

KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

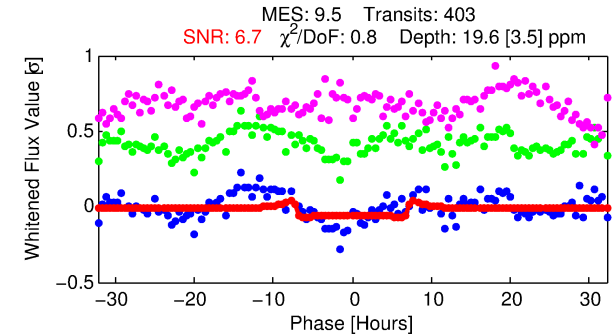
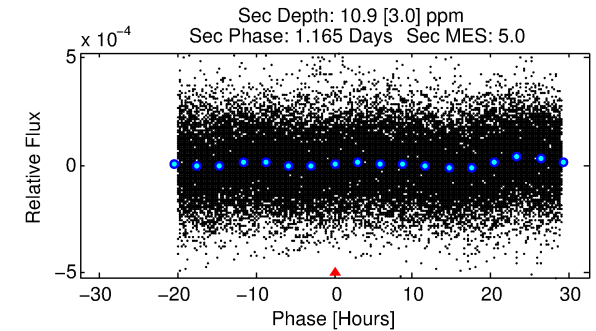
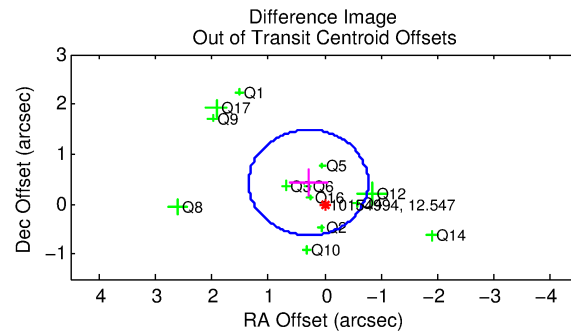
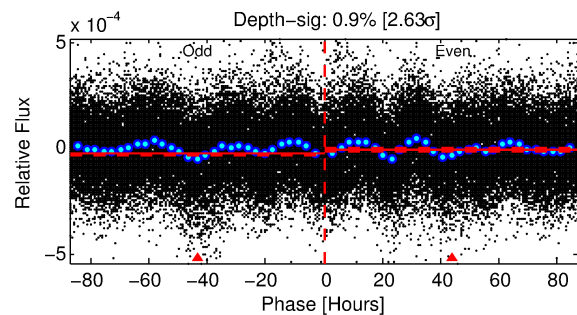
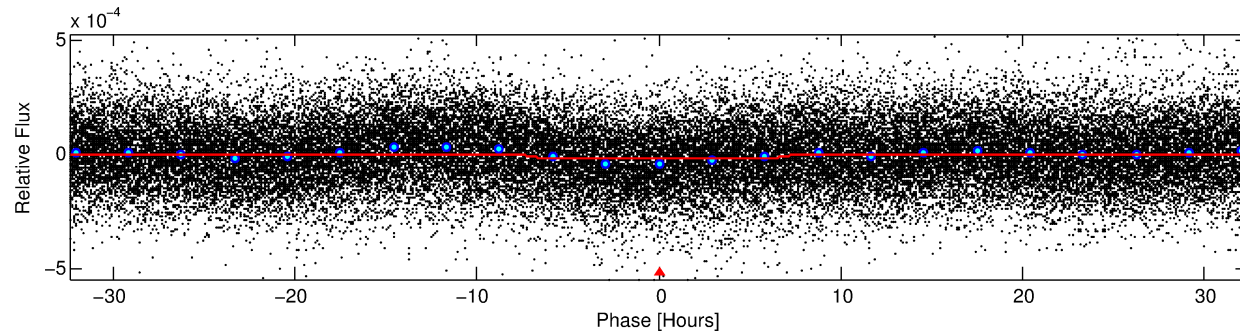
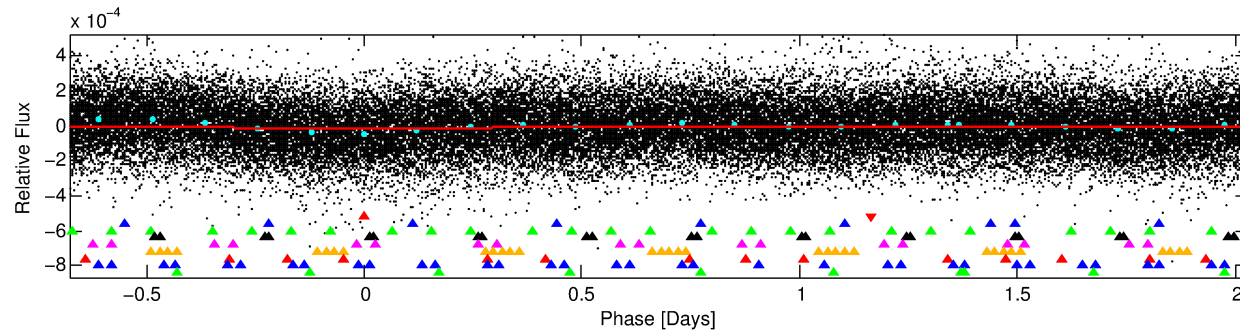
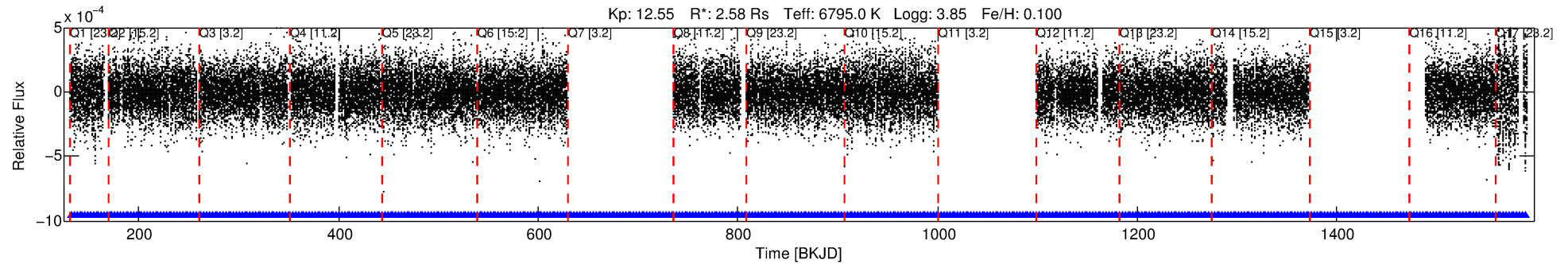
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-01

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 1 of 9 Period: 2.705 d



DV Fit Results:

Period = 2.70522 [0.00004] d
Epoch = 133.0267 [0.0080] BKJD
Rp/R* = 0.0041 [0.0044]
a/R* = 1.55 [5.41]
b = 0.00 [2554.77]
Seff = 6098.64 [2945.08]
Teq = 2253 [272] K
Rp = 1.15 [1.30] Re
a = 0.0456 [0.0138] AU
Ag = 9.41 [20.95] [0.40σ]
Teffp = 6103 [3326] K [1.15σ]

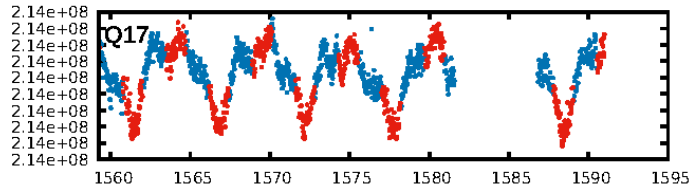
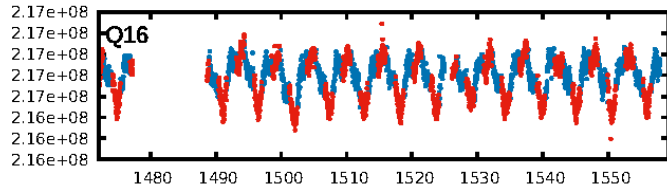
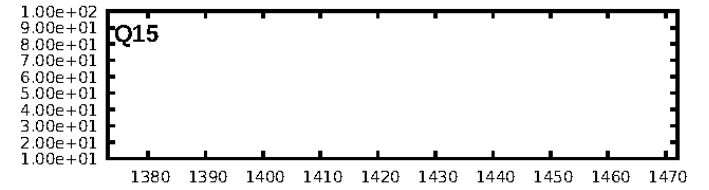
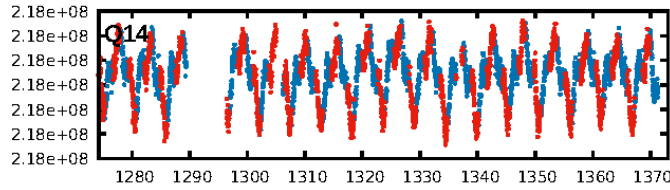
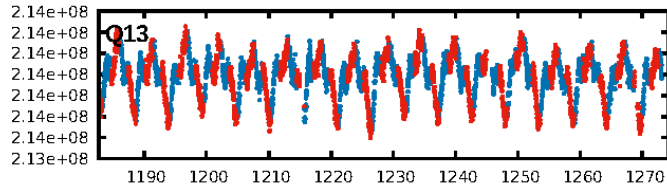
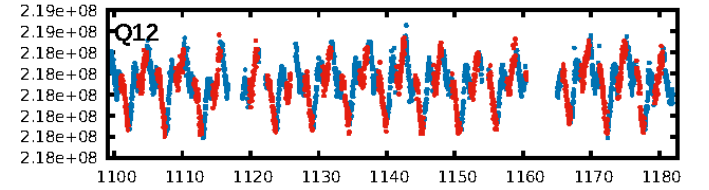
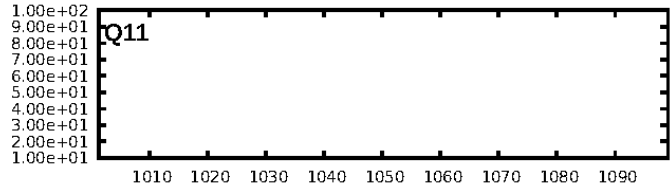
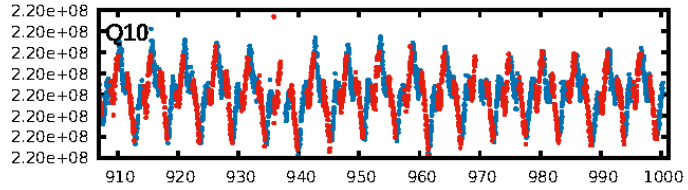
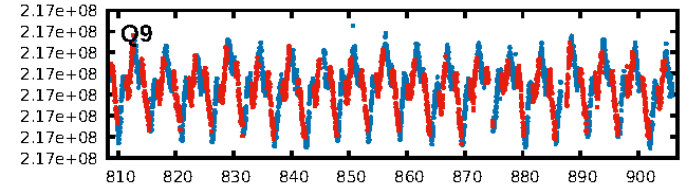
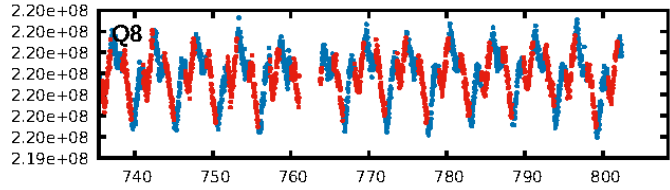
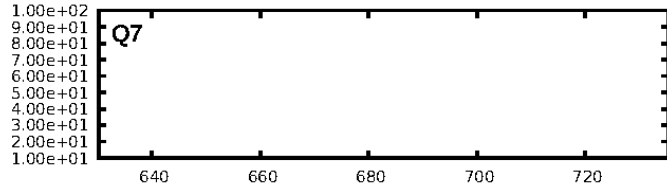
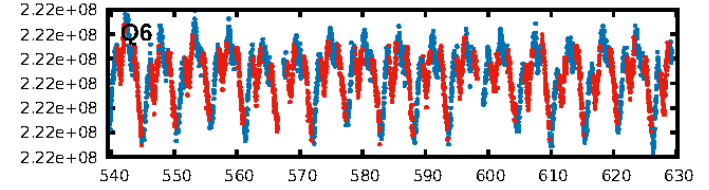
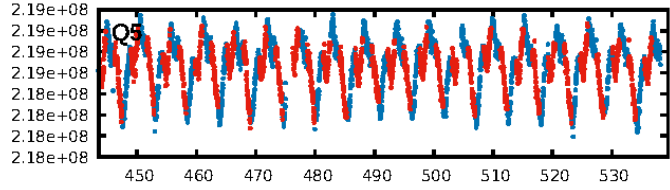
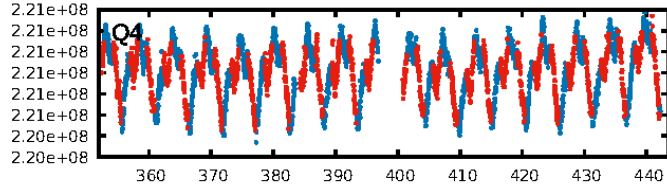
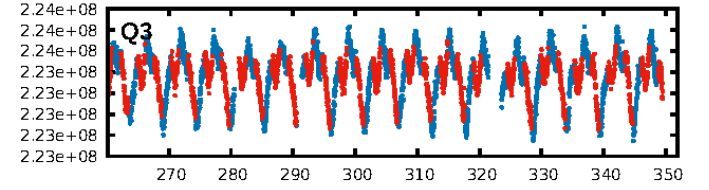
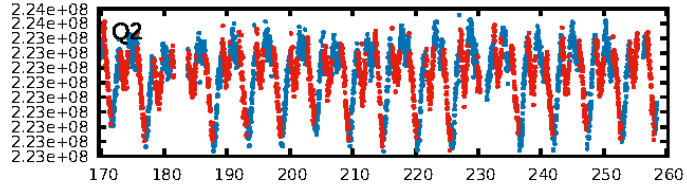
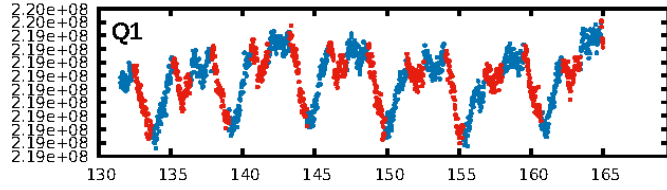
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [59.37σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.79e-11
RollingBand-fgt: 1.00 [381/381]
GhostDiagnostic-chr: 0.9693
Centroid-sig: N/A
Centroid-so: 8.068 arcsec [6.28σ]
OotOffset-rm: 0.517 arcsec [1.47σ]
KicOffset-rm: 0.410 arcsec [1.07σ]
OotOffset-st: 4/1/4/4 [13]
KicOffset-st: 4/1/4/4 [13]
DiffImageQuality-fgm: 0.85 [11/13]
DiffImageOverlap-fno: 1.00 [14/14]

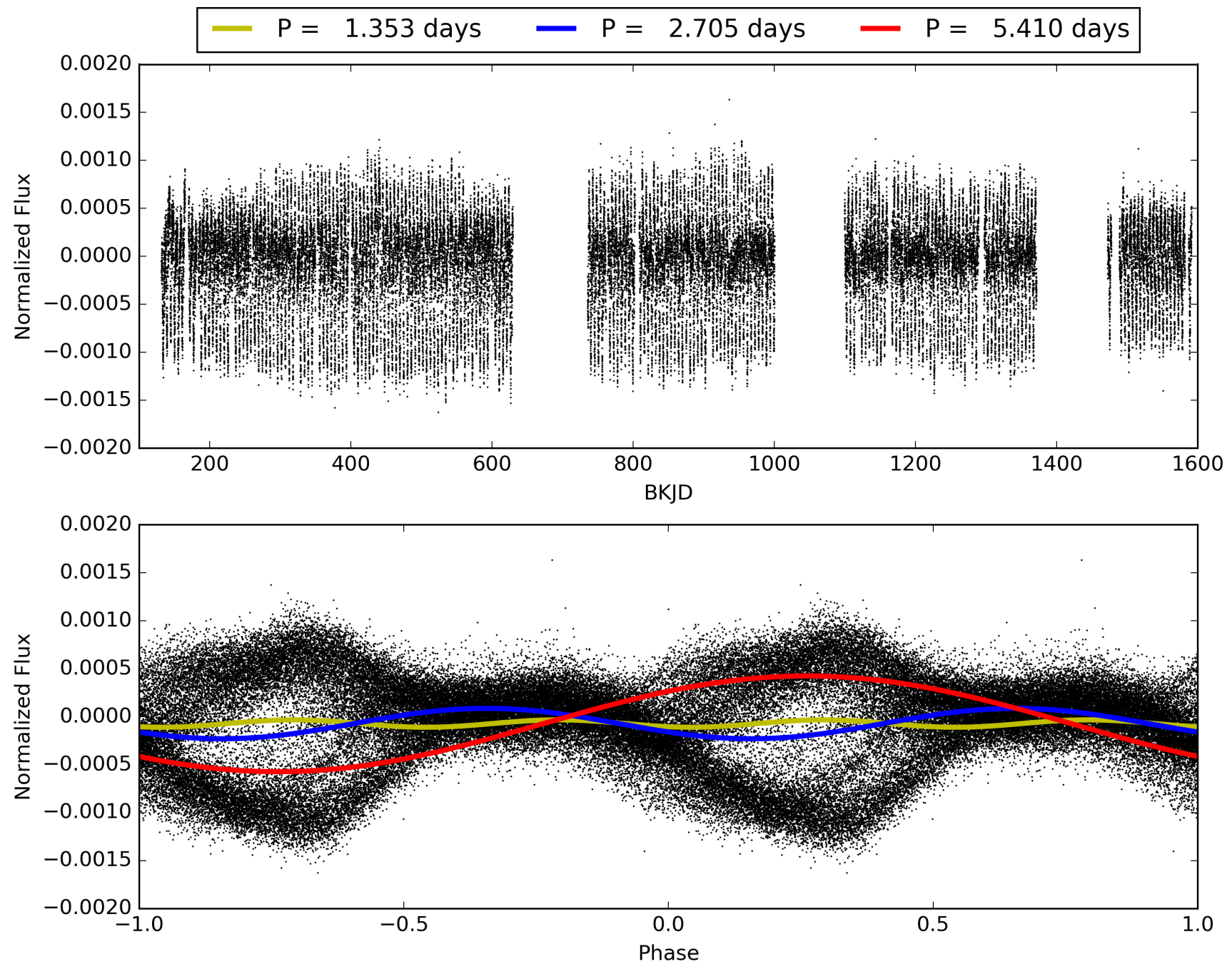
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:39:35 Z

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

TCE 010154994-01, PDC Light Curves

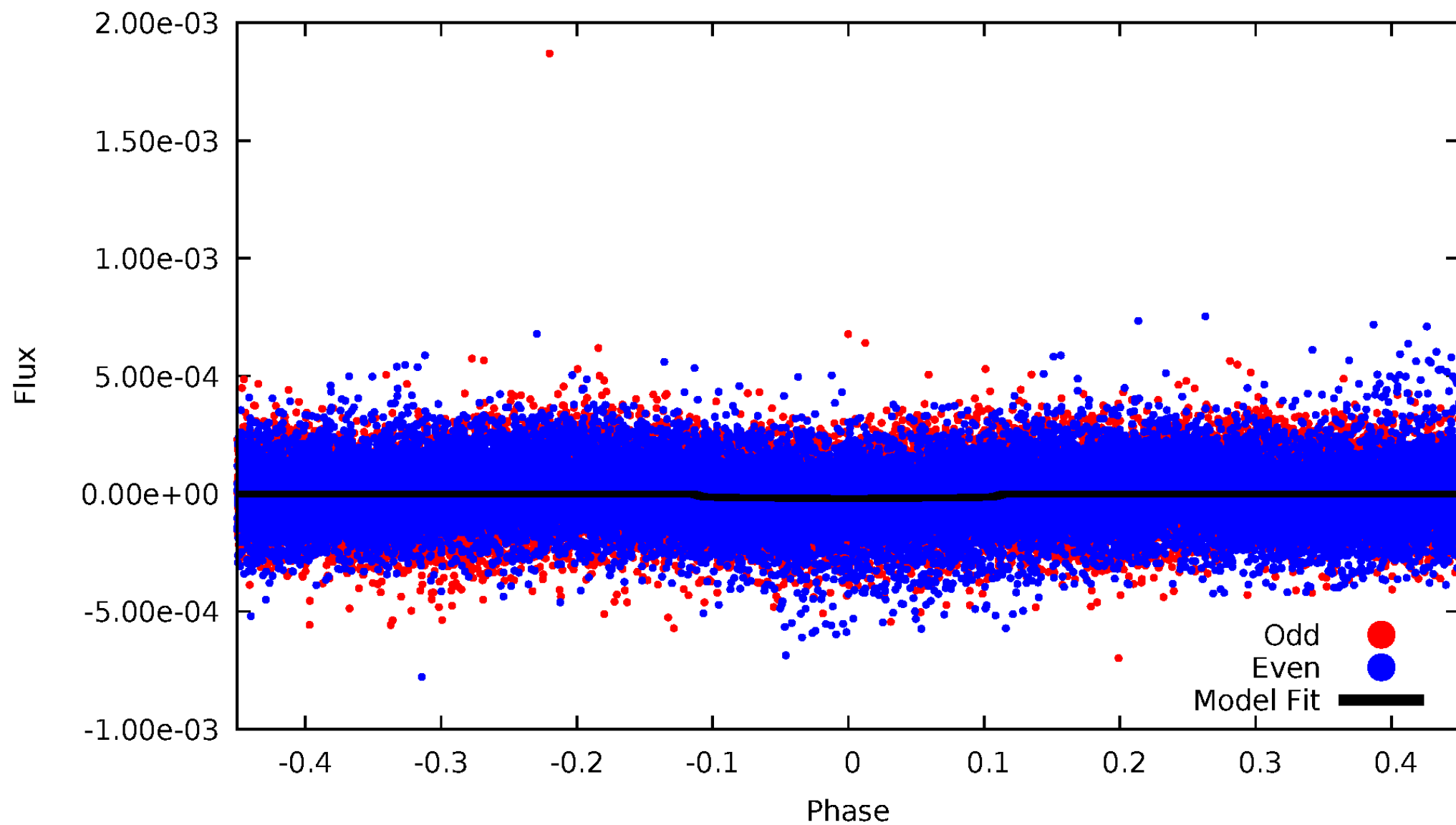


TCE 010154994-01



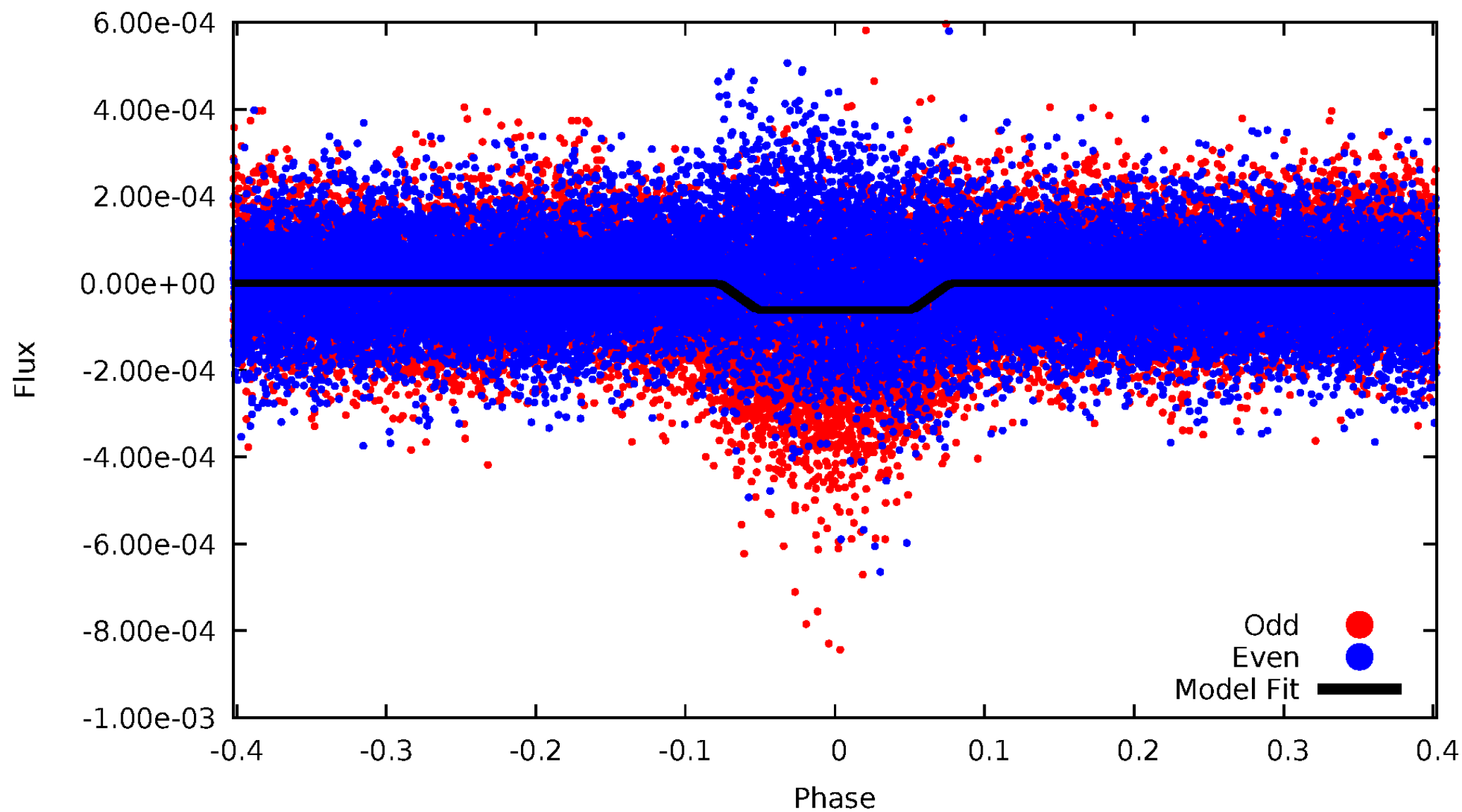
DV Odd/Even

TCE 010154994-01



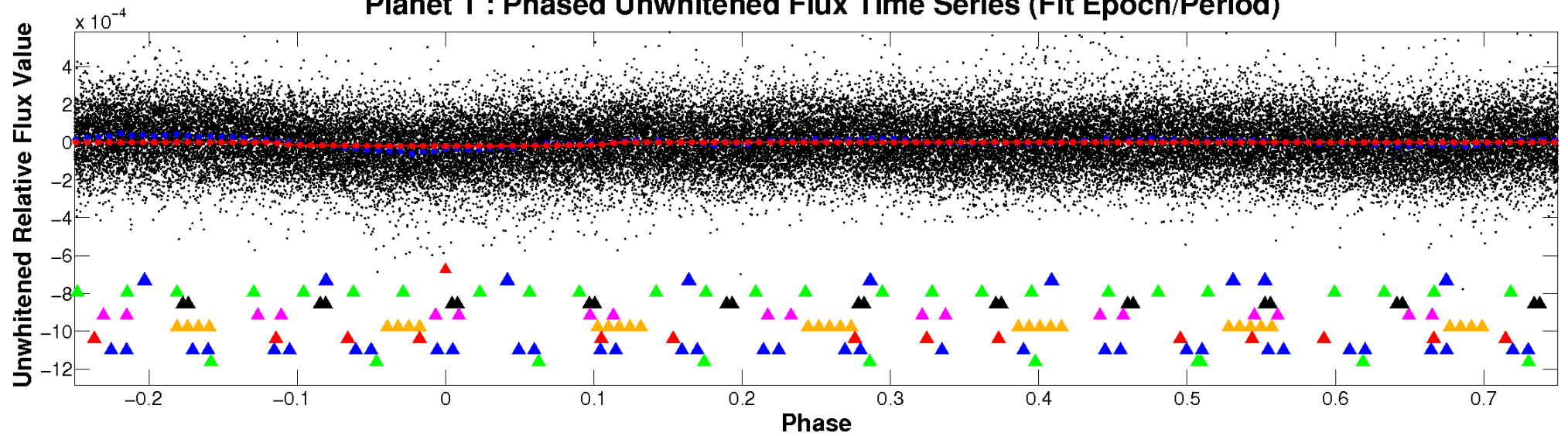
ALT Odd/Even

TCE 010154994-01

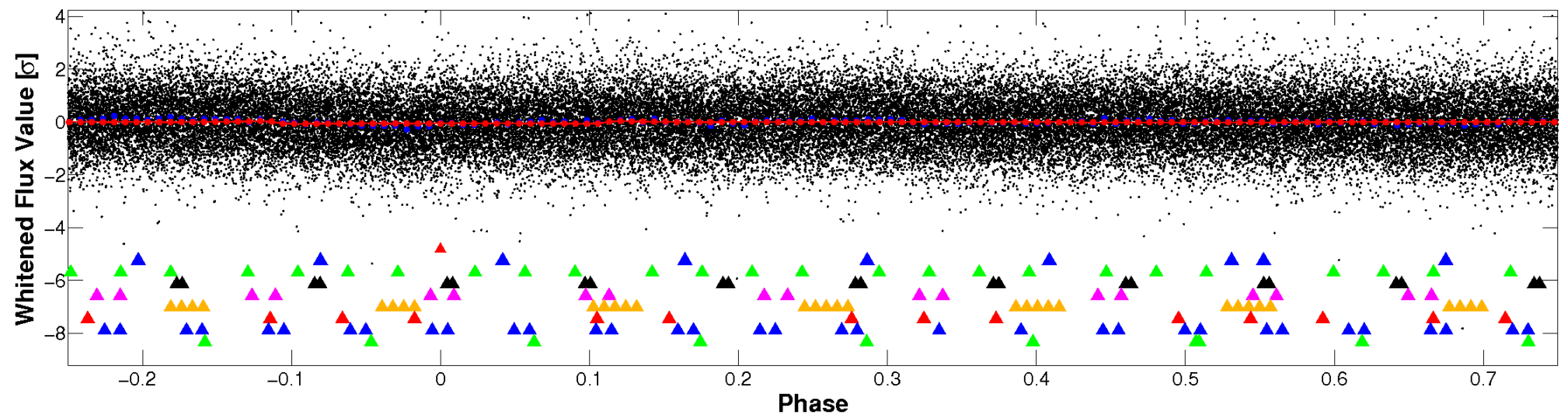


Non-Whitened Vs. Whitened Light Curve

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

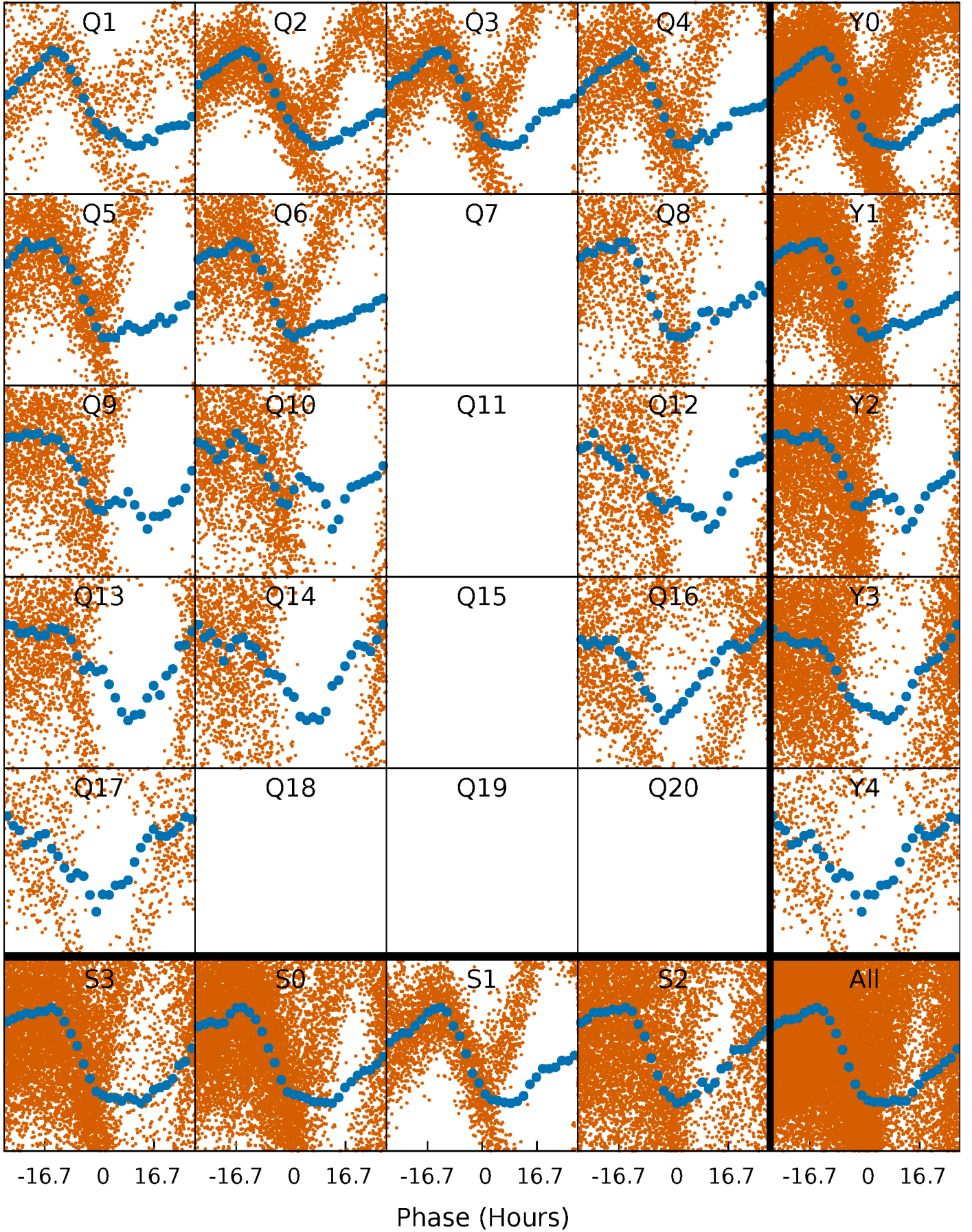


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



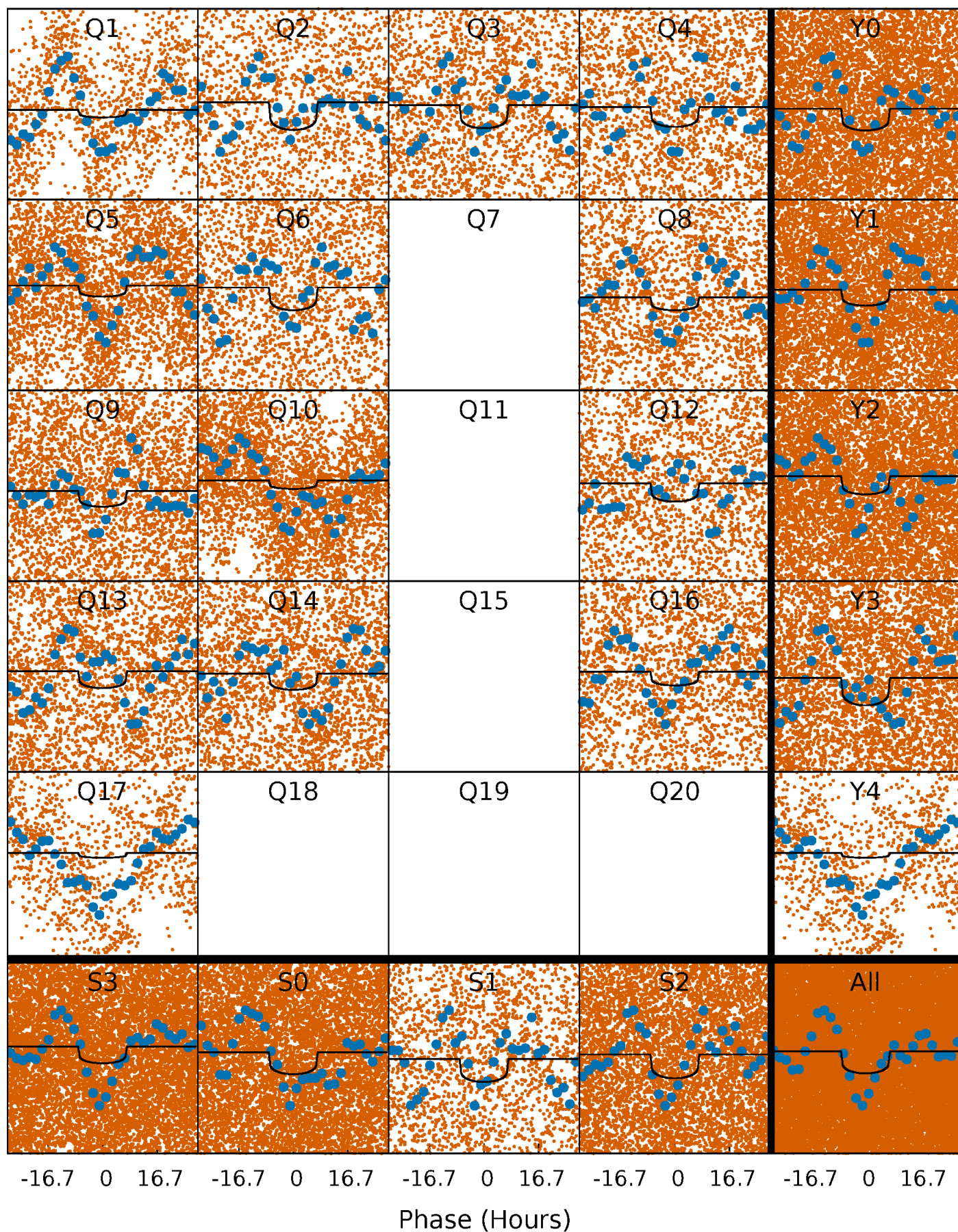
PDC Quarter-Phased Transit Curves

TCE 010154994-01 P= 2.705223 Days $T_0=133.026737$ (BKJD)



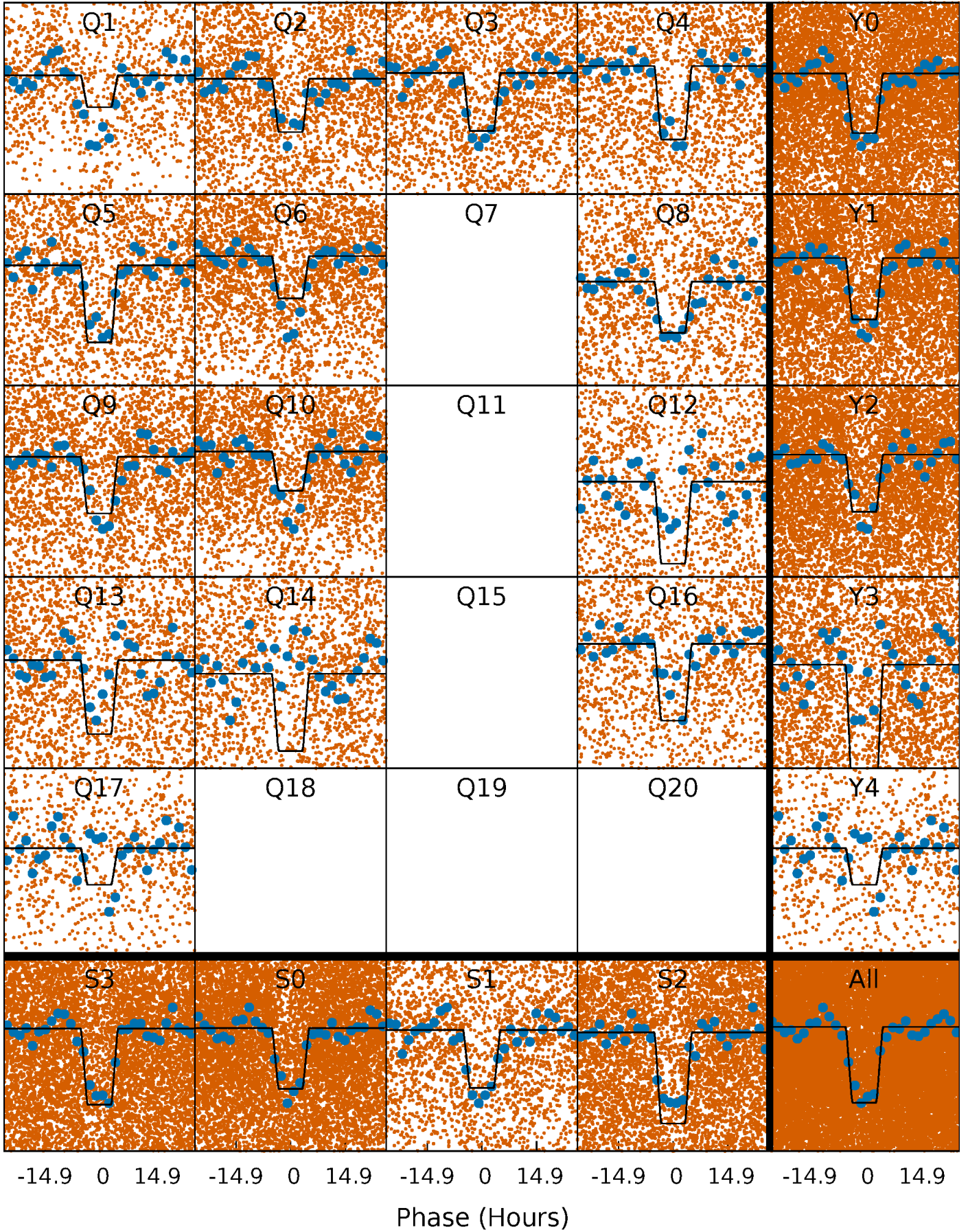
DV Quarter-Phased Transit Curves

TCE 010154994-01 P= 2.705223 Days $T_0=133.026737$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

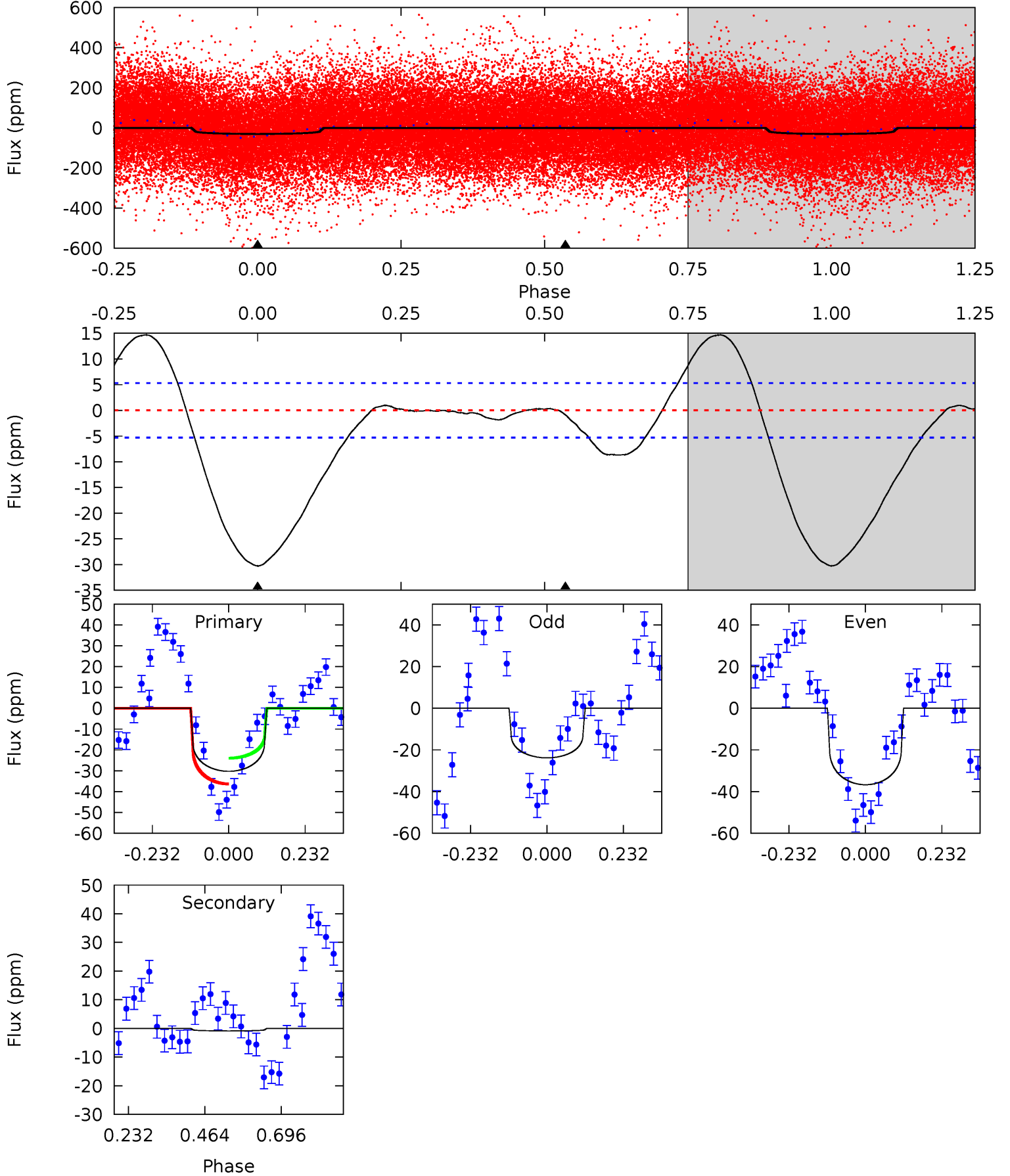
TCE 010154994-01 P= 2.704851 Days $T_0=133.015245$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-01, P = 2.705223 Days, E = 130.321514 Days

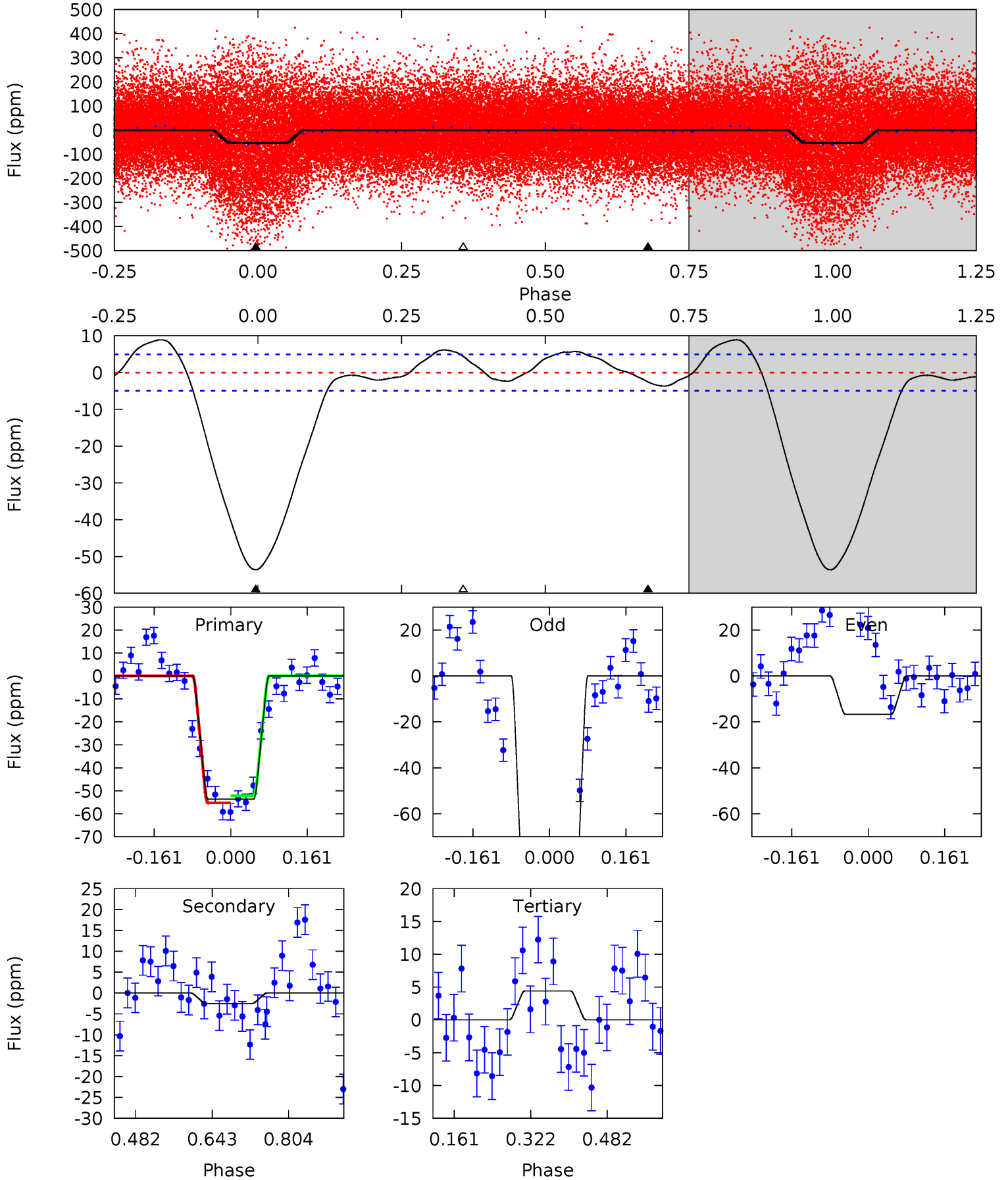
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.0	0.72	0	0	4.39	1.20	3.44	25.0	25.0	0.72	0.72	5.39	1.35	0.33	5.03



Alt Model-Shift Uniqueness Test

010154994-01, P = 2.704851 Days, E = 130.310394 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
48.4	2.28	-3.97	0	4.46	1.40	2.52	52.4	48.4	6.26	2.28	48.4	1.06	0.14	1.42



Stellar Parameters For KIC 010154994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1 ± 1	$1.40^{+1.09}_{-0.90}$	3092^{+192}_{-259}	2650^{+1994}_{-6013}	$0.394^{+3.269}_{-0.544}$
Alt.	-3 ± 1	$2.14^{+1.27}_{-1.09}$	3107^{+197}_{-269}	3136^{+1171}_{-5858}	$0.610^{+1.778}_{-0.410}$

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 $A_{obs} \gg 1.0$

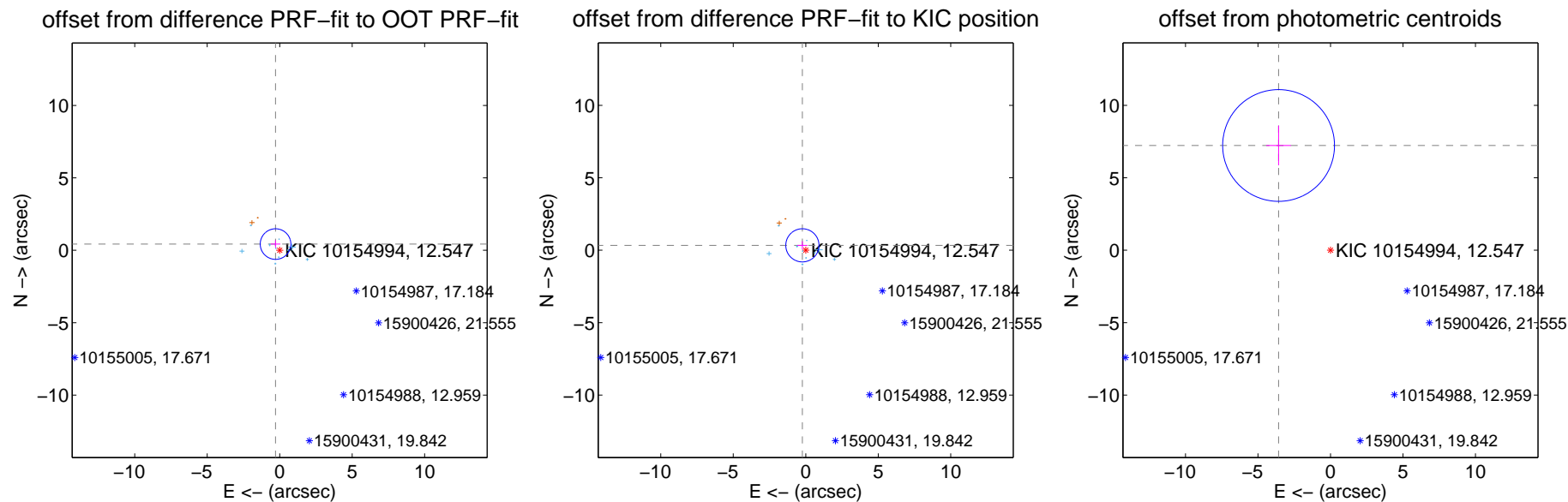
DV Centroid Data

Supplemental centroid analysis for 010154994-01. Kepler magnitude: 12.55. Transit SNR 6.71

There are 11 quarters with good PRF difference image offsets

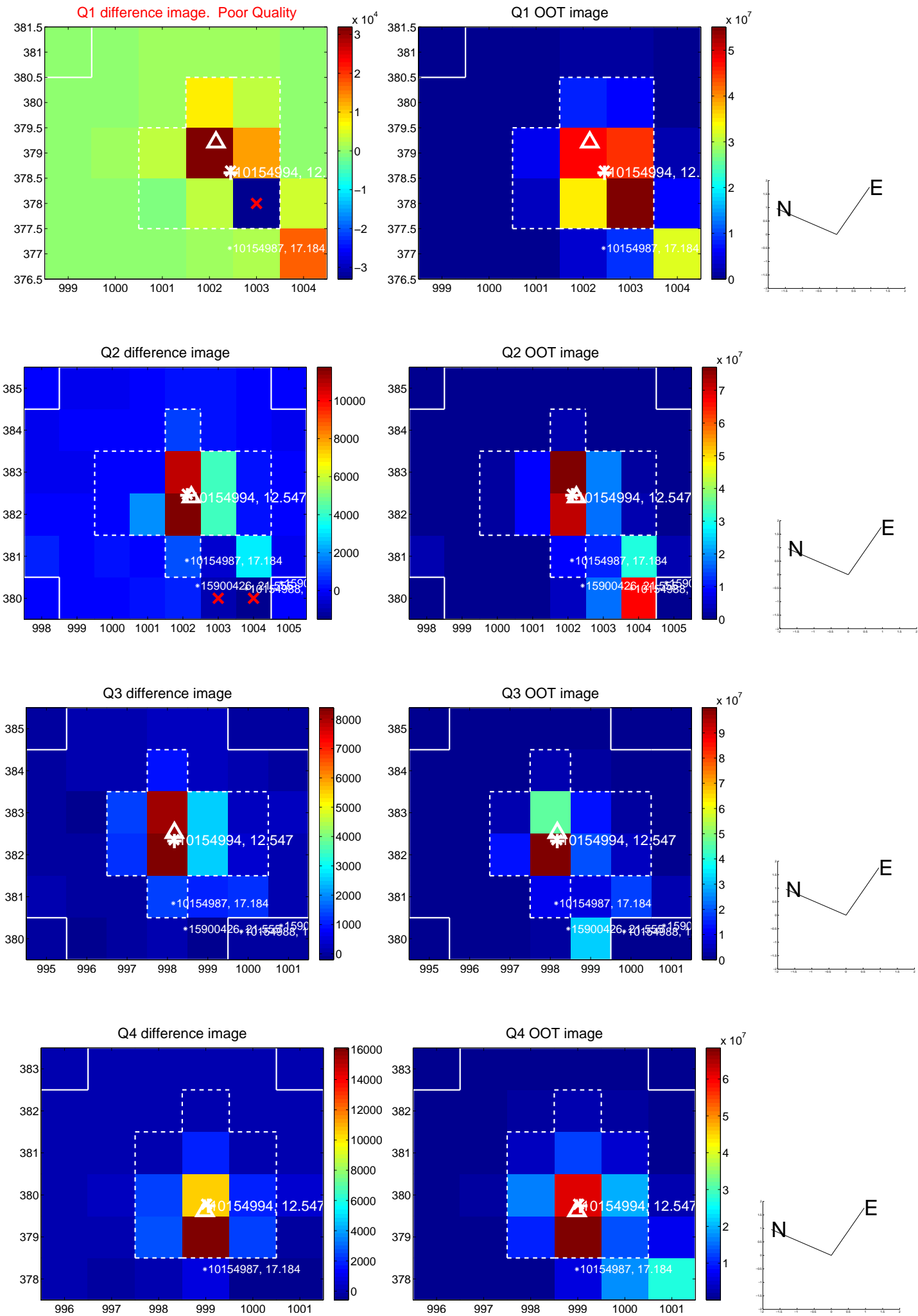
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.517 ± 0.352	1.47	0.286 ± 0.333	0.430 ± 0.256
PRF-fit source offset from KIC position	0.410 ± 0.382	1.07	0.233 ± 0.354	0.338 ± 0.292
photometric centroid source offset	8.07 ± 1.29	6.28	3.58 ± 0.85	7.23 ± 1.37

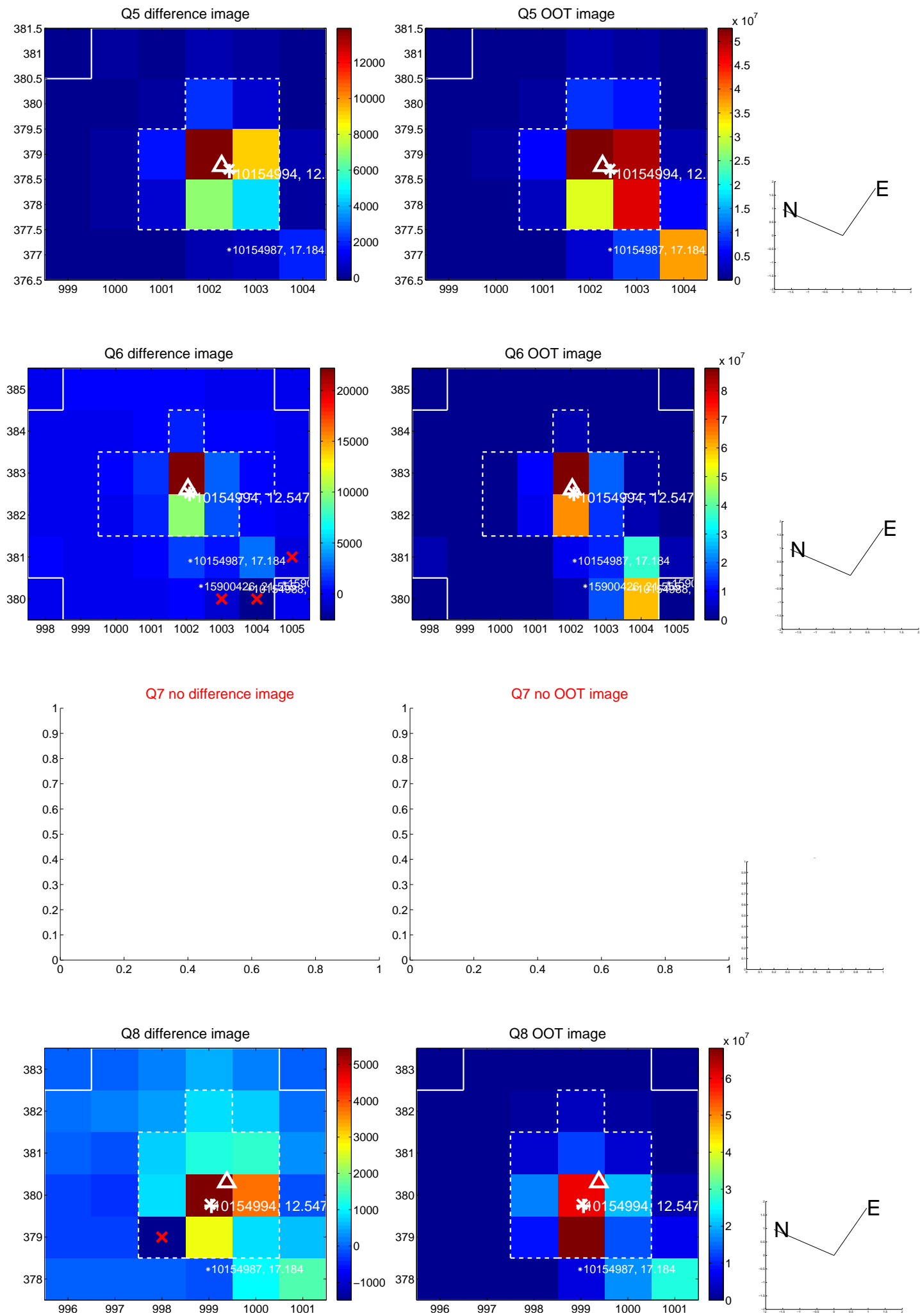


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

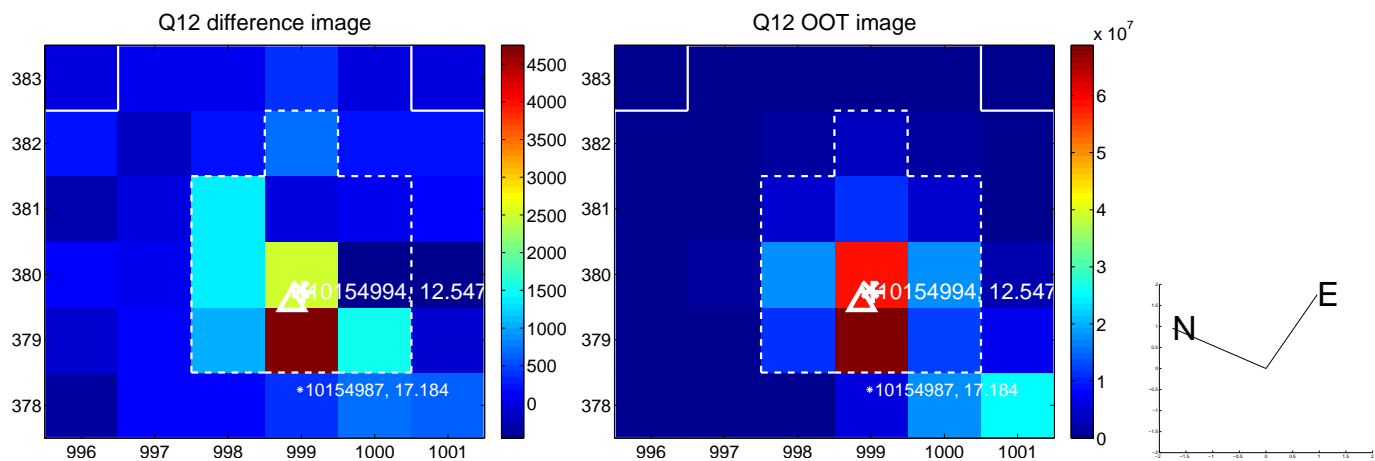
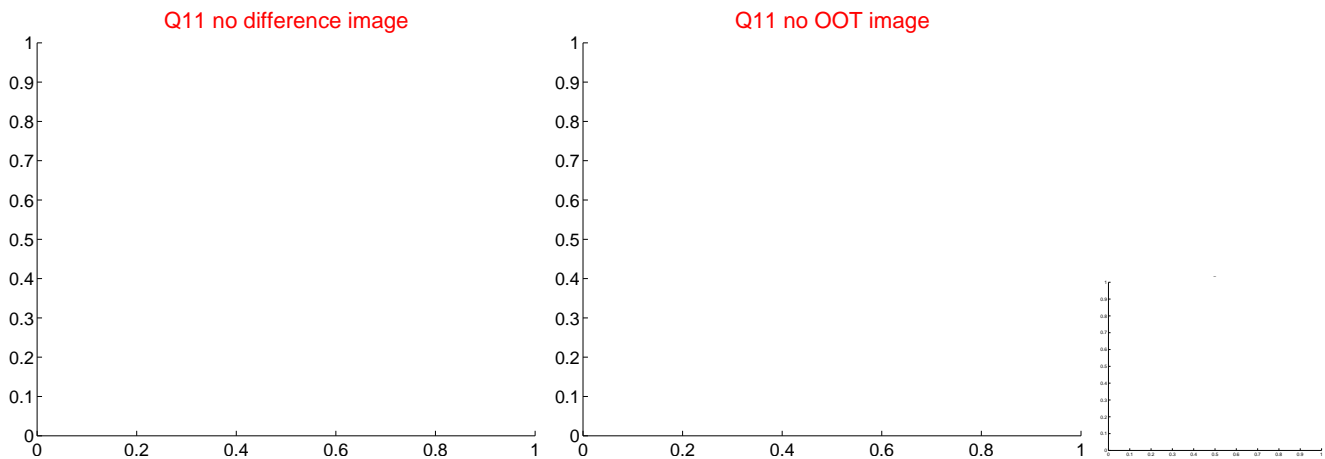
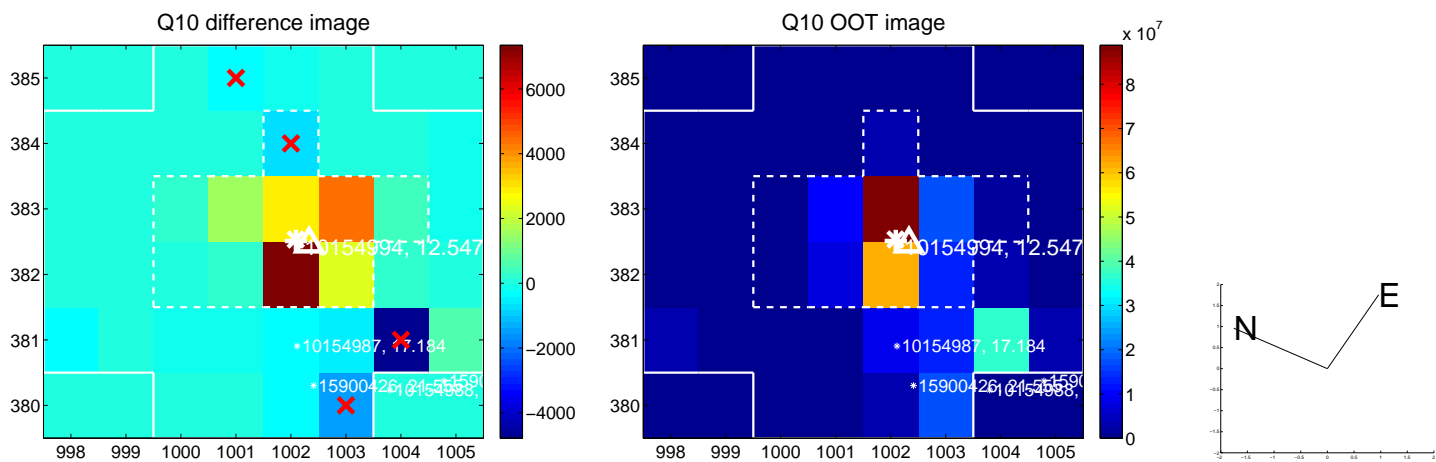
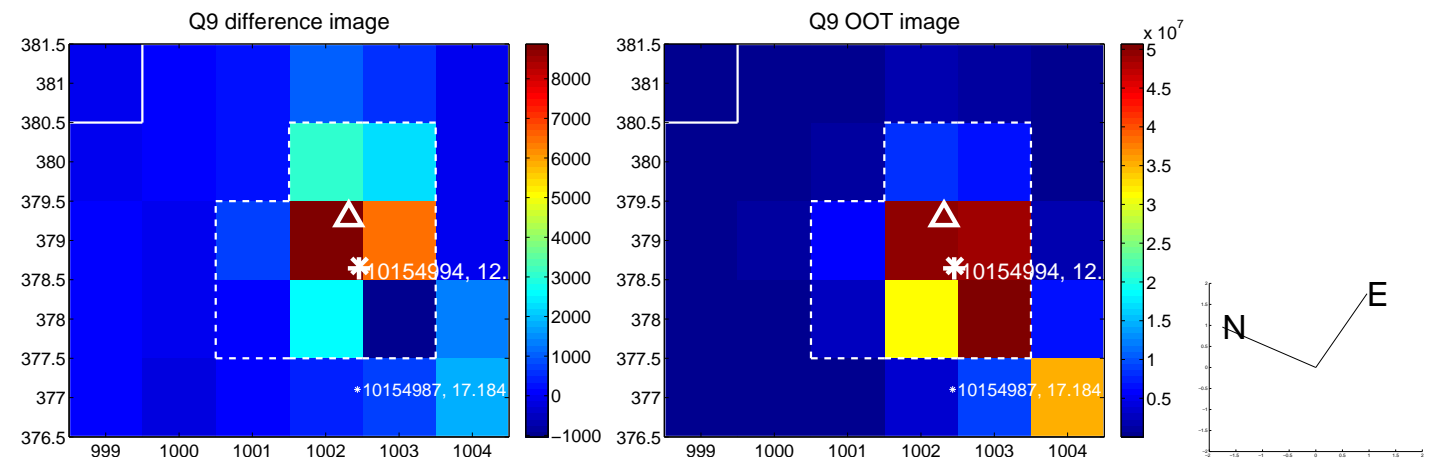
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



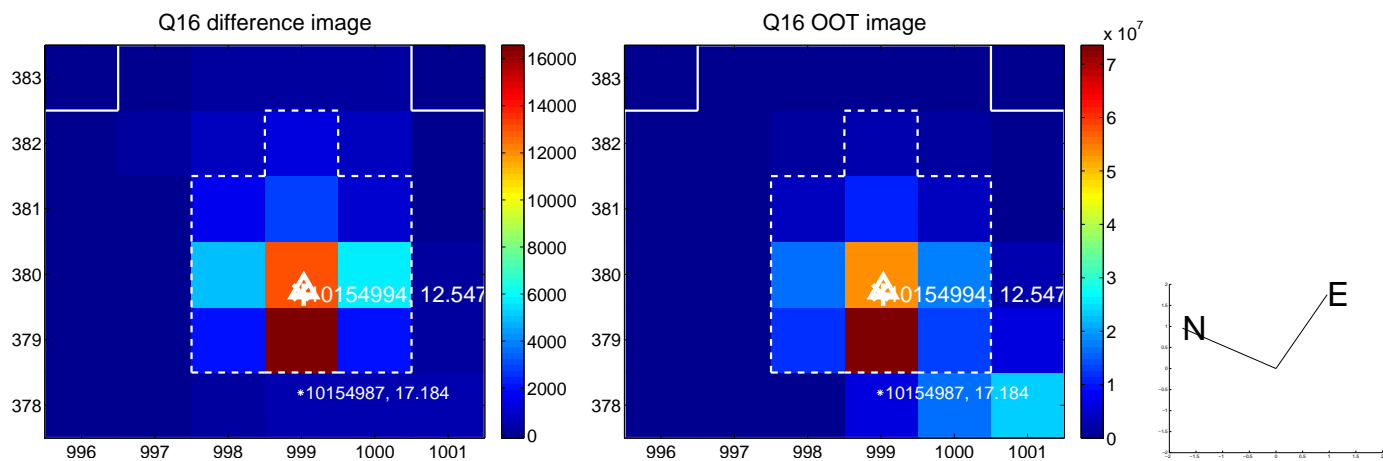
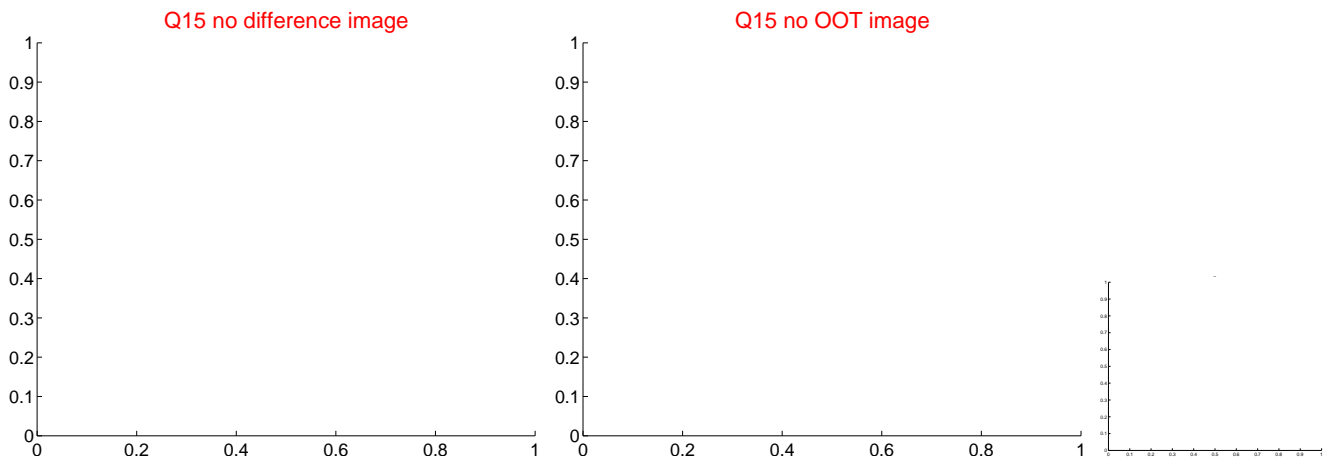
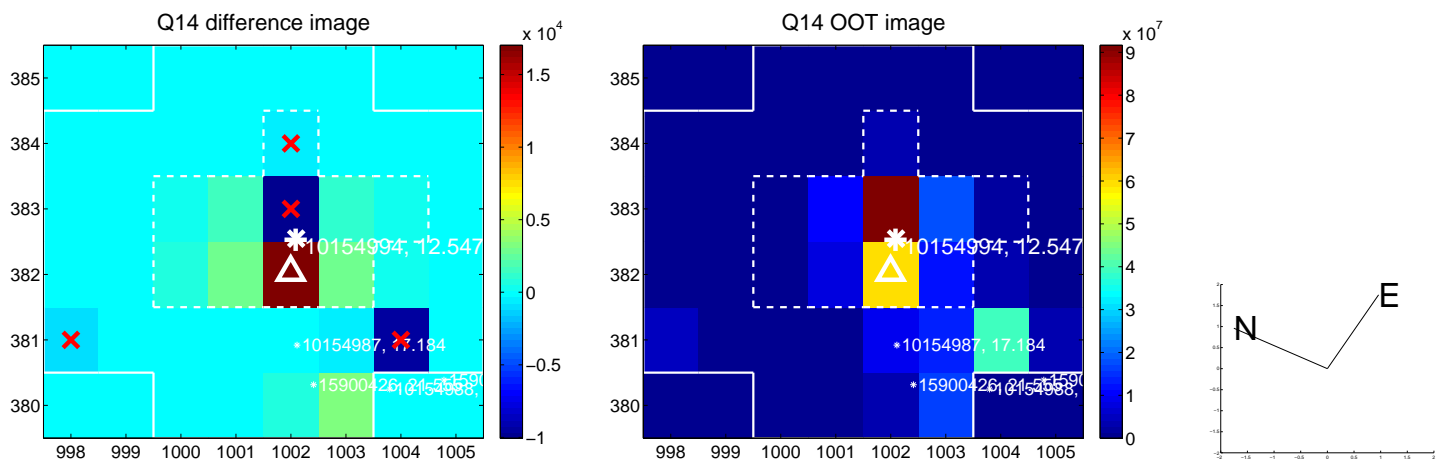
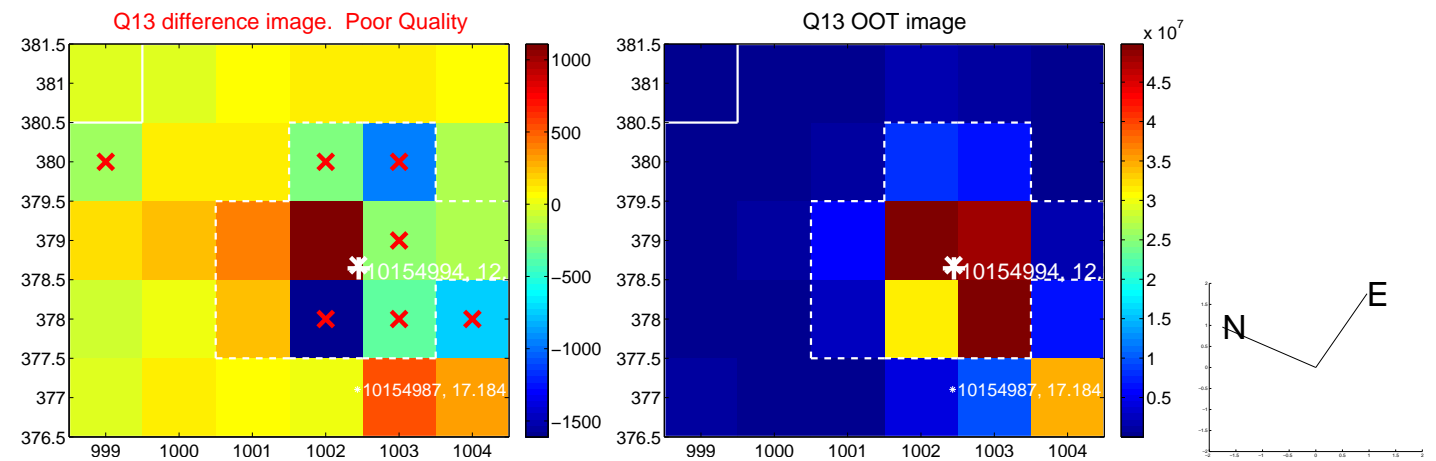
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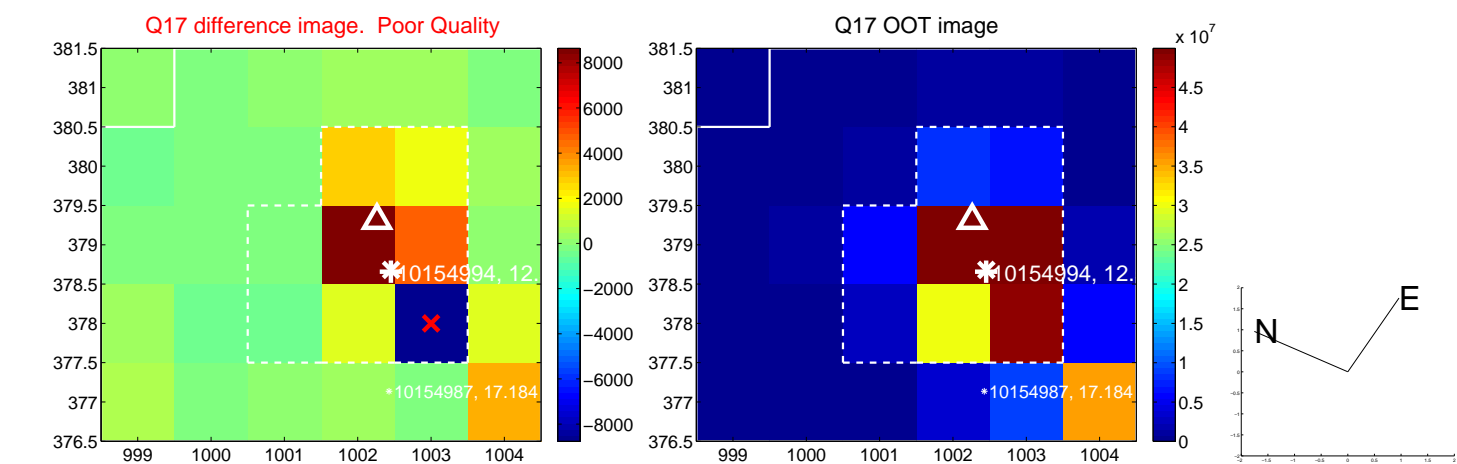
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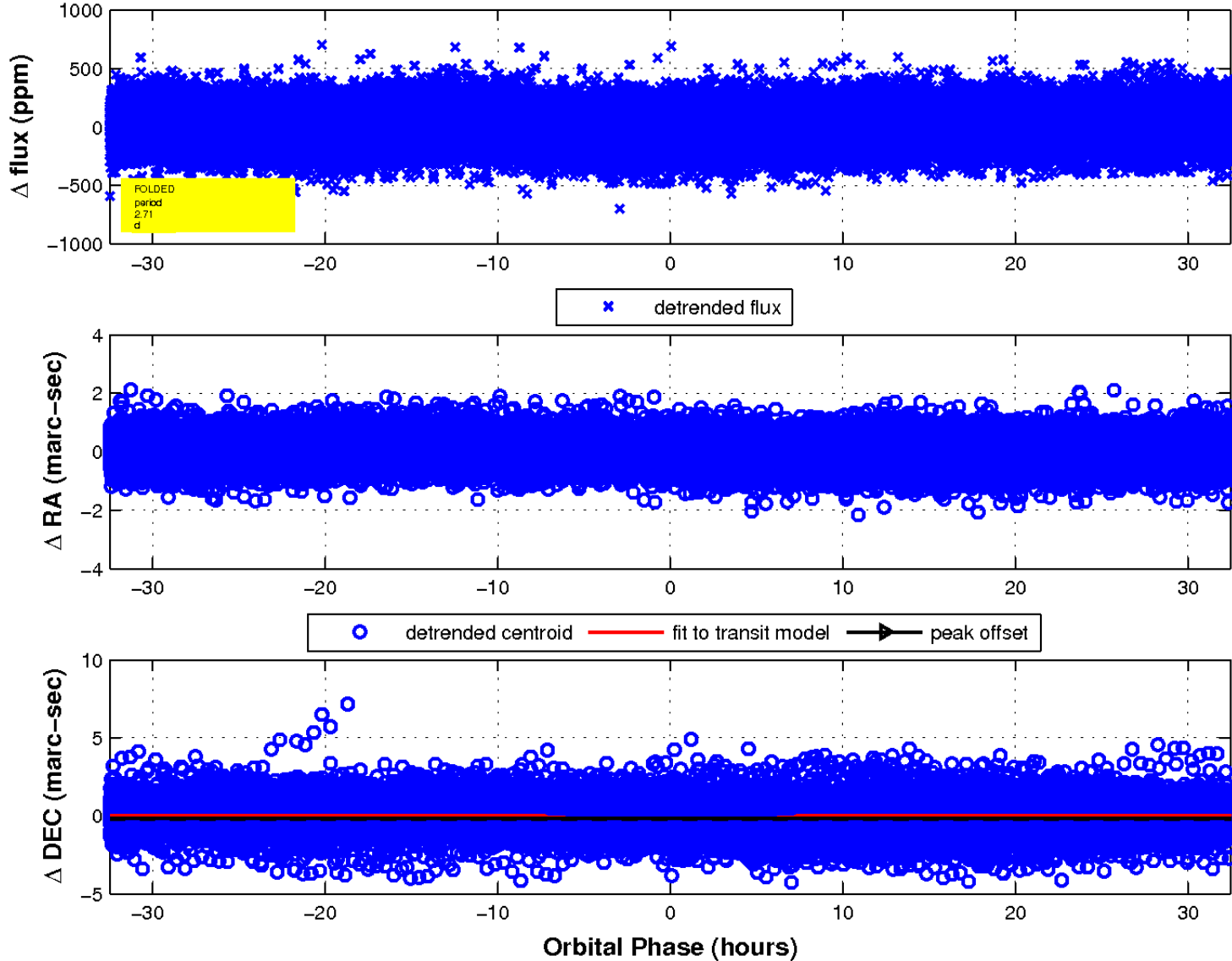
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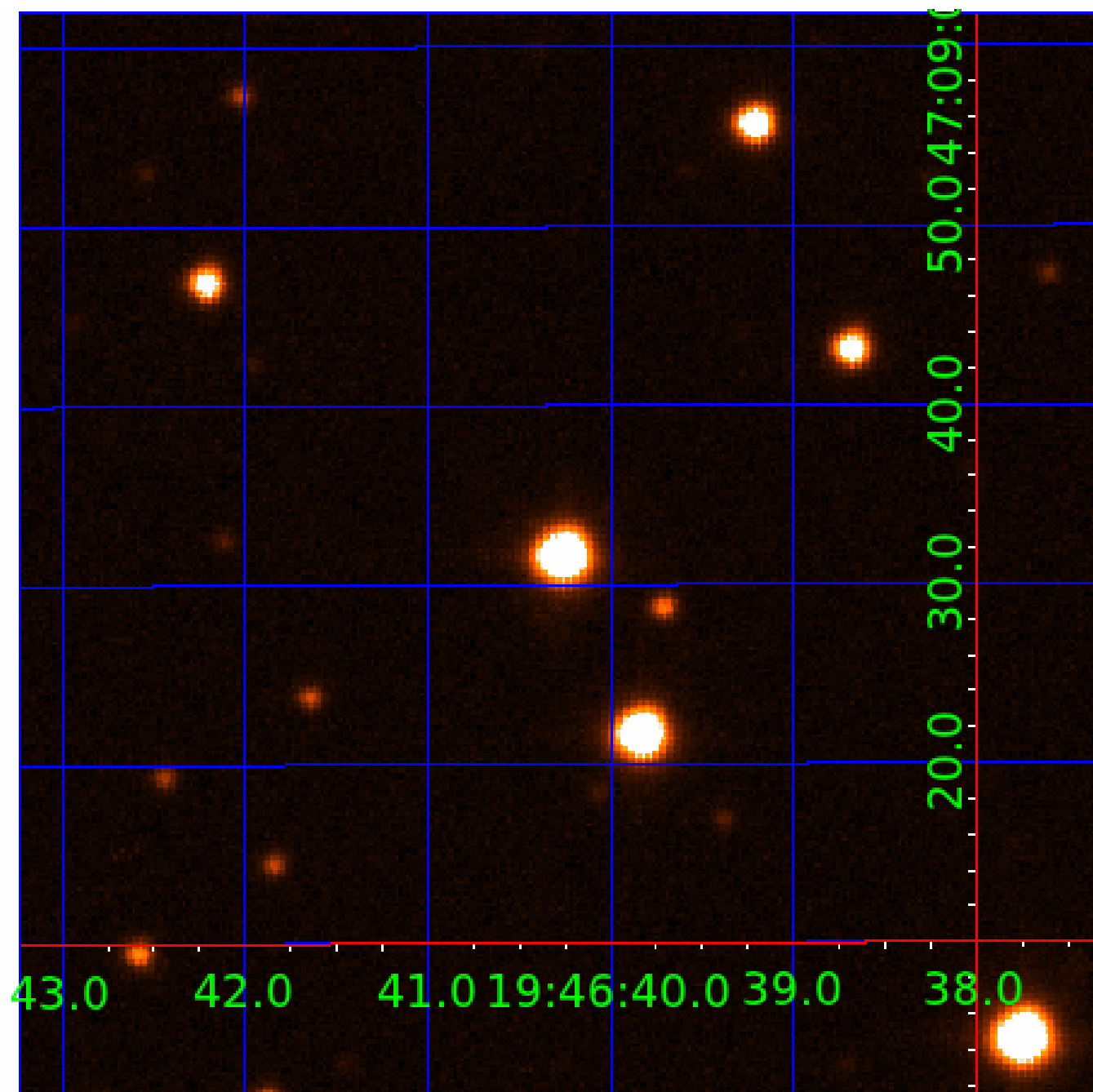


fluxWeightedCentroids, Planet 1 of 9



UKIRT Image

Declination



KIC 010154994

Q1-17 DR25 TCE Parameters

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010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

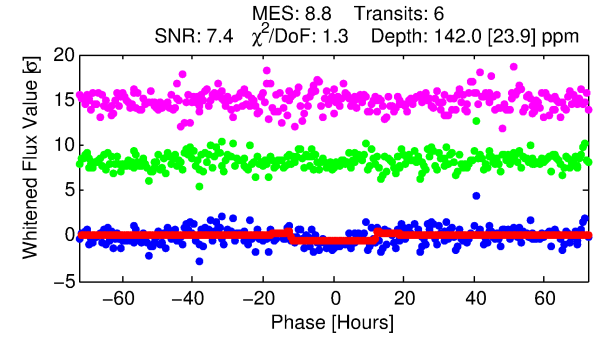
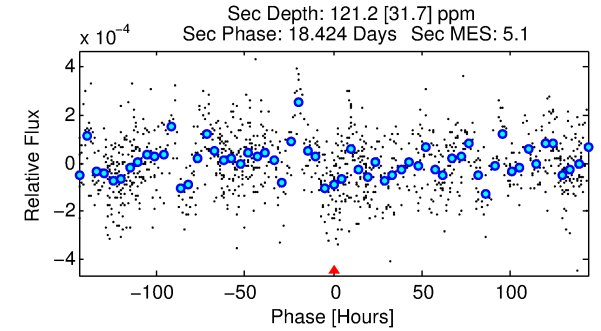
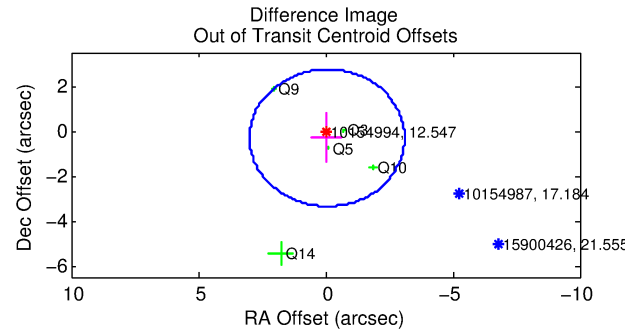
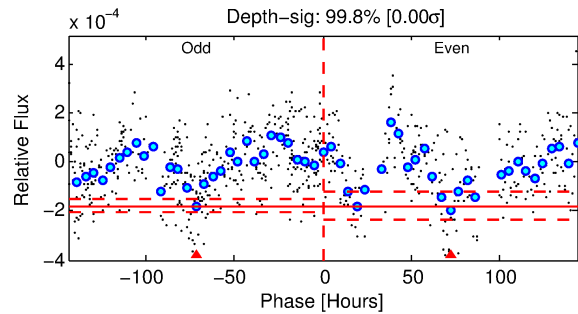
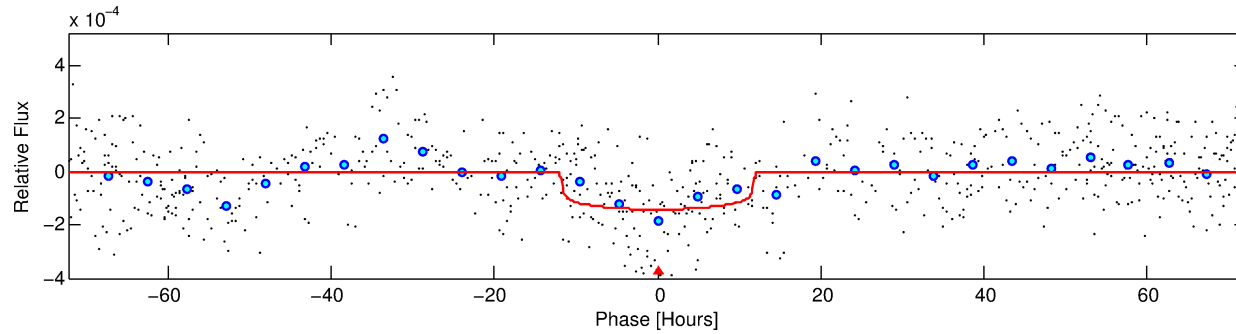
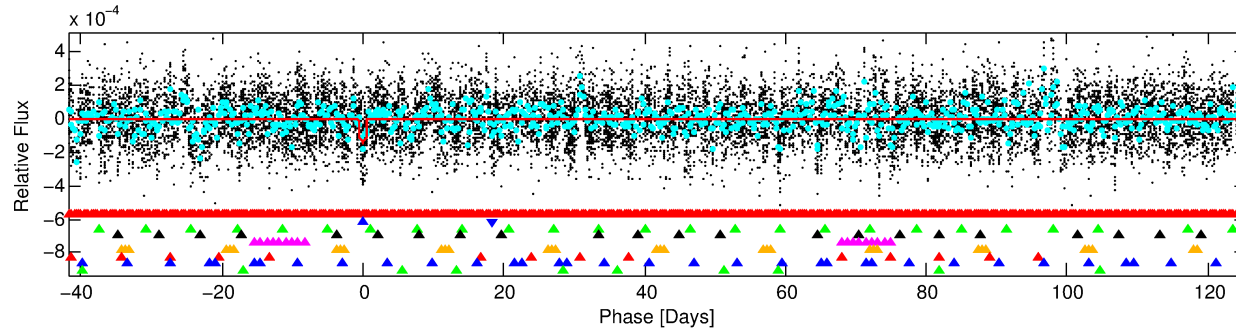
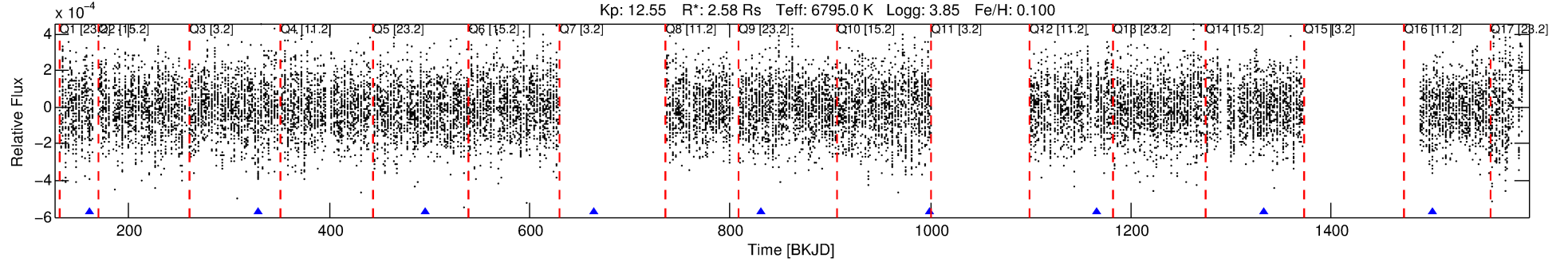
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-02

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 2 of 9 Period: 167.393 d



DV Fit Results:

Period = 167.39293 [0.00550] d
Epoch = 161.5155 [0.0249] BKJD
Rp/R* = 0.0116 [0.0023]
a/R* = 39.71 [37.94]
b = 0.68 [0.76]
Seff = 24.92 [12.03]
Teq = 570 [69] K
Rp = 3.27 [1.27] Re
a = 0.7129 [0.2160] AU
Ag = 3170.55 [2097.22] [1.51 σ]
Teffp = 6610 [804] K [7.48 σ]

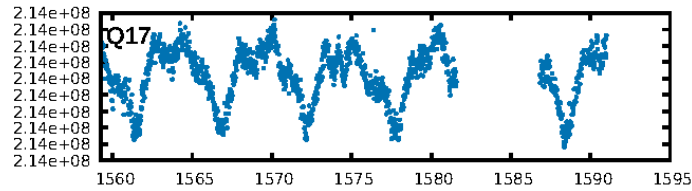
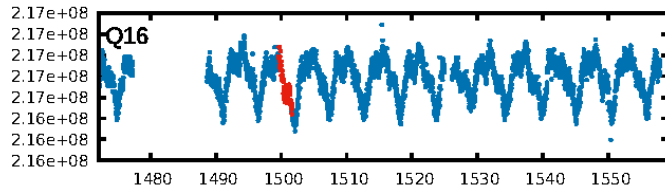
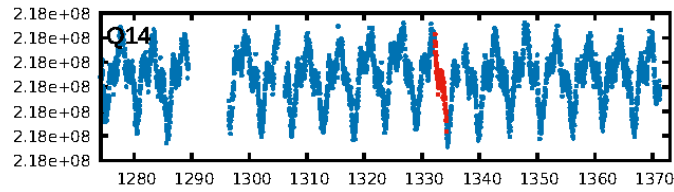
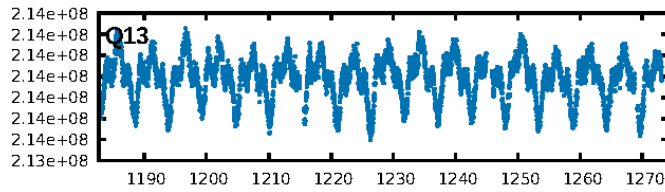
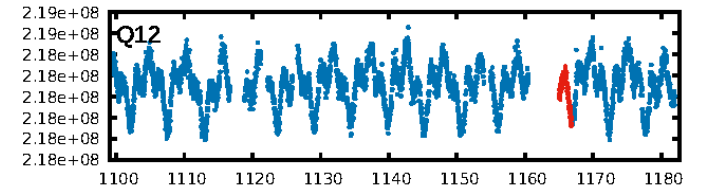
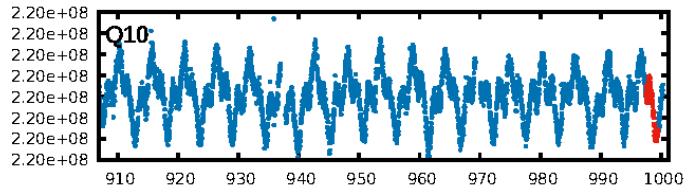
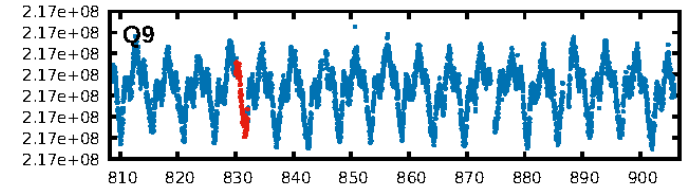
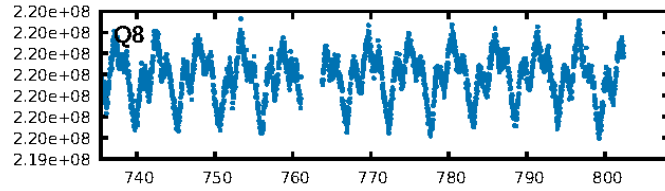
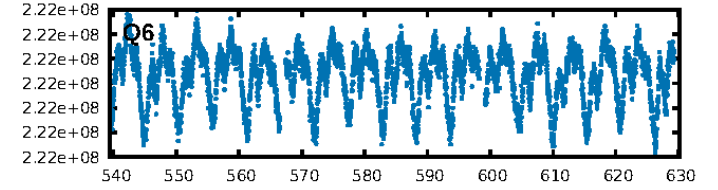
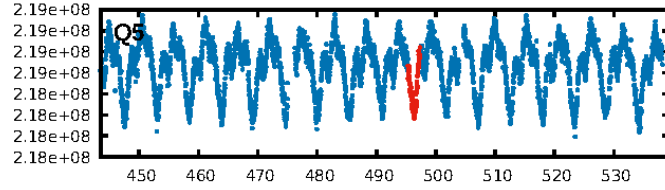
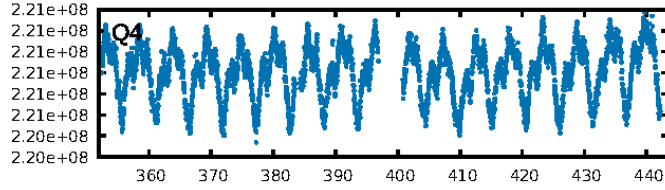
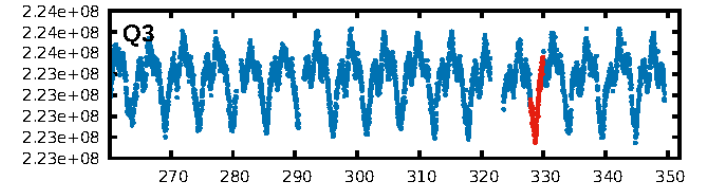
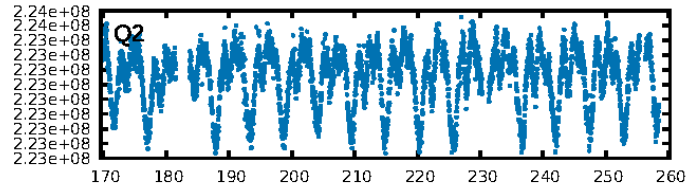
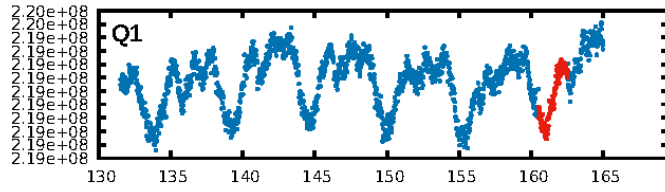
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.45 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 17.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.43e-08
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -6.345
Centroid-sig: N/A
Centroid-so: 2.960 arcsec [1.99 σ]
OotOffset-rm: 0.316 arcsec [0.31 σ]
OotOffset-st: 2/1/0/2 [5]
KicOffset-rm: 0.452 arcsec [0.35 σ]
KicOffset-st: 2/1/0/2 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.00 [0/7]

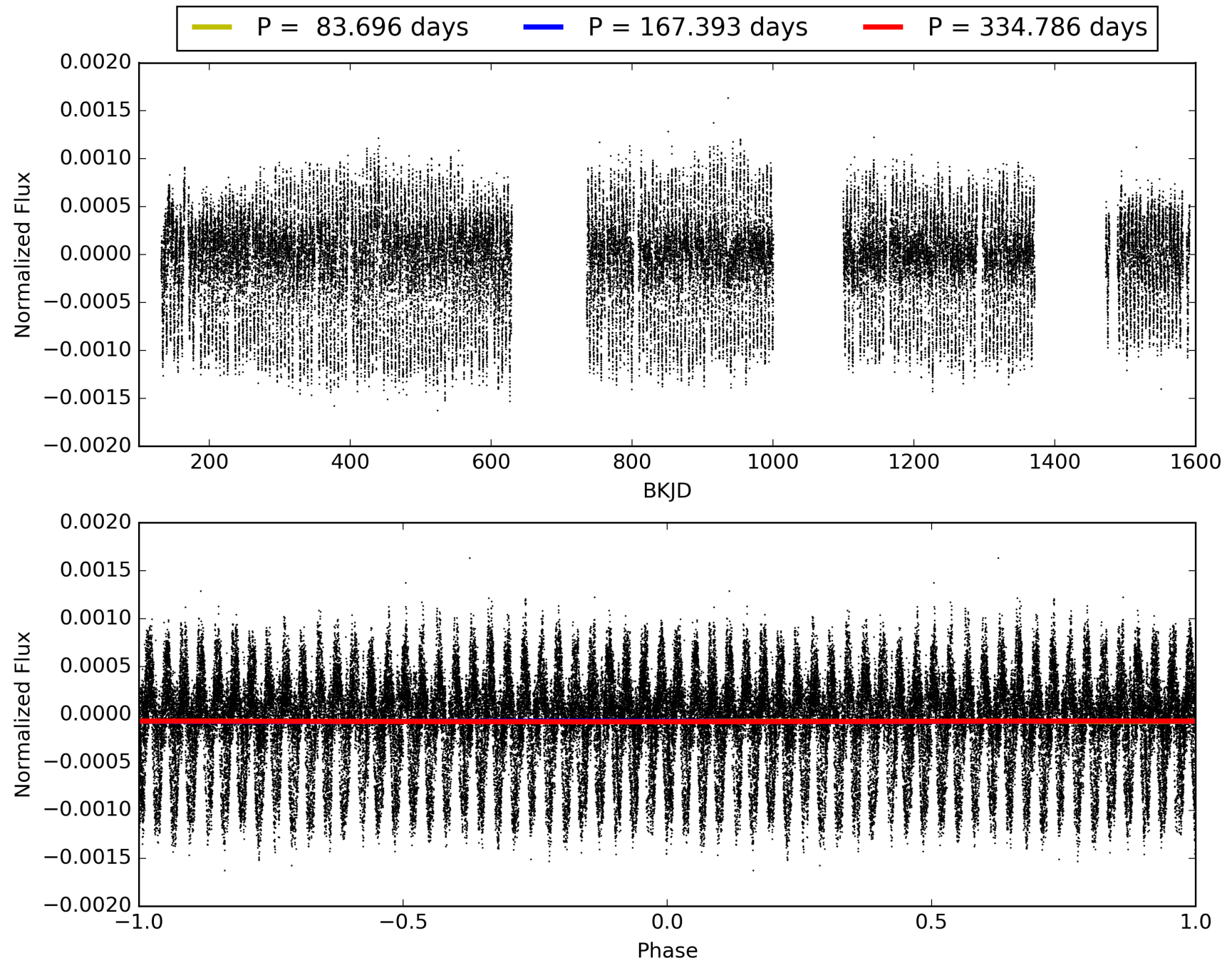
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:39:45 Z

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

TCE 010154994-02, PDC Light Curves

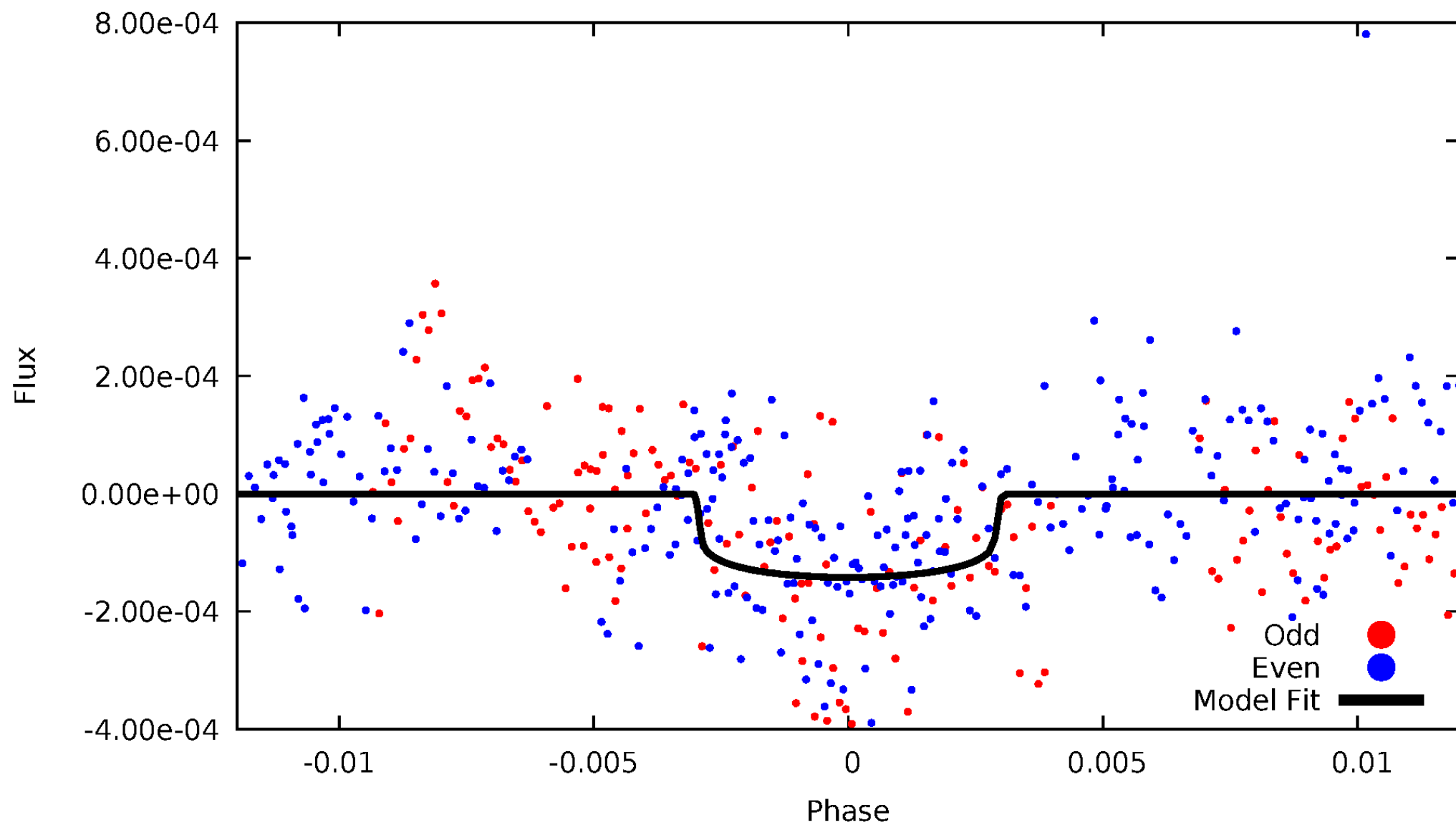


TCE 010154994-02



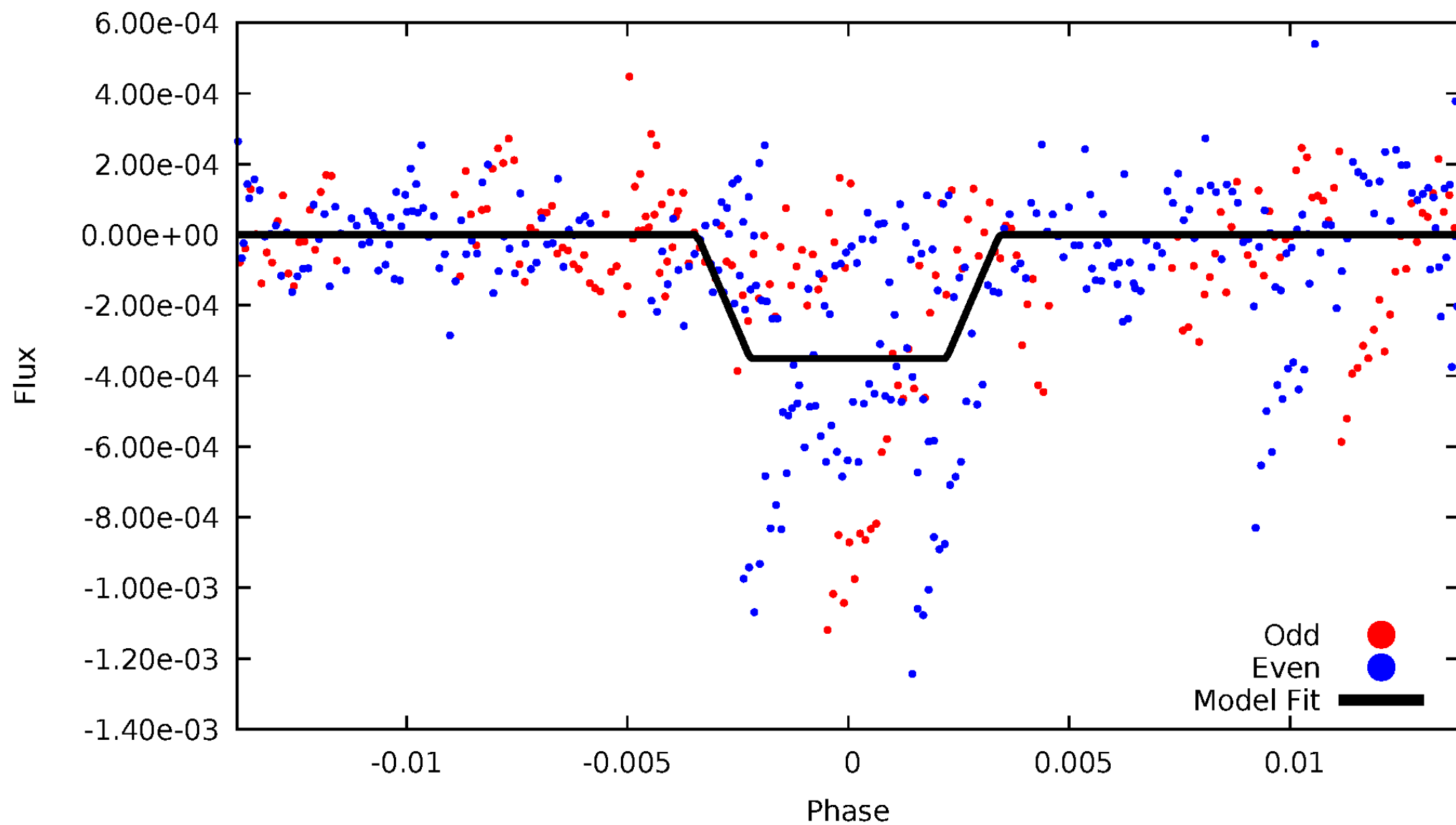
DV Odd/Even

TCE 010154994-02



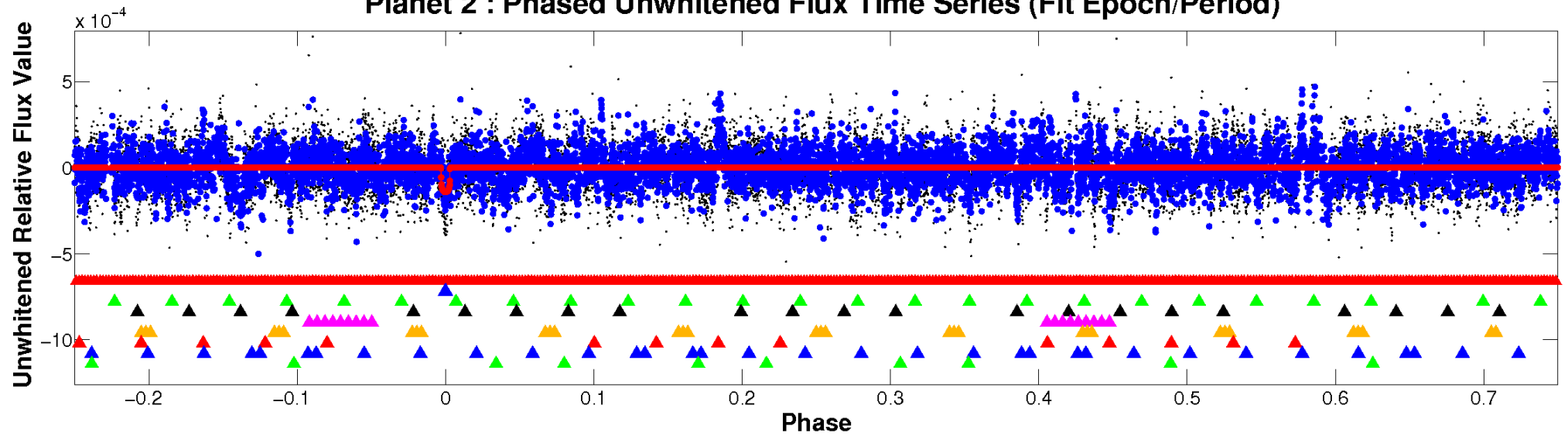
ALT Odd/Even

TCE 010154994-02

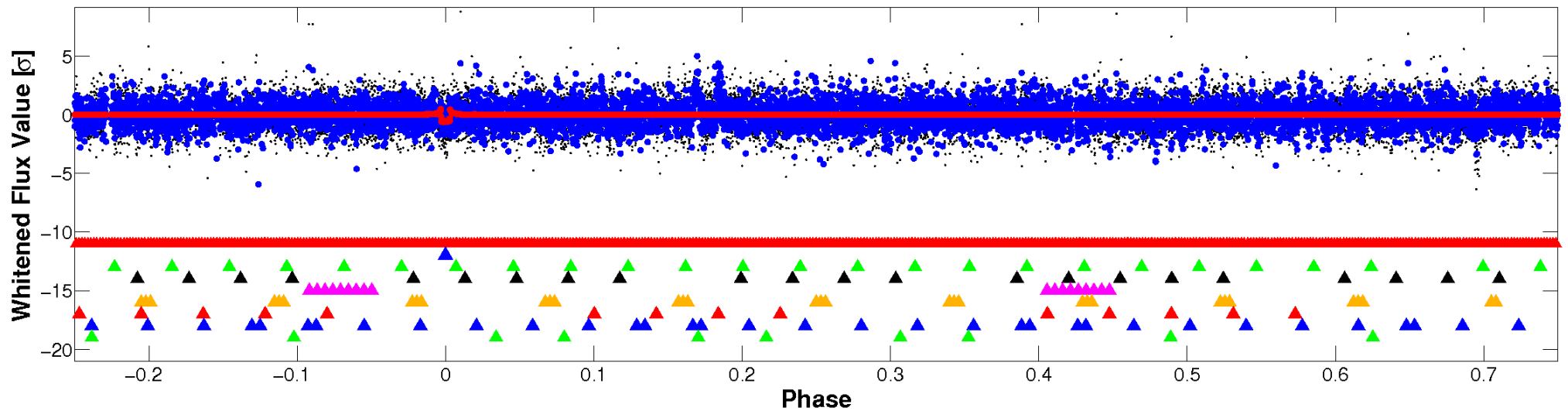


Non-Whitened Vs. Whitened Light Curve

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

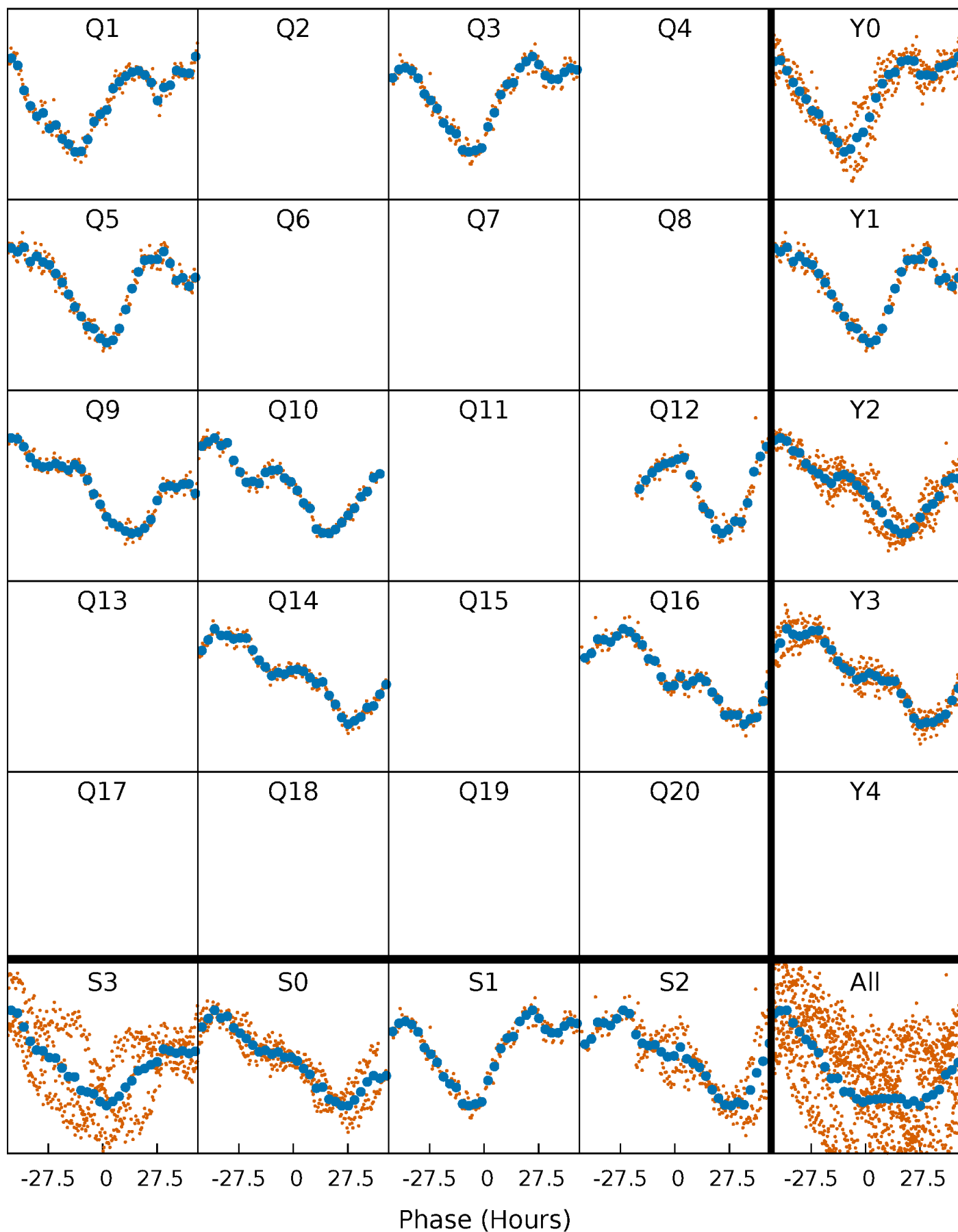


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



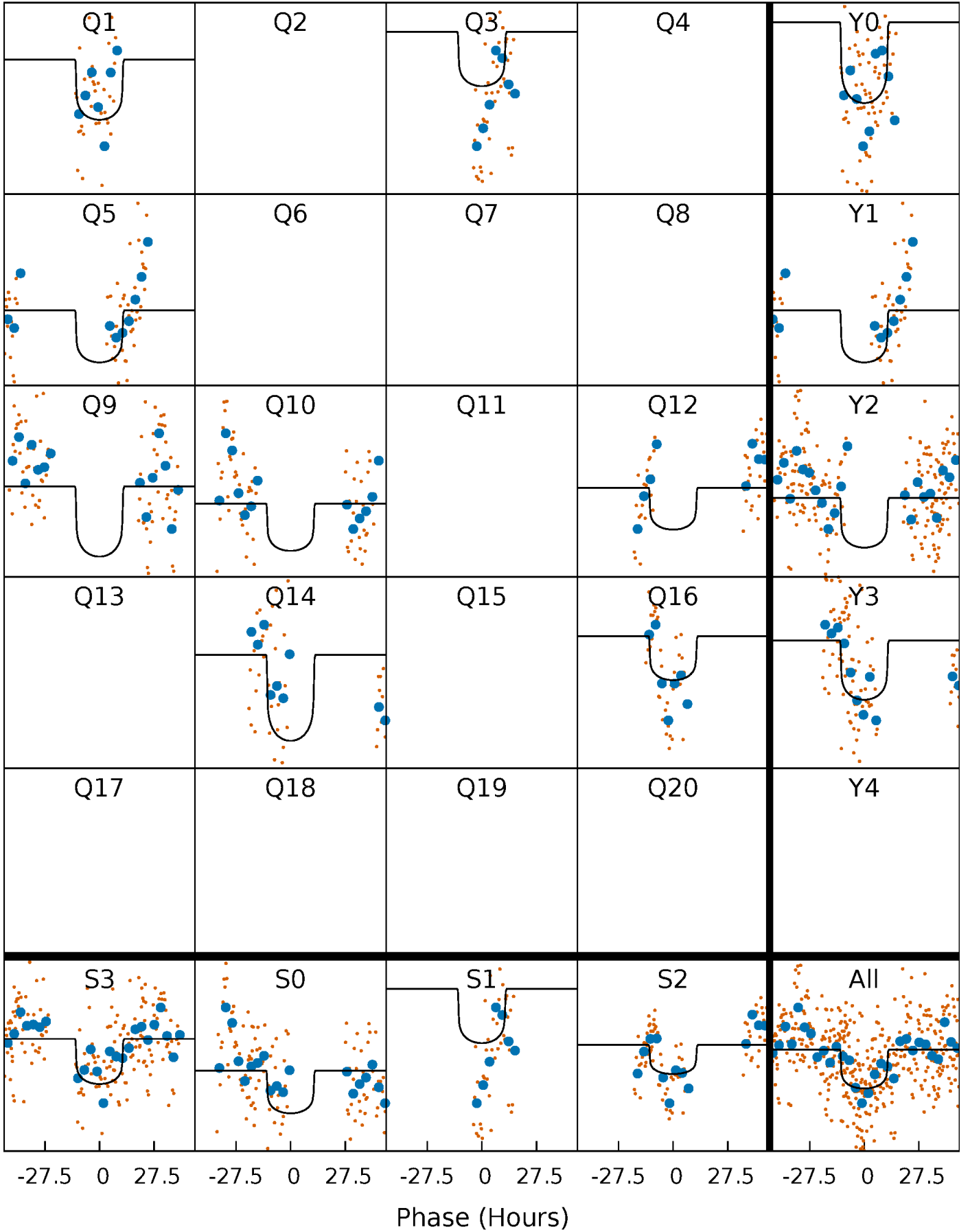
PDC Quarter-Phased Transit Curves

TCE 010154994-02 P=167.392925 Days $T_0=161.515519$ (BKJD)



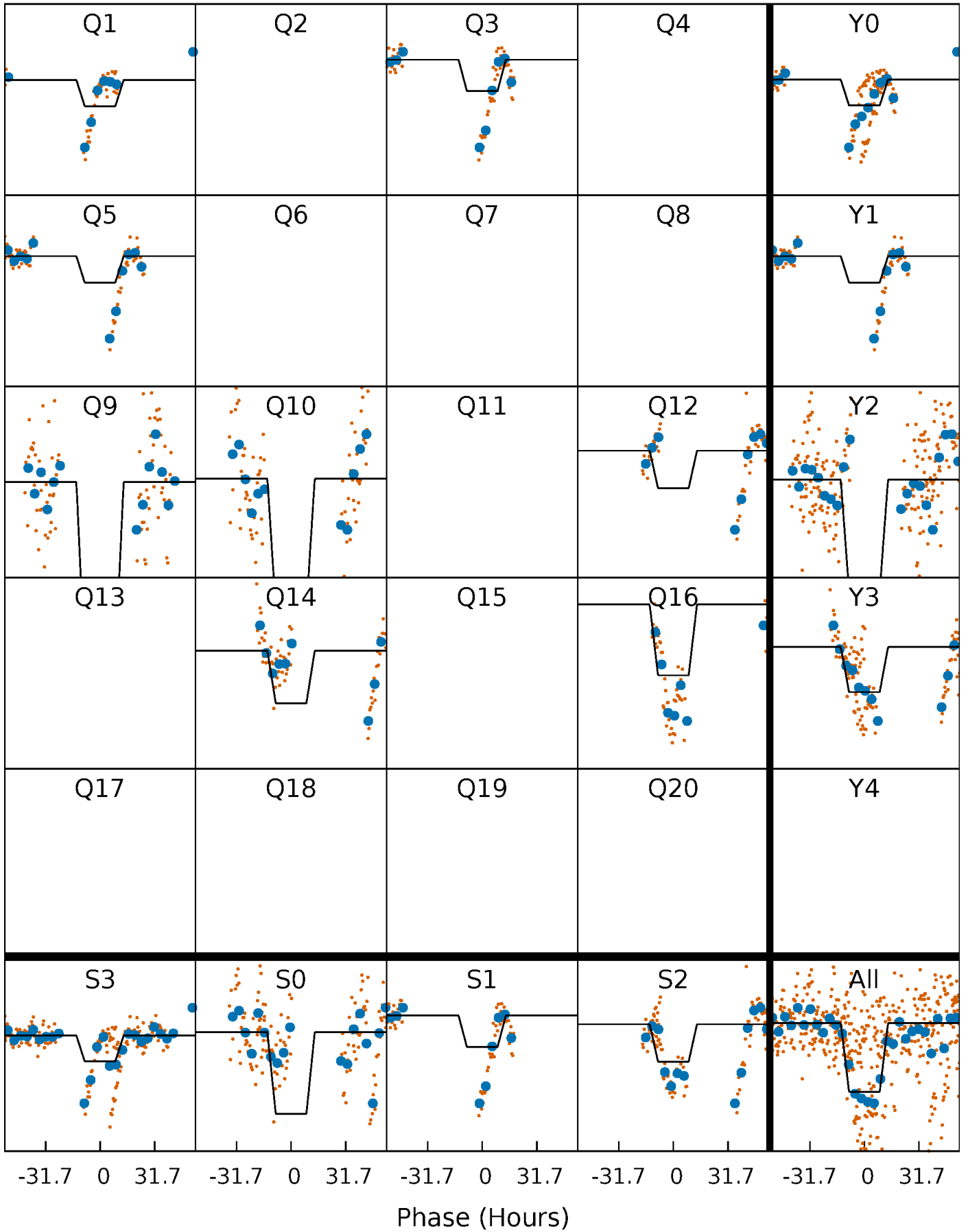
DV Quarter-Phased Transit Curves

TCE 010154994-02 $P=167.392925$ Days $T_0=161.515519$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

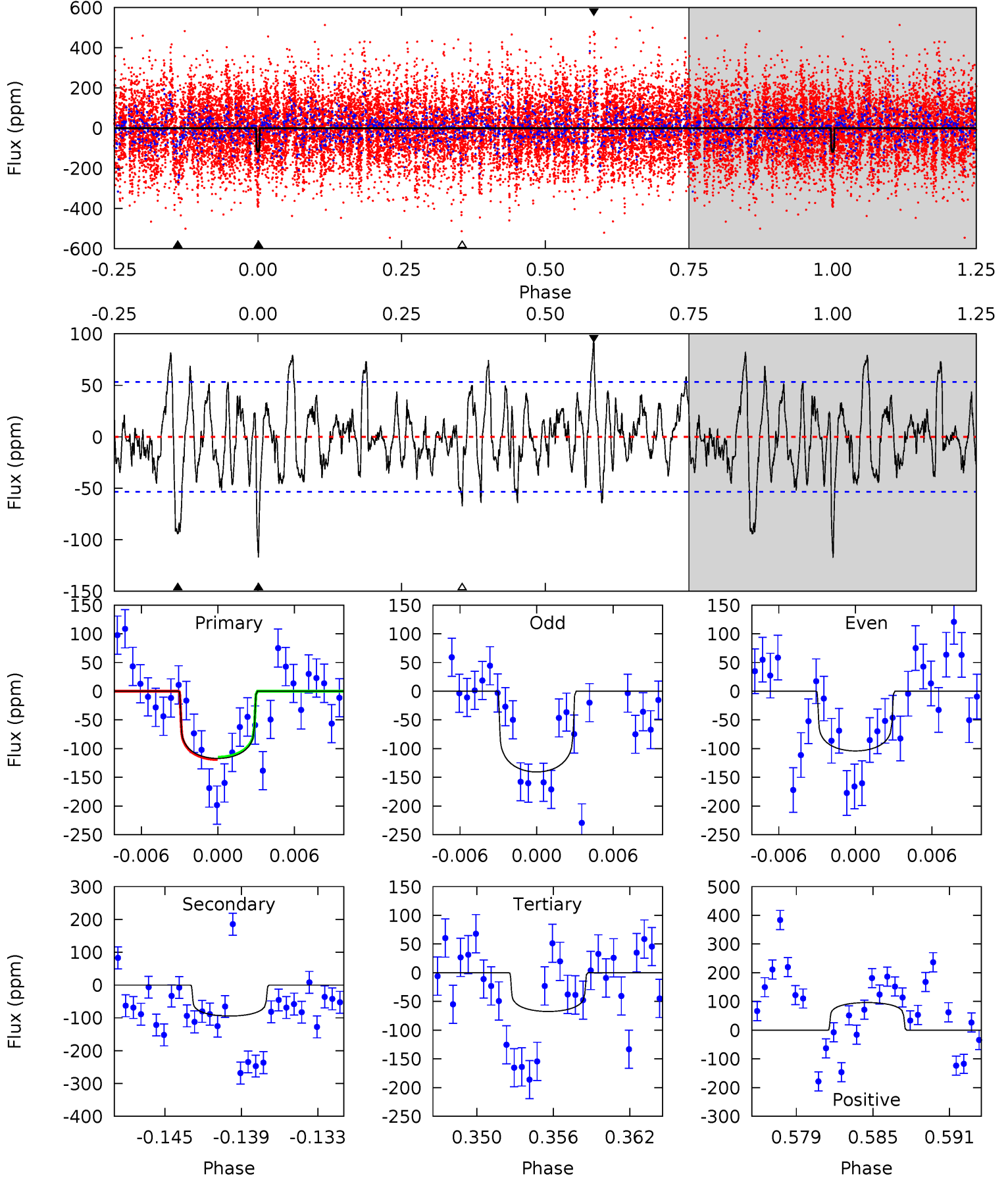
TCE 010154994-02 $P=167.398535$ Days $T_0=161.415818$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-02, P = 167.392925 Days, E = 161.515519 Days

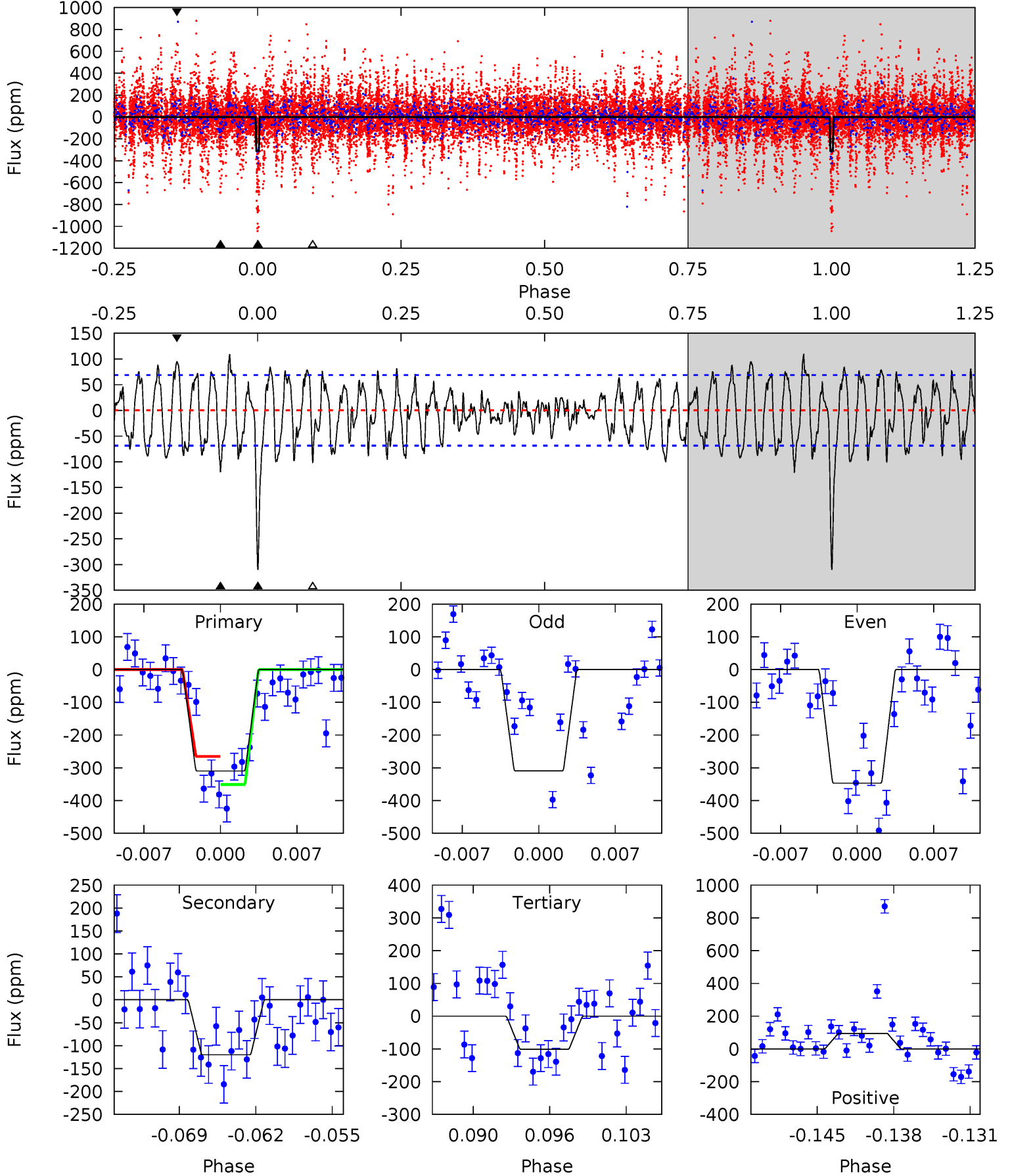
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	9.08	6.48	9.24	5.12	2.75	2.62	4.77	2.01	2.59	-0.16	1.65	0.96	0.45	0.20



Alt Model-Shift Uniqueness Test

010154994-02, P = 167.398535 Days, E = 161.415818 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.0	8.90	7.49	7.01	5.10	2.70	3.31	15.5	16.0	1.41	1.89	1.38	1.01	0.26	3.16



Stellar Parameters For KIC 010154994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-94 ± 10	$3.14^{+0.77}_{-0.77}$	783^{+50}_{-70}	6142^{+731}_{-540}	2672^{+1888}_{-953}
Alt.	-120 ± 13	$5.04^{+0.98}_{-1.02}$	785^{+49}_{-67}	5215^{+391}_{-303}	1305^{+721}_{-402}

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

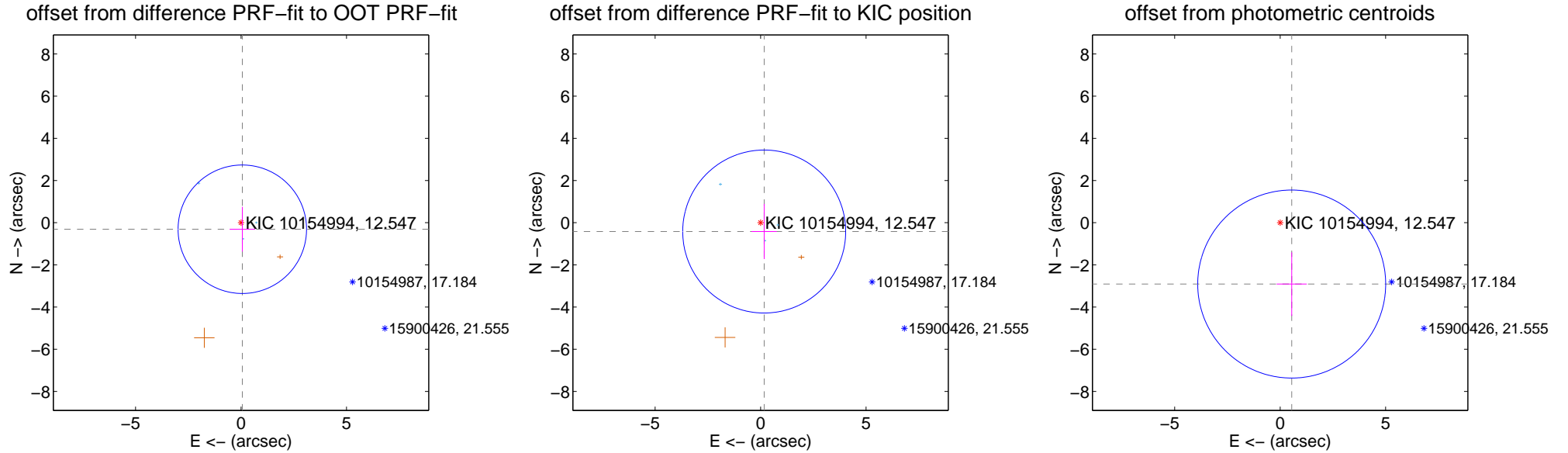
DV Centroid Data

Supplemental centroid analysis for 010154994-02. Kepler magnitude: 12.55. Transit SNR 7.44

There are 3 quarters with good PRF difference image offsets

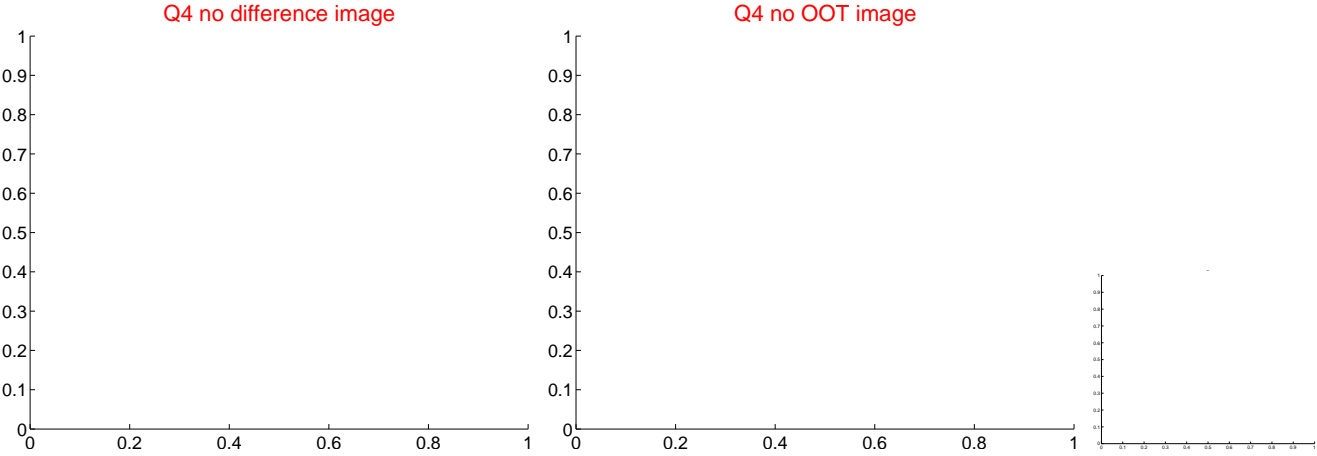
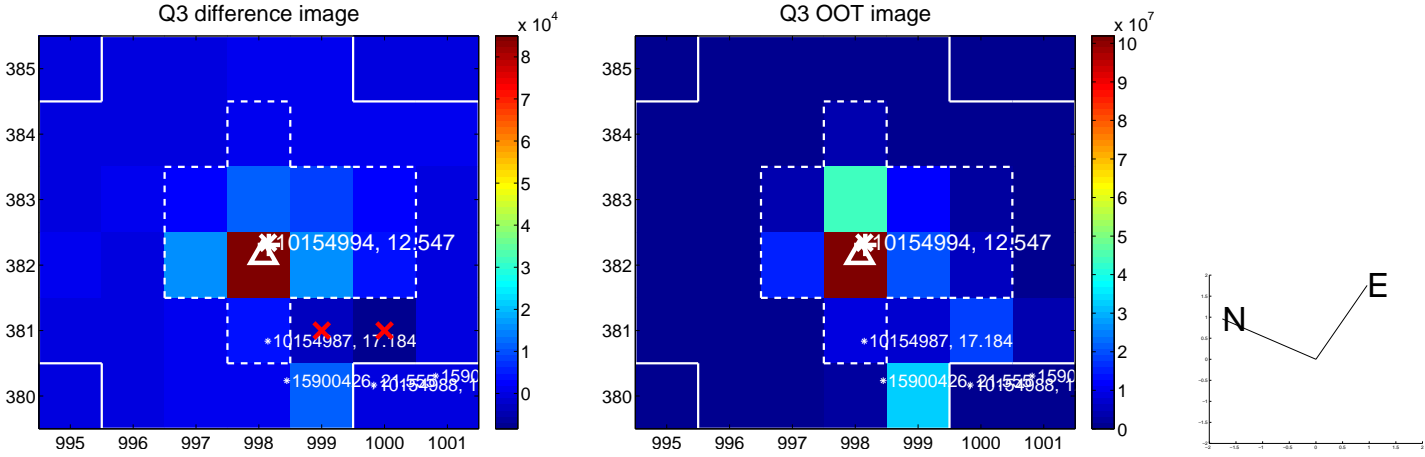
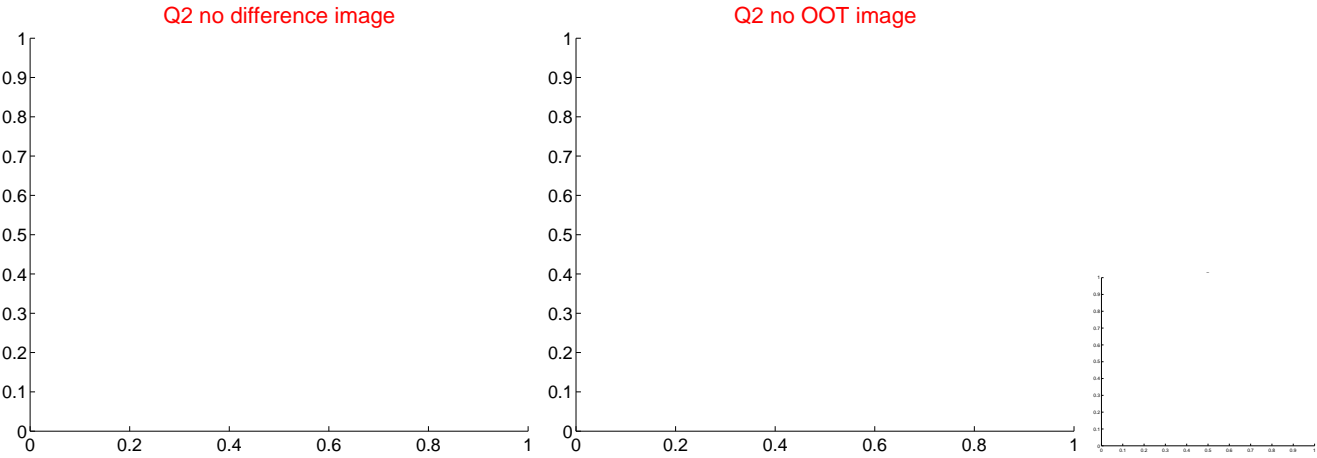
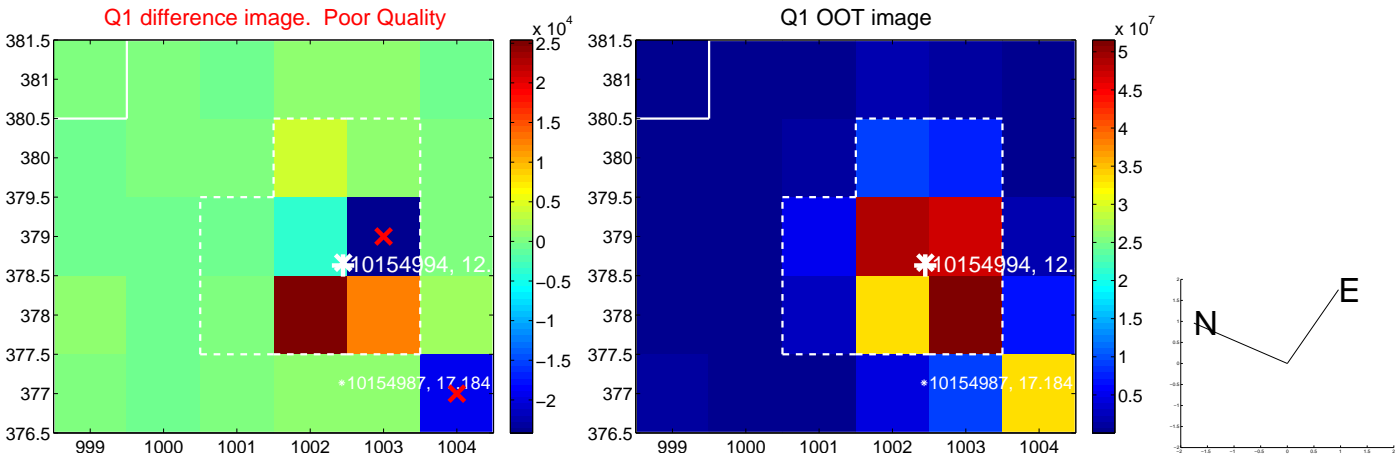
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.316 ± 1.015	0.31	-0.060 ± 0.601	-0.310 ± 1.062
PRF-fit source offset from KIC position	0.452 ± 1.288	0.35	-0.171 ± 0.599	-0.419 ± 1.308
photometric centroid source offset	2.96 ± 1.49	1.99	-0.55 ± 0.71	-2.91 ± 1.51

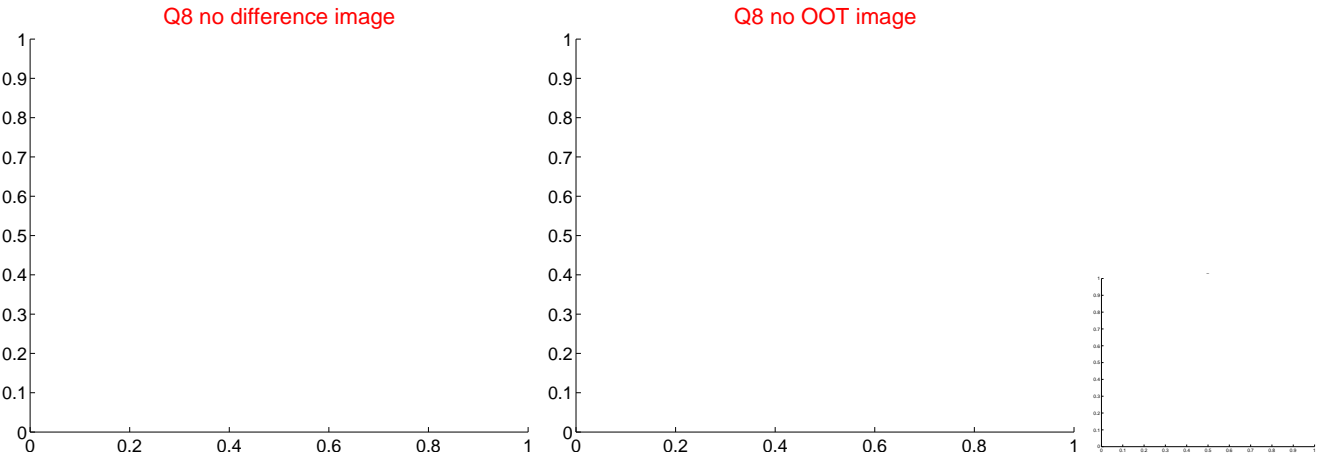
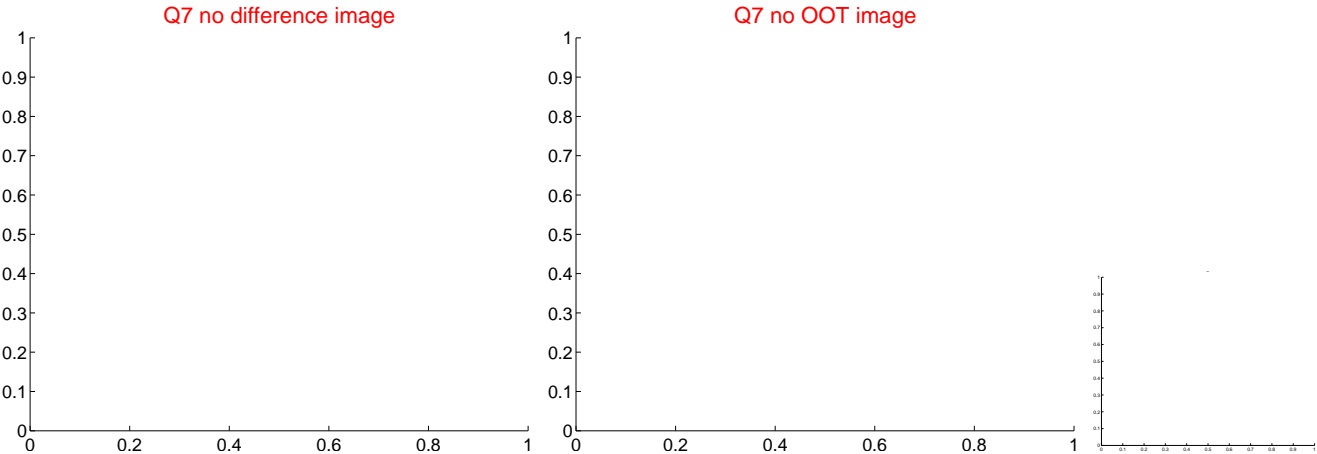
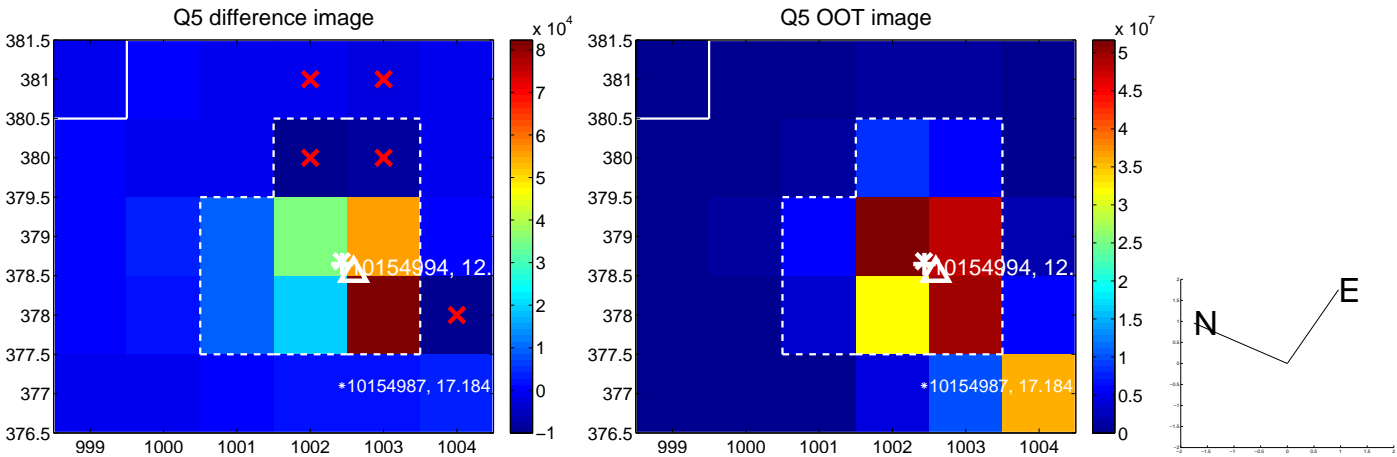


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

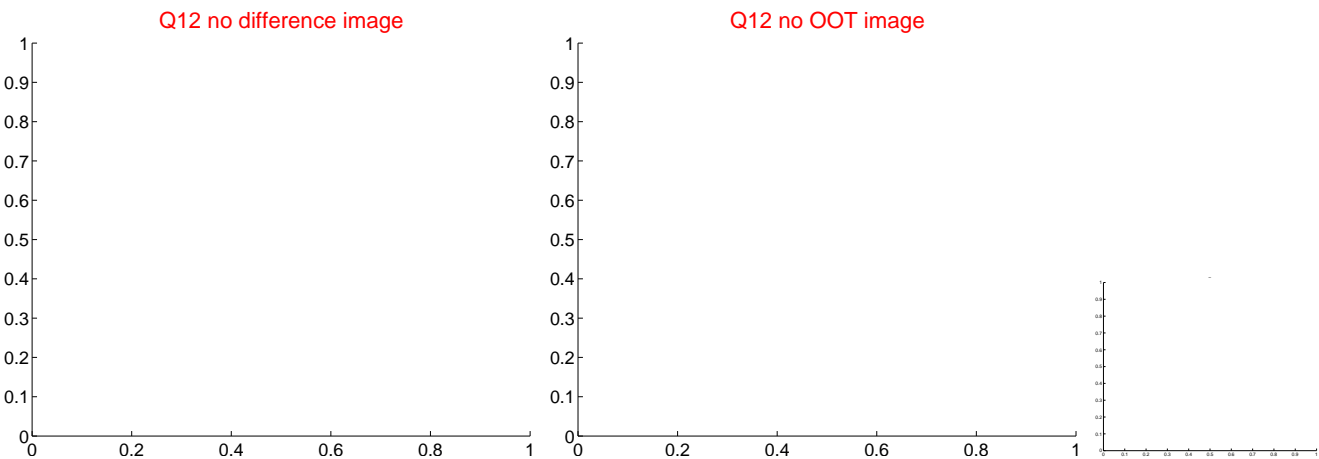
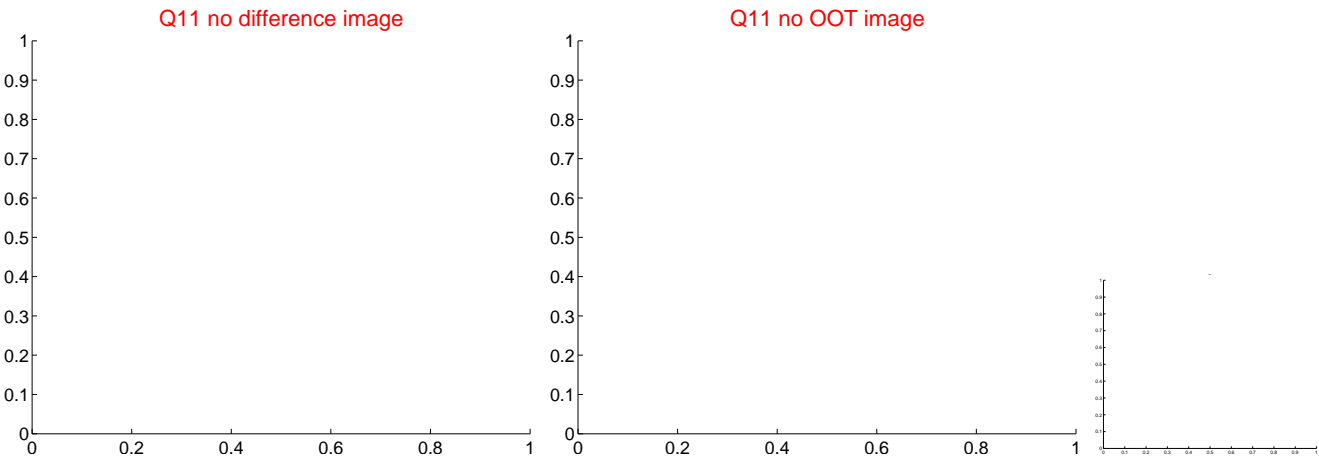
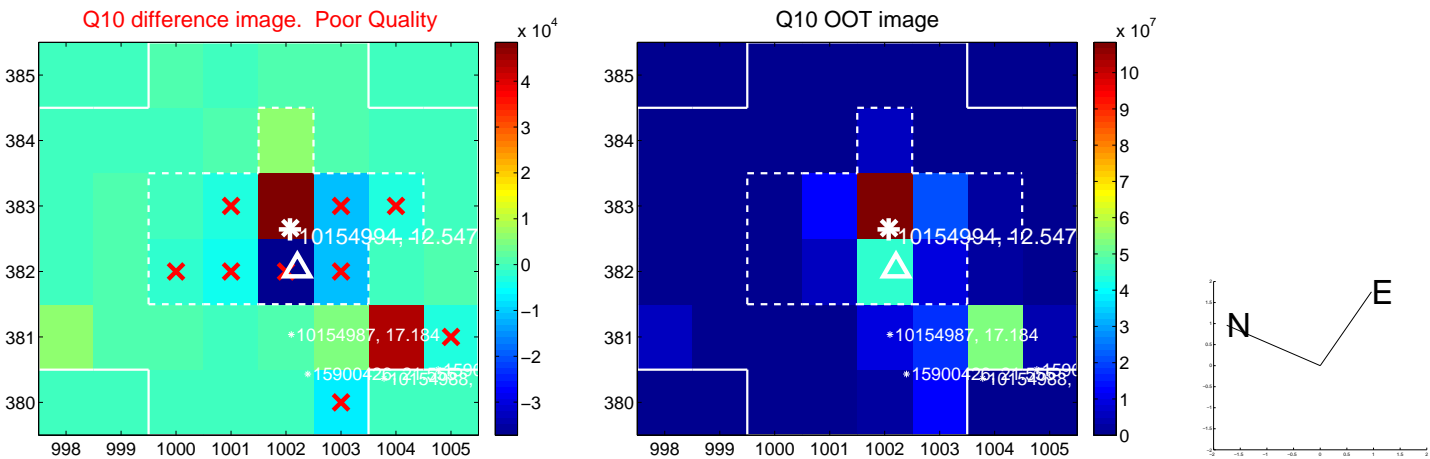
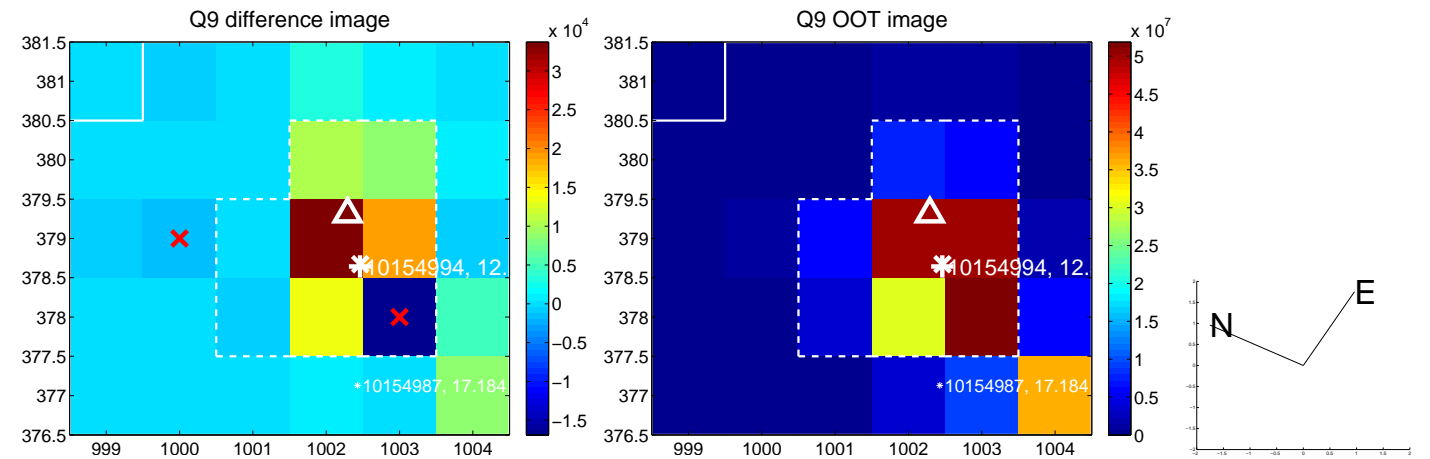
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

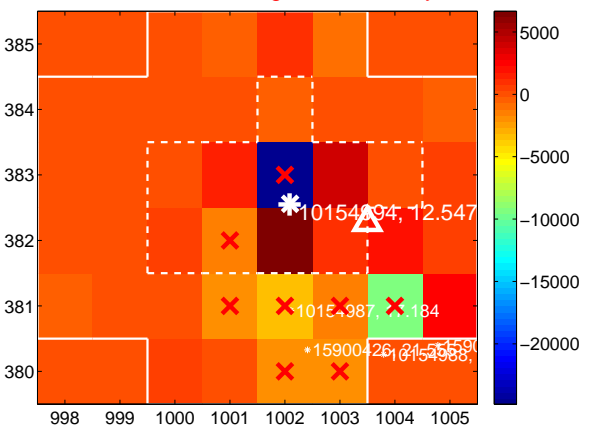
Q13 no difference image



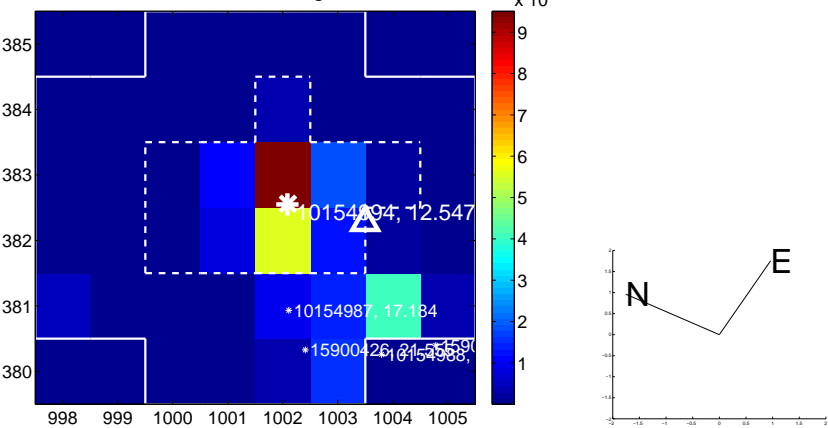
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



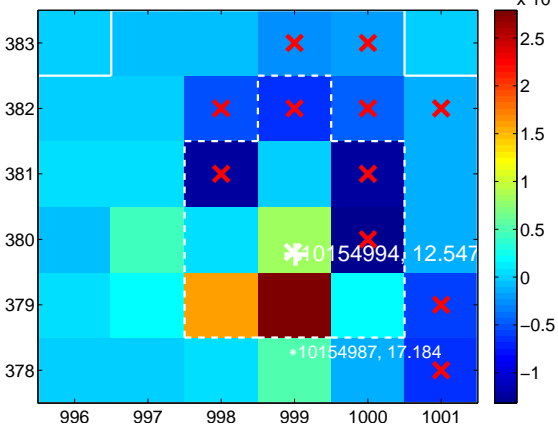
Q15 no difference image



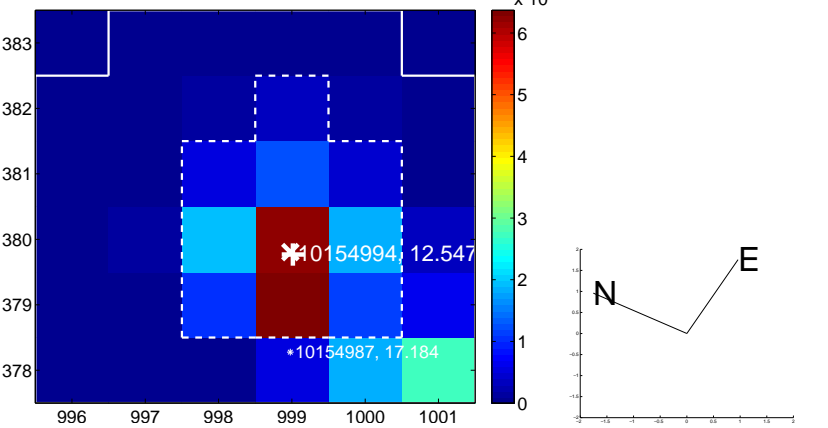
Q15 no OOT image



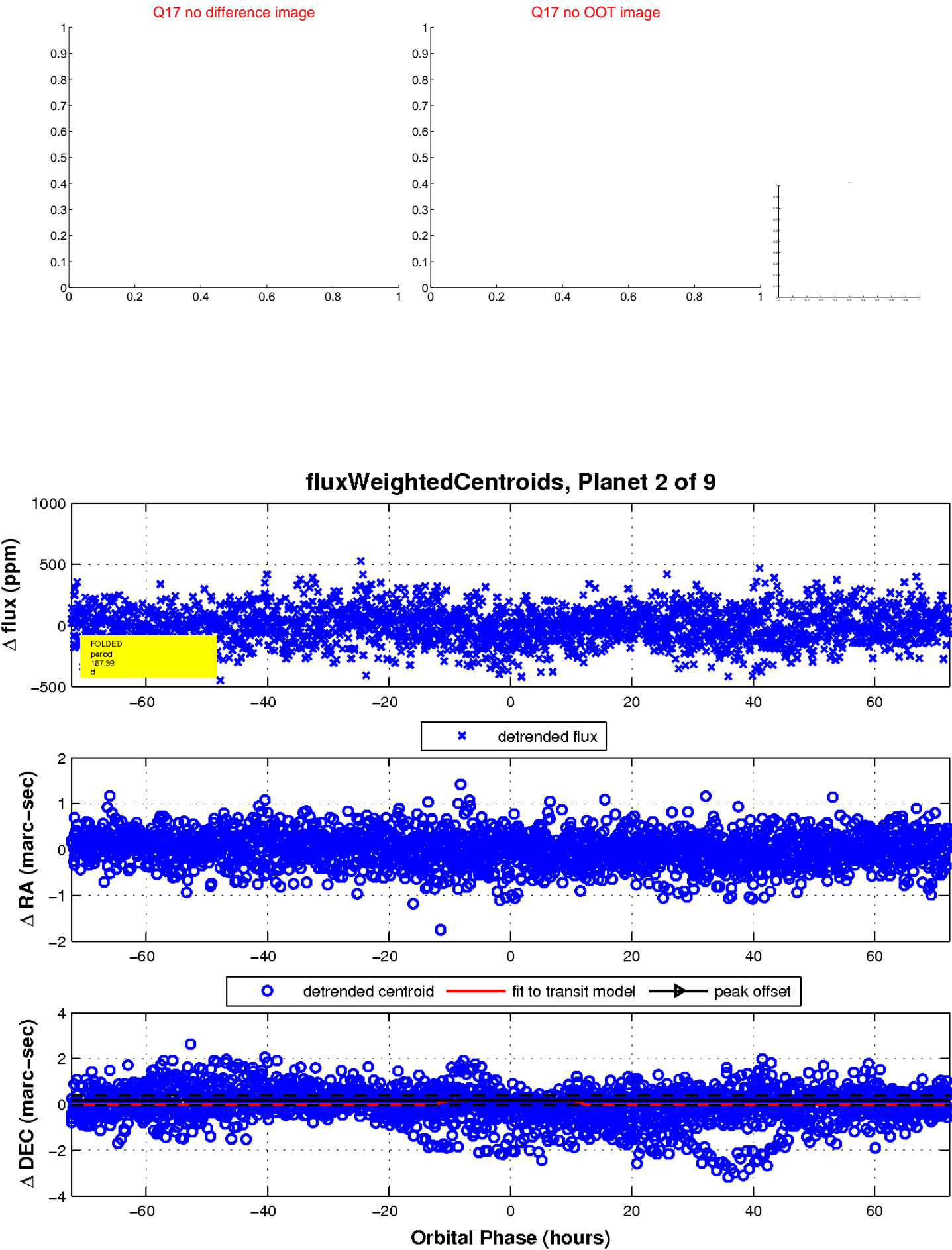
Q16 difference image. Poor Quality



Q16 OOT image

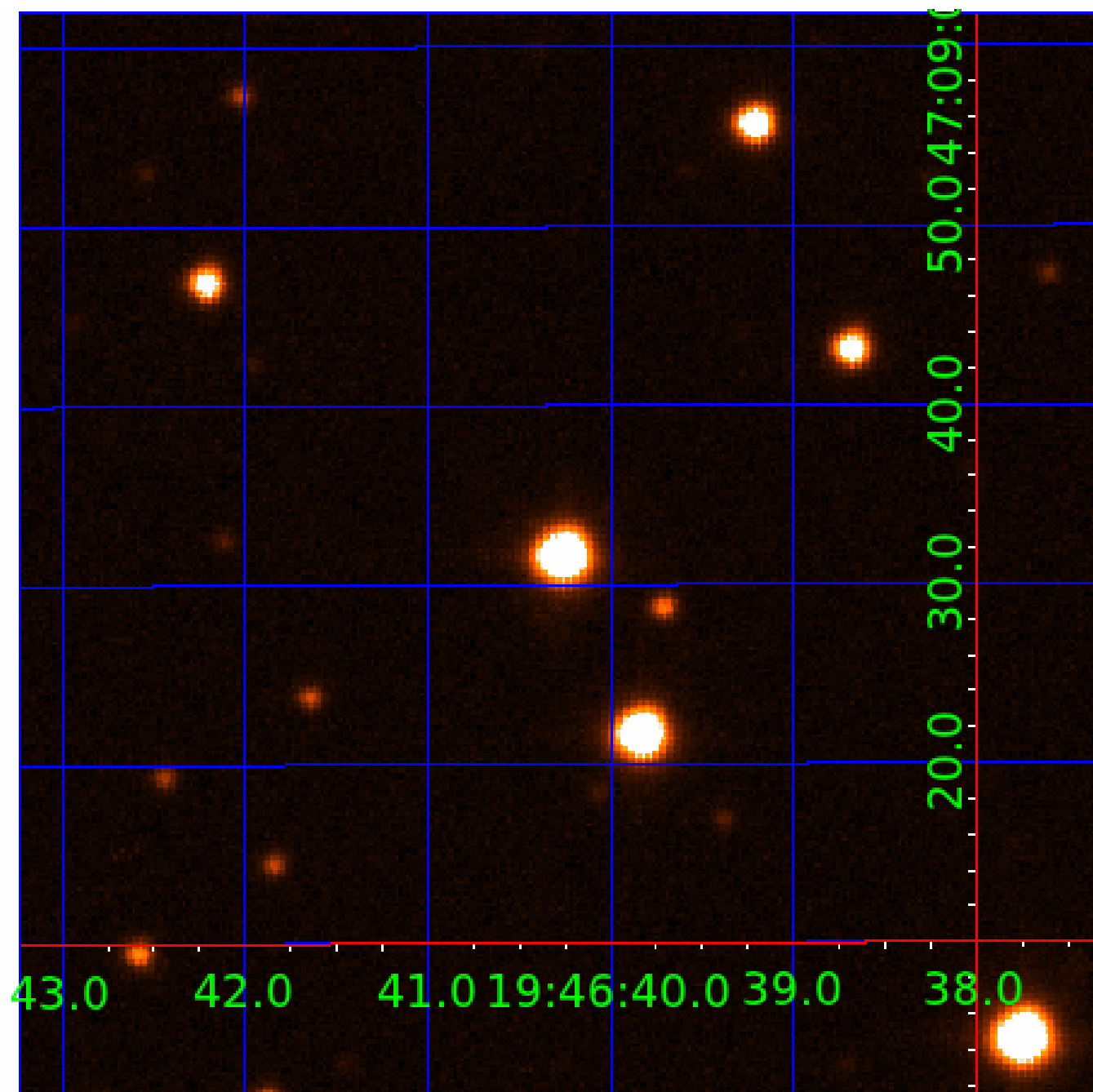


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

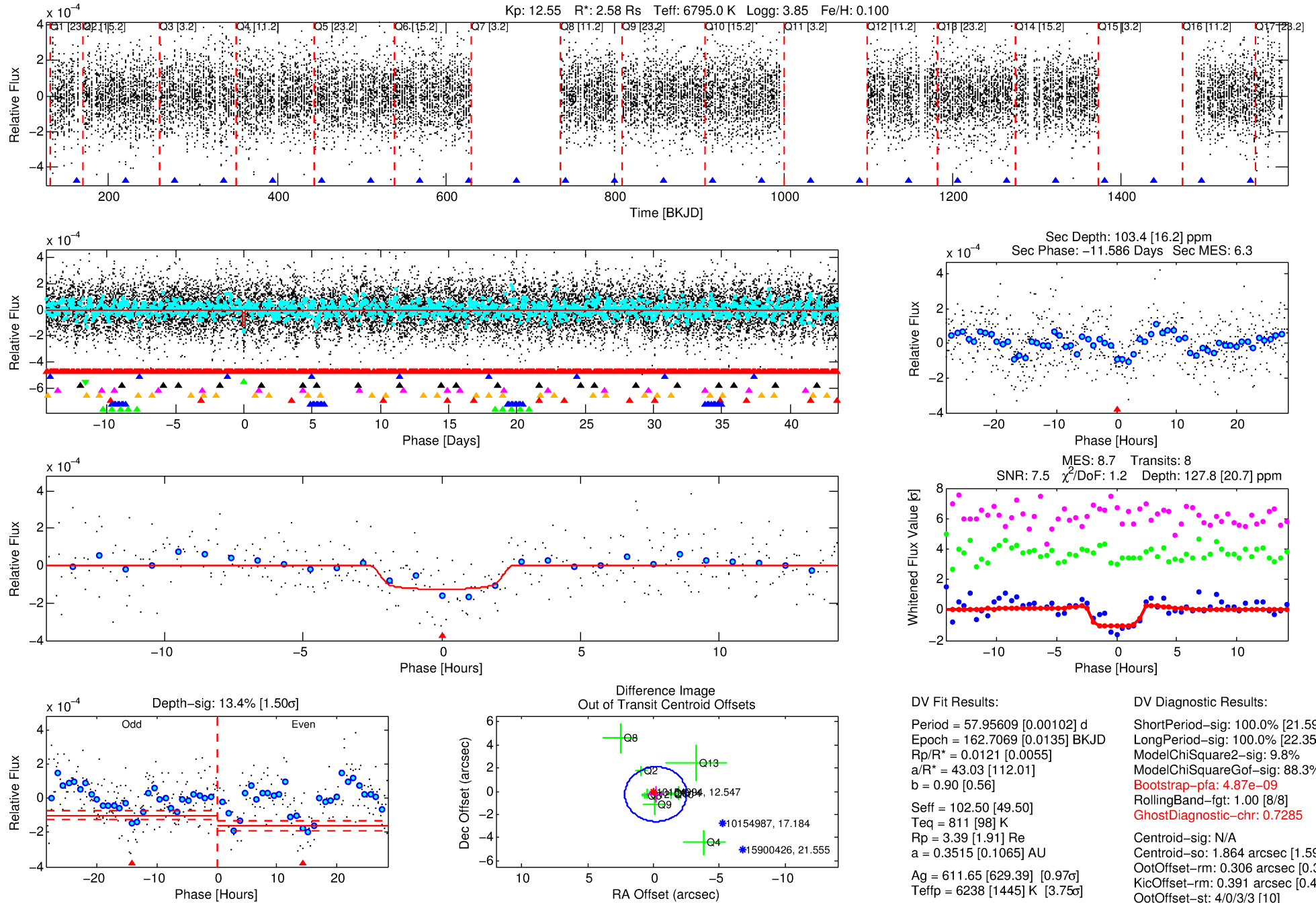
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-03

No Significant Match Found

DV One-Page Summary

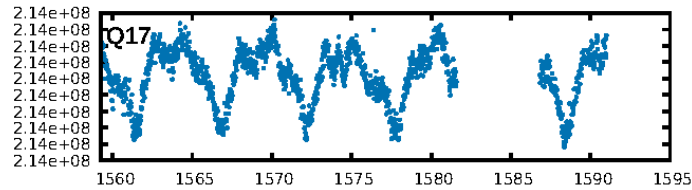
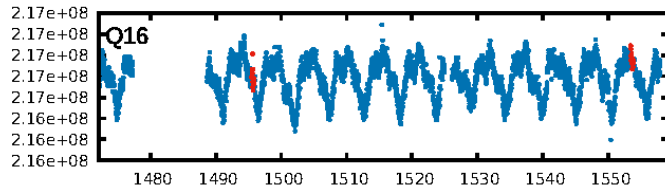
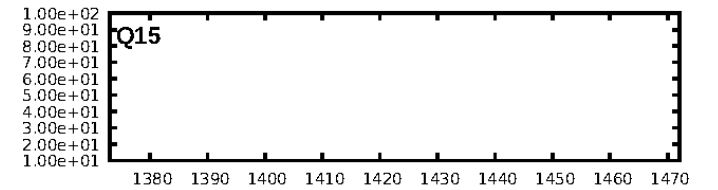
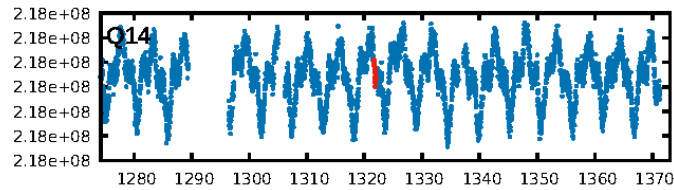
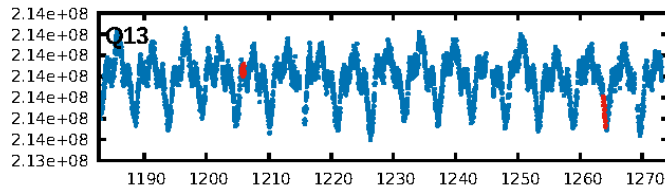
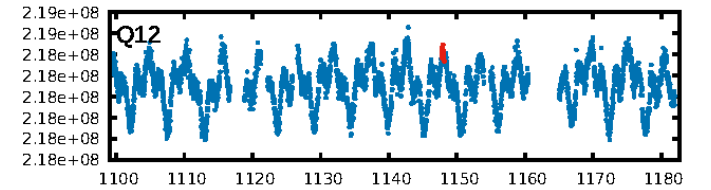
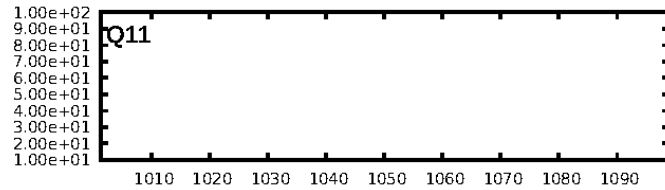
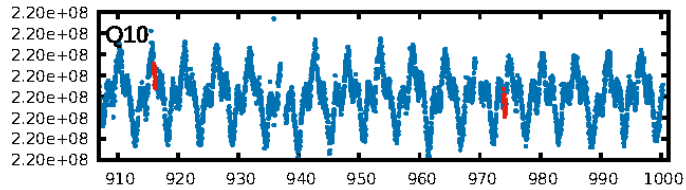
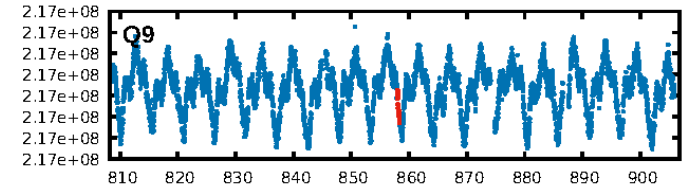
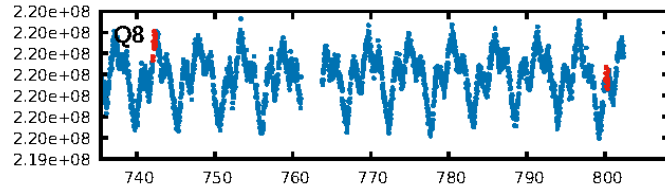
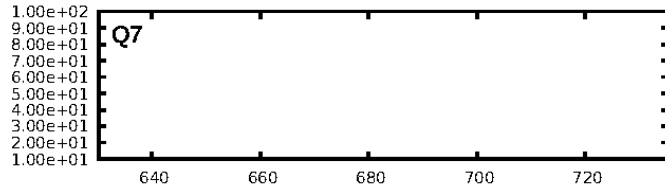
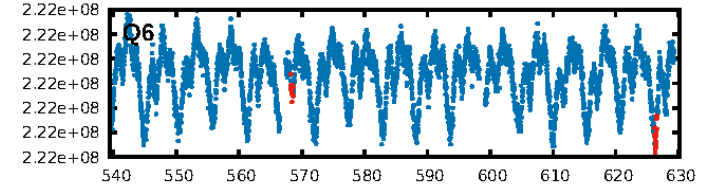
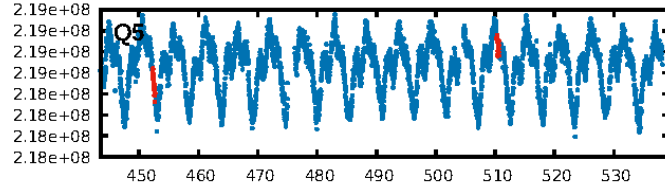
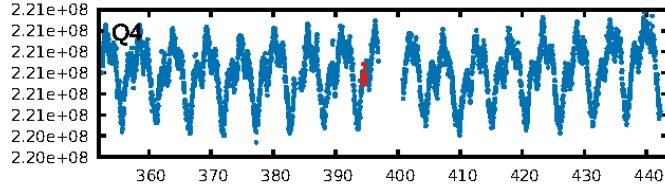
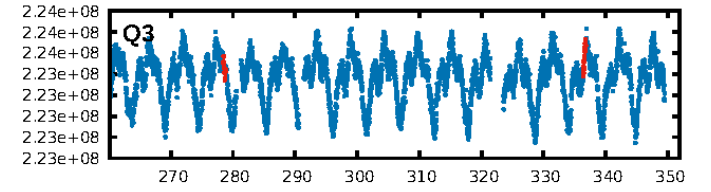
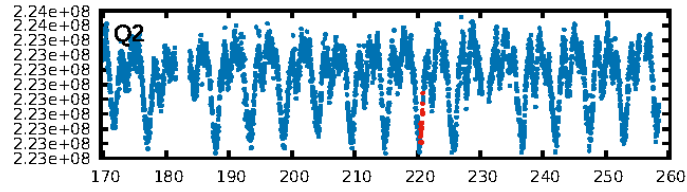
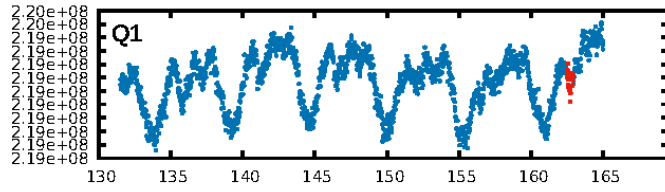
KIC: 10154994 Candidate: 3 of 9 Period: 57.956 d



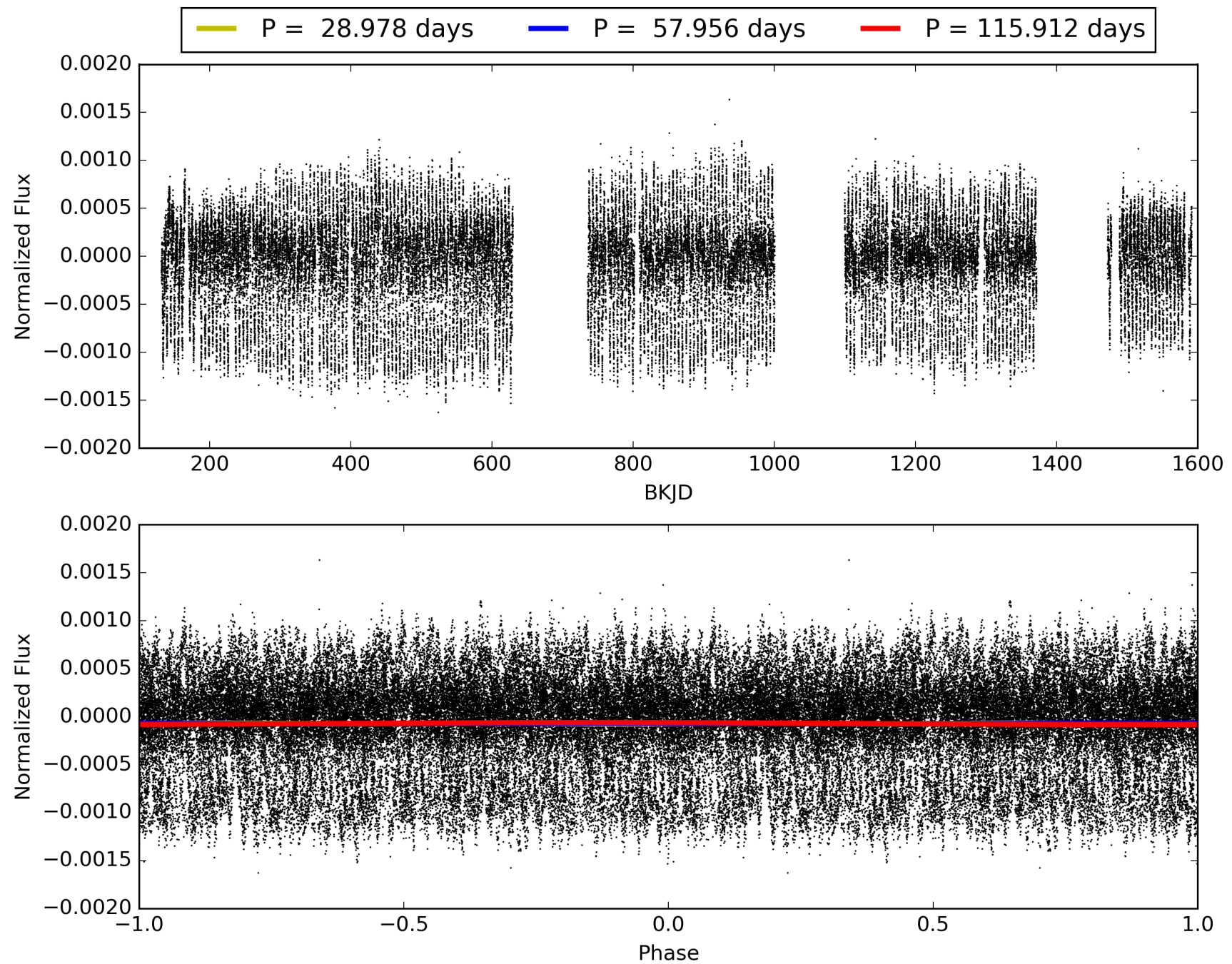
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 010154994-03, PDC Light Curves

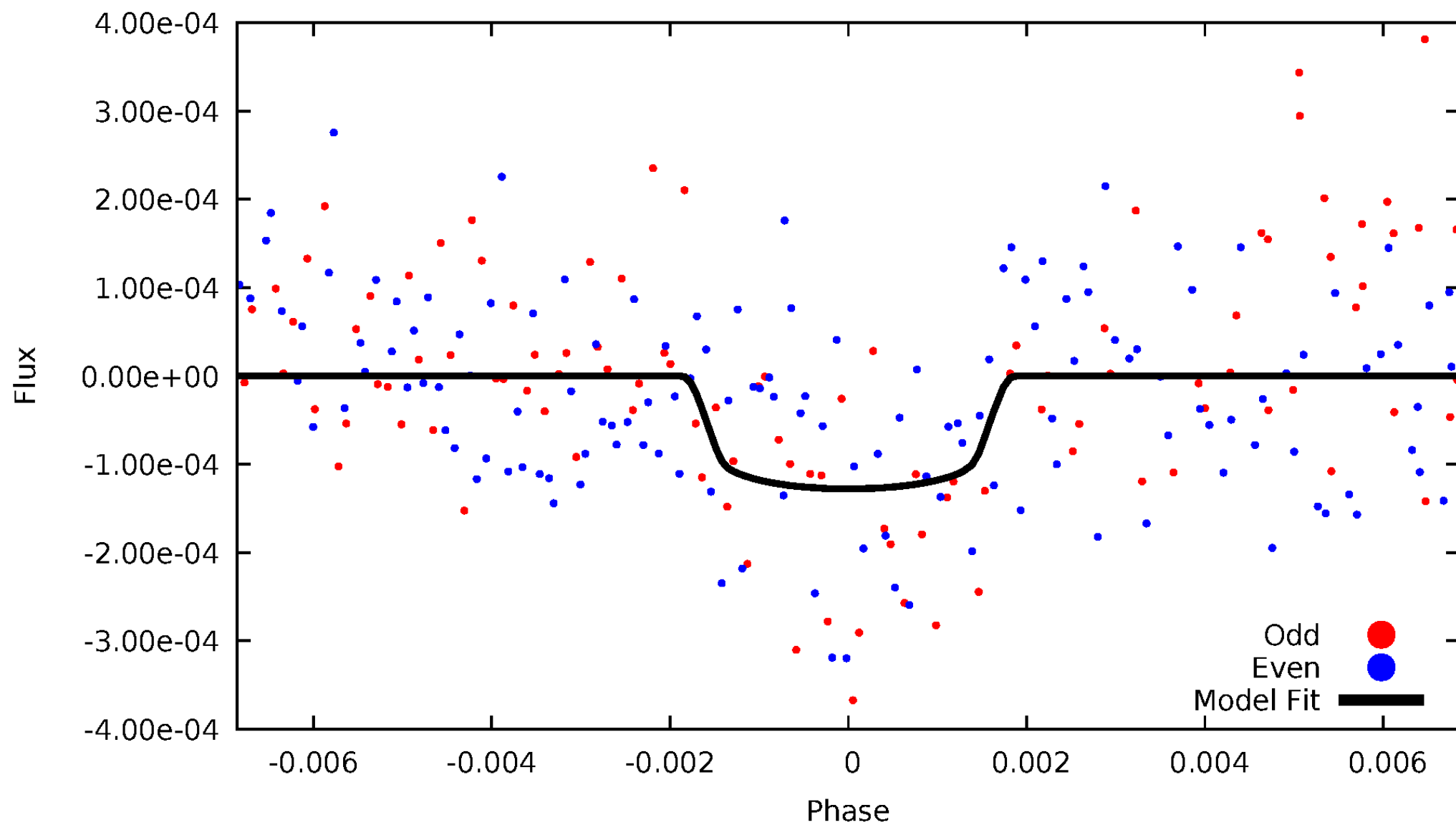


TCE 010154994-03



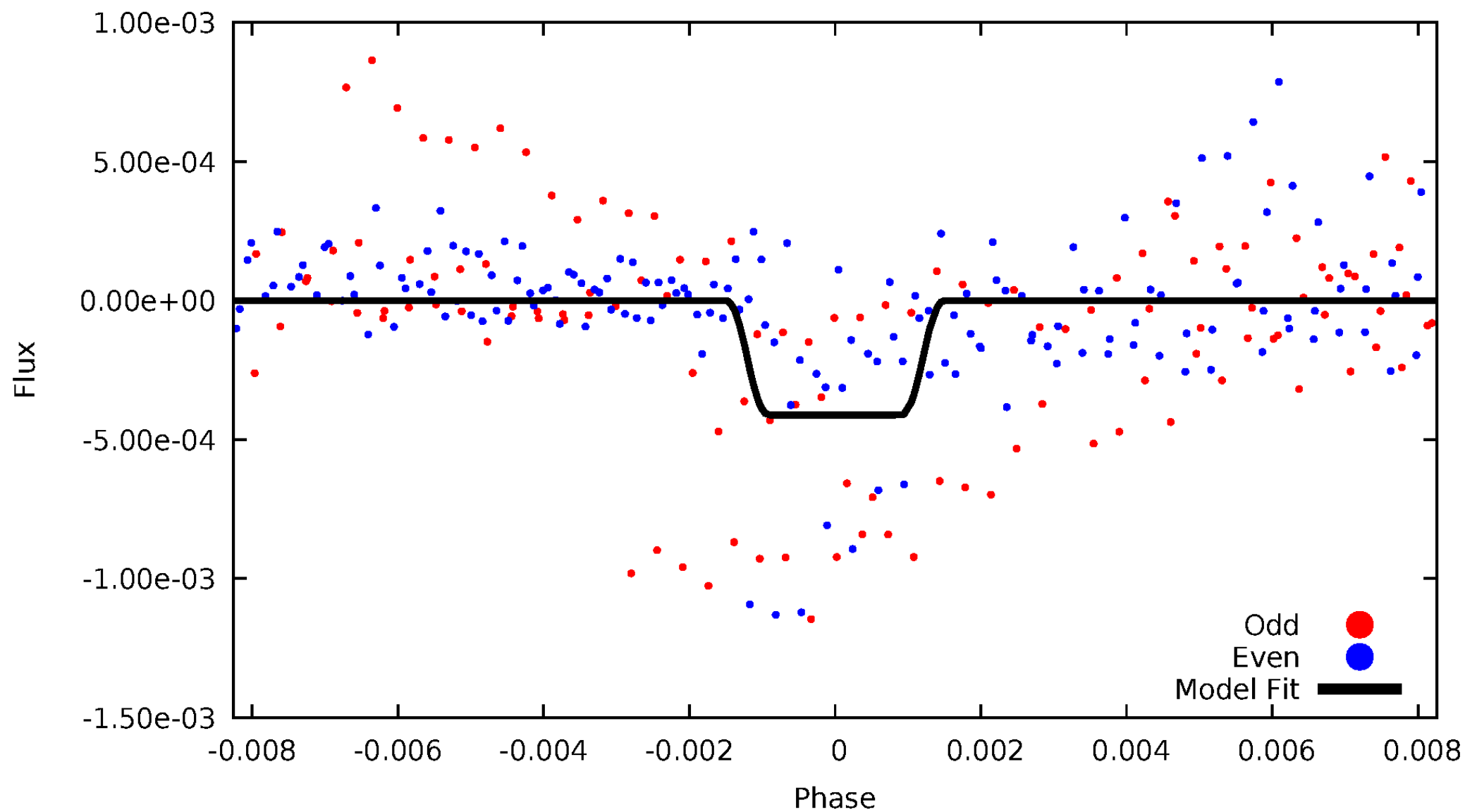
DV Odd/Even

TCE 010154994-03

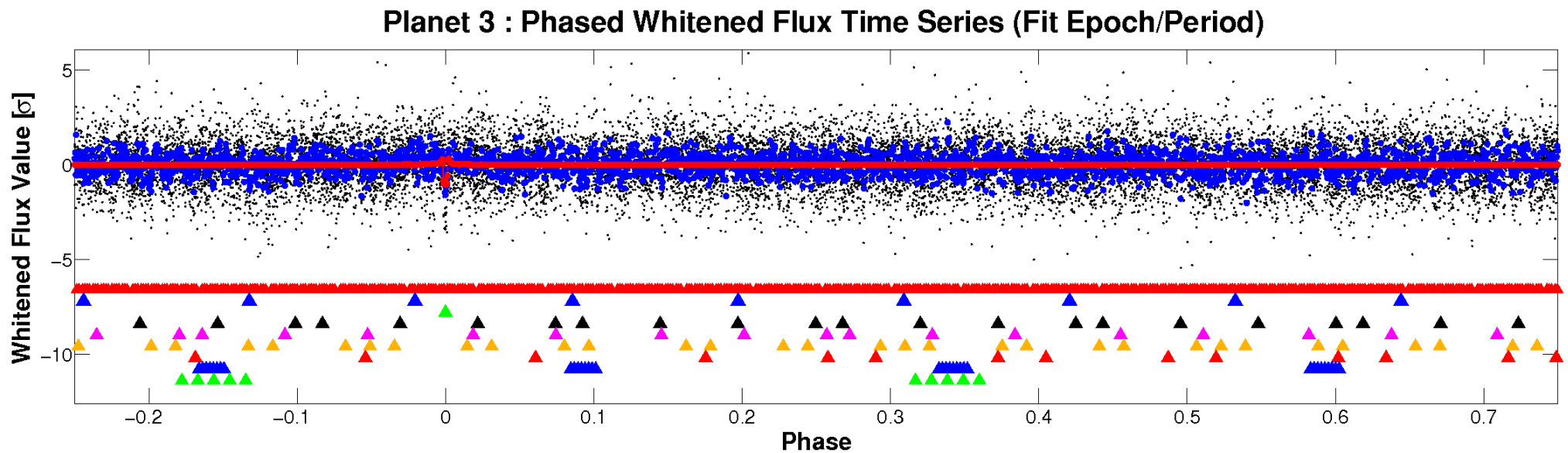
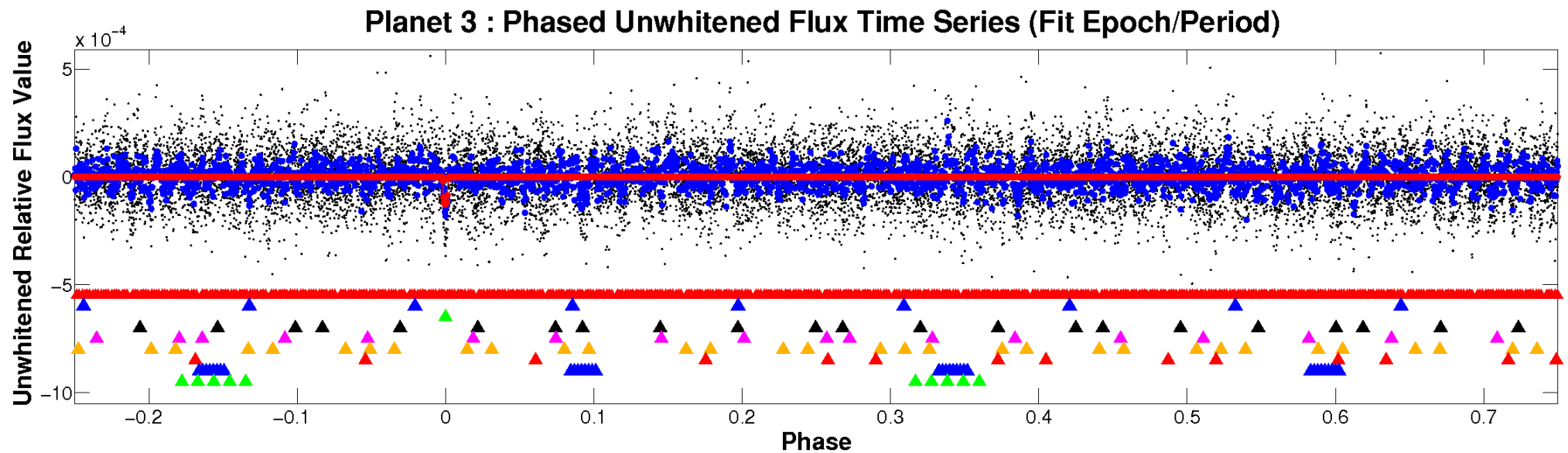


ALT Odd/Even

TCE 010154994-03

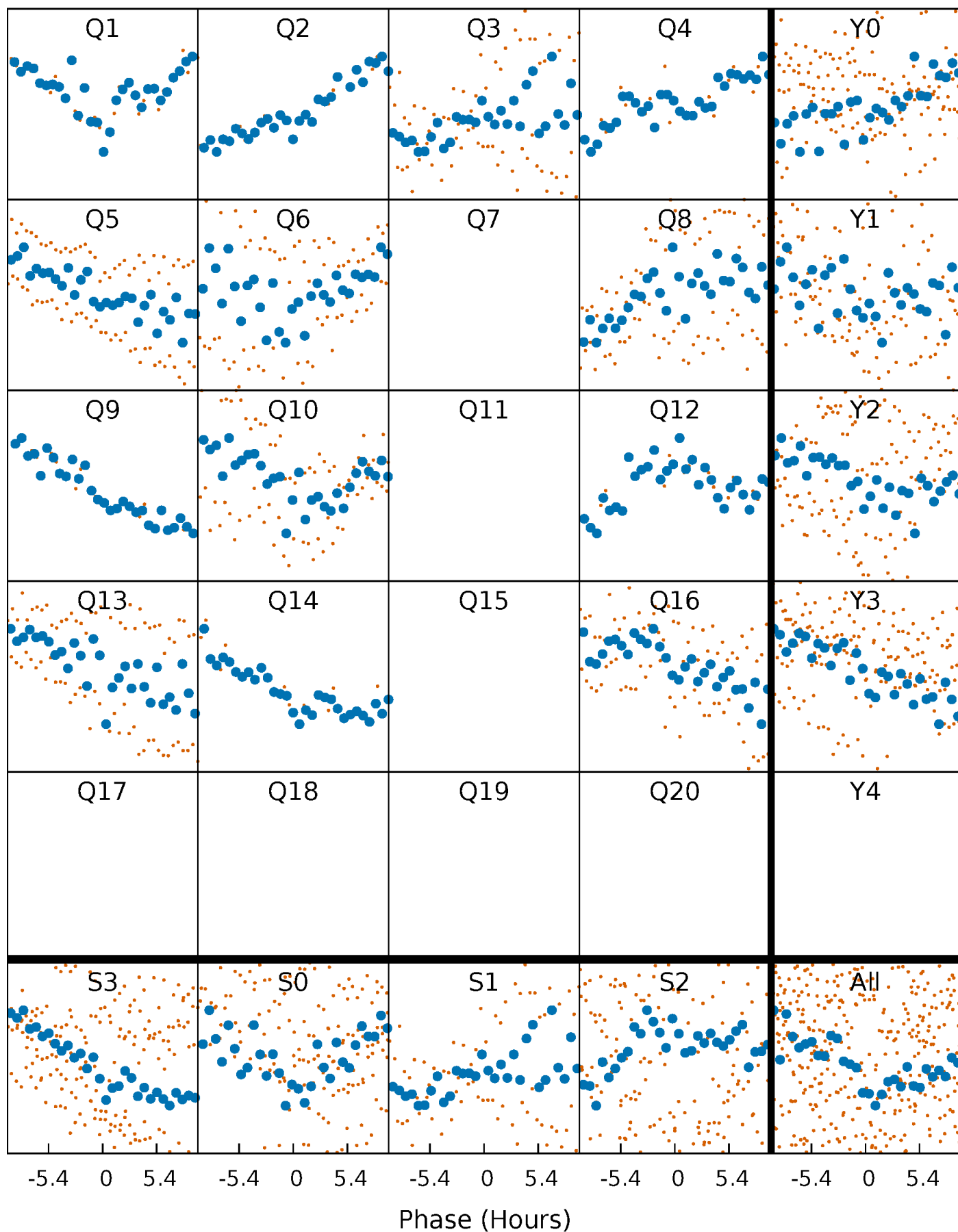


Non-Whitened Vs. Whitened Light Curve



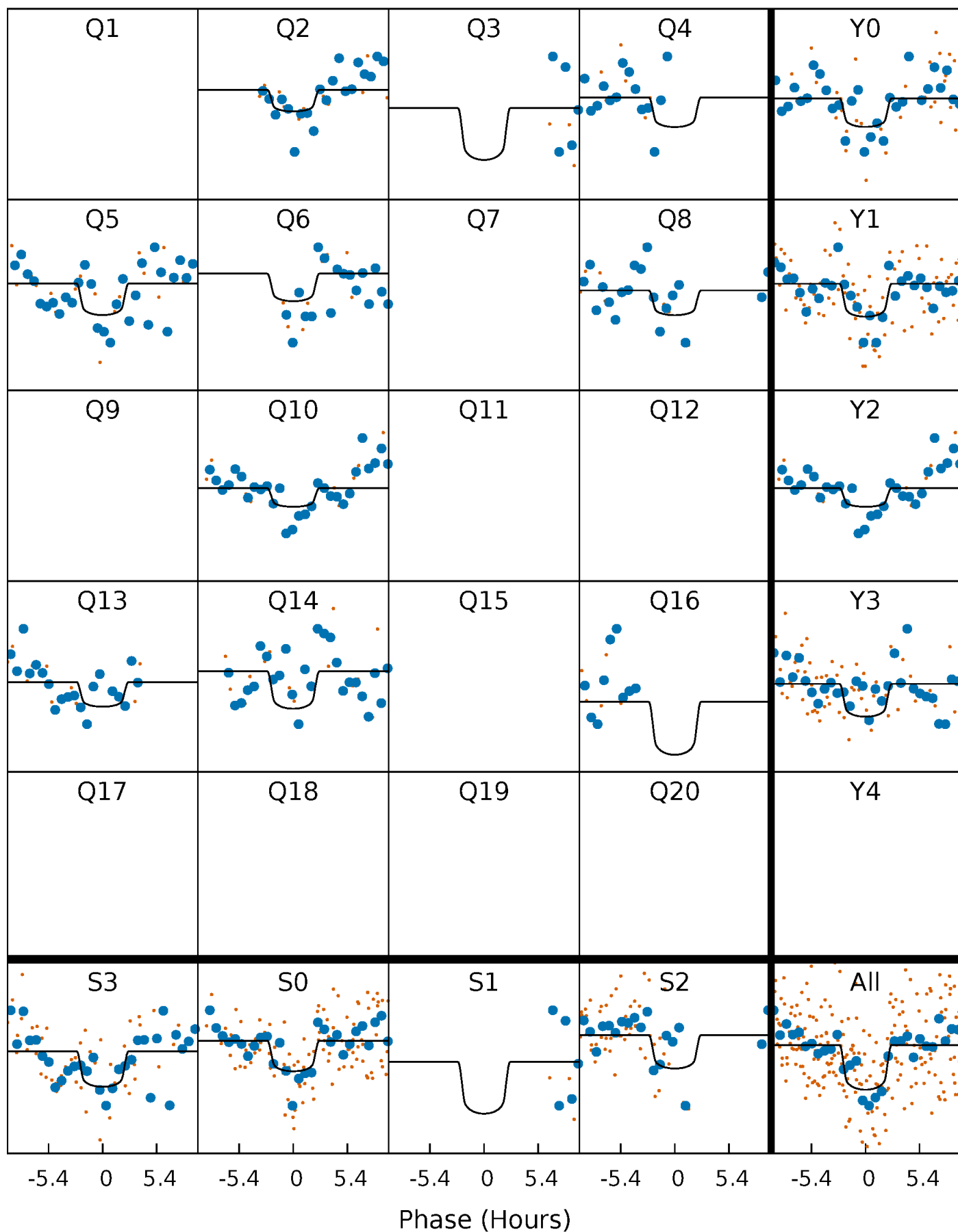
PDC Quarter-Phased Transit Curves

TCE 010154994-03 P= 57.956093 Days $T_0=162.706850$ (BKJD)



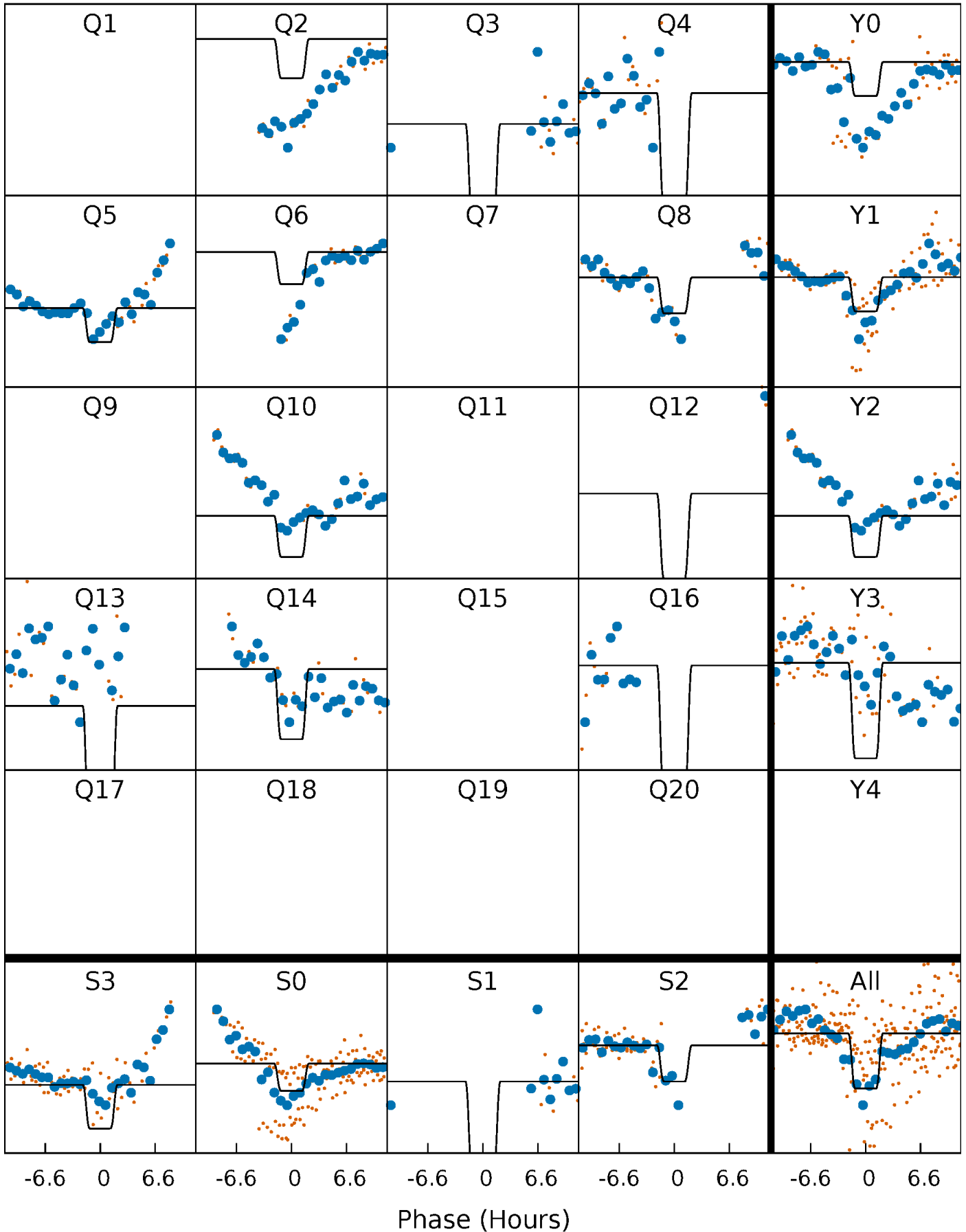
DV Quarter-Phased Transit Curves

TCE 010154994-03 P= 57.956093 Days $T_0=162.706850$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

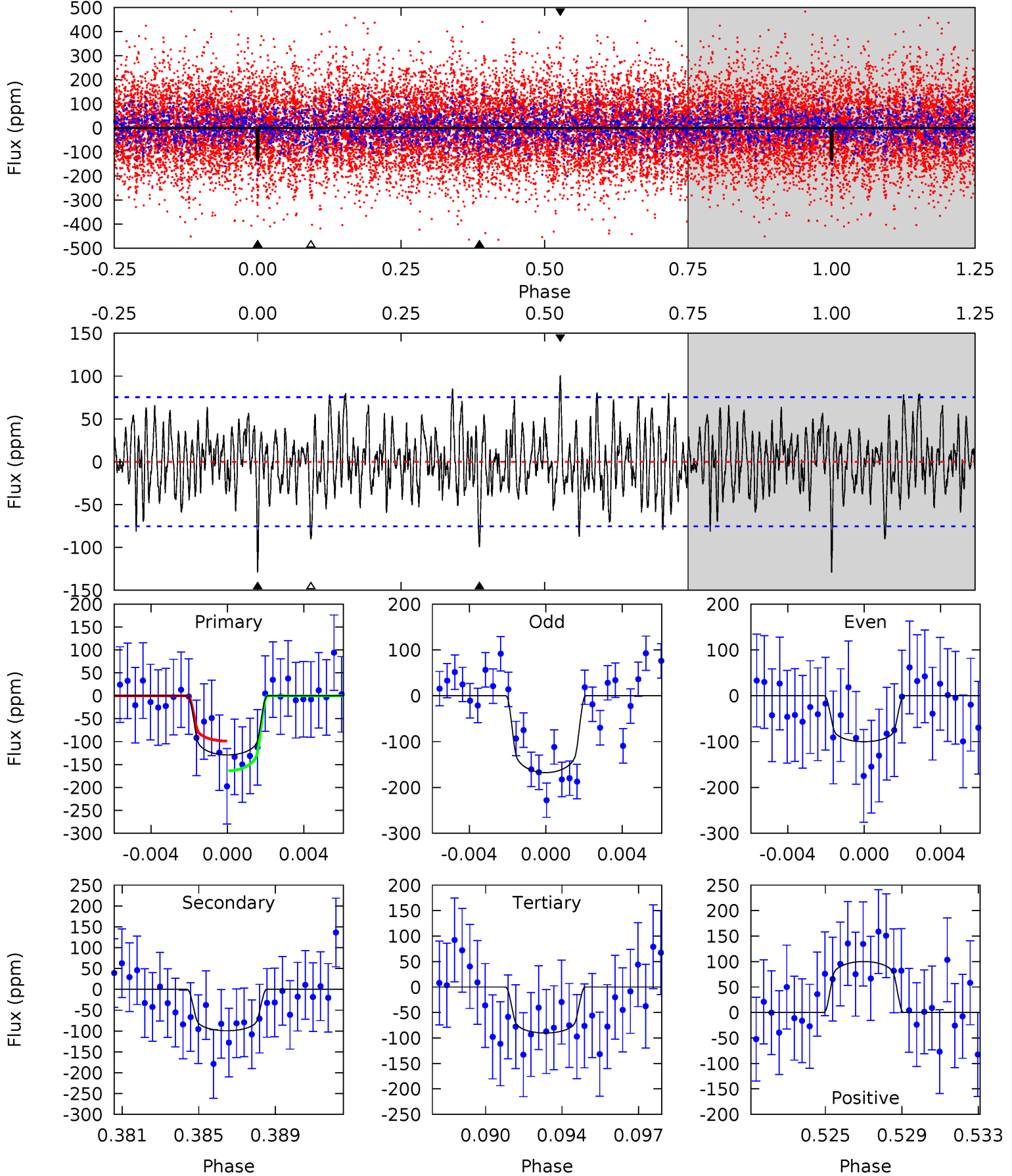
TCE 010154994-03 P= 57.956600 Days $T_0=162.728400$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-03, P = 57.956093 Days, E = 104.750757 Days

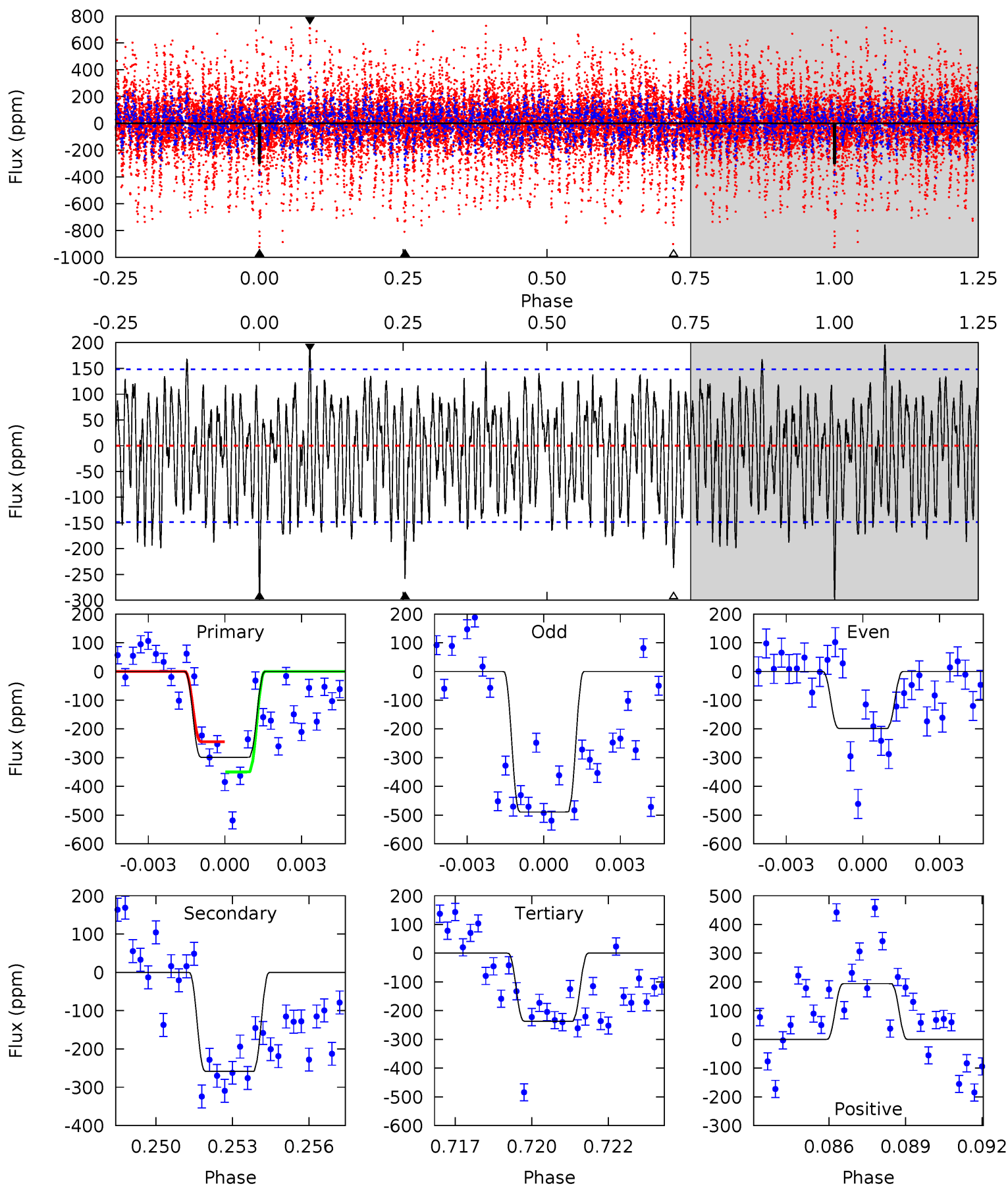
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.95	6.88	6.26	6.93	5.22	2.91	2.06	2.69	2.01	0.62	-0.05	2.32	0.97	0.44	2.25



Alt Model-Shift Uniqueness Test

010154994-03, P = 57.956600 Days, E = 104.771800 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	9.17	8.41	6.89	5.26	2.98	2.92	2.20	3.72	0.77	2.29	5.14	1.48	0.39	1.88



Stellar Parameters For KIC 010154994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-99 ± 14	$3.31^{+1.64}_{-1.52}$	1118^{+69}_{-85}	6123^{+2217}_{-1022}	610^{+1460}_{-333}
Alt.	-259 ± 28	$5.35^{+1.81}_{-1.55}$	1112^{+76}_{-90}	5980^{+1126}_{-673}	595^{+577}_{-267}

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

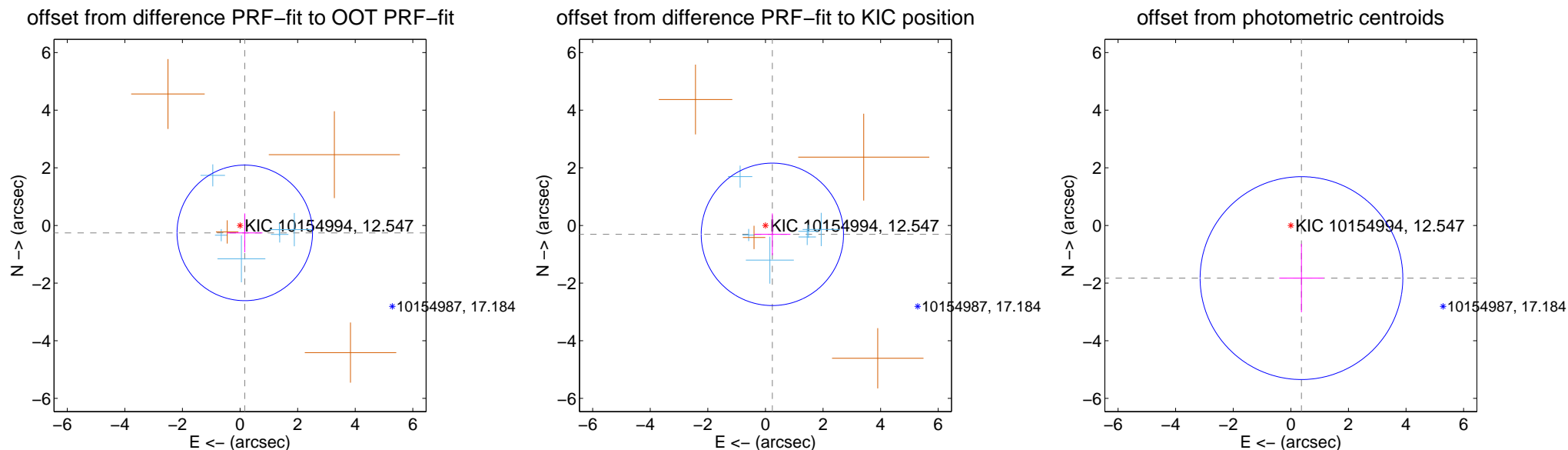
DV Centroid Data

Supplemental centroid analysis for 010154994-03. Kepler magnitude: 12.55. Transit SNR 7.55

There are 6 quarters with good PRF difference image offsets

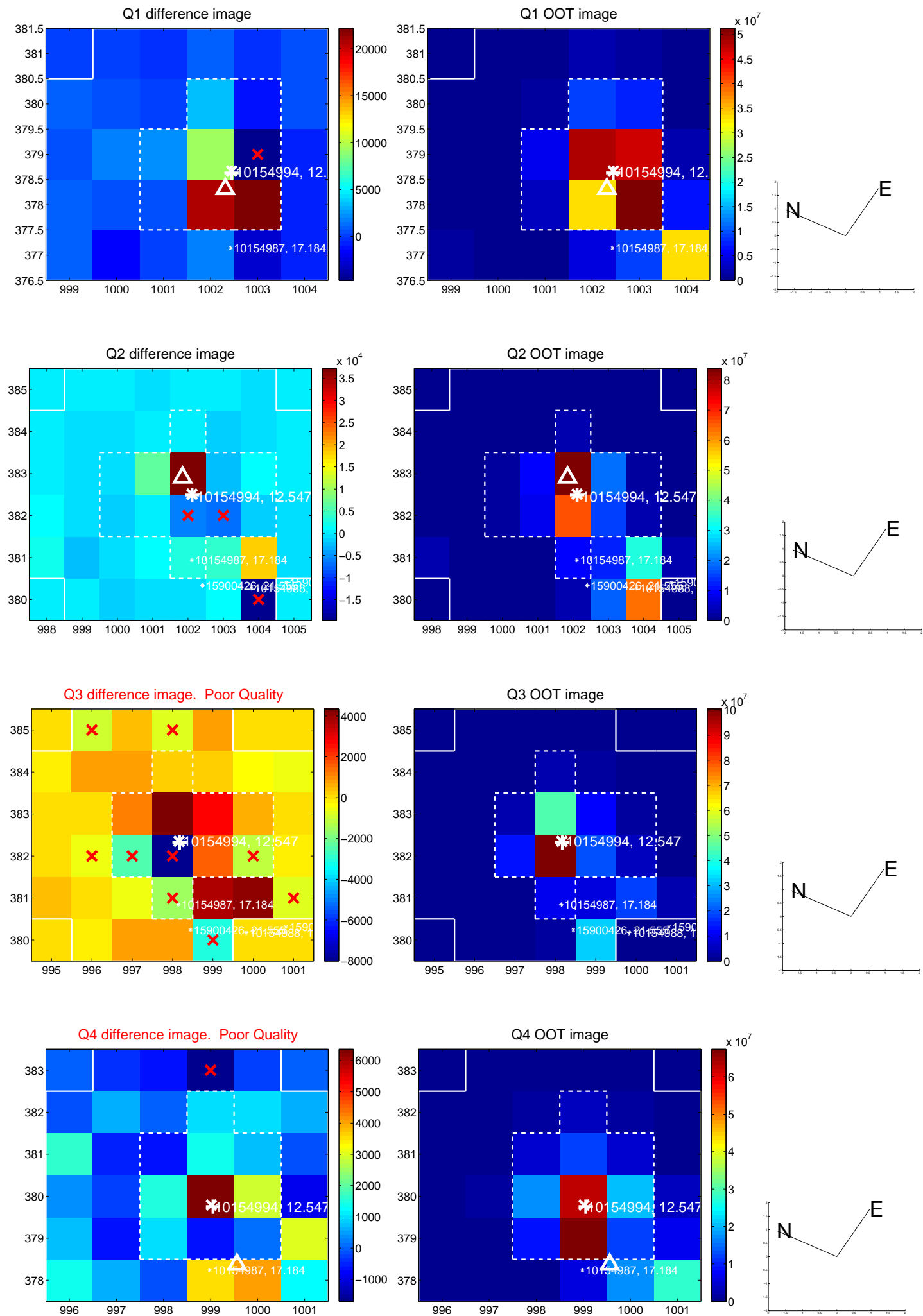
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.306 ± 0.784	0.39	-0.164 ± 0.615	-0.258 ± 0.675
PRF-fit source offset from KIC position	0.391 ± 0.824	0.47	-0.240 ± 0.625	-0.308 ± 0.726
photometric centroid source offset	1.86 ± 1.17	1.59	-0.37 ± 0.77	-1.83 ± 1.19

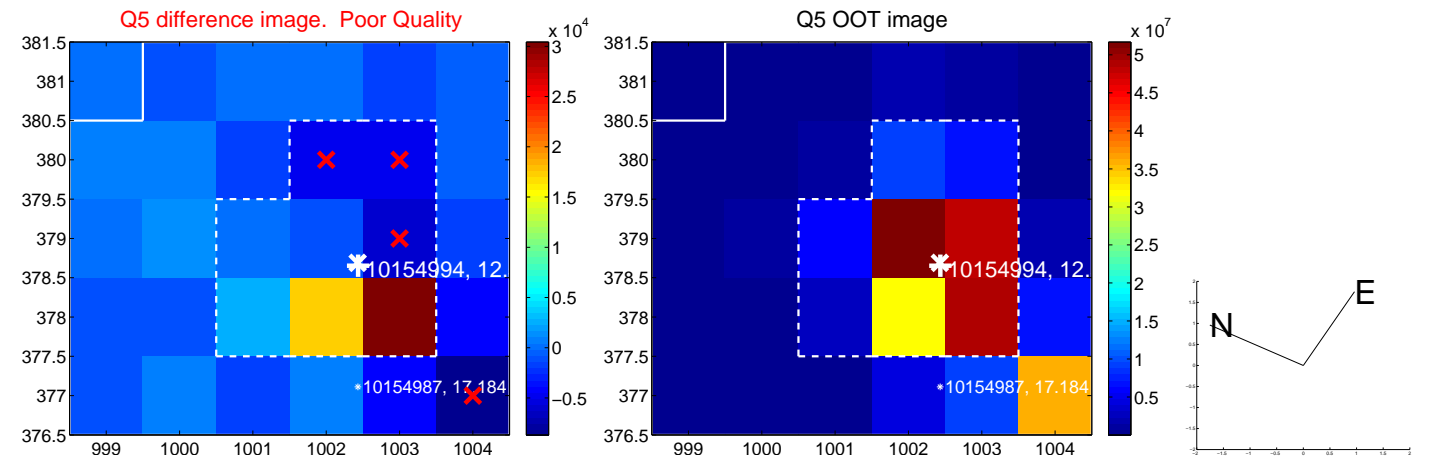


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

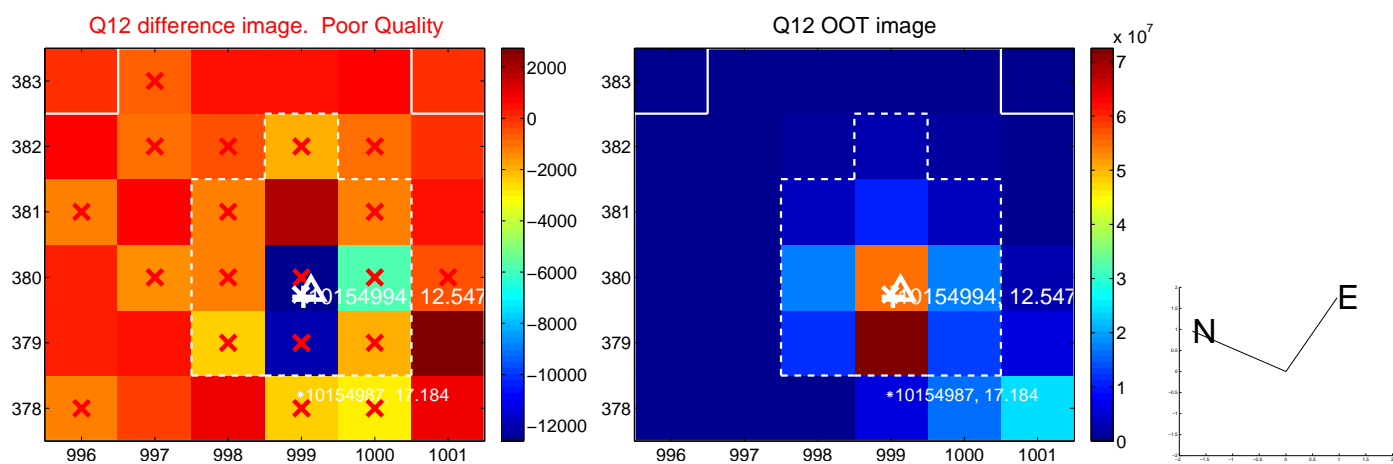
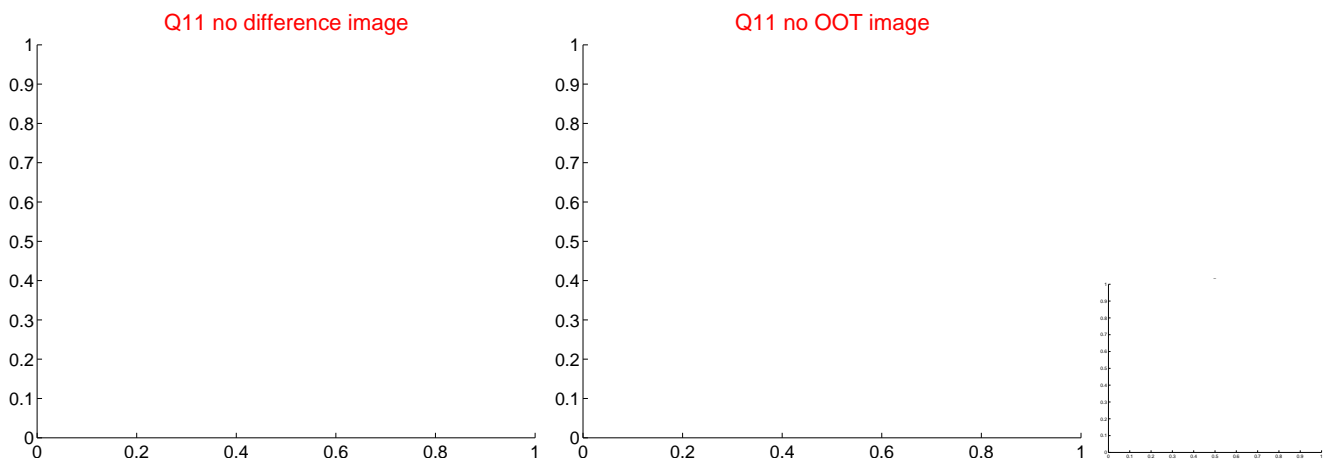
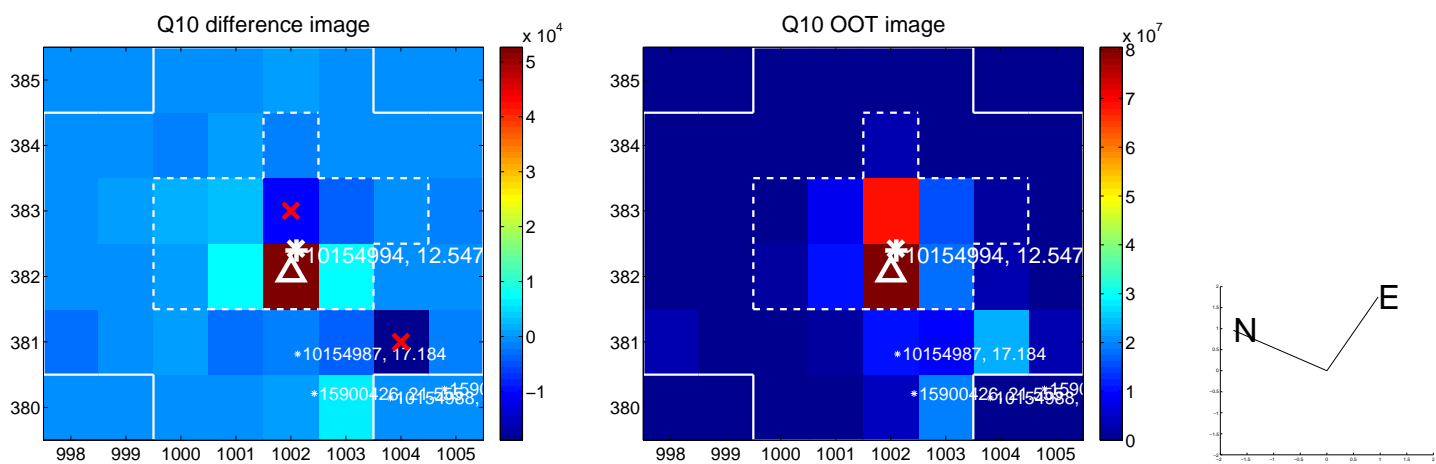
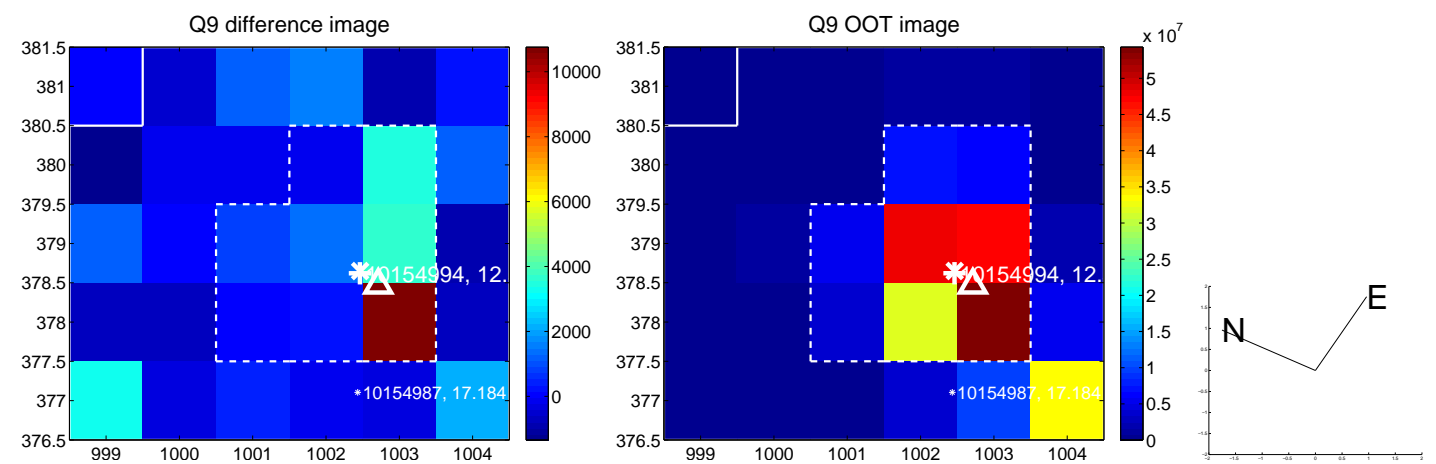
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



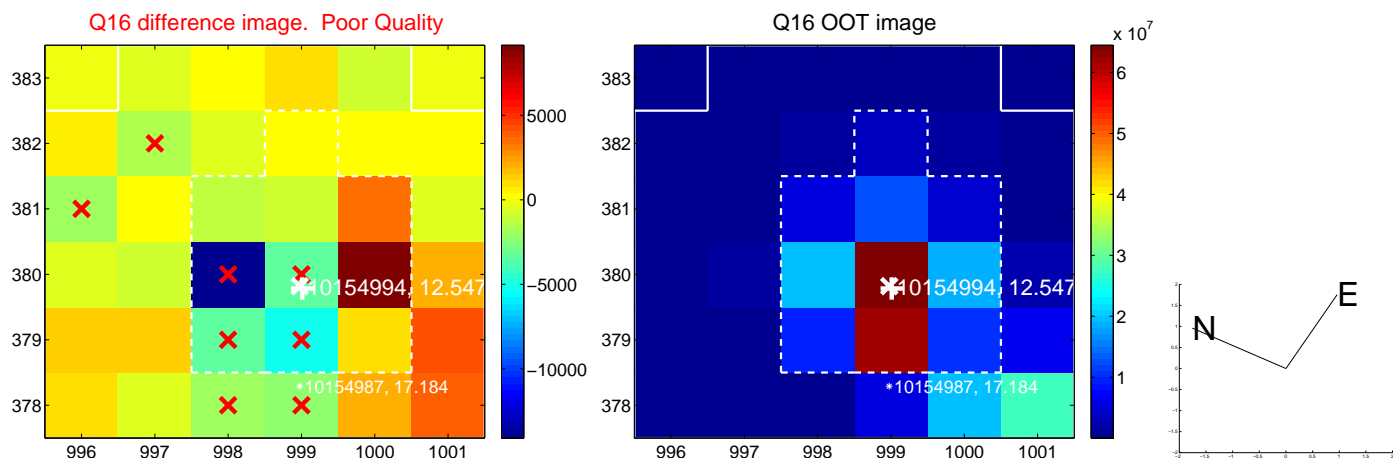
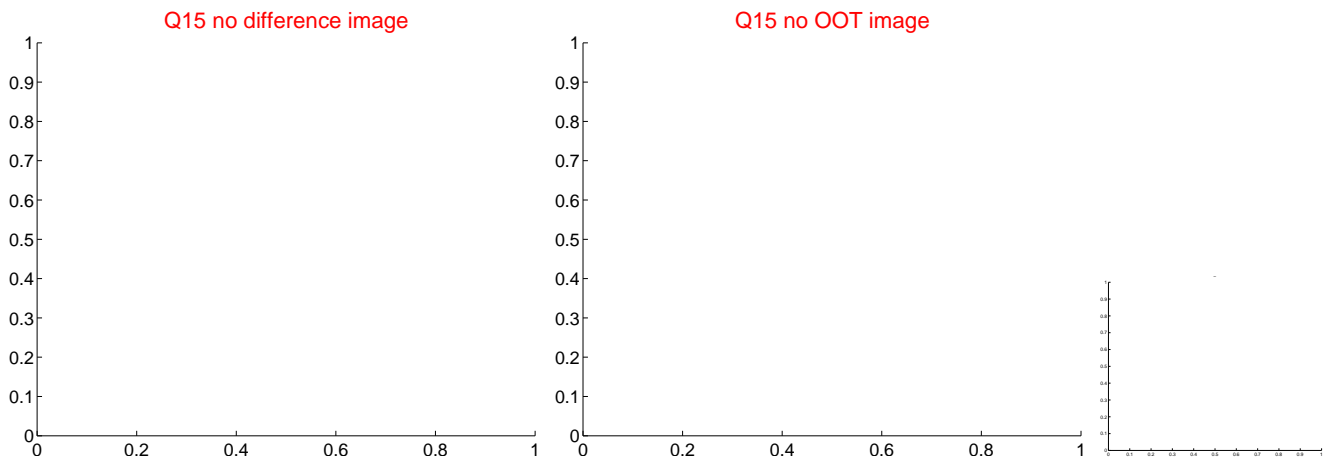
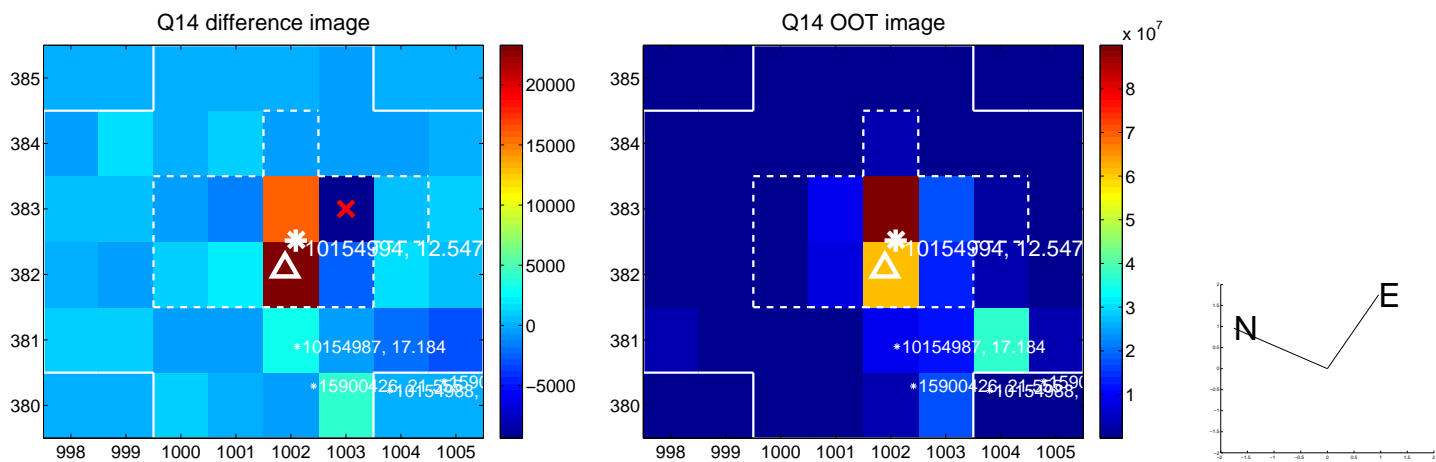
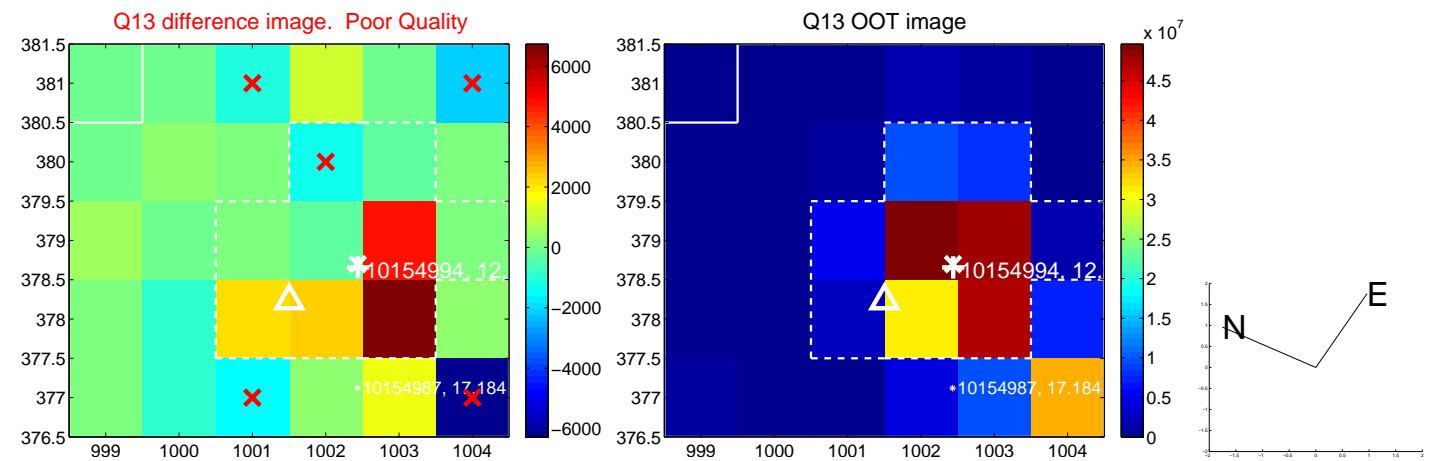
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



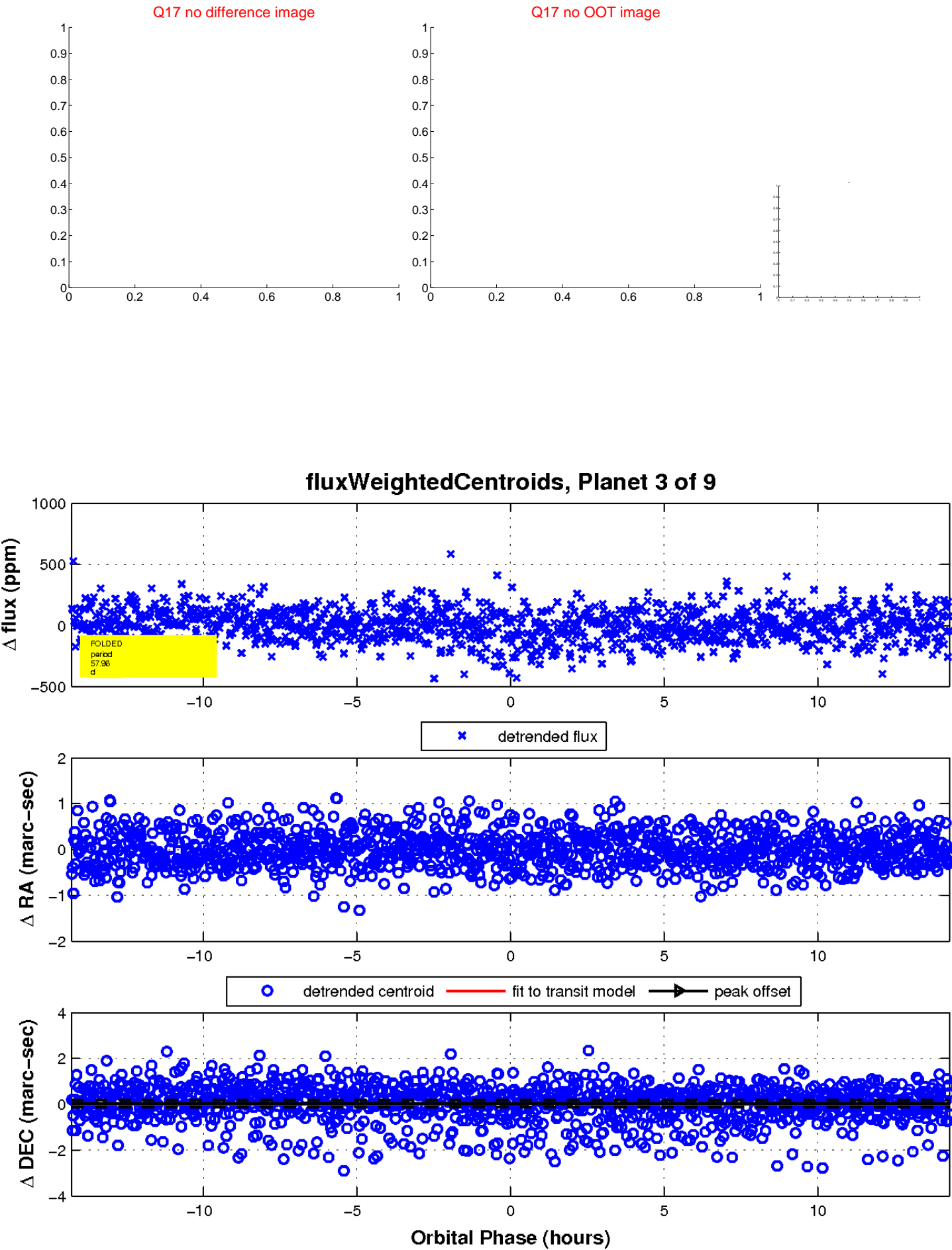
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

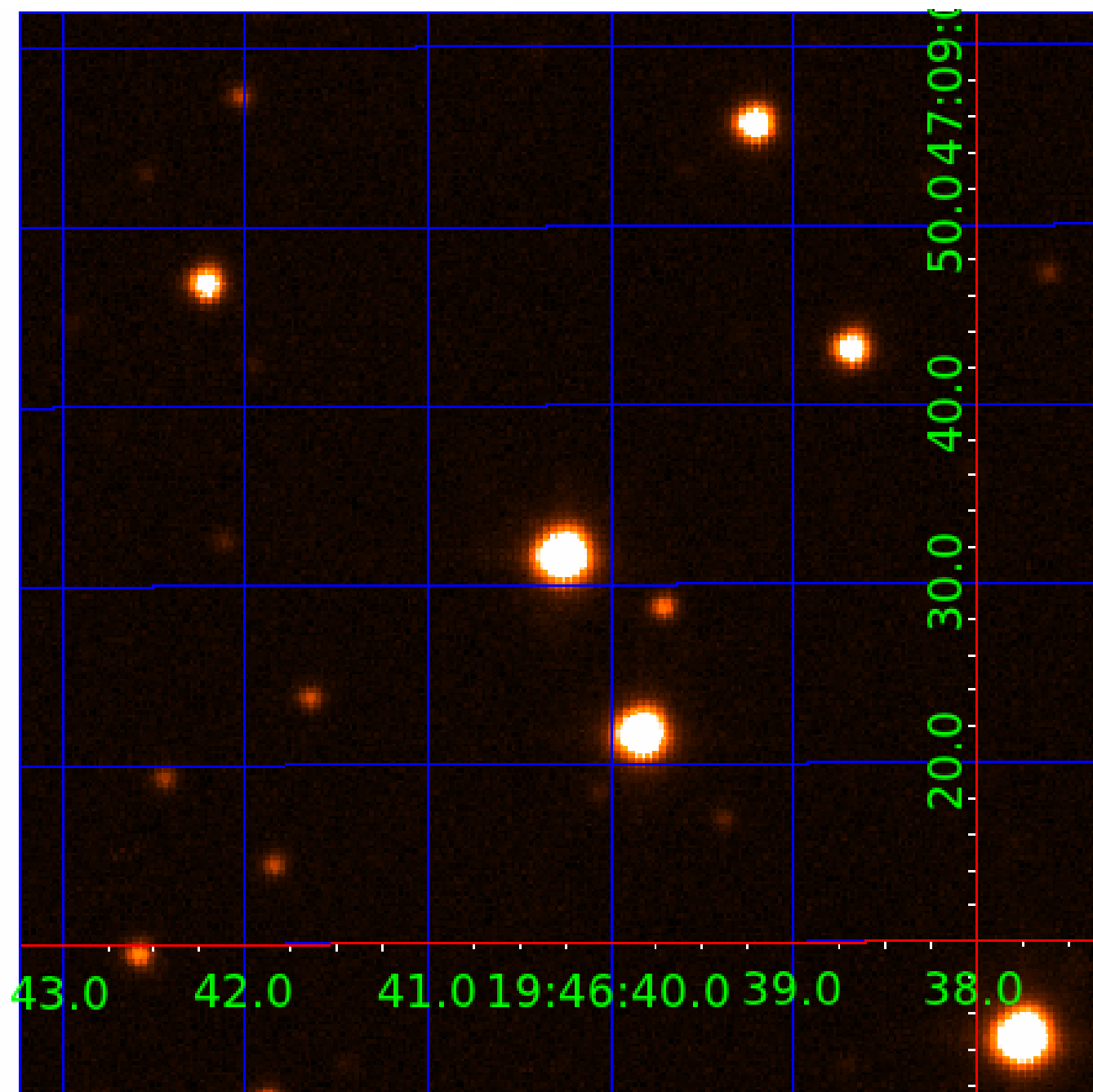


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

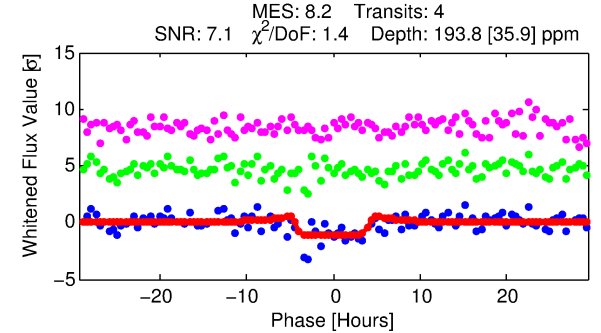
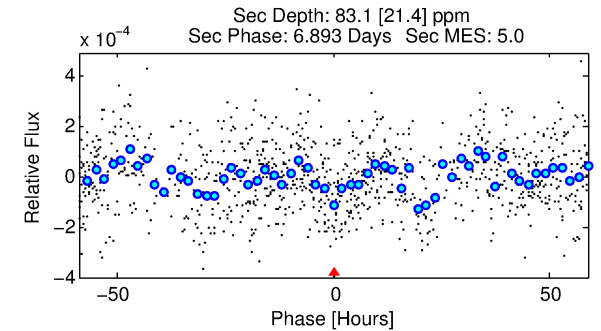
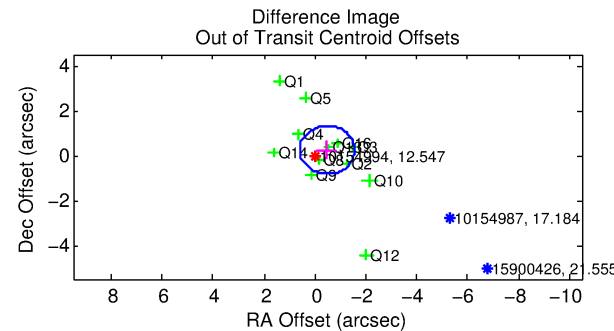
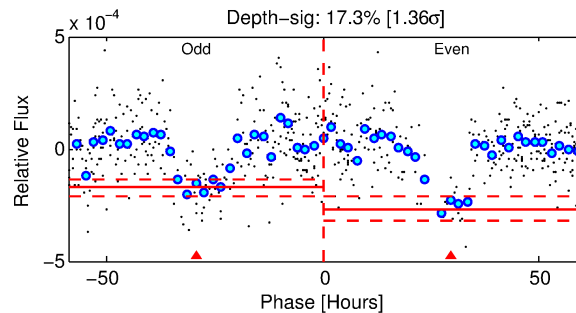
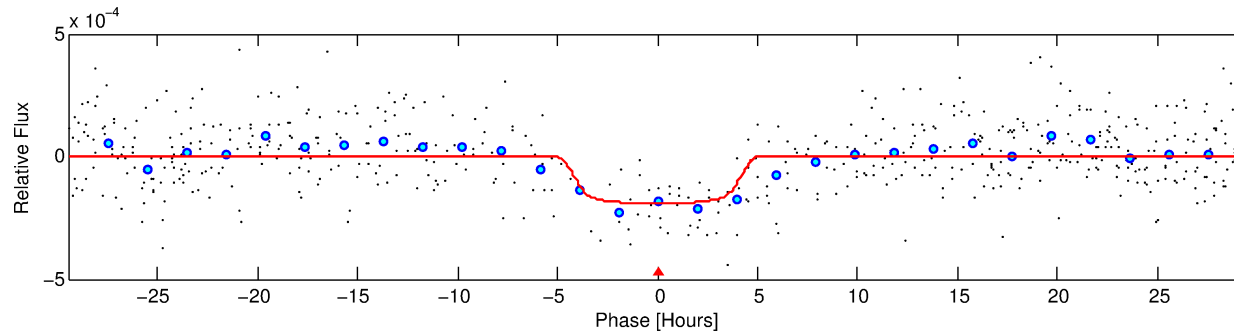
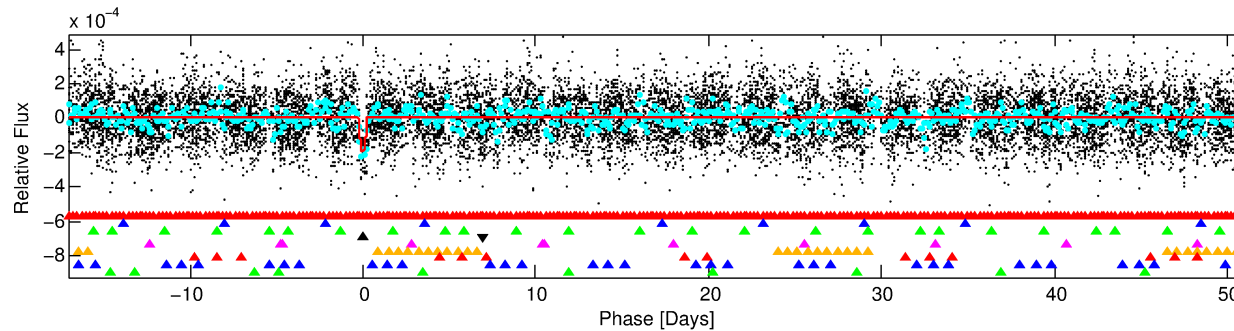
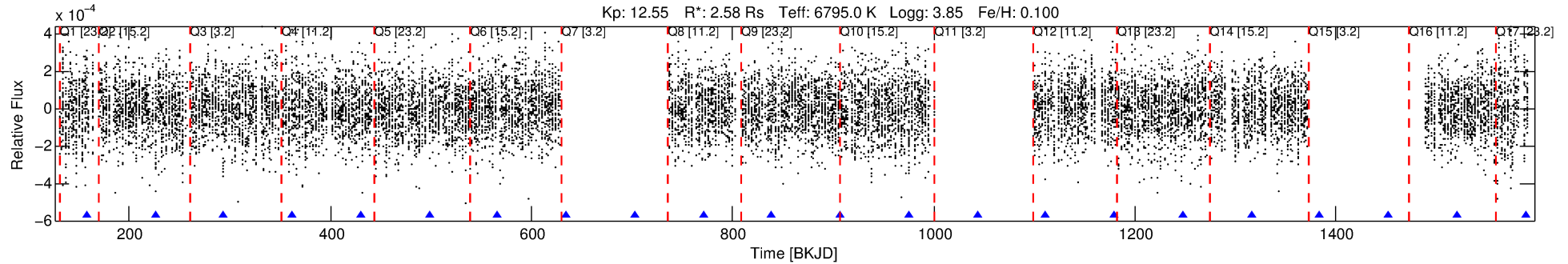
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-04

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 4 of 9 Period: 68.122 d



DV Fit Results:

Period = 68.12153 [0.00241] d
Epoch = 157.8966 [0.0175] BKJD
Rp/R* = 0.0158 [0.0021]
a/R* = 18.71 [8.89]
b = 0.95 [0.05]
Seff = 82.63 [39.90]
Teq = 769 [93] K
Rp = 4.43 [1.60] Re
a = 0.3915 [0.1186] AU
Ag = 357.41 [211.90] [1.68 σ]
Teffp = 5168 [502] K [8.62 σ]

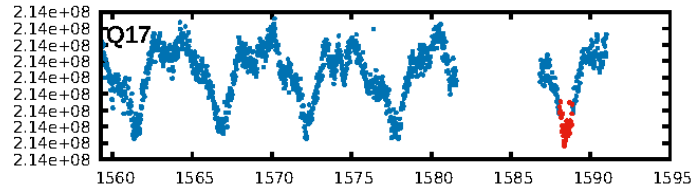
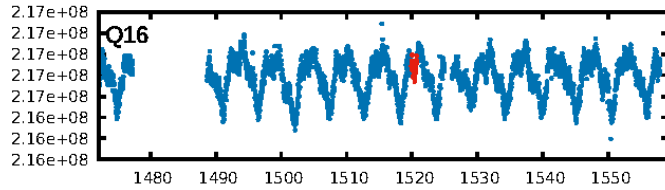
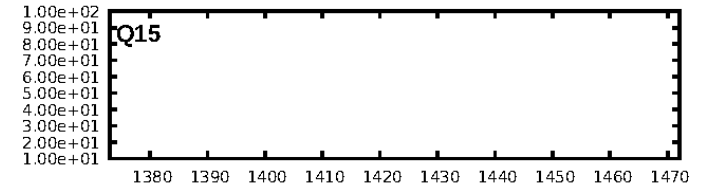
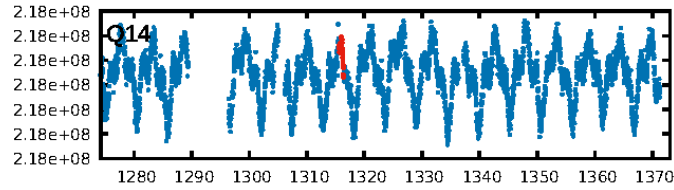
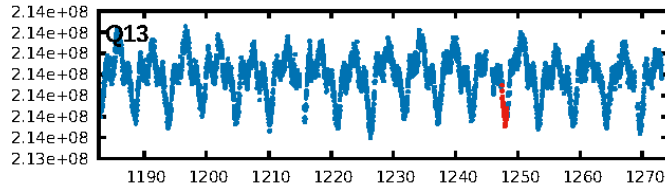
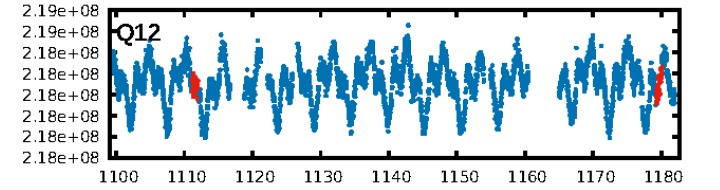
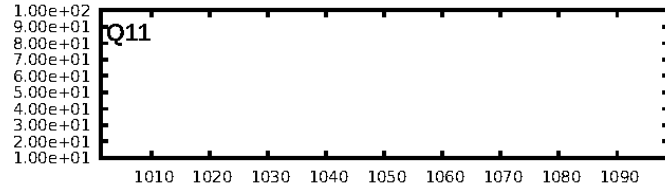
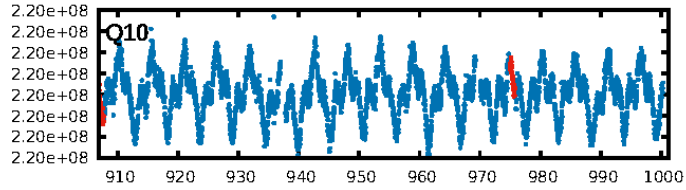
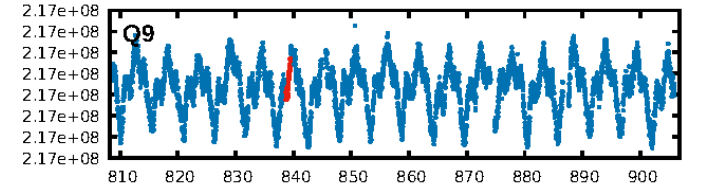
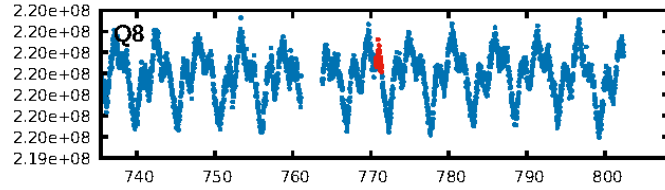
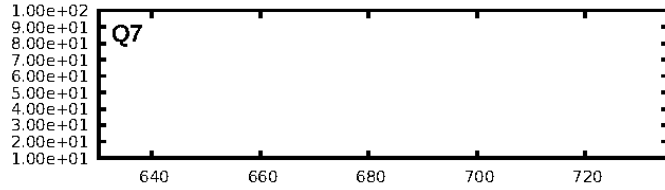
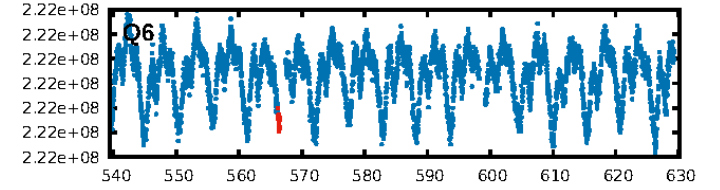
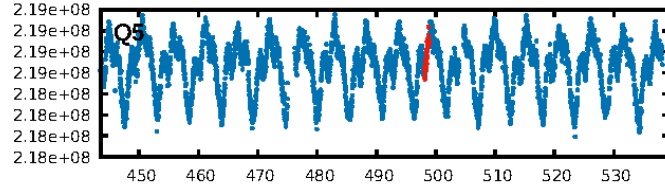
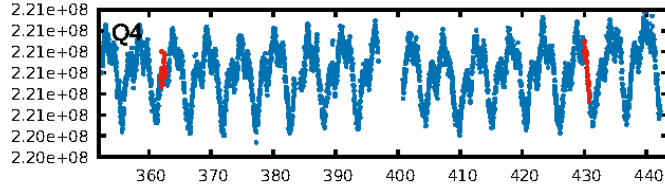
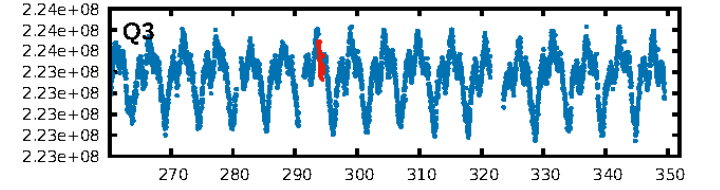
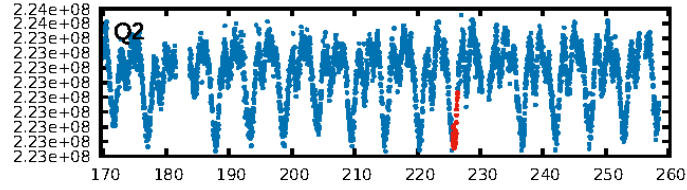
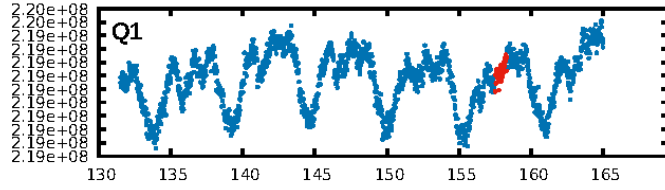
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.35 σ]
LongPeriod-sig: 100.0% [26.90 σ]
ModelChiSquare2-sig: 31.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.35e-07
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -3.48
Centroid-sig: N/A
Centroid-so: 0.413 arcsec [0.53 σ]
OotOffset-rm: 0.538 arcsec [1.50 σ]
KicOffset-rm: 0.589 arcsec [1.69 σ]
OotOffset-st: 3/1/4/4 [12]
KicOffset-st: 3/1/4/4 [12]
DiffImageQuality-fgm: 0.42 [5/12]
DiffImageOverlap-fno: 0.08 [1/12]

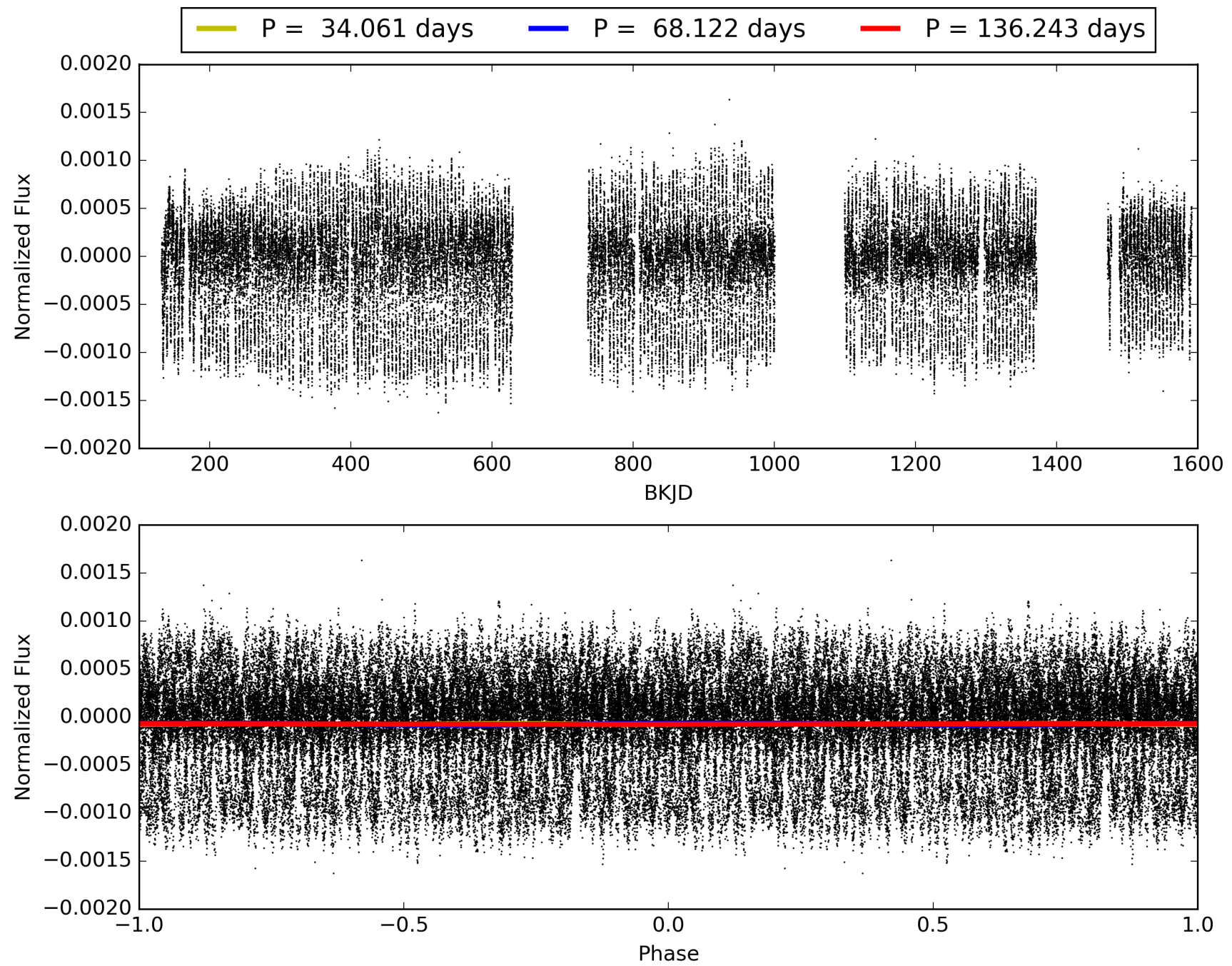
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:39:53 Z

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

TCE 010154994-04, PDC Light Curves

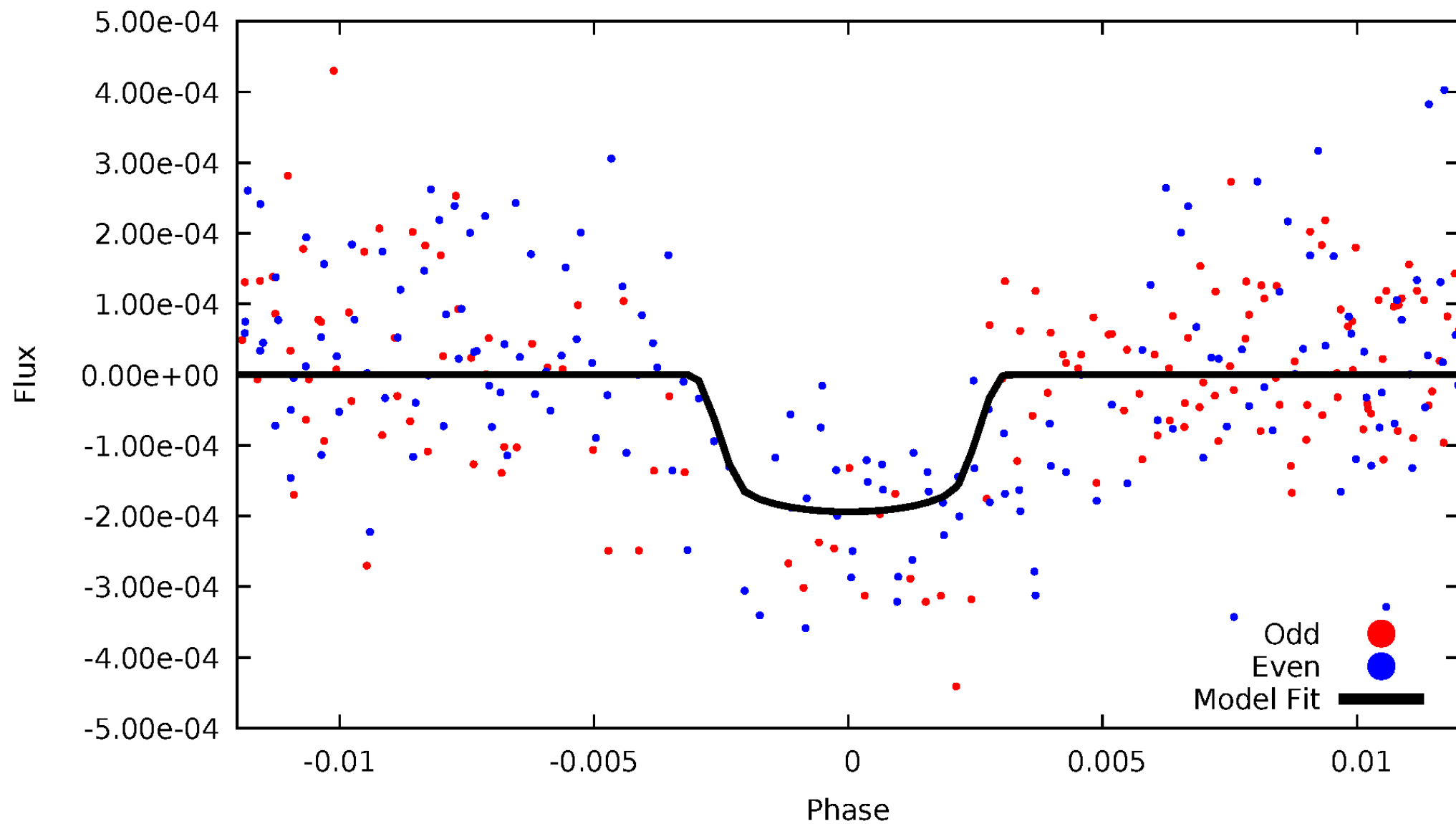


TCE 010154994-04



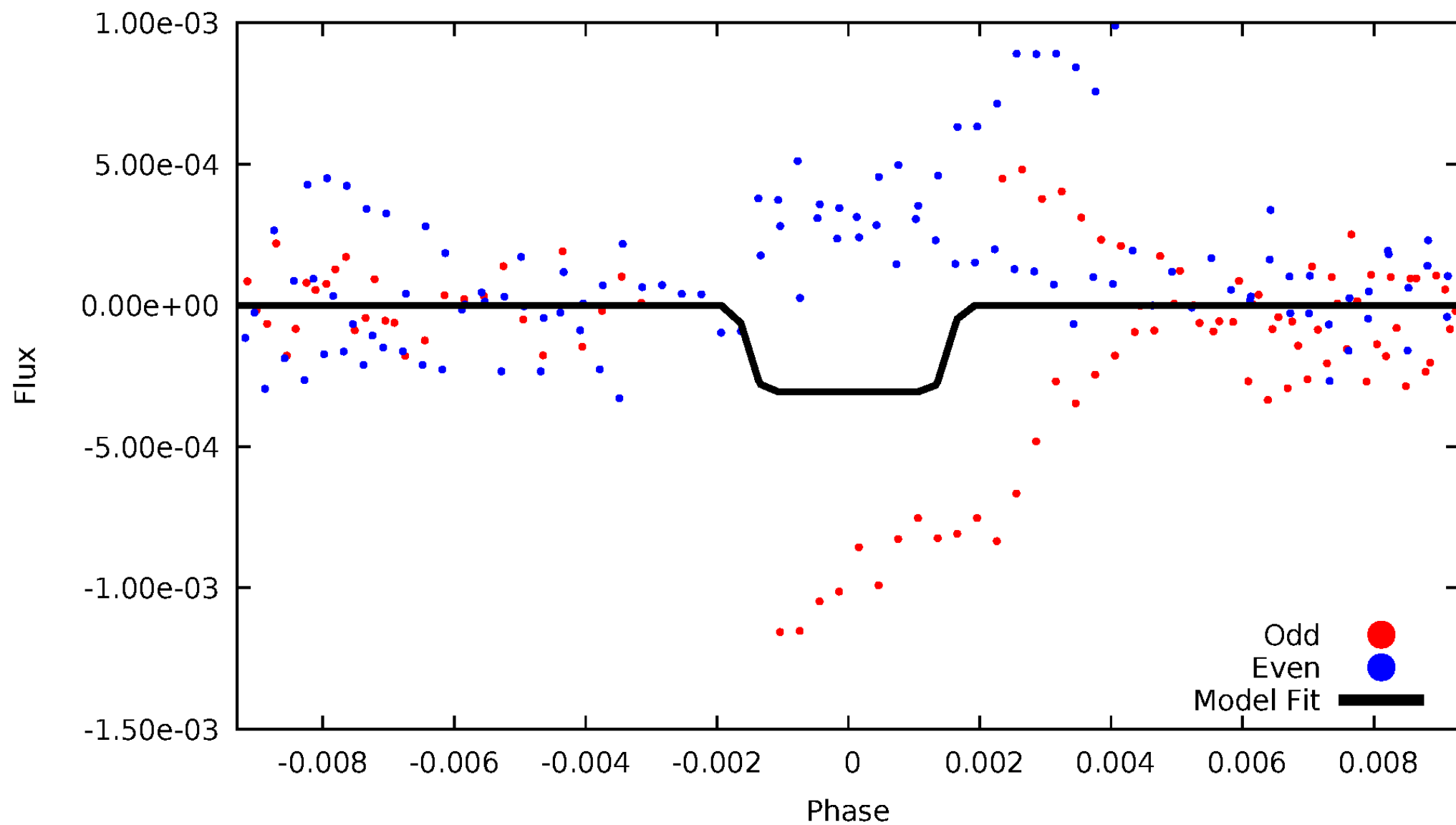
DV Odd/Even

TCE 010154994-04



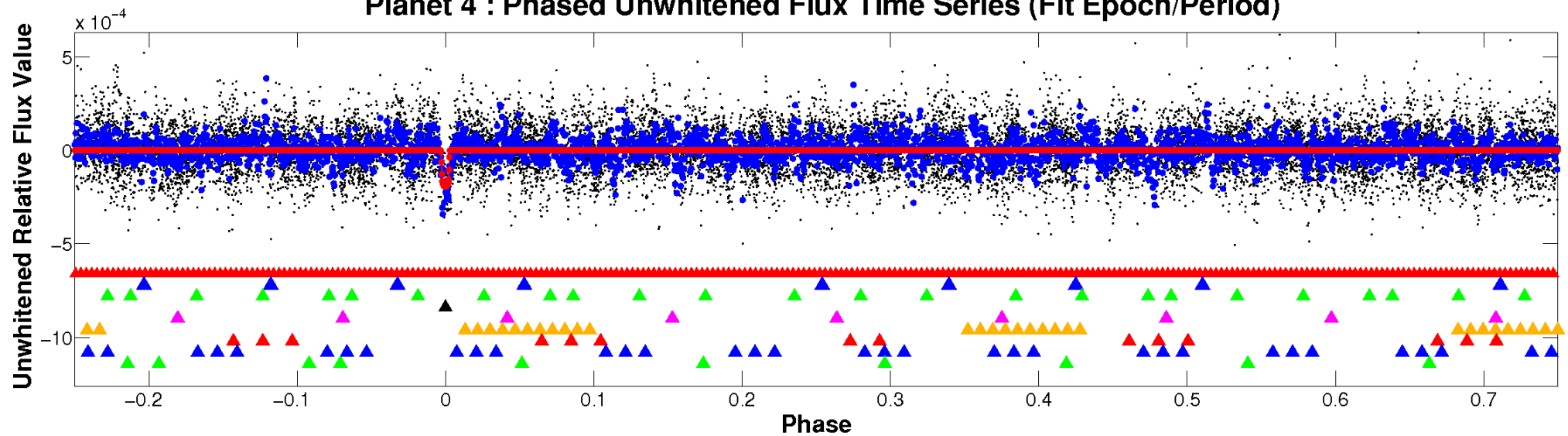
ALT Odd/Even

TCE 010154994-04

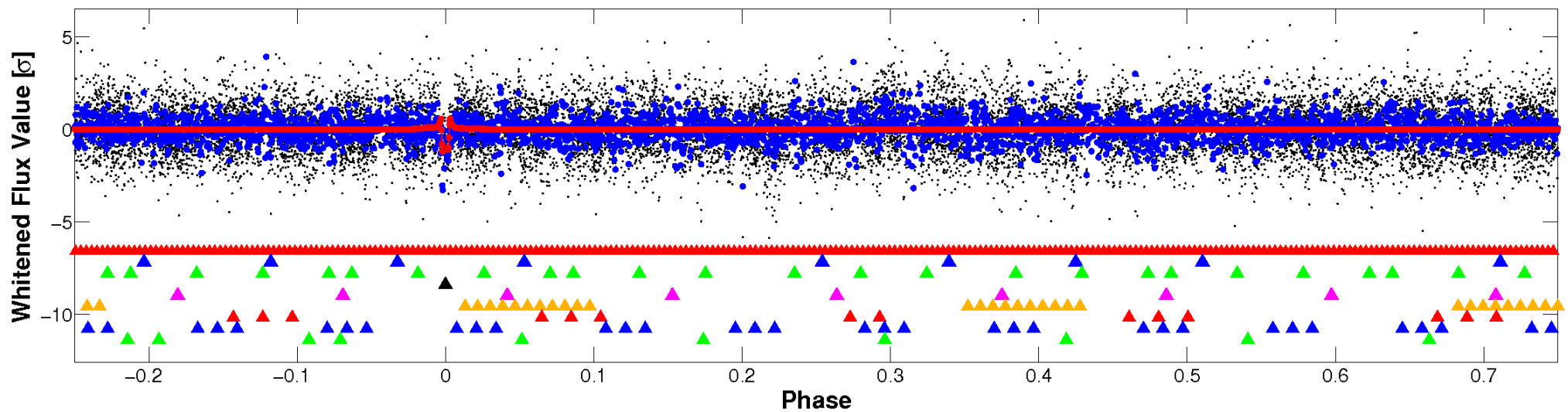


Non-Whitened Vs. Whitened Light Curve

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

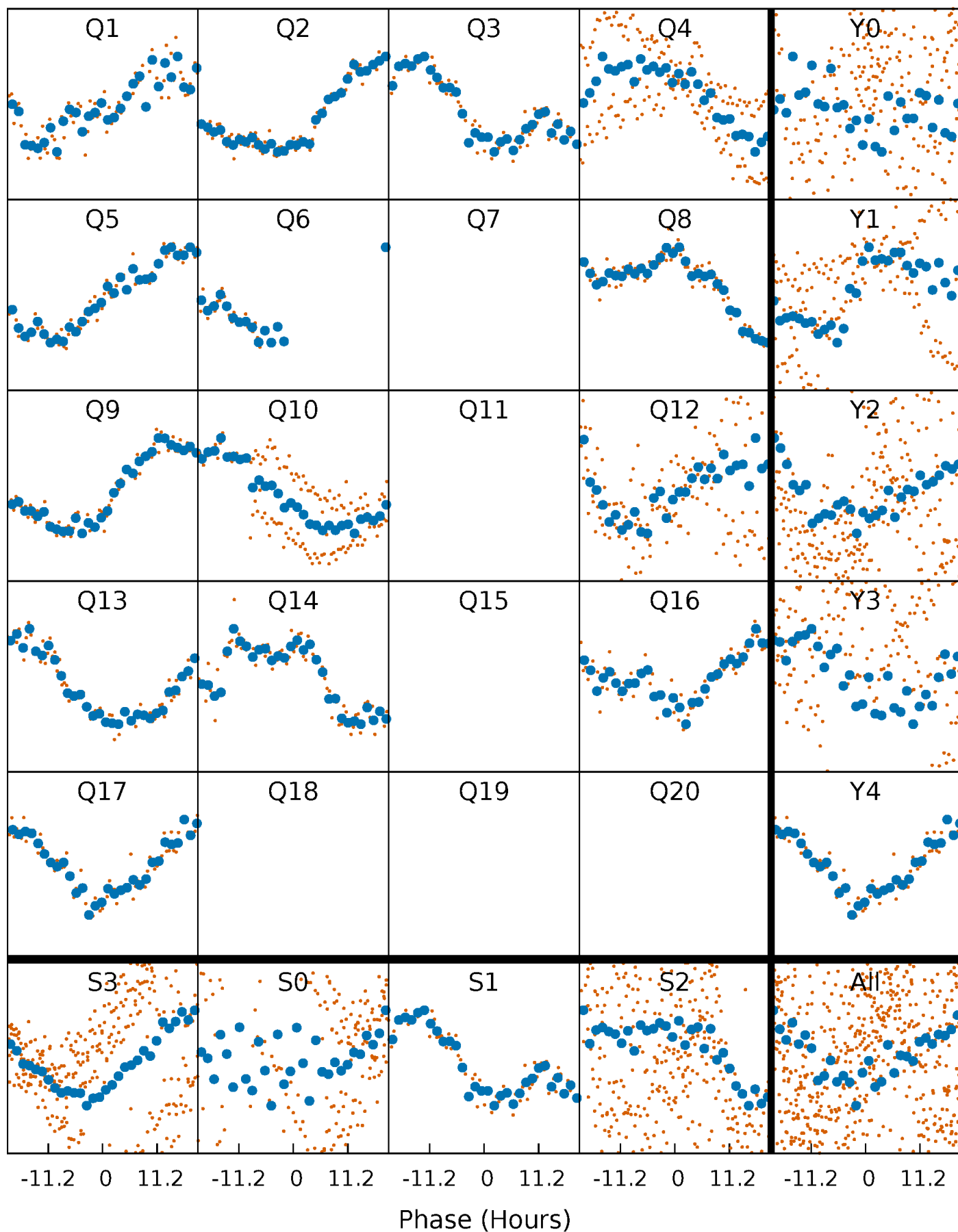


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



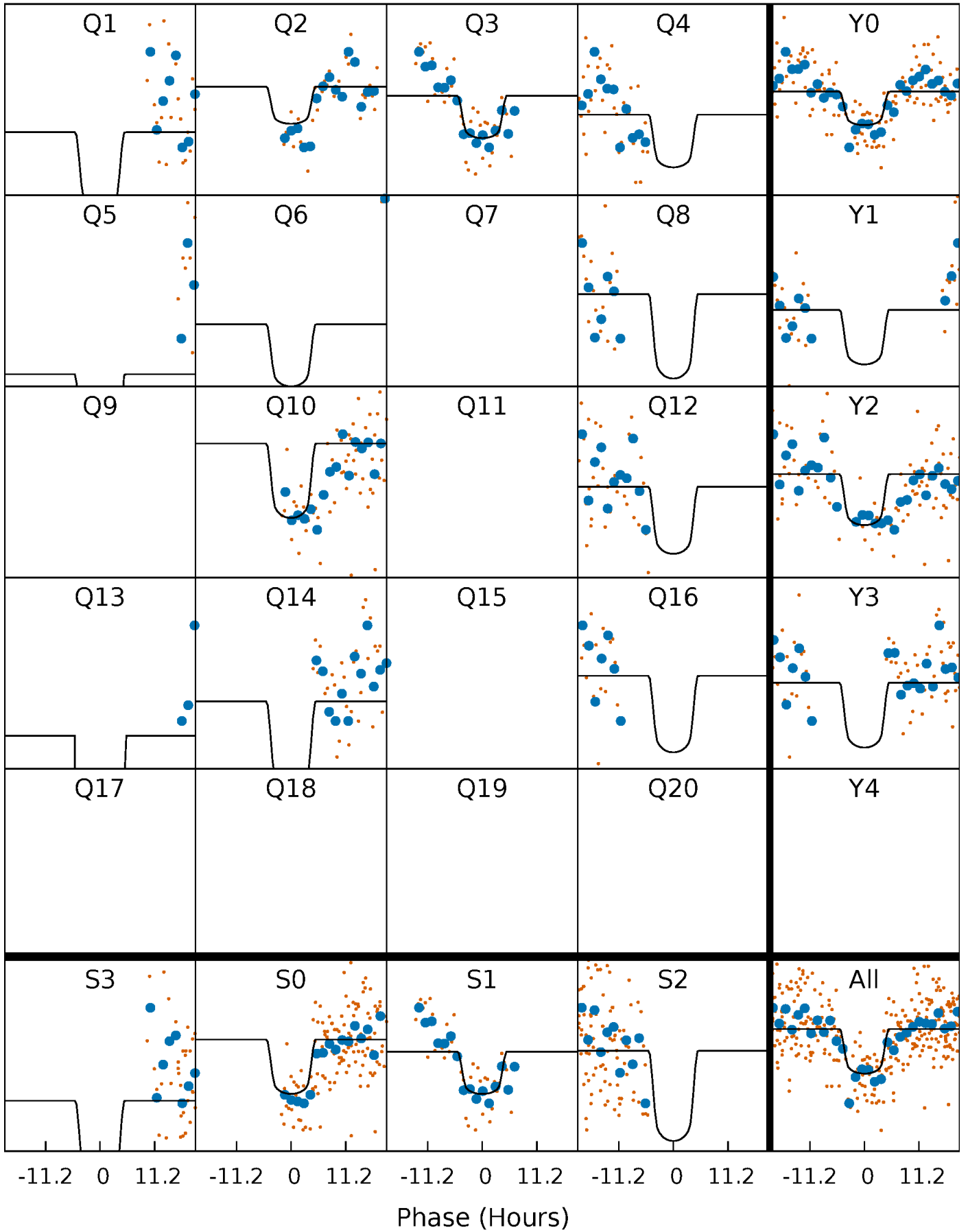
PDC Quarter-Phased Transit Curves

TCE 010154994-04 $P = 68.121528$ Days $T_0 = 157.896587$ (BKJD)



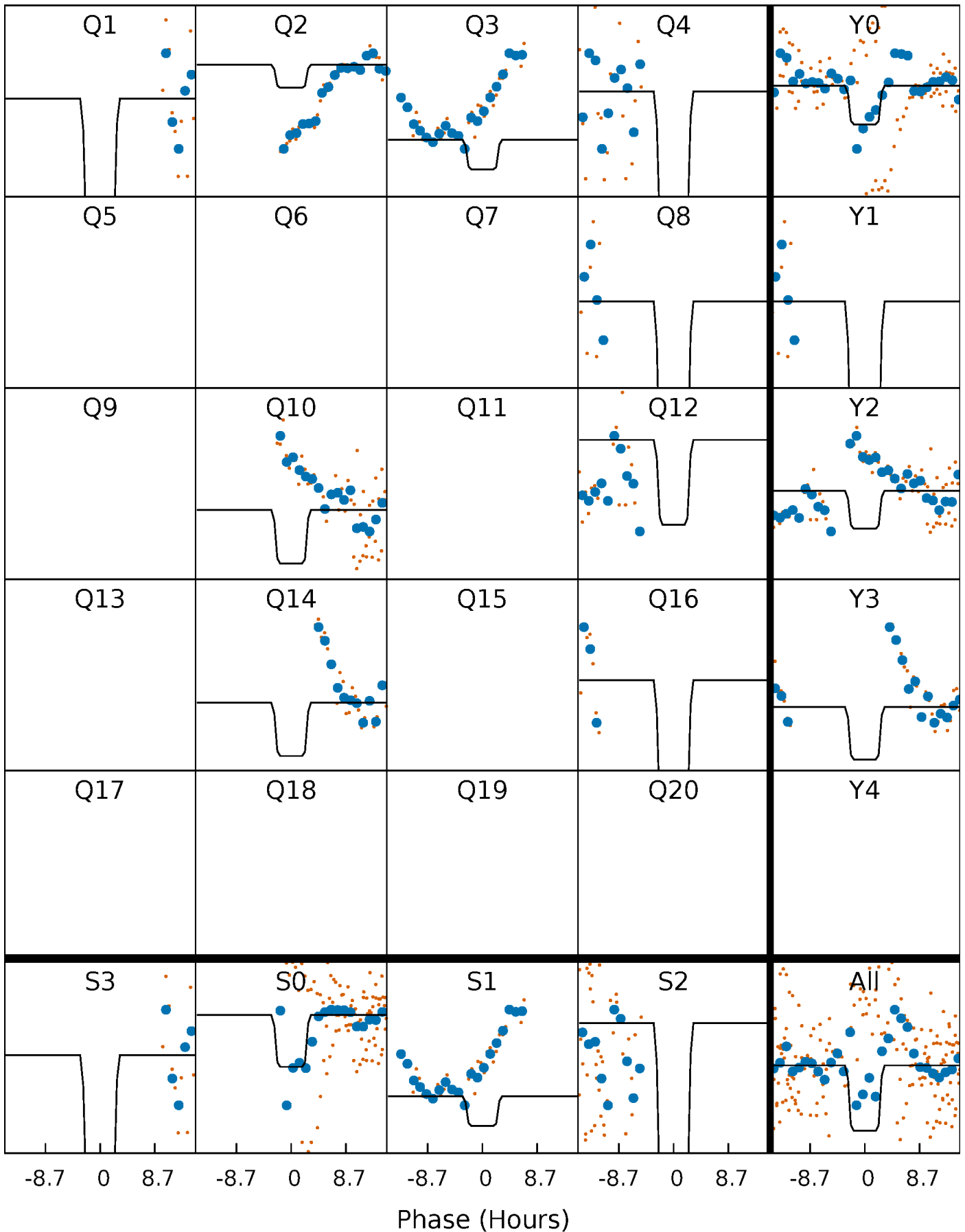
DV Quarter-Phased Transit Curves

TCE 010154994-04 P= 68.121528 Days $T_0=157.896587$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

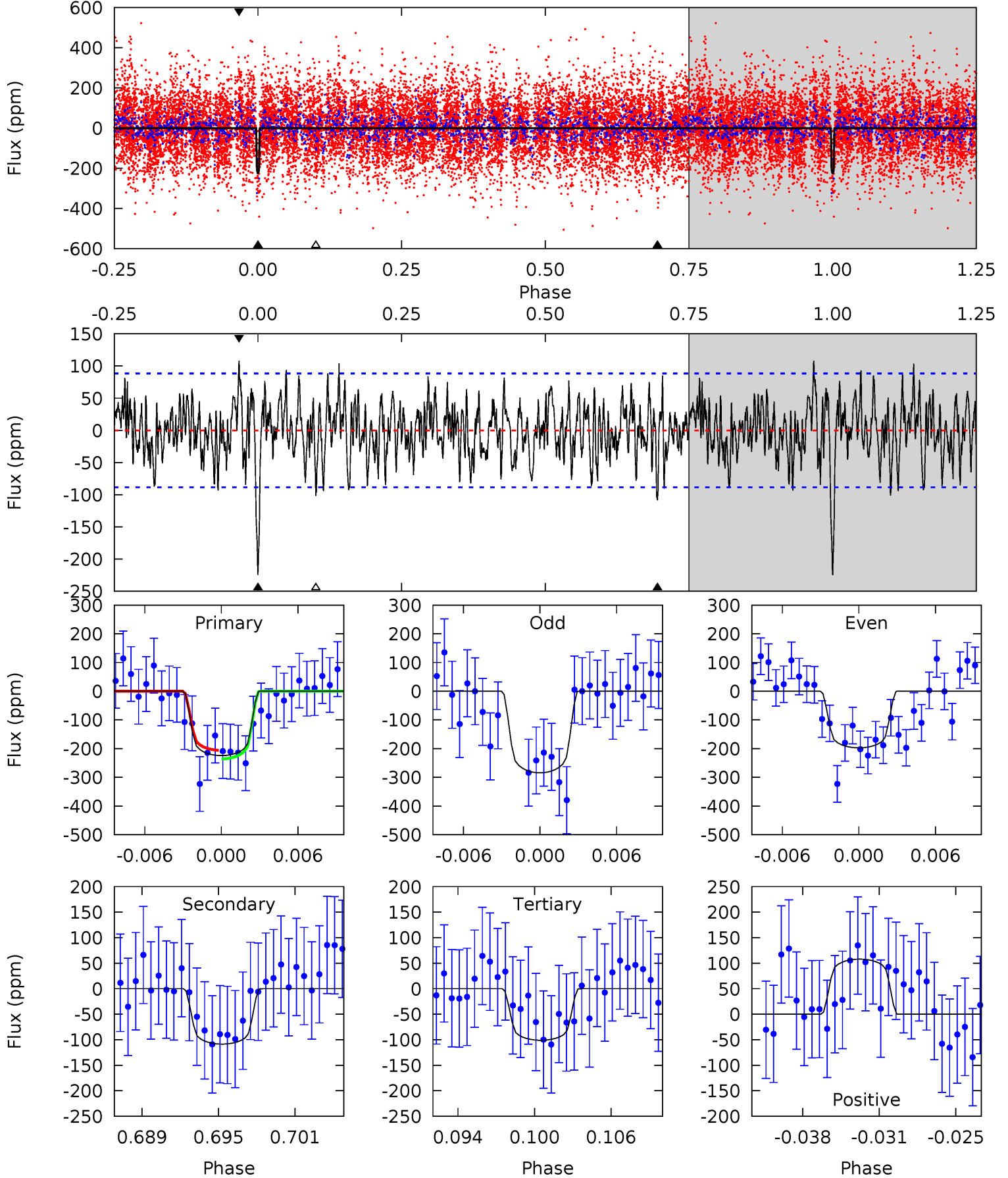
TCE 010154994-04 $P = 68.123952$ Days $T_0 = 157.884684$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-04, P = 68.121528 Days, E = 89.775059 Days

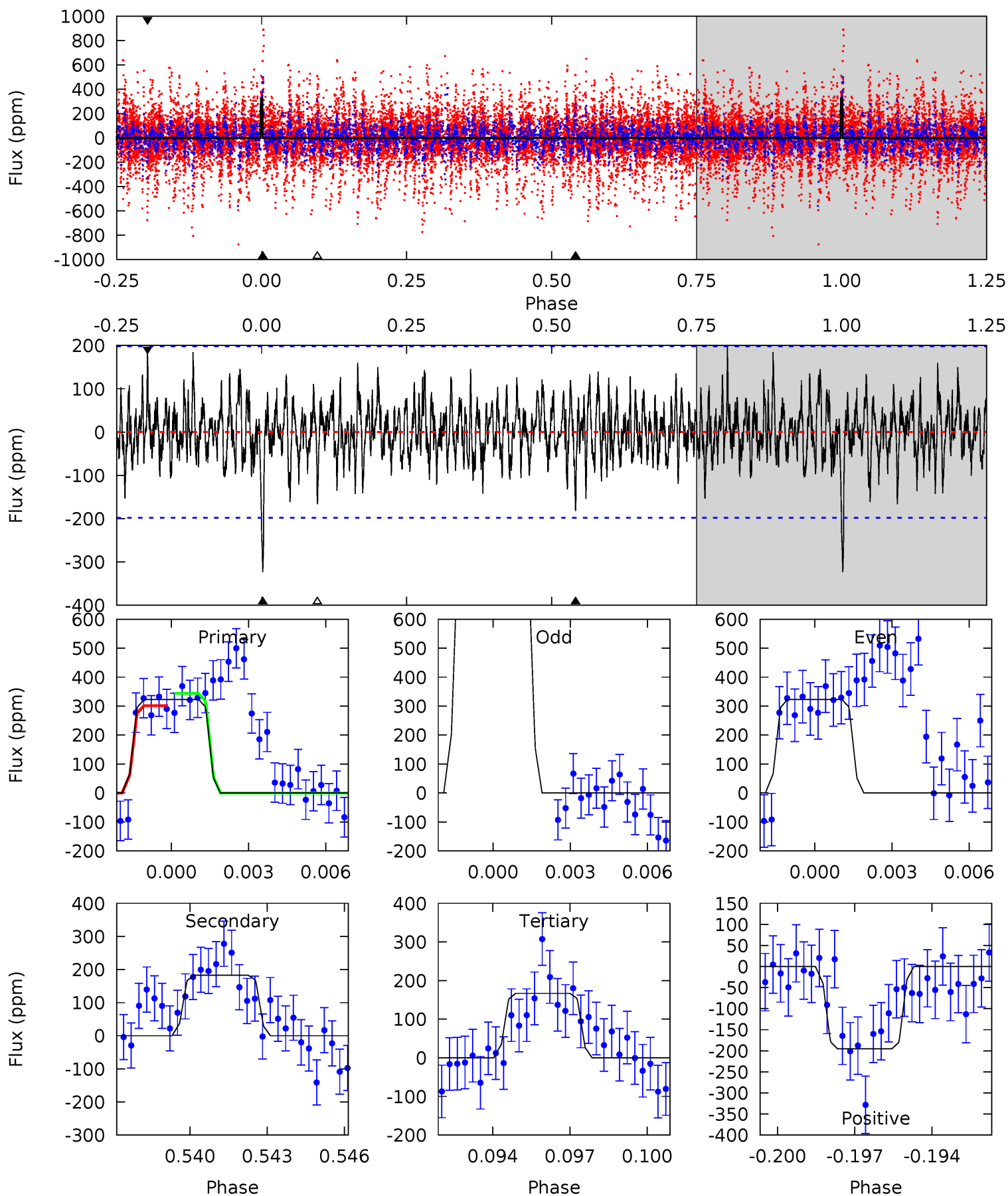
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	6.28	5.84	6.24	5.12	2.73	2.03	7.14	6.74	0.44	0.04	2.35	0.31	0.32	0.82



Alt Model-Shift Uniqueness Test

010154994-04, P = 68.123952 Days, E = 89.760732 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.57	4.84	4.42	5.18	5.25	2.96	1.41	4.15	3.39	0.42	-0.34	9.94	-0.36	0.38	0.56



Stellar Parameters For KIC 010154994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-109 ± 17	$4.26^{+0.83}_{-0.76}$	1056^{+64}_{-78}	5515^{+457}_{-370}	504^{+260}_{-155}
Alt.	-183 ± 38	$4.77^{+0.90}_{-0.83}$	1063^{+64}_{-91}	5900^{+535}_{-413}	672^{+335}_{-225}

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 $A_{obs} \gg 1.0$

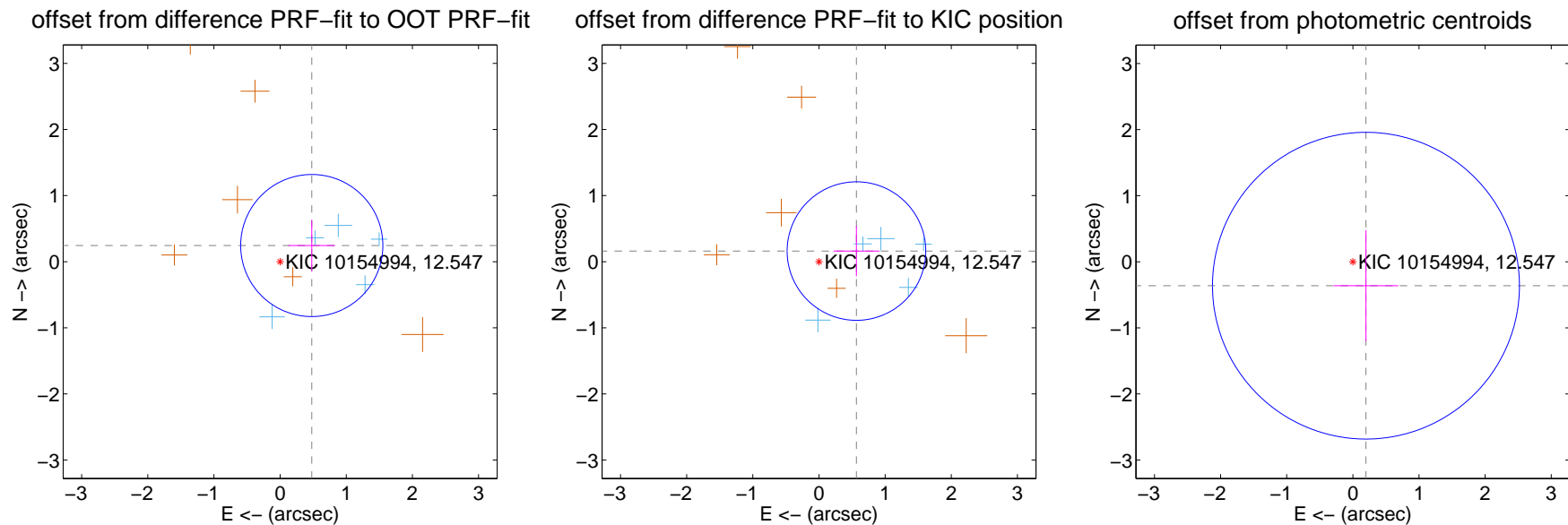
DV Centroid Data

Supplemental centroid analysis for 010154994-04. Kepler magnitude: 12.55. Transit SNR 7.13

There are 5 quarters with good PRF difference image offsets

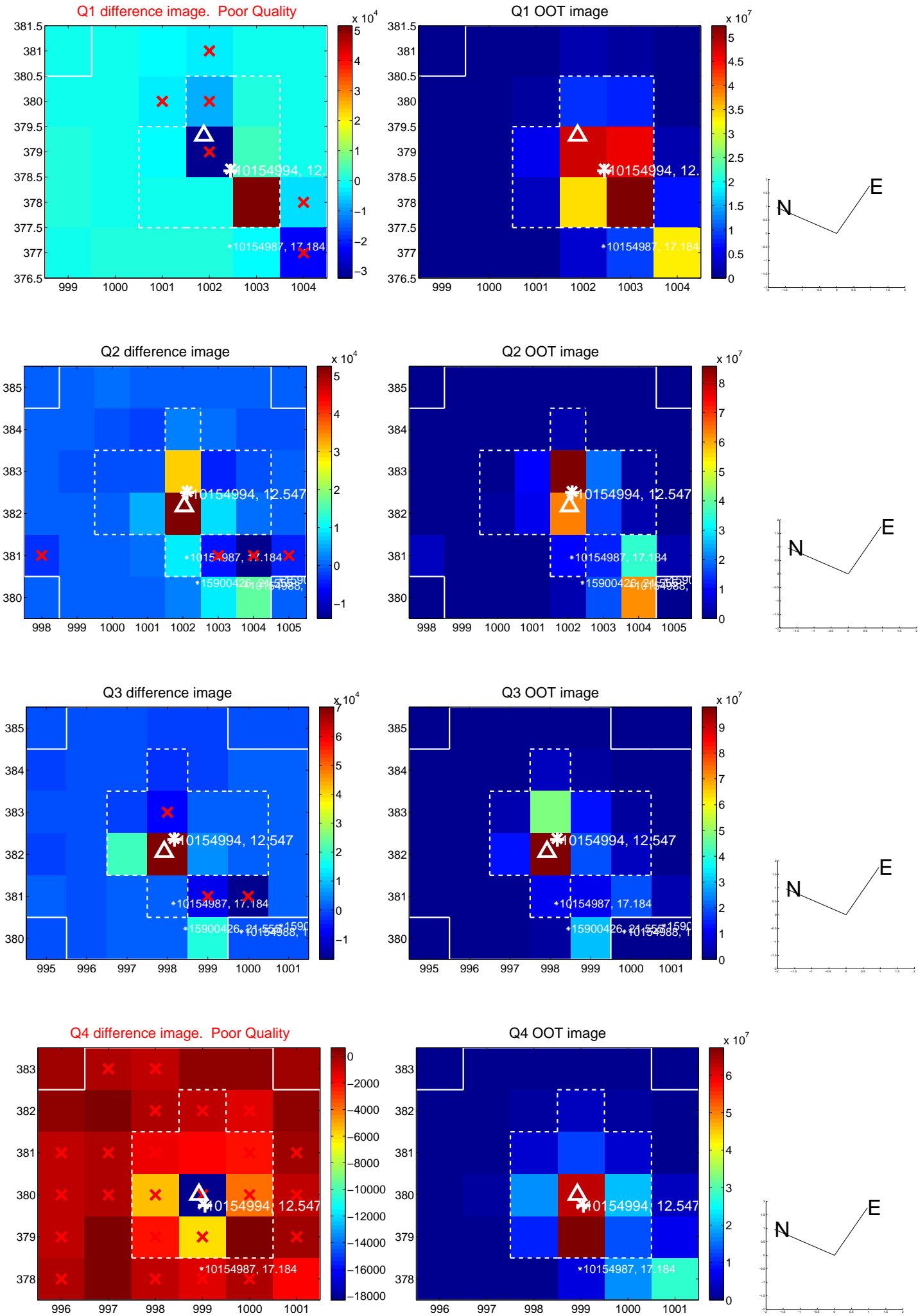
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.538 ± 0.358	1.50	-0.479 ± 0.350	0.245 ± 0.387
PRF-fit source offset from KIC position	0.589 ± 0.349	1.69	-0.566 ± 0.347	0.161 ± 0.381
photometric centroid source offset	0.41 ± 0.77	0.53	-0.20 ± 0.49	-0.36 ± 0.84

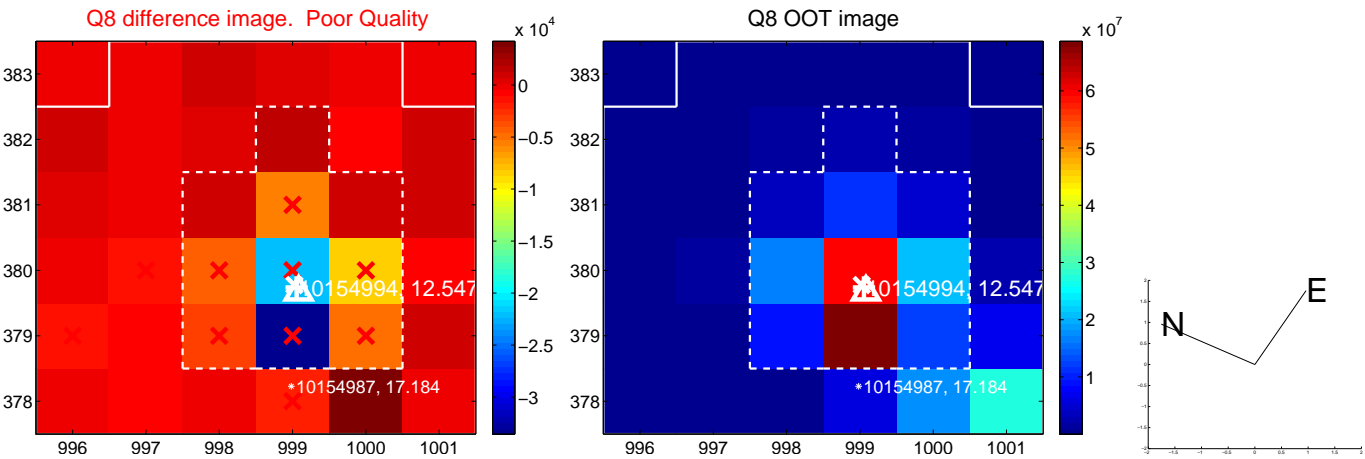
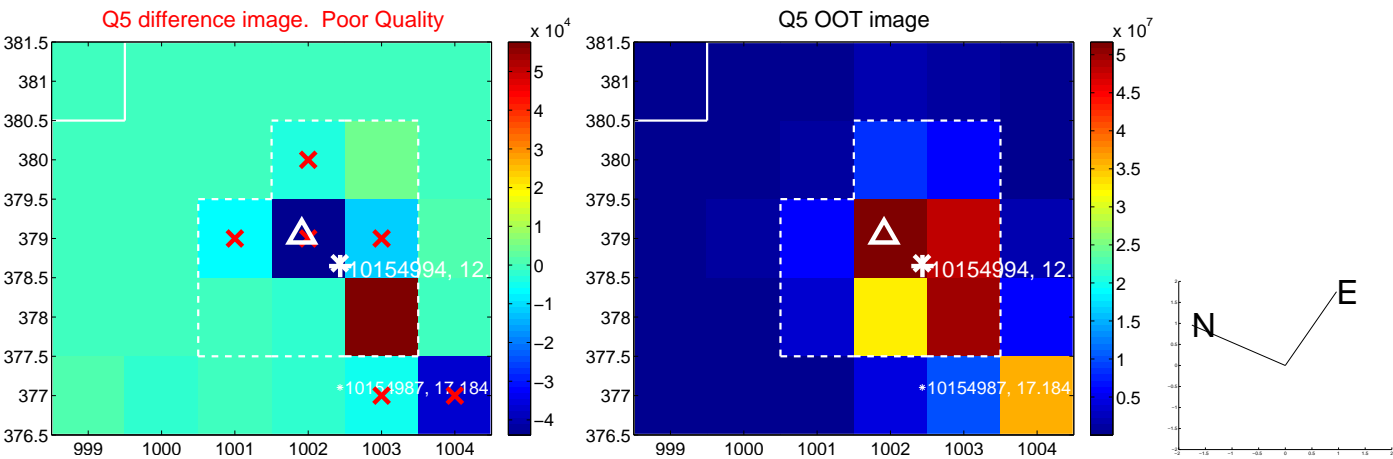


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

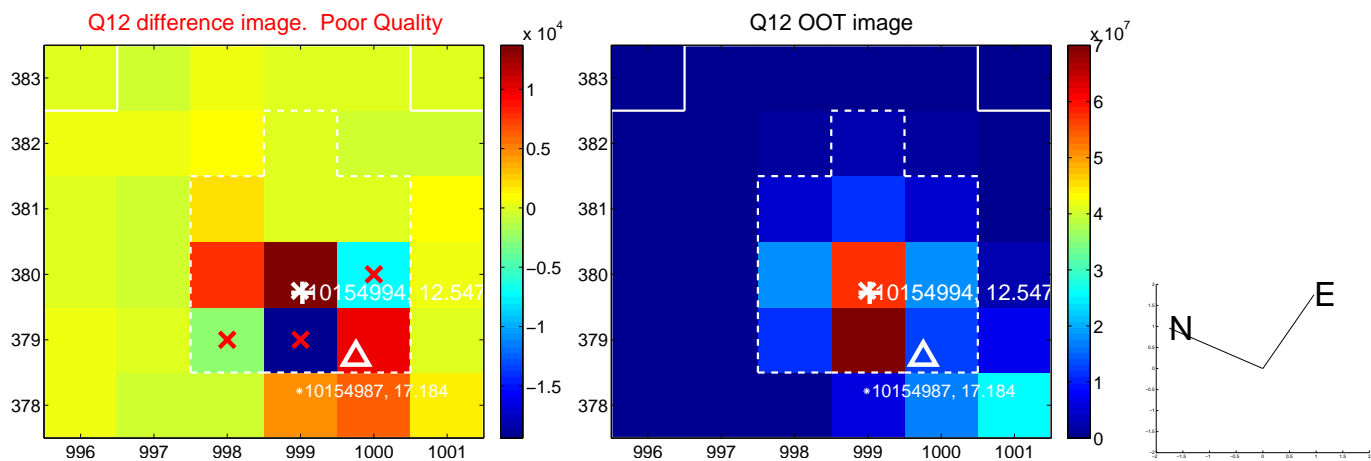
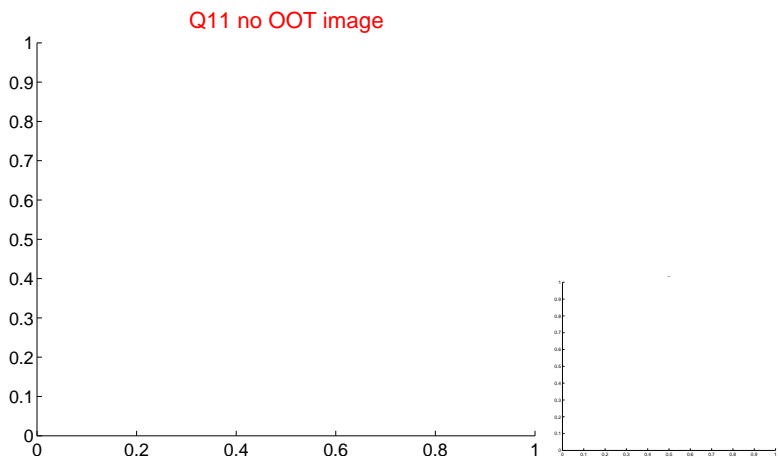
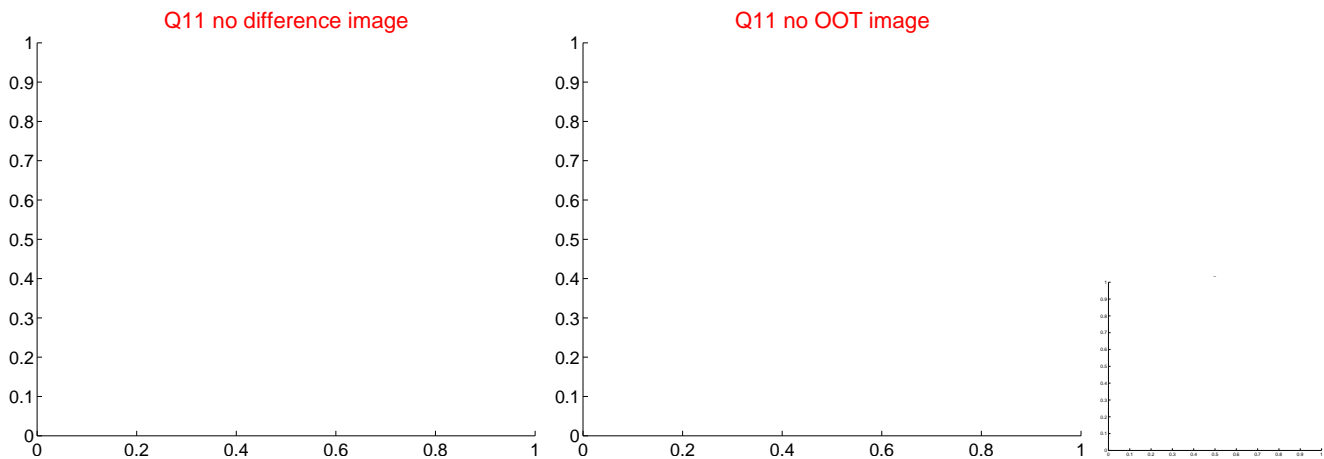
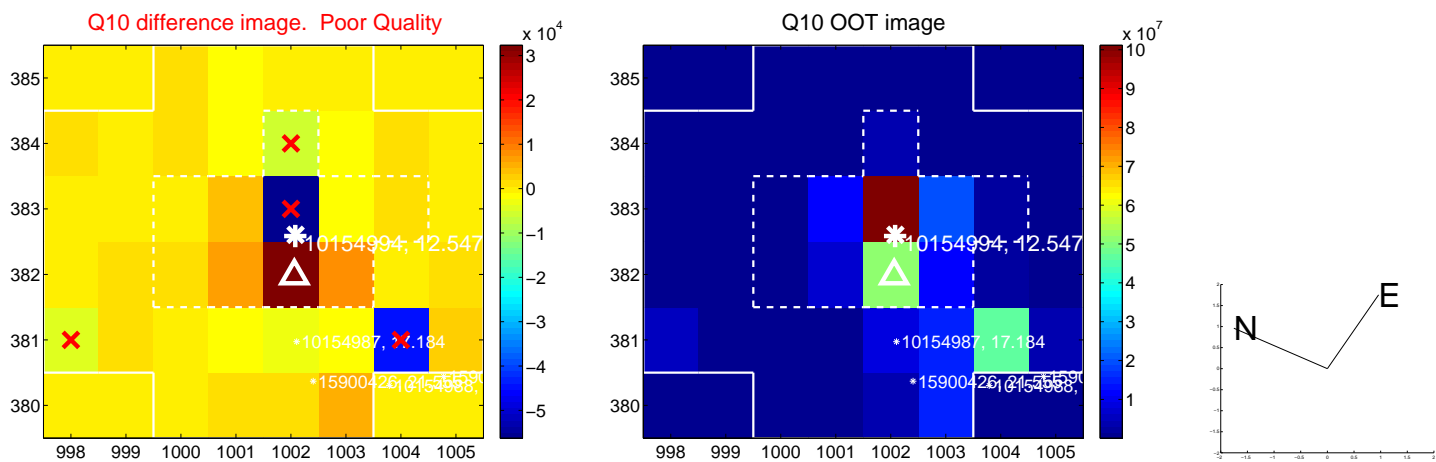
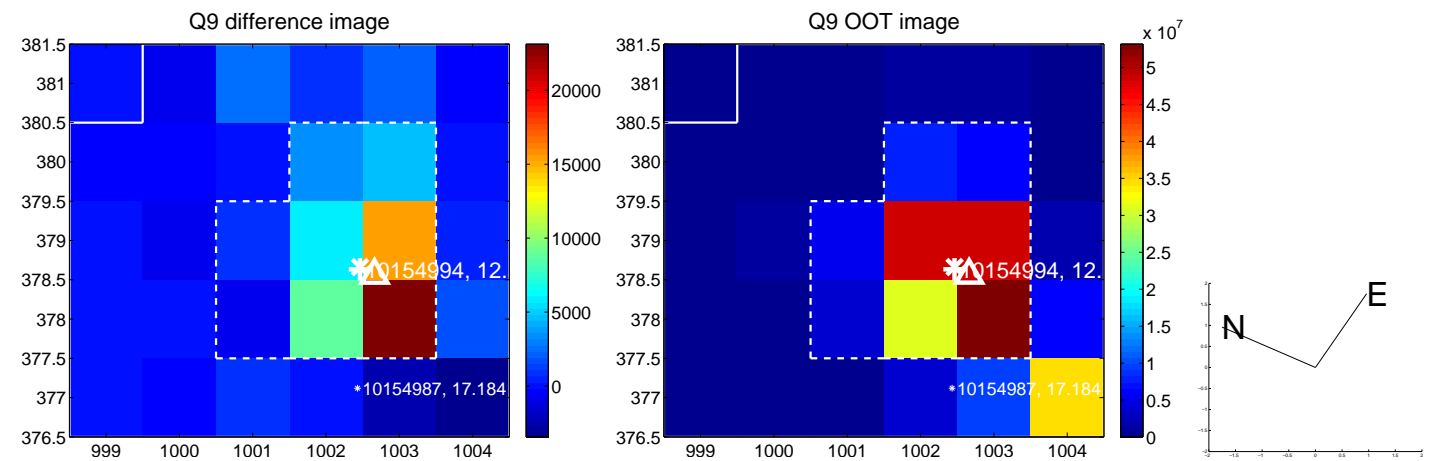
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



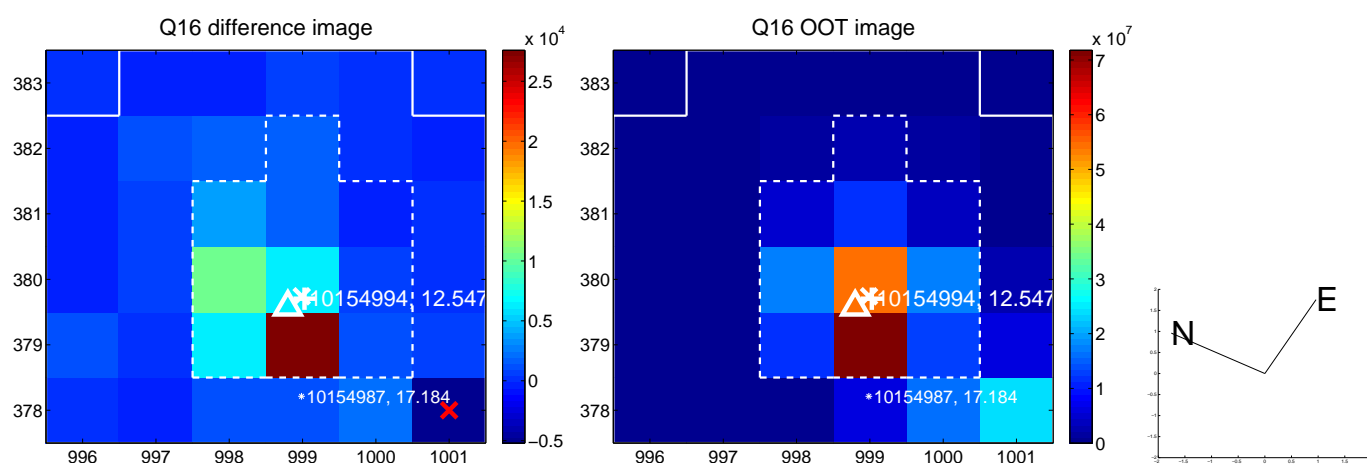
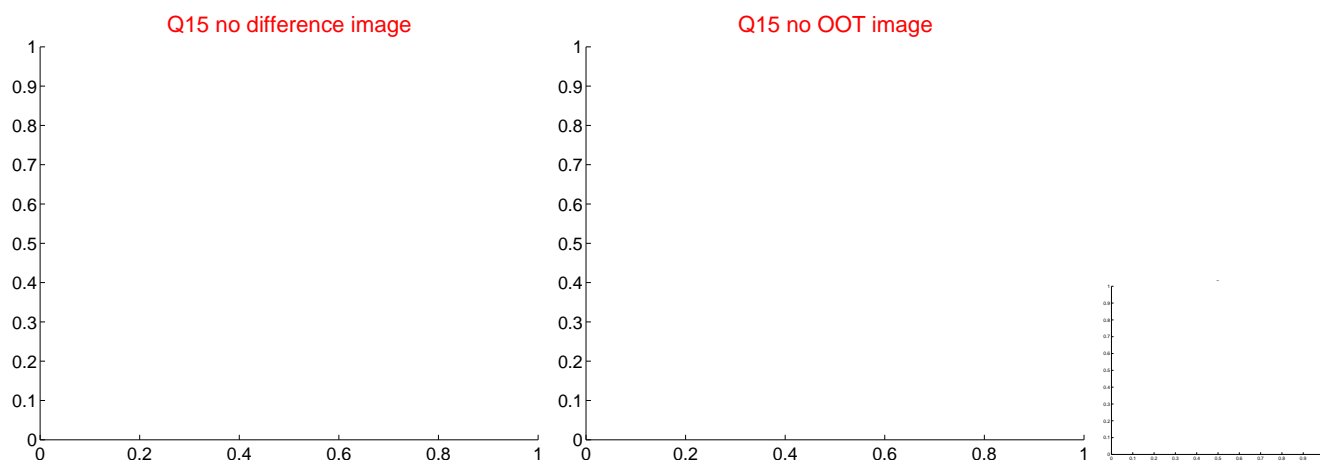
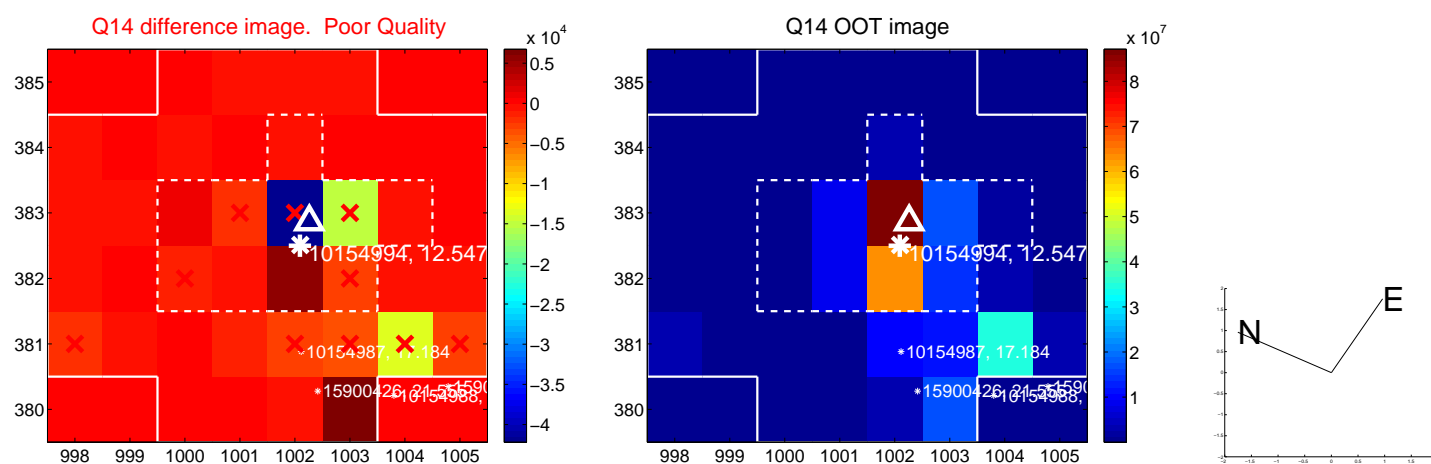
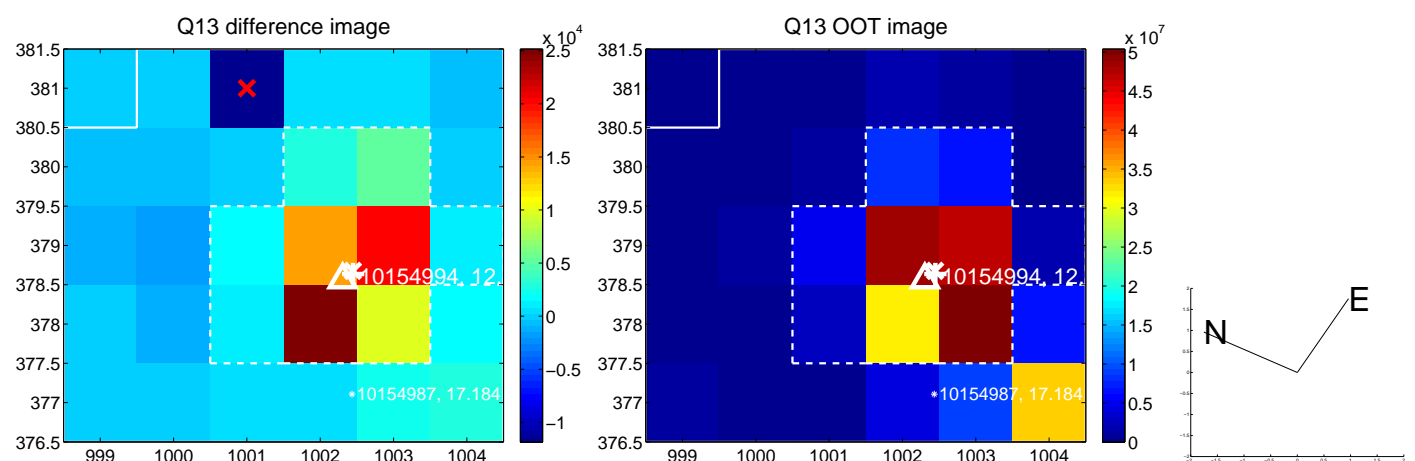
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



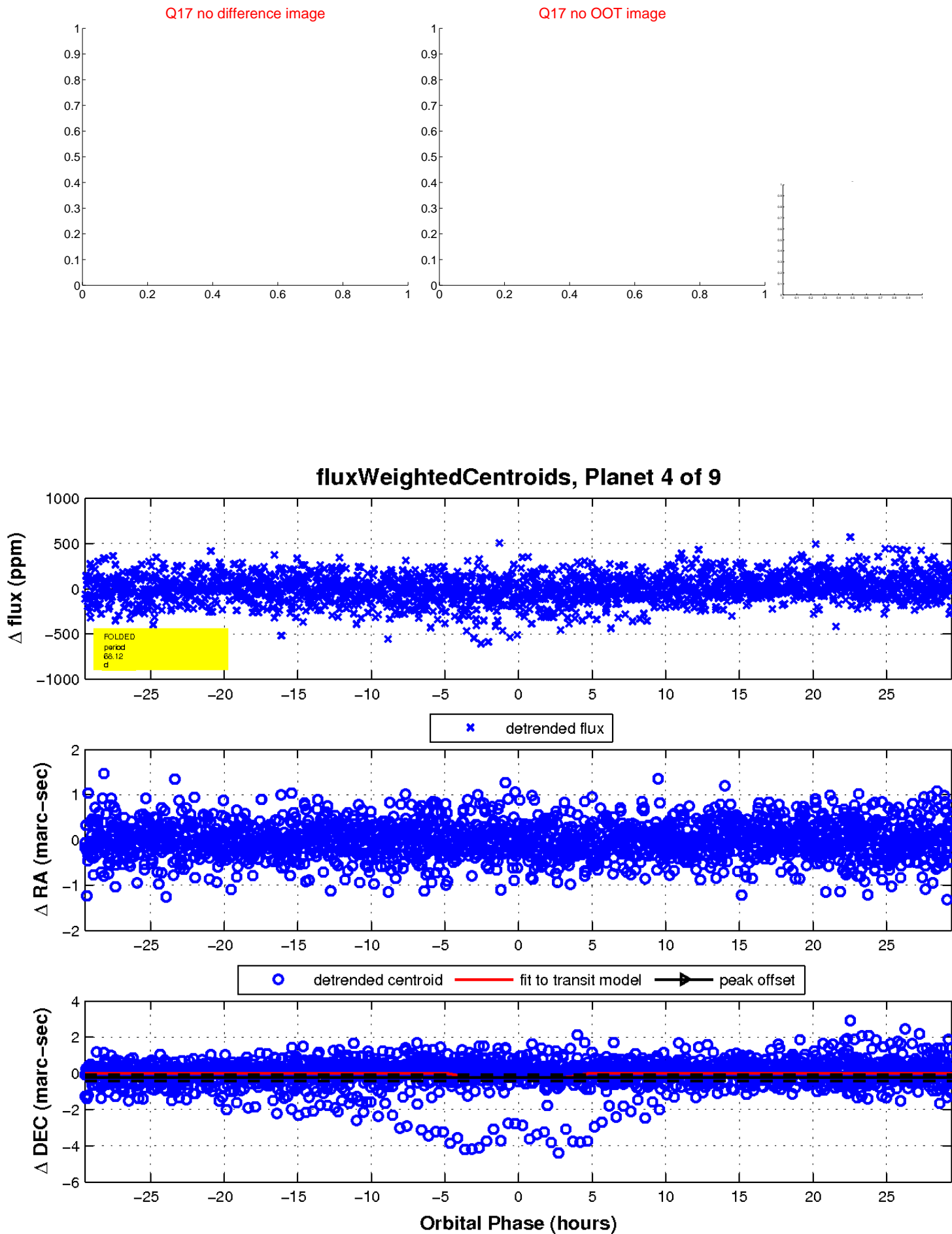
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

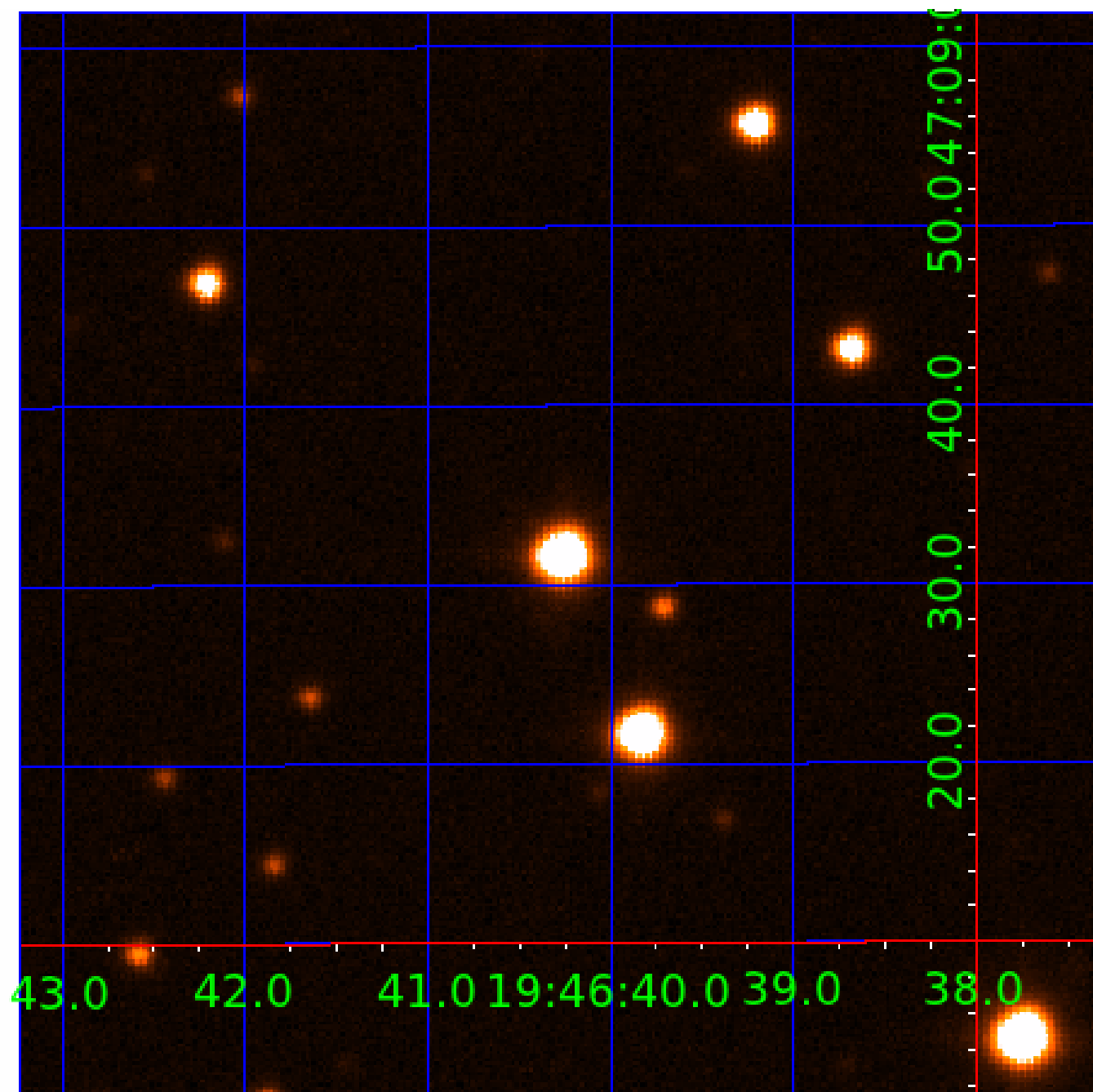


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

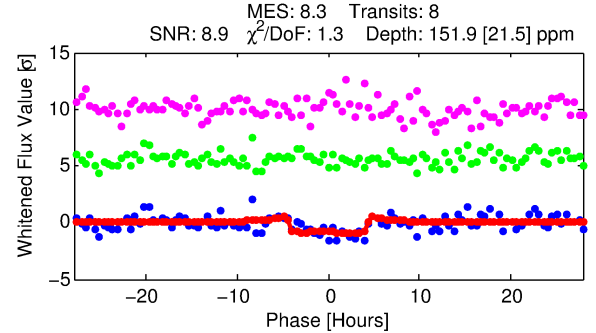
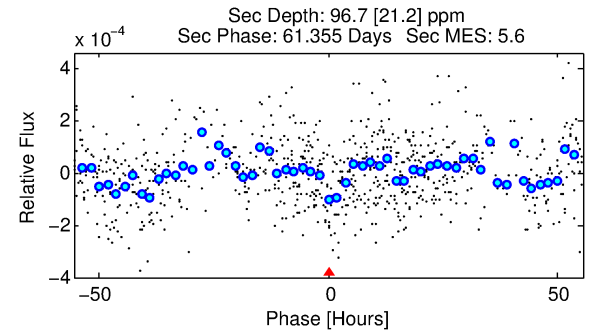
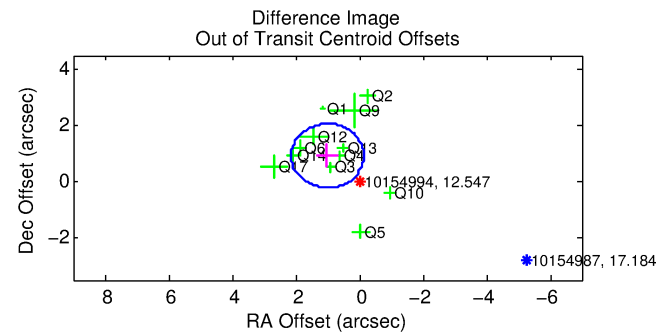
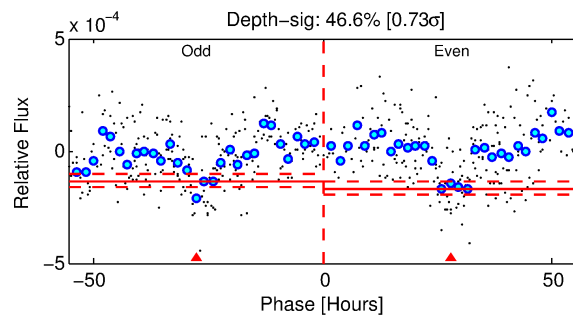
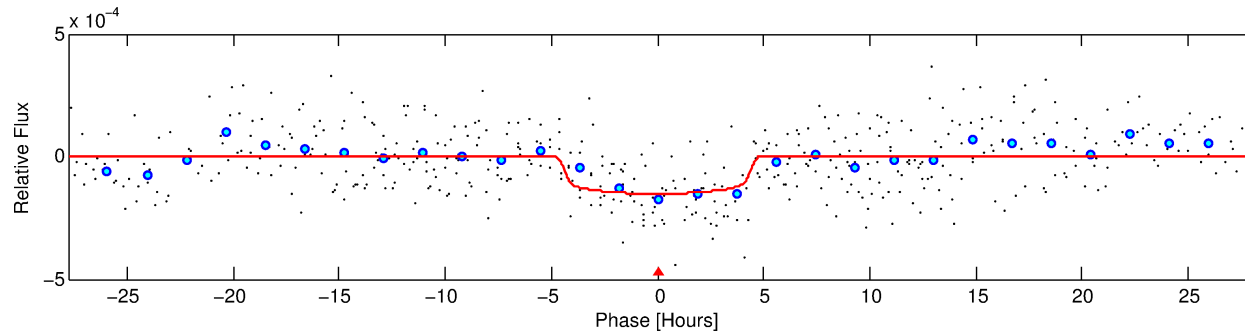
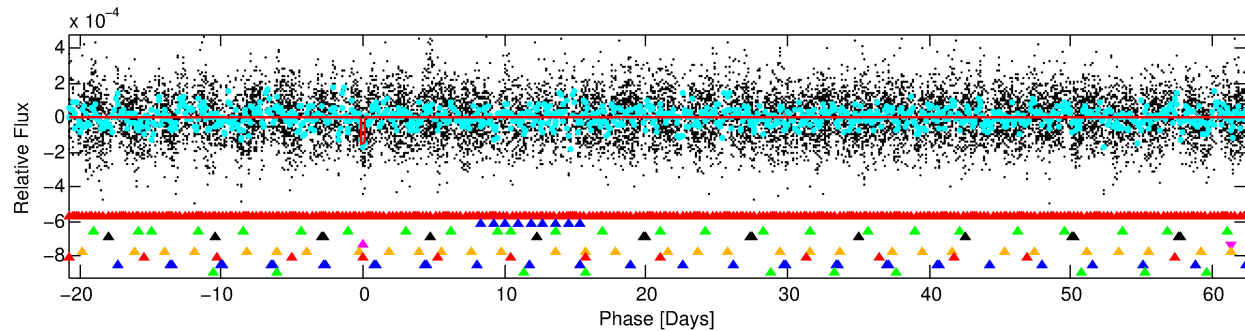
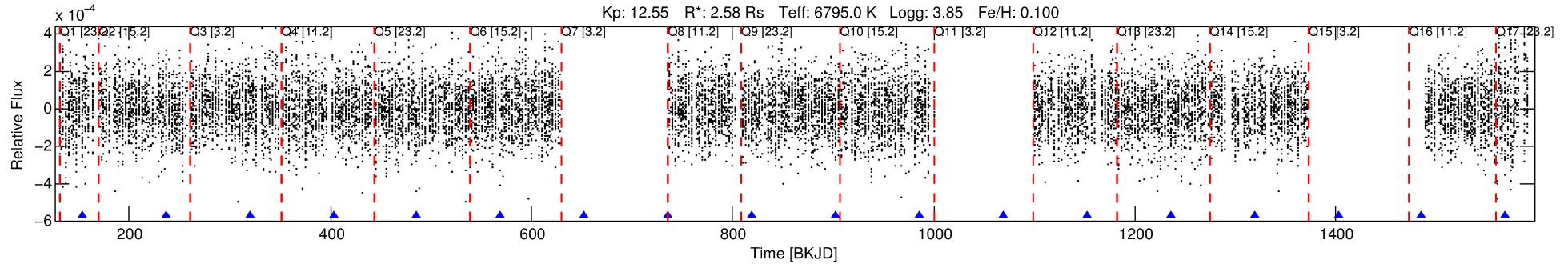
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-05

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 5 of 9 Period: 83.256 d



DV Fit Results:

Period = 83.25603 [0.00146] d
Epoch = 153.1995 [0.0136] BKJD
Rp/R* = 0.0128 [0.0025]
a/R* = 37.54 [37.88]
b = 0.85 [0.33]
Seff = 63.23 [30.54]
Teq = 719 [87] K
Rp = 3.59 [1.40] Re
a = 0.4475 [0.1356] AU
Ag = 828.42 [538.02] [1.54 σ]
Teffp = 5964 [701] K [7.42 σ]

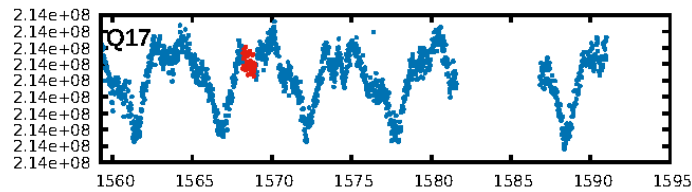
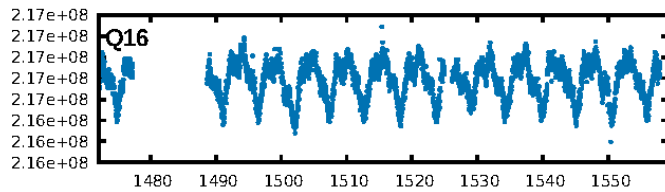
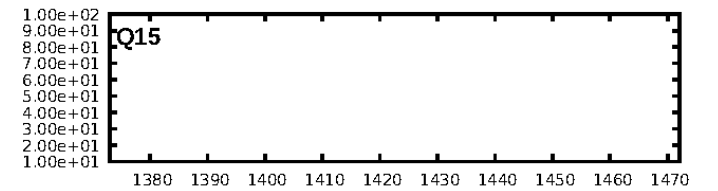
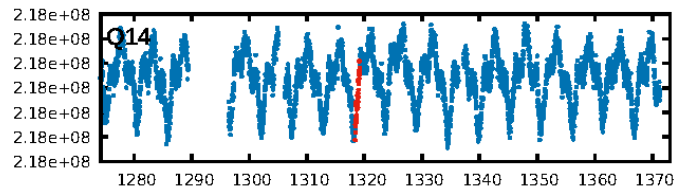
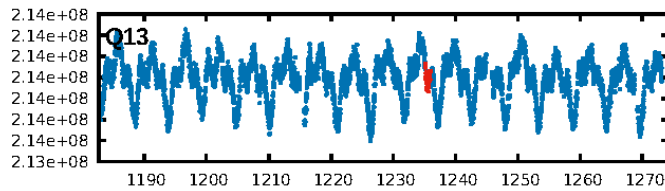
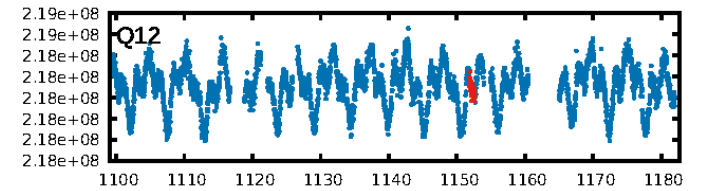
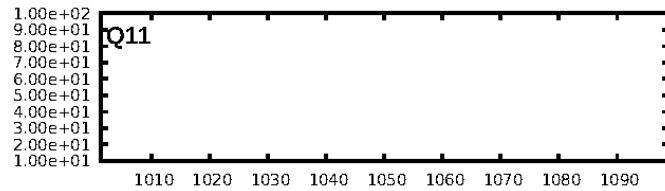
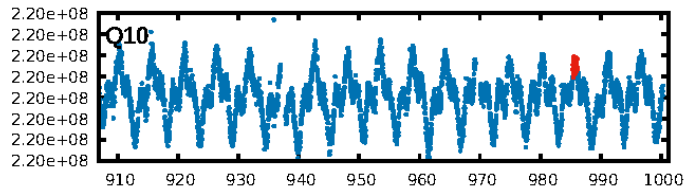
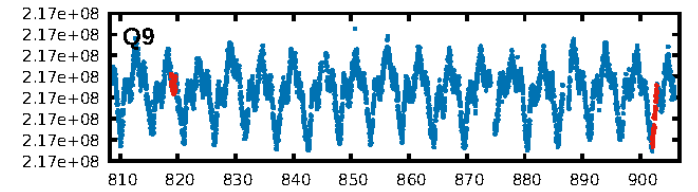
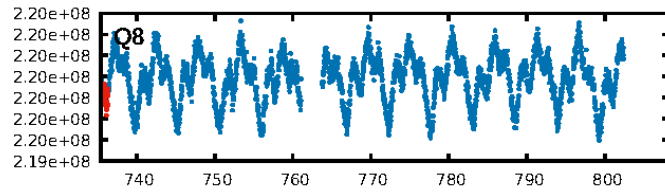
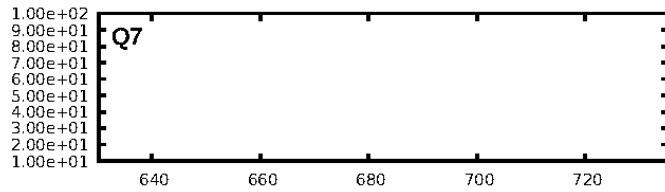
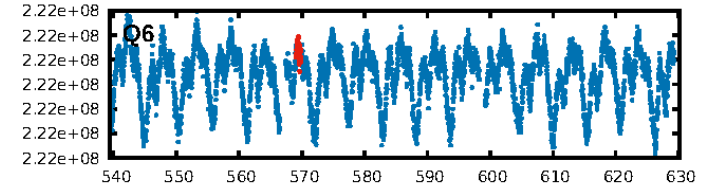
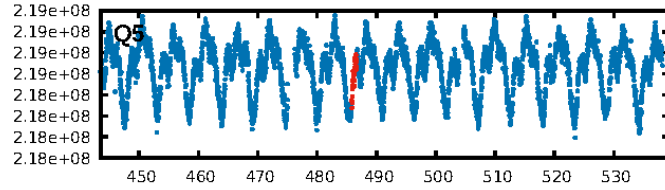
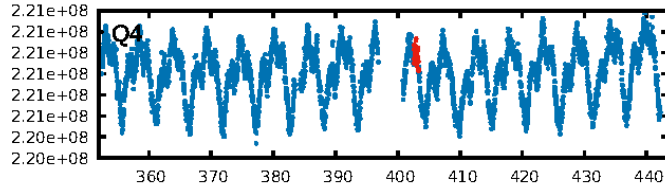
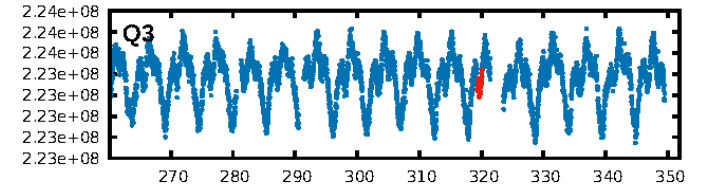
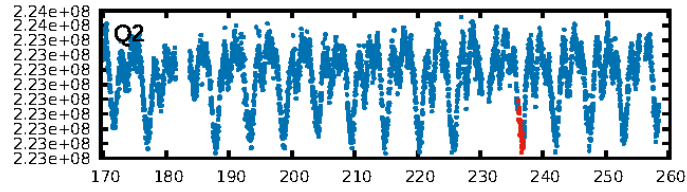
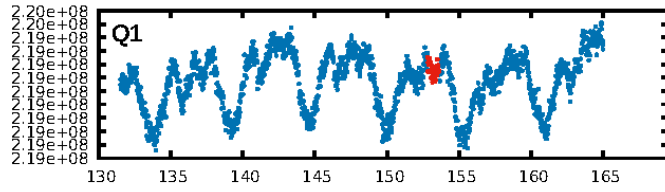
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.90 σ]
LongPeriod-sig: 100.0% [56.23 σ]
ModelChiSquare2-sig: 48.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.40e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.2417
Centroid-sig: N/A
Centroid-so: 1.337 arcsec [1.60 σ]
OotOffset-rm: 1.362 arcsec [3.58 σ]
KicOffset-rm: 1.219 arcsec [3.60 σ]
OotOffset-st: 4/1/2/5 [12]
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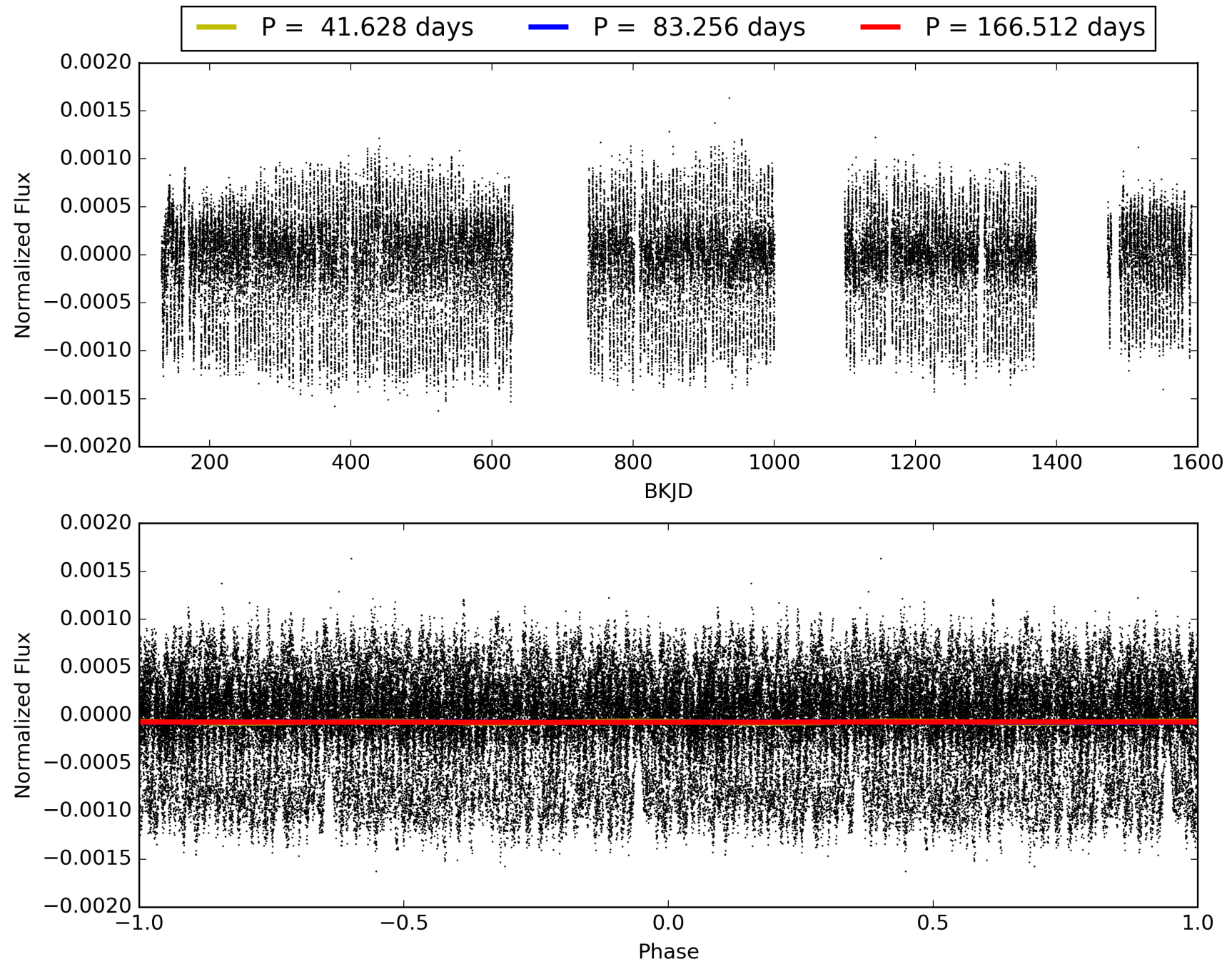
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:39:57 Z

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

TCE 010154994-05, PDC Light Curves

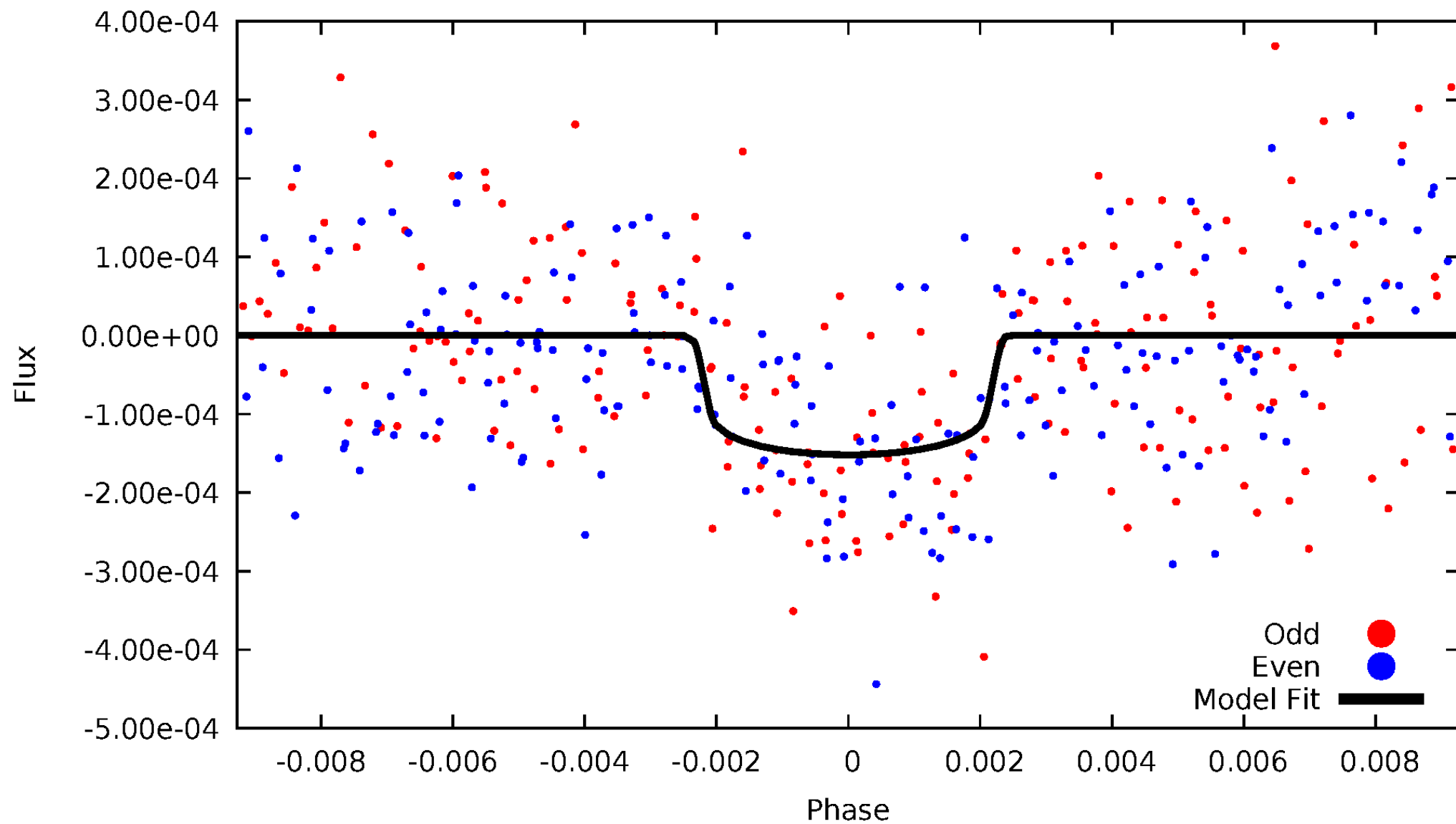


TCE 010154994-05



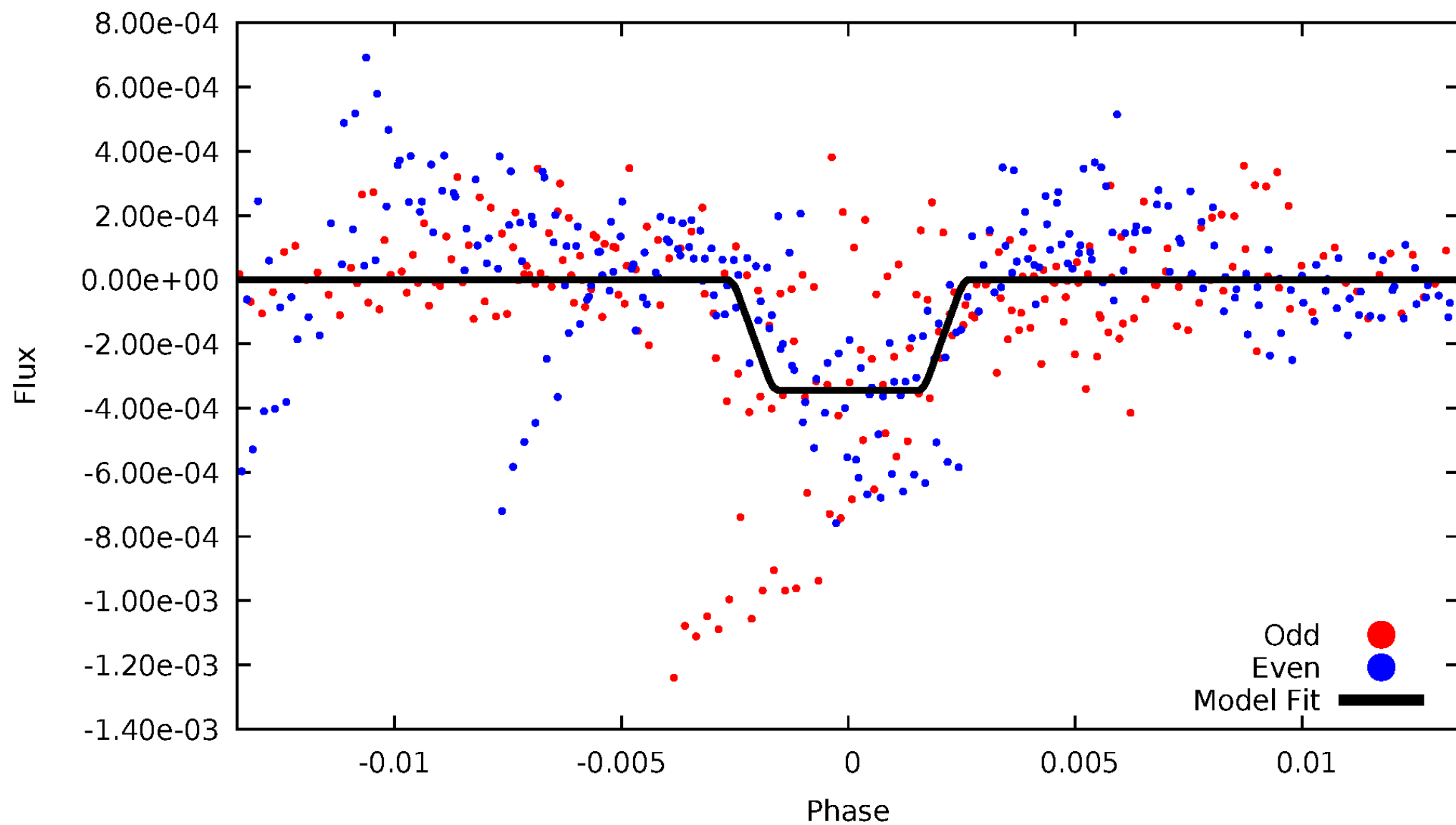
DV Odd/Even

TCE 010154994-05



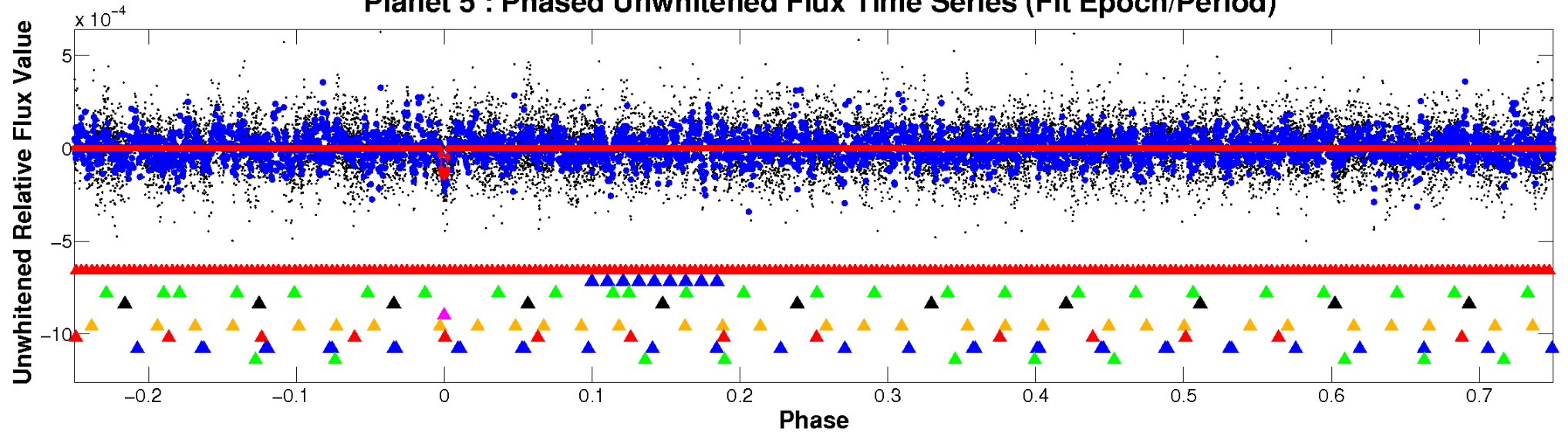
ALT Odd/Even

TCE 010154994-05

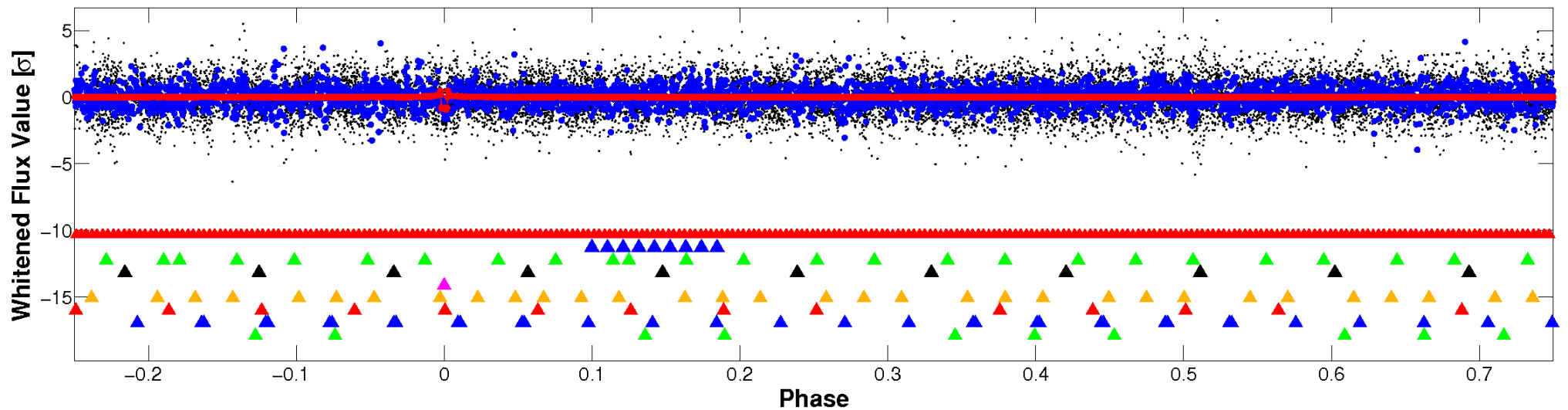


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

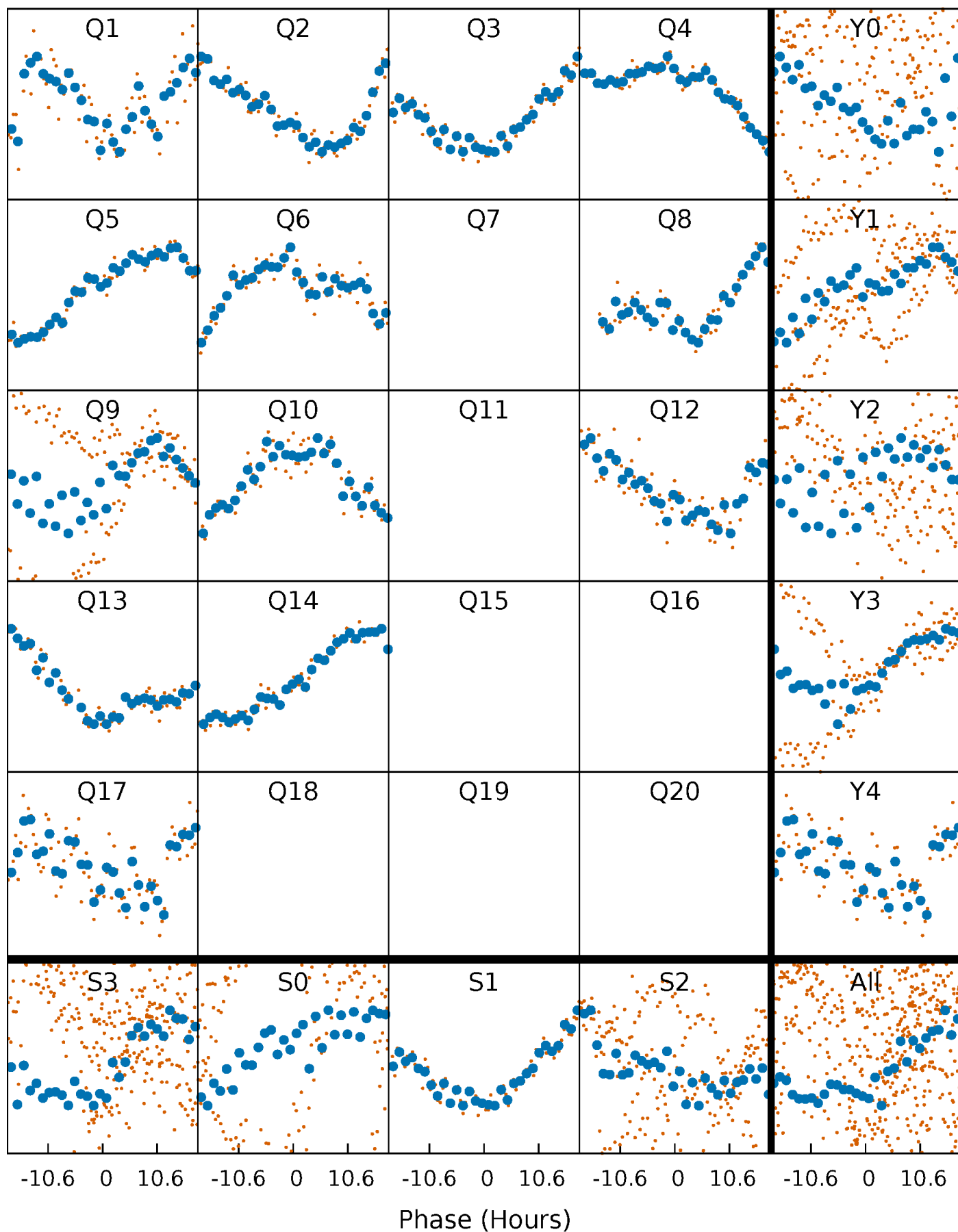


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



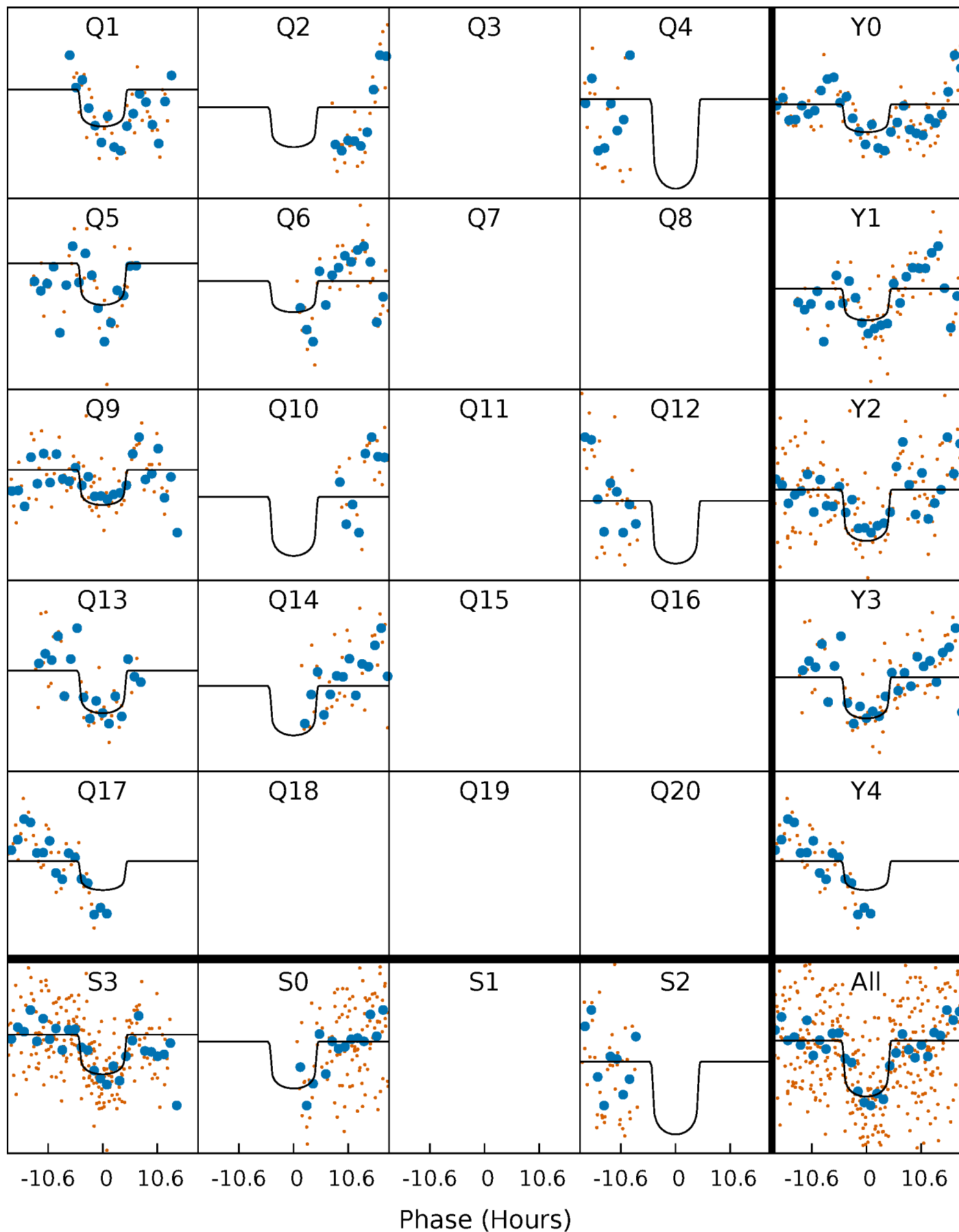
PDC Quarter-Phased Transit Curves

TCE 010154994-05 P= 83.256028 Days $T_0=153.199512$ (BKJD)



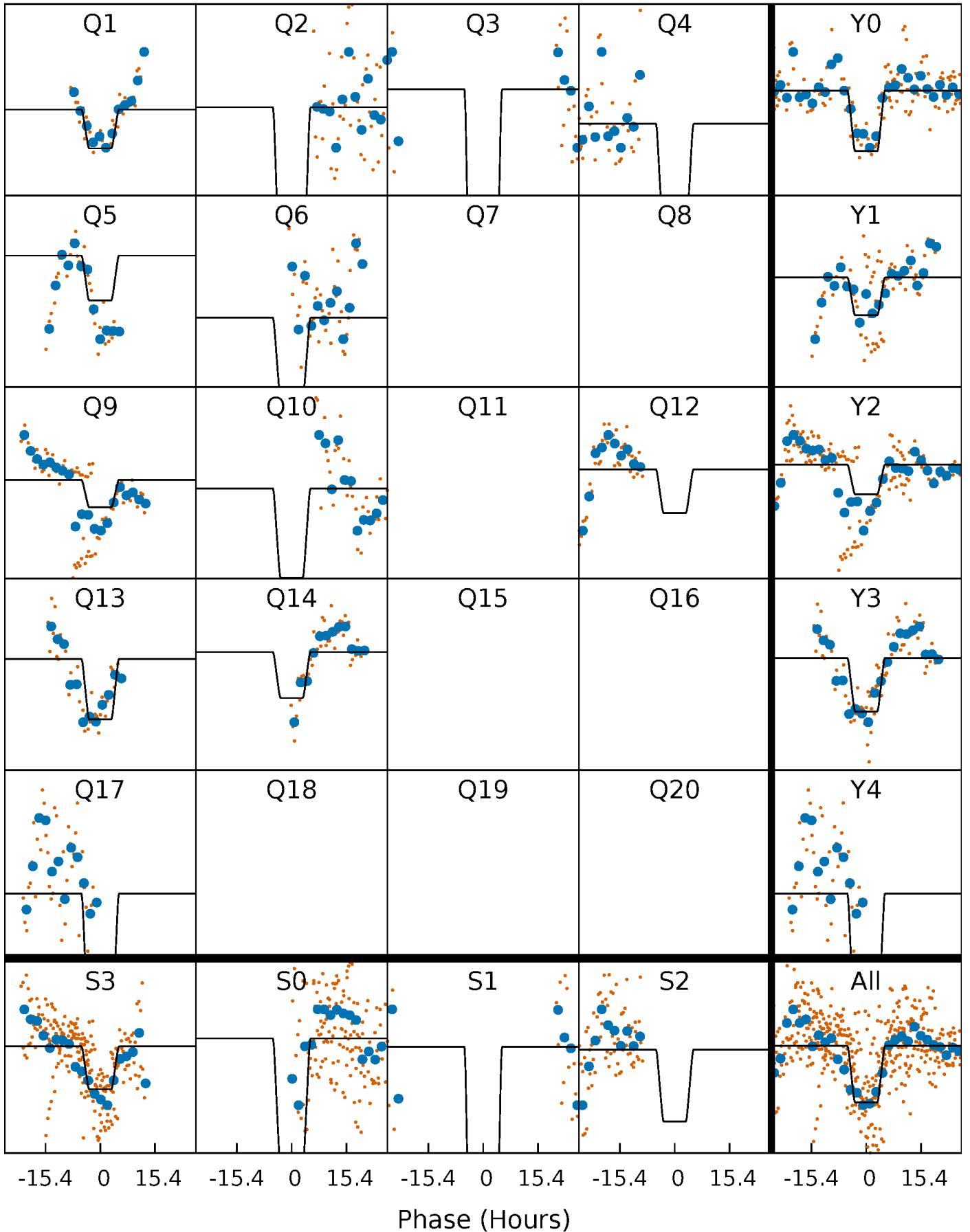
DV Quarter-Phased Transit Curves

TCE 010154994-05 P= 83.256028 Days $T_0=153.199512$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

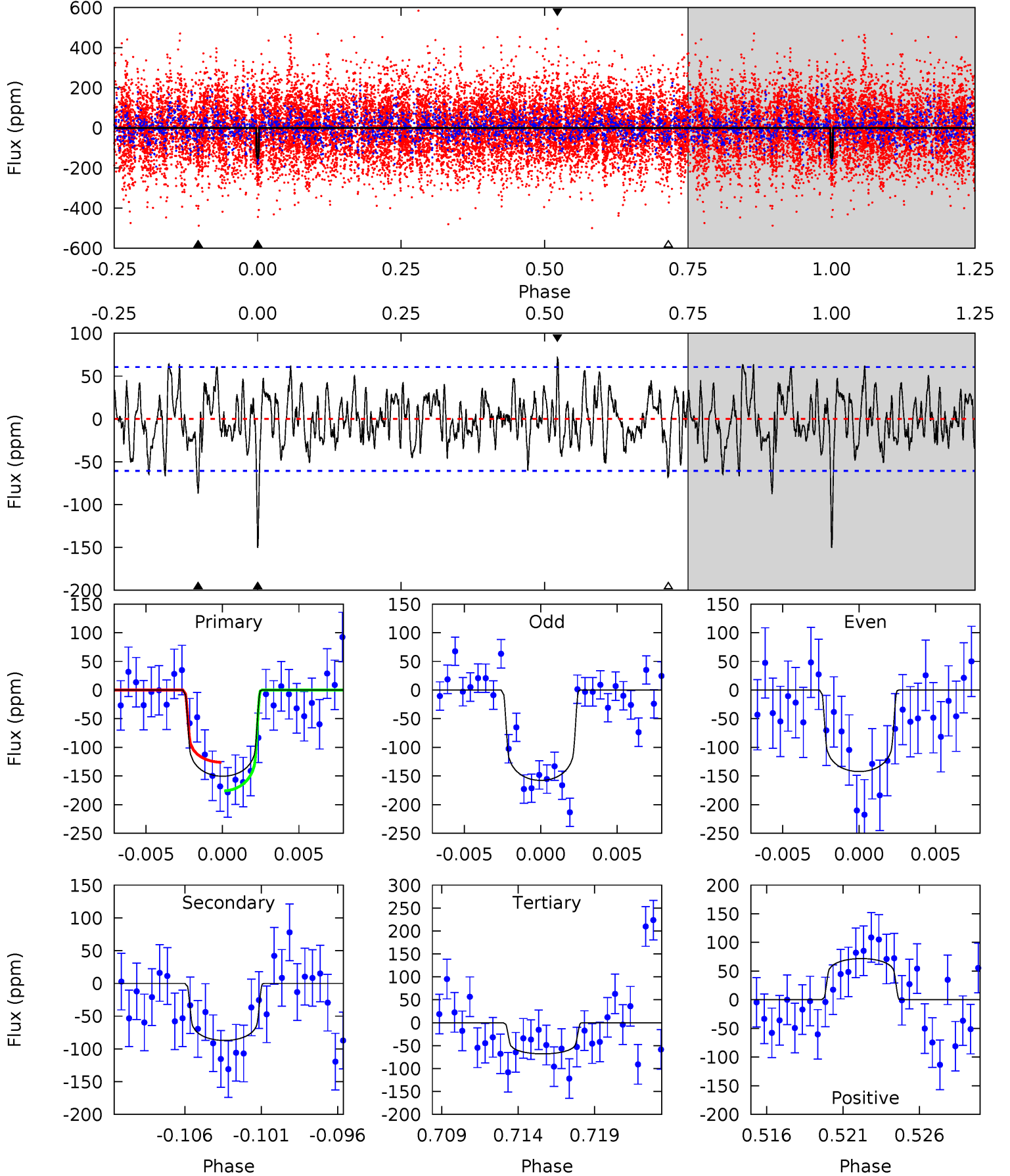
TCE 010154994-05 $P = 83.257400$ Days $T_0 = 153.251516$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-05, P = 83.256028 Days, E = 69.943484 Days

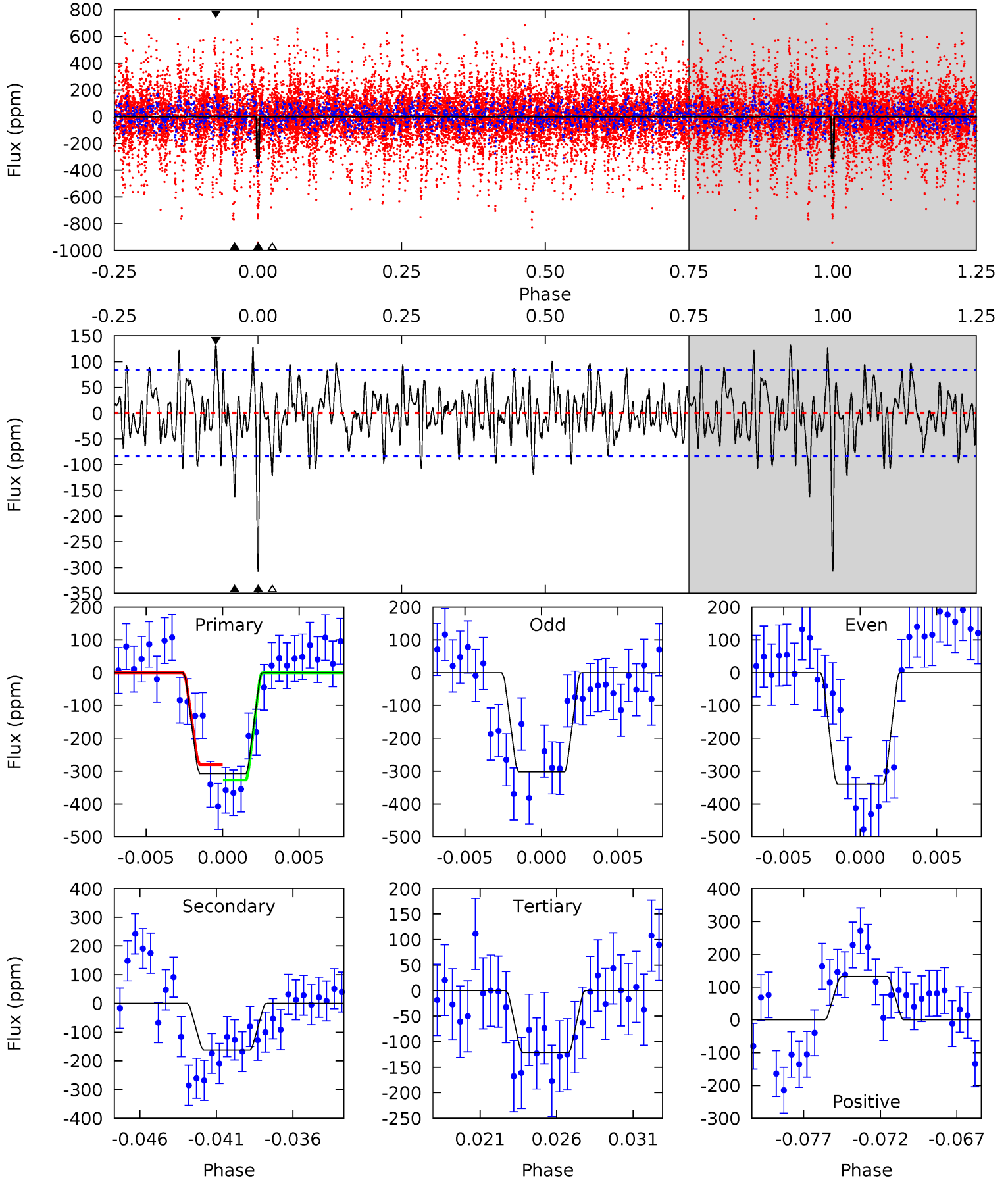
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	7.43	5.79	6.12	5.16	2.82	2.07	7.03	6.70	1.63	1.31	0.66	1.04	0.32	2.13



Alt Model-Shift Uniqueness Test

010154994-05, P = 83.257400 Days, E = 69.994116 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	9.96	7.42	8.11	5.15	2.80	2.62	11.4	10.7	2.54	1.85	1.12	0.88	0.30	1.41



Stellar Parameters For KIC 010154994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-87 ± 12	$3.38^{+0.87}_{-0.84}$	985^{+64}_{-74}	5816^{+683}_{-554}	830^{+630}_{-307}
Alt.	-163 ± 16	$5.04^{+1.02}_{-1.01}$	995^{+61}_{-86}	5581^{+494}_{-320}	694^{+375}_{-211}

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

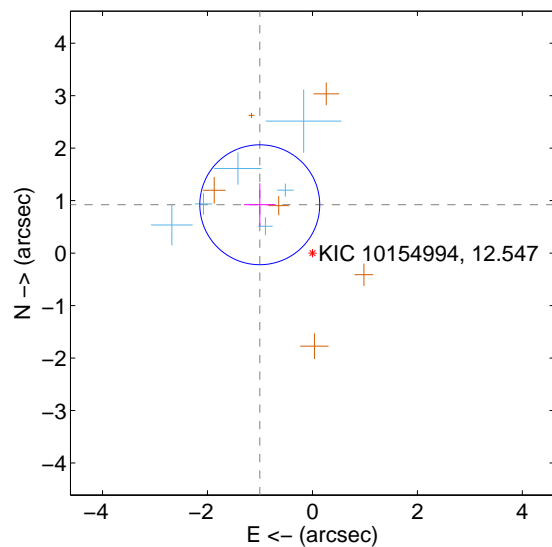
Supplemental centroid analysis for 010154994-05. Kepler magnitude: 12.55. Transit SNR 8.90

There are 6 quarters with good PRF difference image offsets

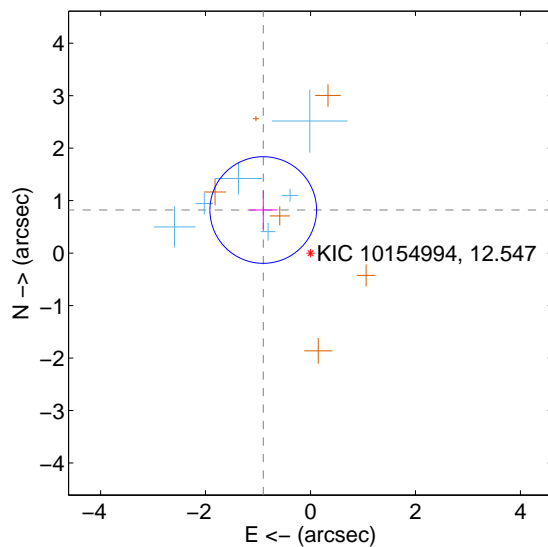
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.362 \pm 0.381	3.58	1.004 \pm 0.301	0.921 \pm 0.408
PRF-fit source offset from KIC position	1.219 \pm 0.339	3.60	0.901 \pm 0.268	0.821 \pm 0.367
photometric centroid source offset	1.34 \pm 0.84	1.60	-1.06 \pm 0.65	-0.81 \pm 1.08

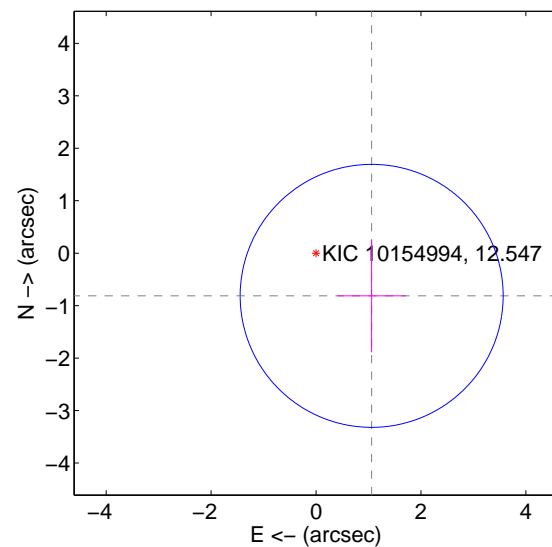
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

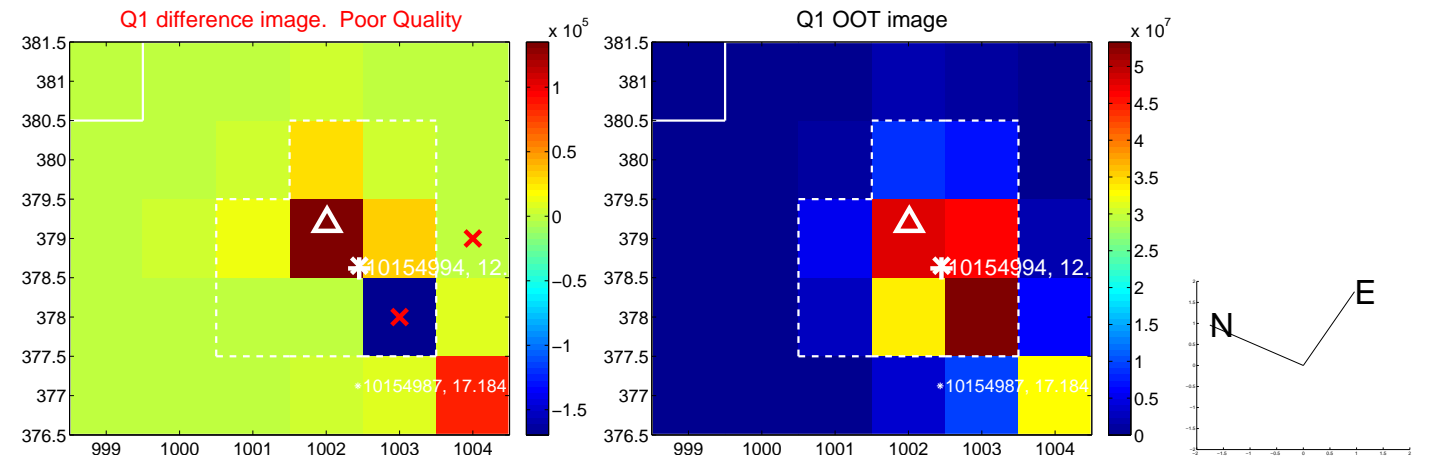


offset from photometric centroids

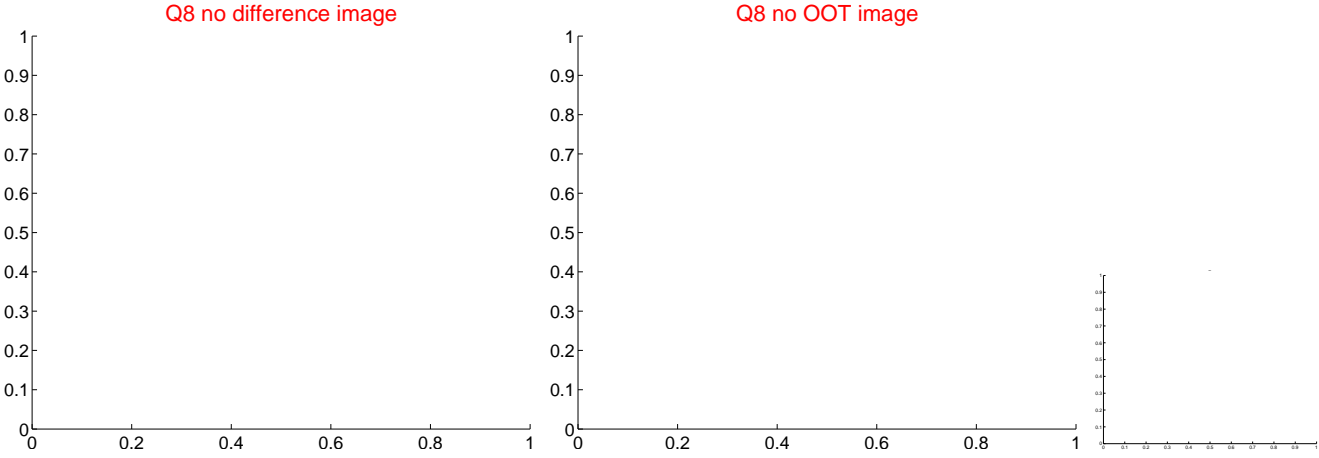
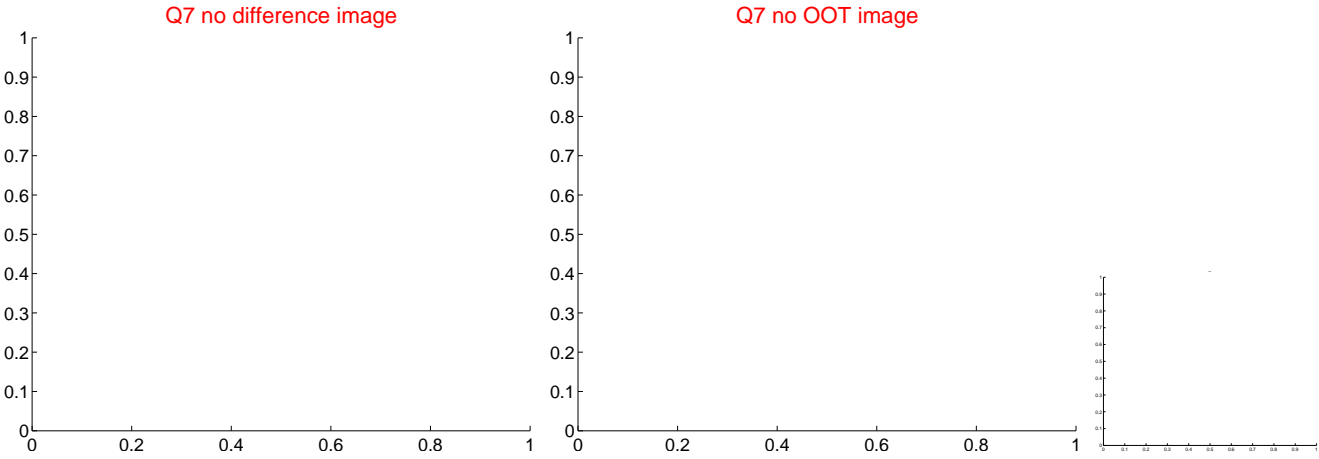
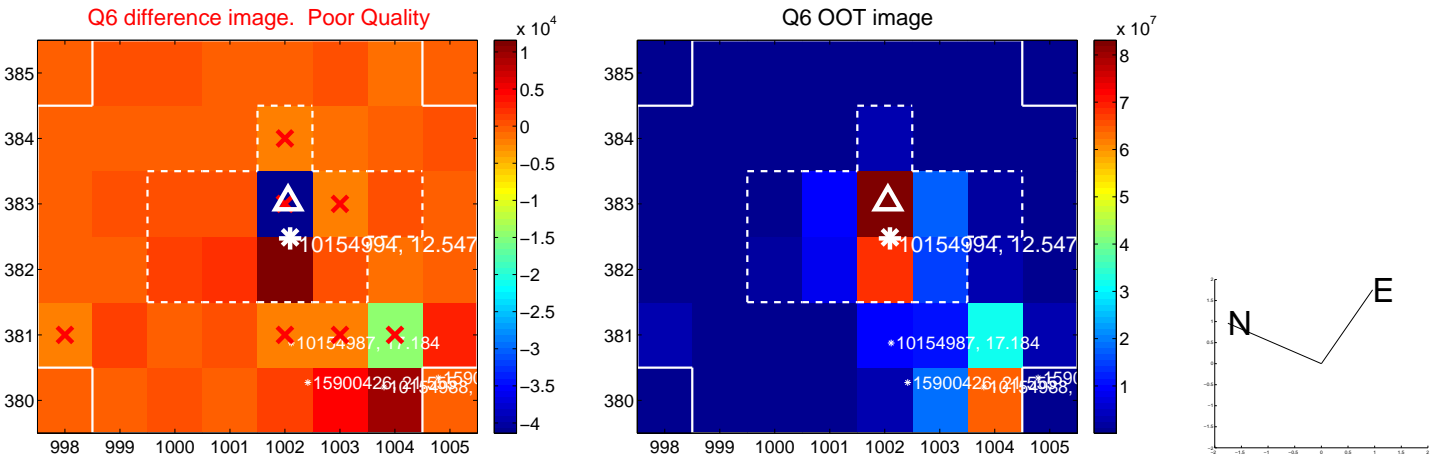
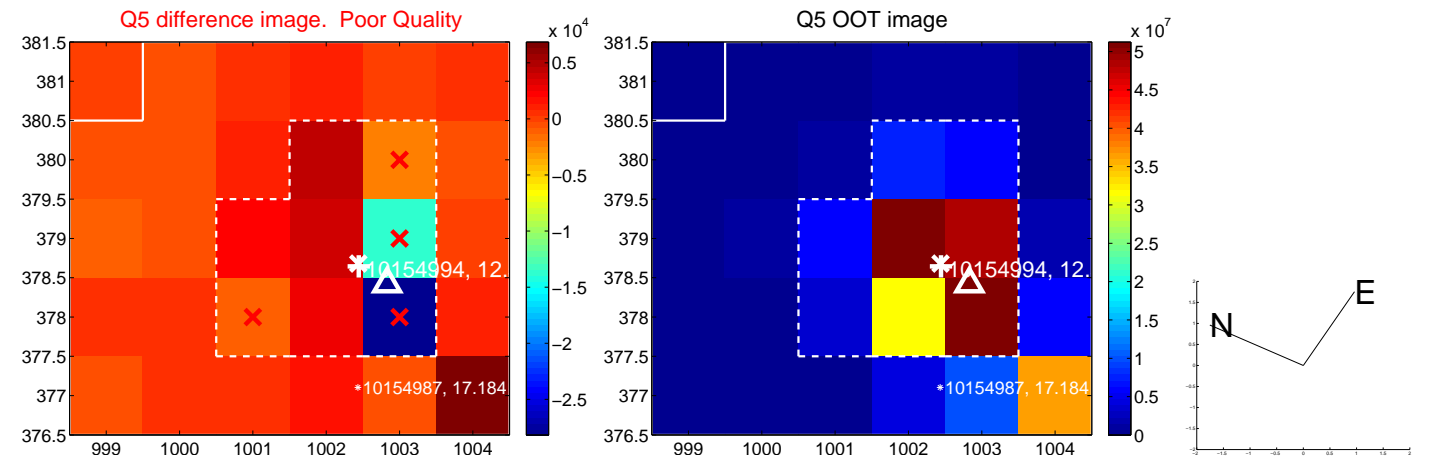


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

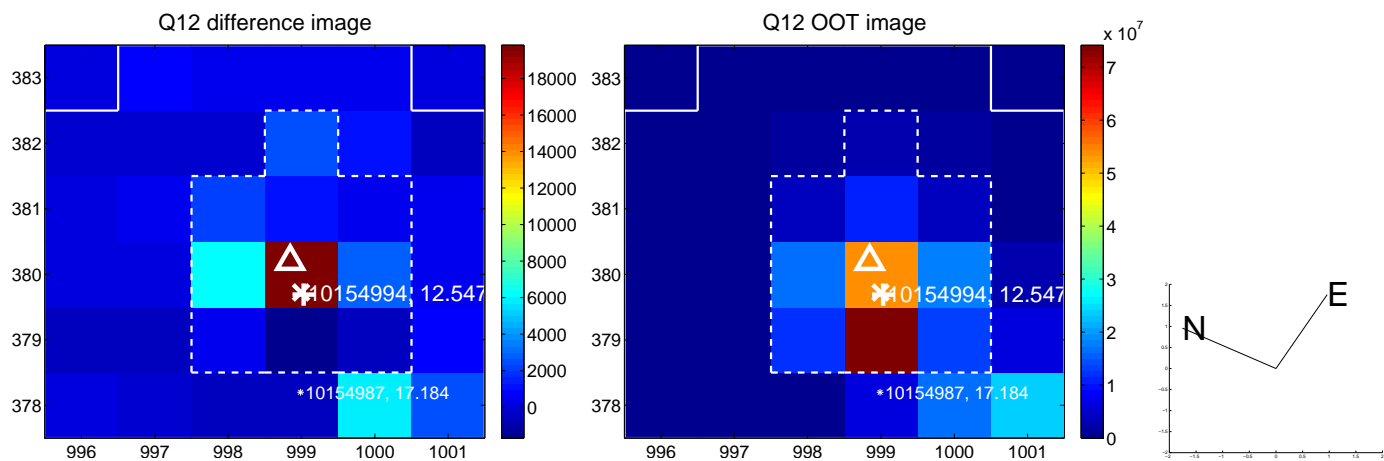
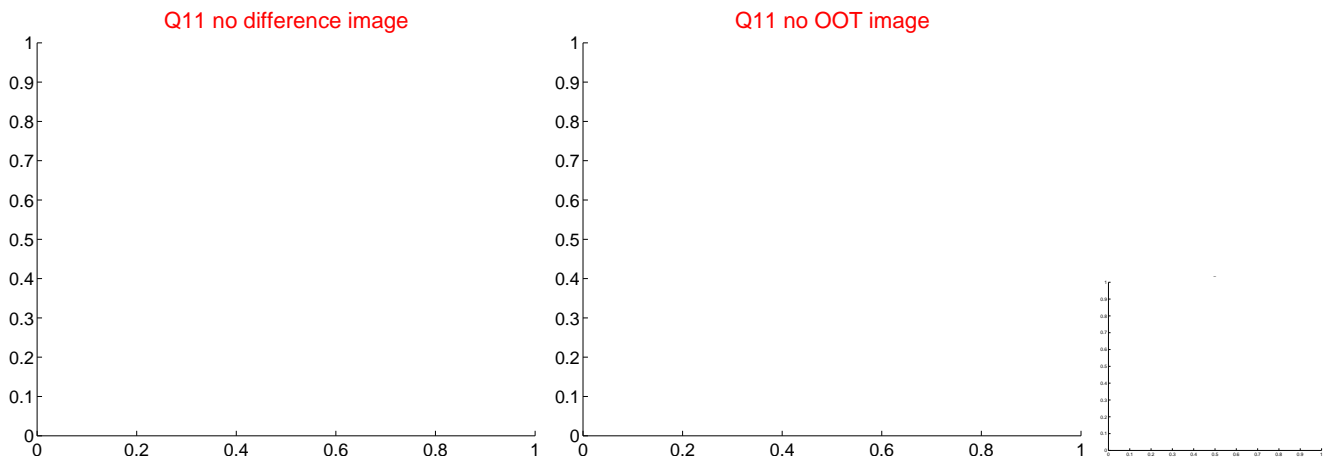
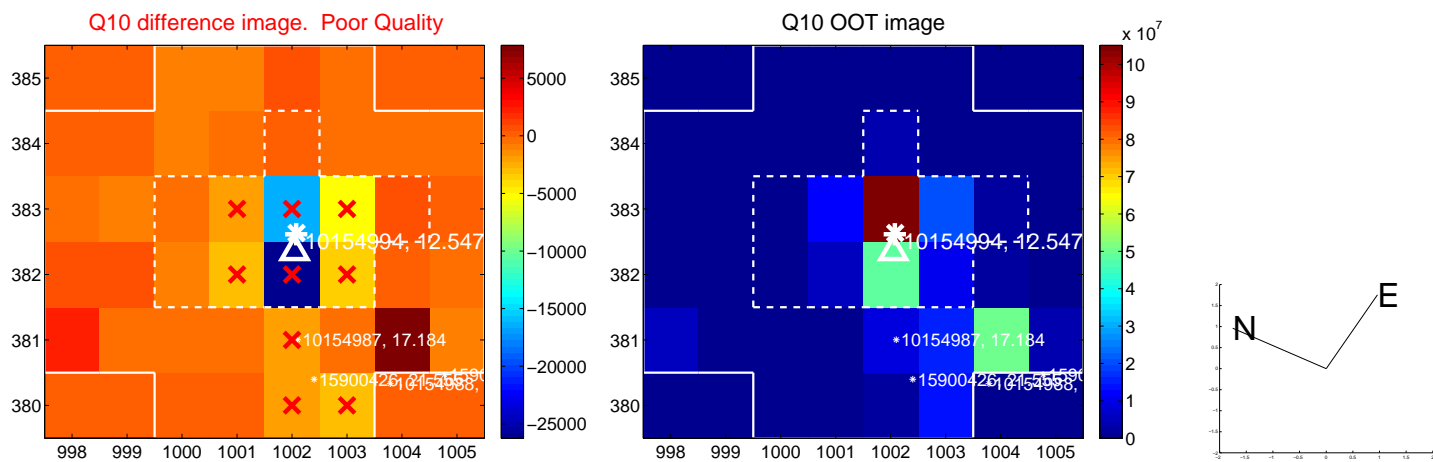
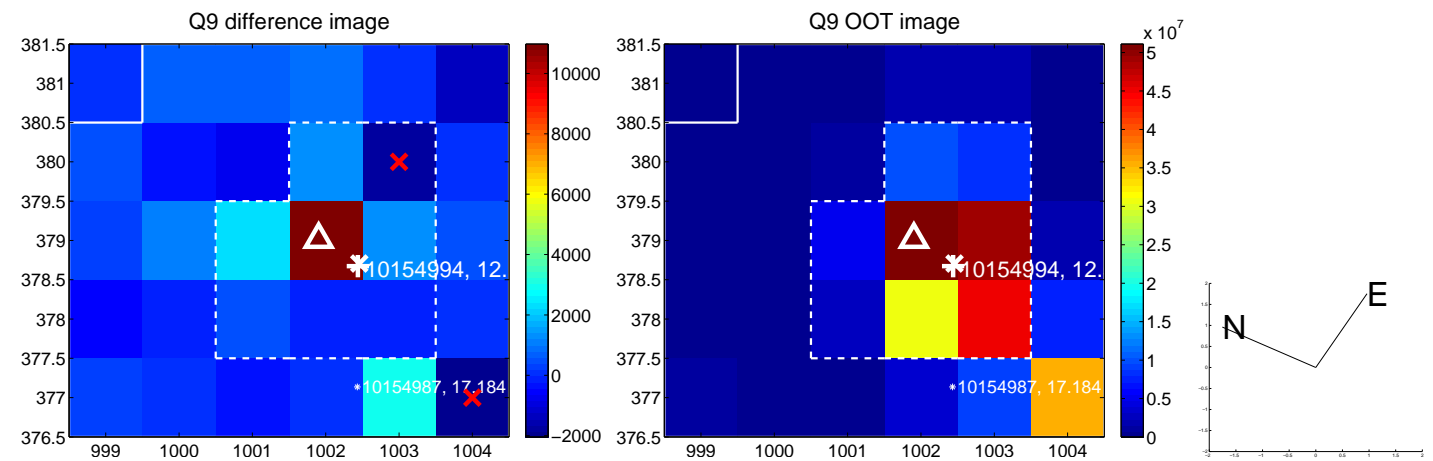
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



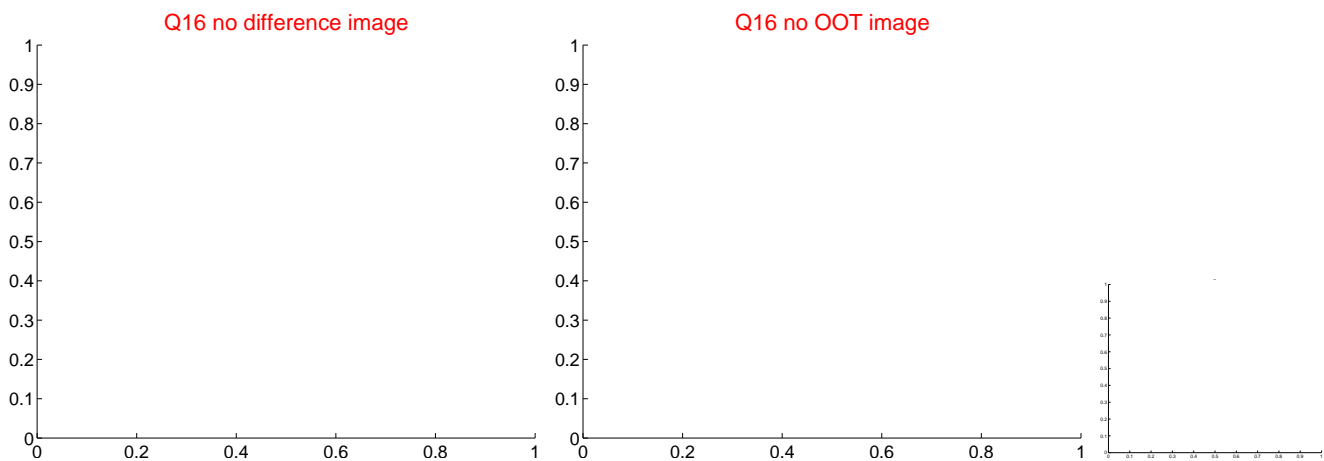
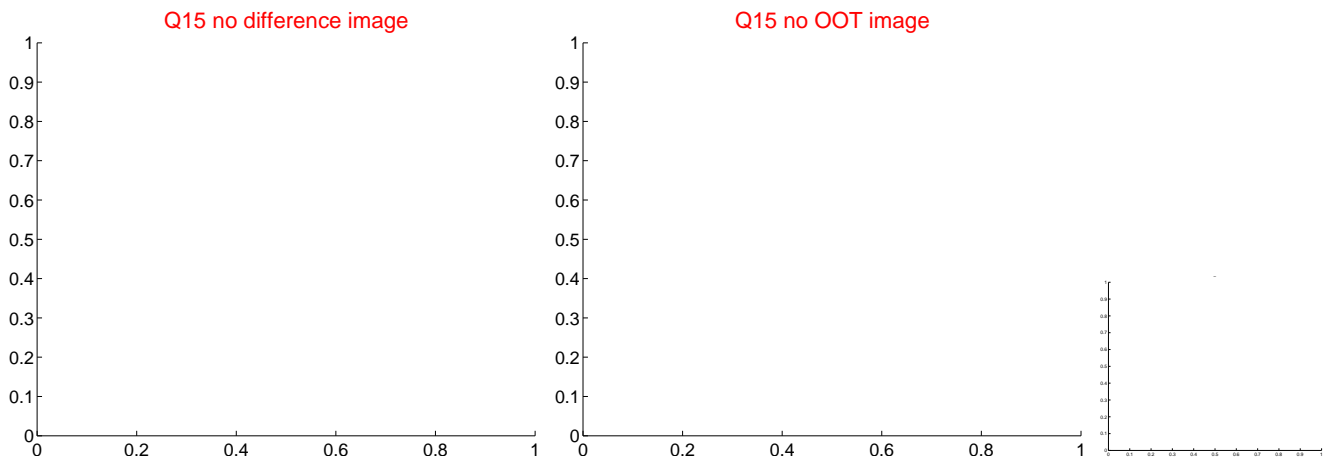
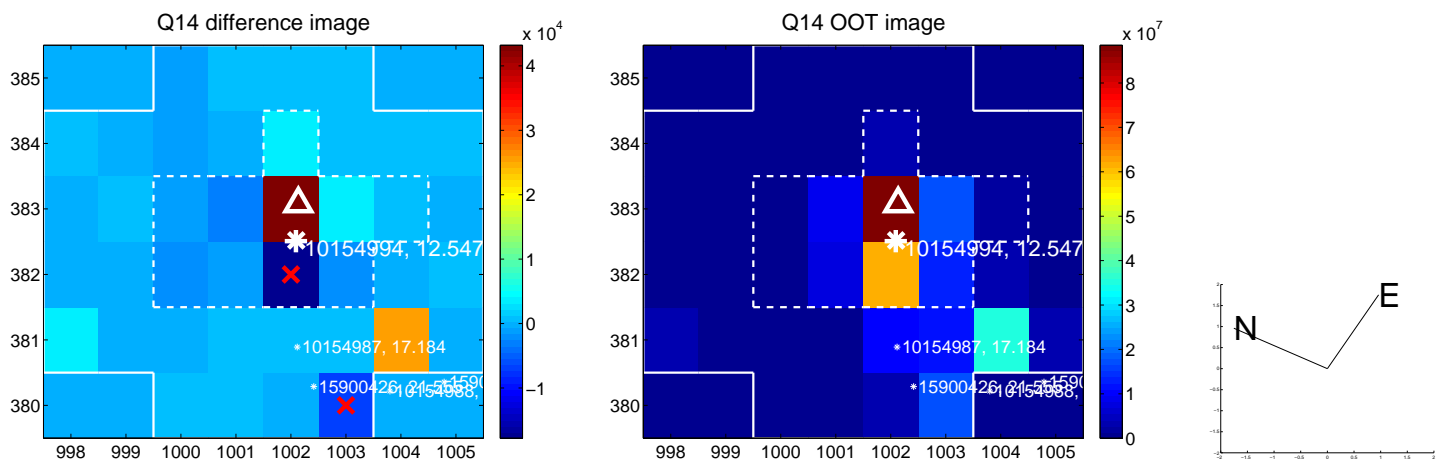
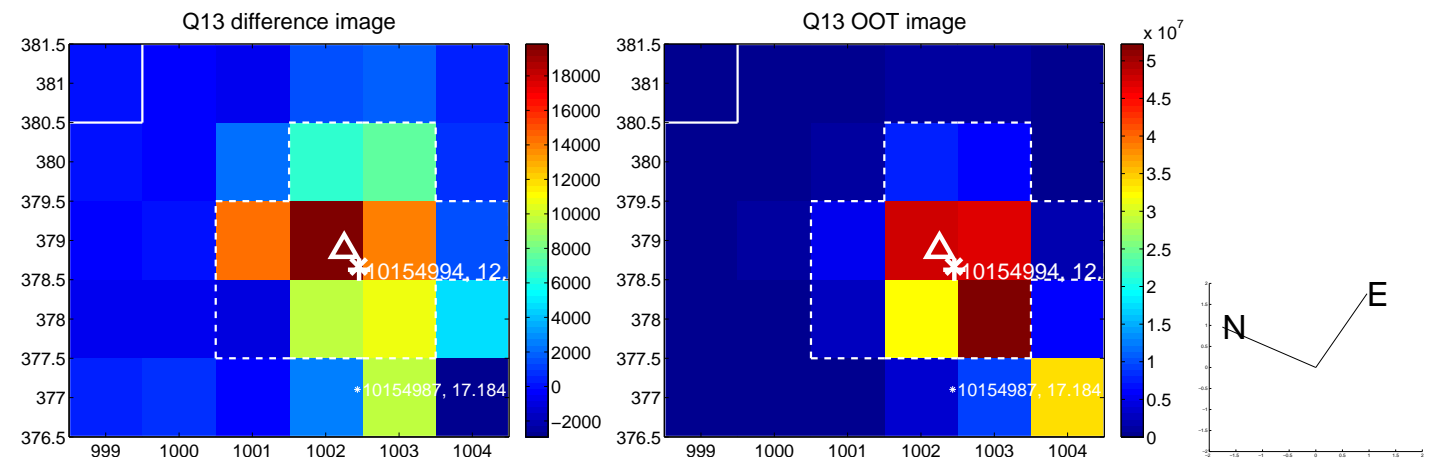
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



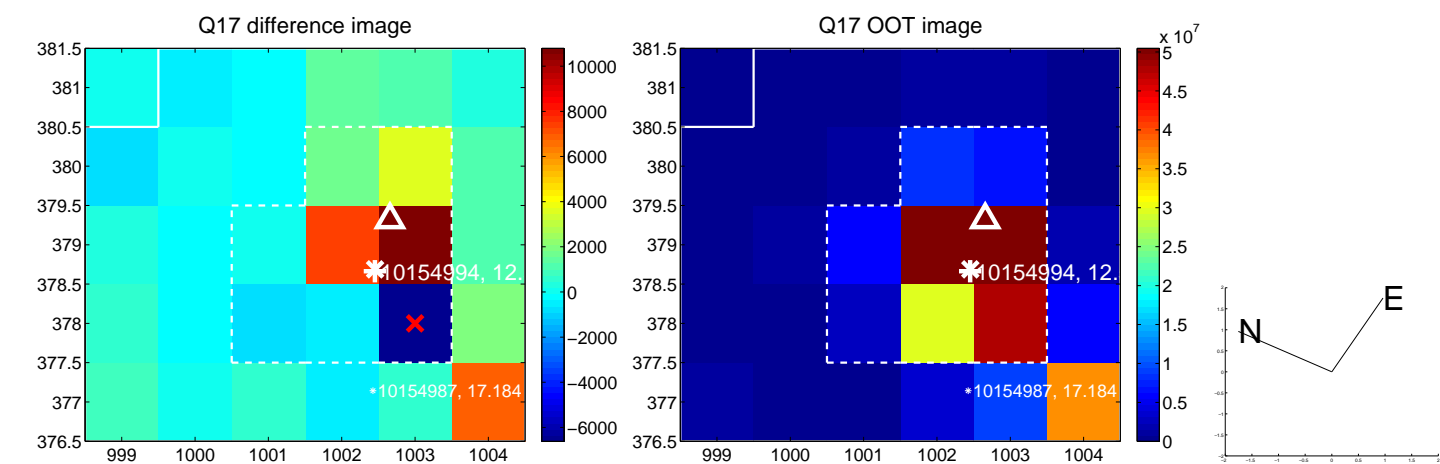
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



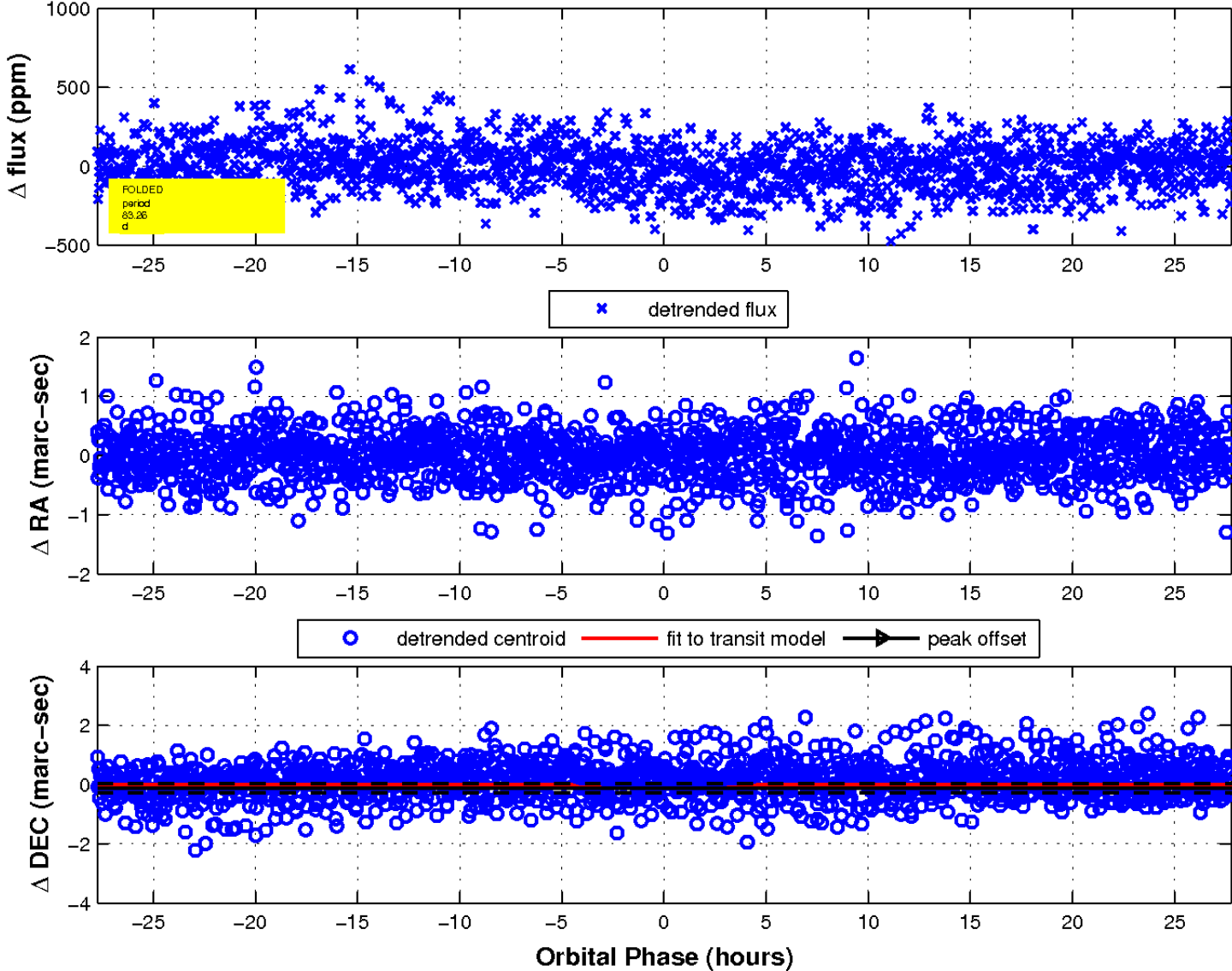
white \times : KIC target position; +: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



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

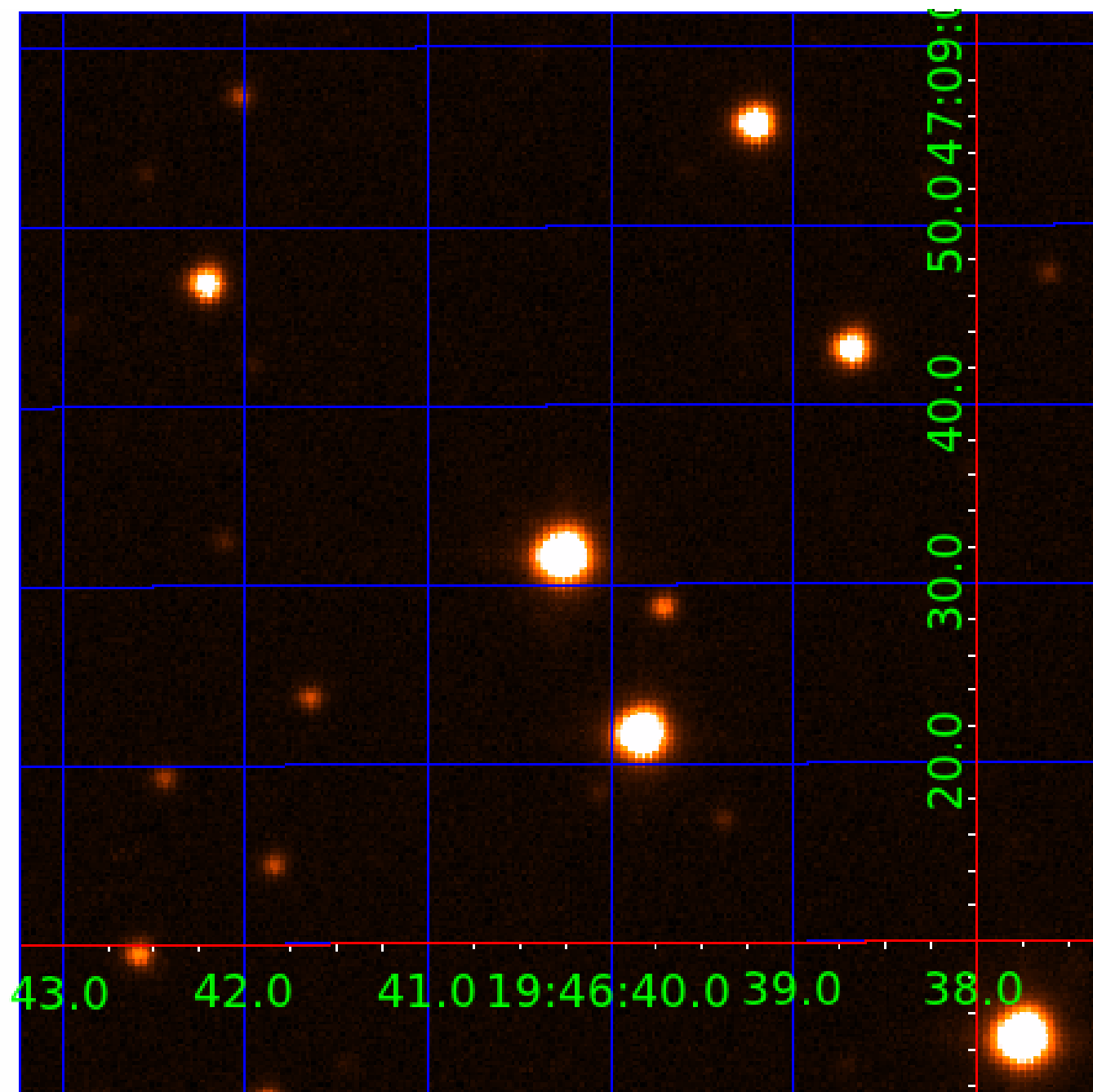


fluxWeightedCentroids, Planet 5 of 9



UKIRT Image

Declination



KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

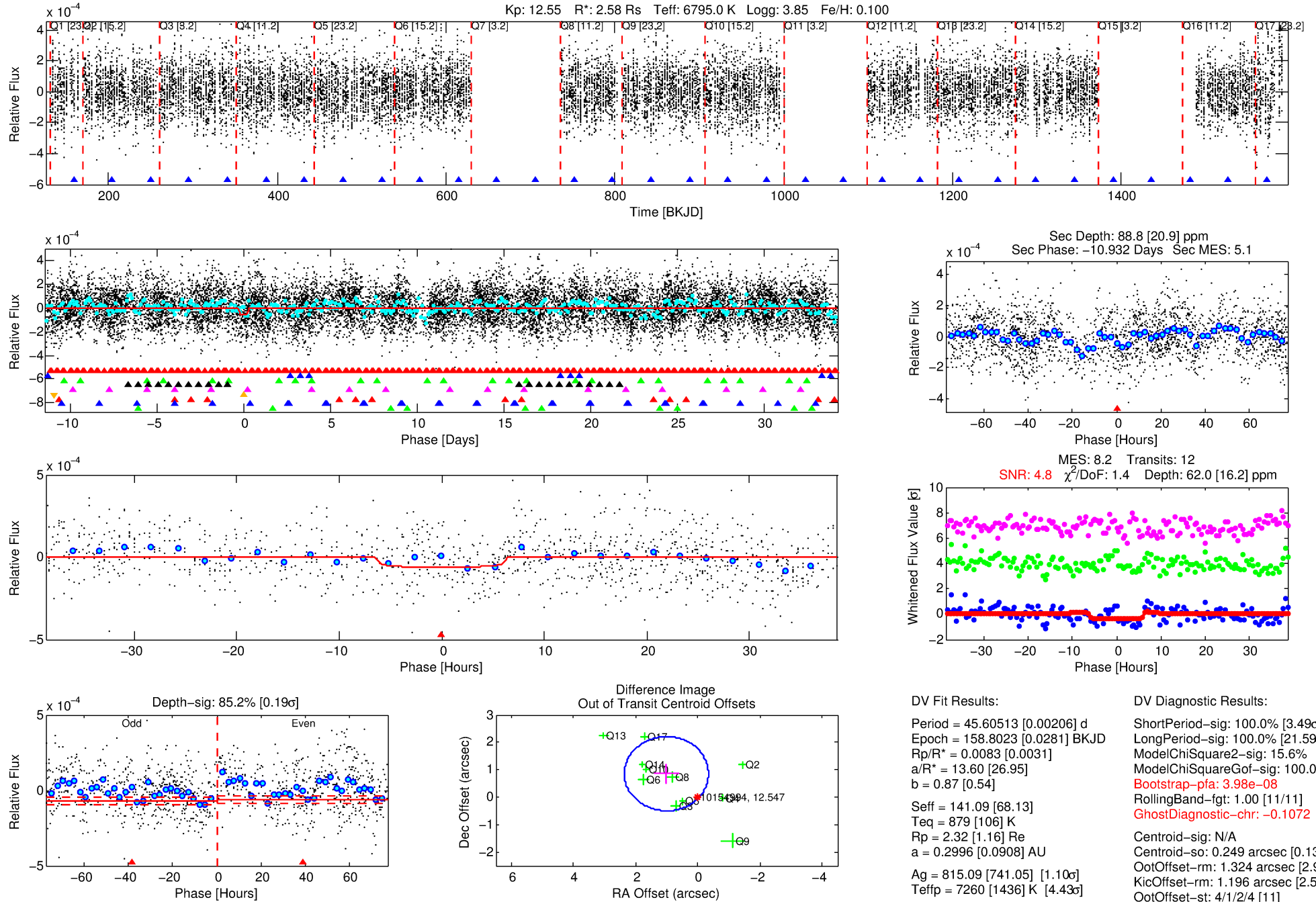
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-06

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 6 of 9 Period: 45.605 d



DV Fit Results:

Period = 45.60513 [0.00206] d
Epoch = 158.8023 [0.0281] BKJD
Rp/R* = 0.0083 [0.0031]
a/R* = 13.60 [26.95]
b = 0.87 [0.54]
Seff = 141.09 [68.13]
Teq = 879 [106] K
Rp = 2.32 [1.16] Re
a = 0.2996 [0.0908] AU
Ag = 815.09 [741.05] [1.10σ]
Teffp = 7260 [1436] K [4.43σ]

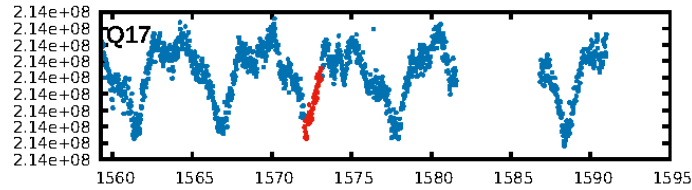
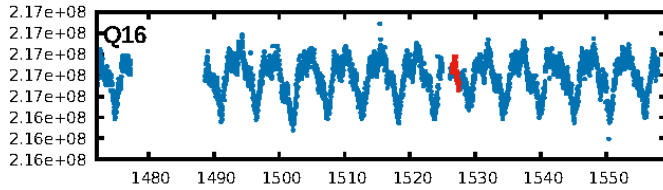
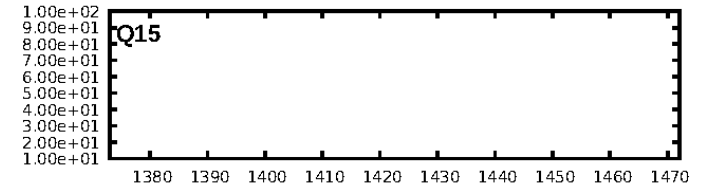
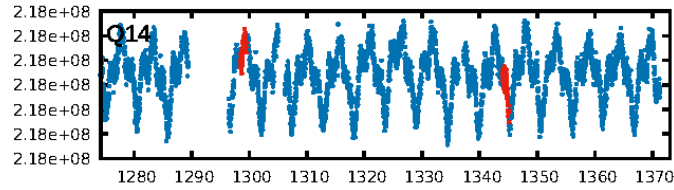
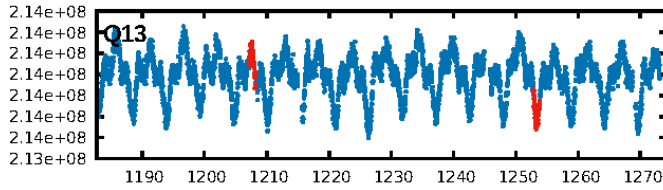
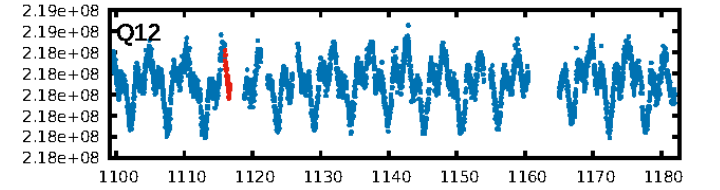
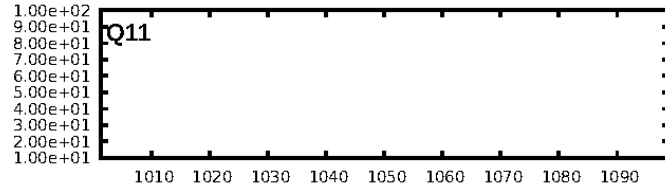
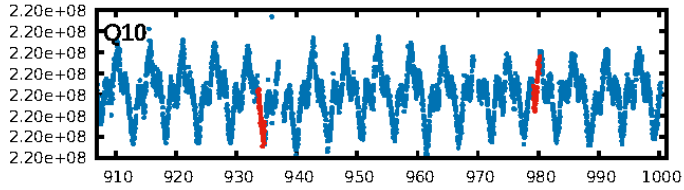
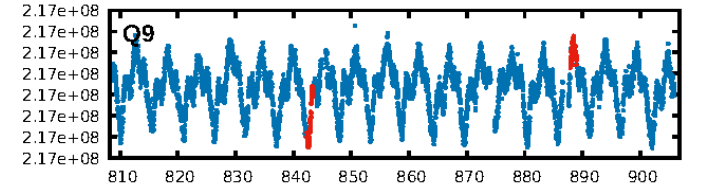
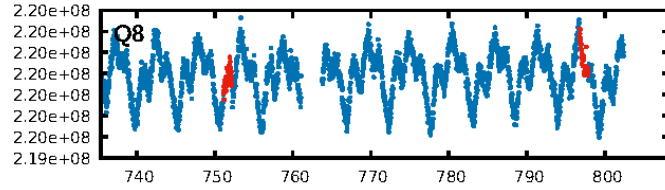
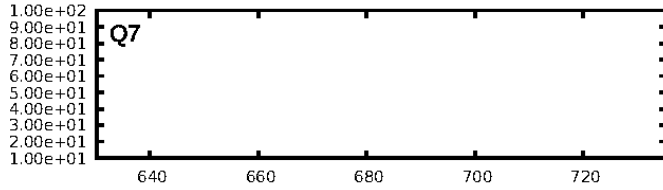
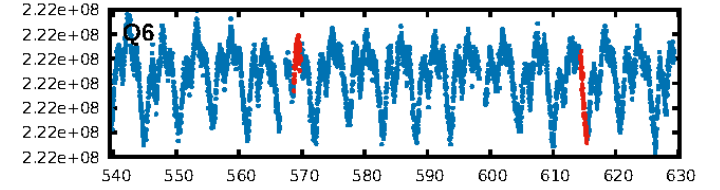
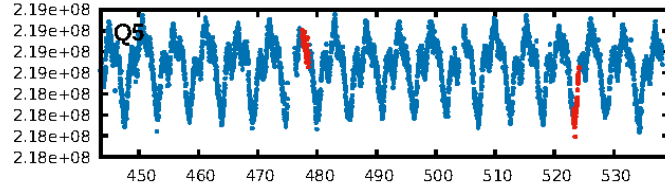
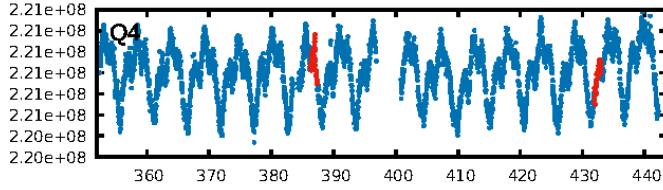
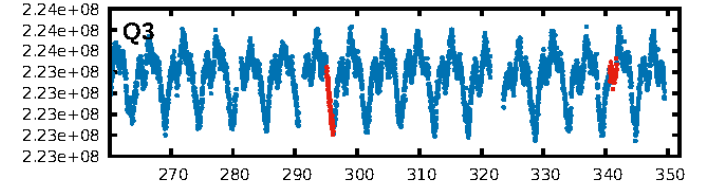
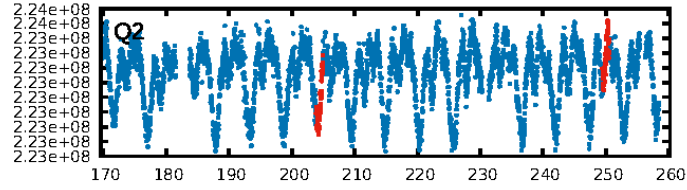
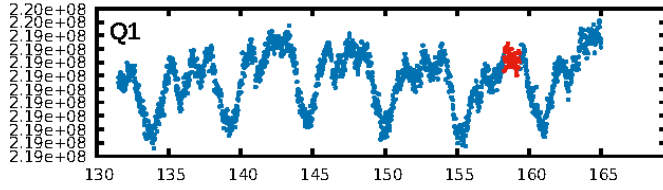
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.49σ]
LongPeriod-sig: 100.0% [21.59σ]
ModelChiSquare2-sig: 15.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.98e-08
RollingBand-fgt: 1.00 [11/11]
GhostDiagnostic-chr: -0.1072
Centroid-sig: N/A
Centroid-so: 0.249 arcsec [0.13σ]
OotOffset-rm: 1.324 arcsec [2.93σ]
KicOffset-rm: 1.196 arcsec [2.52σ]
OotOffset-st: 4/1/2/4 [11]
KicOffset-st: 4/1/2/4 [11]
DiffImageQuality-fgm: 0.55 [6/11]
DiffImageOverlap-fno: 0.08 [1/12]

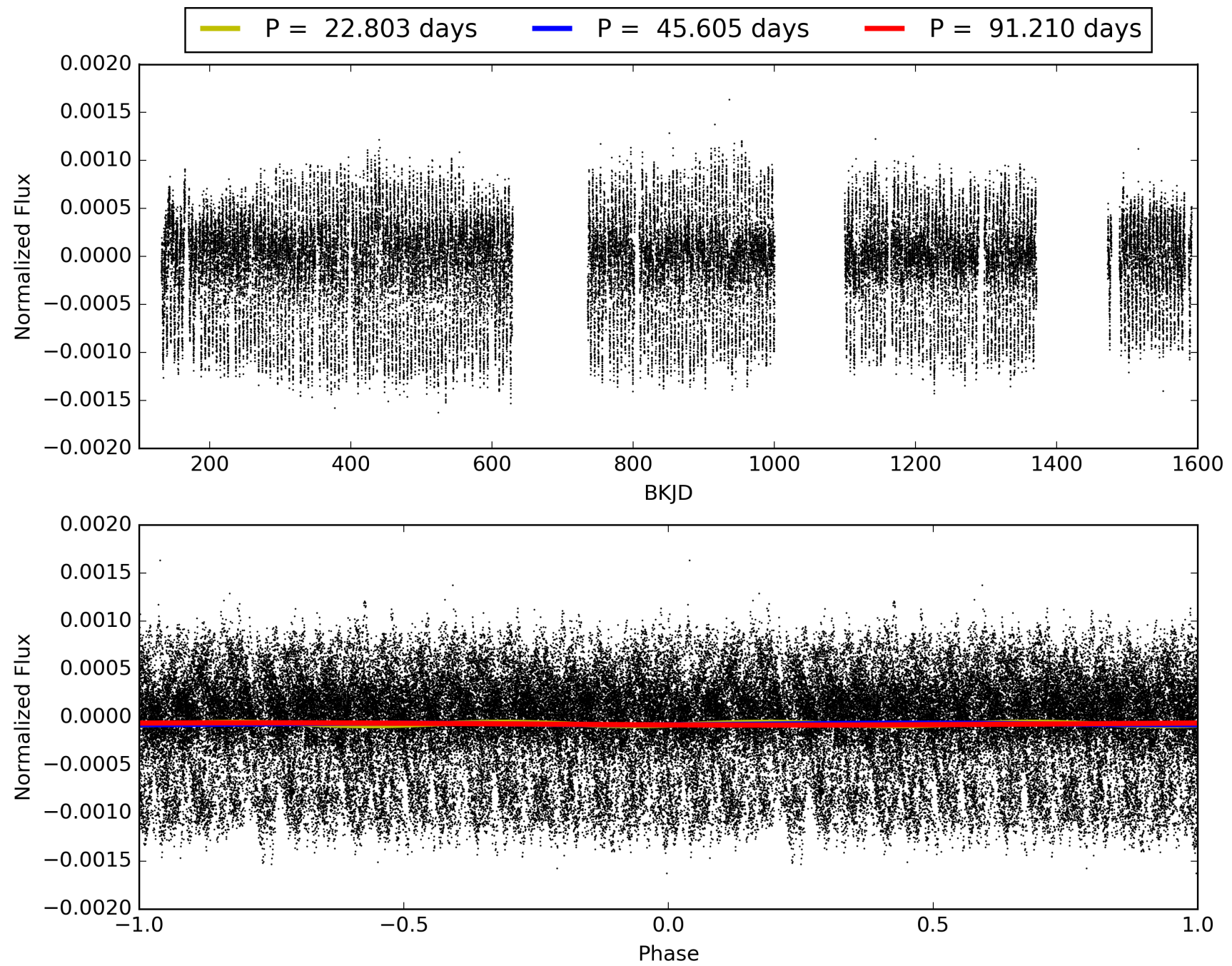
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:40:01 Z

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

TCE 010154994-06, PDC Light Curves

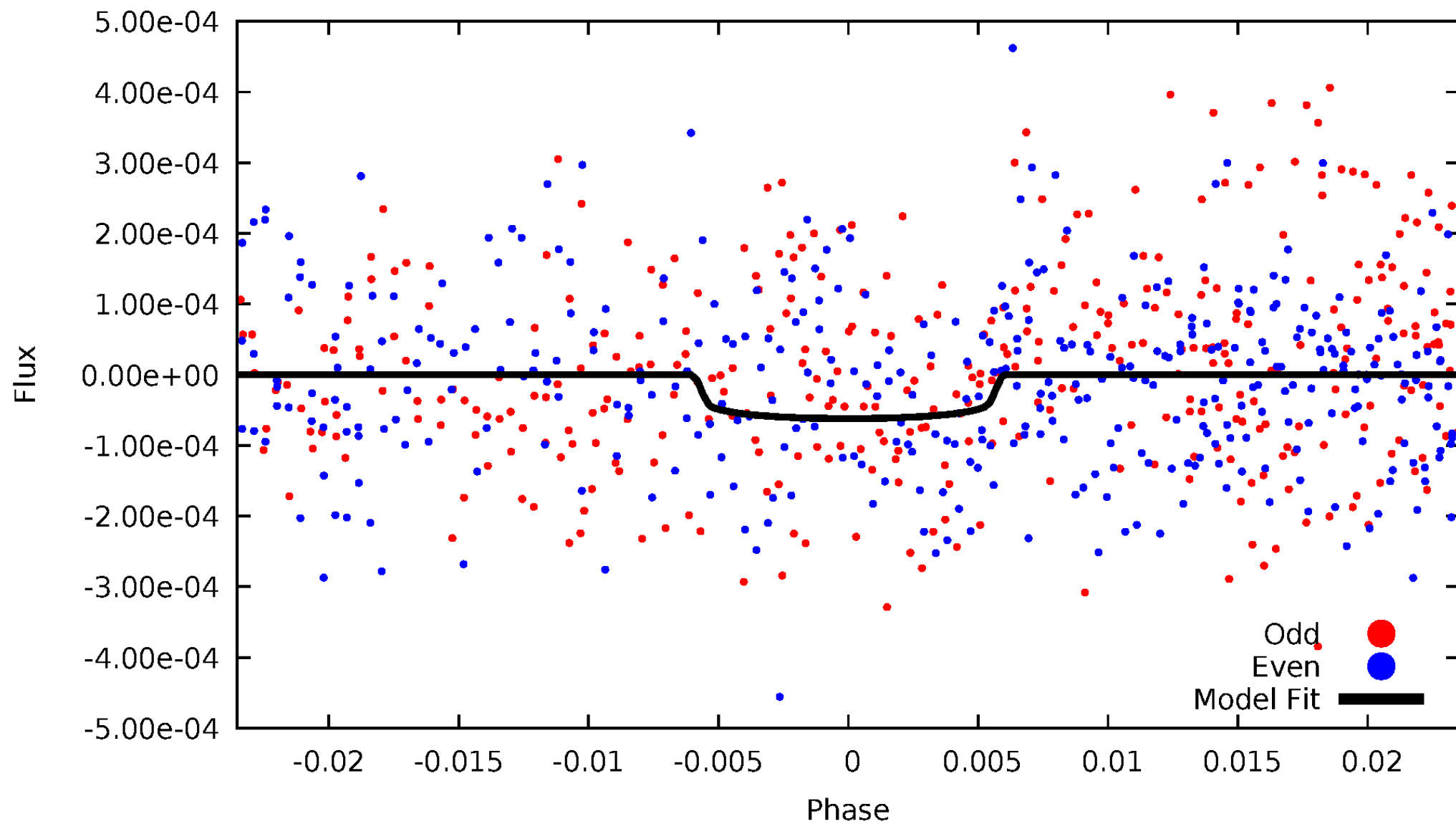


TCE 010154994-06



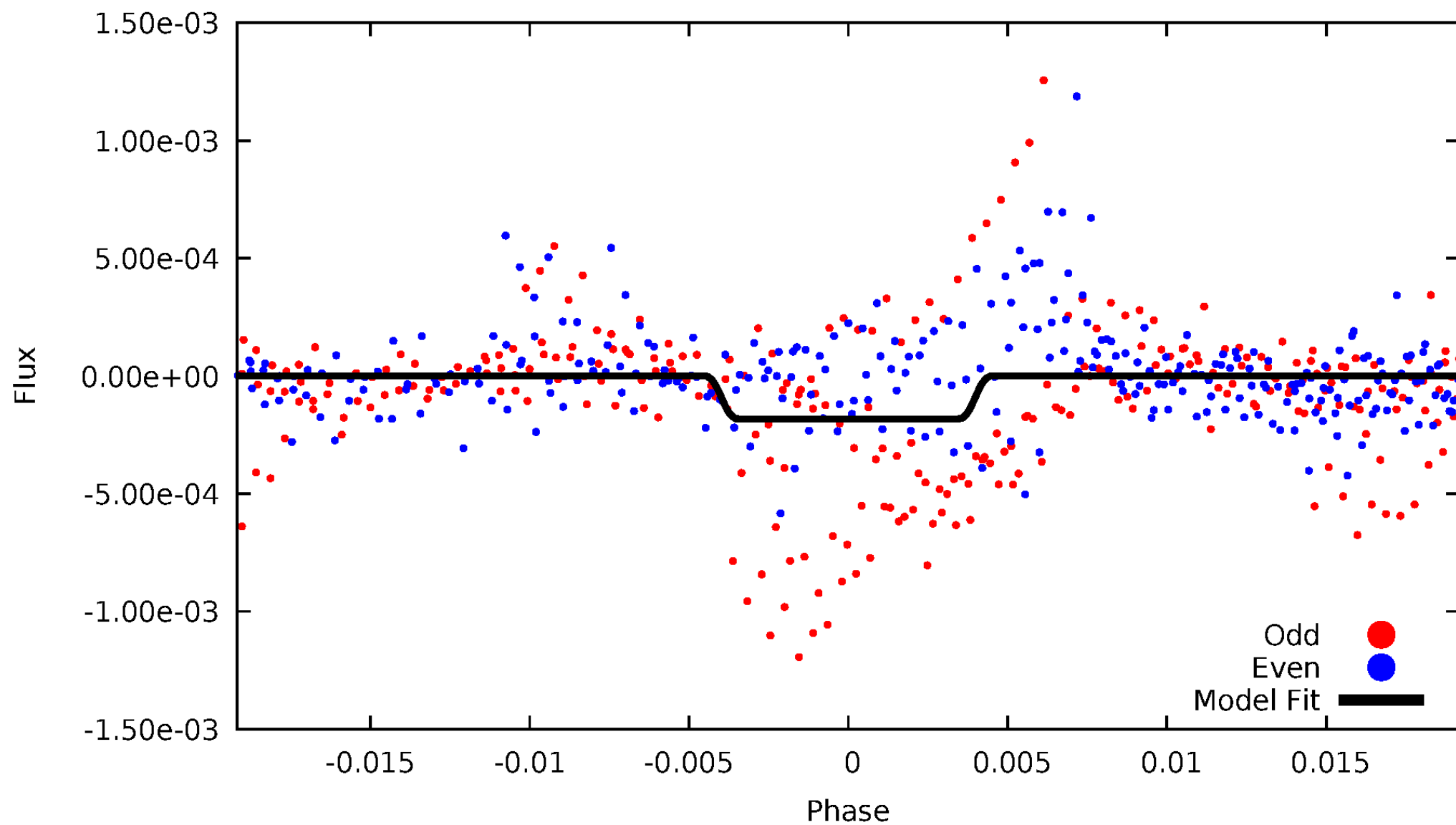
DV Odd/Even

TCE 010154994-06



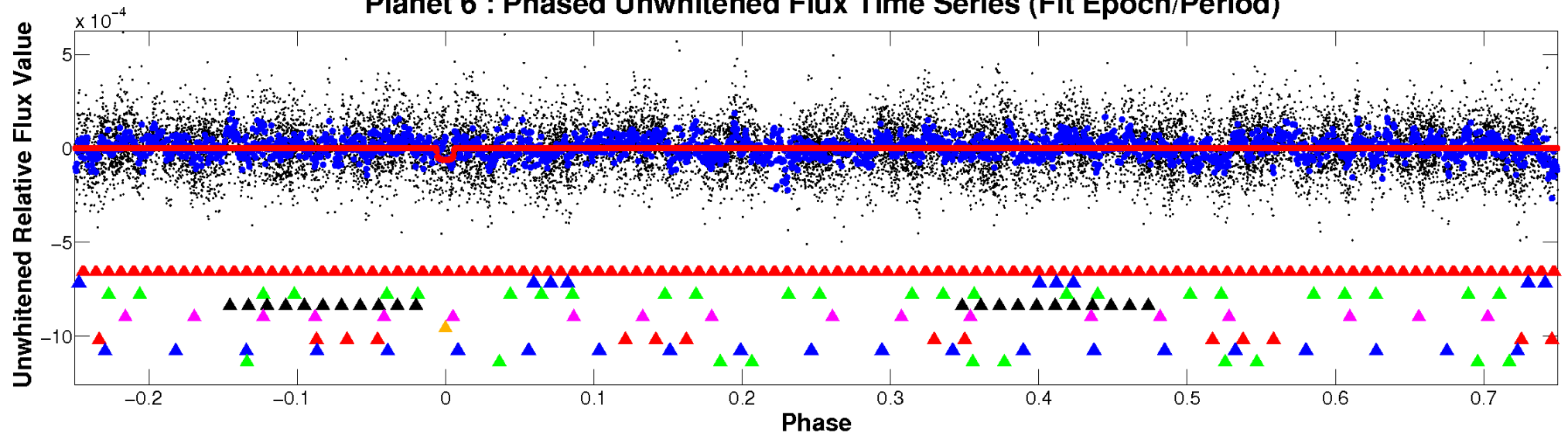
ALT Odd/Even

TCE 010154994-06

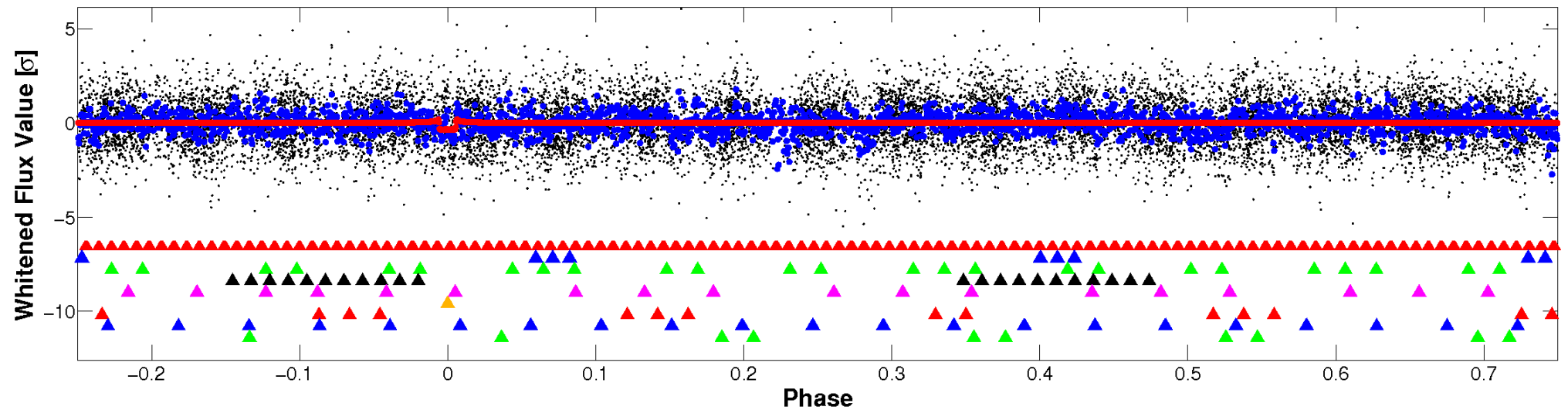


Non-Whitened Vs. Whitened Light Curve

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

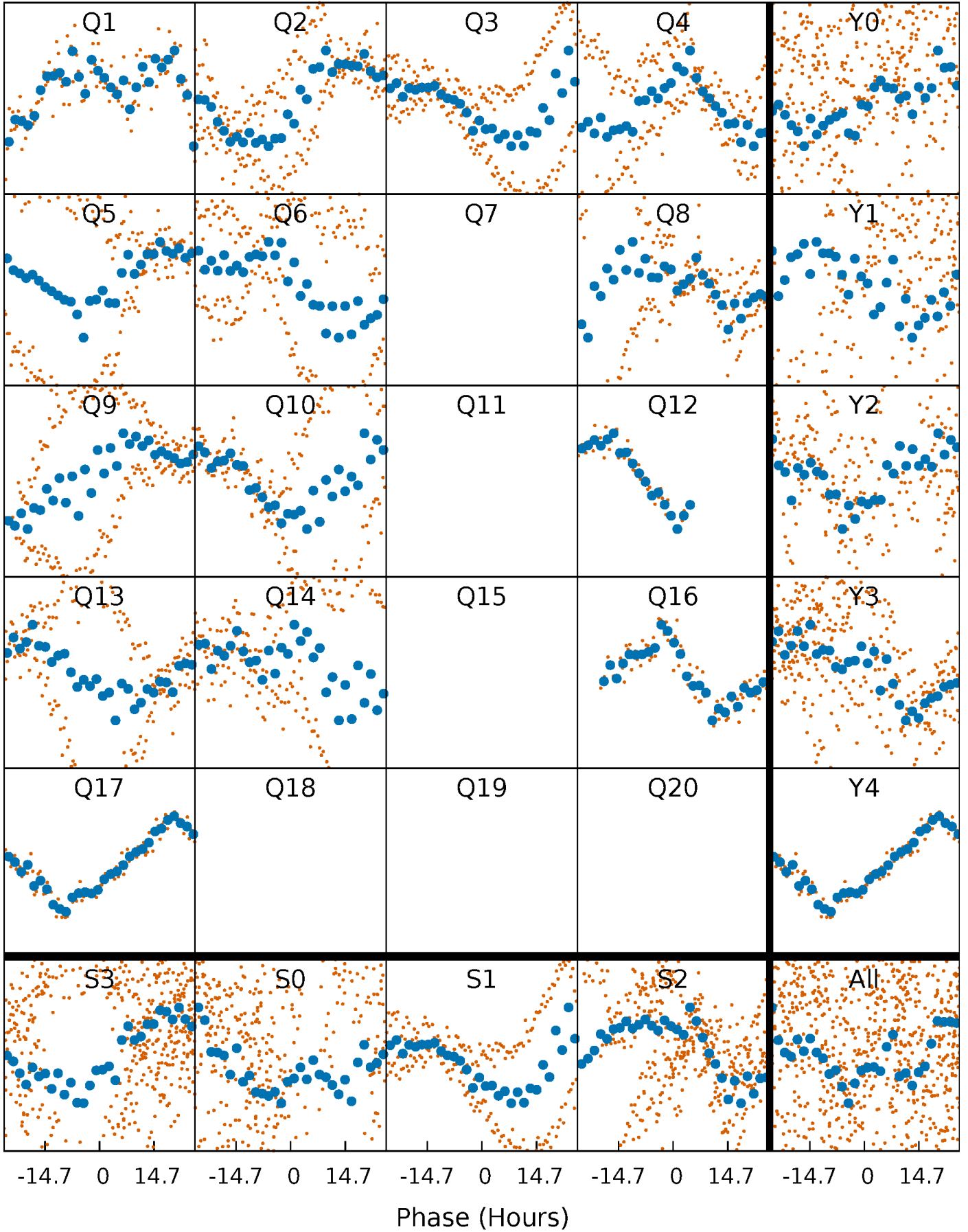


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



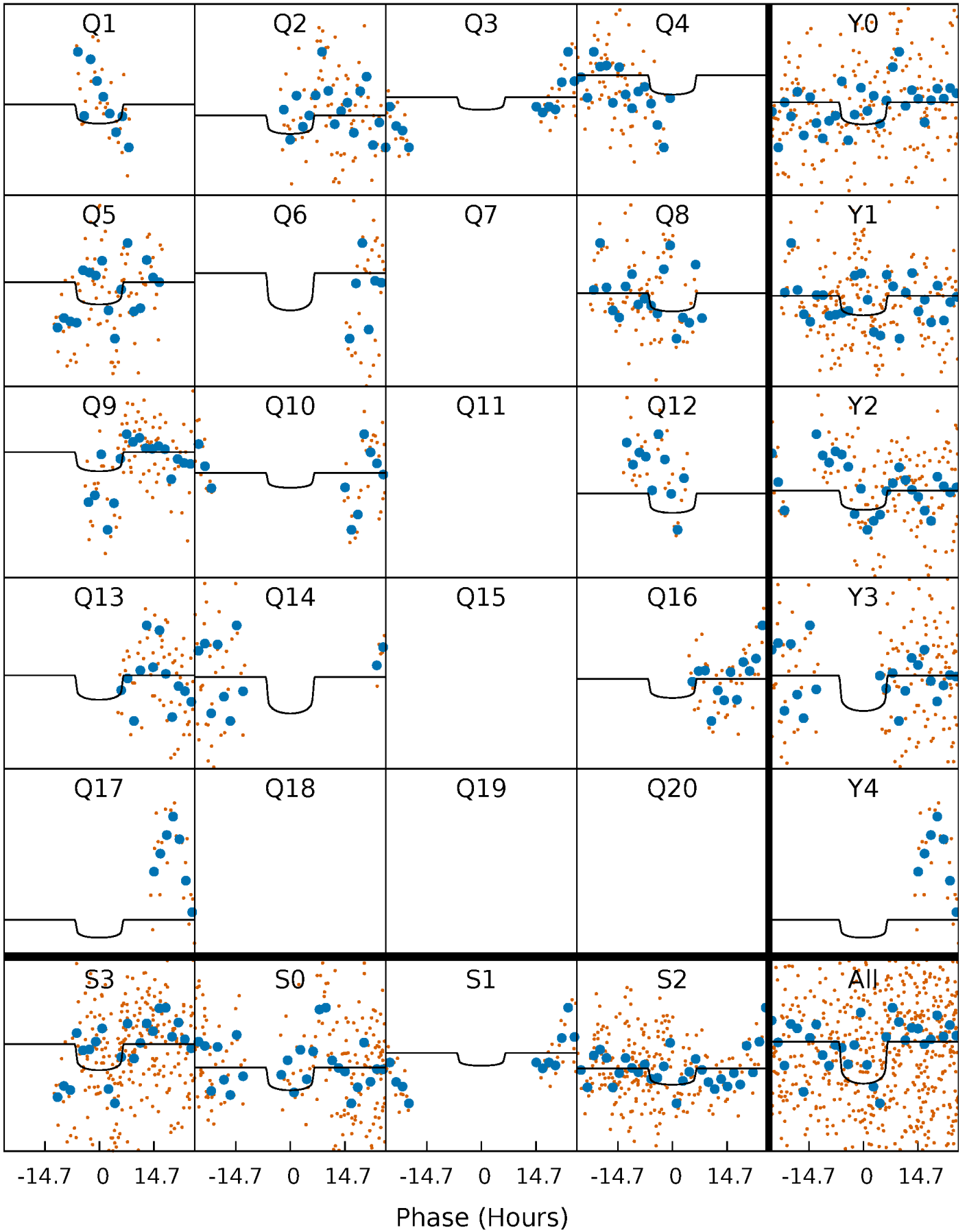
PDC Quarter-Phased Transit Curves

TCE 010154994-06 P= 45.605135 Days $T_0=158.802322$ (BKJD)



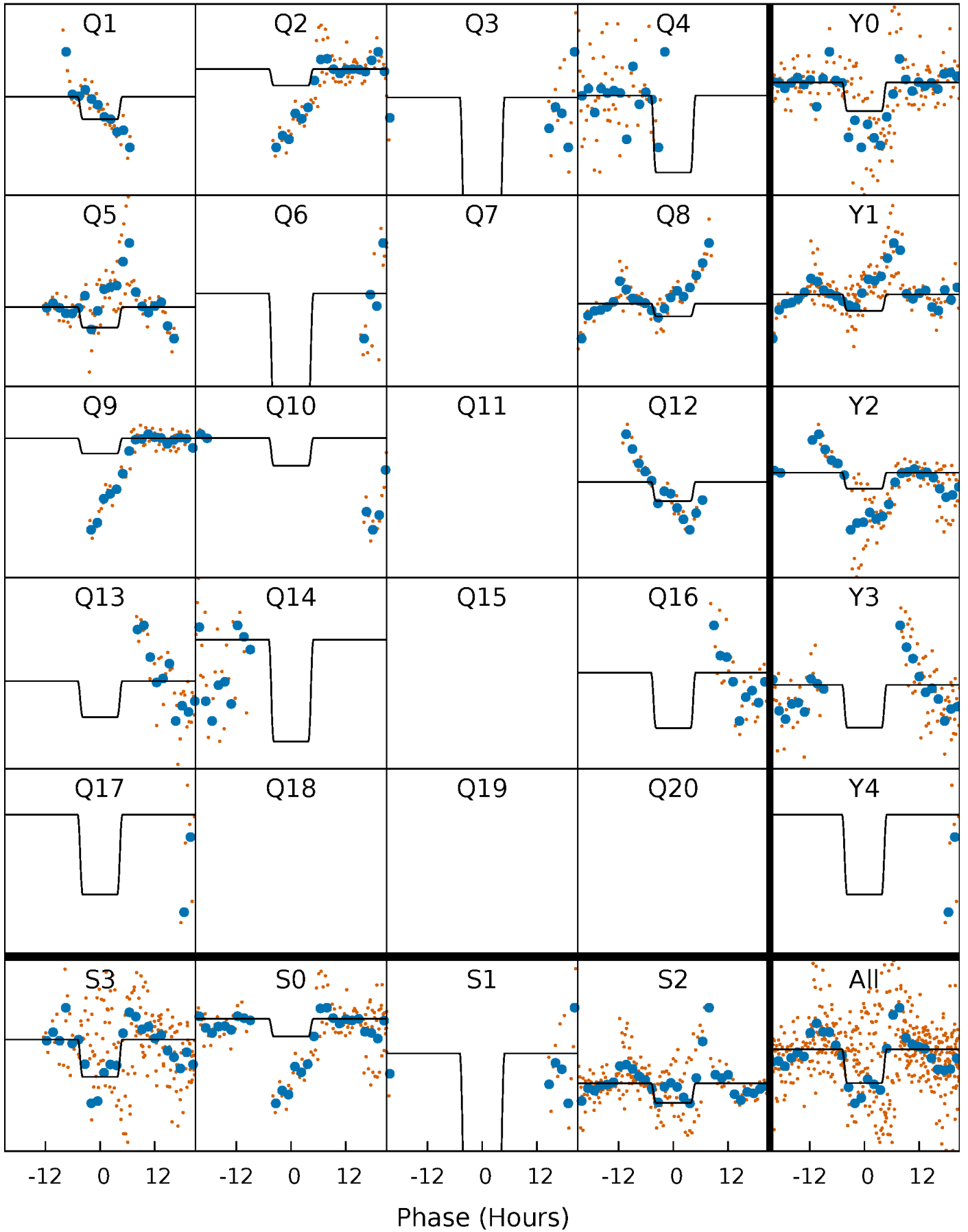
DV Quarter-Phased Transit Curves

TCE 010154994-06 $P = 45.605135$ Days $T_0 = 158.802322$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

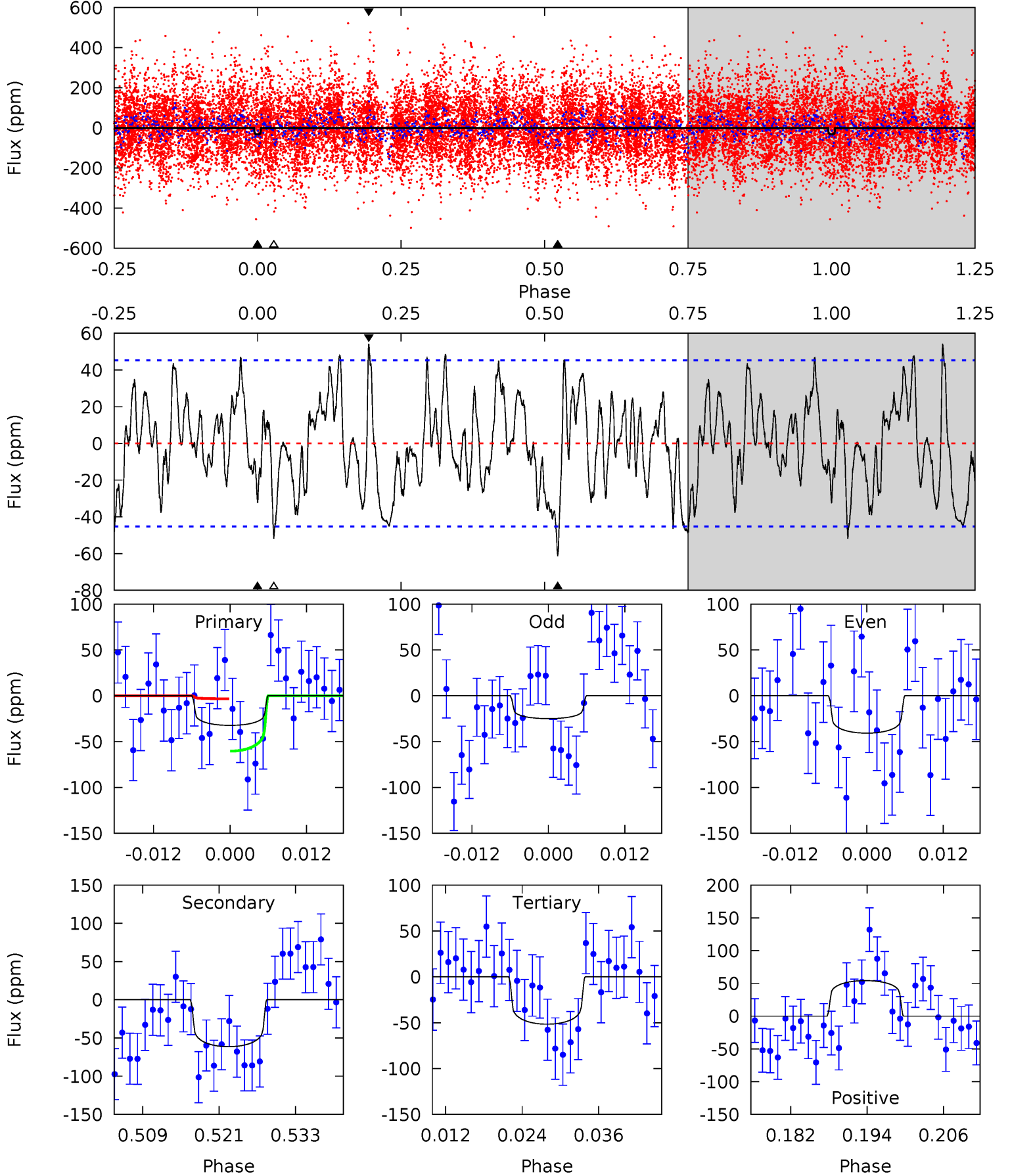
TCE 010154994-06 P= 45.597904 Days $T_0=158.865552$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-06, P = 45.605135 Days, E = 113.197187 Days

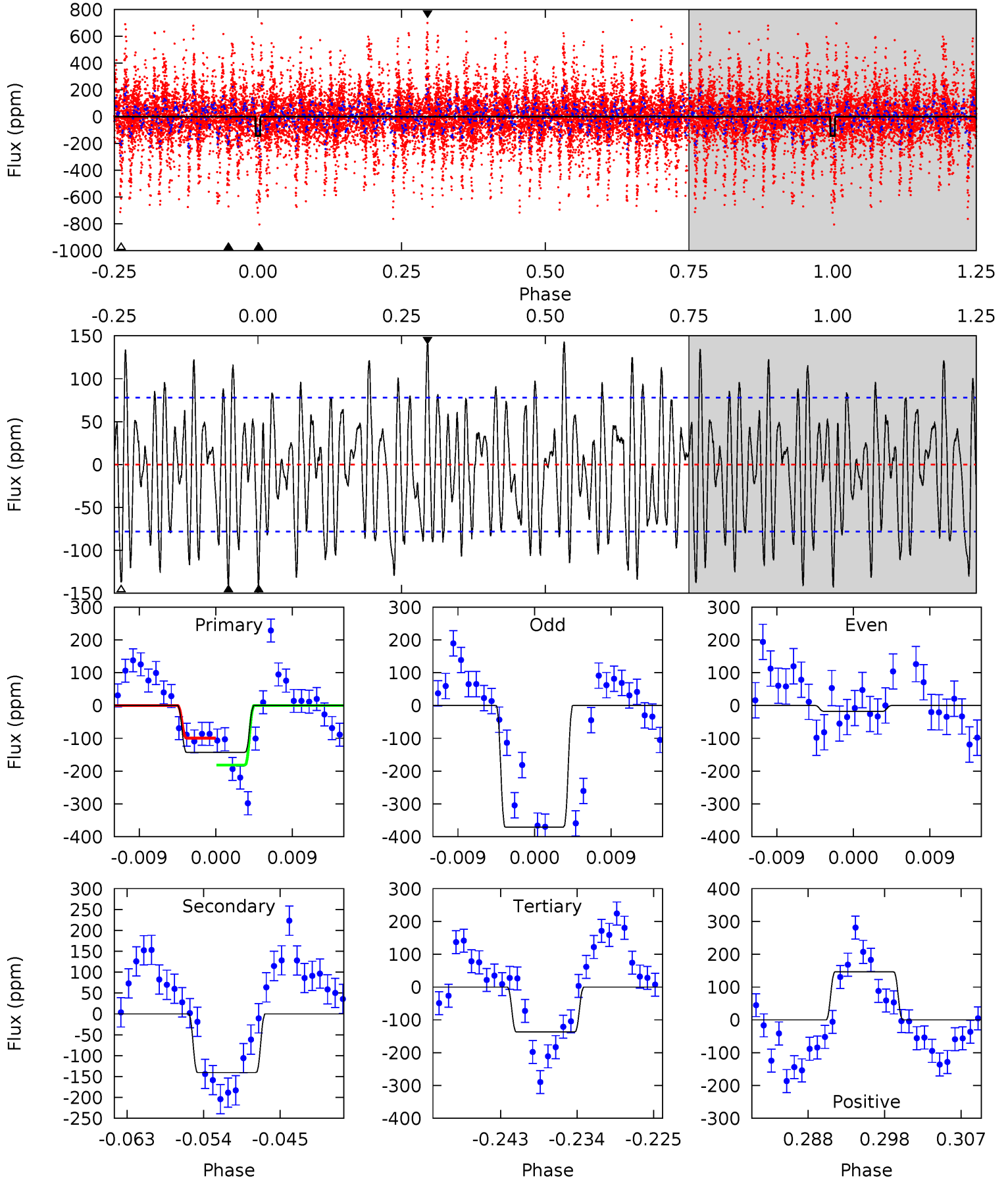
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.57	6.78	5.70	5.98	4.99	2.51	2.36	-2.13	-2.41	1.08	0.80	0.87	2.39	0.47	3.16



Alt Model-Shift Uniqueness Test

010154994-06, P = 45.597904 Days, E = 113.267648 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.25	9.09	8.85	9.49	5.05	2.61	3.92	0.39	-0.24	0.24	-0.40	11.5	2.12	0.51	2.68



Stellar Parameters For KIC 010154994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-61 ± 9	$2.20^{+0.94}_{-0.87}$	1211^{+75}_{-104}	6545^{+2262}_{-971}	621^{+1104}_{-315}
Alt.	-141 ± 15	$3.60^{+1.04}_{-0.96}$	1204^{+77}_{-104}	6293^{+1027}_{-638}	524^{+469}_{-205}

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

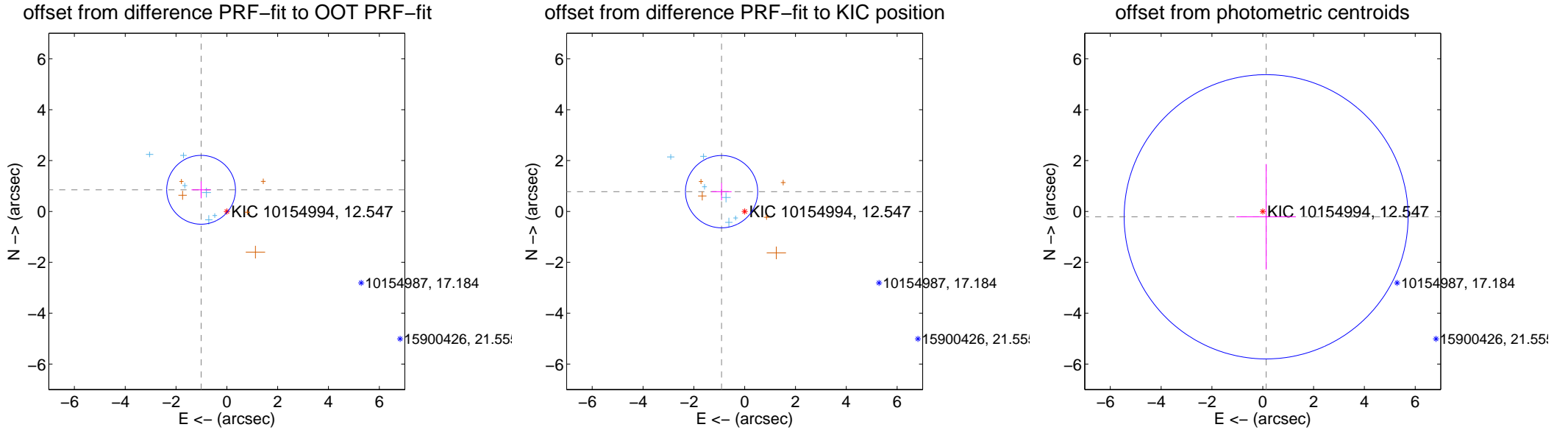
DV Centroid Data

Supplemental centroid analysis for 010154994-06. Kepler magnitude: 12.55. Transit SNR 4.78

There are 6 quarters with good PRF difference image offsets

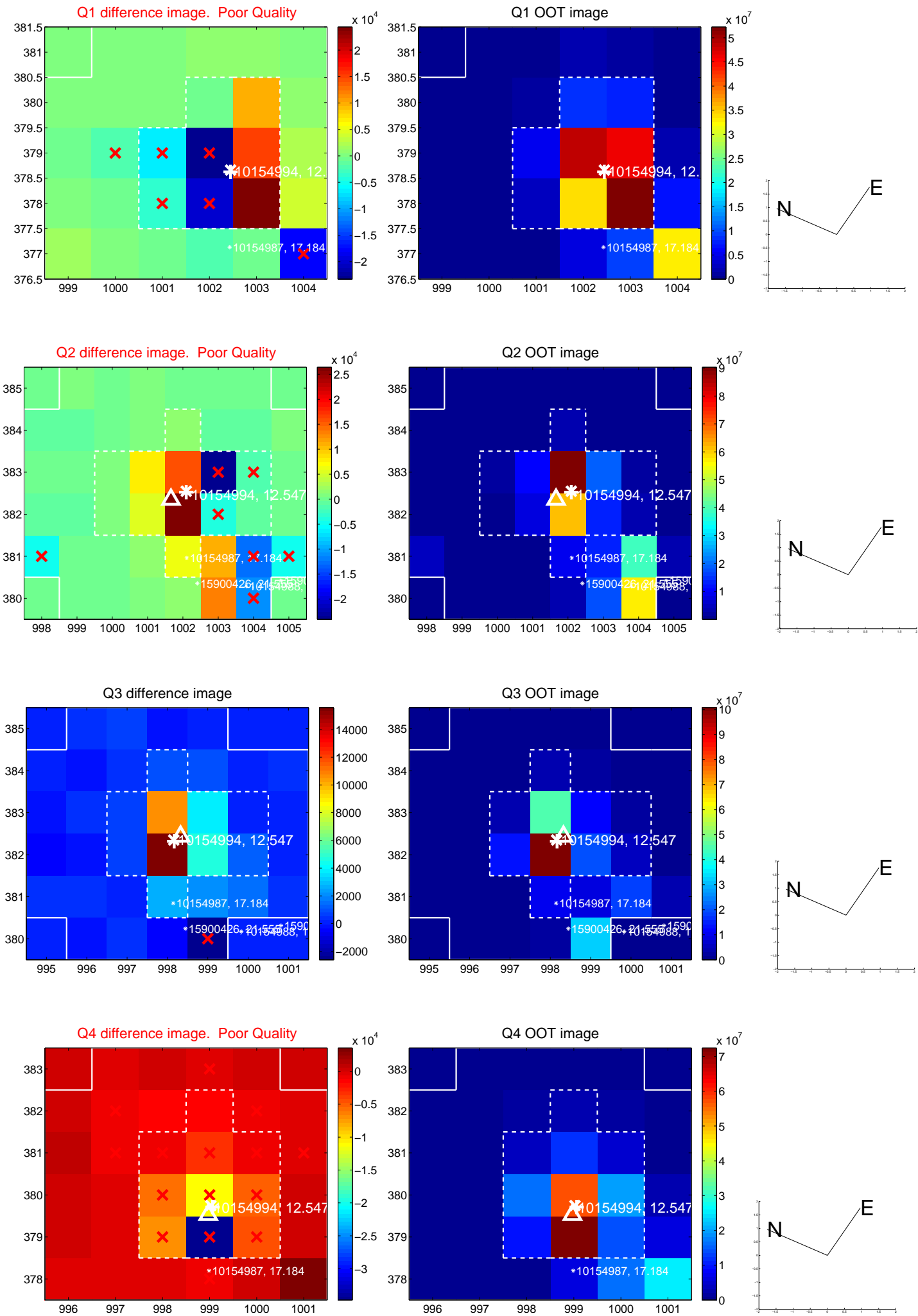
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.324 ± 0.451	2.93	1.014 ± 0.378	0.851 ± 0.335
PRF-fit source offset from KIC position	1.196 ± 0.474	2.52	0.909 ± 0.393	0.778 ± 0.340
photometric centroid source offset	0.25 ± 1.86	0.13	-0.13 ± 1.17	-0.21 ± 2.07

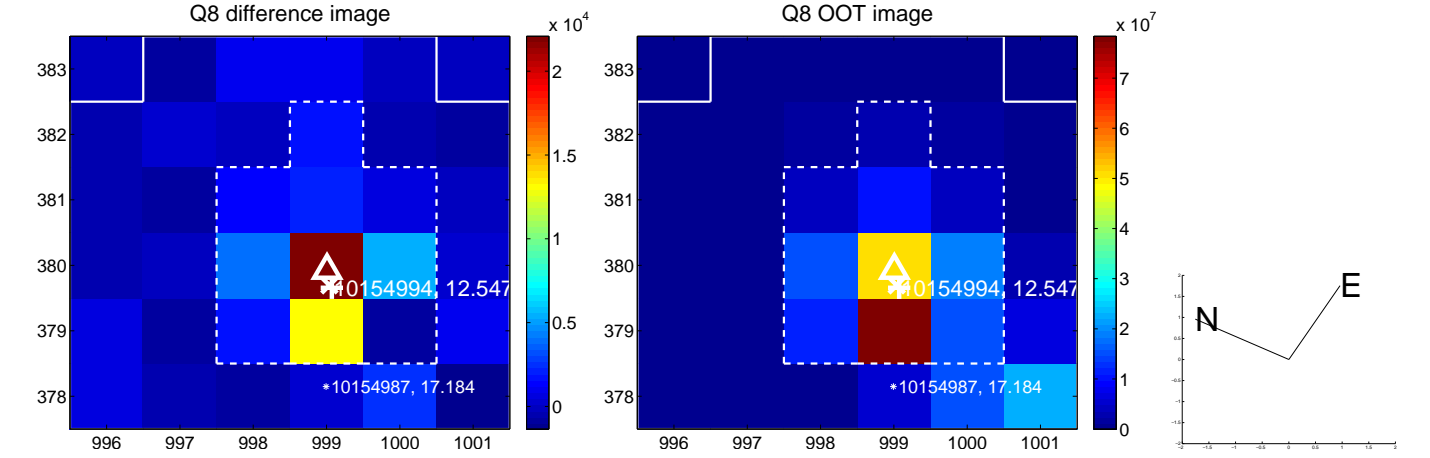
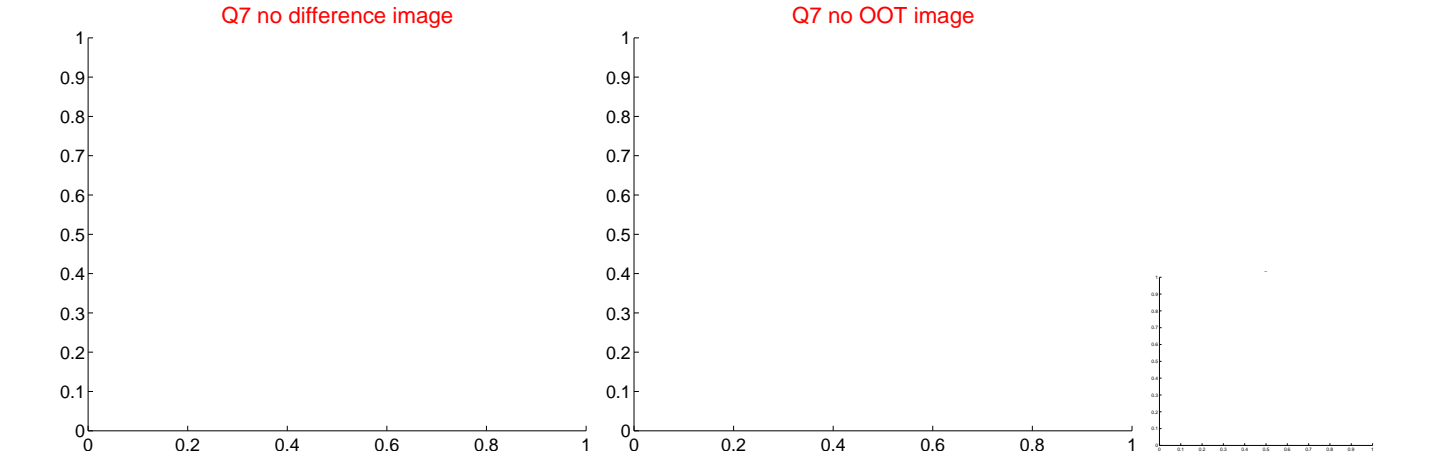
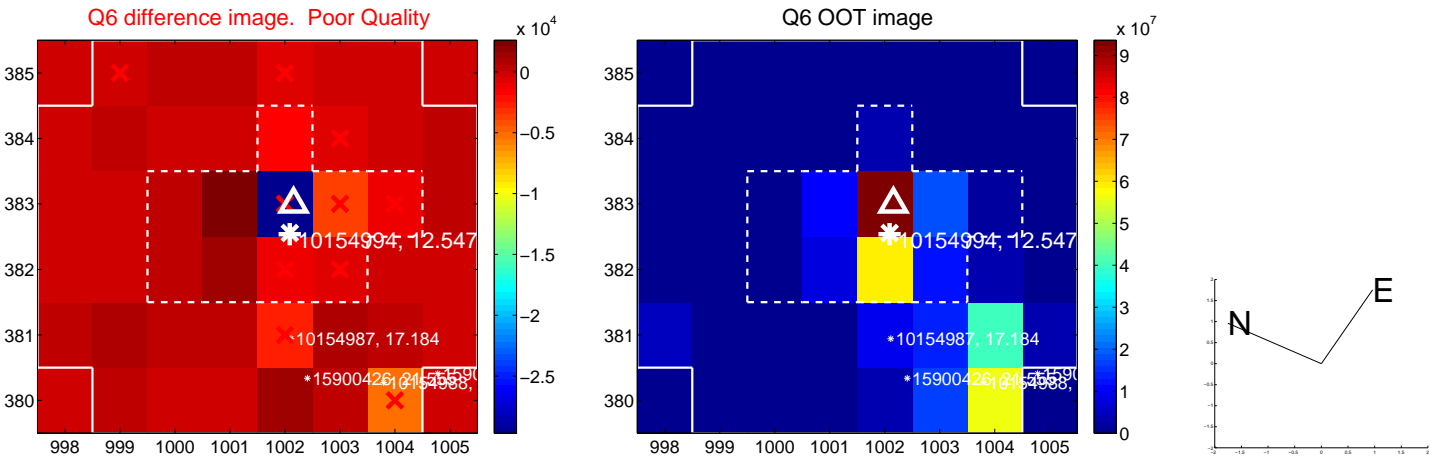
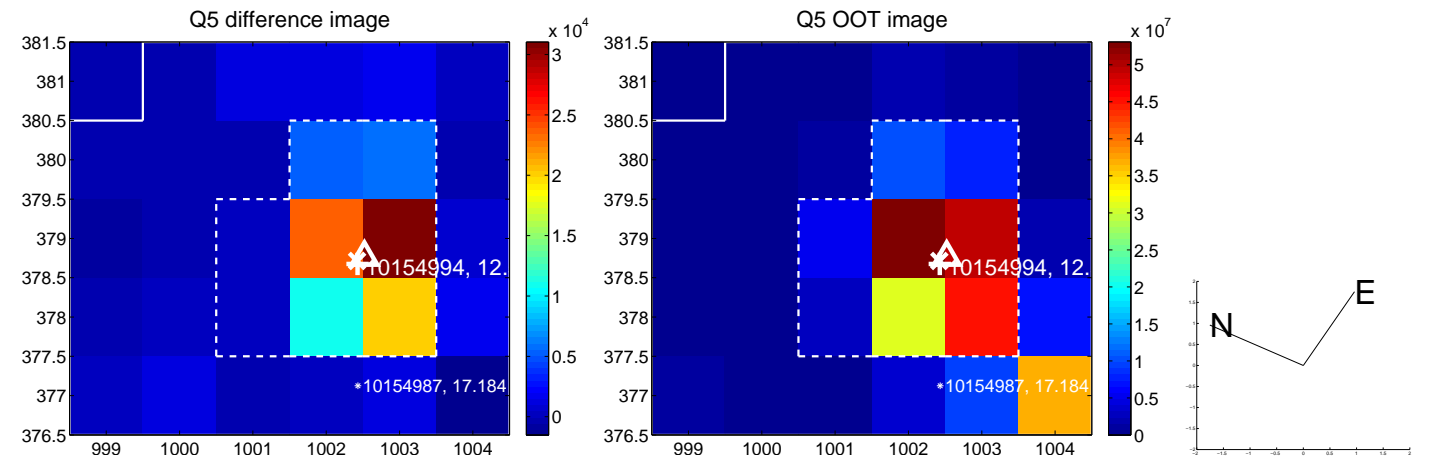


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

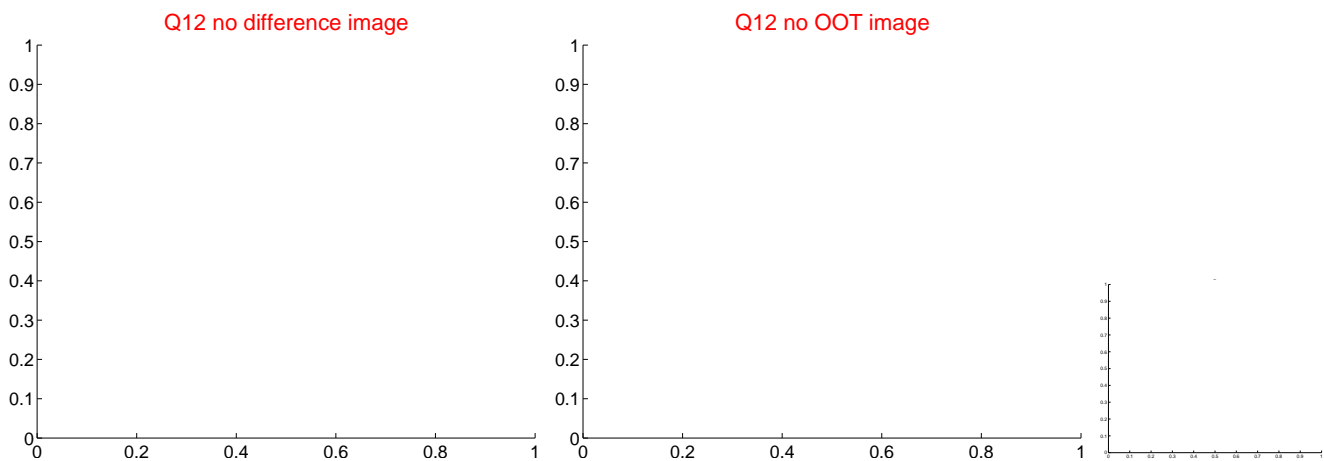
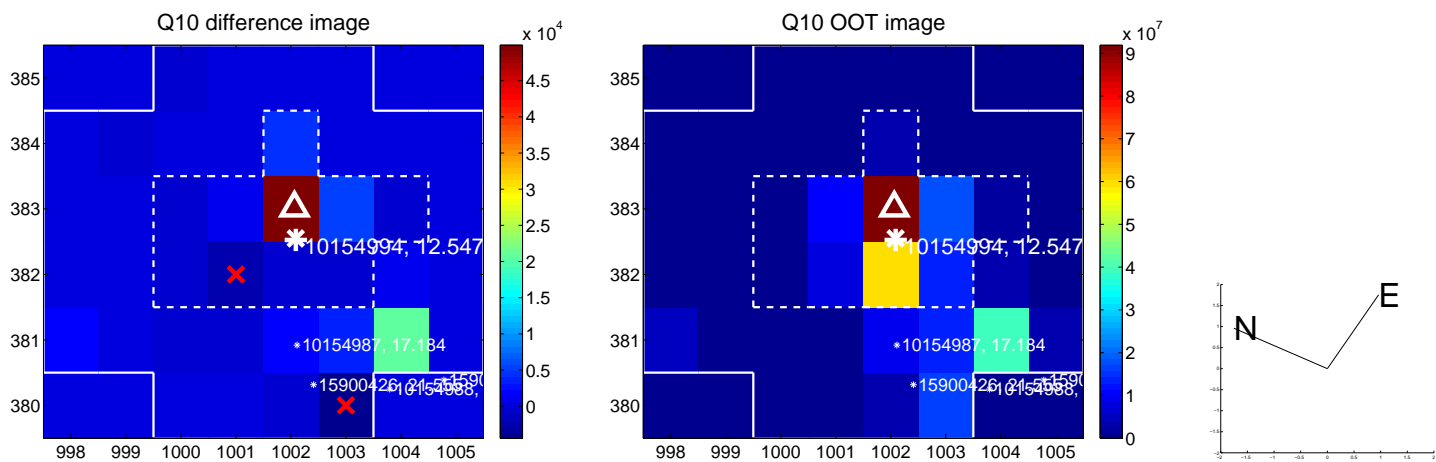
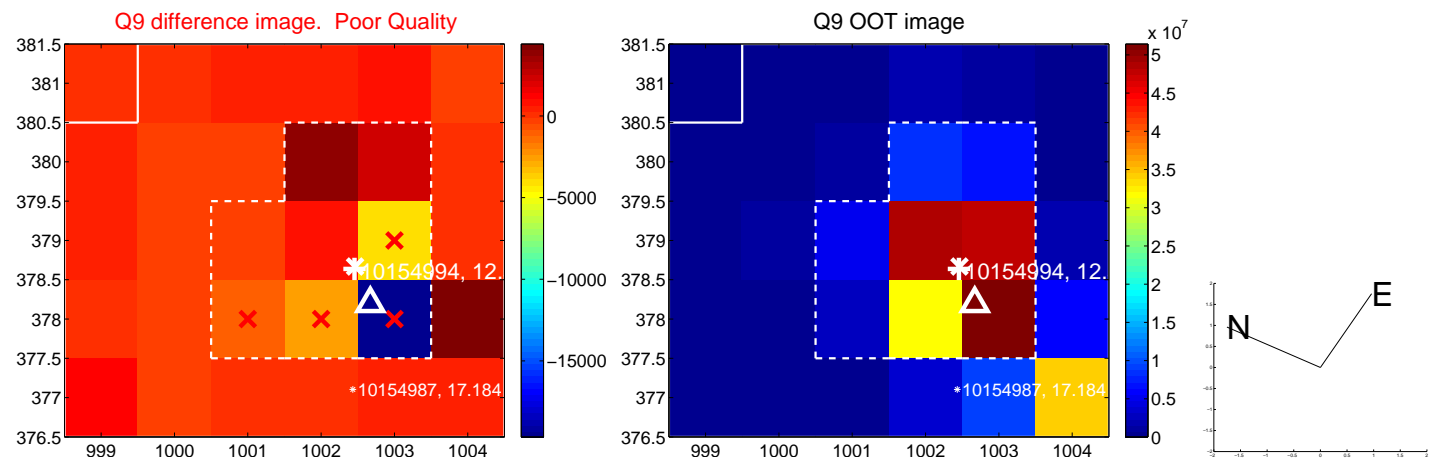
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



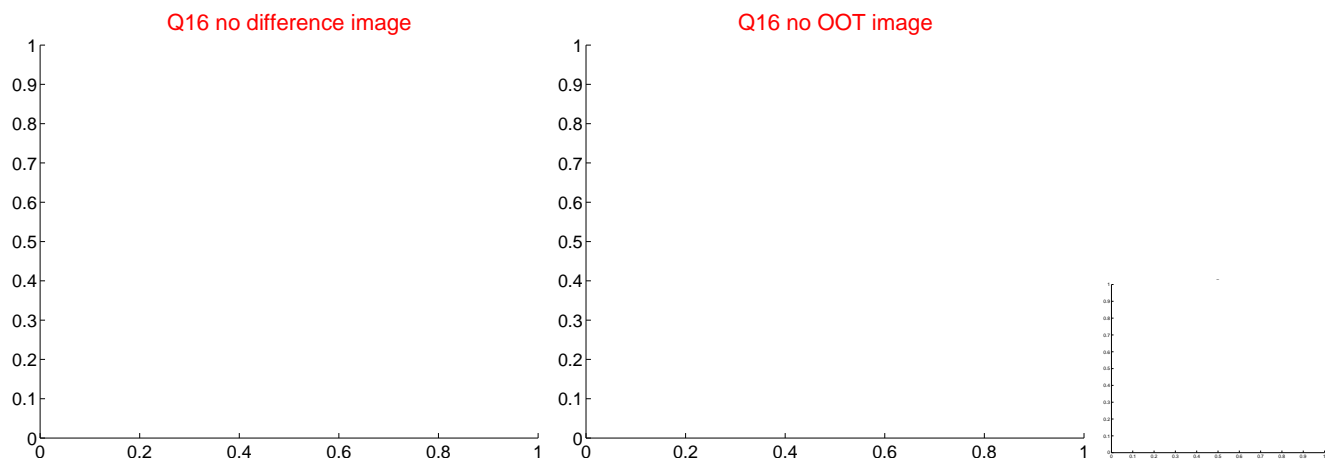
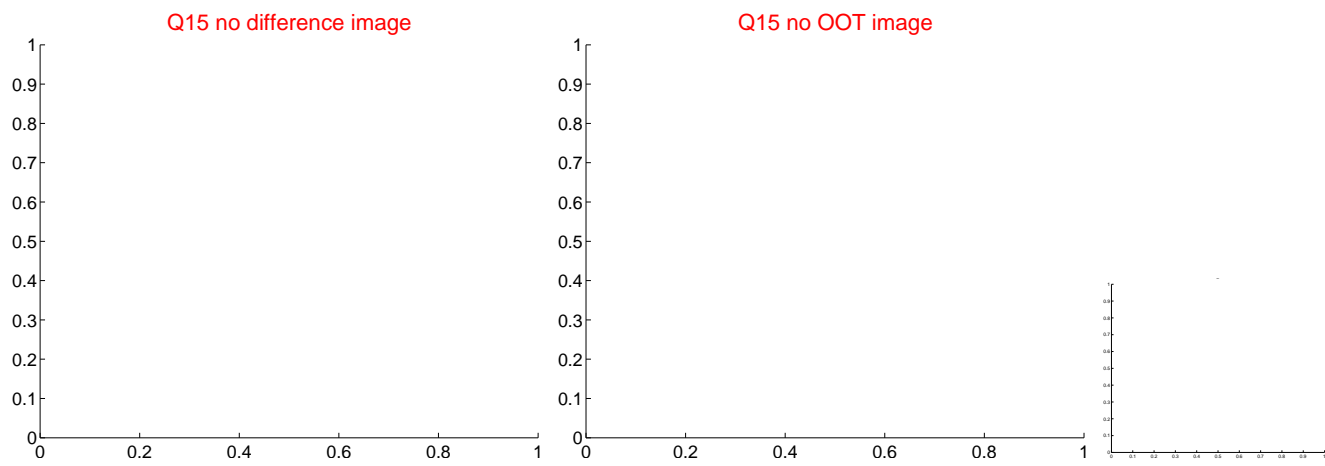
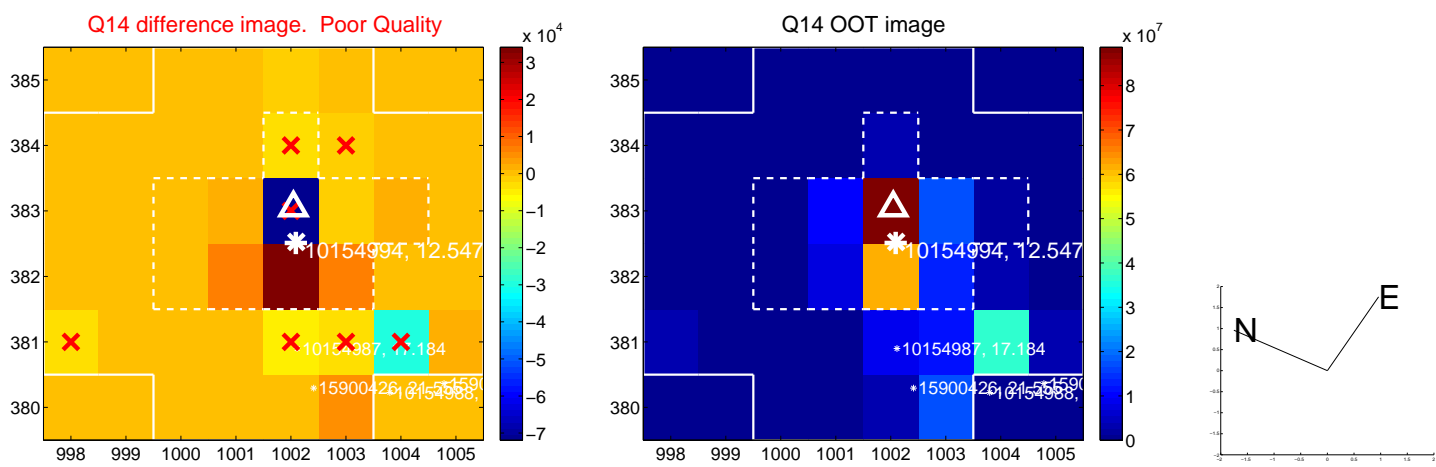
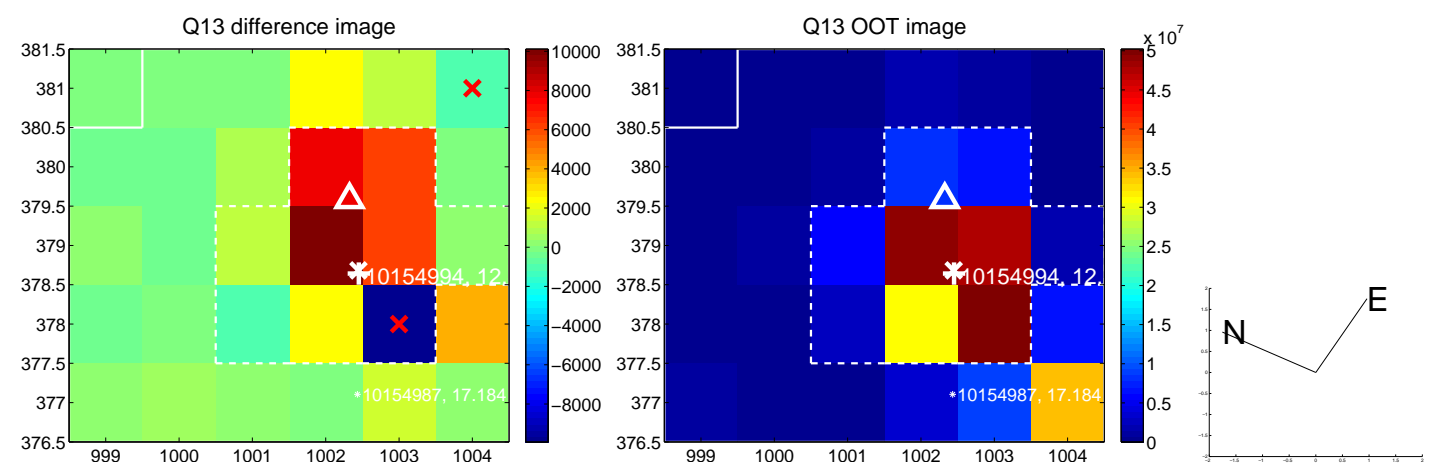
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



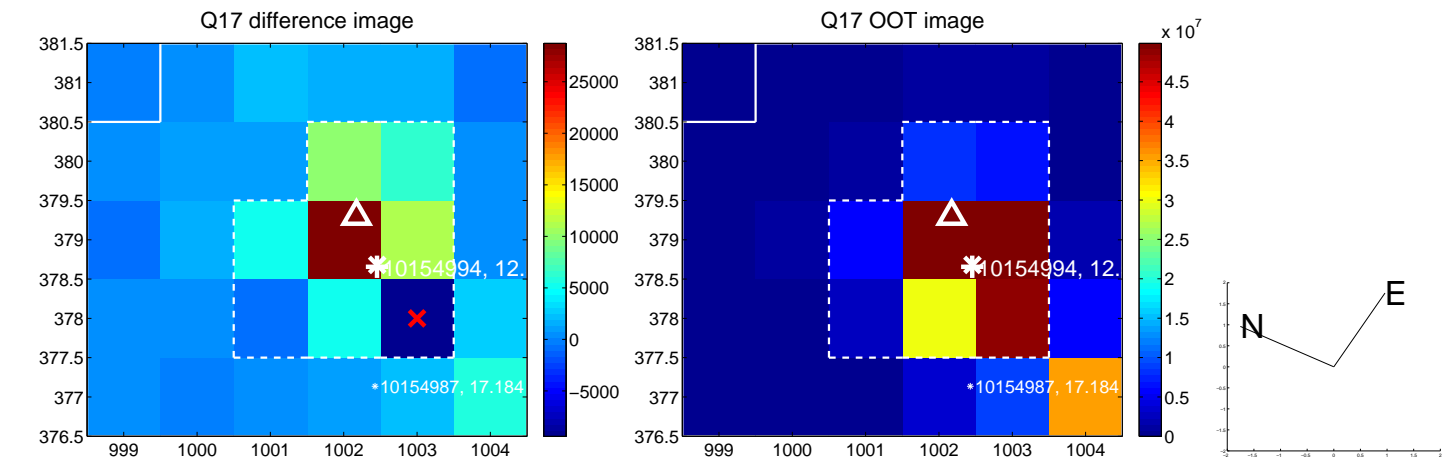
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



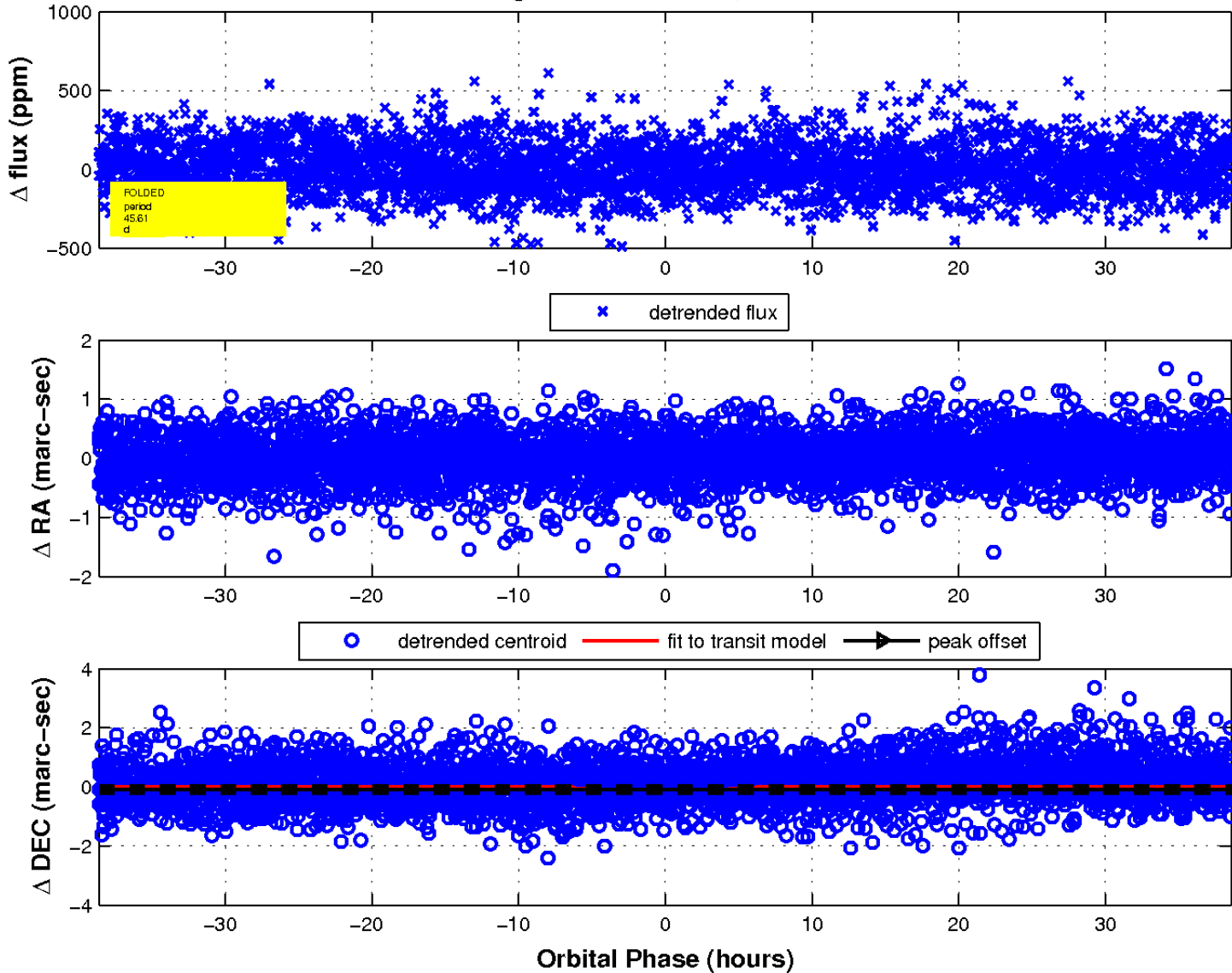
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

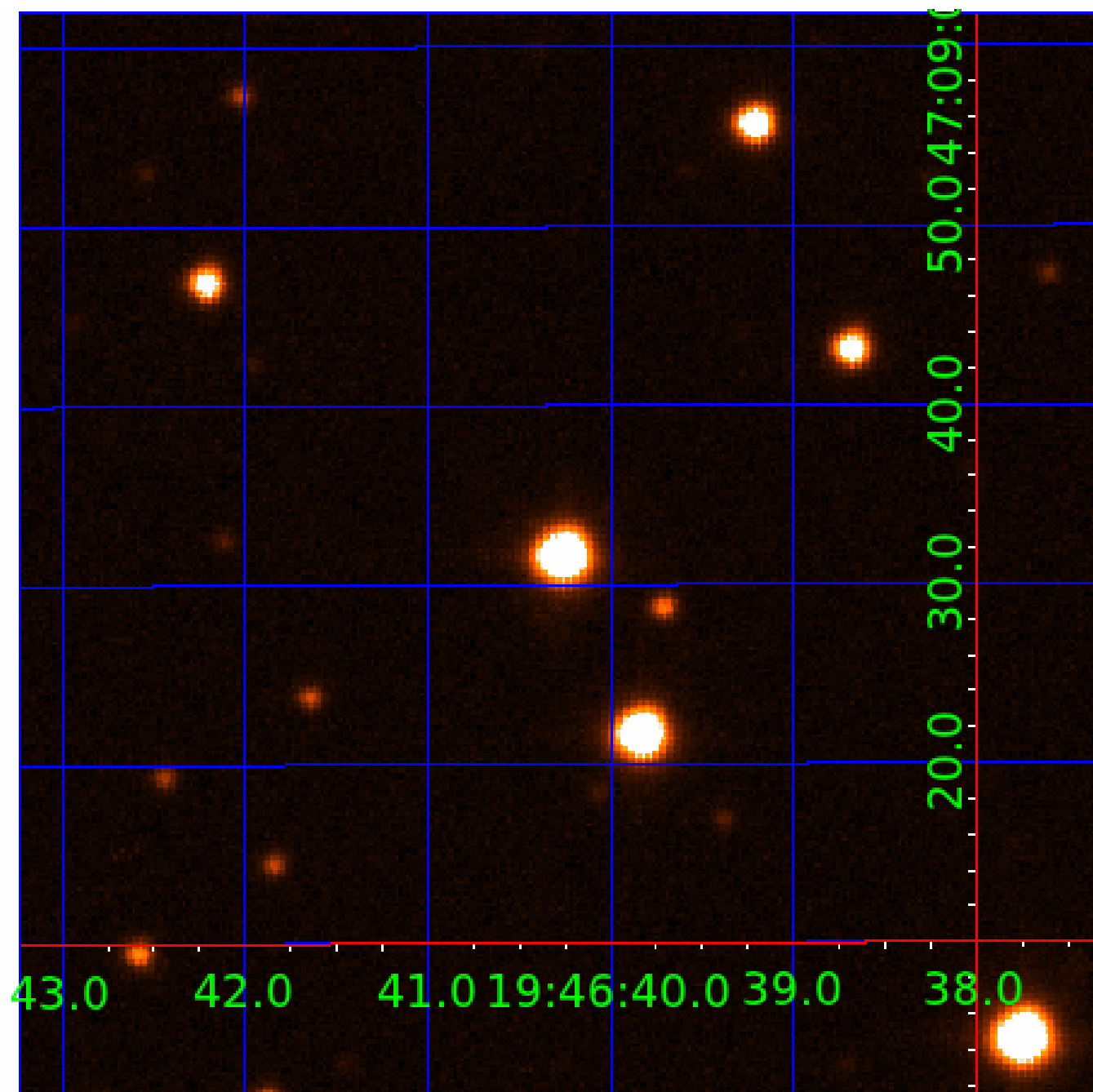


fluxWeightedCentroids, Planet 6 of 9



UKIRT Image

Declination



KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

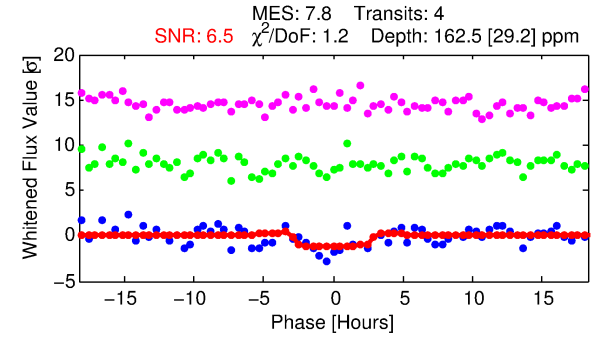
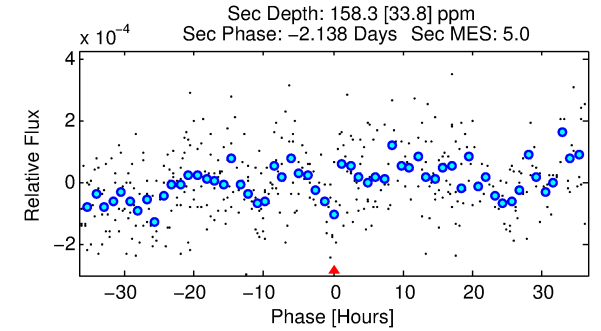
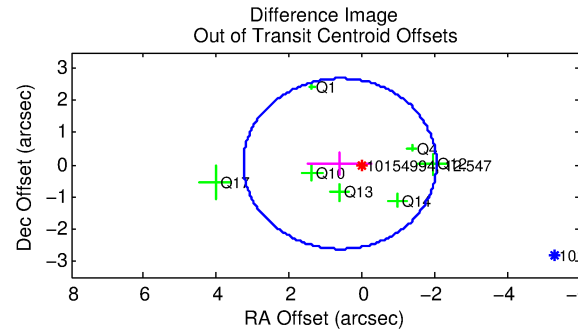
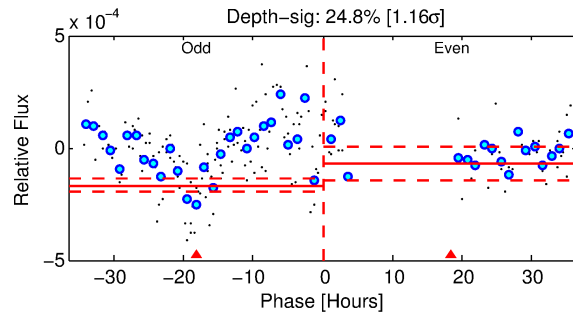
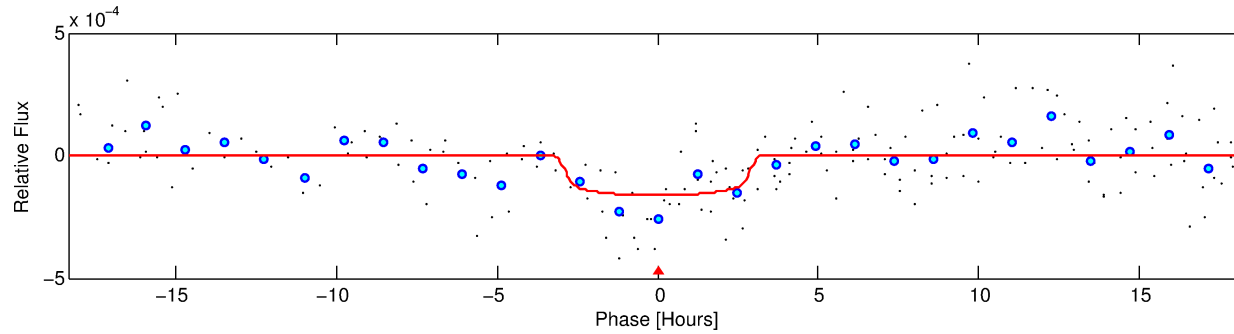
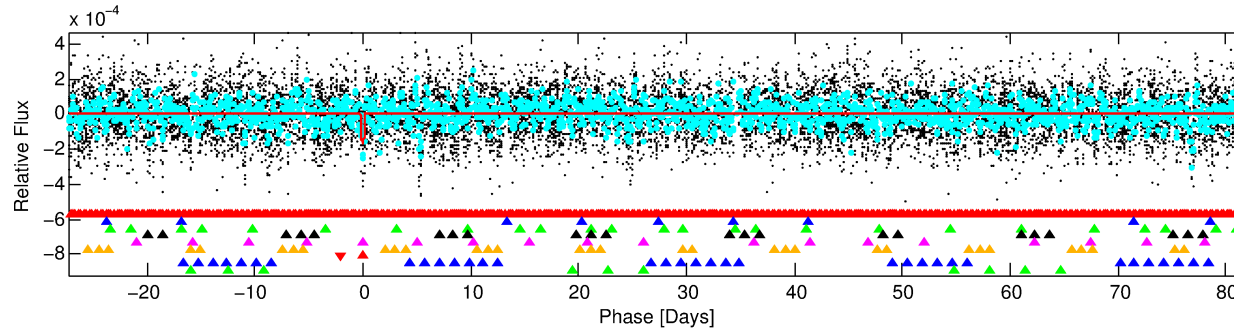
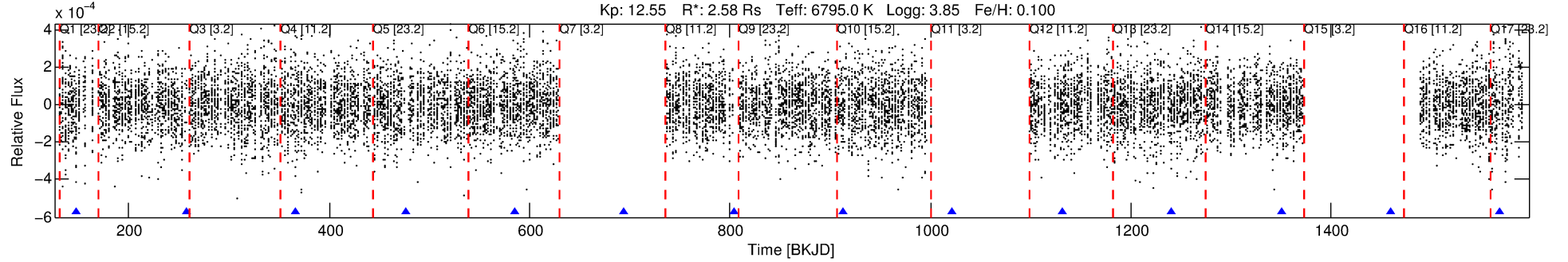
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-07

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 7 of 9 Period: 109.265 d



DV Fit Results:

Period = 109.26480 [0.00189] d
Epoch = 148.1551 [0.0141] BKJD
Rp/R* = 0.0133 [0.0045]
a/R* = 71.67 [134.57]
b = 0.87 [0.54]
Seff = 44.01 [21.25]
Teq = 657 [79] K
Rp = 3.74 [1.78] Re
a = 0.5365 [0.1626] AU
Ag = 1793.32 [1524.23] [1.18 σ]
Teffp = 6608 [1193] K [4.98 σ]

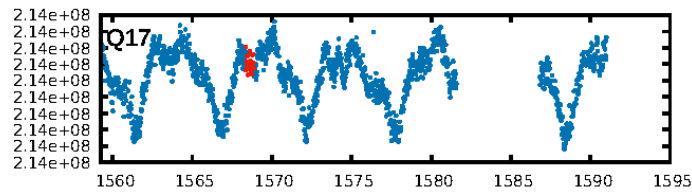
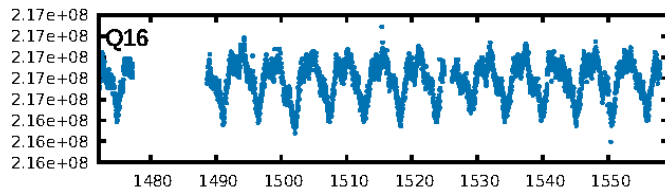
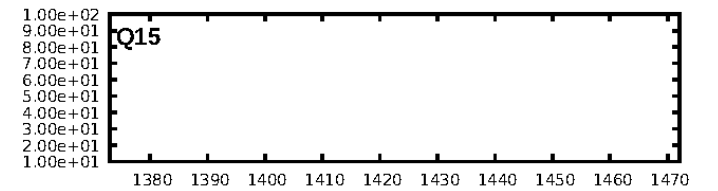
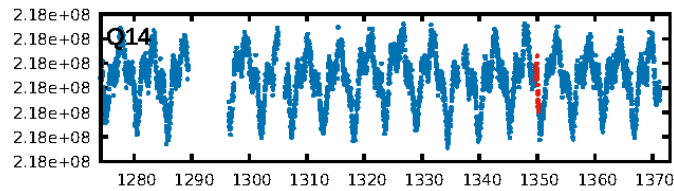
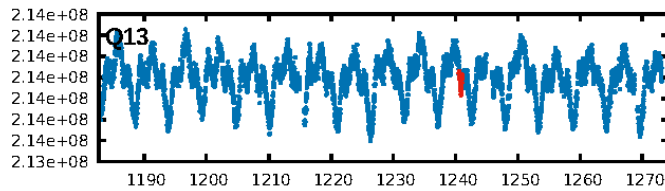
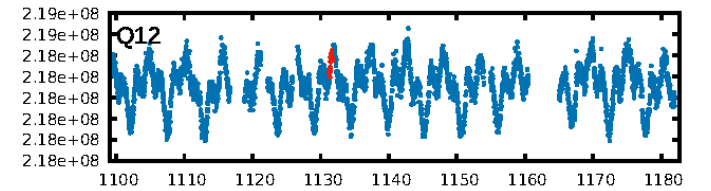
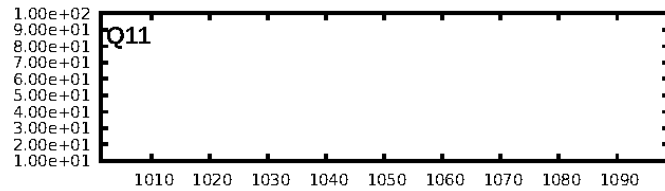
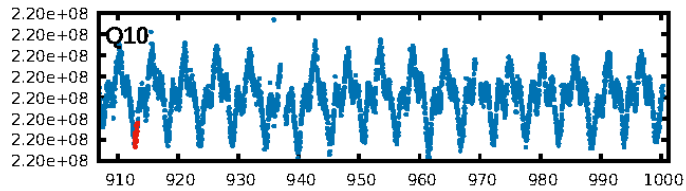
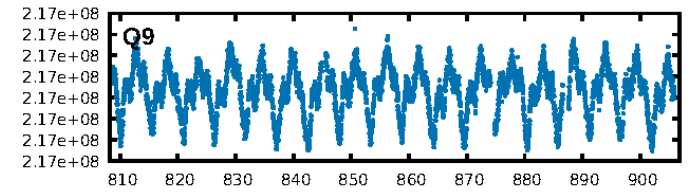
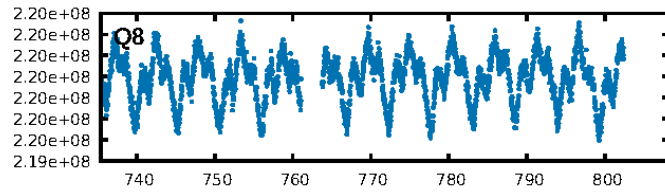
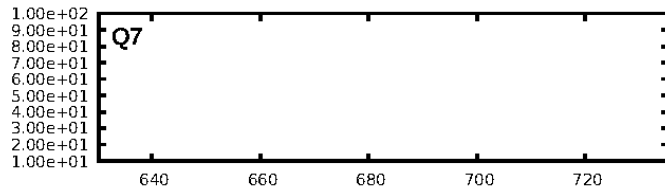
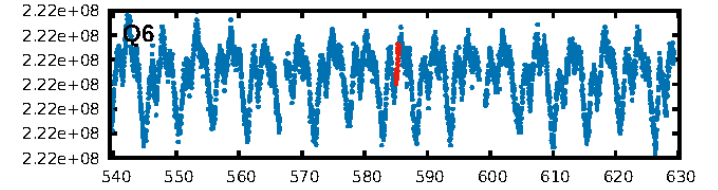
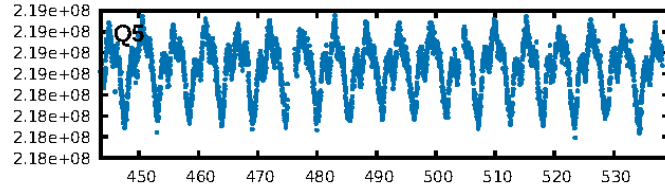
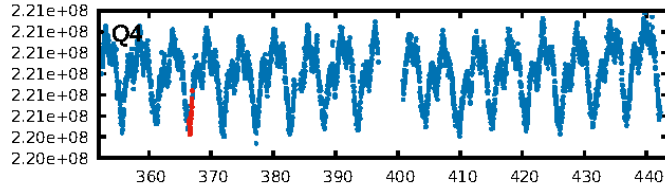
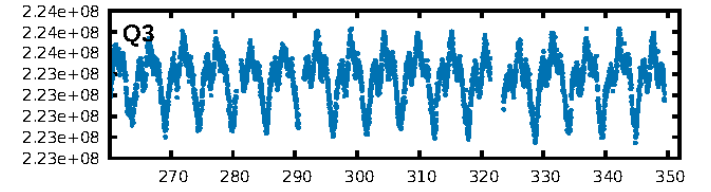
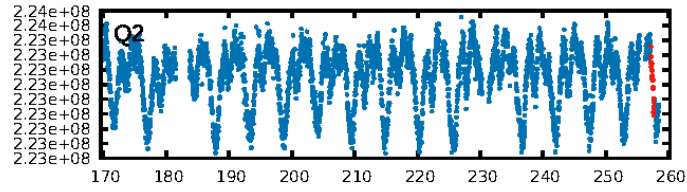
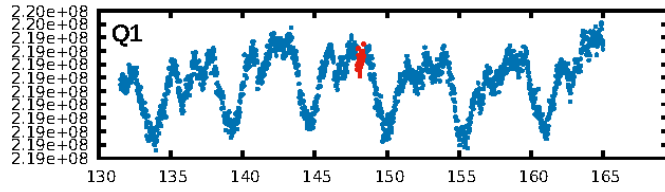
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.23 σ]
LongPeriod-sig: 100.0% [118.43 σ]
ModelChiSquare2-sig: 54.7%
ModelChiSquareGof-sig: 97.1%
Bootstrap-pfa: 7.89e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.9551
Centroid-sig: N/A
Centroid-so: 2.233 arcsec [1.79 σ]
OotOffset-rm: 0.604 arcsec [0.68 σ]
KicOffset-rm: 0.515 arcsec [0.75 σ]
OotOffset-st: 2/0/2/3 [7]
KicOffset-st: 2/0/2/3 [7]
DiffImageQuality-fgm: 0.43 [3/7]
DiffImageOverlap-fno: 0.44 [4/9]

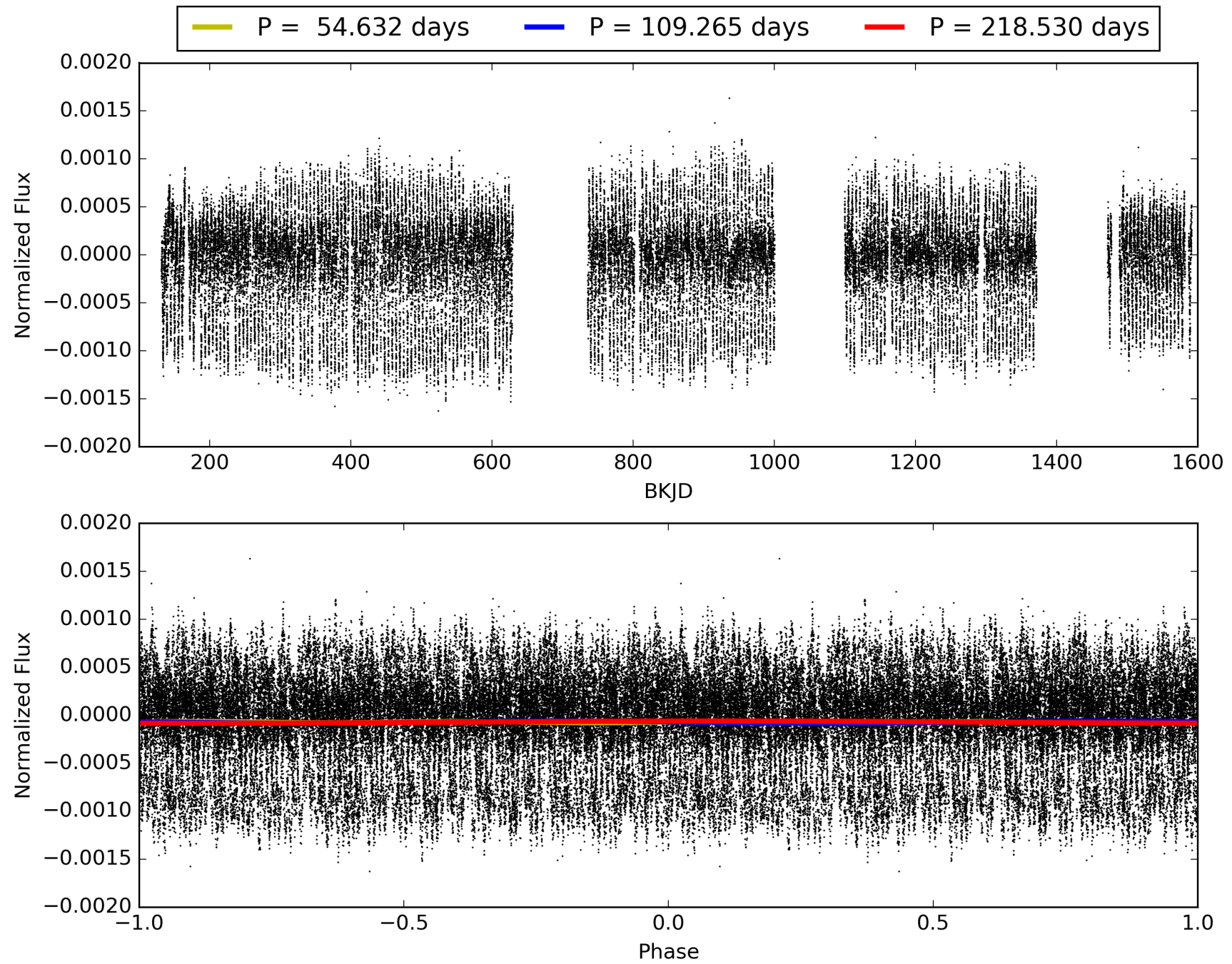
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:40:05 Z

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

TCE 010154994-07, PDC Light Curves

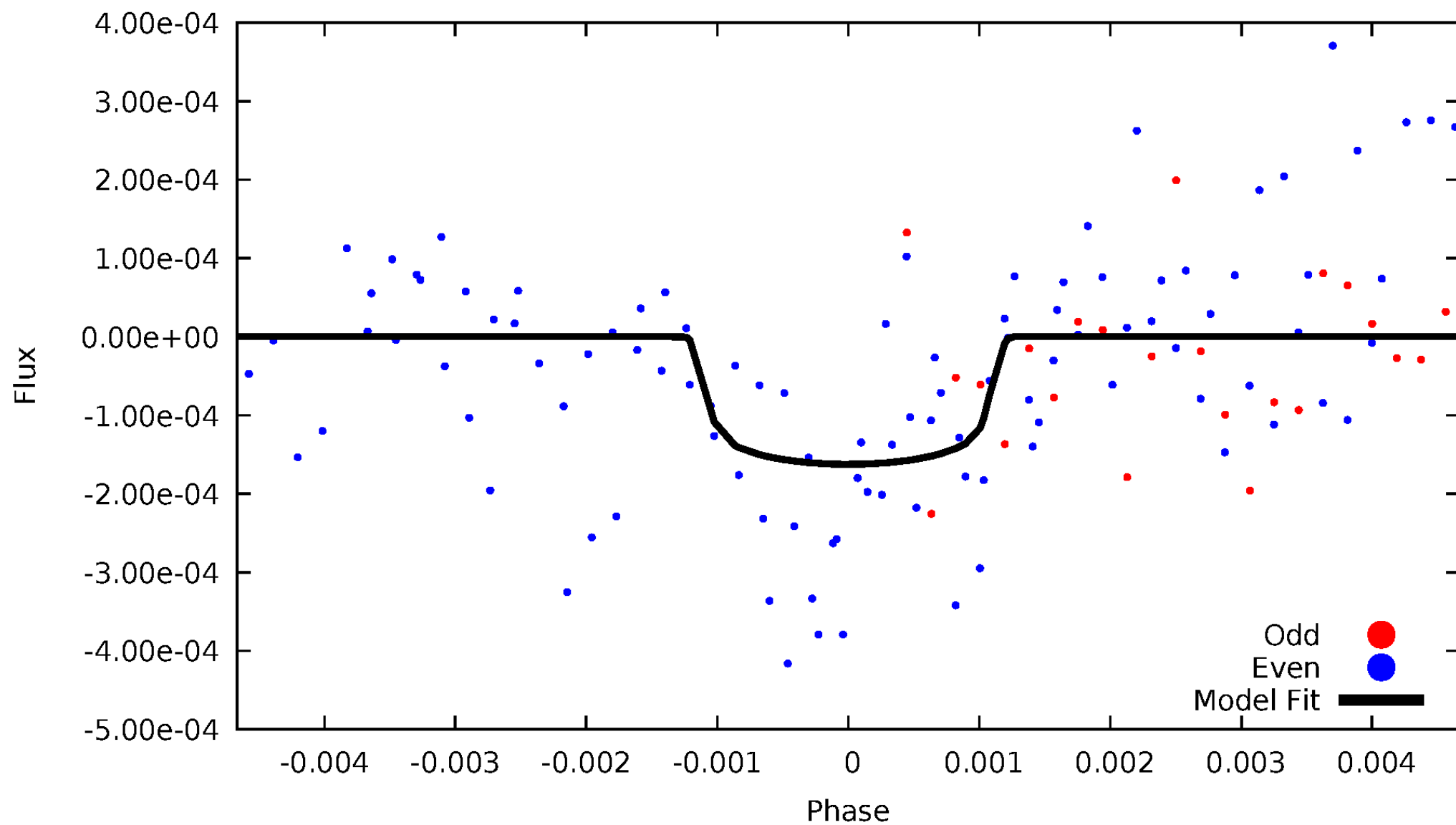


TCE 010154994-07



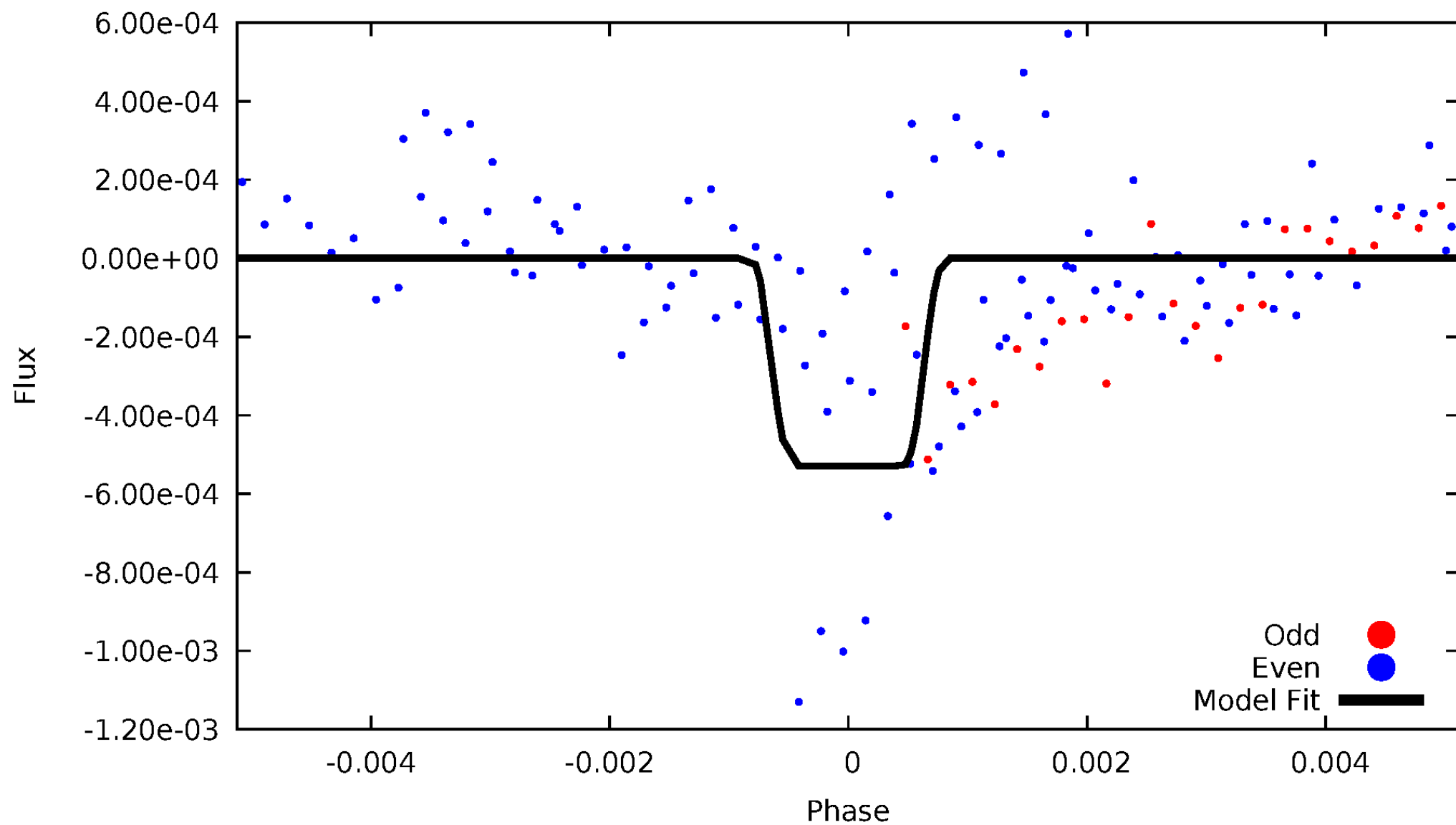
DV Odd/Even

TCE 010154994-07



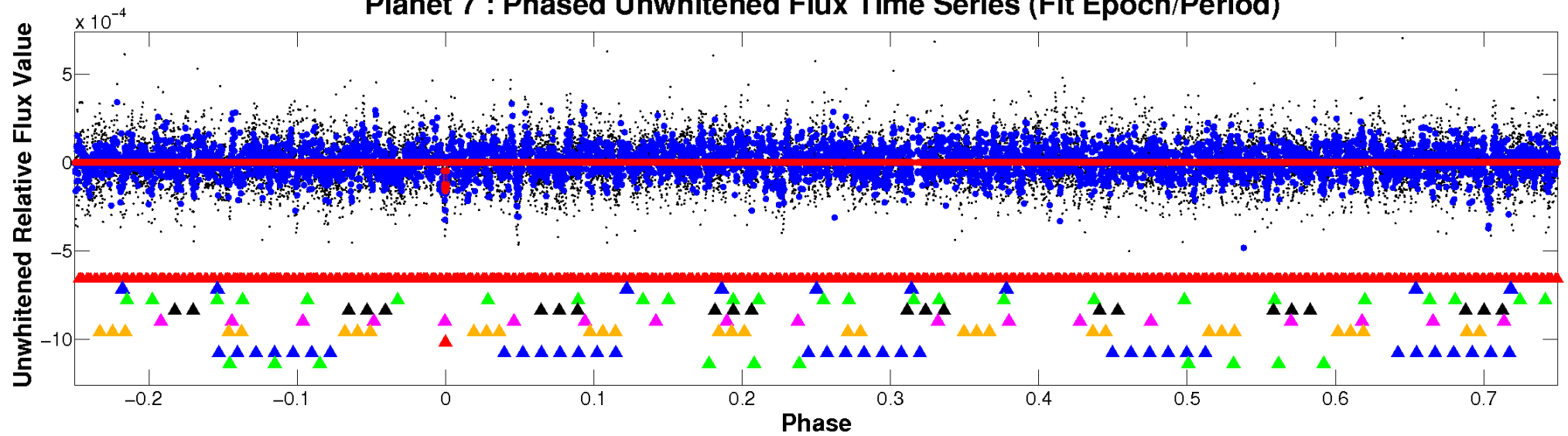
ALT Odd/Even

TCE 010154994-07

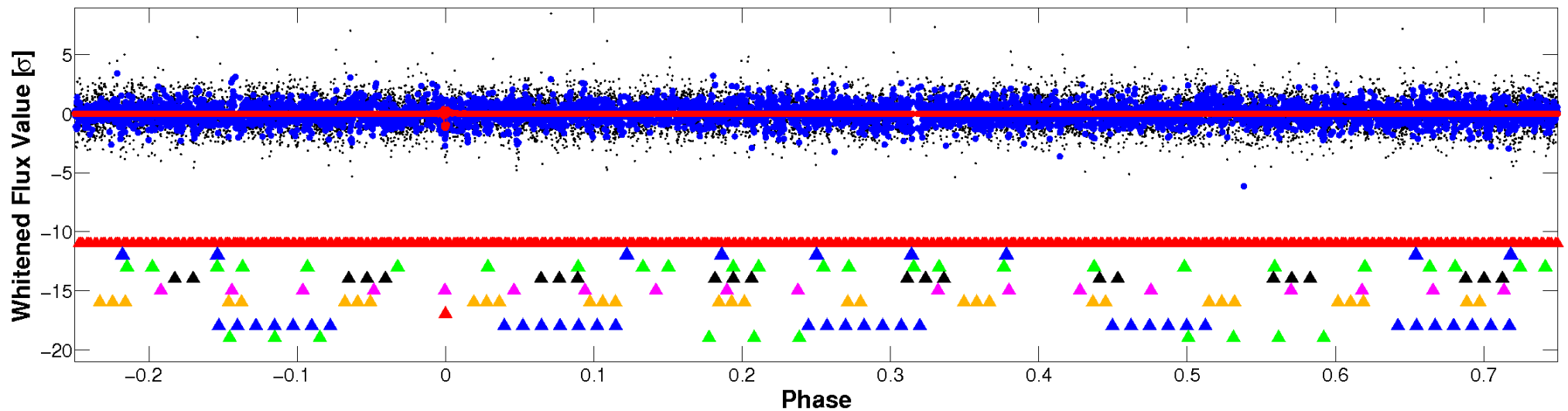


Non-Whitened Vs. Whitened Light Curve

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

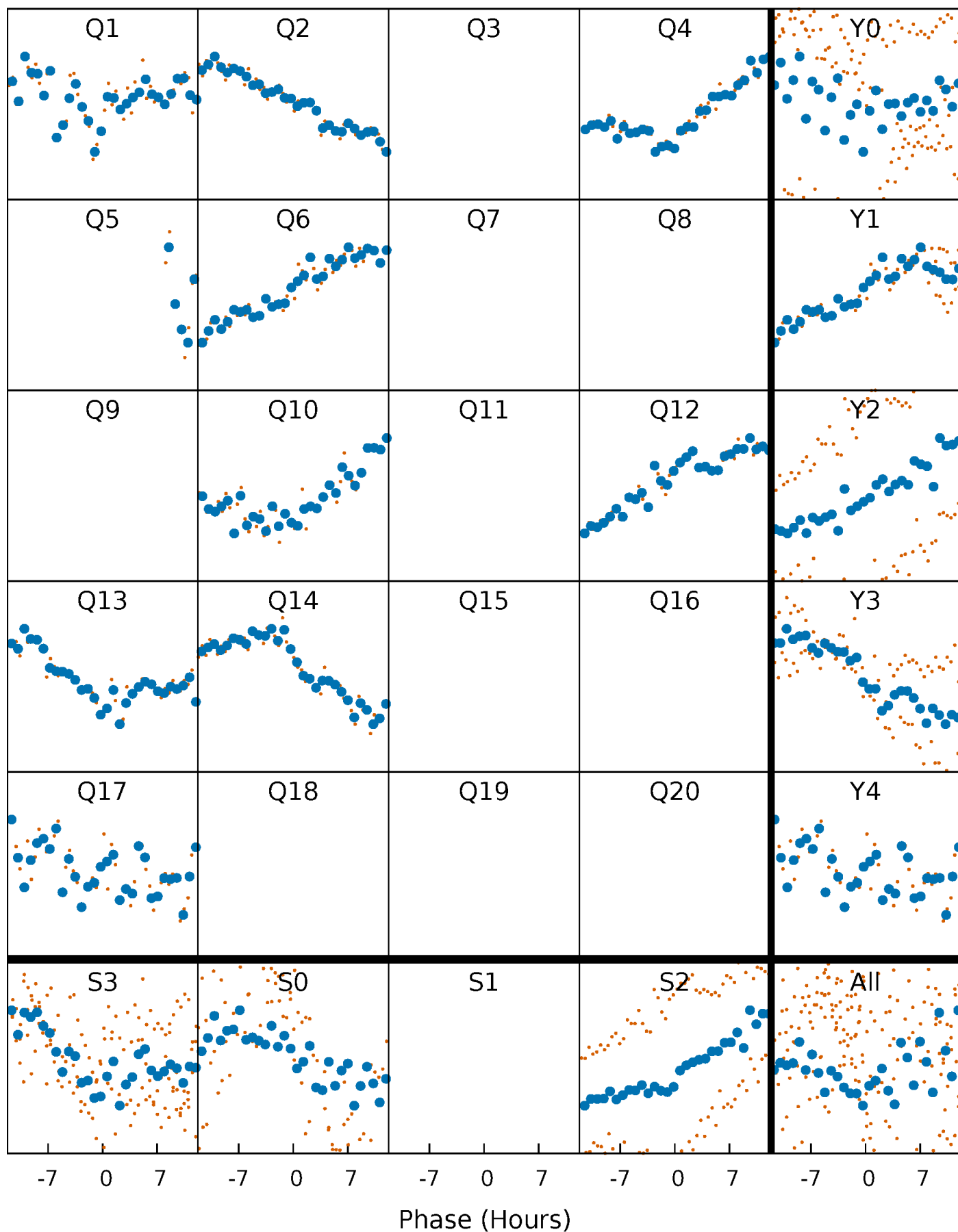


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



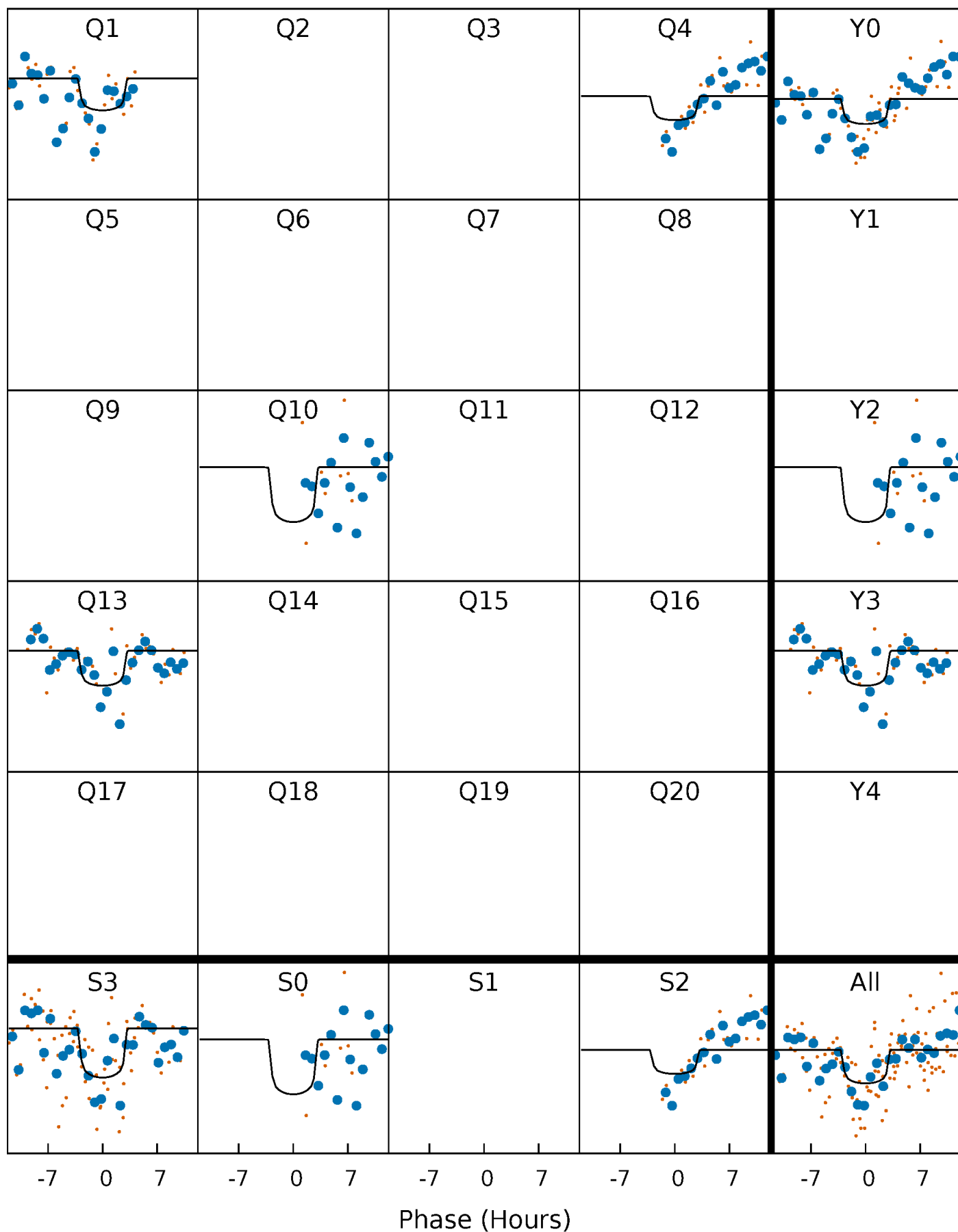
PDC Quarter-Phased Transit Curves

TCE 010154994-07 $P=109.264800$ Days $T_0=148.155122$ (BKJD)



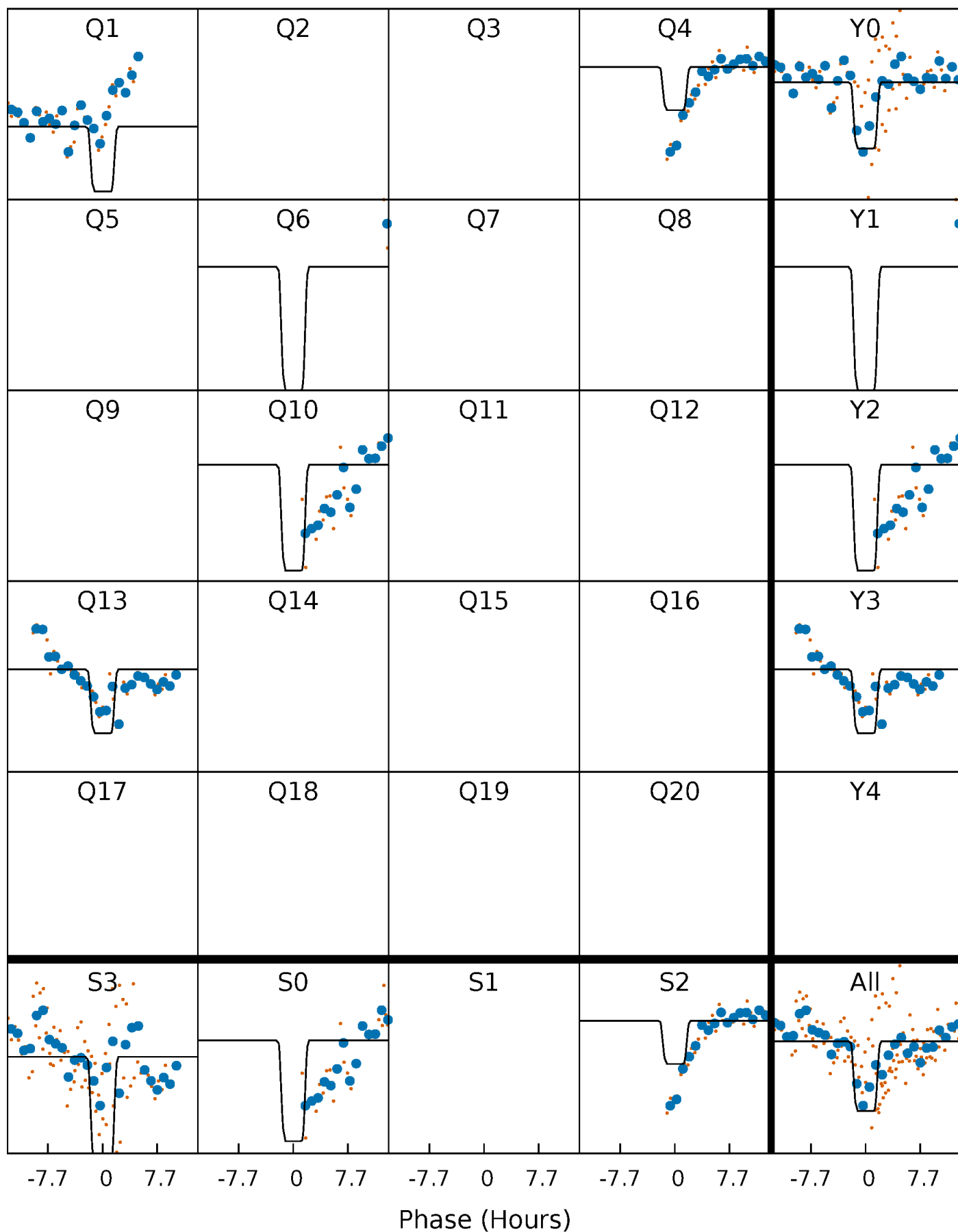
DV Quarter-Phased Transit Curves

TCE 010154994-07 $P=109.264800$ Days $T_0=148.155122$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

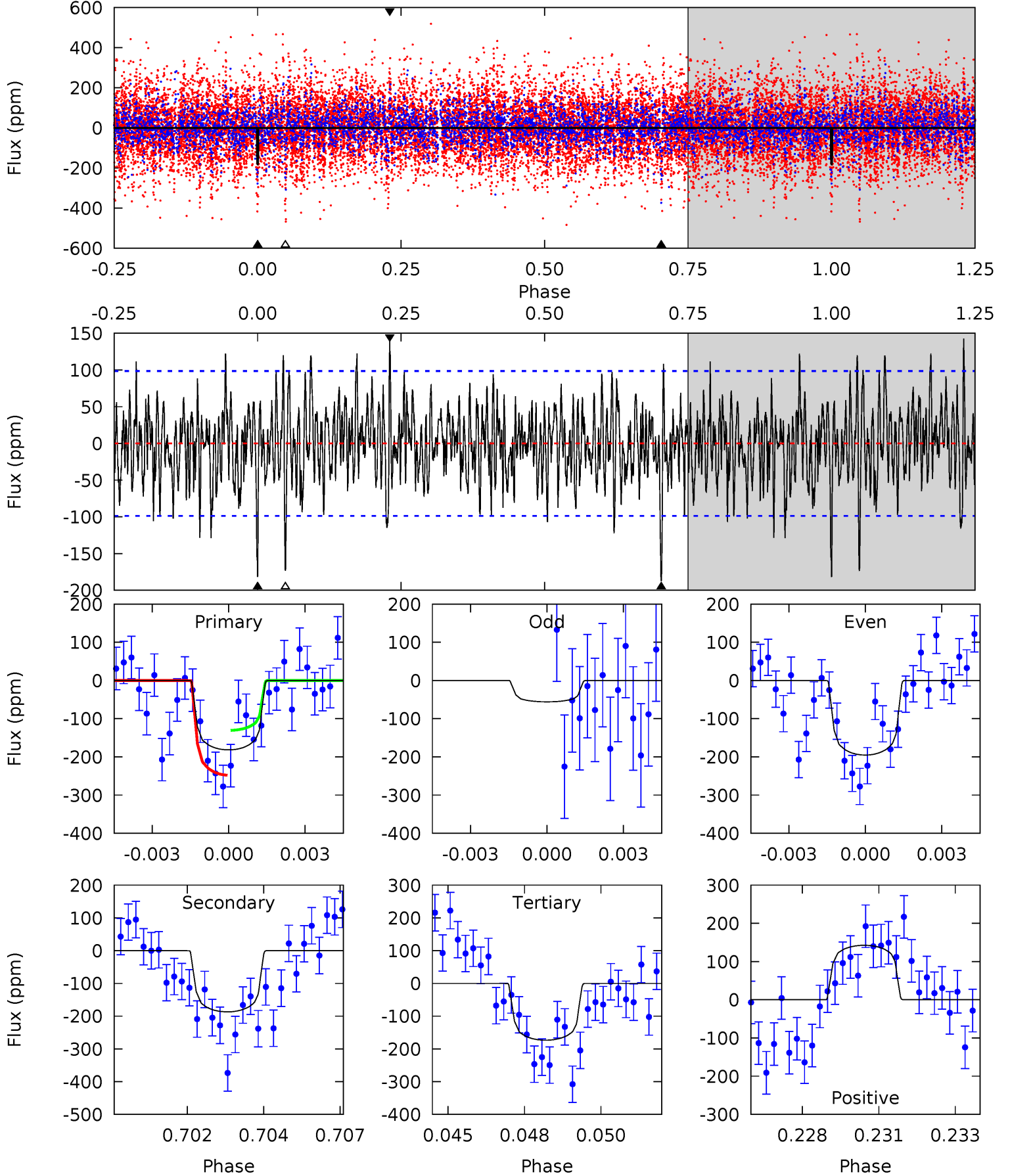
TCE 010154994-07 $P=109.268140$ Days $T_0=148.128178$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-07, P = 109.264800 Days, E = 38.890322 Days

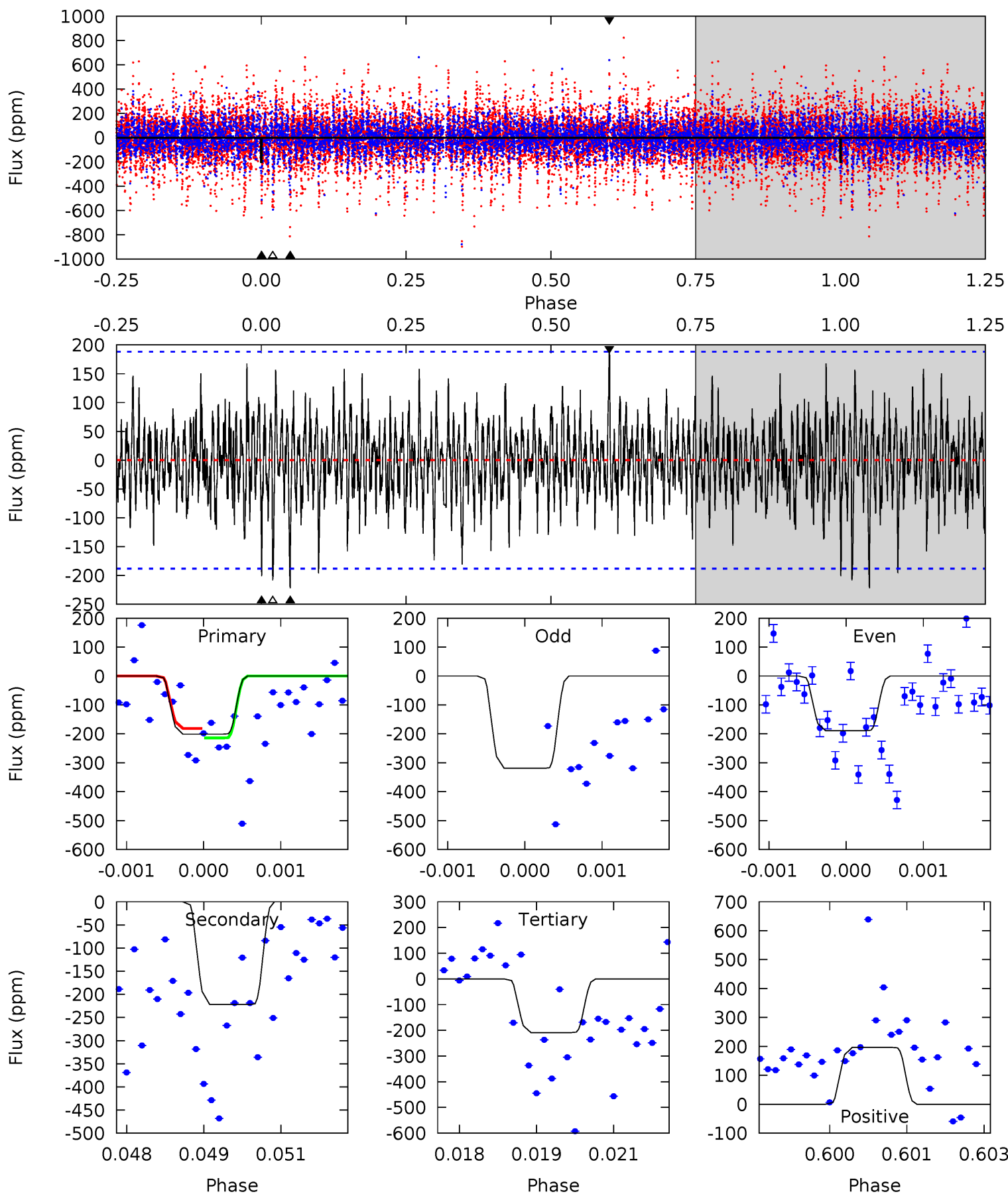
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.73	10.0	9.30	7.63	5.29	3.02	2.21	0.44	2.10	0.72	2.38	2.44	0.94	0.43	3.10



Alt Model-Shift Uniqueness Test

010154994-07, P = 109.268140 Days, E = 38.860038 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.75	6.35	5.96	5.61	5.38	3.18	1.57	-0.21	0.14	0.38	0.74	1.16	1.22	0.47	0.46



Stellar Parameters For KIC 010154994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-187 ± 19	$3.61^{+1.28}_{-1.38}$	905^{+57}_{-73}	6847^{+1971}_{-956}	2243^{+3537}_{-1003}
Alt.	-222 ± 35	$6.10^{+1.73}_{-1.47}$	902^{+59}_{-73}	5459^{+654}_{-498}	931^{+686}_{-372}

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 $A_{obs} \gg 1.0$

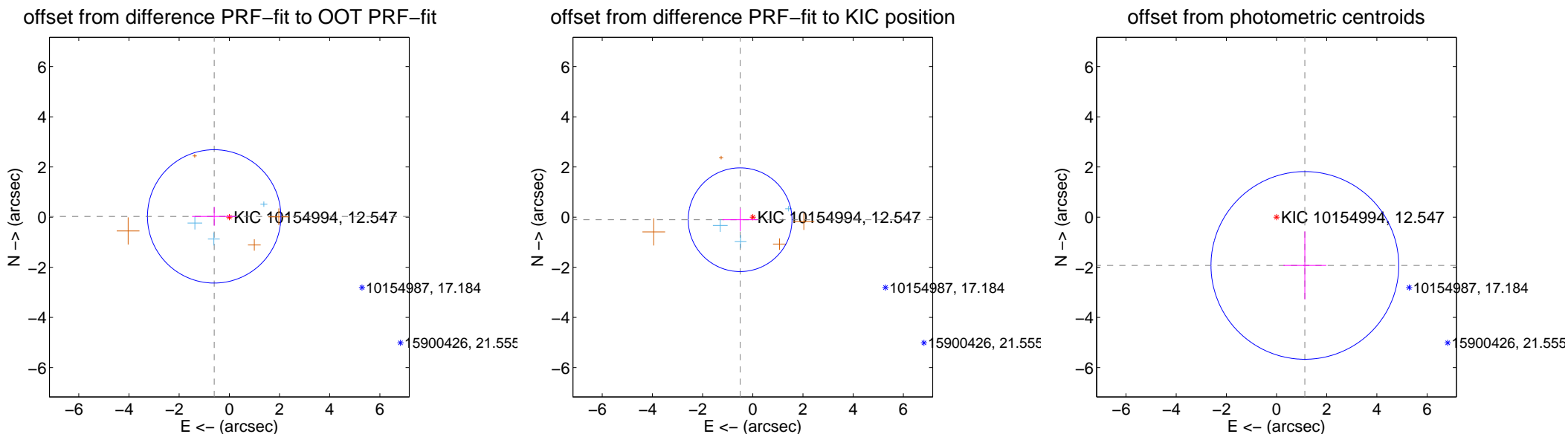
DV Centroid Data

Supplemental centroid analysis for 010154994-07. Kepler magnitude: 12.55. Transit SNR 6.46

There are 3 quarters with good PRF difference image offsets

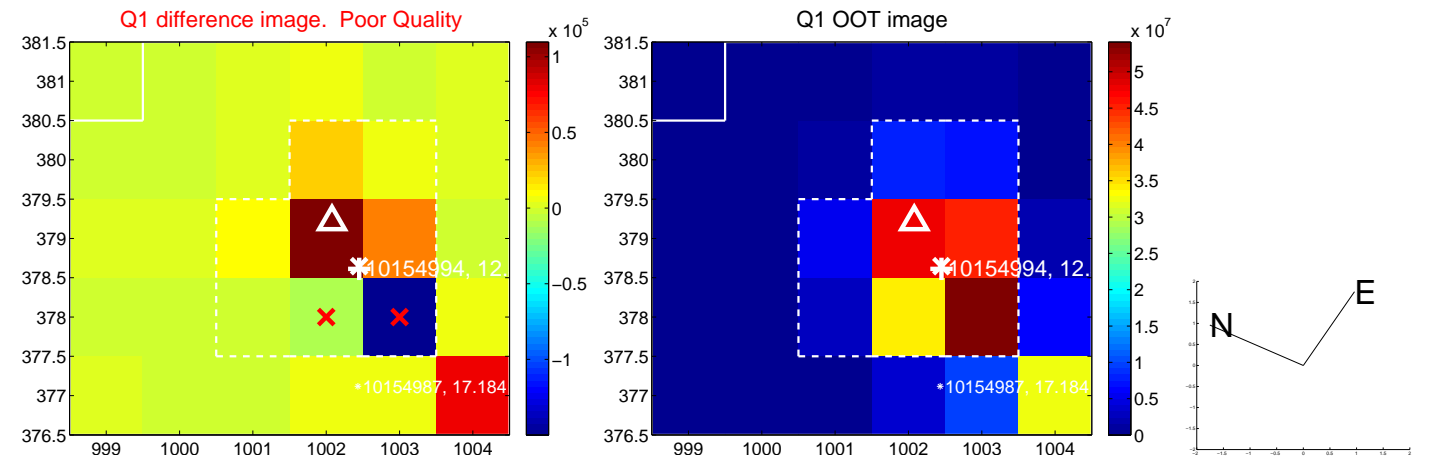
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.604 ± 0.886	0.68	0.604 ± 0.882	0.029 ± 0.370
PRF-fit source offset from KIC position	0.515 ± 0.689	0.75	0.505 ± 0.698	-0.103 ± 0.452
photometric centroid source offset	2.23 ± 1.25	1.79	-1.13 ± 0.85	-1.93 ± 1.36



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.

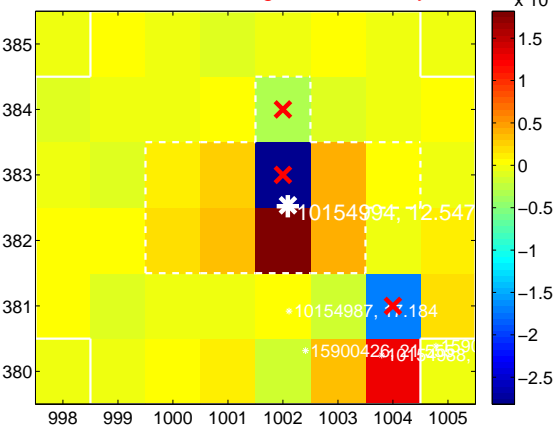
Q5 no difference image



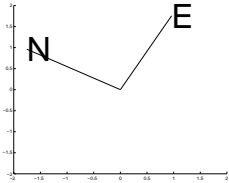
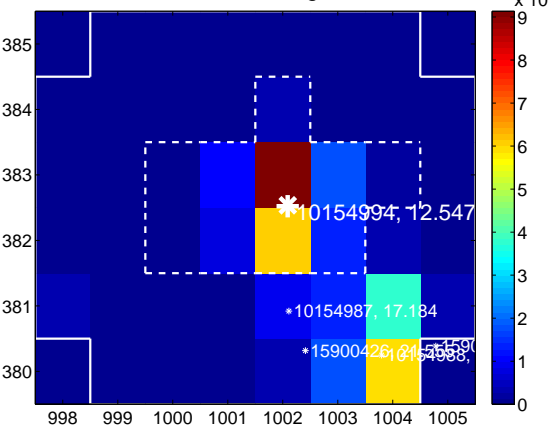
Q5 no OOT image



Q6 difference image. Poor Quality



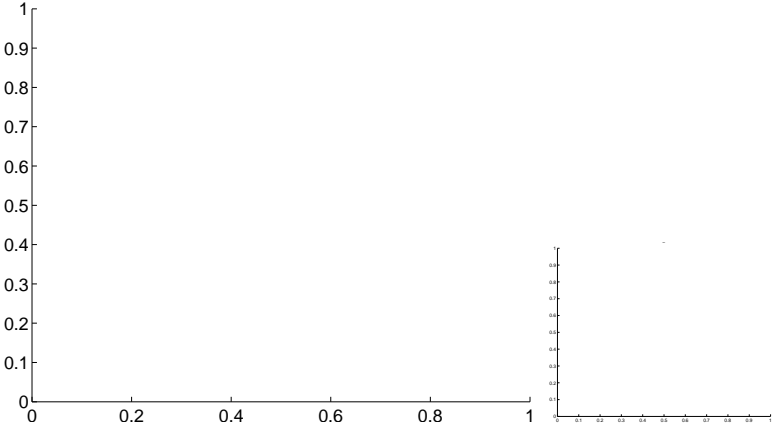
Q6 OOT image



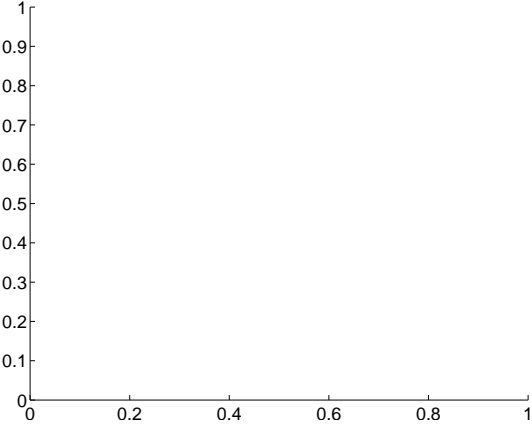
Q7 no difference image



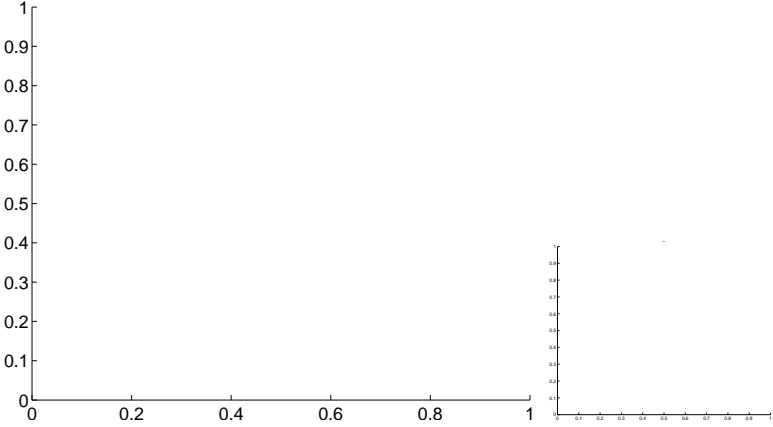
Q7 no OOT image



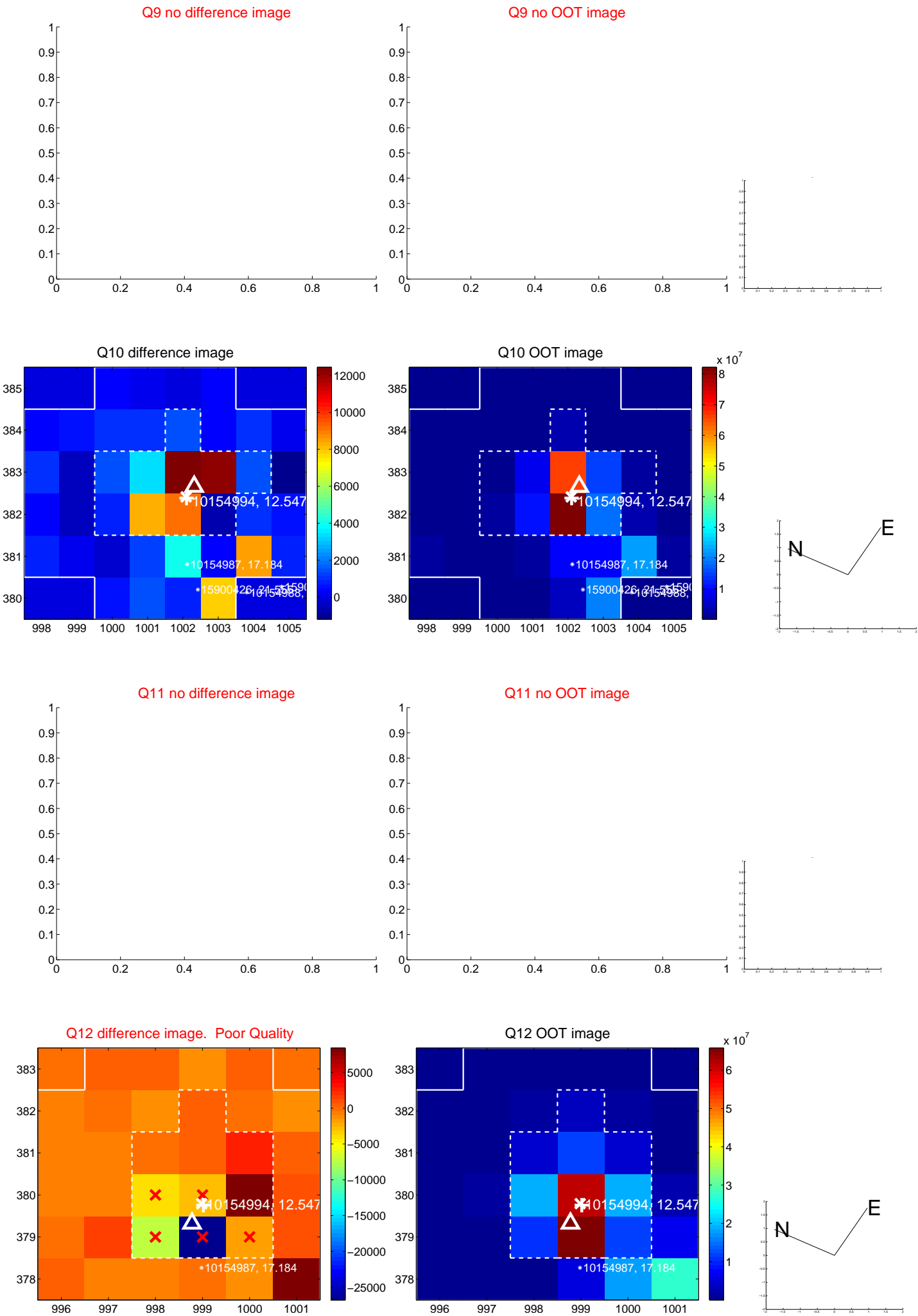
Q8 no difference image



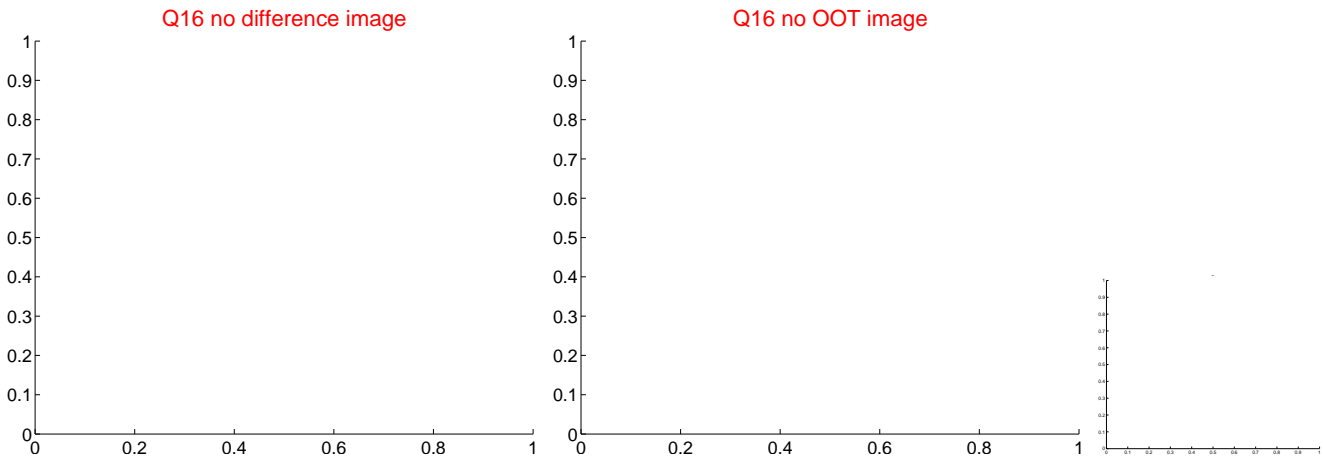
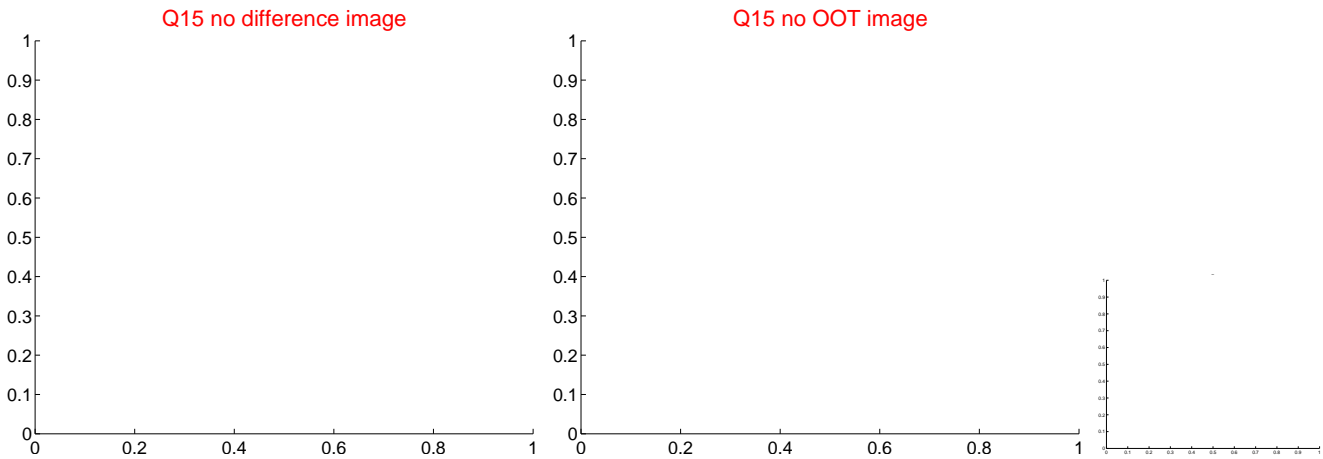
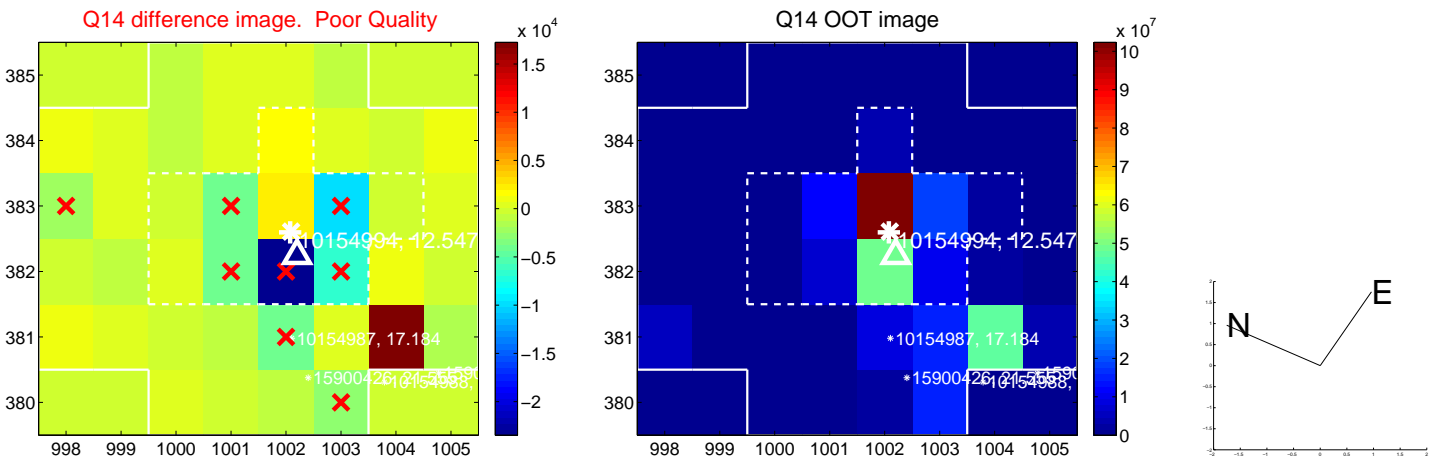
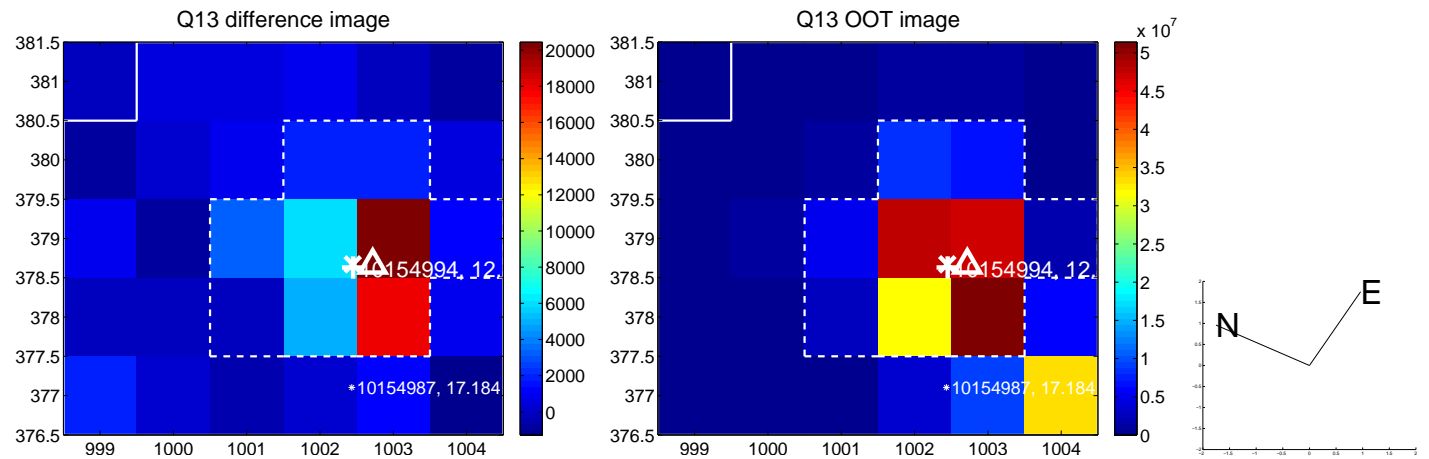
Q8 no OOT image



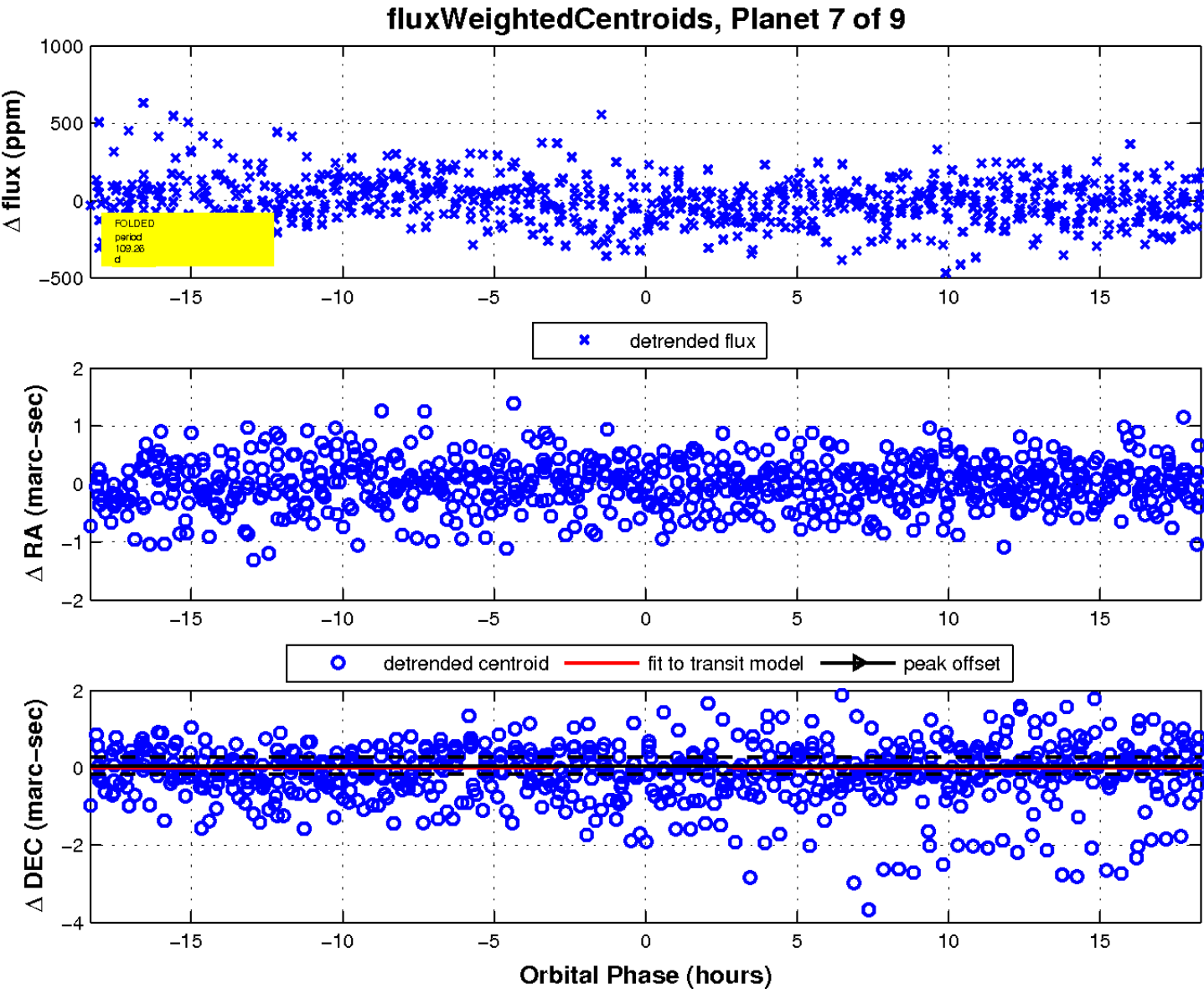
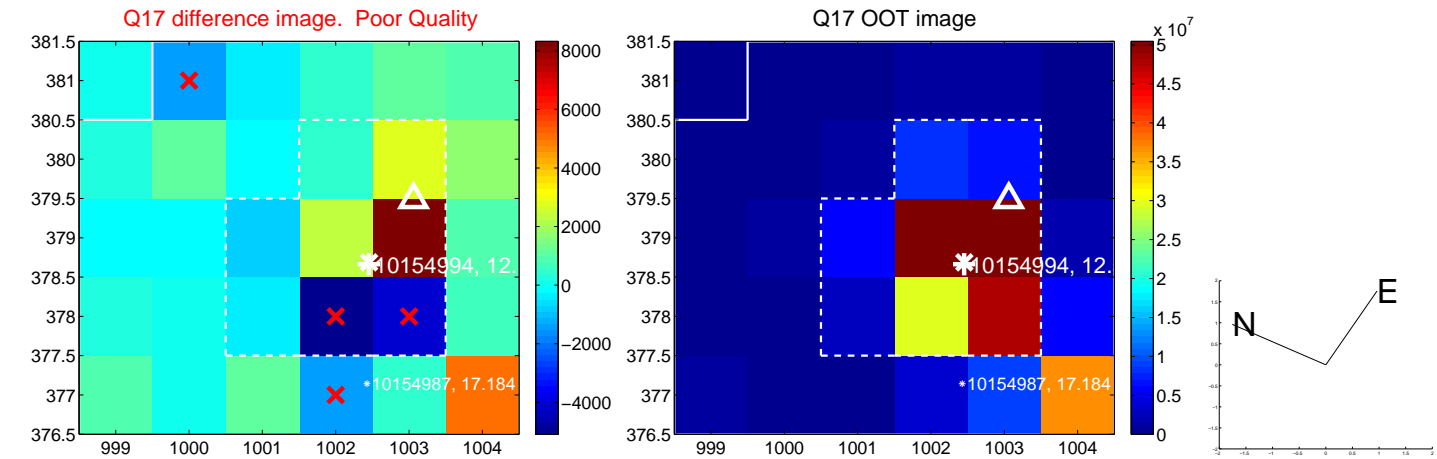
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

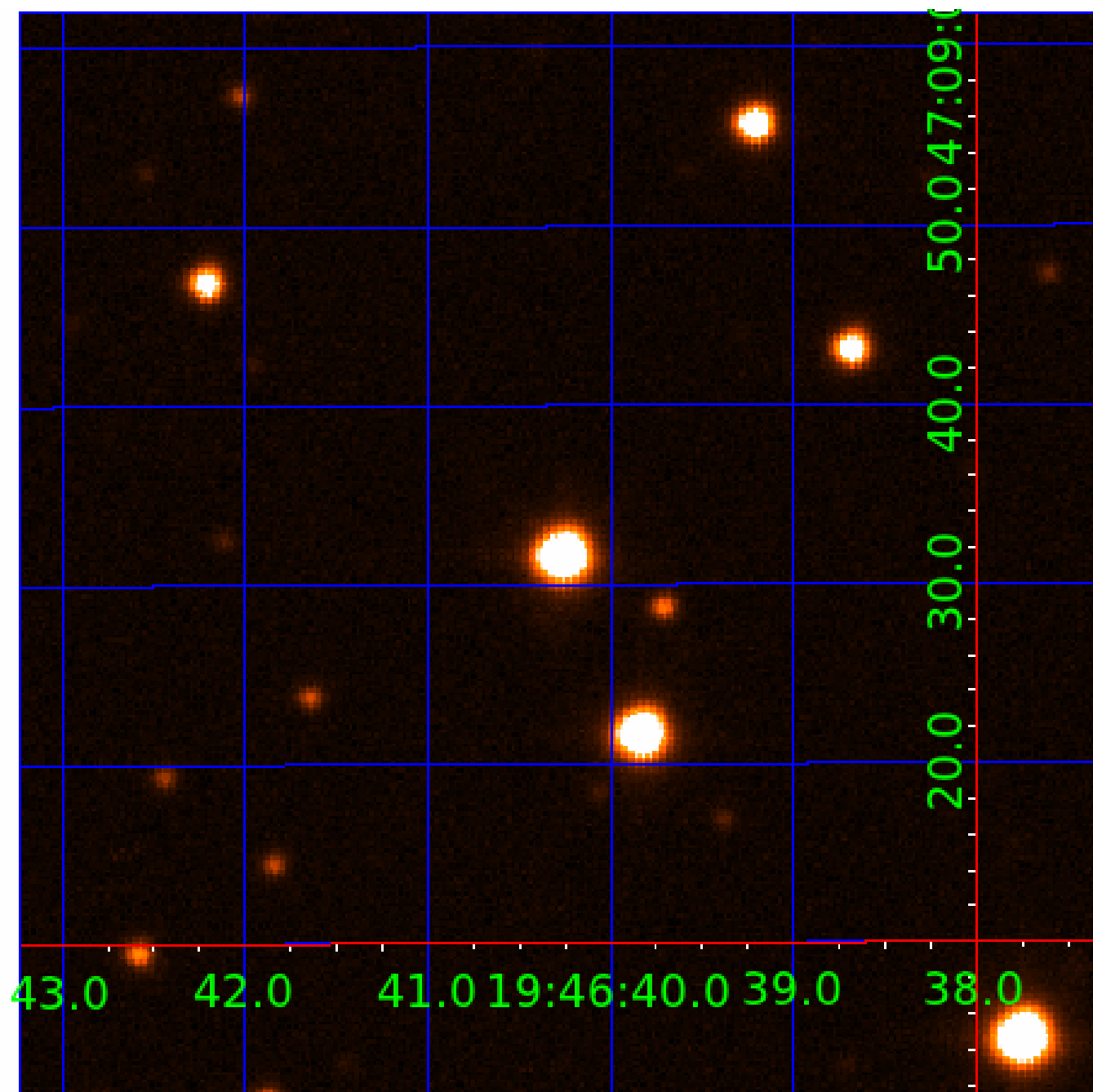


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

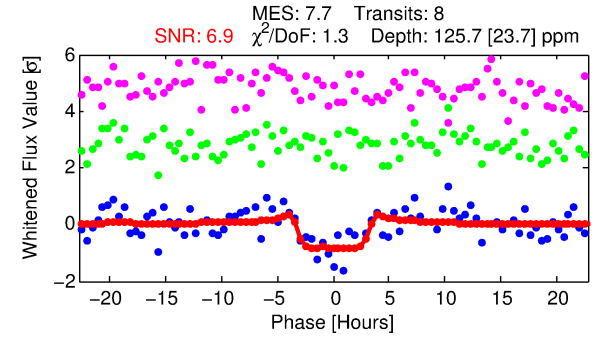
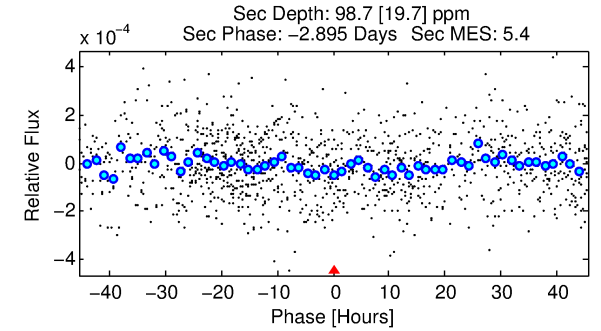
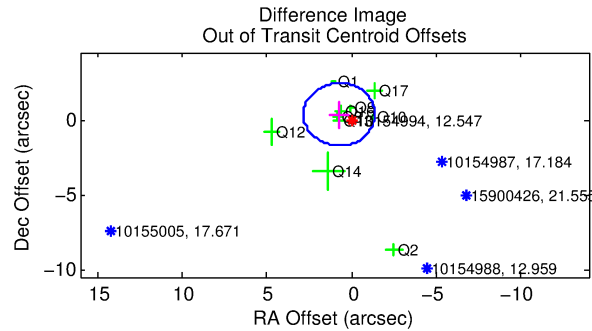
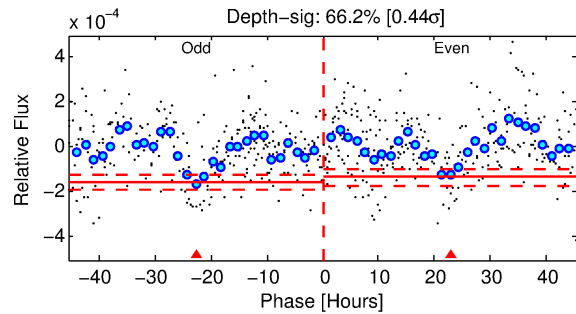
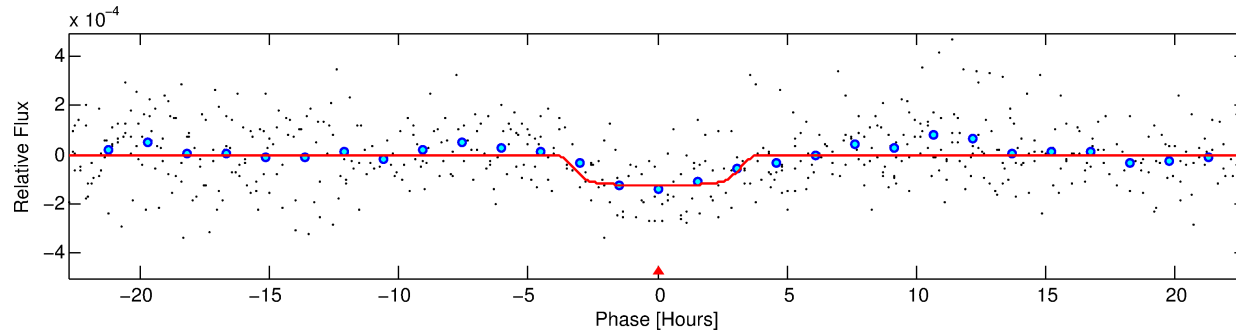
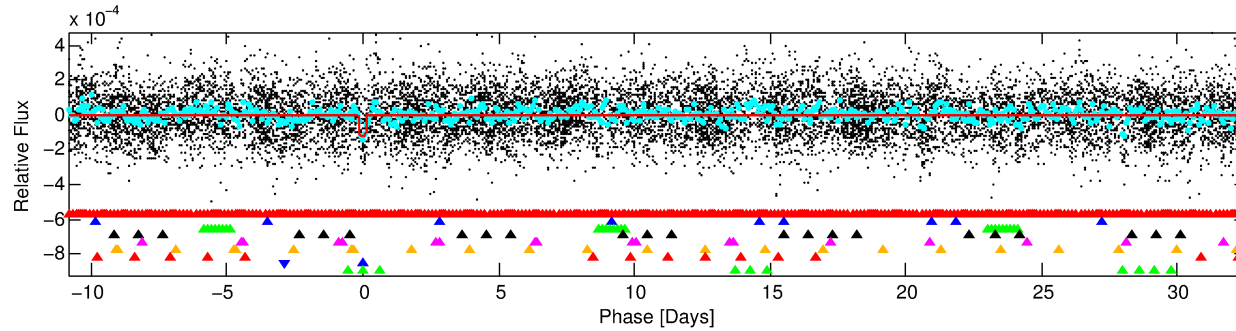
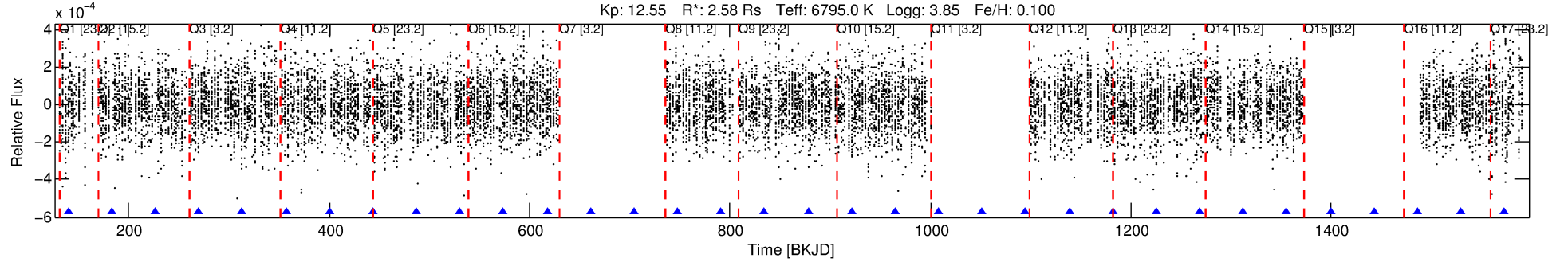
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-08

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 8 of 9 Period: 43.432 d



DV Fit Results:

Period = 43.43229 [0.00126] d
Epoch = 139.6683 [0.0170] BKJD
Rp/R* = 0.0129 [0.0018]
a/R* = 13.94 [7.15]
b = 0.96 [0.04]
Seff = 150.58 [72.71]
Teq = 893 [108] K
Rp = 3.62 [1.31] Re
a = 0.2900 [0.0879] AU
Ag = 348.07 [200.14] [1.73 σ]
Teffp = 5965 [538] K [9.25 σ]

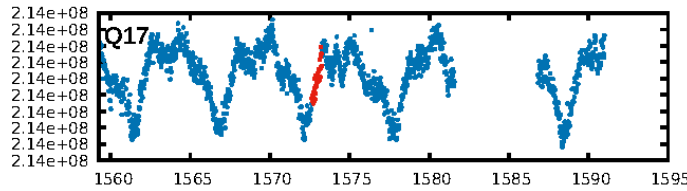
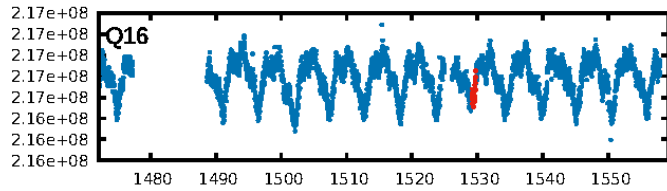
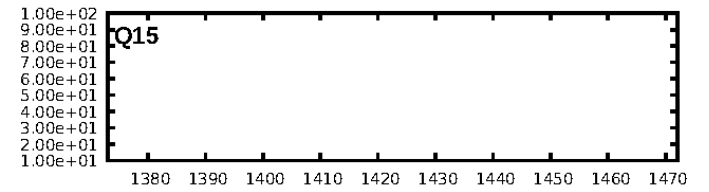
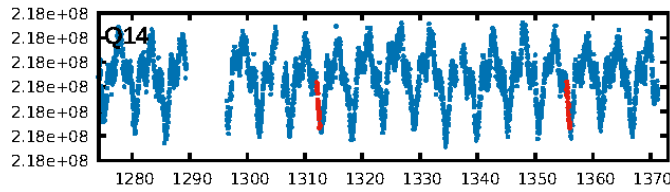
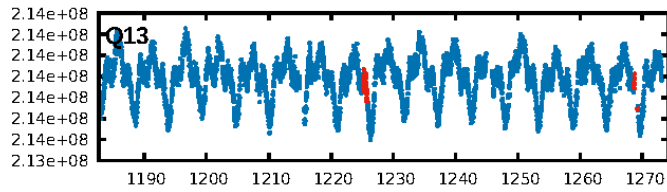
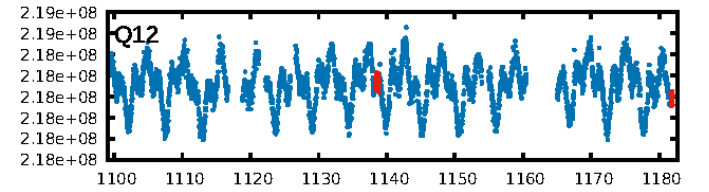
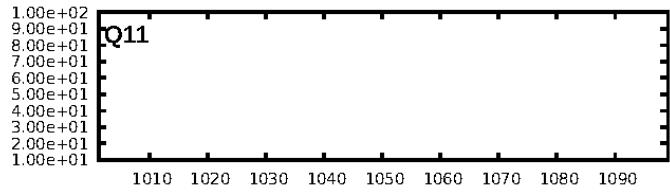
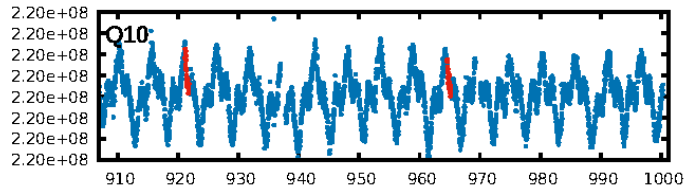
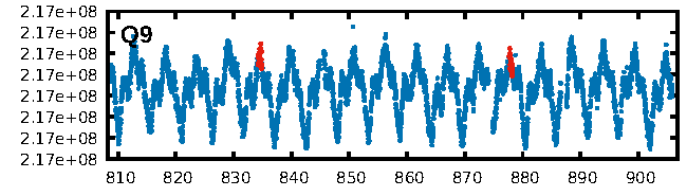
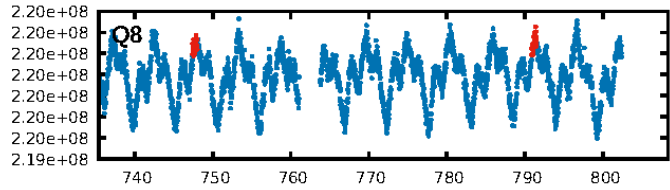
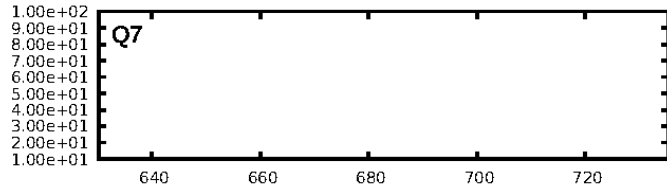
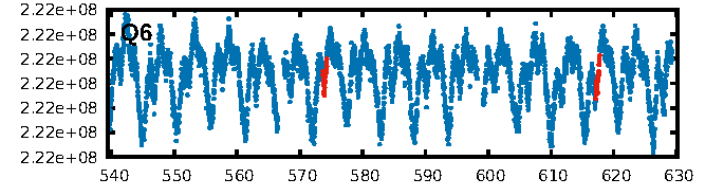
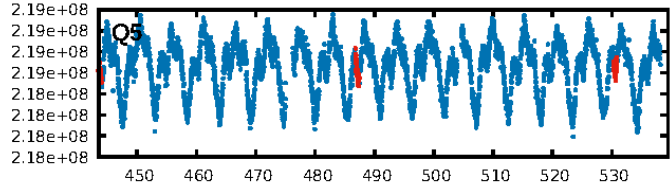
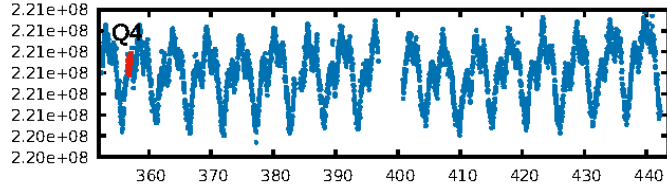
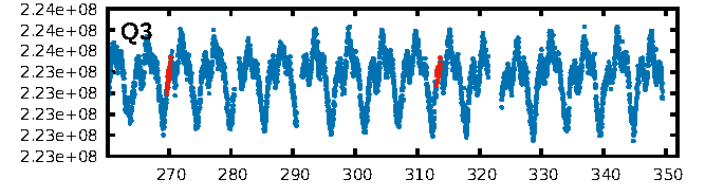
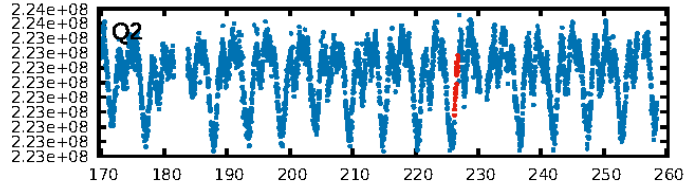
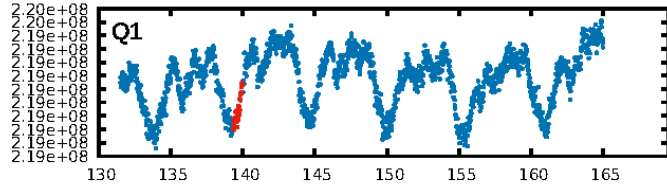
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [59.37 σ]
LongPeriod-sig: 100.0% [3.49 σ]
ModelChiSquare2-sig: 36.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.04e-07
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.188
Centroid-sig: N/A
Centroid-so: 2.111 arcsec [2.05 σ]
OotOffset-rm: 0.812 arcsec [1.16 σ]
KicOffset-rm: 0.683 arcsec [0.98 σ]
OotOffset-st: 4/0/3/4 [11]
KicOffset-st: 4/0/3/4 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 0.29 [4/14]

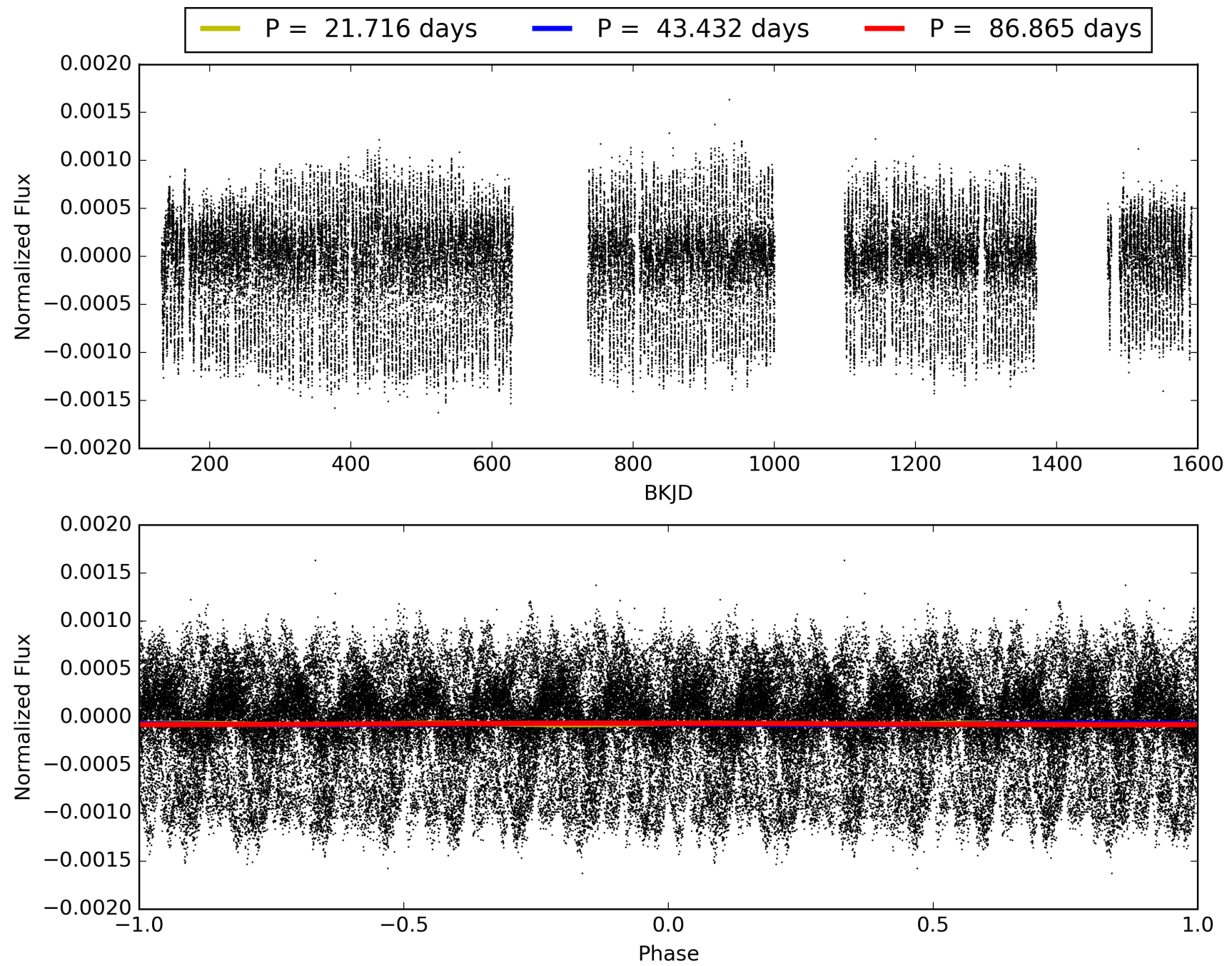
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:40:09 Z

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

TCE 010154994-08, PDC Light Curves

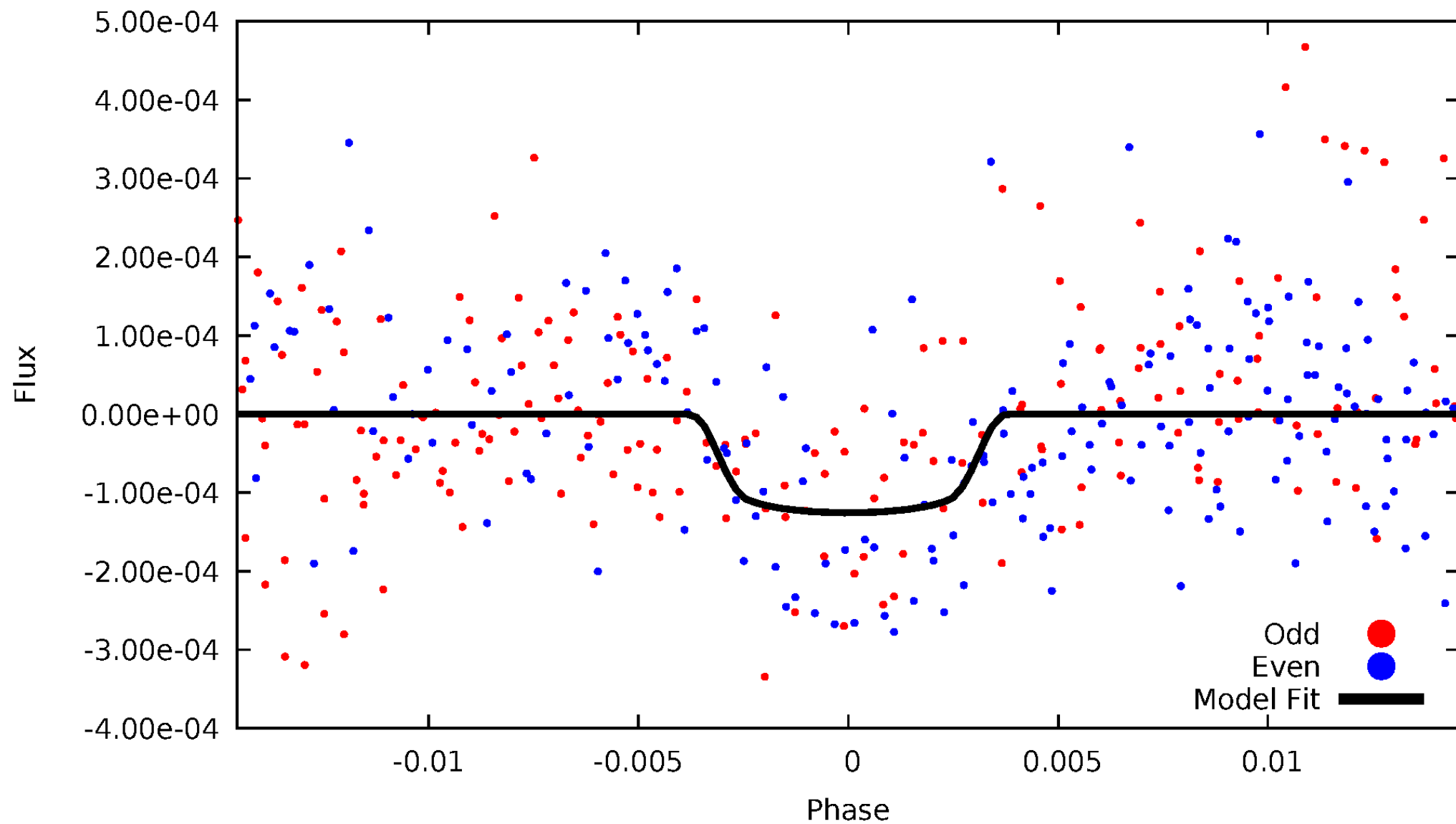


TCE 010154994-08



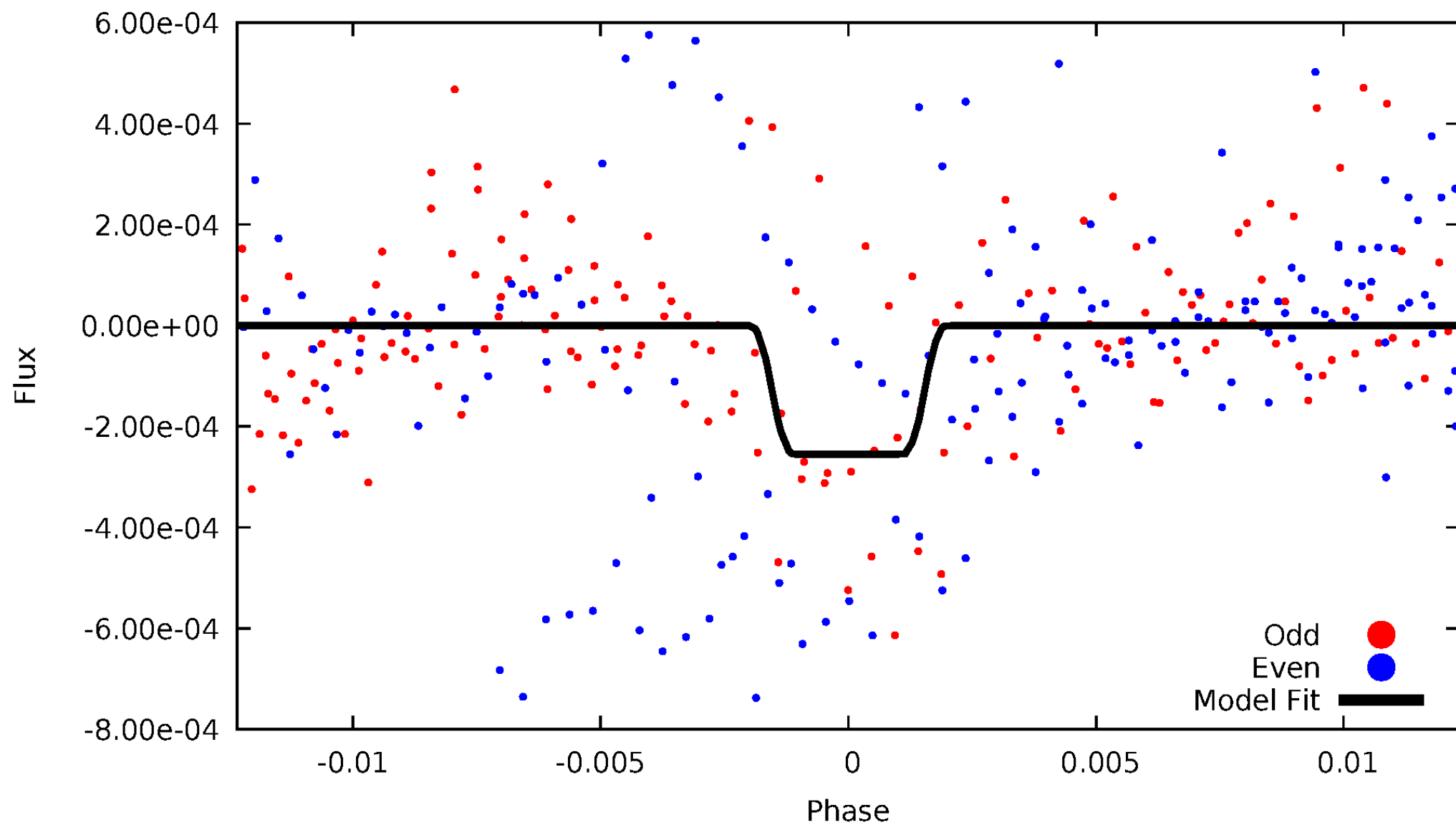
DV Odd/Even

TCE 010154994-08



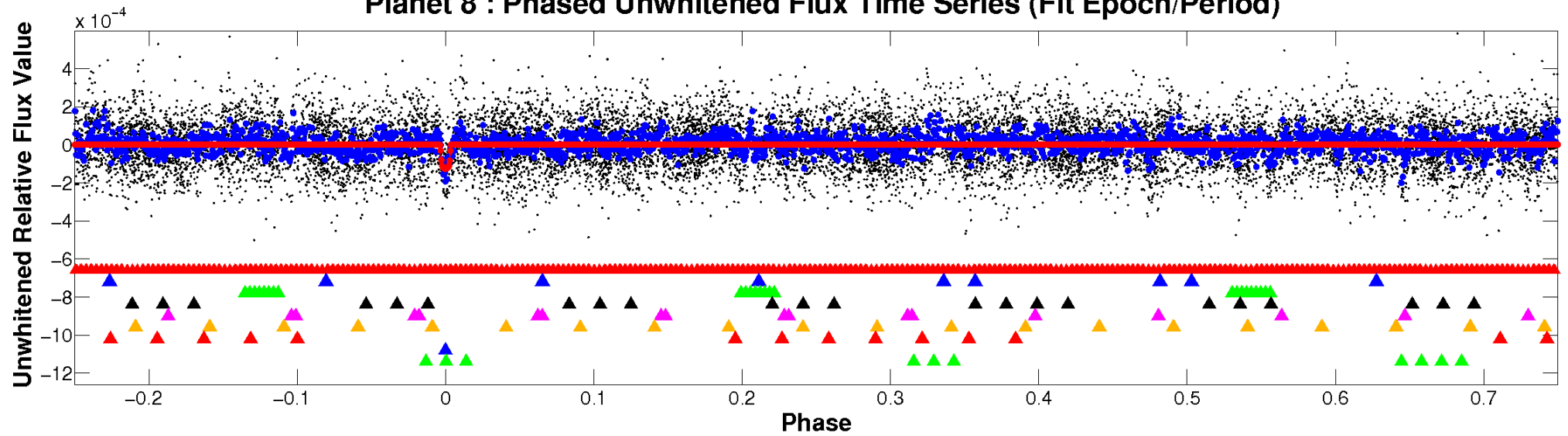
ALT Odd/Even

TCE 010154994-08

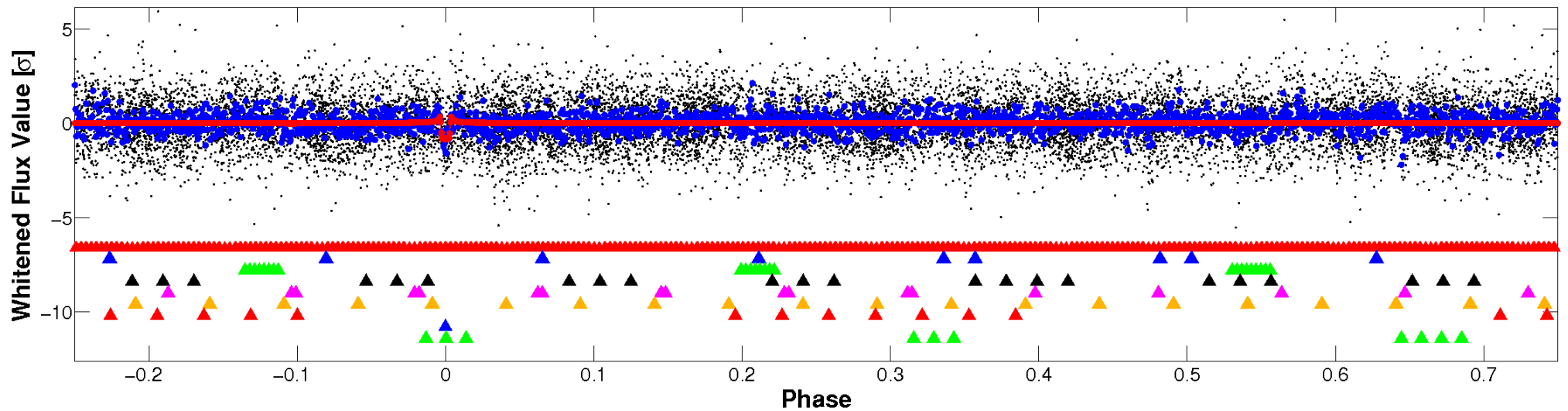


Non-Whitened Vs. Whitened Light Curve

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

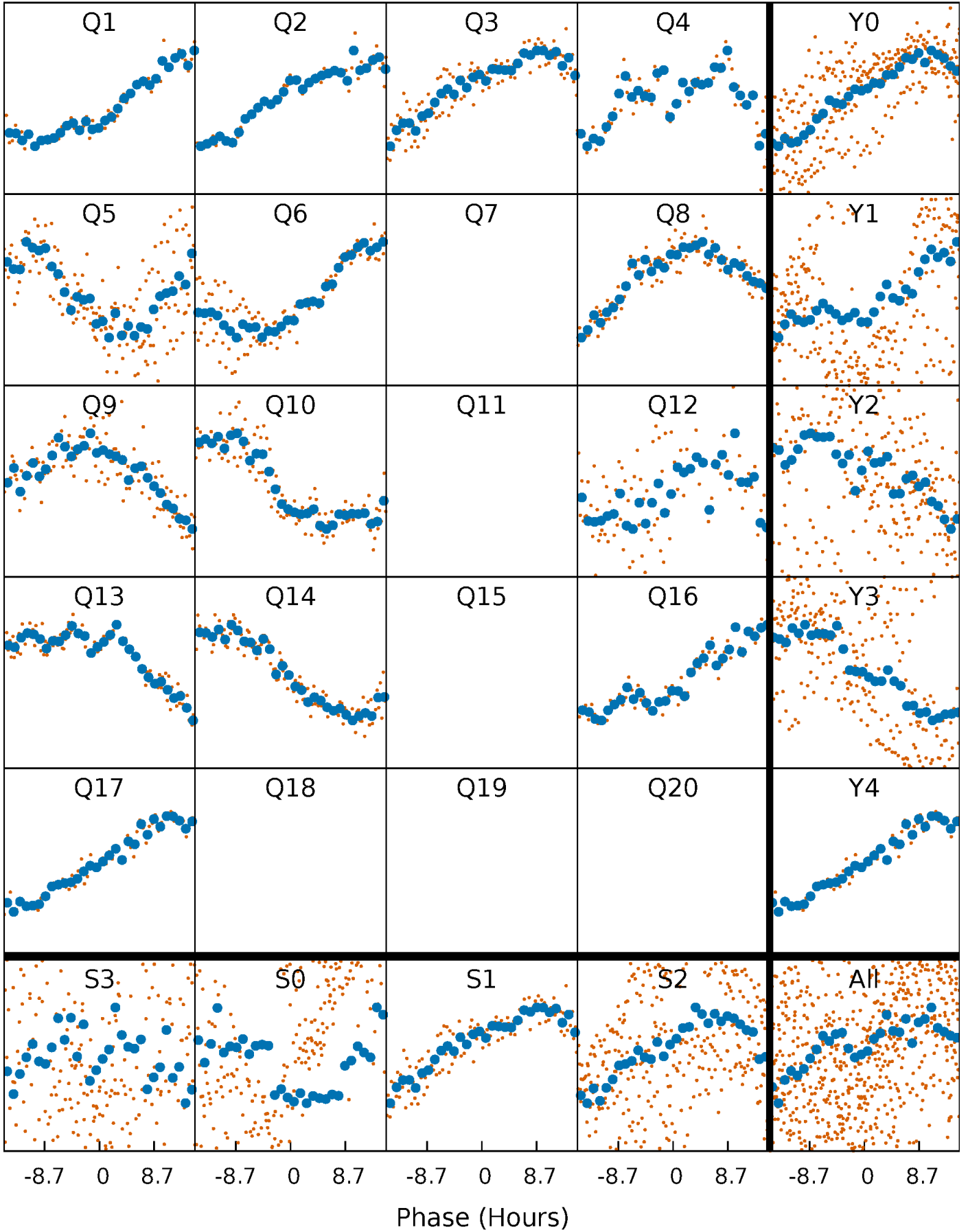


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



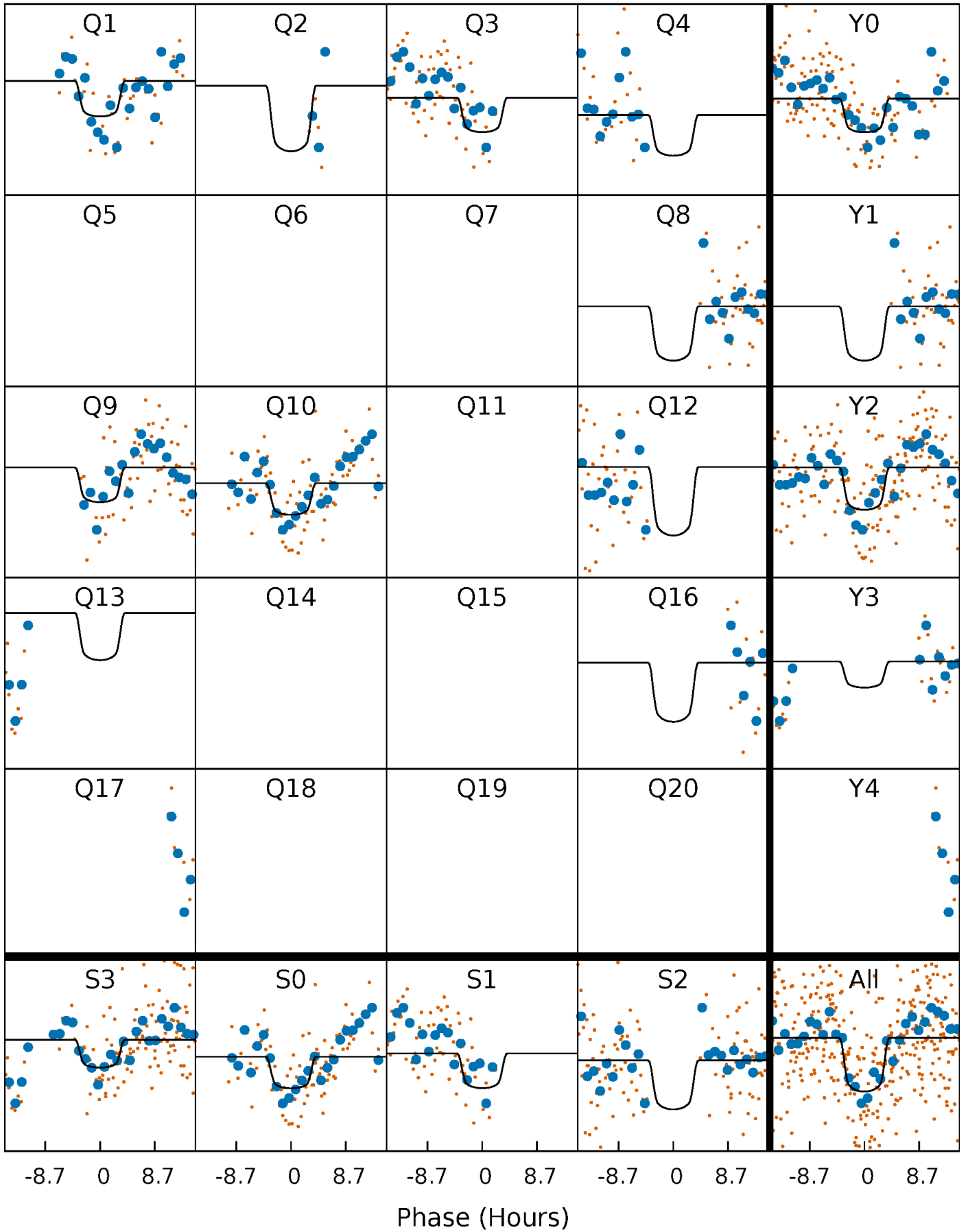
PDC Quarter-Phased Transit Curves

TCE 010154994-08 $P = 43.432292$ Days $T_0 = 139.668345$ (BKJD)



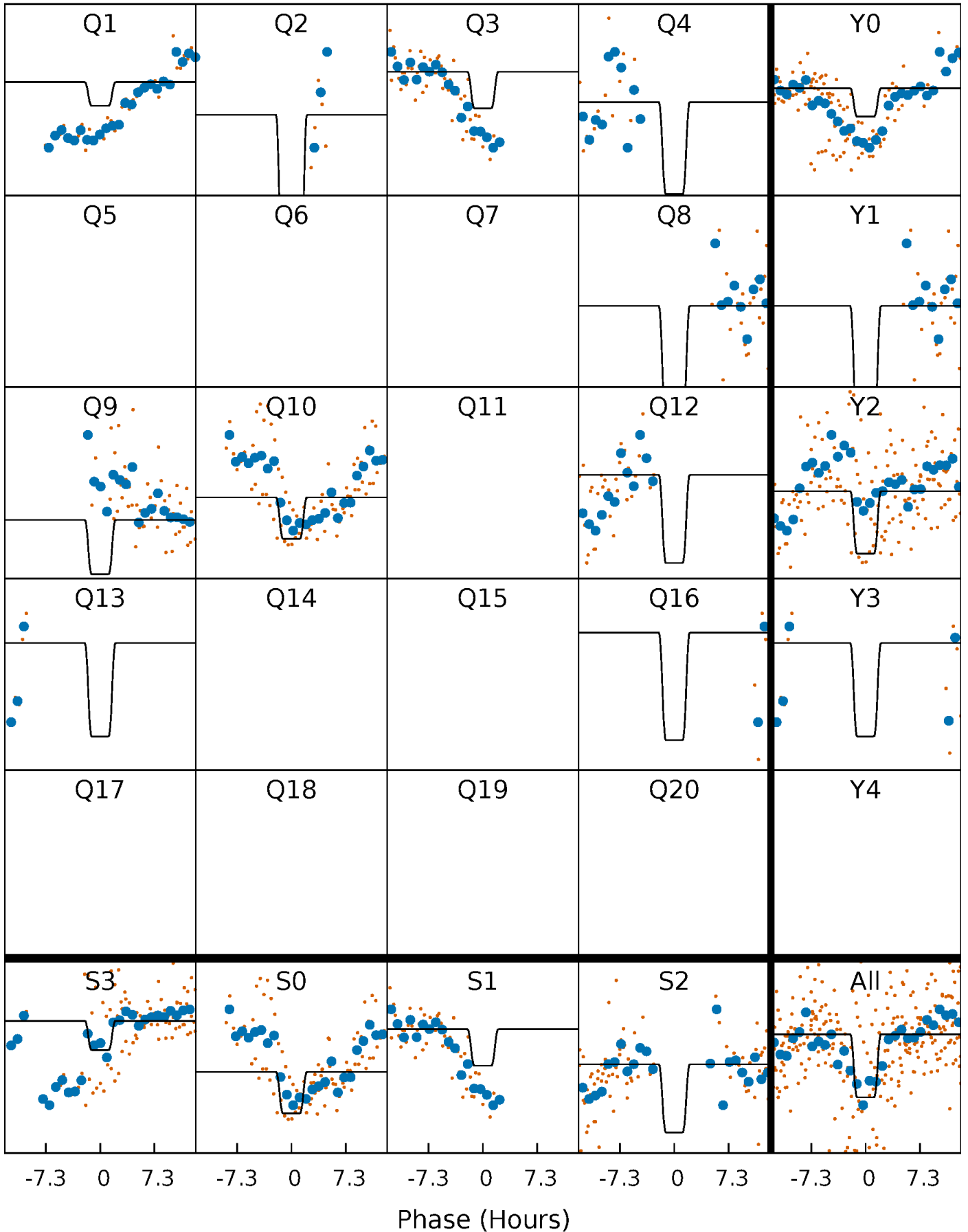
DV Quarter-Phased Transit Curves

TCE 010154994-08 $P = 43.432292$ Days $T_0 = 139.668345$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

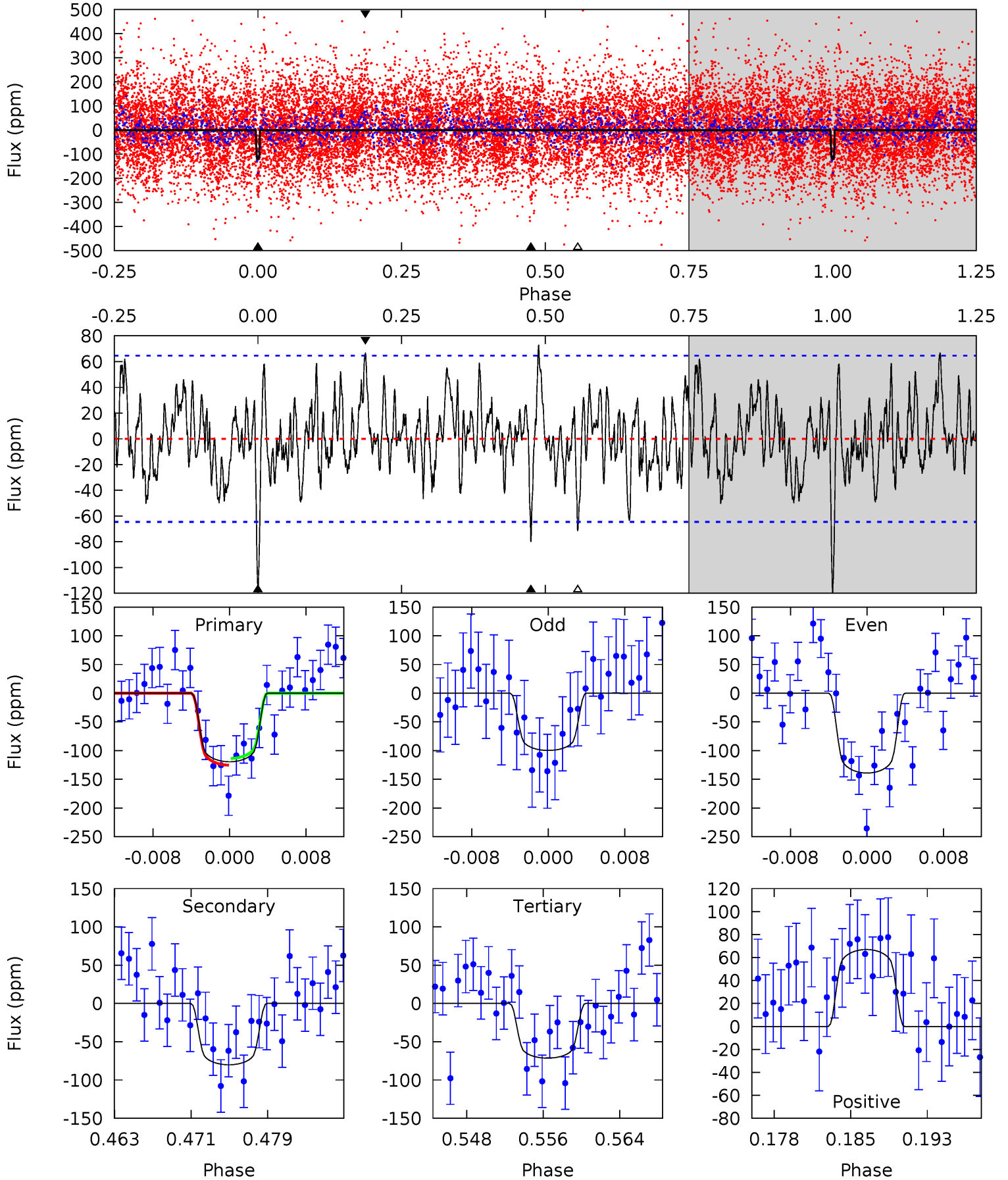
TCE 010154994-08 P= 43.428953 Days $T_0=139.684849$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-08, P = 43.432292 Days, E = 96.236053 Days

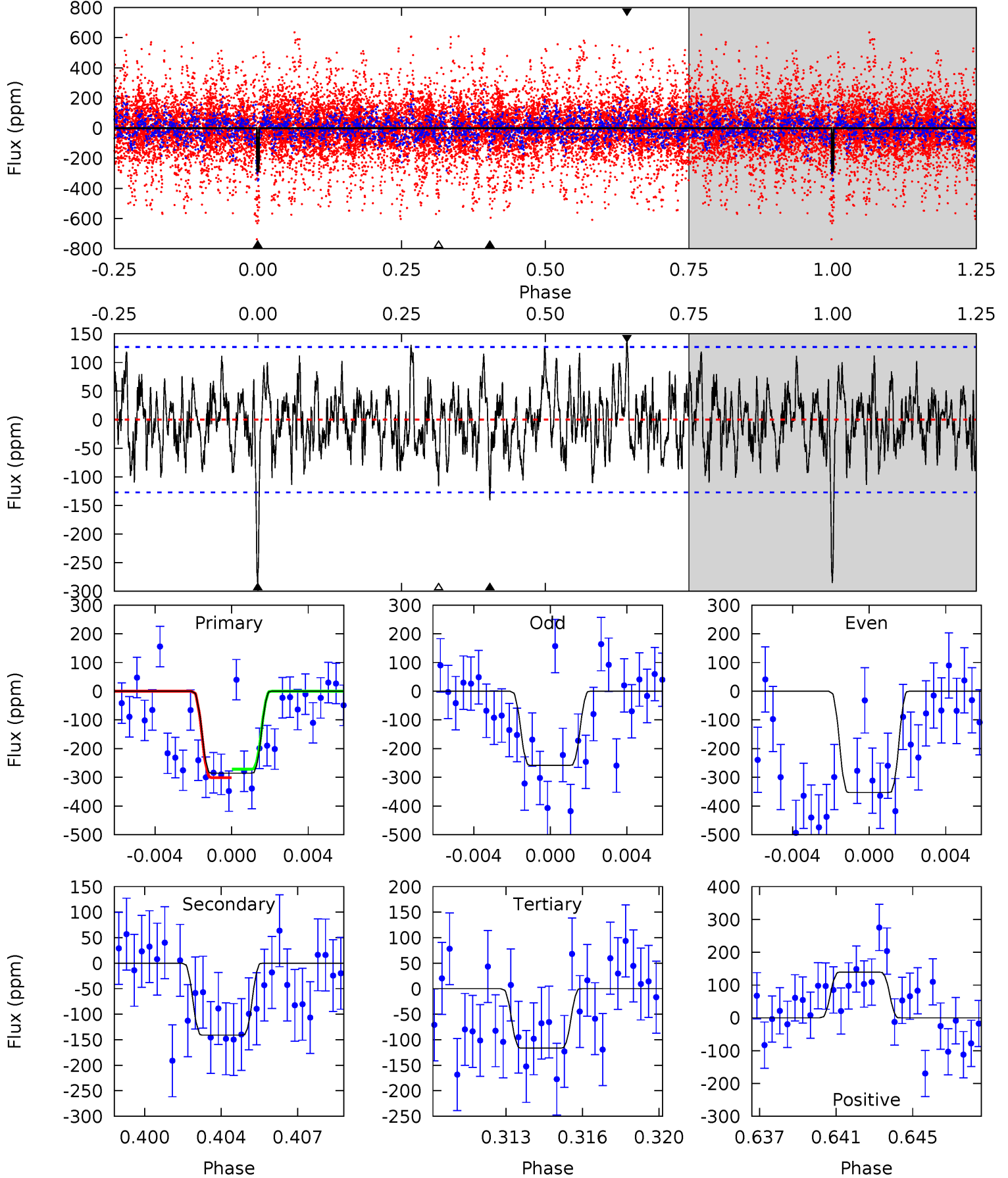
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.39	6.30	5.61	5.26	5.08	2.66	1.84	3.78	4.13	0.68	1.03	1.55	0.96	0.38	0.46



Alt Model-Shift Uniqueness Test

010154994-08, P = 43.428953 Days, E = 96.255896 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	5.77	4.76	5.70	5.20	2.88	1.78	6.93	5.99	1.01	0.07	1.88	0.60	0.33	0.60



Stellar Parameters For KIC 010154994

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-80 ± 13	$3.44^{+0.70}_{-0.73}$	1225^{+77}_{-105}	5617^{+486}_{-382}	301^{+193}_{-95}
Alt.	-141 ± 24	$4.36^{+0.74}_{-0.78}$	1233^{+81}_{-109}	5831^{+451}_{-396}	346^{+178}_{-108}

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 $A_{obs} \gg 1.0$

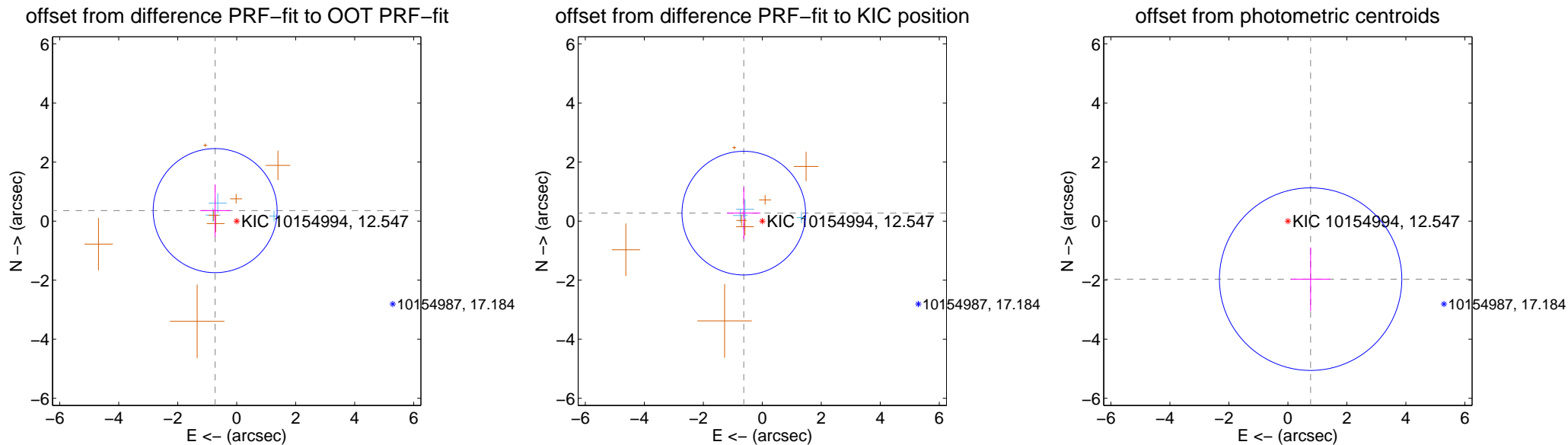
DV Centroid Data

Supplemental centroid analysis for 010154994-08. Kepler magnitude: 12.55. Transit SNR 6.88

There are 3 quarters with good PRF difference image offsets

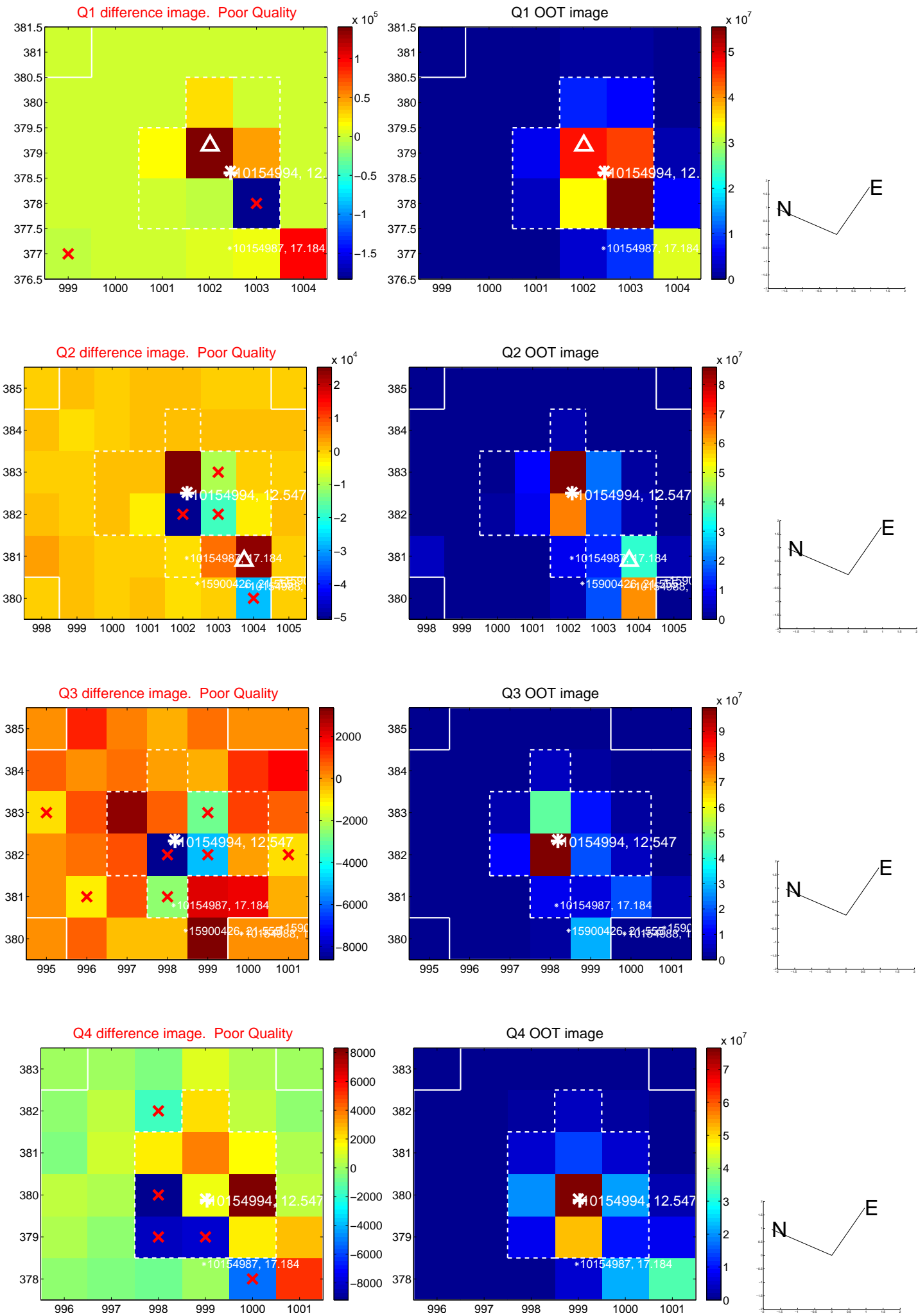
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.812 ± 0.700	1.16	0.730 ± 0.514	0.355 ± 0.886
PRF-fit source offset from KIC position	0.683 ± 0.698	0.98	0.627 ± 0.565	0.270 ± 0.875
photometric centroid source offset	2.11 ± 1.03	2.05	-0.77 ± 0.67	-1.97 ± 1.08

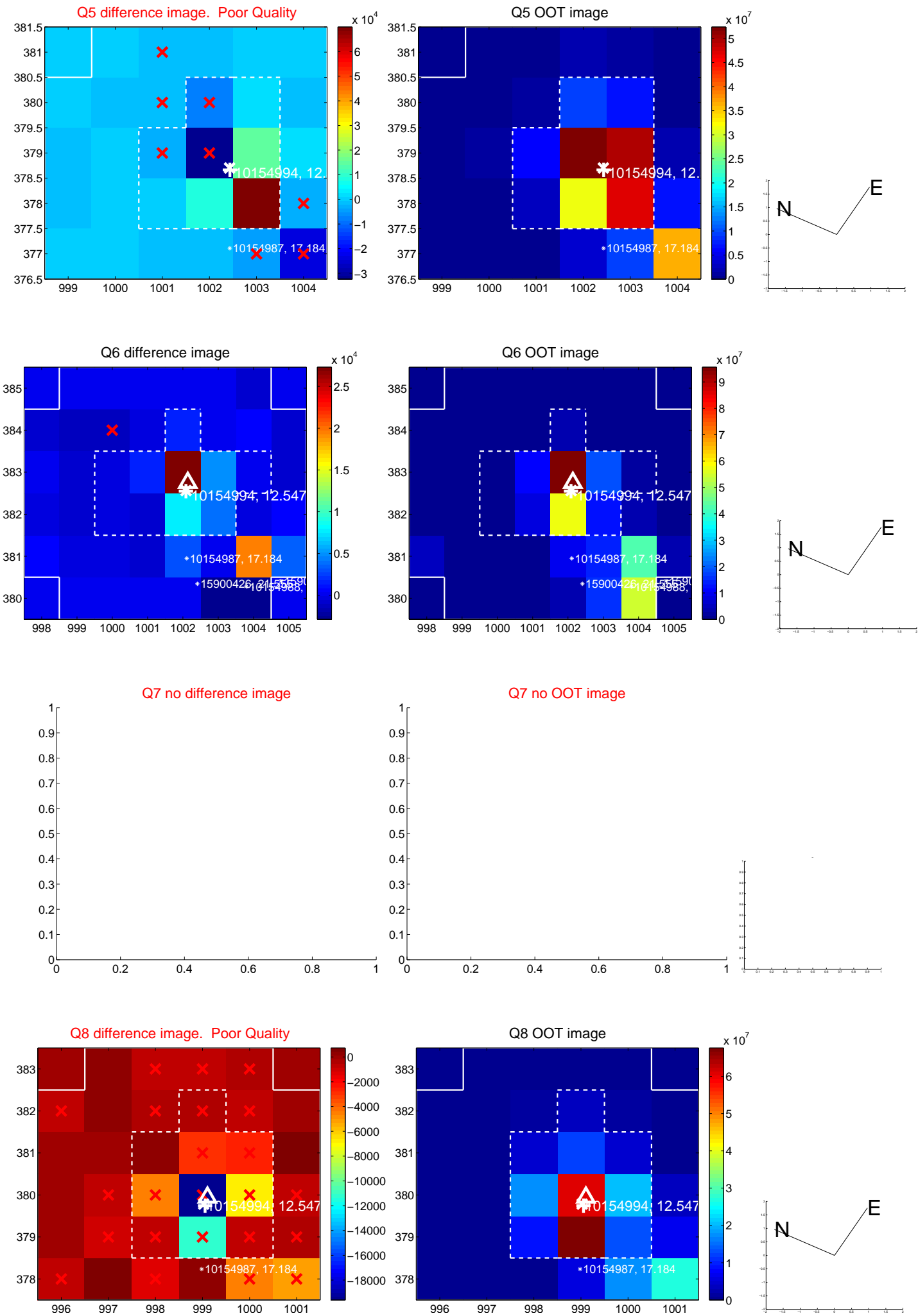


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

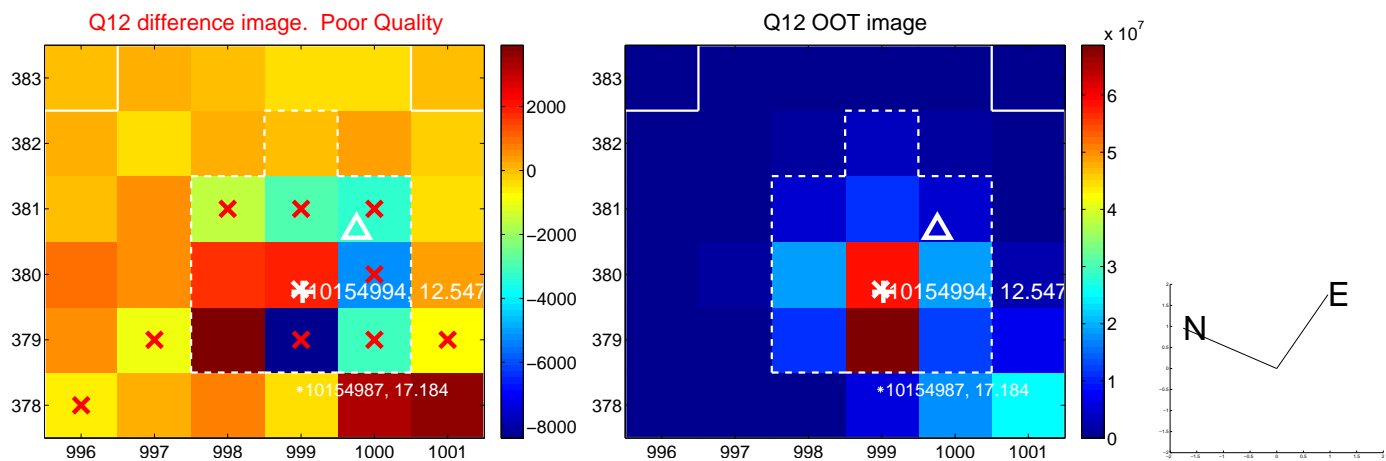
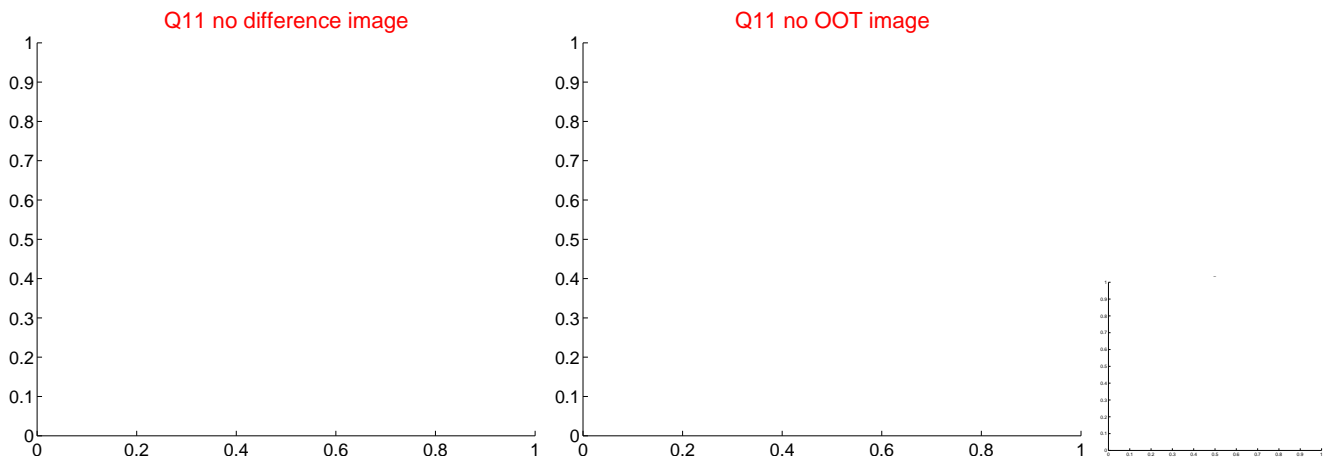
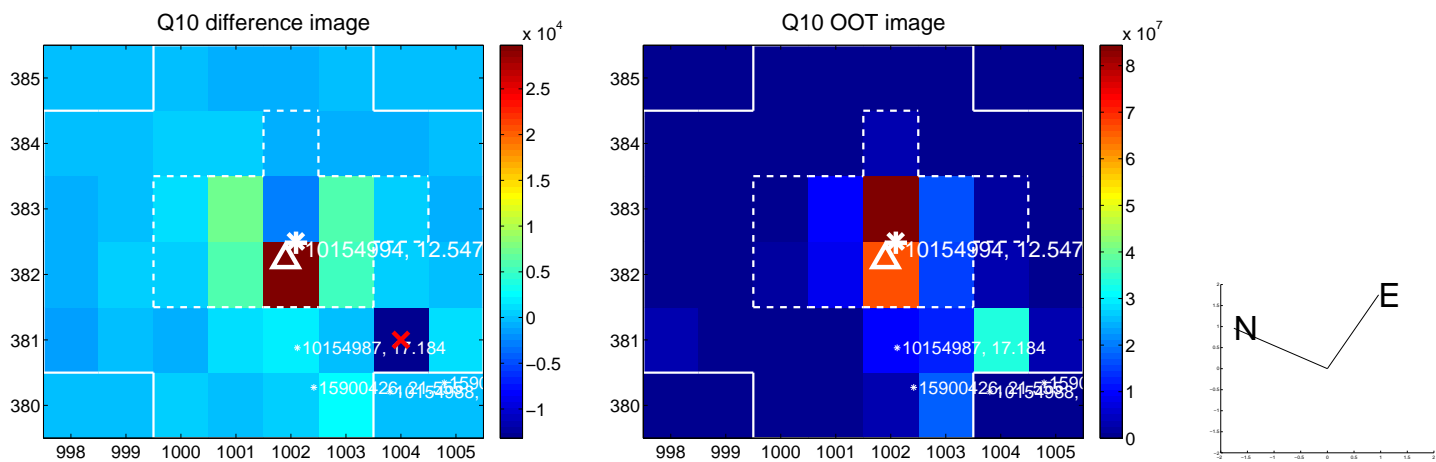
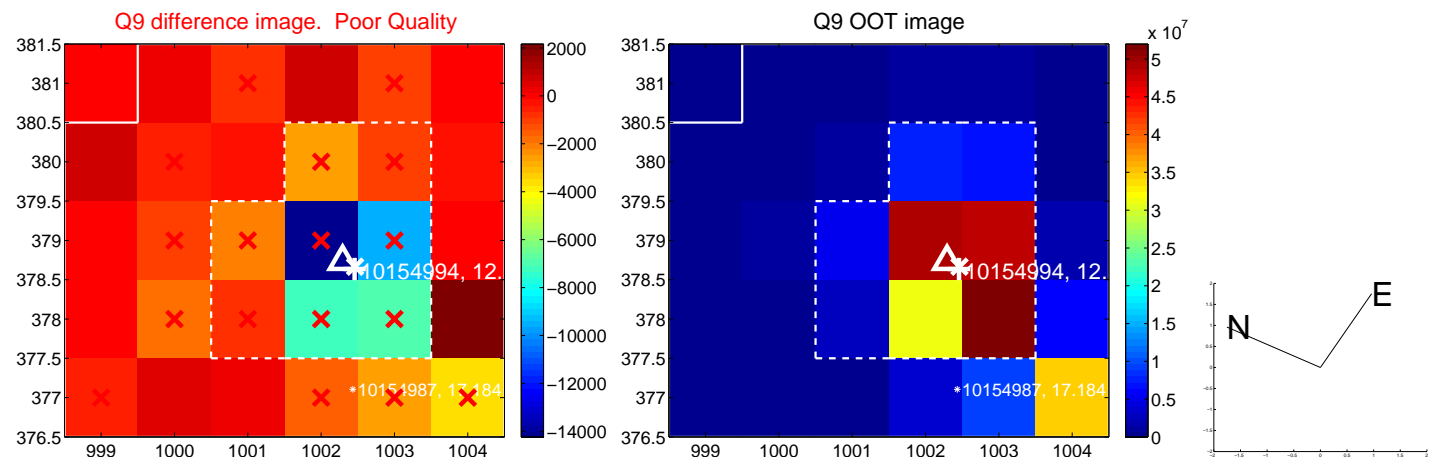
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



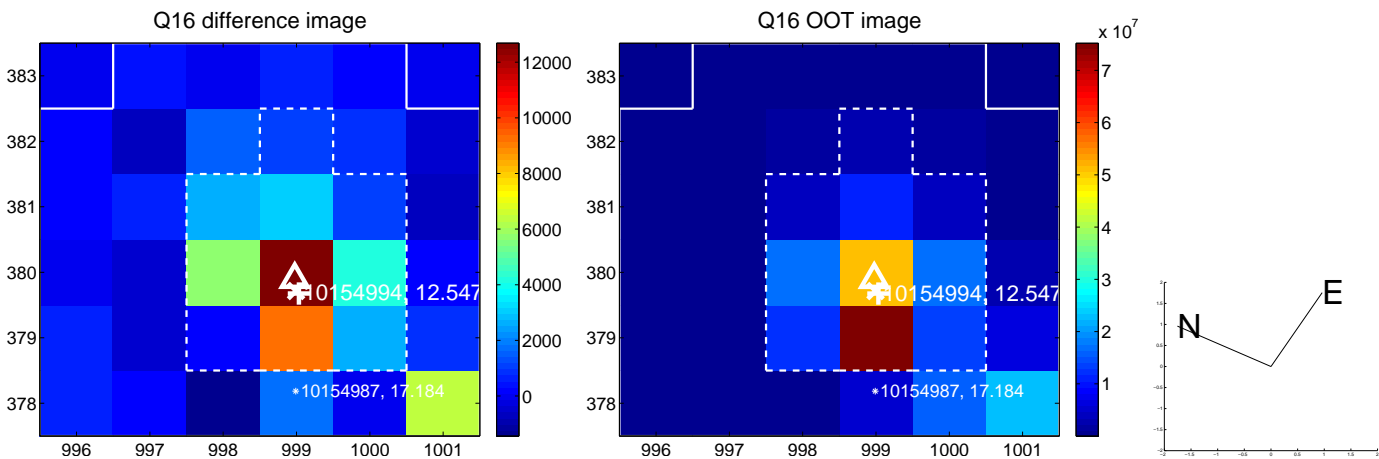
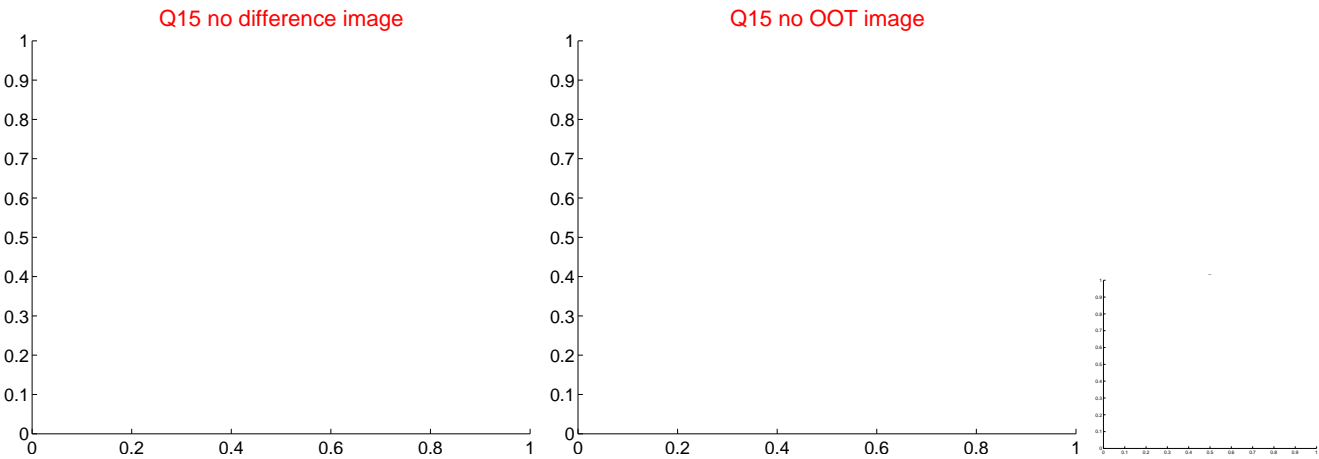
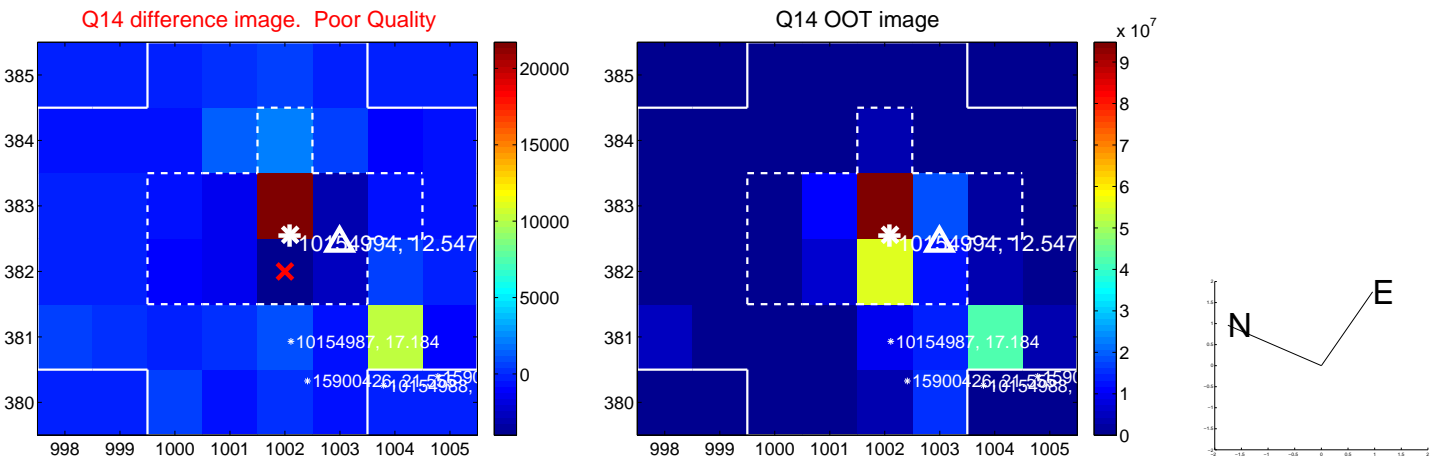
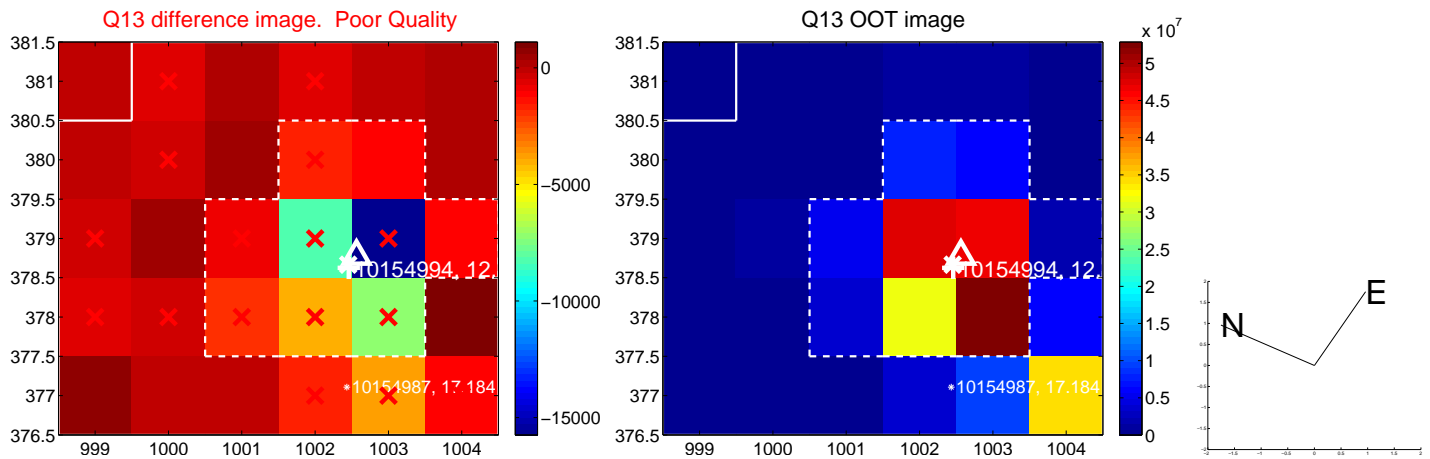
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



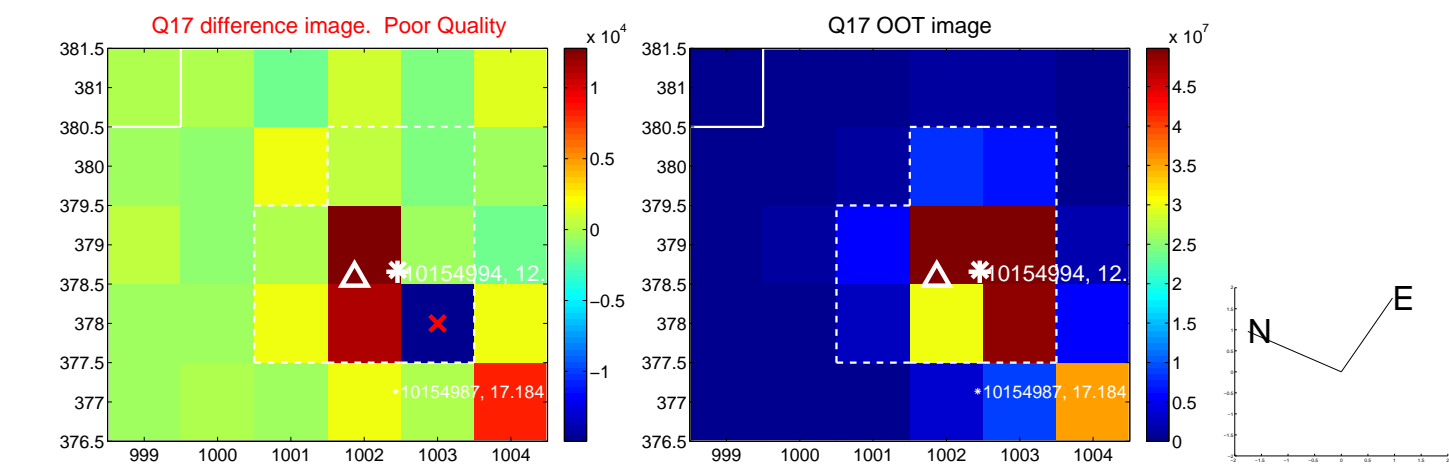
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



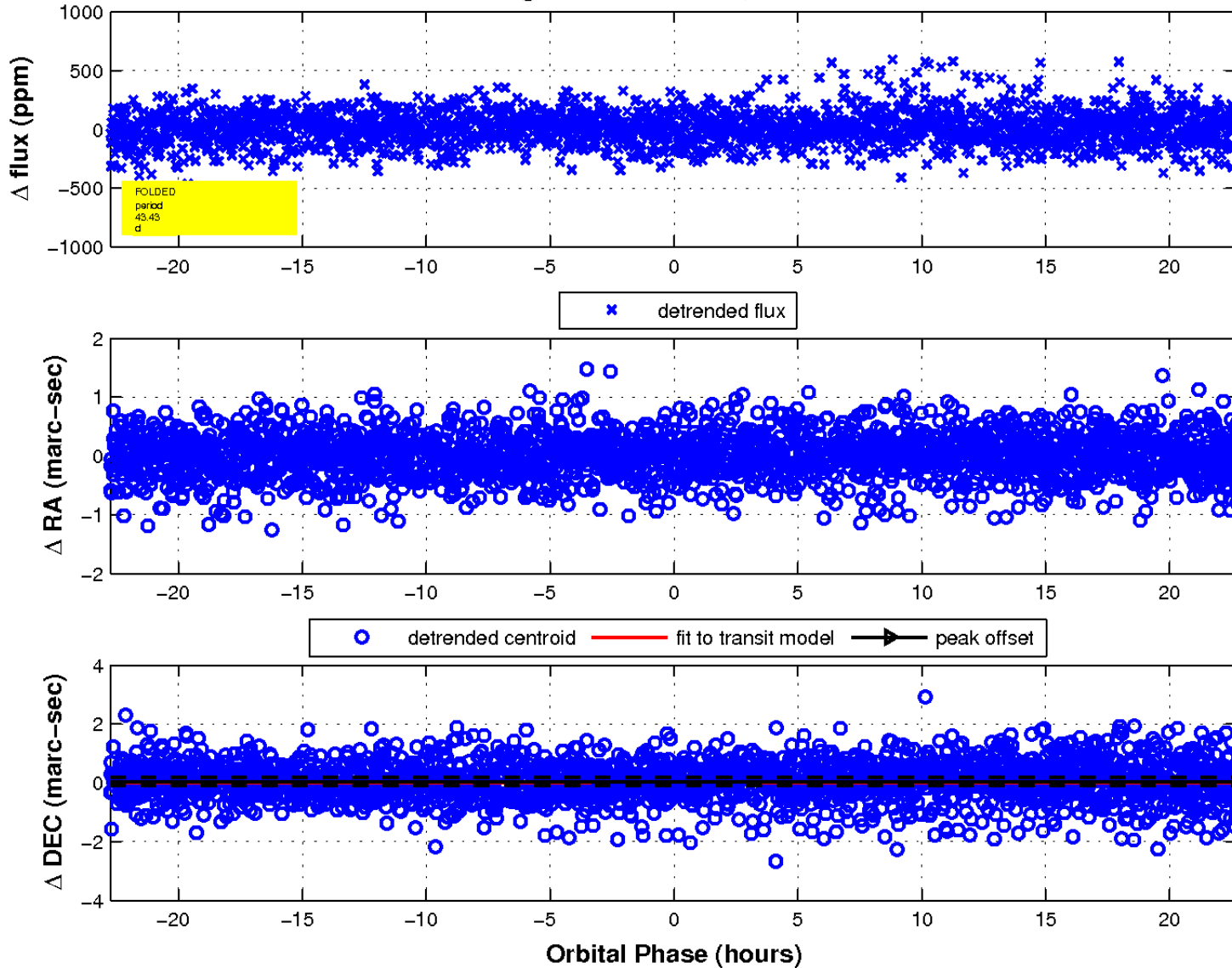
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

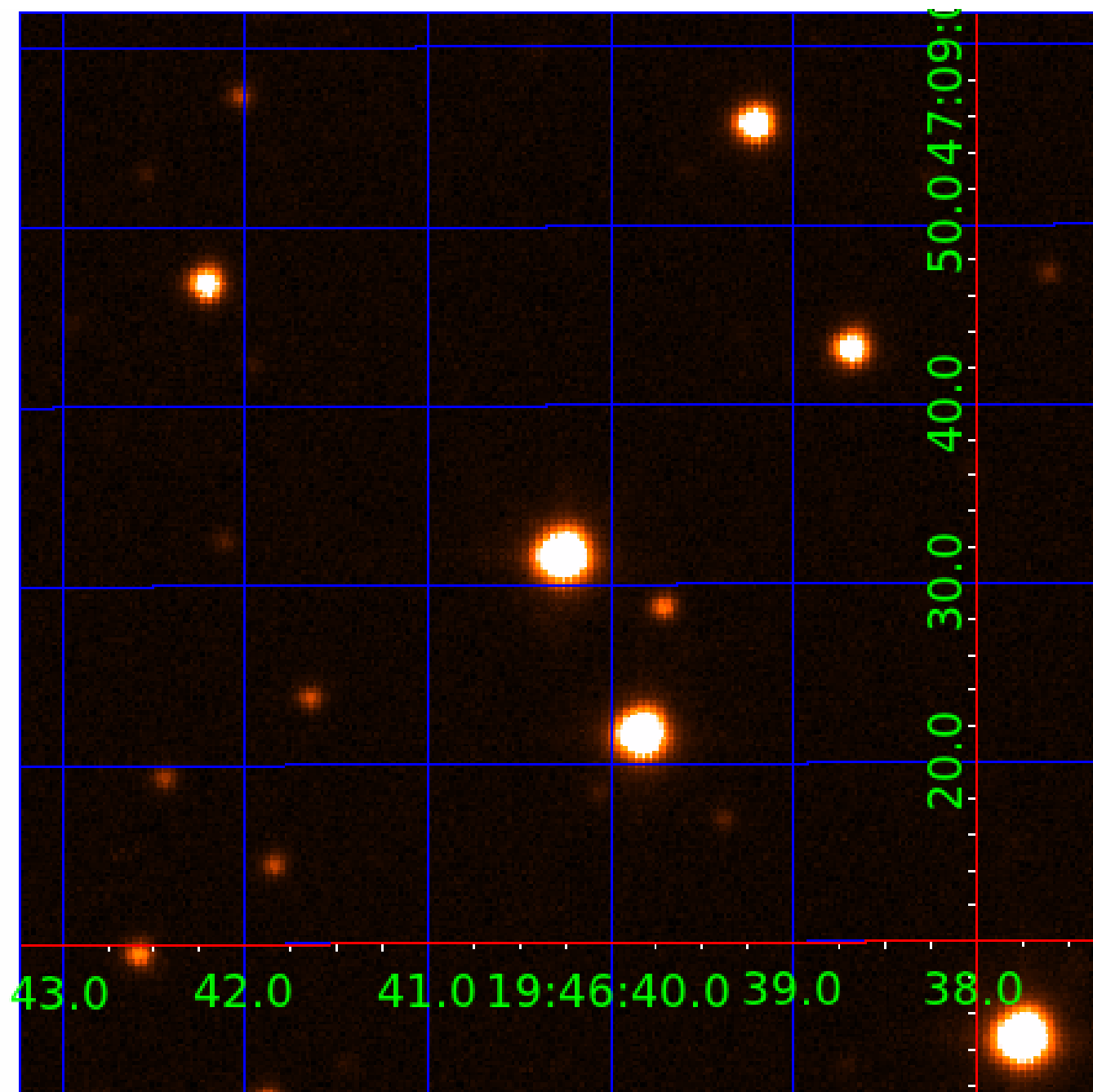


fluxWeightedCentroids, Planet 8 of 9



UKIRT Image

Declination



KIC 010154994

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})
010154994-01	OBS	No	2.705223	133.026738	19.6	14.611	9.5	6.7	2.58	6795	1.15	6098.64
010154994-02	OBS	No	167.392925	161.515519	142.0	24.103	8.8	7.4	2.58	6795	3.27	24.92
010154994-03	OBS	No	57.956093	162.706850	127.8	4.766	8.7	7.5	2.58	6795	3.39	102.50
010154994-04	OBS	No	68.121528	157.896587	193.8	9.820	8.2	7.1	2.58	6795	4.43	82.63
010154994-05	OBS	No	83.256028	153.199512	151.9	9.264	8.3	8.9	2.58	6795	3.58	63.23
010154994-06	OBS	No	45.605135	158.802322	62.0	12.877	8.2	4.8	2.58	6795	2.32	141.09
010154994-07	OBS	No	109.264800	148.155122	162.5	6.117	7.8	6.5	2.58	6795	3.74	44.01
010154994-08	OBS	No	43.432292	139.668345	125.7	7.591	7.7	6.9	2.58	6795	3.62	150.57
010154994-09	OBS	No	144.578454	212.855998	166.4	3.713	7.3	7.7	2.58	6795	3.76	30.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010154994-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
010154994-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
010154994-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010154994-05	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST
010154994-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
010154994-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
010154994-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST
010154994-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

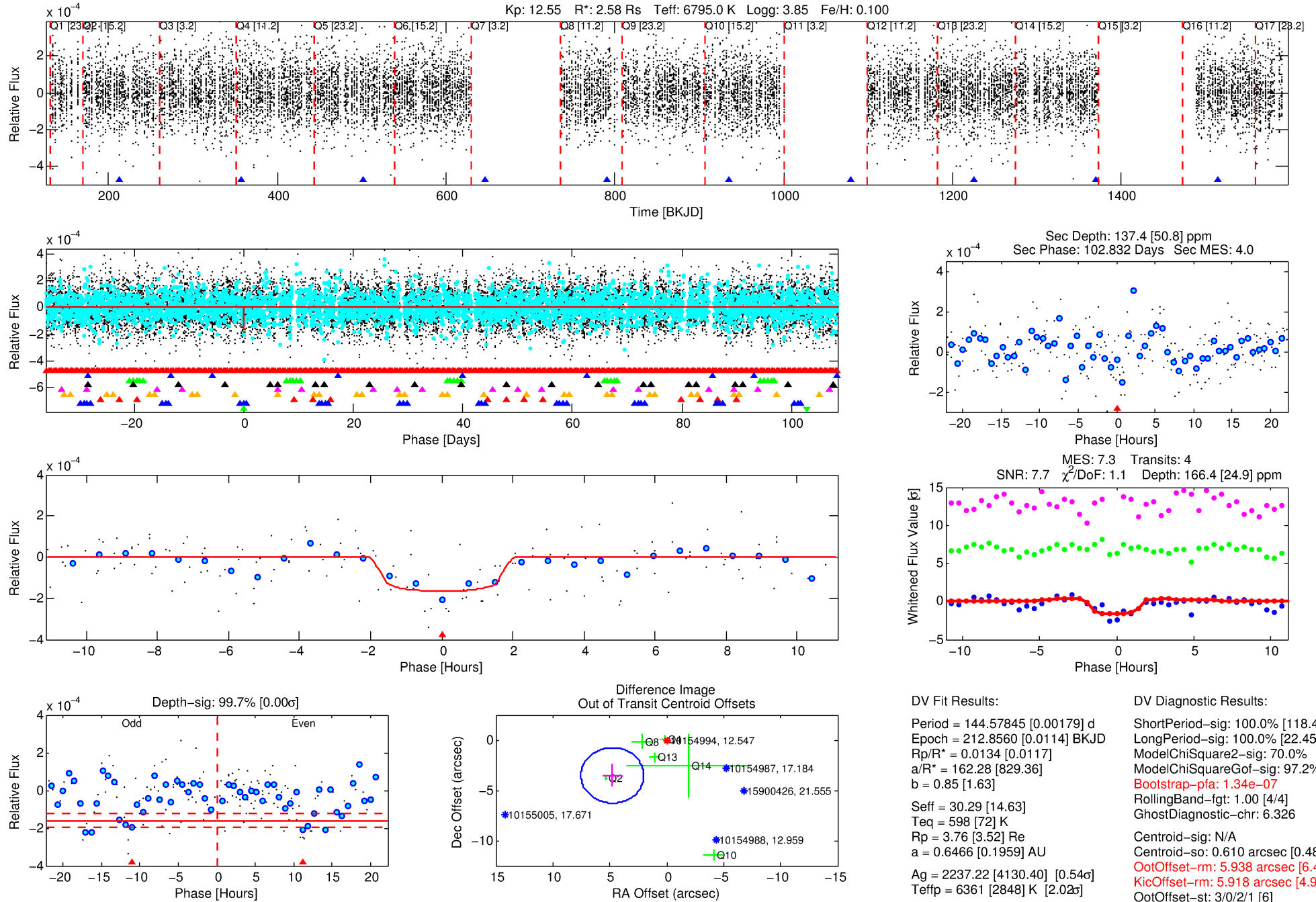
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010154994-09

No Significant Match Found

DV One-Page Summary

KIC: 10154994 Candidate: 9 of 9 Period: 144.578 d



DV Fit Results:

Period = 144.57845 [0.00179] d
Epoch = 212.8560 [0.0114] BKJD
Rp/R* = 0.0134 [0.0117]
a/R* = 162.28 [829.36]
b = 0.85 [1.63]
Seff = 30.29 [14.63]
Teq = 598 [72] K
Rp = 3.76 [3.52] Re
a = 0.6466 [0.1959] AU
Ag = 2237.22 [4130.40] [0.54 σ]
Teffp = 6361 [2848] K [2.02 σ]

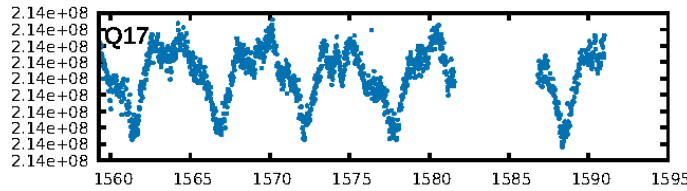
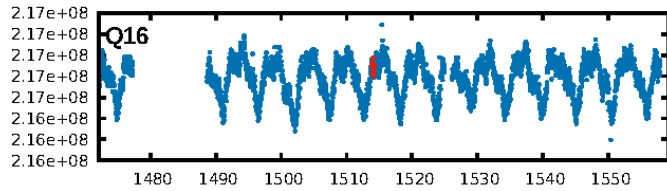
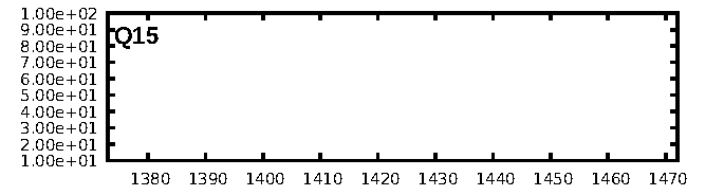
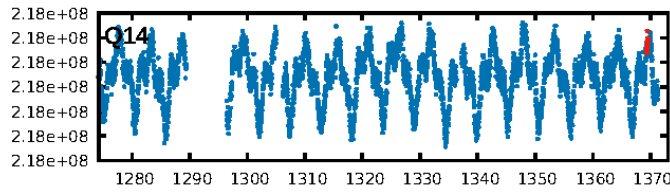
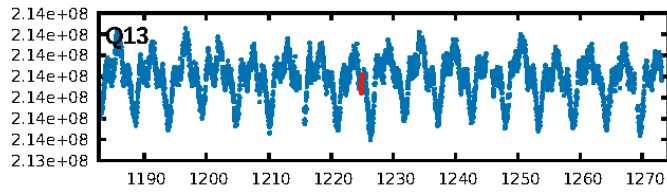
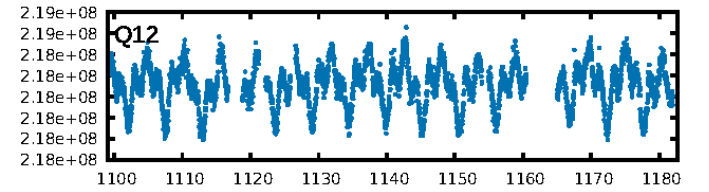
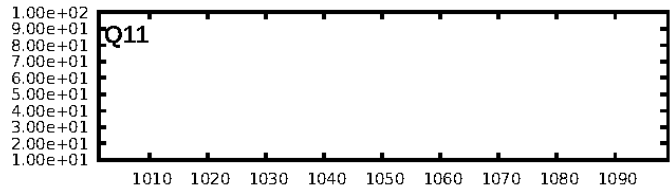
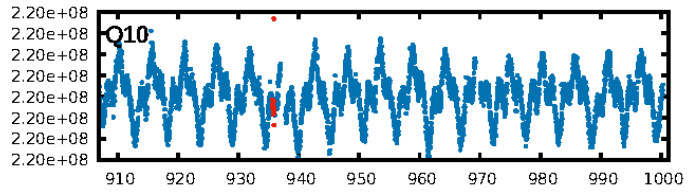
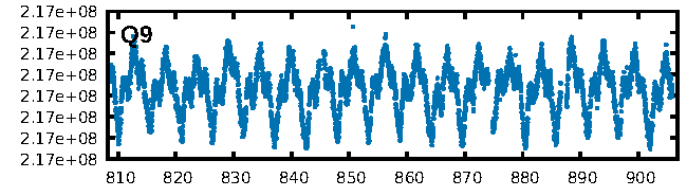
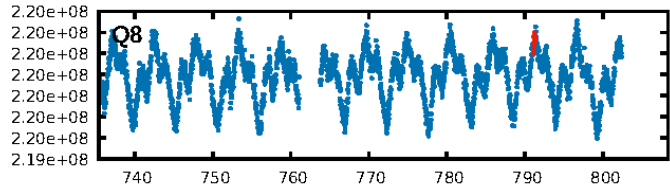
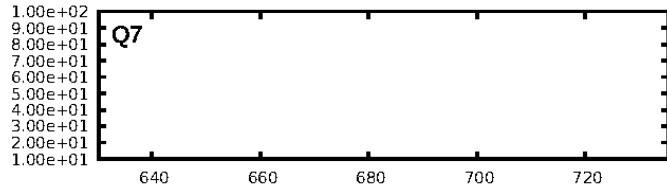
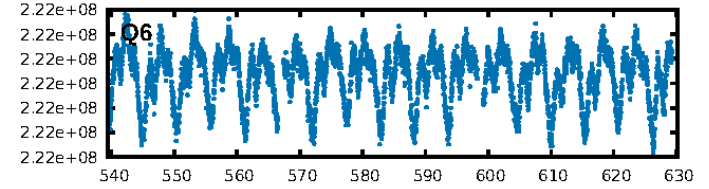
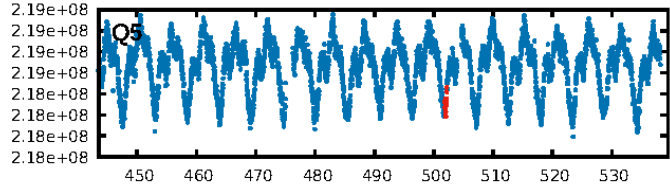
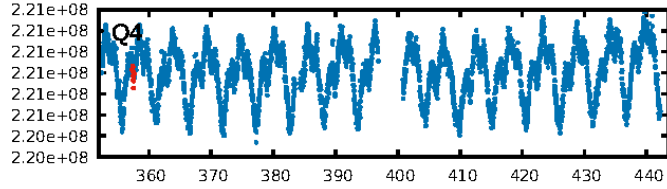
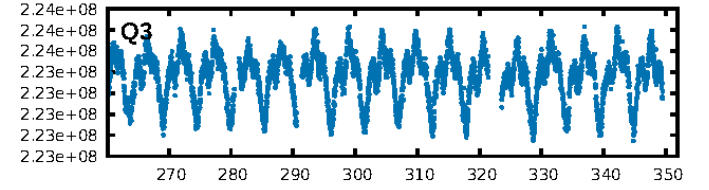
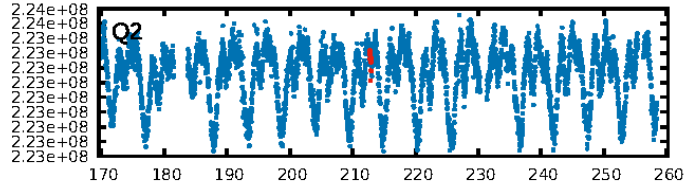
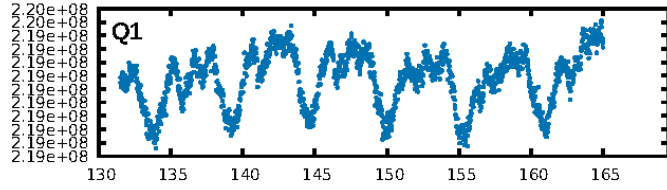
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [118.43 σ]
LongPeriod-sig: 100.0% [22.45 σ]
ModelChiSquare2-sig: 70.0%
ModelChiSquareGof-sig: 97.2%
Bootstrap-pfa: 1.34e-07
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 6.326
Centroid-sig: N/A
Centroid-so: 0.610 arcsec [0.48 σ]
OotOffset-rm: 5.938 arcsec [6.46 σ]
KicOffset-rm: 5.918 arcsec [4.98 σ]
OotOffset-st: 3/0/2/1 [6]
KicOffset-st: 3/0/2/1 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.62 [5/8]

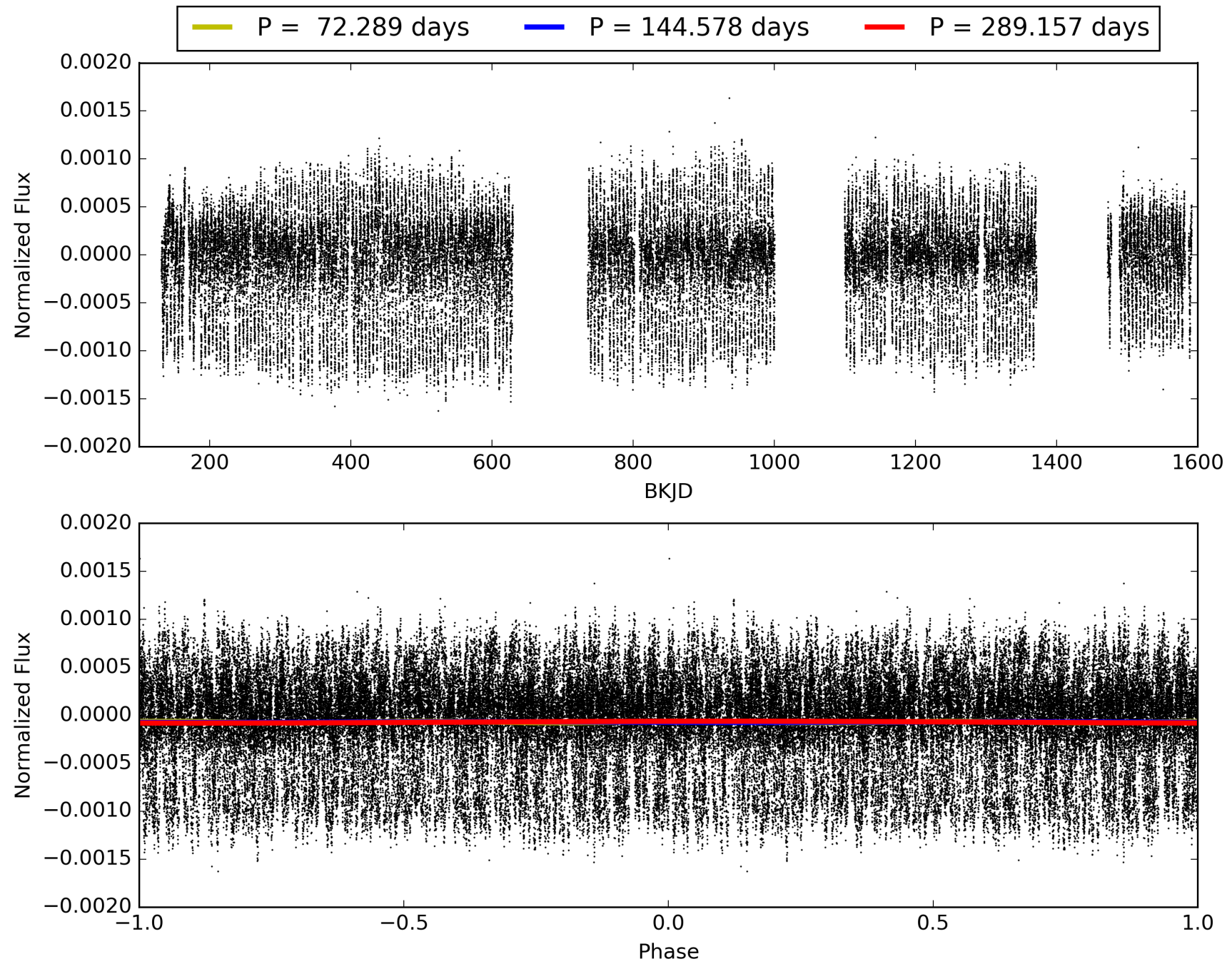
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:40:14 Z

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

TCE 010154994-09, PDC Light Curves

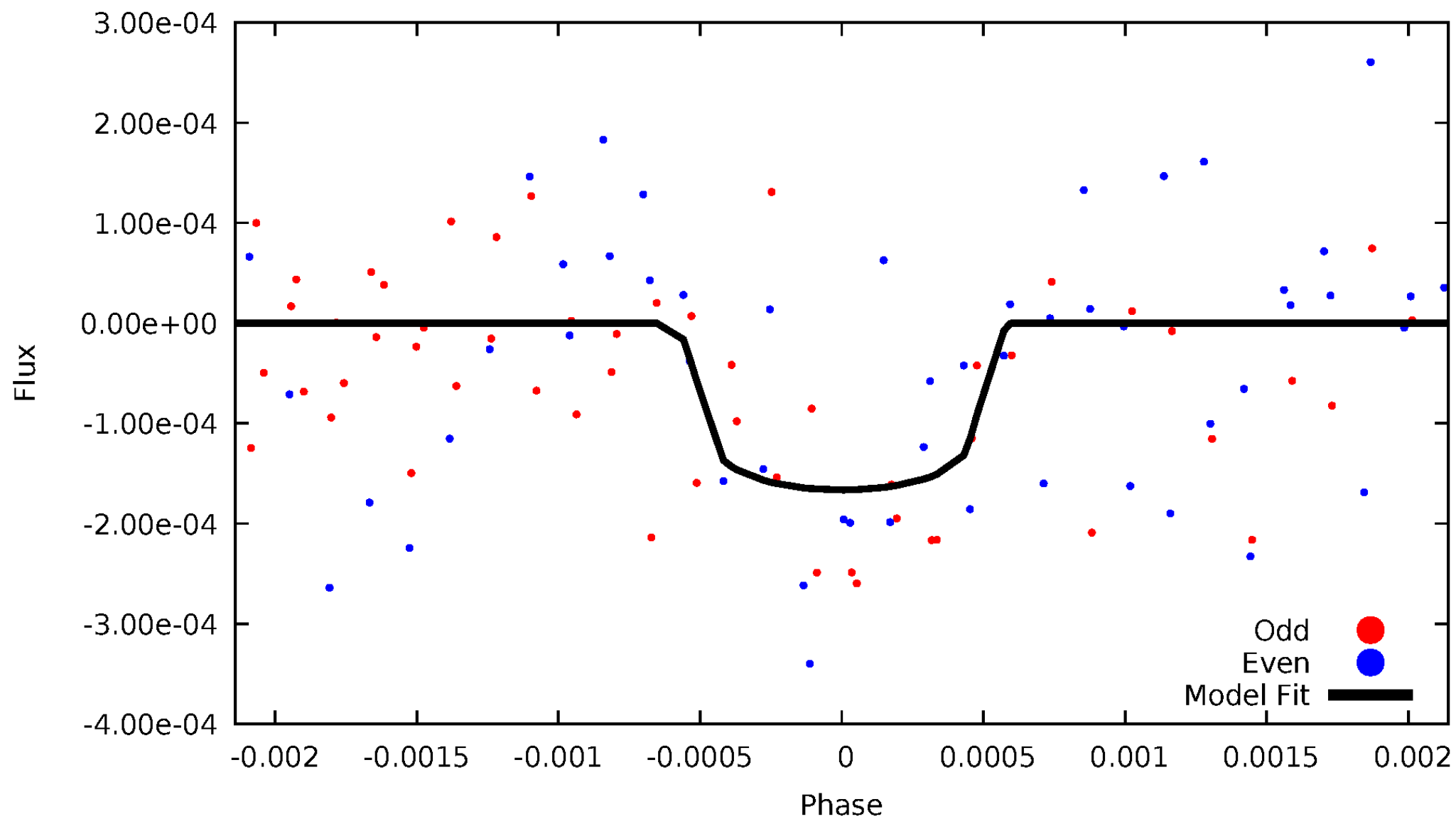


TCE 010154994-09



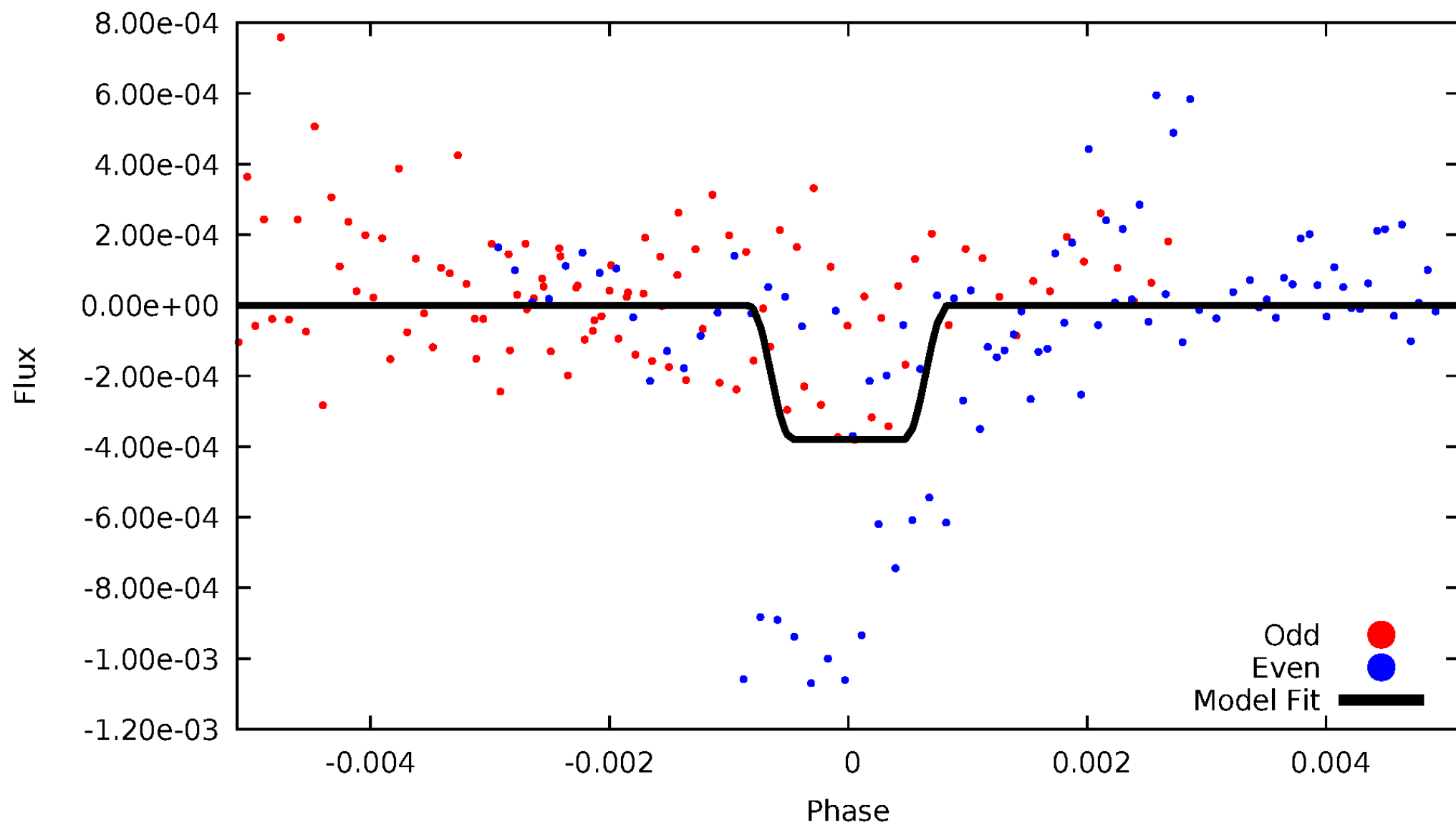
DV Odd/Even

TCE 010154994-09



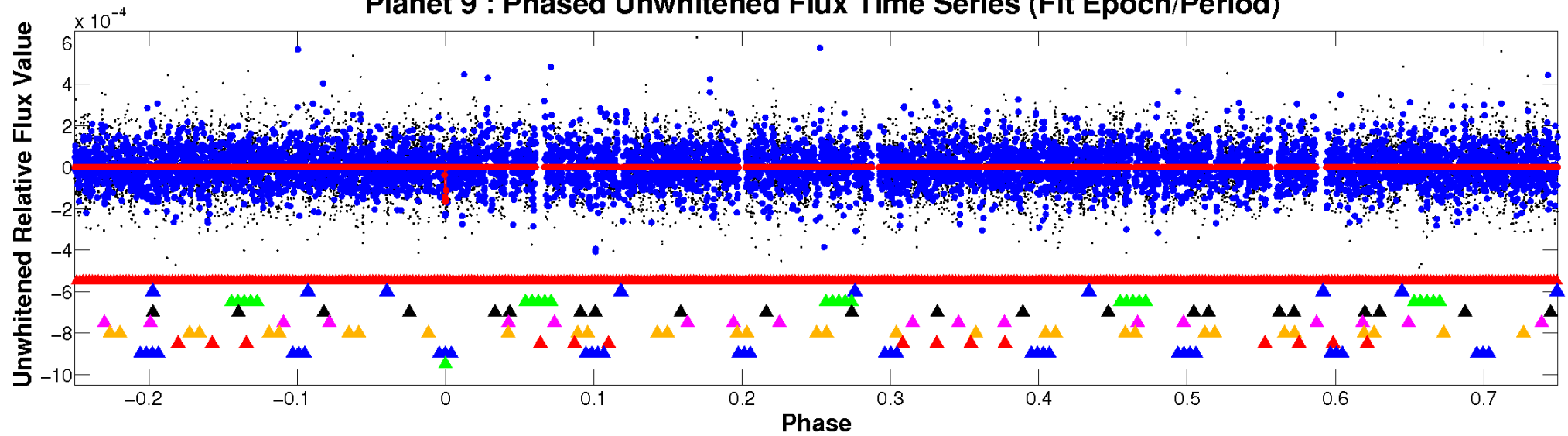
ALT Odd/Even

TCE 010154994-09

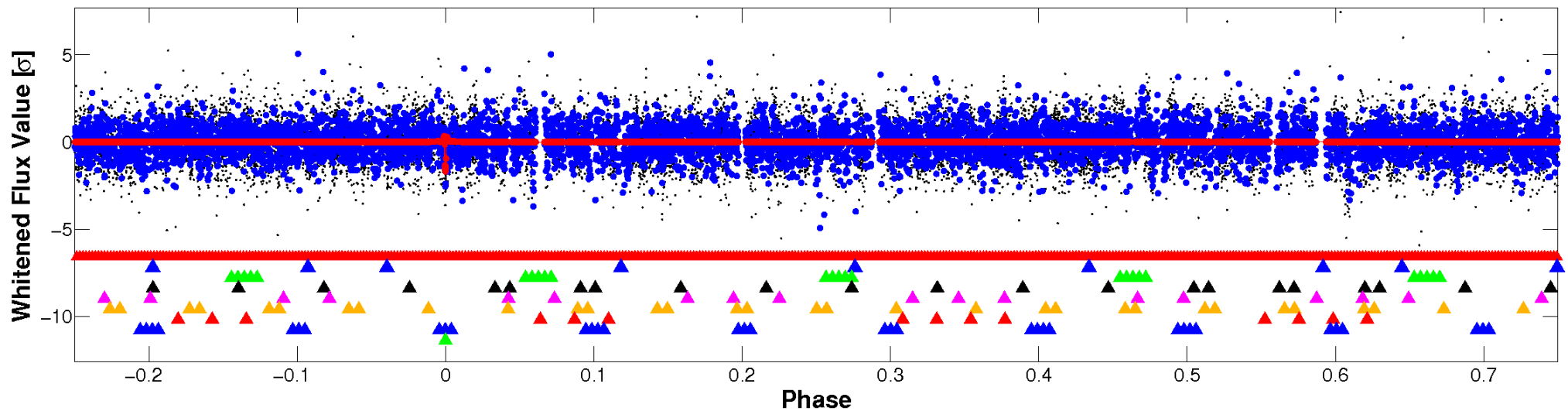


Non-Whitened Vs. Whitened Light Curve

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

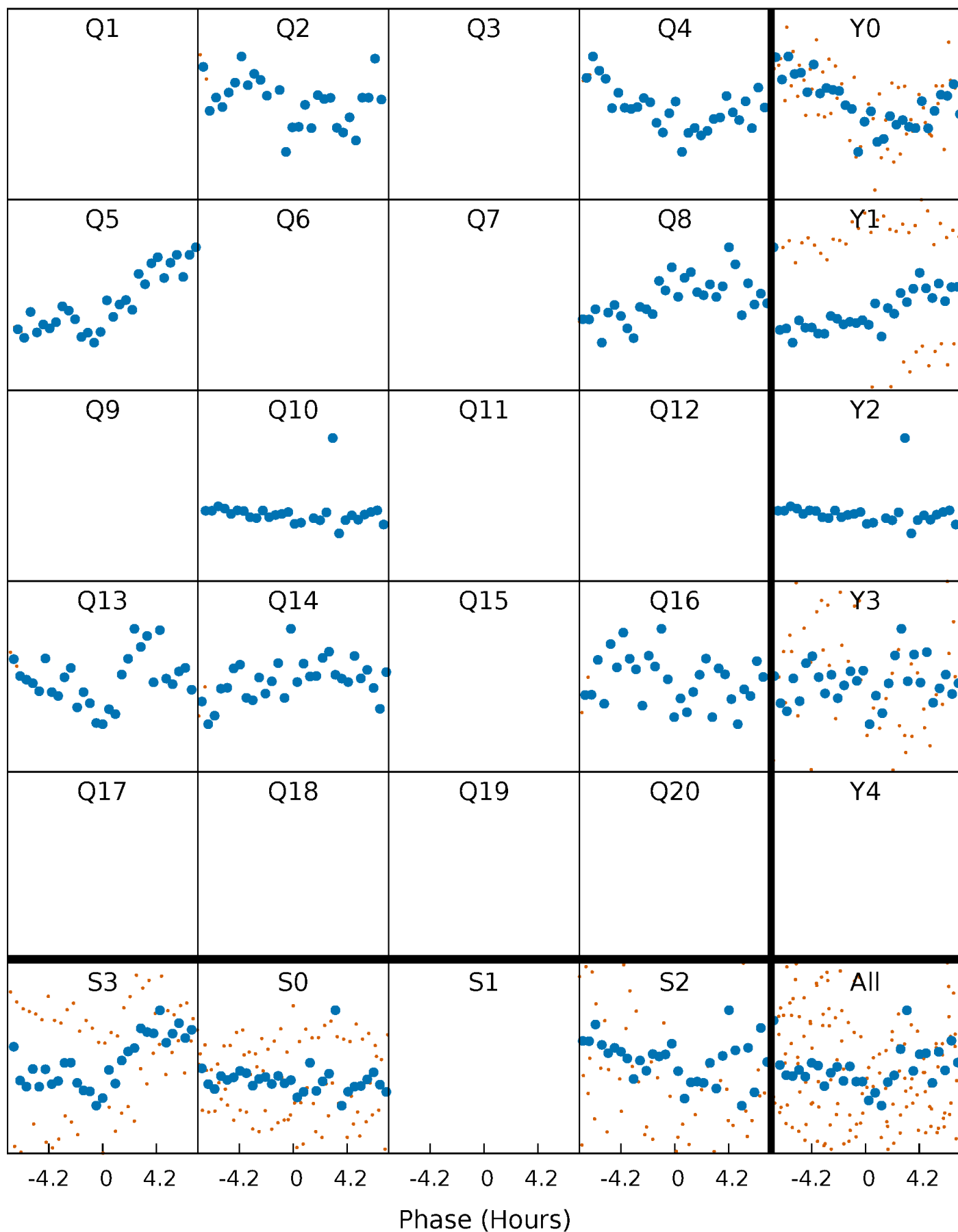


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



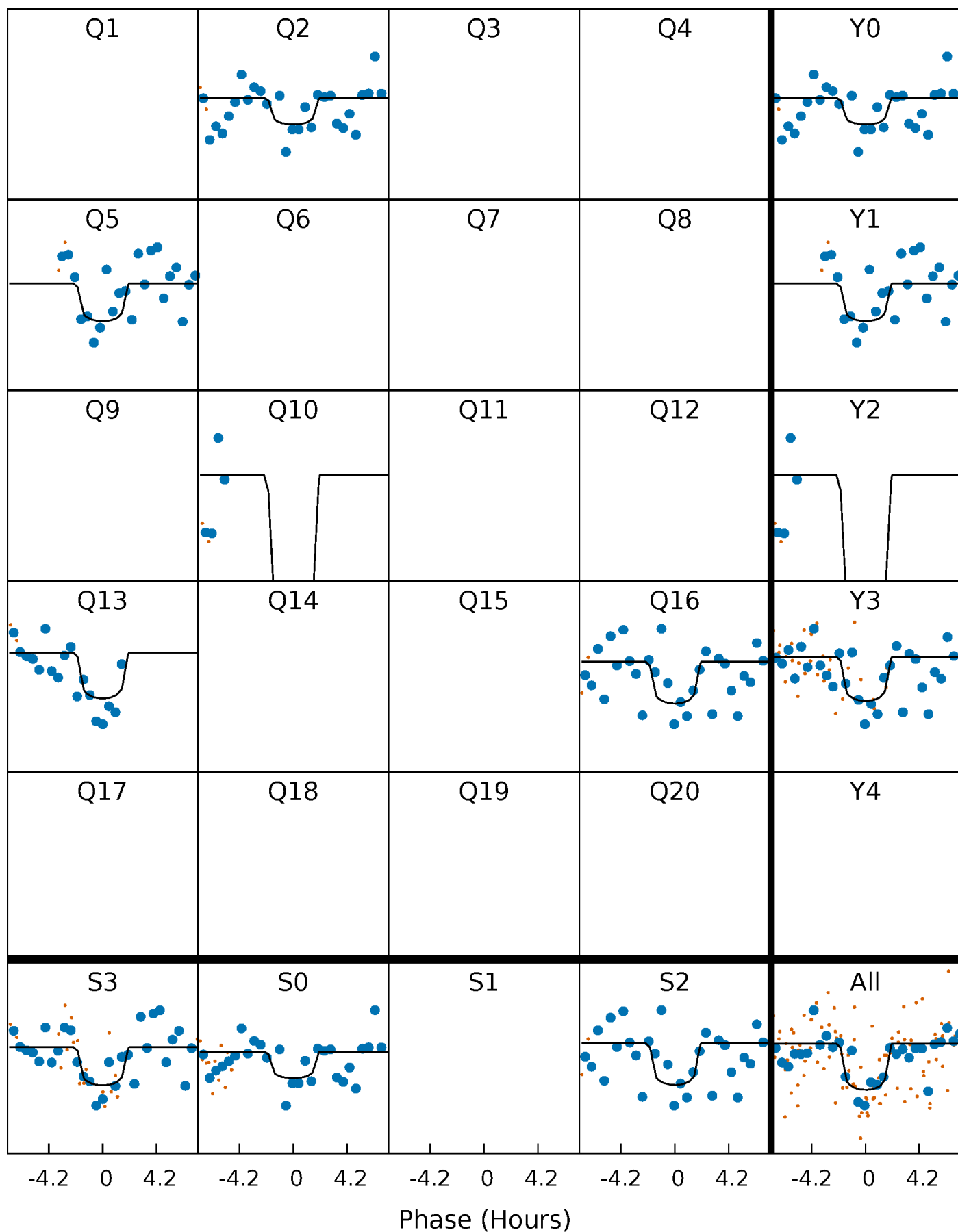
PDC Quarter-Phased Transit Curves

TCE 010154994-09 P=144.578454 Days $T_0=212.855998$ (BKJD)



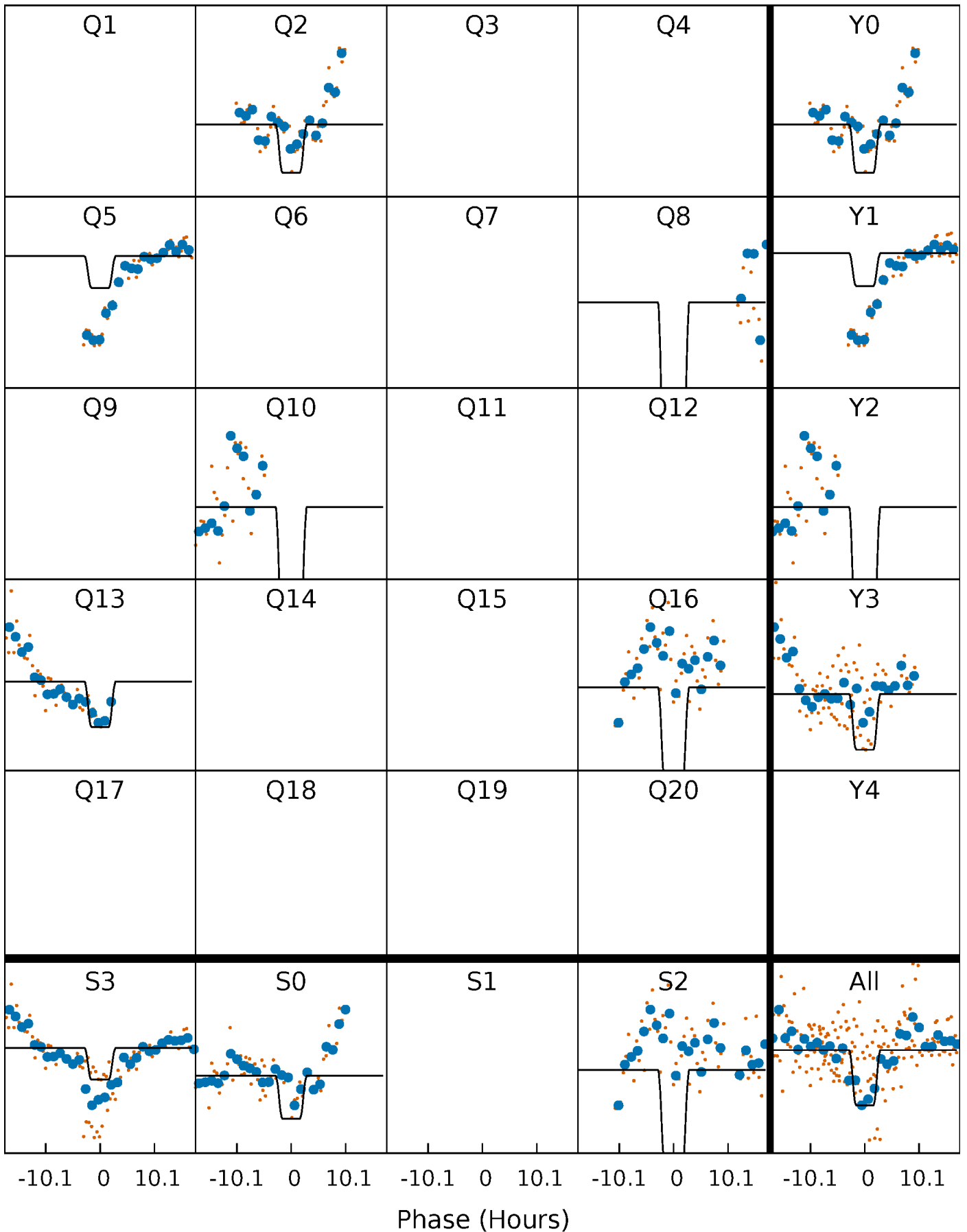
DV Quarter-Phased Transit Curves

TCE 010154994-09 P=144.578454 Days $T_0=212.855998$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

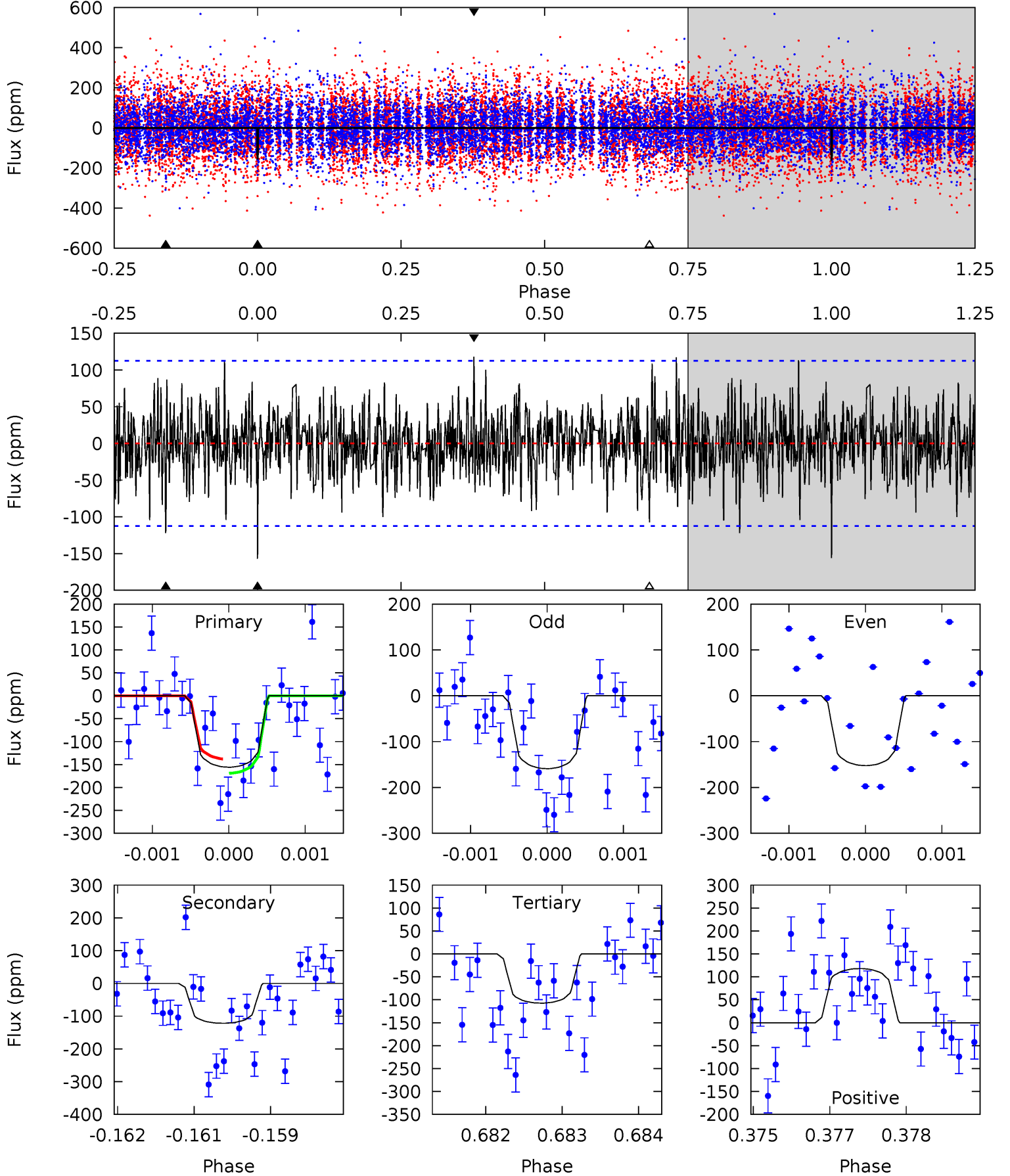
TCE 010154994-09 $P=144.581514$ Days $T_0=212.834557$ (BKJD)



DV Model-Shift Uniqueness Test

010154994-09, P = 144.578454 Days, E = 68.277544 Days

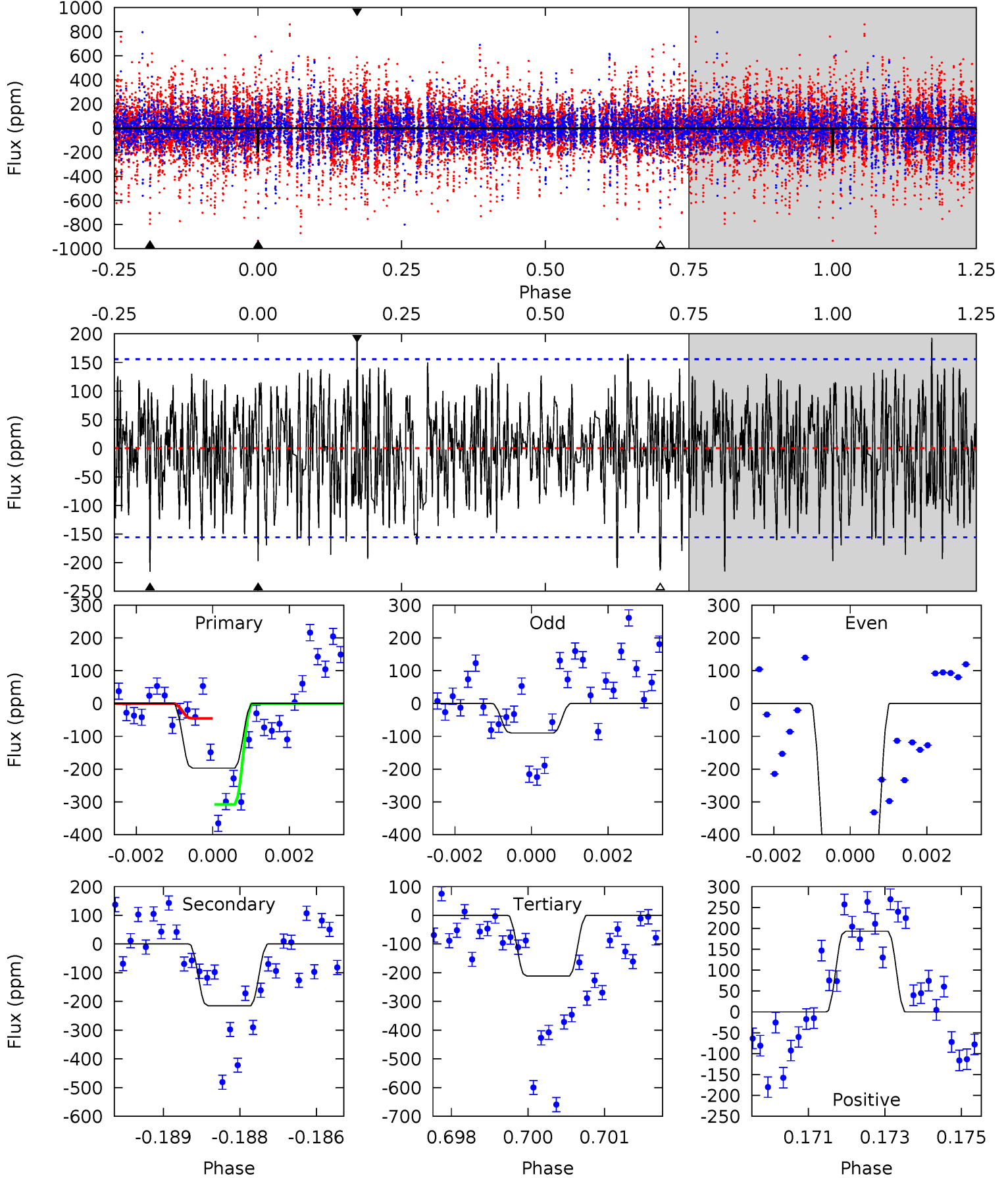
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.52	5.88	5.18	5.70	5.43	3.26	1.60	2.34	1.83	0.70	0.18	0.16	1.02	0.43	0.74



Alt Model-Shift Uniqueness Test

010154994-09, P = 144.581514 Days, E = 68.253043 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.79	7.42	7.30	6.66	5.36	3.15	2.11	-0.51	0.13	0.12	0.76	9.00	1.45	0.47	4.52



Stellar Parameters For KIC 010154994

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6795^{+167}_{-217}	$3.853^{+0.266}_{-0.114}$	$0.100^{+0.200}_{-0.300}$	$2.575^{+0.532}_{-0.865}$	$1.724^{+0.164}_{-0.329}$	$0.142^{+0.241}_{-0.049}$
	+2%/-3%	+7%/-3%	+200%/-300%	+21%/-34%	+10%/-19%	+170%/-34%
Source	PHO1	FLK73	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 010154994-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-122 ± 21	$3.85^{+3.14}_{-2.21}$	826^{+50}_{-74}	5804^{+3430}_{-1262}	1795^{+7897}_{-1238}
Alt.	-215 ± 29	$5.50^{+3.10}_{-2.85}$	820^{+55}_{-65}	5676^{+2739}_{-998}	1645^{+5103}_{-988}

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

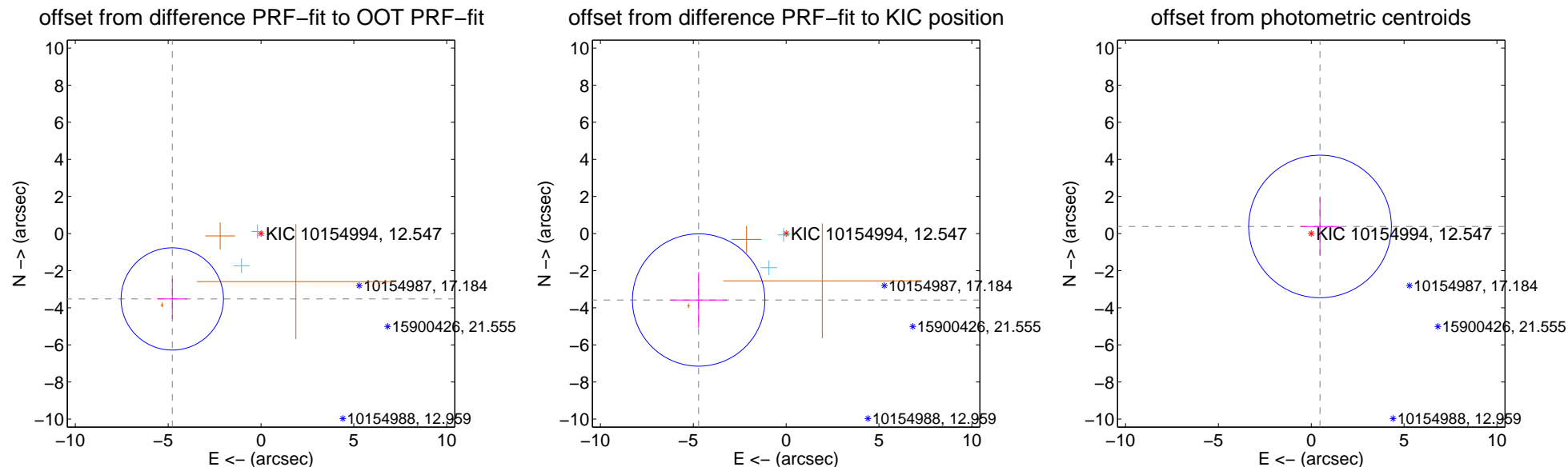
DV Centroid Data

Supplemental centroid analysis for 010154994-09. Kepler magnitude: 12.55. Transit SNR 7.66

There are 2 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.938 ± 0.919	6.46	4.779 ± 0.814	-3.524 ± 1.085
PRF-fit source offset from KIC position	5.918 ± 1.189	4.98	4.712 ± 1.518	-3.582 ± 1.495
photometric centroid source offset	0.61 ± 1.28	0.48	-0.47 ± 1.06	0.38 ± 1.56



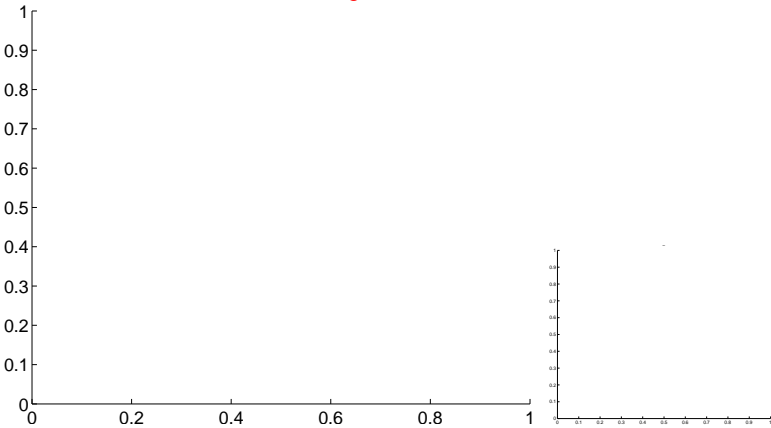
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

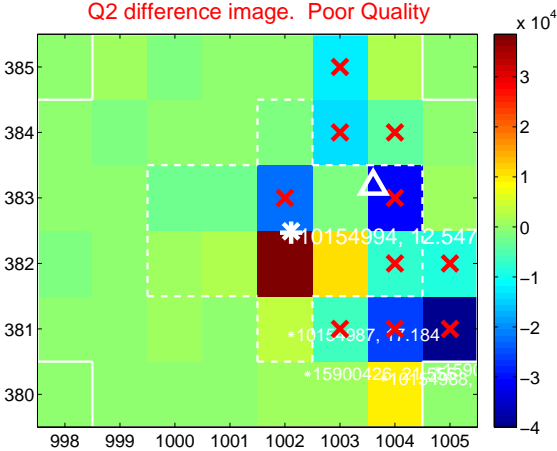
Q1 no difference image



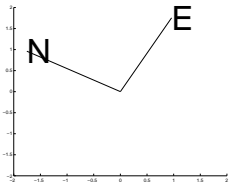
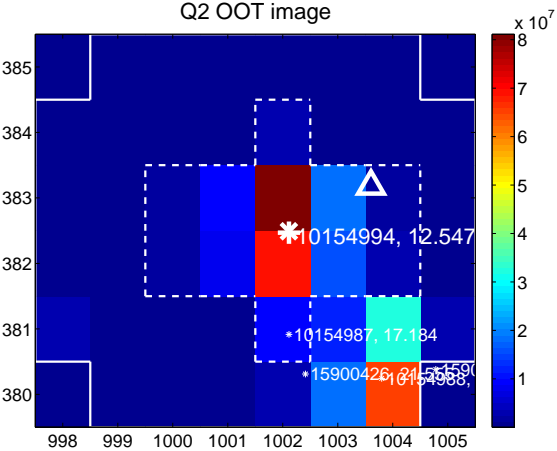
Q1 no OOT image



Q2 difference image. Poor Quality



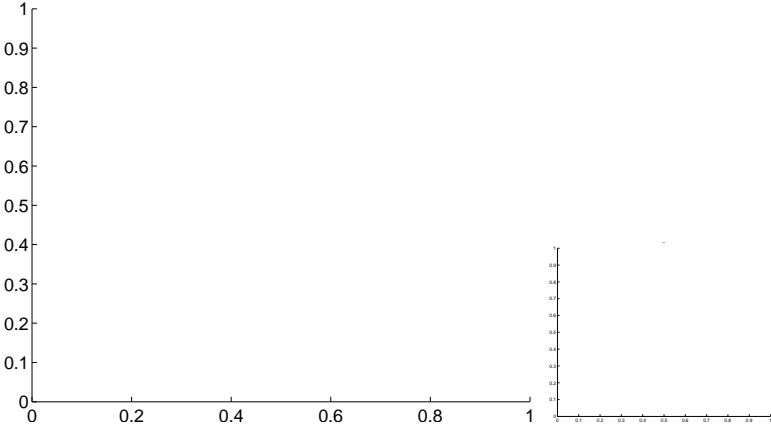
Q2 OOT image



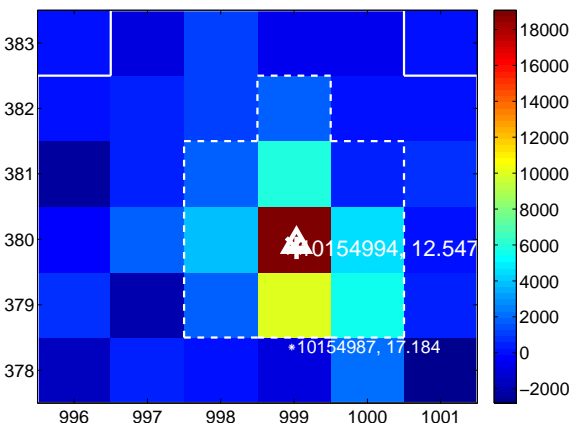
Q3 no difference image



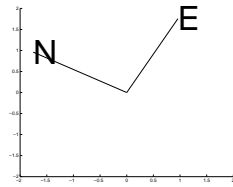
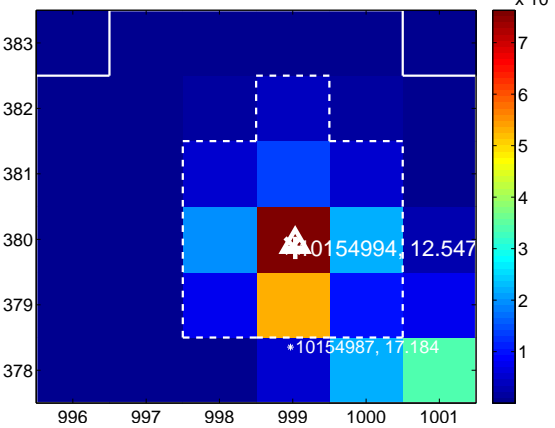
Q3 no OOT image



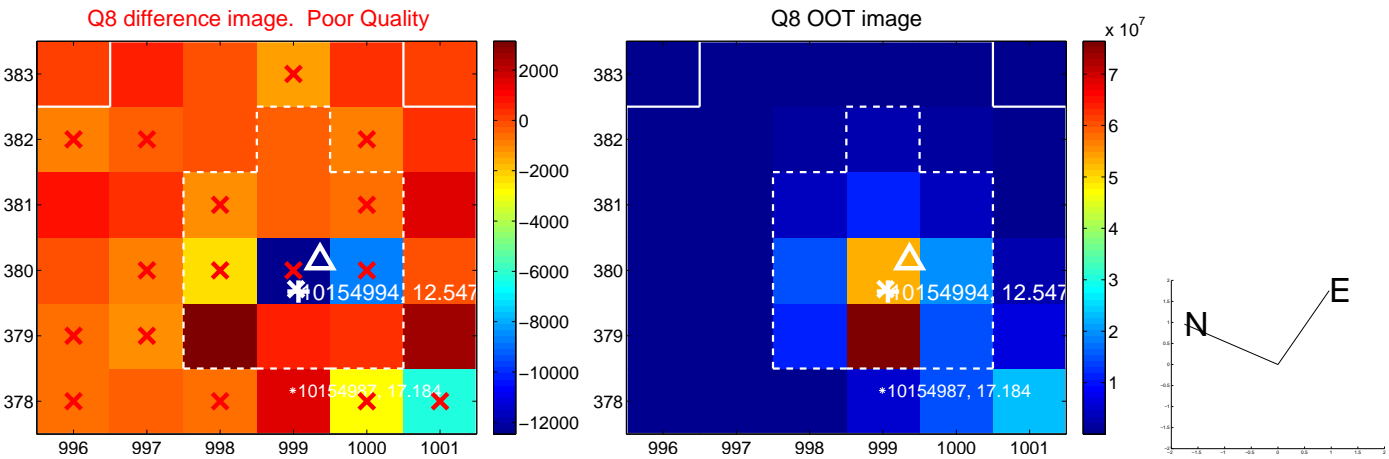
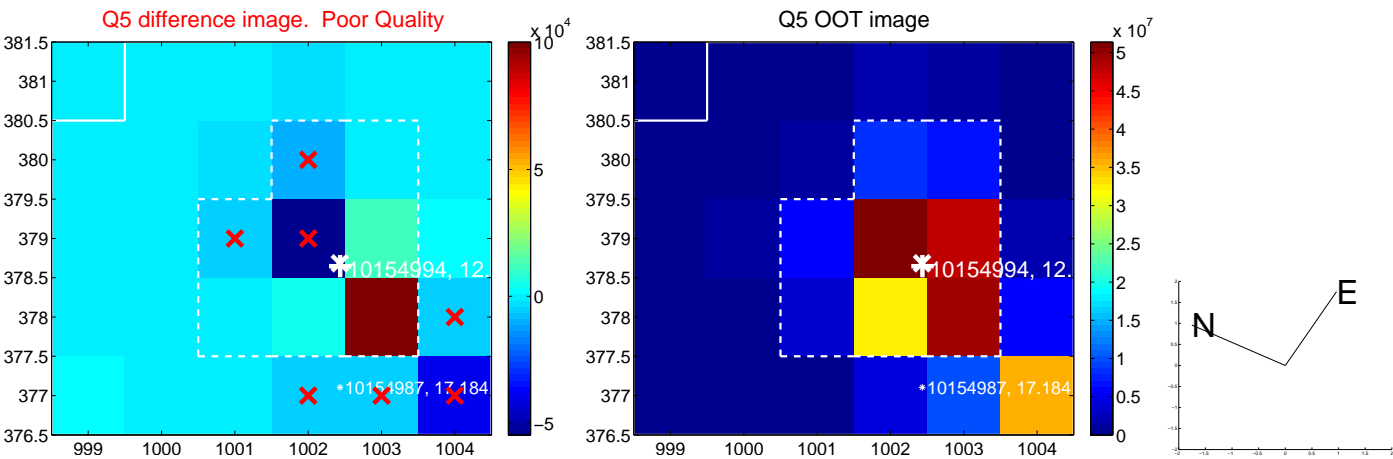
Q4 difference image



Q4 OOT image

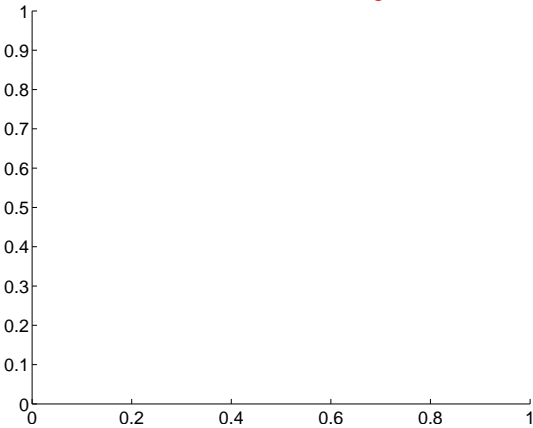


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

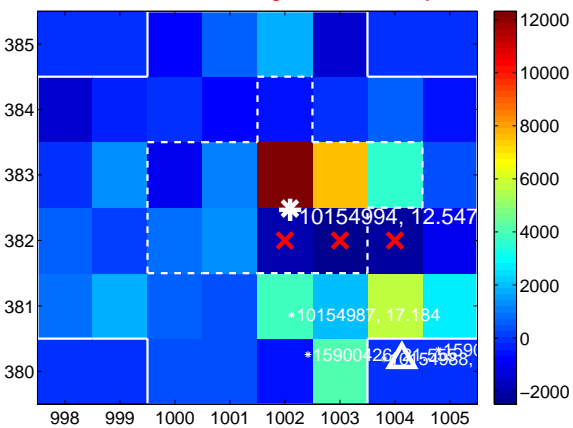
Q9 no difference image



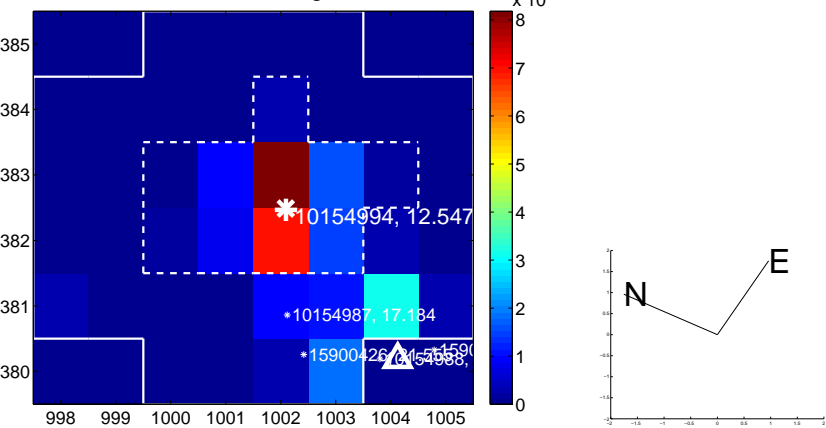
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



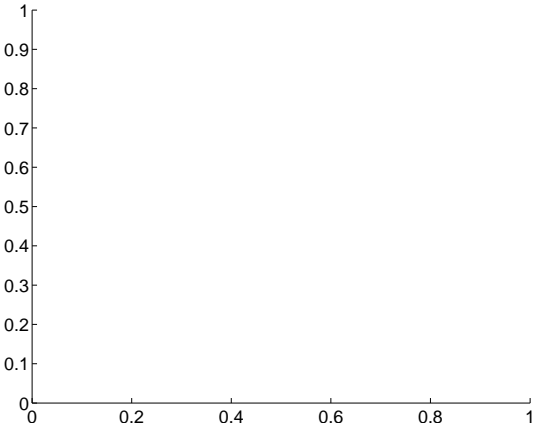
Q11 no difference image



Q11 no OOT image



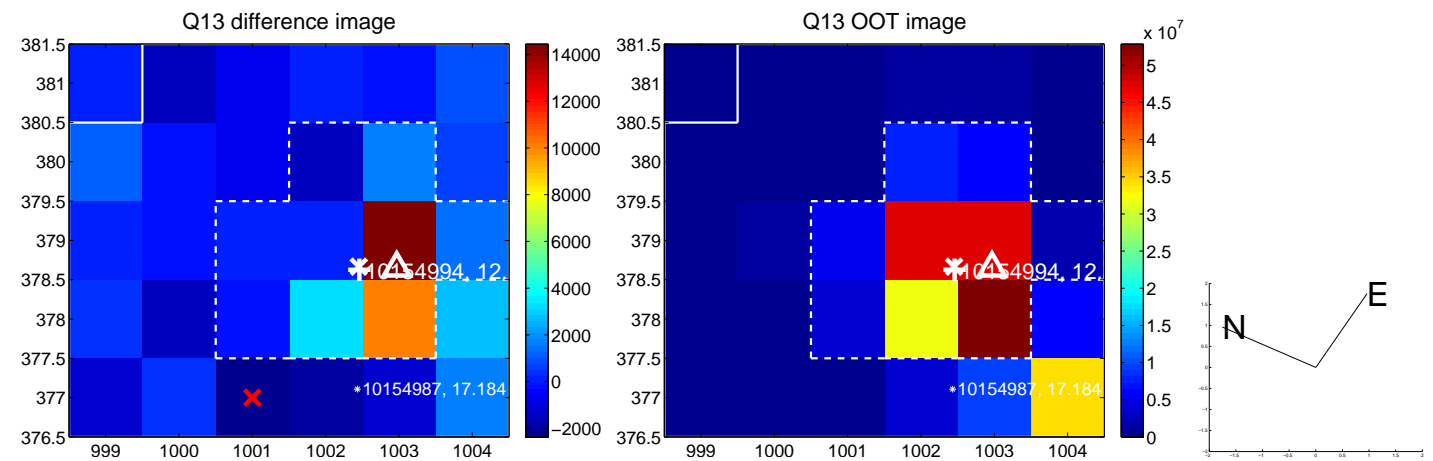
Q12 no difference image



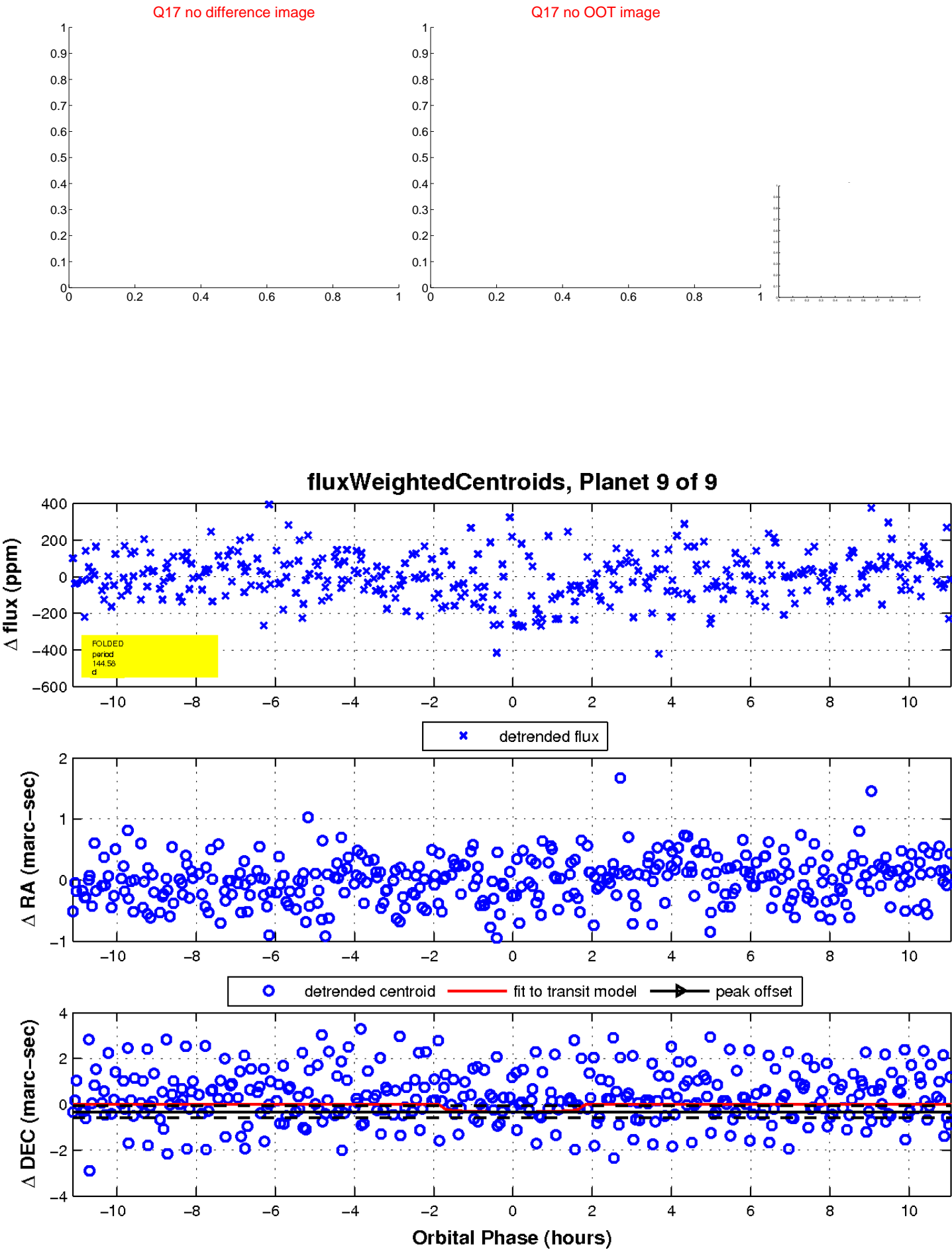
Q12 no OOT image



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



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



UKIRT Image

Declination

