

KIC 004660691

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})
004660691-01	OBS	No	0.790321	132.012256	0.0	4.918	7.8	0.0	1.00	5780	0.00	3571.64
004660691-02	OBS	No	40.410056	142.657093	648.8	5.989	8.7	7.0	1.00	5780	2.79	18.82
004660691-03	OBS	No	36.187721	165.659867	991.3	2.711	9.3	8.7	1.00	5780	3.26	21.80
004660691-04	OBS	No	95.189445	155.144855	161.2	4.821	7.9	0.9	1.00	5780	1.51	6.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004660691-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
004660691-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

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

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

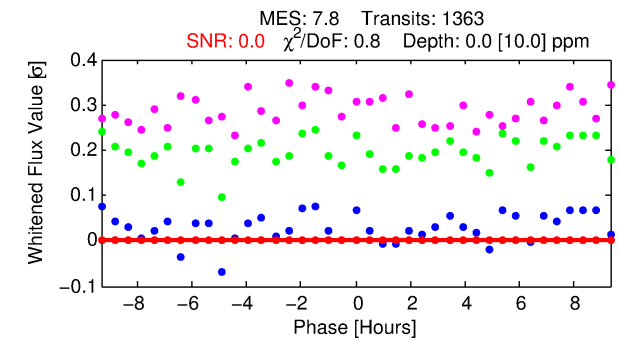
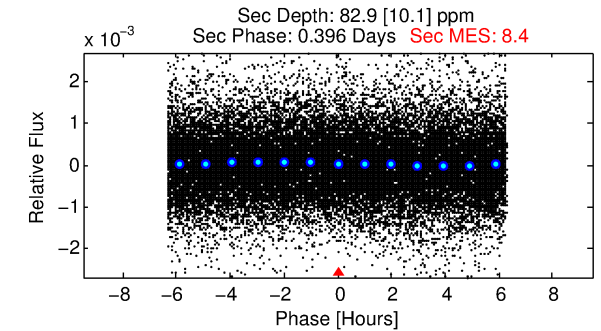
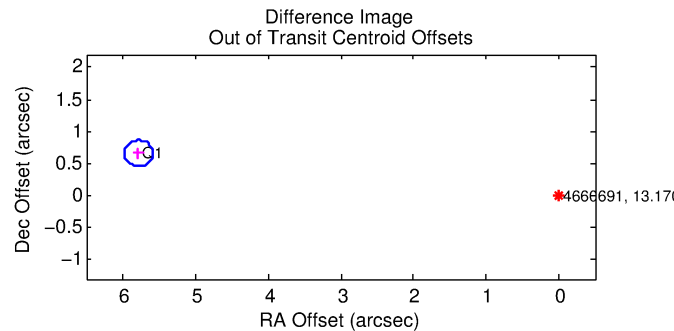
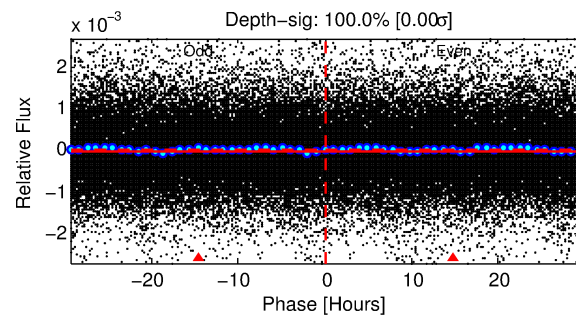
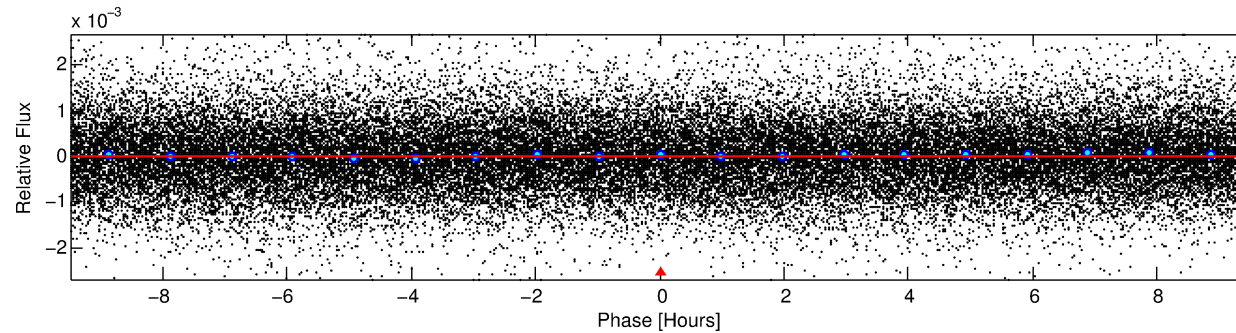
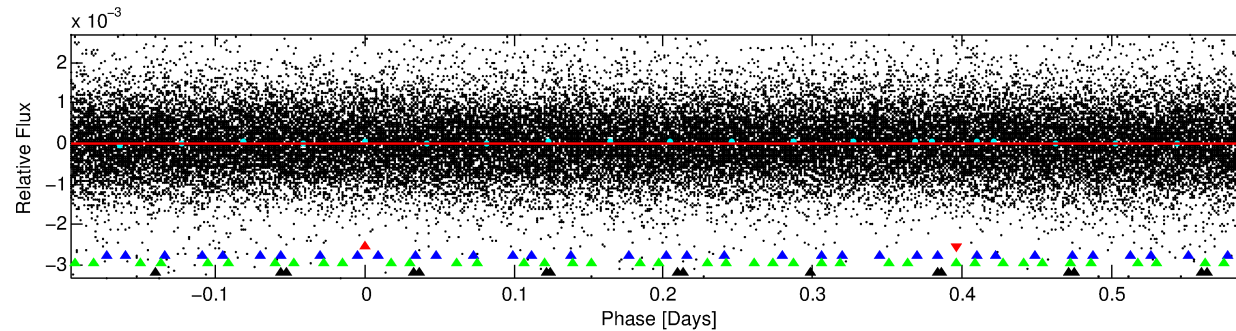
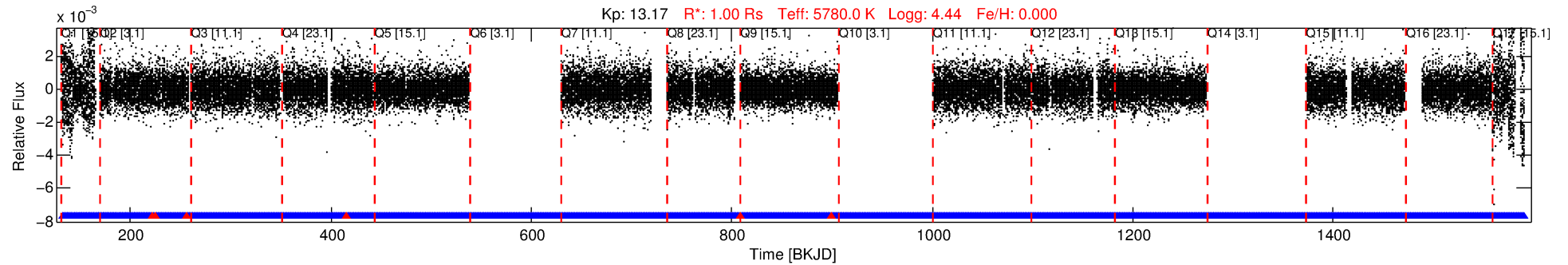
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004660691-01

No Significant Match Found

DV One-Page Summary

KIC: 4660691 Candidate: 1 of 4 Period: 0.790 d



DV Fit Results:

Period = 0.79032 [6.46058] d
Epoch = 132.0123 [2245.3999] BKJD
Rp/R* = 0.0000 [0.3544]
a/R* = 1.34 [1853.70]
b = 0.34 [13912.97]
Seff = 3571.64 [38929.07]
Teq = 1971 [5371] K
Rp = 0.00 [38.67] Re
a = 0.0167 [0.0912] AU
Ag = 7438795.73 [439033960493.47] [0.00σ]
Teff = 159169 [2348727195] K [0.00σ]

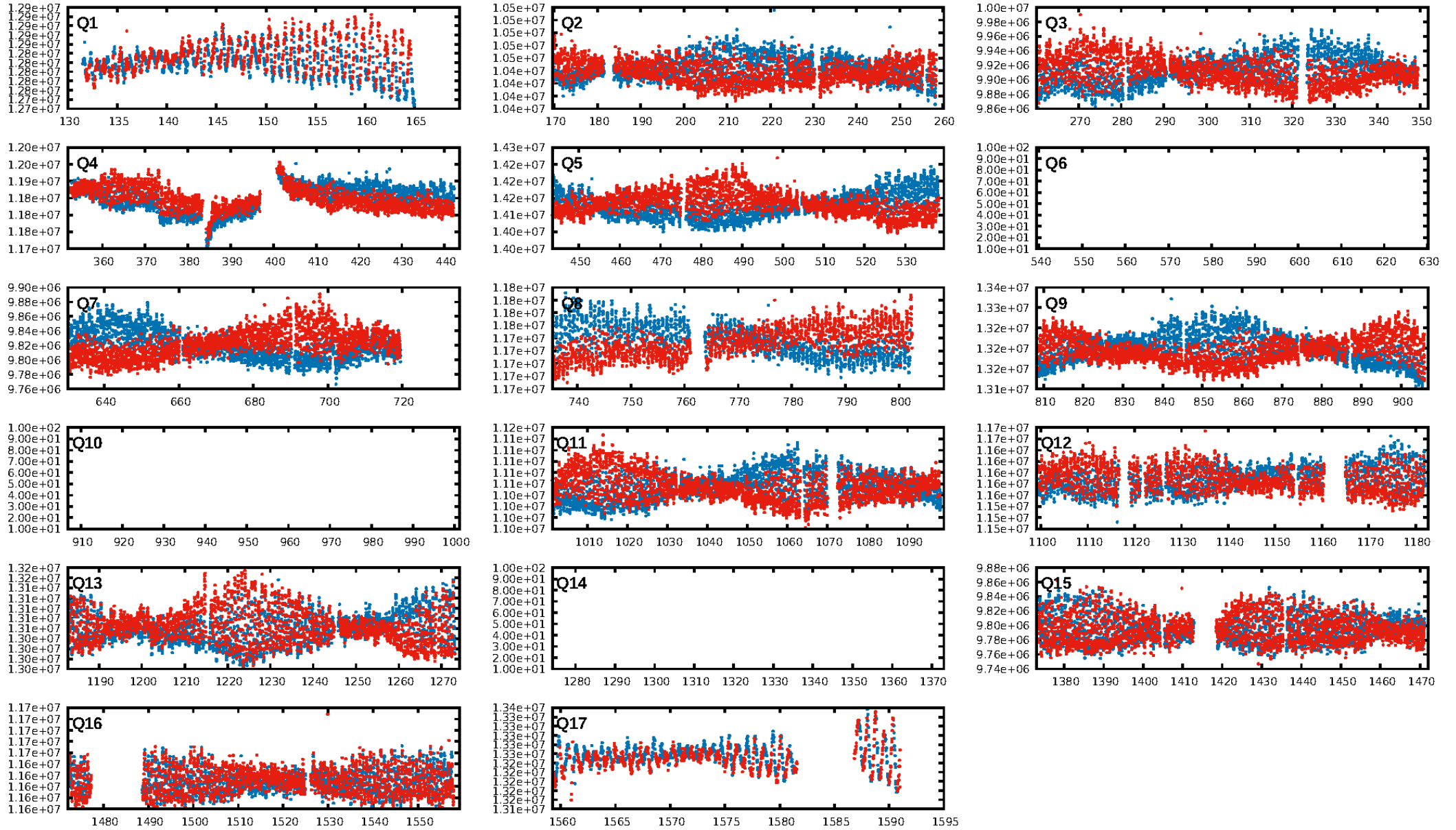
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [151.28σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.21e-14
RollingBand-fgt: 1.00 [1280/1286]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
QotOffset-rm: 5.821 arcsec [87.18σ]
KicOffset-rm: 13.818 arcsec [9.73σ]
QotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [14/14]

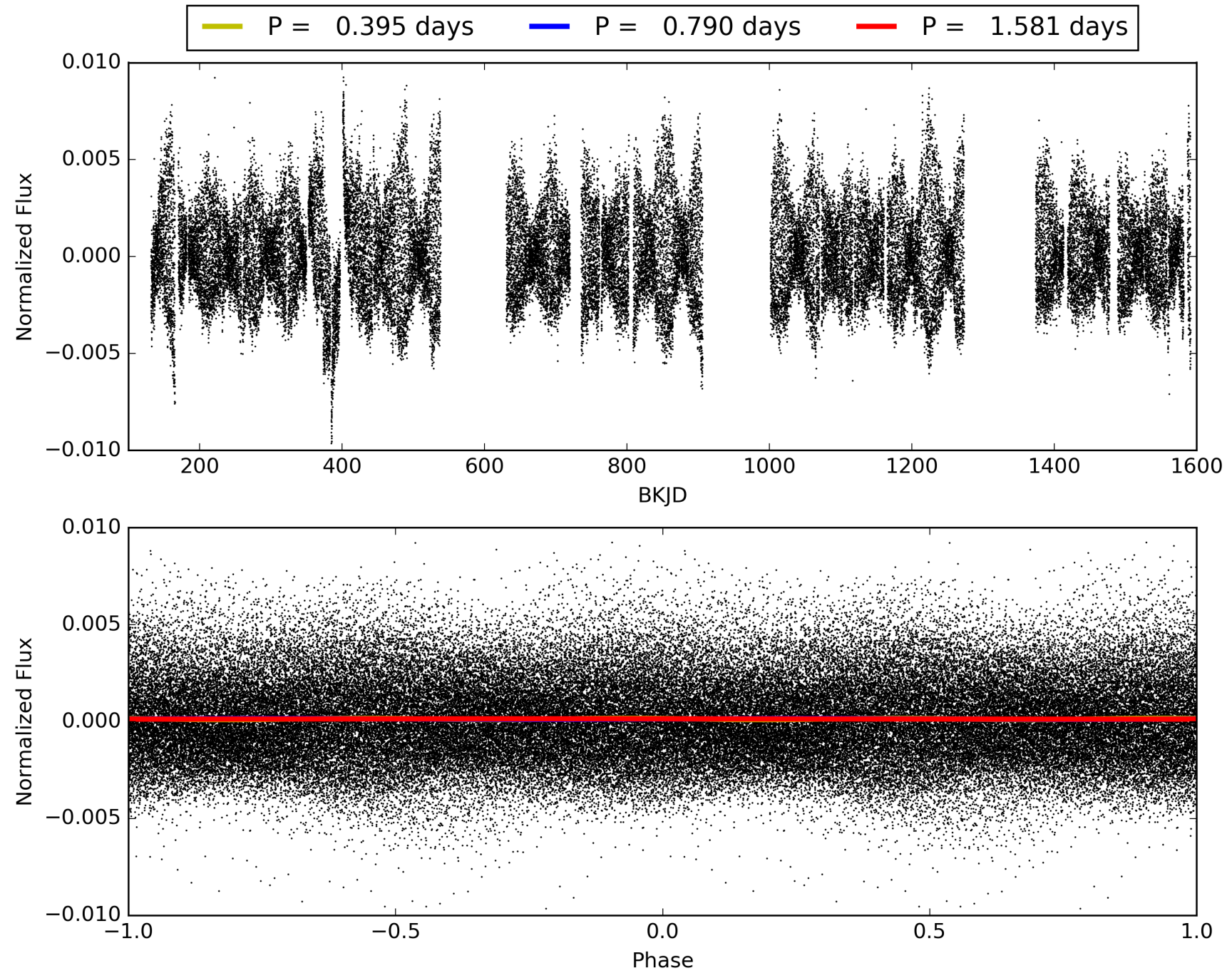
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:05:21 Z

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

TCE 004660691-01, PDC Light Curves

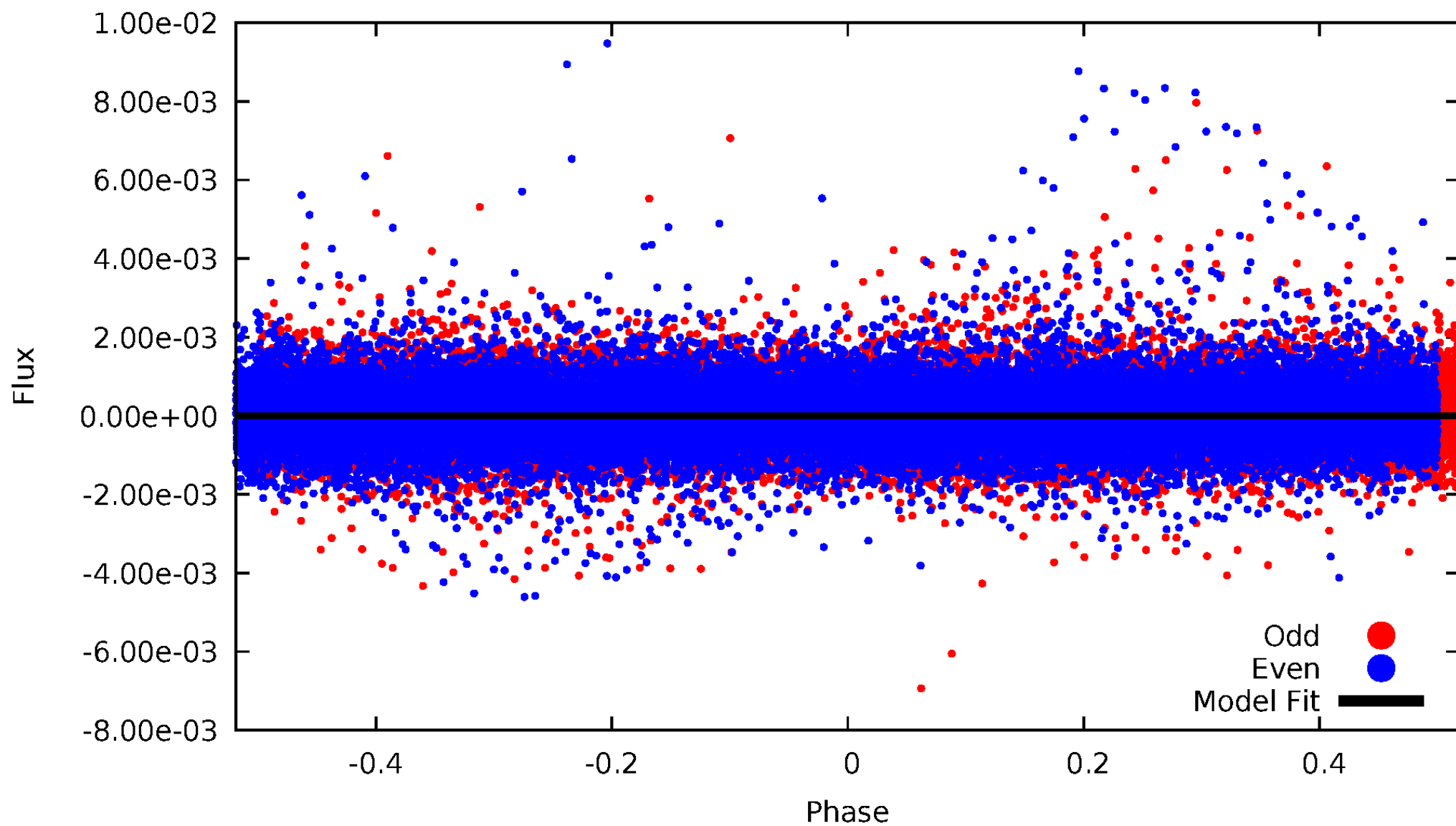


TCE 004660691-01



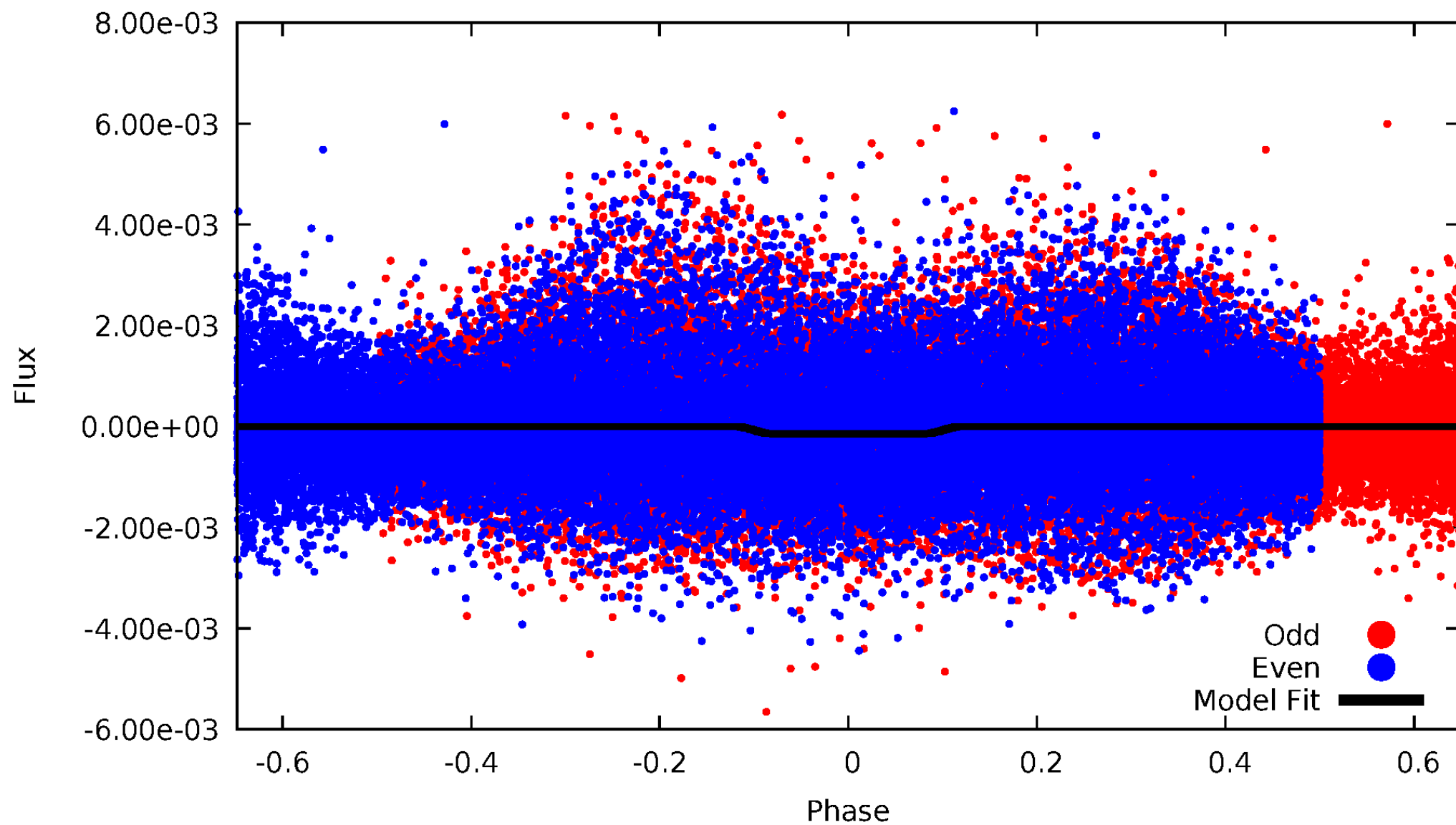
DV Odd/Even

TCE 004660691-01



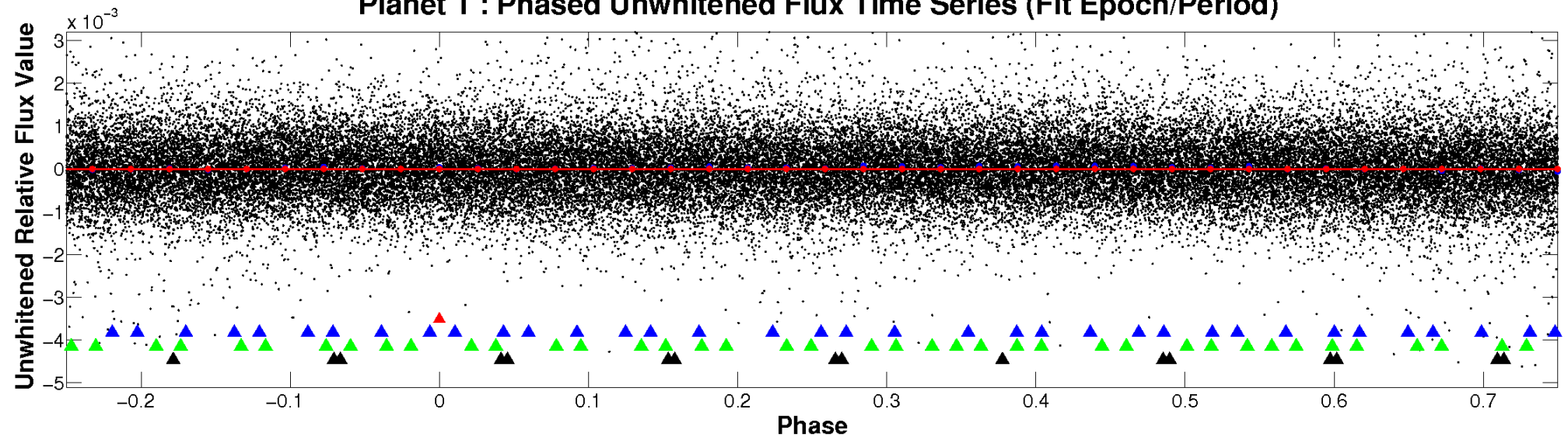
ALT Odd/Even

TCE 004660691-01

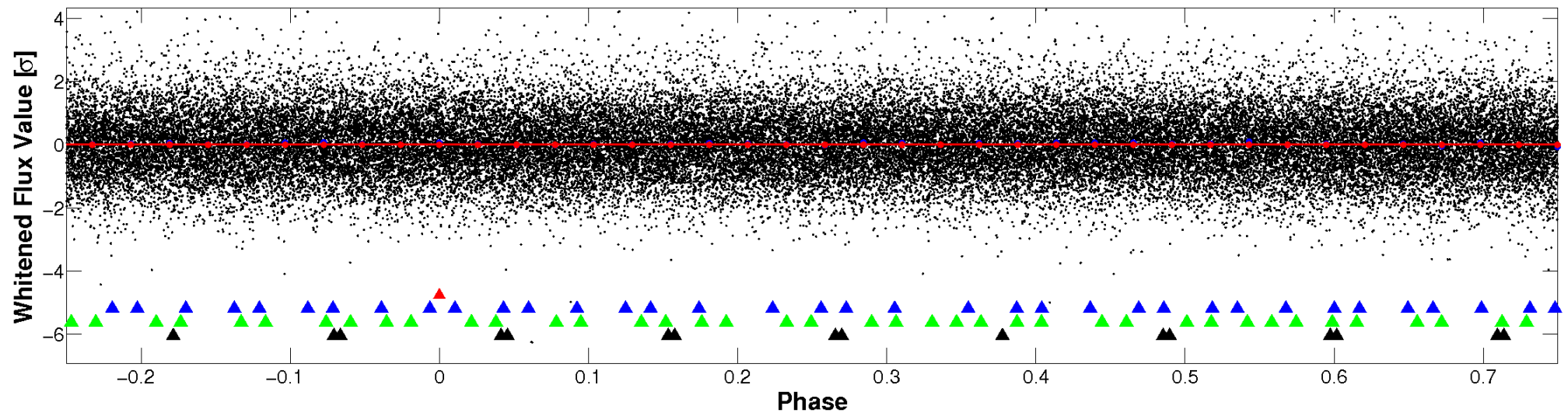


Non-Whitened Vs. Whitened Light Curve

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

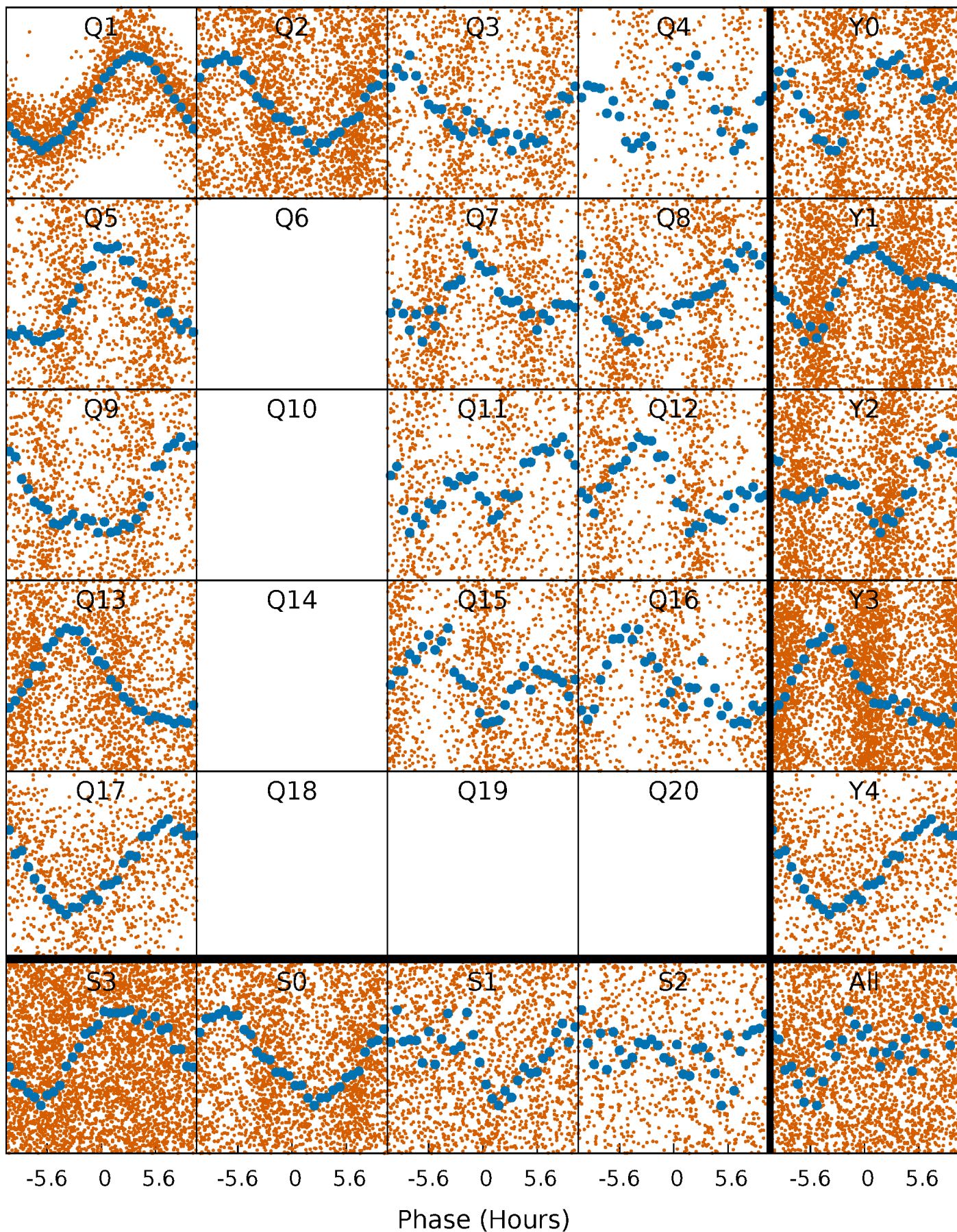


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



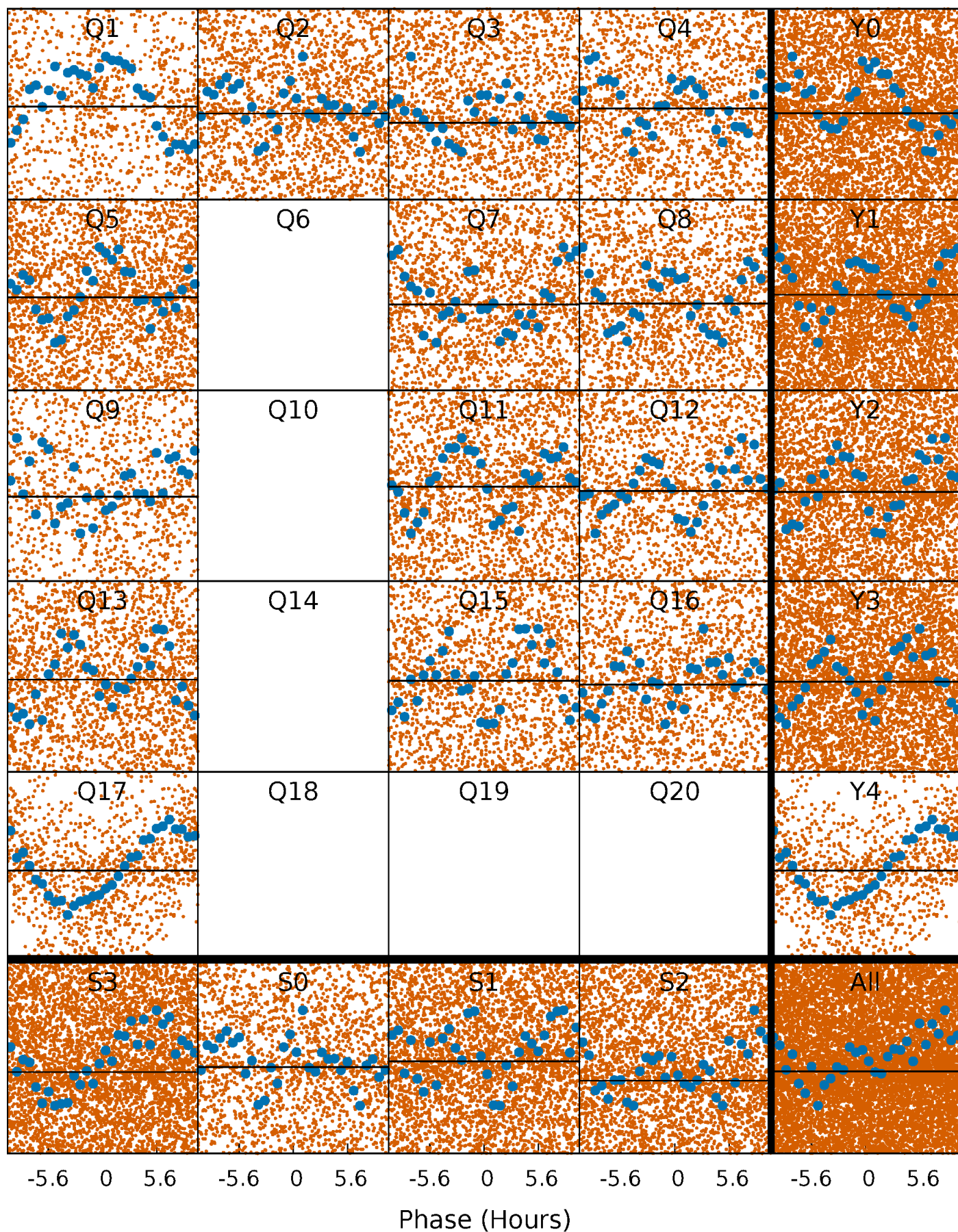
PDC Quarter-Phased Transit Curves

TCE 004660691-01 P= 0.790321 Days $T_0=132.012256$ (BKJD)



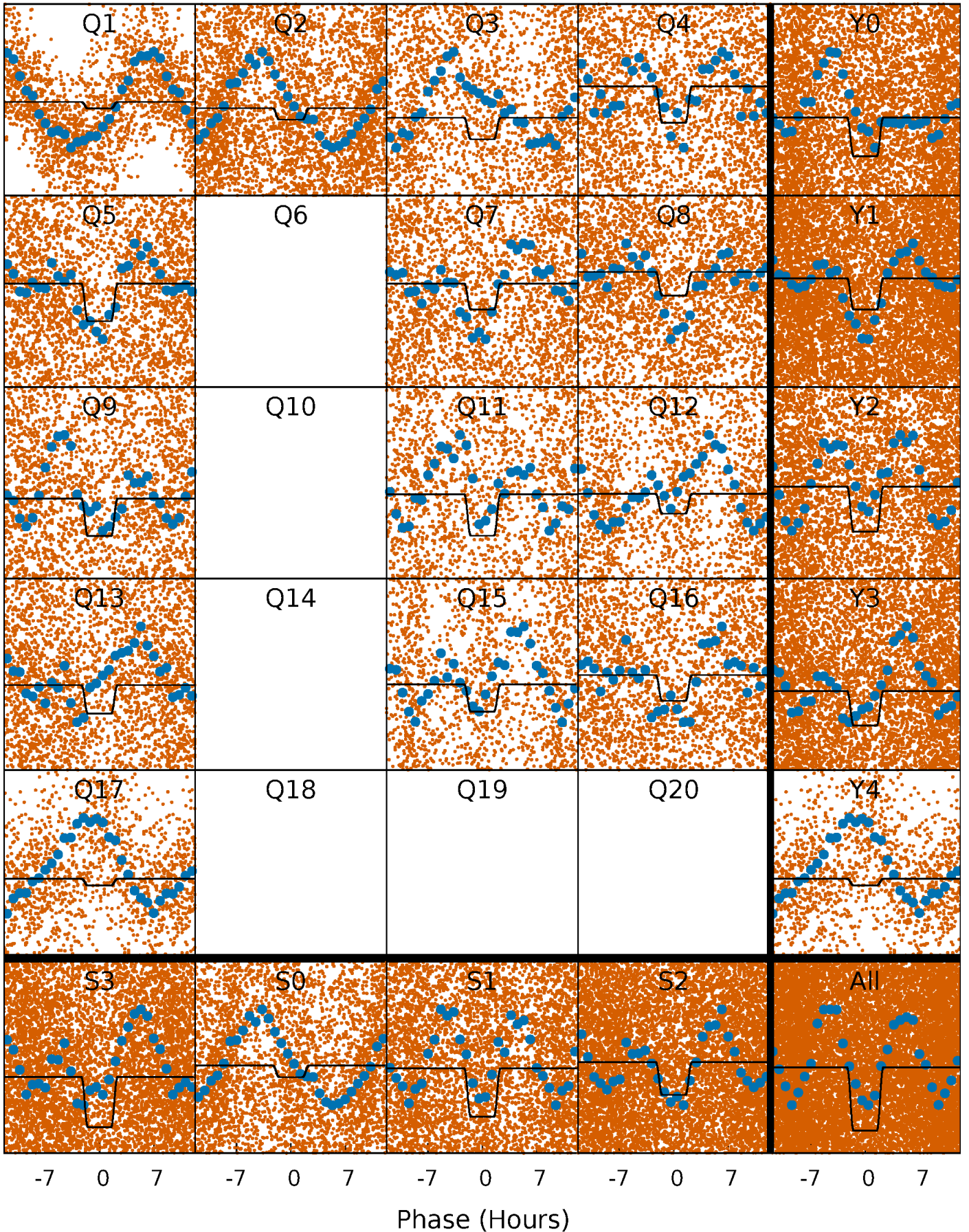
DV Quarter-Phased Transit Curves

TCE 004660691-01 P= 0.790321 Days $T_0=132.012256$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

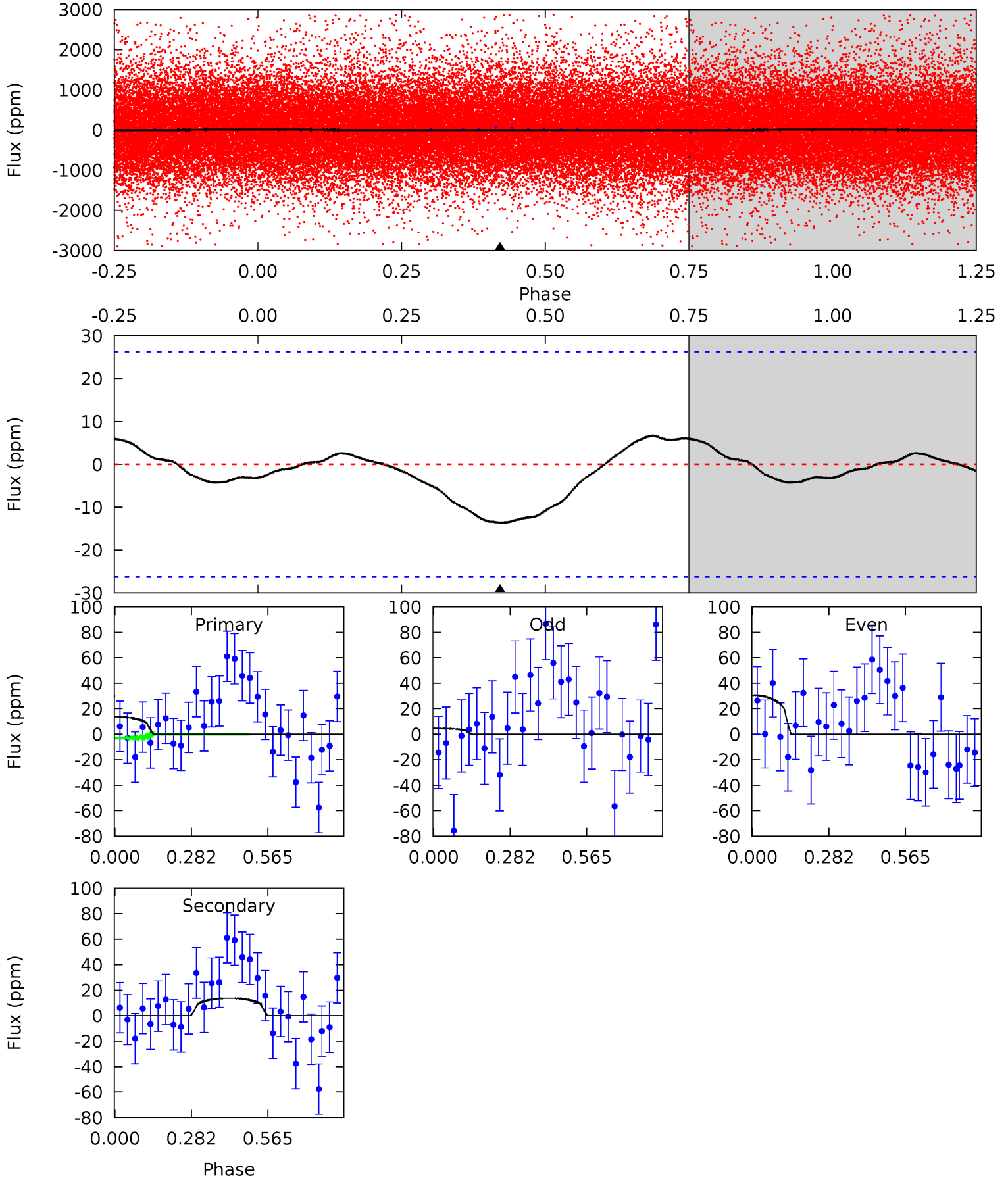
TCE 004660691-01 P= 0.790143 Days $T_0=131.907543$ (BKJD)



DV Model-Shift Uniqueness Test

004660691-01, P = 0.790321 Days, E = 131.221935 Days

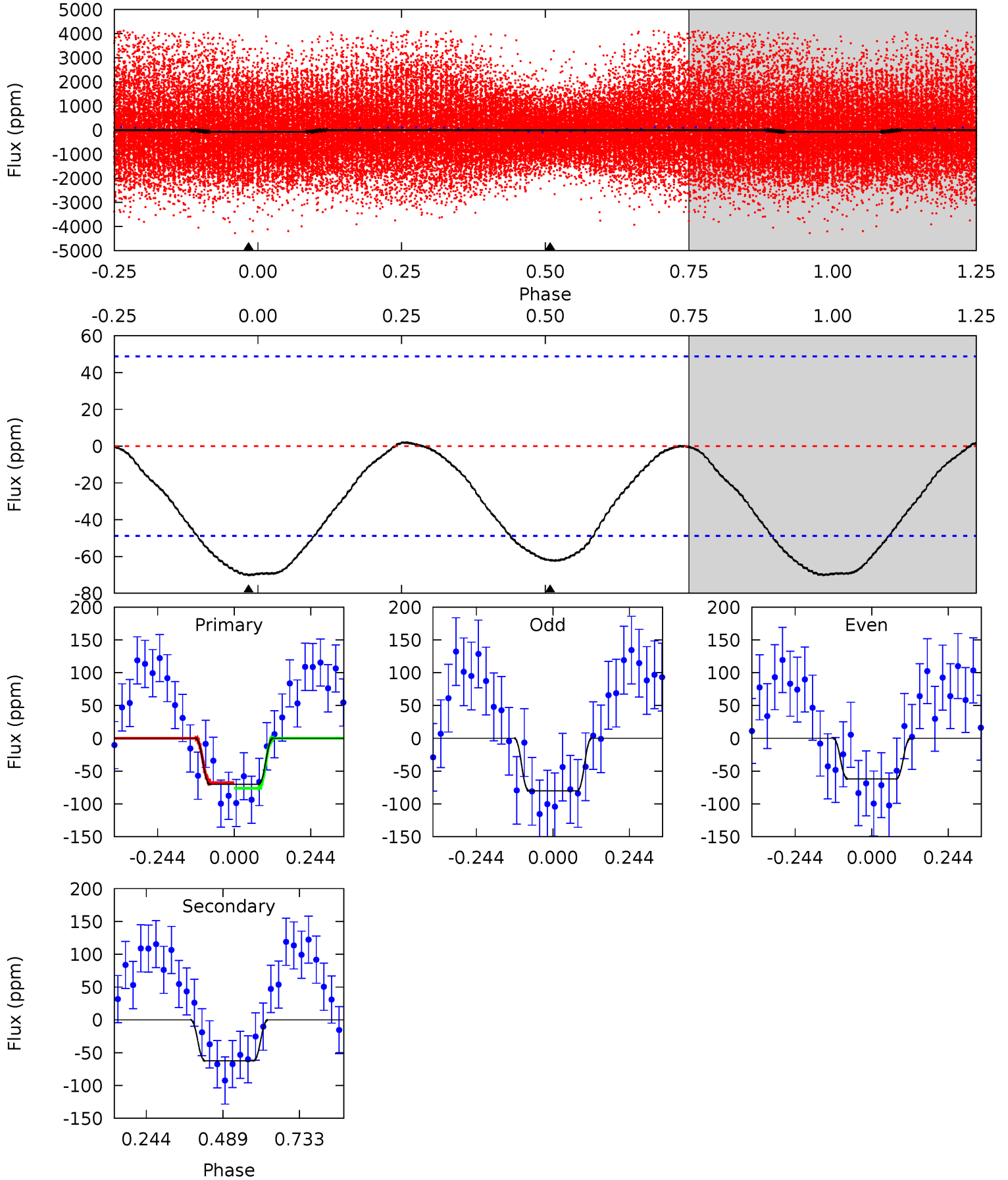
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.26	2.26	0	0	4.34	1.07	0.55	2.26	2.26	2.26	2.26	2.16	0.83	0.33	2.26



Alt Model-Shift Uniqueness Test

004660691-01, P = 0.790143 Days, E = 131.117400 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.29	5.58	0	0	4.37	1.16	0.21	6.29	6.29	5.58	5.58	0.81	0.43	0.03	0.41



Stellar Parameters For KIC 004660691

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 004660691-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14 ± 6	$26.09^{+26.66}_{-18.37}$	1493^{+800}_{-307}	-2099^{+3960}_{-539}	$0.028^{+0.369}_{-0.026}$
Alt.	-62 ± 11	$27.15^{+27.70}_{-19.16}$	1519^{+692}_{-333}	-1949^{+4484}_{-550}	$0.140^{+1.494}_{-0.121}$

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

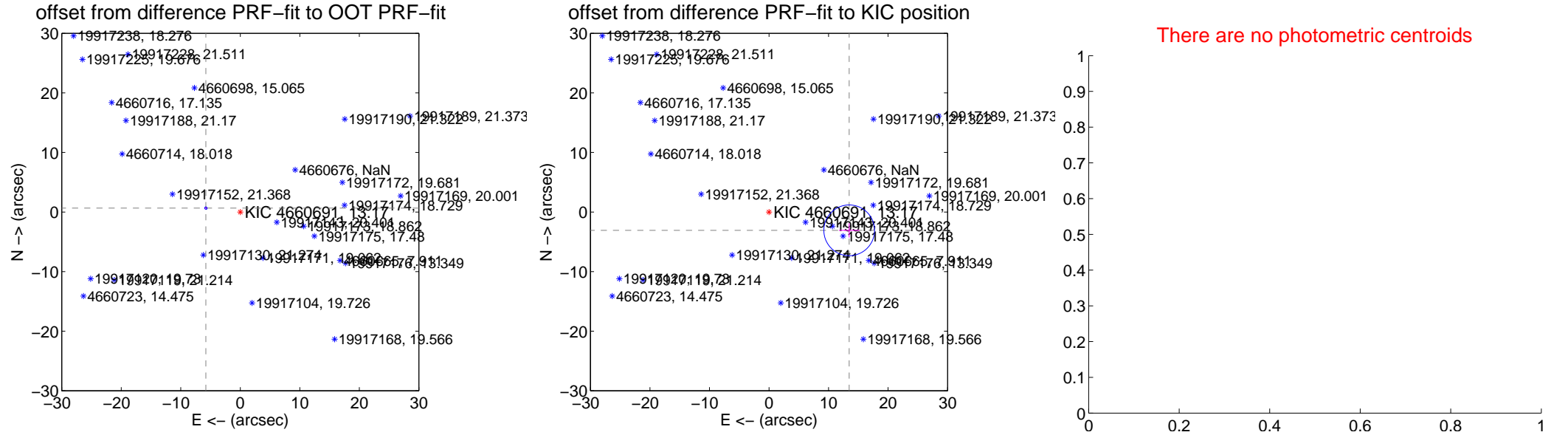
DV Centroid Data

Supplemental centroid analysis for 004660691-01. Kepler magnitude: 13.17. Transit SNR 0.00

There are 0 quarters with good PRF difference image offsets

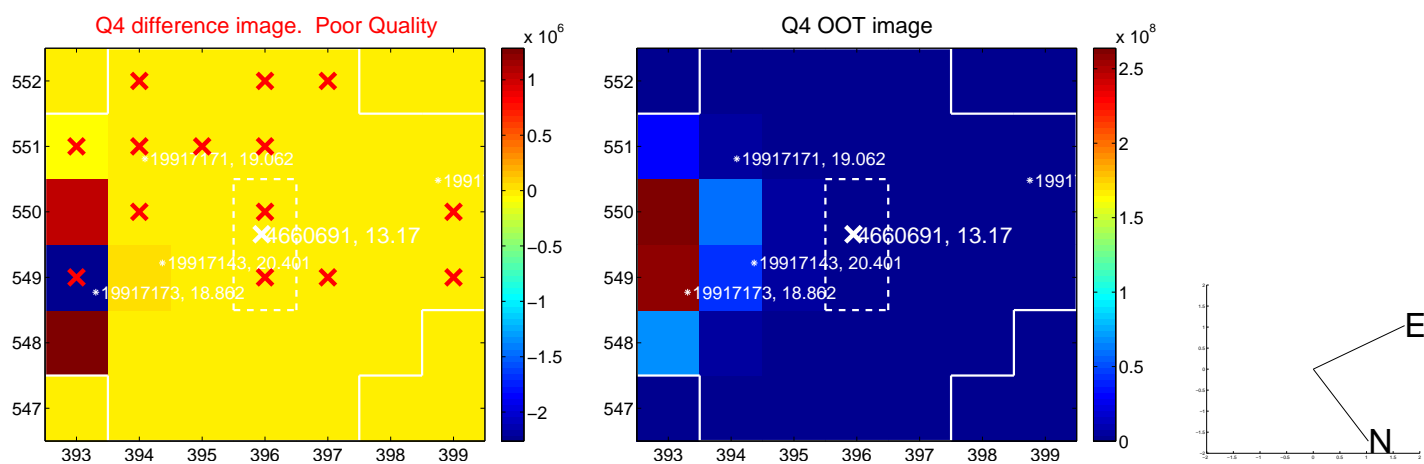
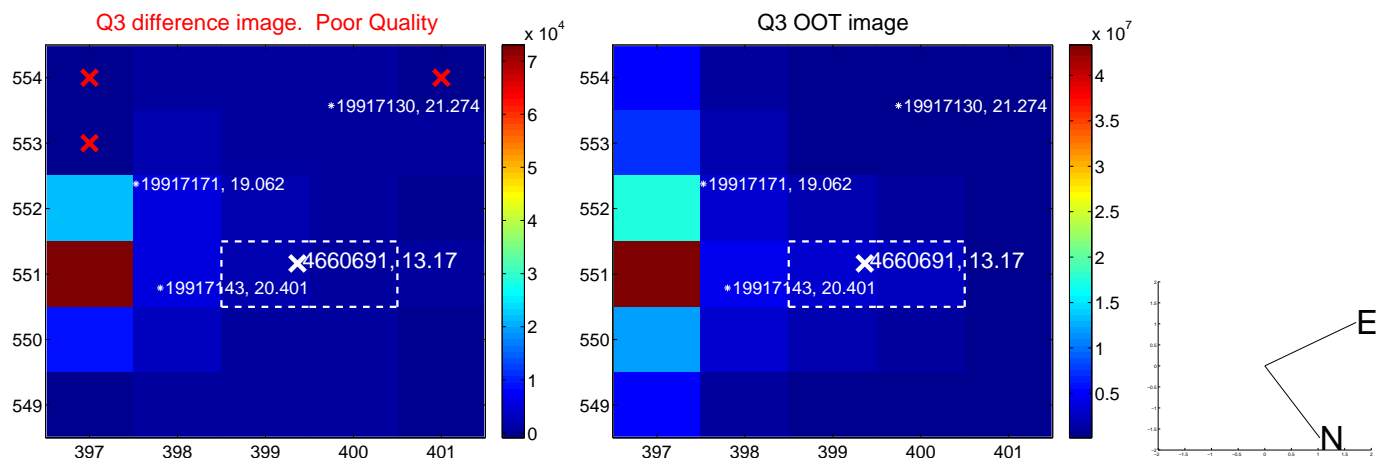
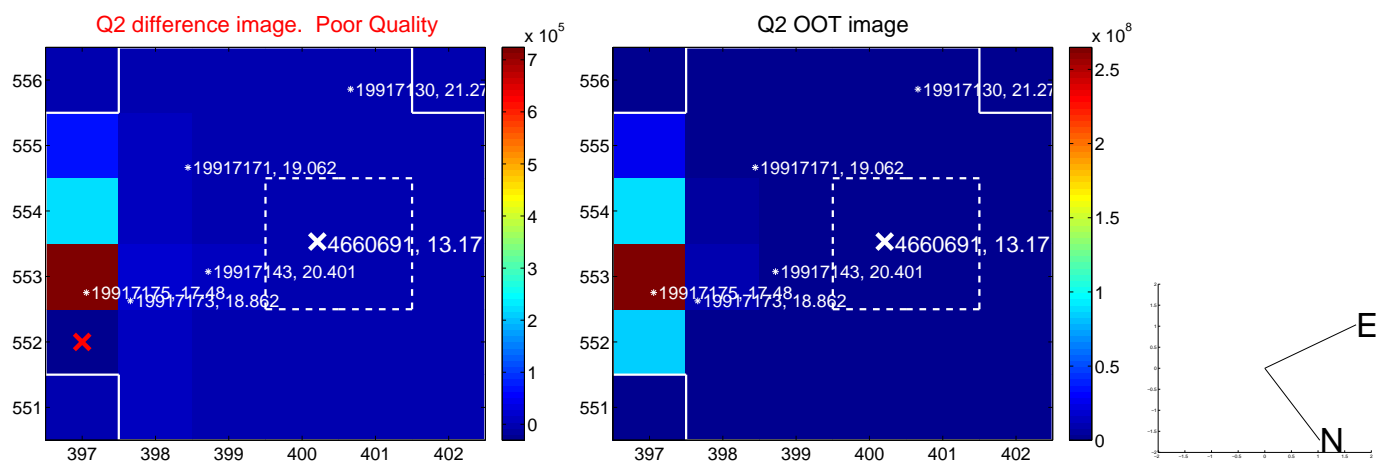
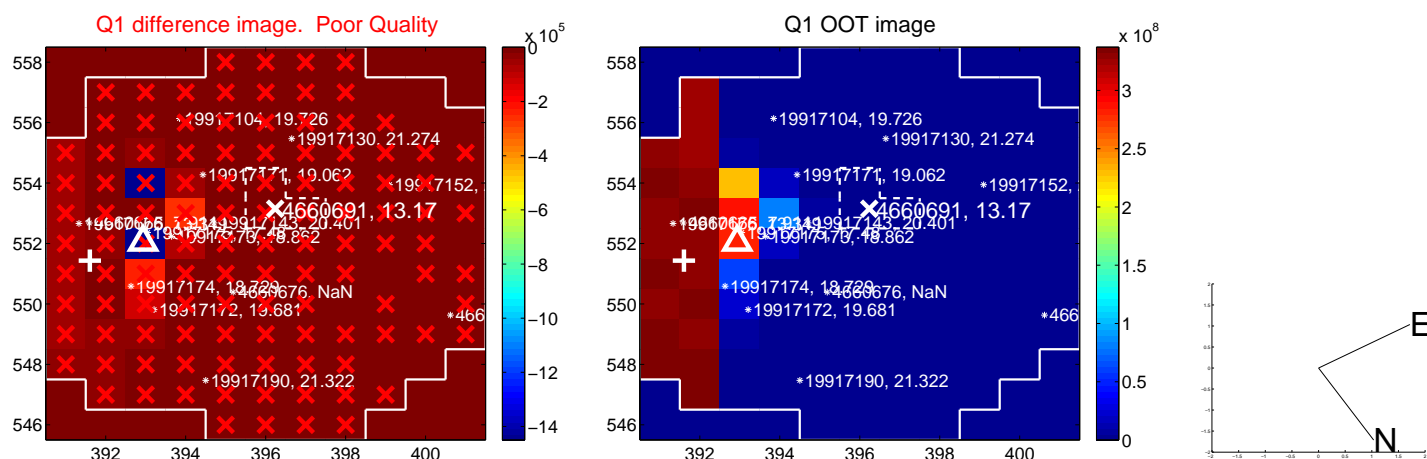
The OOT PRF centroid is offset from the target star catalog position by about 19.65 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.821 ± 0.067	87.18	5.783 ± 0.067	0.660 ± 0.067
PRF-fit source offset from KIC position	13.818 ± 1.420	9.73	-13.473 ± 1.731	-3.071 ± 1.206
photometric centroid source offset	—	—	—	—

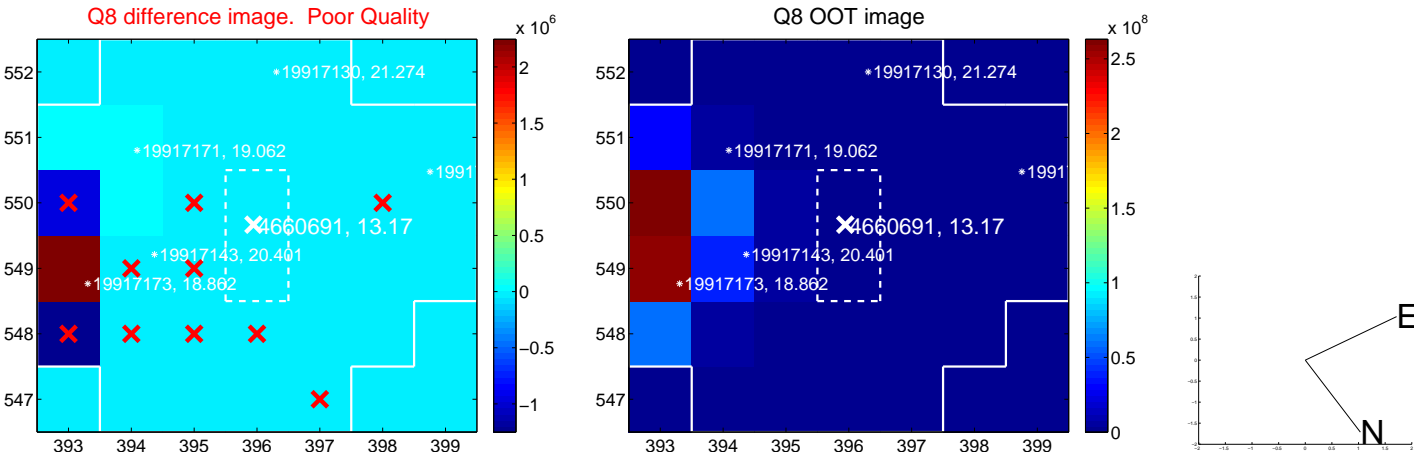
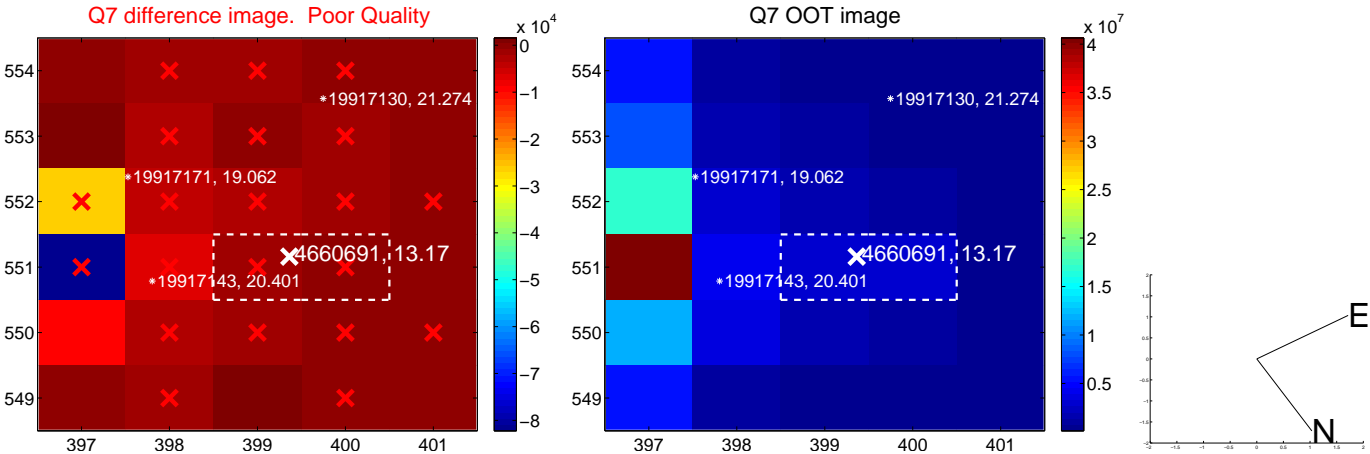
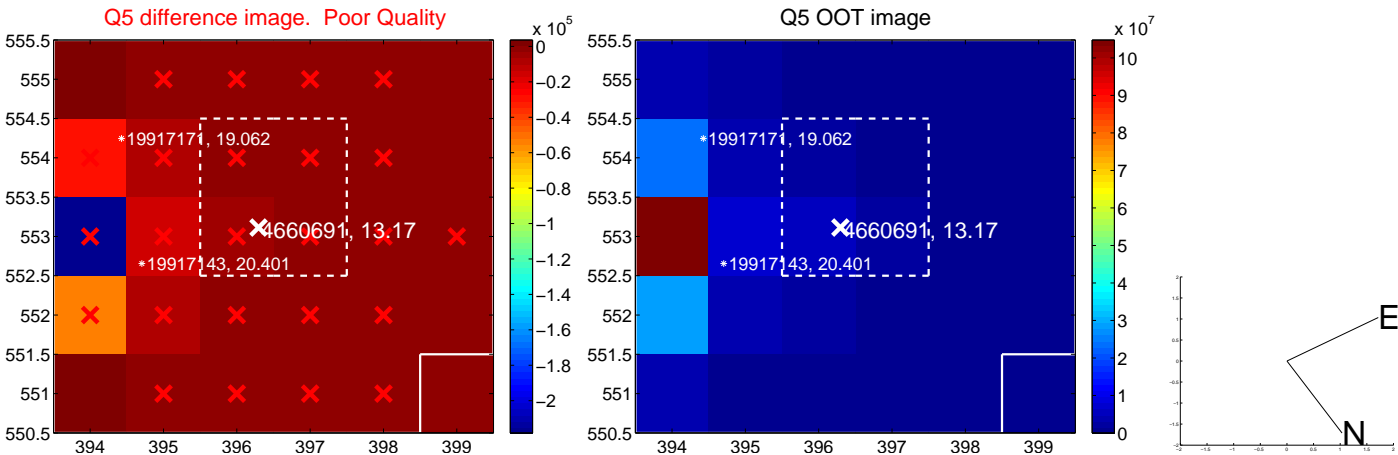


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

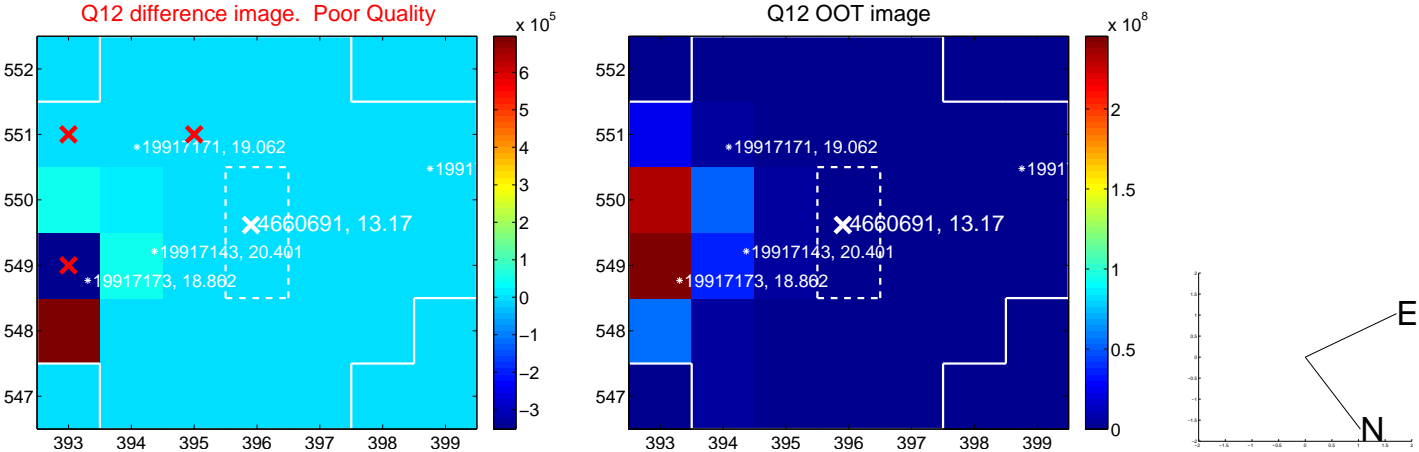
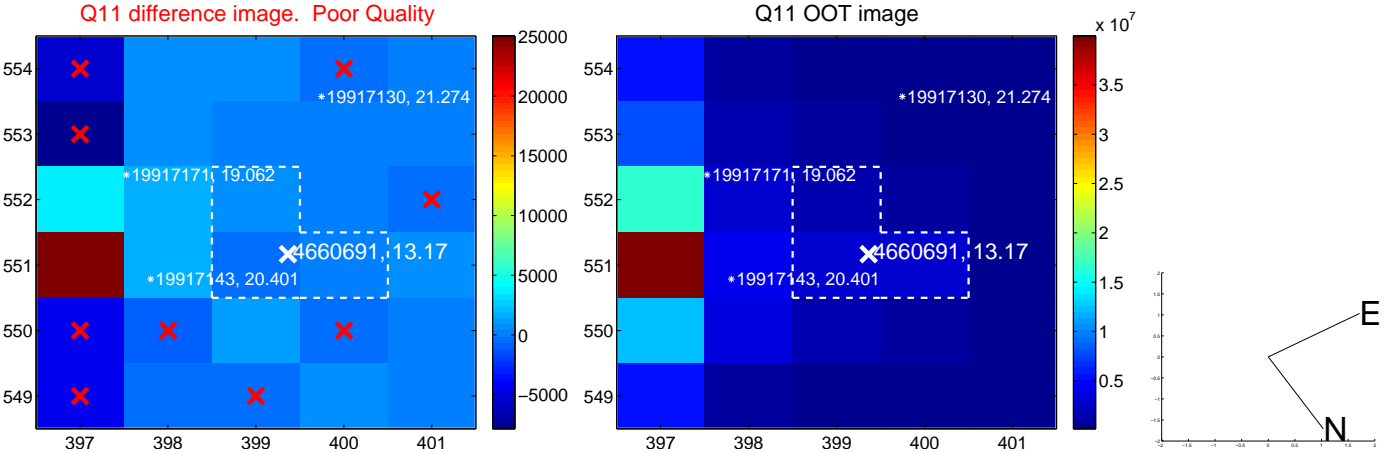
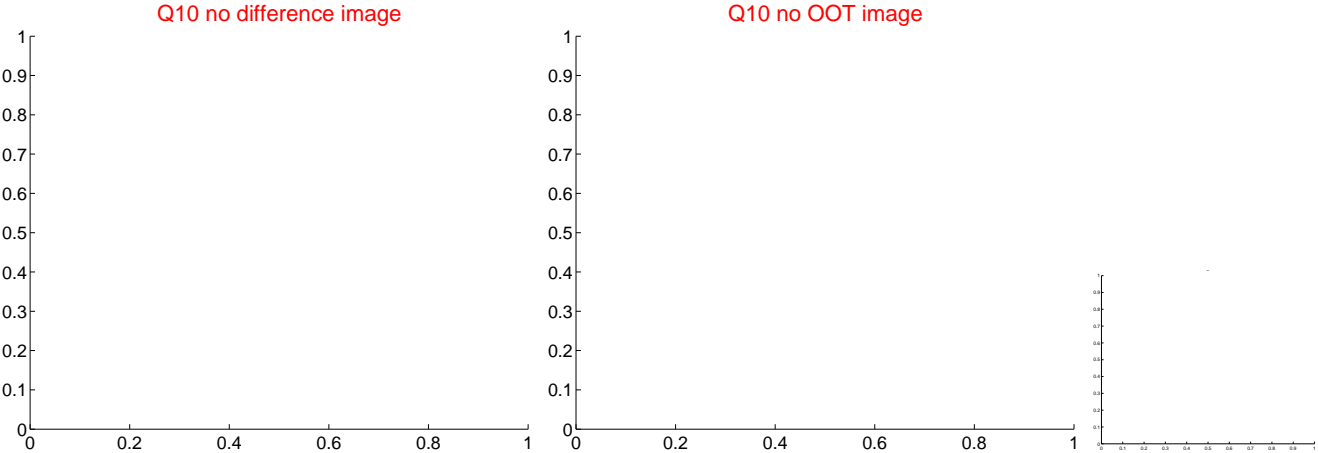
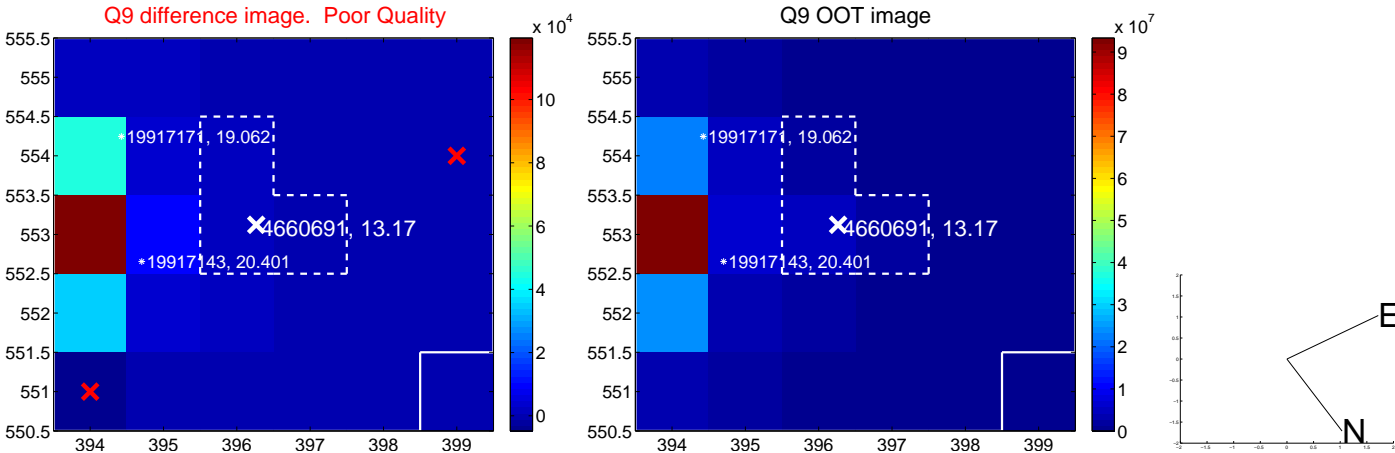
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



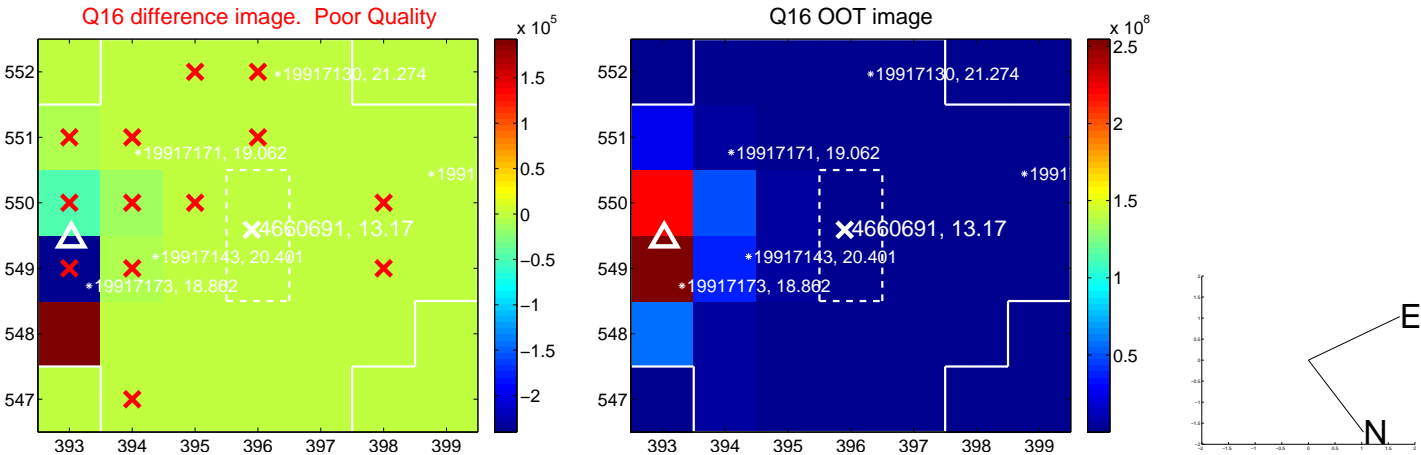
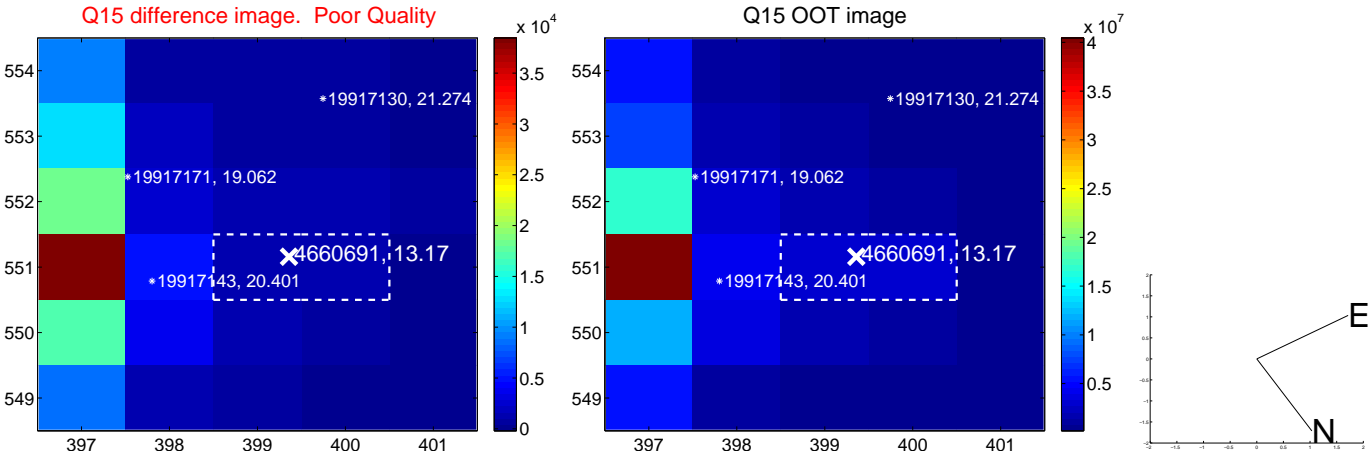
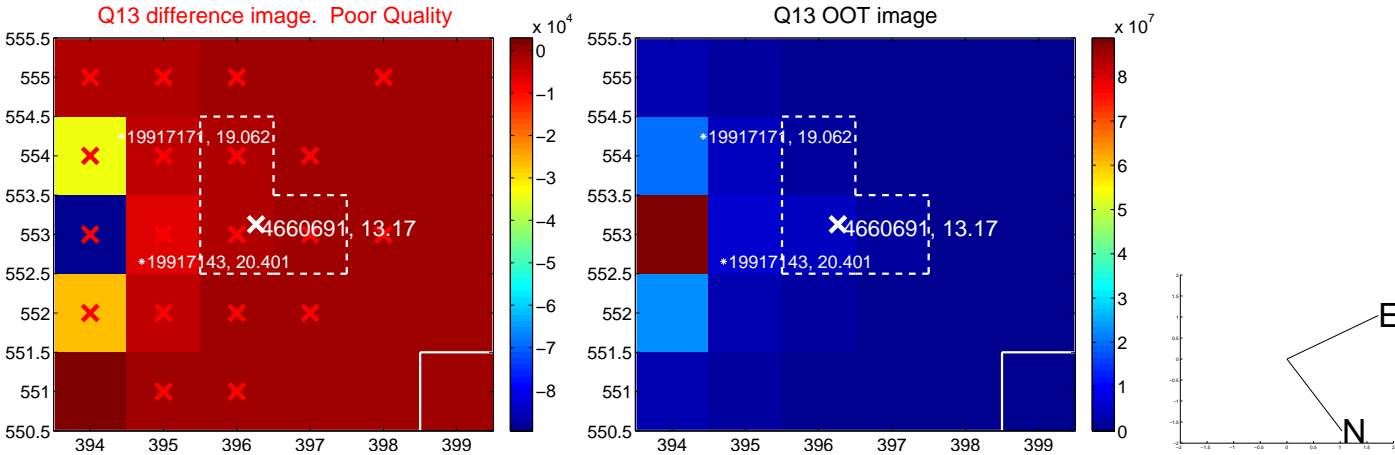
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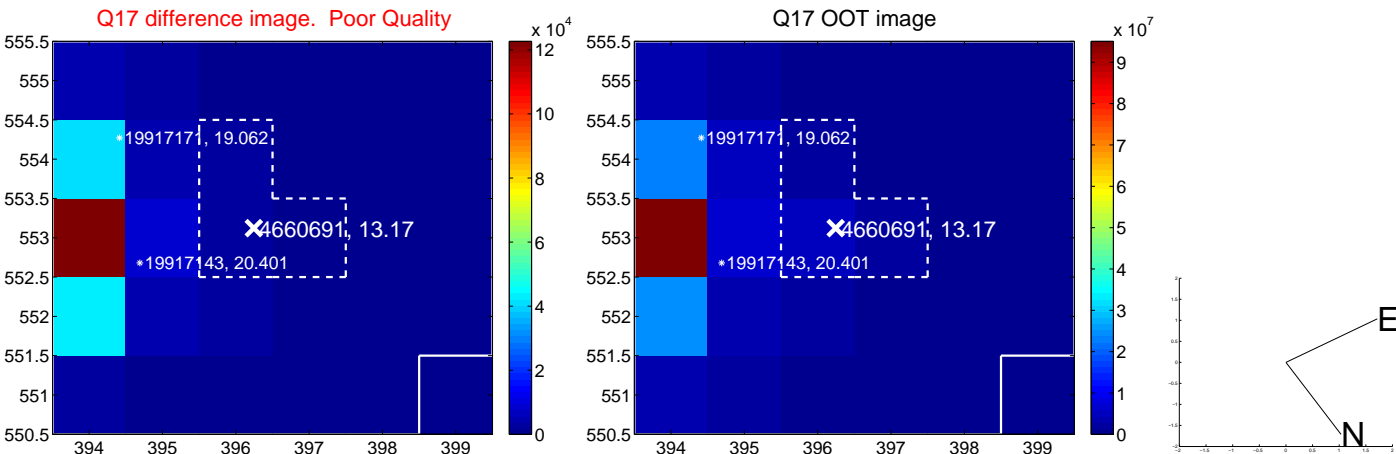
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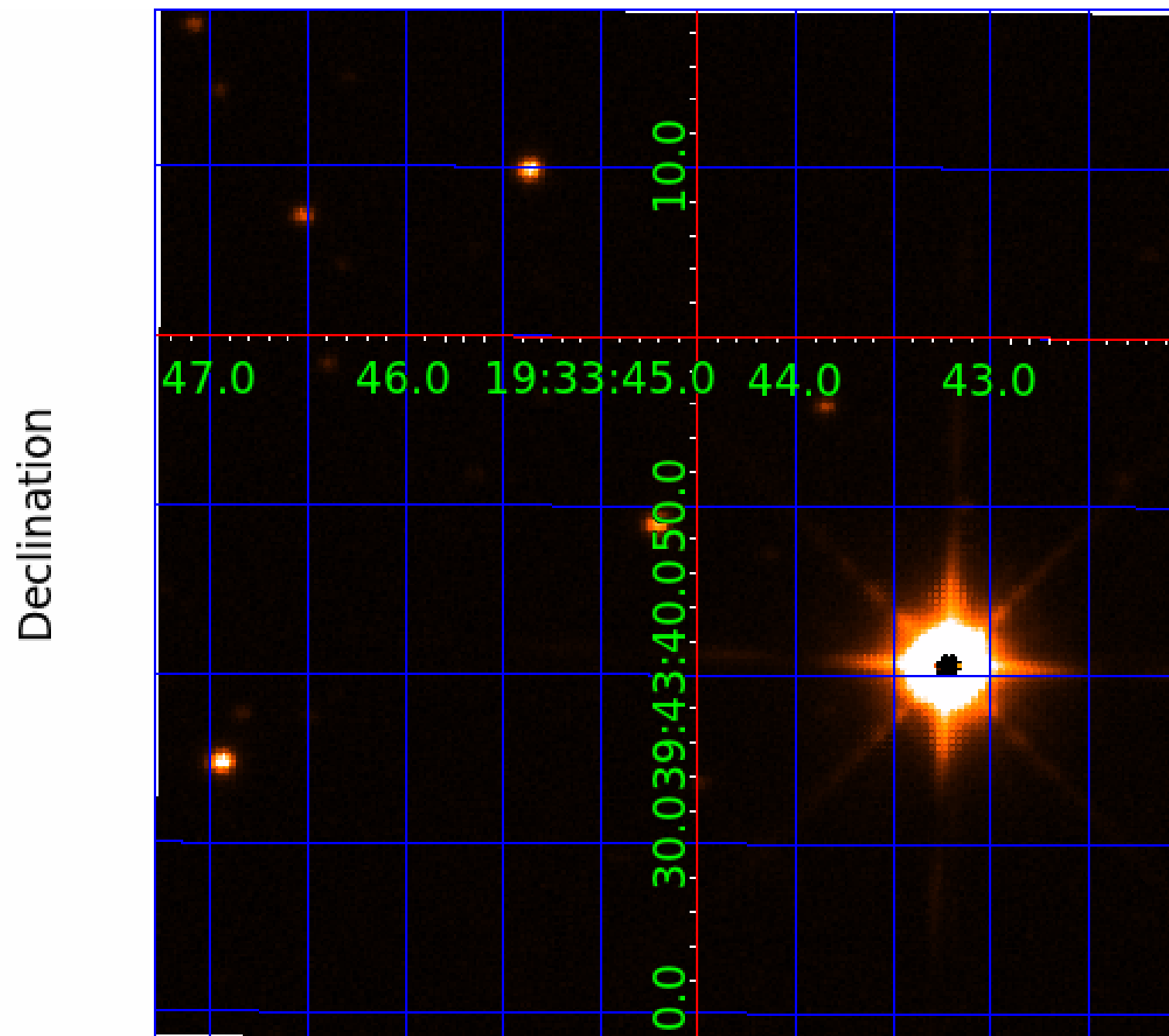


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



KIC 004660691

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})
004660691-01	OBS	No	0.790321	132.012256	0.0	4.918	7.8	0.0	1.00	5780	0.00	3571.64
004660691-02	OBS	No	40.410056	142.657093	648.8	5.989	8.7	7.0	1.00	5780	2.79	18.82
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004660691-04	OBS	No	95.189445	155.144855	161.2	4.821	7.9	0.9	1.00	5780	1.51	6.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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004660691-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

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

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

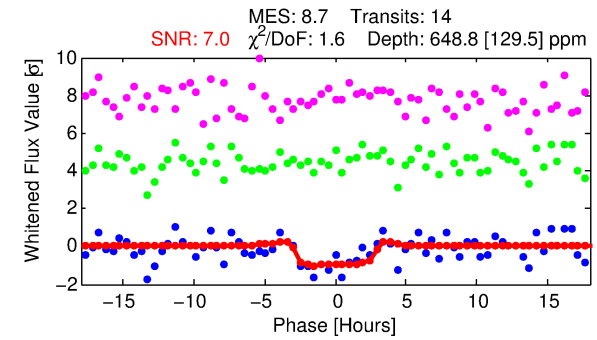
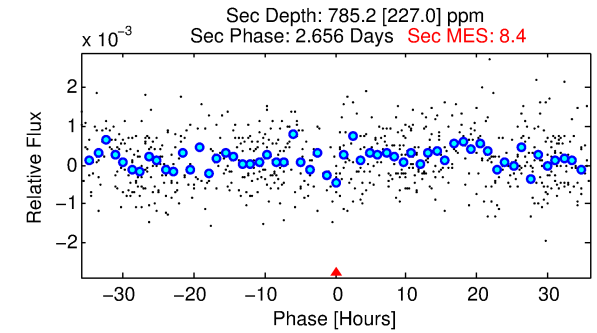
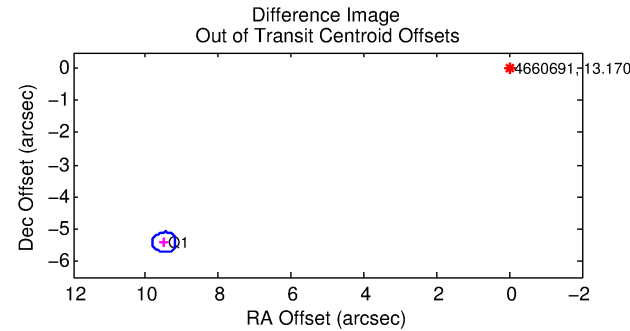
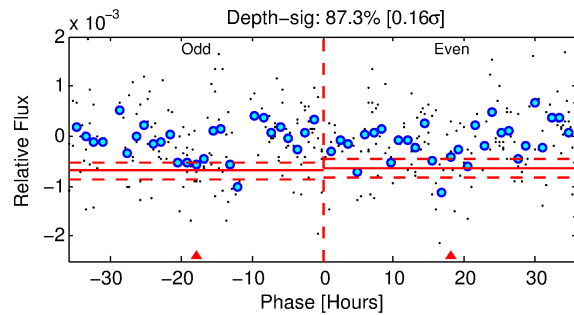
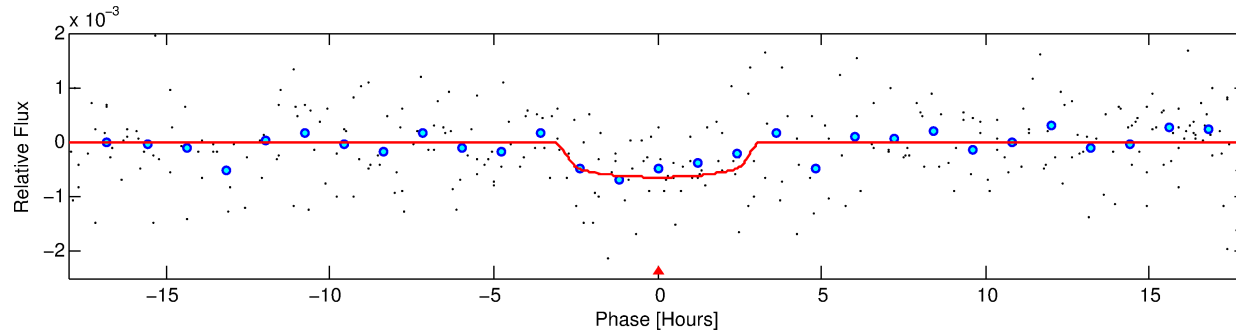
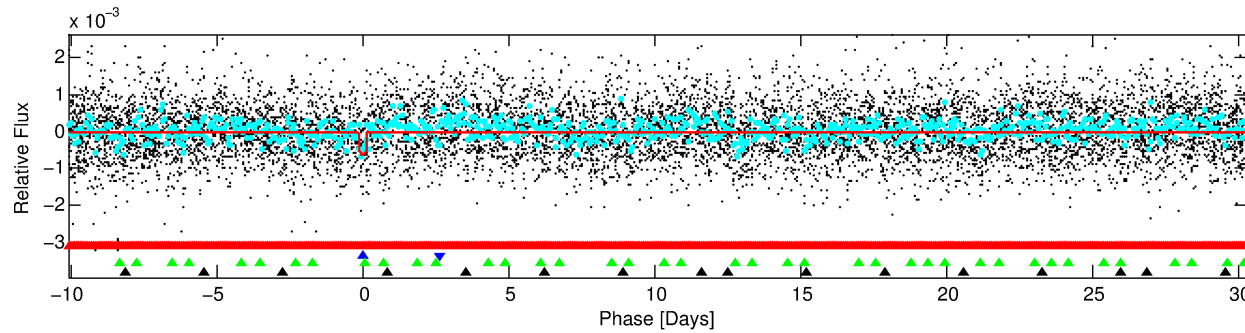
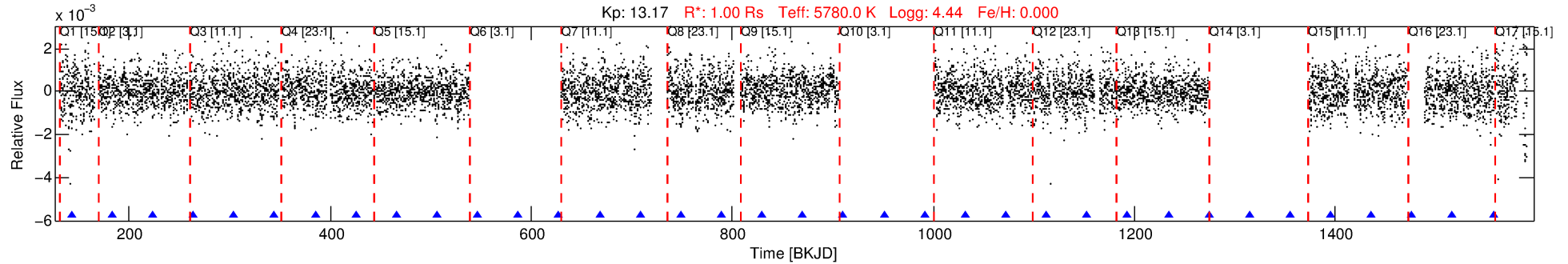
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004660691-02

No Significant Match Found

DV One-Page Summary

KIC: 4660691 Candidate: 2 of 4 Period: 40.410 d



DV Fit Results:

Period = 40.41006 [0.00127] d
Epoch = 142.6571 [0.0197] BKJD
 R_p/R^* = 0.0255 [0.0240]
 a/R^* = 35.00 [143.32]
 b = 0.77 [2.22]
 Seff = 18.82 [0.00]
 T_{eq} = 531 [0] K
 R_p = 2.79 [2.62] R_e
 a = 0.2305 [0.0000] AU
 A_g = 2953.51 [5608.69] [0.53 σ]
 T_{effp} = 6053 [2874] K [1.92 σ]

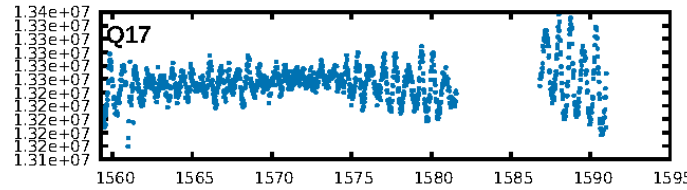
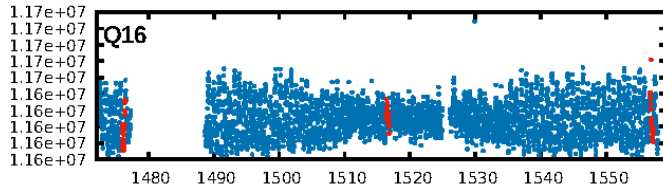
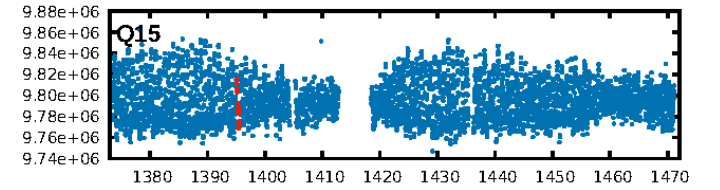
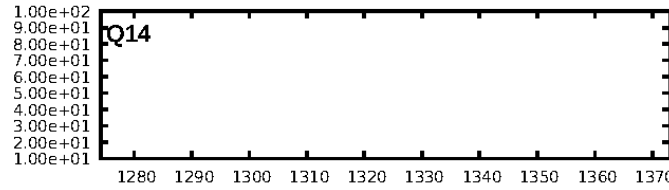
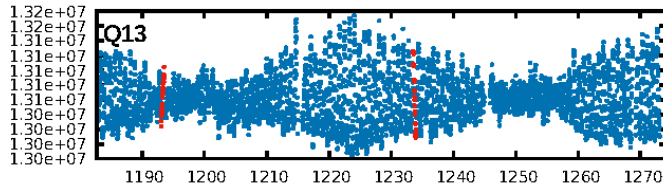
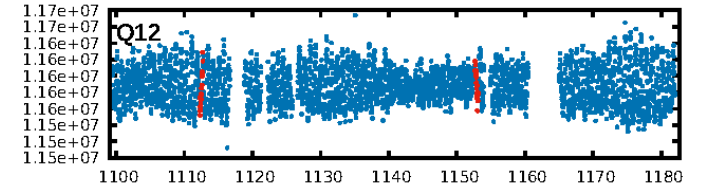
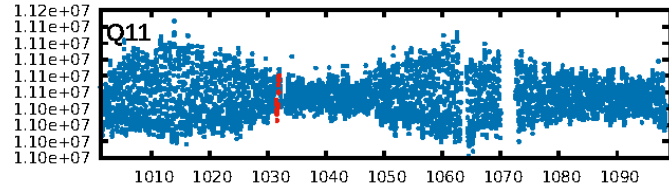
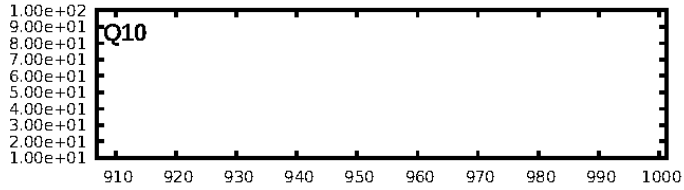
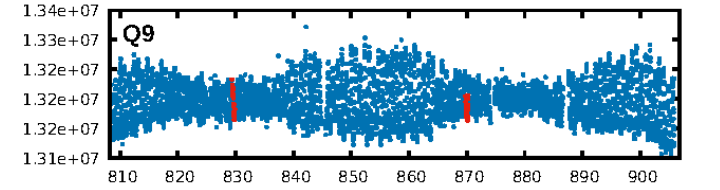
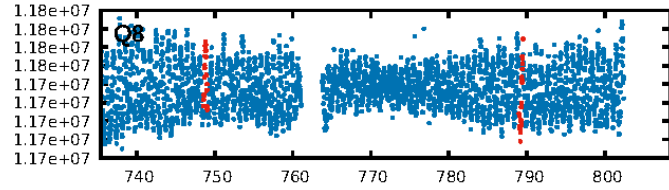
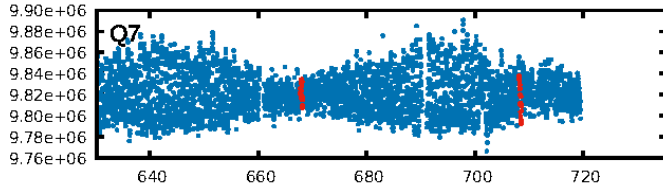
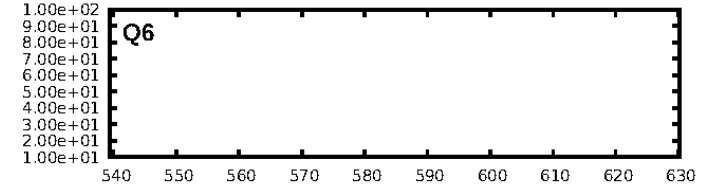
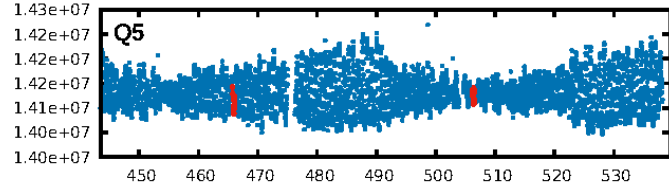
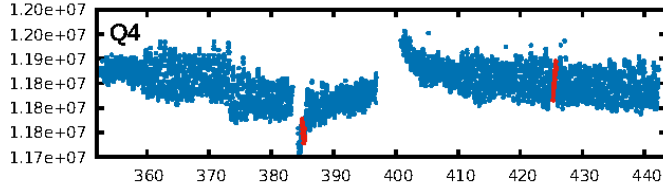
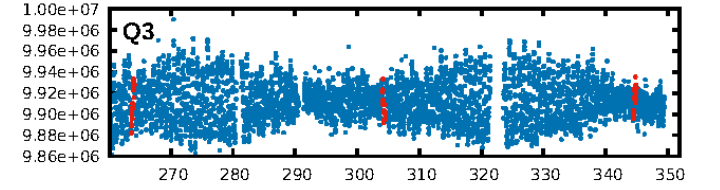
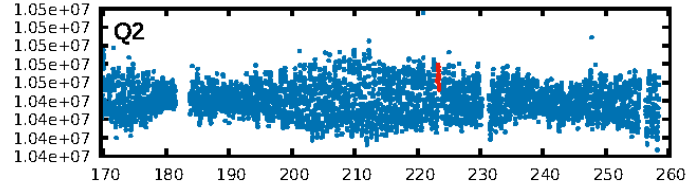
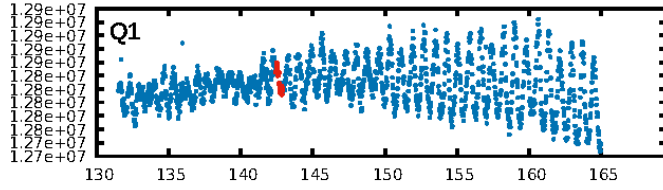
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.41 σ]
LongPeriod-sig: 100.0% [171.00 σ]
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.26e-10
RollingBand-fgt: 1.00 [13/13]
GhostDiagnostic-chr: 0.7567
Centroid-sig: 4.9%
Centroid-so: 1.382 arcsec [2.35 σ]
OotOffset-rm: 10.934 arcsec [102.72 σ]
KicOffset-rm: 13.417 arcsec [126.17 σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/12]

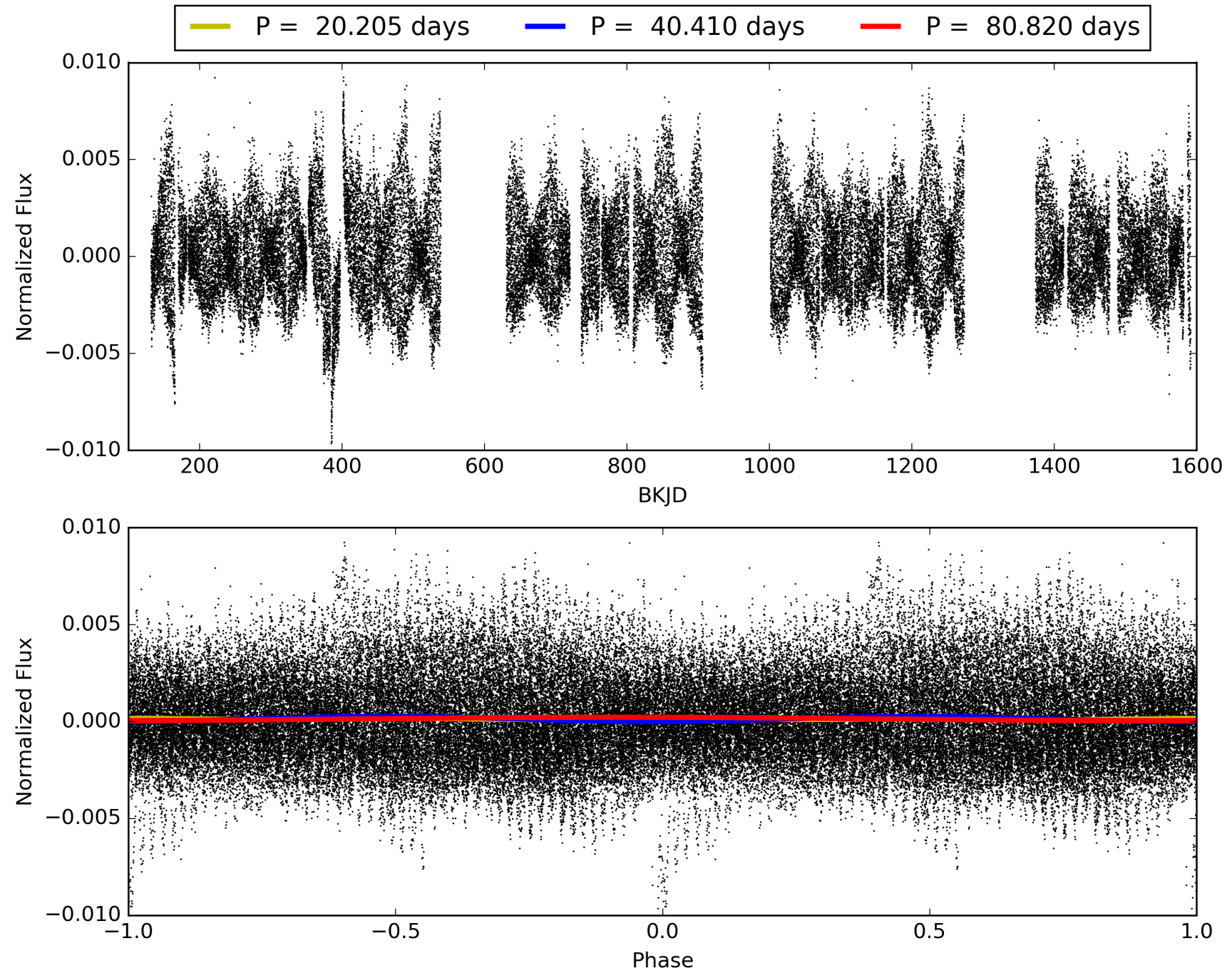
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:05:30 Z

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

TCE 004660691-02, PDC Light Curves

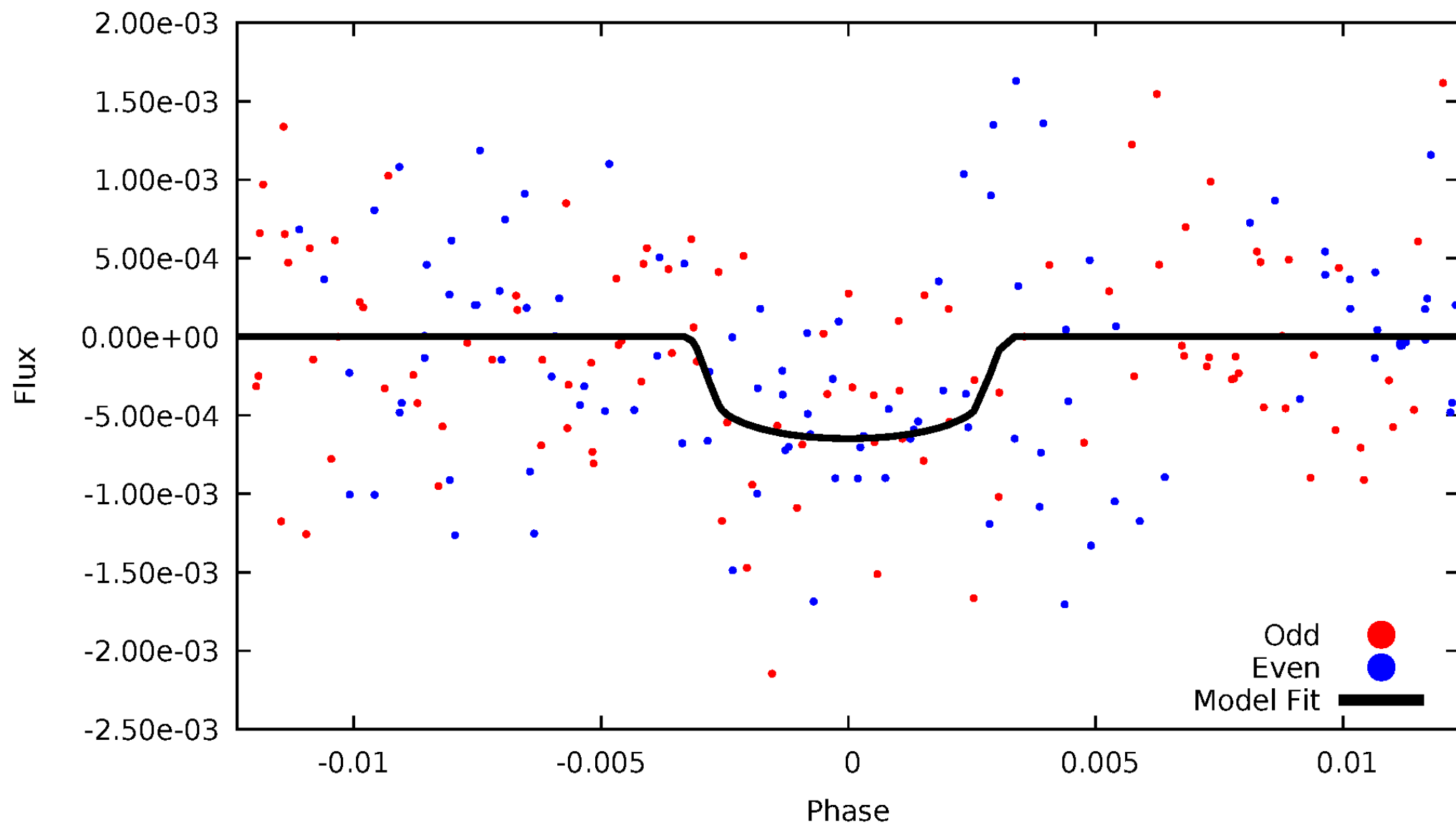


TCE 004660691-02



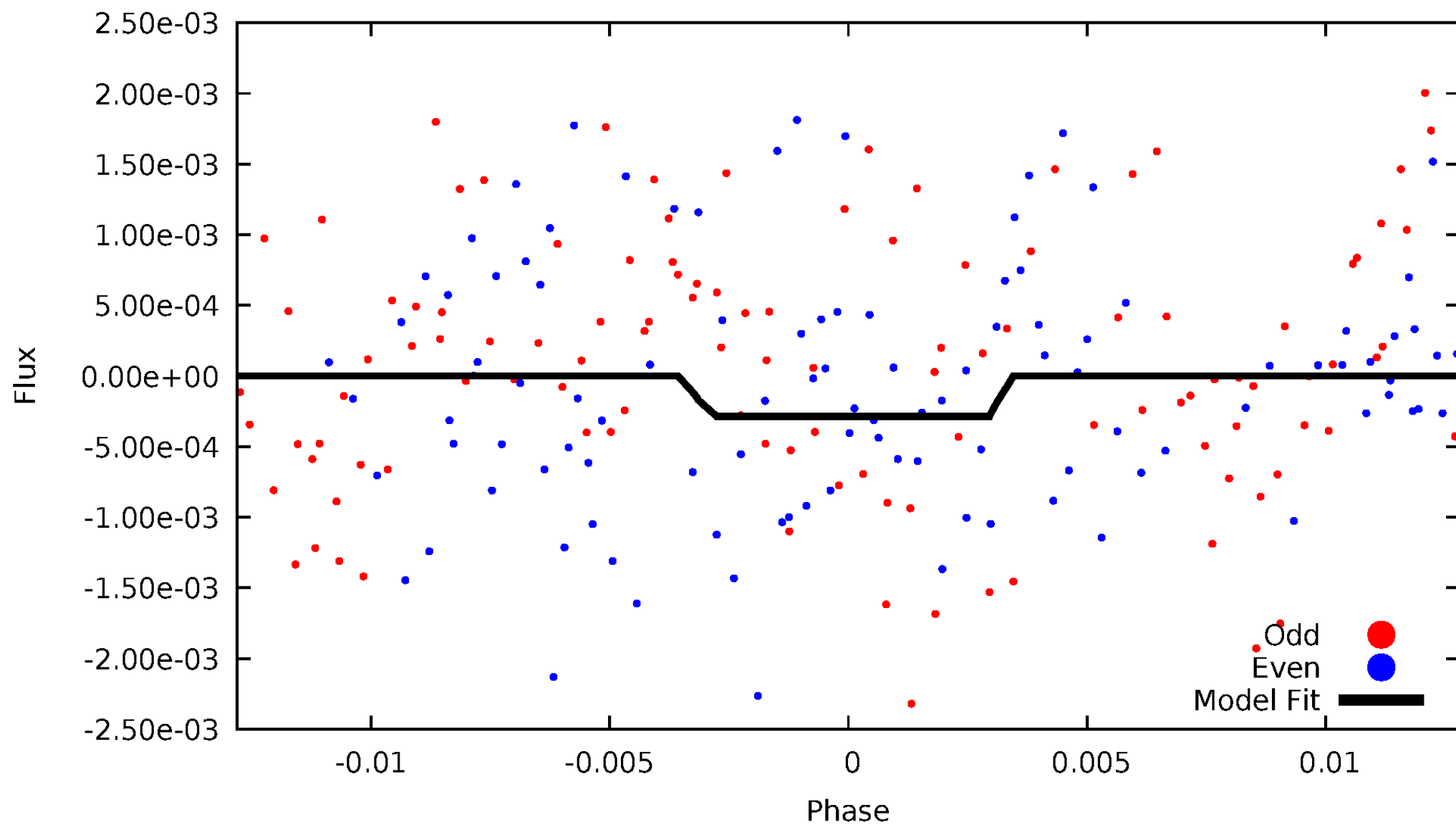
DV Odd/Even

TCE 004660691-02



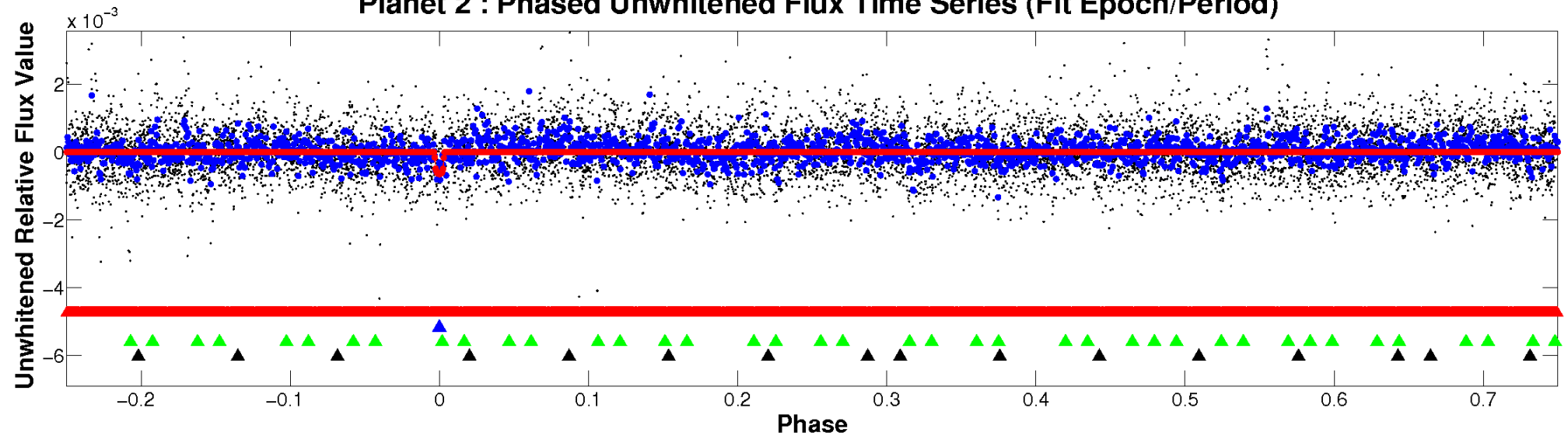
ALT Odd/Even

TCE 004660691-02

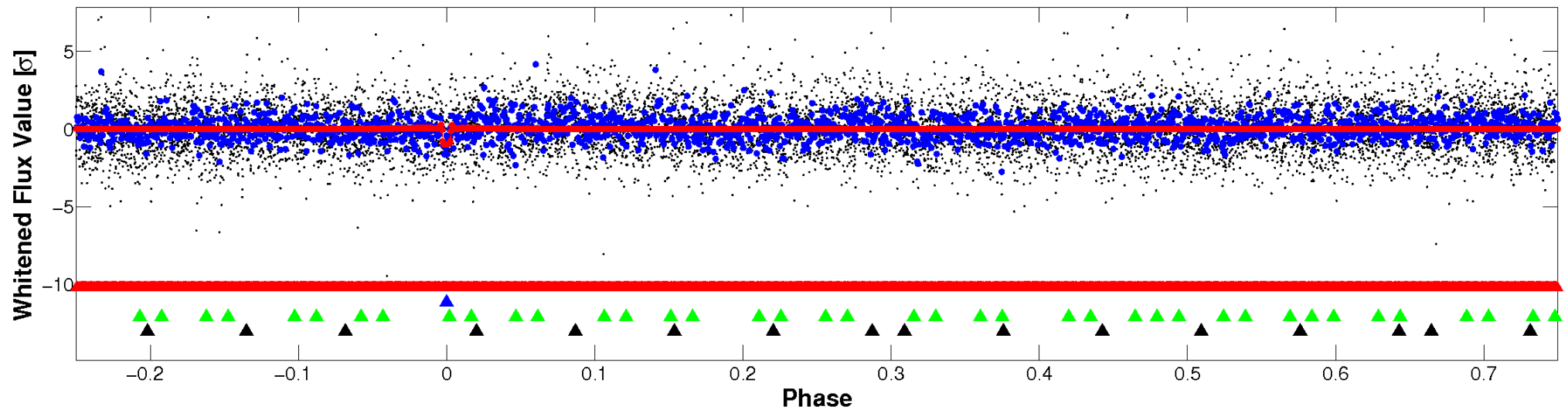


Non-Whitened Vs. Whitened Light Curve

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

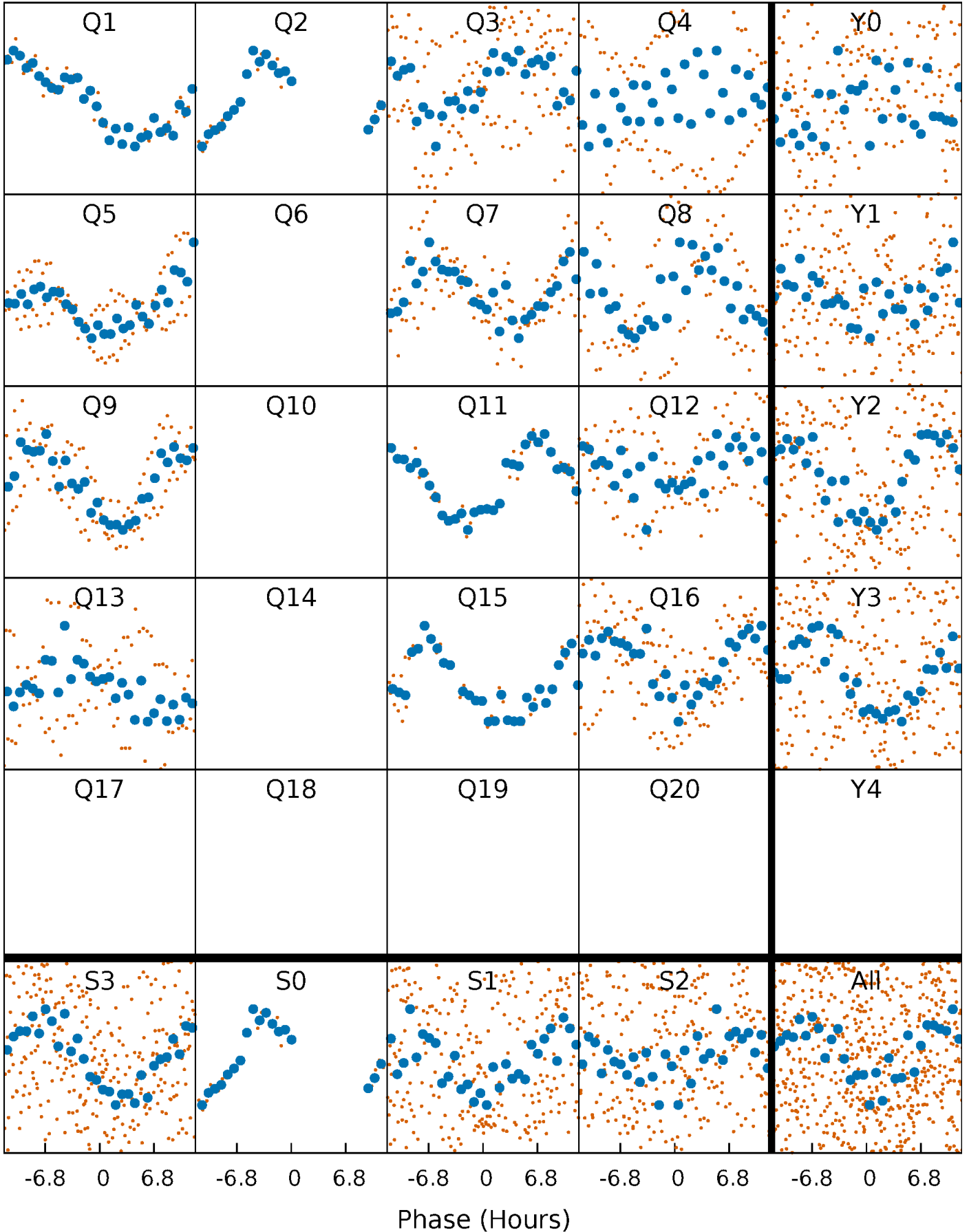


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



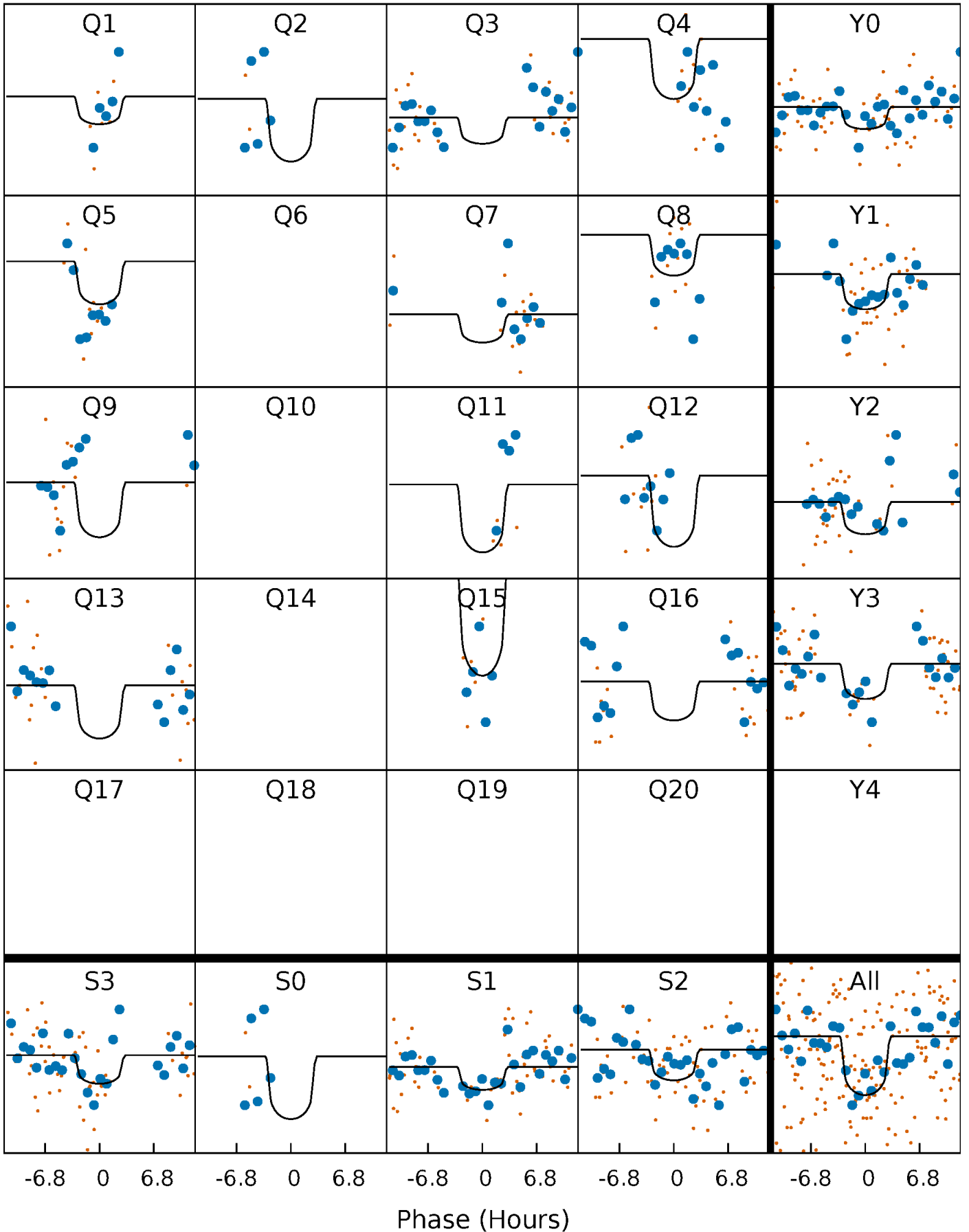
PDC Quarter-Phased Transit Curves

TCE 004660691-02 P= 40.410056 Days $T_0=142.657093$ (BKJD)



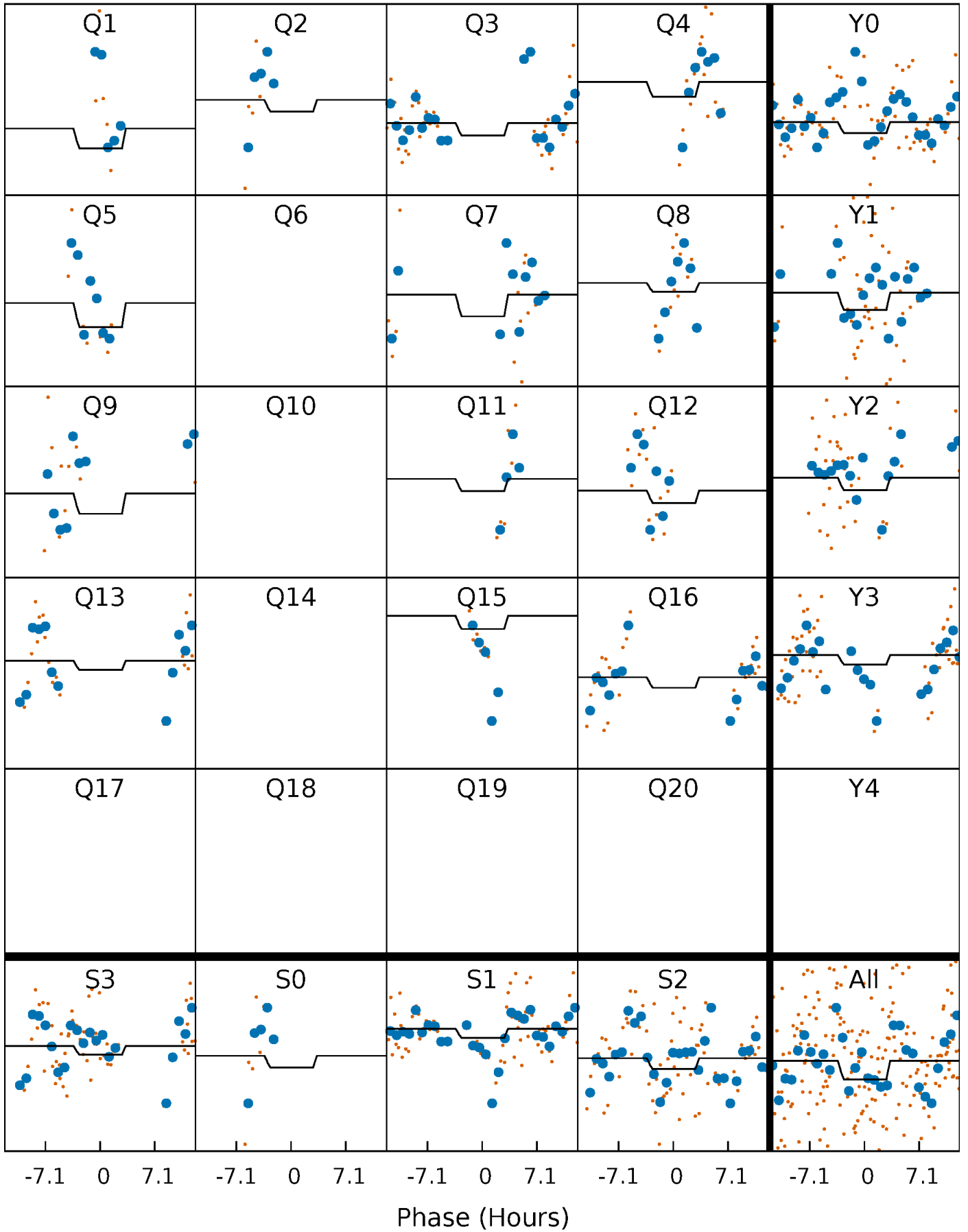
DV Quarter-Phased Transit Curves

TCE 004660691-02 $P = 40.410056$ Days $T_0 = 142.657093$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

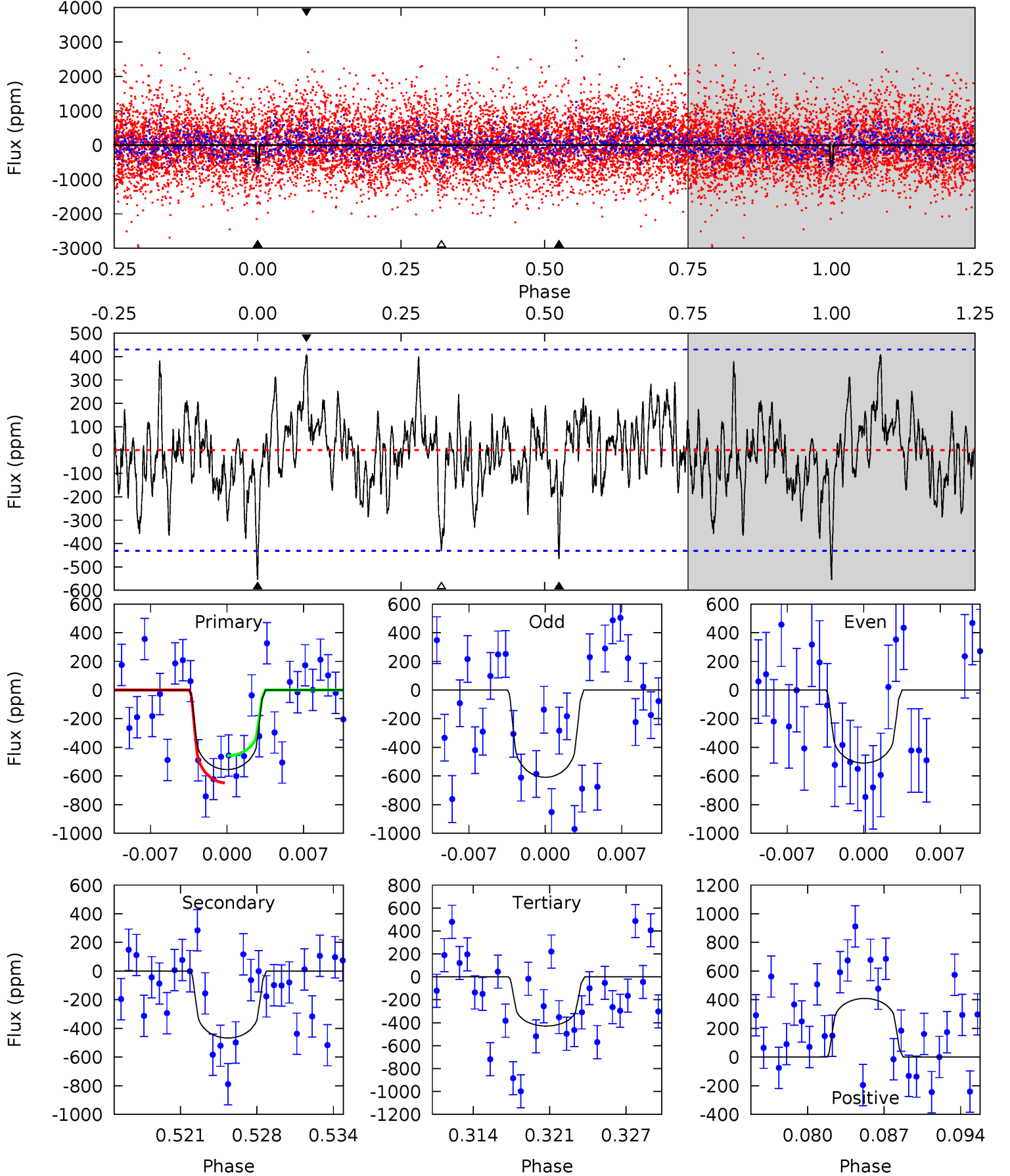
TCE 004660691-02 $P = 40.409271$ Days $T_0 = 142.651753$ (BKJD)



DV Model-Shift Uniqueness Test

004660691-02, P = 40.410056 Days, E = 102.247037 Days

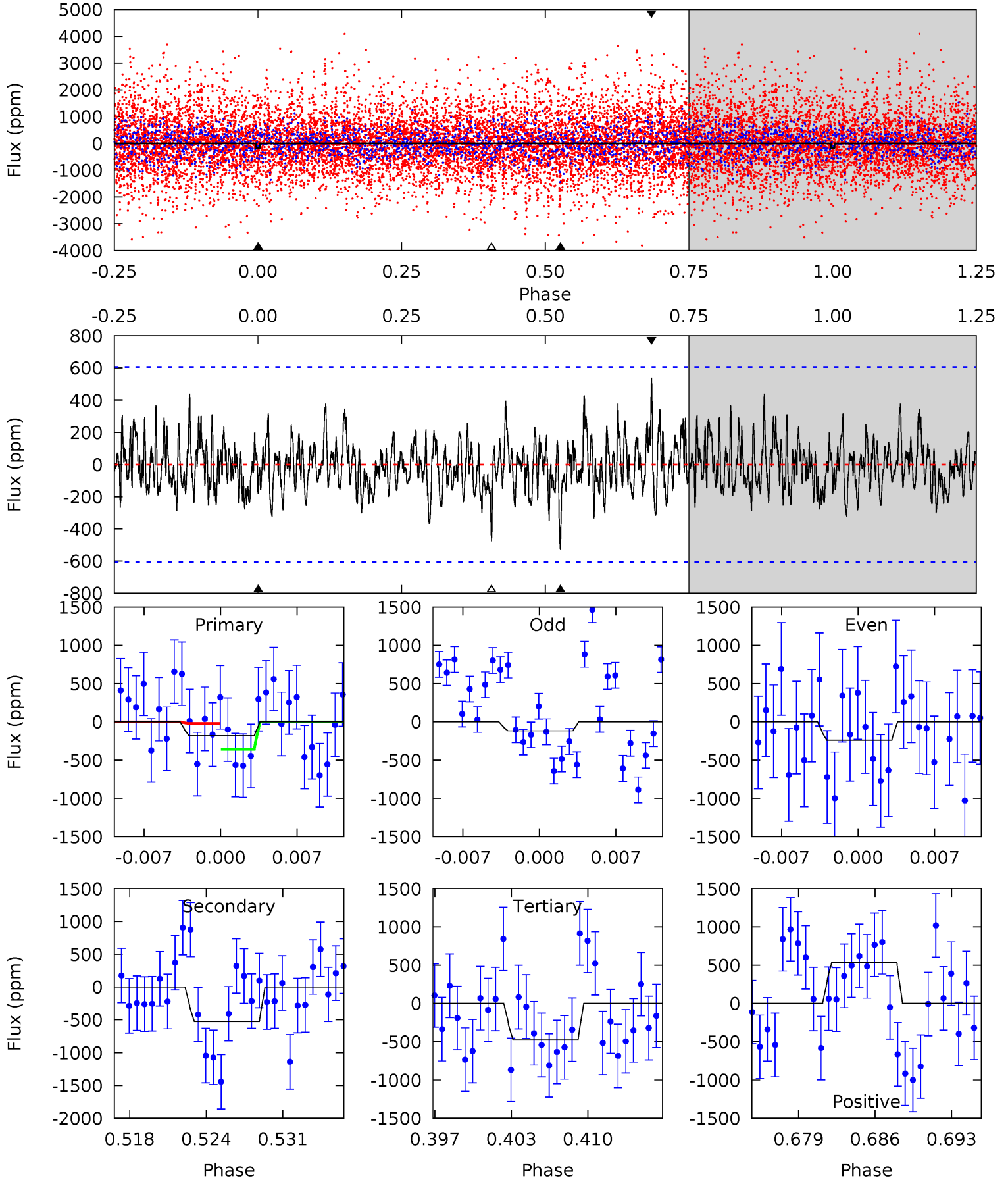
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.58	5.53	5.08	4.85	5.10	2.71	1.51	1.49	1.73	0.45	0.69	0.58	1.19	0.42	1.13



Alt Model-Shift Uniqueness Test

004660691-02, P = 40.409271 Days, E = 102.242482 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.53	4.43	4.00	4.53	5.10	2.71	1.20	-2.47	-3.00	0.42	-0.10	0.51	0.77	0.51	1.42



Stellar Parameters For KIC 004660691

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 004660691-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-467 ± 84	$3.29^{+2.54}_{-2.03}$	739^{+38}_{-35}	4959^{+3162}_{-987}	1288^{+7773}_{-898}
Alt.	-526 ± 119	$2.70^{+2.22}_{-1.76}$	742^{+36}_{-36}	5531^{+4797}_{-1191}	2076^{+14798}_{-1453}

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 $A_{obs} \gg 1.0$

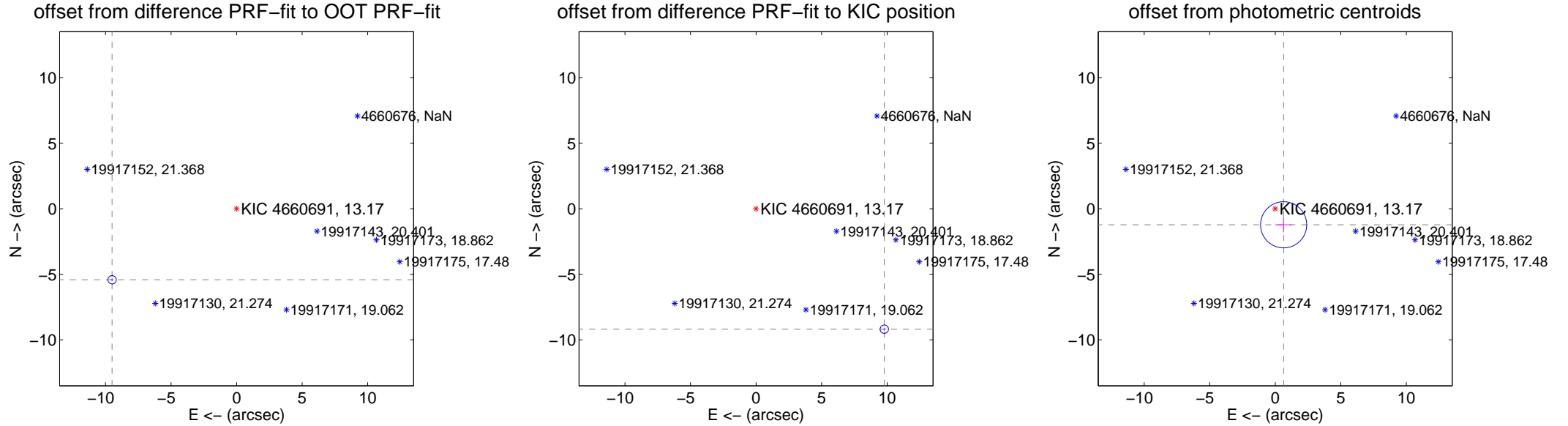
DV Centroid Data

Supplemental centroid analysis for 004660691-02. Kepler magnitude: 13.17. Transit SNR 6.96

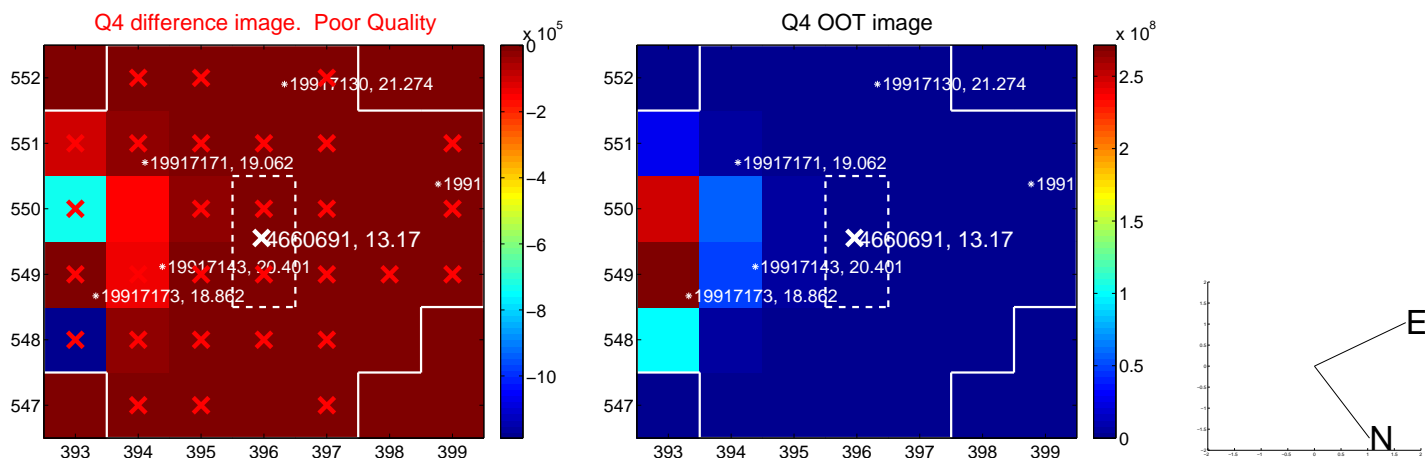
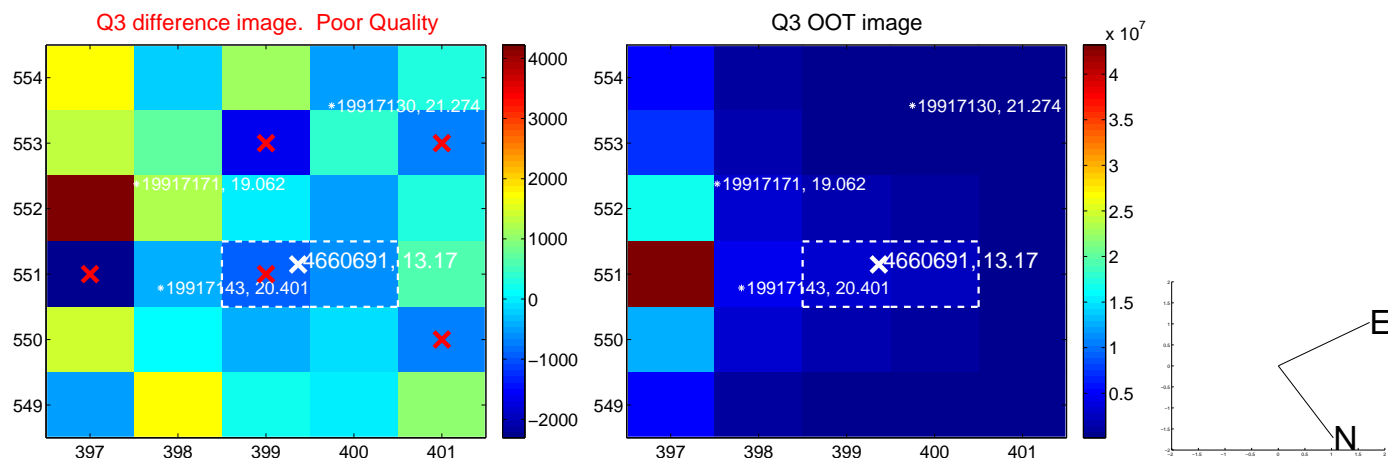
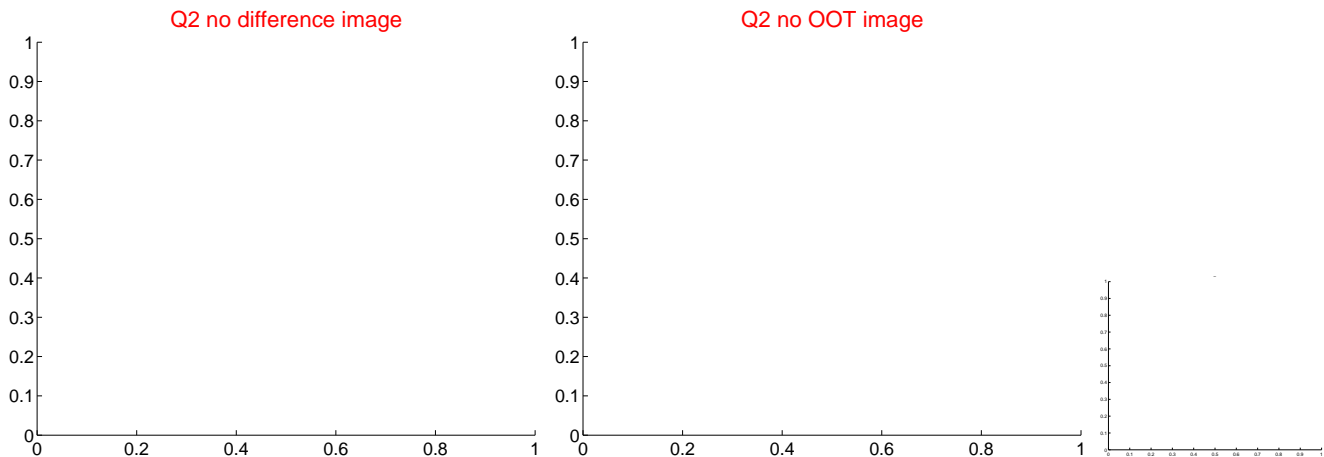
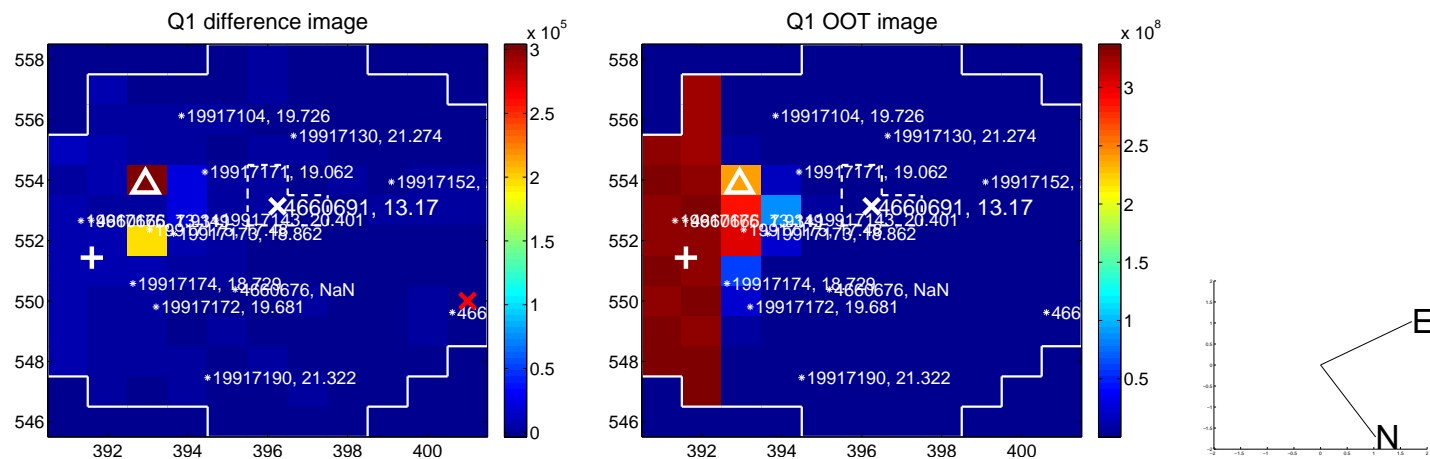
There are 1 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 19.64 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

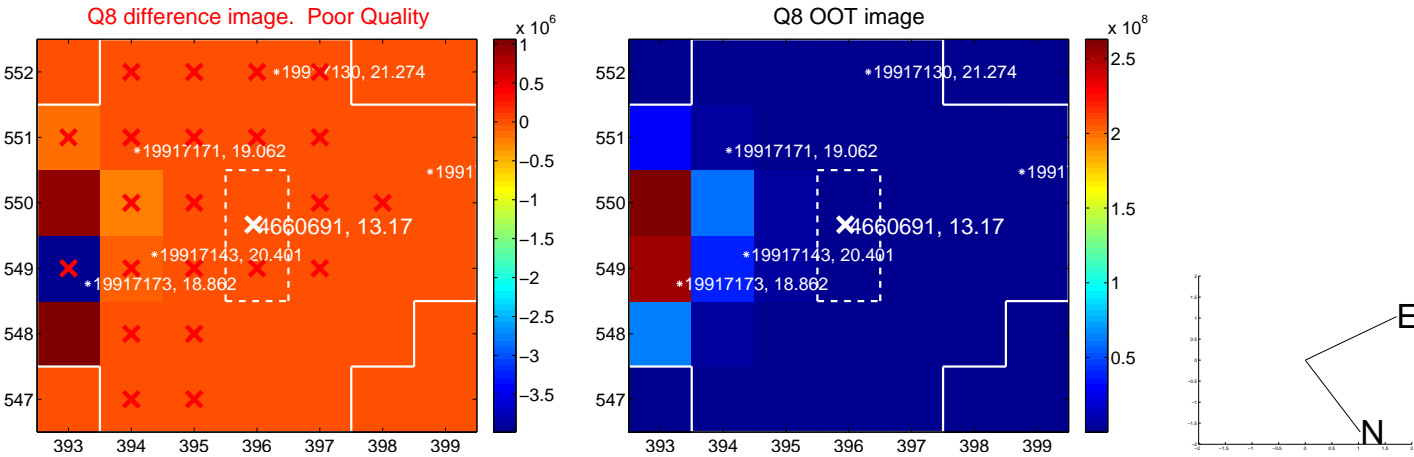
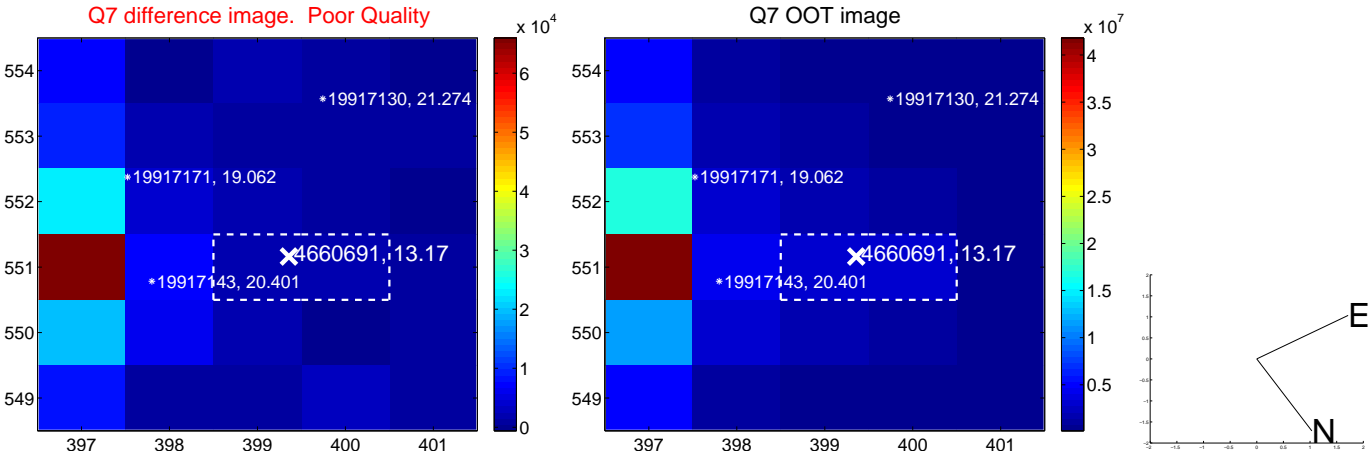
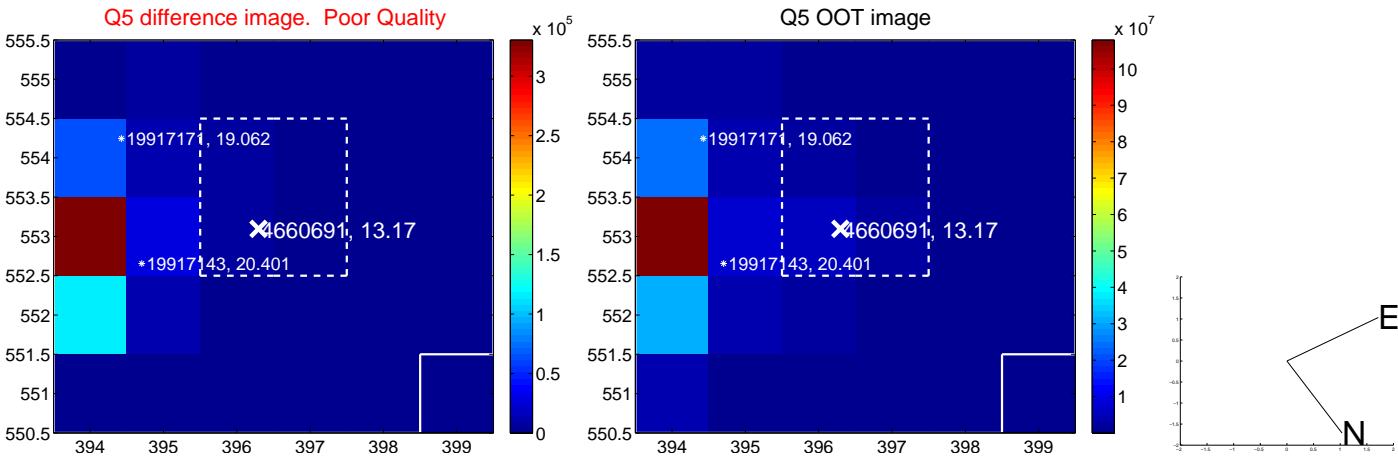
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.934 ± 0.106	102.72	9.497 ± 0.107	-5.418 ± 0.106
PRF-fit source offset from KIC position	13.417 ± 0.106	126.17	-9.782 ± 0.107	-9.184 ± 0.106
photometric centroid source offset	1.38 ± 0.59	2.35	-0.64 ± 0.64	-1.22 ± 0.57



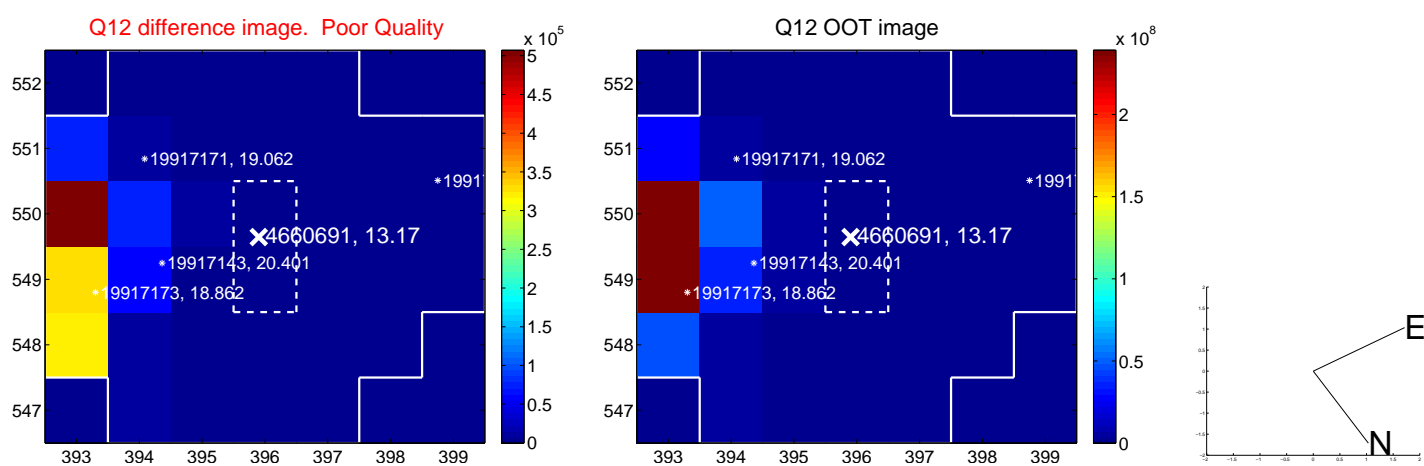
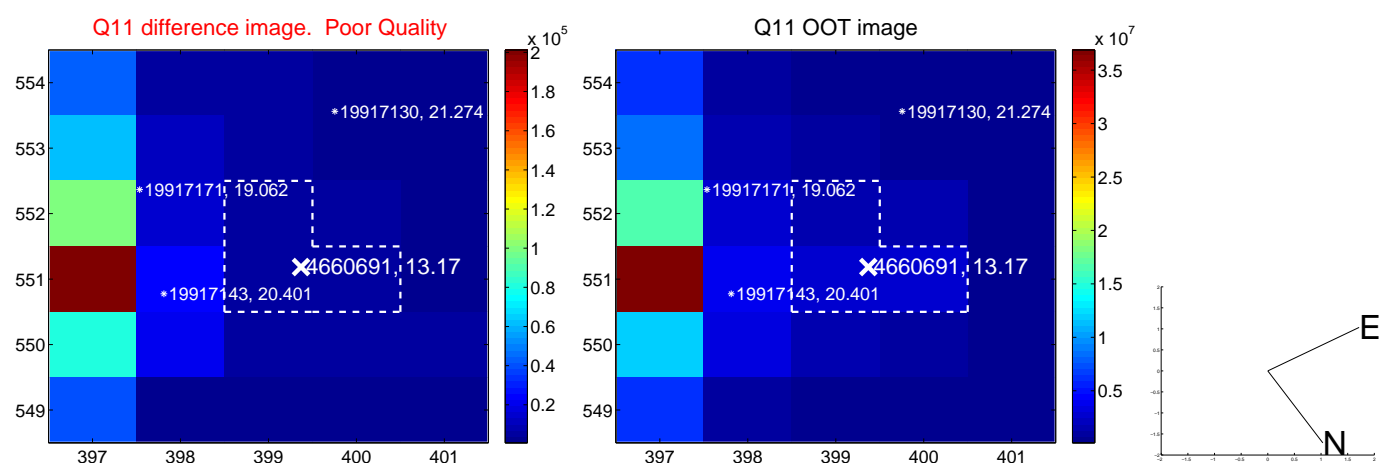
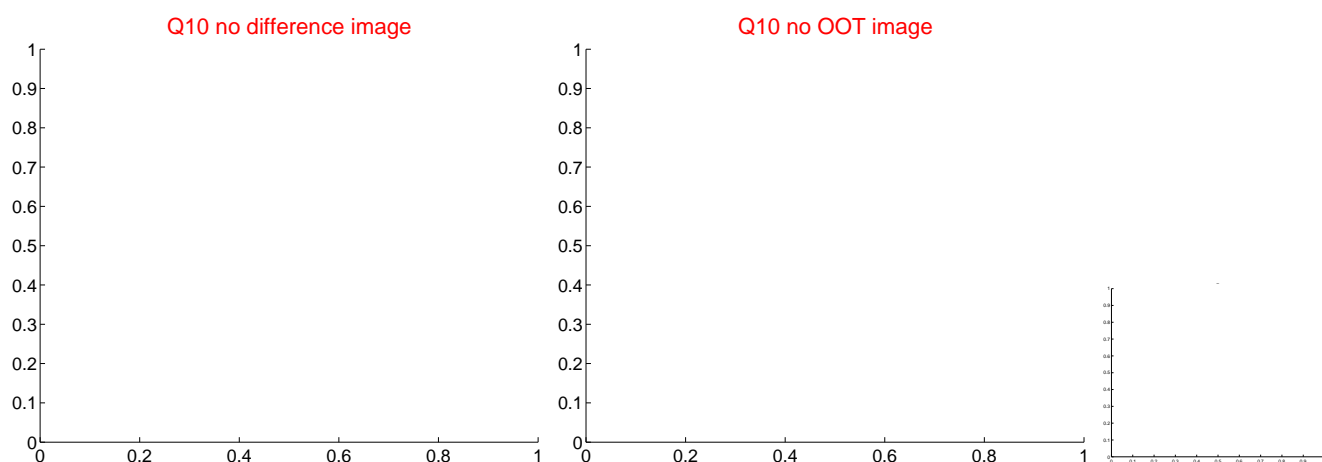
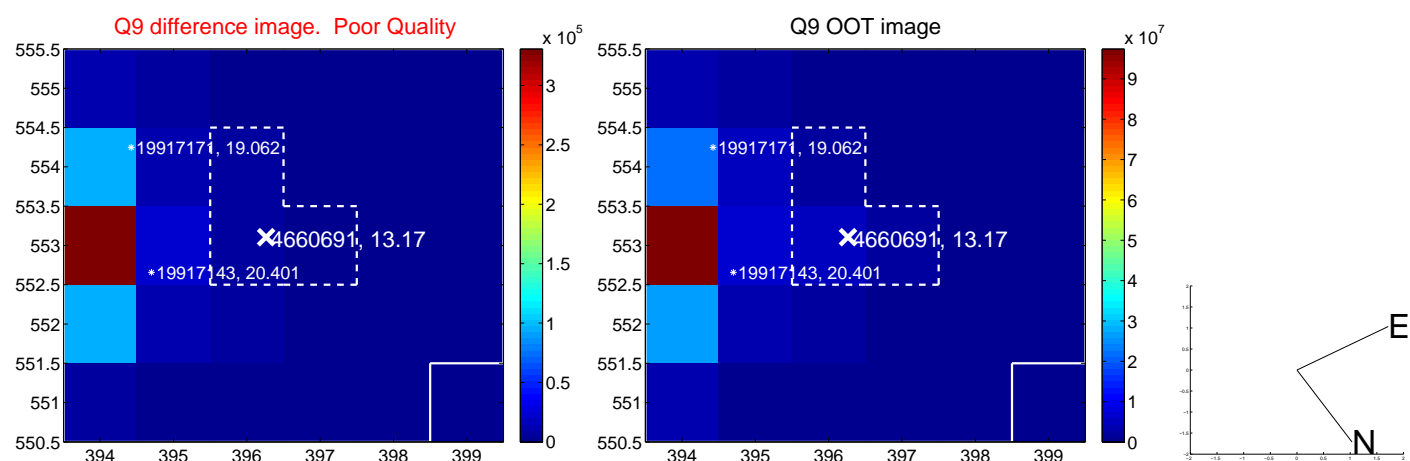
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



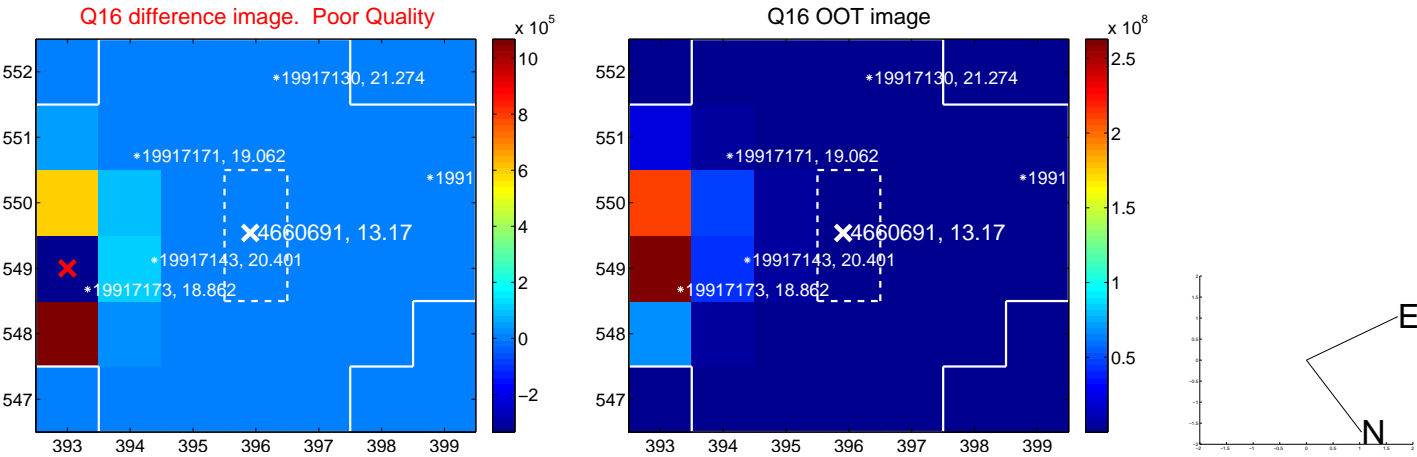
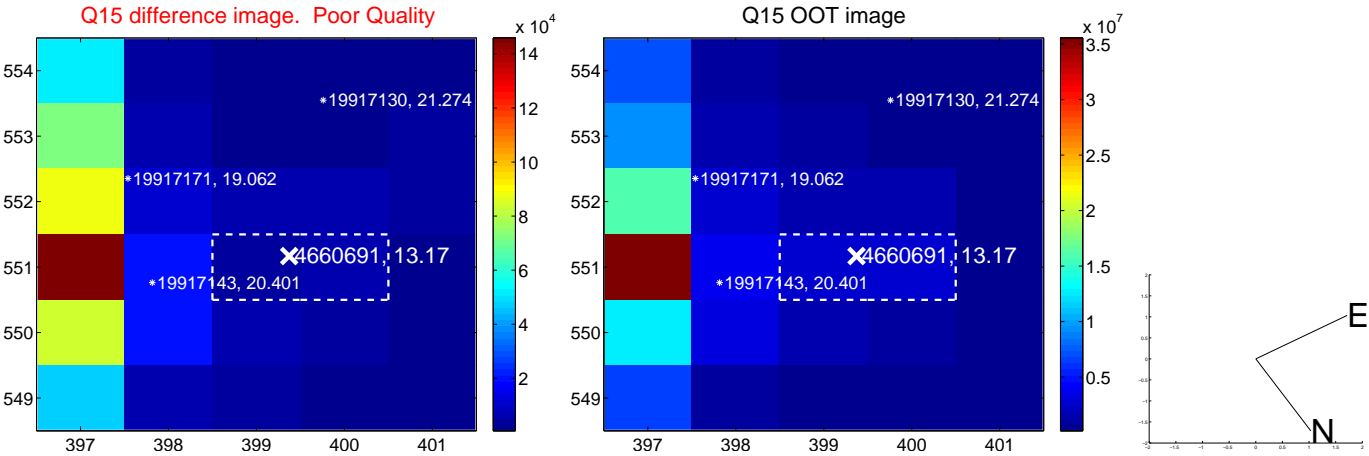
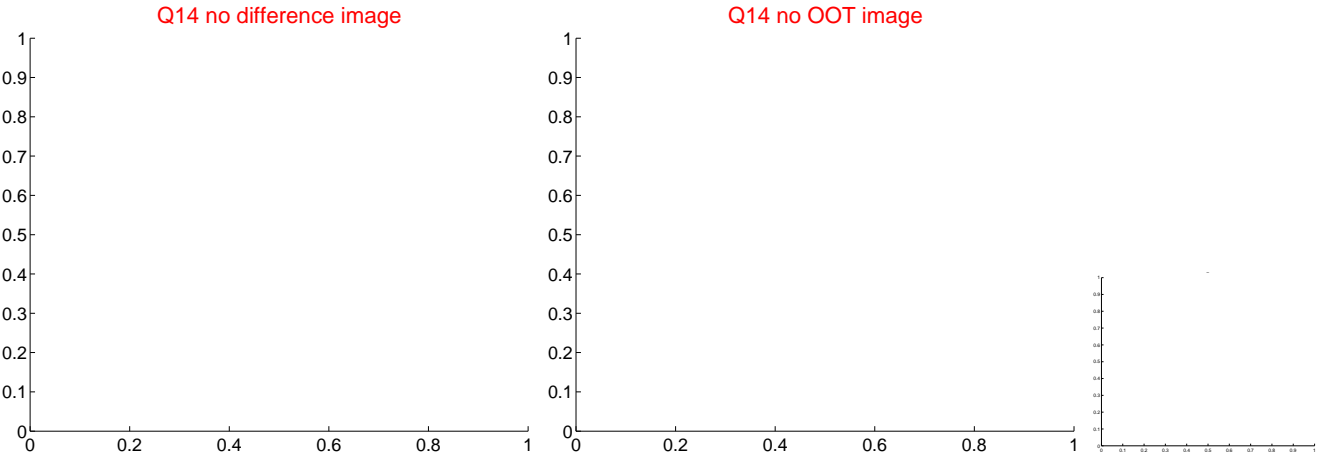
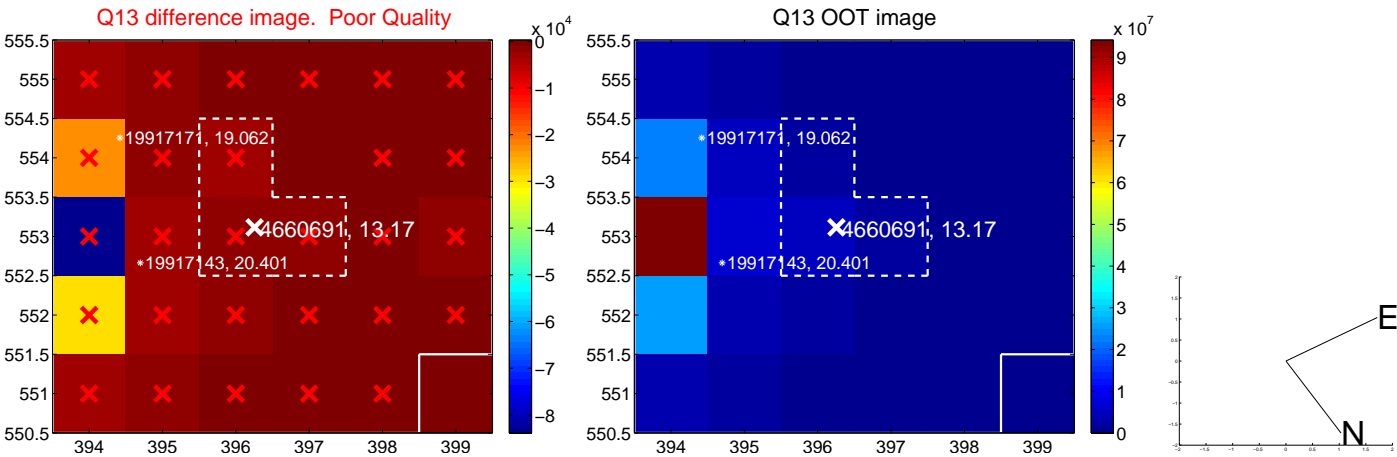
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



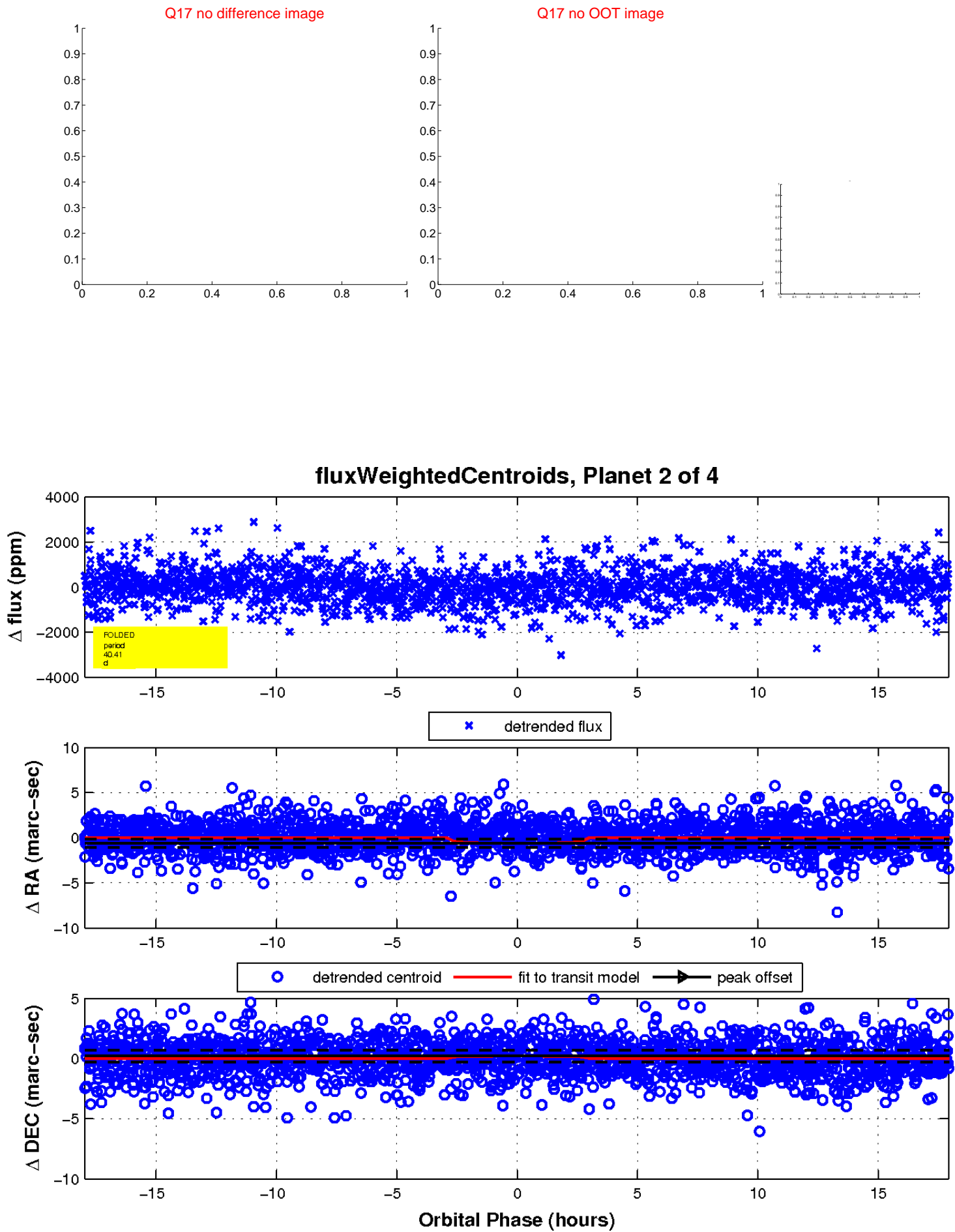
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



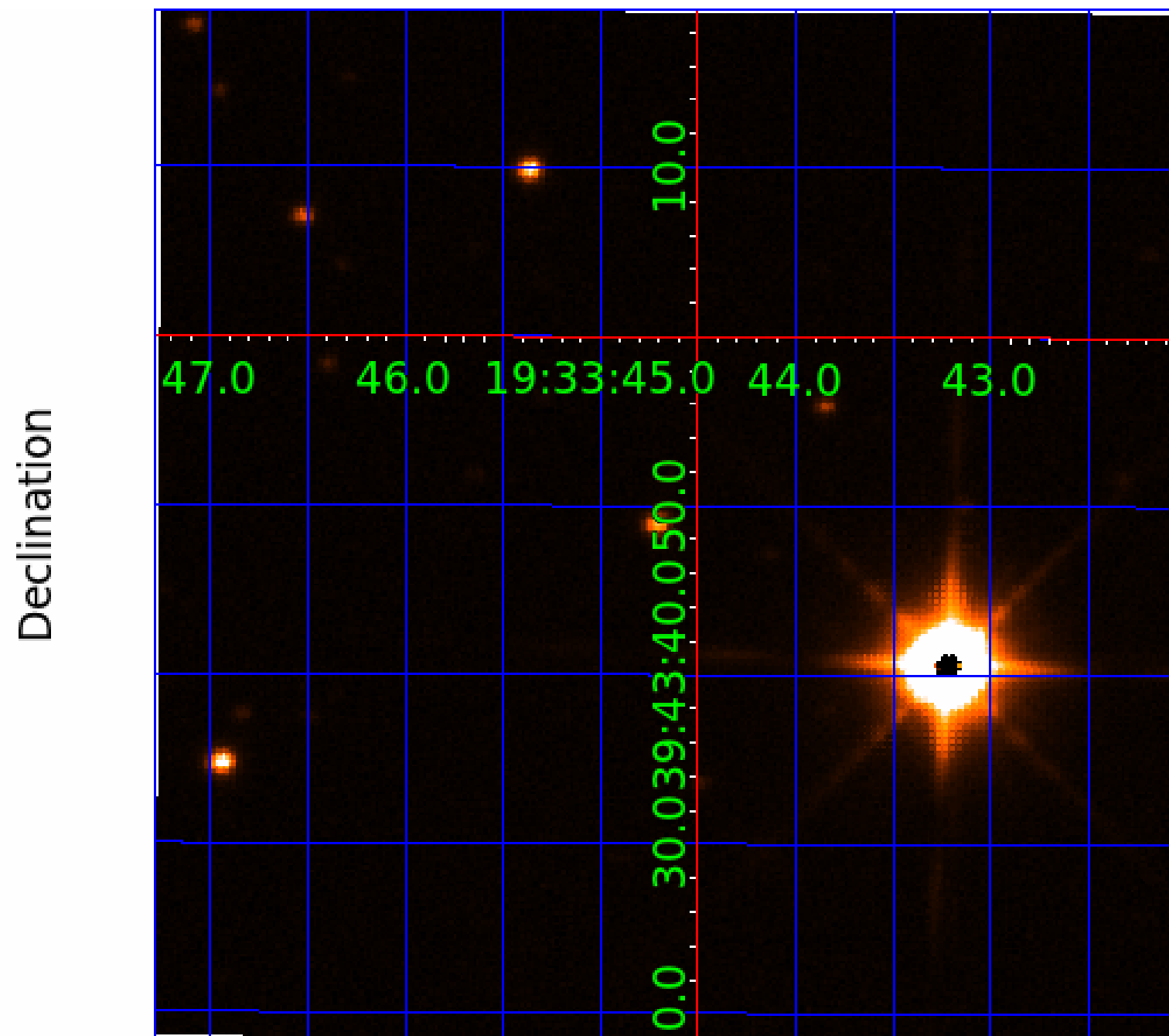
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004660691

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})
004660691-01	OBS	No	0.790321	132.012256	0.0	4.918	7.8	0.0	1.00	5780	0.00	3571.64
004660691-02	OBS	No	40.410056	142.657093	648.8	5.989	8.7	7.0	1.00	5780	2.79	18.82
004660691-03	OBS	No	36.187721	165.659867	991.3	2.711	9.3	8.7	1.00	5780	3.26	21.80
004660691-04	OBS	No	95.189445	155.144855	161.2	4.821	7.9	0.9	1.00	5780	1.51	6.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004660691-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
004660691-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

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

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

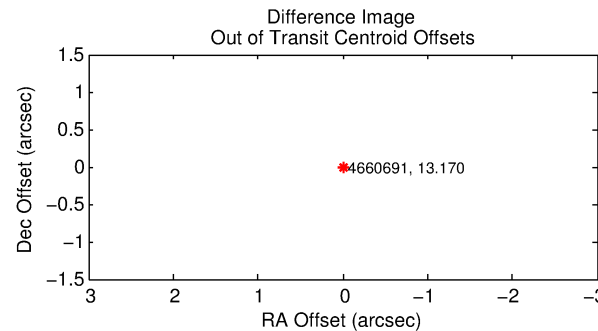
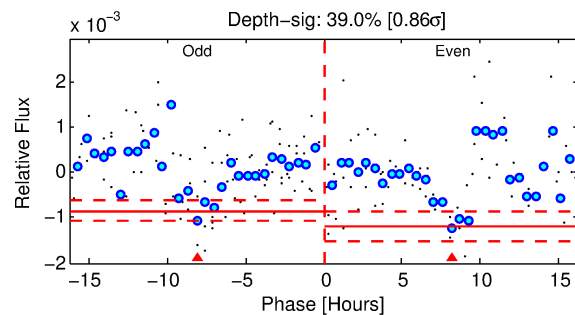
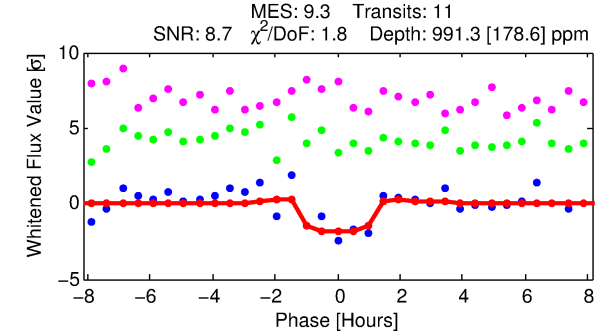
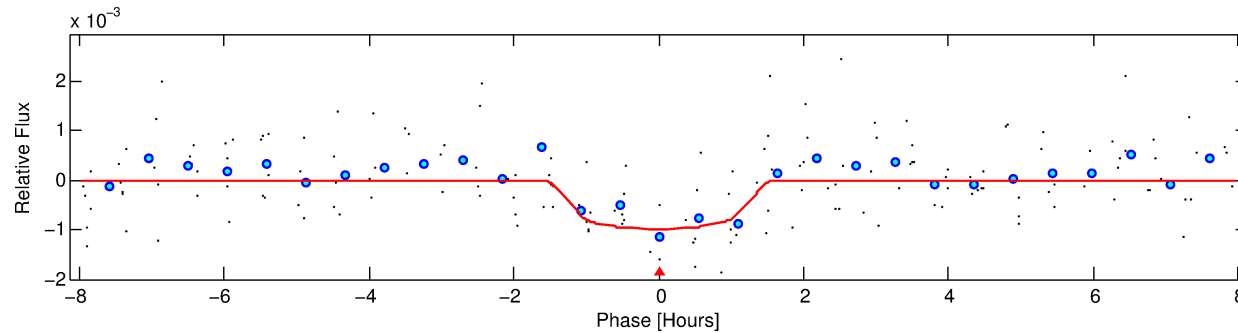
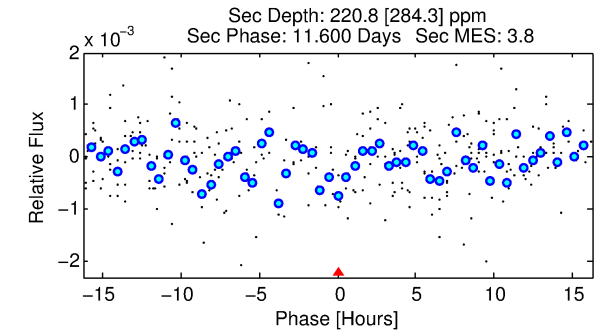
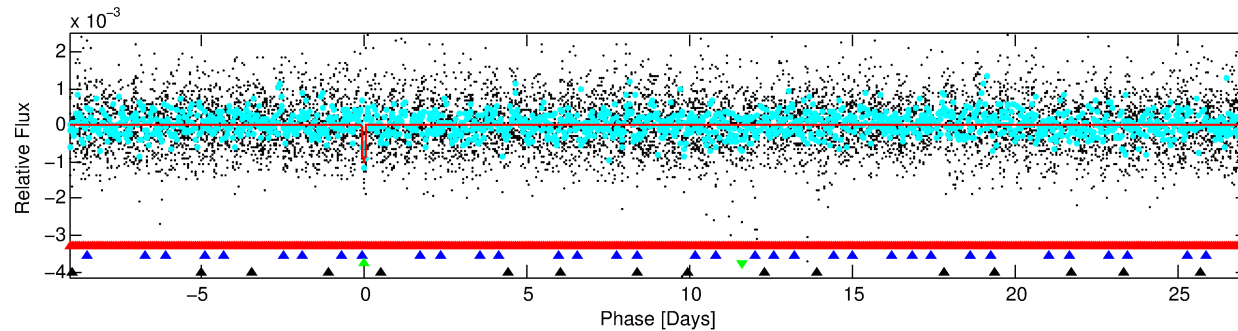
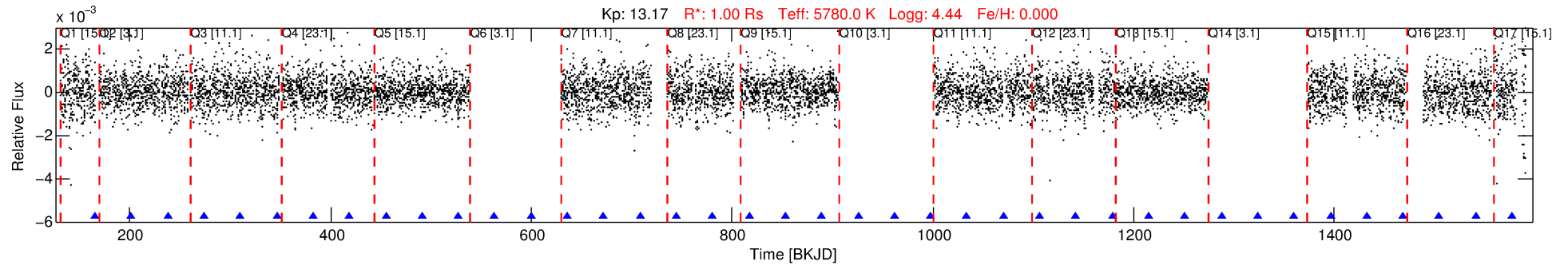
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004660691-03

No Significant Match Found

DV One-Page Summary

KIC: 4660691 Candidate: 3 of 4 Period: 36.188 d



DV Fit Results:

Period = 36.18772 [0.00049] d
Epoch = 165.6599 [0.0098] BKJD
Rp/R* = 0.0298 [0.0670]
a/R* = 87.73 [851.29]
b = 0.57 [11.81]
Seff = 21.80 [0.00]
Teq = 551 [0] K
Rp = 3.26 [7.31] Re
a = 0.2142 [0.0000] AU
Ag = 525.22 [2453.55] [0.21σ]
Teffp = 4078 [4763] K [0.74σ]

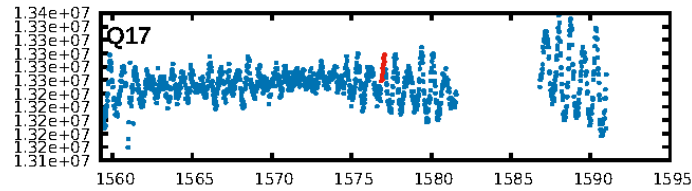
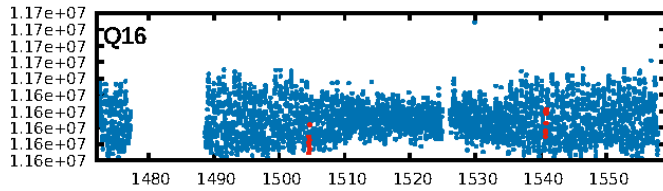
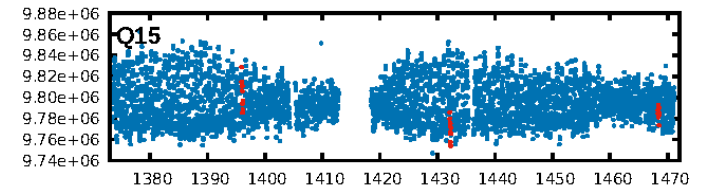
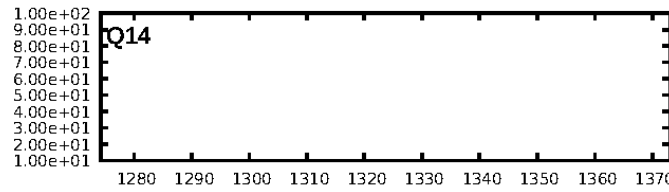
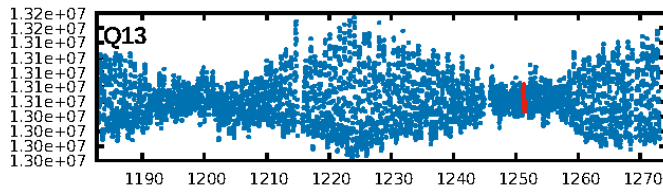
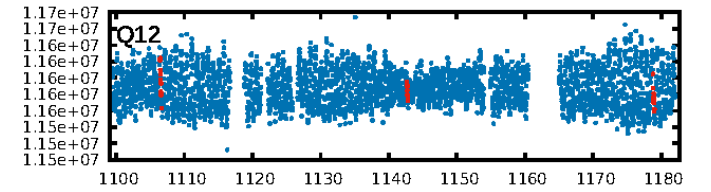
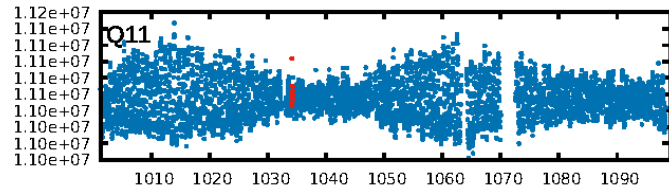
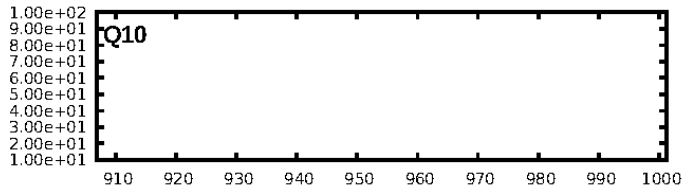
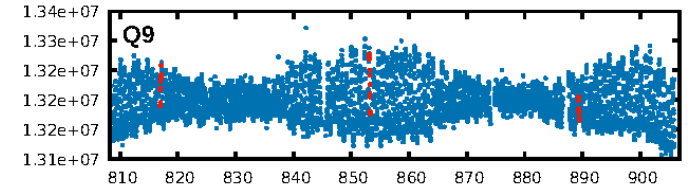
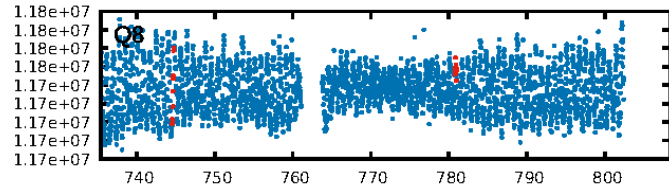
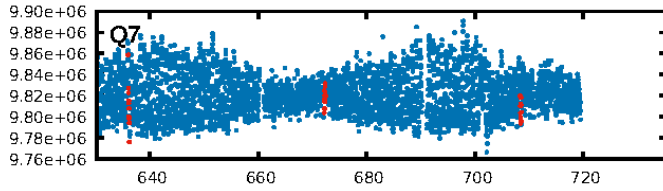
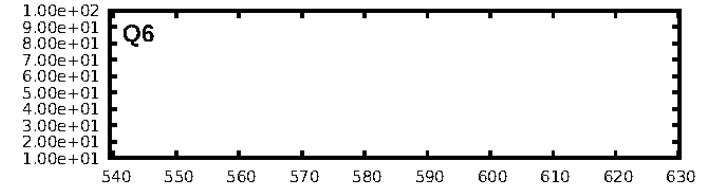
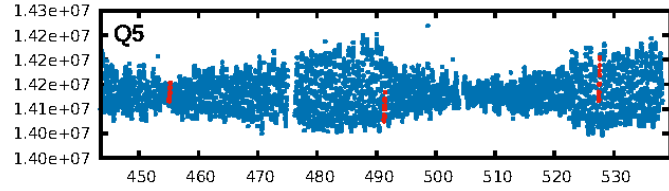
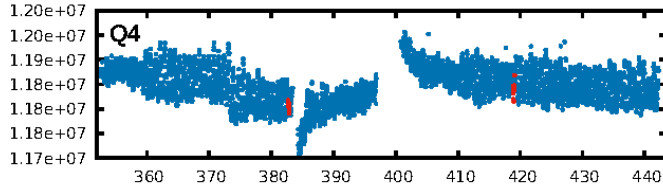
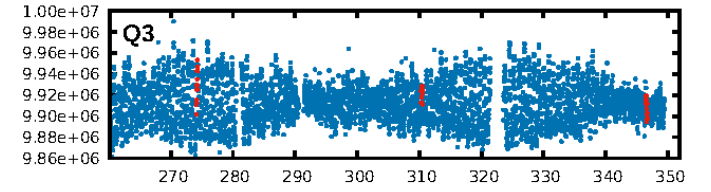
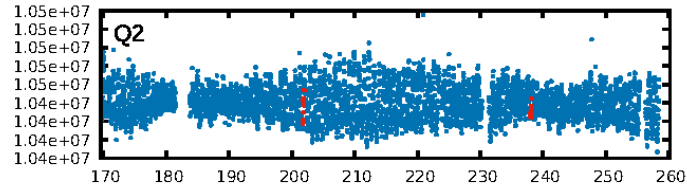
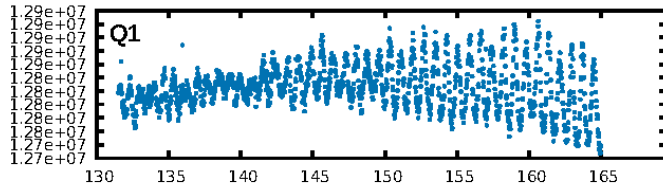
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [151.28σ]
LongPeriod-sig: 100.0% [15.41σ]
ModelChiSquare2-sig: 9.8%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.08e-10
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -1.225
Centroid-sig: 0.0%
Centroid-so: 3.482 arcsec [7.29σ]
OotOffset-rm: N/A
KicOffset-rm: 8.906 arcsec [11.65σ]
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/1 [1]
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DiffImageOverlap-fno: 0.00 [0/12]

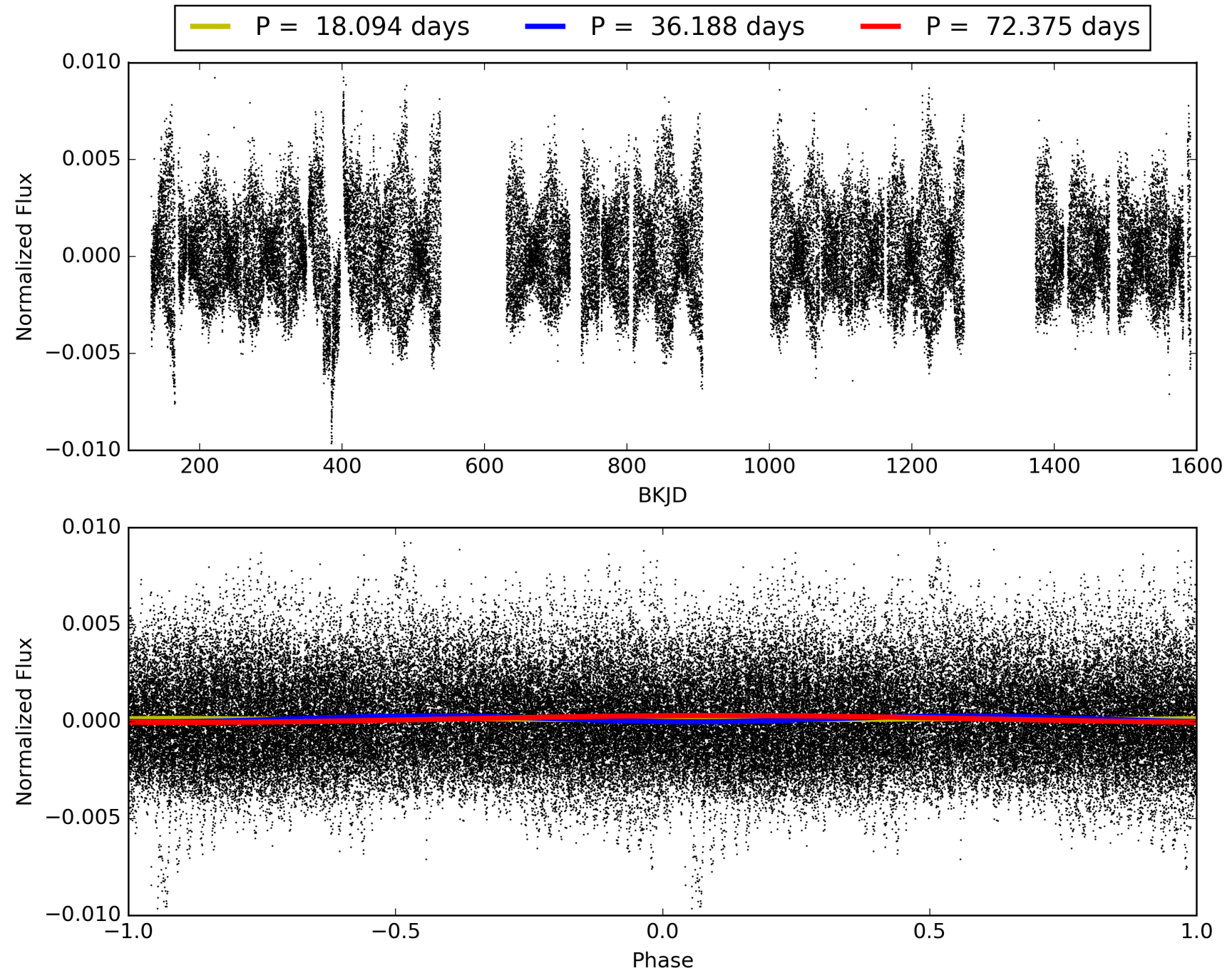
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:05:33 Z

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

TCE 004660691-03, PDC Light Curves

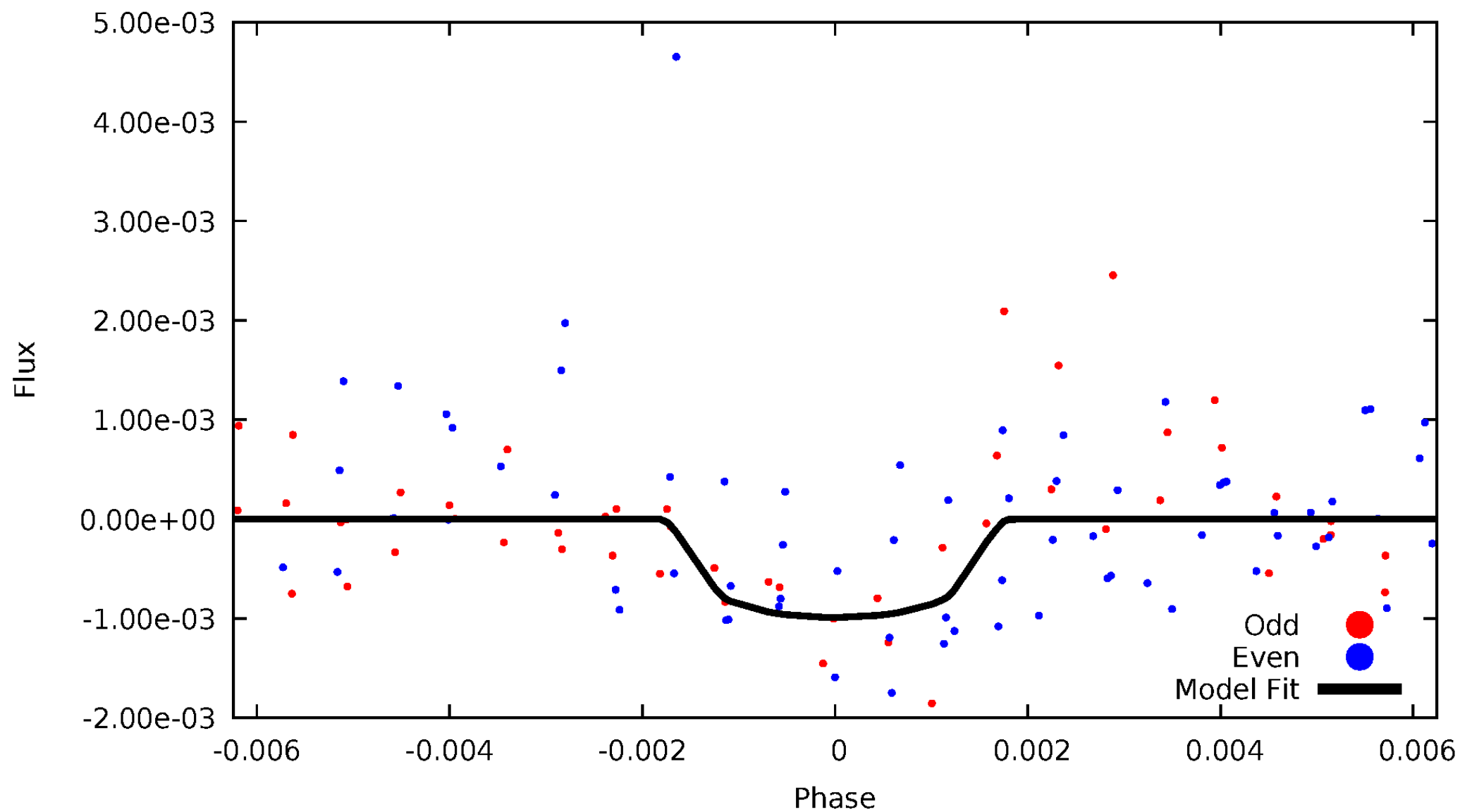


TCE 004660691-03



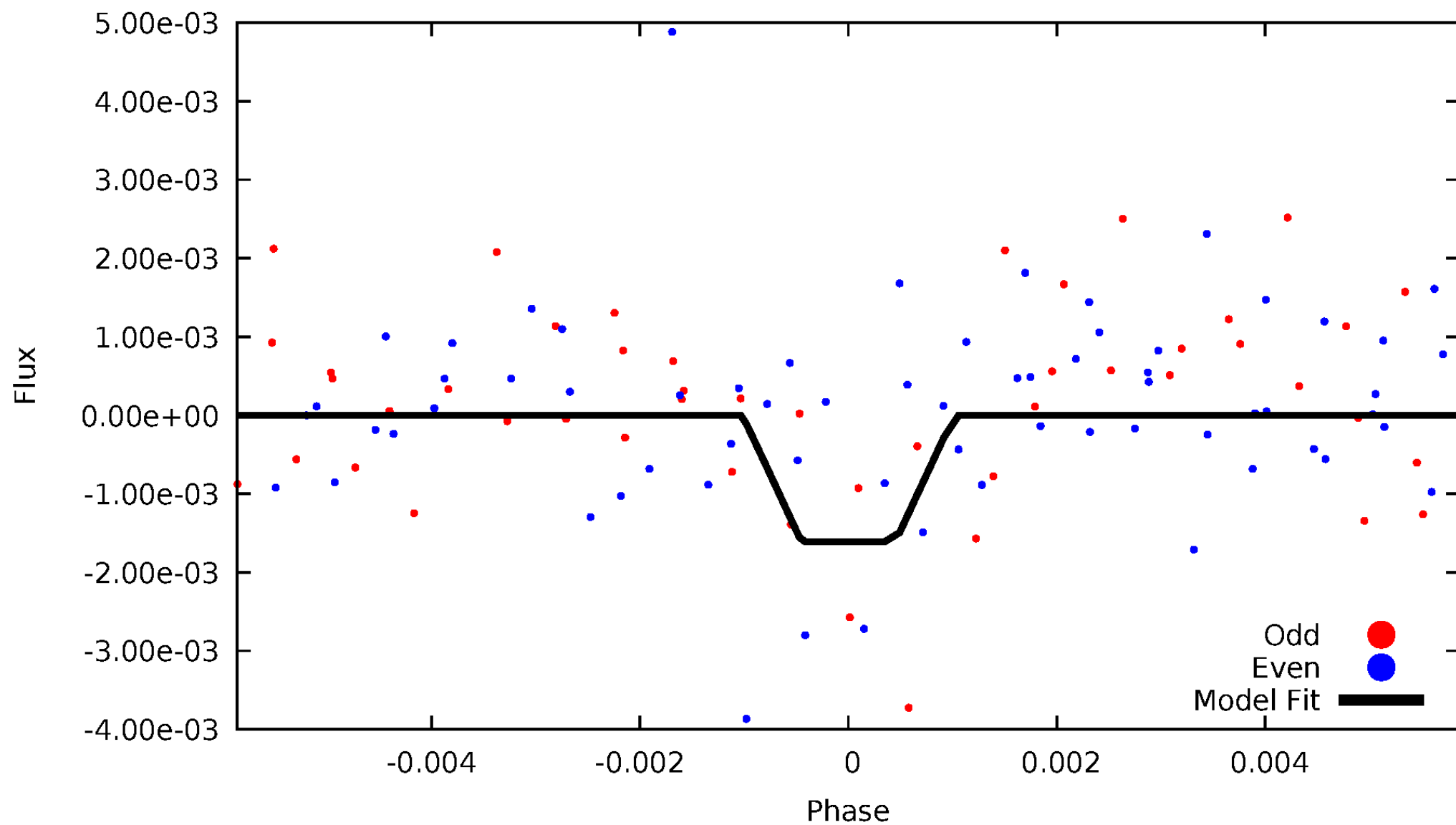
DV Odd/Even

TCE 004660691-03



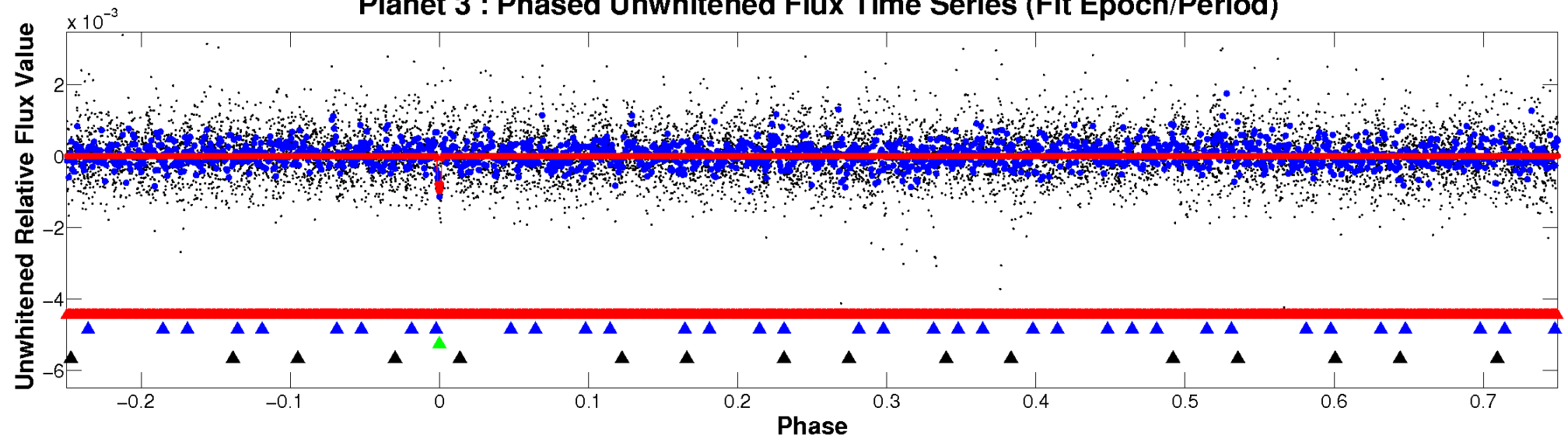
ALT Odd/Even

TCE 004660691-03

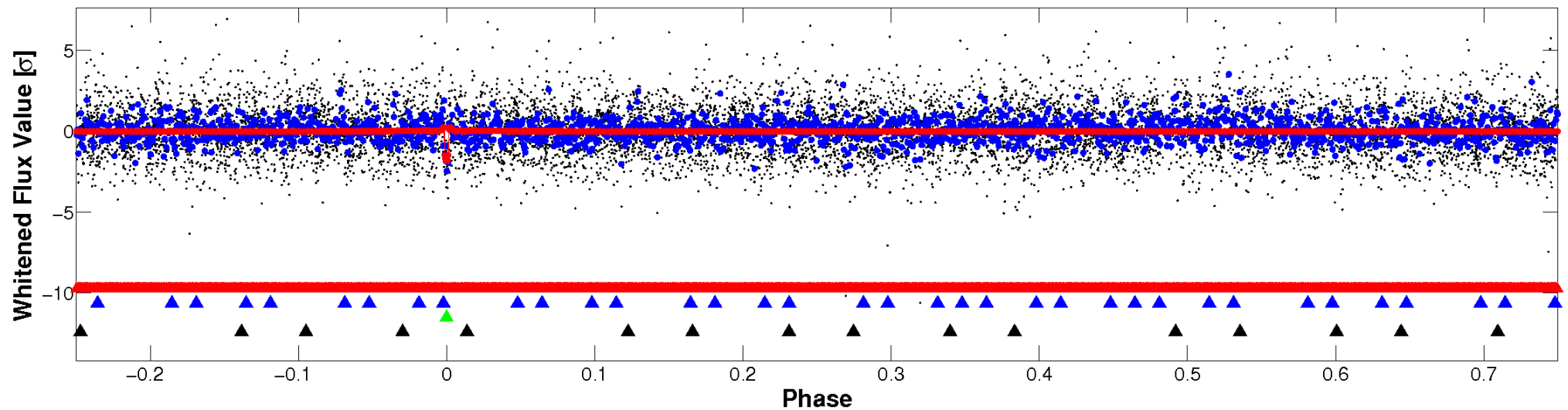


Non-Whitened Vs. Whitened Light Curve

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

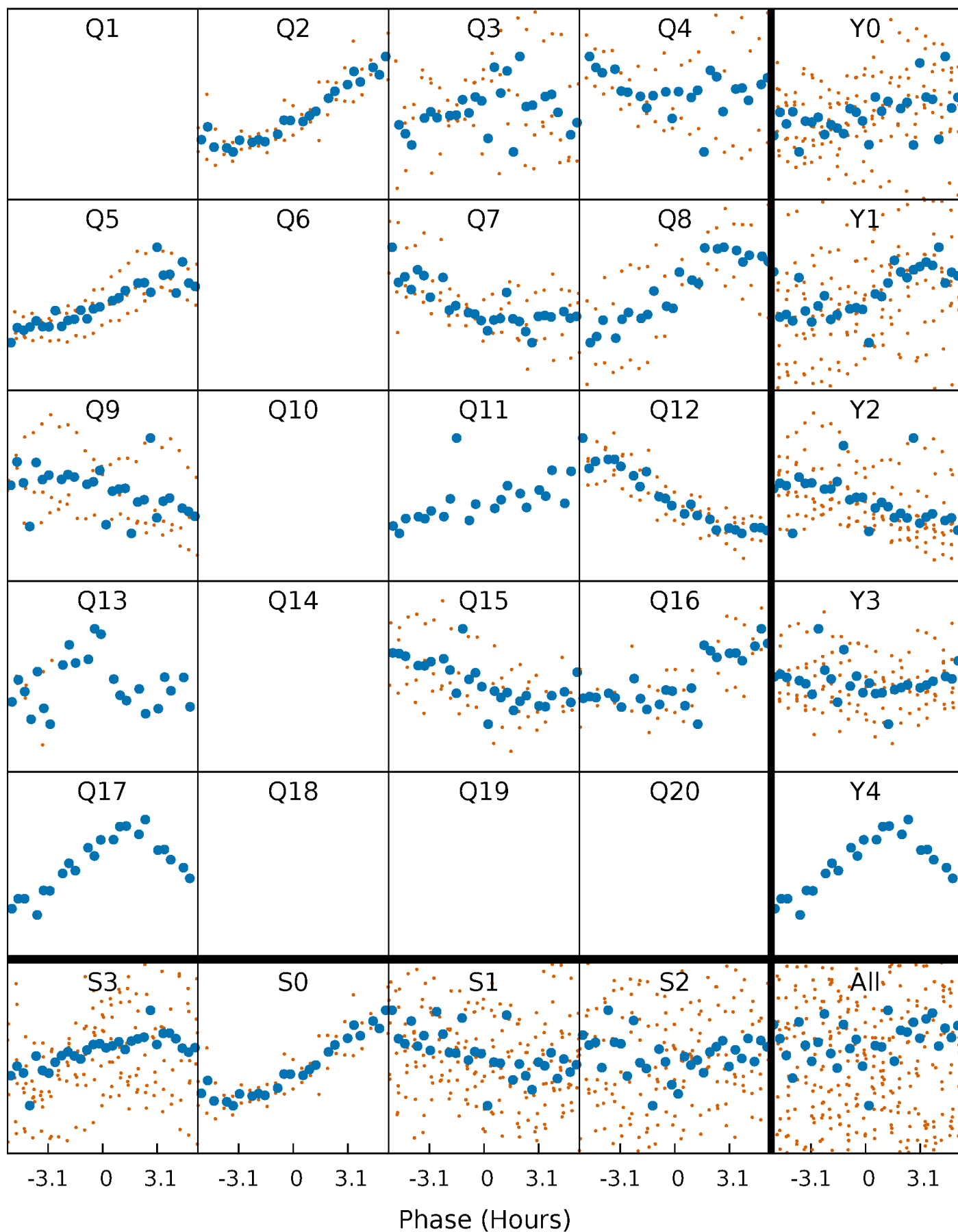


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



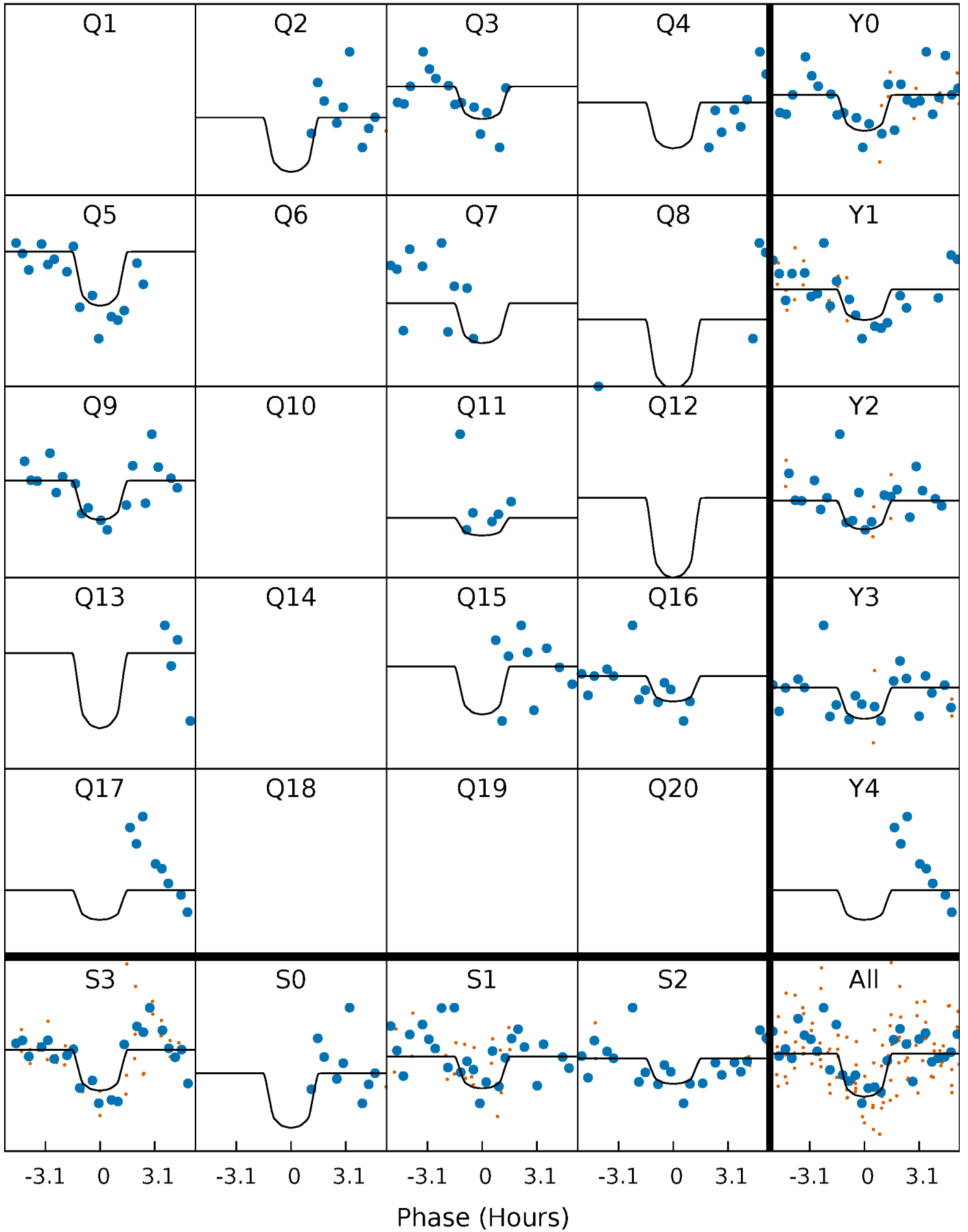
PDC Quarter-Phased Transit Curves

TCE 004660691-03 P= 36.187721 Days $T_0=165.659867$ (BKJD)



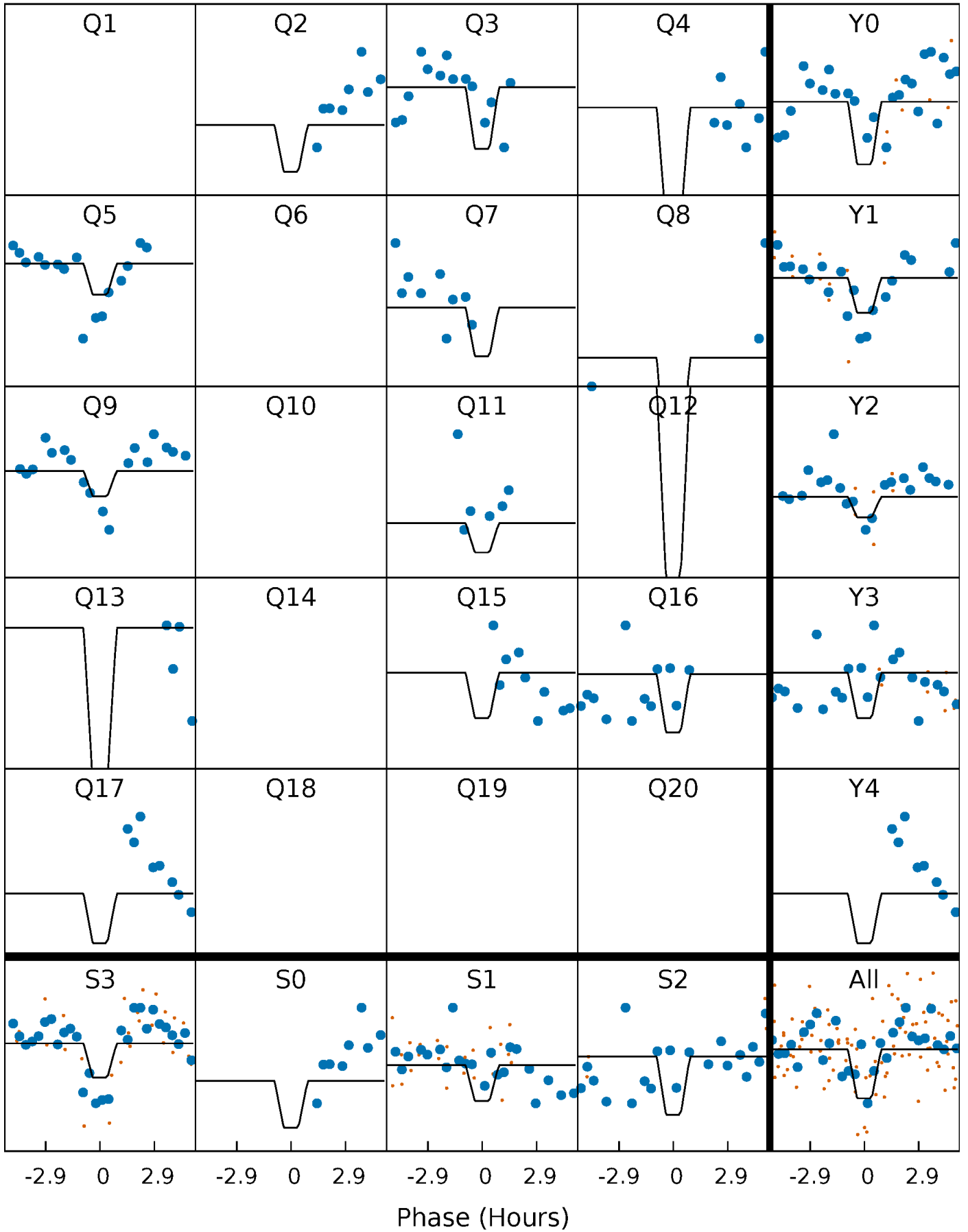
DV Quarter-Phased Transit Curves

TCE 004660691-03 P= 36.187721 Days $T_0=165.659867$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

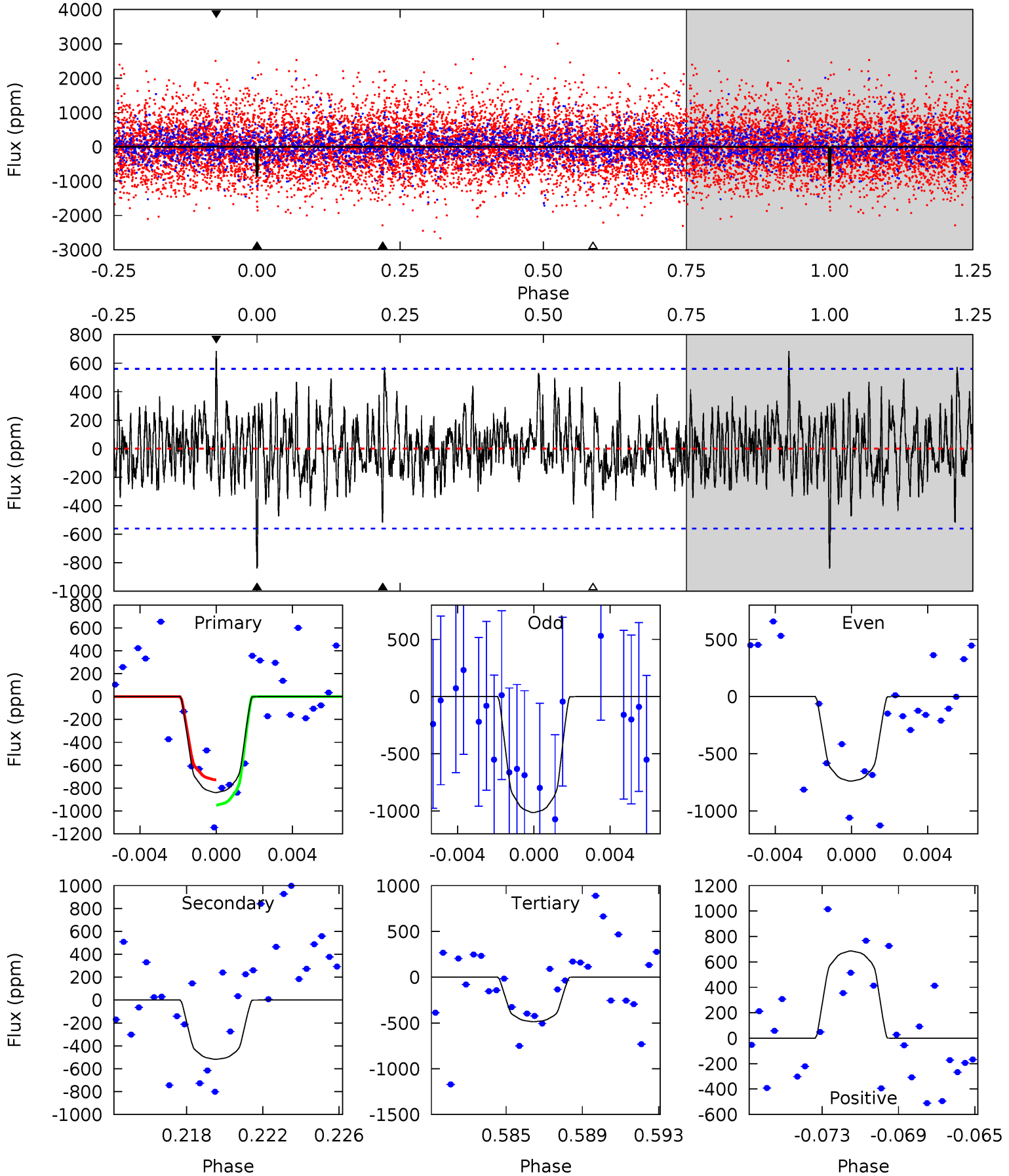
TCE 004660691-03 P= 36.188223 Days $T_0=165.649378$ (BKJD)



DV Model-Shift Uniqueness Test

004660691-03, P = 36.187721 Days, E = 129.472146 Days

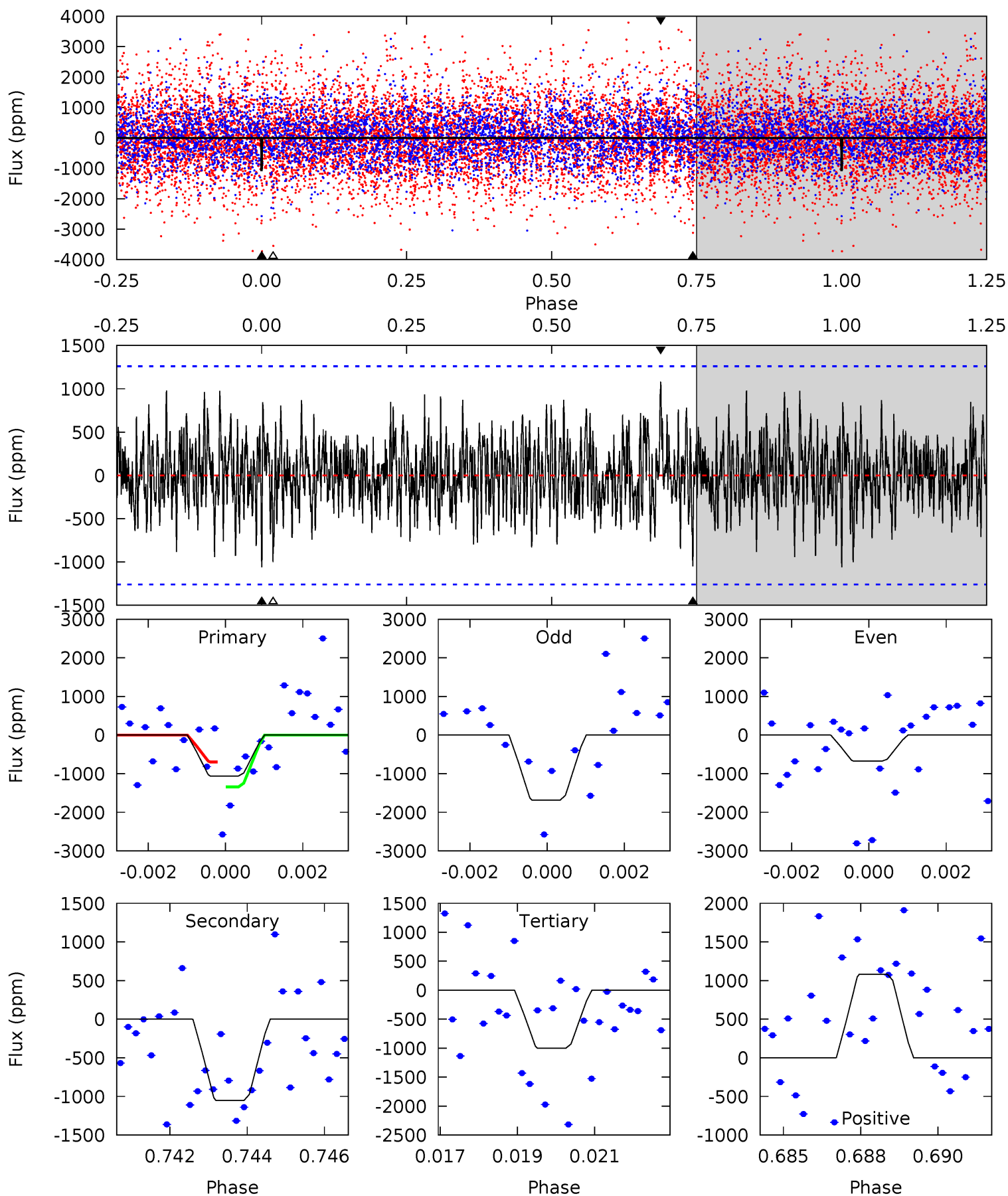
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.80	4.81	4.52	6.37	5.21	2.89	1.52	3.28	1.43	0.29	-1.56	1.23	0.98	0.45	1.02



Alt Model-Shift Uniqueness Test

004660691-03, P = 36.188223 Days, E = 129.461155 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.48	4.44	4.23	4.56	5.32	3.08	1.37	0.24	-0.09	0.21	-0.13	2.02	2.38	0.50	1.35



Stellar Parameters For KIC 004660691

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 004660691-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-518 ± 108	$6.49^{+5.68}_{-4.28}$	771^{+34}_{-36}	3931^{+2184}_{-749}	310^{+2211}_{-226}
Alt.	-1051 ± 237	$6.64^{+6.21}_{-4.52}$	771^{+38}_{-38}	4437^{+3181}_{-957}	615^{+5549}_{-464}

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 $A_{obs} \gg 1.0$

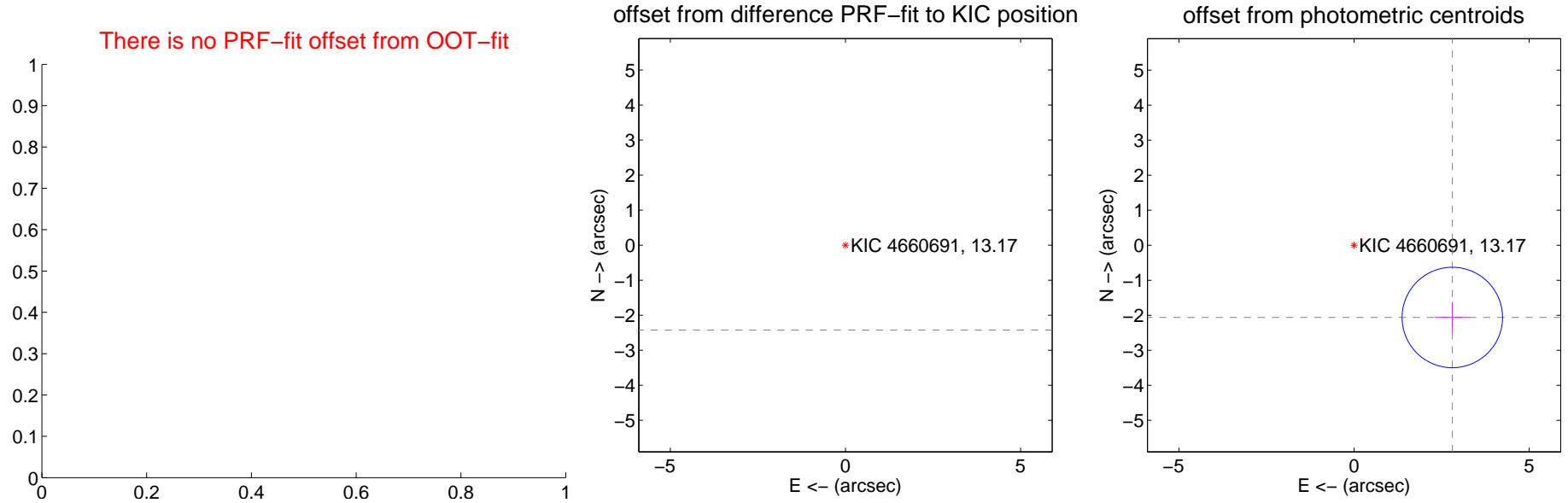
DV Centroid Data

Supplemental centroid analysis for 004660691-03. Kepler magnitude: 13.17. Transit SNR 8.72

There are 1 quarters with good PRF difference image offsets

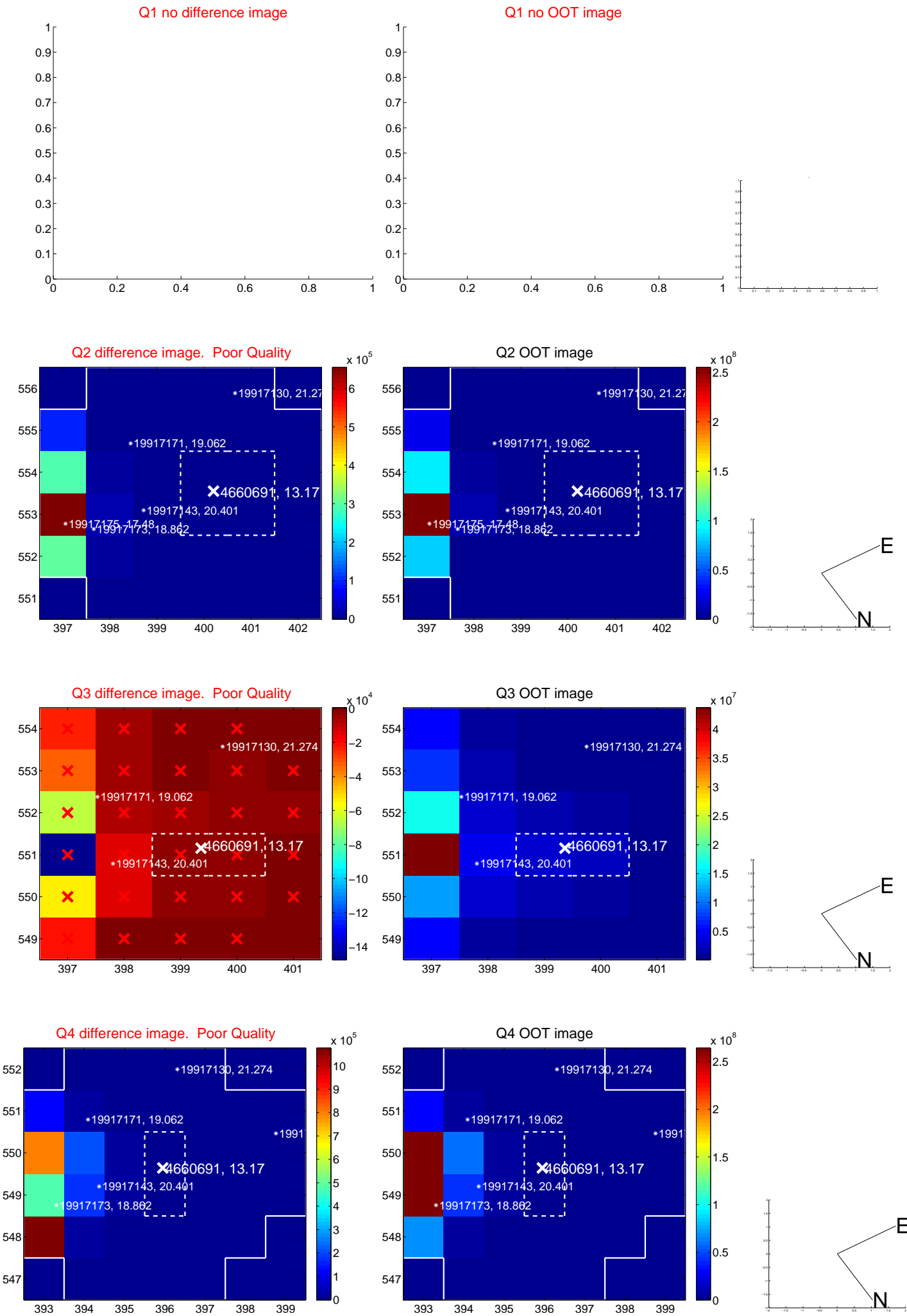
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	8.906 ± 0.765	11.65	-8.570 ± 0.762	-2.423 ± 0.793
photometric centroid source offset	3.48 ± 0.48	7.29	-2.81 ± 0.50	-2.06 ± 0.44

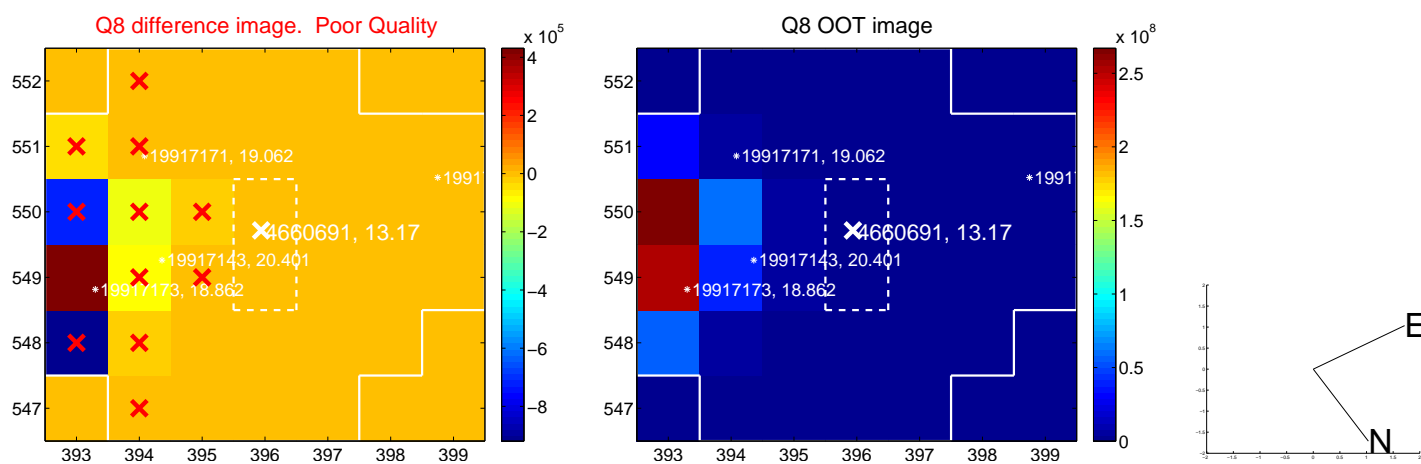
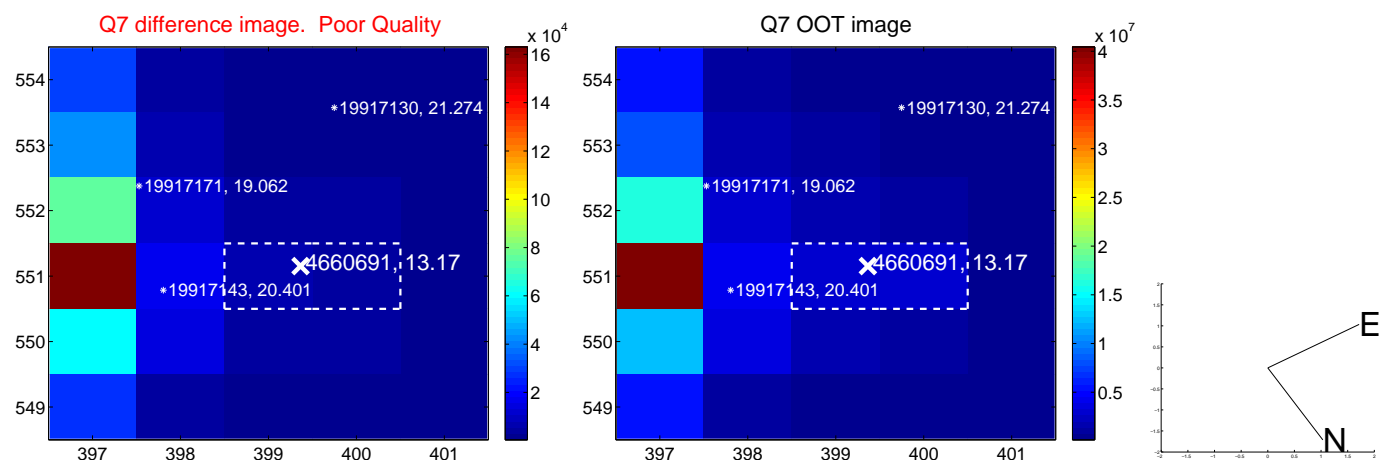
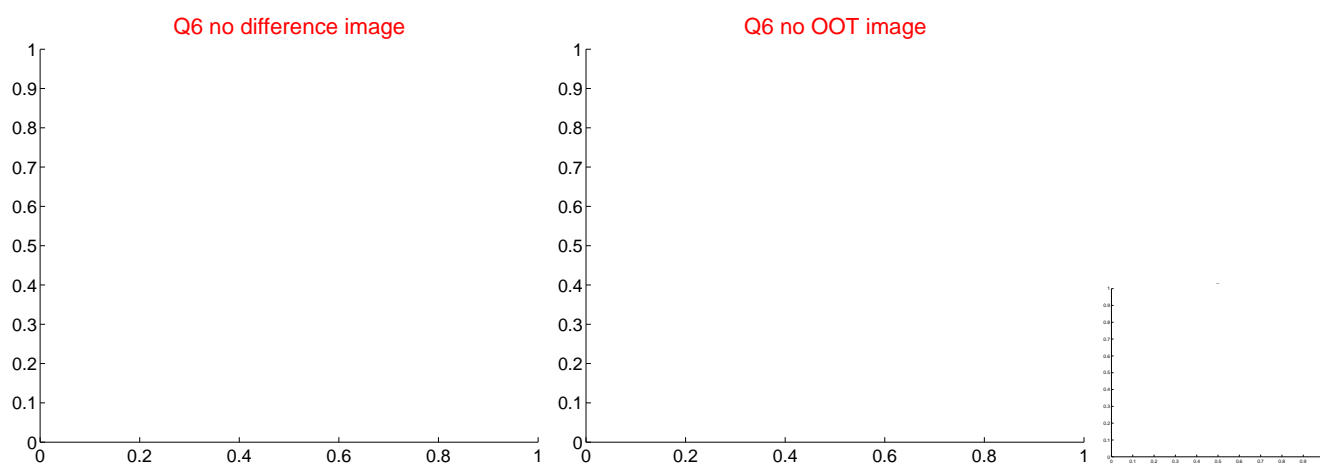
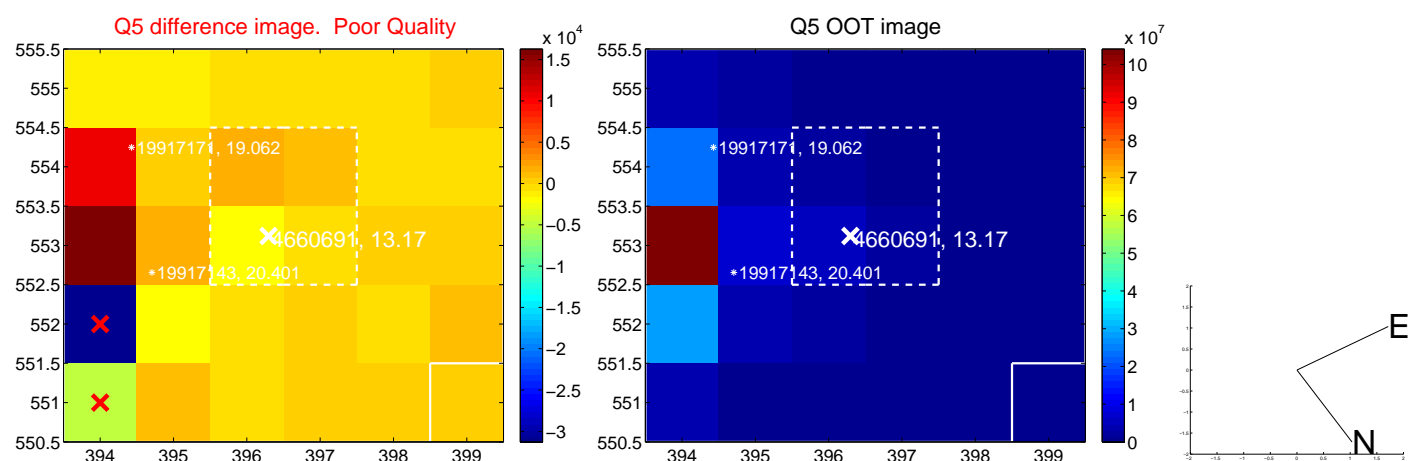


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

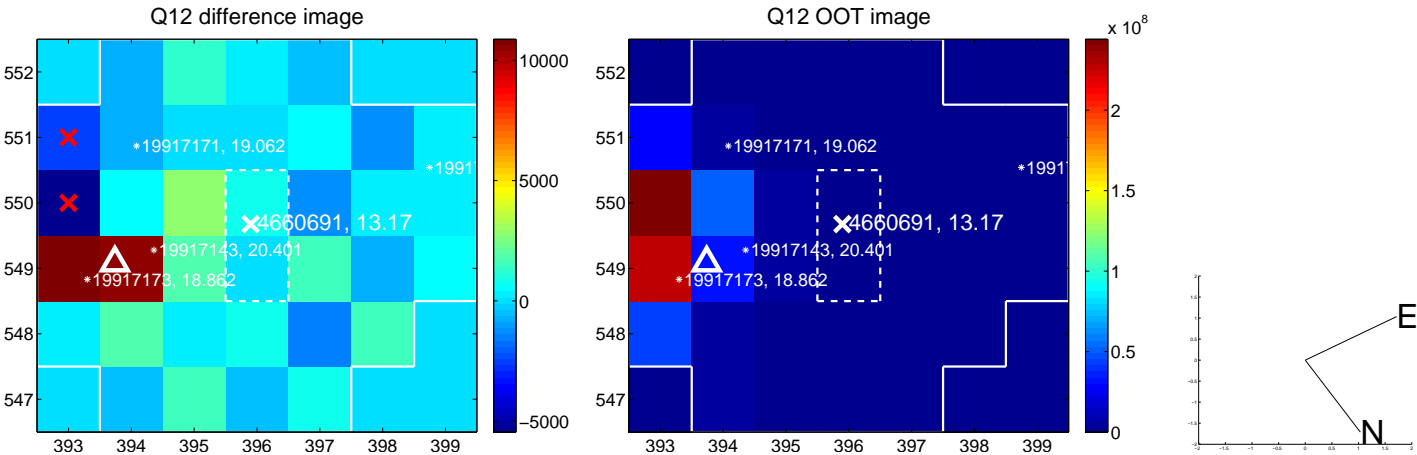
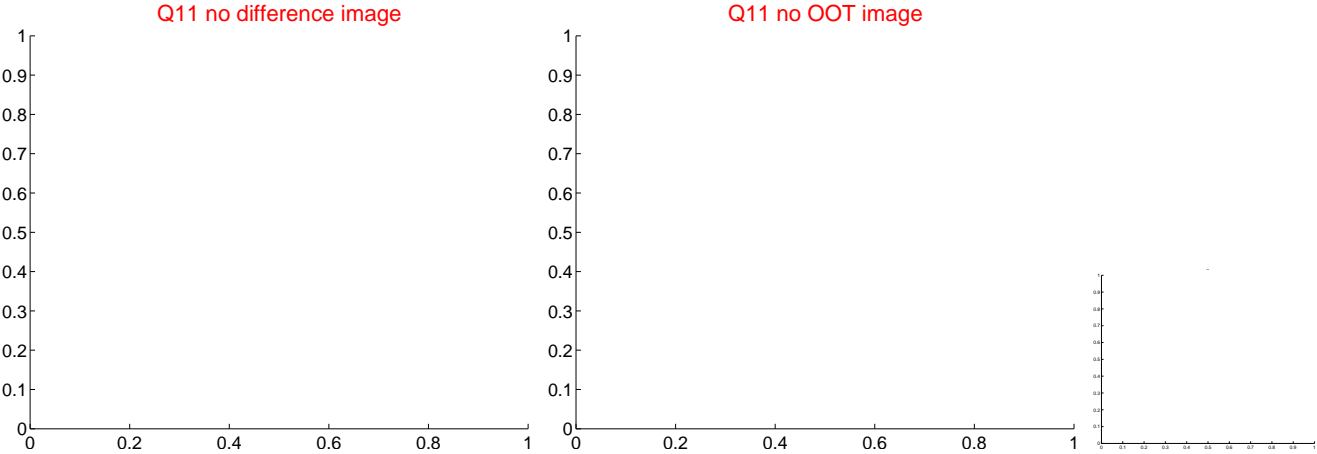
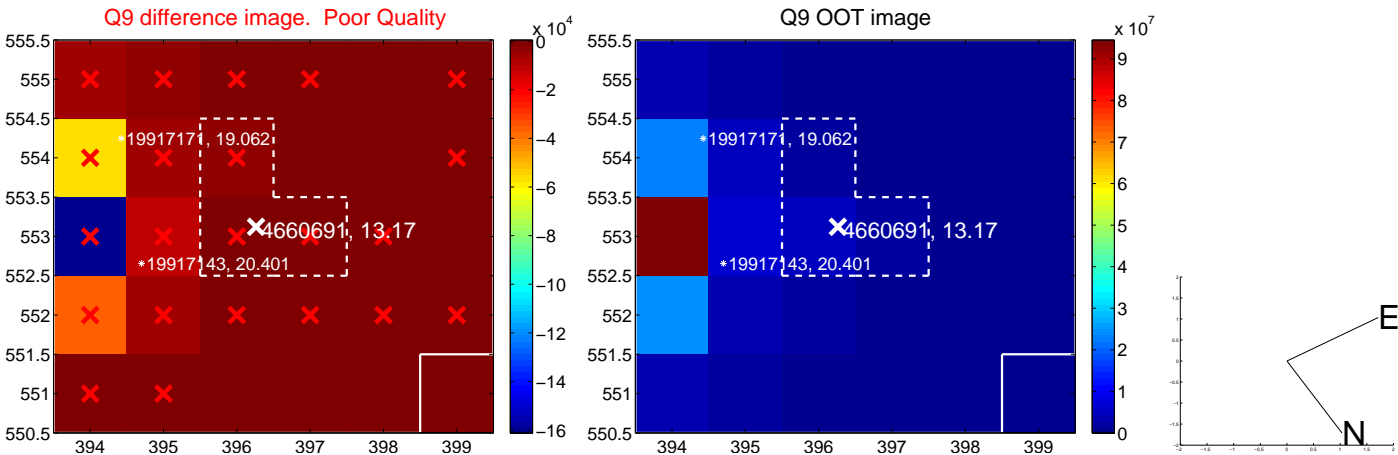
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



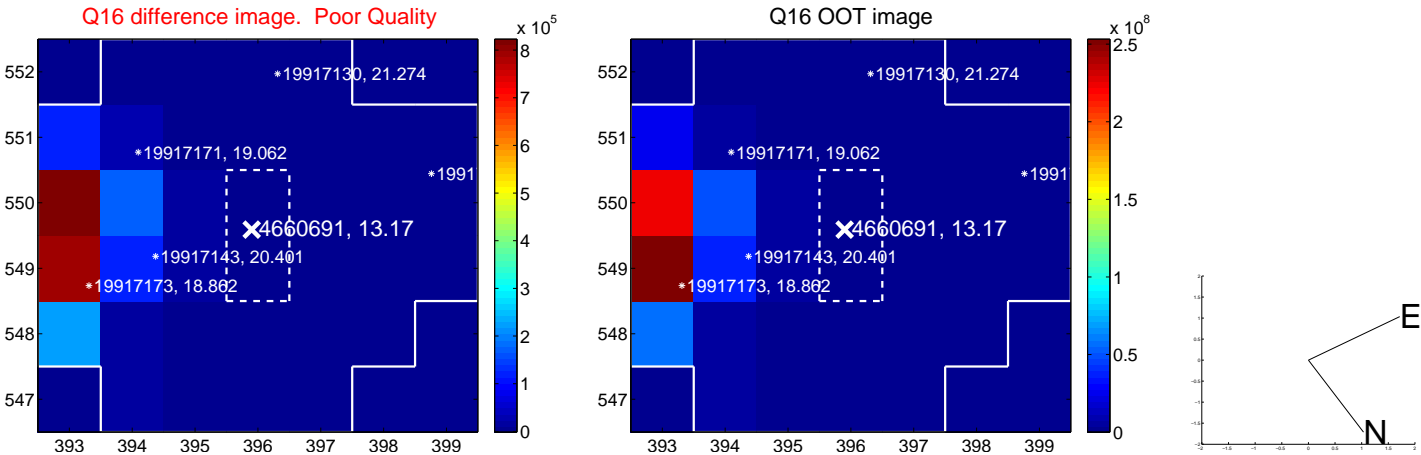
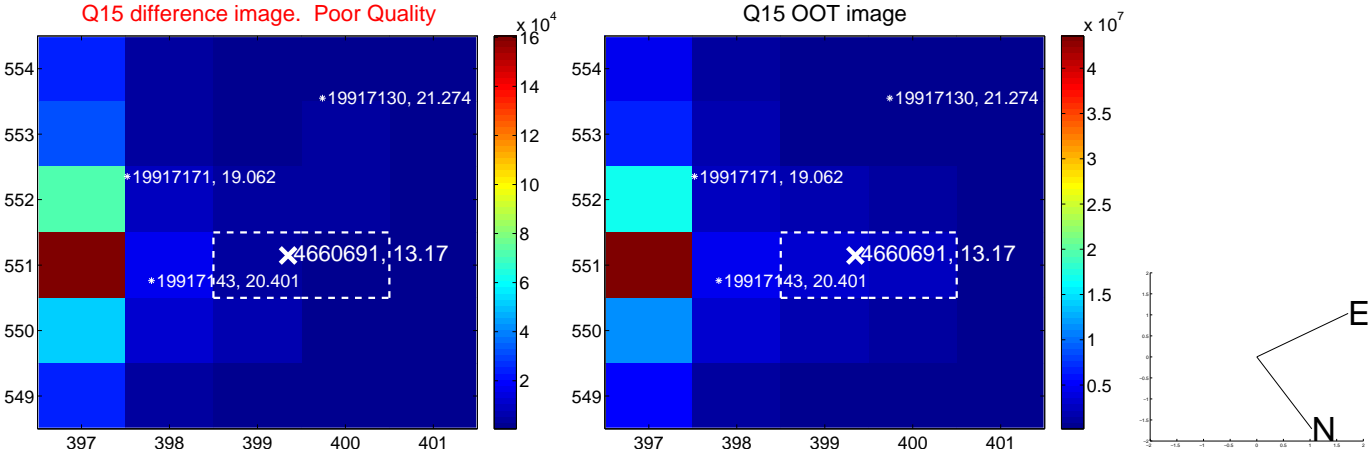
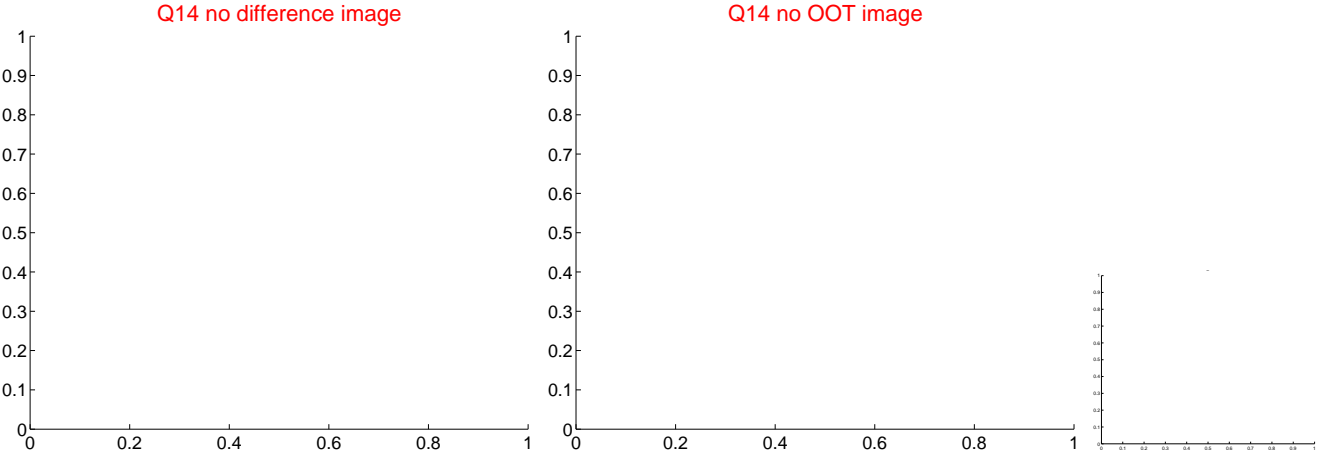
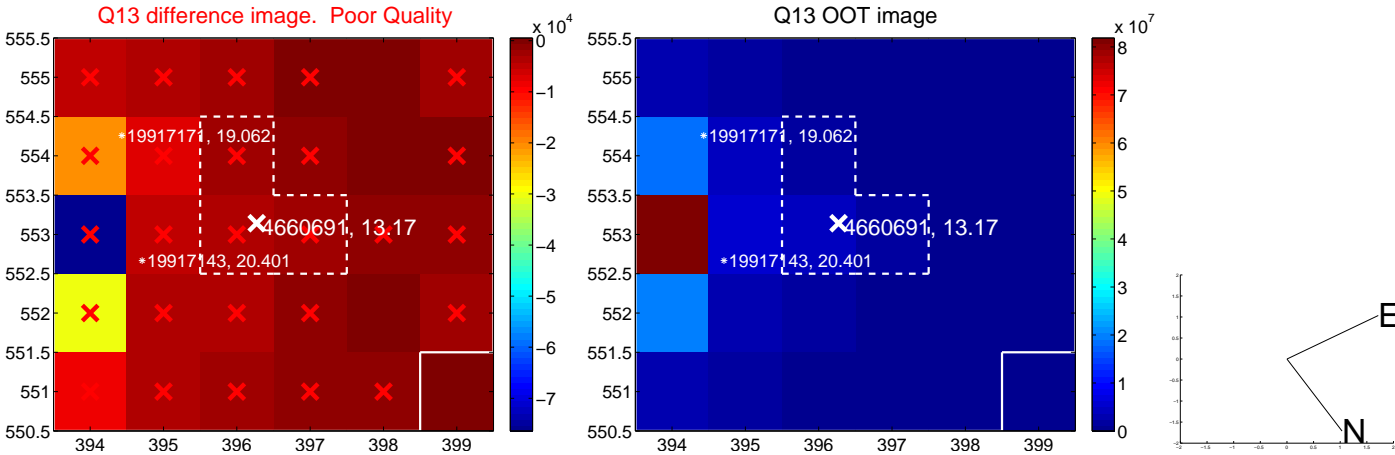
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



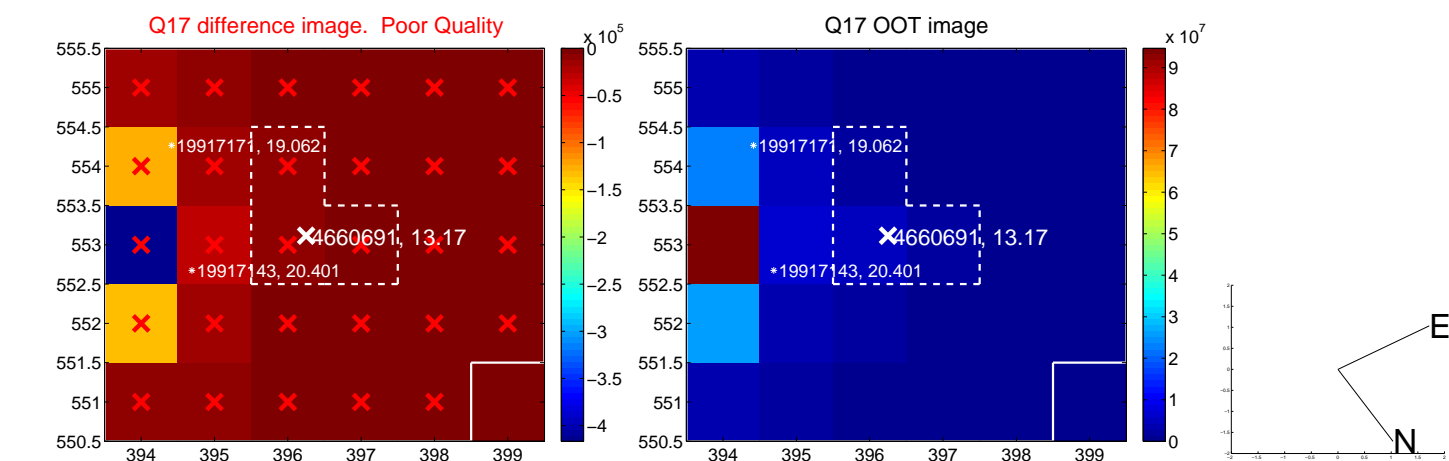
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



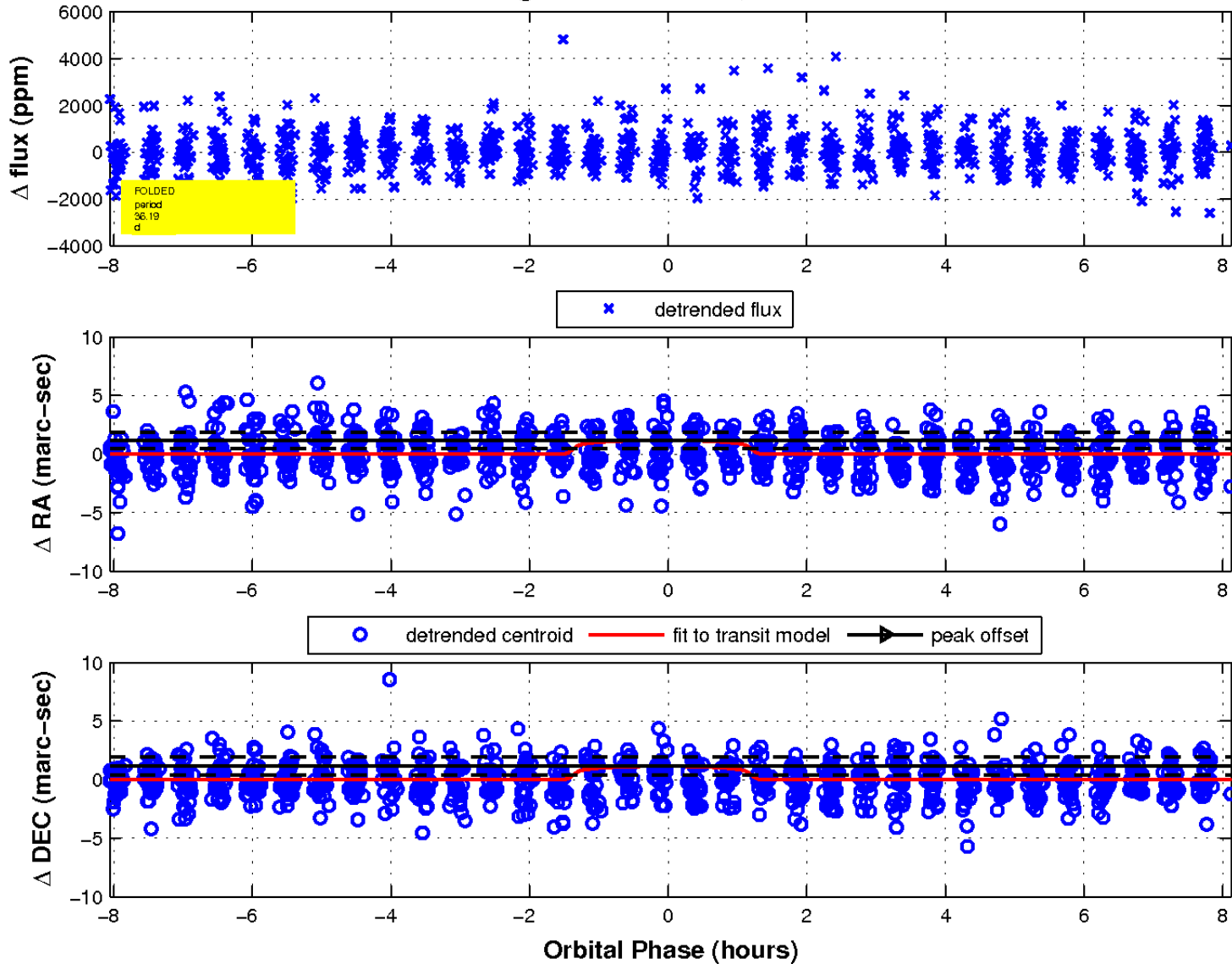
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



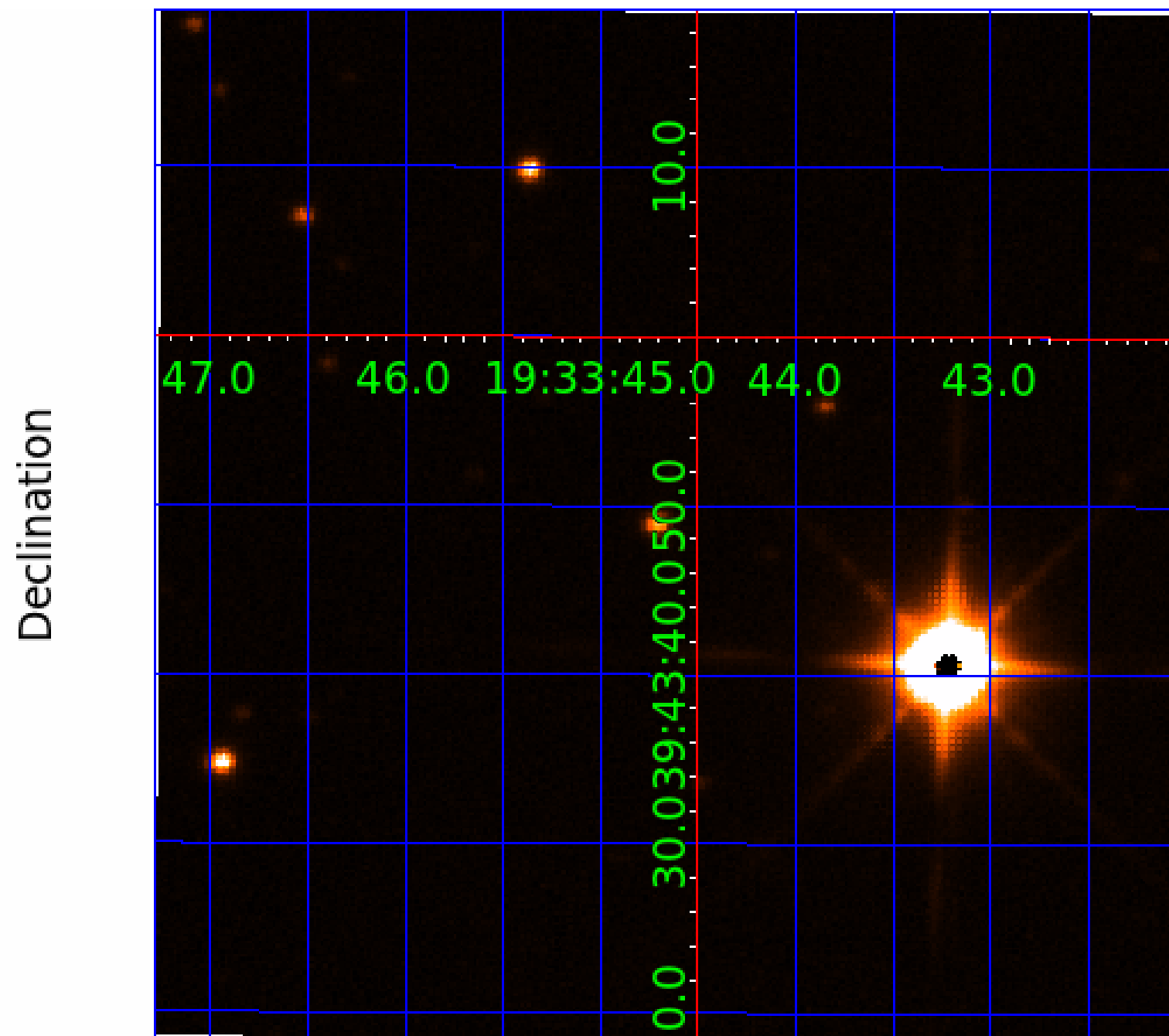
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image



KIC 004660691

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})
004660691-01	OBS	No	0.790321	132.012256	0.0	4.918	7.8	0.0	1.00	5780	0.00	3571.64
004660691-02	OBS	No	40.410056	142.657093	648.8	5.989	8.7	7.0	1.00	5780	2.79	18.82
004660691-03	OBS	No	36.187721	165.659867	991.3	2.711	9.3	8.7	1.00	5780	3.26	21.80
004660691-04	OBS	No	95.189445	155.144855	161.2	4.821	7.9	0.9	1.00	5780	1.51	6.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004660691-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—CENT_RESOLVED_OFFSET
004660691-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
004660691-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET

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.

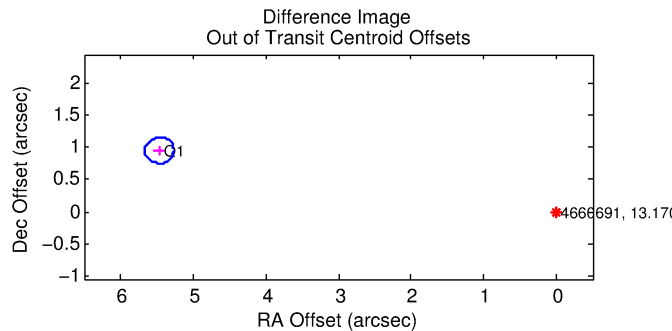
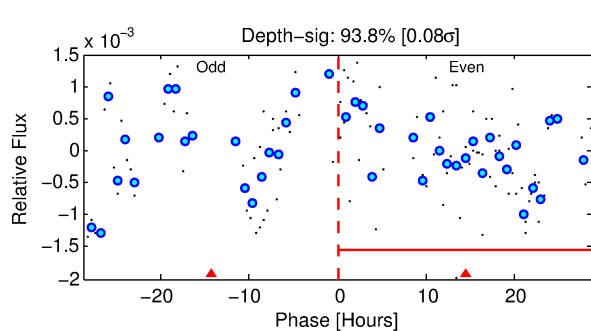
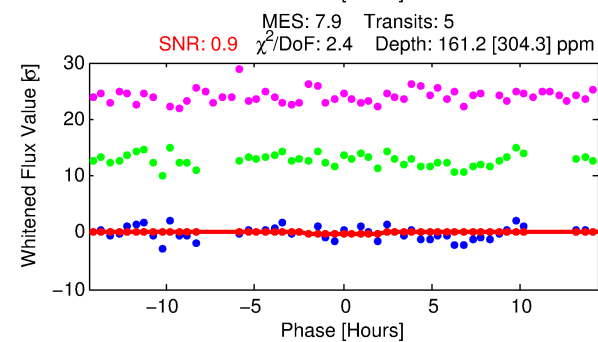
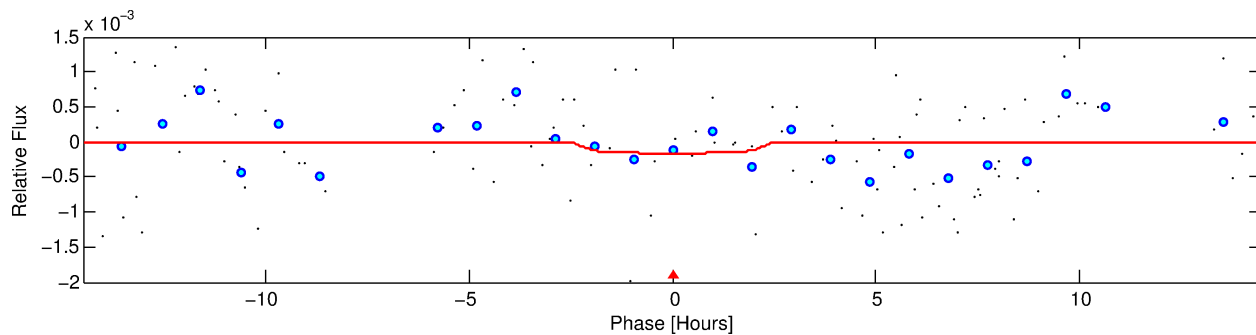
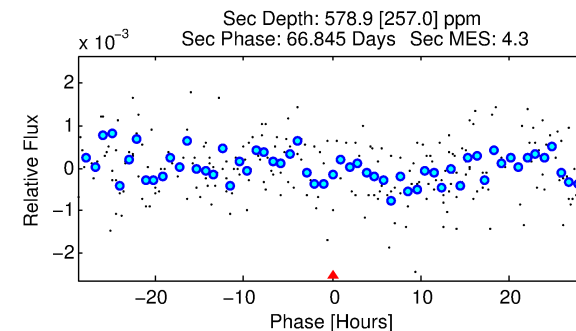
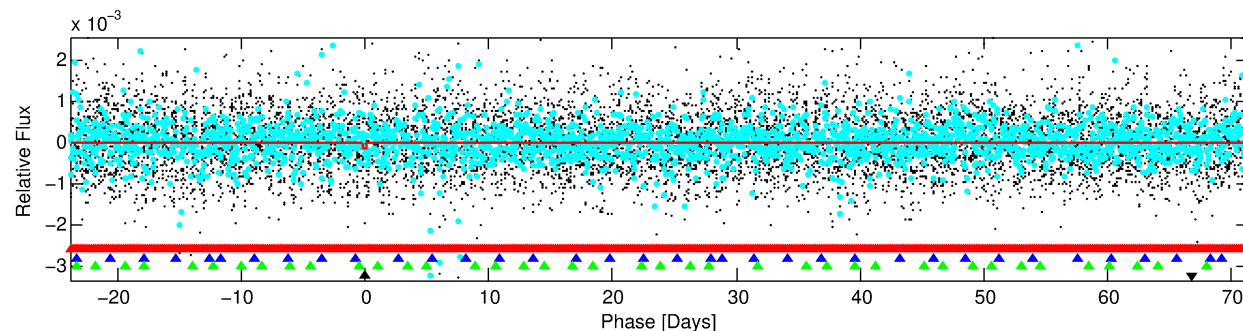
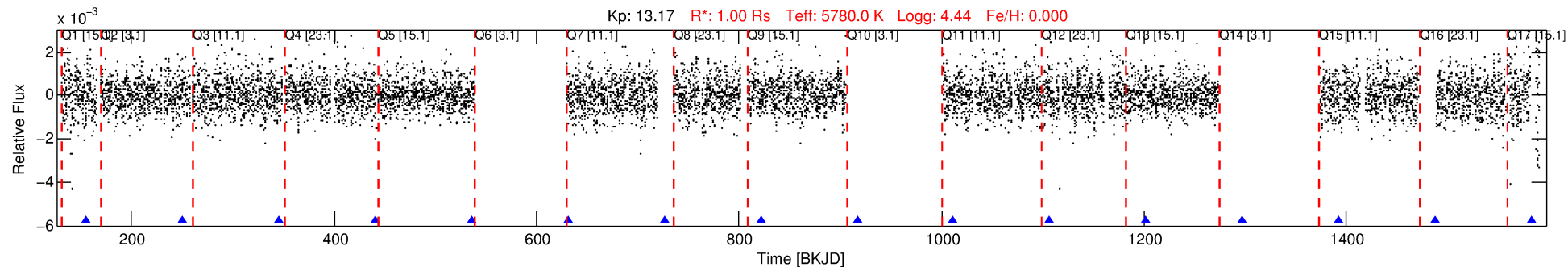
Ephemeris Match Information For 004660691-04

No Significant Match Found

DV One-Page Summary

KIC: 4660691 Candidate: 4 of 4 Period: 95.189 d

Kp: 13.17 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 95.18944 [0.02330] d
Epoch = 155.1449 [0.1645] BKJD
Rp/R* = 0.0138 [0.0520]
a/R* = 70.18 [1183.37]
b = 0.90 [3.58]
Seff = 6.00 [0.00]
Teq = 399 [0] K
Rp = 1.51 [5.67] Re
a = 0.4081 [0.0001] AU
Ag = 23252.46 [174921.04] [0.13σ]
Teff = 7621 [14333] K [0.50σ]

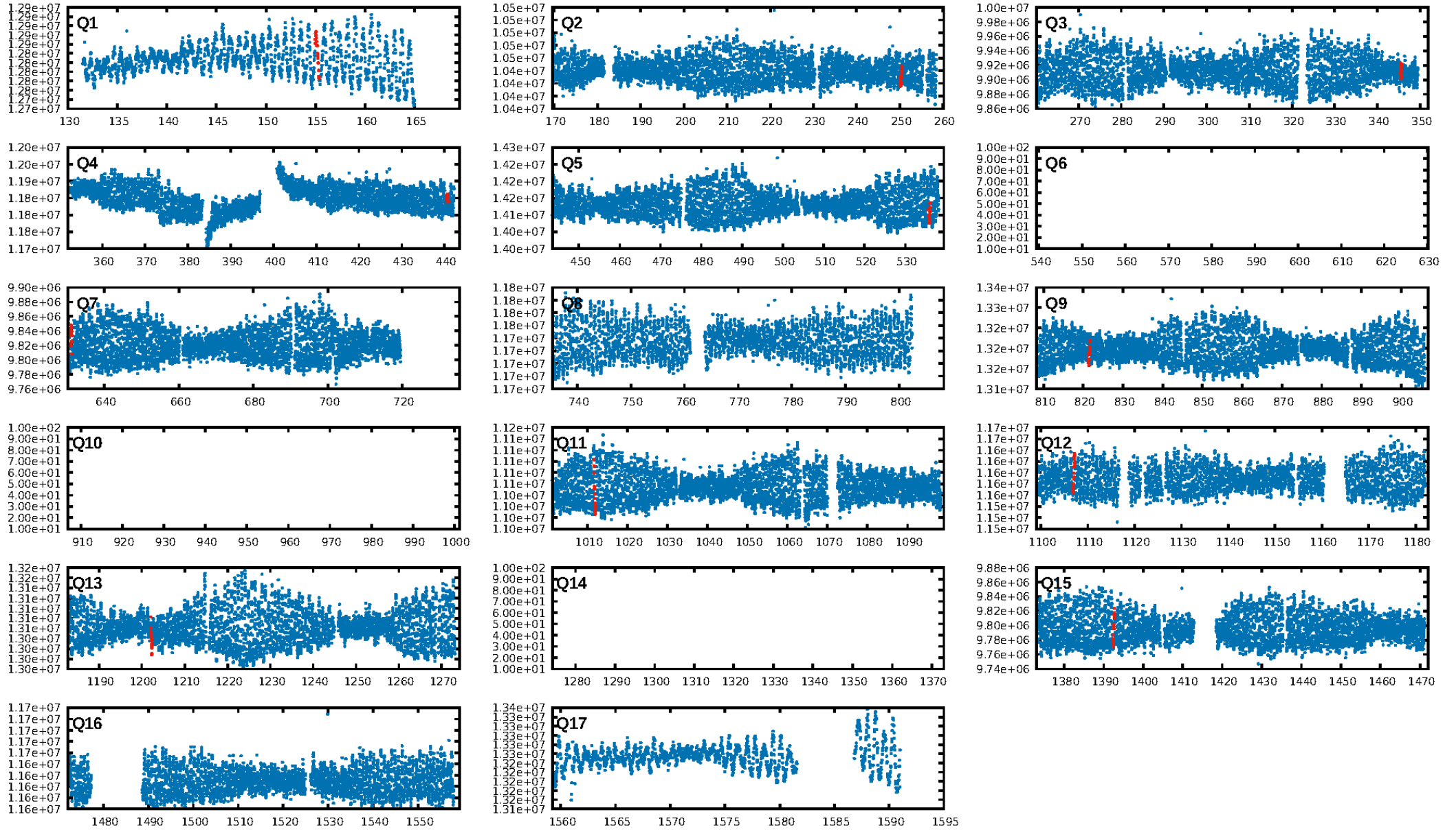
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [171.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 4.2%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: 1.35e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.6044
Centroid-sig: 59.8%
Centroid-so: 2.358 arcsec [0.59σ]
OotOffset-rm: 5.548 arcsec [82.57σ]
KicOffset-rm: 14.109 arcsec [209.99σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/10]

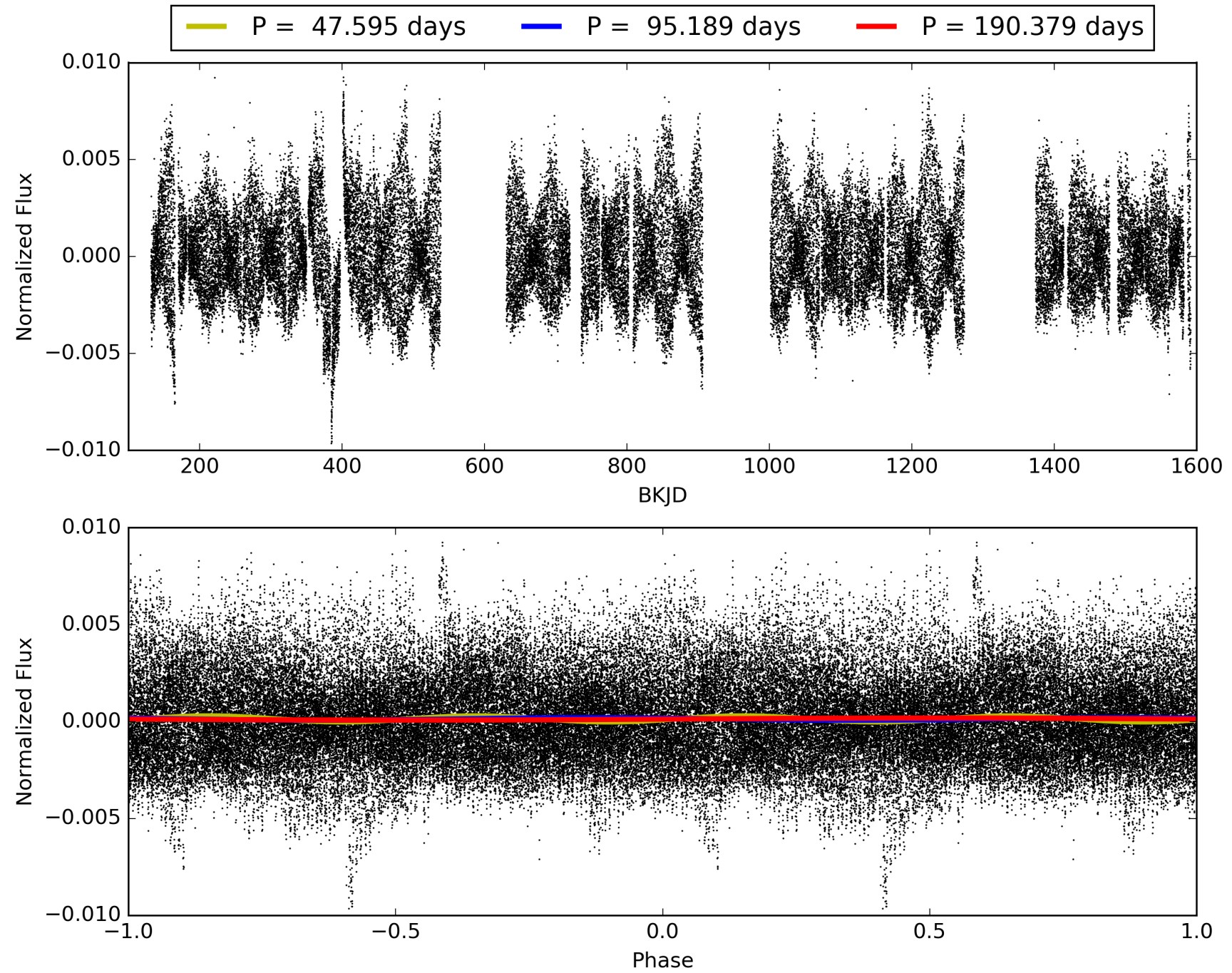
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:05:37 Z

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

TCE 004660691-04, PDC Light Curves

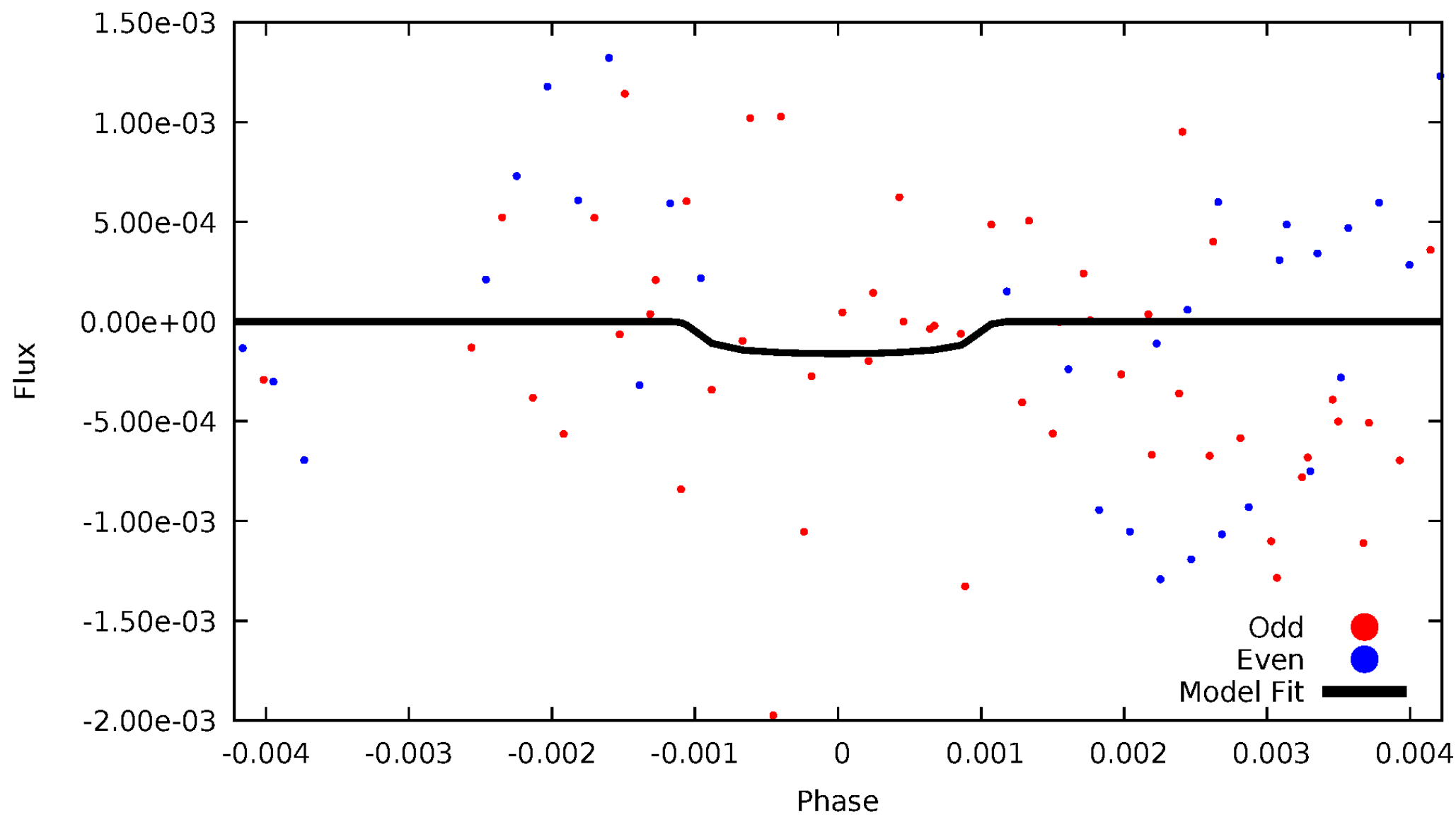


TCE 004660691-04



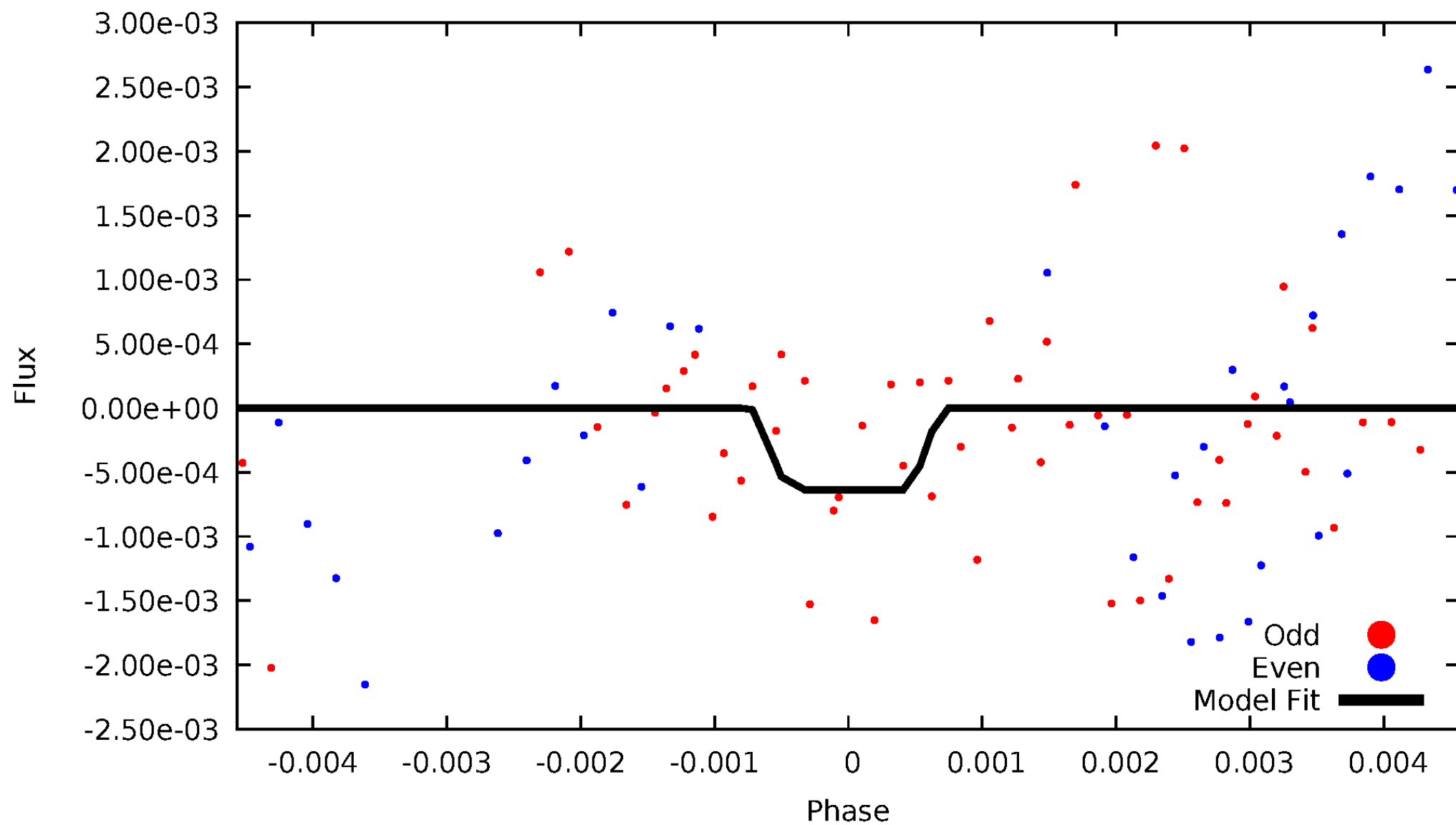
DV Odd/Even

TCE 004660691-04



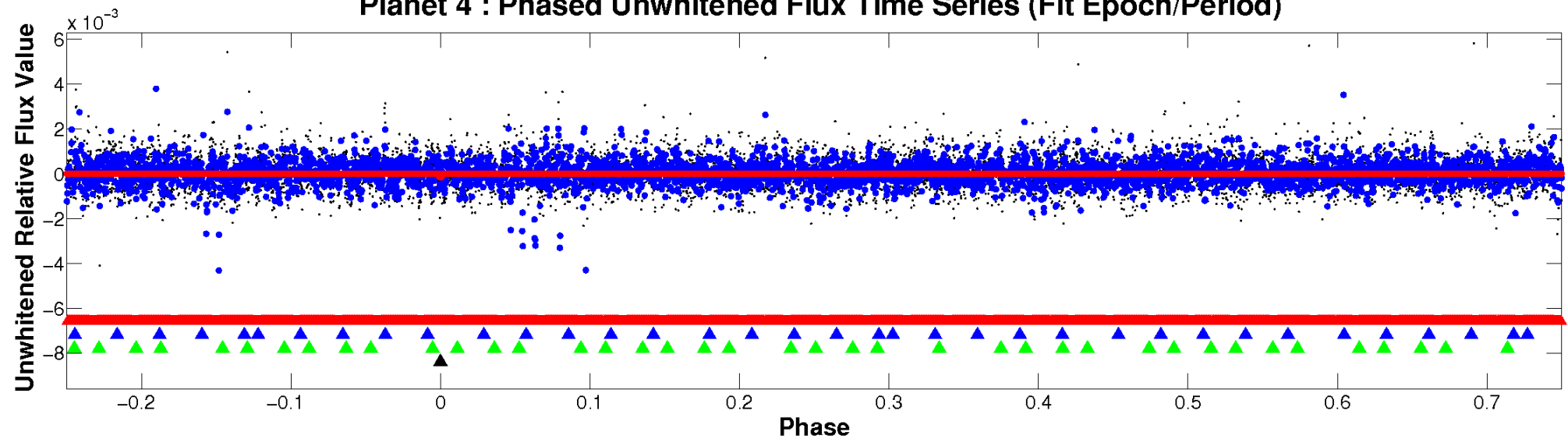
ALT Odd/Even

TCE 004660691-04

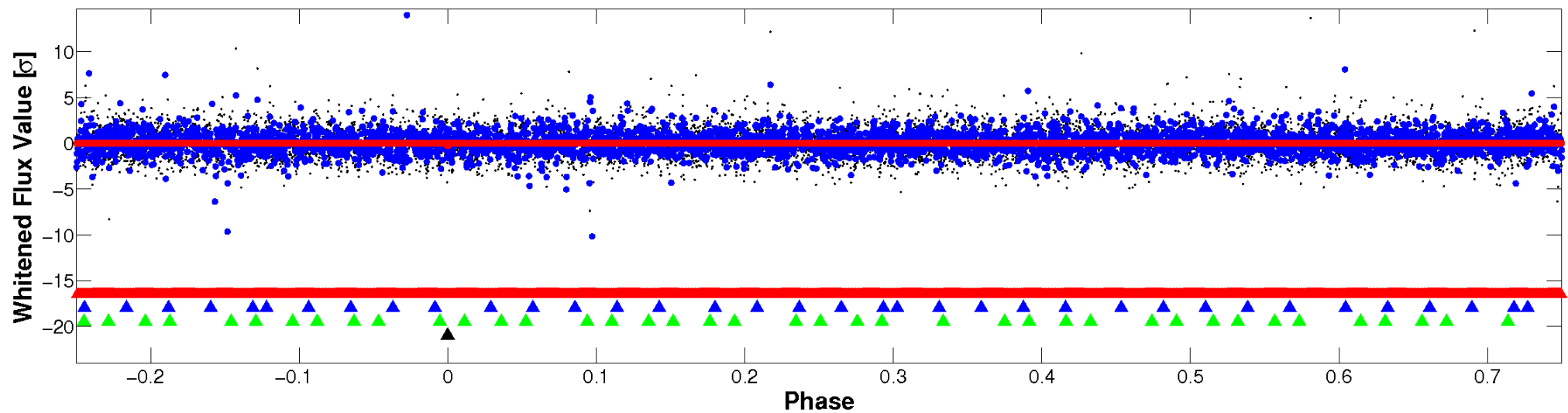


Non-Whitened Vs. Whitened Light Curve

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

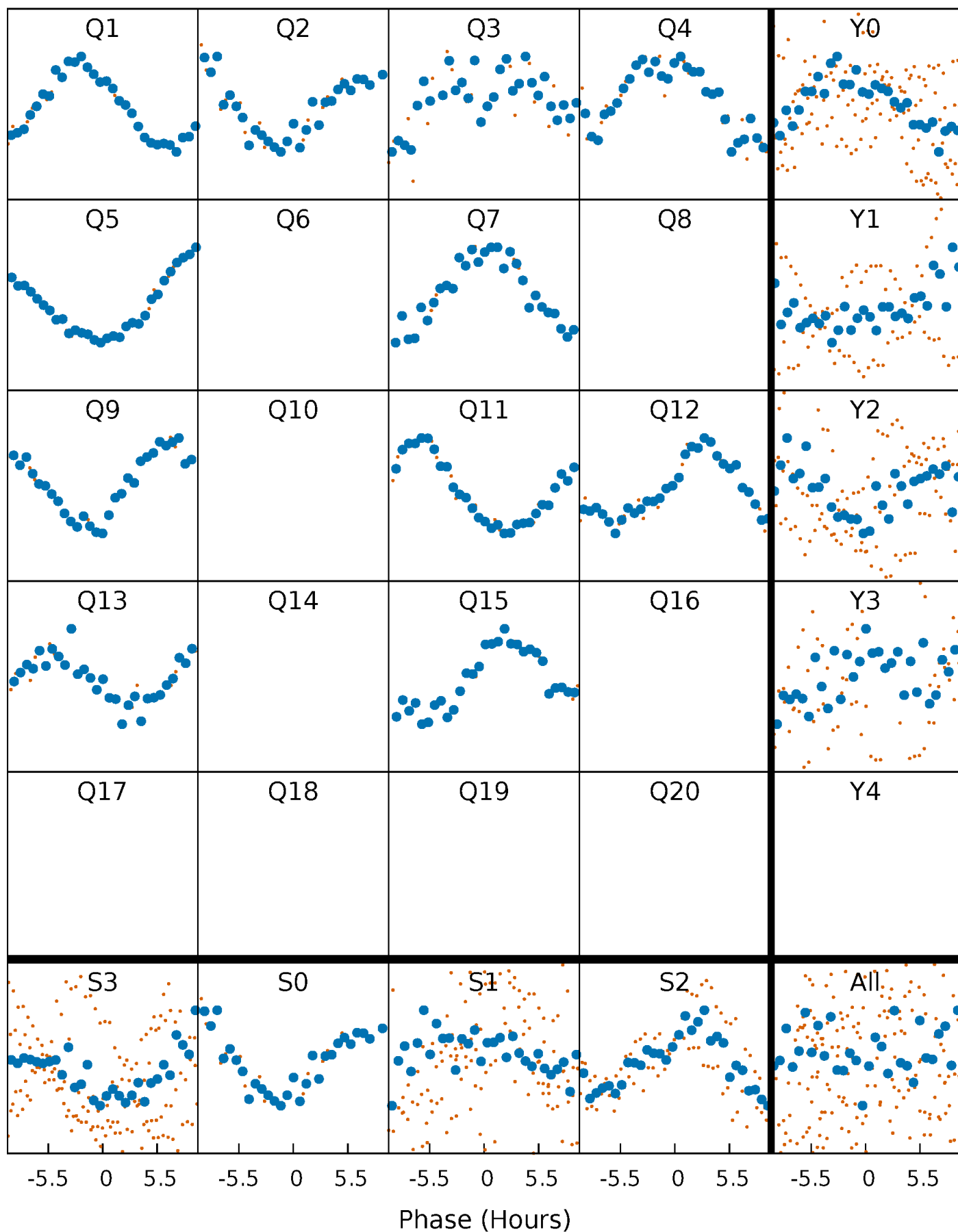


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



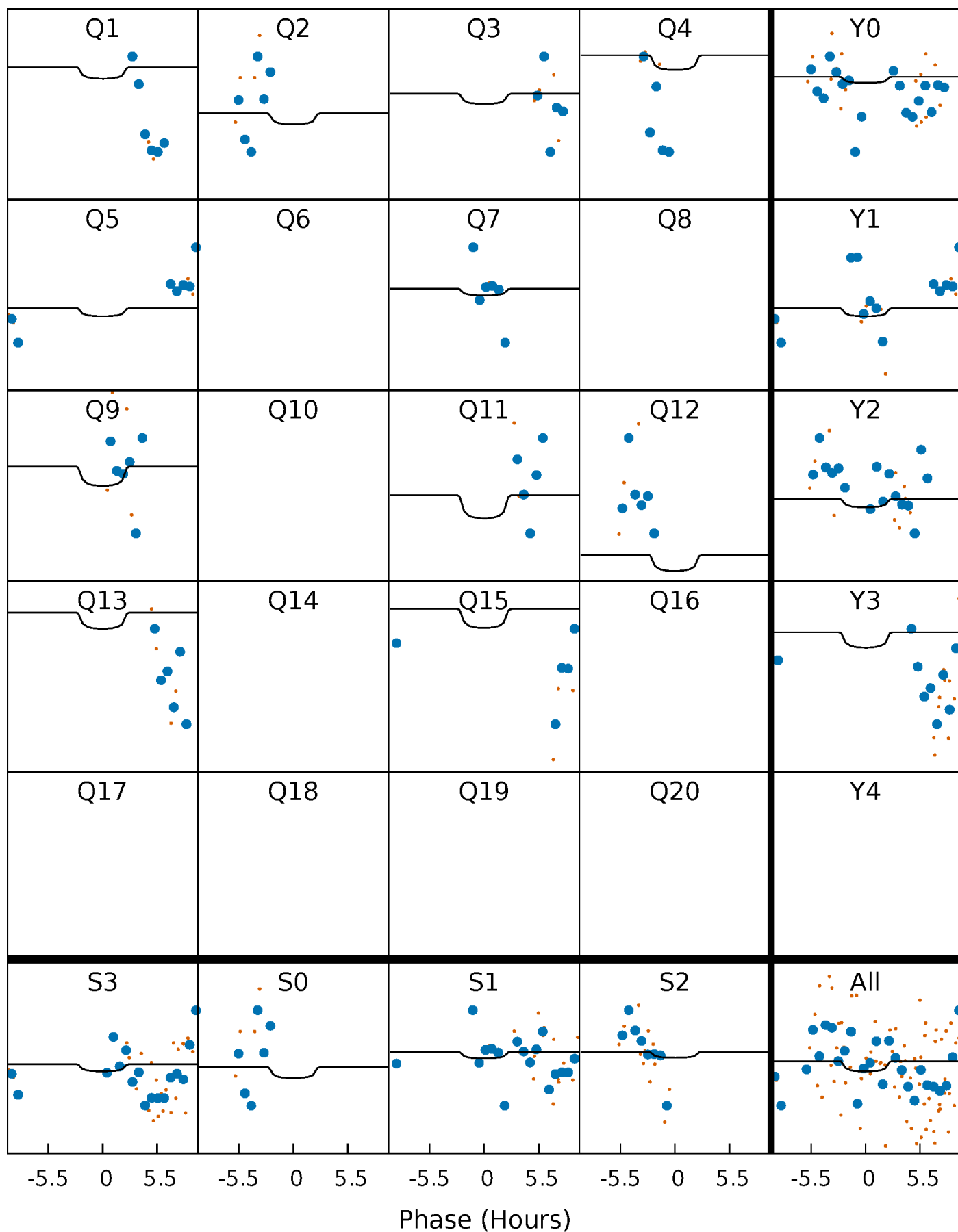
PDC Quarter-Phased Transit Curves

TCE 004660691-04 P= 95.189445 Days $T_0=155.144855$ (BKJD)



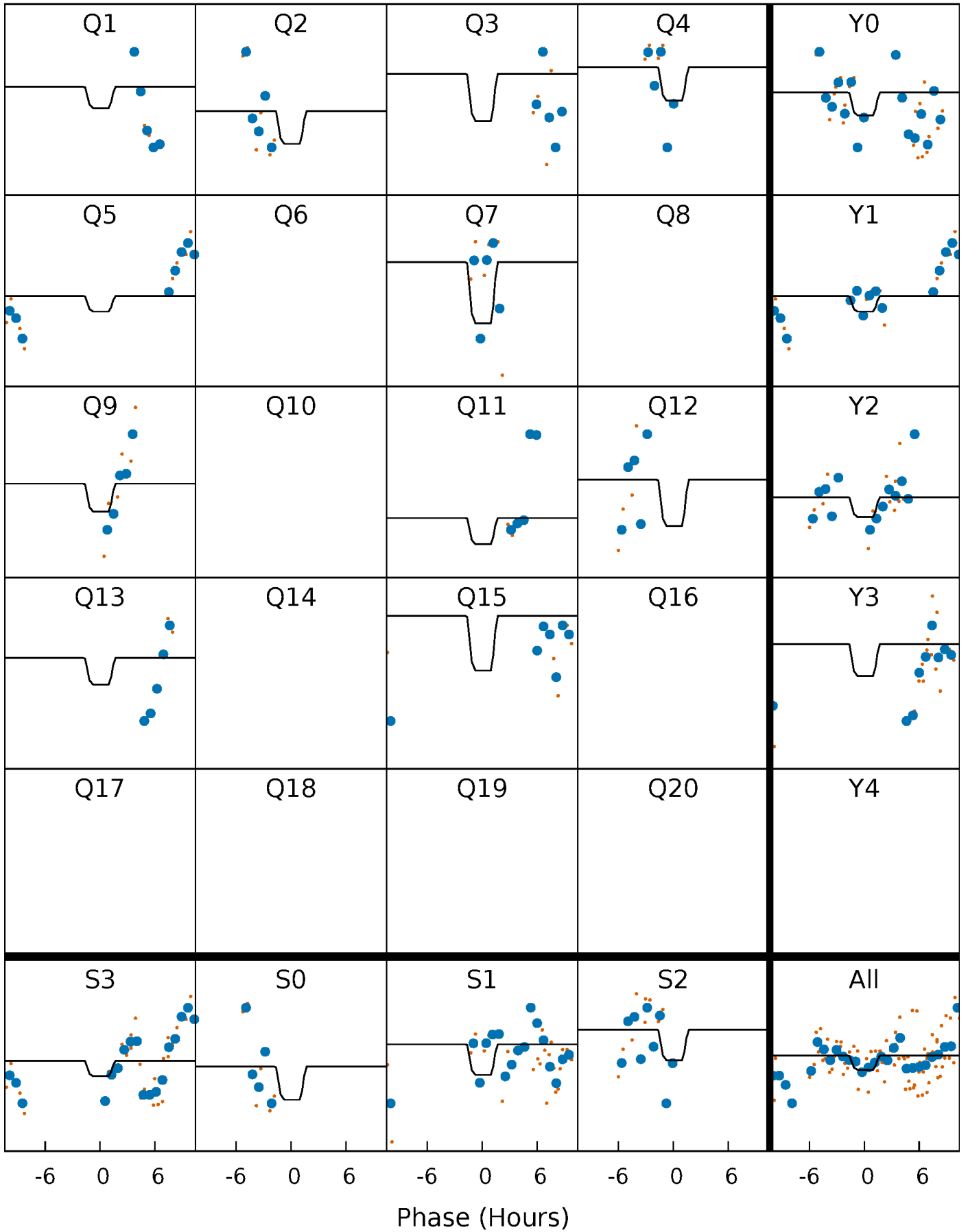
DV Quarter-Phased Transit Curves

TCE 004660691-04 $P = 95.189445$ Days $T_0 = 155.144855$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

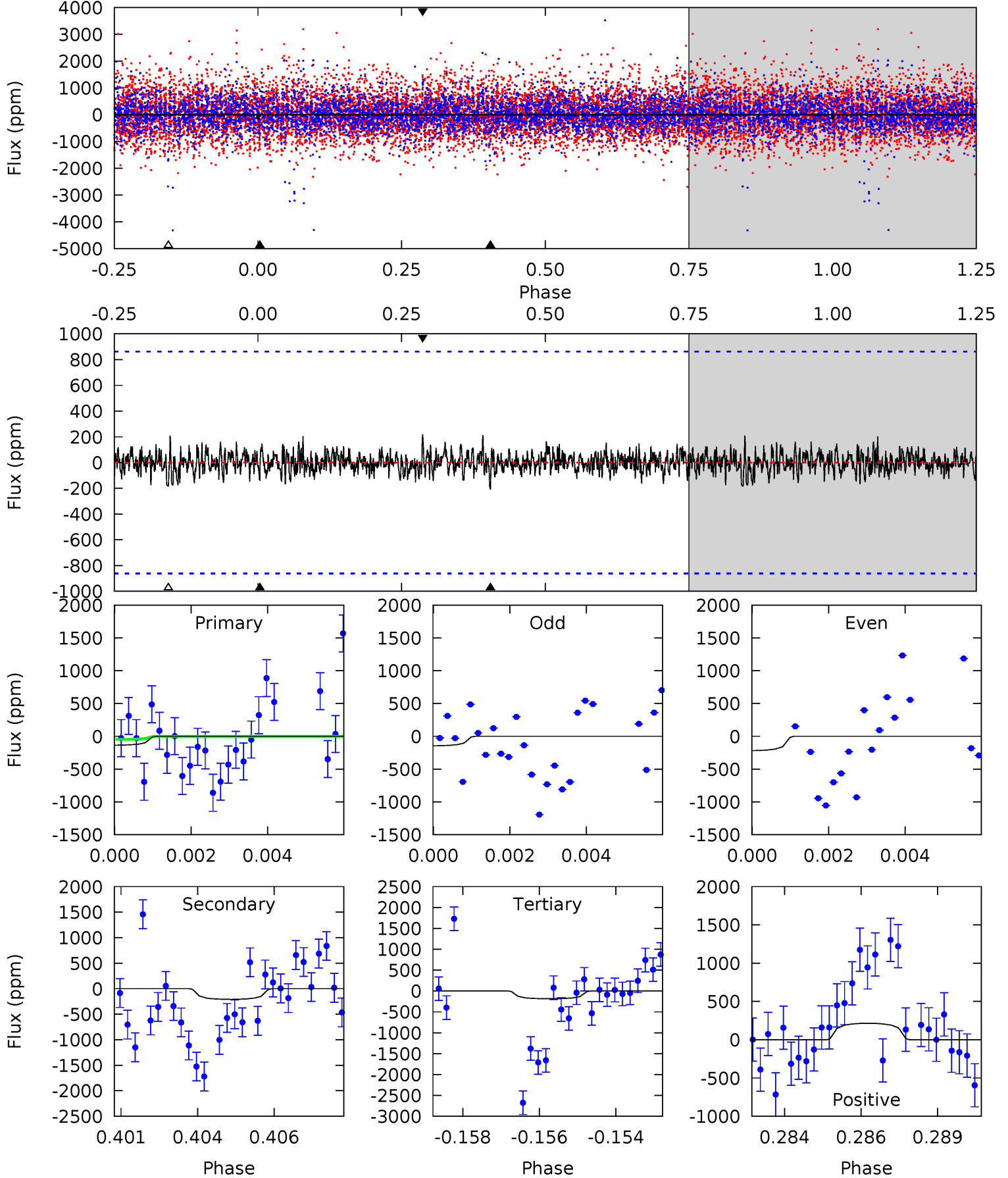
TCE 004660691-04 P= 95.193861 Days $T_0=155.115743$ (BKJD)



DV Model-Shift Uniqueness Test

004660691-04, P = 95.189445 Days, E = 59.955410 Days

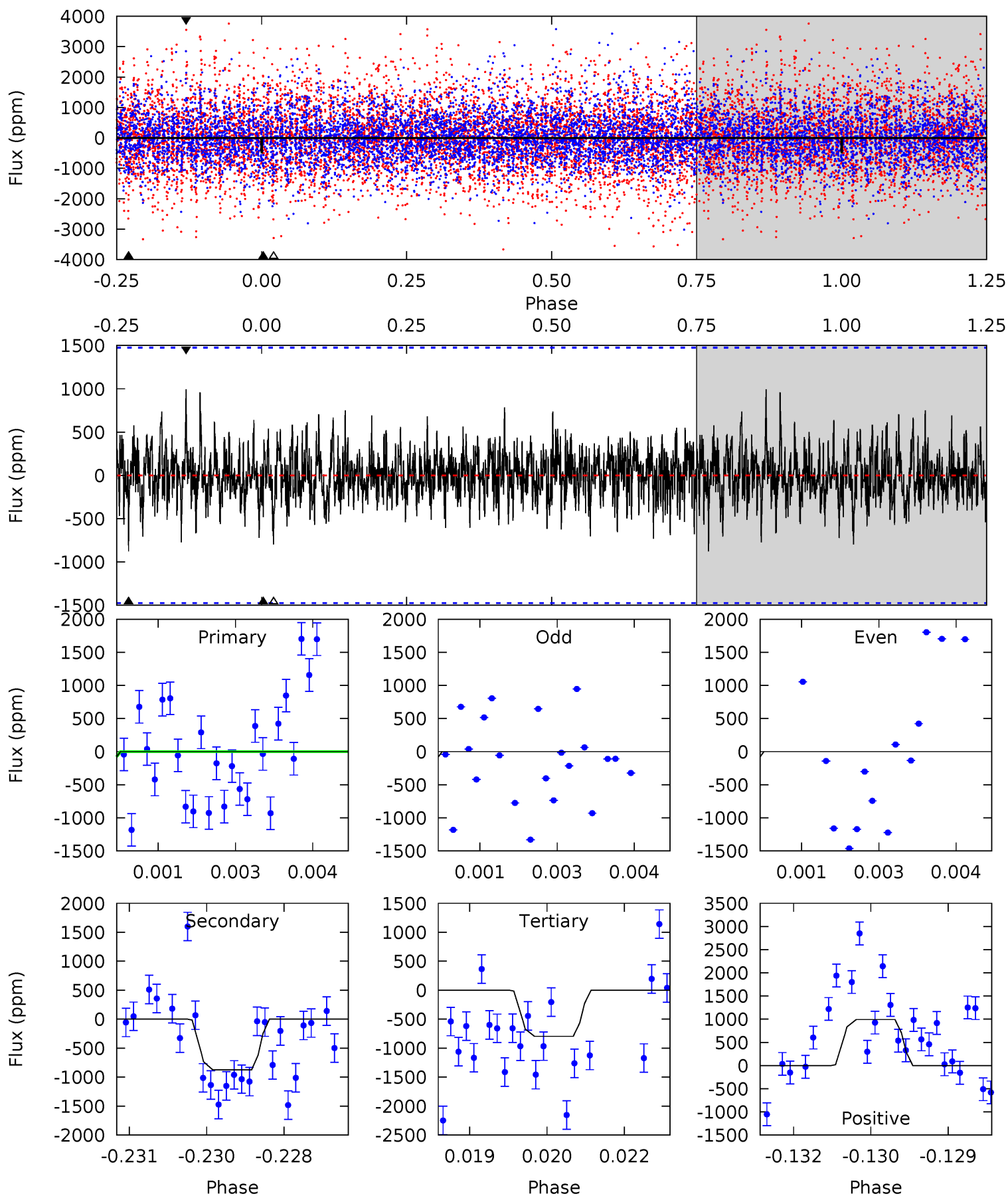
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.84	1.29	1.14	1.33	5.31	3.07	0.37	-0.31	-0.49	0.15	-0.03	0.10	-2.39	0.51	0.60



Alt Model-Shift Uniqueness Test

004660691-04, P = 95.193861 Days, E = 59.921882 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.75	3.19	2.90	3.62	5.38	3.18	0.90	-1.15	-1.87	0.29	-0.43	0	0.92	0.53	0.07



Stellar Parameters For KIC 004660691

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 004660691-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-209 ± 162	$4.22^{+4.68}_{-2.99}$	556^{+28}_{-26}	3609^{+2548}_{-985}	754^{+8554}_{-681}
Alt.	-875 ± 274	$5.11^{+4.47}_{-3.43}$	559^{+27}_{-27}	4652^{+3622}_{-985}	2871^{+23584}_{-2060}

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 $A_{obs} \gg 1.0$

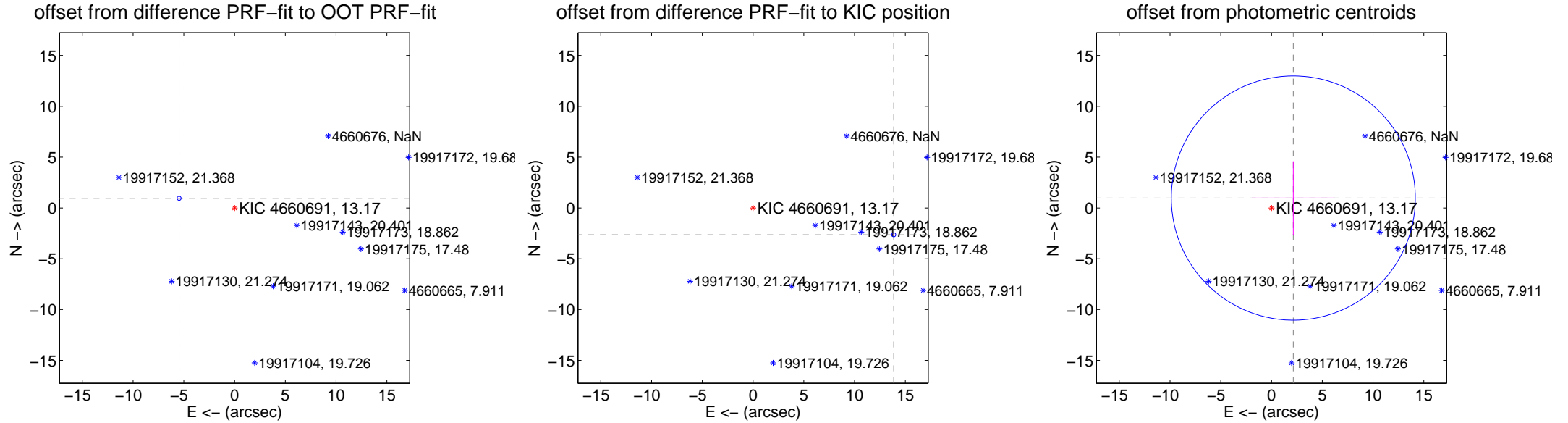
DV Centroid Data

Supplemental centroid analysis for 004660691-04. Kepler magnitude: 13.17. Transit SNR 0.94

There are 0 quarters with good PRF difference image offsets

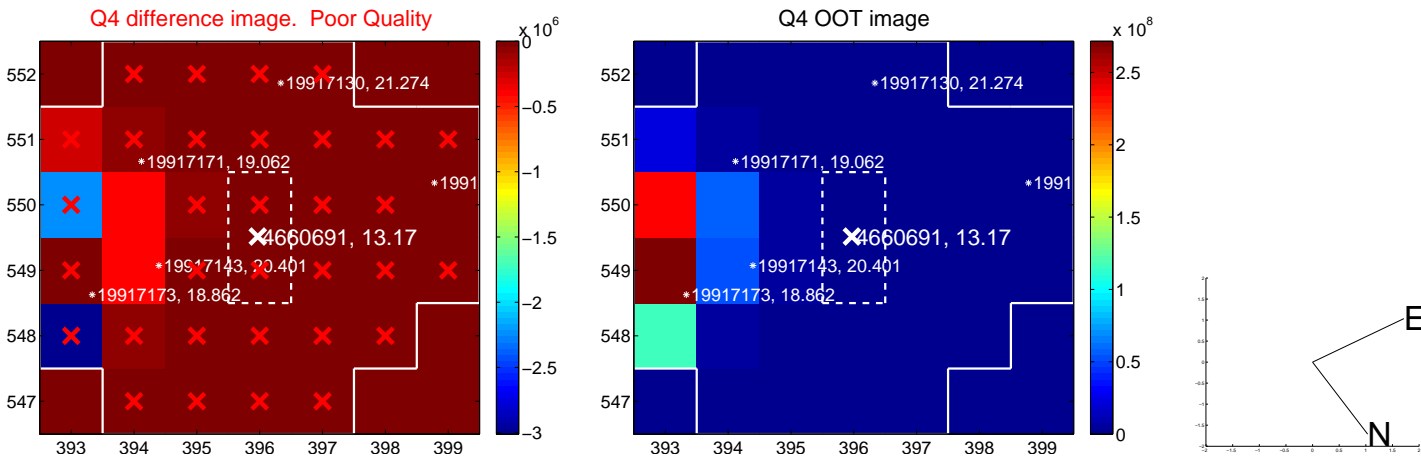
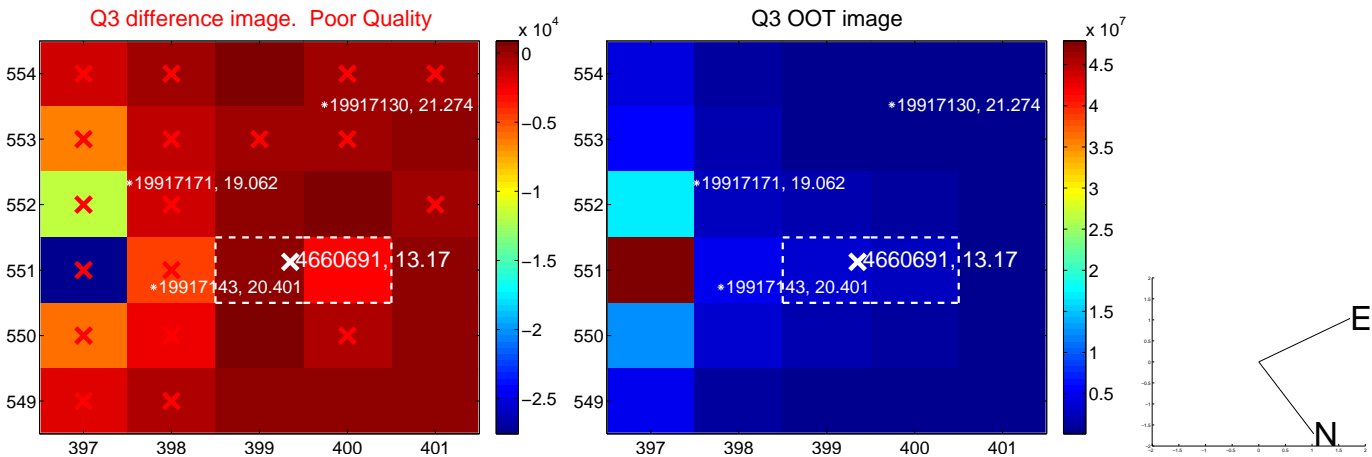
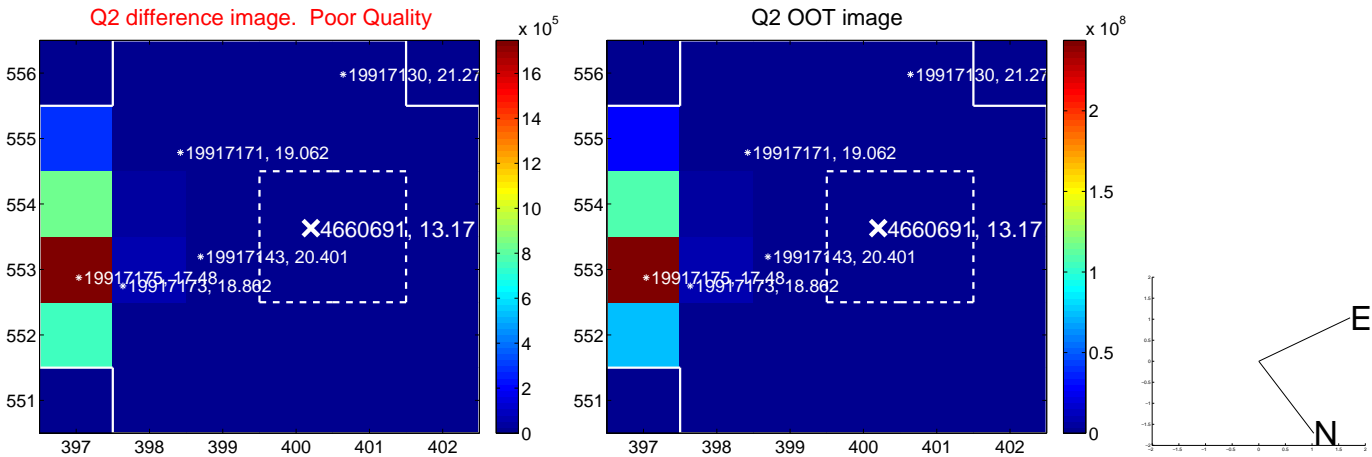
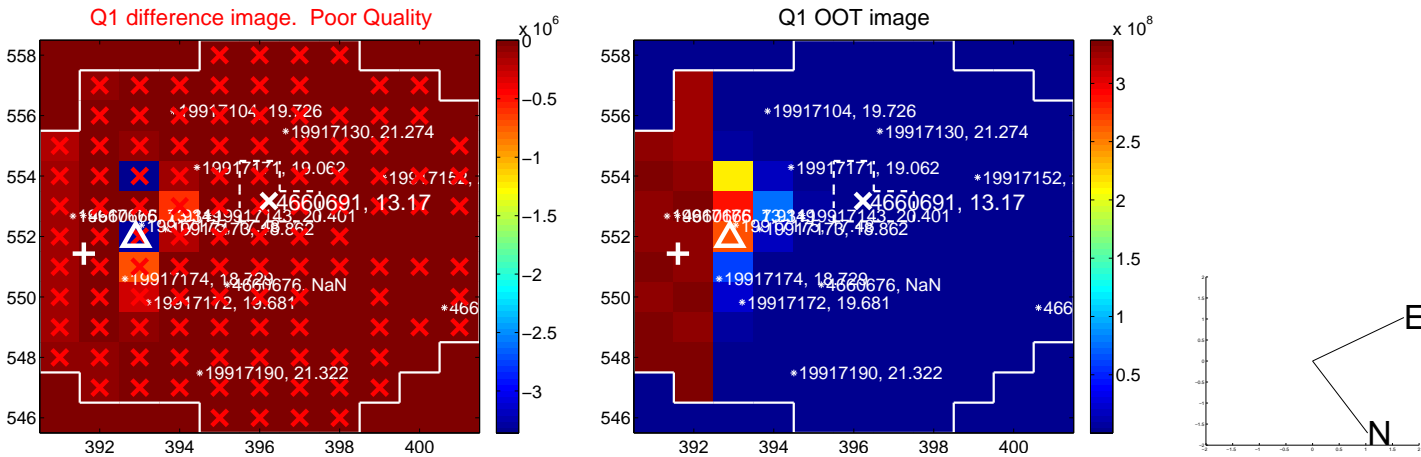
The OOT PRF centroid is offset from the target star catalog position by about 19.66 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.548 ± 0.067	82.57	5.466 ± 0.067	0.953 ± 0.067
PRF-fit source offset from KIC position	14.109 ± 0.067	209.99	-13.860 ± 0.067	-2.639 ± 0.067
photometric centroid source offset	2.36 ± 4.01	0.59	-2.15 ± 4.08	0.98 ± 3.61

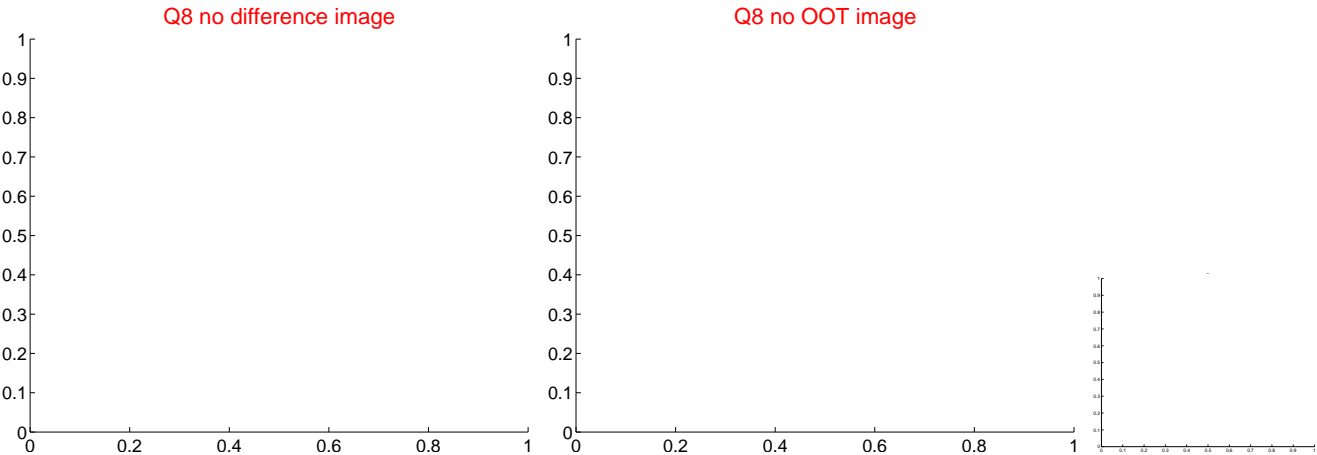
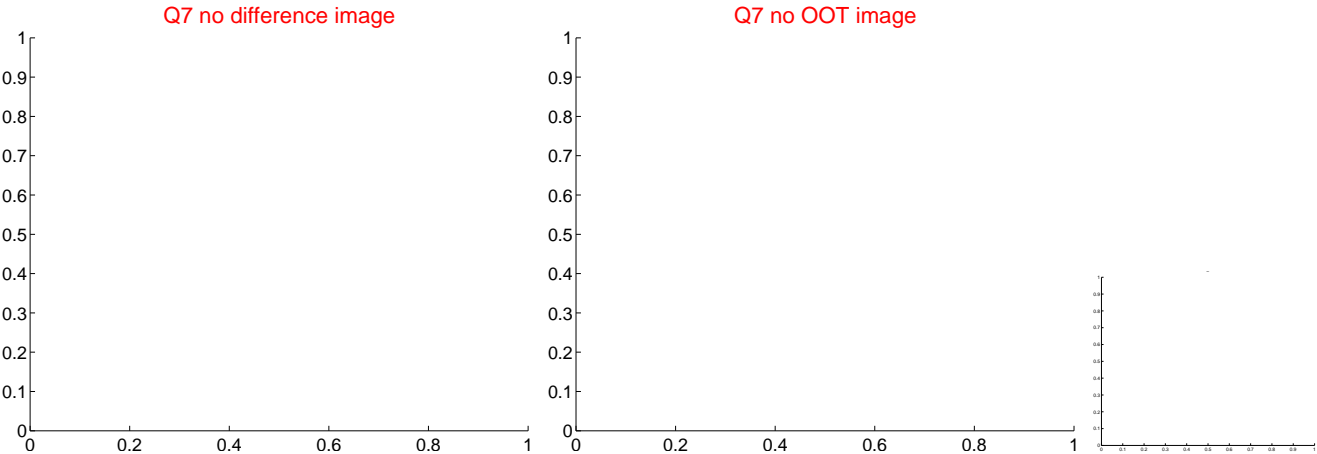
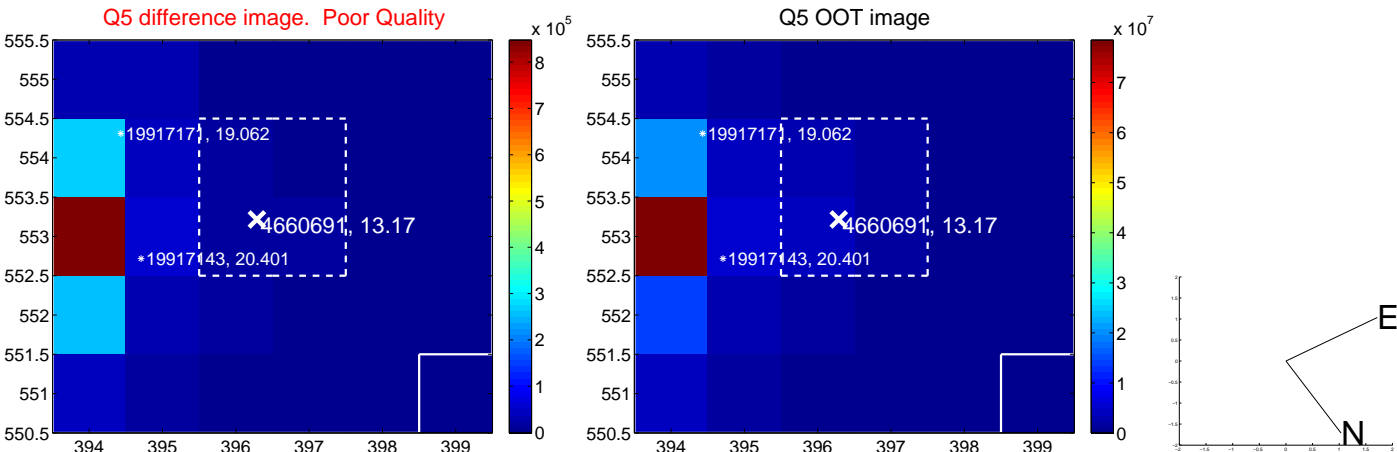


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

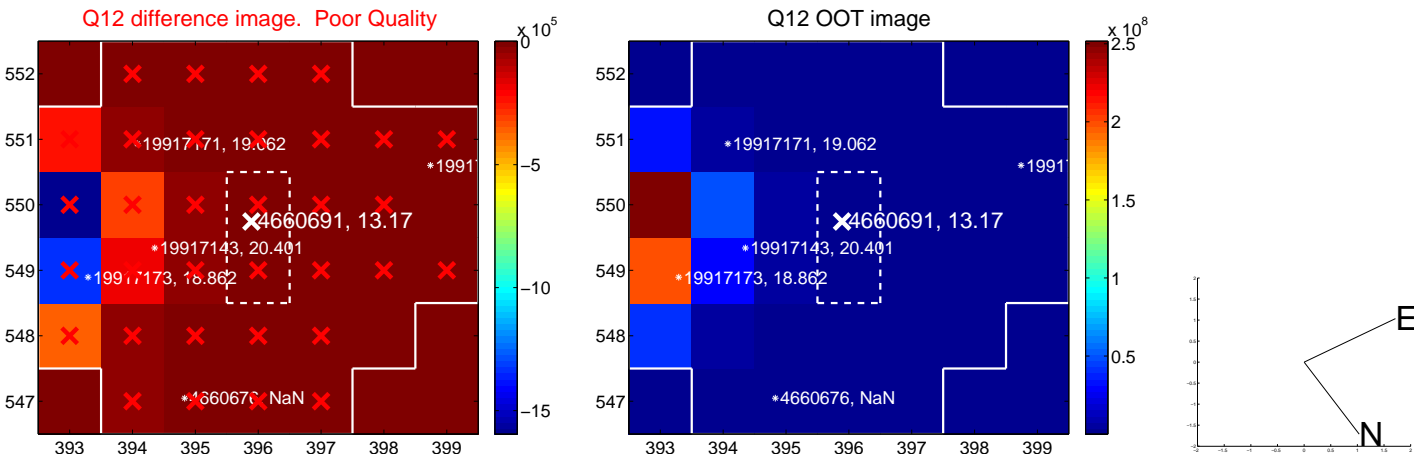
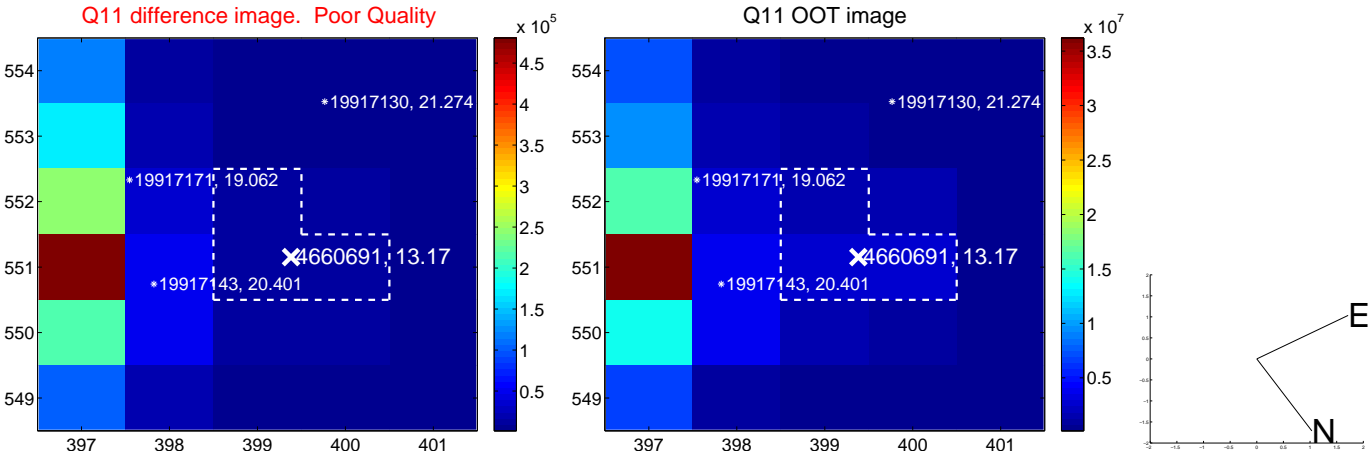
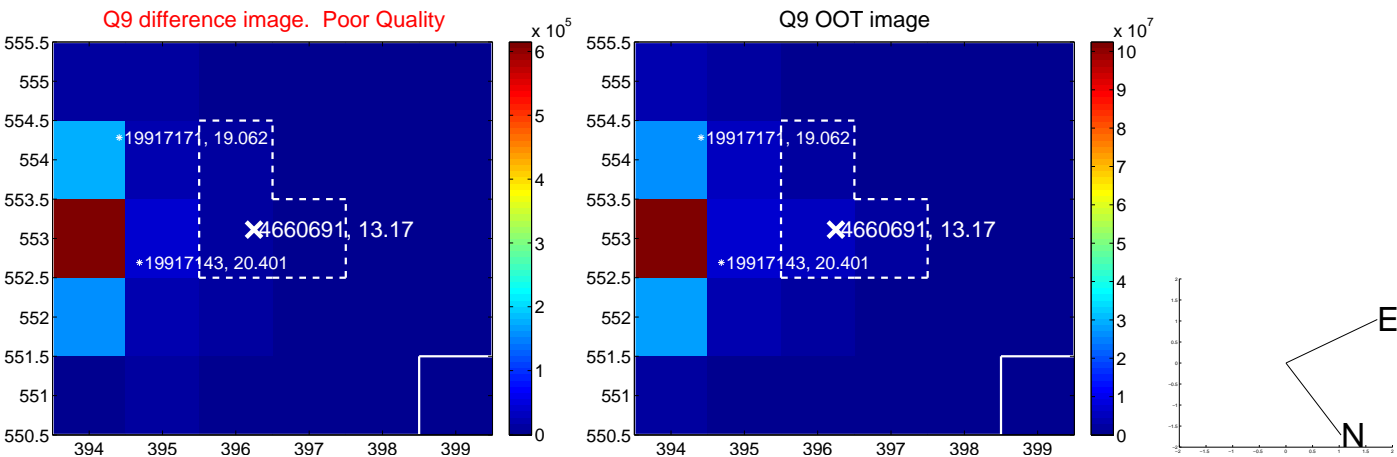
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



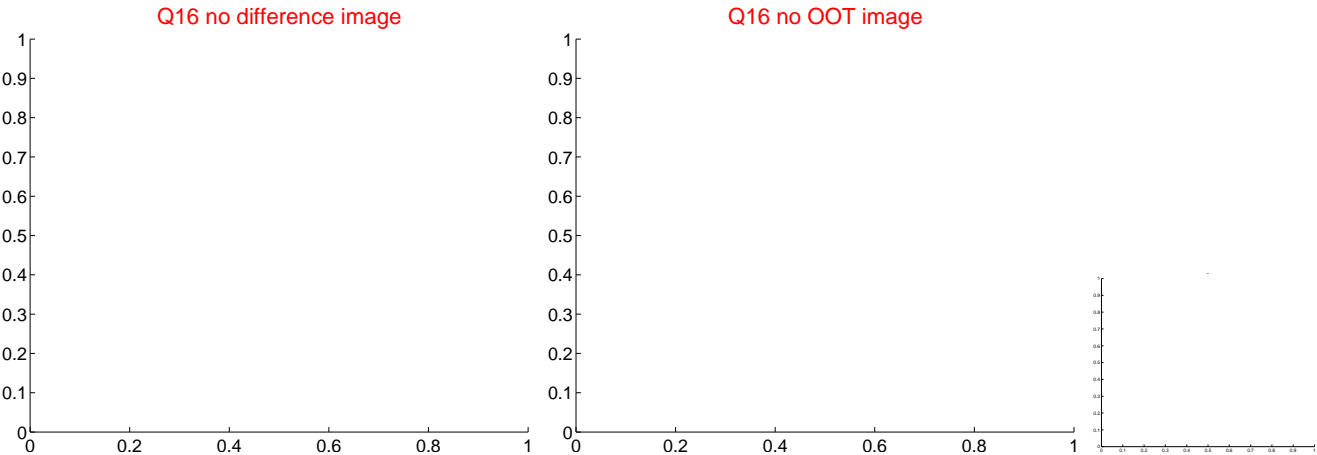
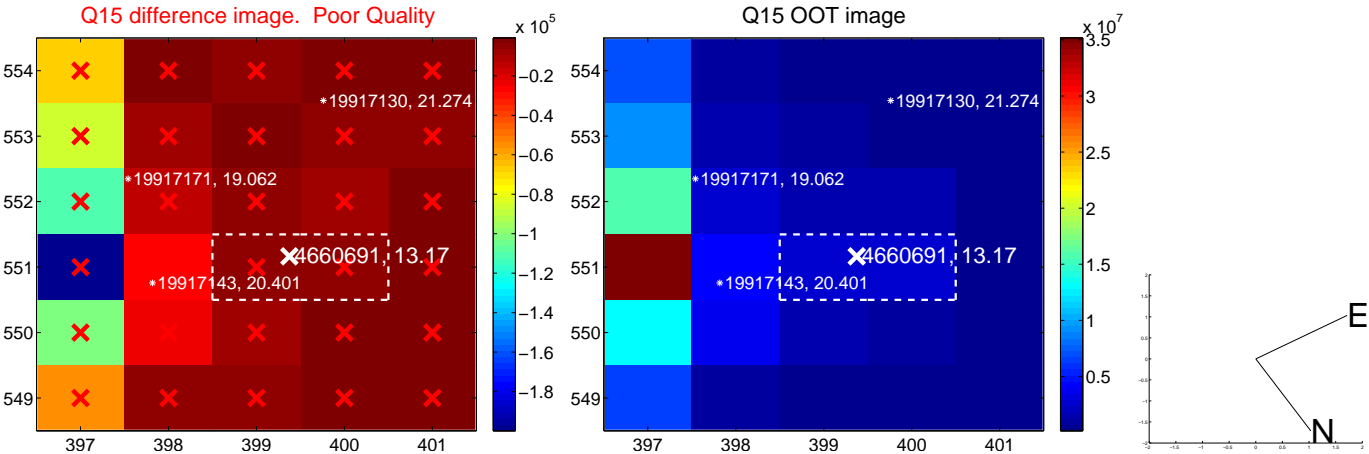
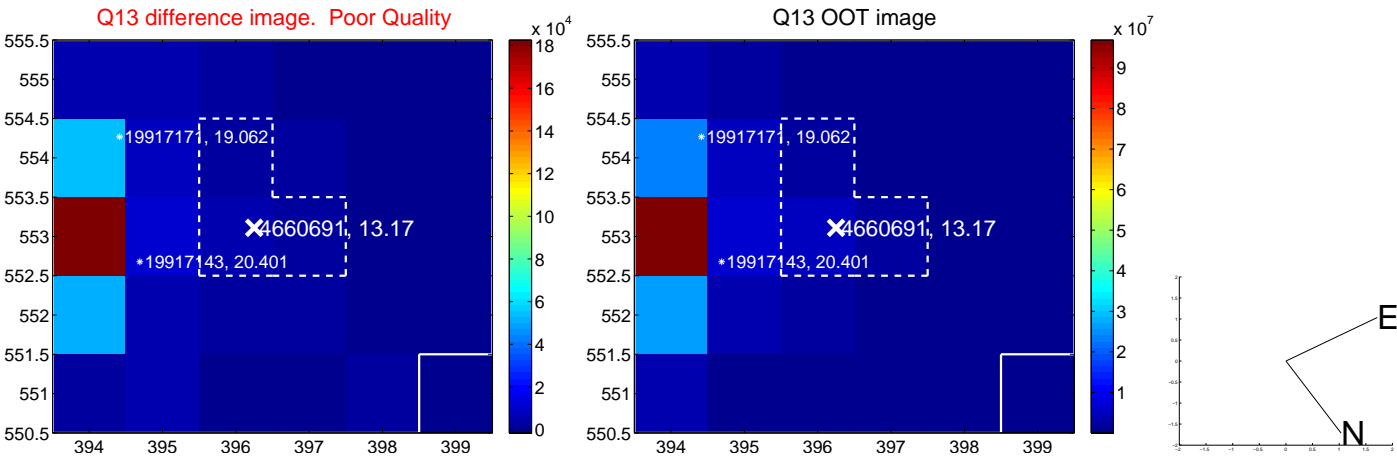
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



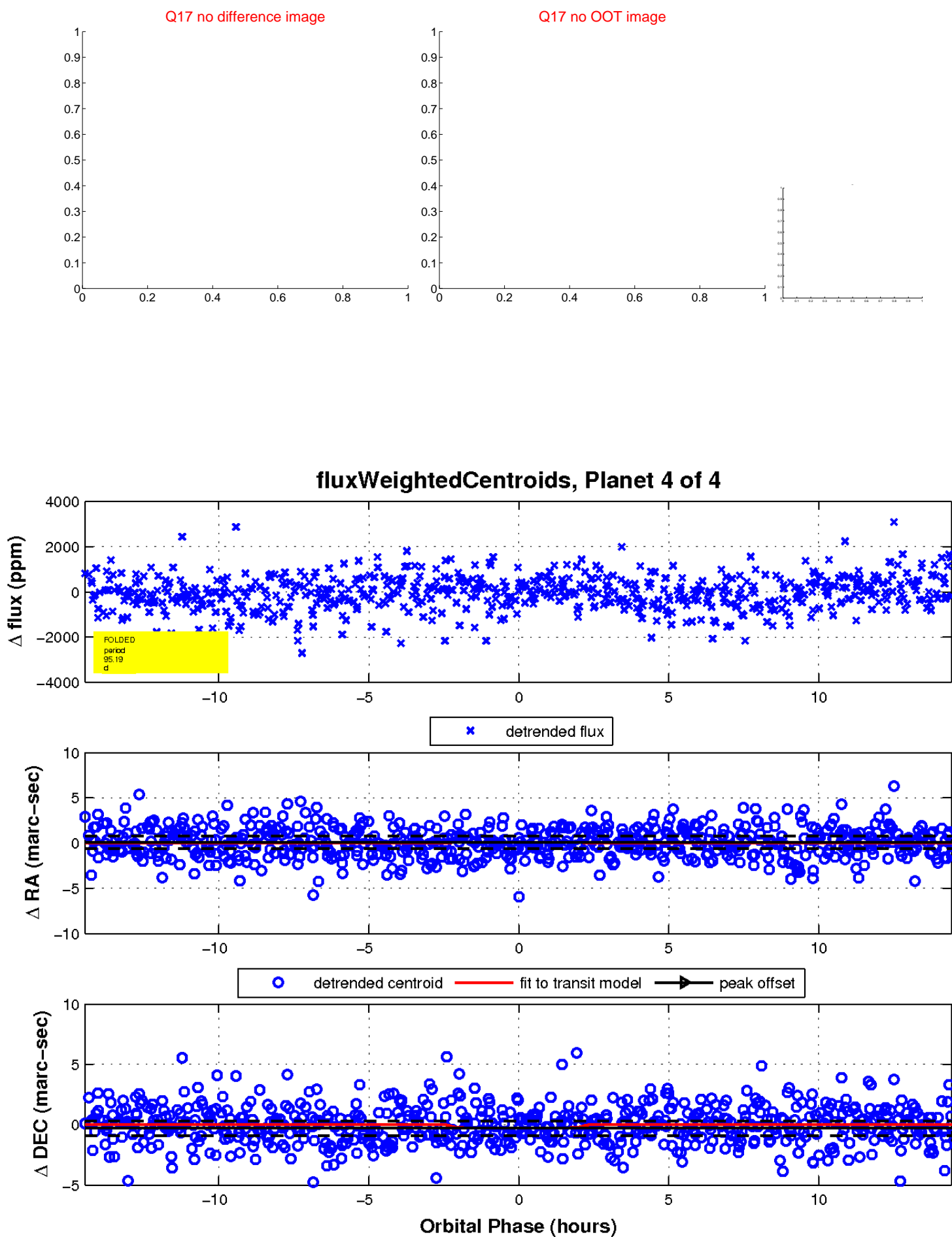
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

