

KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
010341072-04	OBS	No	142.468614	220.078937	296.7	2.449	8.7	9.1	4.33	6541	9.05	70.36
010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
010341072-07	OBS	No	161.609085	156.832880	343.3	3.076	8.3	8.7	4.33	6541	9.29	59.47
010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
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010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

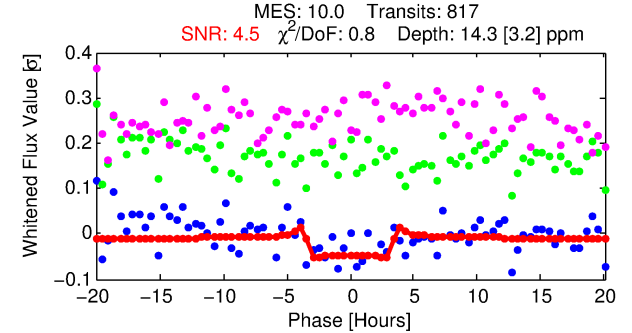
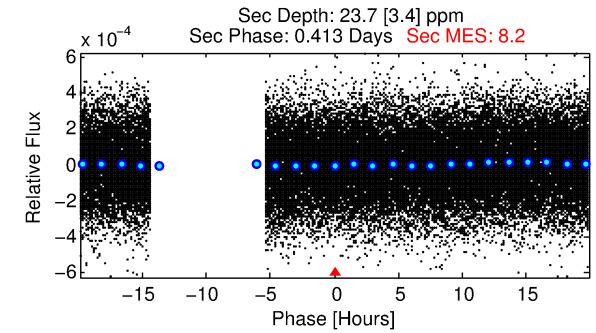
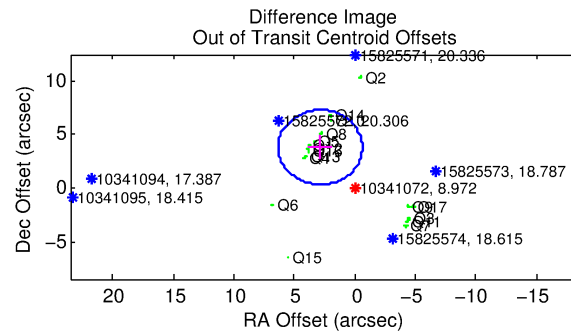
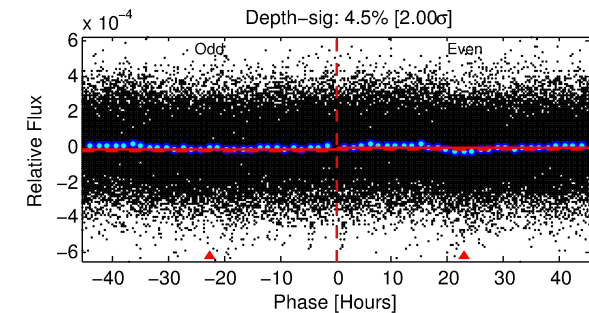
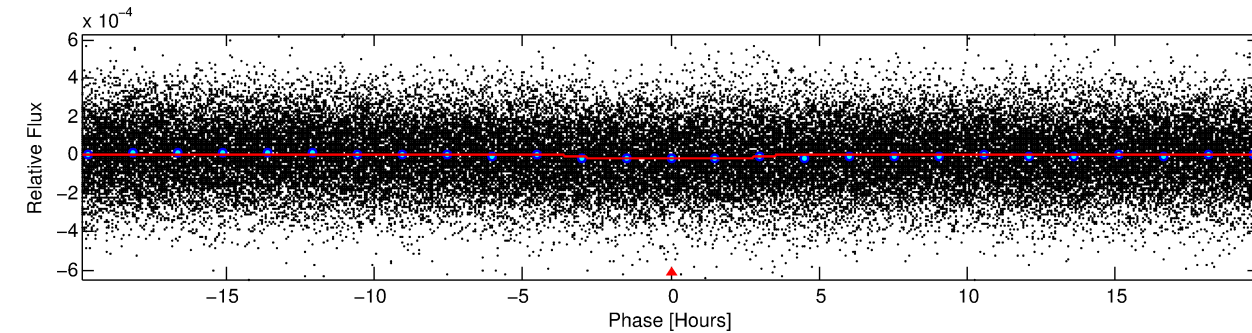
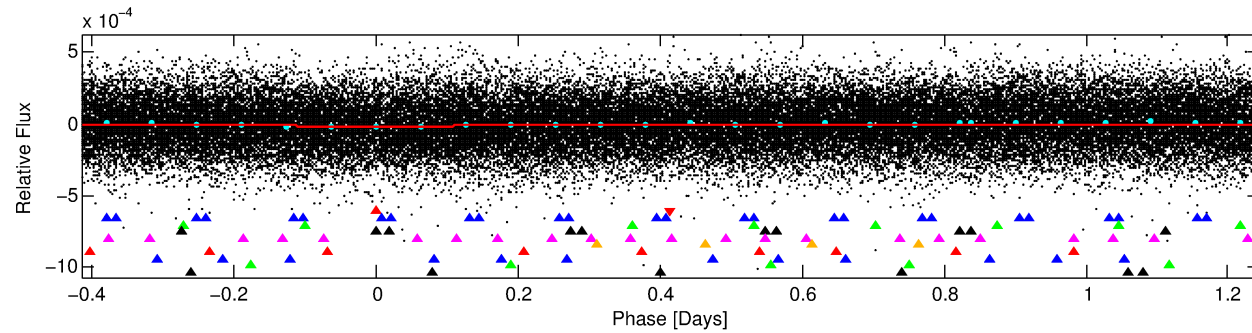
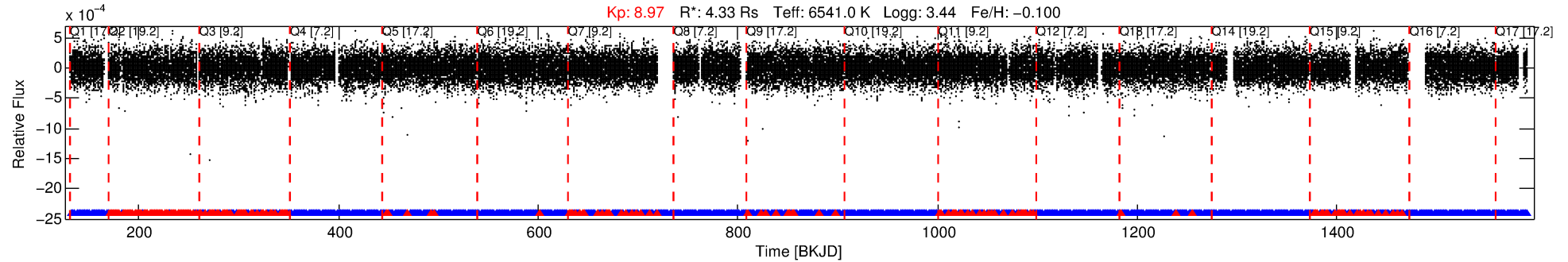
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-01

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 1 of 10 Period: 1.660 d



DV Fit Results:

Period = 1.65980 [0.00004] d
Epoch = 132.9466 [0.0103] BKJD
Rp/R* = 0.0045 [0.0007]
a/R* = 1.06 [0.06]
b = 0.98 [0.03]
Seff = 26639.26 [17838.74]
Teq = 3258 [545] K
Rp = 2.15 [0.95] Re
a = 0.0340 [0.0139] AU
Ag = 3.27 [2.40] [0.94 σ]
Teffp = 6771 [568] K [4.46 σ]

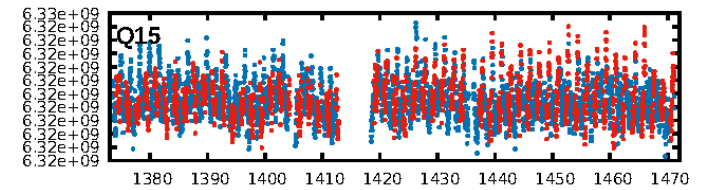
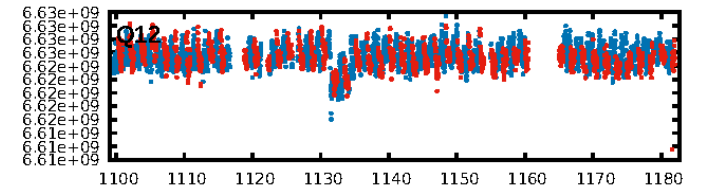
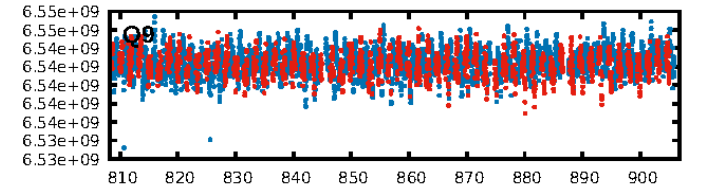
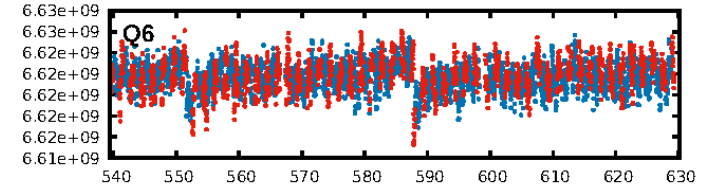
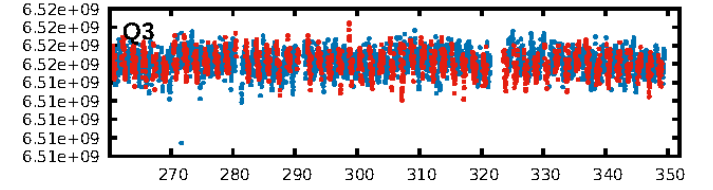
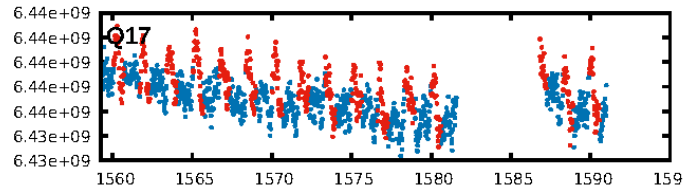
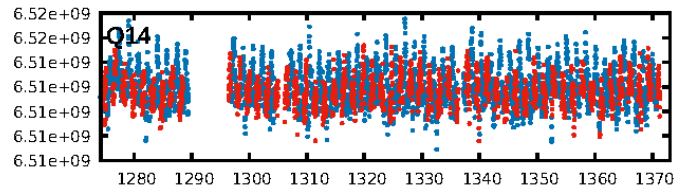
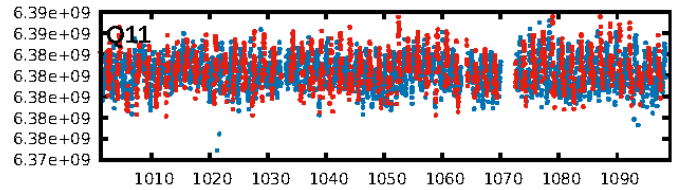
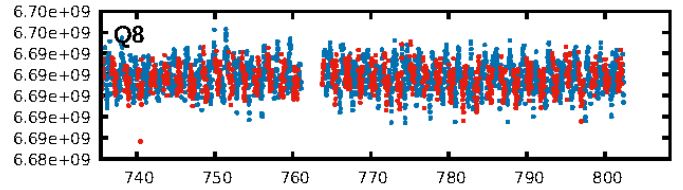
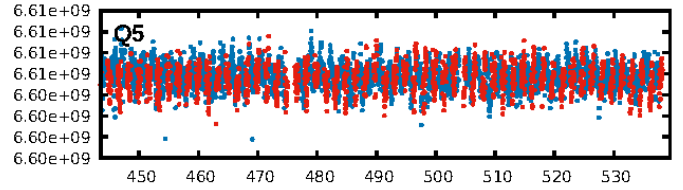
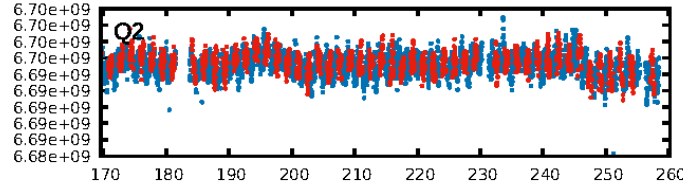
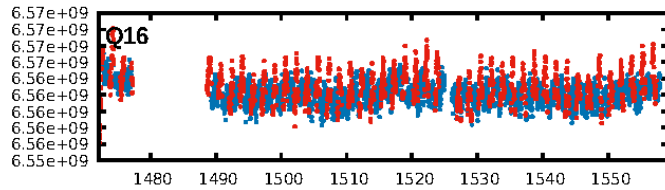
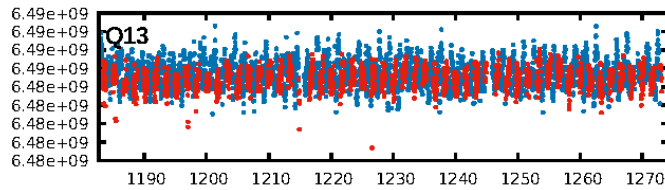
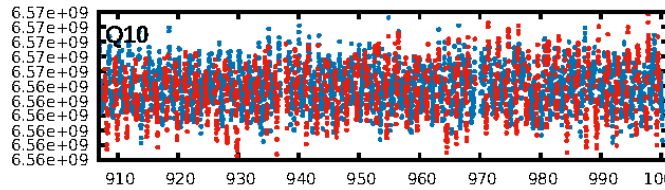
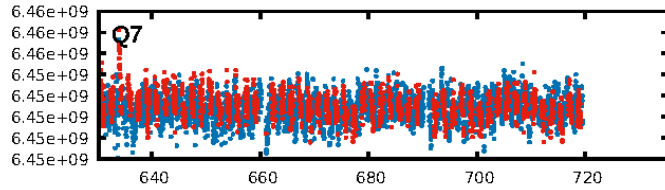
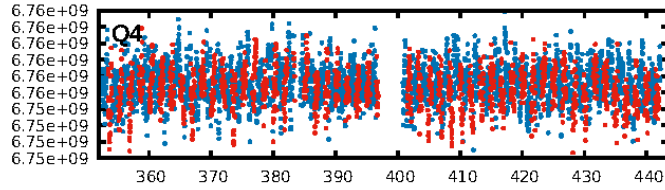
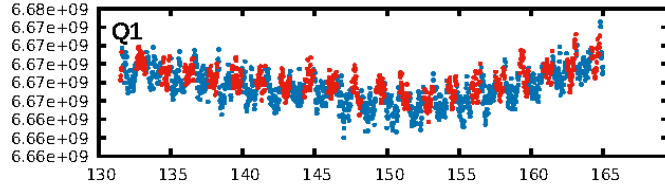
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [112.49 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.78 [612/781]
GhostDiagnostic-chr: N/A
Centroid-sig: 14.8%
Centroid-so: 2.532 arcsec [1.90 σ]
OotOffset-rm: 4.774 arcsec [4.11 σ]
KicOffset-rm: 4.542 arcsec [4.66 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.00 [0/17]
DiffImageOverlap-fno: 1.00 [17/17]

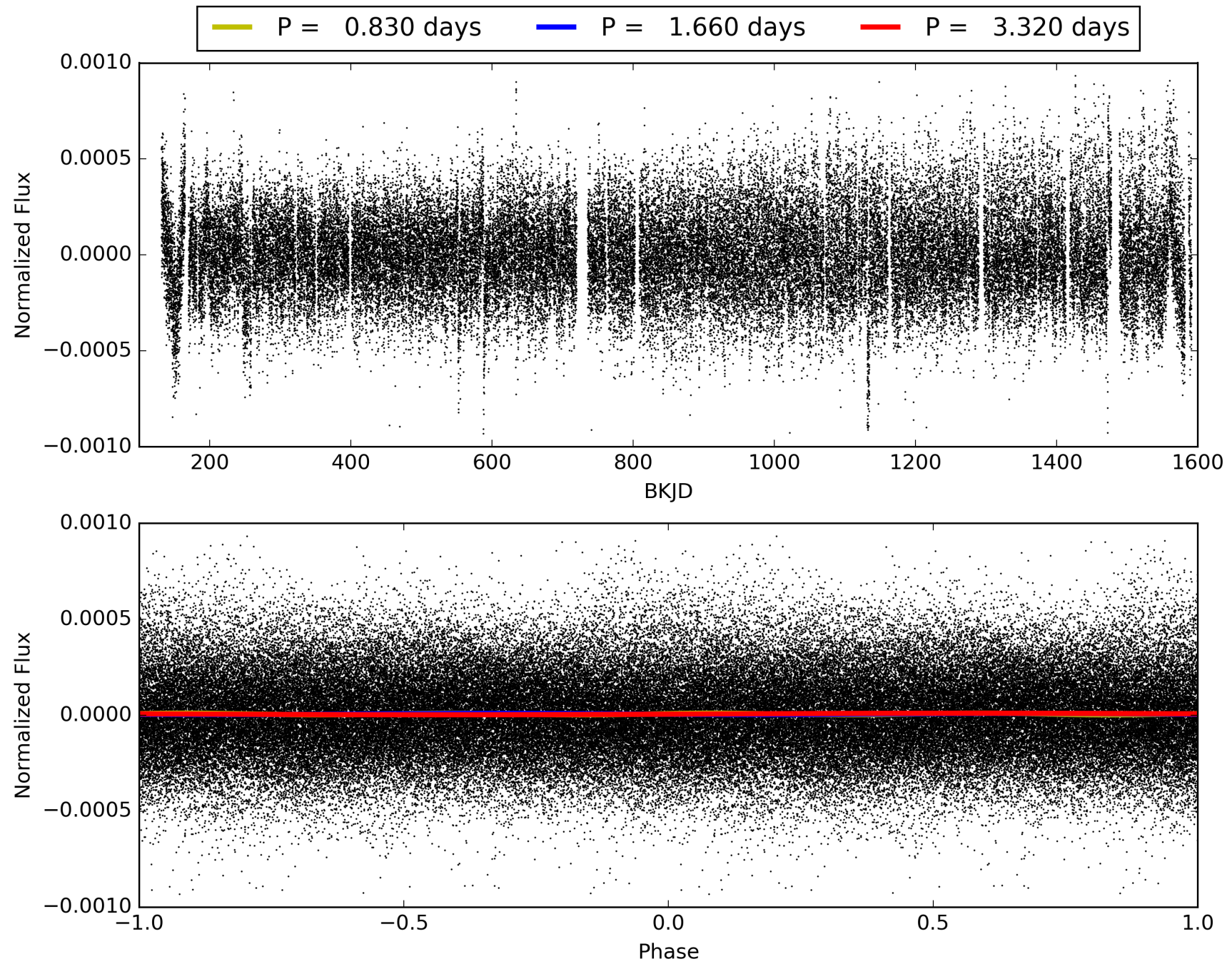
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:56:43 Z

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

TCE 010341072-01, PDC Light Curves

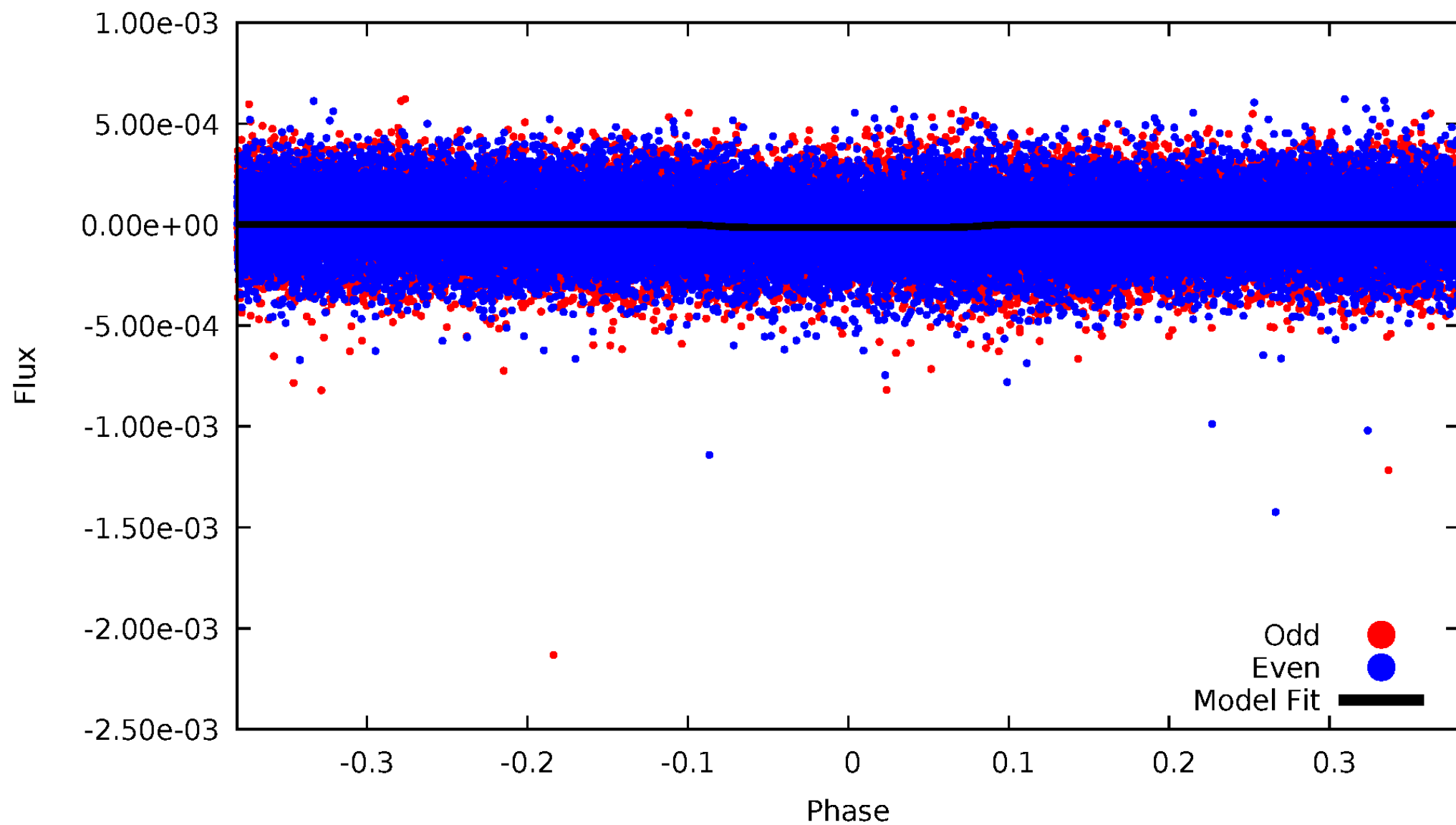


TCE 010341072-01



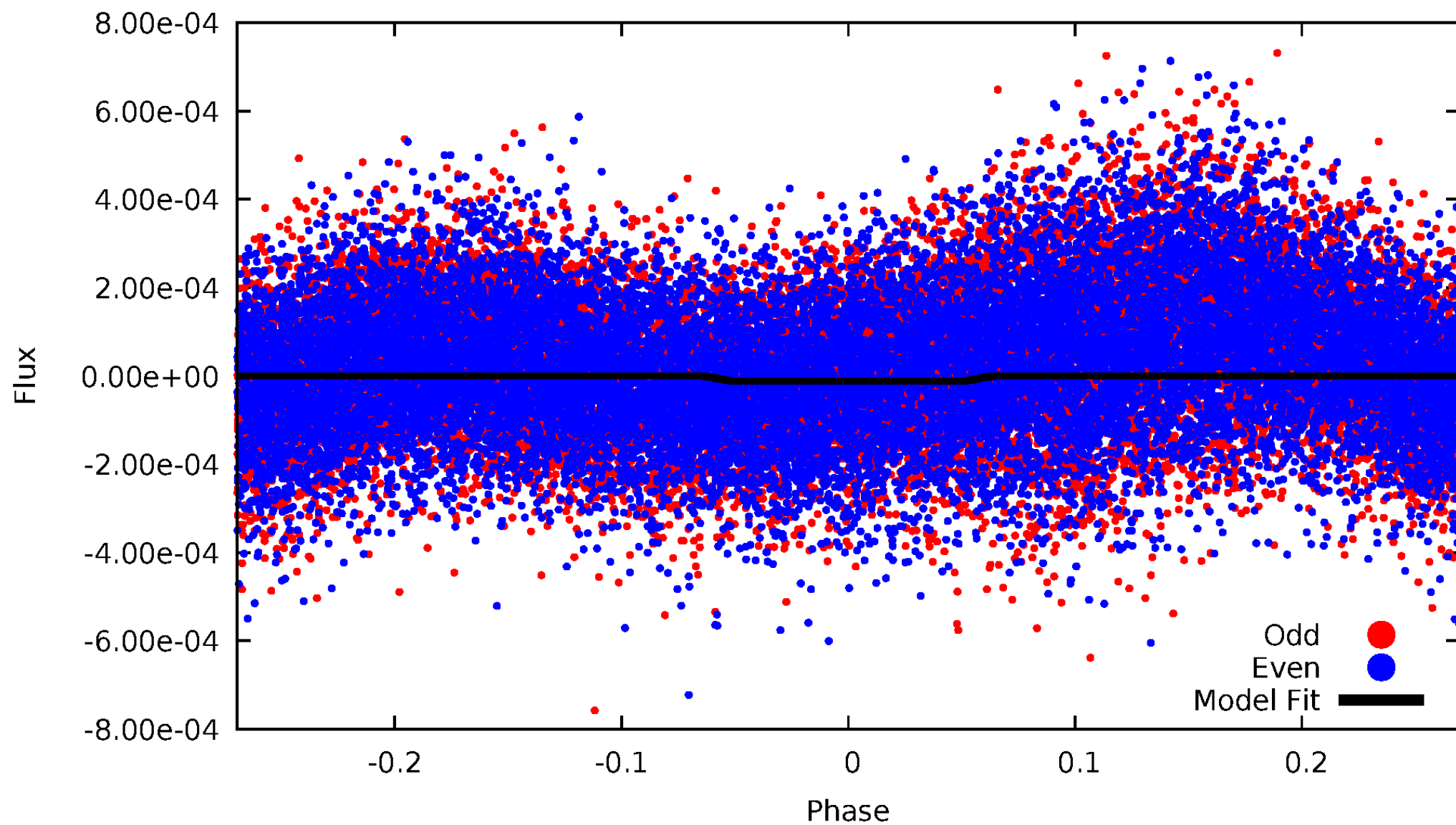
DV Odd/Even

TCE 010341072-01

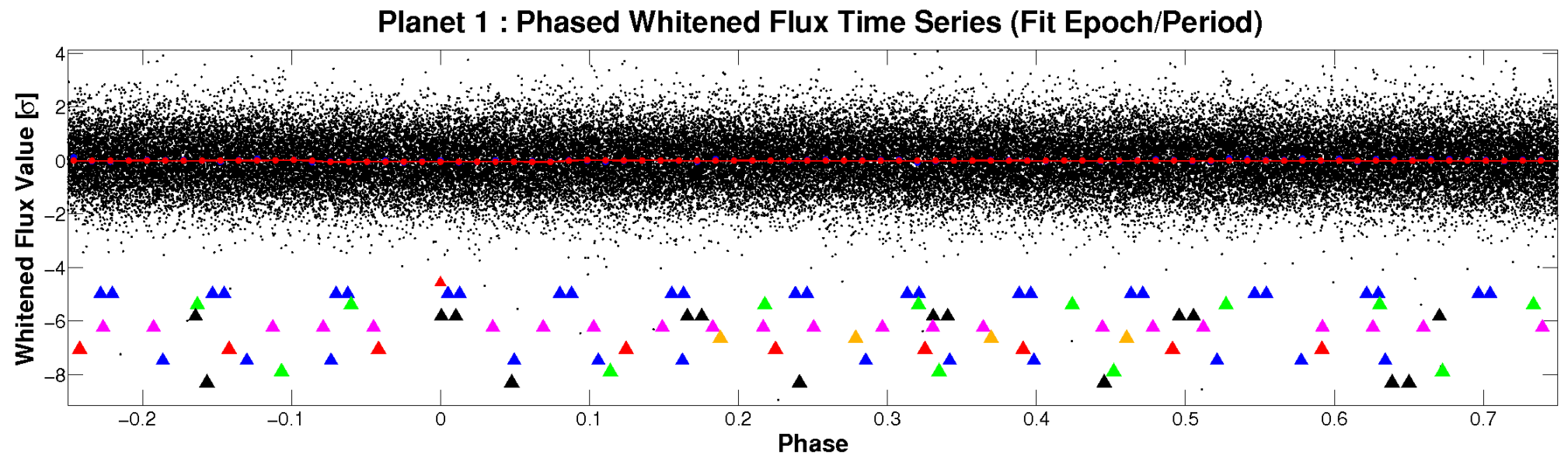
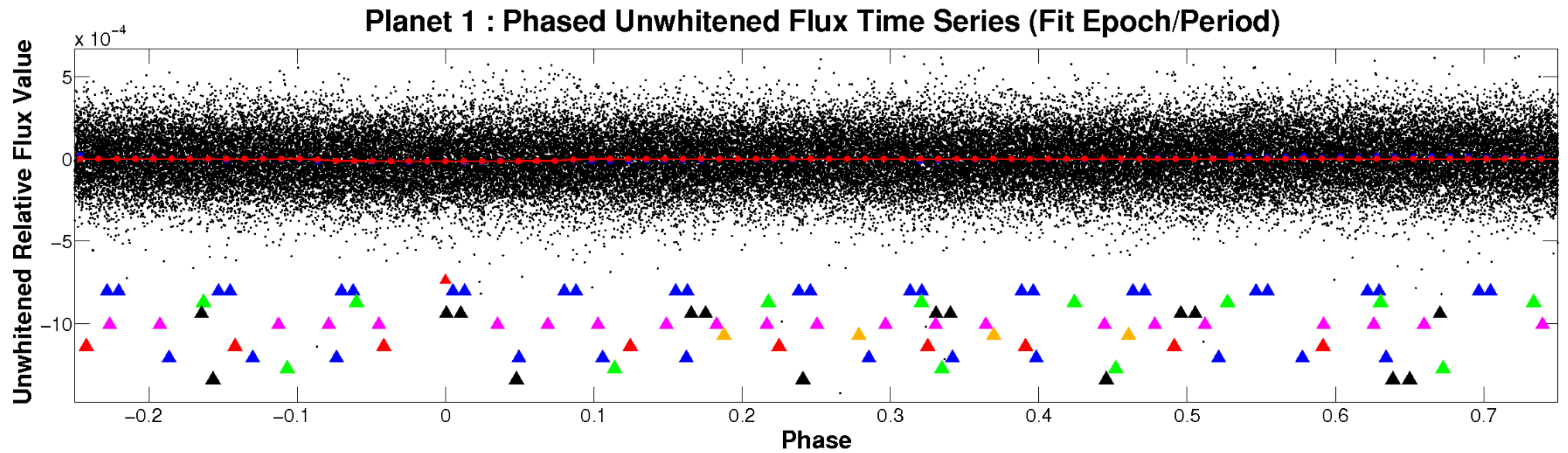


ALT Odd/Even

TCE 010341072-01

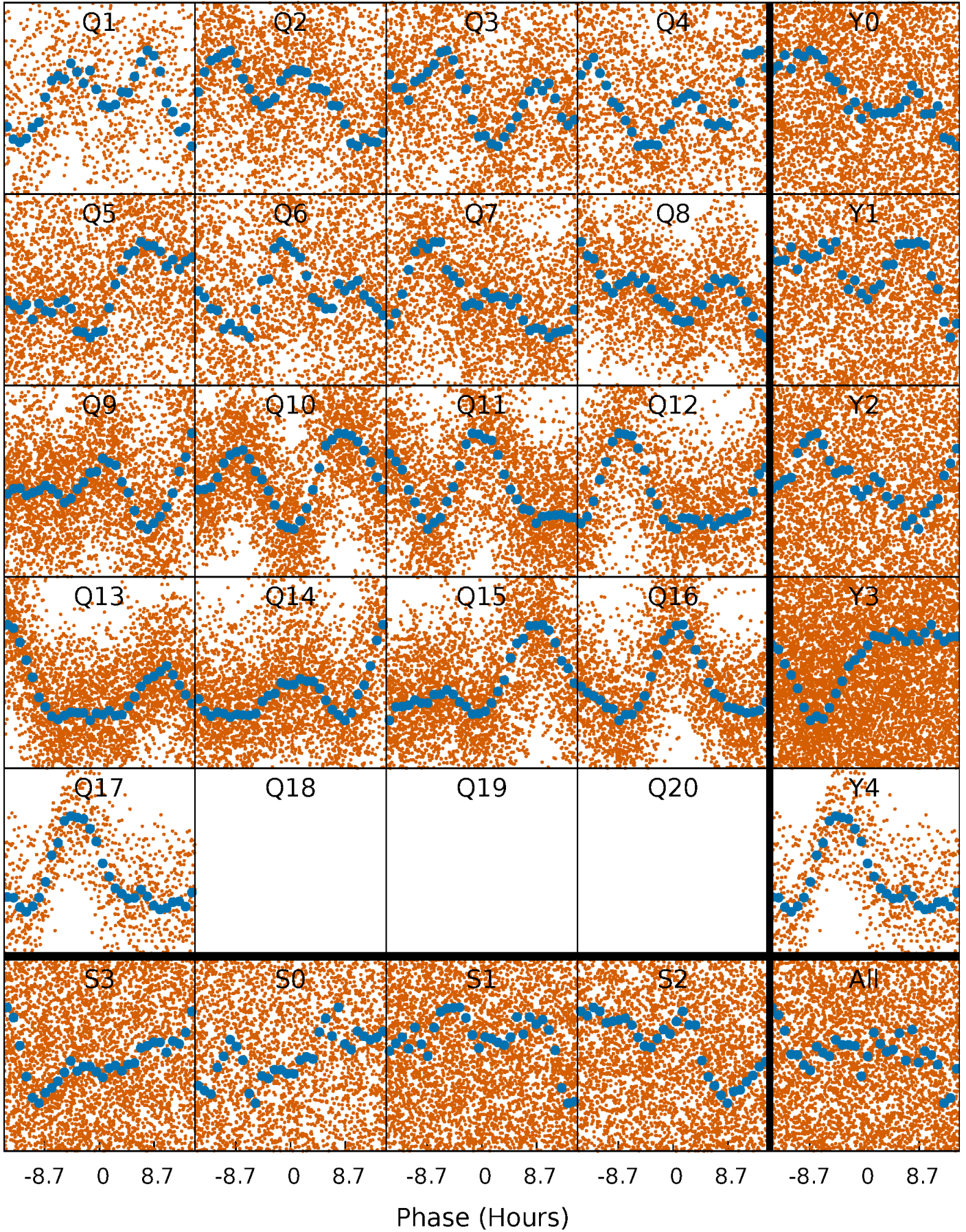


Non-Whitened Vs. Whitened Light Curve



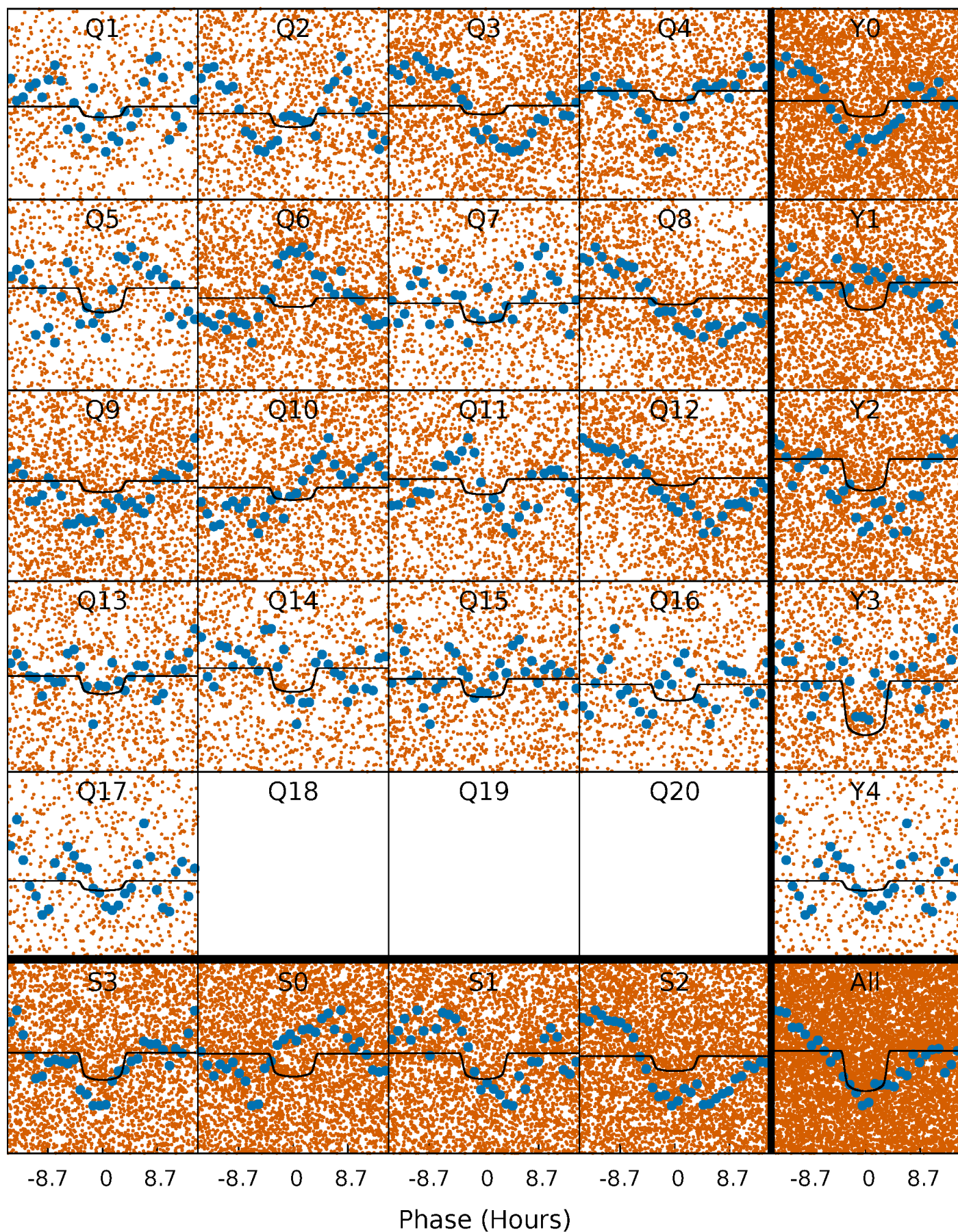
PDC Quarter-Phased Transit Curves

TCE 010341072-01 P= 1.659797 Days $T_0=132.946592$ (BKJD)



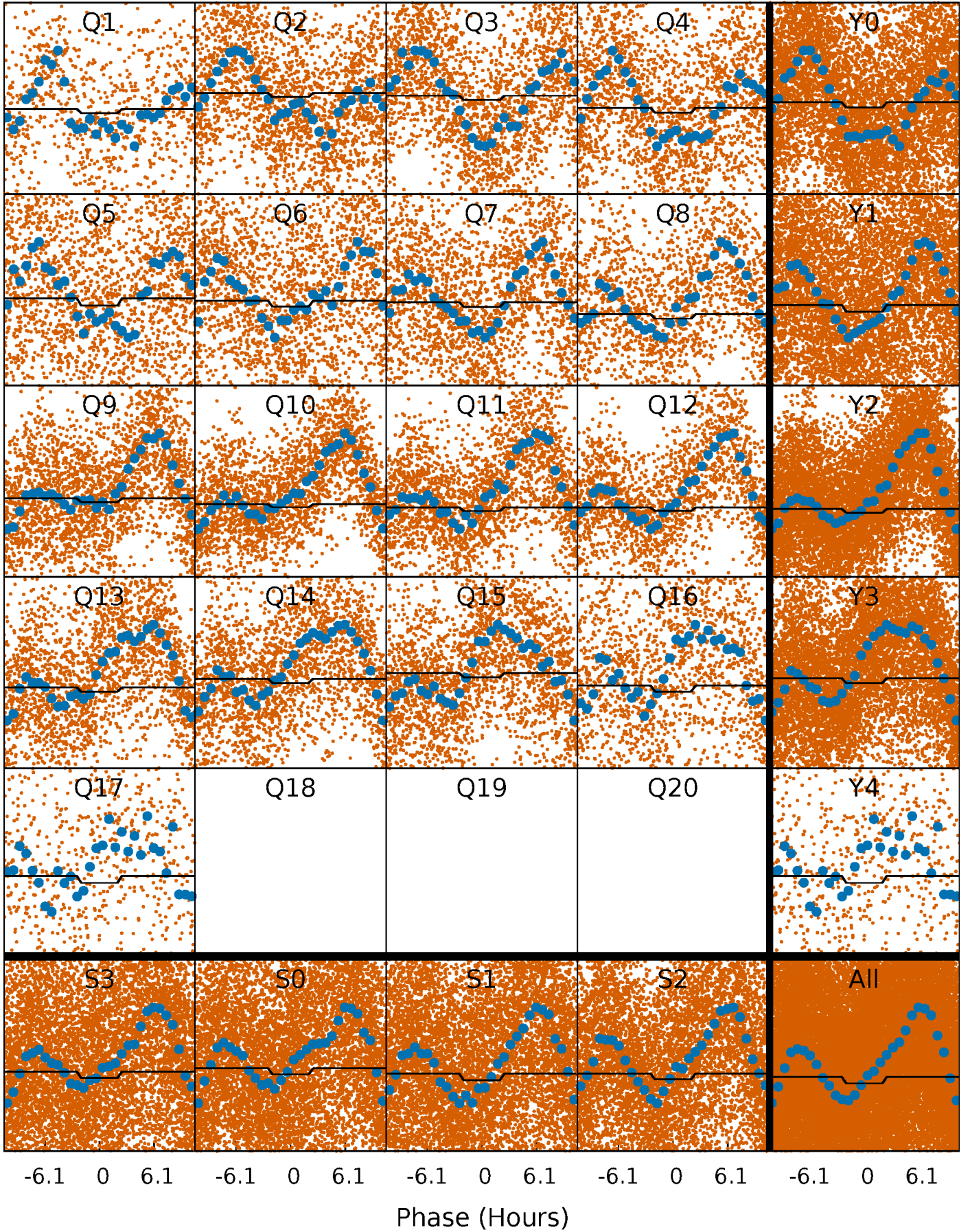
DV Quarter-Phased Transit Curves

TCE 010341072-01 P= 1.659797 Days $T_0=132.946592$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

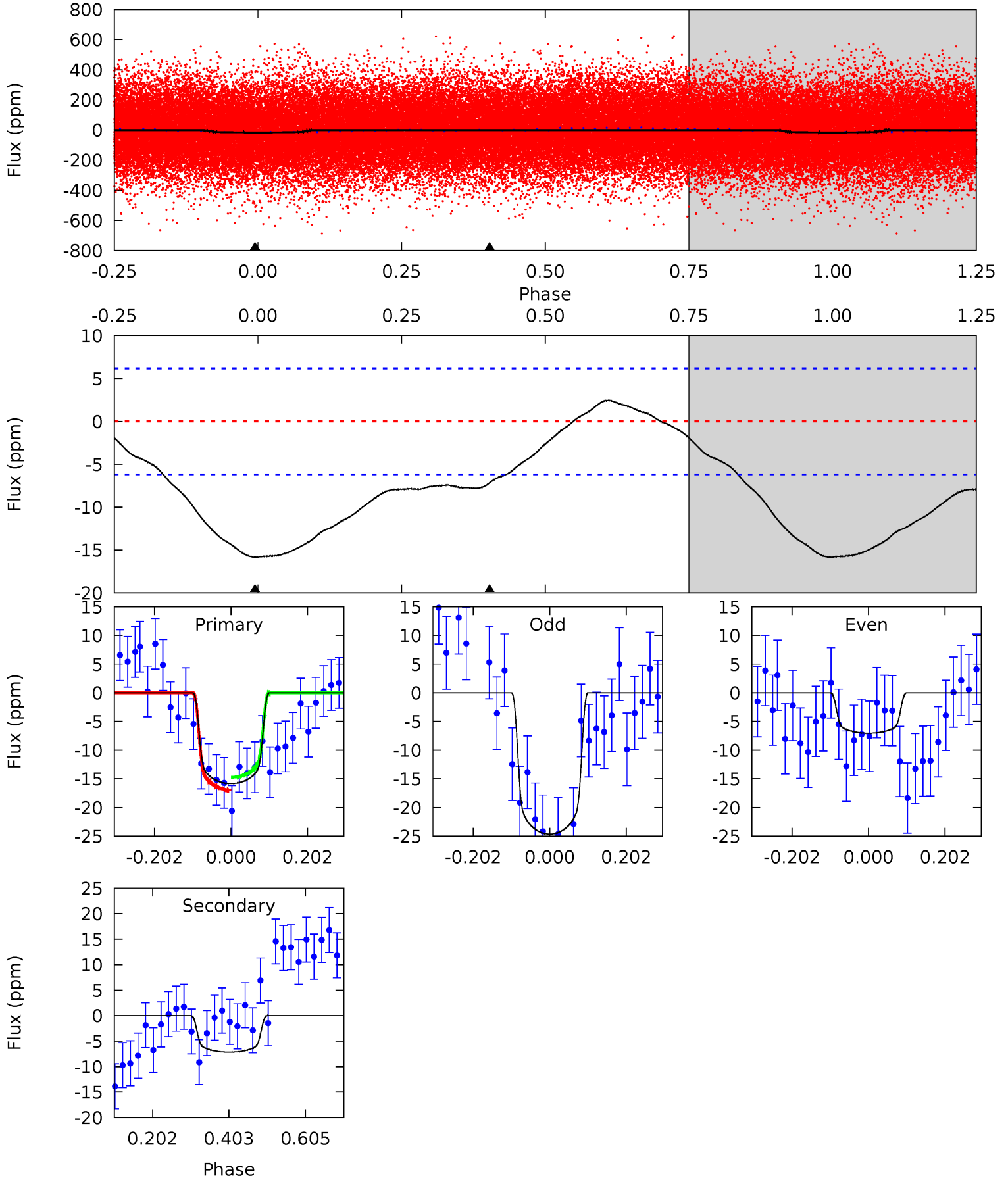
TCE 010341072-01 P= 1.654131 Days $T_0=131.917183$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-01, P = 1.659797 Days, E = 131.286795 Days

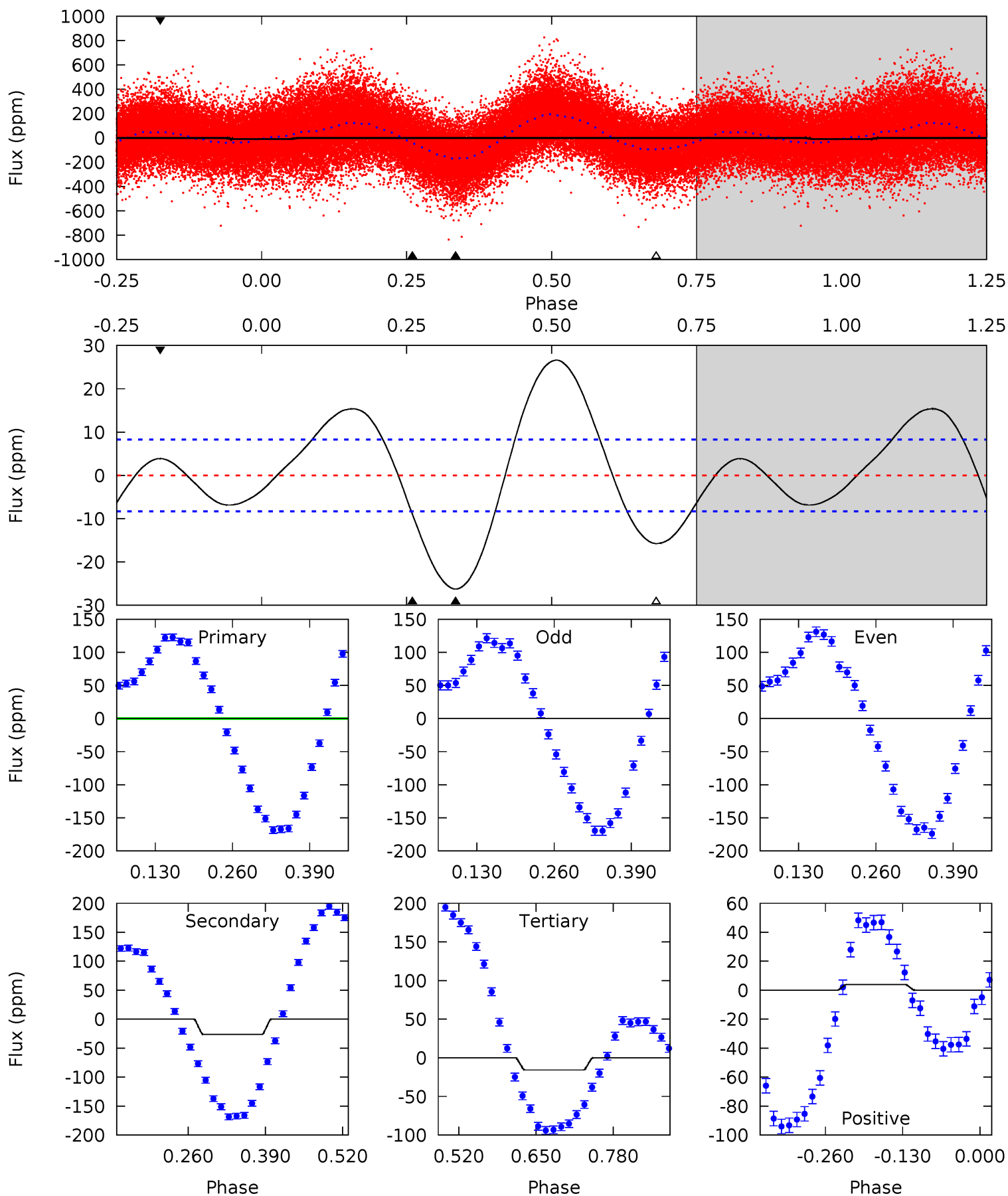
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	5.11	0	0	4.42	1.28	1.76	11.3	11.3	5.11	5.11	6.29	0.99	0.13	0.80



Alt Model-Shift Uniqueness Test

010341072-01, P = 1.654131 Days, E = 130.263052 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.87	14.3	8.56	2.11	4.51	1.51	6.27	-3.69	2.76	5.72	12.2	2.66	3.67	0.50	4.77



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-7 ± 1	$1.94^{+0.45}_{-0.47}$	4421^{+262}_{-449}	4787^{+559}_{-480}	$1.180^{+0.838}_{-0.435}$
Alt.	-26 ± 2	$1.45^{+0.43}_{-0.38}$	4431^{+255}_{-486}	8112^{+1269}_{-903}	$7.611^{+5.895}_{-2.955}$

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

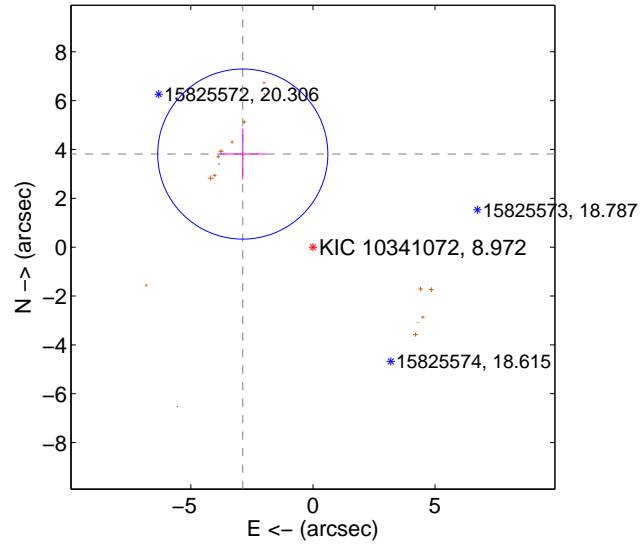
Supplemental centroid analysis for 010341072-01. **Kepler magnitude: 8.97.** Transit SNR 4.48

There are 0 quarters with good PRF difference image offsets

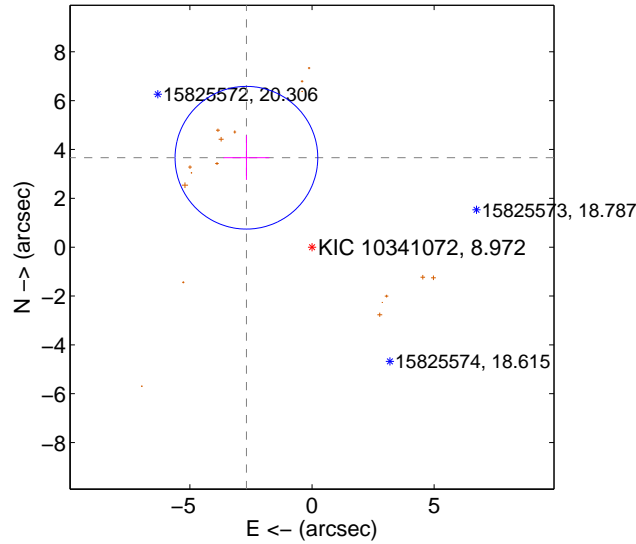
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.774 ± 1.161	4.11	2.872 ± 0.965	3.813 ± 1.037
PRF-fit source offset from KIC position	4.542 ± 0.974	4.66	2.686 ± 0.940	3.662 ± 0.910
photometric centroid source offset	2.53 ± 1.33	1.90	1.72 ± 1.06	-1.86 ± 1.52

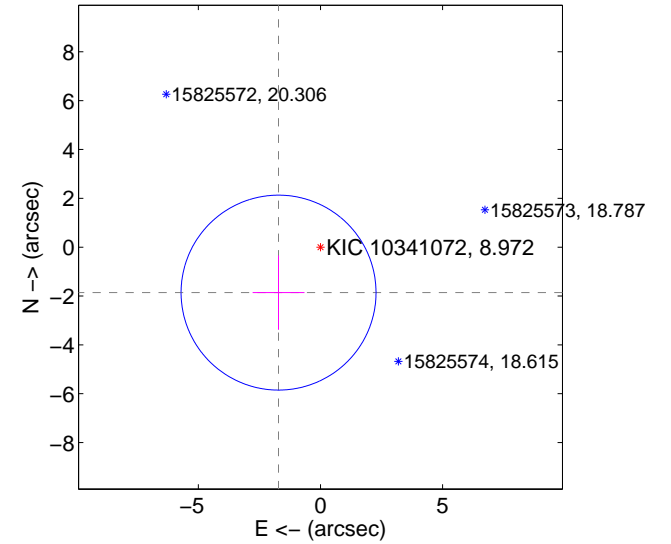
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

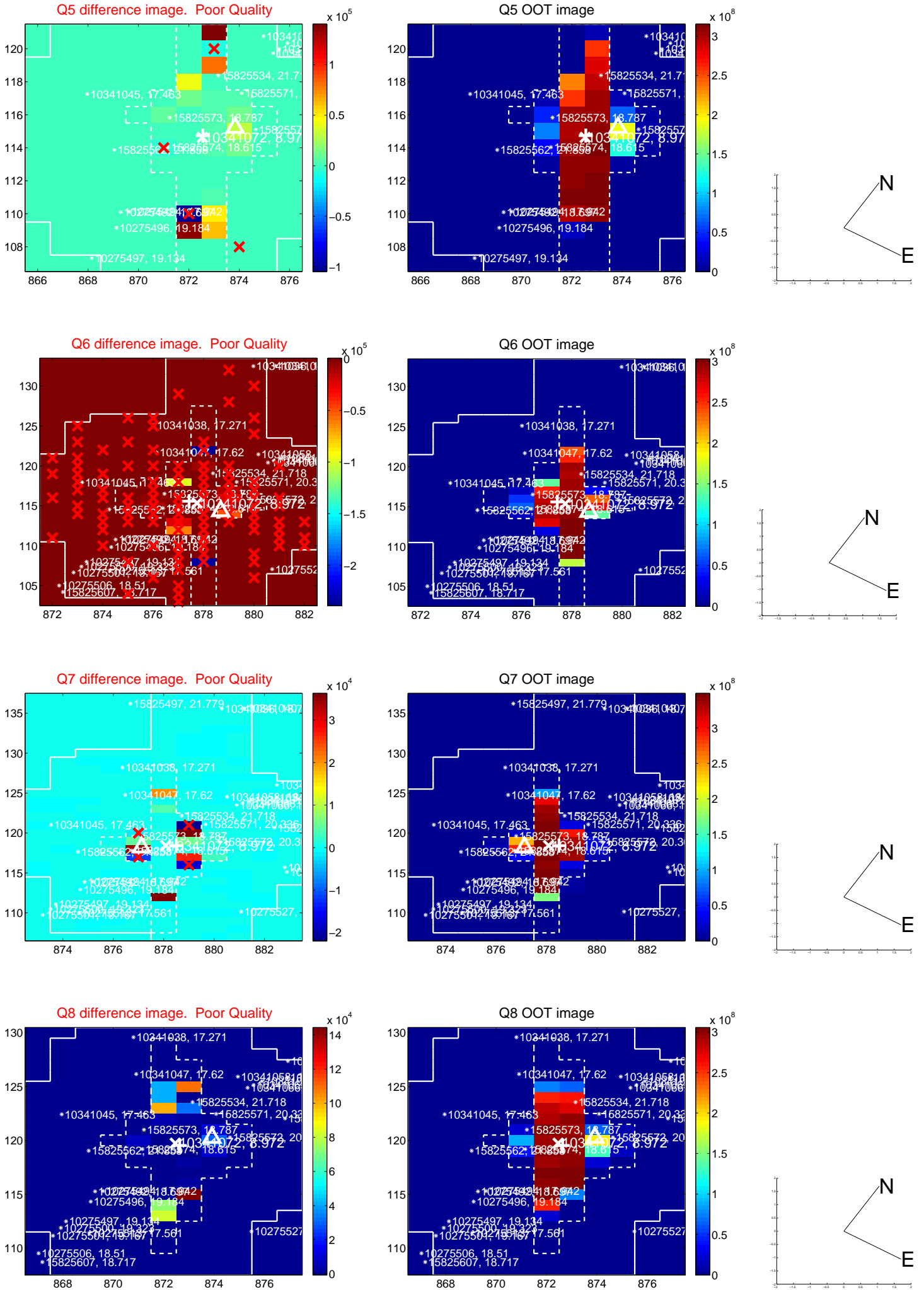


offset from photometric centroids

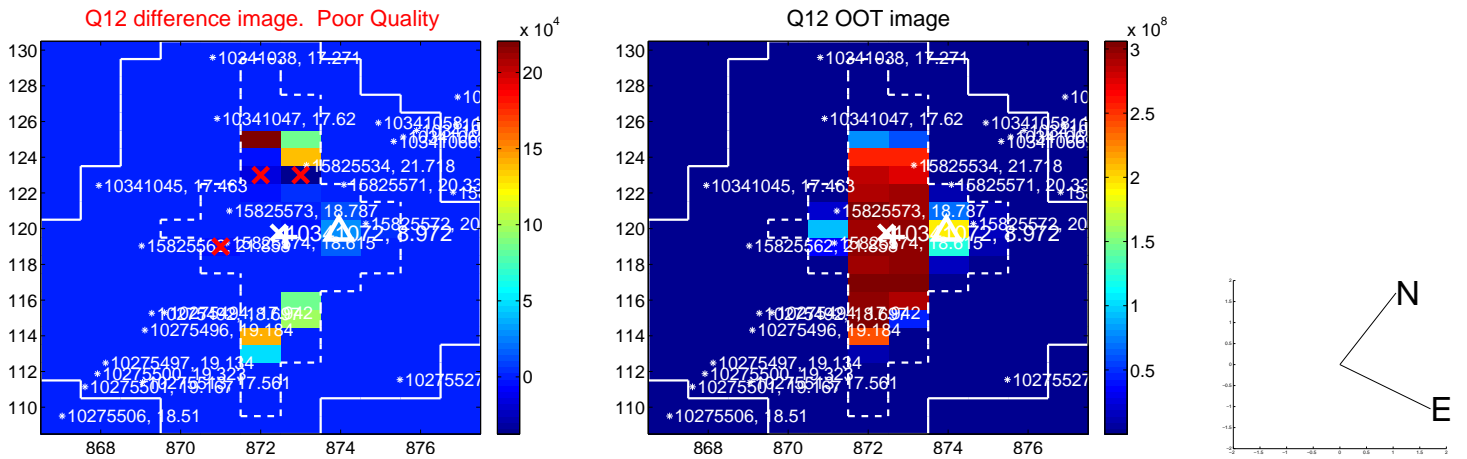
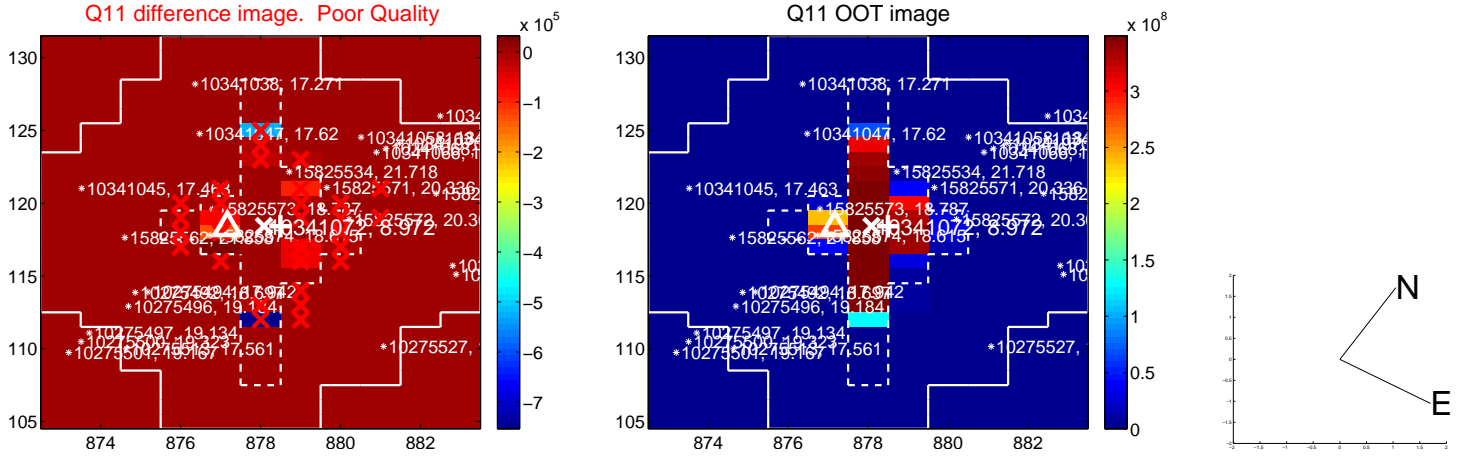
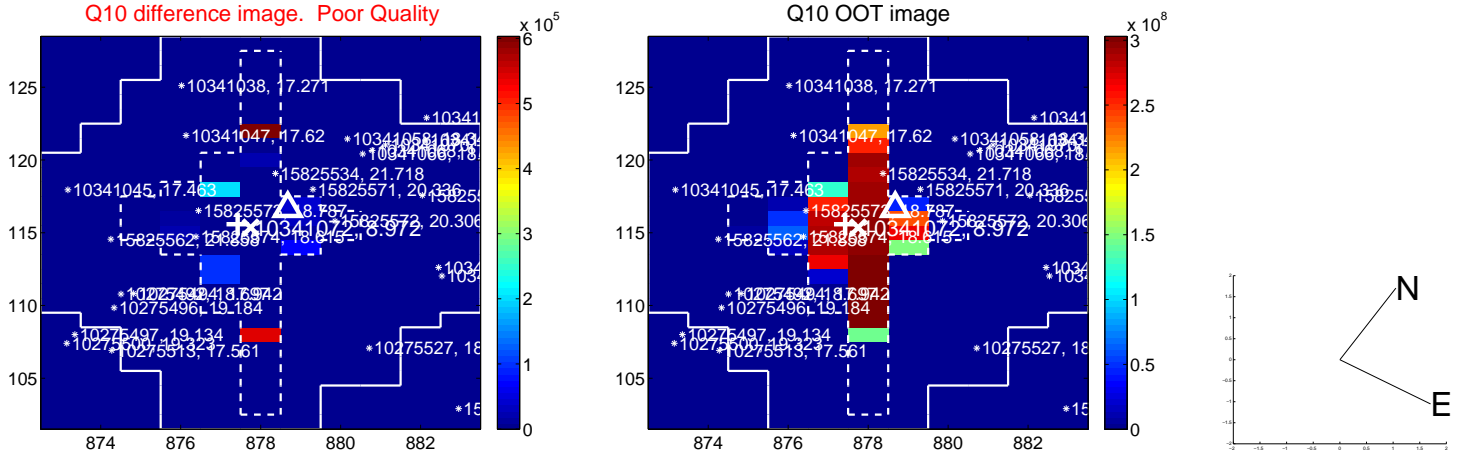
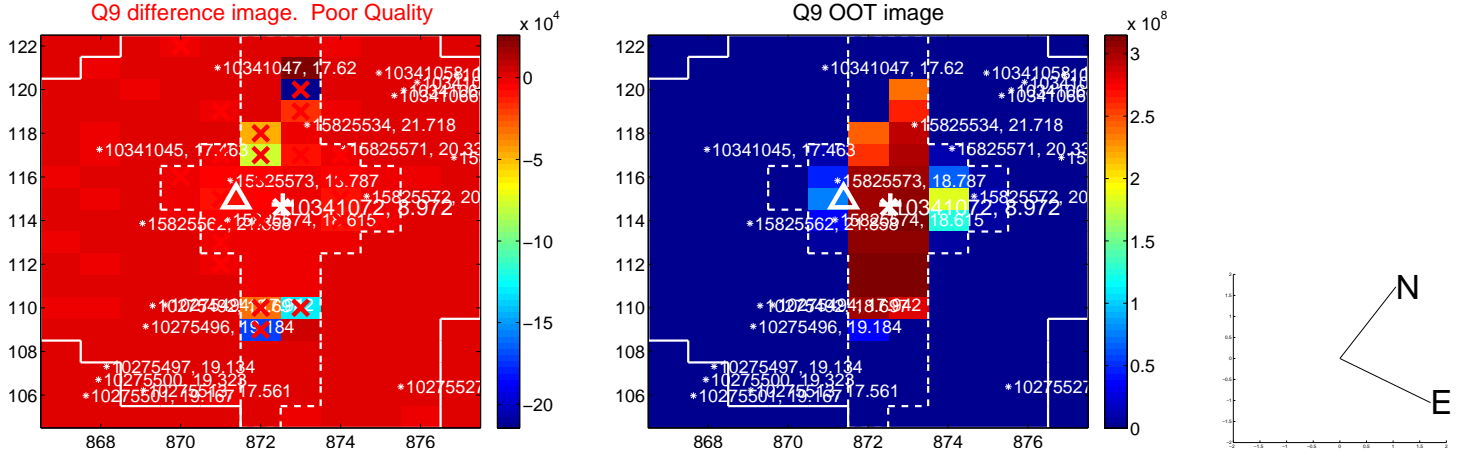


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

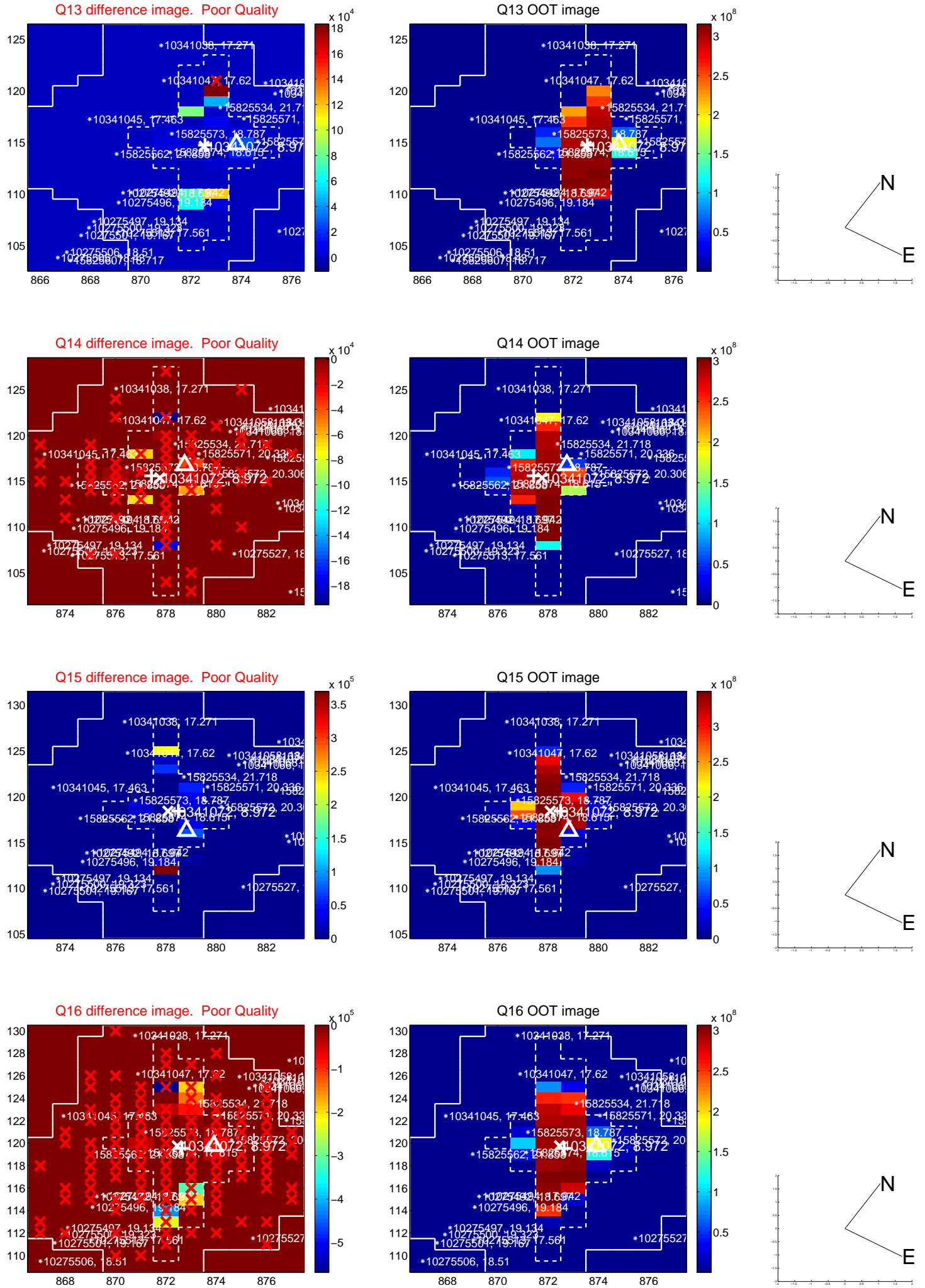
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



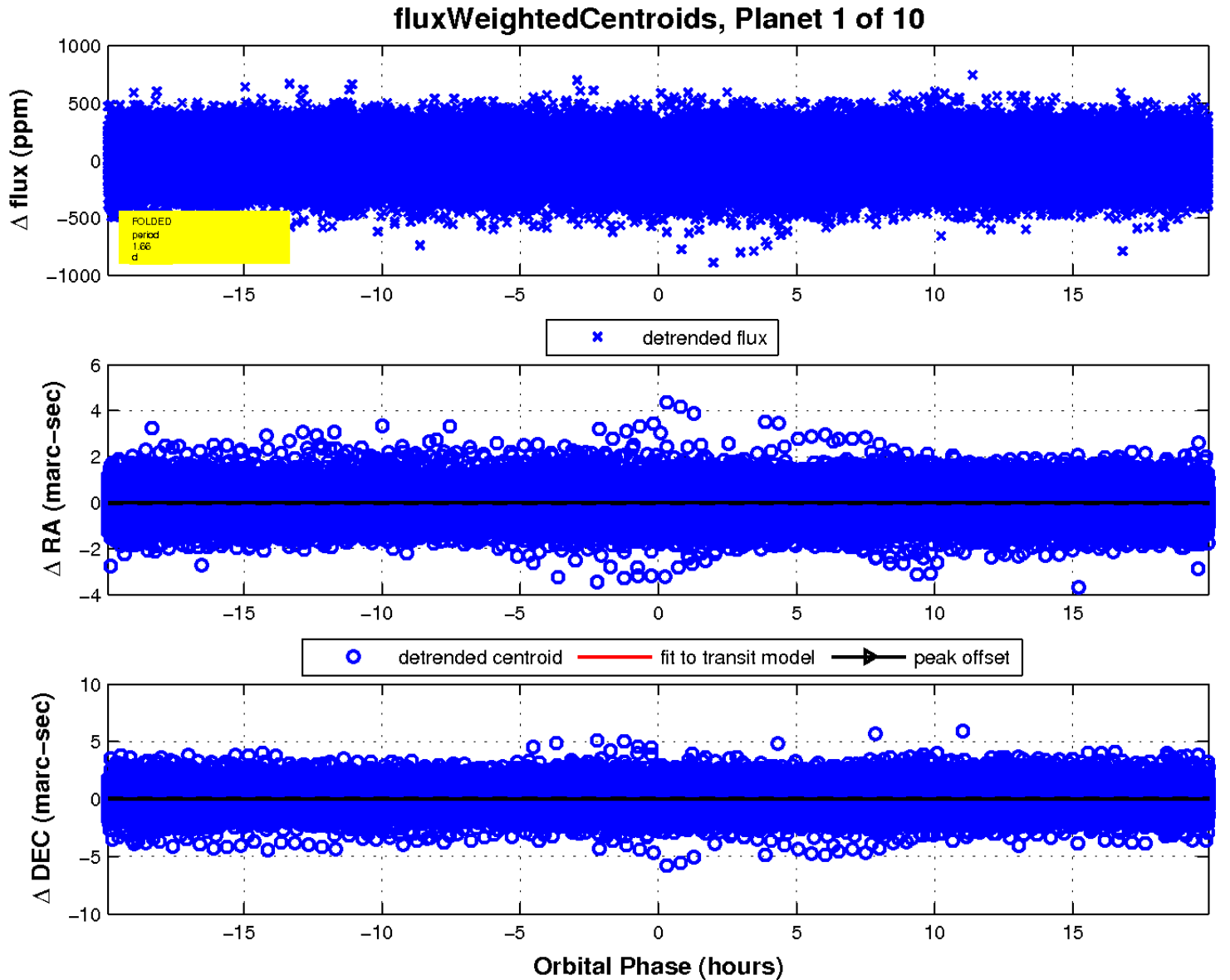
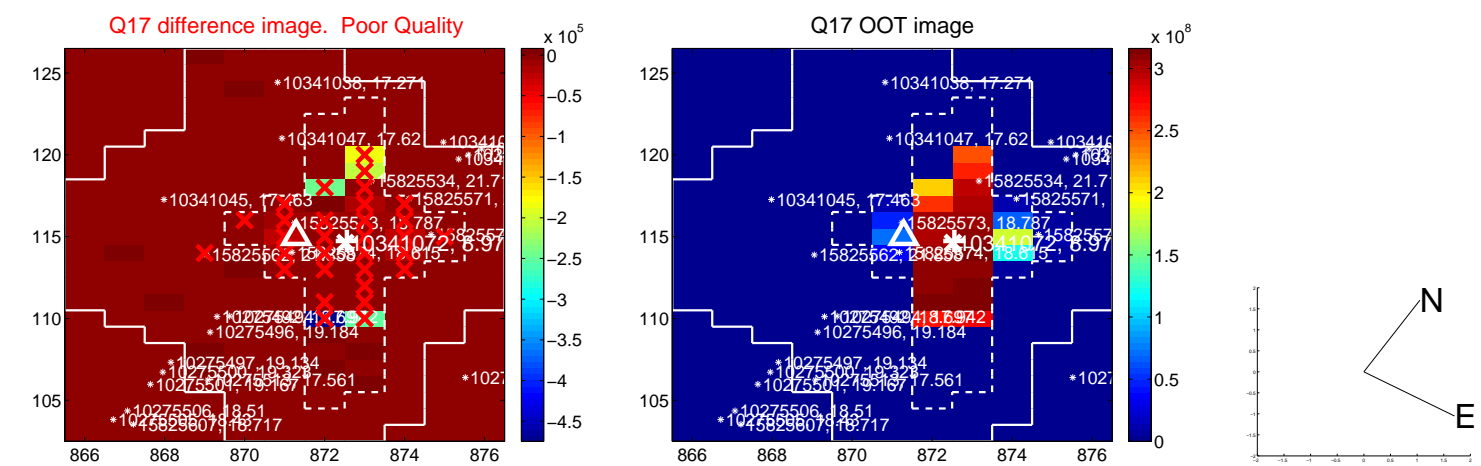
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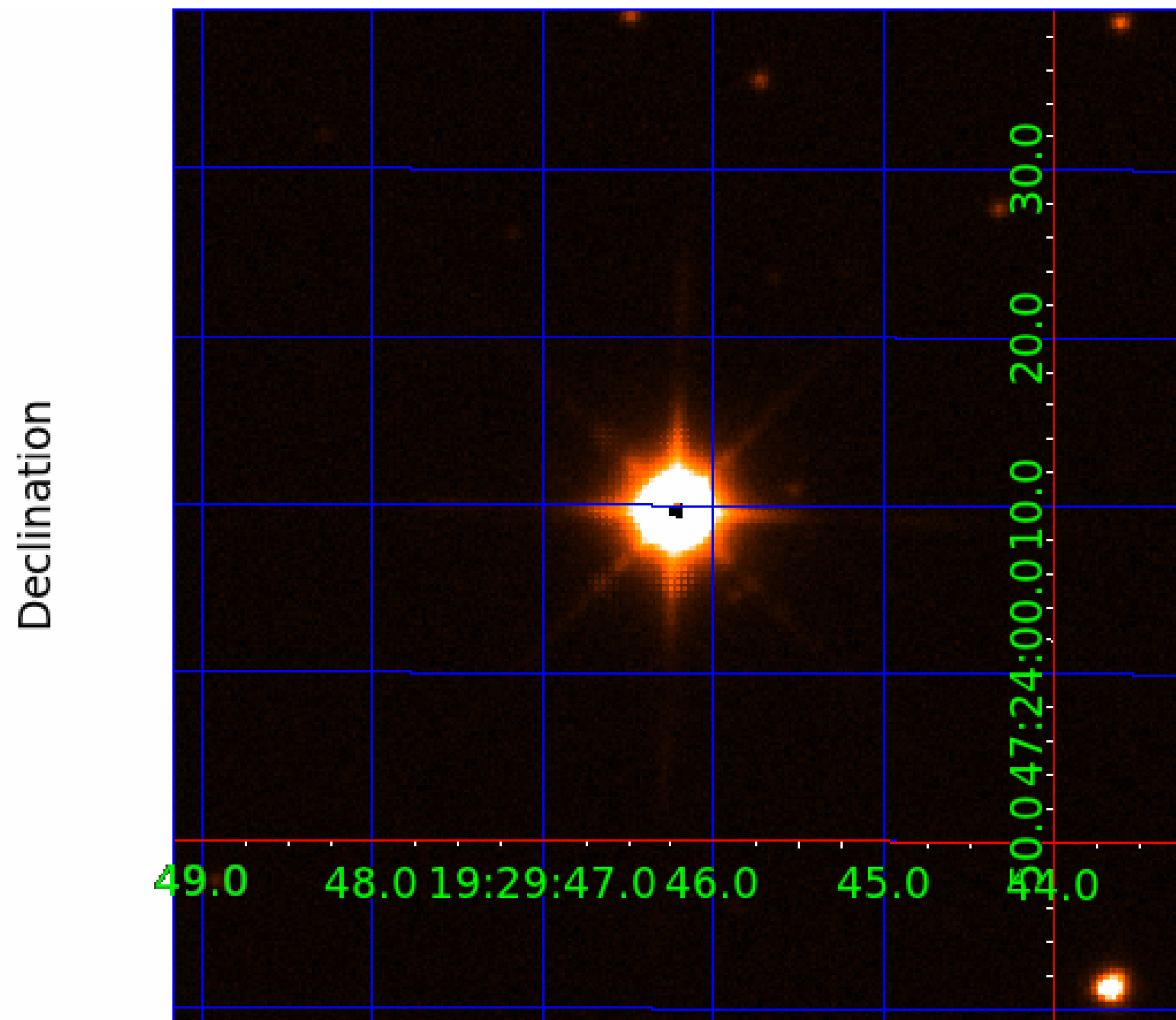
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UKIRT Image



KIC 010341072

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010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

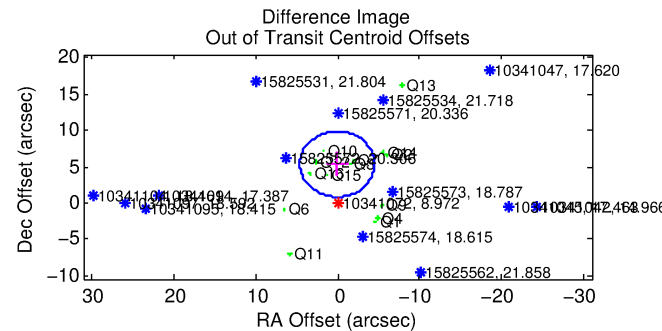
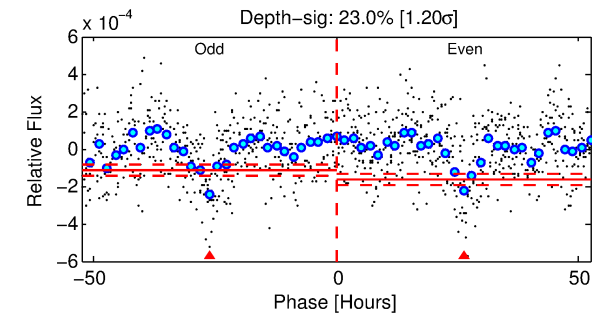
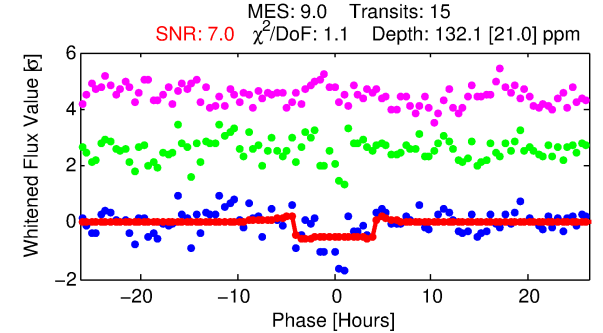
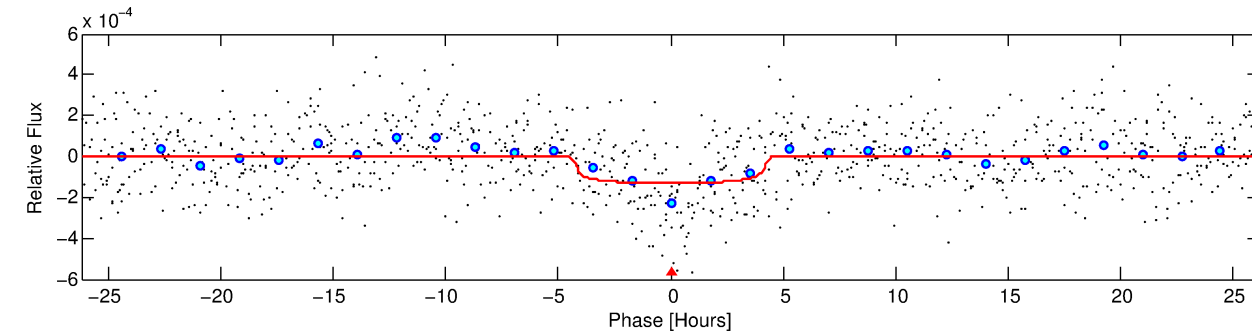
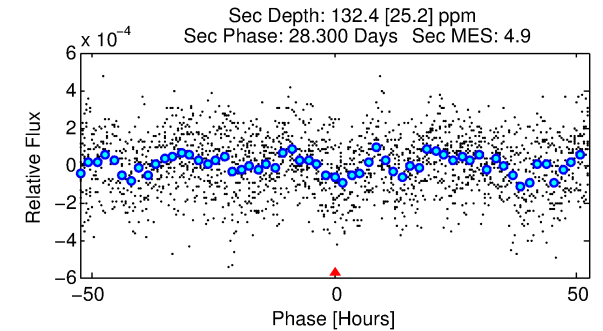
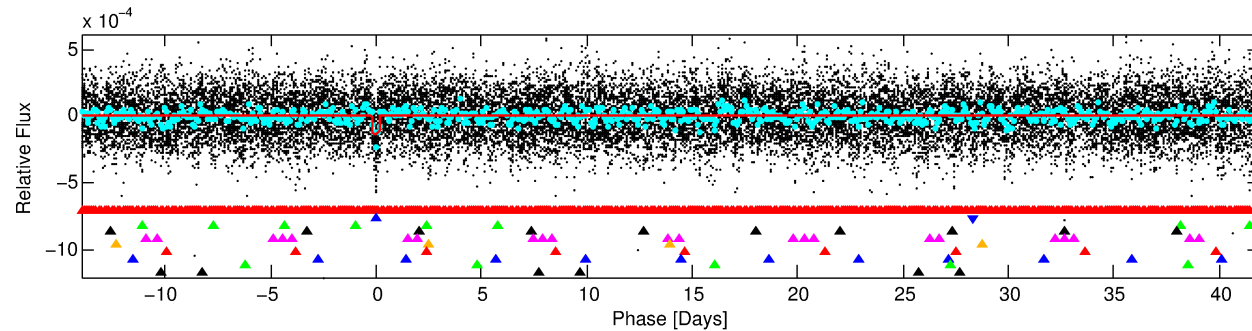
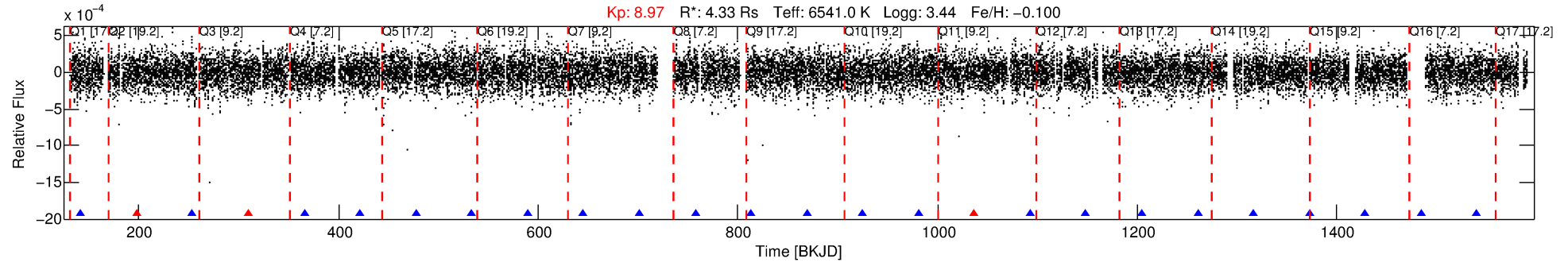
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-02

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 2 of 10 Period: 55.921 d



DV Fit Results:

Period = 55.92140 [0.00102] d
Epoch = 142.1657 [0.0130] BKJD
Rp/R* = 0.0117 [0.0037]
a/R* = 29.12 [49.08]
b = 0.82 [0.69]
Seff = 244.81 [163.93]
Teff = 1009 [169] K
Rp = 5.53 [2.90] Re
a = 0.3542 [0.1452] AU
Ag = 298.57 [278.96] [1.07σ]
Teffp = 6482 [1081] K [5.00σ]

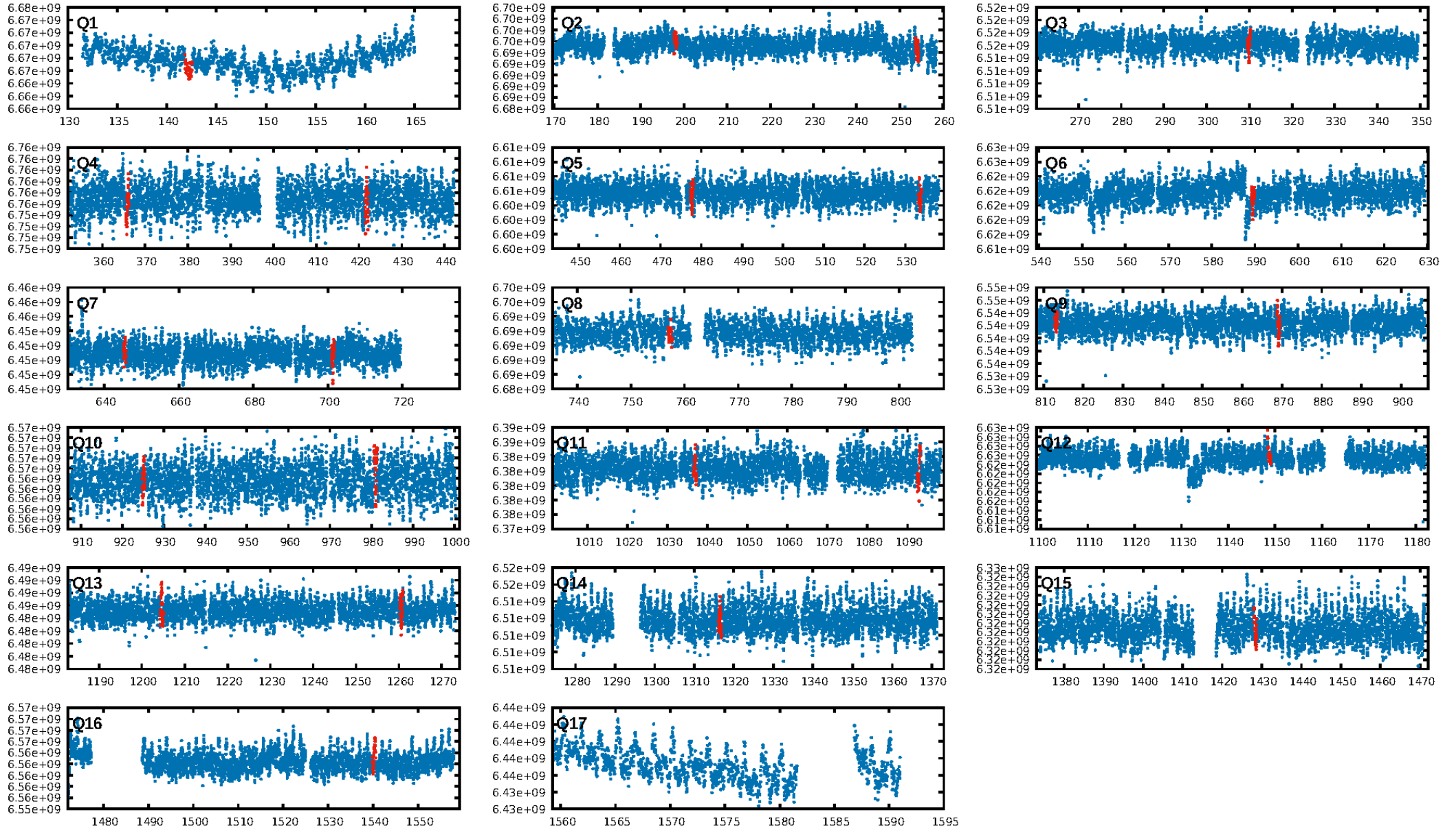
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [112.49σ]
LongPeriod-sig: 100.0% [31.84σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.79 [11/14]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.5%
Centroid-so: 1.057 arcsec [1.25σ]
OotOffset-rm: 5.345 arcsec [3.53σ]
KicOffset-rm: 5.776 arcsec [3.93σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 0.14 [2/14]
DiffImageOverlap-fno: 0.00 [0/16]

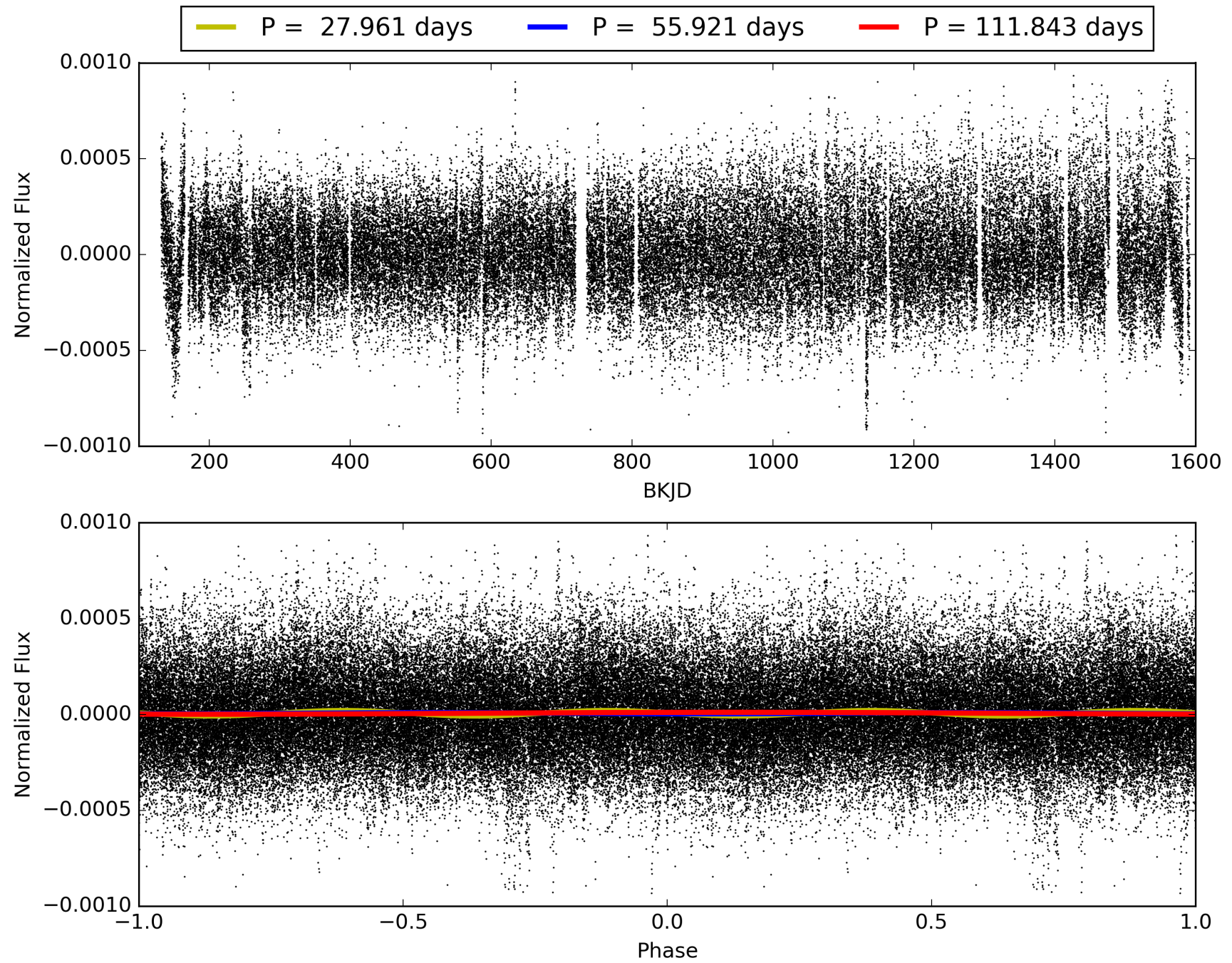
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:56:53 Z

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

TCE 010341072-02, PDC Light Curves

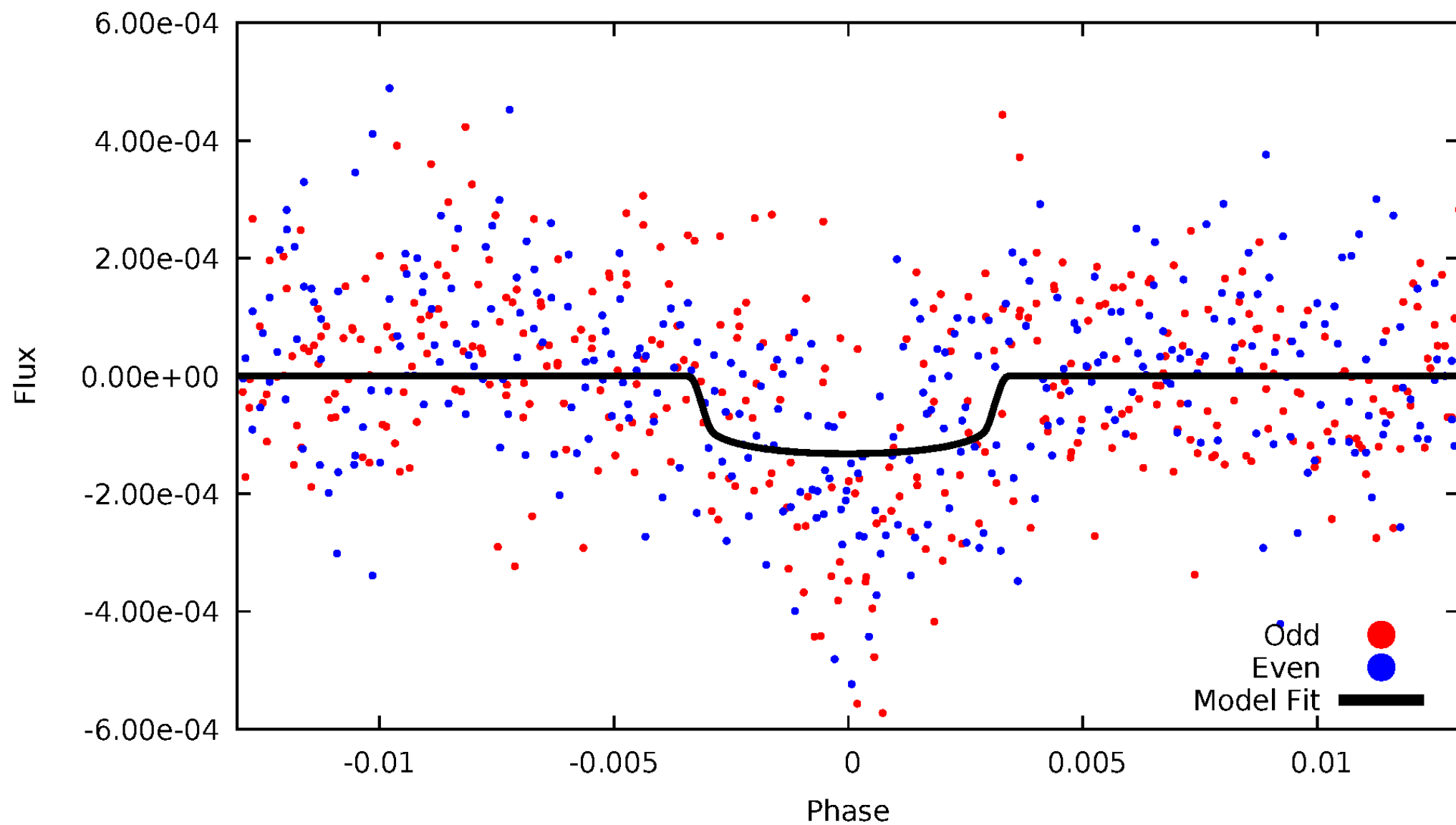


TCE 010341072-02



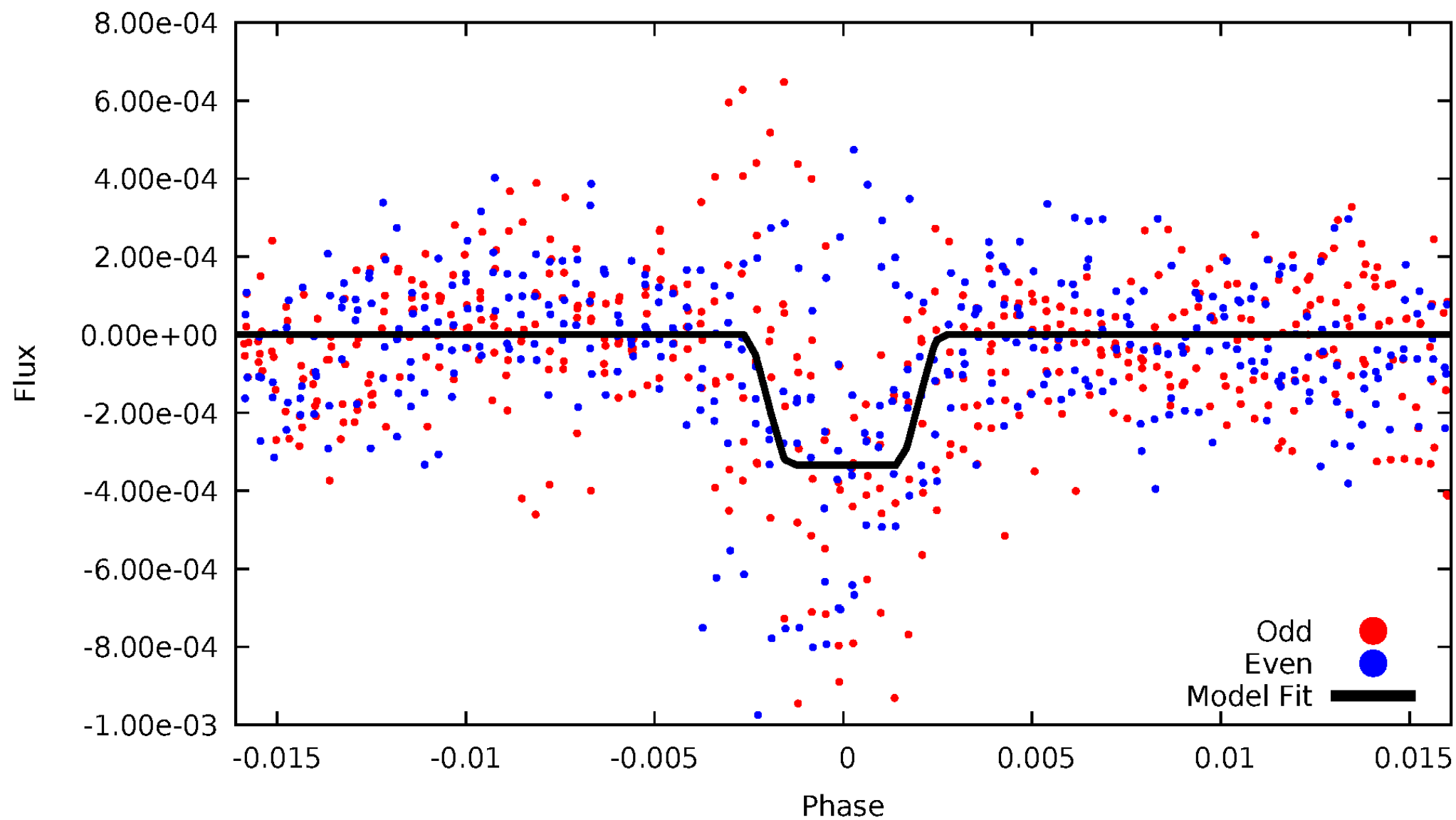
DV Odd/Even

TCE 010341072-02



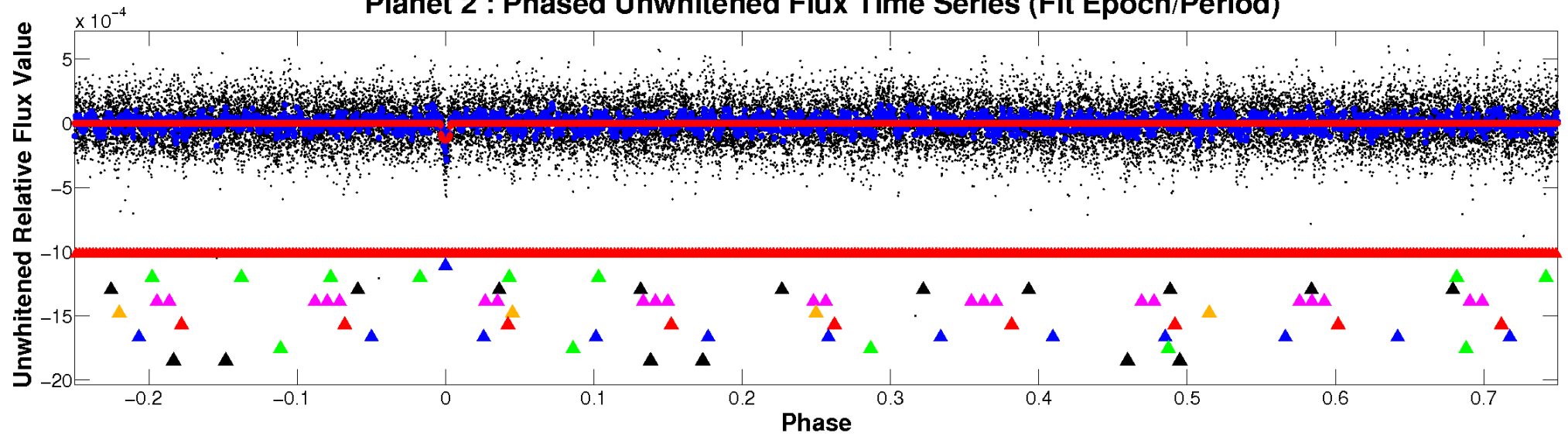
ALT Odd/Even

TCE 010341072-02

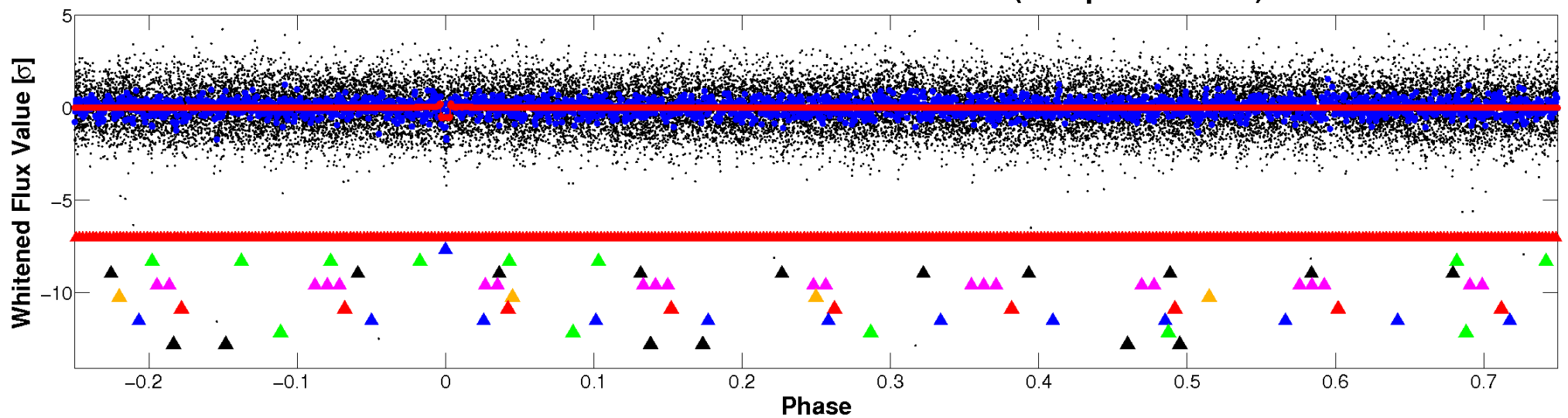


Non-Whitened Vs. Whitened Light Curve

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

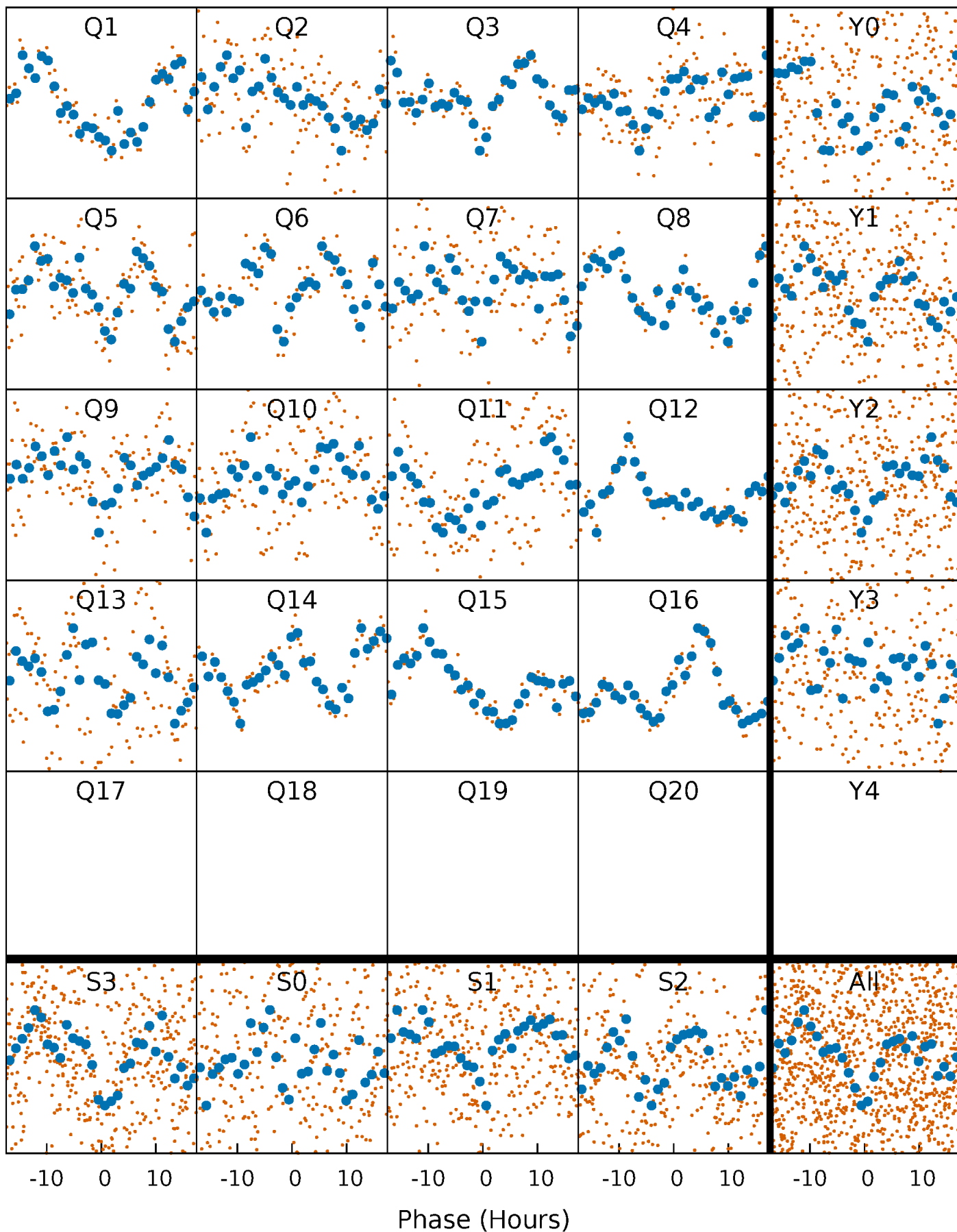


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



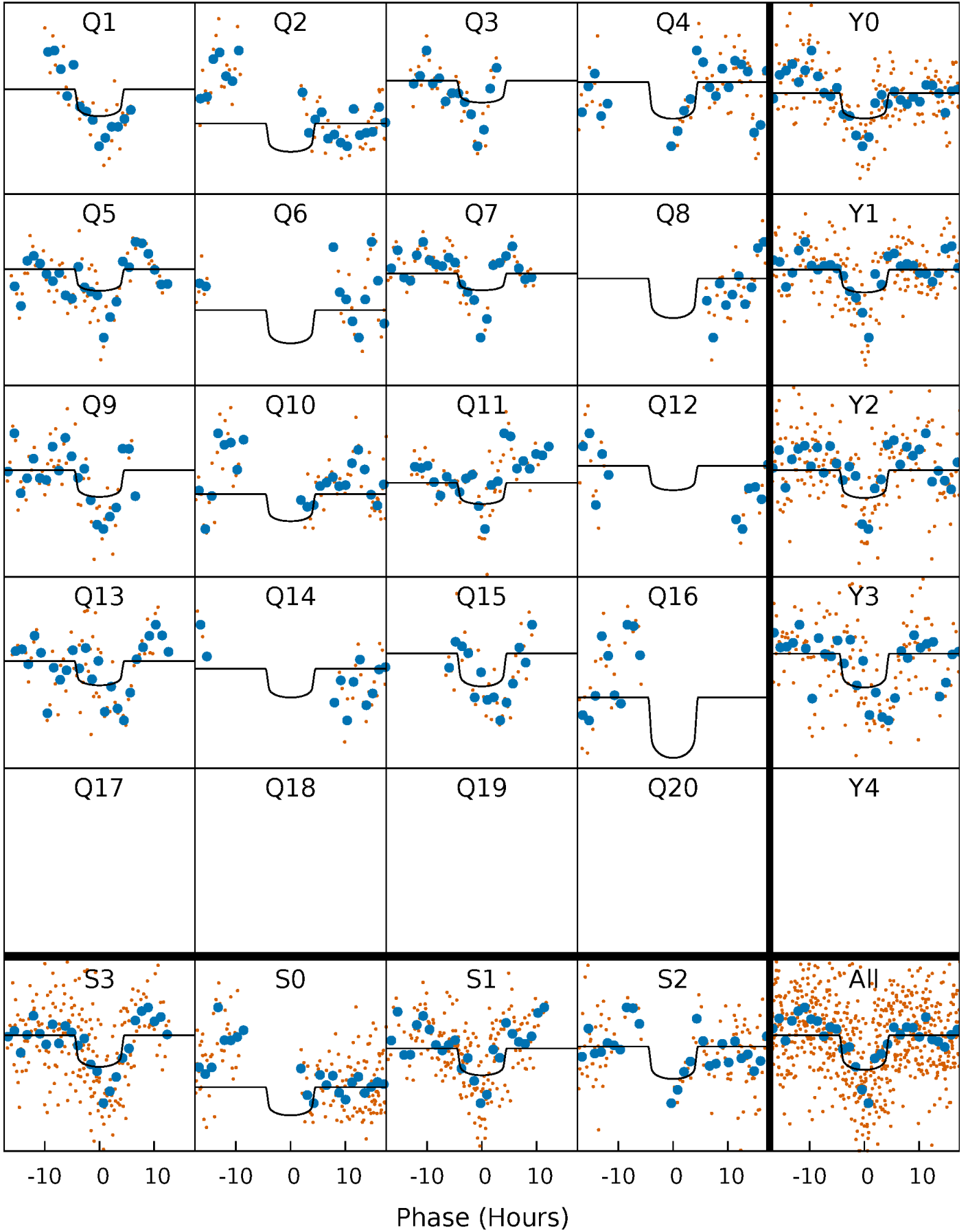
PDC Quarter-Phased Transit Curves

TCE 010341072-02 P= 55.921398 Days $T_0=142.165690$ (BKJD)



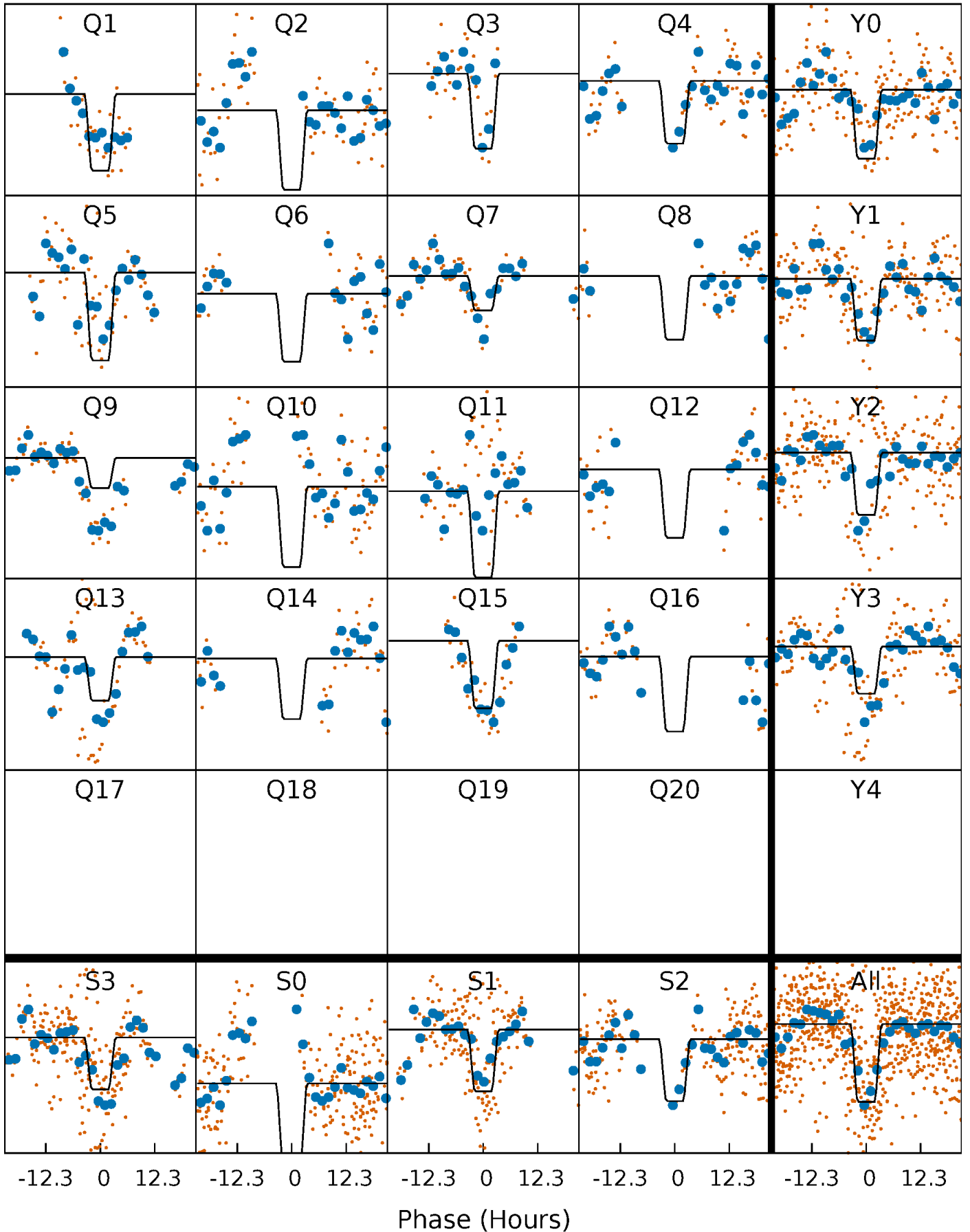
DV Quarter-Phased Transit Curves

TCE 010341072-02 P= 55.921398 Days $T_0=142.165690$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

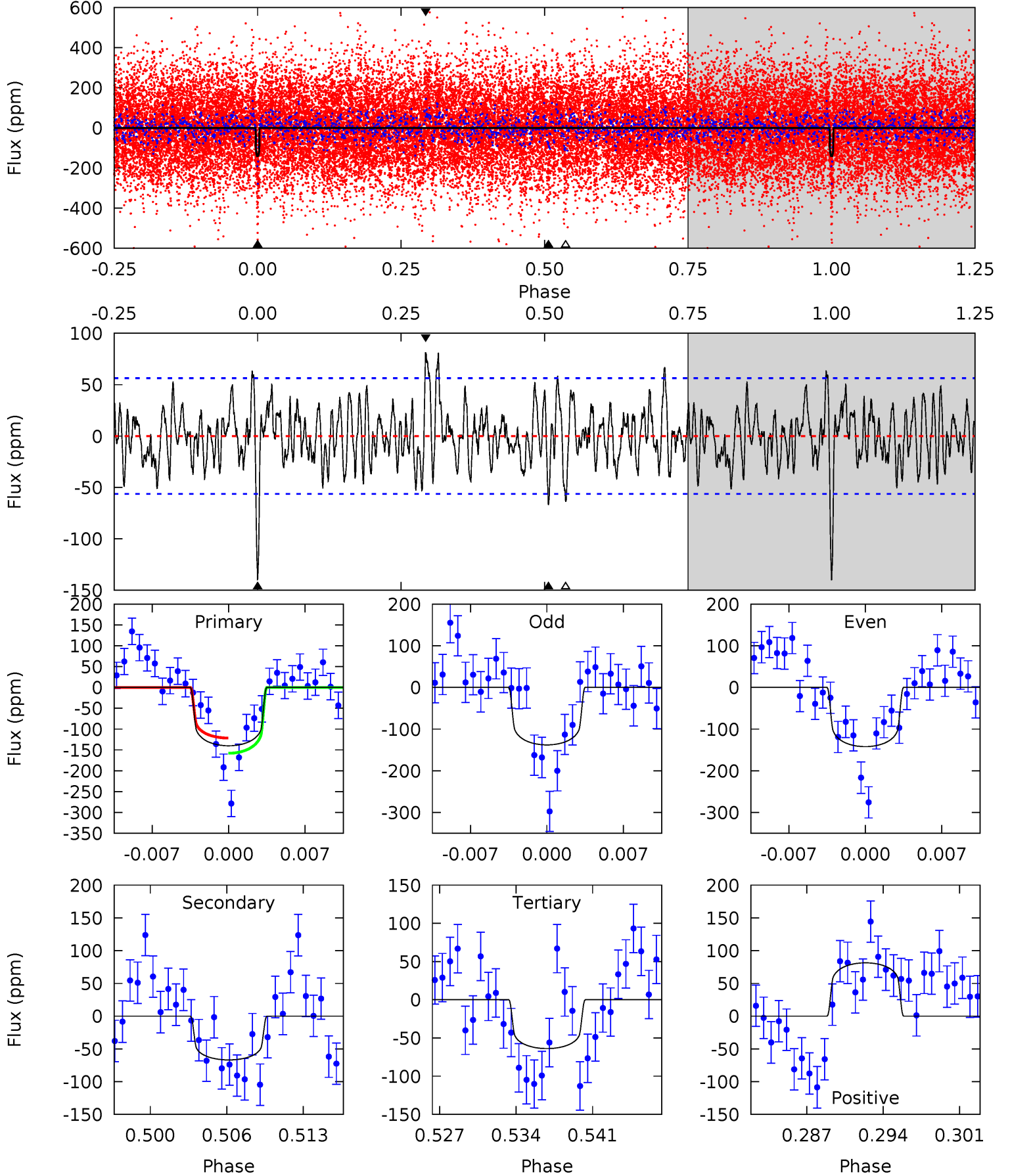
TCE 010341072-02 P= 55.926618 Days $T_0=142.124681$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-02, P = 55.921398 Days, E = 86.244292 Days

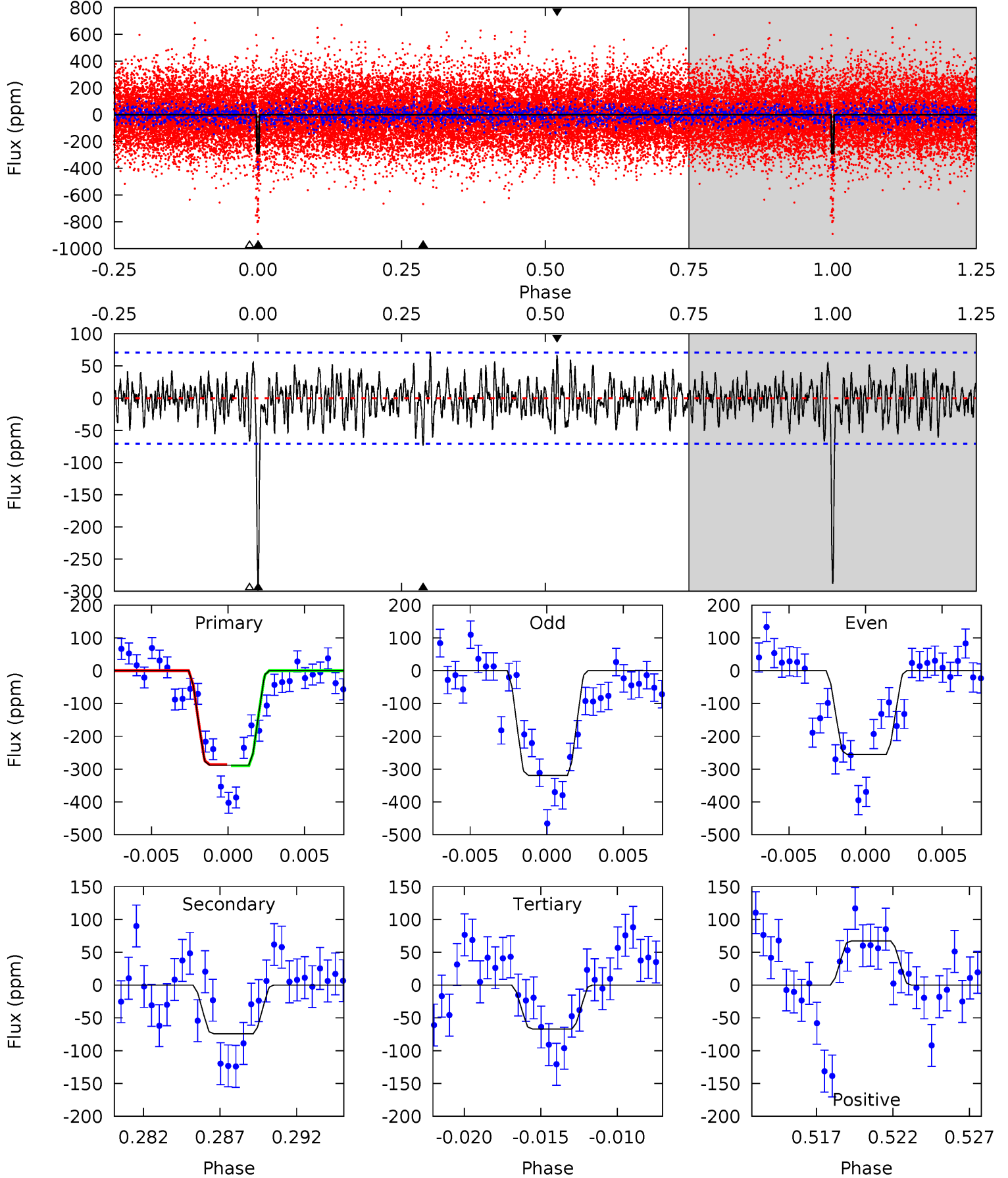
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	6.05	5.78	7.37	5.10	2.70	2.17	6.89	5.31	0.27	-1.32	0.19	0.78	0.37	1.65



Alt Model-Shift Uniqueness Test

010341072-02, P = 55.926618 Days, E = 86.198063 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.0	5.41	4.88	4.90	5.15	2.80	1.60	16.1	16.1	0.53	0.51	2.34	0.74	0.20	0.14



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-67 ± 11	$4.96^{+1.99}_{-1.72}$	1372^{+77}_{-142}	5455^{+1132}_{-654}	177^{+255}_{-88}
Alt.	-74 ± 14	$7.80^{+2.21}_{-2.07}$	1372^{+79}_{-150}	4625^{+525}_{-367}	82^{+72}_{-33}

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

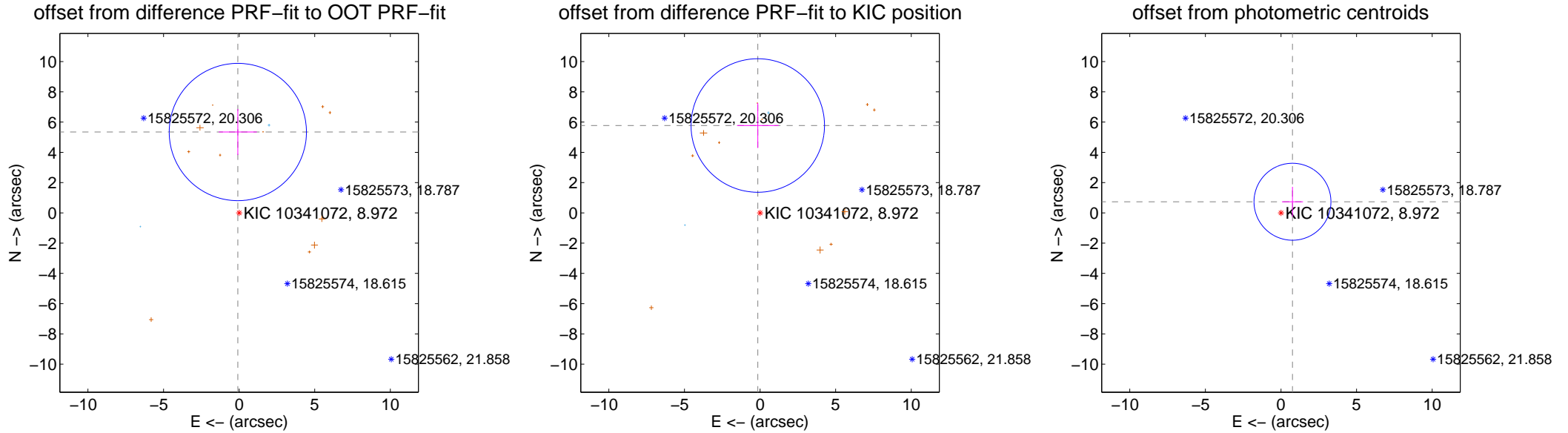
DV Centroid Data

Supplemental centroid analysis for 010341072-02. **Kepler magnitude: 8.97.** Transit SNR 6.99

There are 2 quarters with good PRF difference image offsets

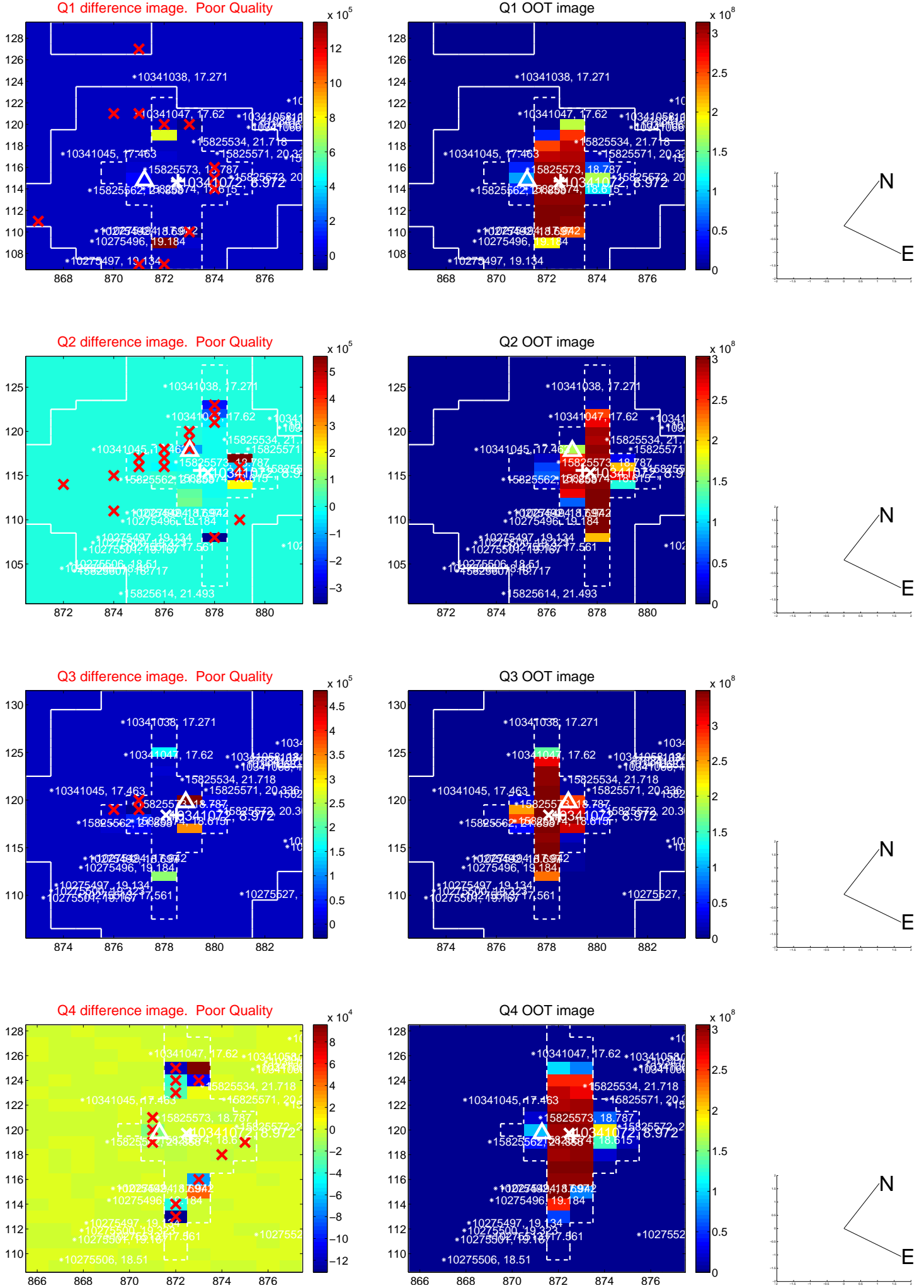
The direct PRF centroid is offset from the target star catalog position by about 1.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.345 ± 1.512	3.53	0.087 ± 1.257	5.344 ± 1.522
PRF-fit source offset from KIC position	5.776 ± 1.471	3.93	0.151 ± 1.370	5.774 ± 1.485
photometric centroid source offset	1.06 ± 0.85	1.25	-0.76 ± 0.70	0.73 ± 0.98

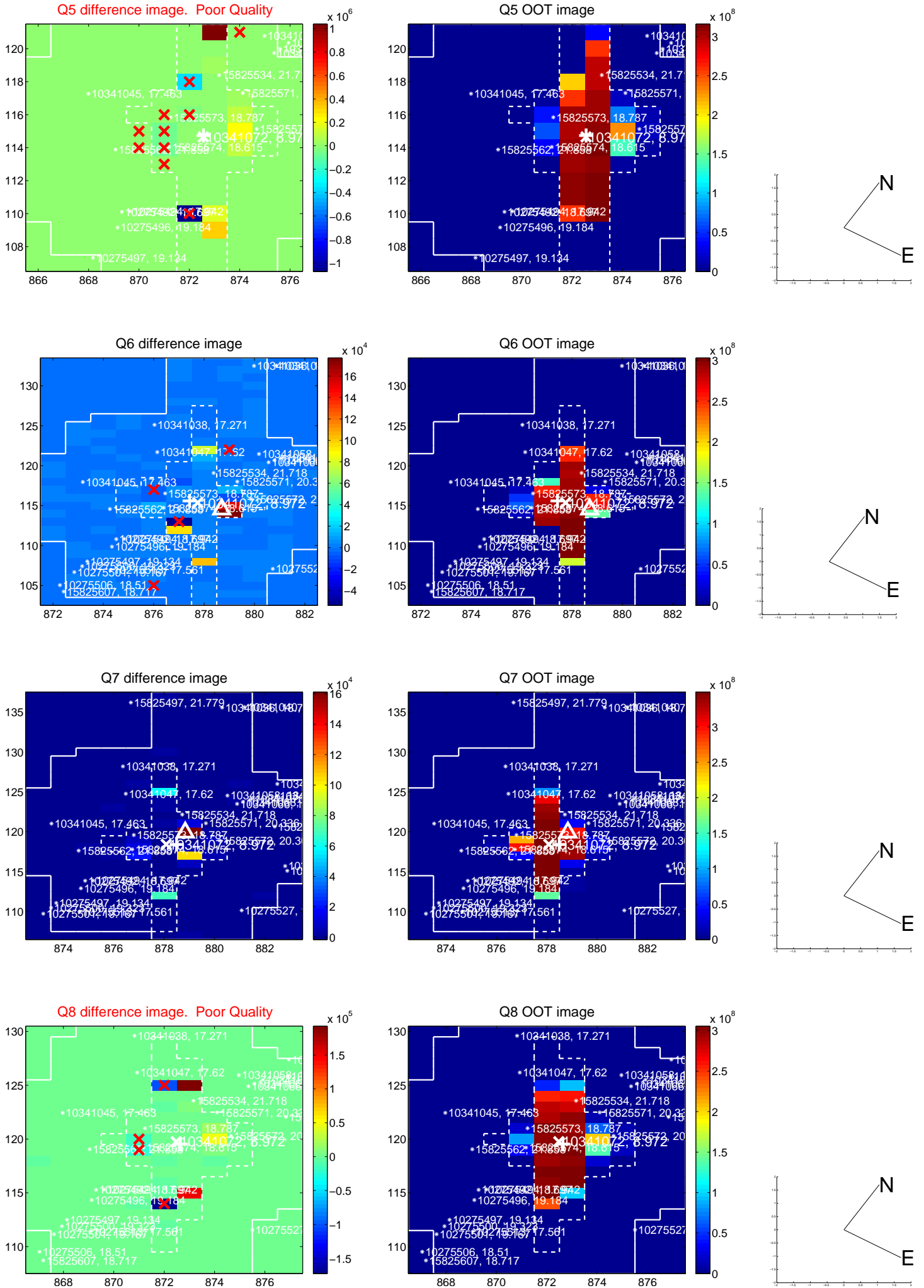


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

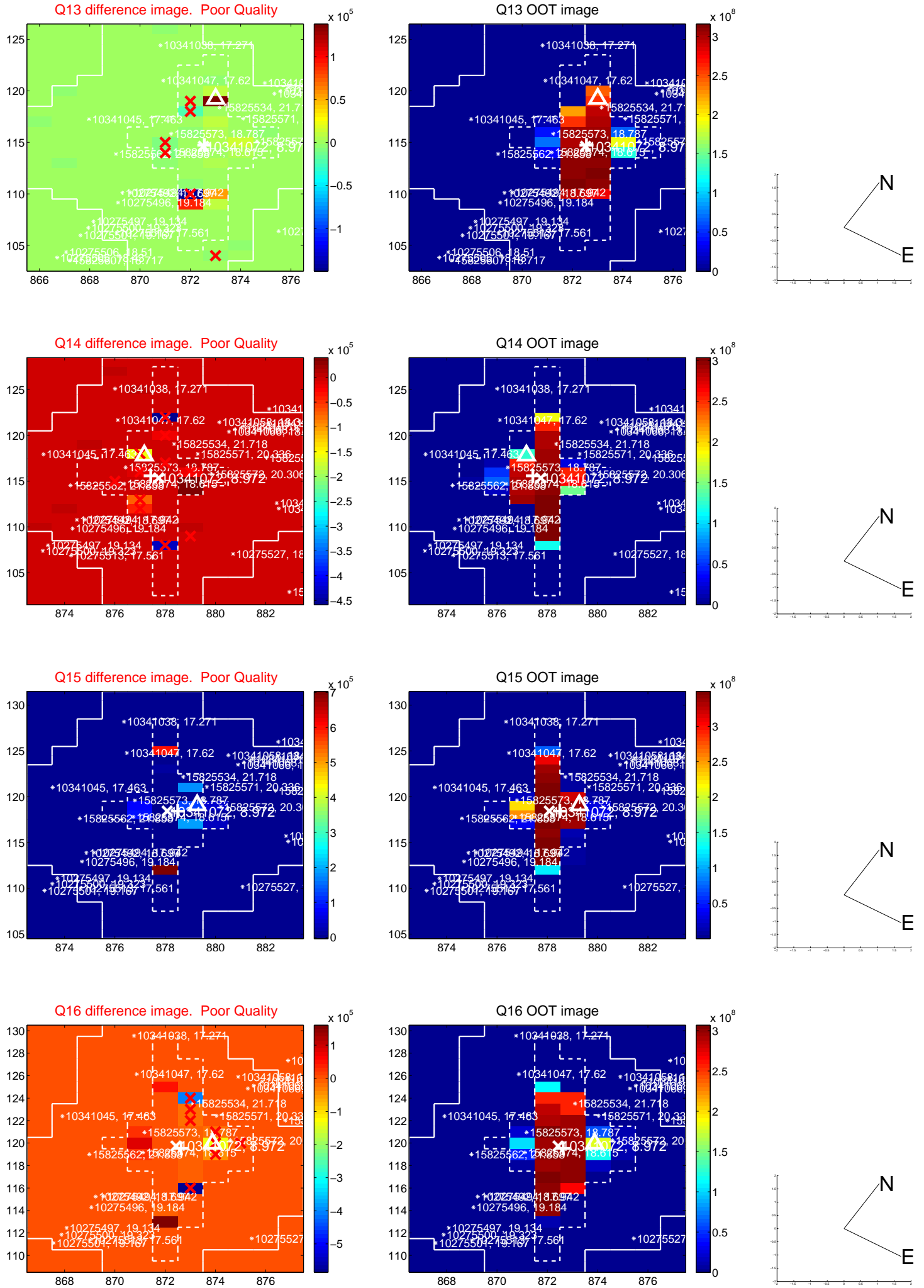
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



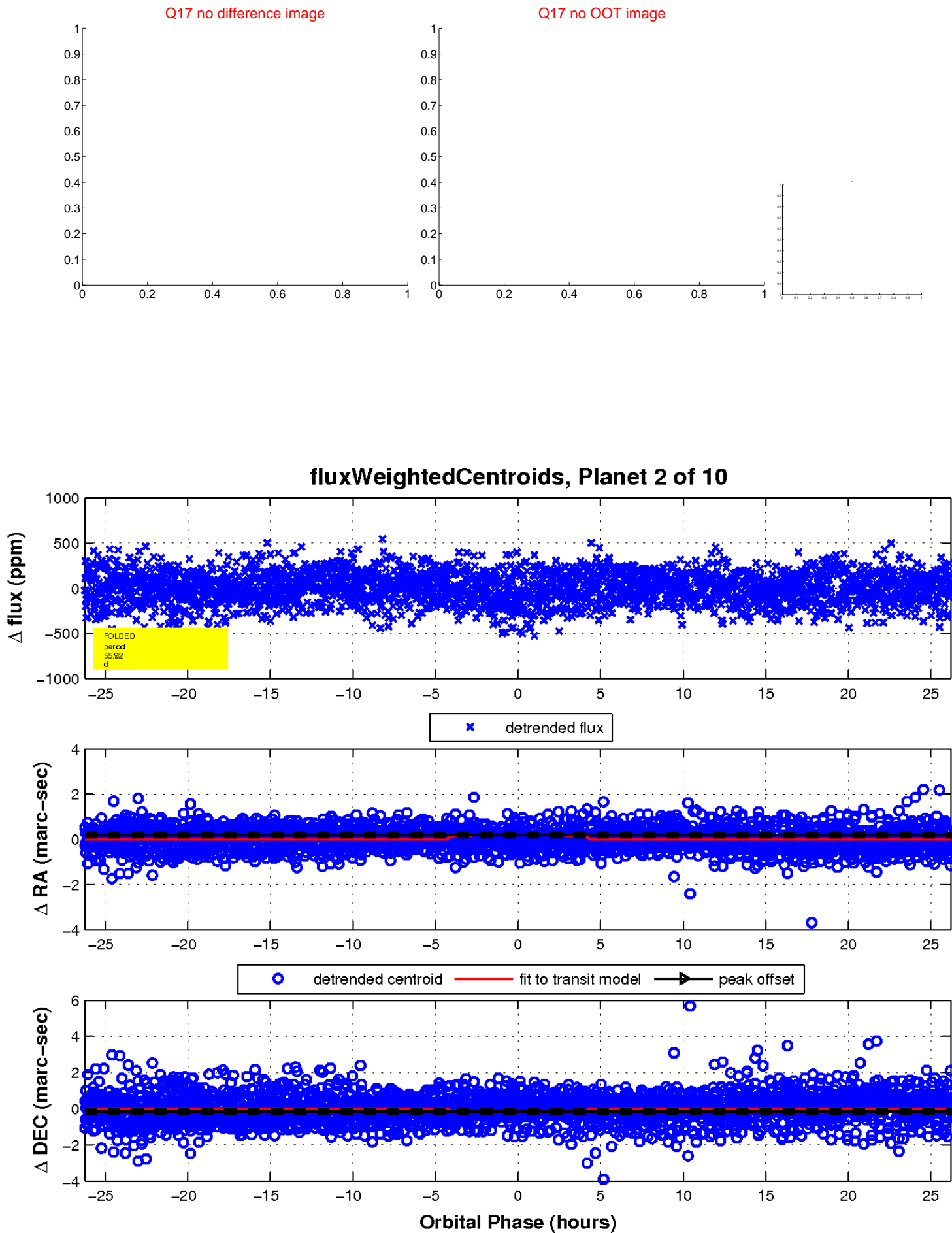
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



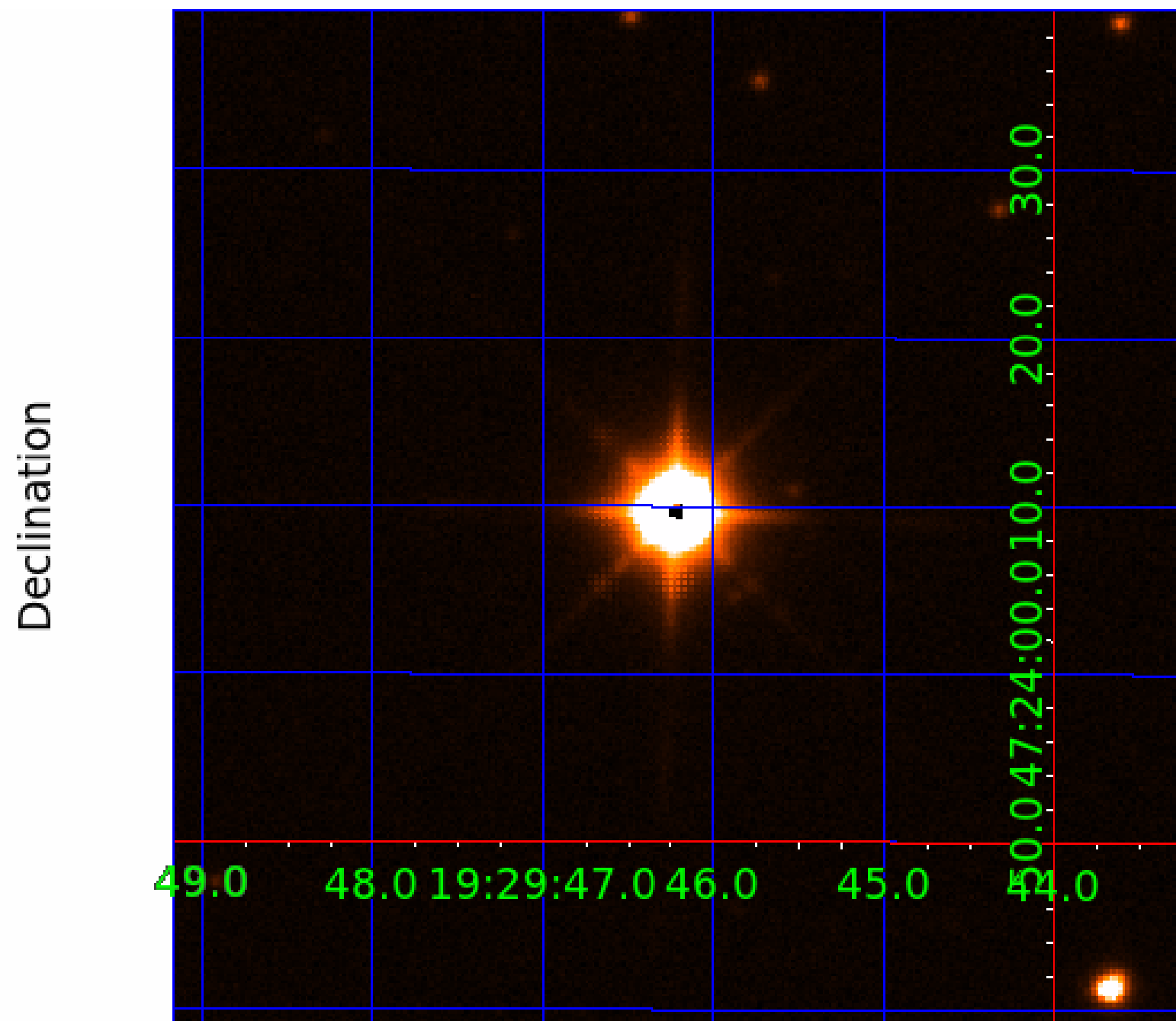
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
010341072-04	OBS	No	142.468614	220.078937	296.7	2.449	8.7	9.1	4.33	6541	9.05	70.36
010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
010341072-07	OBS	No	161.609085	156.832880	343.3	3.076	8.3	8.7	4.33	6541	9.29	59.47
010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

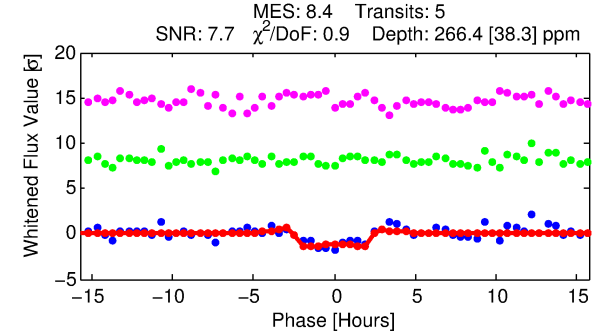
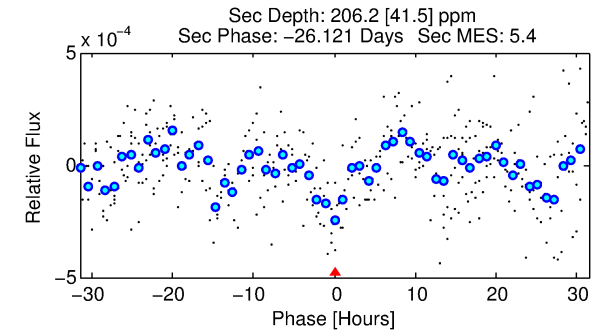
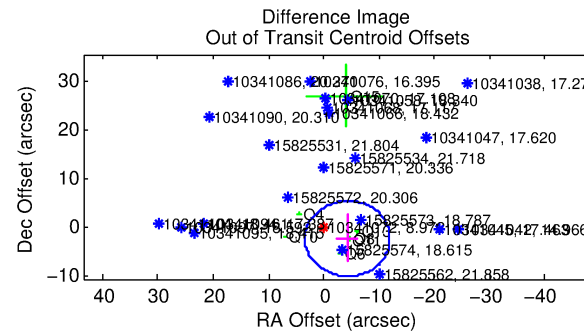
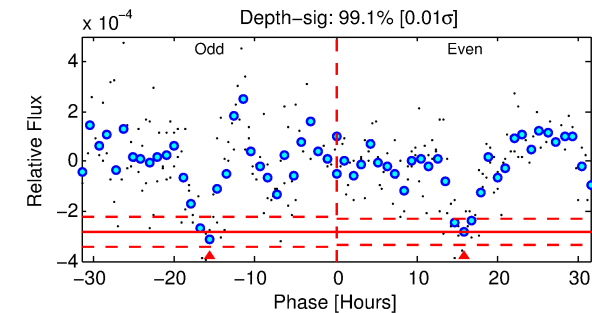
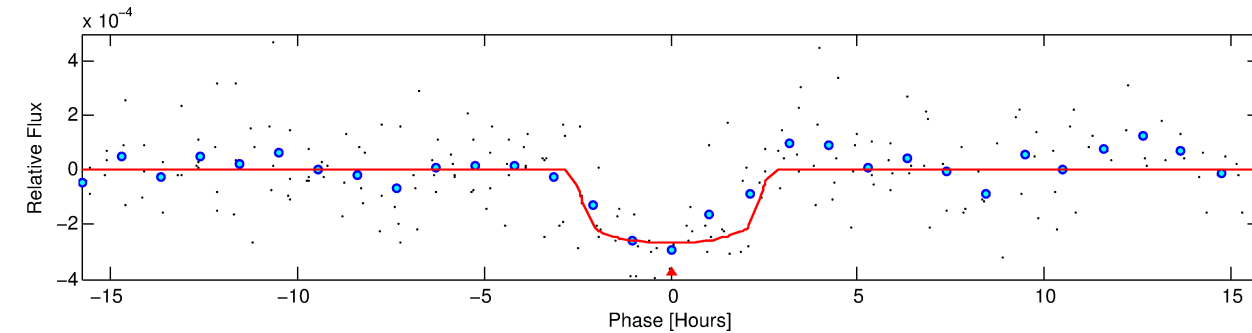
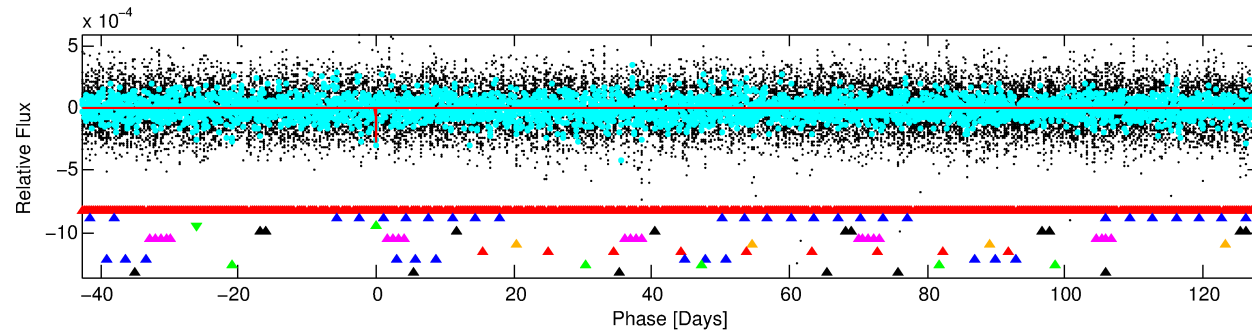
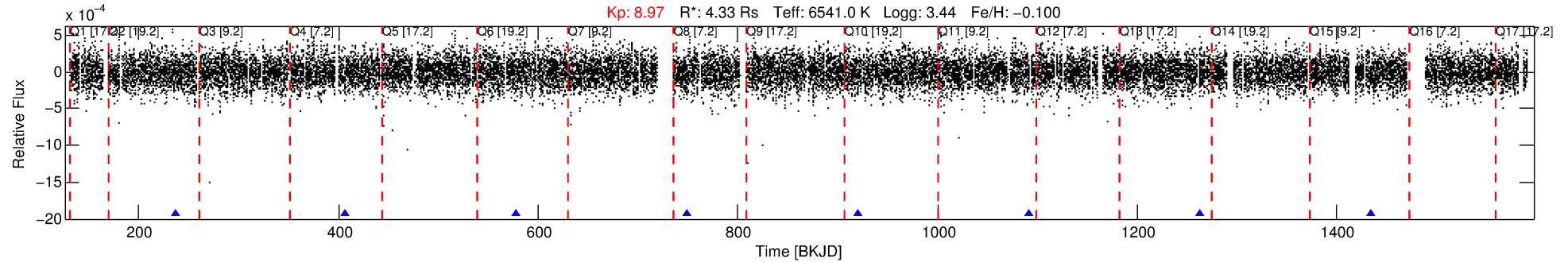
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-03

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 3 of 10 Period: 171.130 d



DV Fit Results:

Period = 171.13038 [0.00384] d
Epoch = 236.2153 [0.0126] BKJD
Rp/R* = 0.0175 [0.0047]
a/R* = 116.48 [168.61]
b = 0.90 [0.30]
Seff = 55.10 [36.90]
Teff = 695 [116] K
Rp = 8.26 [4.11] Re
a = 0.7465 [0.3061] AU
Ag = 925.93 [811.21] [1.14σ]
Teffp = 5925 [863] K [6.01σ]

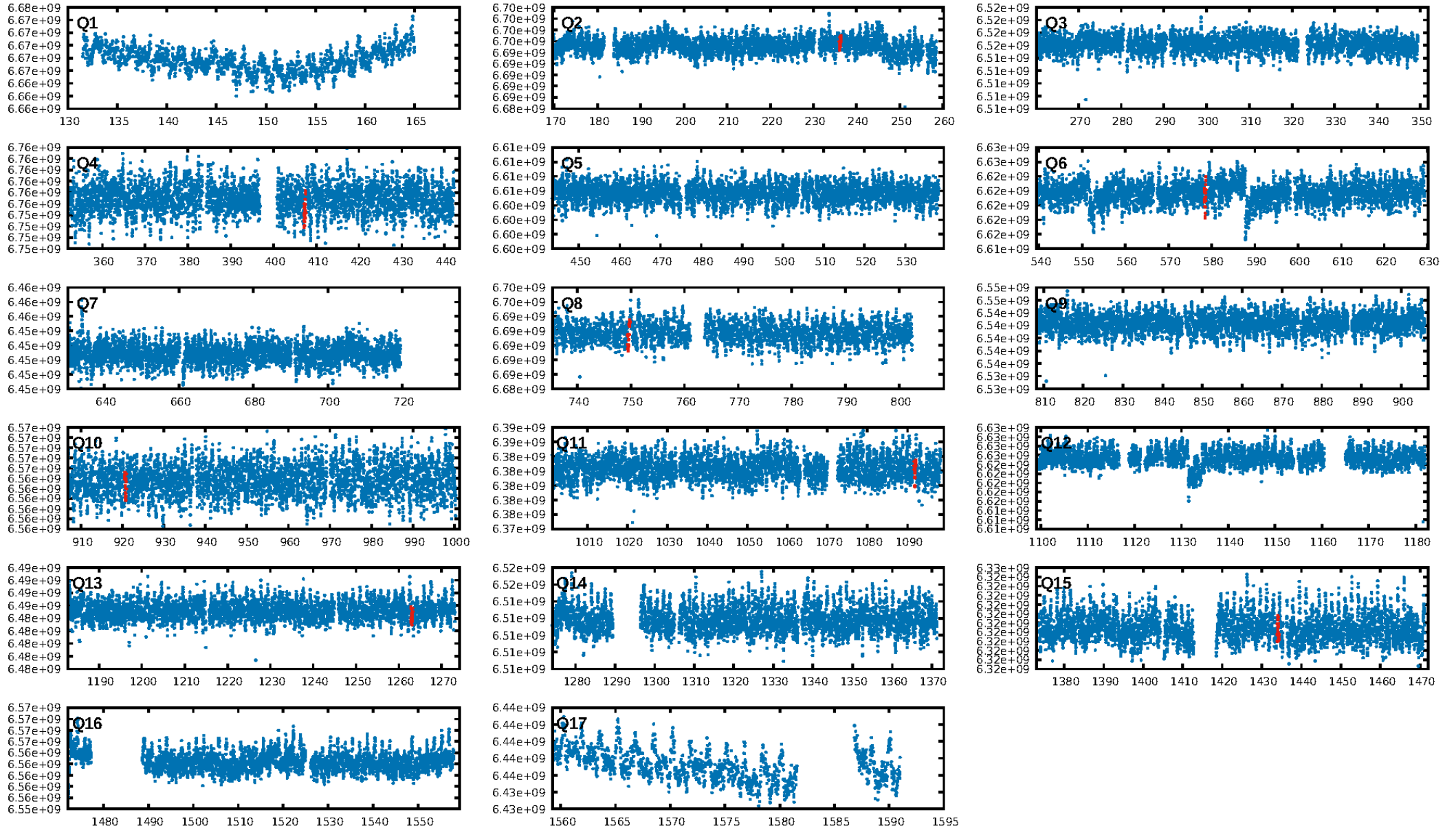
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.50σ]
LongPeriod-sig: 100.0% [181.84σ]
ModelChiSquare2-sig: 56.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 37.3%
Centroid-so: 1.469 arcsec [2.39σ]
OotOffset-rm: 4.807 arcsec [1.87σ]
KicOffset-rm: 3.661 arcsec [1.74σ]
OotOffset-st: 2/2/2/1 [7]
KicOffset-st: 2/2/2/1 [7]
DiffImageQuality-fgm: 0.00 [0/7]
DiffImageOverlap-fno: 0.25 [2/8]

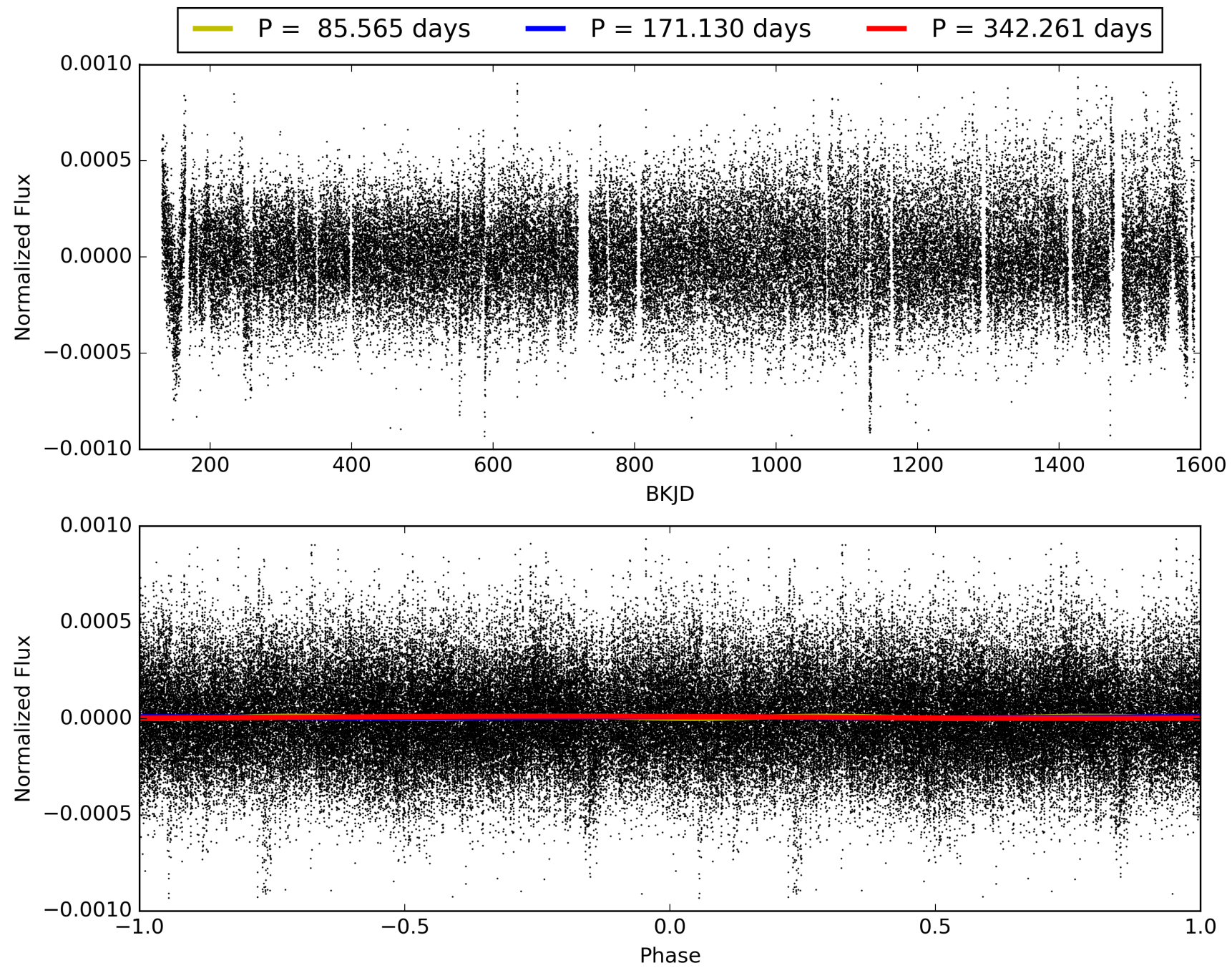
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:56:59 Z

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

TCE 010341072-03, PDC Light Curves

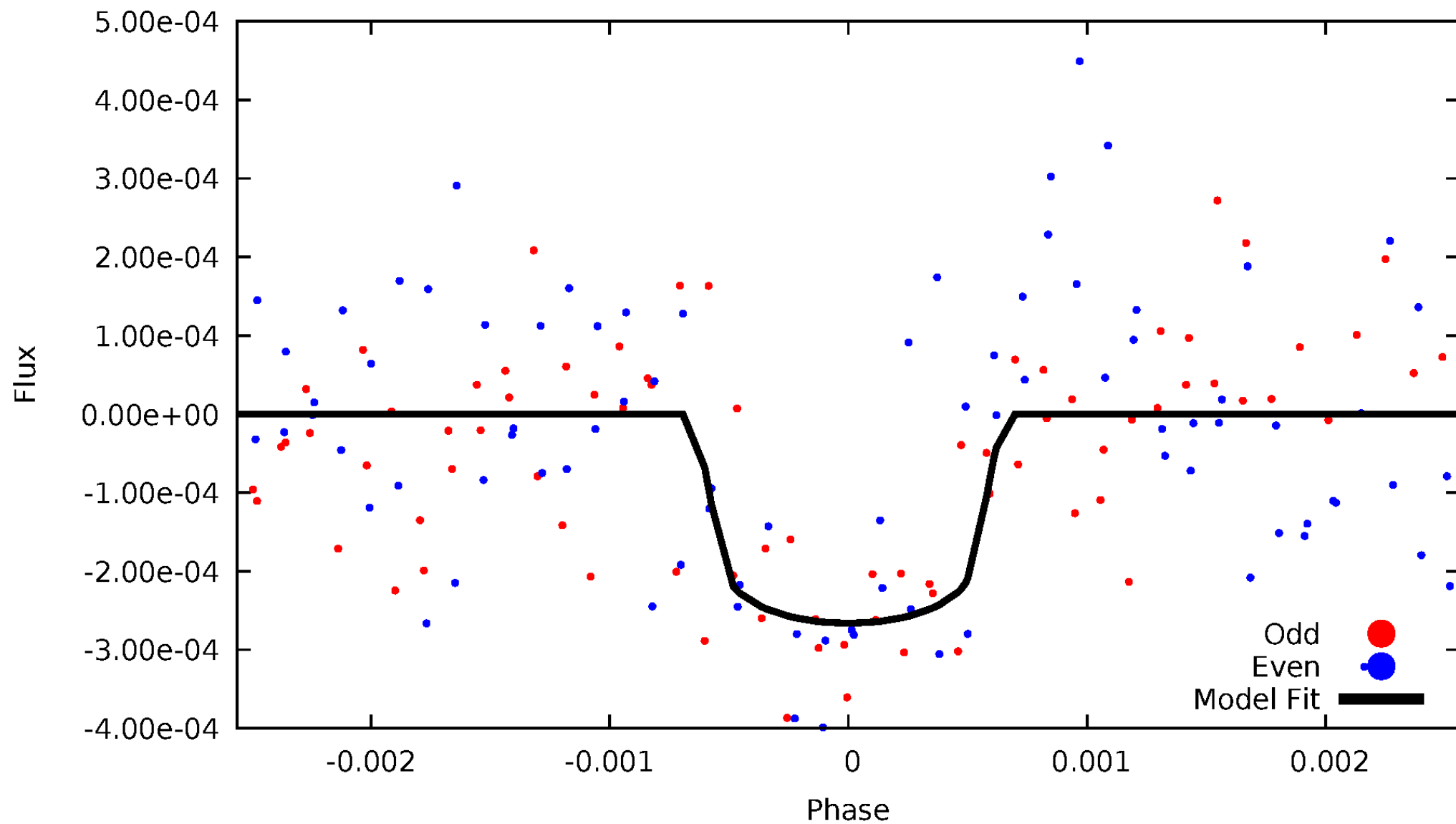


TCE 010341072-03



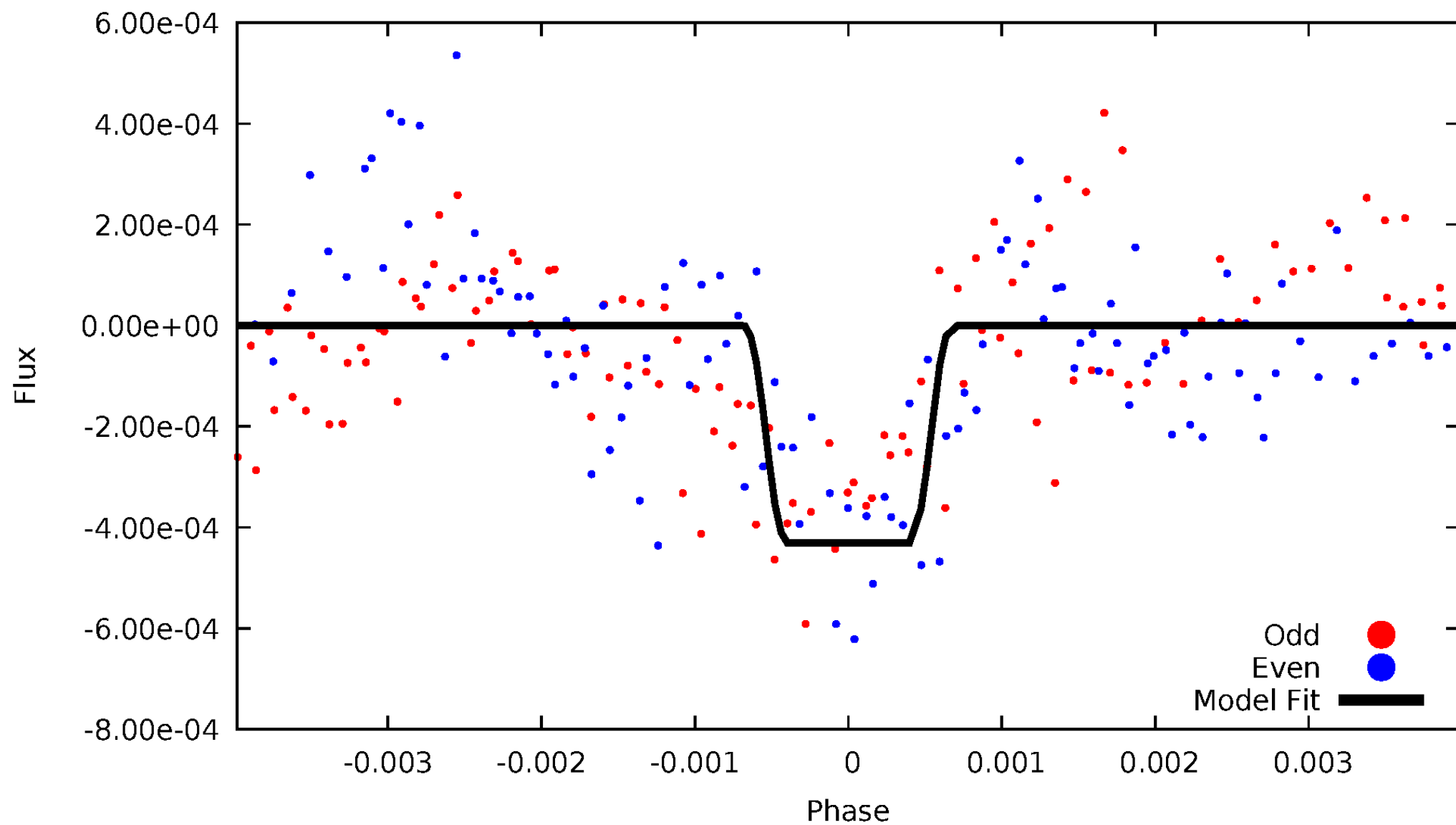
DV Odd/Even

TCE 010341072-03



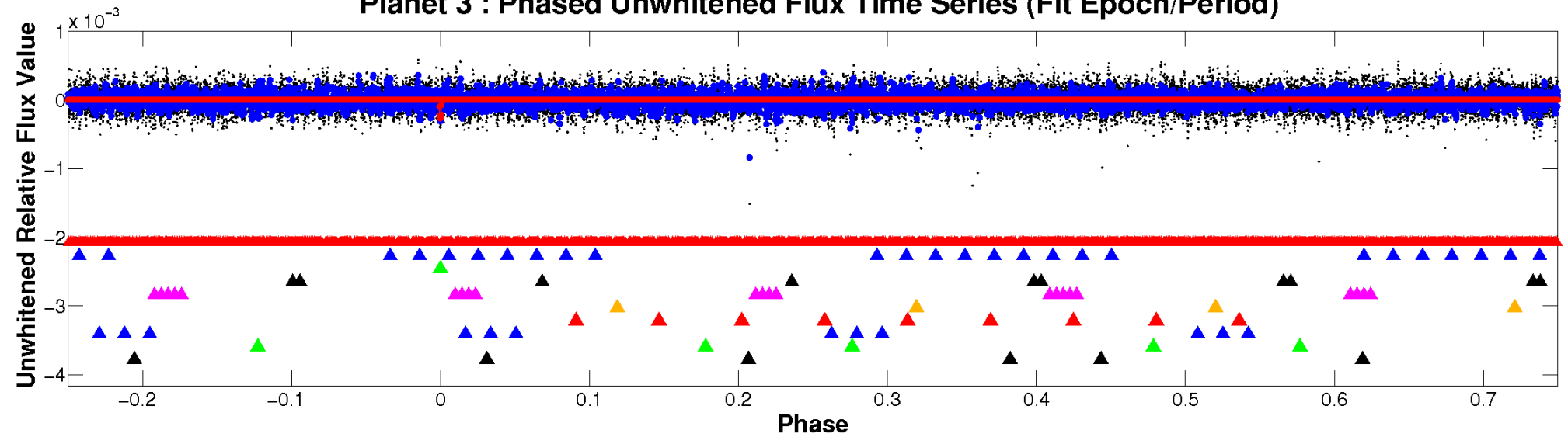
ALT Odd/Even

TCE 010341072-03

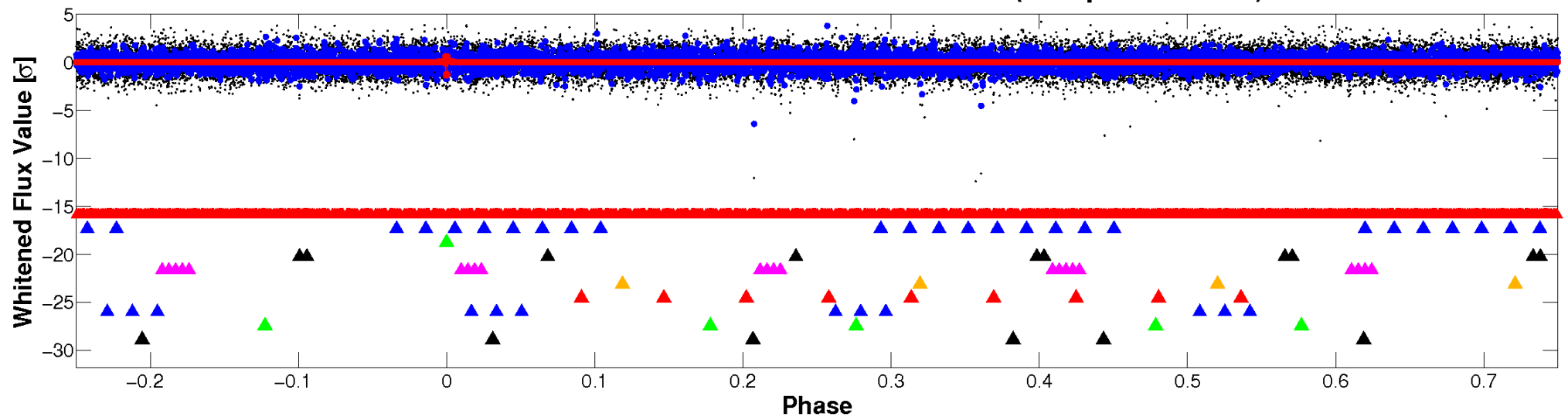


Non-Whitened Vs. Whitened Light Curve

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

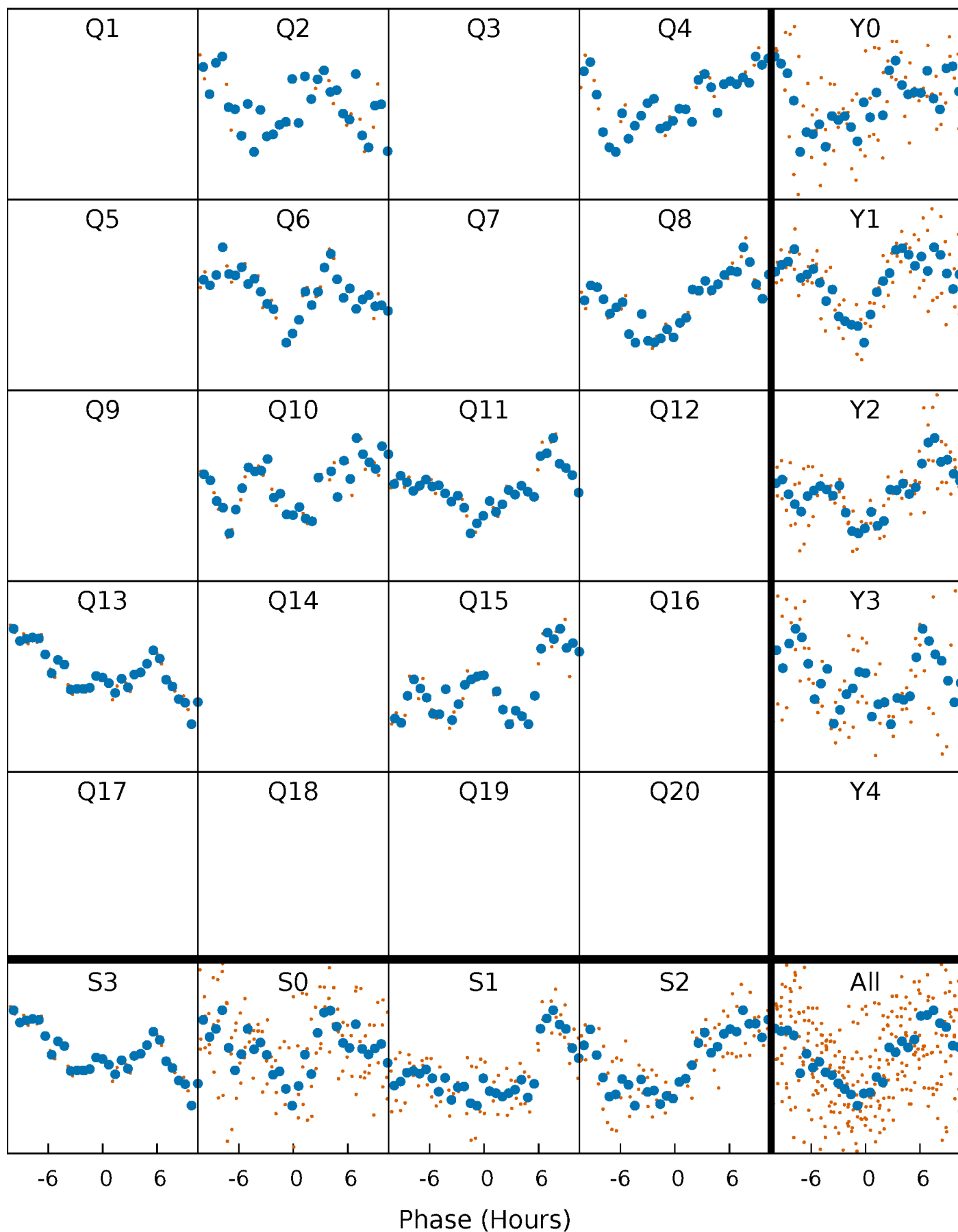


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



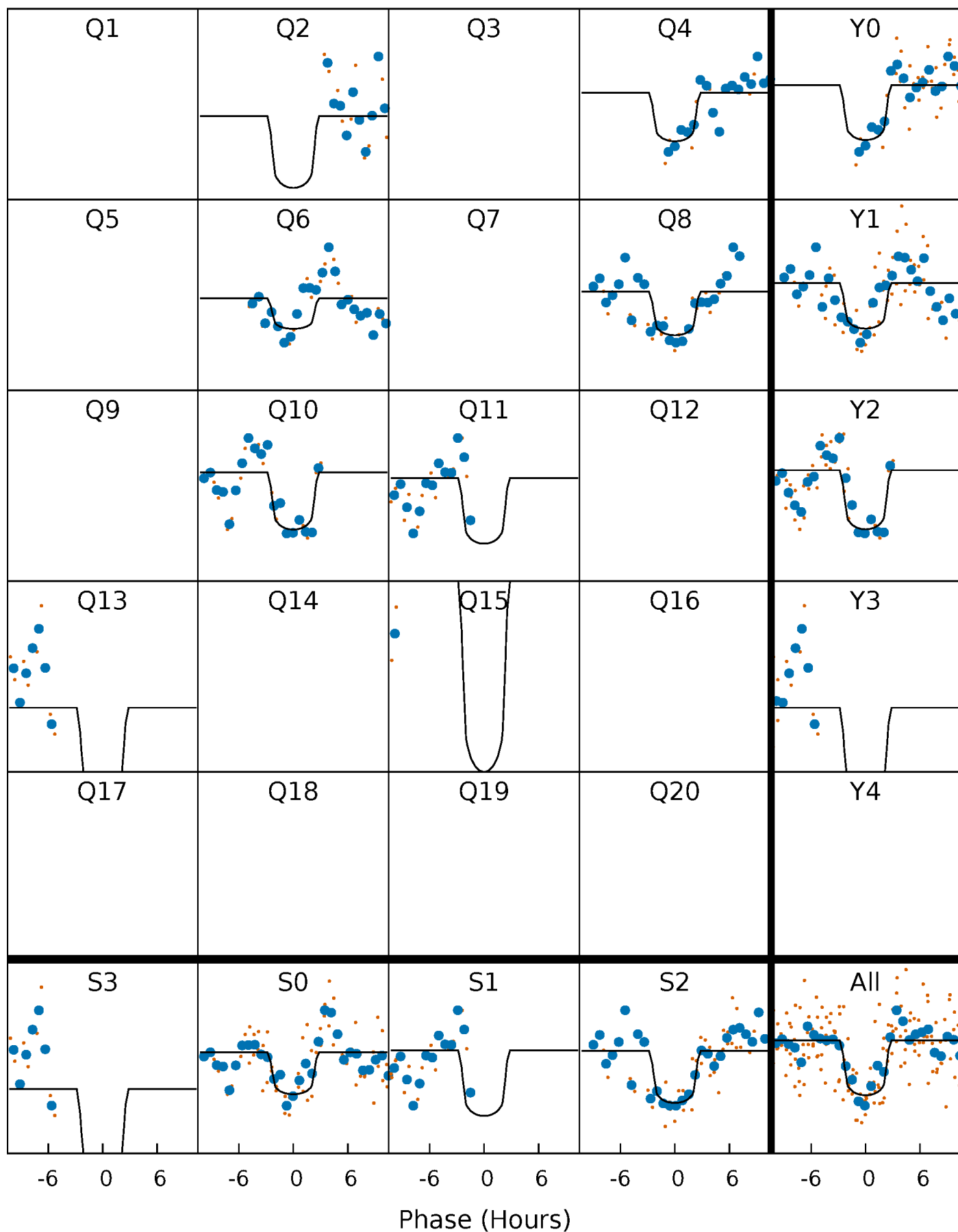
PDC Quarter-Phased Transit Curves

TCE 010341072-03 P=171.130384 Days $T_0=236.215335$ (BKJD)



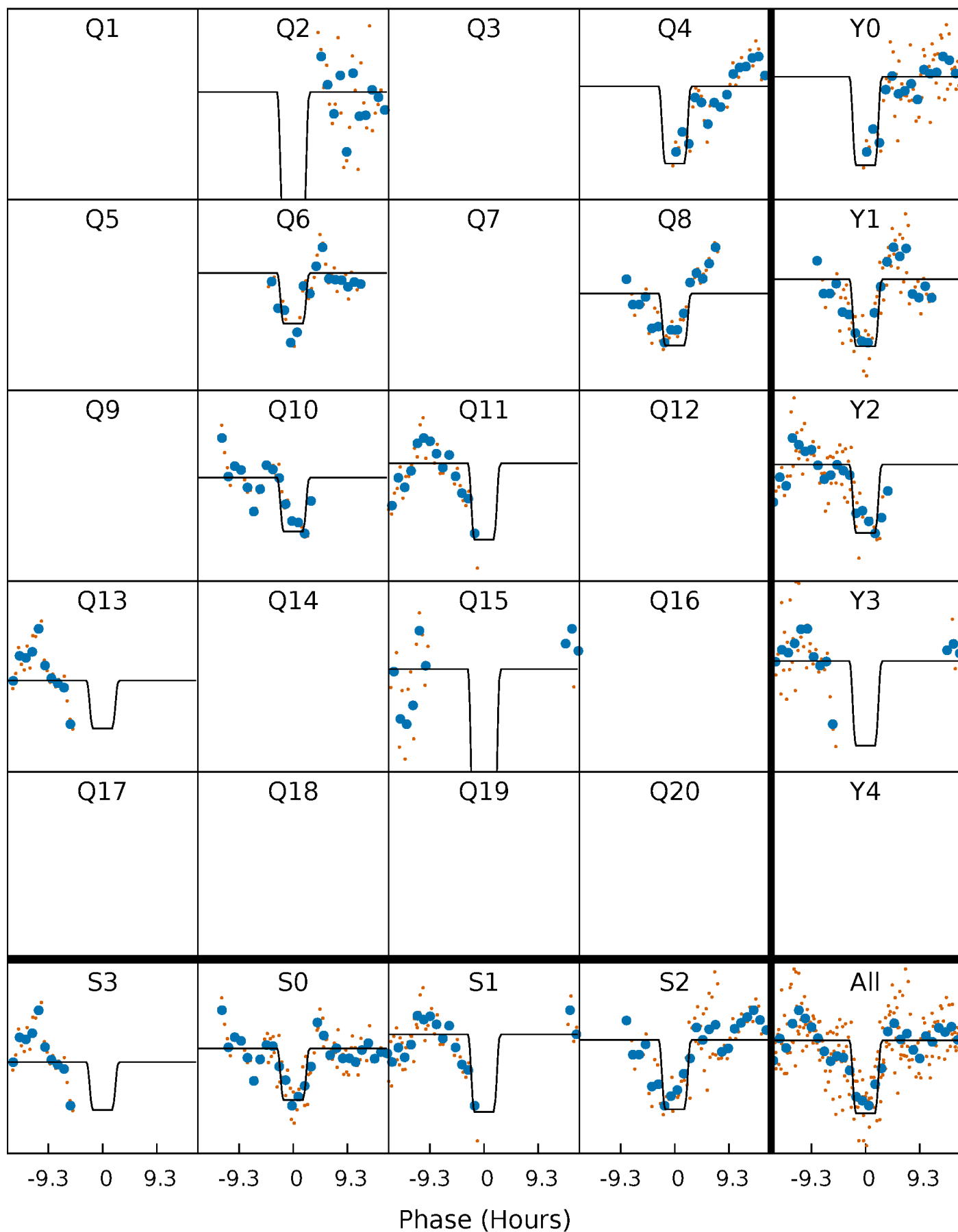
DV Quarter-Phased Transit Curves

TCE 010341072-03 P=171.130384 Days $T_0=236.215335$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

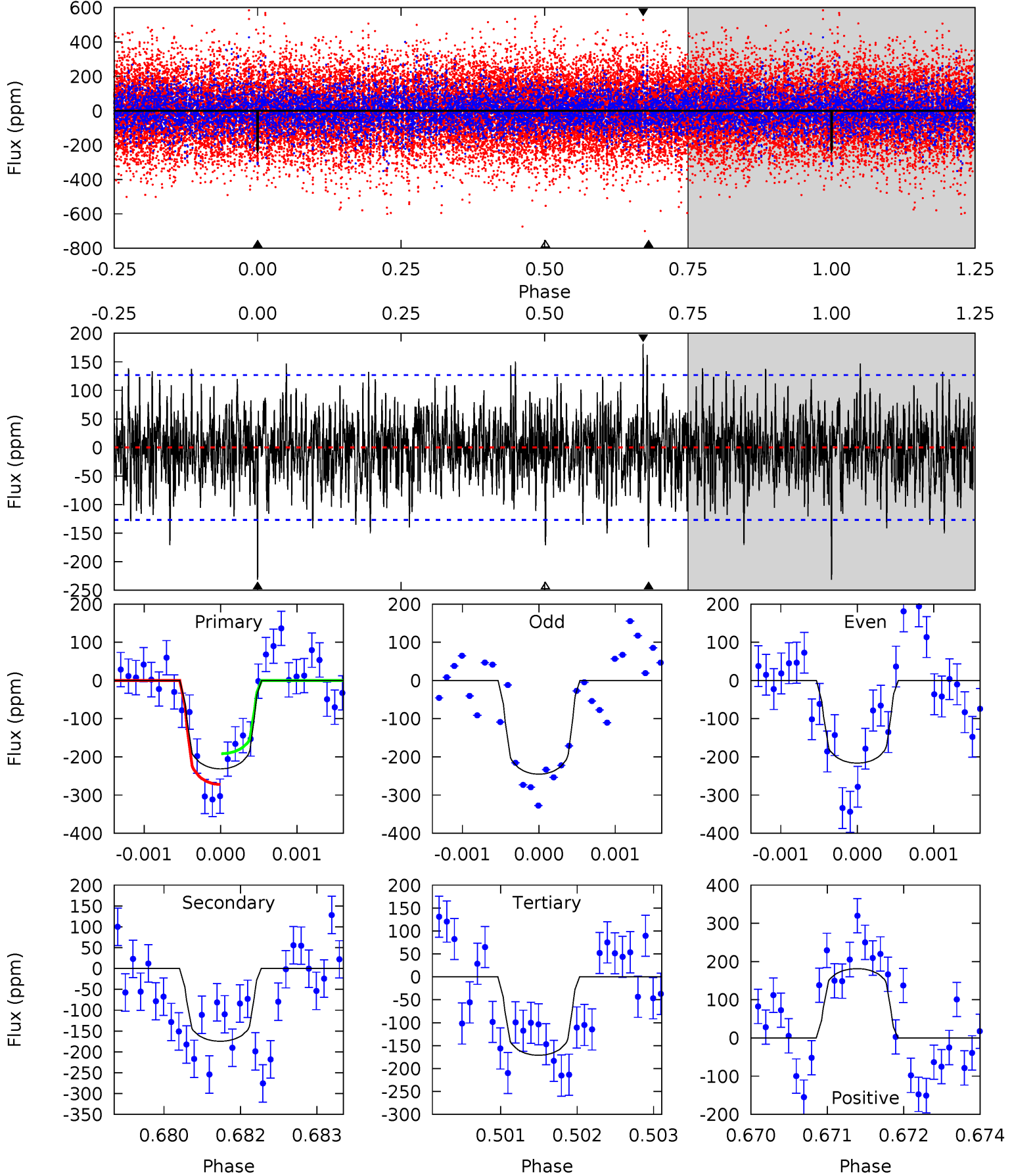
TCE 010341072-03 $P=171.134759$ Days $T_0=236.181642$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-03, P = 171.130384 Days, E = 65.084951 Days

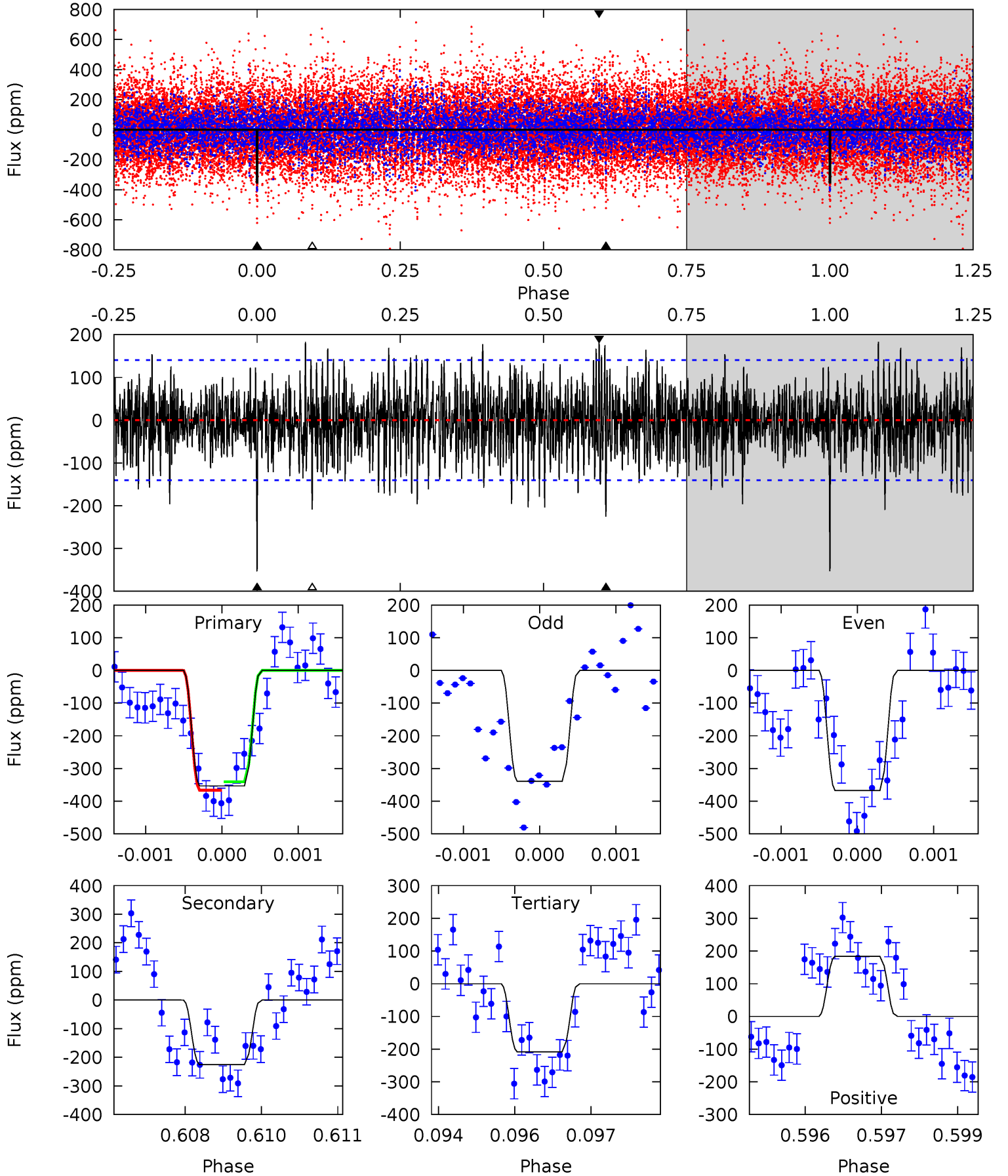
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.87	7.45	7.30	7.74	5.40	3.22	2.02	2.57	2.13	0.15	-0.29	0.62	0.78	0.44	1.72



Alt Model-Shift Uniqueness Test

010341072-03, P = 171.134759 Days, E = 65.046883 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	8.66	8.00	7.06	5.40	3.21	2.36	5.57	6.51	0.66	1.60	0.53	1.11	0.34	0.50



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-175 ± 23	$7.14^{+2.88}_{-2.07}$	941^{+57}_{-101}	5701^{+992}_{-633}	1029^{+998}_{-504}
Alt.	-225 ± 26	$8.73^{+2.58}_{-2.58}$	936^{+59}_{-103}	5576^{+779}_{-510}	870^{+883}_{-350}

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 $A_{obs} \gg 1.0$

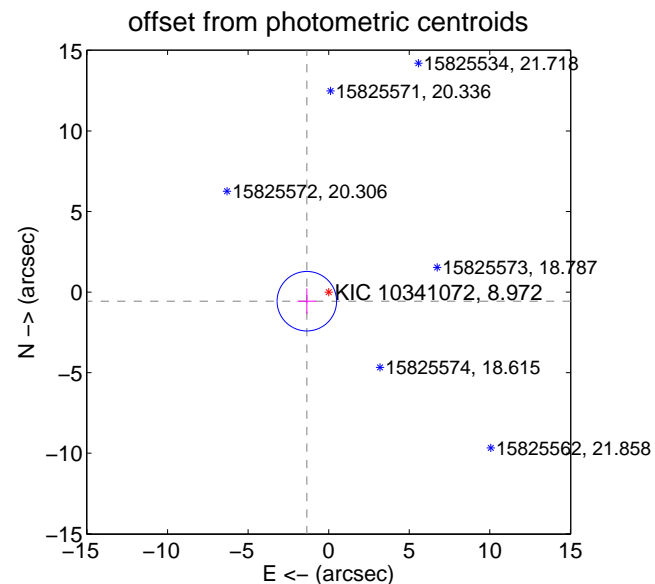
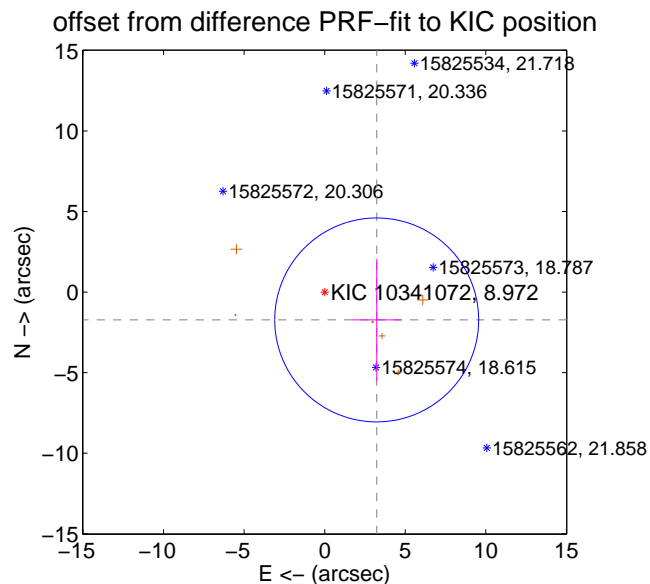
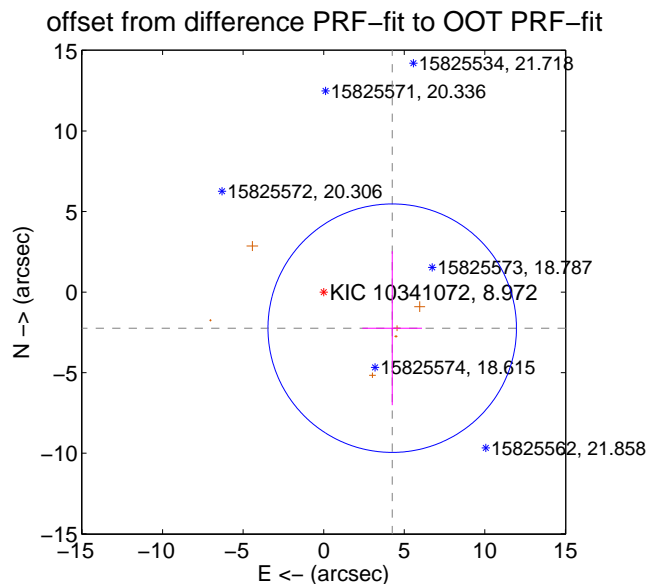
DV Centroid Data

Supplemental centroid analysis for 010341072-03. **Kepler magnitude: 8.97.** Transit SNR 7.69

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.67 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.807 ± 2.570	1.87	-4.253 ± 1.850	-2.240 ± 4.782
PRF-fit source offset from KIC position	3.661 ± 2.110	1.74	-3.228 ± 1.541	-1.727 ± 3.787
photometric centroid source offset	1.47 ± 0.62	2.39	1.36 ± 0.58	-0.57 ± 0.79



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

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

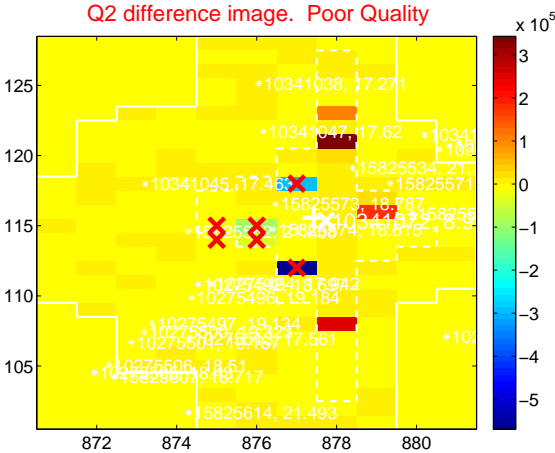
Q1 no difference image



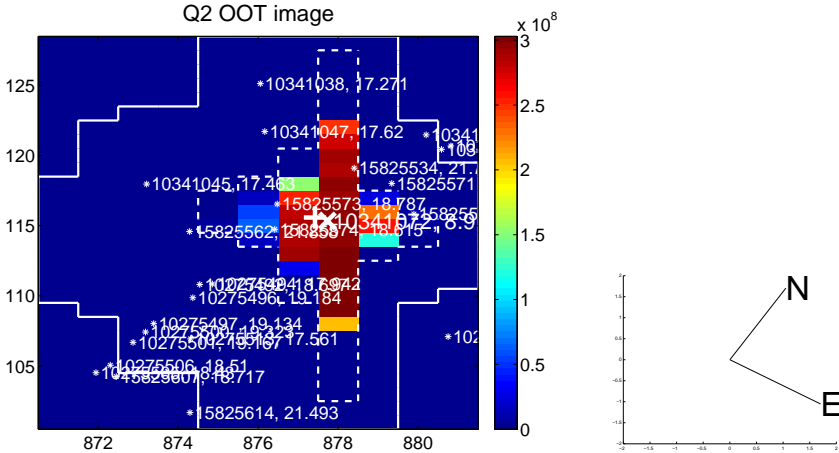
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



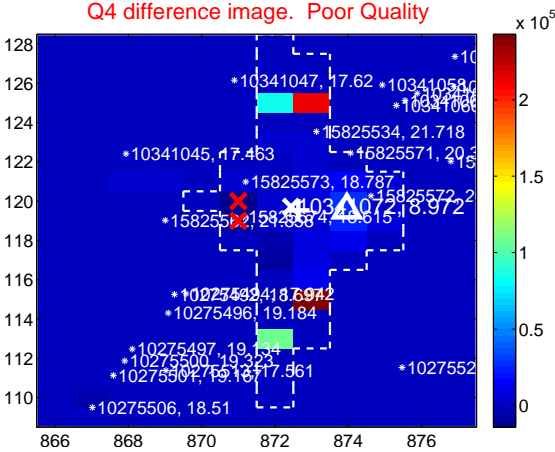
Q3 no difference image



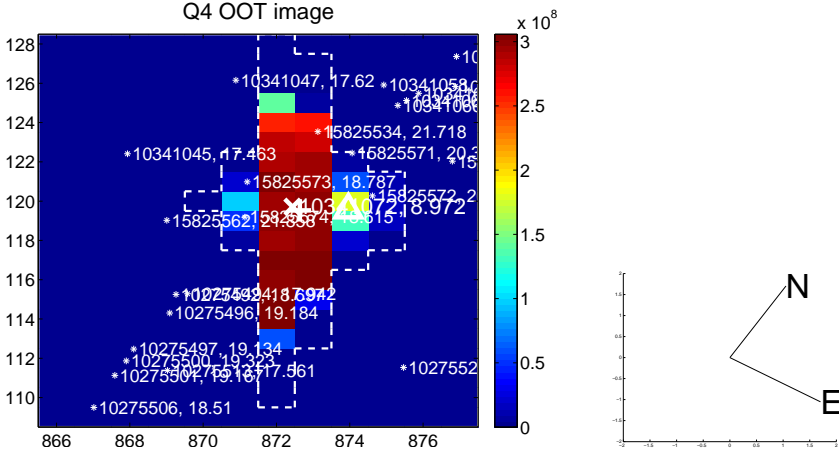
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

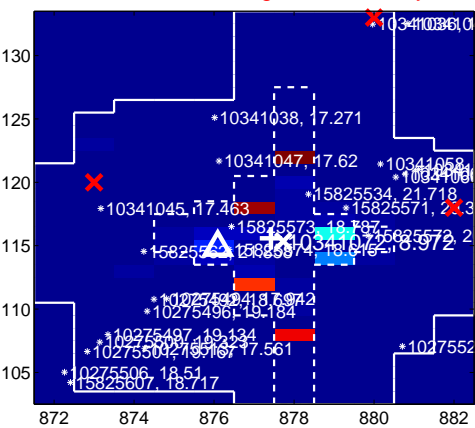
Q5 no difference image



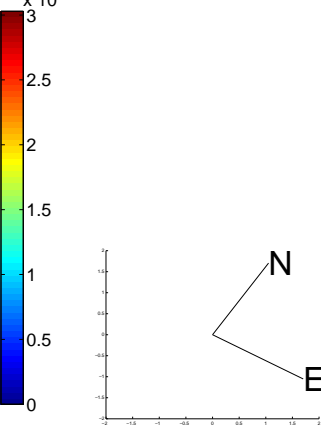
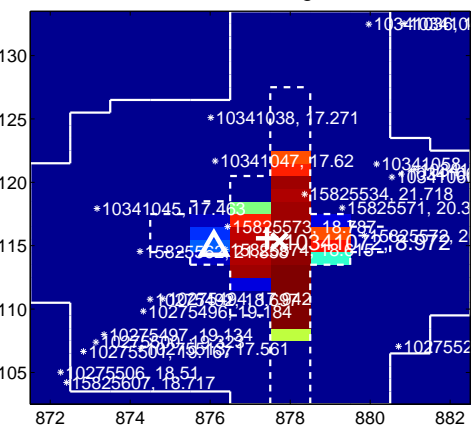
Q5 no OOT image



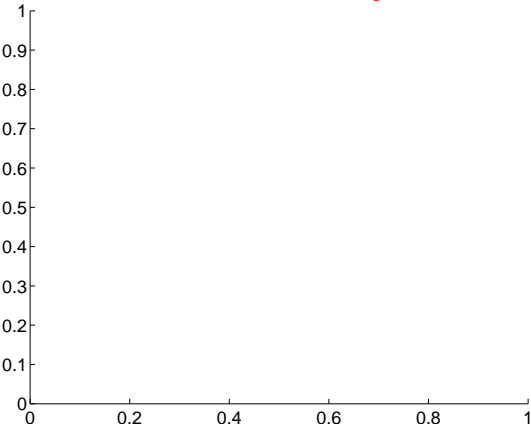
Q6 difference image. Poor Quality



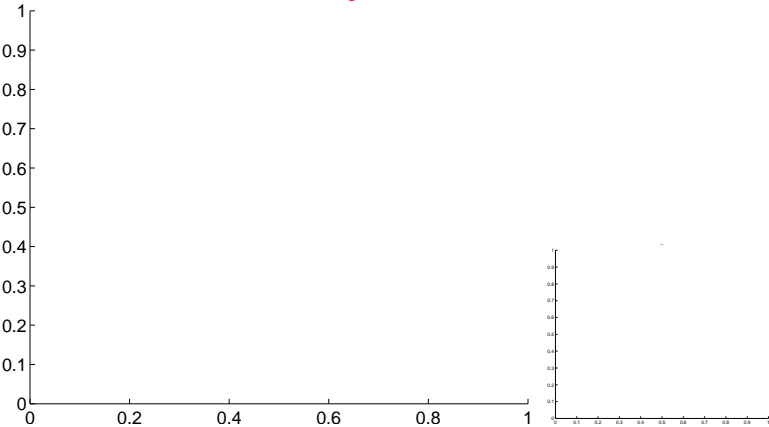
Q6 OOT image



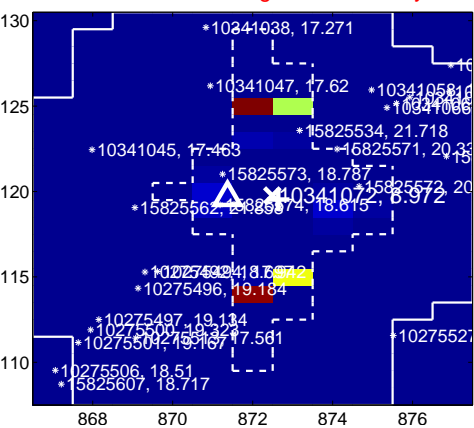
Q7 no difference image



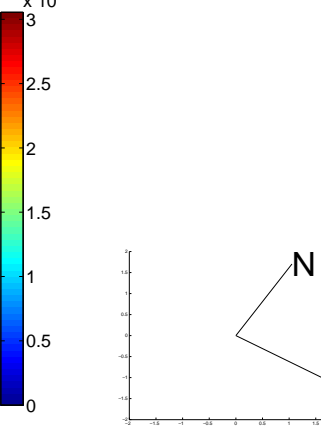
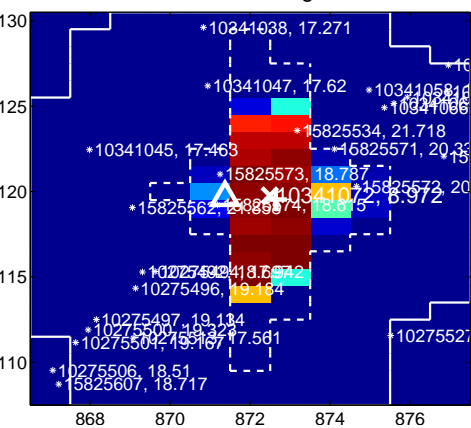
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 OOT image



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

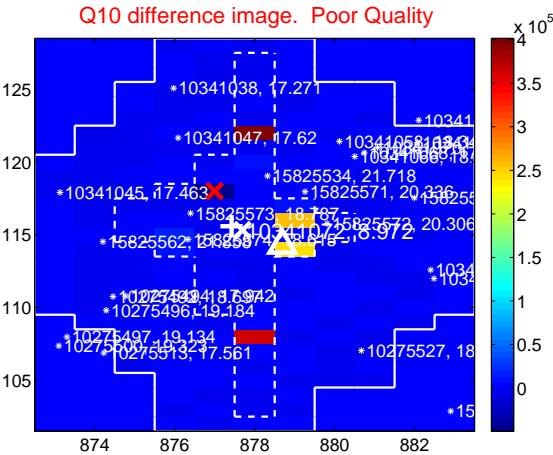
Q9 no difference image



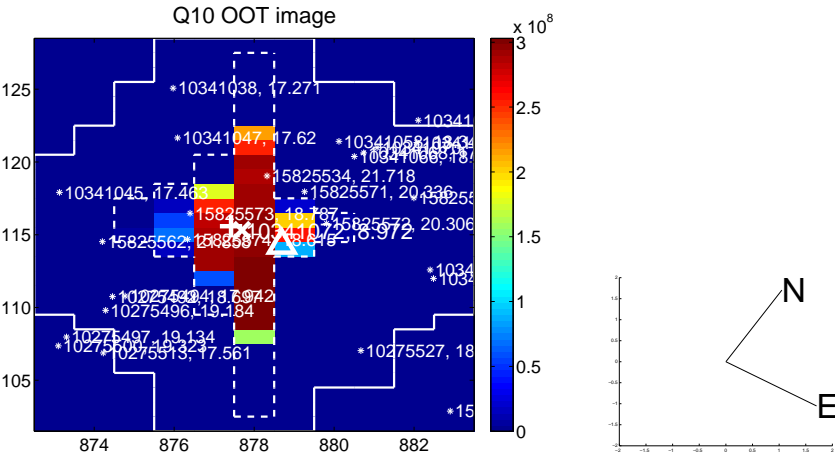
Q9 no OOT image



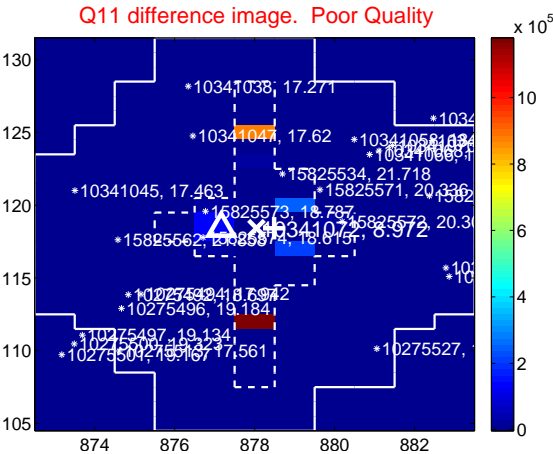
Q10 difference image. Poor Quality



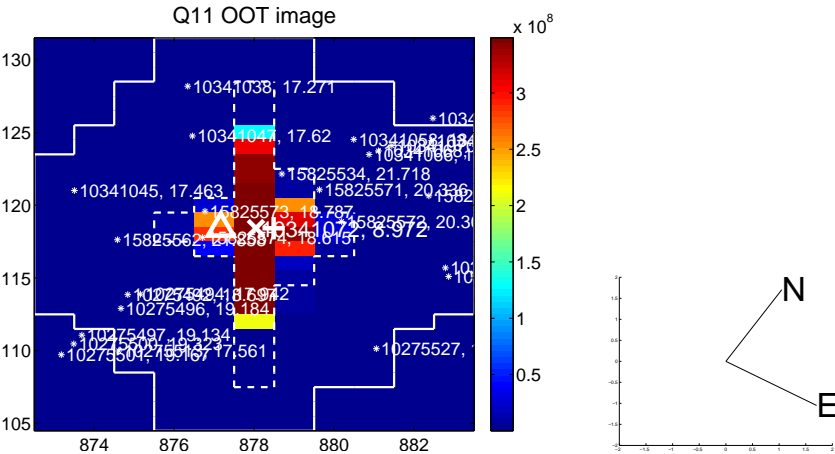
Q10 OOT image



Q11 difference image. Poor Quality



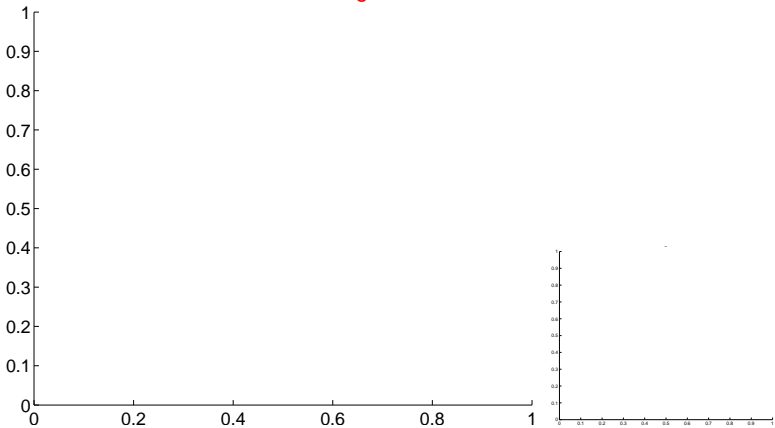
Q11 OOT image



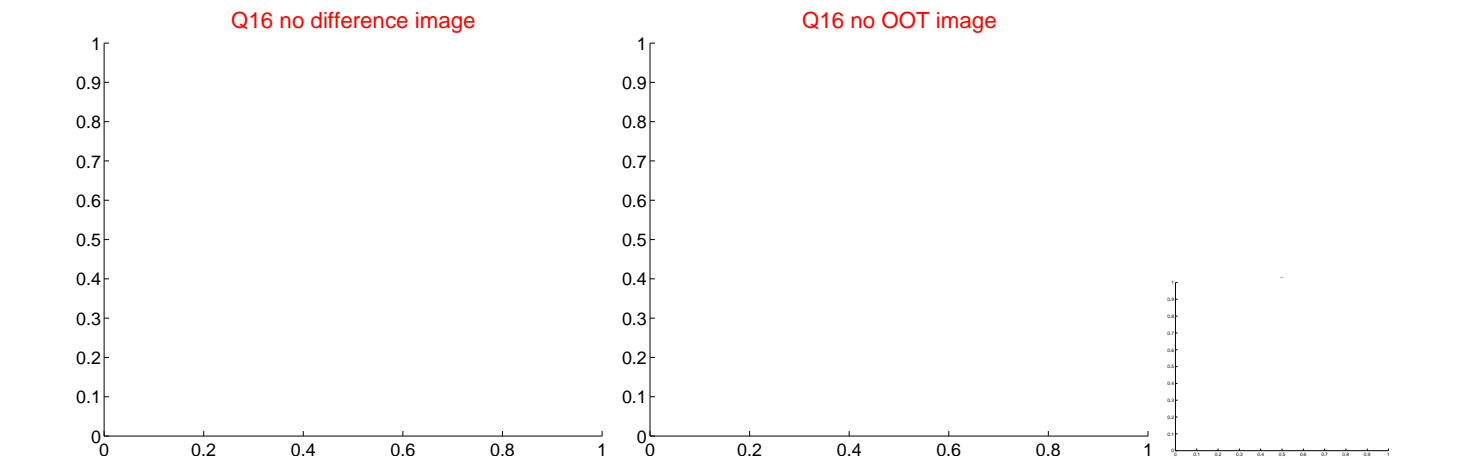
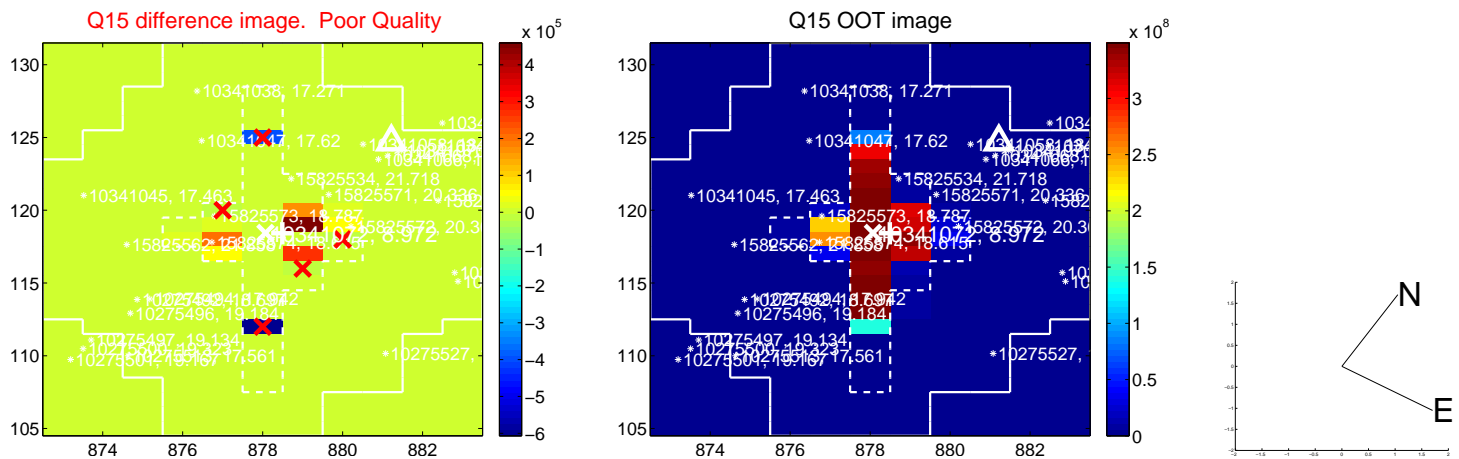
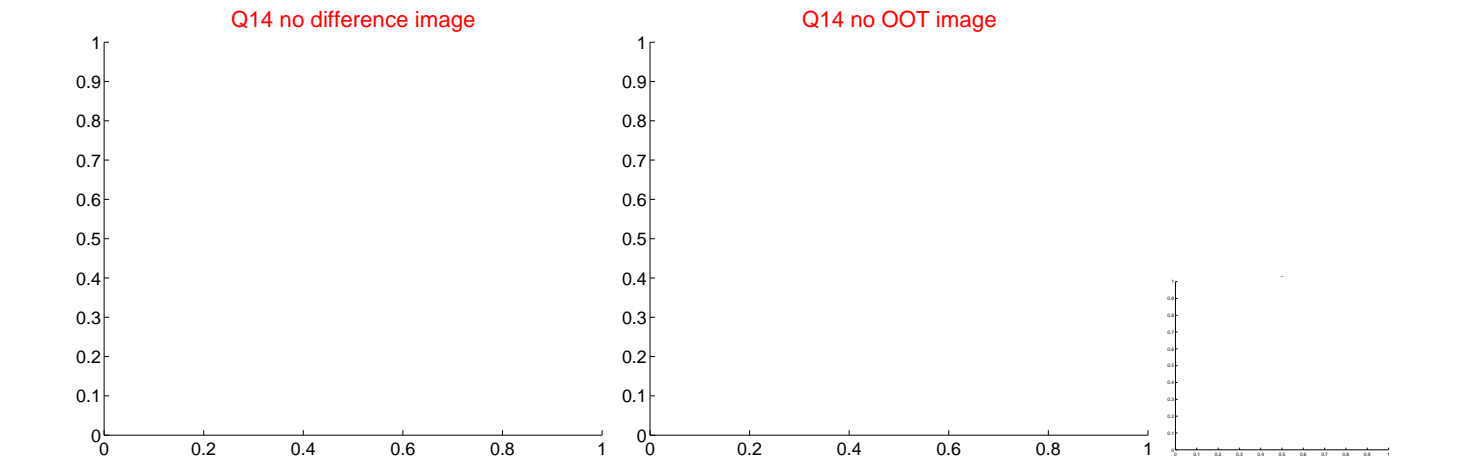
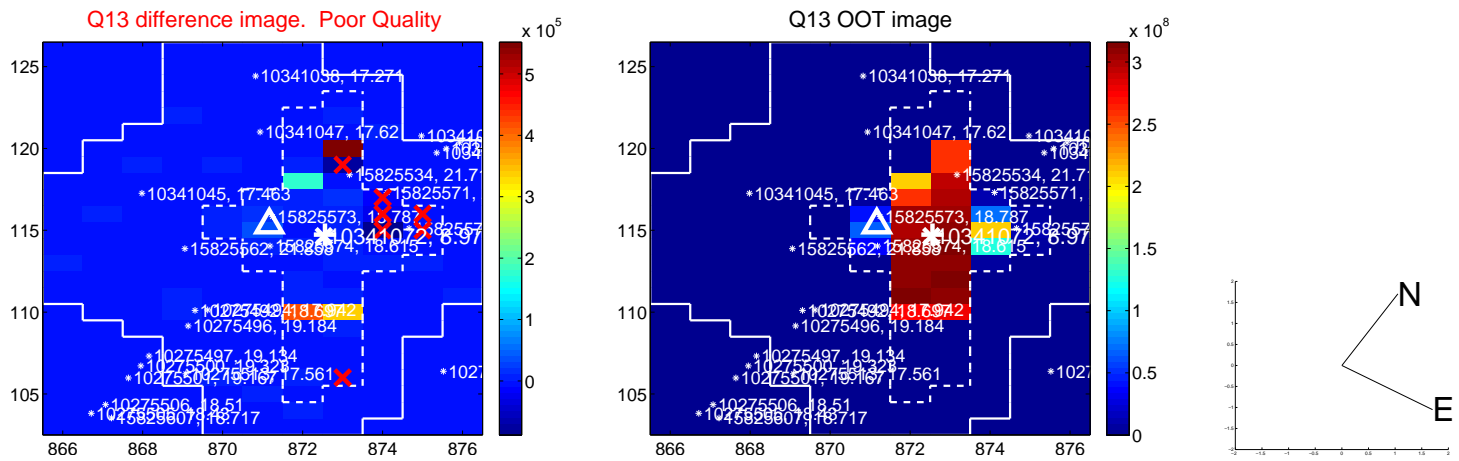
Q12 no difference image



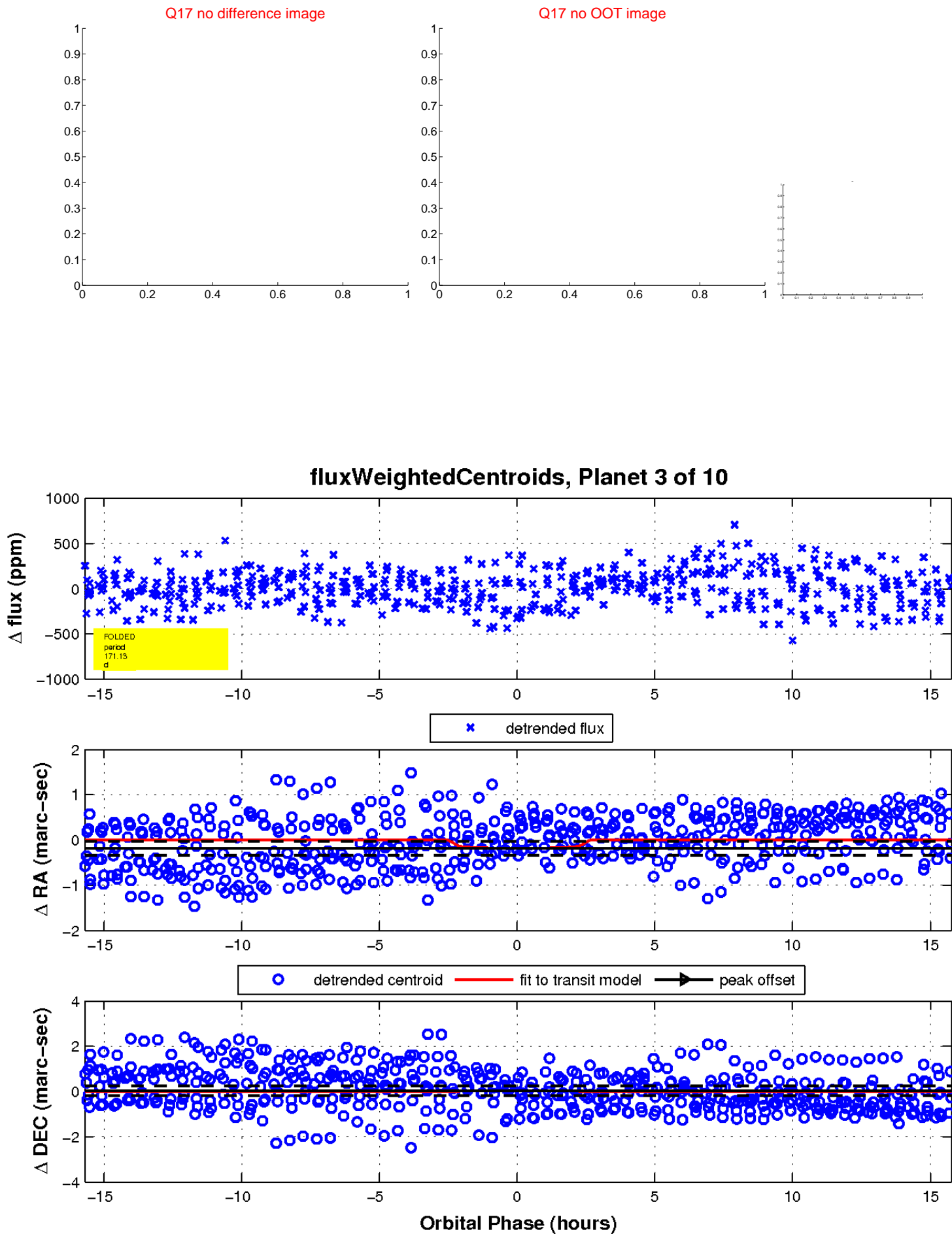
Q12 no OOT image



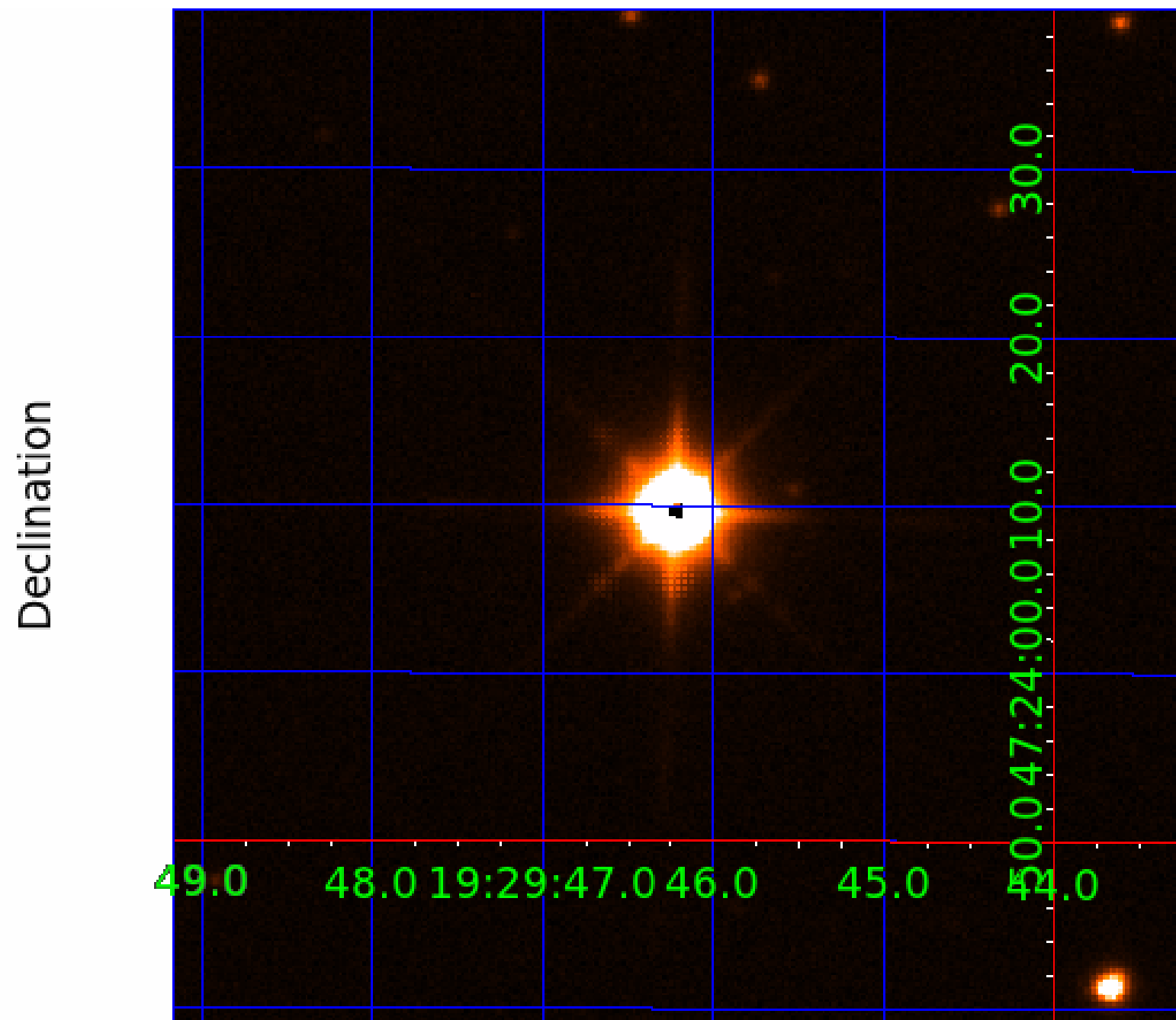
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
010341072-04	OBS	No	142.468614	220.078937	296.7	2.449	8.7	9.1	4.33	6541	9.05	70.36
010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
010341072-07	OBS	No	161.609085	156.832880	343.3	3.076	8.3	8.7	4.33	6541	9.29	59.47
010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

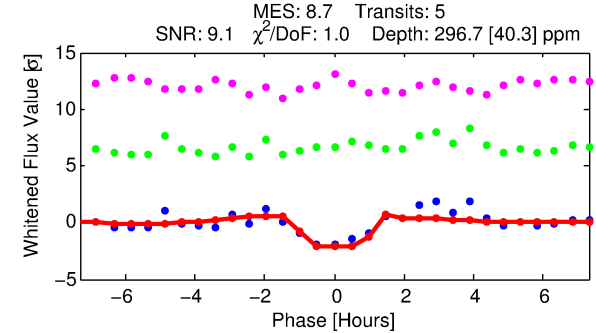
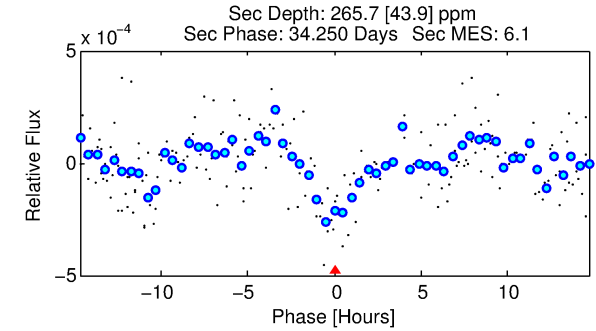
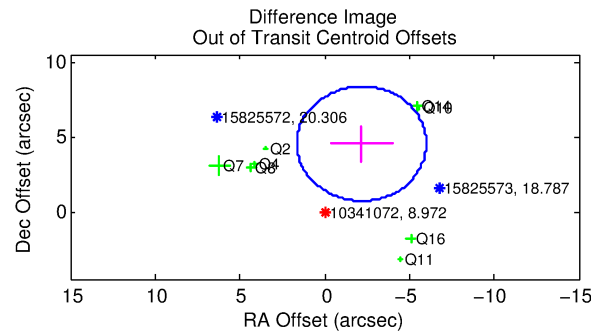
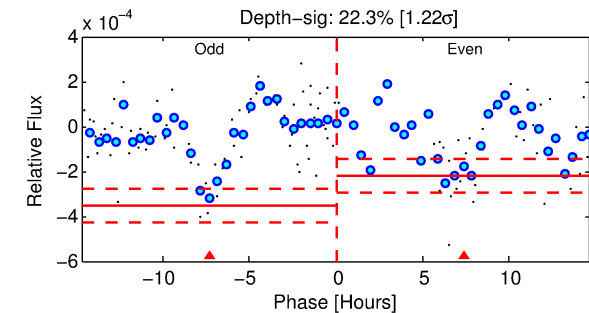
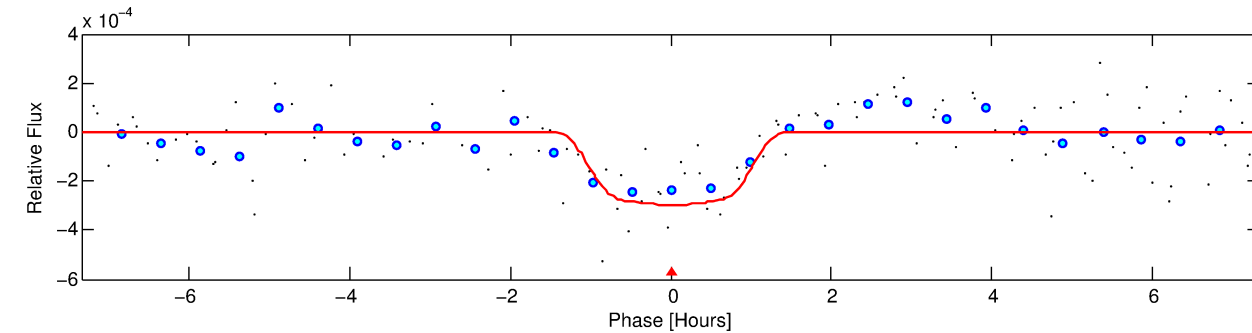
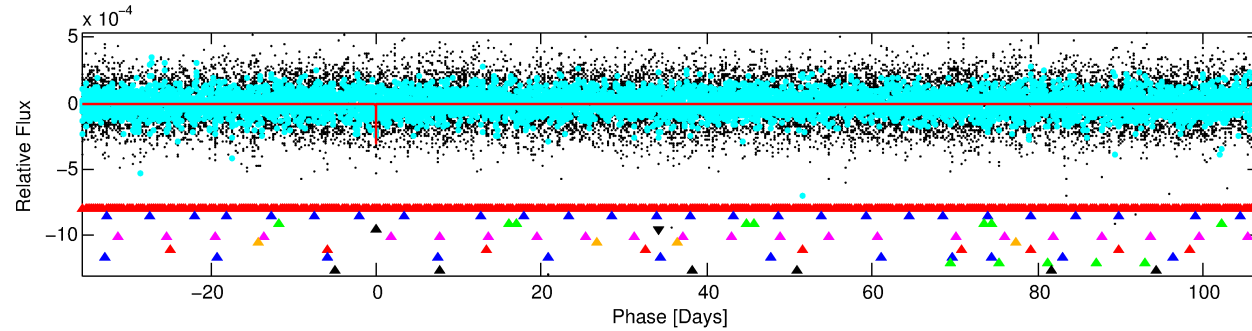
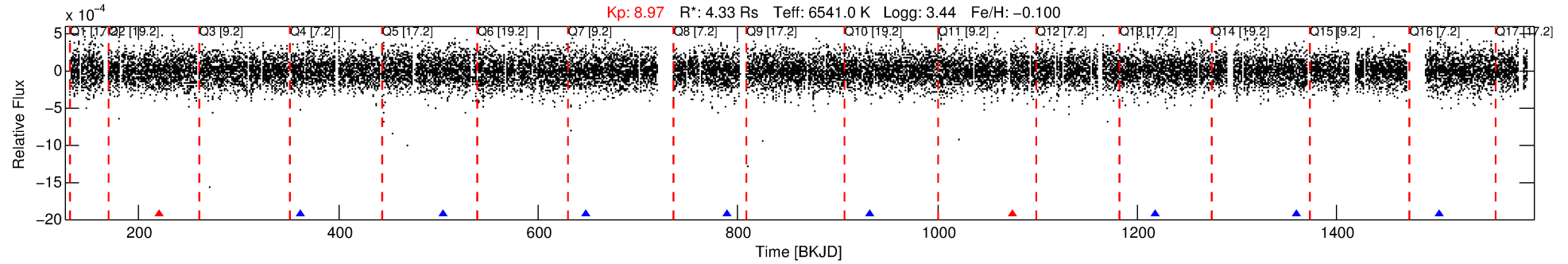
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-04

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 4 of 10 Period: 142.469 d



DV Fit Results:

Period = 142.46861 [0.00094] d
Epoch = 220.0789 [0.0049] BKJD
Rp/R* = 0.0192 [0.0034]
a/R* = 177.11 [159.98]
b = 0.94 [0.12]
Seff = 70.36 [47.11]
Teq = 739 [124] K
Rp = 9.05 [4.12] Re
a = 0.6606 [0.2709] AU
Ag = 779.36 [600.78] [1.30 σ]
Teffp = 6033 [614] K [8.45 σ]

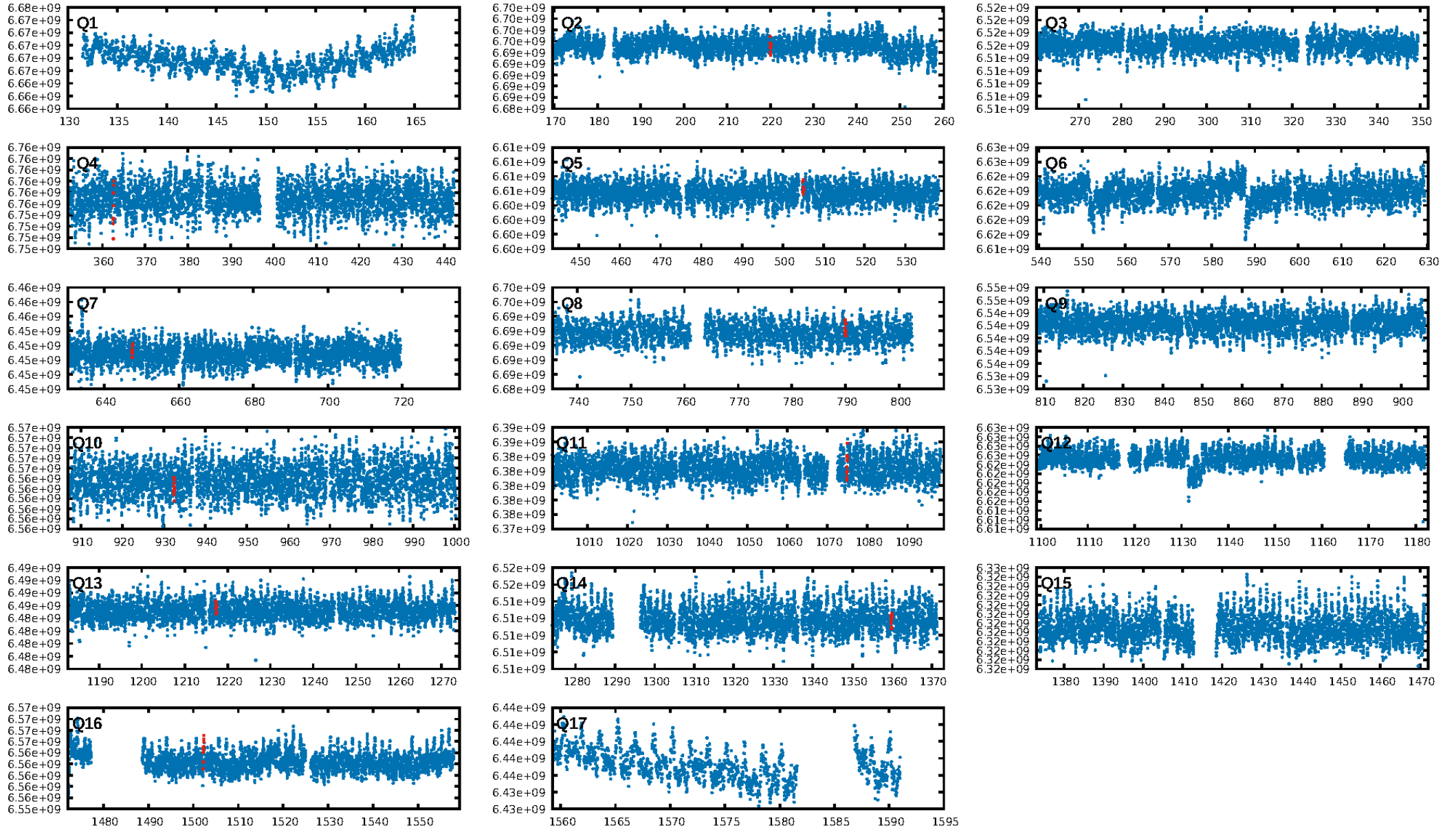
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [69.84 σ]
LongPeriod-sig: 100.0% [116.83 σ]
ModelChiSquare2-sig: 33.0%
ModelChiSquareGof-sig: 97.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.60 [3/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 72.5%
Centroid-so: 1.149 arcsec [1.85 σ]
OotOffset-rm: 5.025 arcsec [3.95 σ]
KicOffset-rm: 5.168 arcsec [3.59 σ]
OotOffset-st: 3/2/3/0 [8]
KicOffset-st: 3/2/3/0 [8]
DiffImageQuality-fgm: 0.00 [0/8]
DiffImageOverlap-fno: 0.50 [4/8]

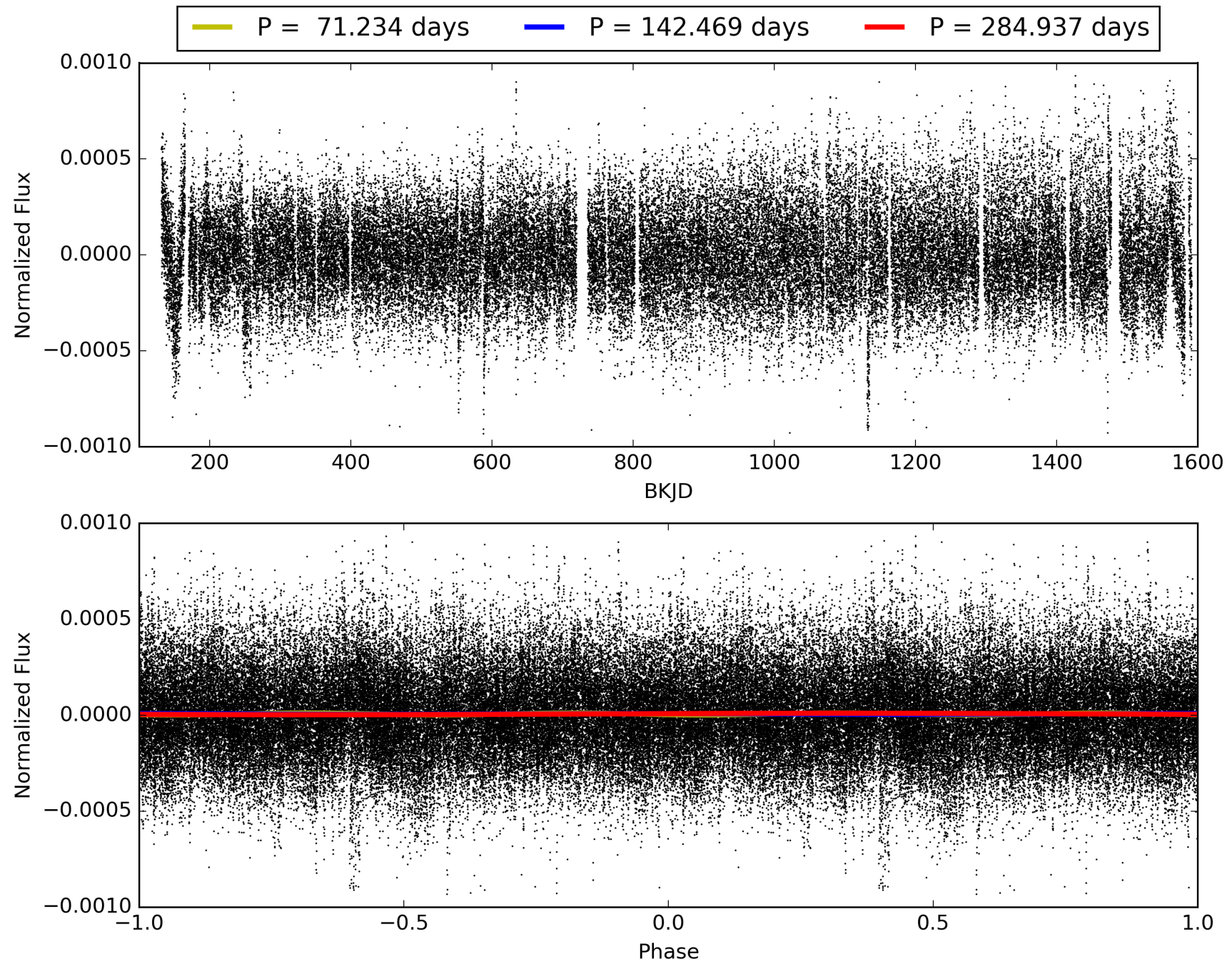
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:57:06 Z

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

TCE 010341072-04, PDC Light Curves

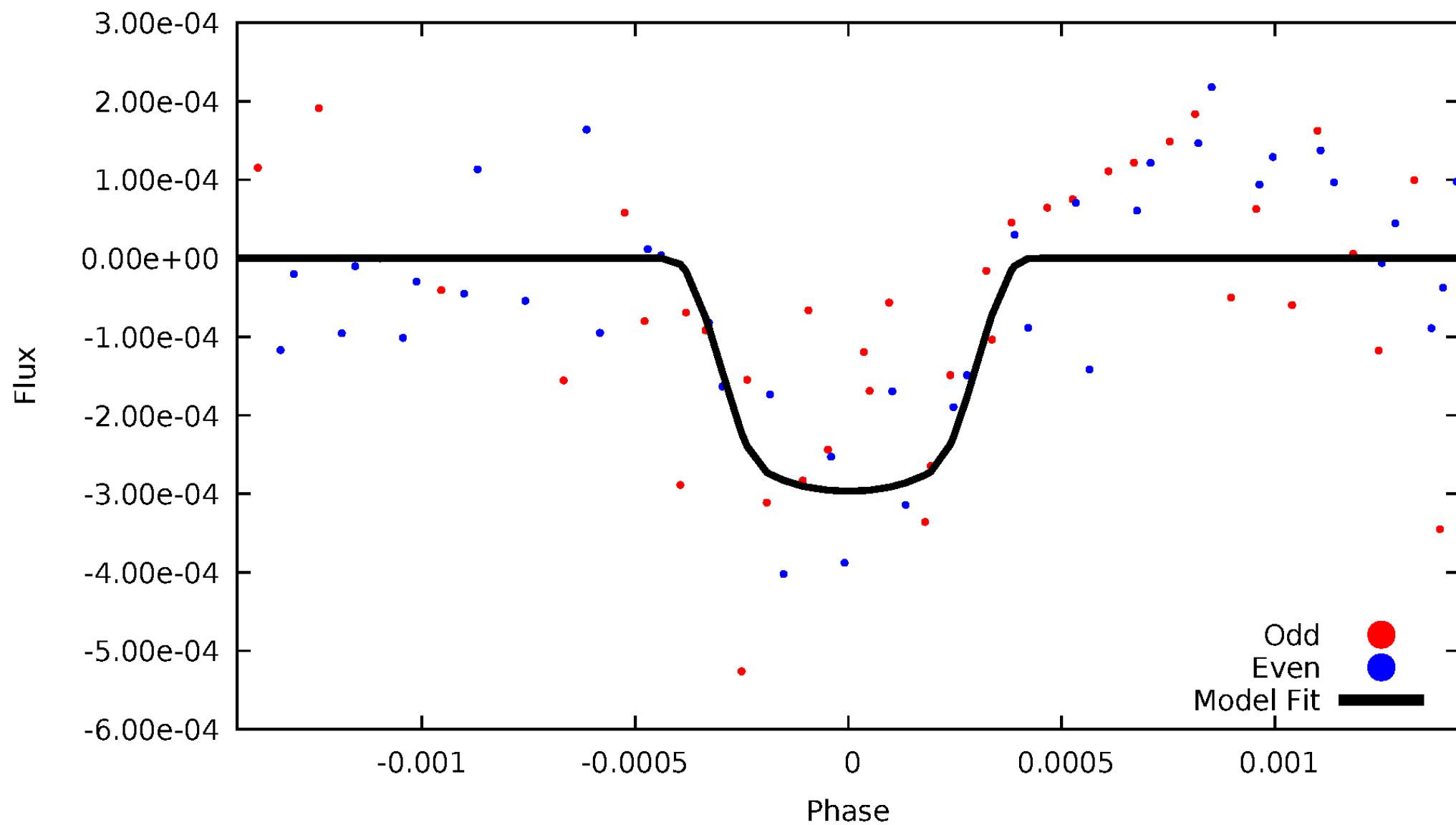


TCE 010341072-04



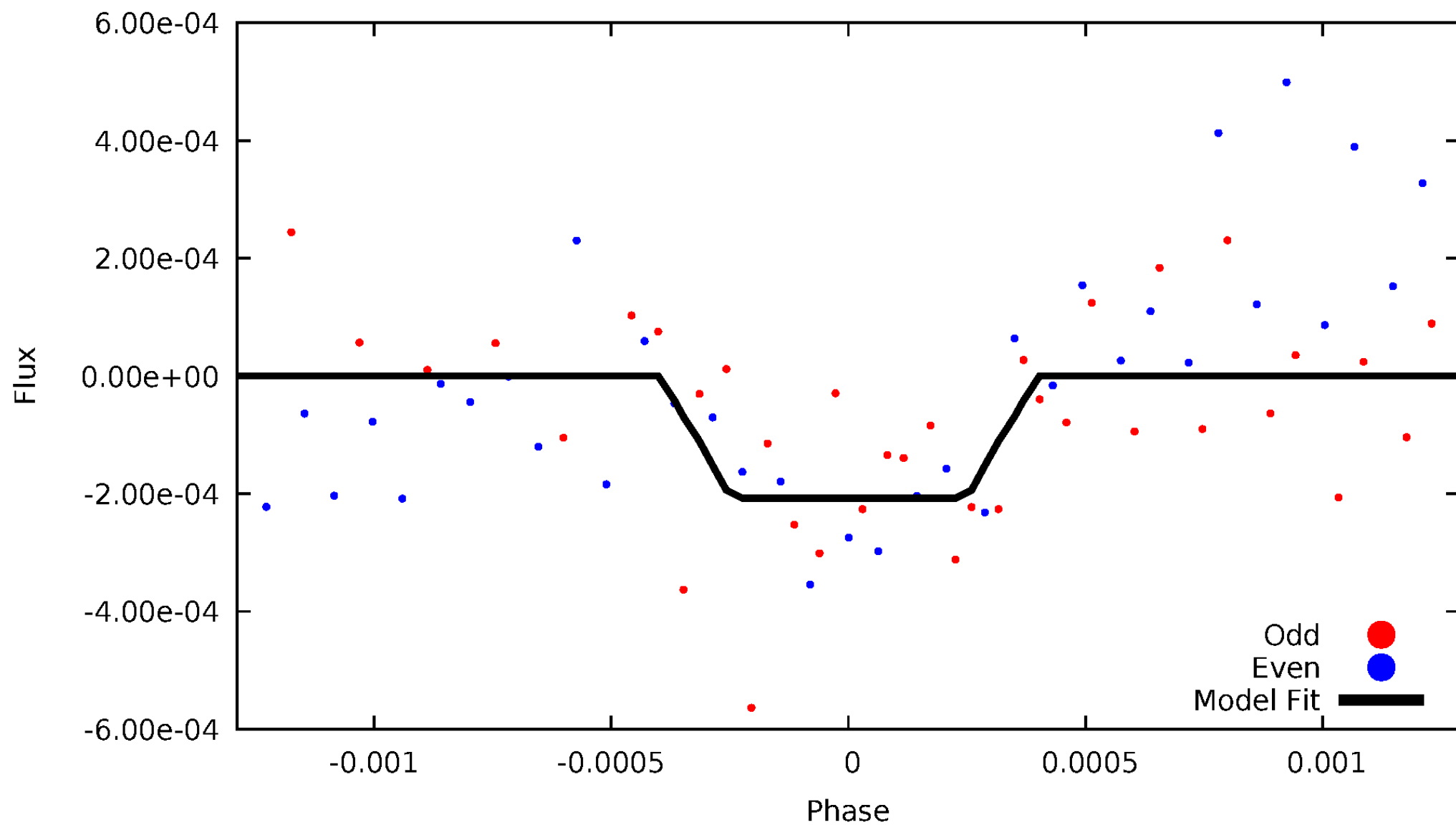
DV Odd/Even

TCE 010341072-04



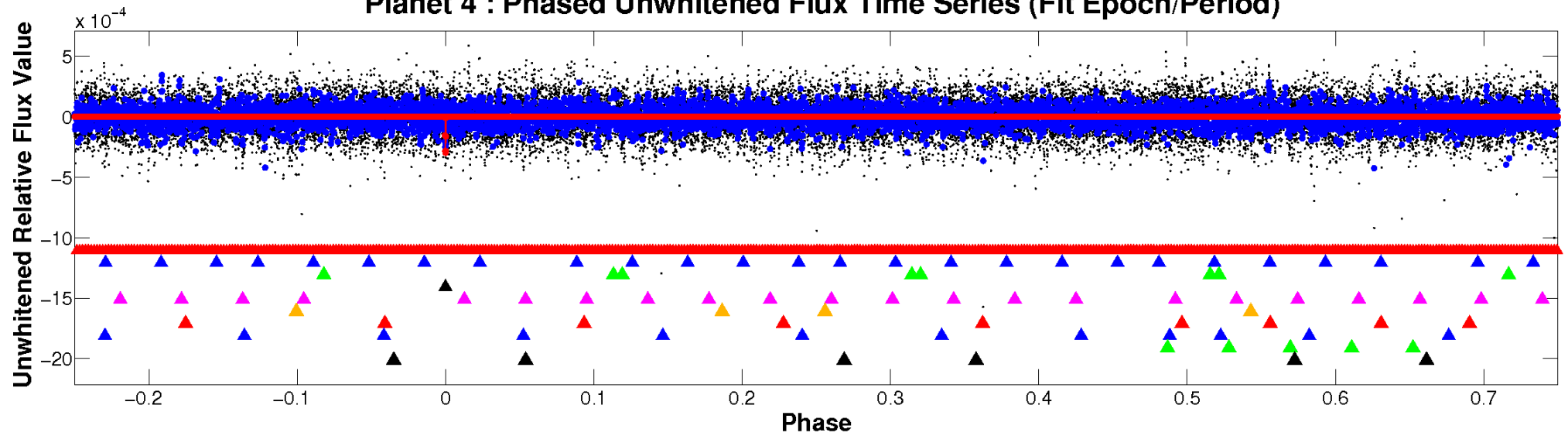
ALT Odd/Even

TCE 010341072-04

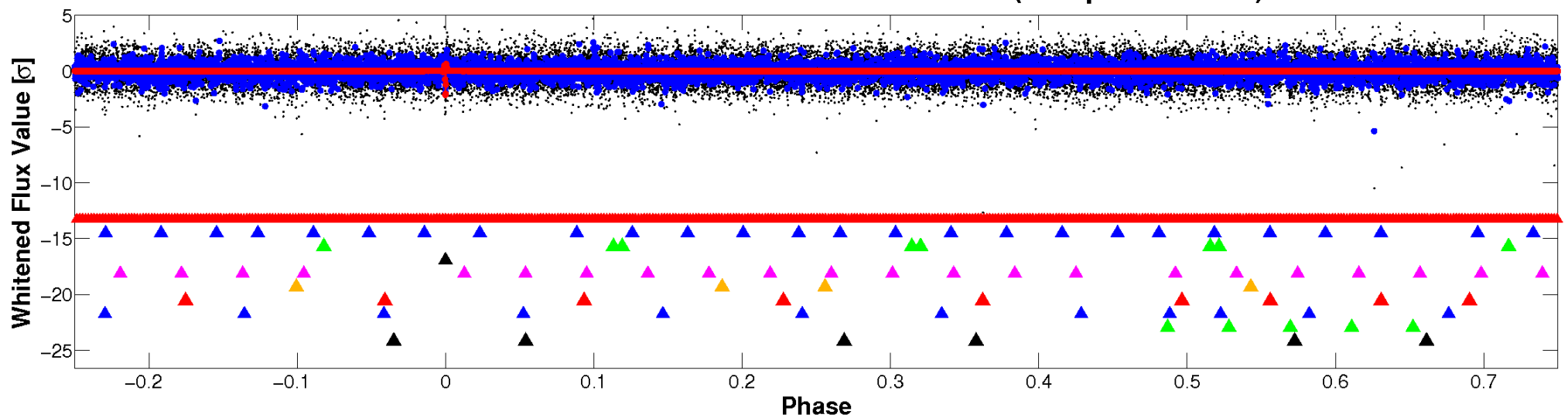


Non-Whitened Vs. Whitened Light Curve

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

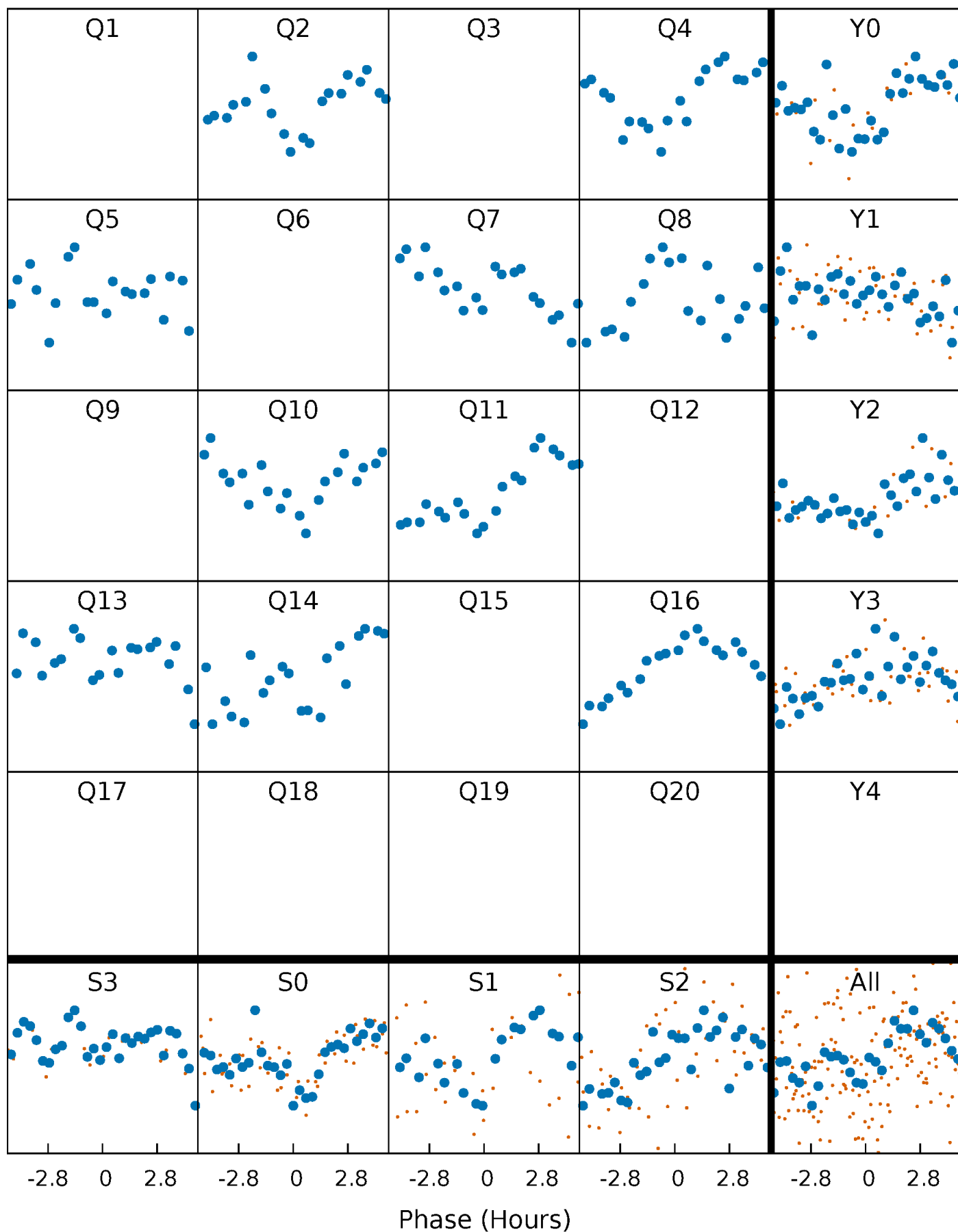


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



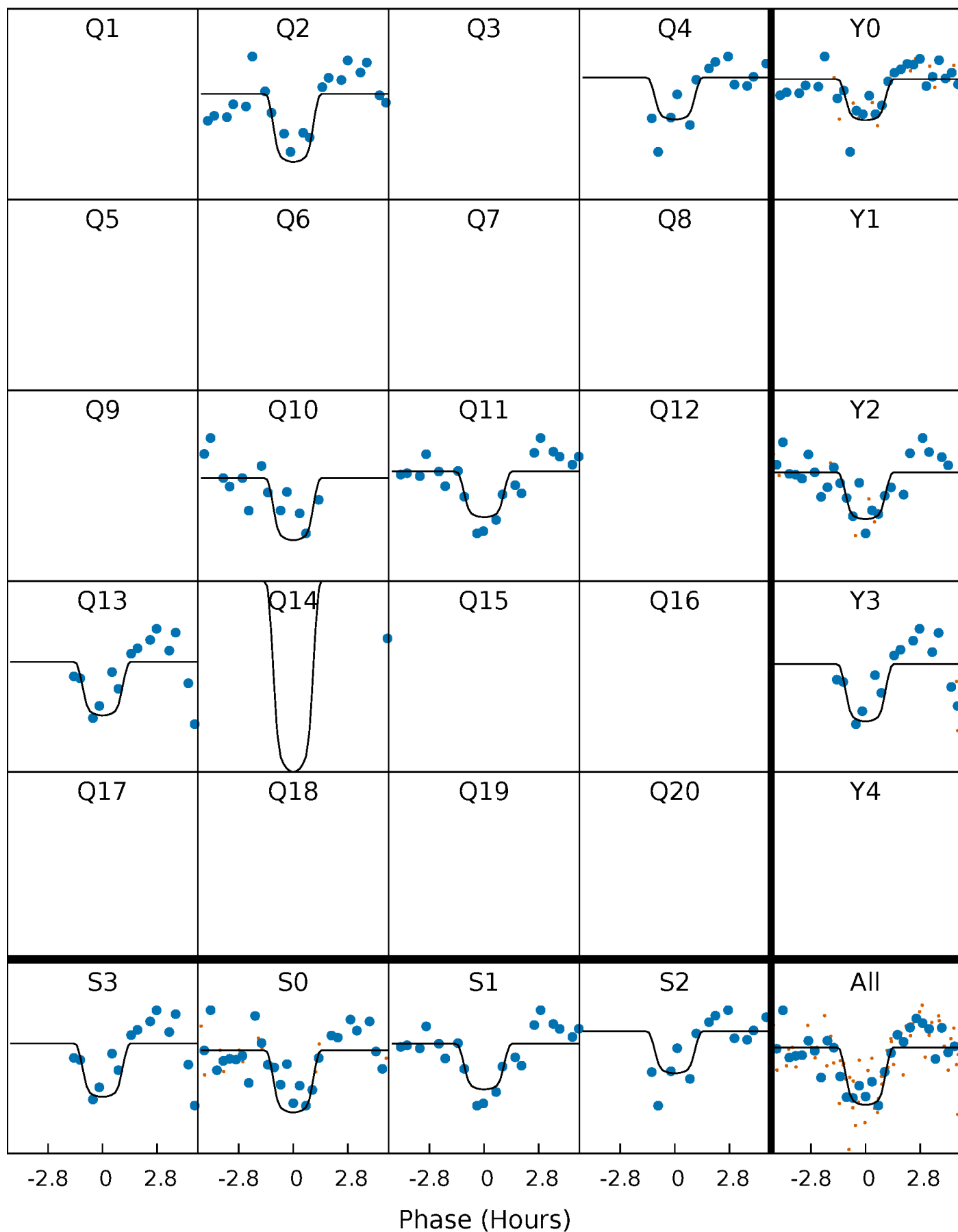
PDC Quarter-Phased Transit Curves

TCE 010341072-04 P=142.468614 Days $T_0=220.078937$ (BKJD)



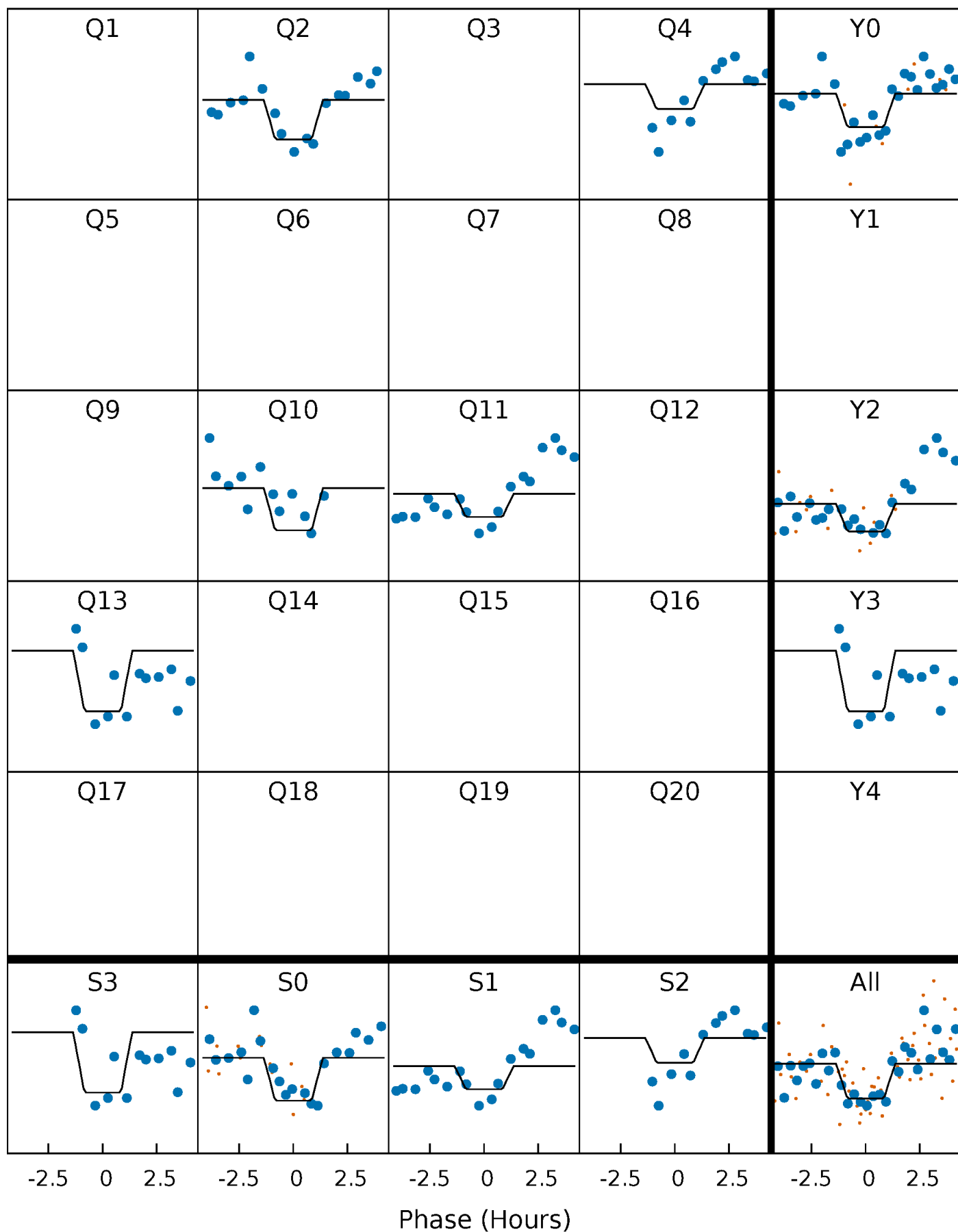
DV Quarter-Phased Transit Curves

TCE 010341072-04 P=142.468614 Days $T_0=220.078937$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

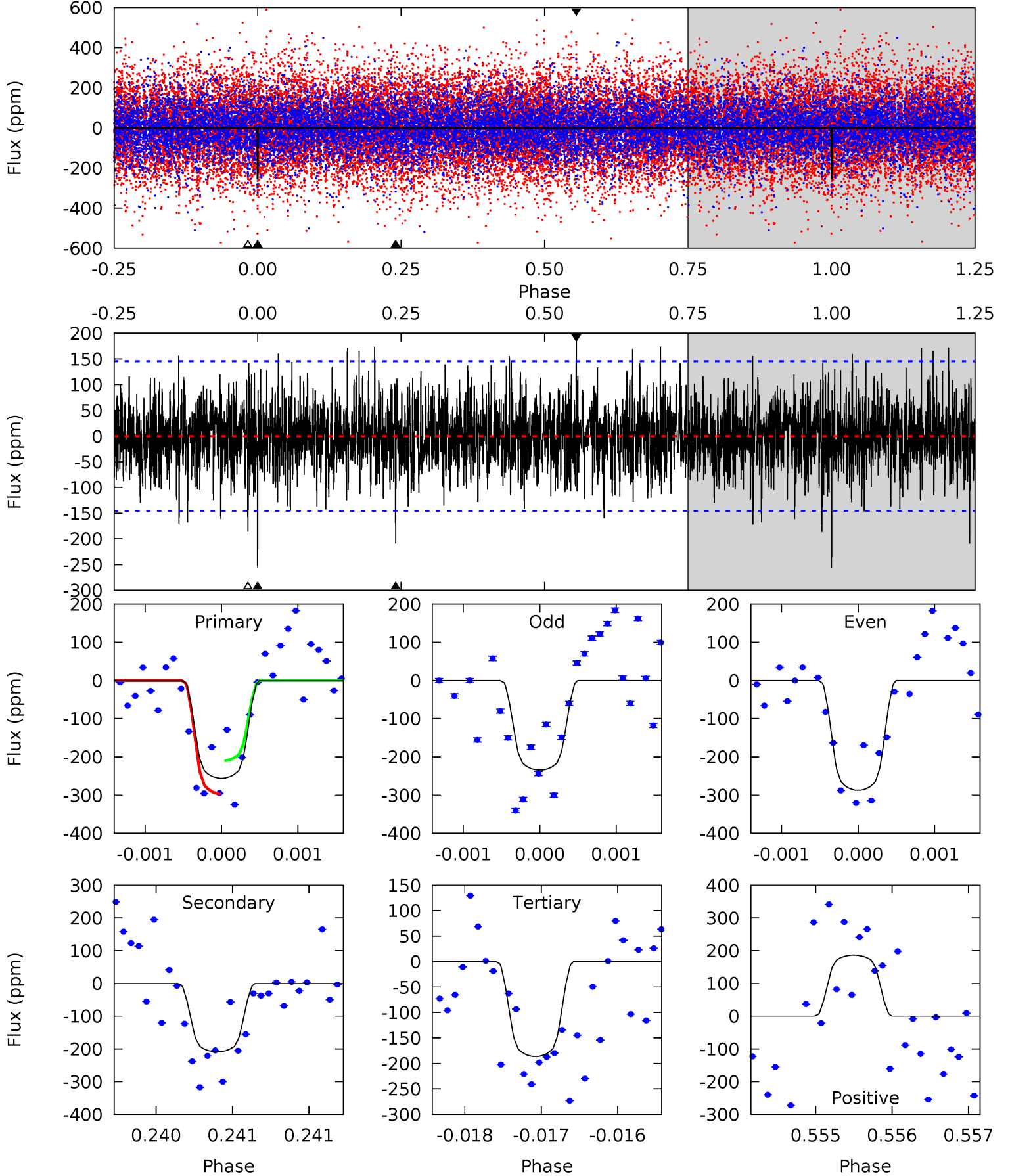
TCE 010341072-04 P=142.467877 Days $T_0=220.073096$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-04, P = 142.468614 Days, E = 77.610323 Days

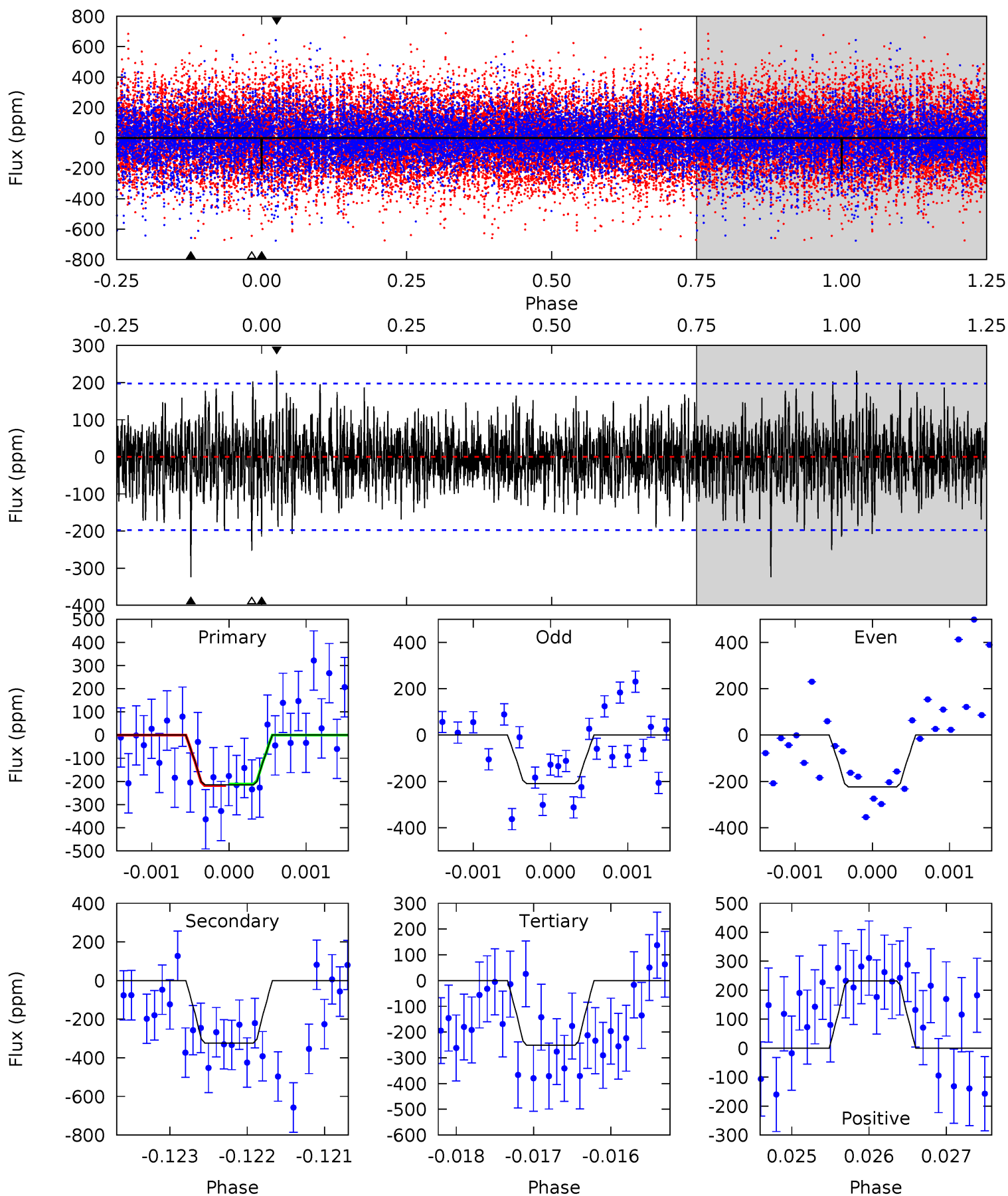
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.65	7.87	7.03	7.02	5.48	3.34	1.93	2.62	2.63	0.85	0.85	0.99	1.20	0.42	1.64



Alt Model-Shift Uniqueness Test

010341072-04, $P = 142.467877$ Days, $E = 77.605219$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.00	9.04	7.01	6.48	5.51	3.38	1.71	-1.02	-0.48	2.03	2.56	0.20	1.00	0.42	0.08



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-209 ± 27	$8.09^{+2.17}_{-2.01}$	1000^{+61}_{-107}	5650^{+620}_{-404}	746^{+532}_{-274}
Alt.	-324 ± 36	$6.05^{+2.01}_{-1.85}$	1003^{+59}_{-116}	7408^{+1359}_{-922}	2088^{+2099}_{-936}

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

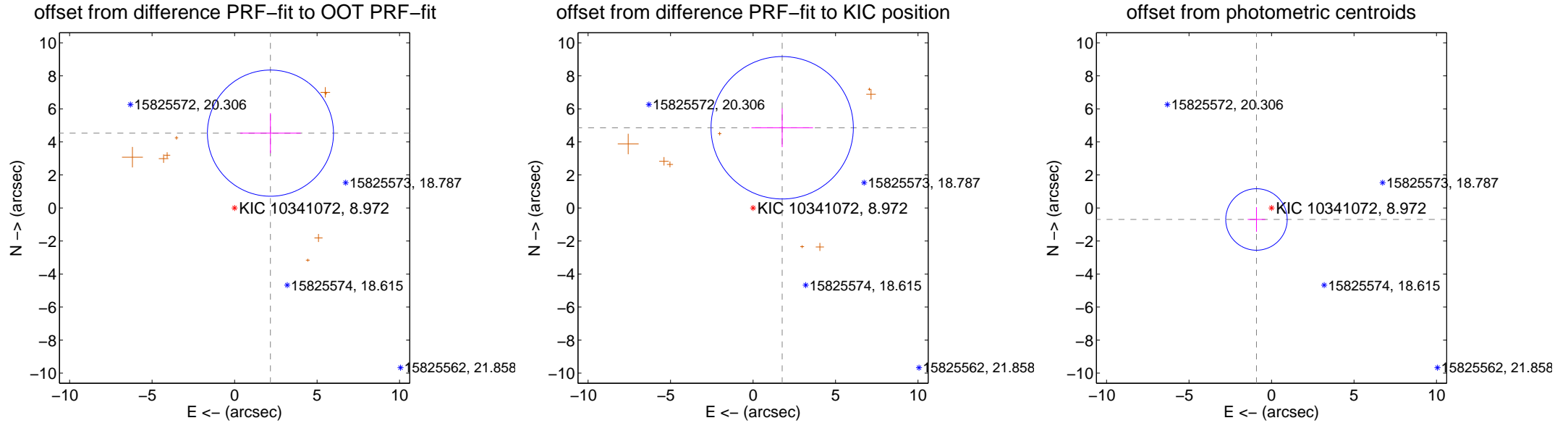
DV Centroid Data

Supplemental centroid analysis for 010341072-04. **Kepler magnitude: 8.97.** Transit SNR 9.12

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.025 ± 1.274	3.95	-2.175 ± 1.837	4.530 ± 1.210
PRF-fit source offset from KIC position	5.168 ± 1.438	3.59	-1.766 ± 1.866	4.856 ± 1.174
photometric centroid source offset	1.15 ± 0.62	1.85	0.91 ± 0.53	-0.70 ± 0.75



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

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

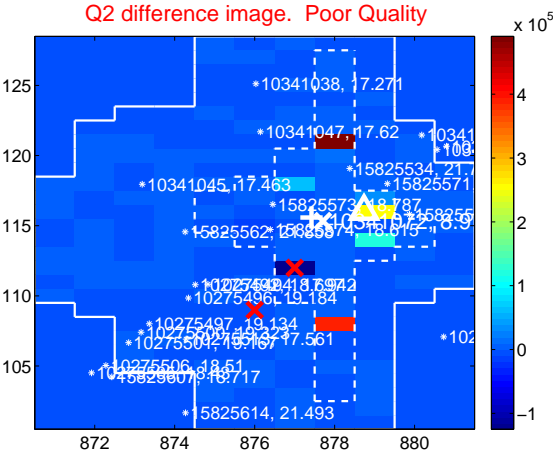
Q1 no difference image



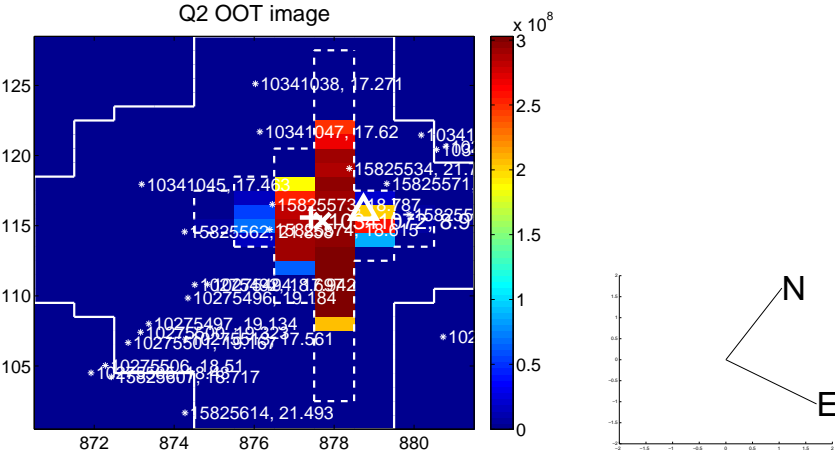
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



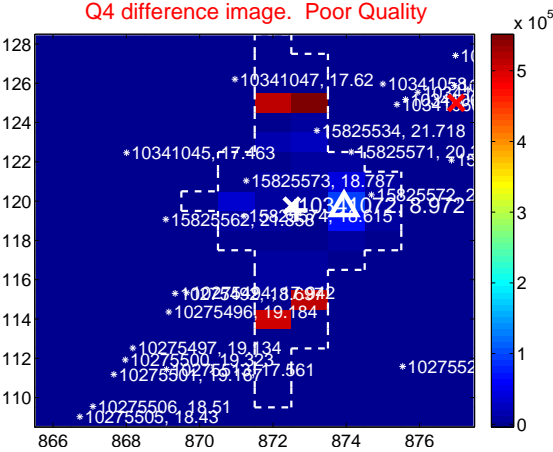
Q3 no difference image



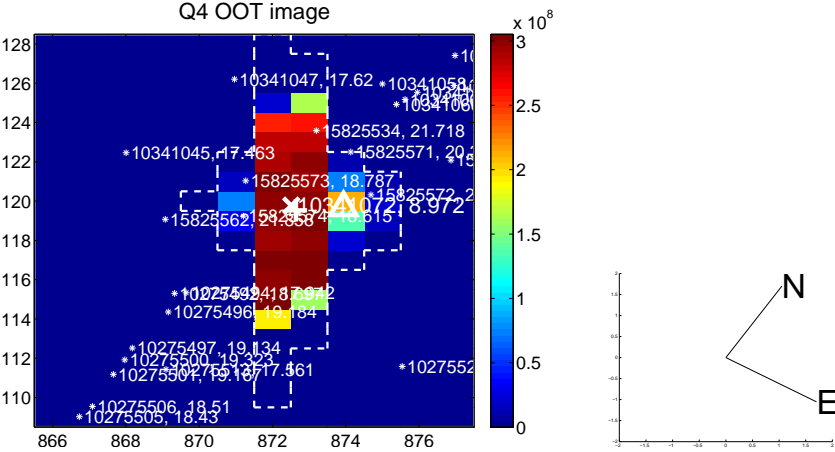
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

Q5 no difference image



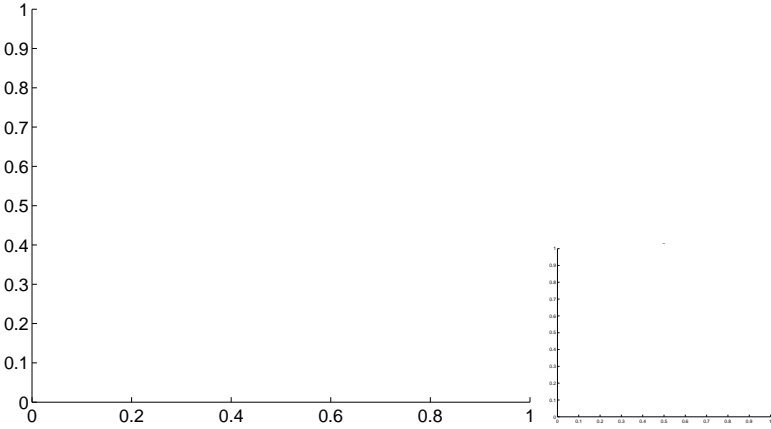
Q5 no OOT image



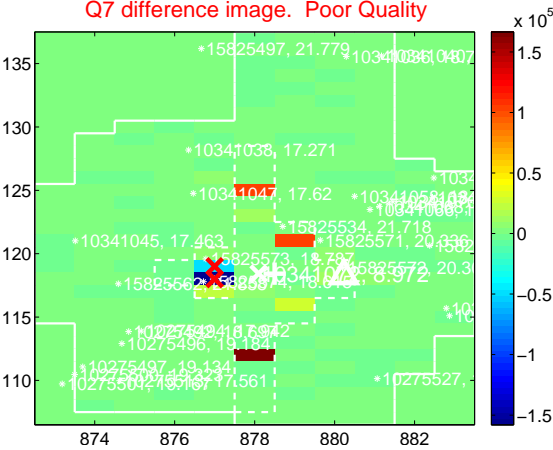
Q6 no difference image



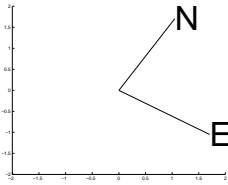
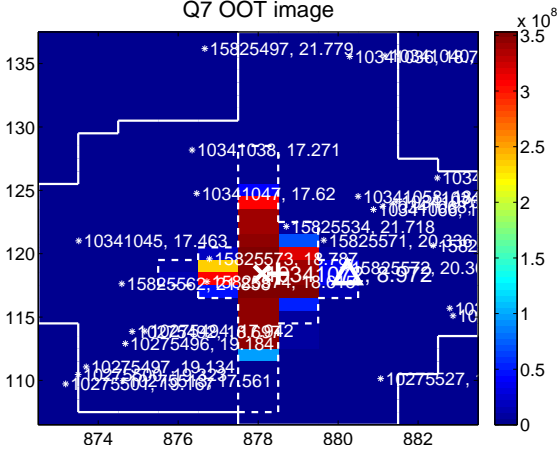
Q6 no OOT image



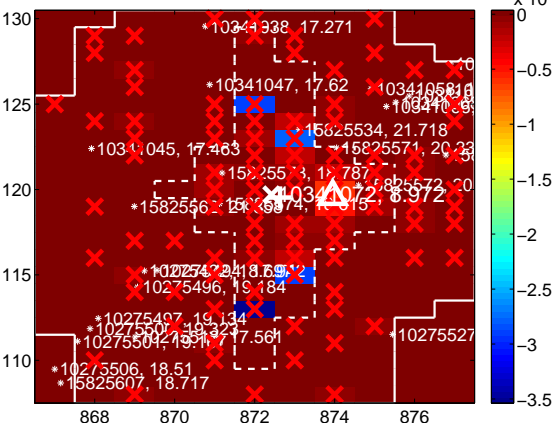
Q7 difference image. Poor Quality



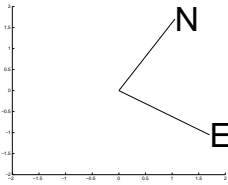
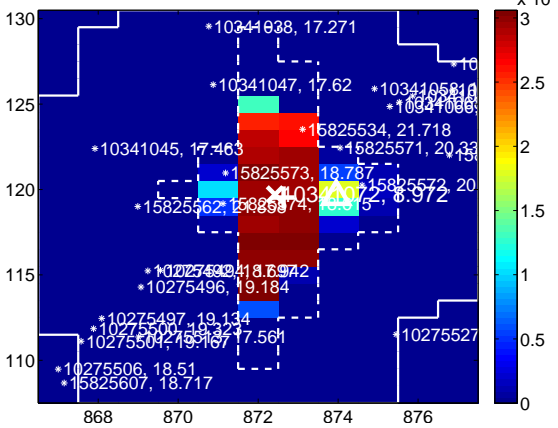
Q7 OOT image



Q8 difference image. Poor Quality



Q8 OOT image



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

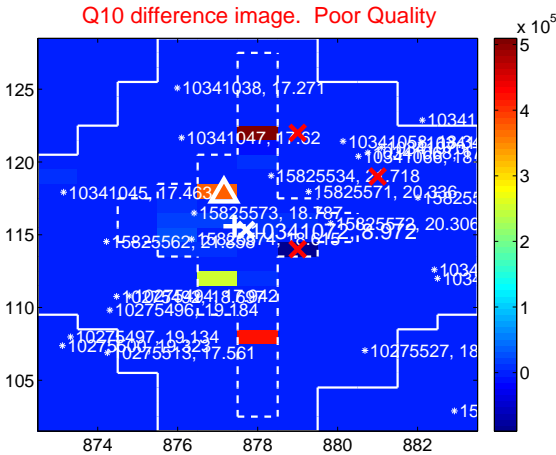
Q9 no difference image



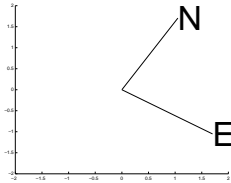
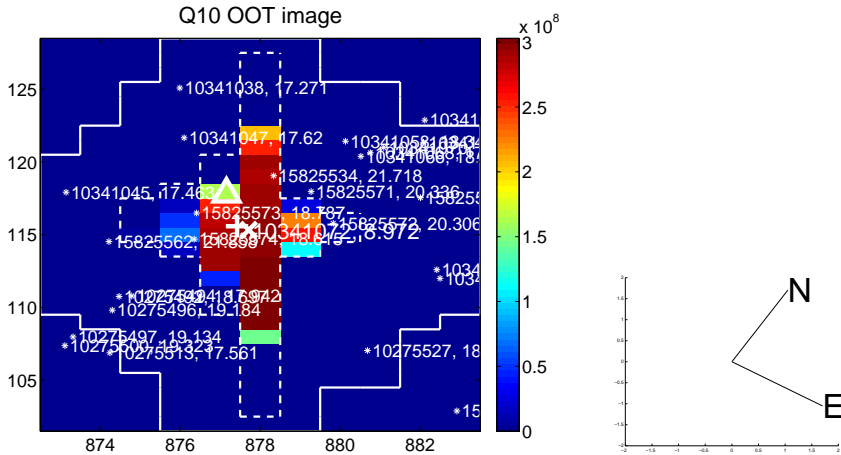
Q9 no OOT image



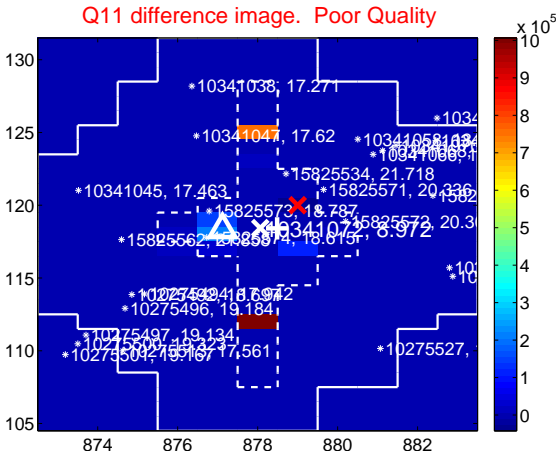
Q10 difference image. Poor Quality



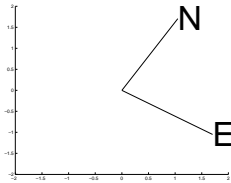
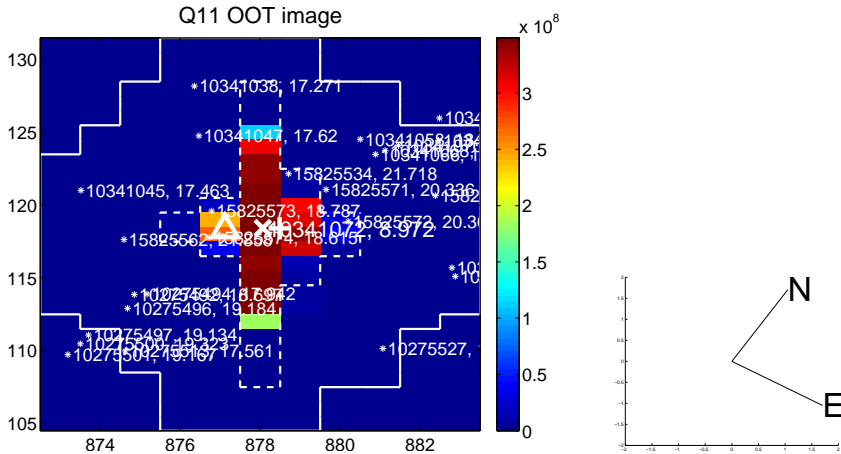
Q10 OOT image



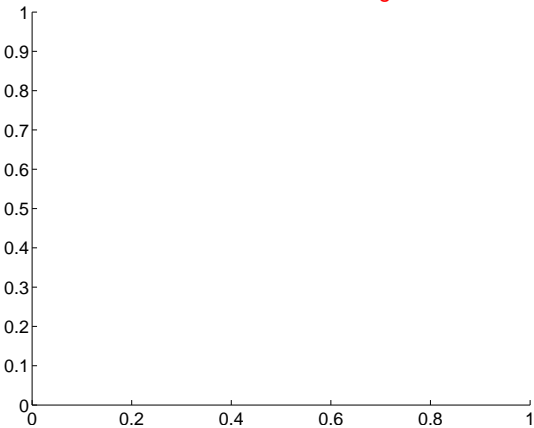
Q11 difference image. Poor Quality



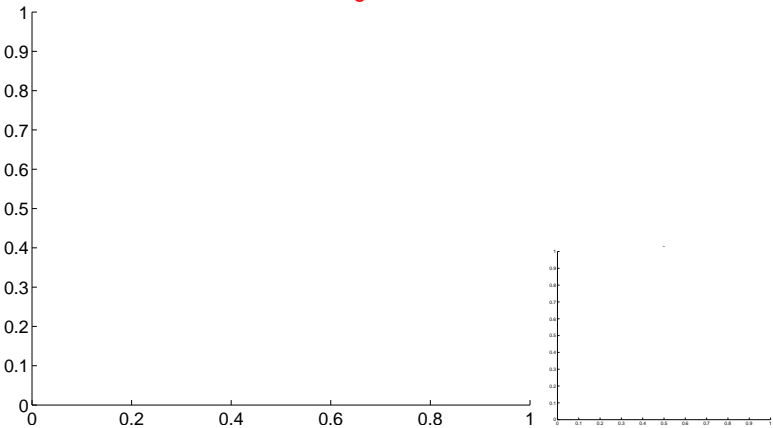
Q11 OOT image



Q12 no difference image

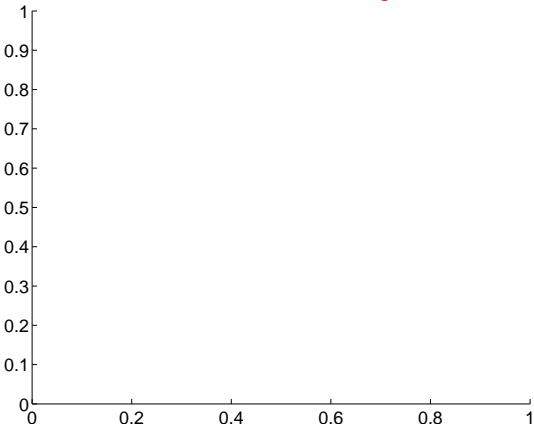


Q12 no OOT image

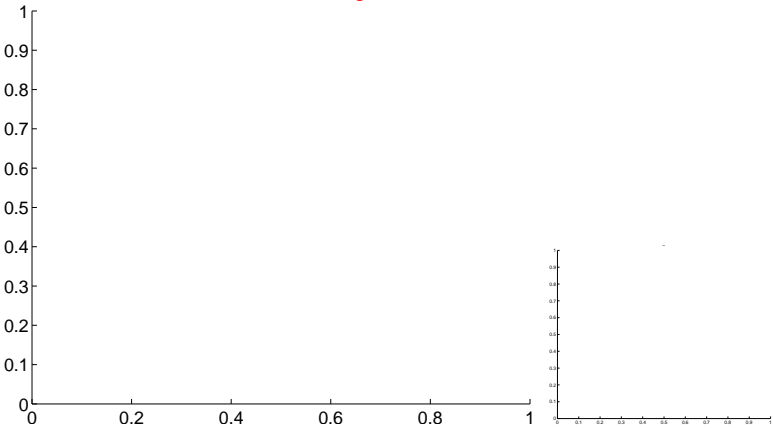


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

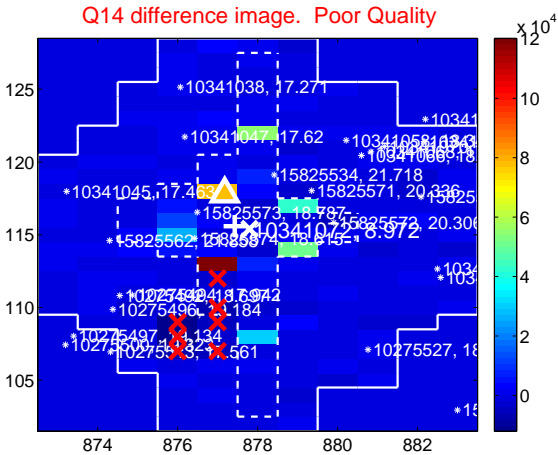
Q13 no difference image



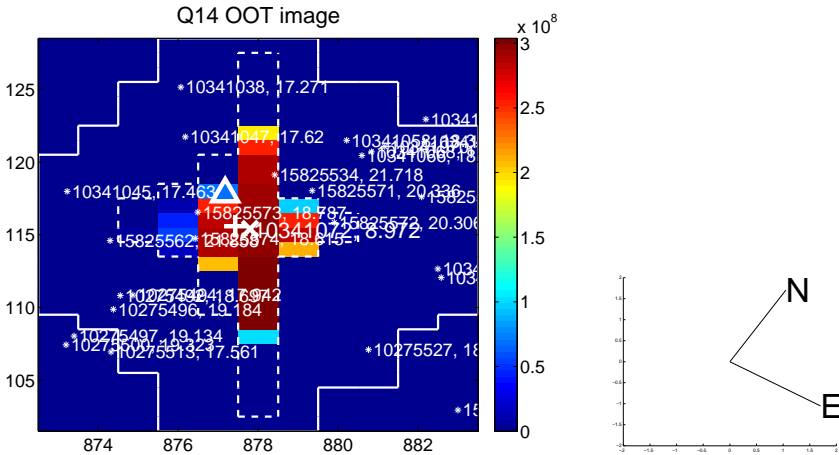
Q13 no OOT image



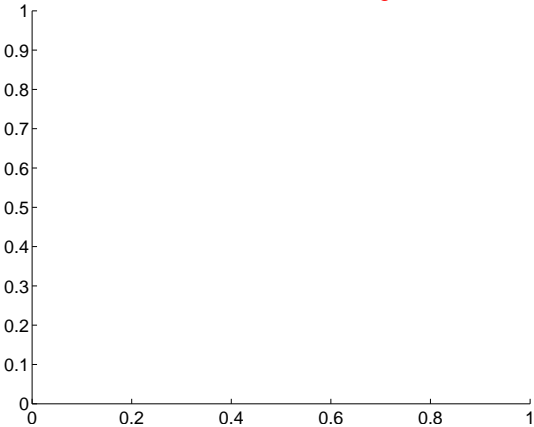
Q14 difference image. Poor Quality



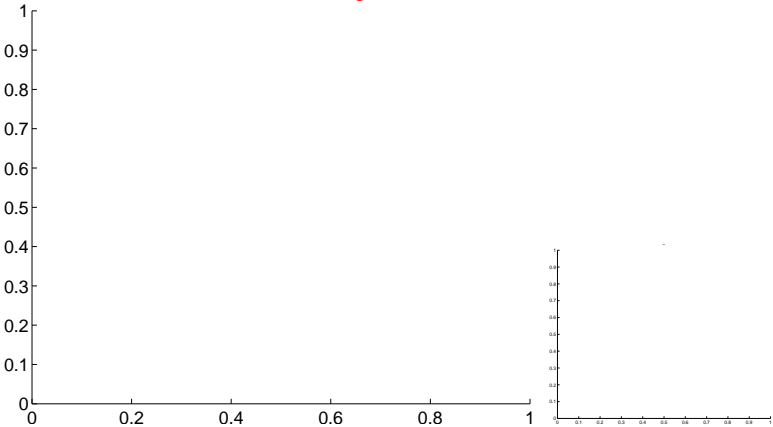
Q14 OOT image



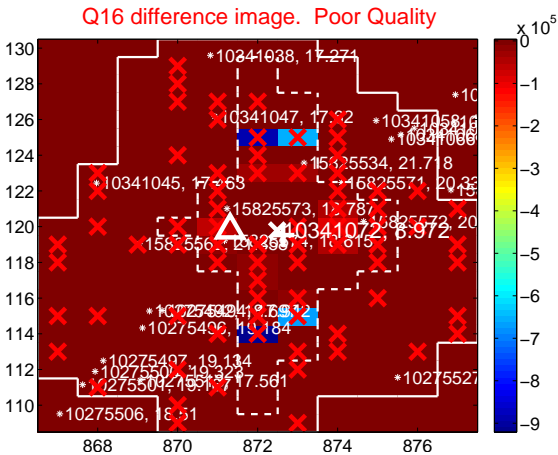
Q15 no difference image



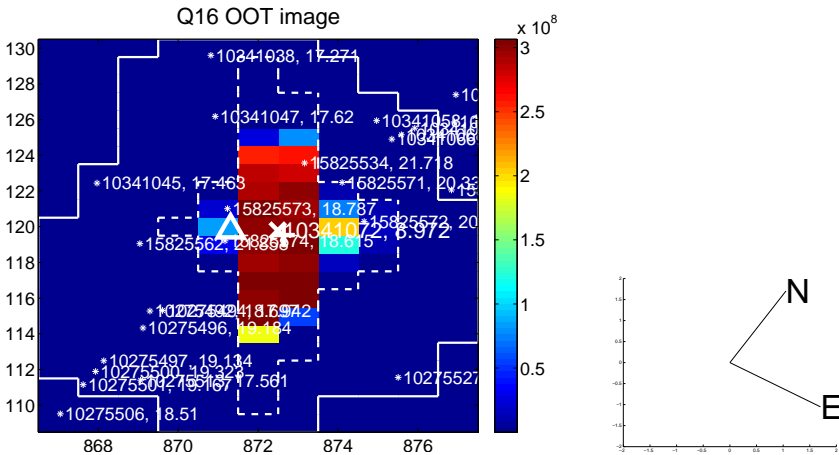
Q15 no OOT image



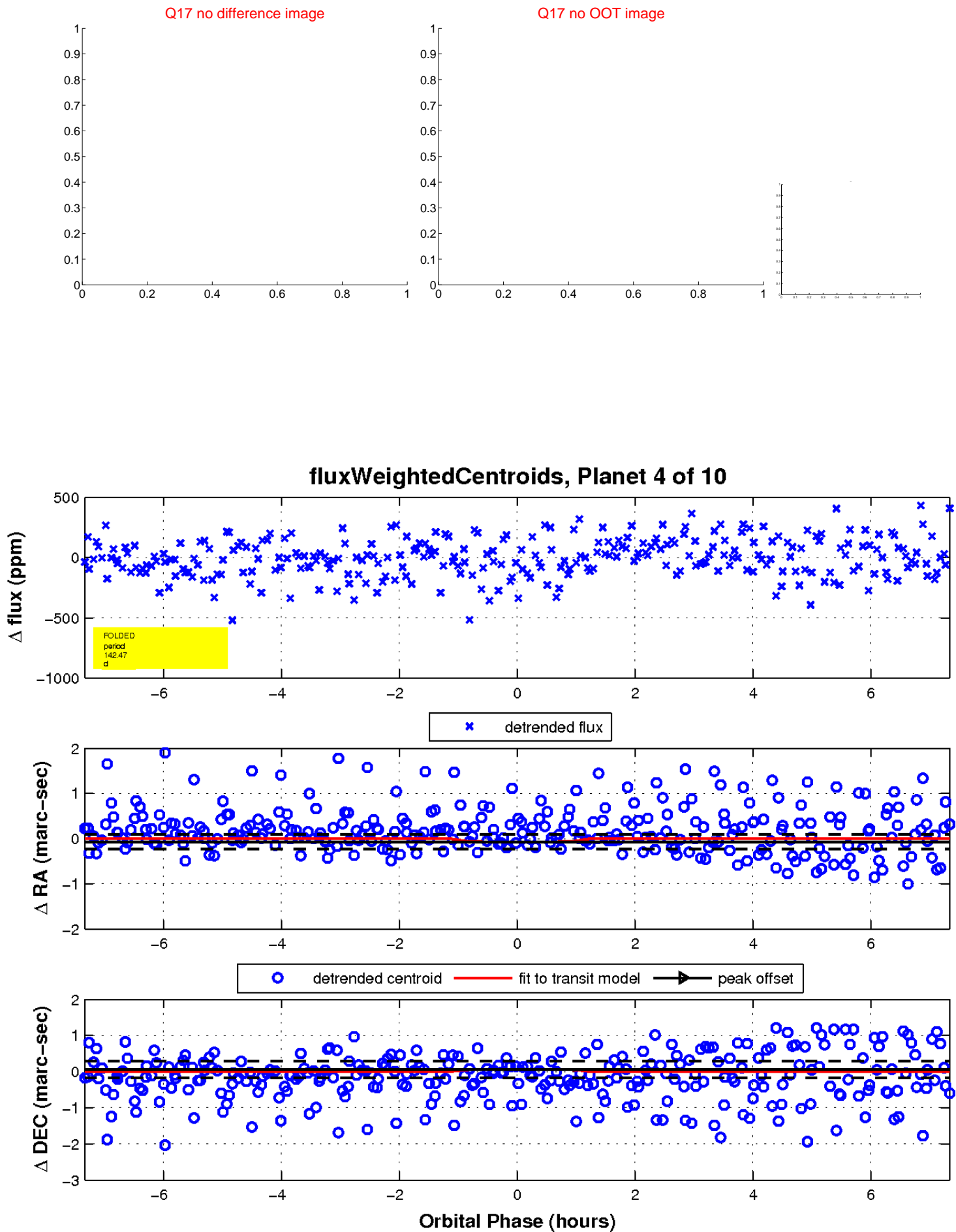
Q16 difference image. Poor Quality



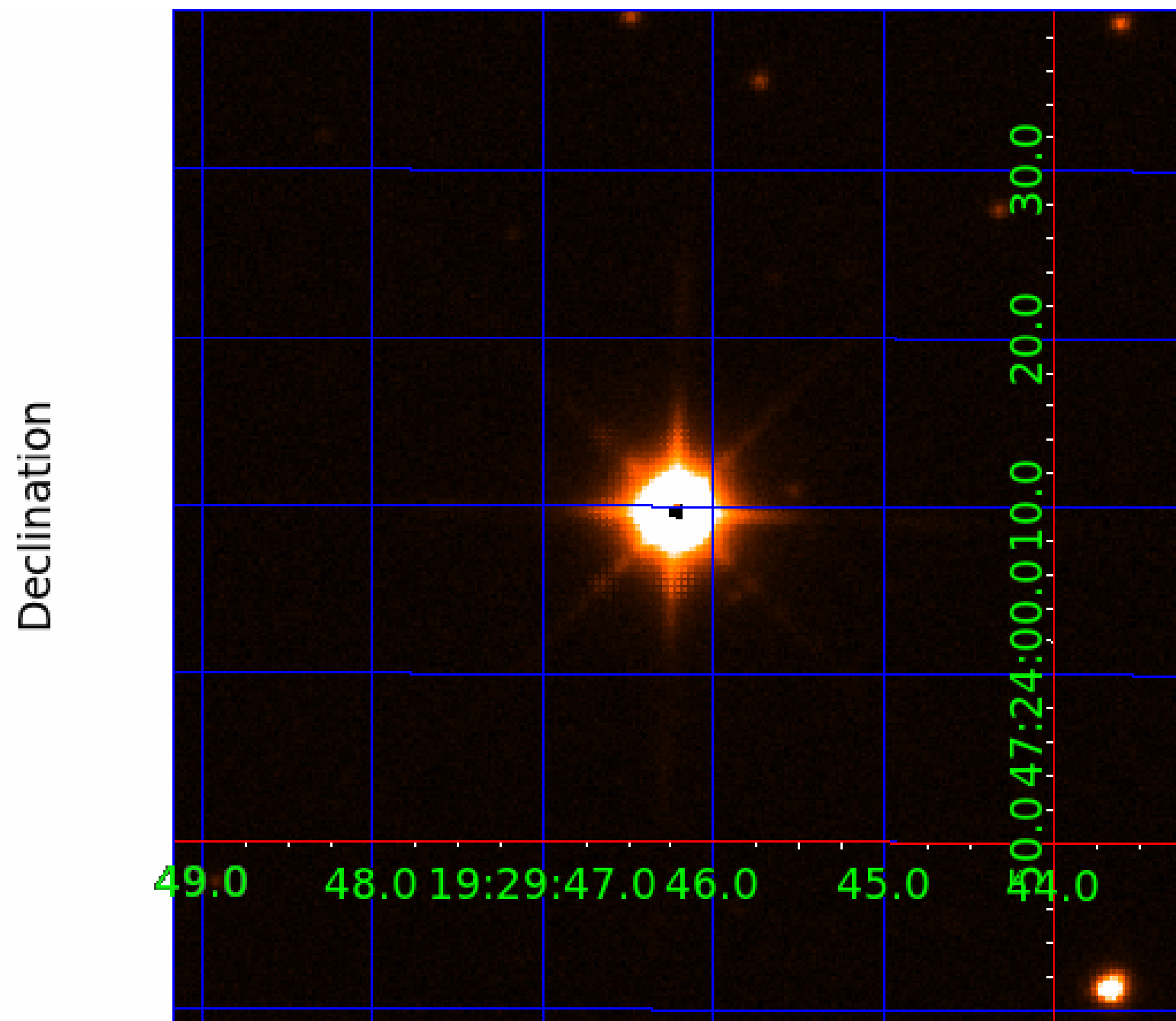
Q16 OOT image



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



UKIRT Image



KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
010341072-04	OBS	No	142.468614	220.078937	296.7	2.449	8.7	9.1	4.33	6541	9.05	70.36
010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
010341072-07	OBS	No	161.609085	156.832880	343.3	3.076	8.3	8.7	4.33	6541	9.29	59.47
010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

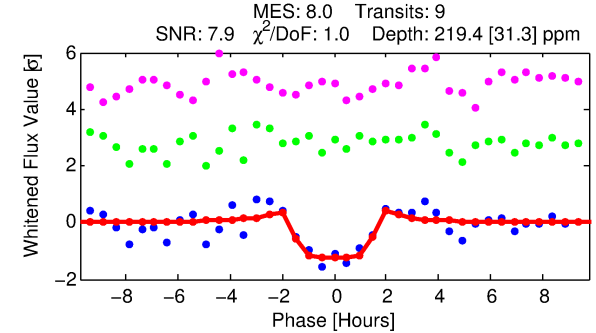
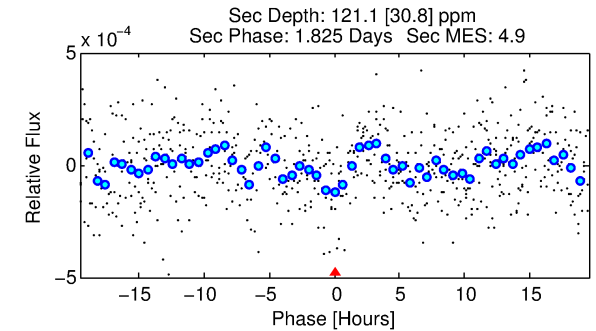
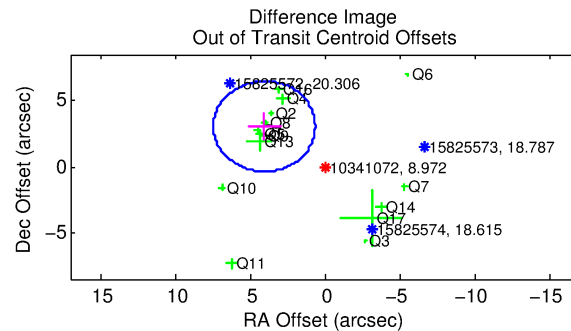
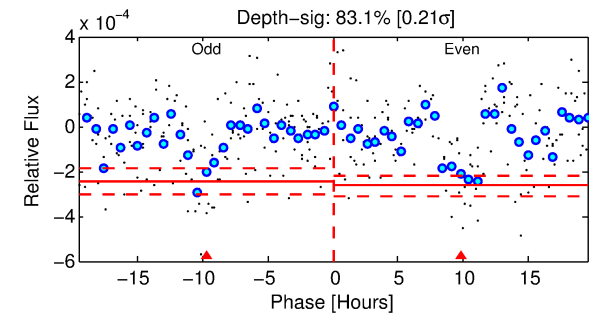
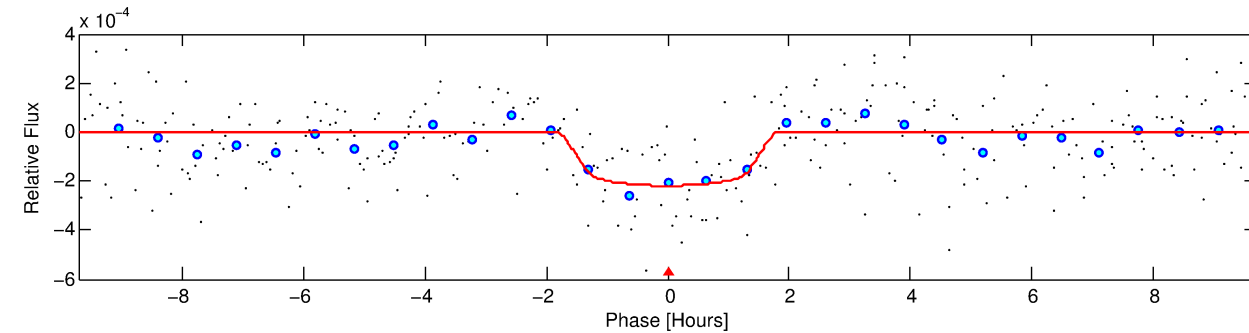
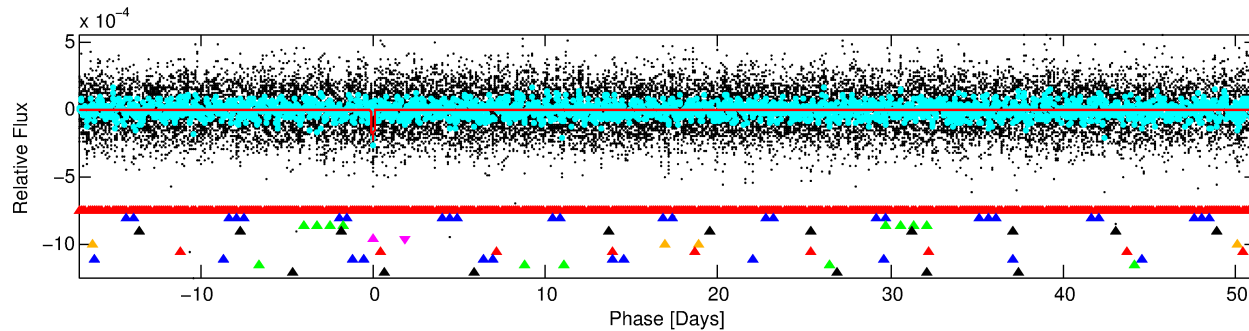
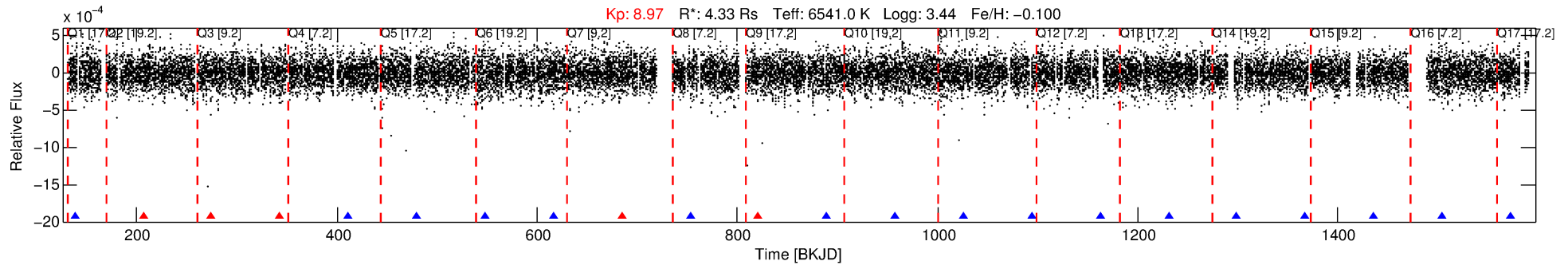
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-05

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 5 of 10 Period: 68.297 d



DV Fit Results:

Period = 68.29683 [0.00067] d
Epoch = 138.1732 [0.0071] BKJD
Rp/R* = 0.0153 [0.0088]
a/R* = 91.85 [296.98]
b = 0.84 [1.14]
Seff = 187.53 [125.58]
Teff = 944 [158] K
Rp = 7.21 [5.13] Re
a = 0.4047 [0.1659] AU
Ag = 210.06 [283.67] [0.74 σ]
Teffp = 5554 [1640] K [2.80 σ]

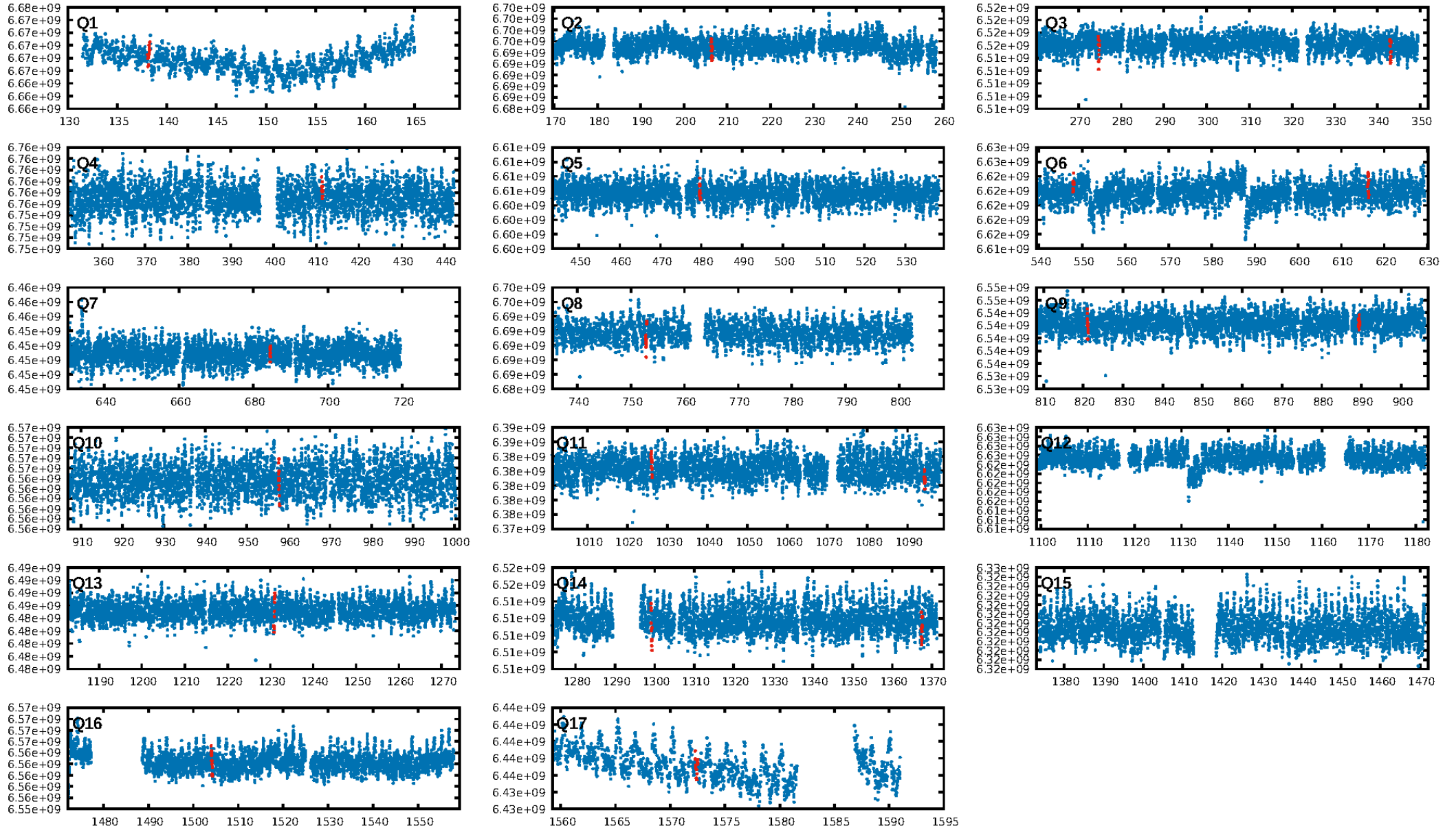
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.84 σ]
LongPeriod-sig: 100.0% [287.75 σ]
ModelChiSquare2-sig: 42.5%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.44 [4/9]
GhostDiagnostic-chr: N/A
Centroid-sig: 43.2%
Centroid-so: 0.467 arcsec [1.08 σ]
OotOffset-rm: 5.060 arcsec [4.45 σ]
KicOffset-rm: 3.572 arcsec [3.52 σ]
OotOffset-st: 4/3/3/5 [15]
KicOffset-st: 4/3/3/5 [15]
DiffImageQuality-fgm: 0.00 [0/15]
DiffImageOverlap-fno: 0.40 [6/15]

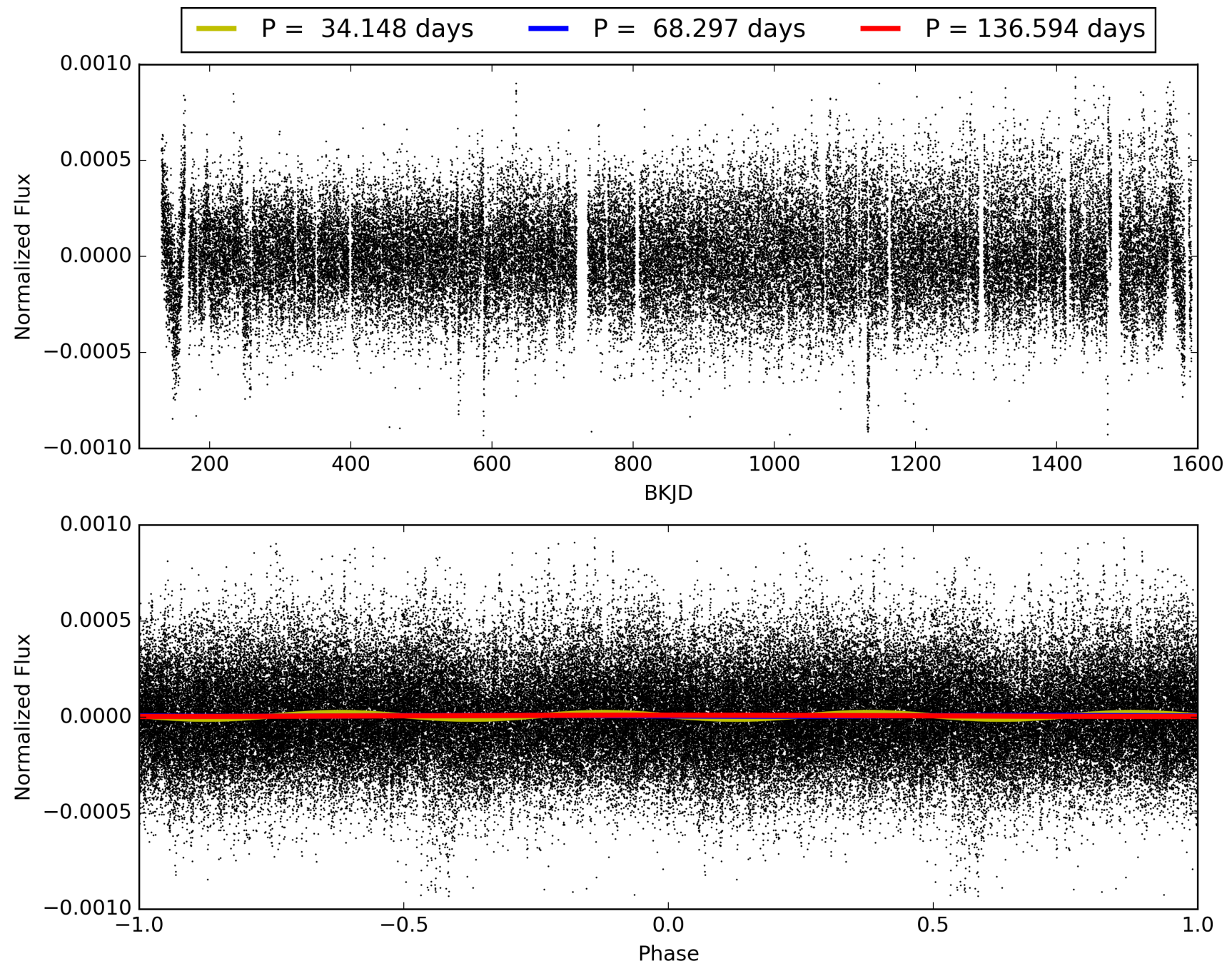
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:57:11 Z

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

TCE 010341072-05, PDC Light Curves

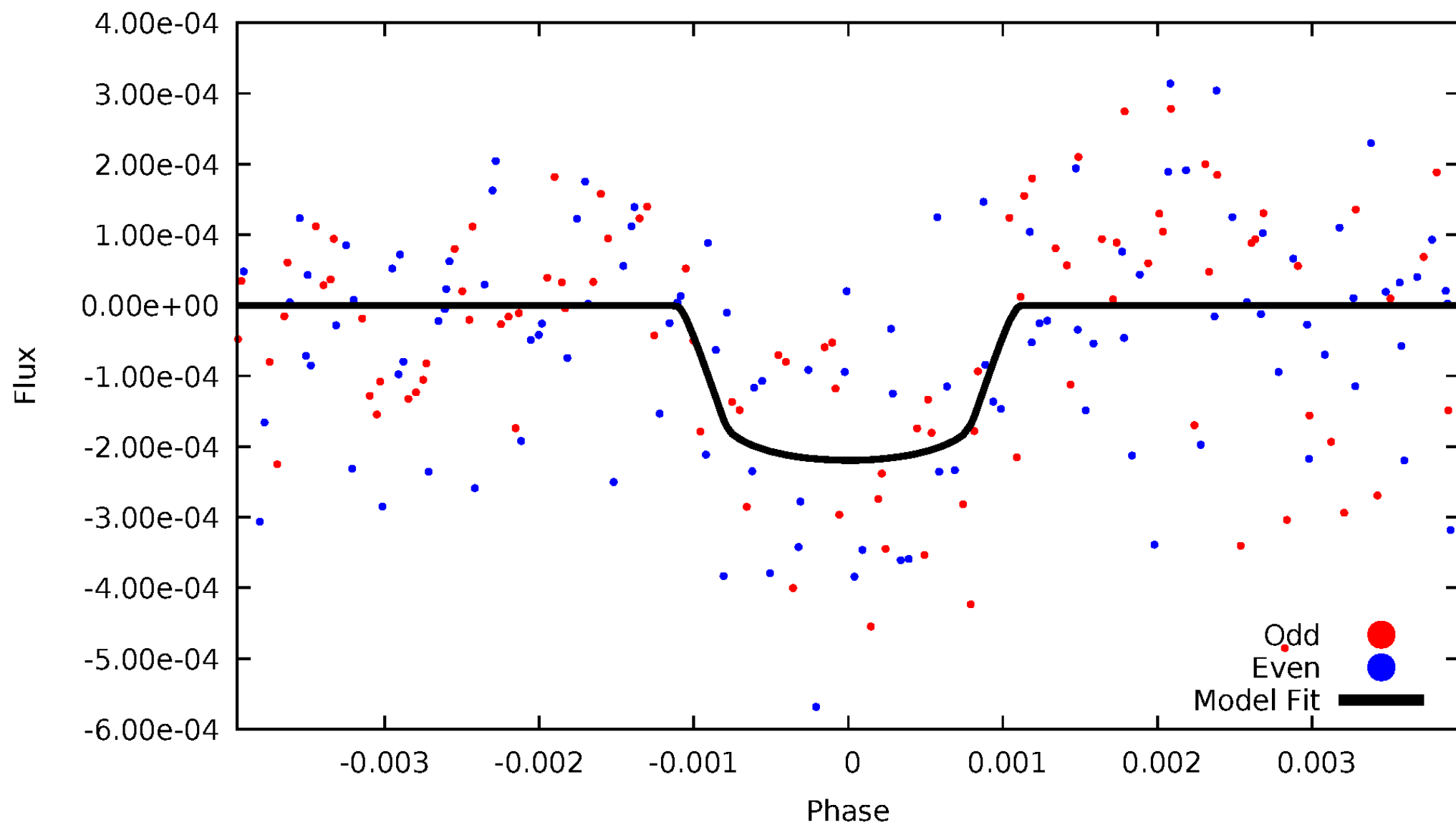


TCE 010341072-05



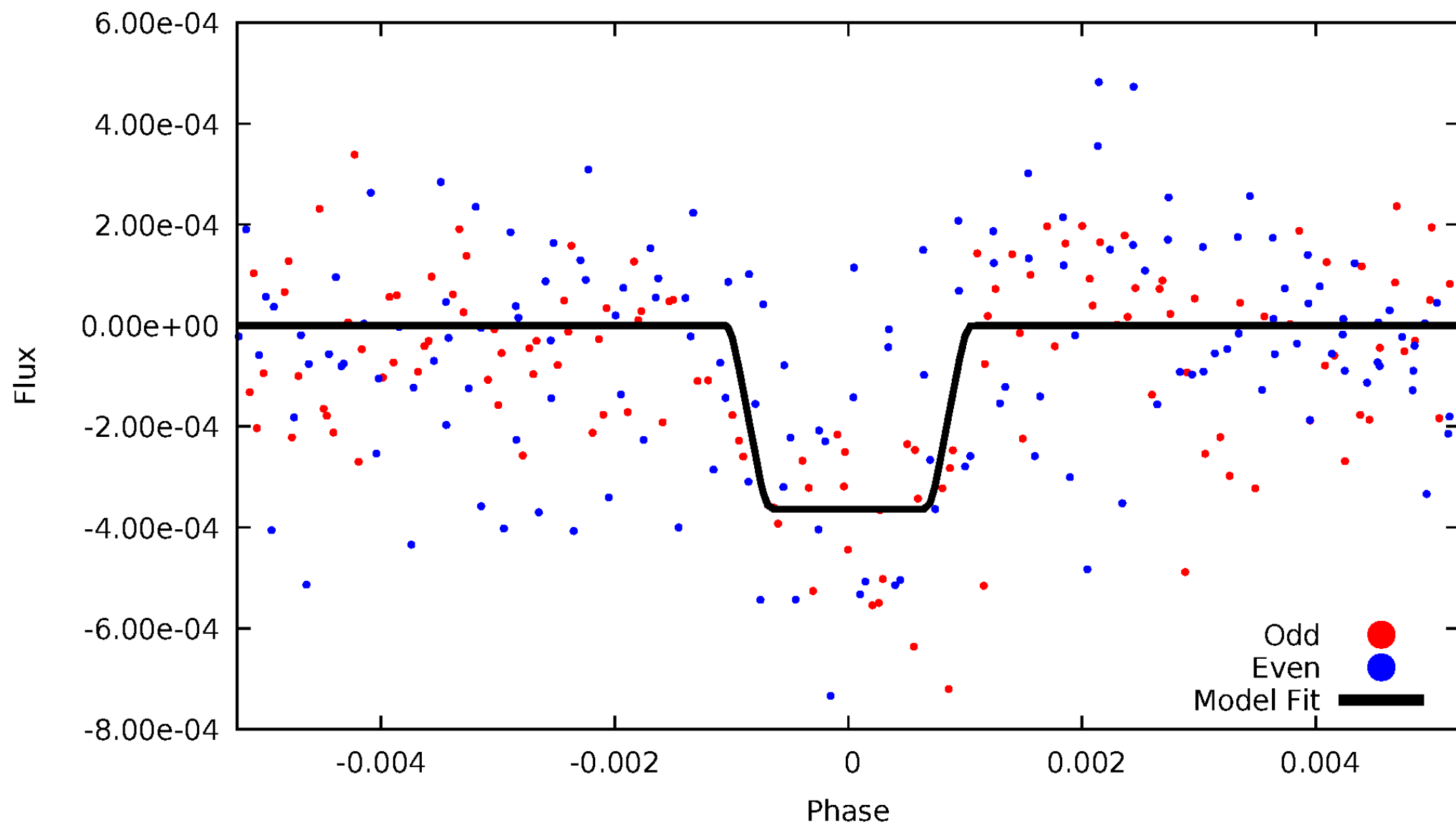
DV Odd/Even

TCE 010341072-05

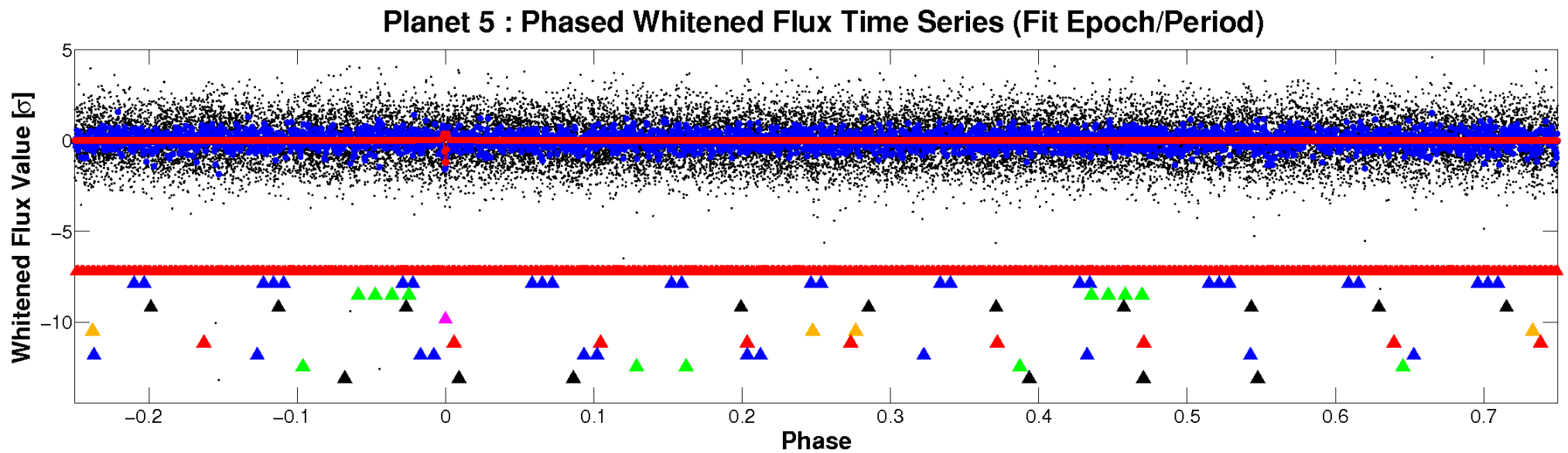
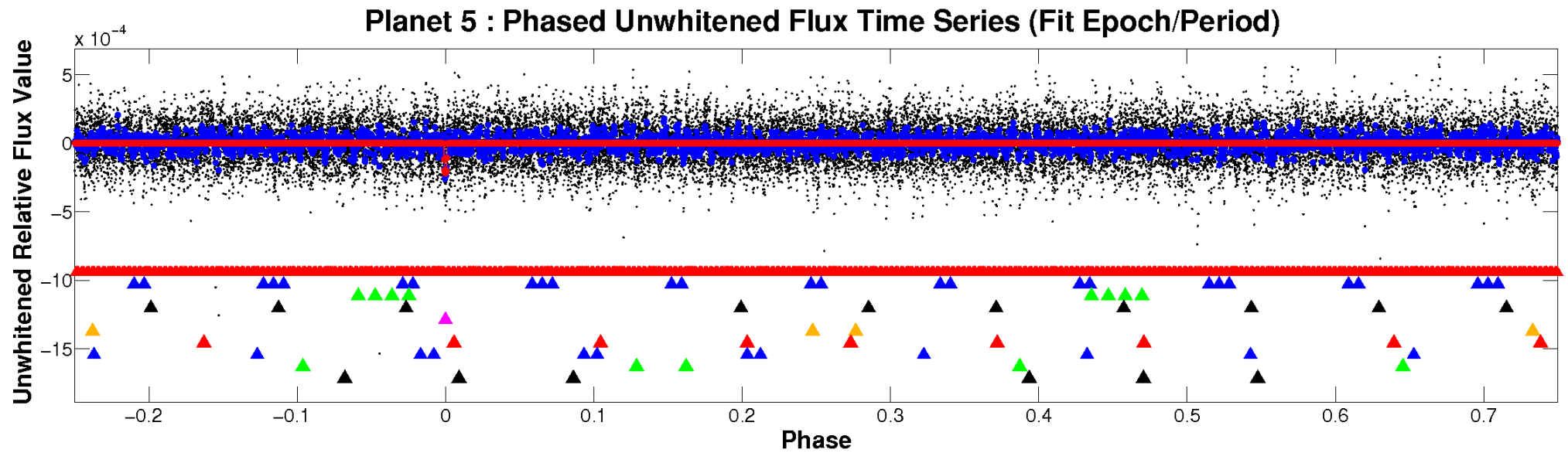


ALT Odd/Even

TCE 010341072-05

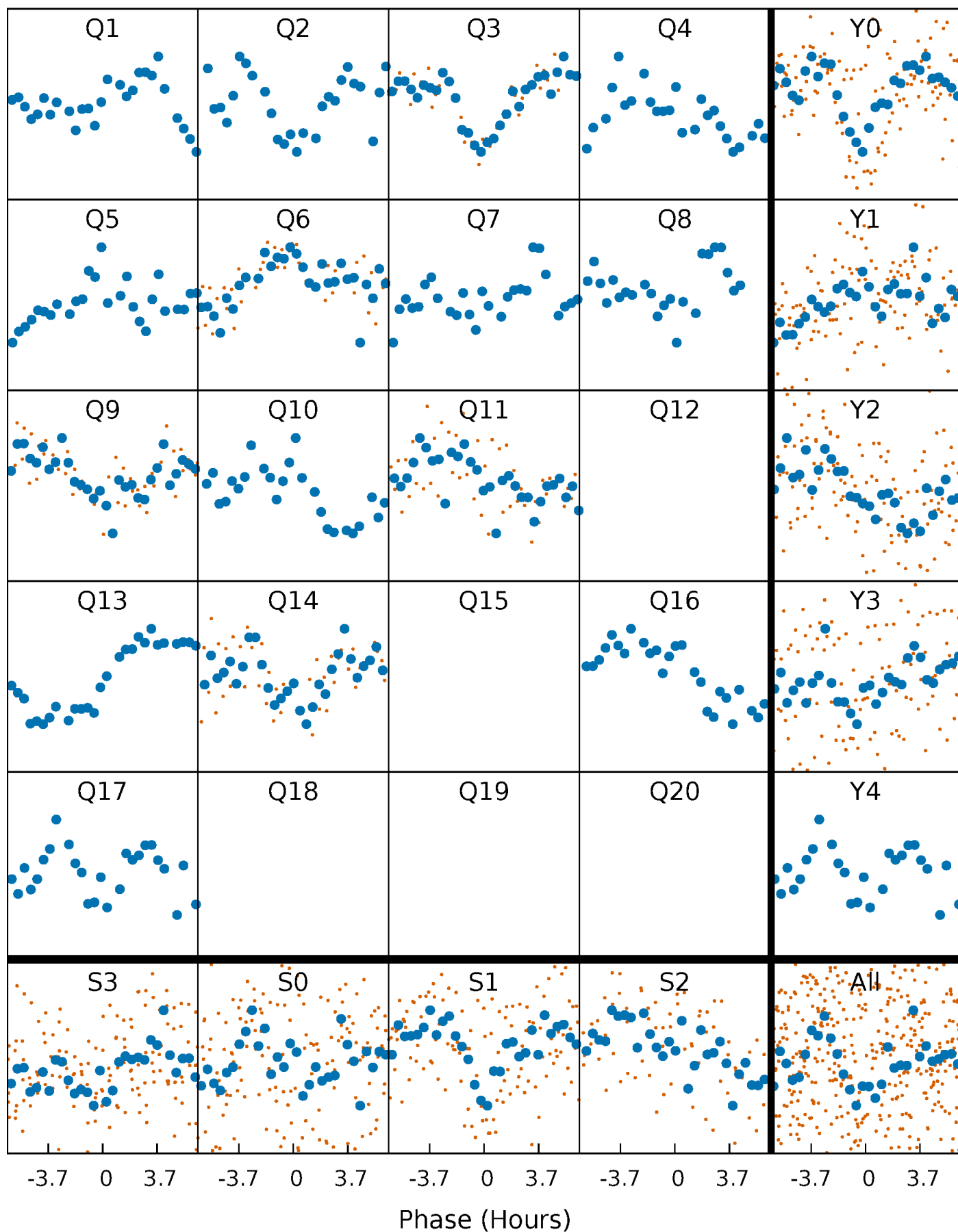


Non-Whitened Vs. Whitened Light Curve



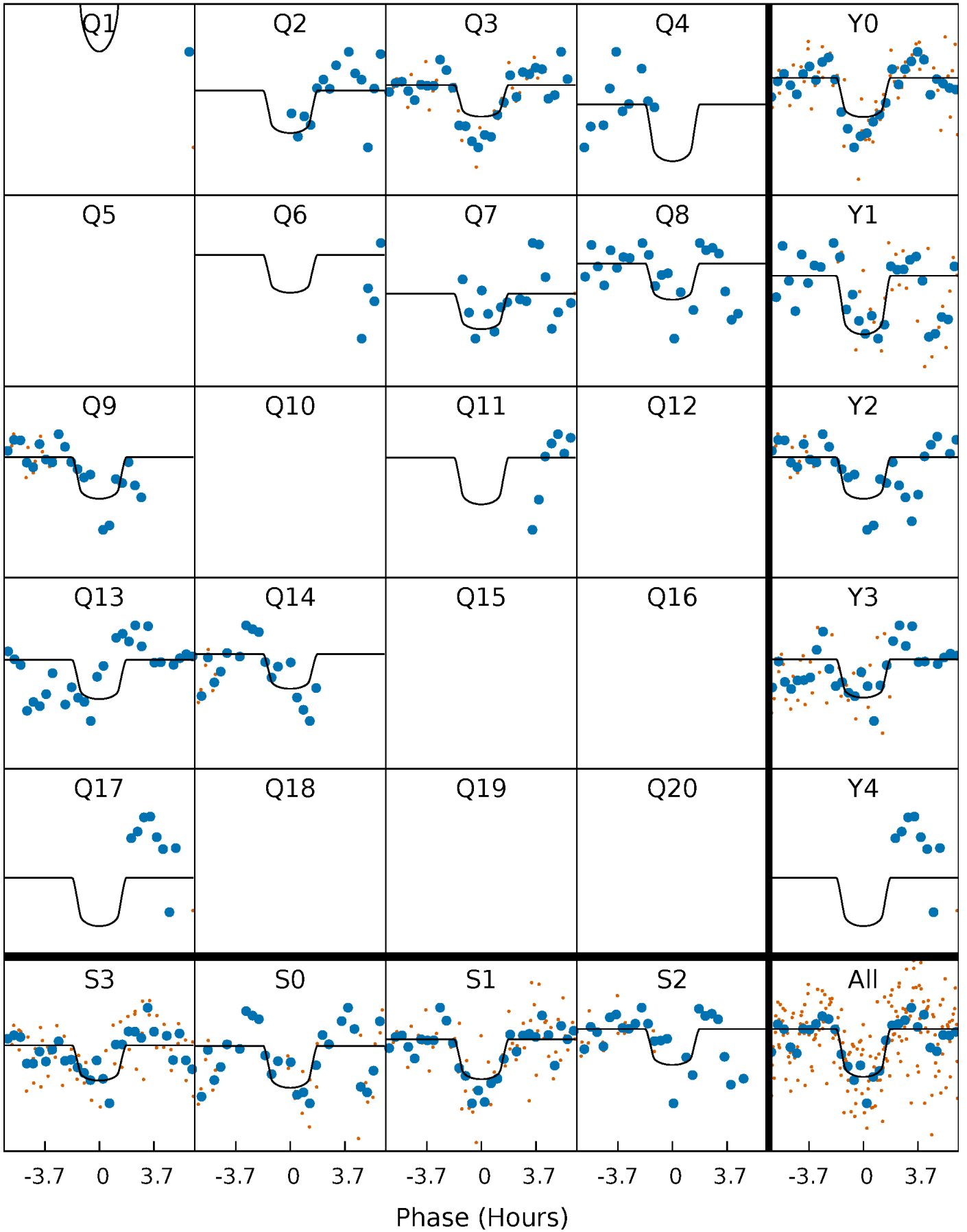
PDC Quarter-Phased Transit Curves

TCE 010341072-05 $P = 68.296828$ Days $T_0 = 138.173185$ (BKJD)



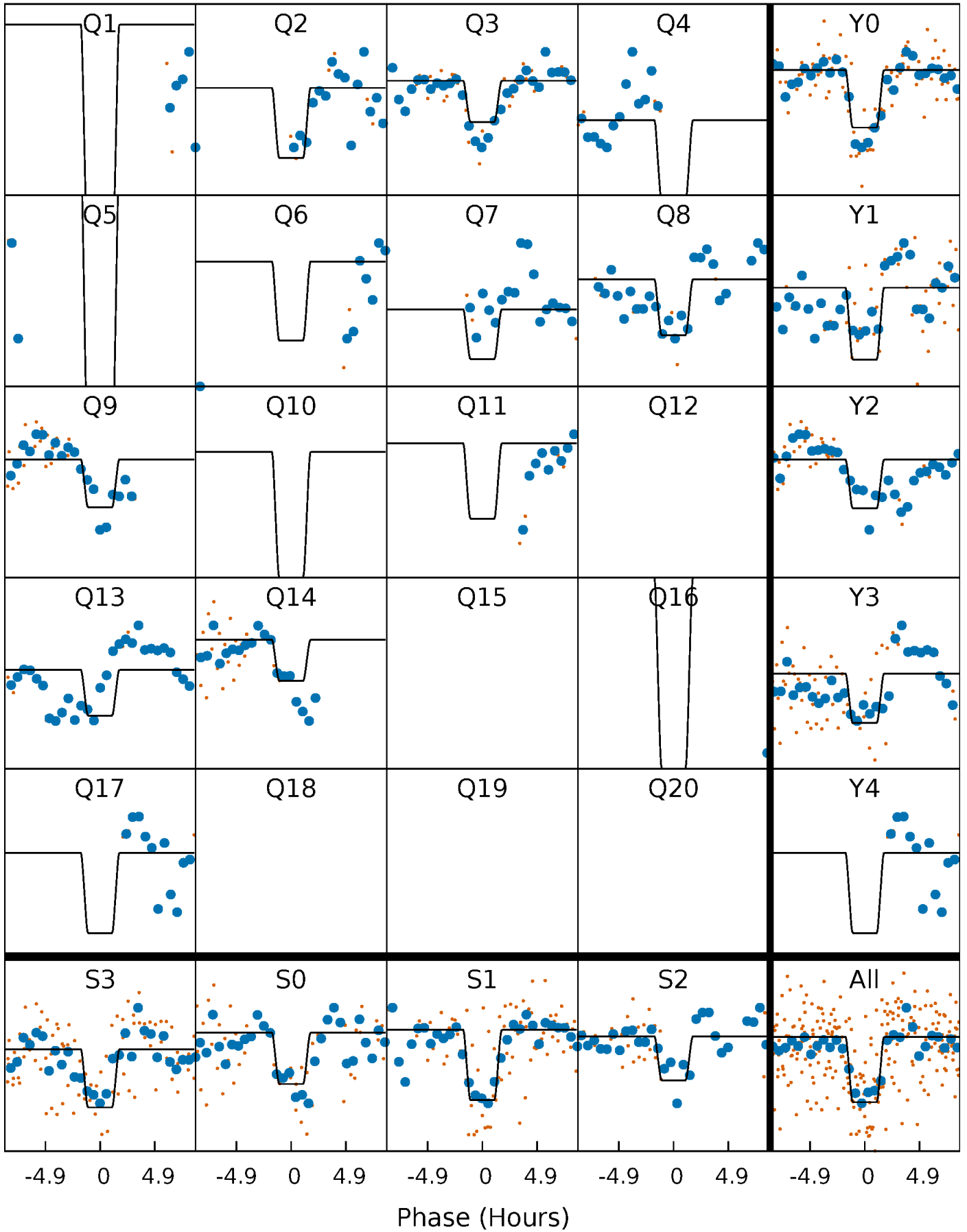
DV Quarter-Phased Transit Curves

TCE 010341072-05 P= 68.296828 Days $T_0=138.173185$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

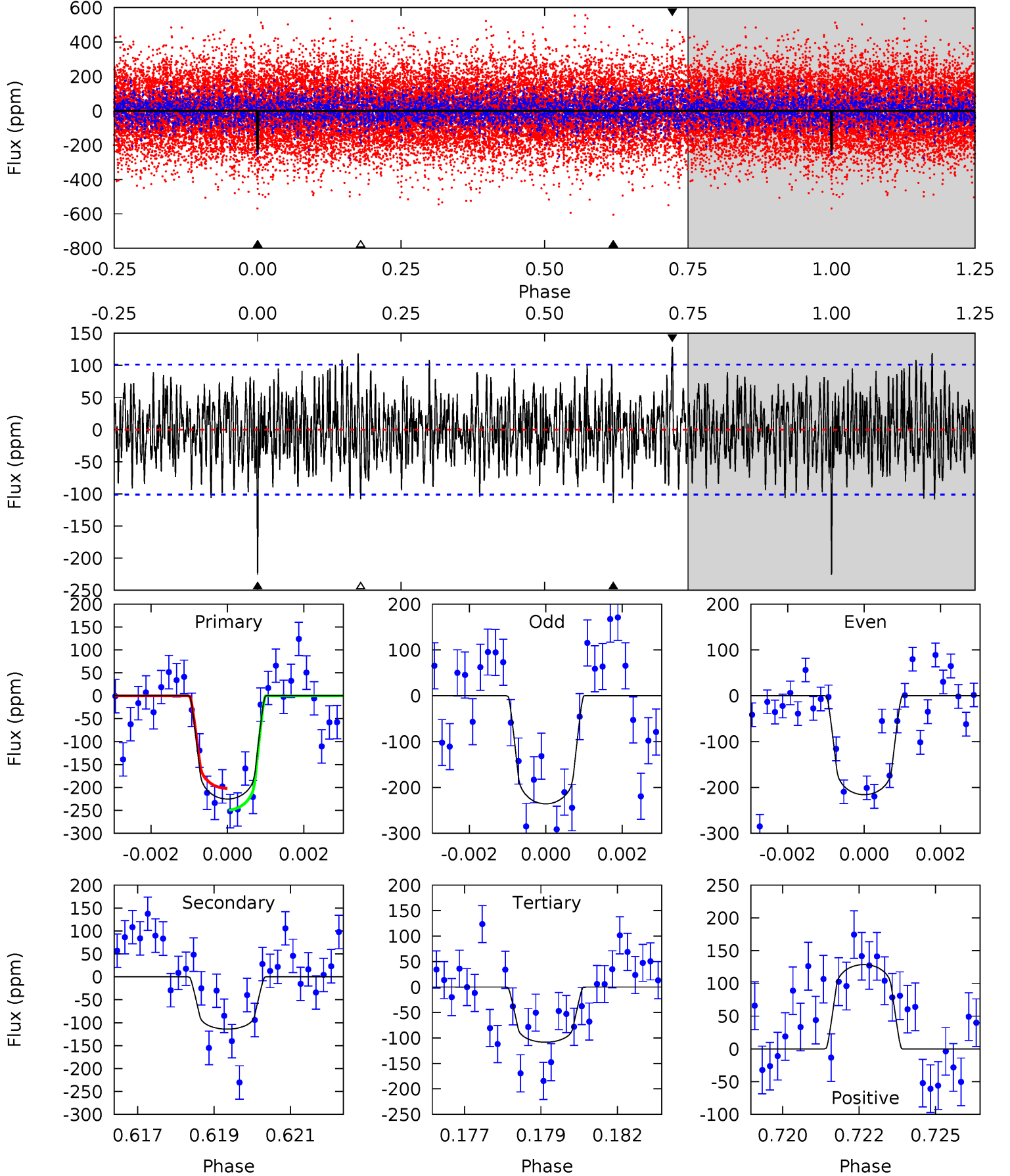
TCE 010341072-05 $P = 68.296773$ Days $T_0 = 138.169547$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-05, P = 68.296828 Days, E = 69.876357 Days

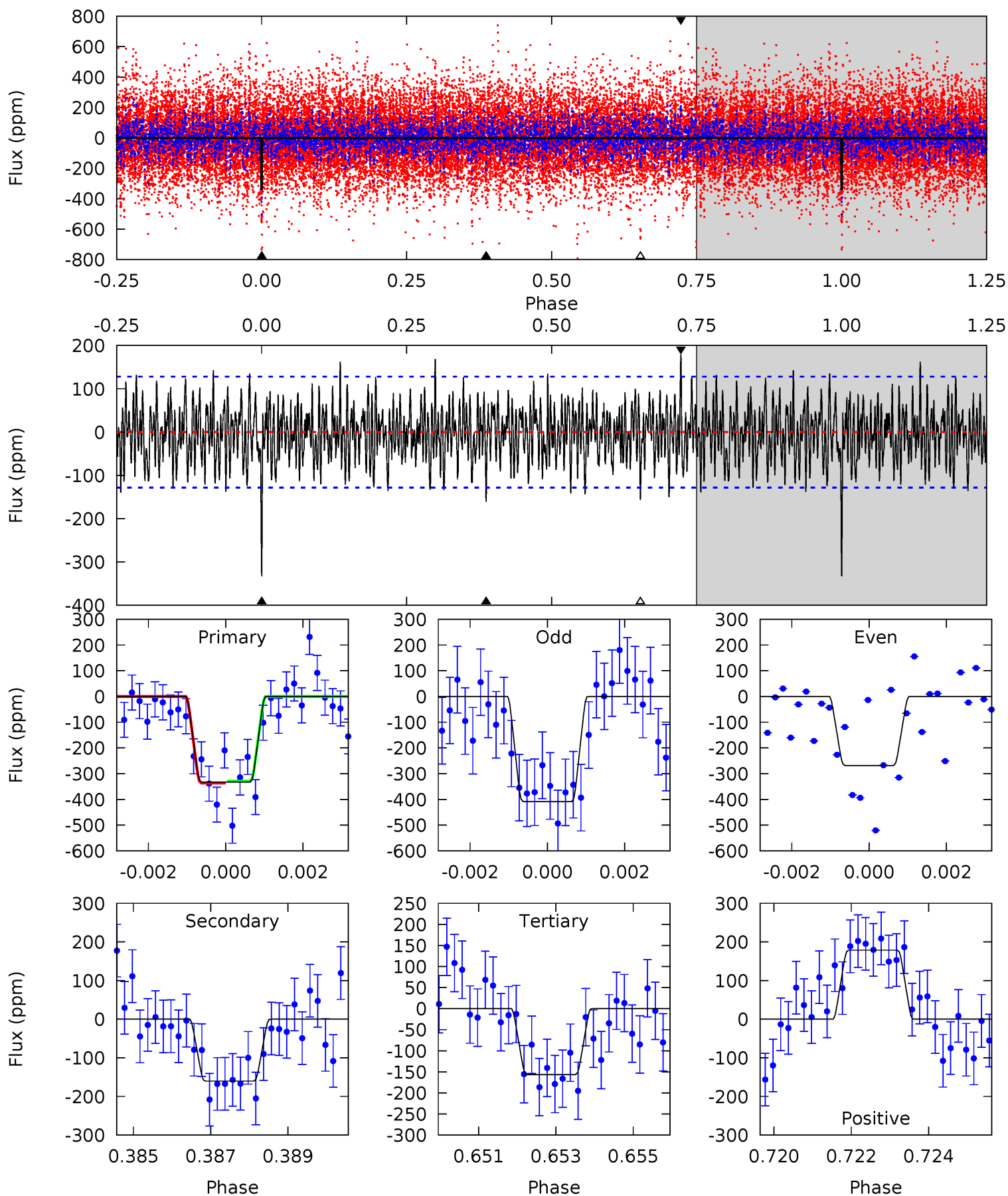
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	5.99	5.68	6.75	5.31	3.06	2.09	6.14	5.07	0.30	-0.77	0.52	0.98	0.36	1.24



Alt Model-Shift Uniqueness Test

010341072-05, P = 68.296773 Days, E = 69.872774 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	6.66	6.51	7.44	5.32	3.09	2.25	7.33	6.39	0.15	-0.78	2.91	0.86	0.35	0.17



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-114 ± 19	$6.46^{+4.06}_{-3.37}$	1280^{+76}_{-147}	5402^{+2631}_{-952}	235^{+780}_{-150}
Alt.	-160 ± 24	$8.11^{+4.19}_{-3.96}$	1285^{+73}_{-139}	5364^{+2011}_{-791}	220^{+569}_{-125}

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 $A_{obs} \gg 1.0$

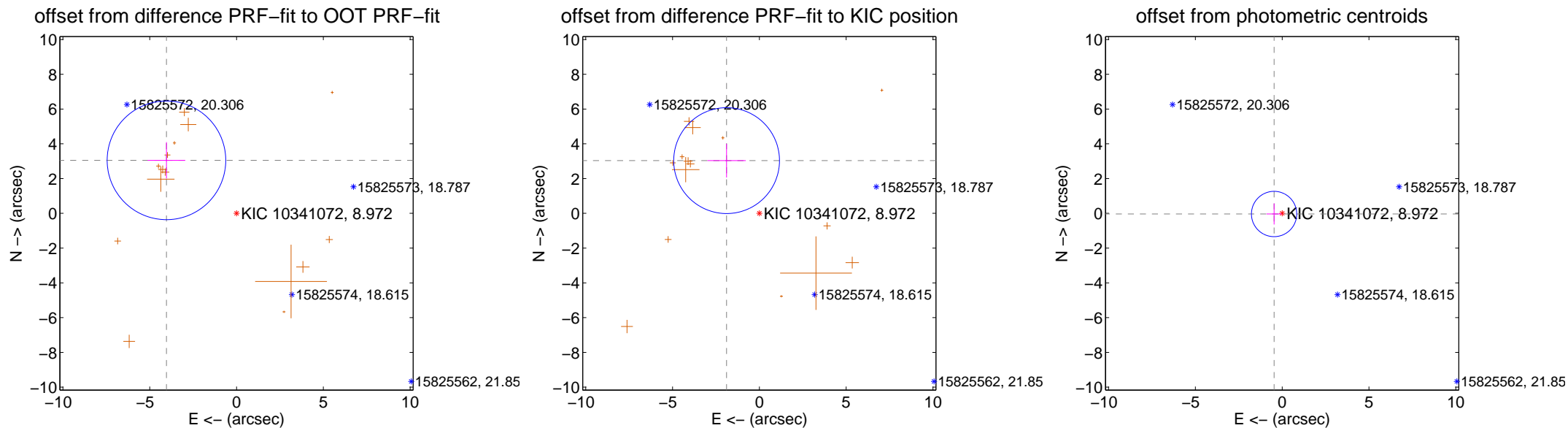
DV Centroid Data

Supplemental centroid analysis for 010341072-05. **Kepler magnitude: 8.97.** Transit SNR 7.94

There are 0 quarters with good PRF difference image offsets

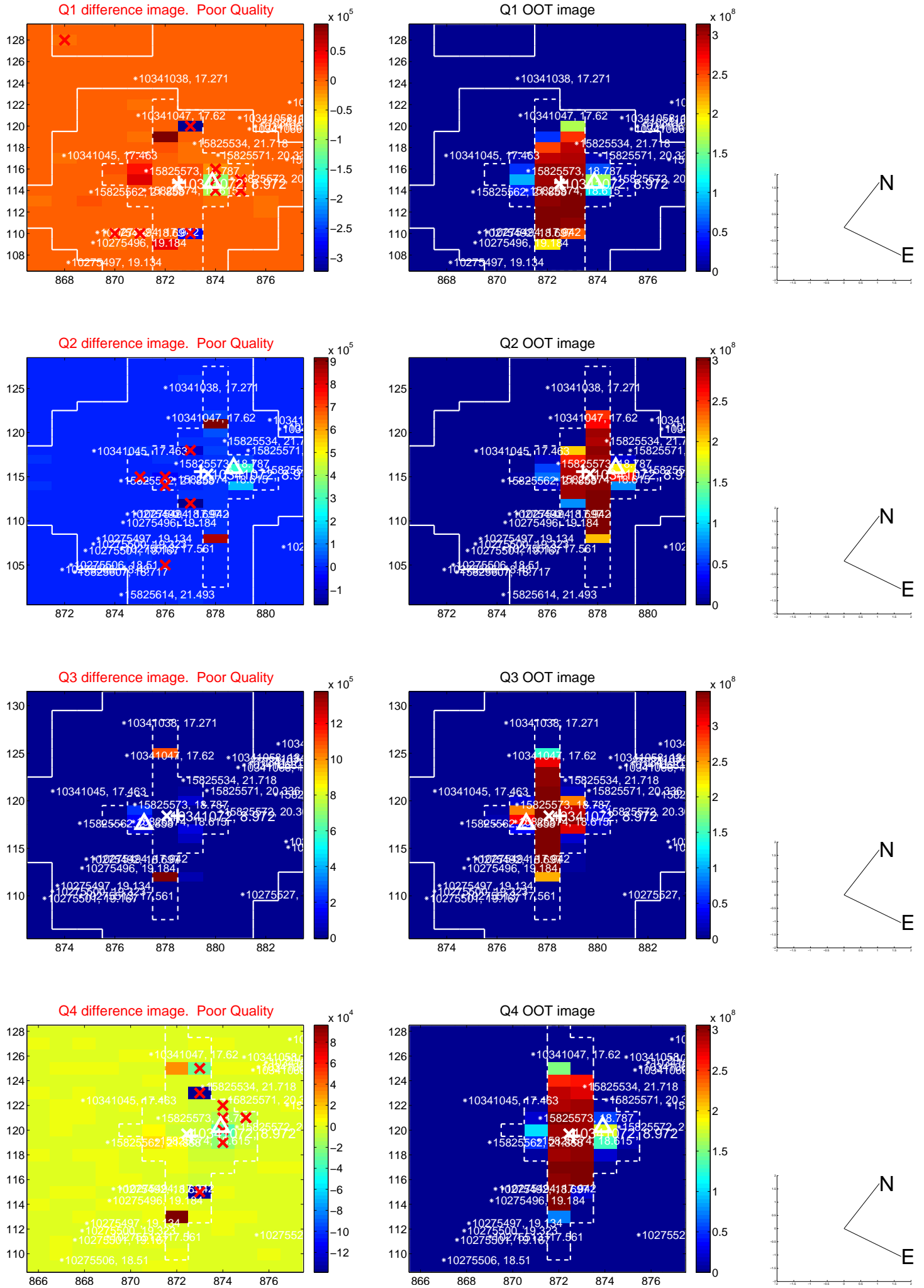
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.060 ± 1.138	4.45	4.037 ± 1.085	3.051 ± 1.048
PRF-fit source offset from KIC position	3.572 ± 1.015	3.52	1.887 ± 1.106	3.033 ± 0.969
photometric centroid source offset	0.47 ± 0.43	1.08	0.47 ± 0.43	-0.04 ± 0.61

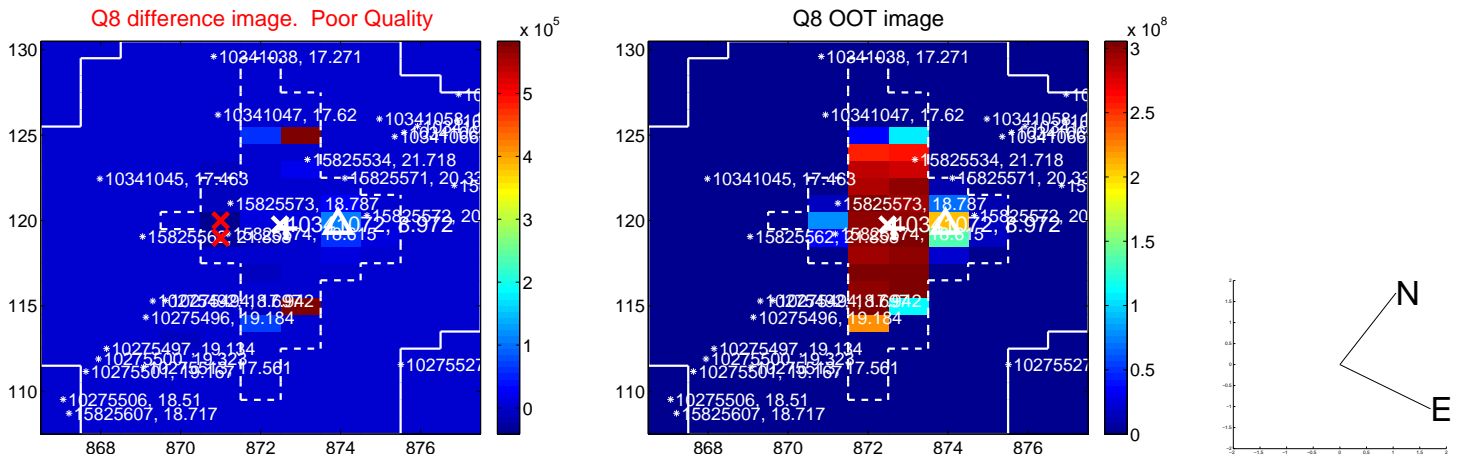
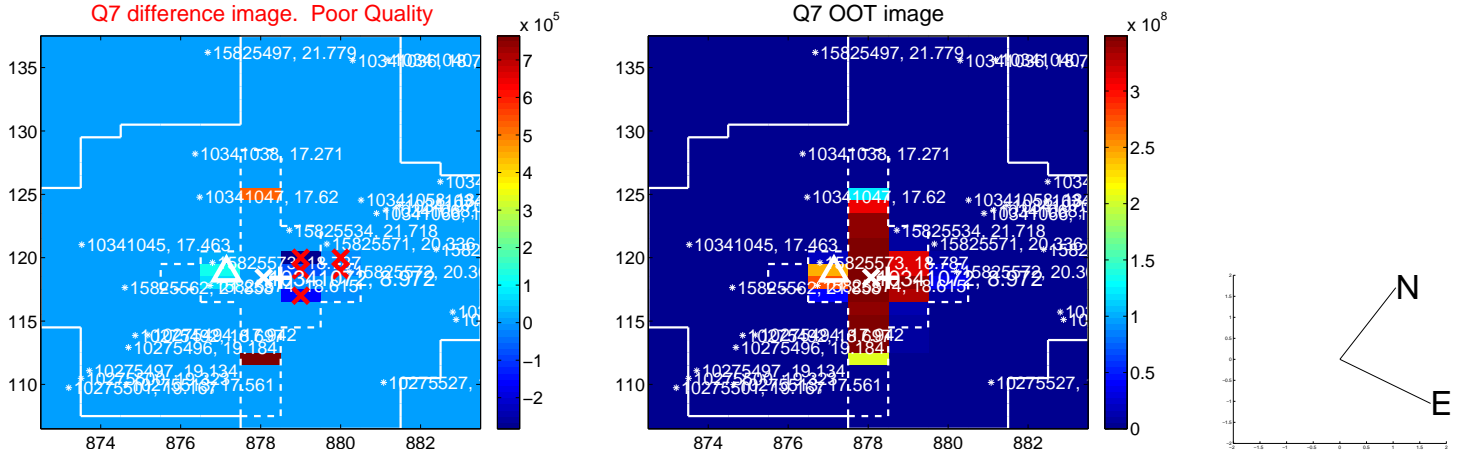
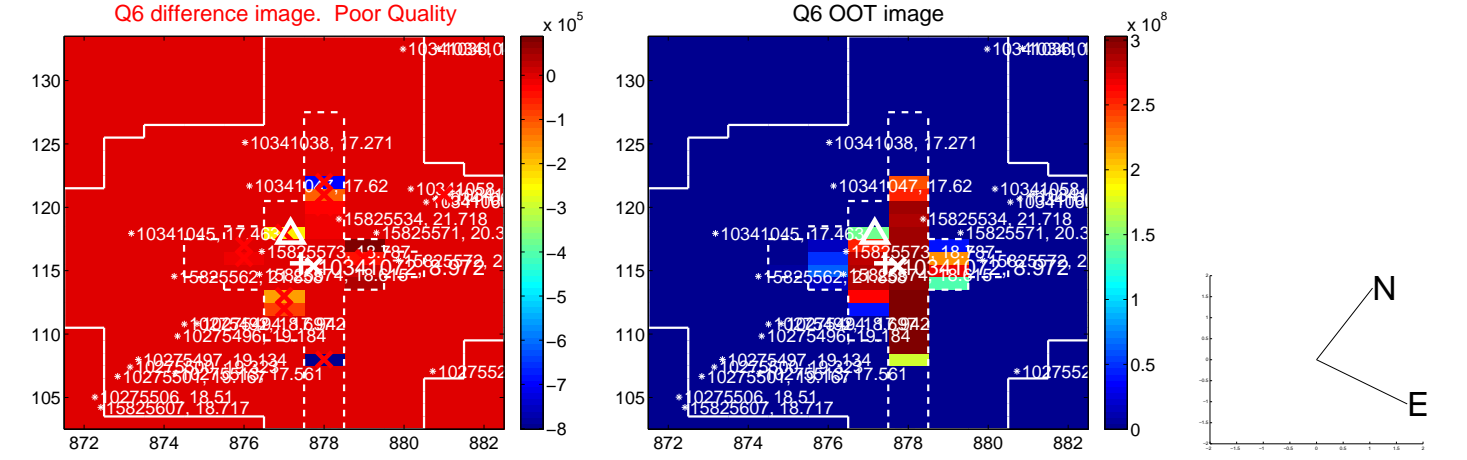
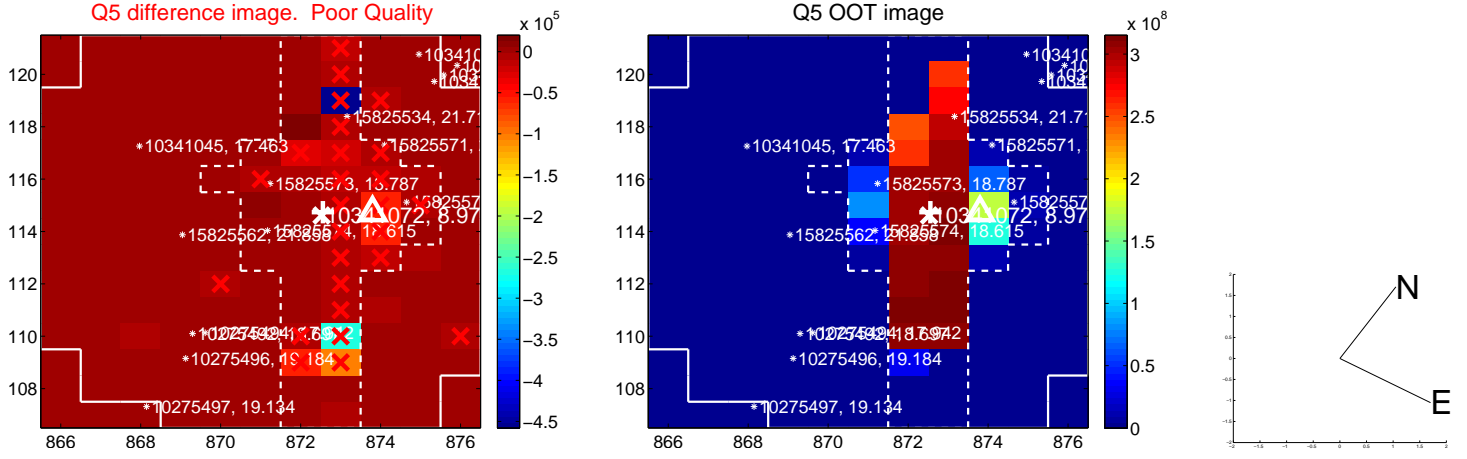


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

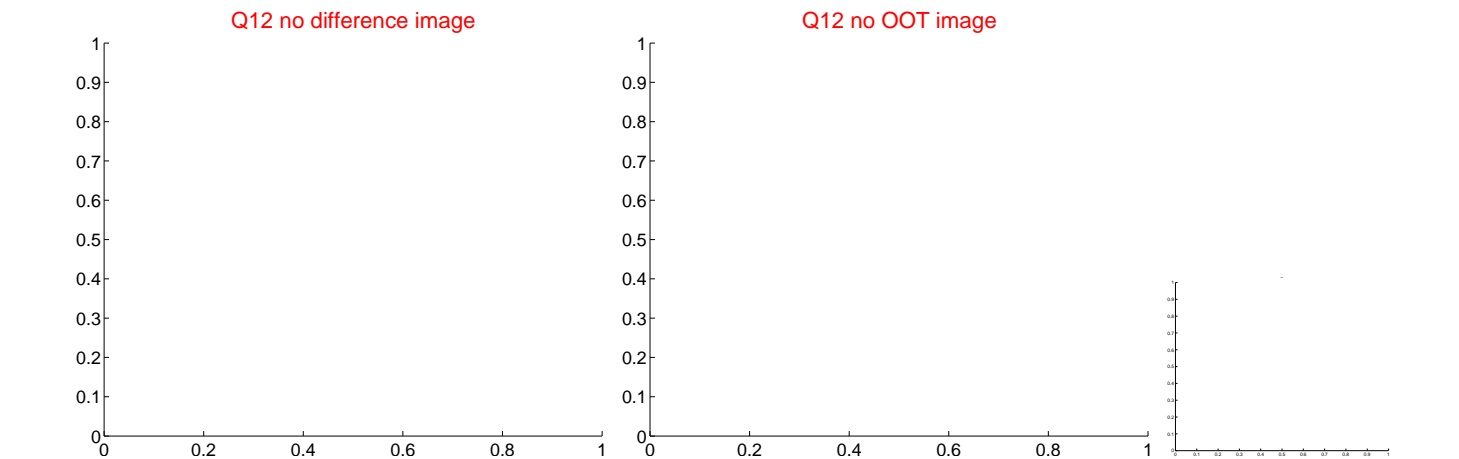
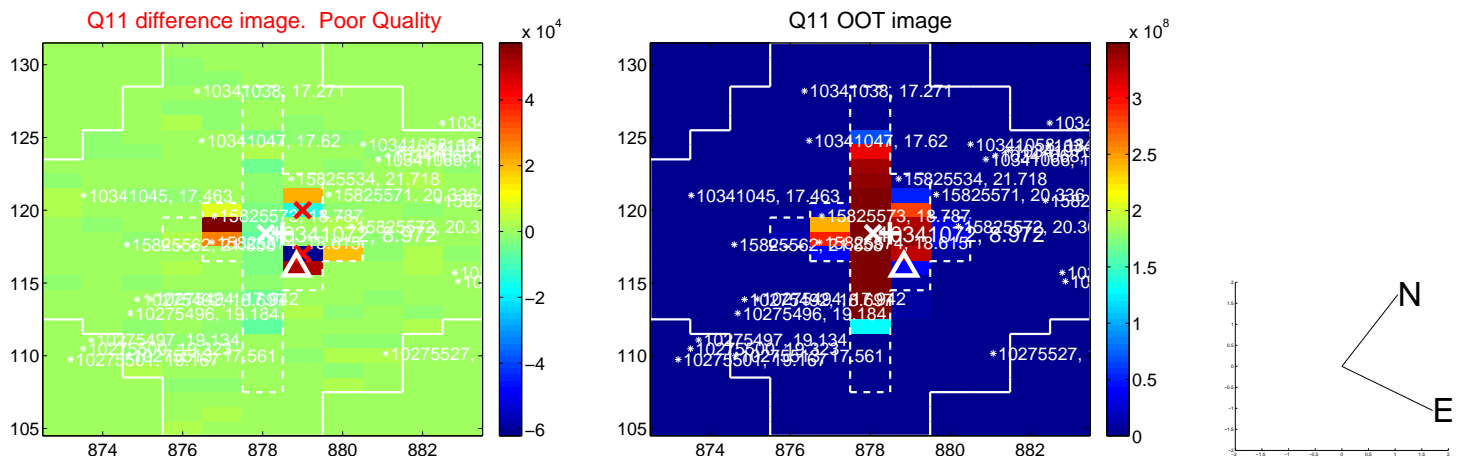
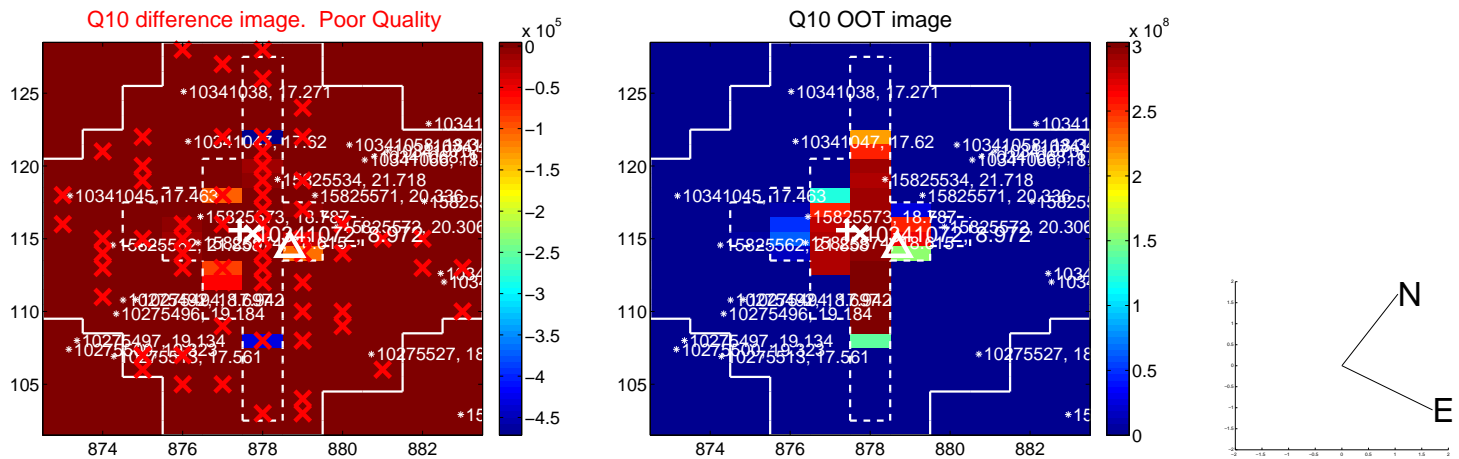
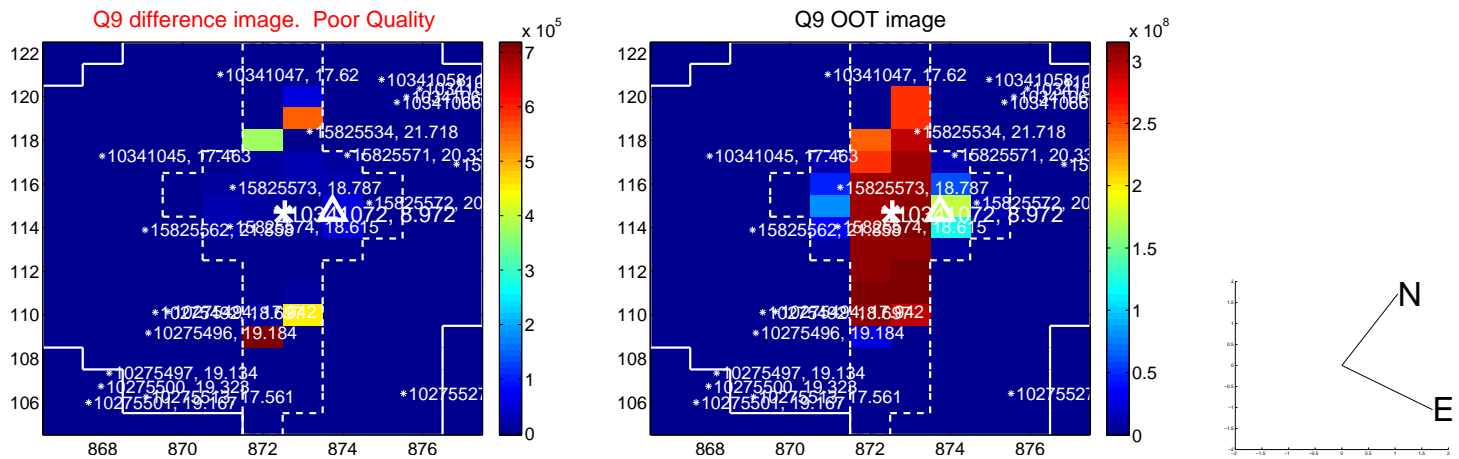
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



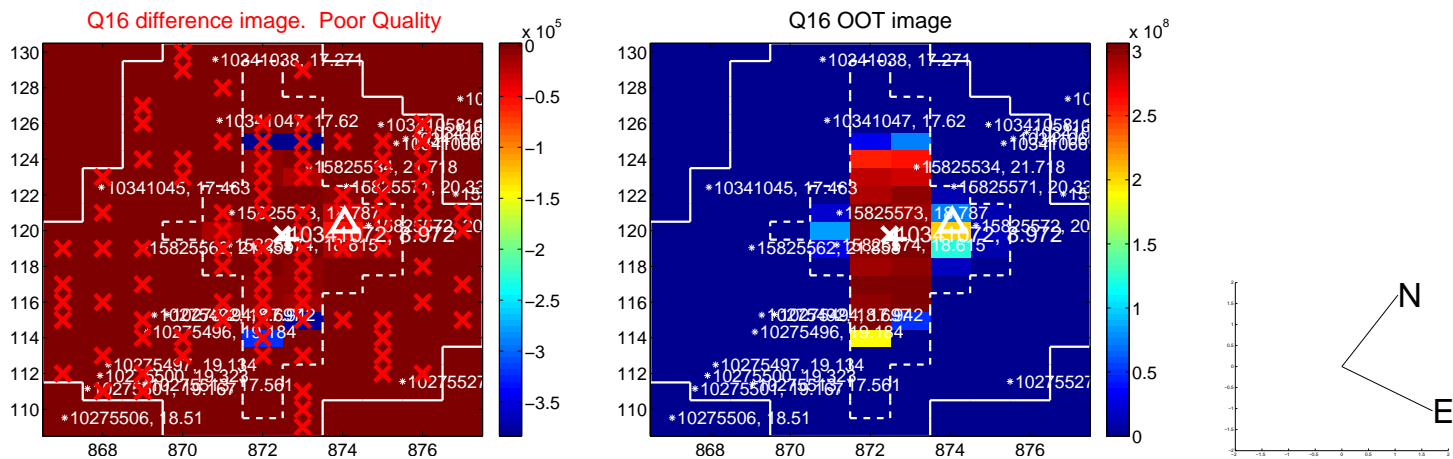
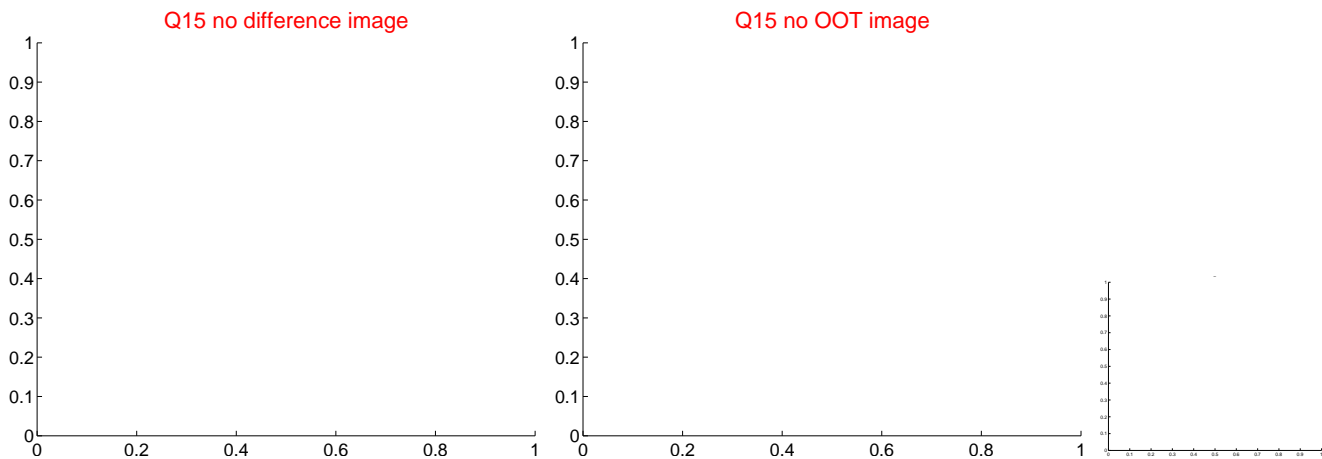
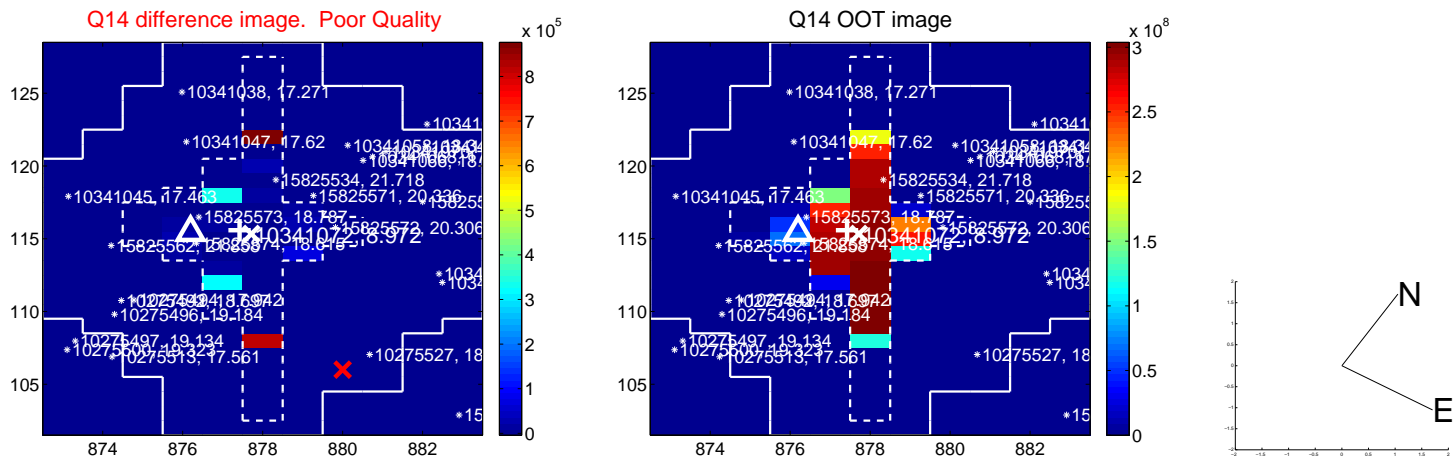
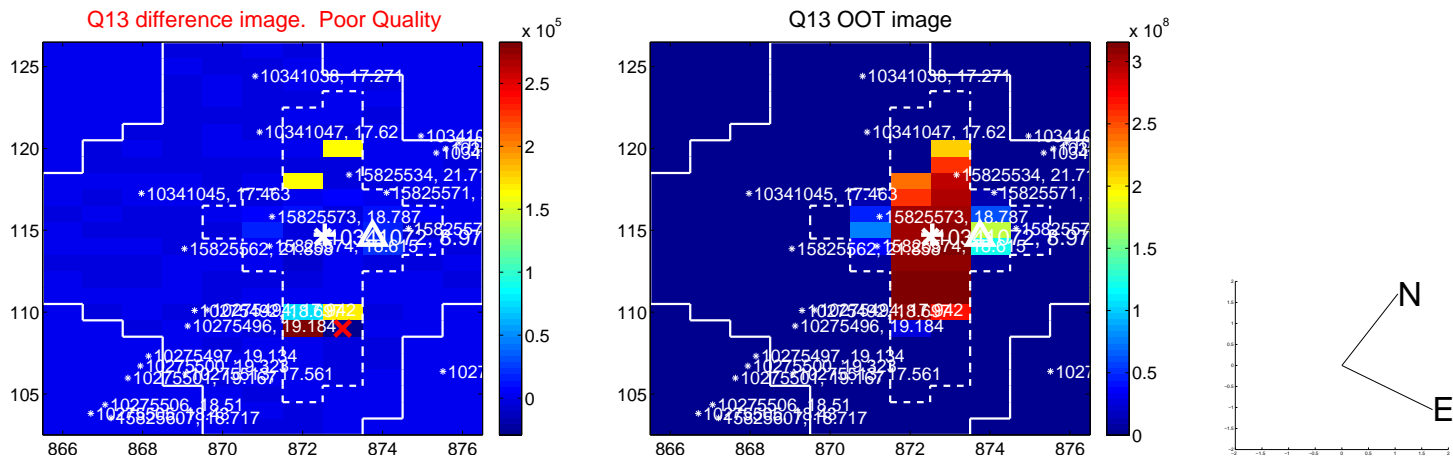
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



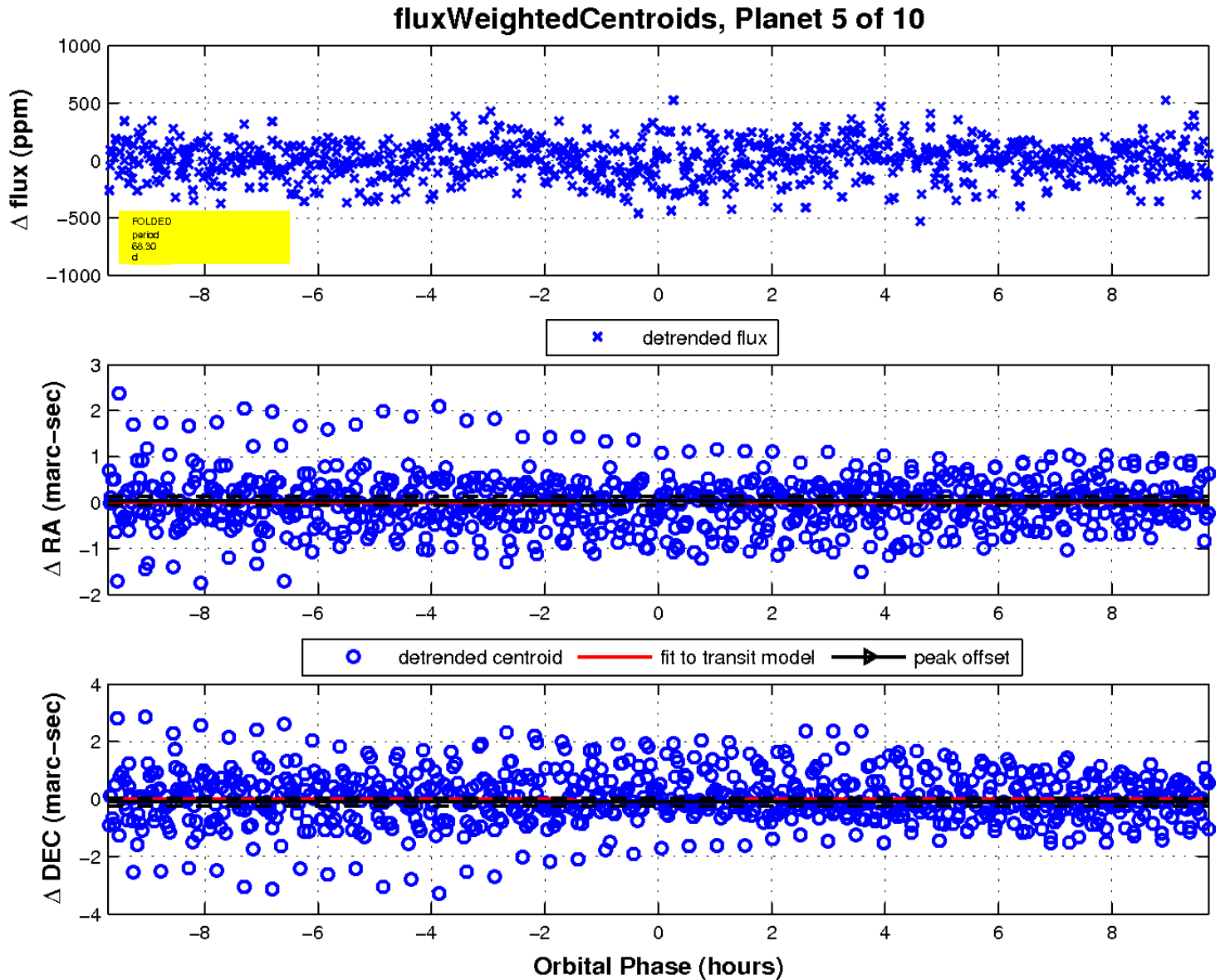
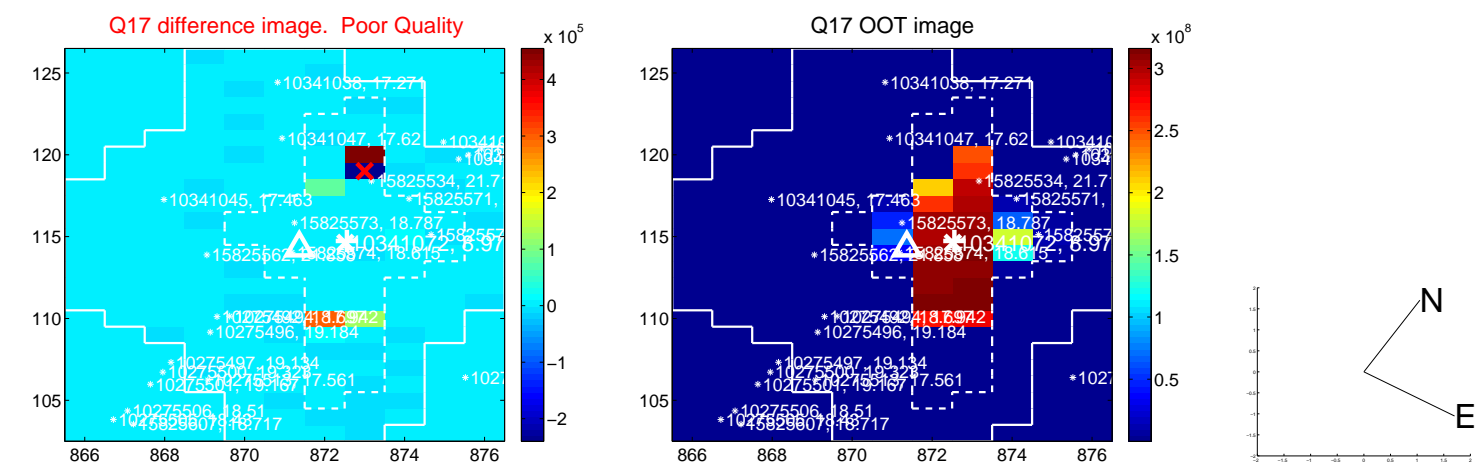
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



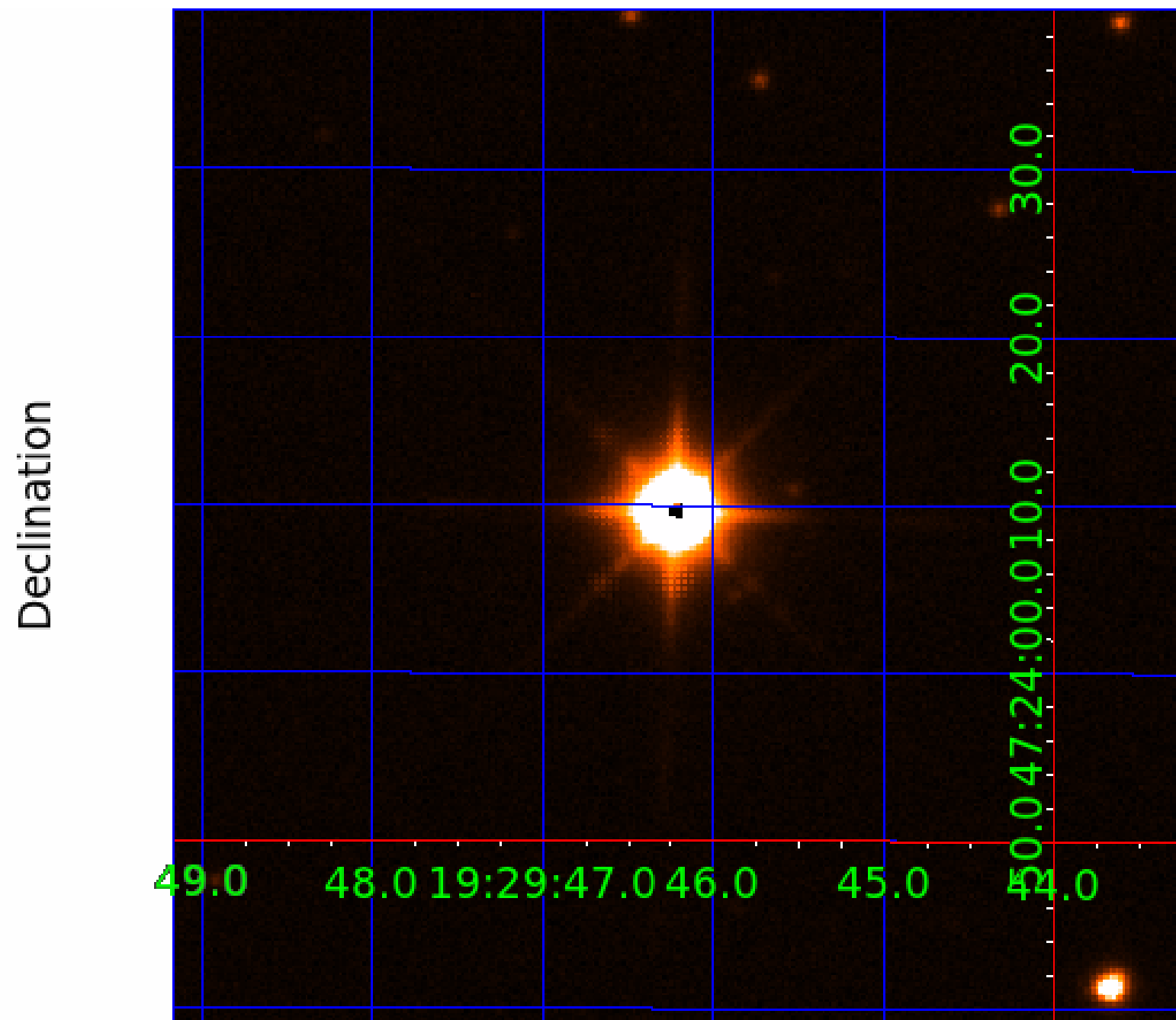
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
010341072-04	OBS	No	142.468614	220.078937	296.7	2.449	8.7	9.1	4.33	6541	9.05	70.36
010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
010341072-07	OBS	No	161.609085	156.832880	343.3	3.076	8.3	8.7	4.33	6541	9.29	59.47
010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

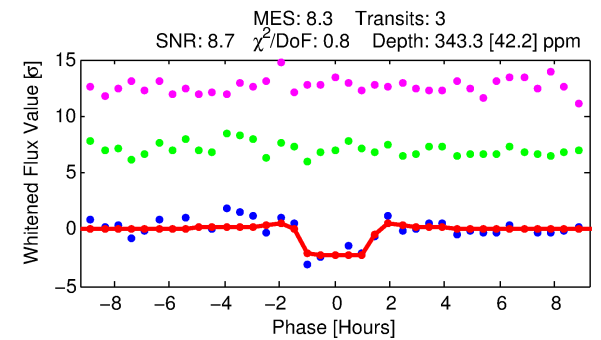
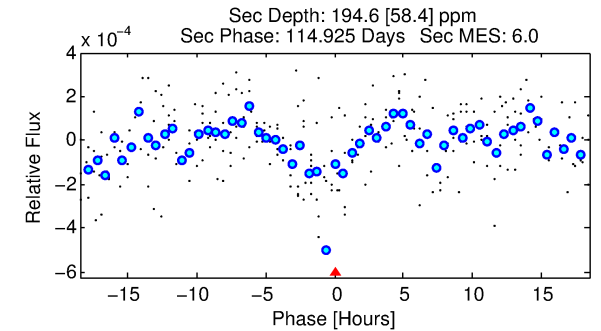
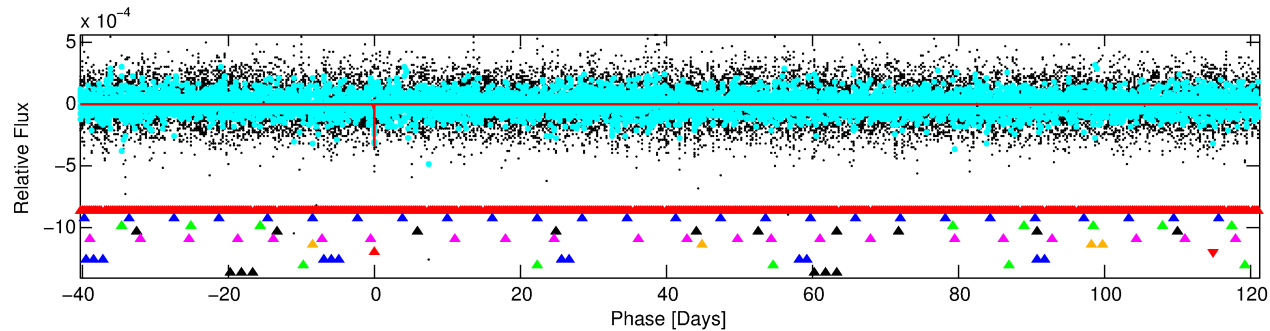
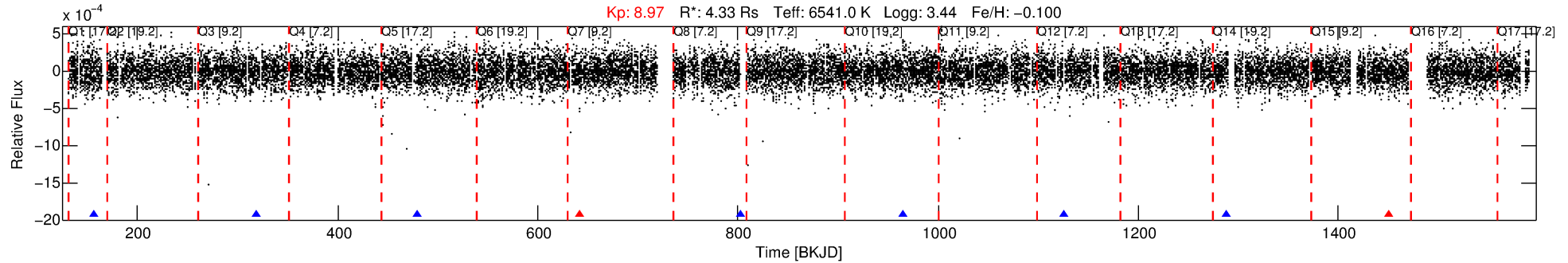
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-07

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 7 of 10 Period: 161.609 d

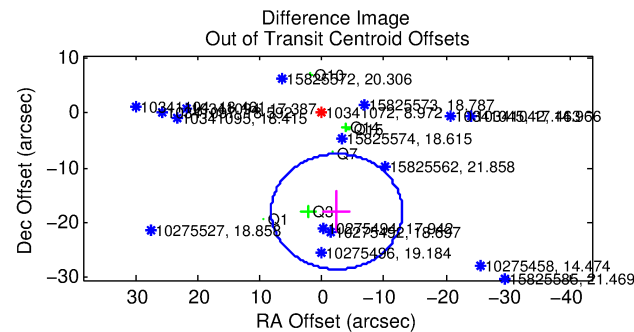
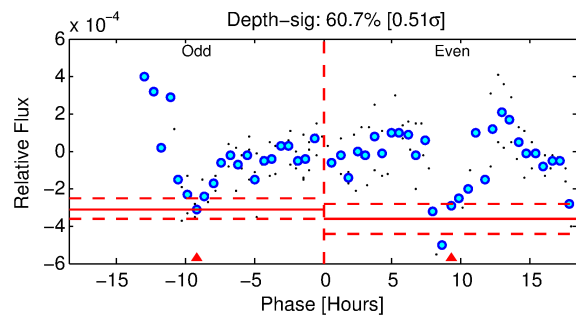
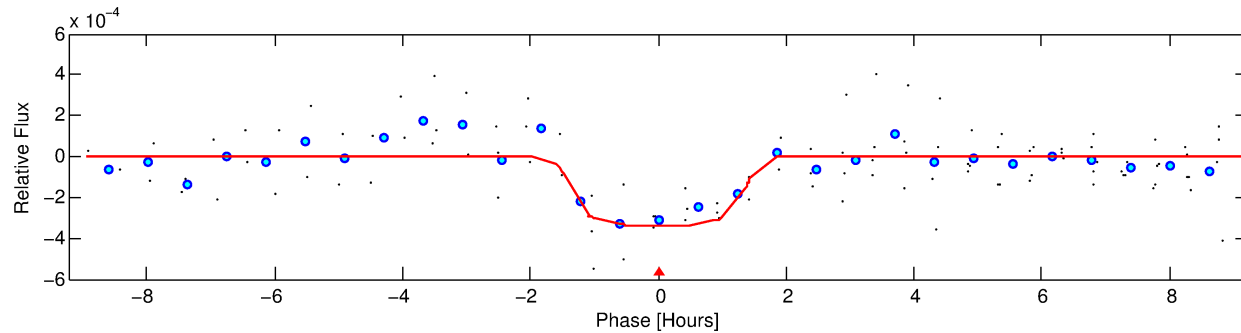


DV Fit Results:

Period = 161.60908 [0.00107] d
Epoch = 156.8329 [0.0053] BKJD
Rp/R* = 0.0197 [0.0120]
a/R* = 199.78 [695.92]
b = 0.89 [0.82]
Seff = 59.47 [39.82]
Teq = 708 [119] K
Rp = 9.29 [6.88] Re
a = 0.7186 [0.2947] AU
Ag = 640.64 [910.90] [0.70σ]
Teffp = 5508 [1738] K [2.76σ]

DV Diagnostic Results:

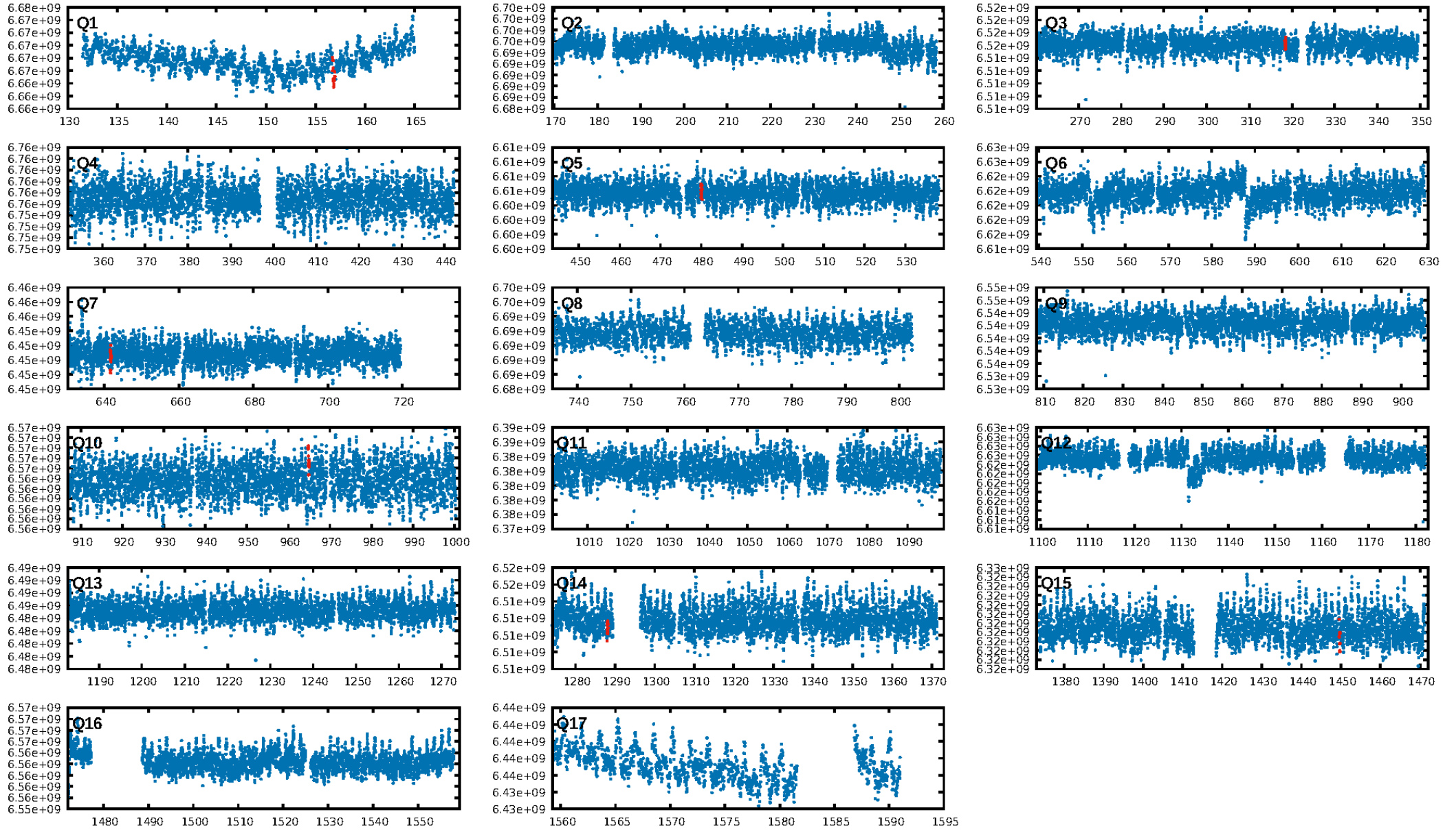
ShortPeriod-sig: 100.0% [116.83σ]
LongPeriod-sig: 100.0% [37.50σ]
ModelChiSquare2-sig: 67.9%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.00 [0/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 55.6%
Centroid-so: 0.775 arcsec [1.48σ]
OotOffset-rm: 18.186 arcsec [5.18σ]
KicOffset-rm: 17.560 arcsec [6.17σ]
OotOffset-st: 2/3/0/1 [6]
KicOffset-st: 2/3/0/1 [6]
DiffImageQuality-fgm: 0.00 [0/6]
DiffImageOverlap-fno: 0.43 [3/7]



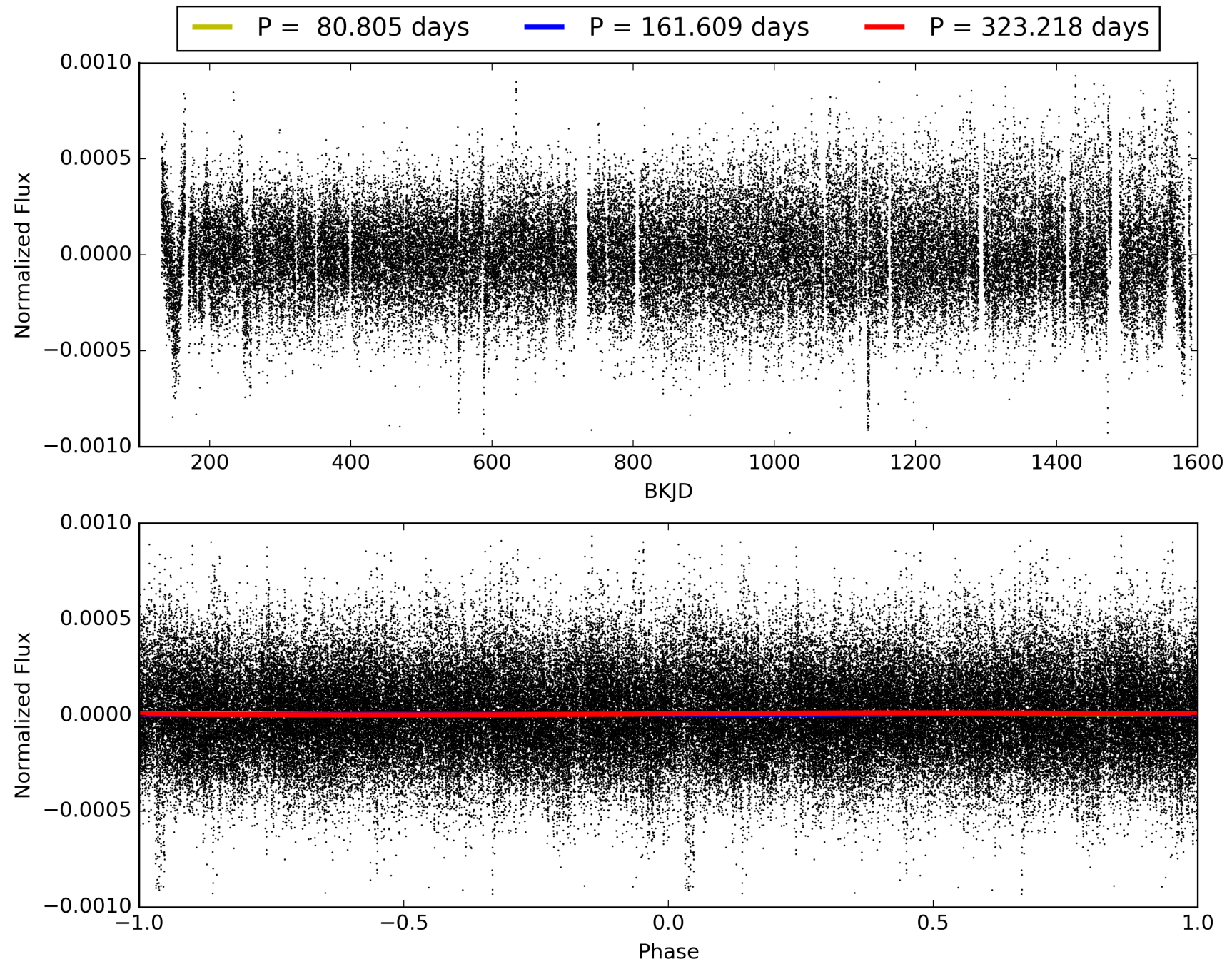
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:57:24 Z

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

TCE 010341072-07, PDC Light Curves

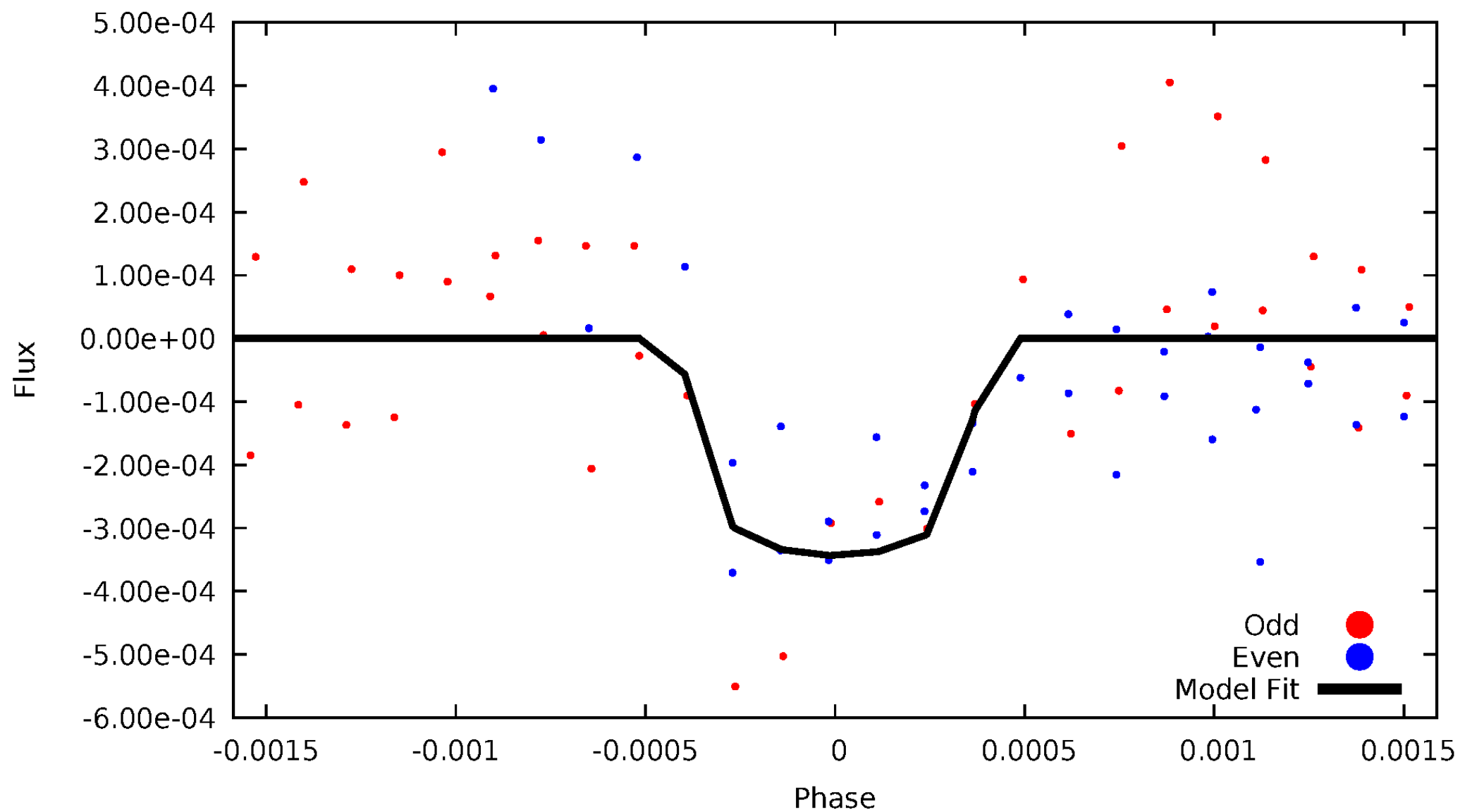


TCE 010341072-07



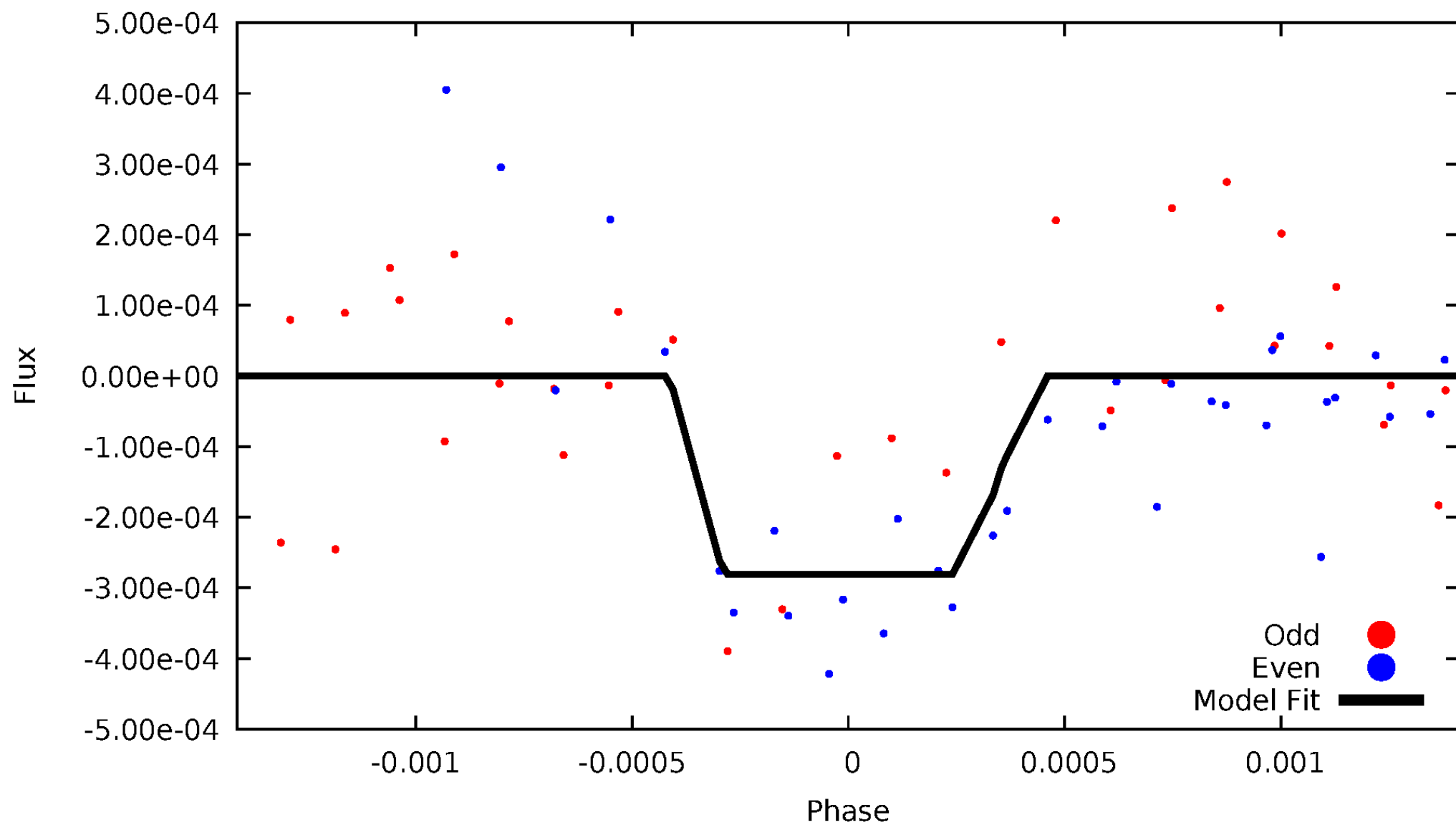
DV Odd/Even

TCE 010341072-07

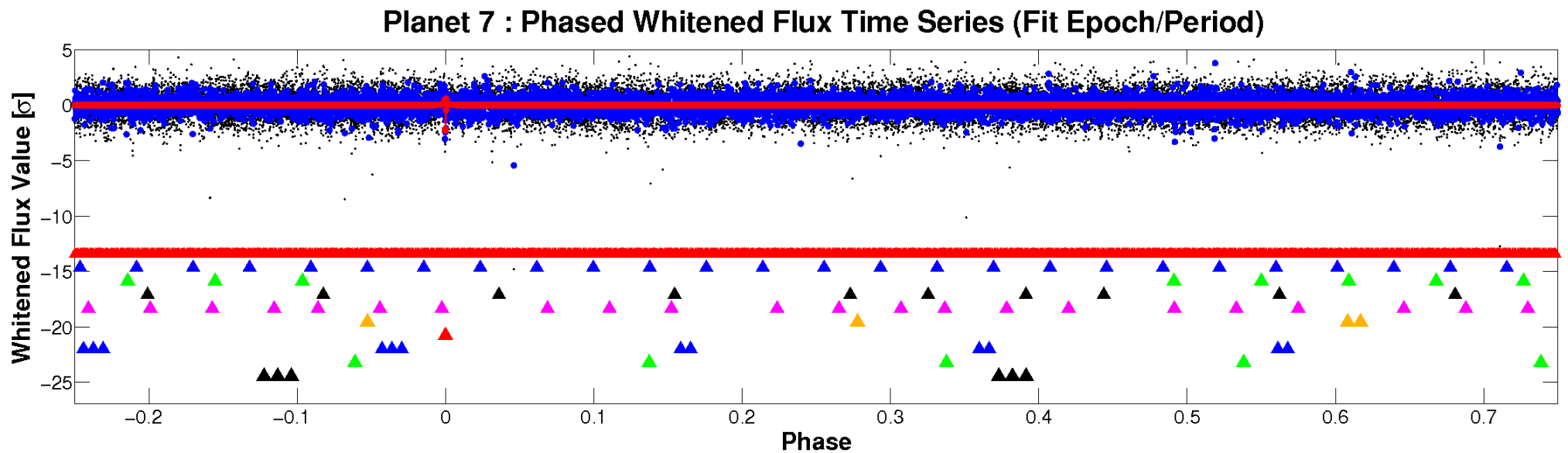
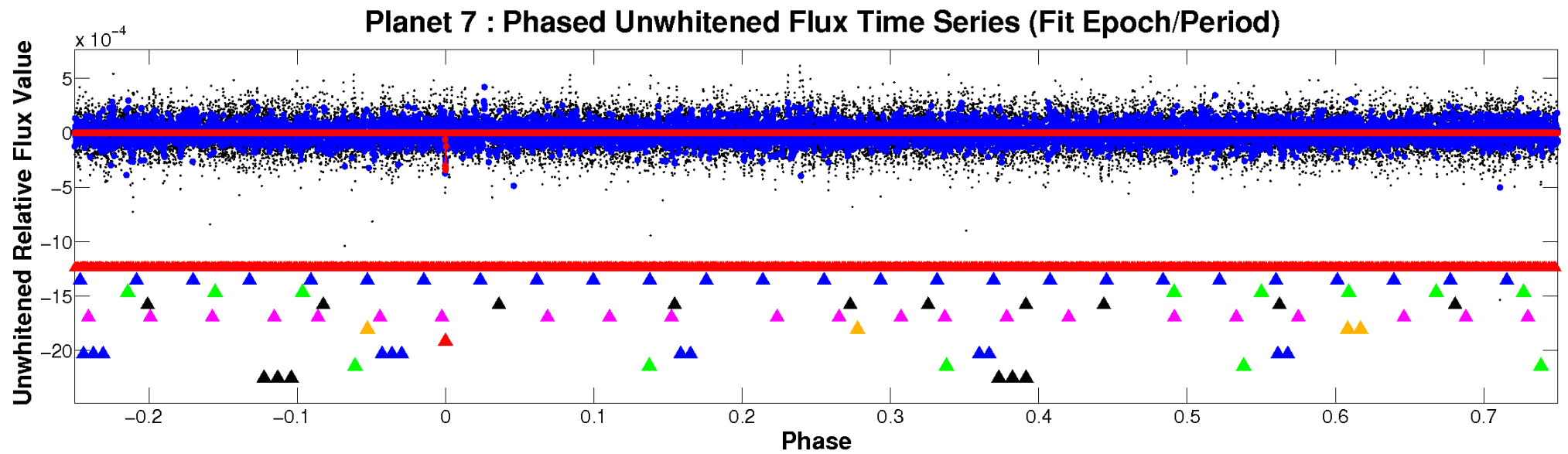


ALT Odd/Even

TCE 010341072-07

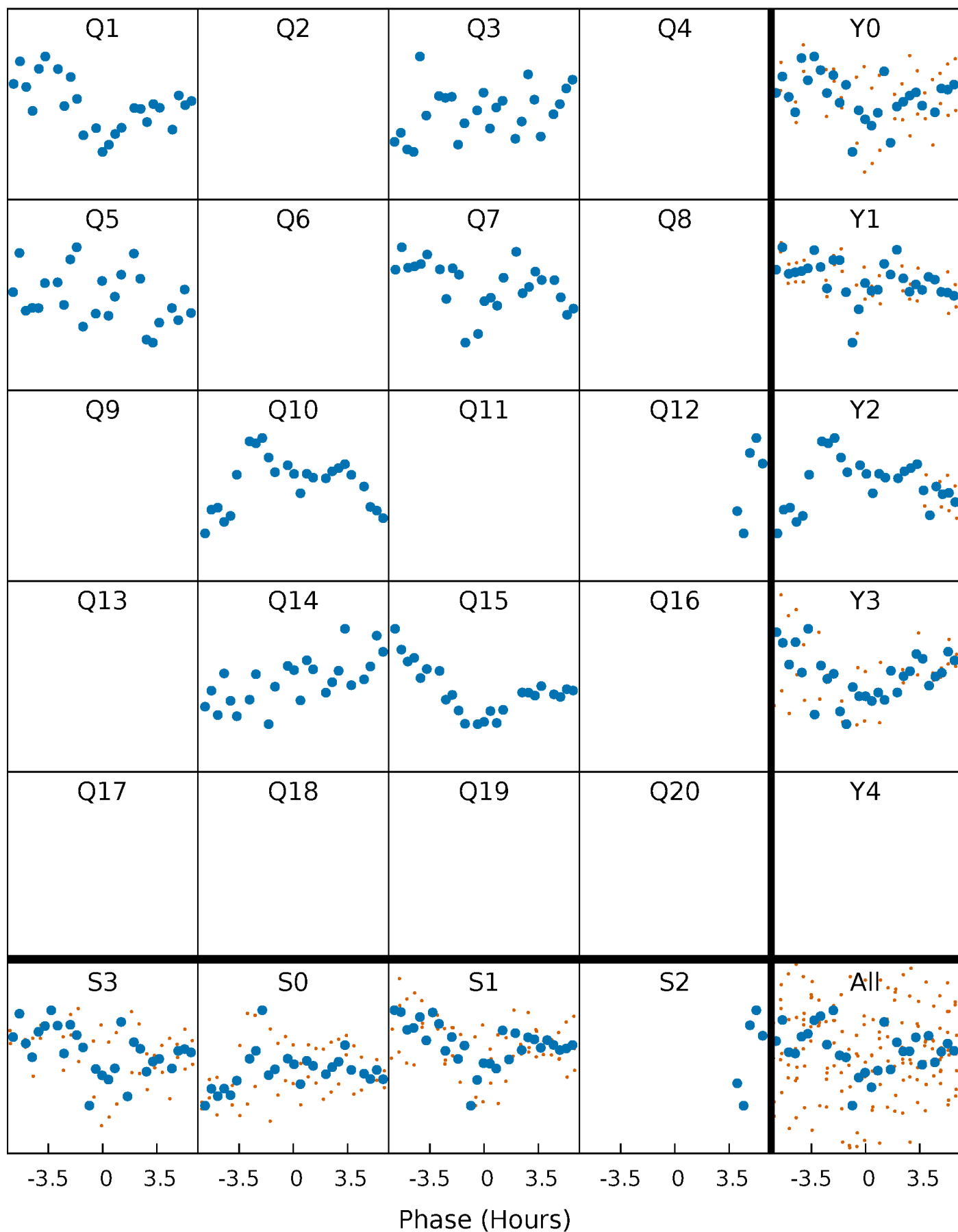


Non-Whitened Vs. Whitened Light Curve



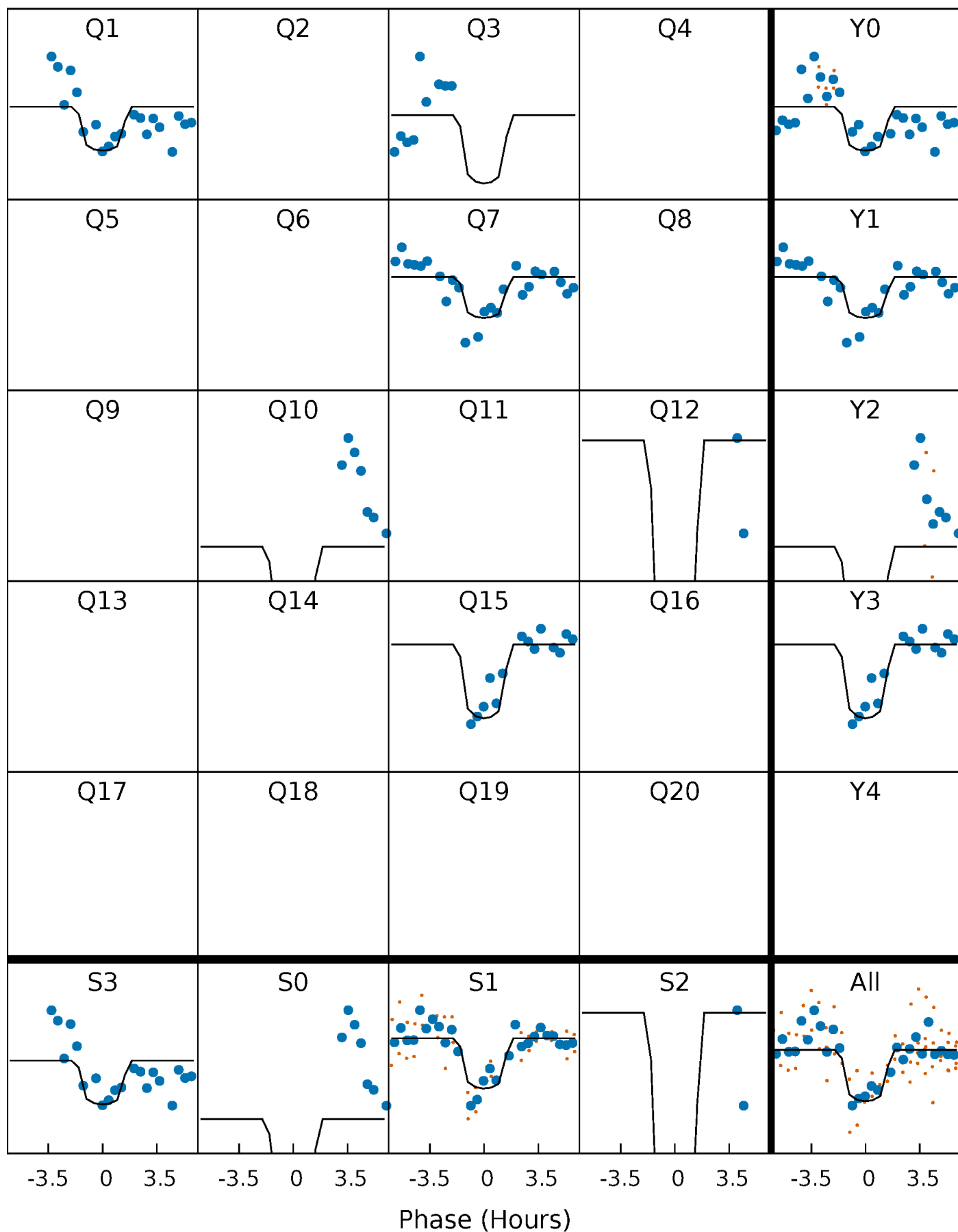
PDC Quarter-Phased Transit Curves

TCE 010341072-07 $P=161.609085$ Days $T_0=156.832880$ (BKJD)



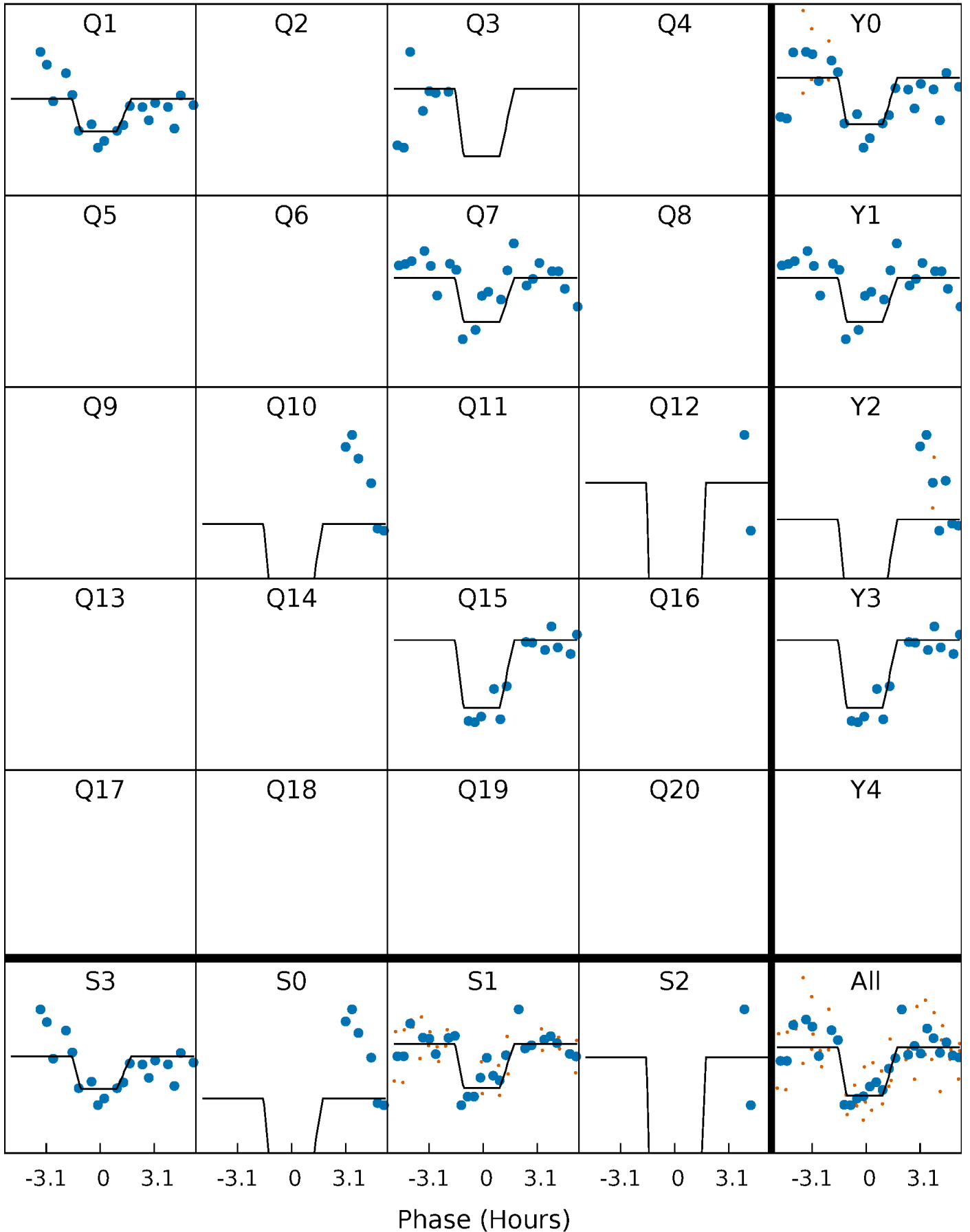
DV Quarter-Phased Transit Curves

TCE 010341072-07 $P=161.609085$ Days $T_0=156.832880$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

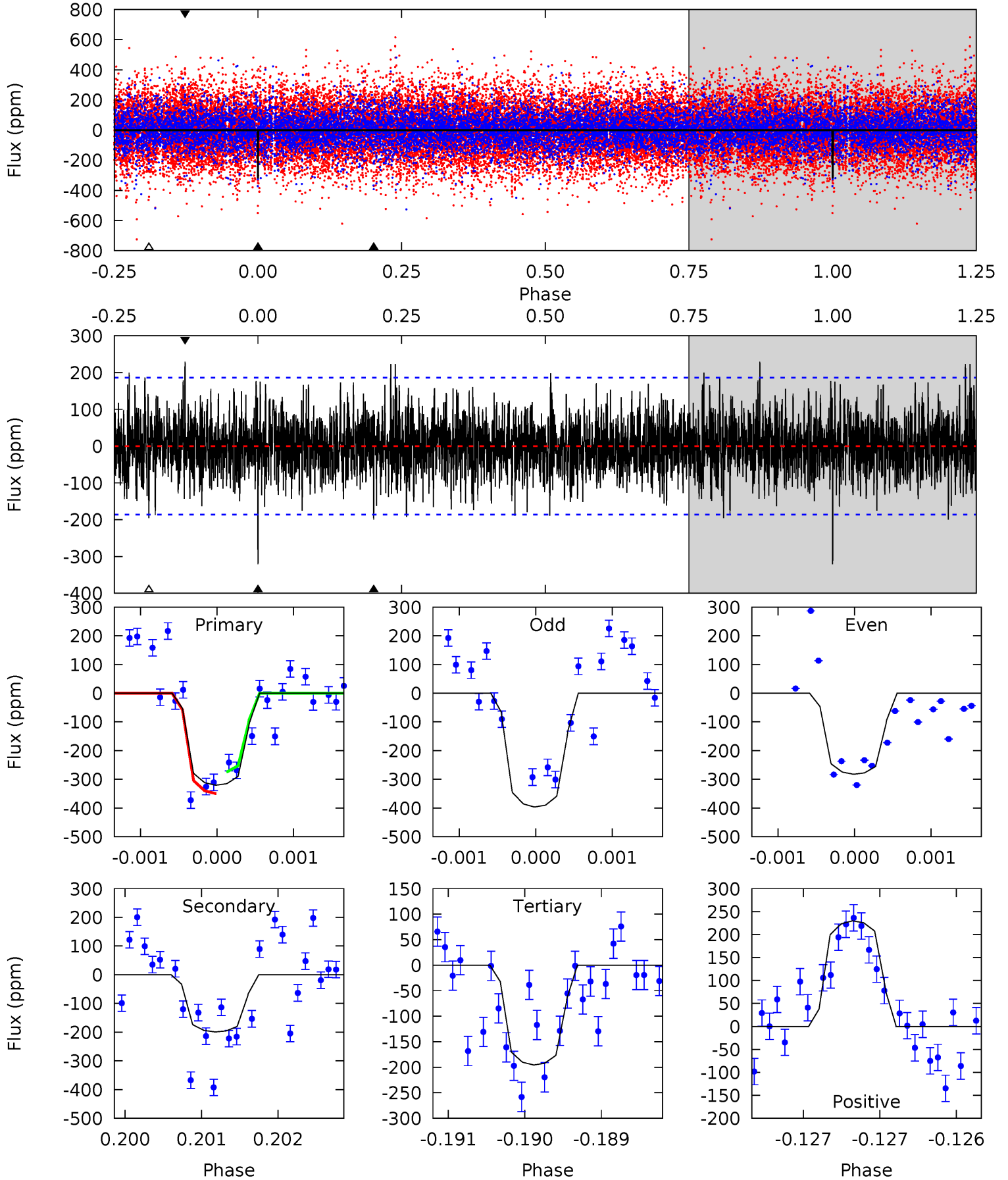
TCE 010341072-07 P=161.608416 Days $T_0=156.837416$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-07, P = 161.609085 Days, E = 156.832880 Days

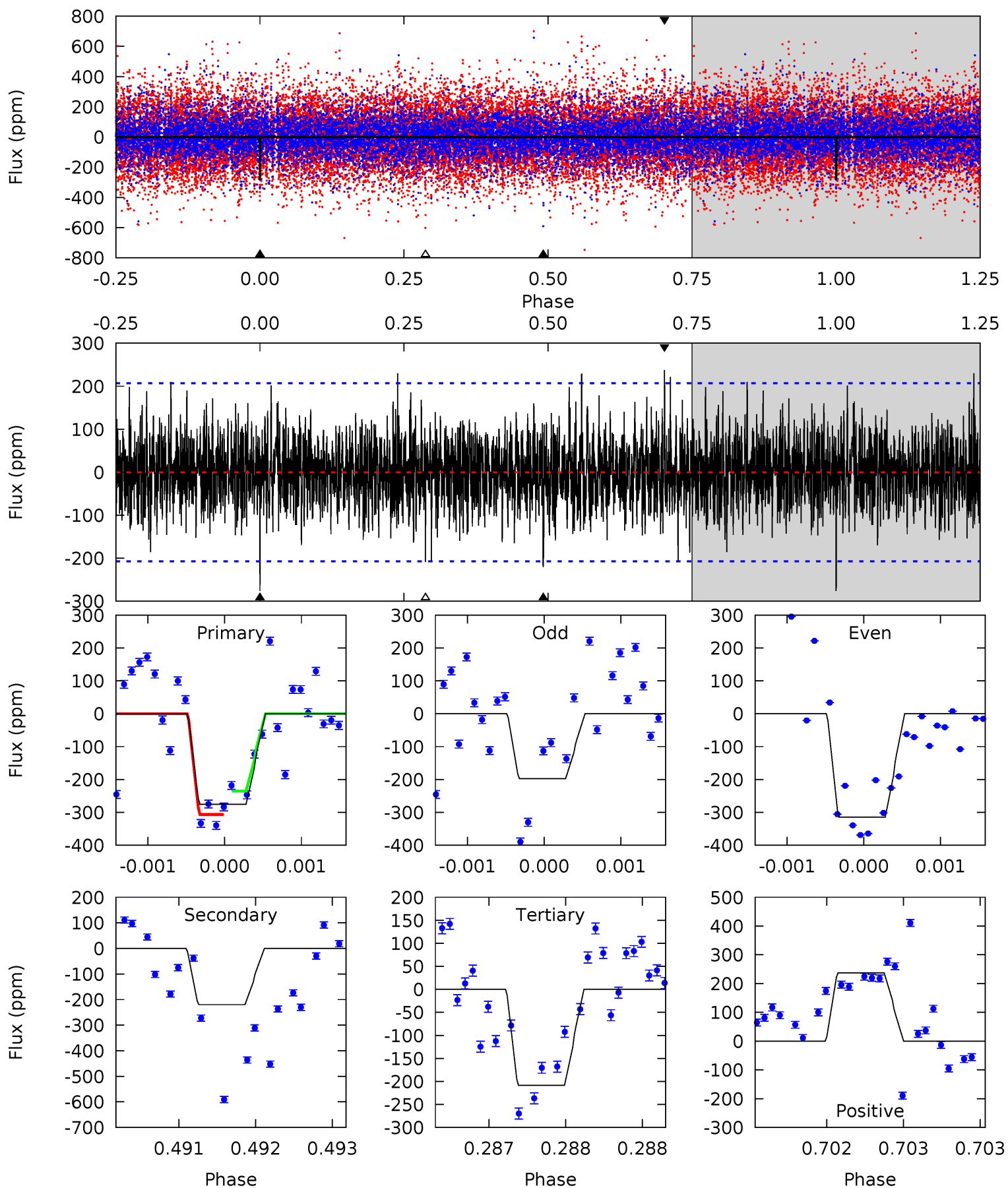
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.44	5.87	5.75	6.76	5.47	3.33	1.76	3.68	2.68	0.11	-0.90	1.59	1.07	0.42	1.10



Alt Model-Shift Uniqueness Test

010341072-07, P = 161.608416 Days, E = 156.837416 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.29	5.81	5.51	6.28	5.48	3.33	1.59	1.78	1.01	0.30	-0.46	1.47	0.89	0.46	0.94



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-199 ± 34	$8.27^{+5.50}_{-4.40}$	963^{+56}_{-107}	5474^{+2724}_{-984}	773^{+2741}_{-486}
Alt.	-220 ± 38	$7.07^{+5.25}_{-4.02}$	962^{+57}_{-113}	6037^{+3978}_{-1251}	1212^{+5032}_{-799}

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 $A_{obs} \gg 1.0$

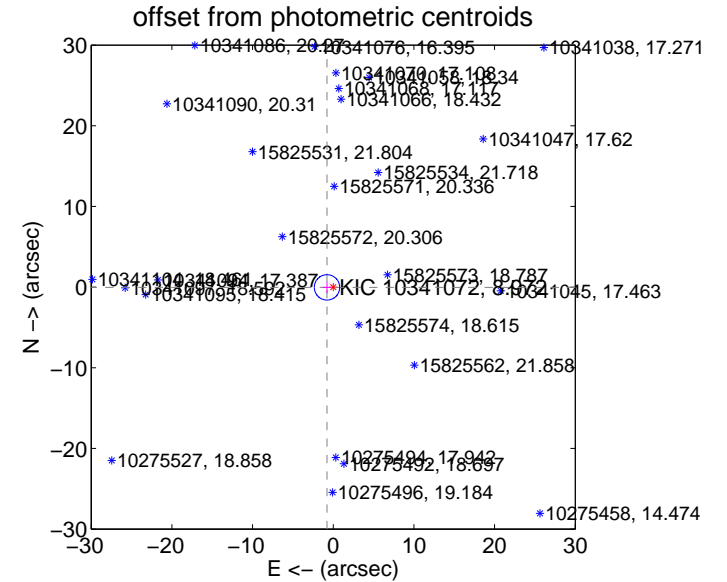
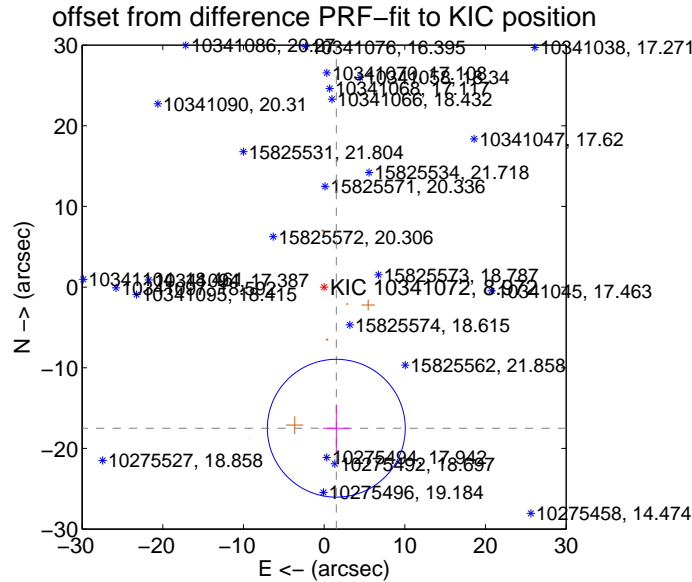
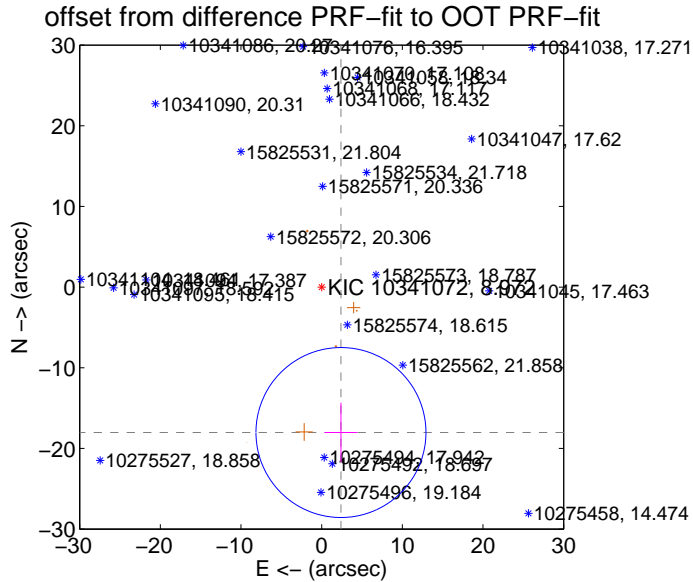
DV Centroid Data

Supplemental centroid analysis for 010341072-07. **Kepler magnitude: 8.97.** Transit SNR 8.68

There are 0 quarters with good PRF difference image offsets

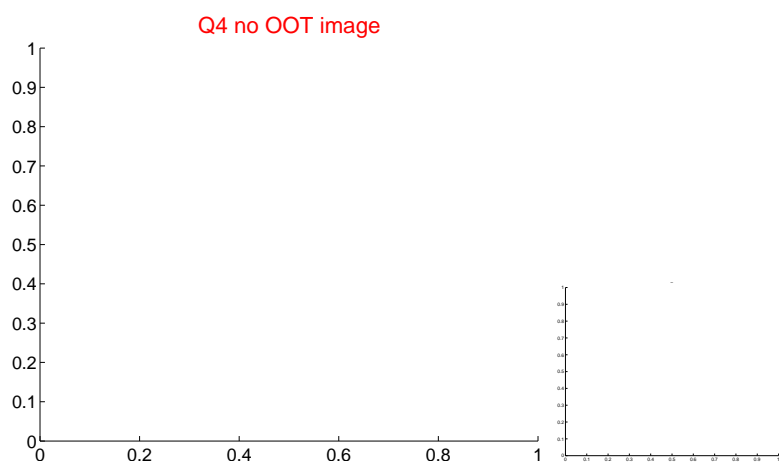
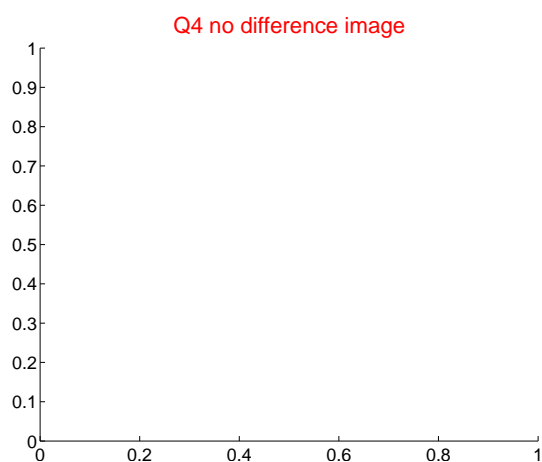
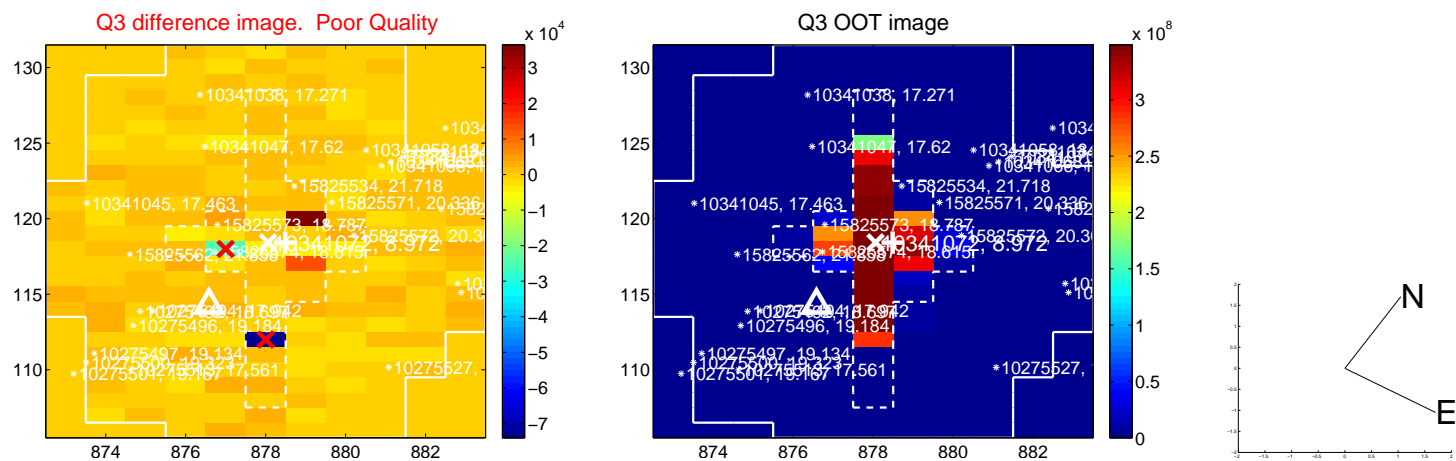
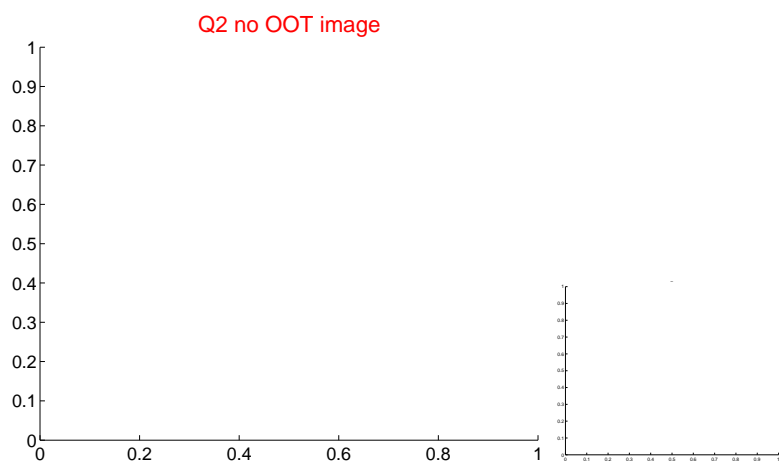
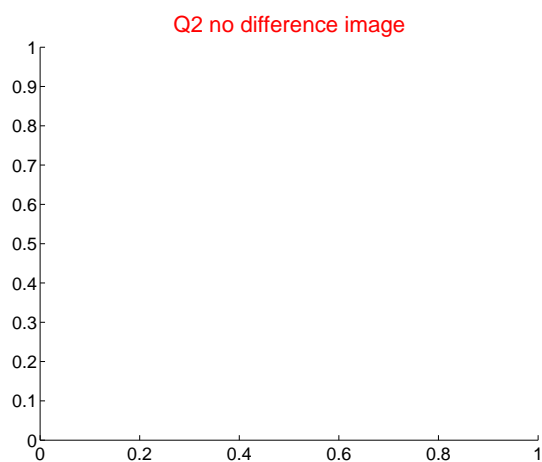
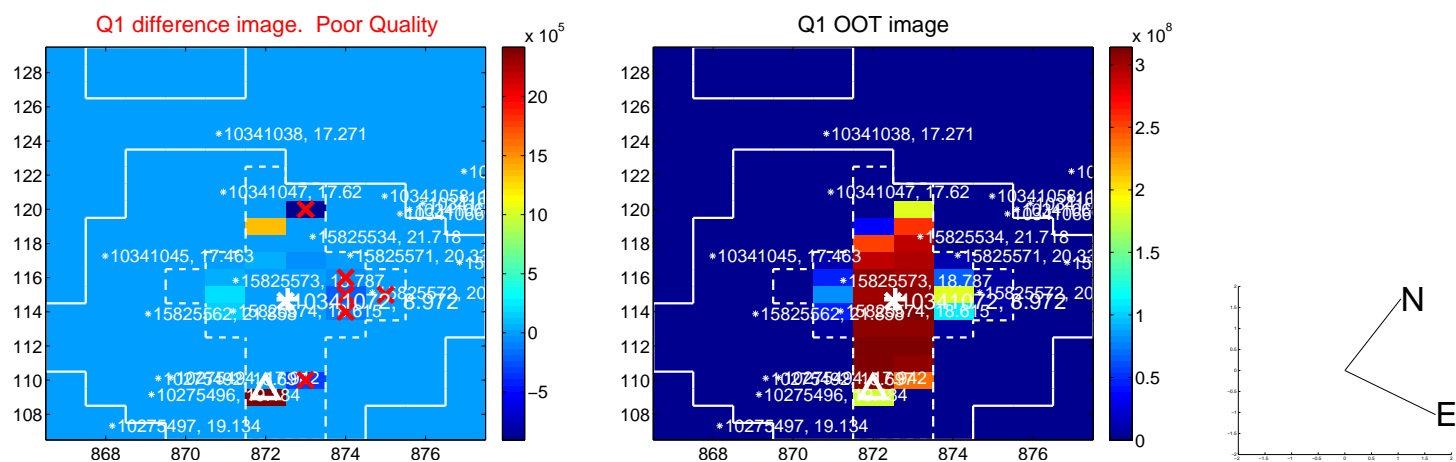
The direct PRF centroid is offset from the target star catalog position by about 1.70 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	18.186 ± 3.511	5.18	-2.392 ± 2.048	-18.028 ± 3.691
PRF-fit source offset from KIC position	17.560 ± 2.848	6.17	-1.512 ± 1.627	-17.495 ± 2.952
photometric centroid source offset	0.78 ± 0.52	1.48	0.77 ± 0.52	-0.04 ± 0.72

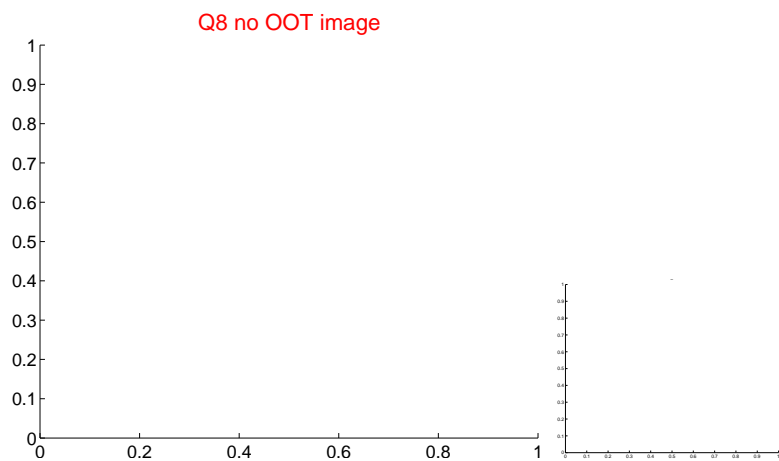
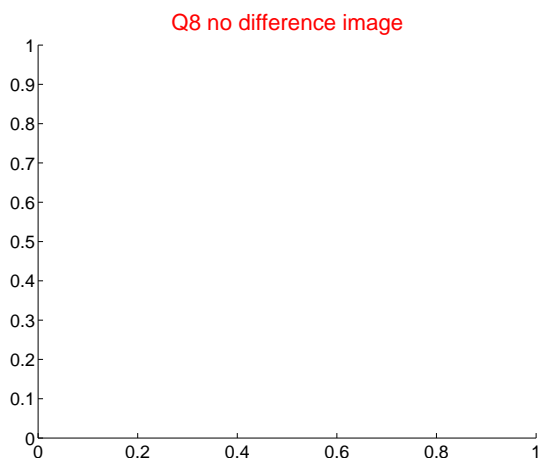
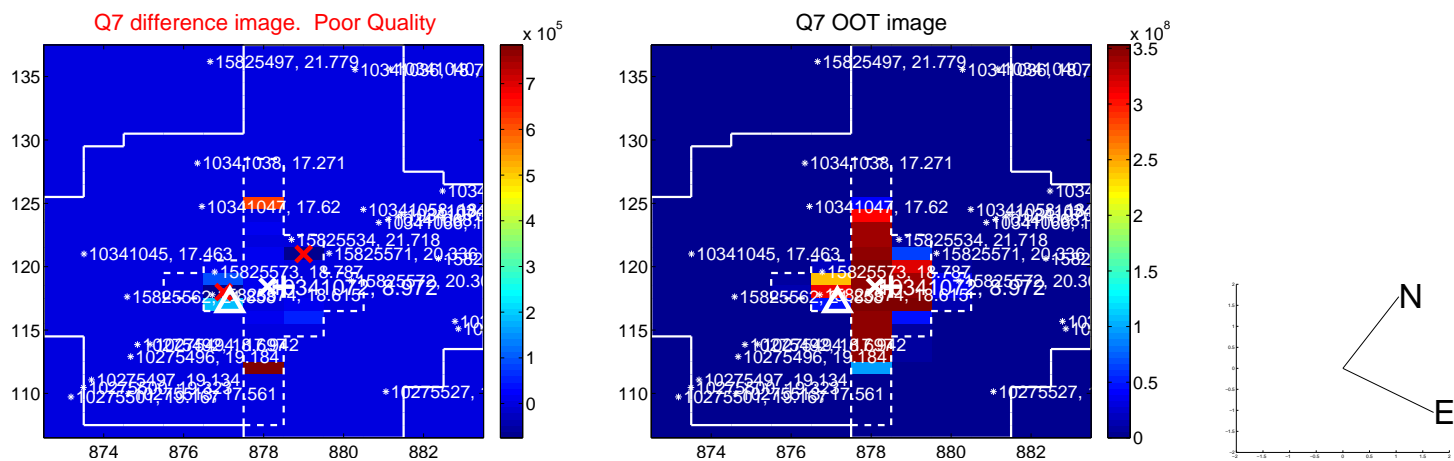
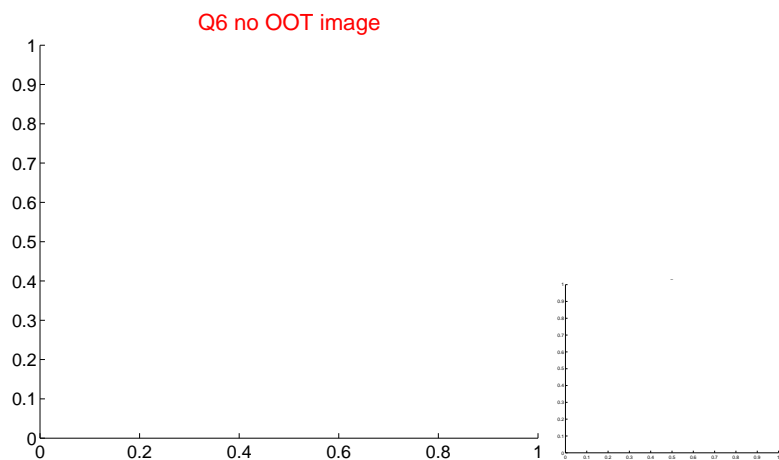
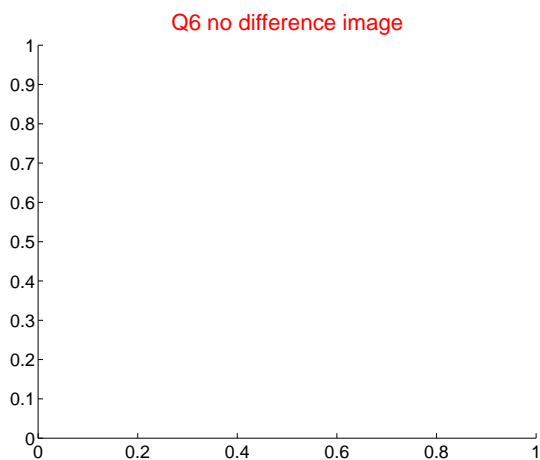
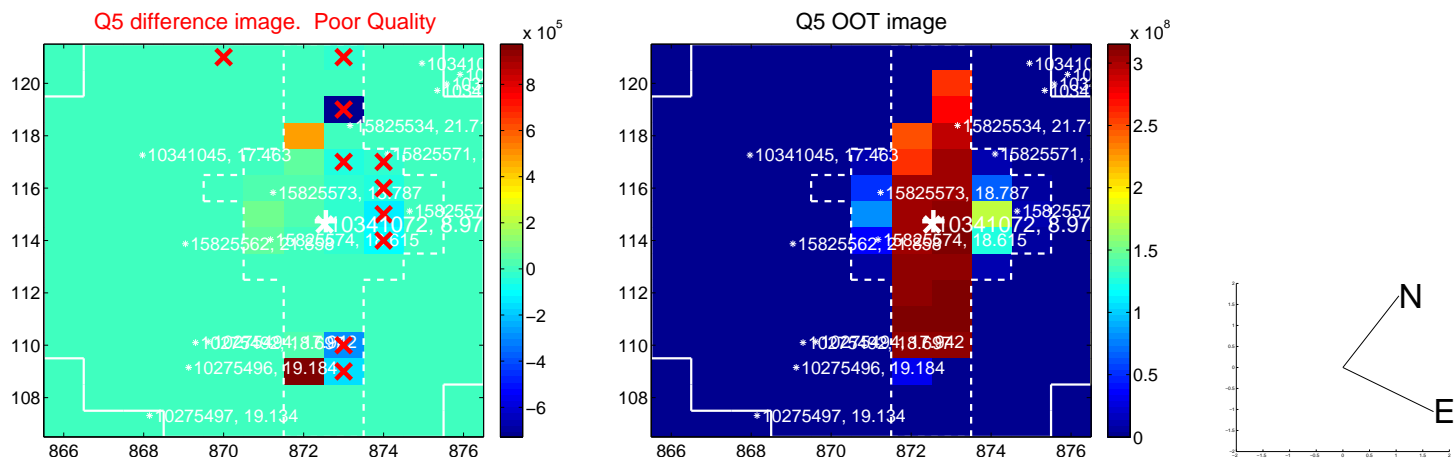


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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



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

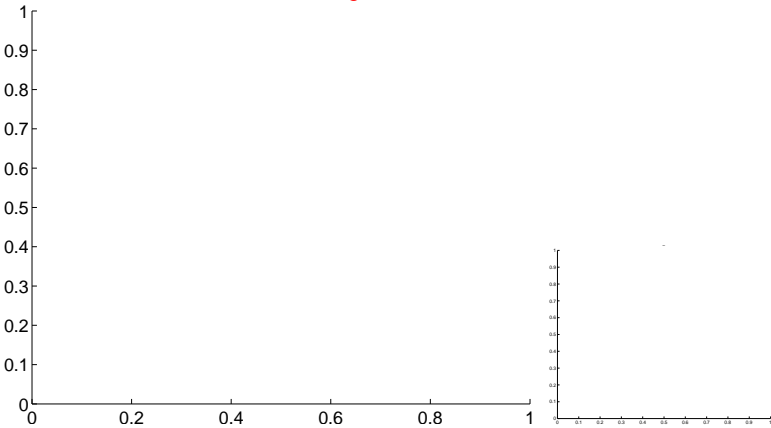


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

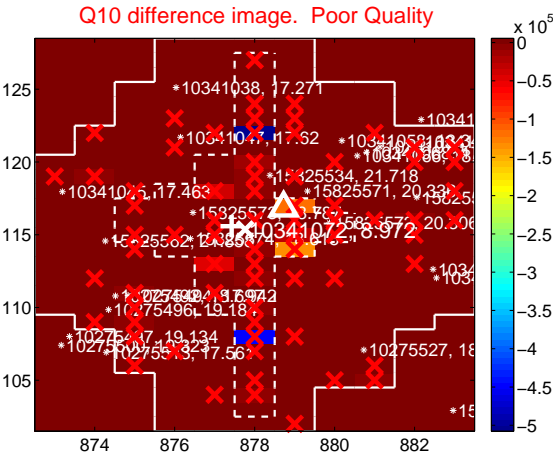
Q9 no difference image



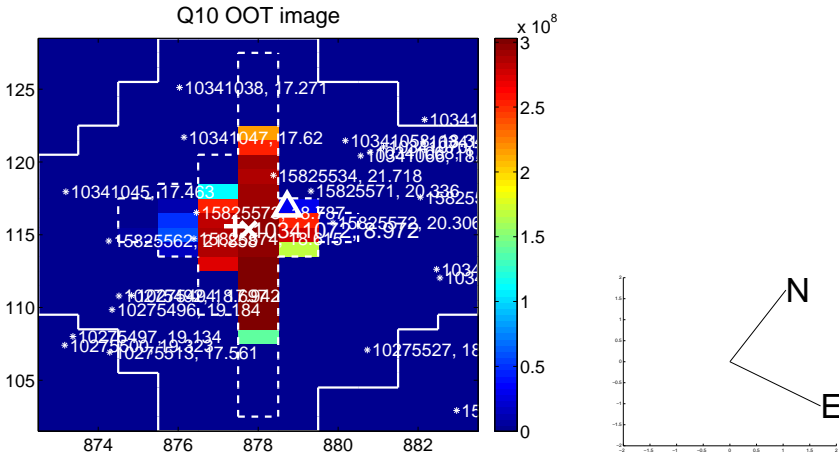
Q9 no OOT image



Q10 difference image. Poor Quality



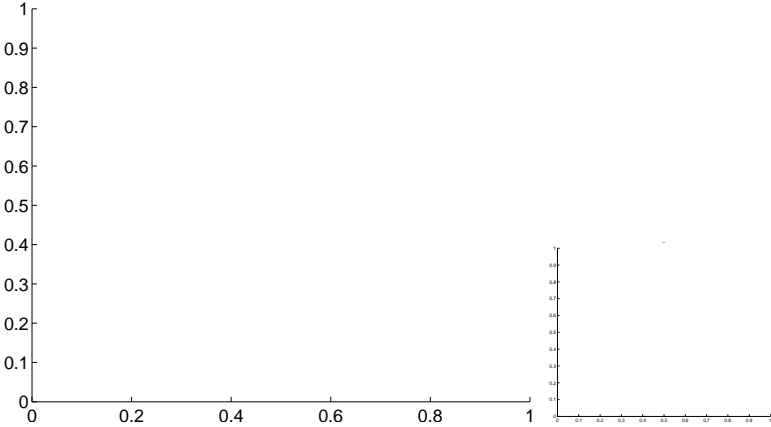
Q10 OOT image



Q11 no difference image



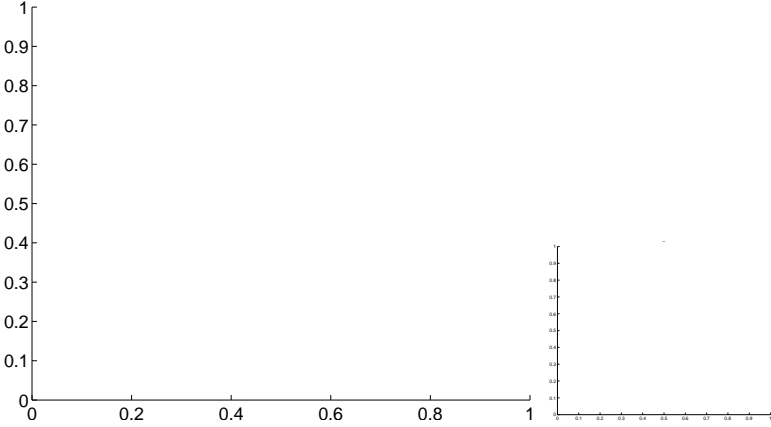
Q11 no OOT image



Q12 no difference image



Q12 no OOT image

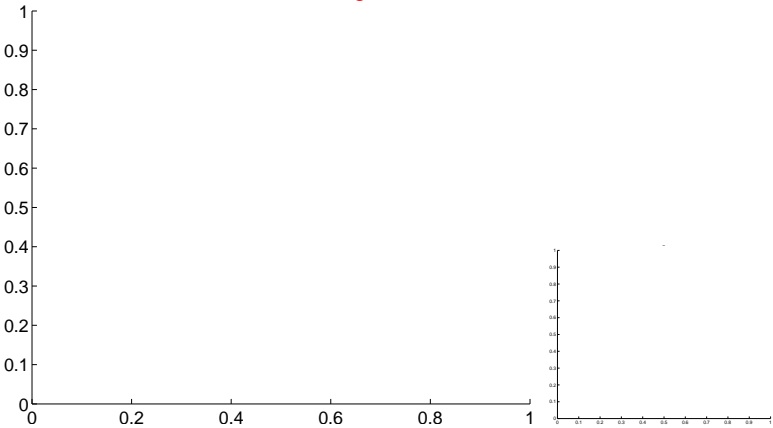


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

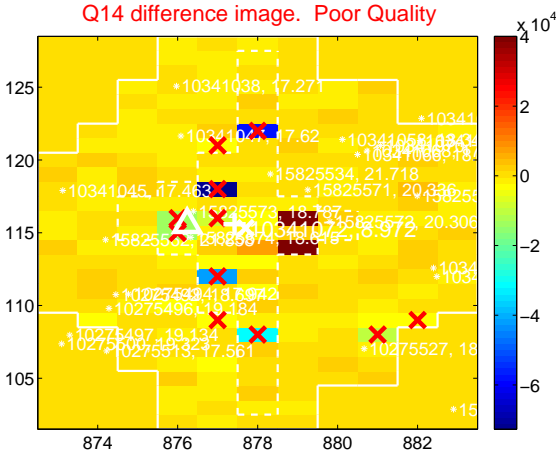
Q13 no difference image



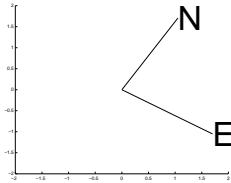
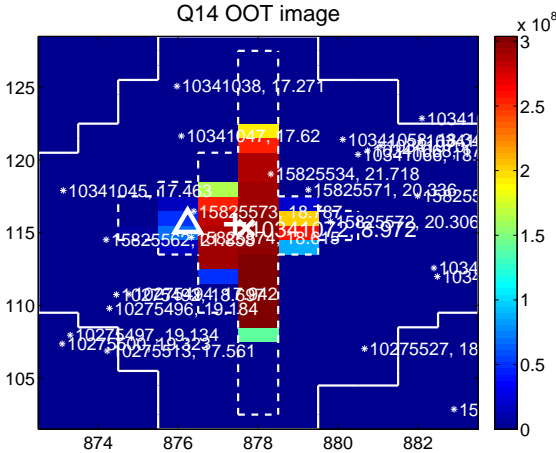
Q13 no OOT image



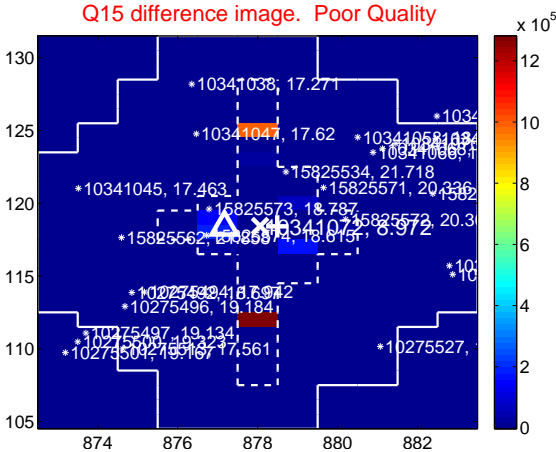
Q14 difference image. Poor Quality



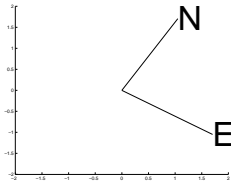
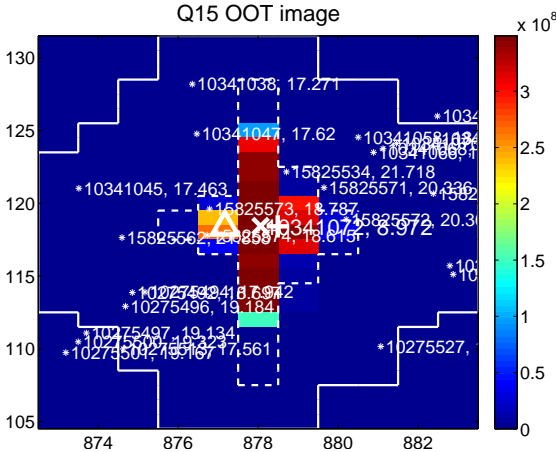
Q14 OOT image



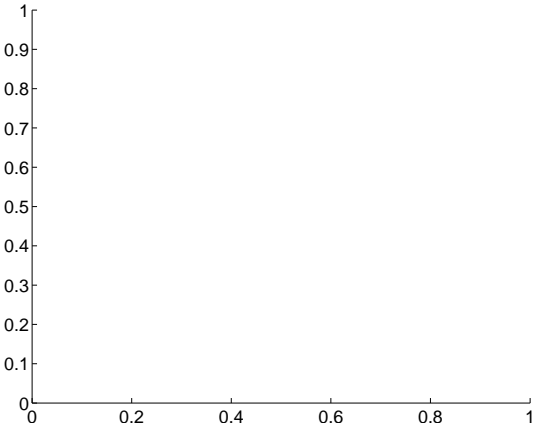
Q15 difference image. Poor Quality



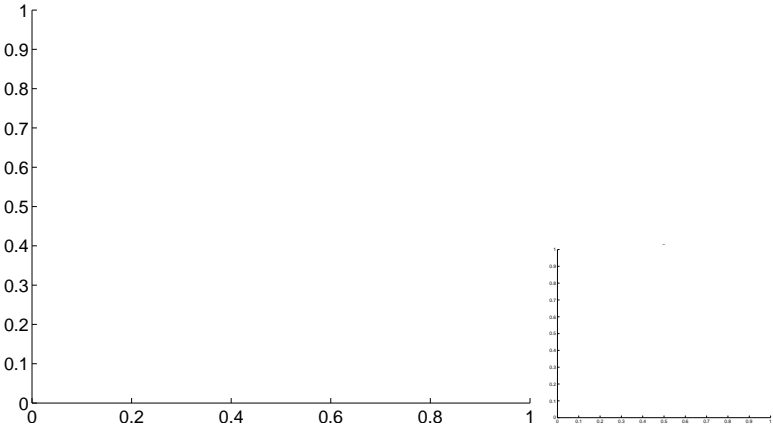
Q15 OOT image



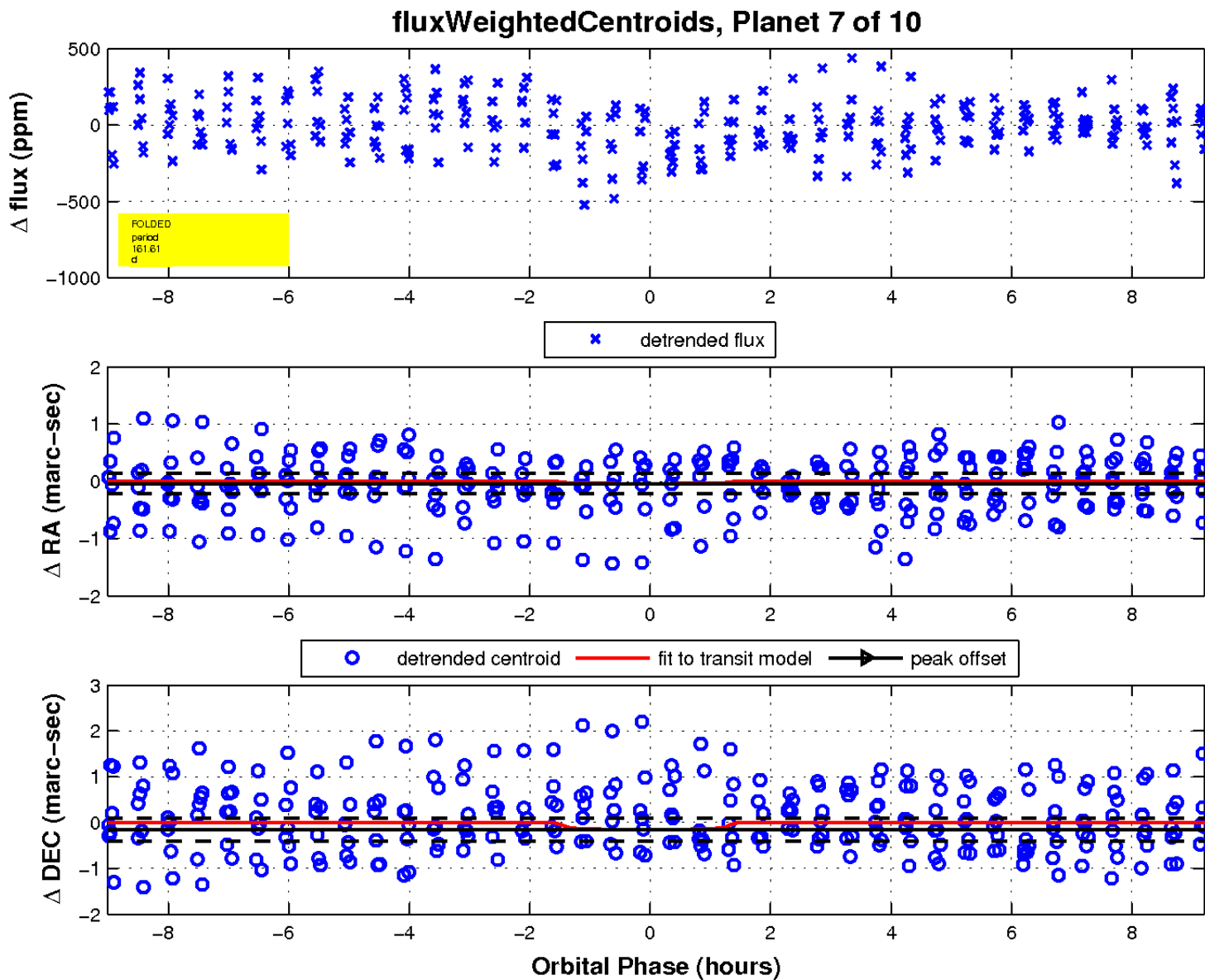
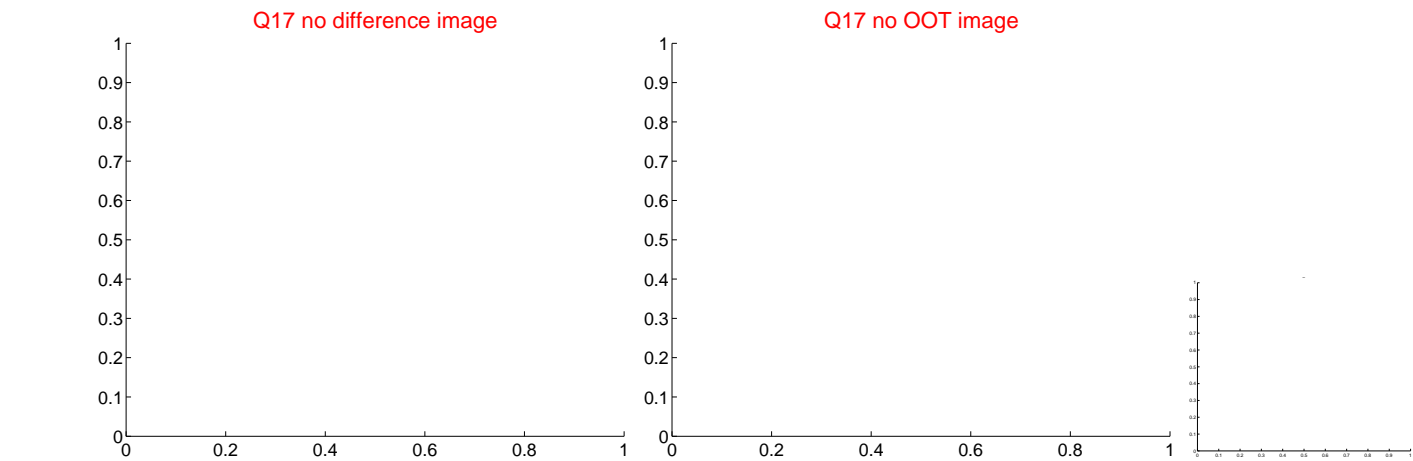
Q16 no difference image



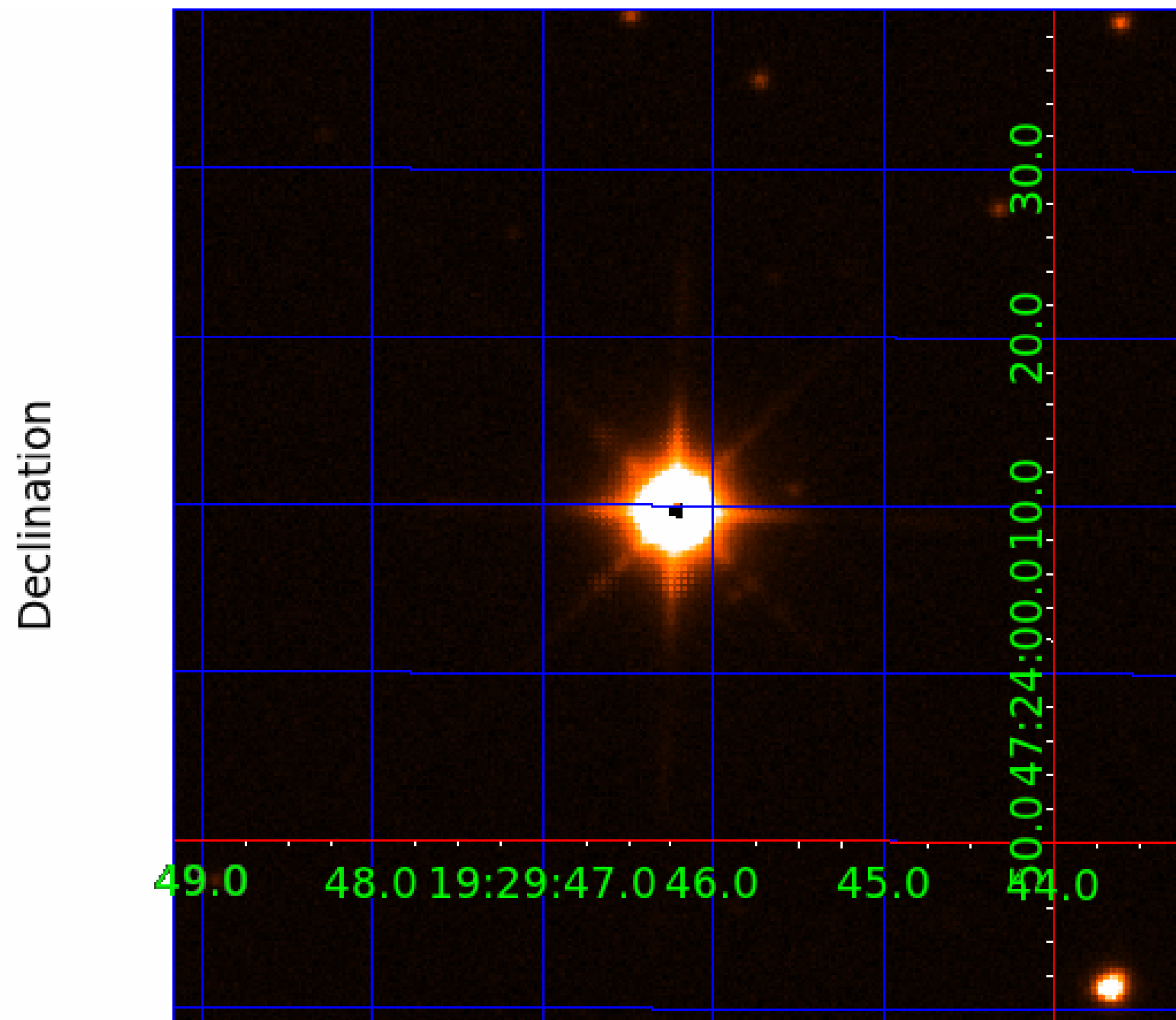
Q16 no OOT image



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



UKIRT Image



KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
010341072-04	OBS	No	142.468614	220.078937	296.7	2.449	8.7	9.1	4.33	6541	9.05	70.36
010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
010341072-07	OBS	No	161.609085	156.832880	343.3	3.076	8.3	8.7	4.33	6541	9.29	59.47
010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

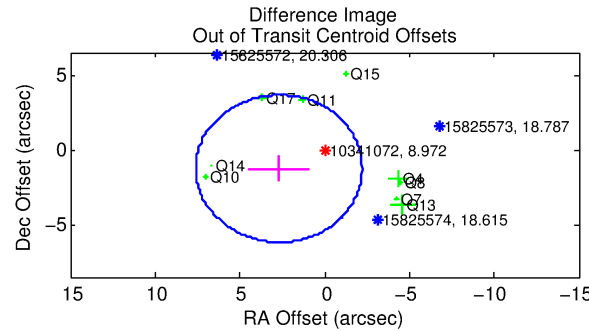
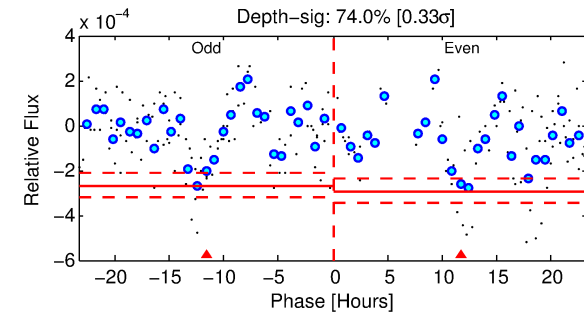
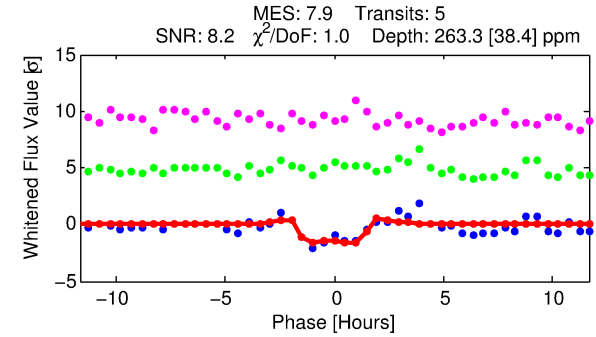
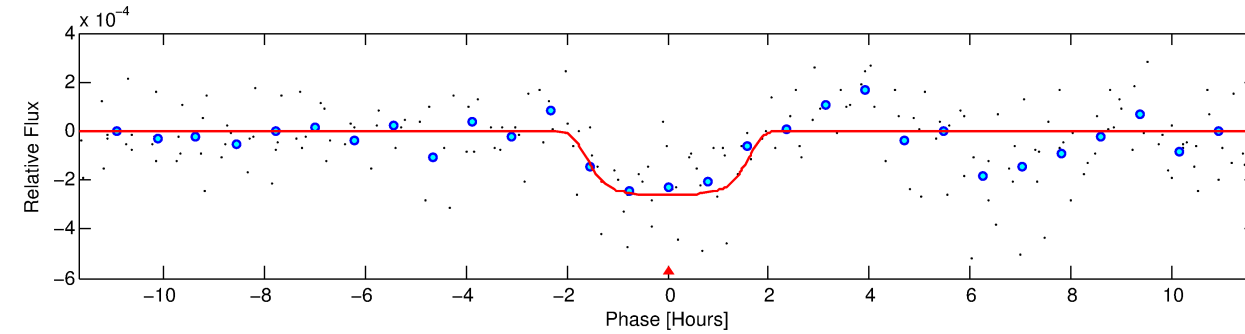
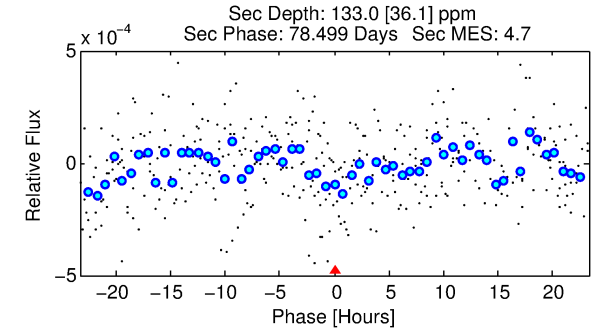
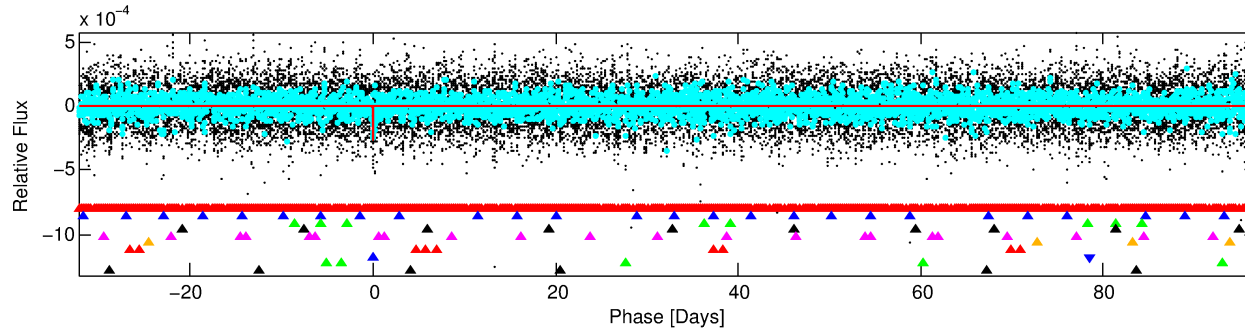
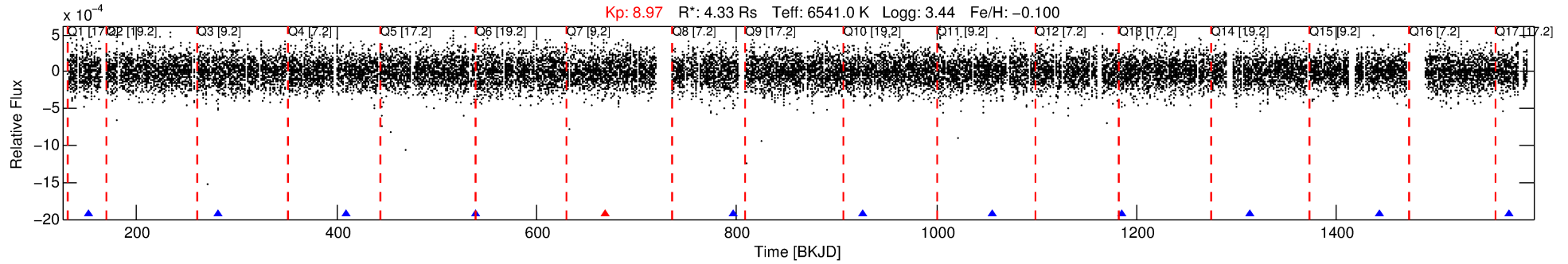
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-08

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 8 of 10 Period: 129.073 d



DV Fit Results:

Period = 129.07265 [0.00137] d
Epoch = 152.0696 [0.0088] BKJD
Rp/R* = 0.0185 [0.0022]
a/R* = 88.99 [41.36]
b = 0.96 [0.04]
Seff = 80.26 [53.74]
Teq = 763 [128] K
Rp = 8.75 [3.81] Re
a = 0.6186 [0.2537] AU
Ag = 365.91 [275.67] [1.32σ]
Teffp = 5161 [482] K [8.83σ]

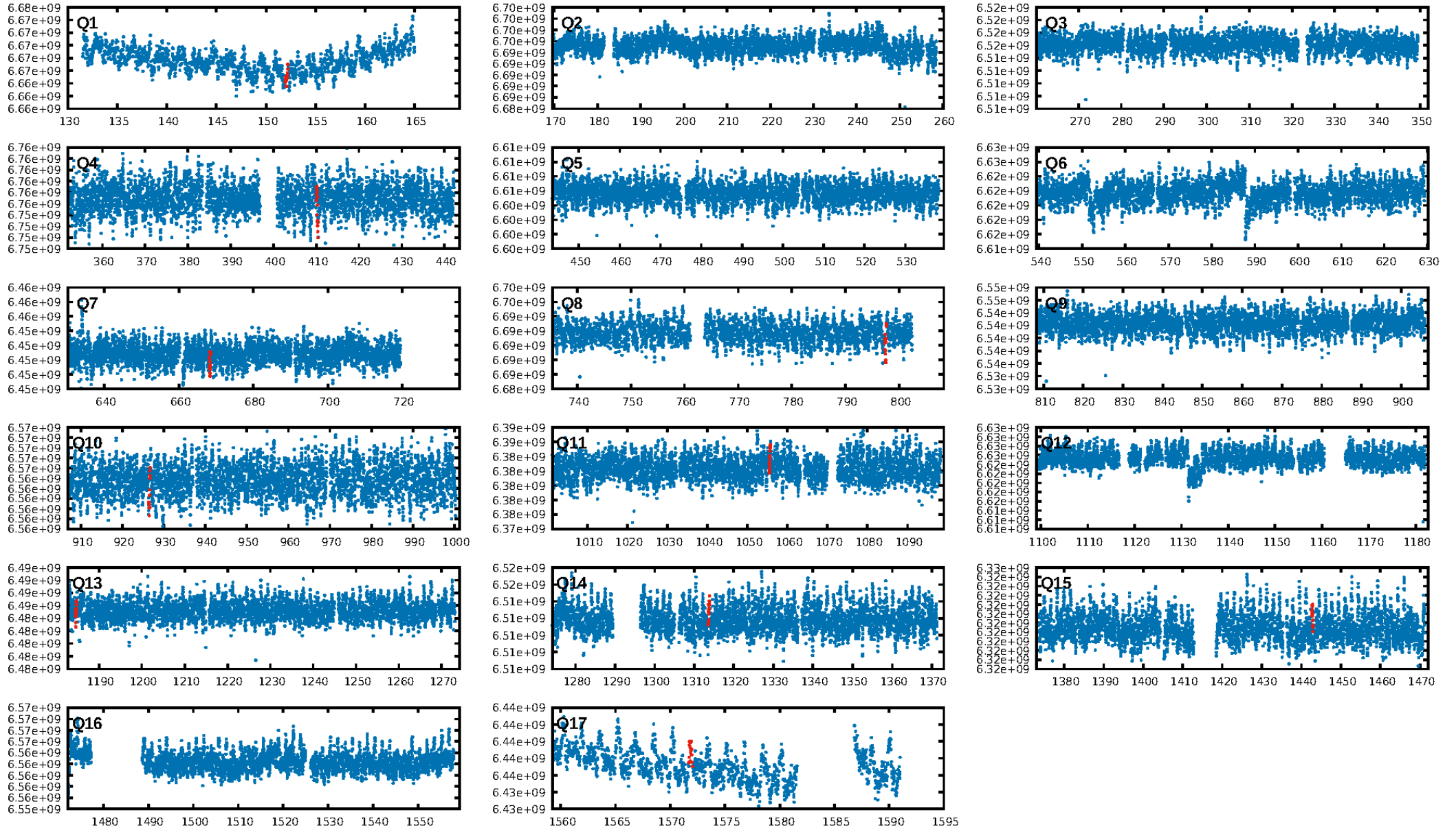
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [287.75σ]
LongPeriod-sig: 100.0% [69.84σ]
ModelChiSquare2-sig: 39.9%
ModelChiSquareGof-sig: 98.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 42.2%
Centroid-so: 0.656 arcsec [0.85σ]
OotOffset-rm: 2.978 arcsec [1.82σ]
OotOffset-st: 2/3/2/2 [9]
KicOffset-rm: 1.280 arcsec [1.04σ]
KicOffset-st: 2/3/2/2 [9]
DiffImageQuality-fgm: 0.00 [0/9]
DiffImageOverlap-fno: 0.50 [5/10]

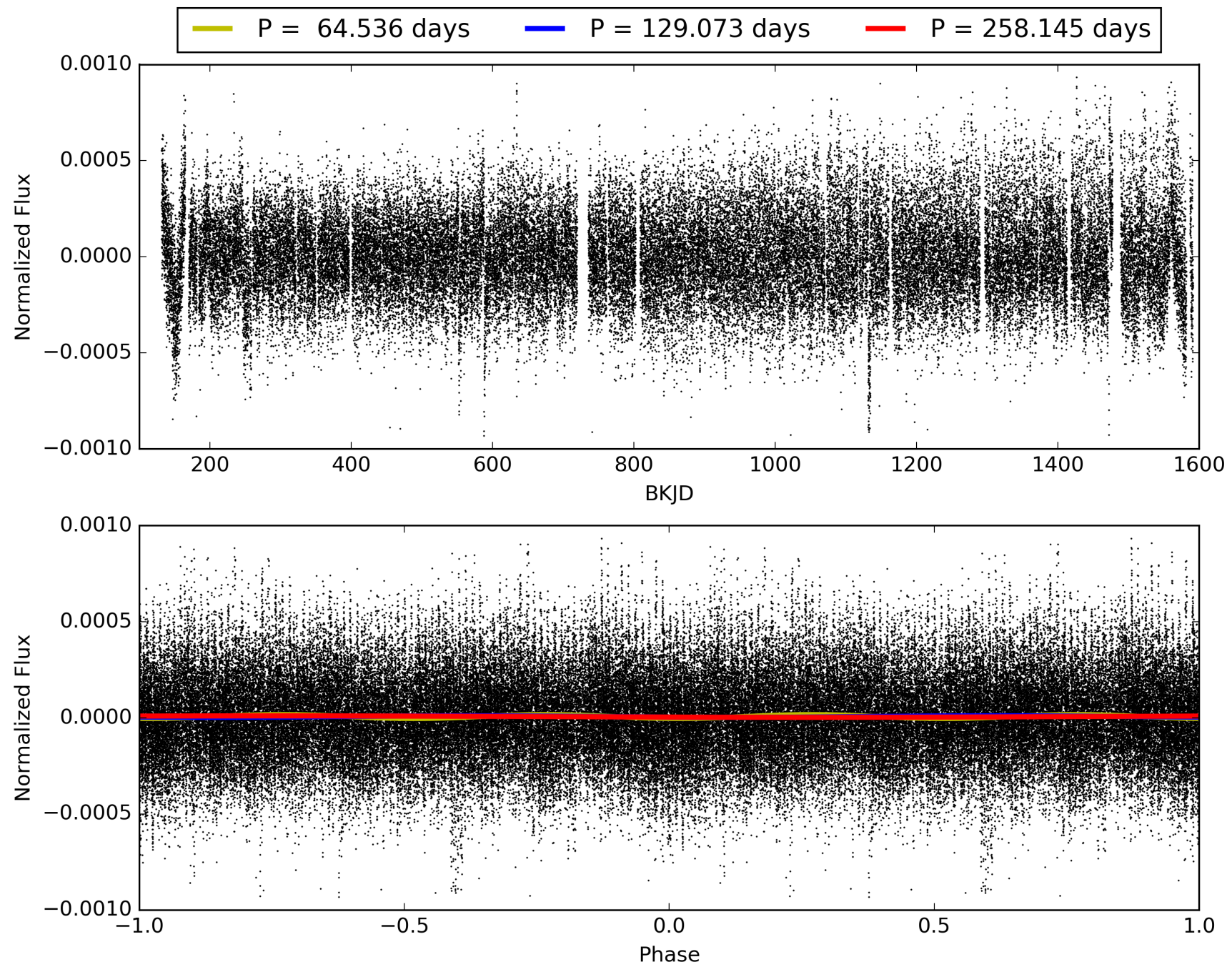
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:57:30 Z

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

TCE 010341072-08, PDC Light Curves

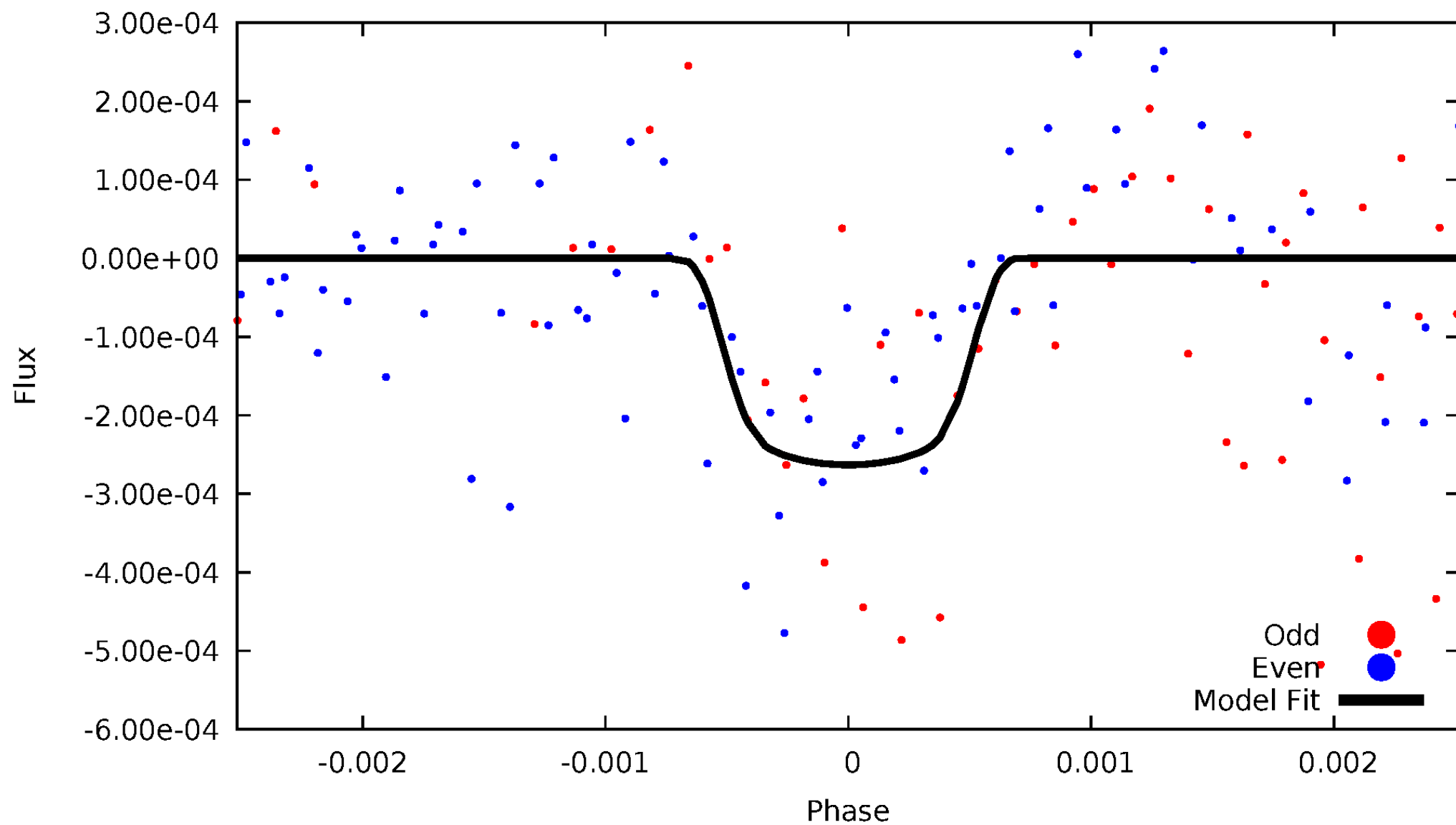


TCE 010341072-08



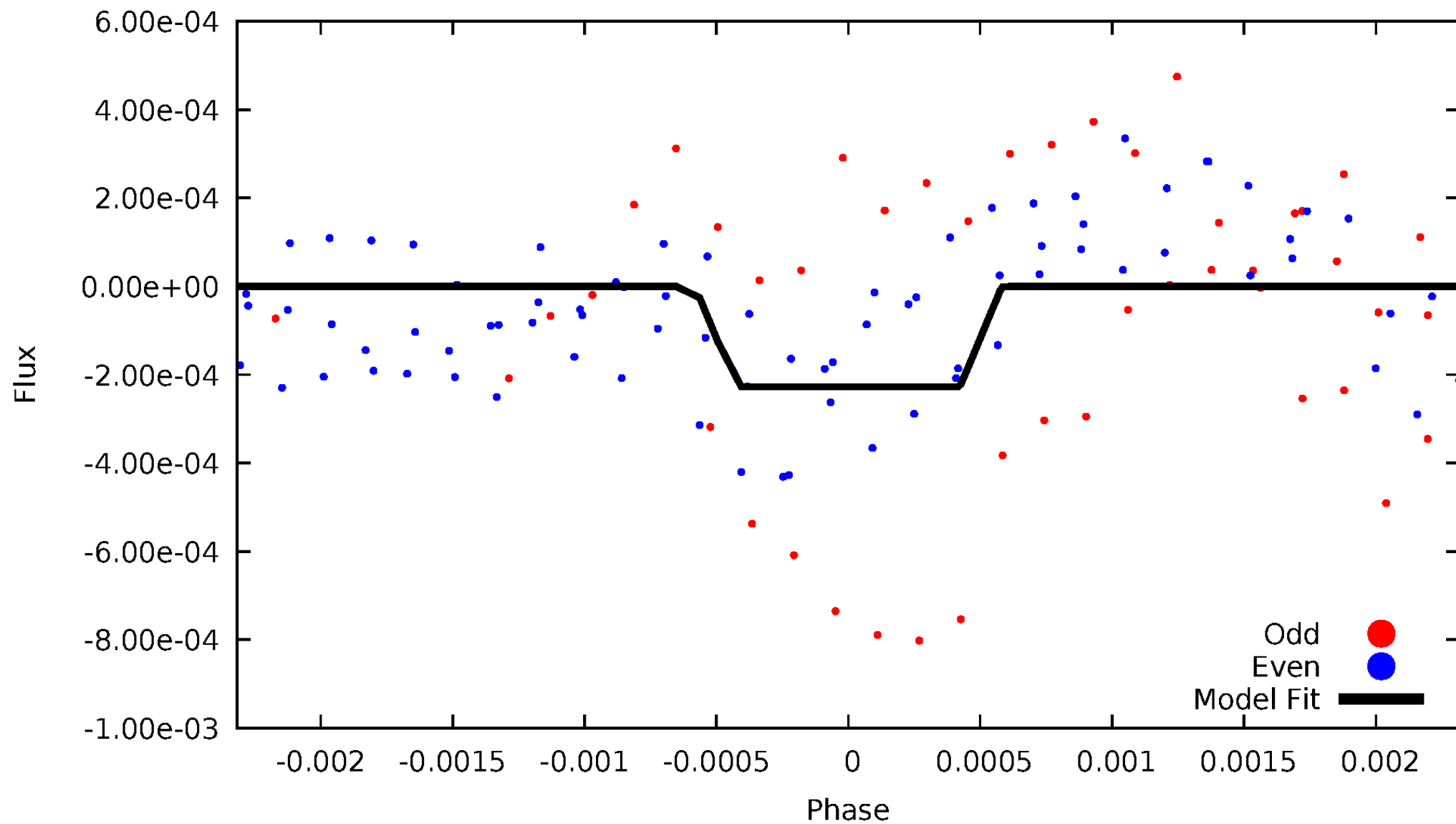
DV Odd/Even

TCE 010341072-08



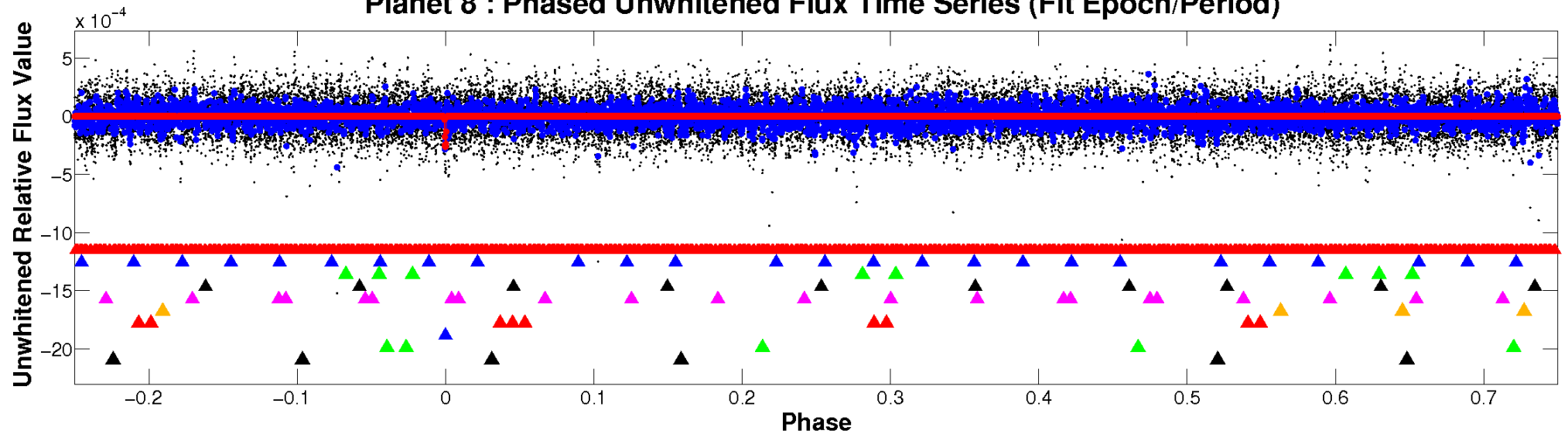
ALT Odd/Even

TCE 010341072-08

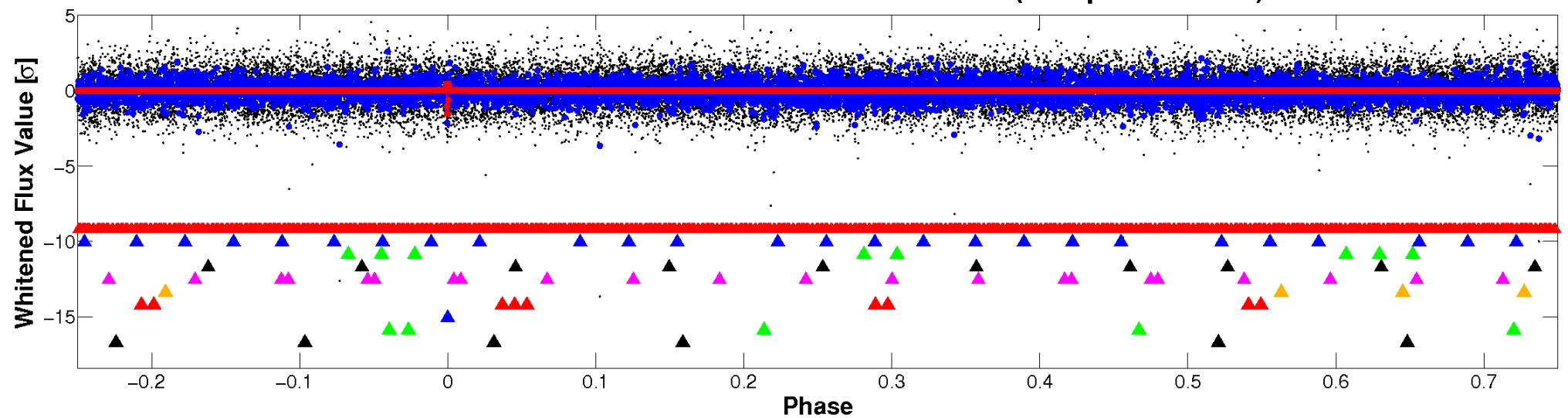


Non-Whitened Vs. Whitened Light Curve

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

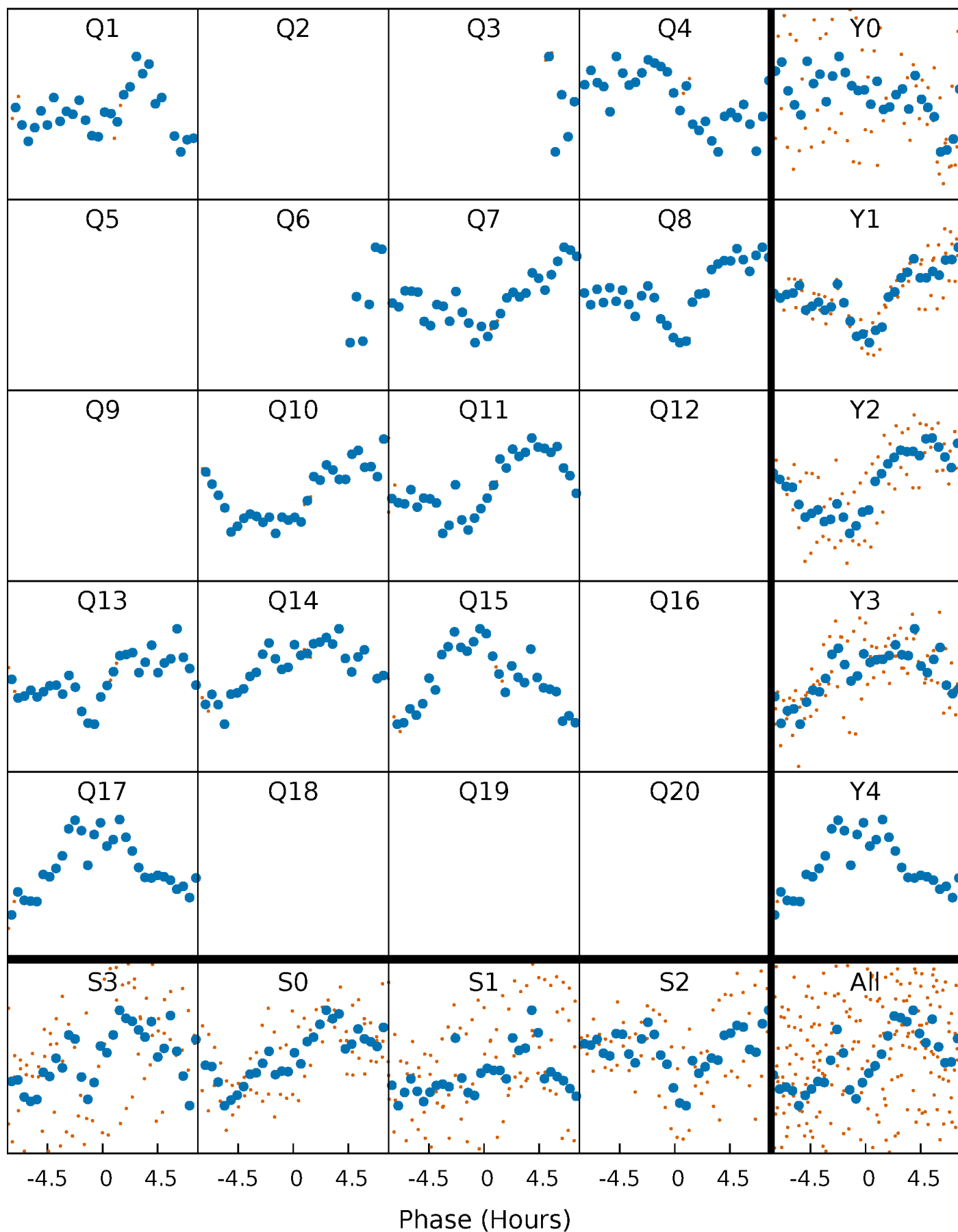


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



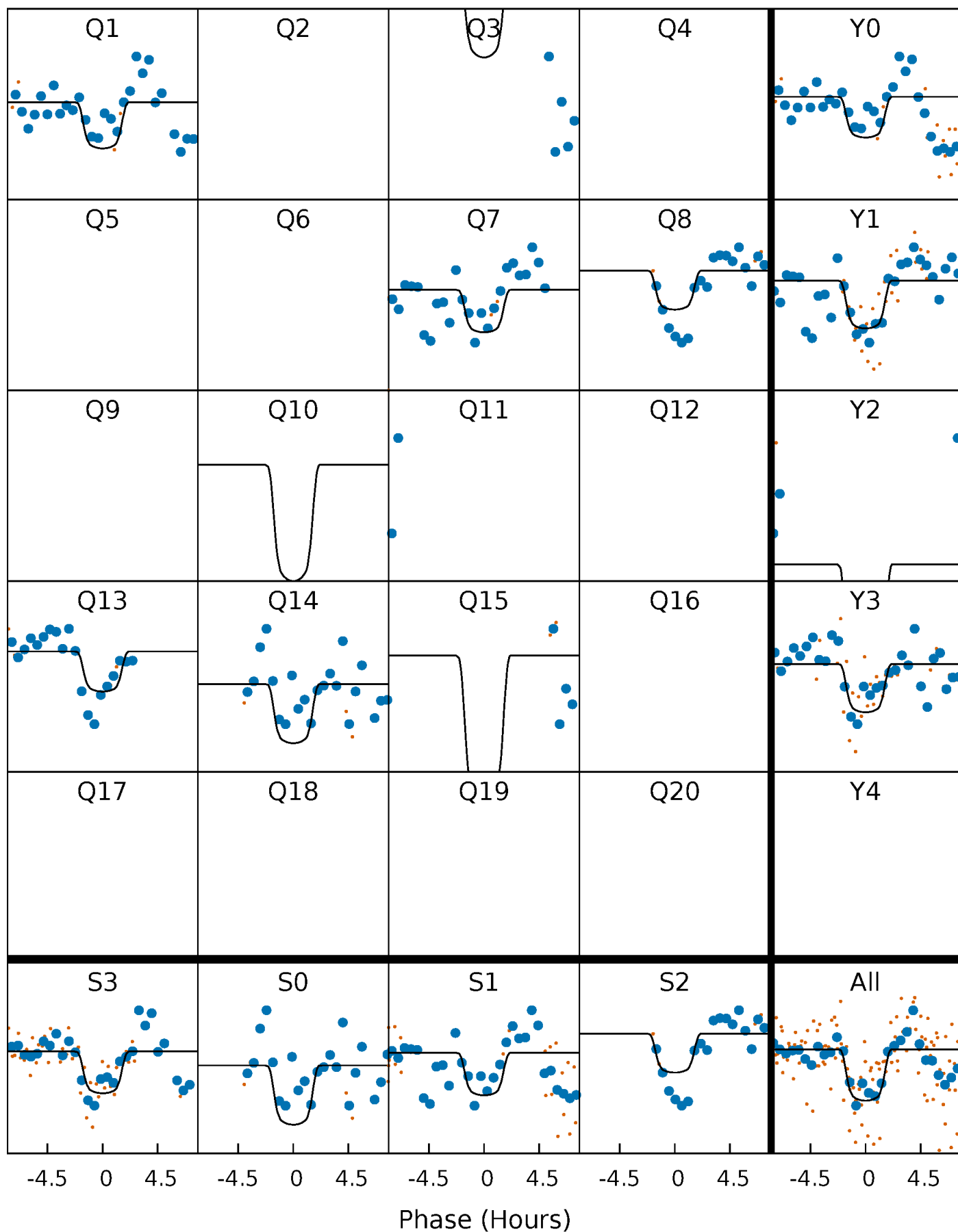
PDC Quarter-Phased Transit Curves

TCE 010341072-08 P=129.072654 Days $T_0=152.069611$ (BKJD)



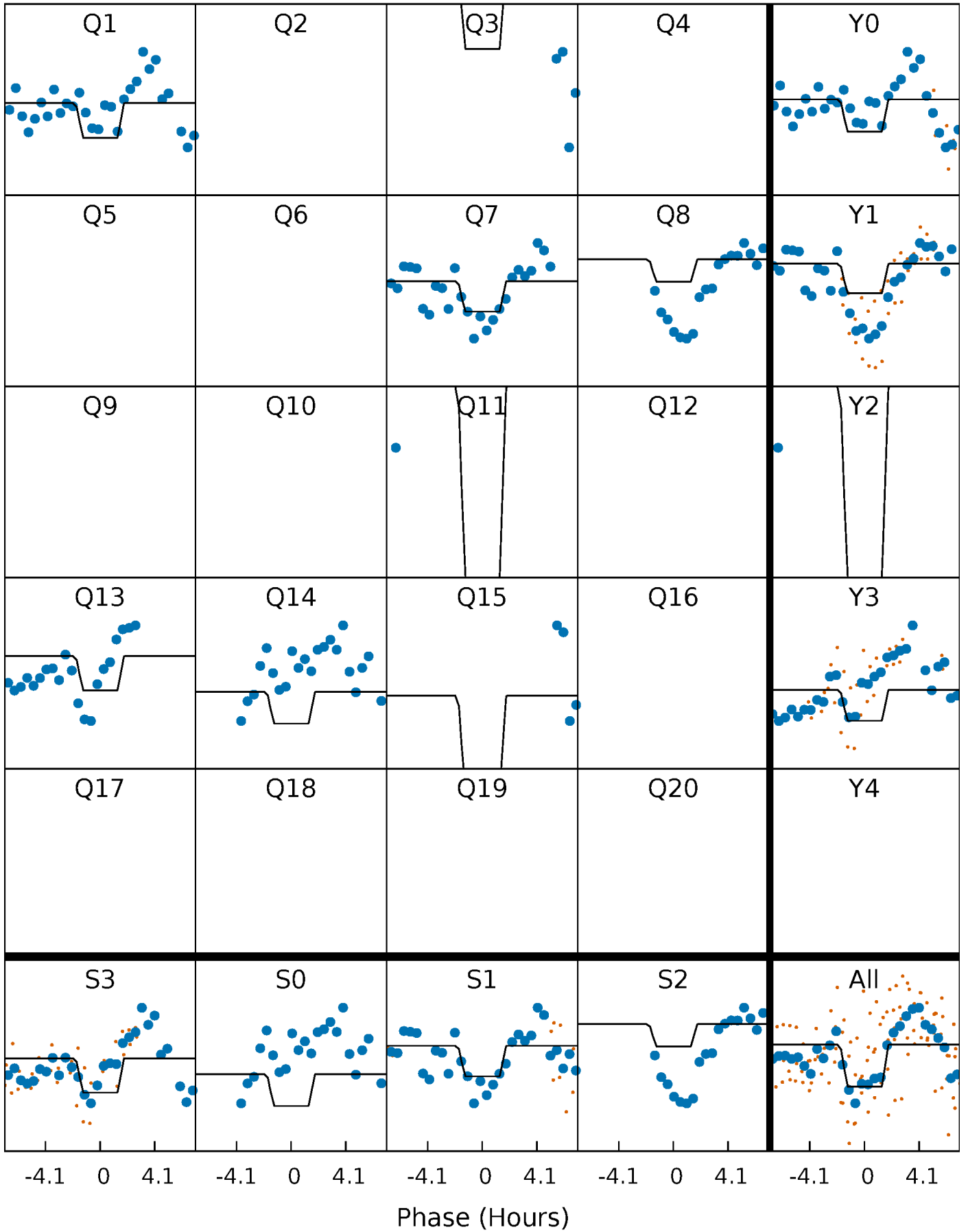
DV Quarter-Phased Transit Curves

TCE 010341072-08 $P=129.072654$ Days $T_0=152.069611$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

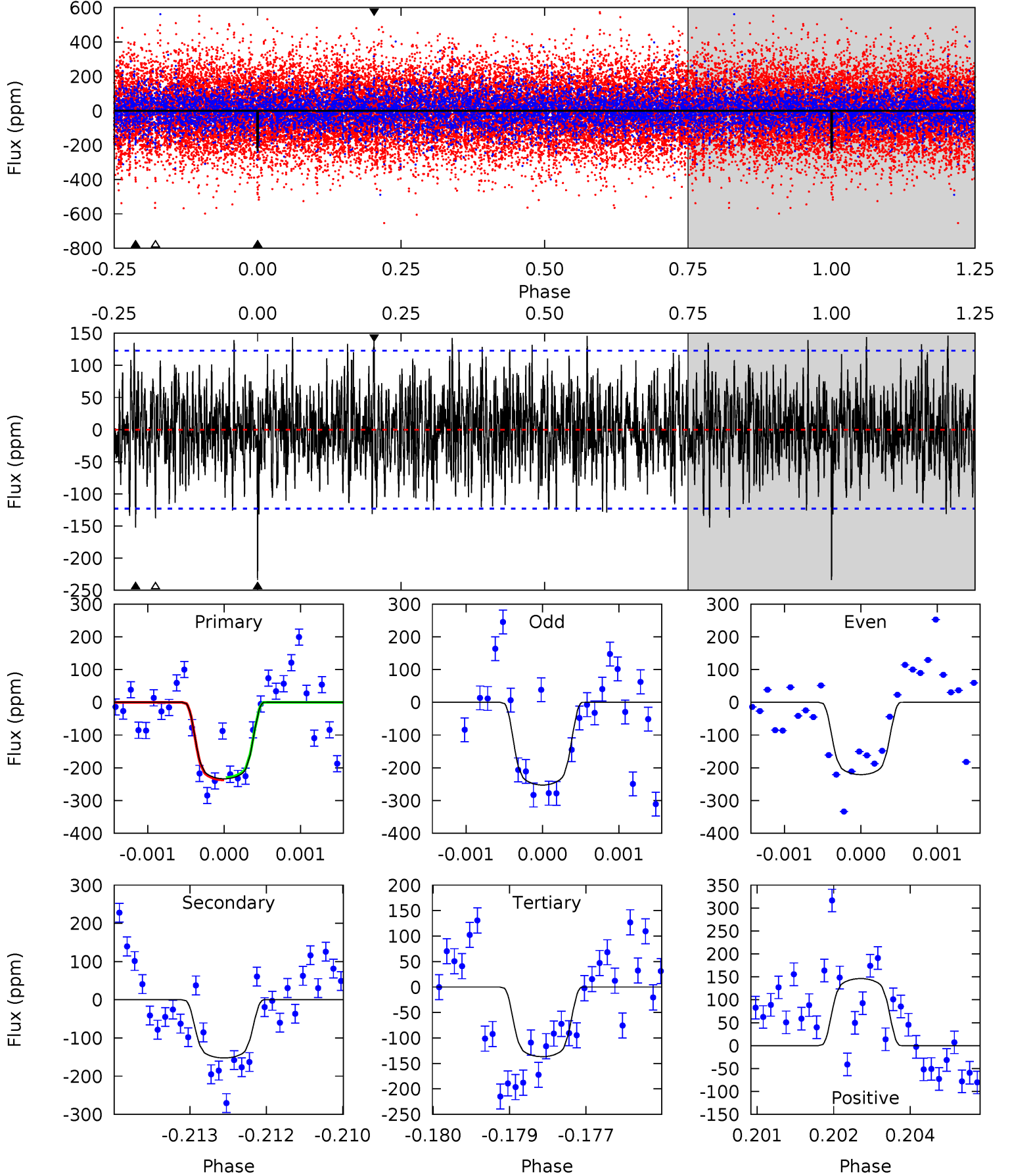
TCE 010341072-08 P=129.074071 Days $T_0=152.056167$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-08, $P = 129.072654$ Days, $E = 22.996957$ Days

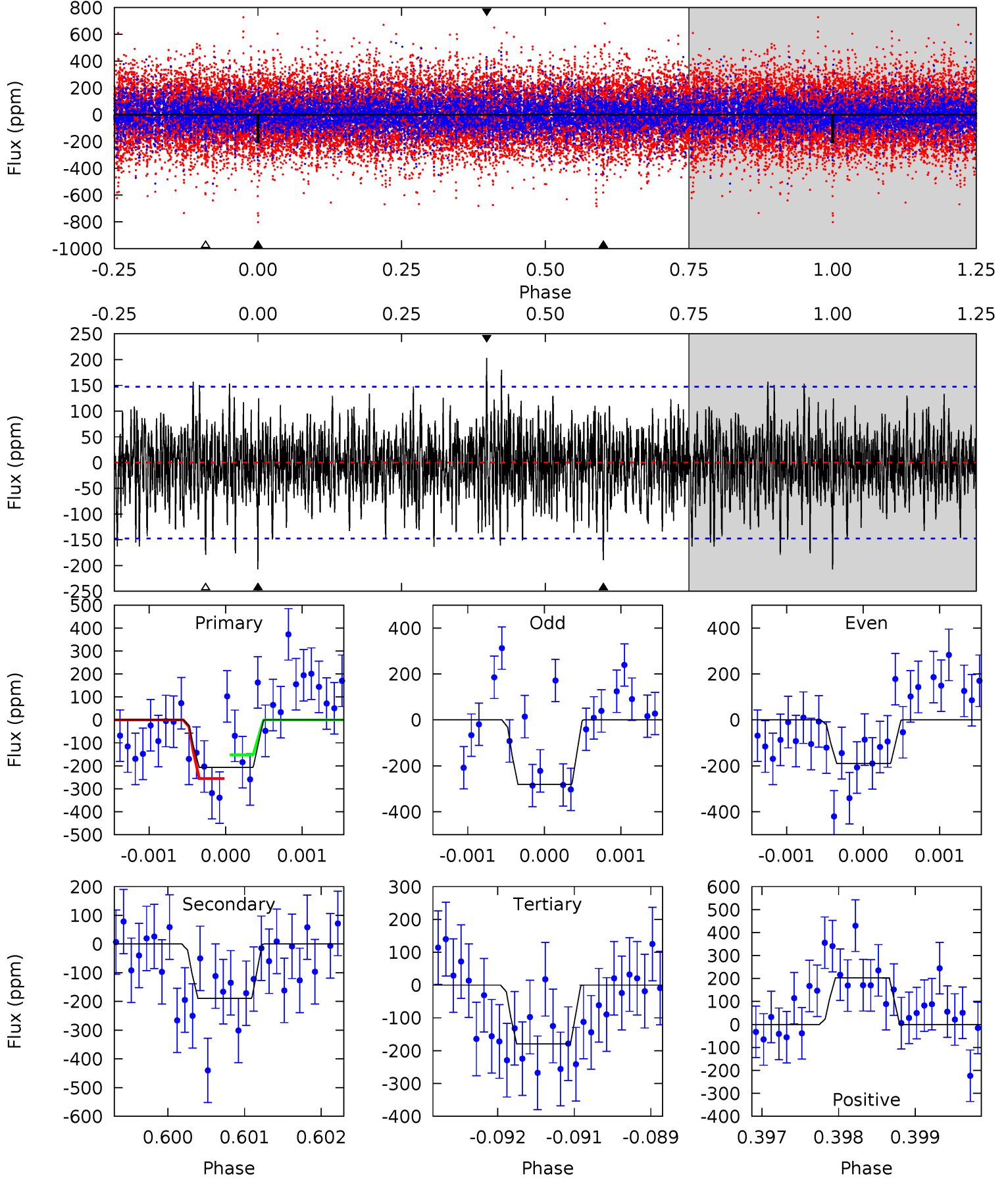
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	6.70	6.01	6.43	5.40	3.21	2.09	4.26	3.85	0.68	0.27	0.68	1.24	0.38	0.15



Alt Model-Shift Uniqueness Test

010341072-08, P = 129.074071 Days, E = 22.982096 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.62	6.96	6.58	7.46	5.42	3.24	1.90	1.04	0.16	0.38	-0.49	1.66	1.30	0.49	1.88



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-152 ± 23	$8.05^{+1.61}_{-1.86}$	1041^{+58}_{-105}	5382^{+394}_{-338}	482^{+323}_{-146}
Alt.	-189 ± 27	$6.45^{+1.48}_{-1.52}$	1033^{+66}_{-114}	6233^{+613}_{-484}	928^{+650}_{-301}

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

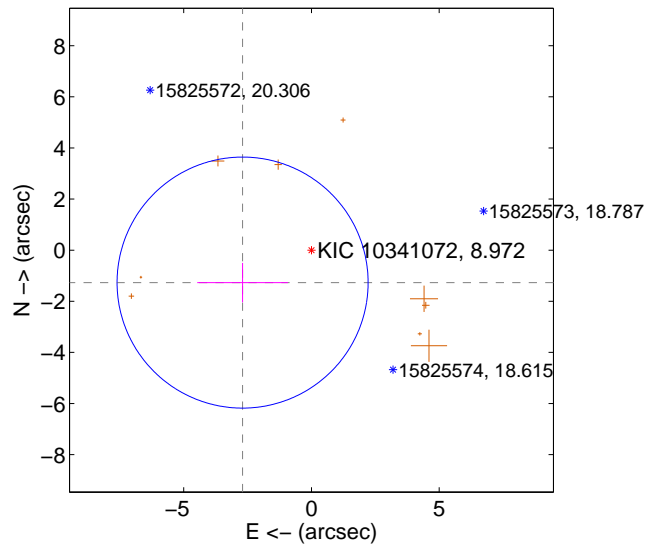
Supplemental centroid analysis for 010341072-08. **Kepler magnitude: 8.97.** Transit SNR 8.20

There are 0 quarters with good PRF difference image offsets

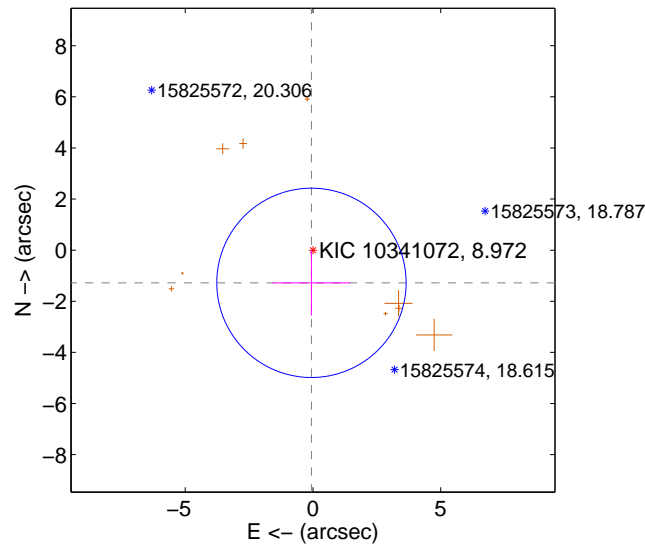
The direct PRF centroid is offset from the target star catalog position by about 0.49 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.978 ± 1.637	1.82	2.694 ± 1.773	-1.269 ± 0.770
PRF-fit source offset from KIC position	1.280 ± 1.235	1.04	0.060 ± 1.519	-1.279 ± 1.278
photometric centroid source offset	0.66 ± 0.77	0.85	0.14 ± 0.54	-0.64 ± 0.78

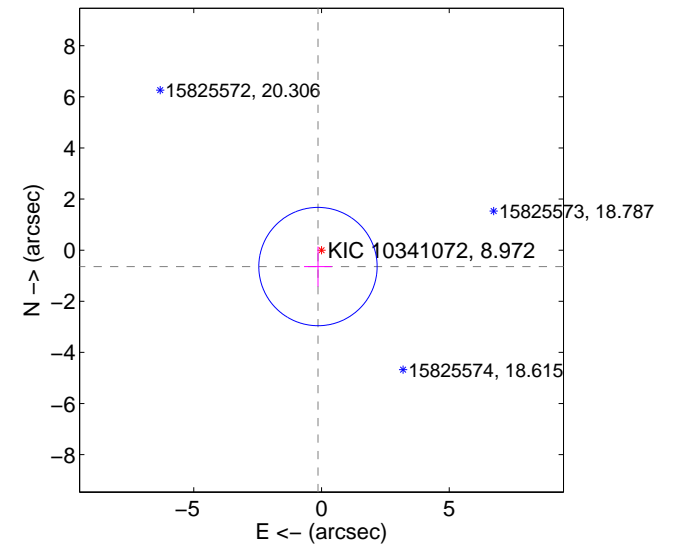
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

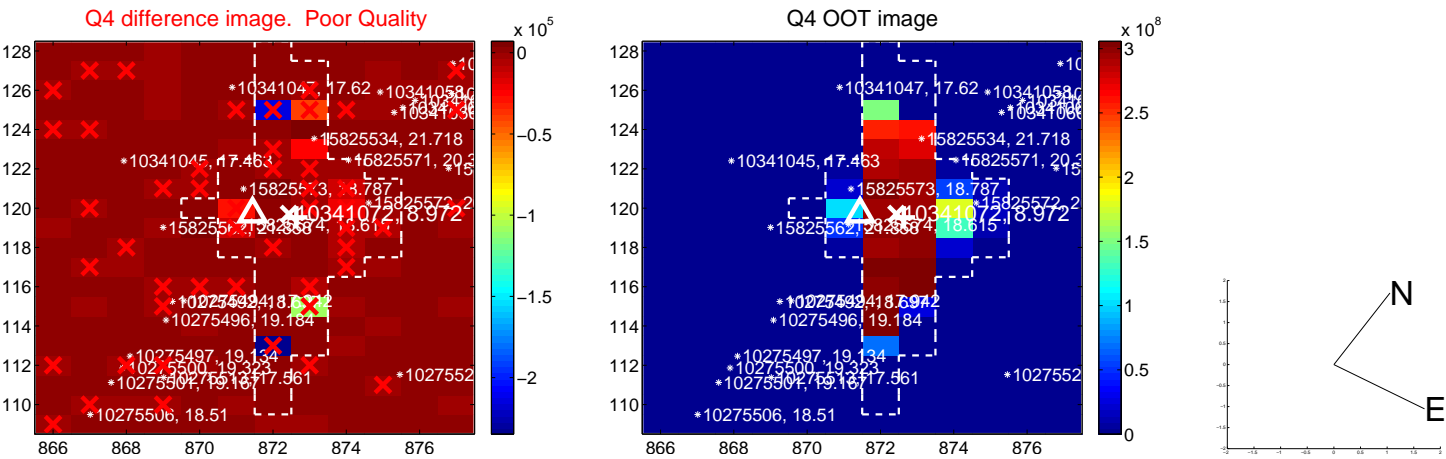
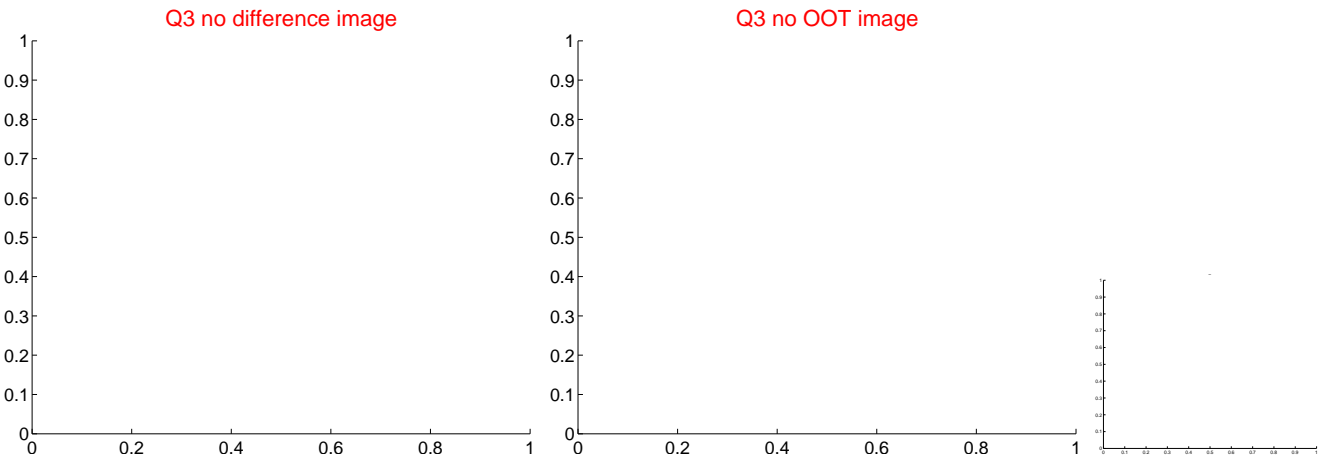
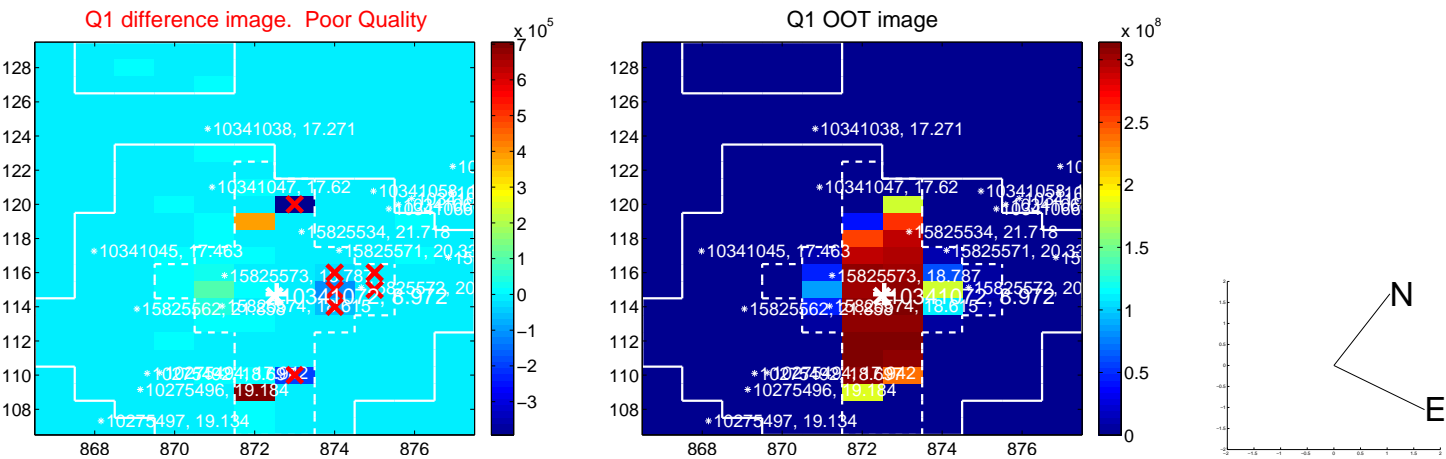


offset from photometric centroids



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.

Q5 no difference image



Q5 no OOT image



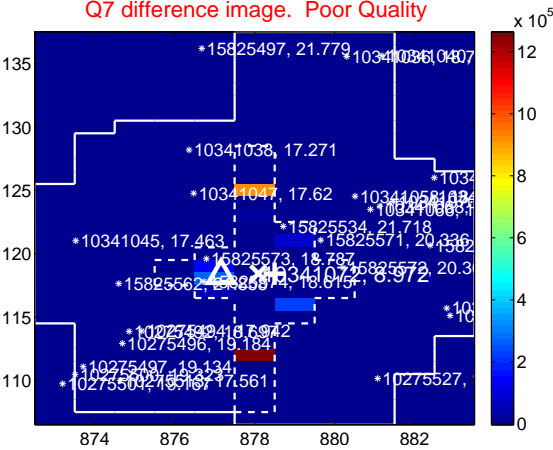
Q6 no difference image



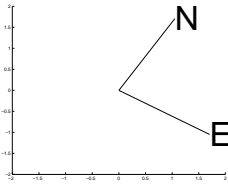
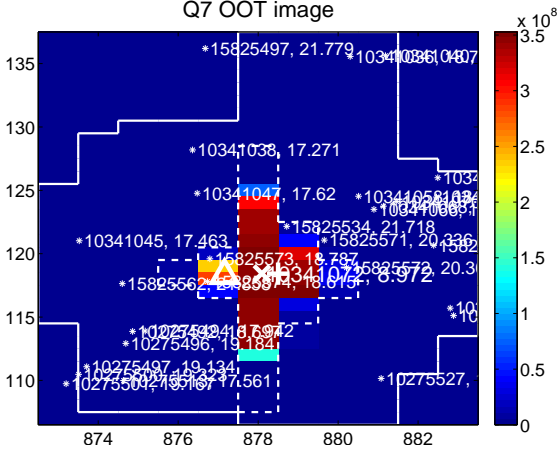
Q6 no OOT image



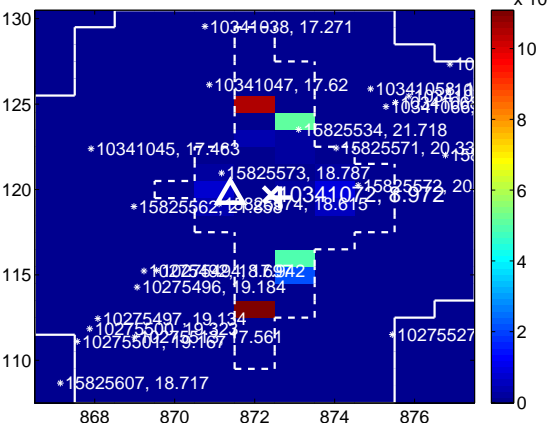
Q7 difference image. Poor Quality



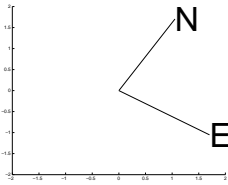
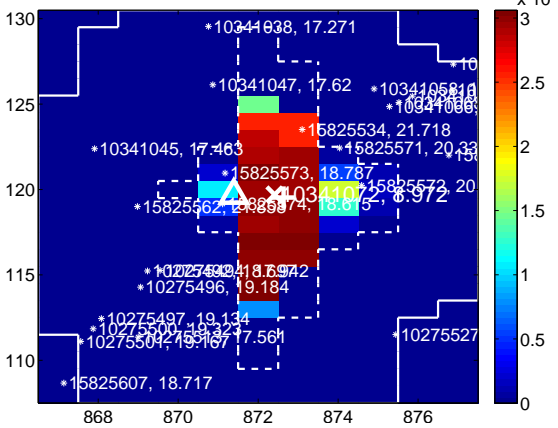
Q7 OOT image



Q8 difference image. Poor Quality



Q8 OOT image



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

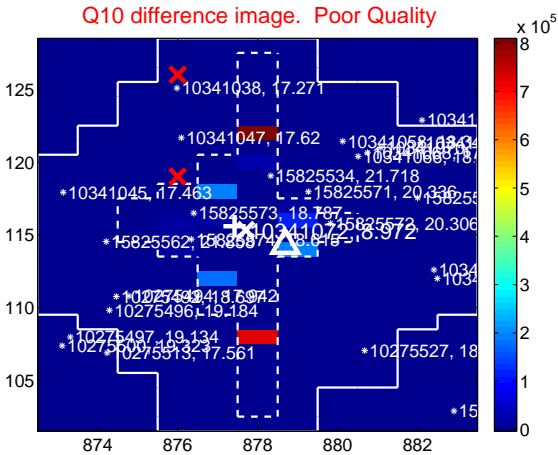
Q9 no difference image



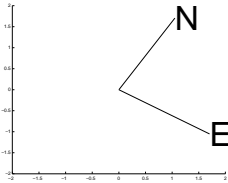
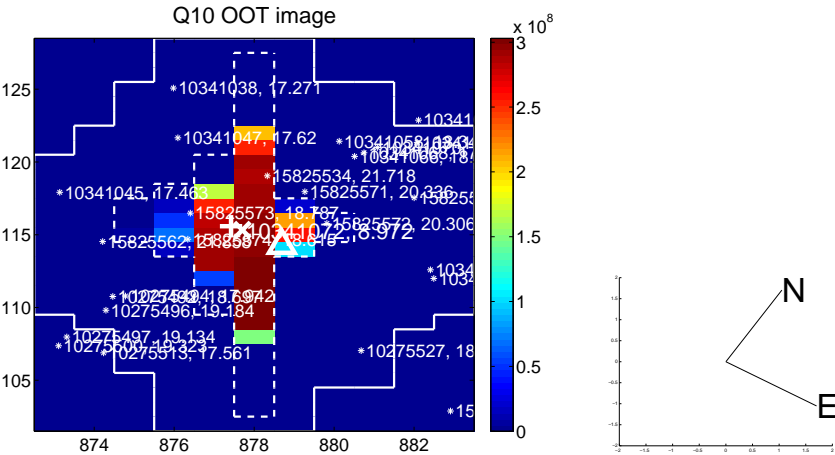
Q9 no OOT image



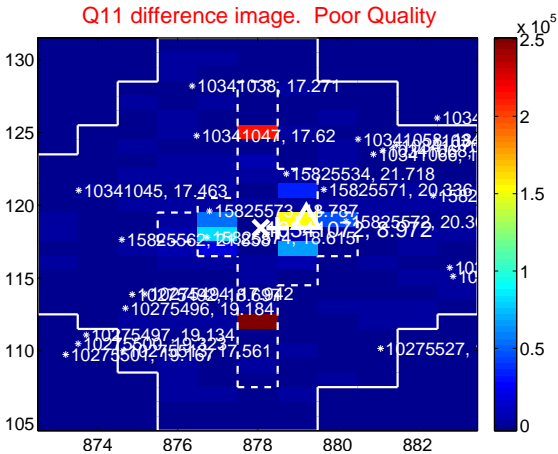
Q10 difference image. Poor Quality



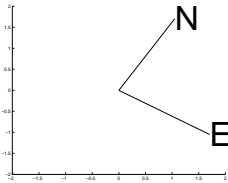
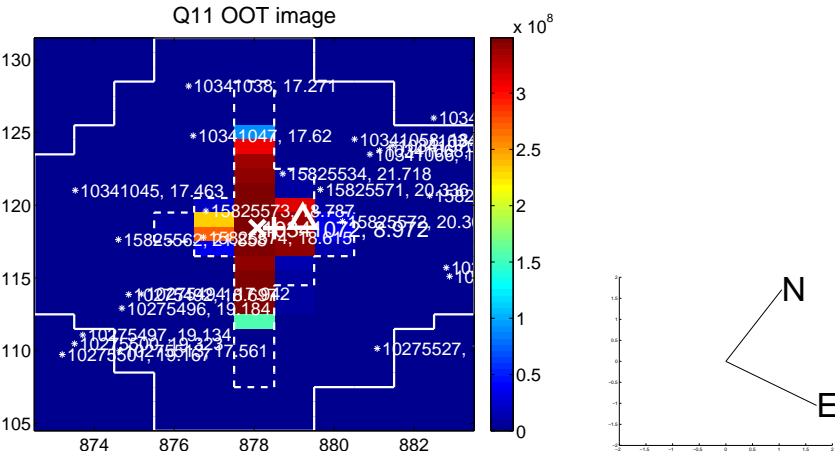
Q10 OOT image



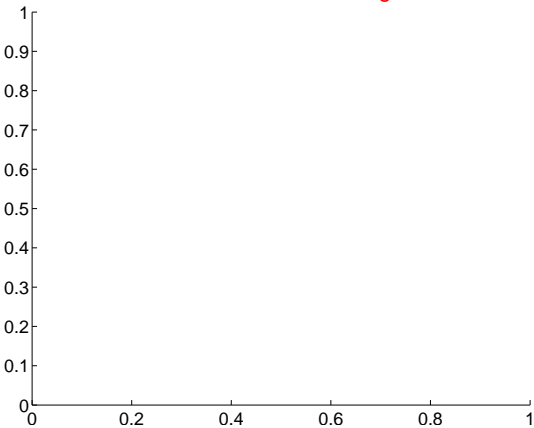
Q11 difference image. Poor Quality



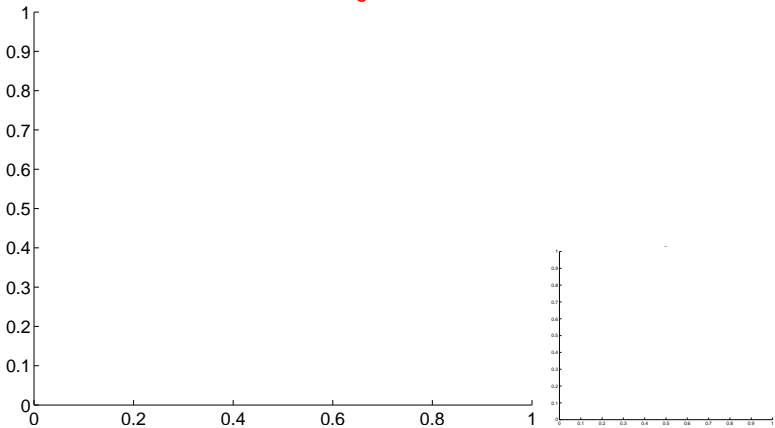
Q11 OOT image



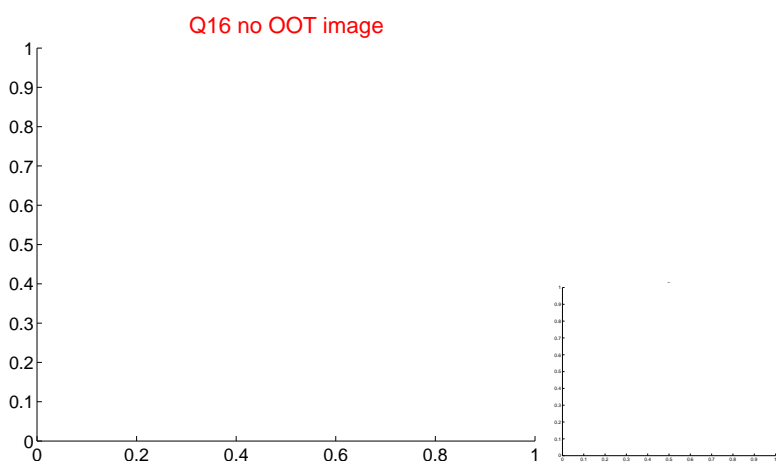
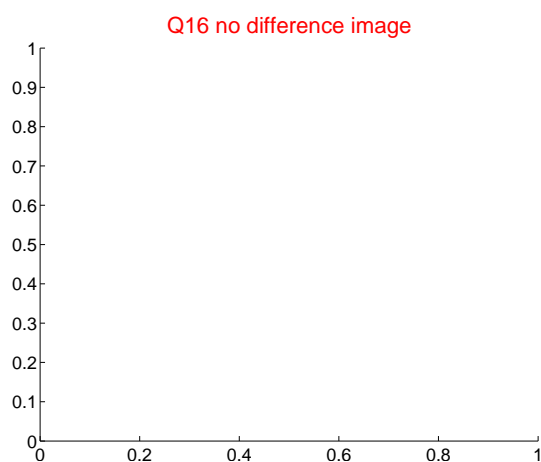
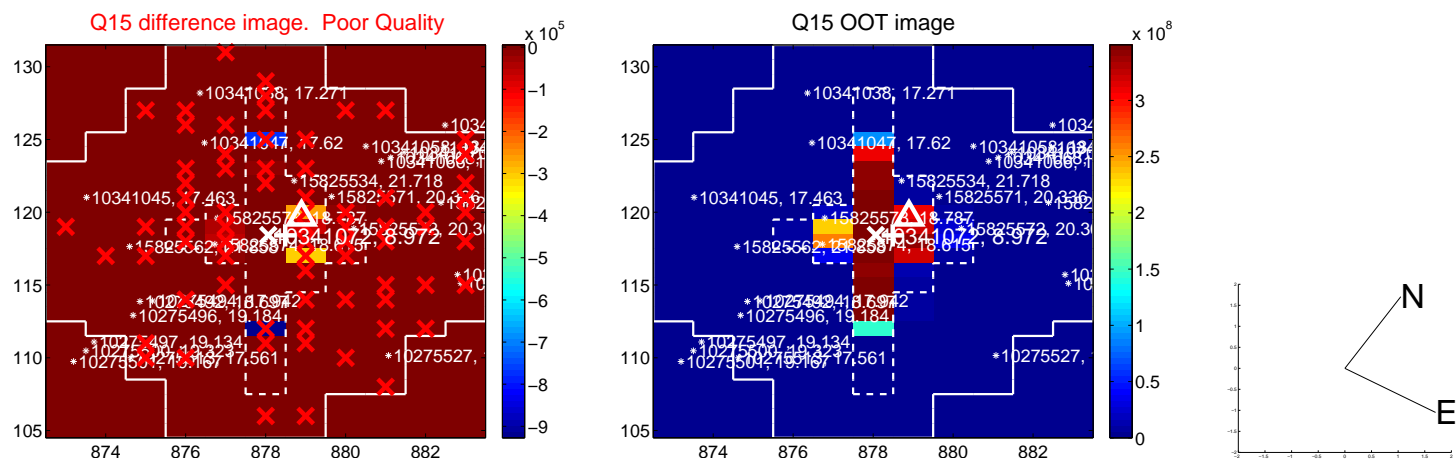
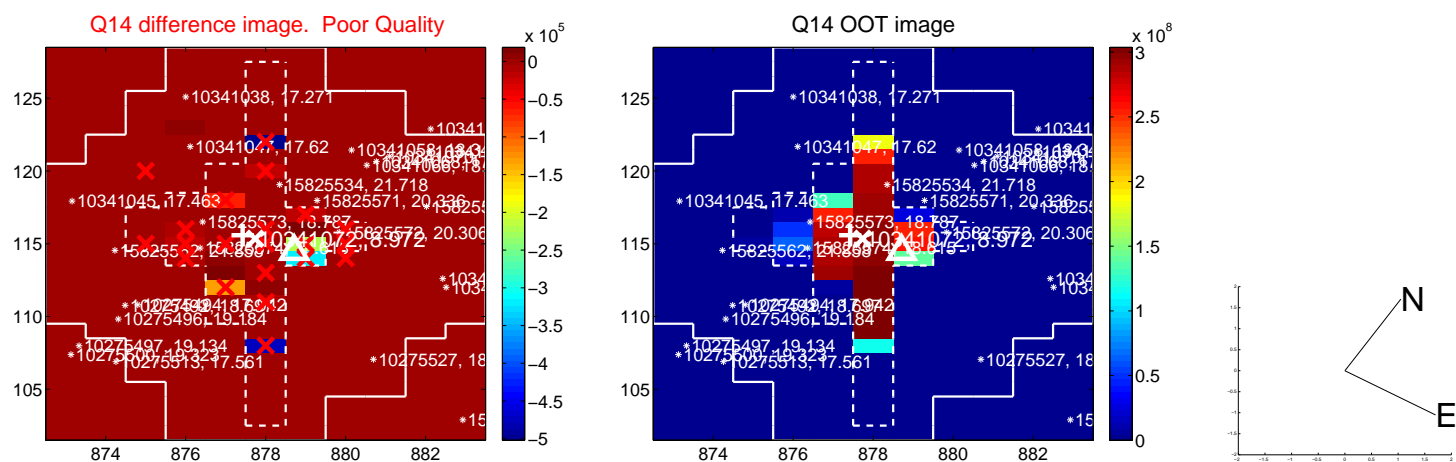
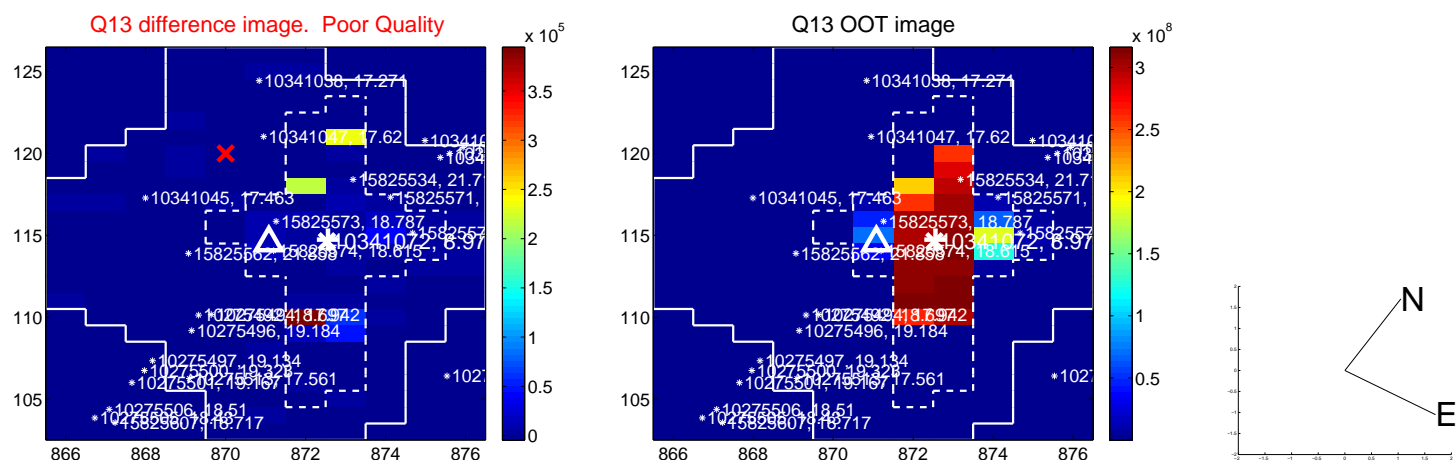
Q12 no difference image



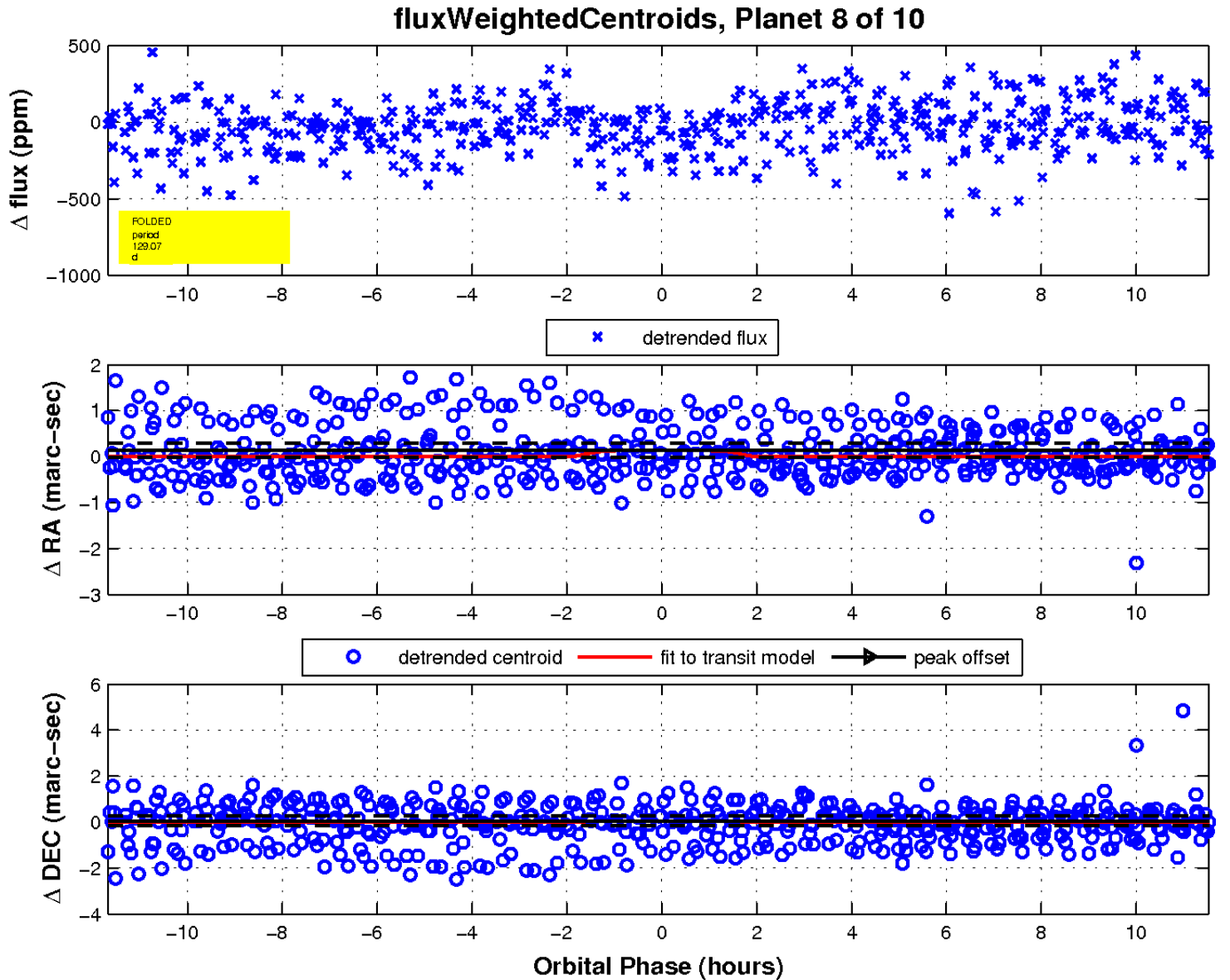
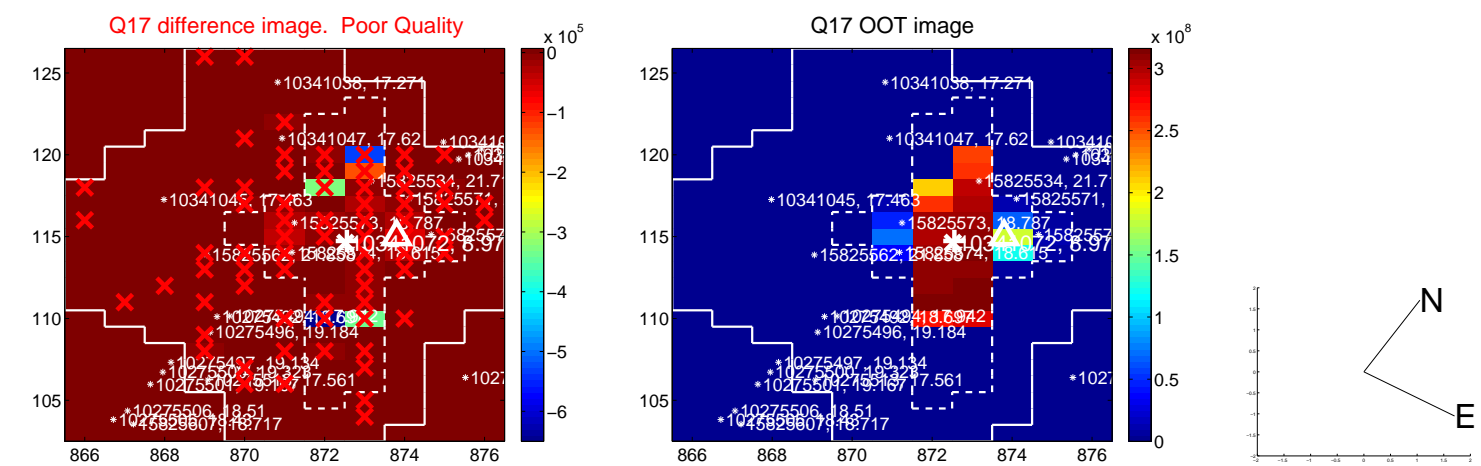
Q12 no OOT image



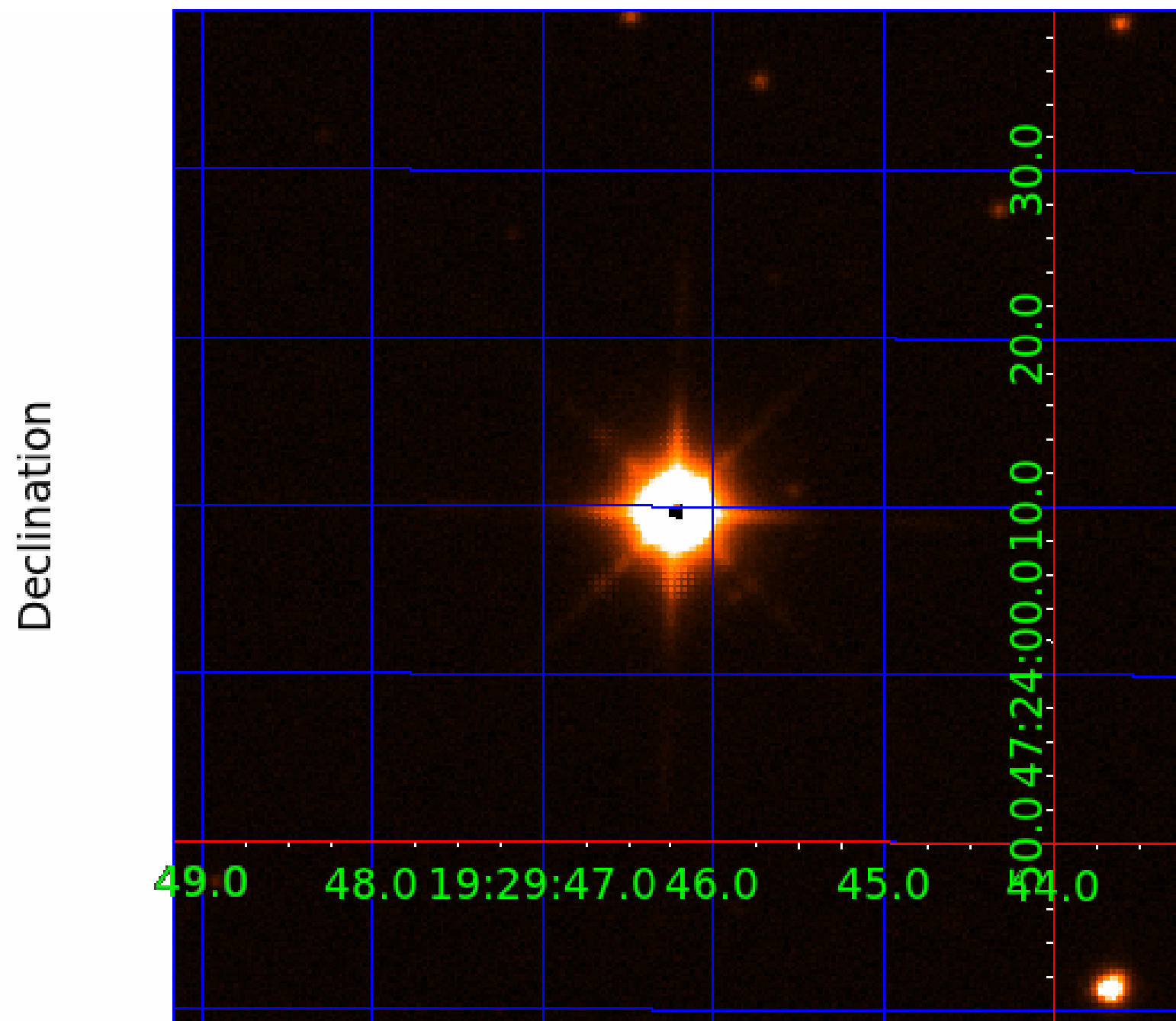
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
010341072-04	OBS	No	142.468614	220.078937	296.7	2.449	8.7	9.1	4.33	6541	9.05	70.36
010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
010341072-07	OBS	No	161.609085	156.832880	343.3	3.076	8.3	8.7	4.33	6541	9.29	59.47
010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

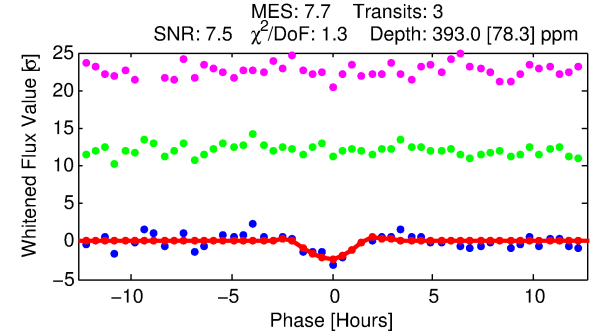
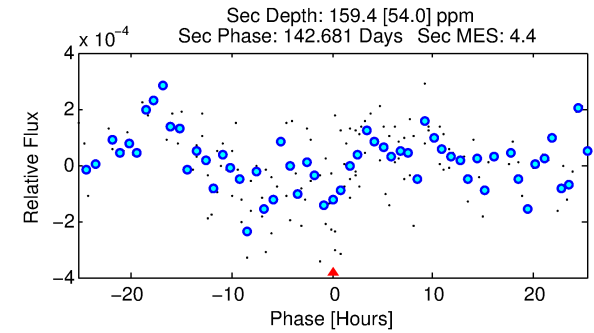
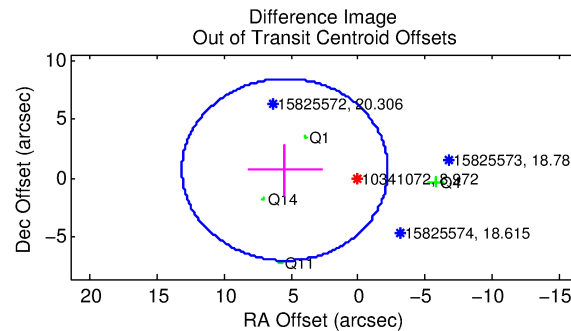
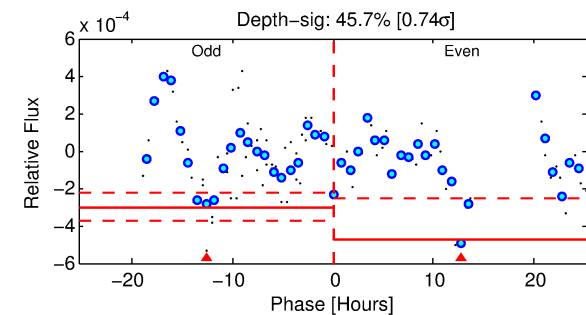
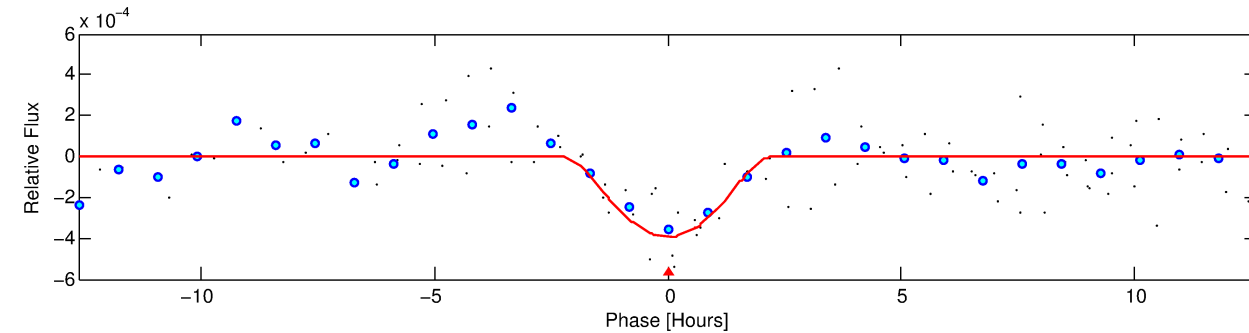
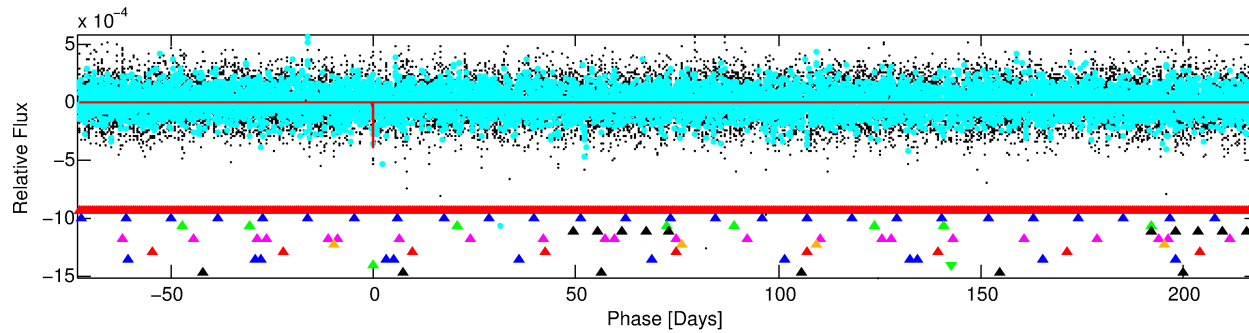
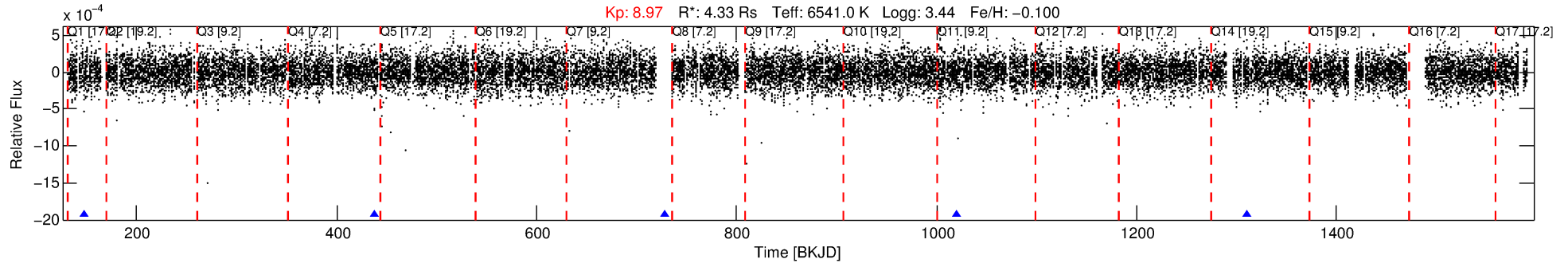
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-09

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 9 of 10 Period: 290.831 d



DV Fit Results:

Period = 290.83083 [0.00438] d
Epoch = 146.9751 [0.0109] BKJD
Rp/R* = 0.0312 [0.0821]
a/R* = 145.68 [123.33]
b = 0.99 [0.14]
Seff = 27.17 [18.19]
Teq = 582 [97] K
Rp = 14.73 [39.25] Re
a = 1.0631 [0.4360] AU
Ag = 456.87 [2428.26] [0.19 σ]
Teffp = 4161 [5487] K [0.65 σ]

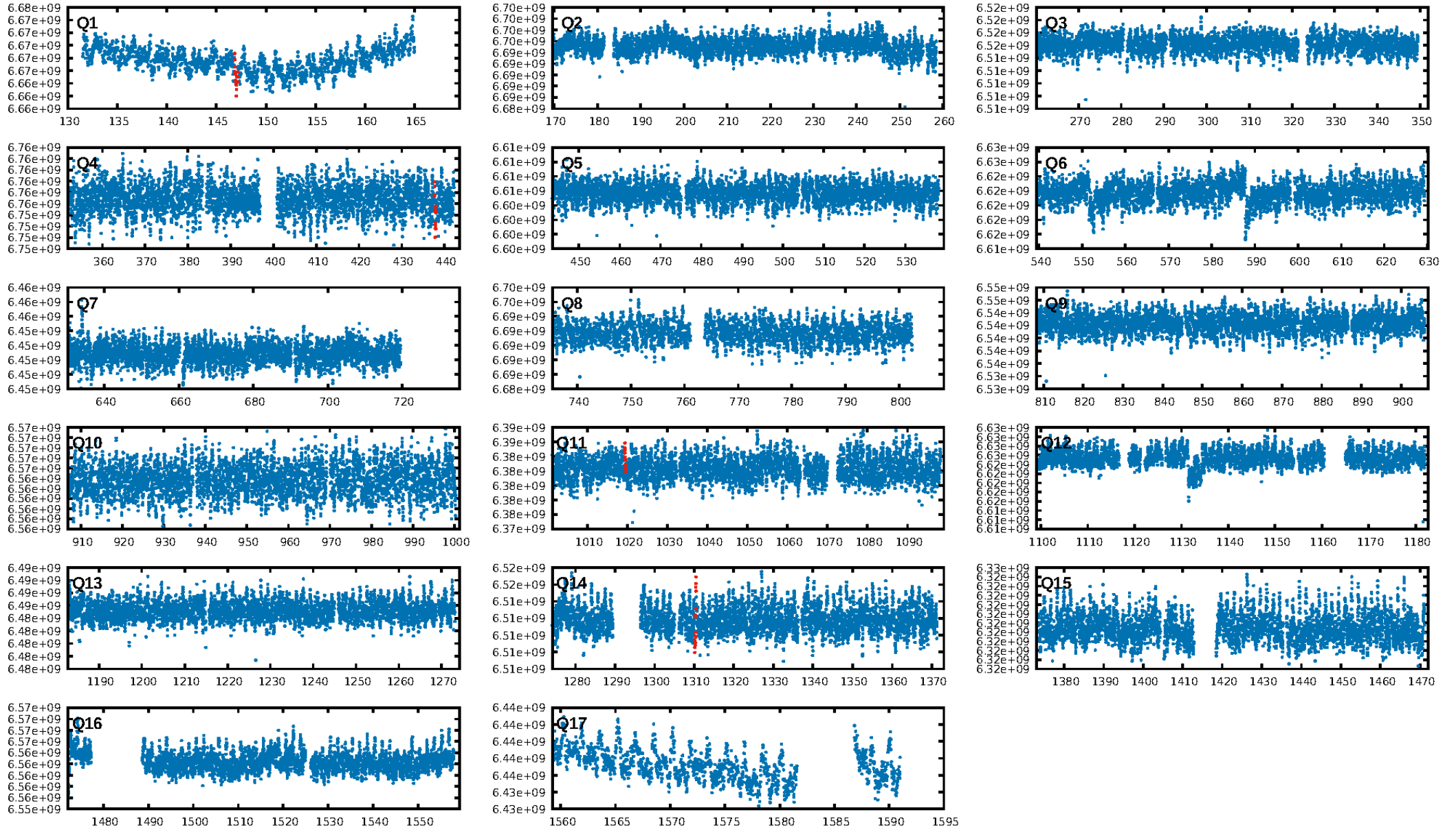
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [134.67 σ]
LongPeriod-sig: 100.0% [236.43 σ]
ModelChiSquare2-sig: 67.9%
ModelChiSquareGof-sig: 99.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 79.5%
Centroid-so: 0.474 arcsec [0.59 σ]
OotOffset-rm: 5.511 arcsec [2.15 σ]
KicOffset-rm: 5.113 arcsec [2.84 σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.50 [2/4]

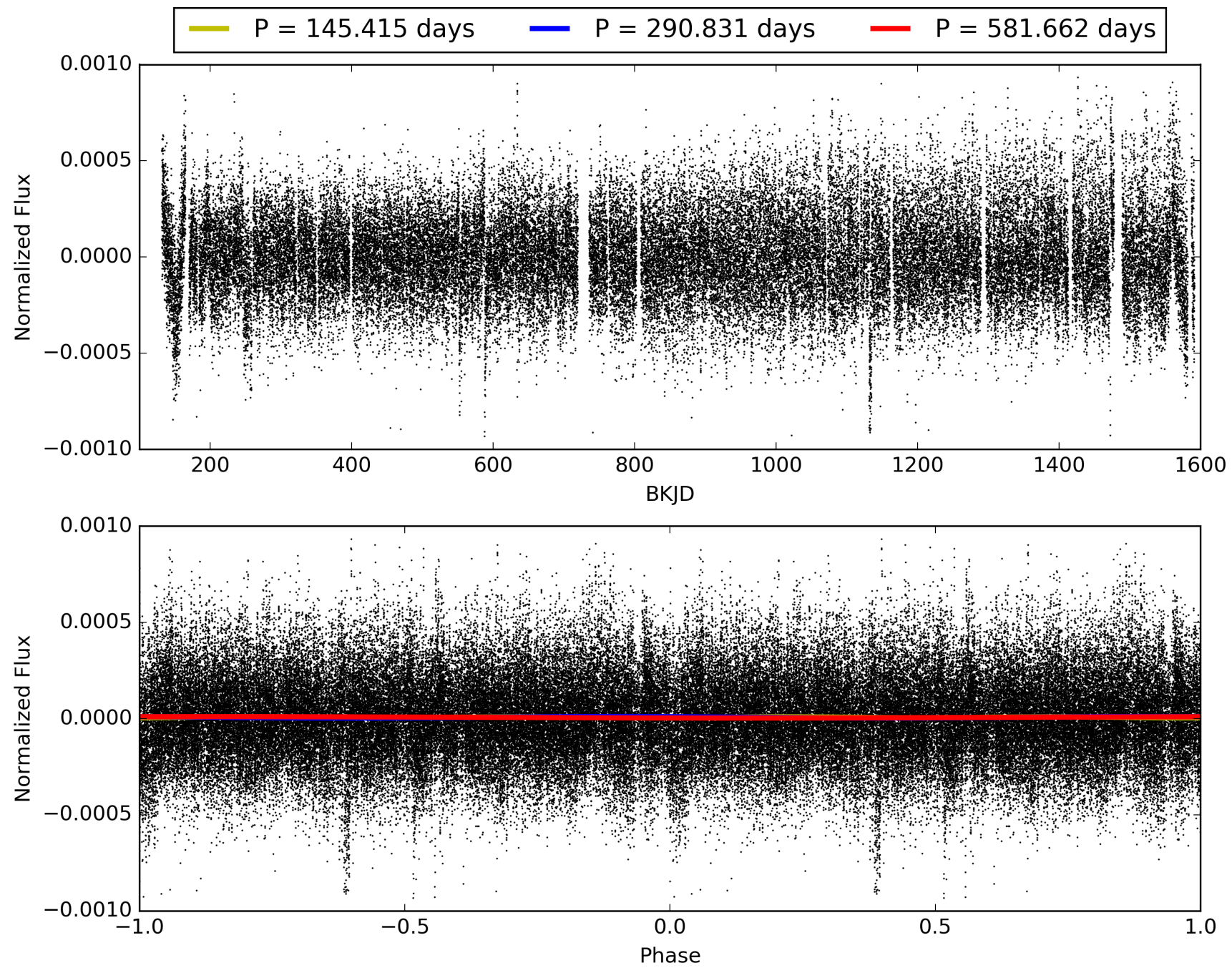
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:57:37 Z

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

TCE 010341072-09, PDC Light Curves

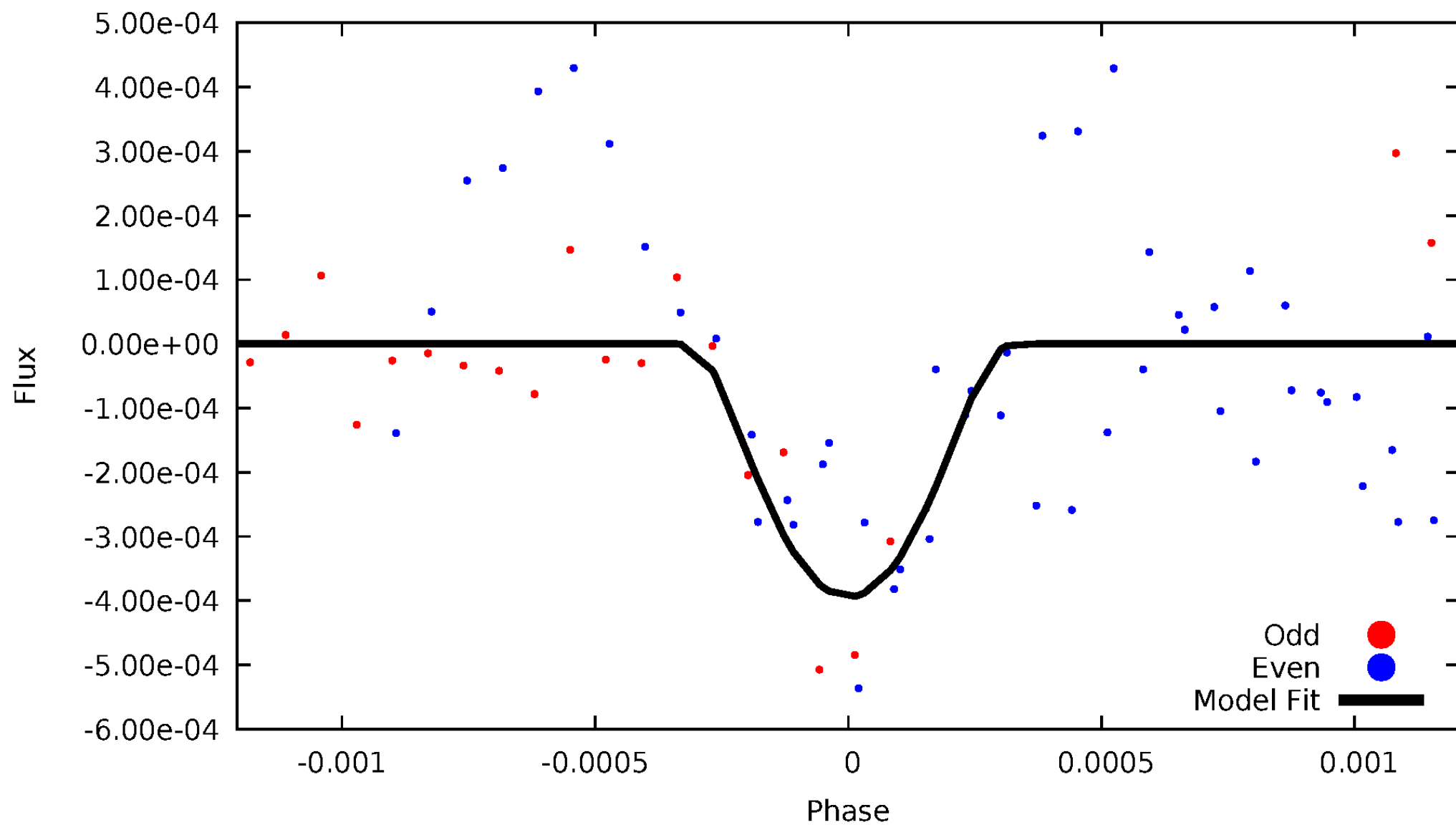


TCE 010341072-09



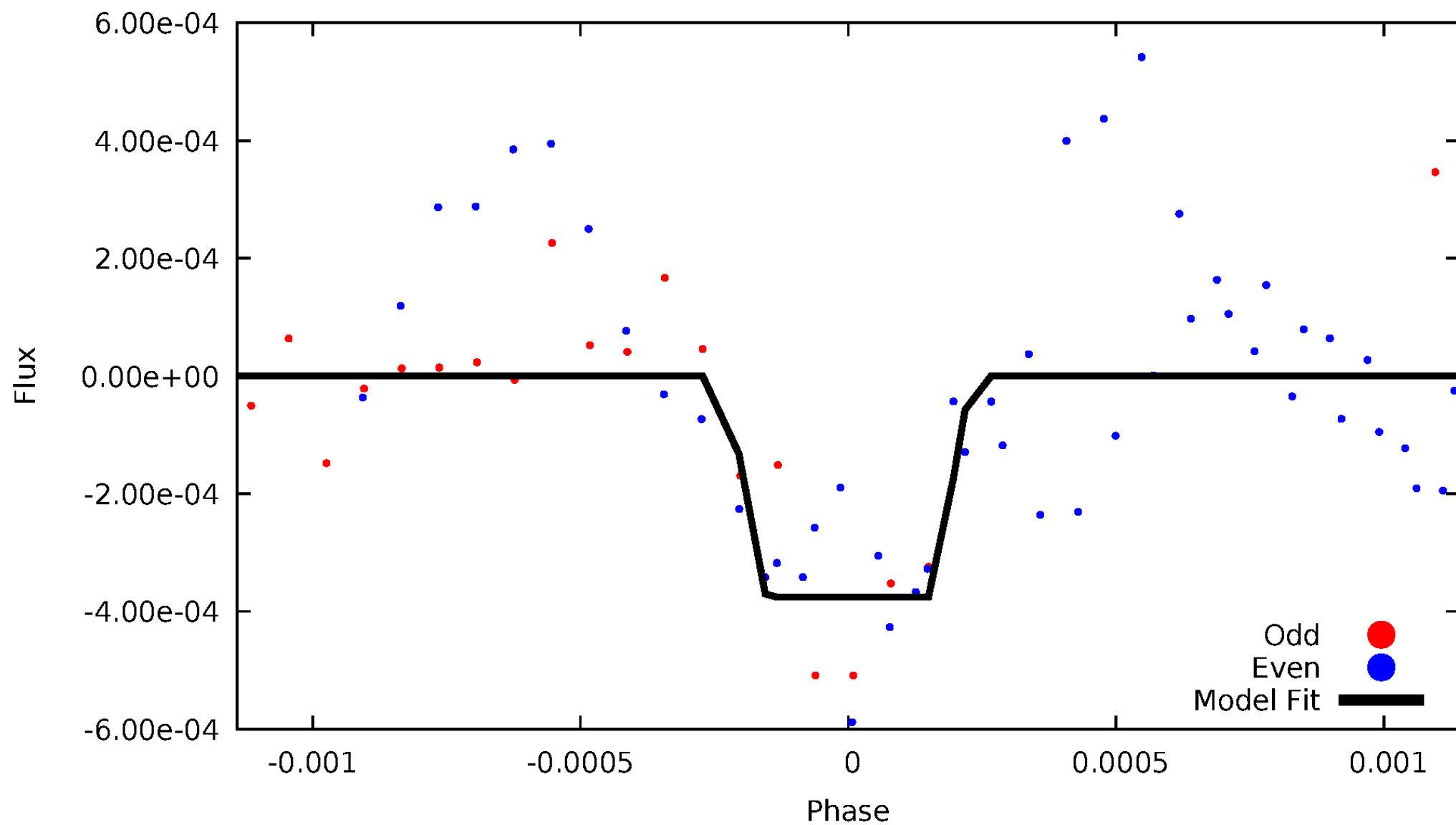
DV Odd/Even

TCE 010341072-09



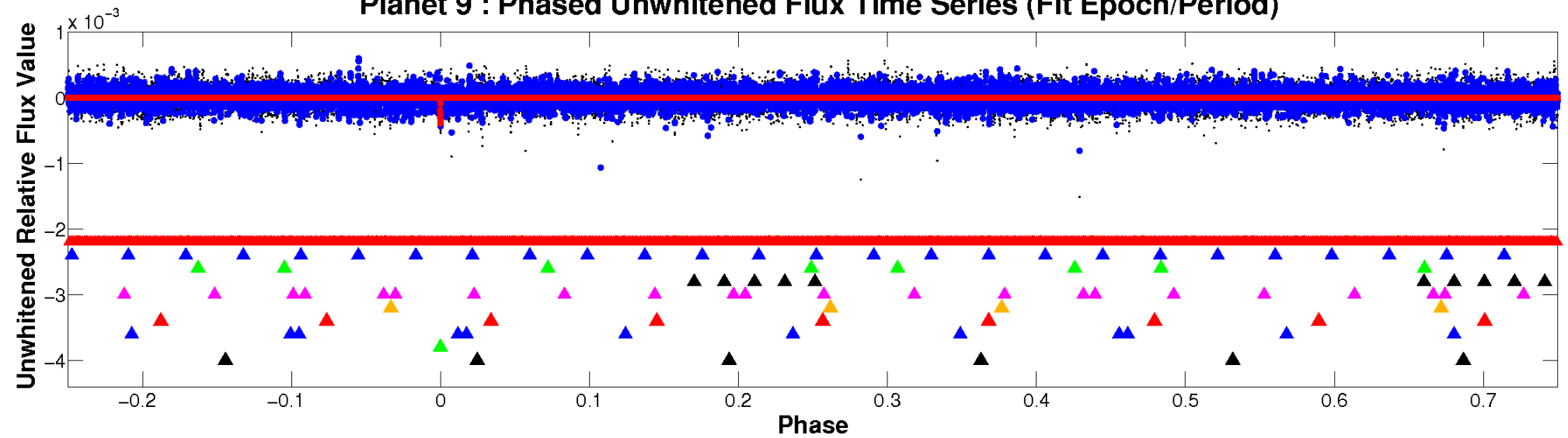
ALT Odd/Even

TCE 010341072-09

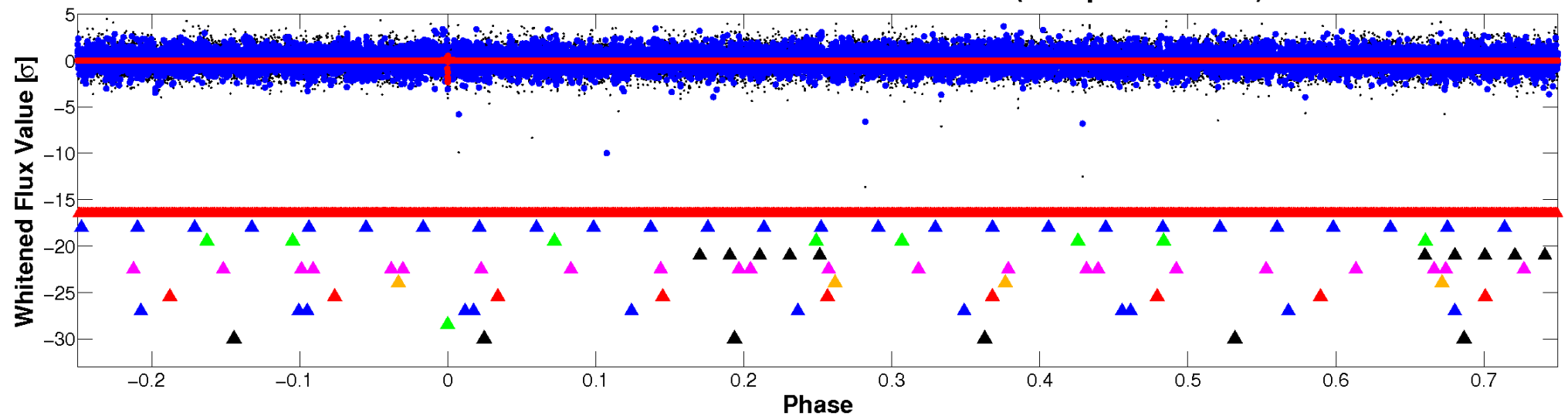


Non-Whitened Vs. Whitened Light Curve

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

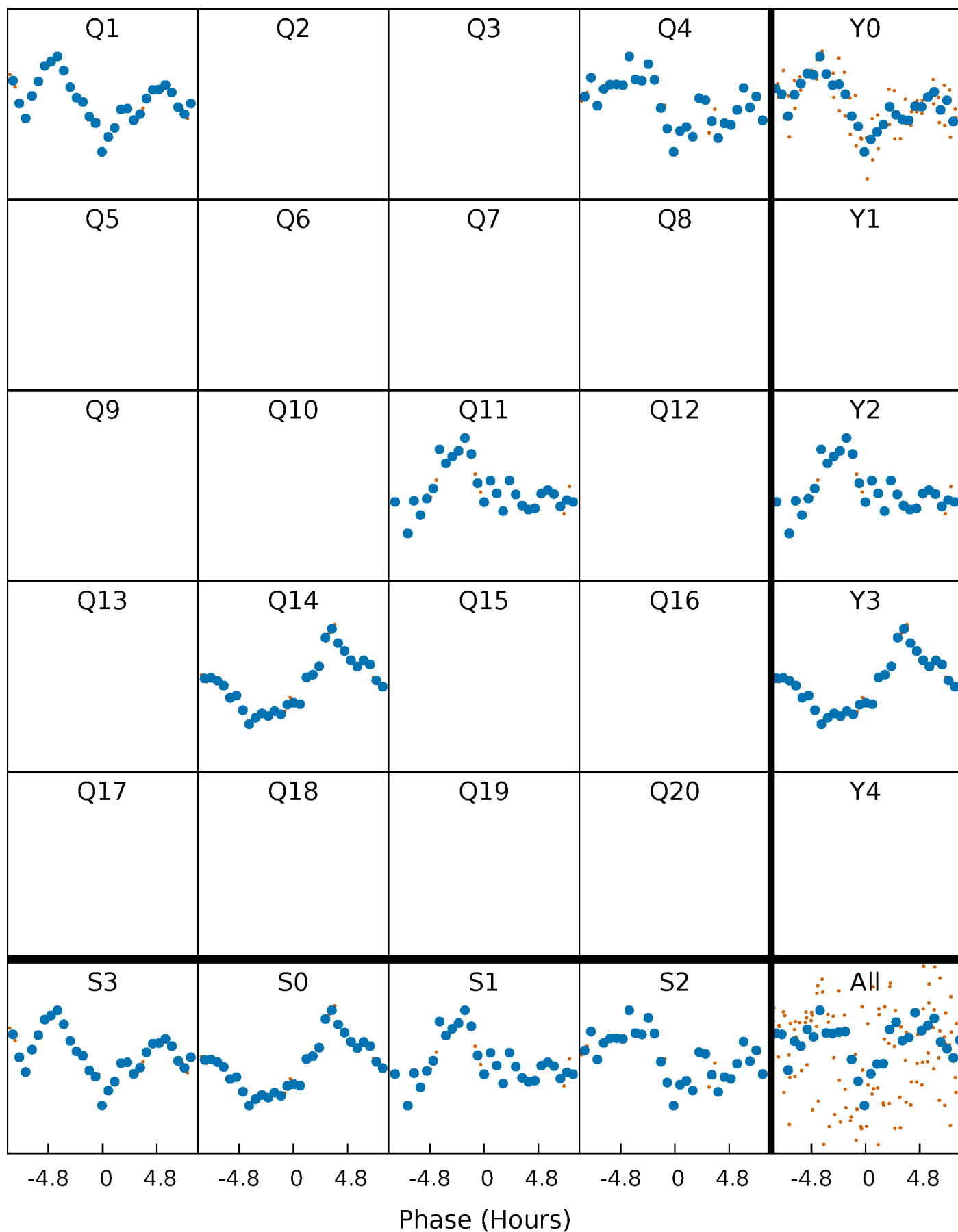


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



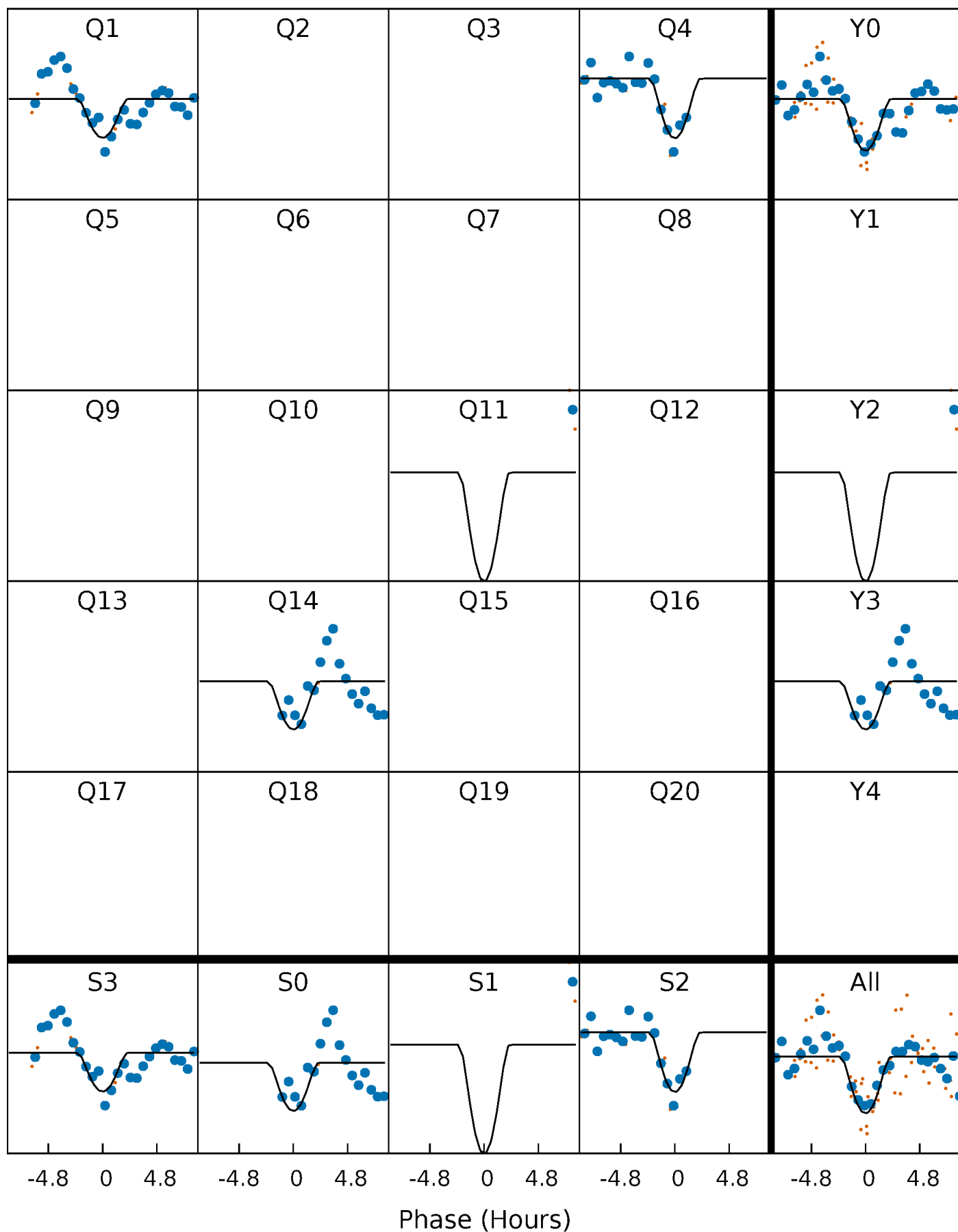
PDC Quarter-Phased Transit Curves

TCE 010341072-09 $P=290.830828$ Days $T_0=146.975058$ (BKJD)



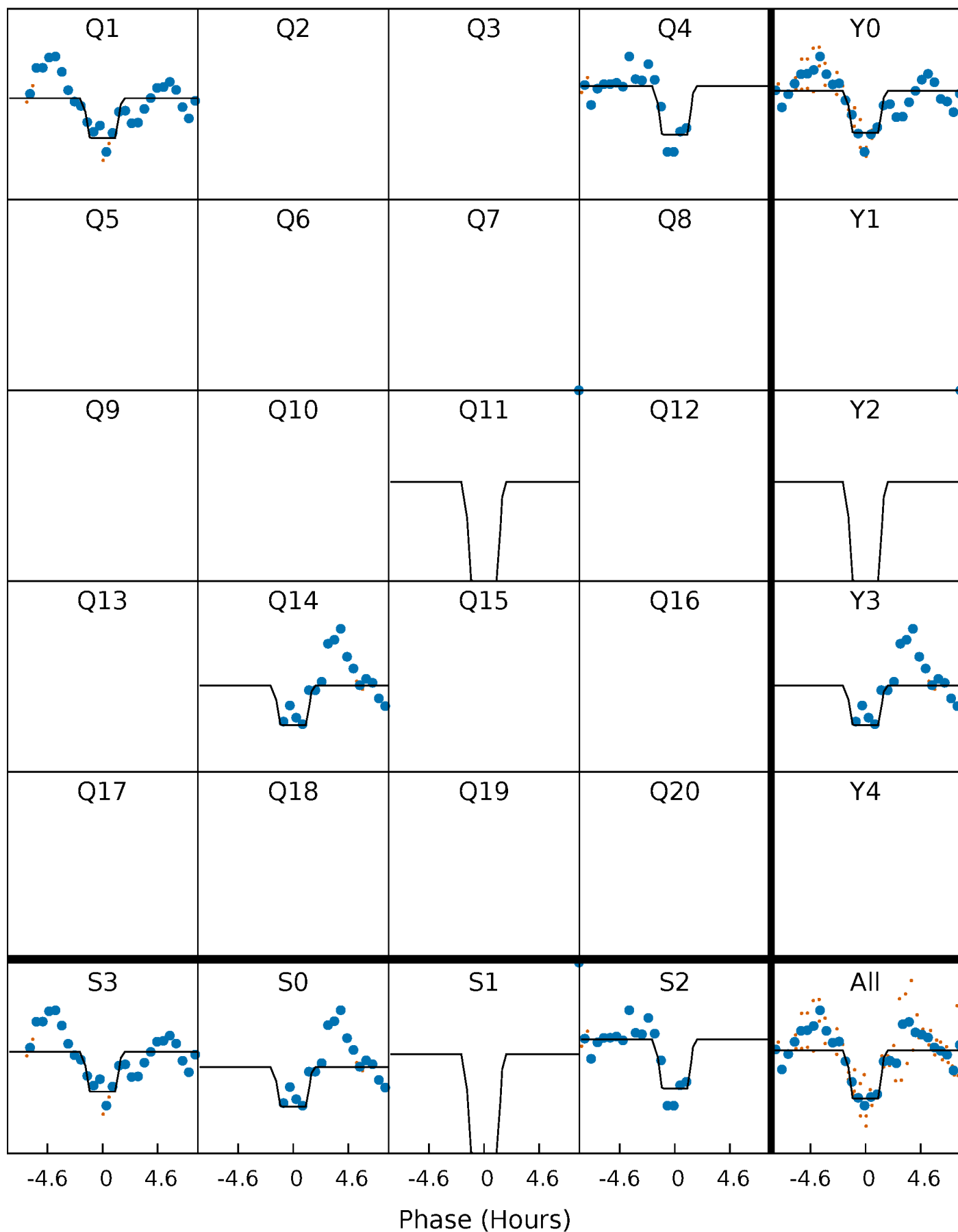
DV Quarter-Phased Transit Curves

TCE 010341072-09 $P=290.830828$ Days $T_0=146.975058$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

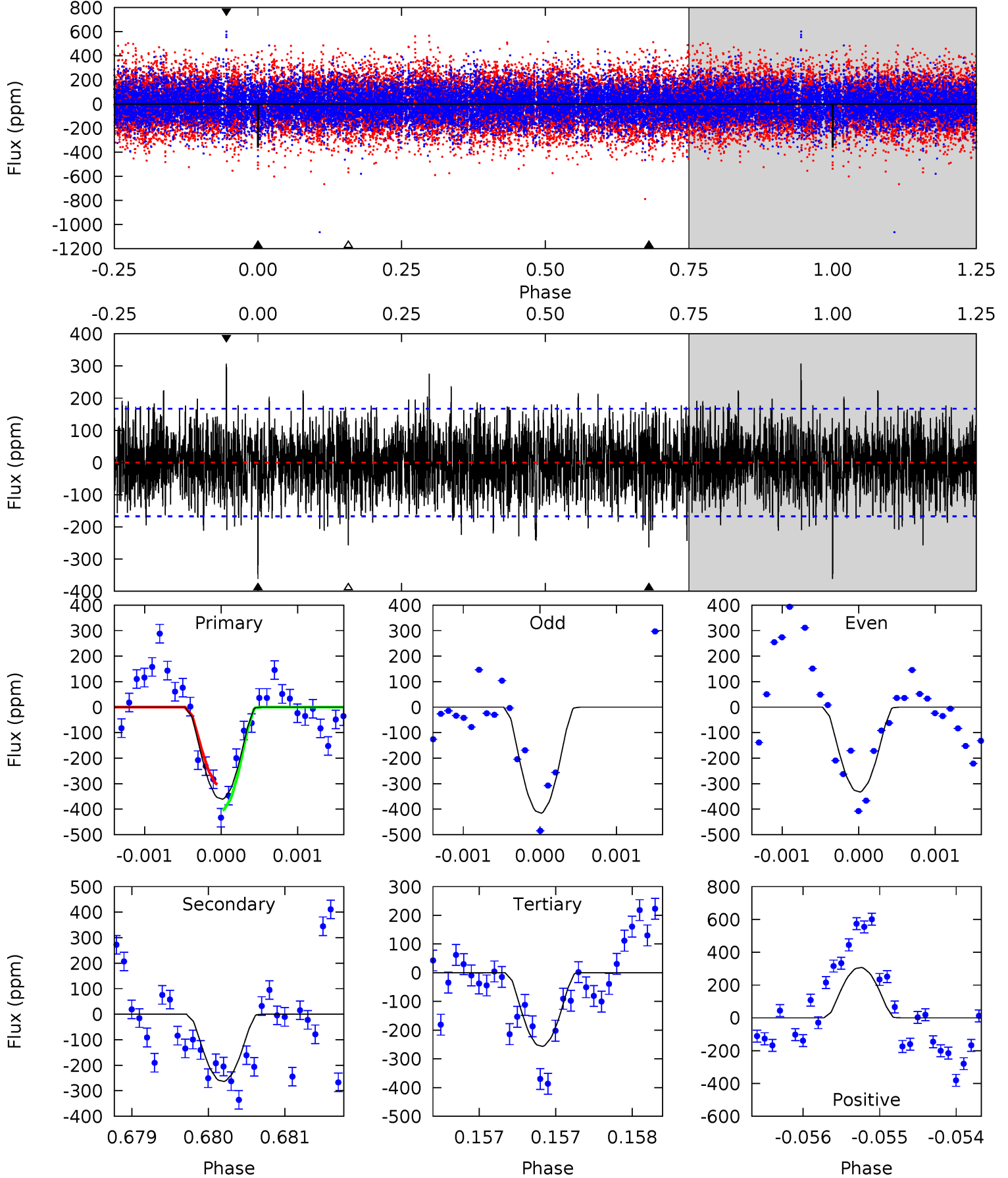
TCE 010341072-09 P=290.828169 Days $T_0=146.978797$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-09, P = 290.830828 Days, E = 146.975058 Days

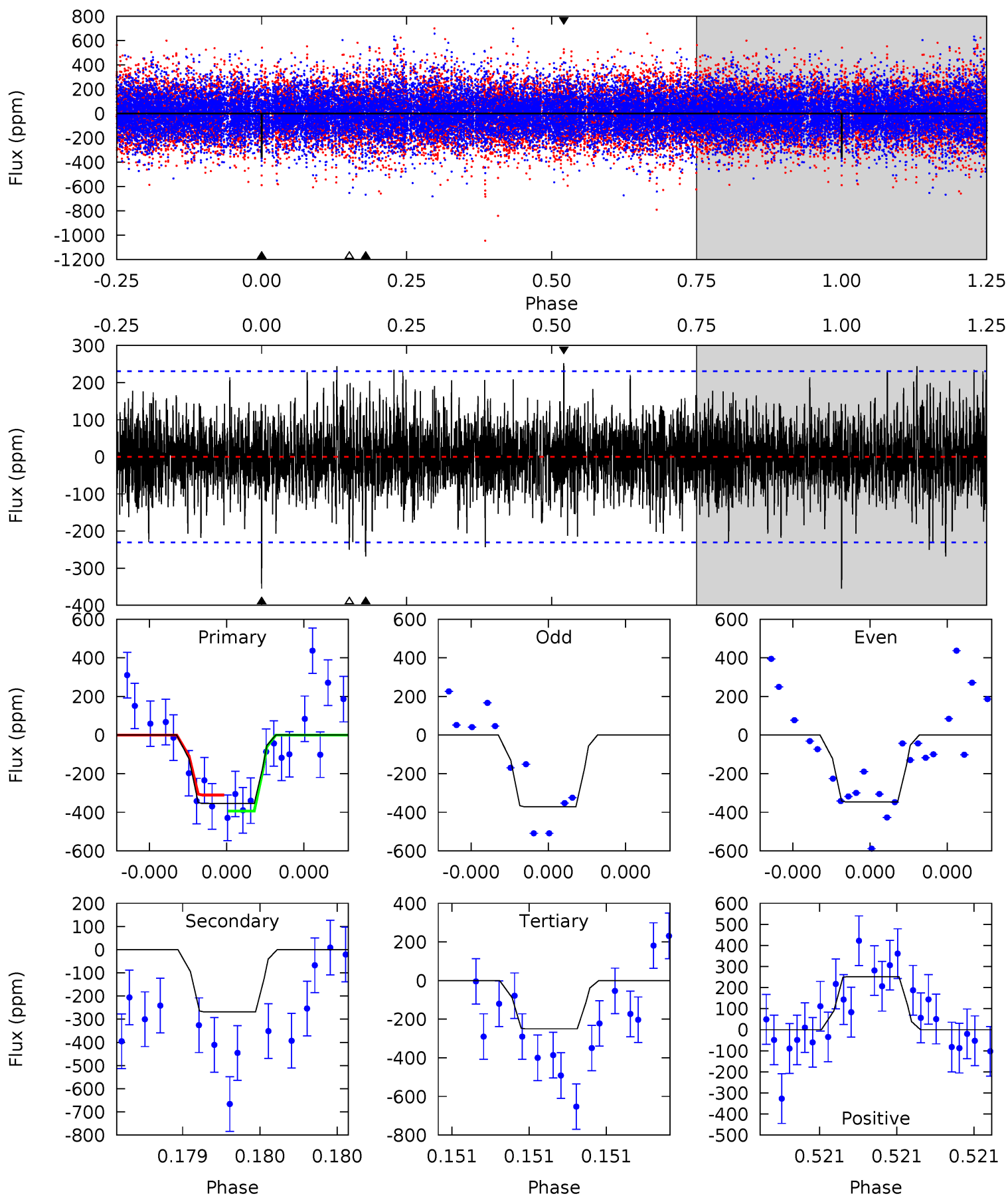
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	8.69	8.46	10.1	5.51	3.39	2.45	3.44	1.78	0.23	-1.43	1.24	0.95	0.46	1.65



Alt Model-Shift Uniqueness Test

010341072-09, P = 290.828169 Days, E = 146.978797 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.61	6.51	6.07	6.12	5.60	3.53	1.59	2.53	2.49	0.44	0.39	0.29	0.96	0.42	1.00



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-264 ± 30	$28.37^{+30.37}_{-18.57}$	791^{+45}_{-84}	3615^{+1783}_{-665}	192^{+1479}_{-146}
Alt.	-268 ± 41	$26.38^{+28.27}_{-19.83}$	793^{+46}_{-83}	3761^{+2727}_{-753}	239^{+3435}_{-185}

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

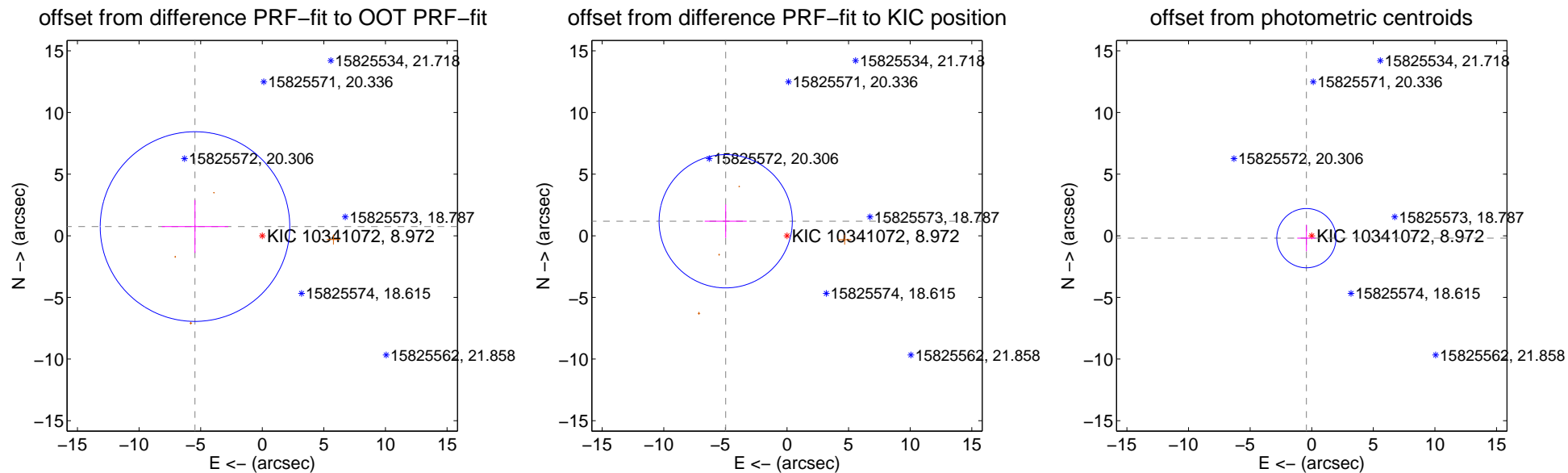
DV Centroid Data

Supplemental centroid analysis for 010341072-09. **Kepler magnitude: 8.97.** Transit SNR 7.49

There are 0 quarters with good PRF difference image offsets

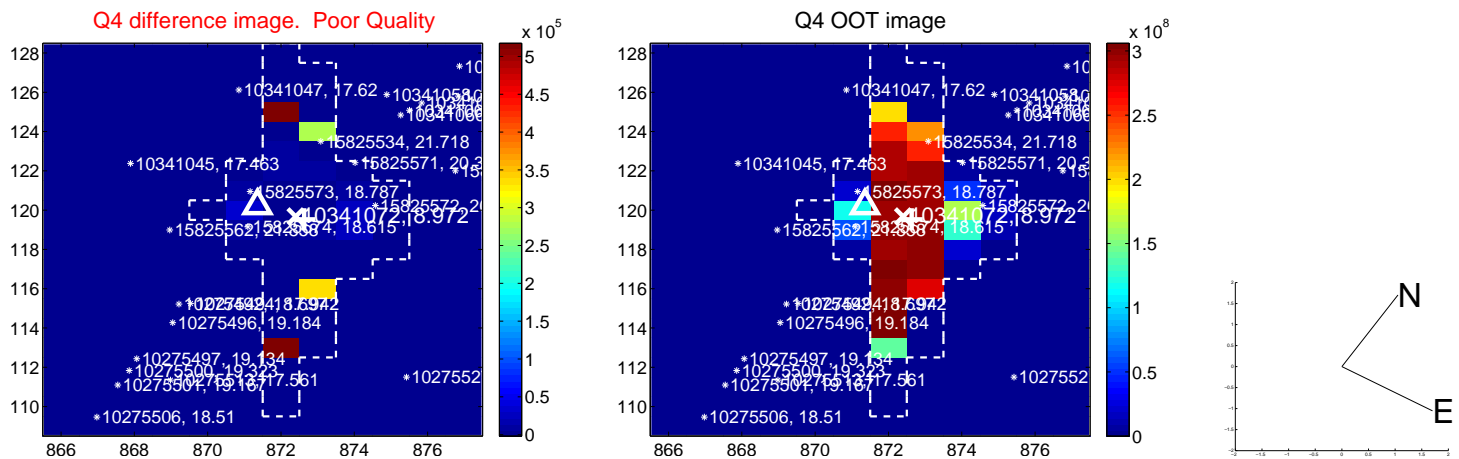
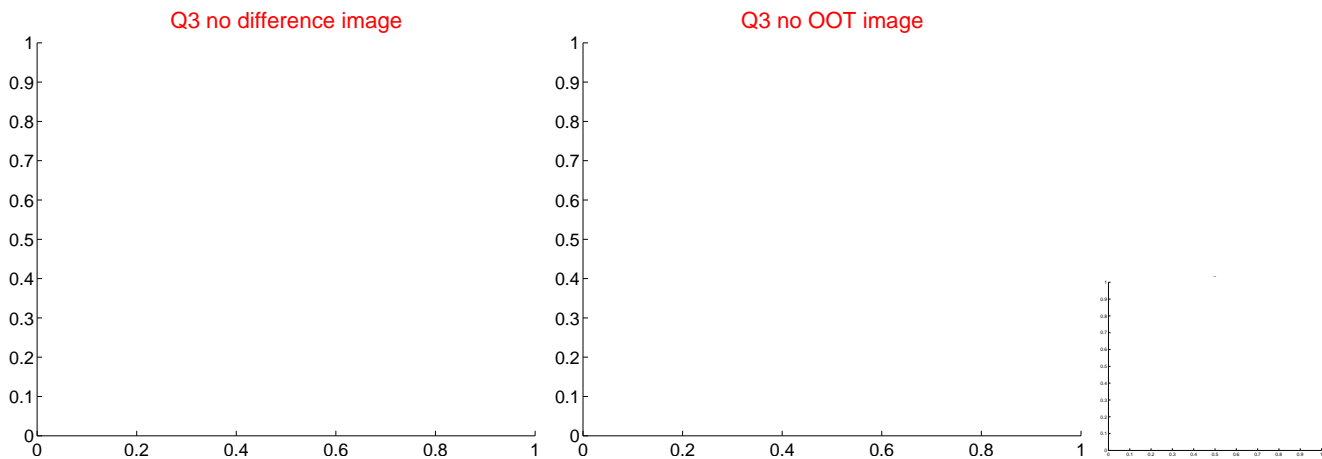
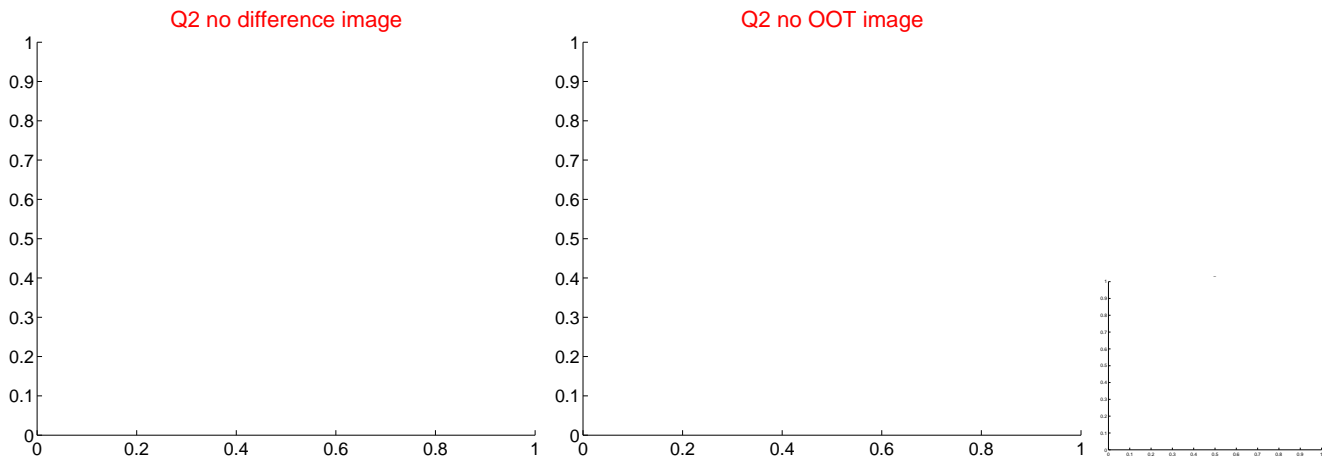
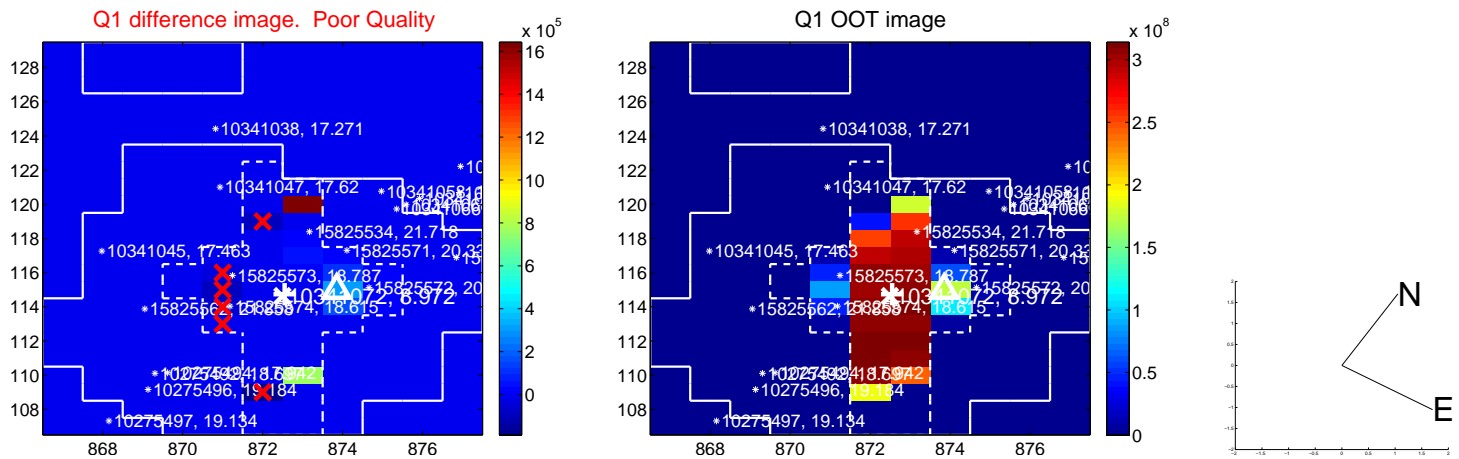
The direct PRF centroid is offset from the target star catalog position by about 1.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.511 ± 2.564	2.15	5.460 ± 2.698	0.746 ± 2.138
PRF-fit source offset from KIC position	5.113 ± 1.802	2.84	4.976 ± 1.702	1.178 ± 1.355
photometric centroid source offset	0.47 ± 0.80	0.59	0.43 ± 0.74	-0.19 ± 1.06



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

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



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



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

Q9 no difference image



Q9 no OOT image



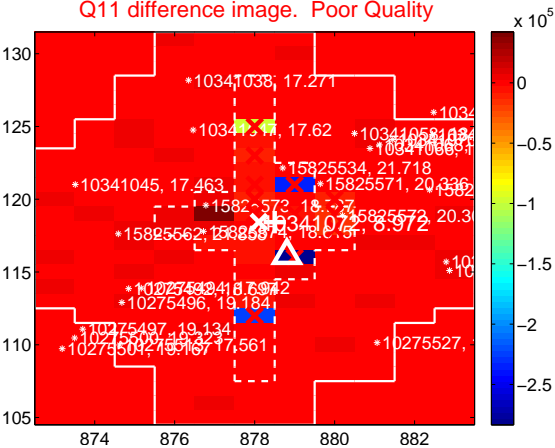
Q10 no difference image



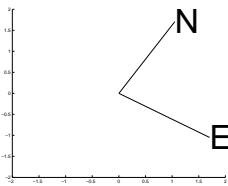
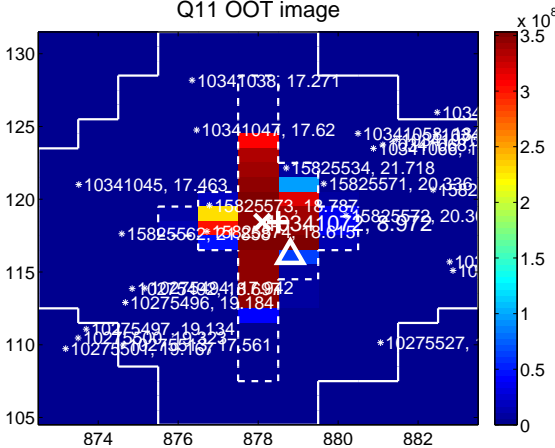
Q10 no OOT image



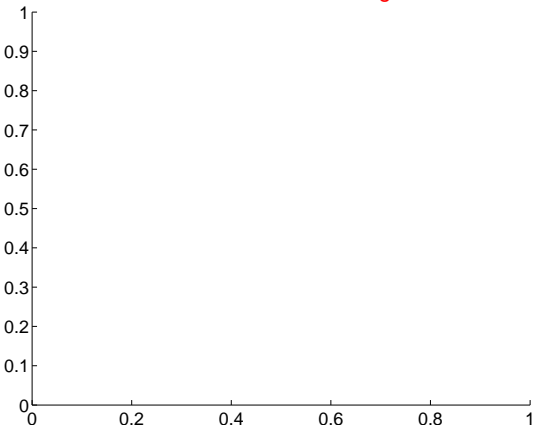
Q11 difference image. Poor Quality



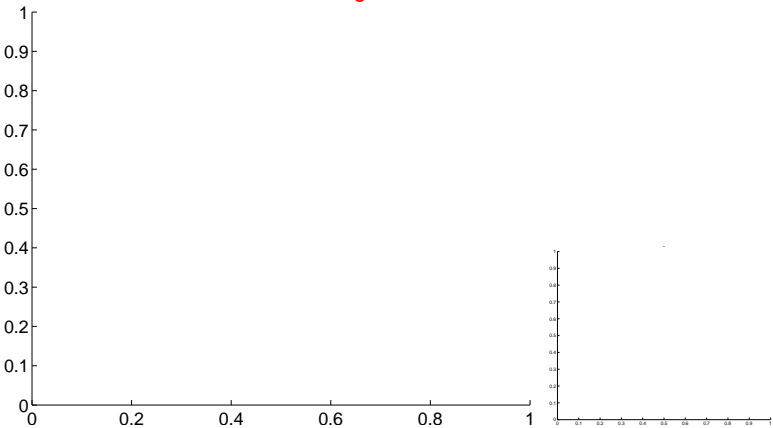
Q11 OOT image



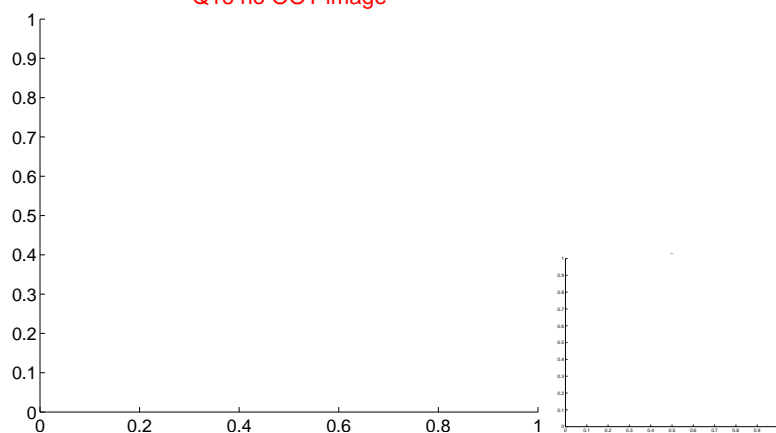
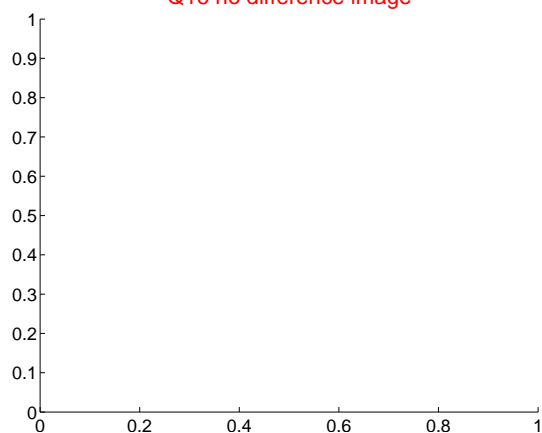
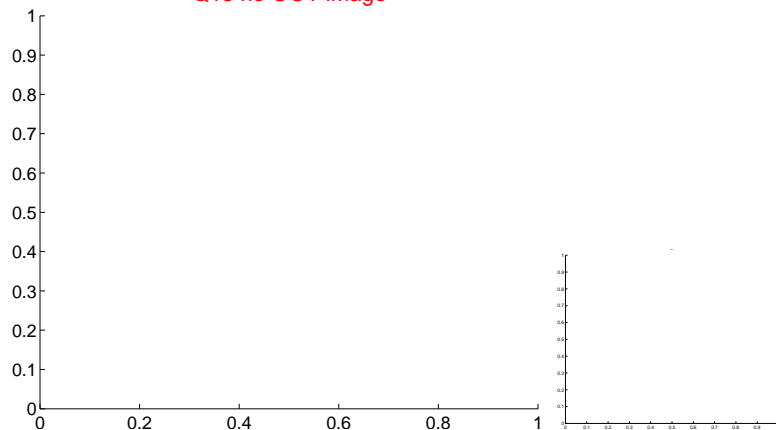
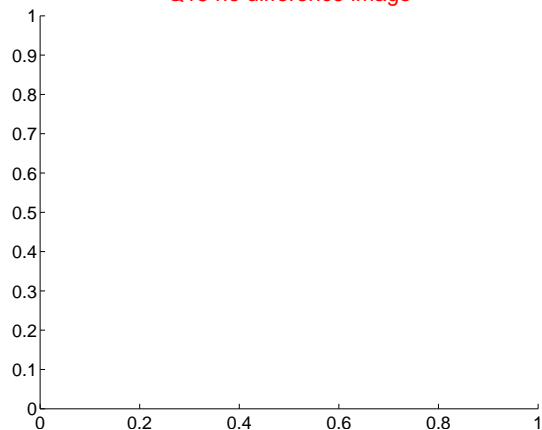
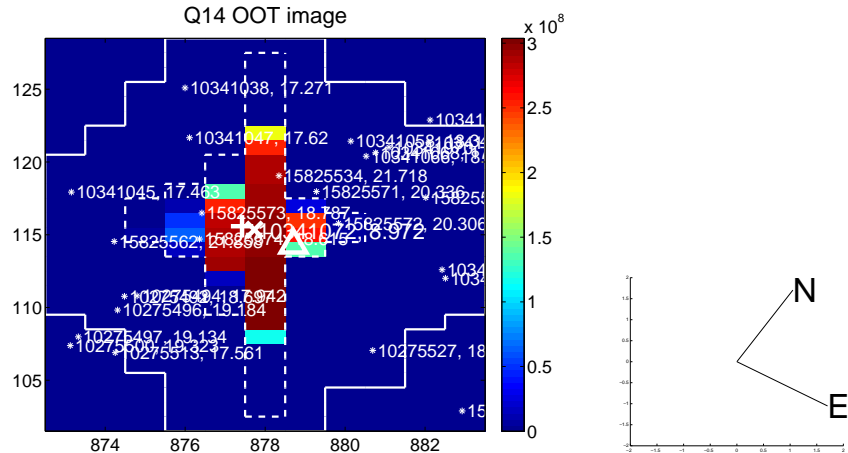
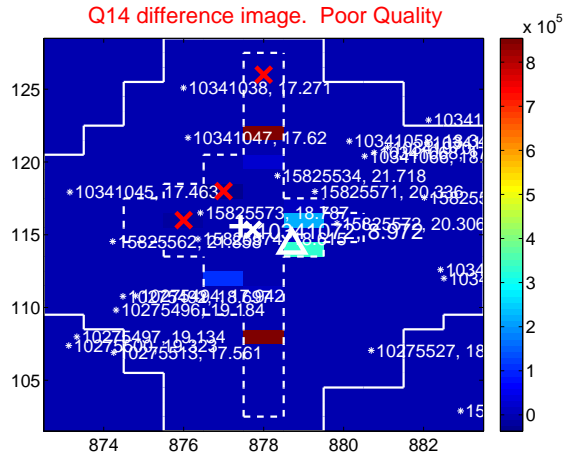
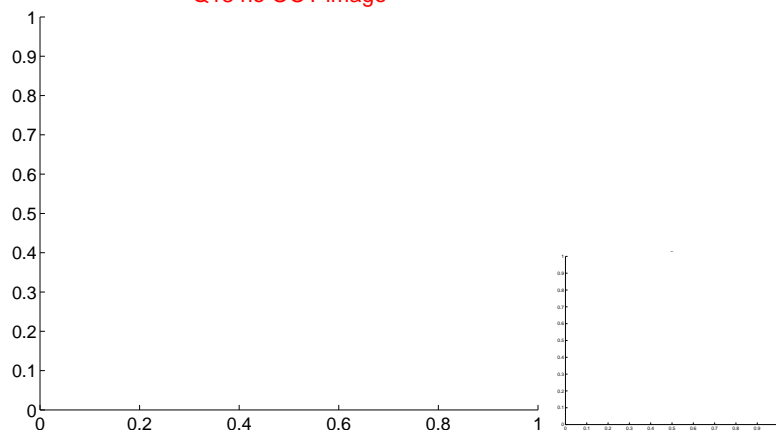
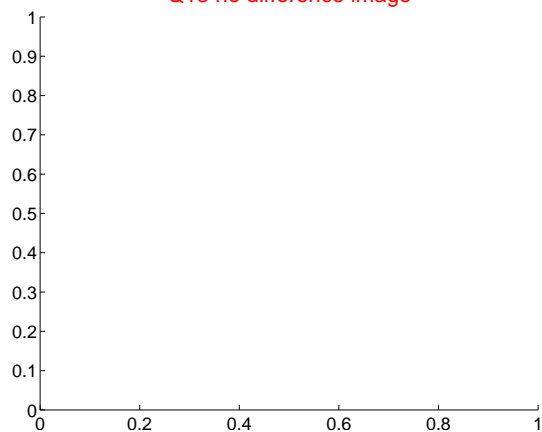
Q12 no difference image



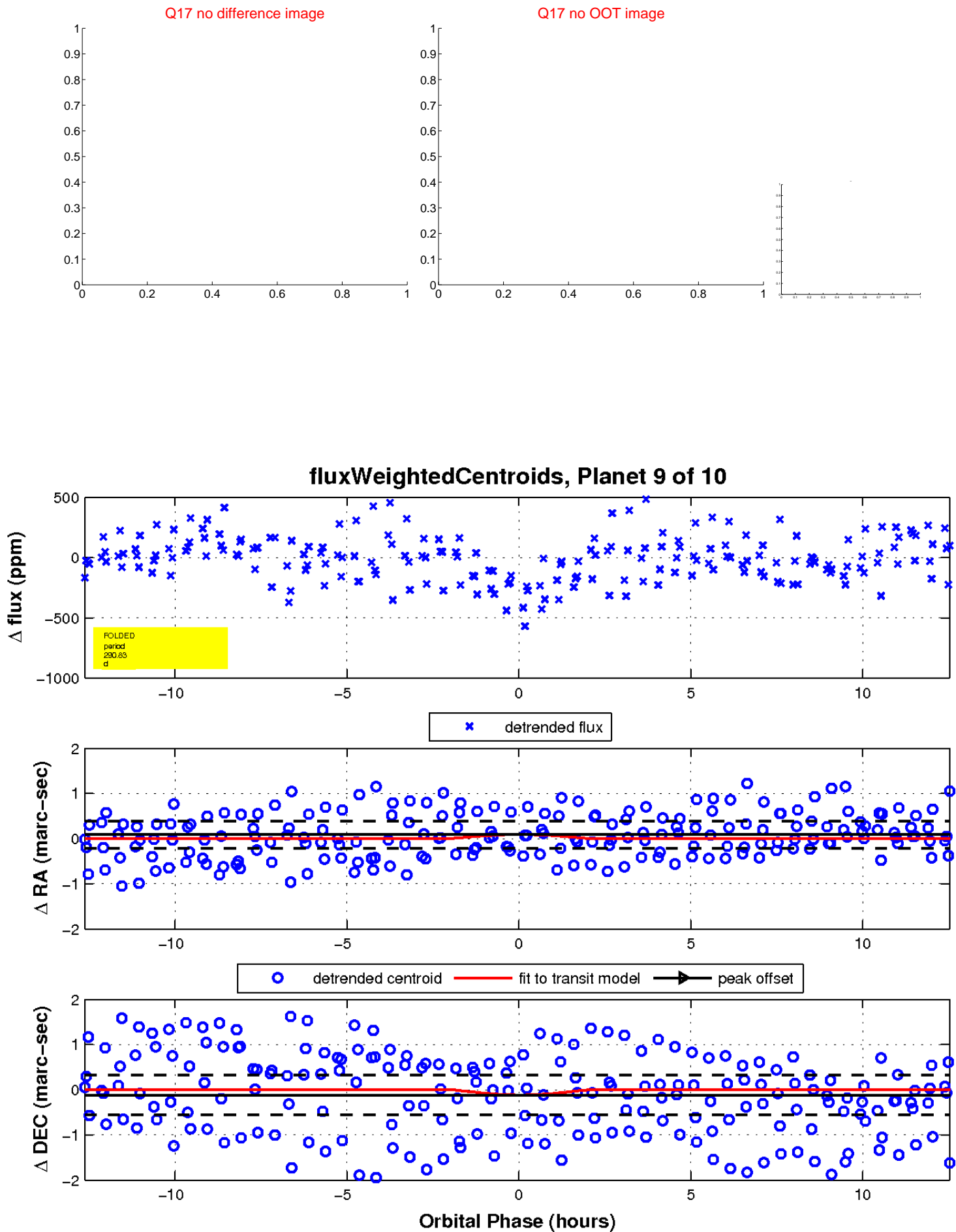
Q12 no OOT image



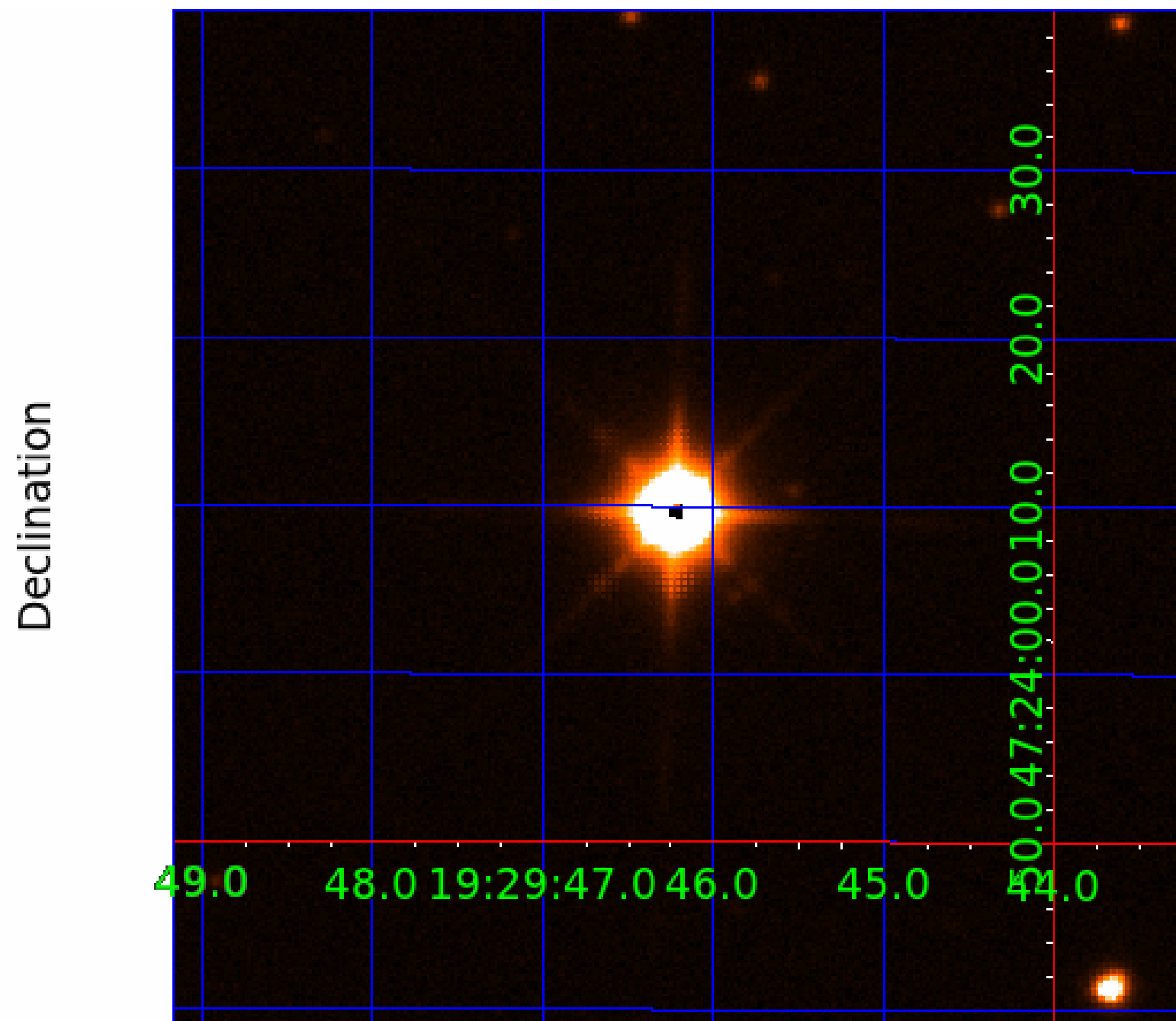
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 010341072

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})
010341072-01	OBS	No	1.659797	132.946592	14.3	7.585	10.0	4.5	4.33	6541	2.15	26639.26
010341072-02	OBS	No	55.921398	142.165690	132.1	8.746	9.0	7.0	4.33	6541	5.53	244.81
010341072-03	OBS	No	171.130384	236.215335	266.4	5.260	8.4	7.7	4.33	6541	8.26	55.10
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010341072-05	OBS	No	68.296828	138.173185	219.4	3.241	8.0	7.9	4.33	6541	7.21	187.53
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010341072-08	OBS	No	129.072654	152.069611	263.3	3.898	7.9	8.2	4.33	6541	8.75	80.26
010341072-09	OBS	No	290.830828	146.975058	393.0	4.212	7.7	7.5	4.33	6541	14.73	27.17
010341072-10	OBS	No	241.670244	301.646265	277.2	7.682	7.9	7.7	4.33	6541	8.11	34.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010341072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
010341072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—CENT_SATURATED
010341072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010341072-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
010341072-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
010341072-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

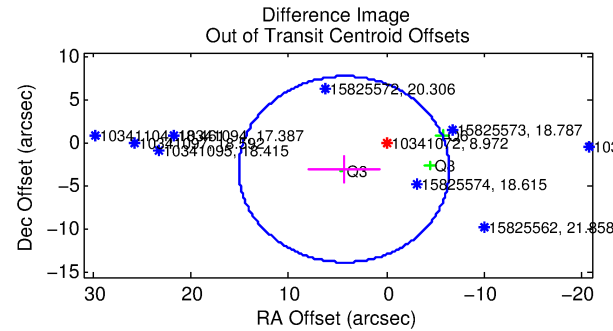
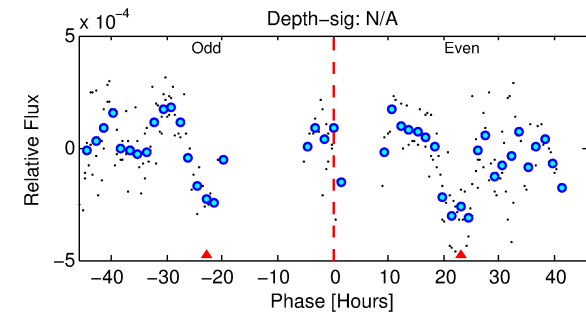
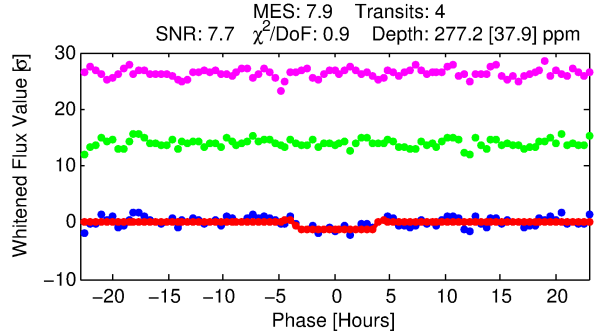
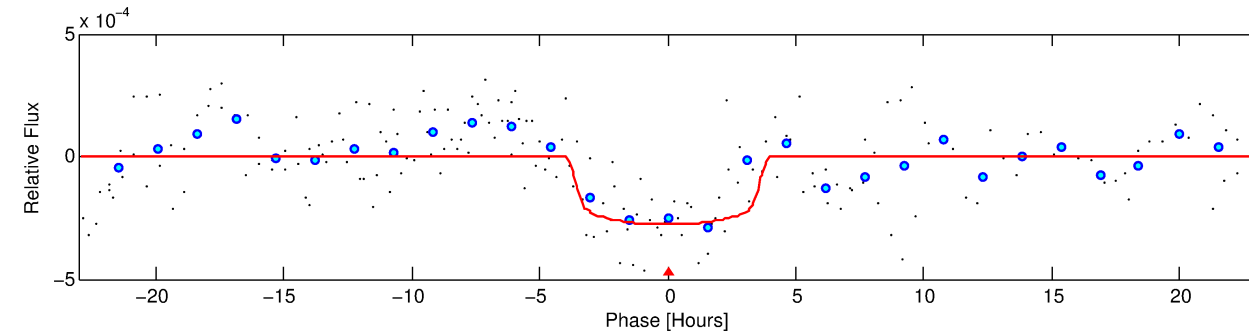
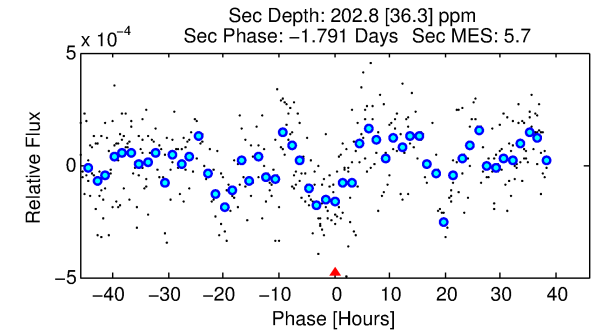
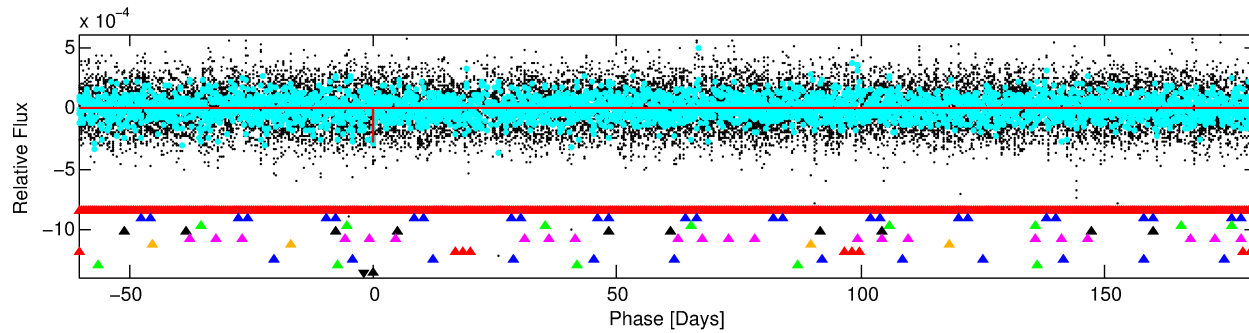
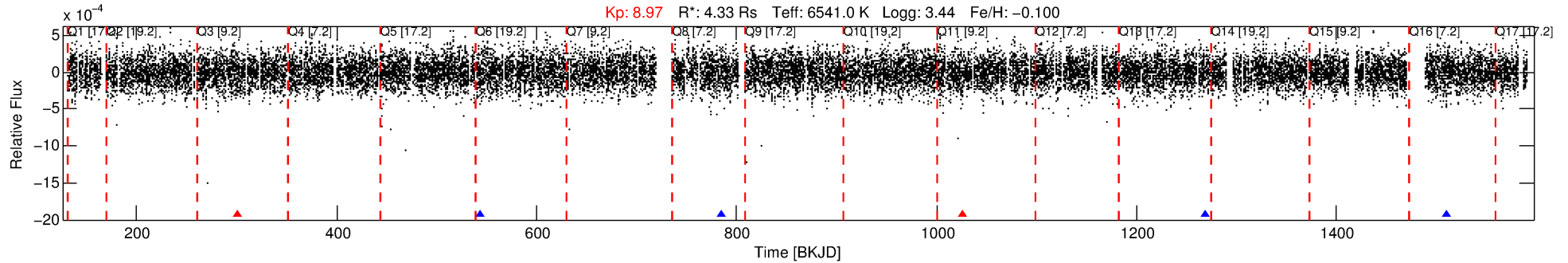
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010341072-10

No Significant Match Found

DV One-Page Summary

KIC: 10341072 Candidate: 10 of 10 Period: 241.670 d



DV Fit Results:

Period = 241.67024 [0.00399] d
Epoch = 301.6463 [0.0112] BKJD
Rp/R* = 0.0172 [0.0043]
a/R* = 137.03 [181.44]
b = 0.84 [0.46]
Seff = 34.78 [23.29]
Teq = 619 [104] K
Rp = 8.11 [3.96] Re
a = 0.9397 [0.3853] AU
Ag = 1499.07 [1272.35] [1.18] σ
Teffp = 5957 [805] K [6.58] σ

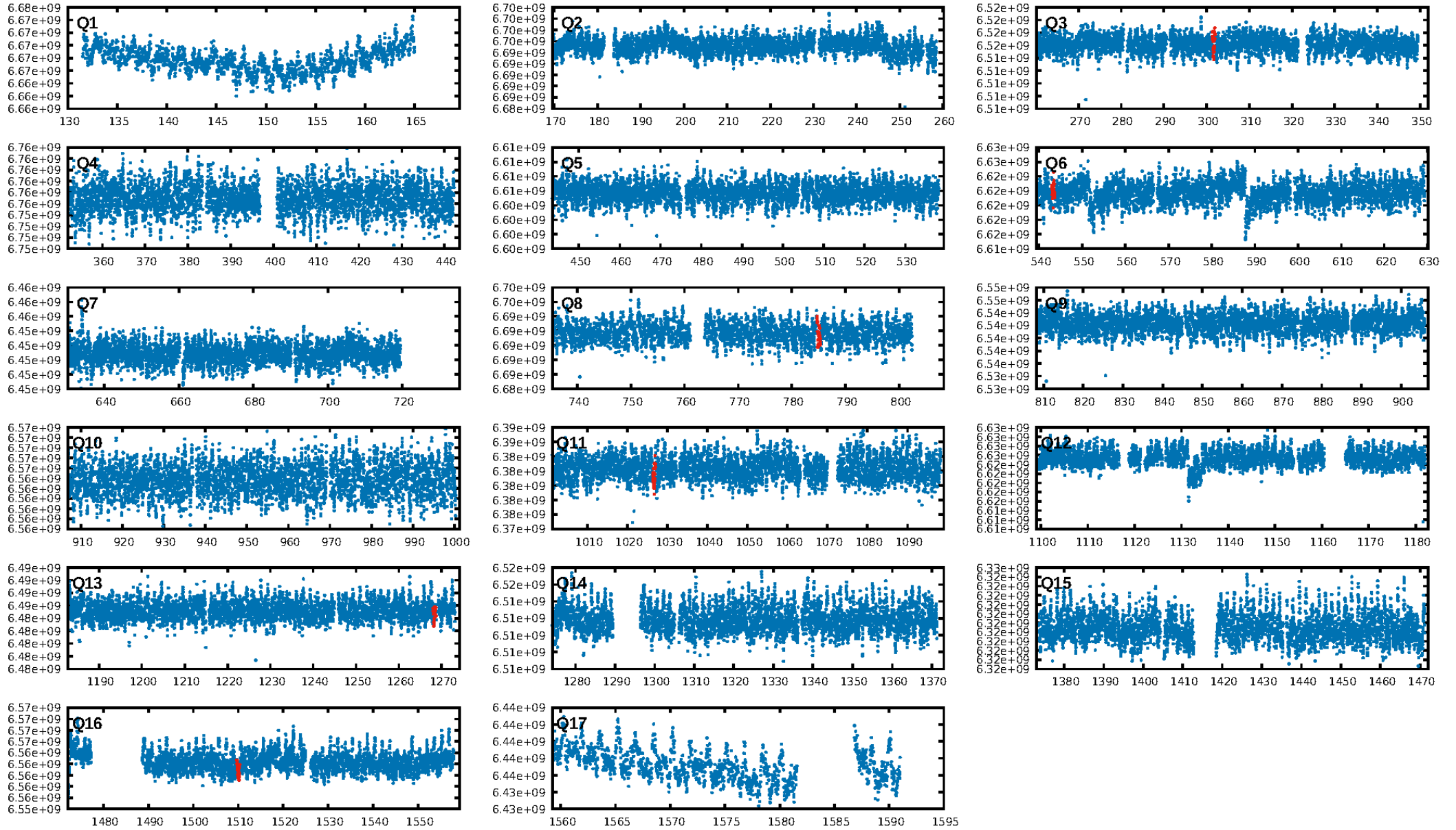
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [181.84] σ
LongPeriod-sig: 100.0% [134.67] σ
ModelChiSquare2-sig: 38.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-igt: 0.50 [2/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 23.3%
Centroid-so: 1.690 arcsec [2.12] σ
OotOffset-rm: 5.301 arcsec [1.48] σ
KicOffset-rm: 6.162 arcsec [2.24] σ
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.00 [0/3]

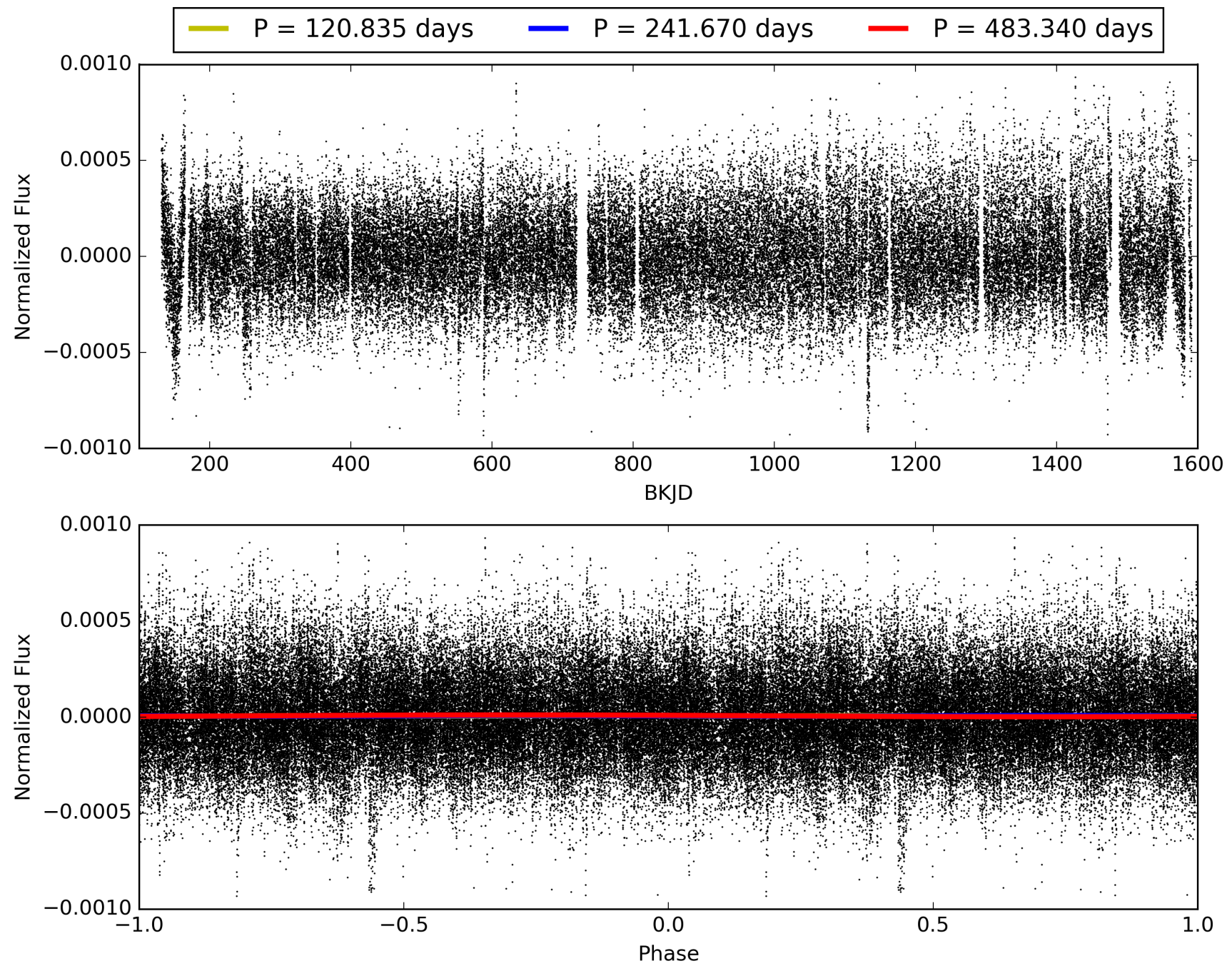
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:57:43 Z

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

TCE 010341072-10, PDC Light Curves

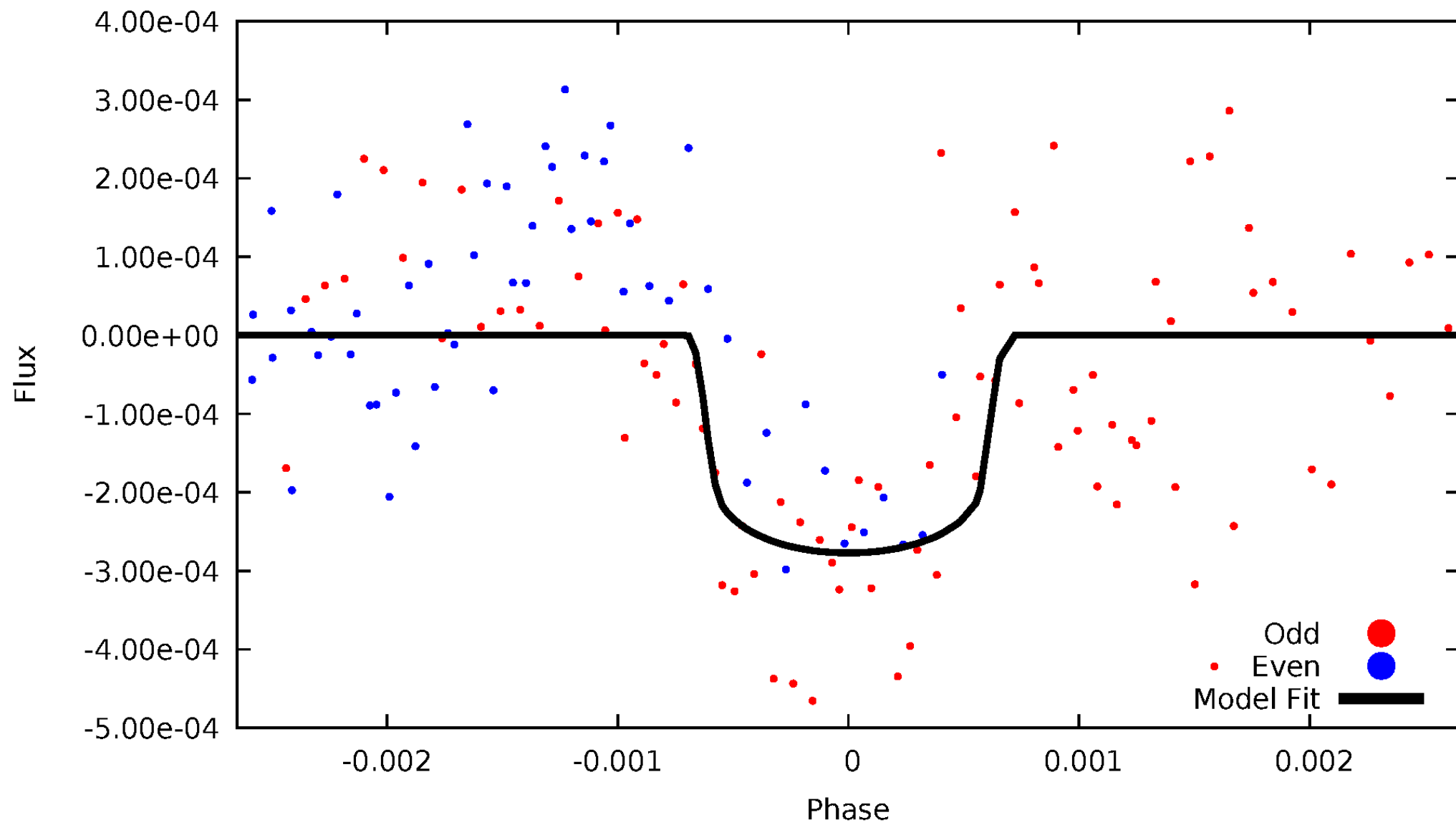


TCE 010341072-10



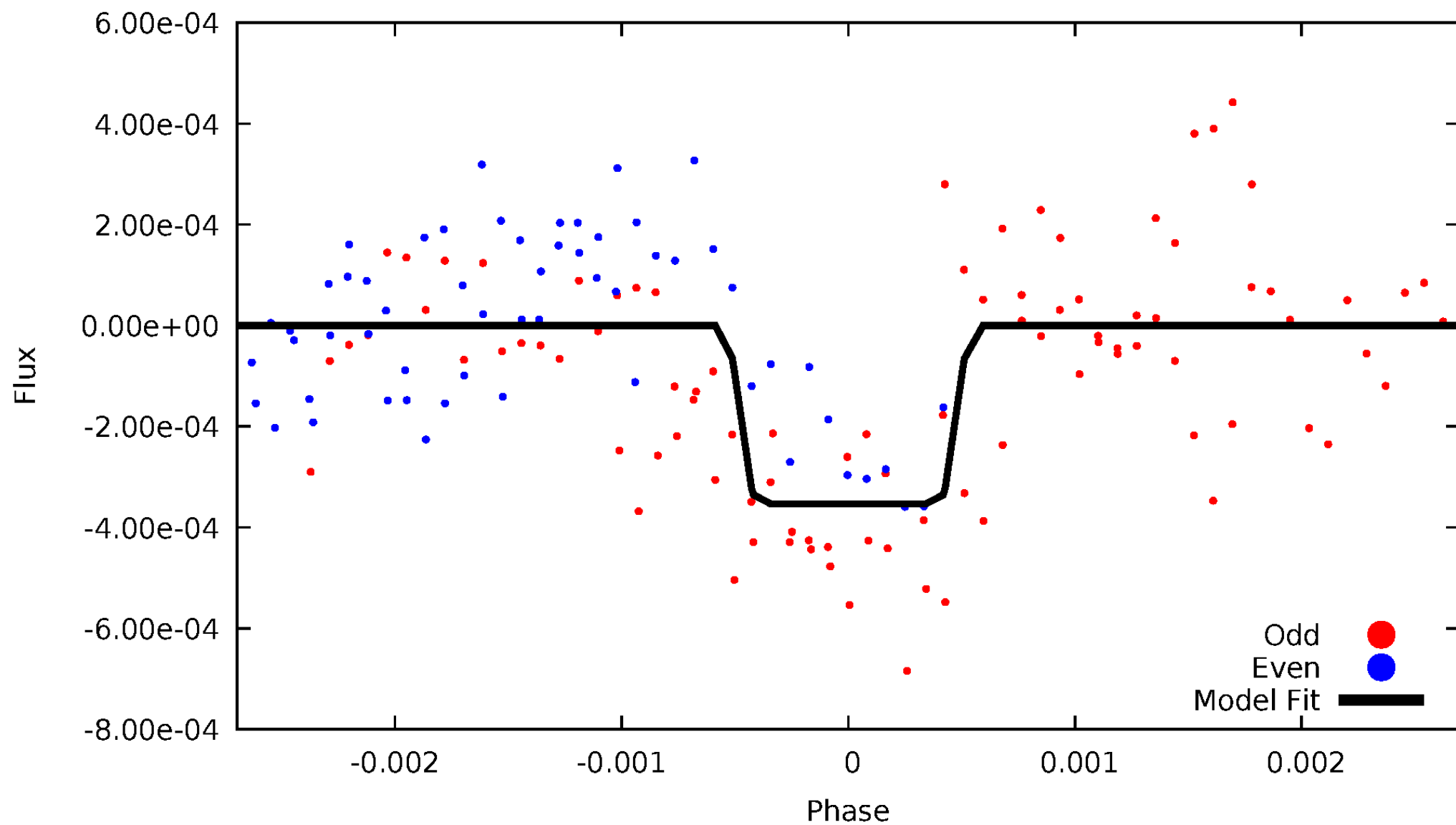
DV Odd/Even

TCE 010341072-10



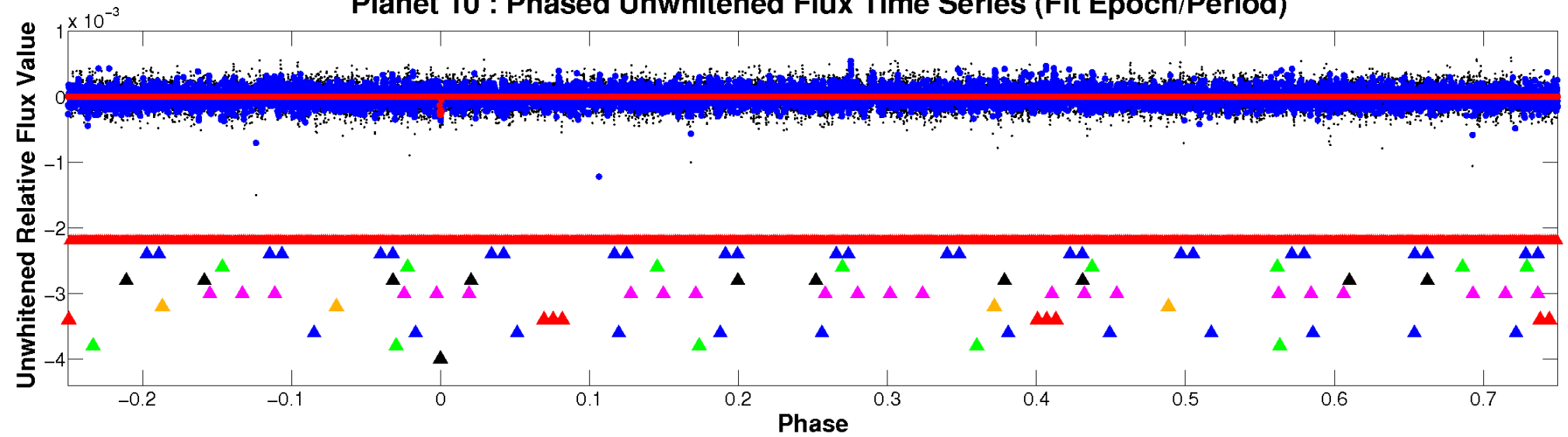
ALT Odd/Even

TCE 010341072-10

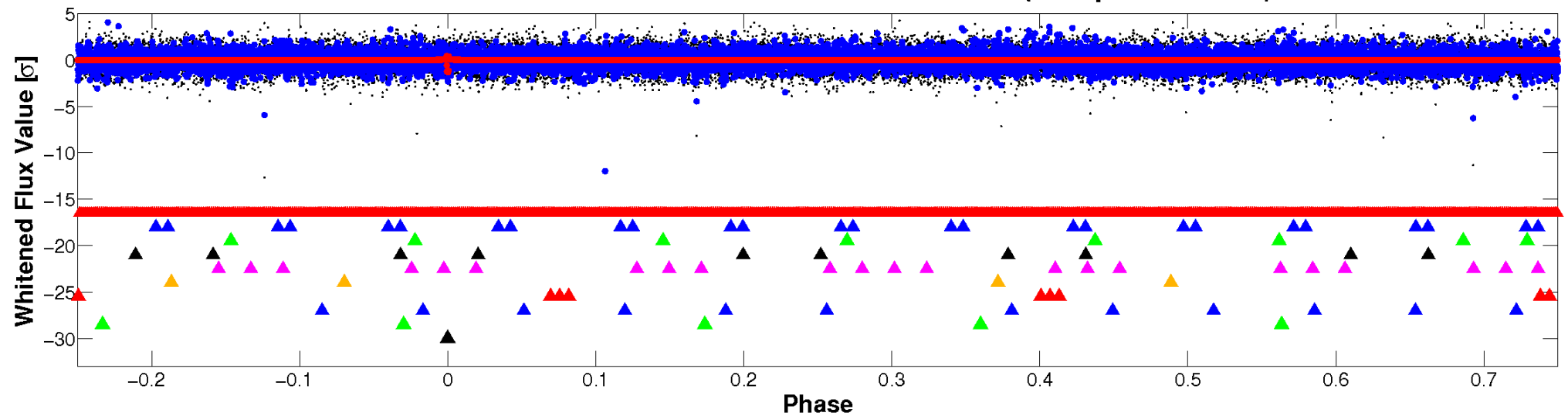


Non-Whitened Vs. Whitened Light Curve

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

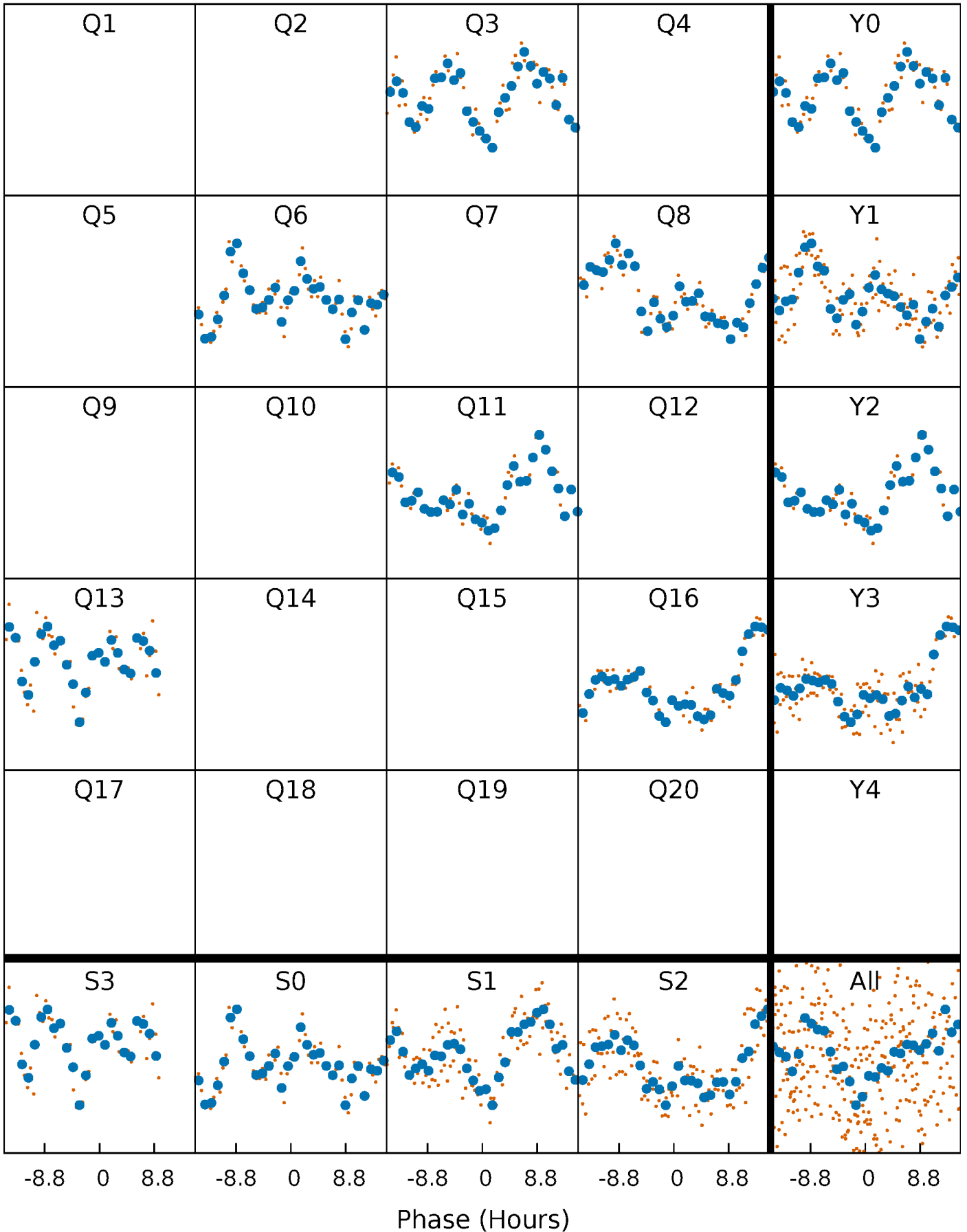


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



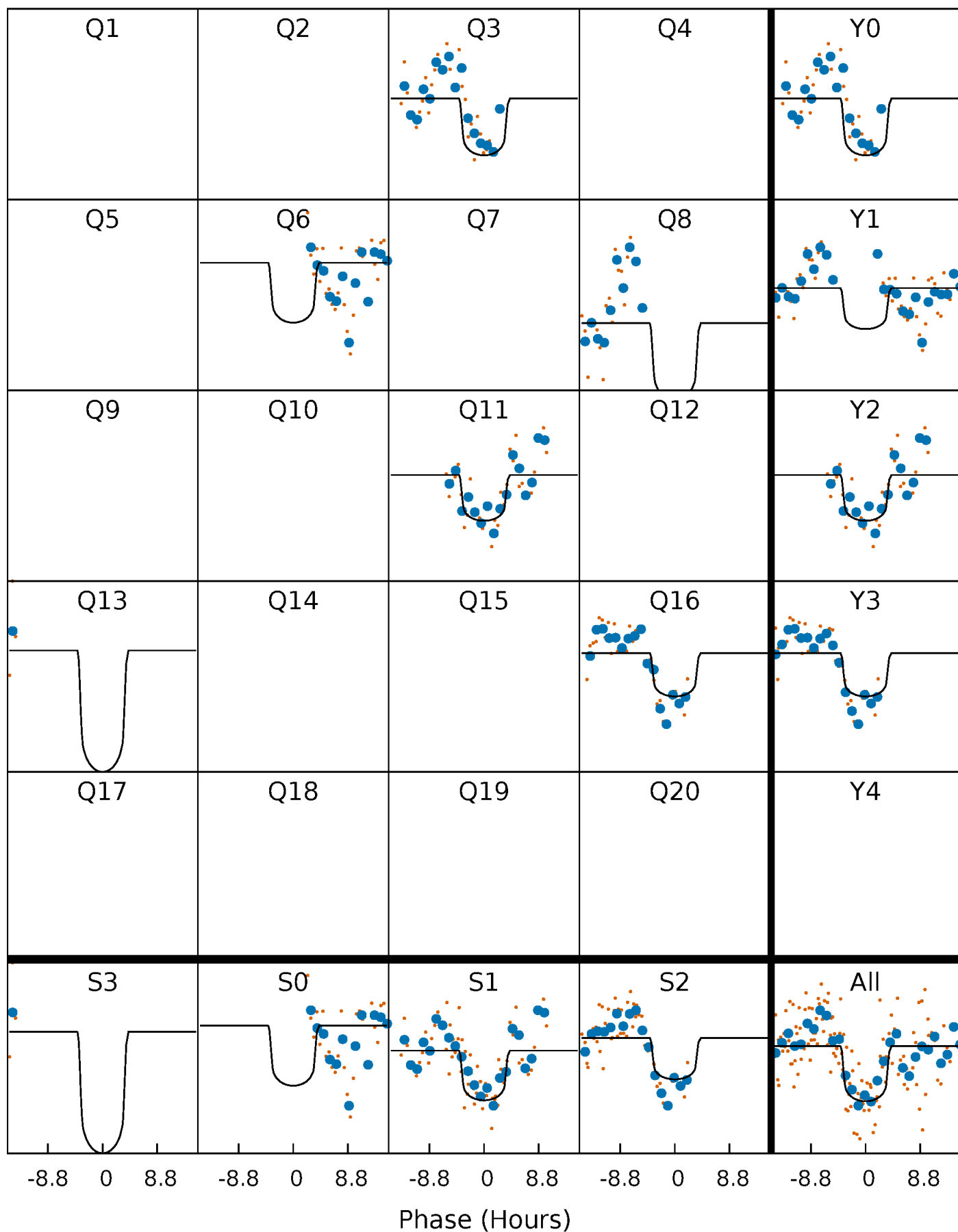
PDC Quarter-Phased Transit Curves

TCE 010341072-10 $P=241.670244$ Days $T_0=301.646265$ (BKJD)



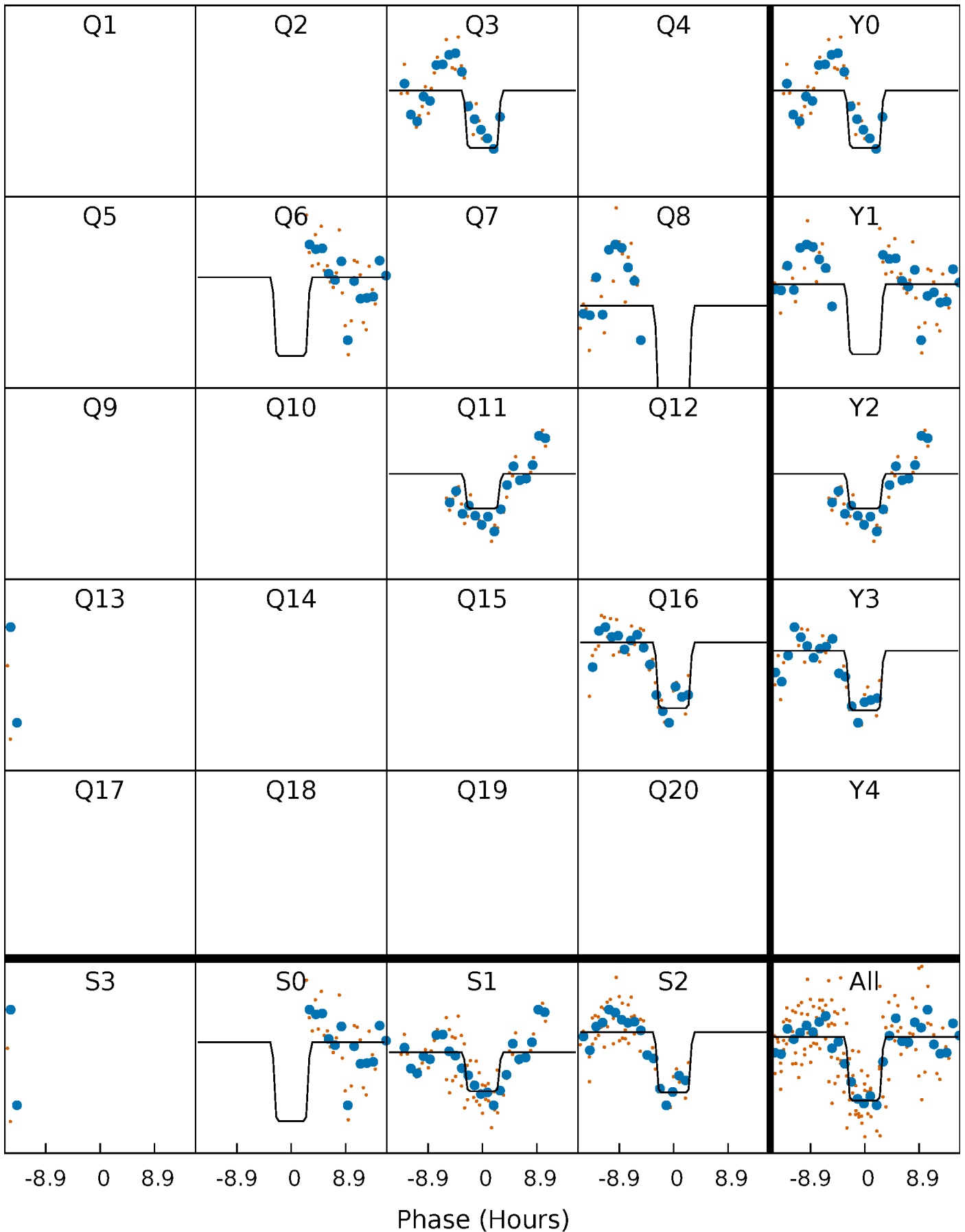
DV Quarter-Phased Transit Curves

TCE 010341072-10 P=241.670244 Days $T_0=301.646265$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

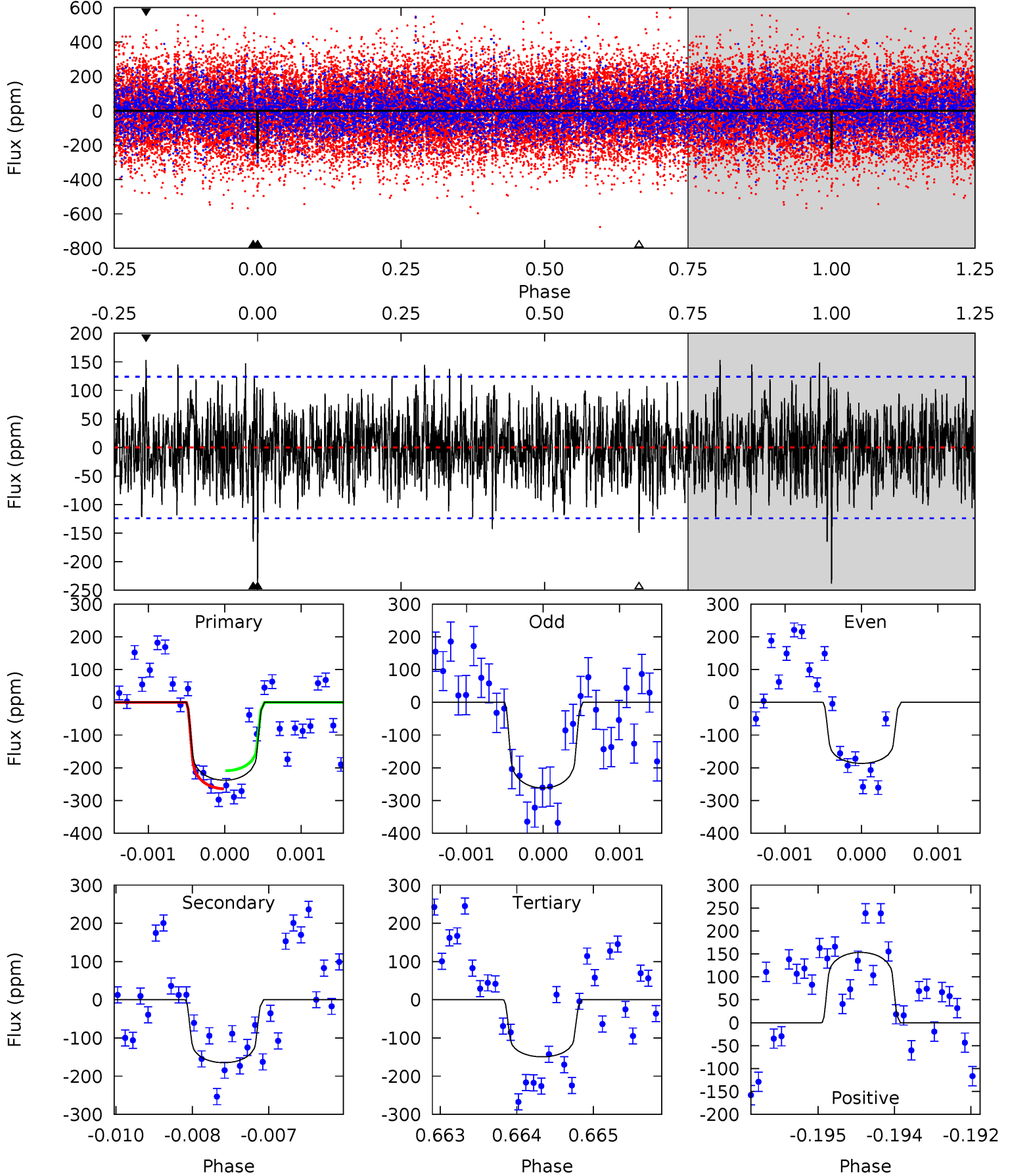
TCE 010341072-10 P=241.667714 Days $T_0=301.643199$ (BKJD)



DV Model-Shift Uniqueness Test

010341072-10, P = 241.670244 Days, E = 59.976021 Days

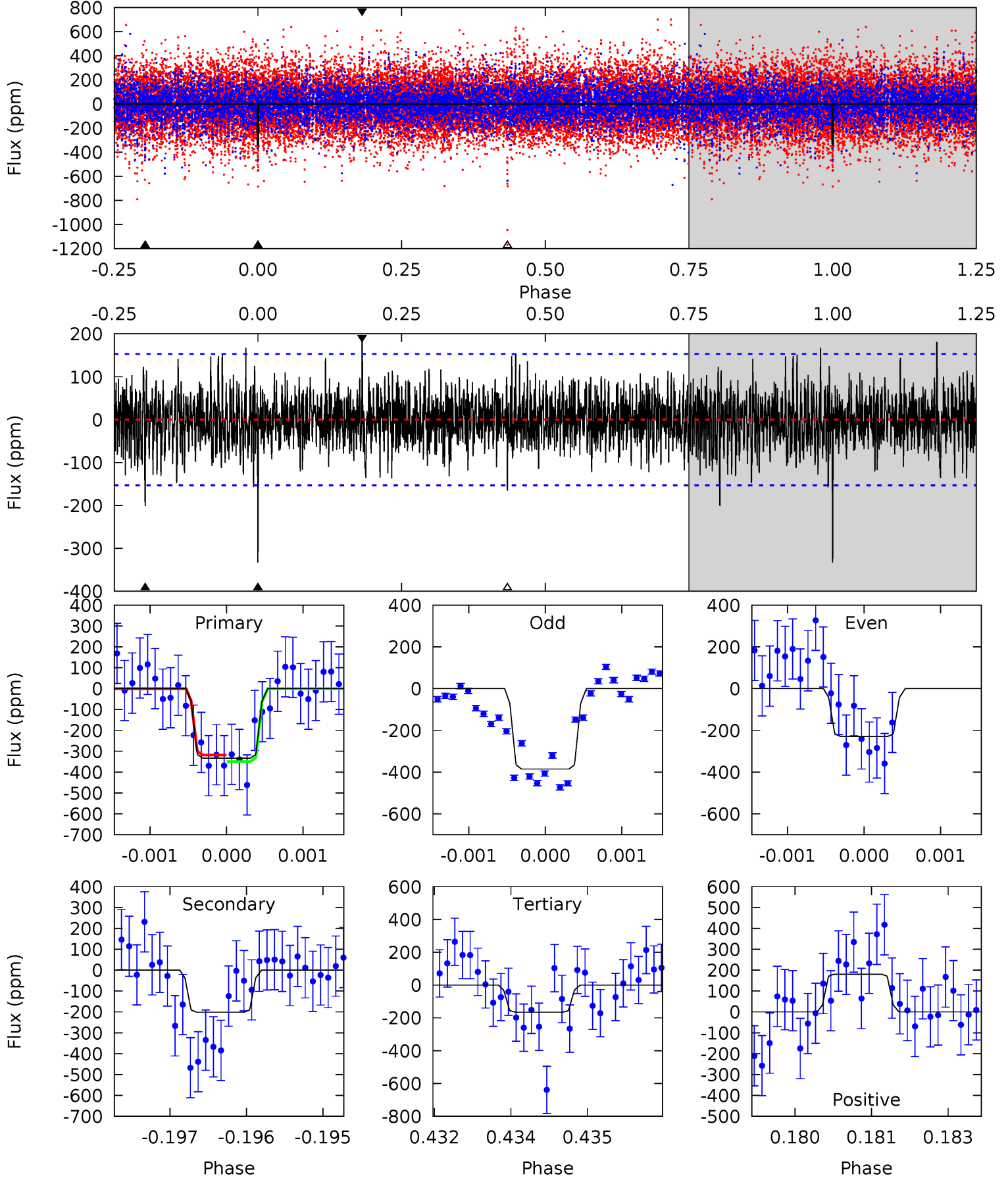
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	7.17	6.50	6.67	5.39	3.20	1.99	3.86	3.69	0.67	0.50	1.49	0.78	0.39	1.19



Alt Model-Shift Uniqueness Test

010341072-10, P = 241.667714 Days, E = 59.975485 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	7.15	5.88	6.42	5.43	3.26	1.66	5.96	5.42	1.27	0.73	2.52	0.65	0.35	0.56



Stellar Parameters For KIC 010341072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6541^{+164}_{-164}	$3.443^{+0.391}_{-0.069}$	$-0.100^{+0.300}_{-0.250}$	$4.327^{+0.605}_{-1.814}$	$1.894^{+0.081}_{-0.406}$	$0.033^{+0.098}_{-0.010}$
	+3%/-3%	+11%/-2%	+300%/-250%	+14%/-42%	+4%/-21%	+297%/-29%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010341072-10 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-165 ± 23	$7.31^{+2.34}_{-2.14}$	836^{+54}_{-94}	5630^{+852}_{-599}	1478^{+1495}_{-666}
Alt.	-201 ± 28	$8.03^{+2.25}_{-2.39}$	843^{+50}_{-89}	5697^{+794}_{-560}	1529^{+1389}_{-658}

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 $A_{obs} \gg 1.0$

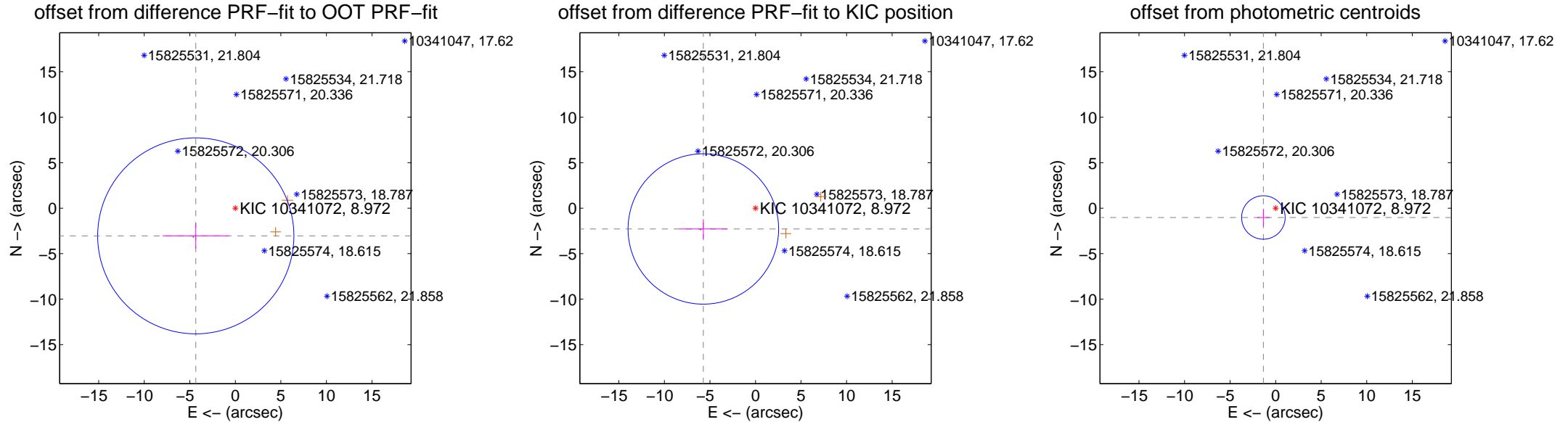
DV Centroid Data

Supplemental centroid analysis for 010341072-10. **Kepler magnitude: 8.97.** Transit SNR 7.70

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 1.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.301 ± 3.589	1.48	4.342 ± 3.635	-3.041 ± 1.416
PRF-fit source offset from KIC position	6.162 ± 2.754	2.24	5.724 ± 2.622	-2.283 ± 1.087
photometric centroid source offset	1.69 ± 0.80	2.12	1.35 ± 0.68	-1.02 ± 0.96



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

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

Q1 no difference image



Q1 no OOT image



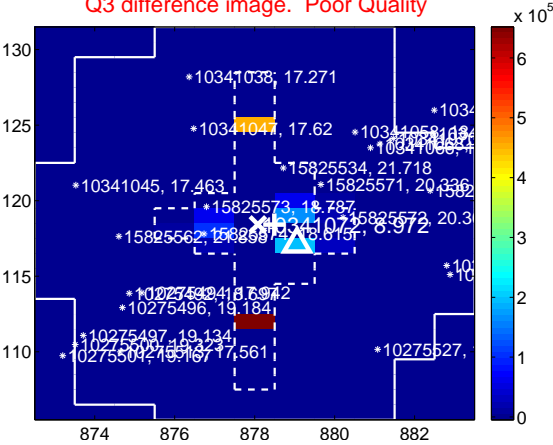
Q2 no difference image



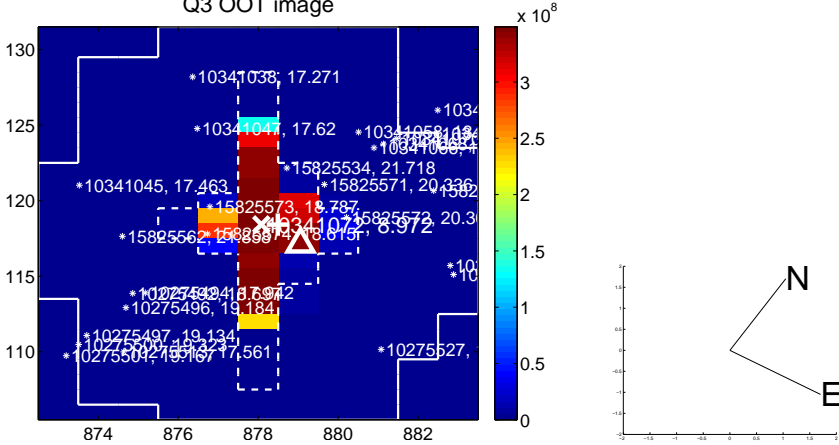
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image

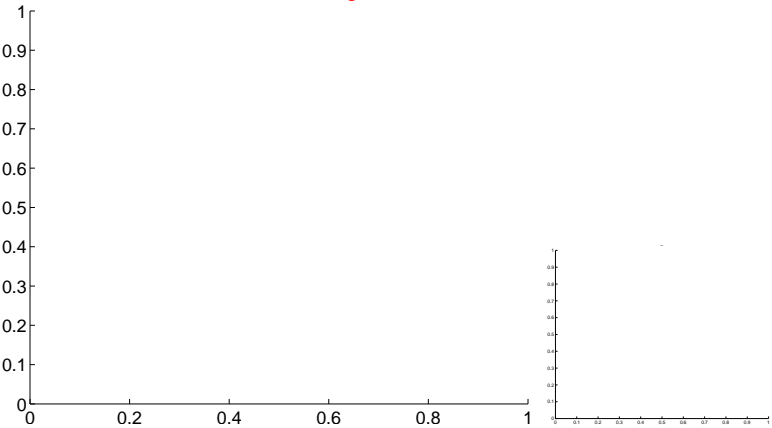


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

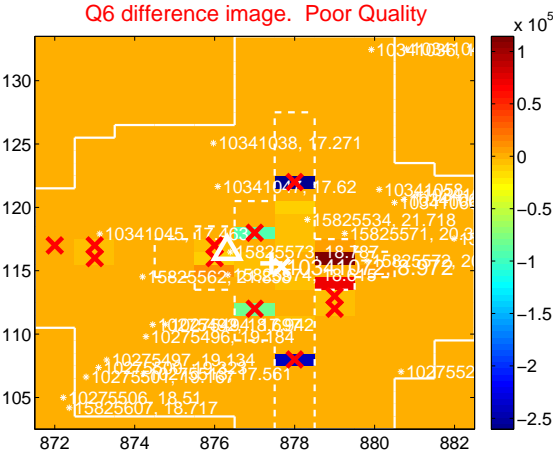
Q5 no difference image



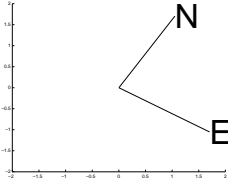
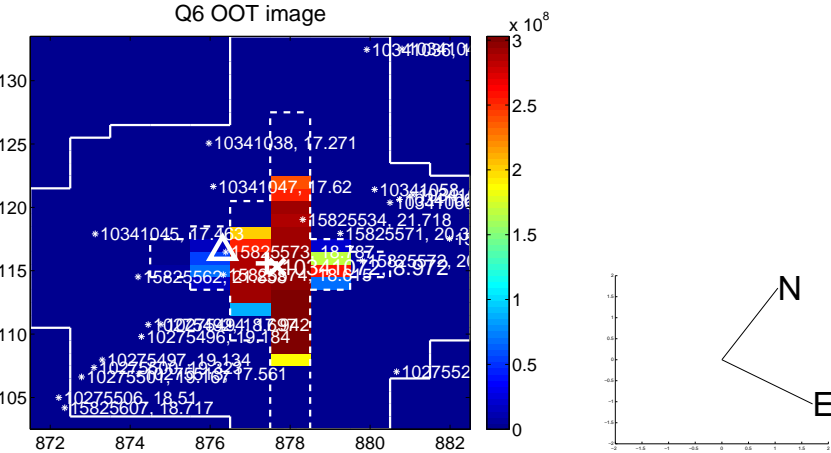
Q5 no OOT image



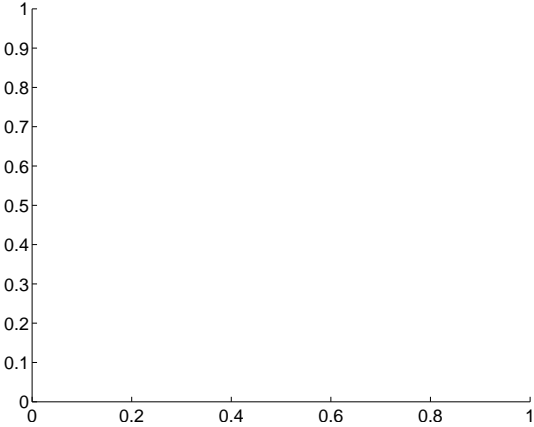
Q6 difference image. Poor Quality



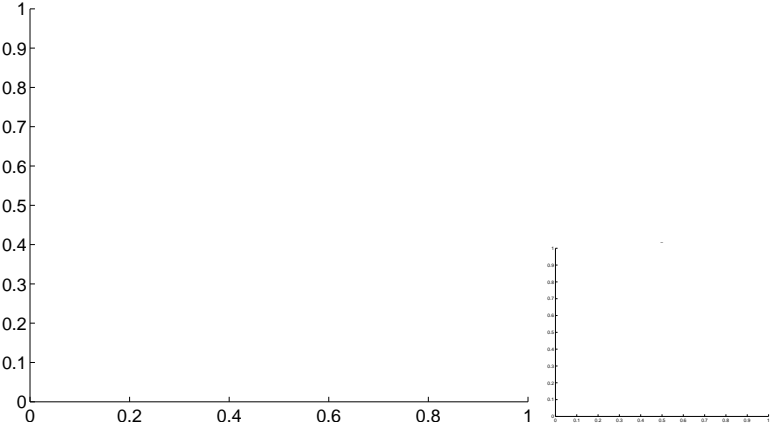
Q6 OOT image



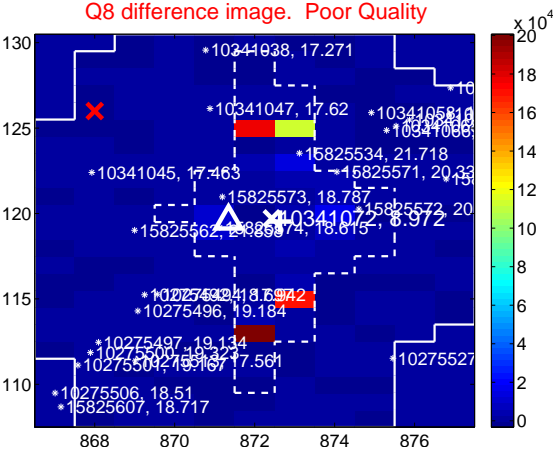
Q7 no difference image



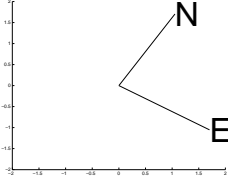
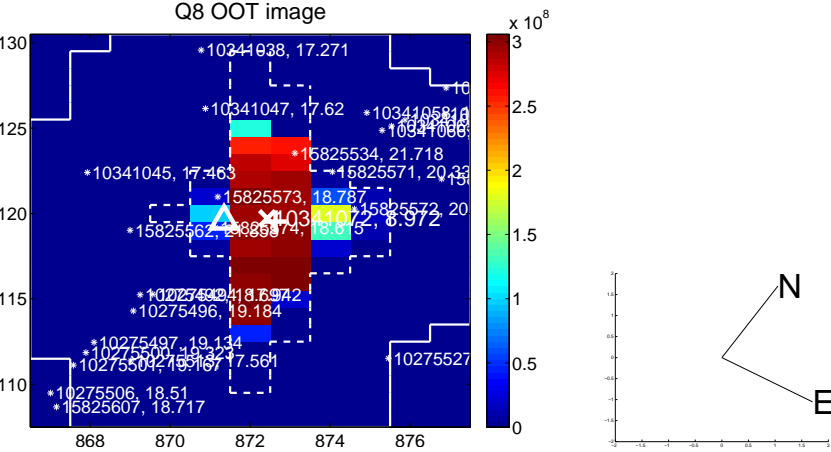
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 OOT image



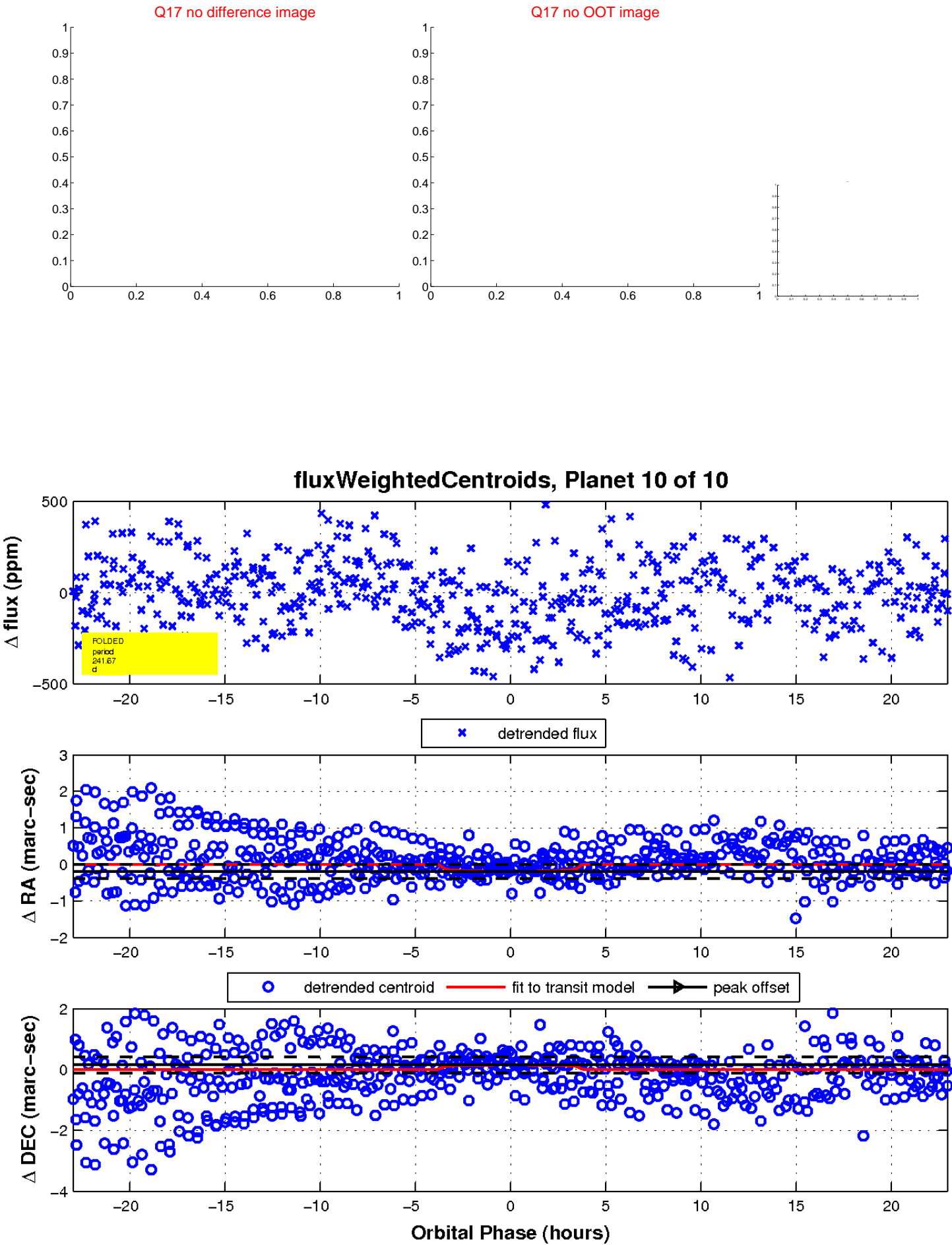
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

