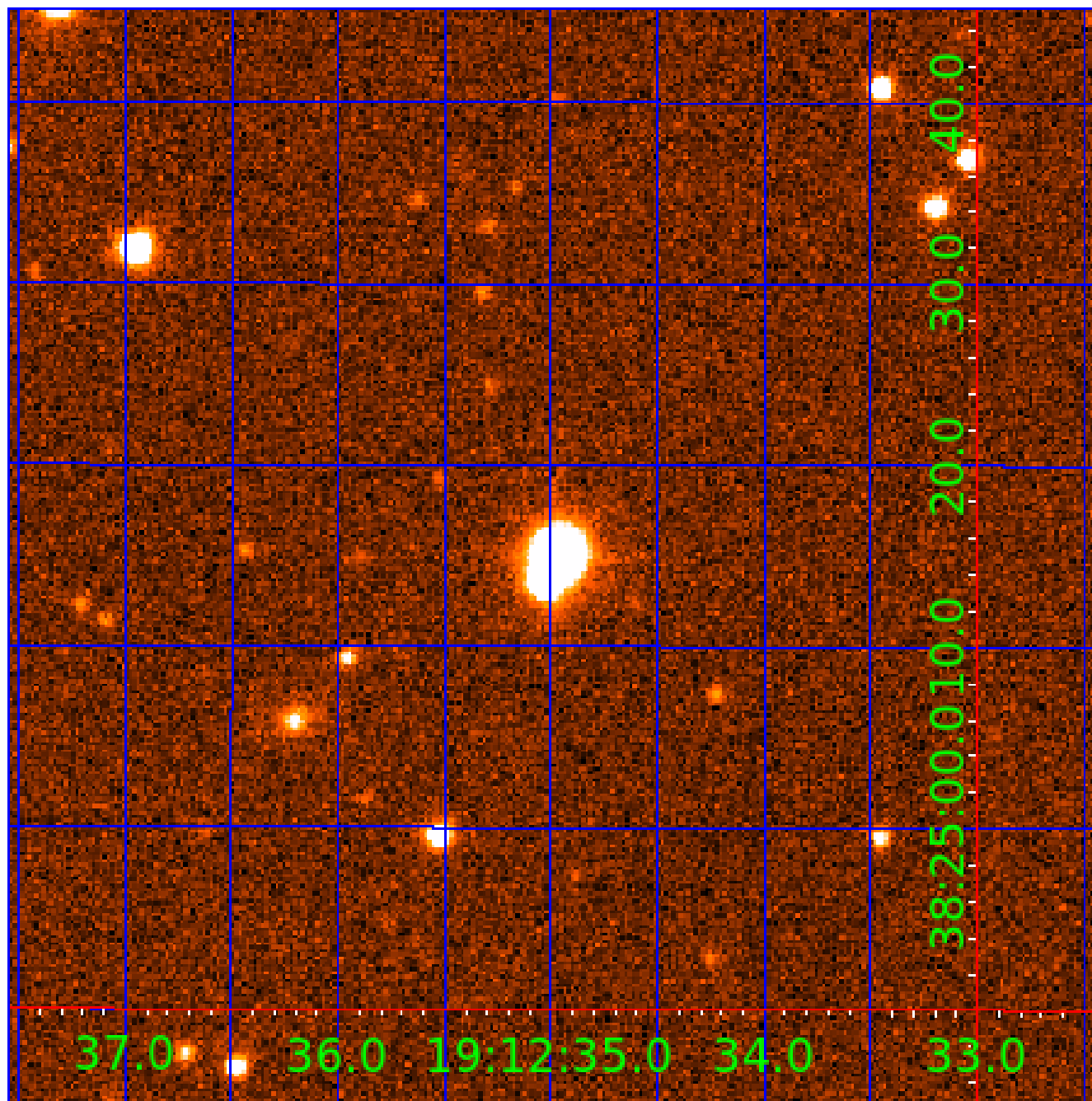


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003330773

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})
003330773-01	OBS	No	0.990779	132.118014	41.2	4.010	8.4	9.8	0.74	4864	0.46	905.85
003330773-02	OBS	No	613.600412	343.696544	4688.0	37.006	15.8	7.6	0.74	4864	6.30	0.17
003330773-03	OBS	No	238.584464	271.443023	825.6	6.436	14.8	7.4	0.74	4864	3.14	0.60
003330773-04	OBS	No	392.191044	486.816683	1076.0	28.132	14.4	4.7	0.74	4864	2.41	0.31
003330773-05	OBS	No	518.179820	466.572896	2460.0	16.313	11.3	8.2	0.74	4864	3.55	0.21
003330773-06	OBS	No	406.194283	213.754569	305.6	4.964	11.0	3.3	0.74	4864	1.55	0.30
003330773-07	OBS	No	569.728389	145.546172	2297.1	19.080	10.3	8.2	0.74	4864	3.97	0.19
003330773-08	OBS	No	247.115893	311.889261	793.1	10.138	9.5	6.1	0.74	4864	2.32	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003330773-01	OBS	FP	0.01	1	0	0	0	LPP_DV
003330773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
003330773-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003330773-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003330773-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

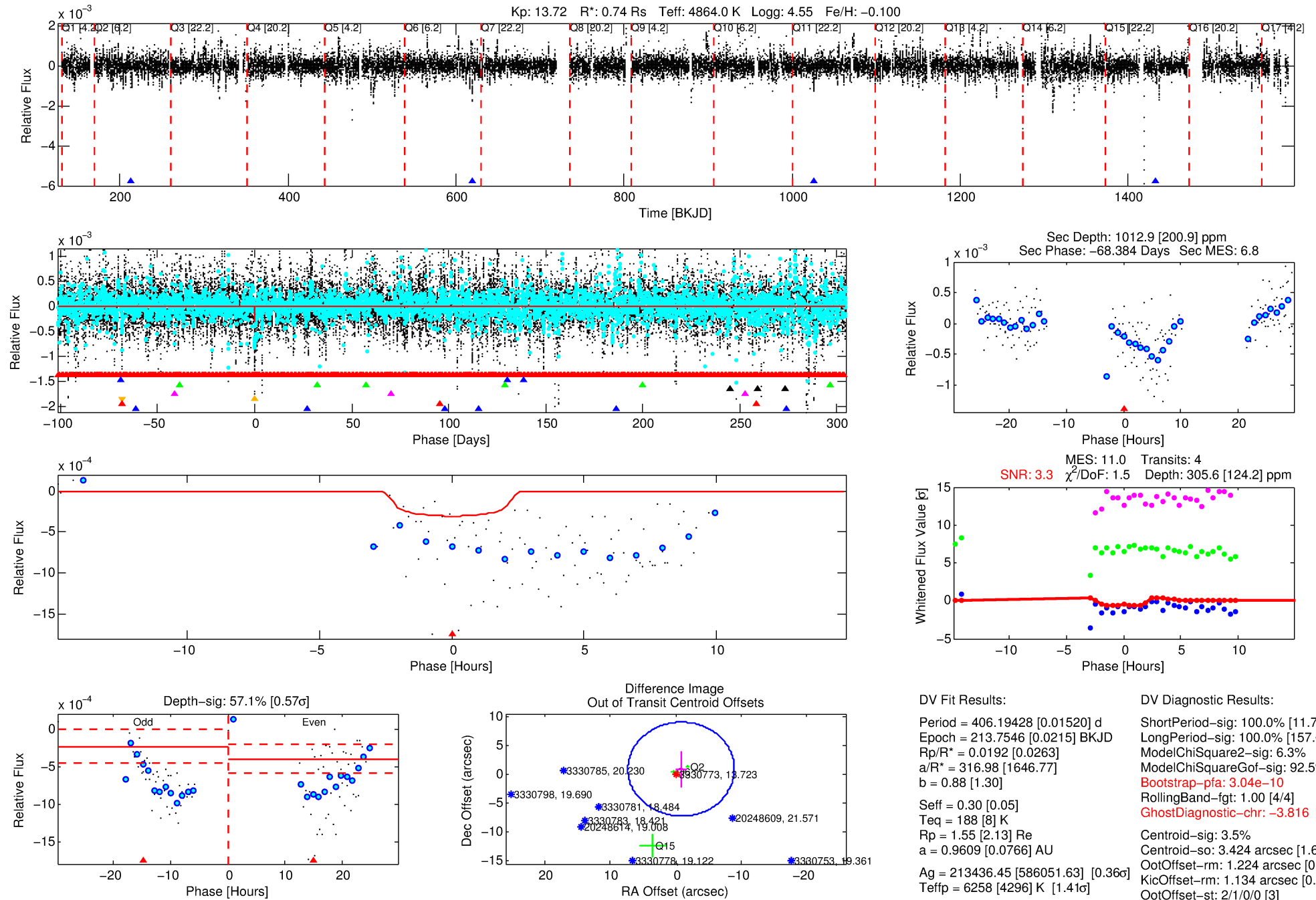
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-06

No Significant Match Found

DV One-Page Summary

KIC: 3330773 Candidate: 6 of 8 Period: 406.194 d



DV Fit Results:

Period = 406.19428 [0.01520] d
Epoch = 213.7546 [0.0215] BKJD
Rp/R* = 0.0192 [0.0263]
a/R* = 316.98 [1646.77]
b = 0.88 [1.30]
Seff = 0.30 [0.05]
Teq = 188 [8] K
Rp = 1.55 [2.13] Re
a = 0.9609 [0.0766] AU
Ag = 213436.45 [586051.63] [0.36 σ]
Teff = 6258 [4296] K [1.41 σ]

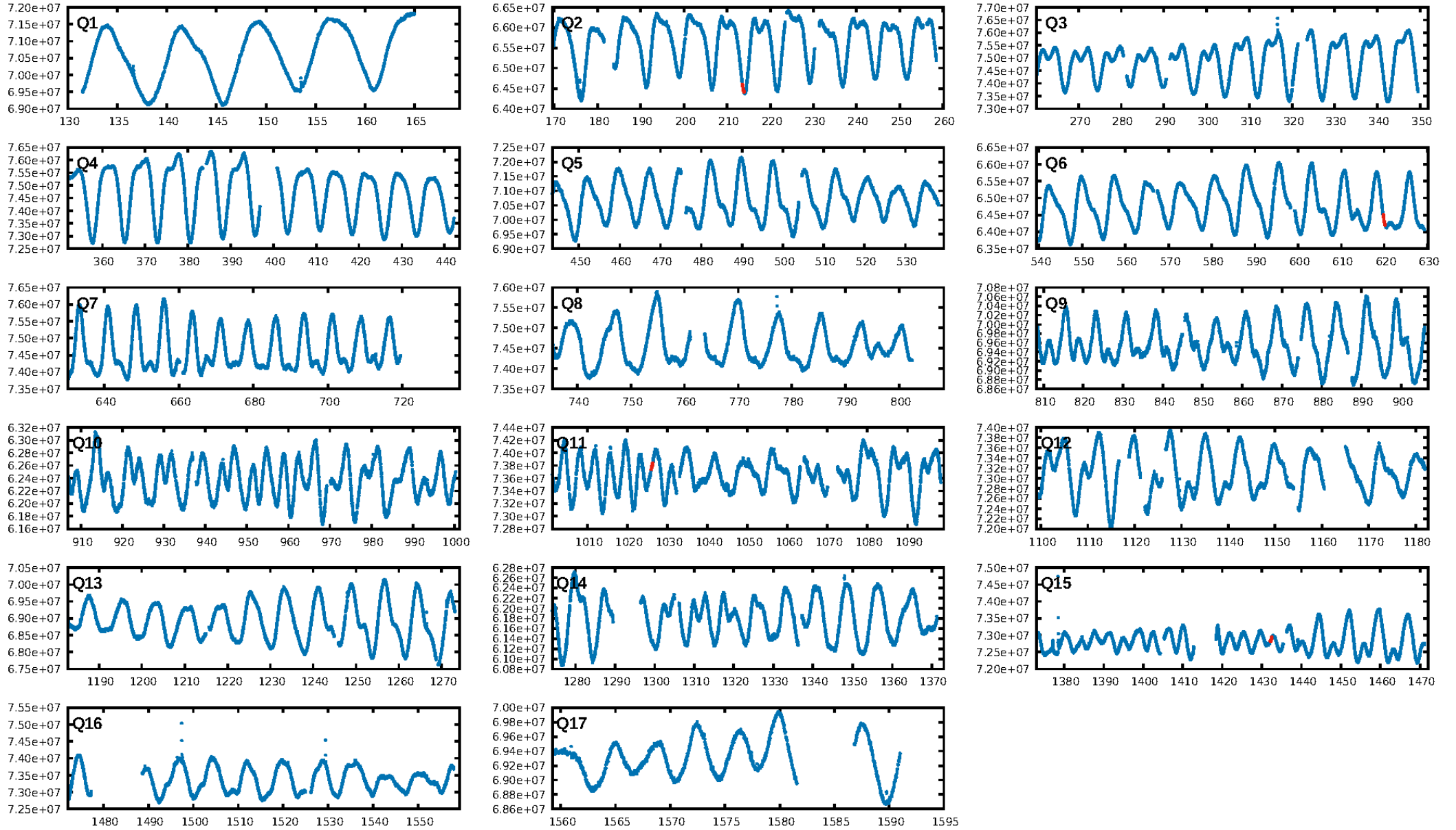
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.76 σ]
LongPeriod-sig: 100.0% [157.62 σ]
ModelChiSquare2-sig: 6.3%
ModelChiSquareGof-sig: 92.5%
Bootstrap-pfa: 3.04e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -3.816
Centroid-sig: 3.5%
Centroid-so: 3.424 arcsec [1.64 σ]
OotOffset-rm: 1.224 arcsec [0.45 σ]
OotOffset-st: 2/1/0/0 [3]
KicOffset-rm: 1.134 arcsec [0.70 σ]
KicOffset-st: 2/1/0/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.00 [0/4]

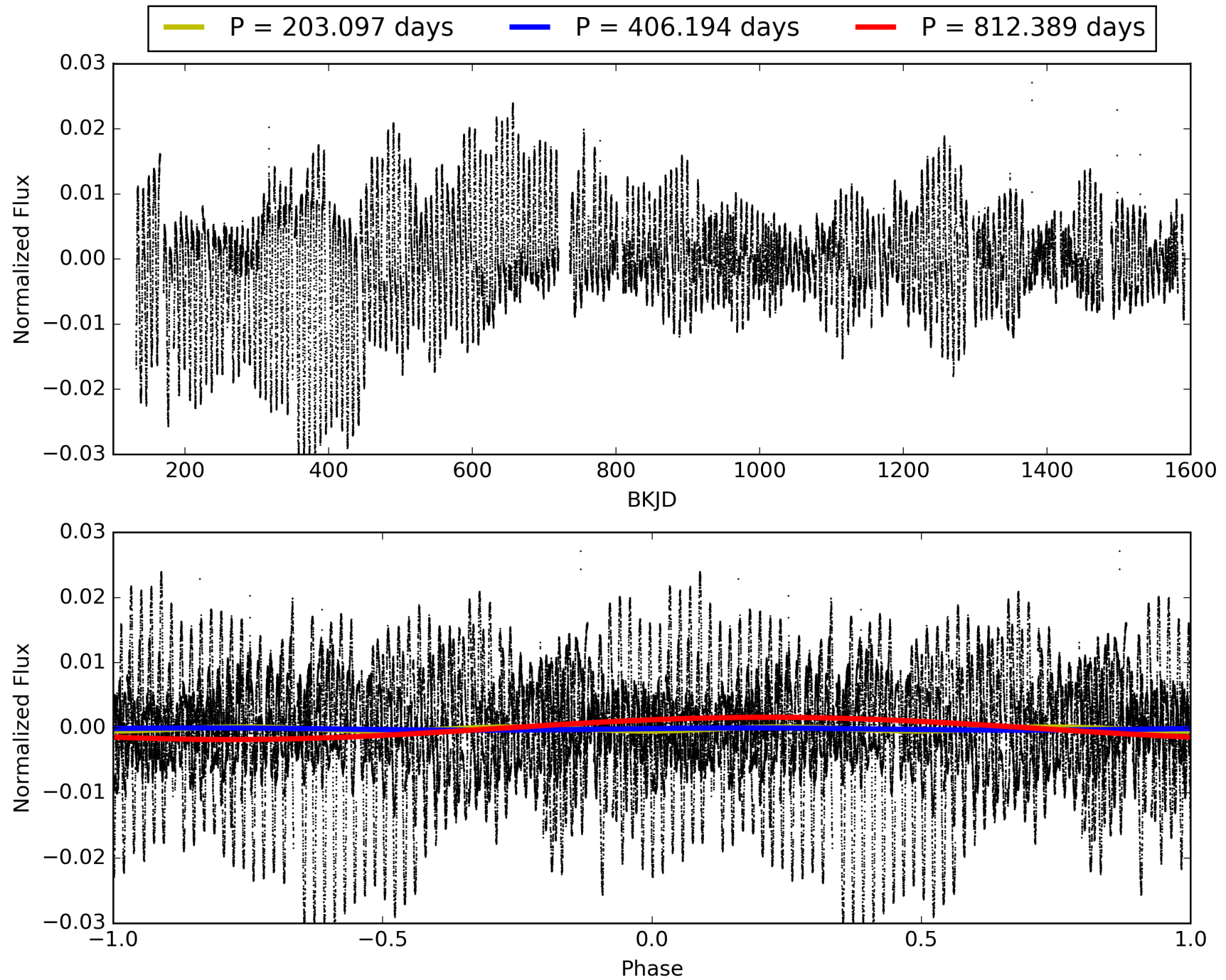
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:46:17 Z

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

TCE 003330773-06, PDC Light Curves

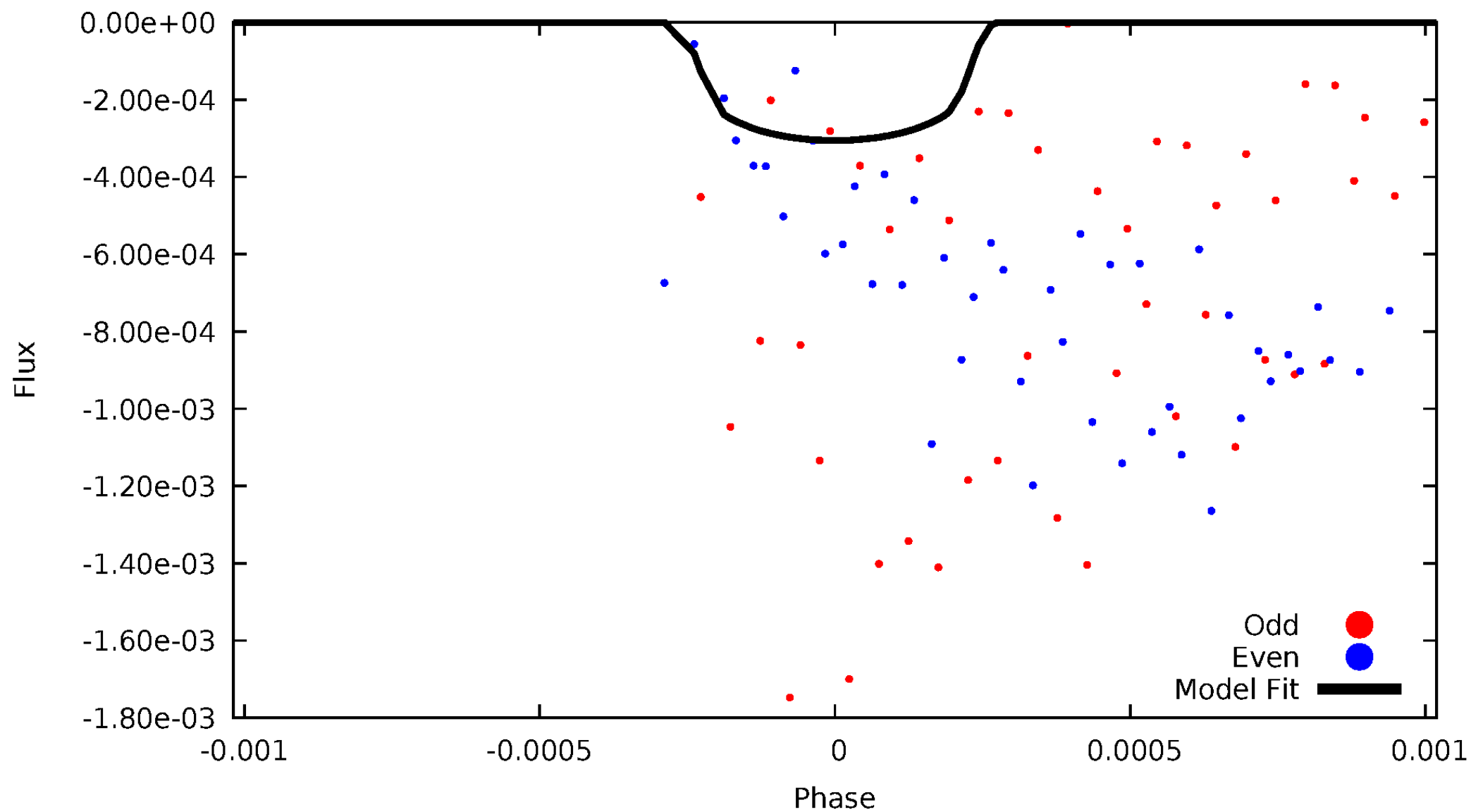


TCE 003330773-06



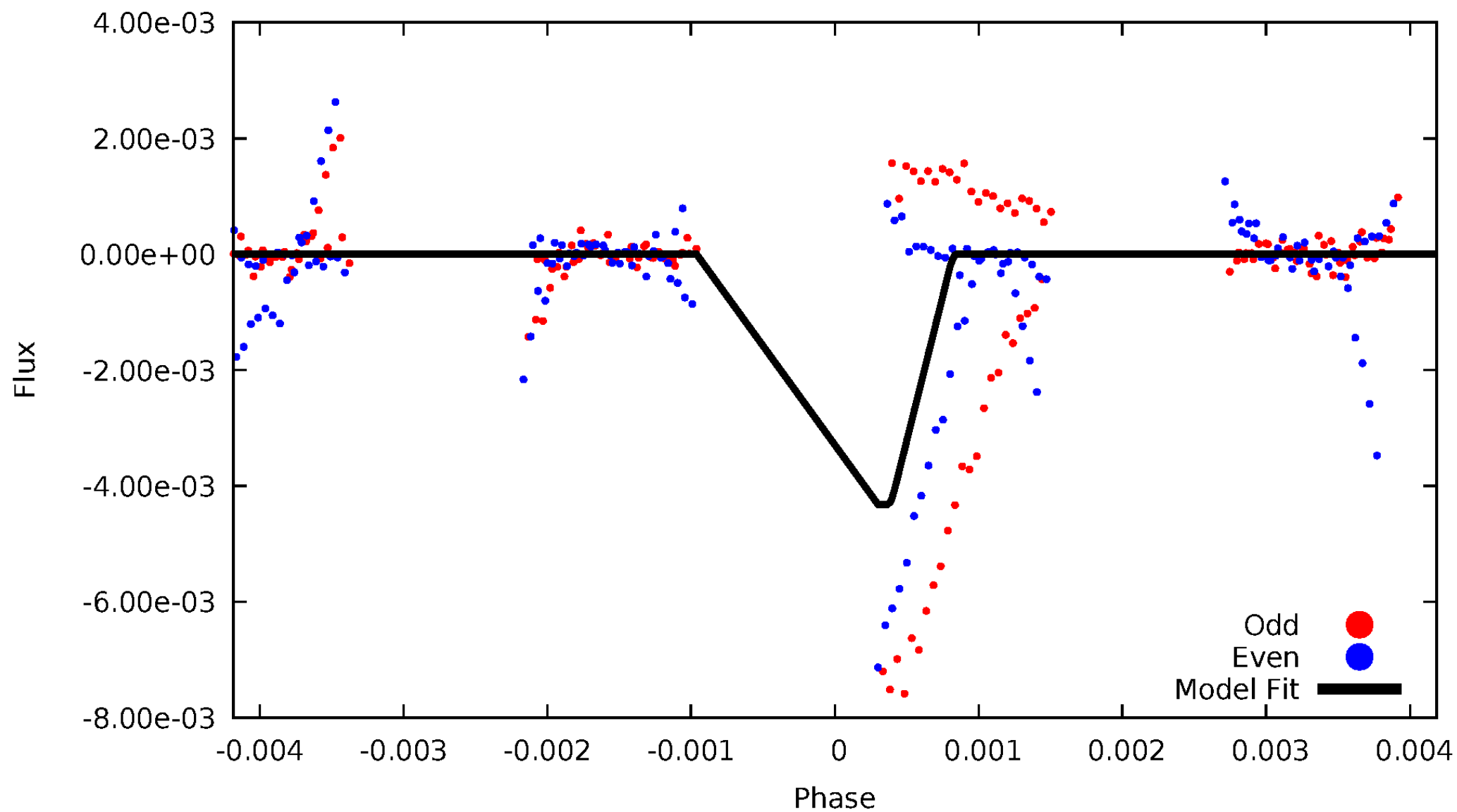
DV Odd/Even

TCE 003330773-06



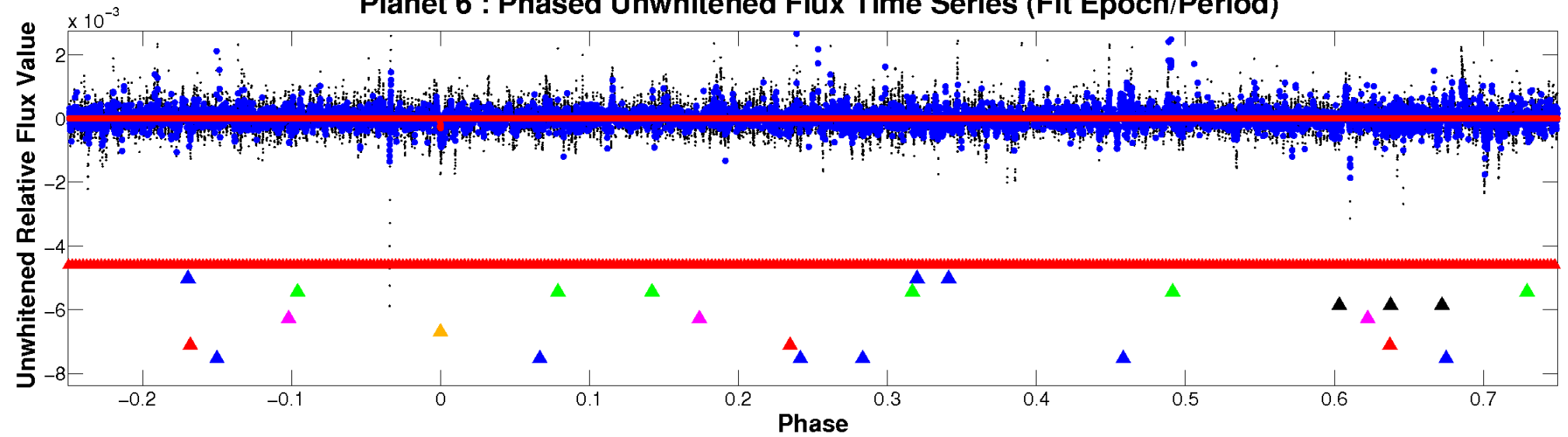
ALT Odd/Even

TCE 003330773-06

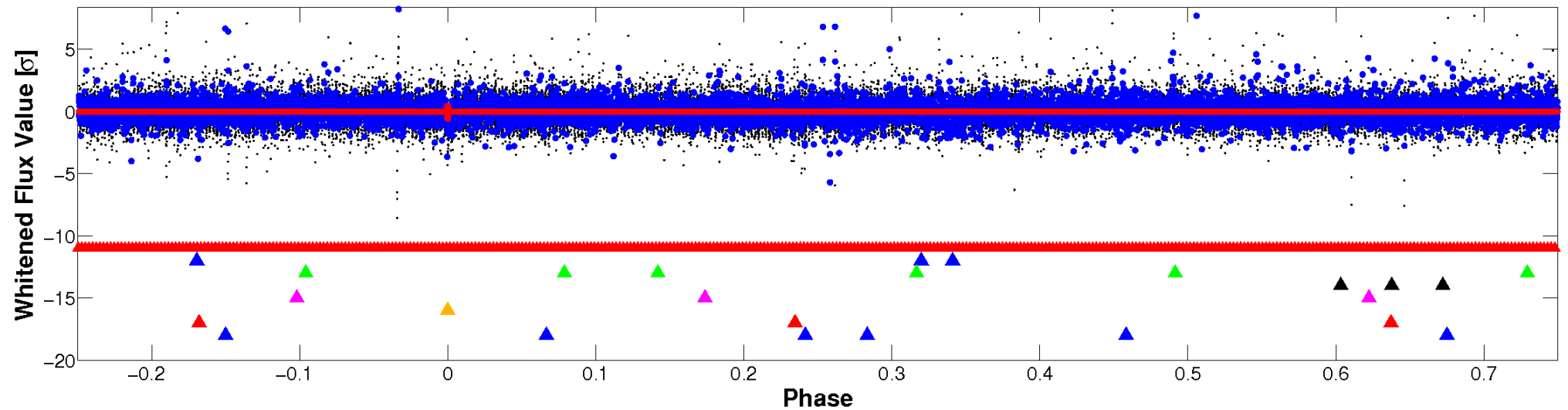


Non-Whitened Vs. Whitened Light Curve

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

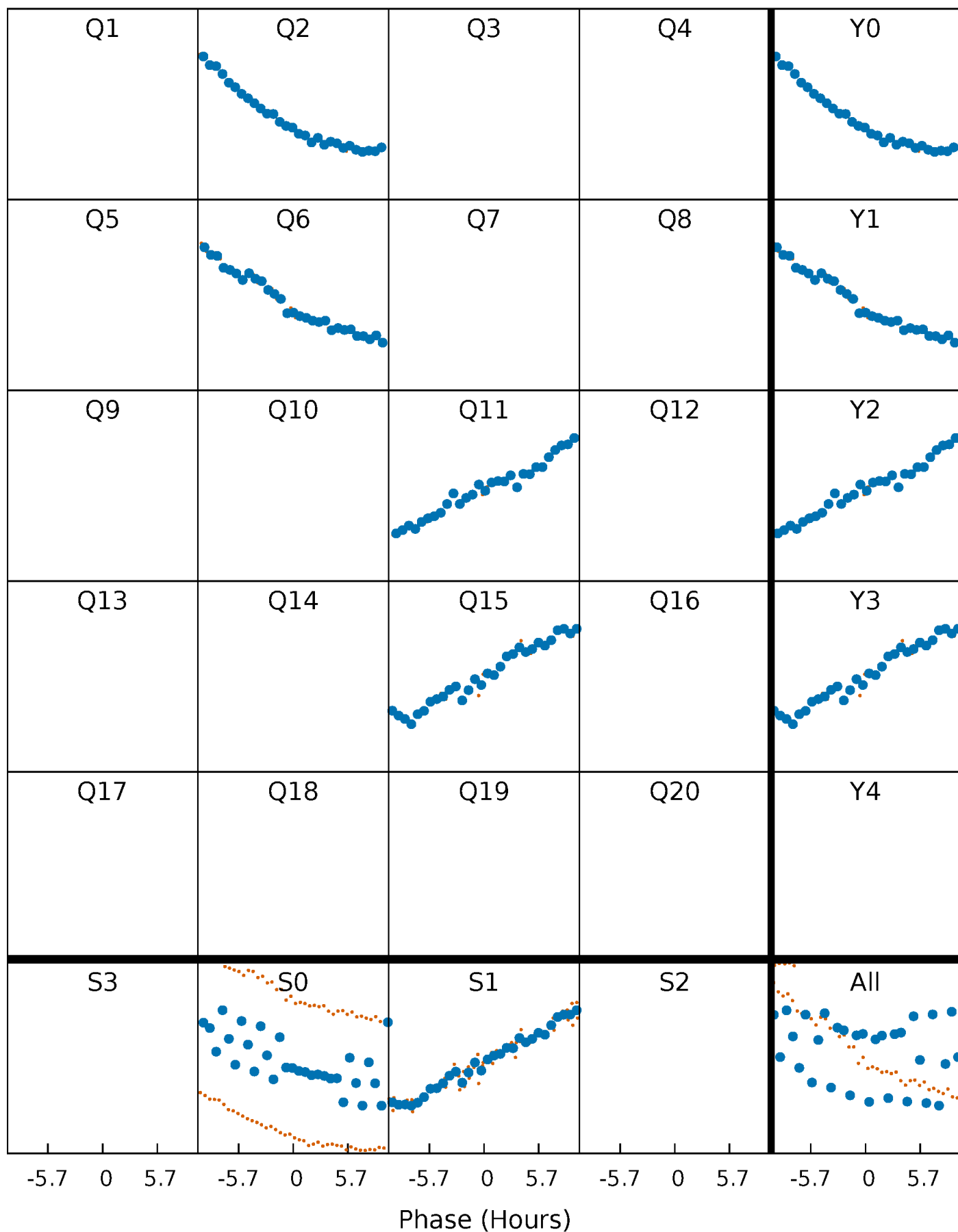


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



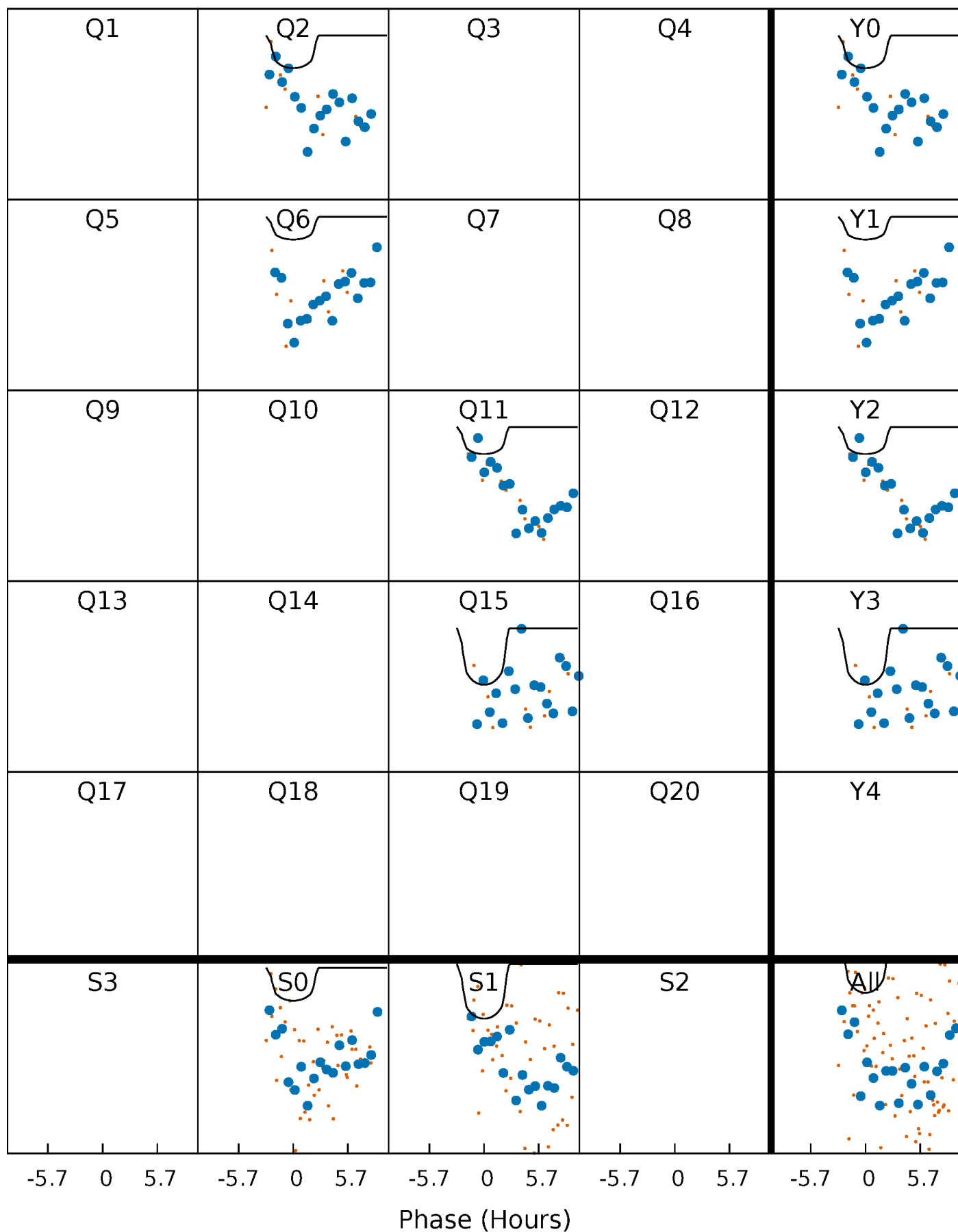
PDC Quarter-Phased Transit Curves

TCE 003330773-06 P=406.194283 Days $T_0=213.754569$ (BKJD)



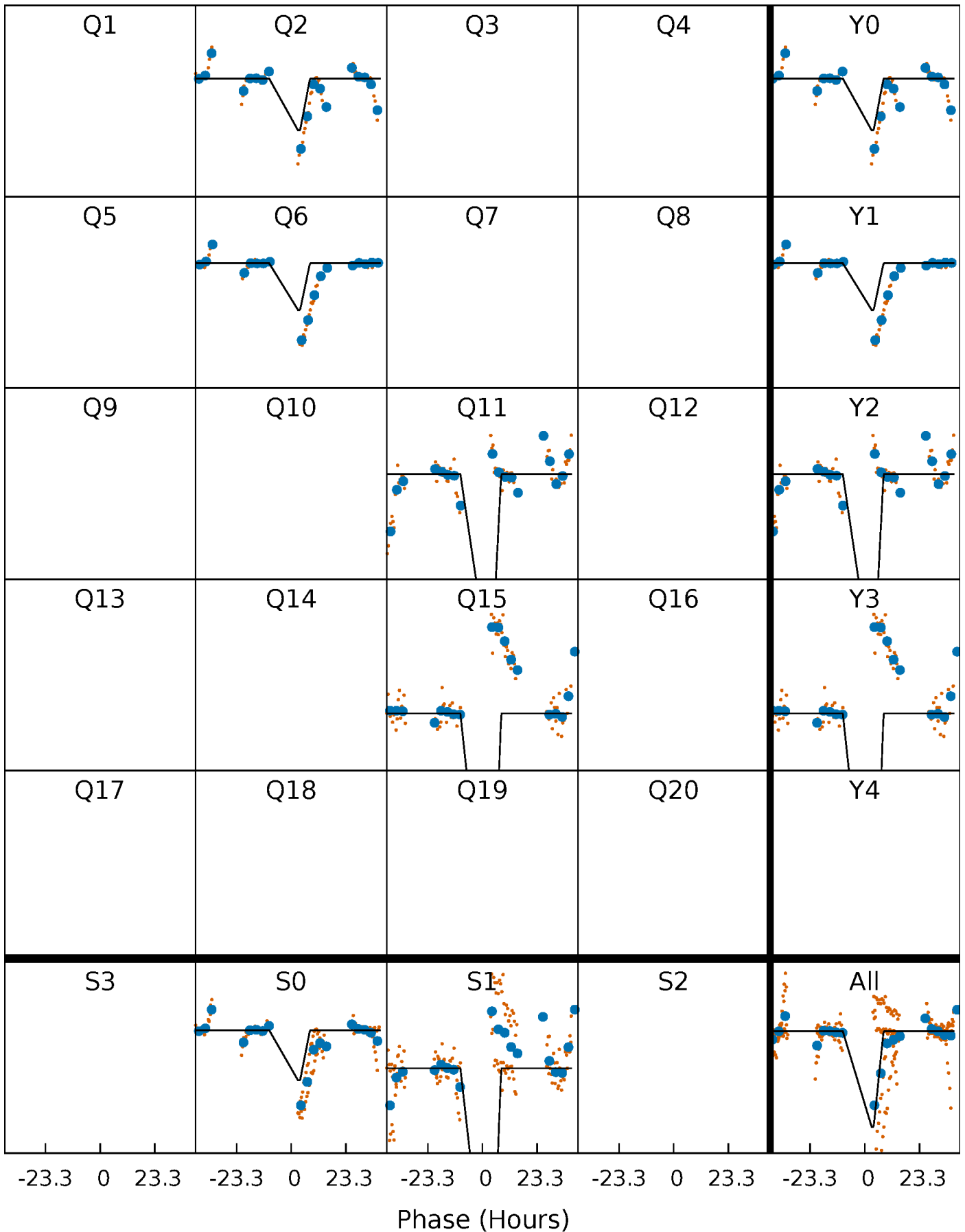
DV Quarter-Phased Transit Curves

TCE 003330773-06 P=406.194283 Days $T_0=213.754569$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

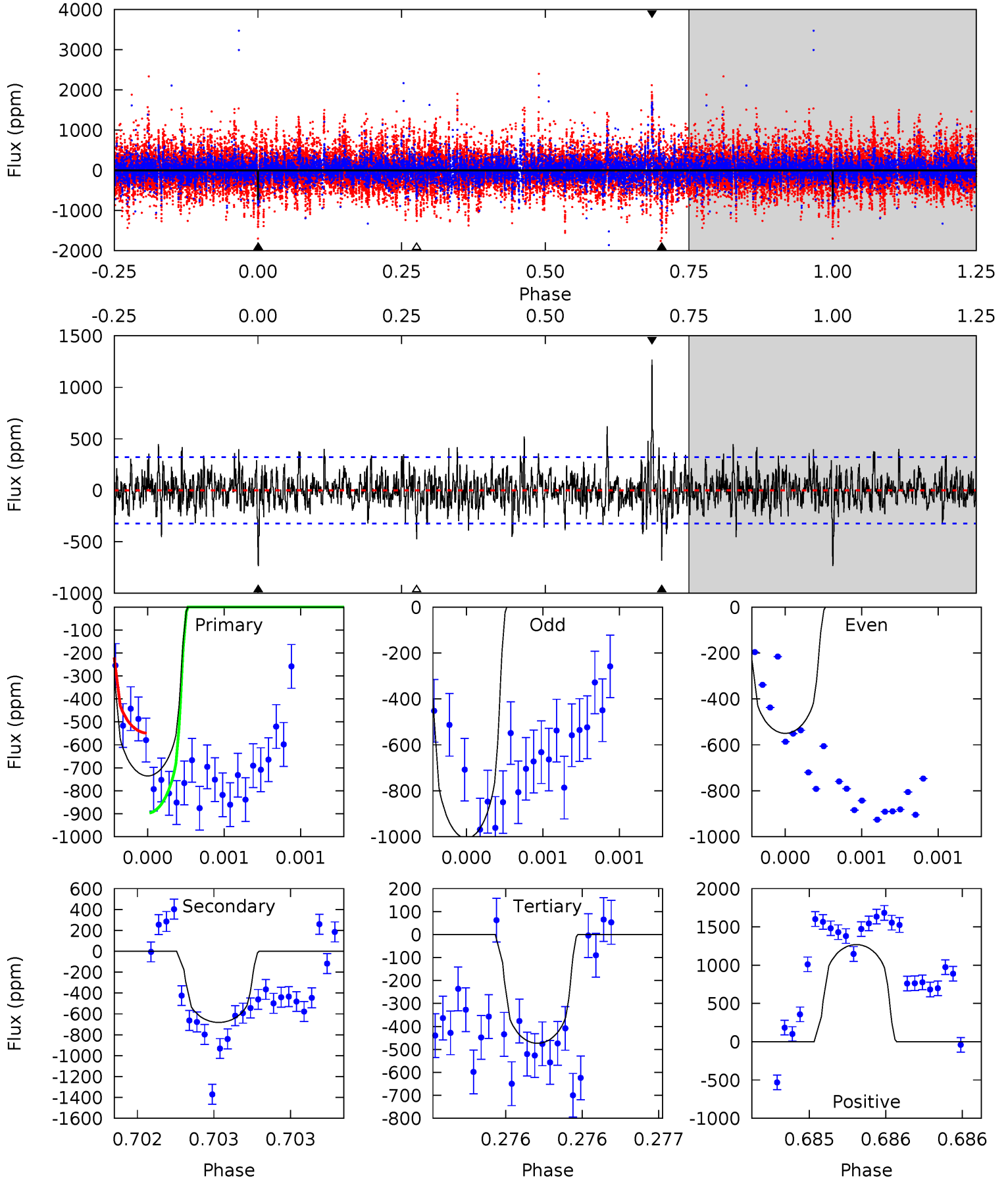
TCE 003330773-06 P=406.205550 Days $T_0=213.515955$ (BKJD)



DV Model-Shift Uniqueness Test

003330773-06, P = 406.194283 Days, E = 213.754569 Days

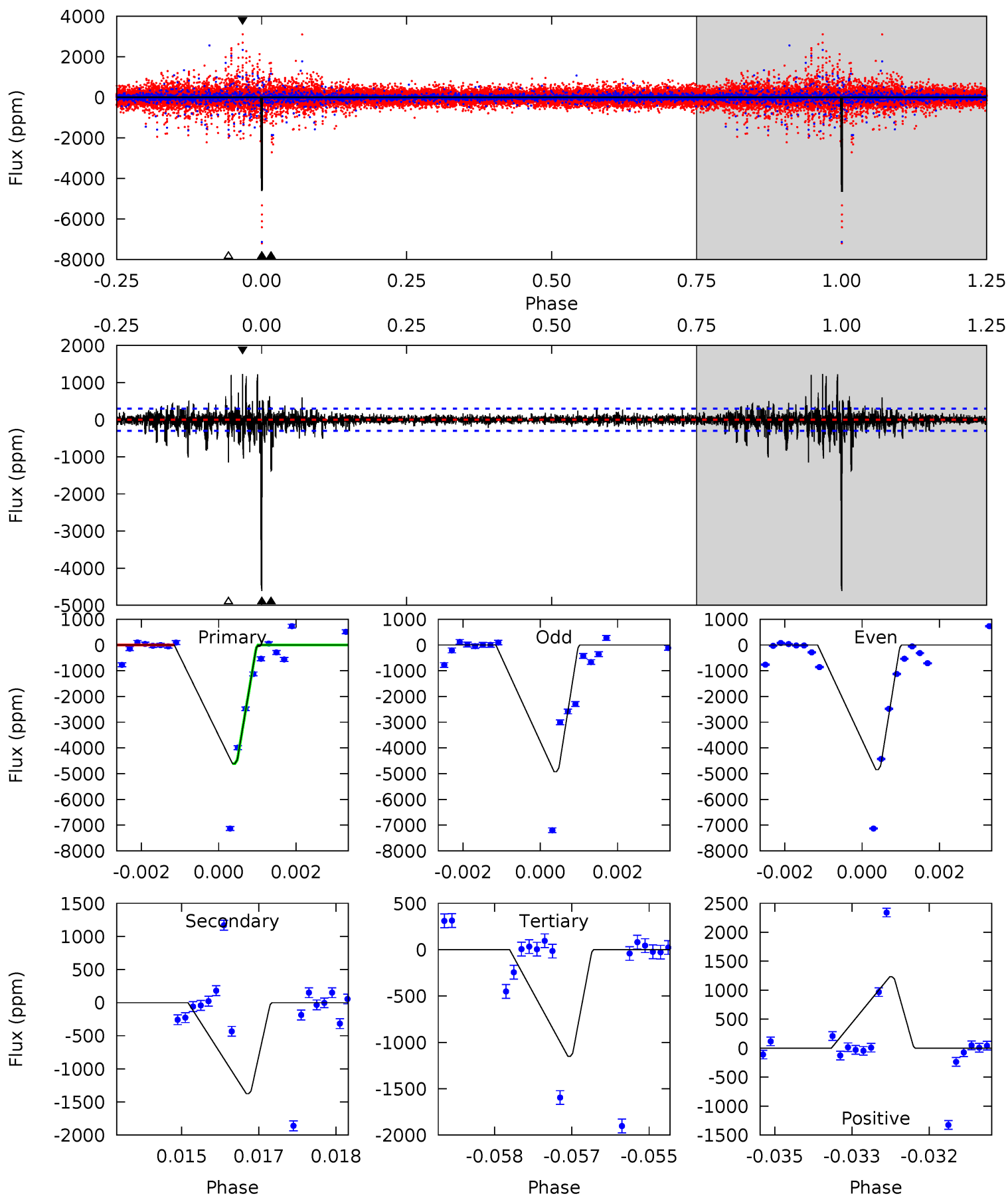
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	11.8	8.17	21.9	5.57	3.47	2.35	4.51	-9.20	3.59	-10.1	3.69	1.37	0.63	2.95



Alt Model-Shift Uniqueness Test

003330773-06, P = 406.205550 Days, E = 213.515955 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.8	24.7	20.7	22.1	5.36	3.14	1.95	62.1	60.7	4.02	2.58	0.78	1.05	0.21	0



Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-682 ± 58	$2.19^{+1.95}_{-1.44}$	262^{+10}_{-9}	4791^{+3558}_{-1032}	$74796^{+531310}_{-54849}$
Alt.	-1375 ± 56	$5.15^{+2.21}_{-2.00}$	263^{+9}_{-10}	3934^{+824}_{-418}	26504^{+44232}_{-13458}

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

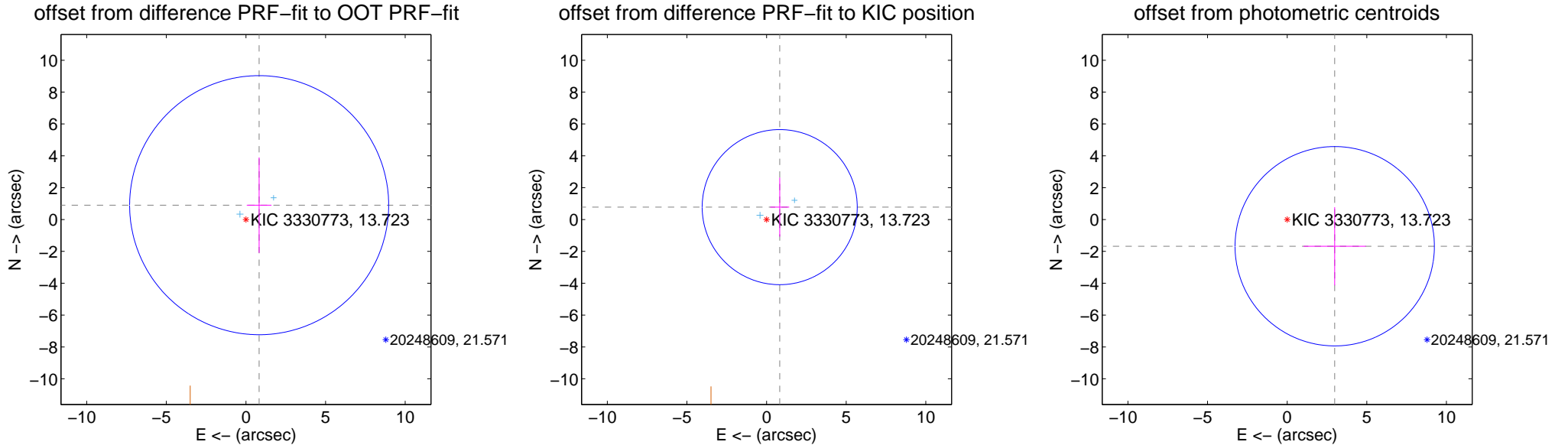
DV Centroid Data

Supplemental centroid analysis for 003330773-06. Kepler magnitude: 13.72. Transit SNR 3.27

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

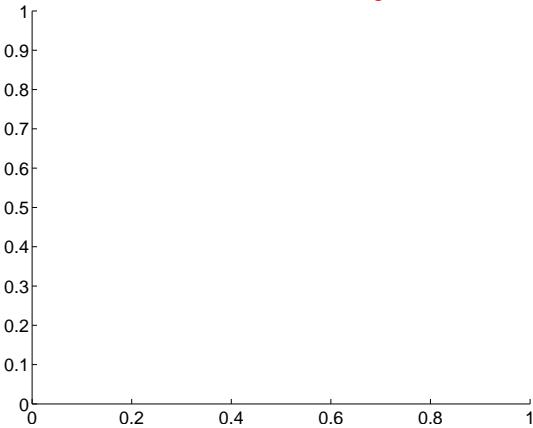
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.224 ± 2.711	0.45	-0.829 ± 0.775	0.900 ± 2.995
PRF-fit source offset from KIC position	1.134 ± 1.623	0.70	-0.826 ± 0.597	0.778 ± 1.854
photometric centroid source offset	3.42 ± 2.09	1.64	-2.98 ± 1.96	-1.68 ± 2.45



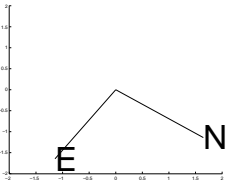
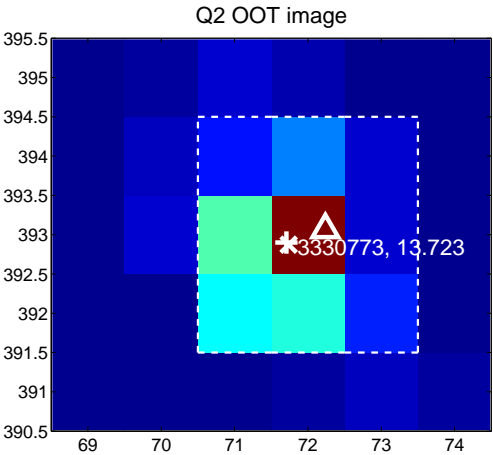
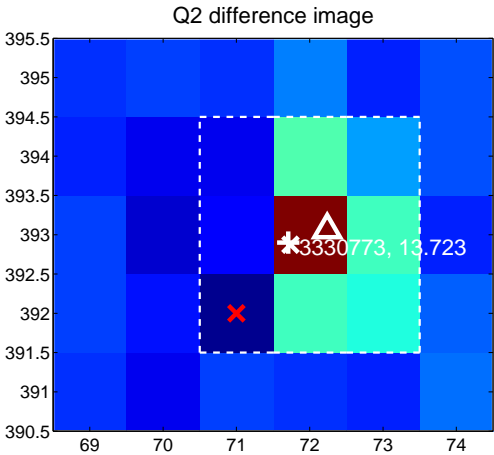
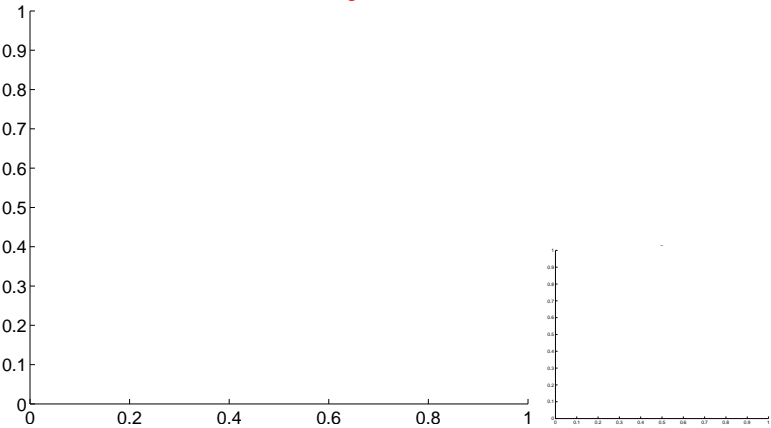
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

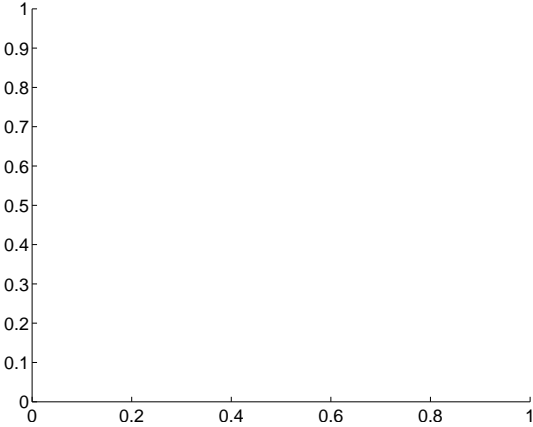
Q1 no difference image



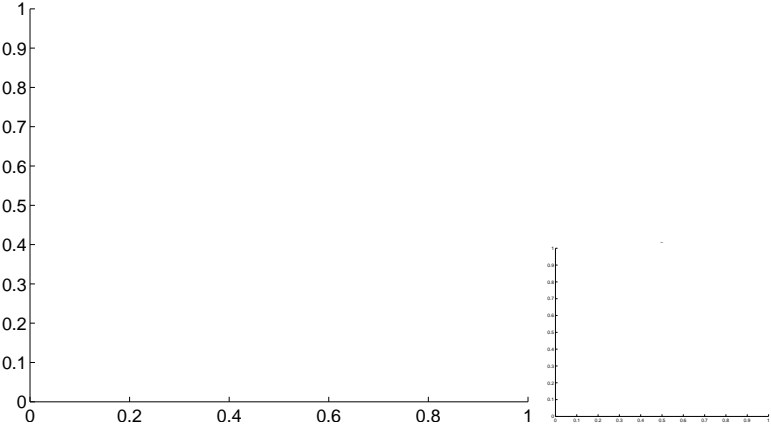
Q1 no OOT image



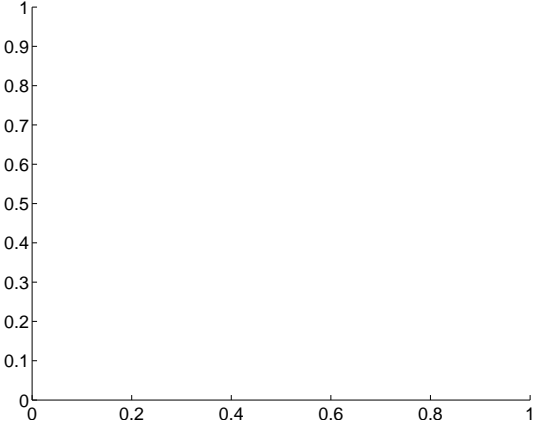
Q3 no difference image



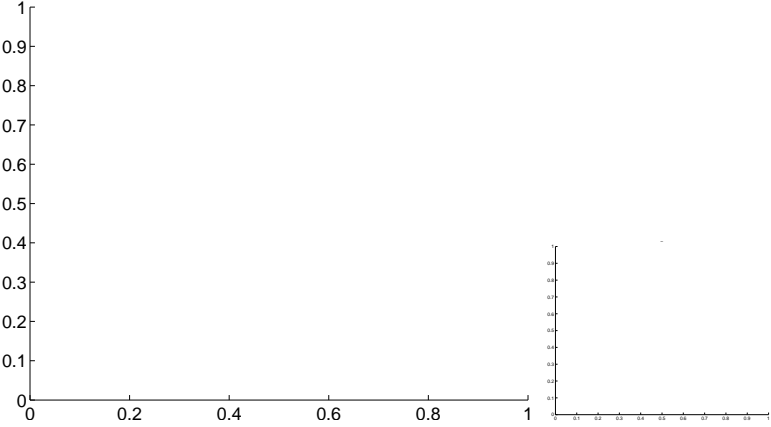
Q3 no OOT image



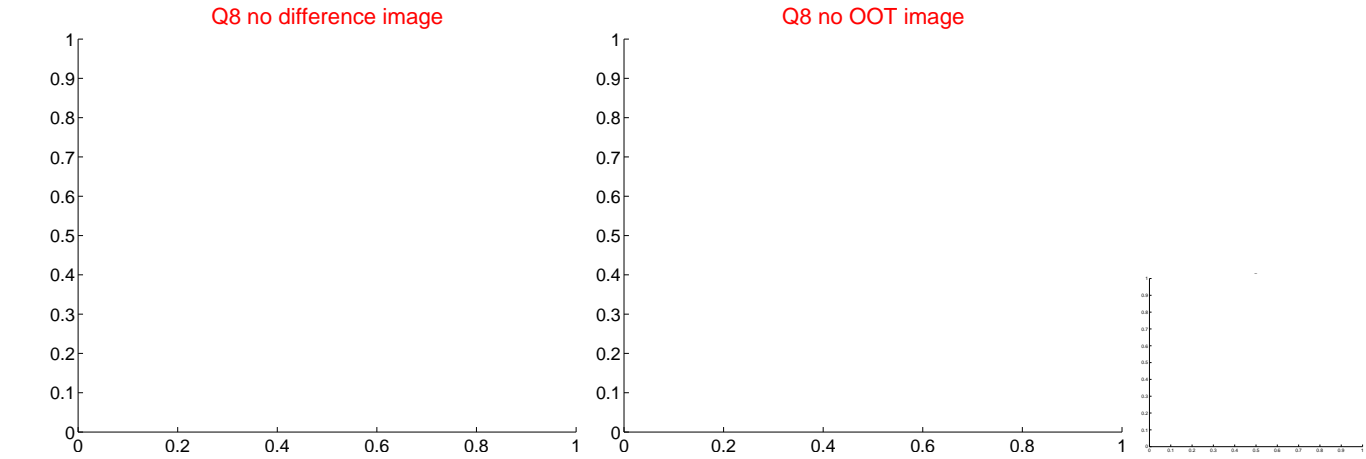
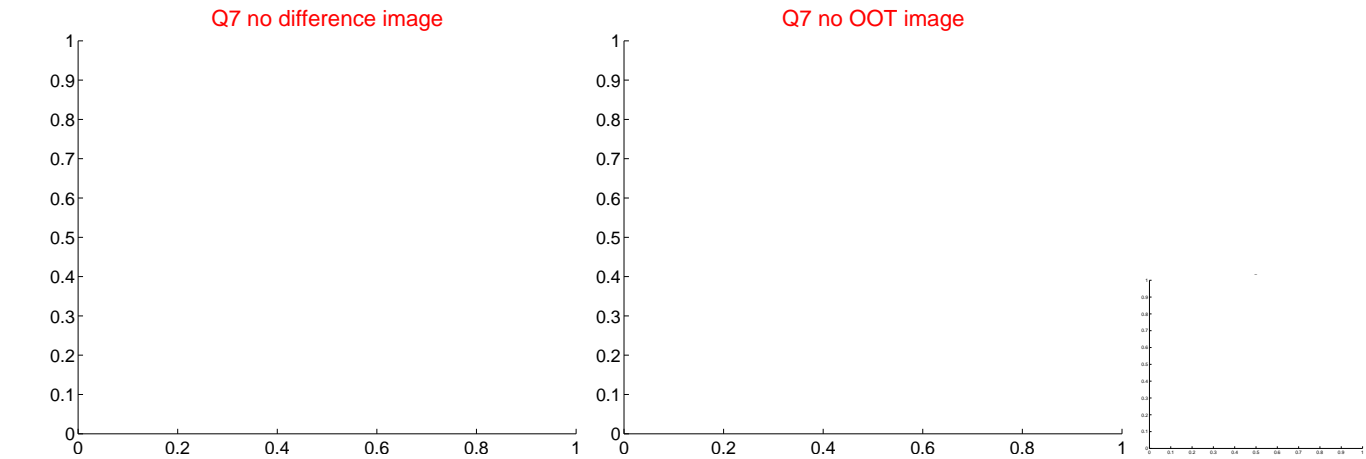
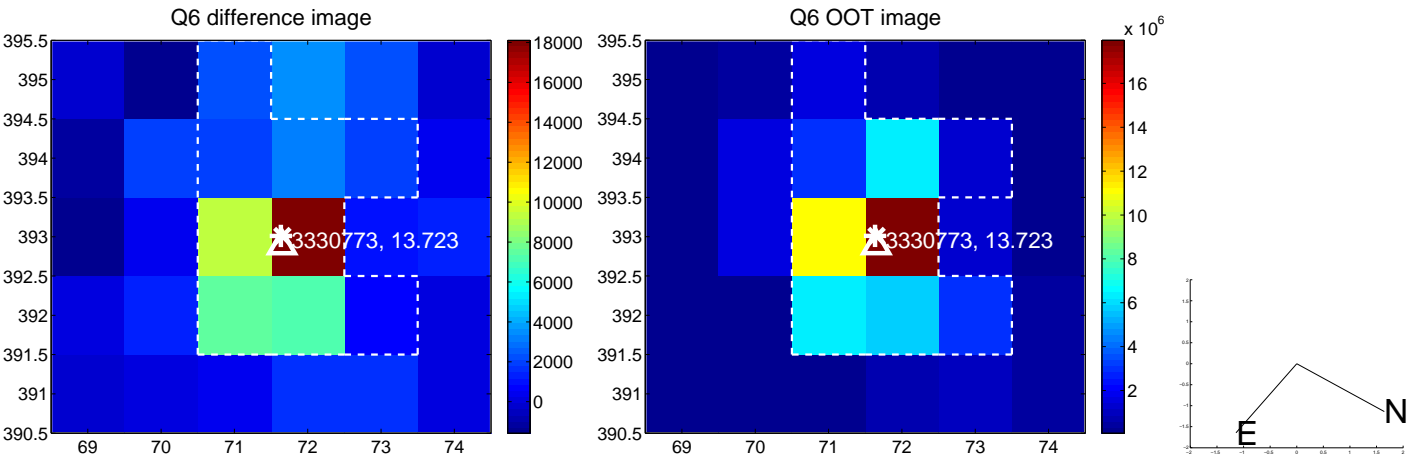
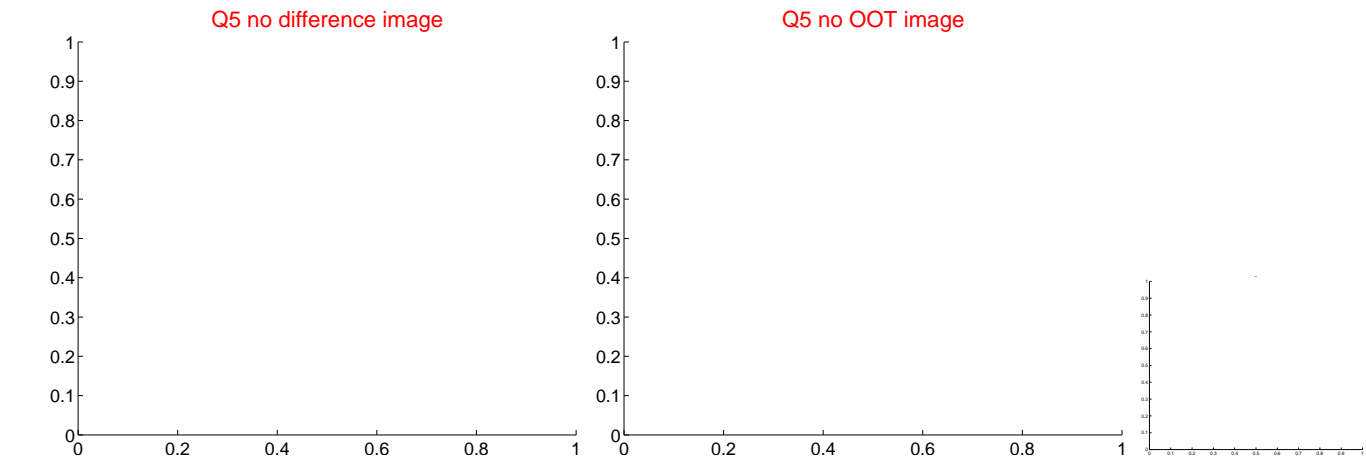
Q4 no difference image



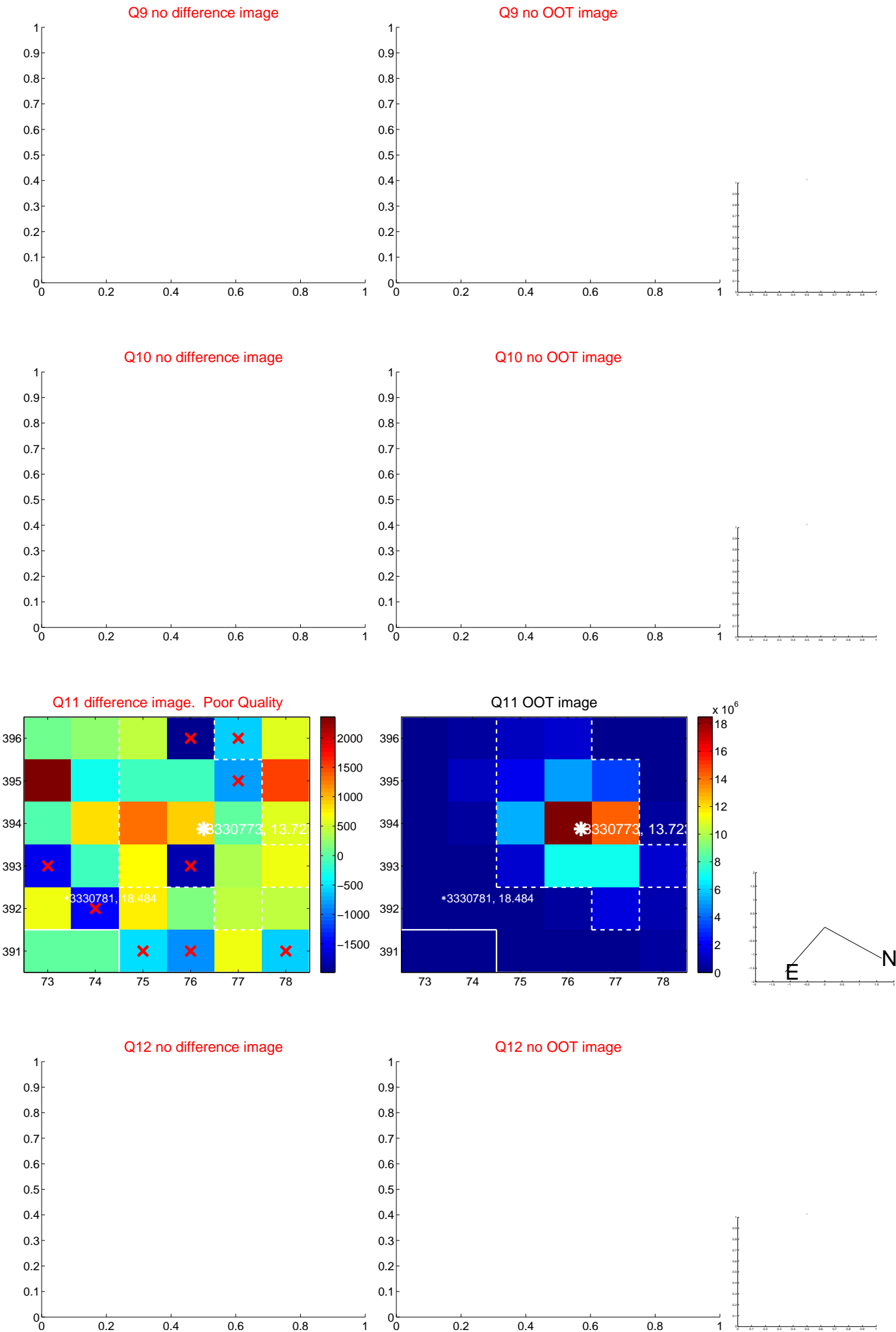
Q4 no OOT image



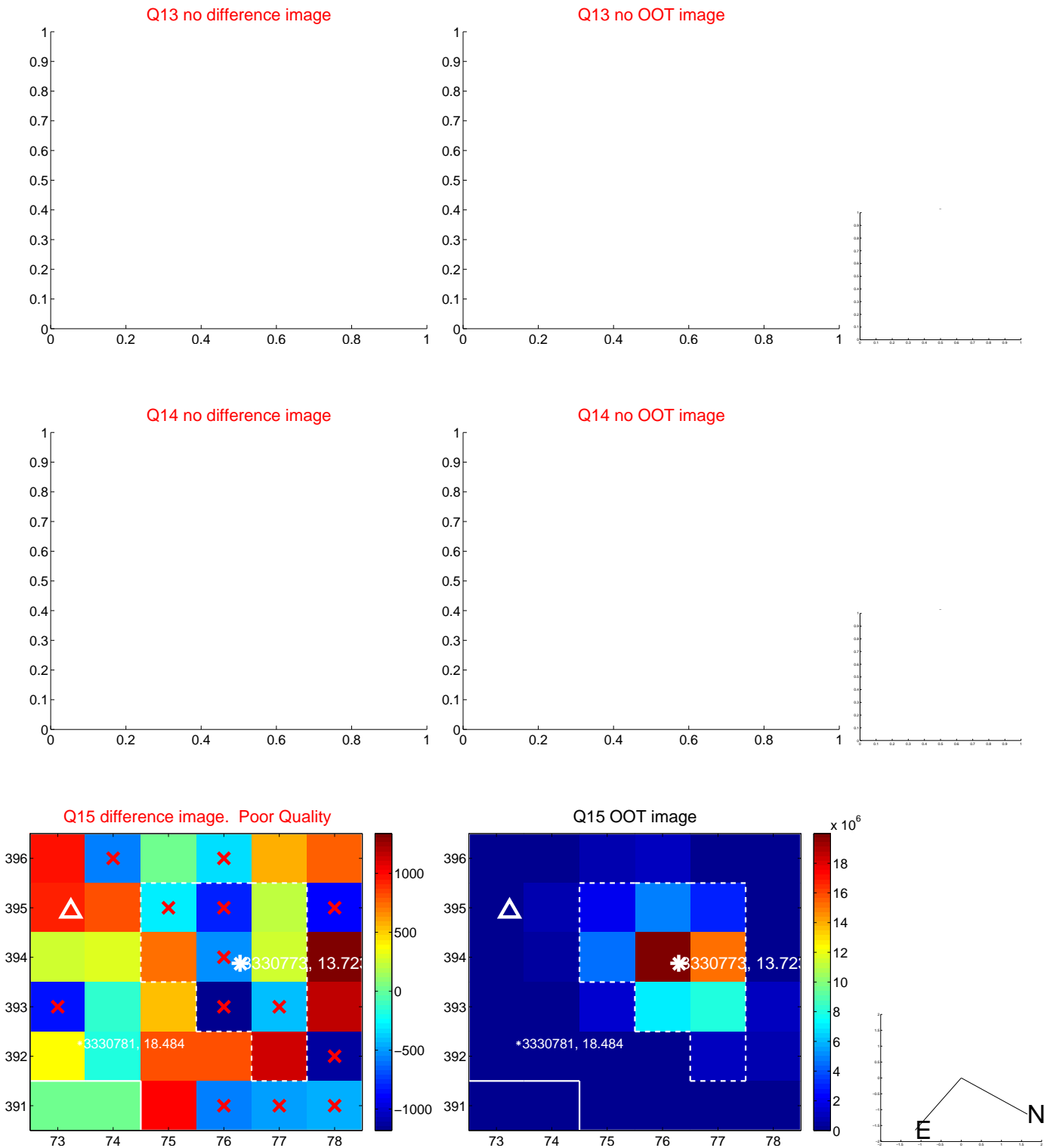
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



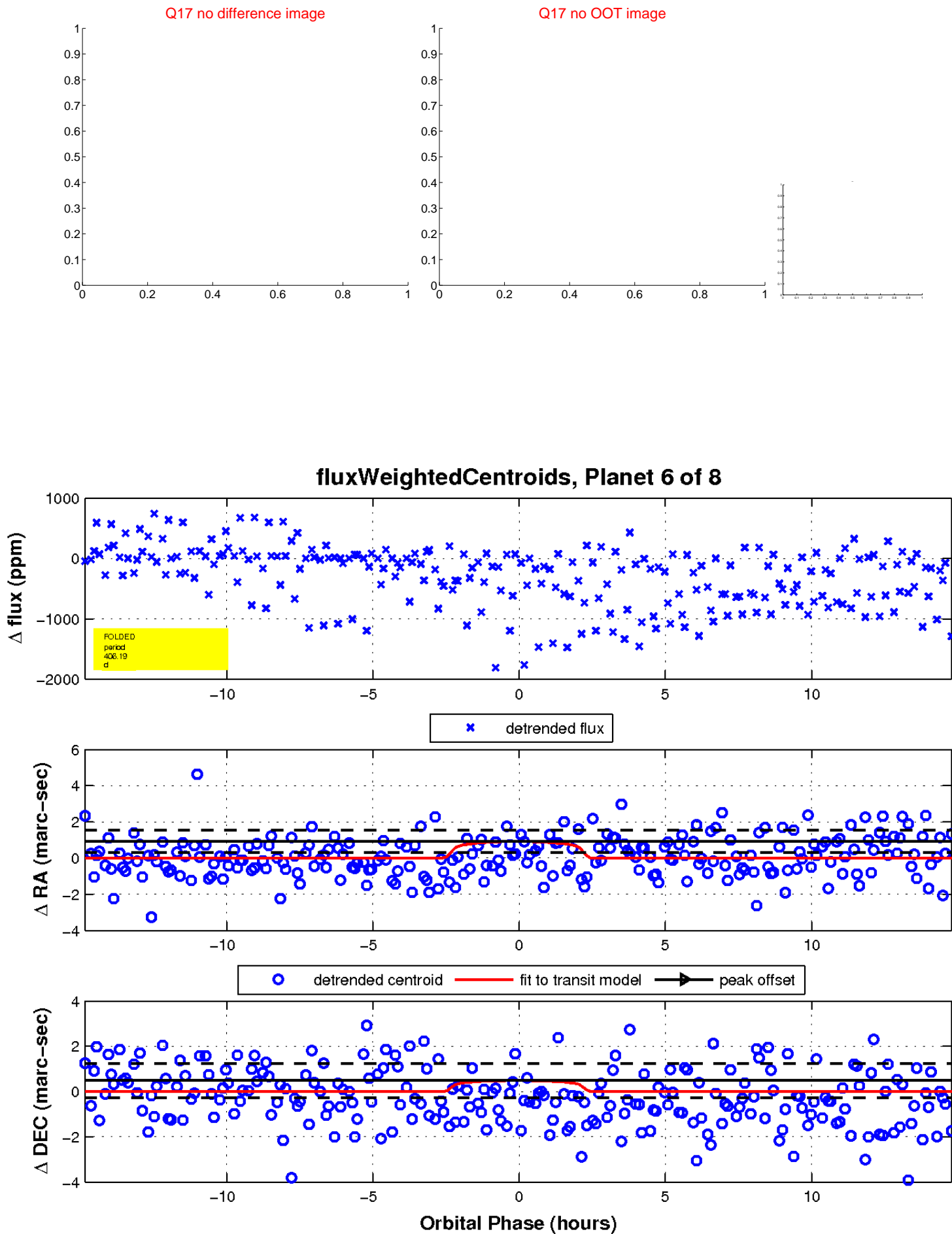
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

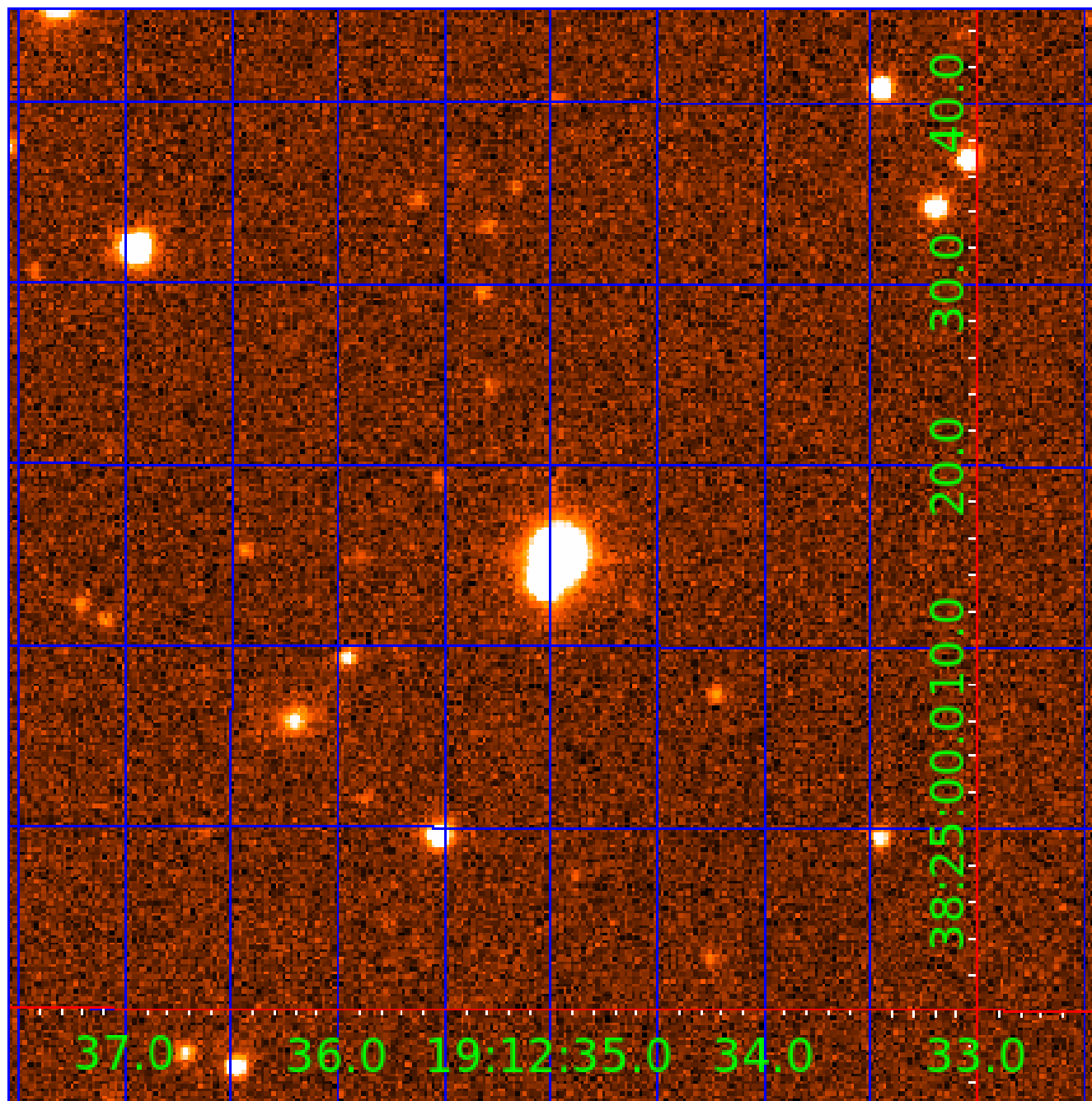


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003330773

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})
003330773-01	OBS	No	0.990779	132.118014	41.2	4.010	8.4	9.8	0.74	4864	0.46	905.85
003330773-02	OBS	No	613.600412	343.696544	4688.0	37.006	15.8	7.6	0.74	4864	6.30	0.17
003330773-03	OBS	No	238.584464	271.443023	825.6	6.436	14.8	7.4	0.74	4864	3.14	0.60
003330773-04	OBS	No	392.191044	486.816683	1076.0	28.132	14.4	4.7	0.74	4864	2.41	0.31
003330773-05	OBS	No	518.179820	466.572896	2460.0	16.313	11.3	8.2	0.74	4864	3.55	0.21
003330773-06	OBS	No	406.194283	213.754569	305.6	4.964	11.0	3.3	0.74	4864	1.55	0.30
003330773-07	OBS	No	569.728389	145.546172	2297.1	19.080	10.3	8.2	0.74	4864	3.97	0.19
003330773-08	OBS	No	247.115893	311.889261	793.1	10.138	9.5	6.1	0.74	4864	2.32	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003330773-01	OBS	FP	0.01	1	0	0	0	LPP_DV
003330773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
003330773-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003330773-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003330773-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

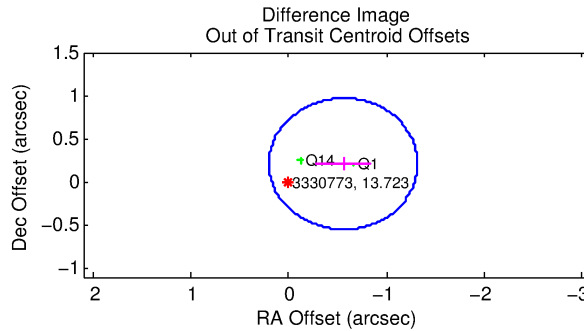
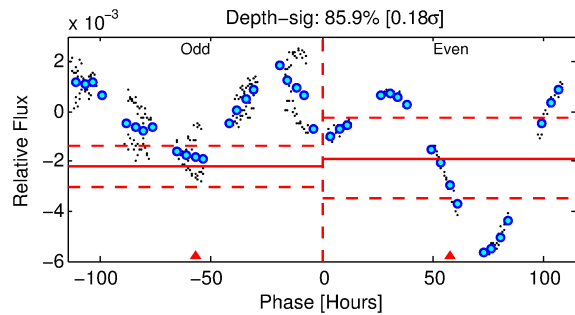
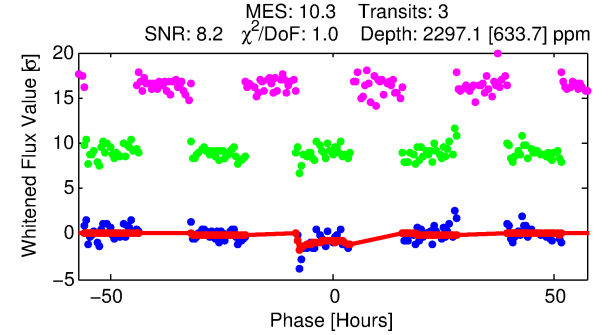
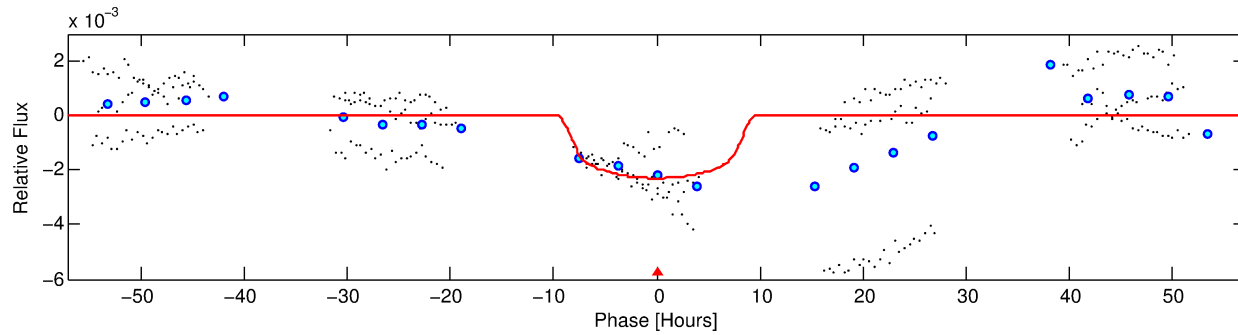
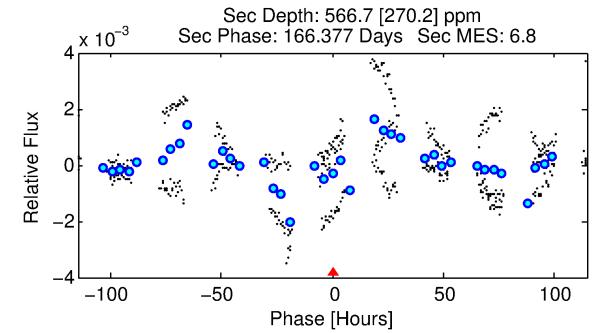
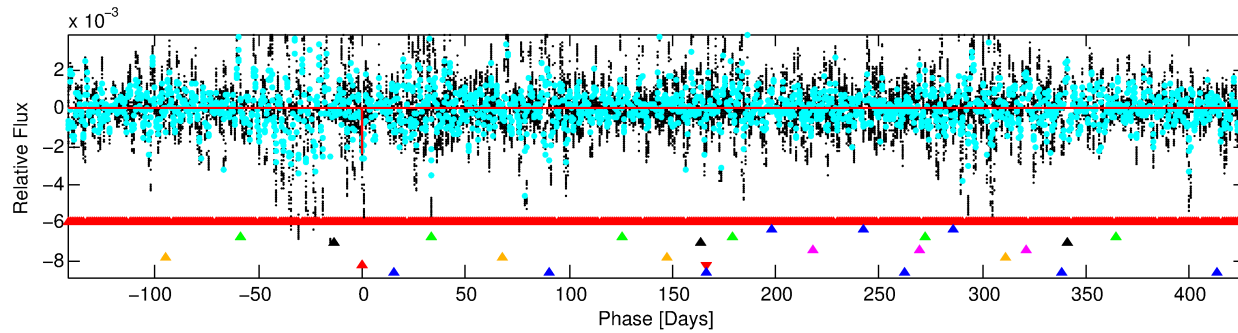
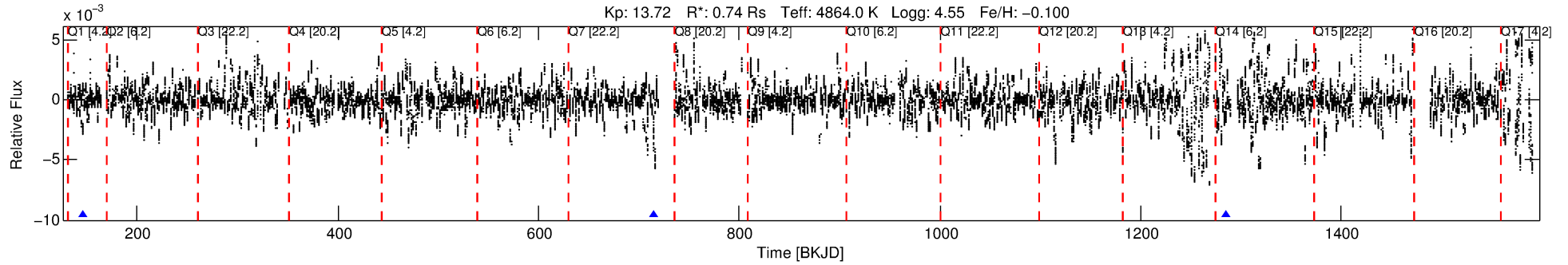
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-07

No Significant Match Found

DV One-Page Summary

KIC: 3330773 Candidate: 7 of 8 Period: 569.728 d



DV Fit Results:

Period = 569.72839 [0.03865] d
Epoch = 145.5462 [0.0722] BKJD
Rp/R* = 0.0492 [0.0108]
a/R* = 155.66 [85.06]
b = 0.80 [0.23]
Seff = 0.19 [0.03]
Teq = 168 [7] K
Rp = 3.97 [0.95] Re
a = 1.2040 [0.0960] AU
Ag = 28659.44 [18901.02] [1.52σ]
Teffp = 3384 [558] K [5.76σ]

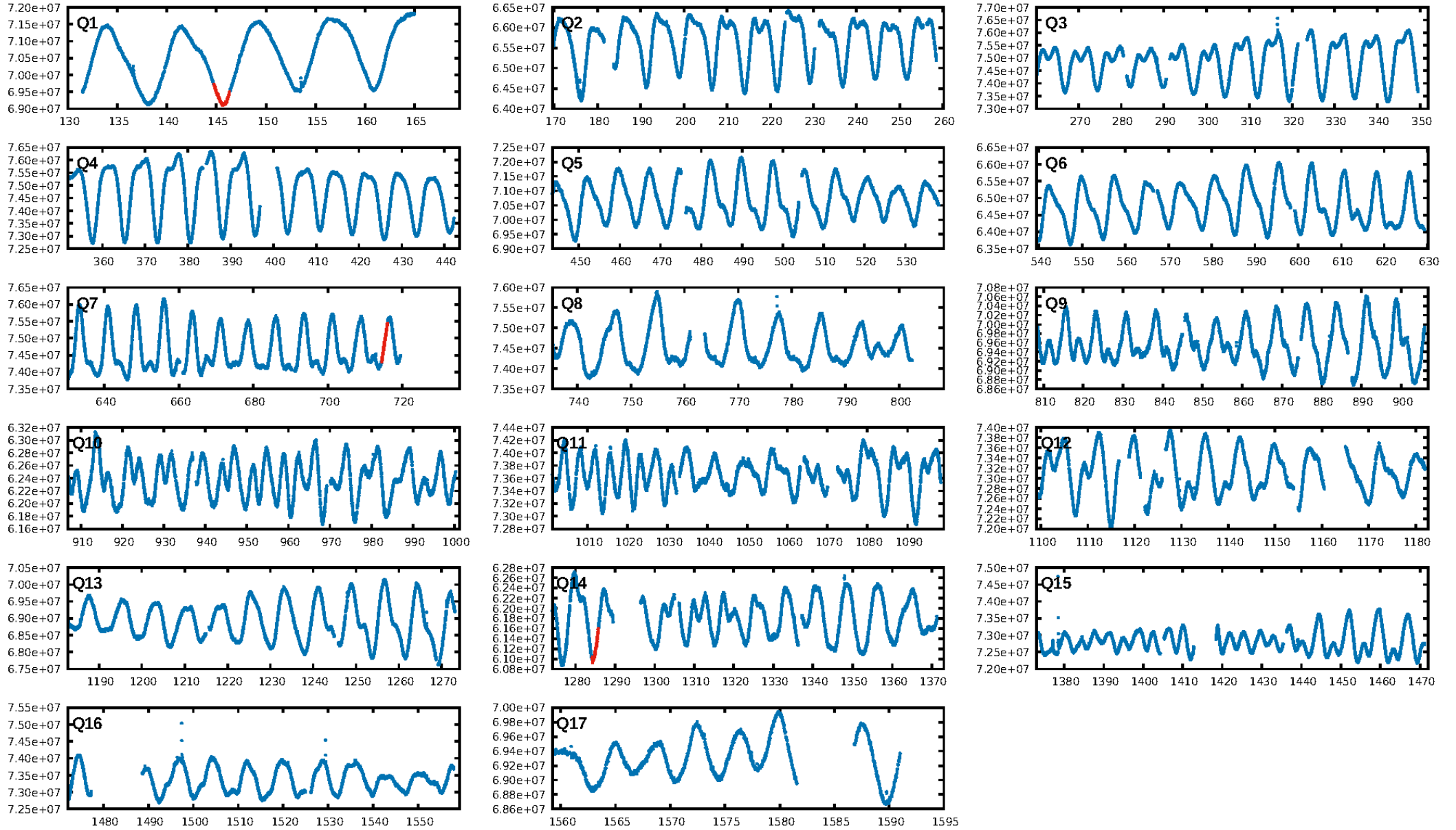
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [49.28σ]
LongPeriod-sig: 100.0% [25.29σ]
ModelChiSquare2-sig: 57.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.07e-09
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -1.464
Centroid-sig: 75.3%
Centroid-so: 0.034 arcsec [0.16σ]
OotOffset-rm: 0.596 arcsec [2.35σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-rm: 0.480 arcsec [1.60σ]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/2]

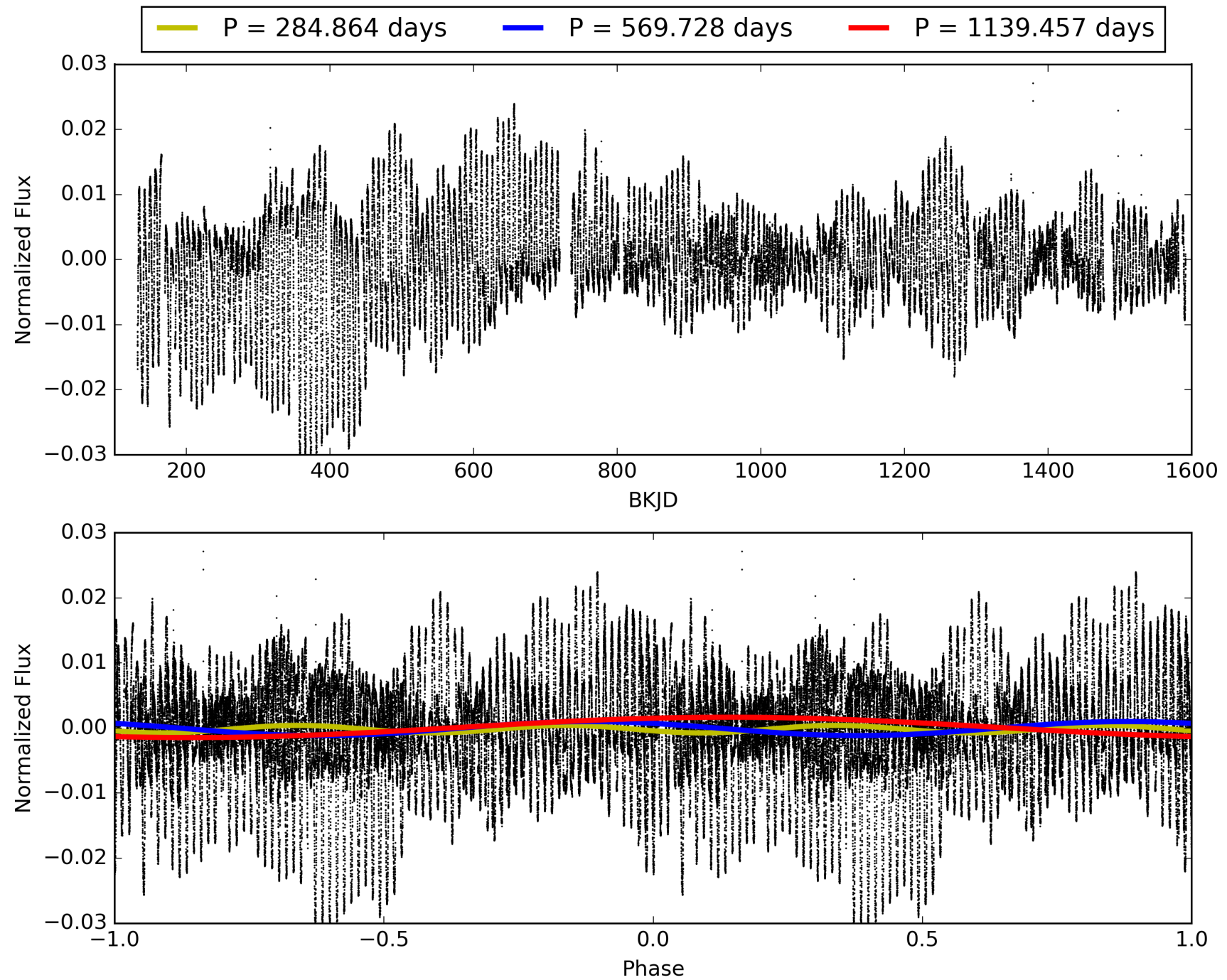
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:46:23 Z

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

TCE 003330773-07, PDC Light Curves

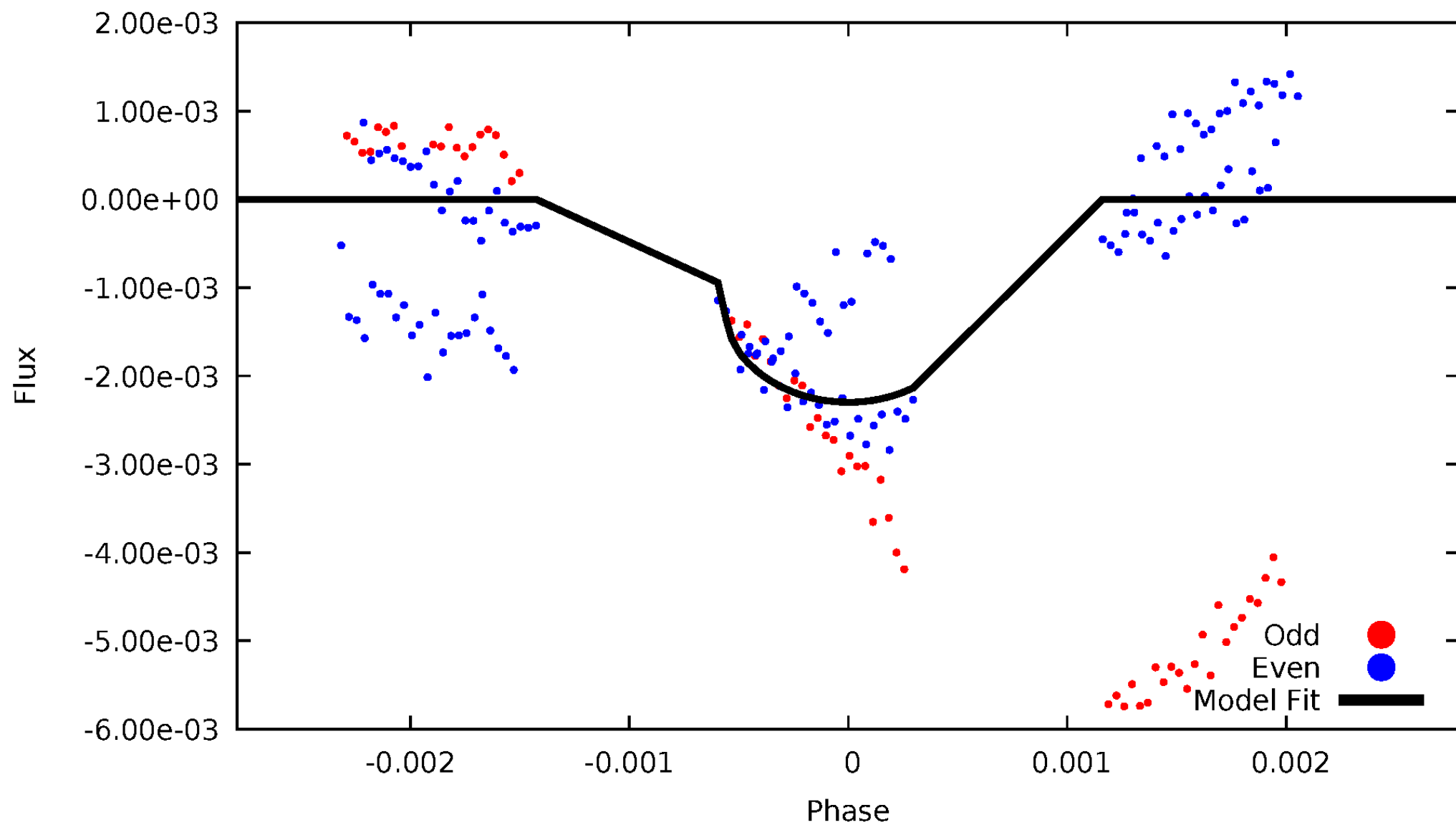


TCE 003330773-07



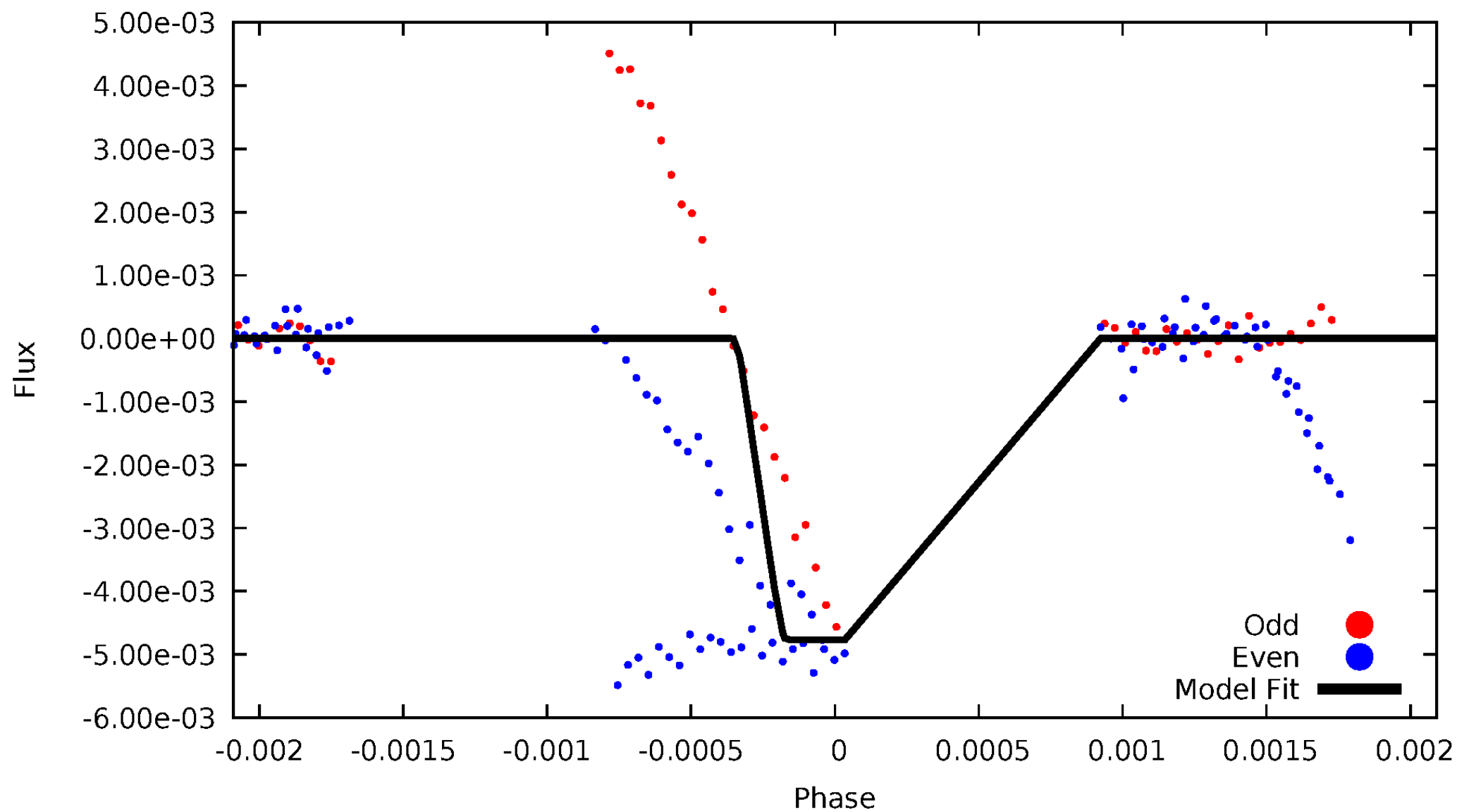
DV Odd/Even

TCE 003330773-07



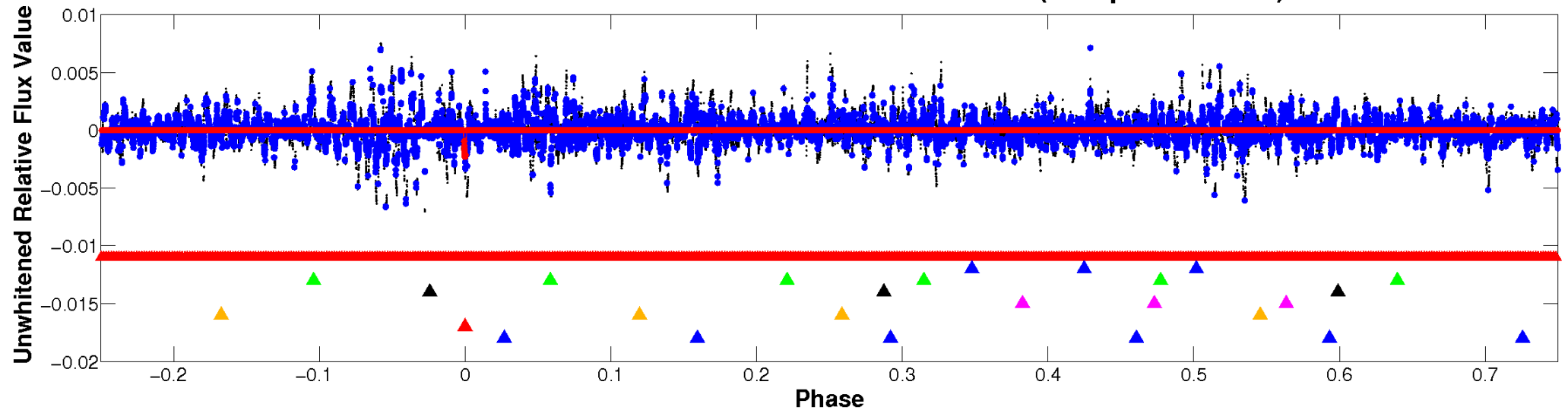
ALT Odd/Even

TCE 003330773-07

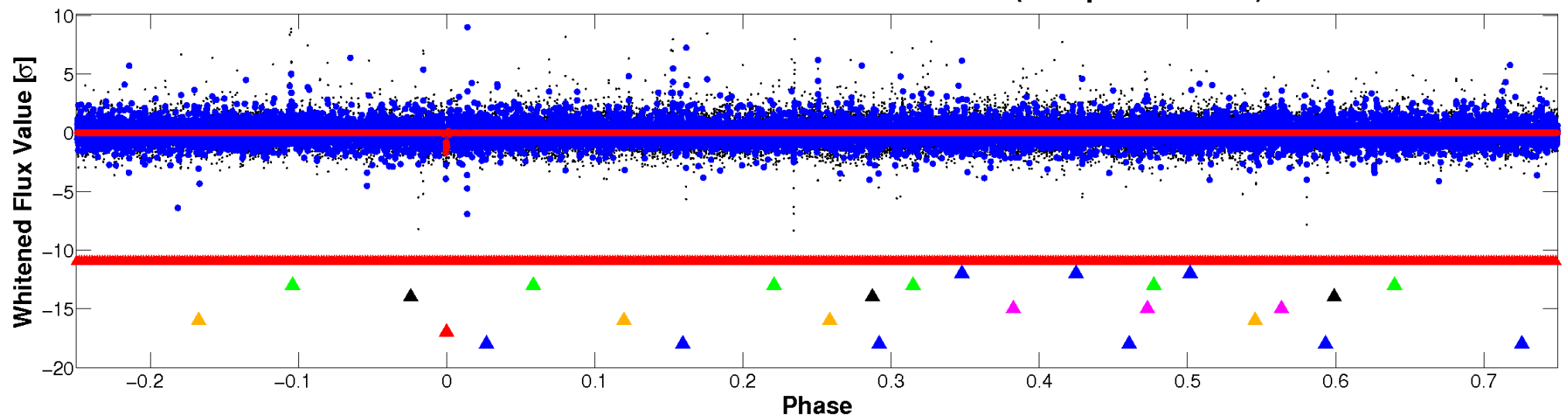


Non-Whitened Vs. Whitened Light Curve

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

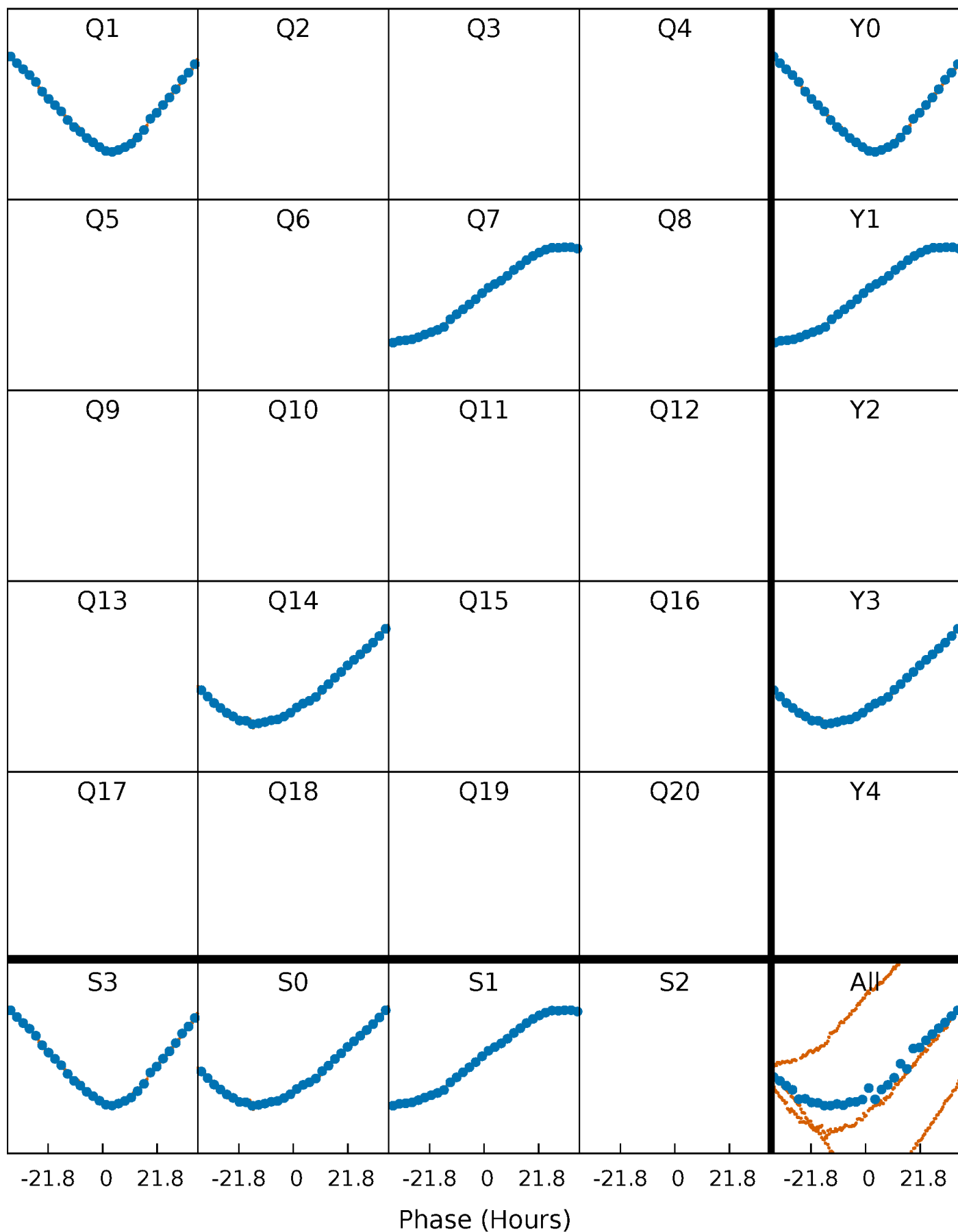


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



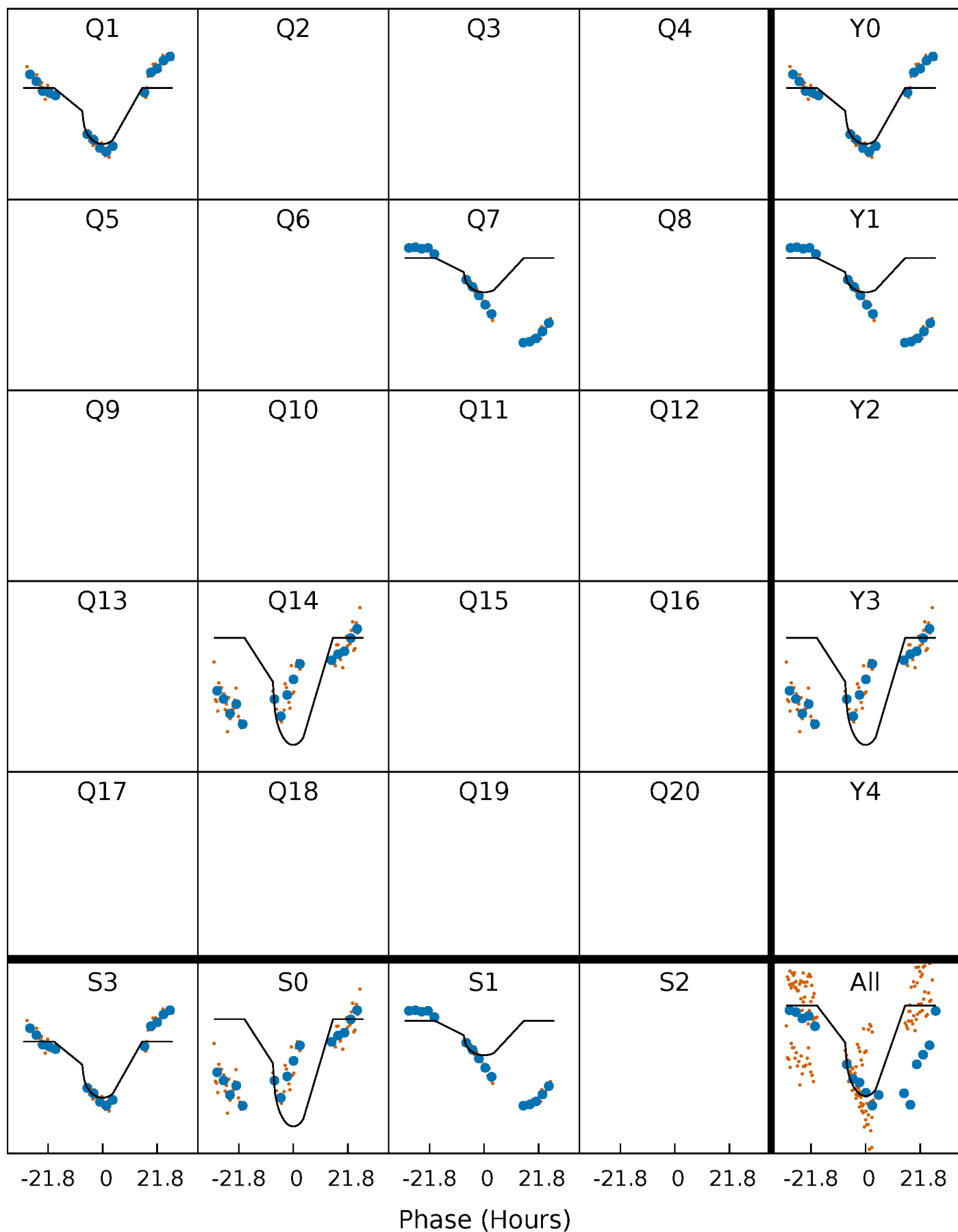
PDC Quarter-Phased Transit Curves

TCE 003330773-07 $P=569.728389$ Days $T_0=145.546172$ (BKJD)



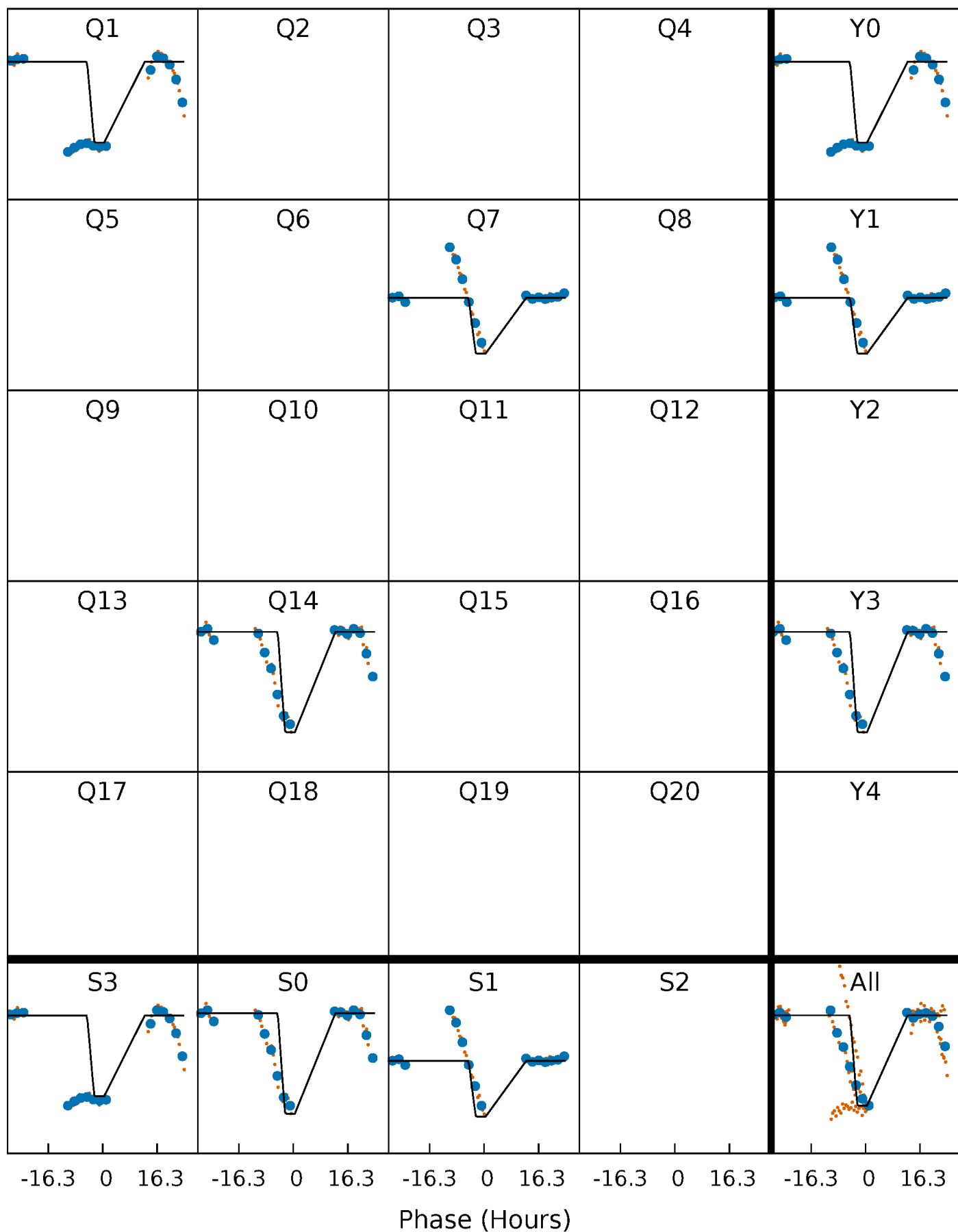
DV Quarter-Phased Transit Curves

TCE 003330773-07 P=569.728389 Days $T_0=145.546172$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

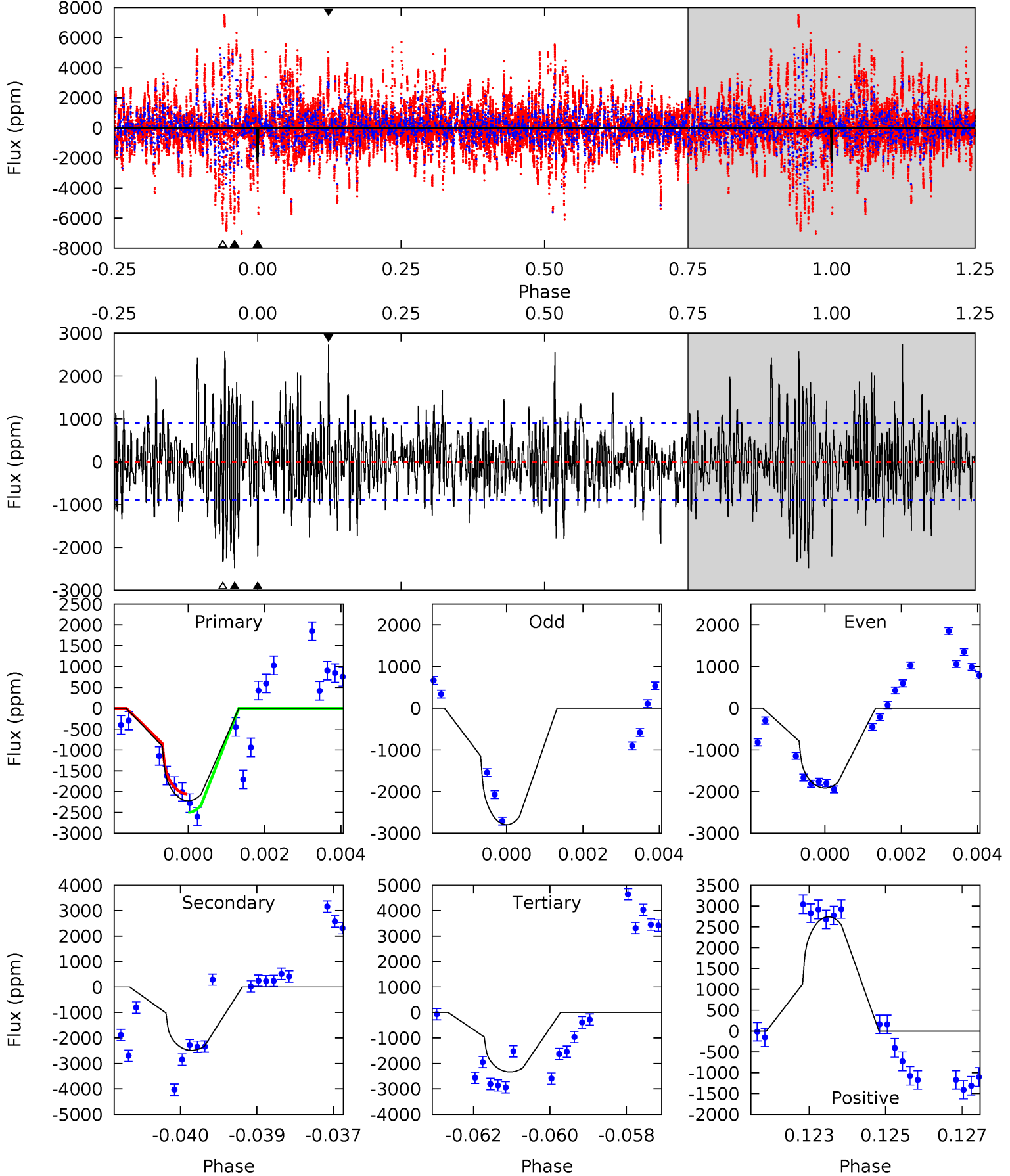
TCE 003330773-07 P=569.721709 Days $T_0=145.695630$ (BKJD)



DV Model-Shift Uniqueness Test

003330773-07, P = 569.728389 Days, E = 145.546172 Days

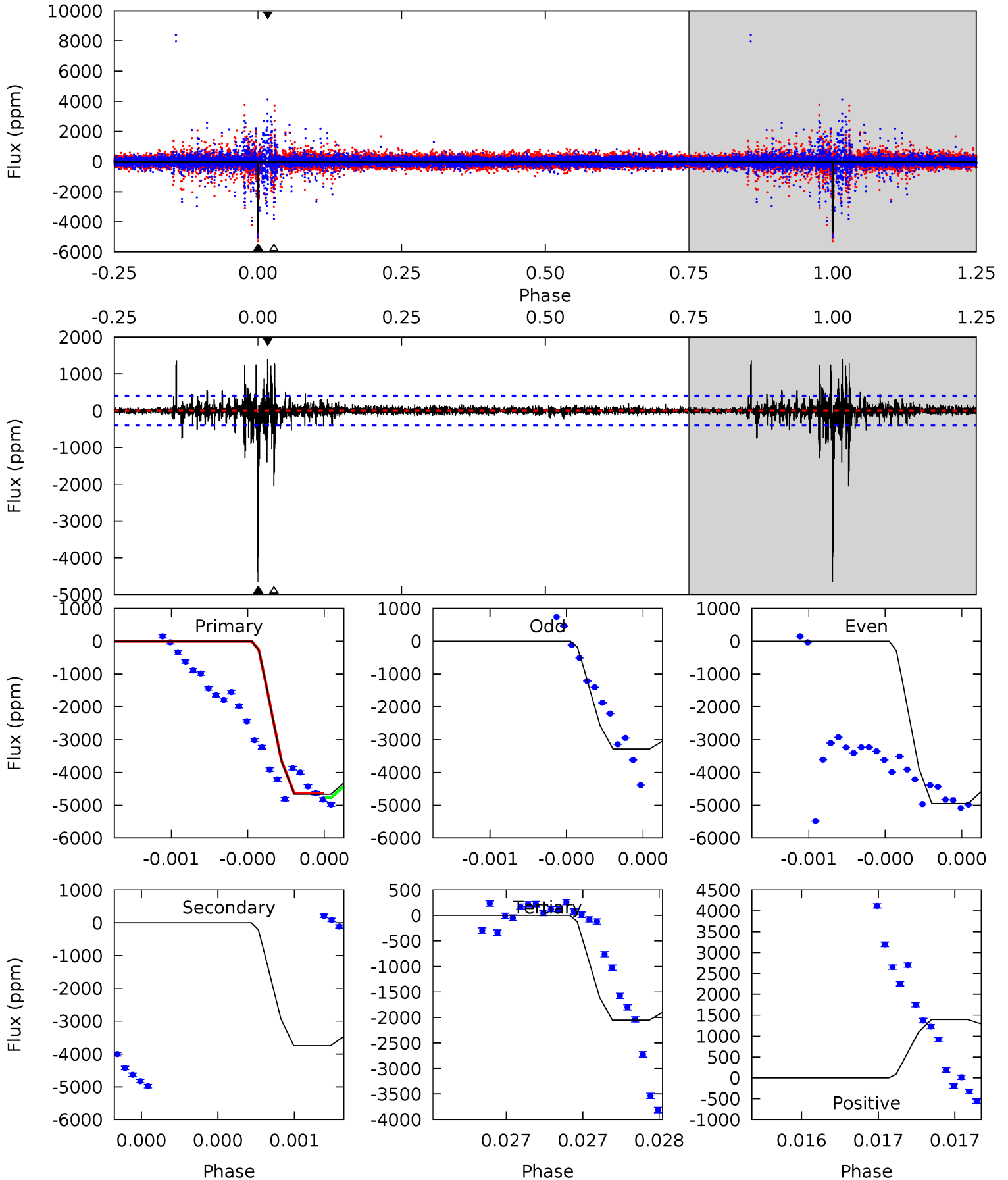
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	14.8	13.9	16.3	5.35	3.13	3.94	-0.67	-3.10	0.91	-1.51	2.56	0.89	0.52	1.27



Alt Model-Shift Uniqueness Test

003330773-07, P = 569.721709 Days, E = 145.695630 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.7	52.0	28.5	19.3	5.62	3.55	1.60	36.2	45.3	23.5	32.6	11.9	0.95	0.23	0.44



Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2485 ± 168	$4.00^{+0.88}_{-0.94}$	234^{+9}_{-8}	4886^{+600}_{-414}	126135^{+85439}_{-42256}
Alt.	-3747 ± 72	$5.52^{+0.94}_{-0.85}$	234^{+9}_{-9}	4643^{+371}_{-296}	98537^{+39078}_{-26463}

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 $A_{obs} \gg 1.0$

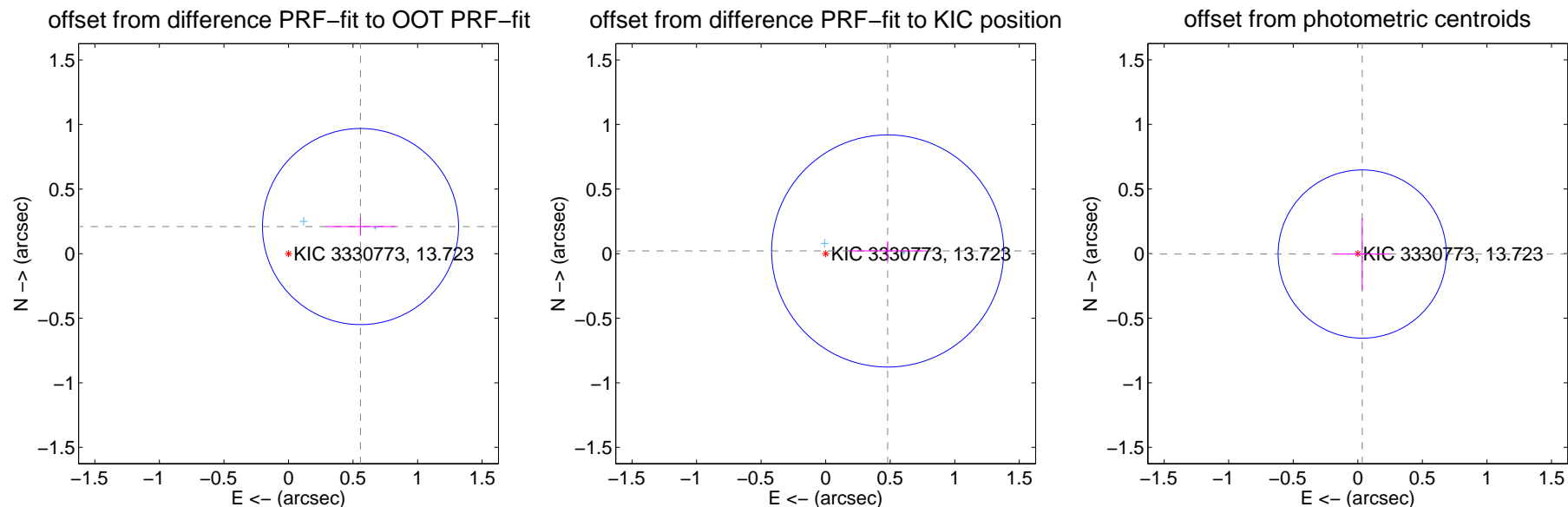
DV Centroid Data

Supplemental centroid analysis for 003330773-07. Kepler magnitude: 13.72. Transit SNR 8.17

There are 2 quarters with good PRF difference image offsets

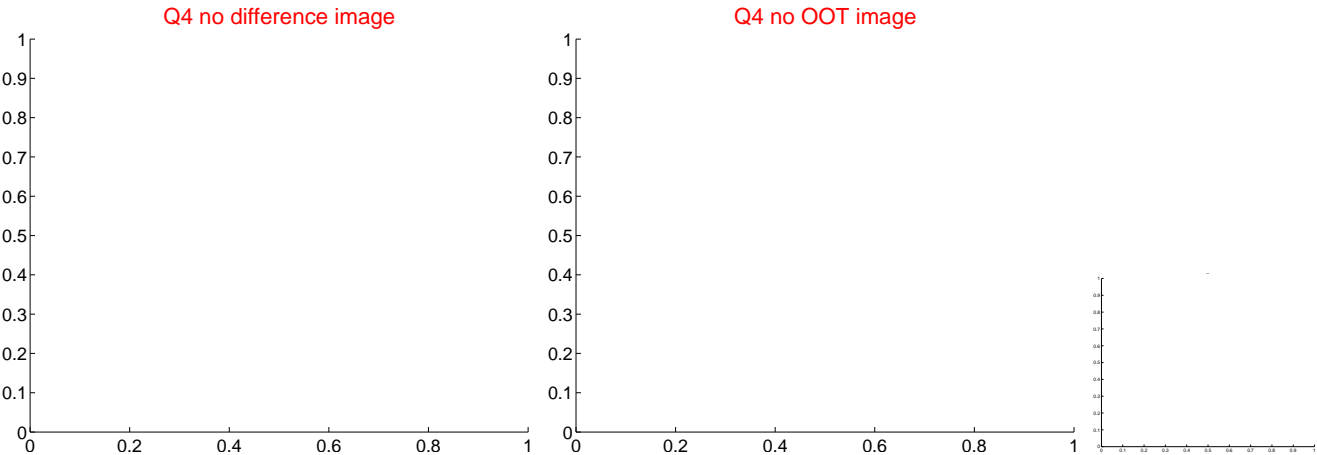
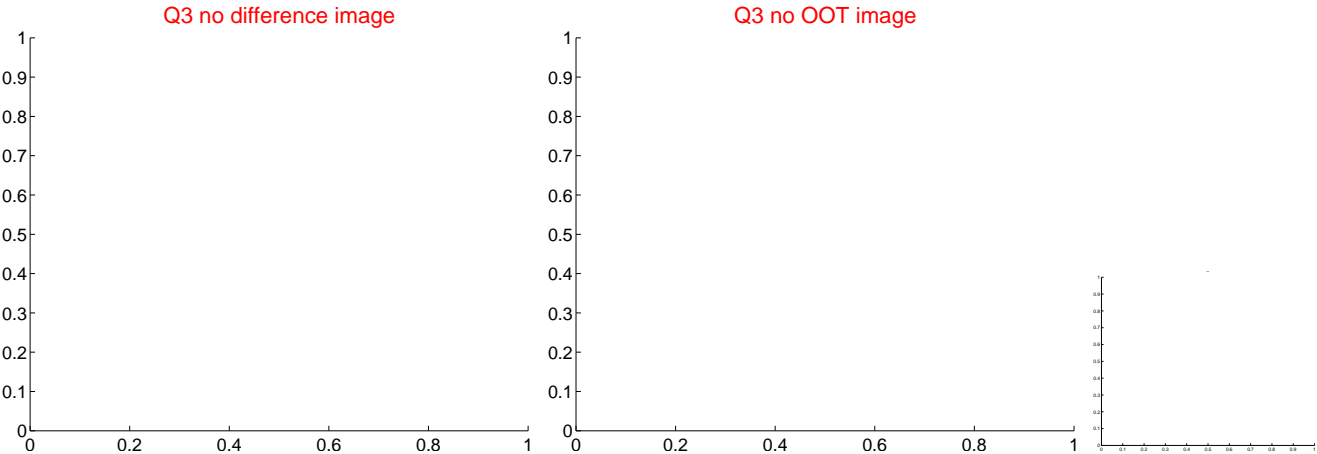
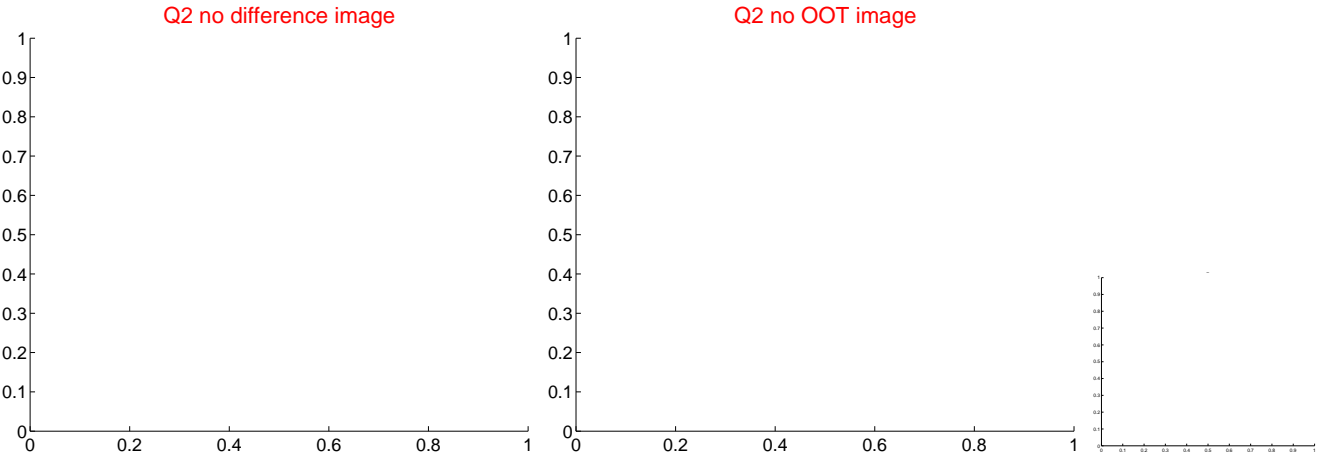
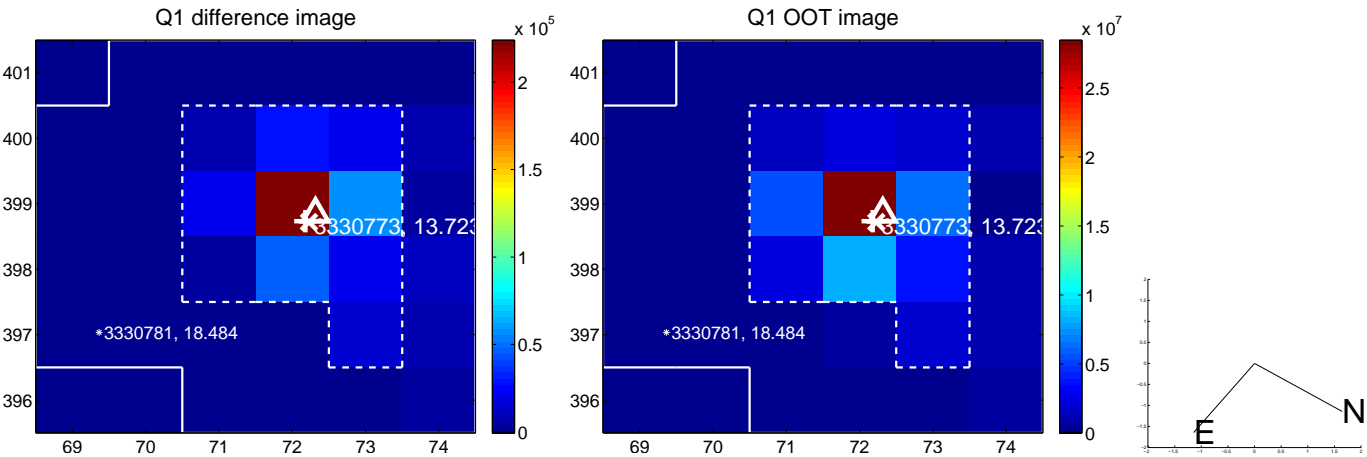
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.596 ± 0.253	2.35	-0.558 ± 0.269	0.210 ± 0.070
PRF-fit source offset from KIC position	0.480 ± 0.300	1.60	-0.480 ± 0.301	0.021 ± 0.075
photometric centroid source offset	0.03 ± 0.22	0.16	-0.03 ± 0.22	-0.00 ± 0.28

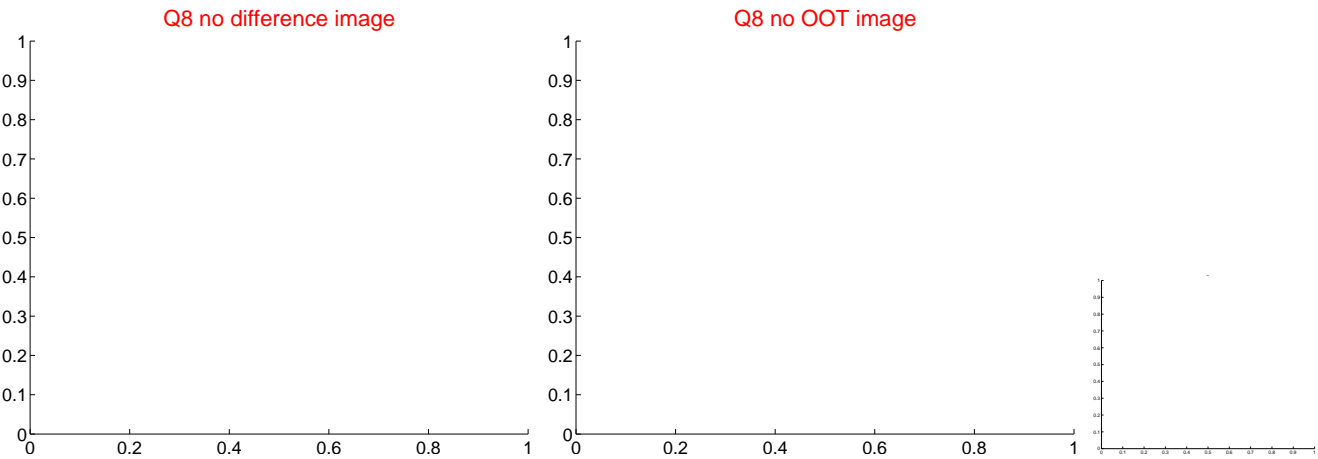
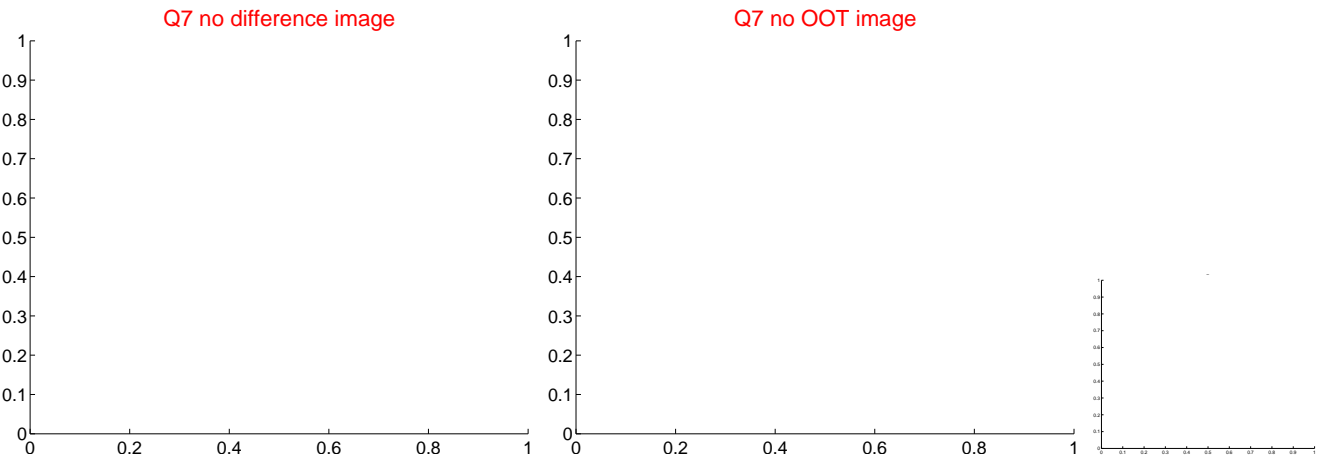
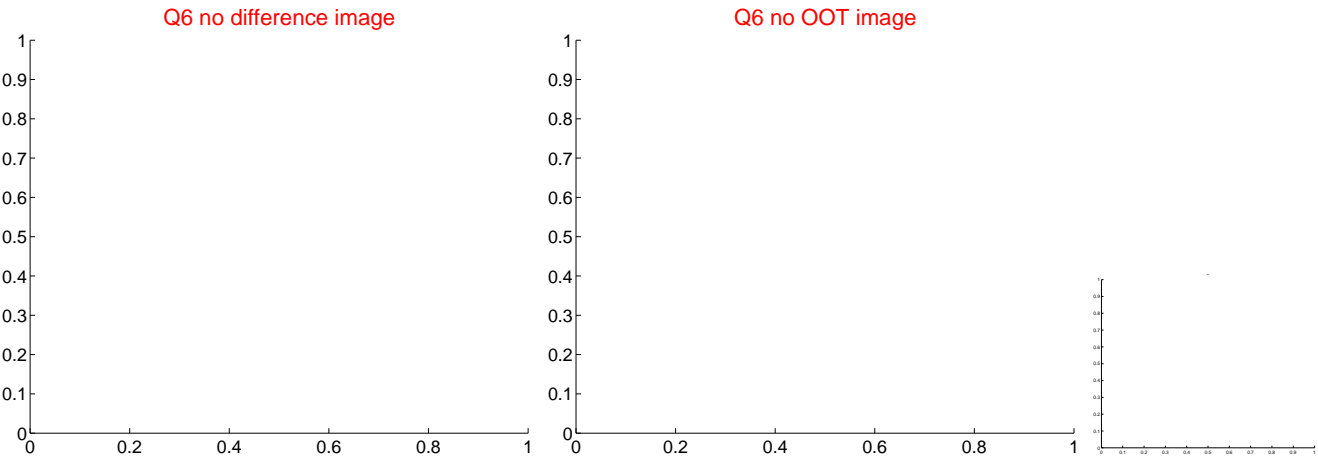
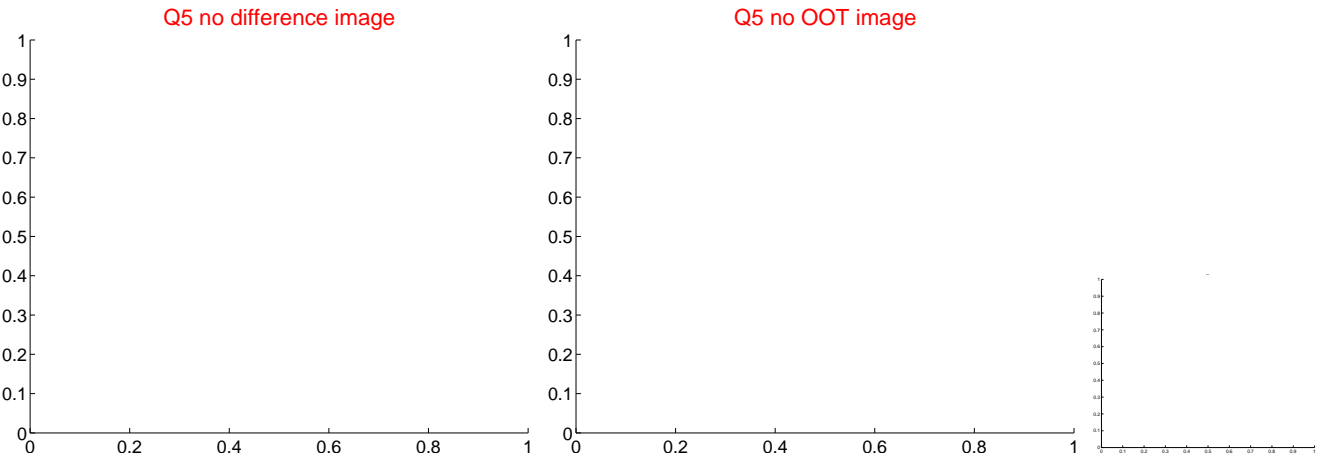


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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

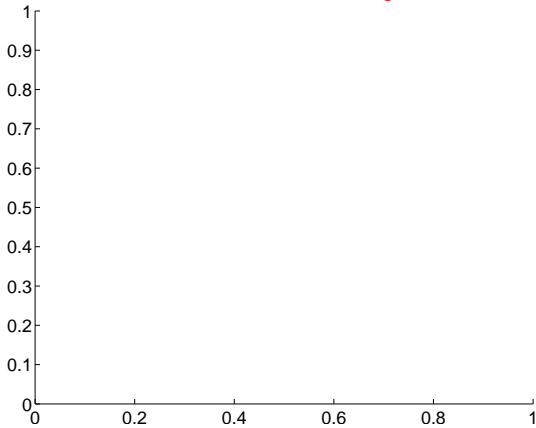


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

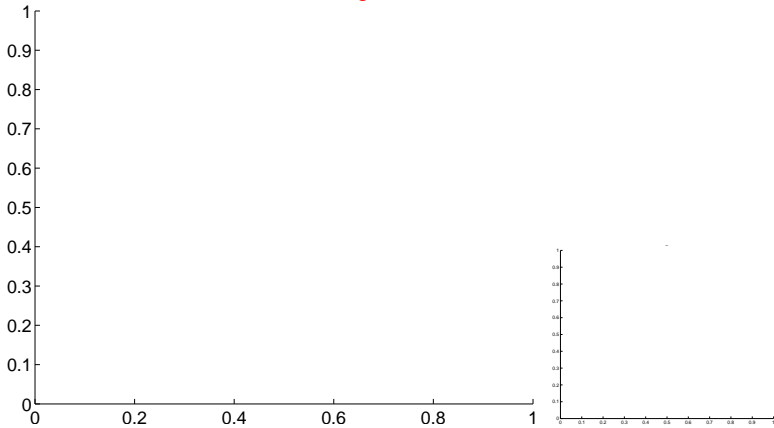


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

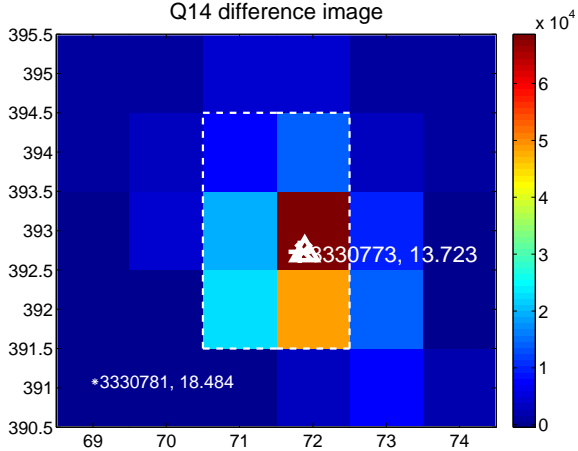
Q13 no difference image



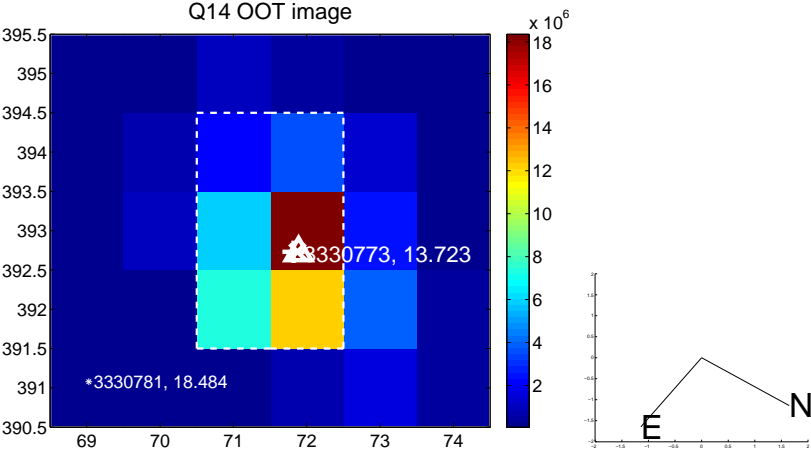
Q13 no OOT image



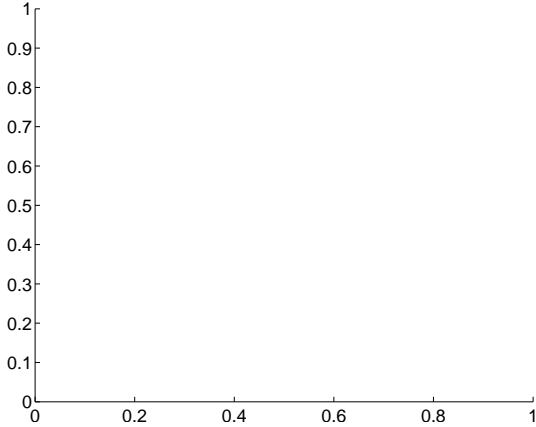
Q14 difference image



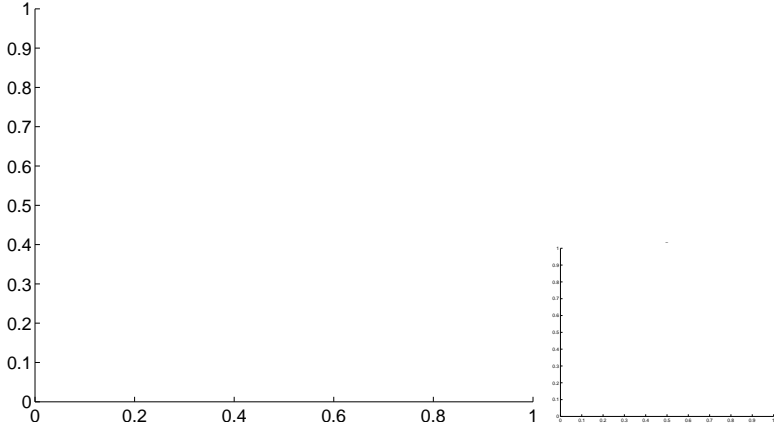
Q14 OOT image



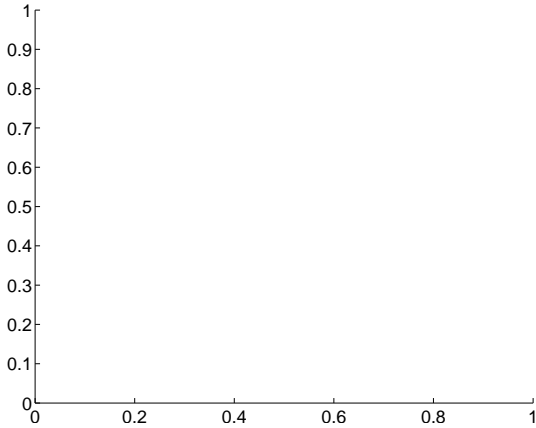
Q15 no difference image



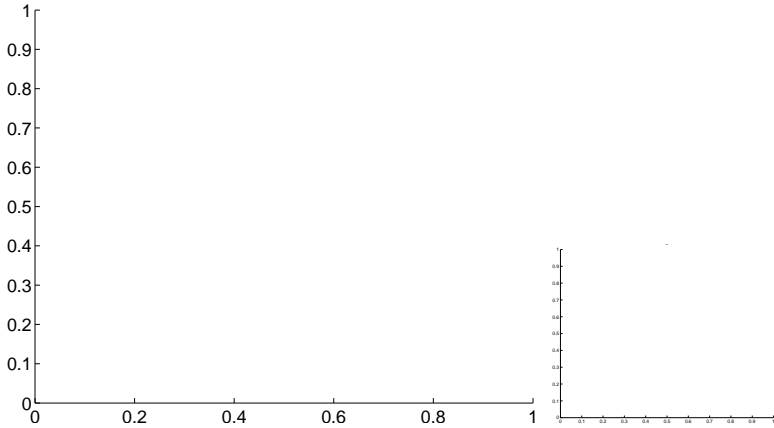
Q15 no OOT image



Q16 no difference image



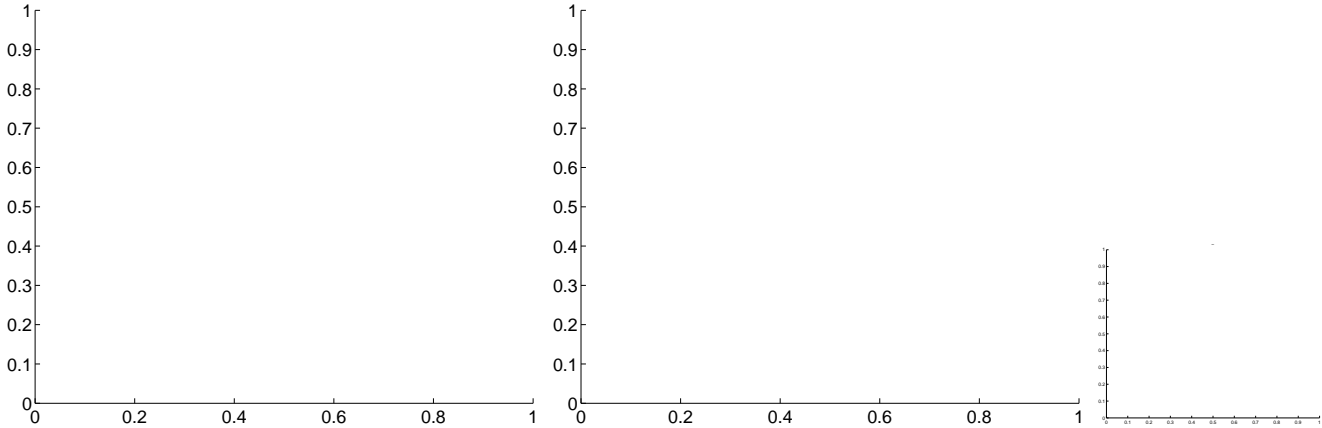
Q16 no OOT image



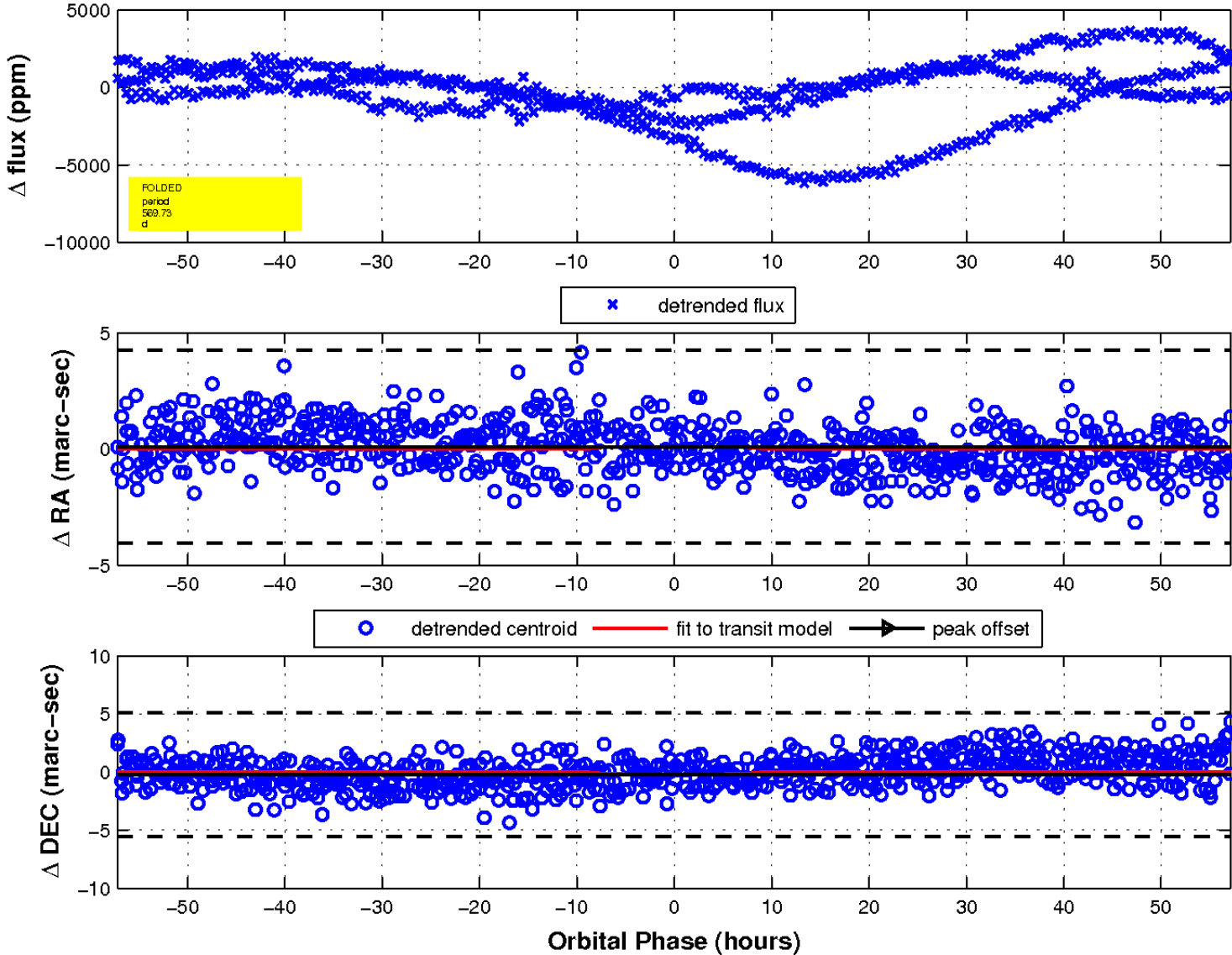
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image

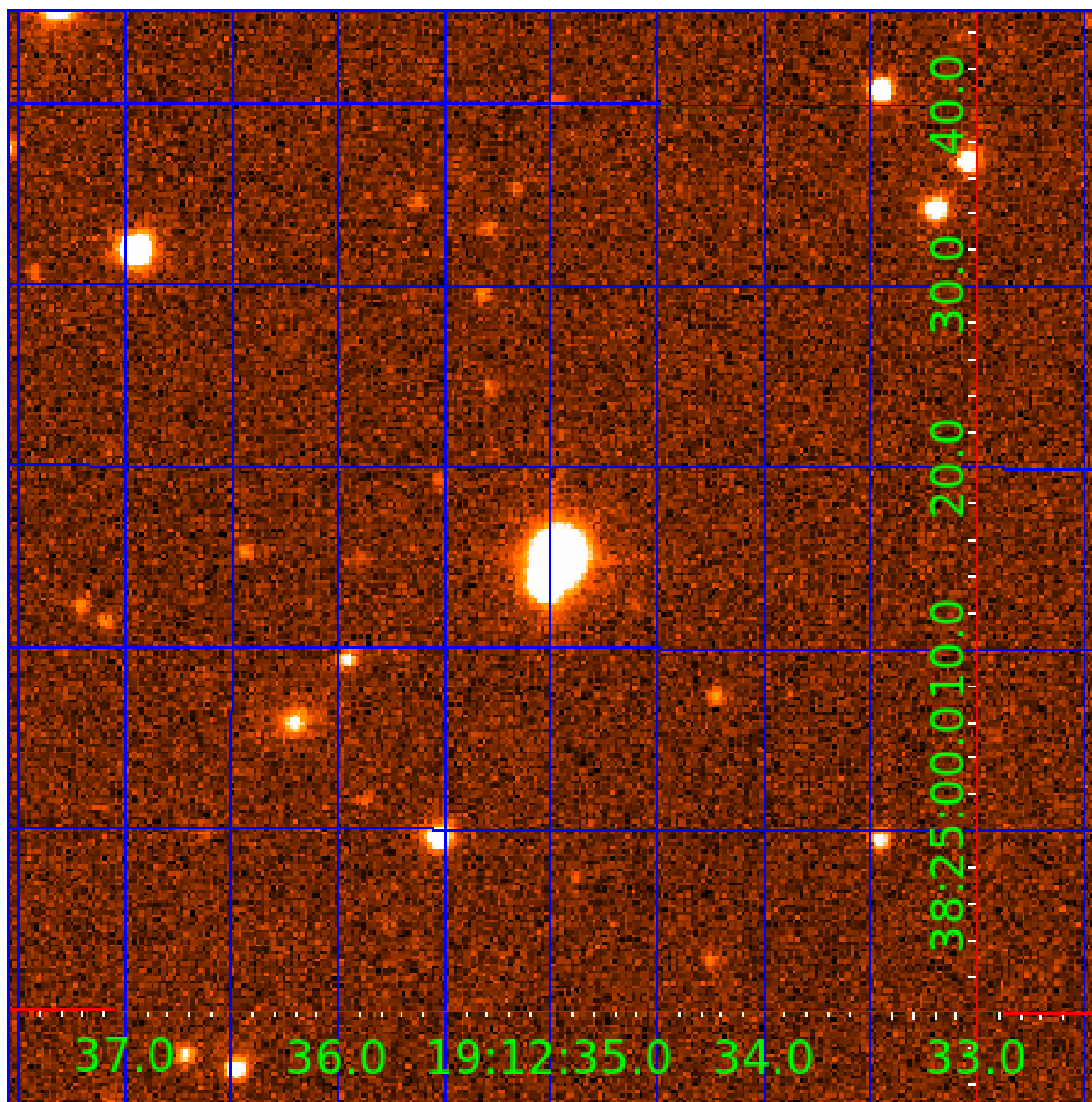


fluxWeightedCentroids, Planet 7 of 8



UKIRT Image

Declination



KIC 003330773

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})
003330773-01	OBS	No	0.990779	132.118014	41.2	4.010	8.4	9.8	0.74	4864	0.46	905.85
003330773-02	OBS	No	613.600412	343.696544	4688.0	37.006	15.8	7.6	0.74	4864	6.30	0.17
003330773-03	OBS	No	238.584464	271.443023	825.6	6.436	14.8	7.4	0.74	4864	3.14	0.60
003330773-04	OBS	No	392.191044	486.816683	1076.0	28.132	14.4	4.7	0.74	4864	2.41	0.31
003330773-05	OBS	No	518.179820	466.572896	2460.0	16.313	11.3	8.2	0.74	4864	3.55	0.21
003330773-06	OBS	No	406.194283	213.754569	305.6	4.964	11.0	3.3	0.74	4864	1.55	0.30
003330773-07	OBS	No	569.728389	145.546172	2297.1	19.080	10.3	8.2	0.74	4864	3.97	0.19
003330773-08	OBS	No	247.115893	311.889261	793.1	10.138	9.5	6.1	0.74	4864	2.32	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003330773-01	OBS	FP	0.01	1	0	0	0	LPP_DV
003330773-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS
003330773-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV
003330773-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003330773-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—CENT_FEW_DIFFS
003330773-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
003330773-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

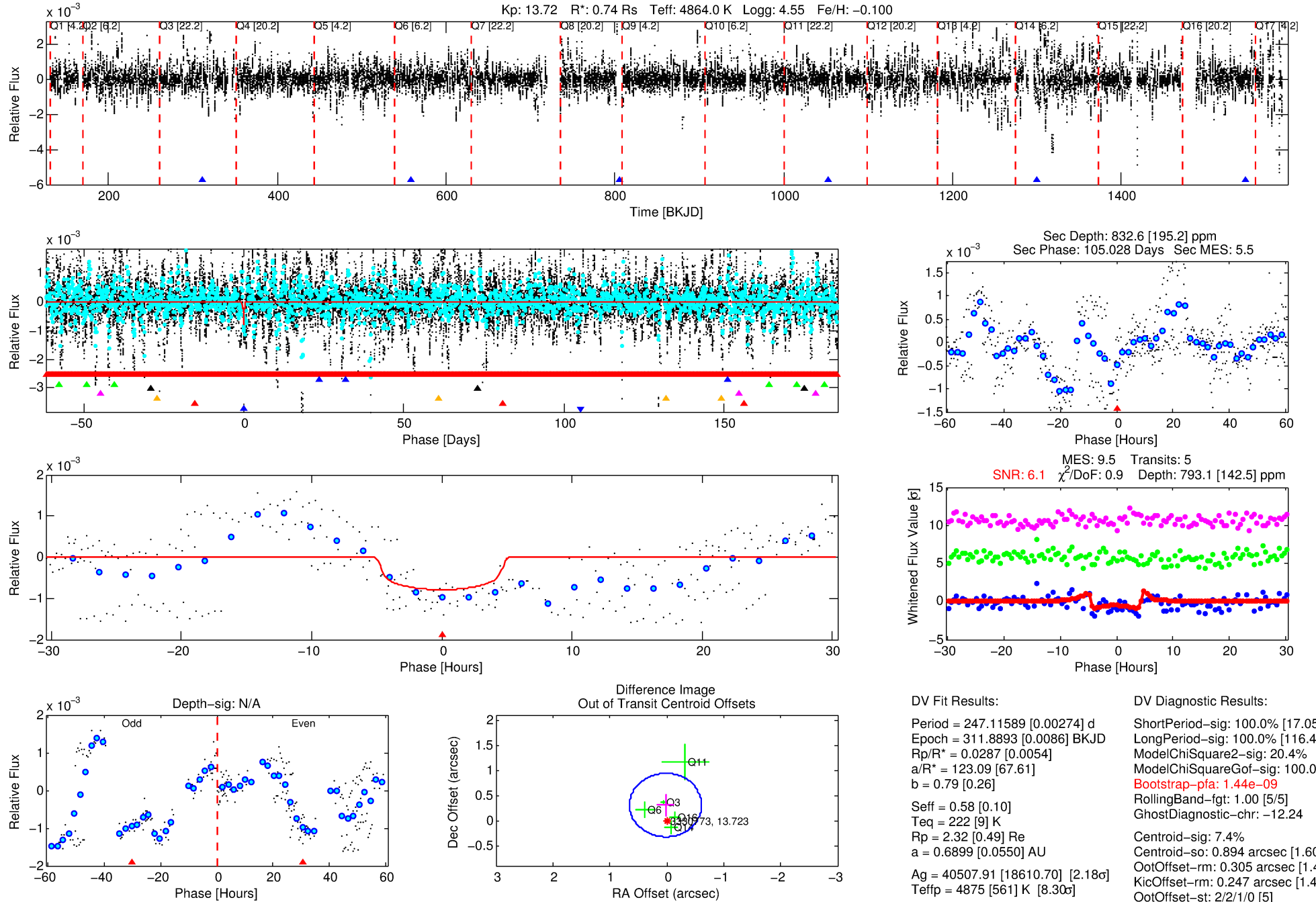
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003330773-08

No Significant Match Found

DV One-Page Summary

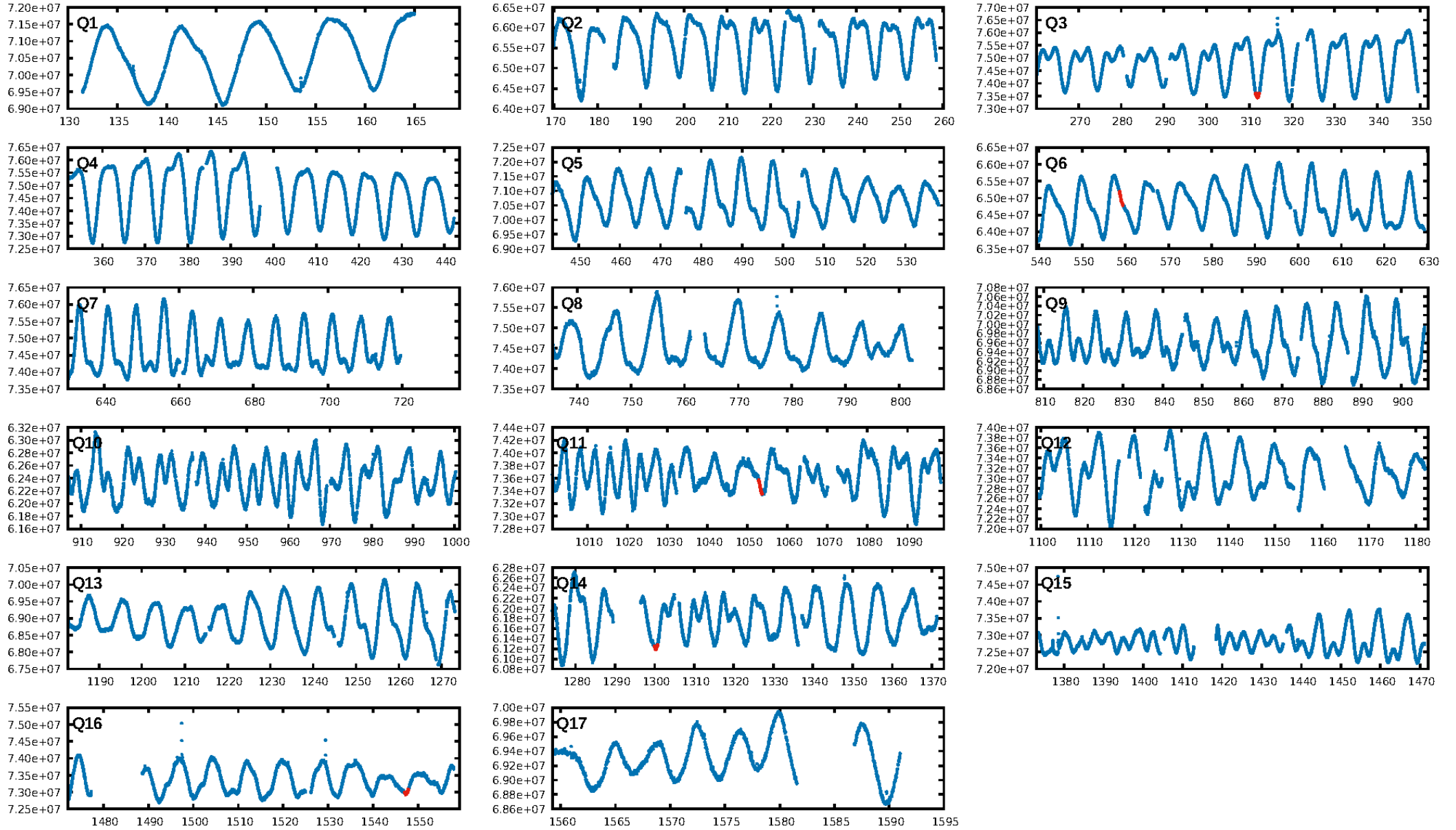
KIC: 3330773 Candidate: 8 of 8 Period: 247.116 d



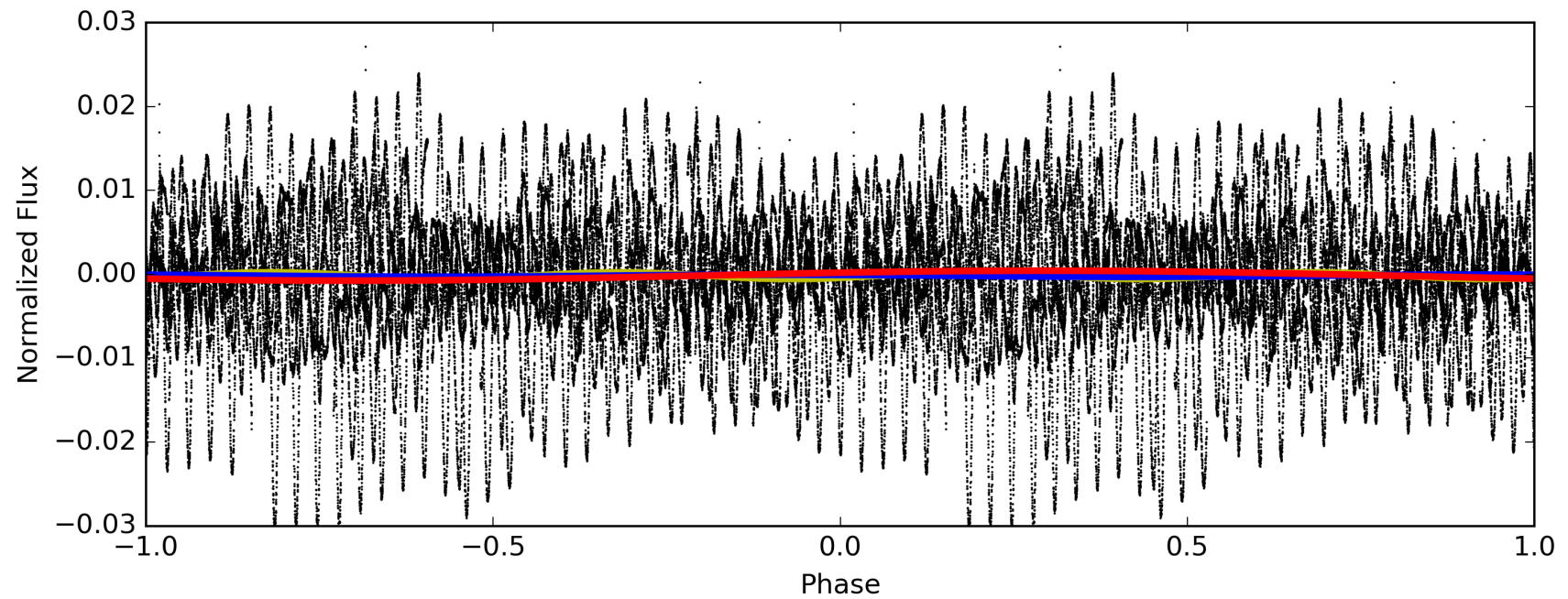
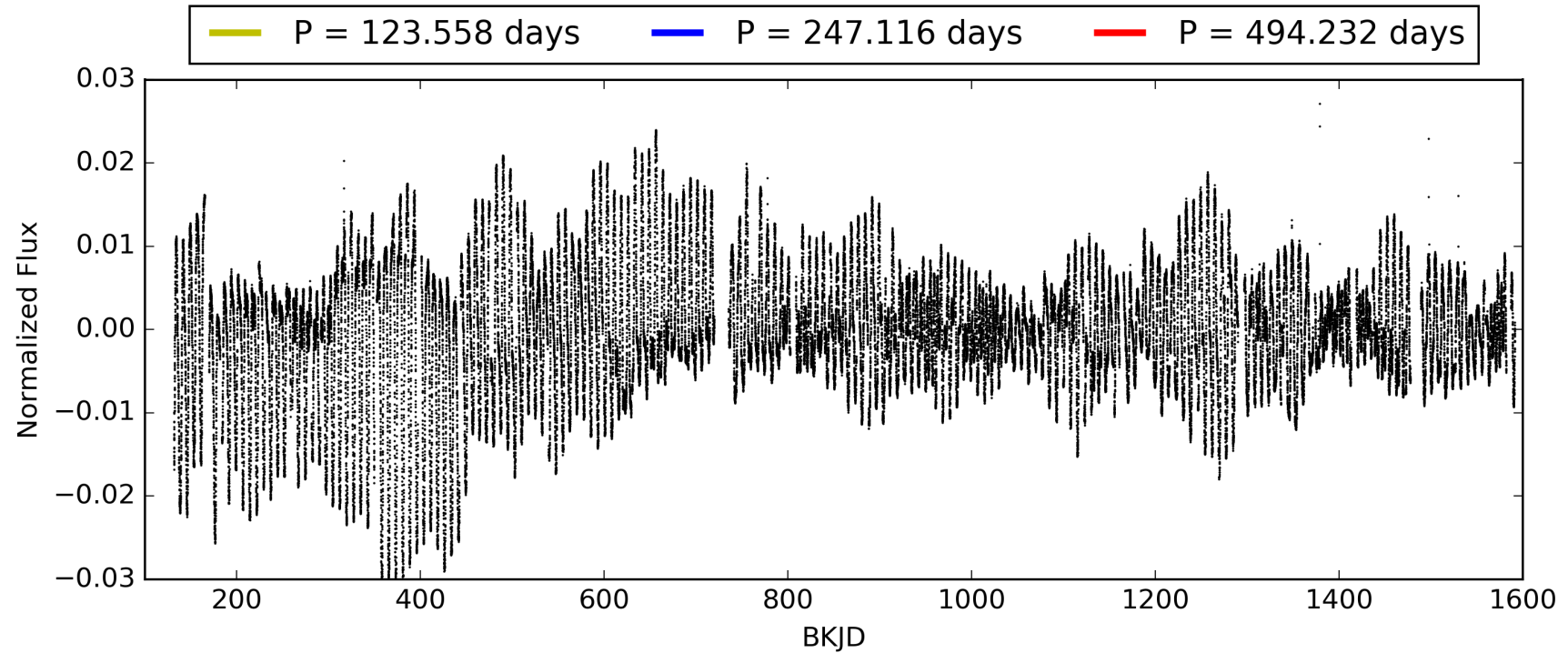
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:46:28 Z

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

TCE 003330773-08, PDC Light Curves

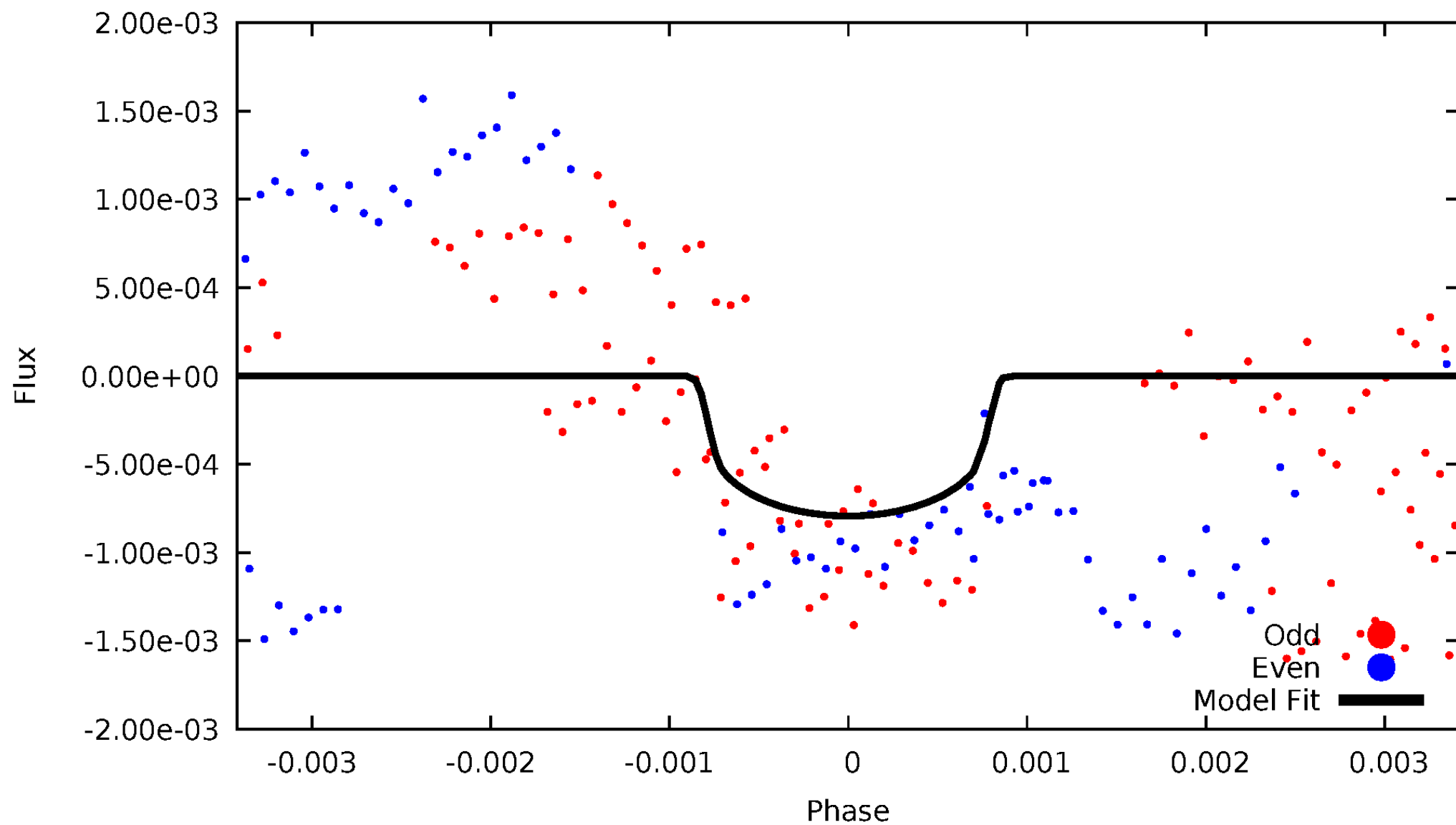


TCE 003330773-08



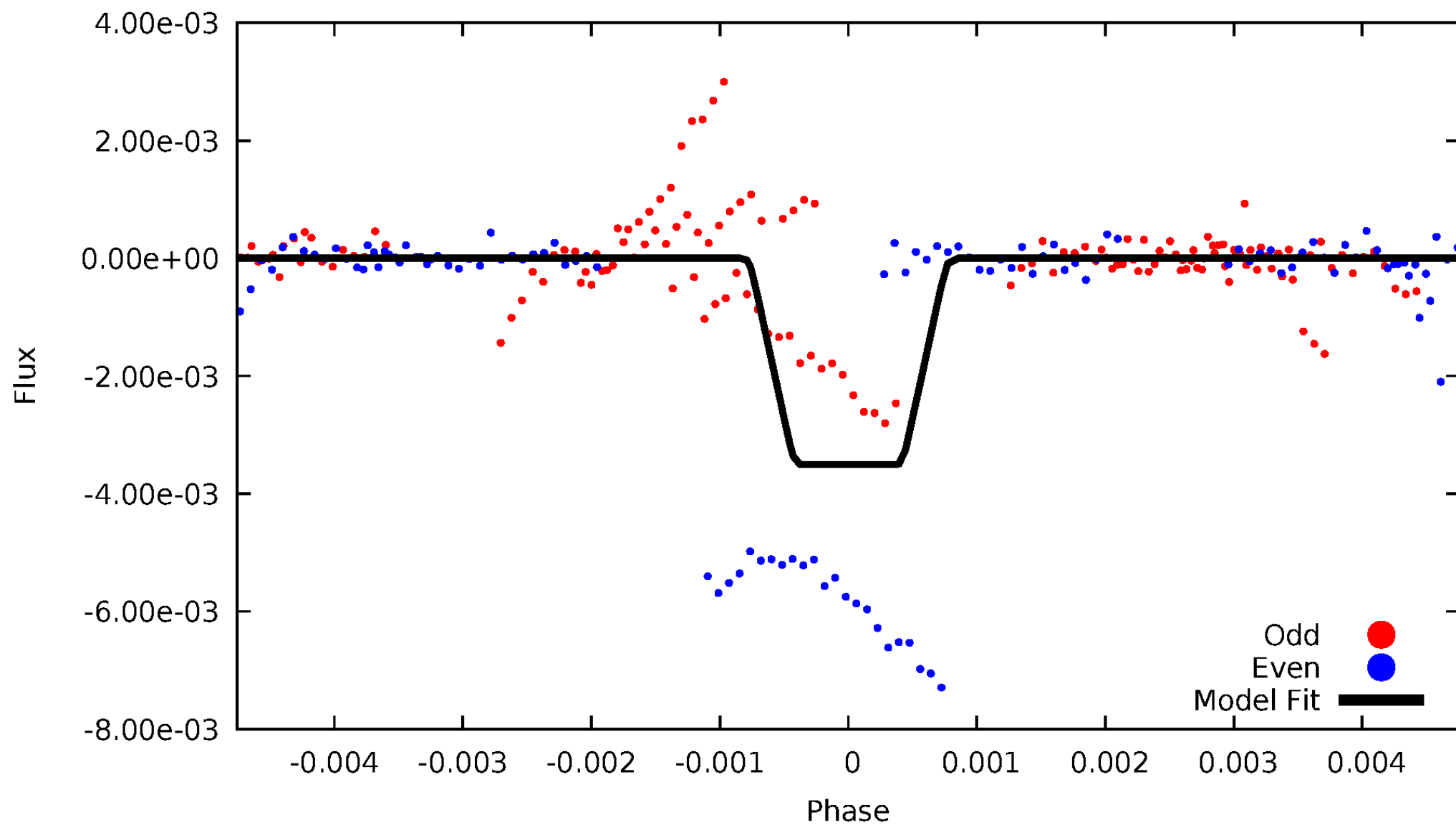
DV Odd/Even

TCE 003330773-08



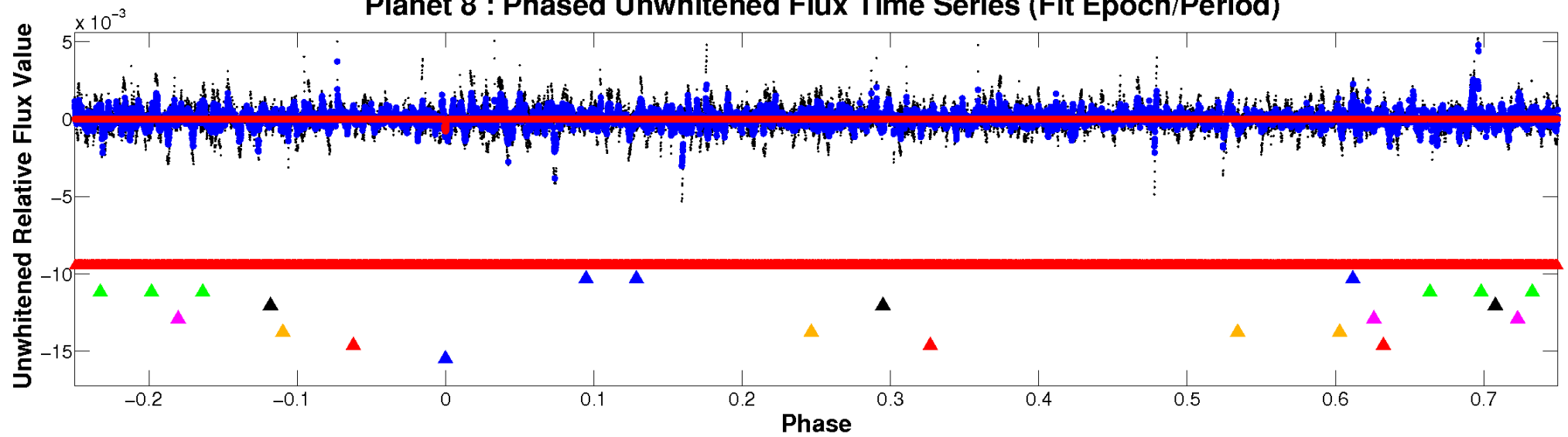
ALT Odd/Even

TCE 003330773-08

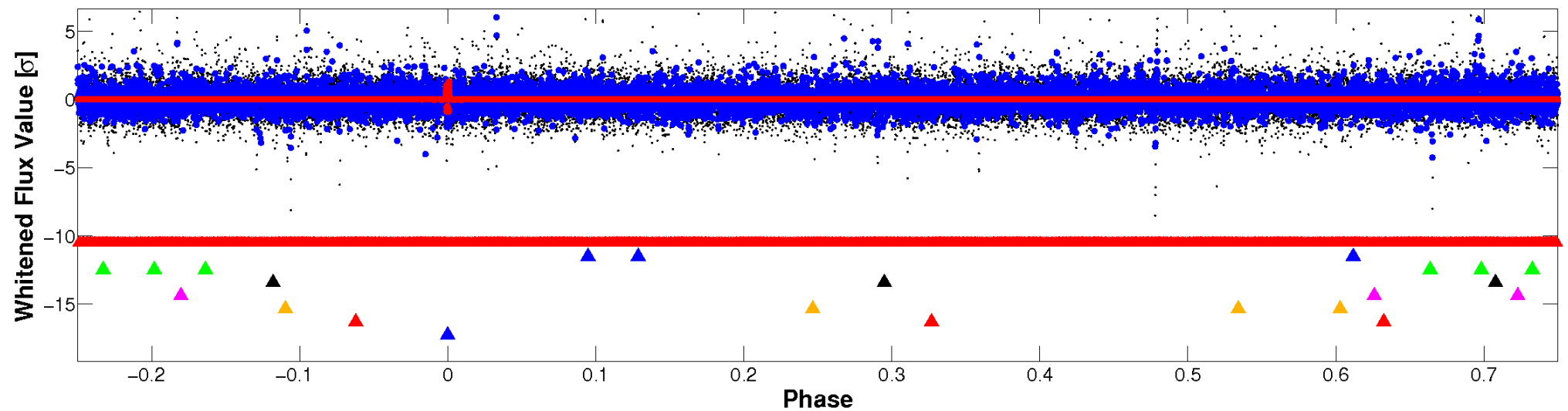


Non-Whitened Vs. Whitened Light Curve

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

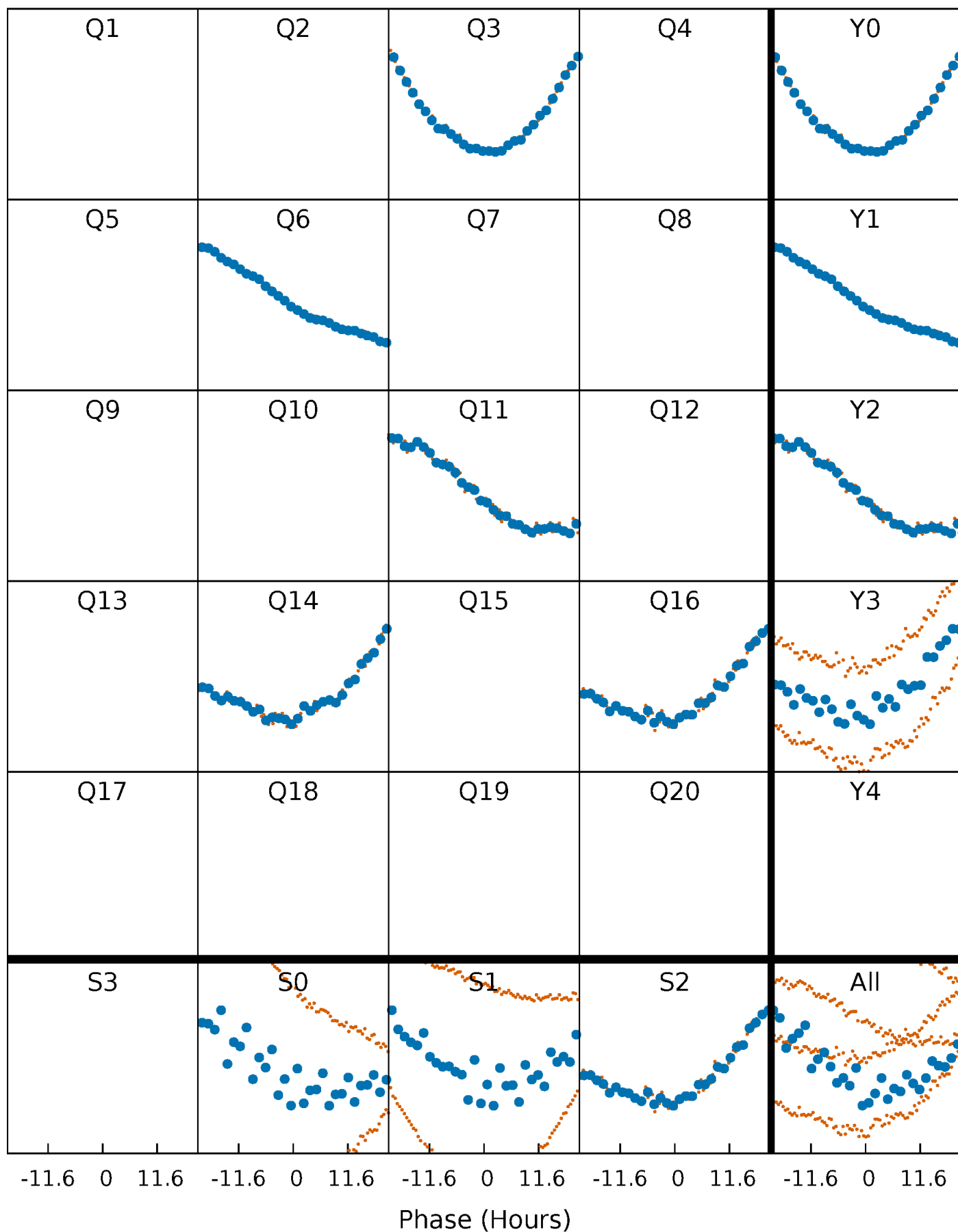


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



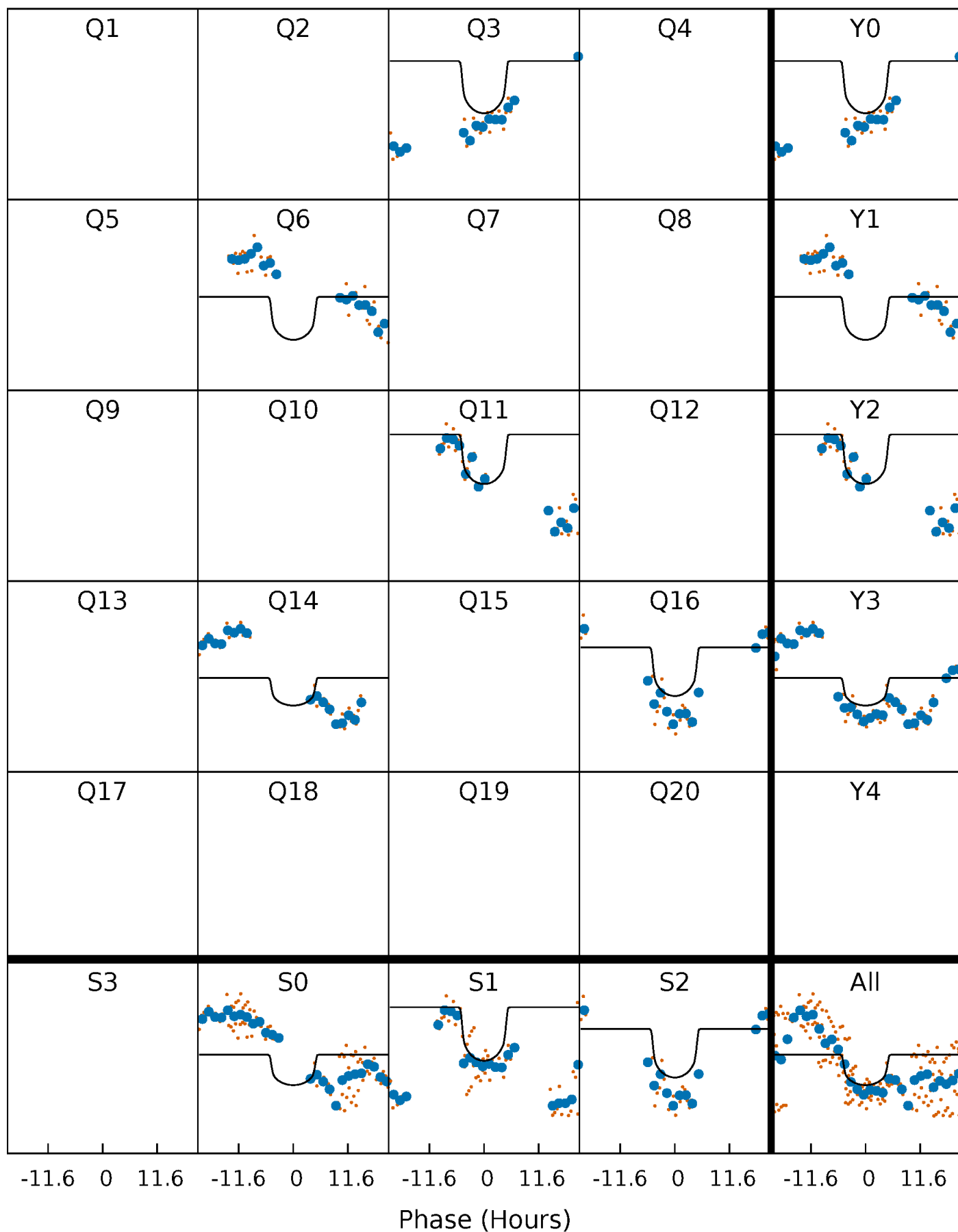
PDC Quarter-Phased Transit Curves

TCE 003330773-08 $P=247.115893$ Days $T_0=311.889261$ (BKJD)



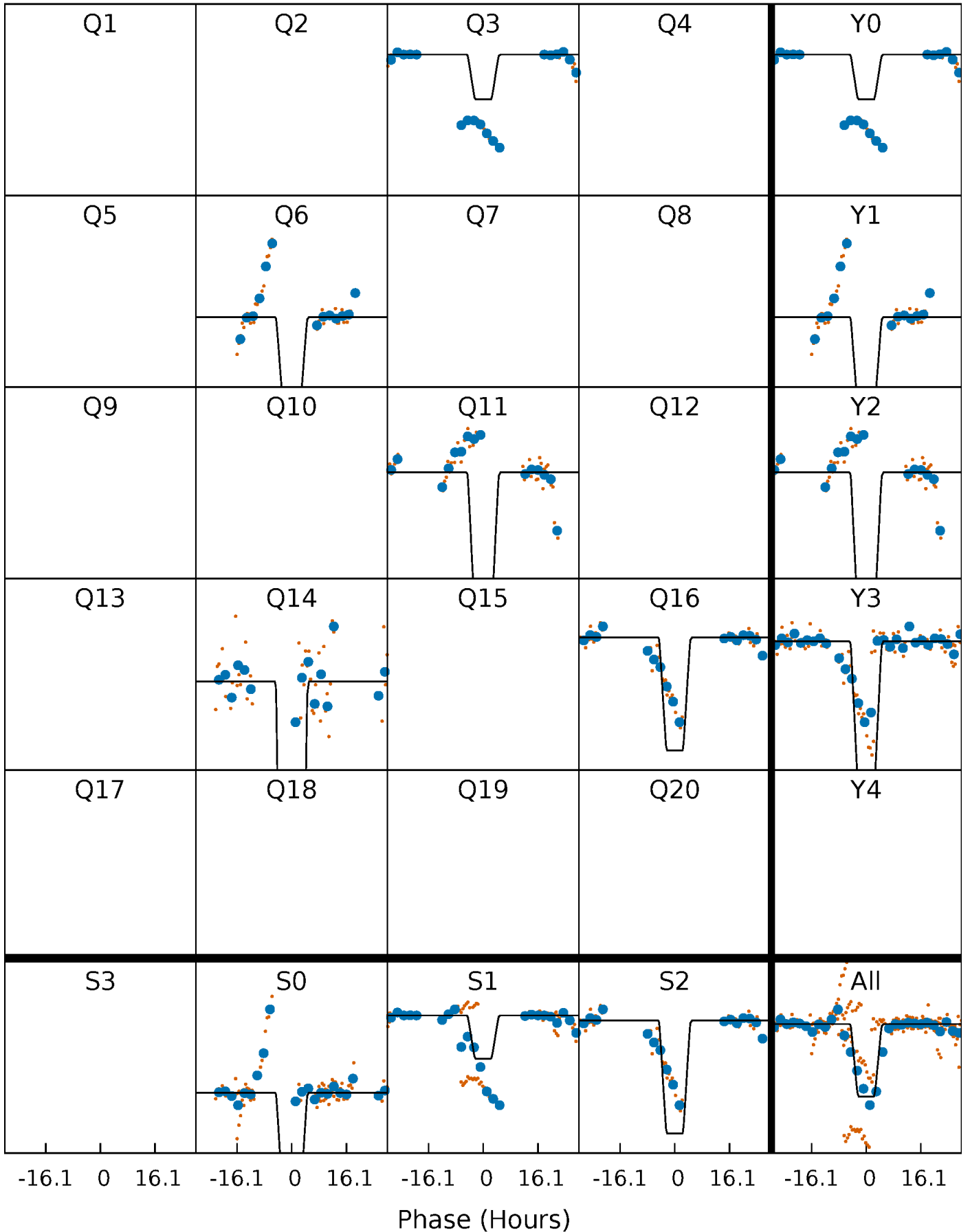
DV Quarter-Phased Transit Curves

TCE 003330773-08 $P=247.115893$ Days $T_0=311.889261$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

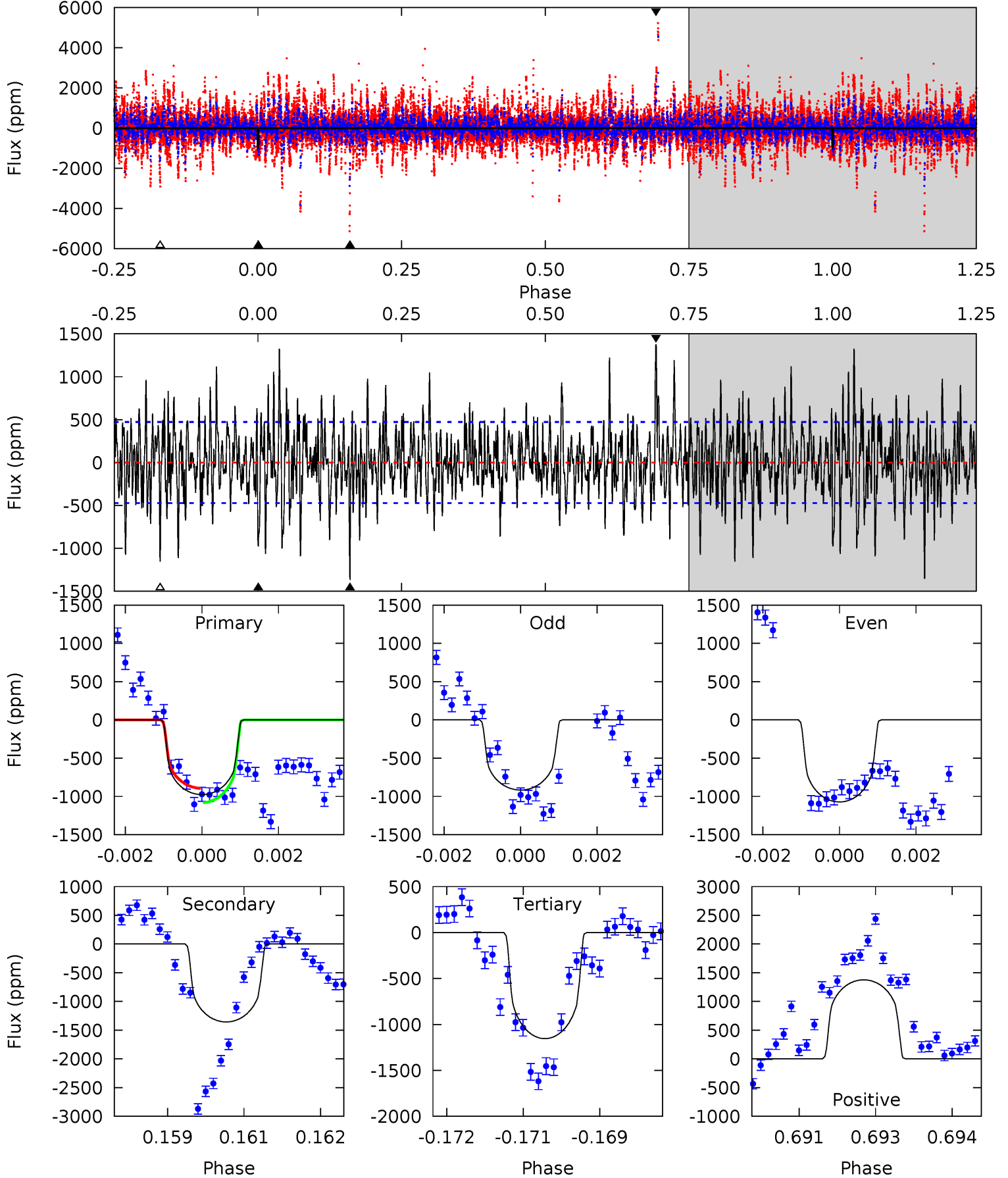
TCE 003330773-08 P=247.116663 Days $T_0=311.985569$ (BKJD)



DV Model-Shift Uniqueness Test

003330773-08, $P = 247.115893$ Days, $E = 64.773368$ Days

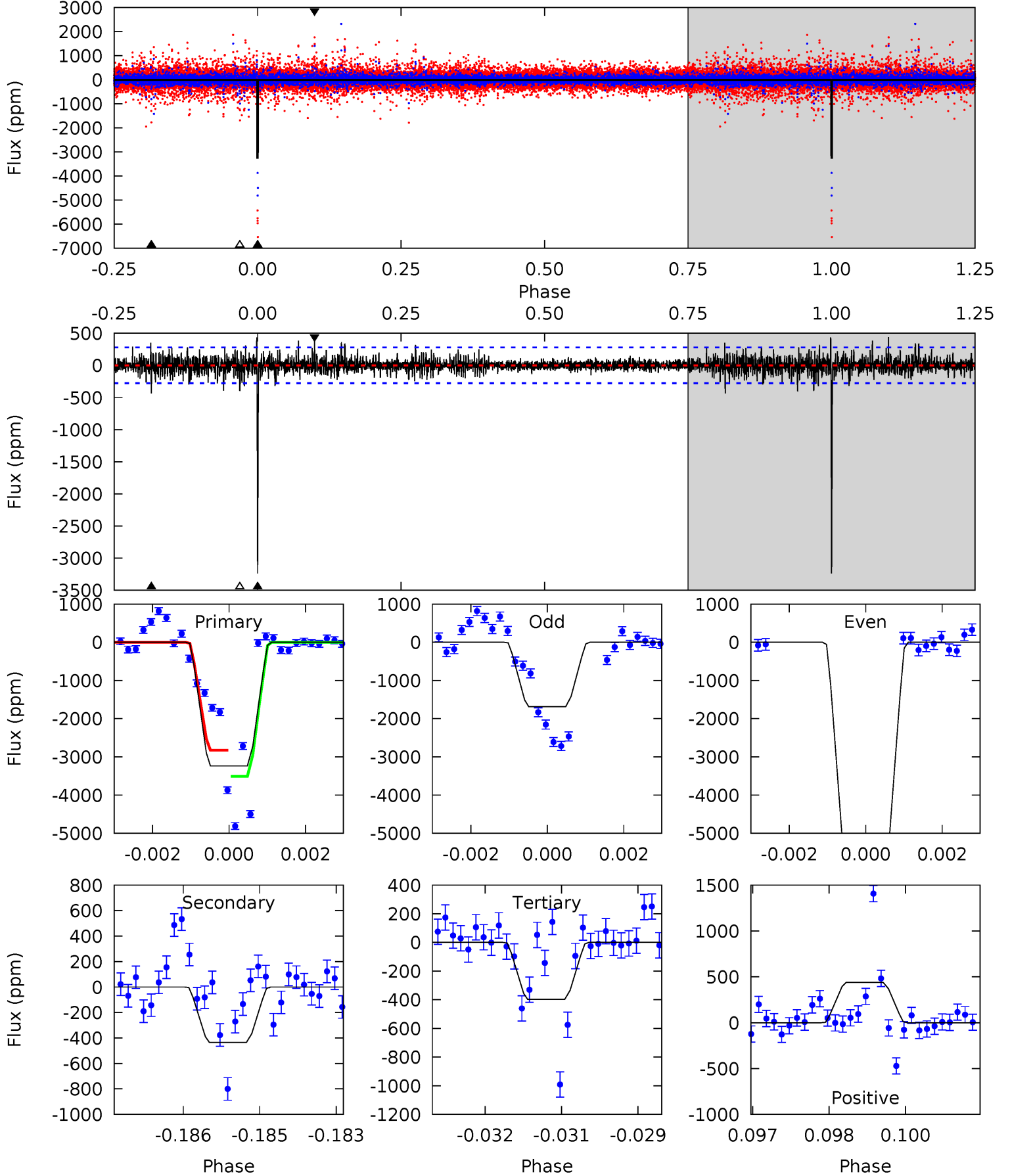
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	15.4	13.1	15.6	5.36	3.14	3.79	-2.02	-4.55	2.30	-0.23	0.84	0.78	0.50	1.06



Alt Model-Shift Uniqueness Test

003330773-08, P = 247.116663 Days, E = 64.868906 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.4	8.39	7.67	8.49	5.37	3.17	1.37	54.7	53.9	0.73	-0.10	43.1	1.76	0.12	6.11



Stellar Parameters For KIC 003330773

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4864^{+146}_{-131}	$4.555^{+0.065}_{-0.040}$	$-0.100^{+0.300}_{-0.300}$	$0.740^{+0.062}_{-0.069}$	$0.718^{+0.090}_{-0.053}$	$2.494^{+0.697}_{-0.377}$
	+3%/-3%	+1%/-1%	+300%/-300%	+8%/-9%	+13%/-7%	+28%/-15%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 003330773-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1356 ± 88	$2.31^{+0.47}_{-0.42}$	309^{+11}_{-12}	5390^{+551}_{-422}	66473^{+34116}_{-19705}
Alt.	-435 ± 52	$4.78^{+0.51}_{-0.46}$	309^{+12}_{-11}	3357^{+135}_{-122}	5063^{+1238}_{-1044}

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

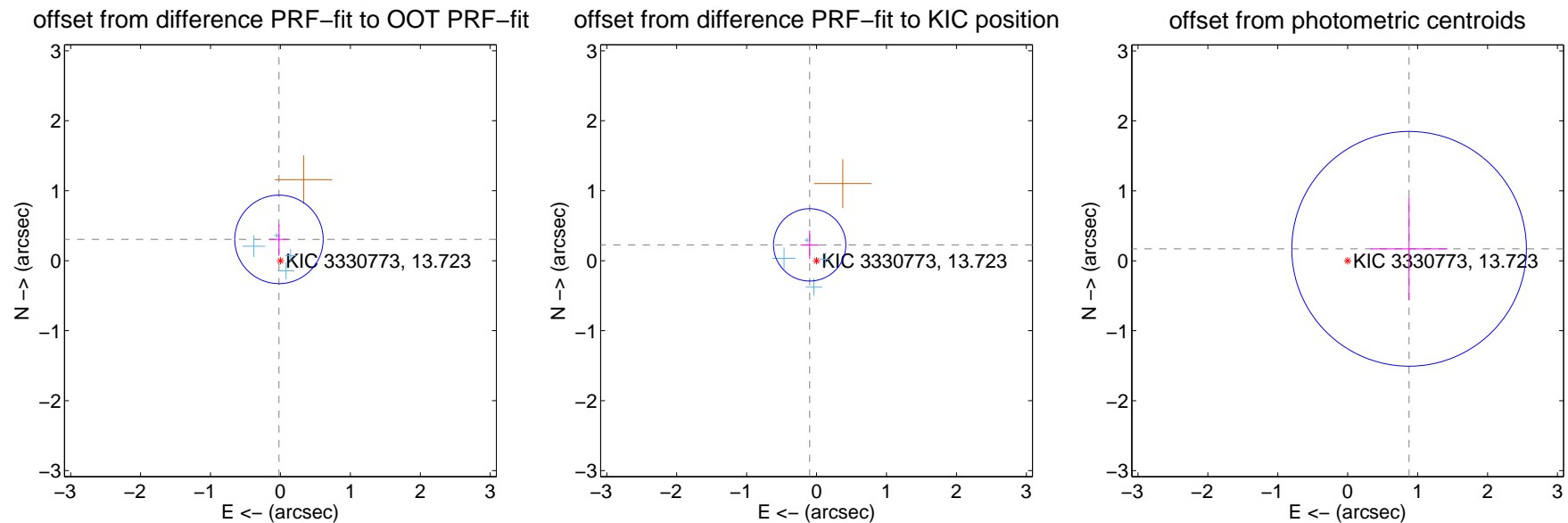
DV Centroid Data

Supplemental centroid analysis for 003330773-08. Kepler magnitude: 13.72. Transit SNR 6.07

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

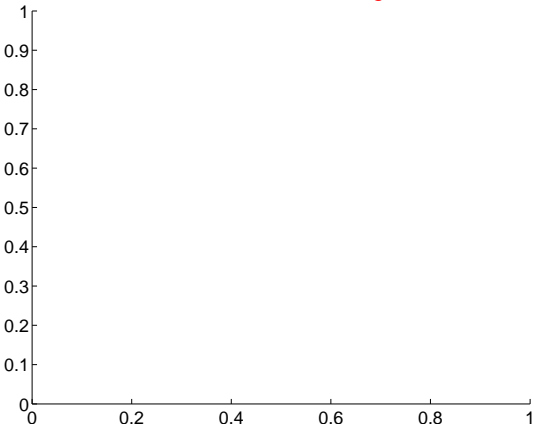
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.305 ± 0.211	1.45	0.021 ± 0.136	0.305 ± 0.217
PRF-fit source offset from KIC position	0.247 ± 0.172	1.43	0.099 ± 0.131	0.226 ± 0.204
photometric centroid source offset	0.89 ± 0.56	1.60	-0.88 ± 0.55	0.17 ± 0.74



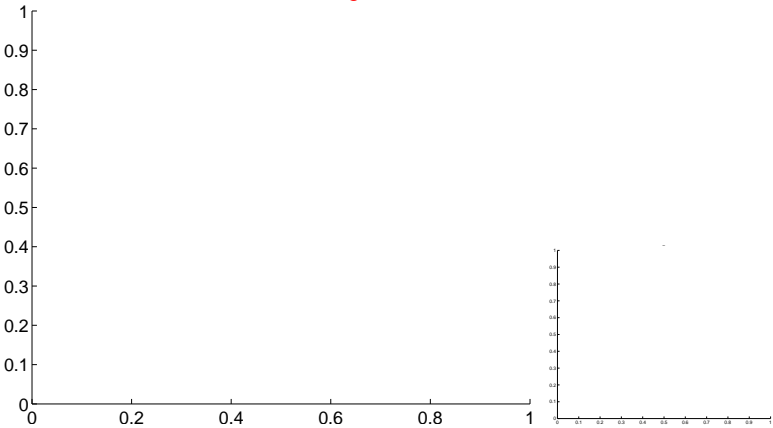
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

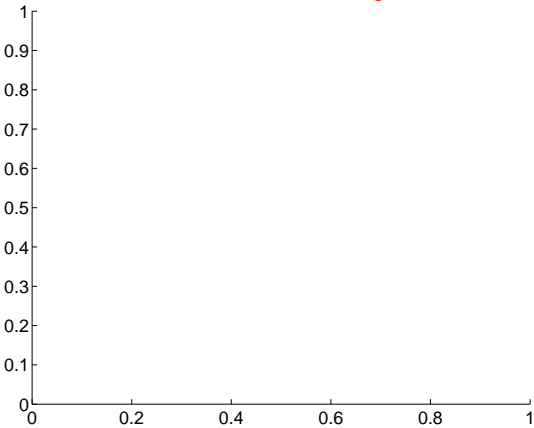
Q1 no difference image



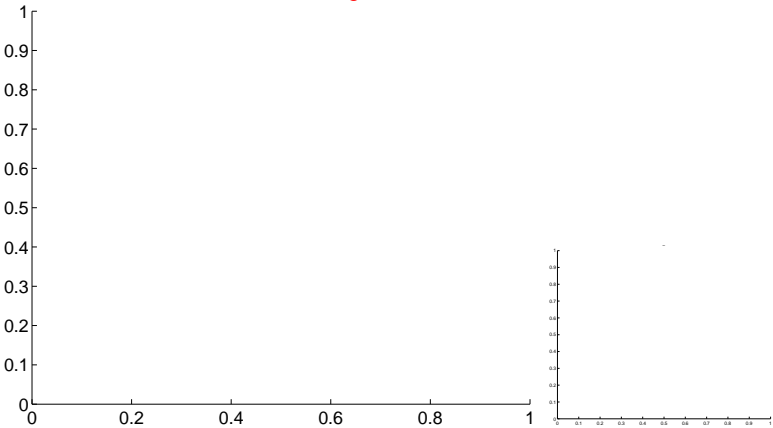
Q1 no OOT image



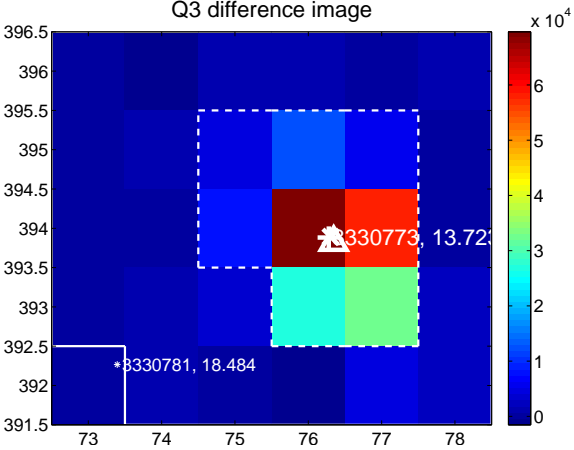
Q2 no difference image



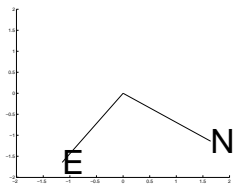
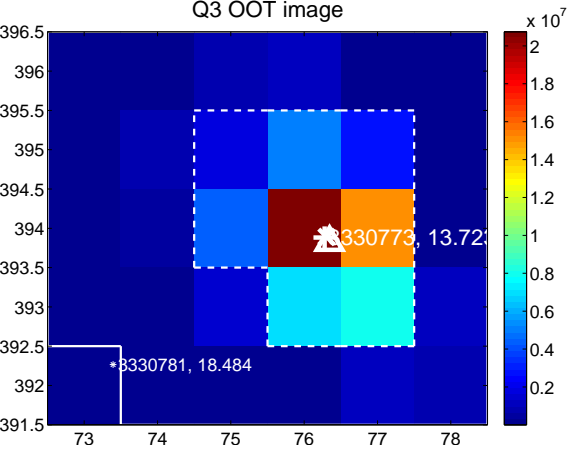
Q2 no OOT image



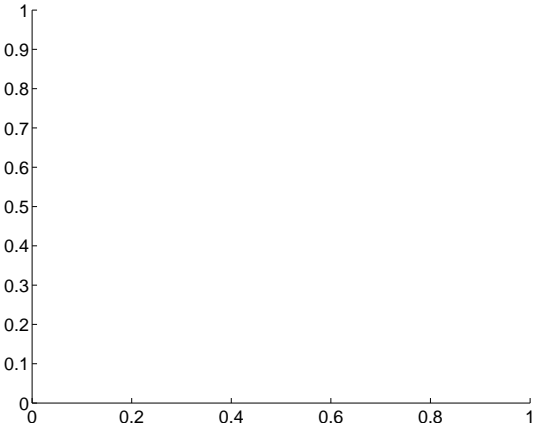
Q3 difference image



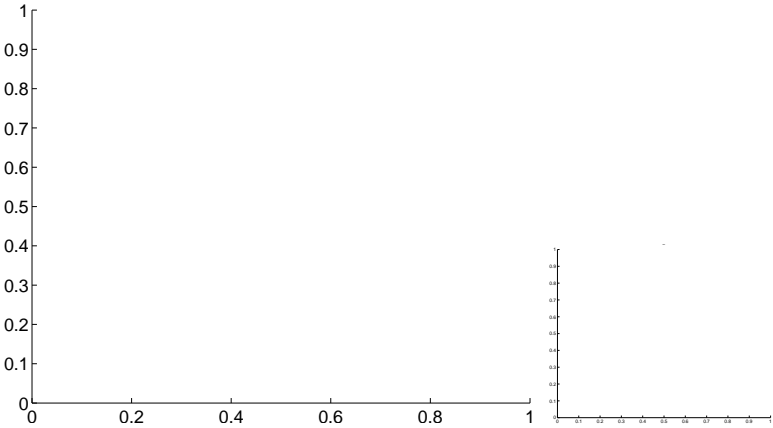
Q3 OOT image



Q4 no difference image

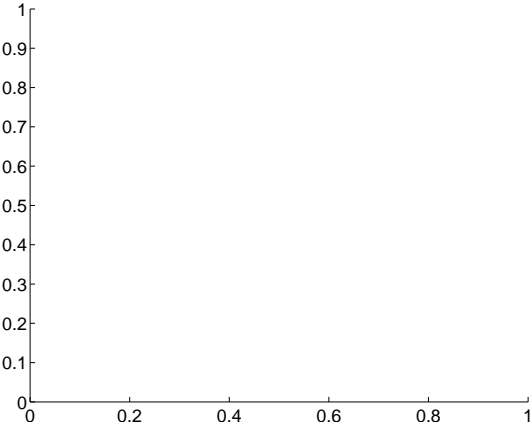


Q4 no OOT image

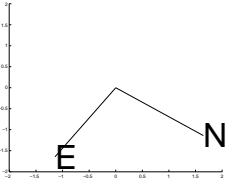
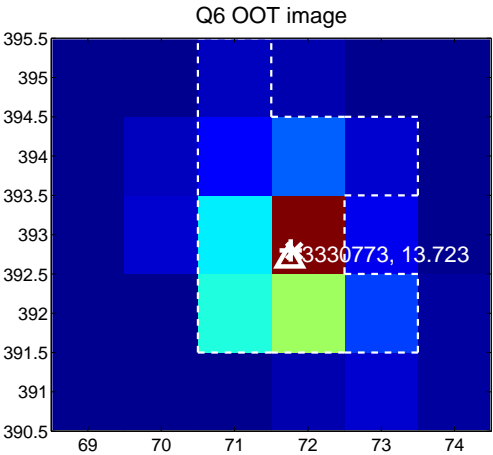
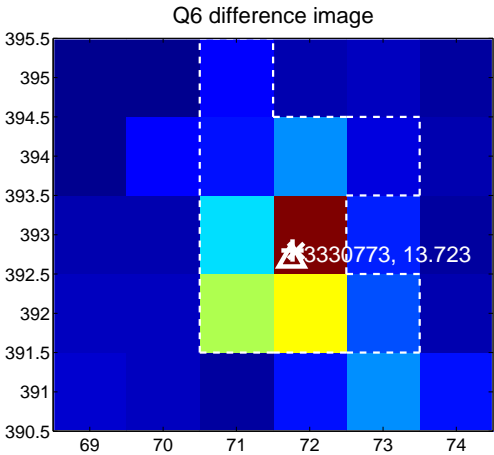
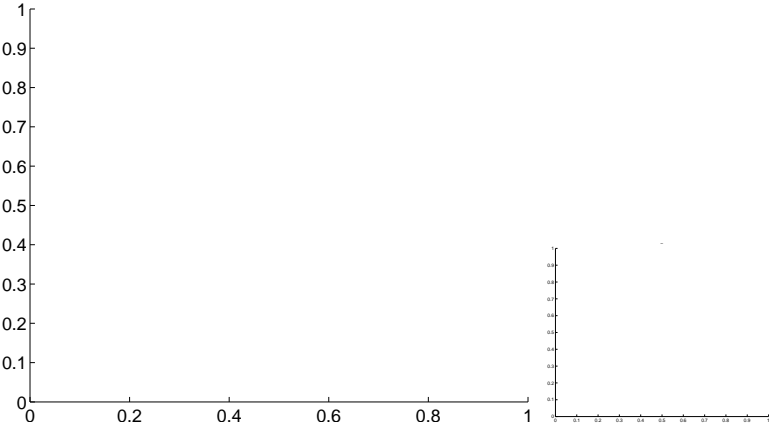


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

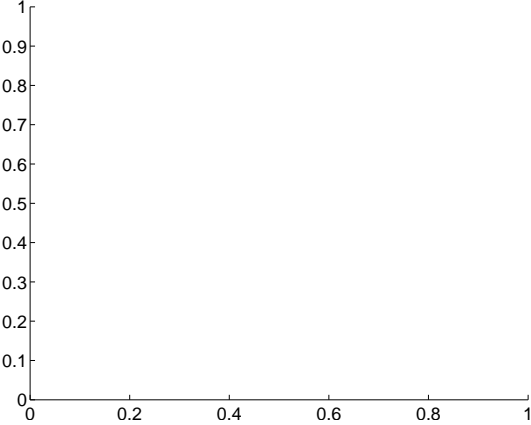
Q5 no difference image



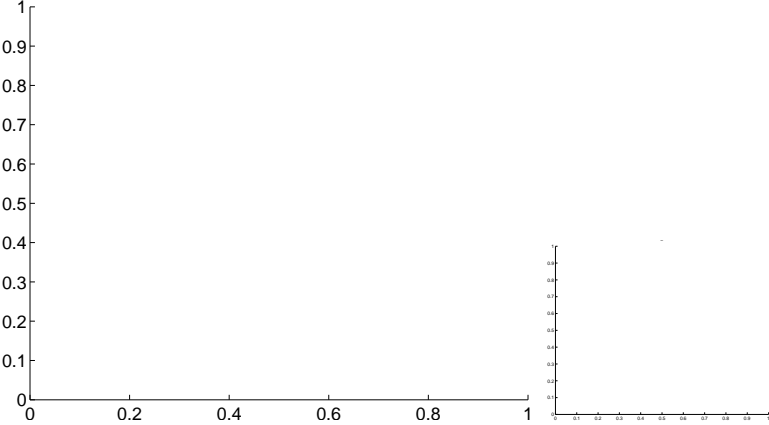
Q5 no OOT image



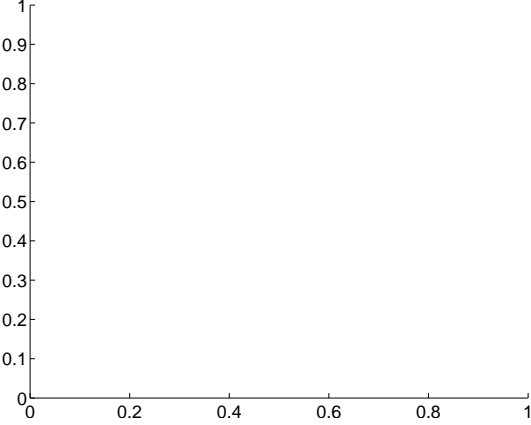
Q7 no difference image



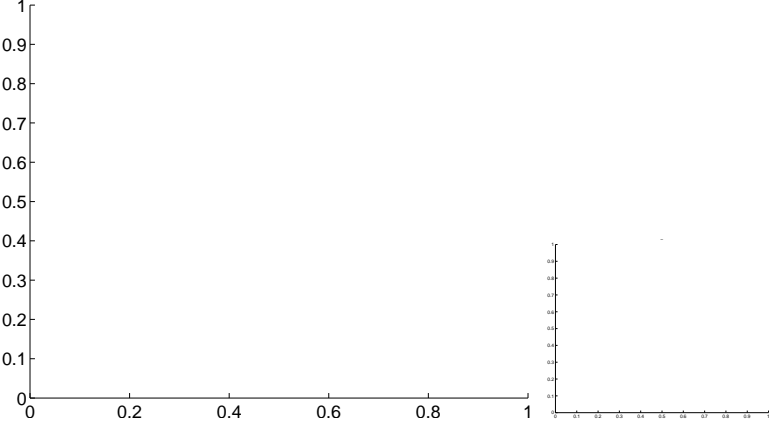
Q7 no OOT image



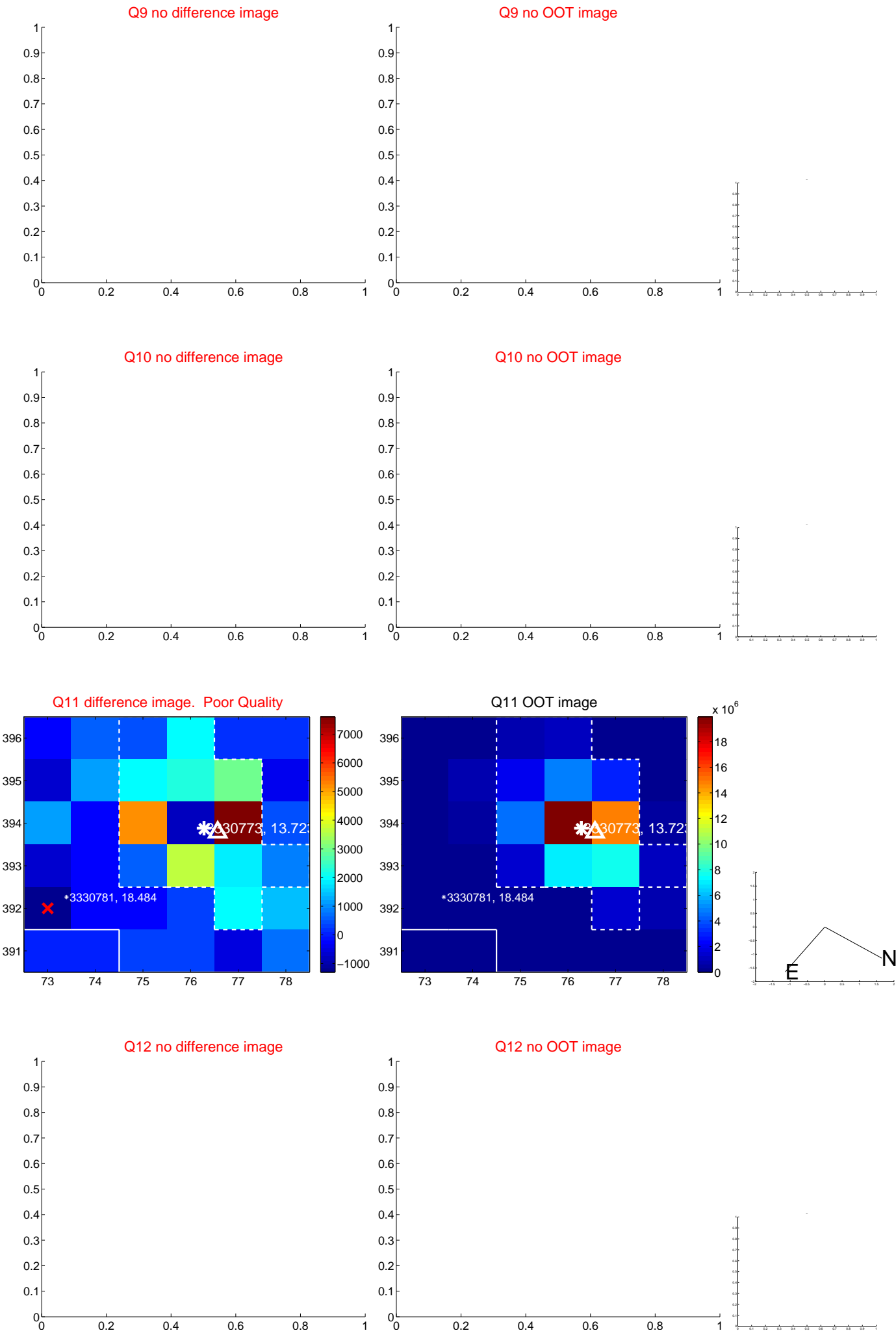
Q8 no difference image



Q8 no OOT image

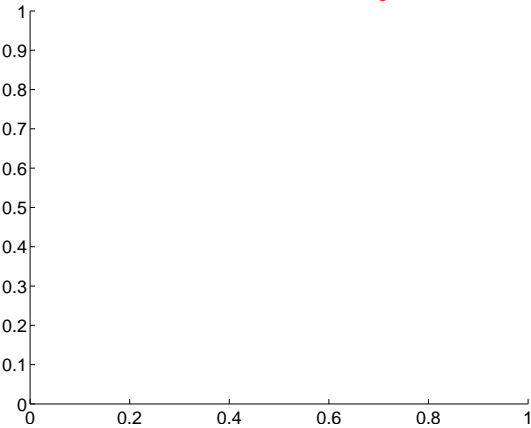


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

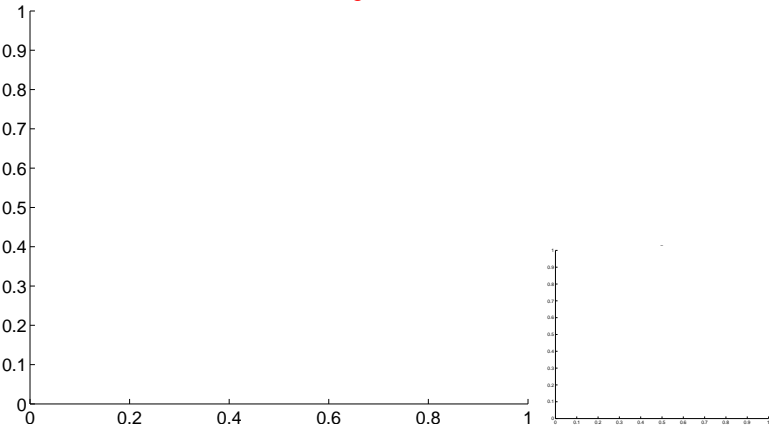


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

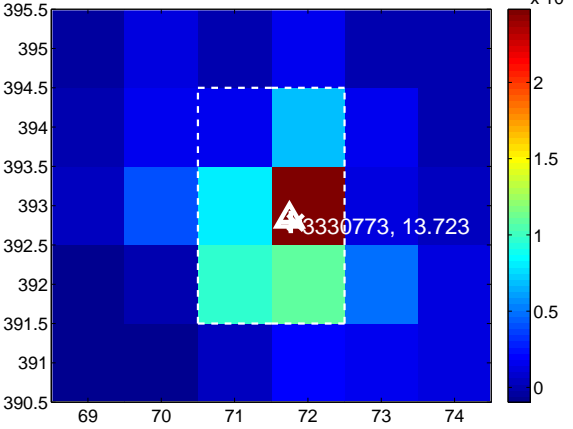
Q13 no difference image



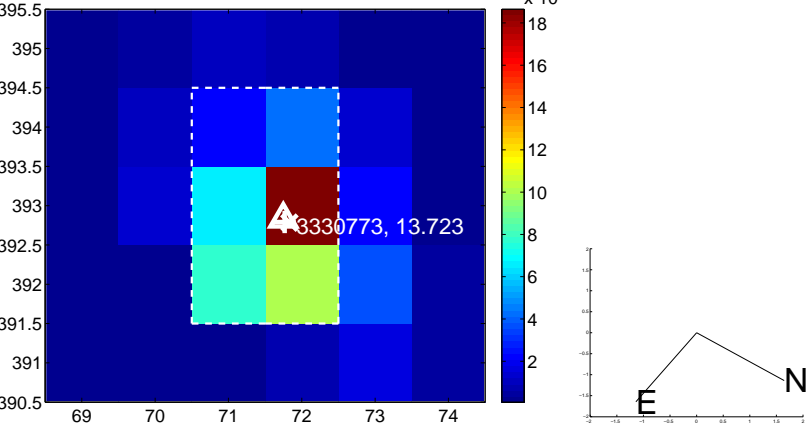
Q13 no OOT image



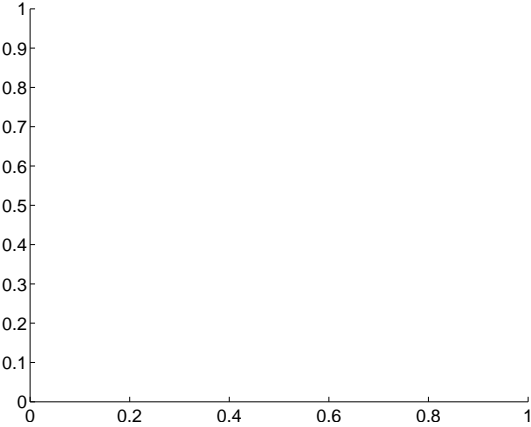
Q14 difference image



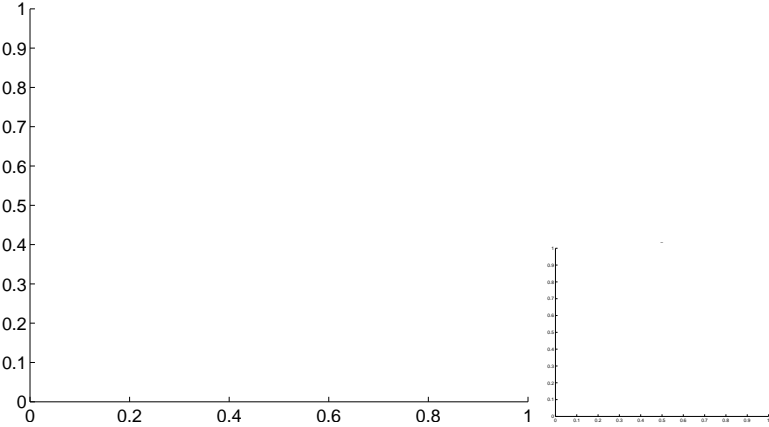
Q14 OOT image



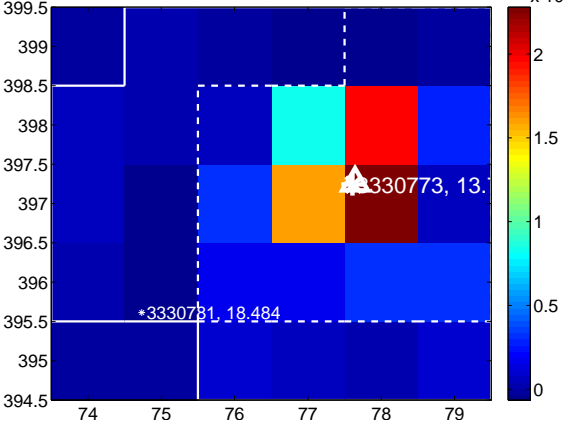
Q15 no difference image



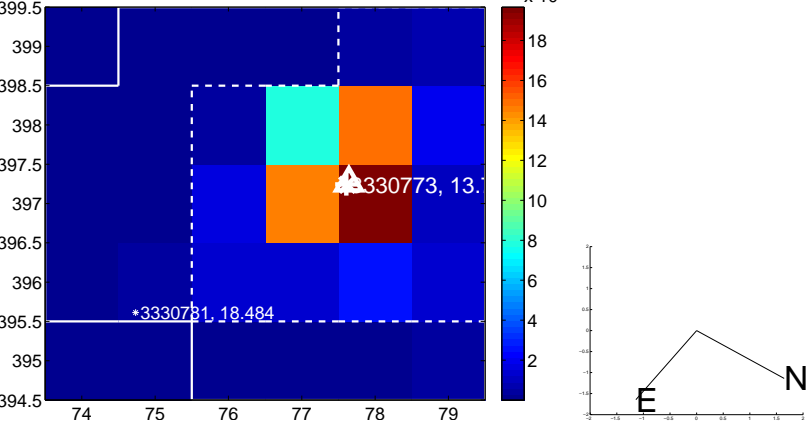
Q15 no OOT image



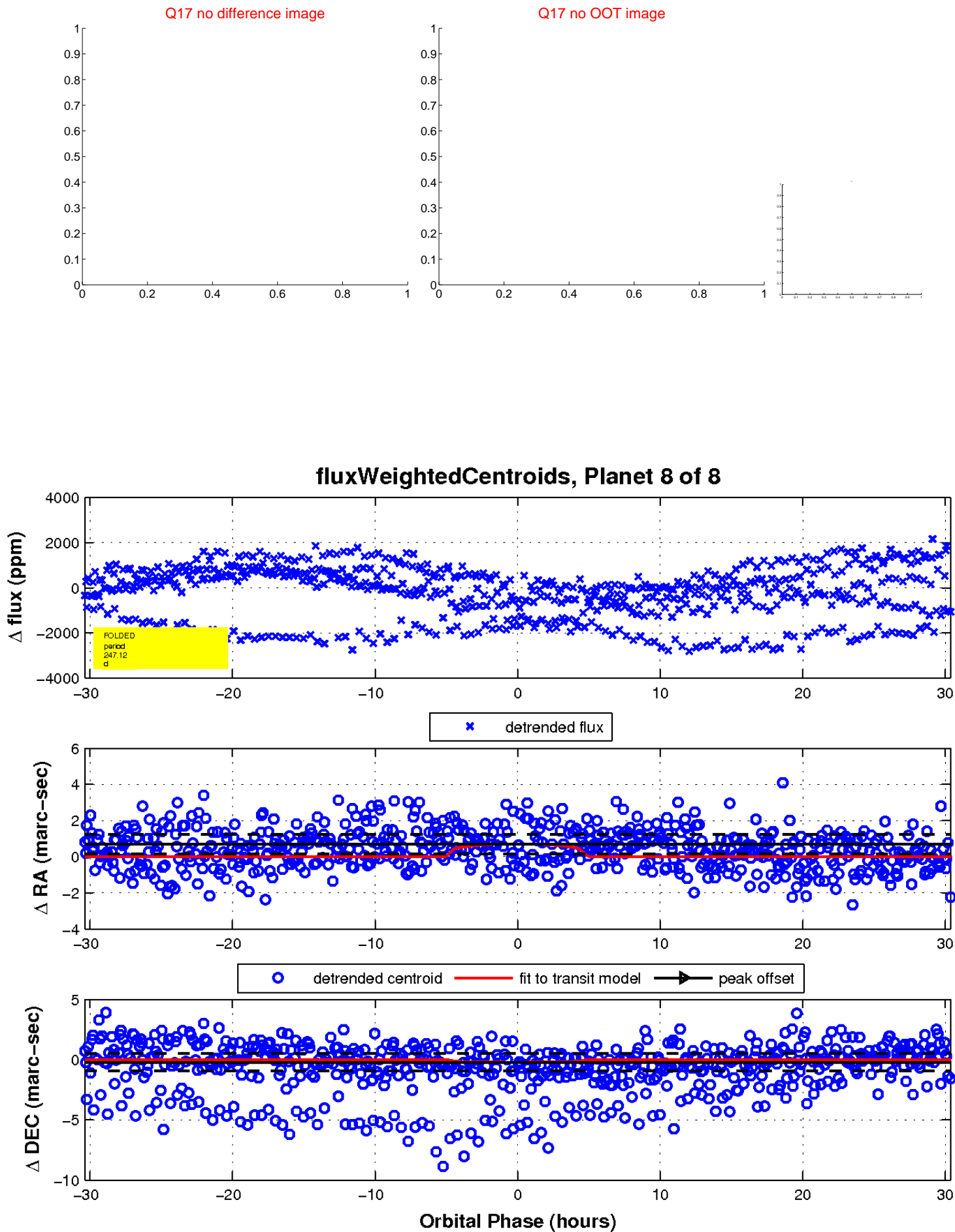
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

