

KIC 006469690

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})
006469690-01	OBS	No	2.186723	132.649674	31.7	10.206	8.0	8.2	1.59	7703	0.98	5929.02
006469690-02	OBS	No	478.752240	437.787976	434.6	6.574	8.4	8.3	1.59	7703	3.61	4.49
006469690-03	OBS	No	216.121963	254.125507	334.0	9.471	7.4	7.0	1.59	7703	3.57	12.97
006469690-04	OBS	No	97.688519	164.371970	476.0	2.217	7.1	7.6	1.59	7703	4.03	37.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006469690-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006469690-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006469690-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006469690-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

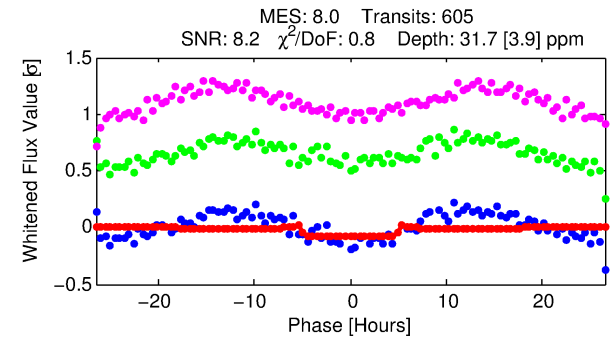
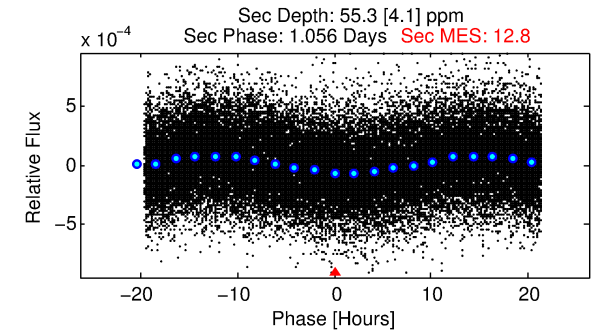
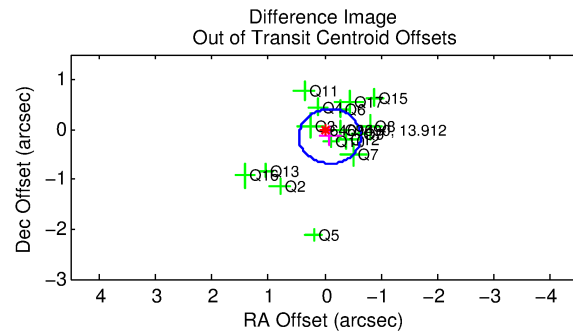
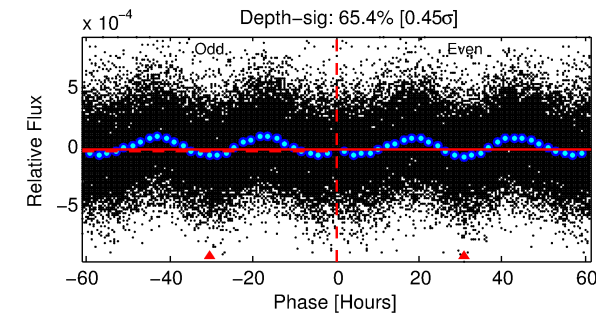
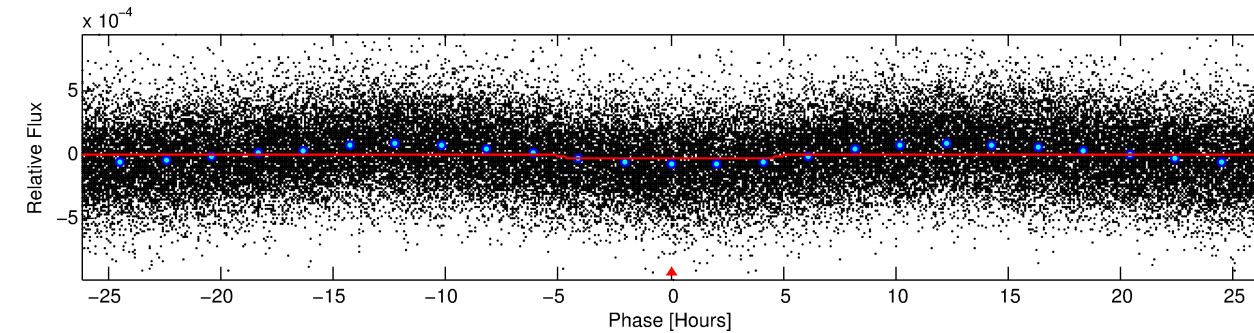
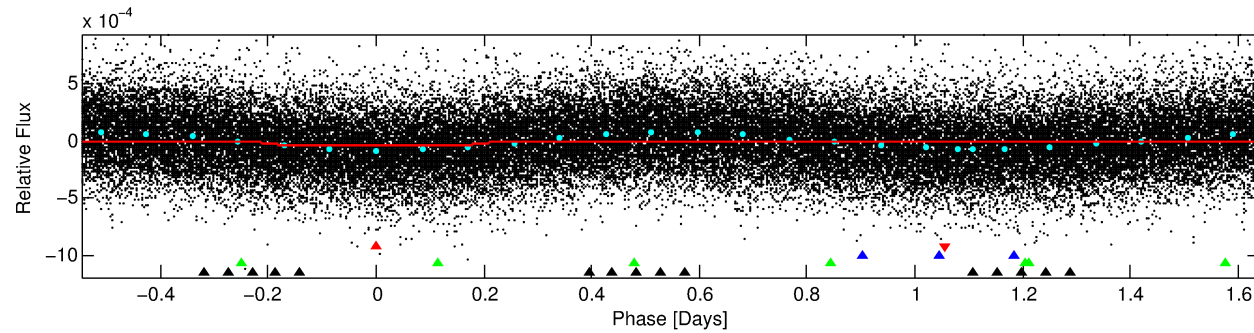
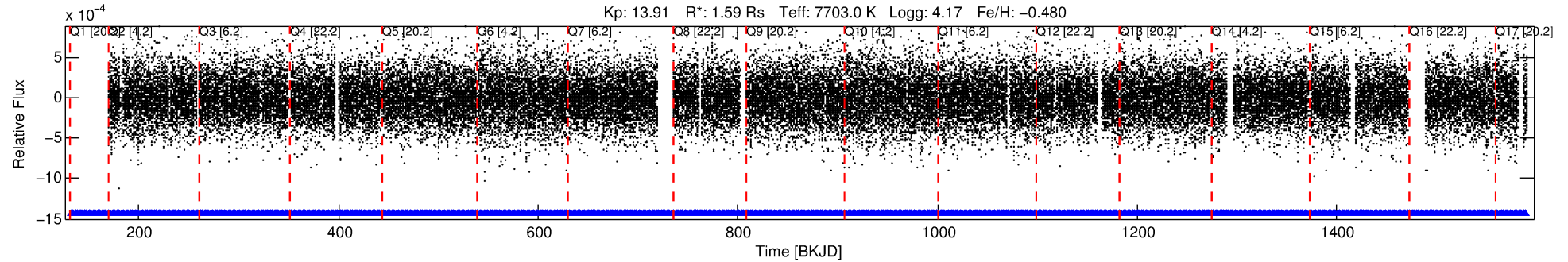
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006469690-01

No Significant Match Found

DV One-Page Summary

KIC: 6469690 Candidate: 1 of 4 Period: 2.187 d



DV Fit Results:

Period = 2.18672 [0.00003] d
Epoch = 132.6497 [0.0069] BKJD
Rp/R* = 0.0056 [0.0017]
a/R* = 1.36 [1.23]
b = 0.77 [1.02]
Seff = 5929.02 [2173.26]
Teq = 2238 [205] K
Rp = 0.98 [0.40] Re
a = 0.0368 [0.0083] AU
Ag = 42.75 [30.07] [1.39 σ]
Teffp = 8846 [1428] K [4.58 σ]

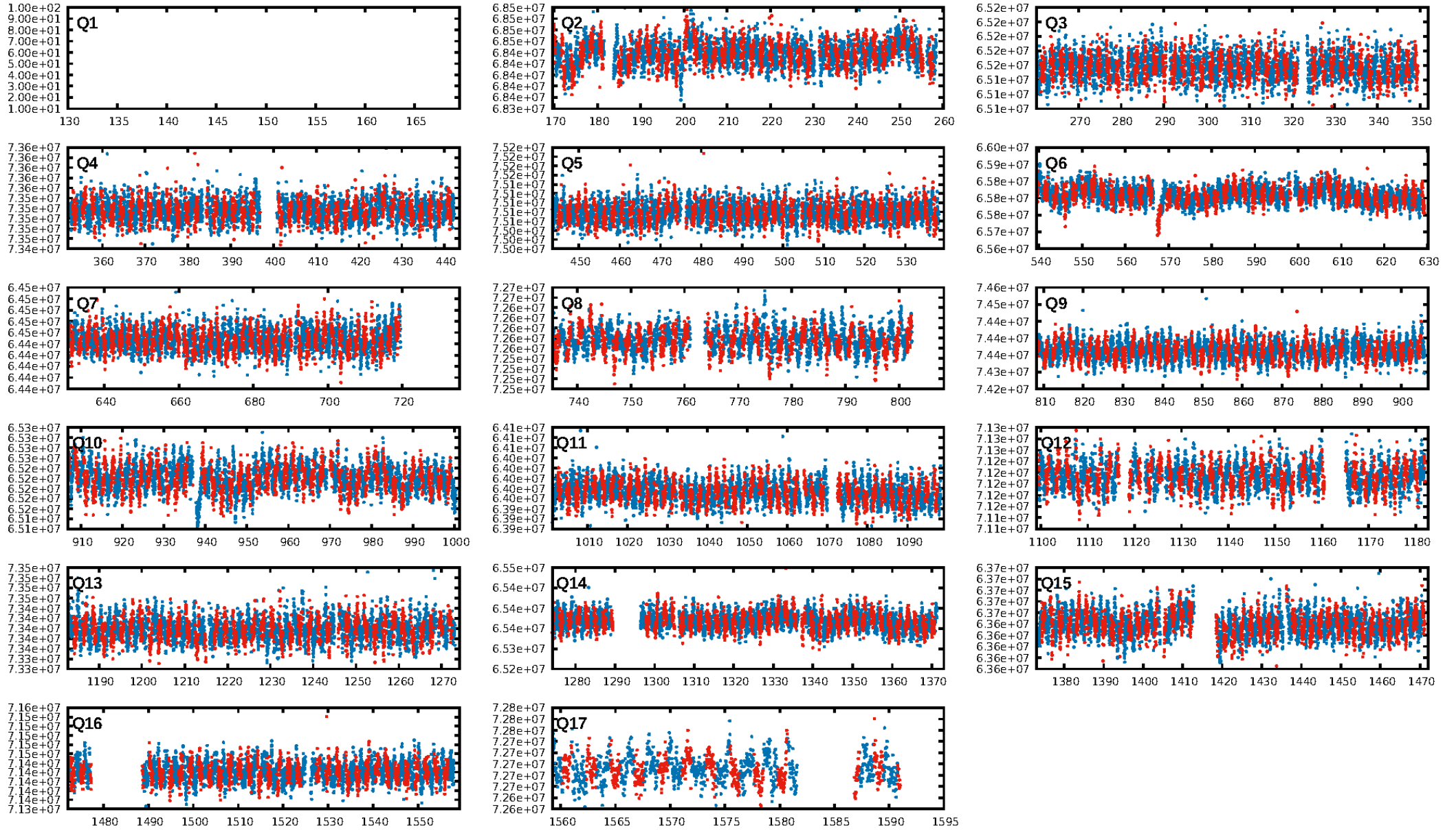
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [219.46 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.69e-12
RollingBand-fgt: 1.00 [592/592]
GhostDiagnostic-chr: 1.432
Centroid-sig: 36.2%
Centroid-so: 0.452 arcsec [0.45 σ]
OotOffset-rm: 0.168 arcsec [0.92 σ]
KicOffset-rm: 0.046 arcsec [0.25 σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

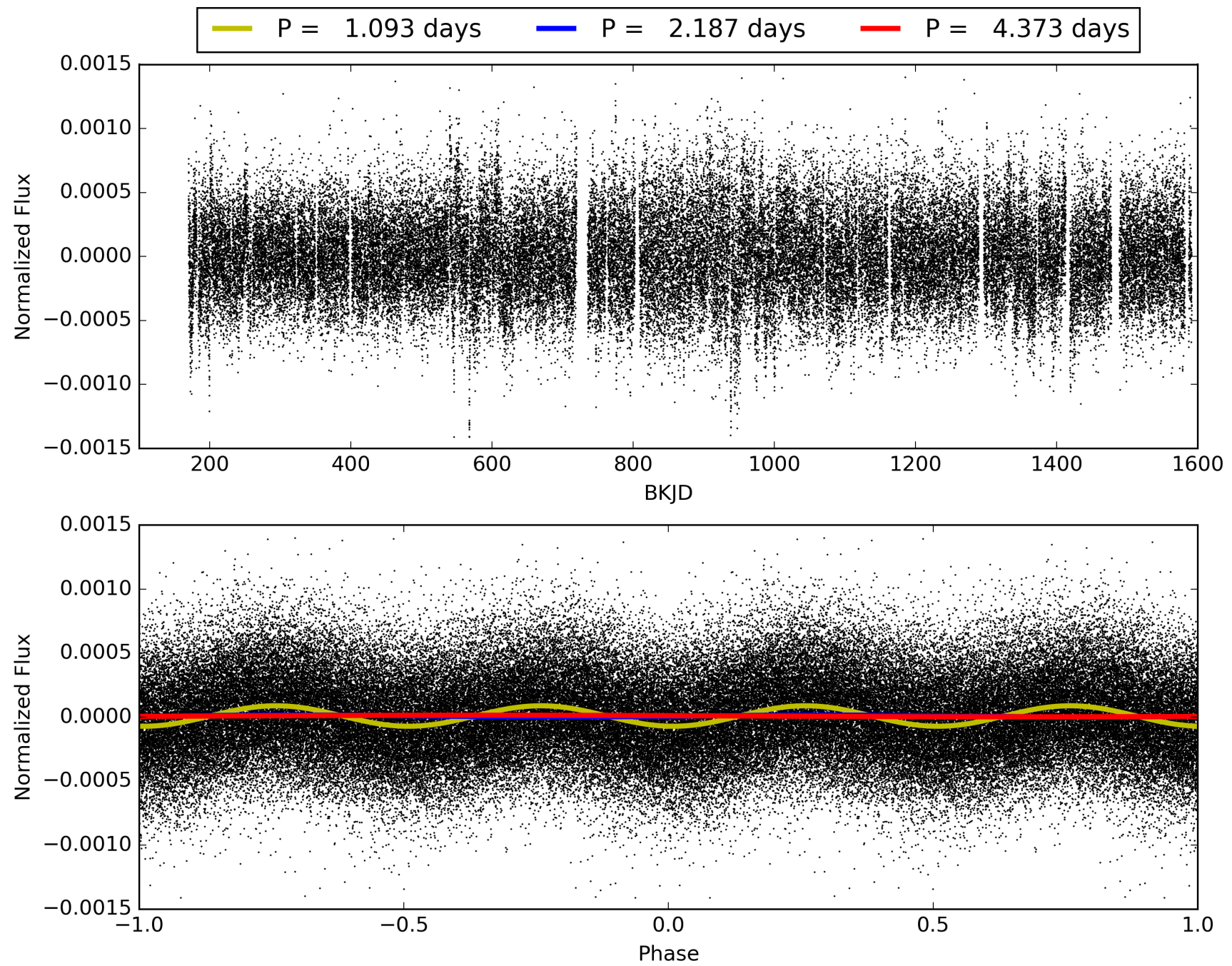
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006469690-01, PDC Light Curves

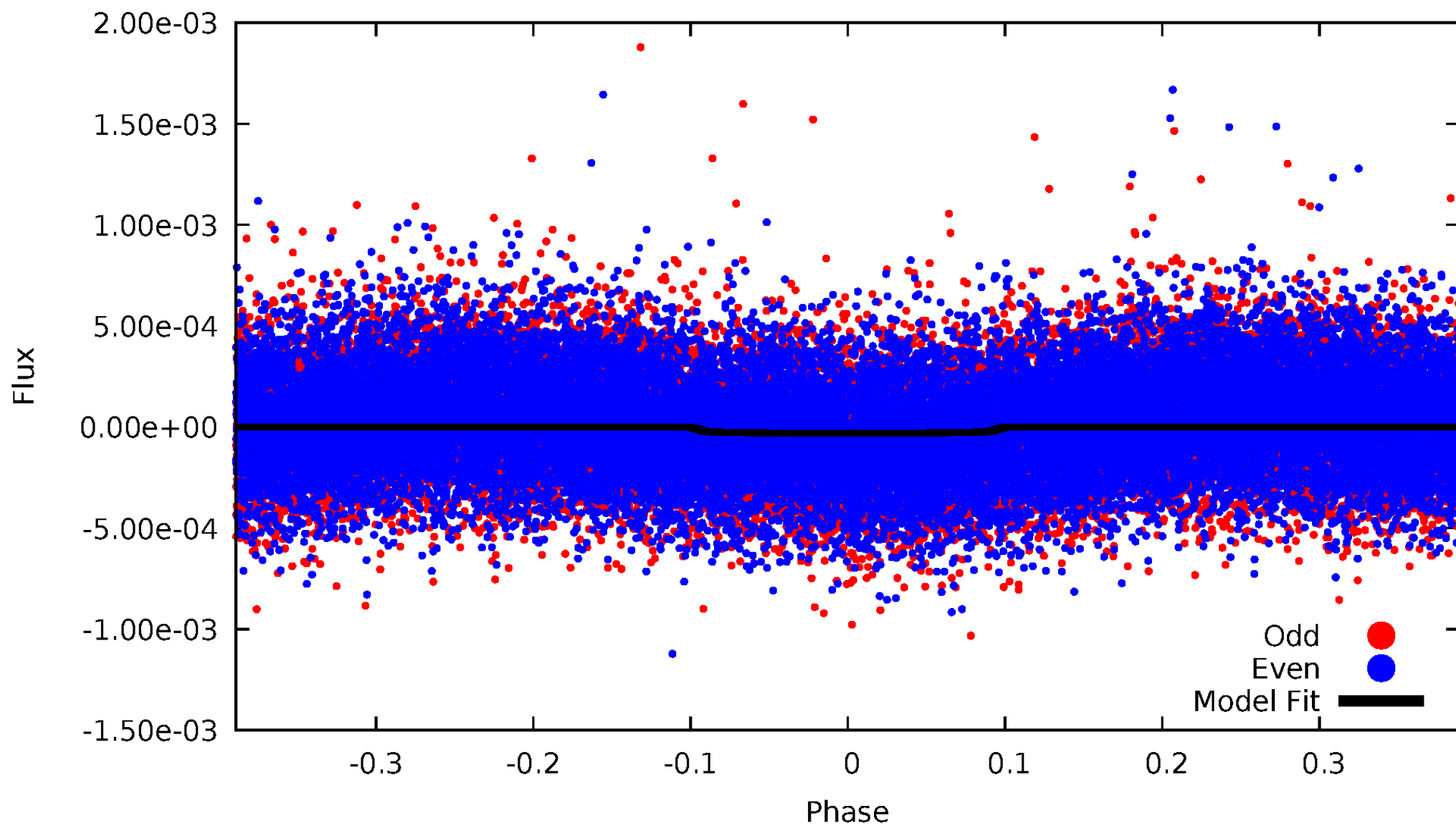


TCE 006469690-01



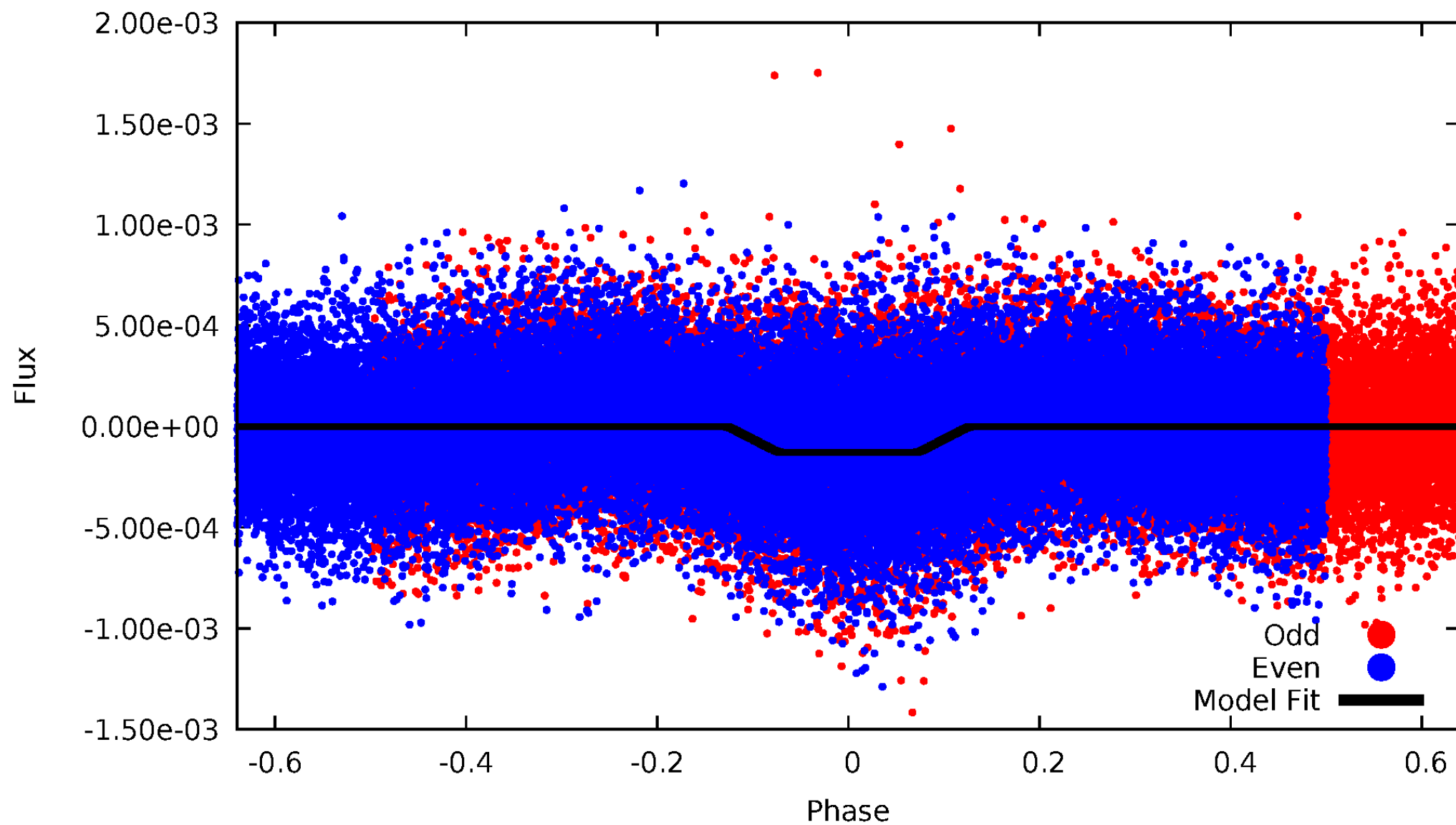
DV Odd/Even

TCE 006469690-01

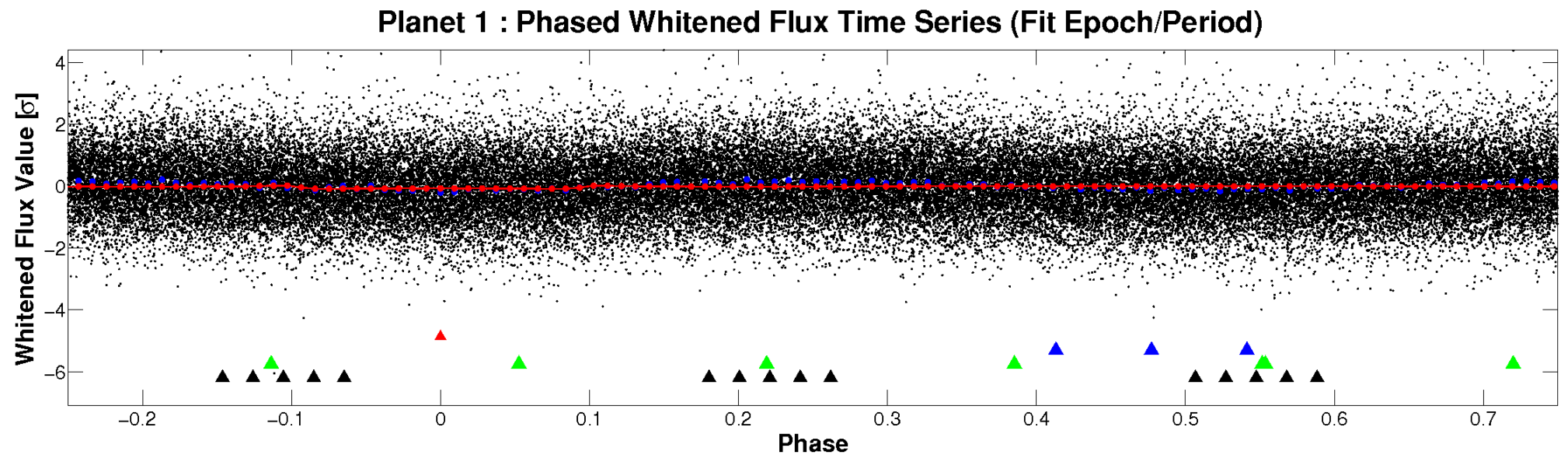
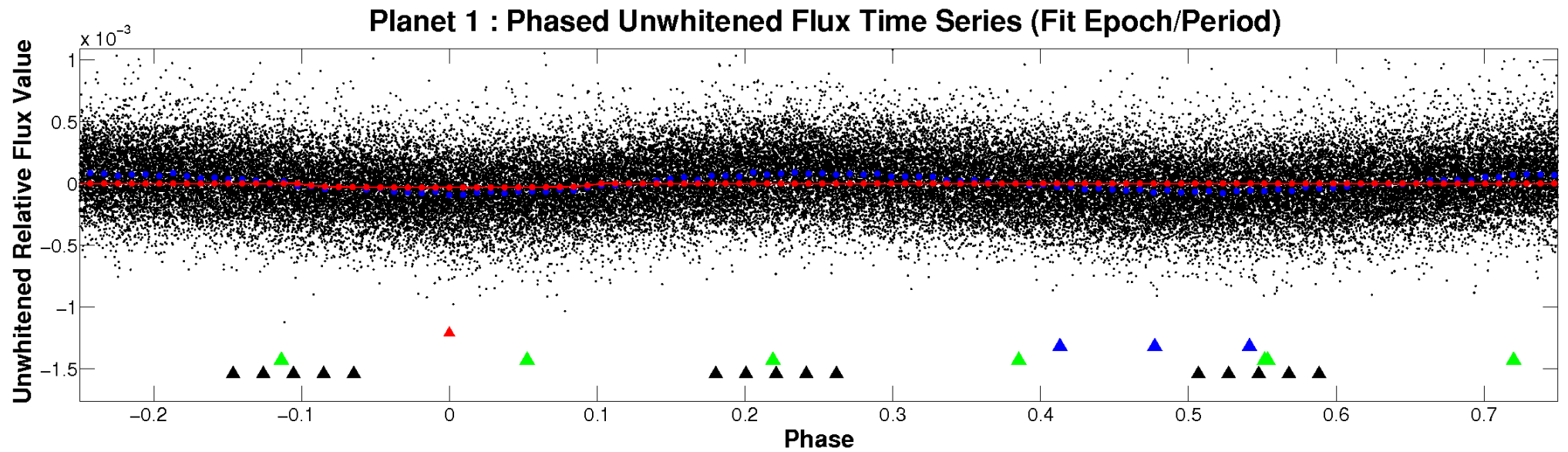


ALT Odd/Even

TCE 006469690-01

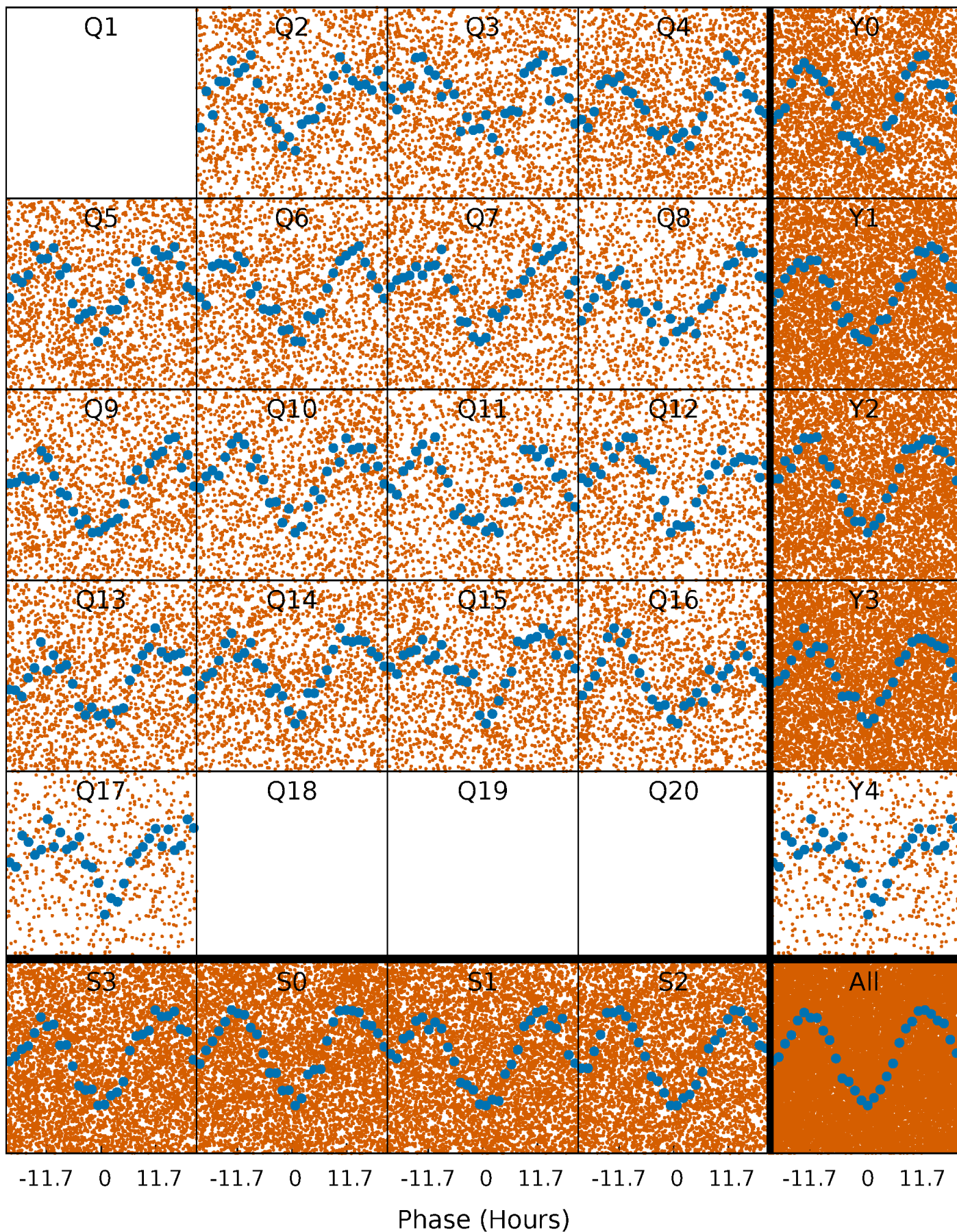


Non-Whitened Vs. Whitened Light Curve



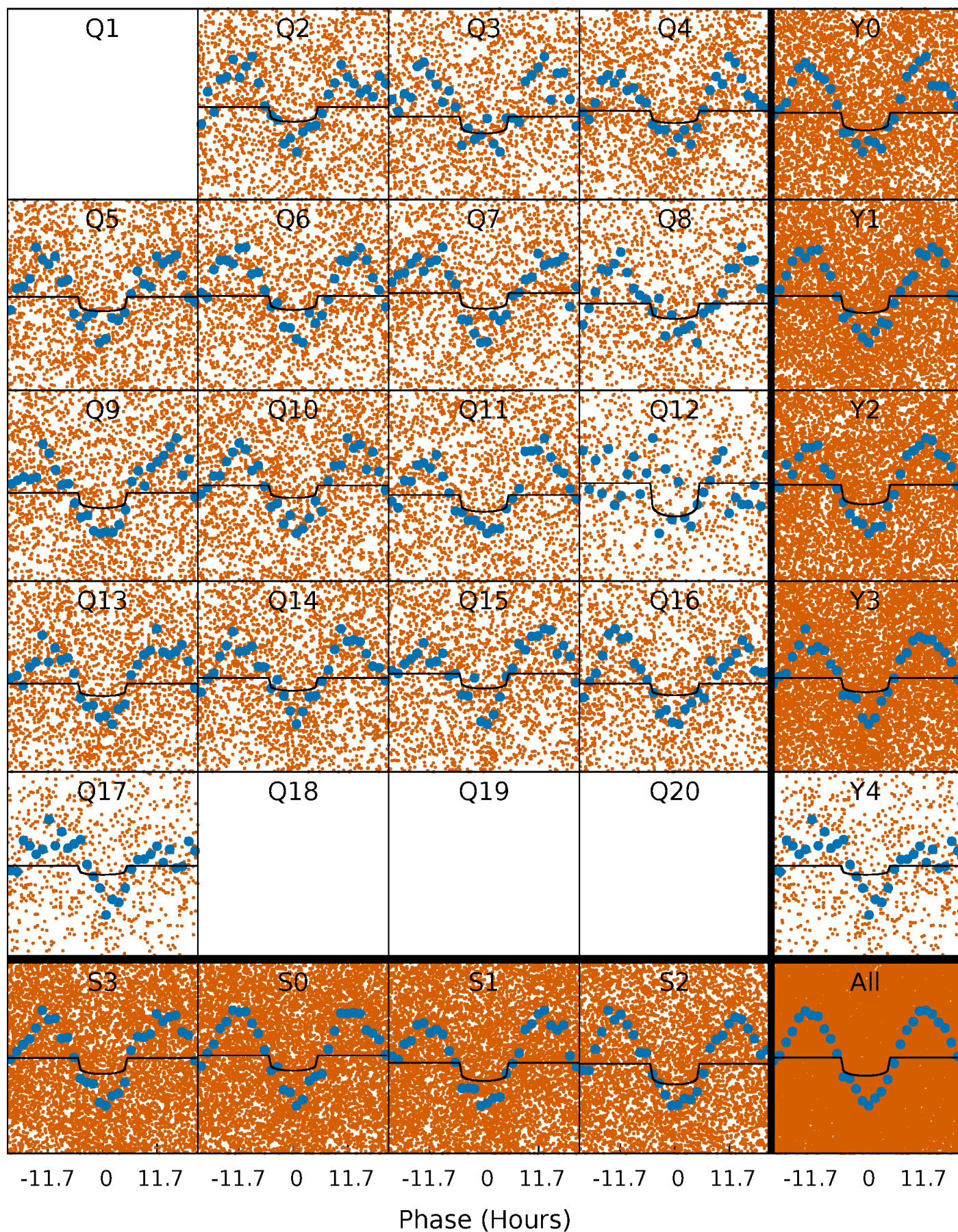
PDC Quarter-Phased Transit Curves

TCE 006469690-01 P= 2.186723 Days $T_0=132.649674$ (BKJD)



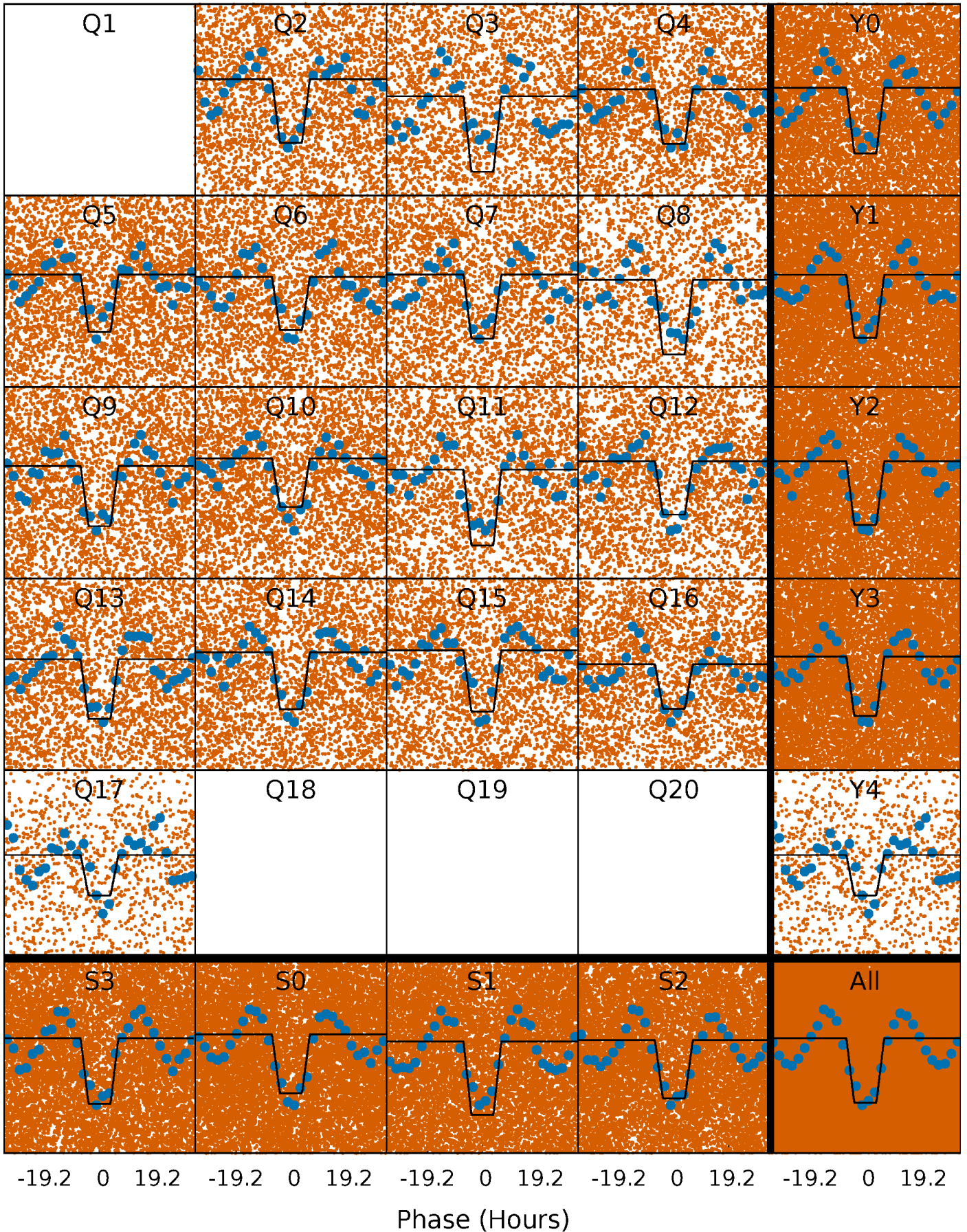
DV Quarter-Phased Transit Curves

TCE 006469690-01 P= 2.186723 Days $T_0=132.649674$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

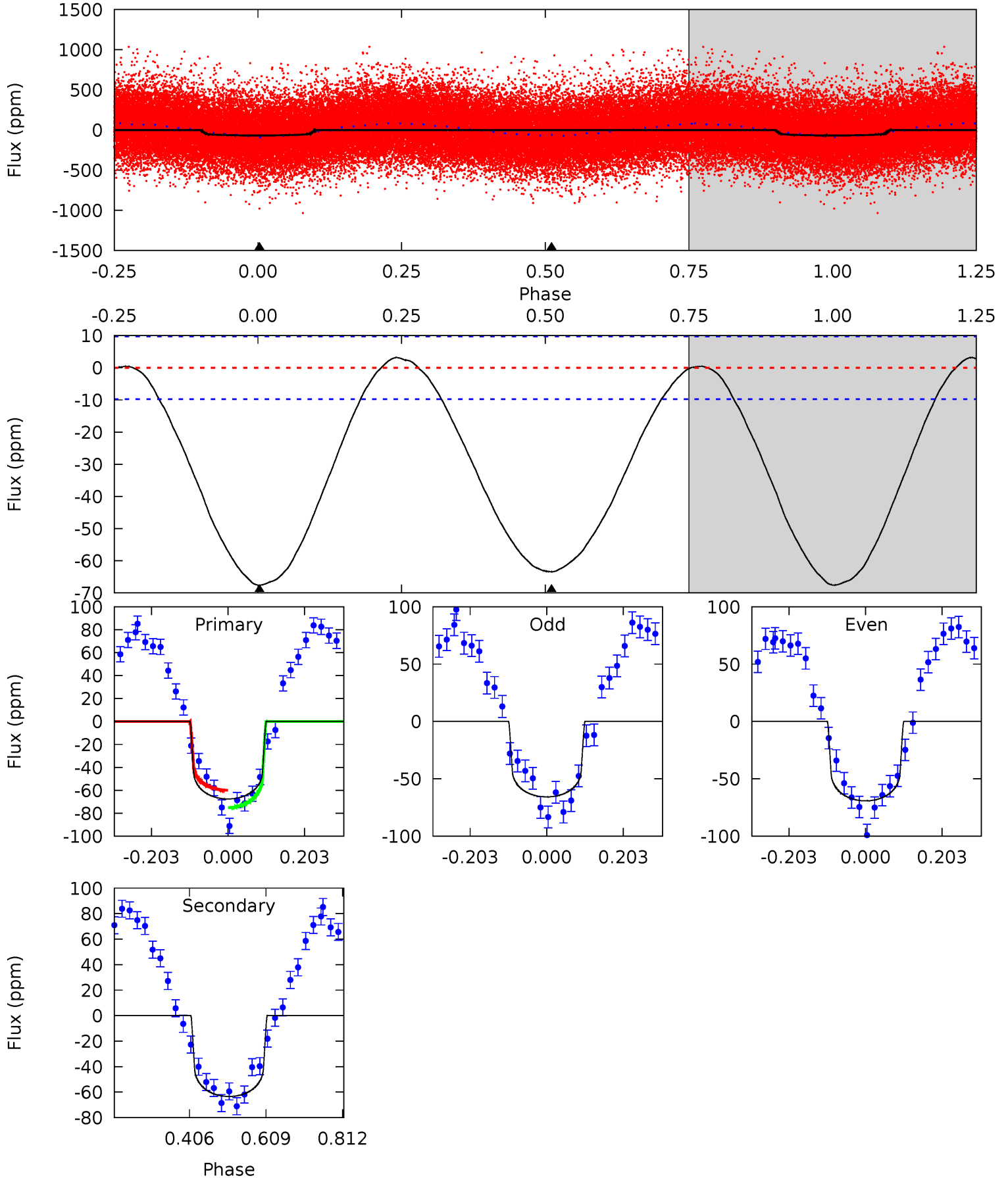
TCE 006469690-01 P= 2.186714 Days $T_0=132.675928$ (BKJD)



DV Model-Shift Uniqueness Test

006469690-01, P = 2.186723 Days, E = 132.649674 Days

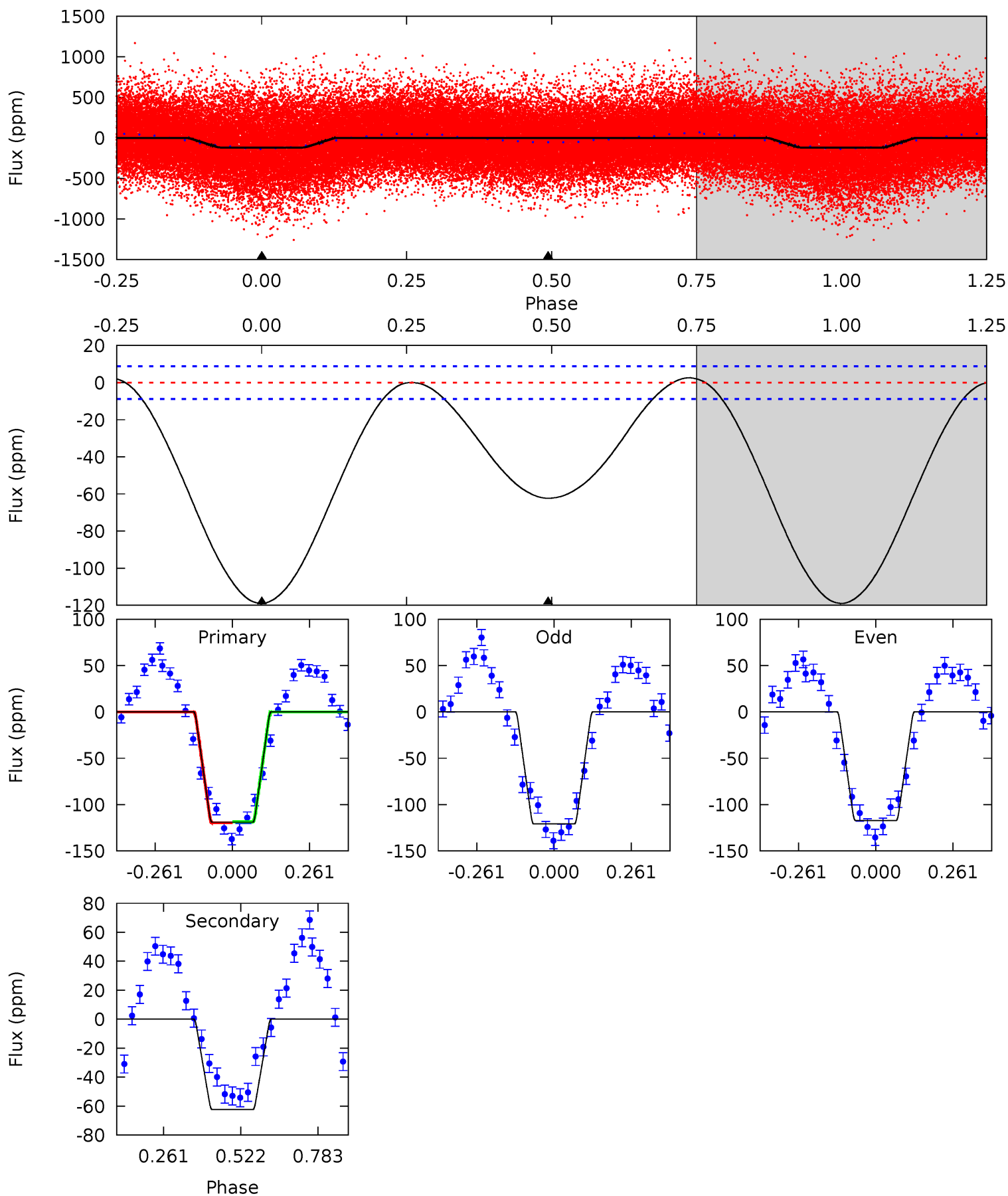
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.5	28.6	0	0	4.41	1.27	1.11	30.5	30.5	28.6	28.6	0.77	1.04	0.05	3.51



Alt Model-Shift Uniqueness Test

006469690-01, P = 2.186714 Days, E = 132.675928 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
58.8	30.8	0	0	4.36	1.12	0.84	58.8	58.8	30.8	30.8	0.93	0.84	0.02	0.30



Stellar Parameters For KIC 006469690

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7703^{+243}_{-324}	$4.175^{+0.144}_{-0.176}$	$-0.480^{+0.250}_{-0.350}$	$1.595^{+0.435}_{-0.316}$	$1.388^{+0.194}_{-0.194}$	$0.482^{+0.404}_{-0.220}$
	+3%/-4%	+3%/-4%	+52%/-73%	+27%/-20%	+14%/-14%	+84%/-46%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 006469690-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-63 ± 2	$0.98^{+0.32}_{-0.31}$	3129^{+240}_{-220}	9727^{+3177}_{-1684}	49^{+56}_{-22}
Alt.	-62 ± 2	$1.99^{+0.47}_{-0.37}$	3142^{+231}_{-216}	6243^{+630}_{-494}	12^{+6}_{-4}

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

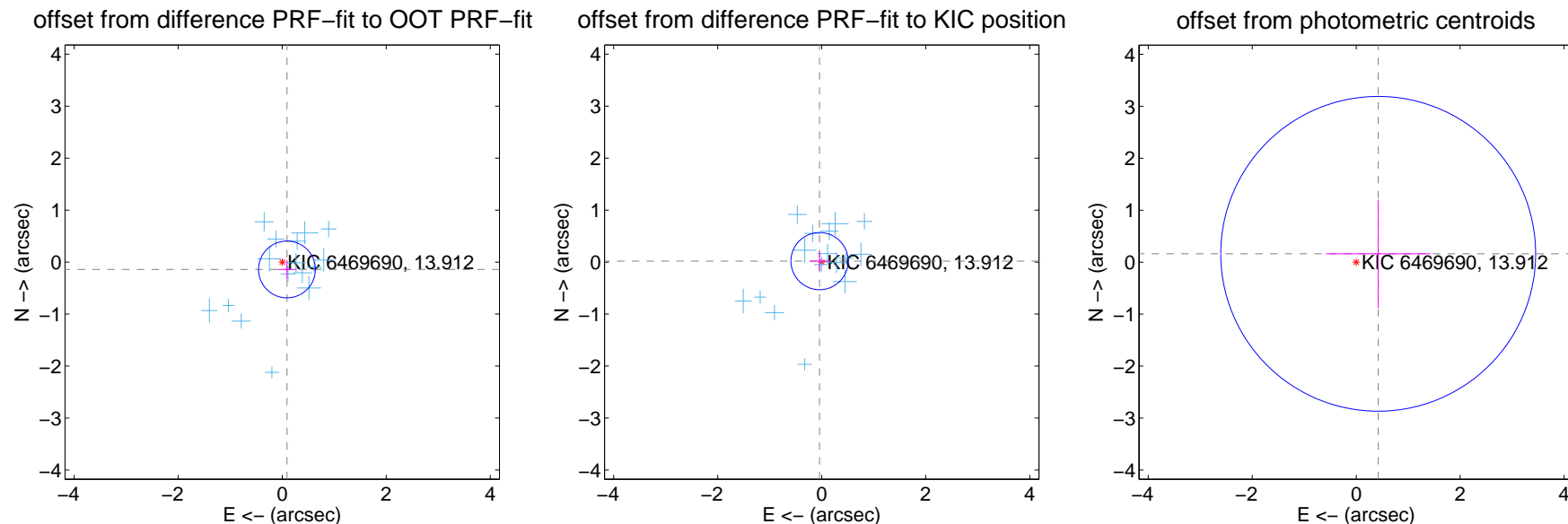
DV Centroid Data

Supplemental centroid analysis for 006469690-01. Kepler magnitude: 13.91. Transit SNR 8.22

There are 16 quarters with good PRF difference image offsets

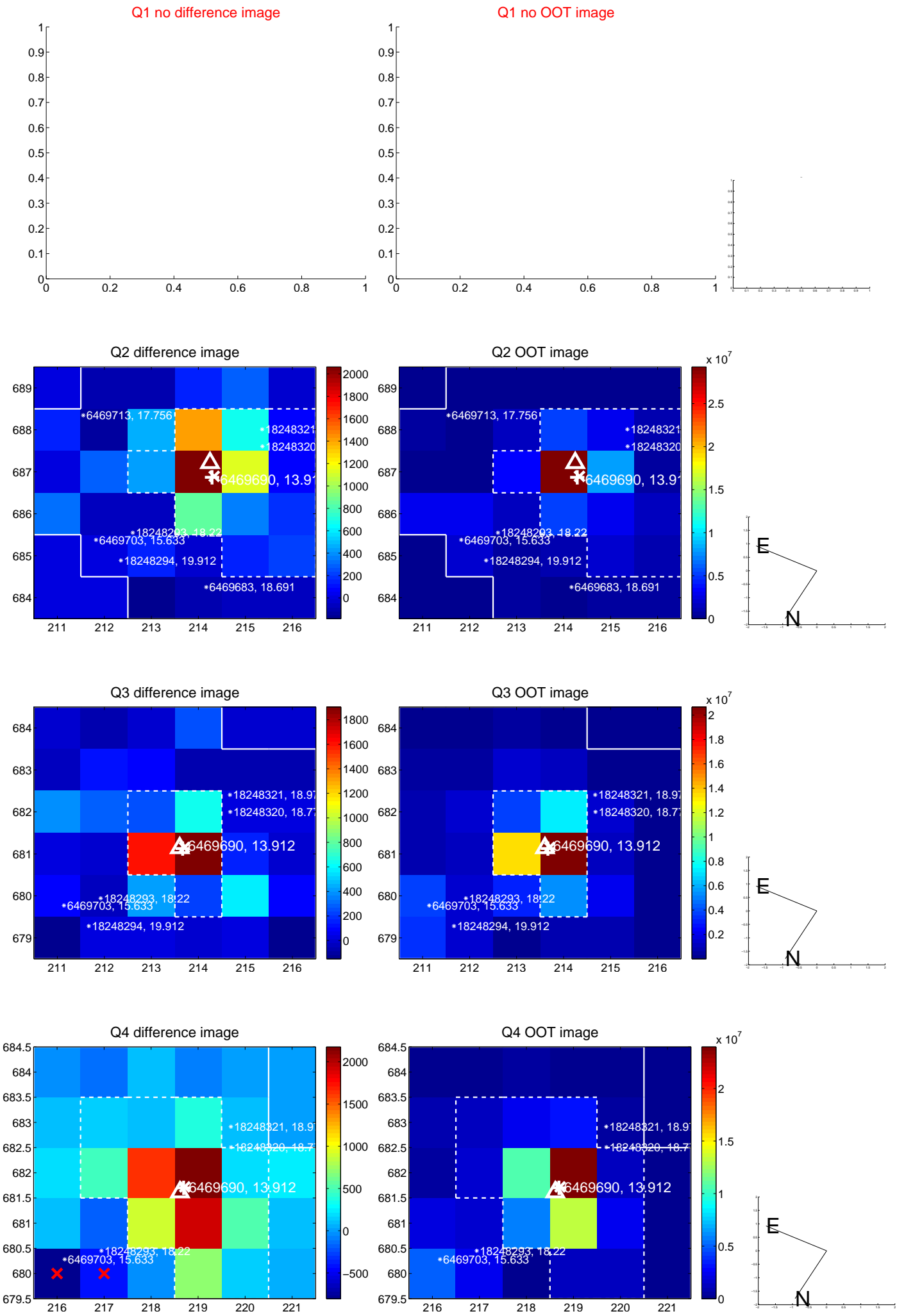
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.168 ± 0.182	0.92	-0.091 ± 0.180	-0.141 ± 0.183
PRF-fit source offset from KIC position	0.046 ± 0.183	0.25	0.042 ± 0.184	0.019 ± 0.182
photometric centroid source offset	0.45 ± 1.01	0.45	-0.42 ± 1.00	0.16 ± 1.04

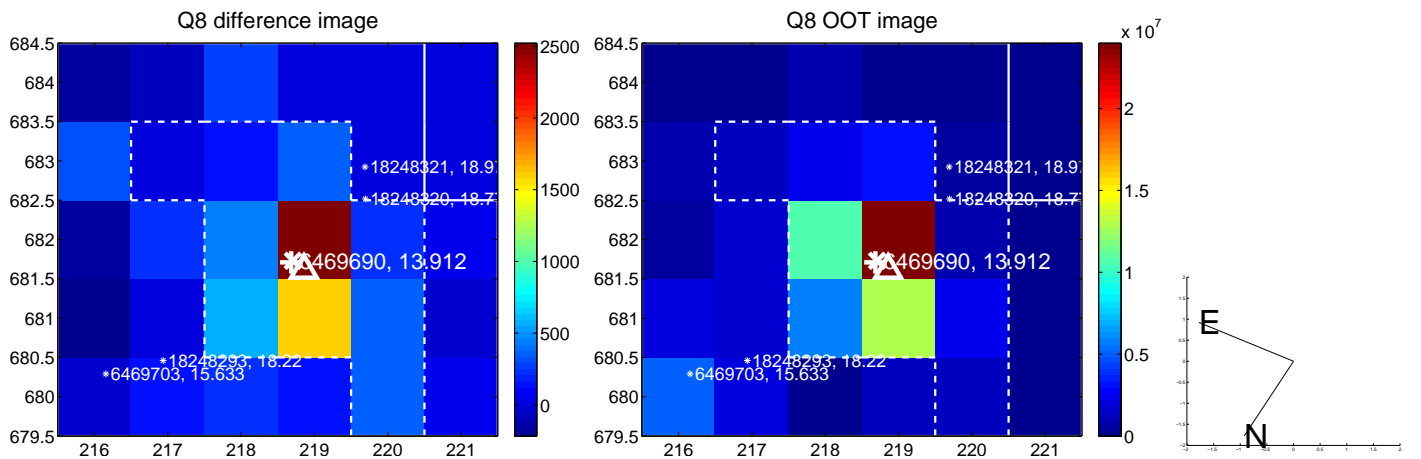
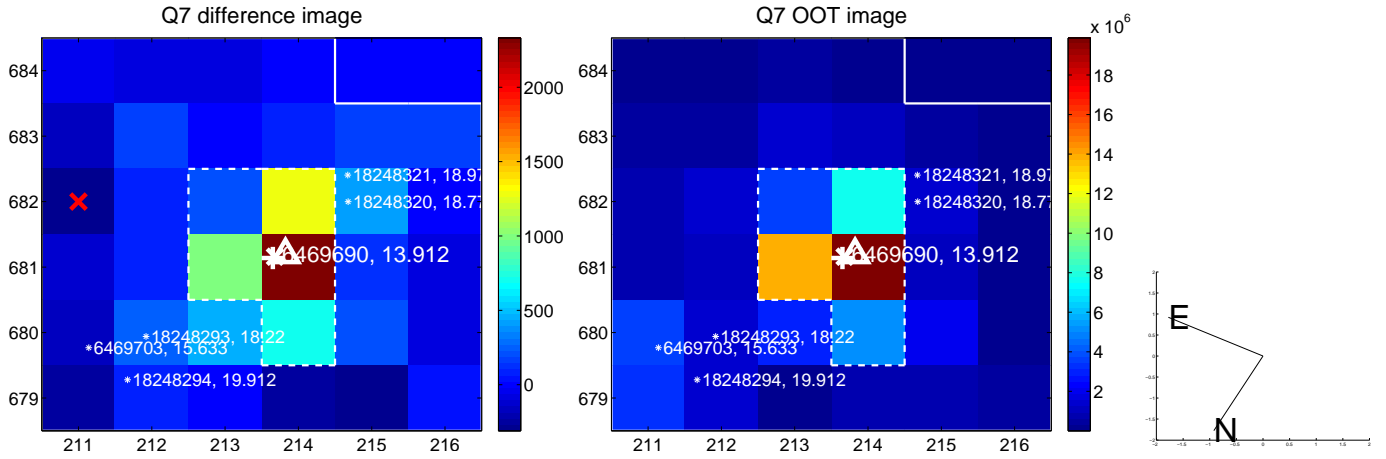
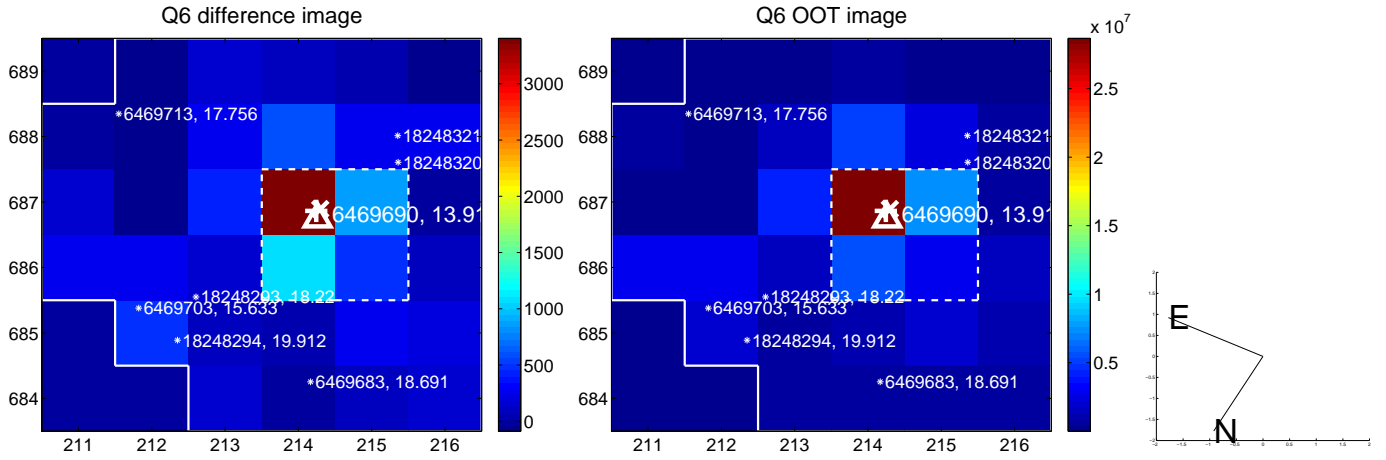
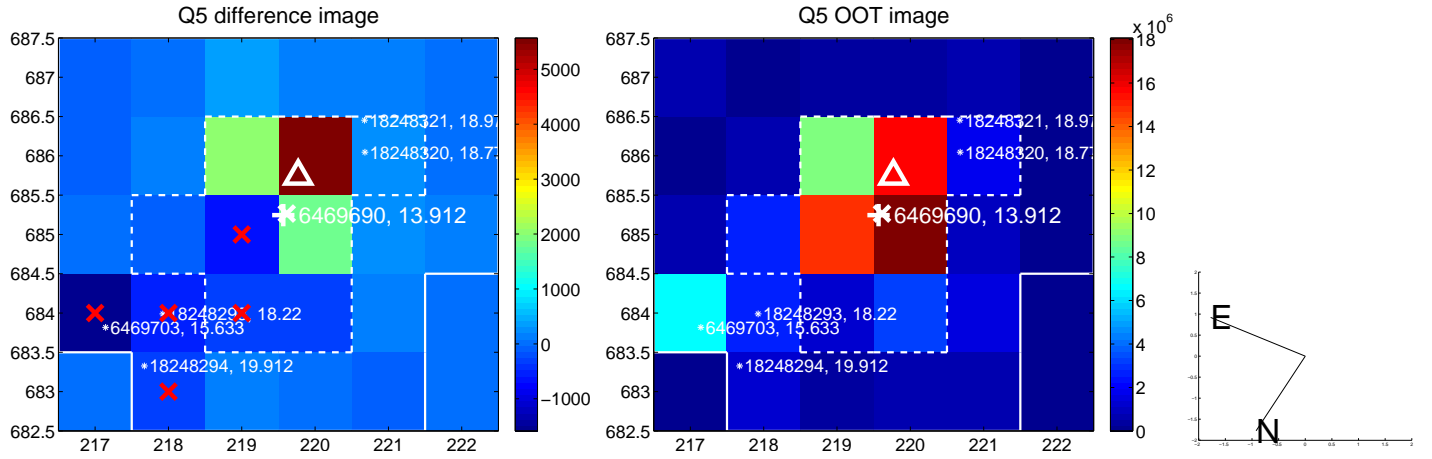


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

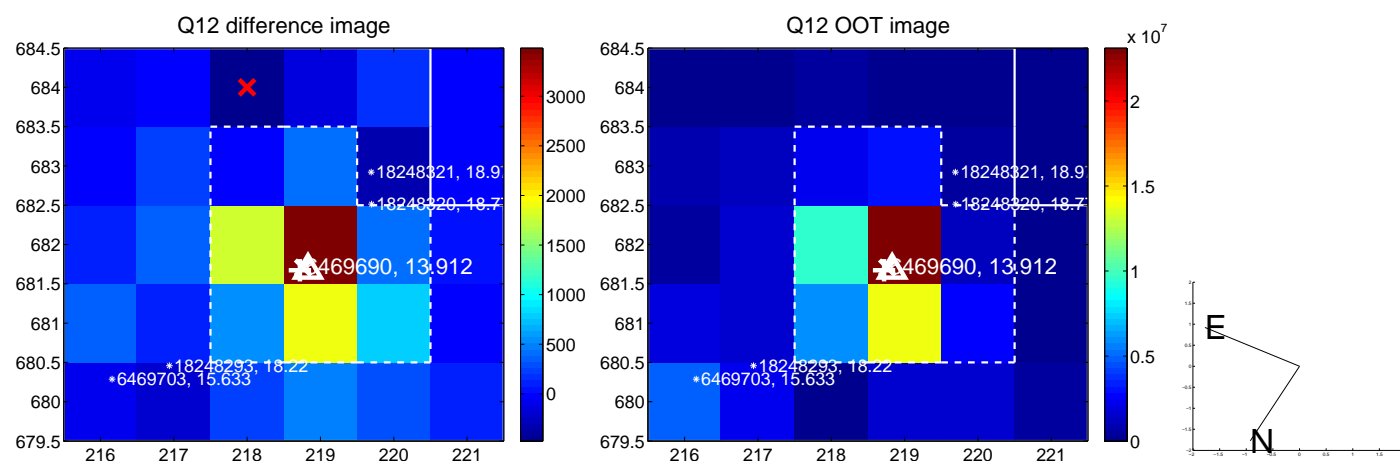
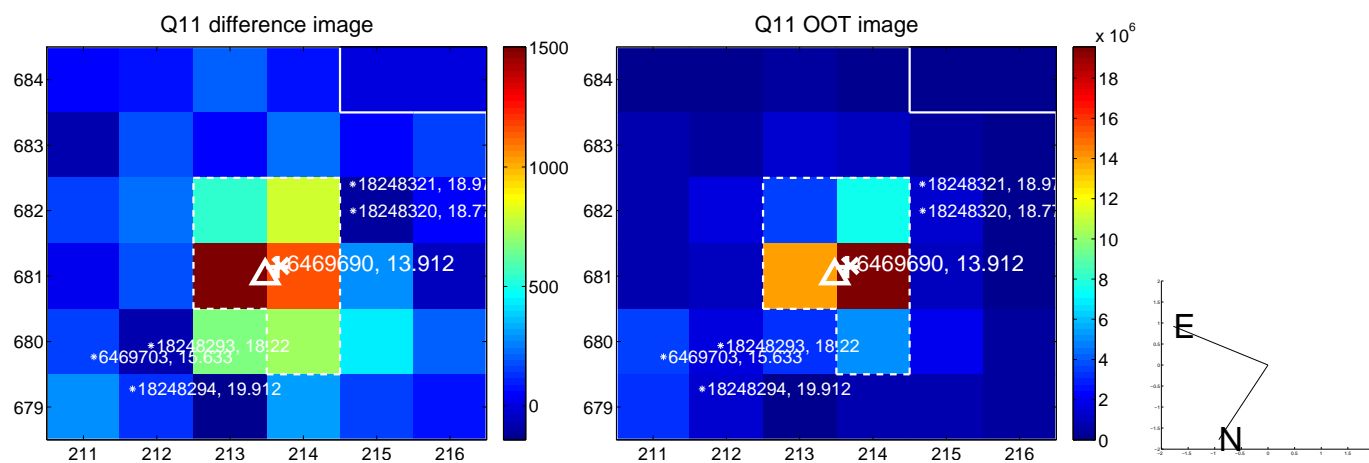
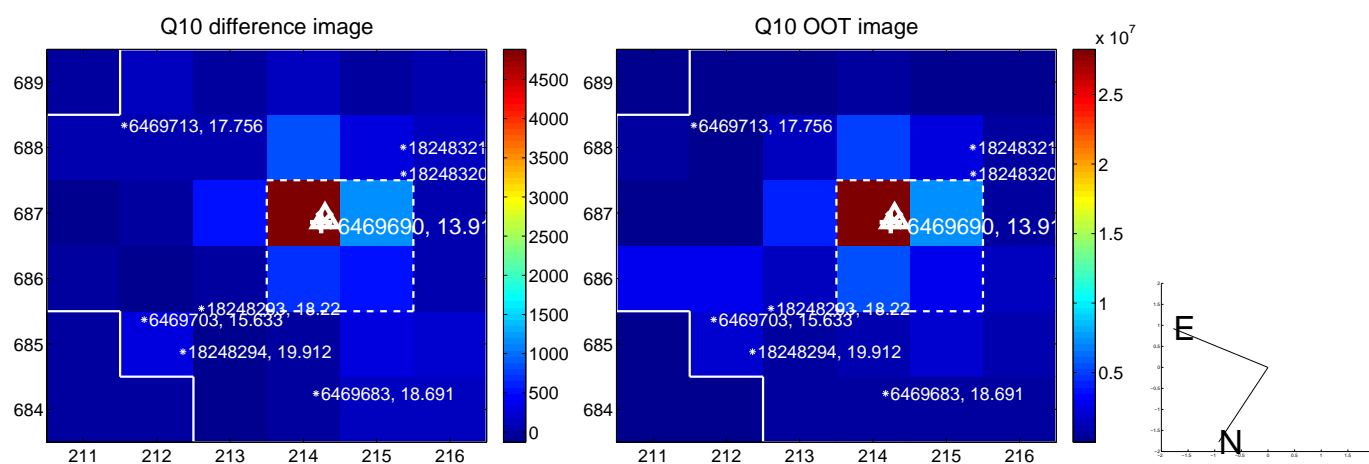
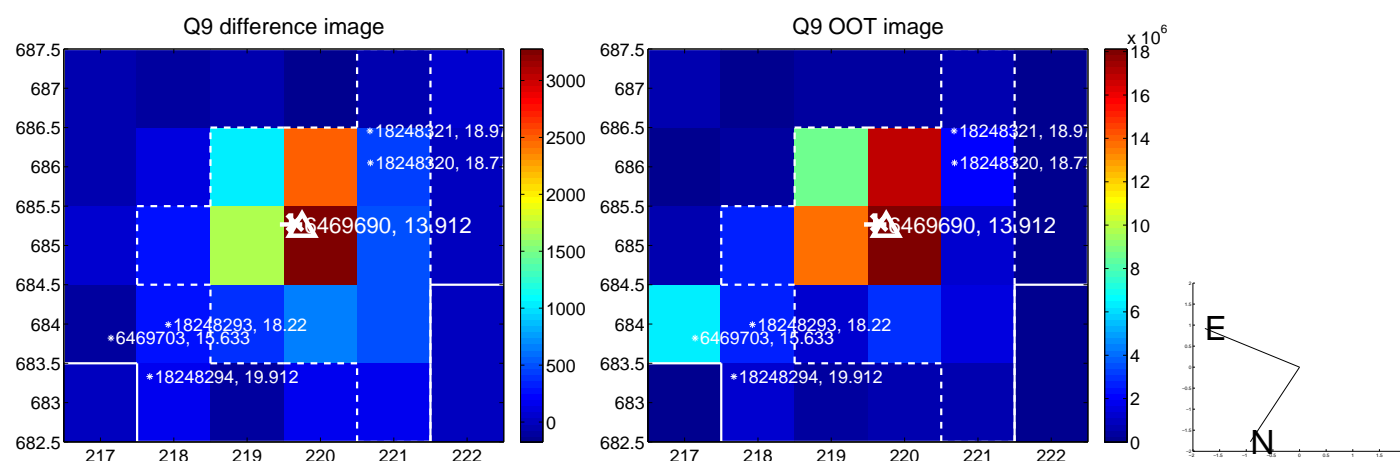
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



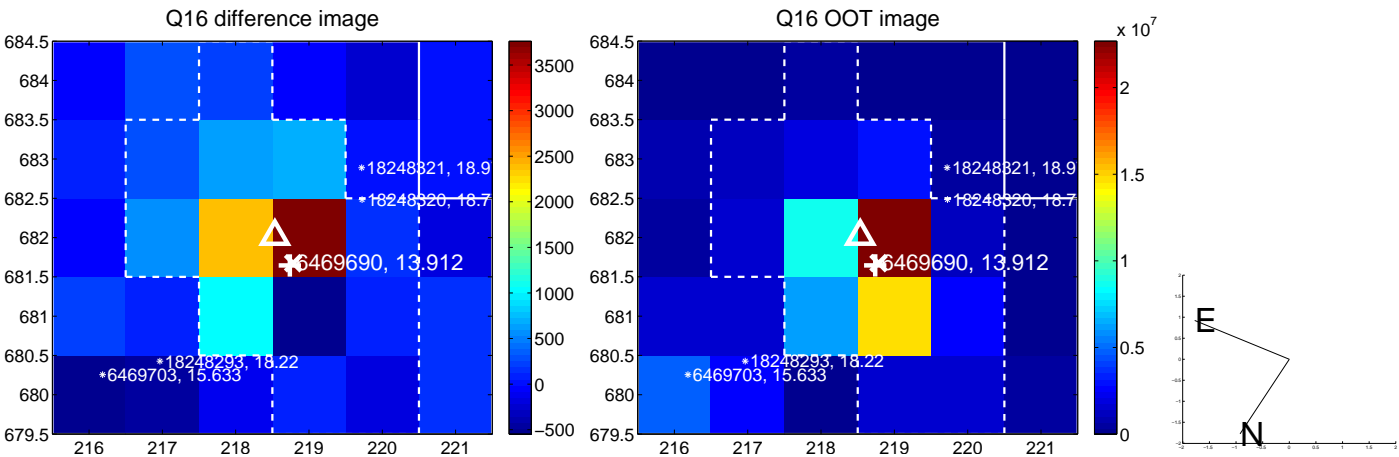
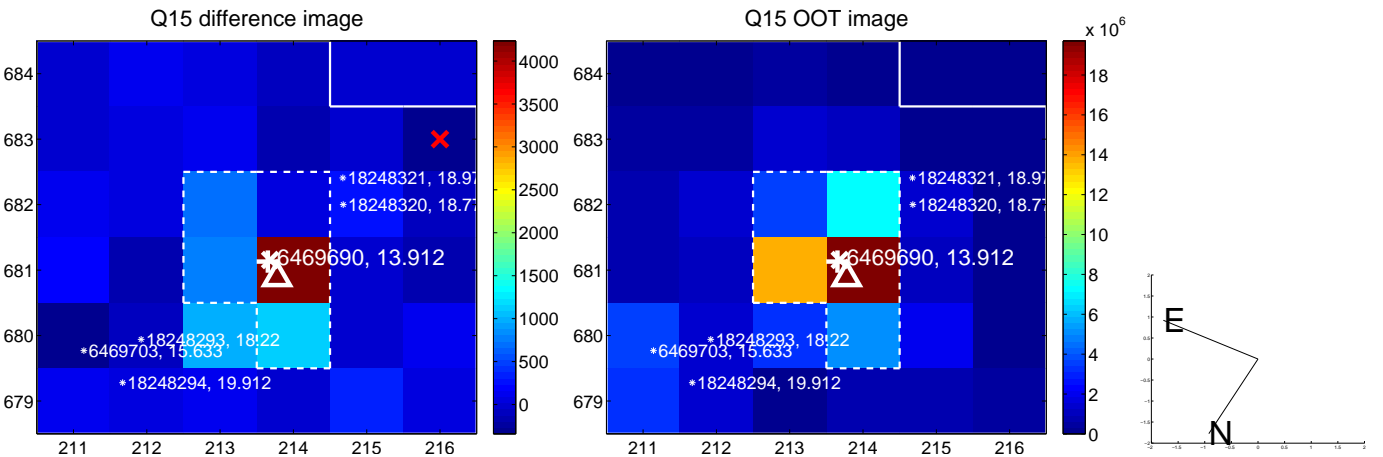
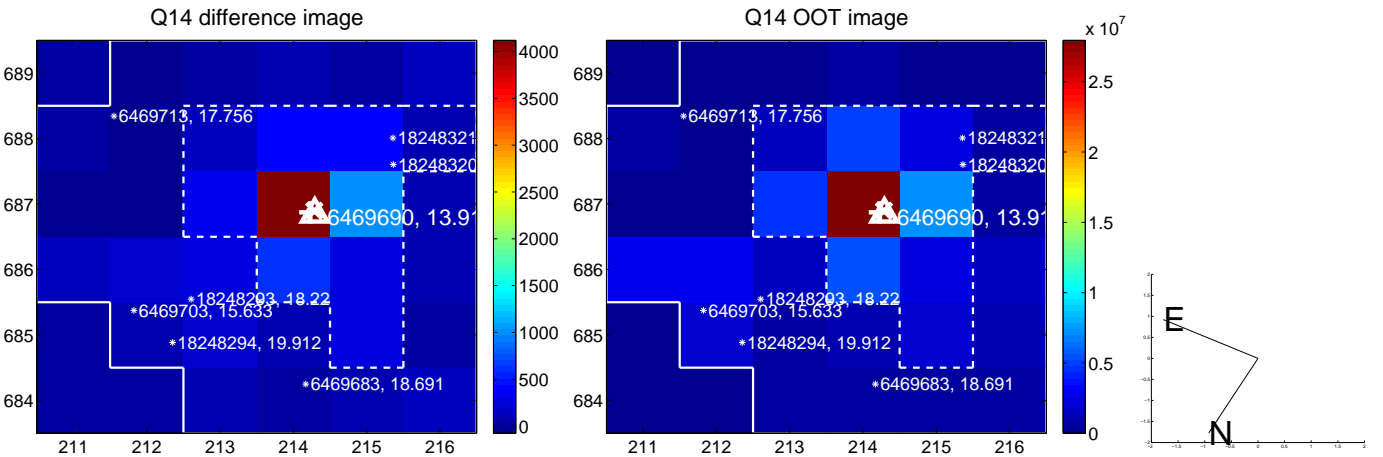
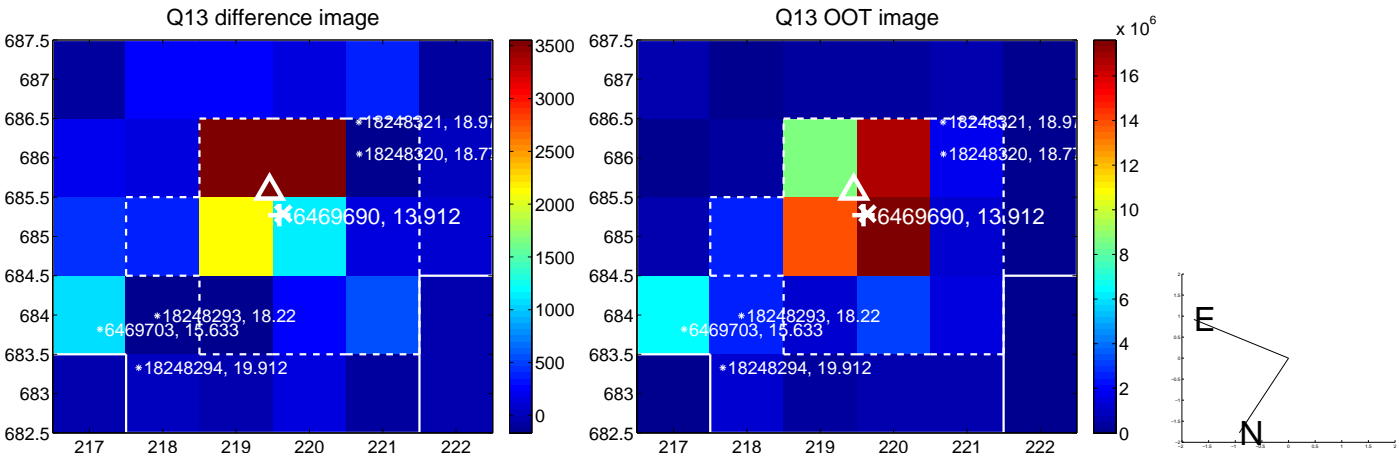
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



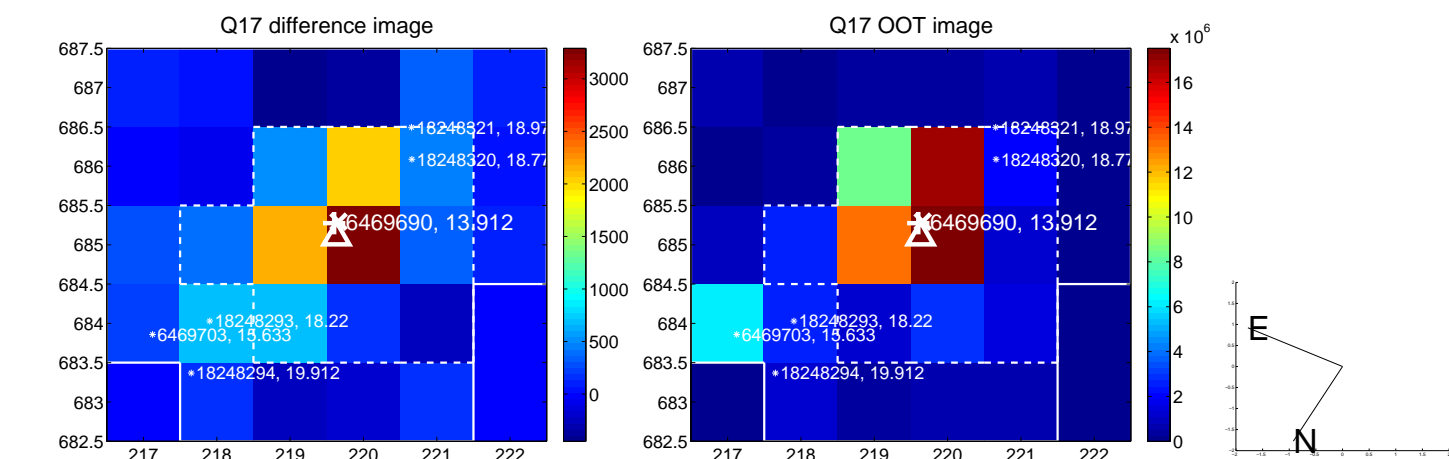
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



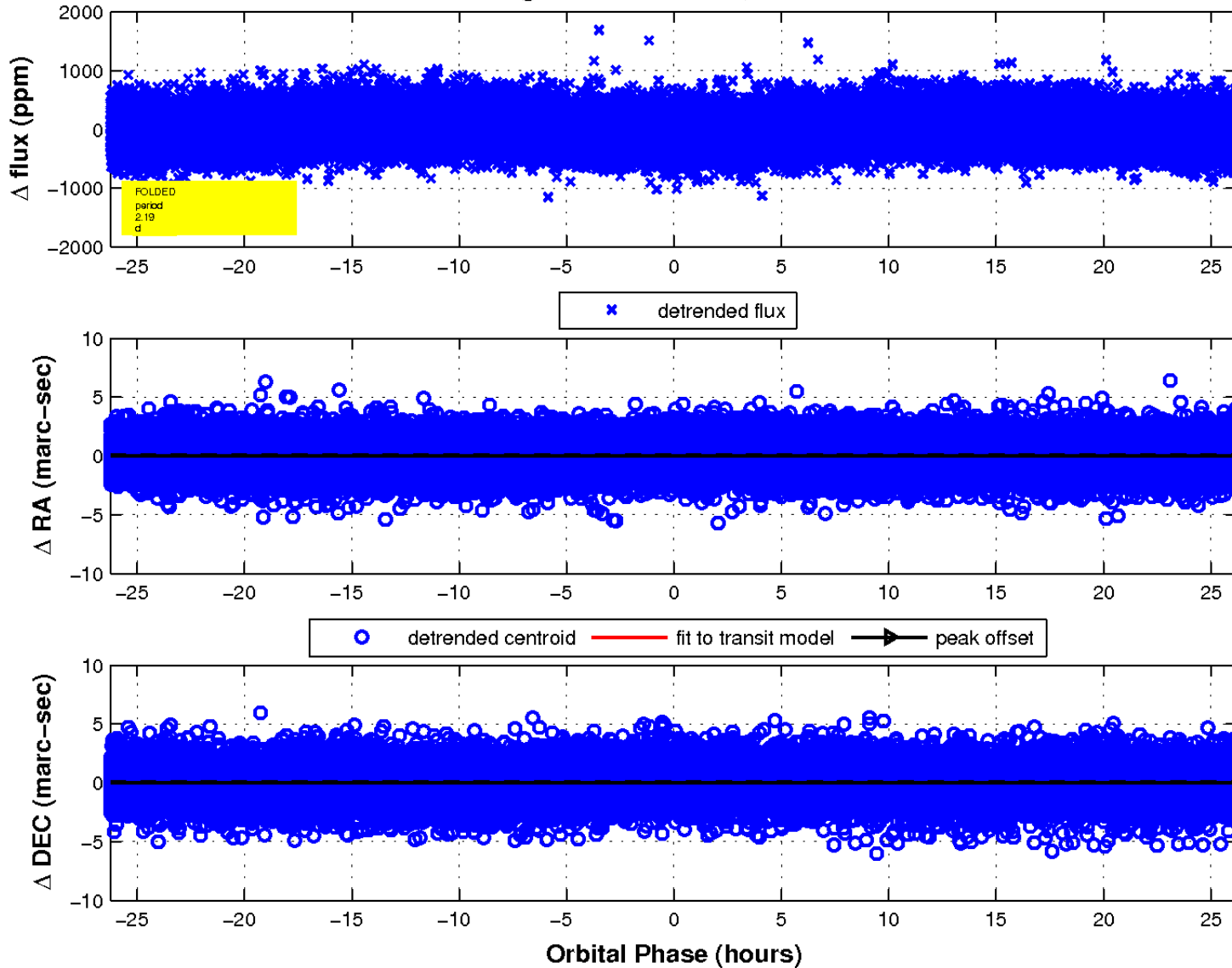
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



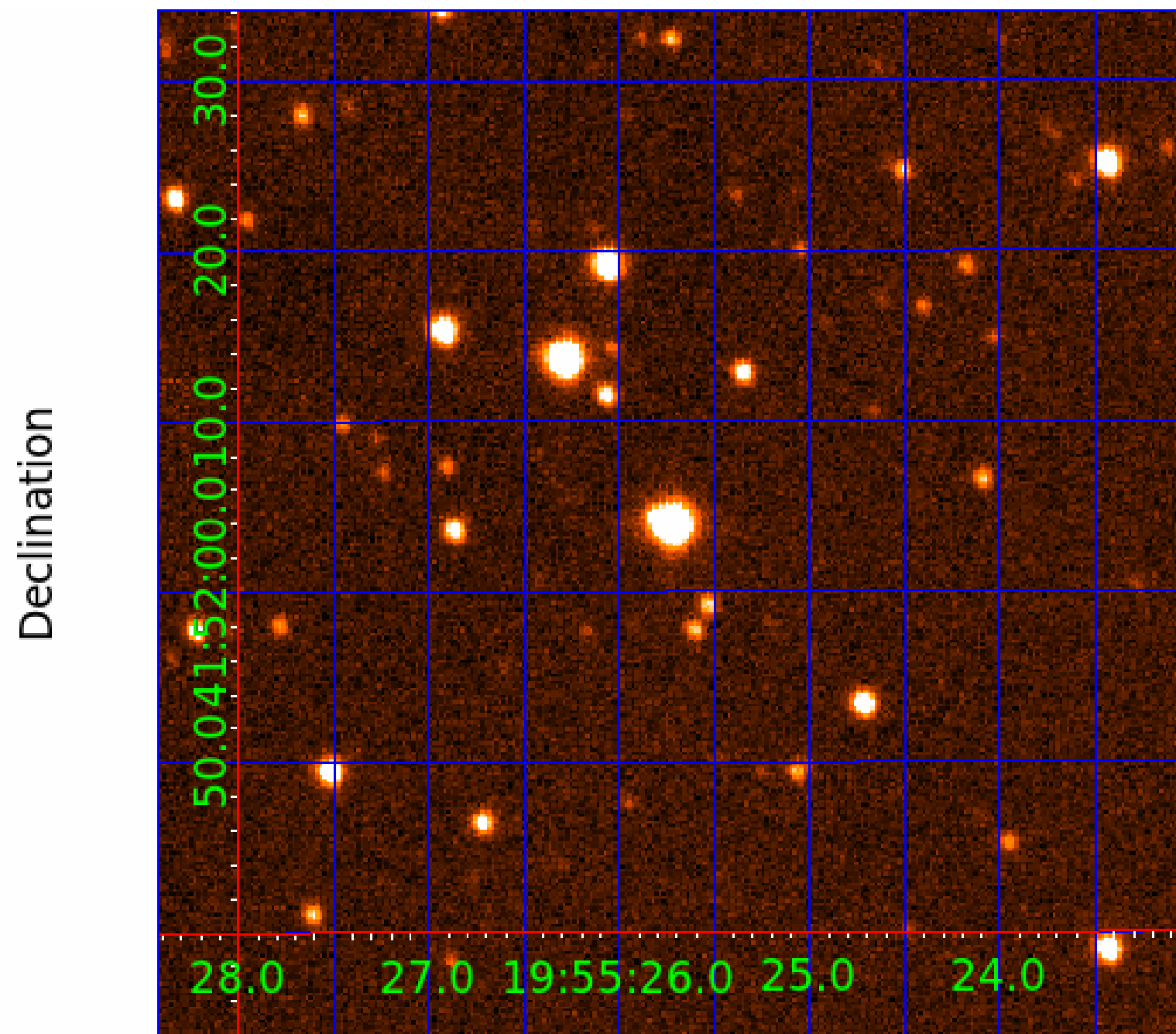
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 4



UKIRT Image



KIC 006469690

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})
006469690-01	OBS	No	2.186723	132.649674	31.7	10.206	8.0	8.2	1.59	7703	0.98	5929.02
006469690-02	OBS	No	478.752240	437.787976	434.6	6.574	8.4	8.3	1.59	7703	3.61	4.49
006469690-03	OBS	No	216.121963	254.125507	334.0	9.471	7.4	7.0	1.59	7703	3.57	12.97
006469690-04	OBS	No	97.688519	164.371970	476.0	2.217	7.1	7.6	1.59	7703	4.03	37.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006469690-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006469690-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006469690-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006469690-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

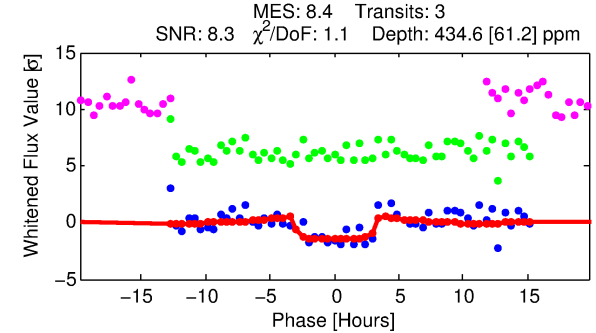
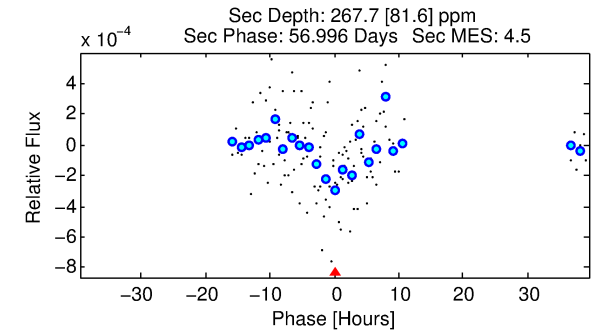
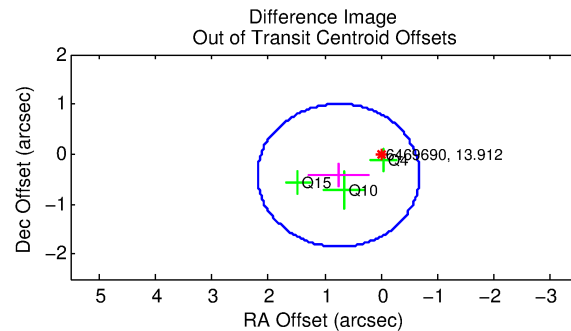
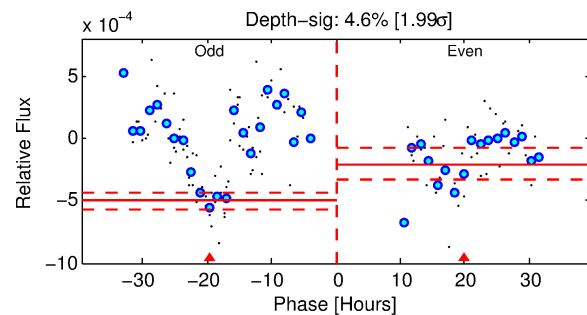
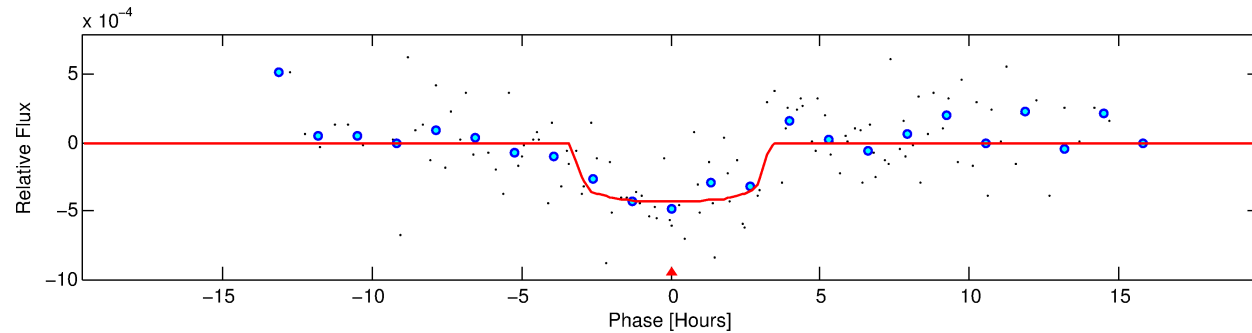
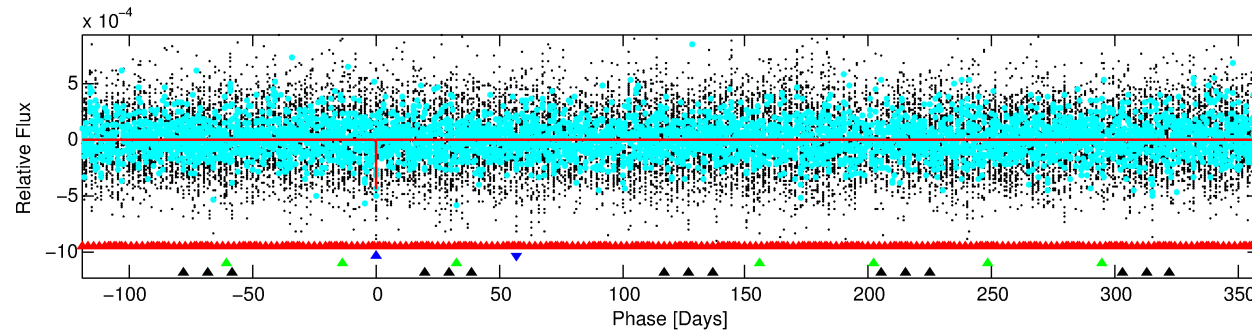
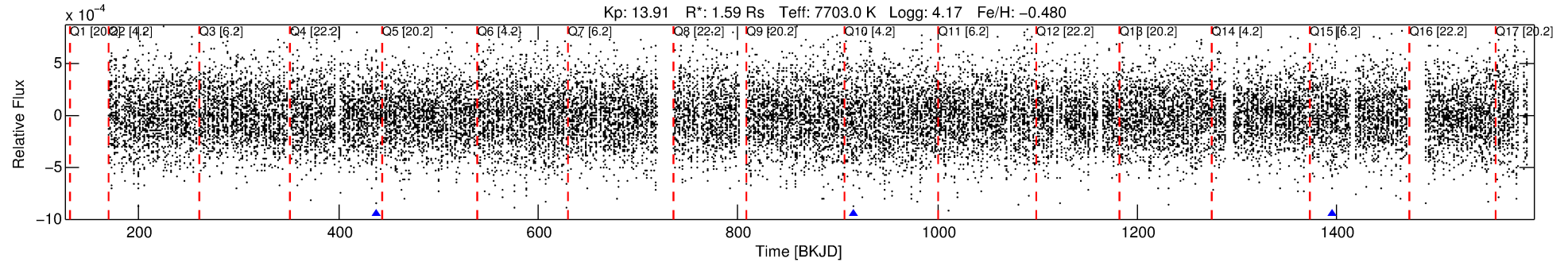
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006469690-02

No Significant Match Found

DV One-Page Summary

KIC: 6469690 Candidate: 2 of 4 Period: 478.752 d



DV Fit Results:

Period = 478.75224 [0.00768] d
Epoch = 437.7880 [0.0095] BKJD
Rp/R* = 0.0208 [0.0064]
a/R* = 381.09 [713.82]
b = 0.76 [1.05]
Seff = 4.49 [1.65]
Teq = 371 [34] K
Rp = 3.61 [1.49] Re
a = 1.3364 [0.3027] AU
Ag = 20137.17 [15345.96] [1.31 σ]
Teffp = 6838 [1212] K [5.33 σ]

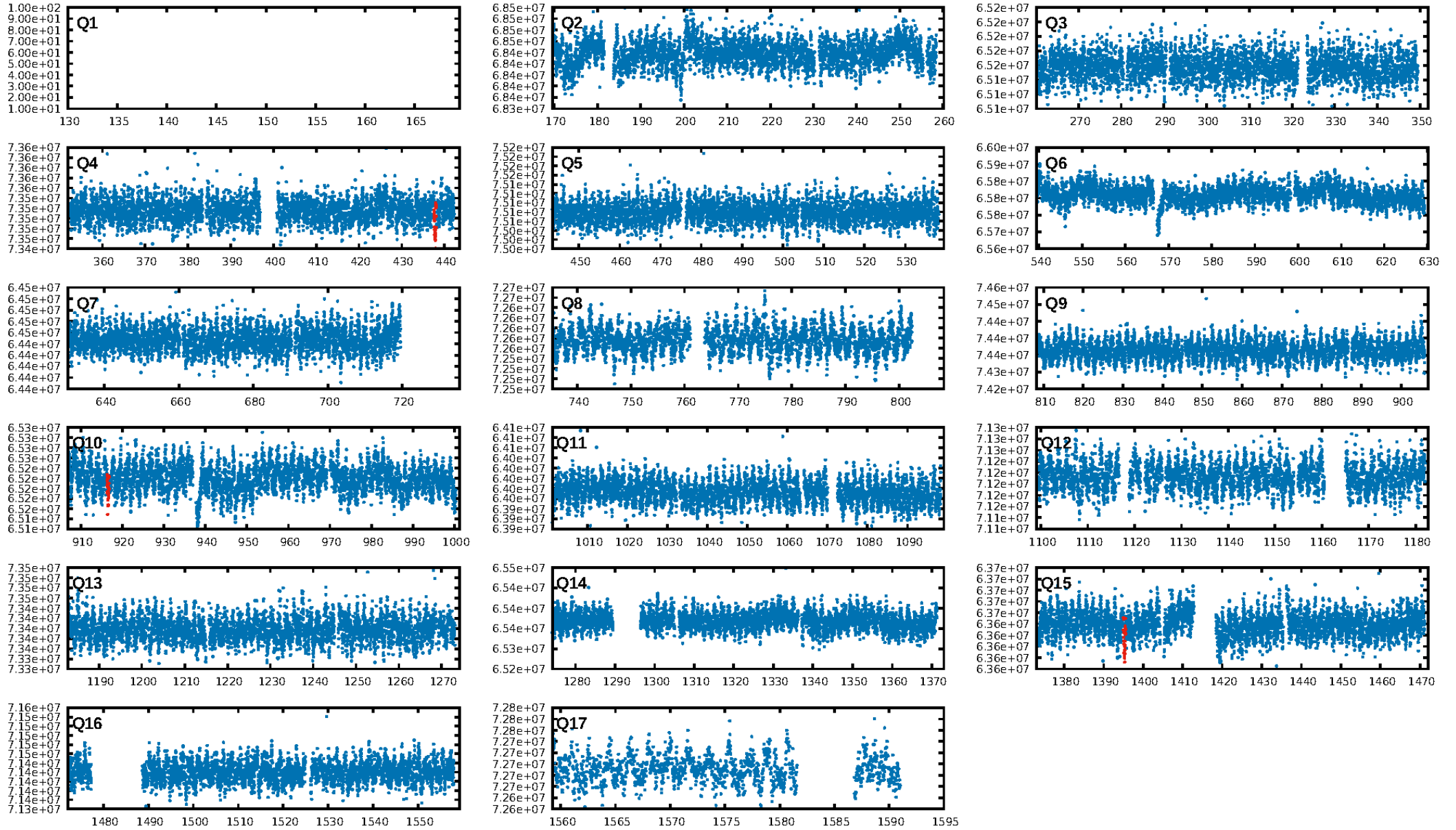
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [546.73 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.3%
ModelChiSquareGof-sig: 96.0%
Bootstrap-pfa: 8.04e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 8.907
Centroid-sig: 12.9%
Centroid-so: 2.117 arcsec [1.74 σ]
OotOffset-rm: 0.866 arcsec [1.81 σ]
KicOffset-rm: 0.902 arcsec [1.70 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

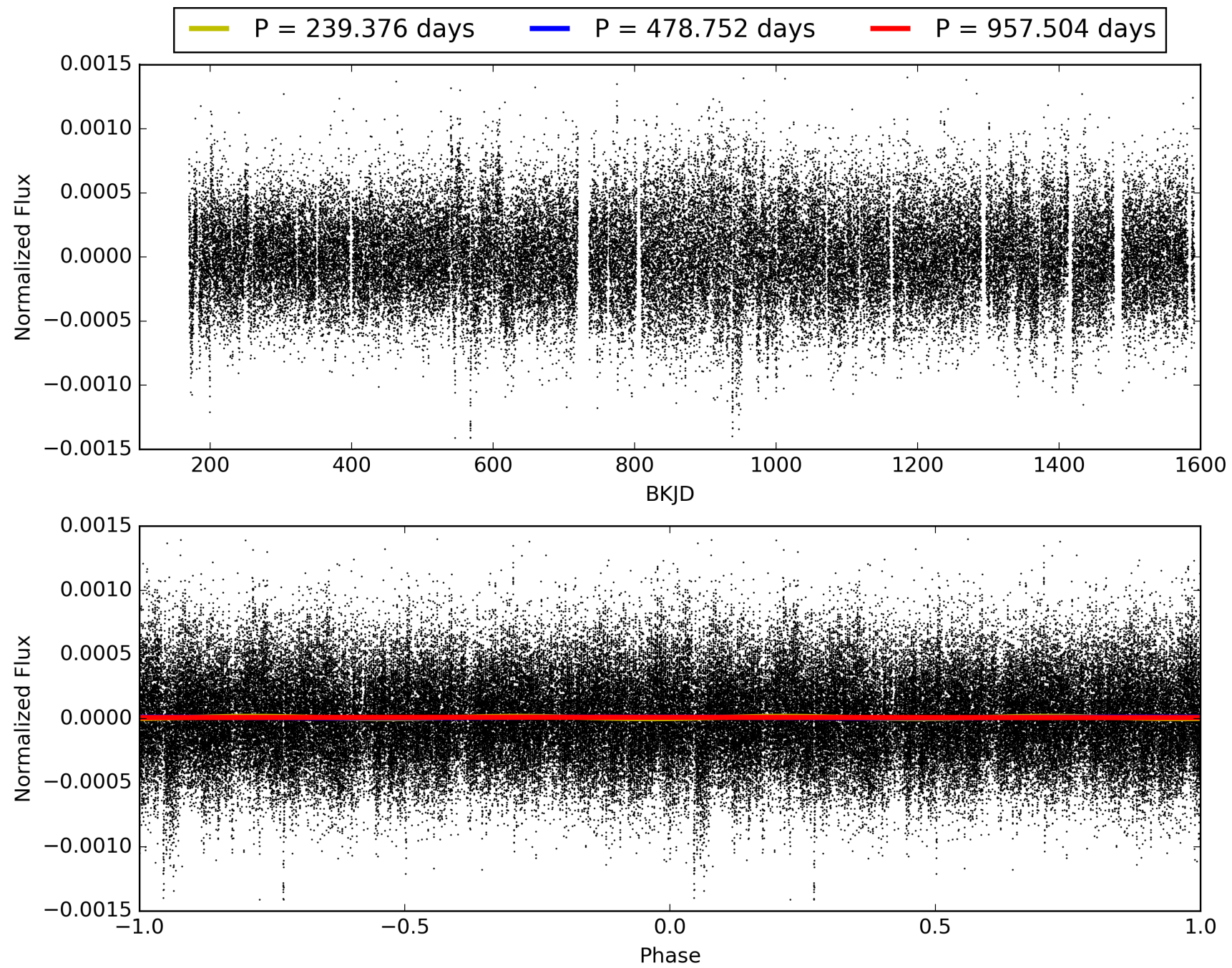
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:03:28 Z

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

TCE 006469690-02, PDC Light Curves

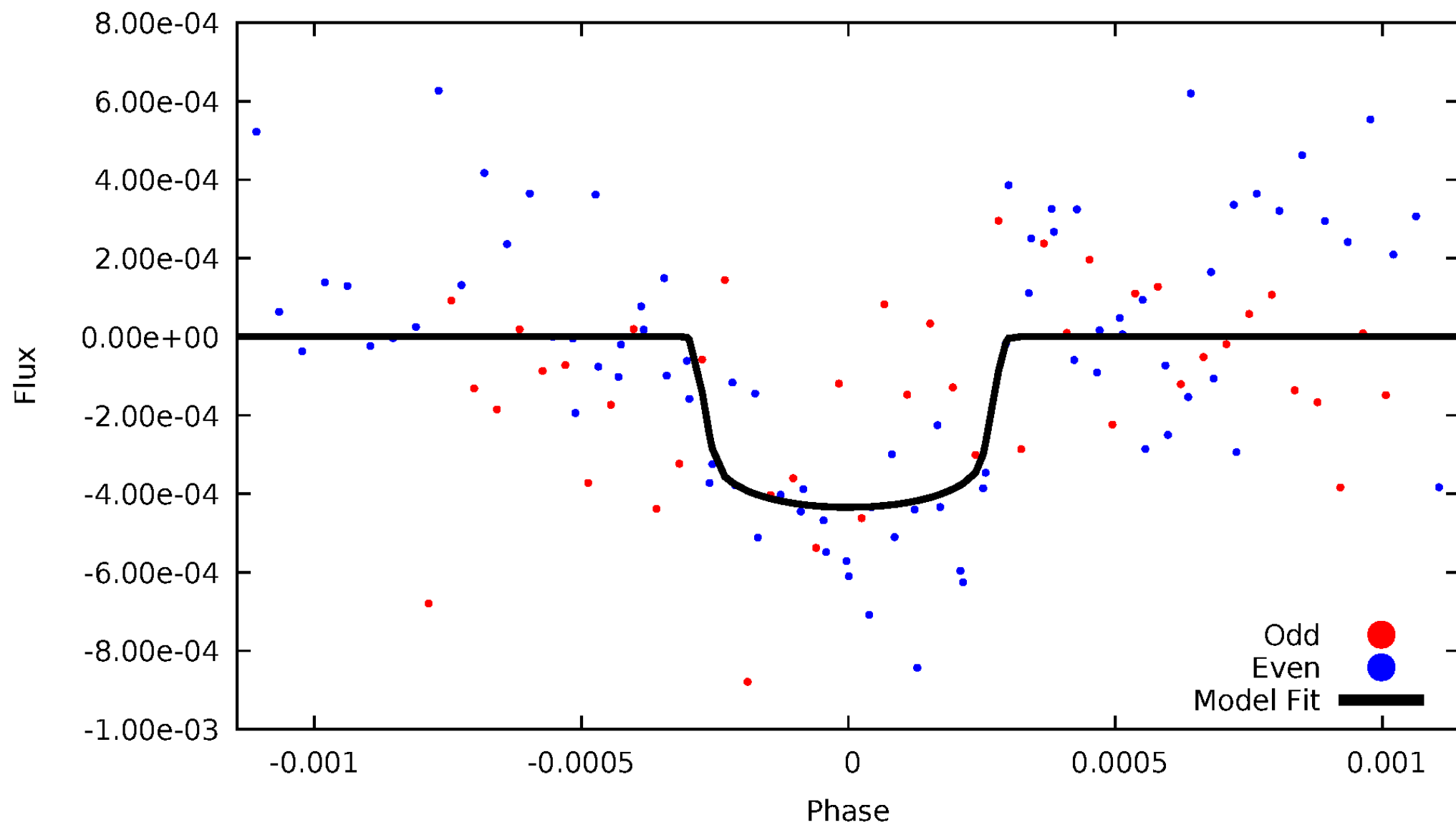


TCE 006469690-02



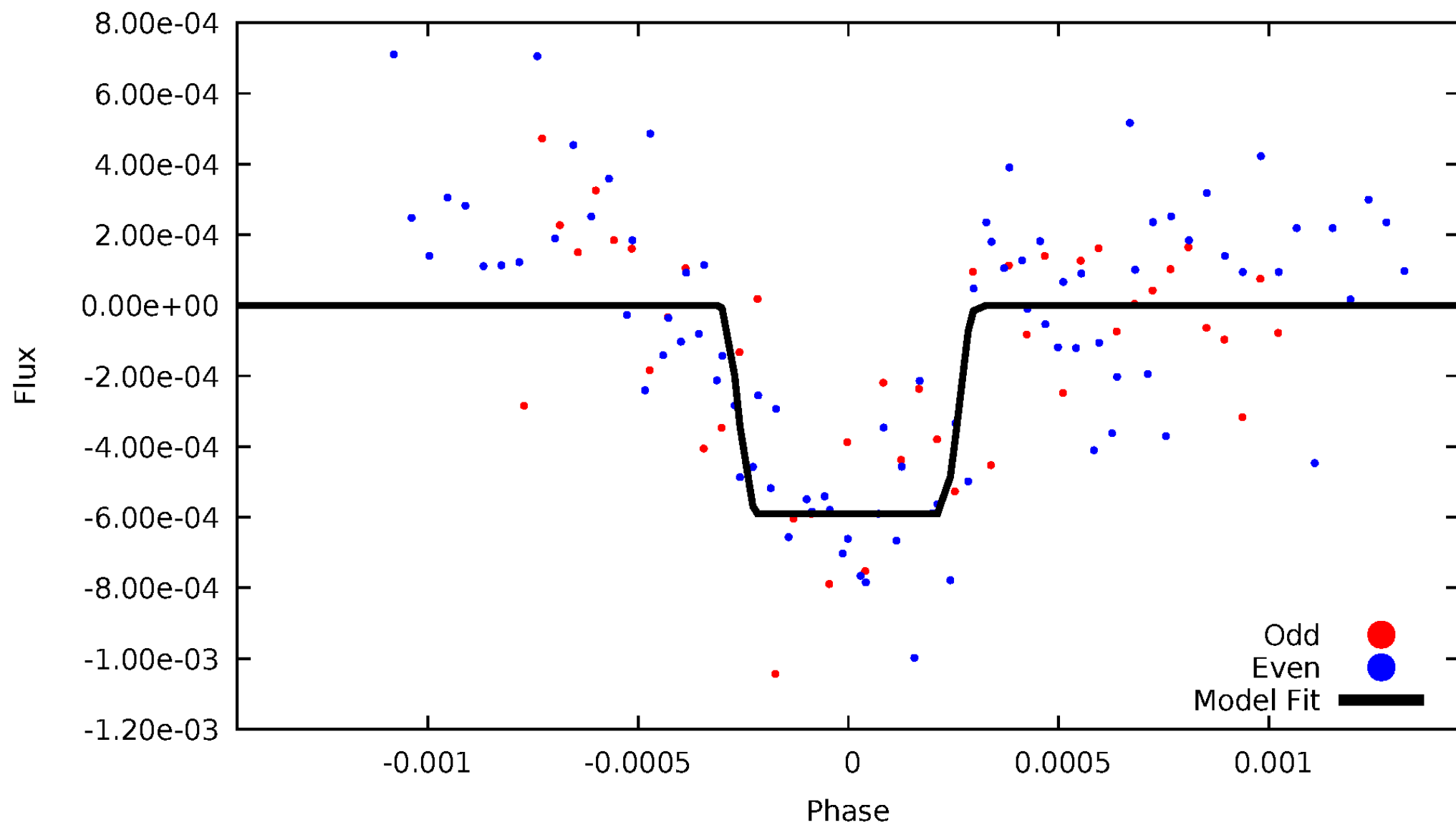
DV Odd/Even

TCE 006469690-02



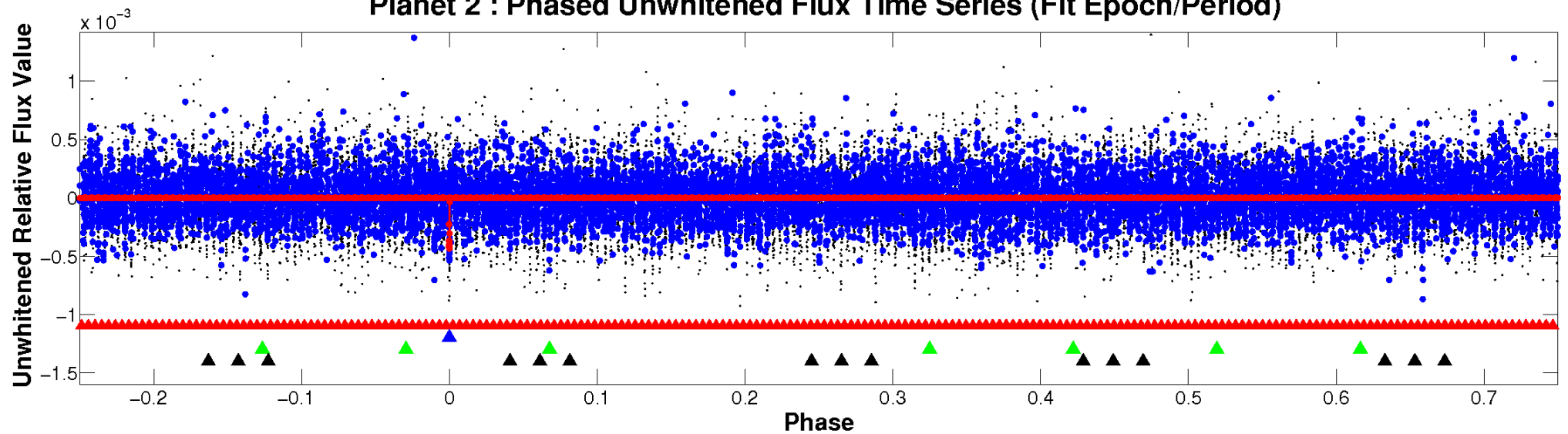
ALT Odd/Even

TCE 006469690-02

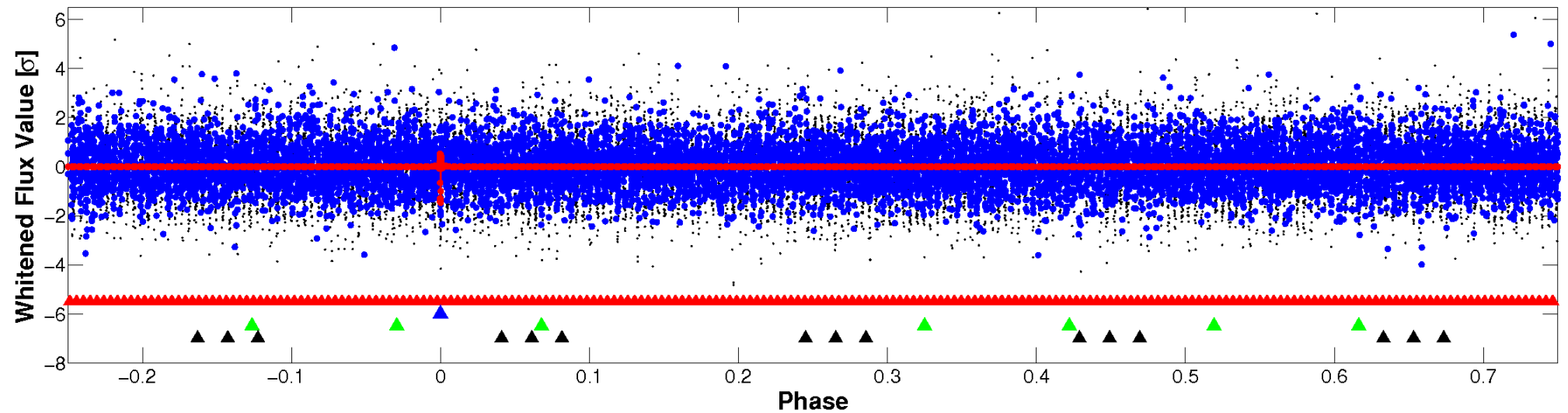


Non-Whitened Vs. Whitened Light Curve

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

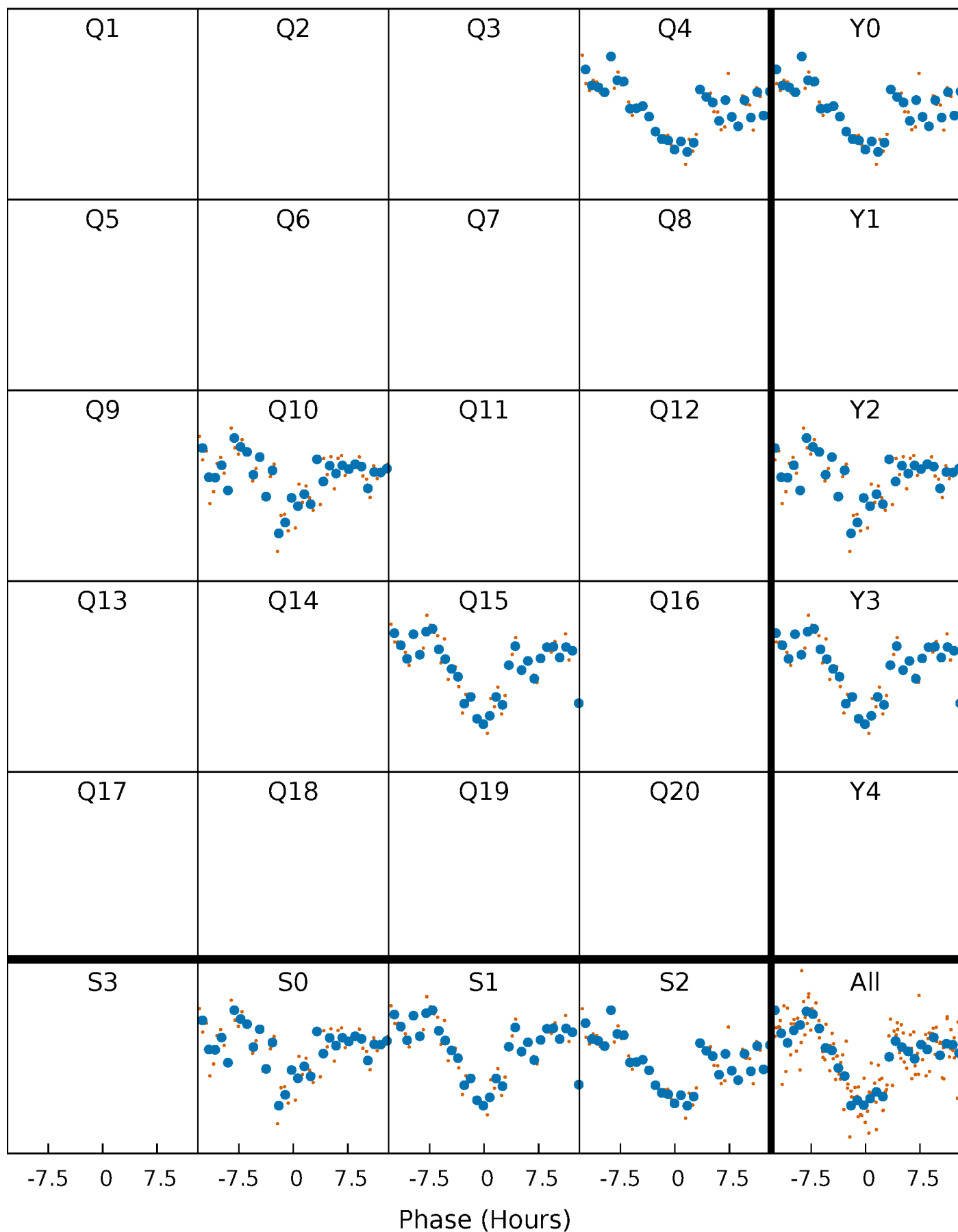


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 006469690-02 $P=478.752240$ Days $T_0=437.787976$ (BKJD)



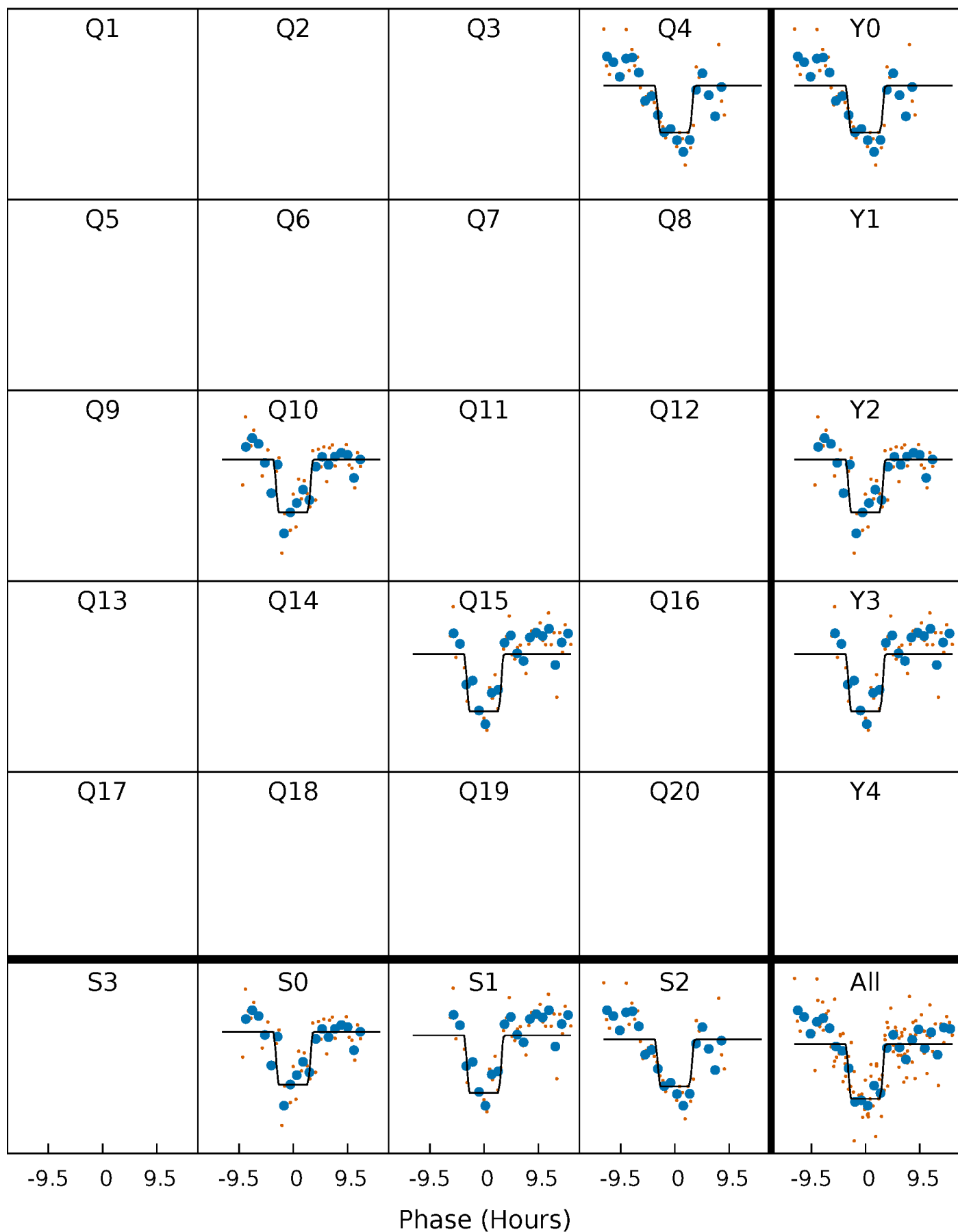
DV Quarter-Phased Transit Curves

TCE 006469690-02 $P=478.752240$ Days $T_0=437.787976$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

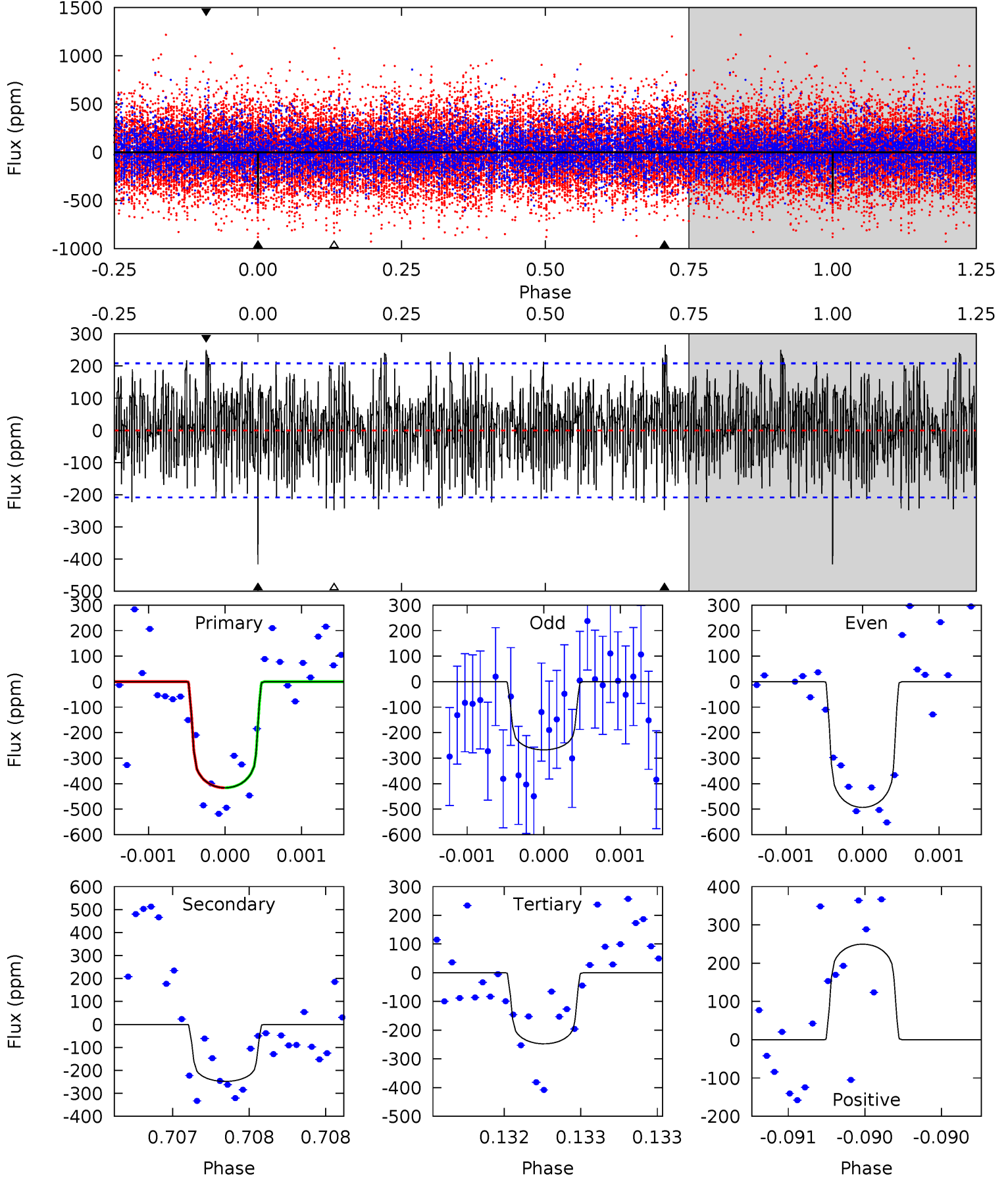
TCE 006469690-02 P=478.758311 Days $T_0=437.774656$ (BKJD)



DV Model-Shift Uniqueness Test

006469690-02, P = 478.752240 Days, E = 437.787976 Days

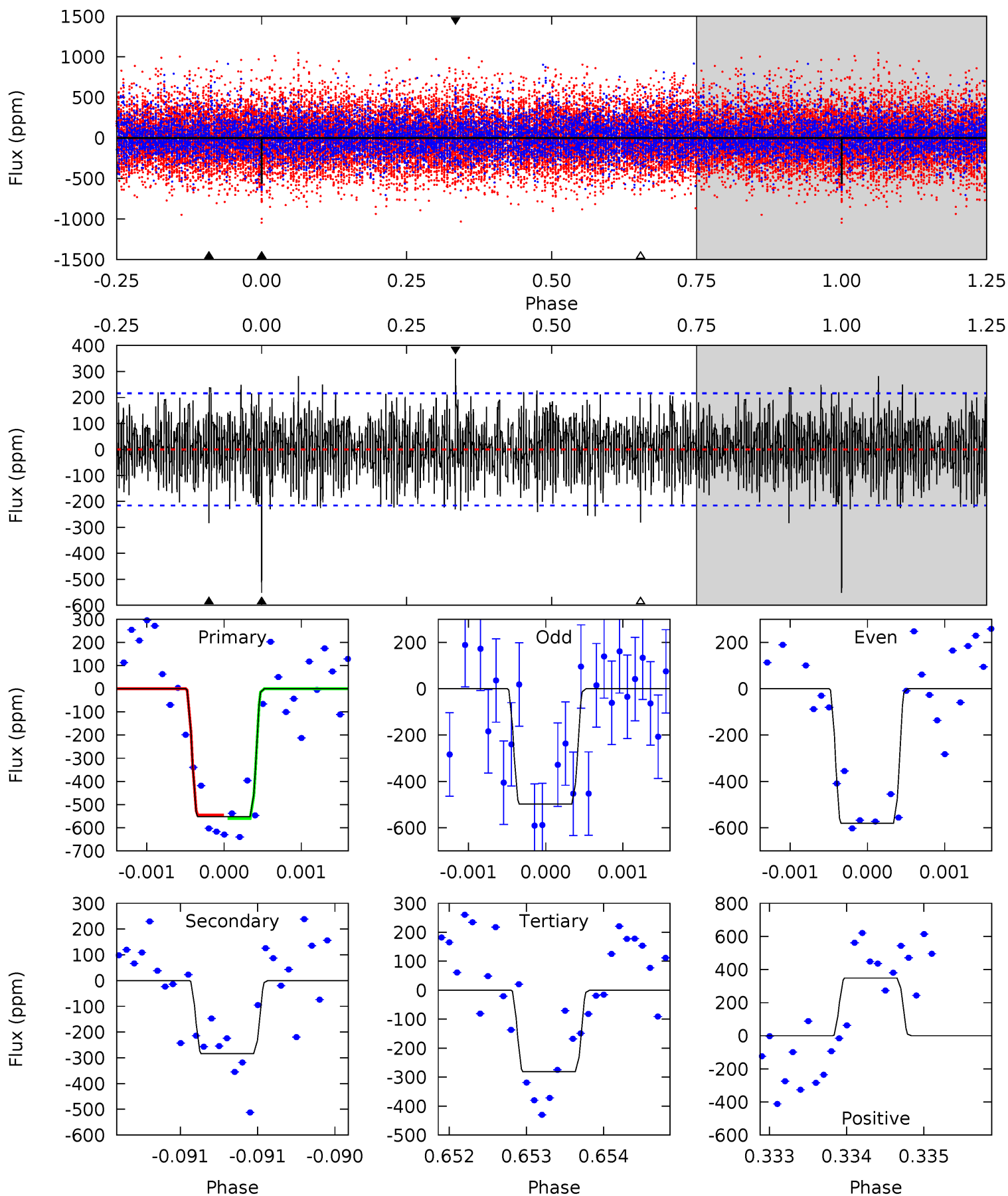
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	6.59	6.58	6.63	5.53	3.42	2.25	4.48	4.42	0.01	-0.04	2.81	0.95	0.39	0.00



Alt Model-Shift Uniqueness Test

006469690-02, P = 478.758311 Days, E = 437.774656 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	7.27	7.21	8.95	5.53	3.42	2.23	6.95	5.22	0.06	-1.67	1.00	1.11	0.39	0.20



Stellar Parameters For KIC 006469690

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7703^{+243}_{-324}	$4.175^{+0.144}_{-0.176}$	$-0.480^{+0.250}_{-0.350}$	$1.595^{+0.435}_{-0.316}$	$1.388^{+0.194}_{-0.194}$	$0.482^{+0.404}_{-0.220}$
	+3%/-4%	+3%/-4%	+52%/-73%	+27%/-20%	+14%/-14%	+84%/-46%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 006469690-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-248 ± 38	$3.71^{+1.23}_{-1.23}$	523^{+36}_{-34}	6520^{+1592}_{-845}	17916^{+21844}_{-8219}
Alt.	-283 ± 39	$4.19^{+1.39}_{-1.13}$	519^{+40}_{-34}	6275^{+1201}_{-698}	15552^{+14457}_{-6955}

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

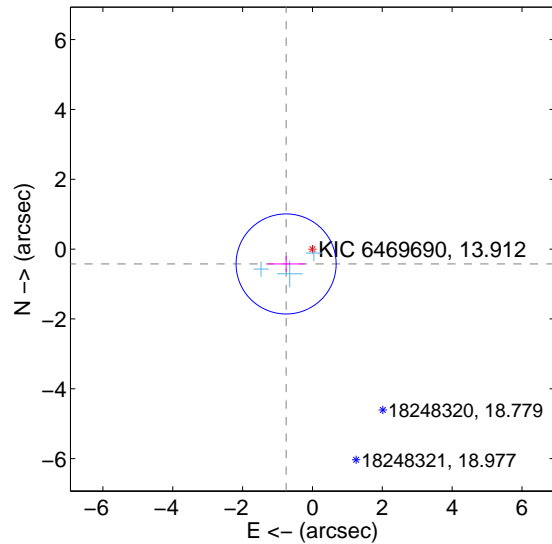
Supplemental centroid analysis for 006469690-02. Kepler magnitude: 13.91. Transit SNR 8.34

There are 3 quarters with good PRF difference image offsets

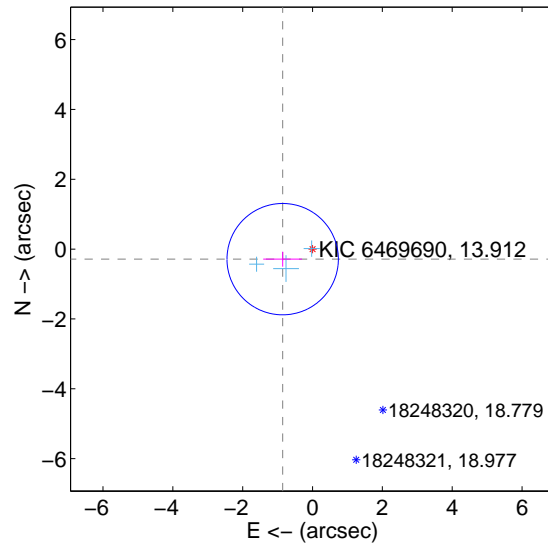
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.866 ± 0.478	1.81	0.754 ± 0.534	-0.426 ± 0.222
PRF-fit source offset from KIC position	0.902 ± 0.532	1.70	0.855 ± 0.556	-0.288 ± 0.214
photometric centroid source offset	2.12 ± 1.22	1.74	0.91 ± 1.16	1.91 ± 1.23

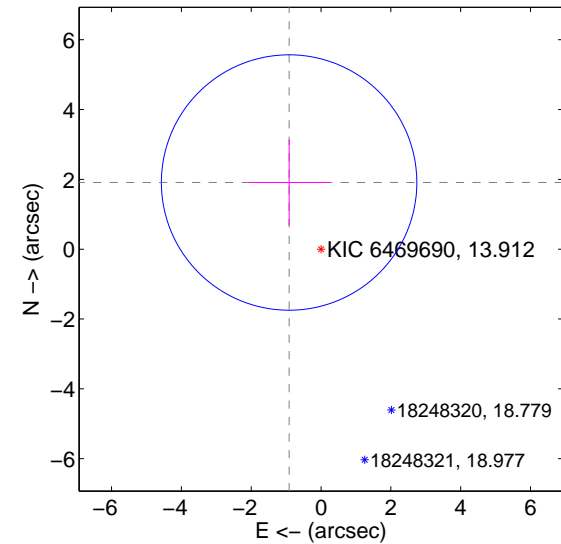
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

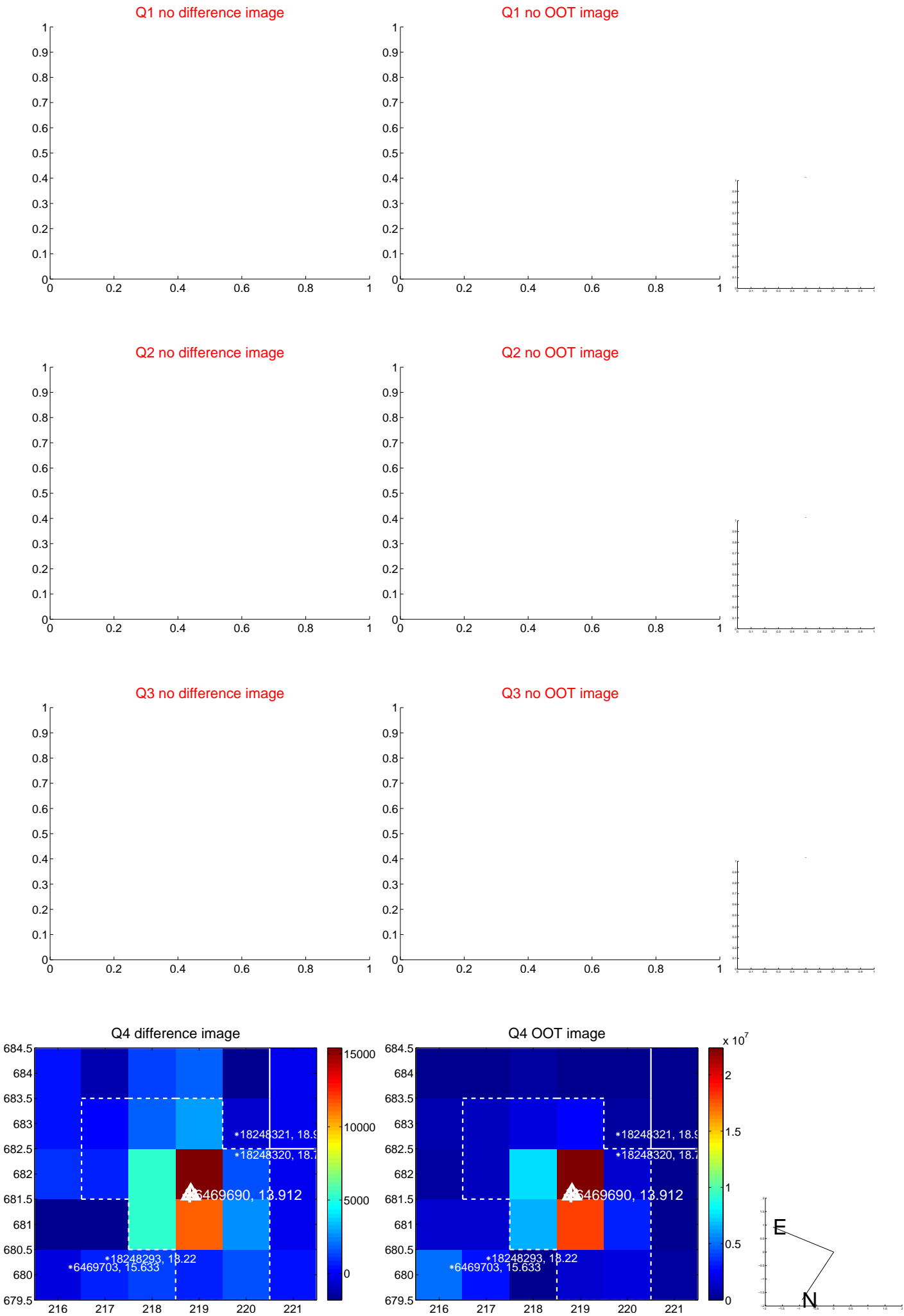


offset from photometric centroids

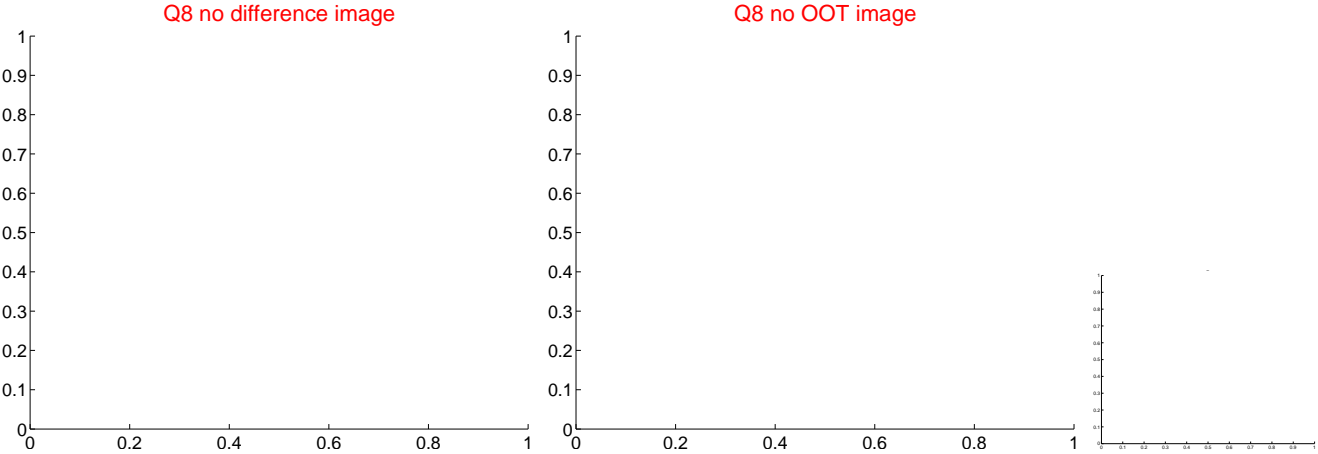
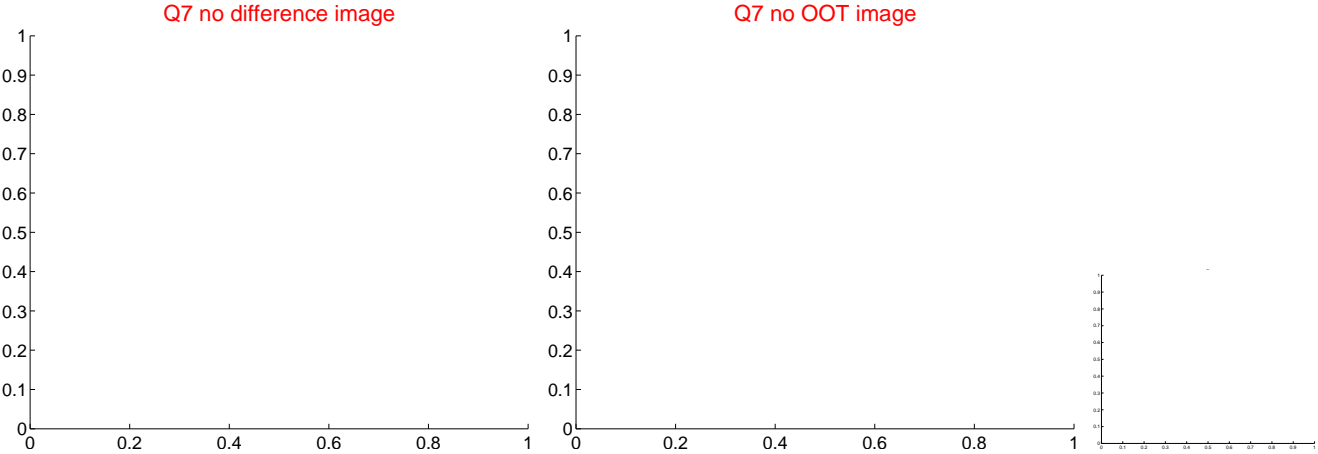
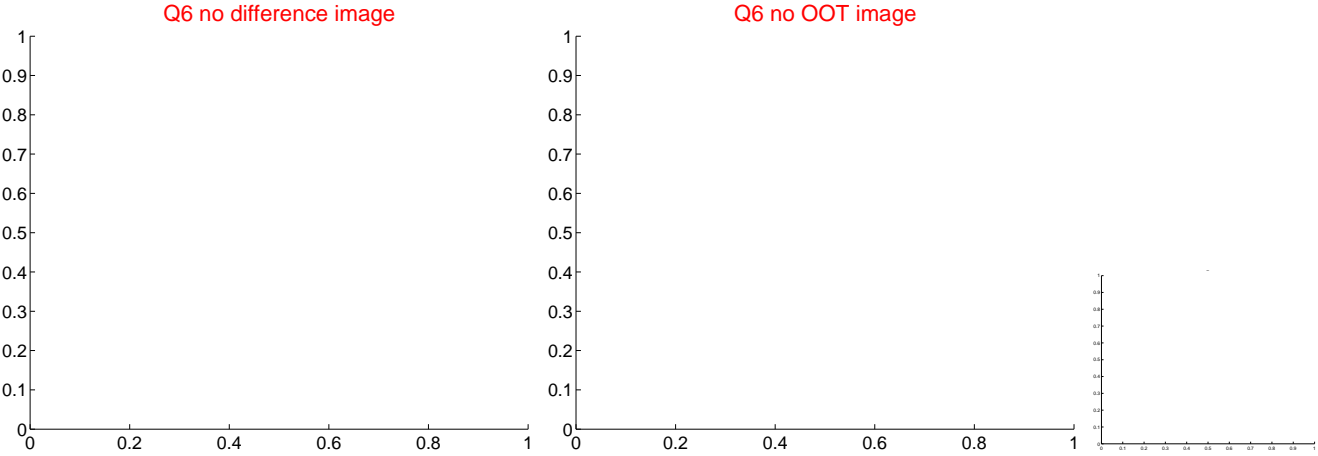


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

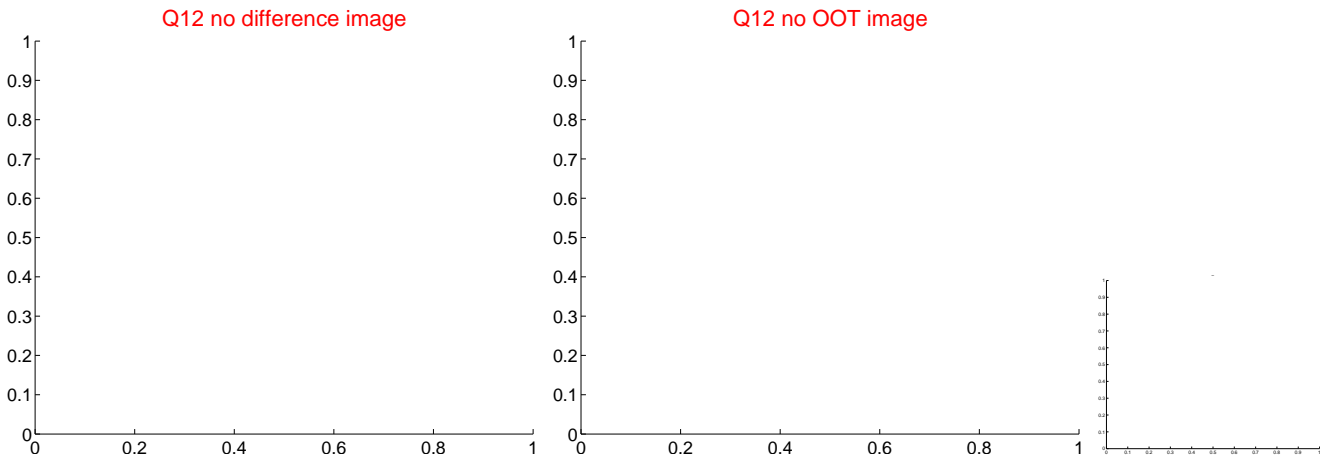
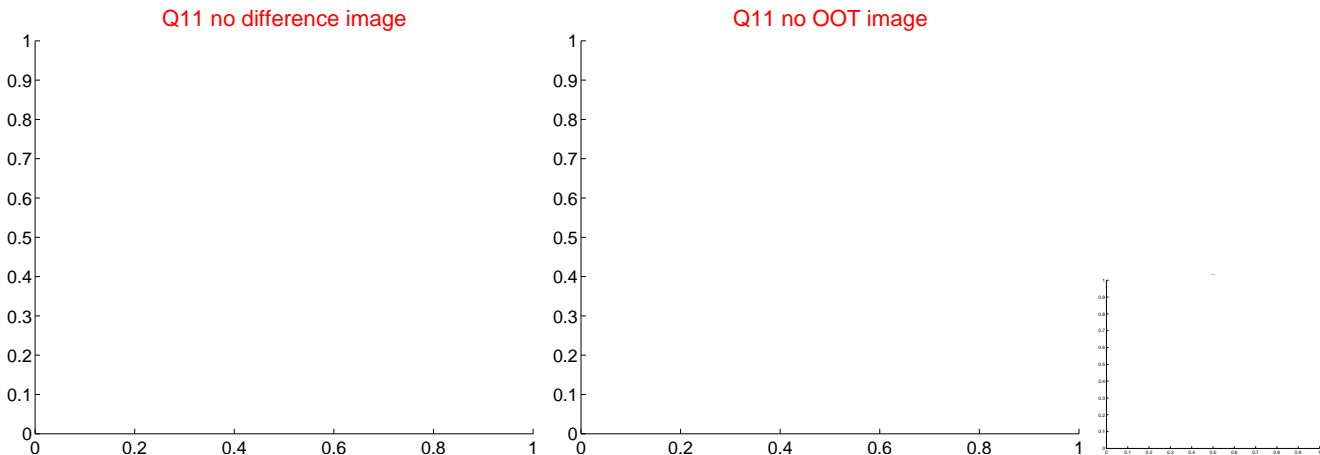
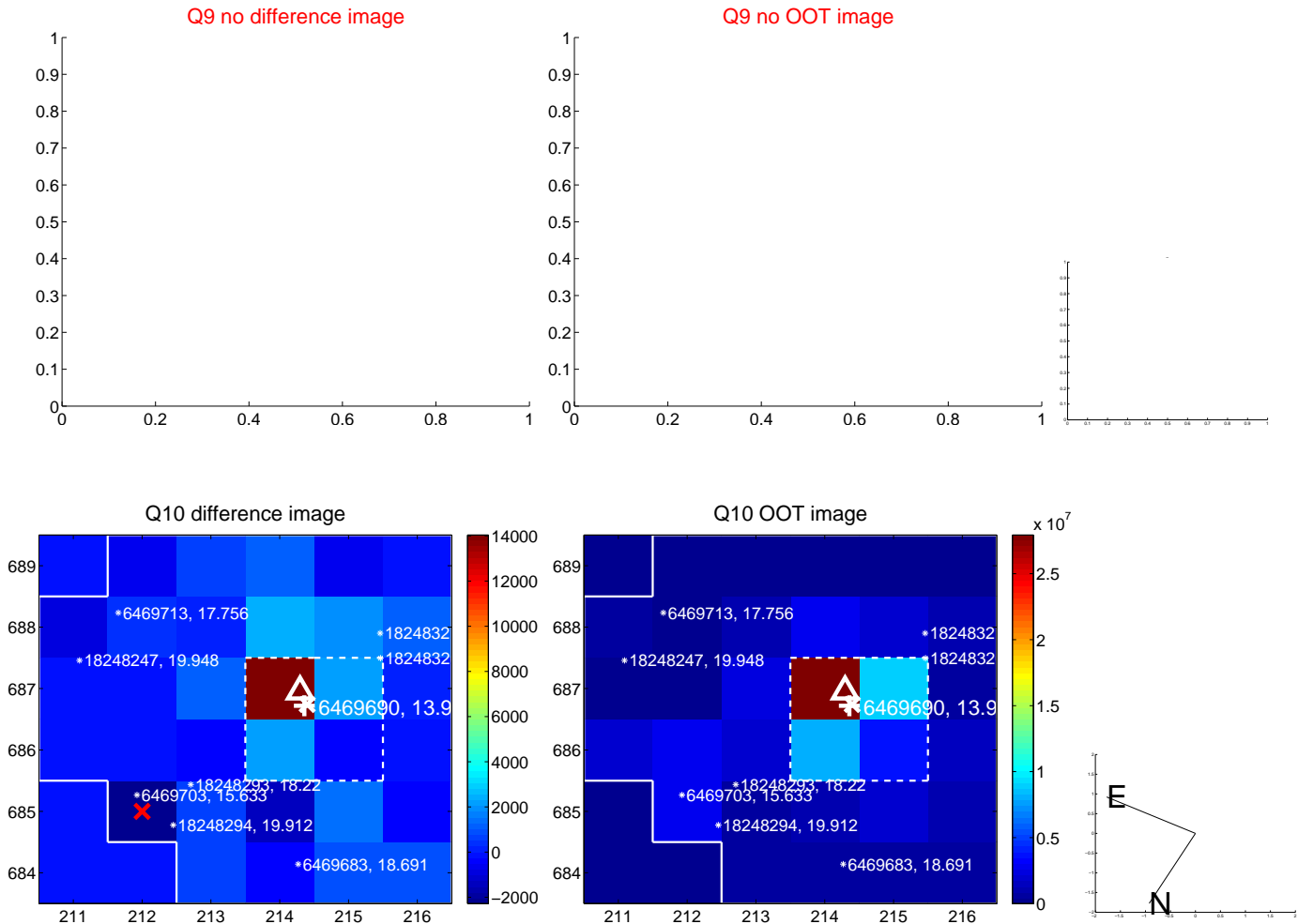
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



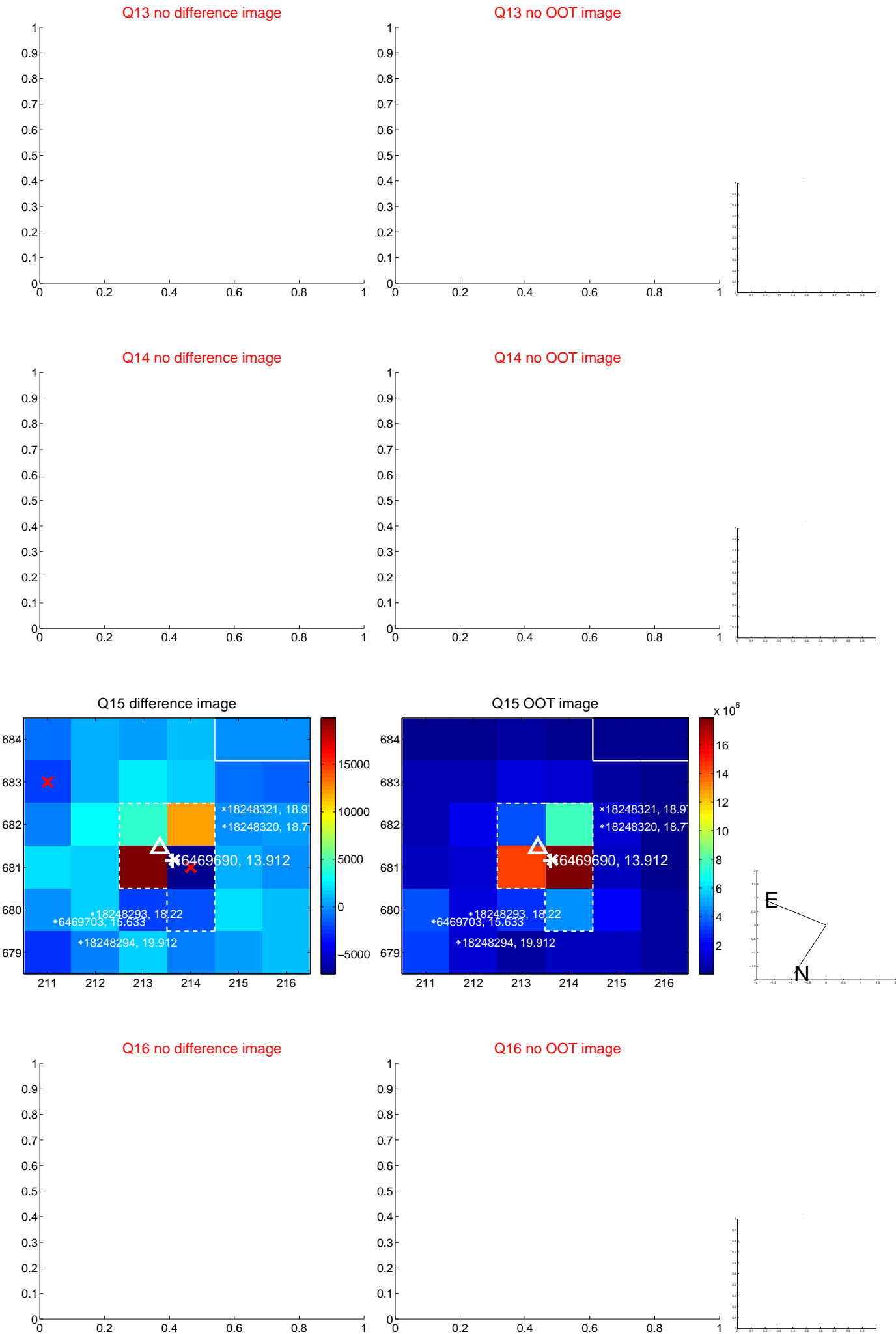
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



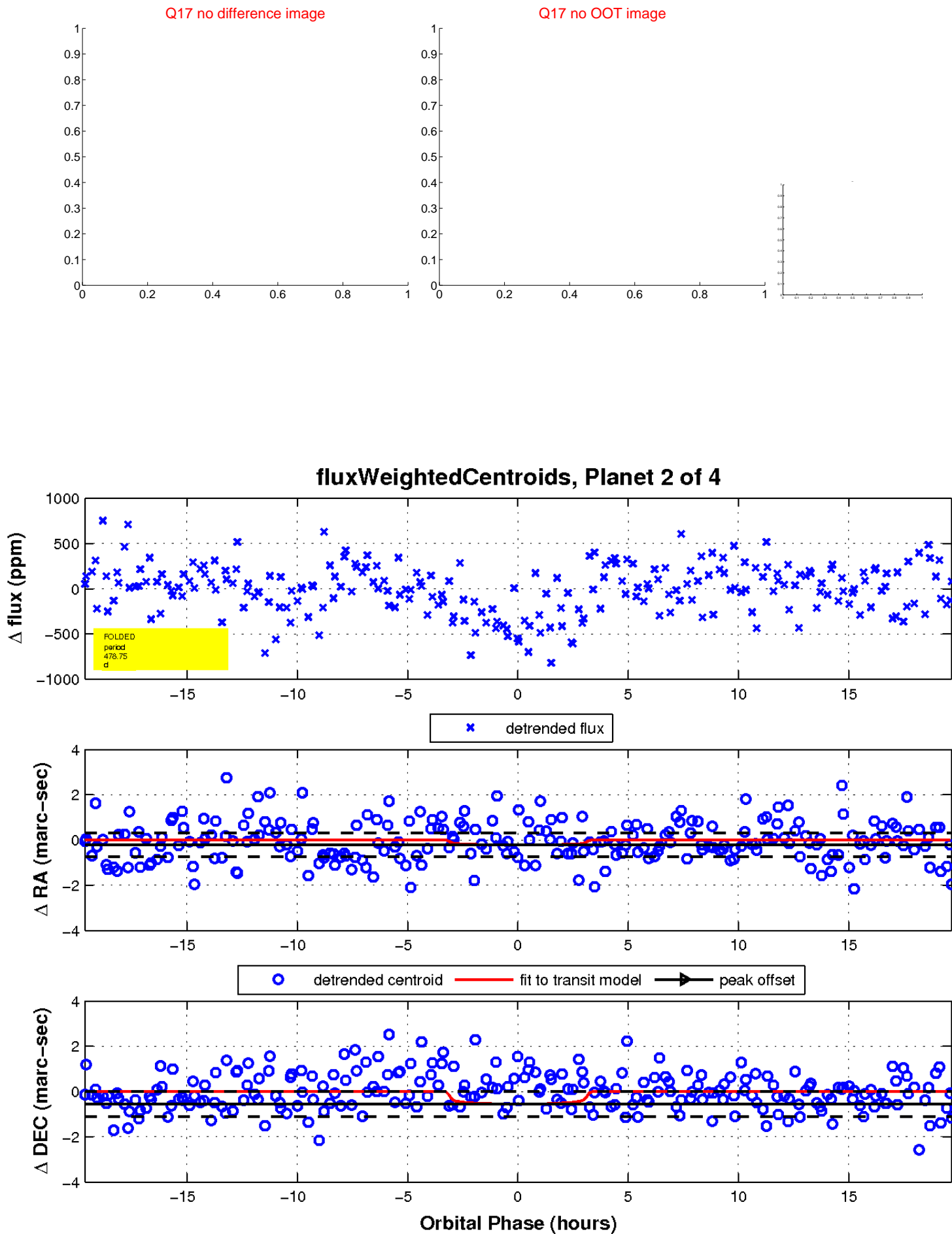
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

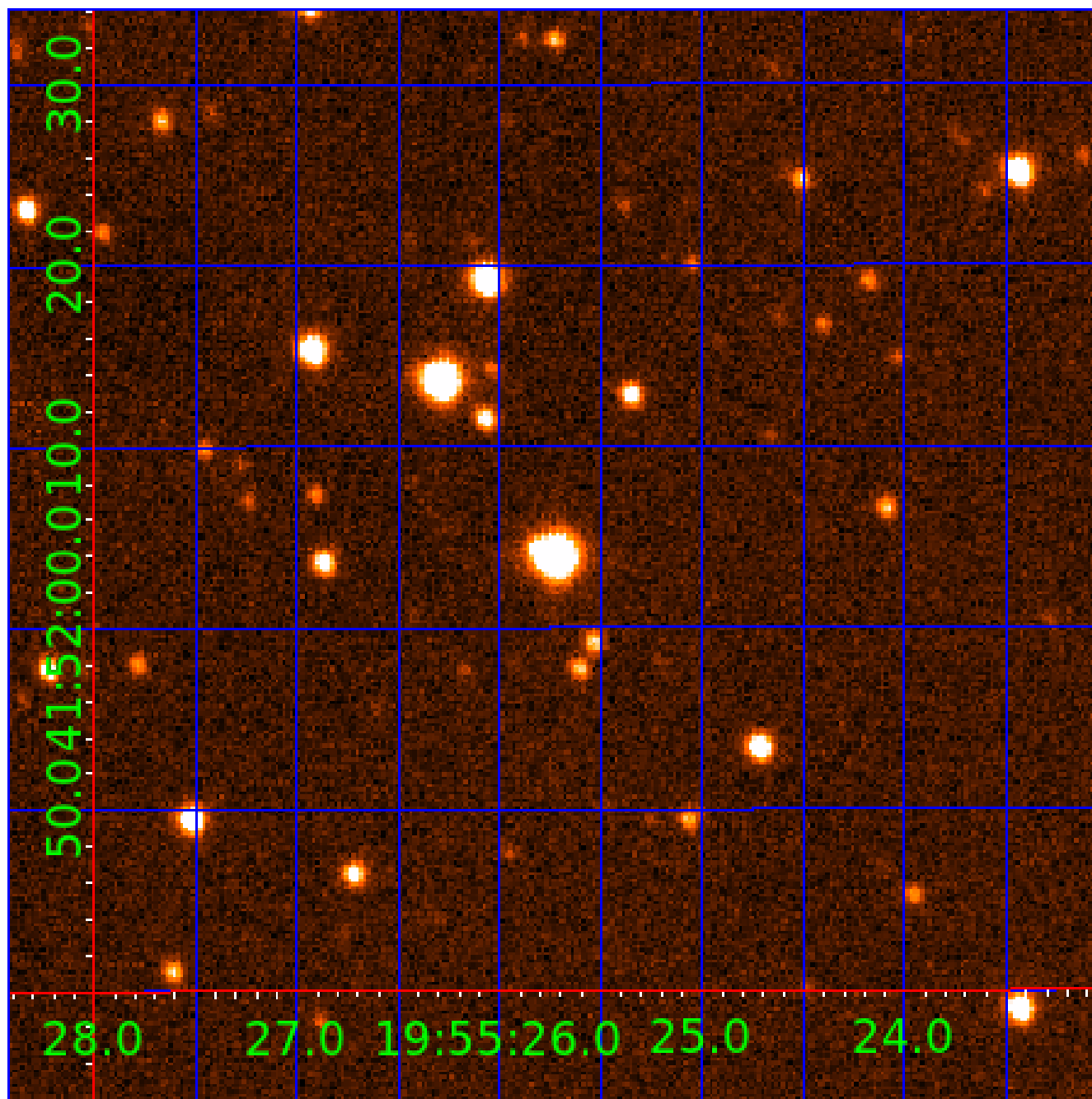


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006469690

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})
006469690-01	OBS	No	2.186723	132.649674	31.7	10.206	8.0	8.2	1.59	7703	0.98	5929.02
006469690-02	OBS	No	478.752240	437.787976	434.6	6.574	8.4	8.3	1.59	7703	3.61	4.49
006469690-03	OBS	No	216.121963	254.125507	334.0	9.471	7.4	7.0	1.59	7703	3.57	12.97
006469690-04	OBS	No	97.688519	164.371970	476.0	2.217	7.1	7.6	1.59	7703	4.03	37.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006469690-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006469690-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006469690-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006469690-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

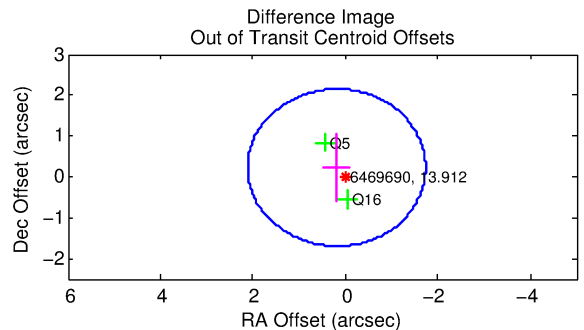
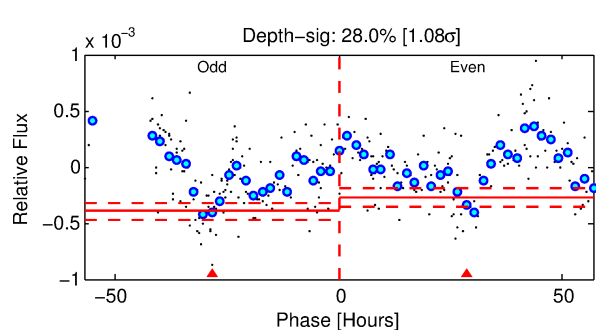
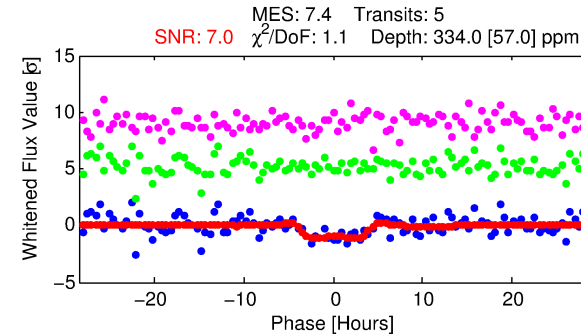
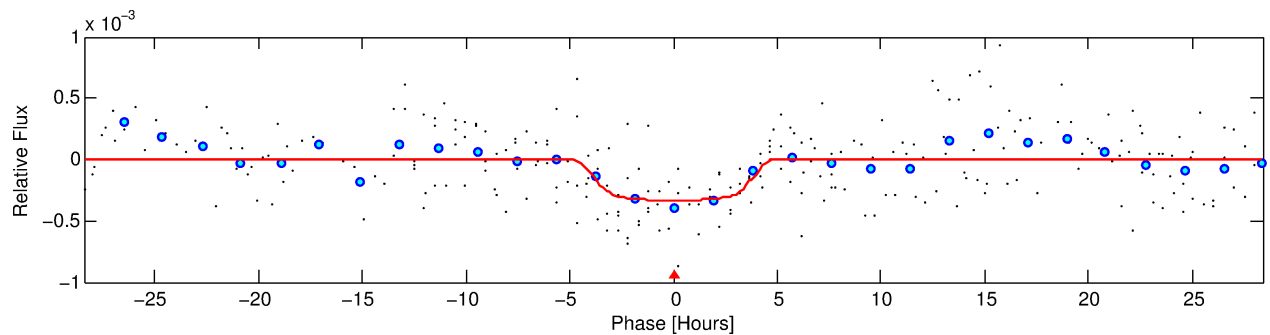
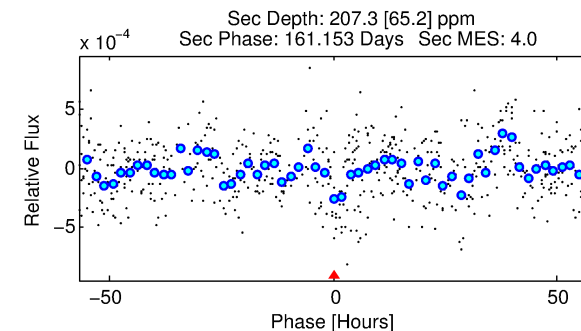
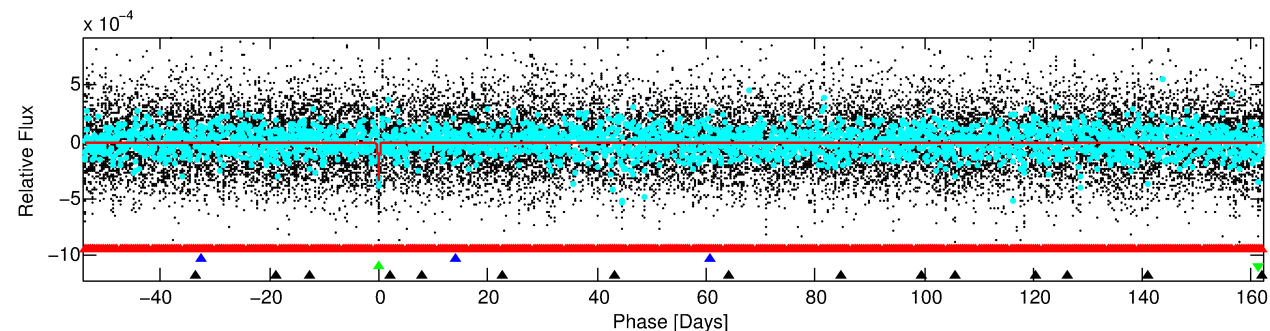
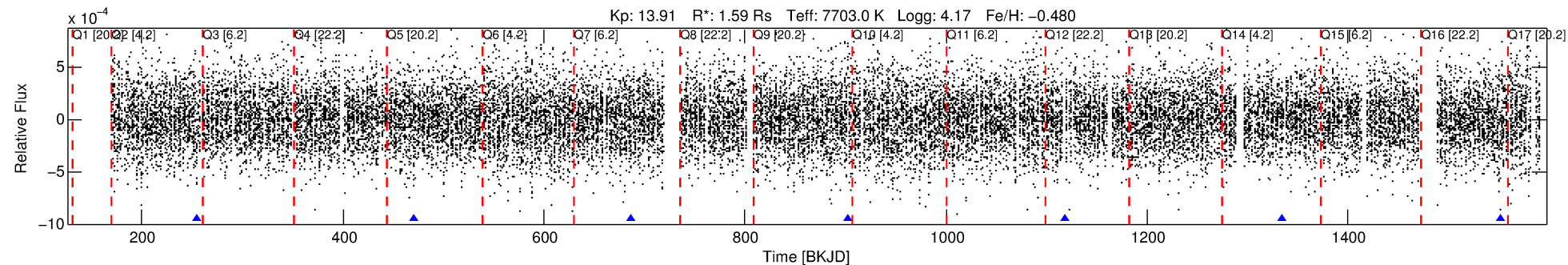
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006469690-03

No Significant Match Found

DV One-Page Summary

KIC: 6469690 Candidate: 3 of 4 Period: 216.122 d



DV Fit Results:

Period = 216.12196 [0.00505] d
Epoch = 254.1255 [0.0181] BKJD
Rp/R* = 0.0205 [0.0022]
a/R* = 62.65 [21.42]
b = 0.96 [0.03]
Seff = 12.98 [4.76]
Teff = 484 [44] K
Rp = 3.57 [1.05] Re
a = 0.7864 [0.1781] AU
Ag = 5533.72 [2781.47] [1.99 σ]
Teffp = 6454 [675] K [8.83 σ]

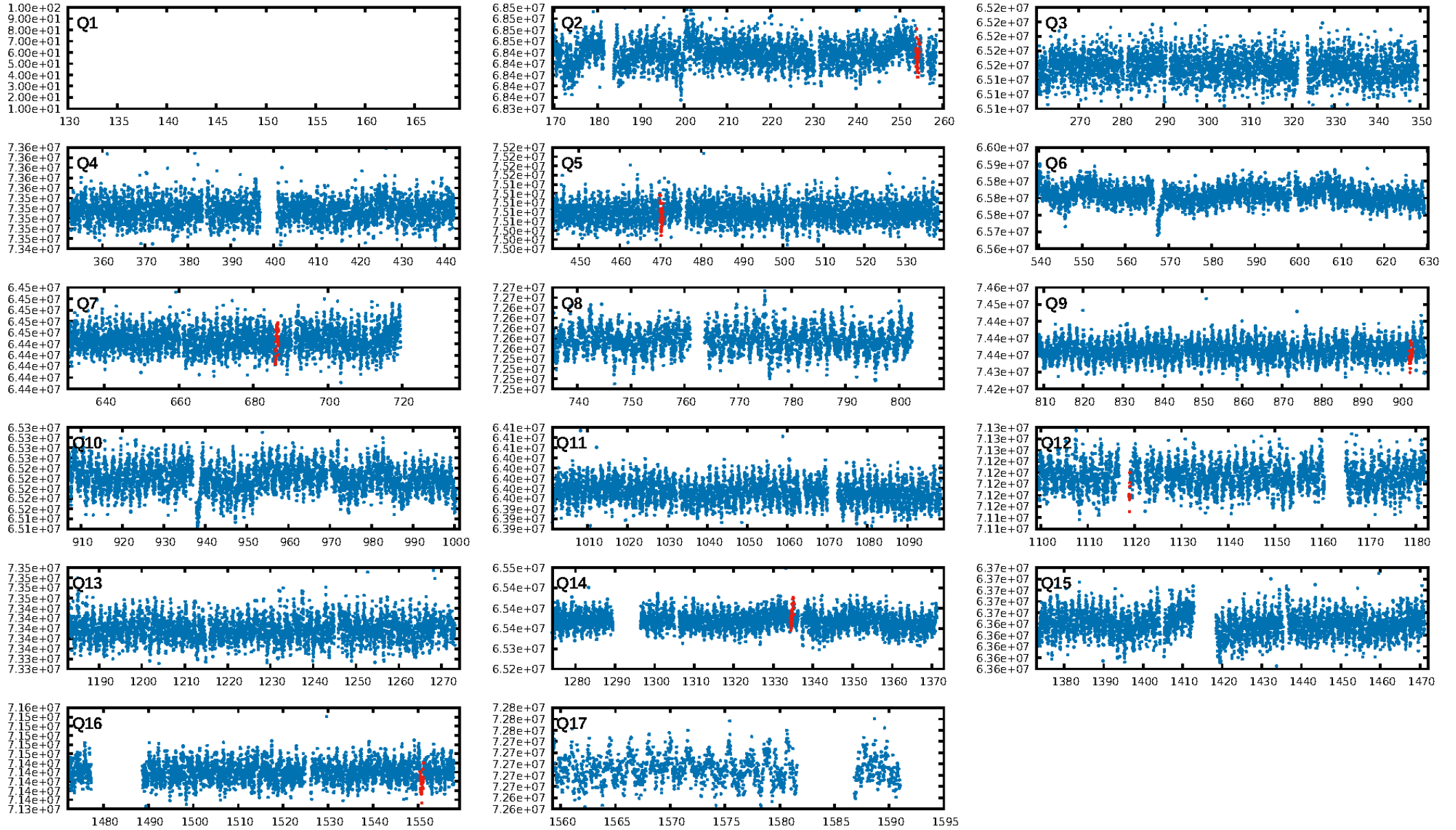
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [292.23 σ]
LongPeriod-sig: 100.0% [546.73 σ]
ModelChiSquare2-sig: 25.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.83e-09
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.7023
Centroid-sig: 95.1%
Centroid-so: 0.674 arcsec [0.48 σ]
OotOffset-rm: 0.297 arcsec [0.46 σ]
KicOffset-rm: 0.508 arcsec [0.78 σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.33 [2/6]

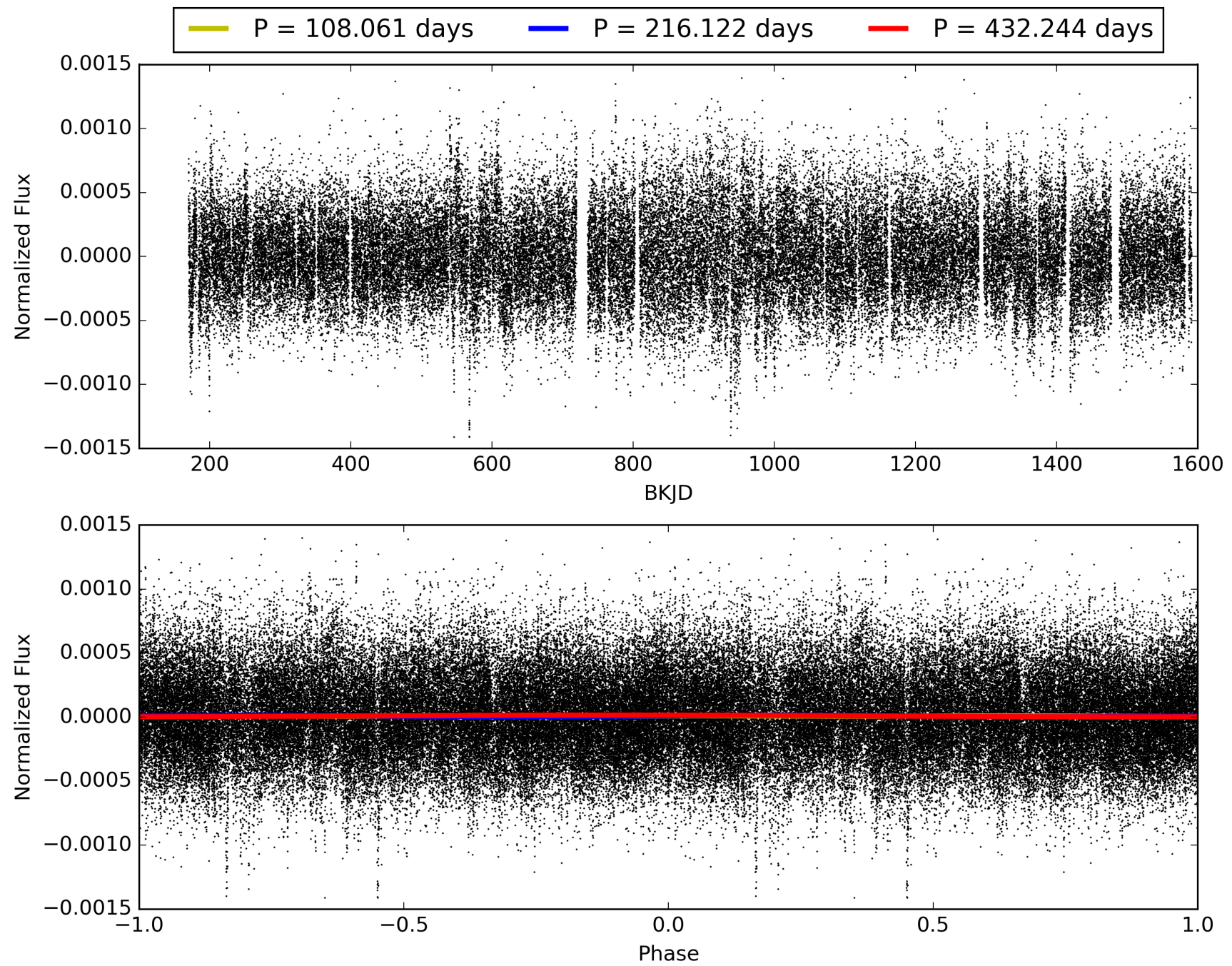
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:03:33 Z

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

TCE 006469690-03, PDC Light Curves

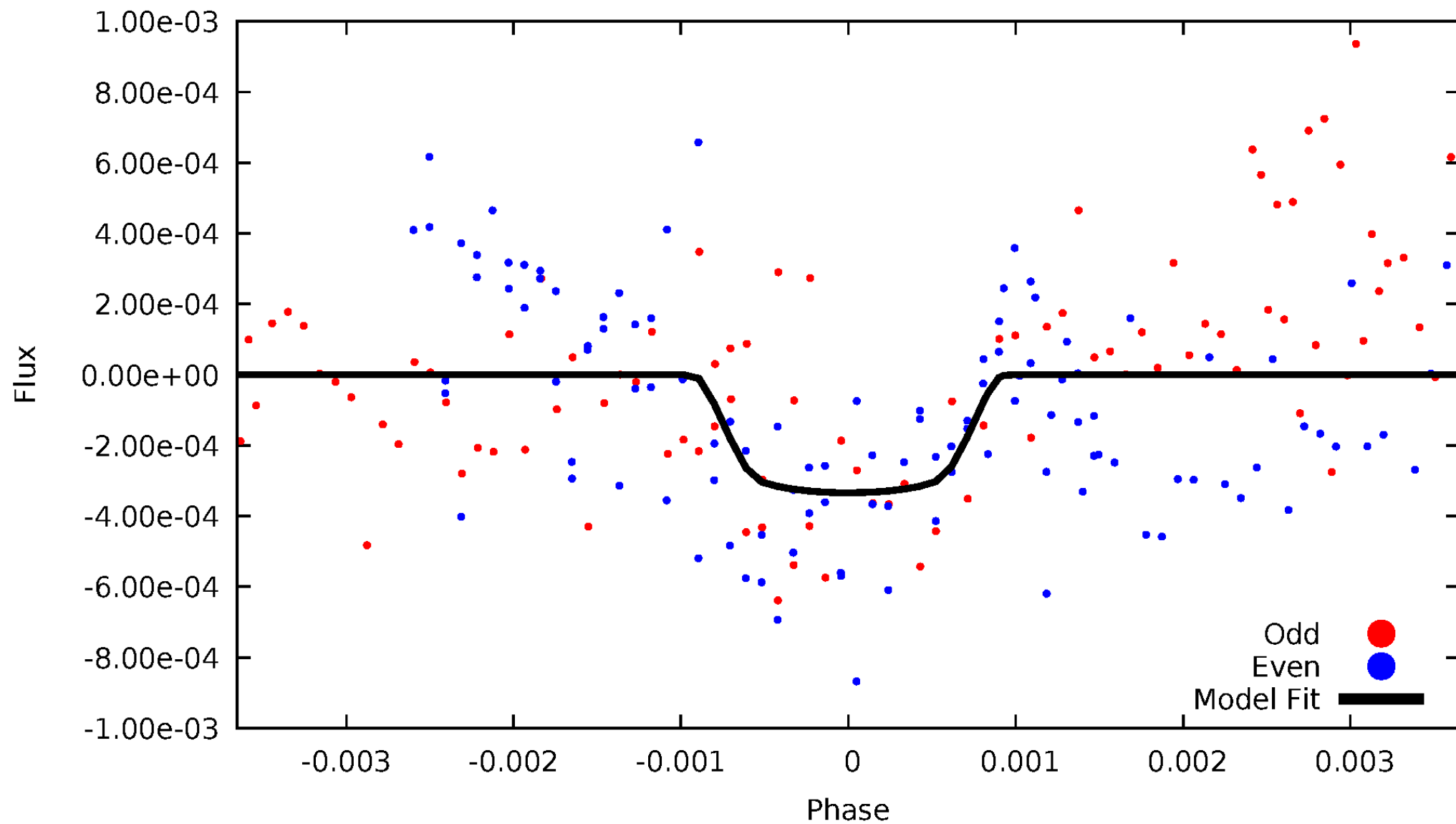


TCE 006469690-03



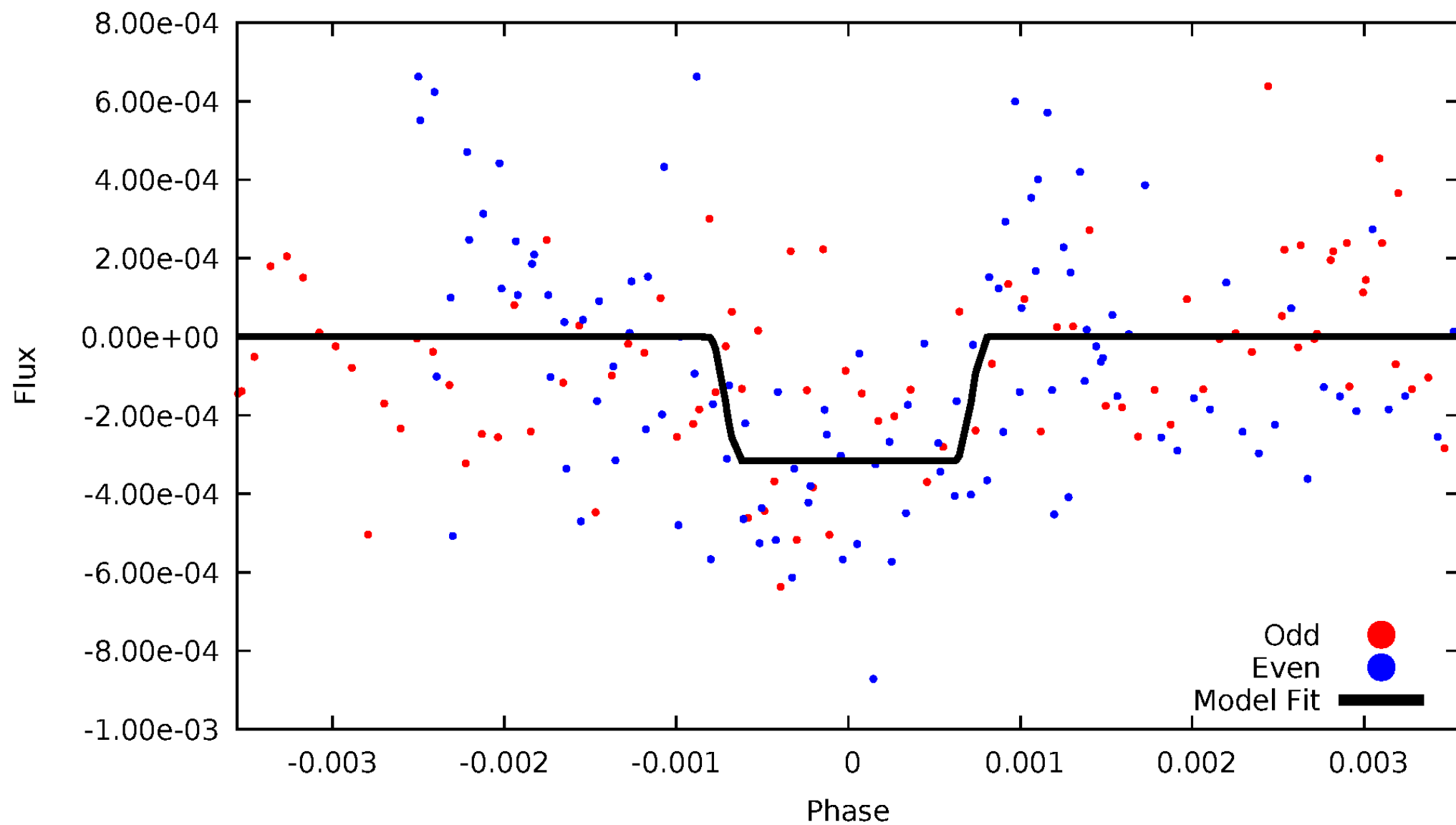
DV Odd/Even

TCE 006469690-03



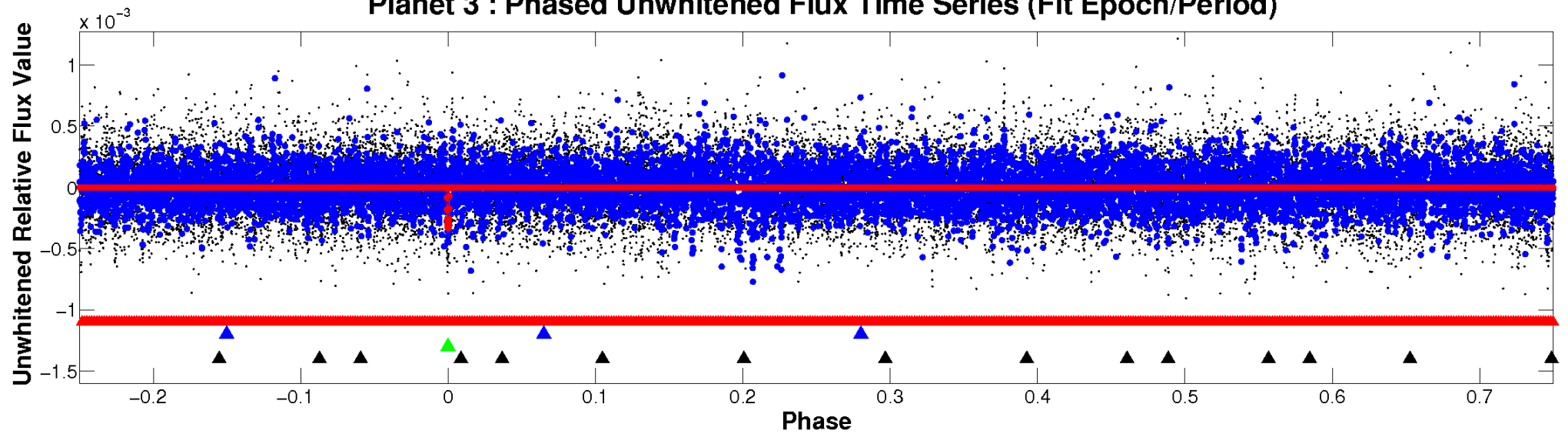
ALT Odd/Even

TCE 006469690-03

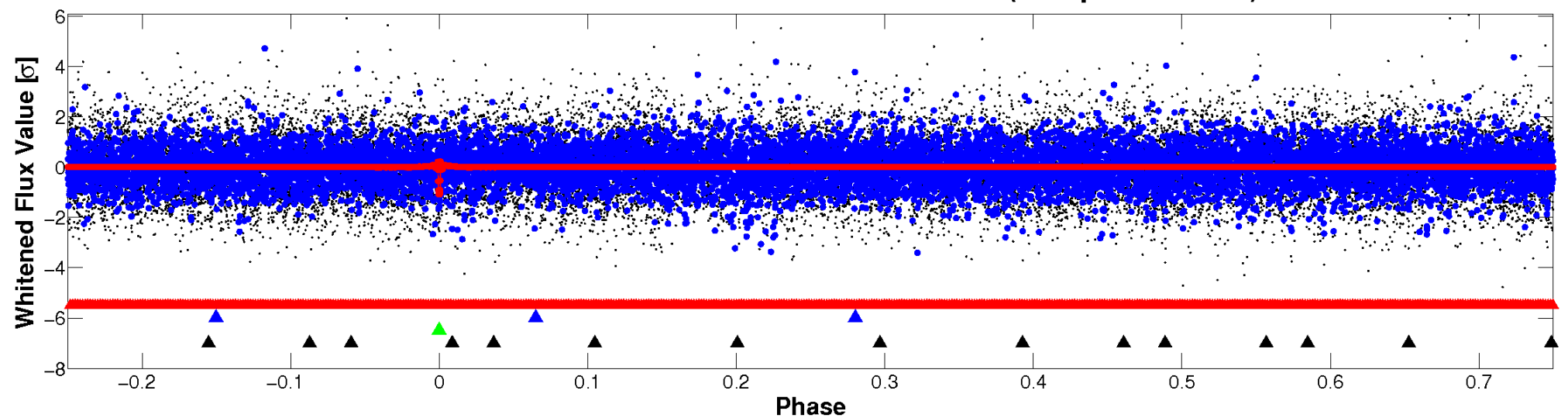


Non-Whitened Vs. Whitened Light Curve

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

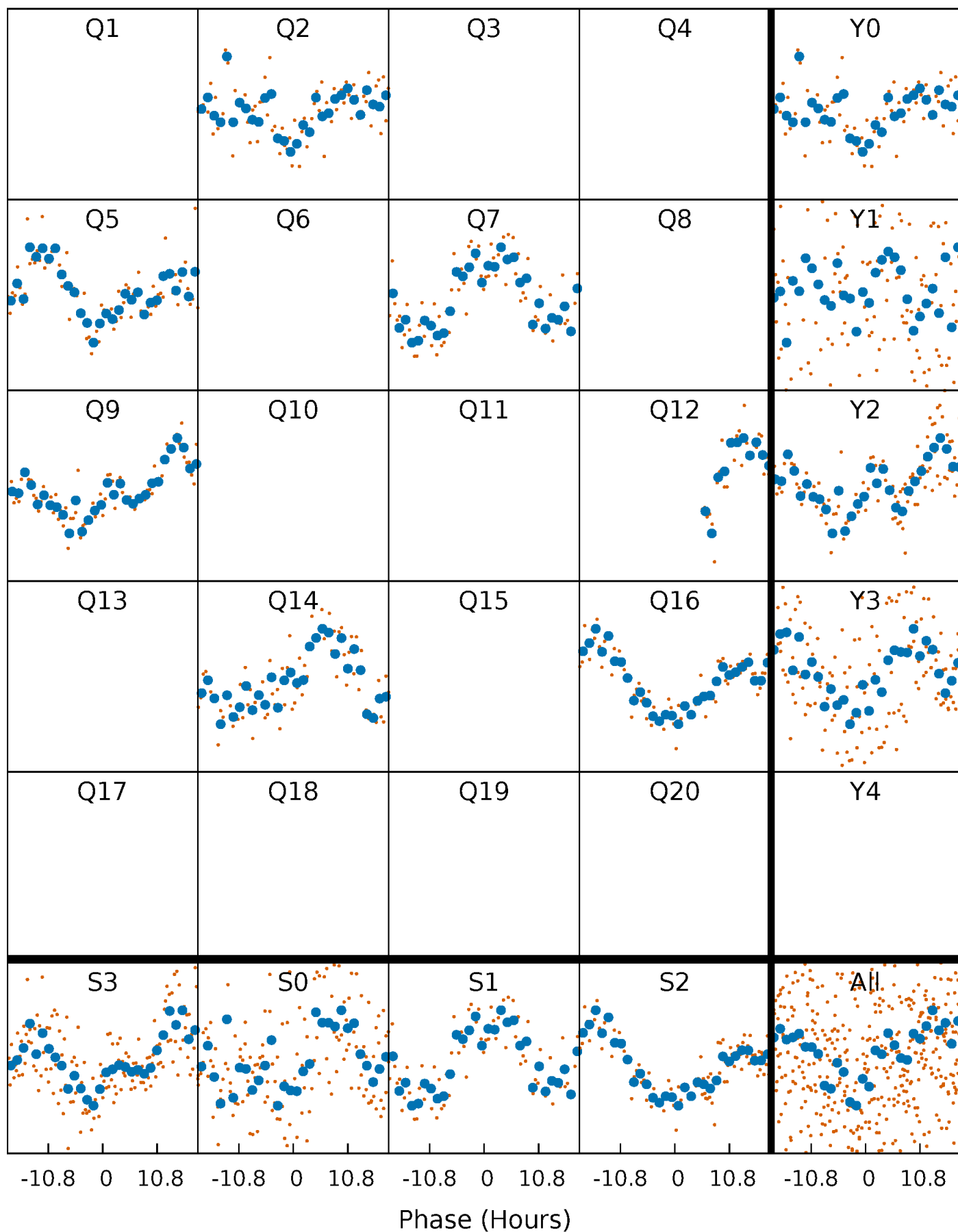


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



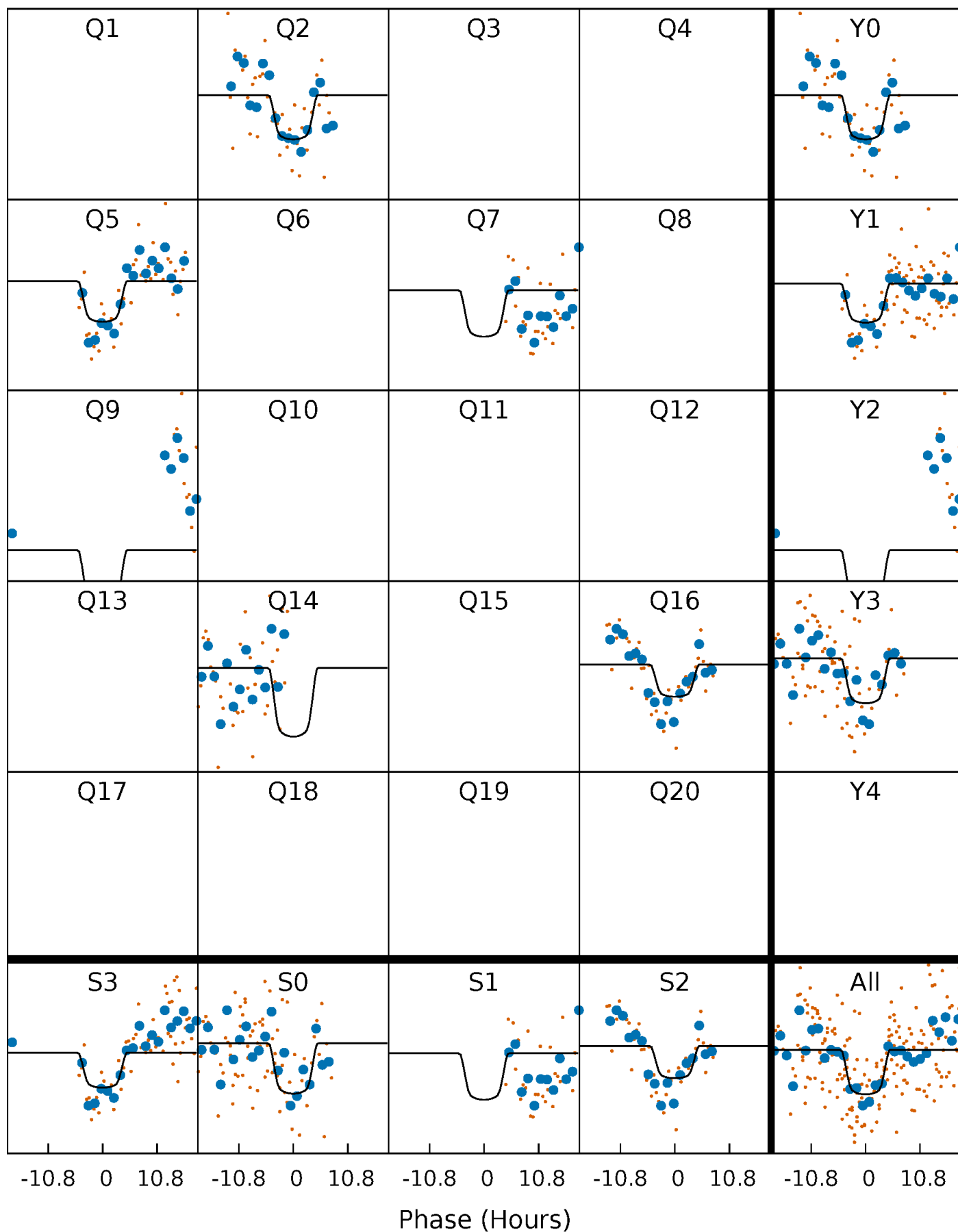
PDC Quarter-Phased Transit Curves

TCE 006469690-03 $P=216.121963$ Days $T_0=254.125507$ (BKJD)



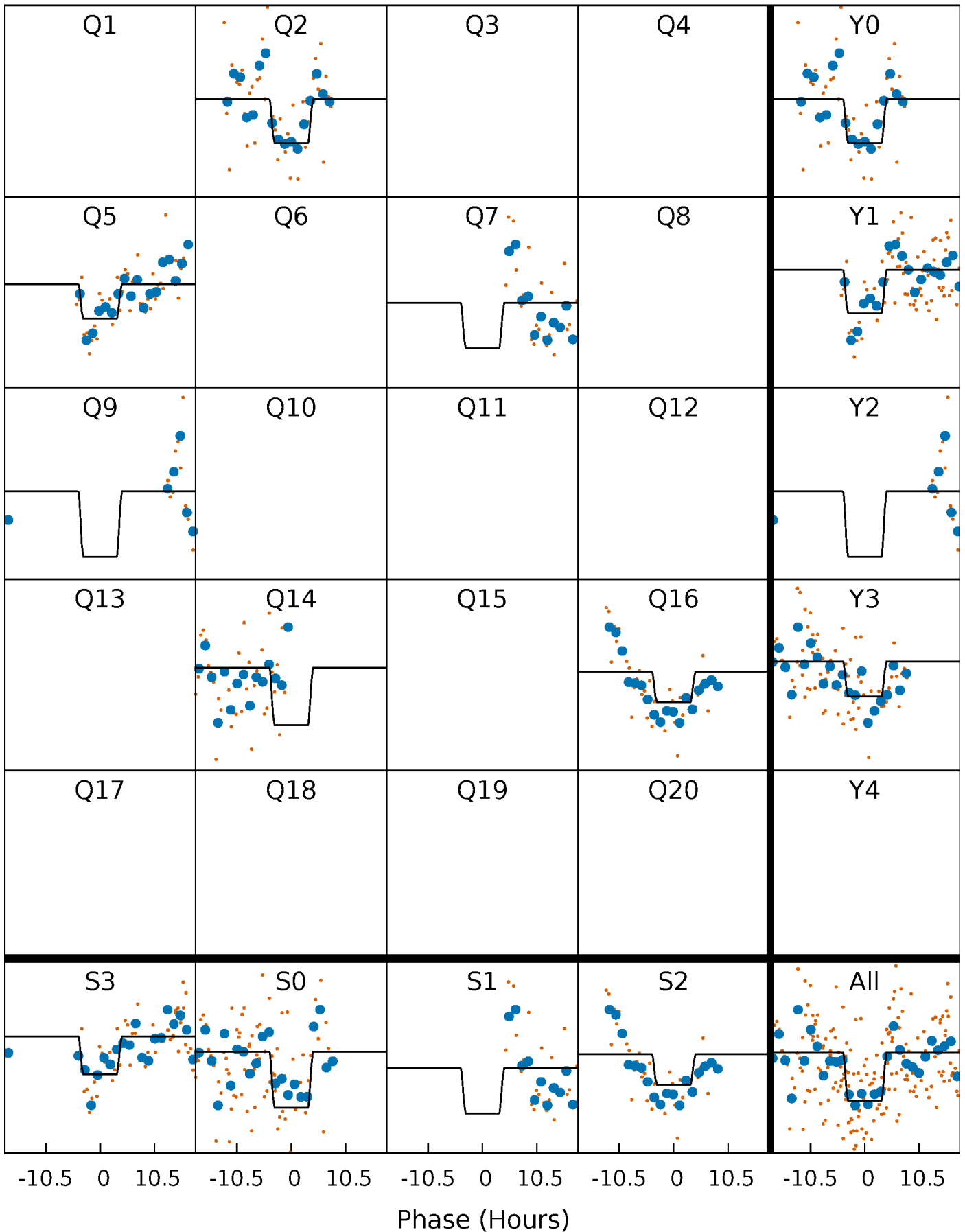
DV Quarter-Phased Transit Curves

TCE 006469690-03 $P=216.121963$ Days $T_0=254.125507$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

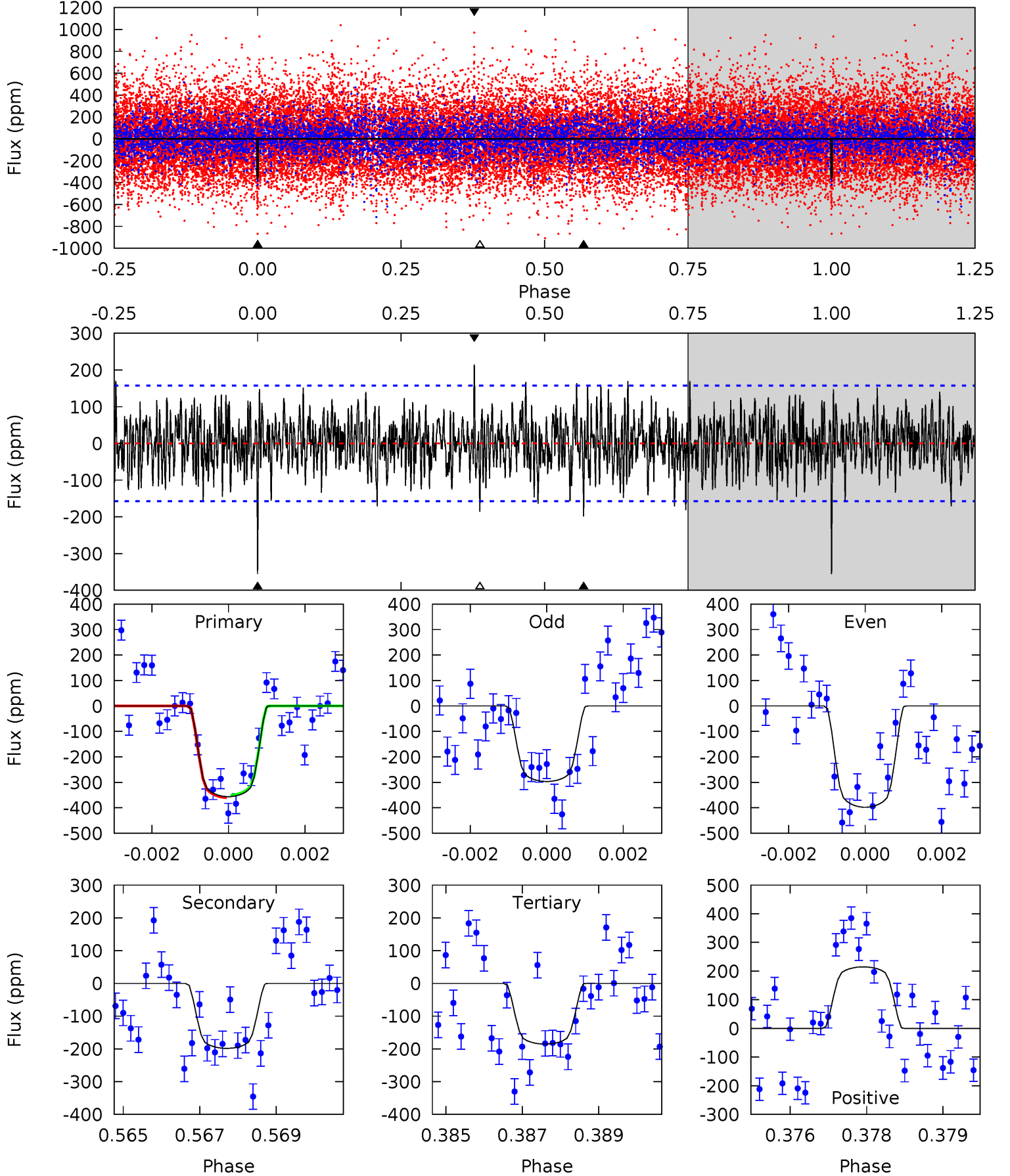
TCE 006469690-03 $P=216.118953$ Days $T_0=254.122686$ (BKJD)



DV Model-Shift Uniqueness Test

006469690-03, P = 216.121963 Days, E = 38.003544 Days

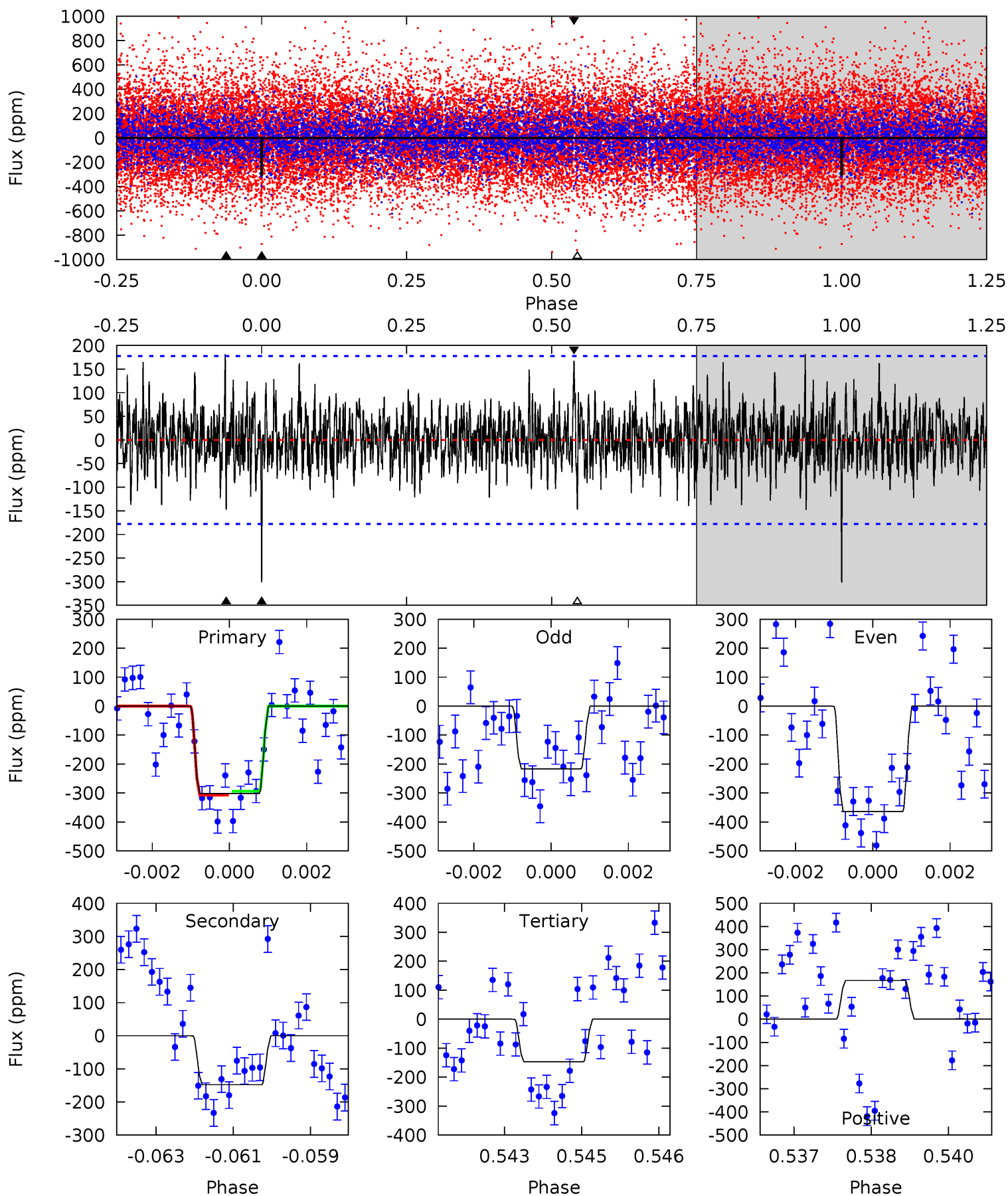
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	6.73	6.29	7.28	5.34	3.12	1.96	5.79	4.80	0.44	-0.55	1.70	1.22	0.38	0.16



Alt Model-Shift Uniqueness Test

006469690-03, $P = 216.118953$ Days, $E = 38.003733$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.11	4.46	4.44	5.05	5.37	3.15	1.38	4.67	4.07	0.02	-0.59	2.21	0.92	0.38	0.19



Stellar Parameters For KIC 006469690

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7703^{+243}_{-324}	$4.175^{+0.144}_{-0.176}$	$-0.480^{+0.250}_{-0.350}$	$1.595^{+0.435}_{-0.316}$	$1.388^{+0.194}_{-0.194}$	$0.482^{+0.404}_{-0.220}$
	+3%/-4%	+3%/-4%	+52%/-73%	+27%/-20%	+14%/-14%	+84%/-46%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 006469690-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-198 ± 29	$3.58^{+0.71}_{-0.54}$	681^{+47}_{-43}	6257^{+478}_{-452}	5176^{+2136}_{-1632}
Alt.	-148 ± 33	$3.11^{+0.58}_{-0.53}$	677^{+50}_{-45}	6188^{+664}_{-547}	5036^{+2676}_{-1727}

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

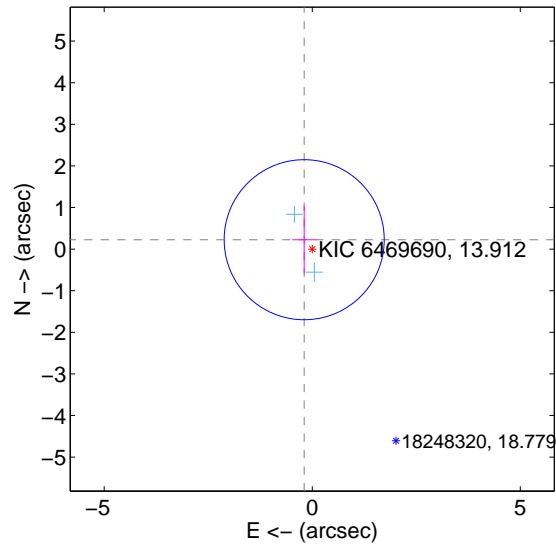
Supplemental centroid analysis for 006469690-03. Kepler magnitude: 13.91. Transit SNR 6.98

There are 2 quarters with good PRF difference image offsets

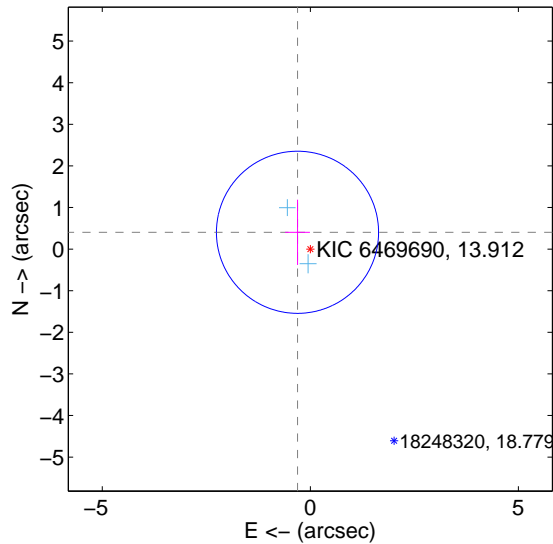
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.297 ± 0.641	0.46	0.193 ± 0.287	0.225 ± 0.808
PRF-fit source offset from KIC position	0.508 ± 0.650	0.78	0.308 ± 0.299	0.404 ± 0.784
photometric centroid source offset	0.67 ± 1.39	0.48	0.54 ± 1.33	0.41 ± 1.49

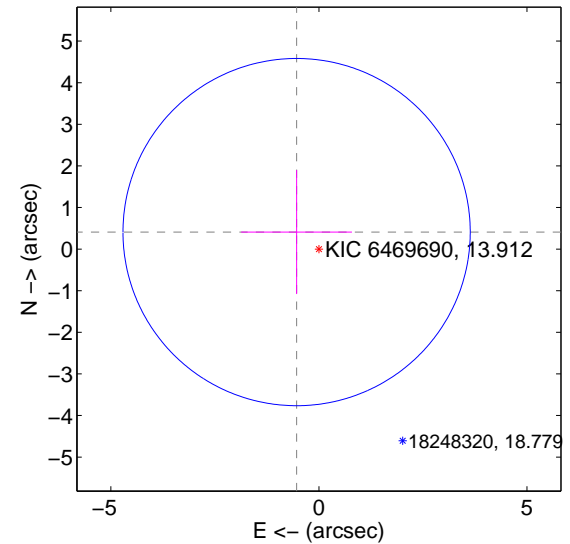
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

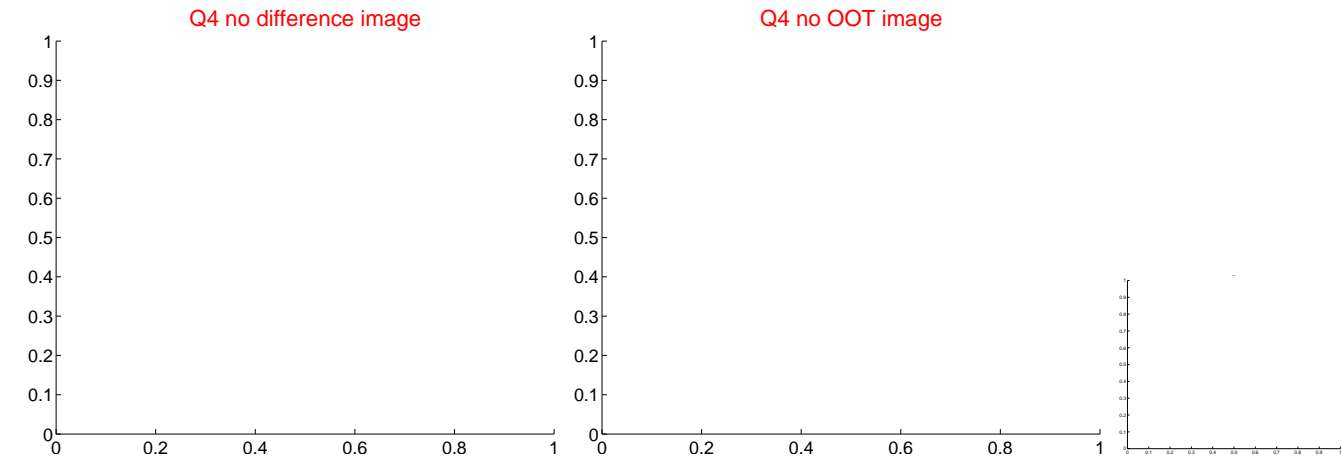
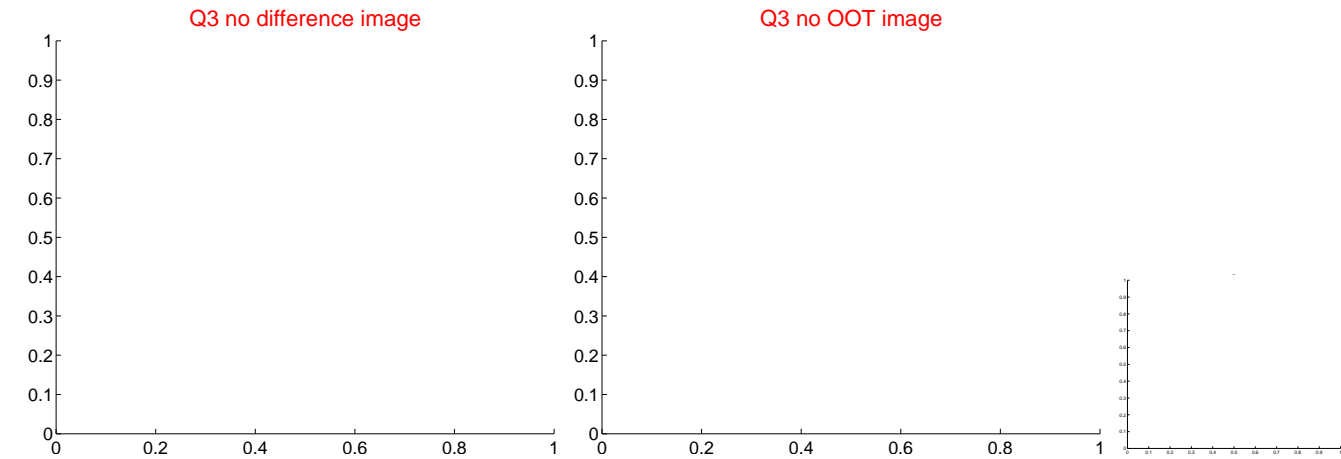
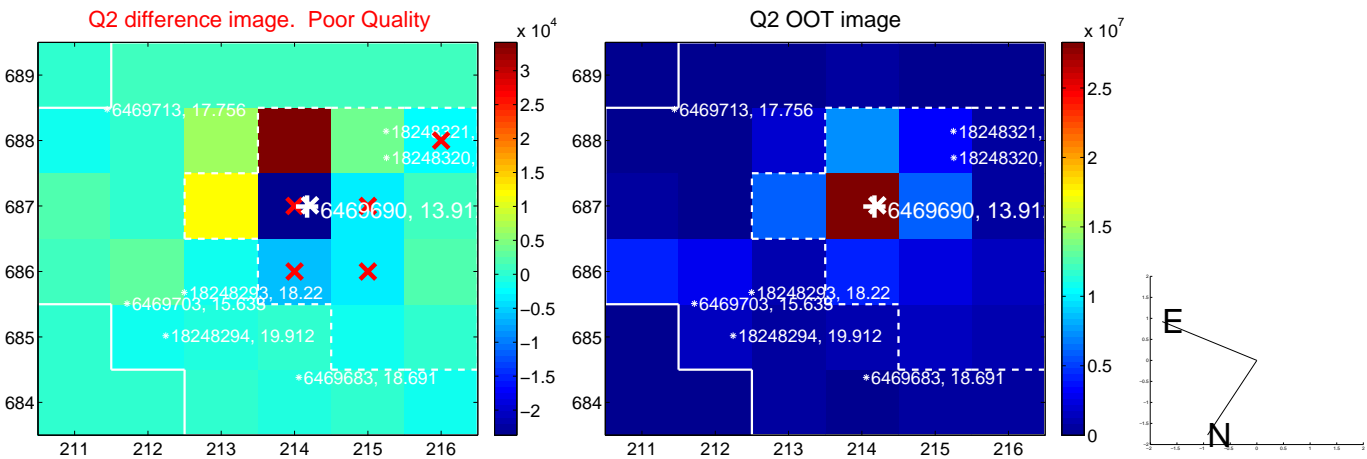
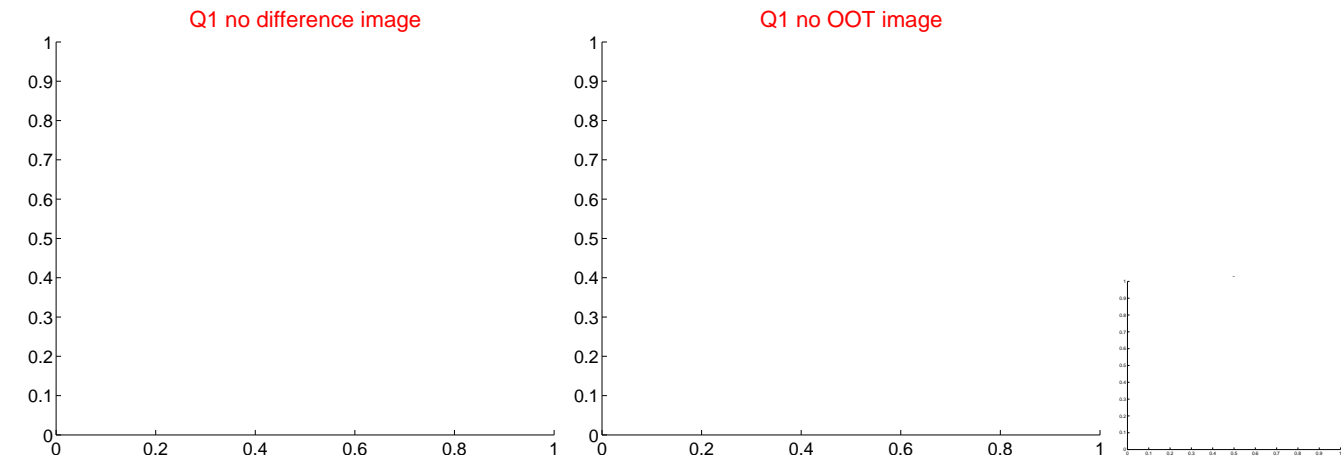


offset from photometric centroids

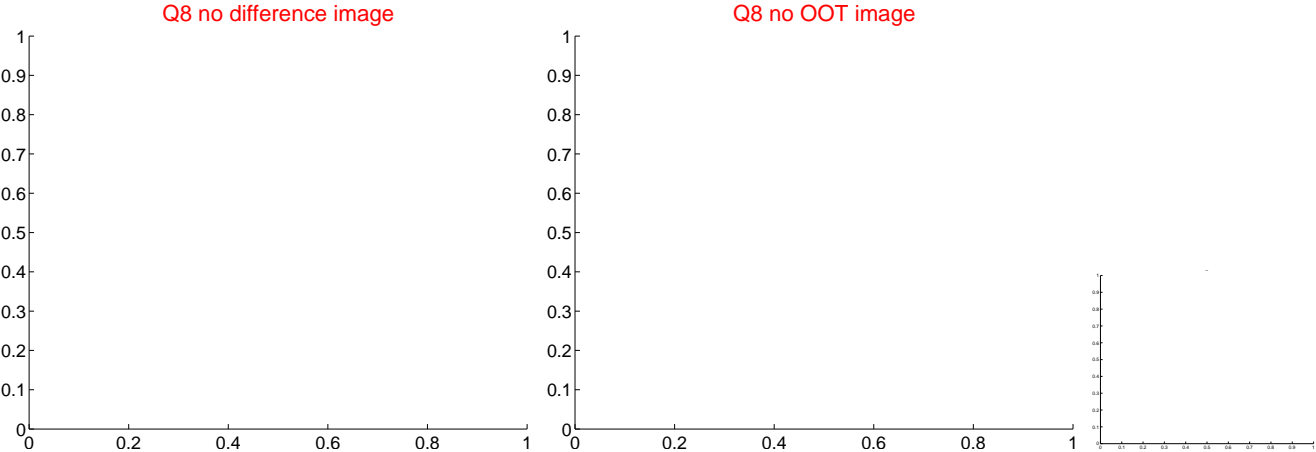
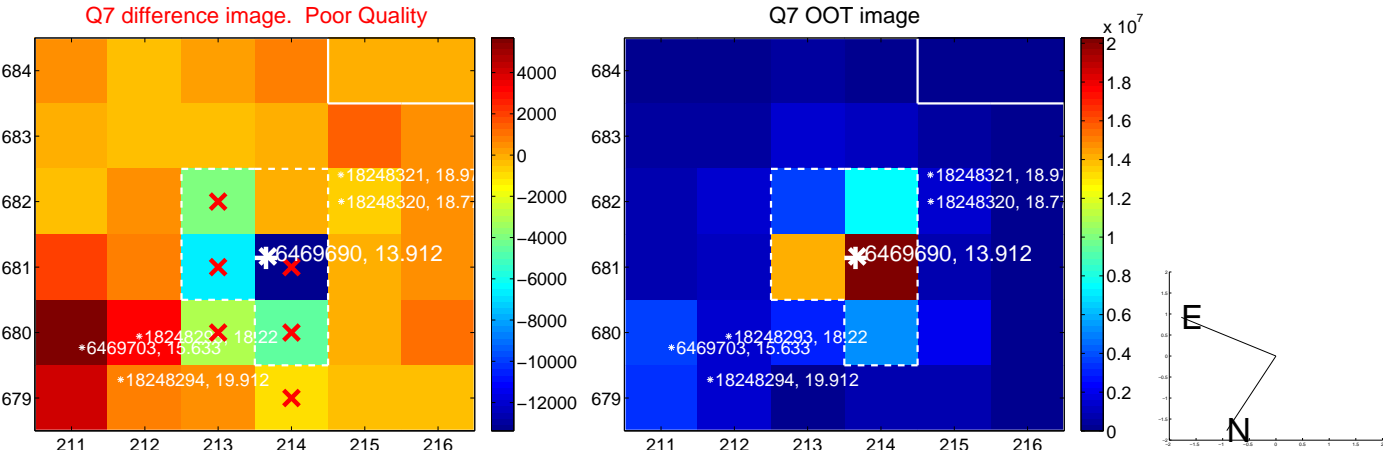
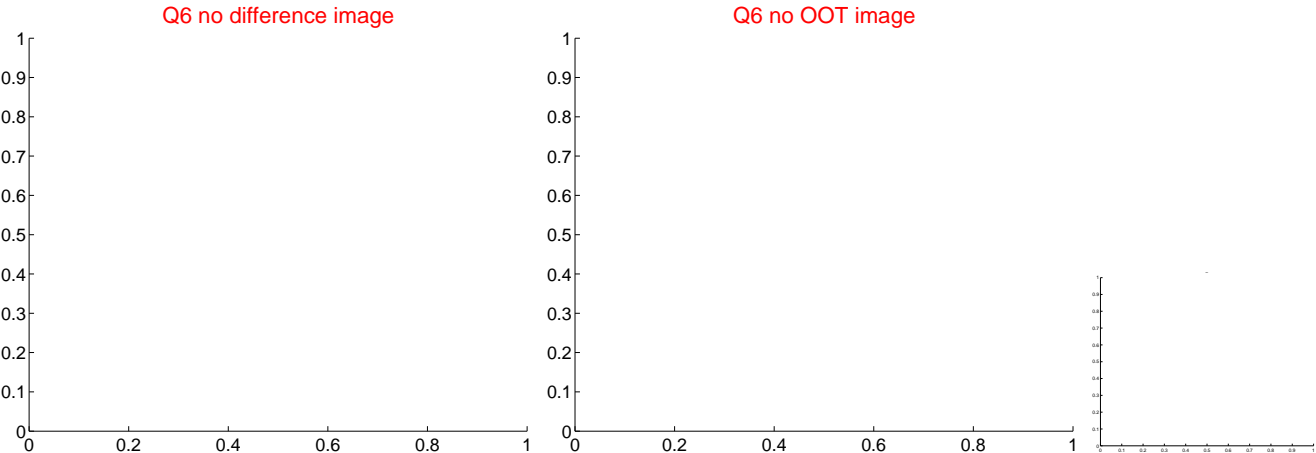
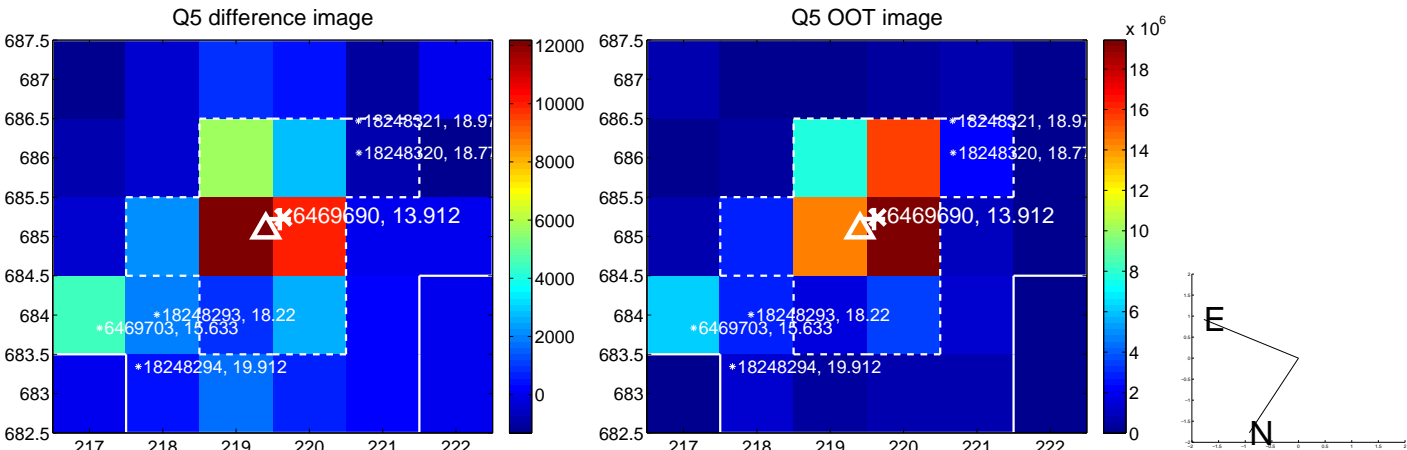


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

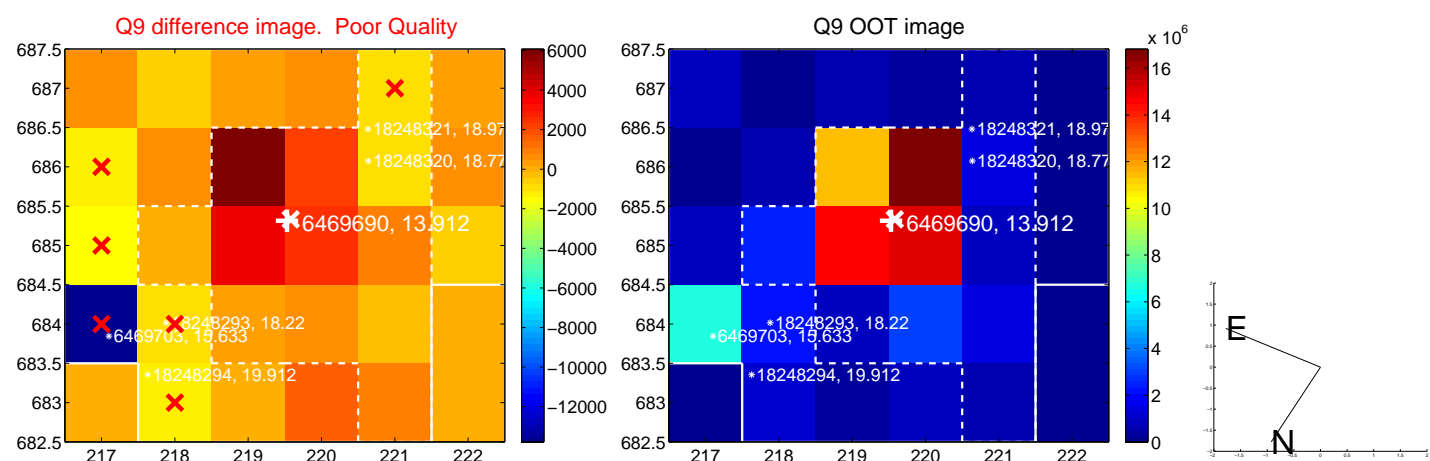
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: 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.

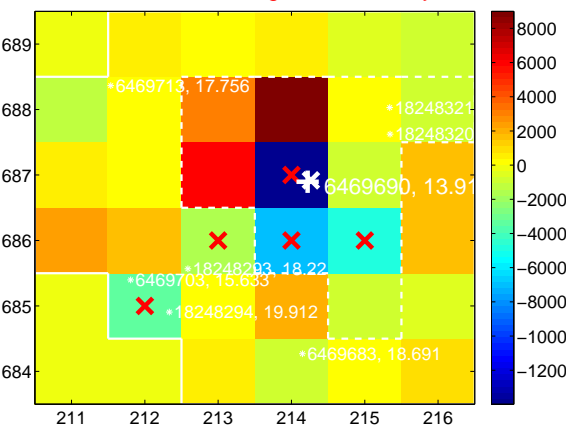
Q13 no difference image



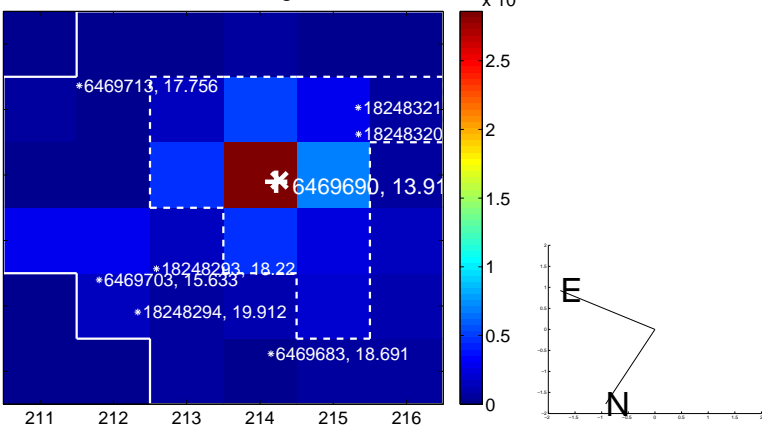
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



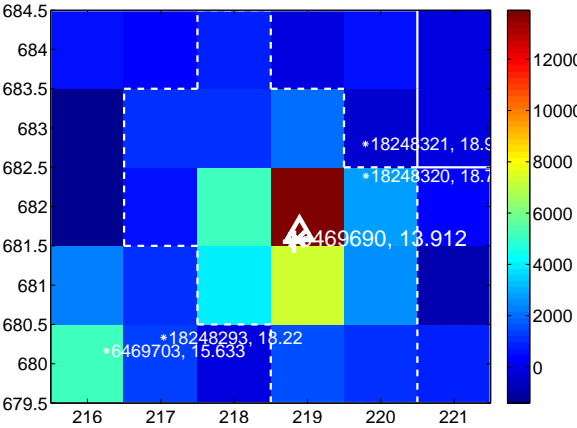
Q15 no difference image



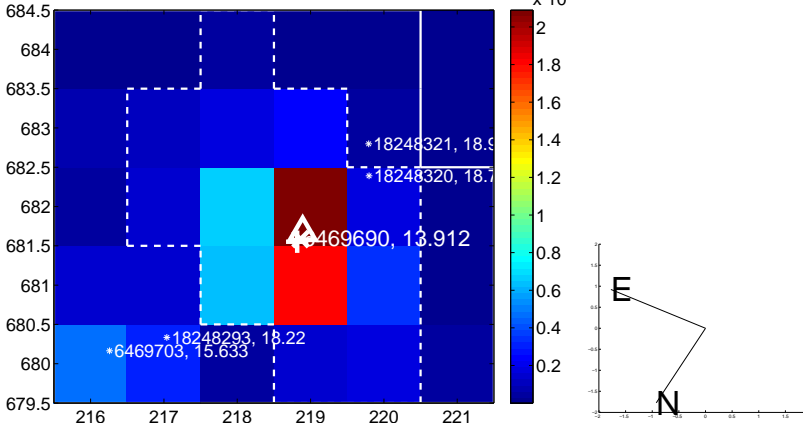
Q15 no OOT image



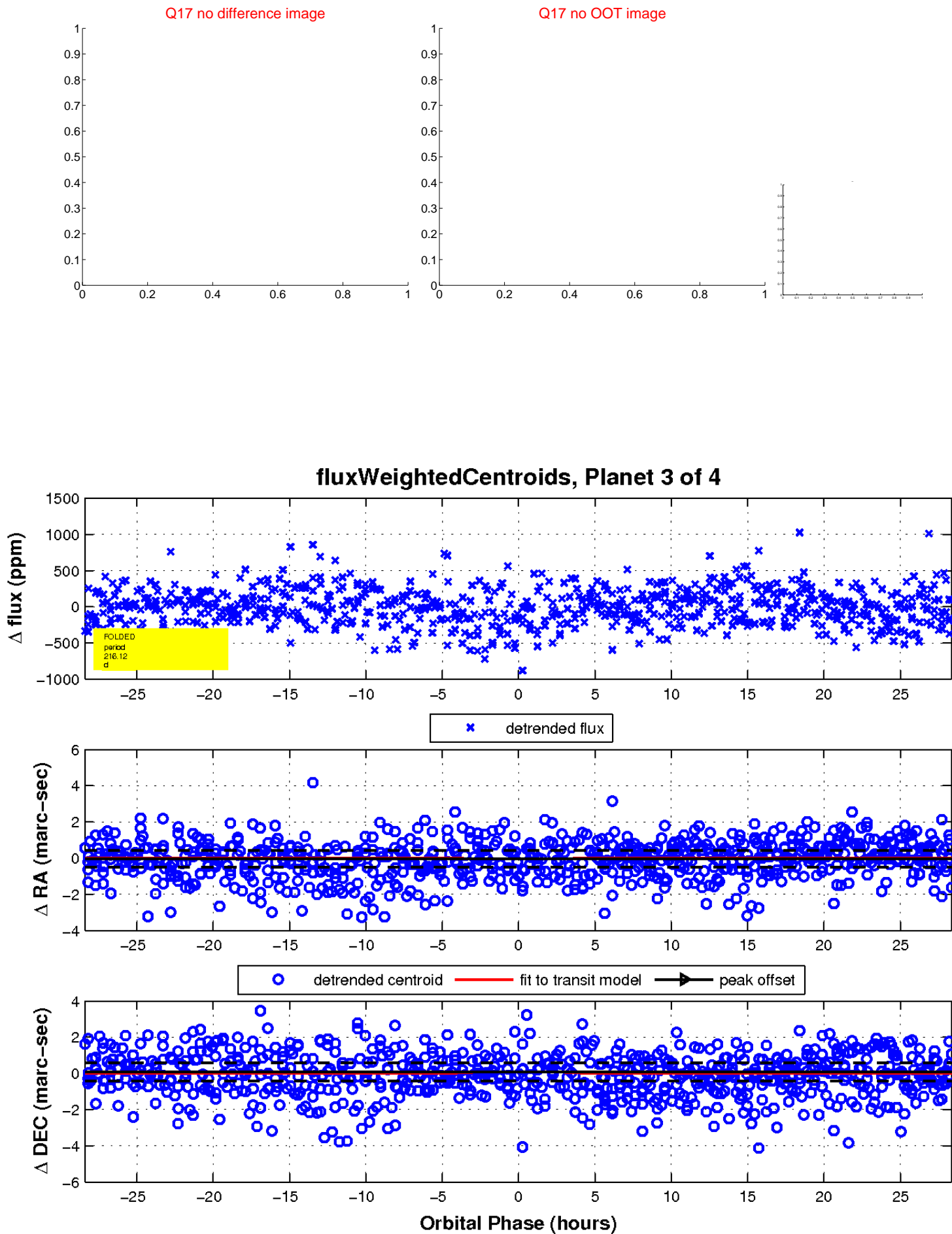
Q16 difference image



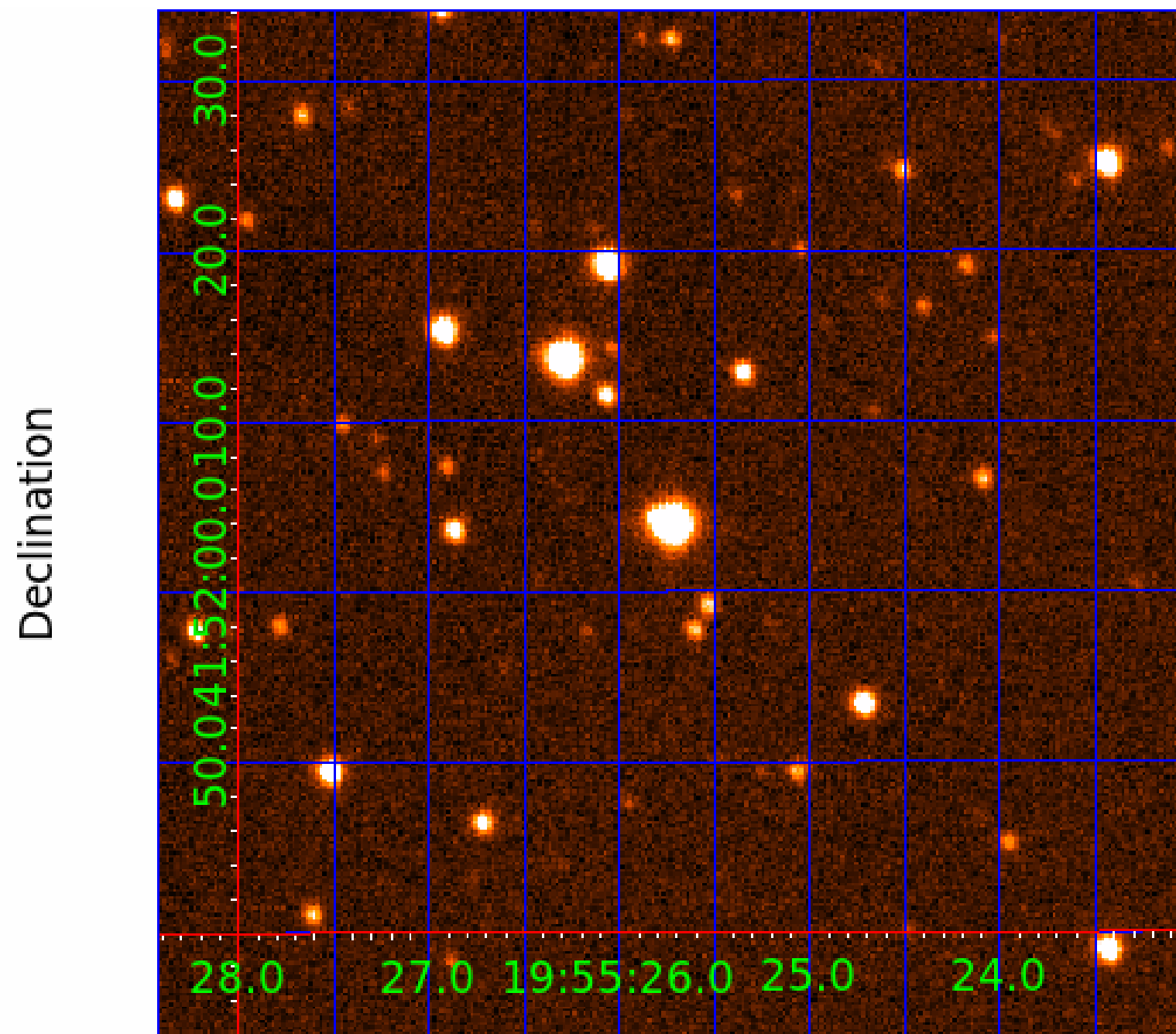
Q16 OOT image



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



UKIRT Image



KIC 006469690

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})
006469690-01	OBS	No	2.186723	132.649674	31.7	10.206	8.0	8.2	1.59	7703	0.98	5929.02
006469690-02	OBS	No	478.752240	437.787976	434.6	6.574	8.4	8.3	1.59	7703	3.61	4.49
006469690-03	OBS	No	216.121963	254.125507	334.0	9.471	7.4	7.0	1.59	7703	3.57	12.97
006469690-04	OBS	No	97.688519	164.371970	476.0	2.217	7.1	7.6	1.59	7703	4.03	37.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006469690-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006469690-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS
006469690-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
006469690-04	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT

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

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

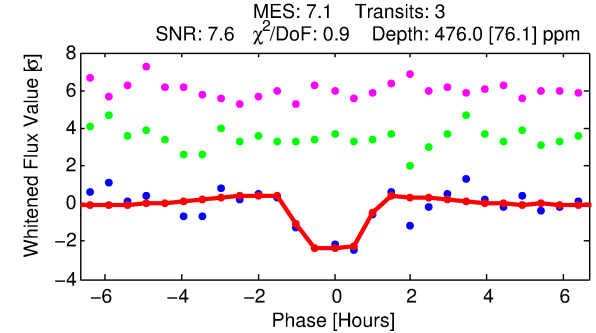
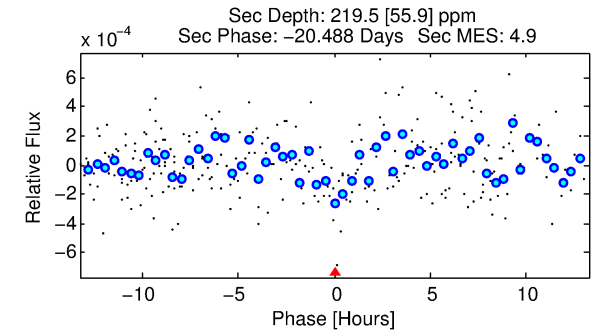
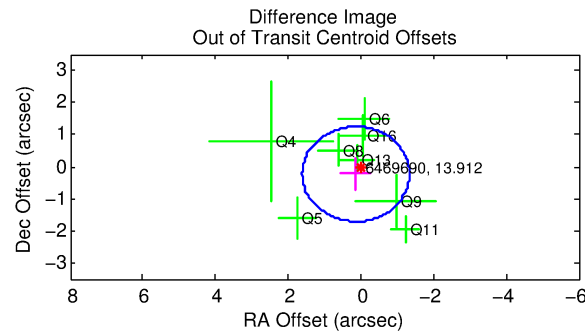
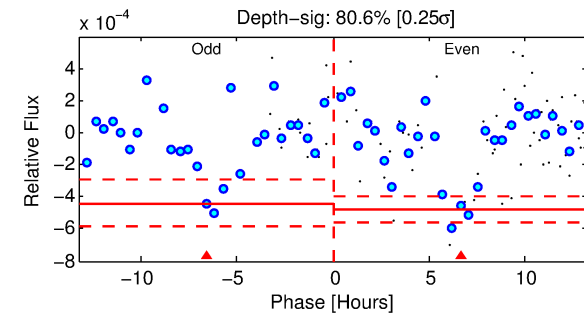
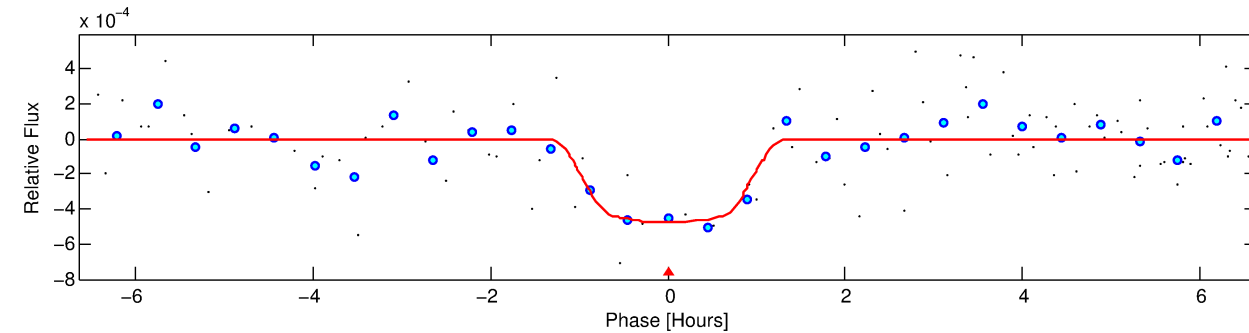
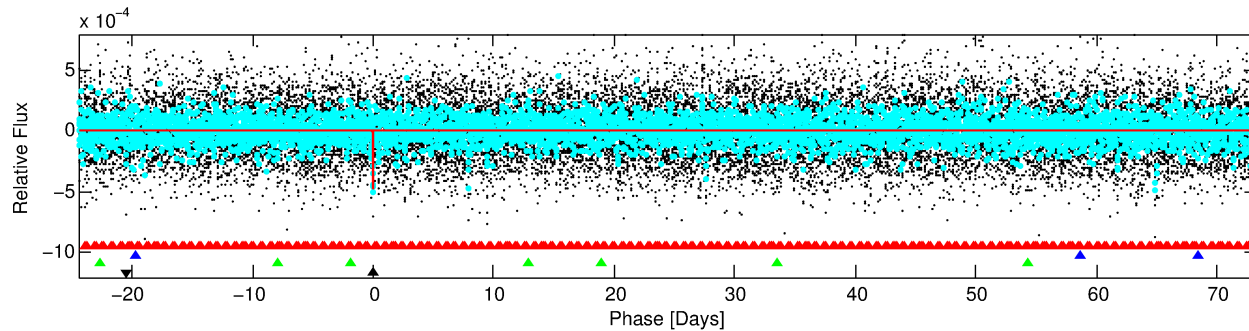
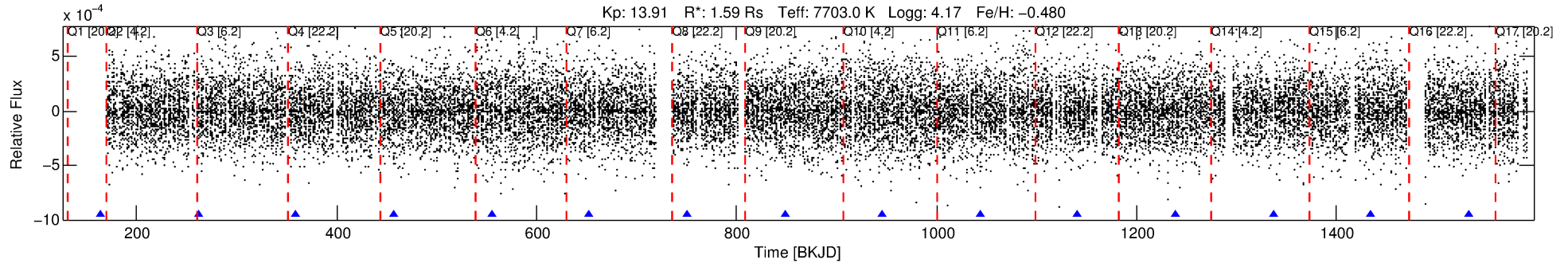
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006469690-04

No Significant Match Found

DV One-Page Summary

KIC: 6469690 Candidate: 4 of 4 Period: 97.689 d



DV Fit Results:

Period = 97.68852 [0.00150] d
Epoch = 164.3720 [0.0104] BKJD
Rp/R* = 0.0231 [0.0102]
a/R* = 164.46 [448.40]
b = 0.90 [0.59]
Seff = 37.40 [13.71]
Teq = 631 [58] K
Rp = 4.03 [2.09] Re
a = 0.4632 [0.1049] AU
Ag = 1597.13 [1558.36] [1.02 σ]
Teffp = 6164 [1441] K [3.84 σ]

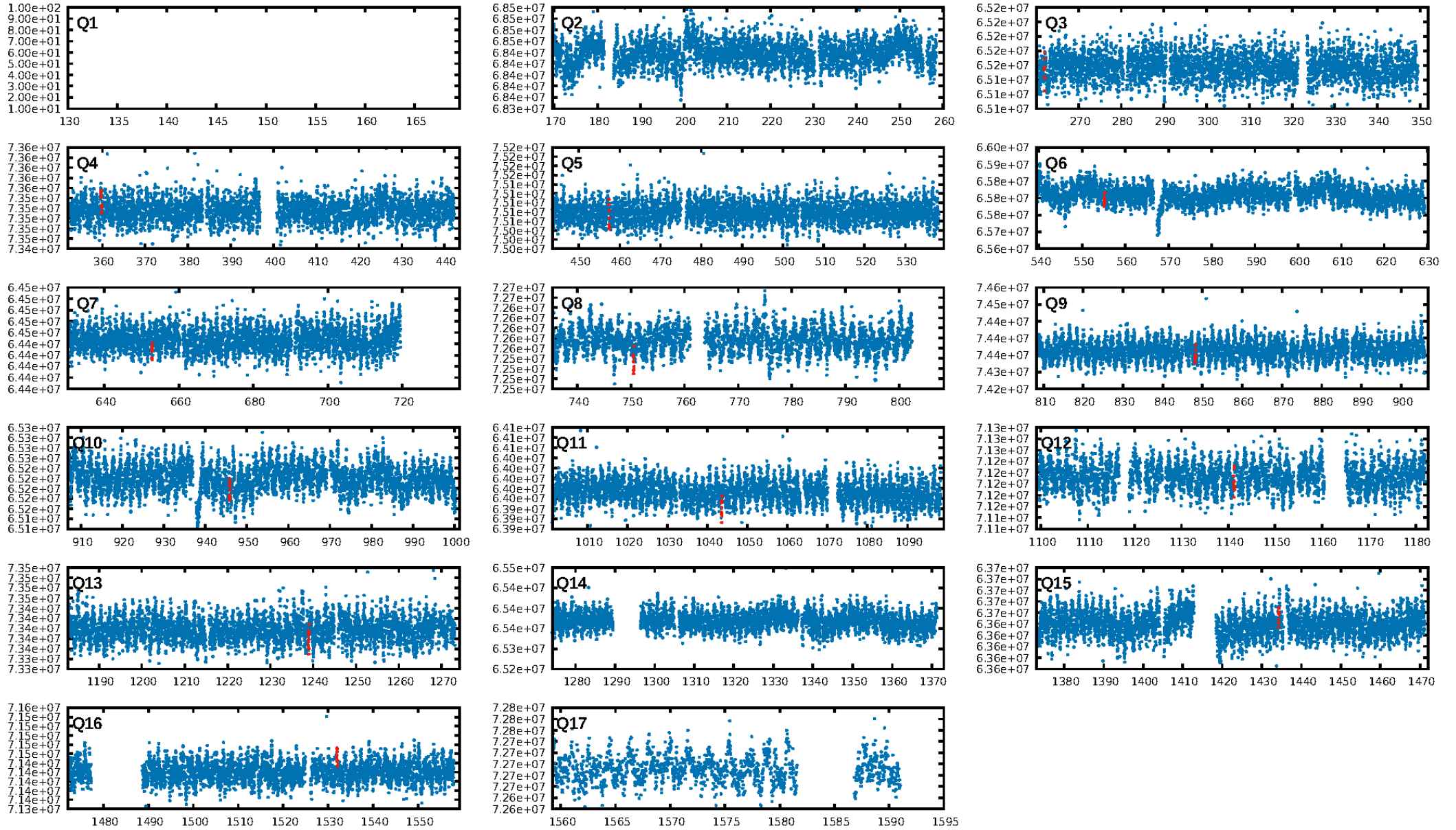
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [219.46 σ]
LongPeriod-sig: 100.0% [292.23 σ]
ModelChiSquare2-sig: 88.0%
ModelChiSquareGof-sig: 98.1%
Bootstrap-pfa: 8.01e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.974
Centroid-sig: 45.5%
Centroid-so: 1.192 arcsec [1.40 σ]
OotOffset-rm: 0.272 arcsec [0.55 σ]
KicOffset-rm: 0.302 arcsec [0.69 σ]
OotOffset-st: 1/1/3/3 [8]
KicOffset-st: 1/1/3/3 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.46 [6/13]

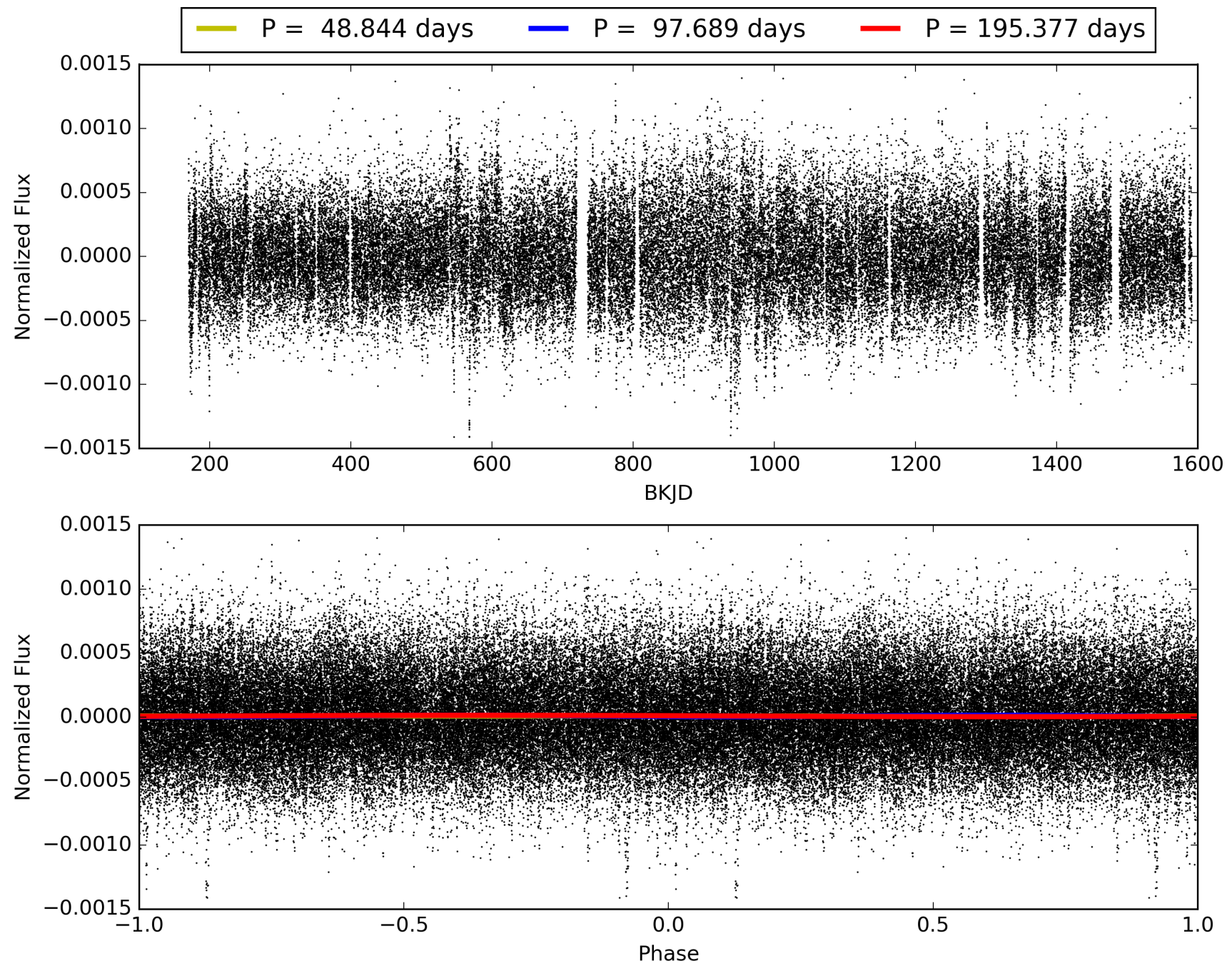
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 10:03:39 Z

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

TCE 006469690-04, PDC Light Curves

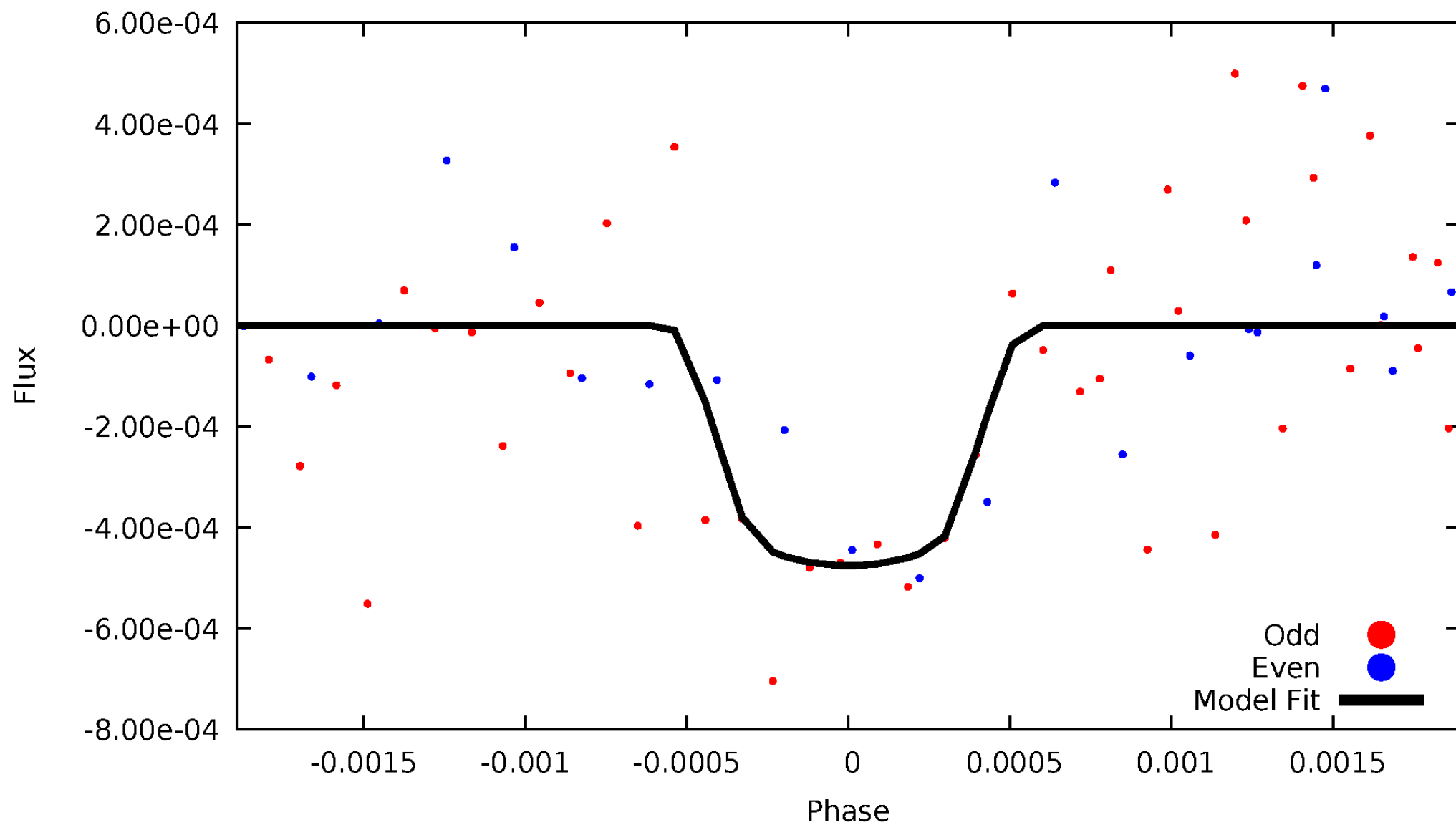


TCE 006469690-04



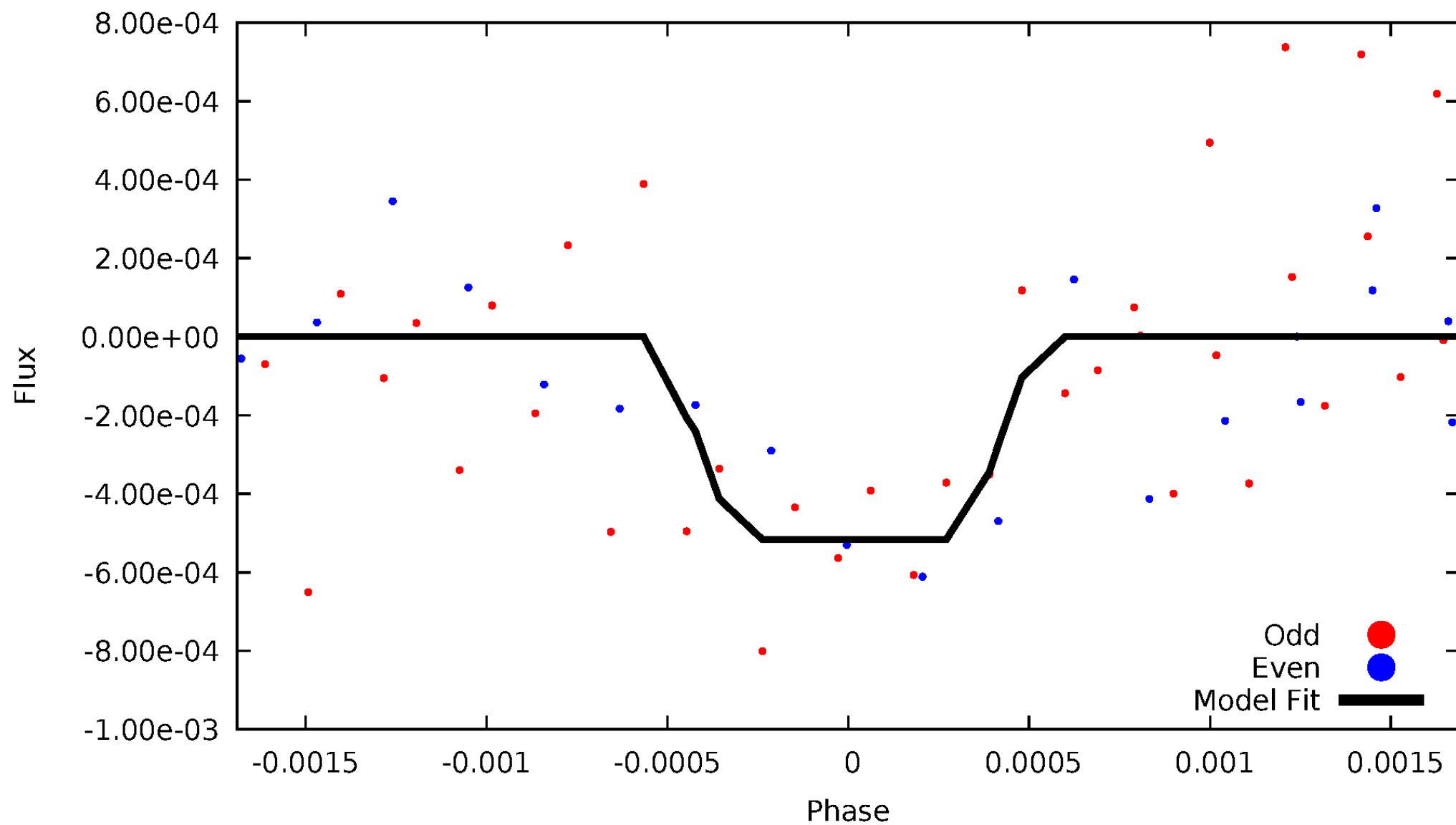
DV Odd/Even

TCE 006469690-04



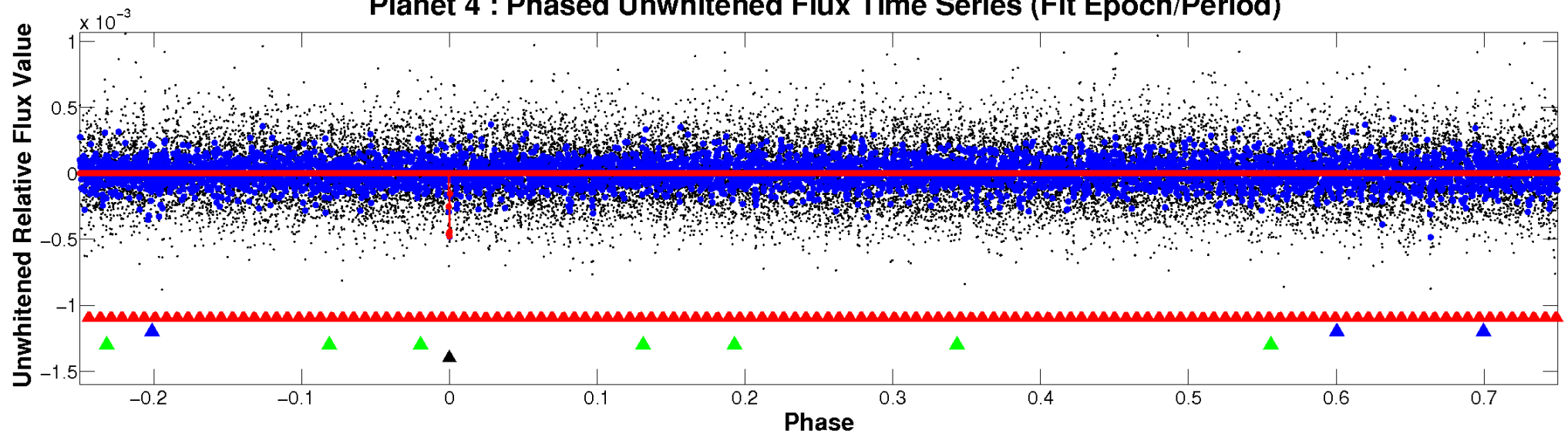
ALT Odd/Even

TCE 006469690-04

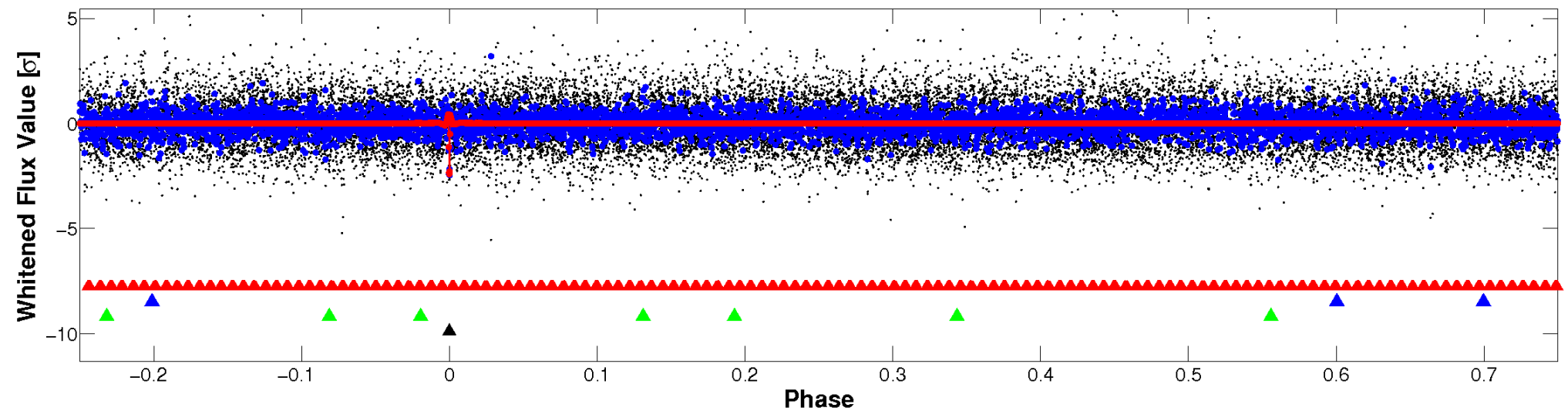


Non-Whitened Vs. Whitened Light Curve

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

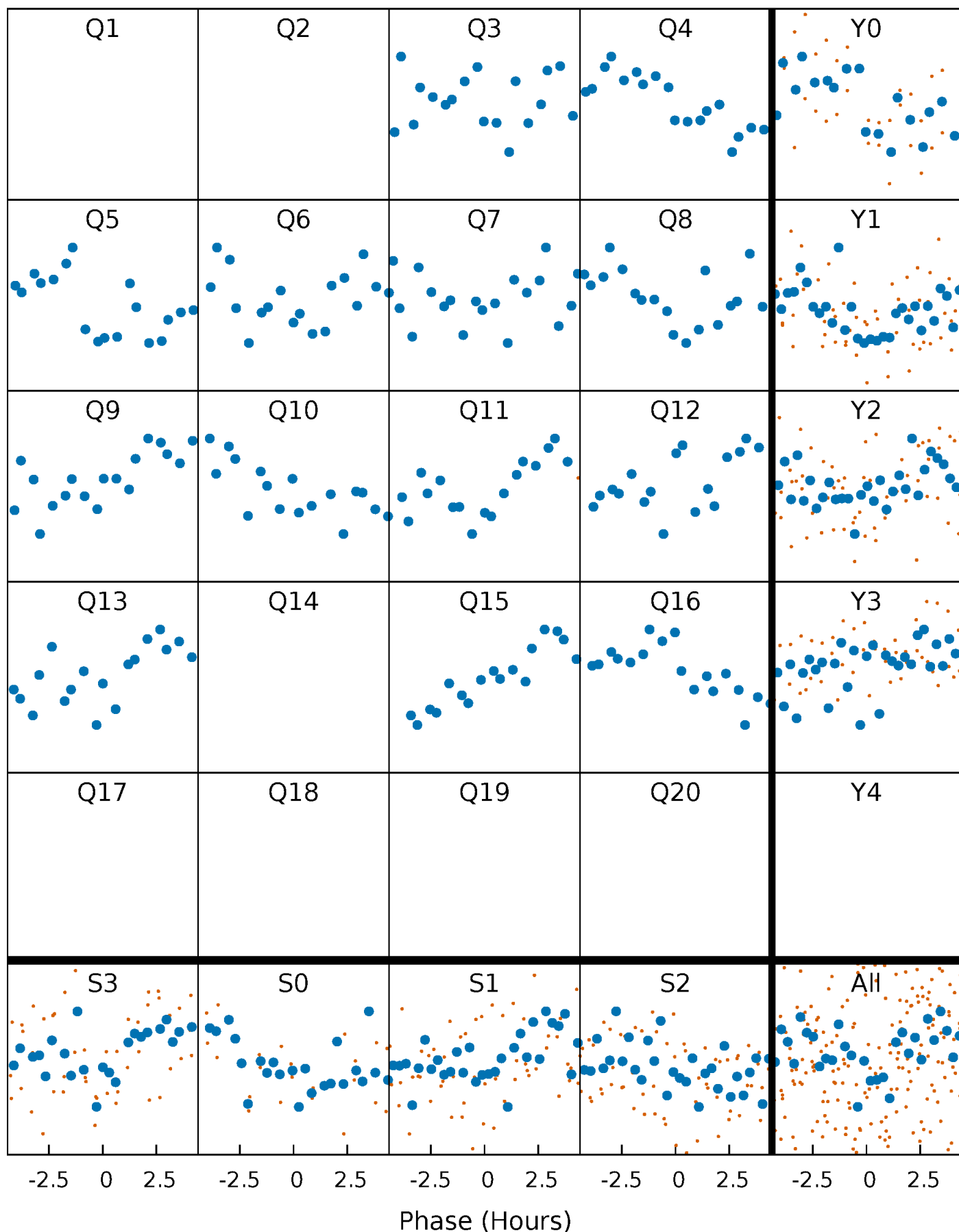


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



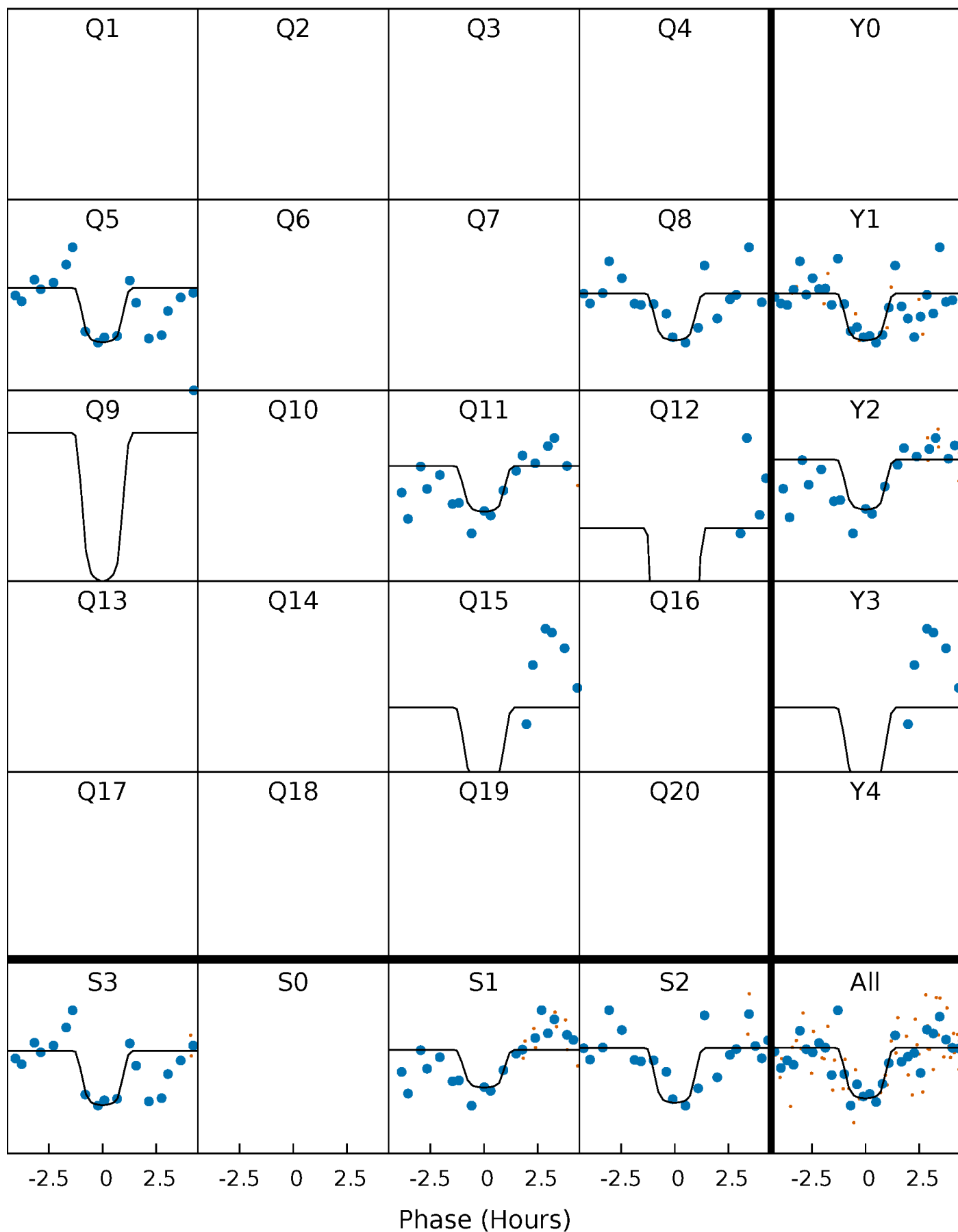
PDC Quarter-Phased Transit Curves

TCE 006469690-04 P= 97.688519 Days $T_0=164.371970$ (BKJD)



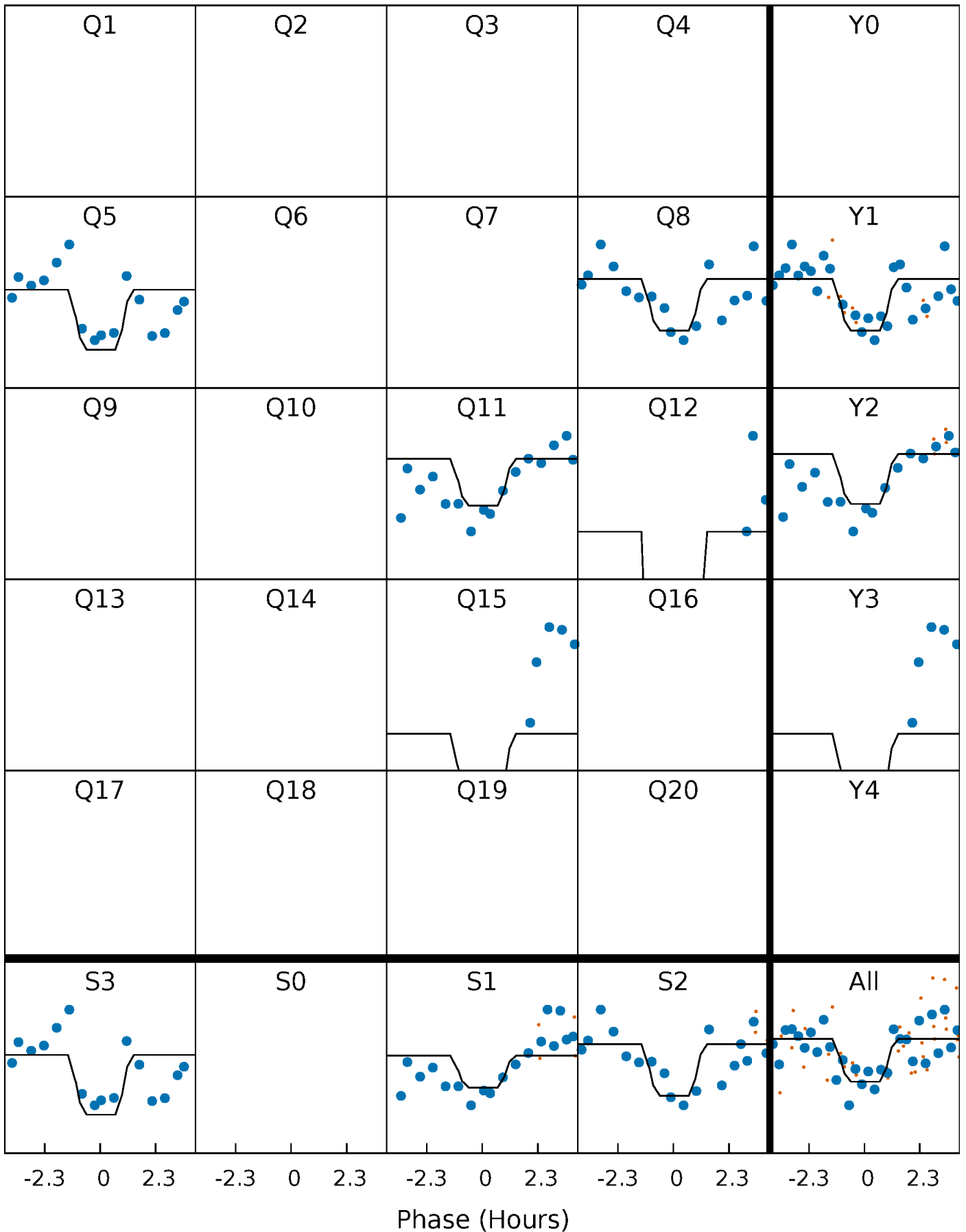
DV Quarter-Phased Transit Curves

TCE 006469690-04 P= 97.688519 Days $T_0=164.371970$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

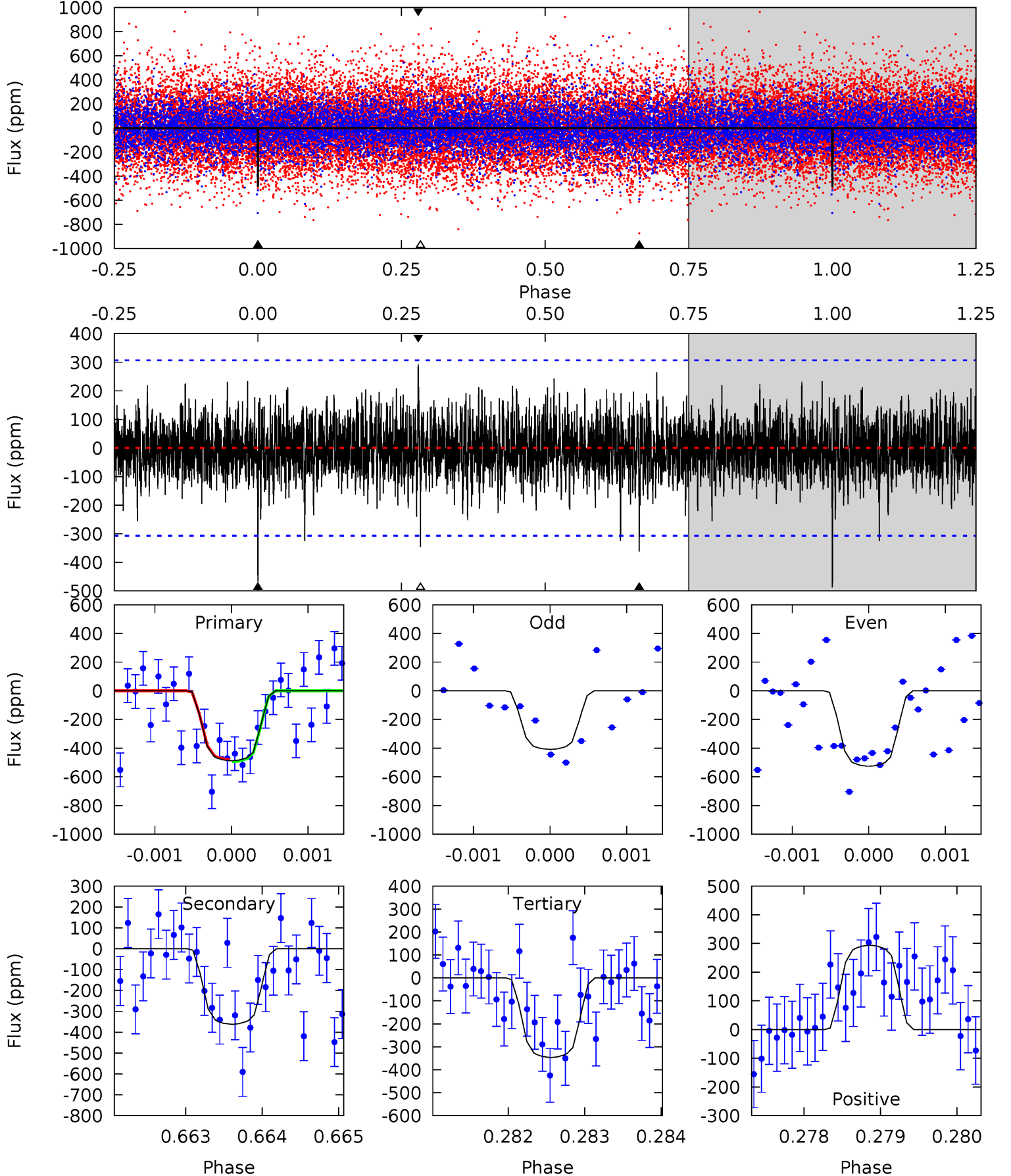
TCE 006469690-04 P= 97.688137 Days $T_0=164.375829$ (BKJD)



DV Model-Shift Uniqueness Test

006469690-04, P = 97.688519 Days, E = 164.371970 Days

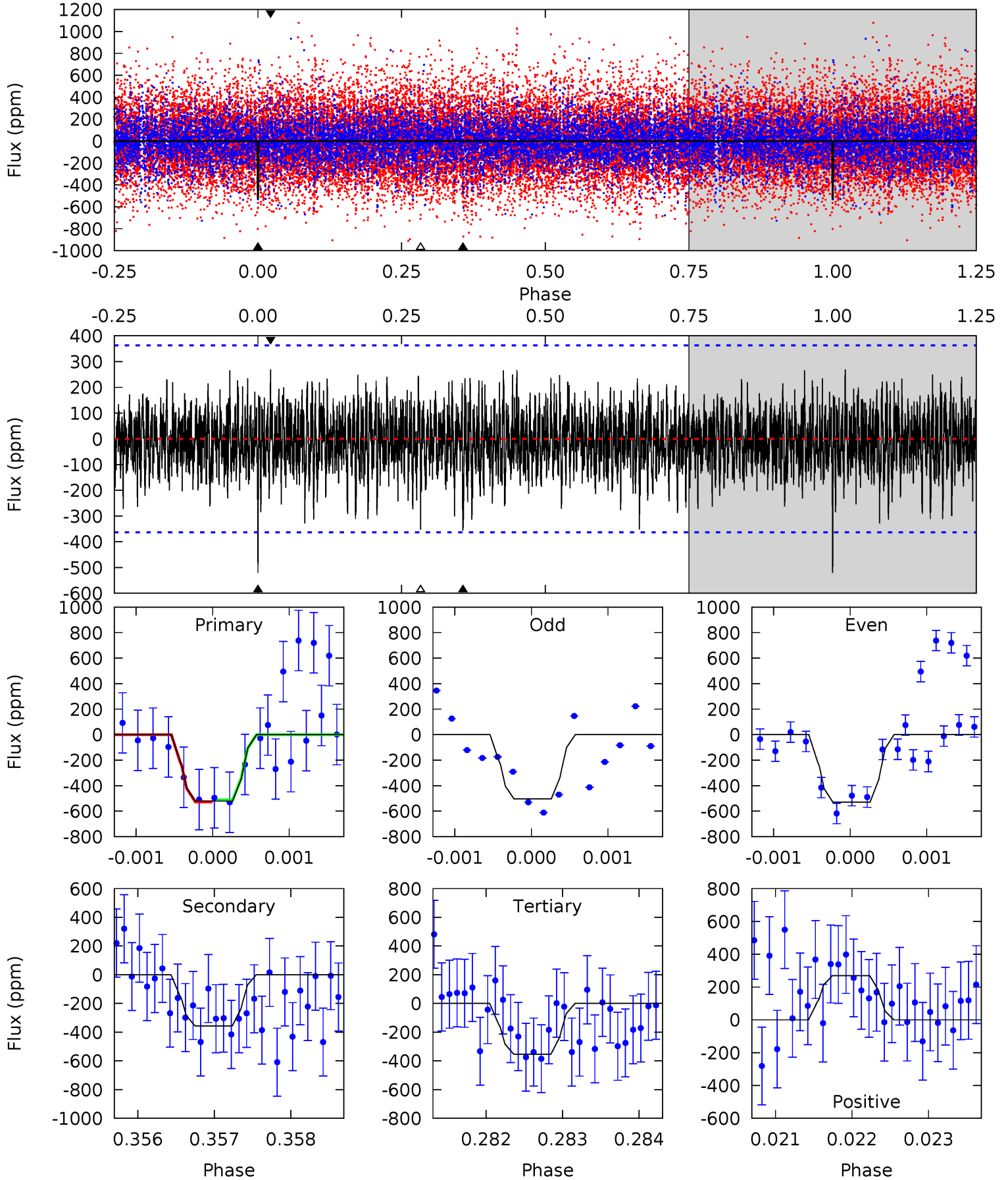
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.65	6.42	6.15	5.21	5.44	3.28	1.30	2.50	3.44	0.27	1.21	1.02	1.05	0.38	0.13



Alt Model-Shift Uniqueness Test

006469690-04, P = 97.688137 Days, E = 164.375829 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.81	5.34	5.30	4.04	5.44	3.28	1.37	2.51	3.76	0.04	1.30	0.18	1.03	0.34	0.11



Stellar Parameters For KIC 006469690

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7703^{+243}_{-324}	$4.175^{+0.144}_{-0.176}$	$-0.480^{+0.250}_{-0.350}$	$1.595^{+0.435}_{-0.316}$	$1.388^{+0.194}_{-0.194}$	$0.482^{+0.404}_{-0.220}$
	+3%/-4%	+3%/-4%	+52%/-73%	+27%/-20%	+14%/-14%	+84%/-46%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 006469690-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-362 ± 56	$4.06^{+1.95}_{-1.68}$	881^{+64}_{-55}	6790^{+2623}_{-1113}	2496^{+4717}_{-1318}
Alt.	-356 ± 67	$4.12^{+1.75}_{-1.74}$	883^{+57}_{-57}	6728^{+2799}_{-1059}	2404^{+5315}_{-1221}

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

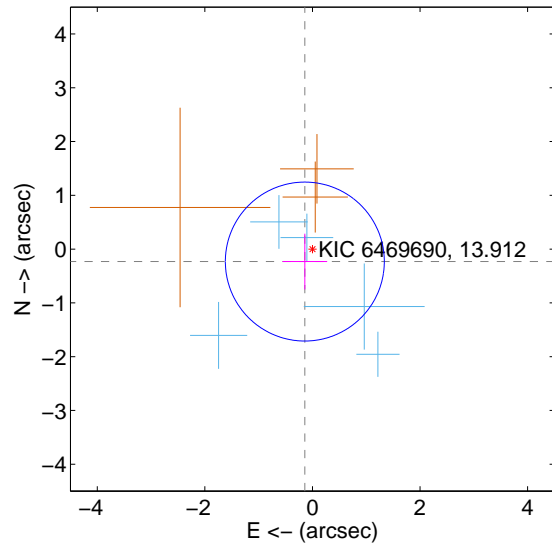
Supplemental centroid analysis for 006469690-04. Kepler magnitude: 13.91. Transit SNR 7.60

There are 5 quarters with good PRF difference image offsets

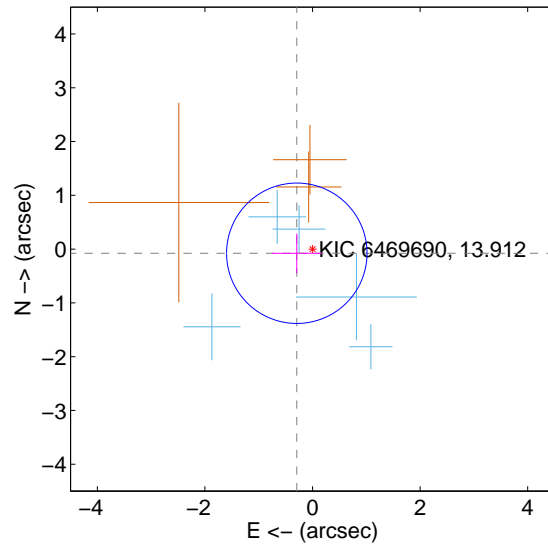
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.272 ± 0.493	0.55	0.142 ± 0.414	-0.232 ± 0.519
PRF-fit source offset from KIC position	0.302 ± 0.435	0.69	0.292 ± 0.457	-0.077 ± 0.369
photometric centroid source offset	1.19 ± 0.85	1.40	0.34 ± 0.88	1.14 ± 0.85

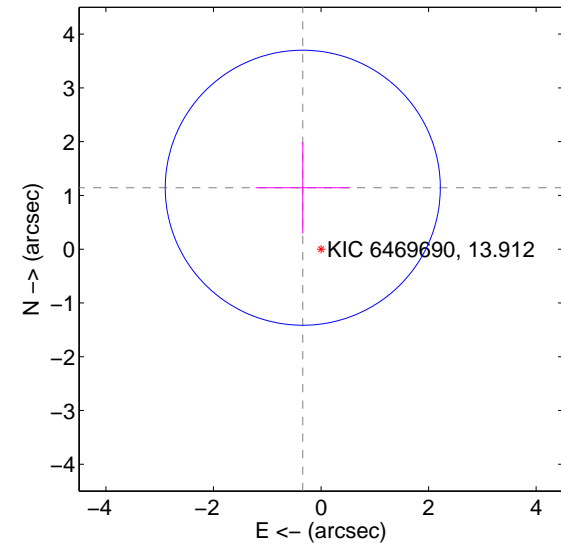
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

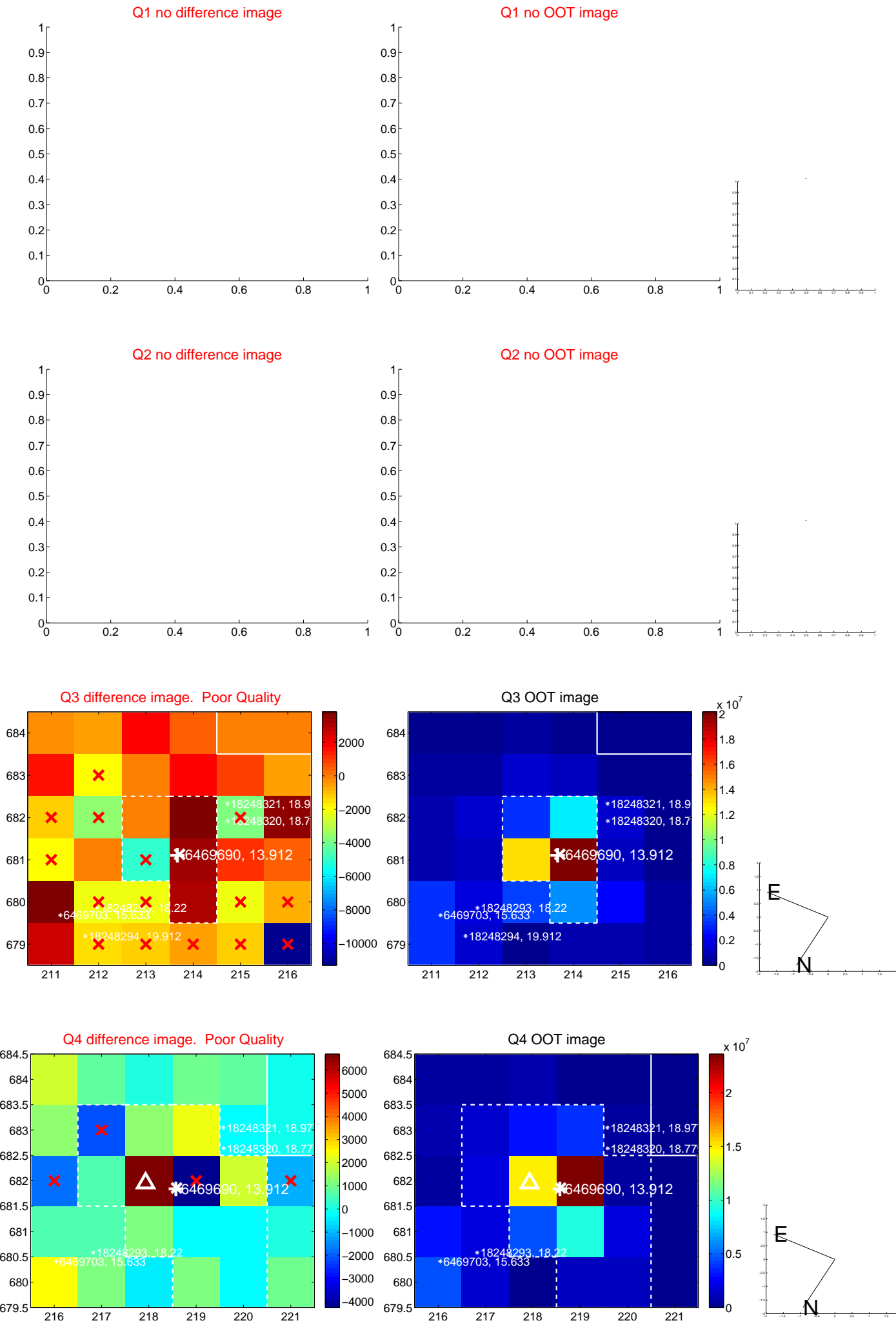


offset from photometric centroids

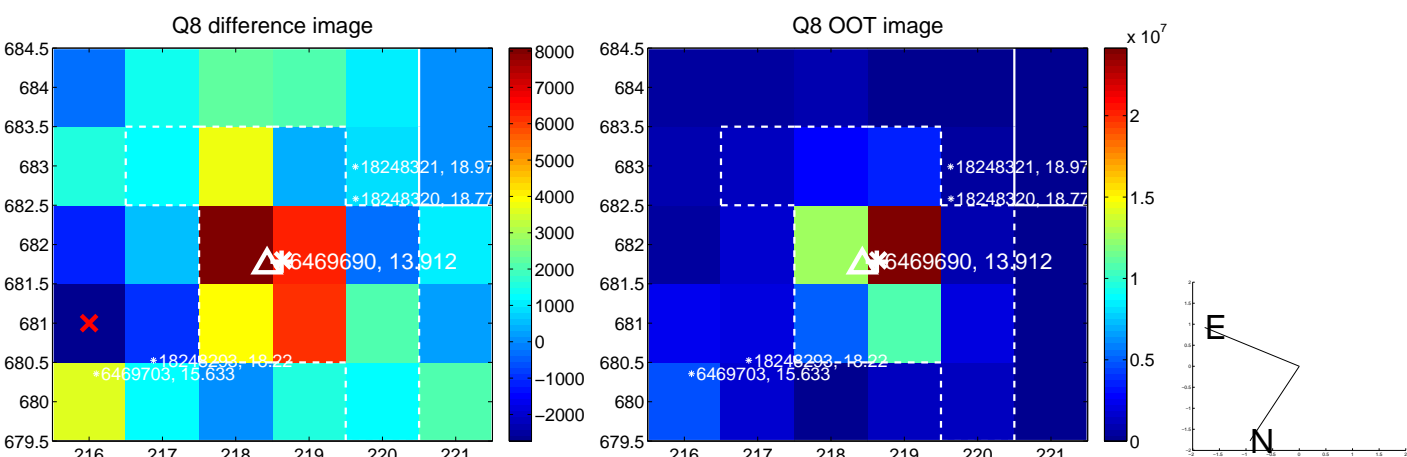
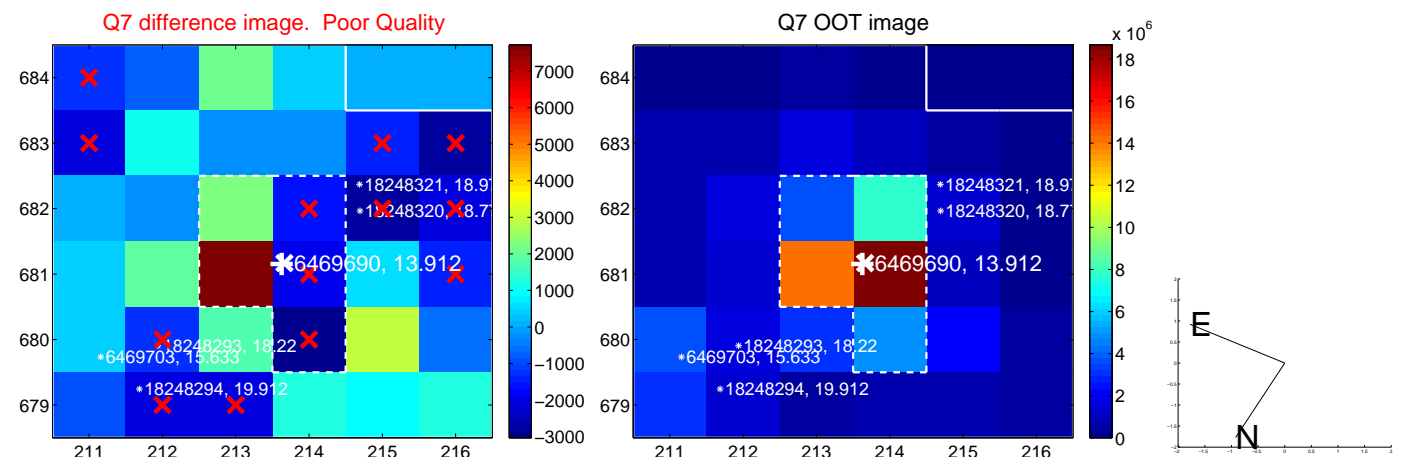
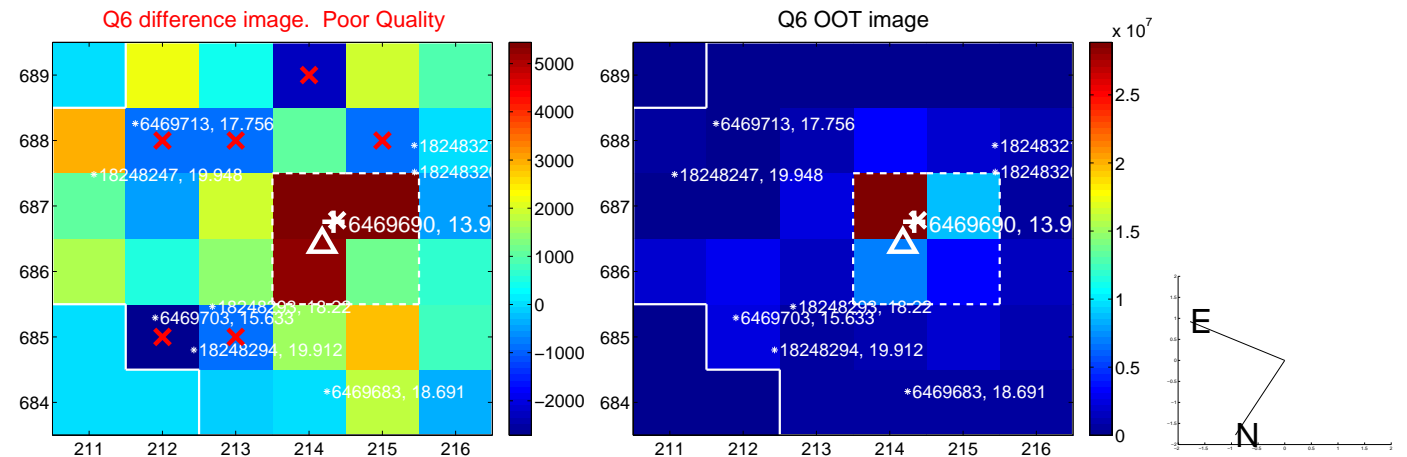
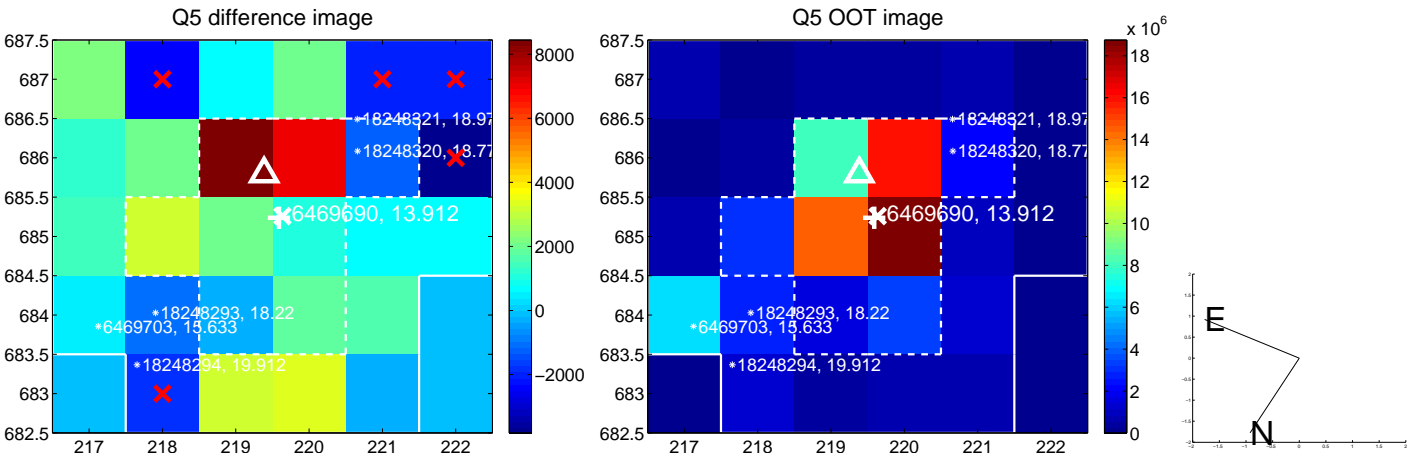


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

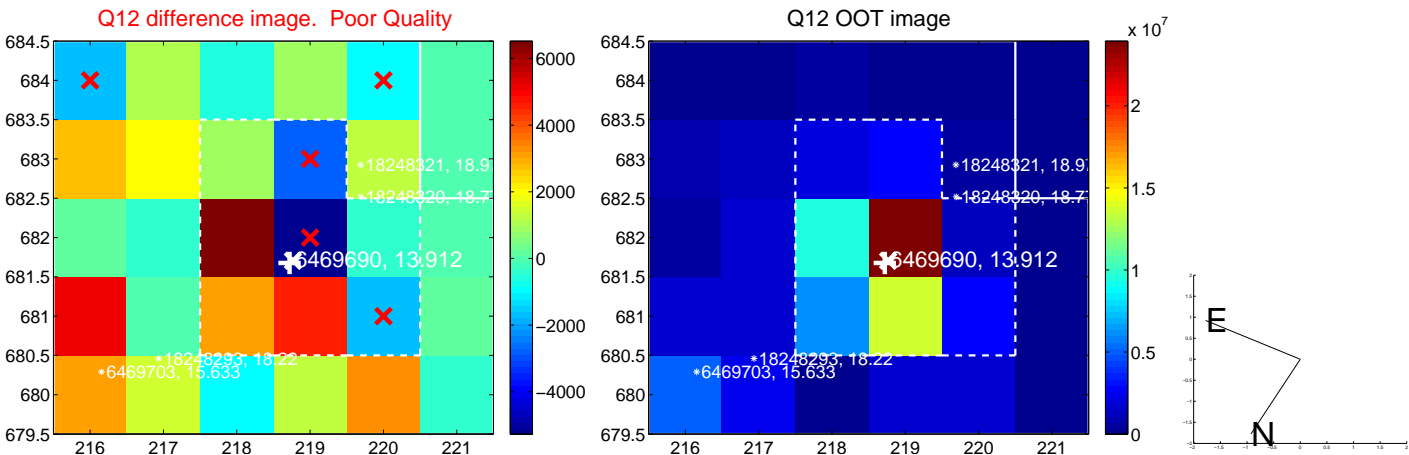
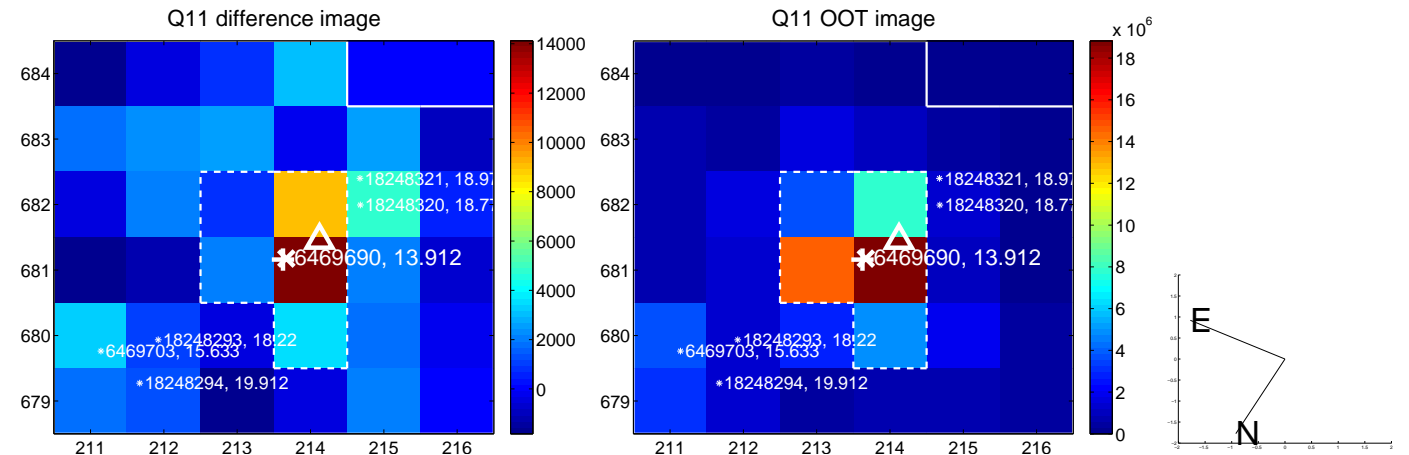
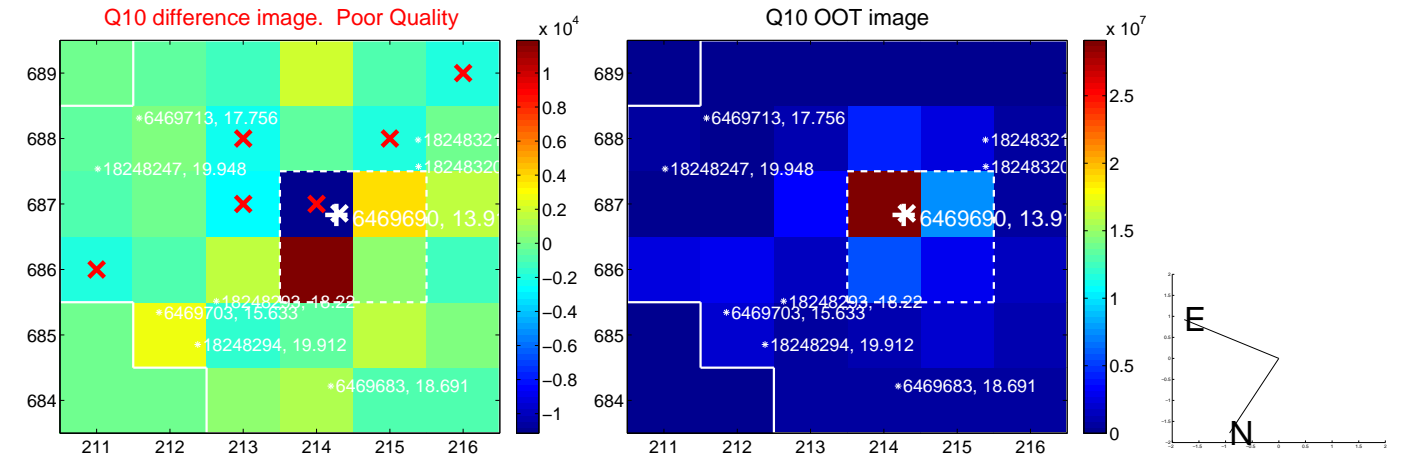
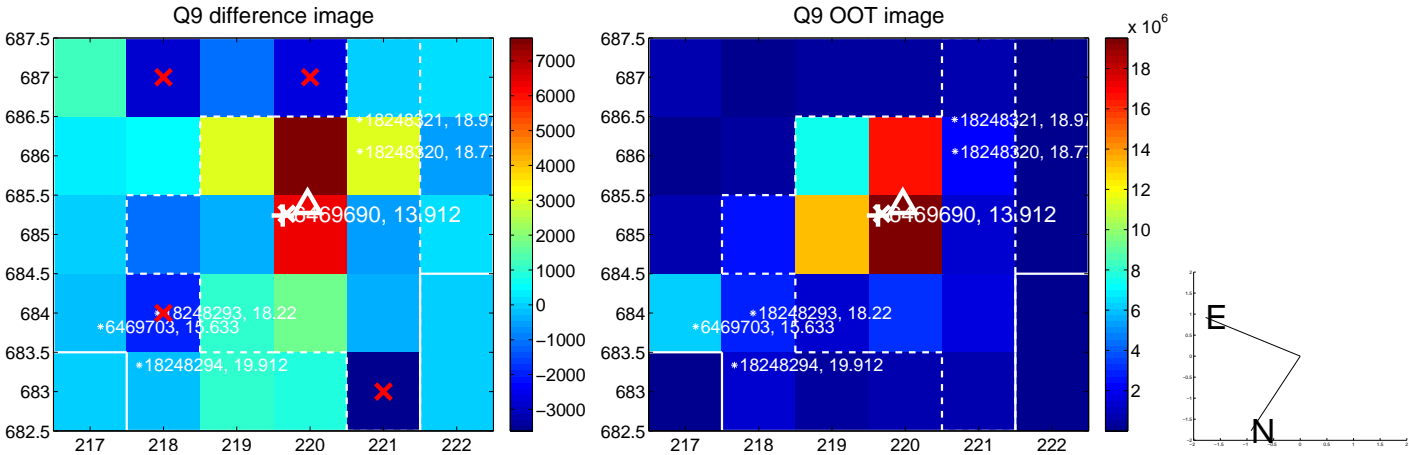
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



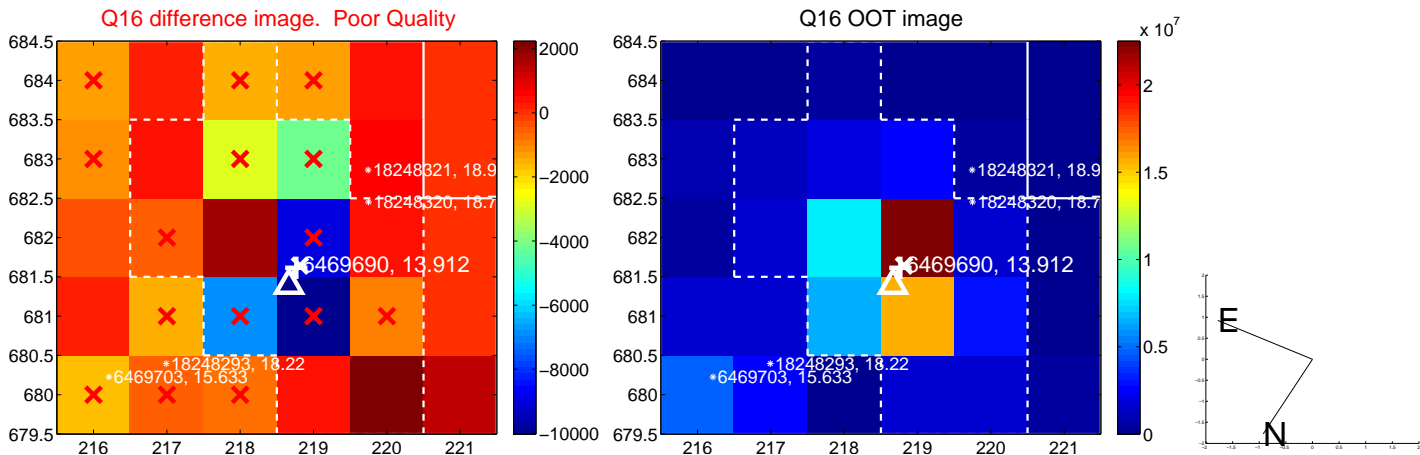
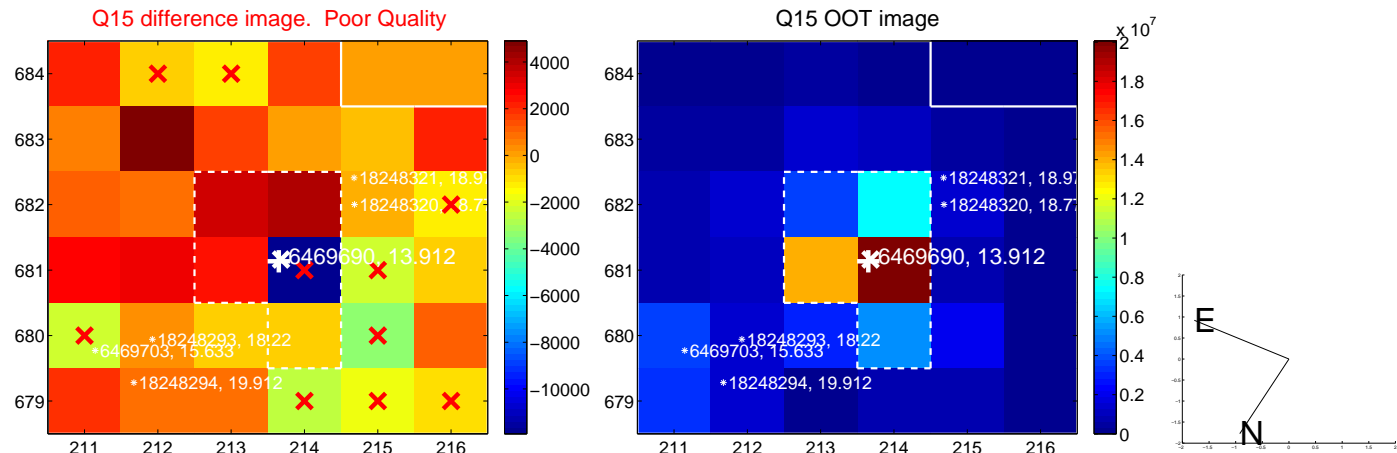
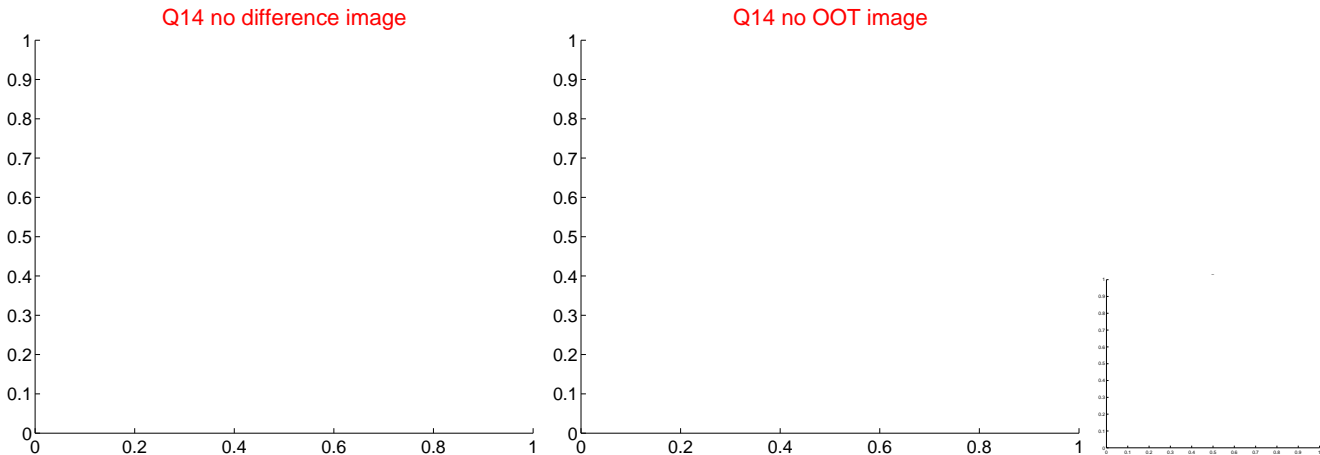
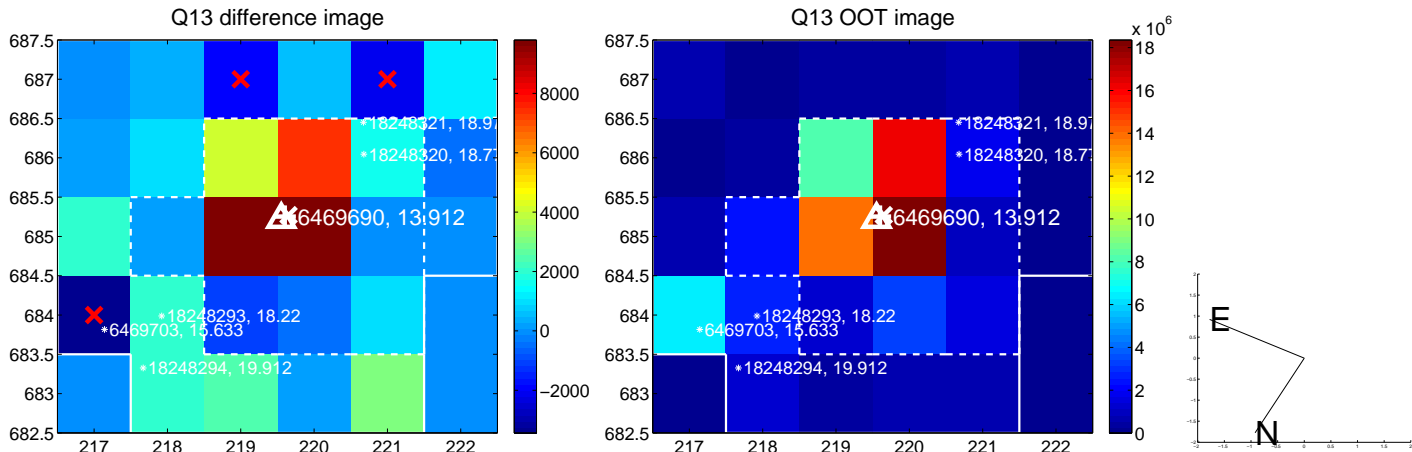
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



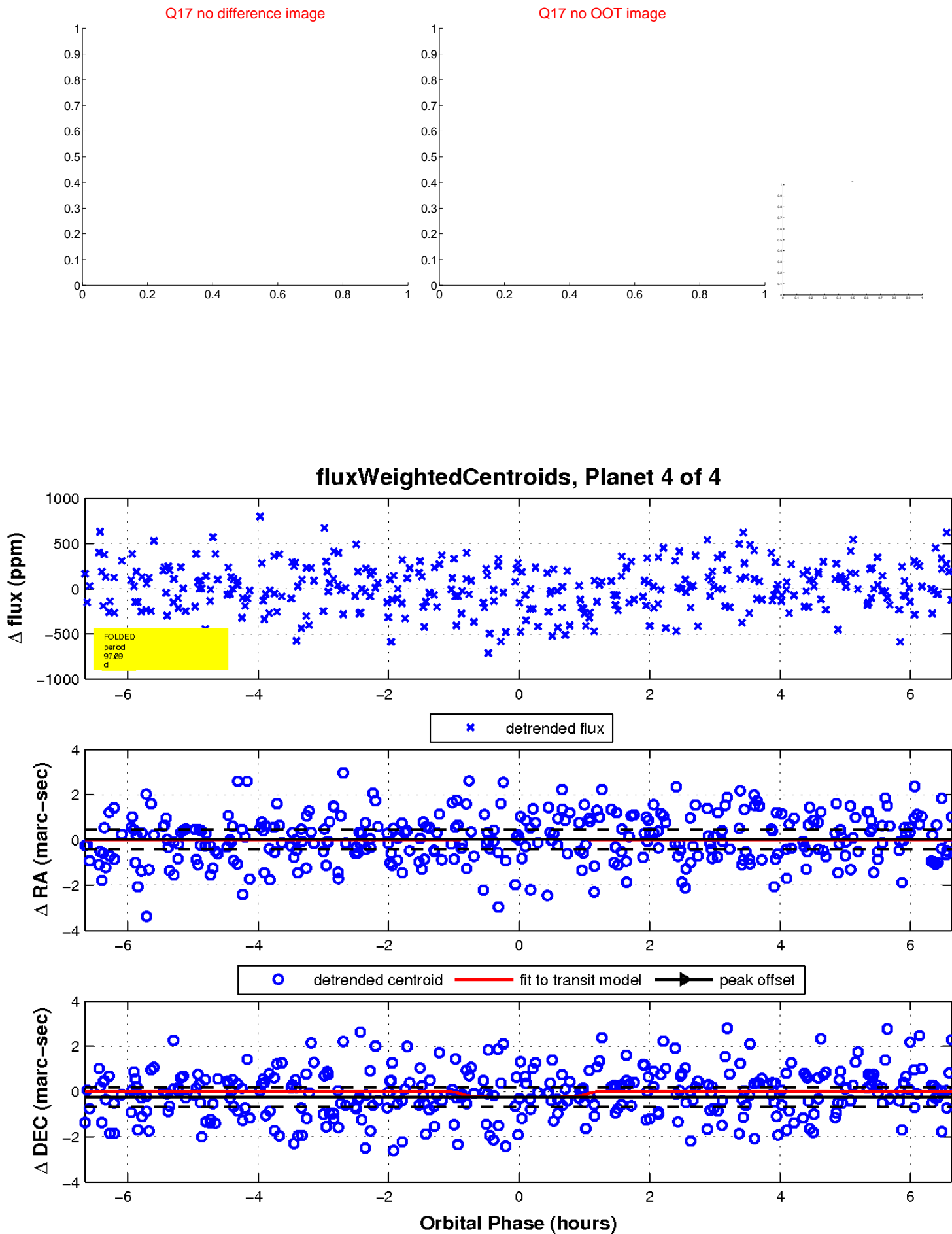
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

