

KIC 011961072

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})
011961072-01	OBS	No	1.675064	132.381976	11.9	9.233	9.7	9.6	2.63	8402	0.92	24323.34
011961072-02	OBS	No	170.540987	257.522725	288.2	1.966	8.1	9.1	2.63	8402	5.28	51.16
011961072-03	OBS	No	155.659011	278.975910	135.5	4.358	7.9	5.6	2.63	8402	3.40	57.79
011961072-04	OBS	No	54.795520	150.627110	133.8	2.306	7.4	7.8	2.63	8402	3.52	232.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011961072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
011961072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011961072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011961072-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

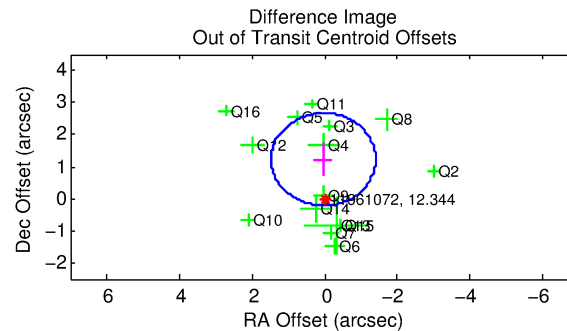
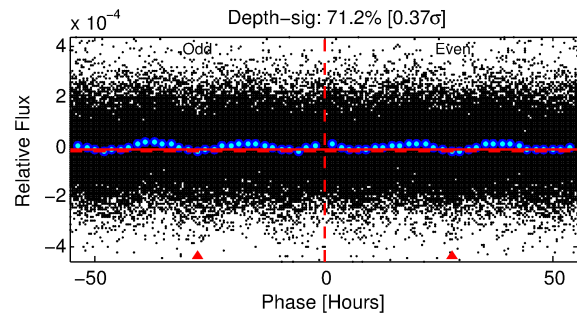
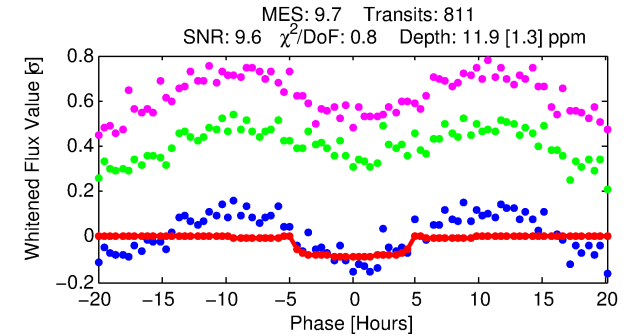
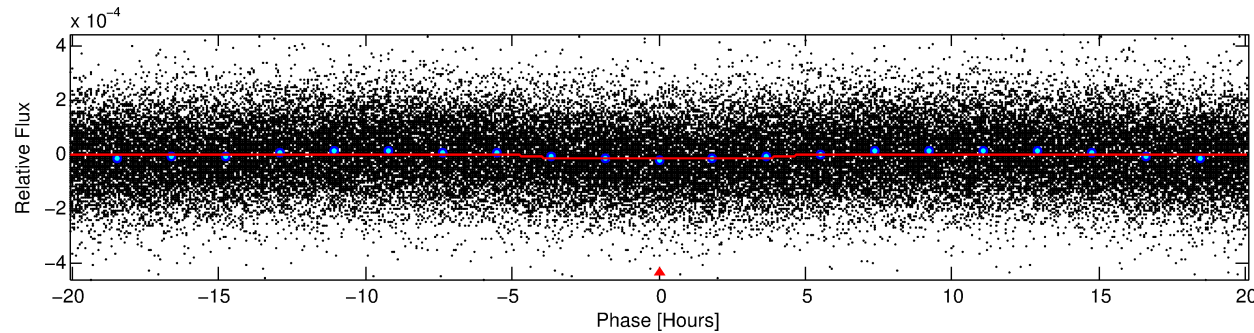
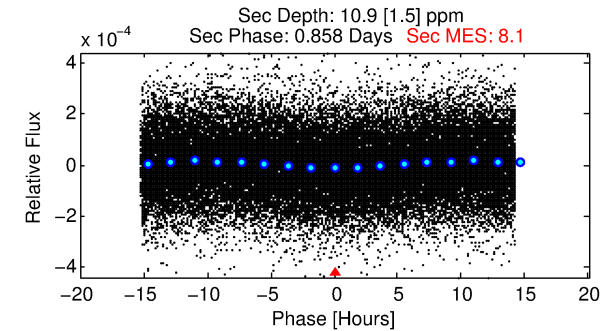
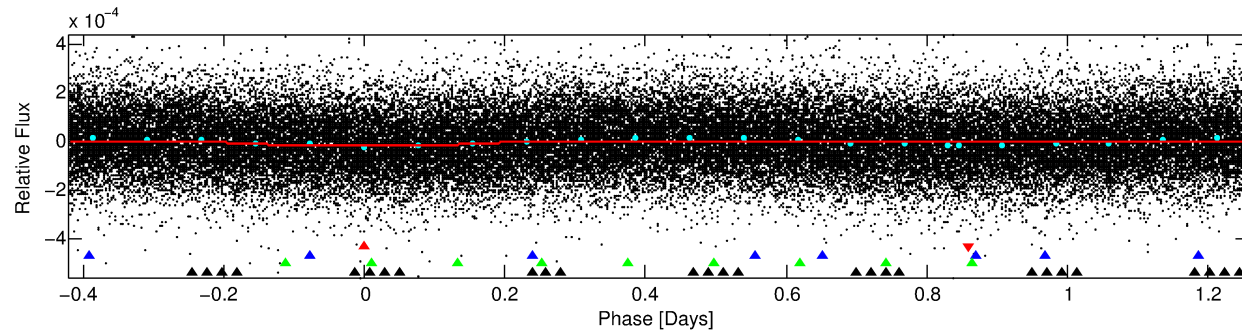
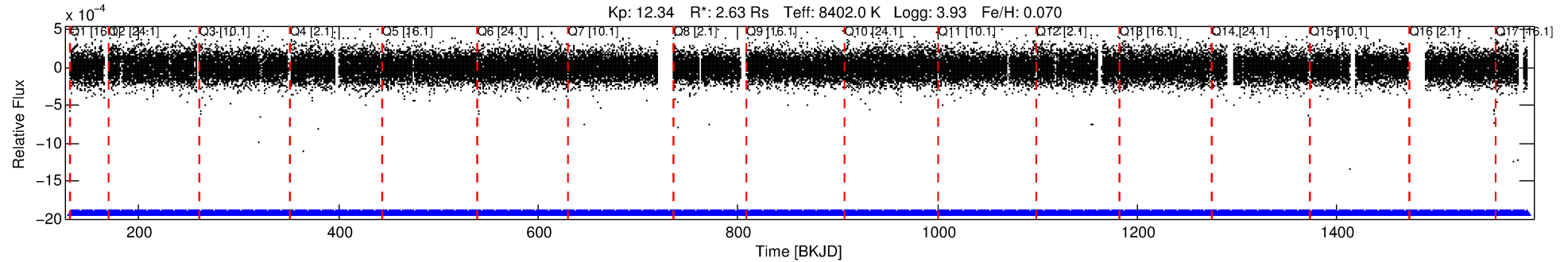
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011961072-01

No Significant Match Found

DV One-Page Summary

KIC: 11961072 Candidate: 1 of 4 Period: 1.675 d



DV Fit Results:

Period = 1.67506 [0.00003] d
Epoch = 132.3820 [0.0079] BKJD
Rp/R* = 0.0032 [0.0032]
a/R* = 1.52 [5.10]
b = 0.01 [868.29]
Seff = 24323.34 [11459.36]
Teff = 3184 [375] K
Rp = 0.92 [0.98] Re
a = 0.0356 [0.0107] AU
Ag = 9.03 [18.61] [0.43σ]
Teffp = 8535 [4319] K [1.23σ]

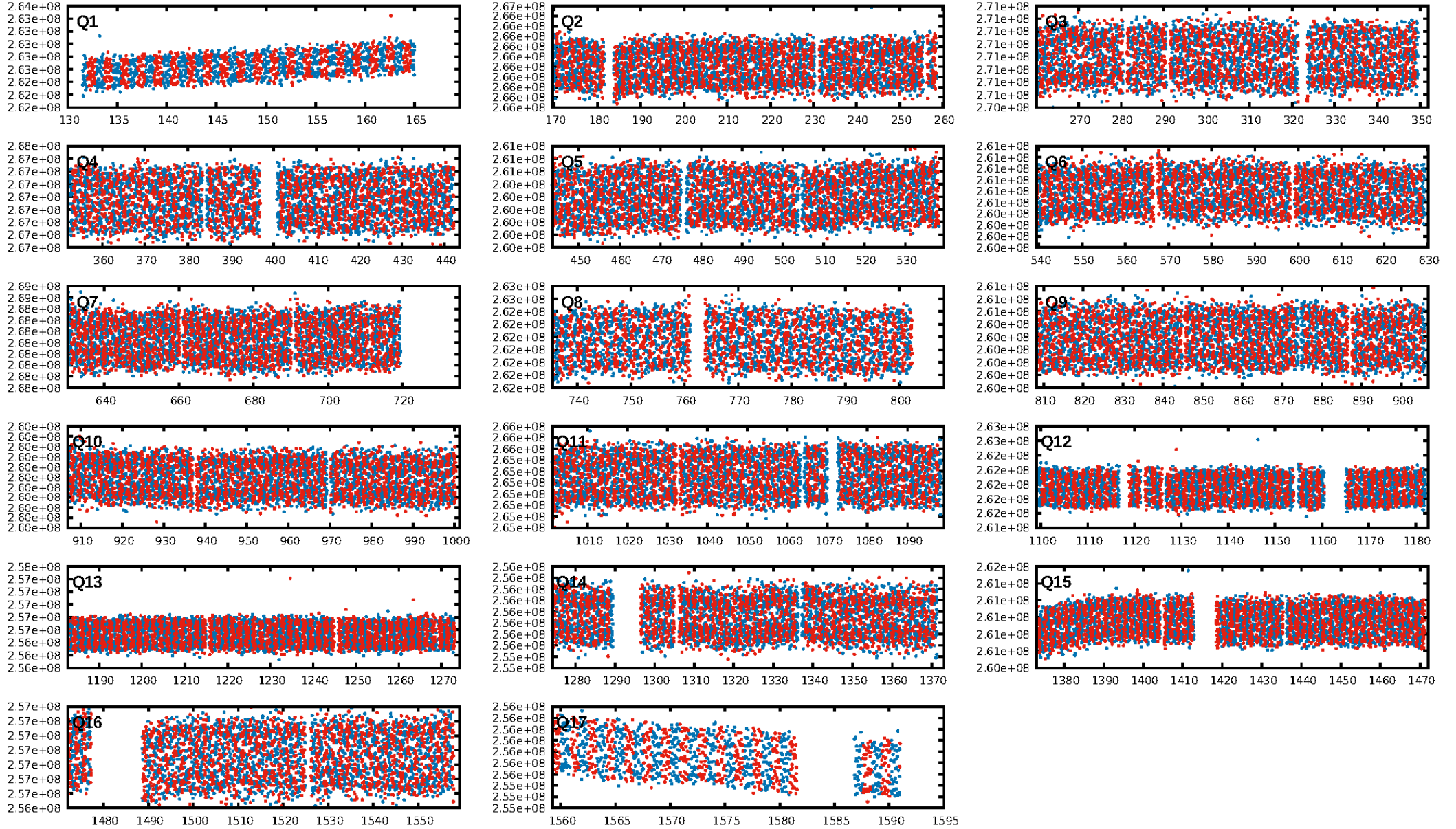
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [133.96σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.04e-16
RollingBand-fgt: 1.00 [775/775]
GhostDiagnostic-chr: 3.913
Centroid-sig: 0.2%
Centroid-so: 2.588 arcsec [2.12σ]
OotOffset-rm: 1.227 arcsec [2.56σ]
KicOffset-rm: 1.172 arcsec [2.49σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.80 [12/15]
DiffImageOverlap-fno: 1.00 [17/17]

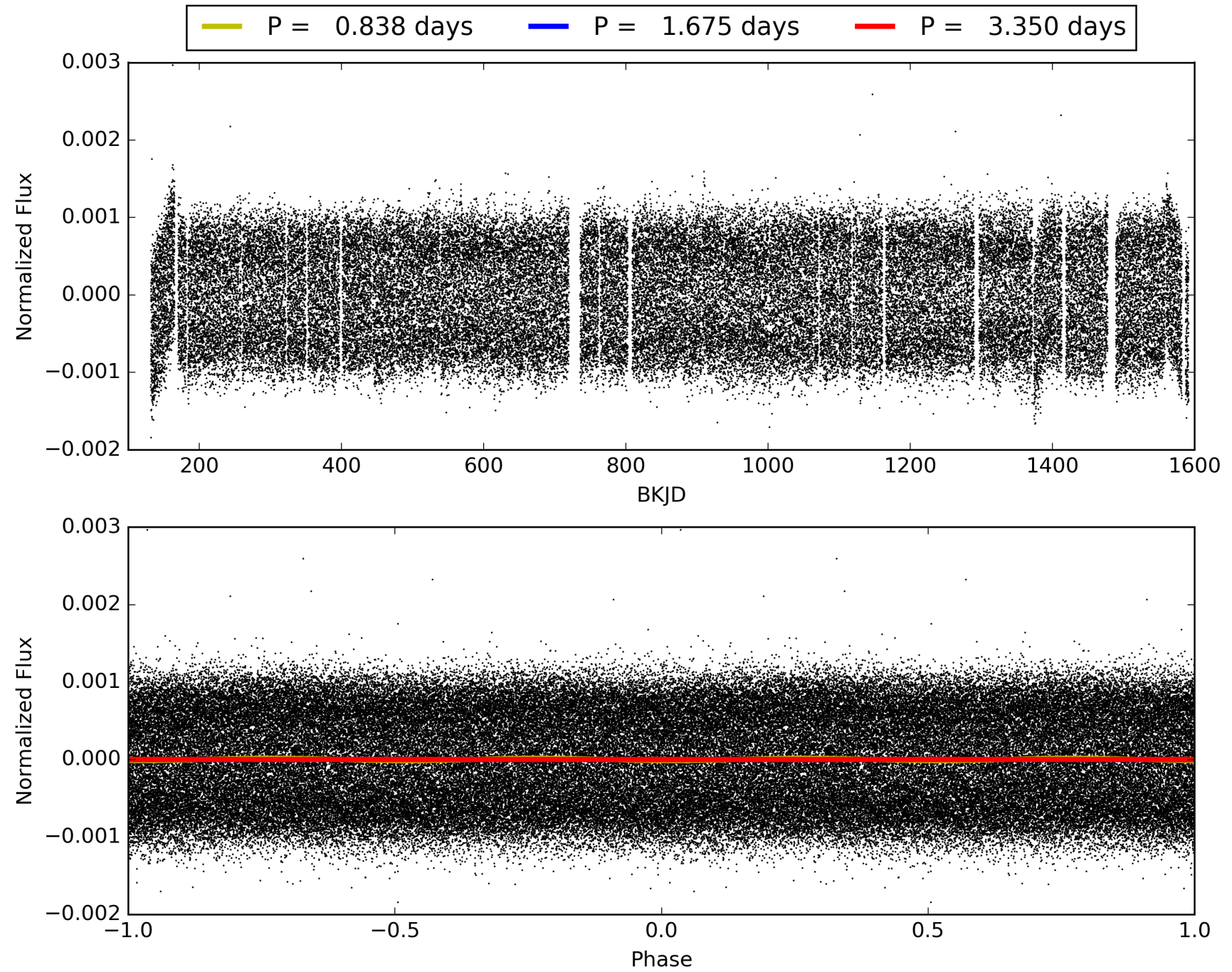
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011961072-01, PDC Light Curves

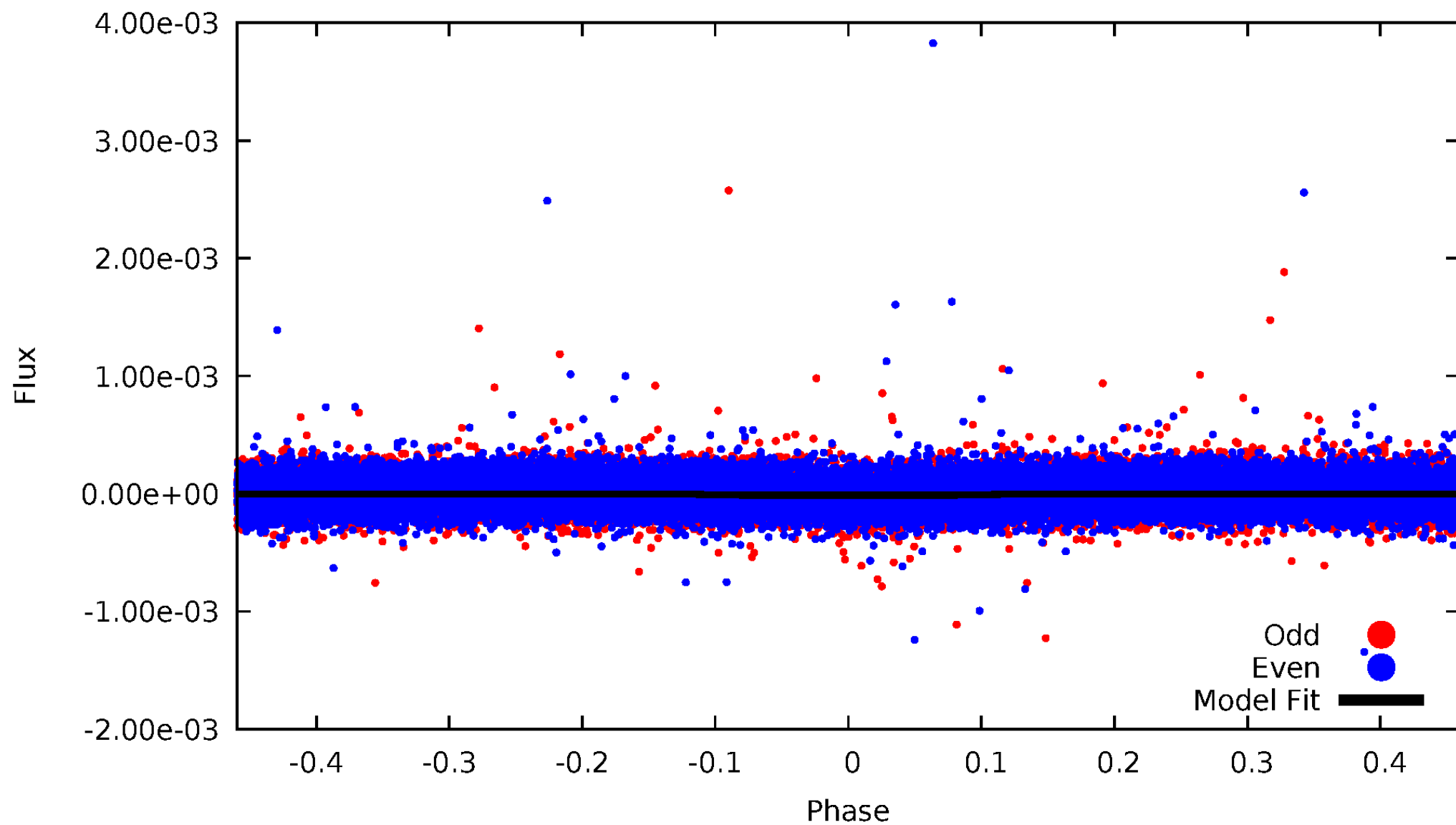


TCE 011961072-01



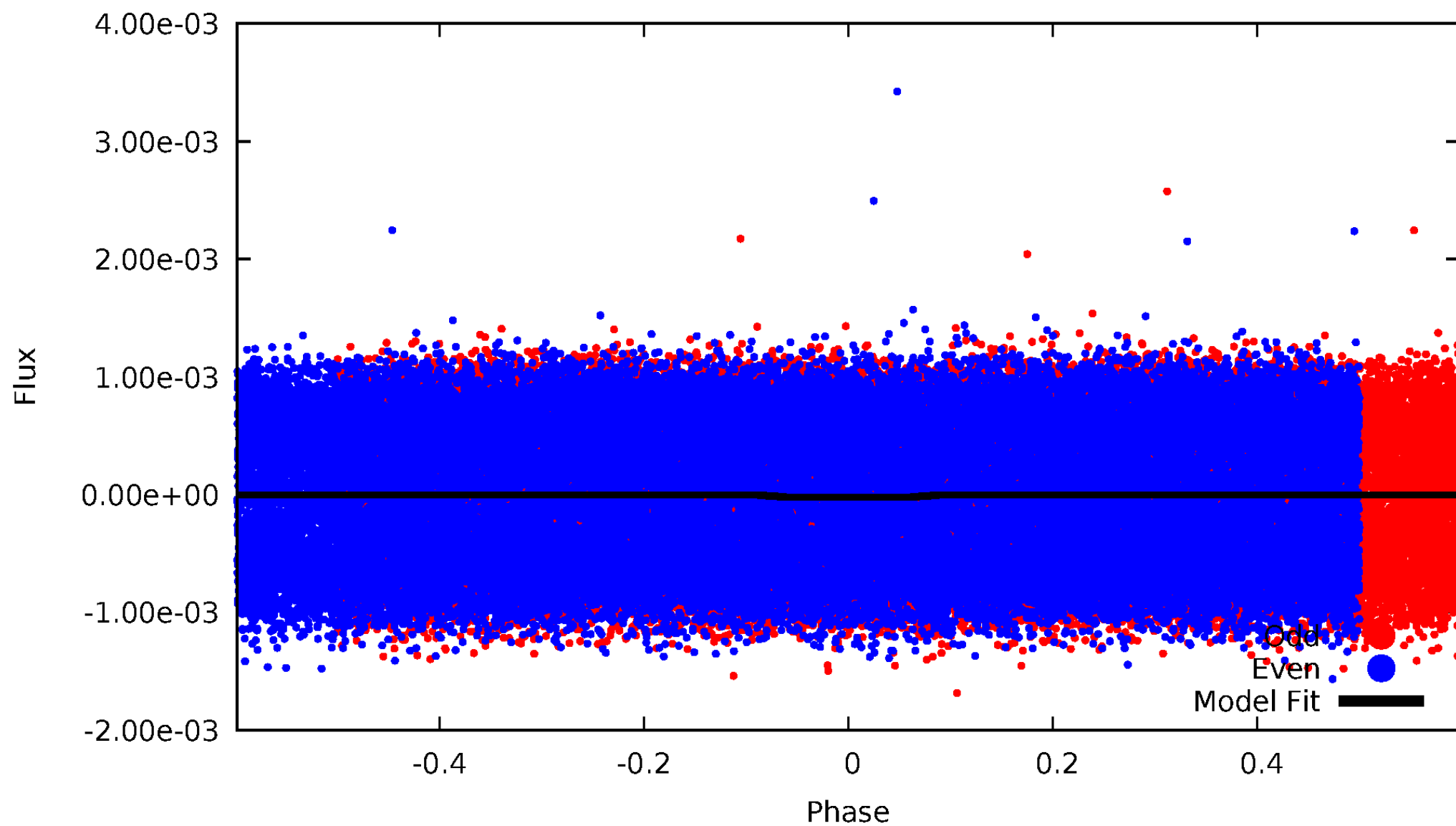
DV Odd/Even

TCE 011961072-01

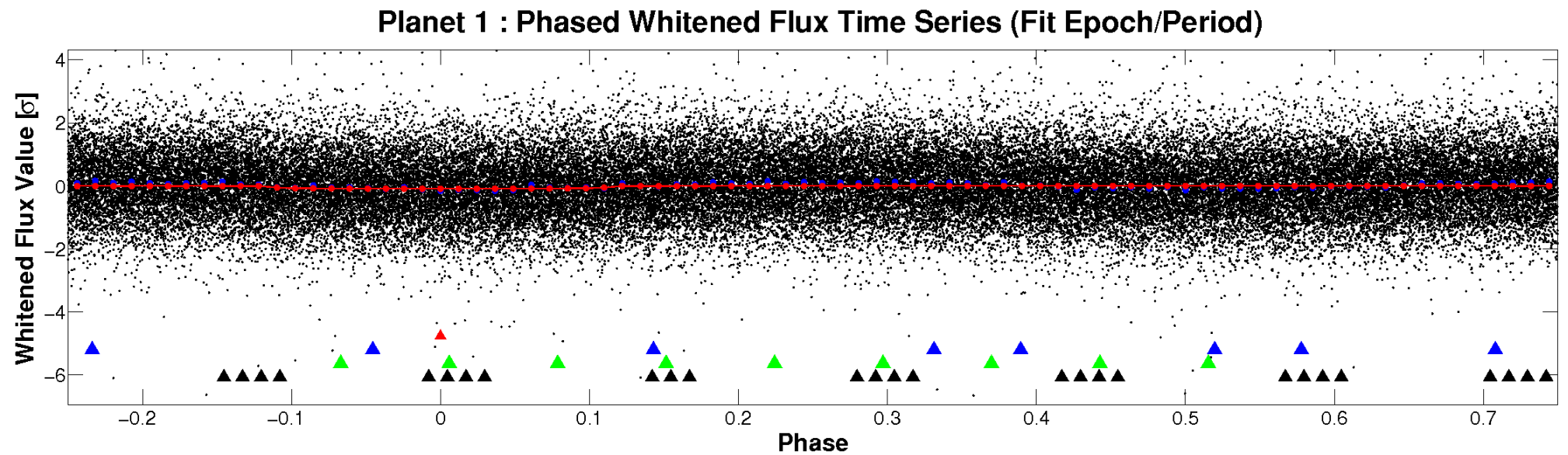
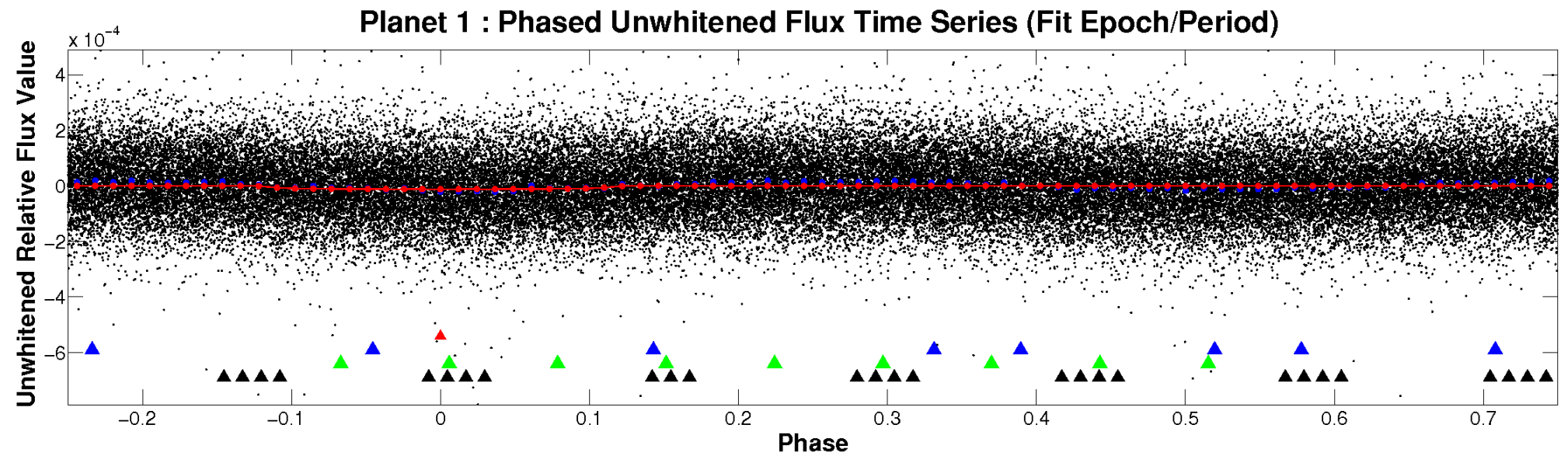


ALT Odd/Even

TCE 011961072-01

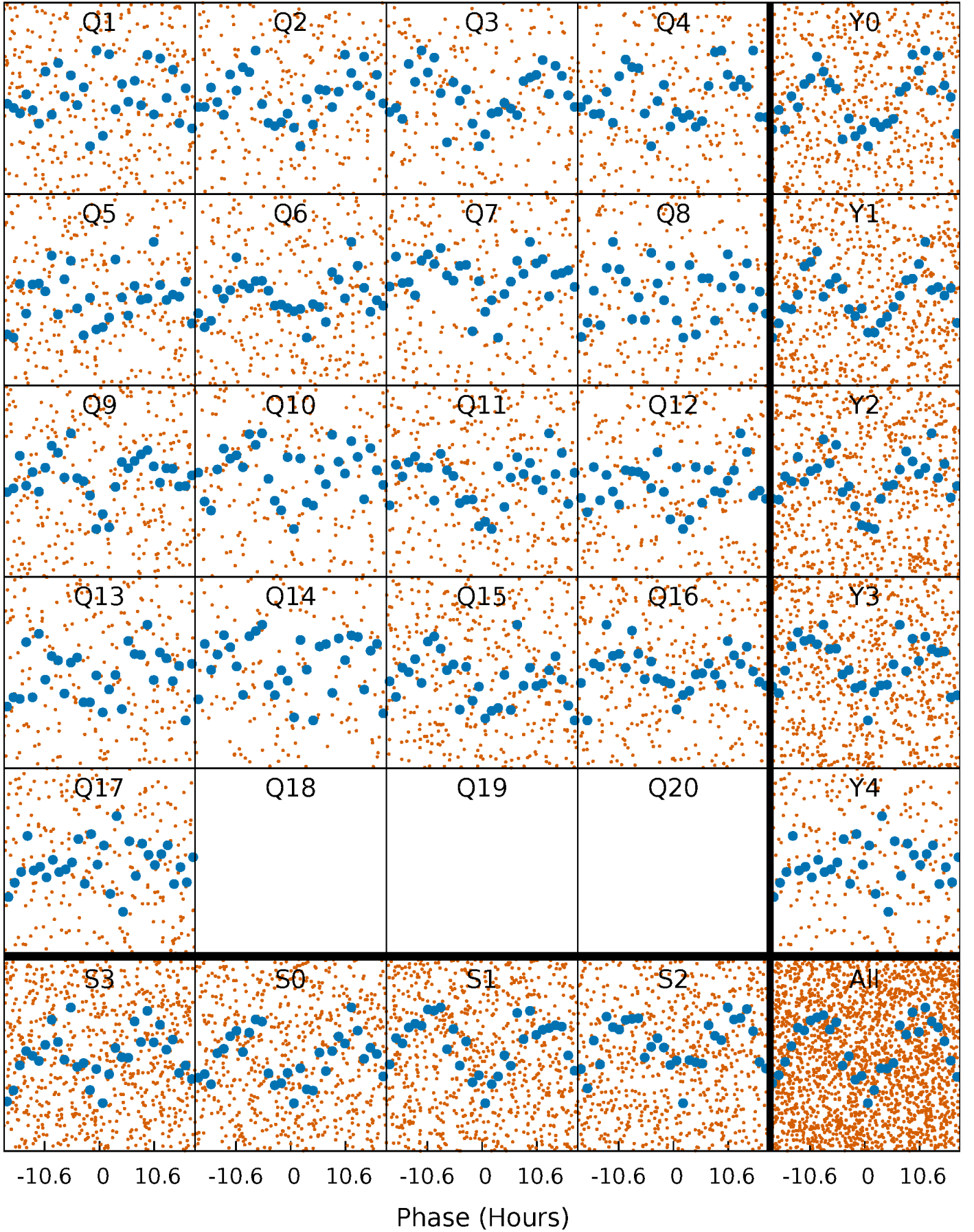


Non-Whitened Vs. Whitened Light Curve



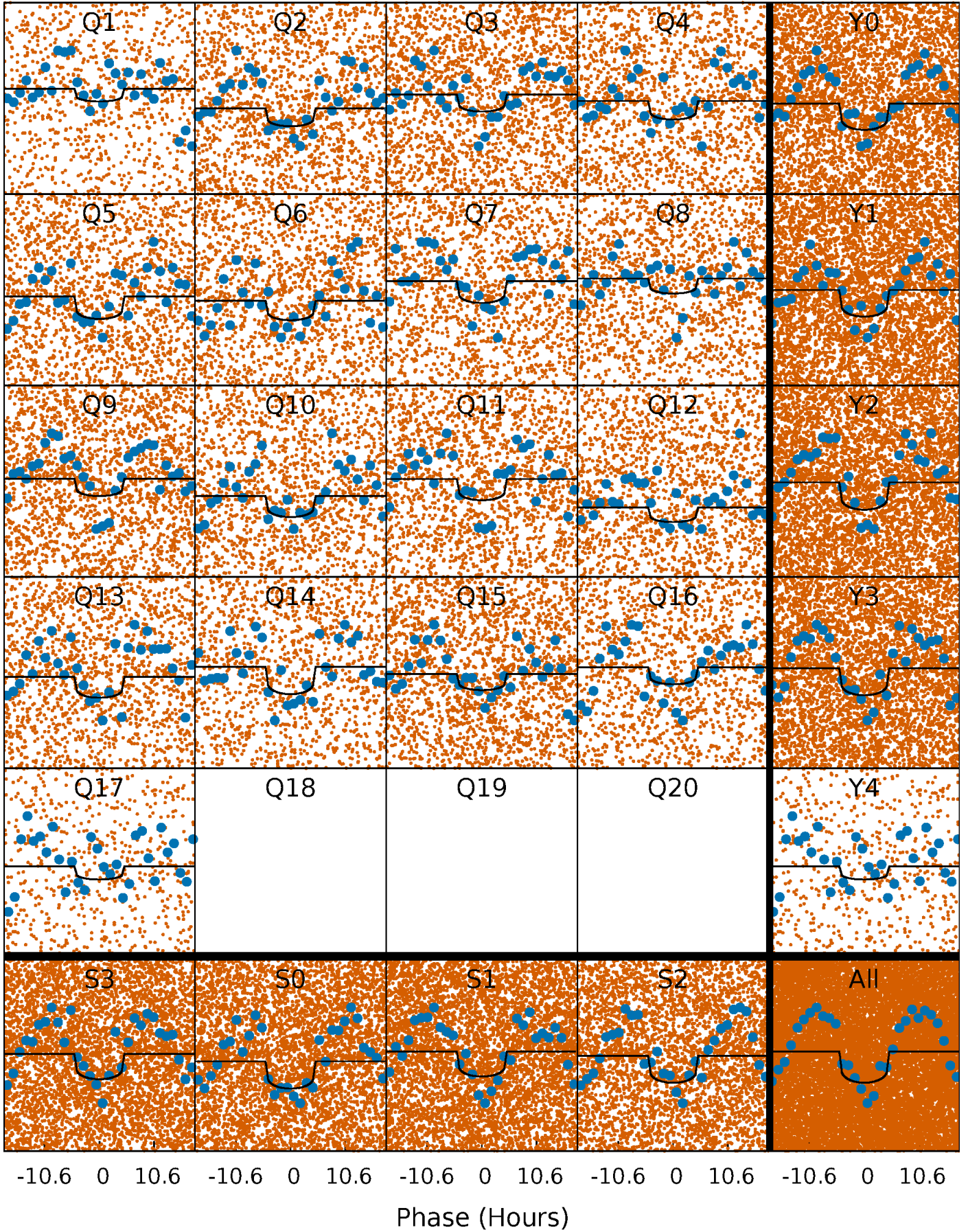
PDC Quarter-Phased Transit Curves

TCE 011961072-01 P= 1.675064 Days $T_0=132.381976$ (BKJD)



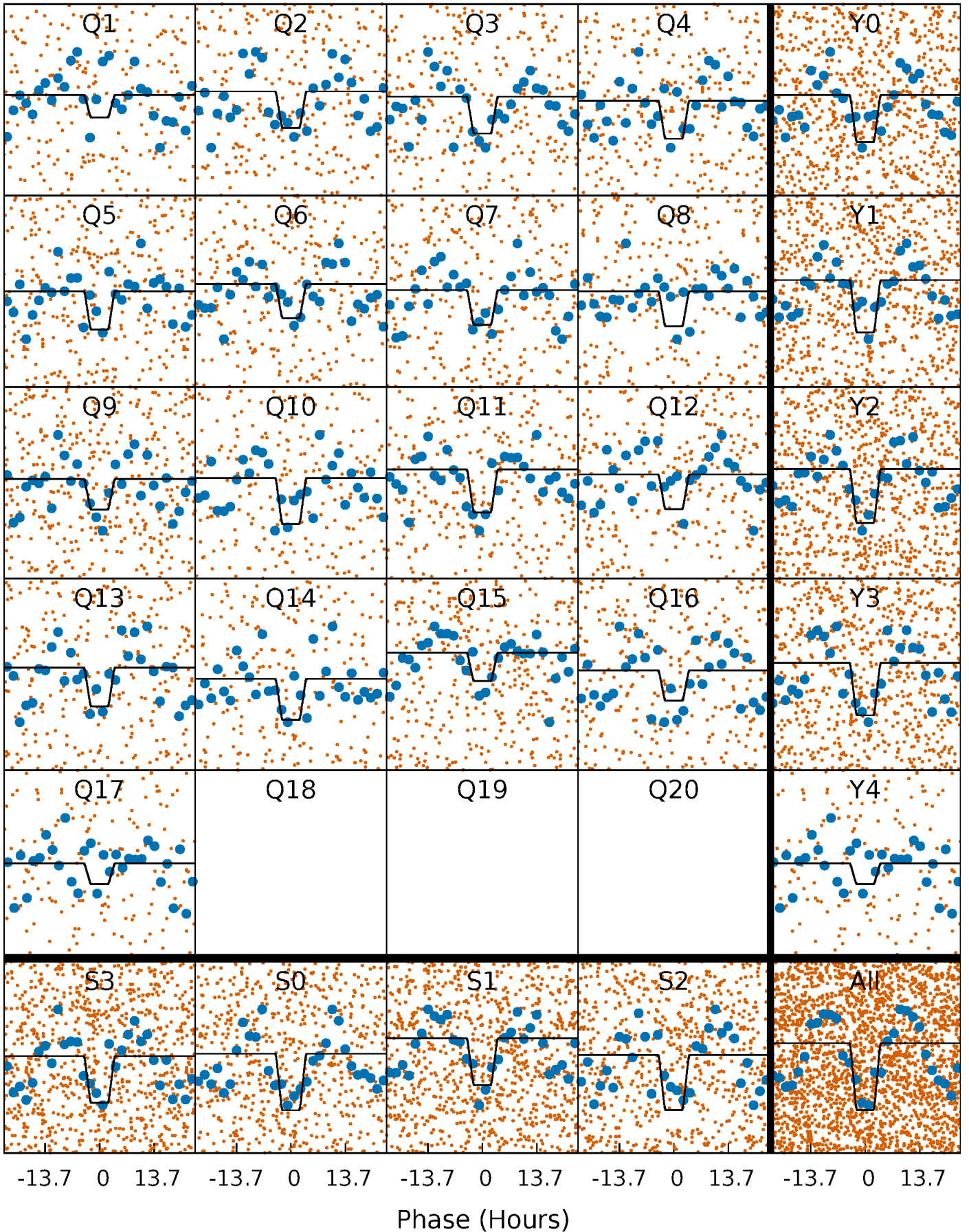
DV Quarter-Phased Transit Curves

TCE 011961072-01 P= 1.675064 Days $T_0=132.381976$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

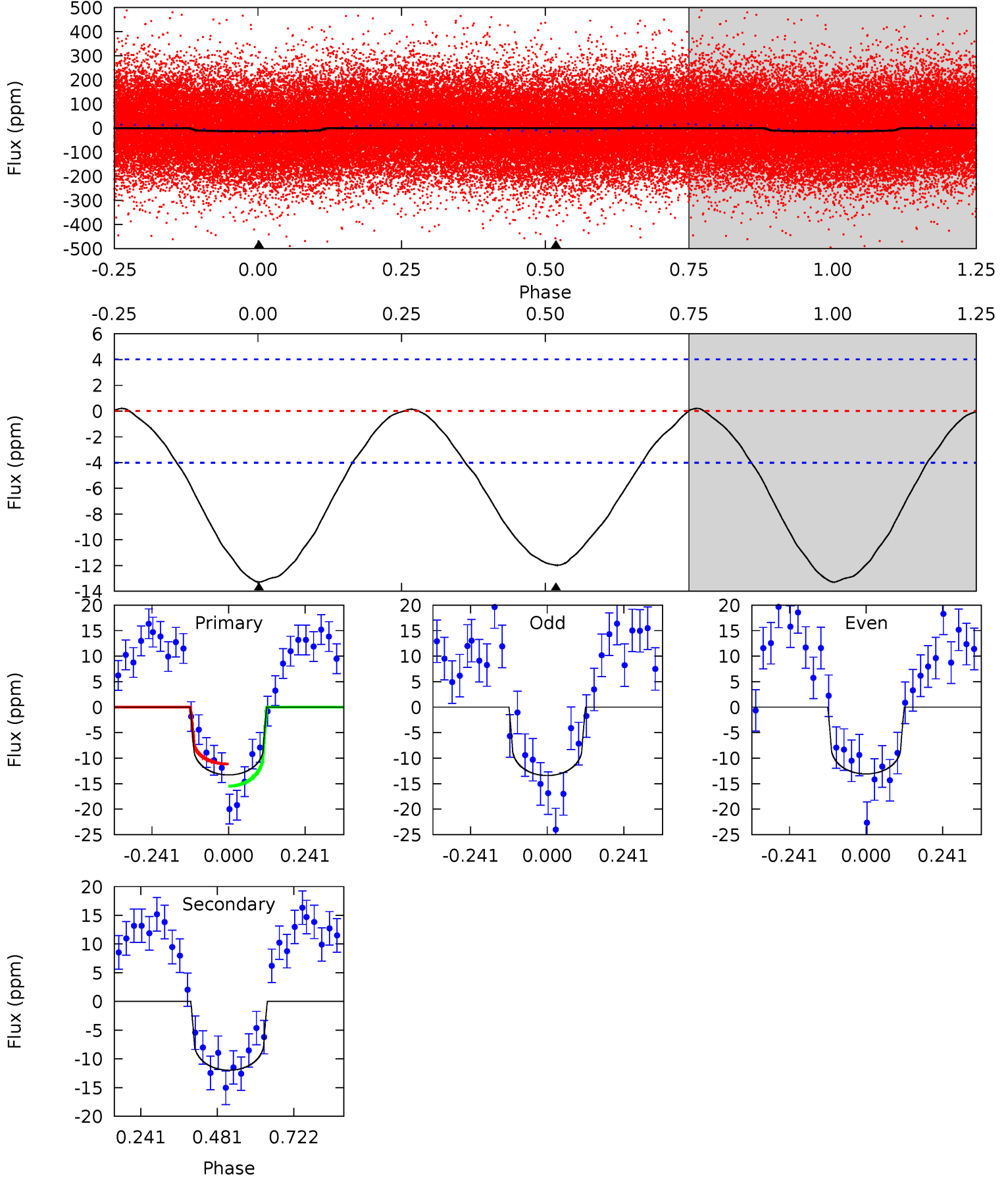
TCE 011961072-01 P= 1.675078 Days $T_0=132.399342$ (BKJD)



DV Model-Shift Uniqueness Test

011961072-01, P = 1.675064 Days, E = 130.706912 Days

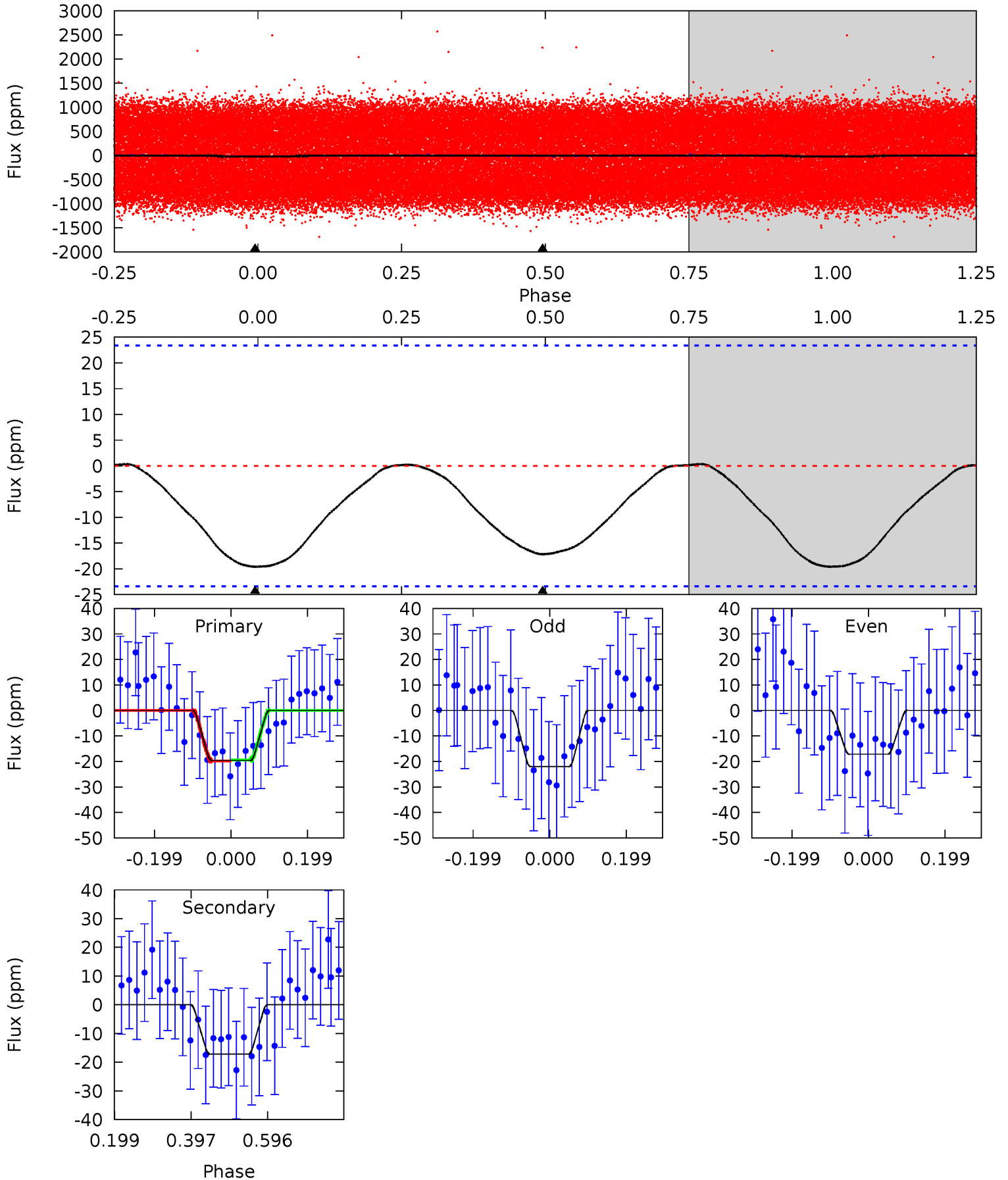
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.5	13.0	0	0	4.38	1.17	0.21	14.5	14.5	13.0	13.0	0.18	1.09	0.02	2.40



Alt Model-Shift Uniqueness Test

011961072-01, P = 1.675078 Days, E = 130.724264 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.70	3.24	0	0	4.42	1.29	0.12	3.70	3.70	3.24	3.24	0.46	1.00	0.02	0.04



Stellar Parameters For KIC 011961072

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8402^{+231}_{-396}	$3.930^{+0.234}_{-0.137}$	$0.070^{+0.250}_{-0.500}$	$2.627^{+0.708}_{-0.944}$	$2.140^{+0.294}_{-0.545}$	$0.166^{+0.274}_{-0.067}$
	+3%/-5%	+6%/-3%	+357%/-714%	+27%/-36%	+14%/-25%	+165%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011961072-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-12 ± 1	$0.99^{+0.86}_{-0.61}$	4367^{+330}_{-378}	7870^{+9622}_{-2258}	$8.190^{+47.846}_{-5.756}$
Alt.	-17 ± 5	$1.44^{+0.89}_{-0.82}$	4371^{+330}_{-371}	7134^{+5436}_{-1732}	$5.566^{+24.401}_{-3.582}$

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 $A_{obs} \gg 1.0$

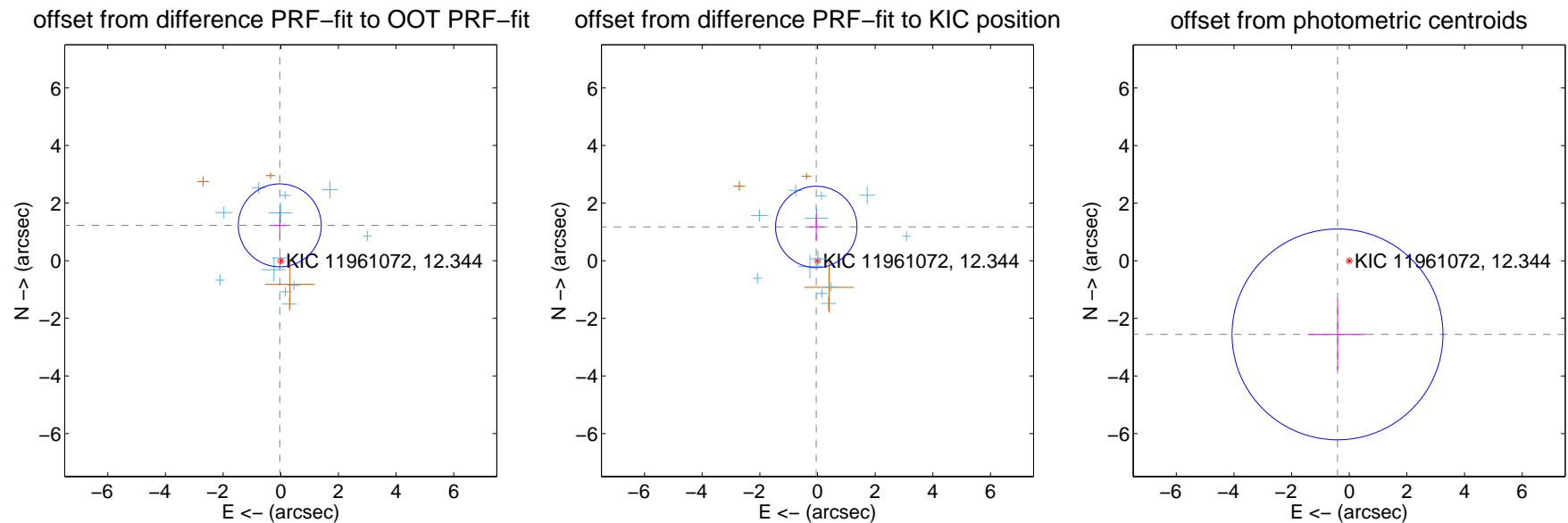
DV Centroid Data

Supplemental centroid analysis for 011961072-01. Kepler magnitude: 12.34. Transit SNR 9.58

There are 12 quarters with good PRF difference image offsets

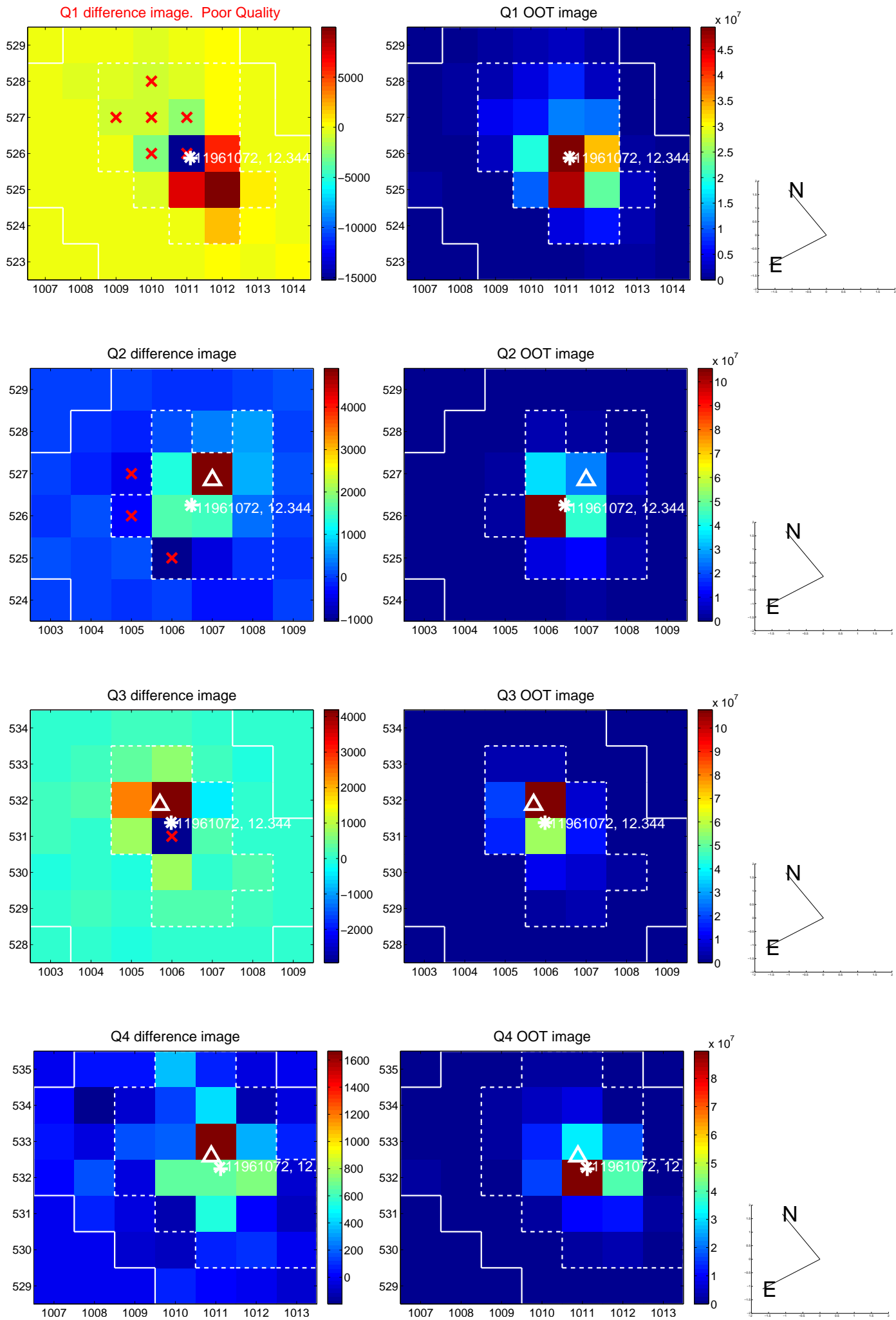
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.227 ± 0.480	2.56	0.034 ± 0.239	1.226 ± 0.480
PRF-fit source offset from KIC position	1.172 ± 0.471	2.49	0.043 ± 0.254	1.172 ± 0.471
photometric centroid source offset	2.59 ± 1.22	2.12	0.41 ± 0.99	-2.56 ± 1.22

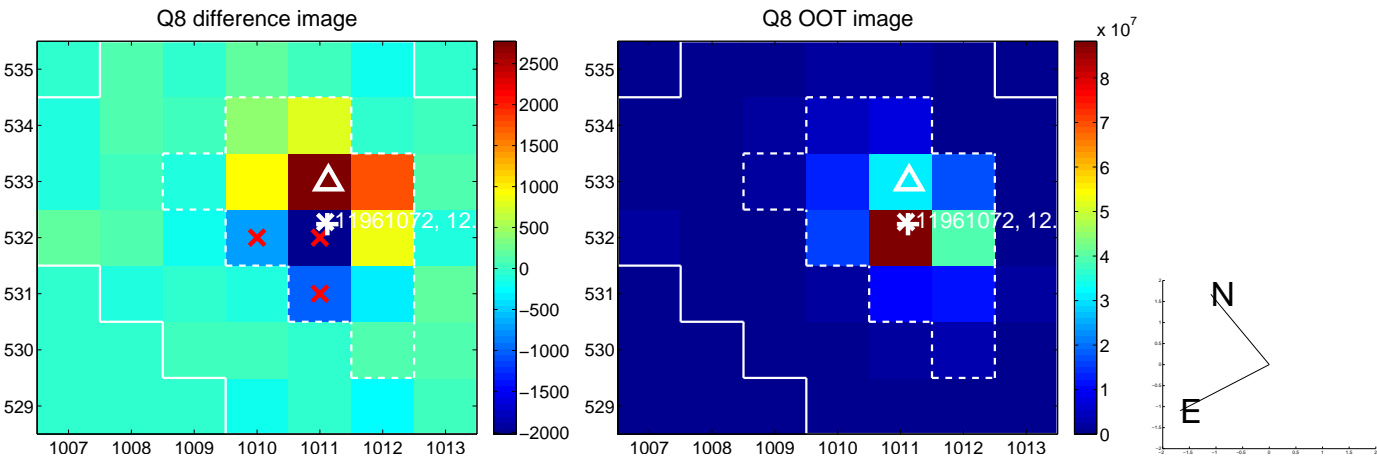
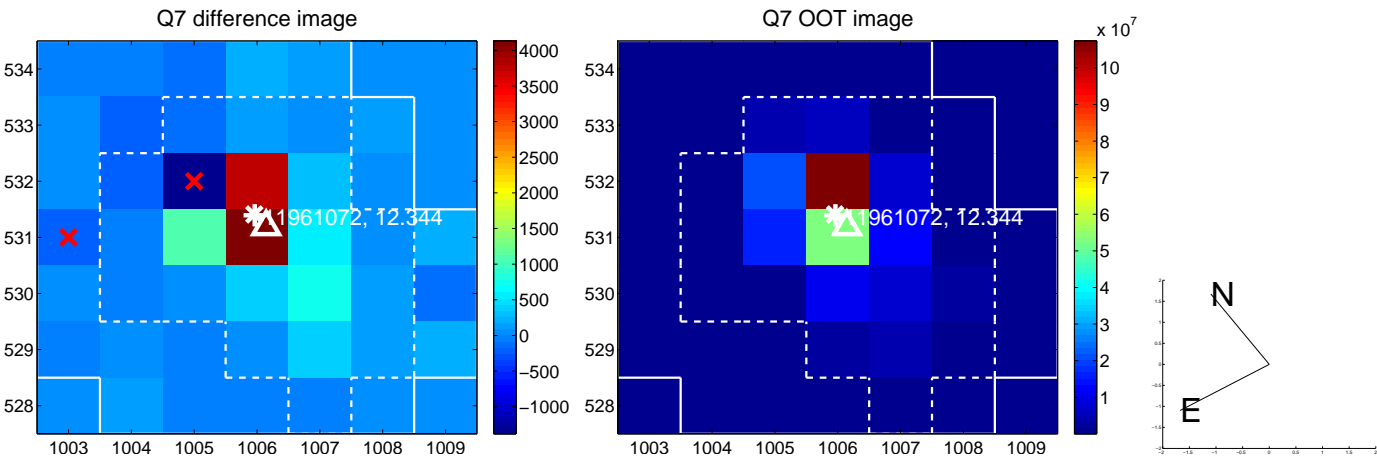
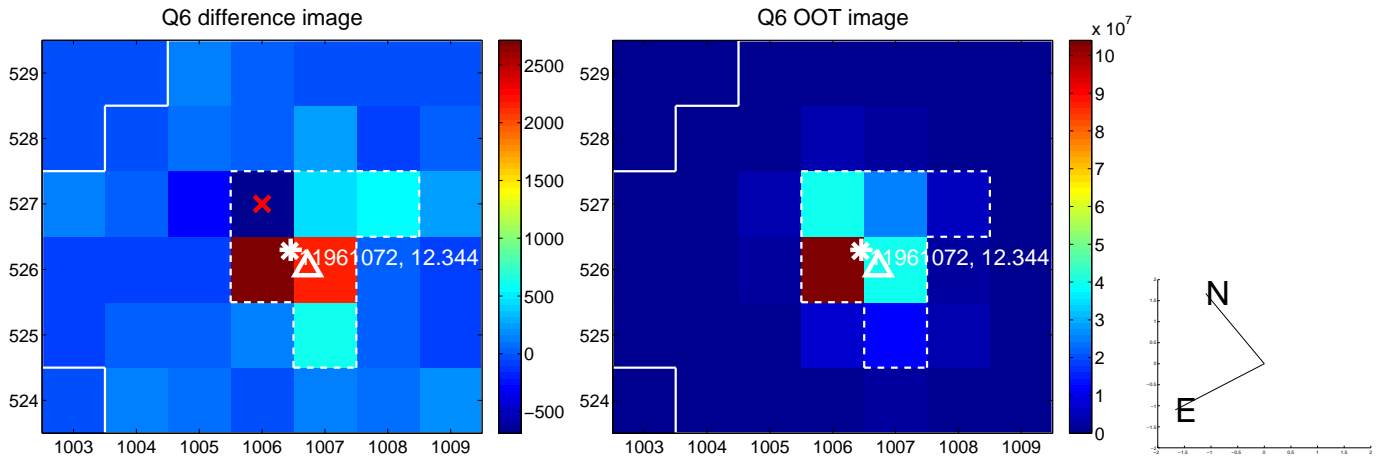
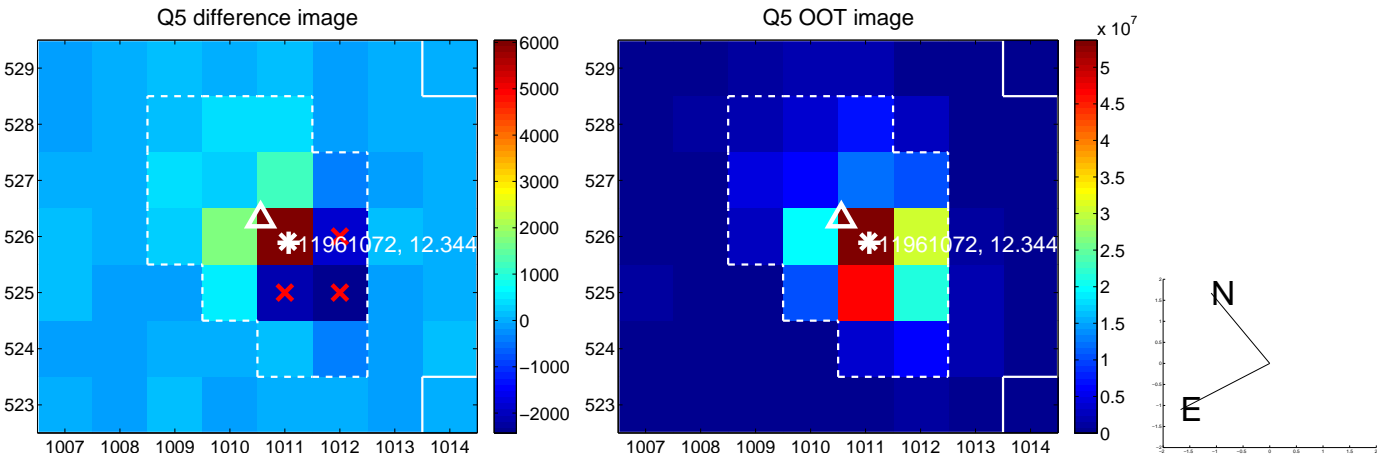


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

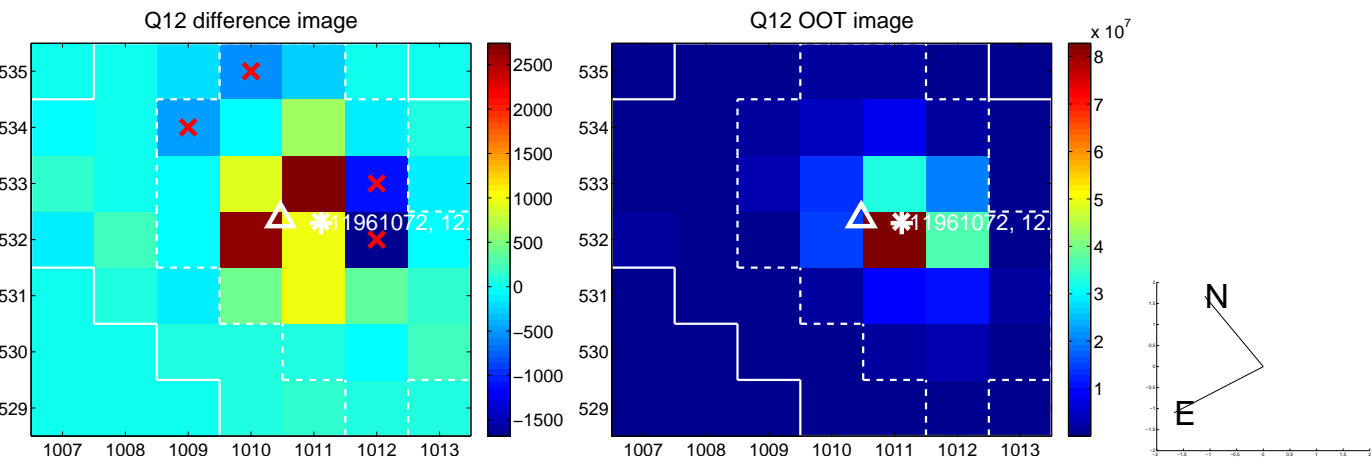
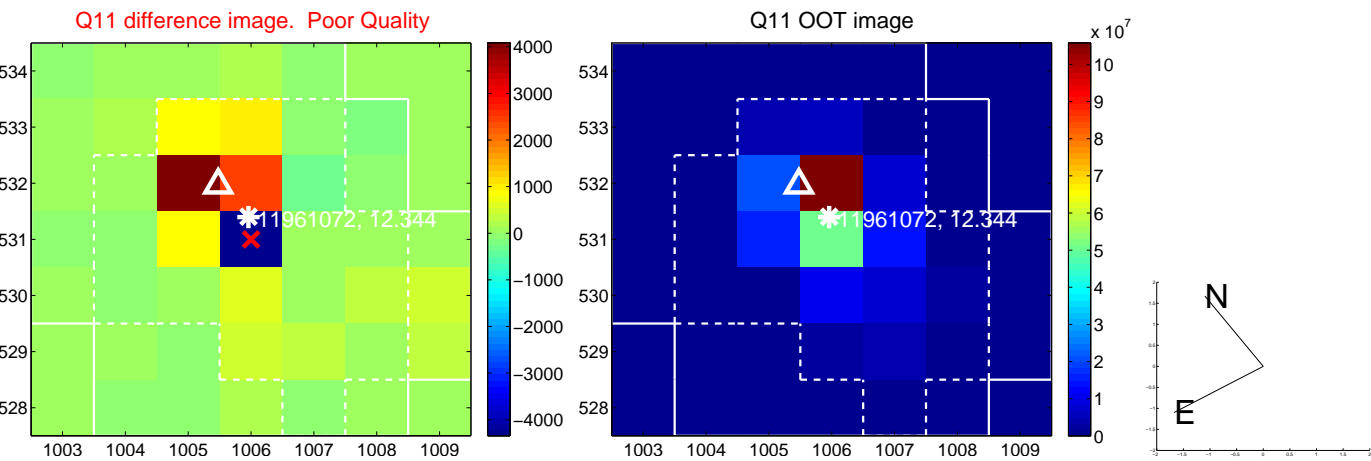
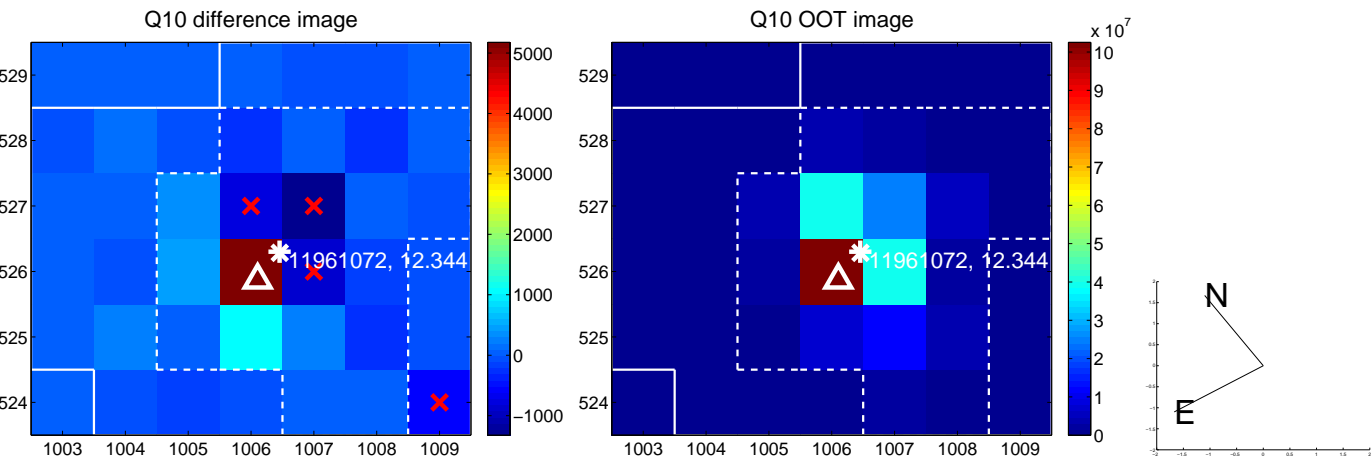
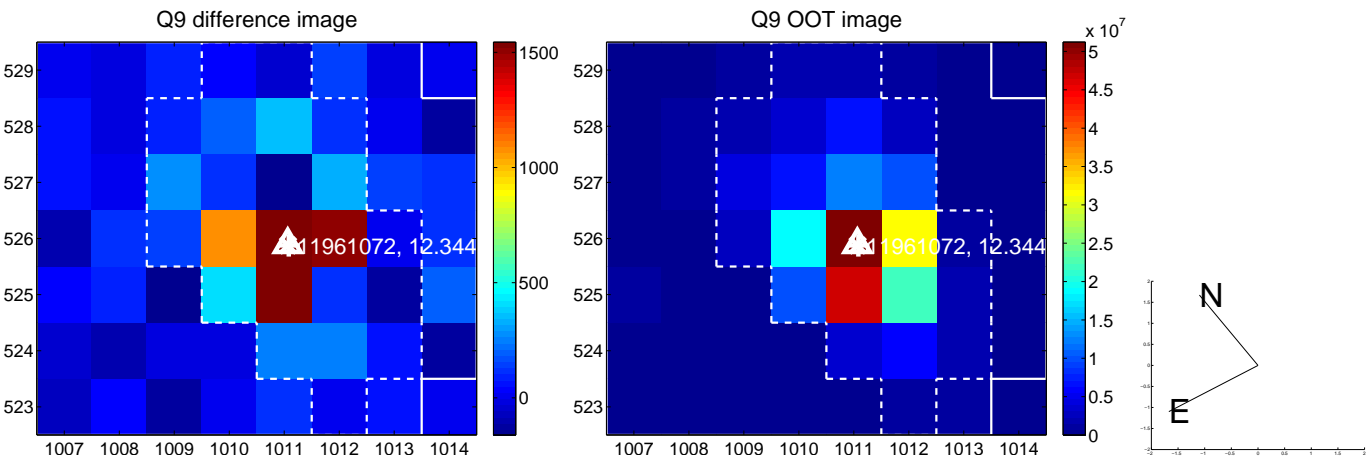
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



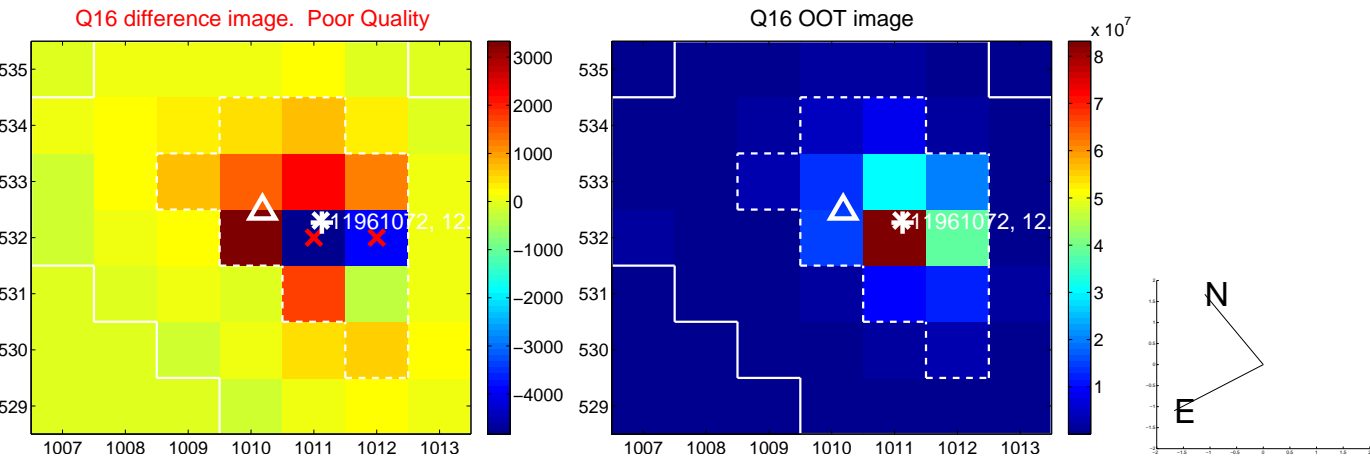
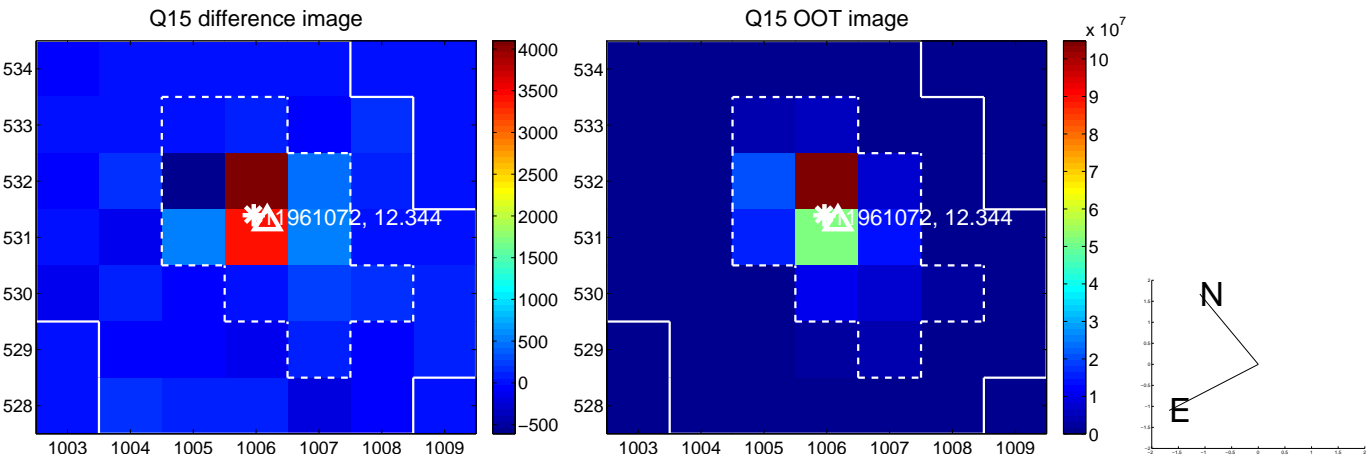
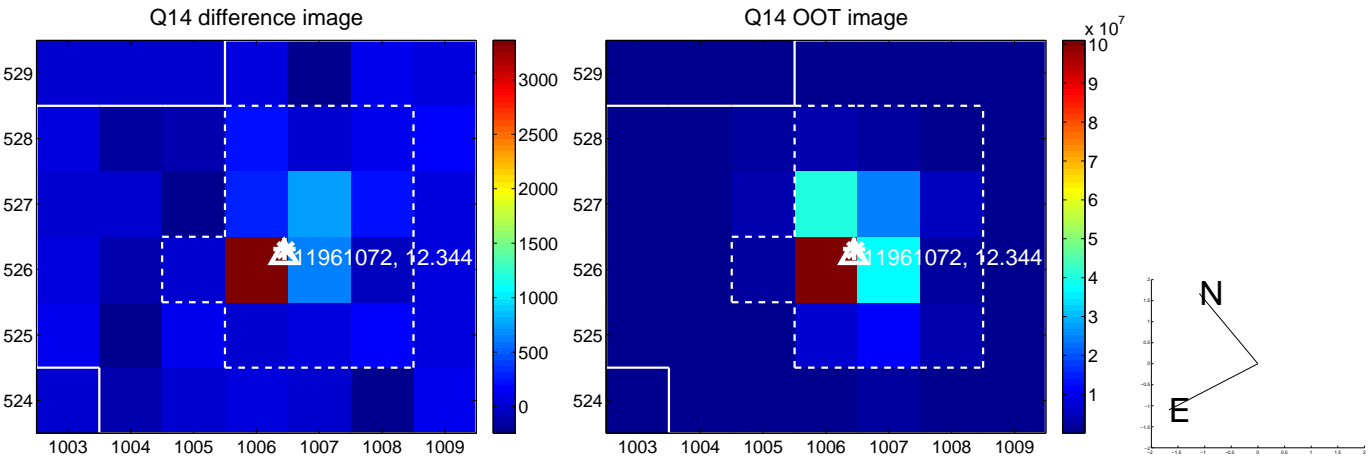
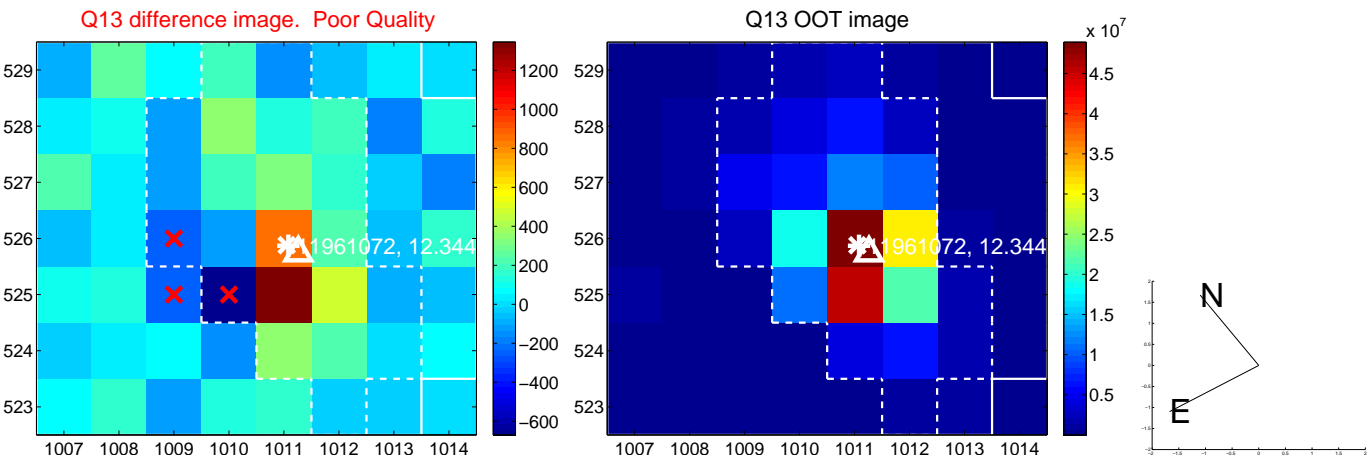
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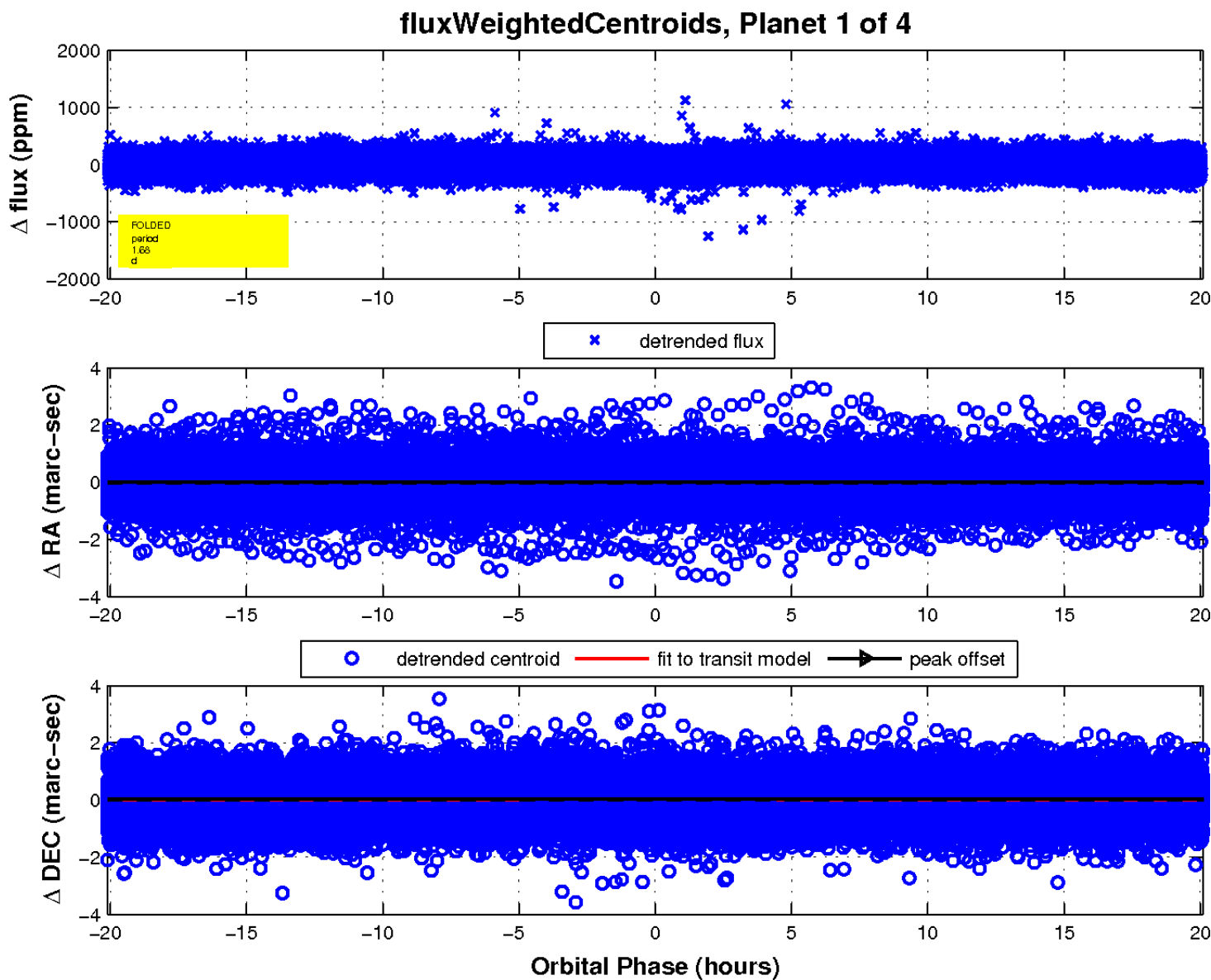
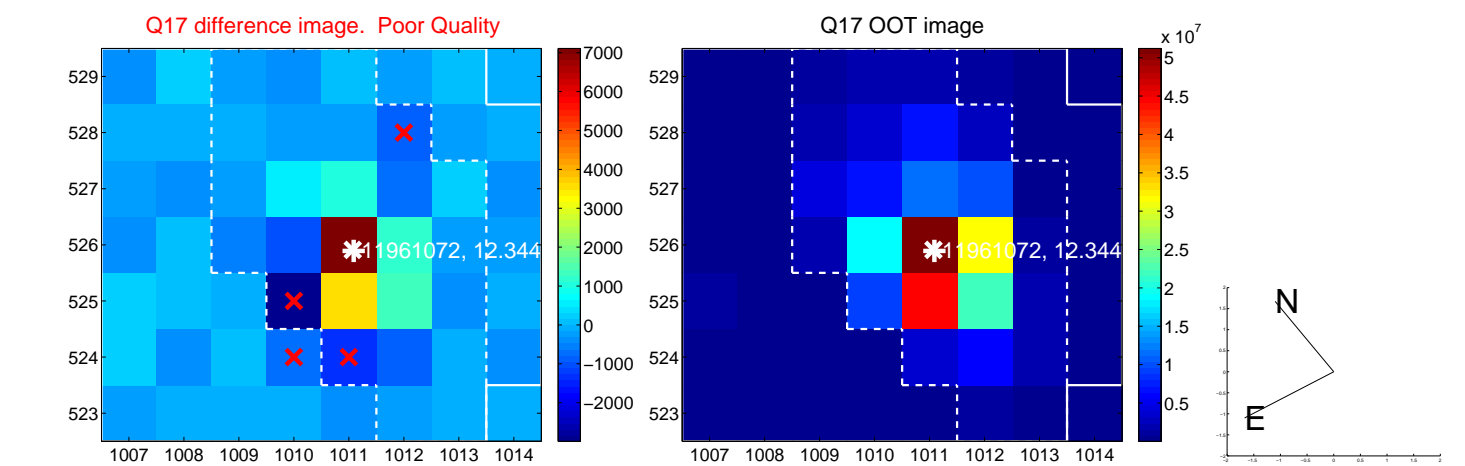
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

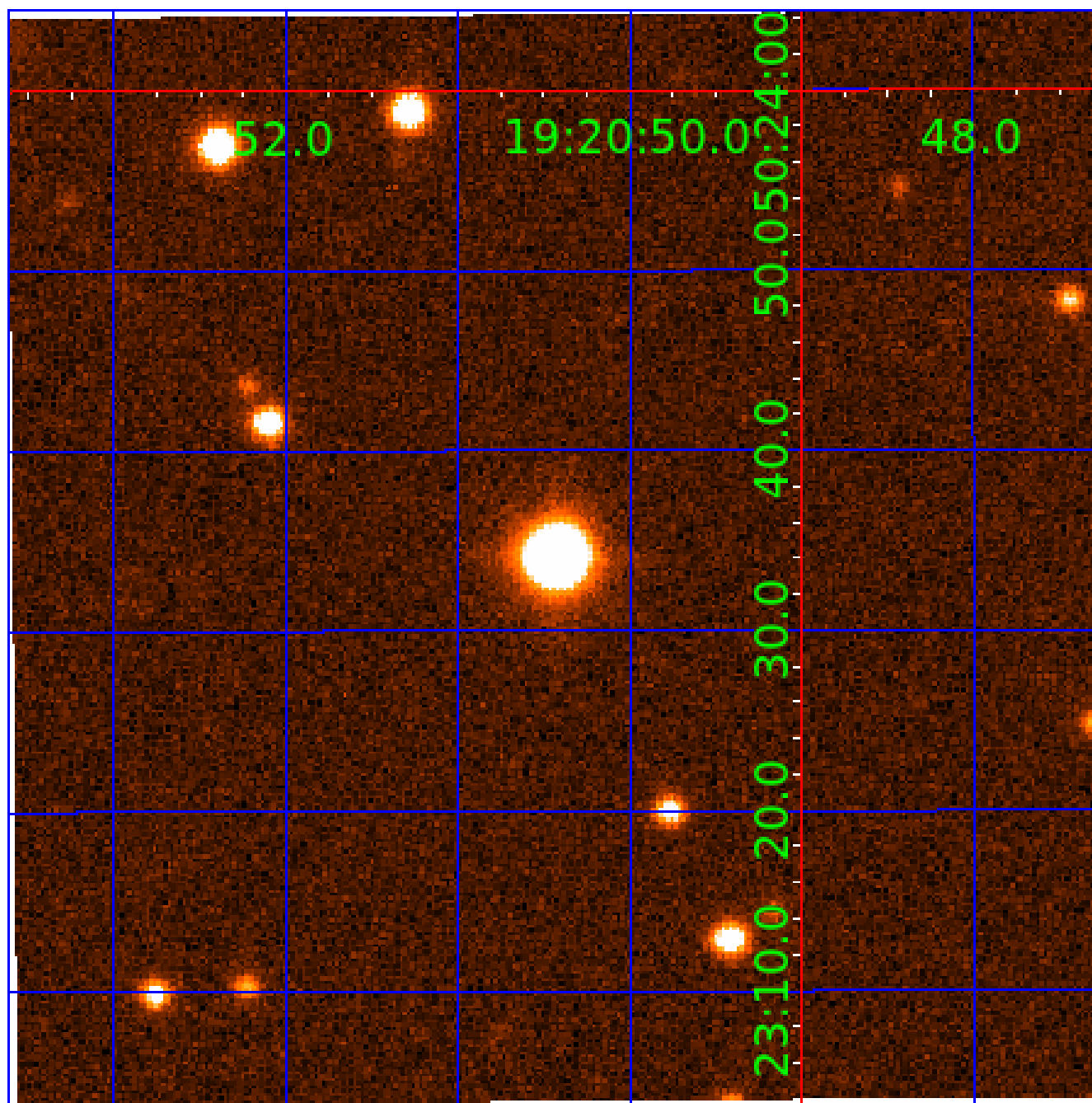


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011961072

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})
011961072-01	OBS	No	1.675064	132.381976	11.9	9.233	9.7	9.6	2.63	8402	0.92	24323.34
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011961072-03	OBS	No	155.659011	278.975910	135.5	4.358	7.9	5.6	2.63	8402	3.40	57.79
011961072-04	OBS	No	54.795520	150.627110	133.8	2.306	7.4	7.8	2.63	8402	3.52	232.49

Robovetter Results

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011961072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011961072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011961072-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

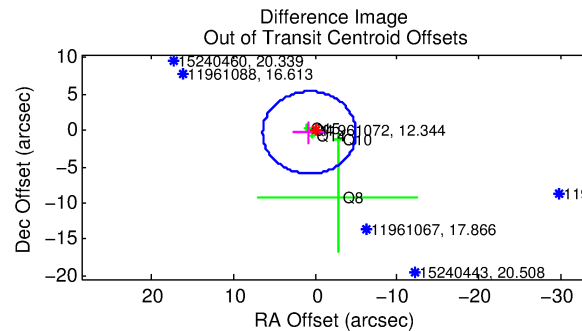
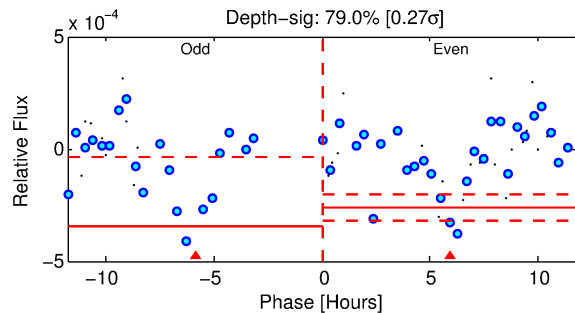
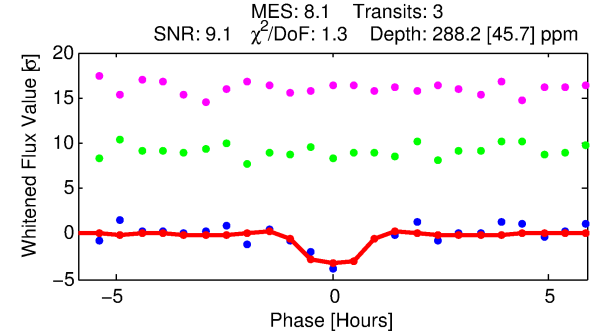
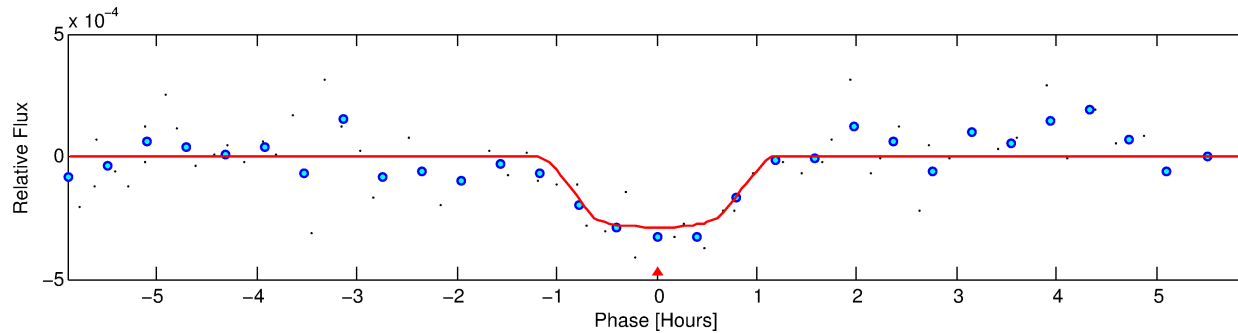
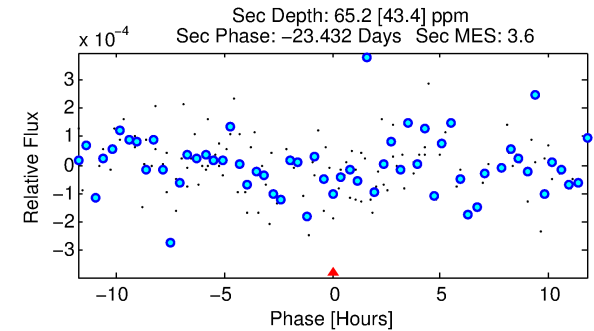
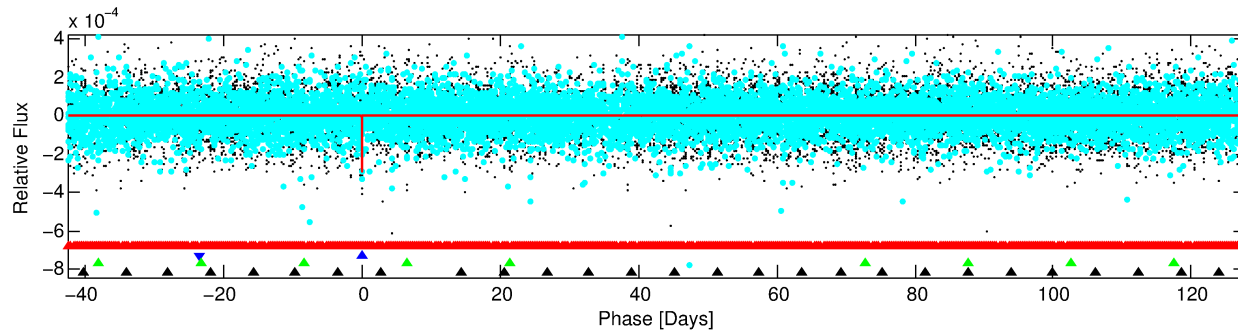
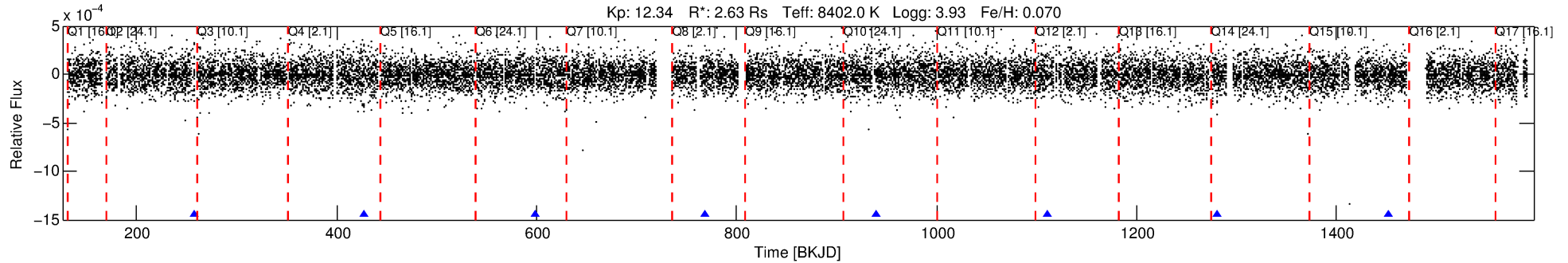
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011961072-02

No Significant Match Found

DV One-Page Summary

KIC: 11961072 Candidate: 2 of 4 Period: 170.541 d



DV Fit Results:

Period = 170.54099 [0.00141] d
Epoch = 257.5227 [0.0076] BKJD
Rp/R* = 0.0184 [0.0087]
a/R* = 287.71 [884.80]
b = 0.92 [0.51]
Seff = 51.16 [24.10]
Teff = 682 [80] K
Rp = 5.28 [3.14] Re
a = 0.7761 [0.2324] AU
Ag = 776.62 [959.42] [0.81 σ]
Teffp = 5566 [1632] K [2.99 σ]

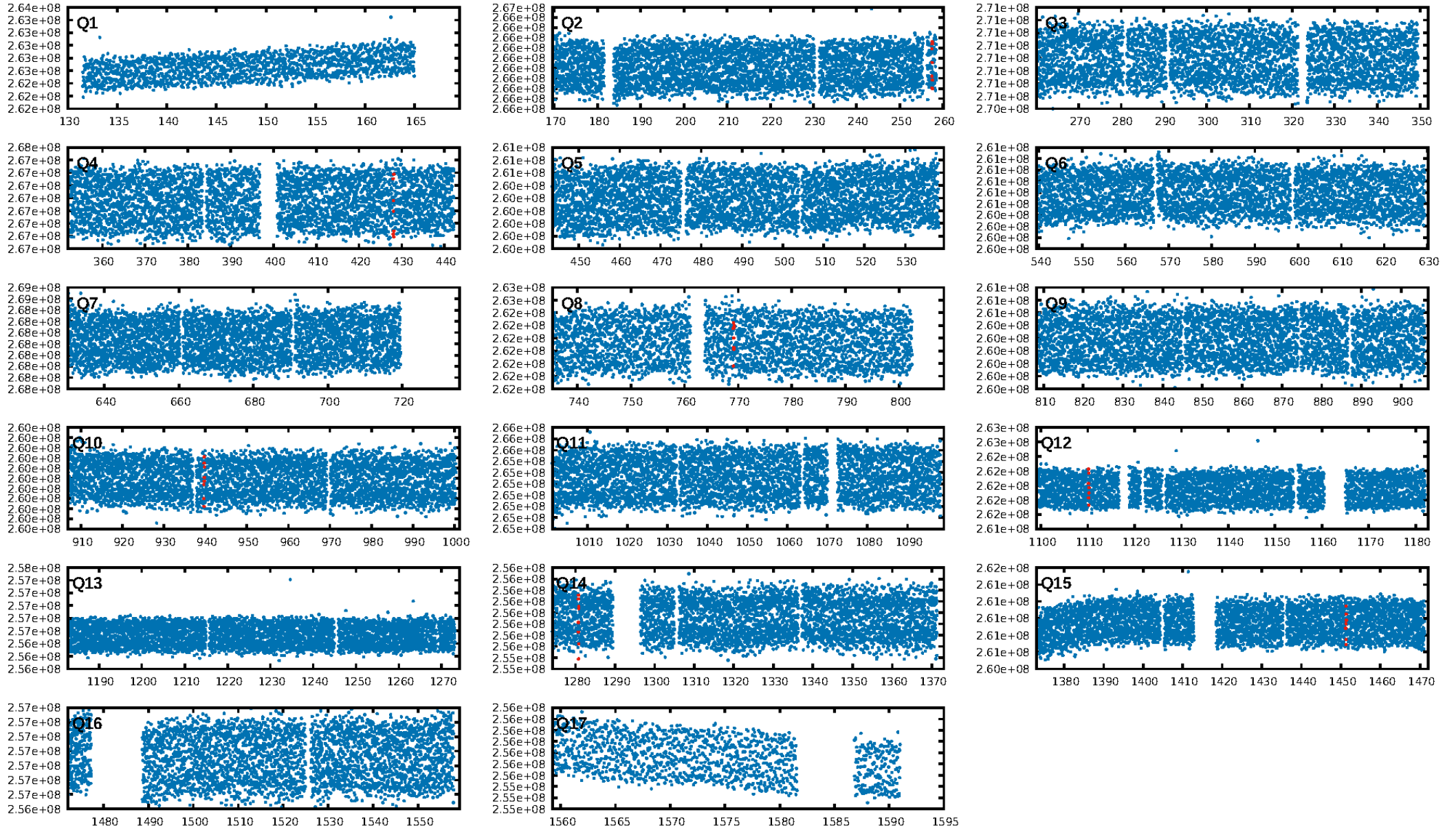
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [74.71 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 47.0%
ModelChiSquareGof-sig: 97.5%
Bootstrap-pfa: 1.87e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.035
Centroid-sig: 65.1%
Centroid-so: 0.525 arcsec [0.56 σ]
OotOffset-rm: 0.775 arcsec [0.41 σ]
OotOffset-st: 2/1/2/0 [5]
KicOffset-rm: 0.821 arcsec [0.44 σ]
KicOffset-st: 2/1/2/0 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.67 [4/6]

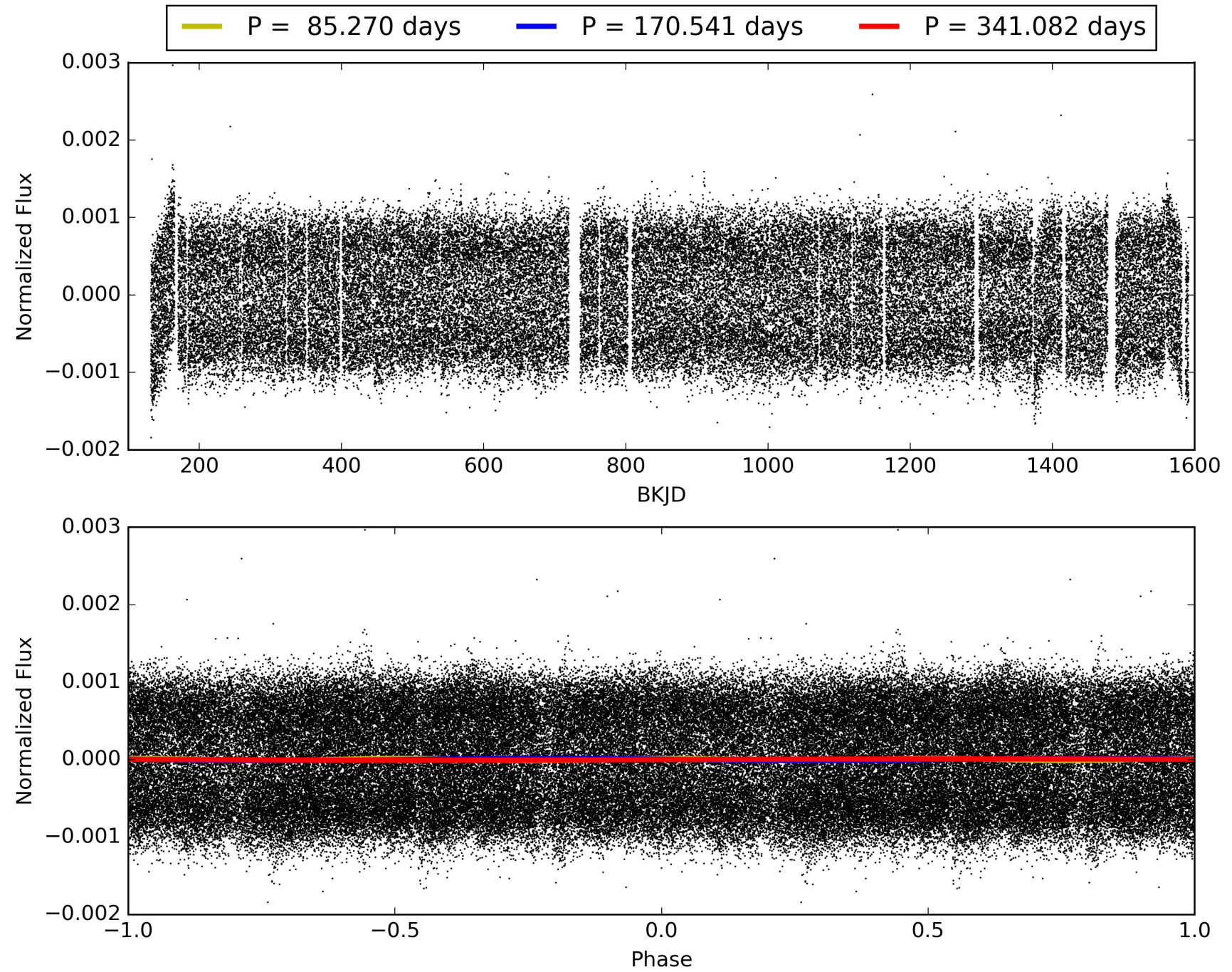
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:20:02 Z

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

TCE 011961072-02, PDC Light Curves

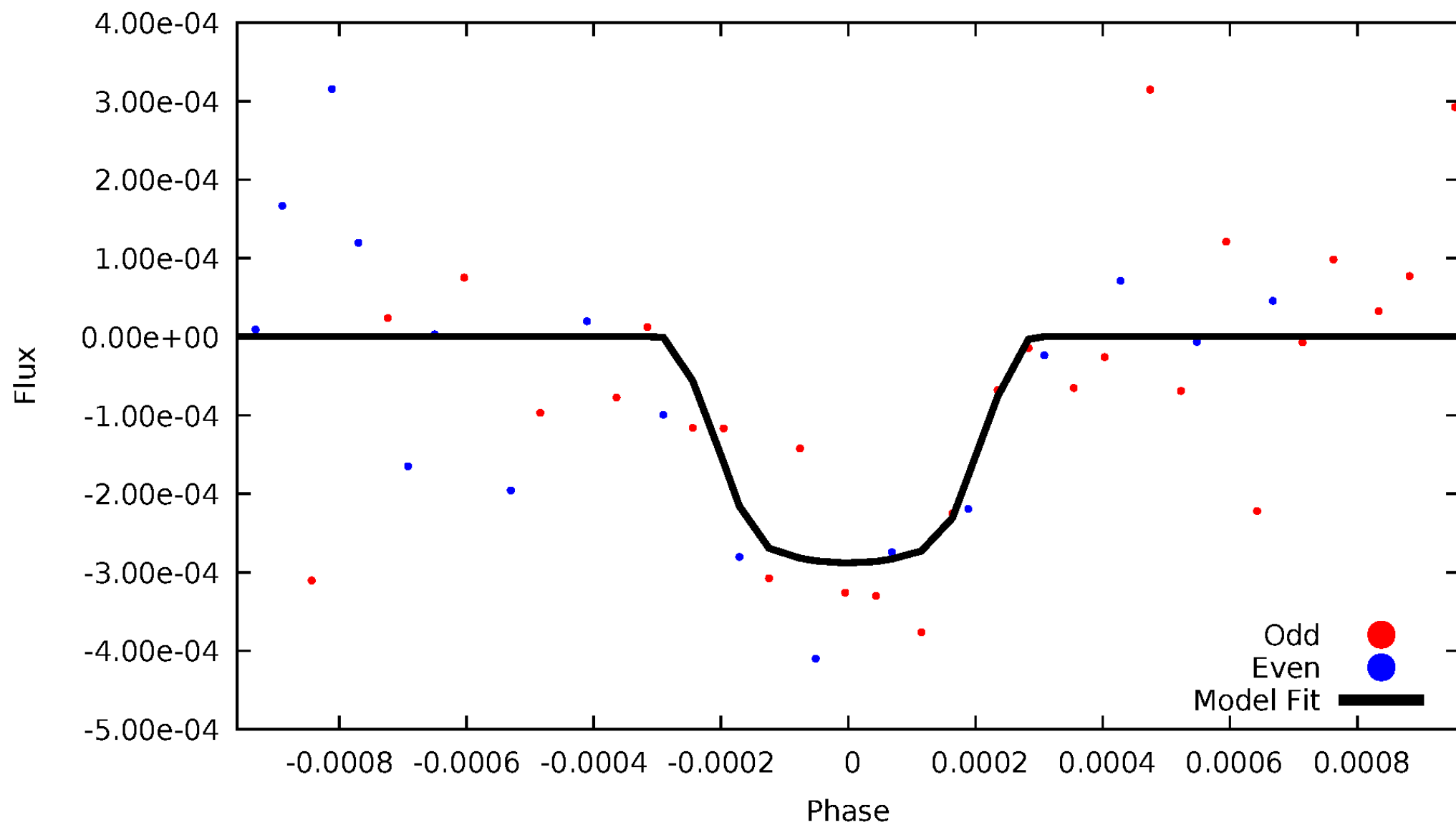


TCE 011961072-02



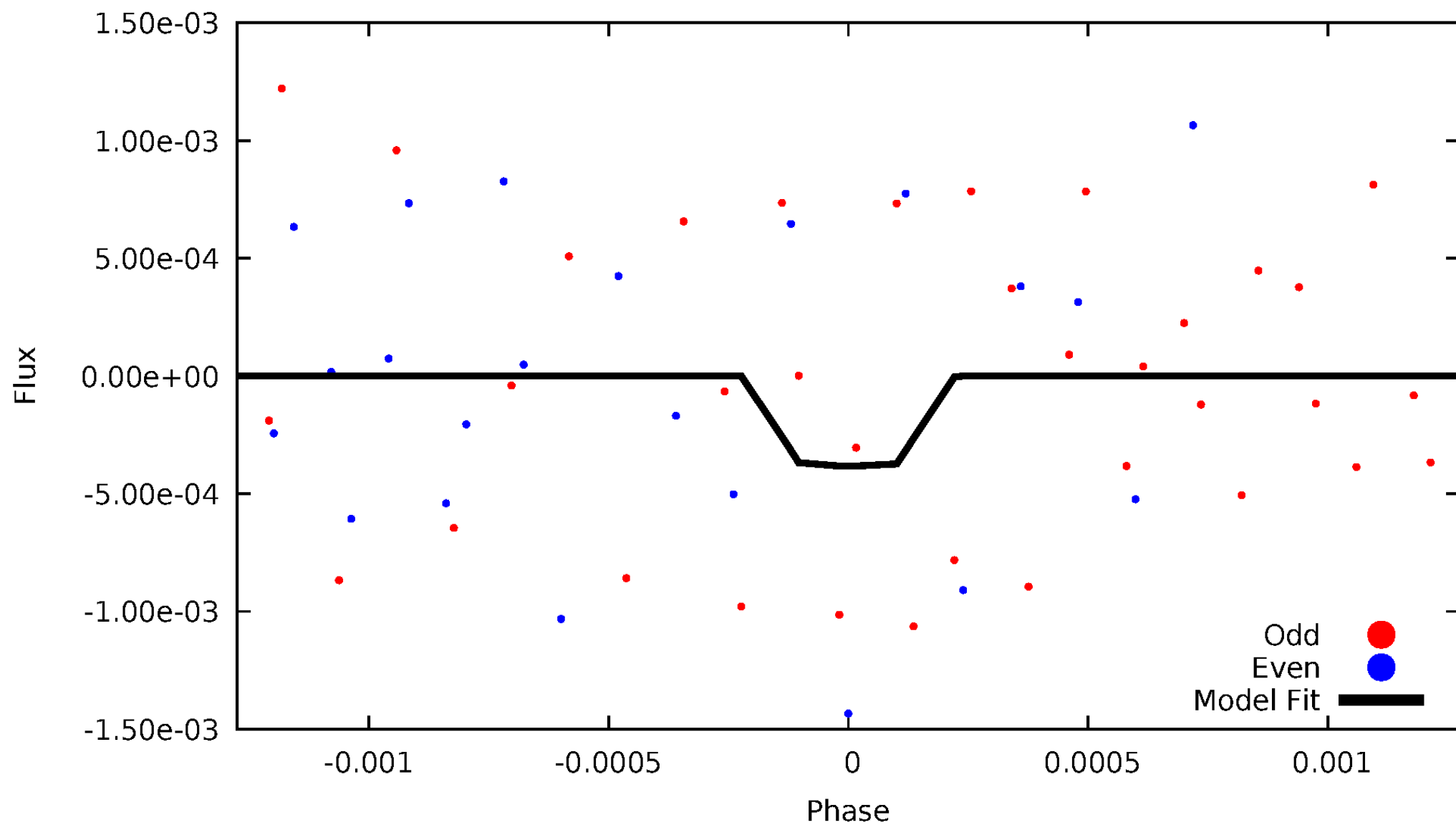
DV Odd/Even

TCE 011961072-02



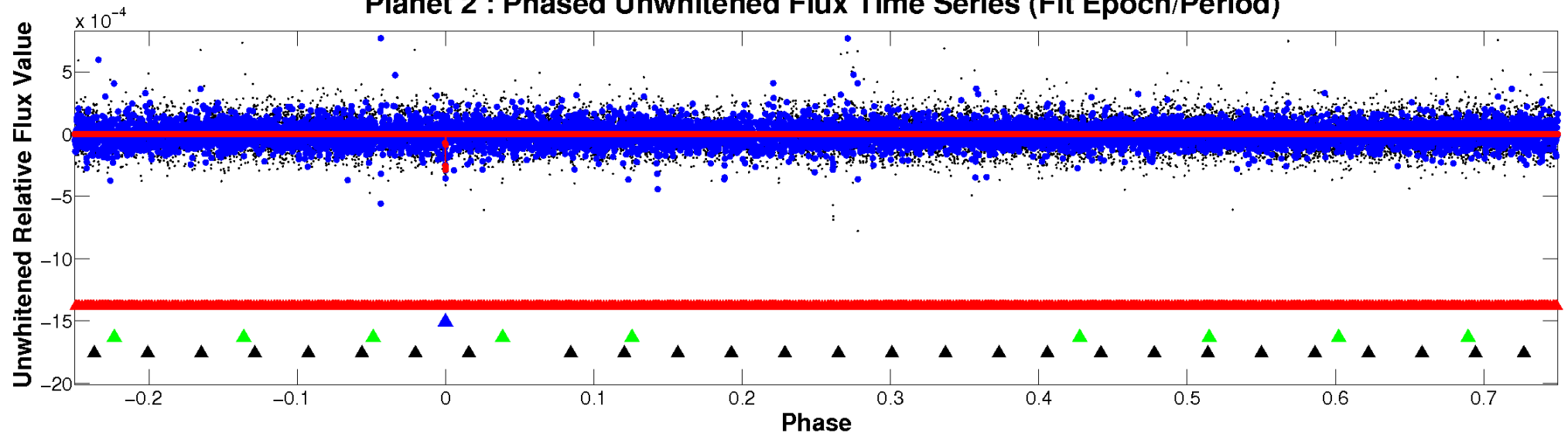
ALT Odd/Even

TCE 011961072-02

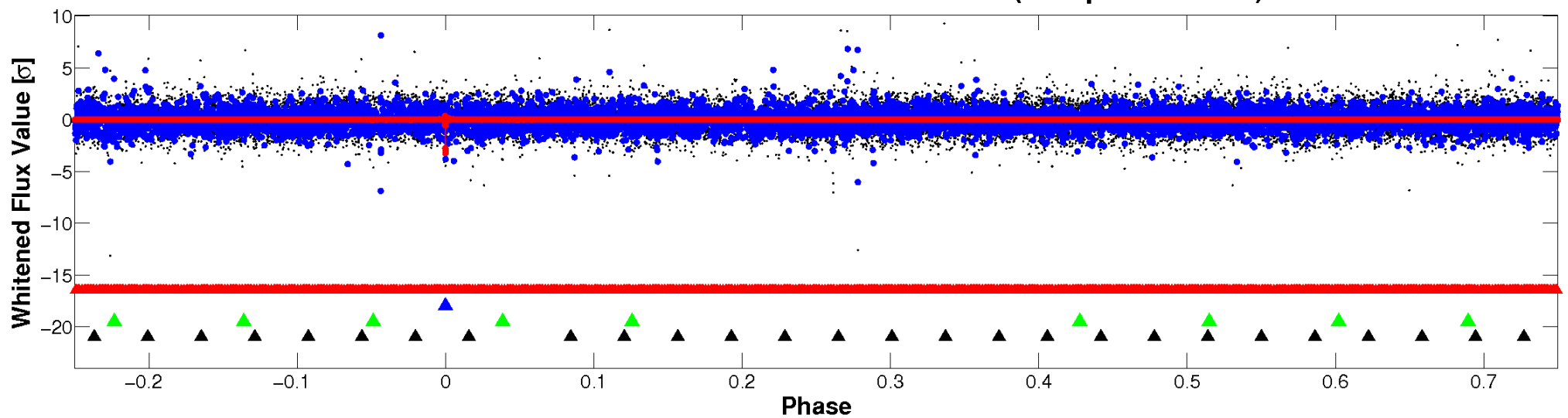


Non-Whitened Vs. Whitened Light Curve

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

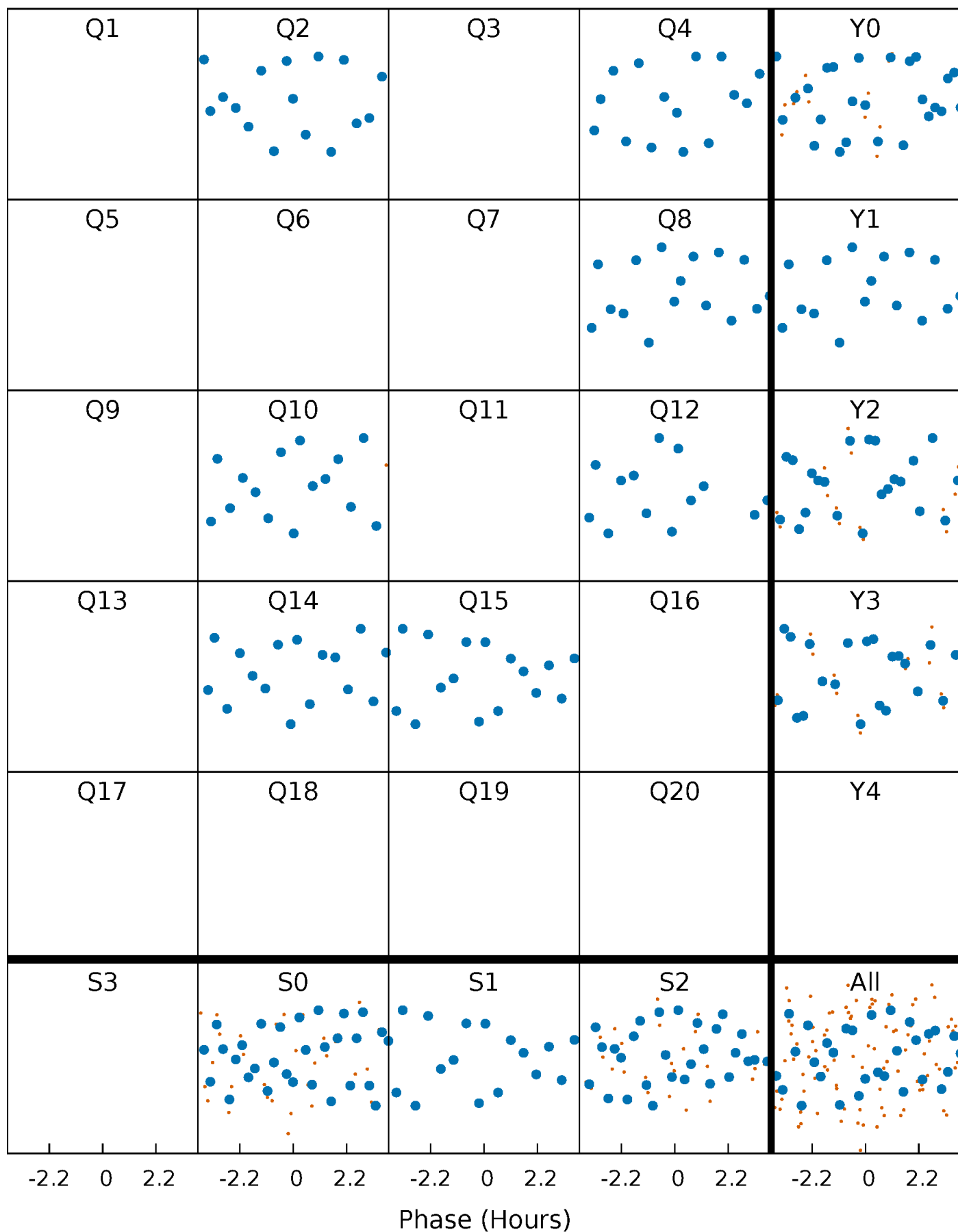


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



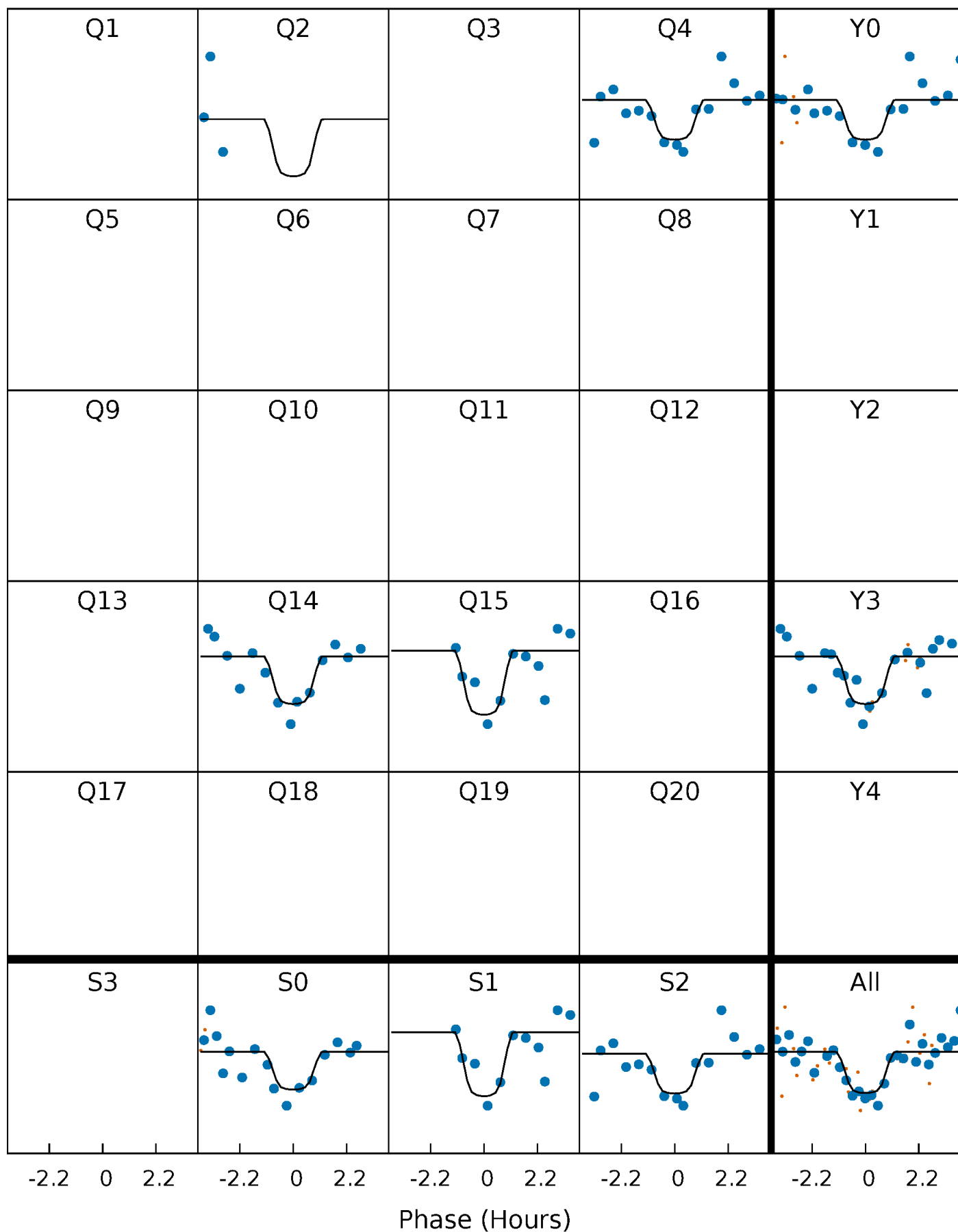
PDC Quarter-Phased Transit Curves

TCE 011961072-02 P=170.540987 Days $T_0=257.522725$ (BKJD)



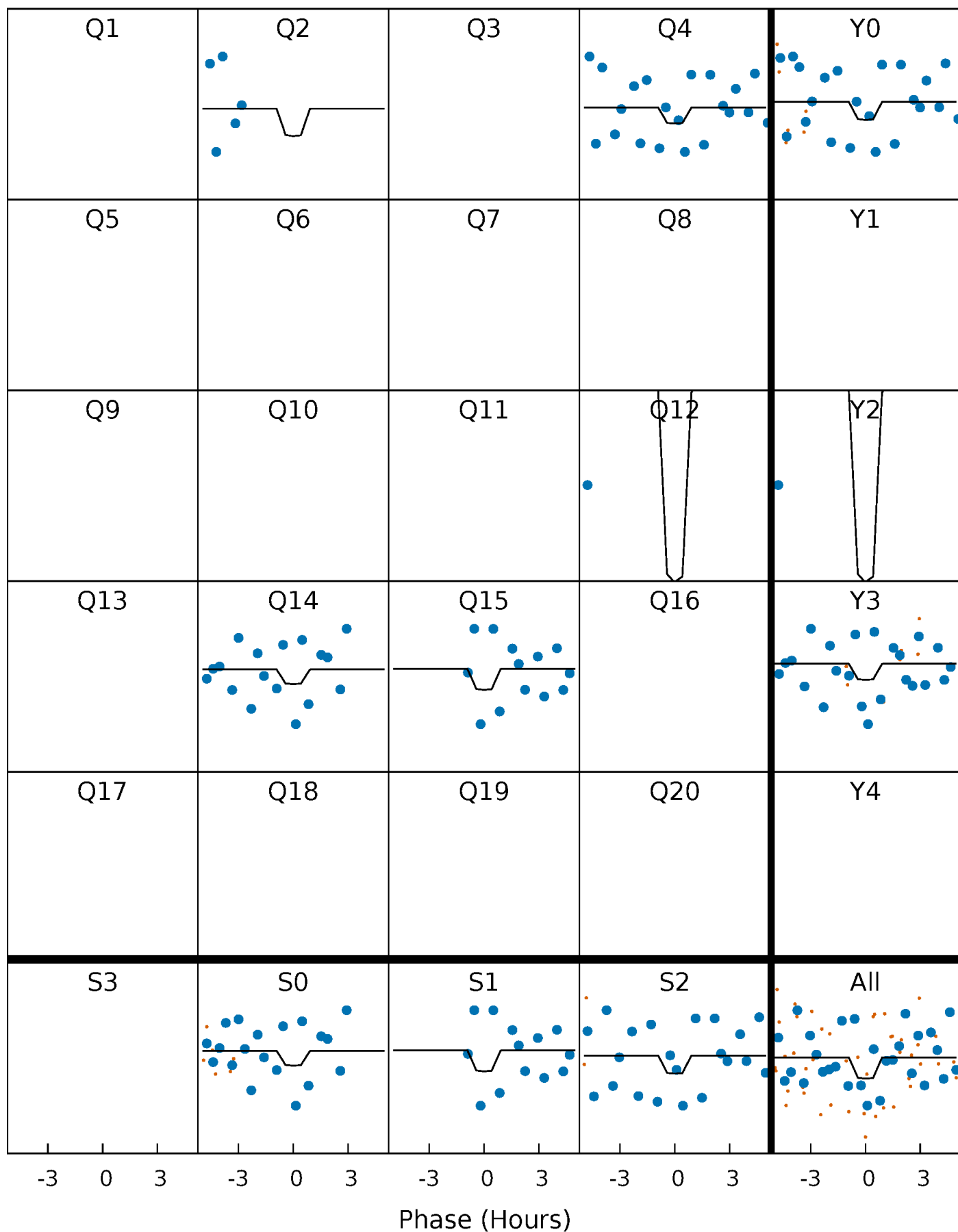
DV Quarter-Phased Transit Curves

TCE 011961072-02 P=170.540987 Days $T_0=257.522725$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

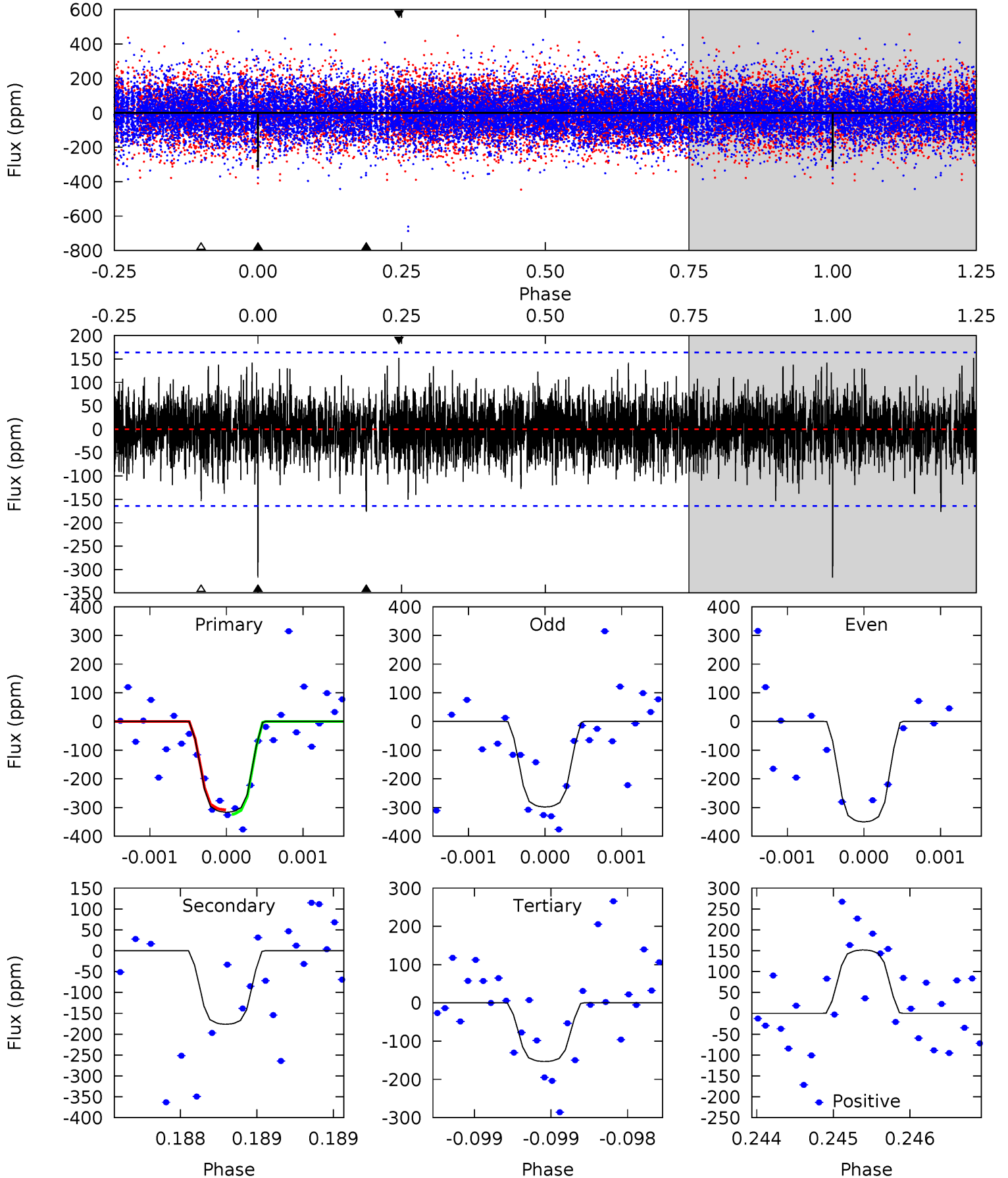
TCE 011961072-02 P=170.539959 Days $T_0=257.520141$ (BKJD)



DV Model-Shift Uniqueness Test

011961072-02, $P = 170.540987$ Days, $E = 86.981738$ Days

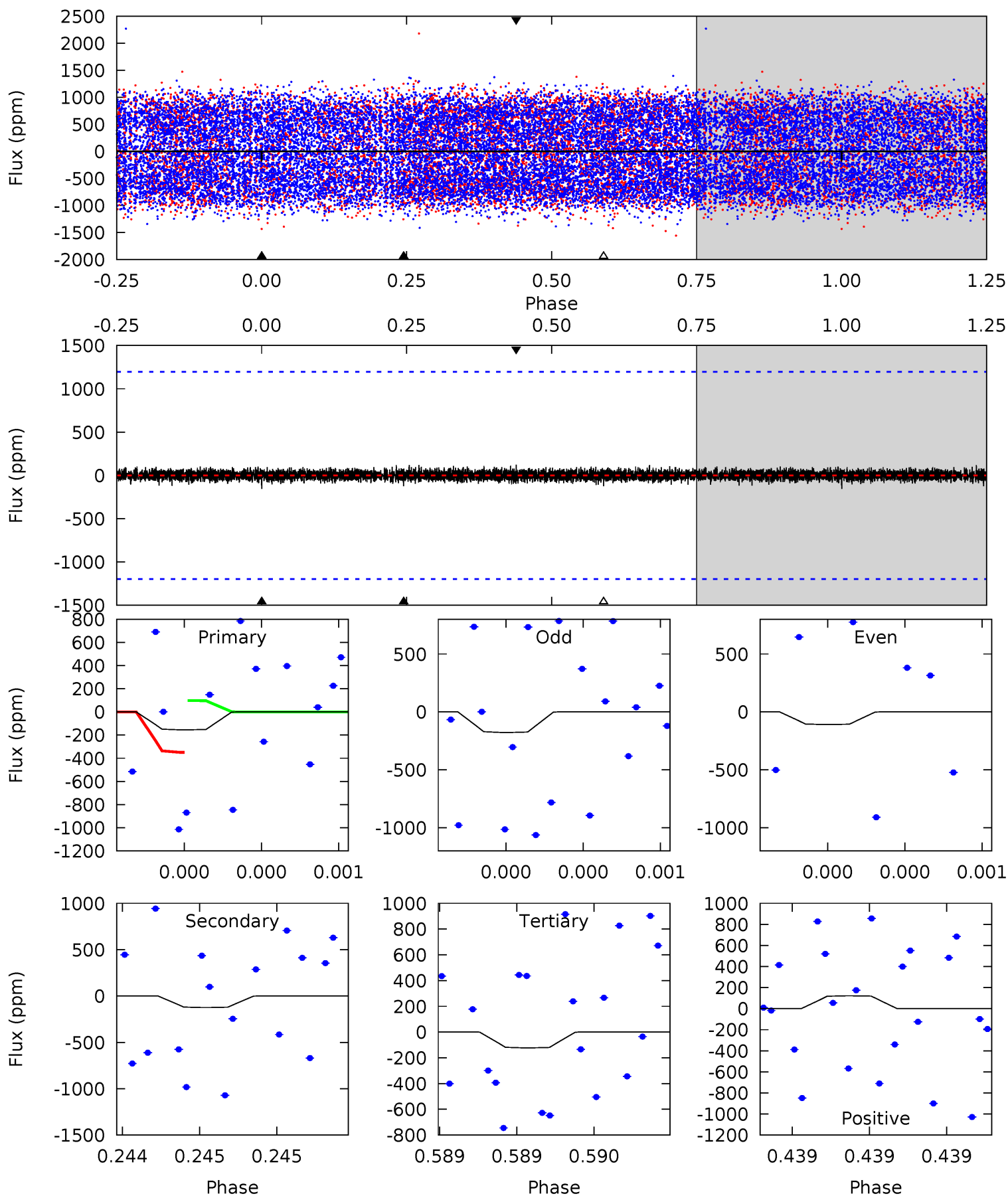
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	5.96	5.18	5.14	5.54	3.43	1.43	5.52	5.57	0.78	0.83	0.86	0.90	0.32	0.27



Alt Model-Shift Uniqueness Test

011961072-02, P = 170.539959 Days, E = 86.980182 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.73	0.58	0.58	0.57	5.63	3.57	0.15	0.15	0.16	0.01	0.01	0.16	1.42	0.44	0.59



Stellar Parameters For KIC 011961072

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8402^{+231}_{-396}	$3.930^{+0.234}_{-0.137}$	$0.070^{+0.250}_{-0.500}$	$2.627^{+0.708}_{-0.944}$	$2.140^{+0.294}_{-0.545}$	$0.166^{+0.274}_{-0.067}$
	+3%/-5%	+6%/-3%	+357%/-714%	+27%/-36%	+14%/-25%	+165%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011961072-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-176 ± 30	$5.16^{+2.64}_{-2.42}$	938^{+74}_{-81}	6785^{+3095}_{-1241}	2185^{+5414}_{-1262}
Alt.	-124 ± 213	$5.31^{+2.73}_{-2.40}$	938^{+73}_{-81}	5883^{+3288}_{-11310}	1139^{+4611}_{-2011}

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

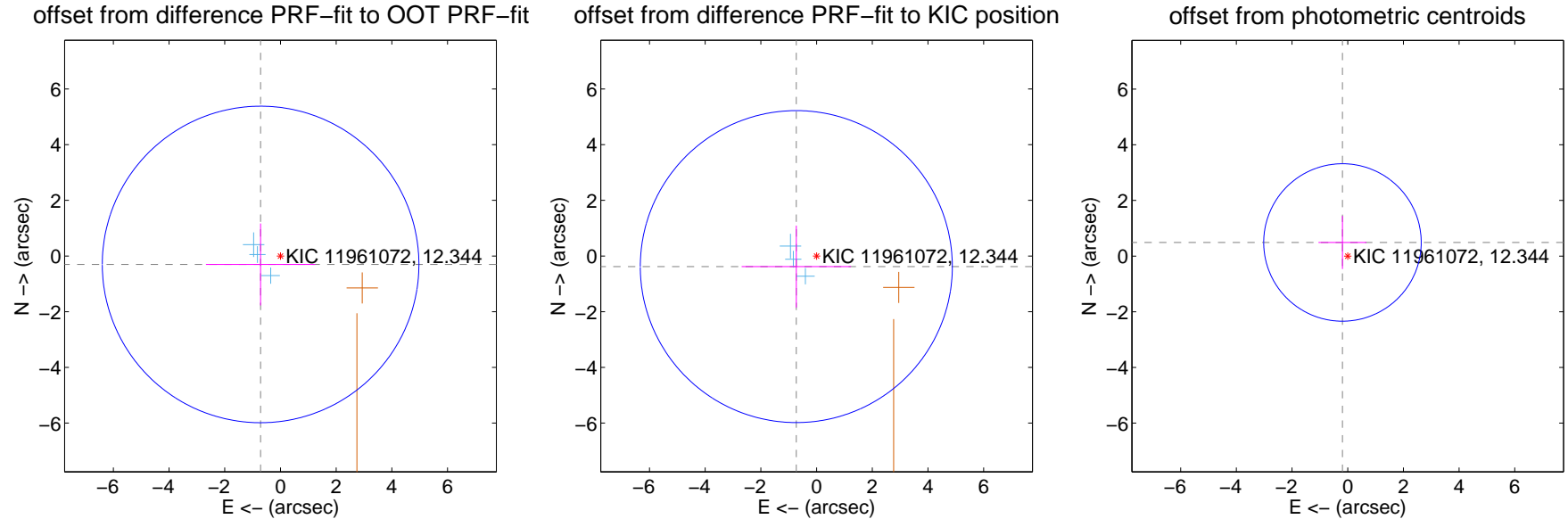
DV Centroid Data

Supplemental centroid analysis for 011961072-02. Kepler magnitude: 12.34. Transit SNR 9.07

There are 3 quarters with good PRF difference image offsets

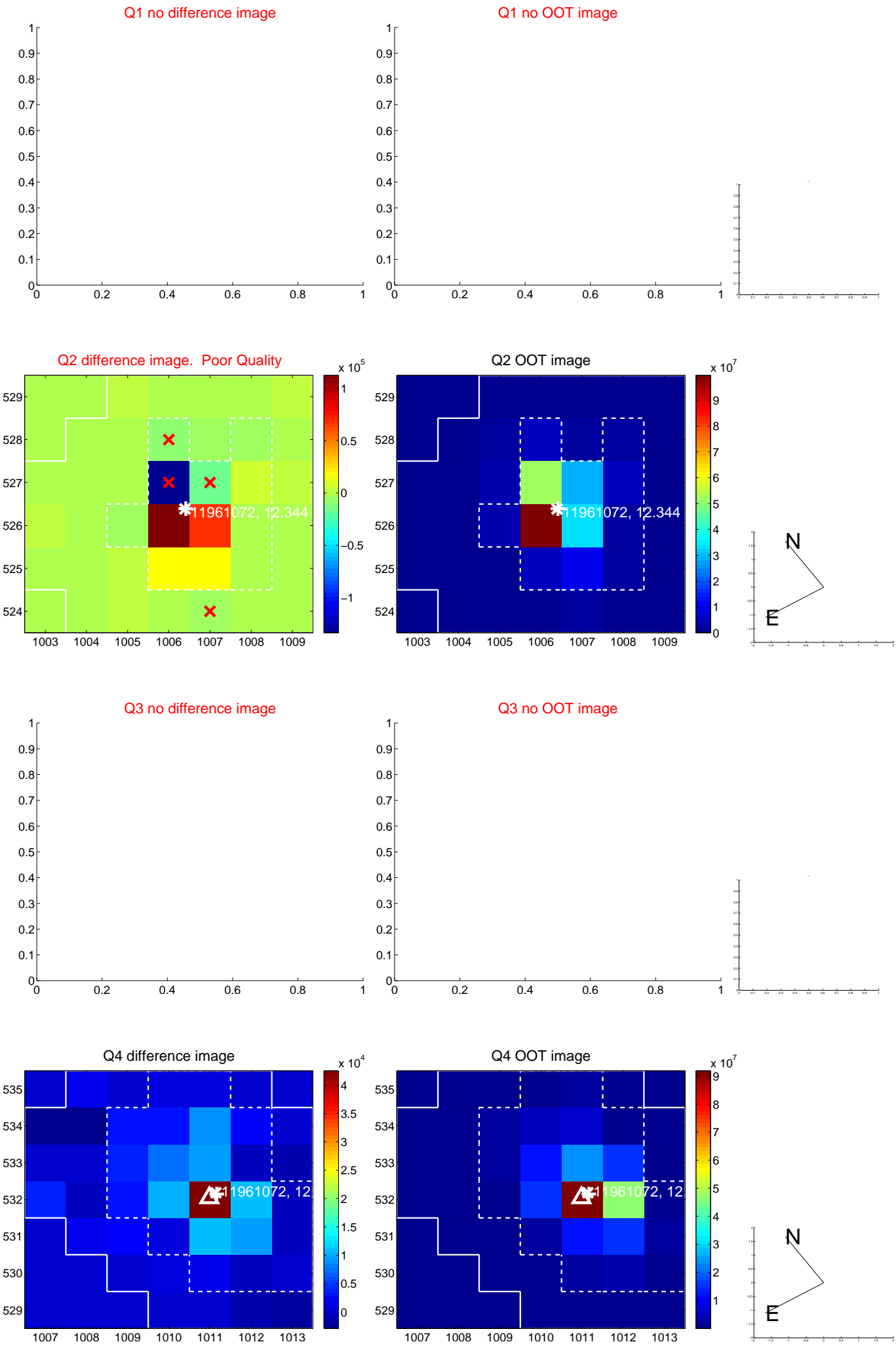
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.775 ± 1.895	0.41	0.714 ± 1.962	-0.303 ± 1.472
PRF-fit source offset from KIC position	0.821 ± 1.868	0.44	0.728 ± 1.962	-0.380 ± 1.472
photometric centroid source offset	0.53 ± 0.94	0.56	0.19 ± 0.86	0.49 ± 0.95



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

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



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



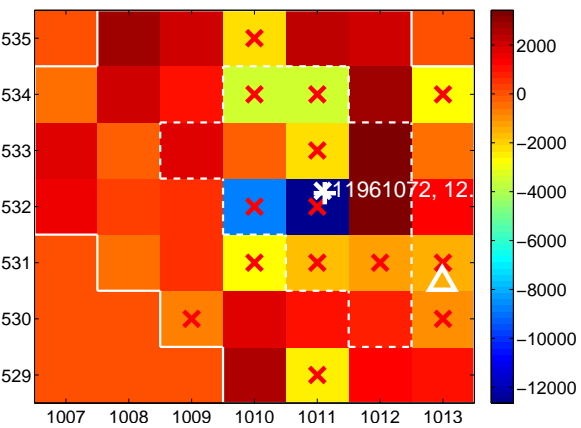
Q7 no difference image



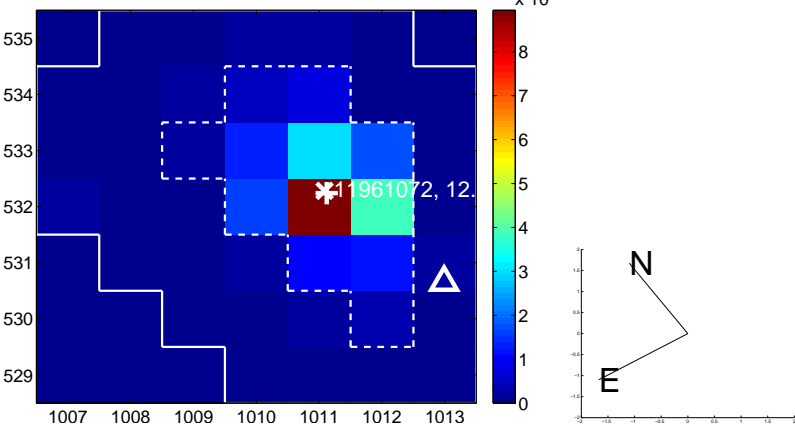
Q7 no OOT image



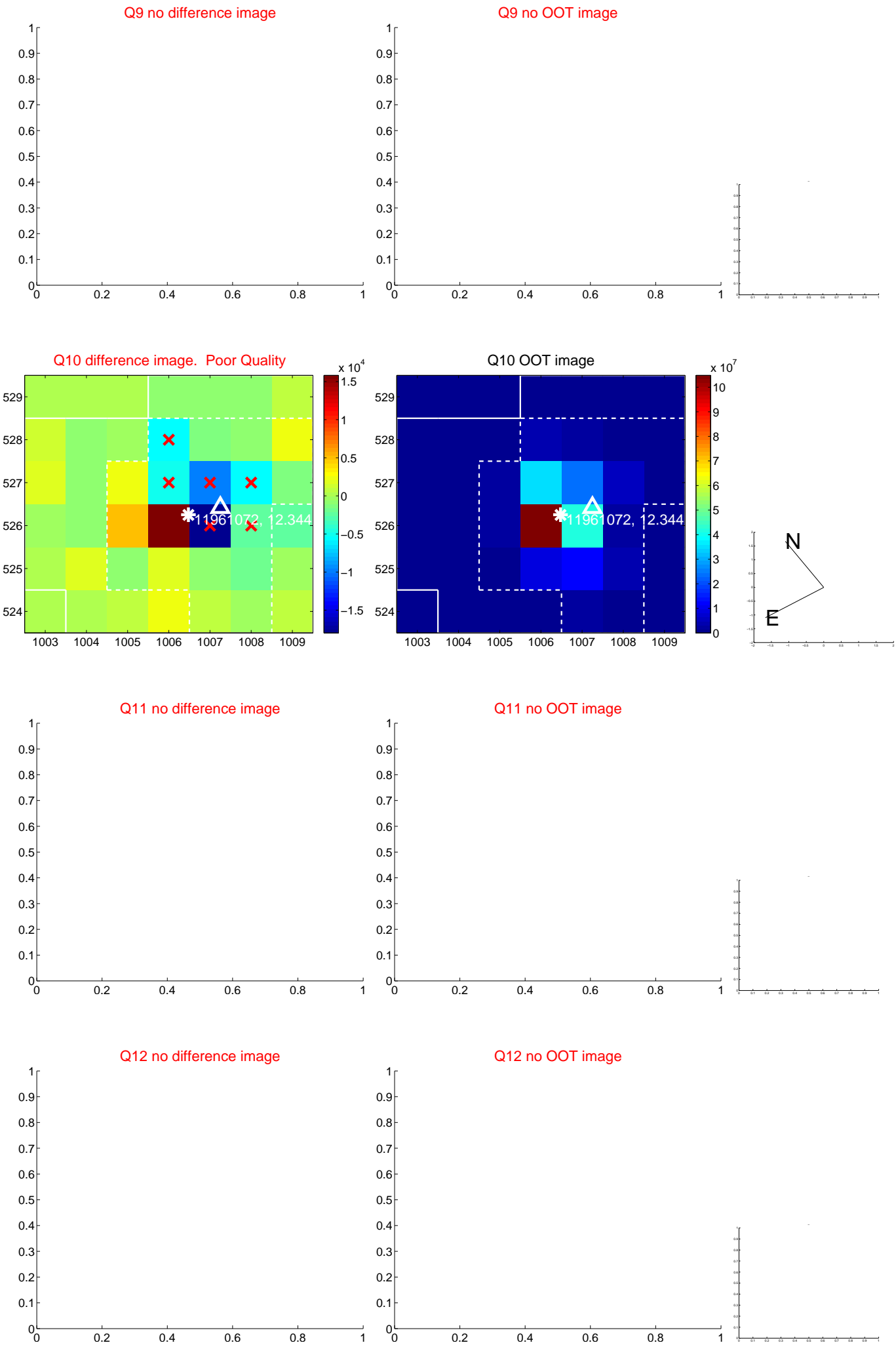
Q8 difference image. Poor Quality



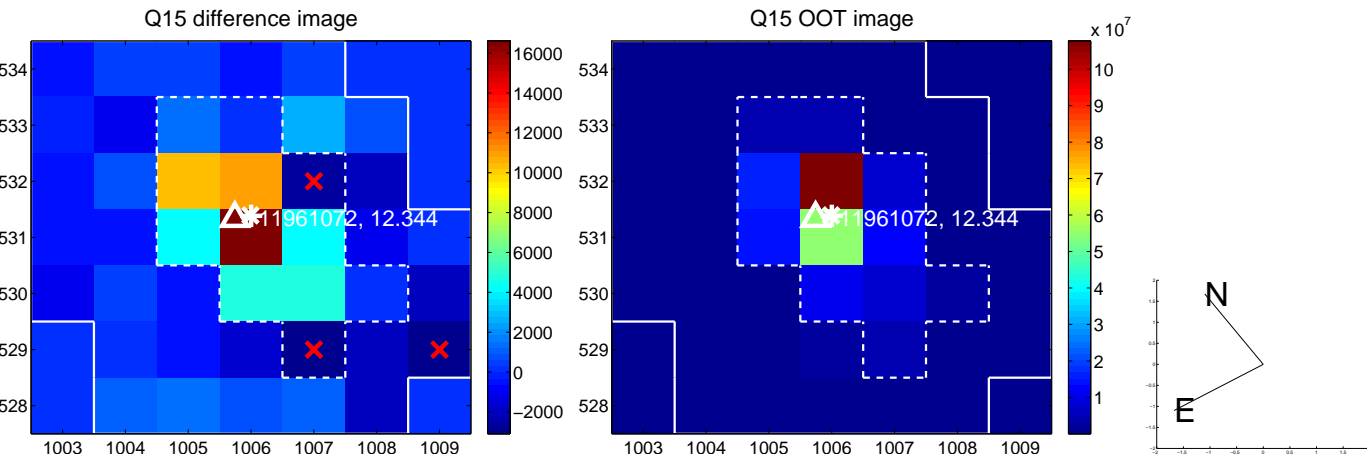
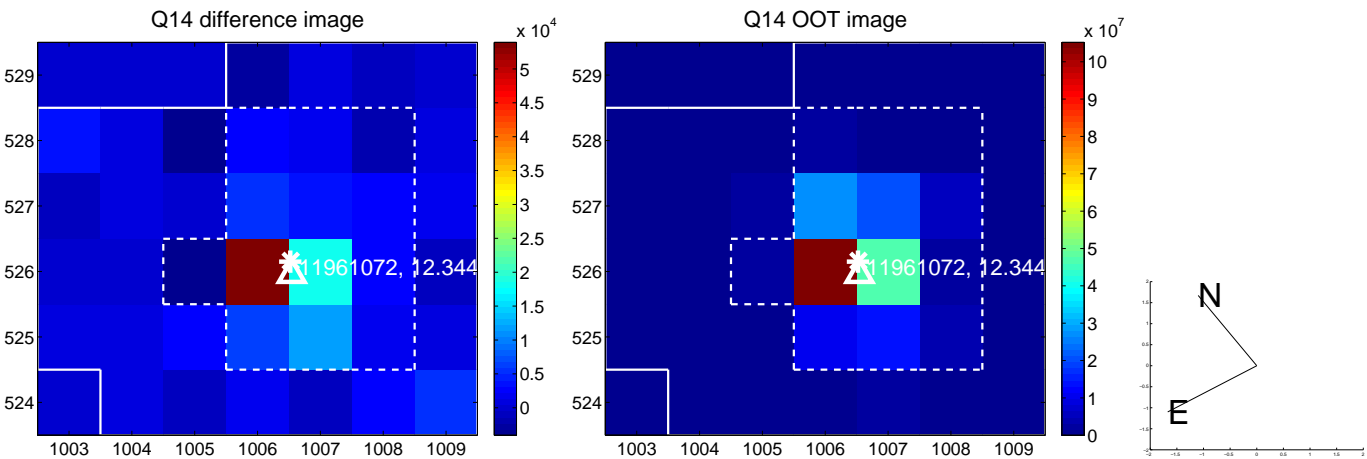
Q8 OOT image



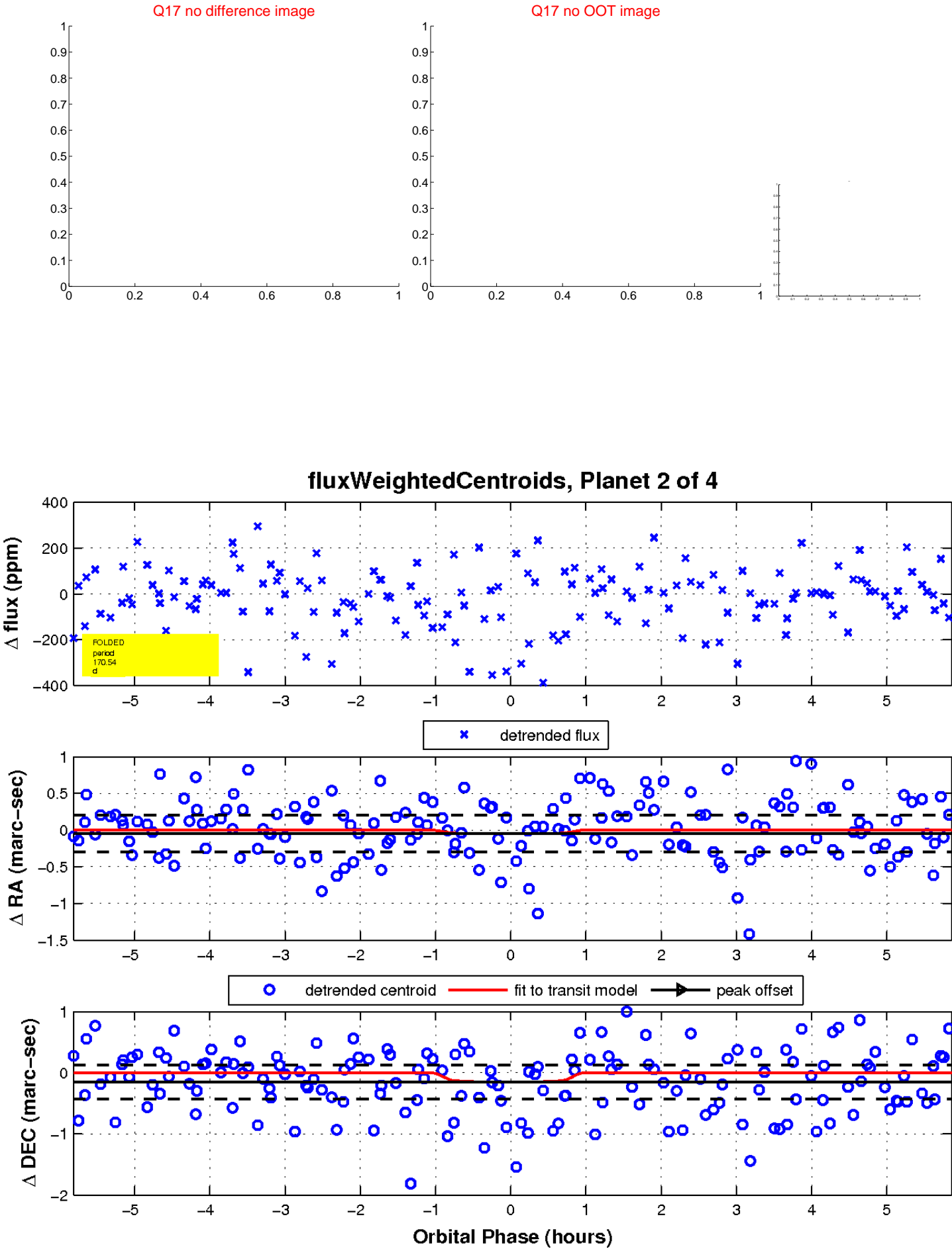
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

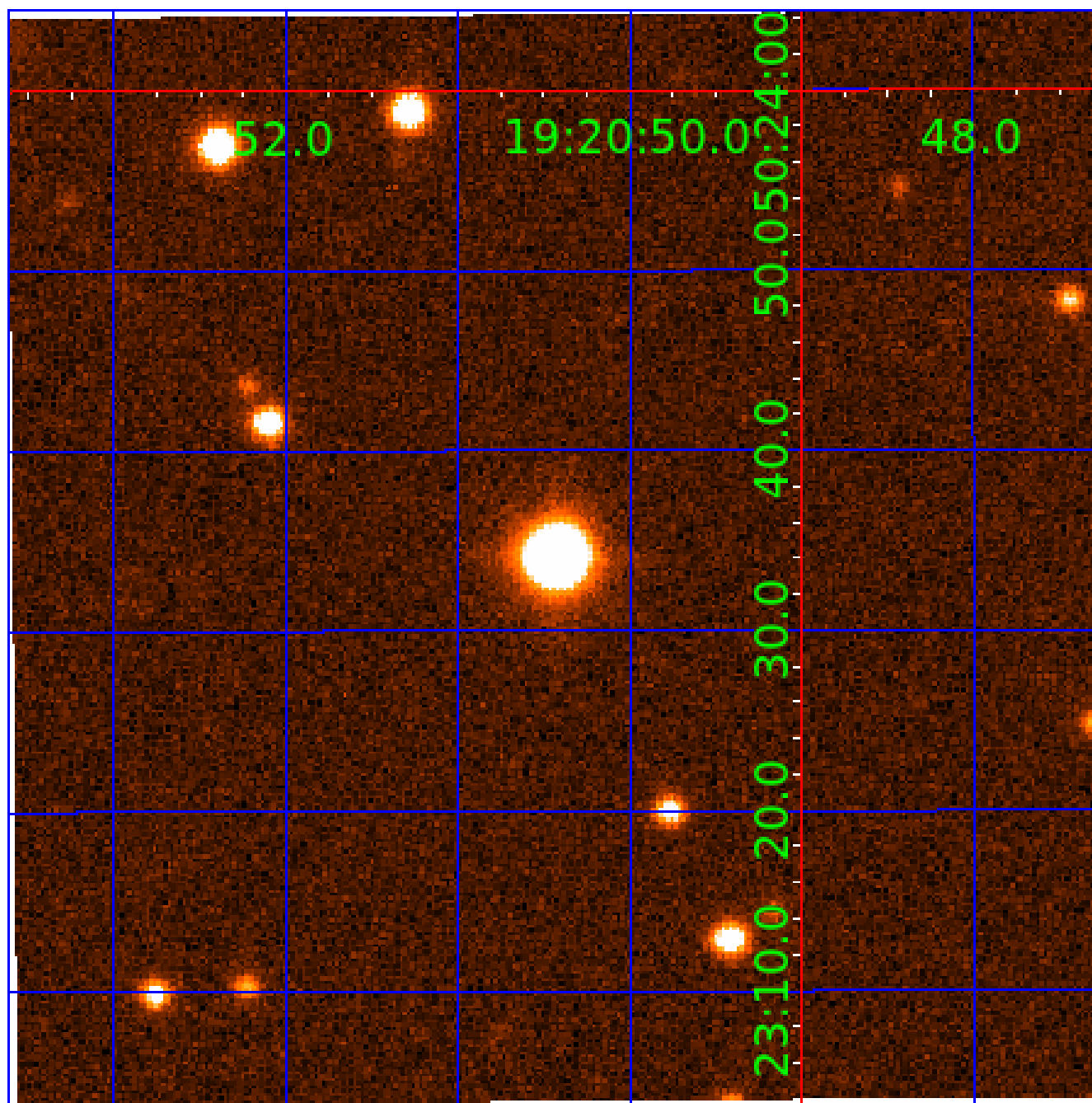


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011961072

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})
011961072-01	OBS	No	1.675064	132.381976	11.9	9.233	9.7	9.6	2.63	8402	0.92	24323.34
011961072-02	OBS	No	170.540987	257.522725	288.2	1.966	8.1	9.1	2.63	8402	5.28	51.16
011961072-03	OBS	No	155.659011	278.975910	135.5	4.358	7.9	5.6	2.63	8402	3.40	57.79
011961072-04	OBS	No	54.795520	150.627110	133.8	2.306	7.4	7.8	2.63	8402	3.52	232.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011961072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
011961072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011961072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011961072-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

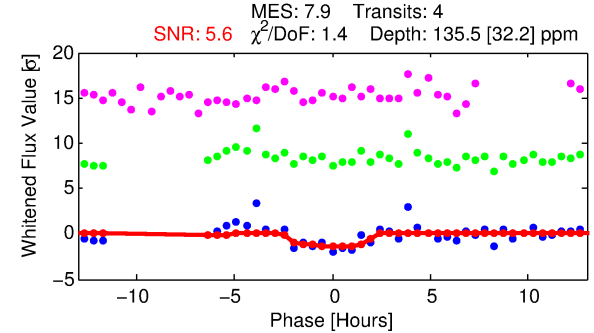
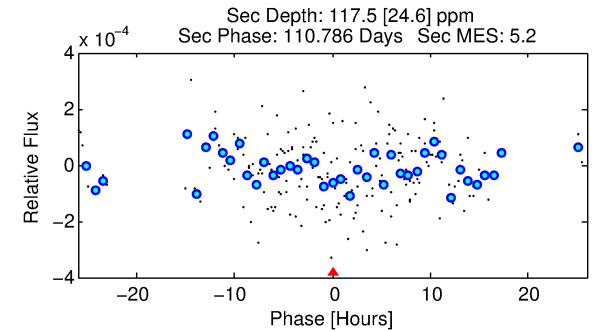
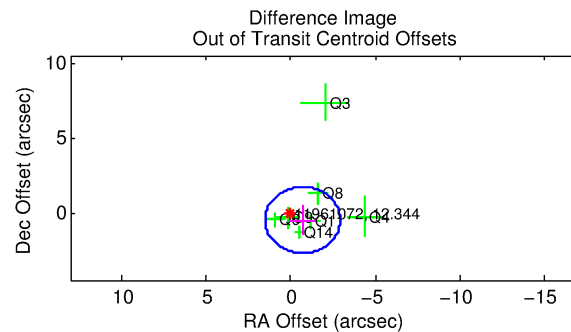
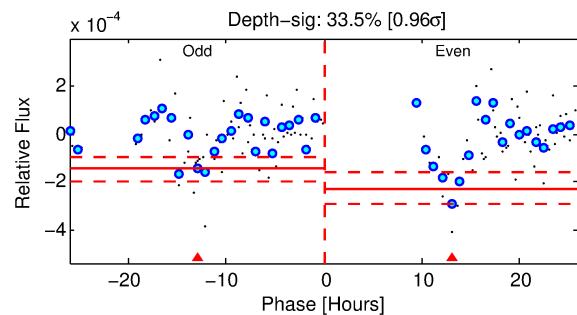
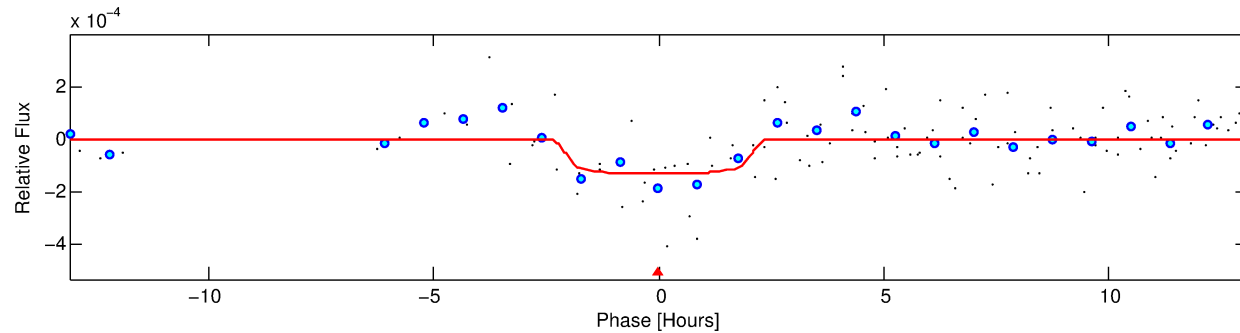
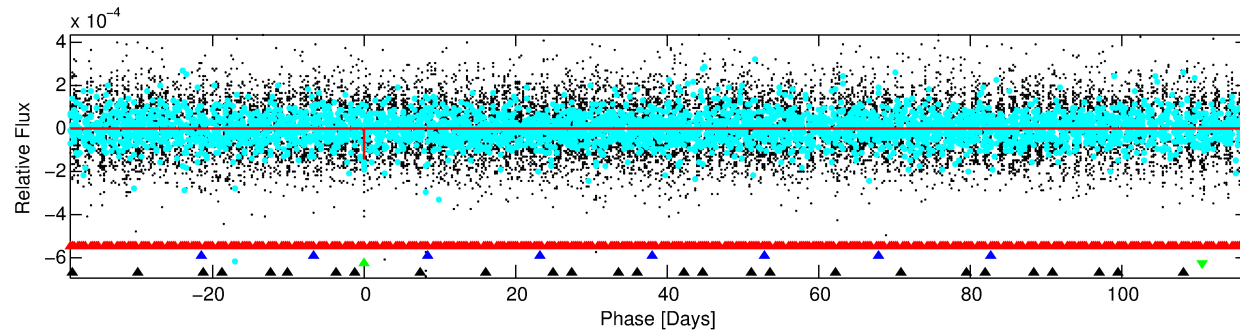
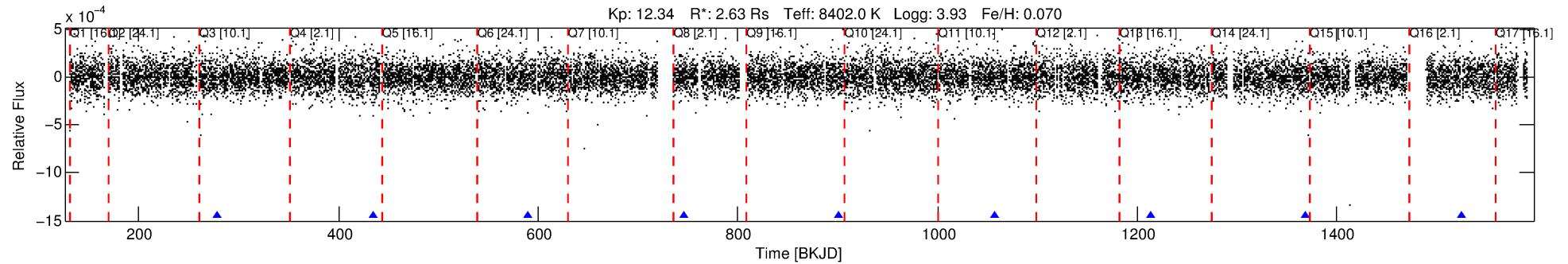
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011961072-03

No Significant Match Found

DV One-Page Summary

KIC: 11961072 Candidate: 3 of 4 Period: 155.659 d



DV Fit Results:

Period = 155.65901 [0.01376] d
Epoch = 278.9759 [0.0172] BKJD
Rp/R* = 0.0119 [0.0143]
a/R* = 161.63 [1172.15]
b = 0.82 [2.94]
Seff = 57.79 [27.23]
Teq = 703 [83] K
Rp = 3.40 [4.27] Re
a = 0.7302 [0.2186] AU
Ag = 2978.52 [7309.32] [0.41 σ]
Teffp = 8030 [4864] K [1.51 σ]

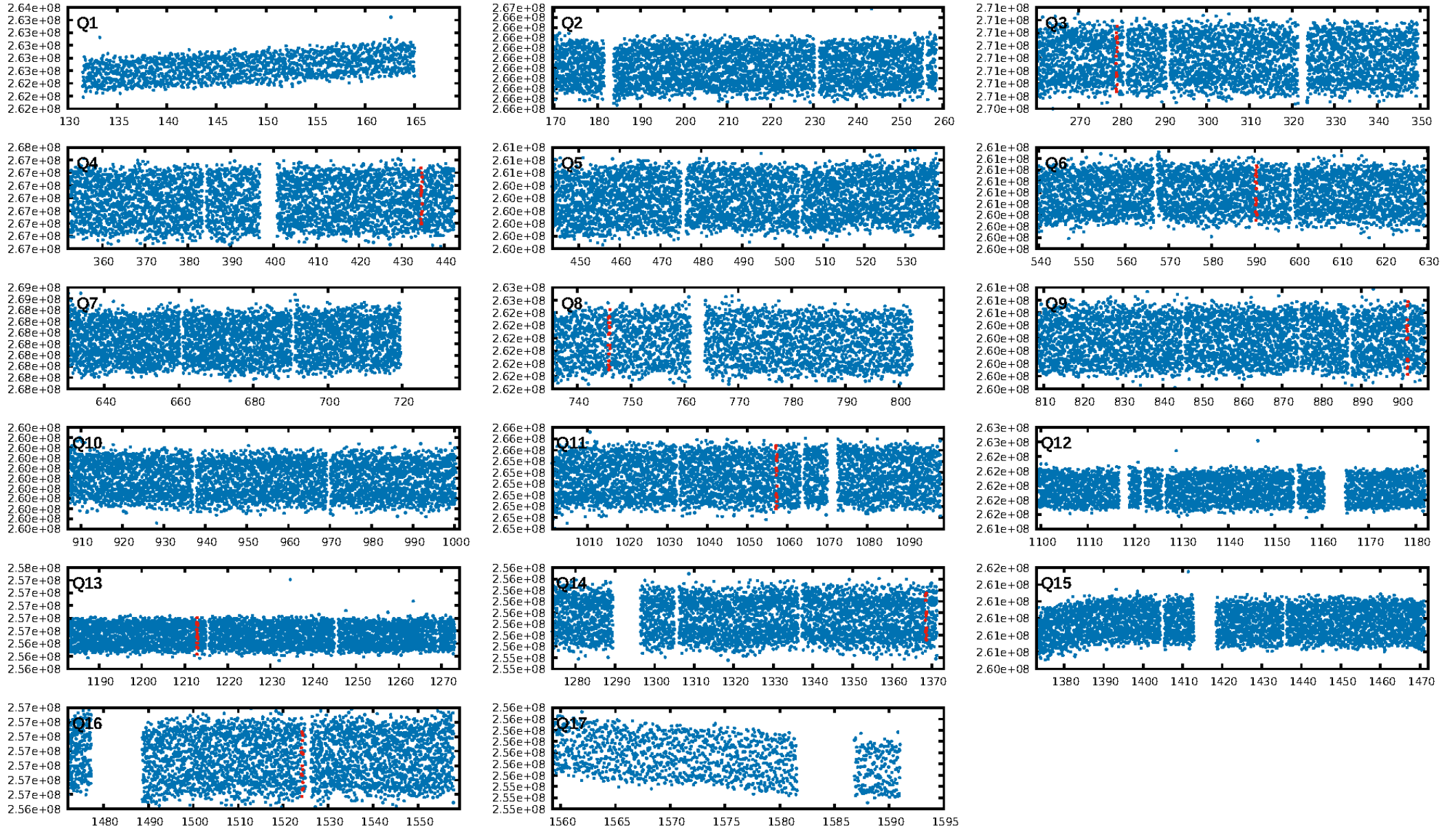
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [490.98 σ]
LongPeriod-sig: 100.0% [74.71 σ]
ModelChiSquare2-sig: 23.7%
ModelChiSquareGof-sig: 98.0%
Bootstrap-pfa: 4.40e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.5808
Centroid-sig: 79.4%
Centroid-so: 0.613 arcsec [0.53 σ]
OotOffset-rm: 0.862 arcsec [1.17 σ]
OotOffset-st: 2/2/2/1 [7]
KicOffset-rm: 0.867 arcsec [1.06 σ]
KicOffset-st: 2/2/2/1 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.33 [3/9]

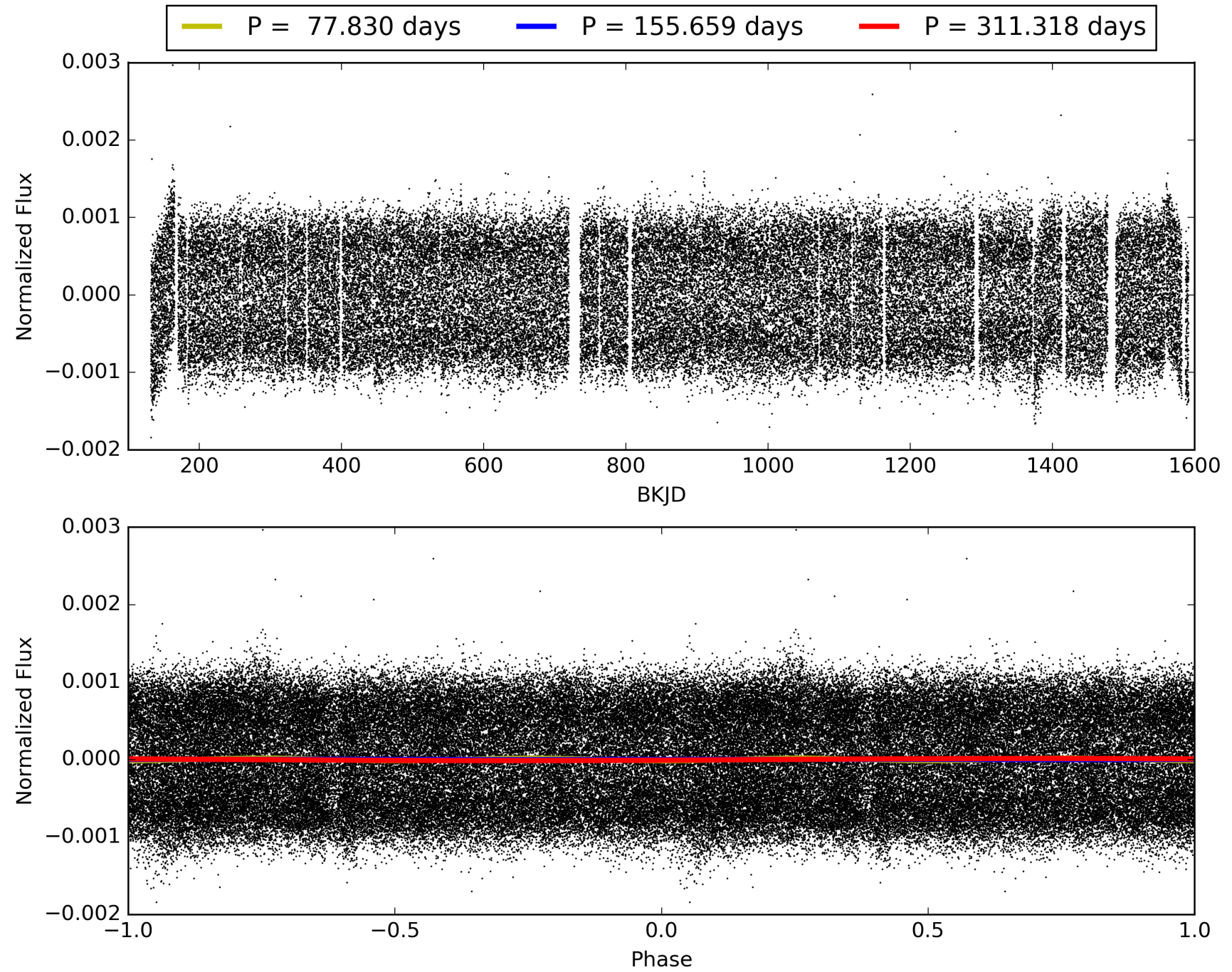
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:20:08 Z

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

TCE 011961072-03, PDC Light Curves

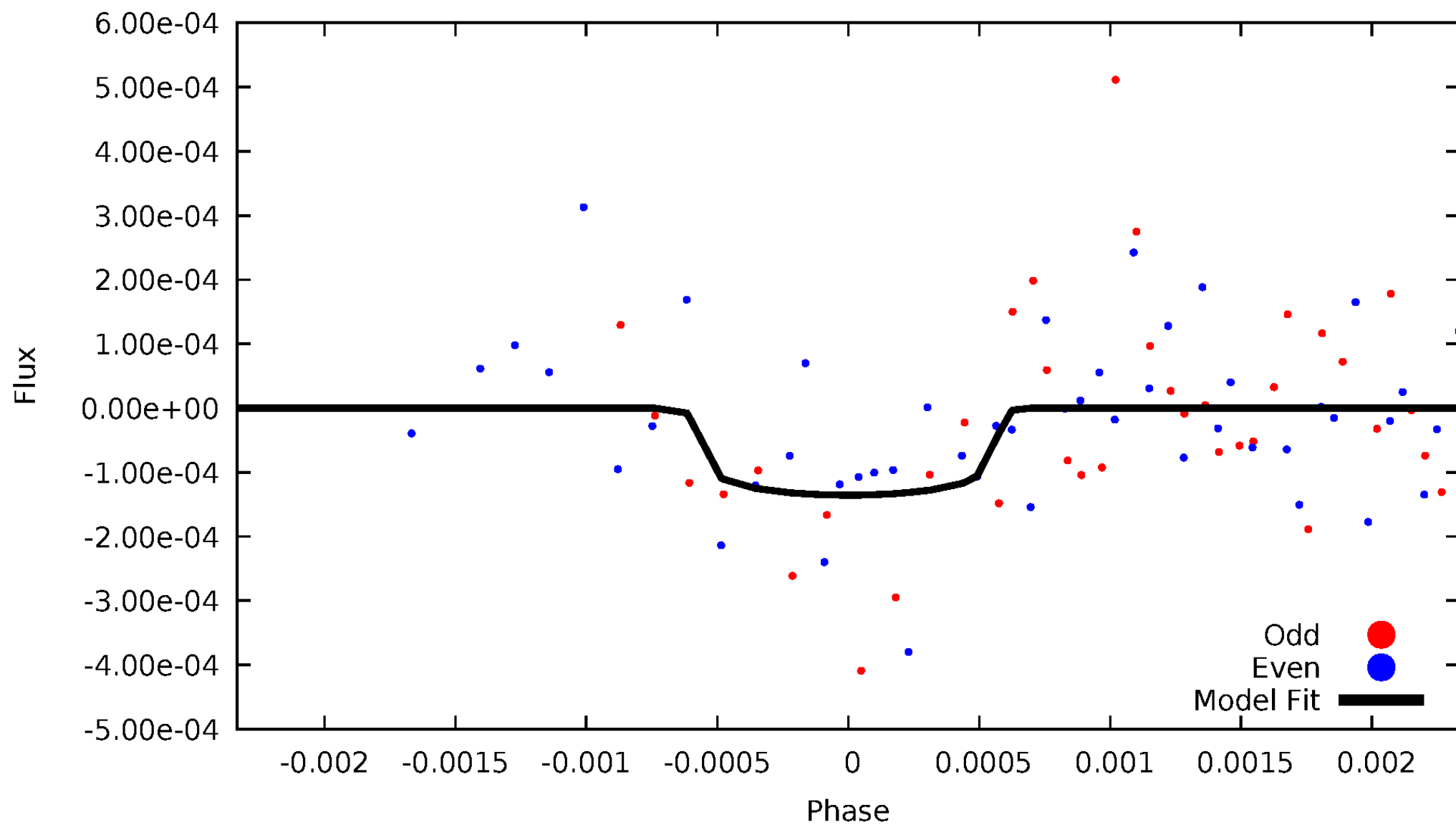


TCE 011961072-03



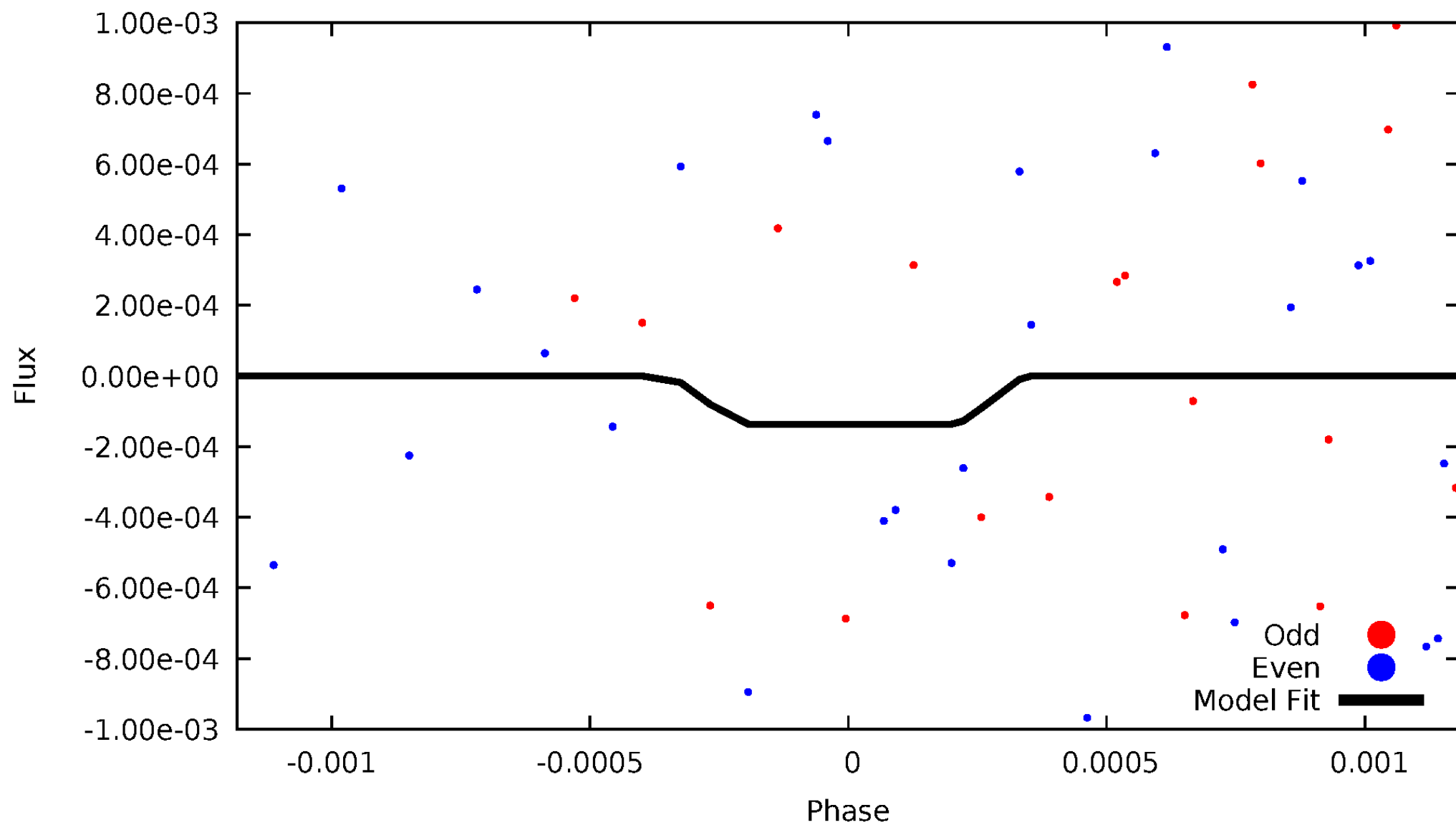
DV Odd/Even

TCE 011961072-03



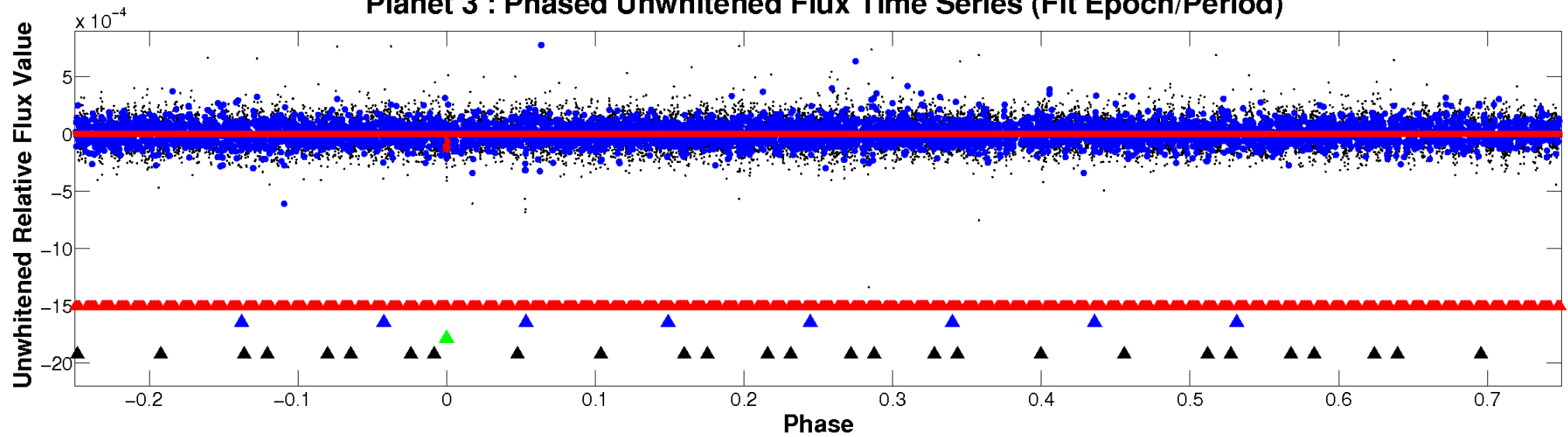
ALT Odd/Even

TCE 011961072-03

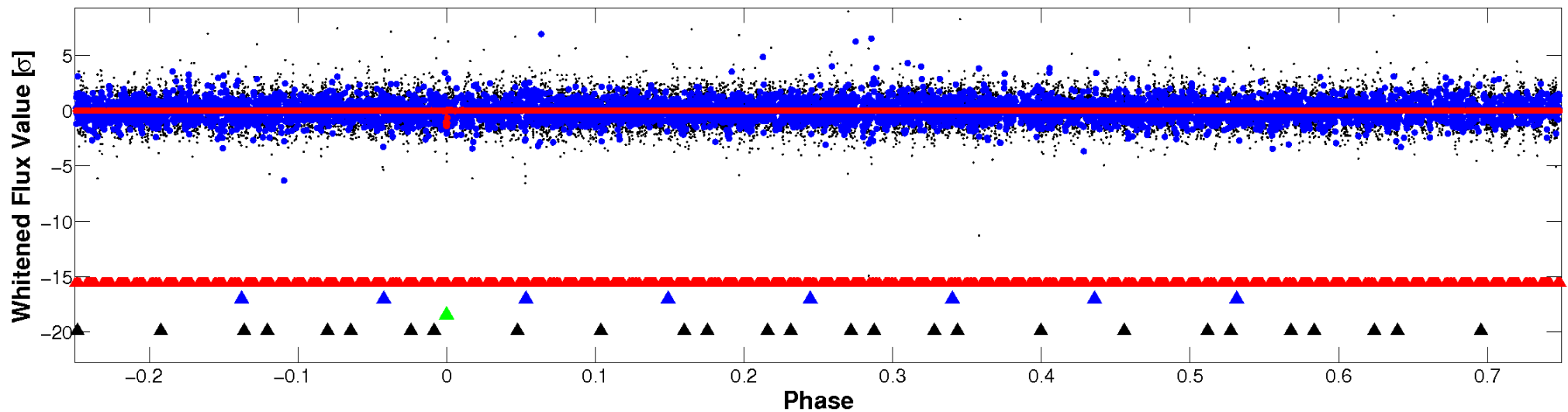


Non-Whitened Vs. Whitened Light Curve

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

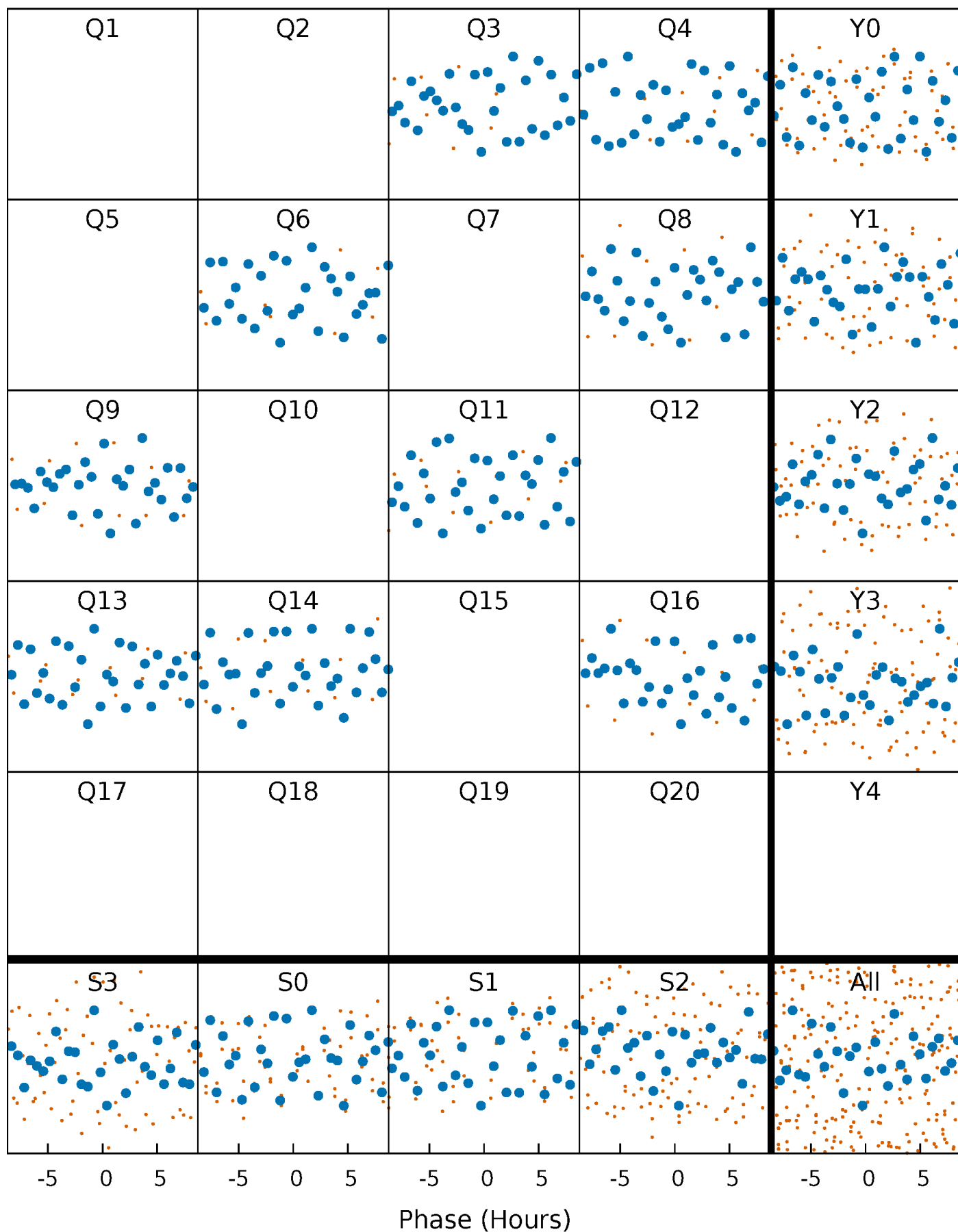


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



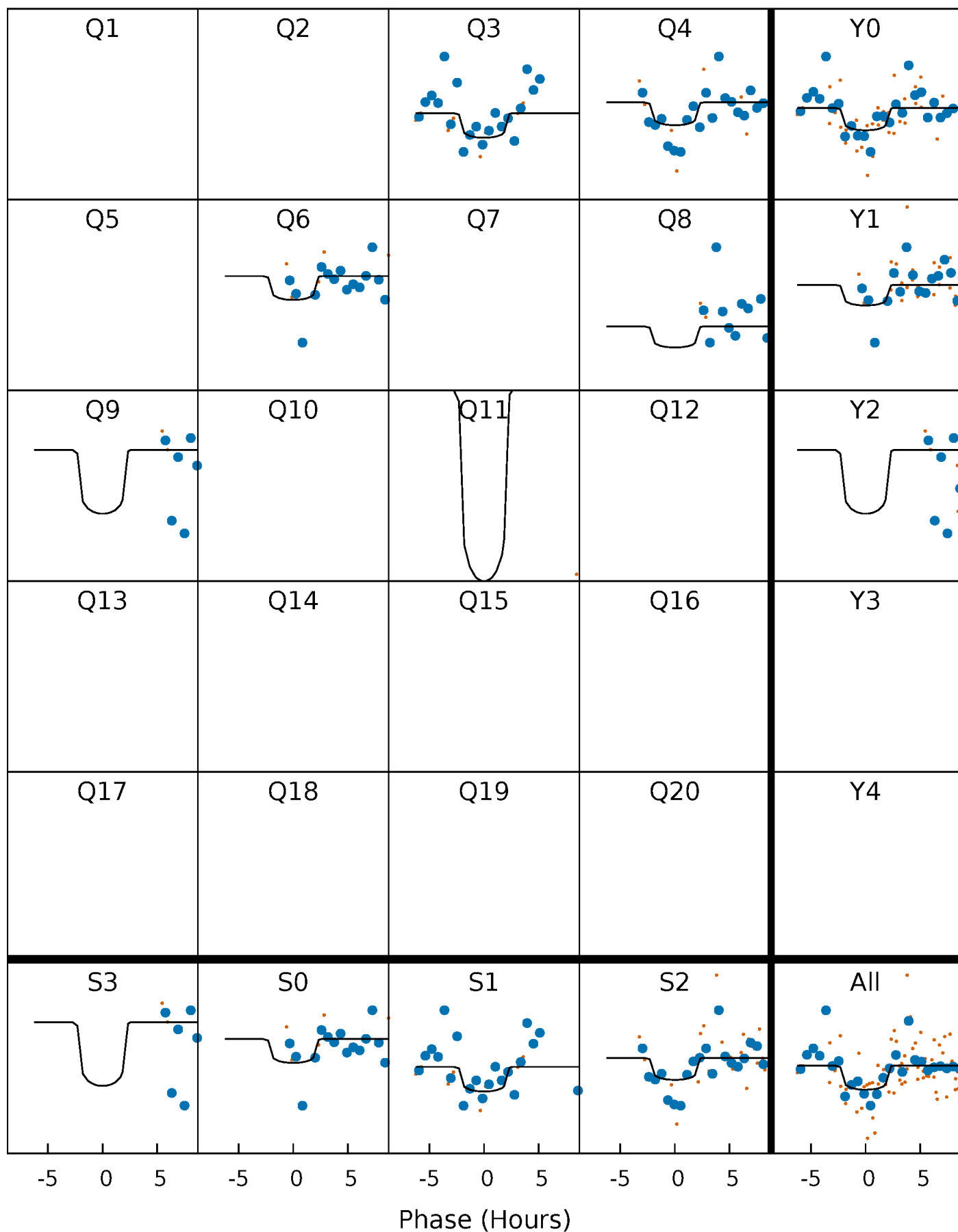
PDC Quarter-Phased Transit Curves

TCE 011961072-03 P=155.659011 Days $T_0=278.975910$ (BKJD)



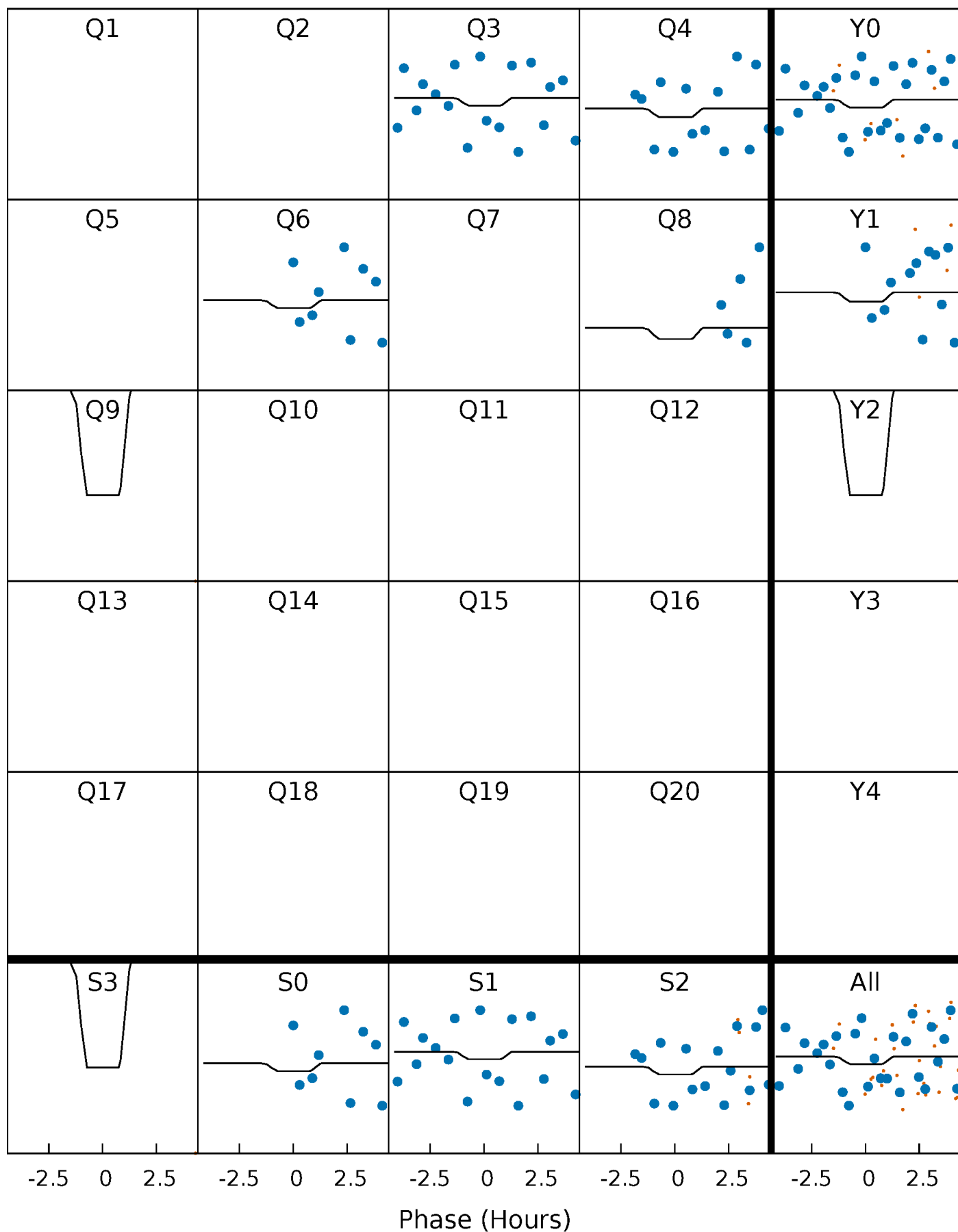
DV Quarter-Phased Transit Curves

TCE 011961072-03 P=155.659011 Days $T_0=278.975910$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

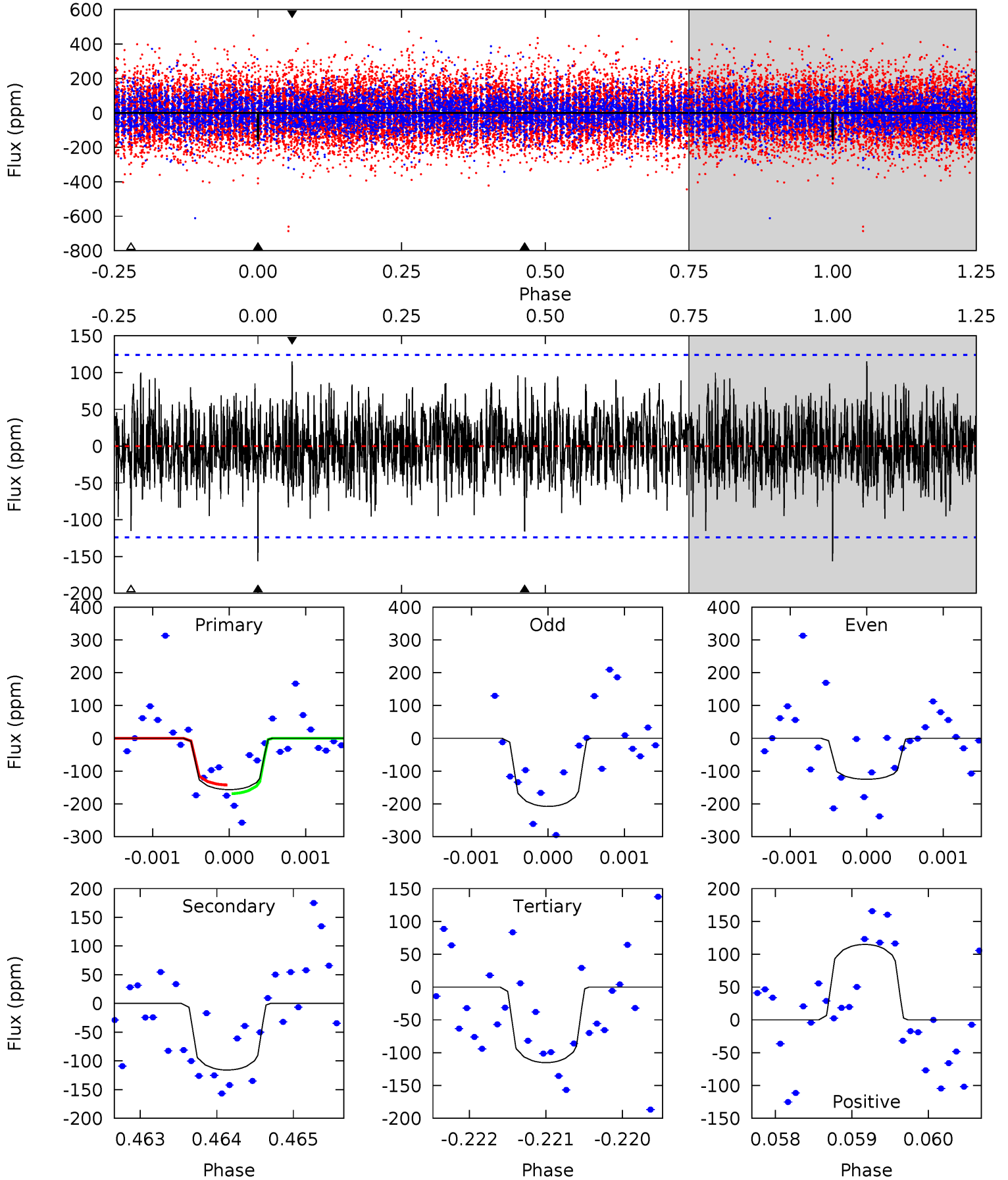
TCE 011961072-03 P=155.692502 Days $T_0=278.889593$ (BKJD)



DV Model-Shift Uniqueness Test

011961072-03, P = 155.659011 Days, E = 123.316899 Days

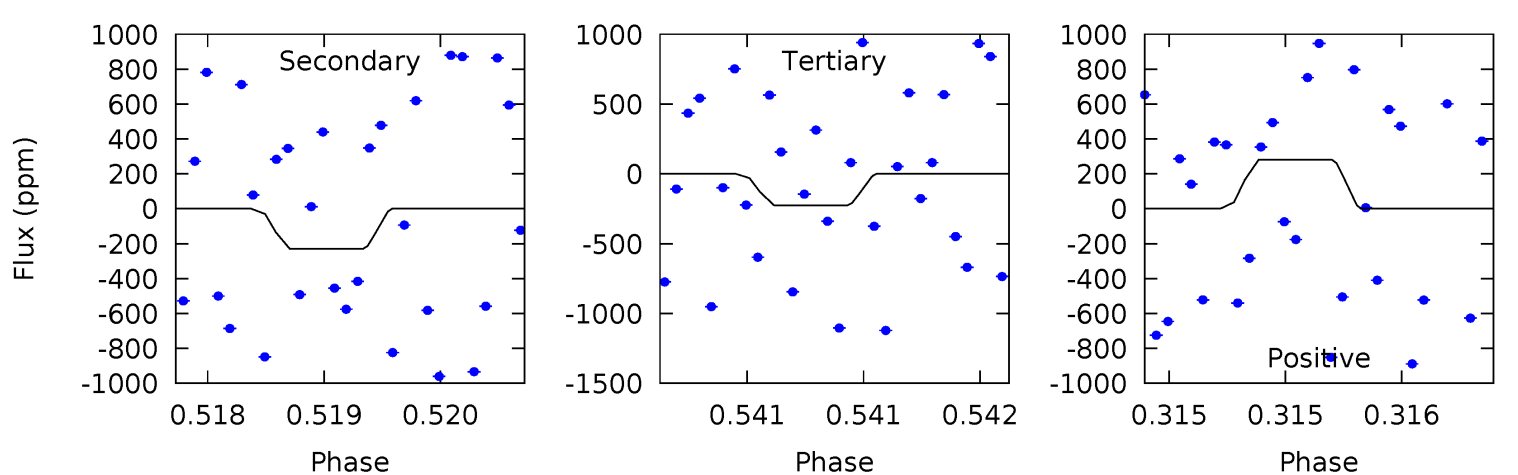
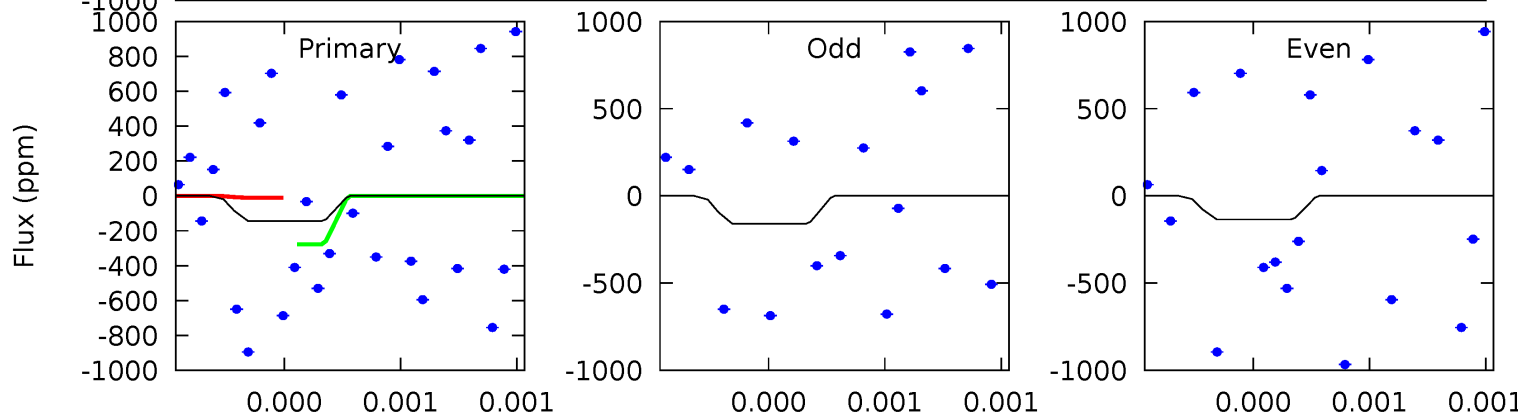
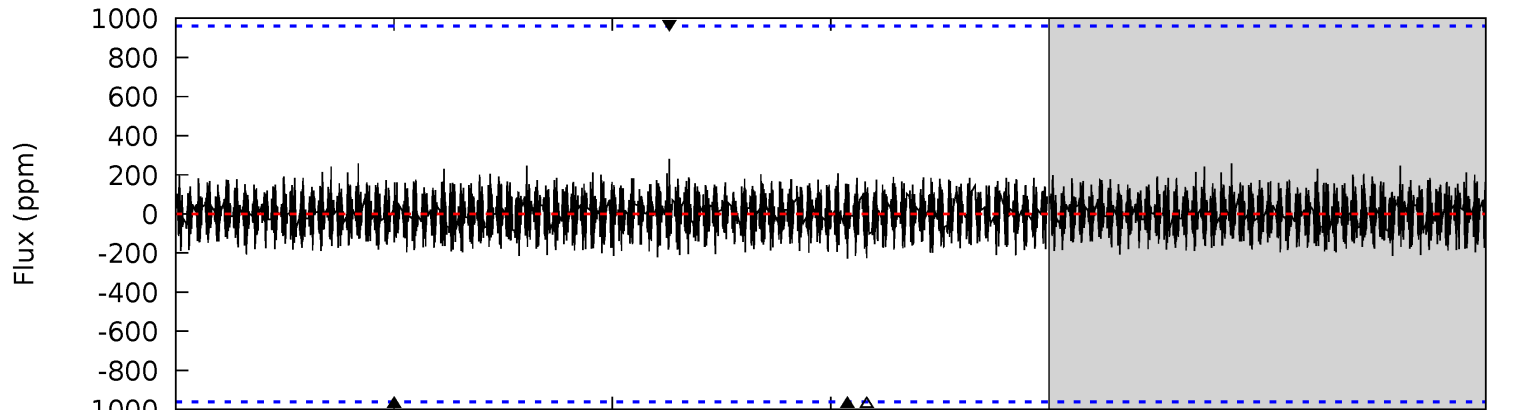
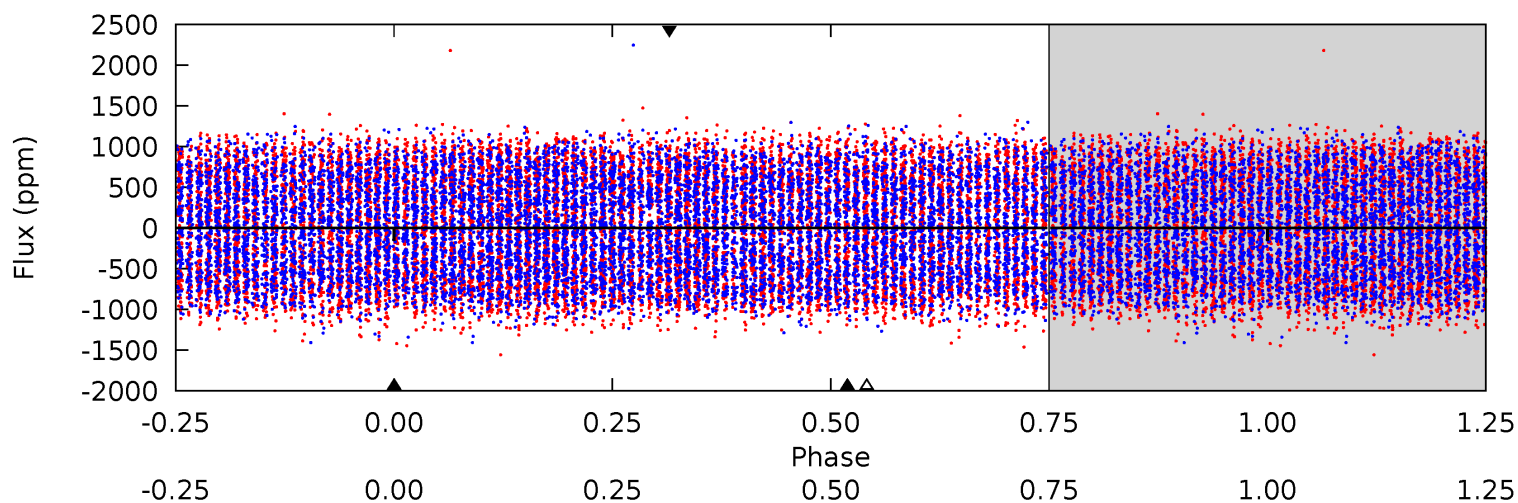
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.83	5.06	5.03	5.01	5.41	3.23	1.37	1.80	1.81	0.03	0.04	1.76	1.15	0.42	0.58



Alt Model-Shift Uniqueness Test

011961072-03, P = 155.692502 Days, E = 123.197091 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.83	1.32	1.30	1.62	5.54	3.42	0.40	-0.47	-0.79	0.02	-0.30	0.07	0.81	0.55	0.75



Stellar Parameters For KIC 011961072

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8402^{+231}_{-396}	$3.930^{+0.234}_{-0.137}$	$0.070^{+0.250}_{-0.500}$	$2.627^{+0.708}_{-0.944}$	$2.140^{+0.294}_{-0.545}$	$0.166^{+0.274}_{-0.067}$
	+3%/-5%	+6%/-3%	+357%/-714%	+27%/-36%	+14%/-25%	+165%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011961072-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-116 ± 23	$4.34^{+3.80}_{-2.84}$	969^{+67}_{-82}	6629^{+7596}_{-1737}	1733^{+13572}_{-1253}
Alt.	-229 ± 174	$4.08^{+3.64}_{-2.53}$	963^{+76}_{-79}	7951^{+9817}_{-2955}	3400^{+22553}_{-2891}

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

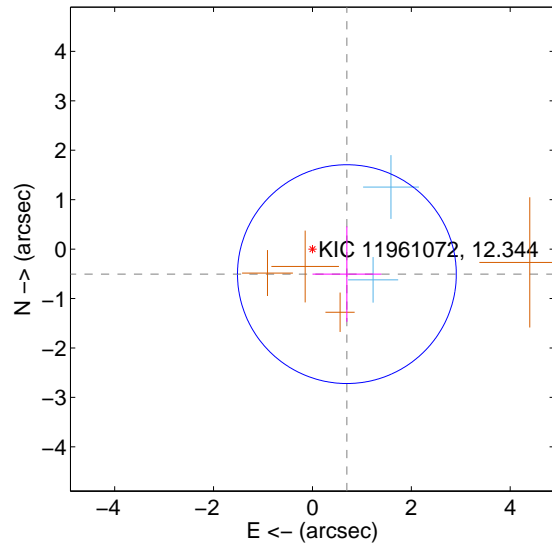
Supplemental centroid analysis for 011961072-03. Kepler magnitude: 12.34. Transit SNR 5.61

There are 2 quarters with good PRF difference image offsets

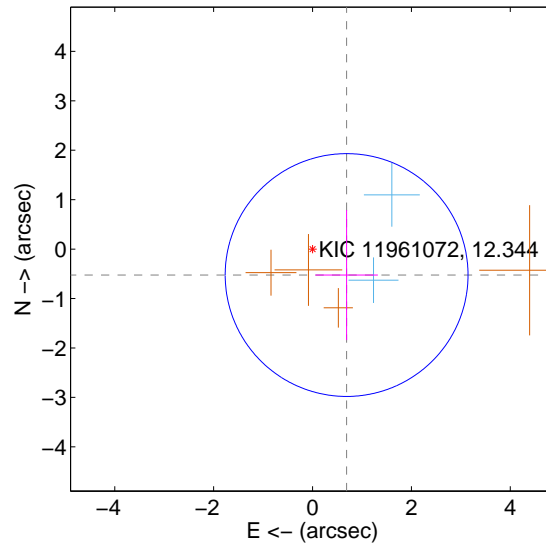
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.862 ± 0.738	1.17	-0.697 ± 0.696	-0.506 ± 0.964
PRF-fit source offset from KIC position	0.867 ± 0.819	1.06	-0.689 ± 0.631	-0.525 ± 1.315
photometric centroid source offset	0.61 ± 1.16	0.53	0.56 ± 1.13	0.25 ± 1.28

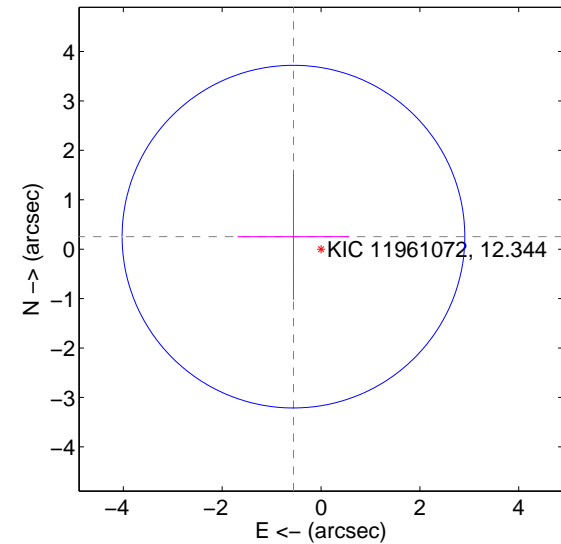
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

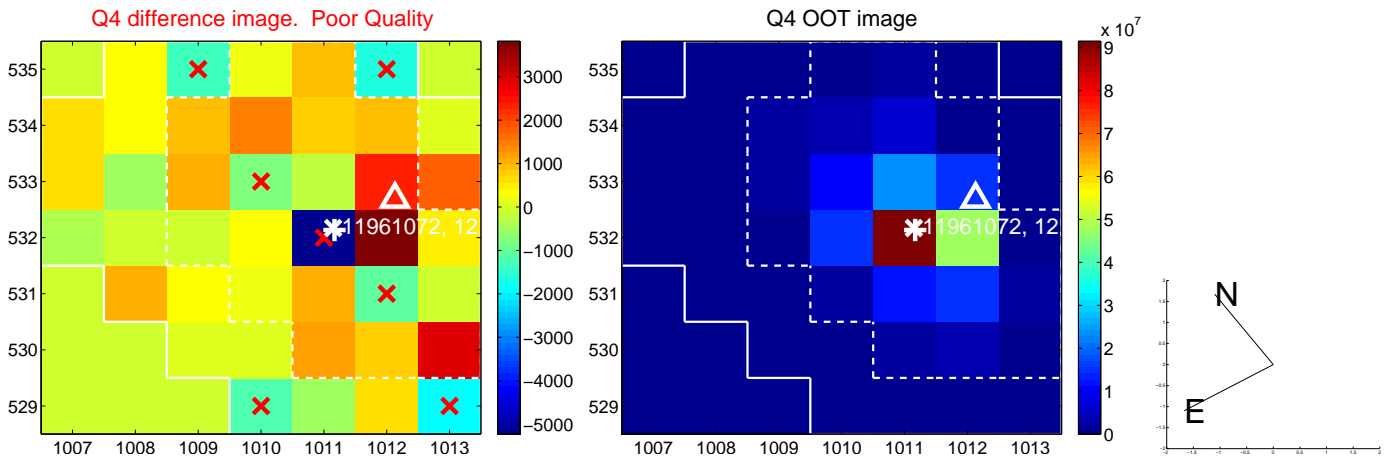
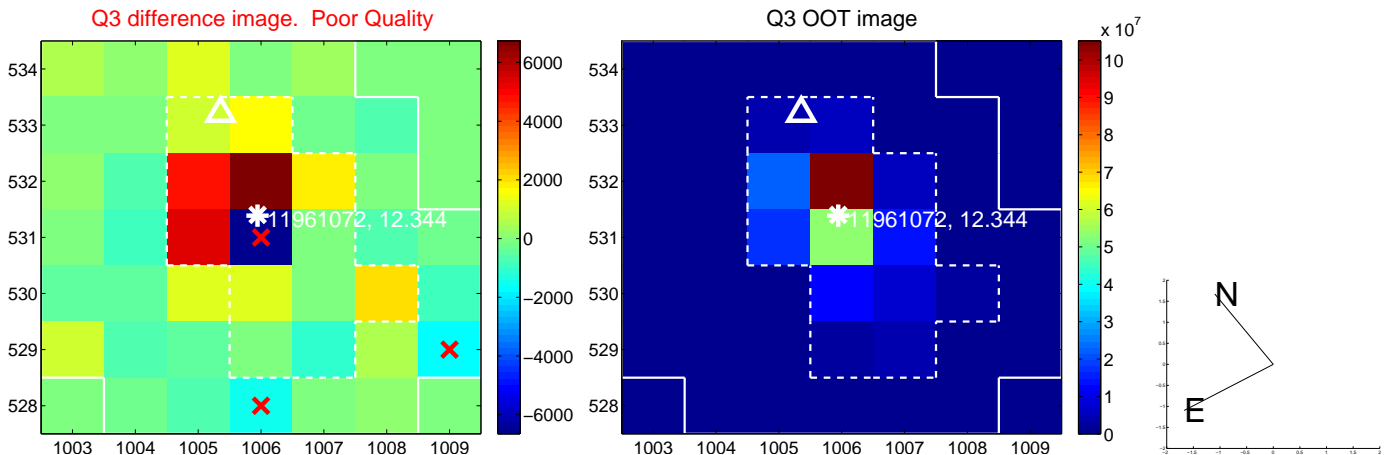


offset from photometric centroids

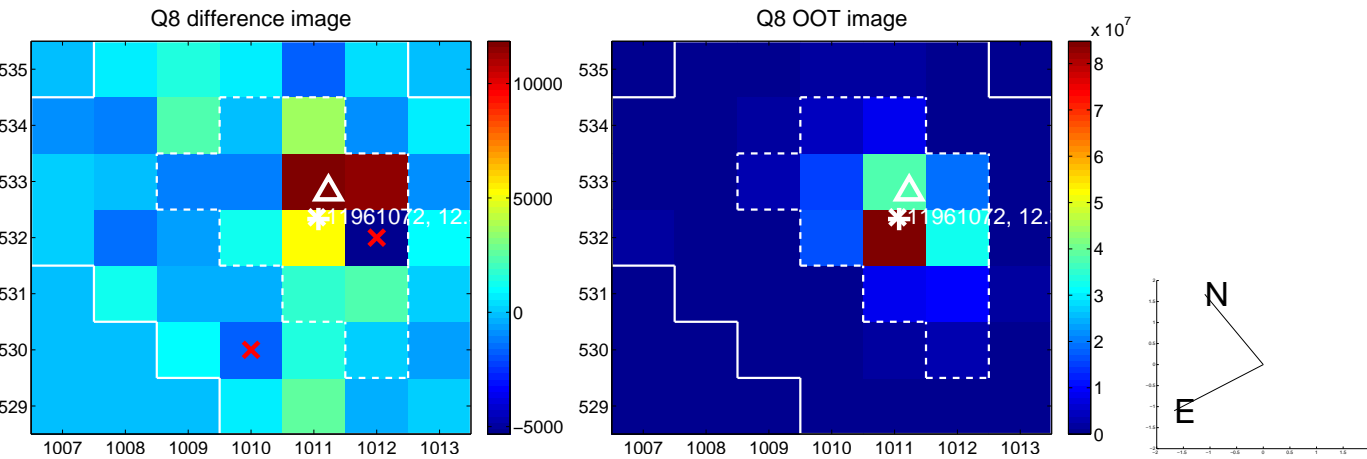
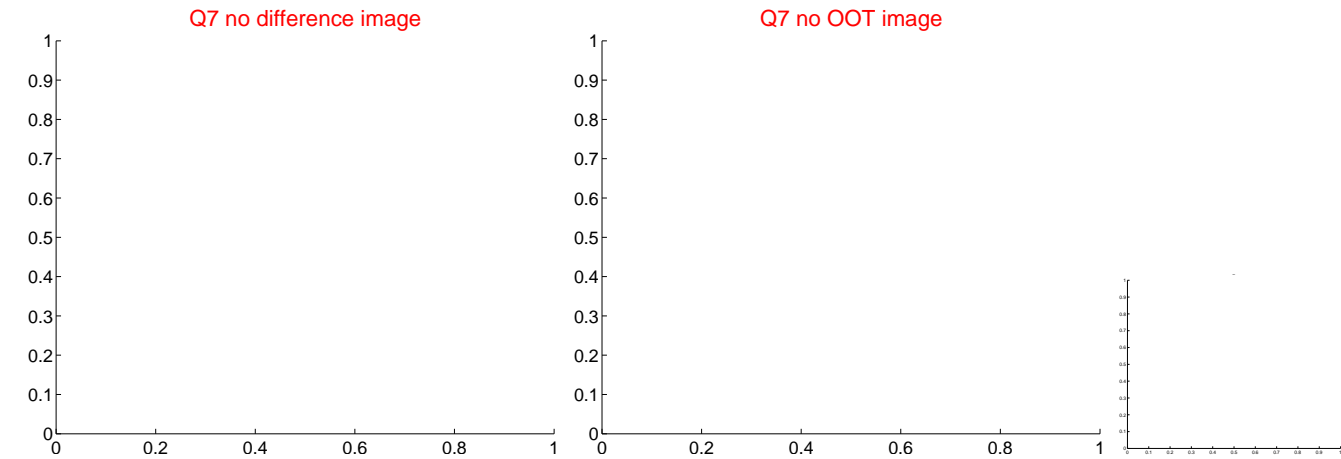
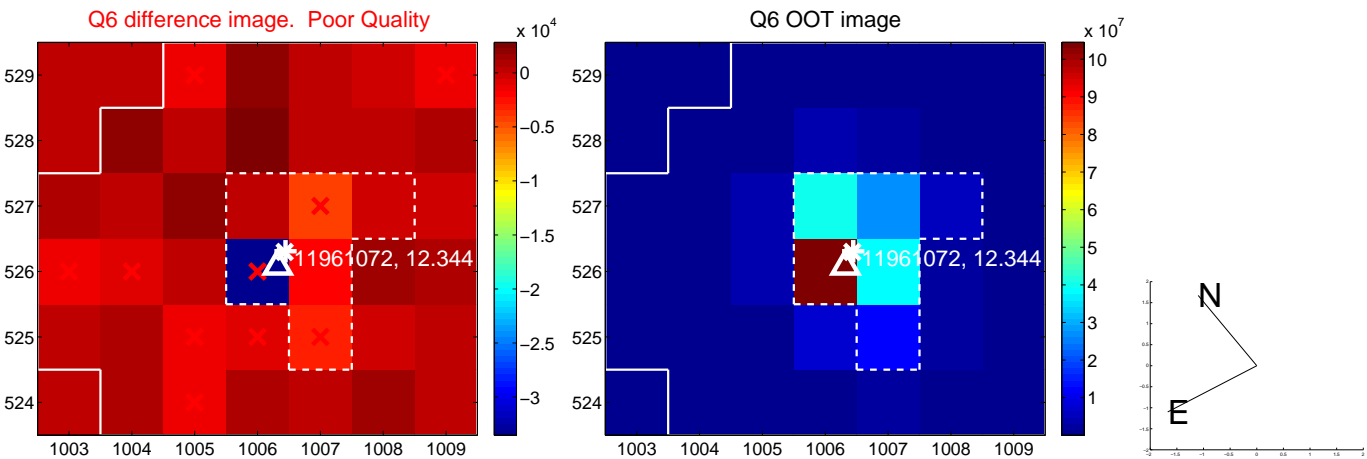


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

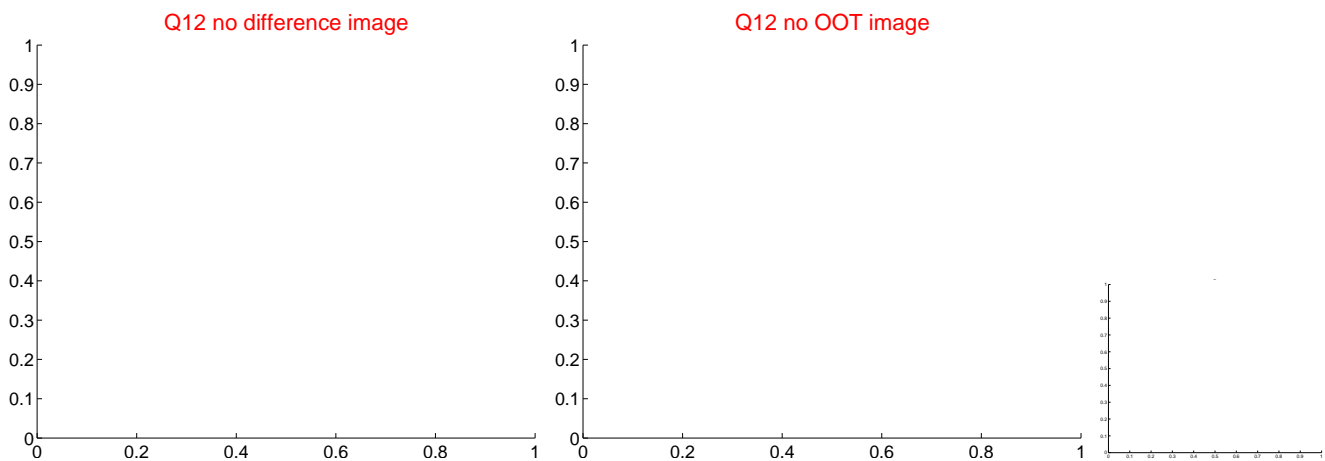
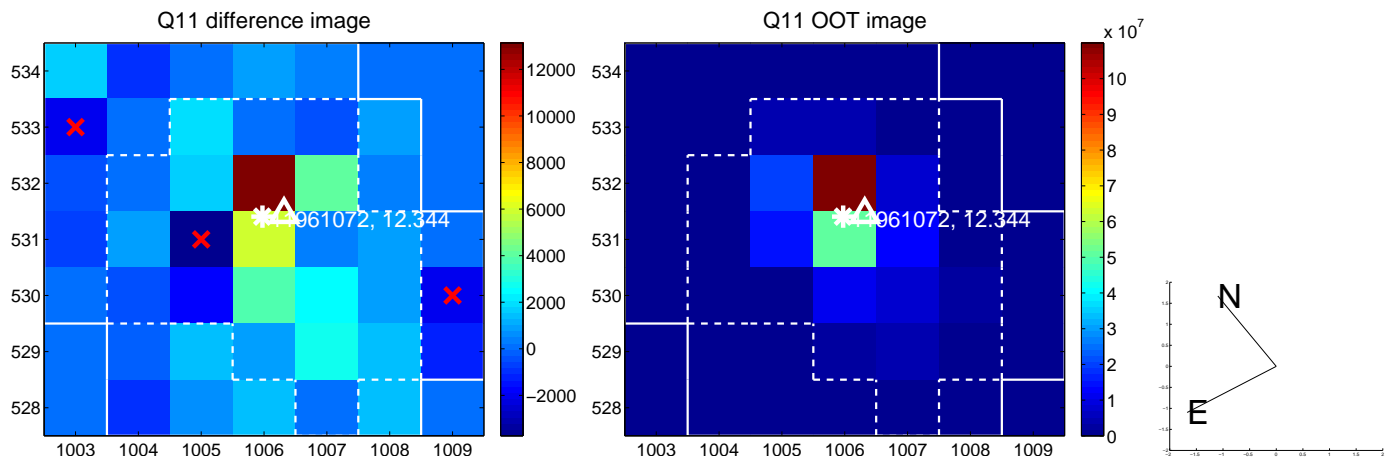
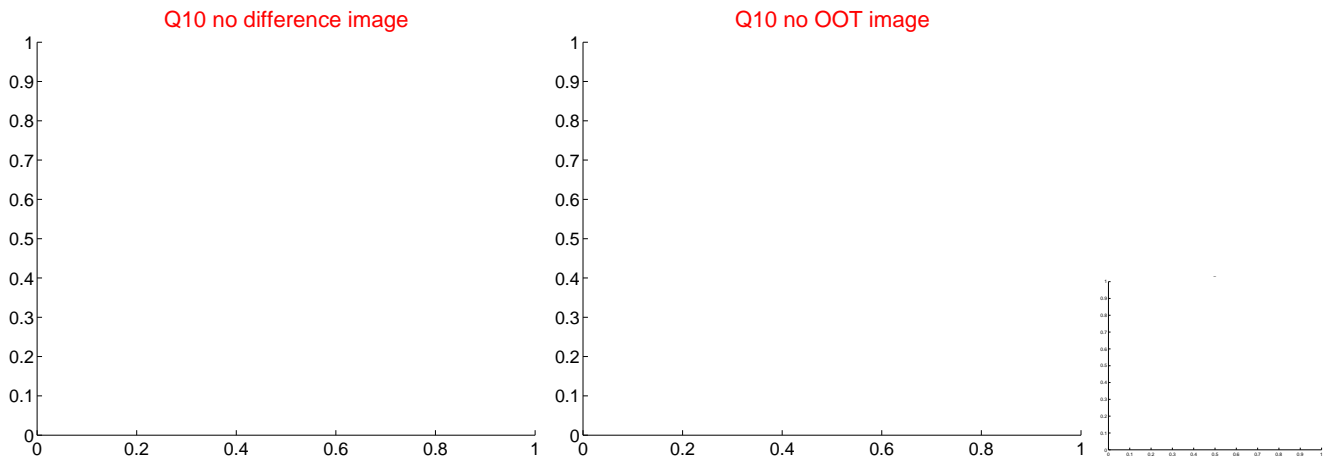
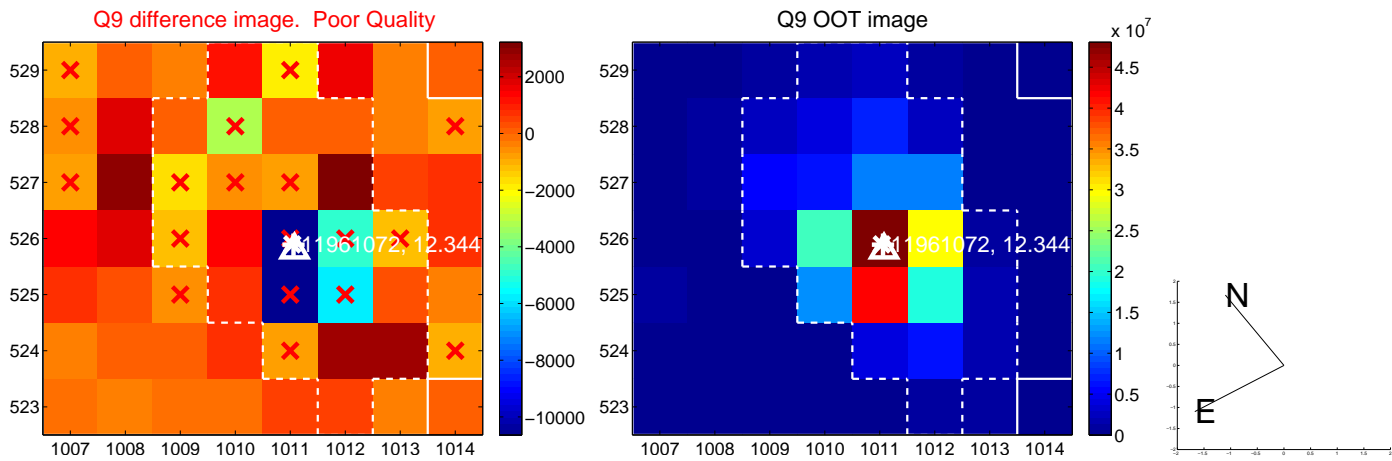
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



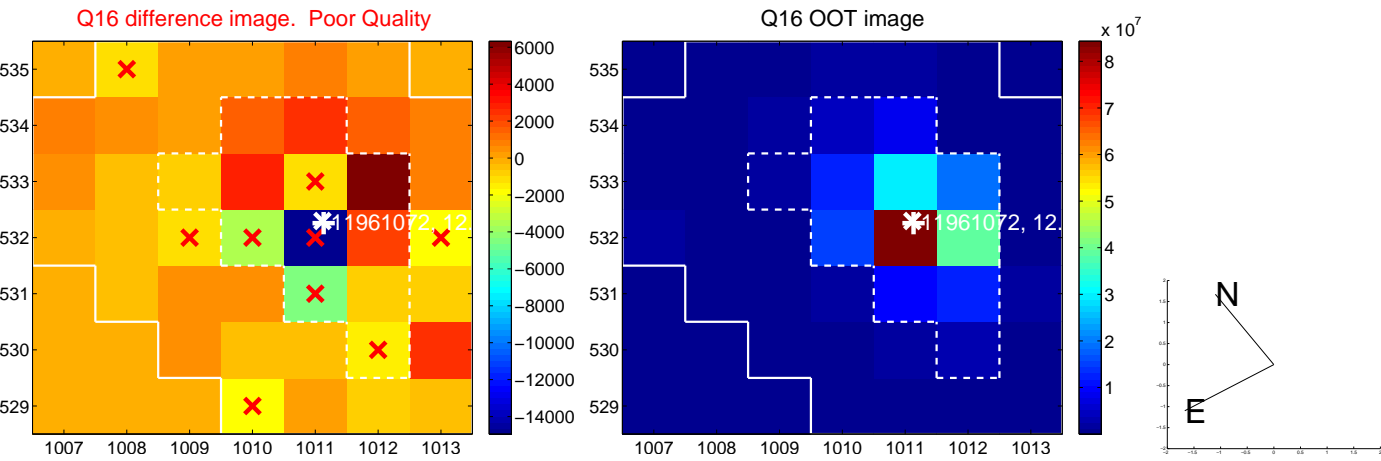
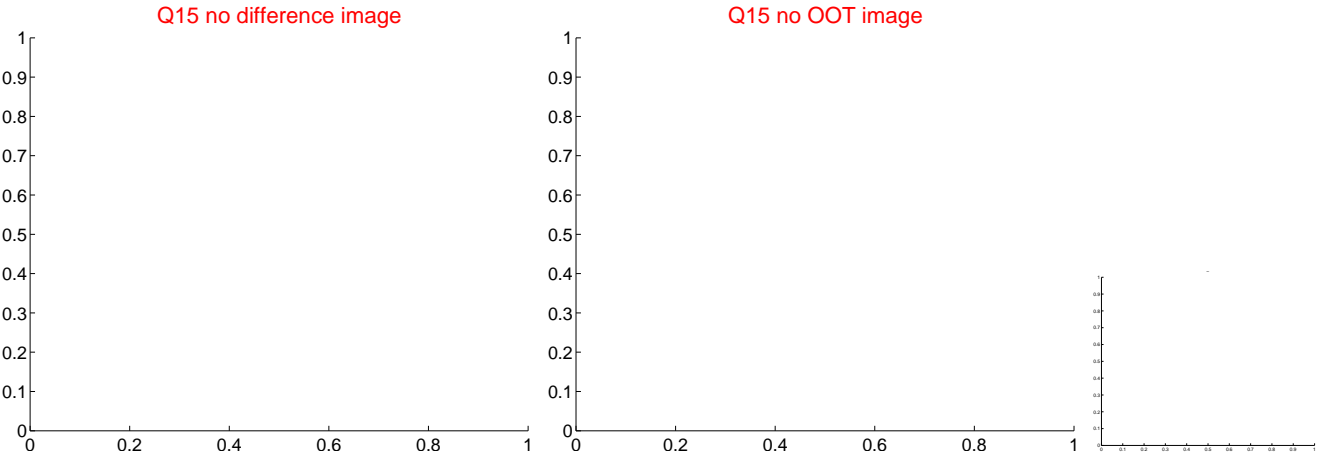
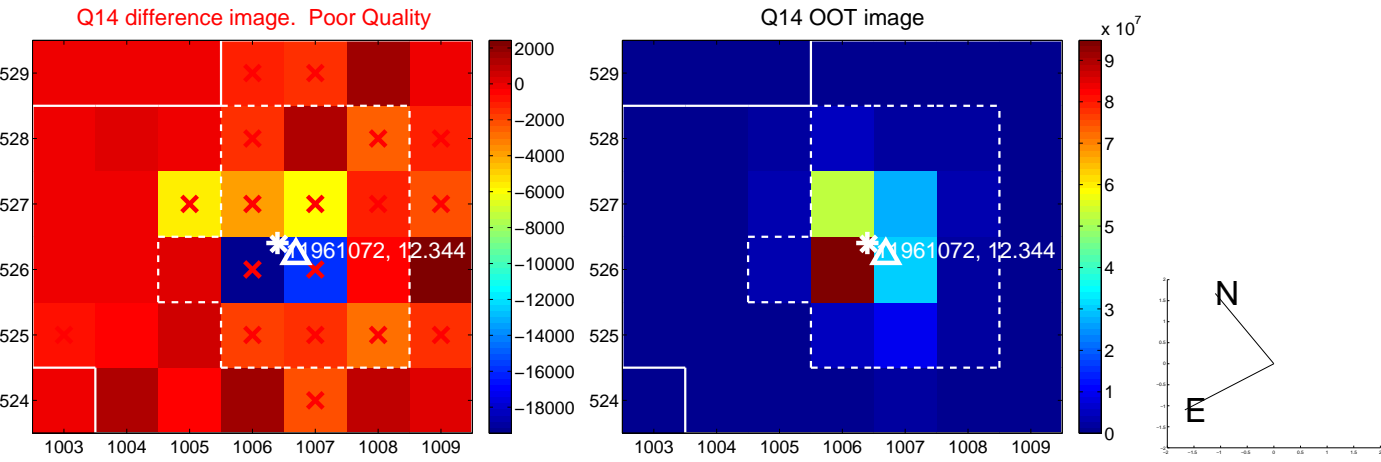
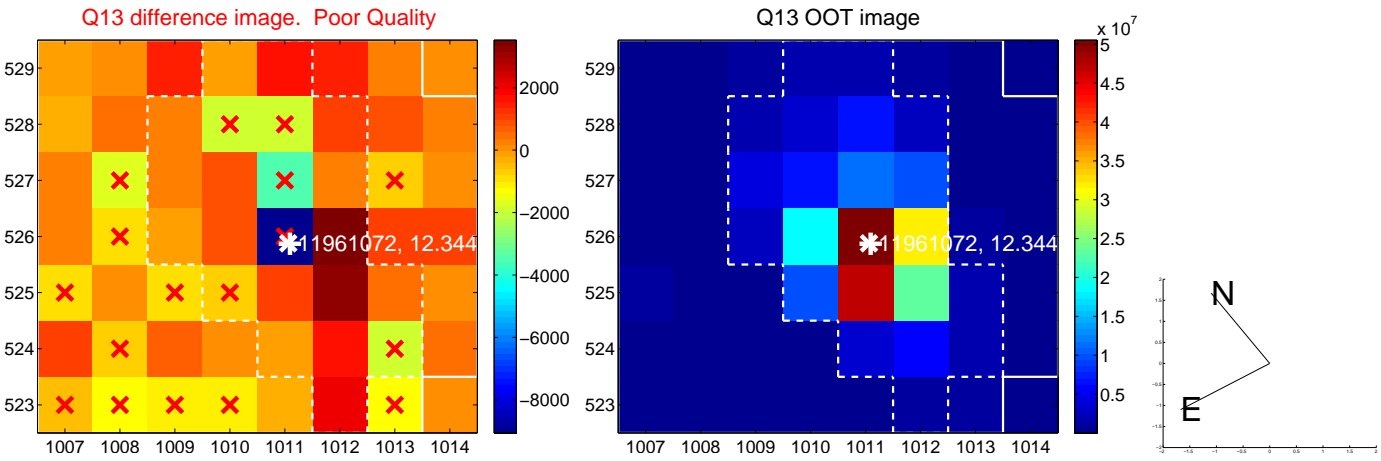
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



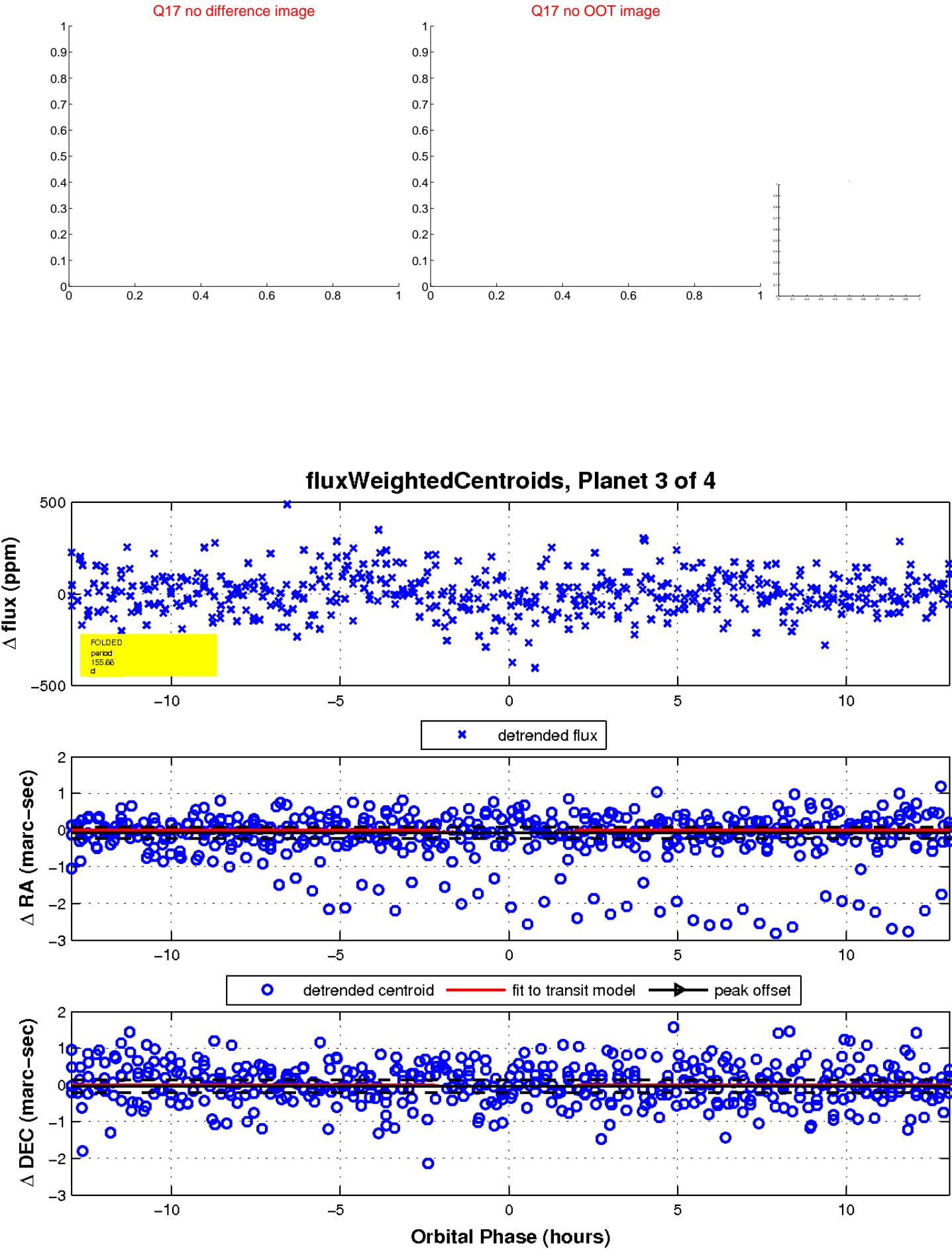
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

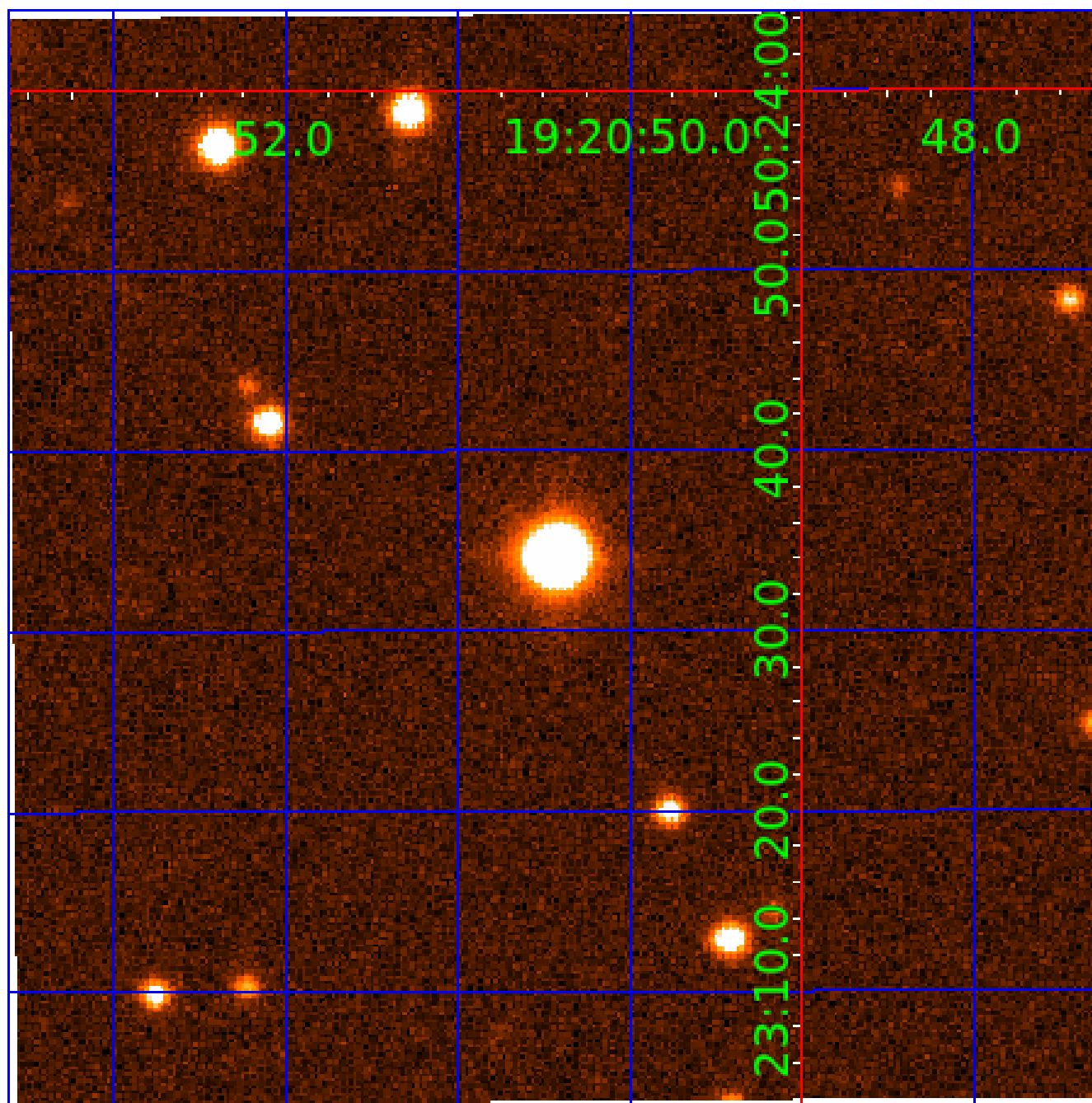


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011961072

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})
011961072-01	OBS	No	1.675064	132.381976	11.9	9.233	9.7	9.6	2.63	8402	0.92	24323.34
011961072-02	OBS	No	170.540987	257.522725	288.2	1.966	8.1	9.1	2.63	8402	5.28	51.16
011961072-03	OBS	No	155.659011	278.975910	135.5	4.358	7.9	5.6	2.63	8402	3.40	57.79
011961072-04	OBS	No	54.795520	150.627110	133.8	2.306	7.4	7.8	2.63	8402	3.52	232.49

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011961072-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
011961072-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
011961072-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011961072-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

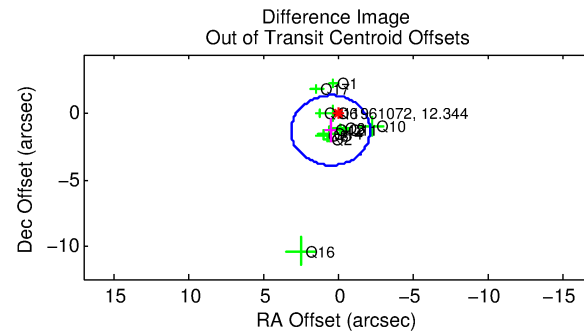
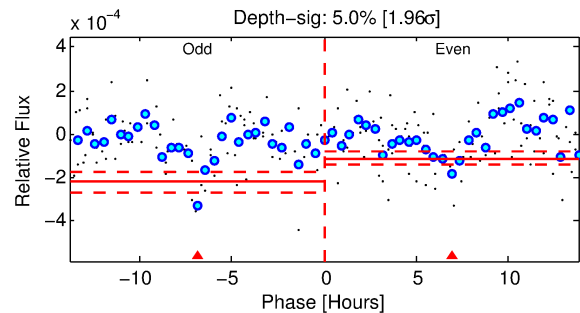
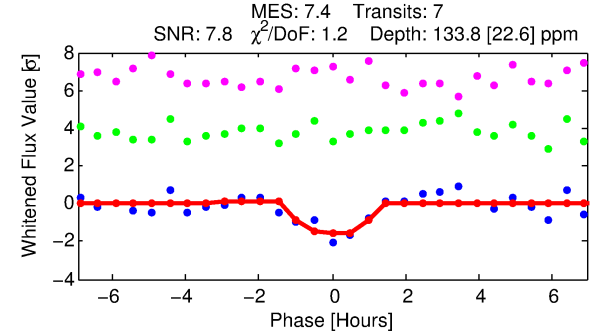
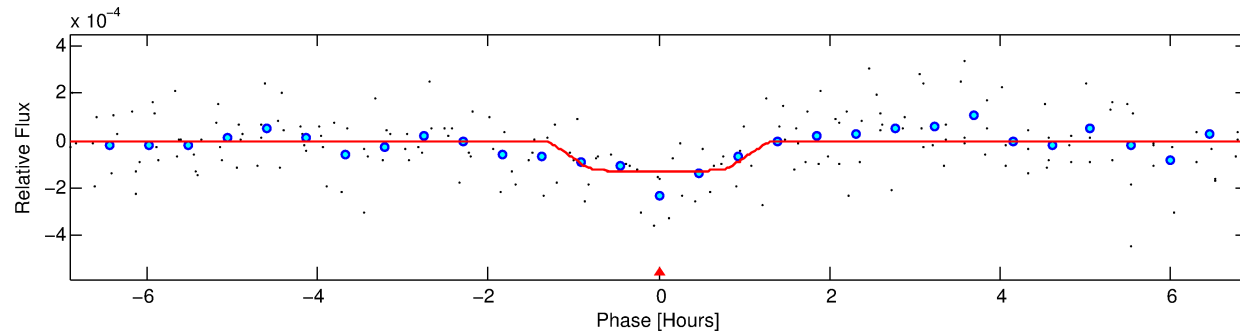
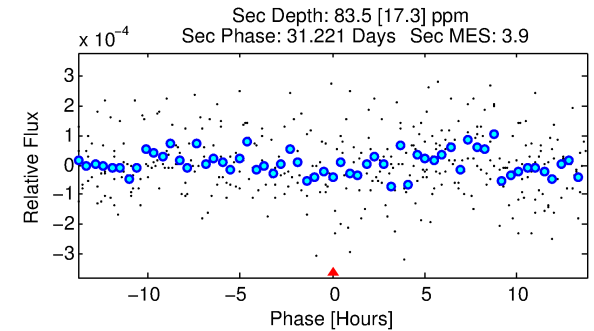
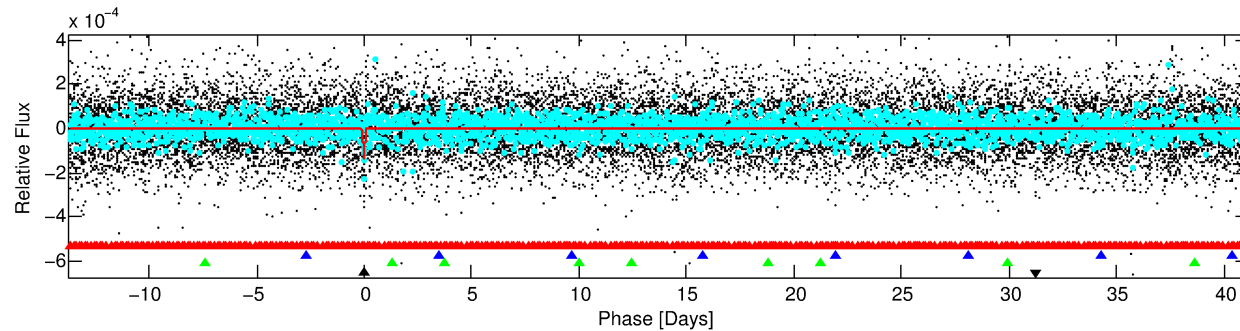
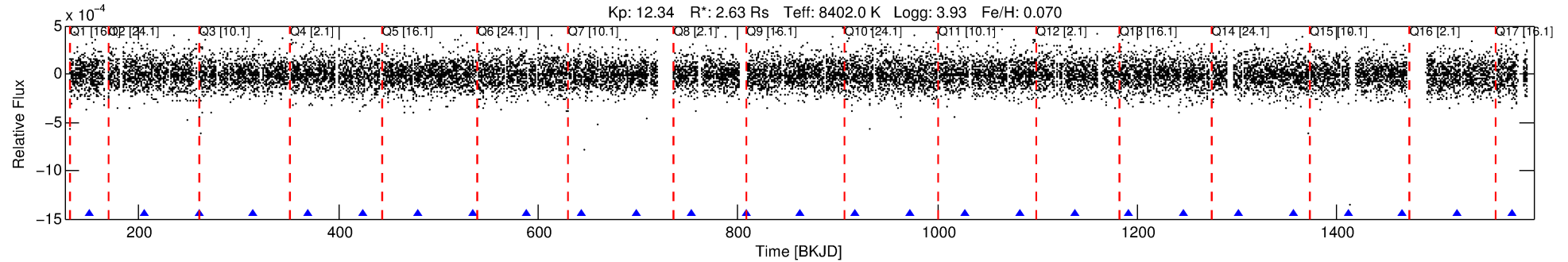
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011961072-04

No Significant Match Found

DV One-Page Summary

KIC: 11961072 Candidate: 4 of 4 Period: 54.796 d



DV Fit Results:

Period = 54.79552 [0.00061] d
Epoch = 150.6271 [0.0101] BKJD
Rp/R* = 0.0123 [0.0102]
a/R* = 85.51 [451.21]
b = 0.90 [1.19]
Seff = 232.49 [109.53]
Teff = 996 [117] K
Rp = 3.52 [3.18] Re
a = 0.3641 [0.1090] AU
Ag = 491.19 [847.83] [0.58σ]
Teffp = 7247 [3047] K [2.05σ]

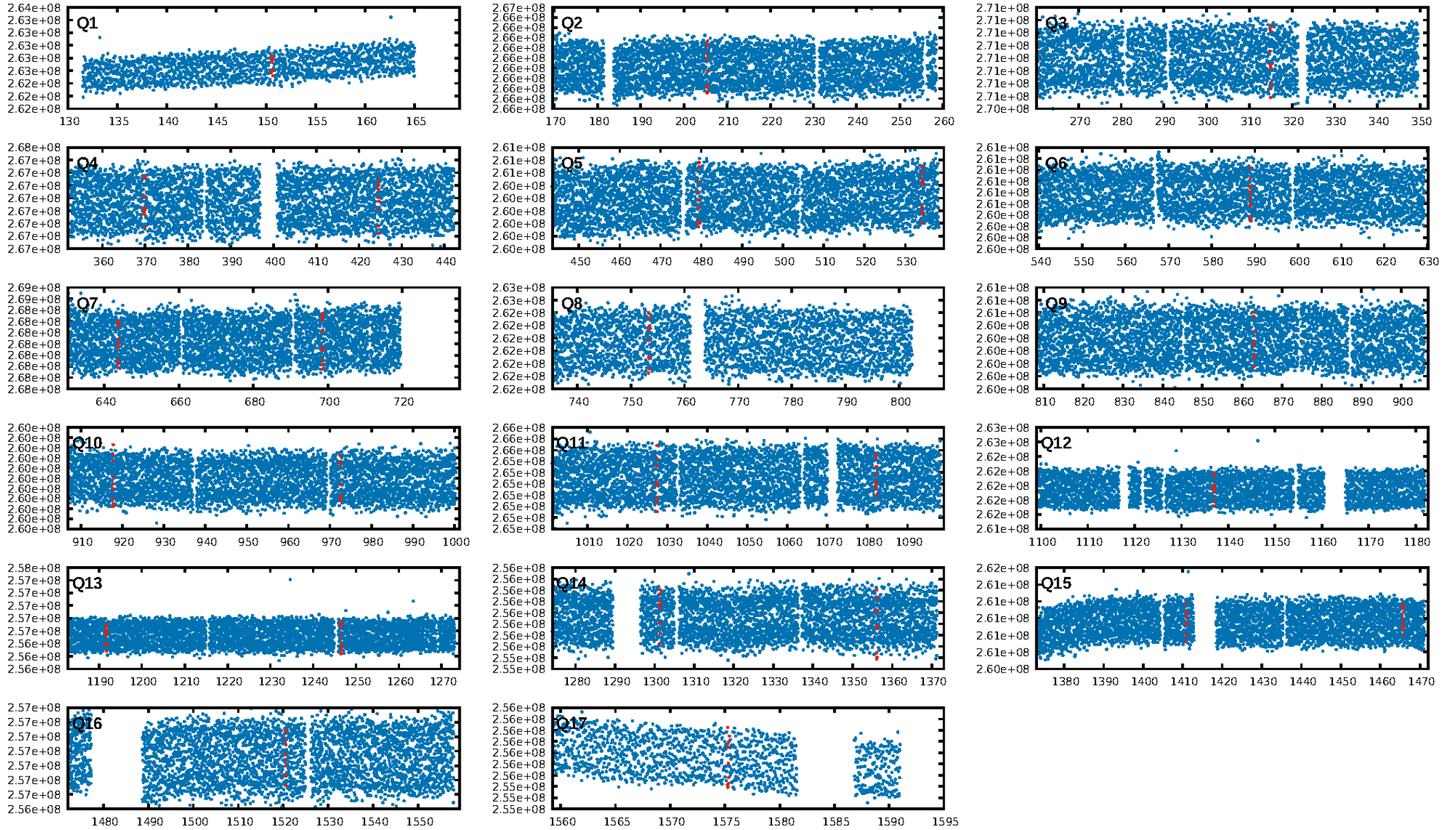
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [133.96σ]
LongPeriod-sig: 100.0% [490.98σ]
ModelChiSquare2-sig: 46.0%
ModelChiSquareGo-sig: 70.6%
Bootstrap-pfa: 1.02e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 2.155
Centroid-sig: 12.4%
Centroid-so: 1.383 arcsec [1.44σ]
OotOffset-rm: 1.336 arcsec [1.52σ]
OotOffset-st: 4/2/4/2 [12]
KicOffset-rm: 1.276 arcsec [1.64σ]
KicOffset-st: 4/2/4/2 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 0.59 [10/17]

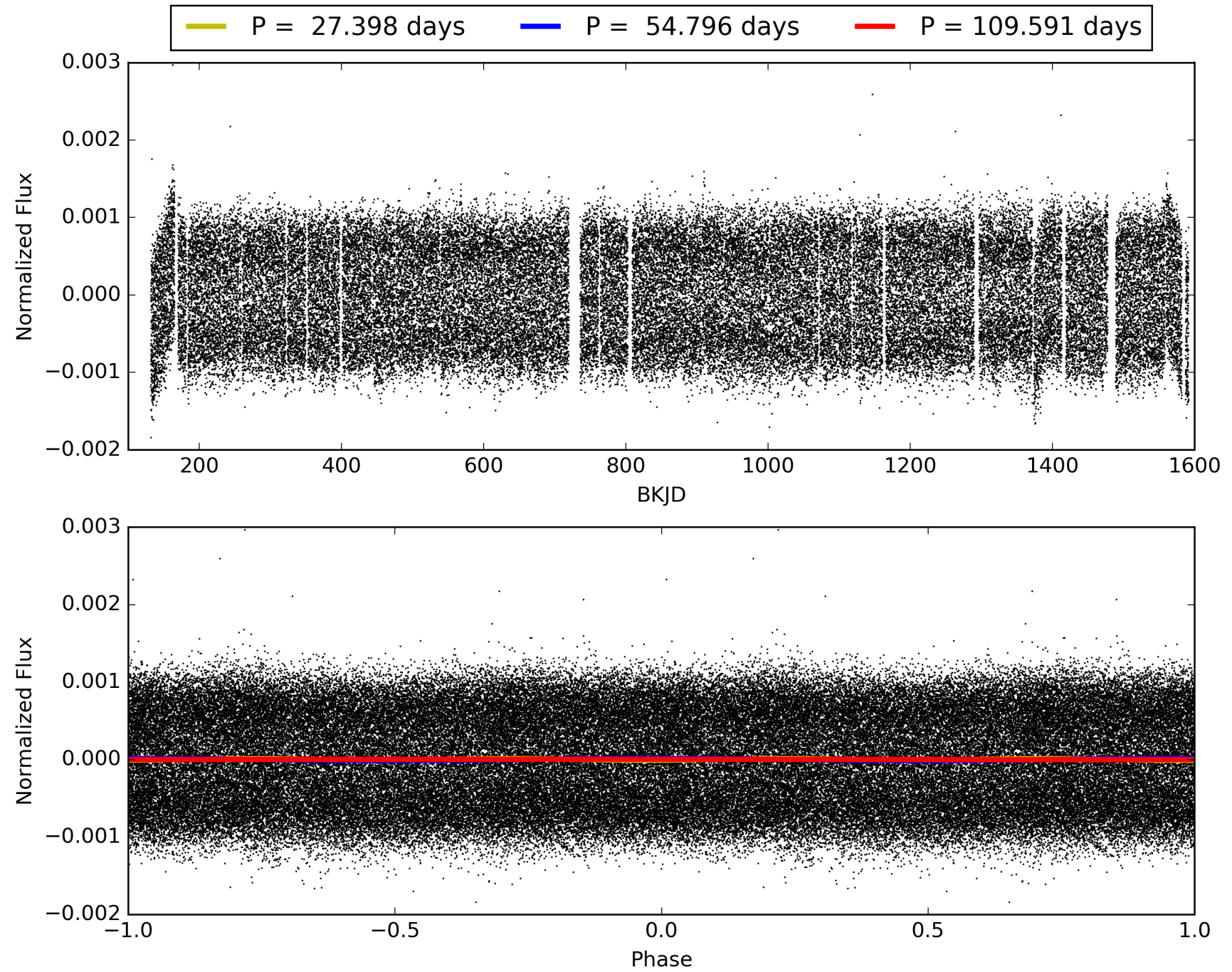
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:20:12 Z

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

TCE 011961072-04, PDC Light Curves

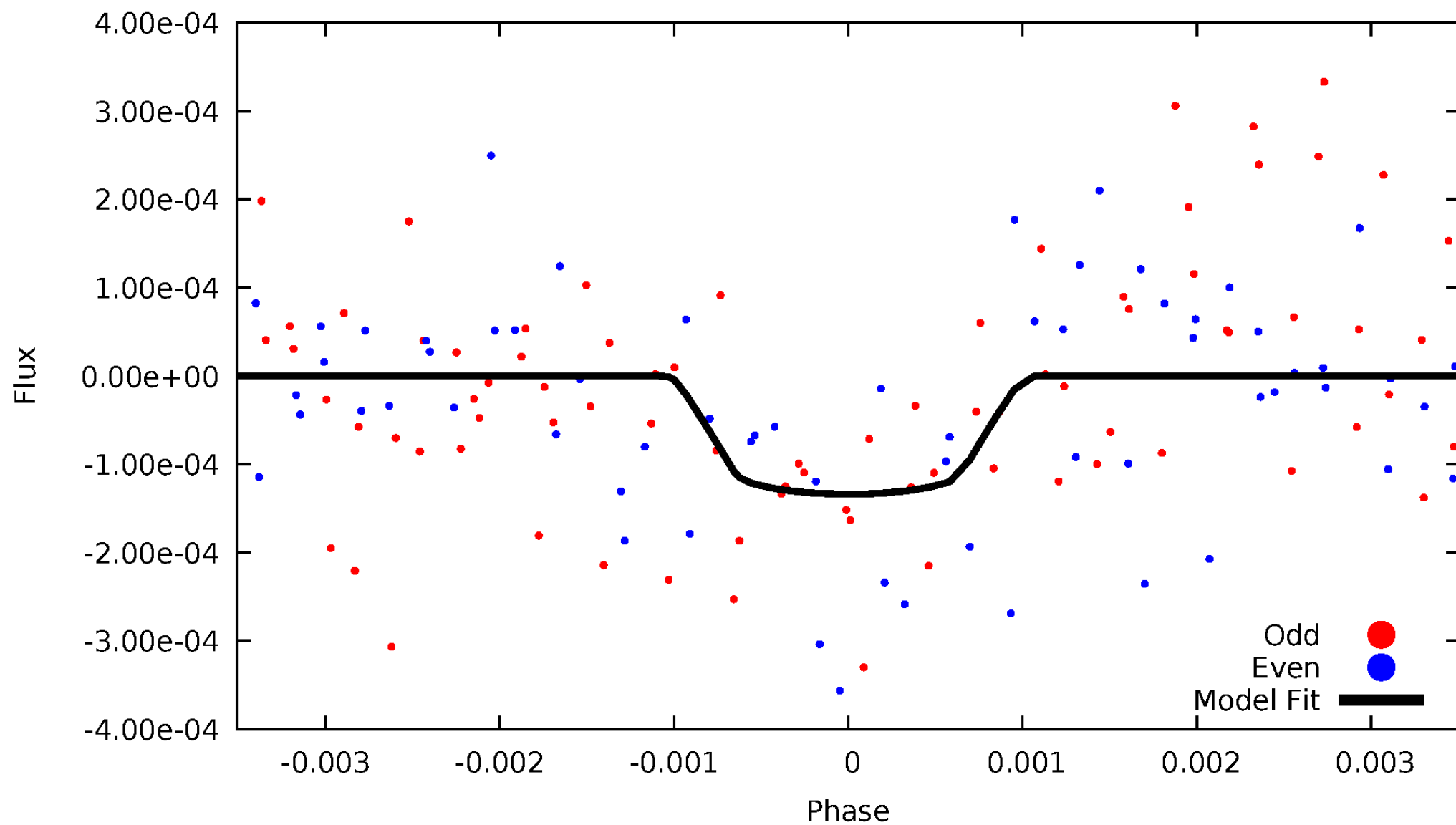


TCE 011961072-04



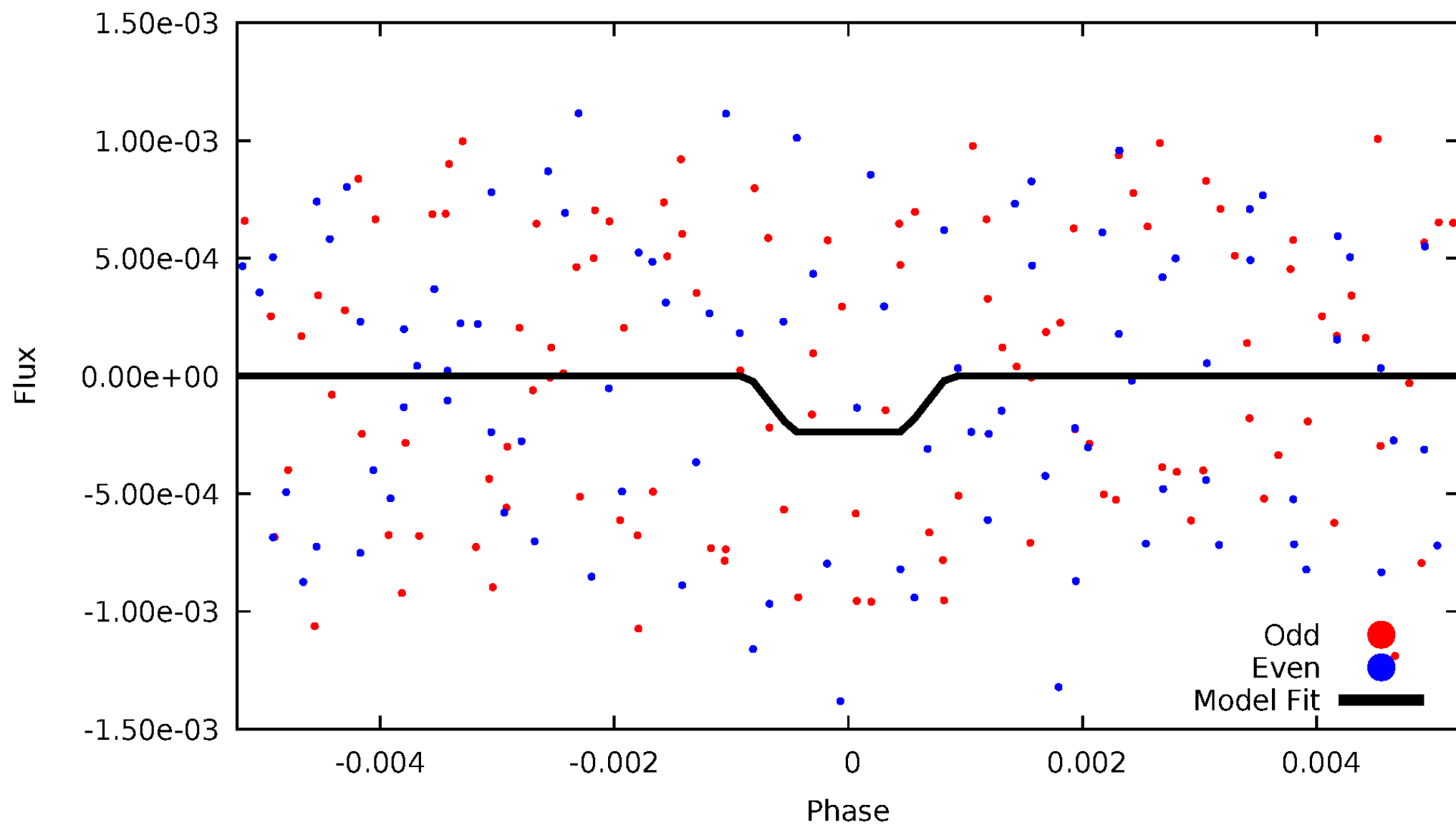
DV Odd/Even

TCE 011961072-04



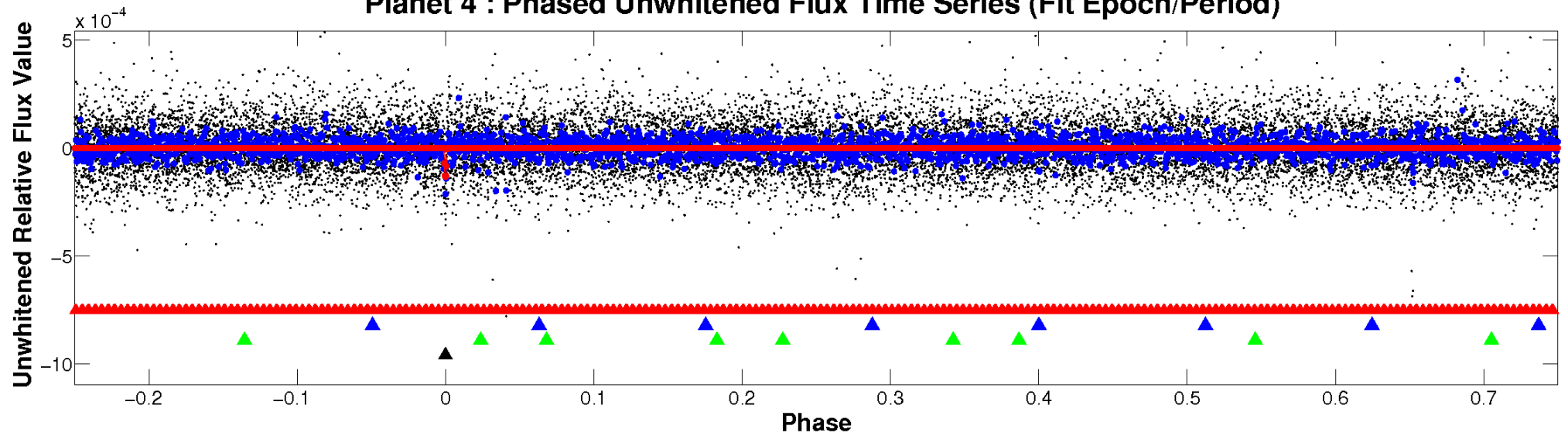
ALT Odd/Even

TCE 011961072-04

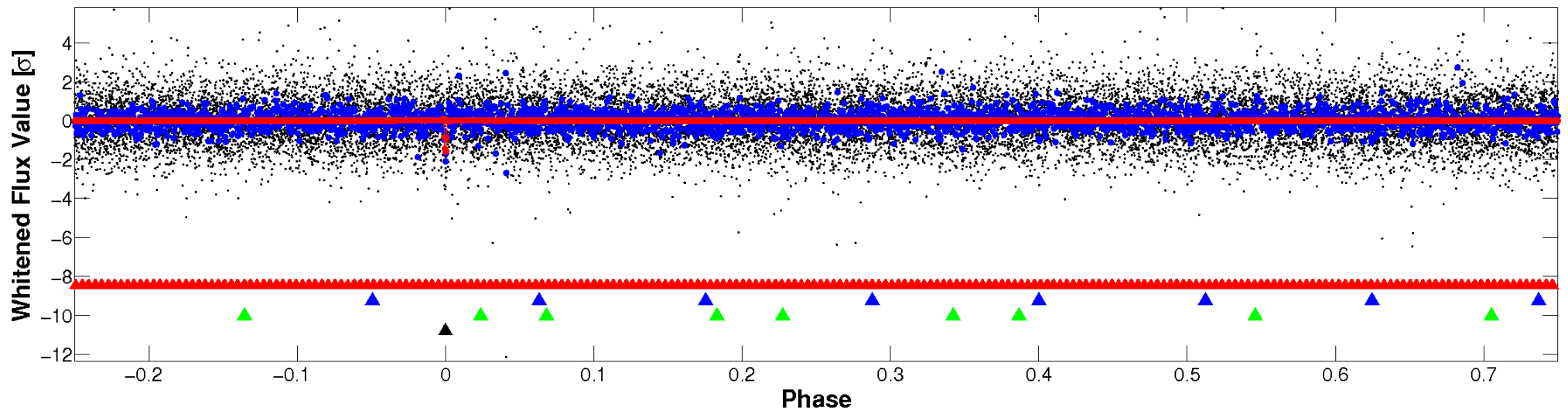


Non-Whitened Vs. Whitened Light Curve

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

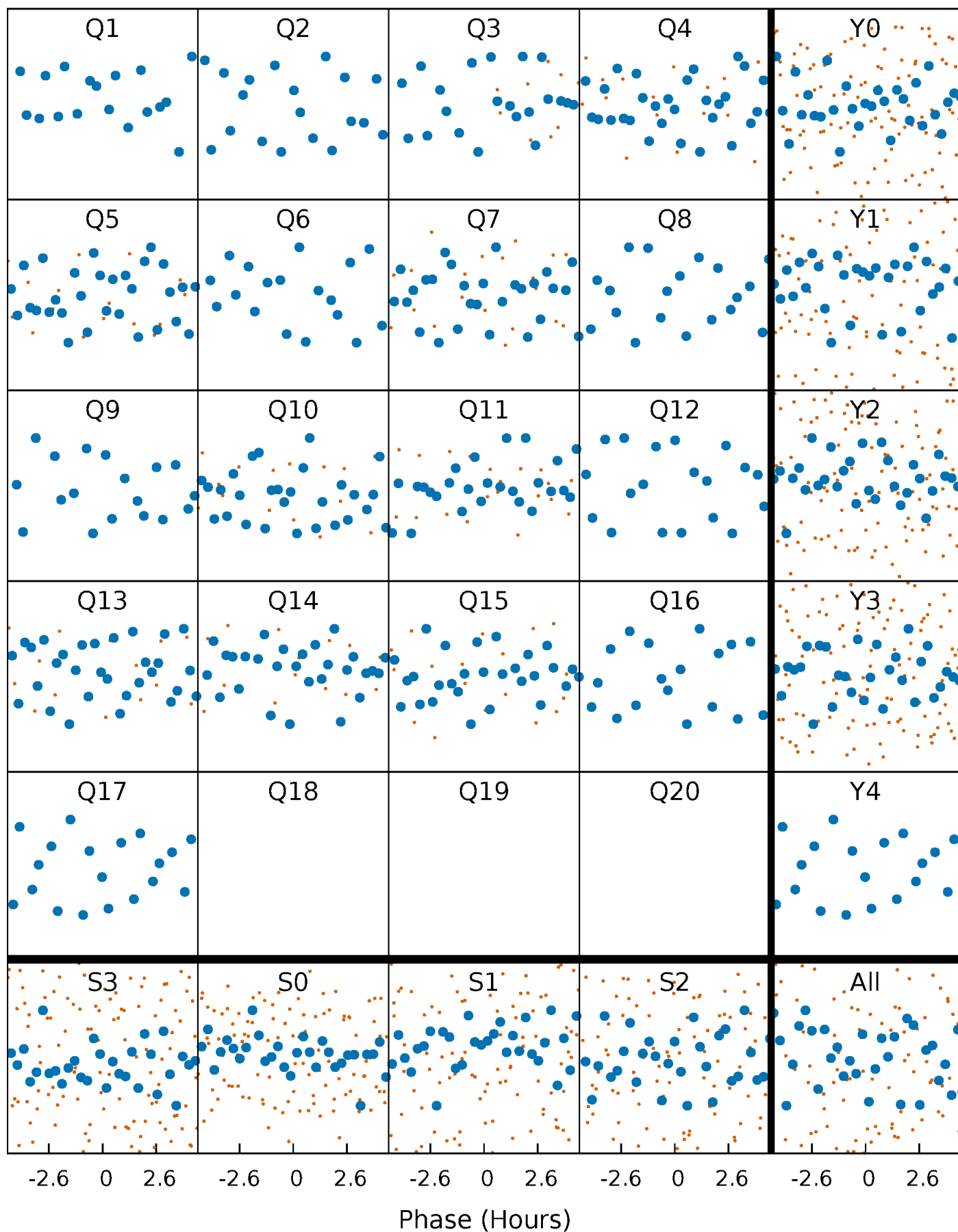


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



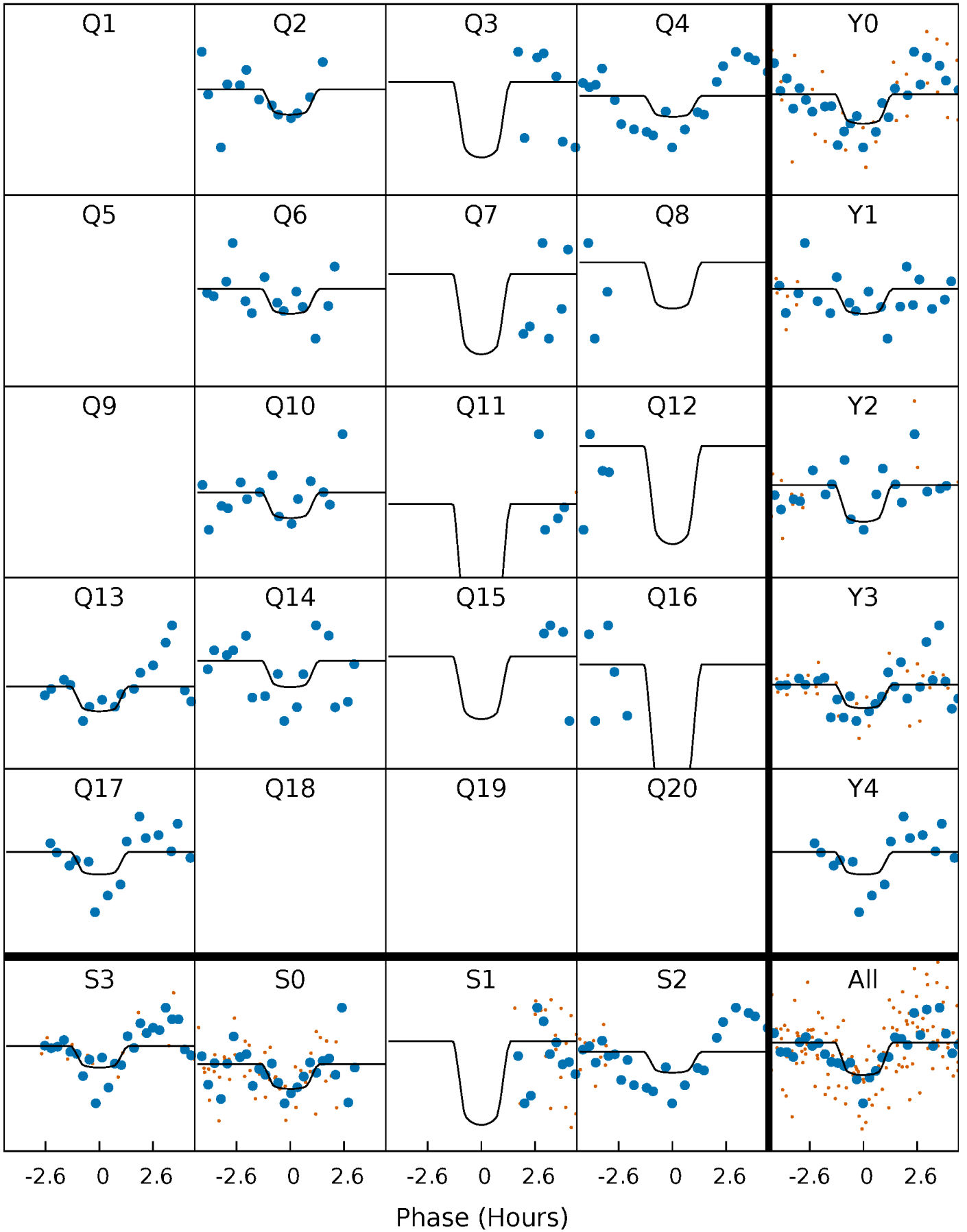
PDC Quarter-Phased Transit Curves

TCE 011961072-04 P= 54.795520 Days $T_0=150.627110$ (BKJD)



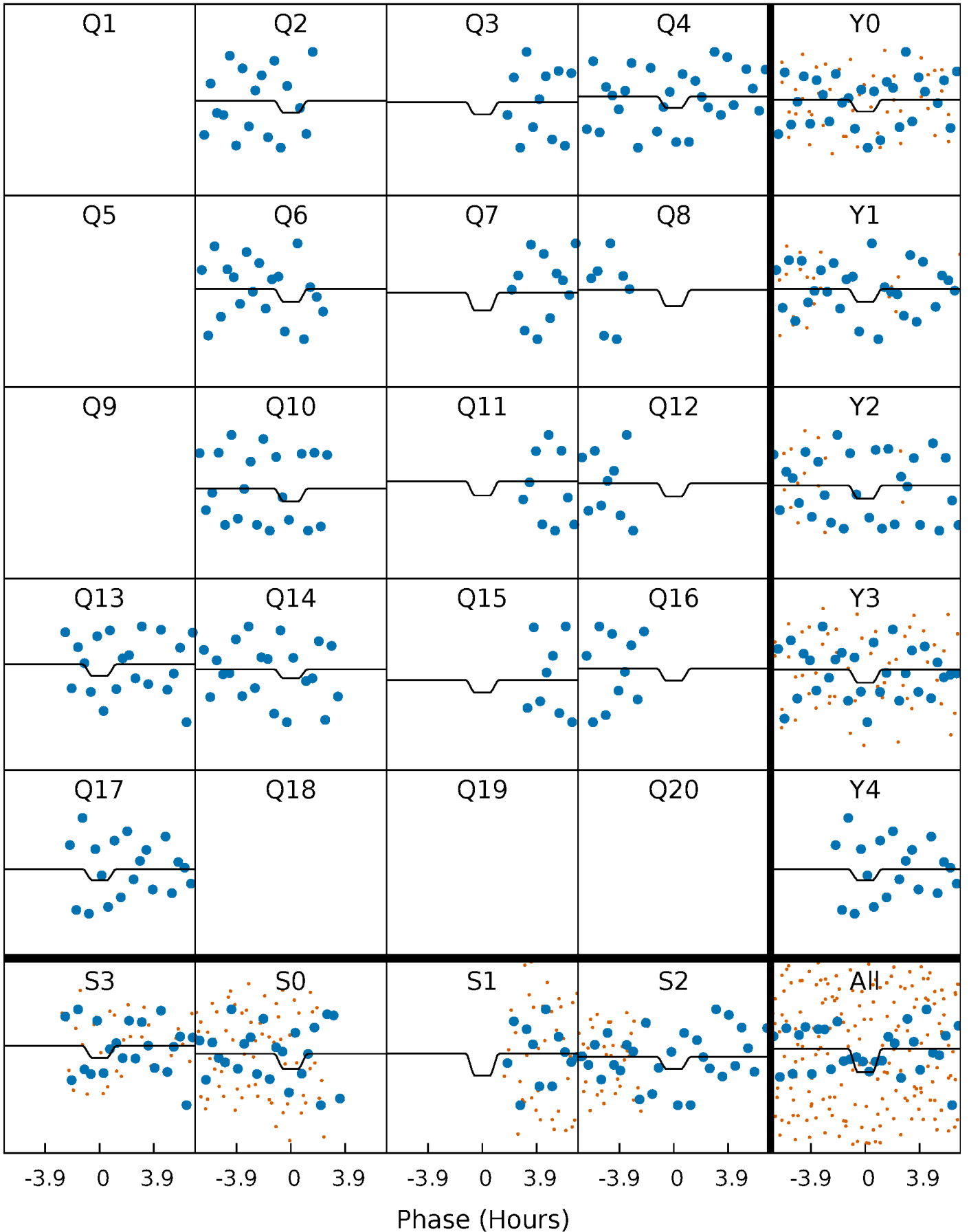
DV Quarter-Phased Transit Curves

TCE 011961072-04 P= 54.795520 Days $T_0=150.627110$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

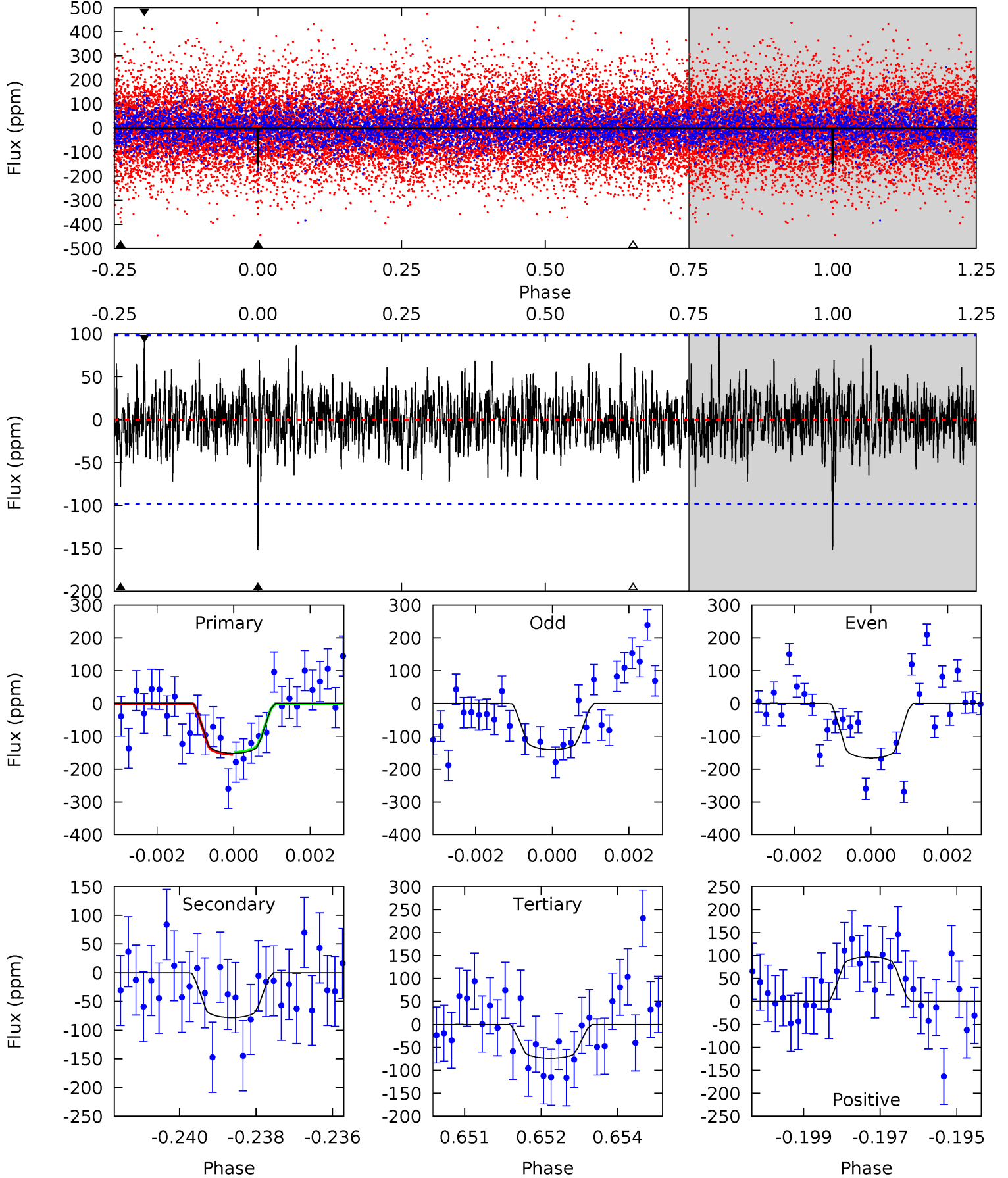
TCE 011961072-04 $P = 54.795159$ Days $T_0 = 150.629801$ (BKJD)



DV Model-Shift Uniqueness Test

011961072-04, P = 54.795520 Days, E = 95.831590 Days

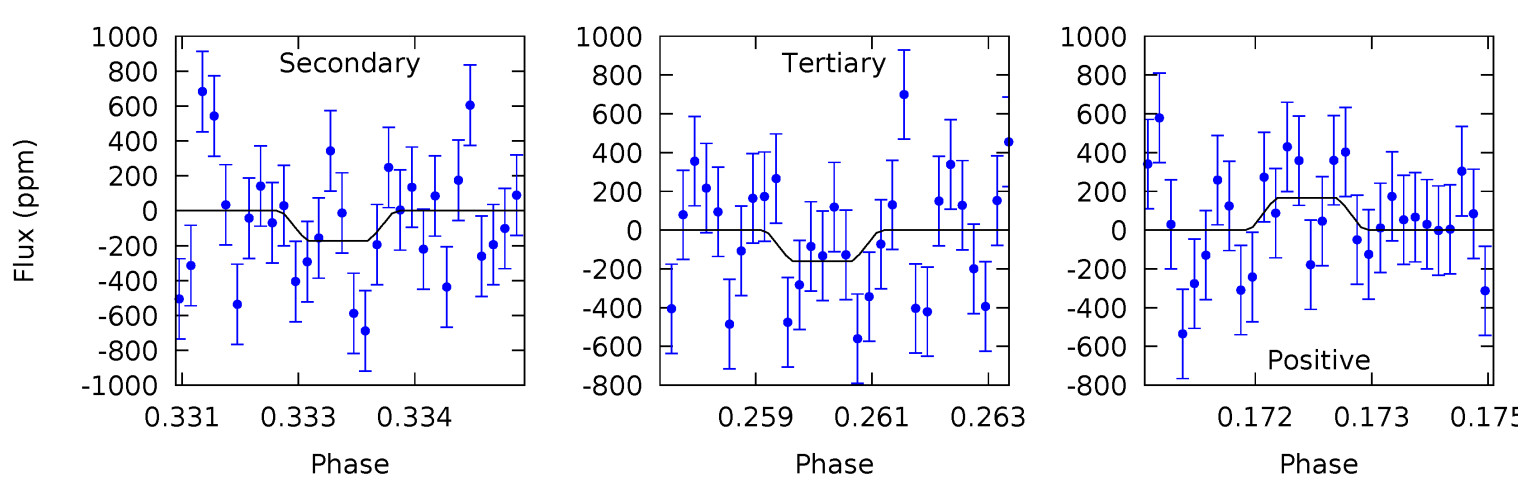
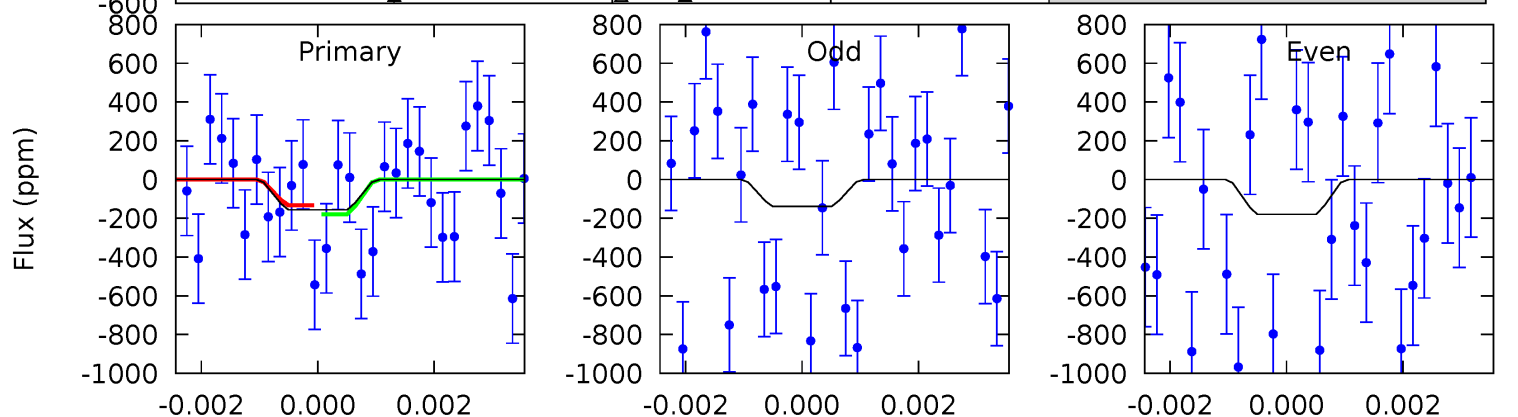
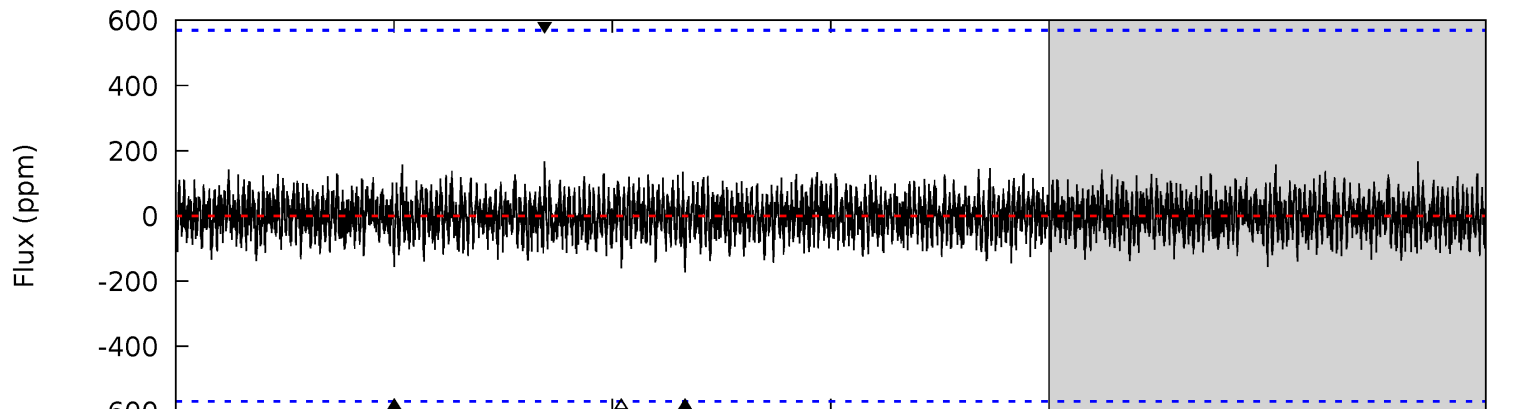
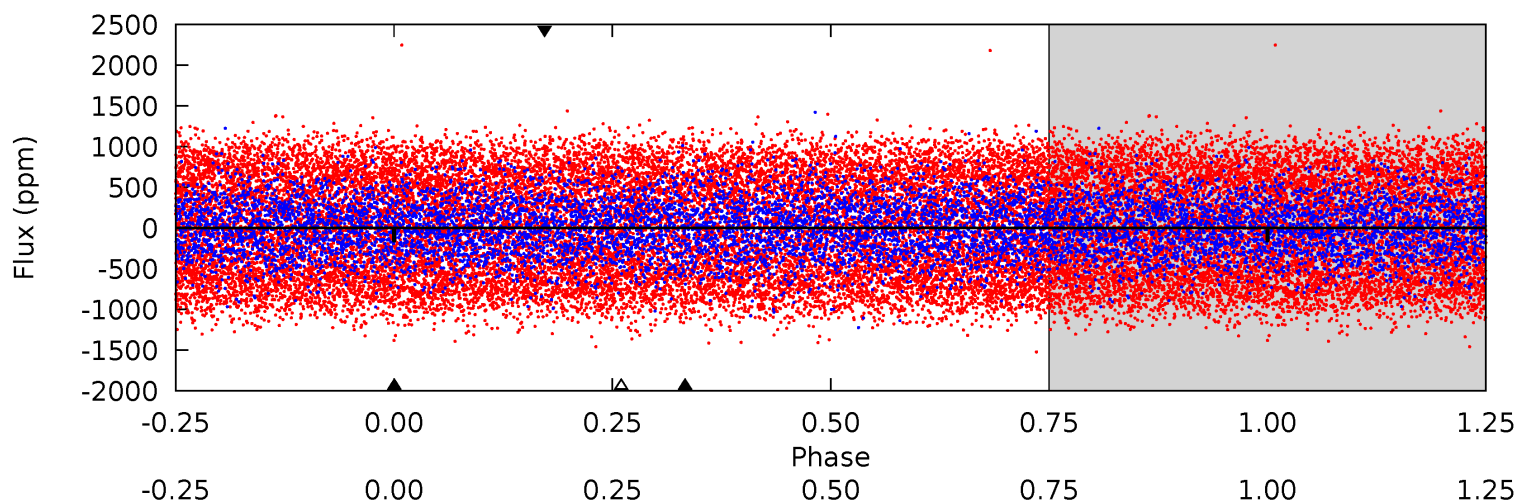
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.23	4.25	3.99	5.28	5.33	3.10	1.31	4.24	2.95	0.26	-1.04	0.70	1.14	0.39	0.18



Alt Model-Shift Uniqueness Test

011961072-04, P = 54.795159 Days, E = 95.834642 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.47	1.63	1.51	1.56	5.35	3.13	0.46	-0.04	-0.09	0.11	0.06	0.19	1.04	0.49	0.22



Stellar Parameters For KIC 011961072

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8402^{+231}_{-396}	$3.930^{+0.234}_{-0.137}$	$0.070^{+0.250}_{-0.500}$	$2.627^{+0.708}_{-0.944}$	$2.140^{+0.294}_{-0.545}$	$0.166^{+0.274}_{-0.067}$
	+3%/-5%	+6%/-3%	+357%/-714%	+27%/-36%	+14%/-25%	+165%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011961072-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-78 ± 18	$3.65^{+3.23}_{-2.25}$	1366^{+101}_{-109}	6474^{+6246}_{-1531}	410^{+2331}_{-290}
Alt.	-173 ± 106	$4.51^{+2.90}_{-2.61}$	1371^{+91}_{-123}	6948^{+6094}_{-1981}	540^{+2485}_{-418}

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

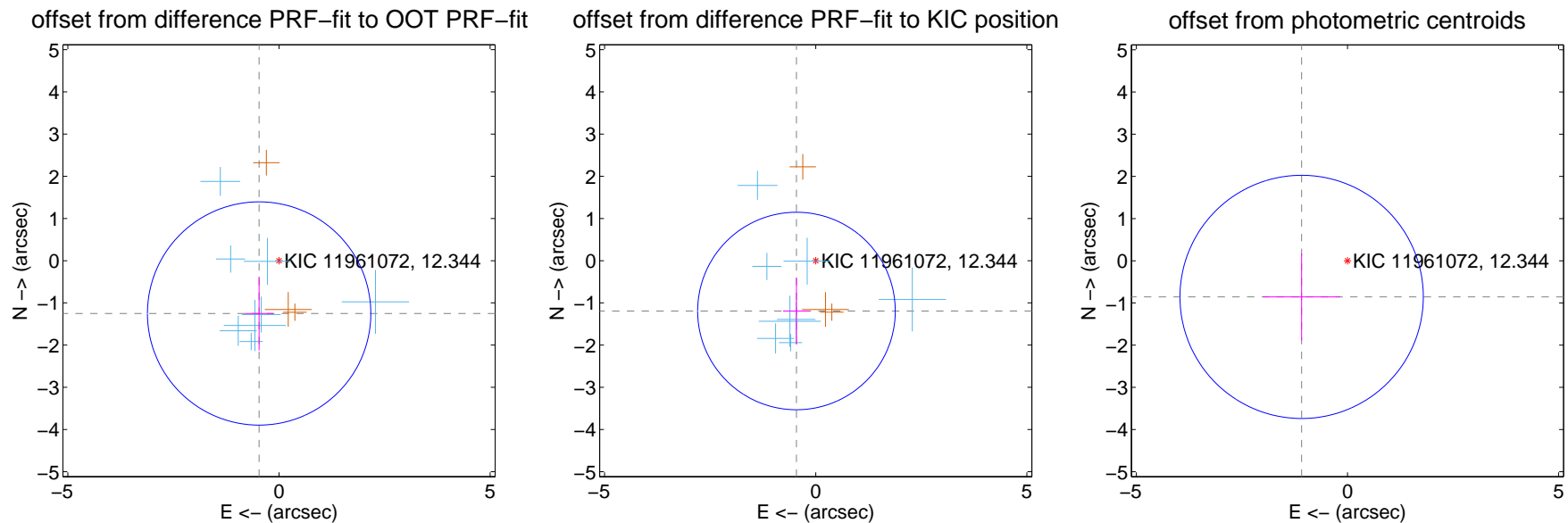
DV Centroid Data

Supplemental centroid analysis for 011961072-04. Kepler magnitude: 12.34. Transit SNR 7.83

There are 8 quarters with good PRF difference image offsets

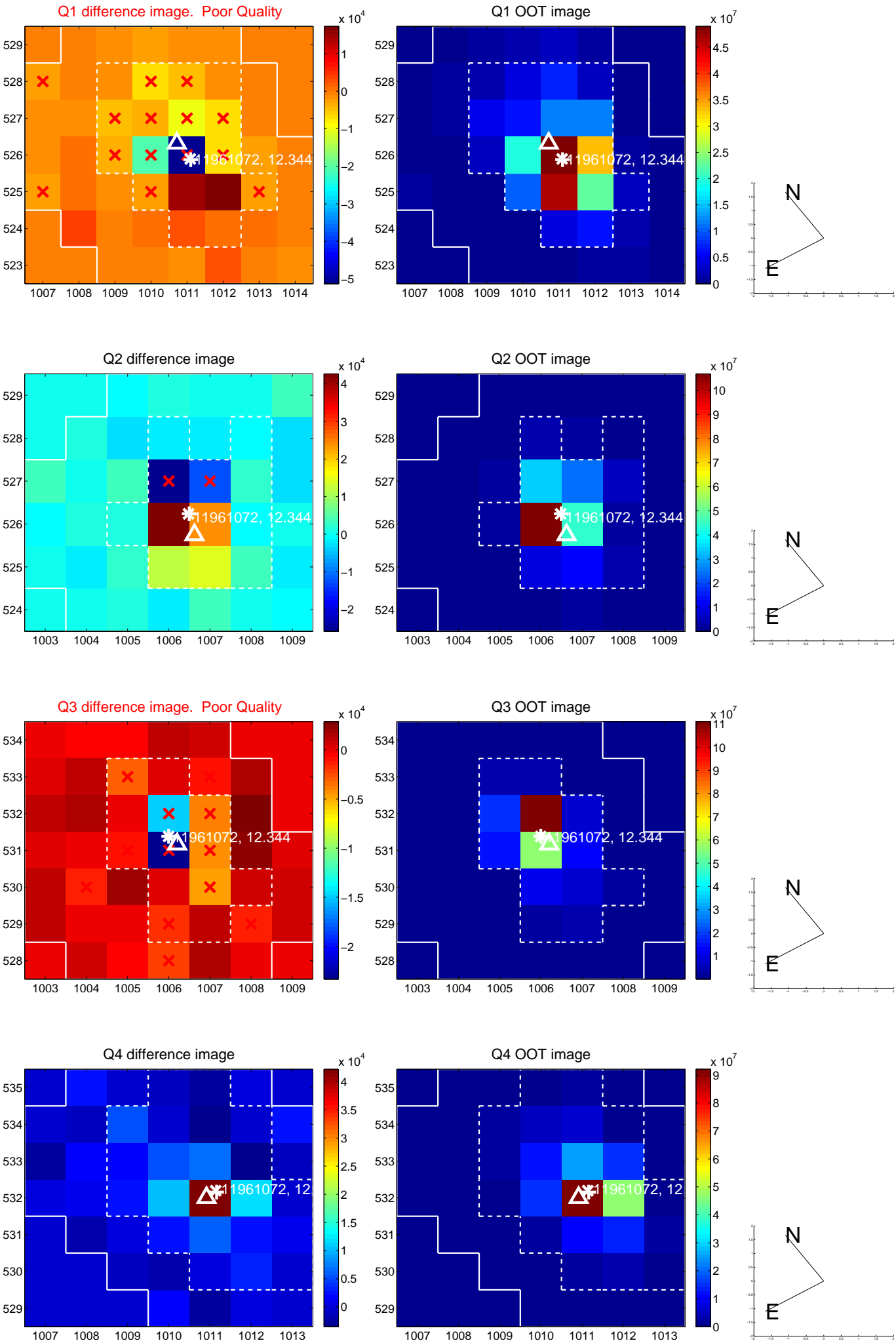
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.336 ± 0.882	1.52	0.470 ± 0.340	-1.251 ± 0.873
PRF-fit source offset from KIC position	1.276 ± 0.780	1.64	0.456 ± 0.318	-1.192 ± 0.791
photometric centroid source offset	1.38 ± 0.96	1.44	1.09 ± 0.91	-0.86 ± 1.03

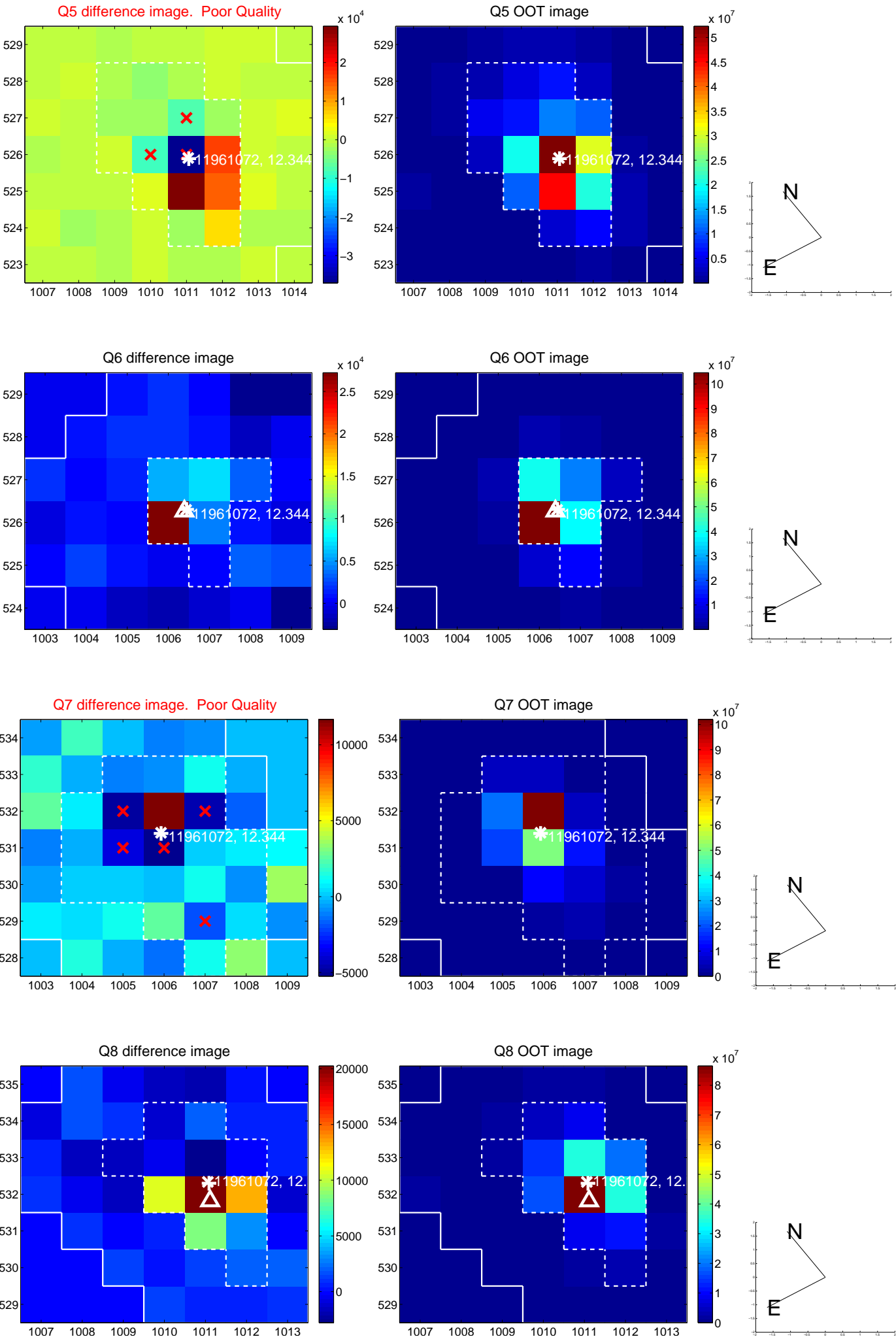


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

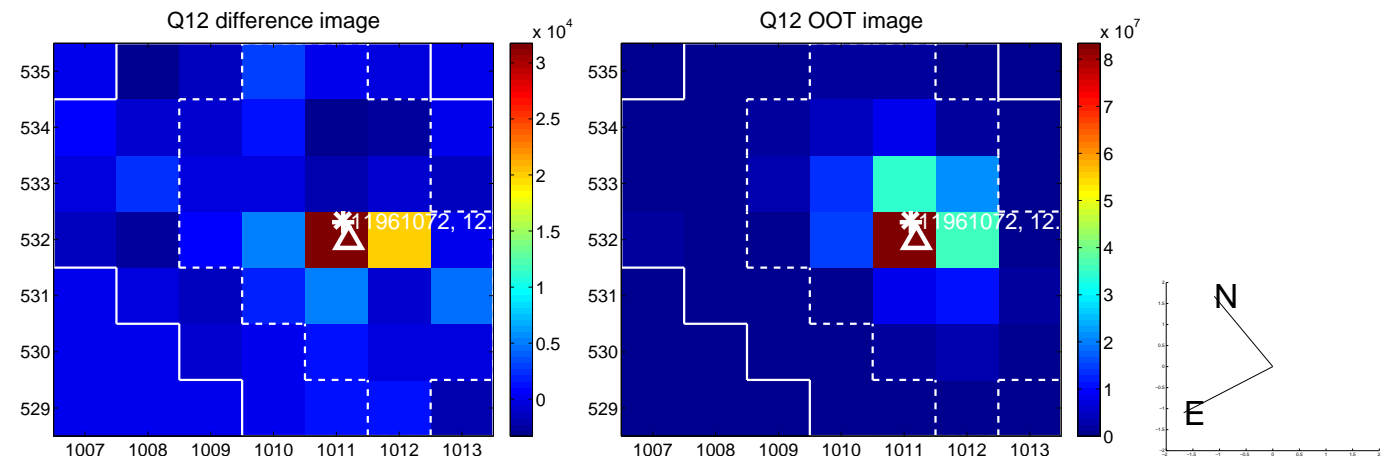
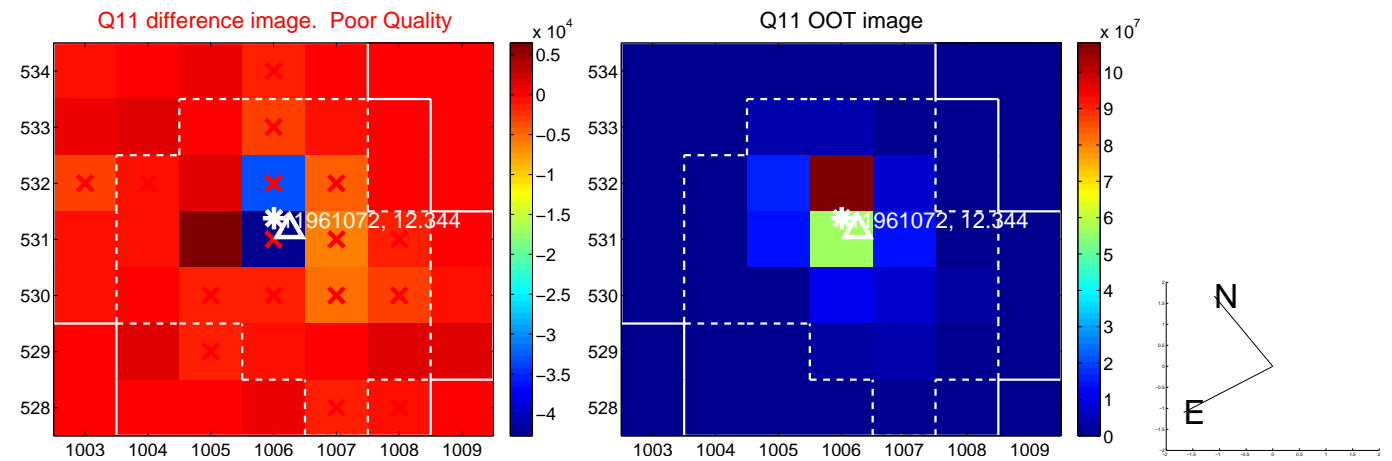
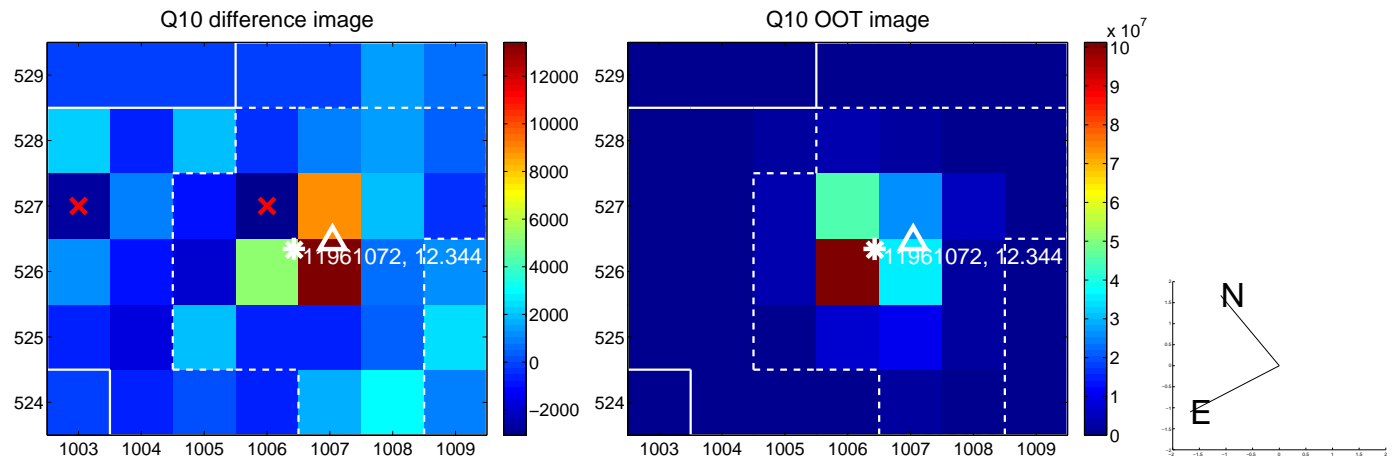
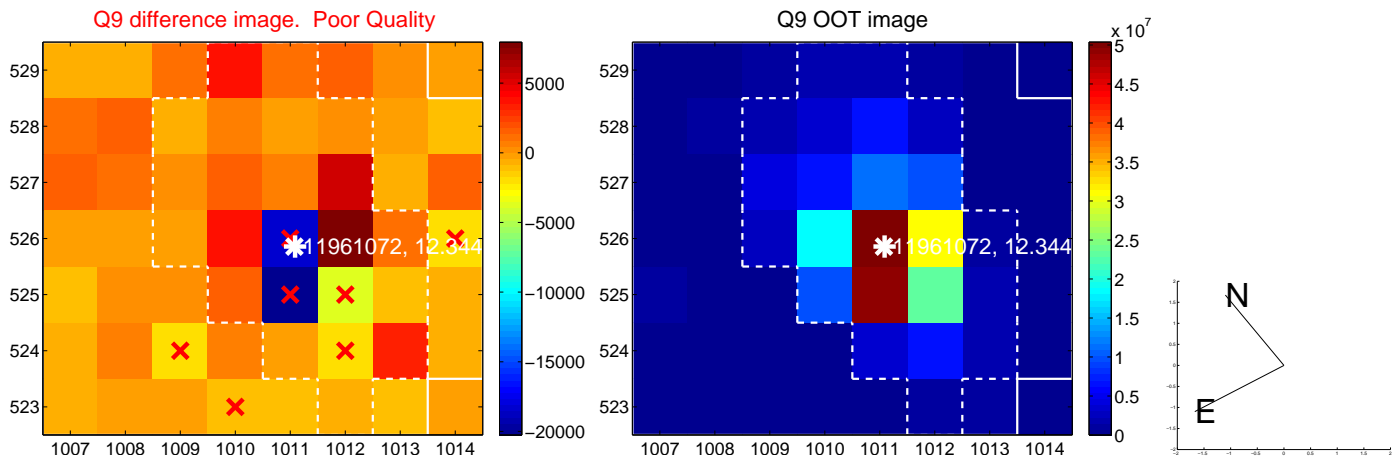
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



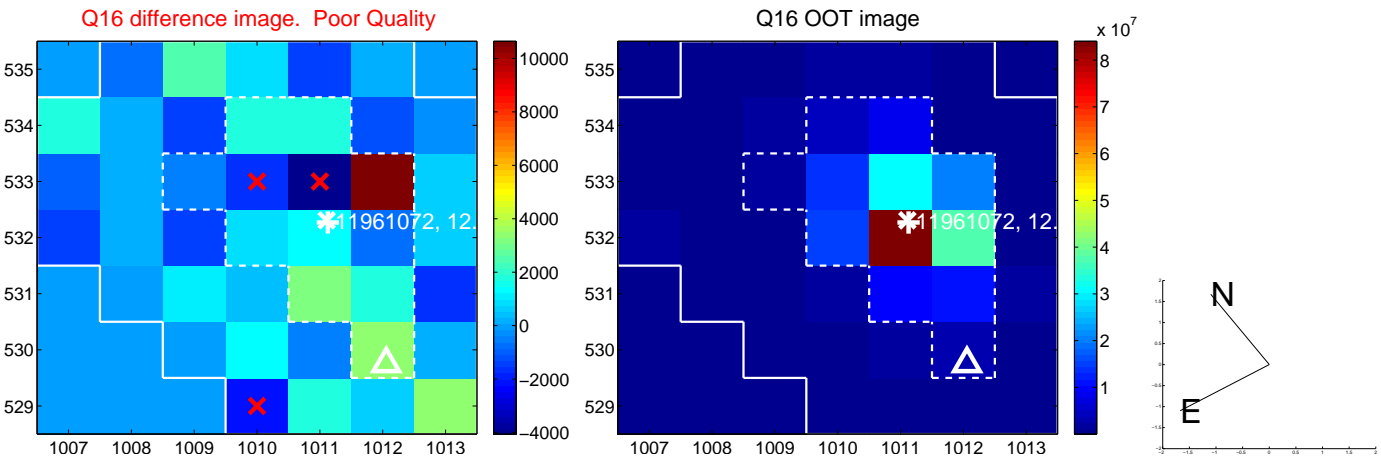
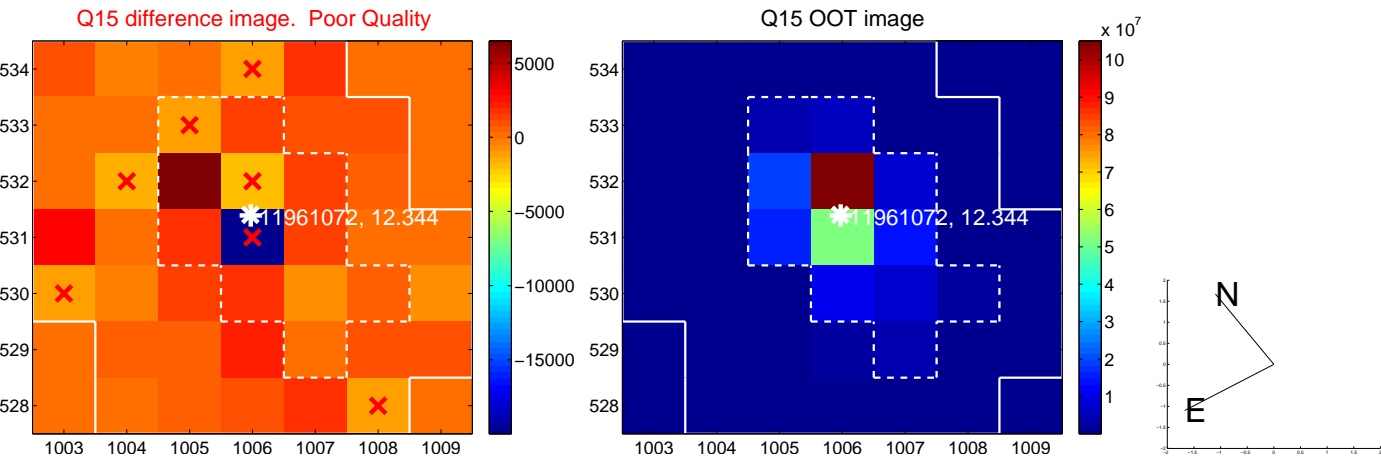
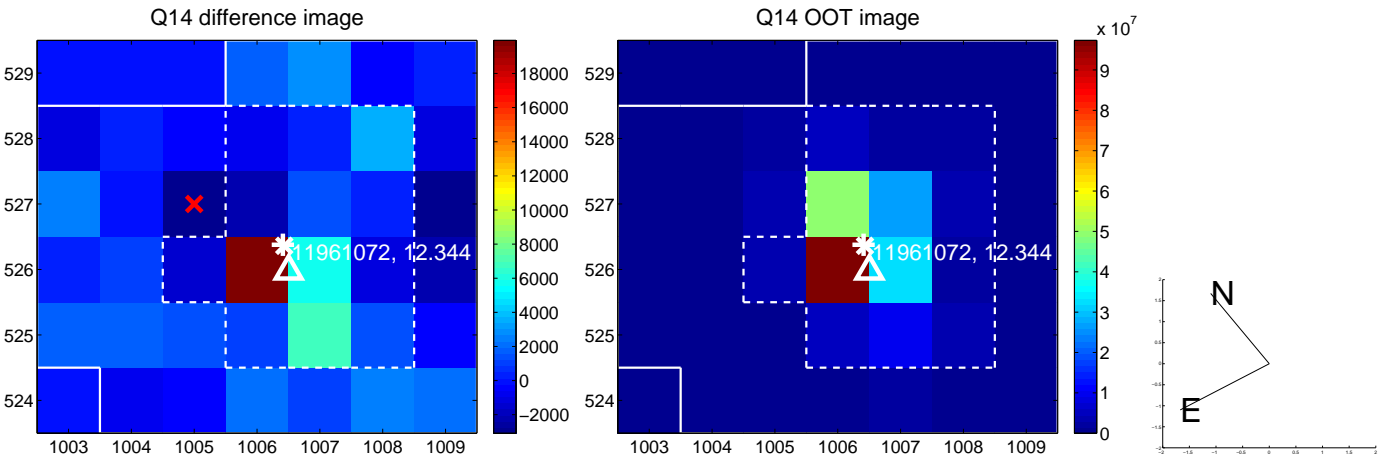
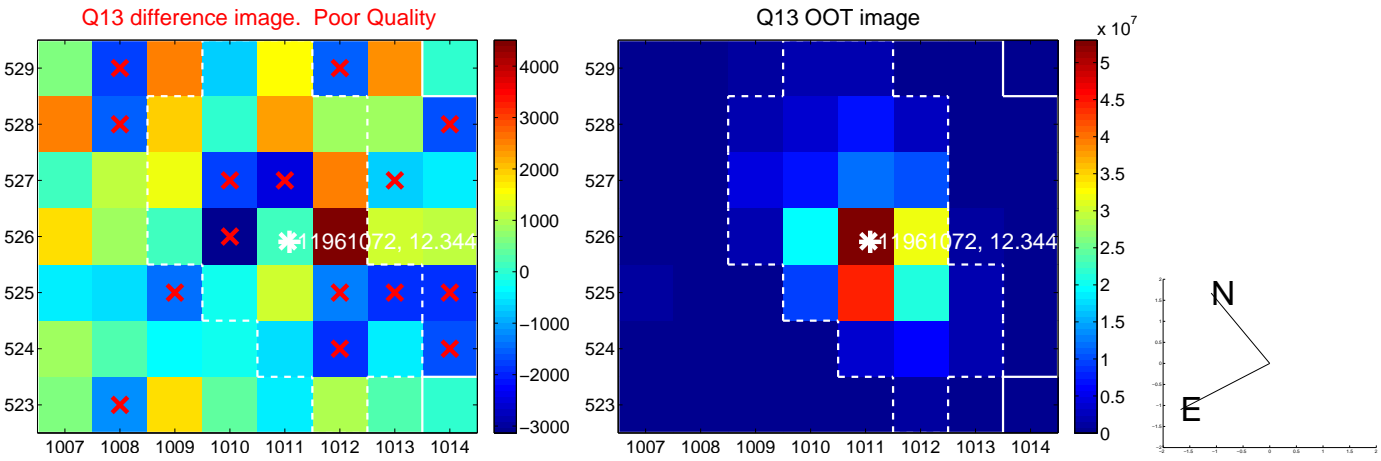
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



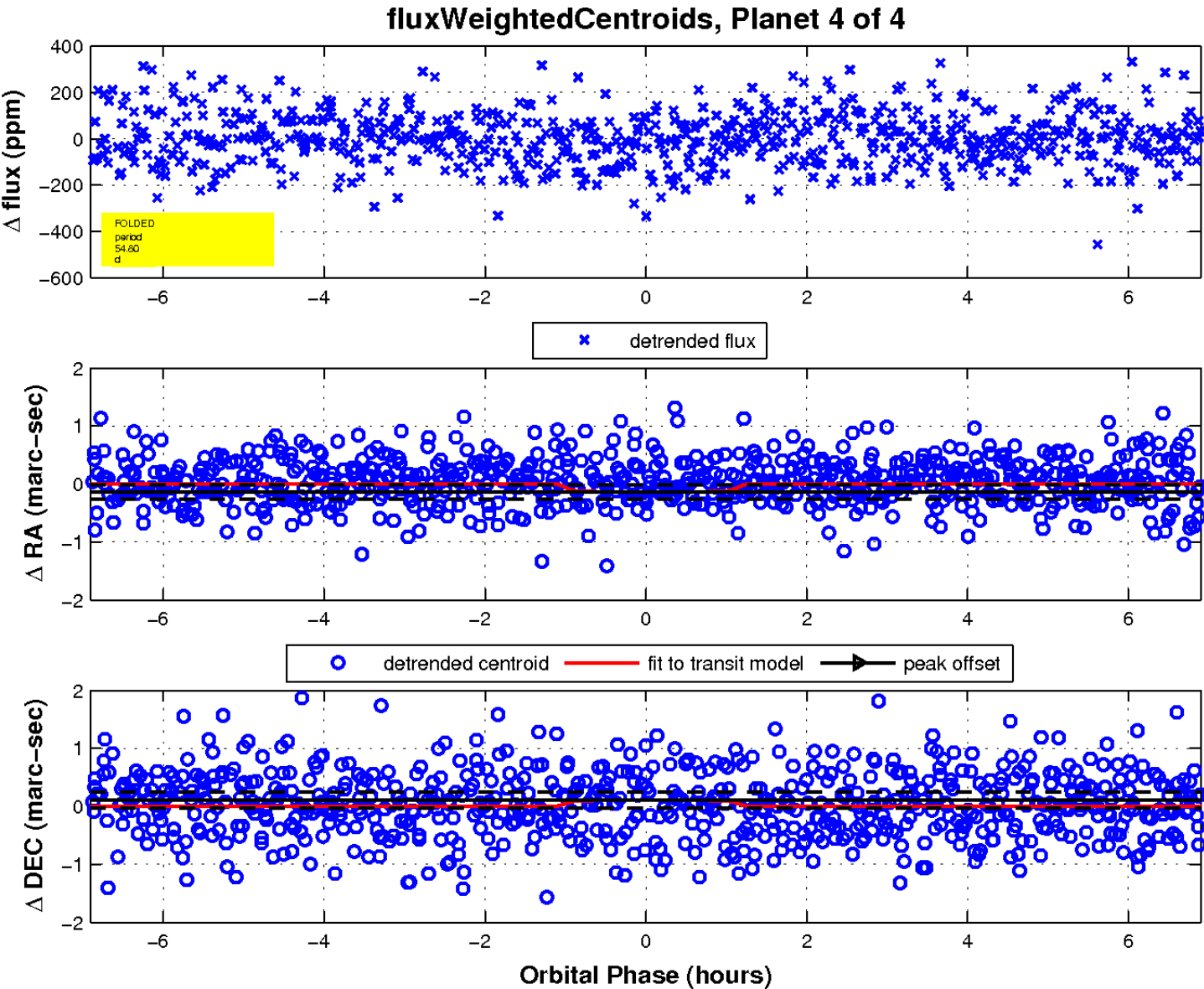
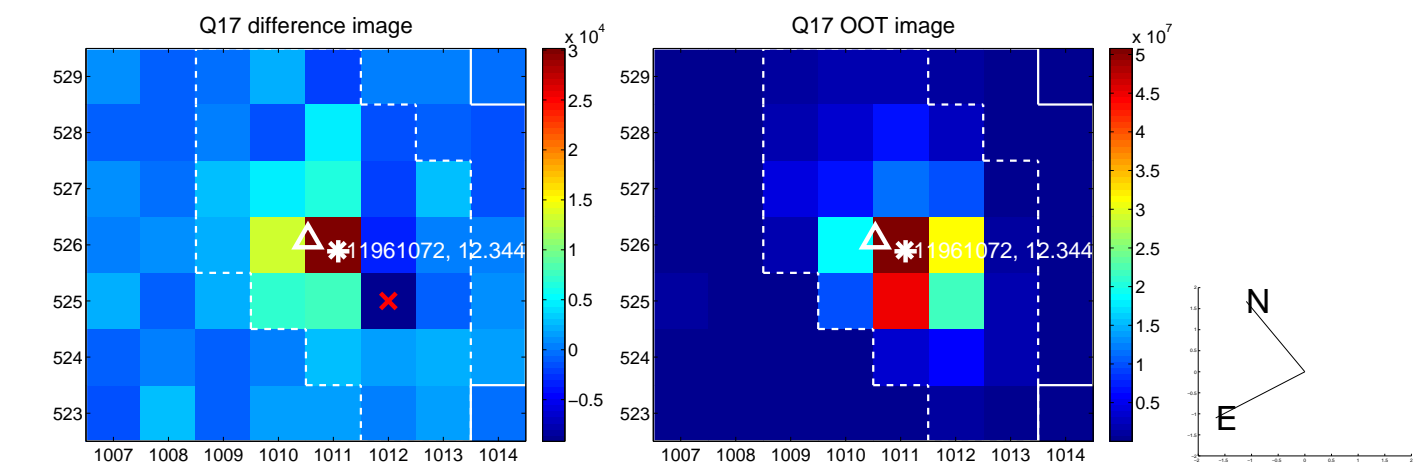
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

