

KIC 006948054

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})
006948054-01	OBS	0869.01	7.490184	137.499333	1068.6	2.880	43.1	47.3	0.79	5103	2.80	76.24
006948054-02	OBS	0869.02	36.275280	165.029900	1425.0	6.430	28.6	32.5	0.79	5103	3.92	9.30
006948054-03	OBS	0869.04	3.219798	133.007287	337.8	2.301	19.4	21.1	0.79	5103	1.75	235.00
006948054-04	OBS	0869.03	17.460925	137.262683	709.1	2.514	16.8	18.6	0.79	5103	2.59	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006948054-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

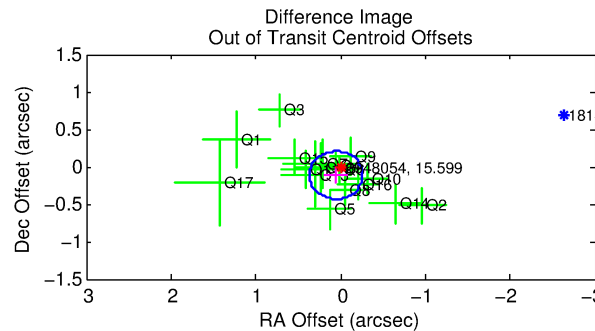
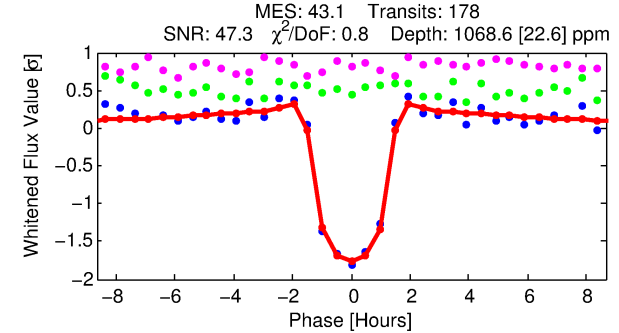
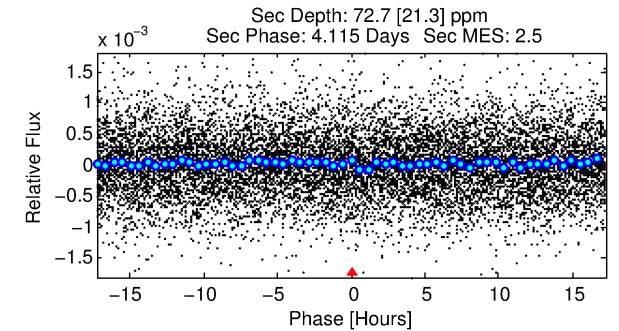
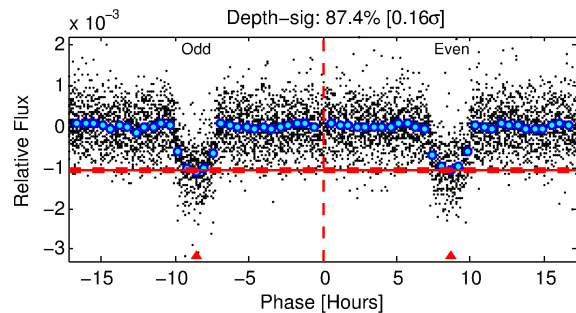
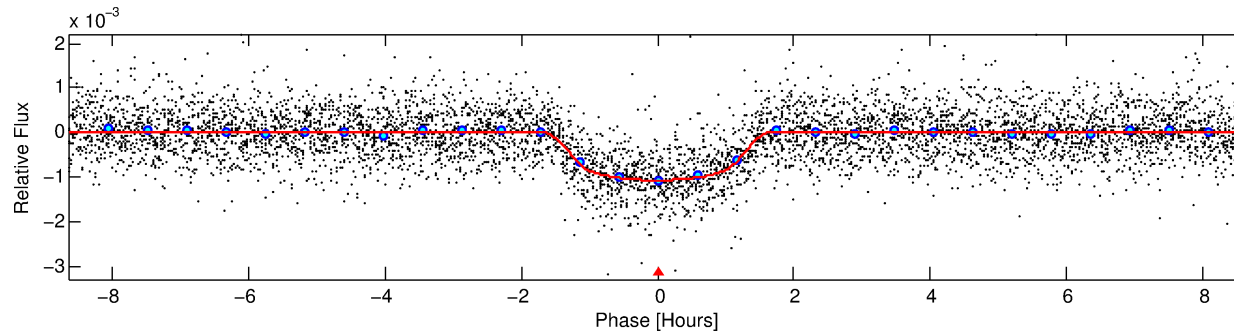
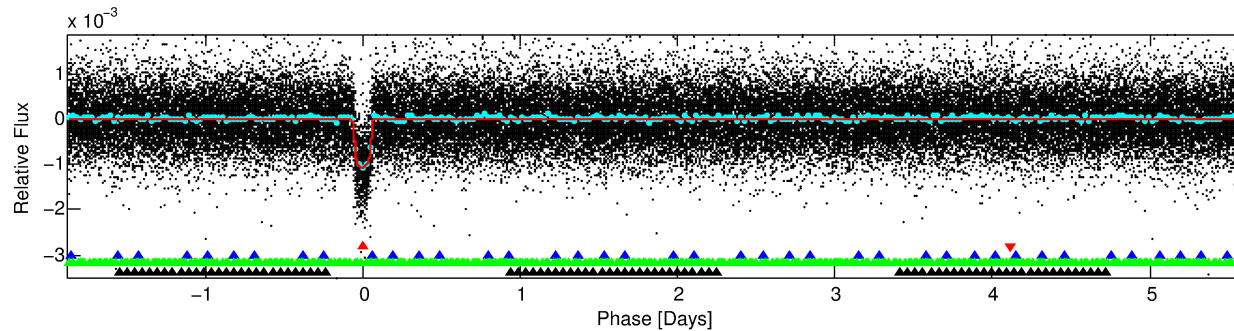
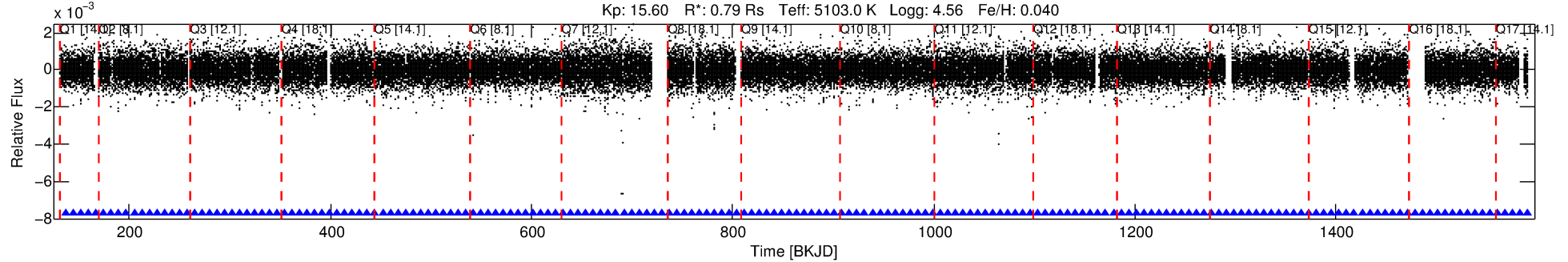
Ephemeris Match Information For 006948054-01

No Significant Match Found

DV One-Page Summary

KIC: 6948054 Candidate: 1 of 4 Period: 7.490 d
KOI: K00869.01 Name: Kepler-245b Corr: 0.977

Kp: 15.60 R*: 0.79 Rs Teff: 5103.0 K Logg: 4.56 Fe/H: 0.040



DV Fit Results:

Period = 7.49018 [0.00001] d
Epoch = 137.4993 [0.0011] BKJD
Rp/R* = 0.0326 [0.0068]
a/R* = 14.20 [10.51]
b = 0.75 [0.45]
Seff = 76.24 [9.18]
Teq = 753 [23] K
Rp = 2.80 [0.61] Re
a = 0.0703 [0.0041] AU
Ag = 25.15 [13.02] [1.85σ]
Teffp = 2609 [336] K [5.50σ]

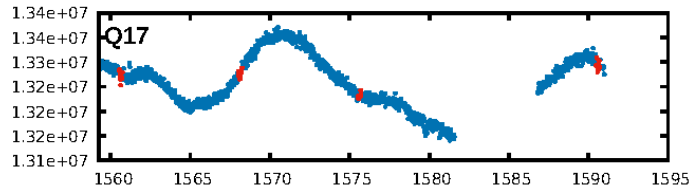
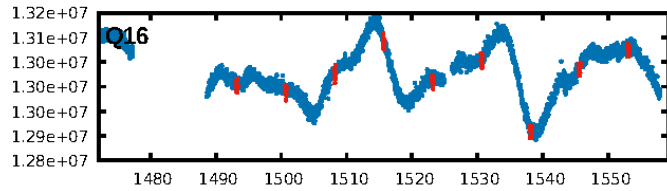
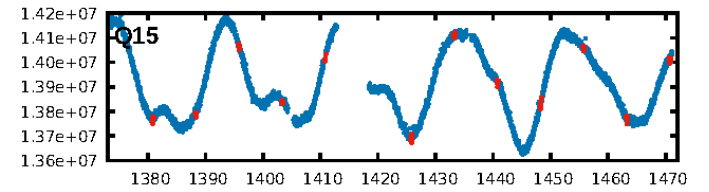
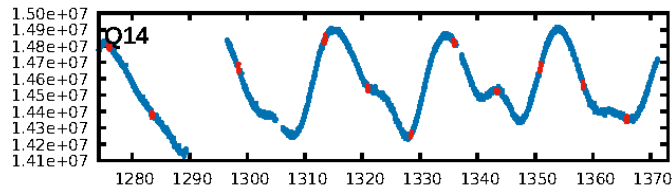
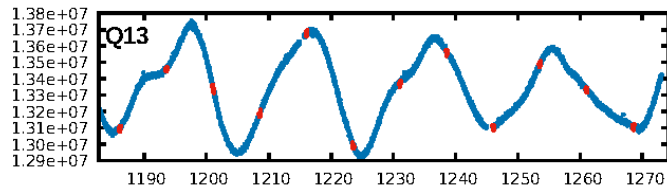
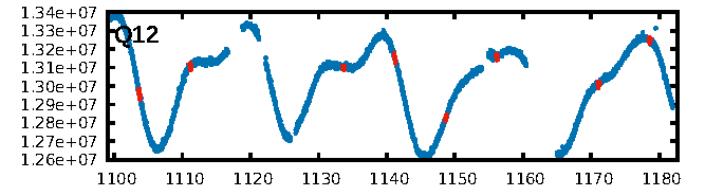
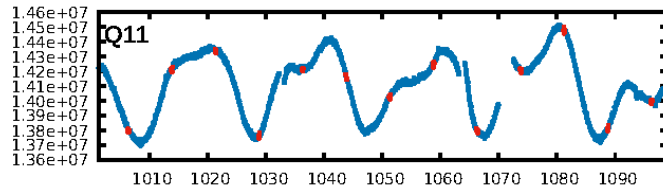
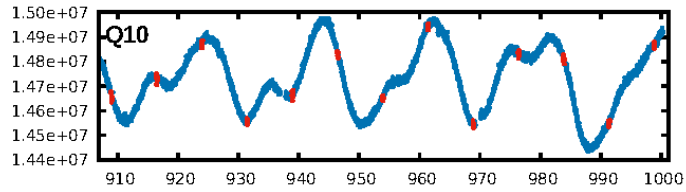
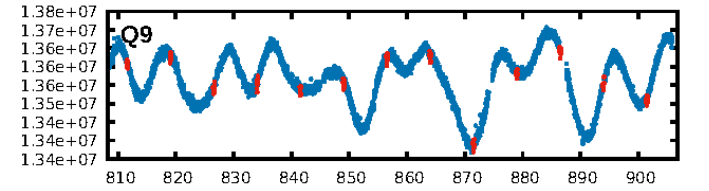
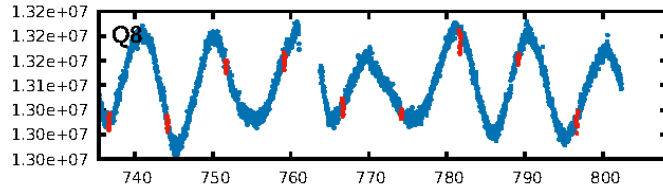
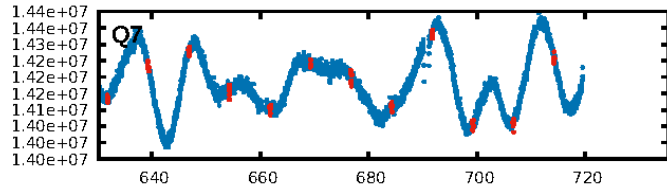
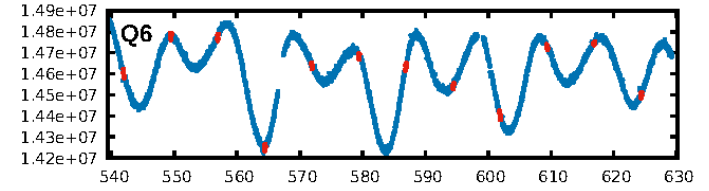
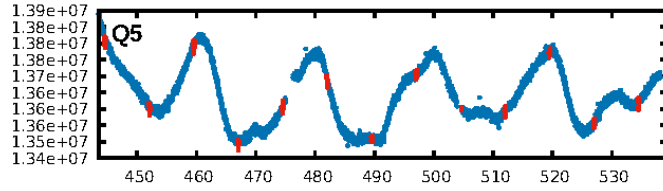
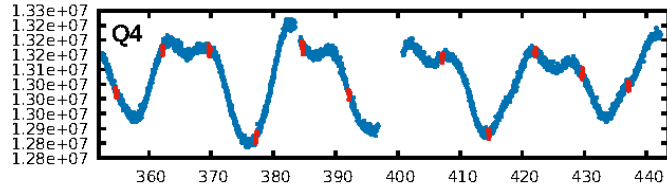
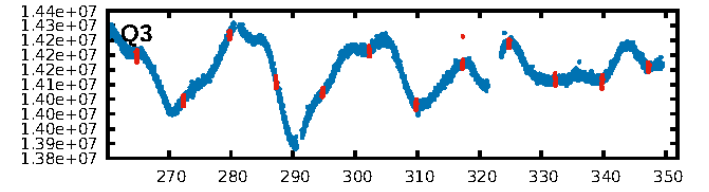
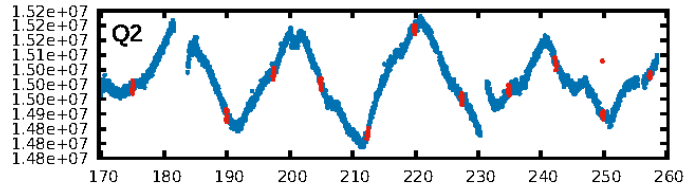
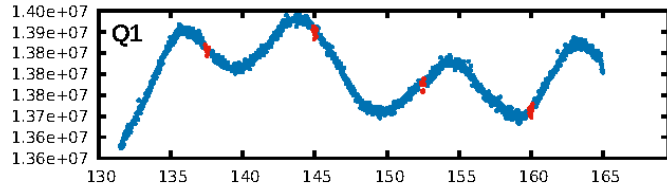
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.80σ]
LongPeriod-sig: 100.0% [62.59σ]
ModelChiSquare2-sig: 99.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [170/170]
GhostDiagnostic-chr: 2.572
Centroid-sig: 13.9%
Centroid-so: 0.080 arcsec [0.32σ]
OotOffset-rm: 0.126 arcsec [1.19σ]
KicOffset-rm: 0.082 arcsec [0.56σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

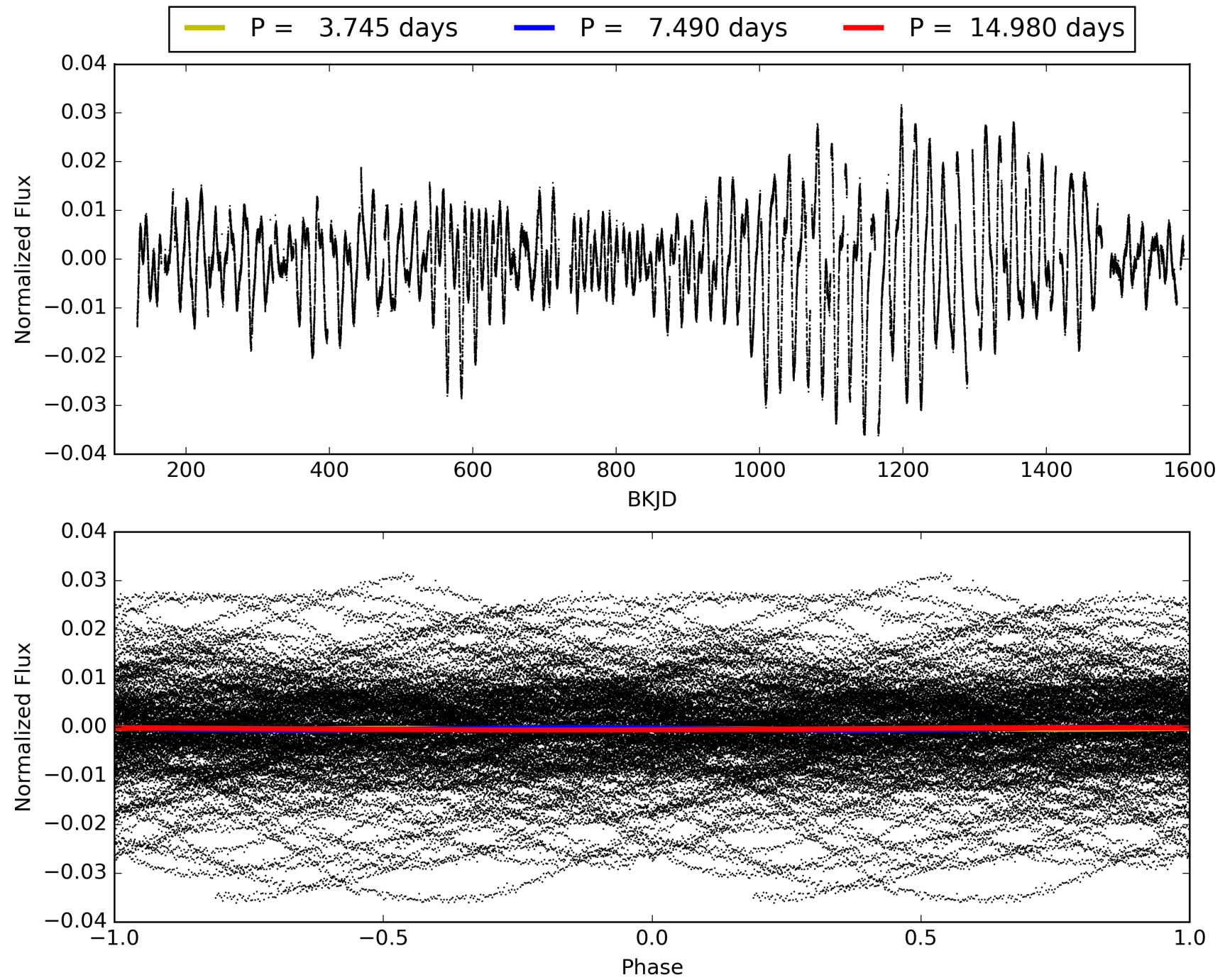
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:23:47 Z

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

TCE 006948054-01, PDC Light Curves

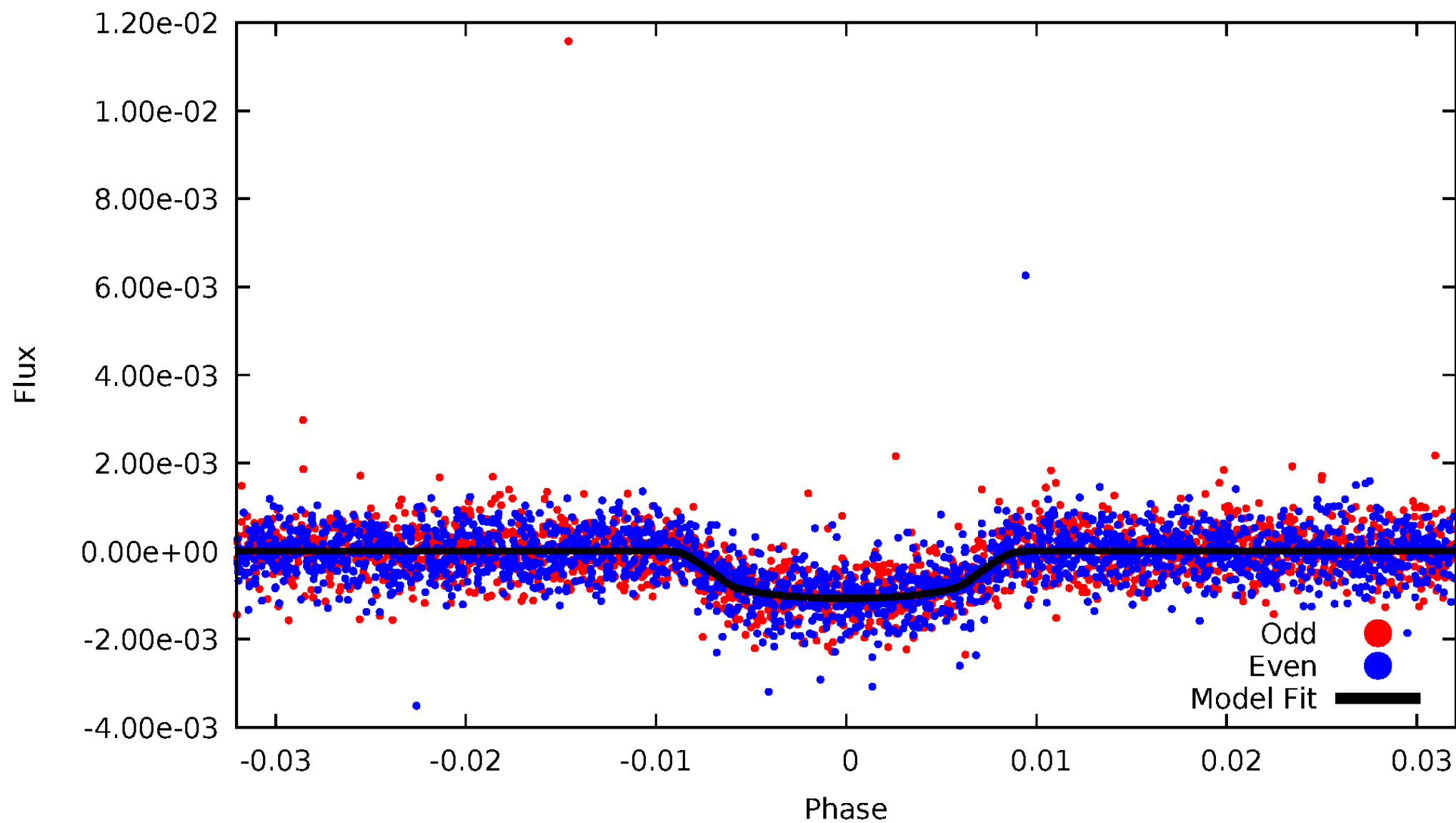


TCE 006948054-01



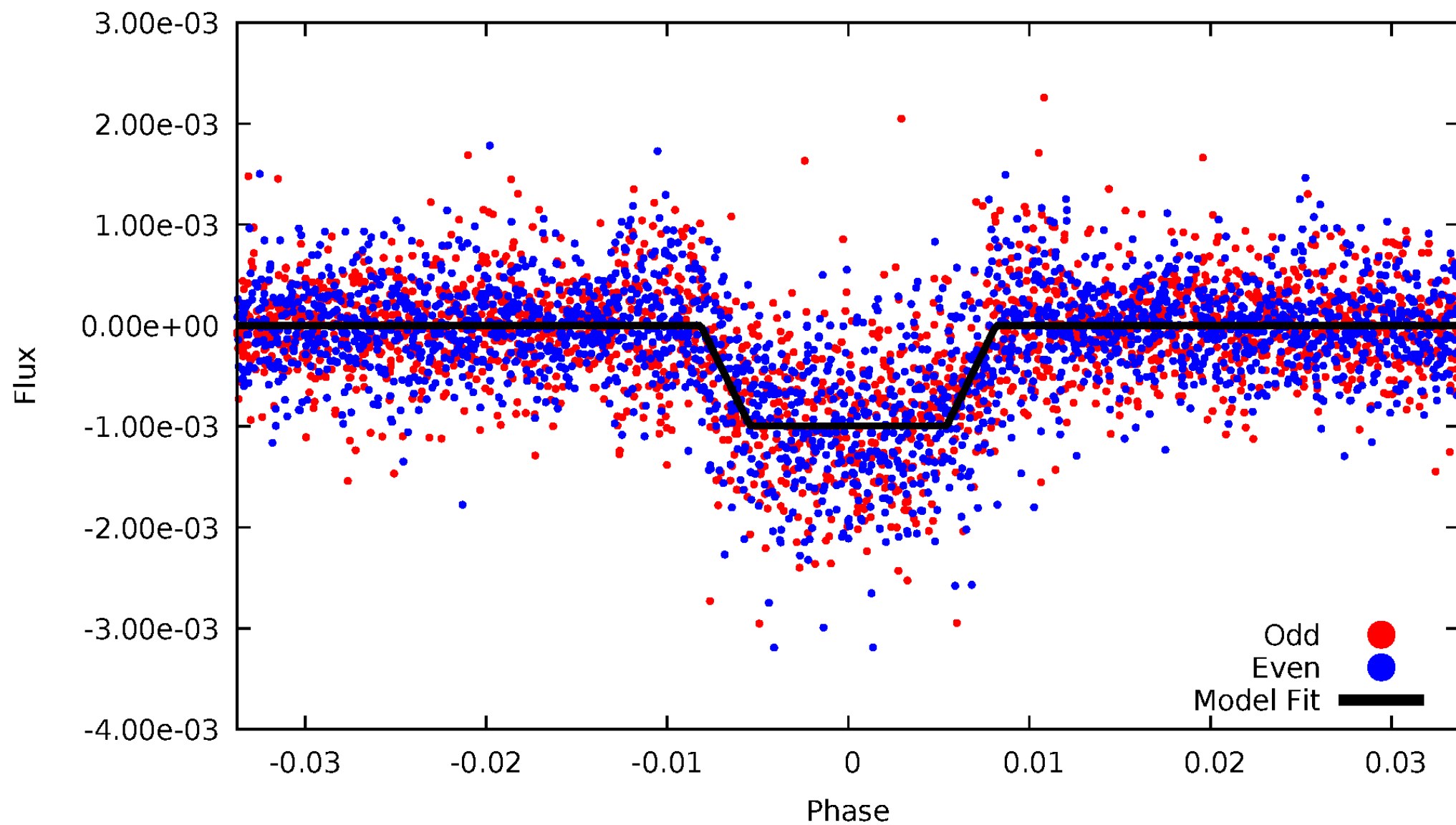
DV Odd/Even

TCE 006948054-01



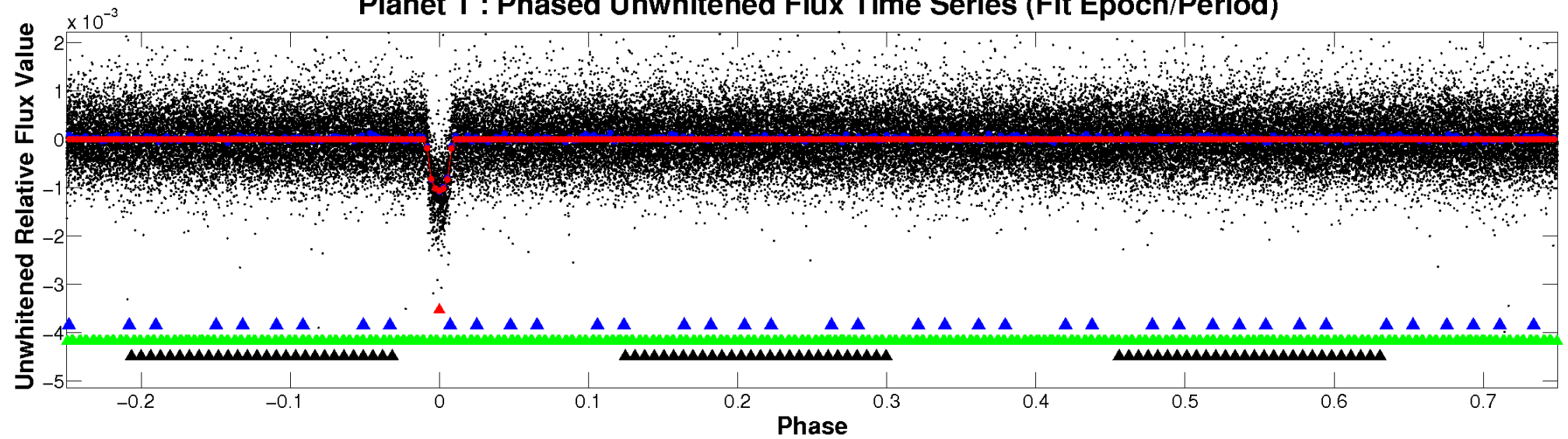
ALT Odd/Even

TCE 006948054-01

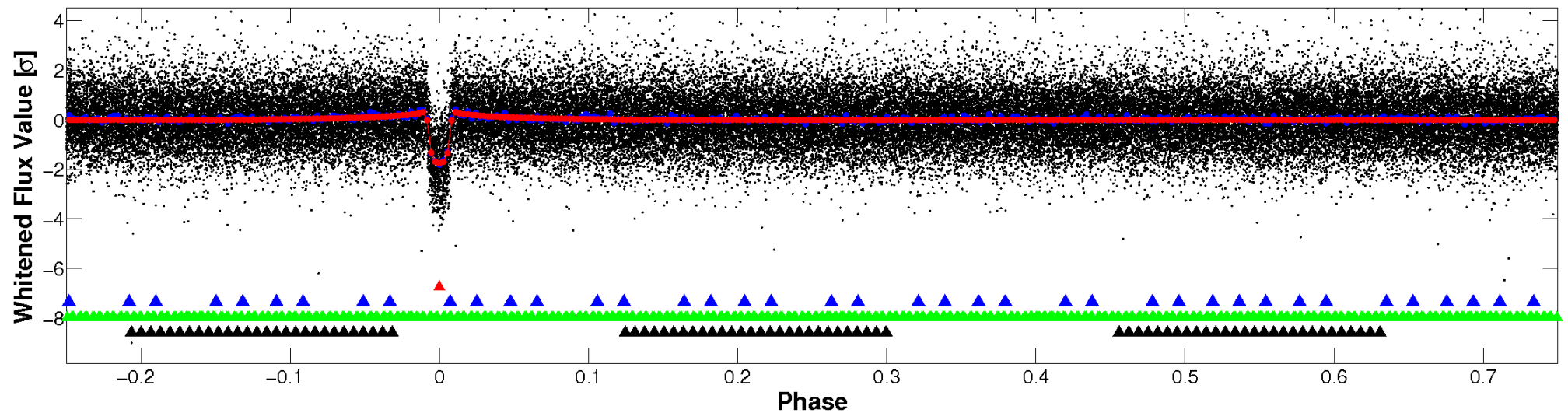


Non-Whitened Vs. Whitened Light Curve

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

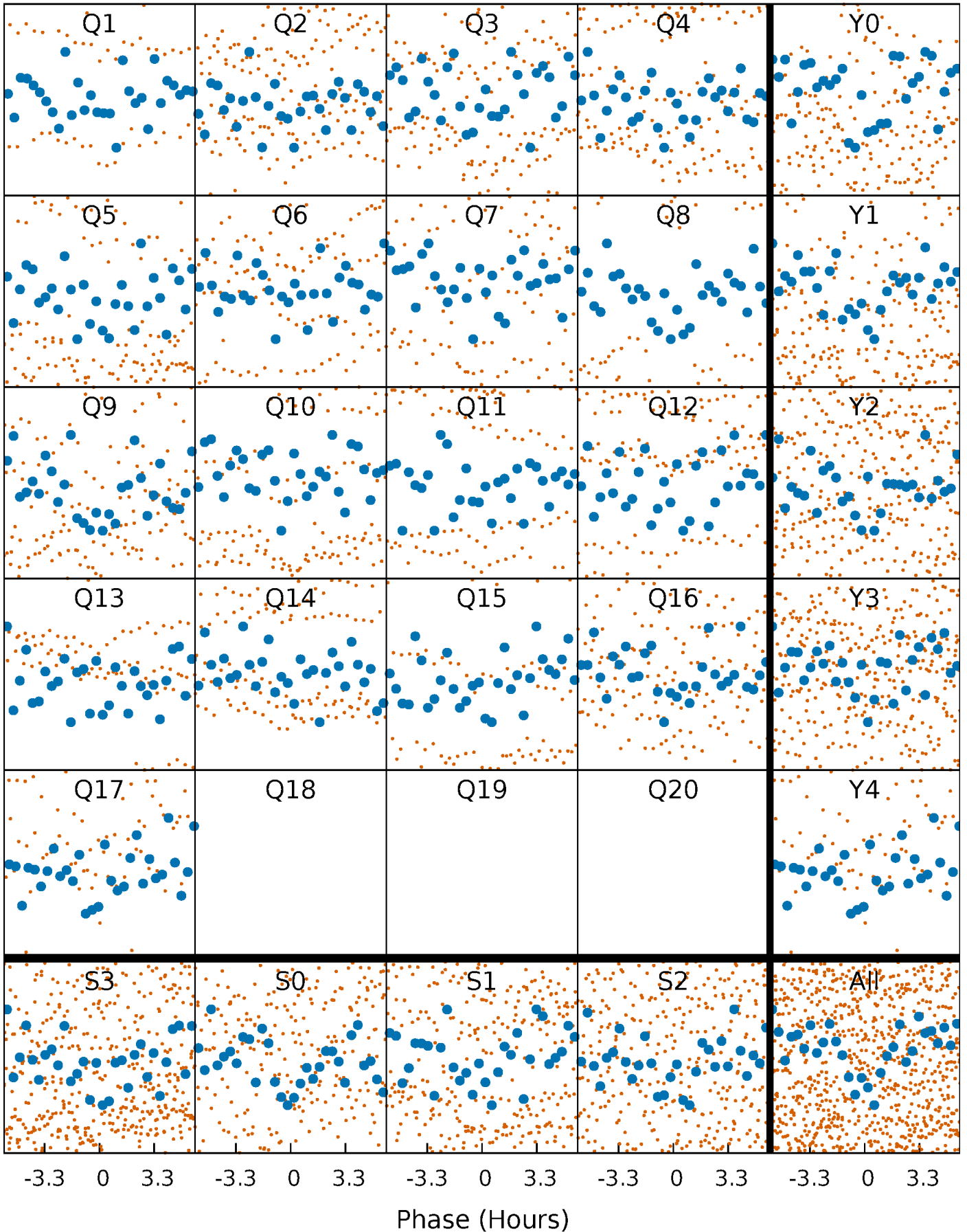


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



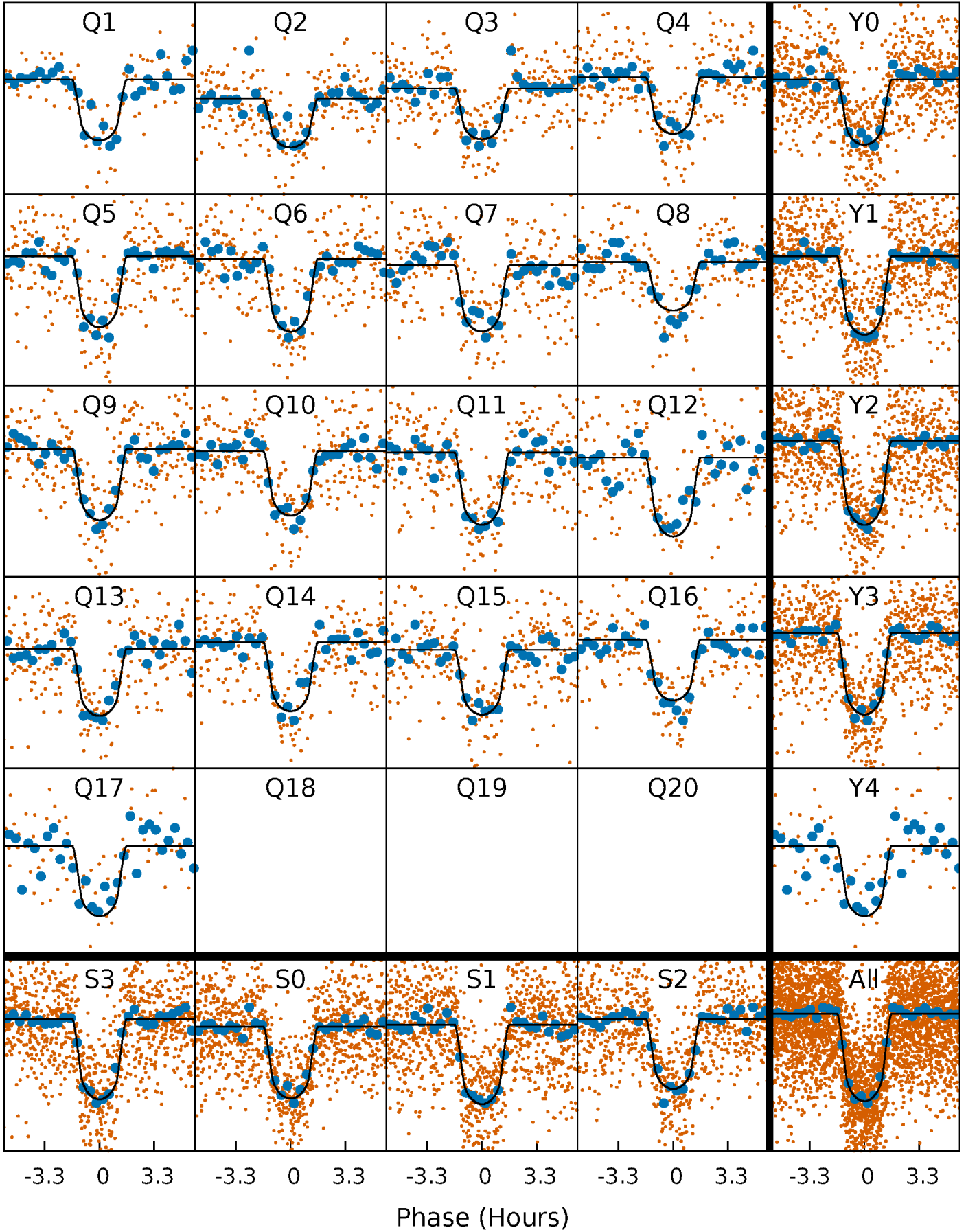
PDC Quarter-Phased Transit Curves

TCE 006948054-01 P= 7.490184 Days $T_0=137.499333$ (BKJD)



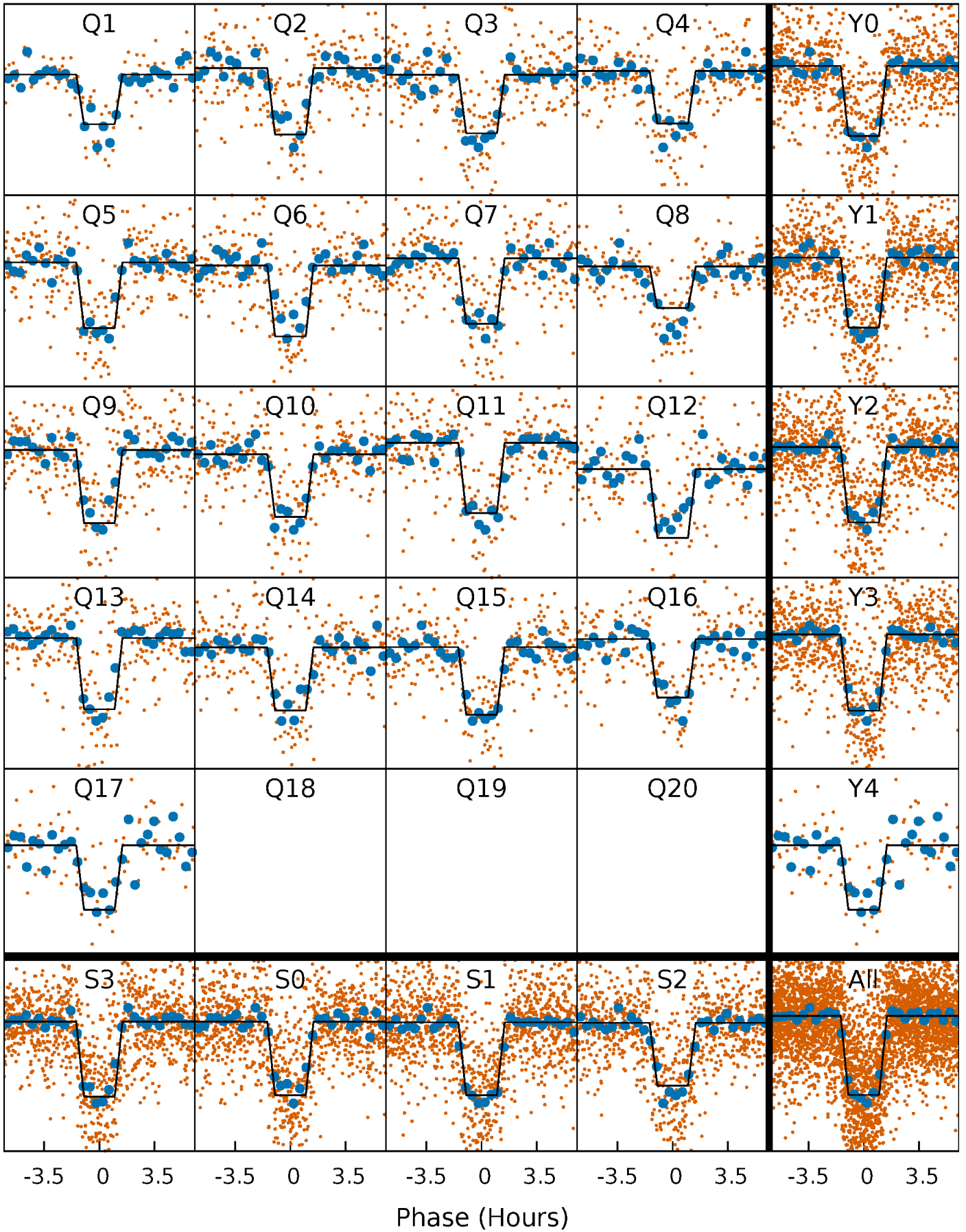
DV Quarter-Phased Transit Curves

TCE 006948054-01 P= 7.490184 Days $T_0=137.499333$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

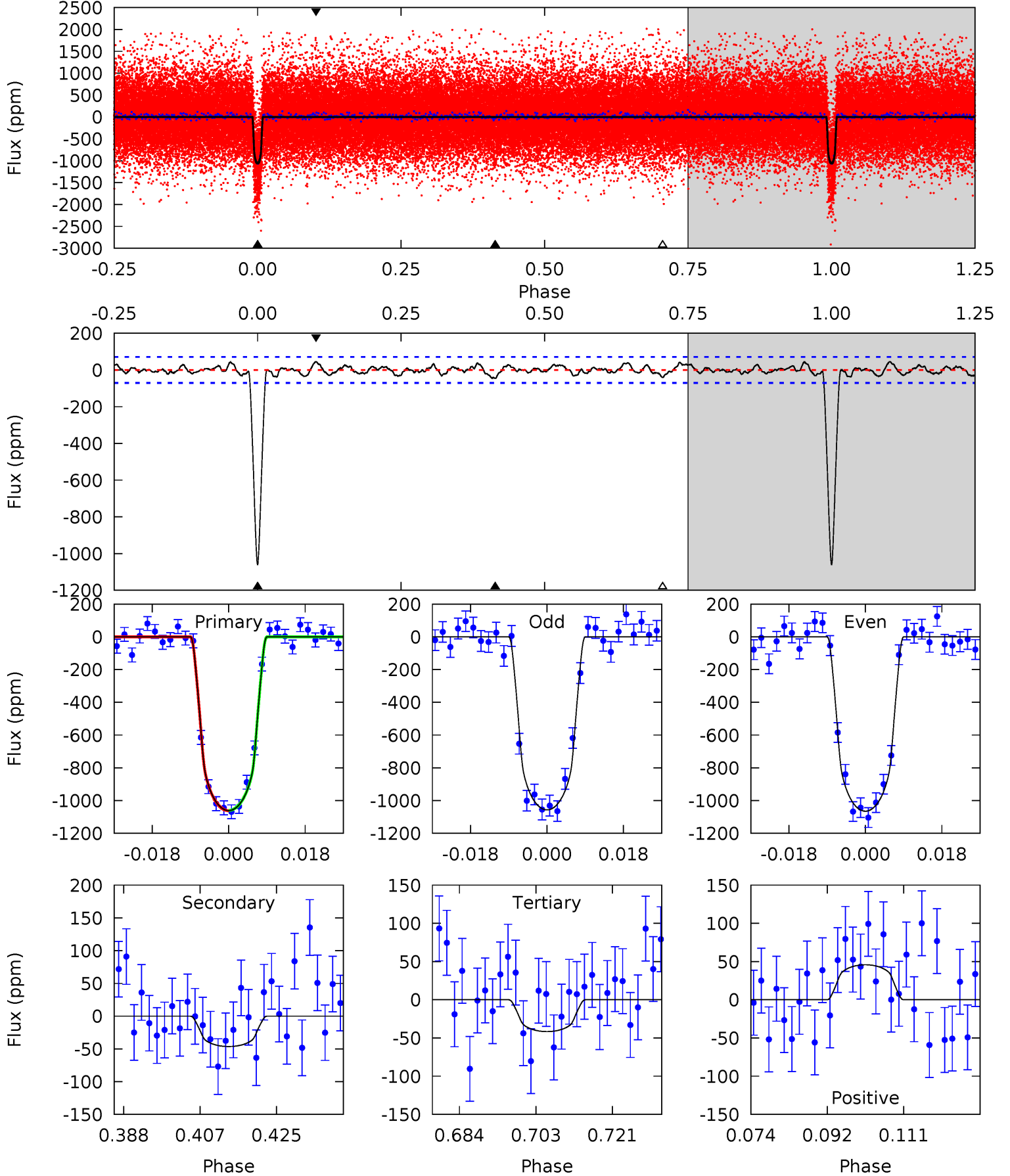
TCE 006948054-01 P= 7.490148 Days $T_0=137.502599$ (BKJD)



DV Model-Shift Uniqueness Test

006948054-01, P = 7.490184 Days, E = 130.009149 Days

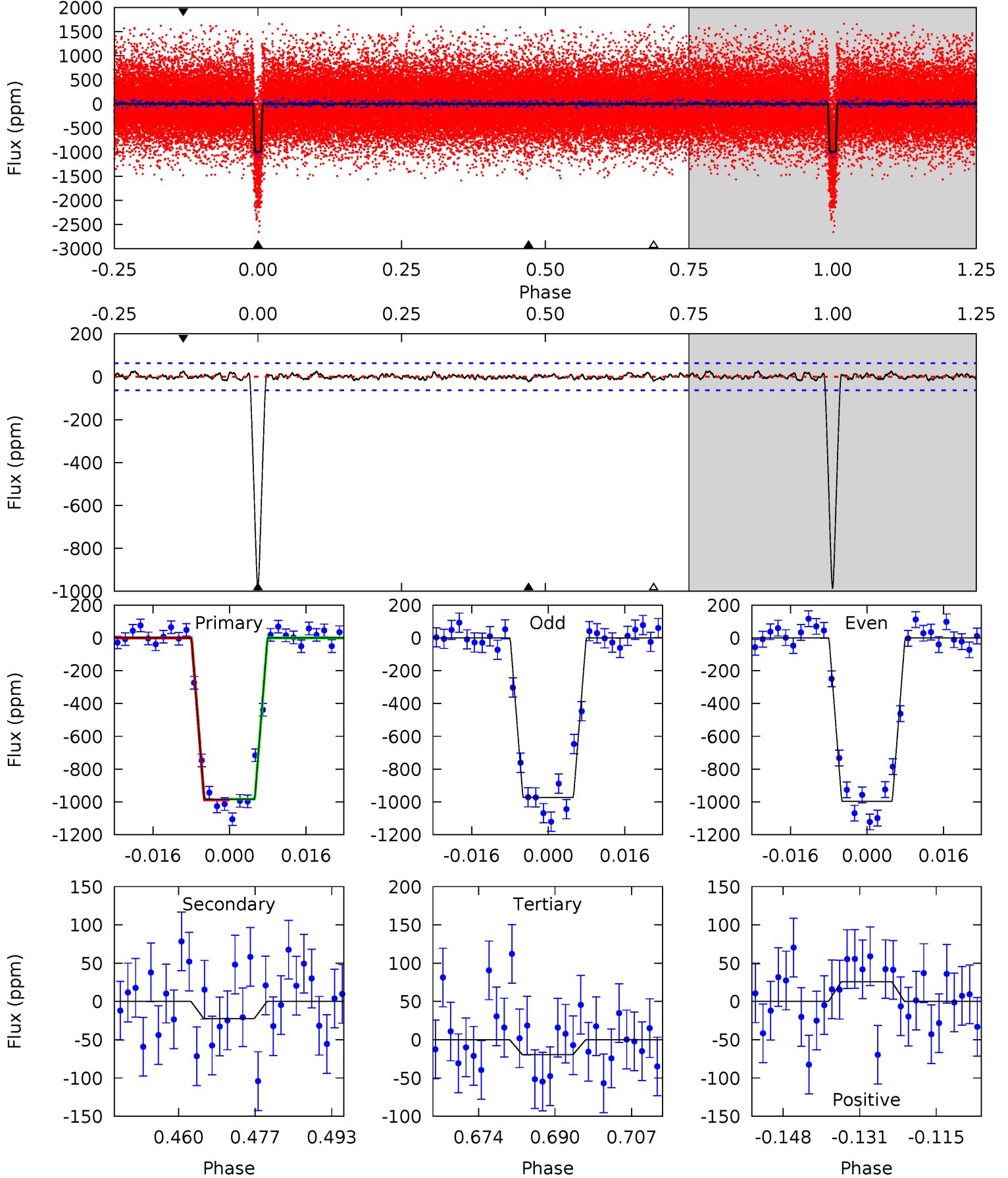
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.5	3.22	2.89	3.17	4.91	2.36	1.19	70.6	70.4	0.33	0.05	0.28	1.01	0.04	0.06



Alt Model-Shift Uniqueness Test

006948054-01, P = 7.490148 Days, E = 130.012451 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
76.6	1.74	1.52	2.01	4.93	2.40	0.66	75.1	74.6	0.22	-0.27	0.92	1.01	0.03	0.18



Stellar Parameters For KIC 006948054

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.052}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 006948054-01 / KOI 0869.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-46 ± 14	$2.82^{+0.62}_{-0.58}$	1057^{+27}_{-27}	2960^{+251}_{-214}	16^{+11}_{-7}
Alt.	-22 ± 13	$2.74^{+0.59}_{-0.56}$	1058^{+28}_{-24}	2679^{+273}_{-300}	$7.620^{+7.131}_{-4.617}$

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

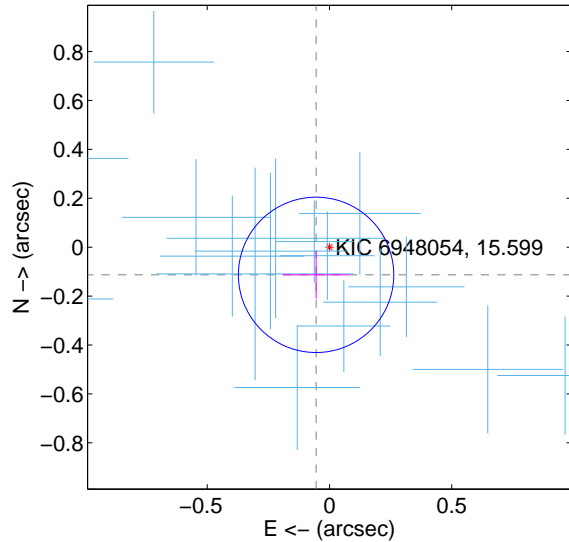
Supplemental centroid analysis for 006948054-01. Kepler magnitude: 15.60. Transit SNR 47.28

There are 17 quarters with good PRF difference image offsets

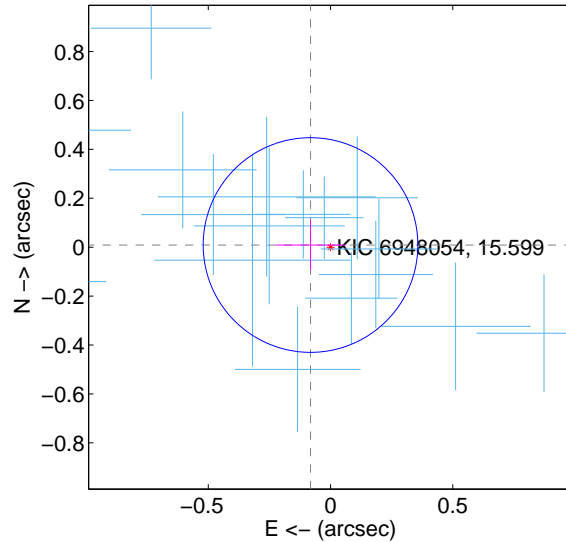
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.126 ± 0.106	1.19	0.055 ± 0.136	-0.113 ± 0.097
PRF-fit source offset from KIC position	0.082 ± 0.146	0.56	0.082 ± 0.143	0.009 ± 0.101
photometric centroid source offset	0.08 ± 0.25	0.32	0.07 ± 0.25	0.04 ± 0.24

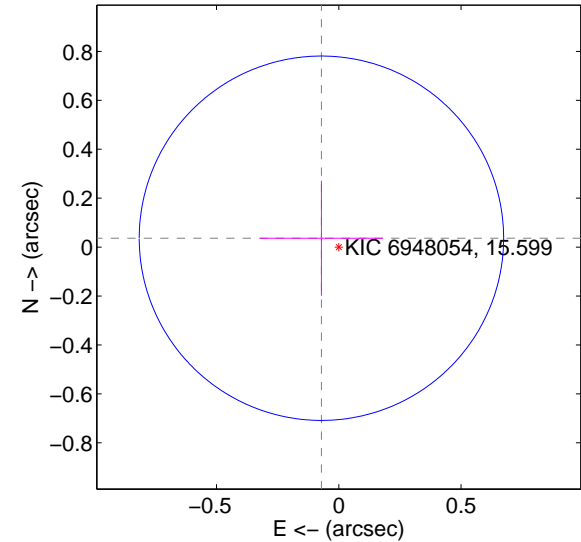
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

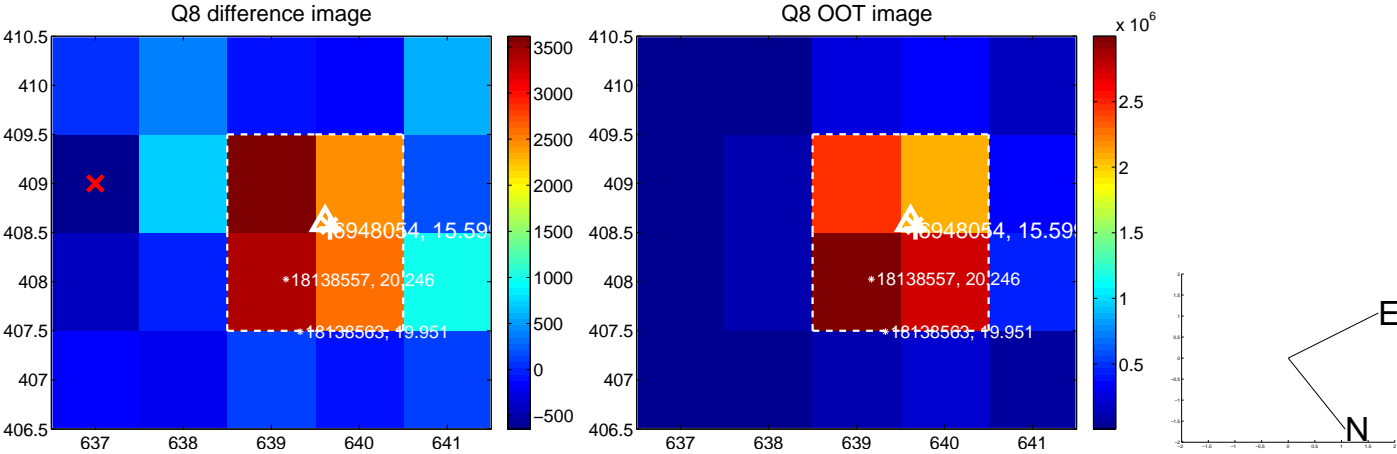
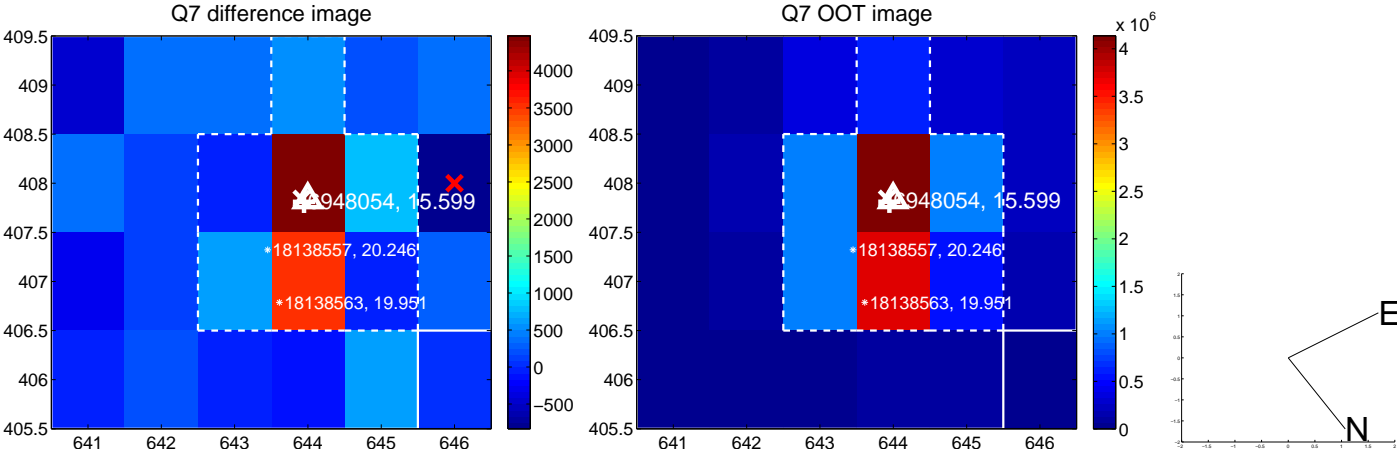
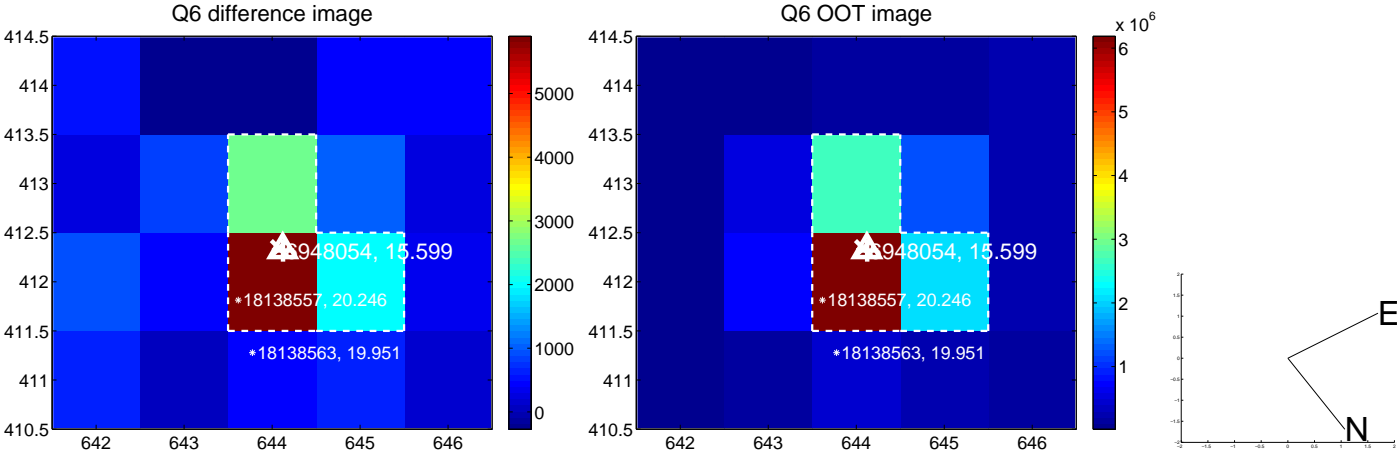
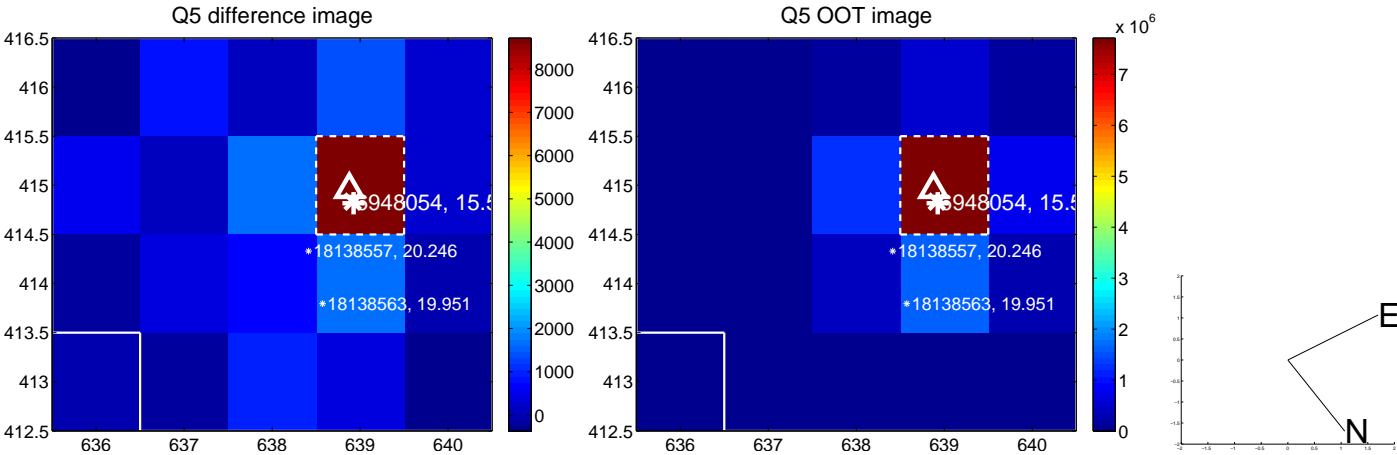


offset from photometric centroids

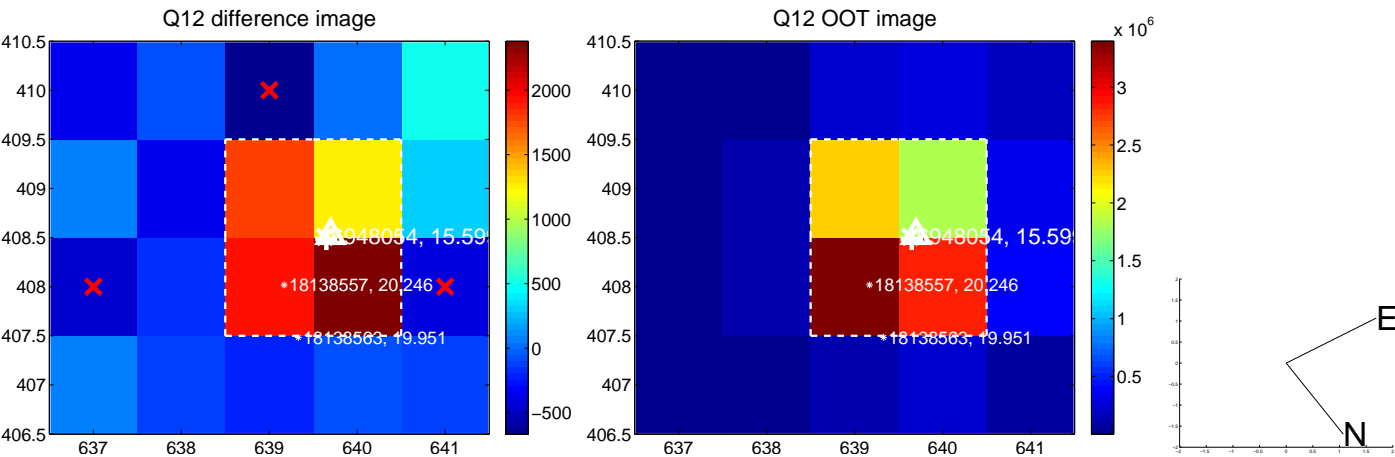
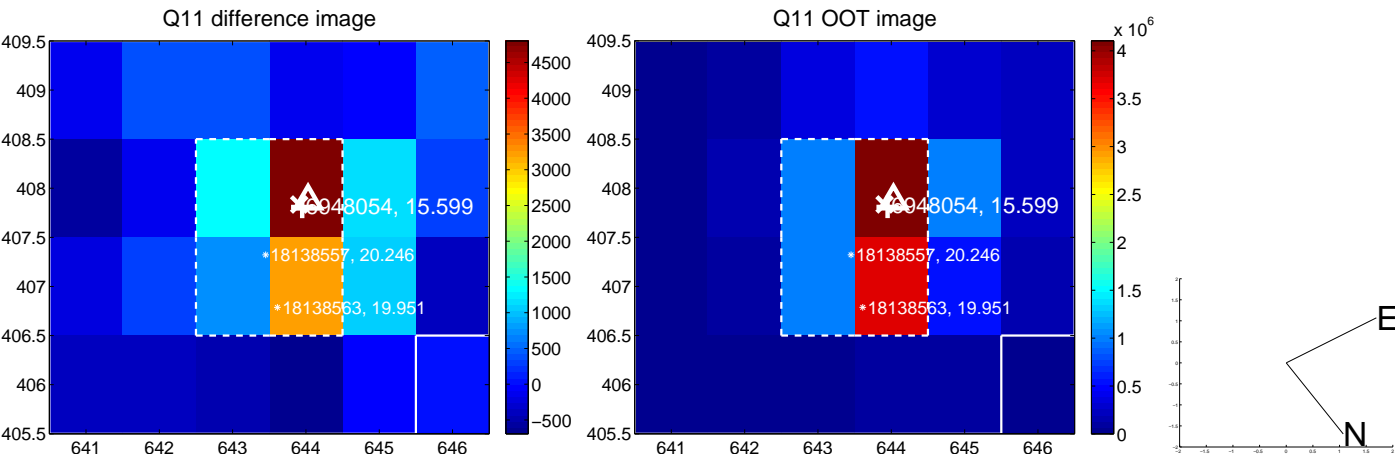
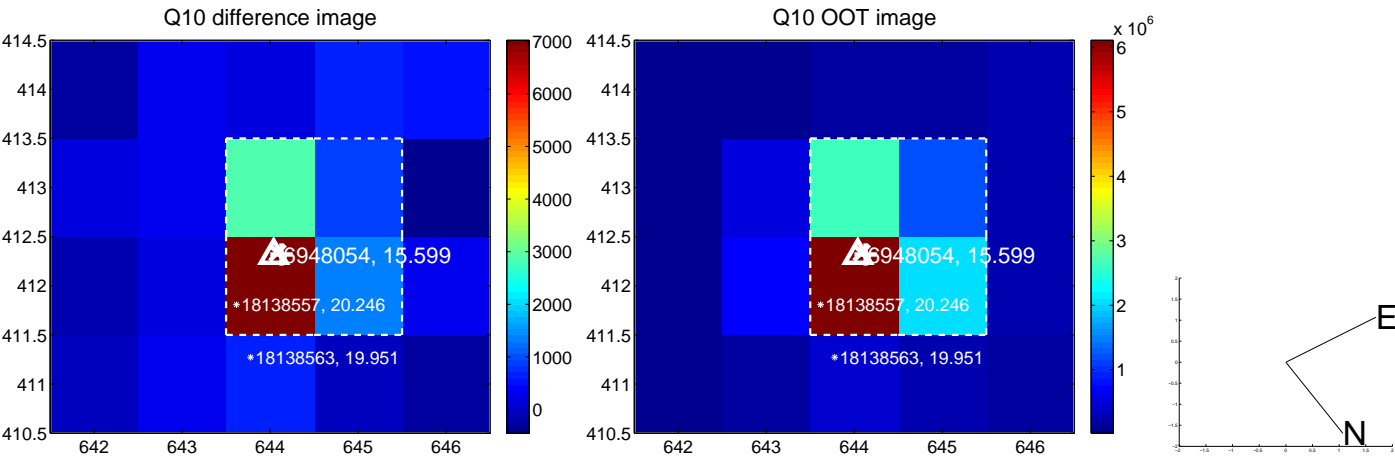
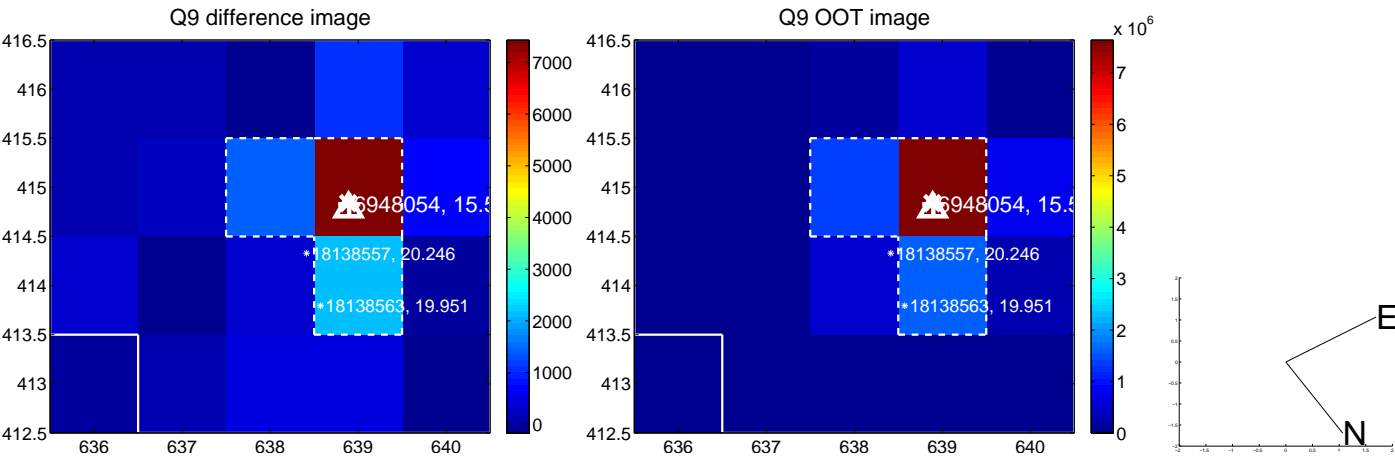


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

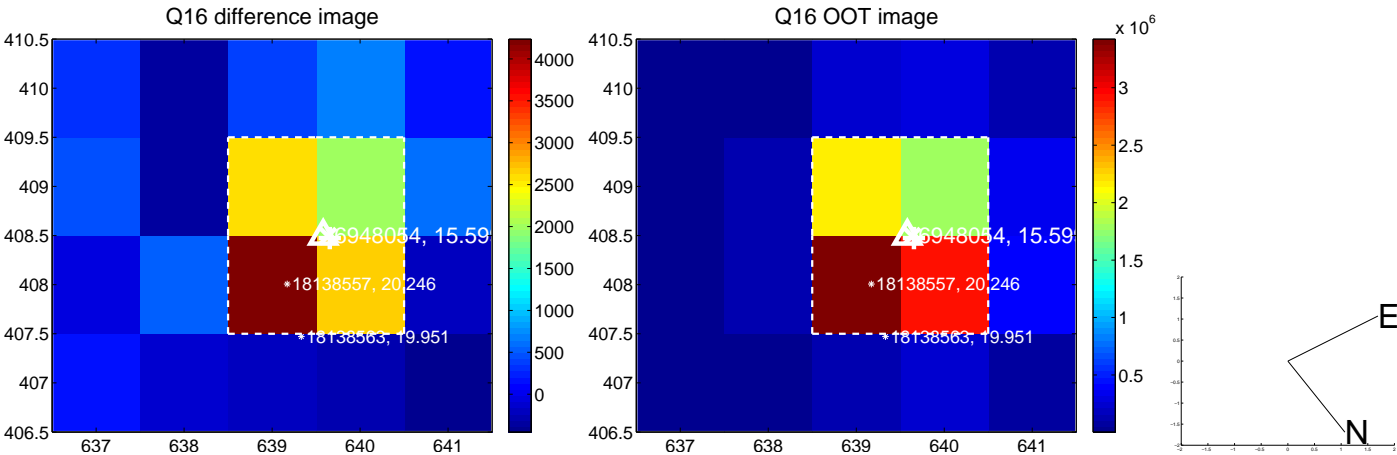
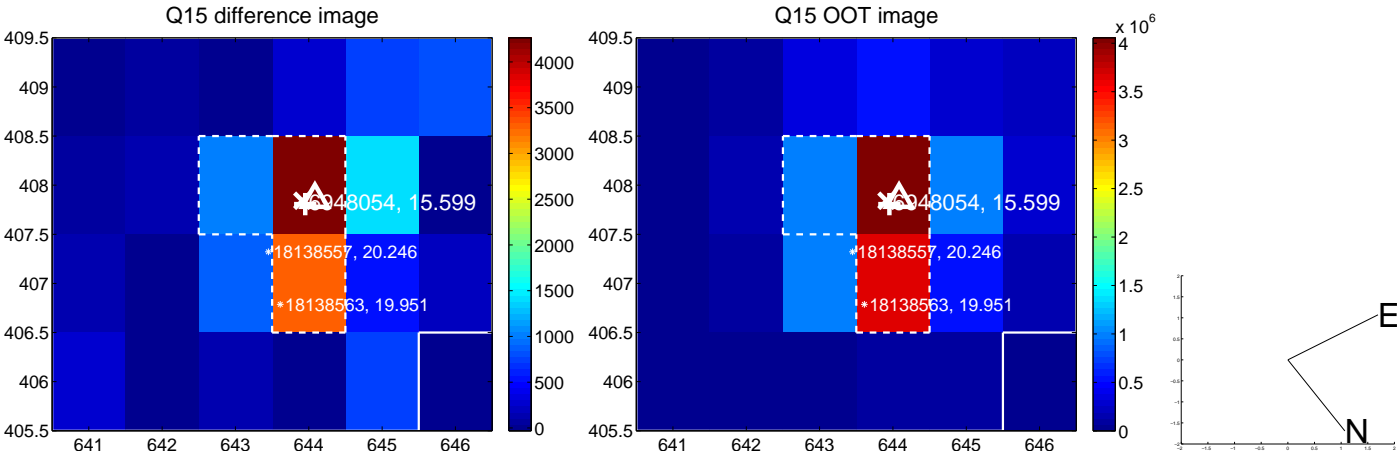
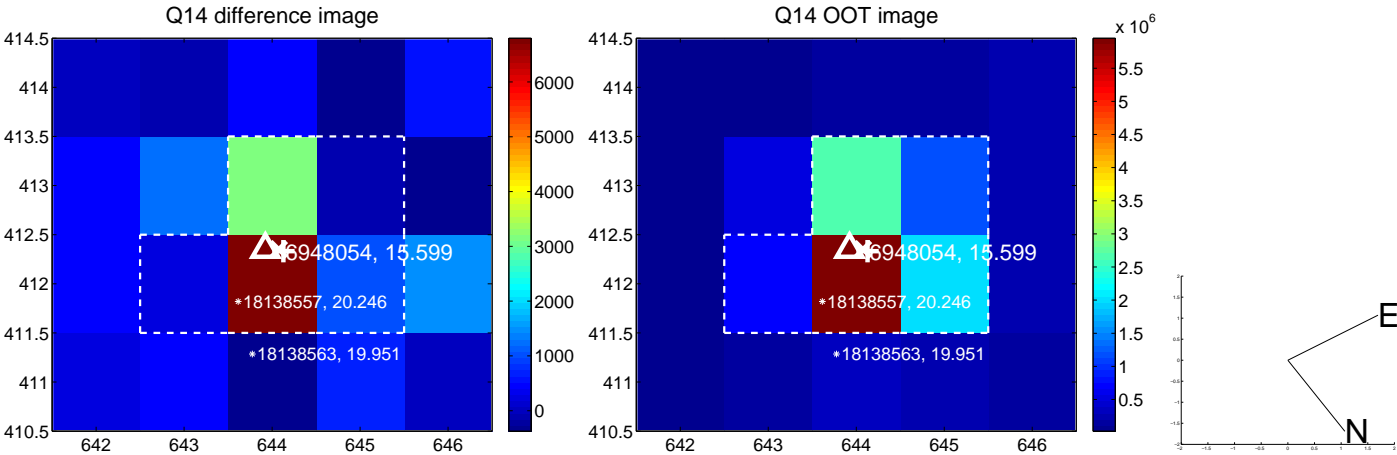
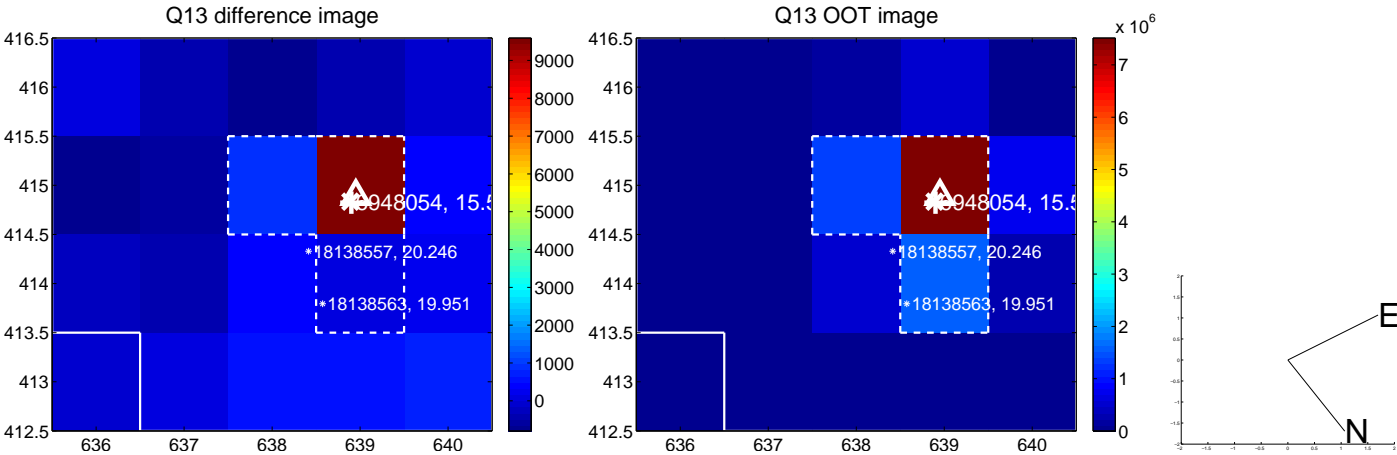
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



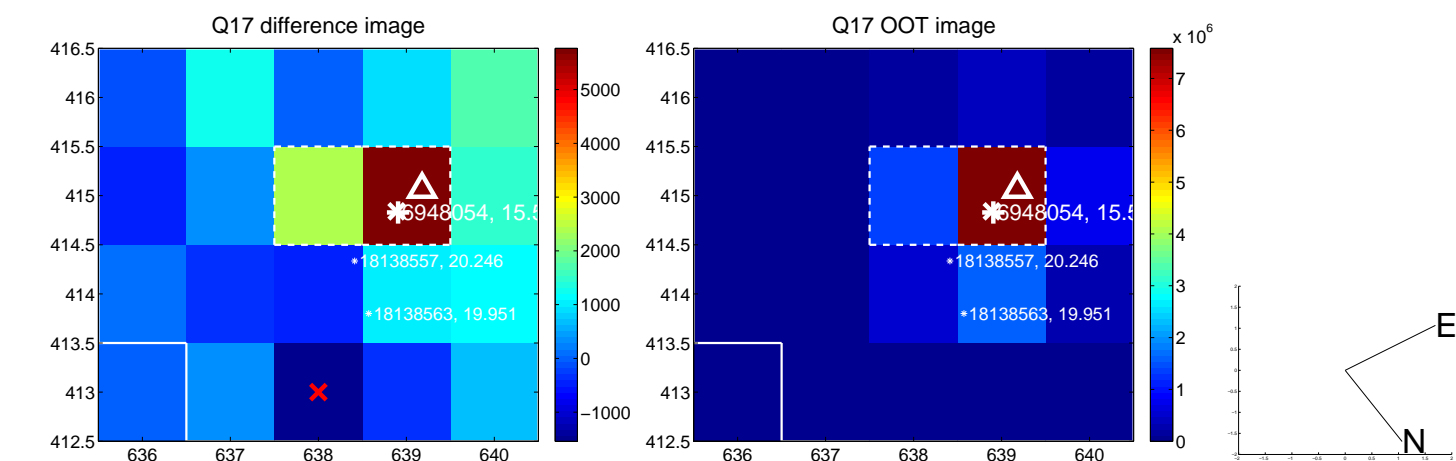
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



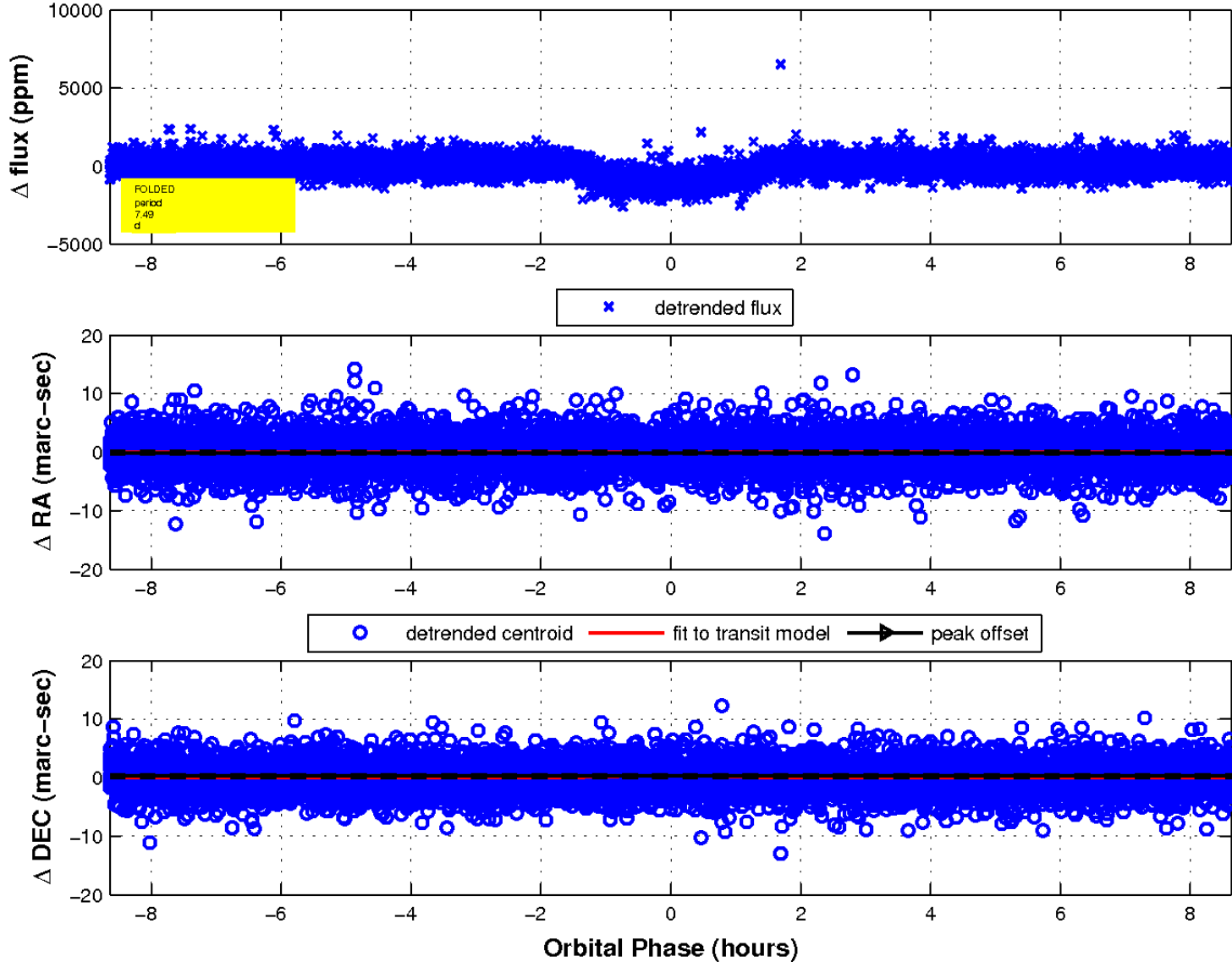
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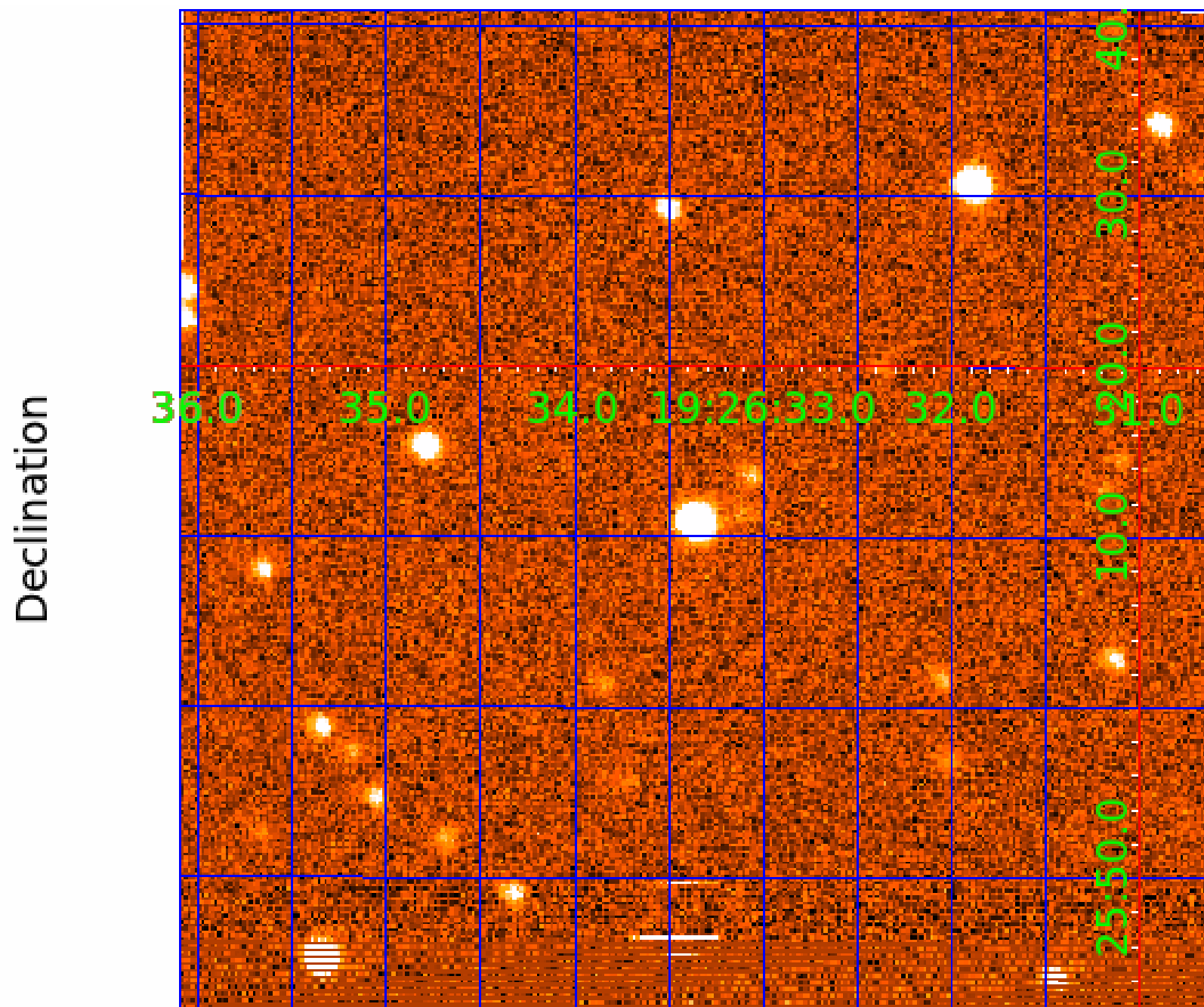
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fluxWeightedCentroids, Planet 1 of 4



UKIRT Image



KIC 006948054

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})
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006948054-04	OBS	0869.03	17.460925	137.262683	709.1	2.514	16.8	18.6	0.79	5103	2.59	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006948054-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

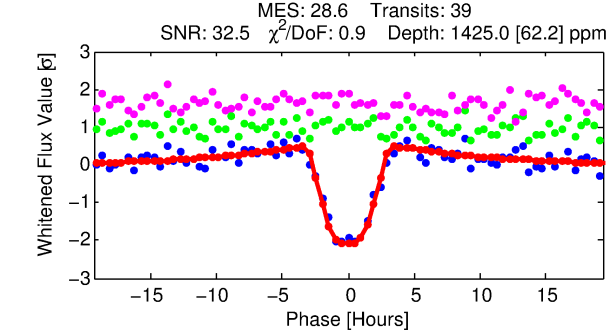
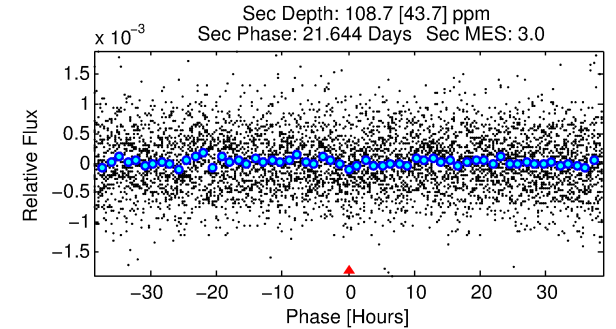
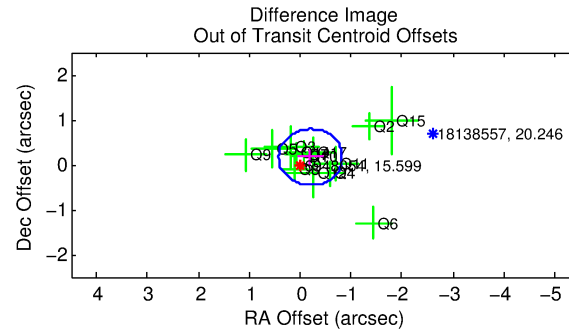
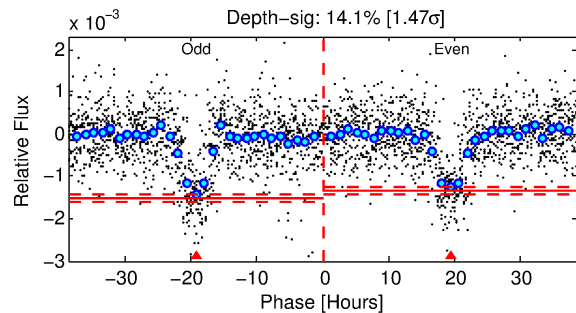
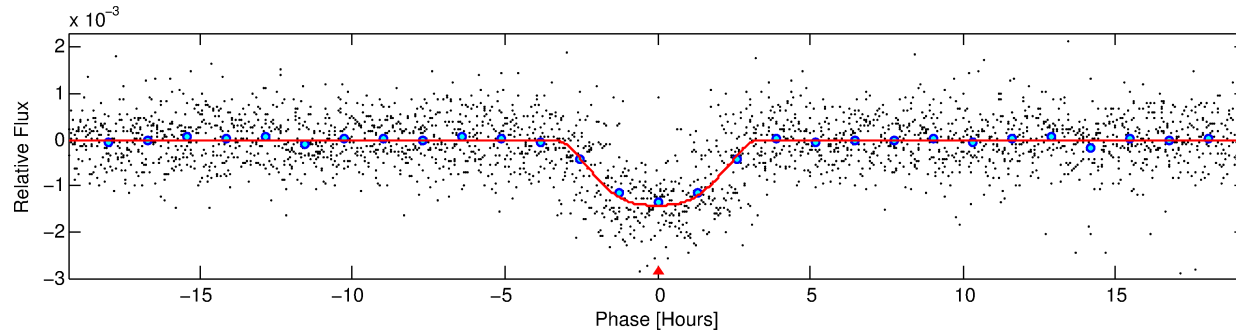
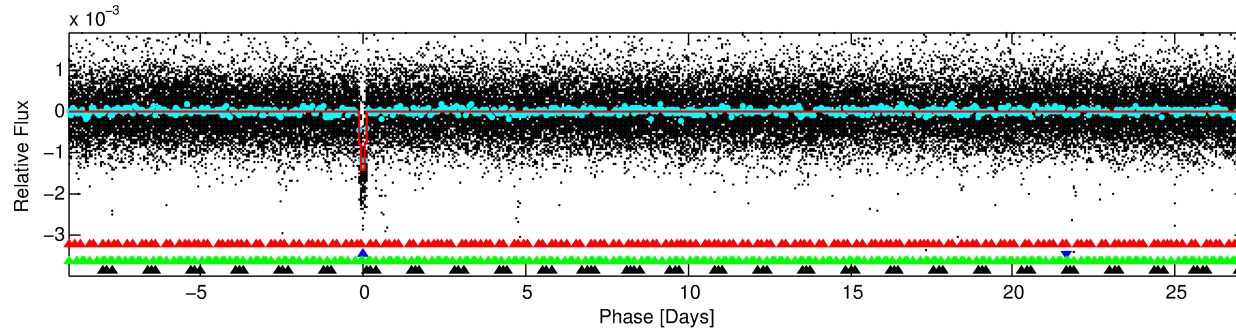
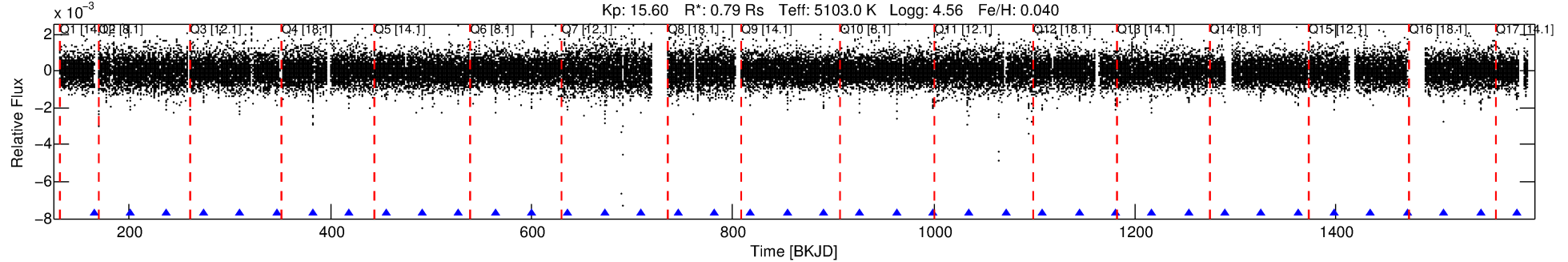
Ephemeris Match Information For 006948054-02

No Significant Match Found

DV One-Page Summary

KIC: 6948054 Candidate: 2 of 4 Period: 36.275 d
KOI: K00869.02 Name: Kepler-245d Corr: 0.852

Kp: 15.60 R*: 0.79 Rs Teff: 5103.0 K Logg: 4.56 Fe/H: 0.040



DV Fit Results:

Period = 36.27528 [0.00018] d
Epoch = 165.0299 [0.0042] BKJD
Rp/R* = 0.0457 [0.0017]
a/R* = 18.87 [1.11]
b = 0.95 [0.01]
Seff = 9.30 [1.12]
Teq = 445 [13] K
Rp = 3.92 [0.29] Re
a = 0.2011 [0.0118] AU
Ag = 157.27 [65.80] [2.37σ]
Teffp = 2438 [254] K [7.85σ]

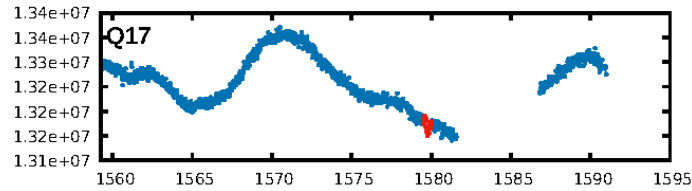
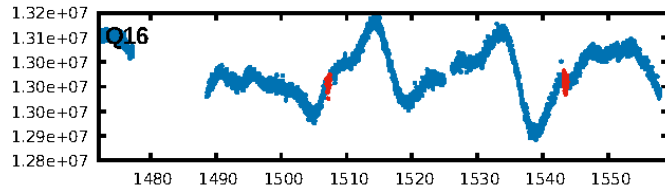
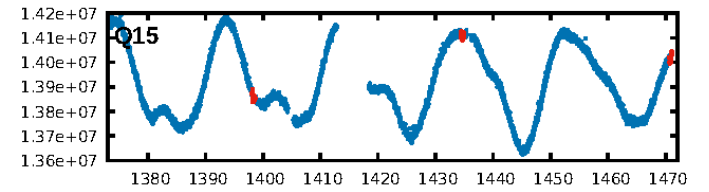
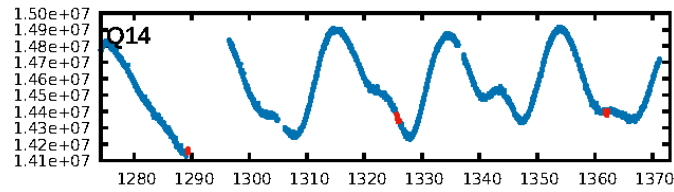
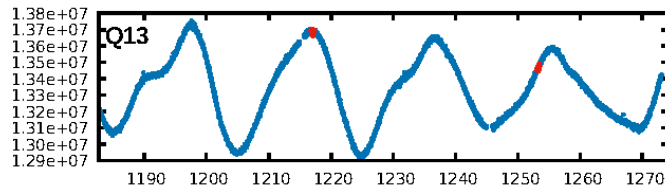
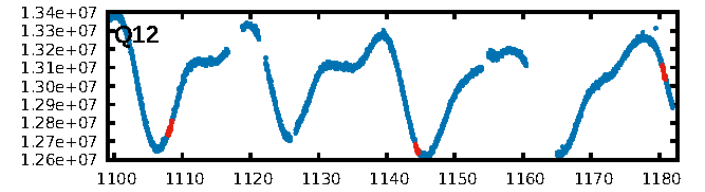
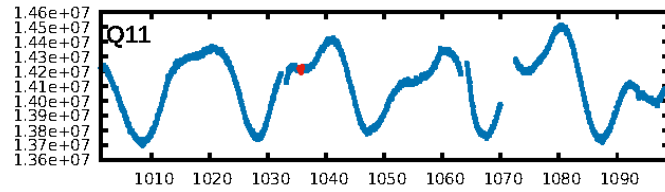
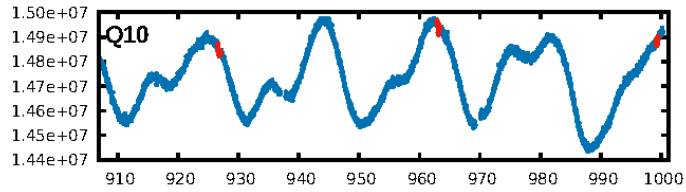
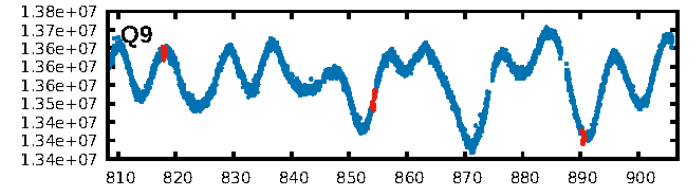
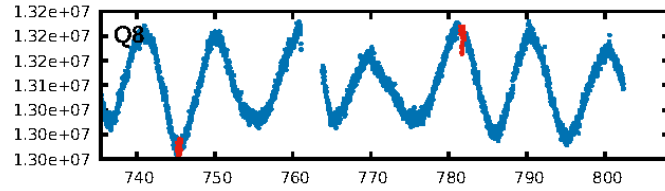
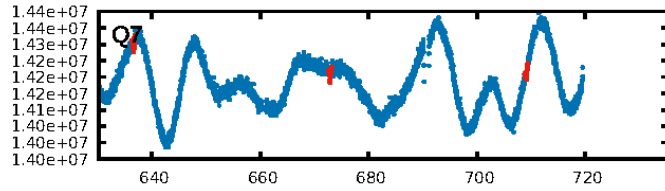
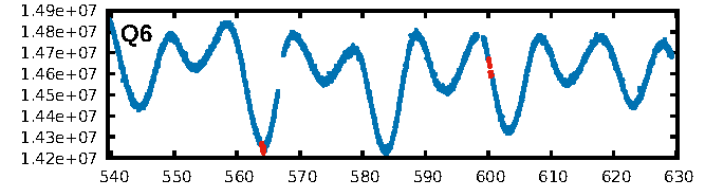
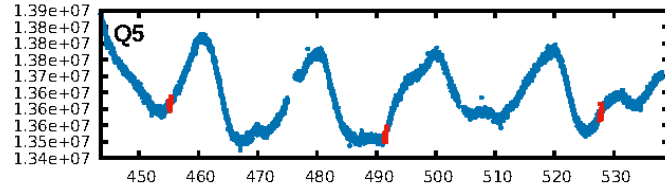
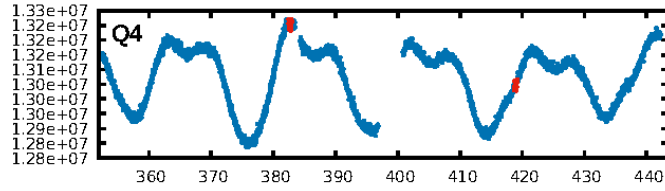
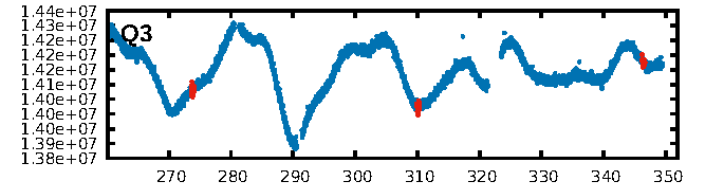
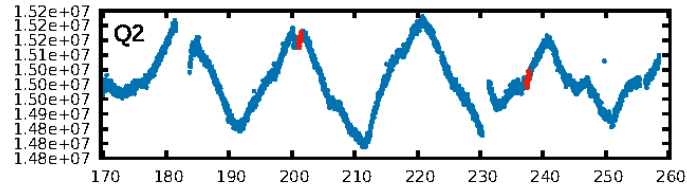
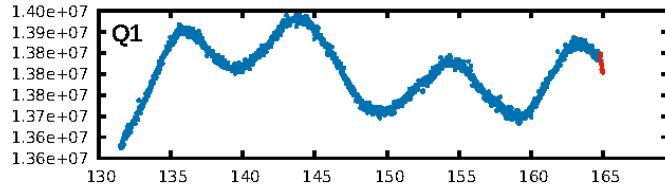
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [65.40σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 93.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.46e-160
RollingBand-fgt: 1.00 [37/37]
GhostDiagnostic-chr: 5.852
Centroid-sig: 9.1%
Centroid-so: 0.629 arcsec [1.92σ]
OotOffset-rm: 0.264 arcsec [1.27σ]
KicOffset-rm: 0.348 arcsec [2.03σ]
OotOffset-st: 4/4/3/3 [14]
KicOffset-st: 4/4/3/3 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.88 [14/16]

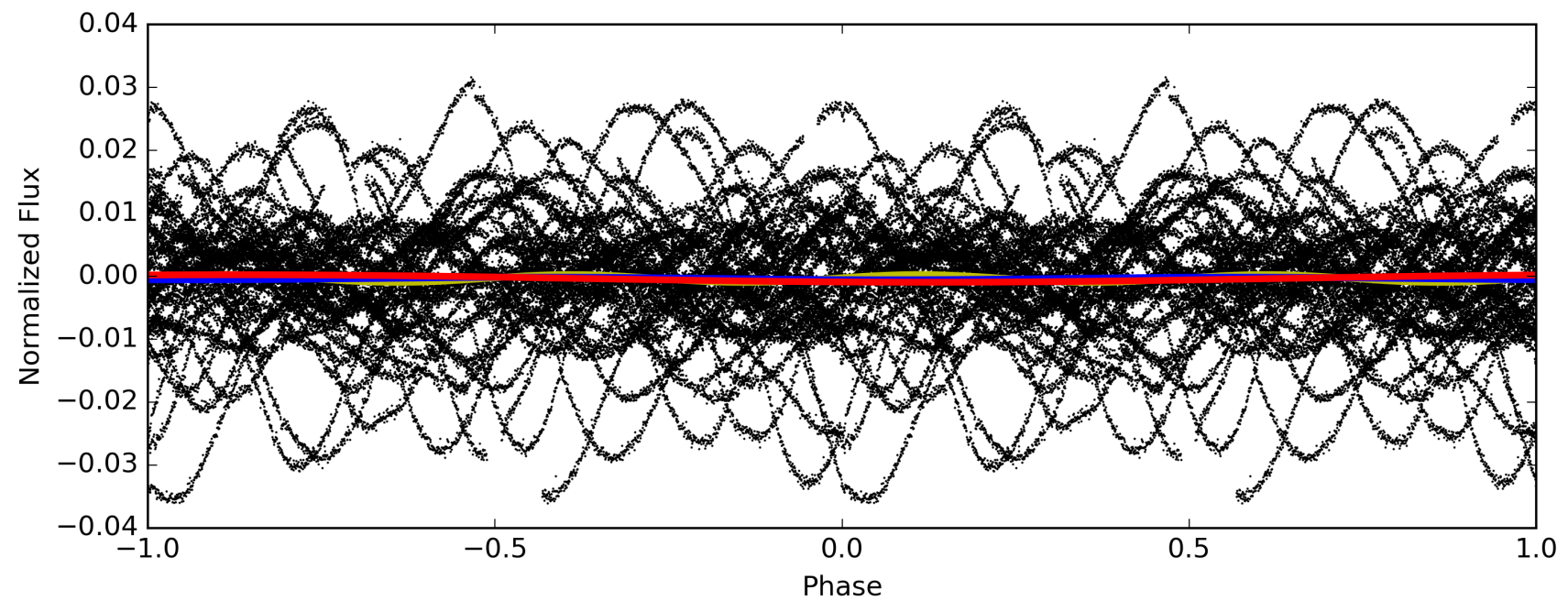
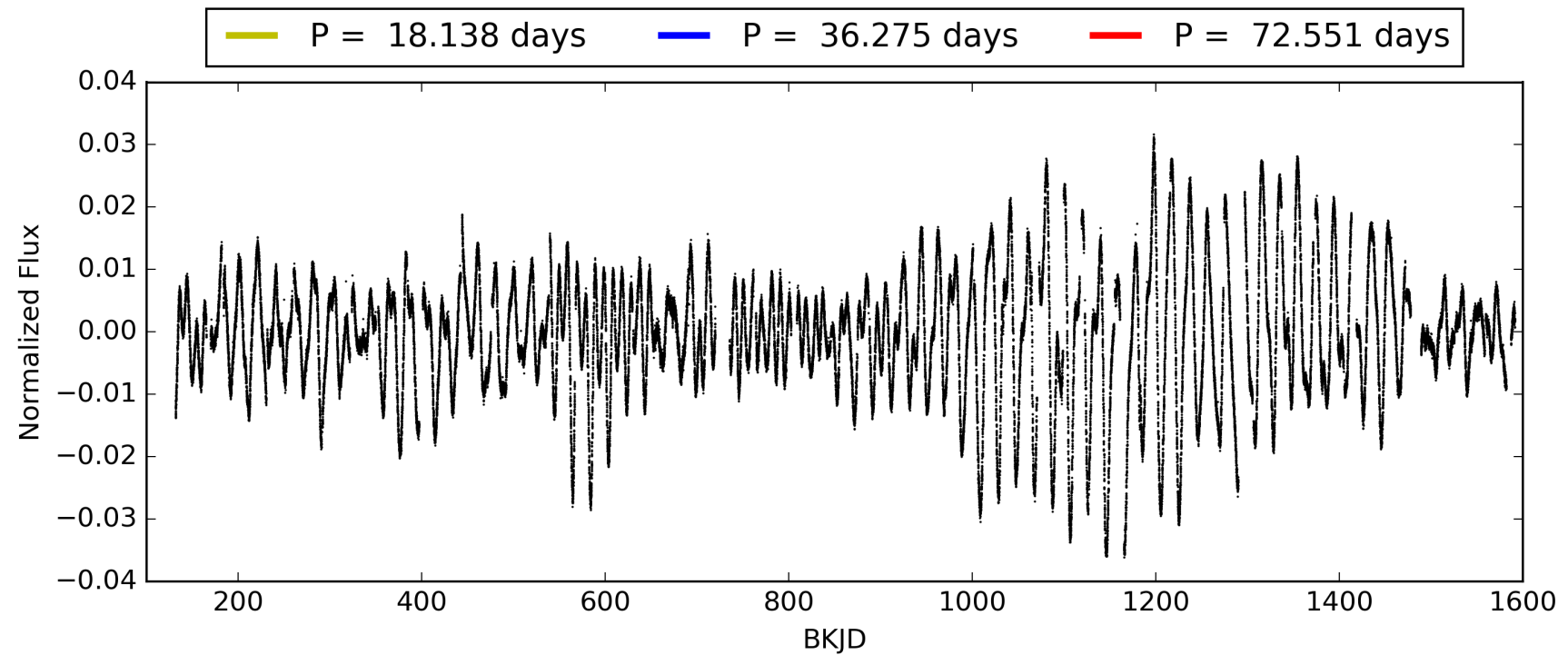
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:23:54 Z

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

TCE 006948054-02, PDC Light Curves

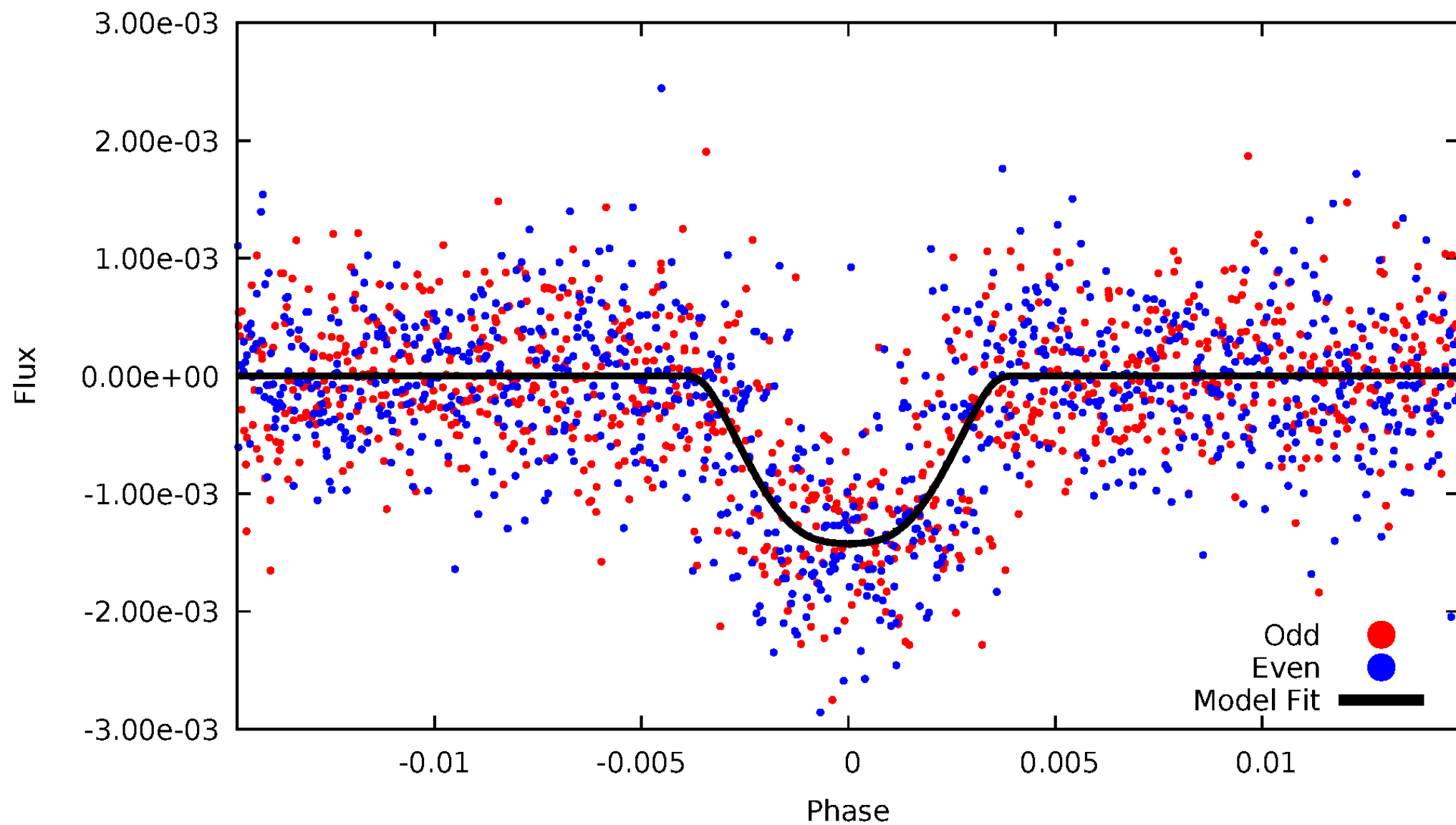


TCE 006948054-02



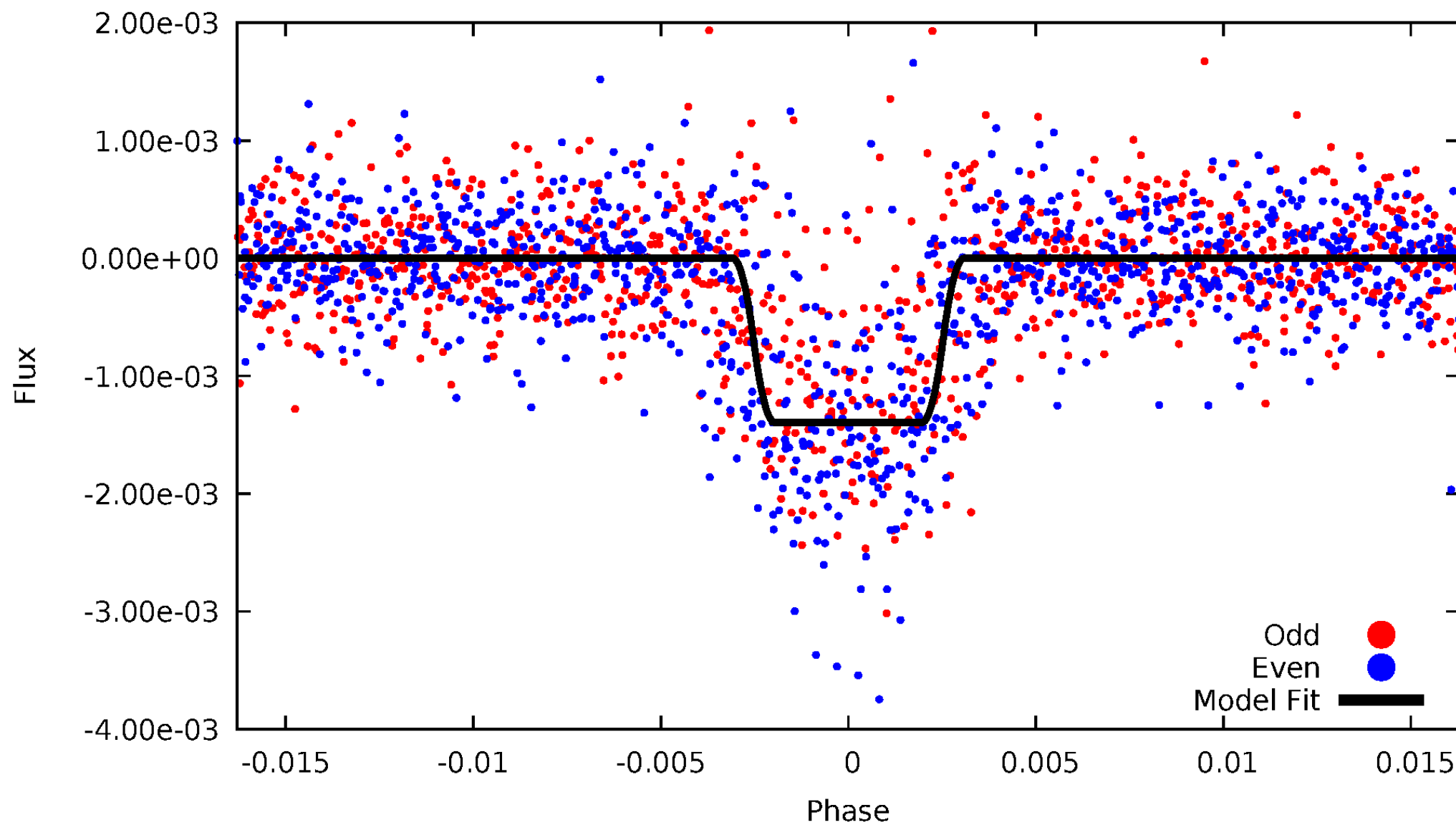
DV Odd/Even

TCE 006948054-02



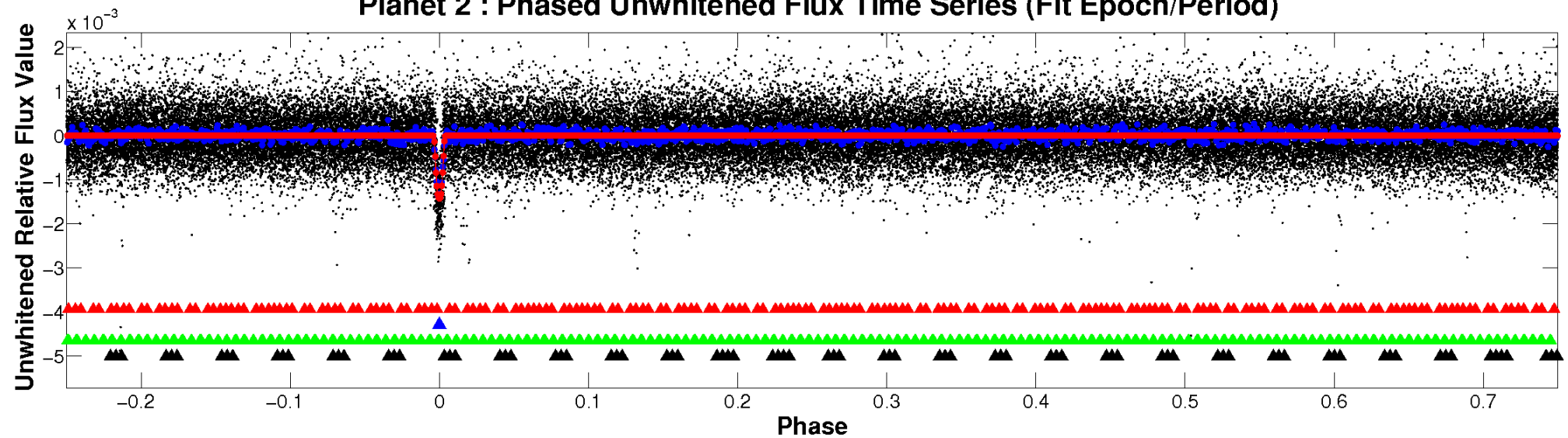
ALT Odd/Even

TCE 006948054-02

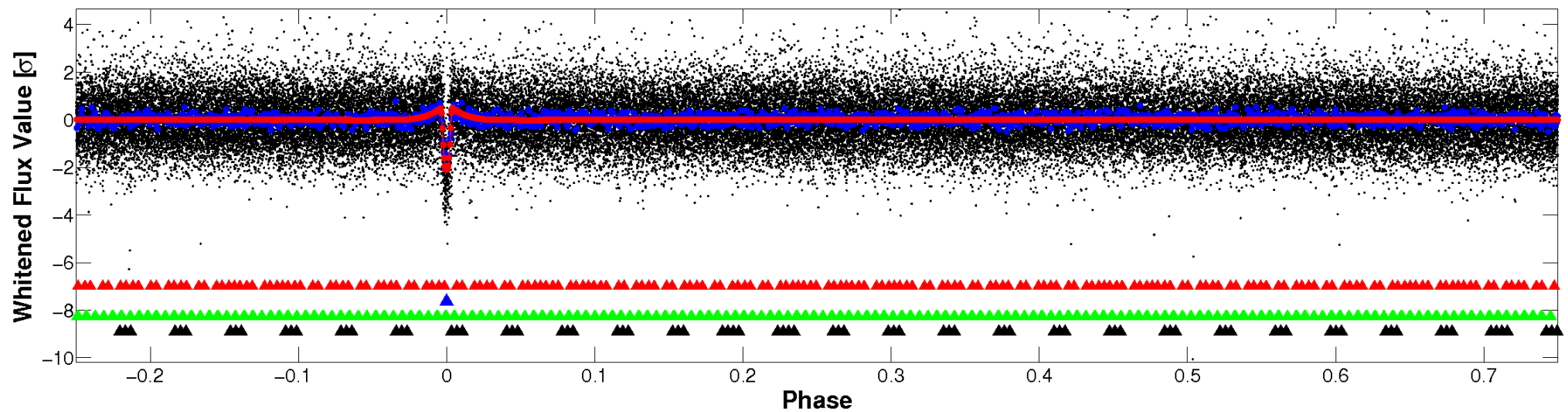


Non-Whitened Vs. Whitened Light Curve

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

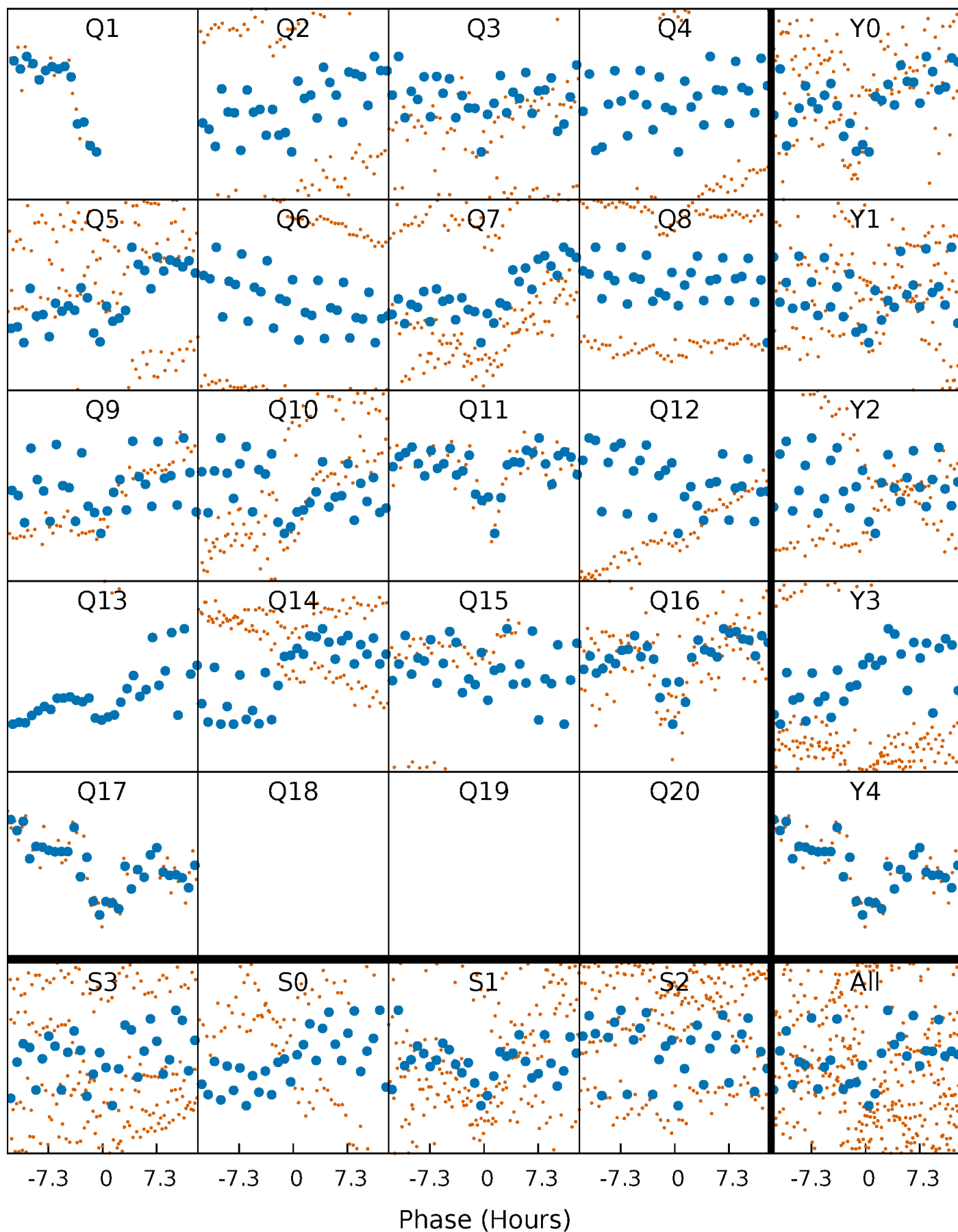


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



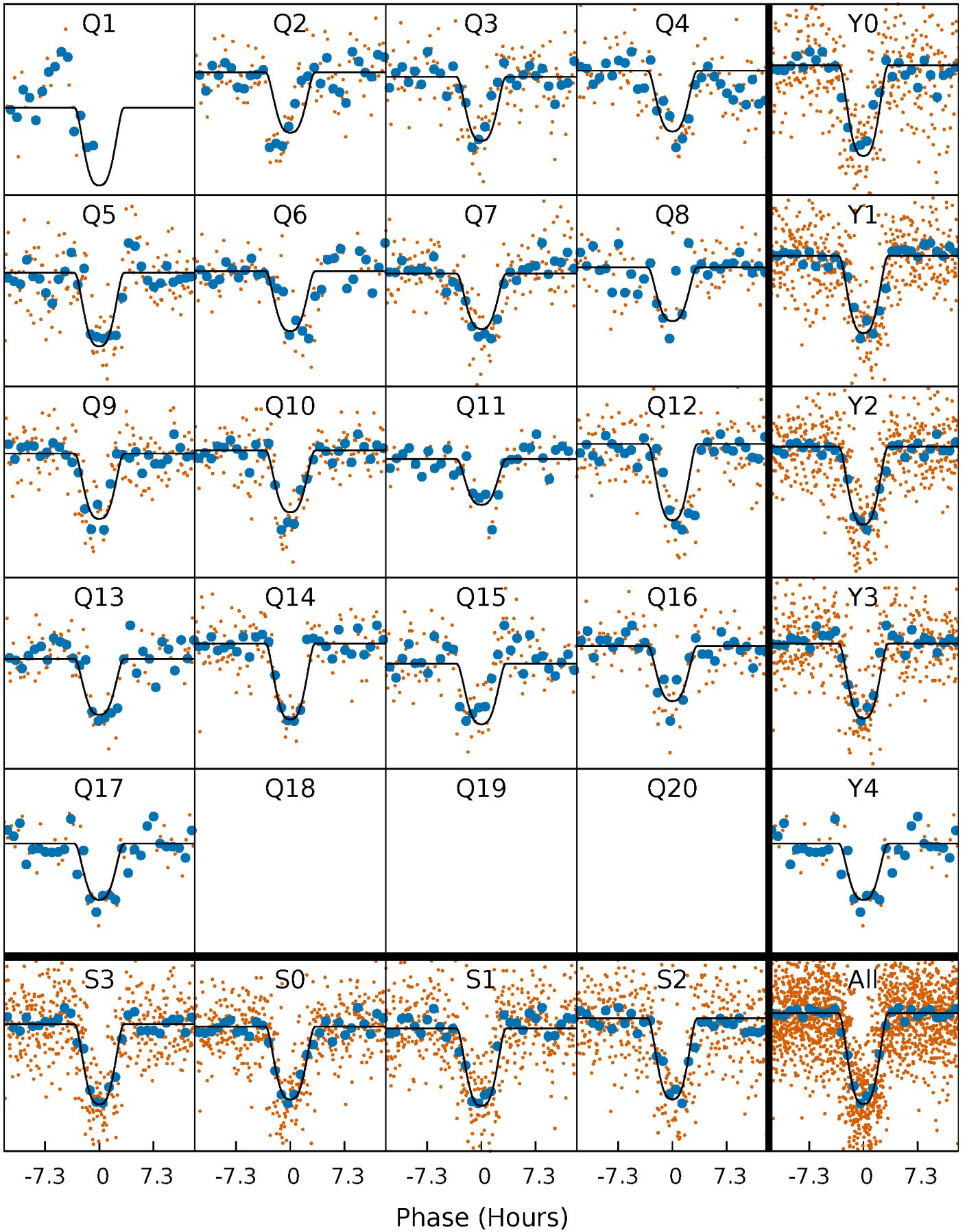
PDC Quarter-Phased Transit Curves

TCE 006948054-02 P= 36.275280 Days $T_0=165.029900$ (BKJD)



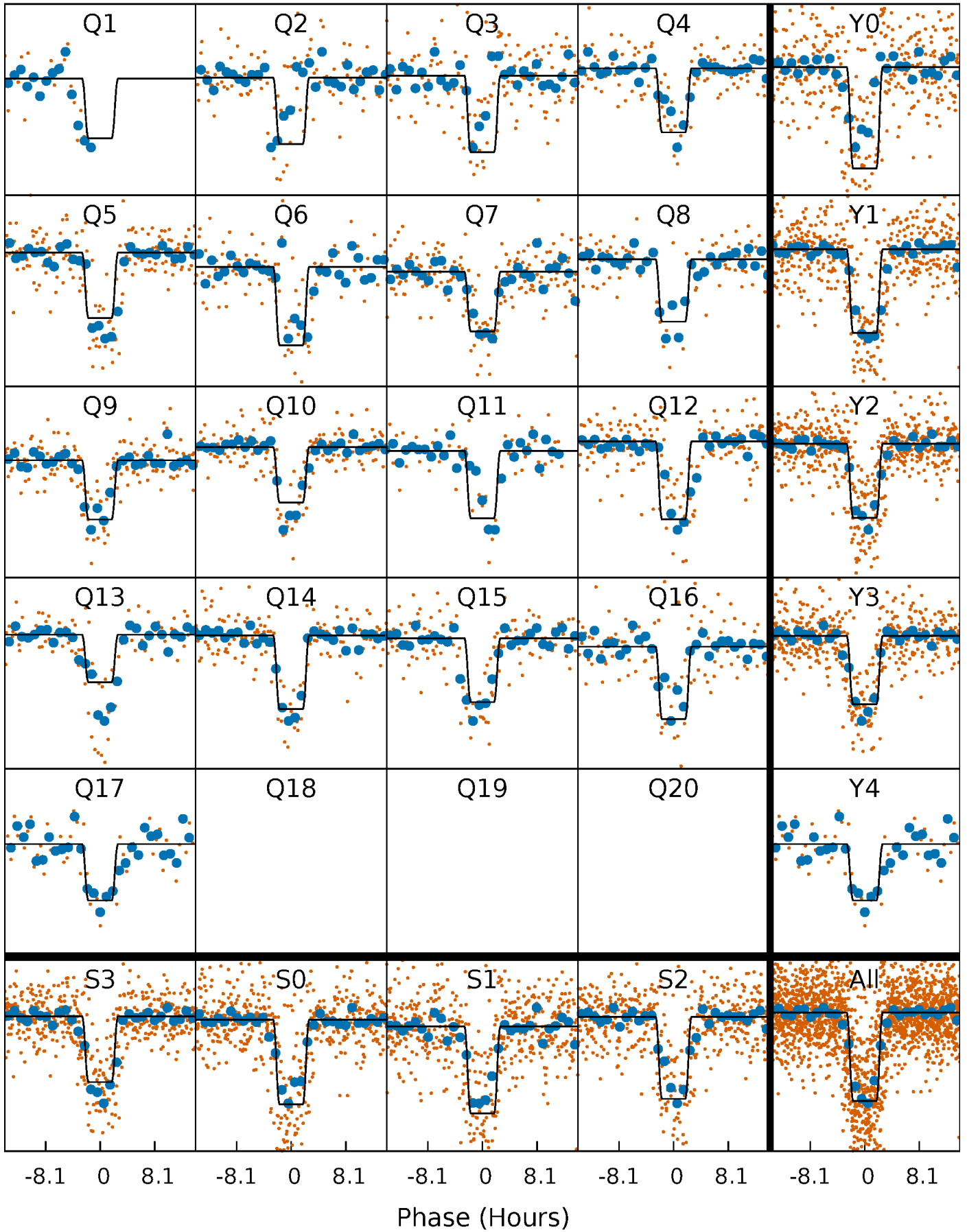
DV Quarter-Phased Transit Curves

TCE 006948054-02 P= 36.275280 Days $T_0=165.029900$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

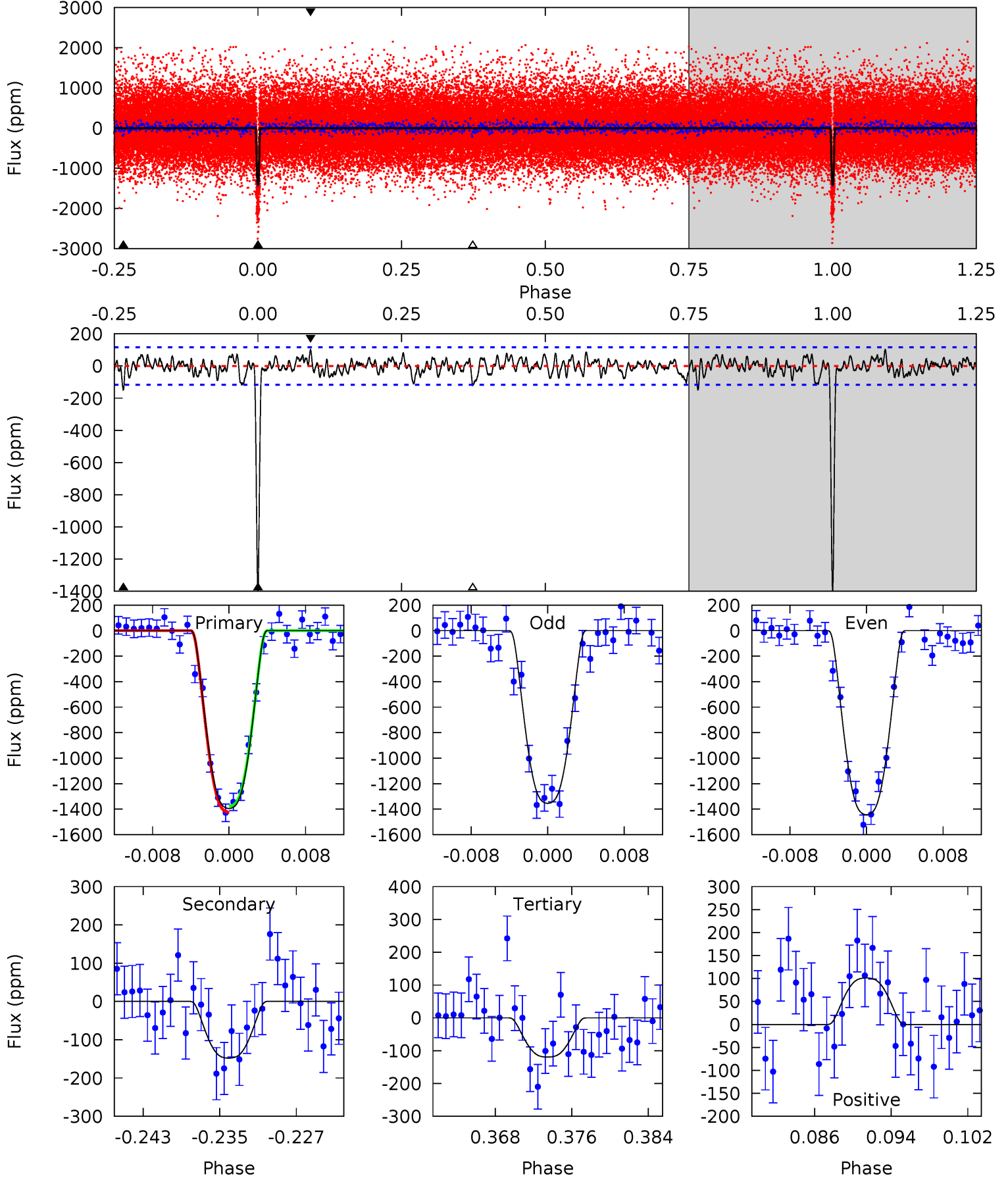
TCE 006948054-02 P= 36.274878 Days $T_0=165.040991$ (BKJD)



DV Model-Shift Uniqueness Test

006948054-02, P = 36.275280 Days, E = 128.754620 Days

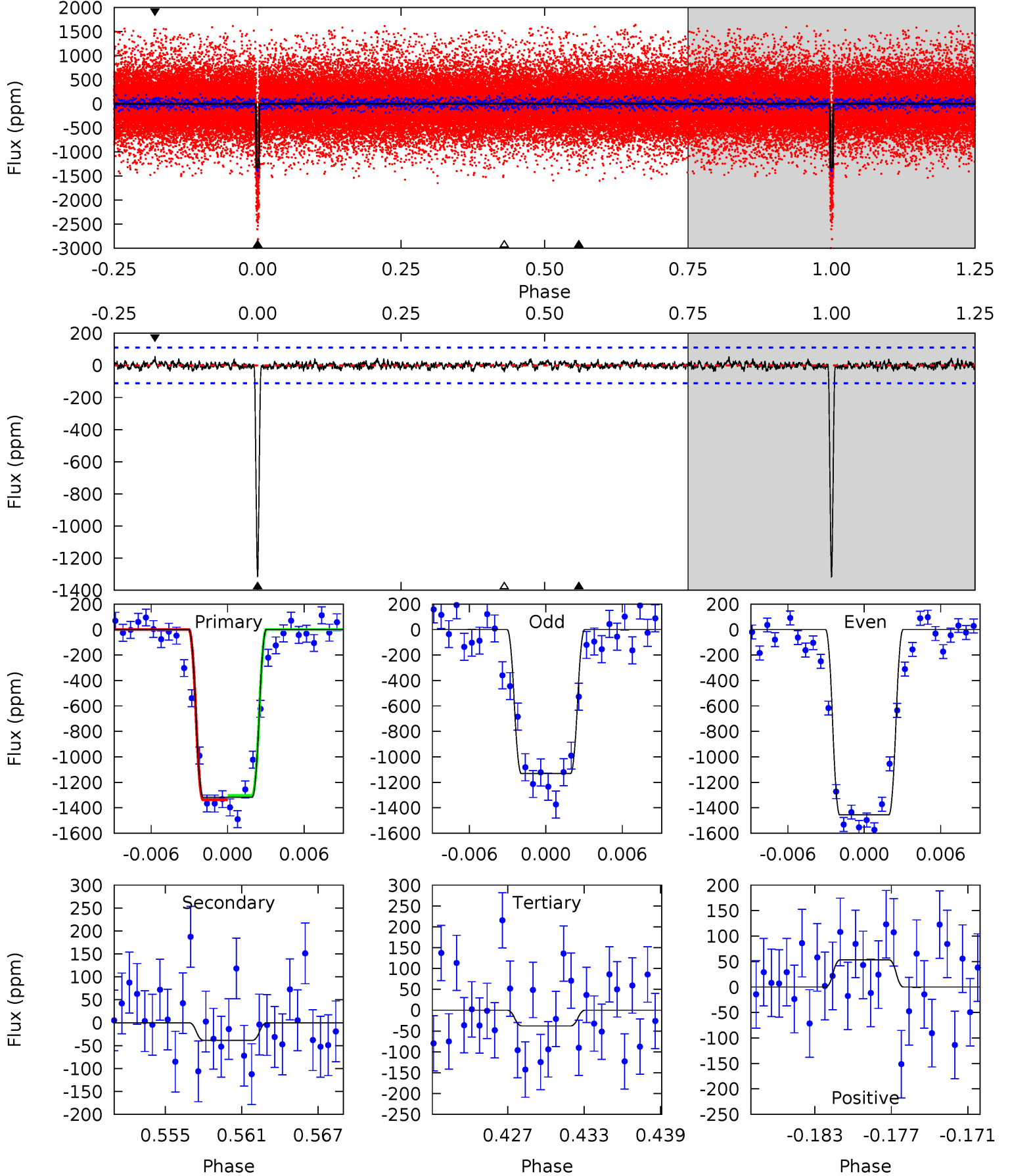
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.6	6.43	5.19	4.39	5.07	2.66	1.64	55.4	56.2	1.24	2.04	1.95	0.98	0.07	1.03



Alt Model-Shift Uniqueness Test

006948054-02, P = 36.274878 Days, E = 128.766113 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
60.7	1.77	1.74	2.46	5.12	2.74	0.59	59.0	58.3	0.03	-0.68	7.54	0.99	0.04	0.79



Stellar Parameters For KIC 006948054

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.052}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 006948054-02 / KOI 0869.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-148 ± 23	$3.94^{+0.19}_{-0.21}$	623^{+16}_{-16}	3189^{+93}_{-87}	212^{+40}_{-37}
Alt.	-38 ± 22	$3.22^{+0.20}_{-0.18}$	625^{+15}_{-16}	2794^{+187}_{-270}	80^{+49}_{-42}

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

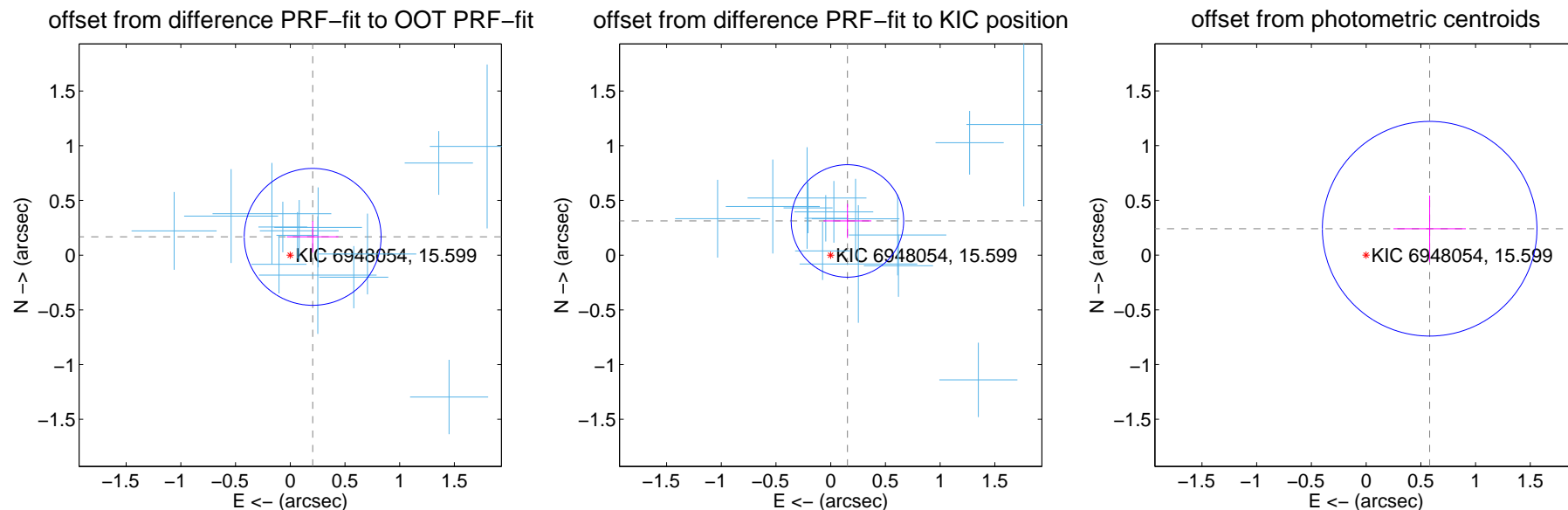
DV Centroid Data

Supplemental centroid analysis for 006948054-02. Kepler magnitude: 15.60. Transit SNR 32.46

There are 14 quarters with good PRF difference image offsets

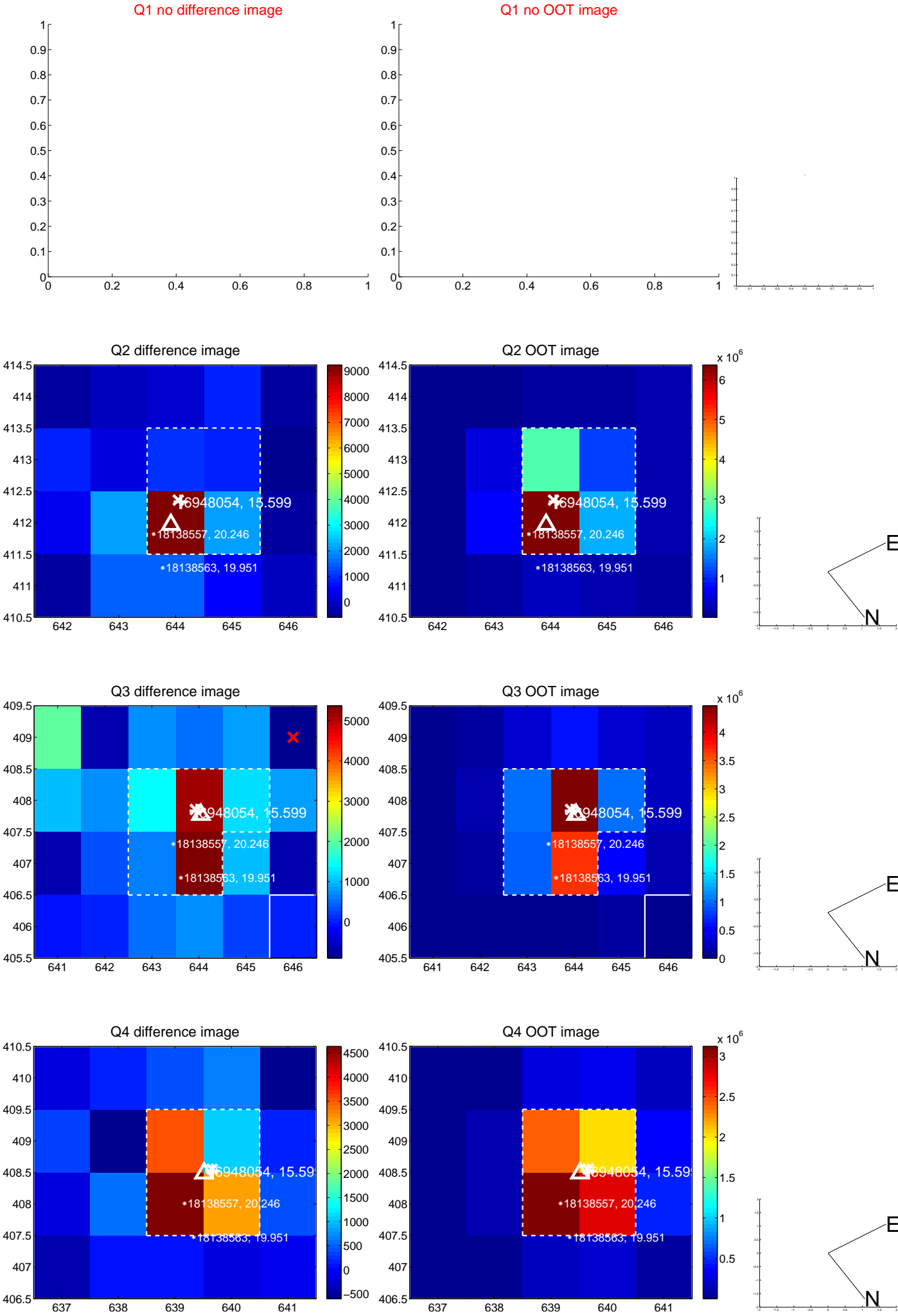
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.264 ± 0.209	1.27	-0.205 ± 0.235	0.167 ± 0.144
PRF-fit source offset from KIC position	0.348 ± 0.171	2.03	-0.153 ± 0.219	0.313 ± 0.156
photometric centroid source offset	0.63 ± 0.33	1.92	-0.58 ± 0.33	0.24 ± 0.30

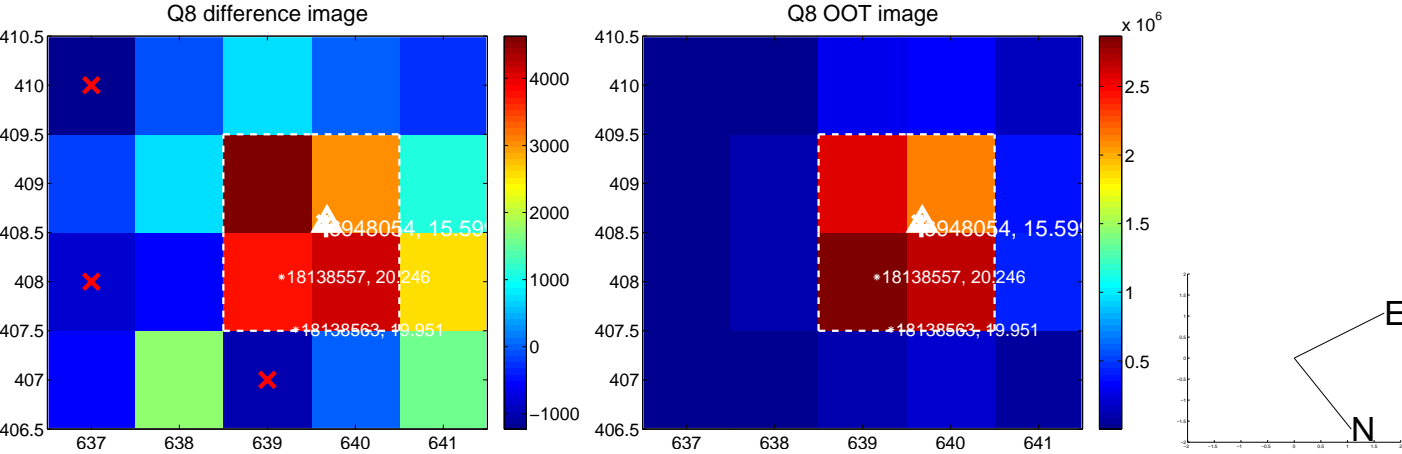
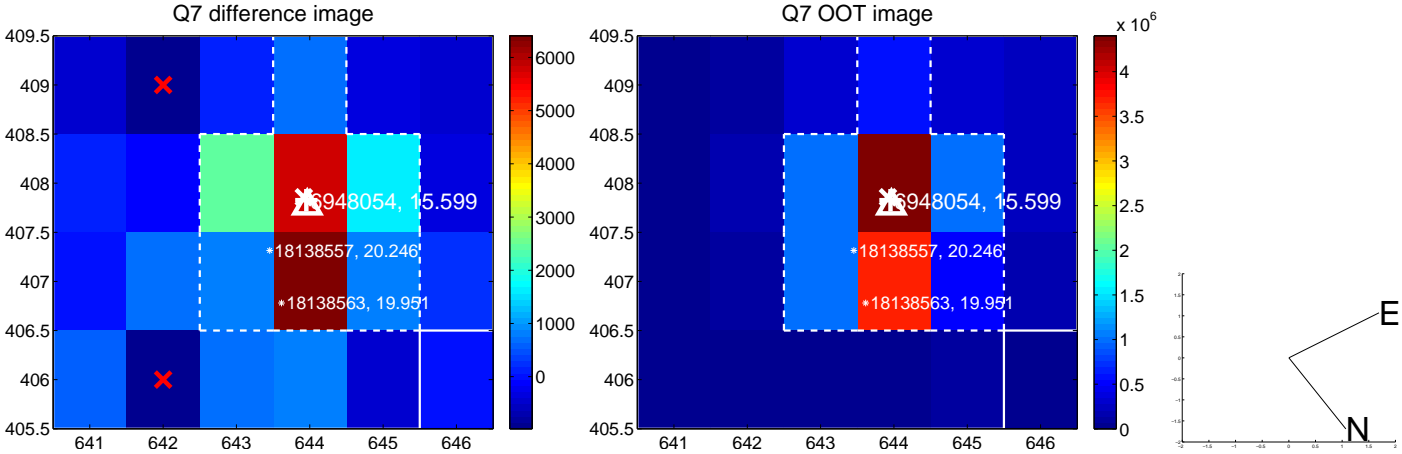
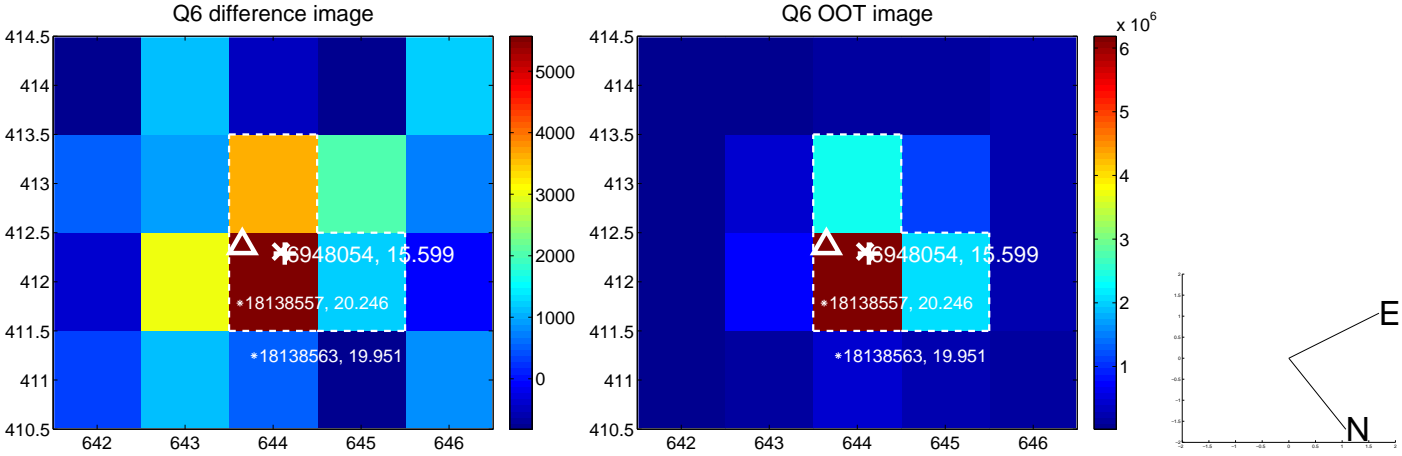
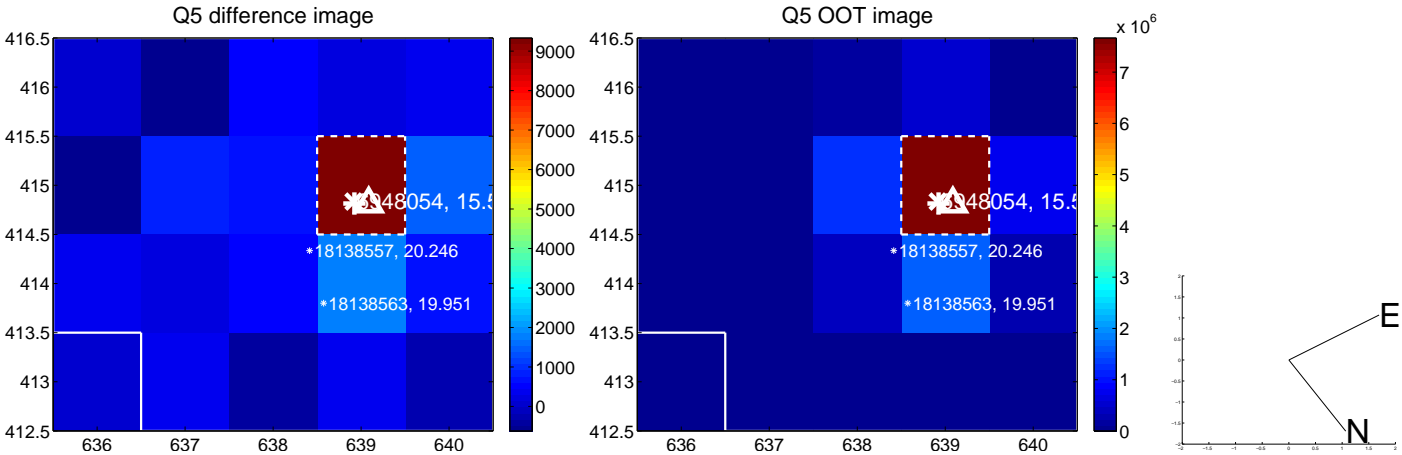


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

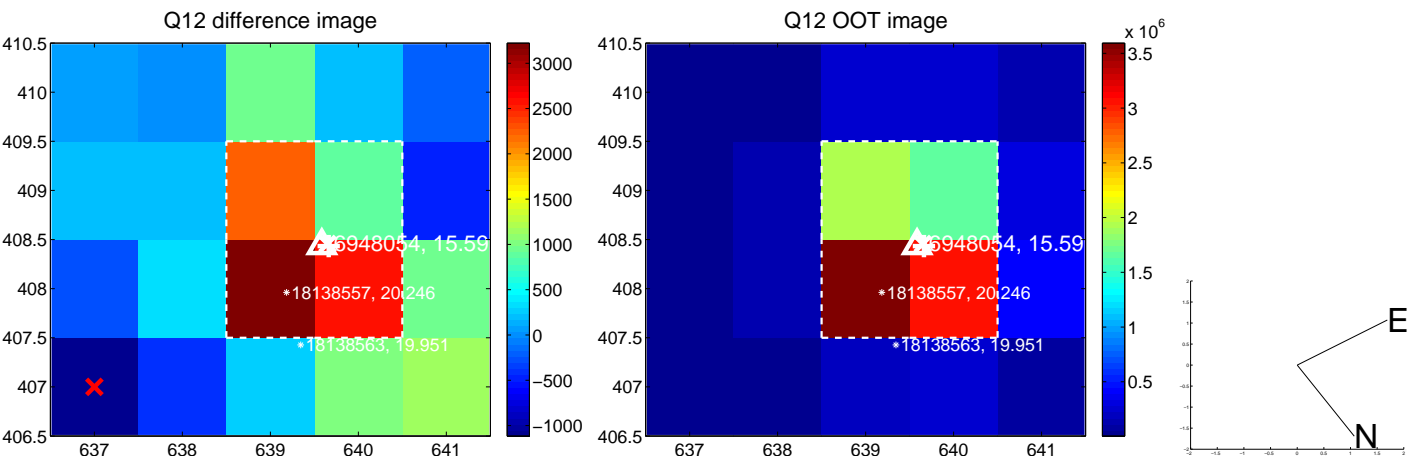
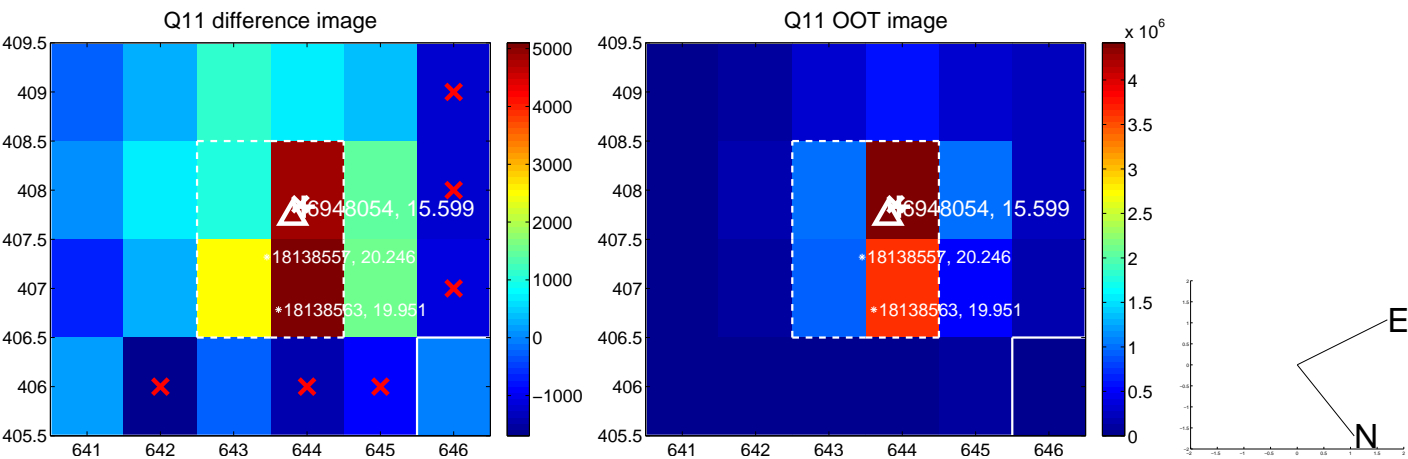
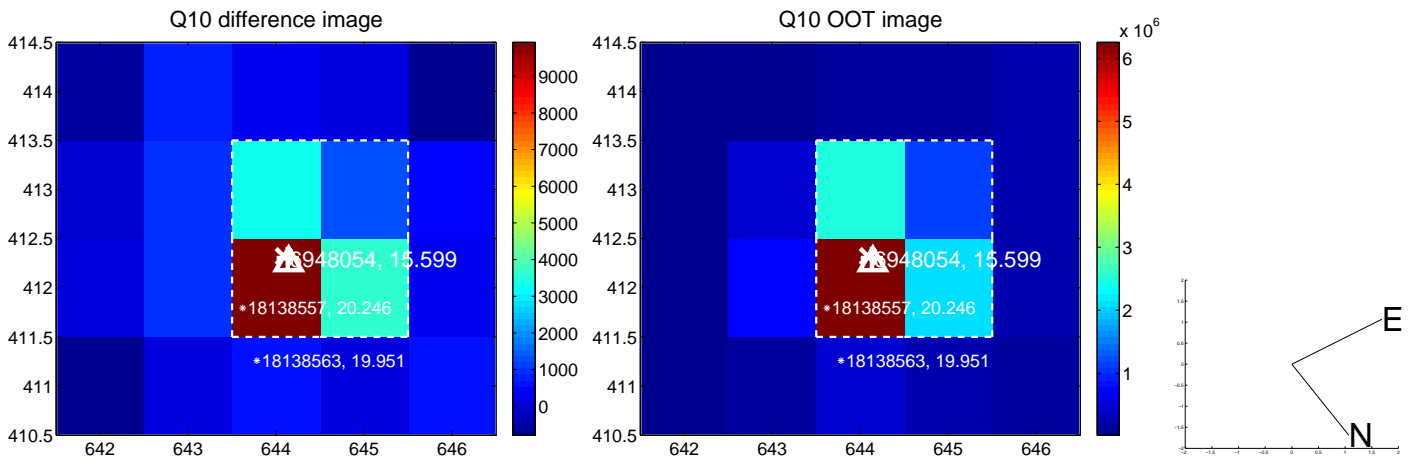
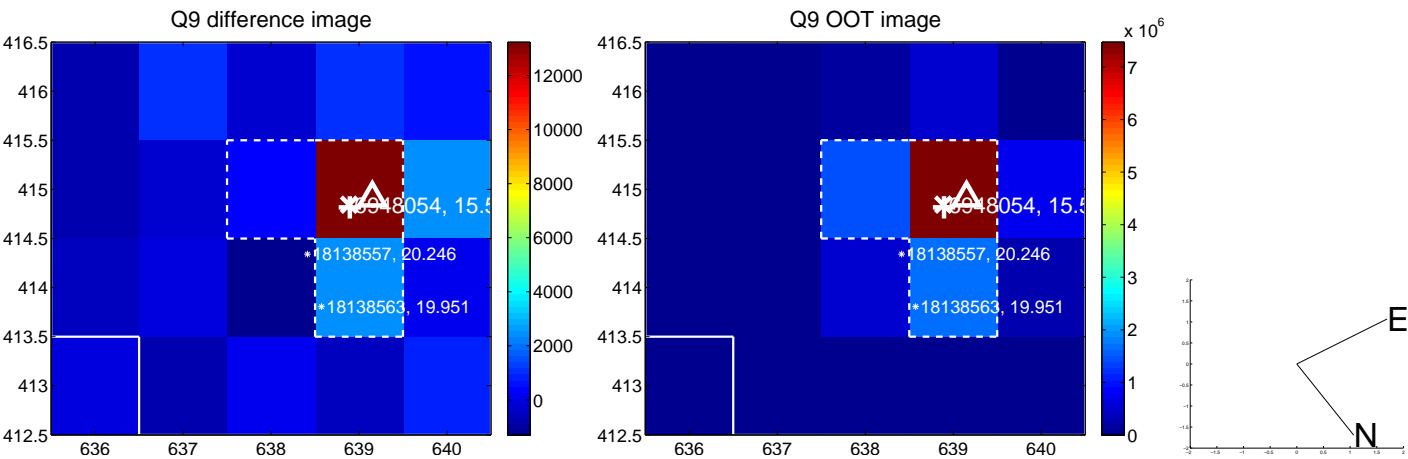
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



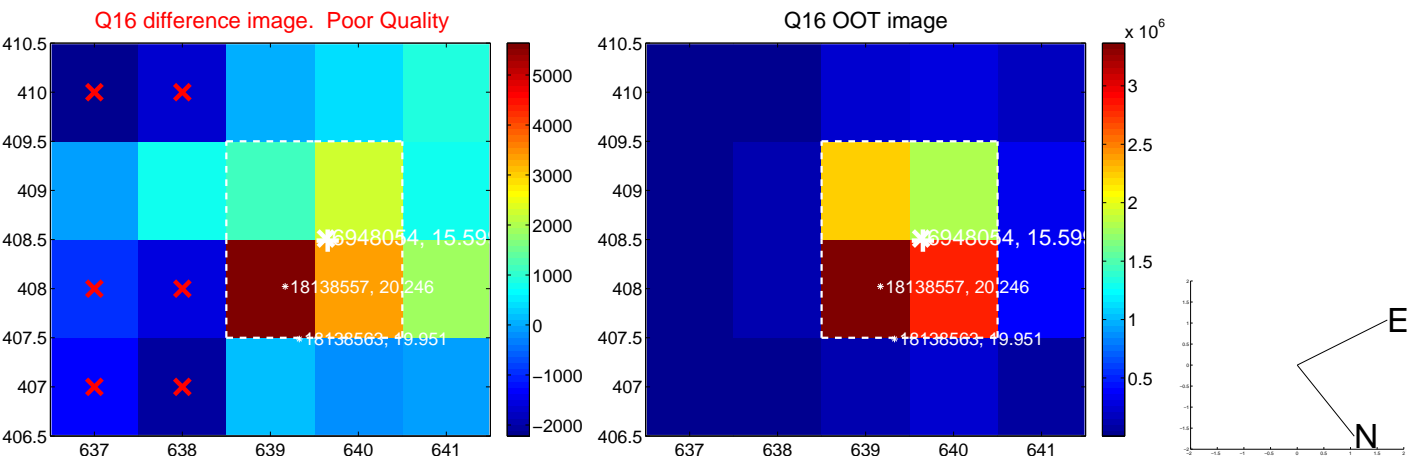
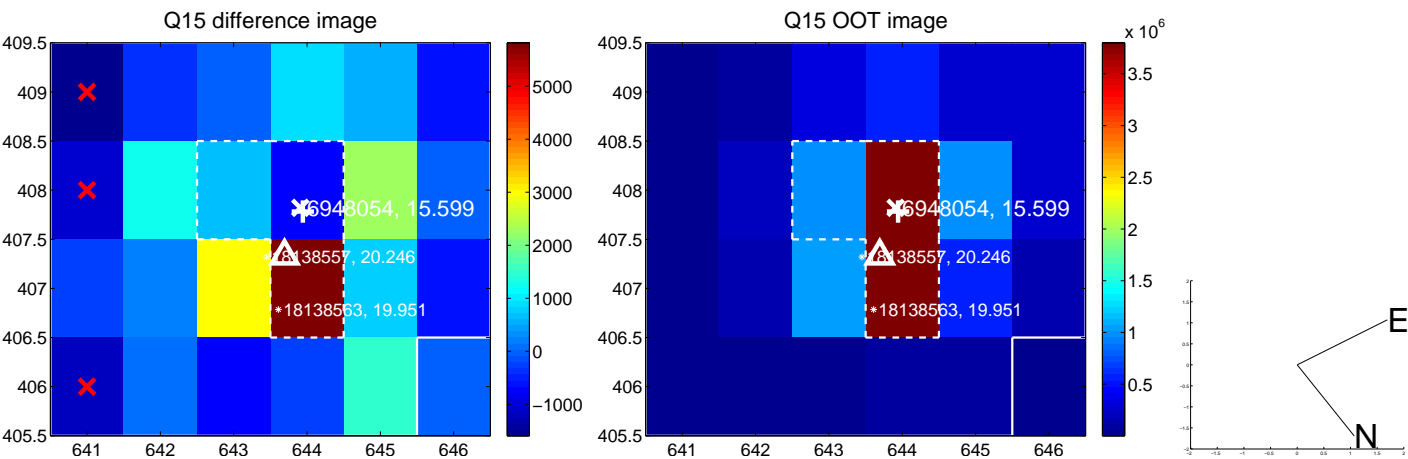
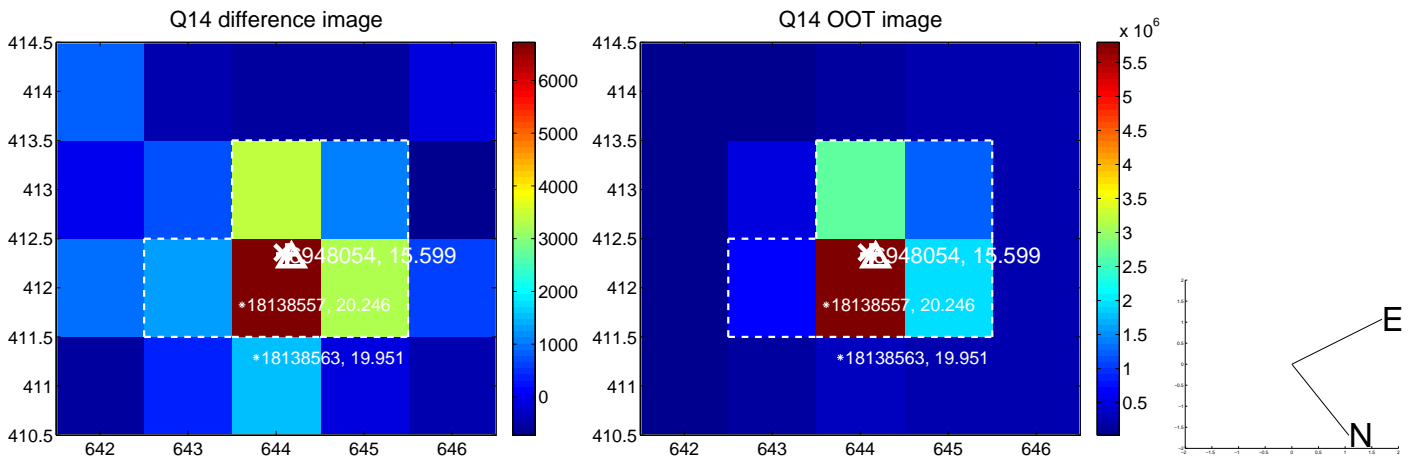
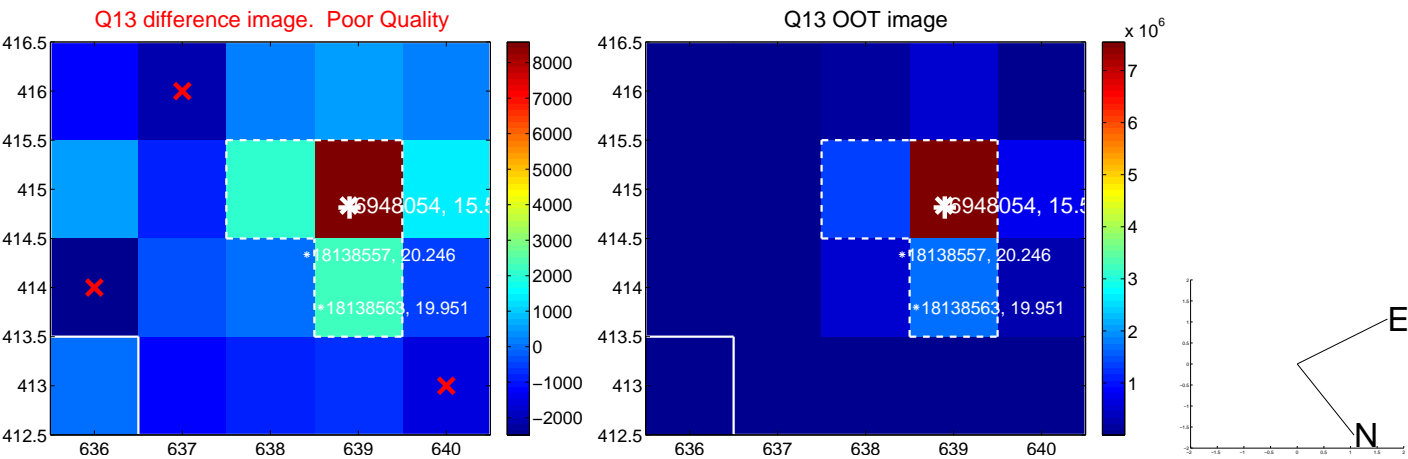
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



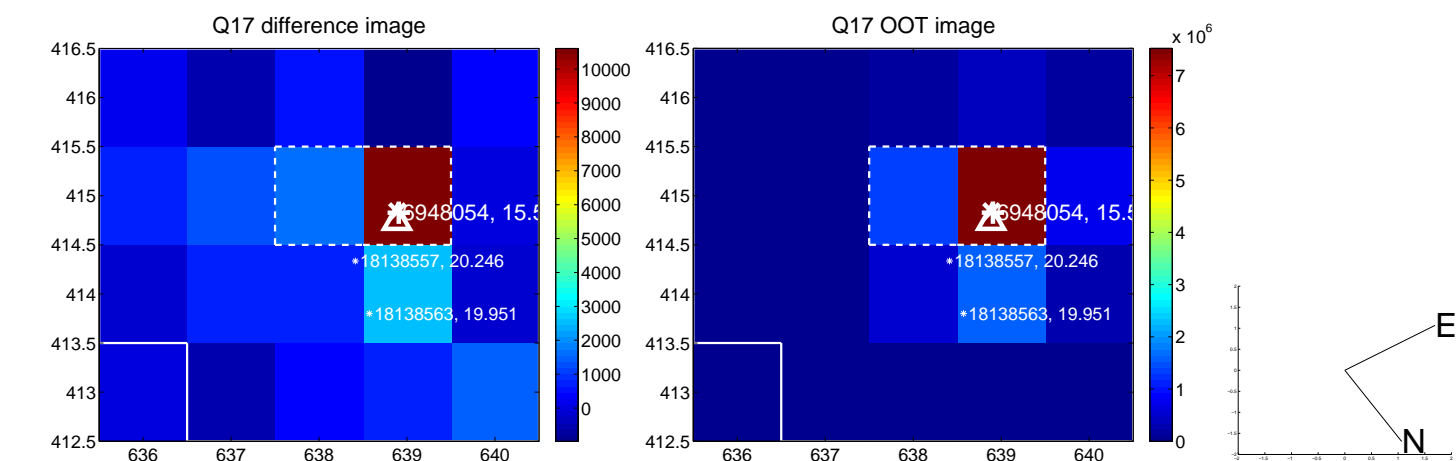
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



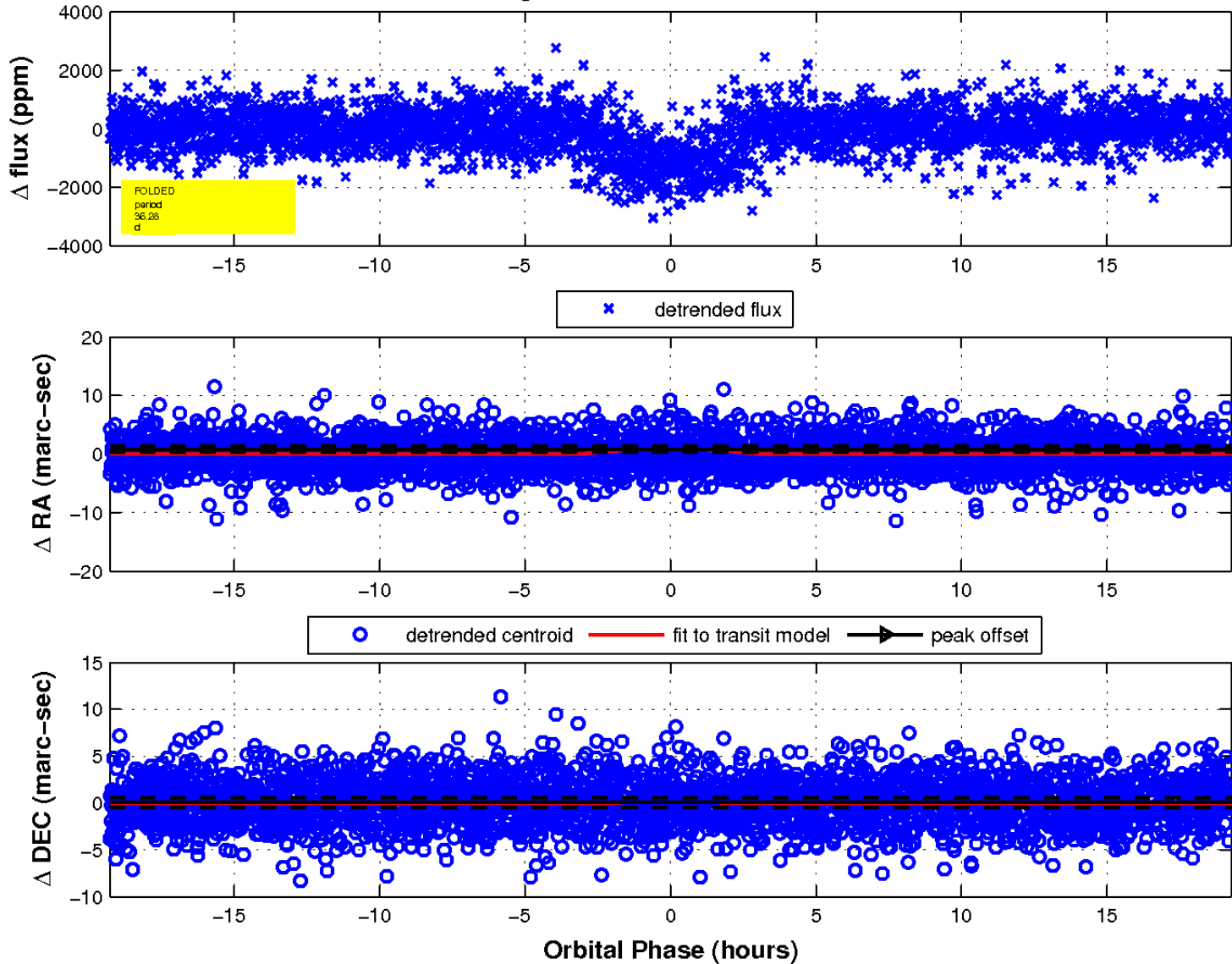
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



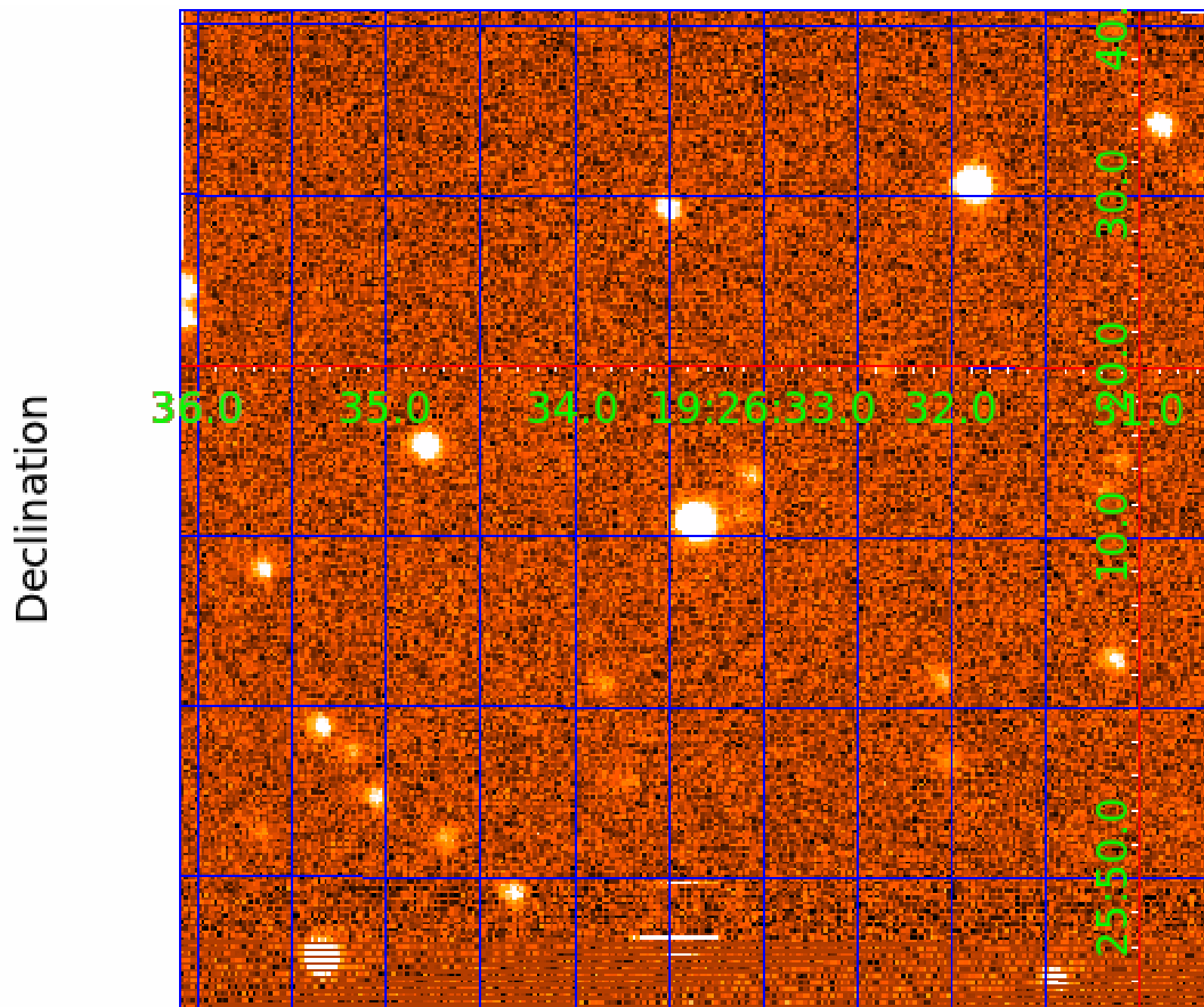
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 4



UKIRT Image



KIC 006948054

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})
006948054-01	OBS	0869.01	7.490184	137.499333	1068.6	2.880	43.1	47.3	0.79	5103	2.80	76.24
006948054-02	OBS	0869.02	36.275280	165.029900	1425.0	6.430	28.6	32.5	0.79	5103	3.92	9.30
006948054-03	OBS	0869.04	3.219798	133.007287	337.8	2.301	19.4	21.1	0.79	5103	1.75	235.00
006948054-04	OBS	0869.03	17.460925	137.262683	709.1	2.514	16.8	18.6	0.79	5103	2.59	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006948054-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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 006948054-03

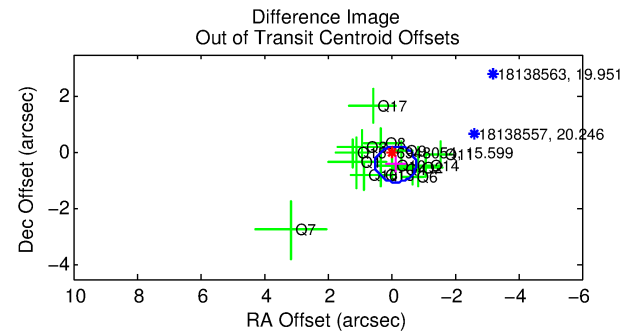
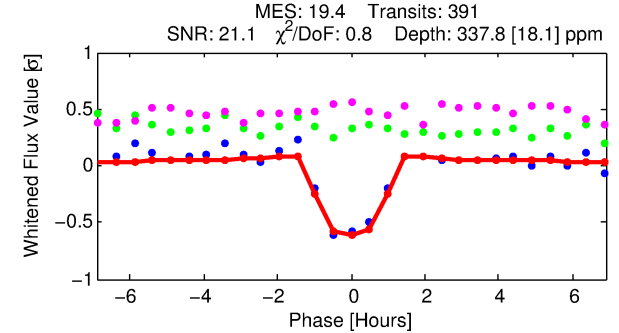
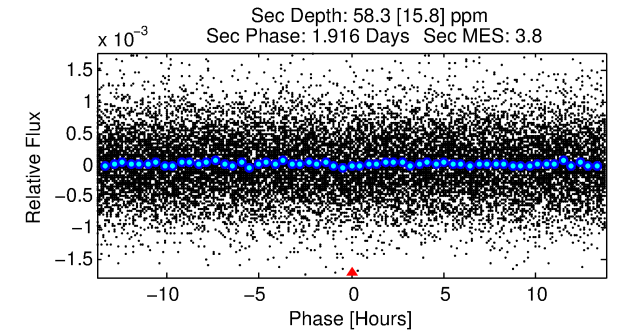
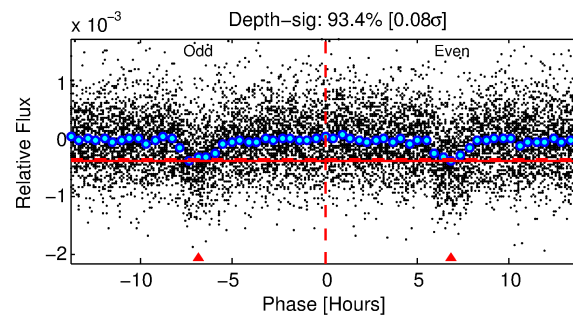
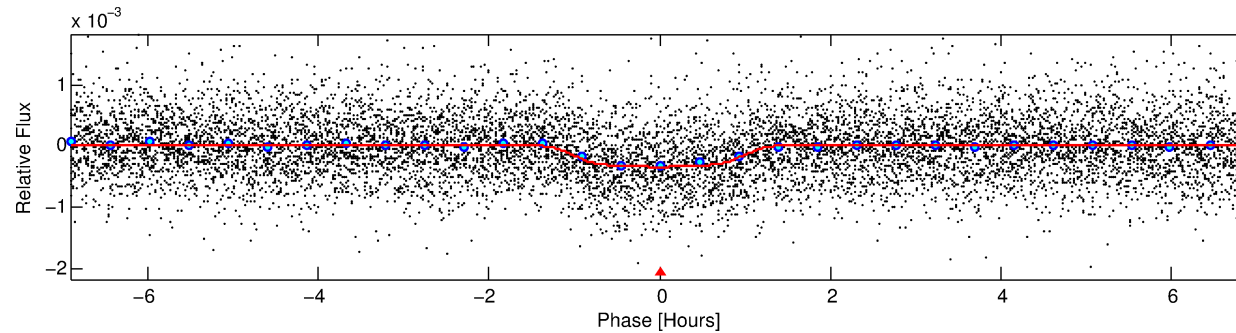
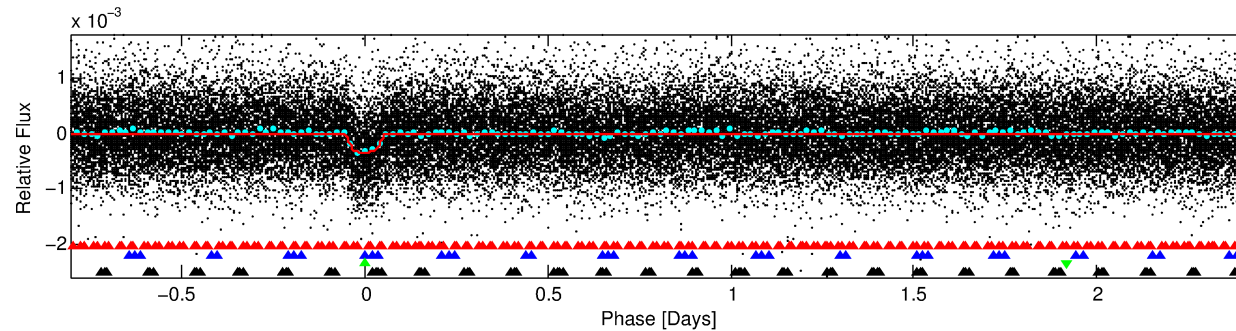
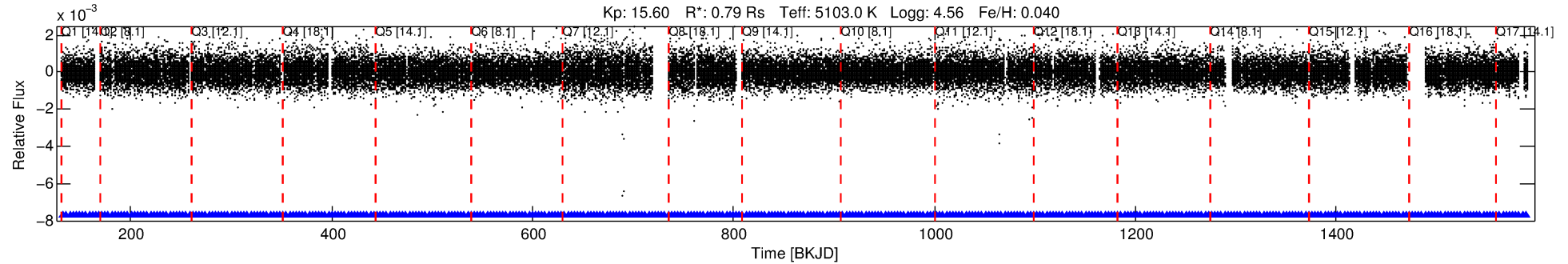
No Significant Match Found

DV One-Page Summary

KIC: 6948054 Candidate: 3 of 4 Period: 3.220 d

KOI: K00869.04 Corr: 0.956

Kp: 15.60 R*: 0.79 Rs Teff: 5103.0 K Logg: 4.56 Fe/H: 0.040



DV Fit Results:

Period = 3.21980 [0.00001] d
Epoch = 133.0073 [0.0017] BKJD
Rp/R* = 0.0204 [0.0063]
a/R* = 5.31 [6.32]
b = 0.90 [0.28]
Seff = 235.00 [28.30]
Teq = 998 [30] K
Rp = 1.75 [0.55] Re
a = 0.0400 [0.0024] AU
Ag = 16.75 [11.42] [1.38σ]
Teffp = 3123 [531] K [3.99σ]

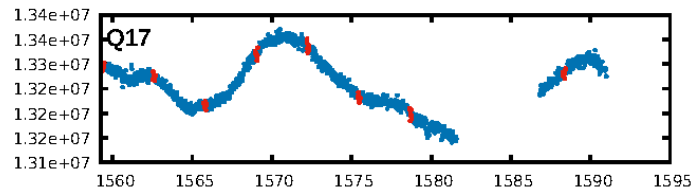
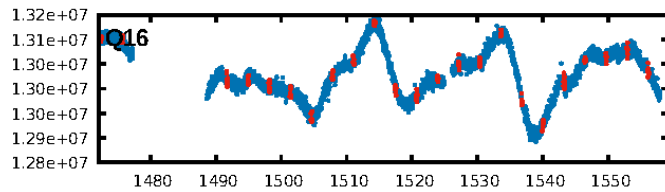
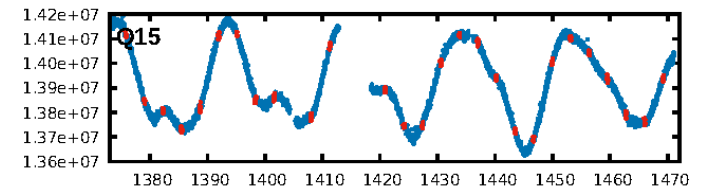
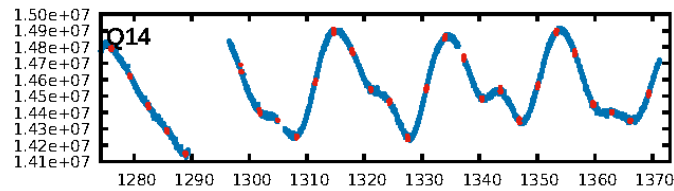
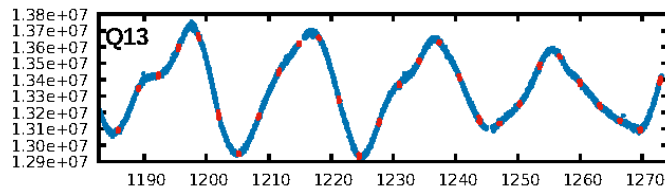
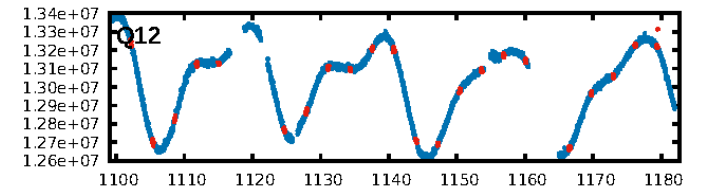
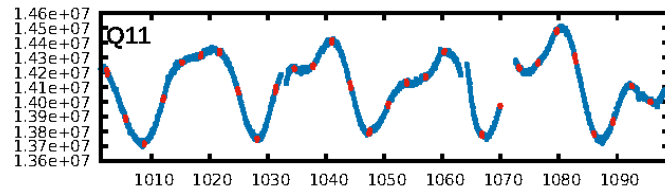
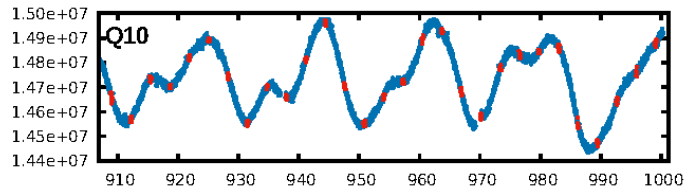
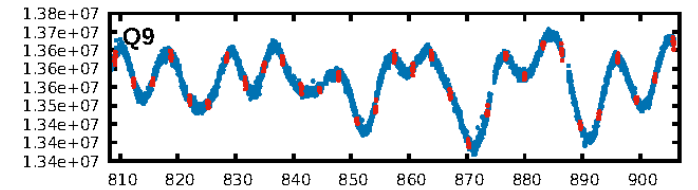
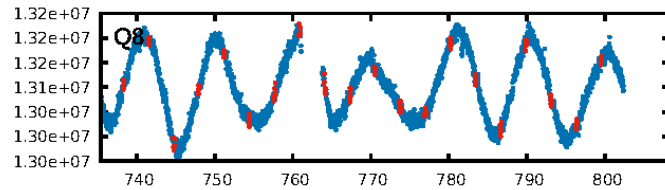
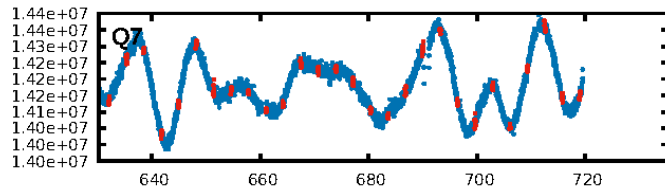
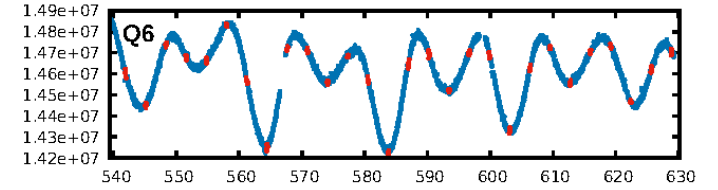
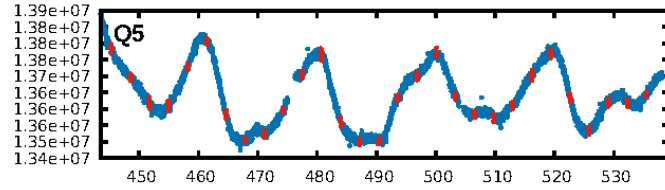
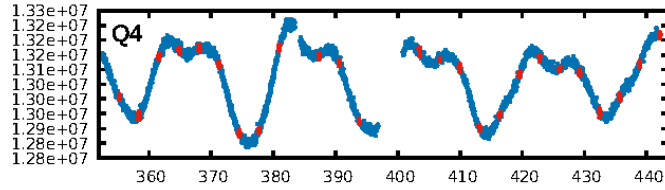
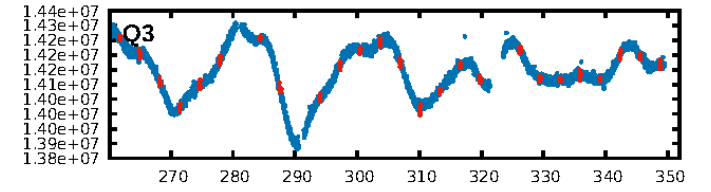
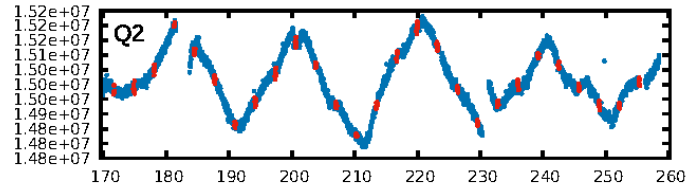
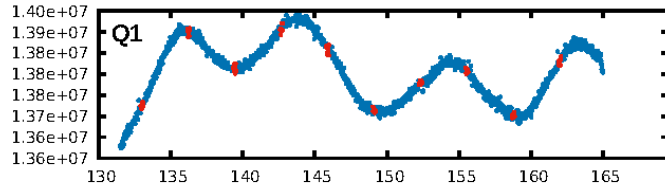
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.80σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.94e-80
RollingBand-fgt: 1.00 [374/374]
GhostDiagnostic-chr: 2.546
Centroid-sig: 94.7%
Centroid-so: 0.342 arcsec [0.62σ]
OotOffset-rm: 0.431 arcsec [2.01σ]
KicOffset-rm: 0.289 arcsec [1.39σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.93 [14/15]
DiffImageOverlap-fno: 1.00 [17/17]

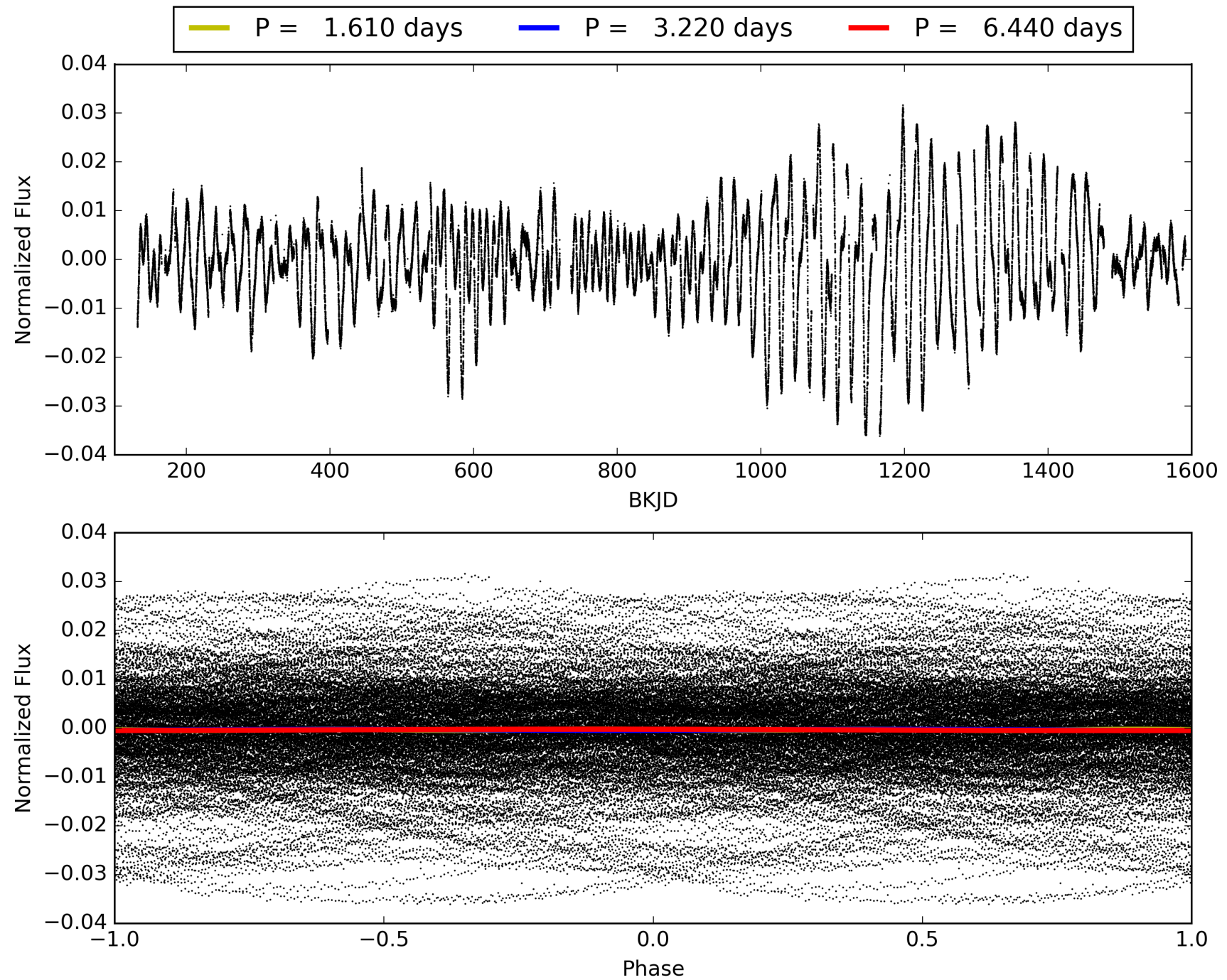
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:24:01 Z

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

TCE 006948054-03, PDC Light Curves

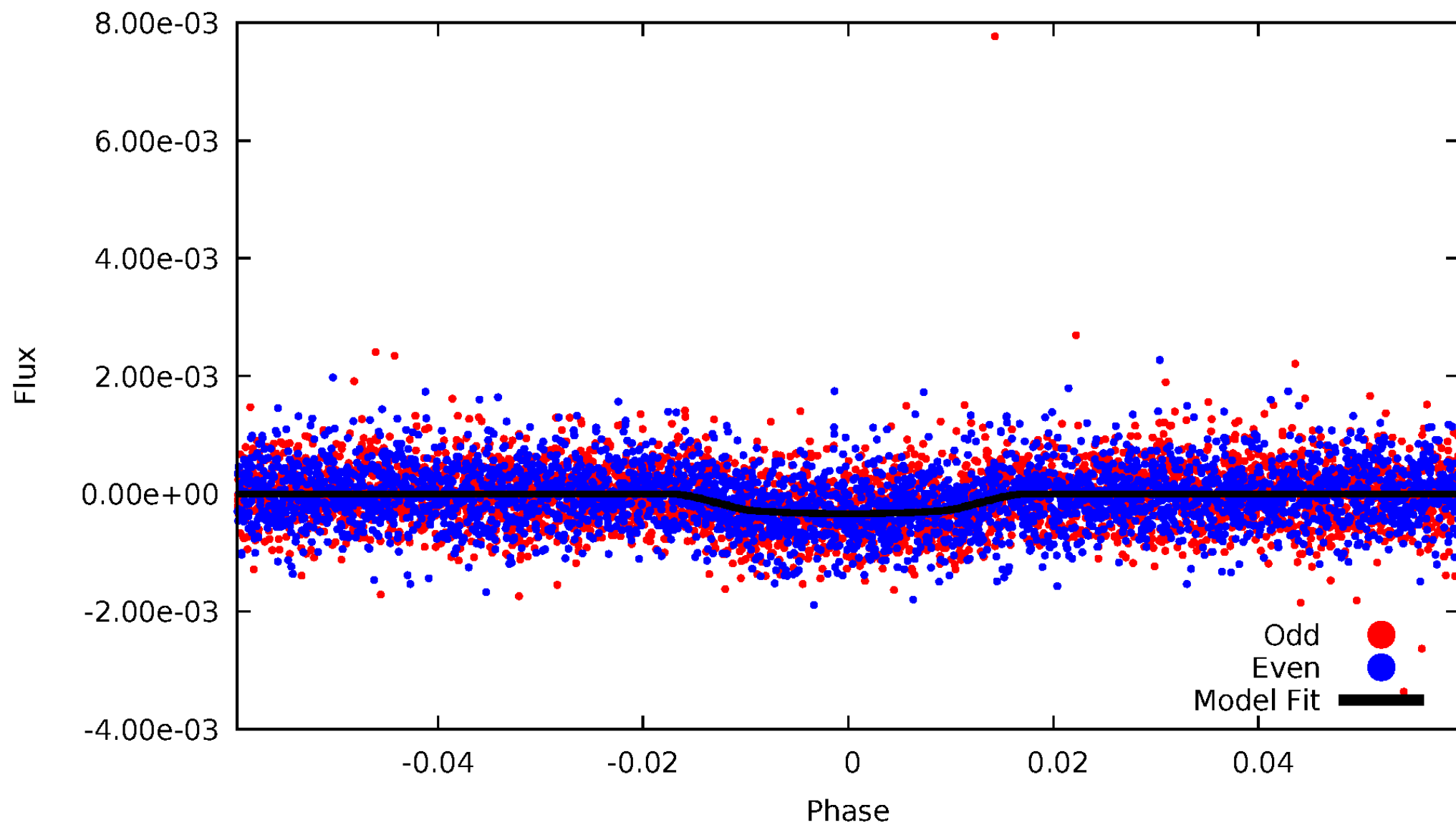


TCE 006948054-03



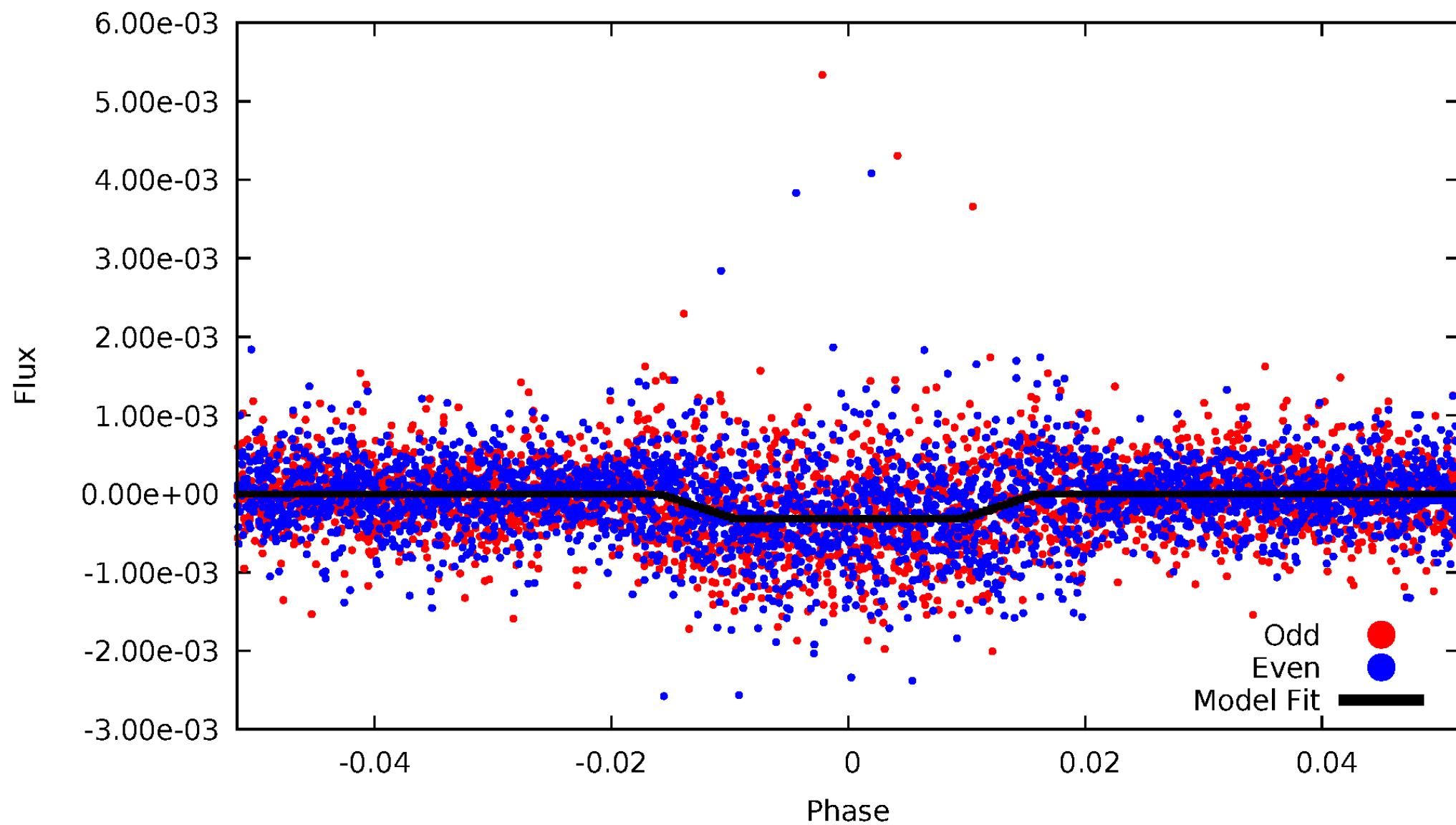
DV Odd/Even

TCE 006948054-03



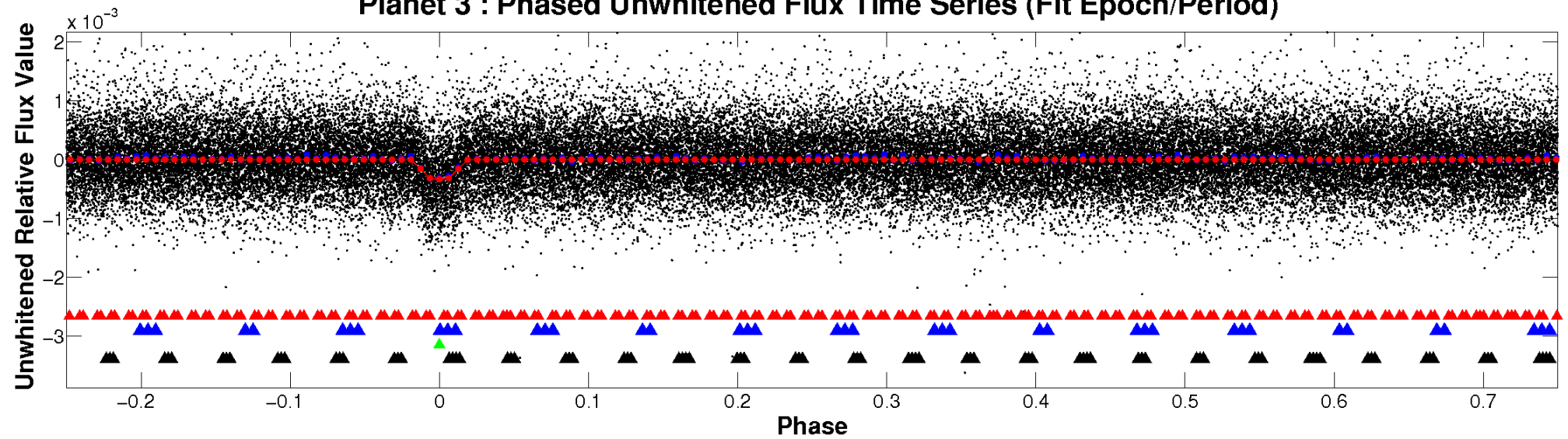
ALT Odd/Even

TCE 006948054-03

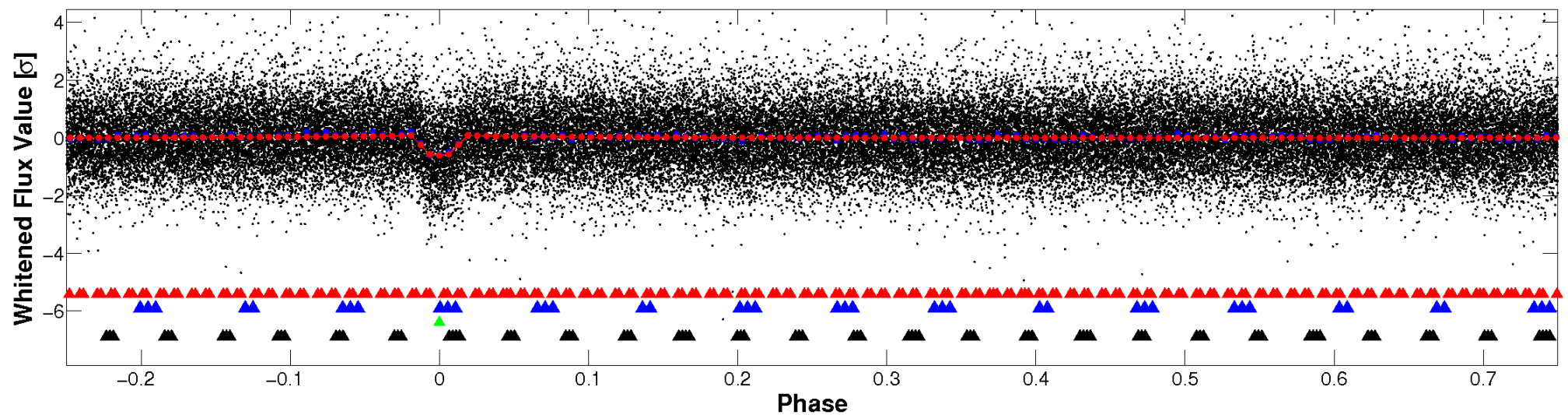


Non-Whitened Vs. Whitened Light Curve

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

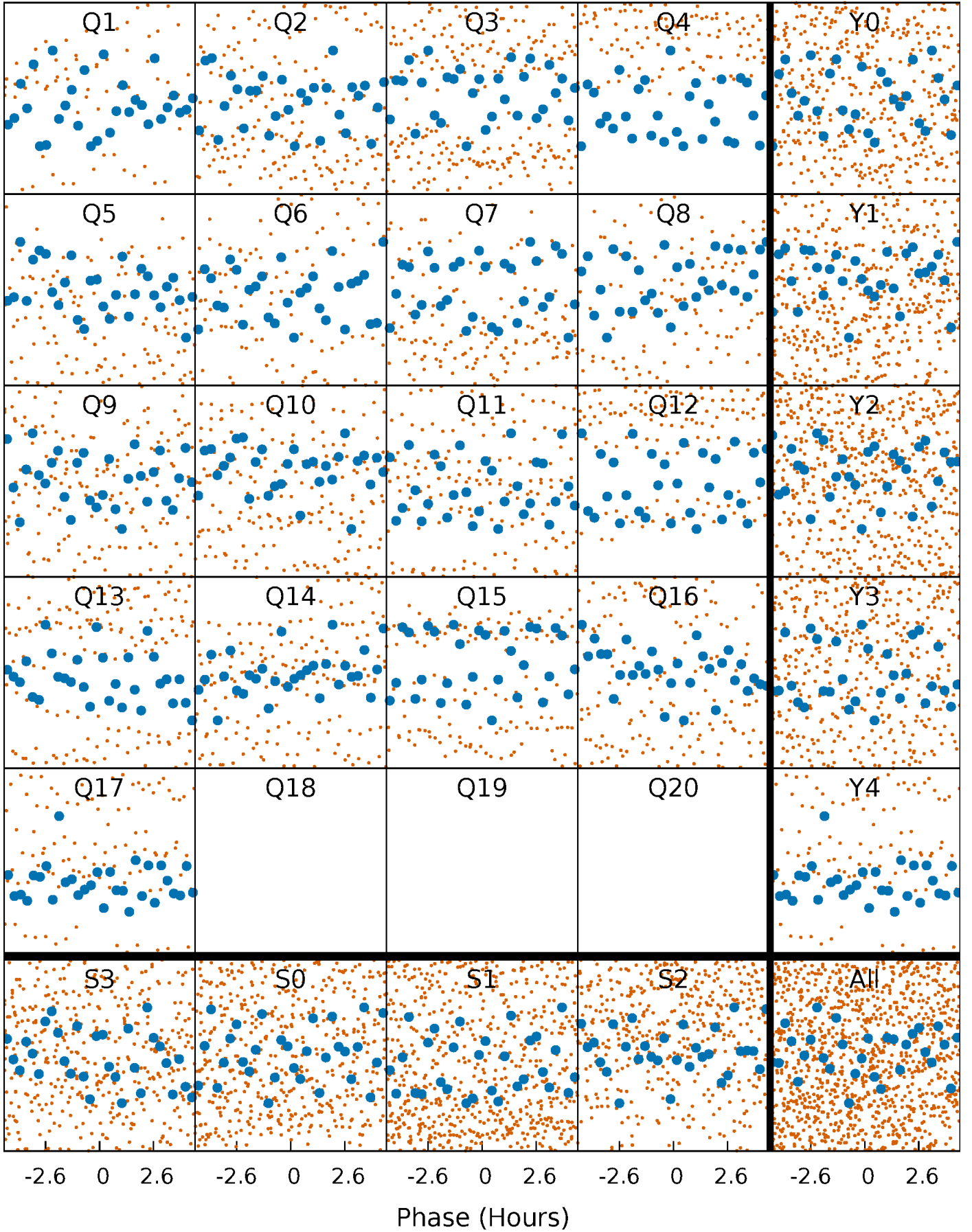


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



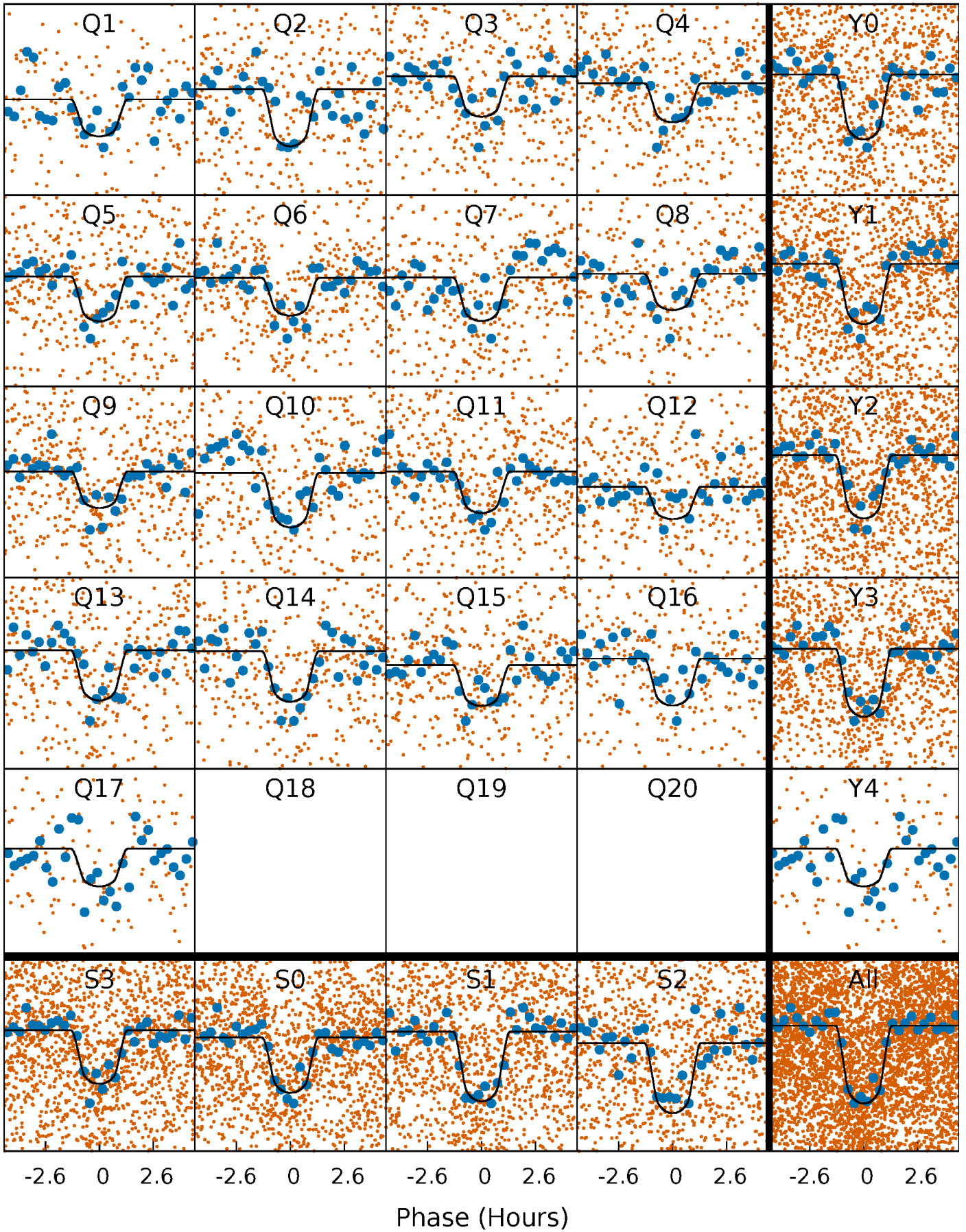
PDC Quarter-Phased Transit Curves

TCE 006948054-03 P= 3.219798 Days $T_0=133.007287$ (BKJD)



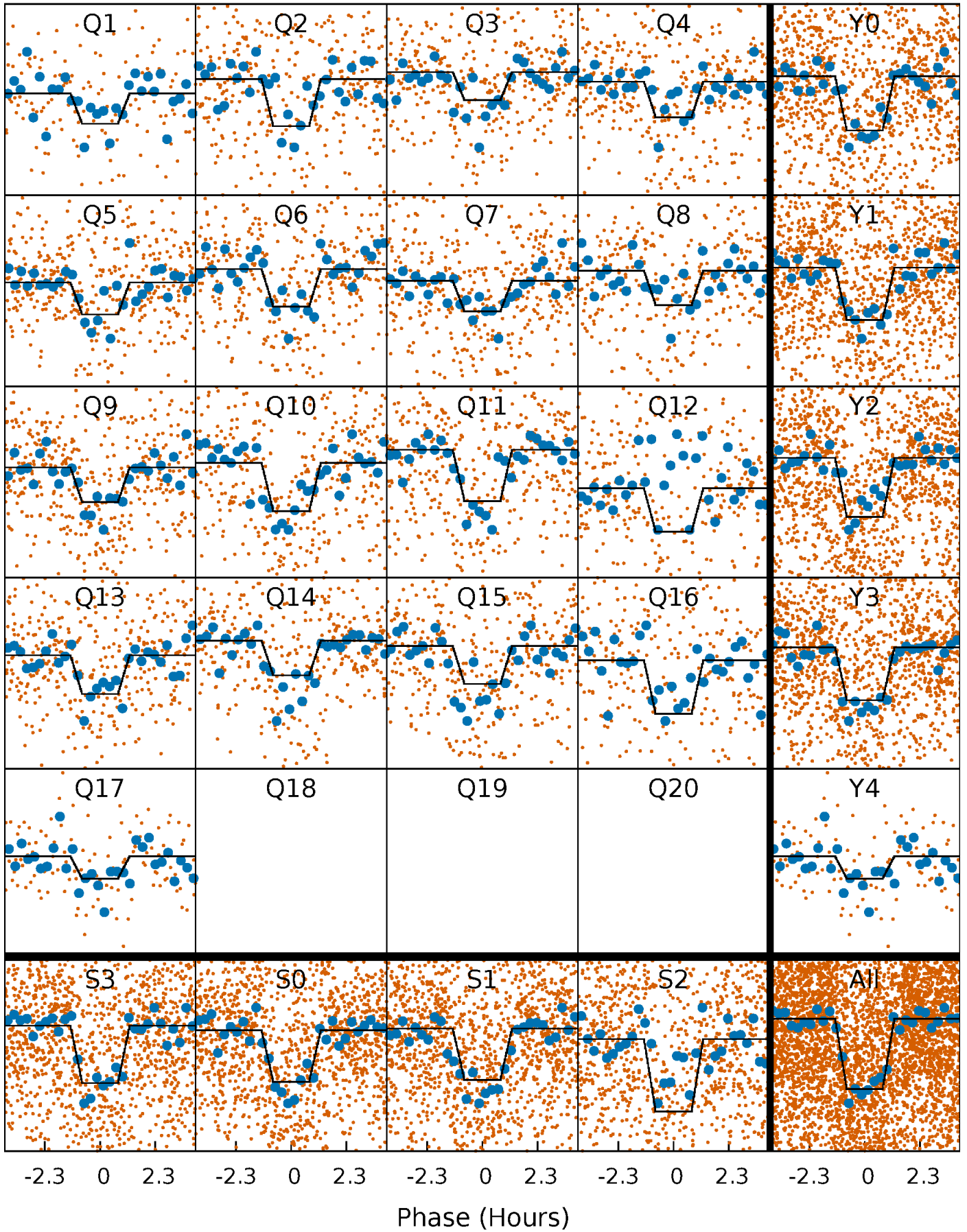
DV Quarter-Phased Transit Curves

TCE 006948054-03 P= 3.219798 Days $T_0=133.007287$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

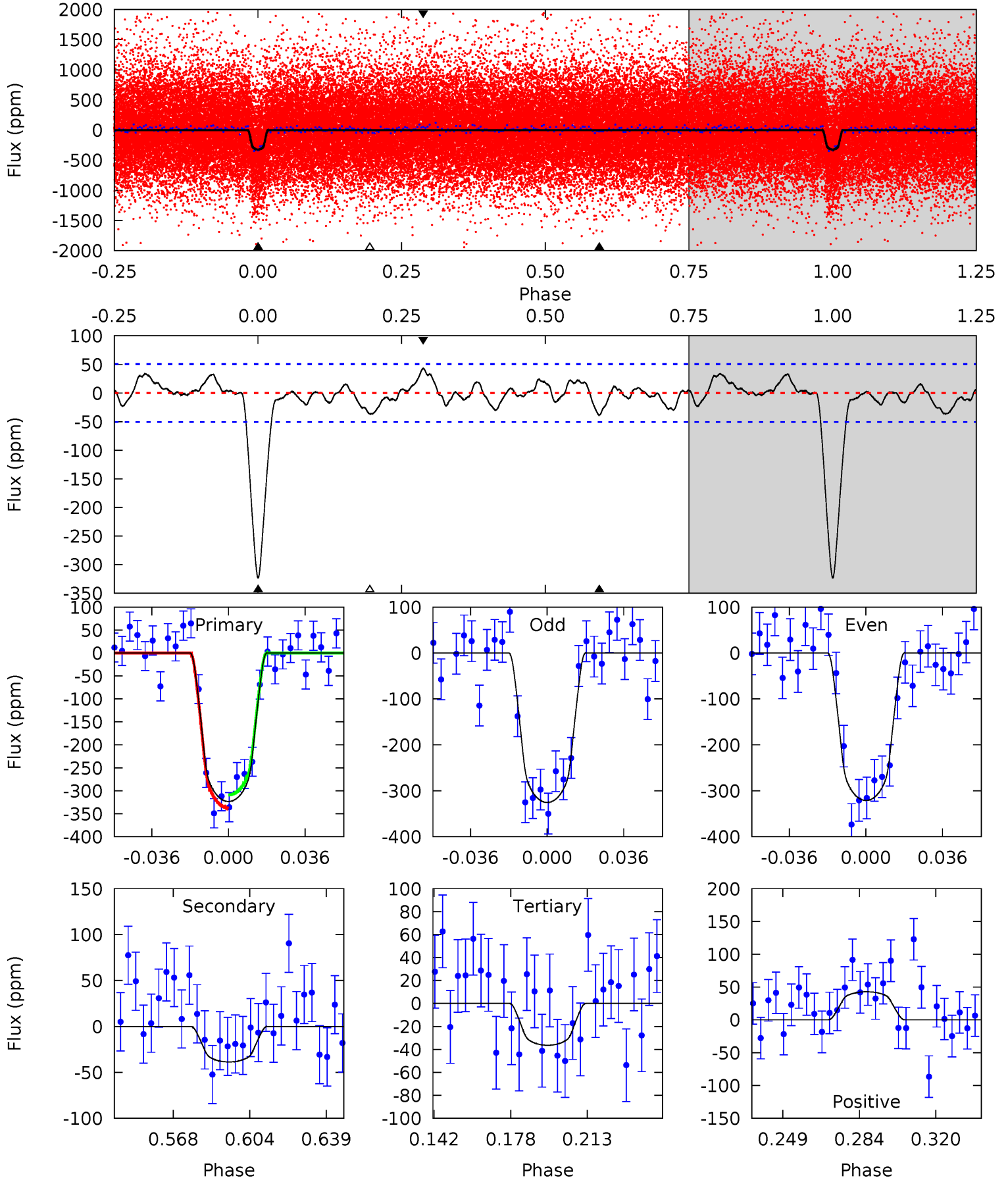
TCE 006948054-03 P= 3.219834 Days $T_0=133.000810$ (BKJD)



DV Model-Shift Uniqueness Test

006948054-03, P = 3.219798 Days, E = 129.787489 Days

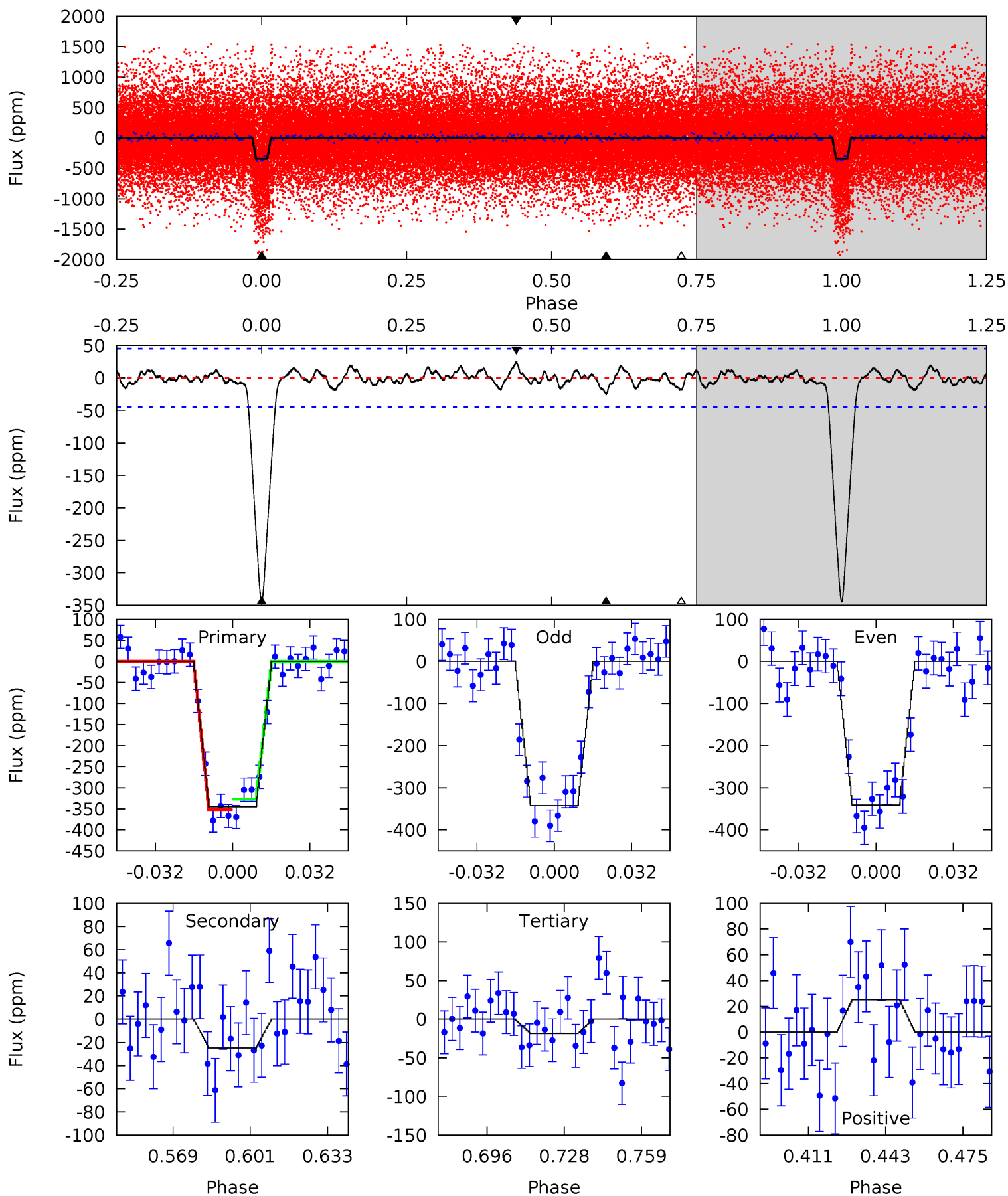
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.6	3.66	3.44	4.05	4.78	2.10	1.46	27.1	26.5	0.21	-0.39	0.21	0.99	0.12	1.34



Alt Model-Shift Uniqueness Test

006948054-03, P = 3.219834 Days, E = 129.780976 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.8	2.64	1.99	2.67	4.80	2.15	0.86	34.8	34.1	0.64	-0.04	0.05	0.96	0.07	1.32



Stellar Parameters For KIC 006948054

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.052}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 006948054-03 / KOI 0869.04

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-39 ± 11	$1.73^{+0.54}_{-0.53}$	1399^{+37}_{-36}	3306^{+512}_{-286}	11^{+14}_{-5}
Alt.	-25 ± 9	$1.50^{+0.60}_{-0.50}$	1399^{+35}_{-36}	3197^{+531}_{-347}	$8.674^{+14.148}_{-4.616}$

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 $A_{obs} \gg 1.0$

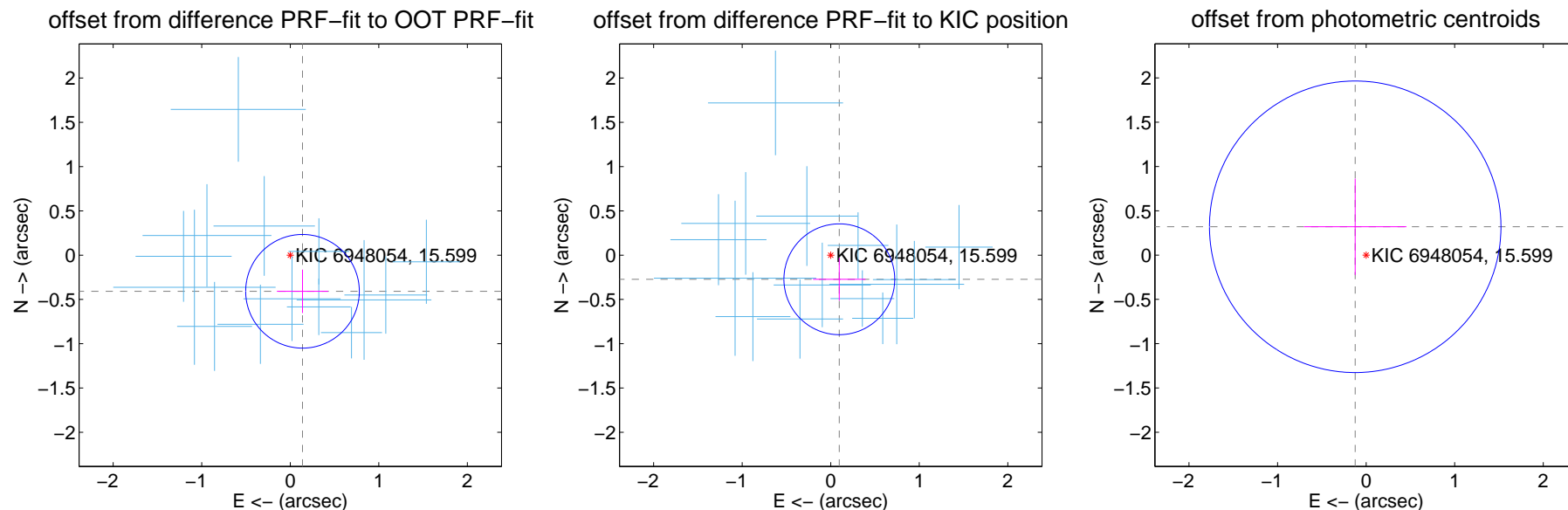
DV Centroid Data

Supplemental centroid analysis for 006948054-03. Kepler magnitude: 15.60. Transit SNR 21.10

There are 14 quarters with good PRF difference image offsets

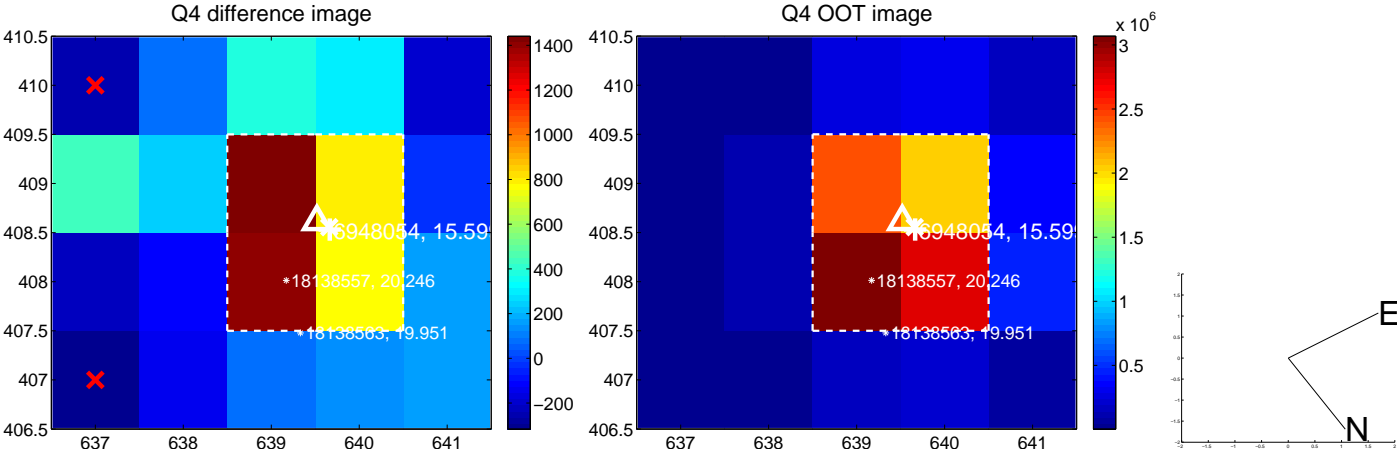
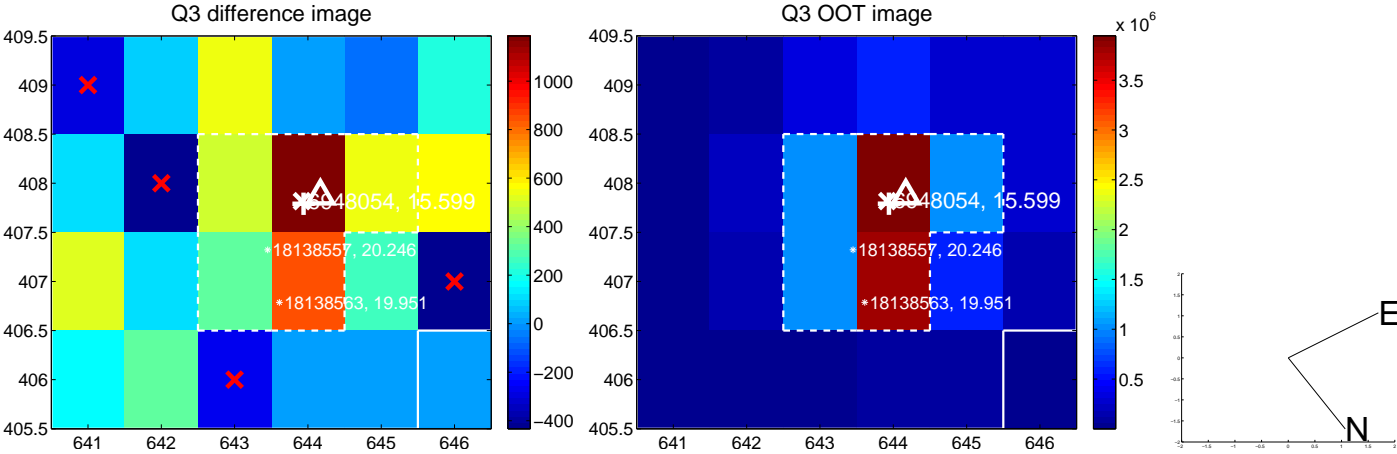
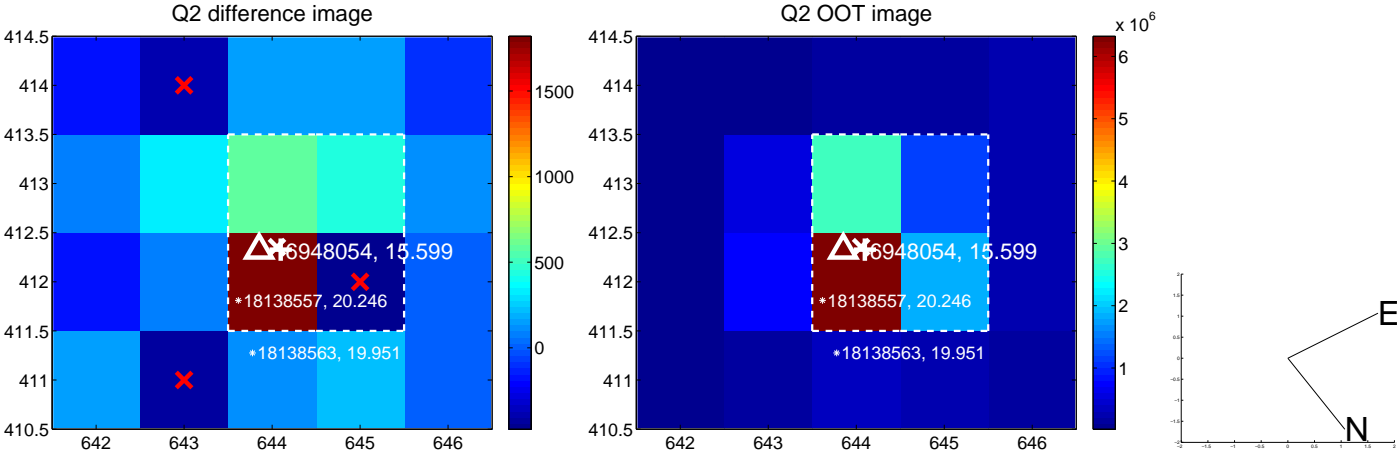
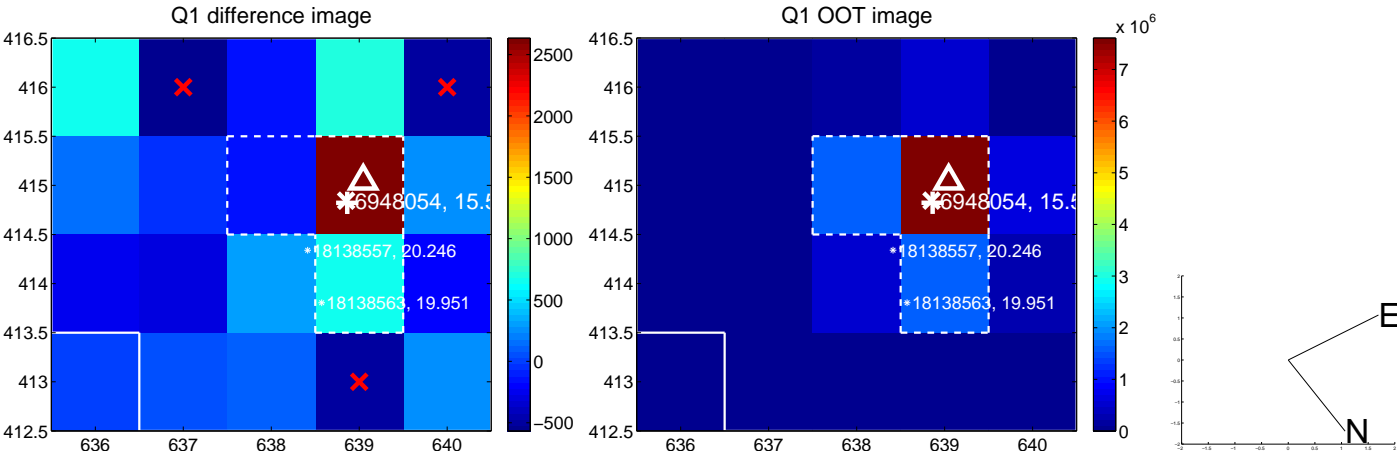
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.431 ± 0.214	2.01	-0.138 ± 0.289	-0.408 ± 0.245
PRF-fit source offset from KIC position	0.289 ± 0.209	1.39	-0.097 ± 0.296	-0.272 ± 0.240
photometric centroid source offset	0.34 ± 0.55	0.62	0.12 ± 0.58	0.32 ± 0.54

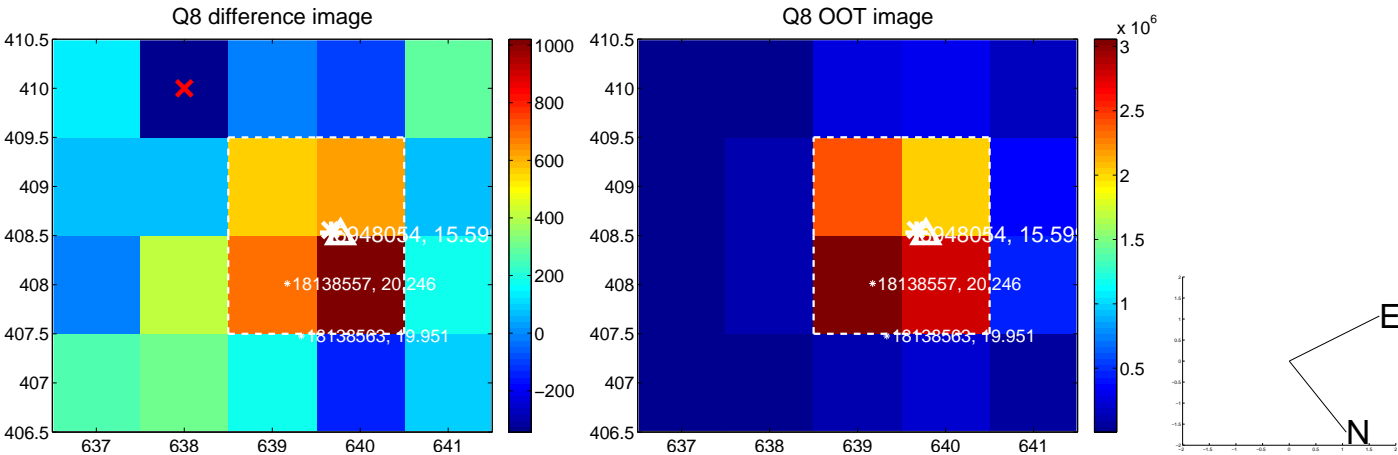
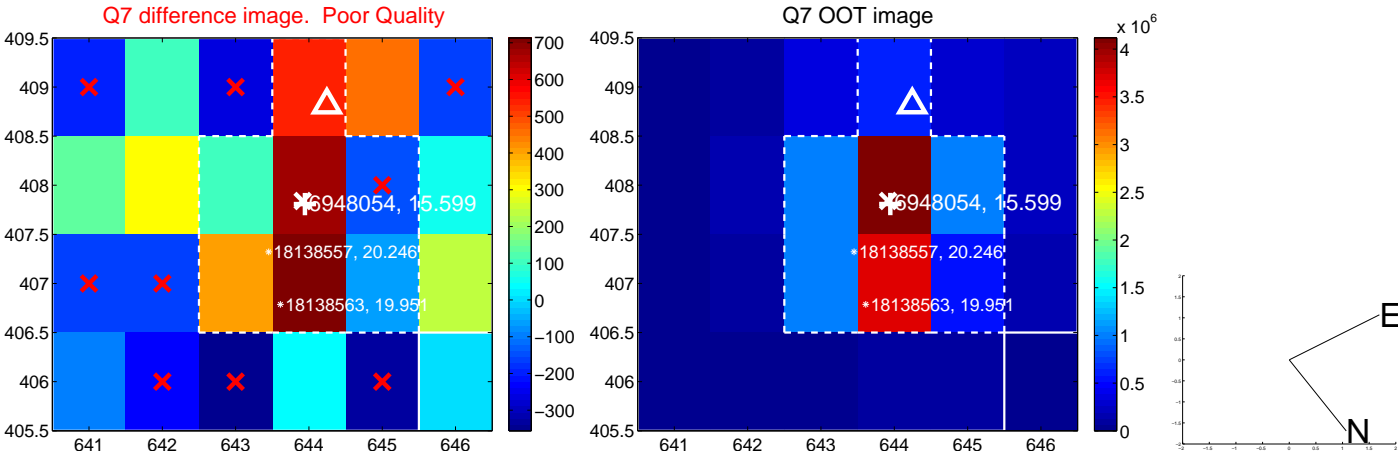
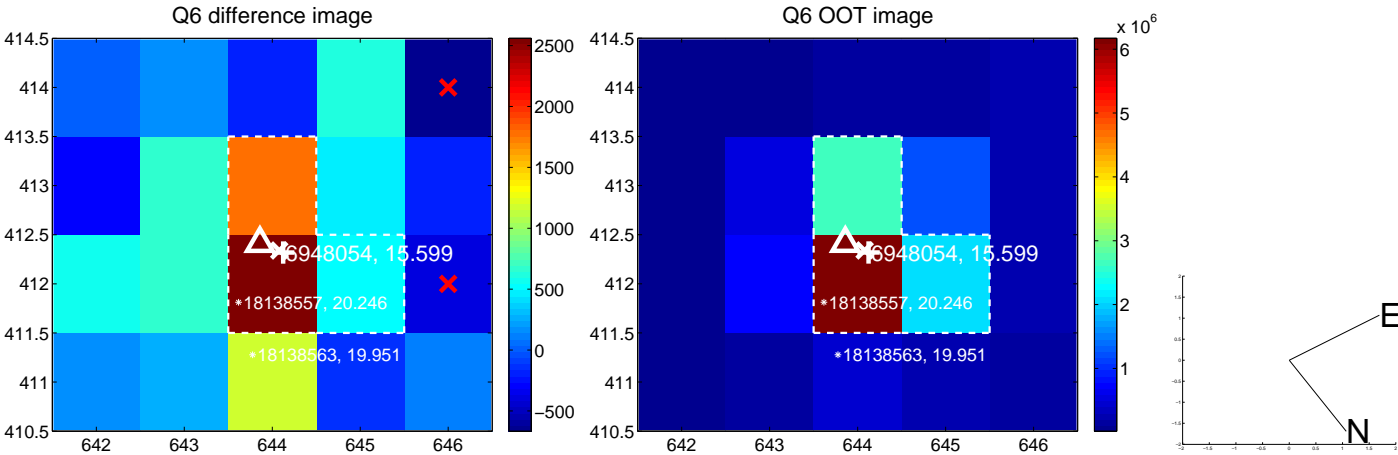
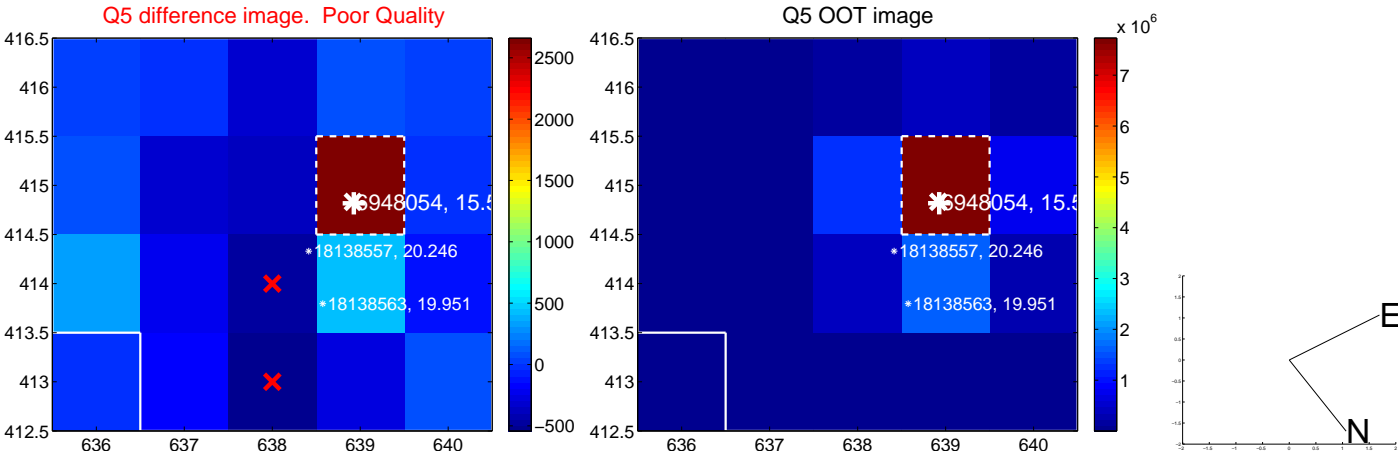


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

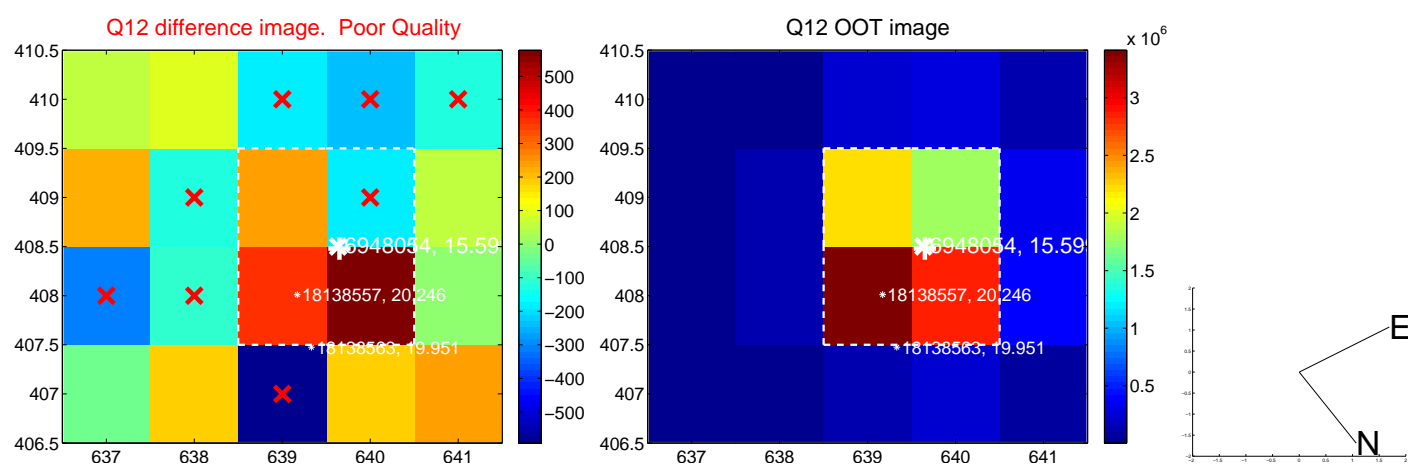
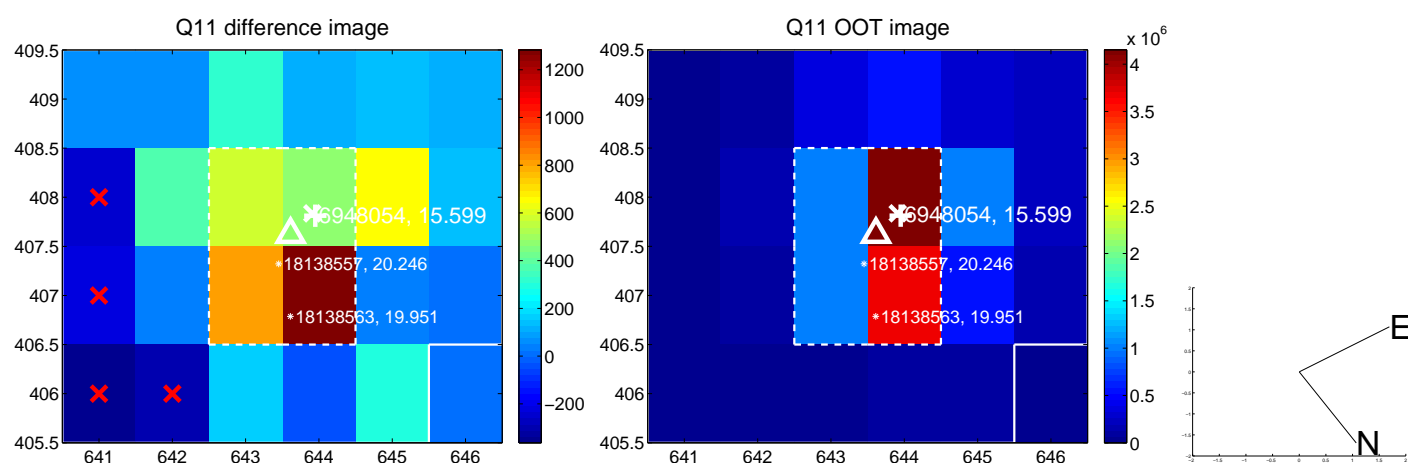
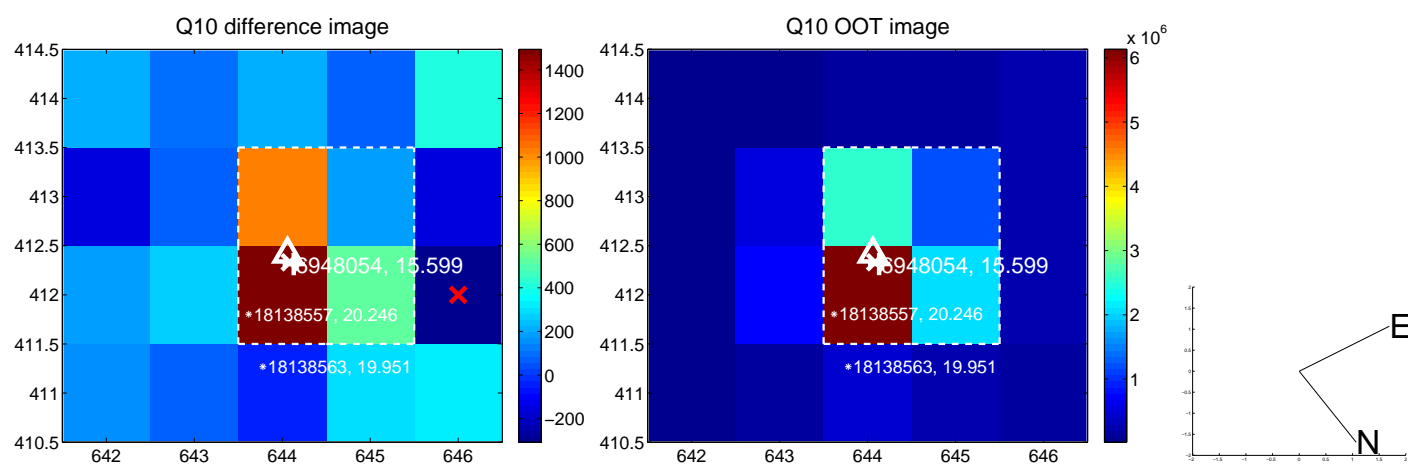
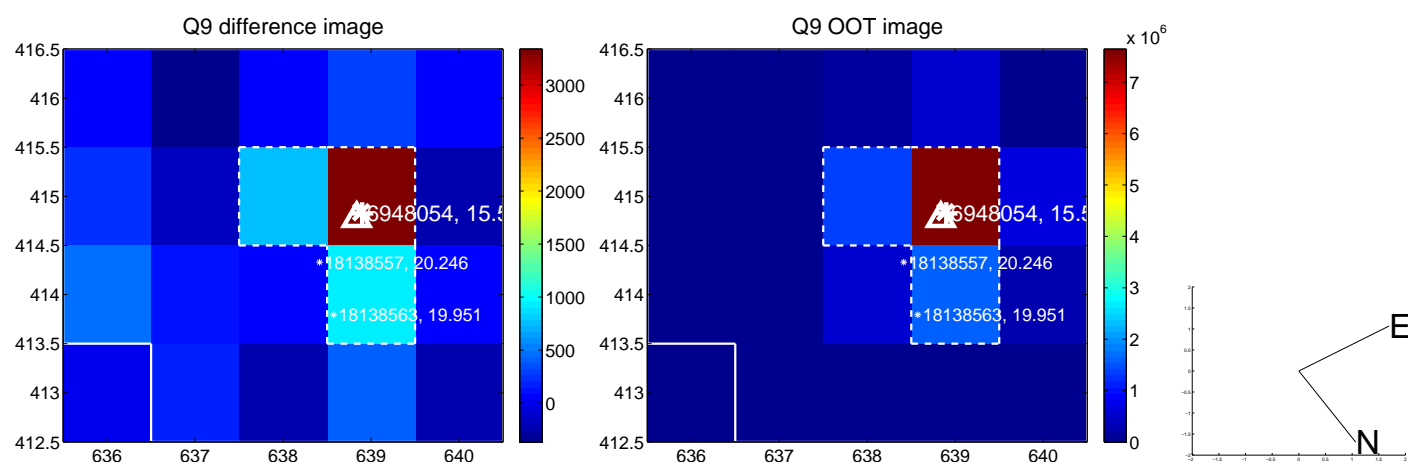
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



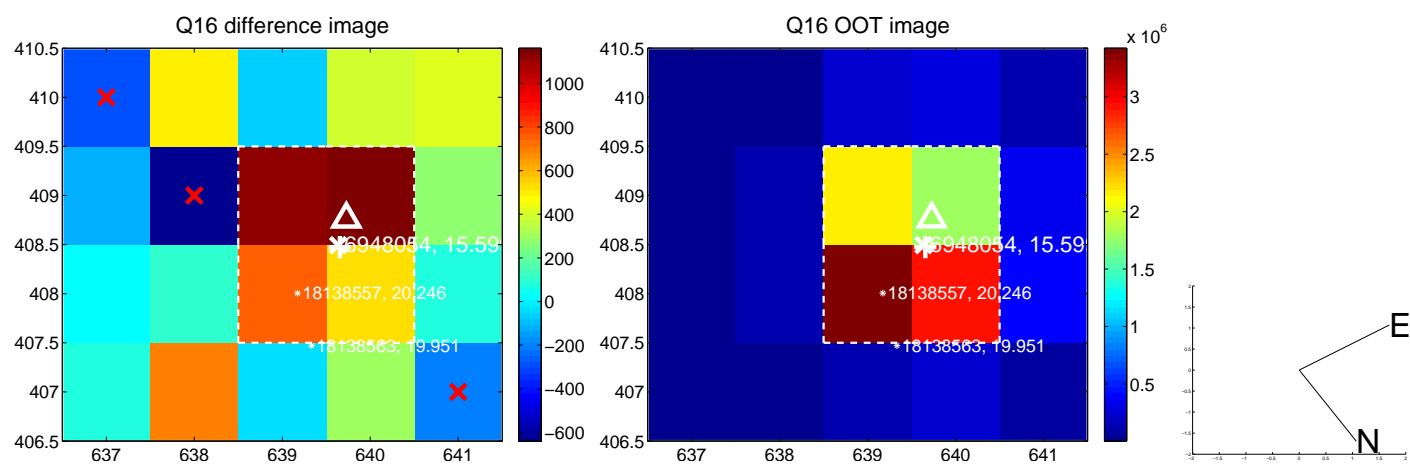
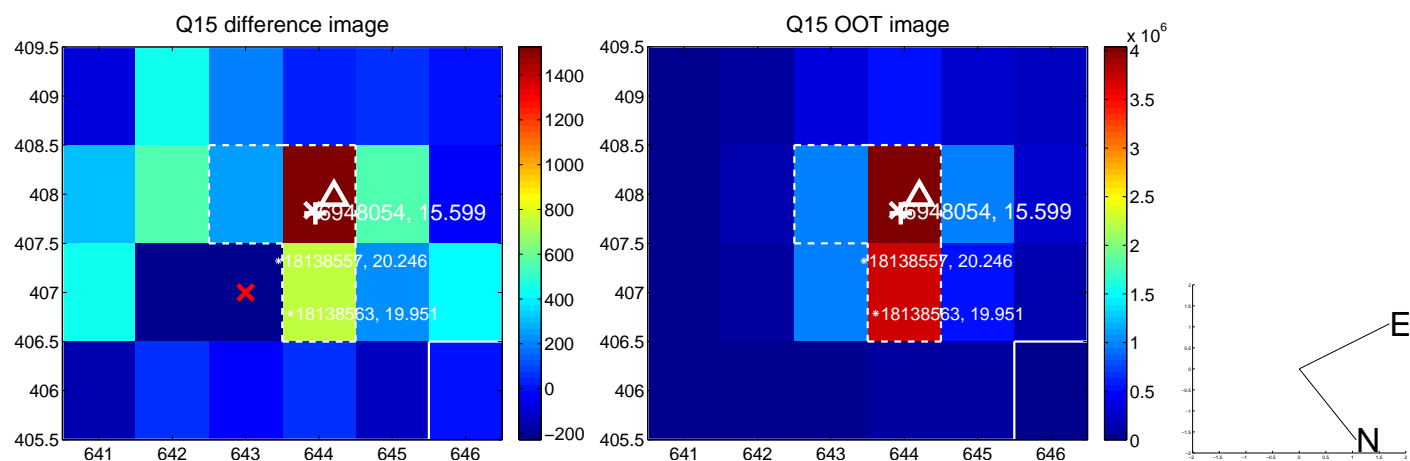
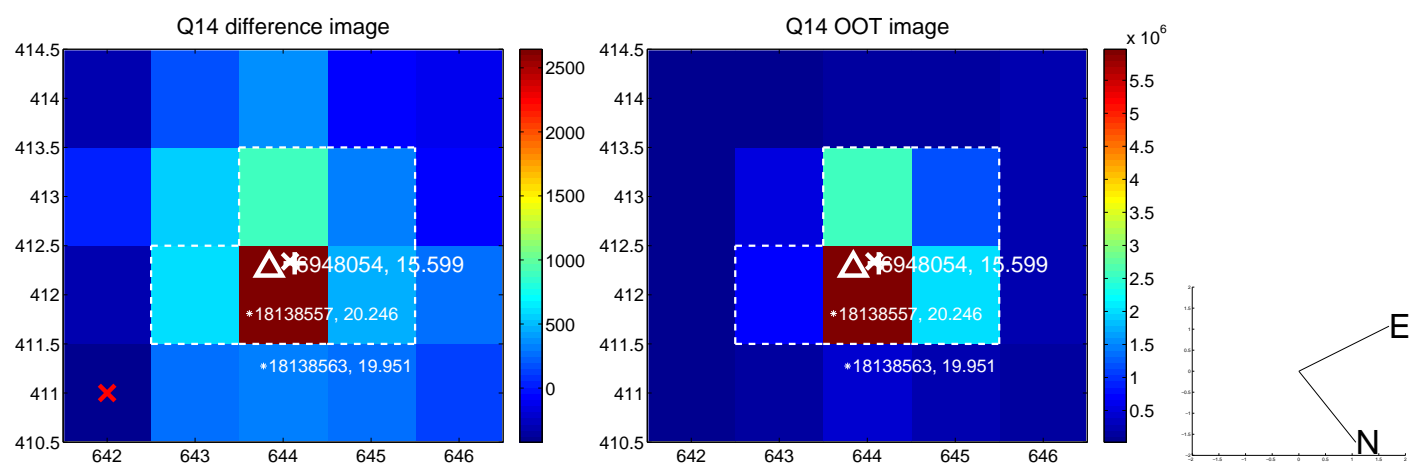
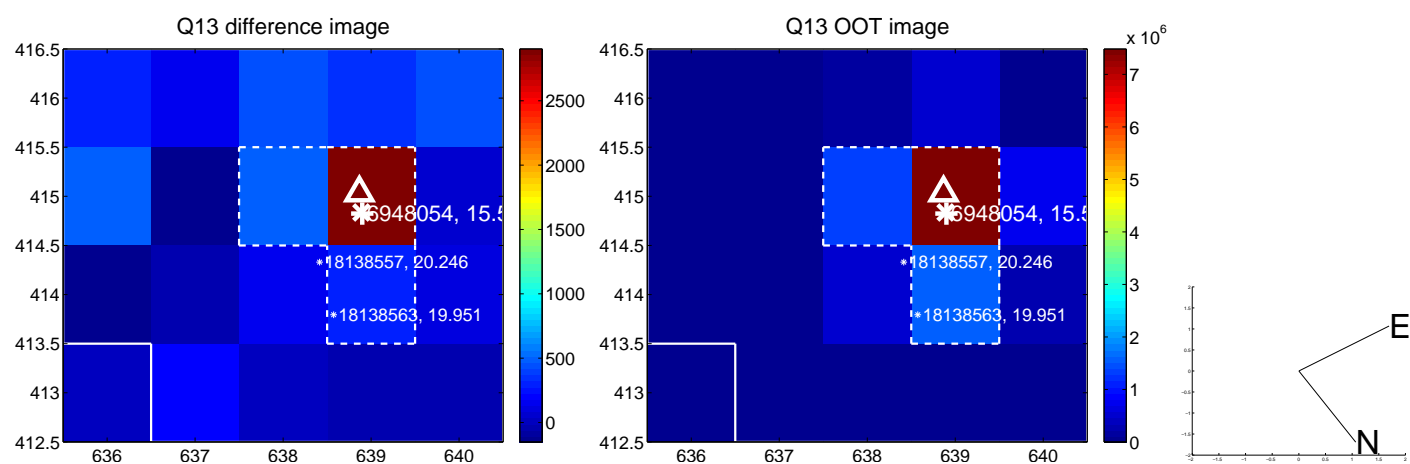
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



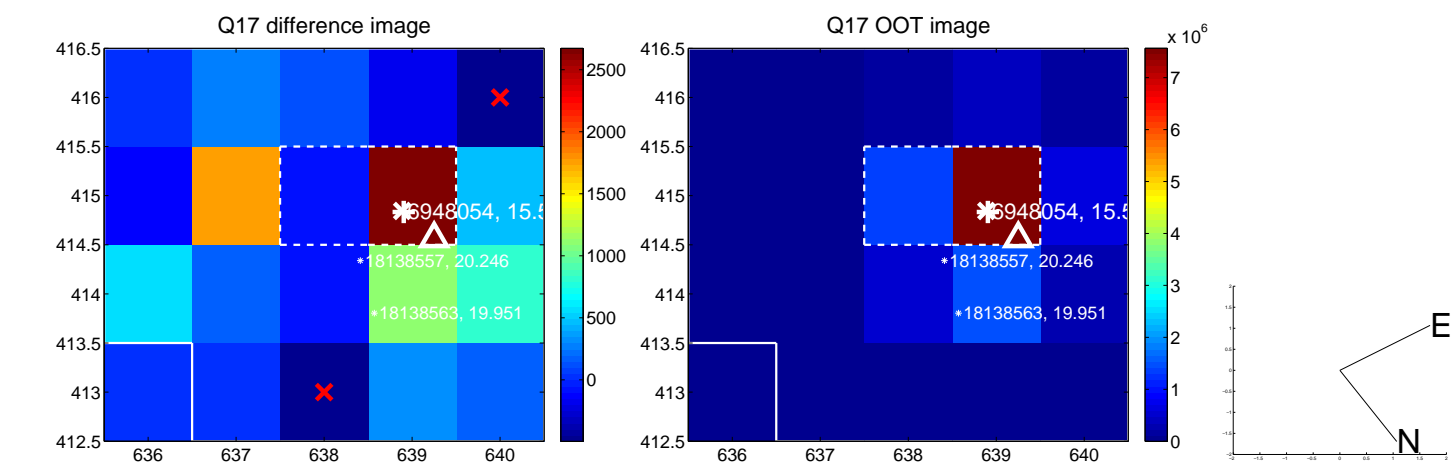
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



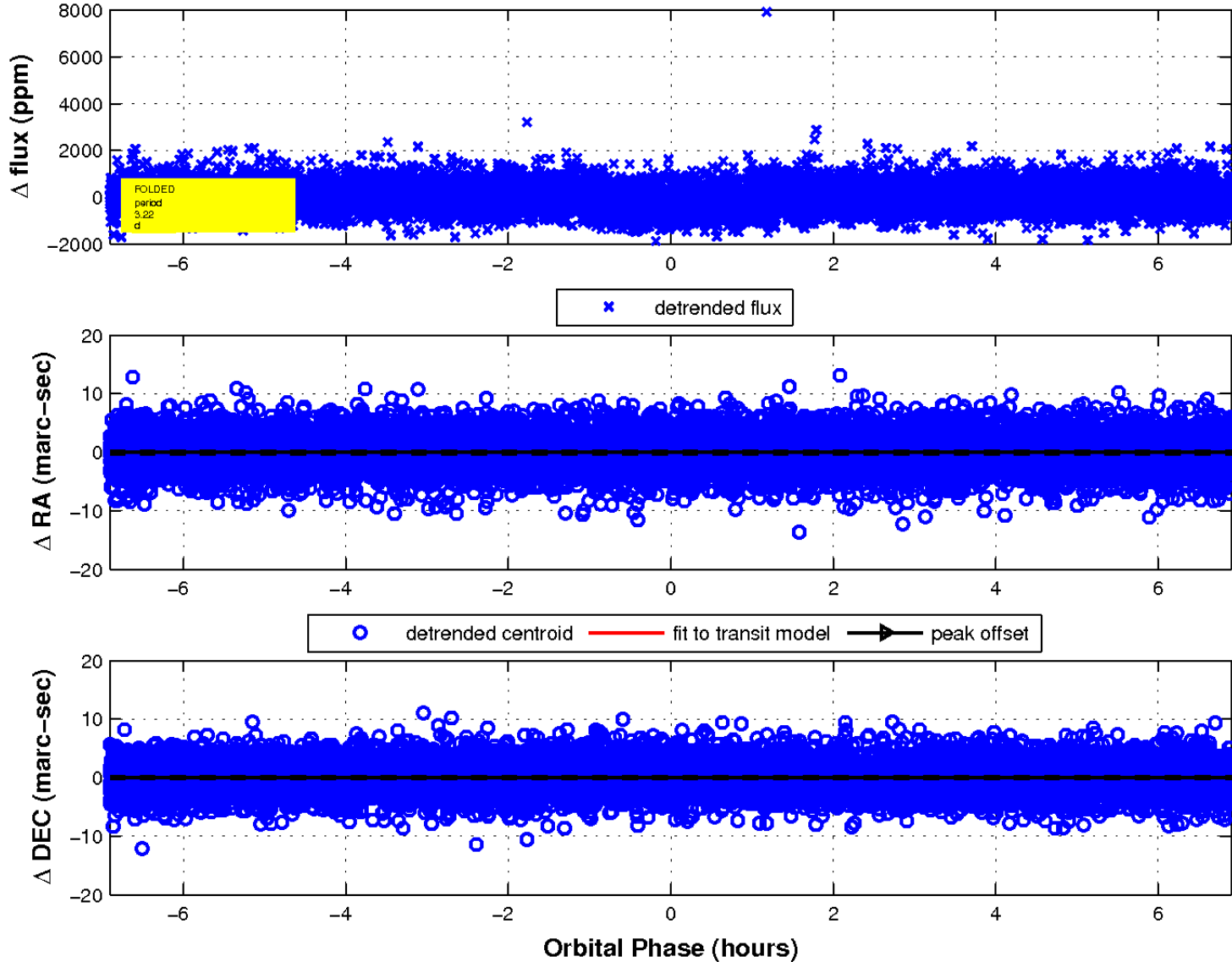
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



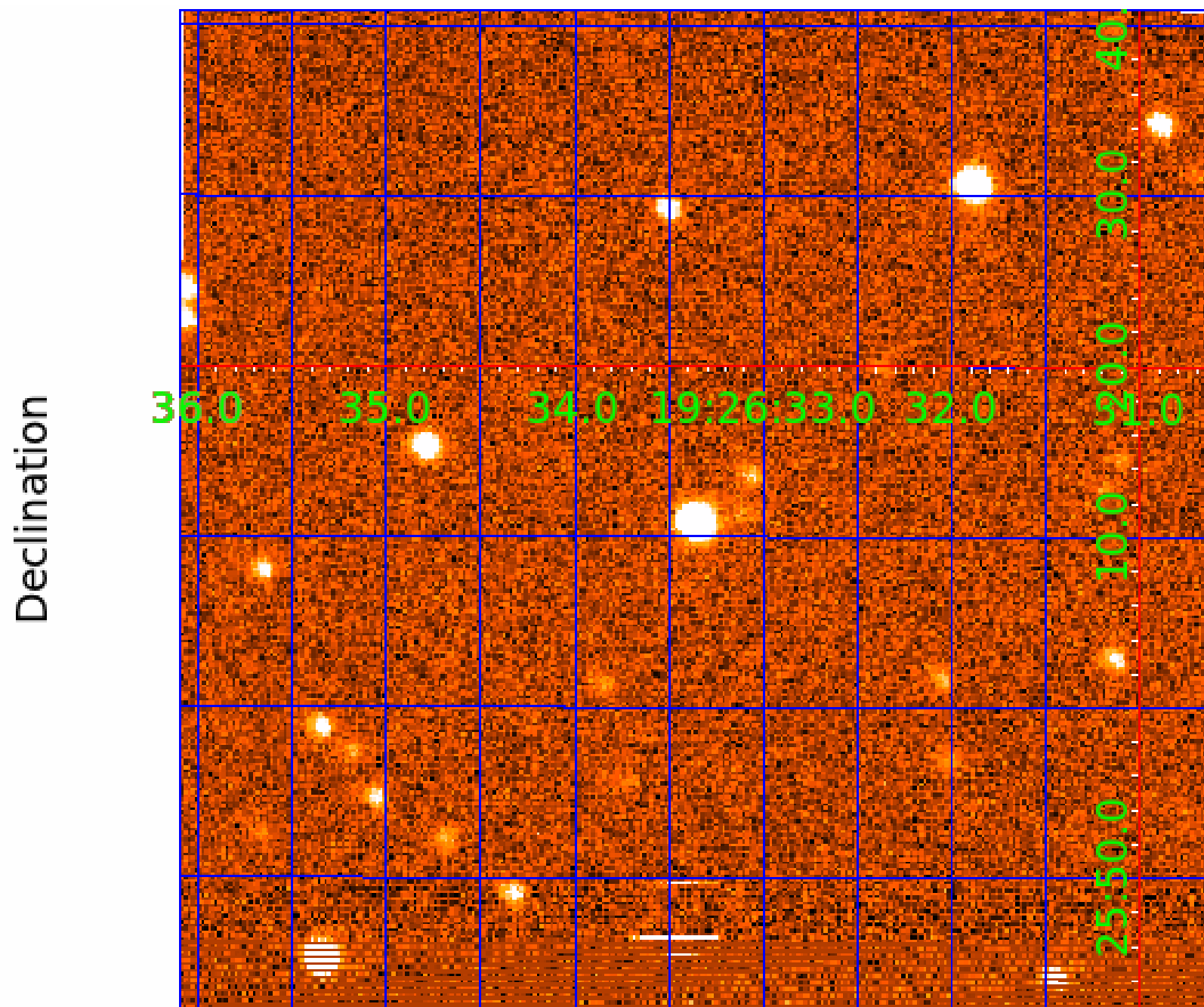
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 4



UKIRT Image



KIC 006948054

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})
006948054-01	OBS	0869.01	7.490184	137.499333	1068.6	2.880	43.1	47.3	0.79	5103	2.80	76.24
006948054-02	OBS	0869.02	36.275280	165.029900	1425.0	6.430	28.6	32.5	0.79	5103	3.92	9.30
006948054-03	OBS	0869.04	3.219798	133.007287	337.8	2.301	19.4	21.1	0.79	5103	1.75	235.00
006948054-04	OBS	0869.03	17.460925	137.262683	709.1	2.514	16.8	18.6	0.79	5103	2.59	24.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006948054-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-02	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-03	OBS	PC	1.00	0	0	0	0	NO_COMMENT
006948054-04	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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.

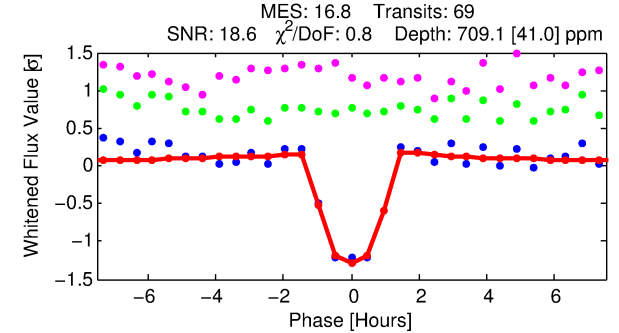
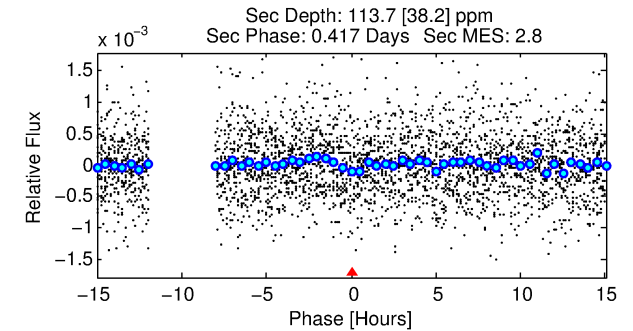
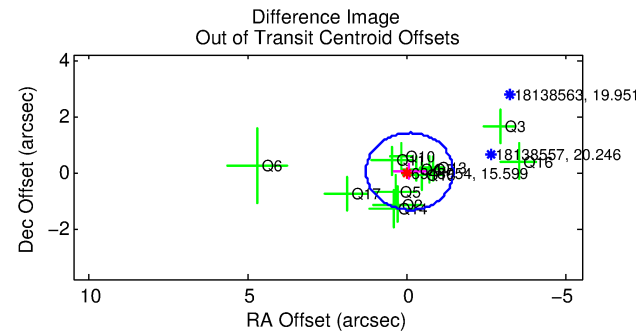
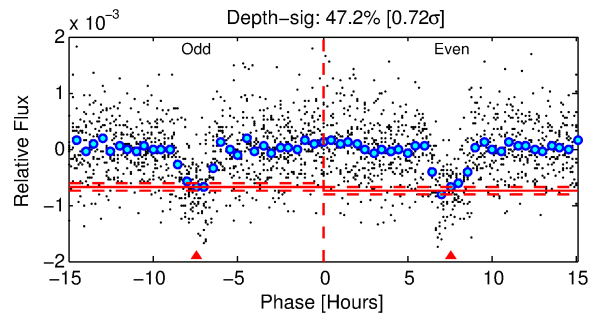
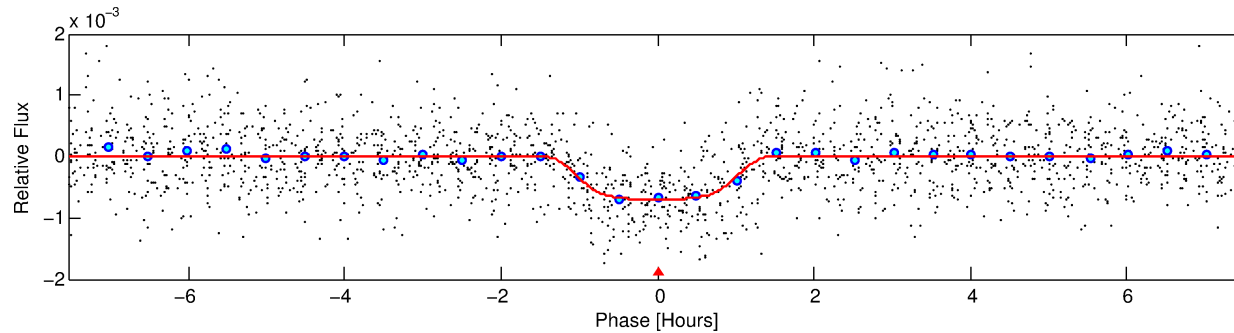
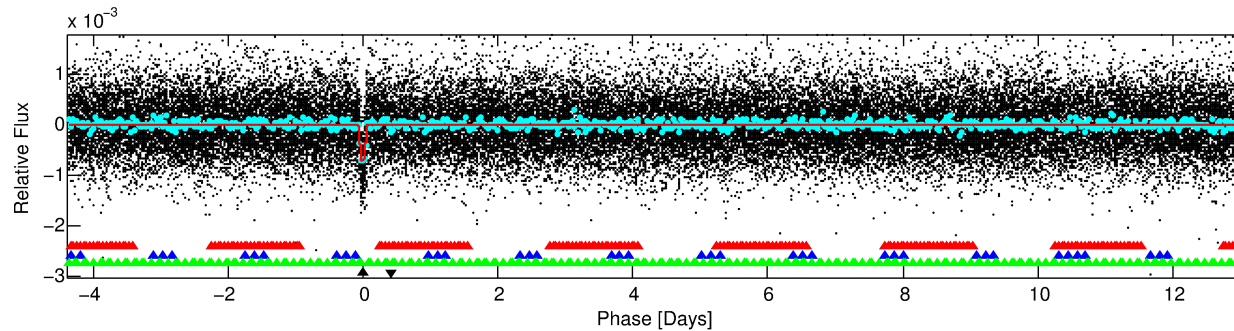
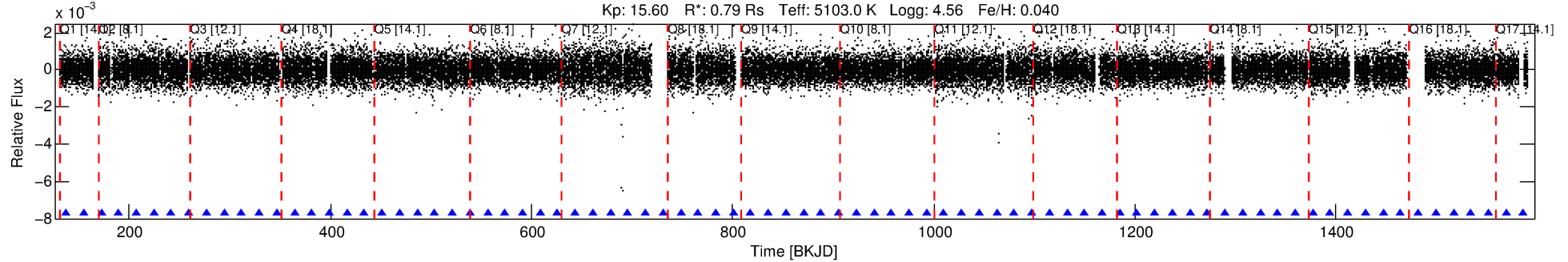
Ephemeris Match Information For 006948054-04

No Significant Match Found

DV One-Page Summary

KIC: 6948054 Candidate: 4 of 4 Period: 17.461 d
KOI: K00869.03 Name: Kepler-245c Corr: 0.947

Kp: 15.60 R*: 0.79 Rs Teff: 5103.0 K Logg: 4.56 Fe/H: 0.040



DV Fit Results:

Period = 17.46093 [0.00007] d
Epoch = 137.2627 [0.0031] BKJD
Rp/R* = 0.0302 [0.0045]
a/R* = 25.35 [14.22]
b = 0.91 [0.11]
Seff = 24.67 [2.97]
Teq = 568 [17] K
Rp = 2.59 [0.42] Re
a = 0.1235 [0.0073] AU
Ag = 142.16 [64.95] [2.17σ]
Teffp = 3034 [345] K [7.14σ]

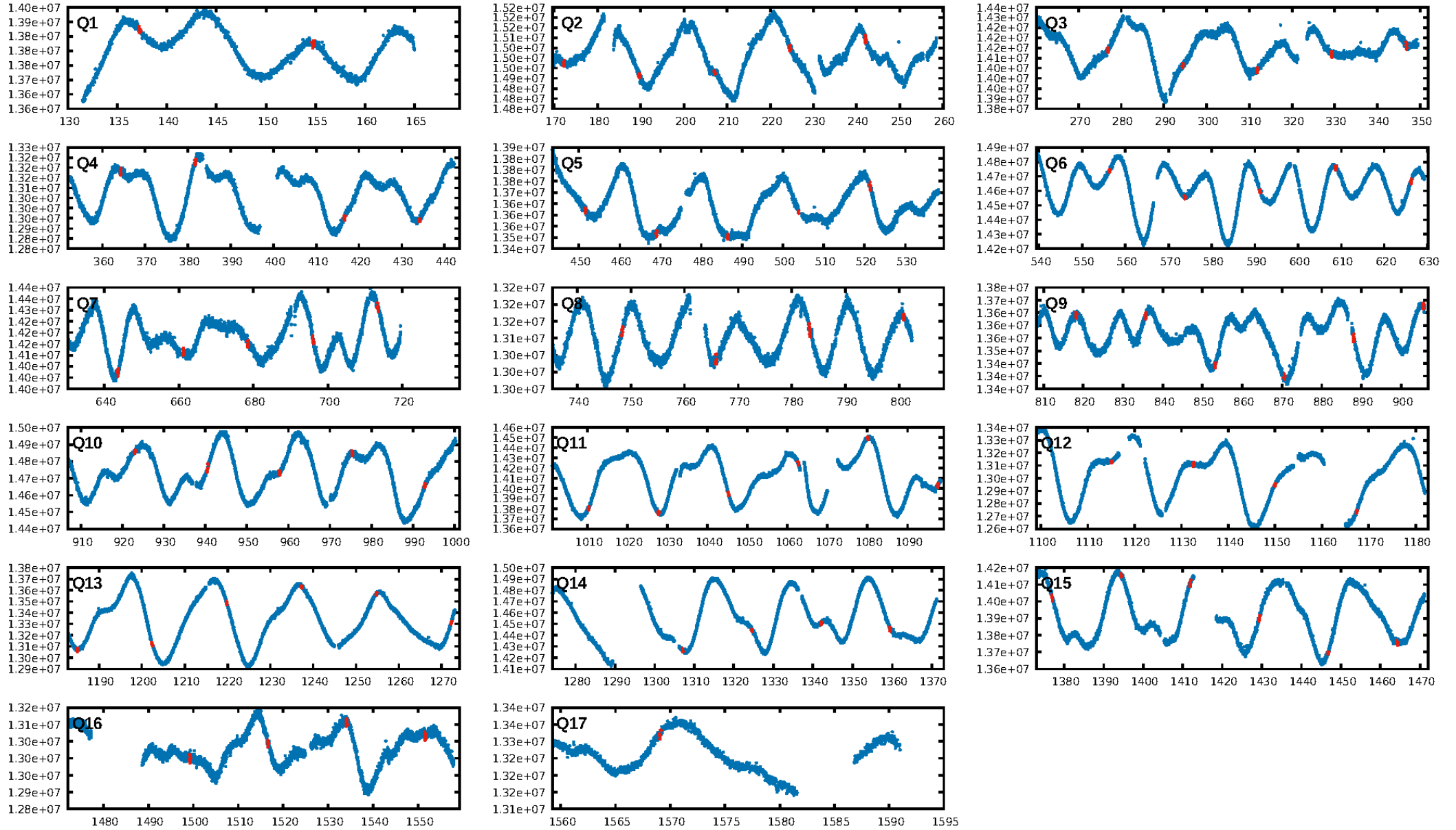
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [62.59σ]
LongPeriod-sig: 100.0% [65.40σ]
ModelChiSquare2-sig: 98.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.55e-59
RollingBand-fgt: 1.00 [67/67]
GhostDiagnostic-chr: 1.324
Centroid-sig: 0.1%
Centroid-so: 1.034 arcsec [1.70σ]
OotOffset-rm: 0.111 arcsec [0.24σ]
KicOffset-rm: 0.231 arcsec [0.69σ]
OotOffset-st: 4/4/2/3 [13]
KicOffset-st: 4/4/2/3 [13]
DiffImageQuality-fgm: 0.92 [12/13]
DiffImageOverlap-fno: 0.94 [16/17]

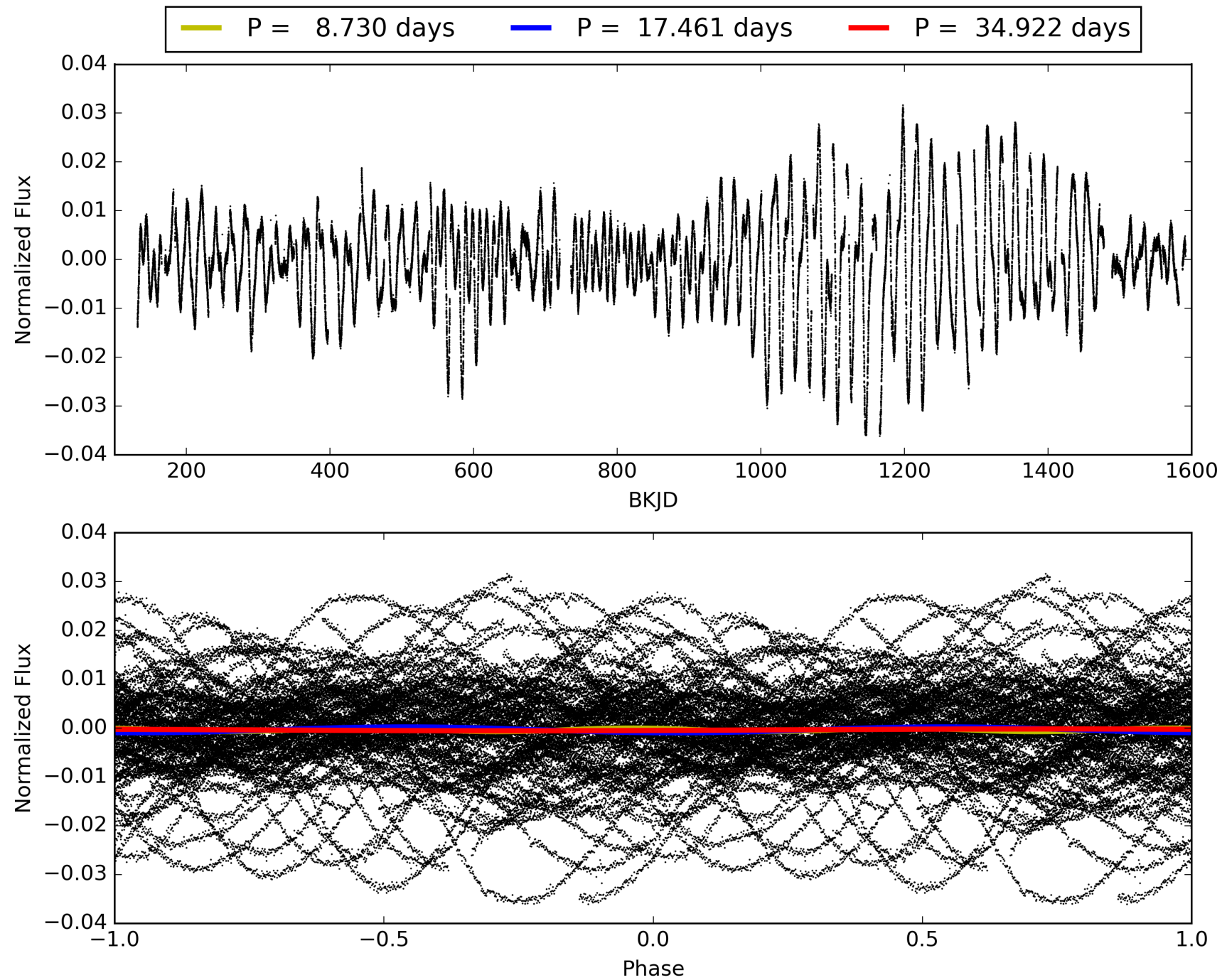
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:24:08 Z

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

TCE 006948054-04, PDC Light Curves

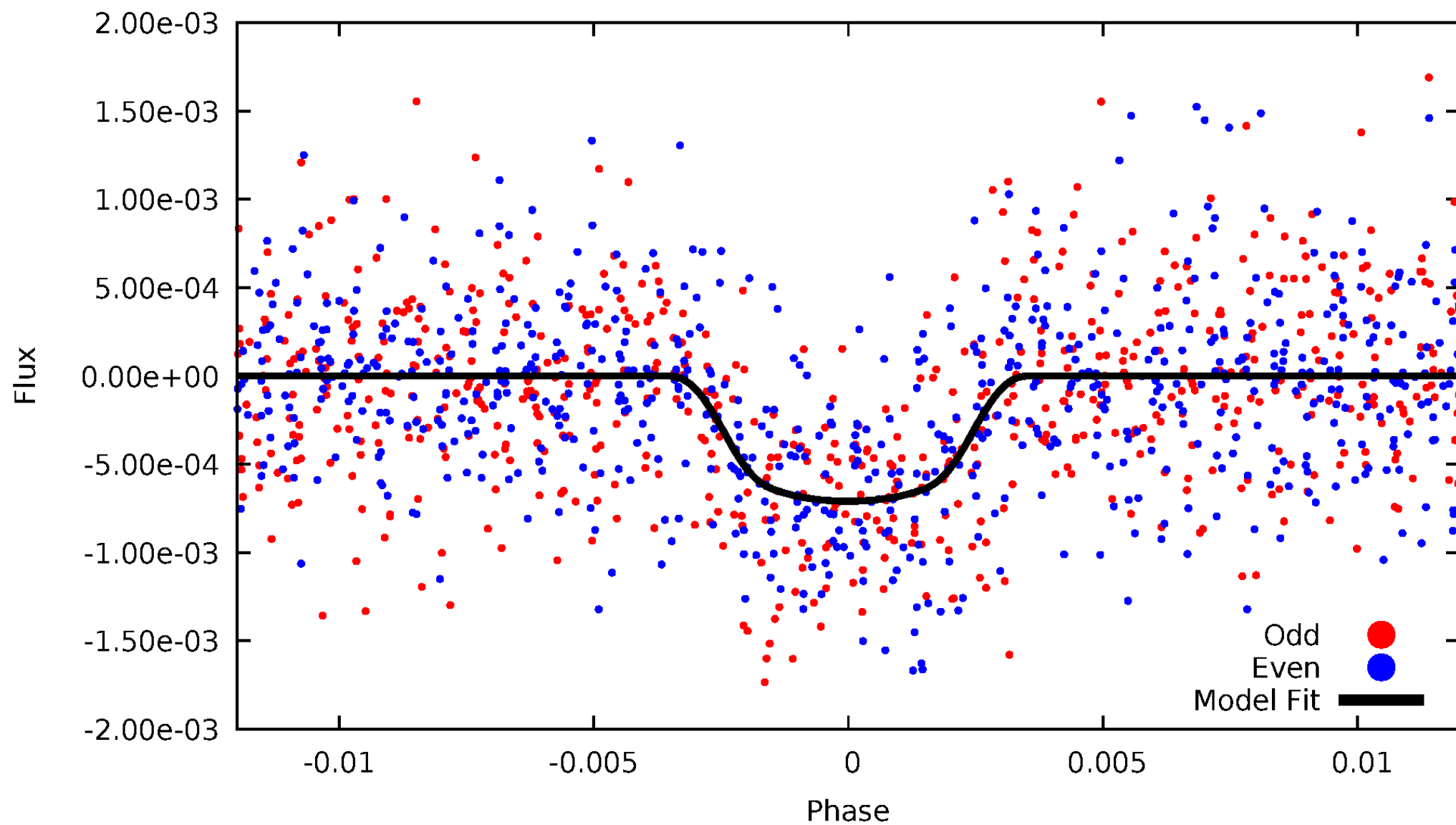


TCE 006948054-04



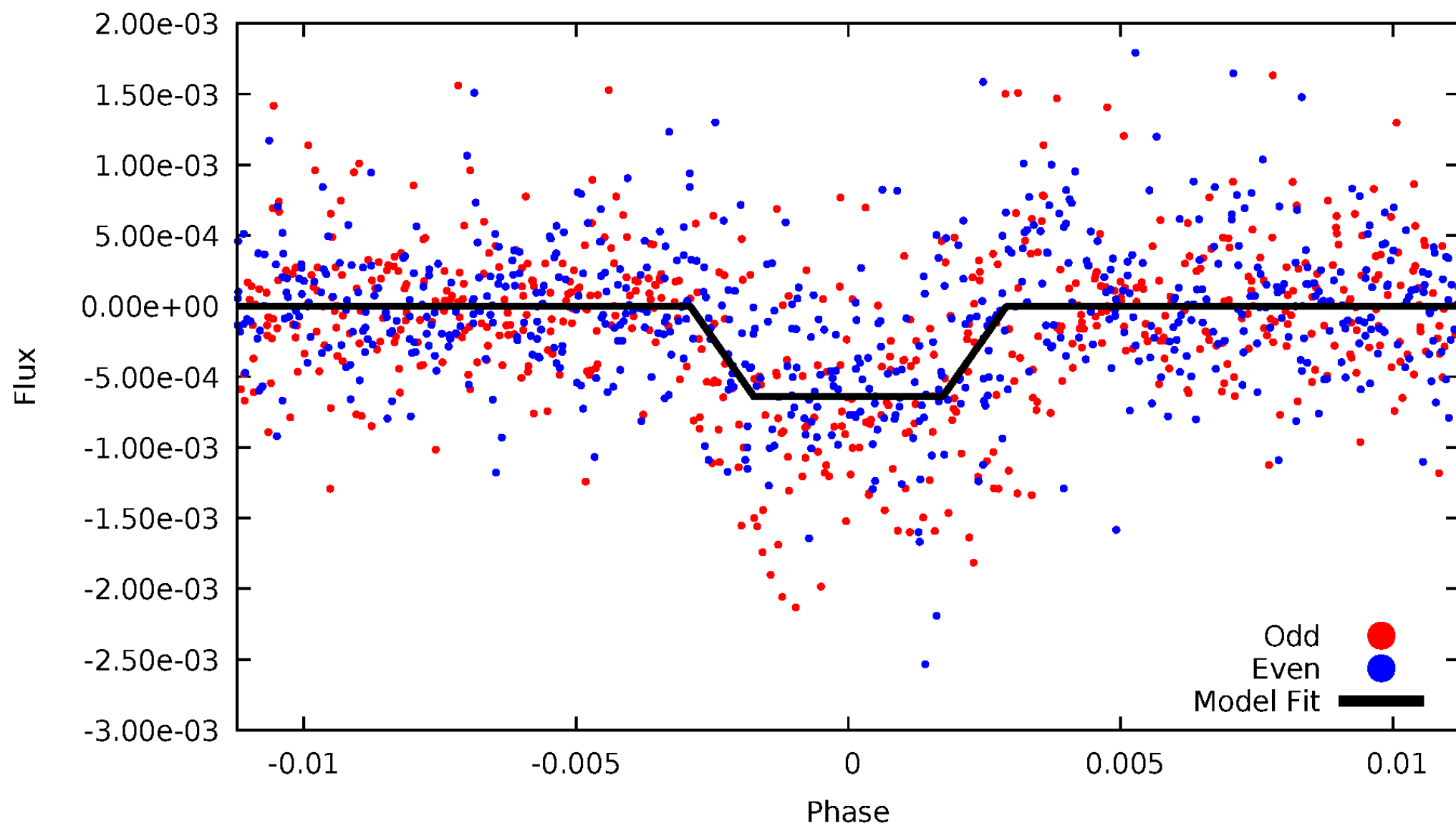
DV Odd/Even

TCE 006948054-04



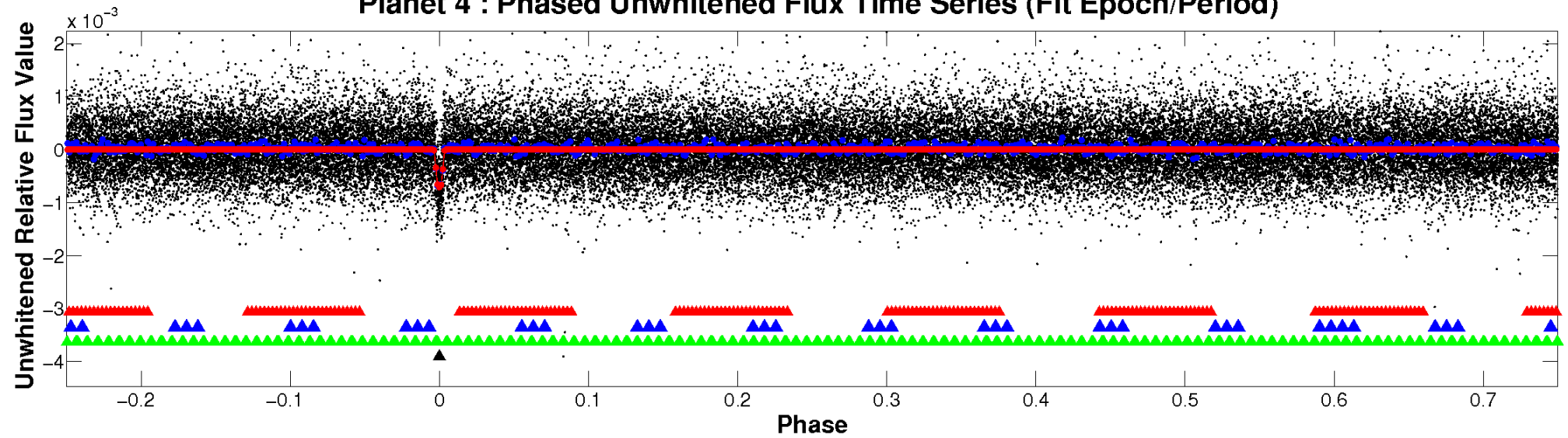
ALT Odd/Even

TCE 006948054-04

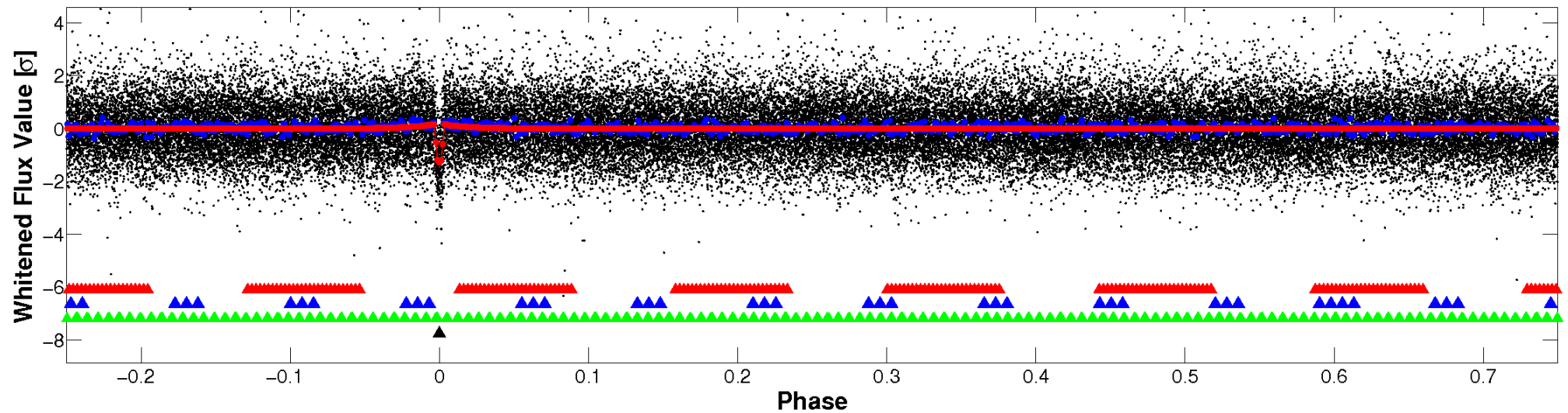


Non-Whitened Vs. Whitened Light Curve

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

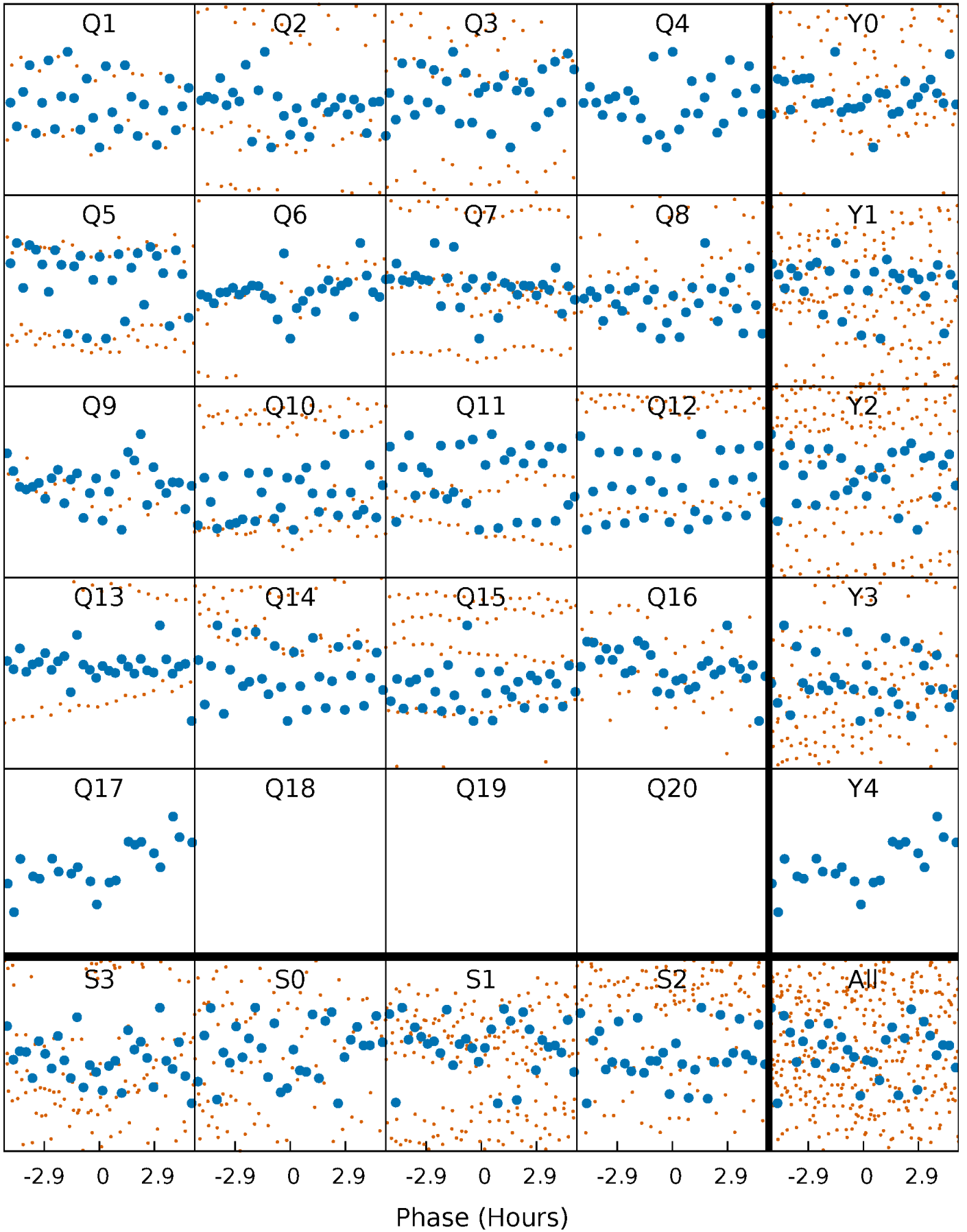


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



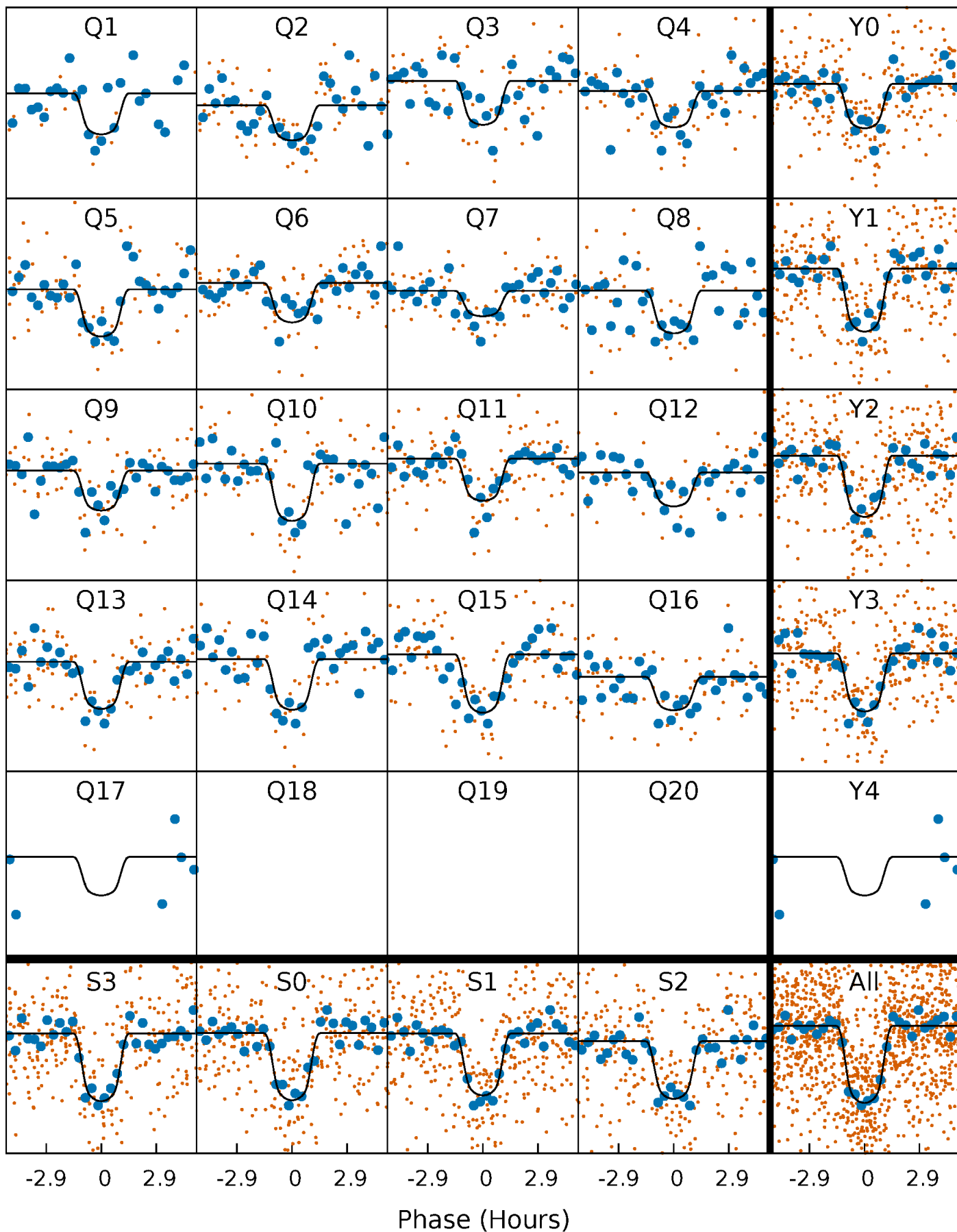
PDC Quarter-Phased Transit Curves

TCE 006948054-04 P= 17.460925 Days $T_0=137.262683$ (BKJD)



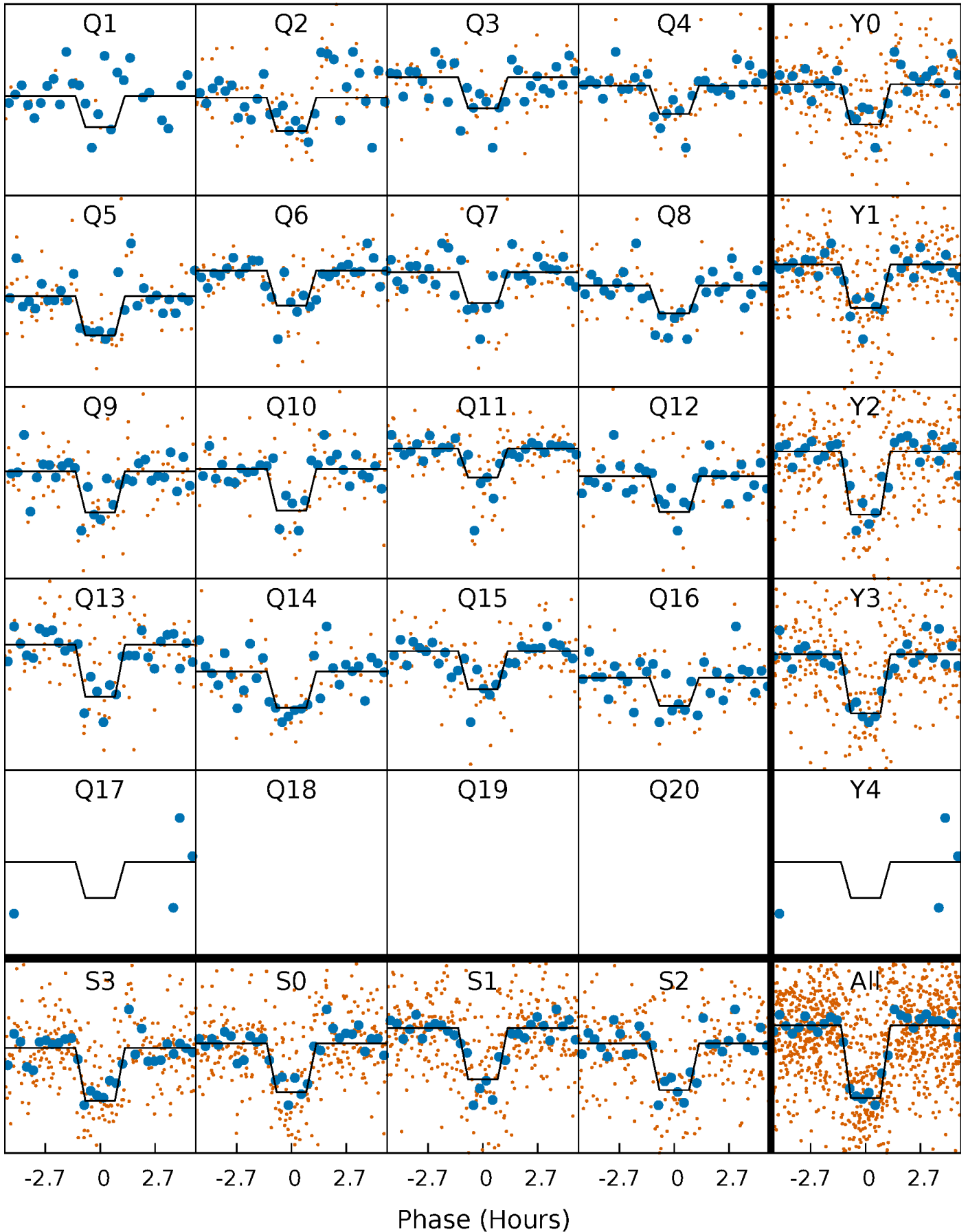
DV Quarter-Phased Transit Curves

TCE 006948054-04 P= 17.460925 Days $T_0=137.262683$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

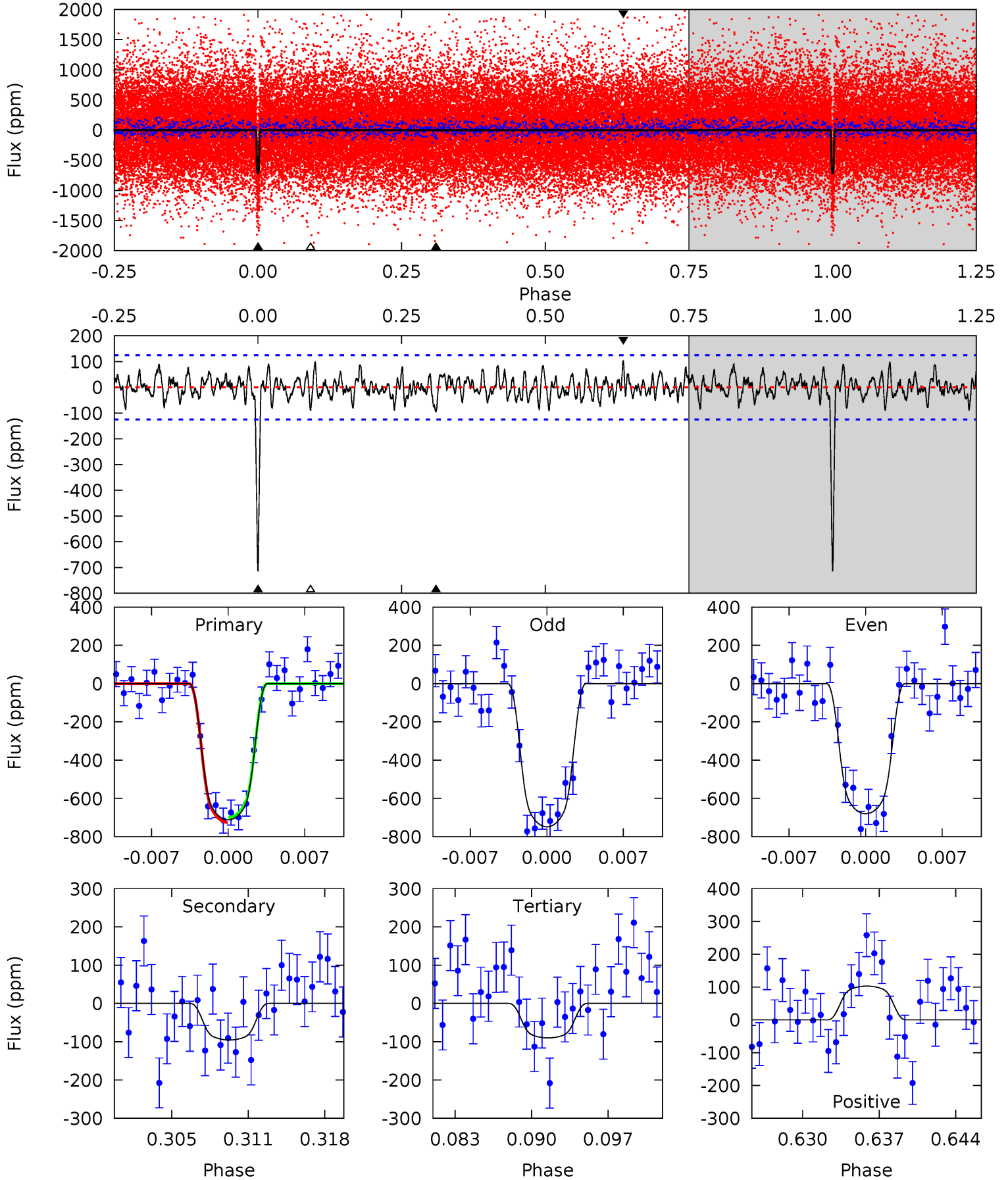
TCE 006948054-04 P= 17.460857 Days $T_0=137.263976$ (BKJD)



DV Model-Shift Uniqueness Test

006948054-04, P = 17.460925 Days, E = 119.801758 Days

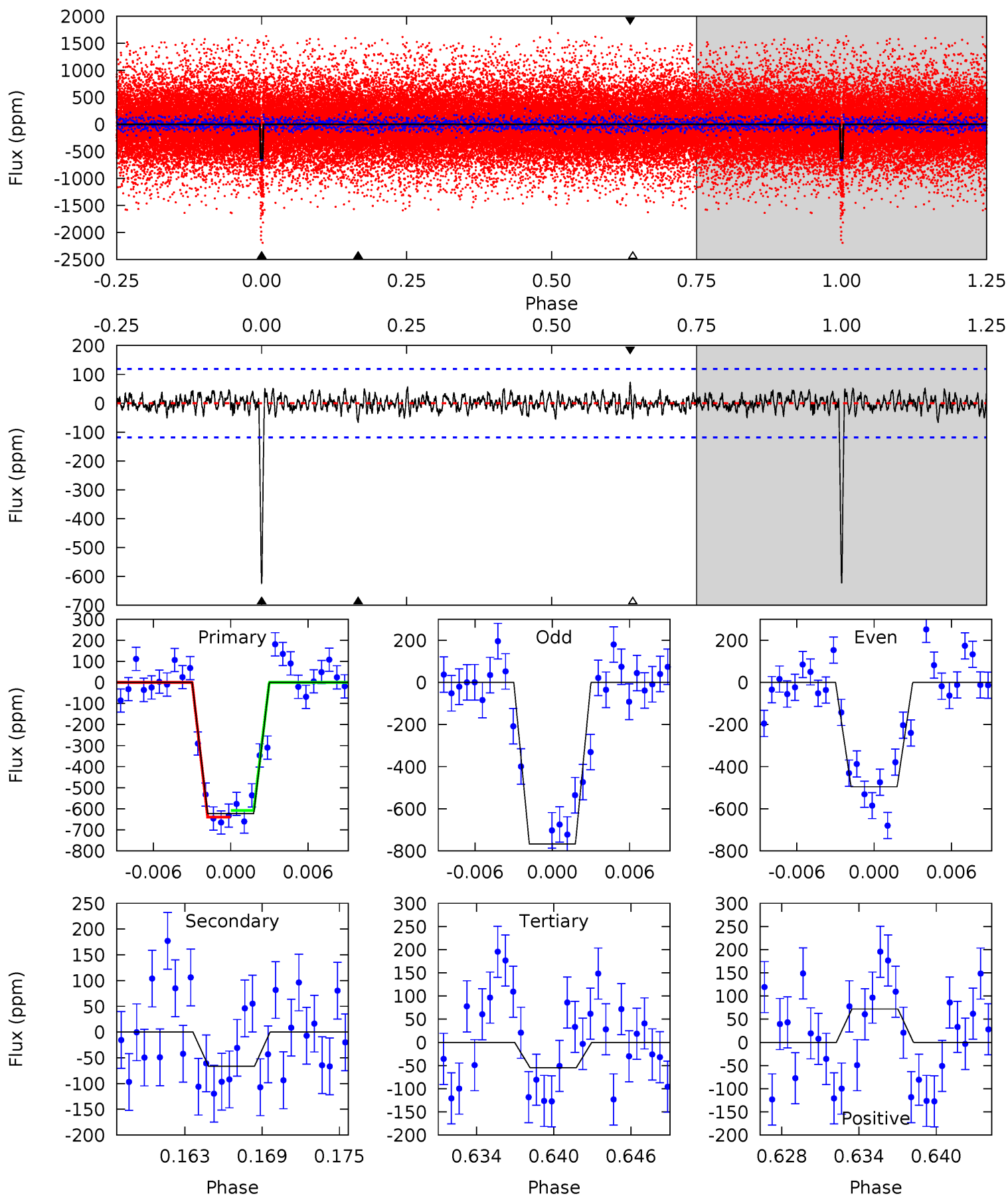
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.0	3.89	3.67	4.20	5.10	2.70	1.39	25.4	24.8	0.22	-0.30	1.40	1.03	0.13	0.54



Alt Model-Shift Uniqueness Test

006948054-04, $P = 17.460857$ Days, $E = 119.803119$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.9	2.86	2.37	3.10	5.13	2.76	0.86	24.5	23.8	0.49	-0.24	5.87	1.05	0.10	0.67



Stellar Parameters For KIC 006948054

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5103^{+101}_{-101}	$4.562^{+0.032}_{-0.052}$	$0.040^{+0.150}_{-0.150}$	$0.787^{+0.051}_{-0.039}$	$0.823^{+0.041}_{-0.047}$	$2.381^{+0.341}_{-0.359}$
	+2%/-2%	+1%/-1%	+375%/-375%	+6%/-5%	+5%/-6%	+14%/-15%
Source	SPE58	SPE58	SPE58	DSEP		

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

Secondary Eclipse Parameters for KIC 006948054-04 / KOI 0869.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-95 ± 25	$2.60^{+0.40}_{-0.41}$	797^{+20}_{-20}	3401^{+224}_{-216}	121^{+58}_{-43}
Alt.	-66 ± 23	$2.19^{+0.41}_{-0.39}$	798^{+20}_{-21}	3373^{+299}_{-272}	115^{+77}_{-50}

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

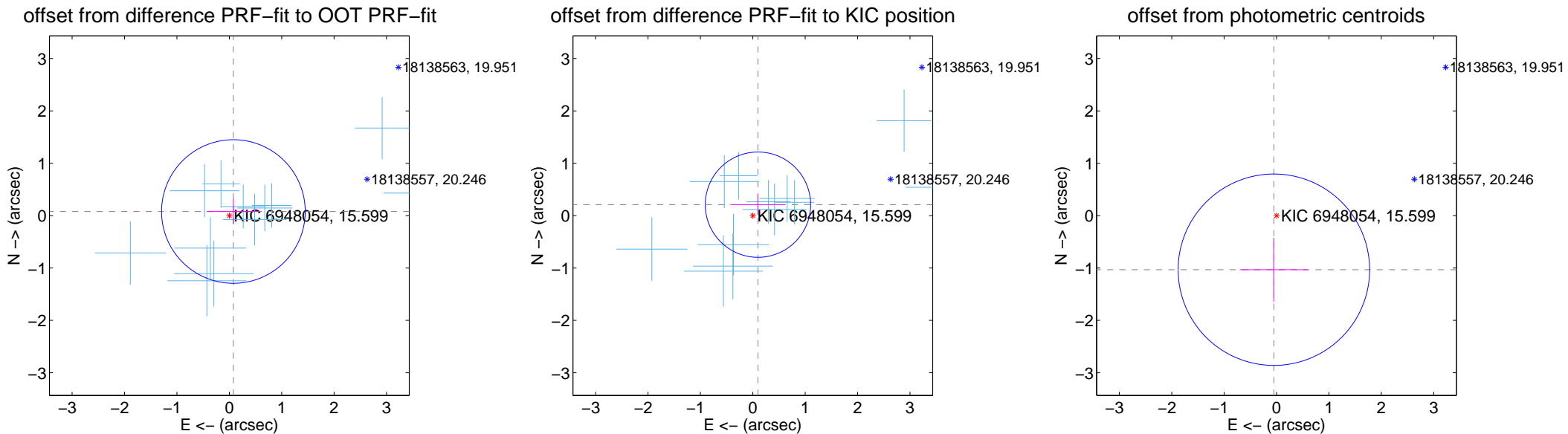
DV Centroid Data

Supplemental centroid analysis for 006948054-04. Kepler magnitude: 15.60. Transit SNR 18.56

There are 12 quarters with good PRF difference image offsets

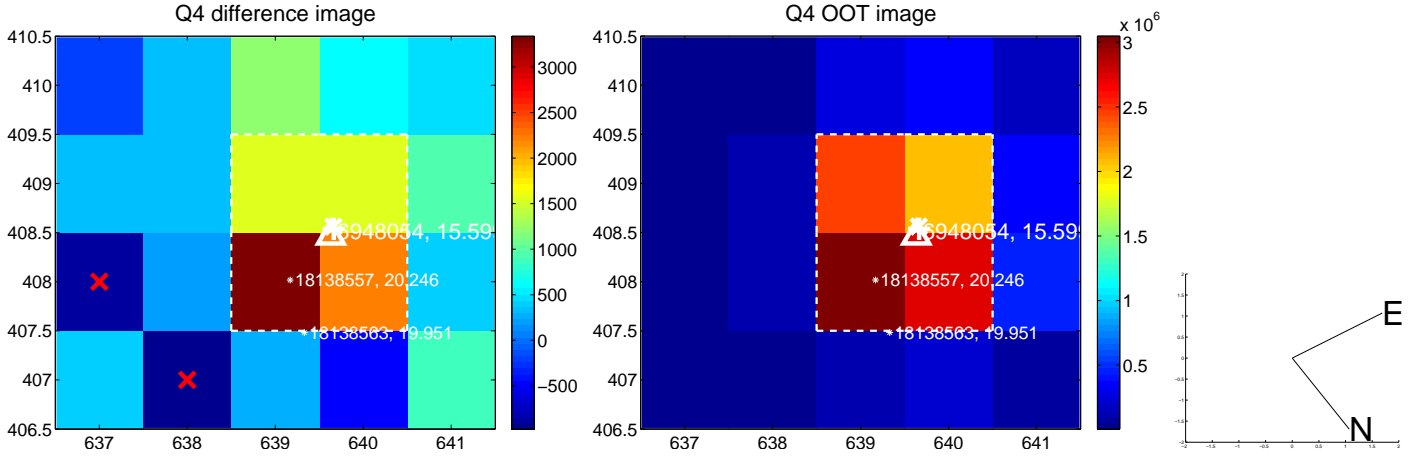
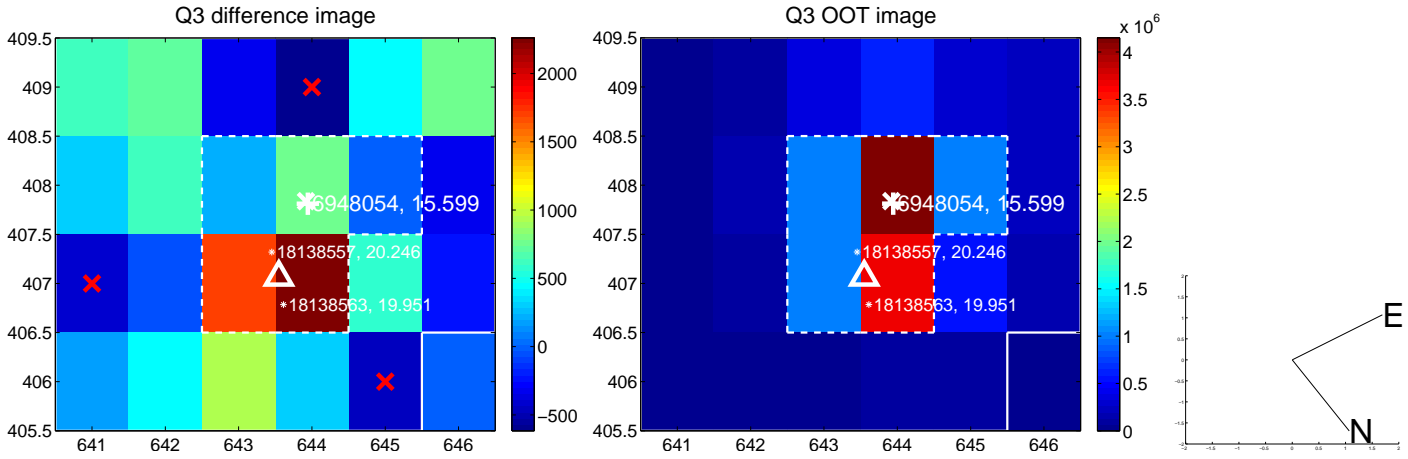
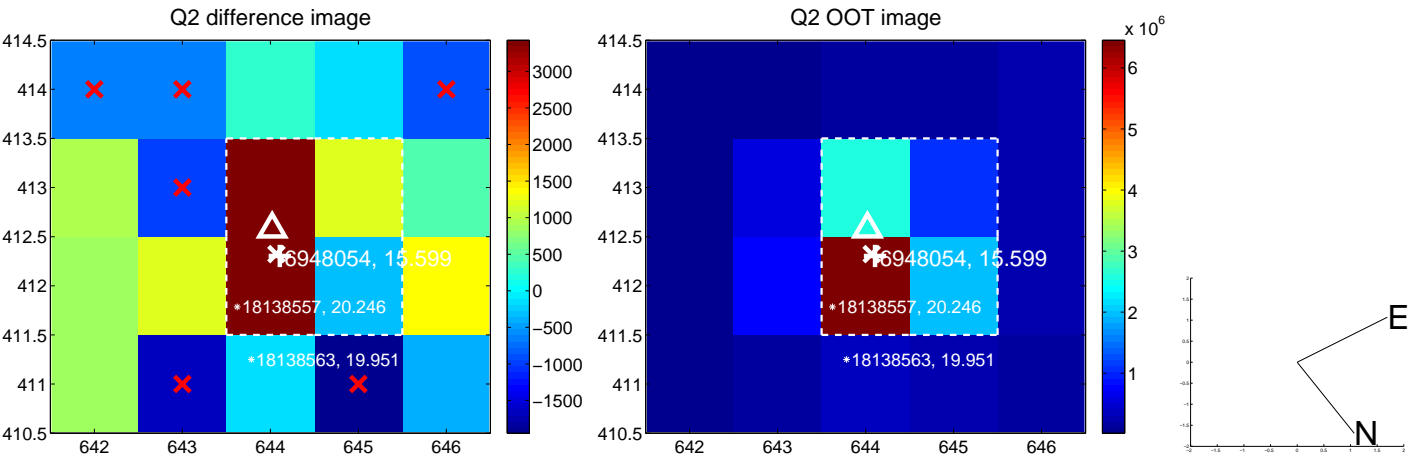
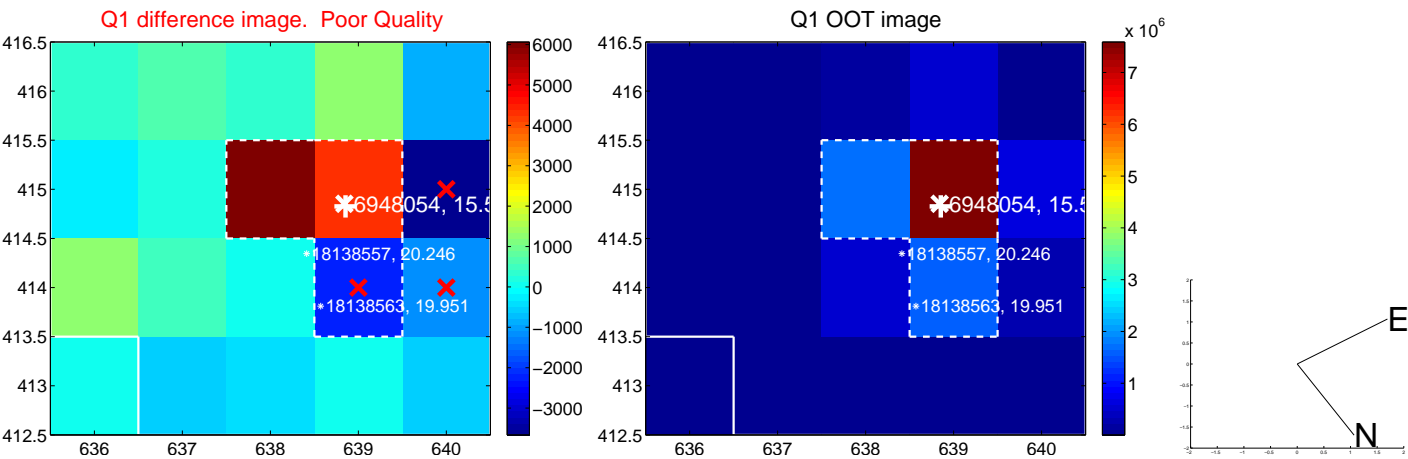
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.111 ± 0.457	0.24	-0.078 ± 0.510	0.079 ± 0.238
PRF-fit source offset from KIC position	0.231 ± 0.335	0.69	-0.098 ± 0.522	0.209 ± 0.198
photometric centroid source offset	1.03 ± 0.61	1.70	0.05 ± 0.65	-1.03 ± 0.61

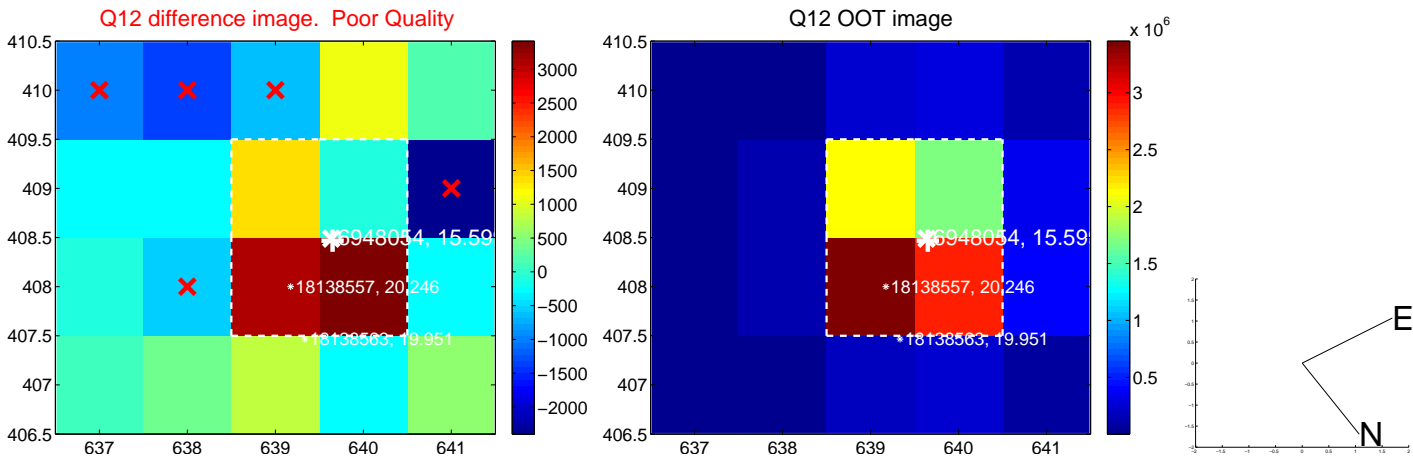
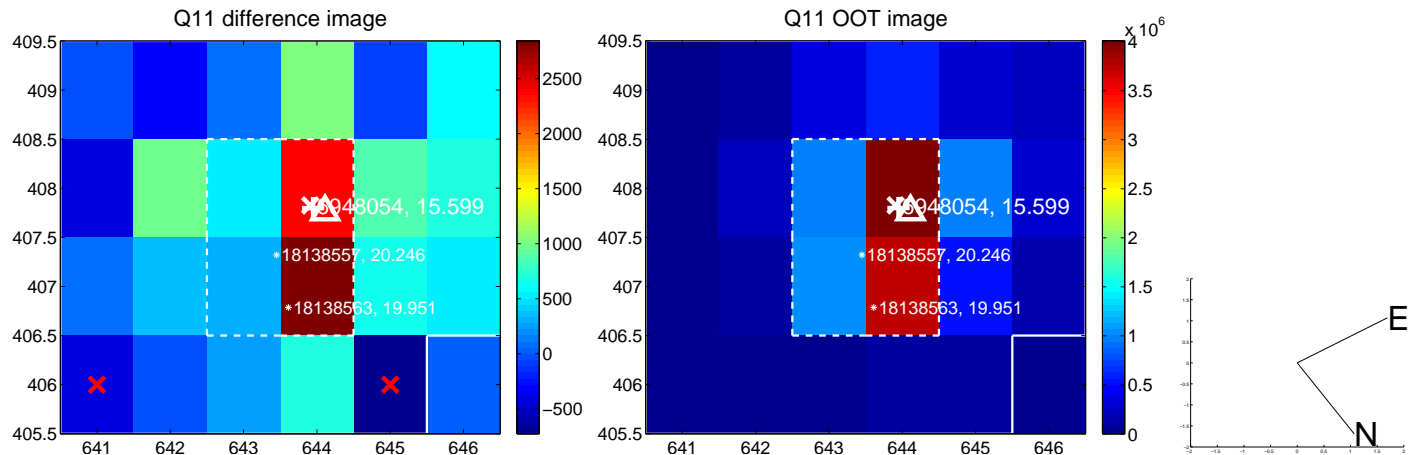
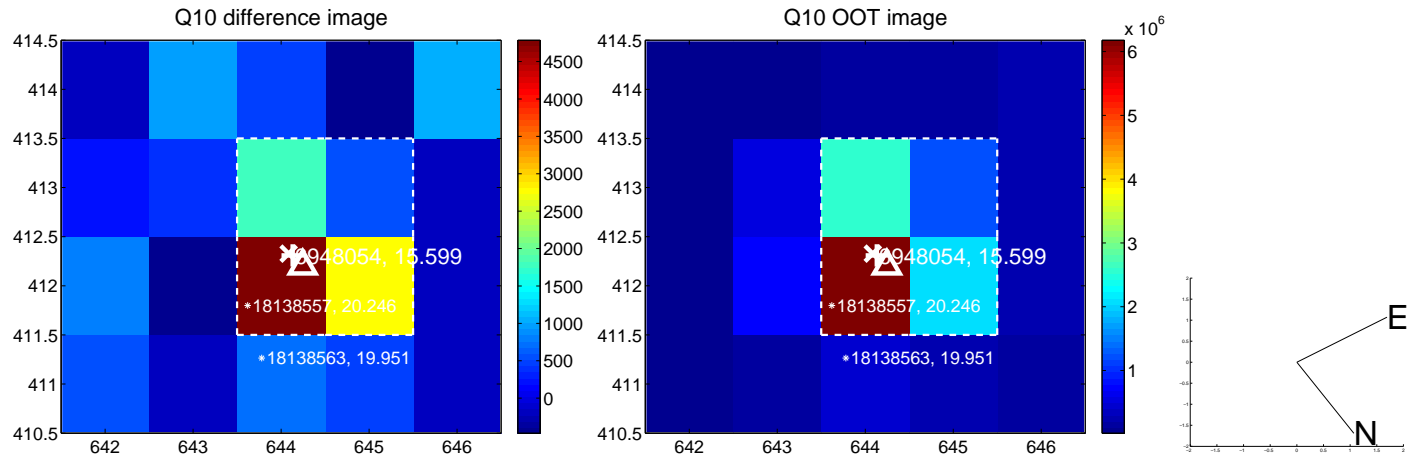
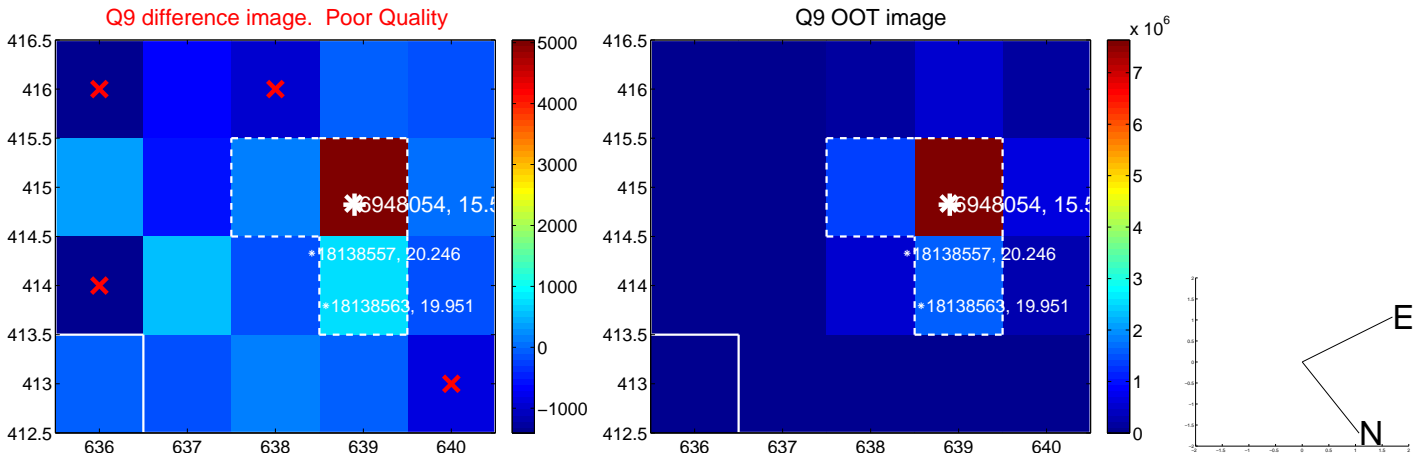


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

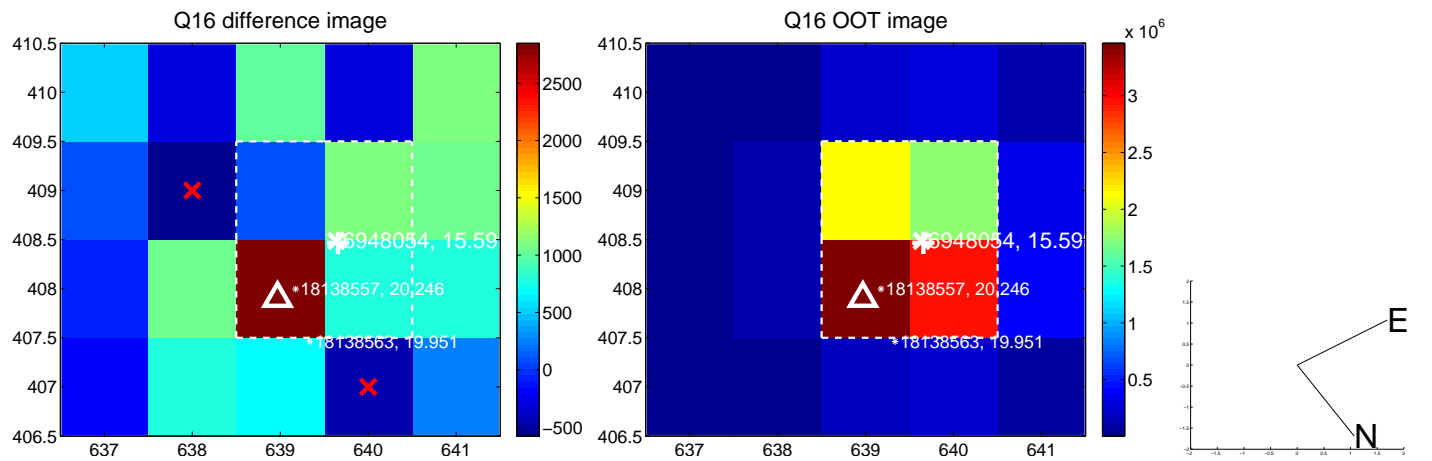
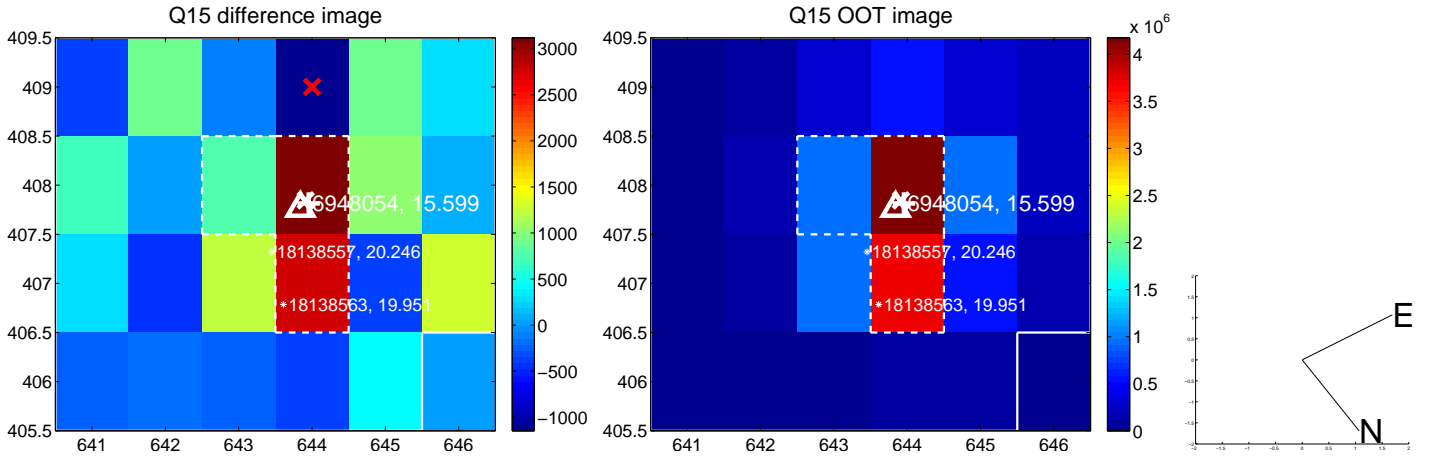
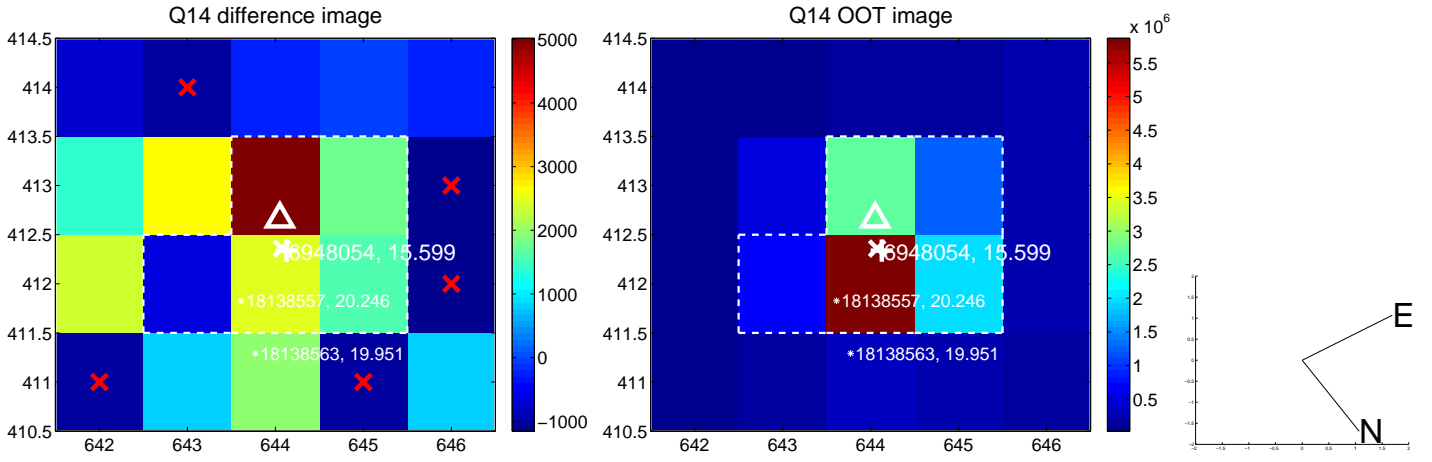
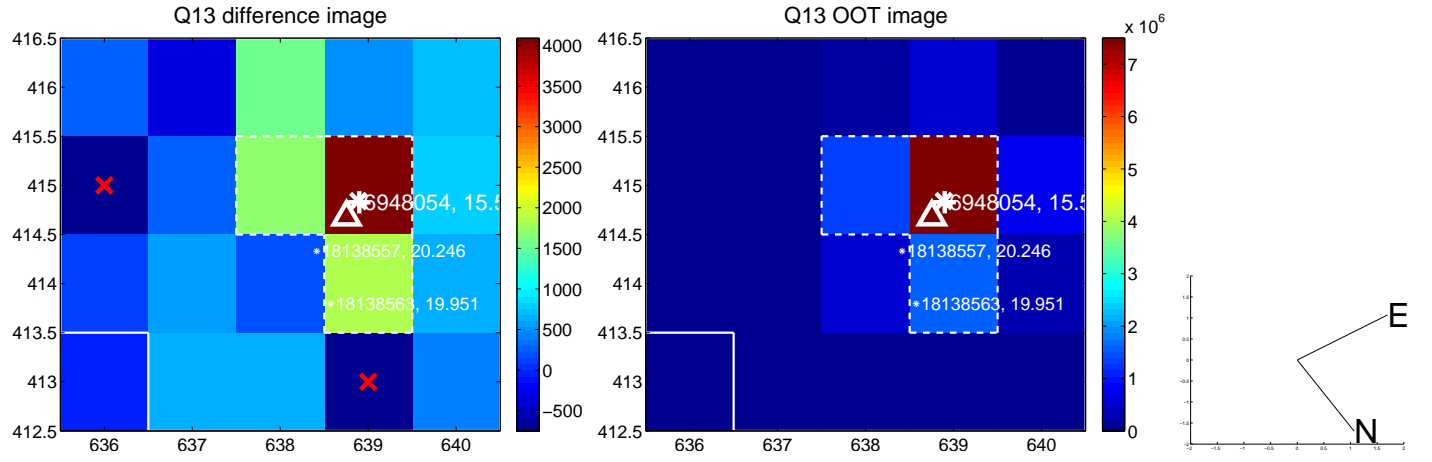
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



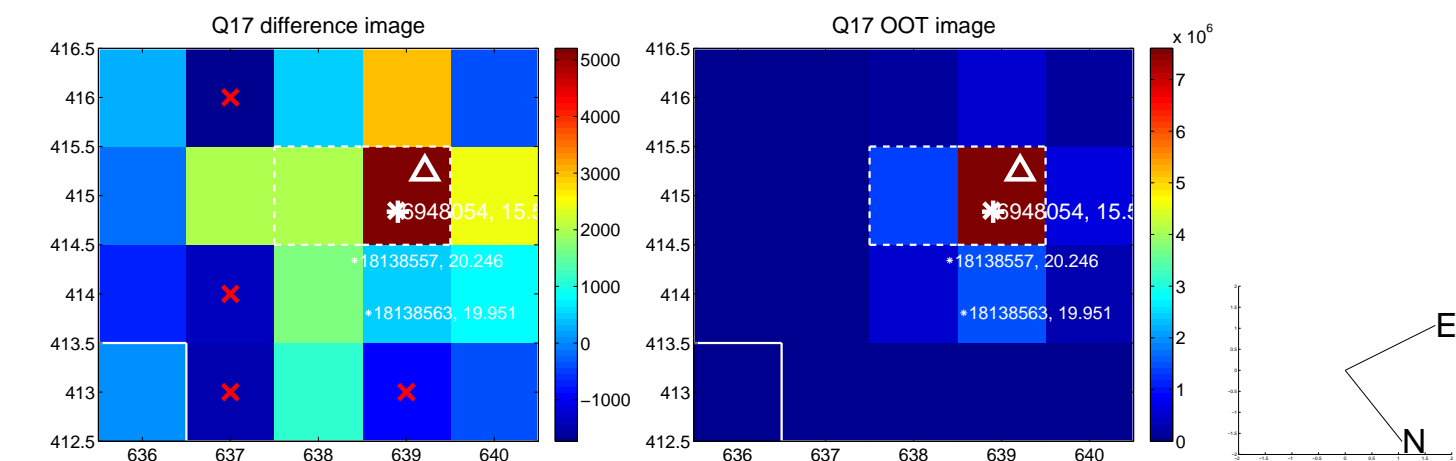
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



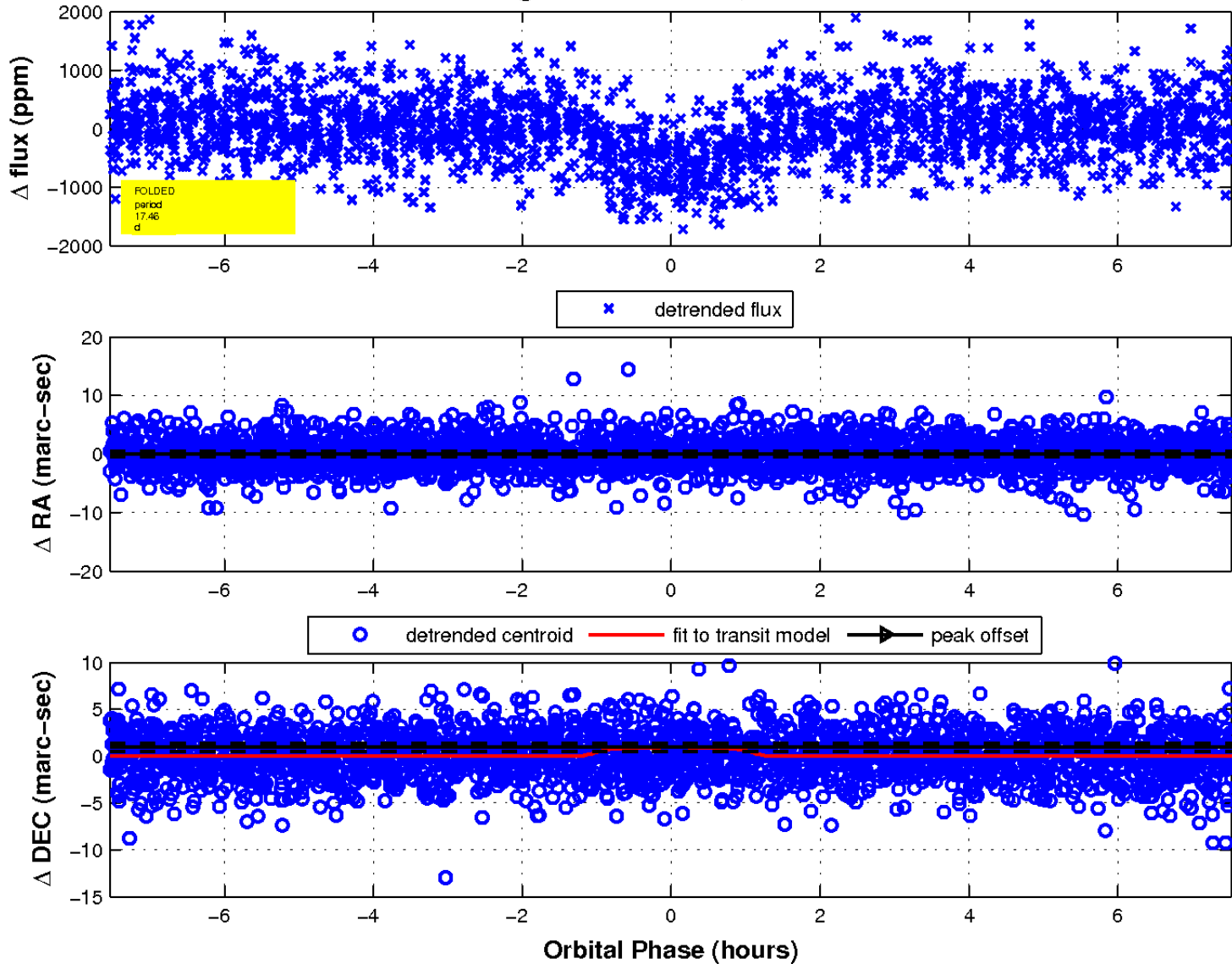
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fluxWeightedCentroids, Planet 4 of 4



UKIRT Image

