

KIC 004946992

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})
004946992-01	OBS	No	1.767502	131.929168	58.0	8.058	8.6	5.9	0.85	5901	0.69	996.28
004946992-03	OBS	No	189.822551	271.786563	944.0	16.376	13.5	5.9	0.85	5901	2.77	1.95
004946992-06	OBS	No	128.290905	227.277641	317.3	2.770	10.4	3.0	0.85	5901	1.78	3.29
004946992-07	OBS	No	576.200310	307.473393	906.1	2.749	9.7	6.8	0.85	5901	2.55	0.44
004946992-08	OBS	No	118.743894	178.100225	2138.4	20.640	9.9	10.2	0.85	5901	7.37	3.65
004946992-09	OBS	No	178.883964	254.015426	295.3	1.851	9.1	2.5	0.85	5901	1.58	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004946992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS
004946992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED
004946992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

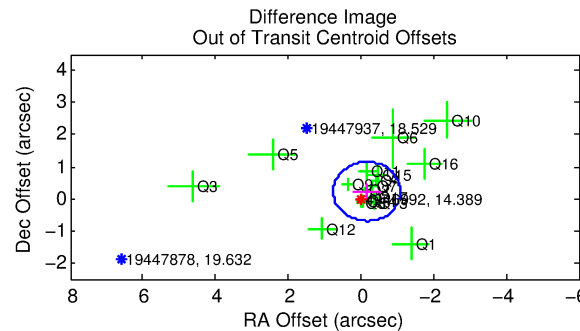
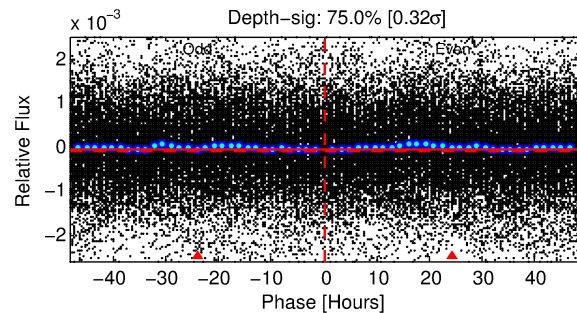
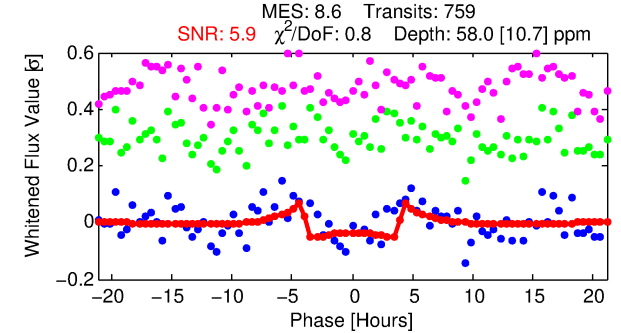
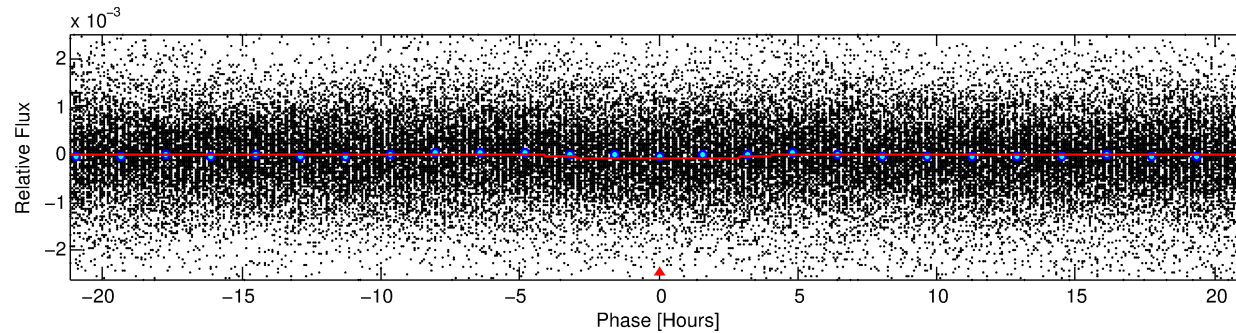
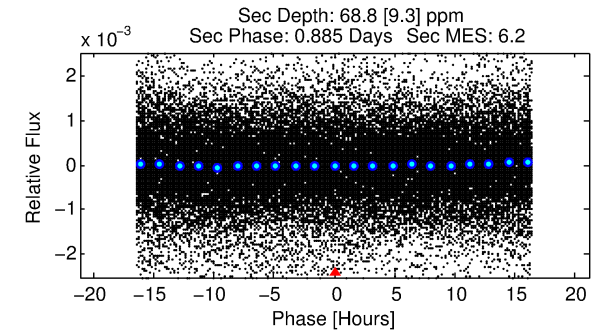
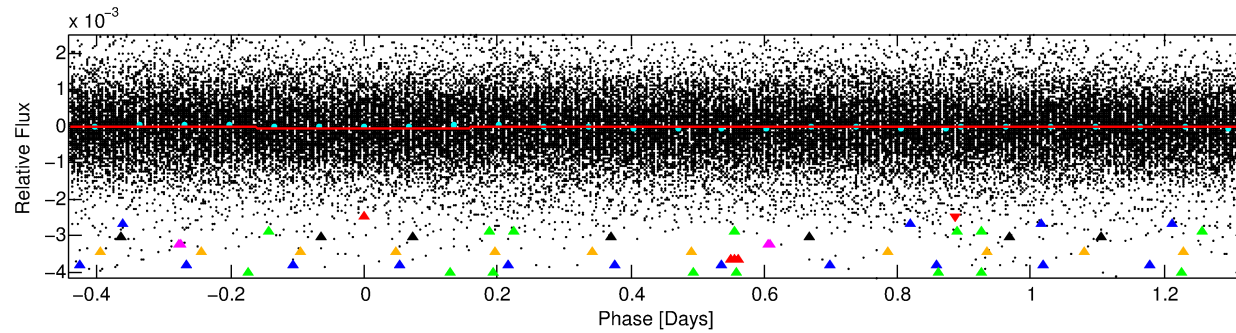
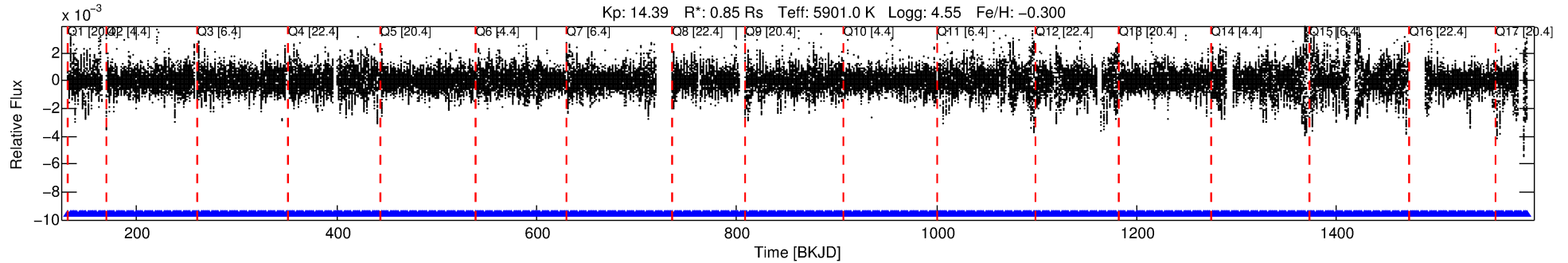
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004946992-01

No Significant Match Found

DV One-Page Summary

KIC: 4946992 Candidate: 1 of 9 Period: 1.768 d



DV Fit Results:

Period = 1.76750 [0.00002] d
Epoch = 131.9292 [0.0050] BKJD
Rp/R* = 0.0075 [0.0035]
a/R* = 1.45 [1.74]
b = 0.71 [1.59]
Seff = 996.28 [387.24]
Teq = 1433 [139] K
Rp = 0.69 [0.39] Re
a = 0.0280 [0.0071] AU
Ag = 61.98 [63.44] [0.96σ]
Teffp = 6215 [1494] K [3.19σ]

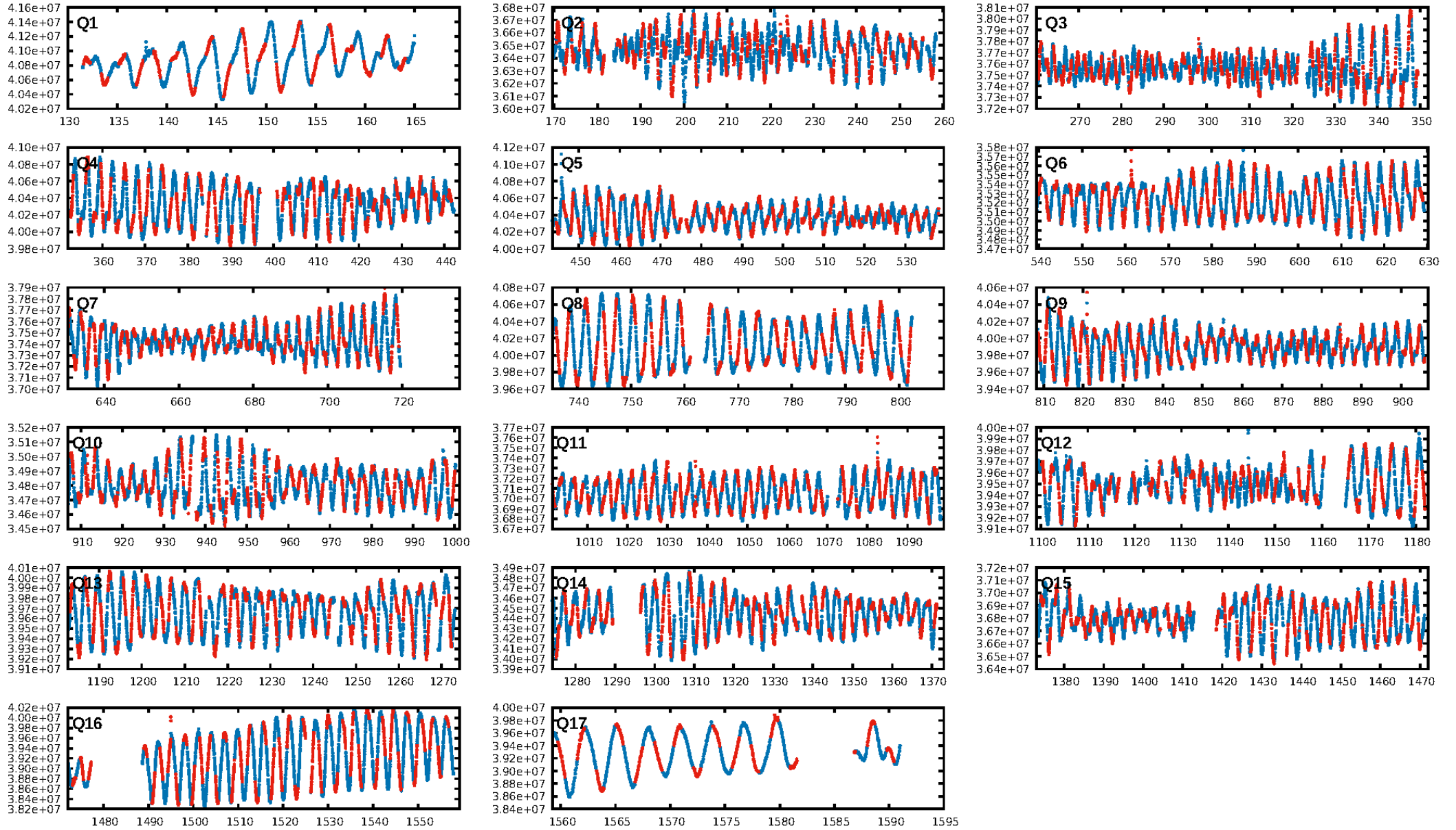
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [126.71σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [725/725]
GhostDiagnostic-chr: 0.9709
Centroid-sig: 0.0%
Centroid-so: 1.979 arcsec [2.33σ]
OotOffset-rm: 0.276 arcsec [0.90σ]
KicOffset-rm: 0.244 arcsec [0.92σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 1.00 [17/17]

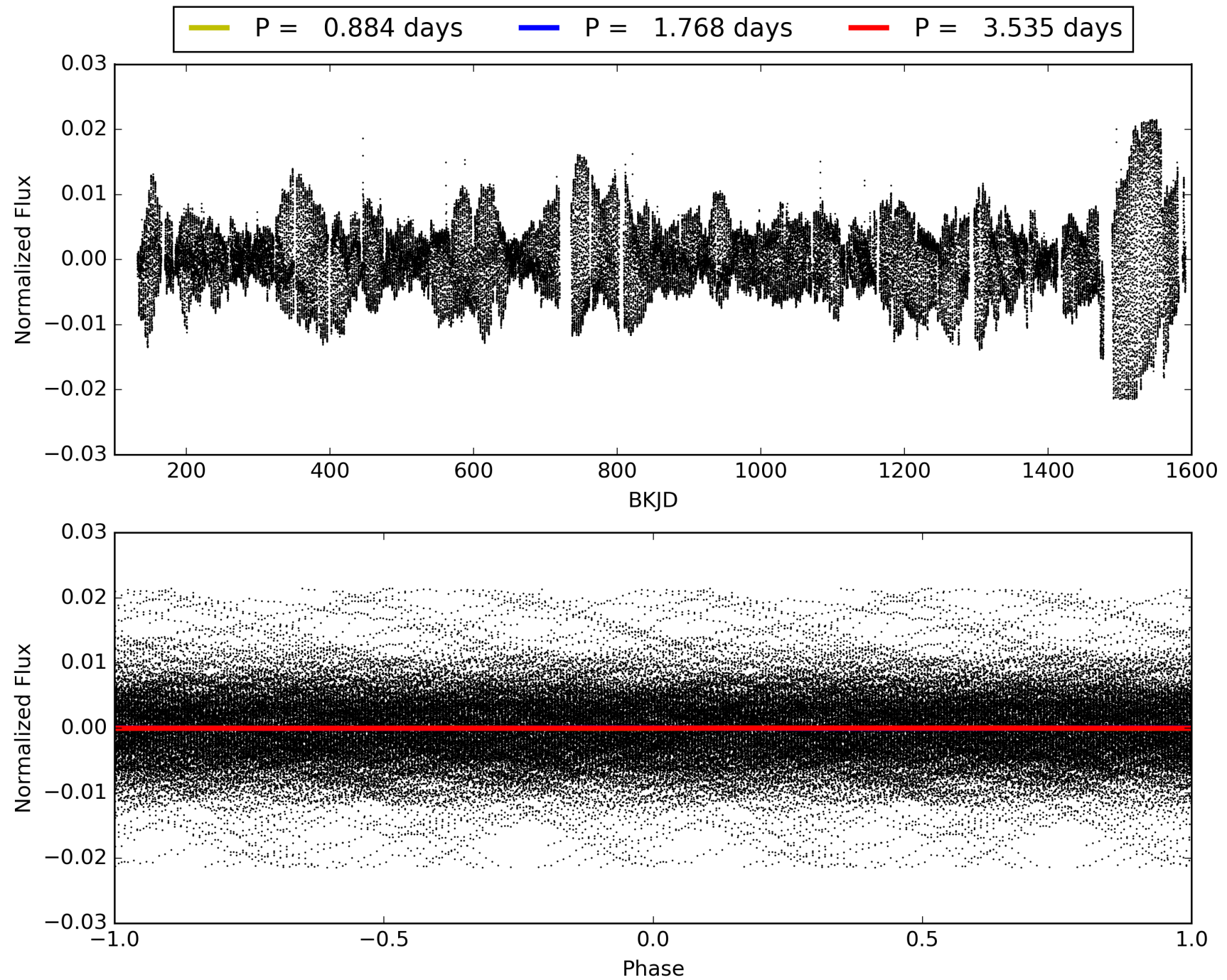
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:46:45 Z

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

TCE 004946992-01, PDC Light Curves

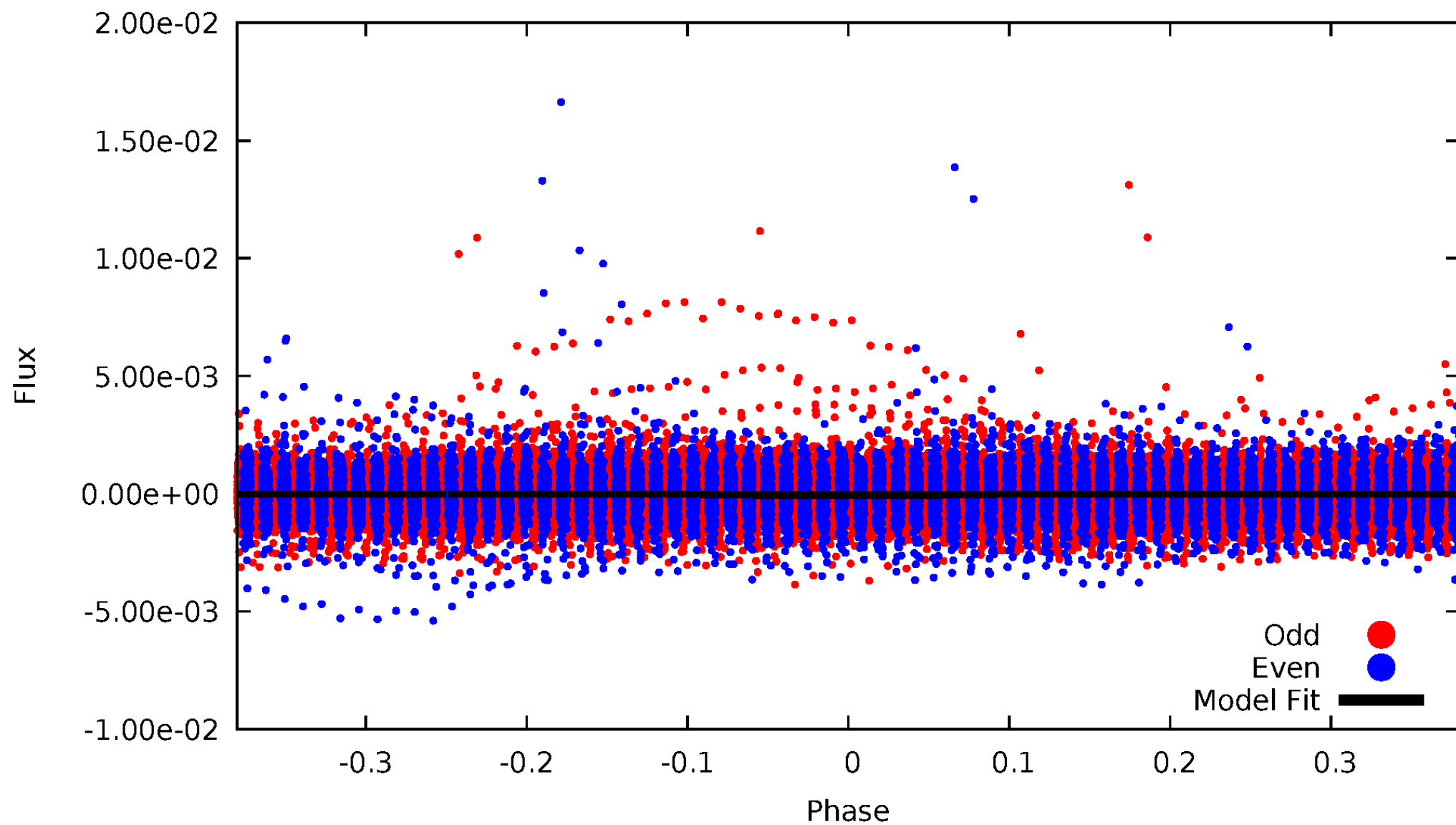


TCE 004946992-01



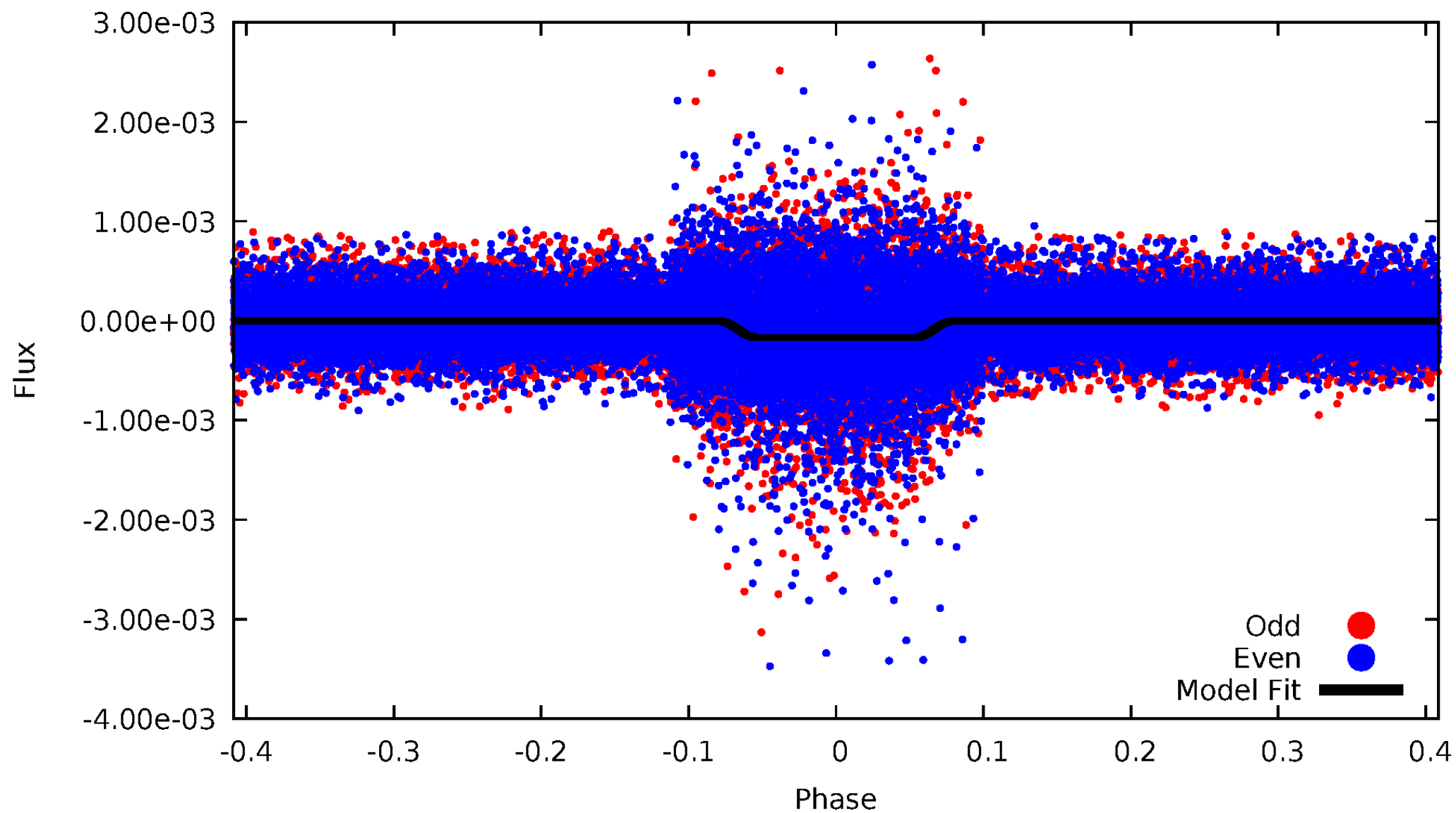
DV Odd/Even

TCE 004946992-01

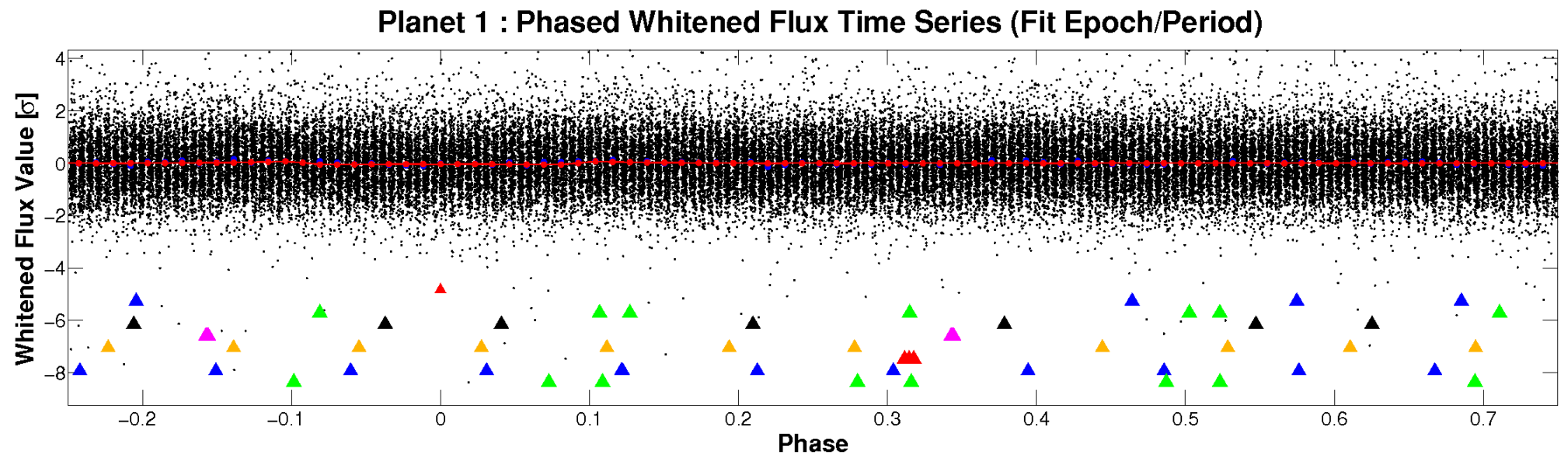
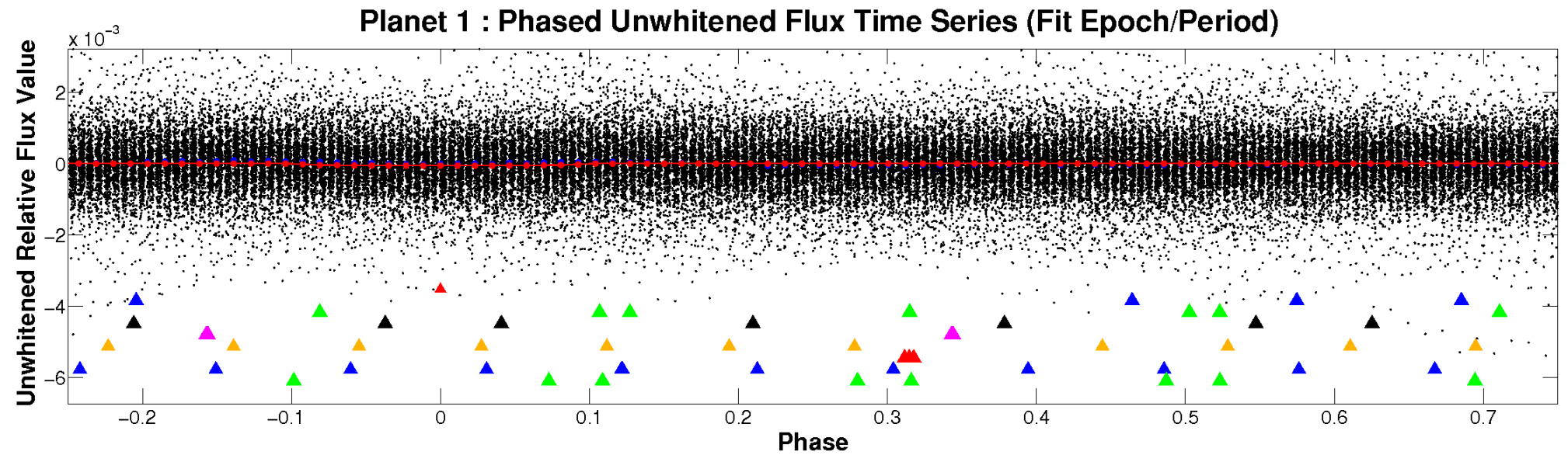


ALT Odd/Even

TCE 004946992-01

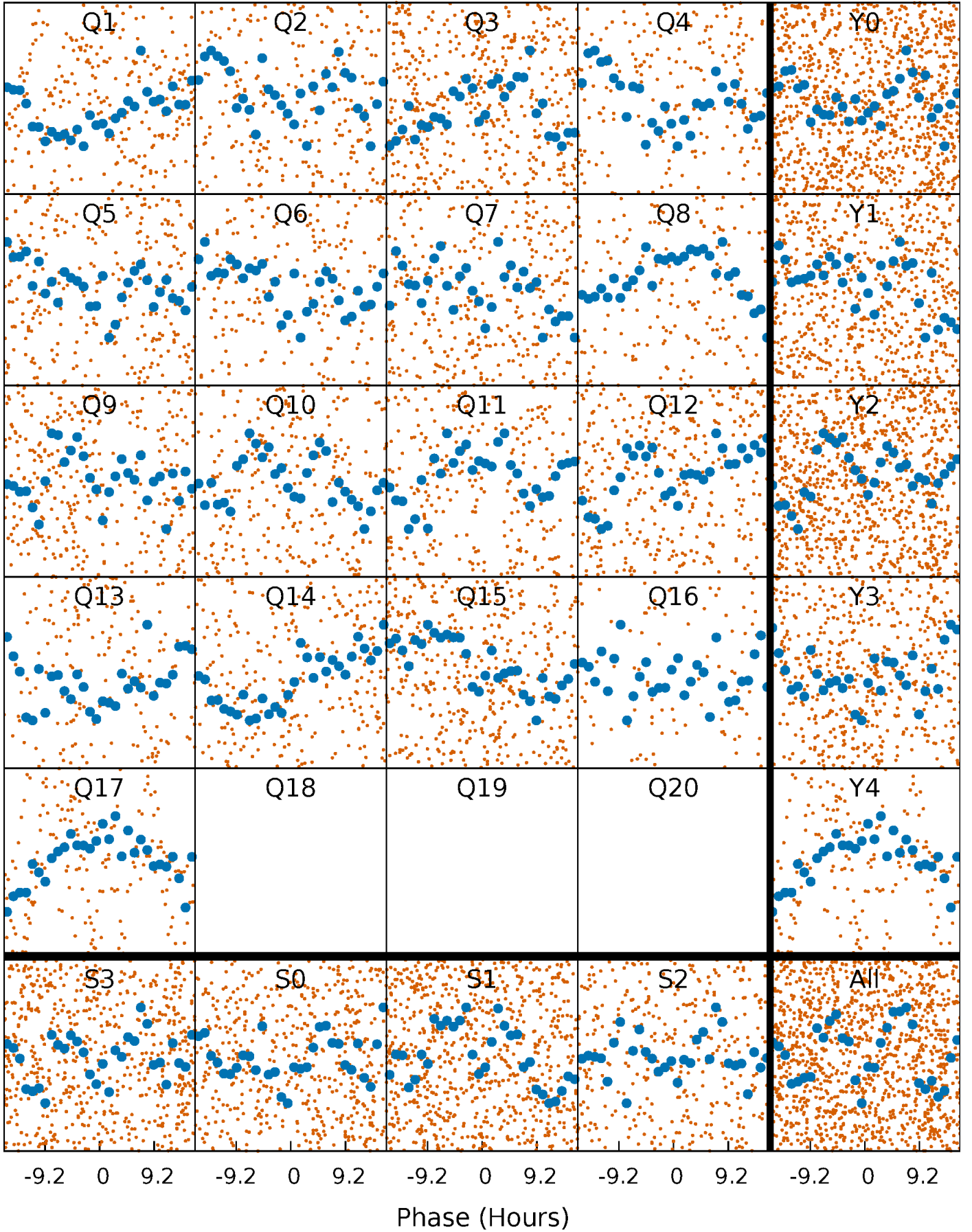


Non-Whitened Vs. Whitened Light Curve



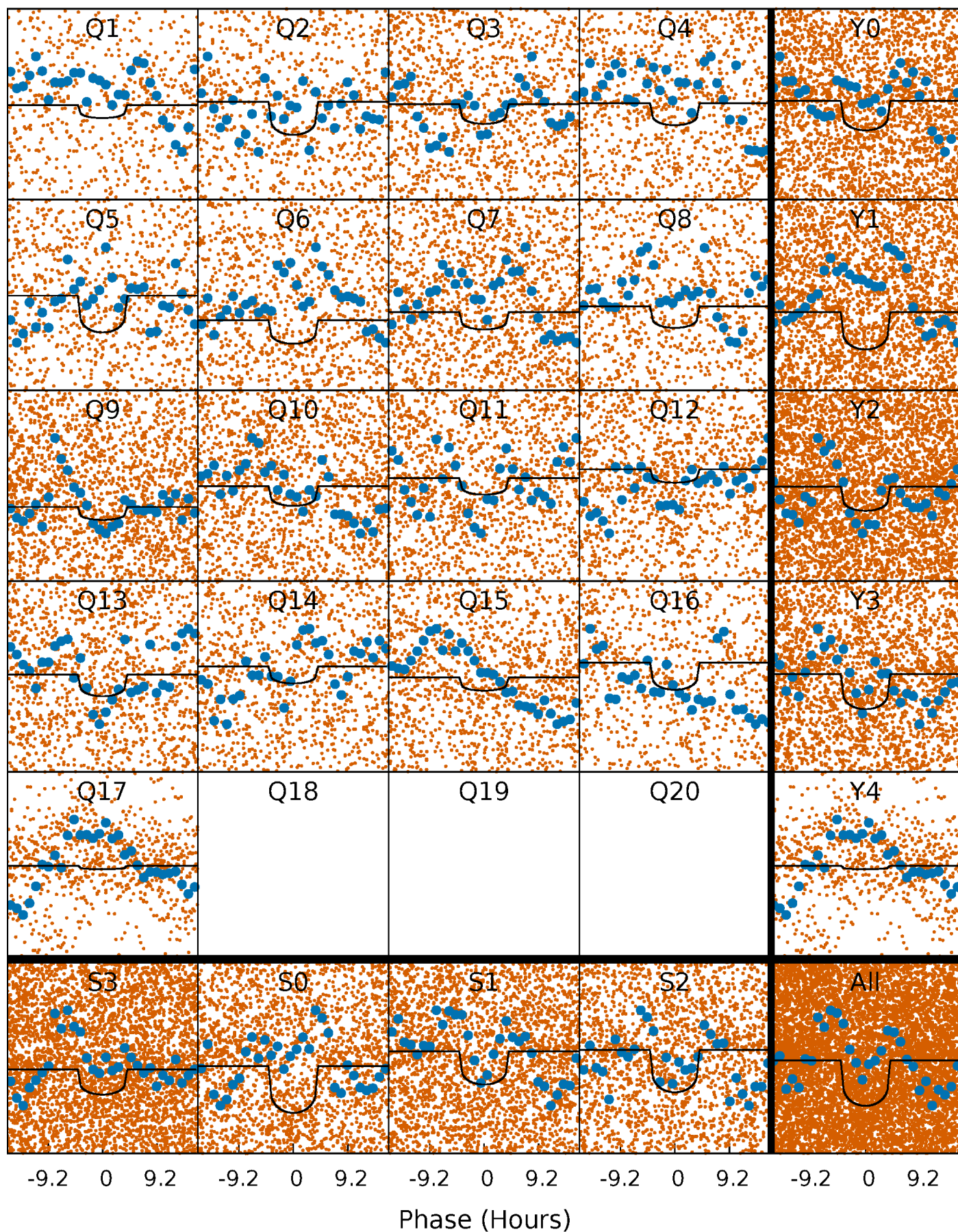
PDC Quarter-Phased Transit Curves

TCE 004946992-01 P= 1.767502 Days $T_0=131.929168$ (BKJD)



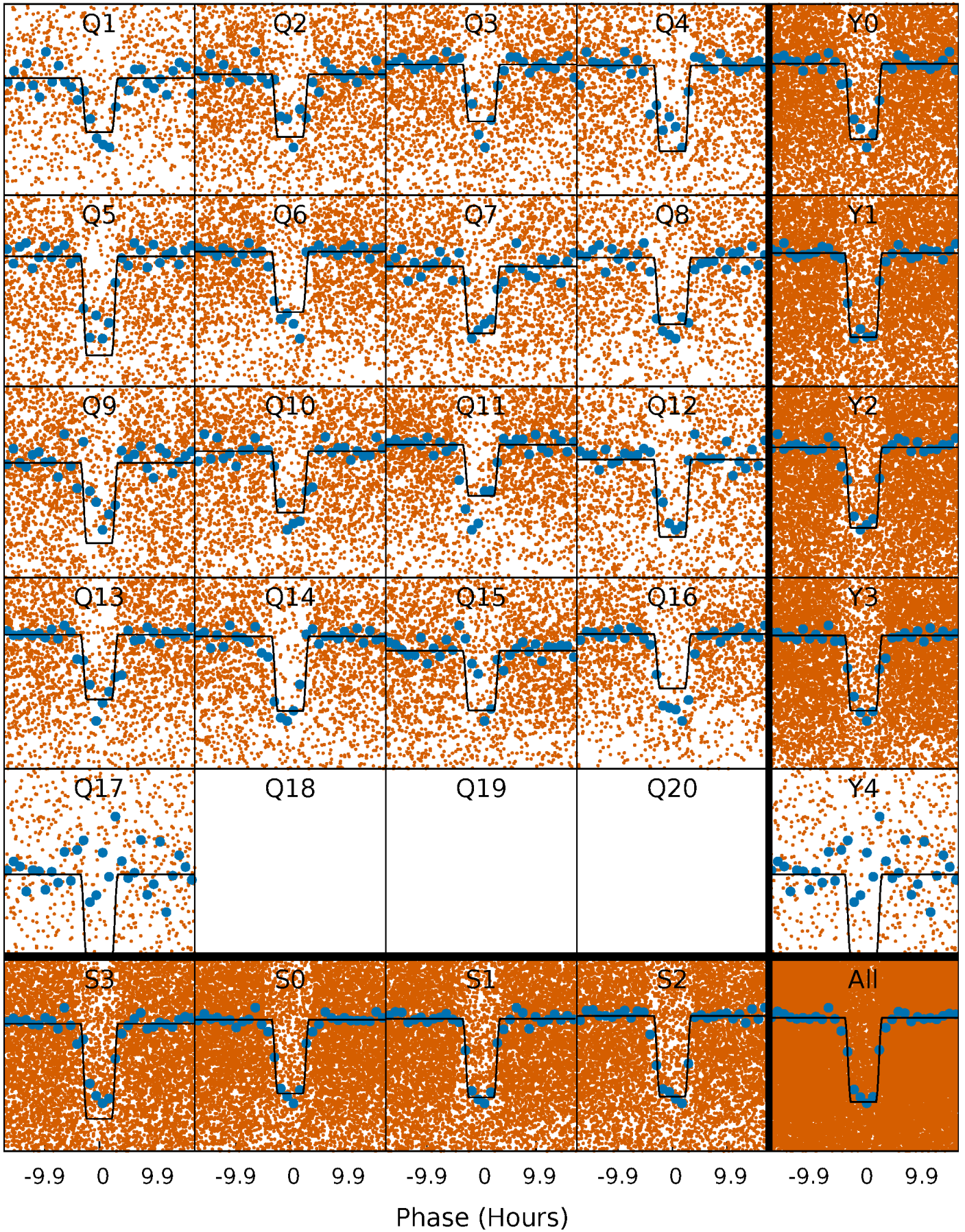
DV Quarter-Phased Transit Curves

TCE 004946992-01 P= 1.767502 Days $T_0=131.929168$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

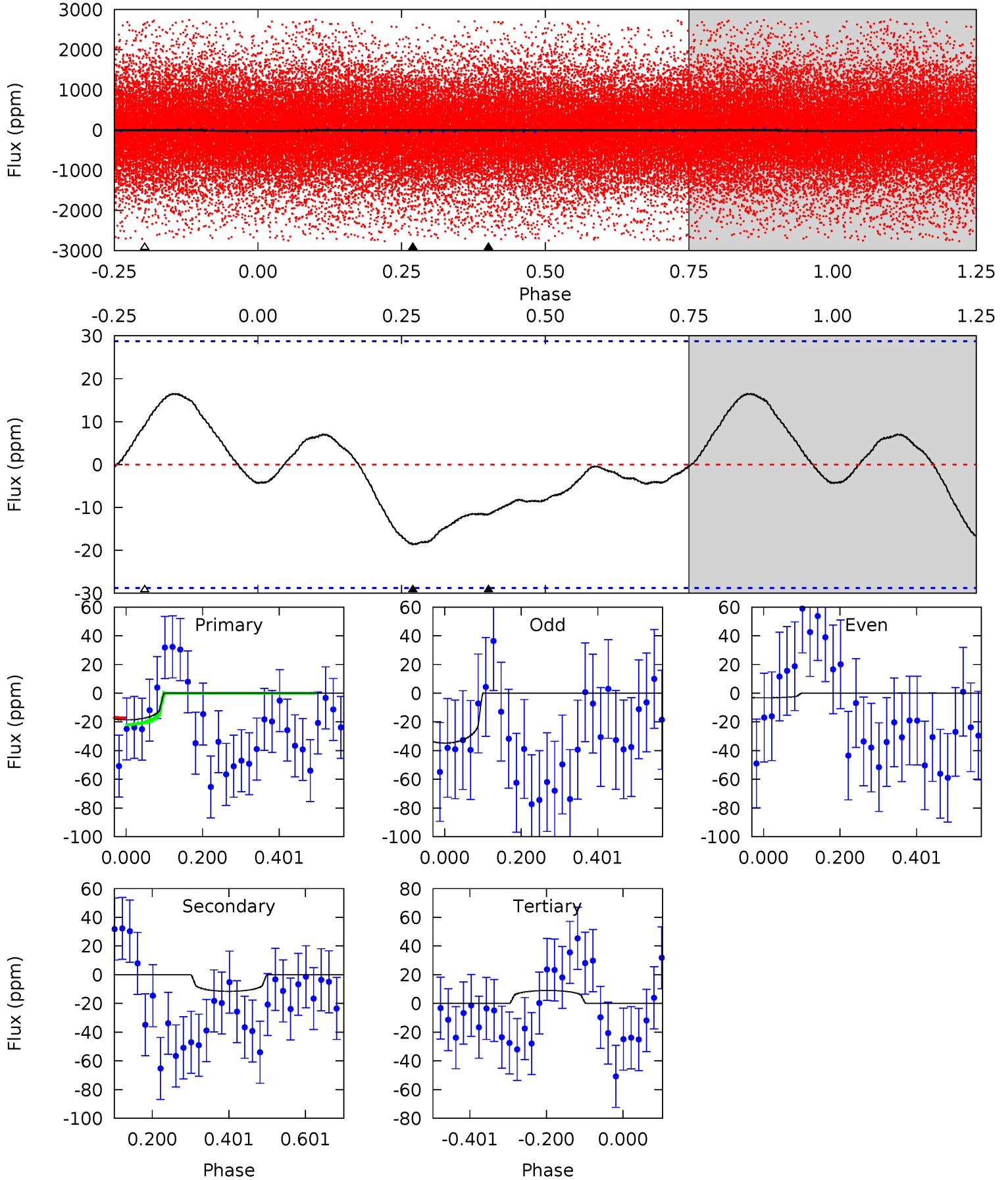
TCE 004946992-01 P= 1.767279 Days $T_0=132.014744$ (BKJD)



DV Model-Shift Uniqueness Test

004946992-01, P = 1.767502 Days, E = 130.161666 Days

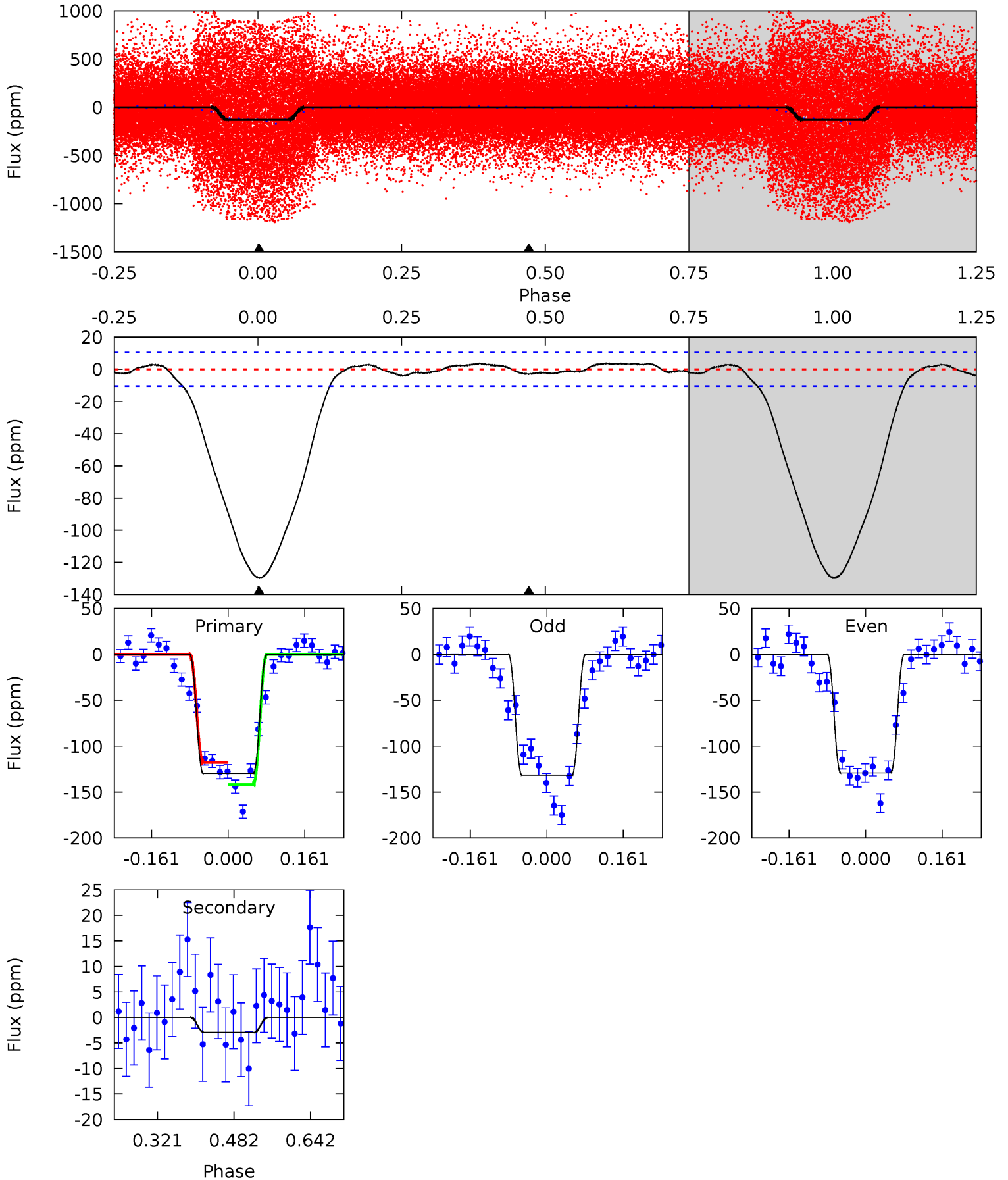
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.86	1.78	-1.38	0	4.42	1.28	1.08	4.24	2.86	3.16	1.78	2.42	4.11	0.47	0.36



Alt Model-Shift Uniqueness Test

004946992-01, P = 1.767279 Days, E = 130.247465 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.5	1.24	0	0	4.46	1.40	0.99	55.5	55.5	1.24	1.24	0.53	1.23	0.03	5.09



Stellar Parameters For KIC 004946992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5901^{+158}_{-175}	$4.553^{+0.036}_{-0.204}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.251}_{-0.079}$	$0.938^{+0.108}_{-0.108}$	$2.165^{+0.426}_{-1.110}$
	+3%/-3%	+1%/-4%	+100%/-100%	+30%/-9%	+12%/-12%	+20%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004946992-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-12 ± 7	$0.72^{+0.36}_{-0.33}$	2064^{+136}_{-97}	4170^{+1295}_{-830}	$8.873^{+24.705}_{-6.516}$
Alt.	-3 ± 2	$1.27^{+0.37}_{-0.37}$	2051^{+144}_{-88}	2615^{+518}_{-4959}	$0.689^{+1.115}_{-0.543}$

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

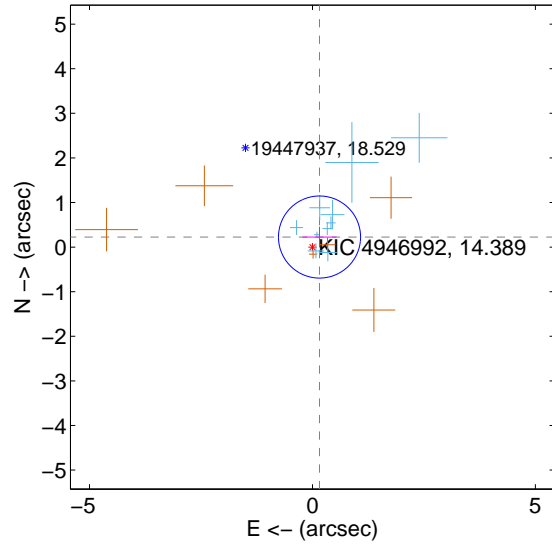
Supplemental centroid analysis for 004946992-01. Kepler magnitude: 14.39. Transit SNR 5.95

There are 10 quarters with good PRF difference image offsets

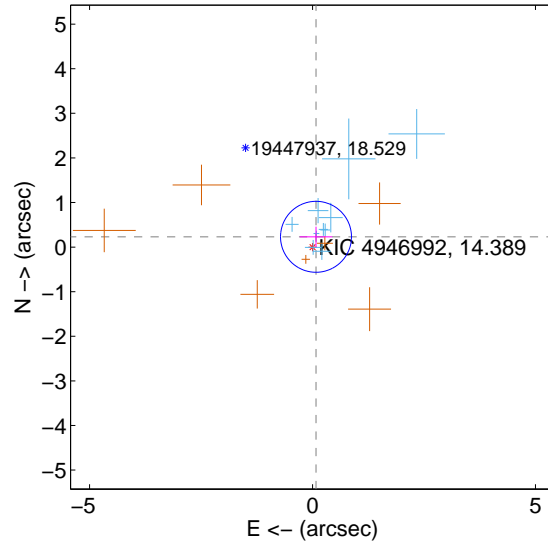
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.276 ± 0.307	0.90	-0.159 ± 0.383	0.226 ± 0.232
PRF-fit source offset from KIC position	0.244 ± 0.265	0.92	-0.078 ± 0.364	0.231 ± 0.228
photometric centroid source offset	1.98 ± 0.85	2.33	-0.10 ± 0.91	1.98 ± 0.85

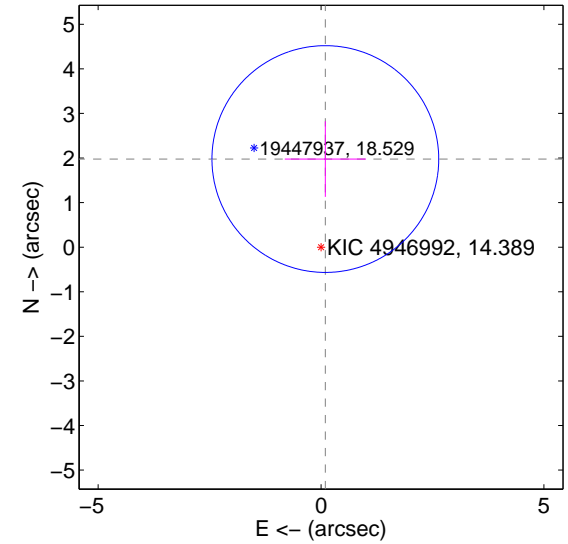
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

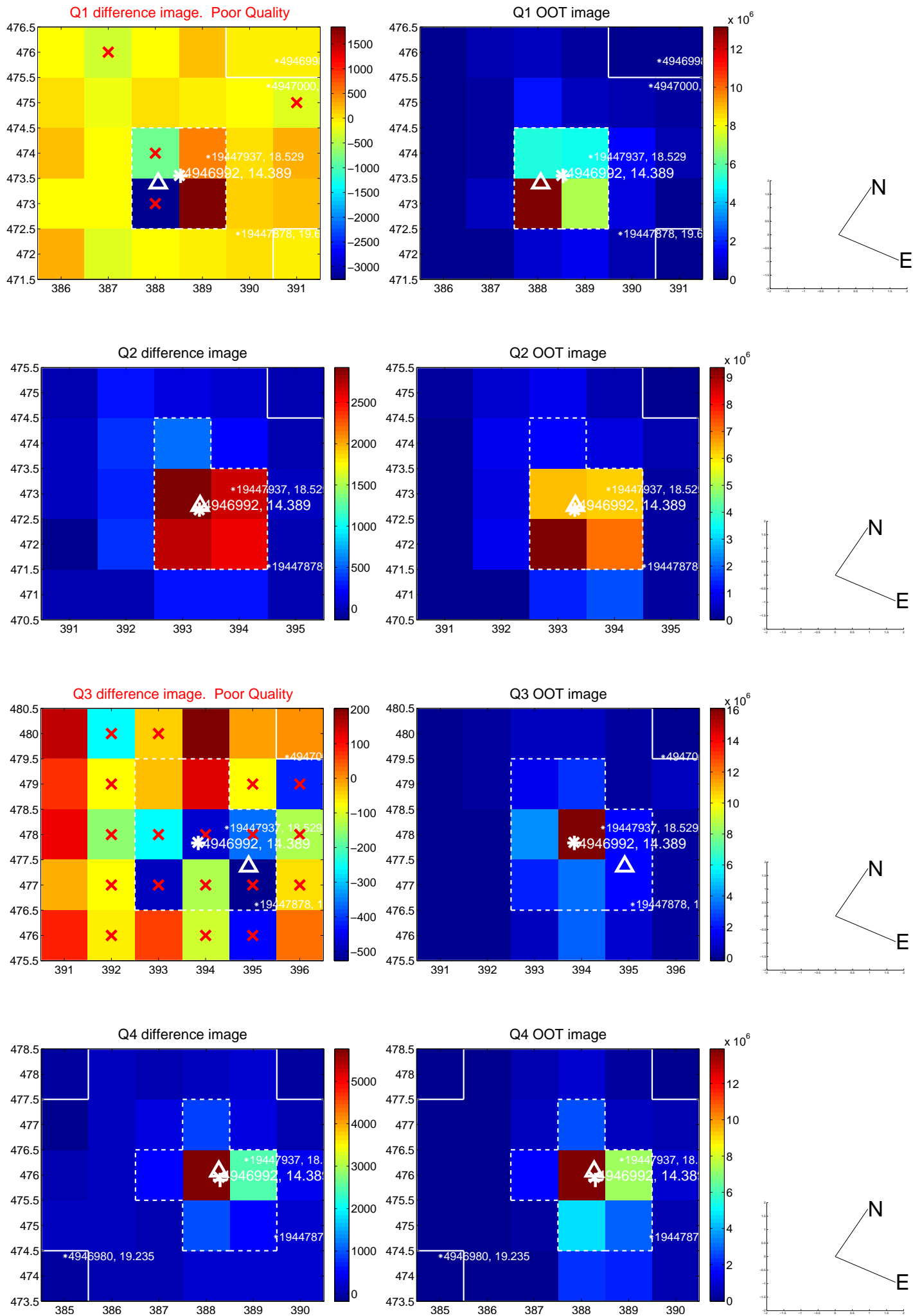


offset from photometric centroids

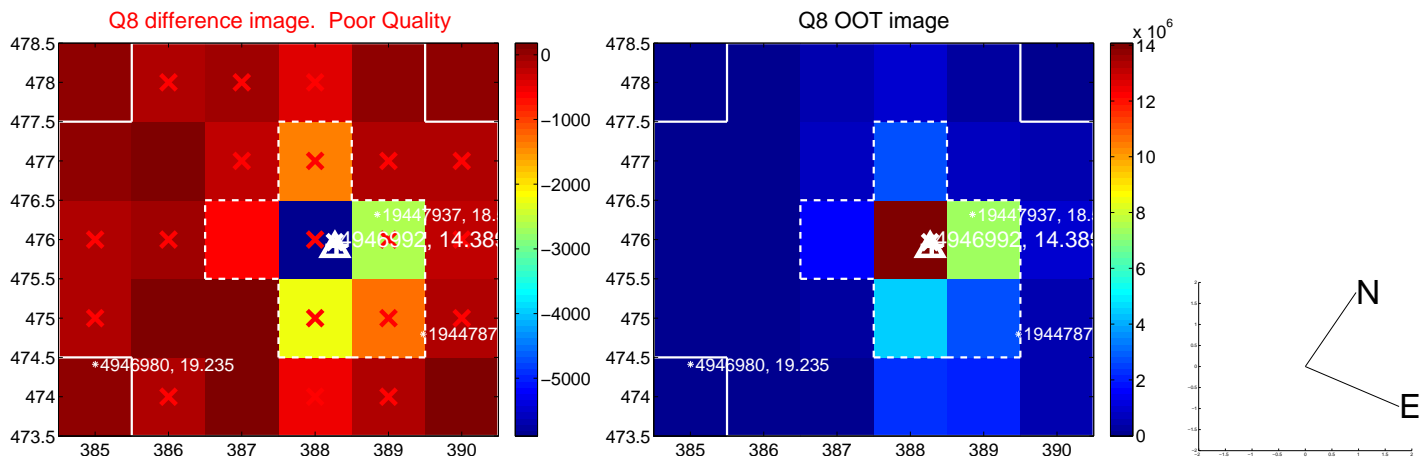
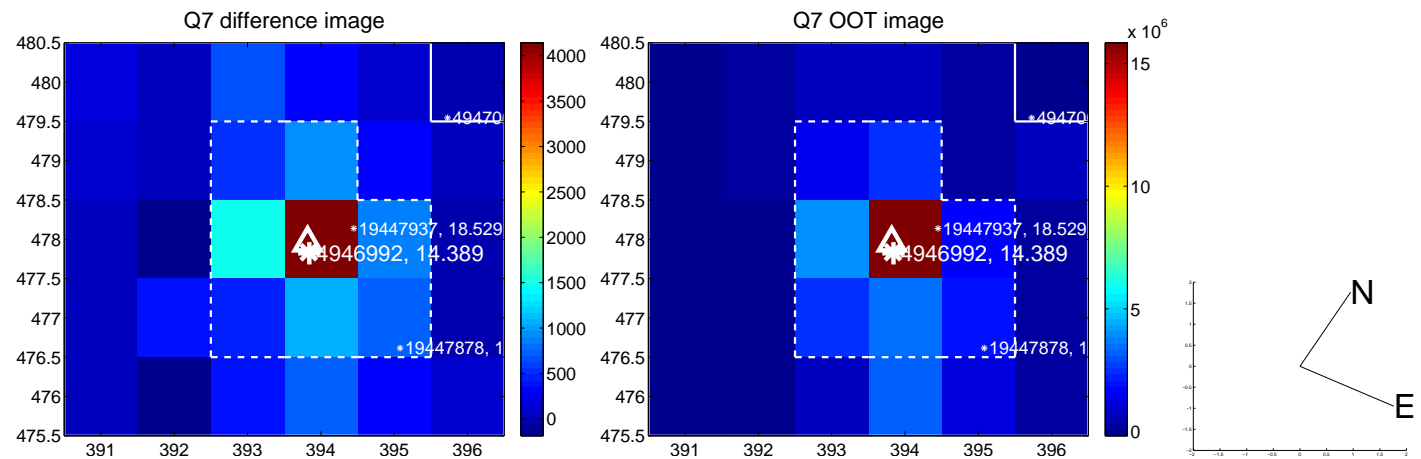
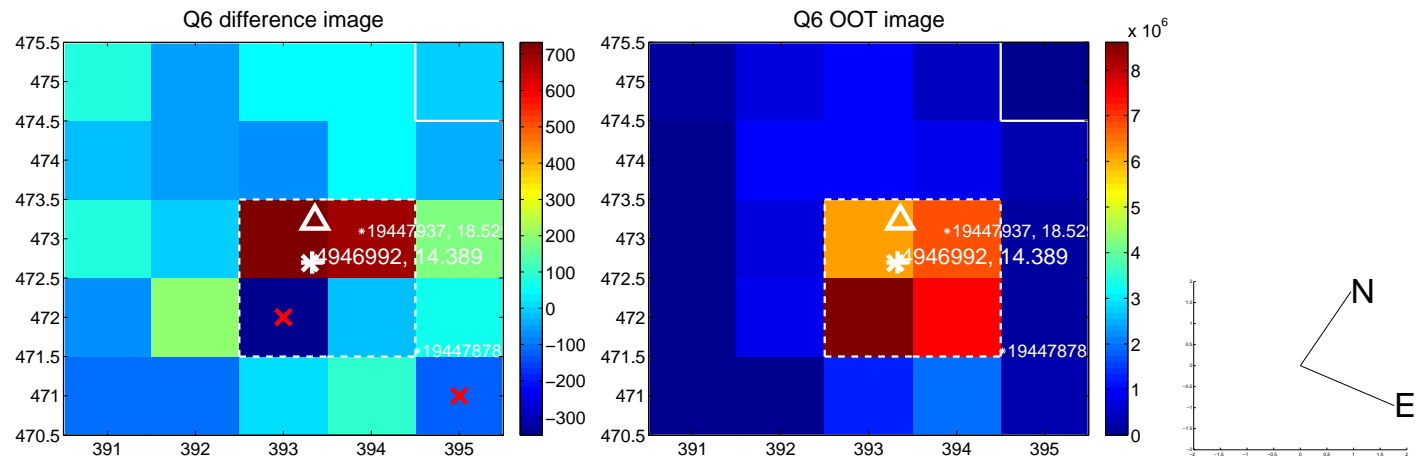
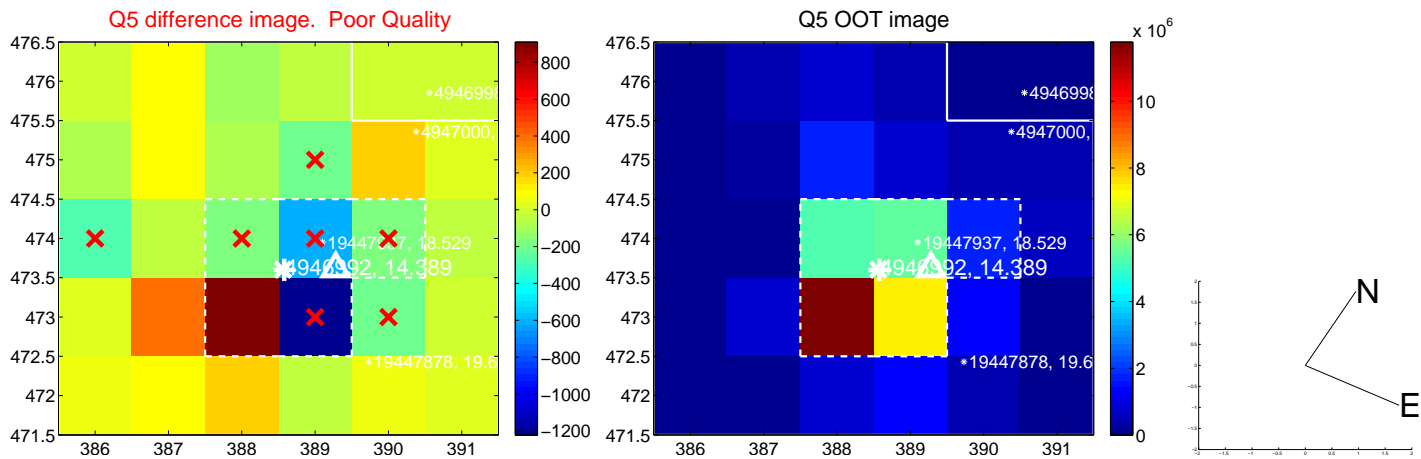


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

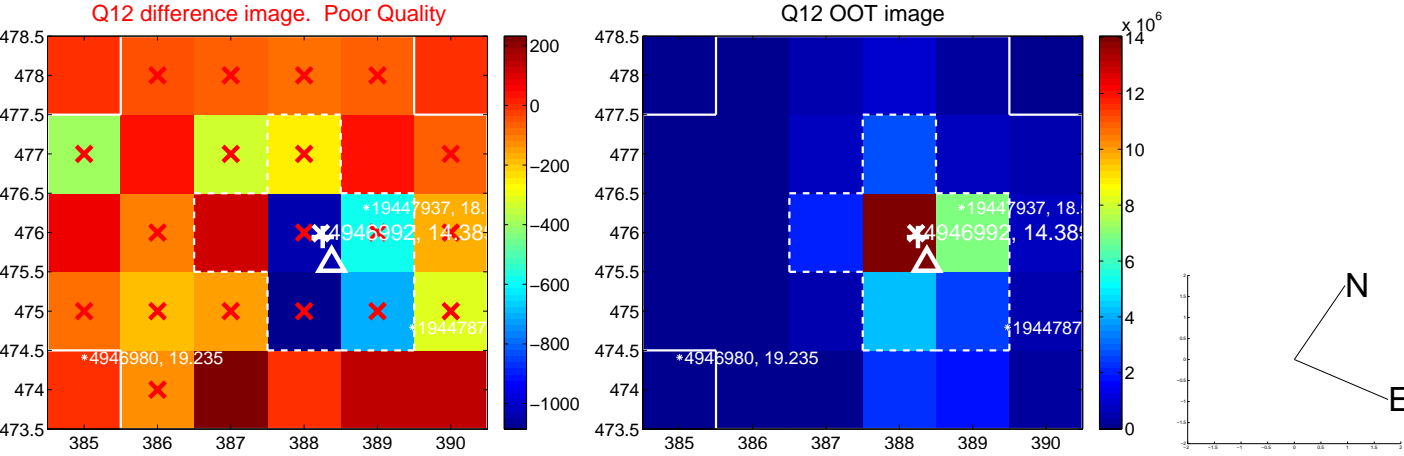
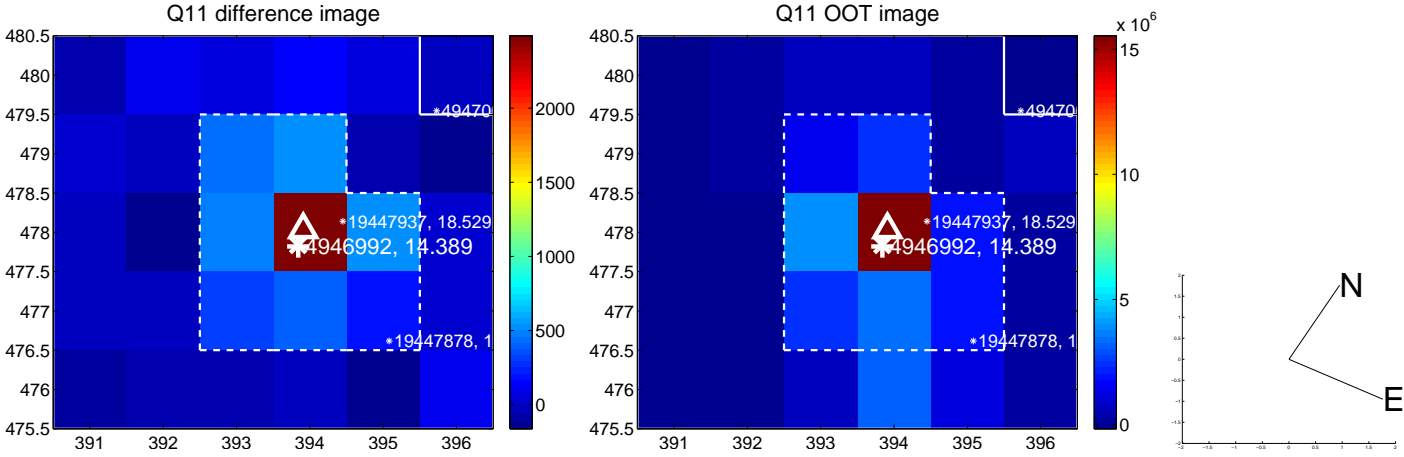
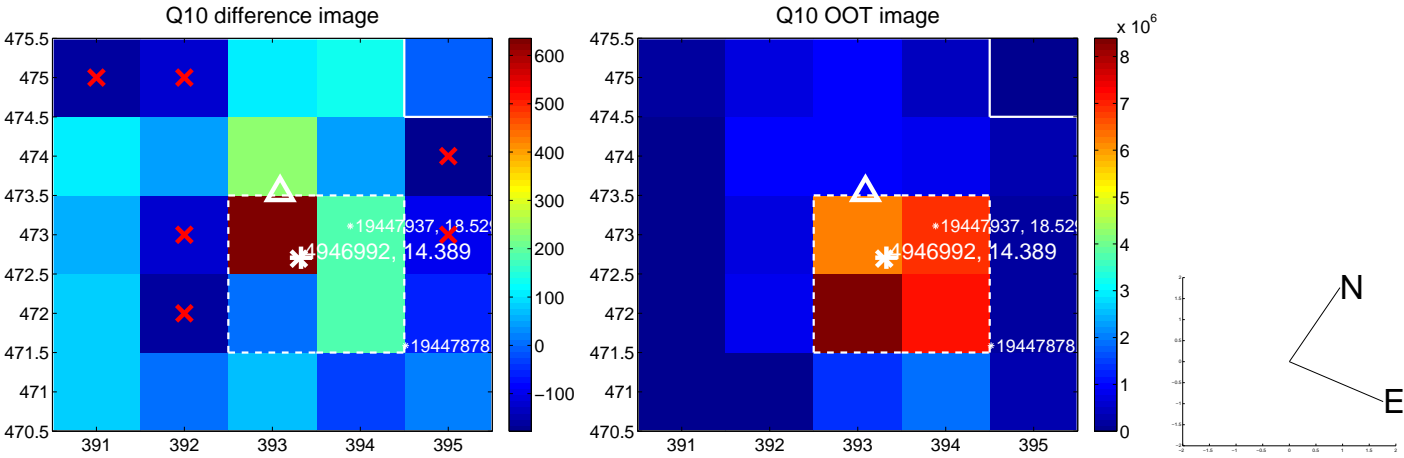
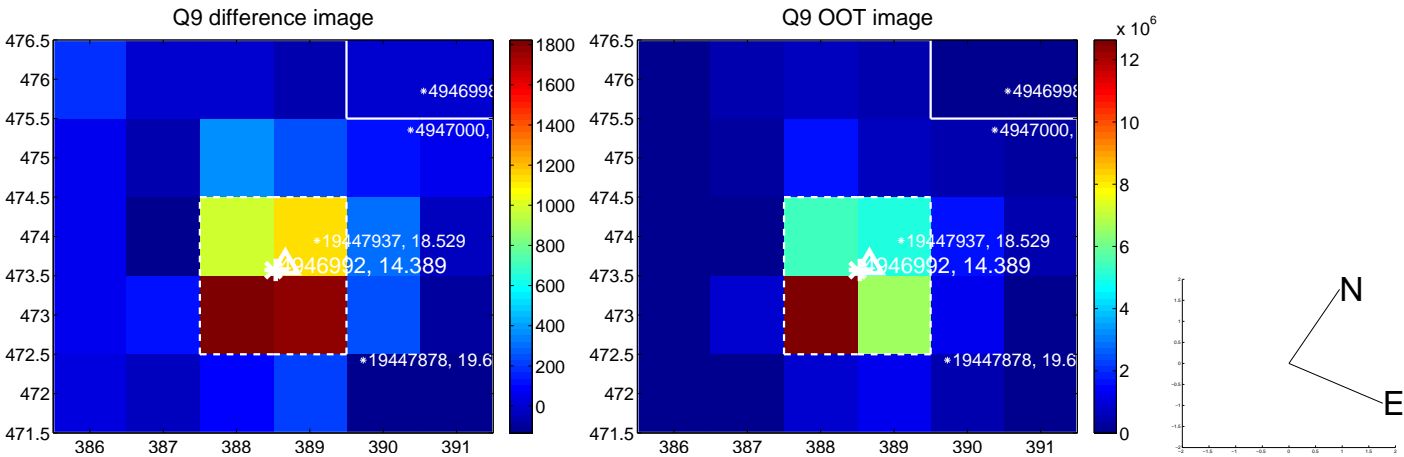
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



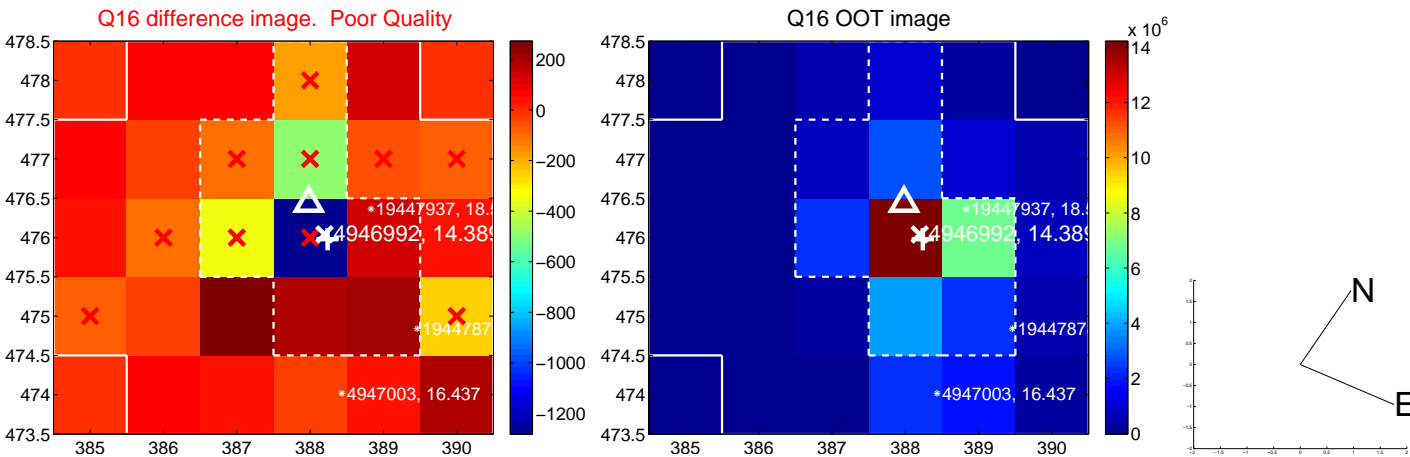
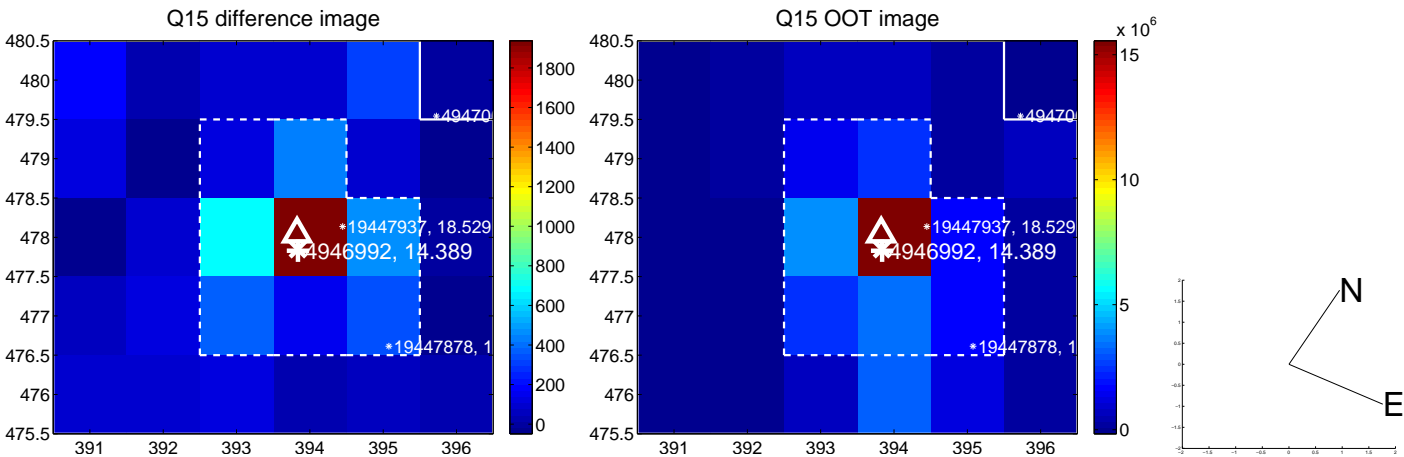
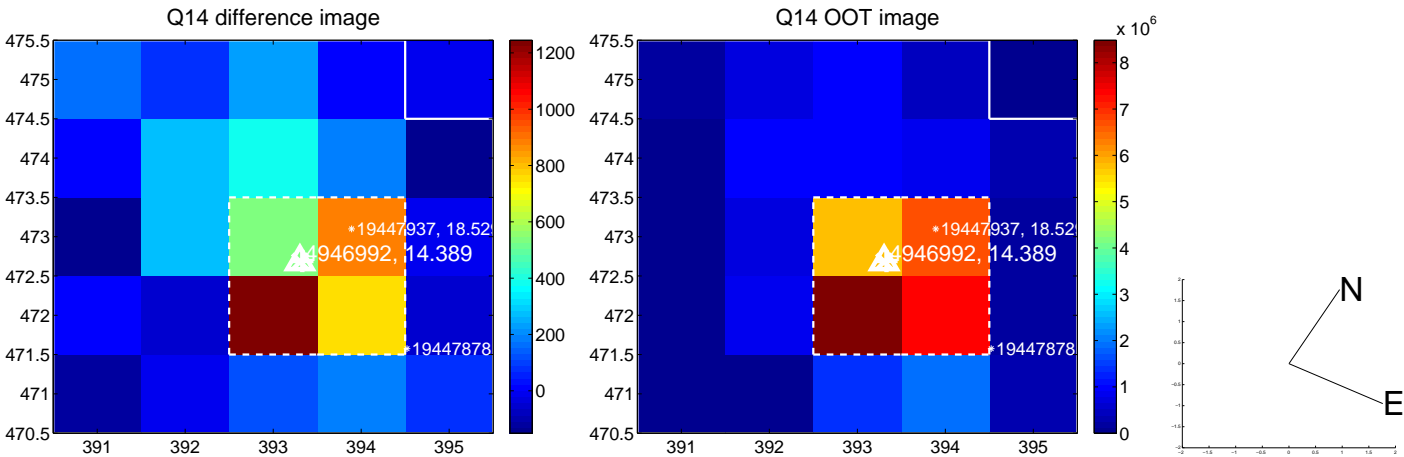
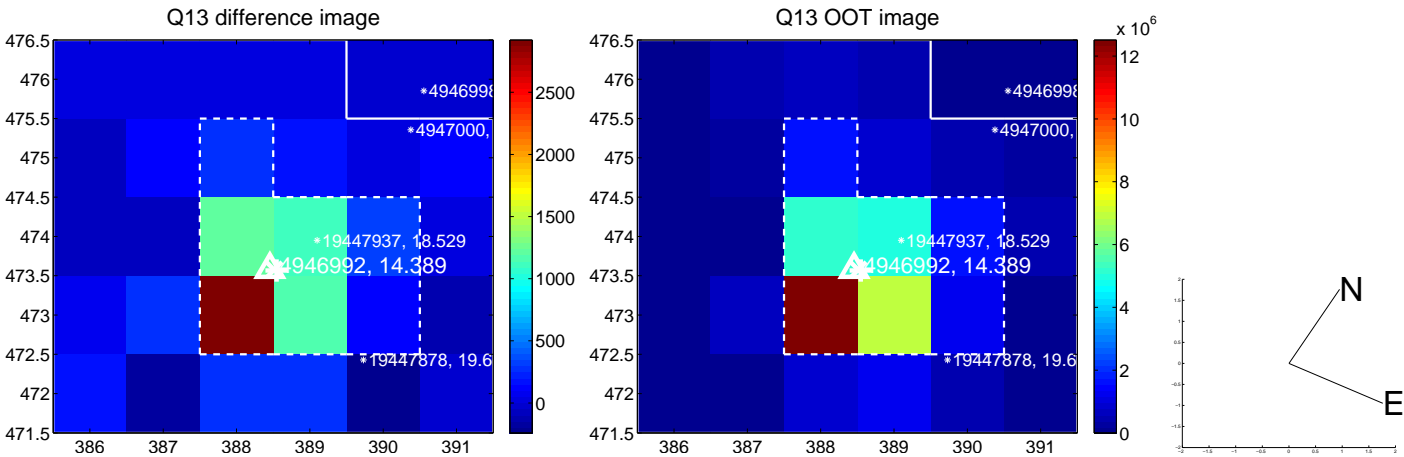
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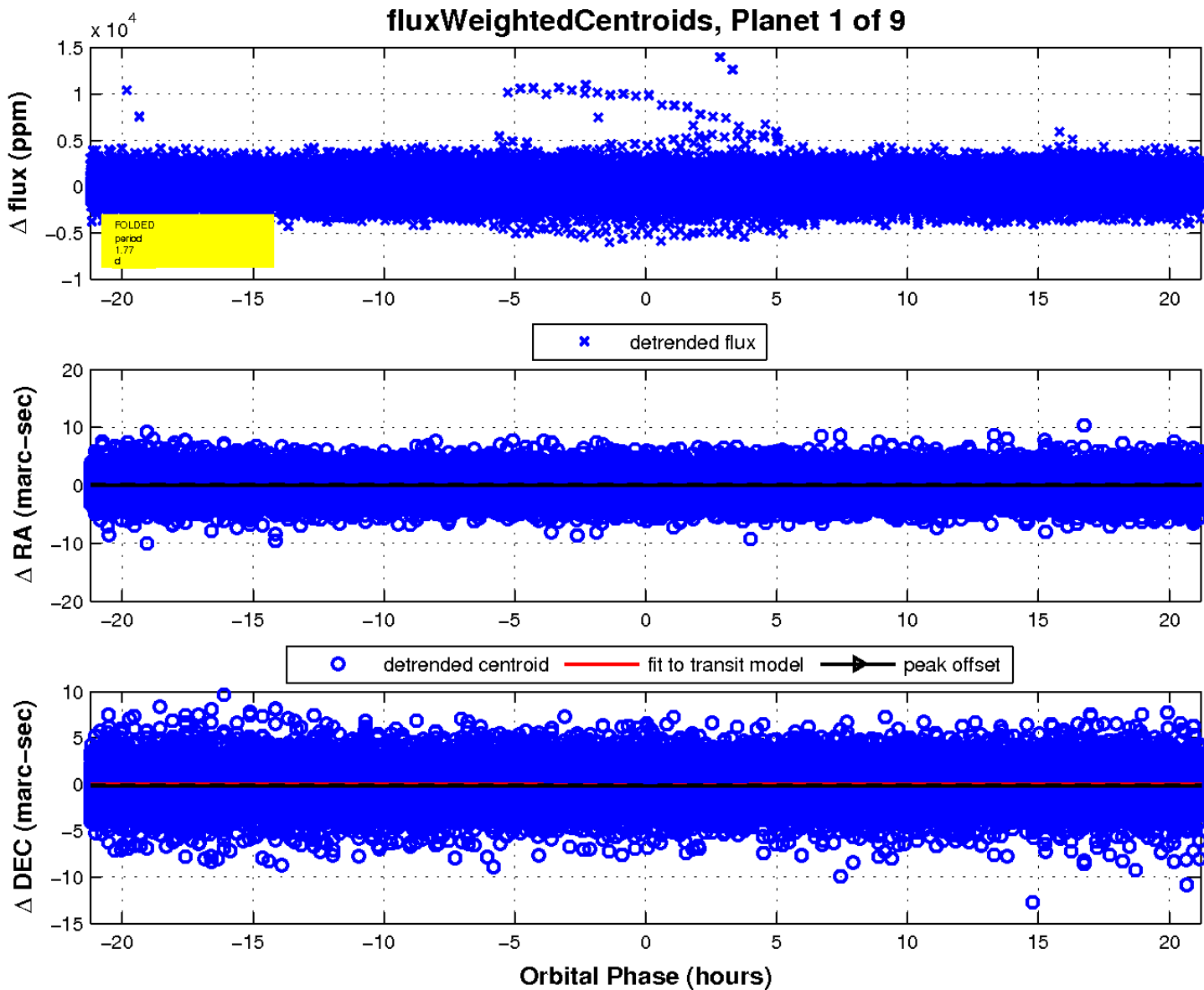
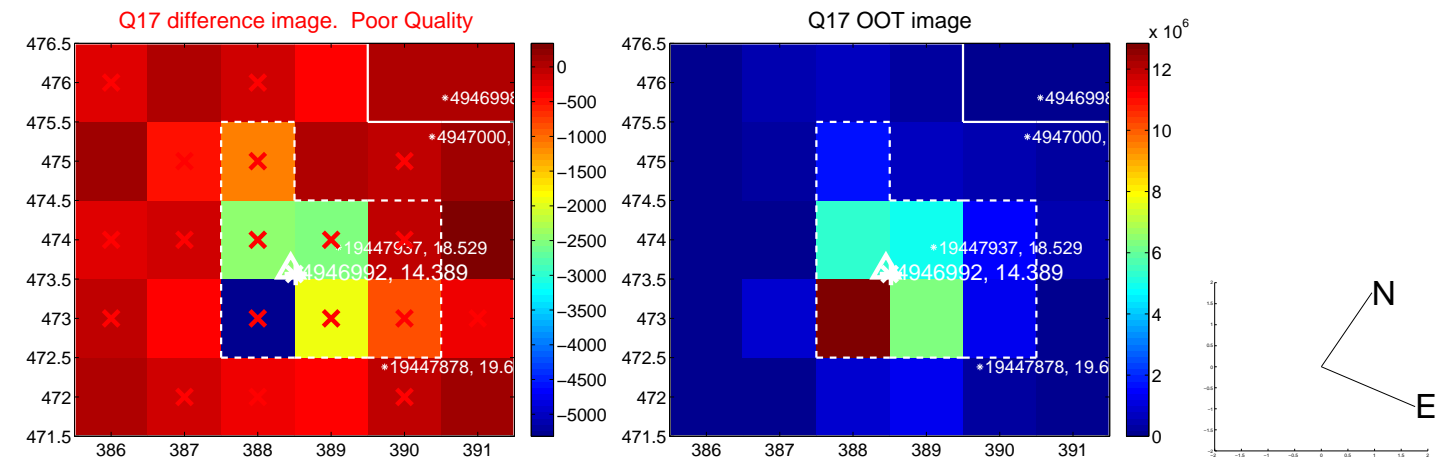
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

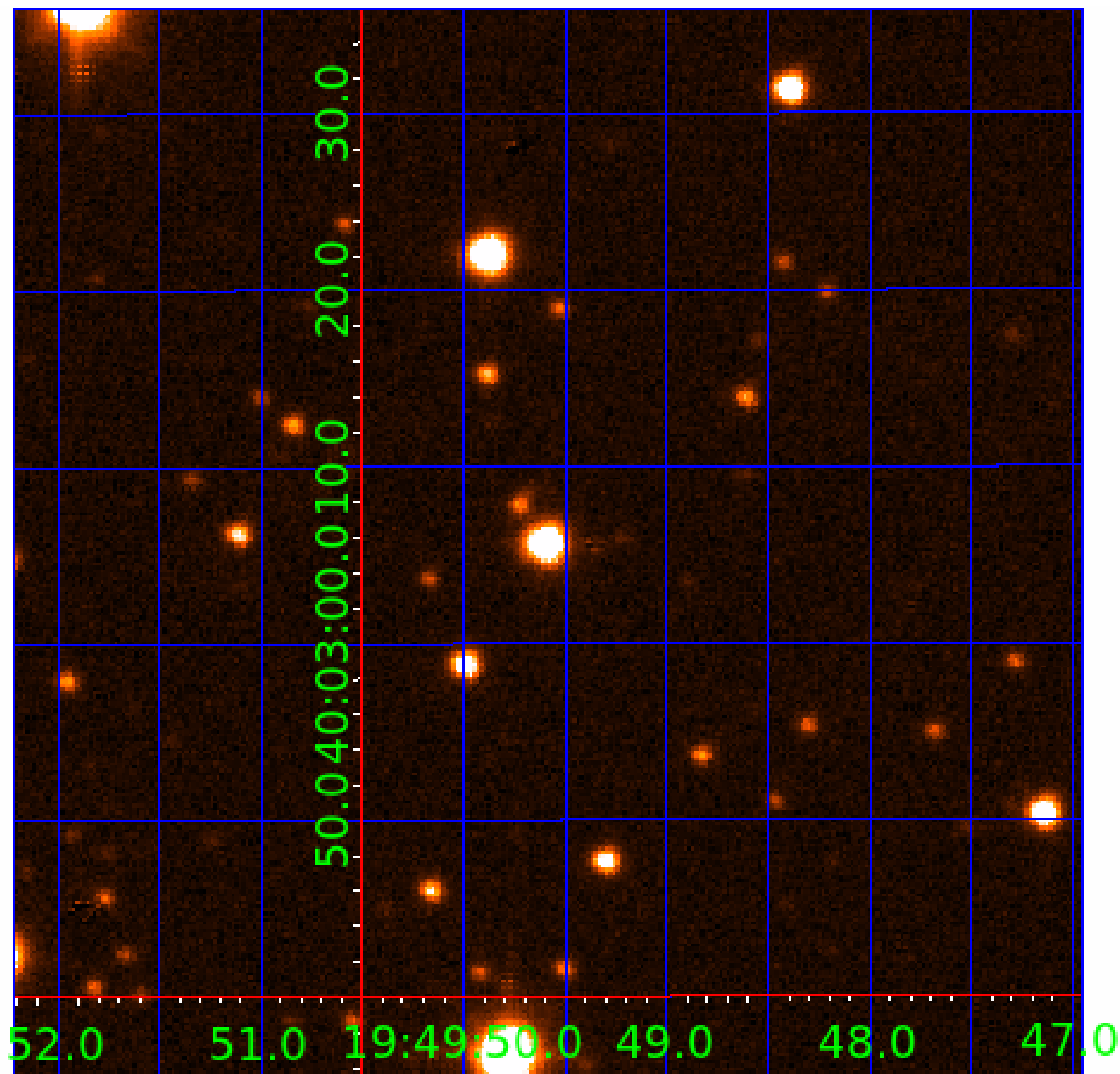


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004946992

Q1-17 DR25 TCE Parameters

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004946992-08	OBS	No	118.743894	178.100225	2138.4	20.640	9.9	10.2	0.85	5901	7.37	3.65
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Robovetter Results

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004946992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS
004946992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED
004946992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

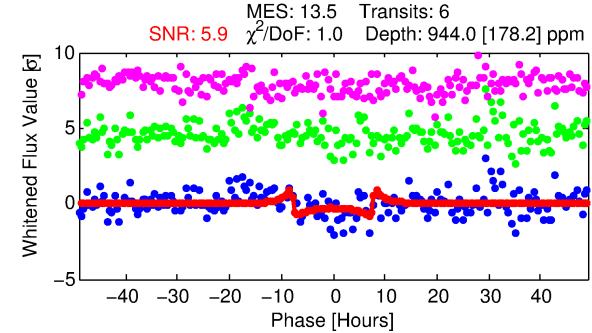
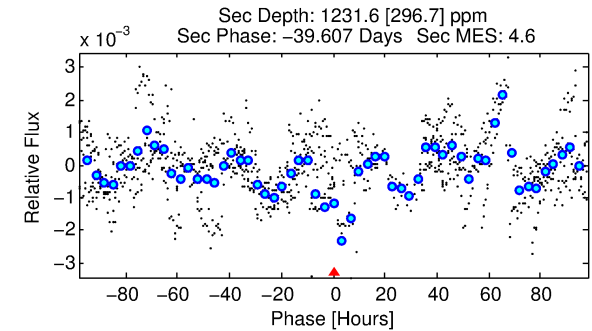
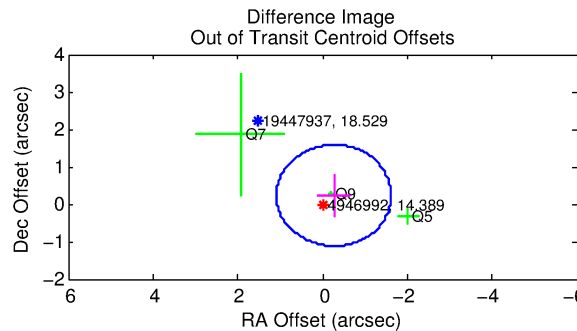
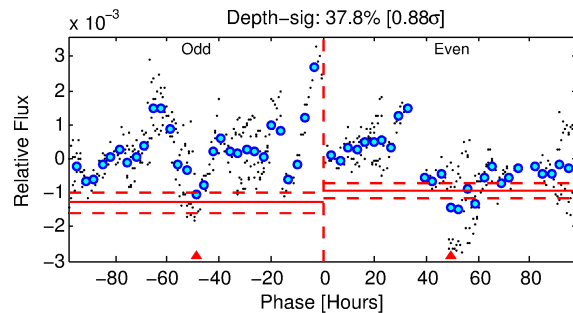
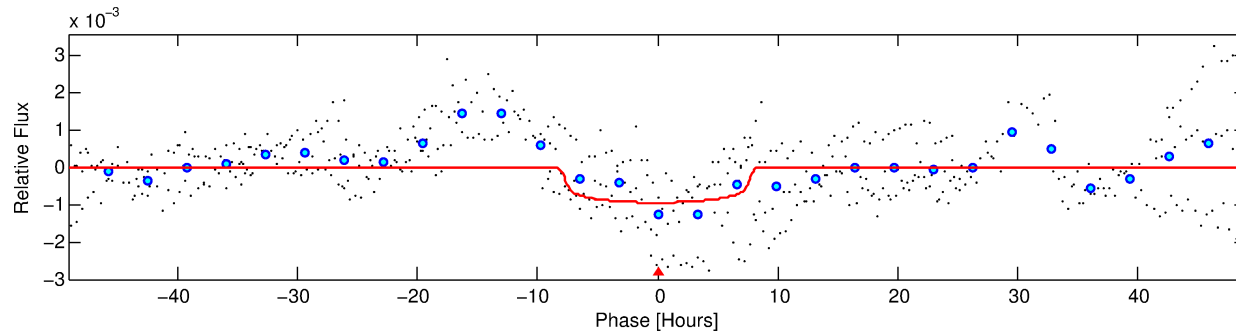
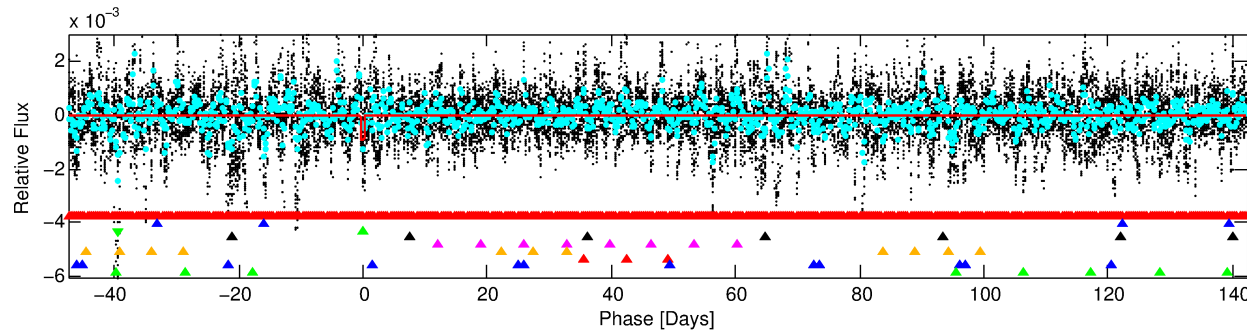
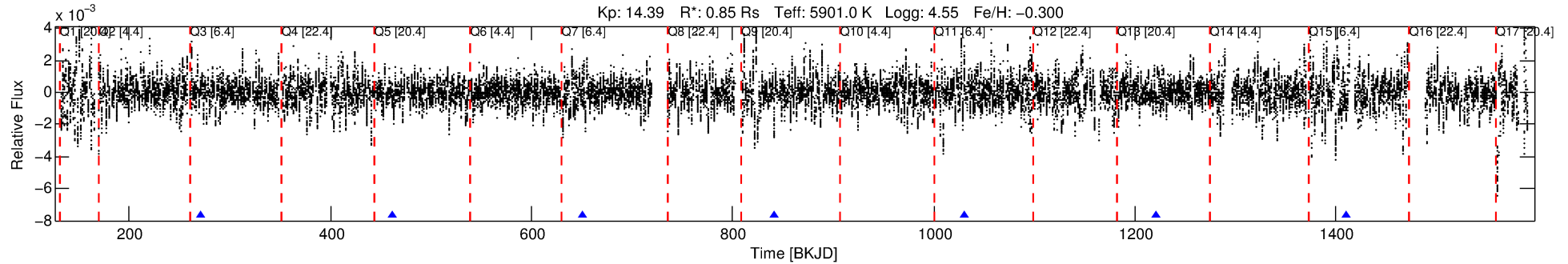
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004946992-03

No Significant Match Found

DV One-Page Summary

KIC: 4946992 Candidate: 3 of 9 Period: 189.823 d



DV Fit Results:

Period = 189.82255 [0.00303] d
Epoch = 271.7866 [0.0113] BKJD
Rp/R* = 0.0300 [0.0044]
a/R* = 67.83 [30.02]
b = 0.69 [0.34]
Seff = 1.95 [0.76]
Teq = 301 [29] K
Rp = 2.77 [0.92] Re
a = 0.6327 [0.1594] AU
Ag = 35230.25 [18714.62] [1.88 σ]
Teffp = 6384 [637] K [9.54 σ]

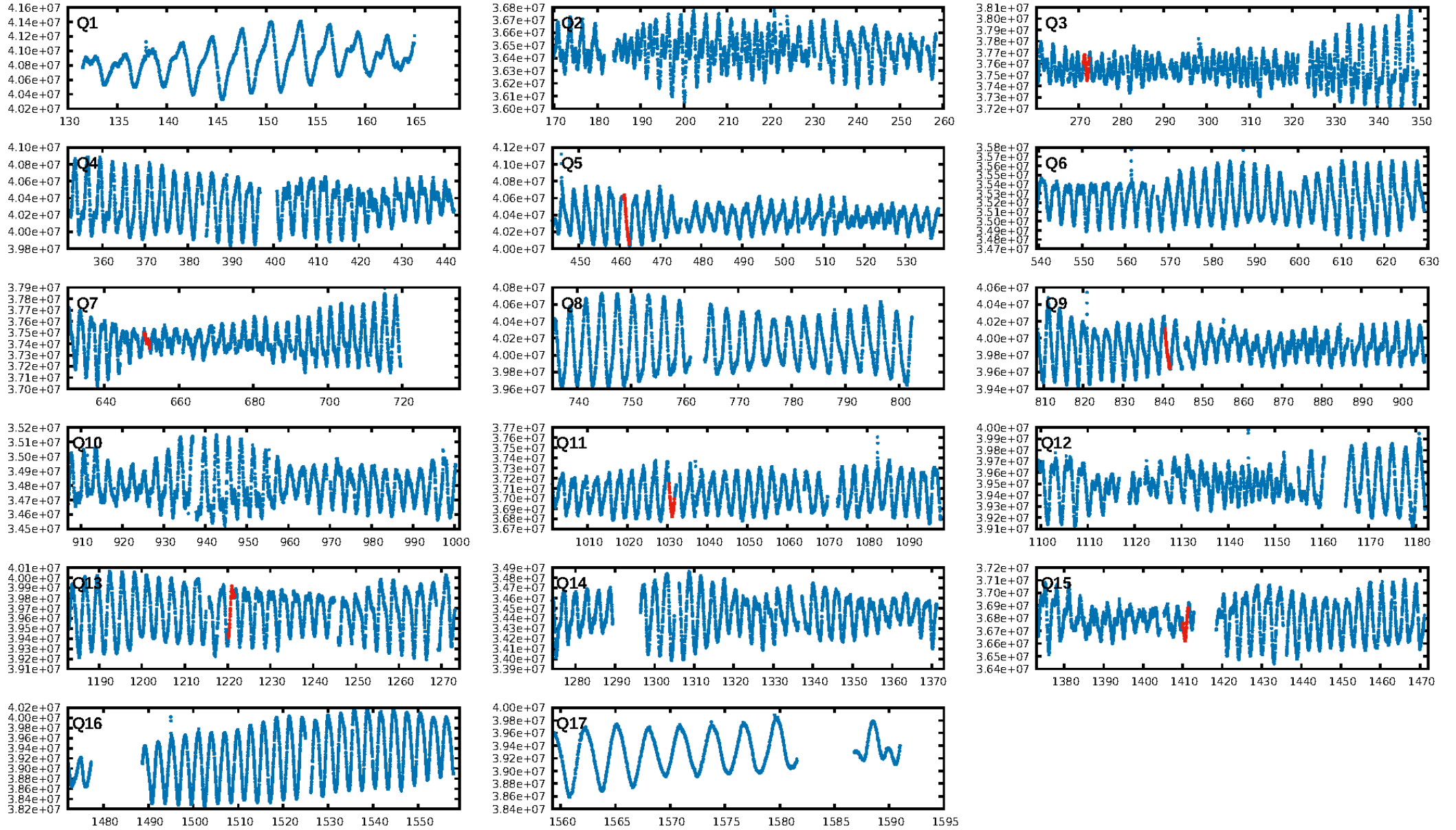
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.63 σ]
LongPeriod-sig: 100.0% [38.02 σ]
ModelChiSquare2-sig: 12.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -3.181
Centroid-sig: 38.0%
Centroid-so: 1.063 arcsec [1.71 σ]
OotOffset-rm: 0.351 arcsec [0.78 σ]
OotOffset-st: 0/1/0/2 [3]
KicOffset-rm: 0.365 arcsec [0.72 σ]
KicOffset-st: 0/1/0/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

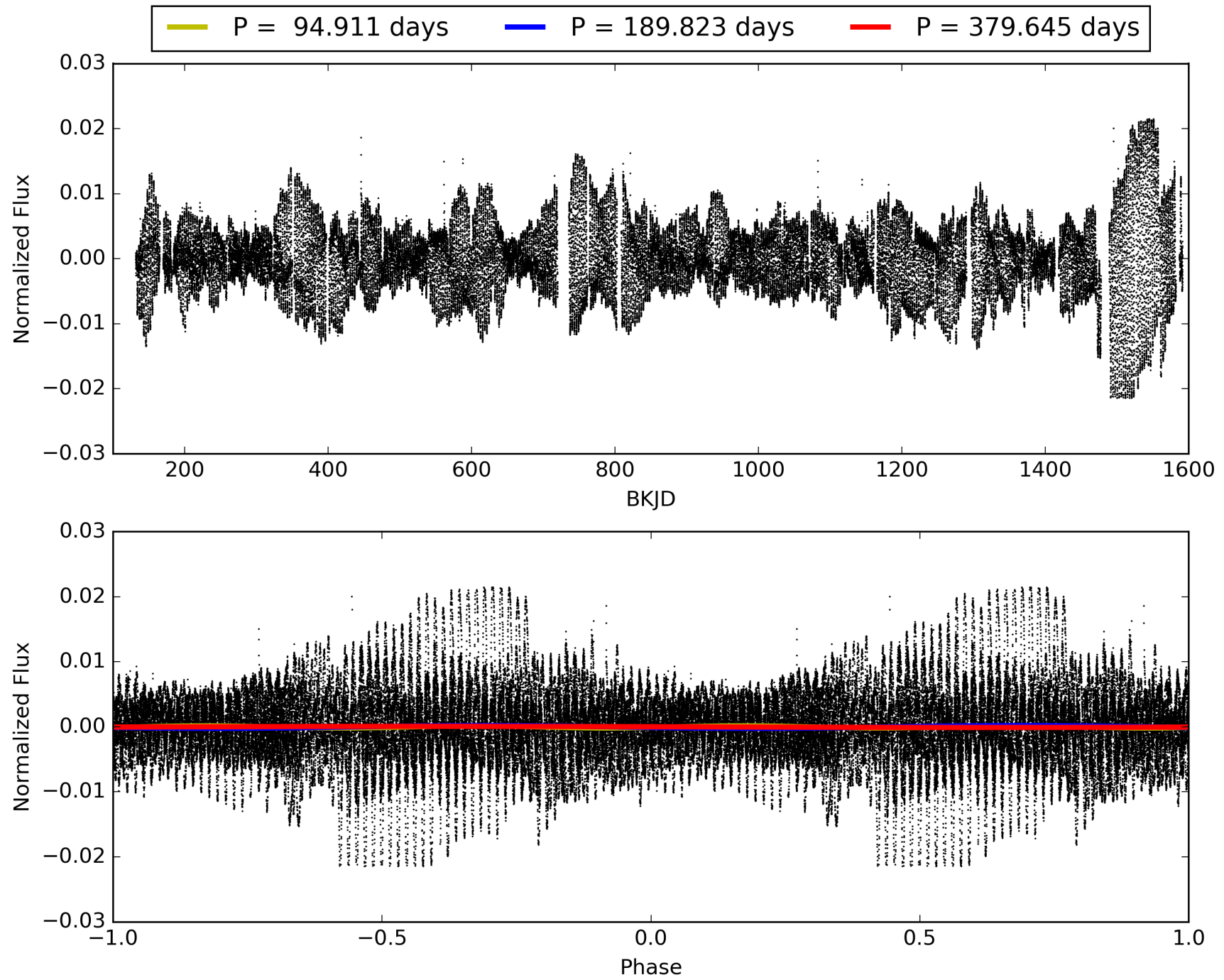
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:47:03 Z

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

TCE 004946992-03, PDC Light Curves

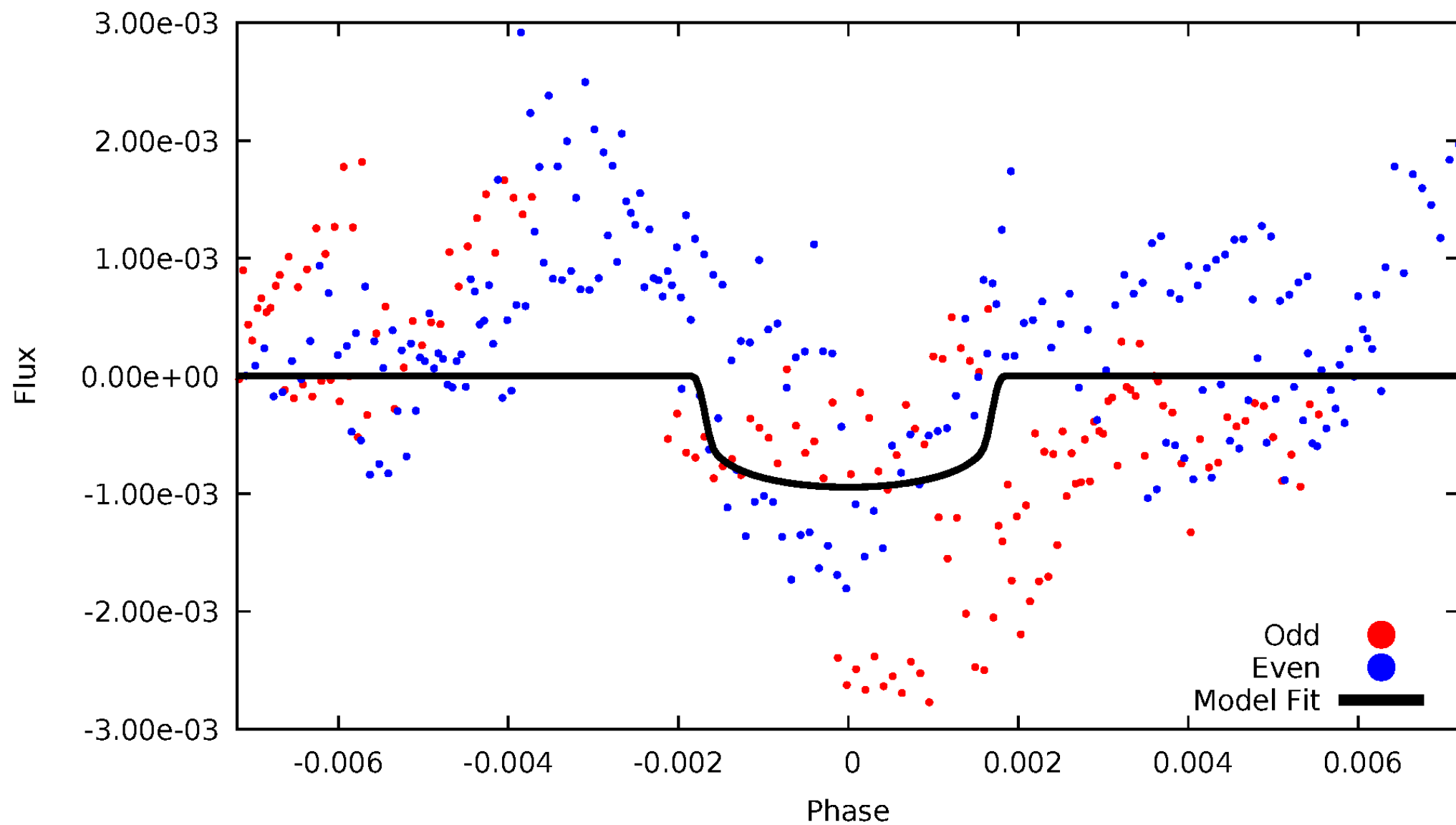


TCE 004946992-03



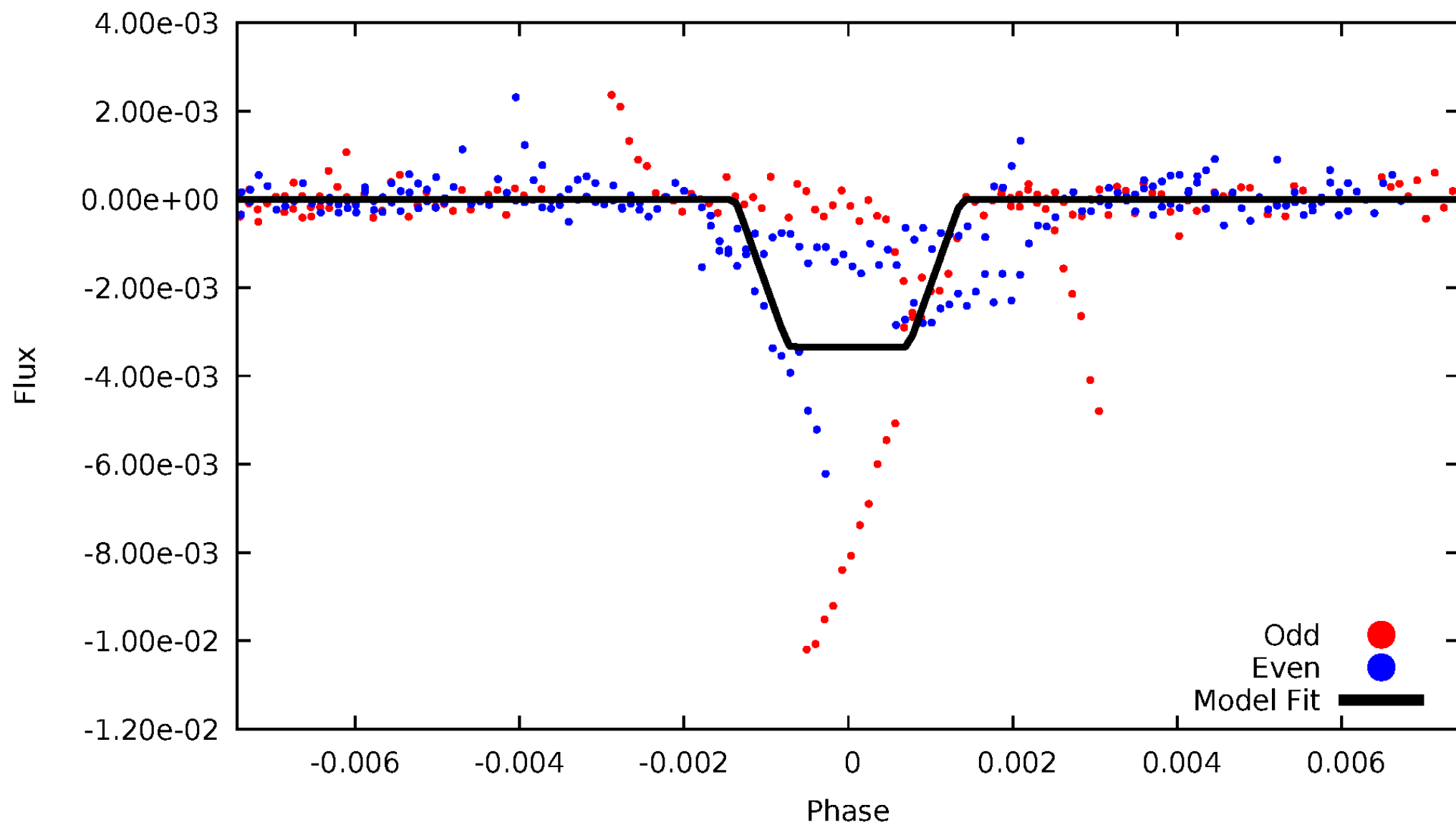
DV Odd/Even

TCE 004946992-03



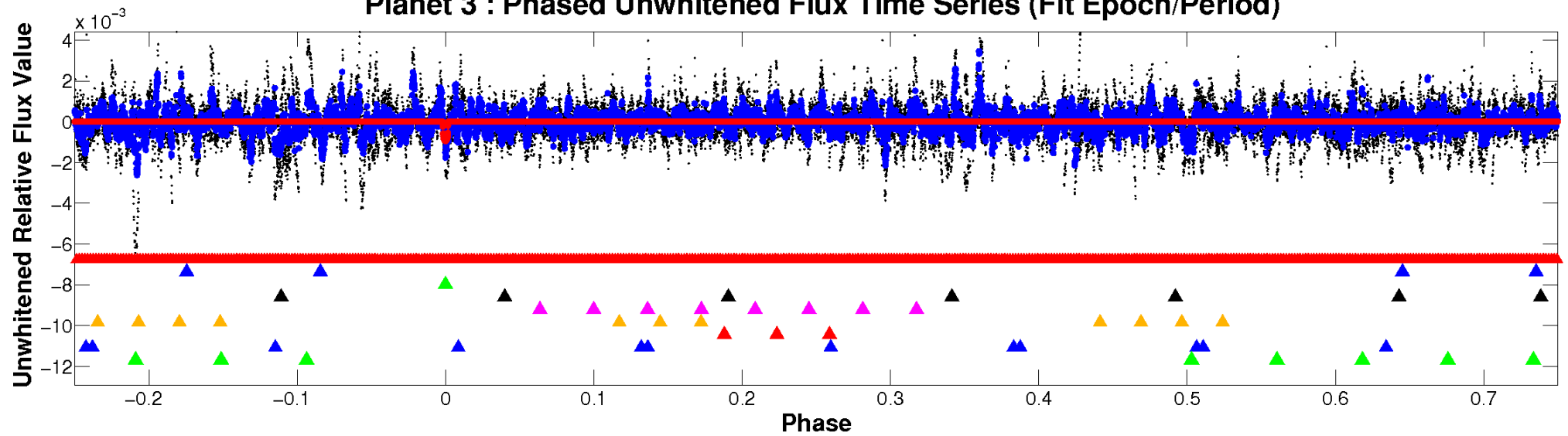
ALT Odd/Even

TCE 004946992-03

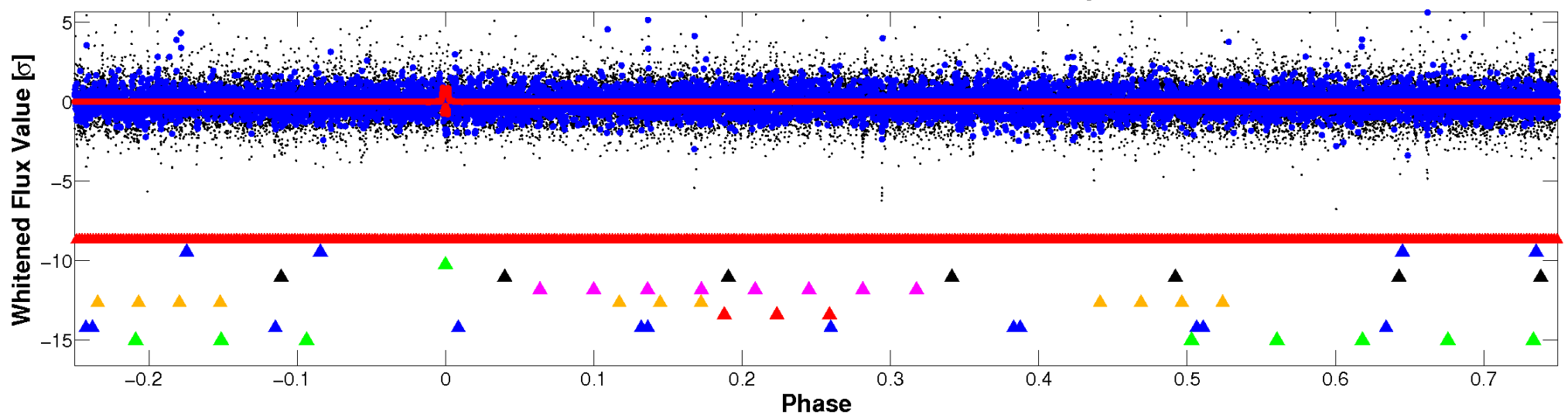


Non-Whitened Vs. Whitened Light Curve

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

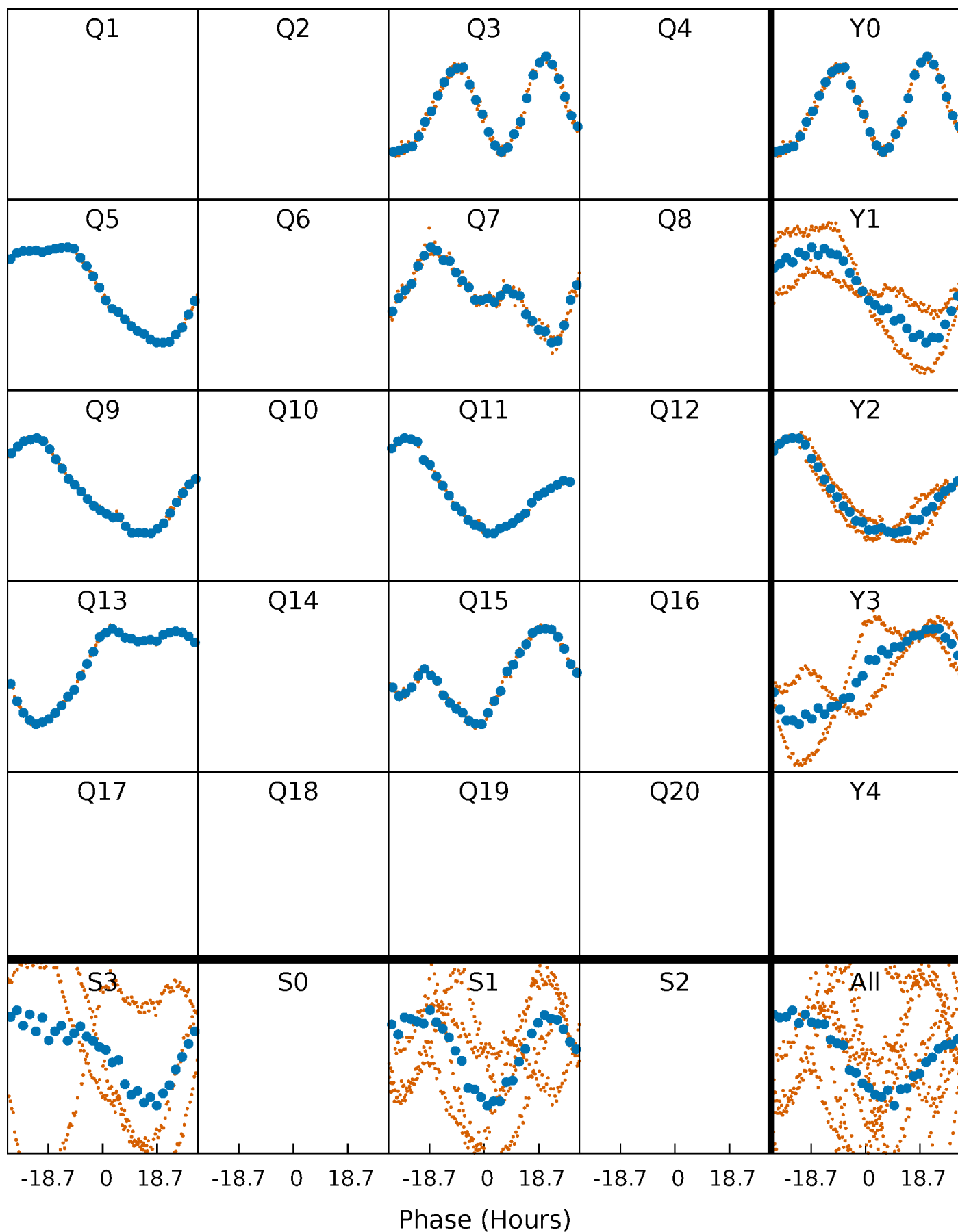


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



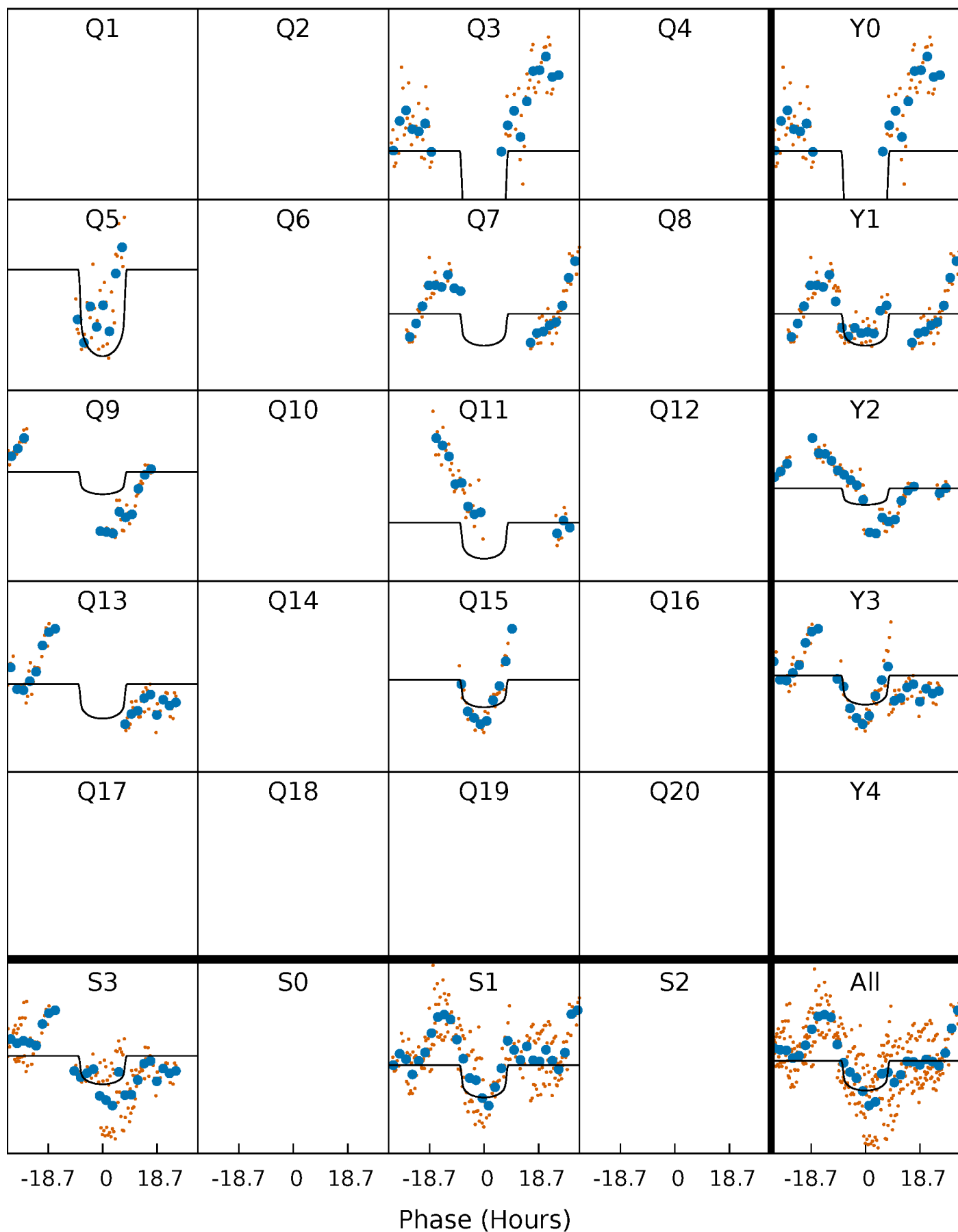
PDC Quarter-Phased Transit Curves

TCE 004946992-03 P=189.822551 Days $T_0=271.786563$ (BKJD)



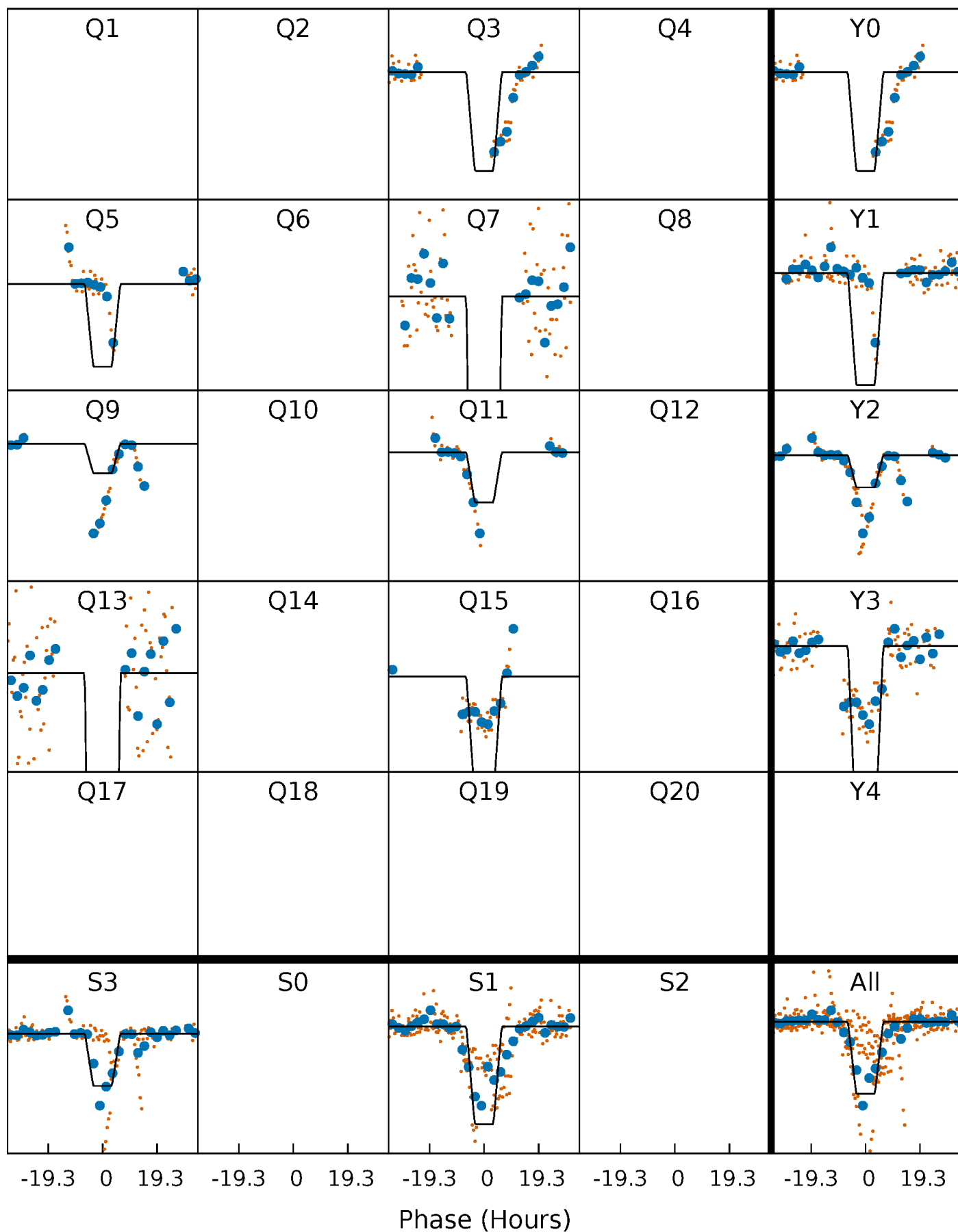
DV Quarter-Phased Transit Curves

TCE 004946992-03 $P=189.822551$ Days $T_0=271.786563$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

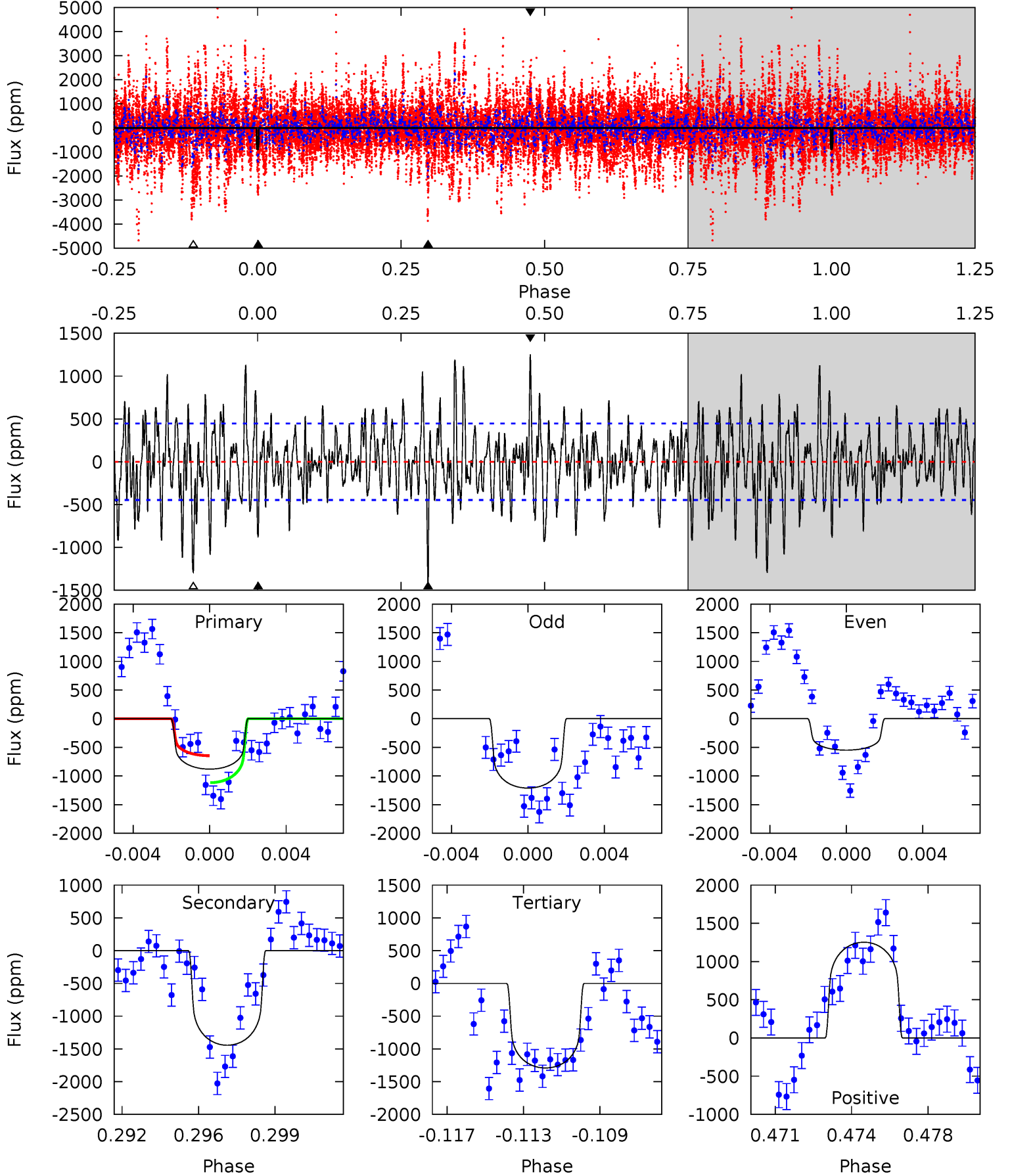
TCE 004946992-03 $P=189.786905$ Days $T_0=271.966039$ (BKJD)



DV Model-Shift Uniqueness Test

004946992-03, P = 189.822551 Days, E = 81.964012 Days

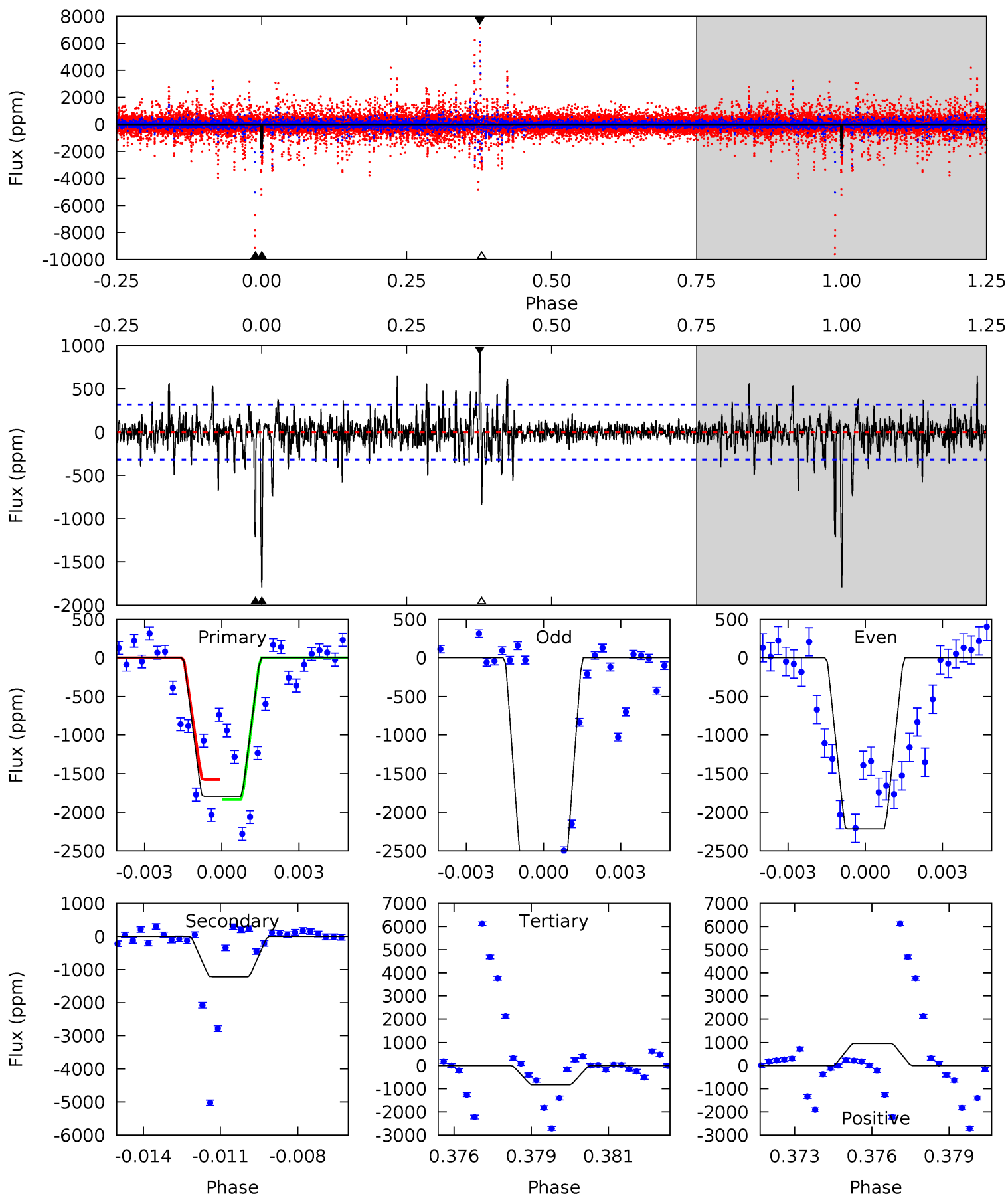
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	16.9	15.1	14.6	5.22	2.91	4.07	-4.80	-4.35	1.78	2.24	3.77	1.55	0.46	2.77



Alt Model-Shift Uniqueness Test

004946992-03, P = 189.786905 Days, E = 82.179134 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.7	20.1	13.8	15.8	5.27	2.99	2.25	15.9	13.9	6.27	4.28	6.19	1.00	0.35	2.15



Stellar Parameters For KIC 004946992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5901^{+158}_{-175}	$4.553^{+0.036}_{-0.204}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.251}_{-0.079}$	$0.938^{+0.108}_{-0.108}$	$2.165^{+0.426}_{-1.110}$
	+3%/-3%	+1%/-4%	+100%/-100%	+30%/-9%	+12%/-12%	+20%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004946992-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1444 ± 85	$2.95^{+0.60}_{-0.49}$	432^{+31}_{-20}	6654^{+645}_{-560}	36206^{+14719}_{-10771}
Alt.	-1214 ± 60	$5.57^{+0.85}_{-0.59}$	431^{+29}_{-19}	4720^{+212}_{-163}	8445^{+2009}_{-1878}

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 $A_{obs} \gg 1.0$

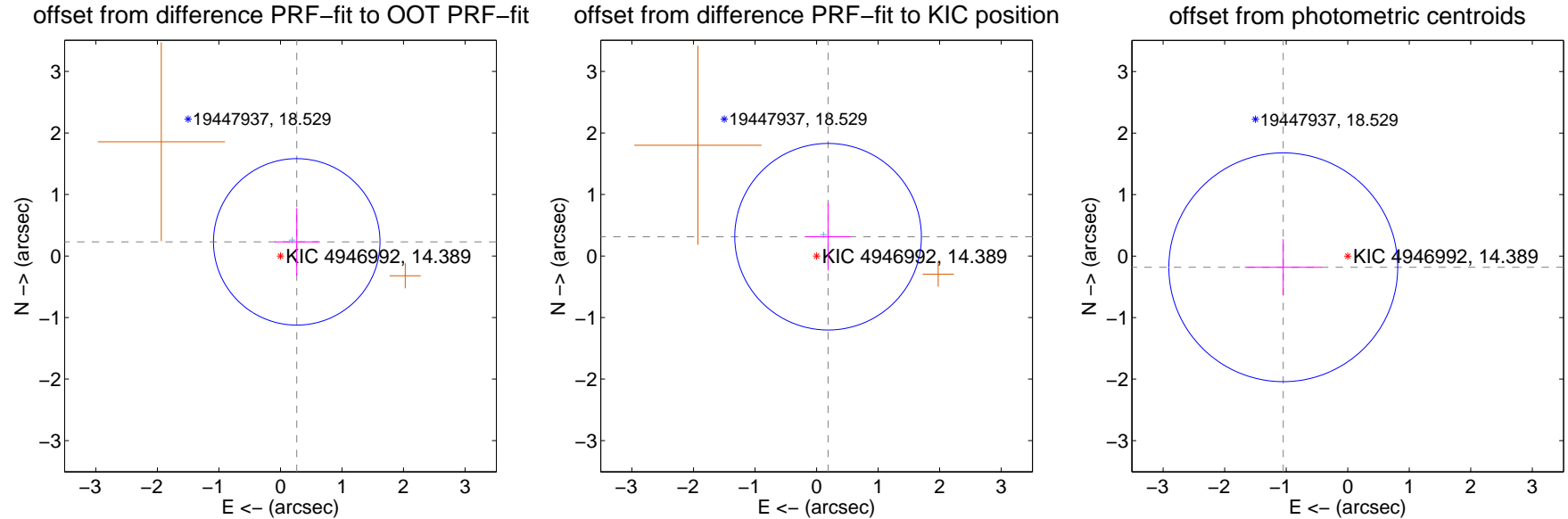
DV Centroid Data

Supplemental centroid analysis for 004946992-03. Kepler magnitude: 14.39. Transit SNR 5.87

There are 1 quarters with good PRF difference image offsets

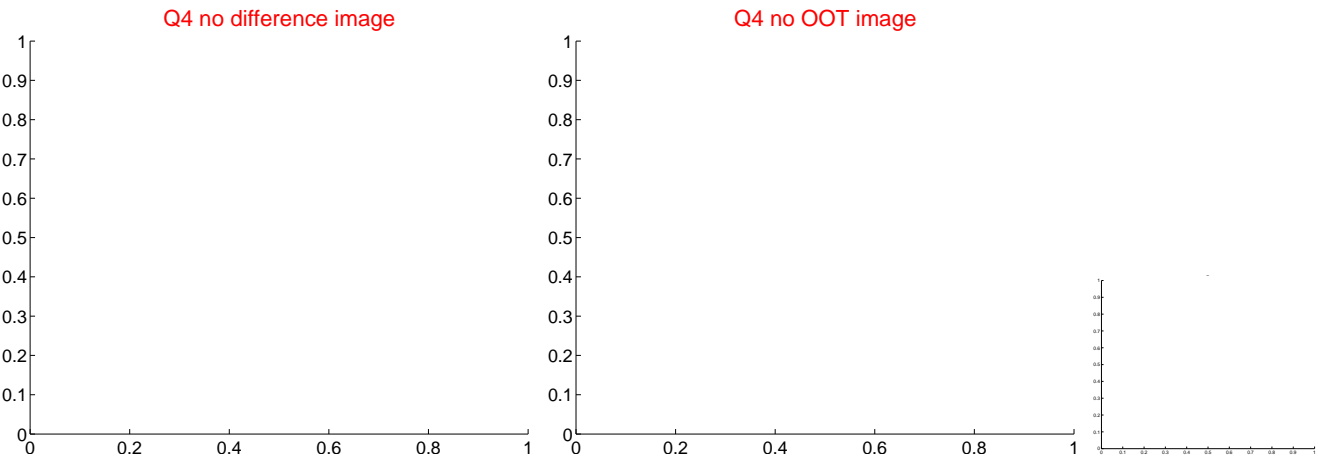
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.351 ± 0.451	0.78	-0.265 ± 0.362	0.230 ± 0.547
PRF-fit source offset from KIC position	0.365 ± 0.505	0.72	-0.187 ± 0.362	0.314 ± 0.547
photometric centroid source offset	1.06 ± 0.62	1.71	1.05 ± 0.62	-0.18 ± 0.46

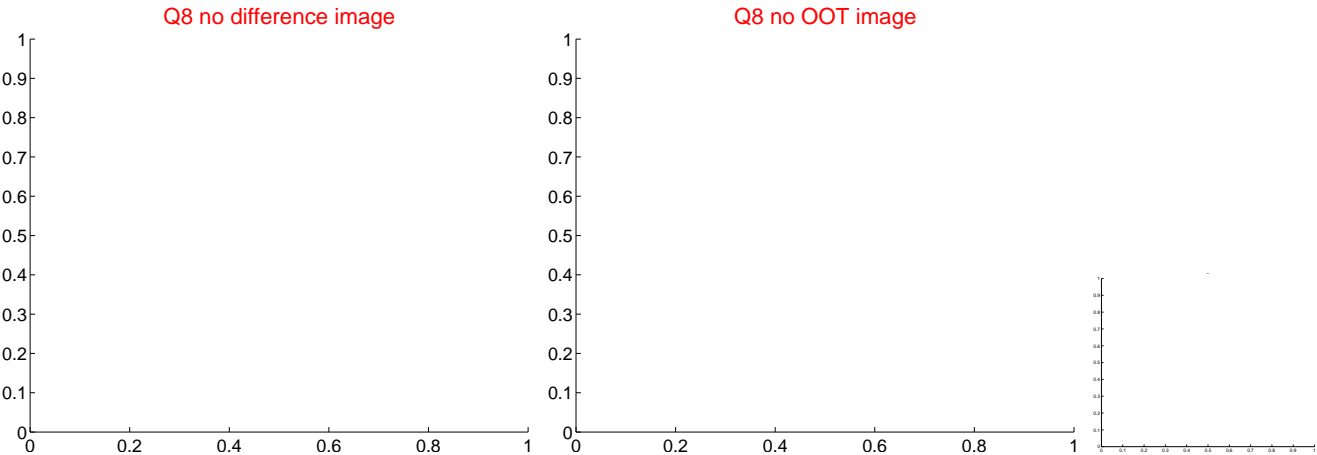
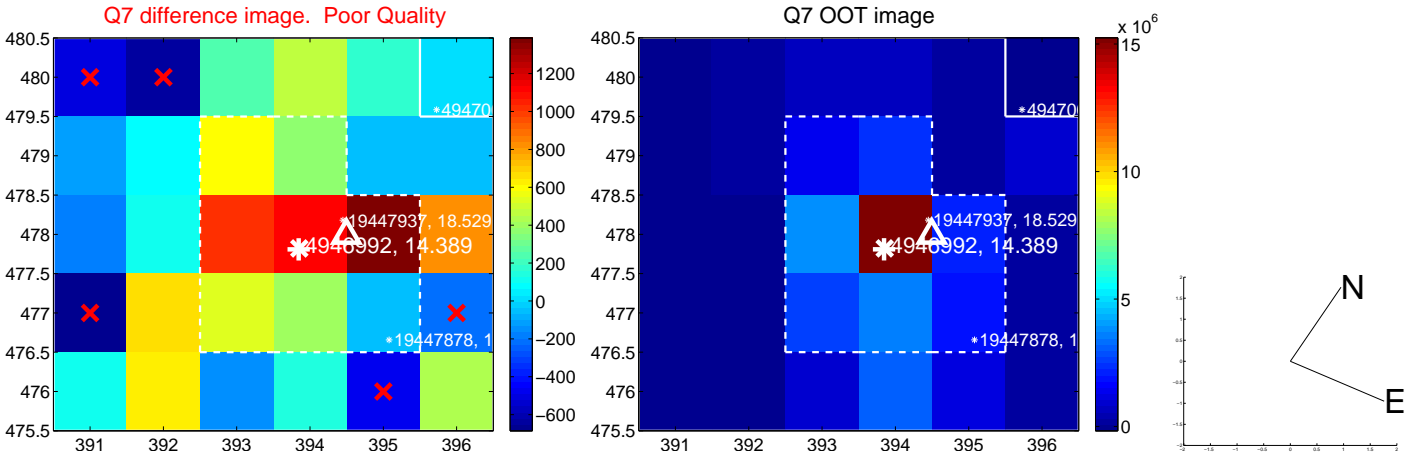
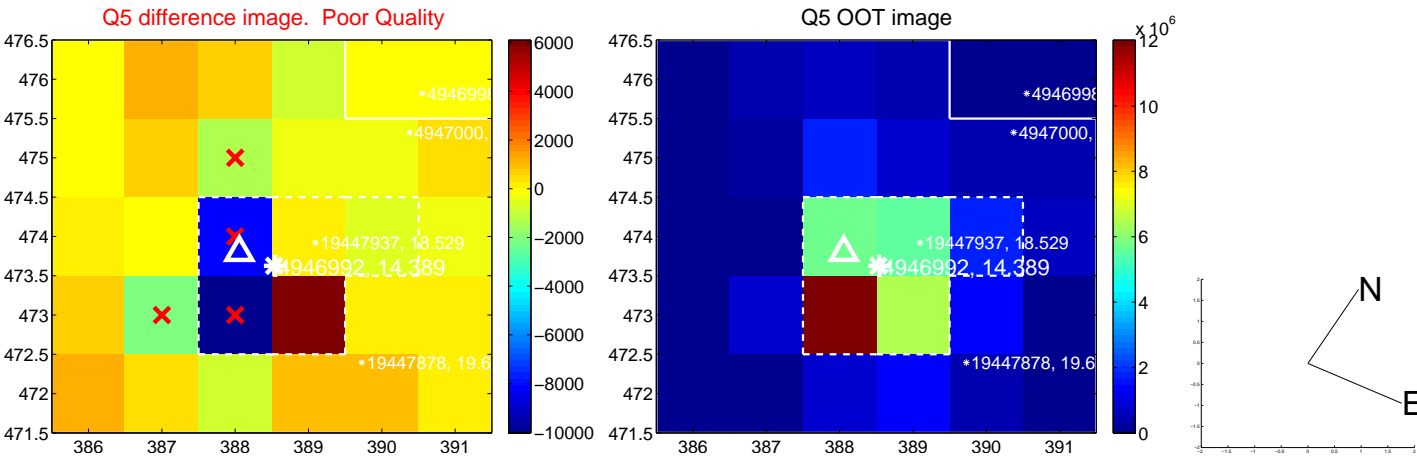


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

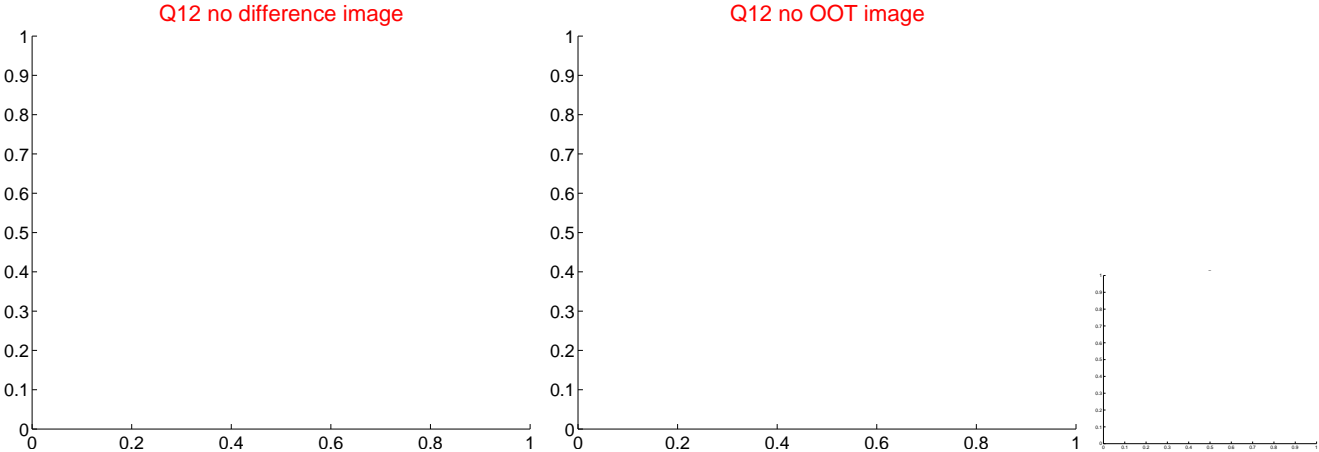
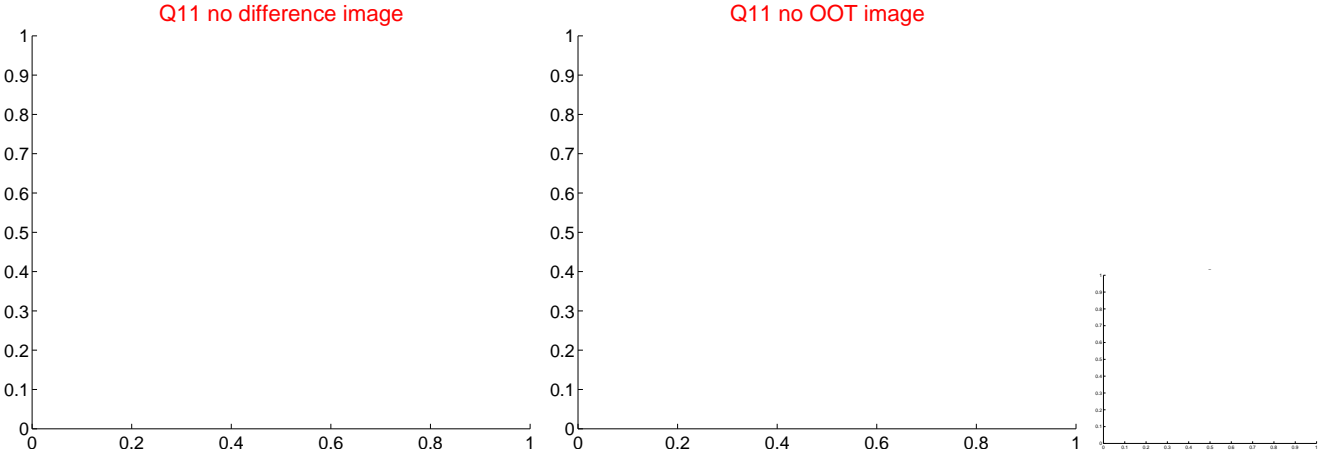
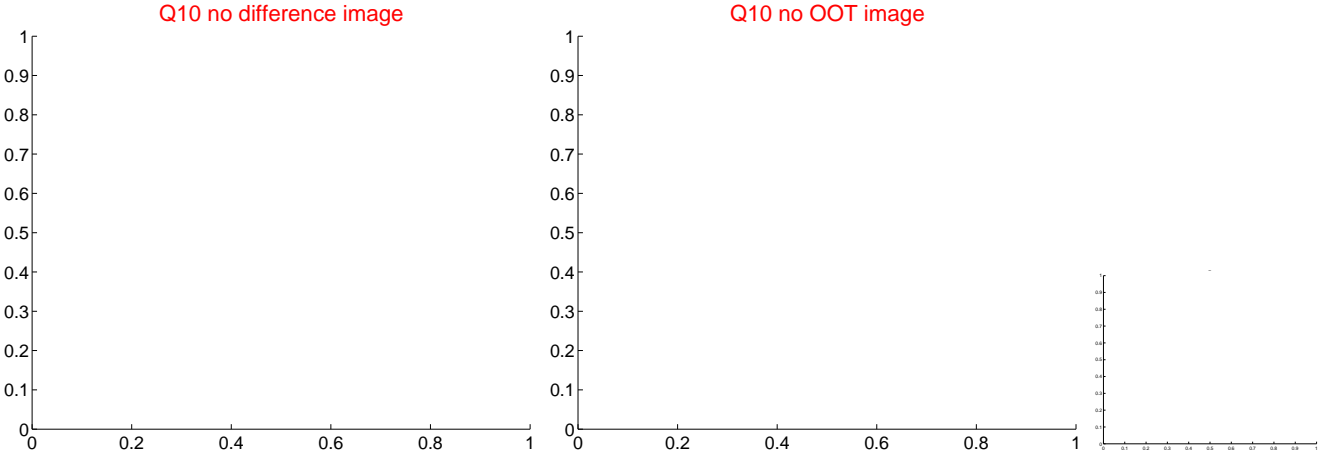
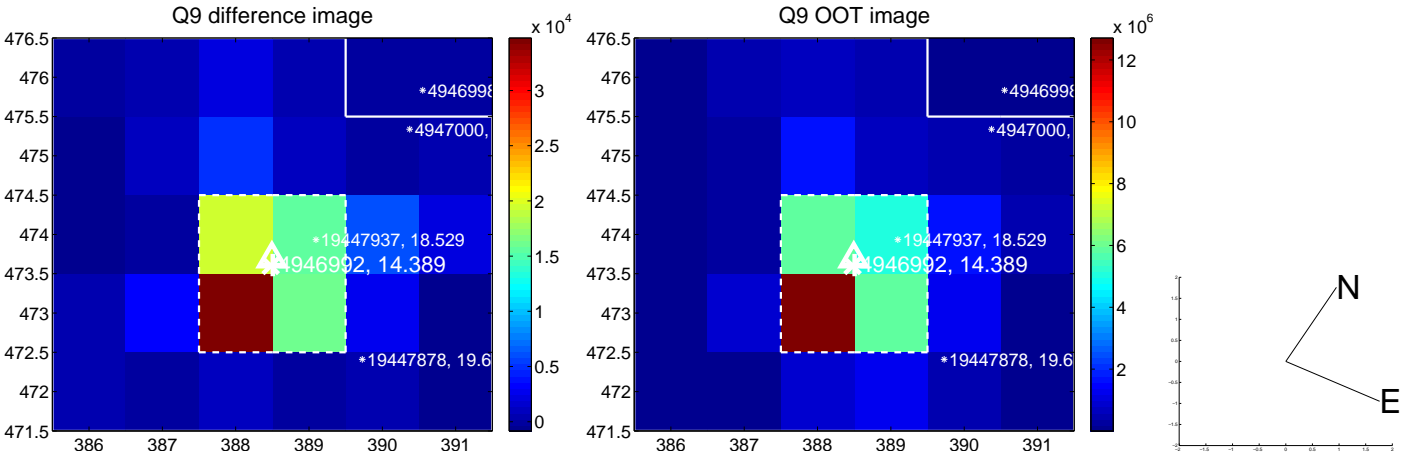
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



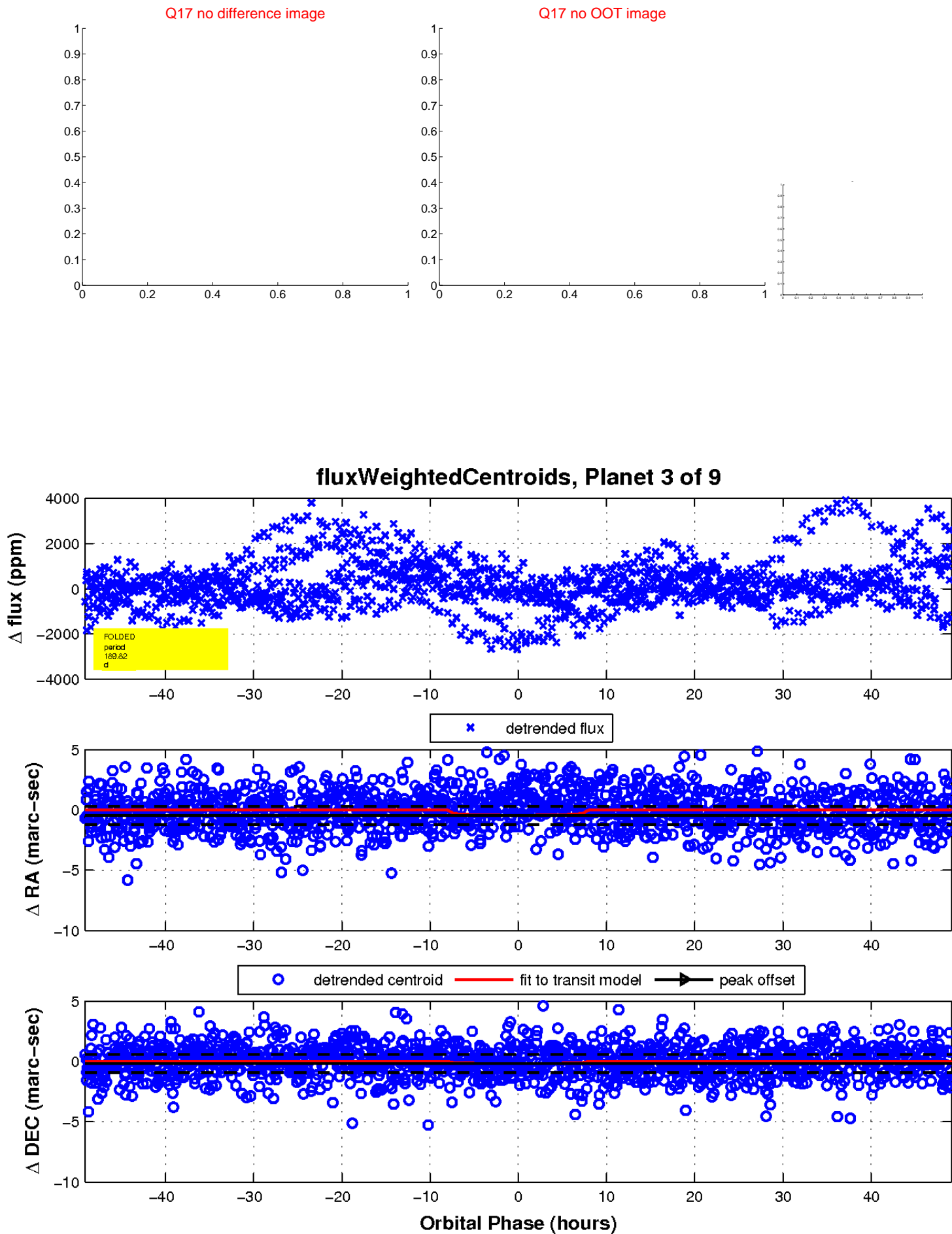
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

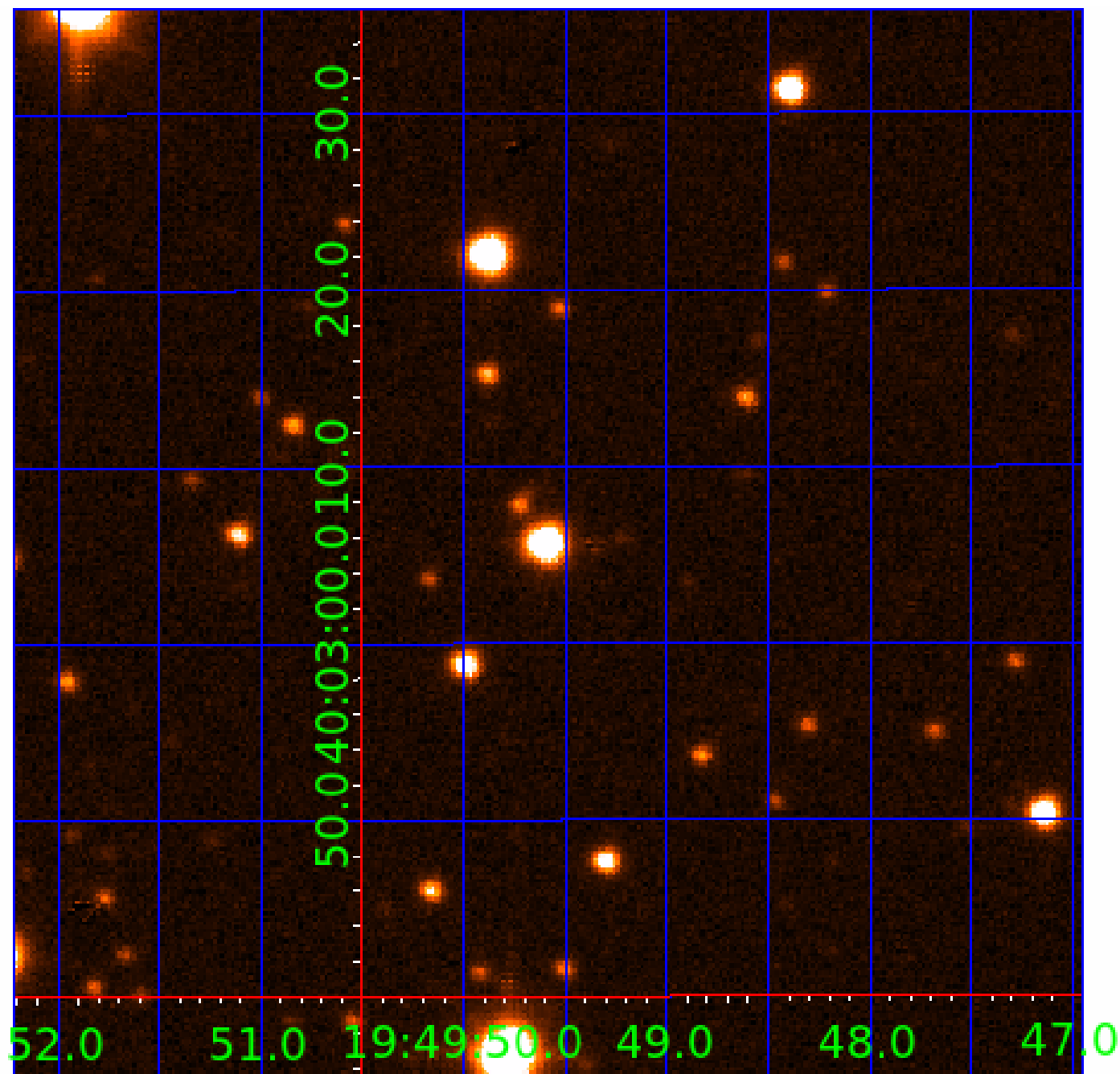


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004946992

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})
004946992-01	OBS	No	1.767502	131.929168	58.0	8.058	8.6	5.9	0.85	5901	0.69	996.28
004946992-03	OBS	No	189.822551	271.786563	944.0	16.376	13.5	5.9	0.85	5901	2.77	1.95
004946992-06	OBS	No	128.290905	227.277641	317.3	2.770	10.4	3.0	0.85	5901	1.78	3.29
004946992-07	OBS	No	576.200310	307.473393	906.1	2.749	9.7	6.8	0.85	5901	2.55	0.44
004946992-08	OBS	No	118.743894	178.100225	2138.4	20.640	9.9	10.2	0.85	5901	7.37	3.65
004946992-09	OBS	No	178.883964	254.015426	295.3	1.851	9.1	2.5	0.85	5901	1.58	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004946992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS
004946992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED
004946992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

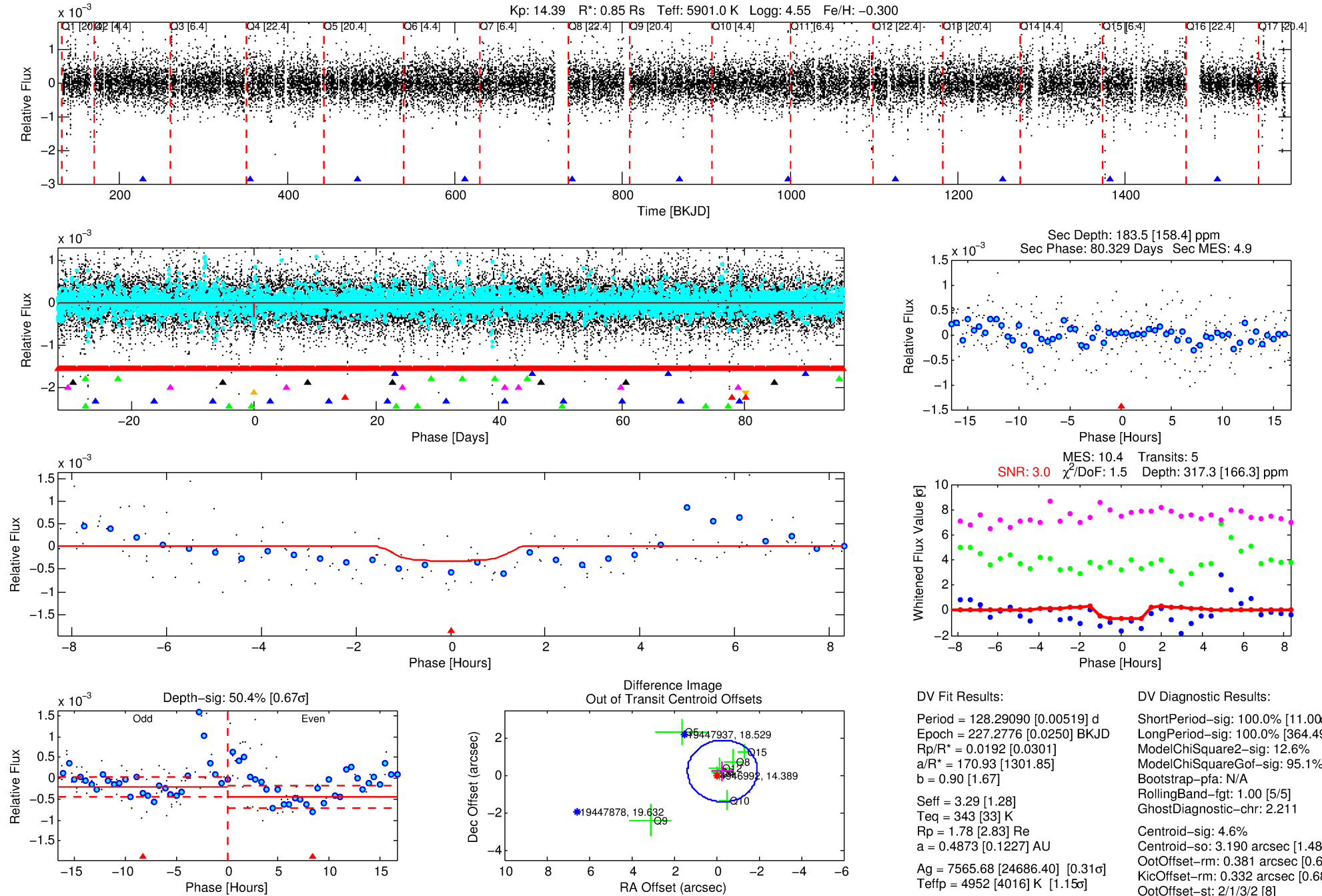
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004946992-06

No Significant Match Found

DV One-Page Summary

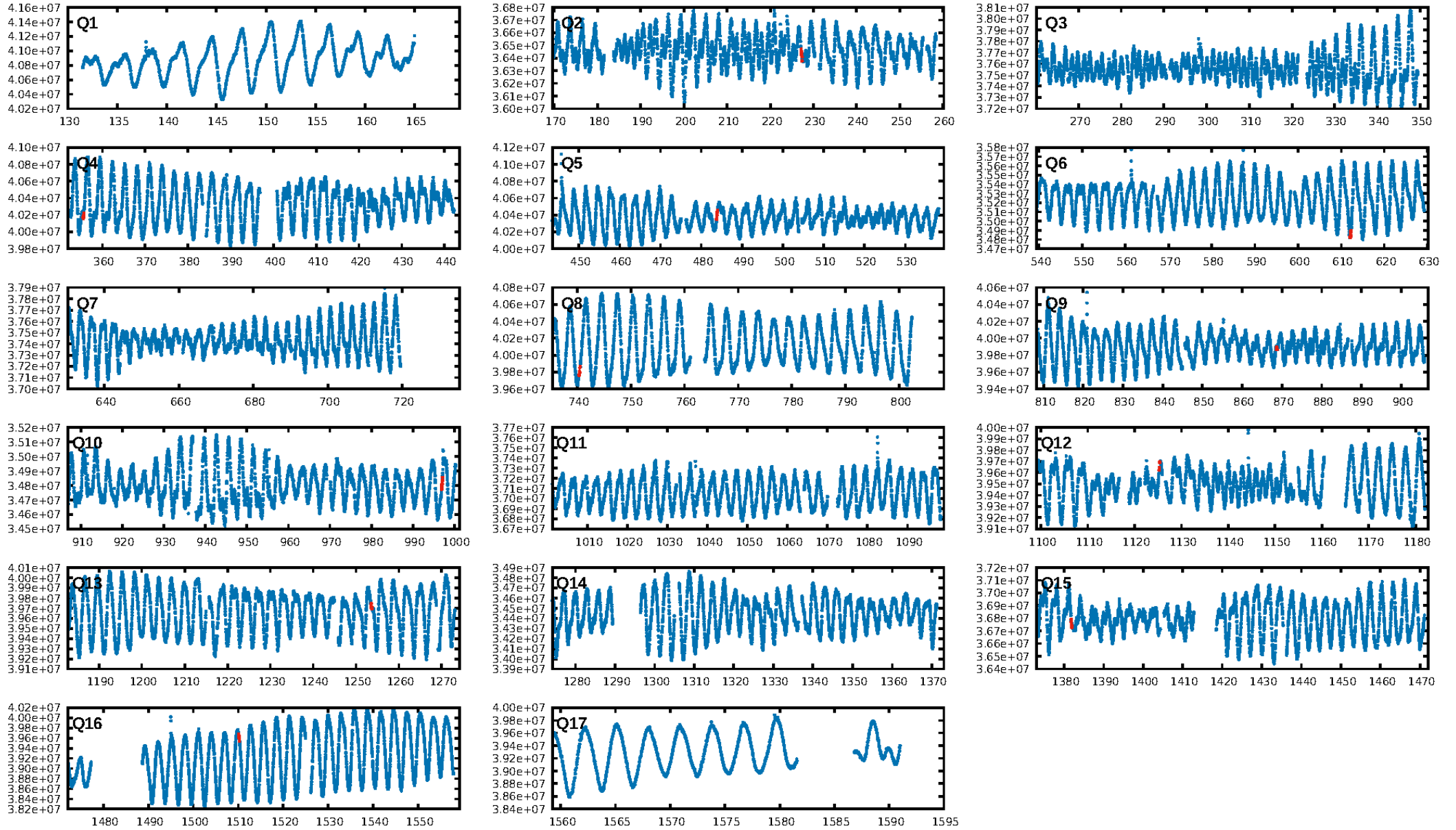
KIC: 4946992 Candidate: 6 of 9 Period: 128.291 d



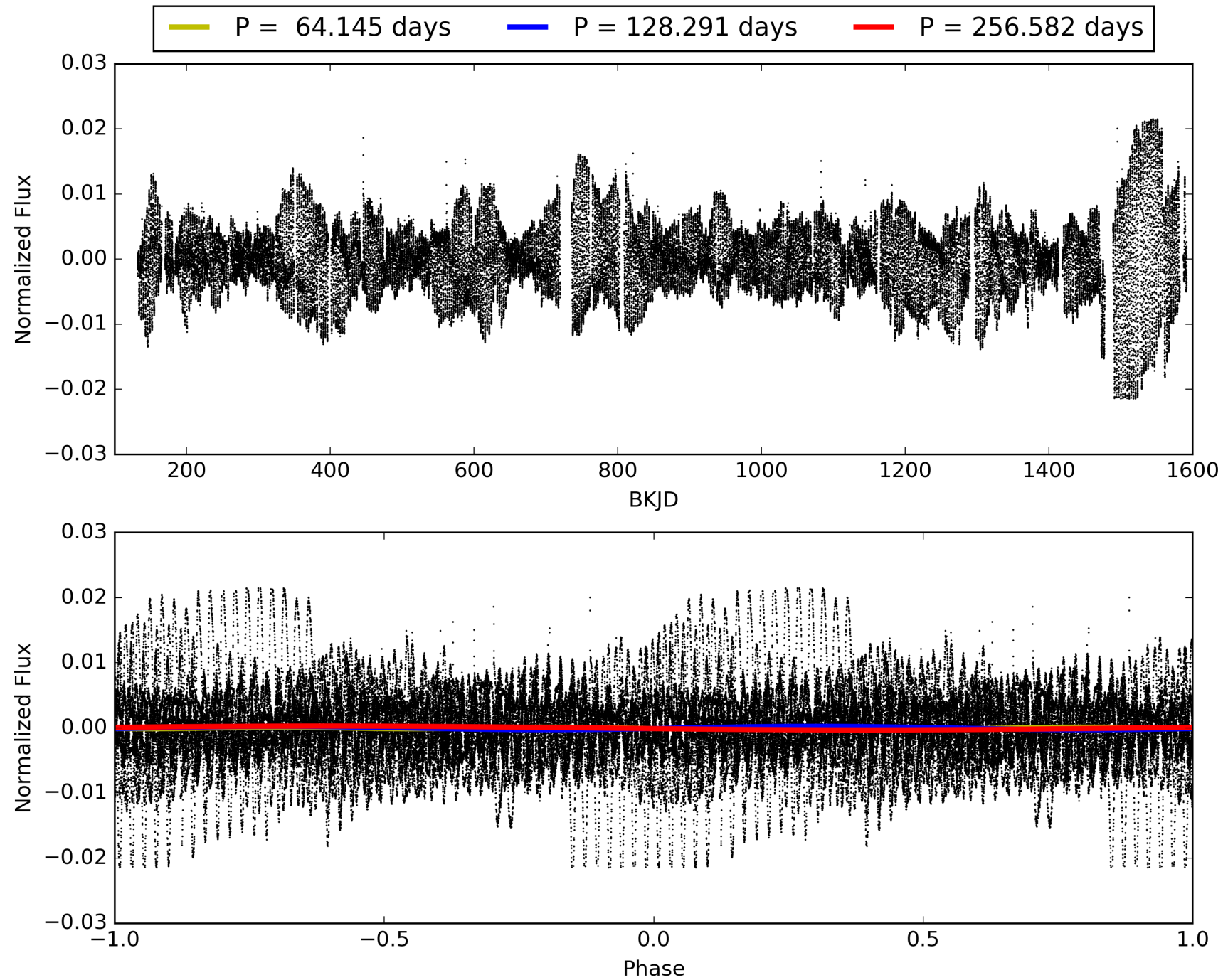
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:47:21 Z

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

TCE 004946992-06, PDC Light Curves

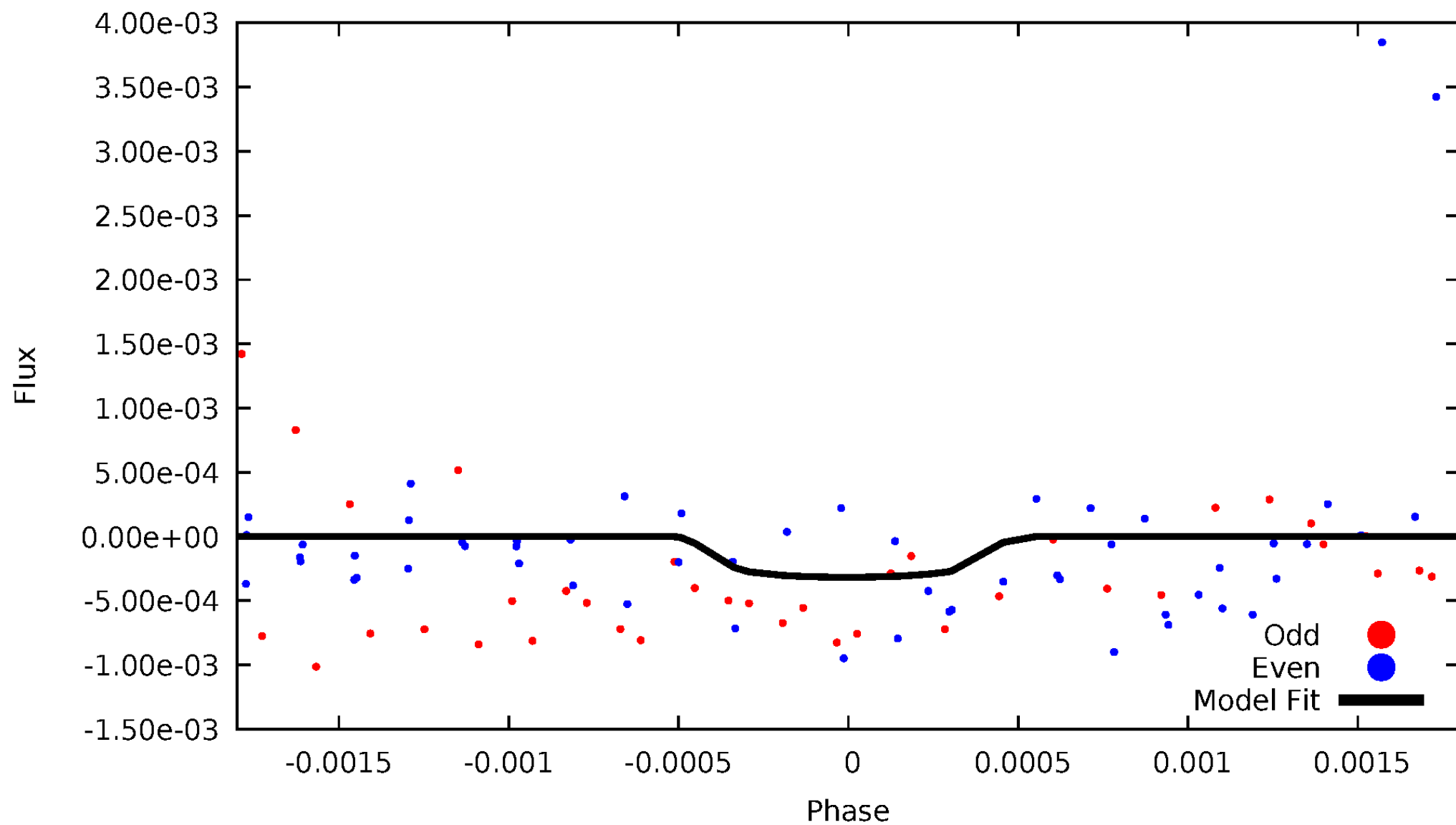


TCE 004946992-06



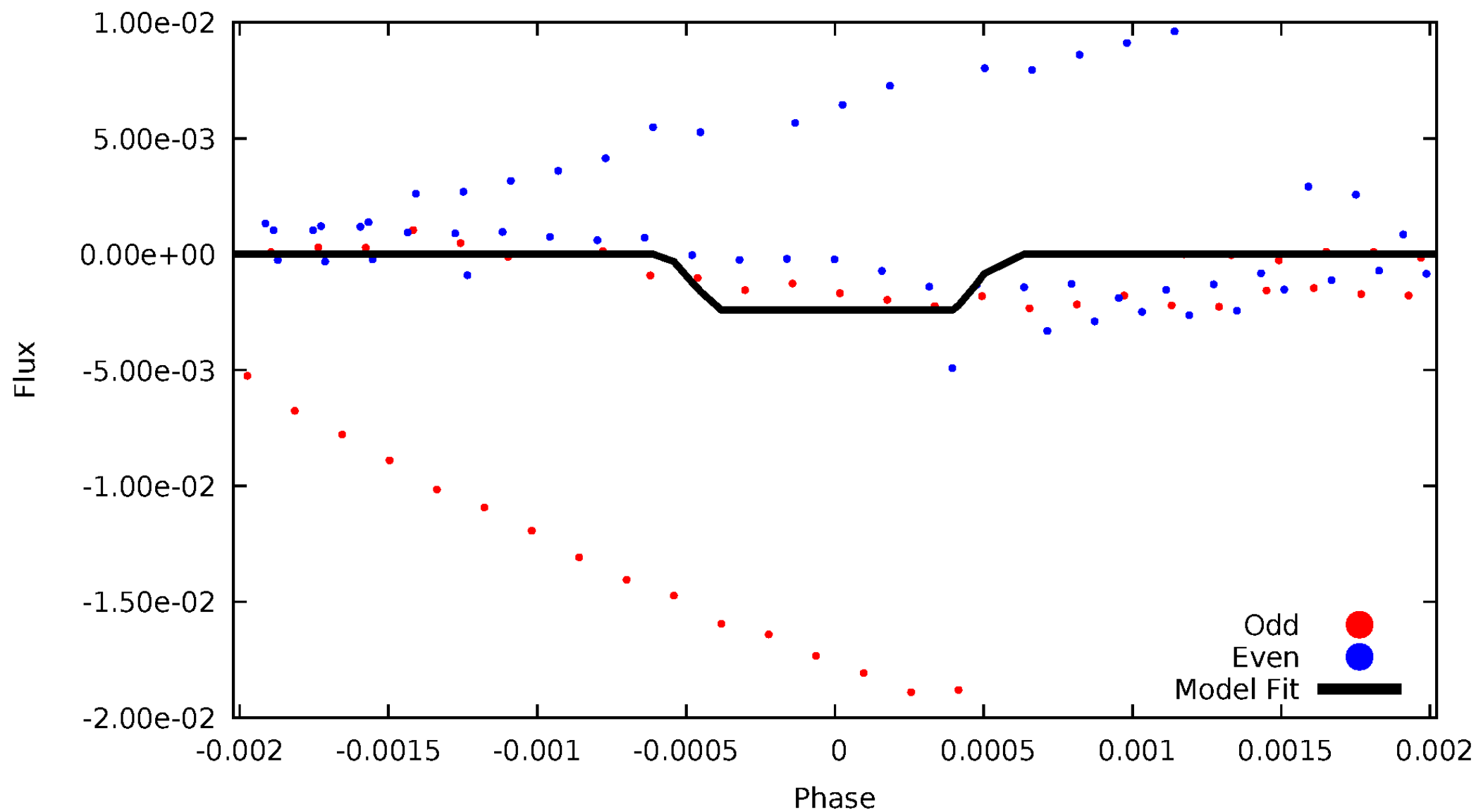
DV Odd/Even

TCE 004946992-06



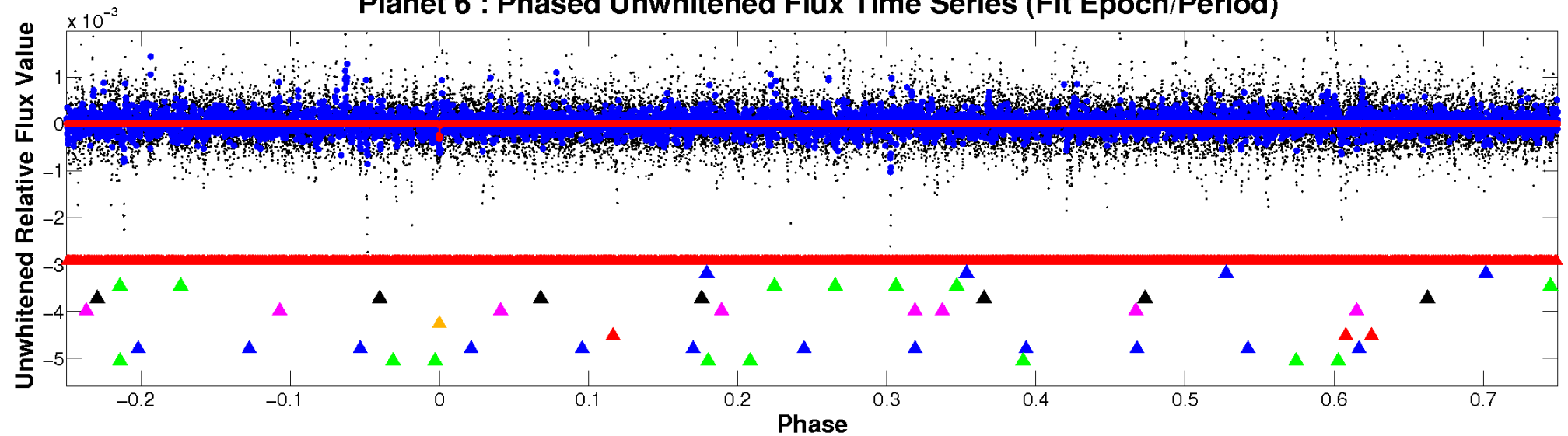
ALT Odd/Even

TCE 004946992-06

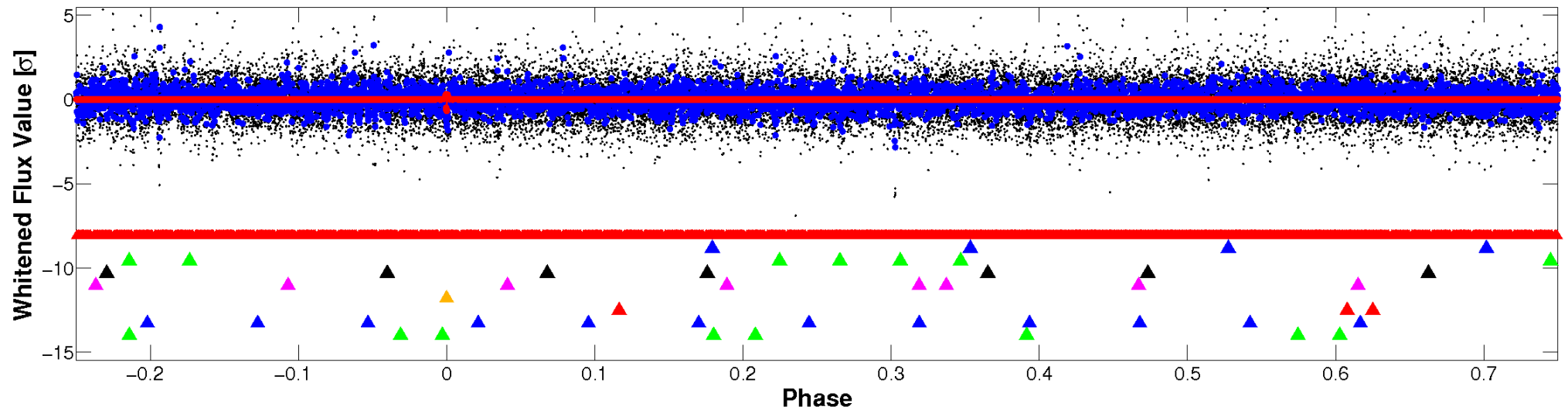


Non-Whitened Vs. Whitened Light Curve

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

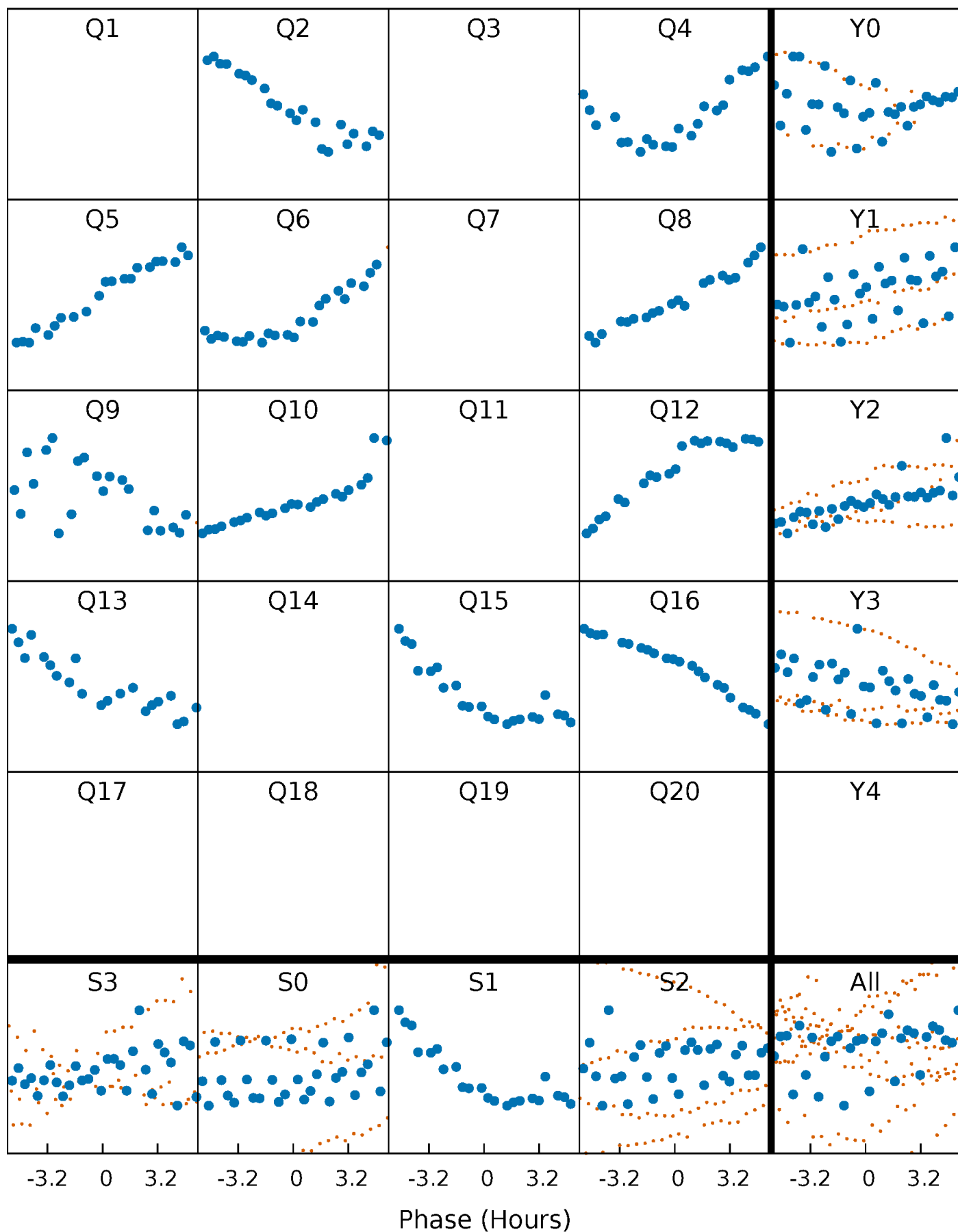


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



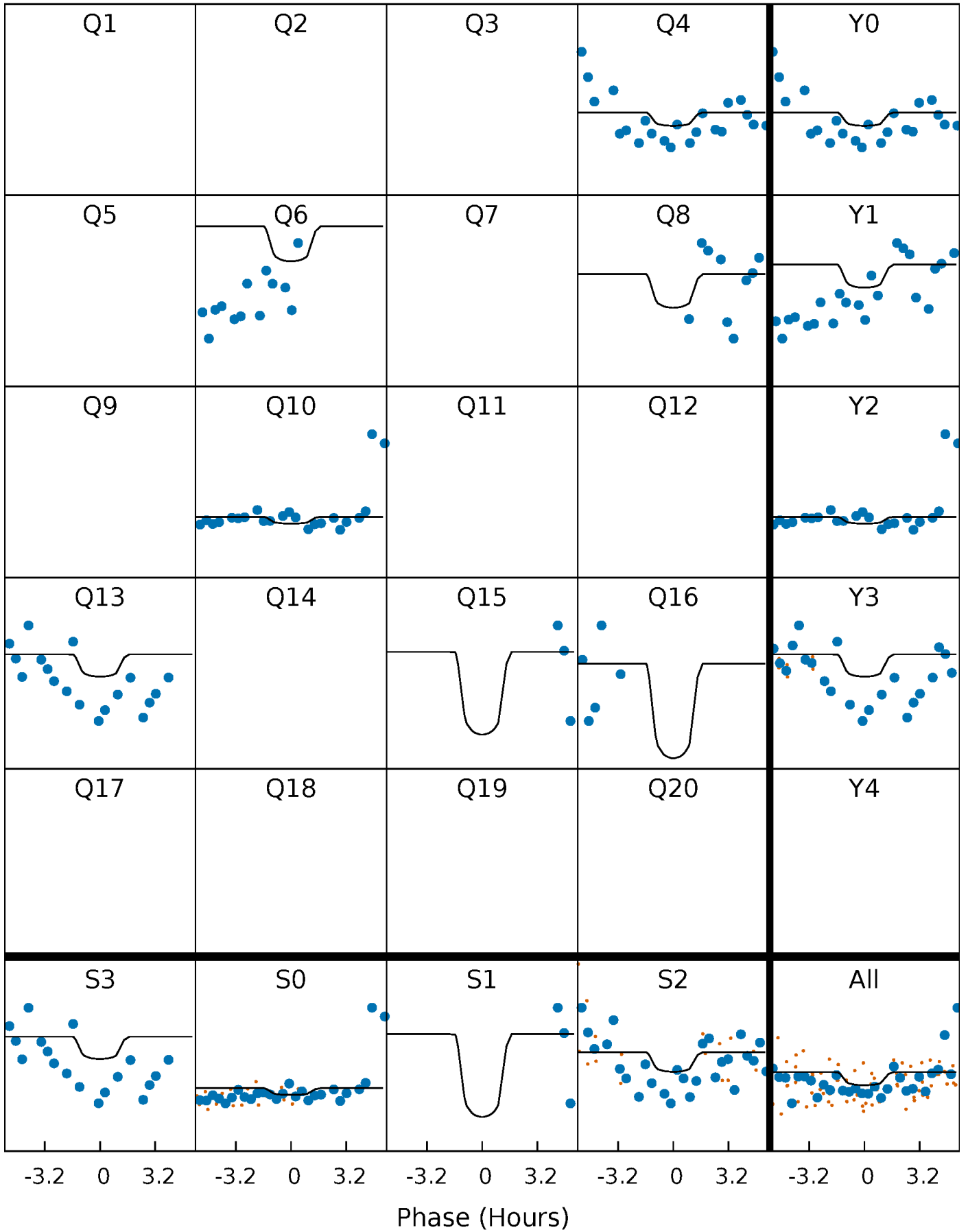
PDC Quarter-Phased Transit Curves

TCE 004946992-06 P=128.290905 Days $T_0=227.277641$ (BKJD)



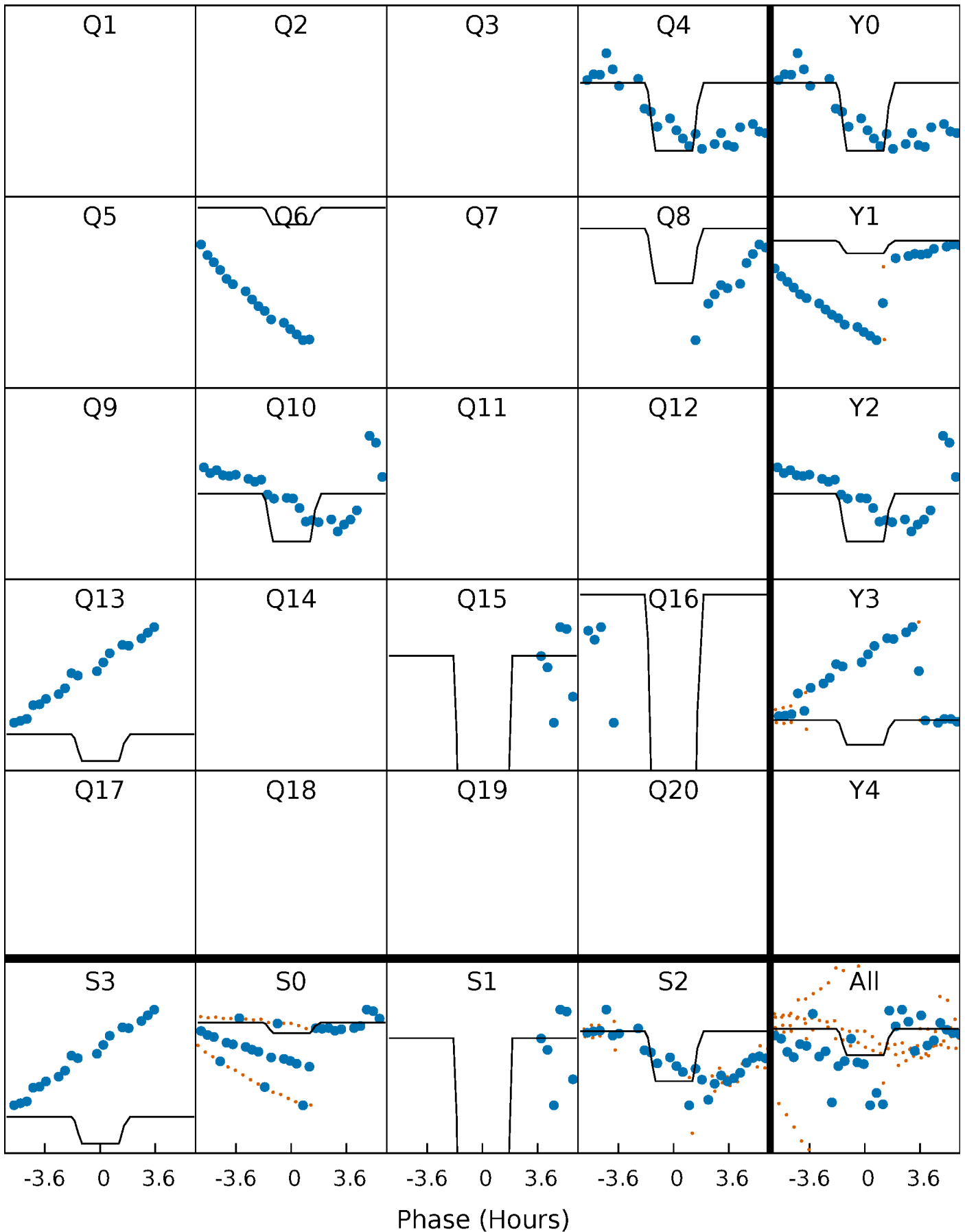
DV Quarter-Phased Transit Curves

TCE 004946992-06 $P=128.290905$ Days $T_0=227.277641$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

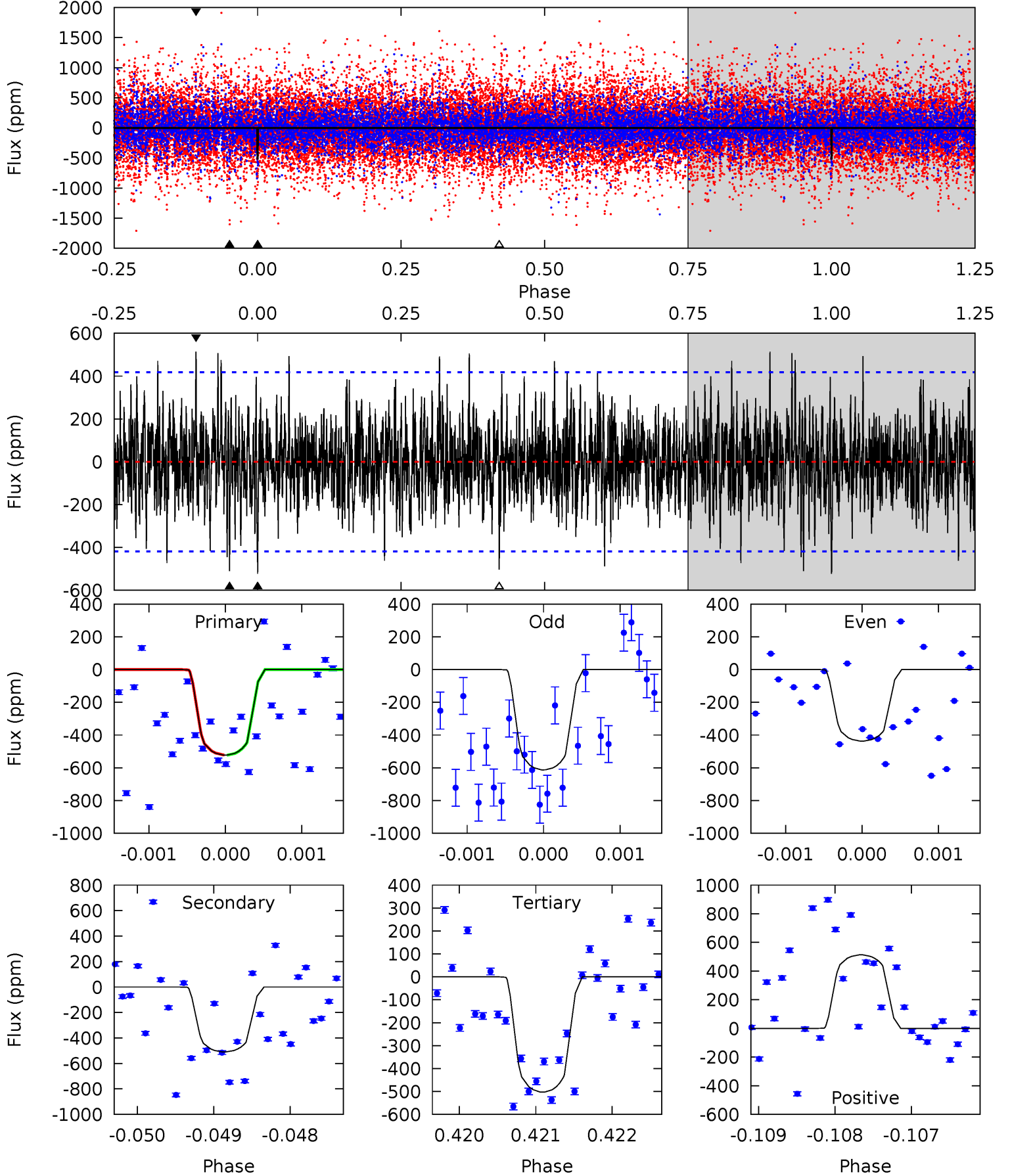
TCE 004946992-06 P=128.299868 Days $T_0=227.221300$ (BKJD)



DV Model-Shift Uniqueness Test

004946992-06, P = 128.290905 Days, E = 98.986736 Days

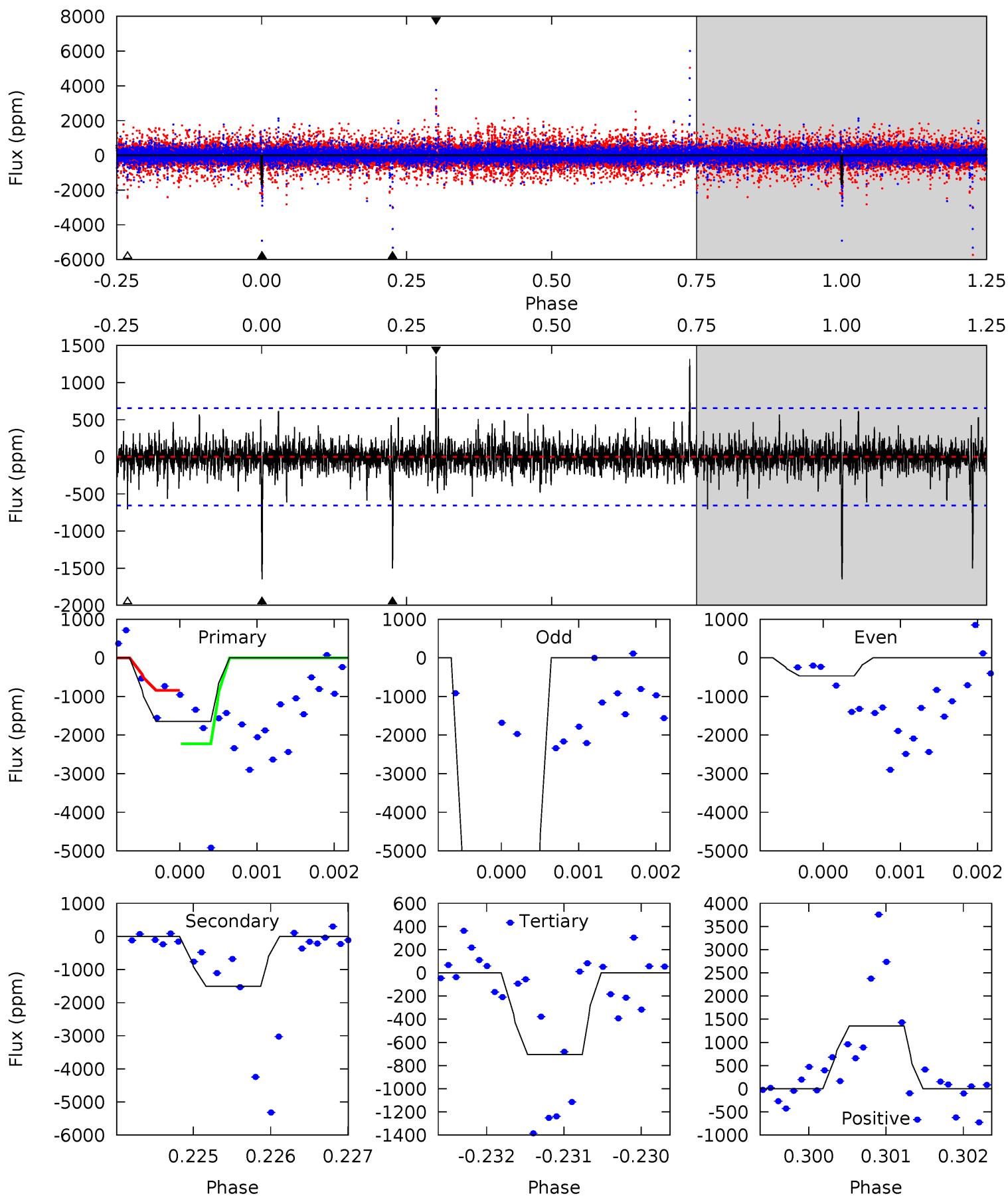
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.80	6.63	6.54	6.68	5.44	3.27	1.77	0.25	0.12	0.08	-0.05	1.11	0.89	0.50	0.01



Alt Model-Shift Uniqueness Test

004946992-06, P = 128.299868 Days, E = 98.921432 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	12.5	5.86	11.3	5.45	3.30	1.11	7.86	2.46	6.66	1.26	33.8	2.72	0.45	5.72



Stellar Parameters For KIC 004946992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5901^{+158}_{-175}	$4.553^{+0.036}_{-0.204}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.251}_{-0.079}$	$0.938^{+0.108}_{-0.108}$	$2.165^{+0.426}_{-1.110}$
	+3%/-3%	+1%/-4%	+100%/-100%	+30%/-9%	+12%/-12%	+20%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004946992-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-509 ± 77	$3.02^{+2.60}_{-1.98}$	492^{+31}_{-23}	5134^{+4030}_{-1105}	7254^{+53206}_{-5154}
Alt.	-1505 ± 120	$4.92^{+3.04}_{-2.55}$	493^{+34}_{-22}	5208^{+2490}_{-865}	7897^{+27048}_{-4838}

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 $A_{obs} \gg 1.0$

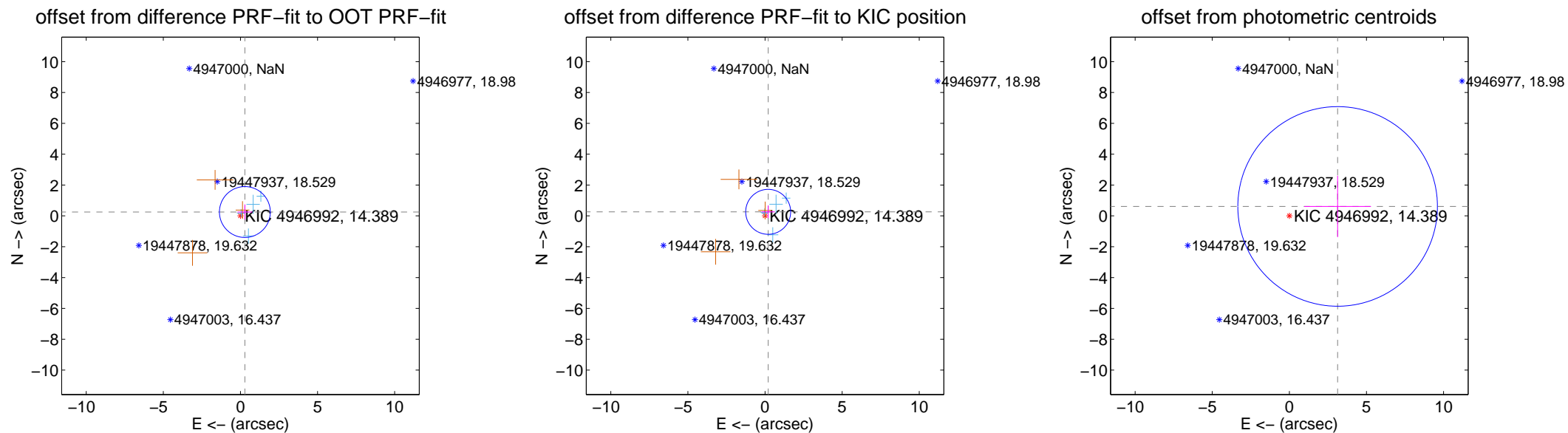
DV Centroid Data

Supplemental centroid analysis for 004946992-06. Kepler magnitude: 14.39. Transit SNR 3.01

There are 5 quarters with good PRF difference image offsets

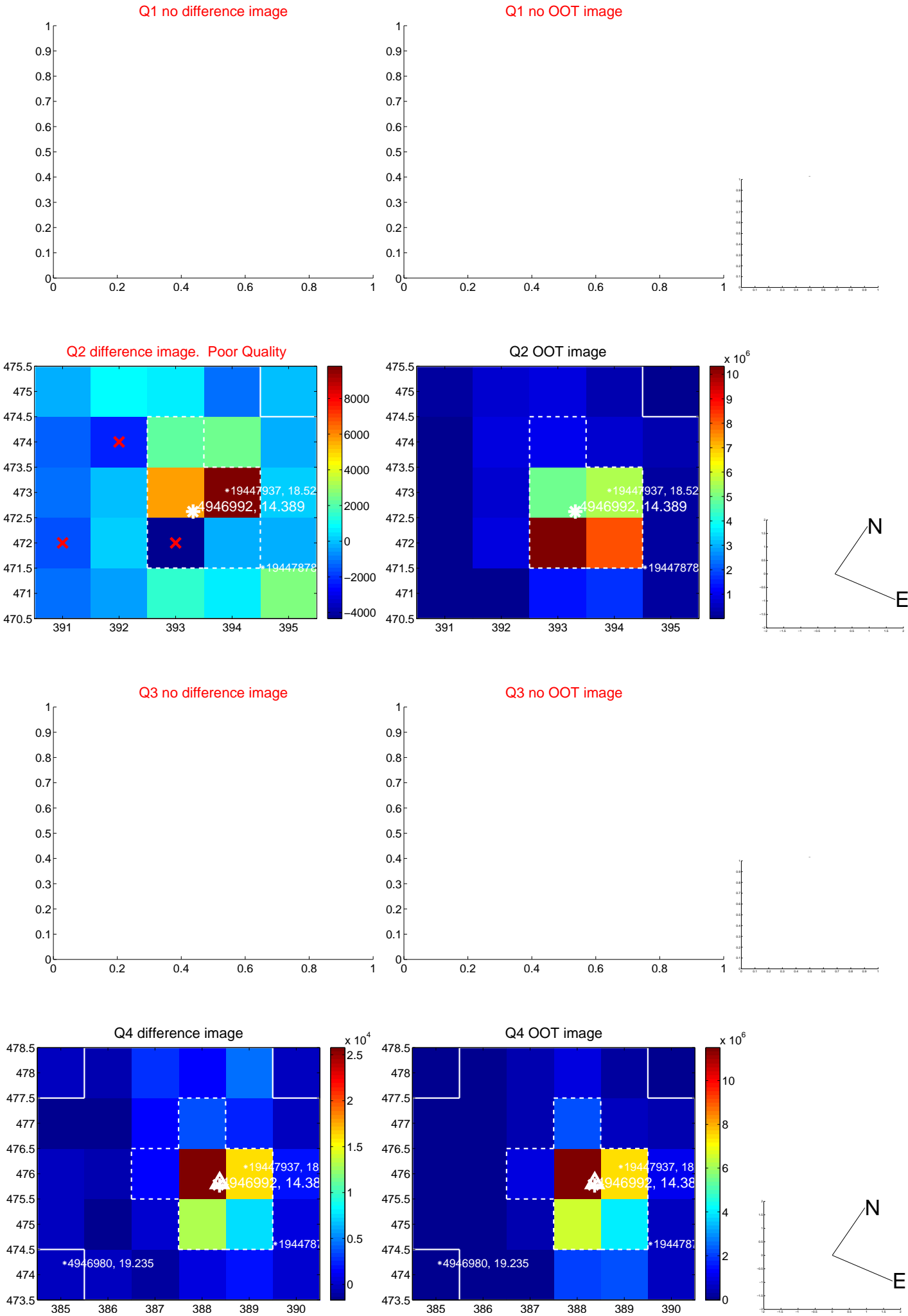
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.381 ± 0.550	0.69	-0.288 ± 0.481	0.250 ± 0.493
PRF-fit source offset from KIC position	0.332 ± 0.486	0.68	-0.204 ± 0.431	0.263 ± 0.407
photometric centroid source offset	3.19 ± 2.16	1.48	-3.13 ± 2.16	0.61 ± 1.99

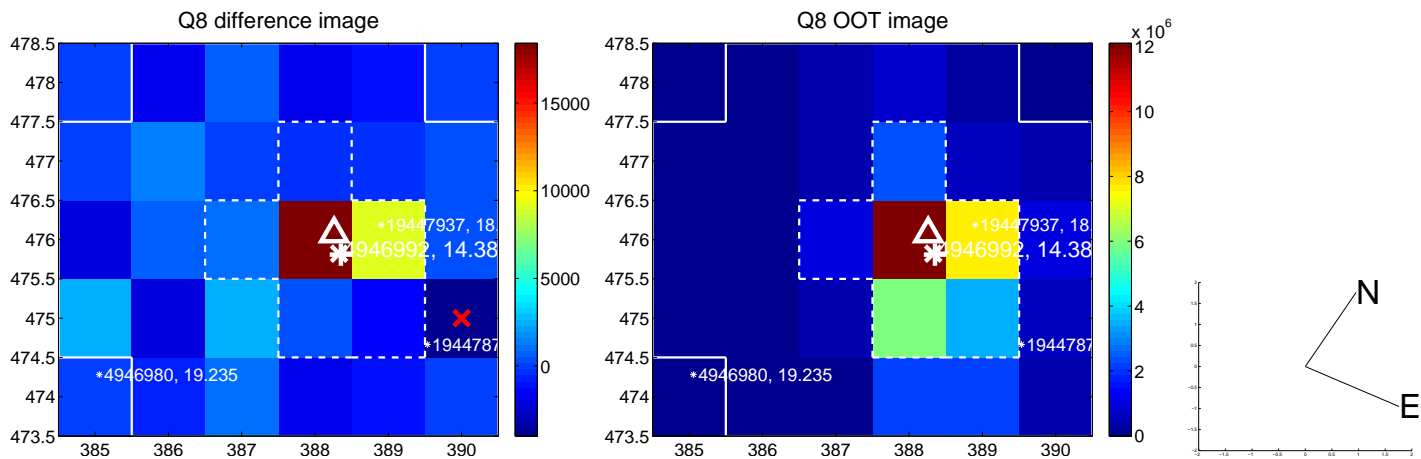
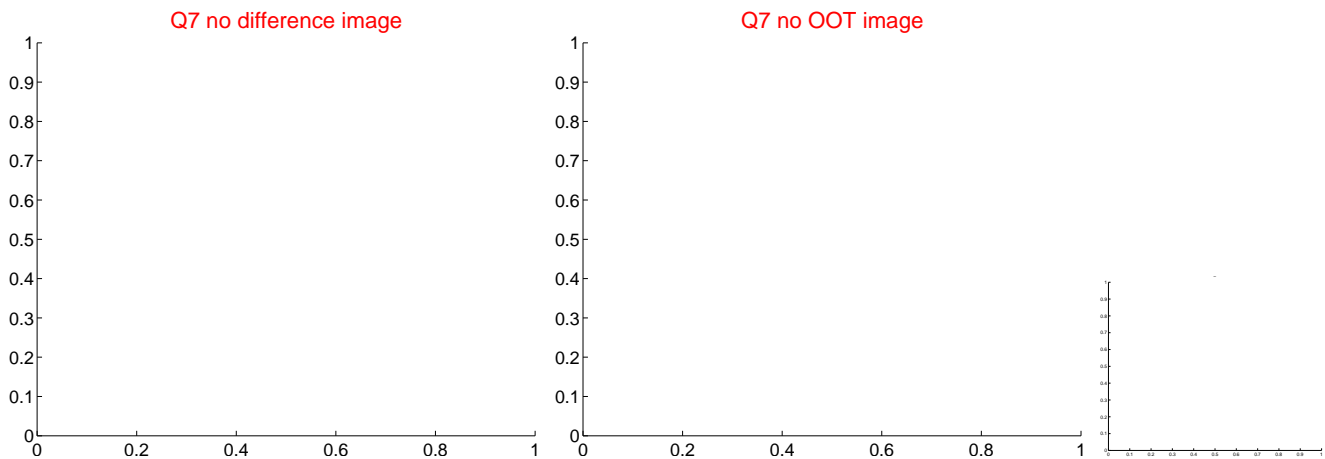
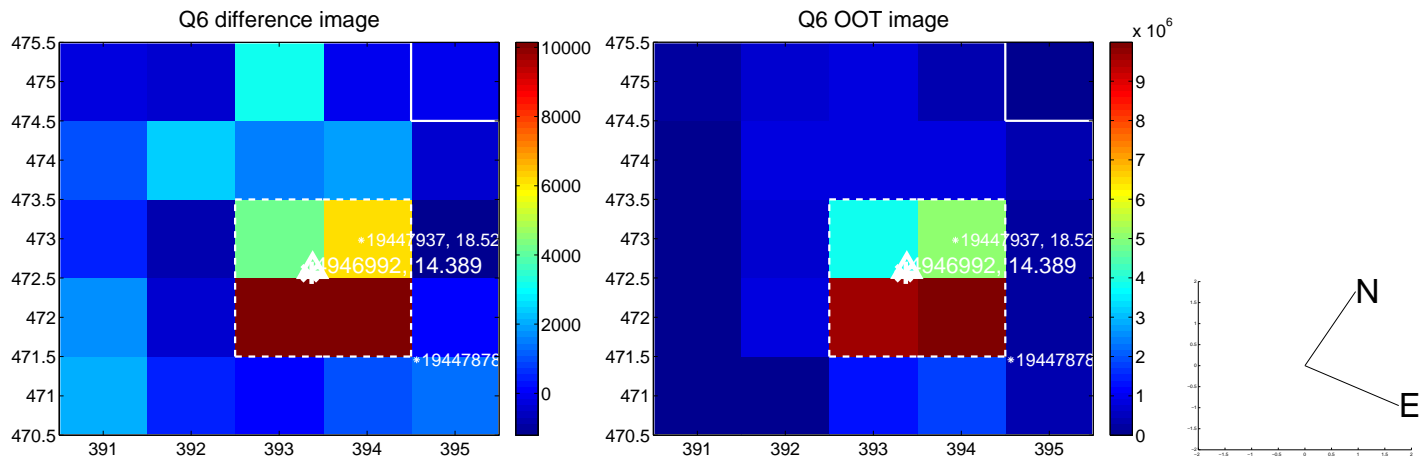
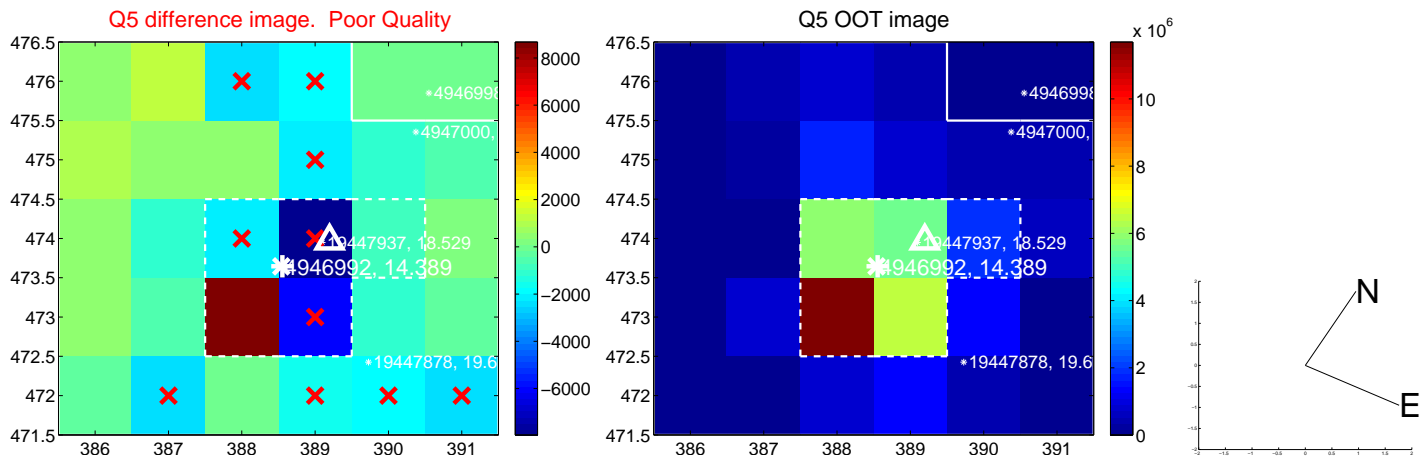


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

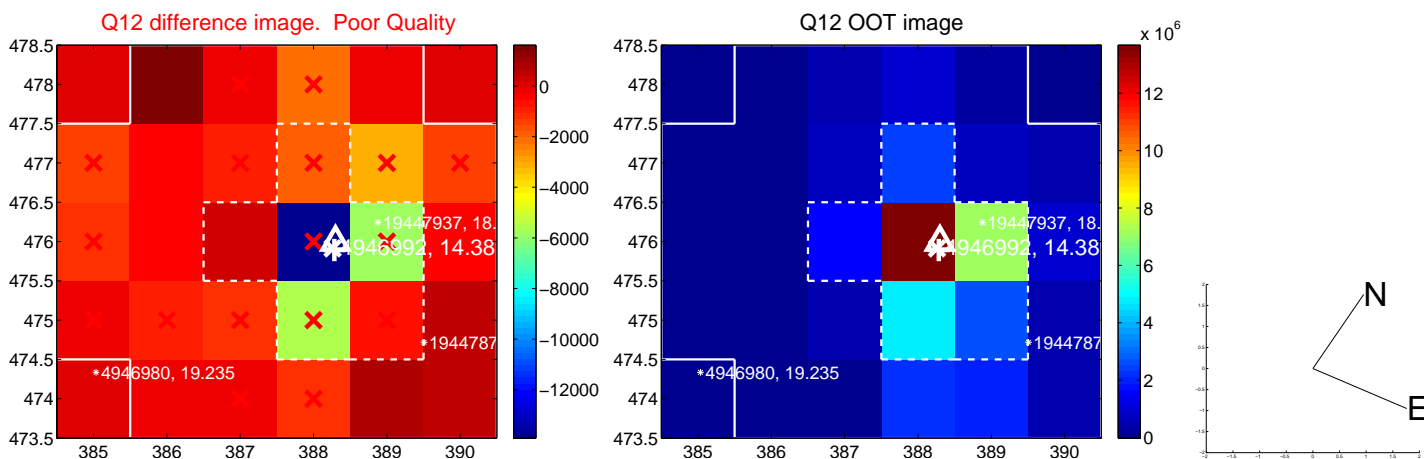
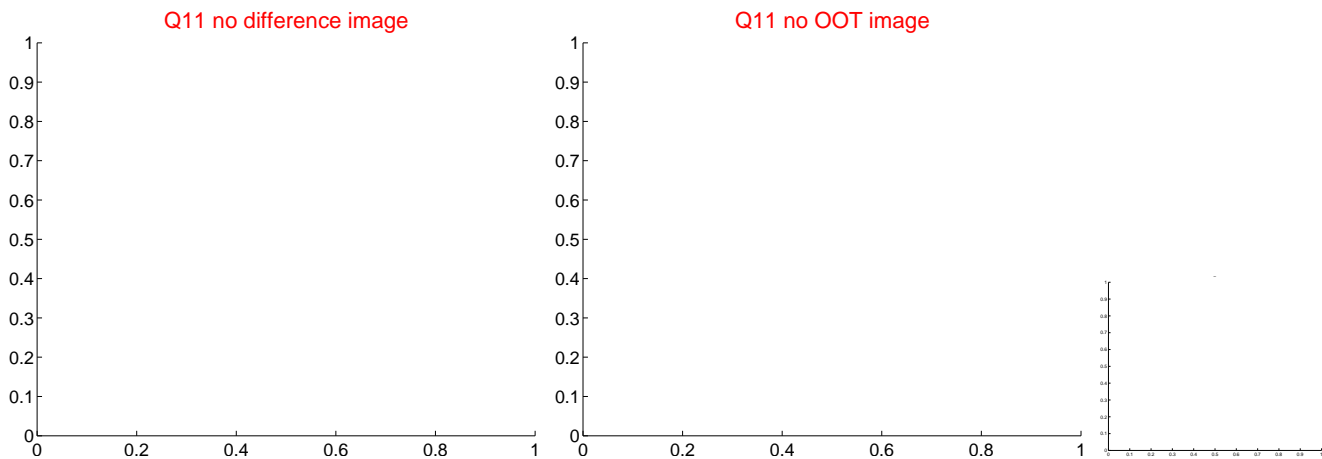
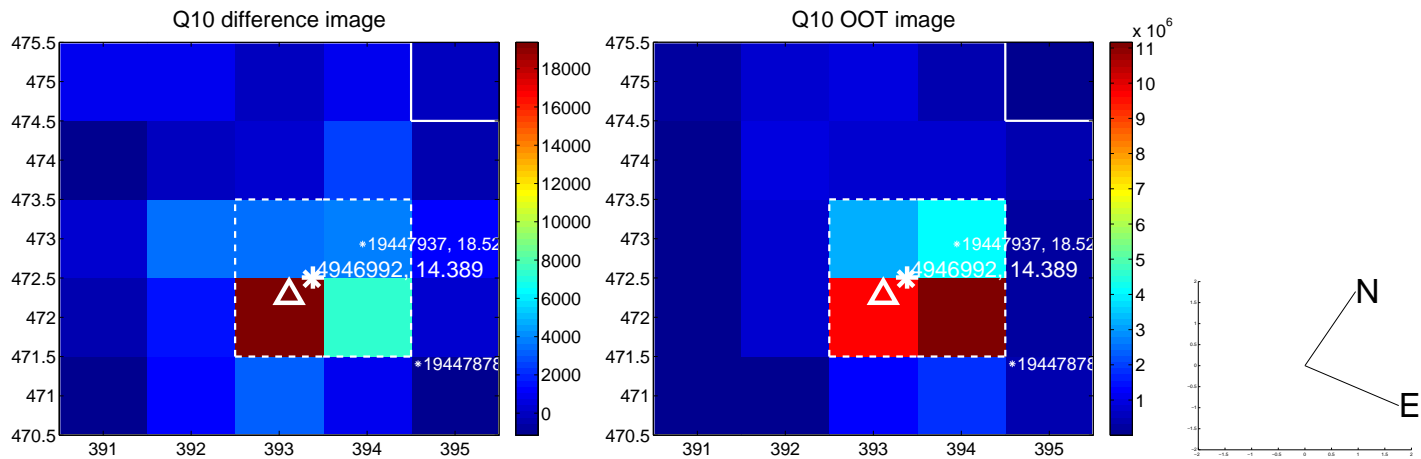
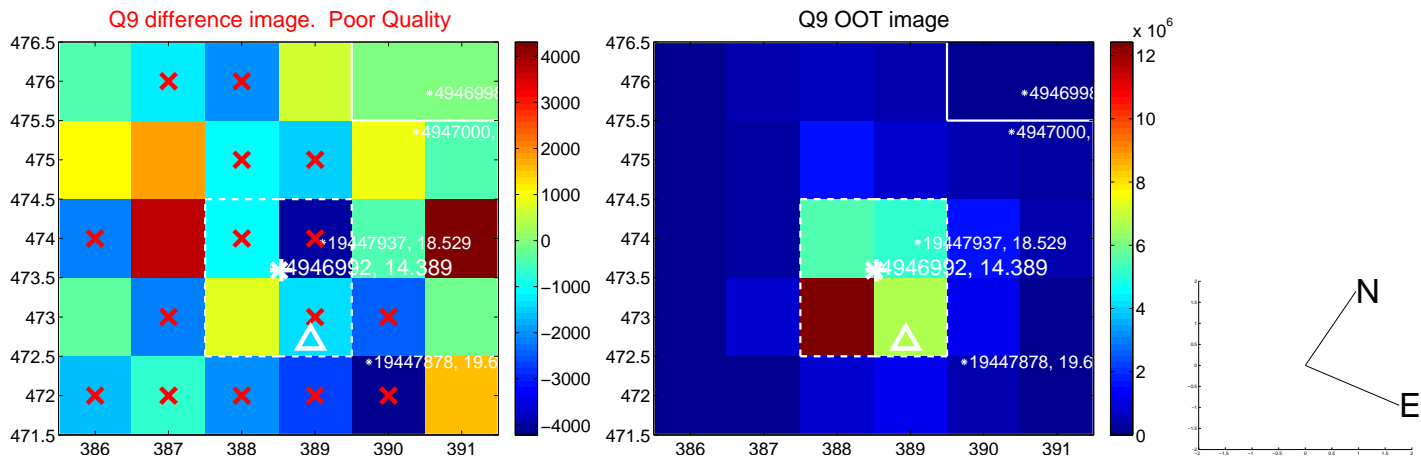
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



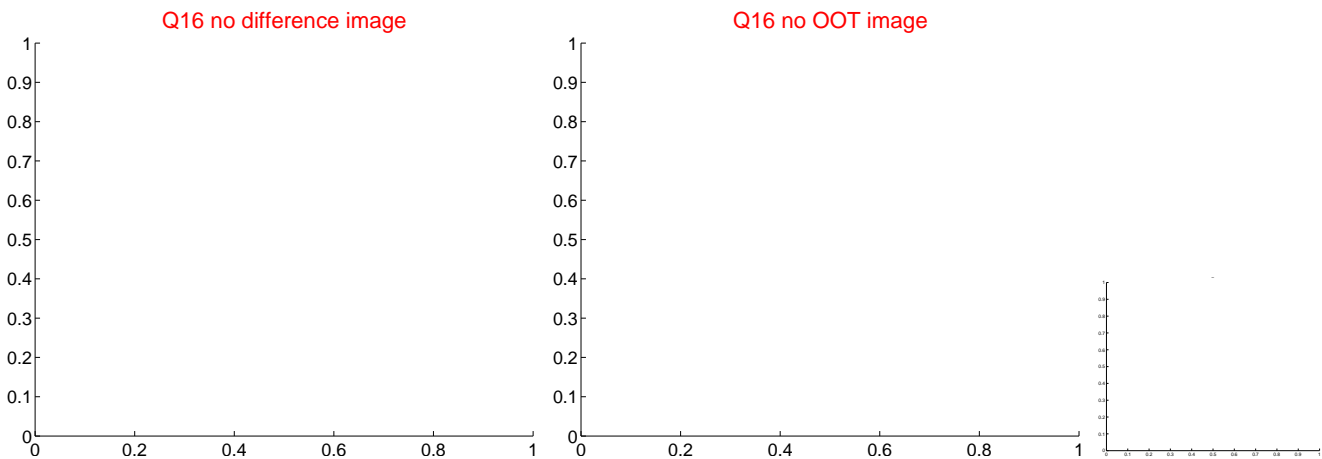
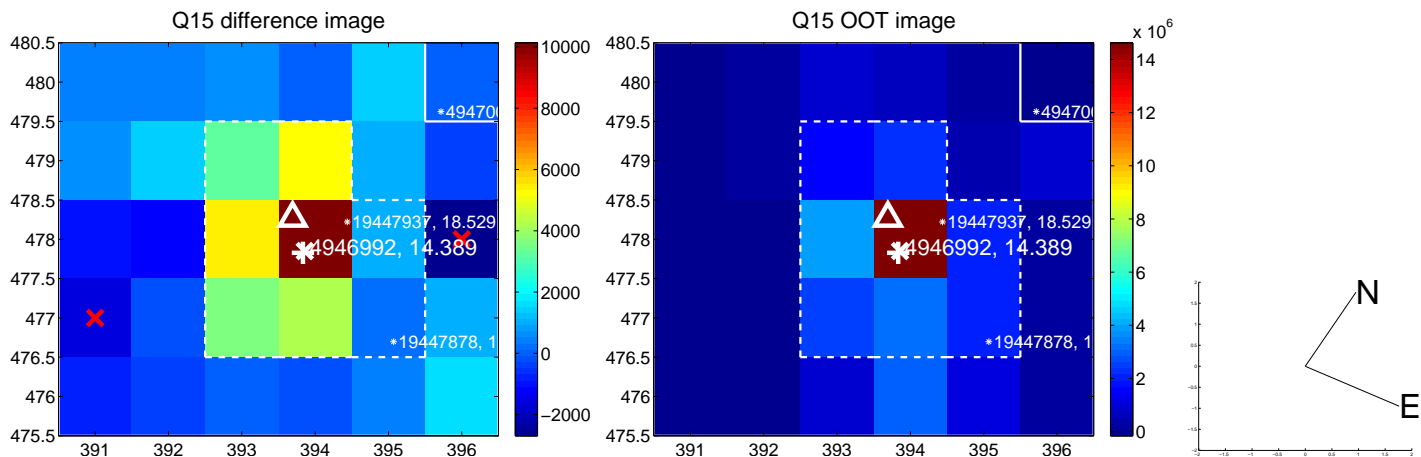
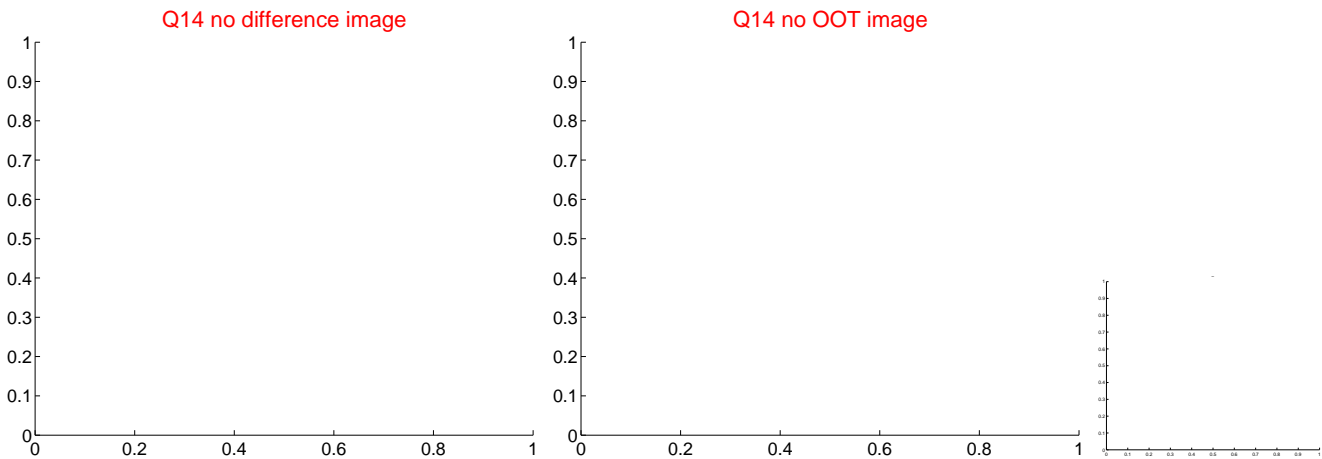
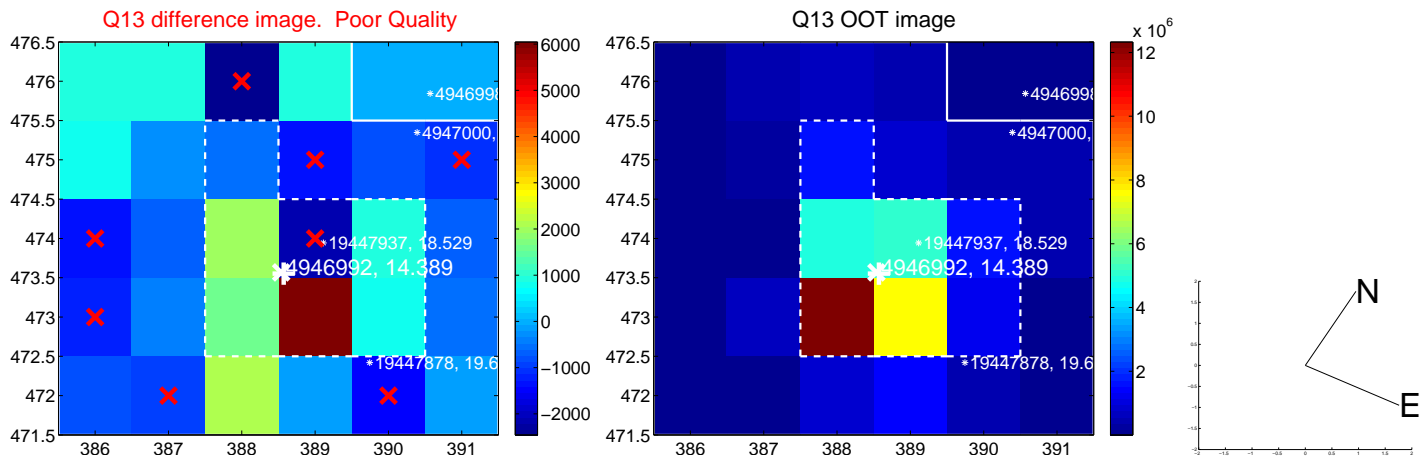
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



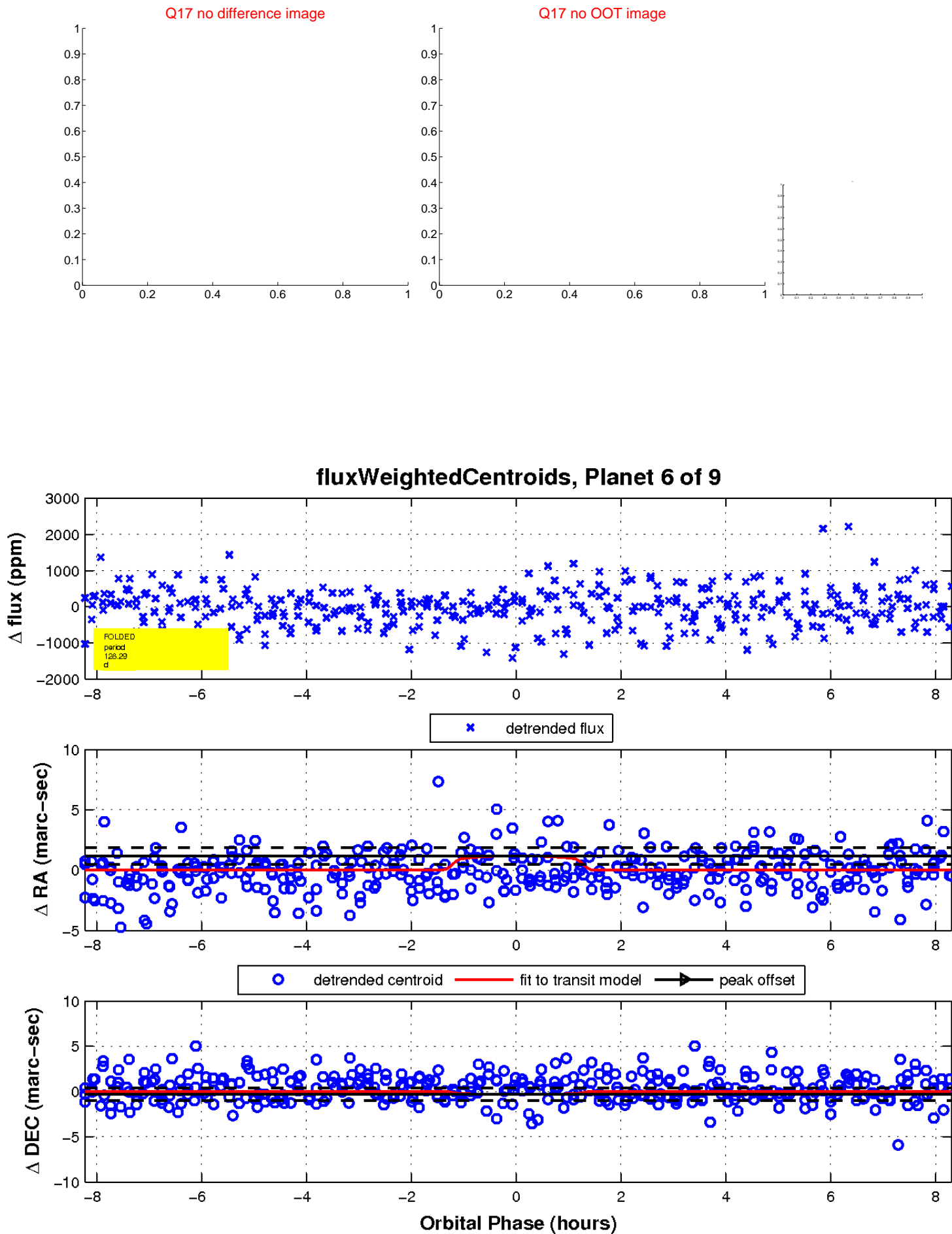
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

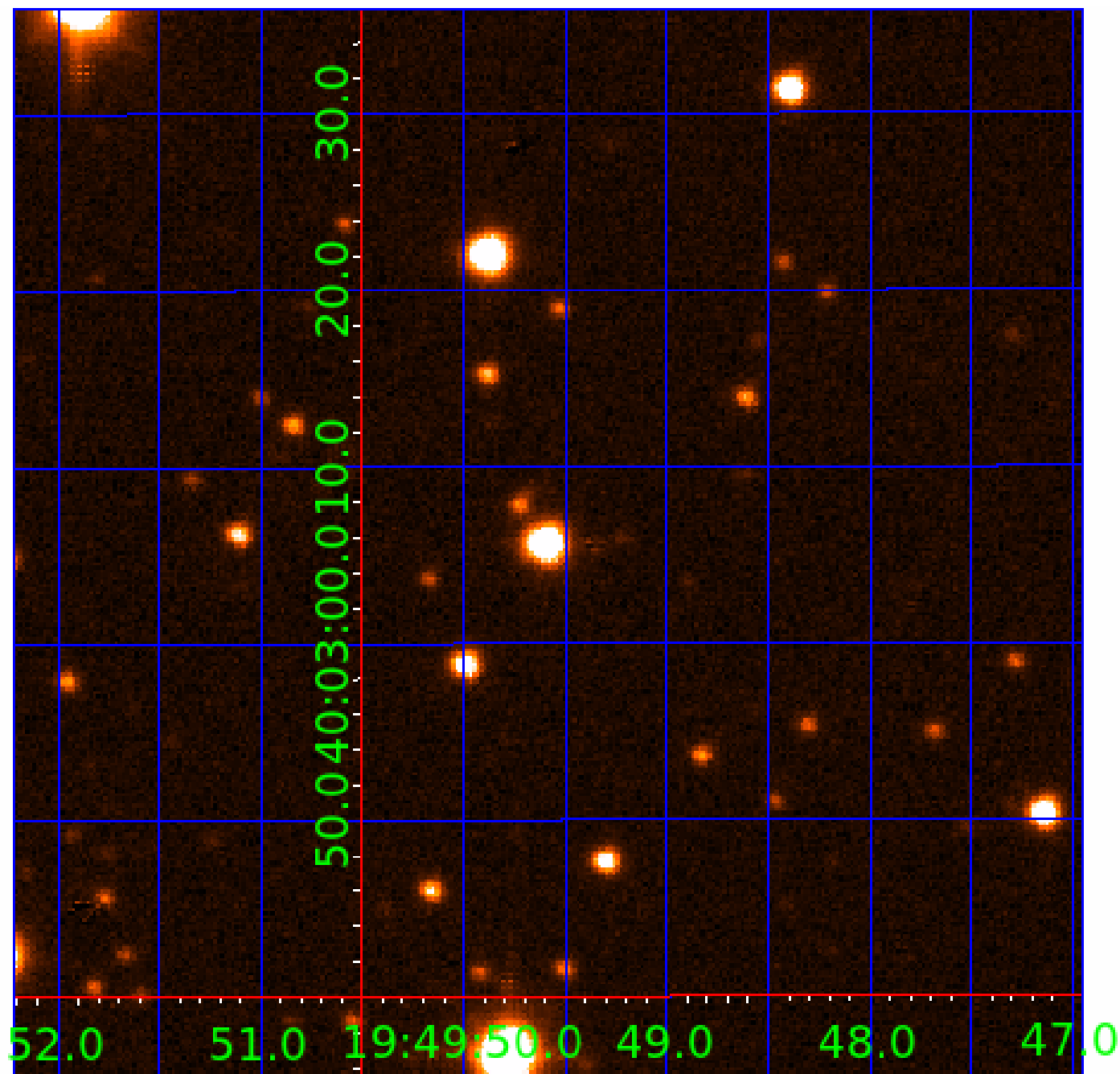


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004946992

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})
004946992-01	OBS	No	1.767502	131.929168	58.0	8.058	8.6	5.9	0.85	5901	0.69	996.28
004946992-03	OBS	No	189.822551	271.786563	944.0	16.376	13.5	5.9	0.85	5901	2.77	1.95
004946992-06	OBS	No	128.290905	227.277641	317.3	2.770	10.4	3.0	0.85	5901	1.78	3.29
004946992-07	OBS	No	576.200310	307.473393	906.1	2.749	9.7	6.8	0.85	5901	2.55	0.44
004946992-08	OBS	No	118.743894	178.100225	2138.4	20.640	9.9	10.2	0.85	5901	7.37	3.65
004946992-09	OBS	No	178.883964	254.015426	295.3	1.851	9.1	2.5	0.85	5901	1.58	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004946992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS
004946992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED
004946992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

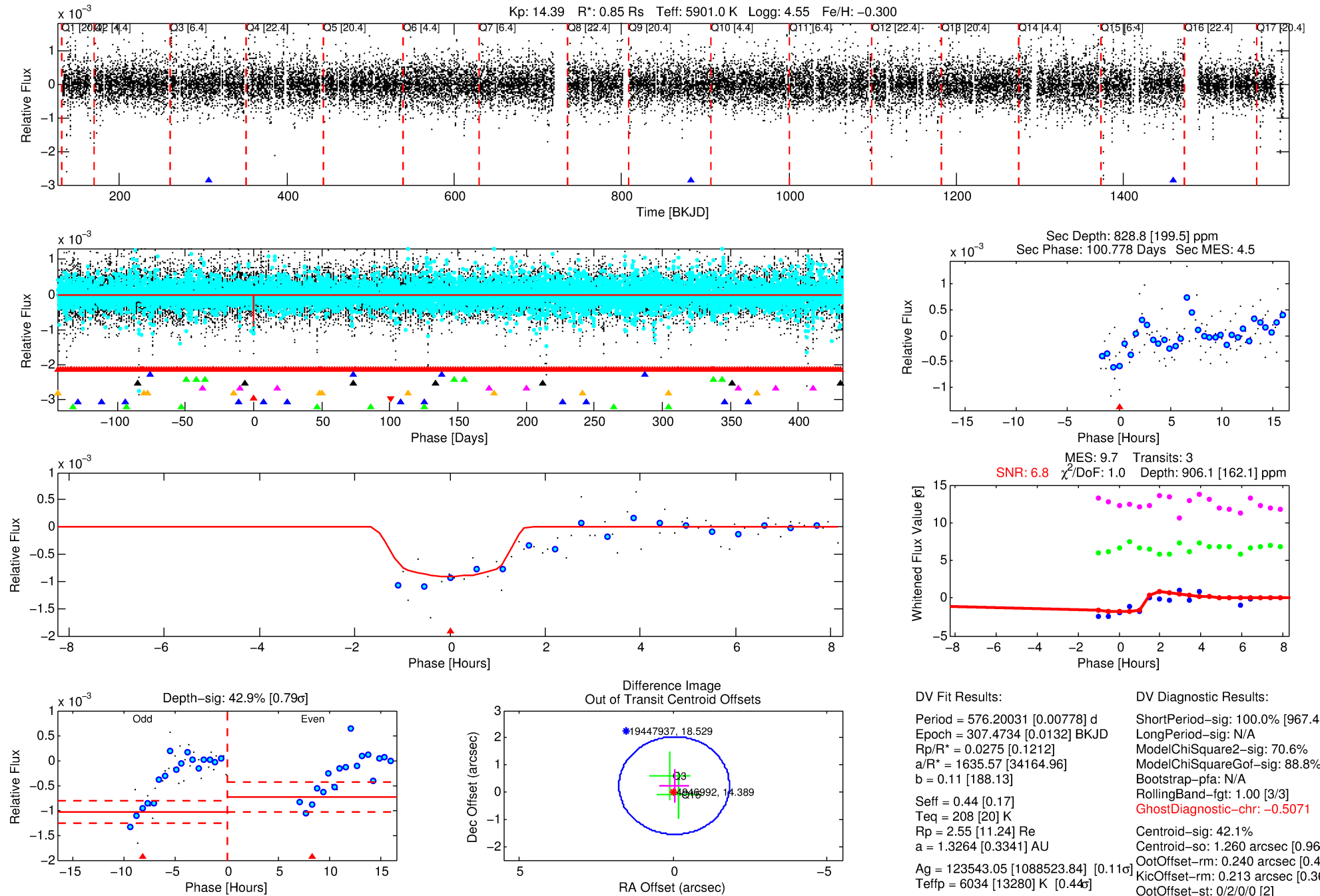
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004946992-07

No Significant Match Found

DV One-Page Summary

KIC: 4946992 Candidate: 7 of 9 Period: 576.200 d



DV Fit Results:

Period = 576.20031 [0.00778] d
Epoch = 307.4734 [0.0132] BKJD
Rp/R* = 0.0275 [0.1212]
a/R* = 1635.57 [34164.96]
b = 0.11 [188.13]
Seff = 0.44 [0.17]
Teq = 208 [20] K
Rp = 2.55 [11.24] Re
a = 1.3264 [0.3341] AU
Ag = 123543.05 [1088523.84] [0.11 σ]
Teff = 6034 [13280] K [0.44 σ]

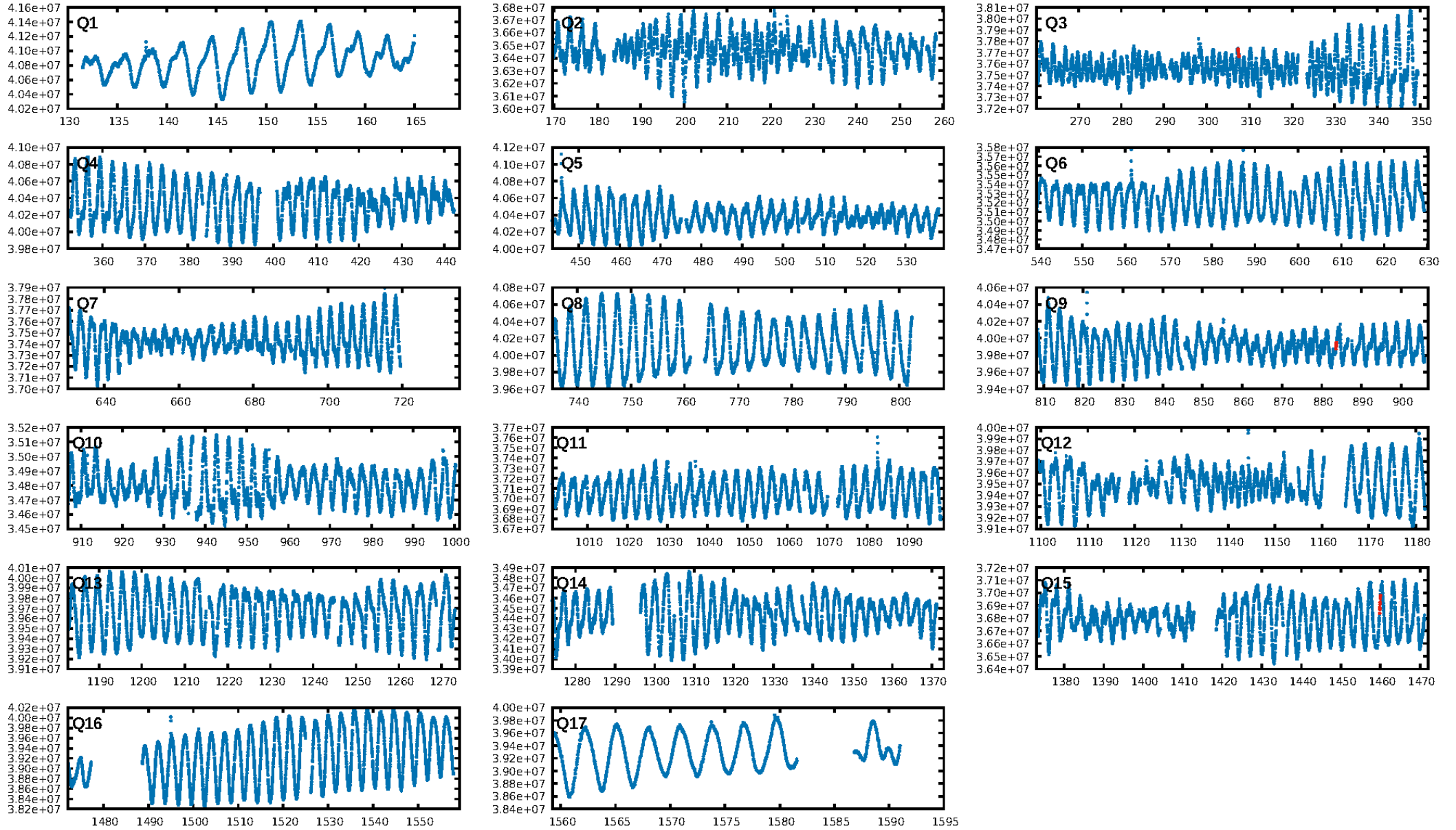
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [967.43 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 70.6%
ModelChiSquareGof-sig: 88.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5071
Centroid-sig: 42.1%
Centroid-so: 1.260 arcsec [0.96 σ]
OotOffset-rm: 0.240 arcsec [0.40 σ]
OotOffset-st: 0/2/0/0 [2]
KicOffset-rm: 0.213 arcsec [0.36 σ]
KicOffset-st: 0/2/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [3/3]

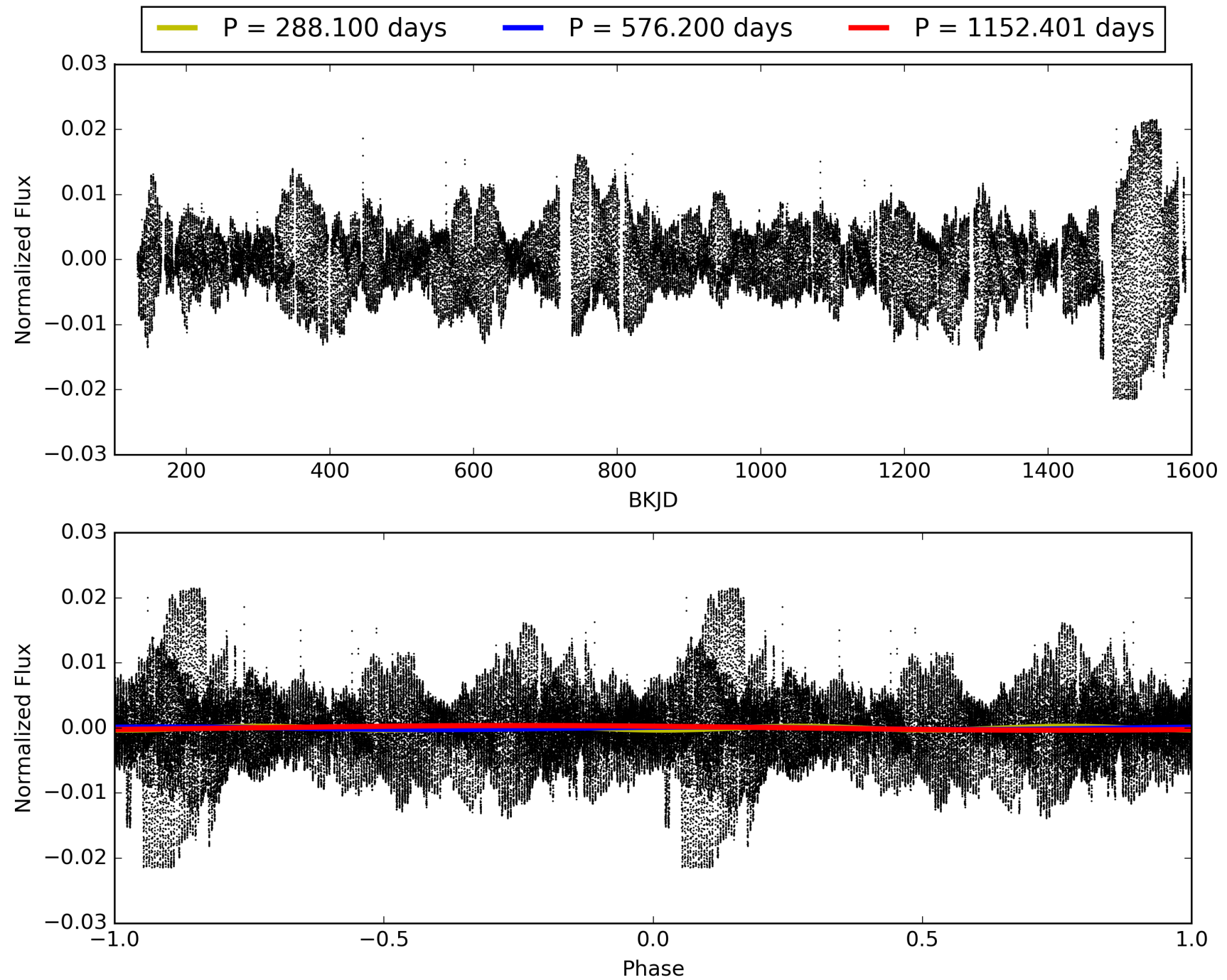
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:47:34 Z

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

TCE 004946992-07, PDC Light Curves

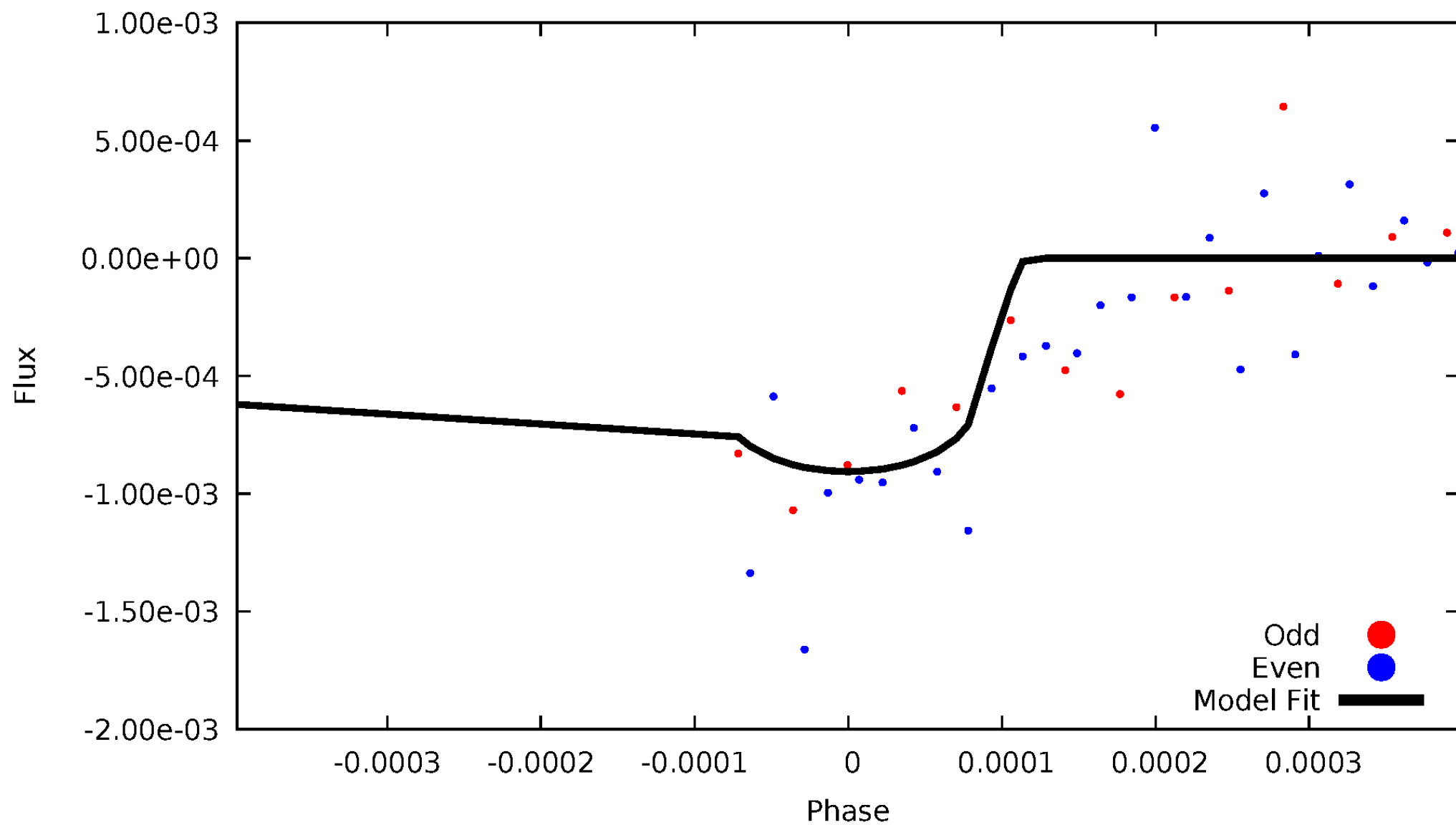


TCE 004946992-07



DV Odd/Even

TCE 004946992-07

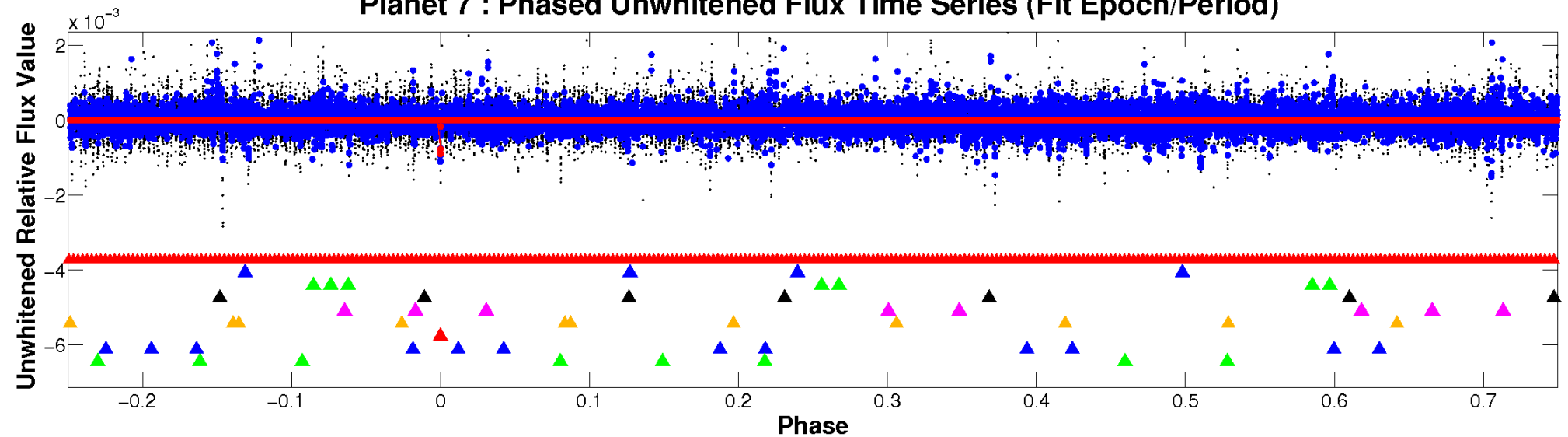


ALT Odd/Even

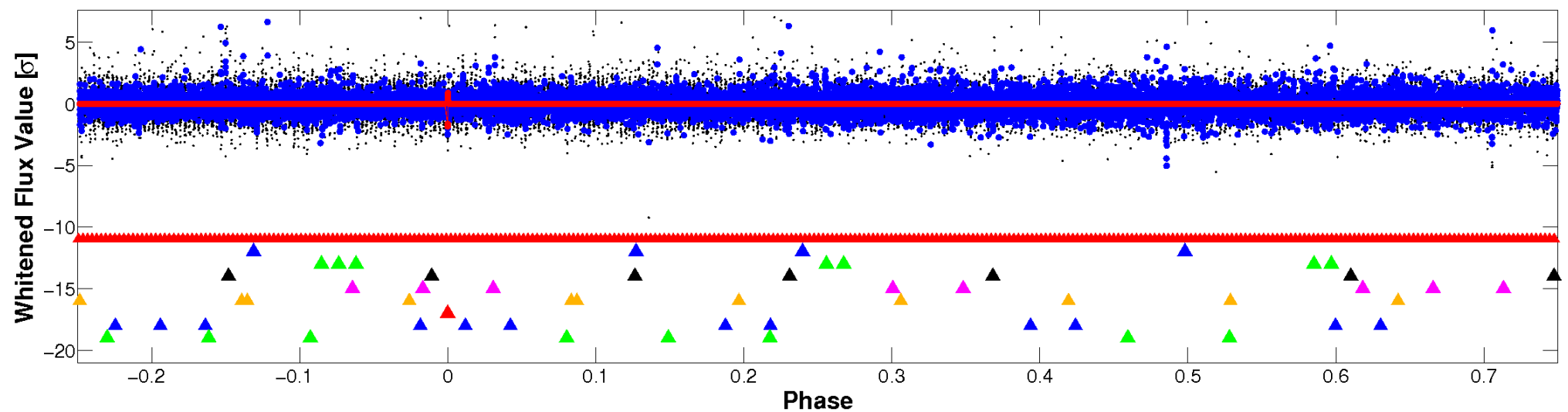
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

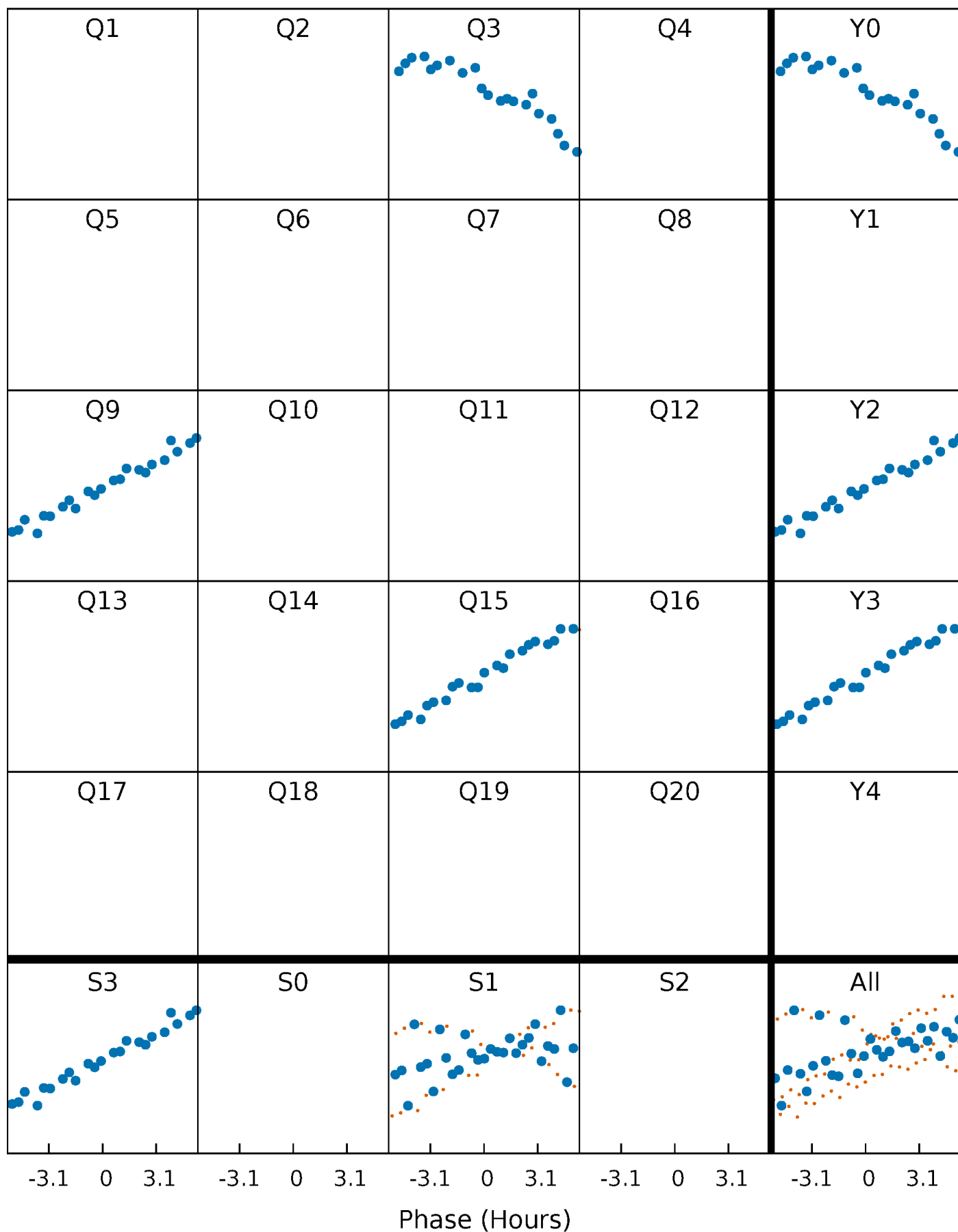


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



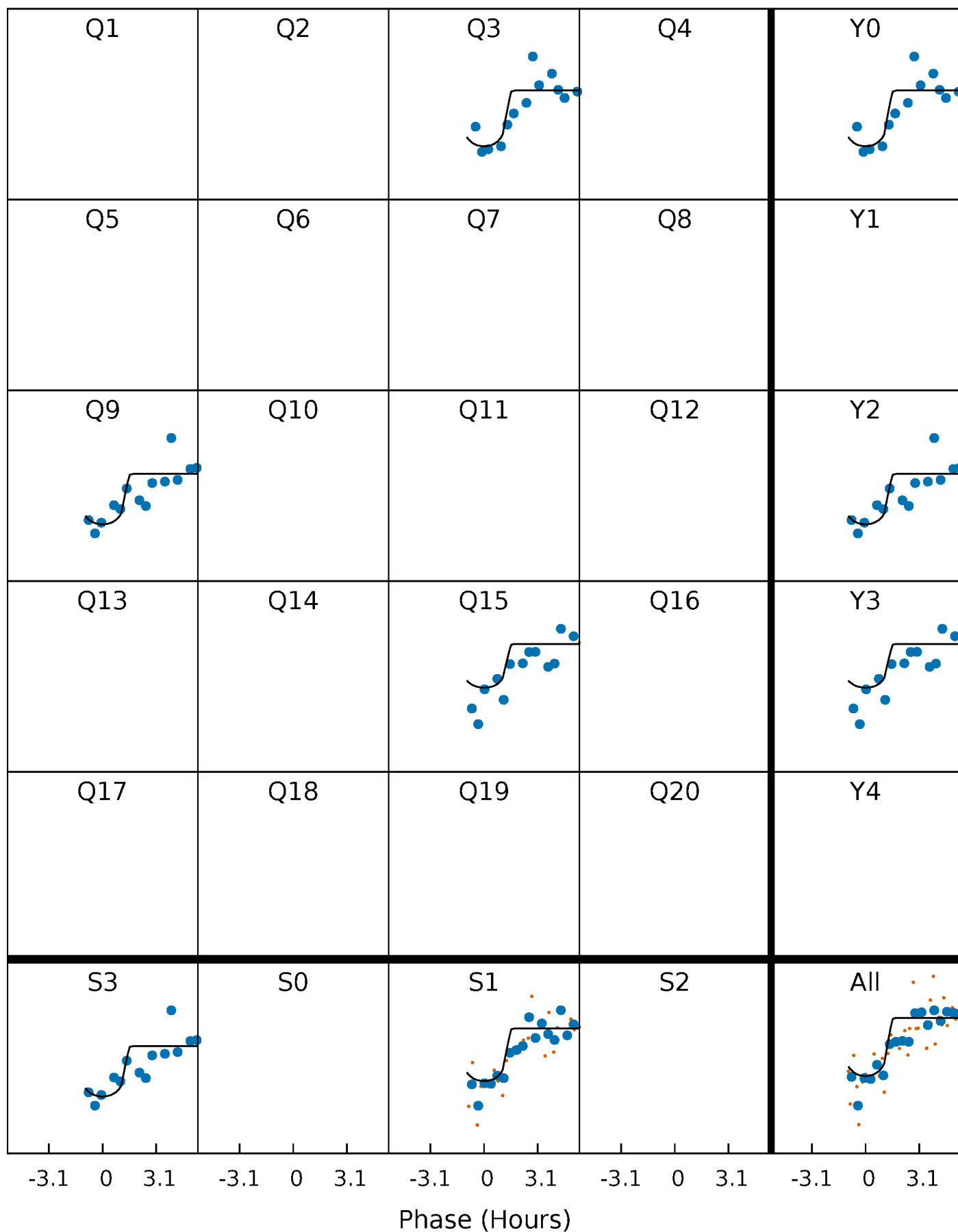
PDC Quarter-Phased Transit Curves

TCE 004946992-07 P=576.200310 Days $T_0=307.473393$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004946992-07 P=576.200310 Days $T_0=307.473393$ (BKJD)

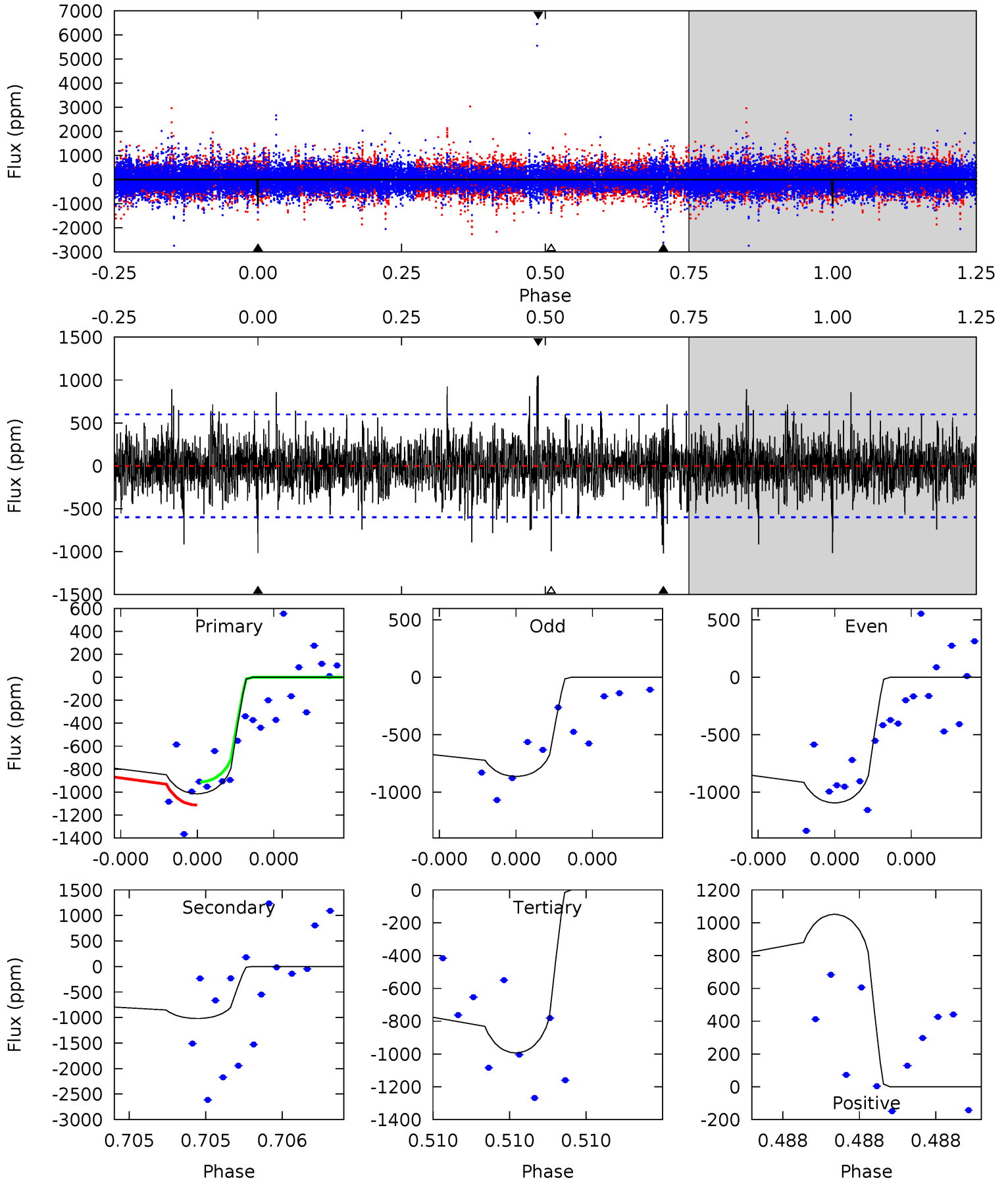


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004946992-07, P = 576.200310 Days, E = 307.473393 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.74	9.78	9.53	10.1	5.75	3.75	1.75	0.21	-0.35	0.24	-0.31	1.05	1.10	0.51	0.92



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004946992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5901^{+158}_{-175}	$4.553^{+0.036}_{-0.204}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.251}_{-0.079}$	$0.938^{+0.108}_{-0.108}$	$2.165^{+0.426}_{-1.110}$
	+3%/-3%	+1%/-4%	+100%/-100%	+30%/-9%	+12%/-12%	+20%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004946992-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1019 ± 104	$8.92^{+9.59}_{-5.92}$	298^{+20}_{-13}	3885^{+2063}_{-829}	12367^{+93379}_{-9590}
Alt.	N/A	N/A	N/A	N/A	N/A

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

DV Centroid Data

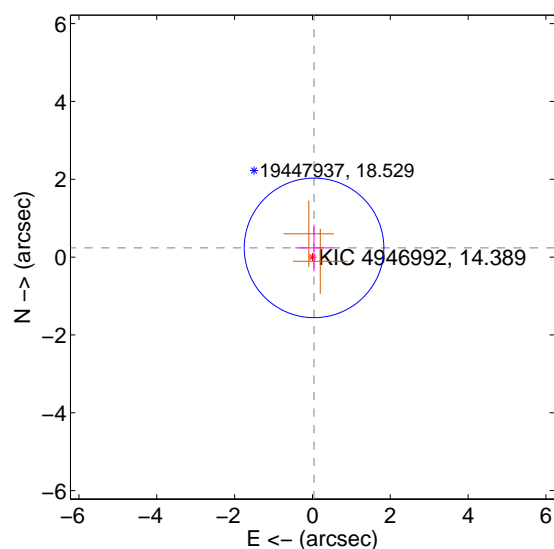
Supplemental centroid analysis for 004946992-07. Kepler magnitude: 14.39. Transit SNR 6.82

There are 0 quarters with good PRF difference image offsets

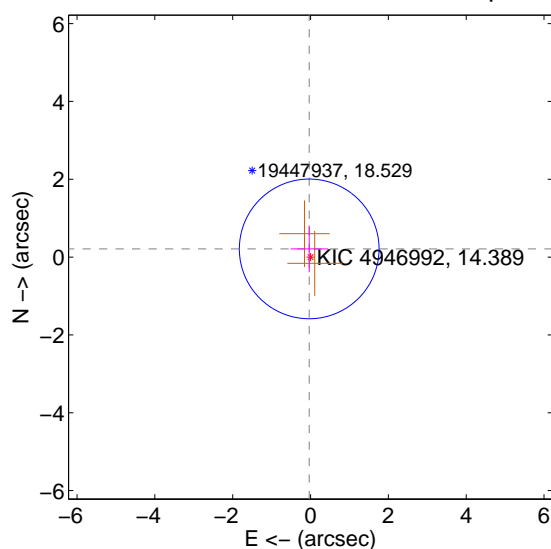
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.240 ± 0.598	0.40	-0.041 ± 0.483	0.237 ± 0.601
PRF-fit source offset from KIC position	0.213 ± 0.598	0.36	0.034 ± 0.483	0.211 ± 0.601
photometric centroid source offset	1.26 ± 1.31	0.96	0.52 ± 1.43	-1.15 ± 1.28

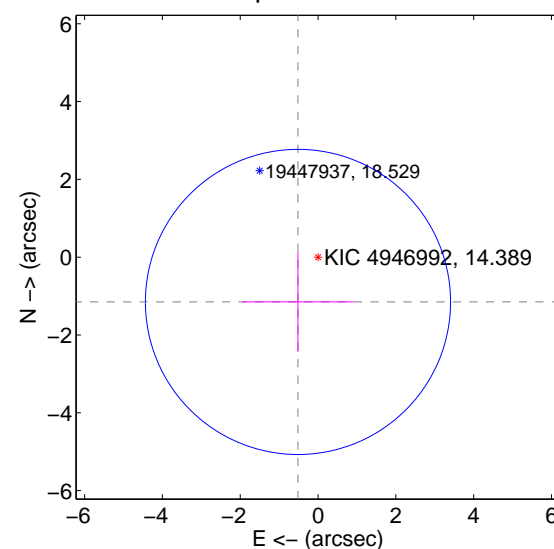
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



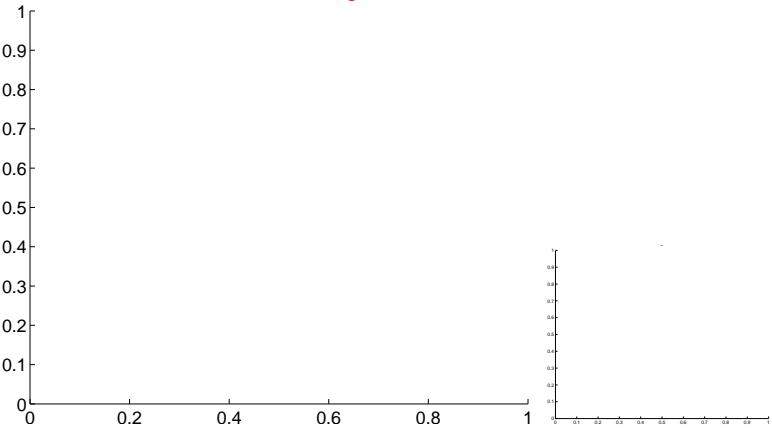
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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

Q1 no difference image



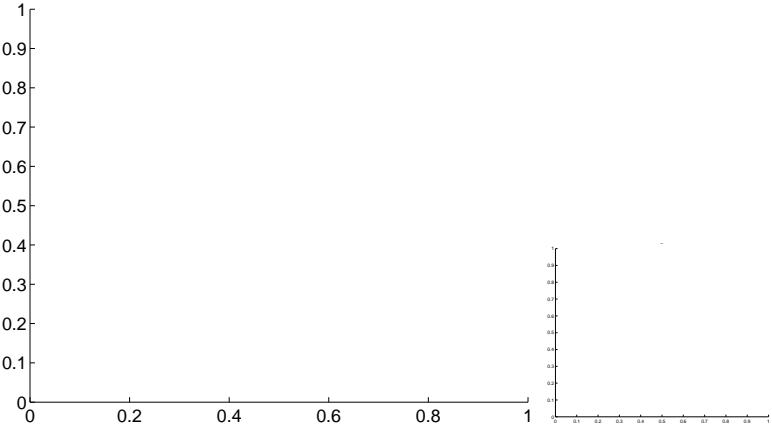
Q1 no OOT image



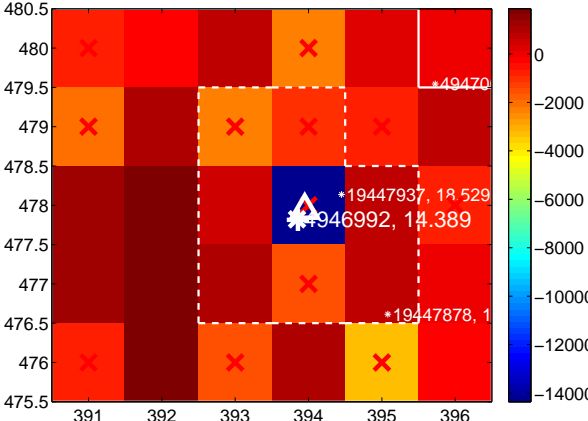
Q2 no difference image



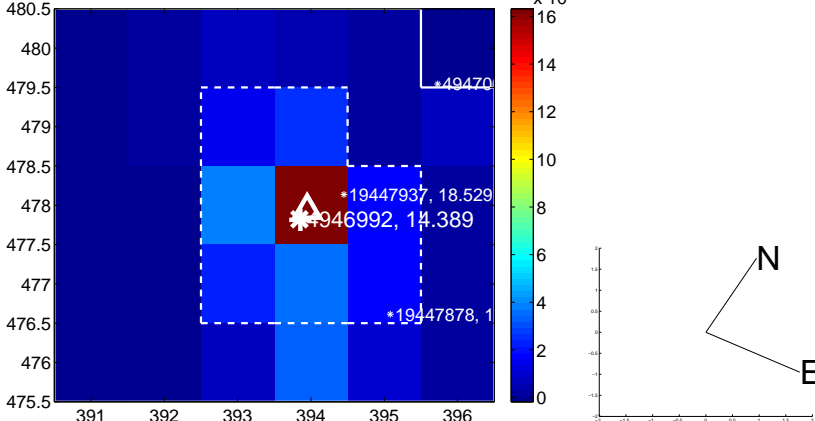
Q2 no OOT image



Q3 difference image. Poor Quality



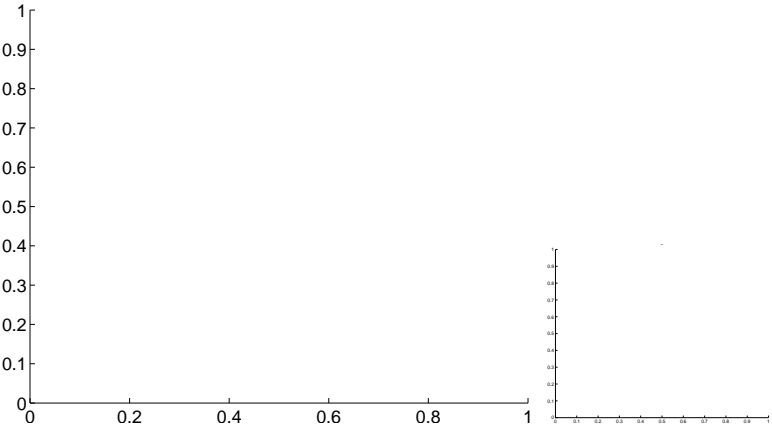
Q3 OOT image



Q4 no difference image



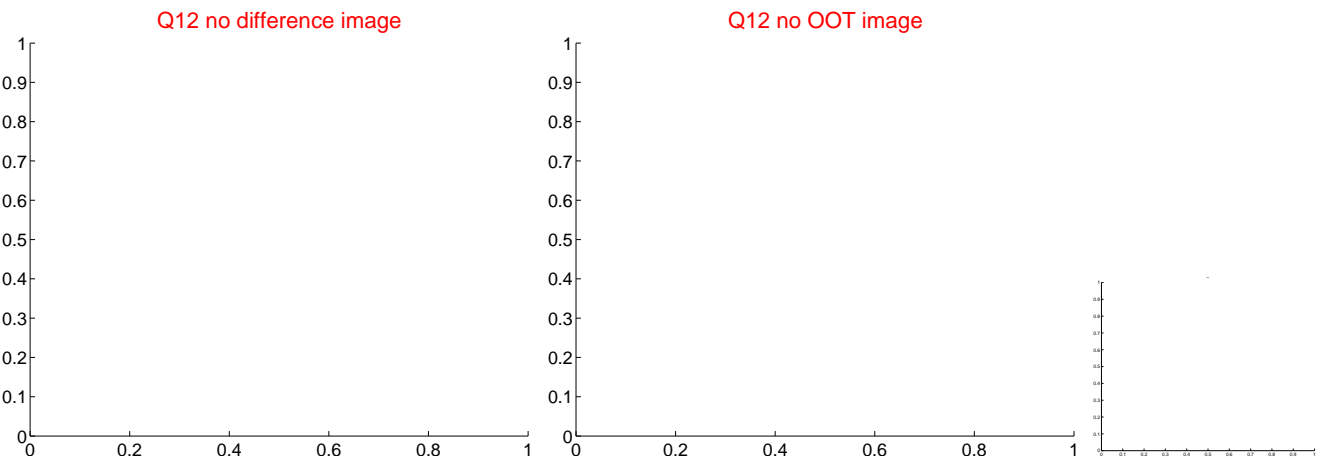
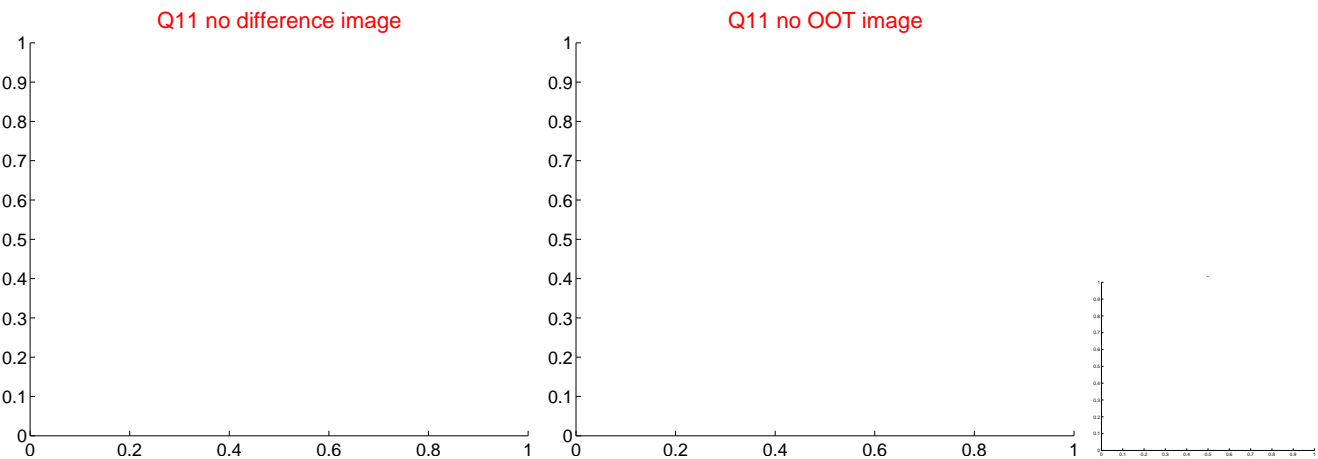
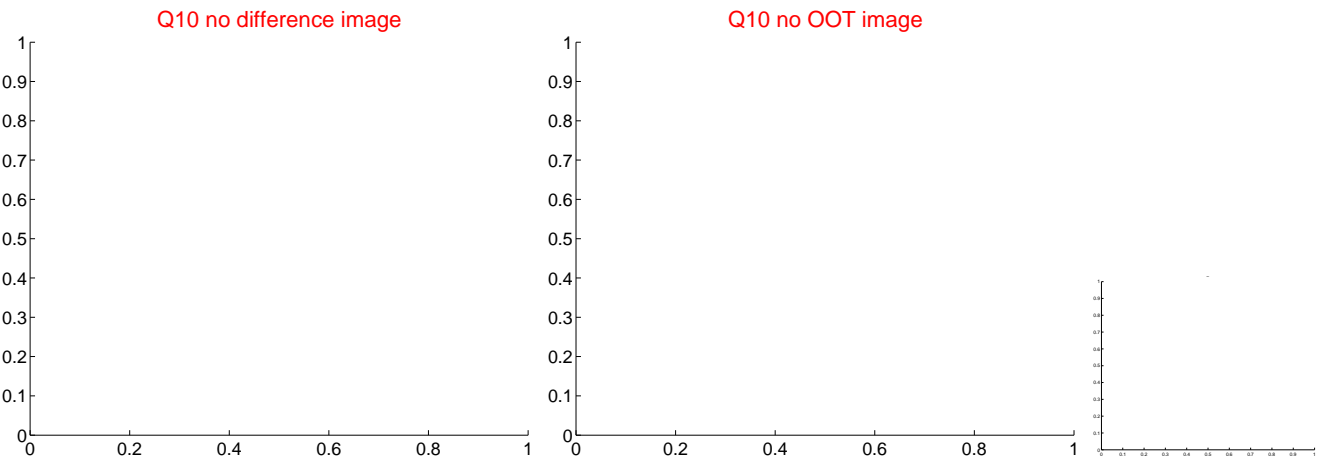
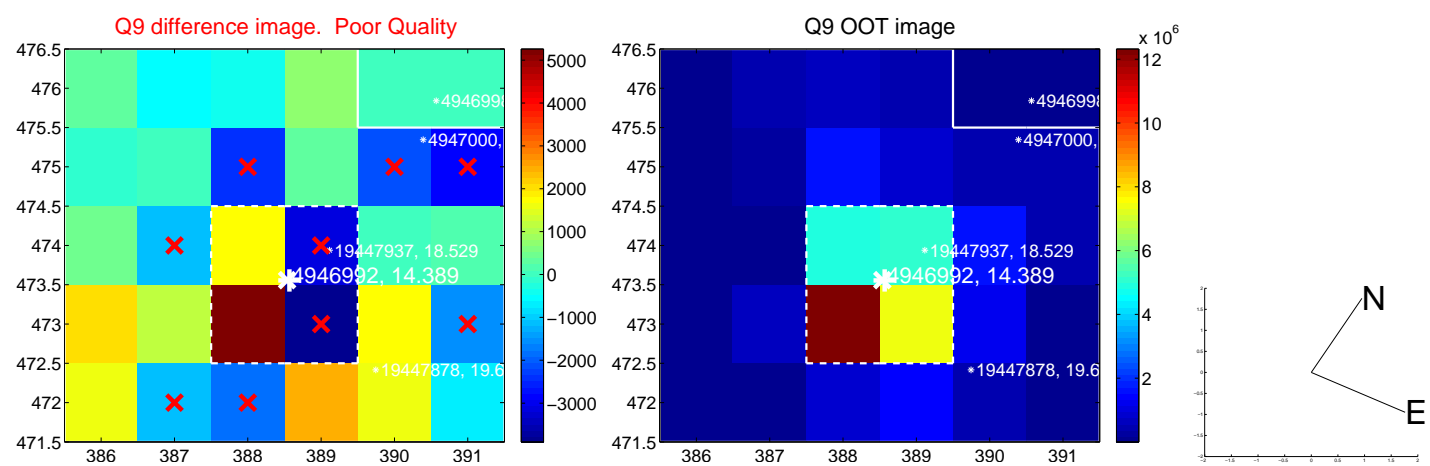
Q4 no OOT image



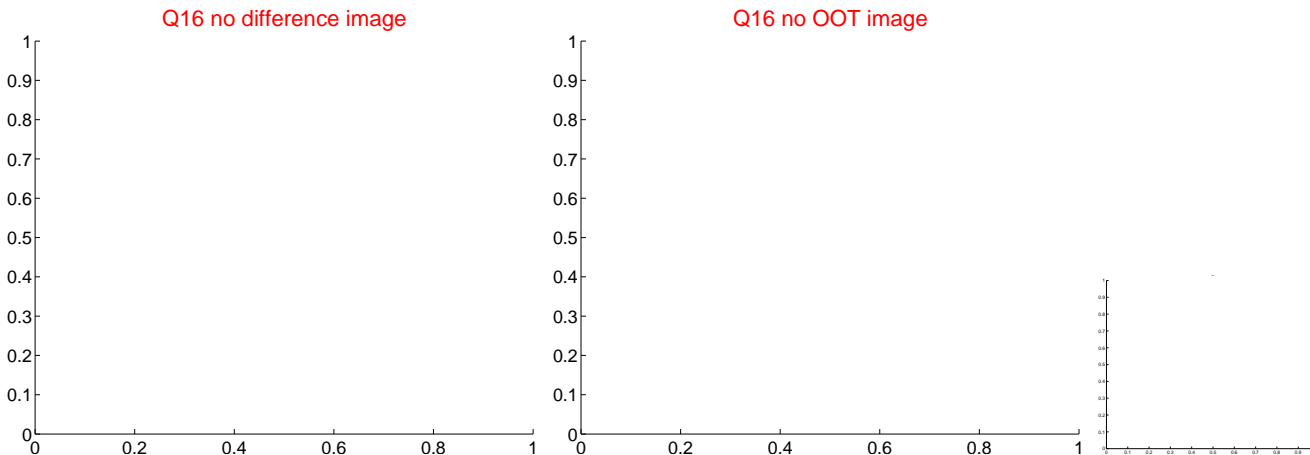
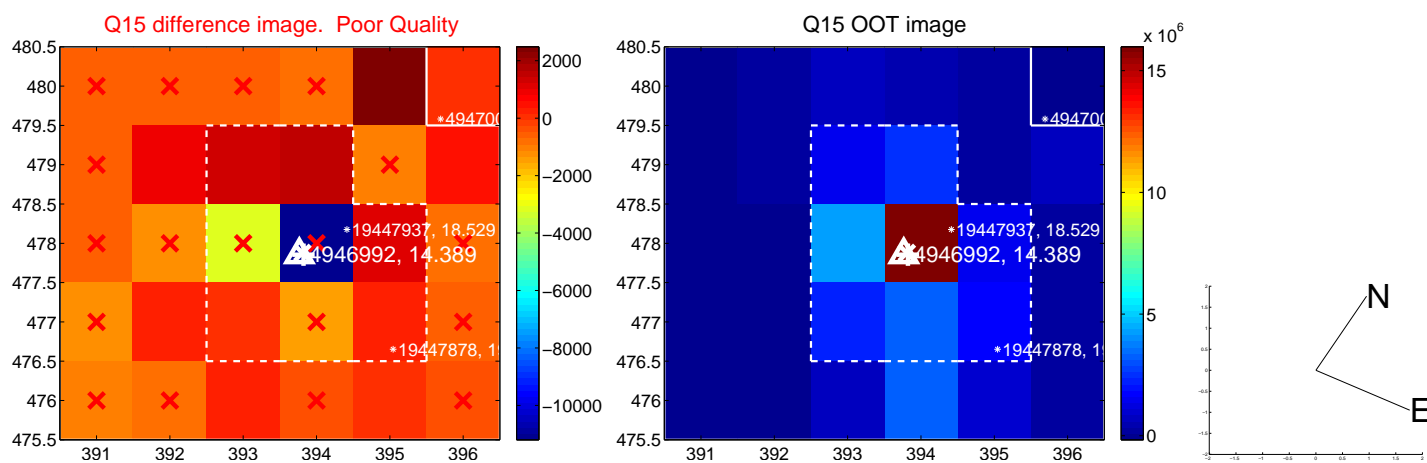
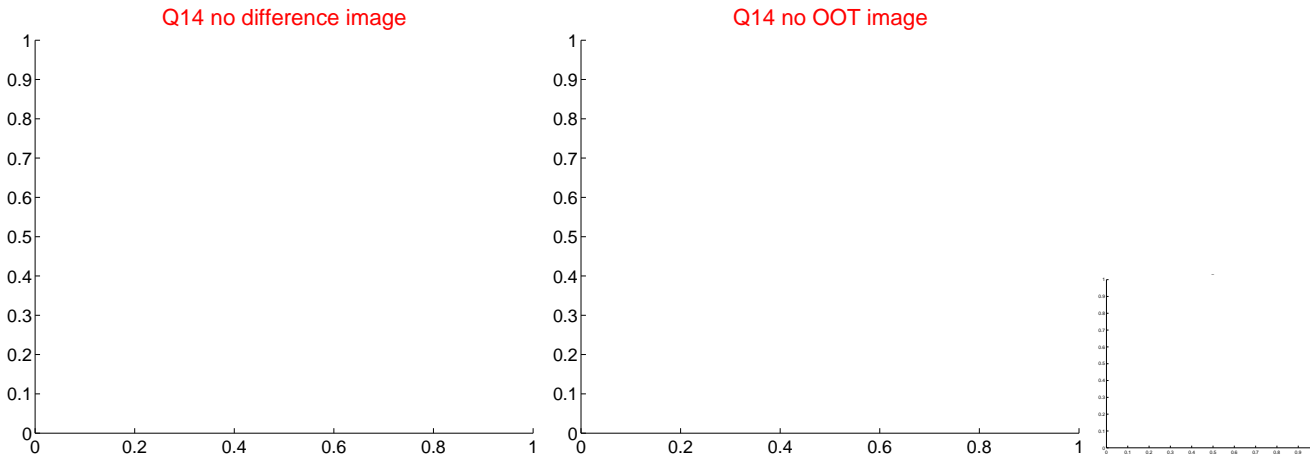
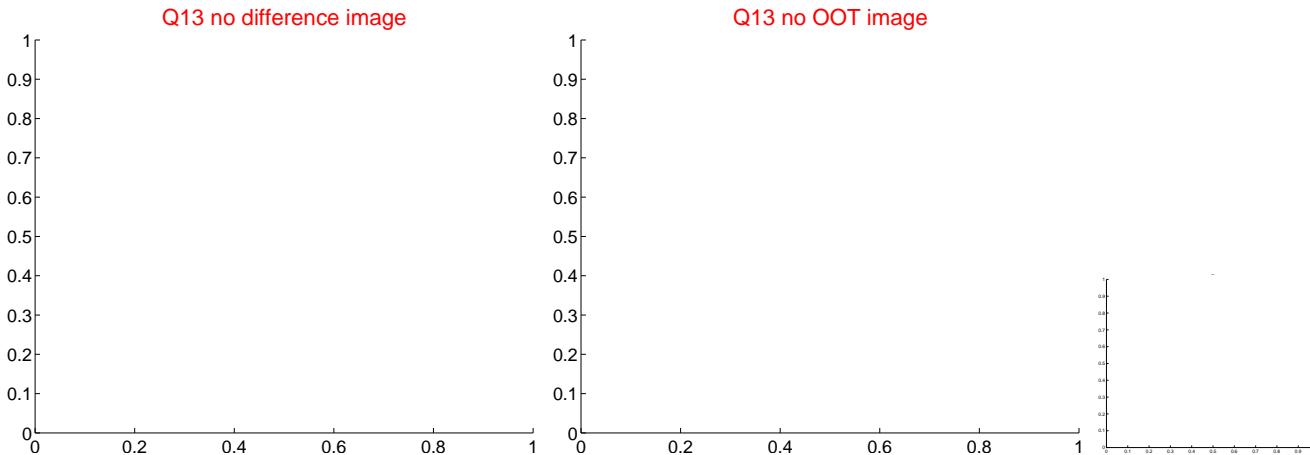
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



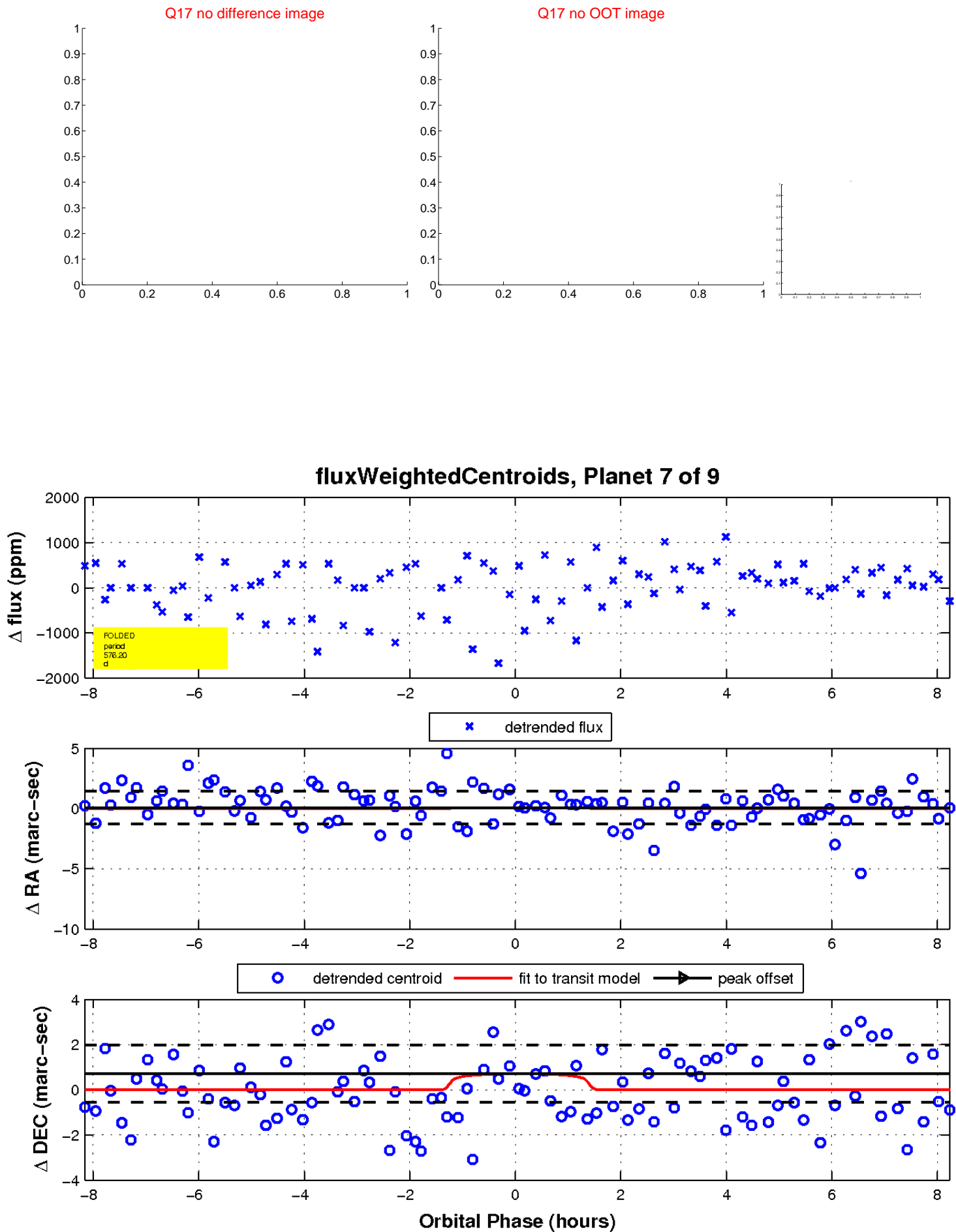
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

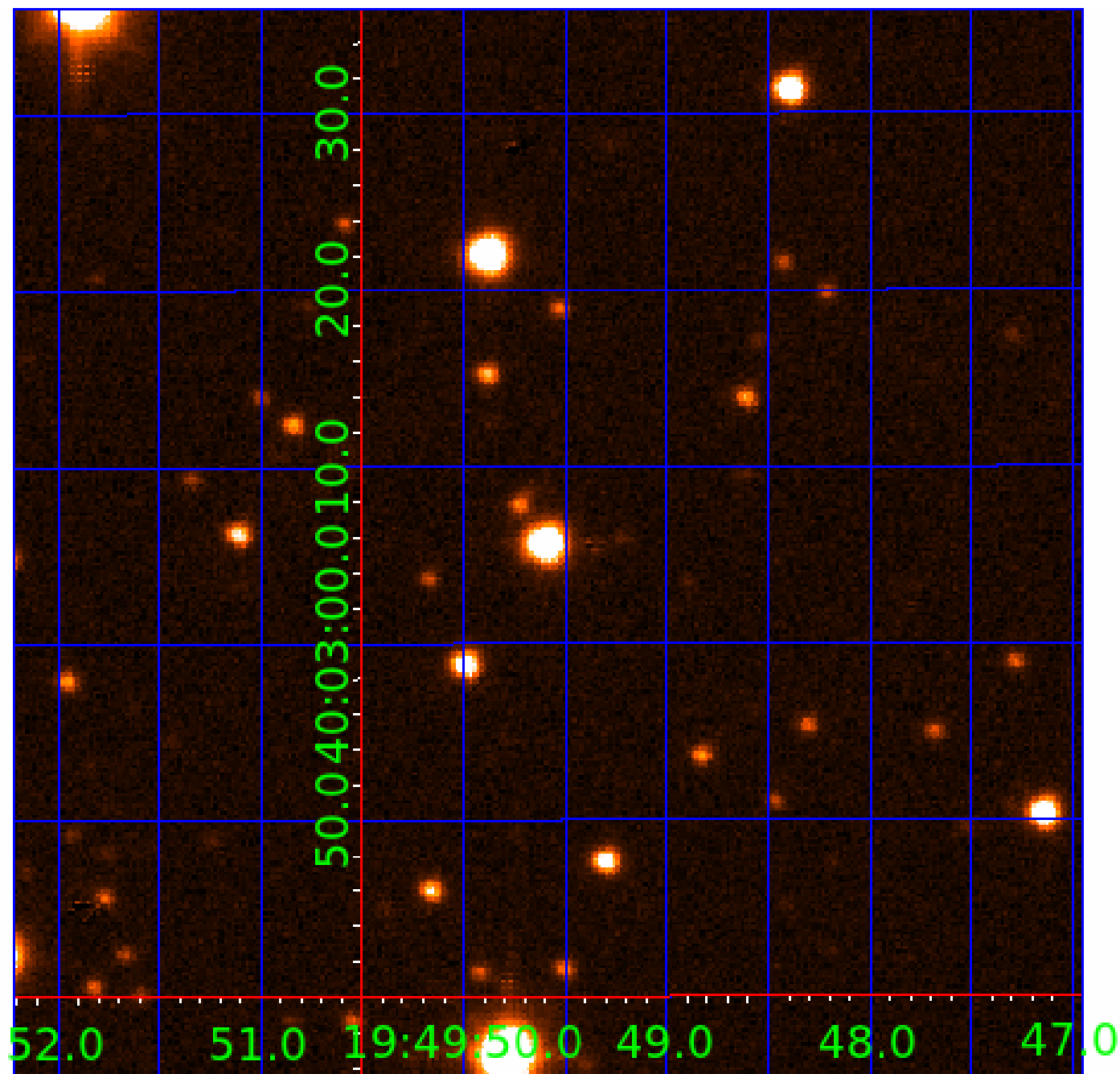


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004946992

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})
004946992-01	OBS	No	1.767502	131.929168	58.0	8.058	8.6	5.9	0.85	5901	0.69	996.28
004946992-03	OBS	No	189.822551	271.786563	944.0	16.376	13.5	5.9	0.85	5901	2.77	1.95
004946992-06	OBS	No	128.290905	227.277641	317.3	2.770	10.4	3.0	0.85	5901	1.78	3.29
004946992-07	OBS	No	576.200310	307.473393	906.1	2.749	9.7	6.8	0.85	5901	2.55	0.44
004946992-08	OBS	No	118.743894	178.100225	2138.4	20.640	9.9	10.2	0.85	5901	7.37	3.65
004946992-09	OBS	No	178.883964	254.015426	295.3	1.851	9.1	2.5	0.85	5901	1.58	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004946992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS
004946992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED
004946992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

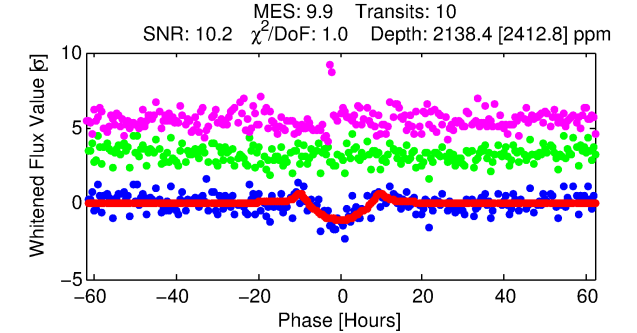
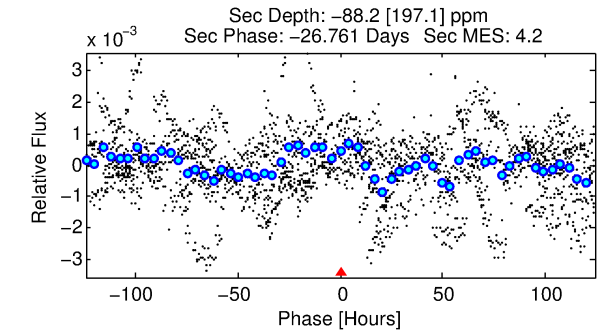
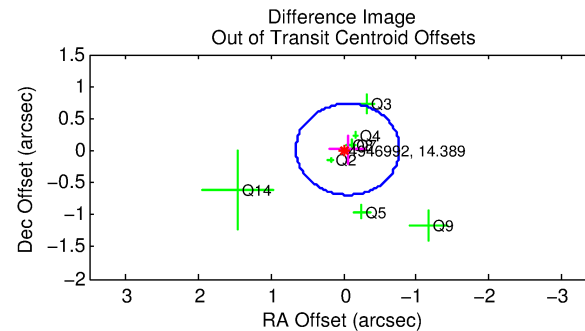
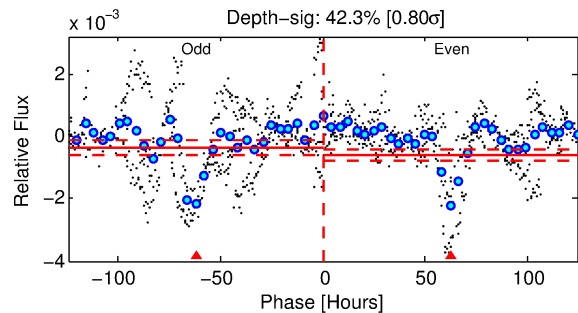
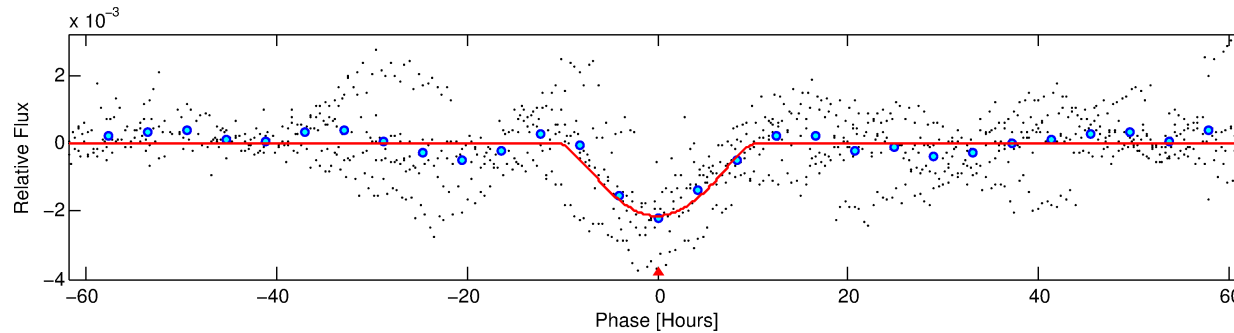
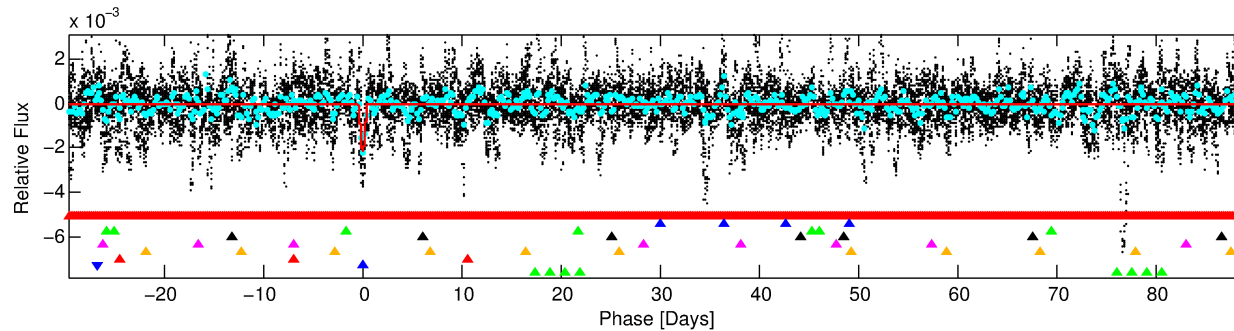
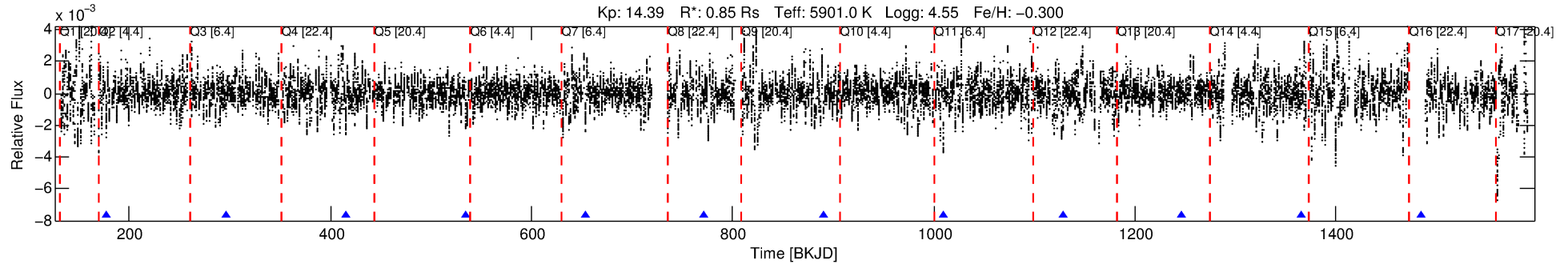
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004946992-08

No Significant Match Found

DV One-Page Summary

KIC: 4946992 Candidate: 8 of 9 Period: 118.744 d



DV Fit Results:

Period = 118.74389 [0.00509] d
Epoch = 178.1002 [0.0284] BKJD
Rp/R* = 0.0796 [0.0935]
a/R* = 17.91 [4.33]
b = 1.00 [0.07]
Seff = 3.65 [1.42]
Teq = 352 [34] K
Rp = 7.37 [8.92] Re
a = 0.4628 [0.1166] AU
Ag = N/A
Teffp = N/A

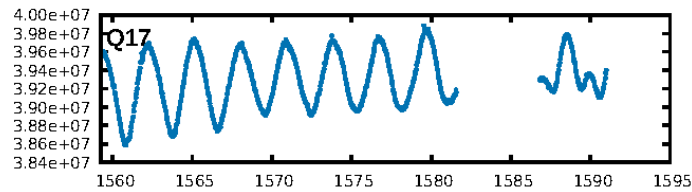
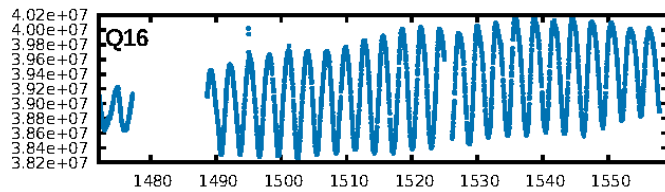
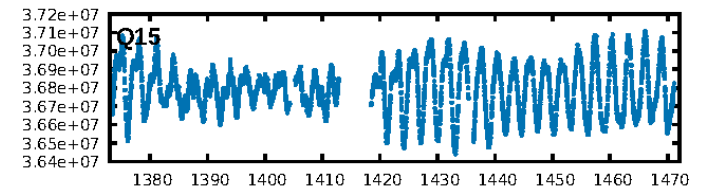
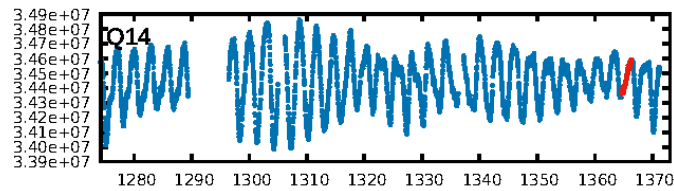
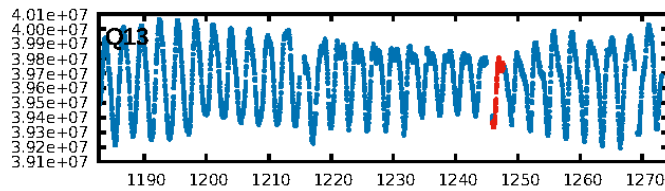
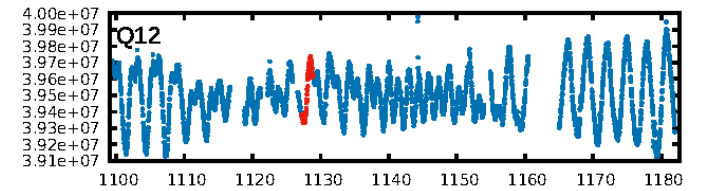
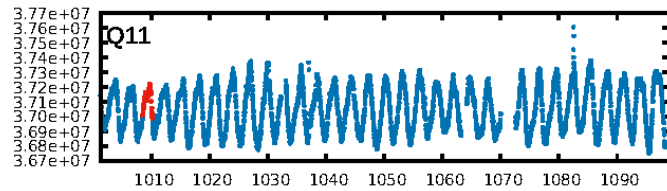
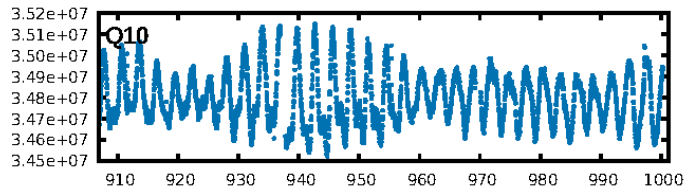
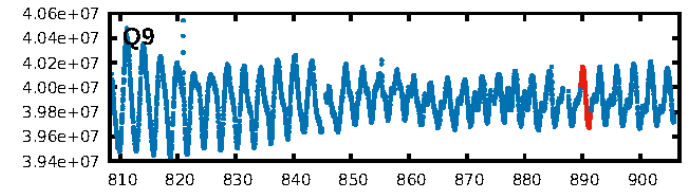
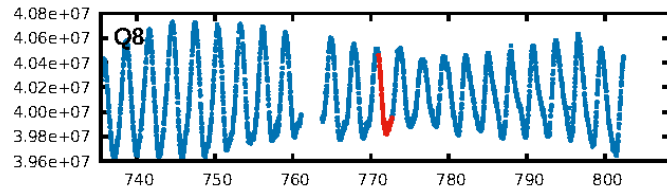
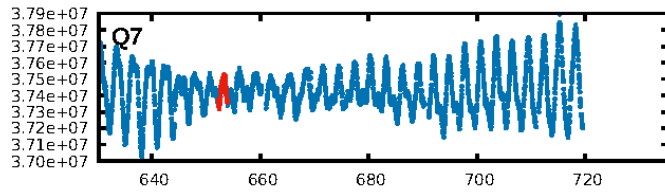
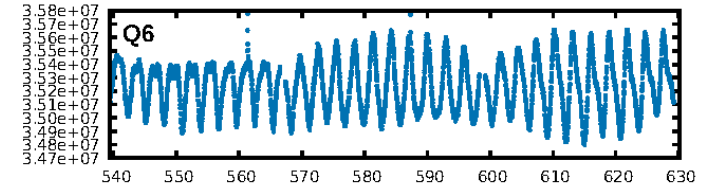
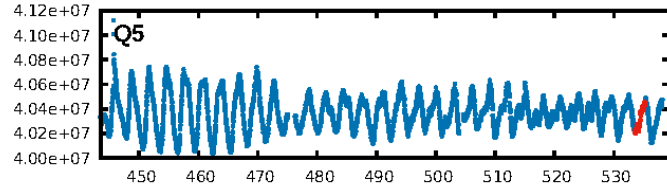
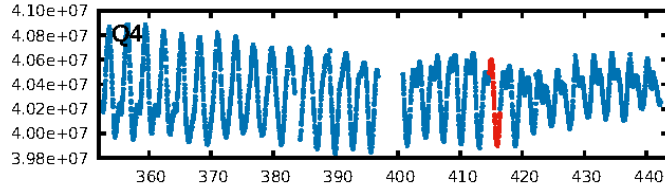
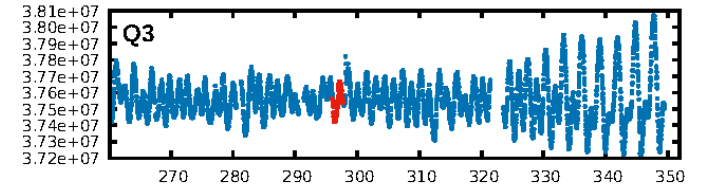
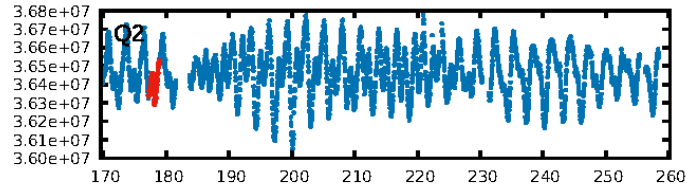
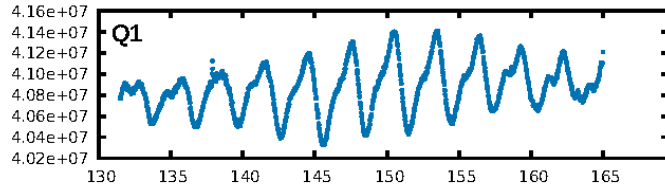
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [126.71 σ]
LongPeriod-sig: 100.0% [11.00 σ]
ModelChiSquare2-sig: 1.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -2.164
Centroid-sig: 34.0%
Centroid-so: 0.451 arcsec [1.91 σ]
OotOffset-rm: 0.061 arcsec [0.26 σ]
KicOffset-rm: 0.087 arcsec [0.37 σ]
OotOffset-st: 2/2/2/2 [8]
KicOffset-st: 2/2/2/2 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.00 [0/8]

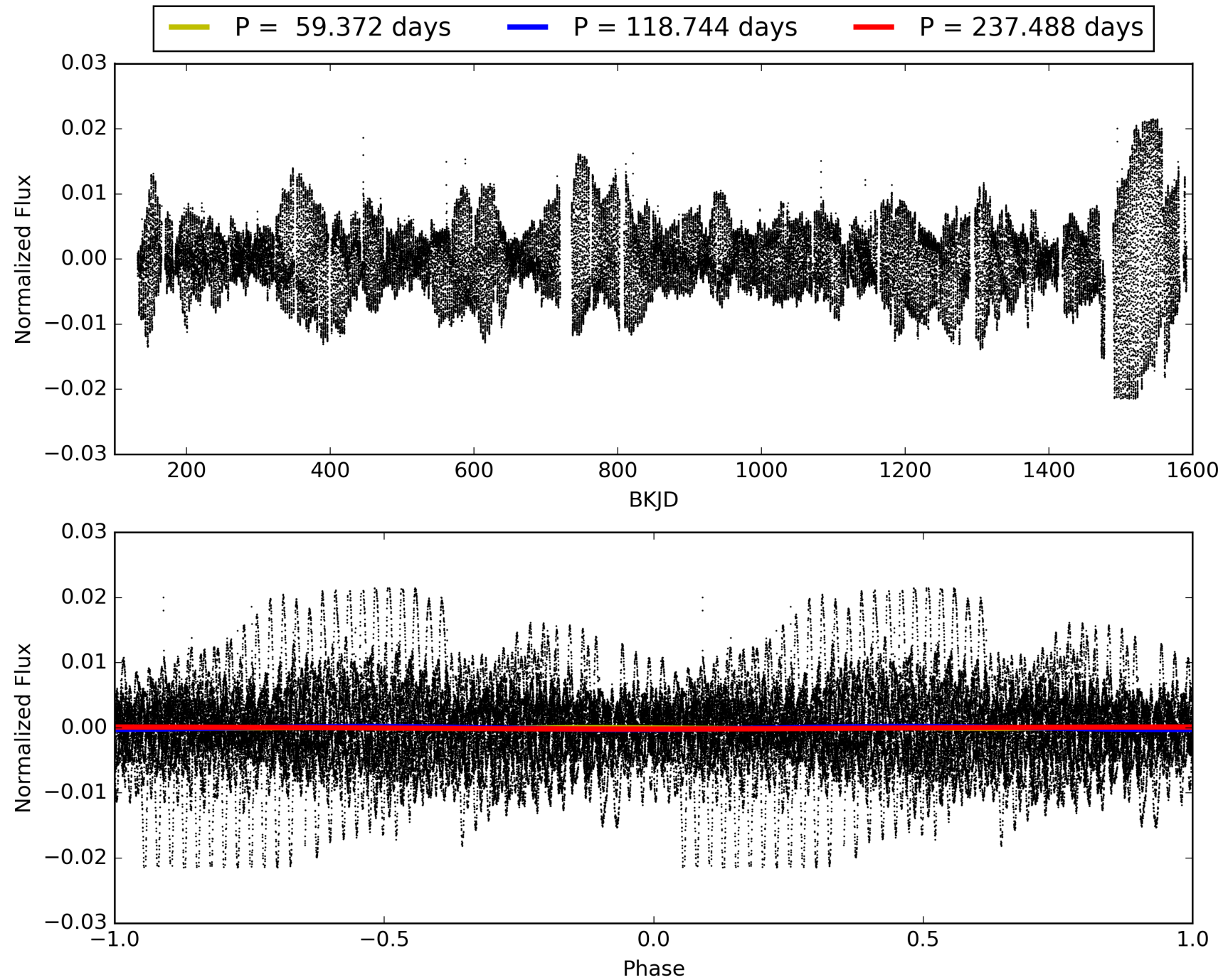
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:47:39 Z

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

TCE 004946992-08, PDC Light Curves

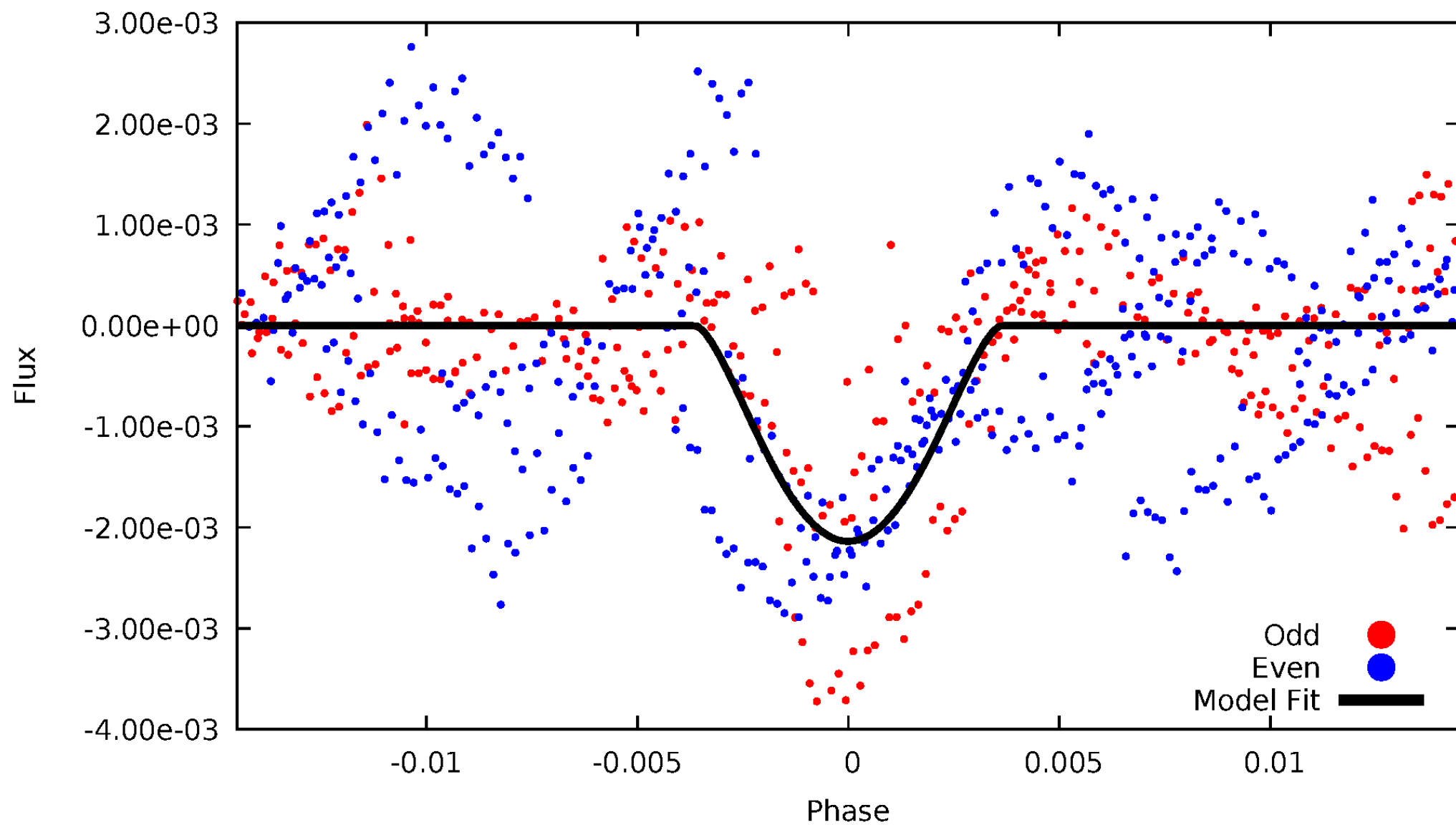


TCE 004946992-08



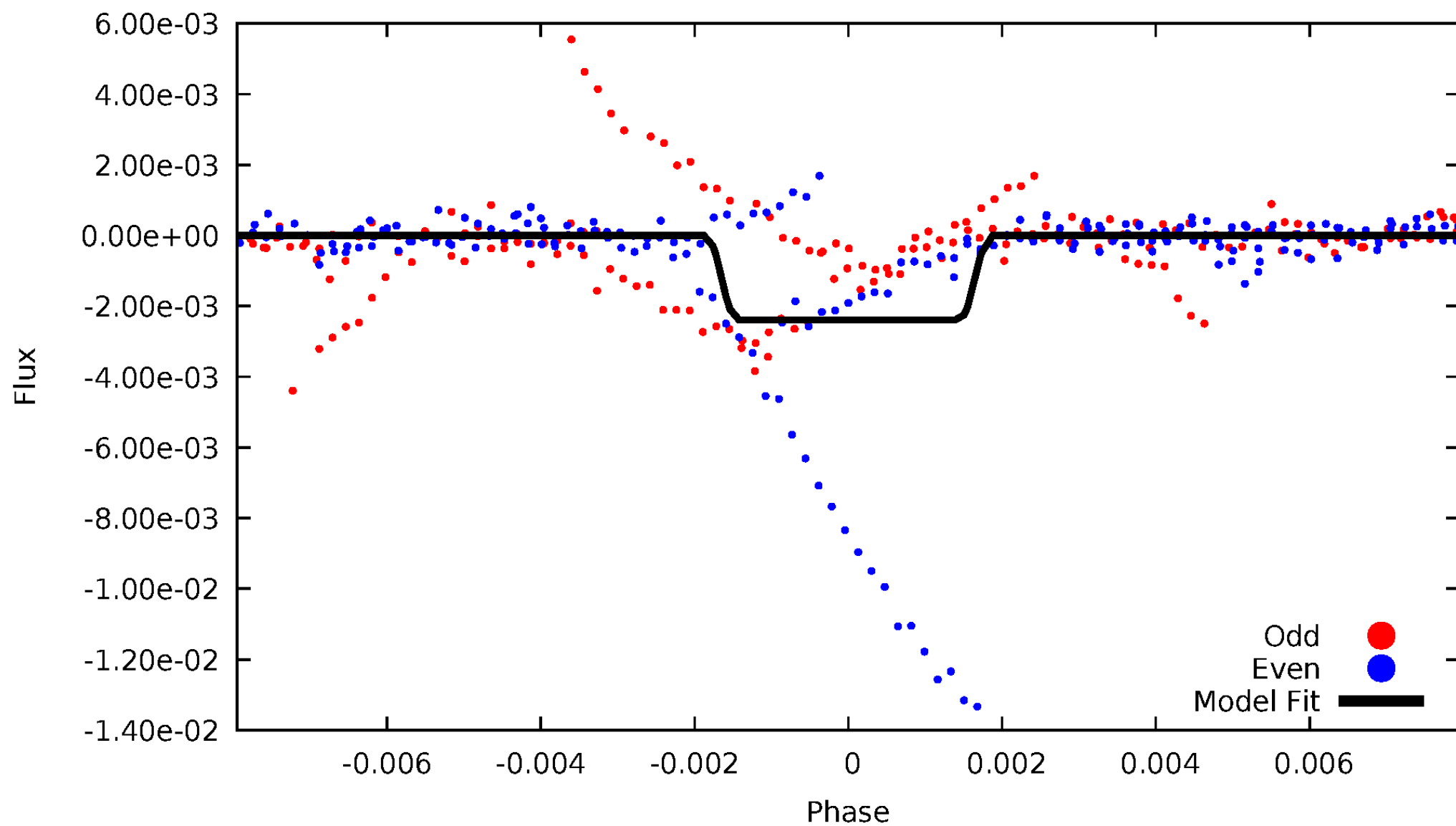
DV Odd/Even

TCE 004946992-08



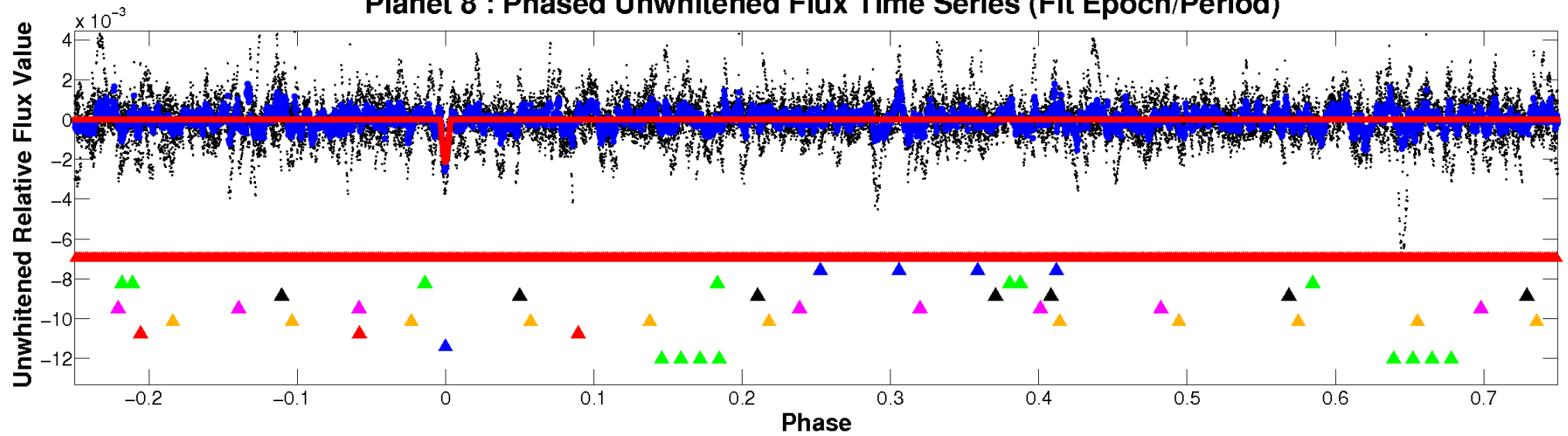
ALT Odd/Even

TCE 004946992-08

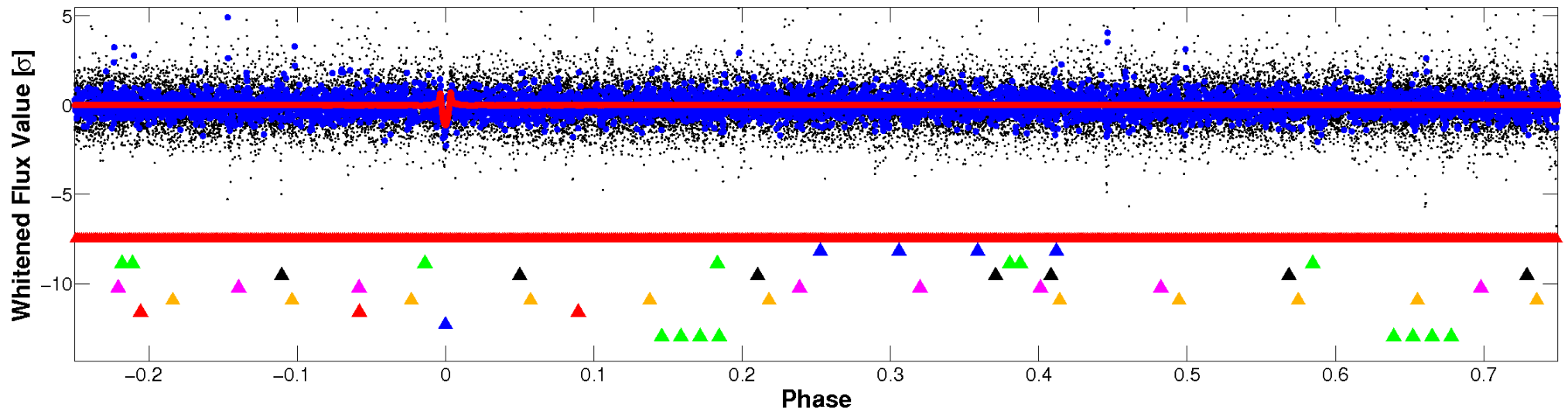


Non-Whitened Vs. Whitened Light Curve

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

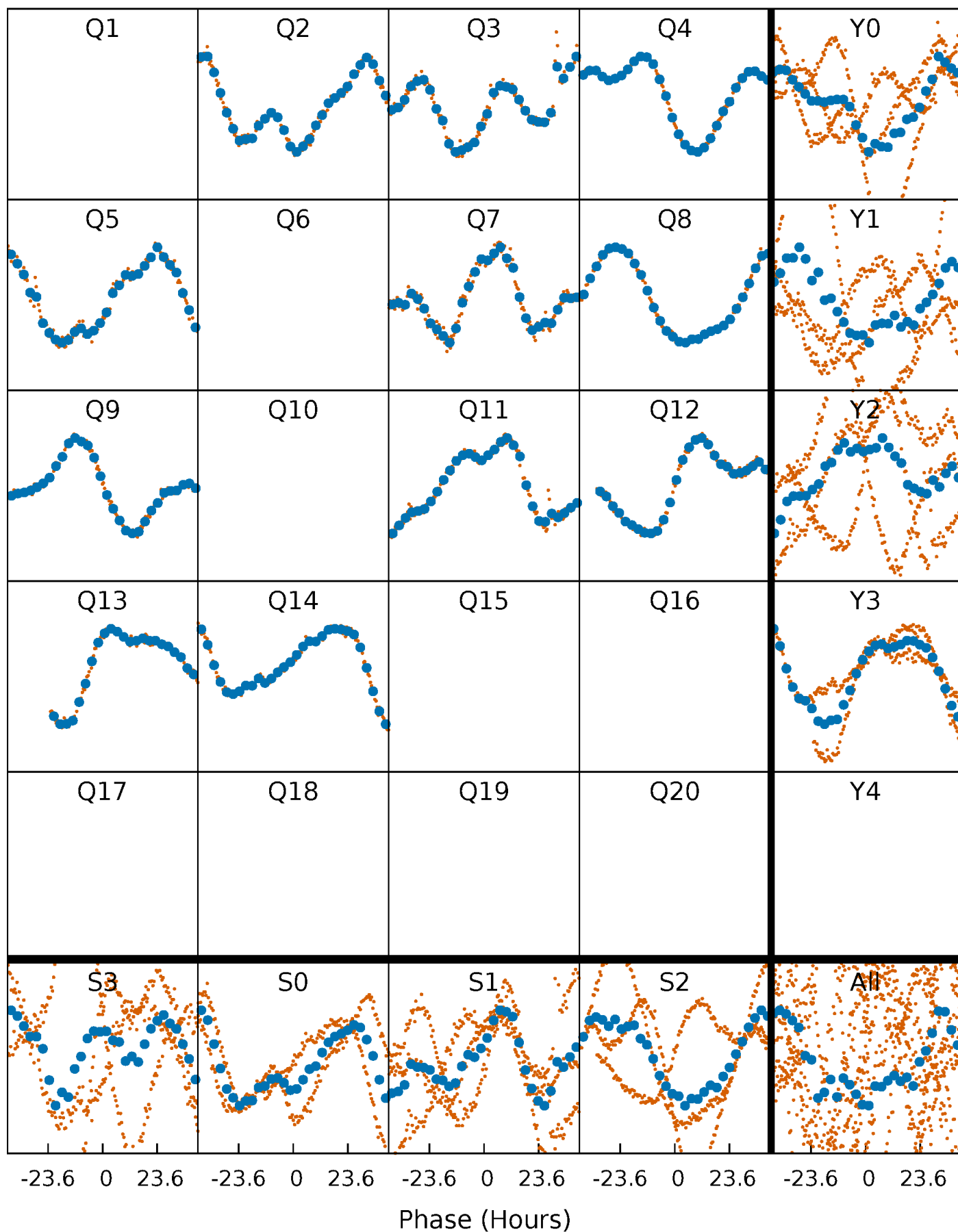


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



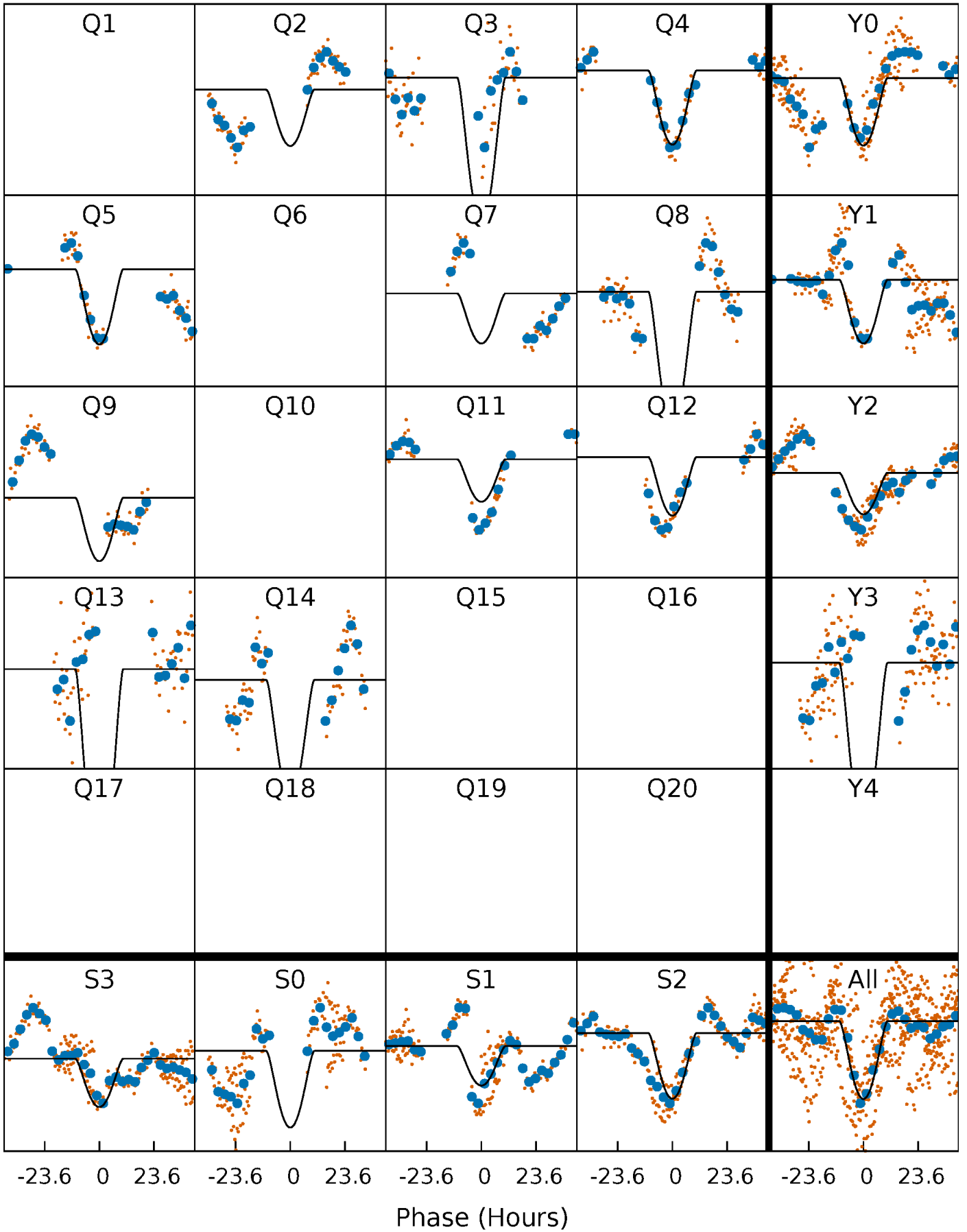
PDC Quarter-Phased Transit Curves

TCE 004946992-08 P=118.743894 Days $T_0=178.100225$ (BKJD)



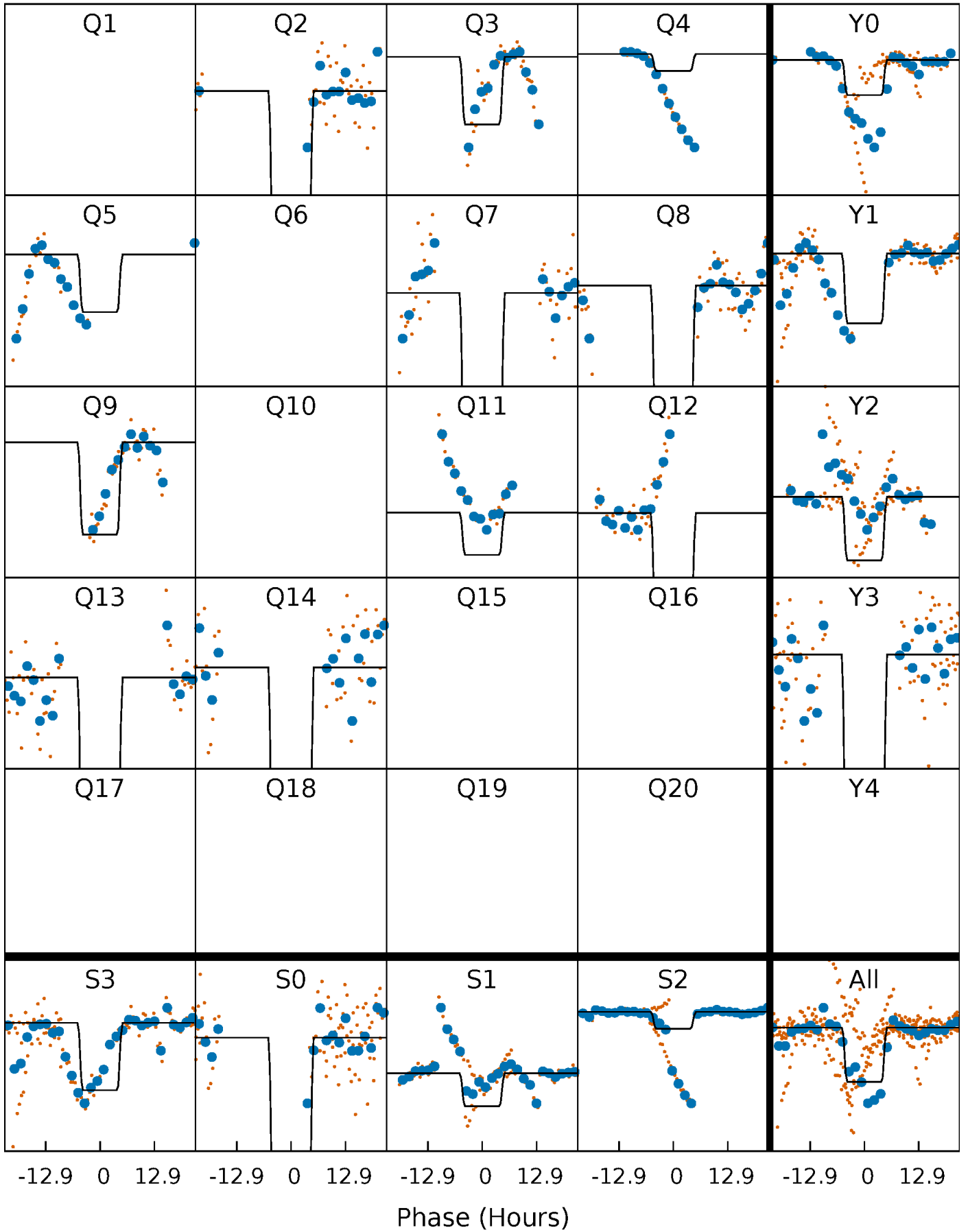
DV Quarter-Phased Transit Curves

TCE 004946992-08 $P=118.743894$ Days $T_0=178.100225$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

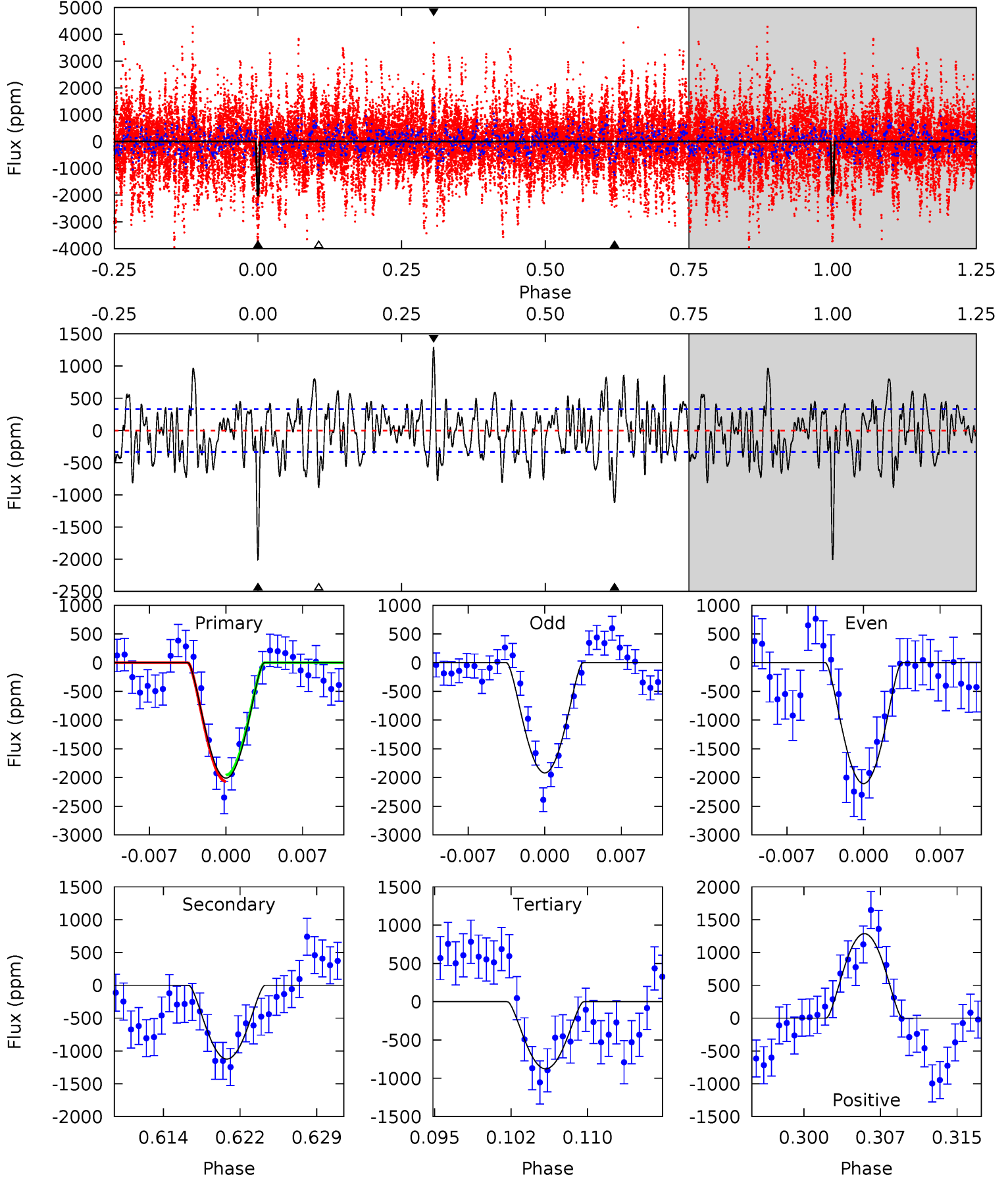
TCE 004946992-08 P=118.759851 Days $T_0=178.246032$ (BKJD)



DV Model-Shift Uniqueness Test

004946992-08, P = 118.743894 Days, E = 59.356331 Days

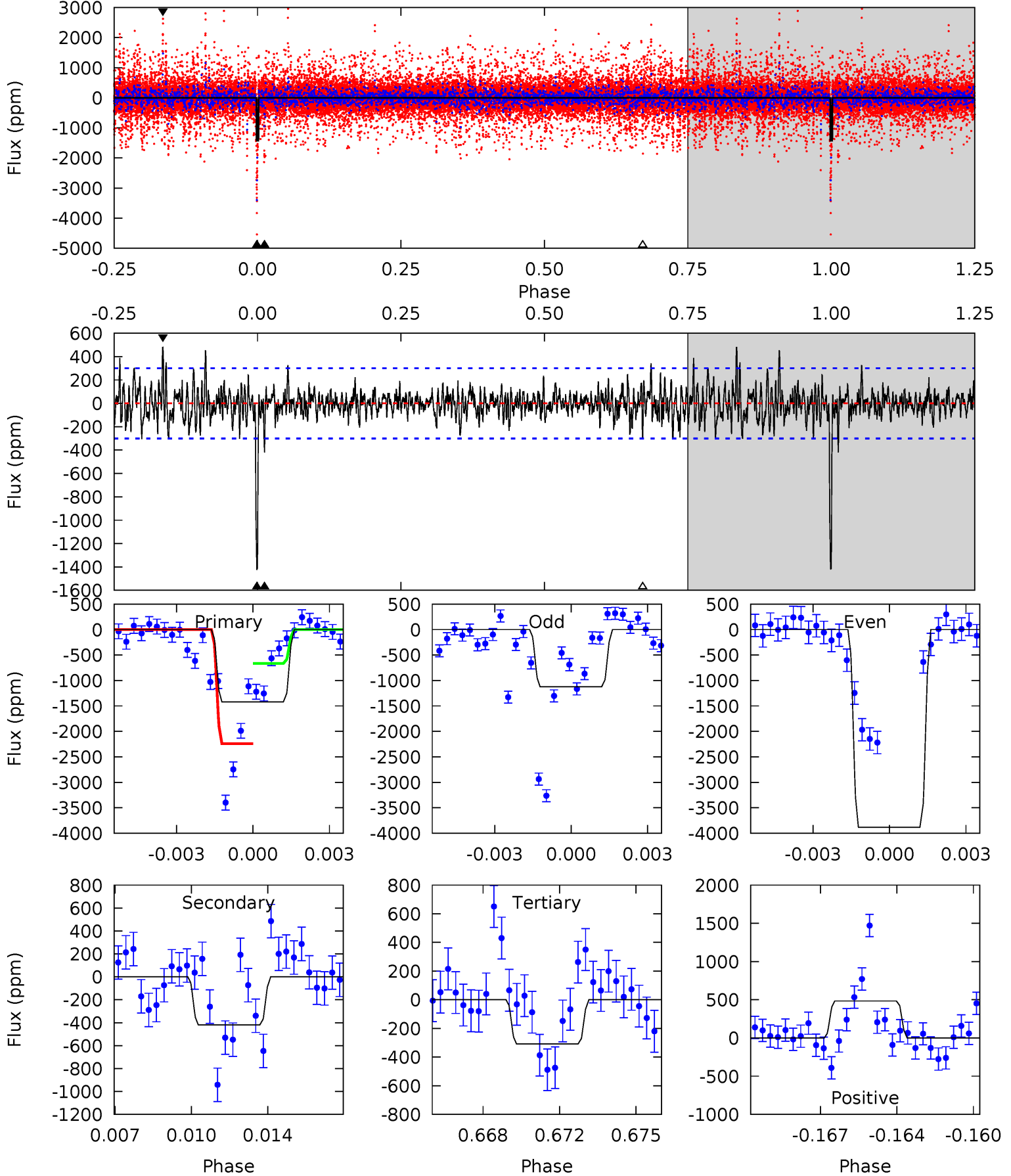
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.8	17.2	13.4	19.7	5.09	2.68	5.41	17.4	11.1	3.77	-2.52	1.41	-1.37	0.39	0.86



Alt Model-Shift Uniqueness Test

004946992-08, P = 118.759851 Days, E = 59.486181 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.7	7.27	5.35	8.40	5.23	2.92	1.71	19.3	16.3	1.92	-1.12	18.2	1.41	0.25	14.0



Stellar Parameters For KIC 004946992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5901^{+158}_{-175}	$4.553^{+0.036}_{-0.204}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.251}_{-0.079}$	$0.938^{+0.108}_{-0.108}$	$2.165^{+0.426}_{-1.110}$
	+3%/-3%	+1%/-4%	+100%/-100%	+30%/-9%	+12%/-12%	+20%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004946992-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1122 ± 65	$10.20^{+7.90}_{-5.83}$	505^{+33}_{-23}	3760^{+1408}_{-619}	1252^{+5343}_{-841}
Alt.	-419 ± 58	$8.44^{+7.76}_{-5.47}$	505^{+33}_{-23}	3394^{+1534}_{-579}	689^{+4809}_{-503}

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 $A_{obs} \gg 1.0$

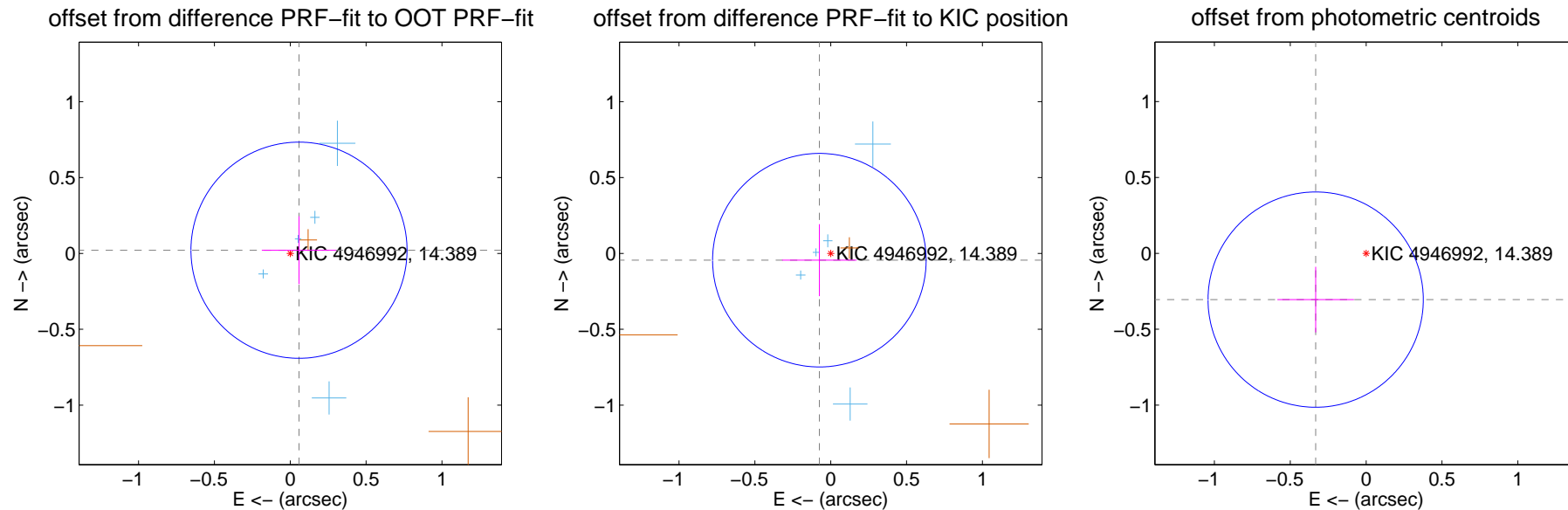
DV Centroid Data

Supplemental centroid analysis for 004946992-08. Kepler magnitude: 14.39. Transit SNR 10.24

There are 5 quarters with good PRF difference image offsets

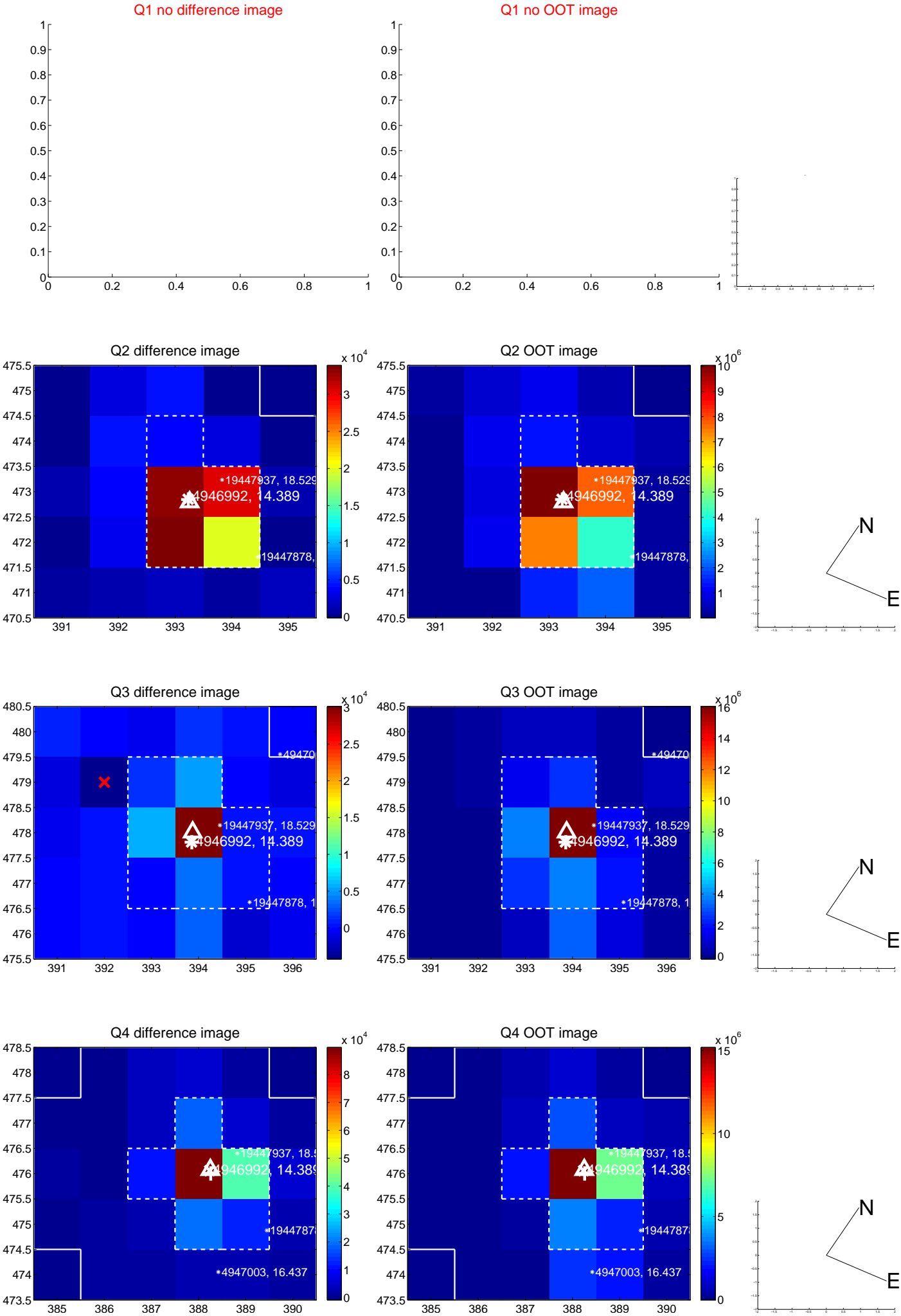
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.061 ± 0.237	0.26	-0.058 ± 0.245	0.021 ± 0.224
PRF-fit source offset from KIC position	0.087 ± 0.235	0.37	0.075 ± 0.246	-0.045 ± 0.237
photometric centroid source offset	0.45 ± 0.24	1.91	0.33 ± 0.25	-0.30 ± 0.22

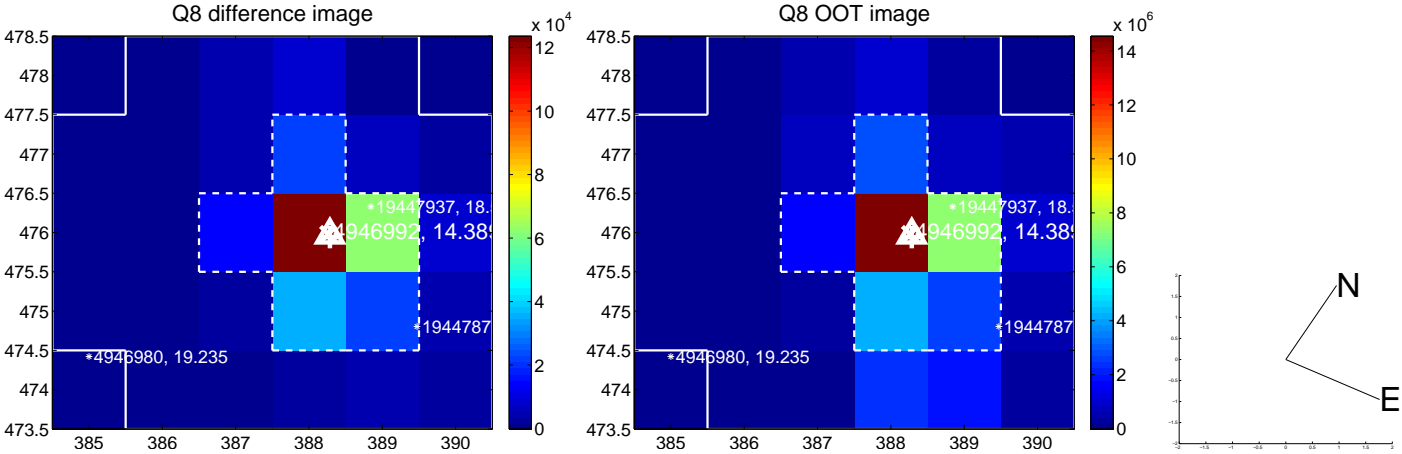
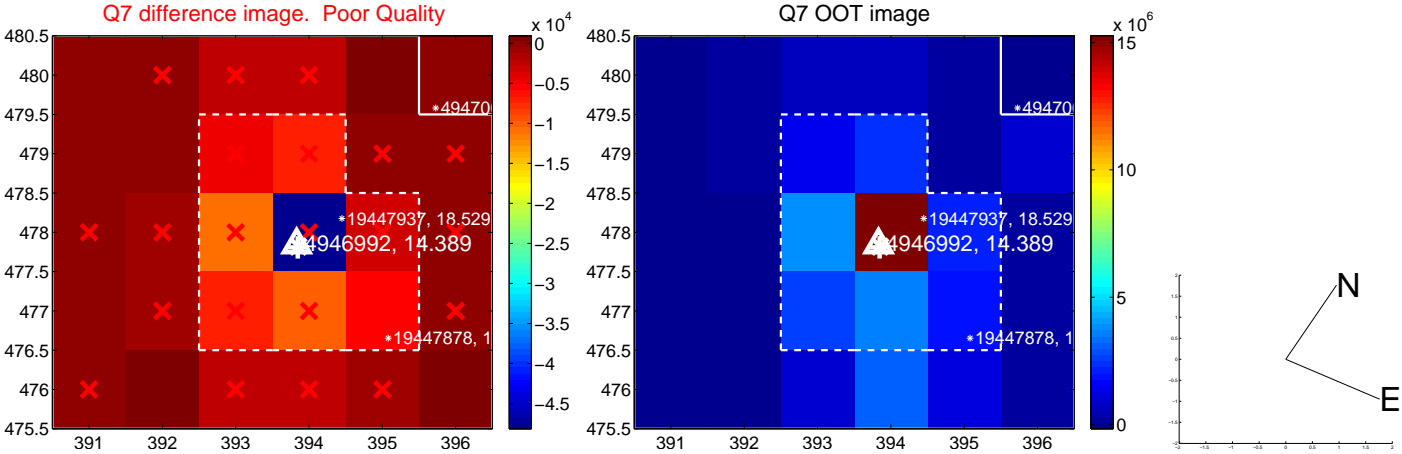
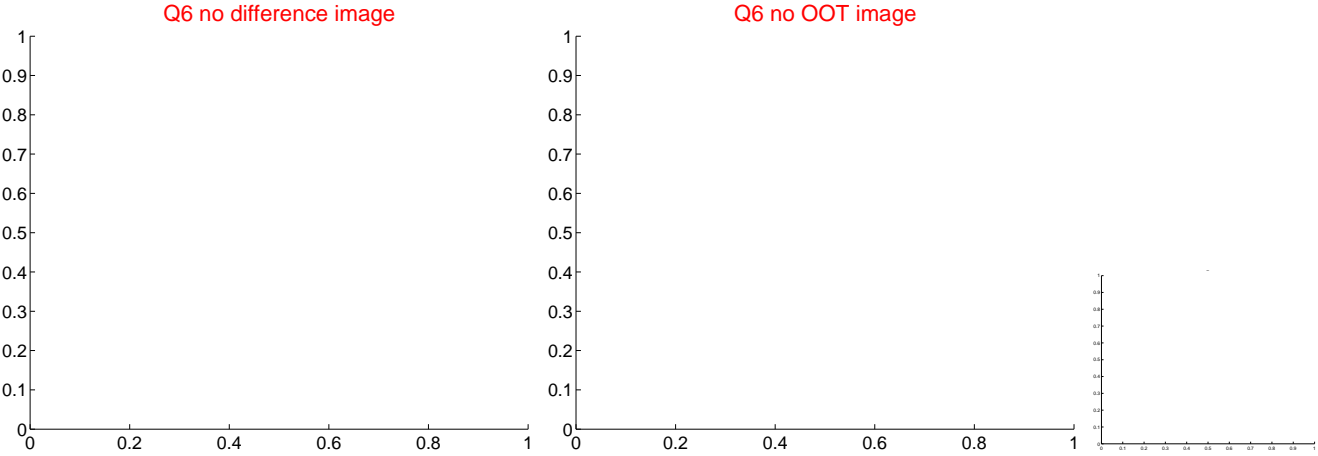
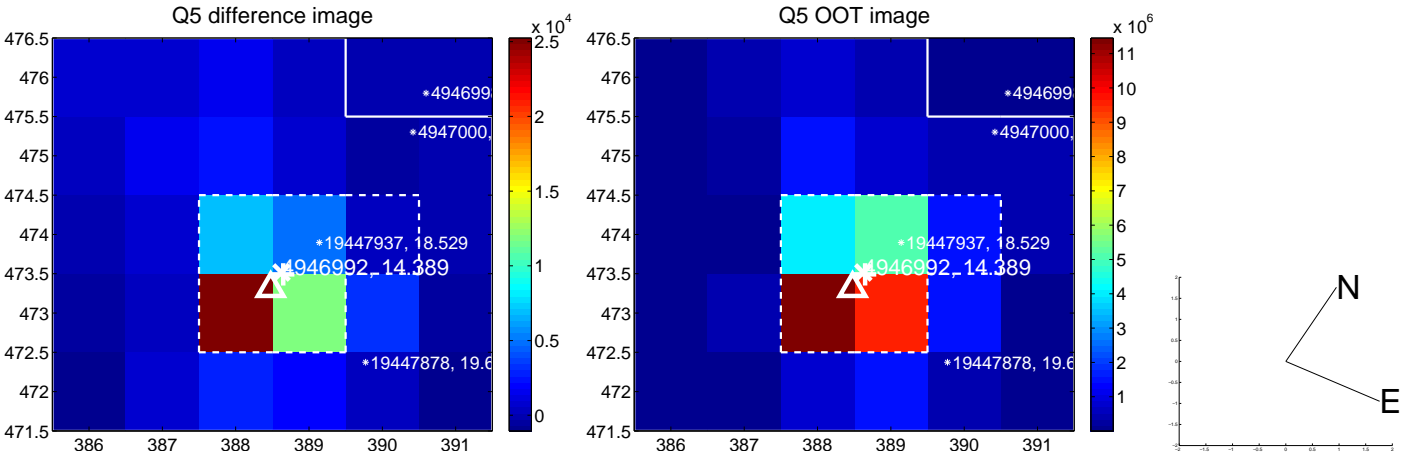


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

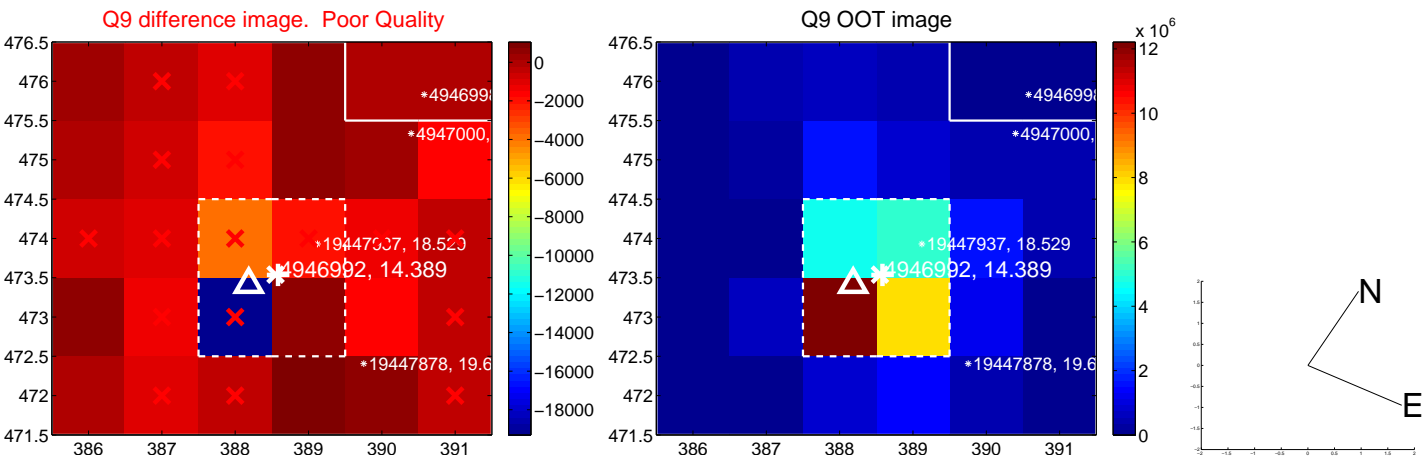
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



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

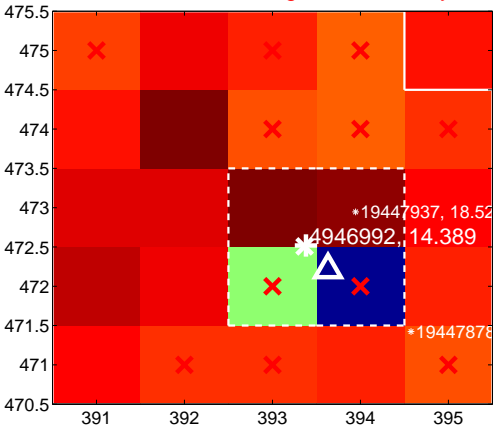
Q13 no difference image



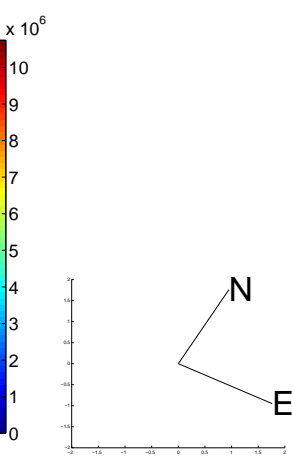
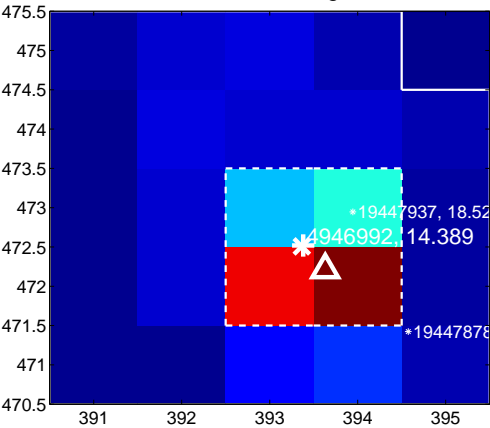
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



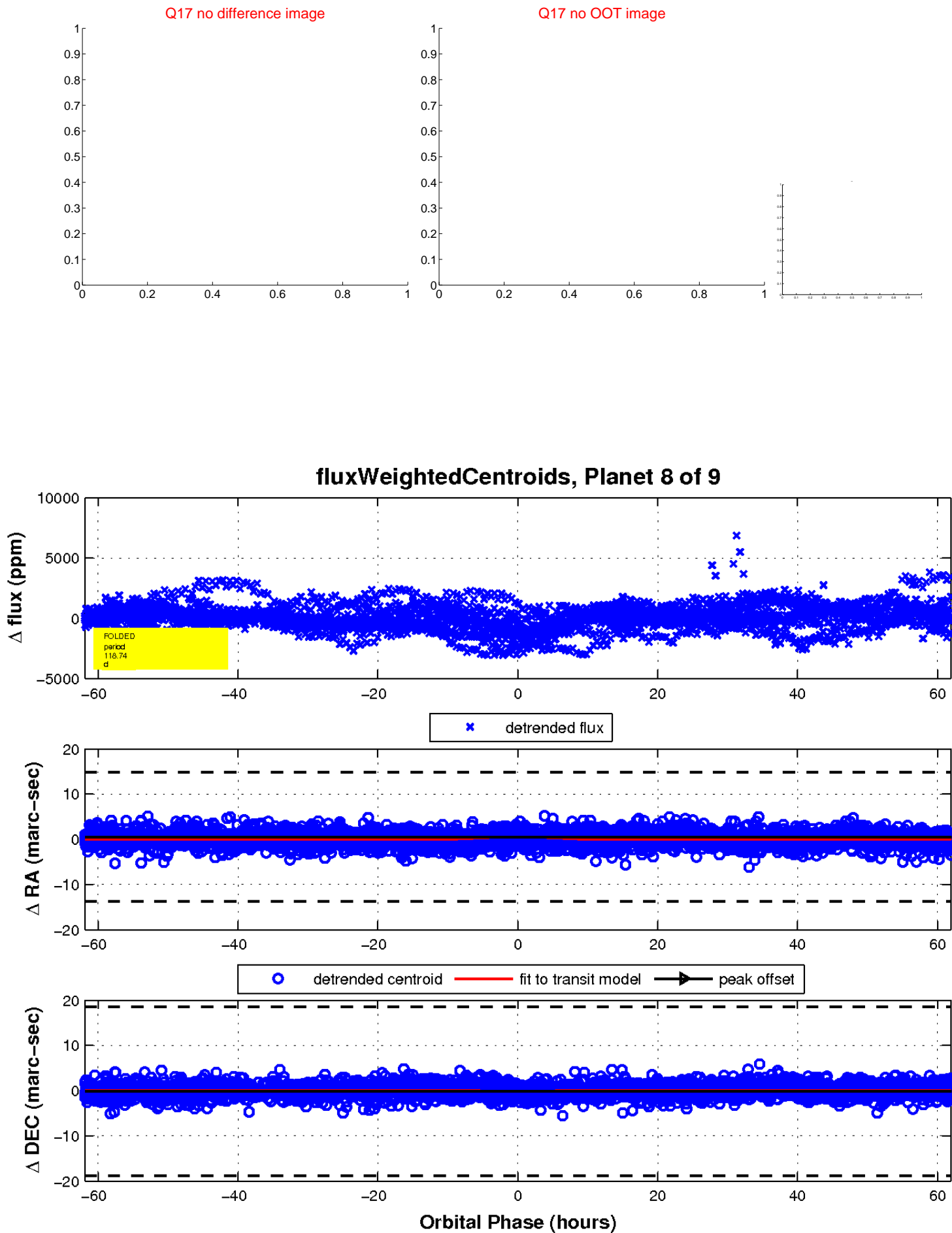
Q16 no difference image



Q16 no OOT image

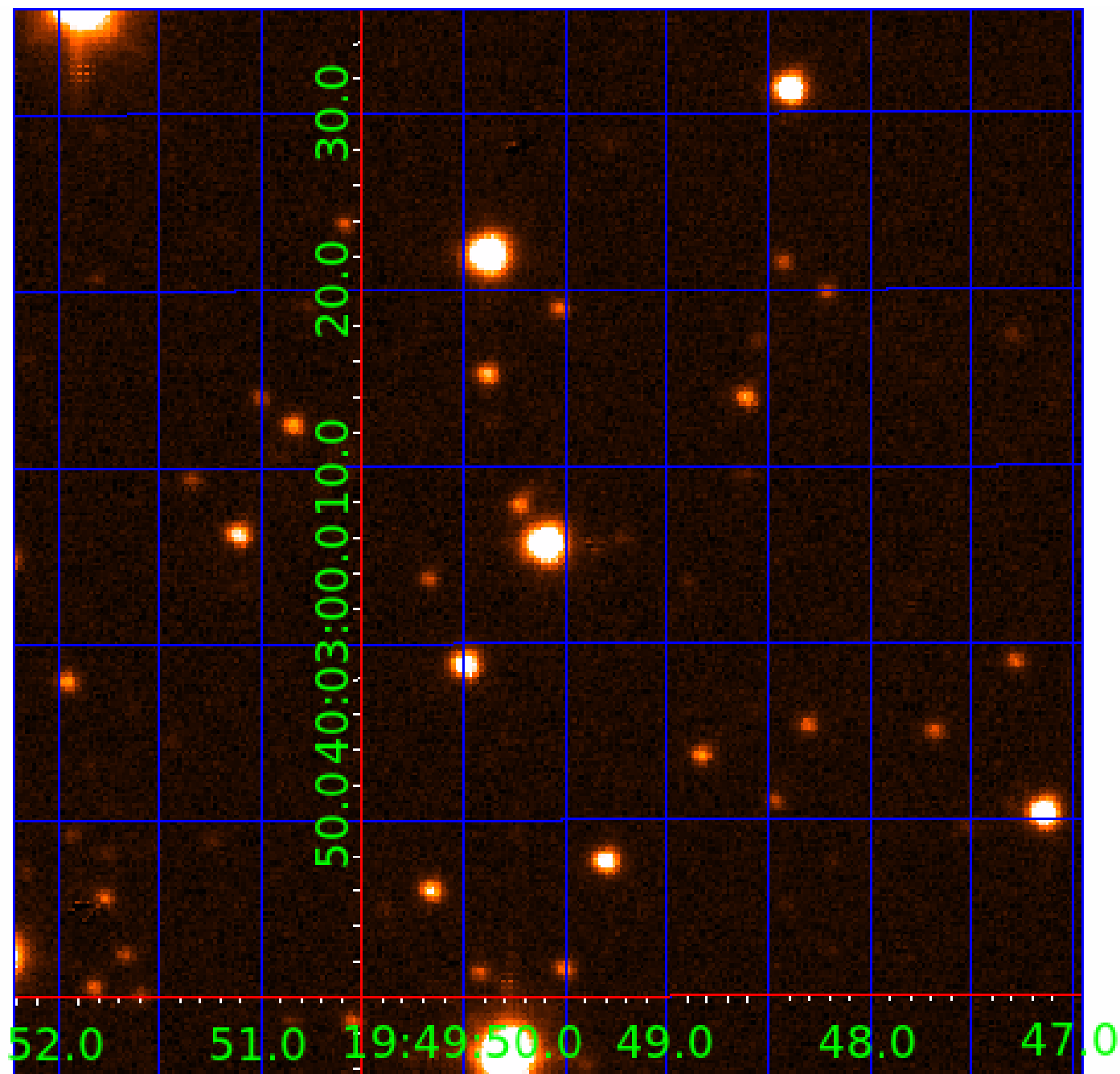


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004946992

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})
004946992-01	OBS	No	1.767502	131.929168	58.0	8.058	8.6	5.9	0.85	5901	0.69	996.28
004946992-03	OBS	No	189.822551	271.786563	944.0	16.376	13.5	5.9	0.85	5901	2.77	1.95
004946992-06	OBS	No	128.290905	227.277641	317.3	2.770	10.4	3.0	0.85	5901	1.78	3.29
004946992-07	OBS	No	576.200310	307.473393	906.1	2.749	9.7	6.8	0.85	5901	2.55	0.44
004946992-08	OBS	No	118.743894	178.100225	2138.4	20.640	9.9	10.2	0.85	5901	7.37	3.65
004946992-09	OBS	No	178.883964	254.015426	295.3	1.851	9.1	2.5	0.85	5901	1.58	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004946992-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV
004946992-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—INCONSISTENT_TRANS
004946992-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004946992-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED
004946992-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV

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

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

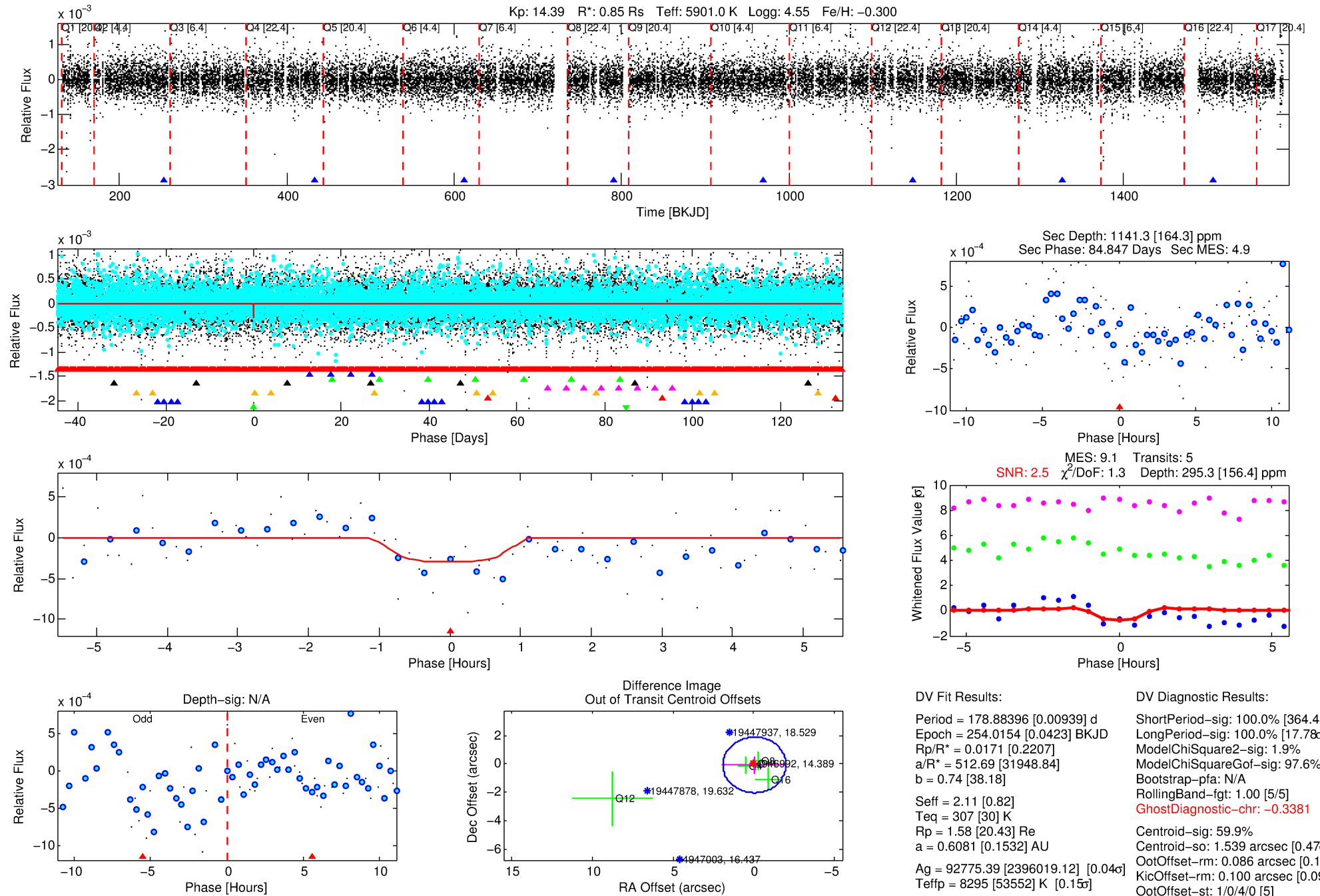
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004946992-09

No Significant Match Found

DV One-Page Summary

KIC: 4946992 Candidate: 9 of 9 Period: 178.884 d



DV Fit Results:

Period = 178.88396 [0.00939] d
Epoch = 254.0154 [0.0423] BKJD
Rp/R* = 0.0171 [0.2207]
a/R* = 512.69 [31948.84]
b = 0.74 [38.18]
Seff = 2.11 [0.82]
Teq = 307 [30] K
Rp = 1.58 [20.43] Re
a = 0.6081 [0.1532] AU
Ag = 92775.39 [2396019.12] [0.04]
Teff = 8295 [53552] K [0.15]

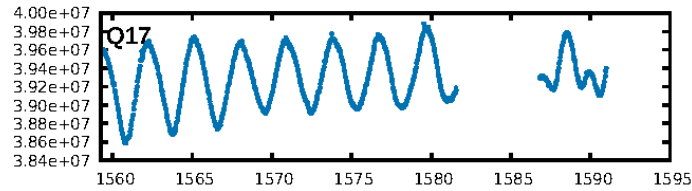
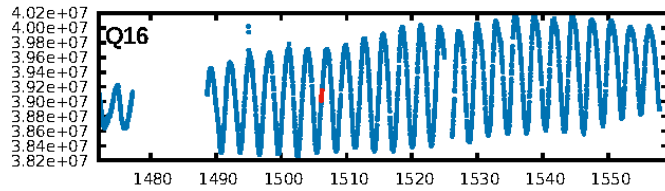
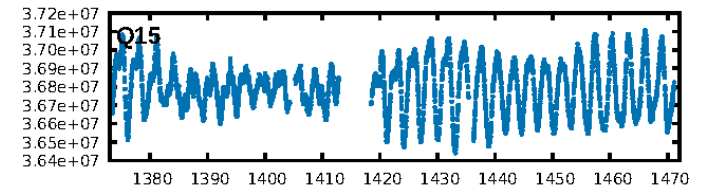
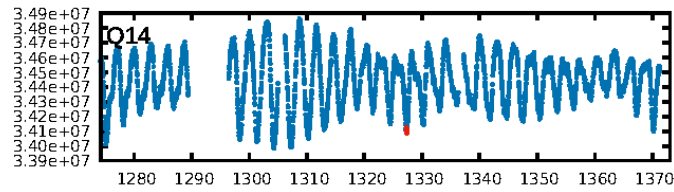
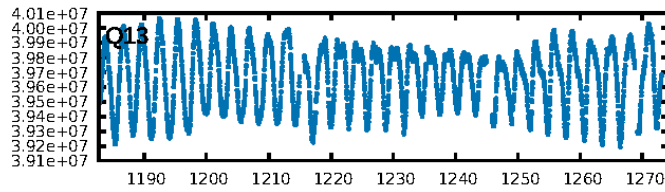
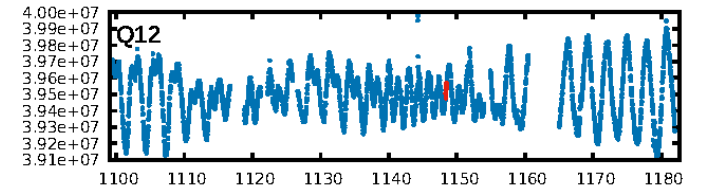
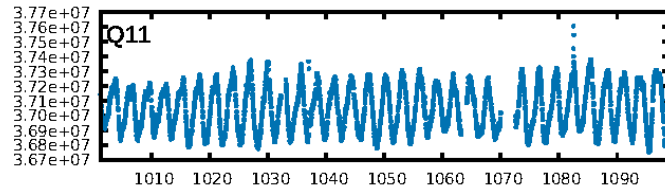
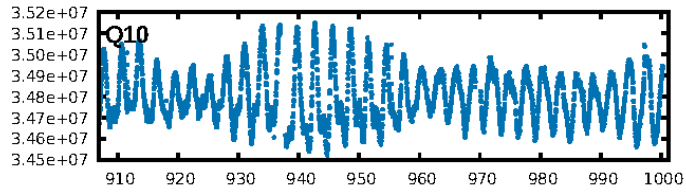
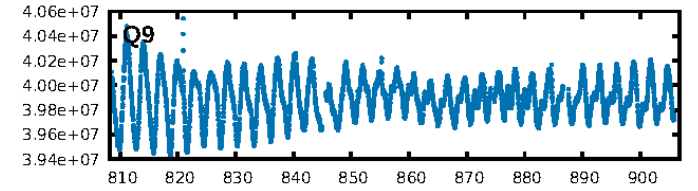
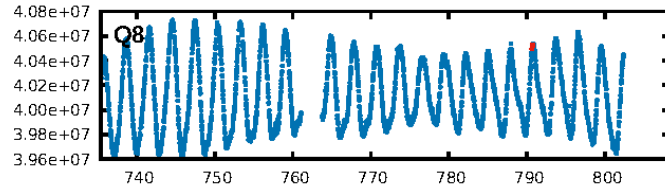
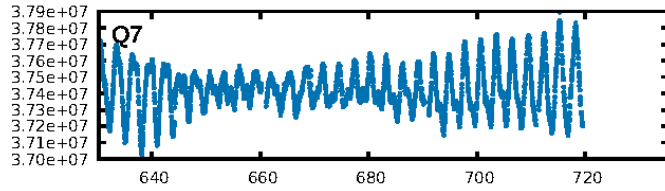
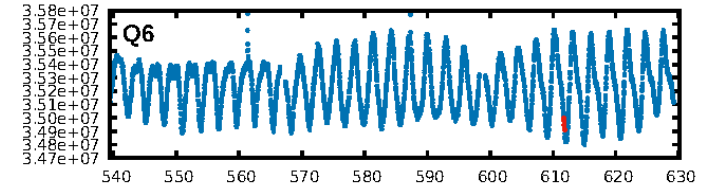
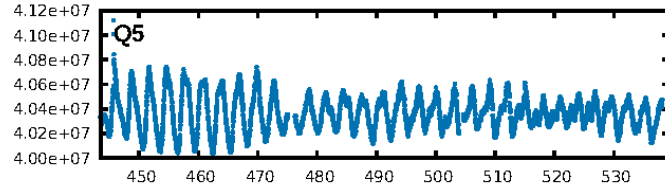
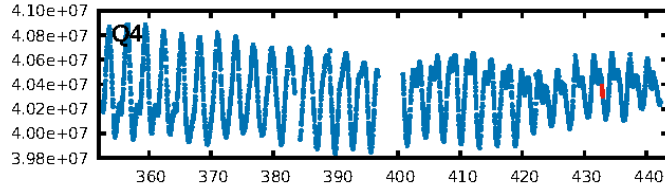
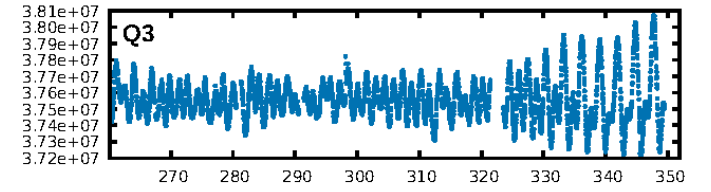
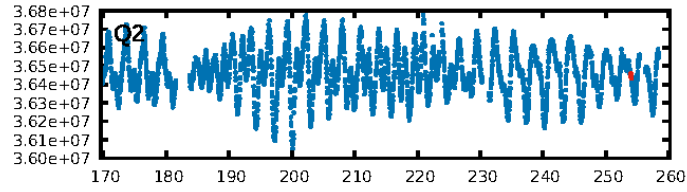
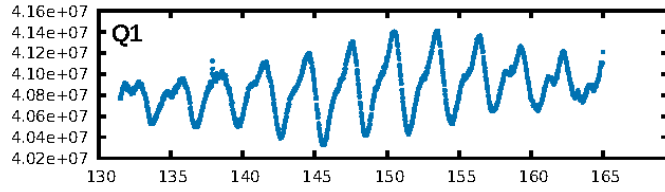
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [364.49]
LongPeriod-sig: 100.0% [17.78]
ModelChiSquare2-sig: 1.9%
ModelChiSquareGof-sig: 97.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.3381
Centroid-sig: 59.9%
Centroid-so: 1.539 arcsec [0.47]
OotOffset-rm: 0.086 arcsec [0.13]
KicOffset-rm: 0.100 arcsec [0.09]
OotOffset-st: 1/0/4/0 [5]
KicOffset-st: 1/0/4/0 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.71 [5/7]

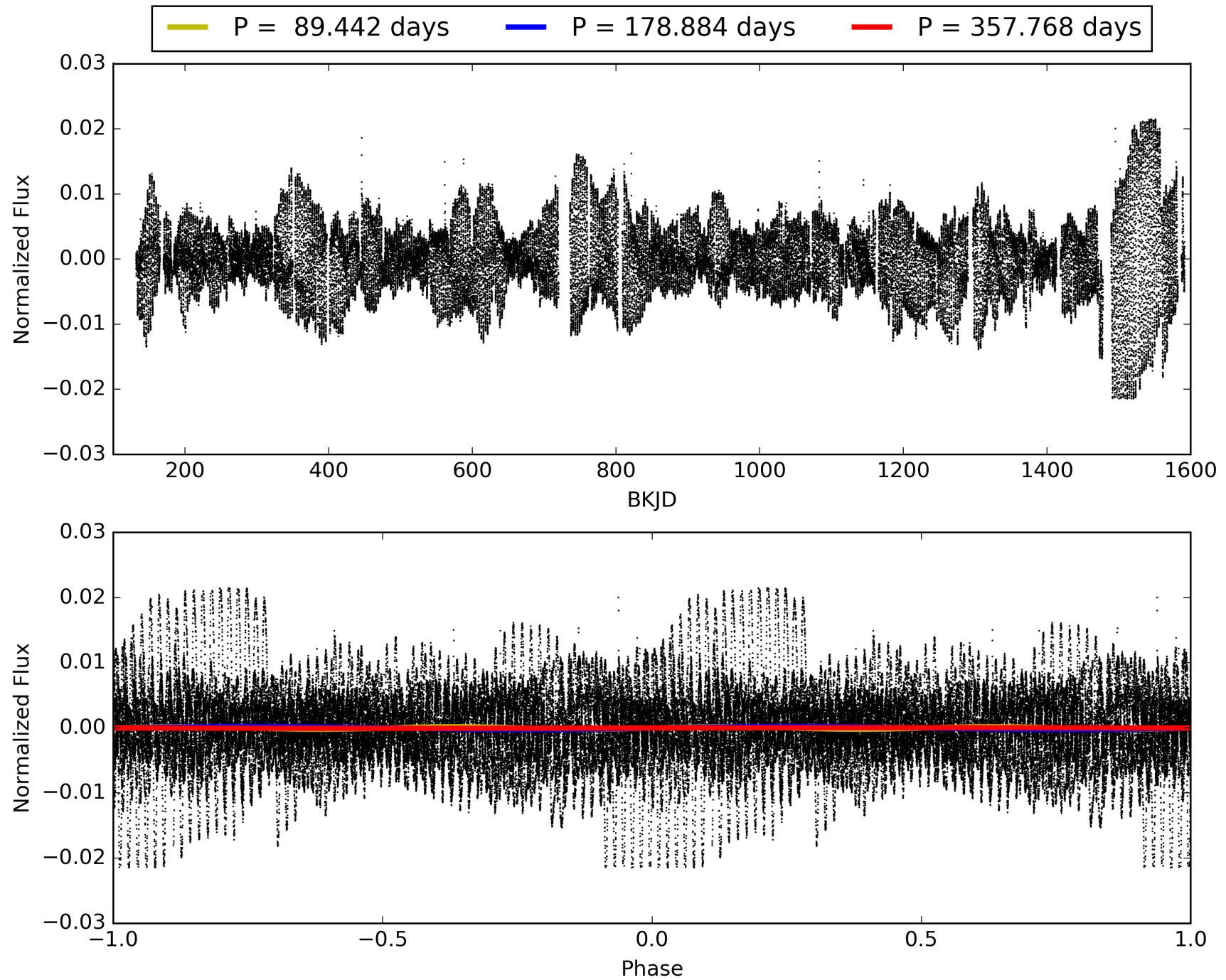
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:47:47 Z

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

TCE 004946992-09, PDC Light Curves

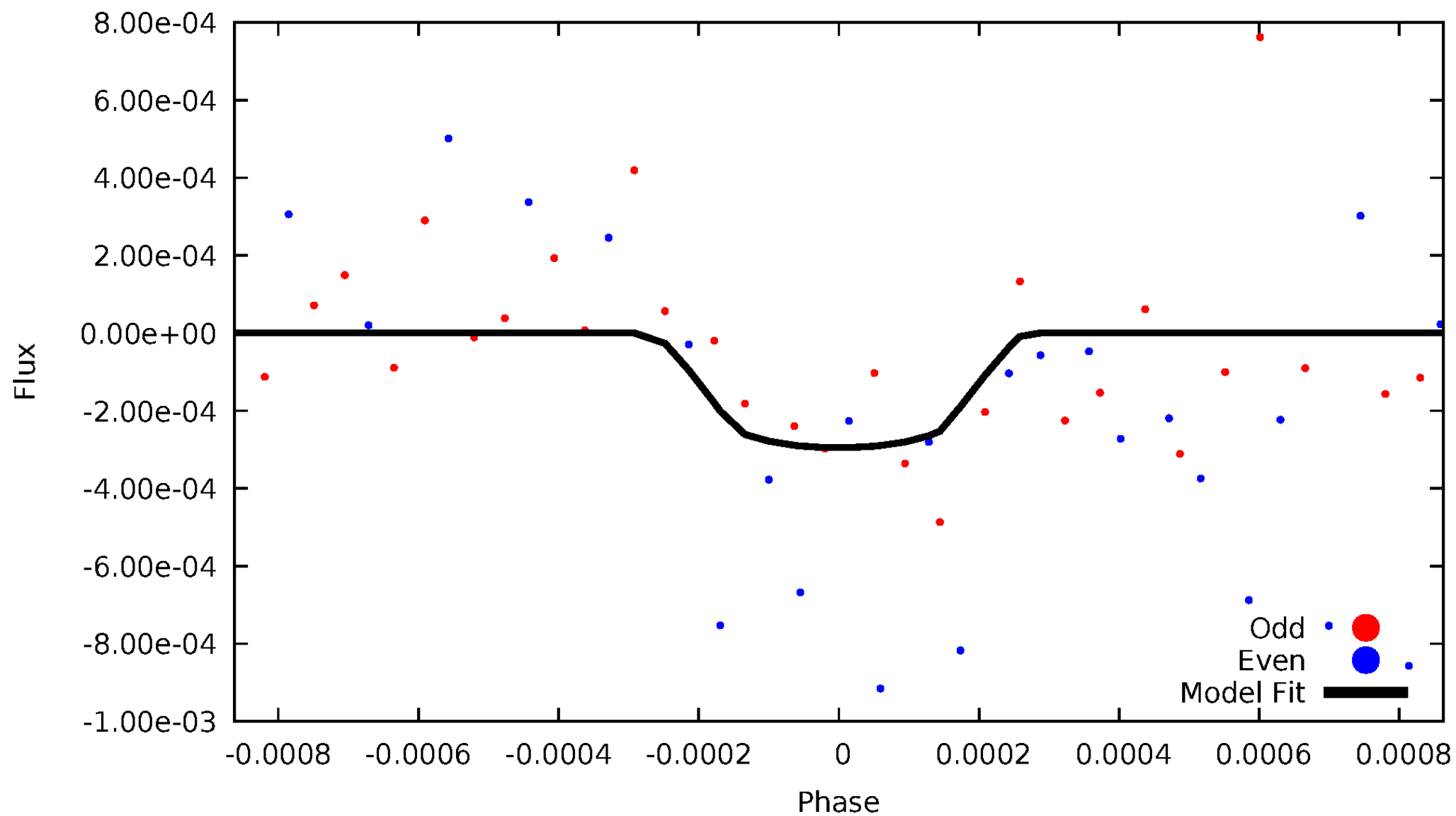


TCE 004946992-09



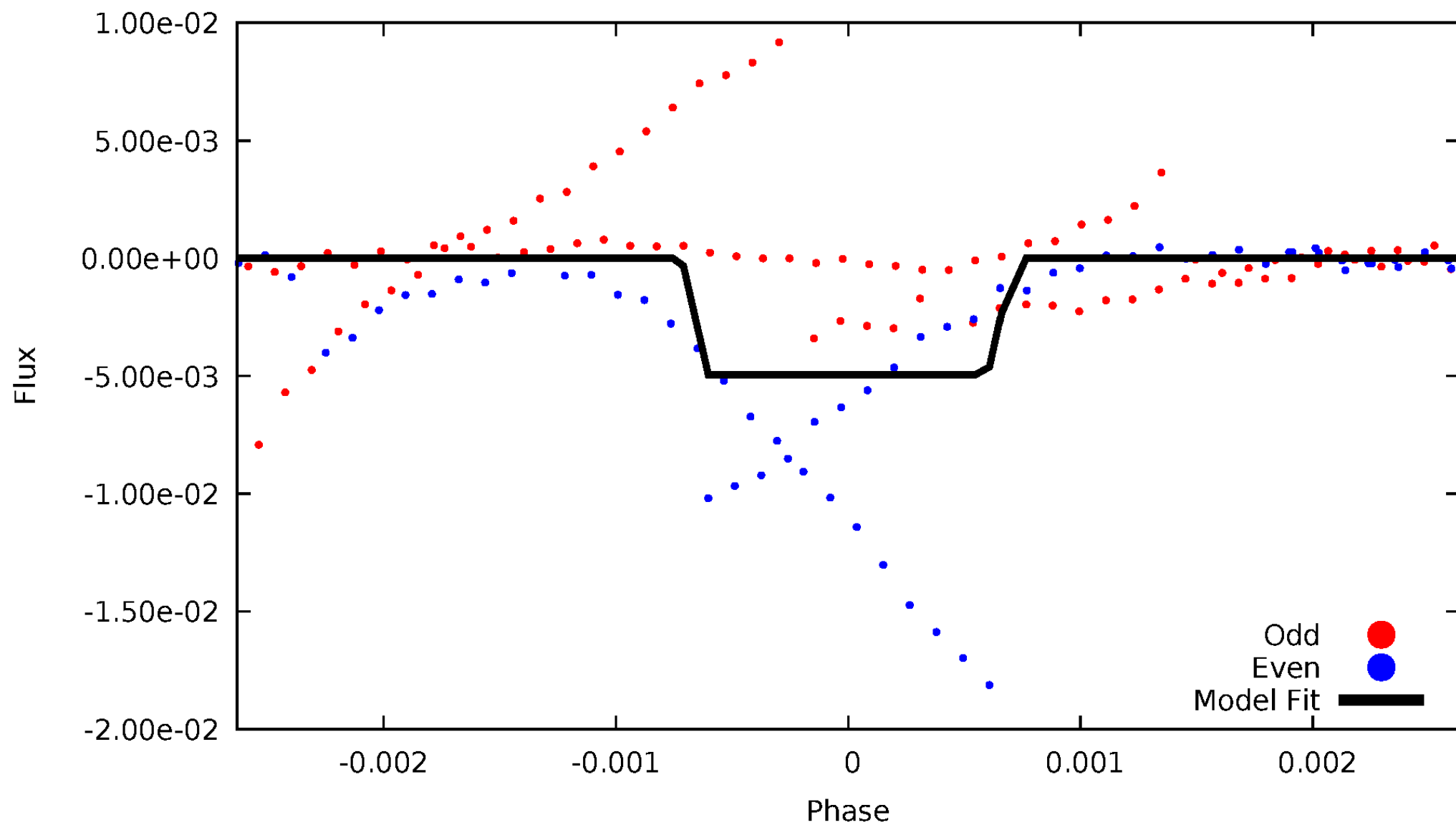
DV Odd/Even

TCE 004946992-09



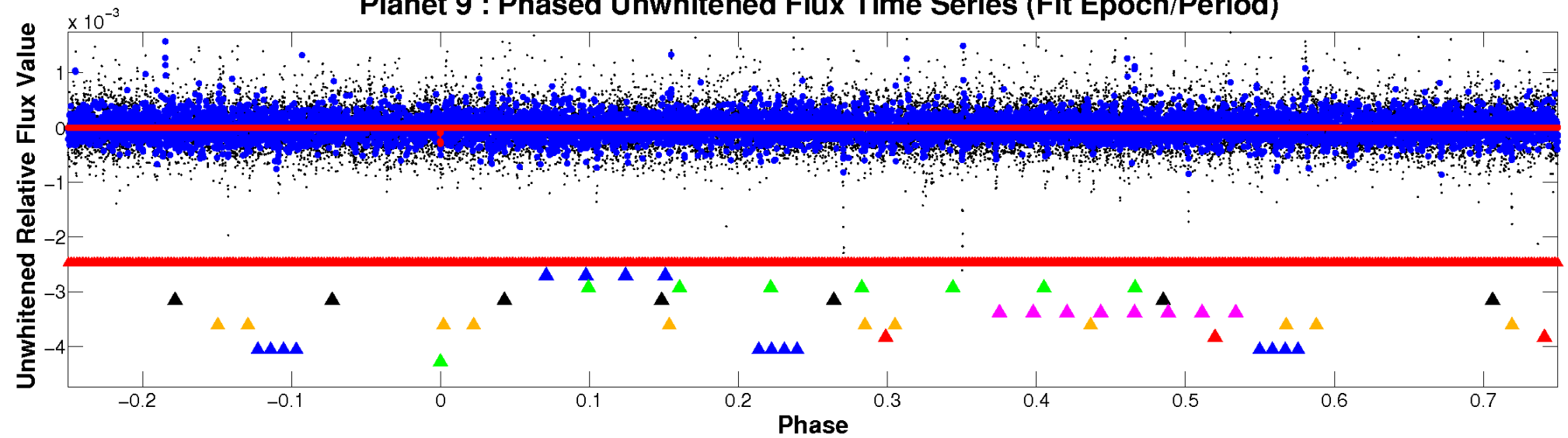
ALT Odd/Even

TCE 004946992-09

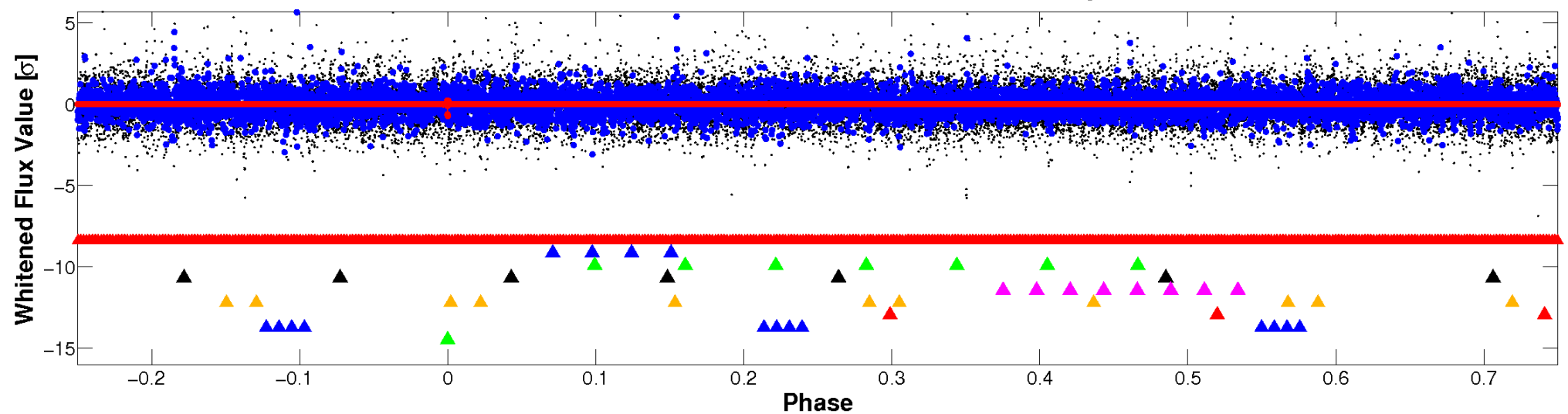


Non-Whitened Vs. Whitened Light Curve

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

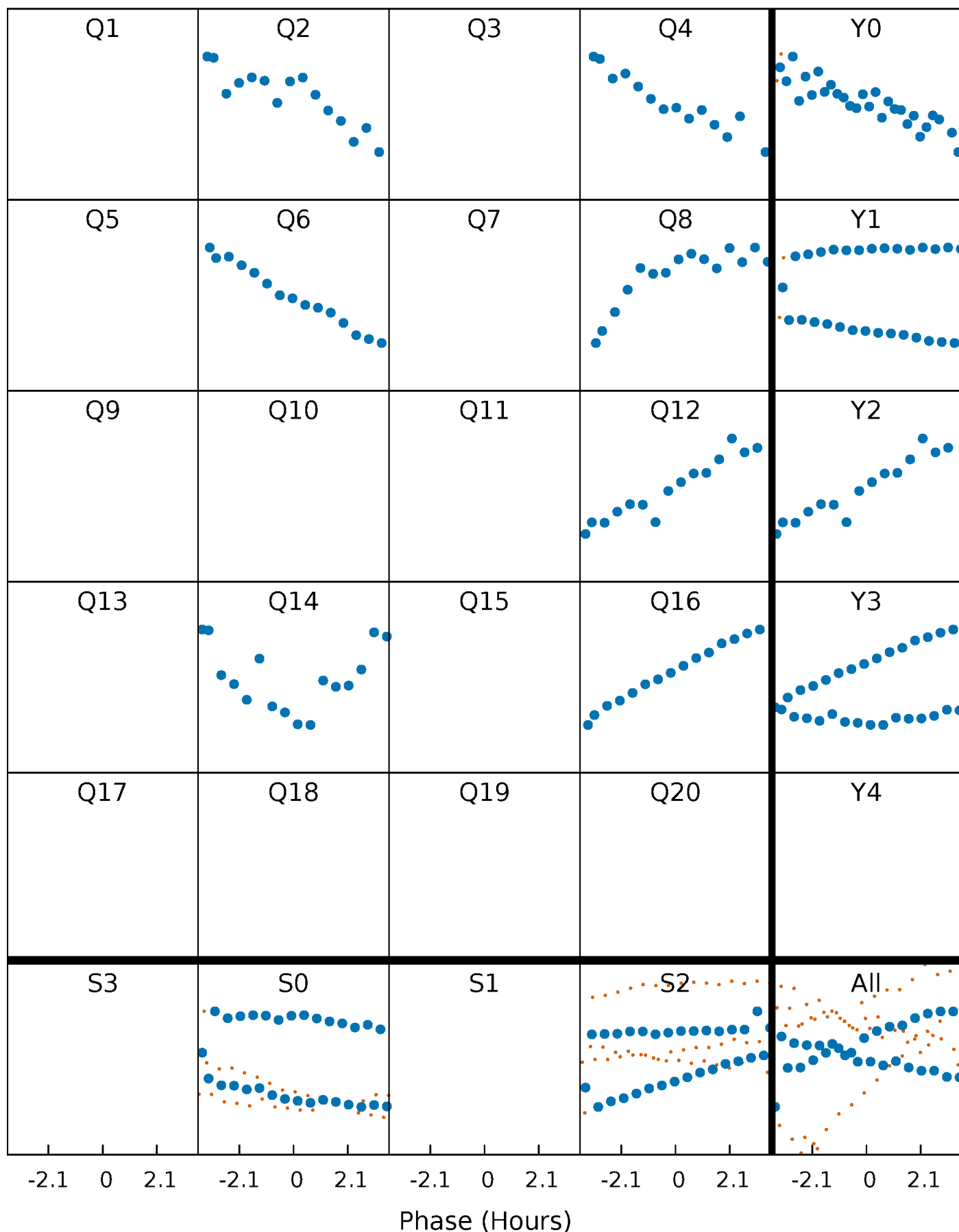


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



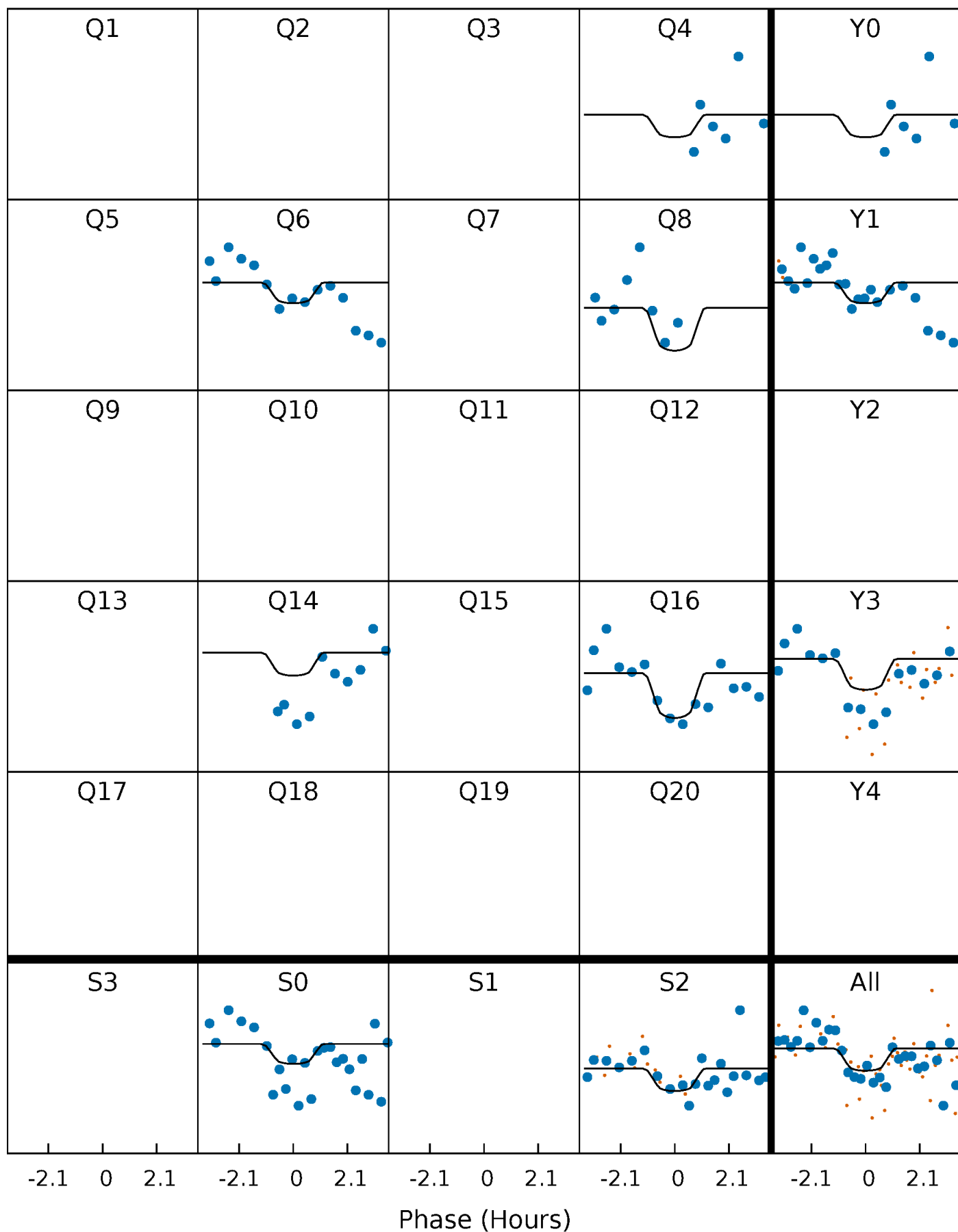
PDC Quarter-Phased Transit Curves

TCE 004946992-09 P=178.883964 Days $T_0=254.015426$ (BKJD)



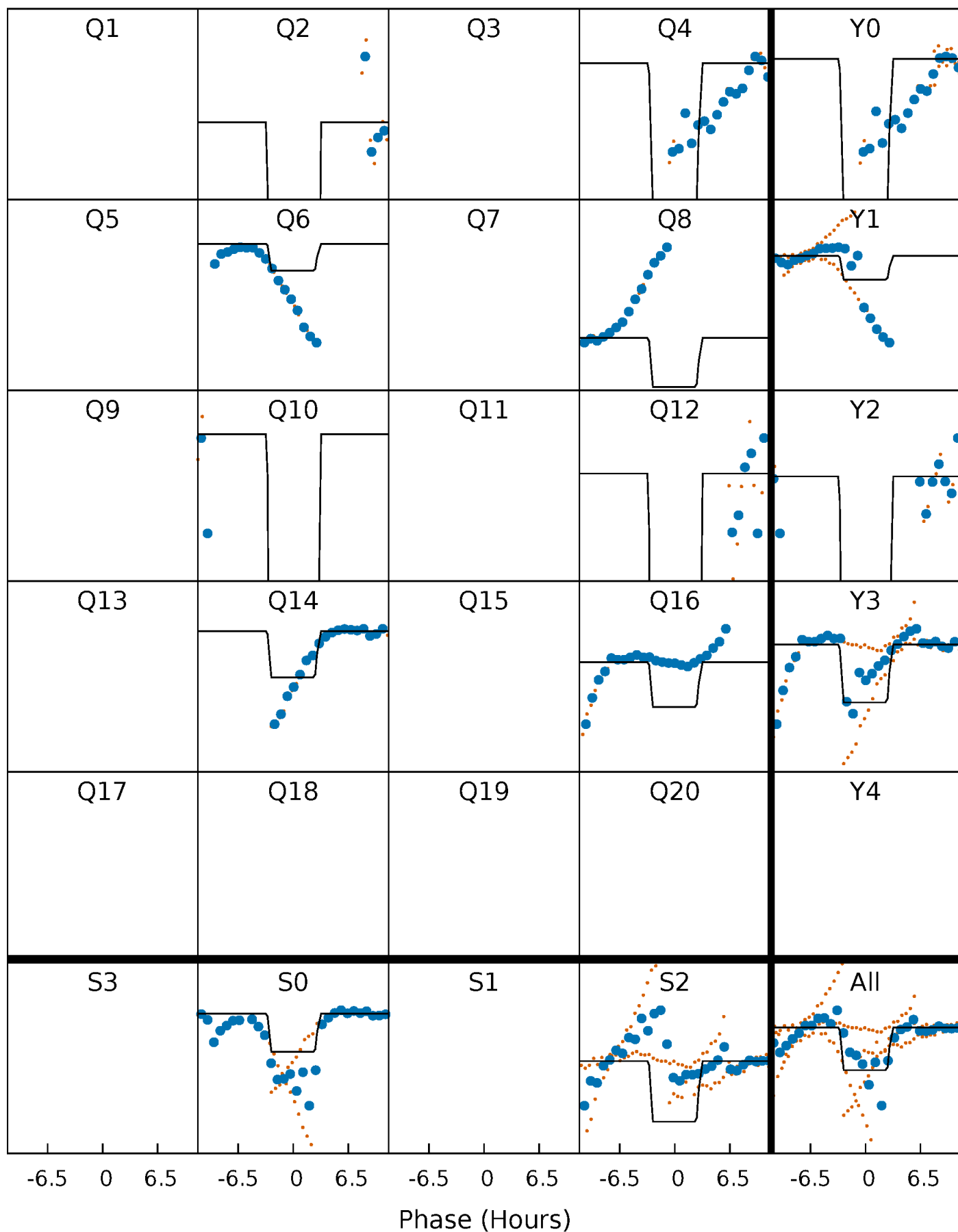
DV Quarter-Phased Transit Curves

TCE 004946992-09 P=178.883964 Days $T_0=254.015426$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

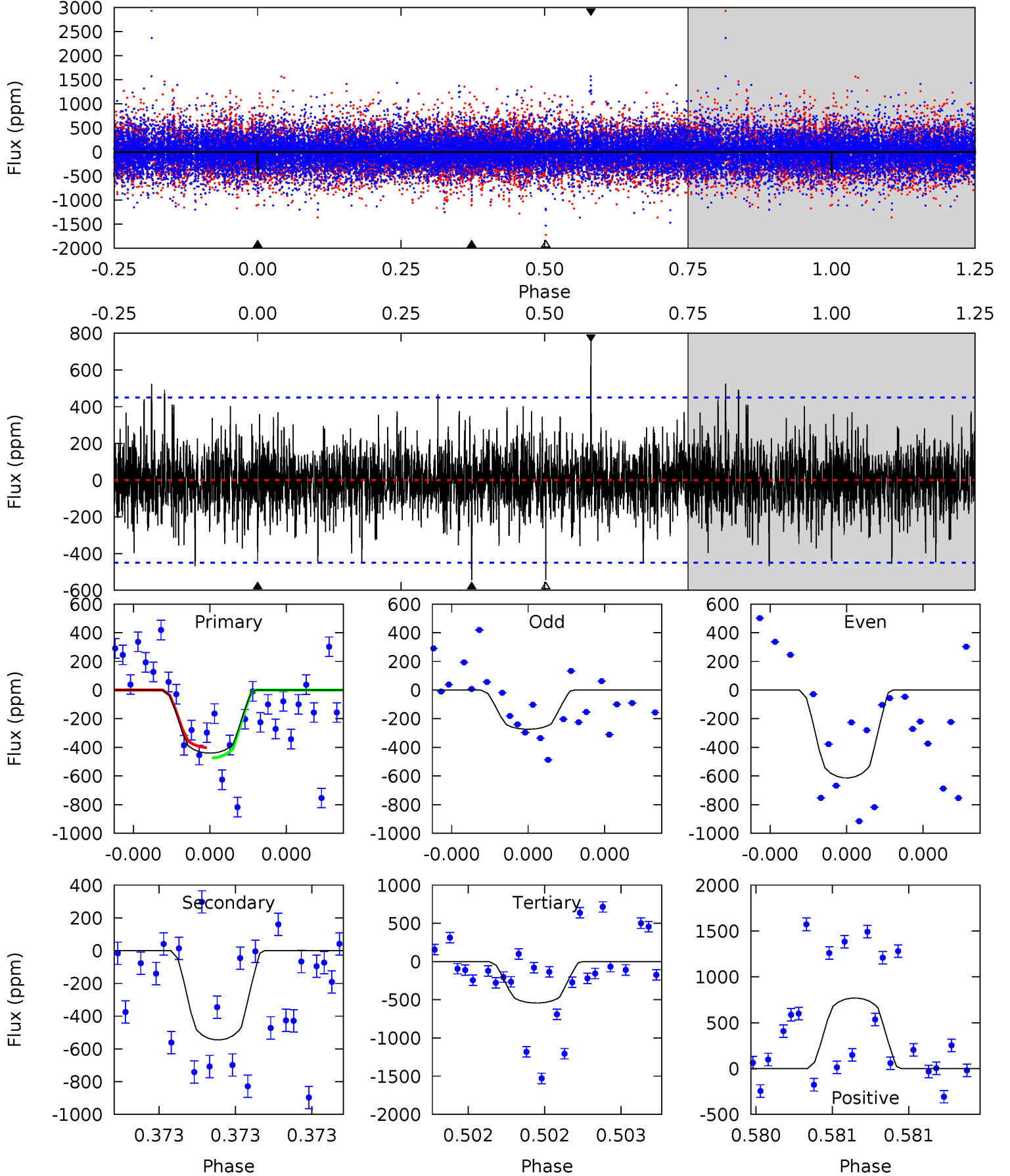
TCE 004946992-09 P=178.889007 Days $T_0=254.062726$ (BKJD)



DV Model-Shift Uniqueness Test

004946992-09, P = 178.883964 Days, E = 75.131462 Days

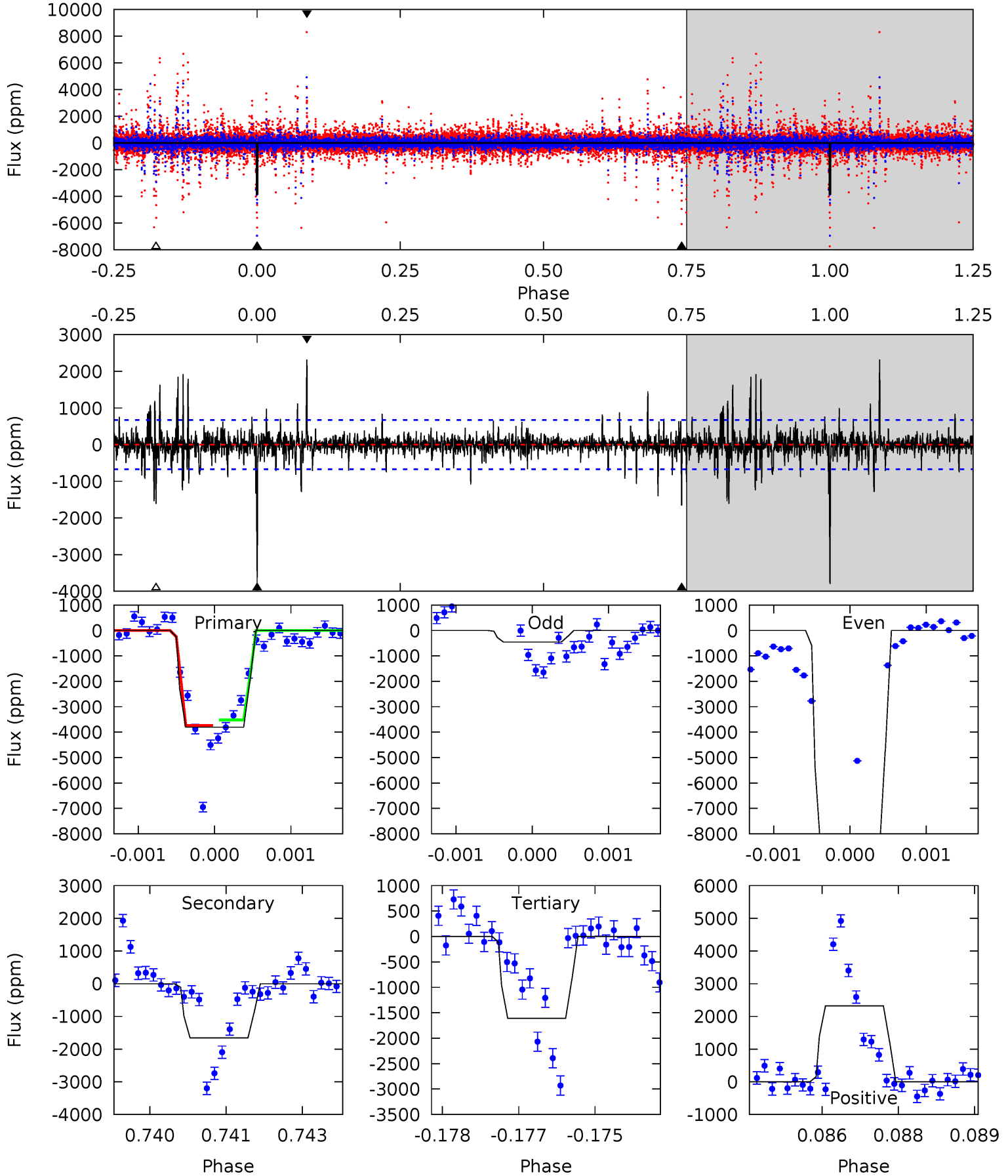
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.46	6.77	6.74	9.54	5.58	3.50	1.46	-1.27	-4.08	0.03	-2.78	2.05	1.47	0.59	0.45



Alt Model-Shift Uniqueness Test

004946992-09, P = 178.889007 Days, E = 75.173719 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.5	13.3	12.9	18.6	5.39	3.19	1.80	17.6	11.9	0.37	-5.34	27.6	0.86	0.38	0



Stellar Parameters For KIC 004946992

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5901^{+158}_{-175}	$4.553^{+0.036}_{-0.204}$	$-0.300^{+0.300}_{-0.300}$	$0.848^{+0.251}_{-0.079}$	$0.938^{+0.108}_{-0.108}$	$2.165^{+0.426}_{-1.110}$
	+3%/-3%	+1%/-4%	+100%/-100%	+30%/-9%	+12%/-12%	+20%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004946992-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-545 ± 81	$15.13^{+16.43}_{-10.66}$	441^{+28}_{-20}	2963^{+1518}_{-505}	488^{+5212}_{-379}
Alt.	-1657 ± 125	$18.65^{+15.53}_{-13.16}$	443^{+30}_{-22}	3318^{+1988}_{-544}	977^{+10039}_{-700}

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 $A_{obs} \gg 1.0$

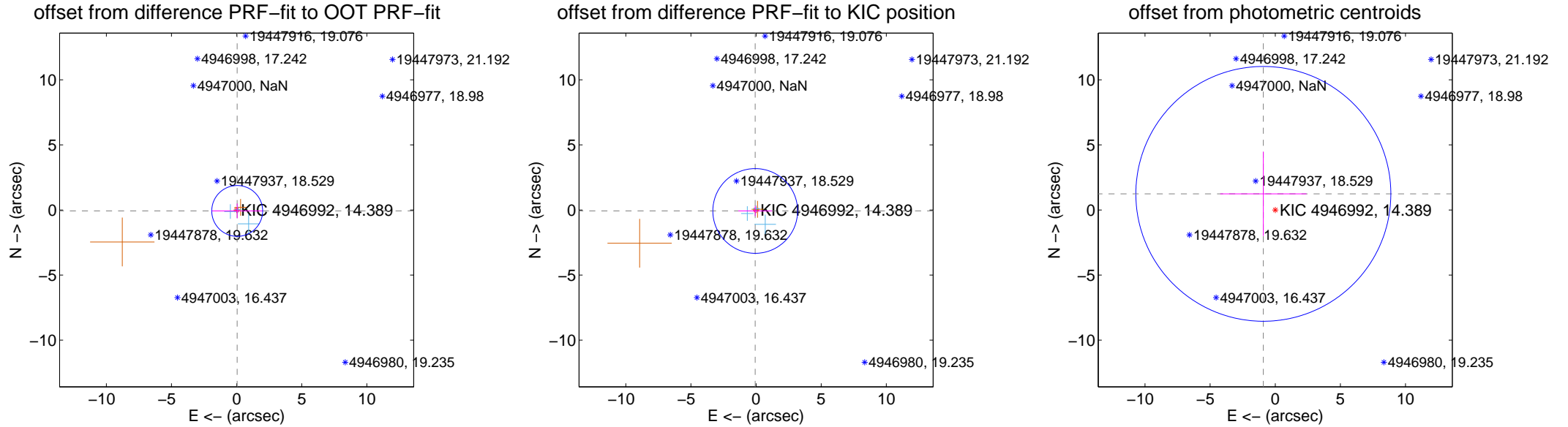
DV Centroid Data

Supplemental centroid analysis for 004946992-09. Kepler magnitude: 14.39. Transit SNR 2.48

There are 3 quarters with good PRF difference image offsets

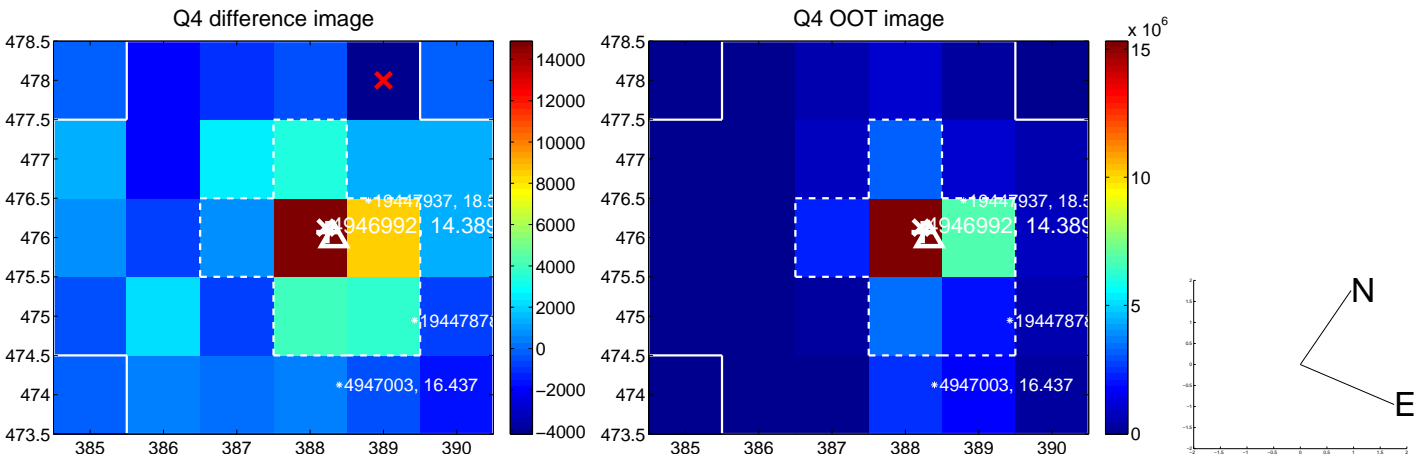
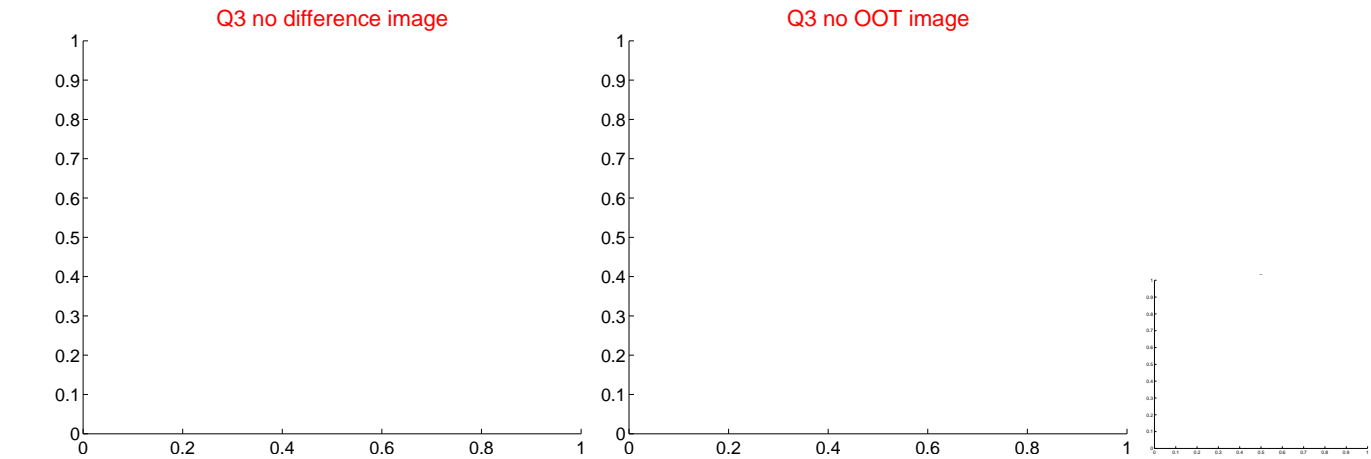
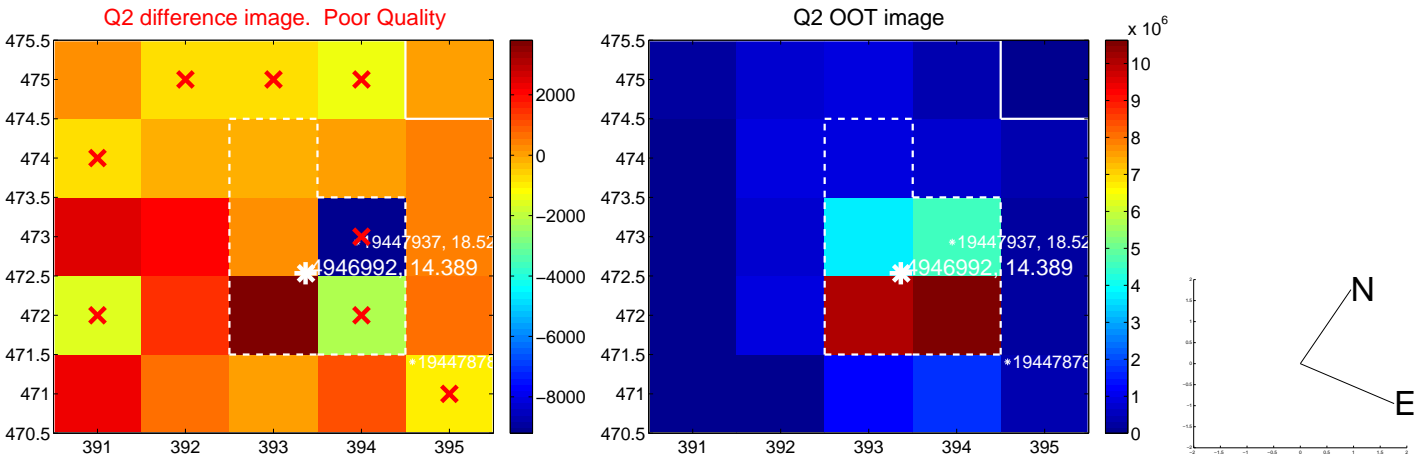
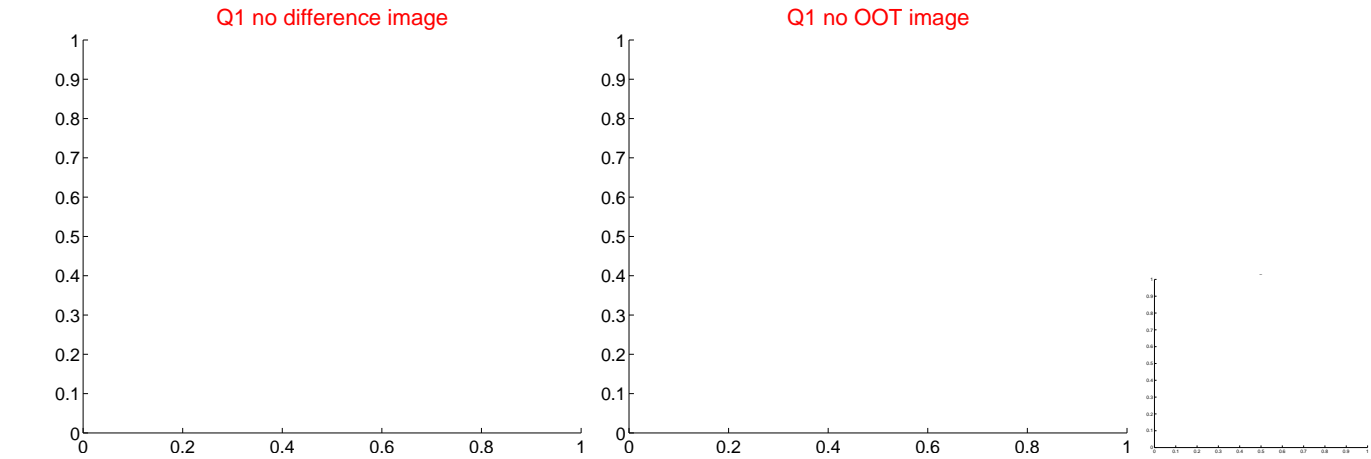
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.086 ± 0.651	0.13	-0.044 ± 1.981	-0.074 ± 0.567
PRF-fit source offset from KIC position	0.100 ± 1.085	0.09	0.065 ± 1.295	-0.076 ± 0.398
photometric centroid source offset	1.54 ± 3.26	0.47	0.91 ± 3.31	1.24 ± 3.24



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

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



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

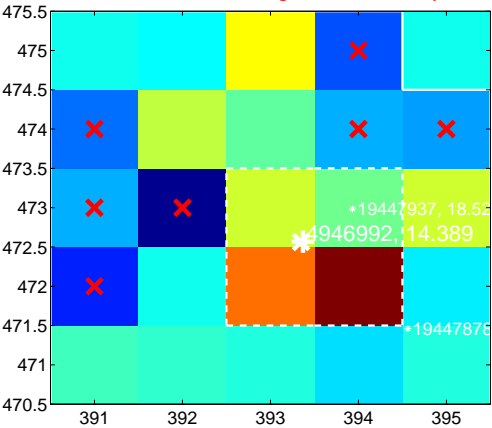
Q5 no difference image



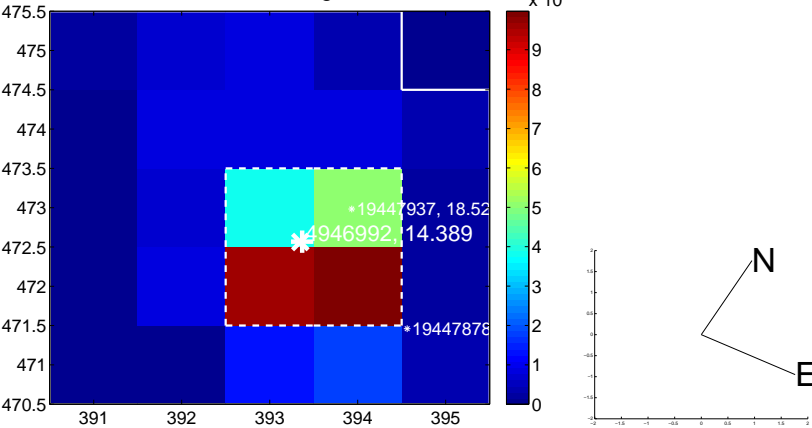
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



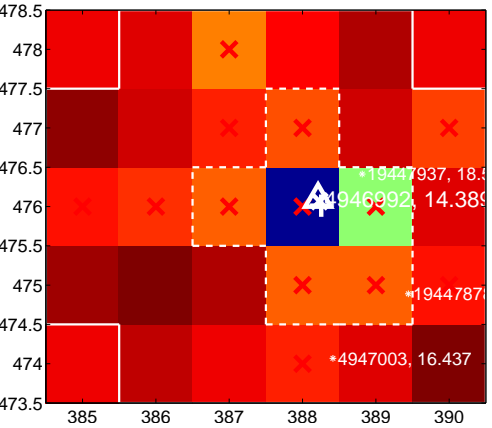
Q7 no difference image



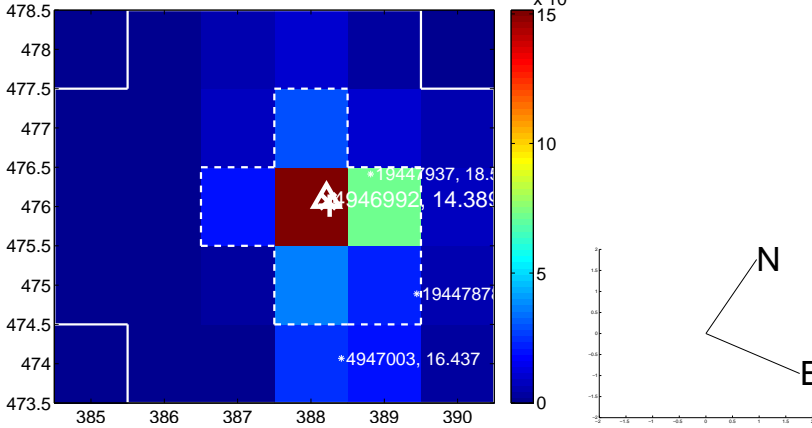
Q7 no OOT image



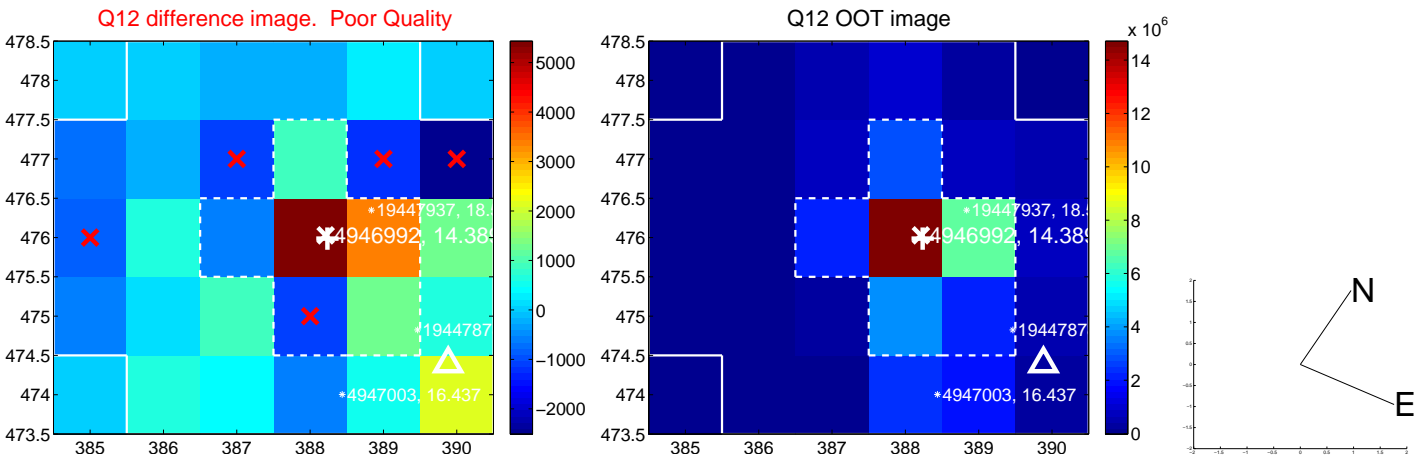
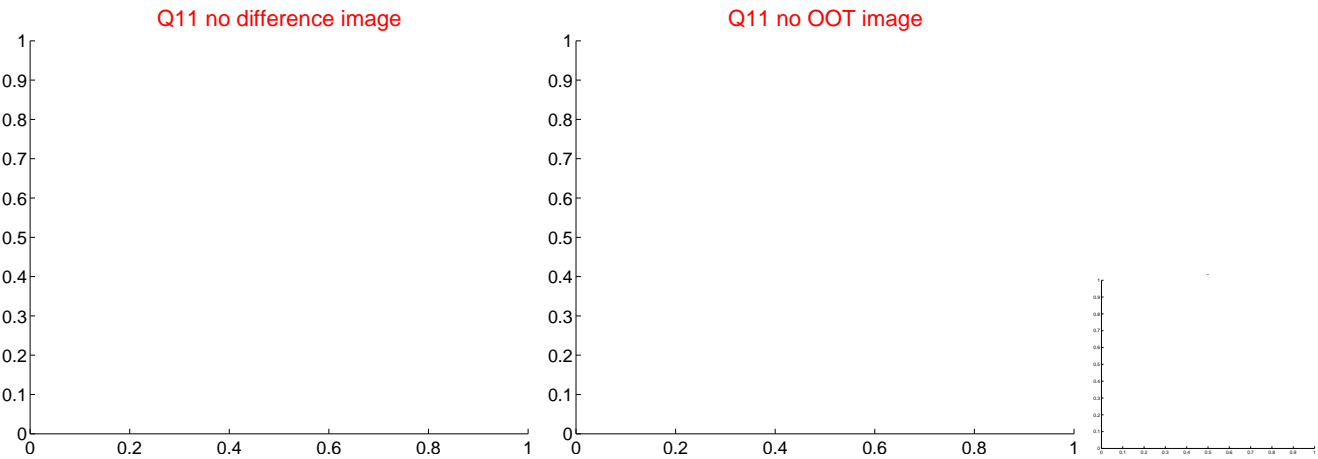
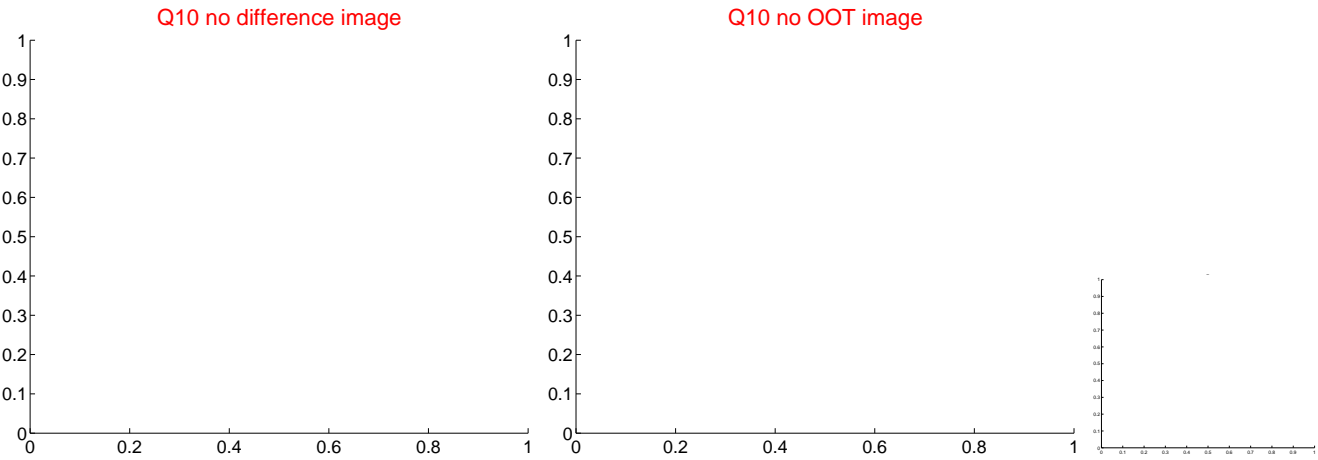
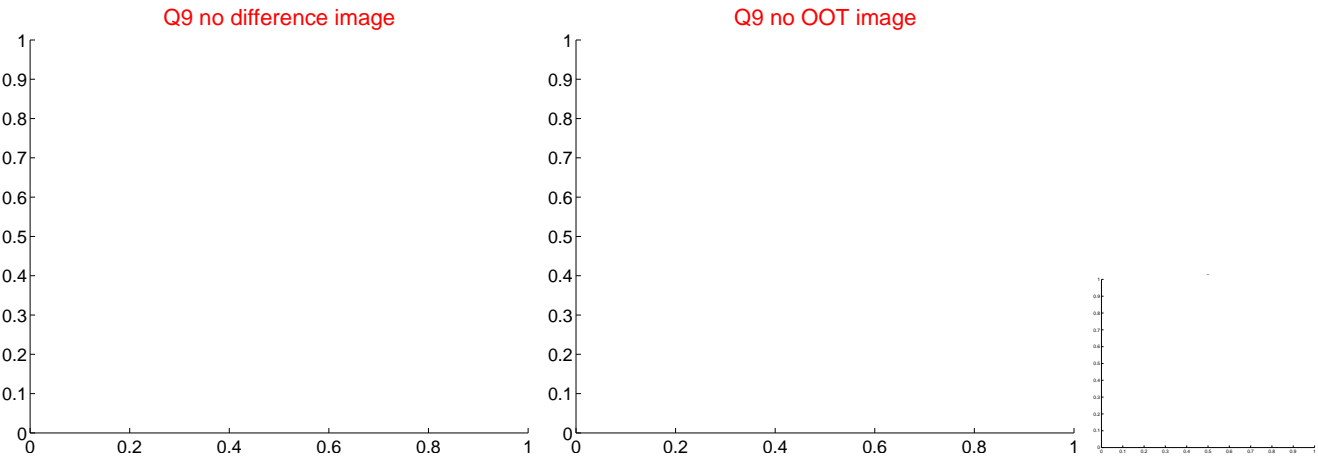
Q8 difference image. Poor Quality



Q8 OOT image

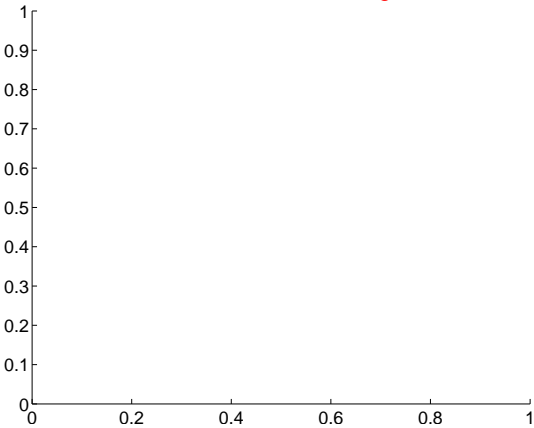


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

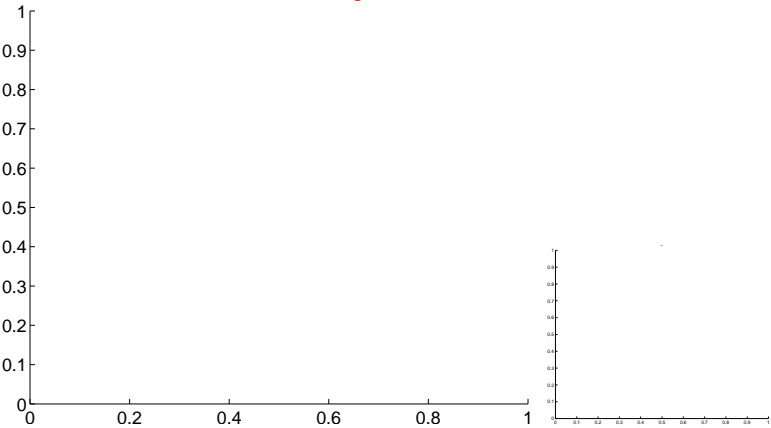


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

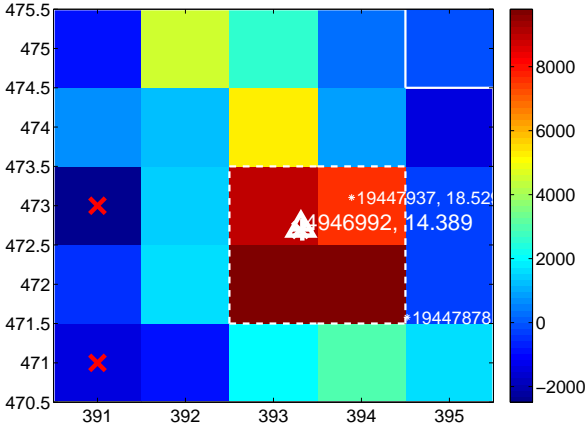
Q13 no difference image



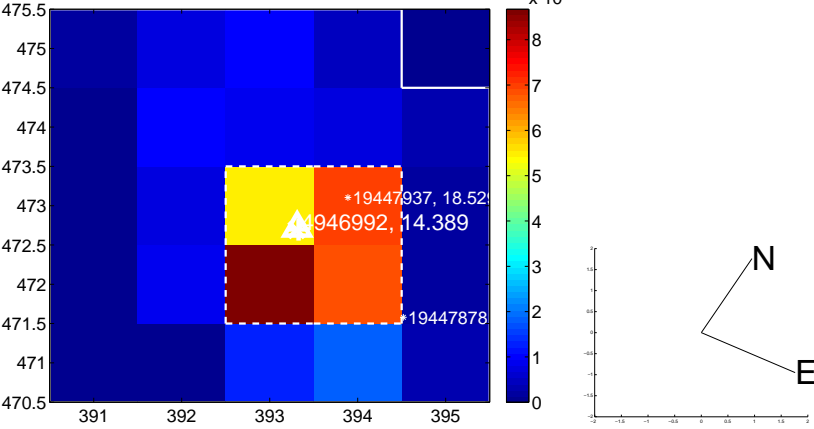
Q13 no OOT image



Q14 difference image



Q14 OOT image



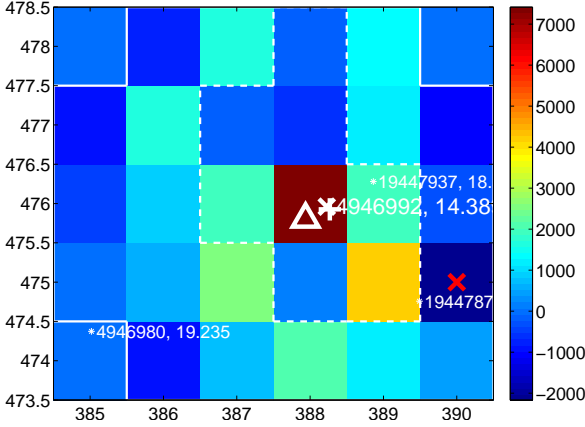
Q15 no difference image



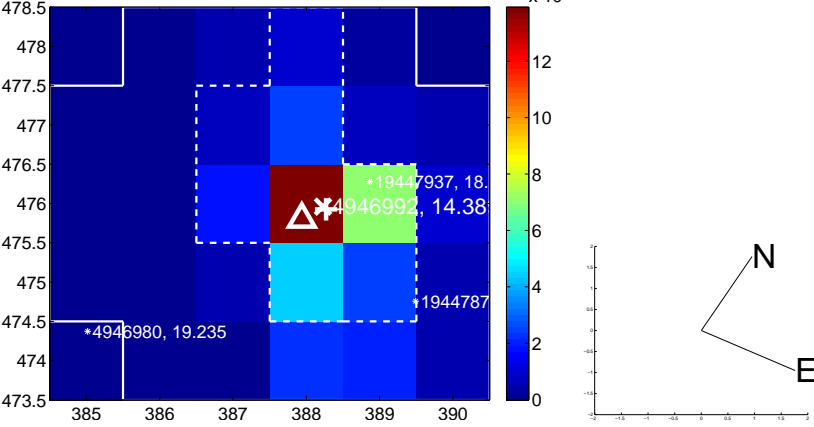
Q15 no OOT image



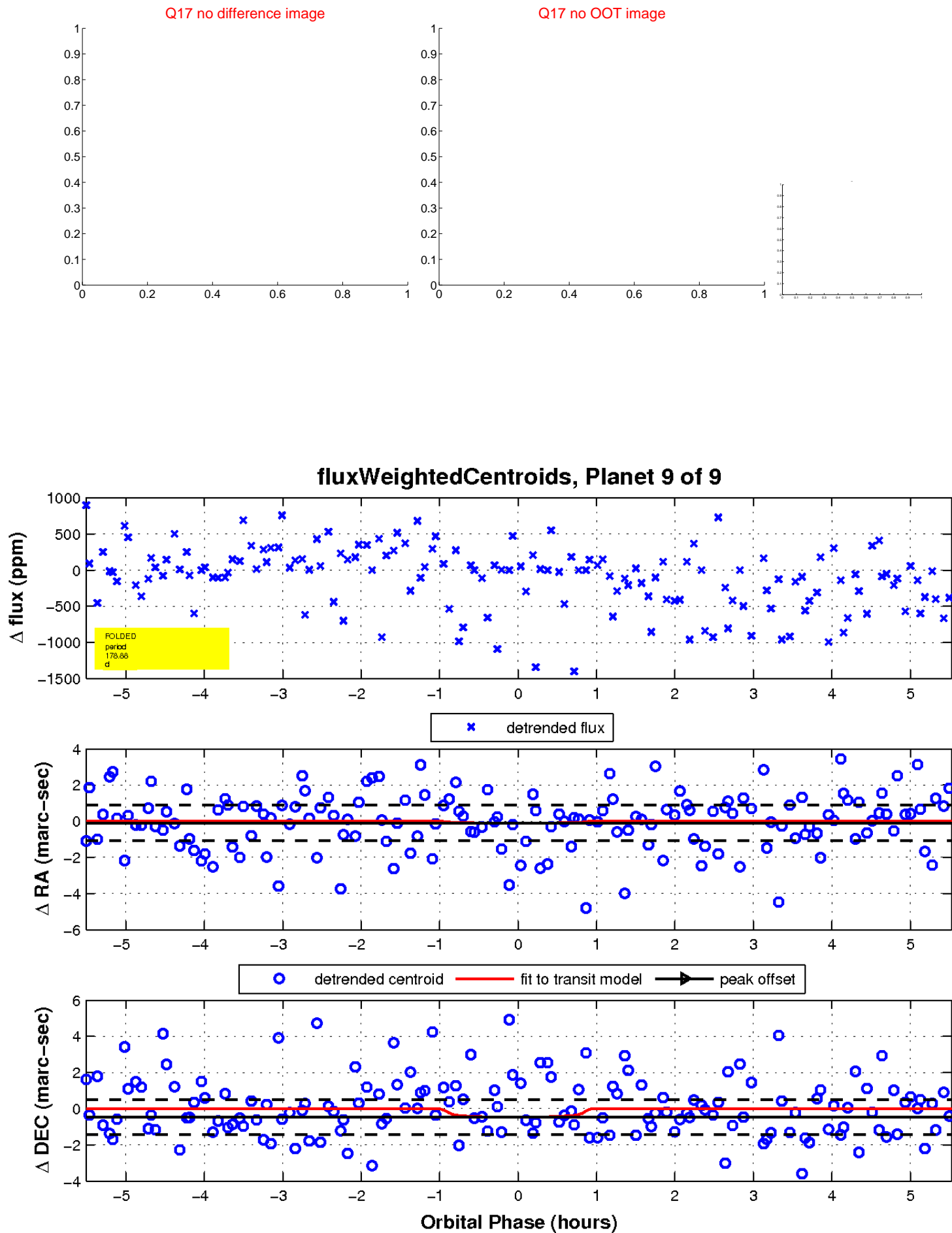
Q16 difference image



Q16 OOT image



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



UKIRT Image

Declination

