

KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
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003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

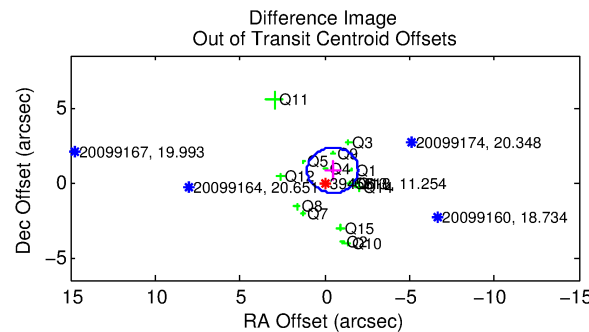
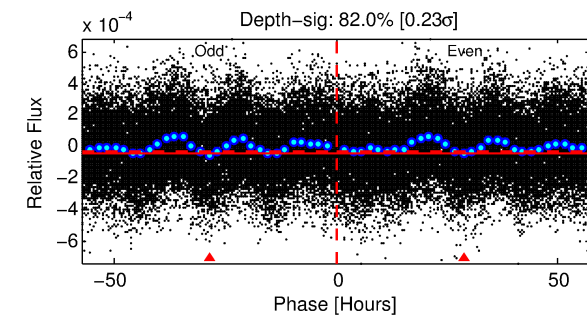
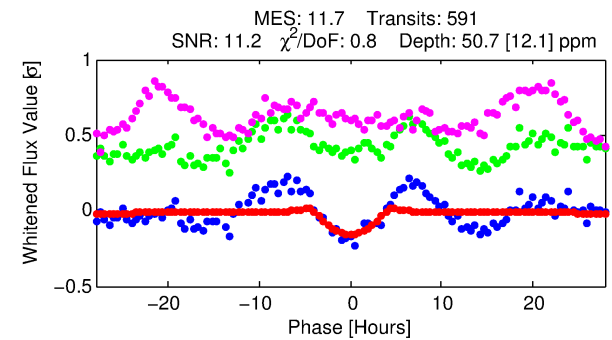
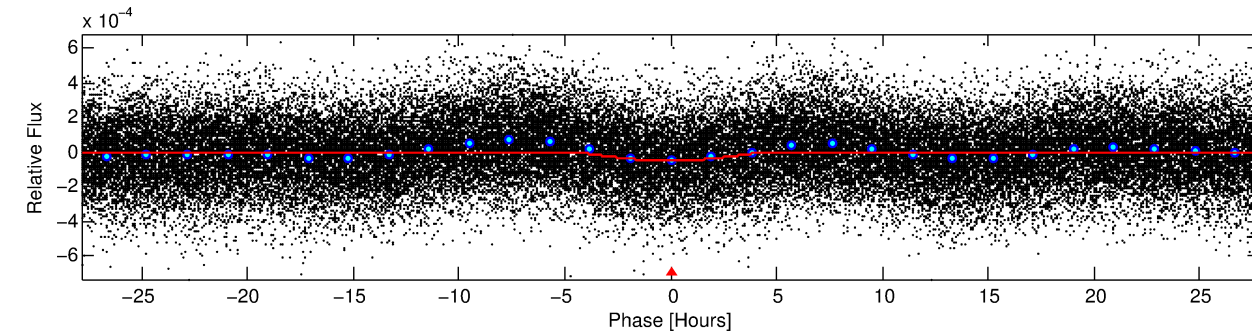
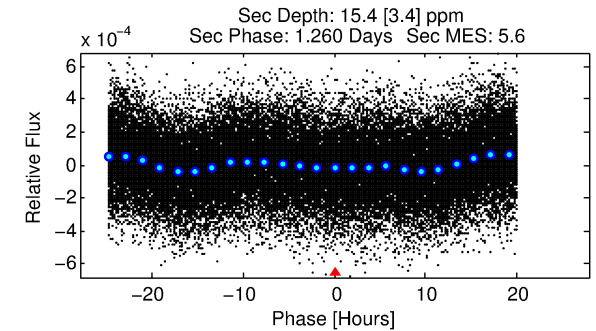
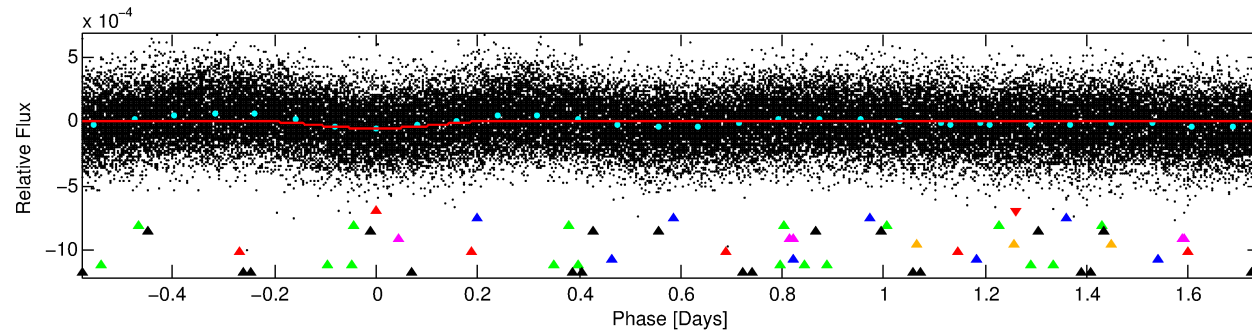
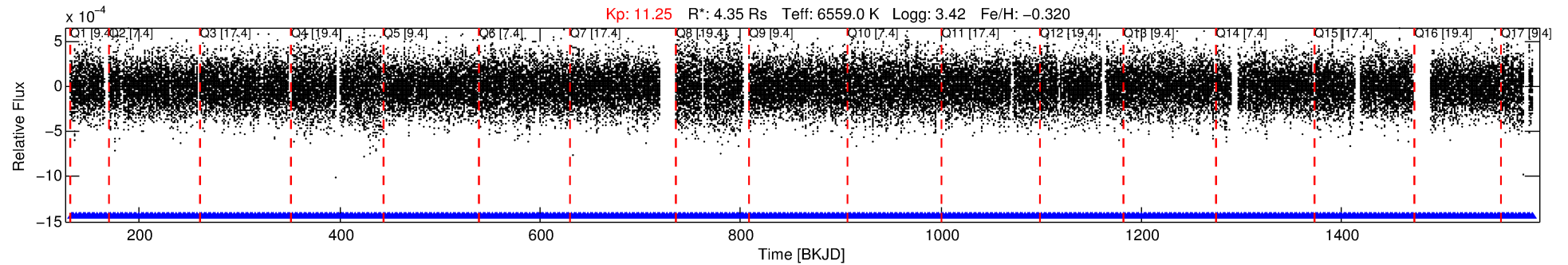
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-01

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 1 of 10 Period: 2.321 d



DV Fit Results:

Period = 2.32117 [0.00005] d
Epoch = 132.4614 [0.0158] BKJD
 R_p/R^* = 0.0126 [0.0186]
 a/R^* = 1.05 [0.02]
 b = 1.00 [0.03]
 Seff = 17910.02 [12467.69]
 T_{eq} = 2950 [513] K
 R_p = 6.00 [9.24] R_e
 a = 0.0419 [0.0182] AU
 A_g = 0.41 [1.25] [-0.47σ]
 T_{eff} = 3654 [2692] K [0.26σ]

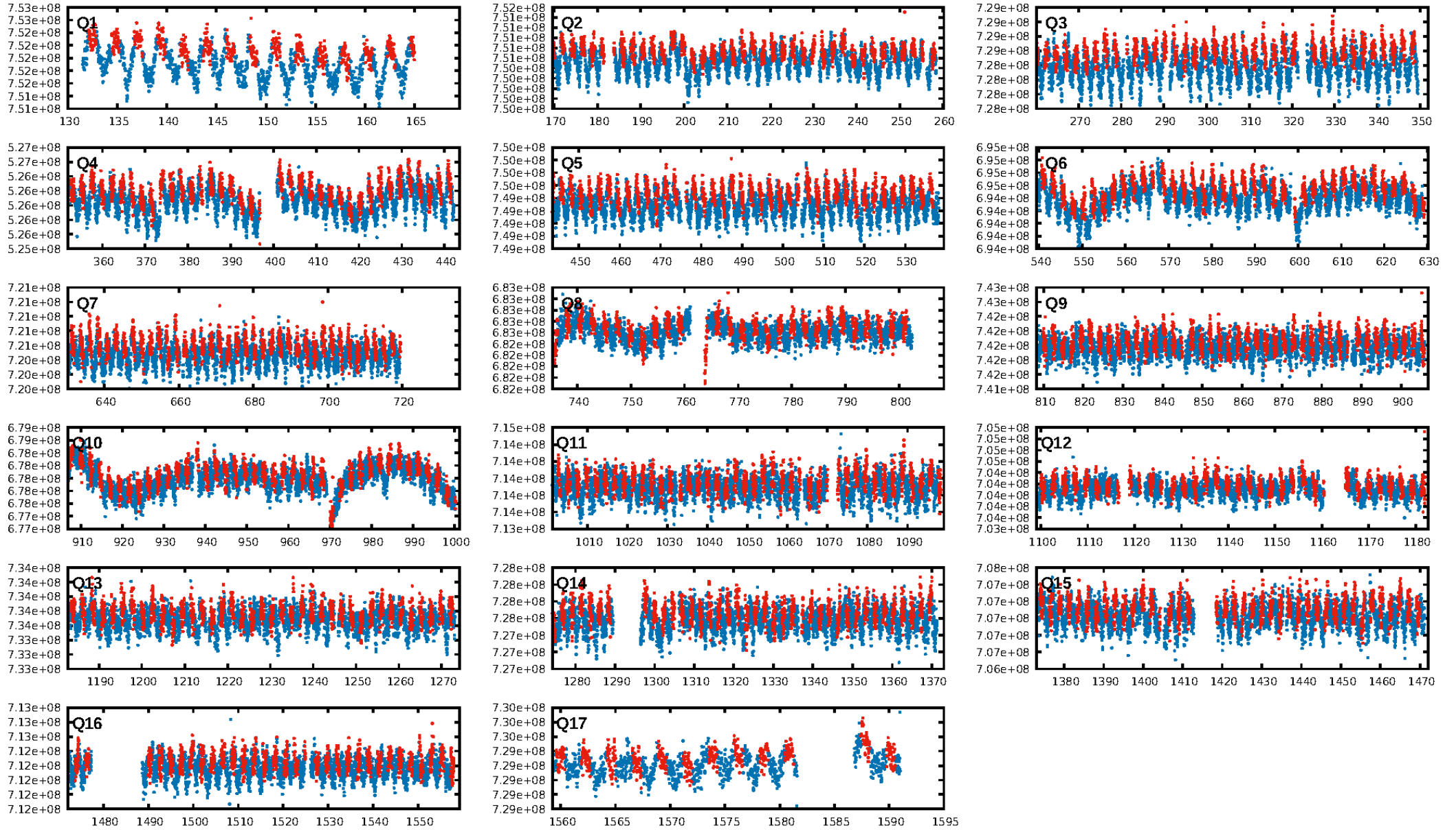
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [275.06σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [564/564]
GhostDiagnostic-chr: -0.962
Centroid-sig: 75.8%
Centroid-so: 0.153 arcsec [0.62σ]
OotOffset-rm: 0.956 arcsec [1.90σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.964 arcsec [1.87σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.00 [0/15]
DiffImageOverlap-fno: 1.00 [17/17]

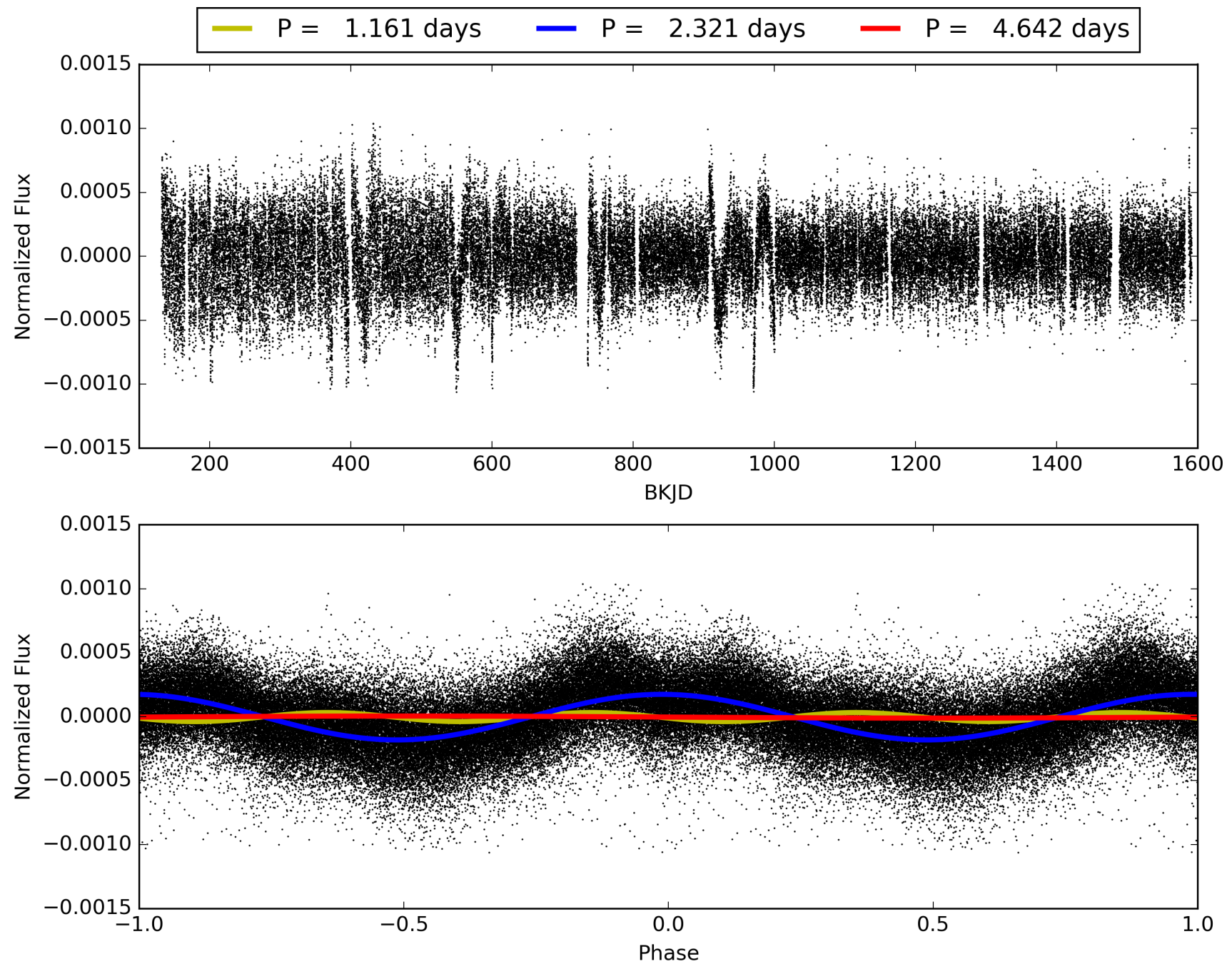
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:01:52 Z

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

TCE 003945818-01, PDC Light Curves

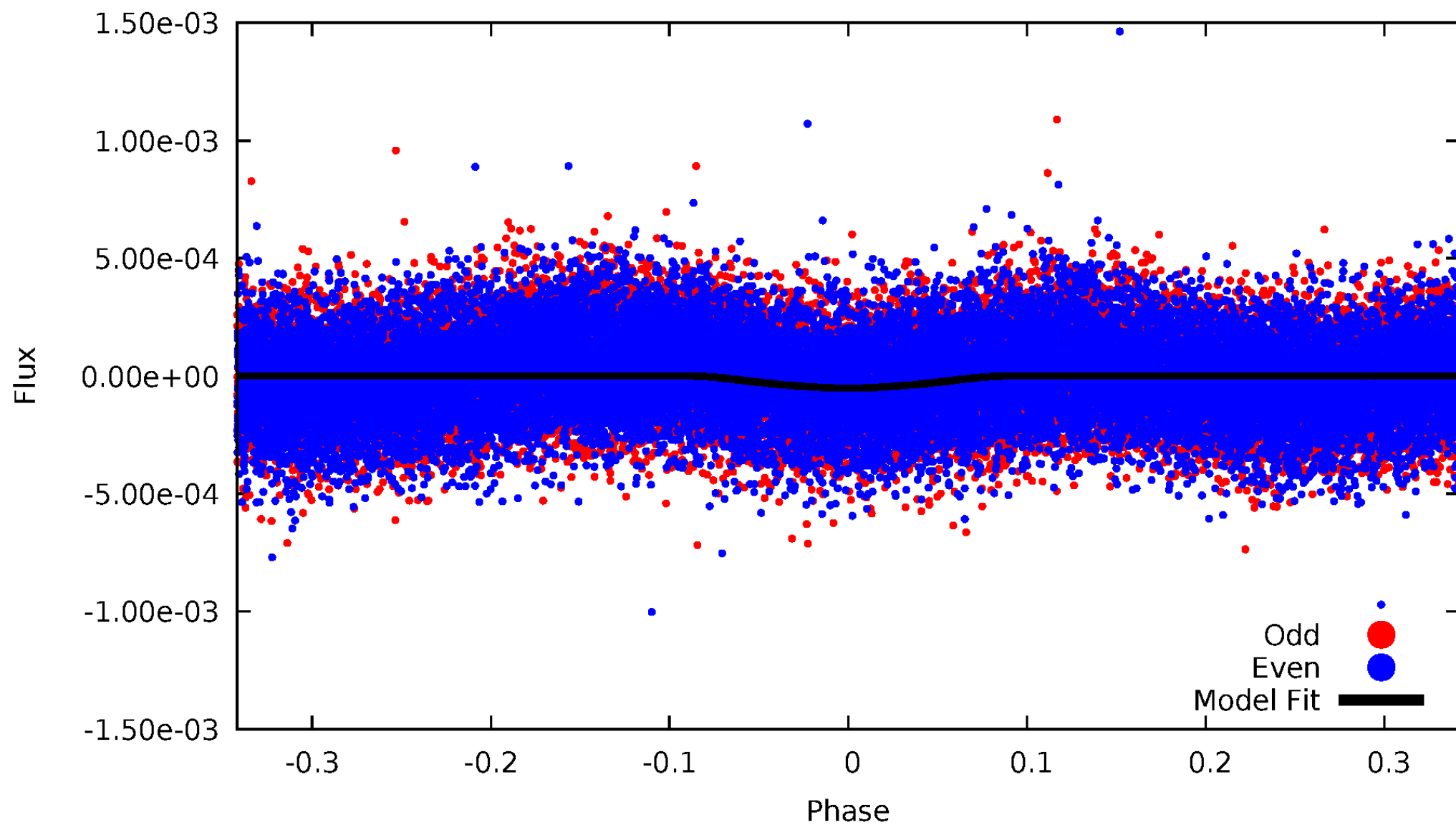


TCE 003945818-01



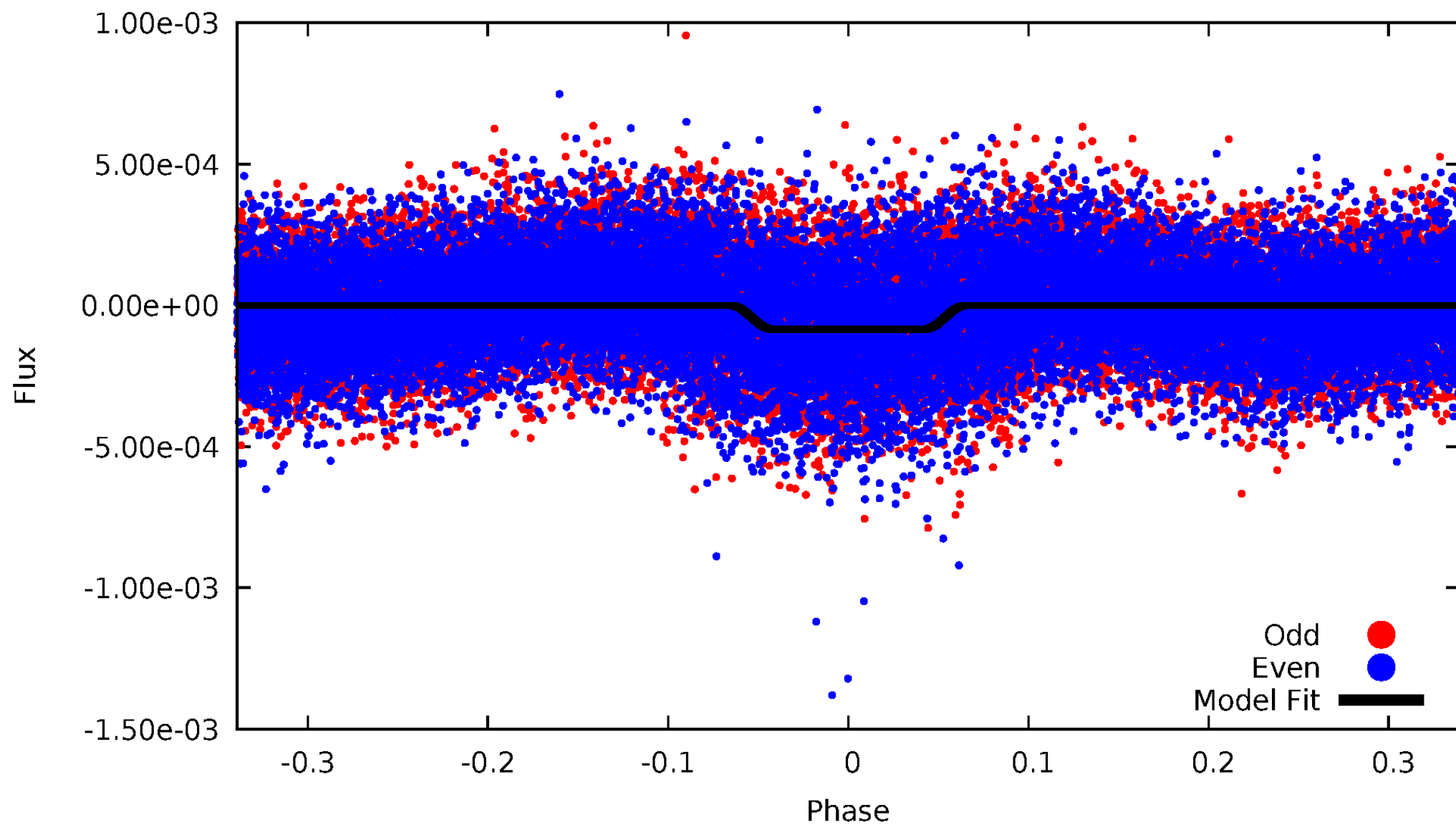
DV Odd/Even

TCE 003945818-01

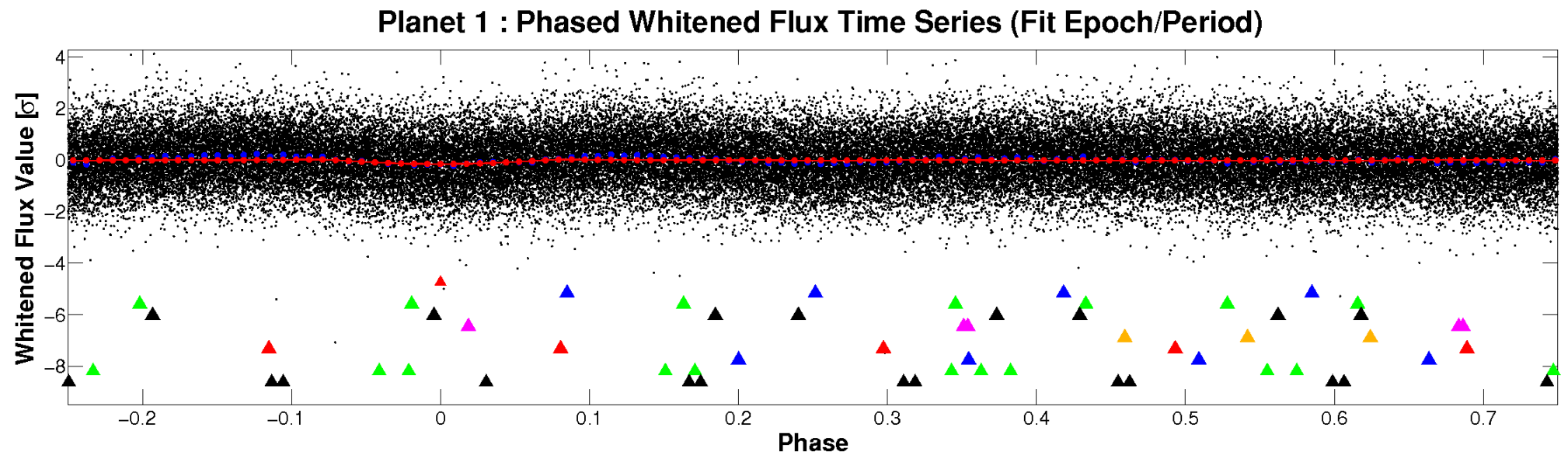
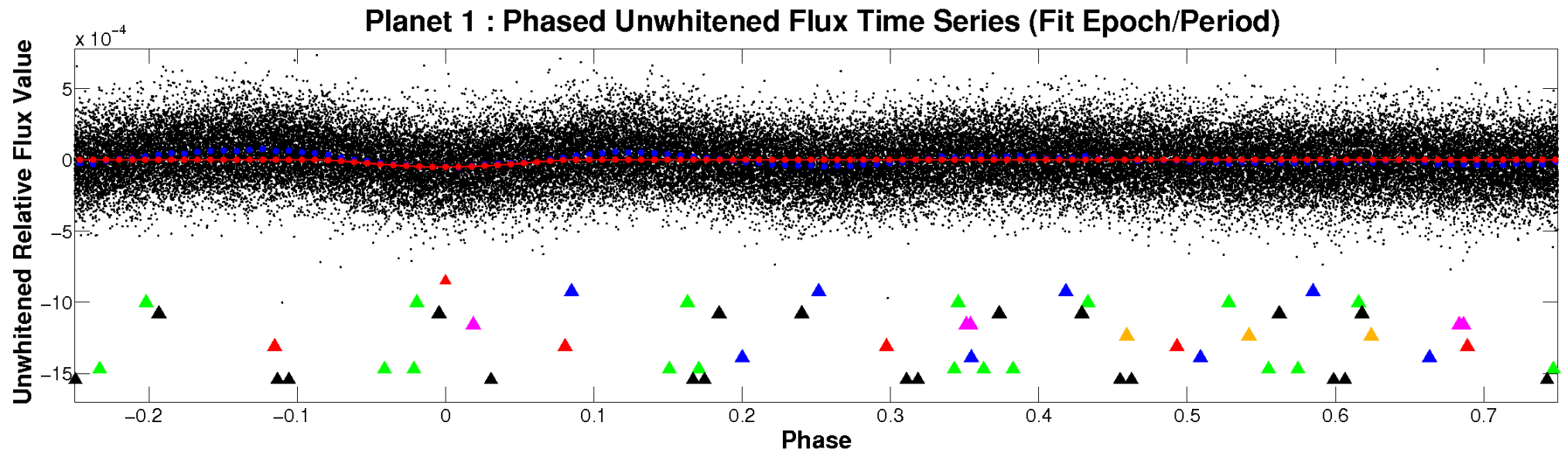


ALT Odd/Even

TCE 003945818-01

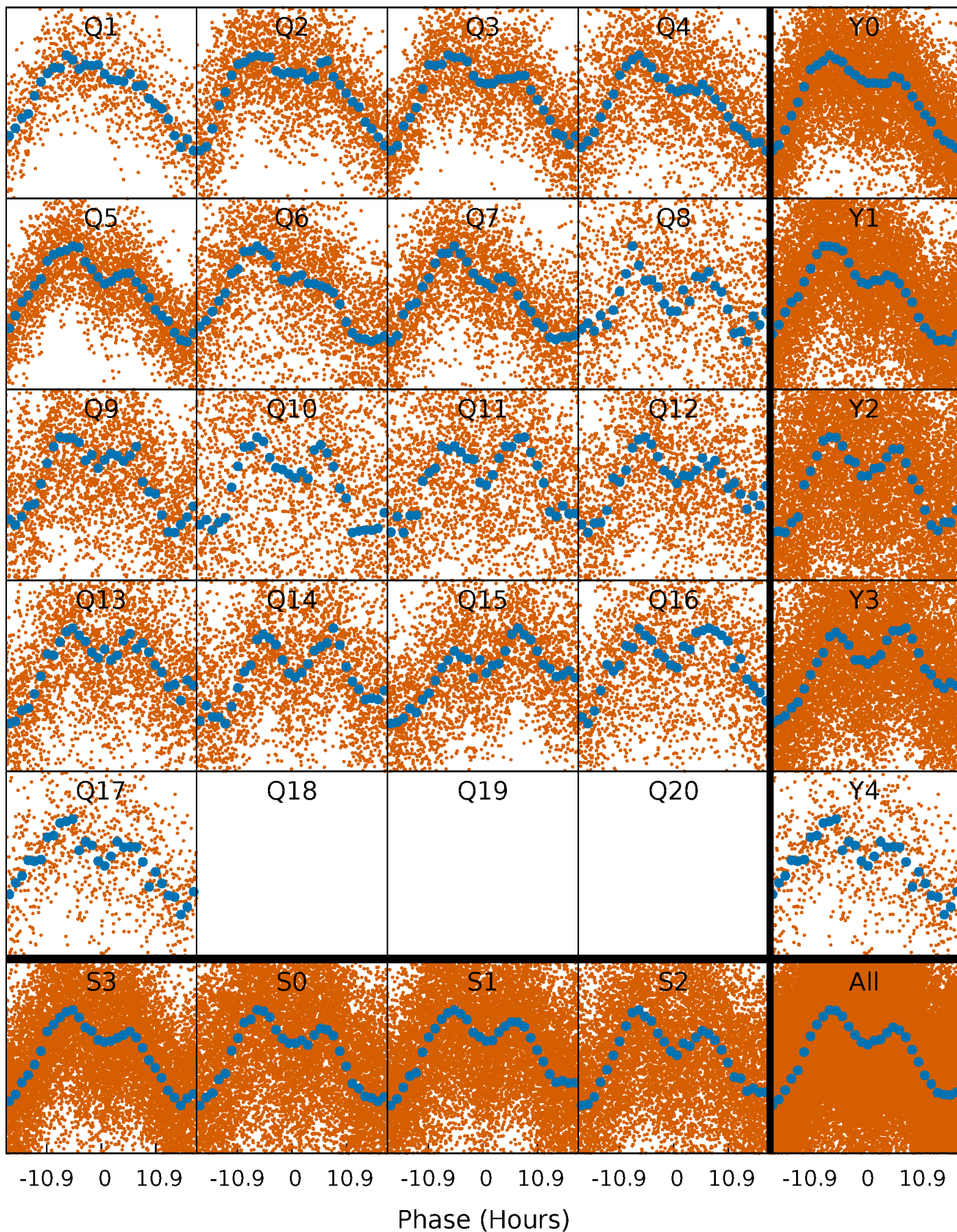


Non-Whitened Vs. Whitened Light Curve



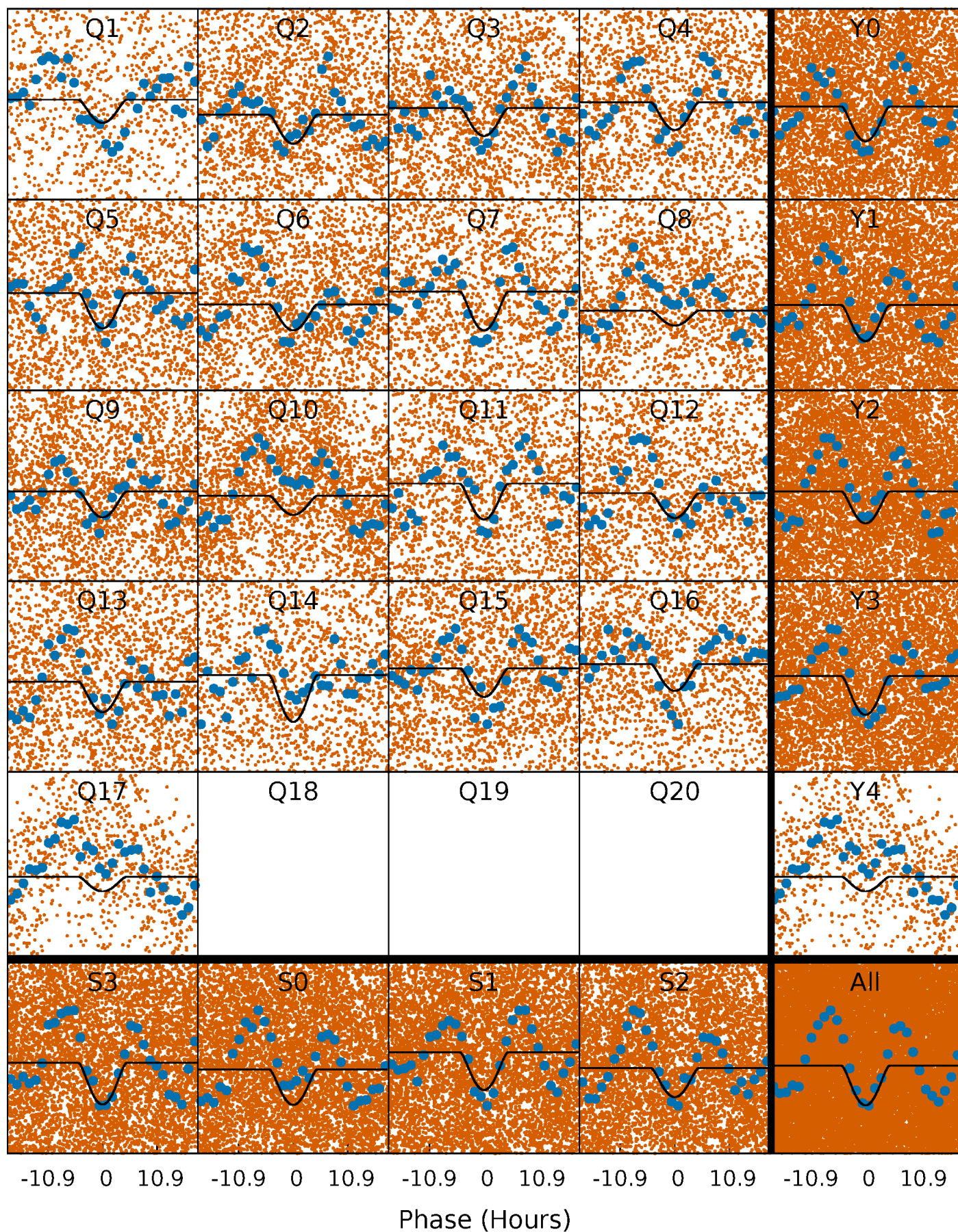
PDC Quarter-Phased Transit Curves

TCE 003945818-01 P= 2.321165 Days $T_0=132.461422$ (BKJD)



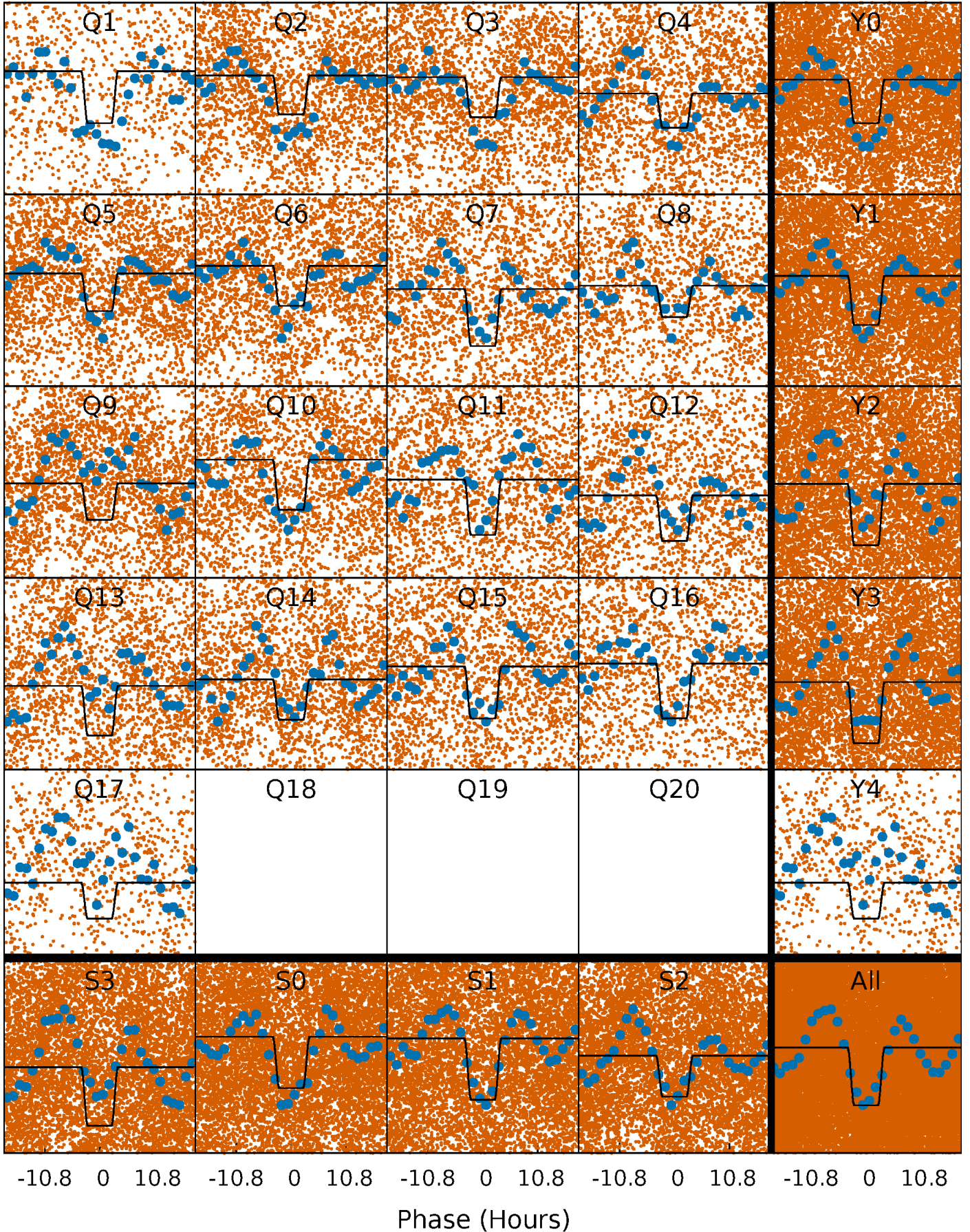
DV Quarter-Phased Transit Curves

TCE 003945818-01 P= 2.321165 Days $T_0=132.461422$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

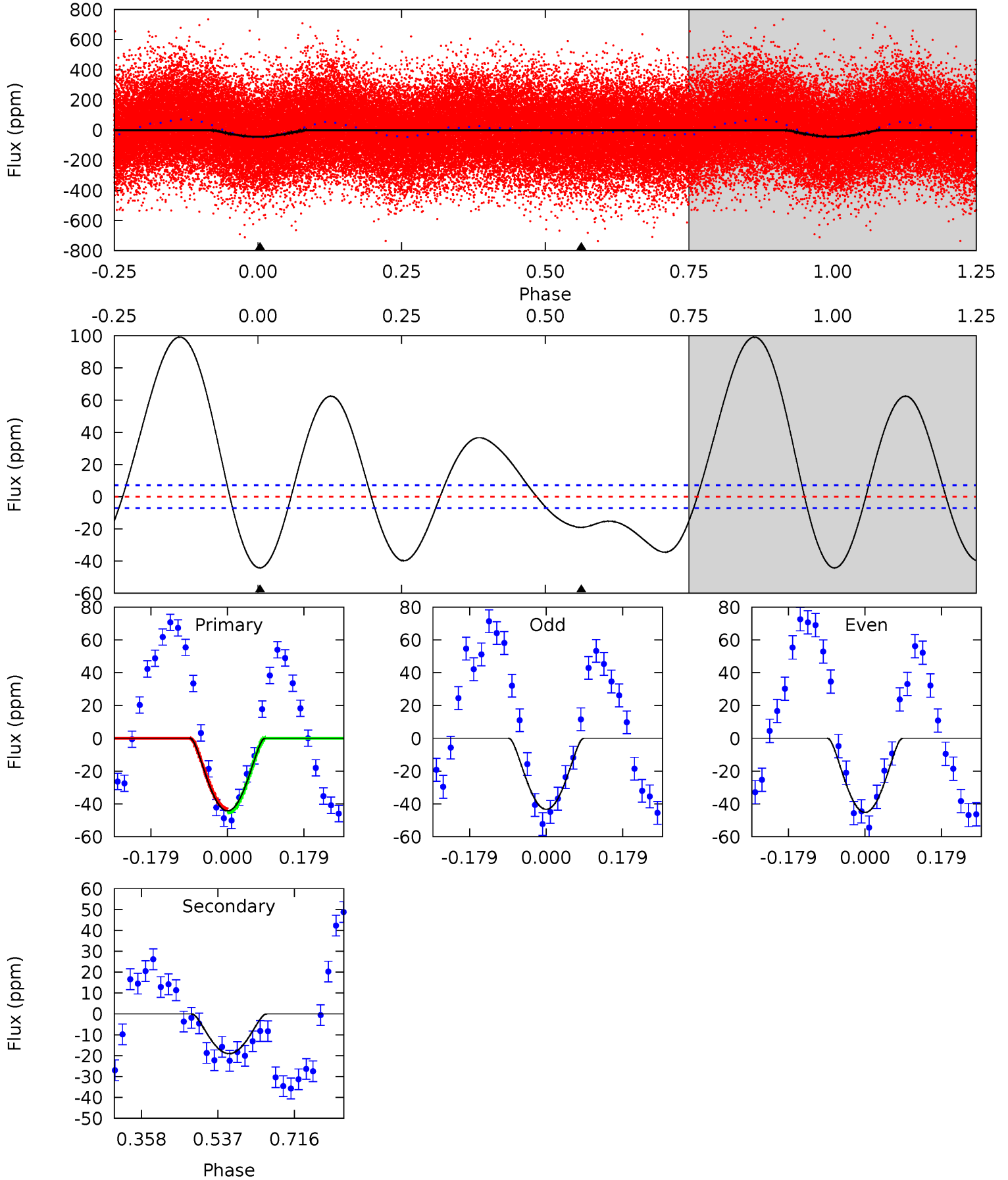
TCE 003945818-01 P= 2.321214 Days $T_0=132.456948$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-01, P = 2.321165 Days, E = 130.140257 Days

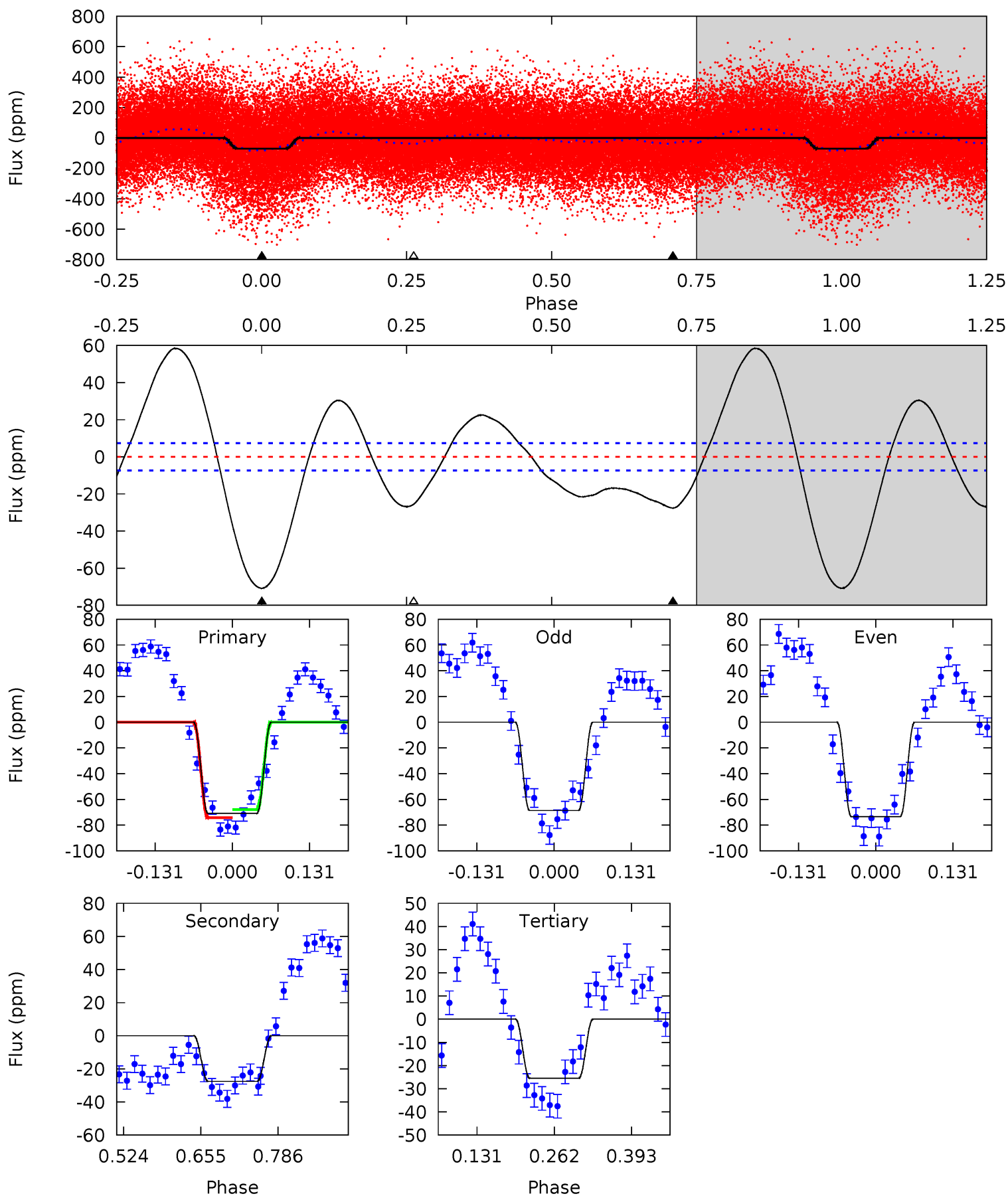
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	11.9	0	0	4.44	1.34	19.0	27.7	27.7	11.9	11.9	0.59	1.08	0.69	0.79



Alt Model-Shift Uniqueness Test

003945818-01, P = 2.321214 Days, E = 130.135734 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
43.4	16.9	15.6	0	4.51	1.51	13.6	27.8	43.4	1.29	16.9	1.47	1.07	0.45	1.91



Stellar Parameters For KIC 003945818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-19 ± 2	$7.34^{+7.48}_{-4.60}$	3988^{+265}_{-459}	2703^{+2437}_{-6215}	$0.346^{+1.958}_{-0.265}$
Alt.	-28 ± 2	$7.22^{+7.45}_{-4.94}$	4022^{+226}_{-442}	3391^{+3144}_{-6805}	$0.508^{+4.682}_{-0.385}$

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 $A_{obs} \gg 1.0$

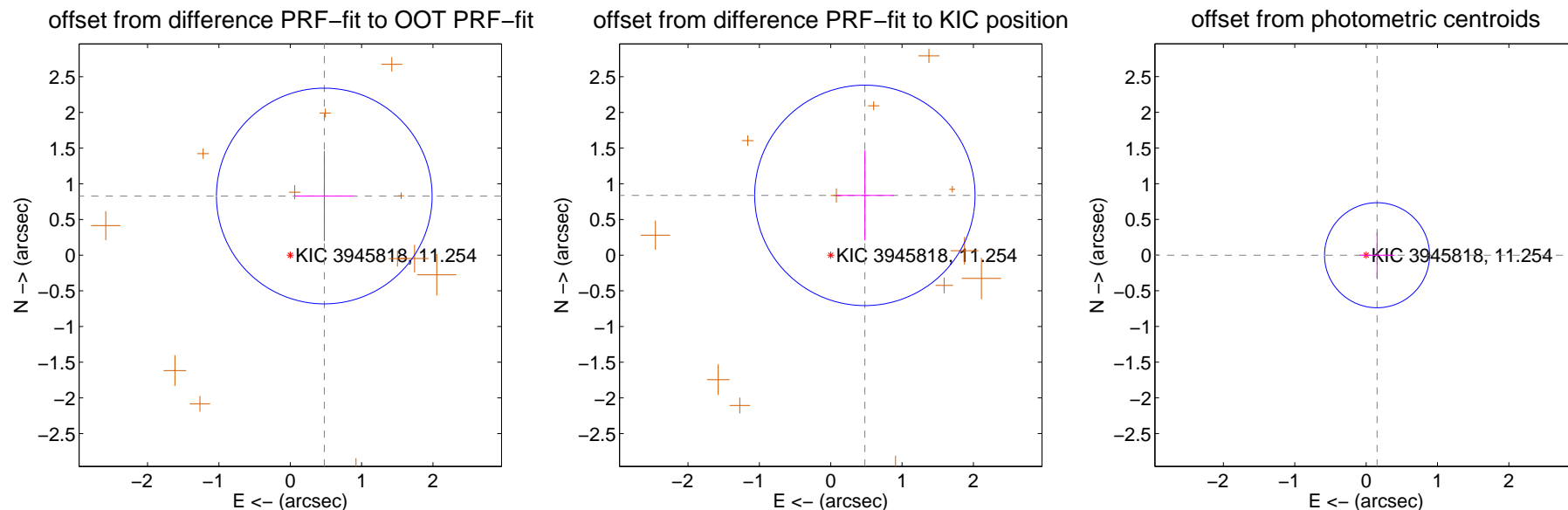
DV Centroid Data

Supplemental centroid analysis for 003945818-01. **Kepler magnitude: 11.25.** Transit SNR 11.16

There are 0 quarters with good PRF difference image offsets

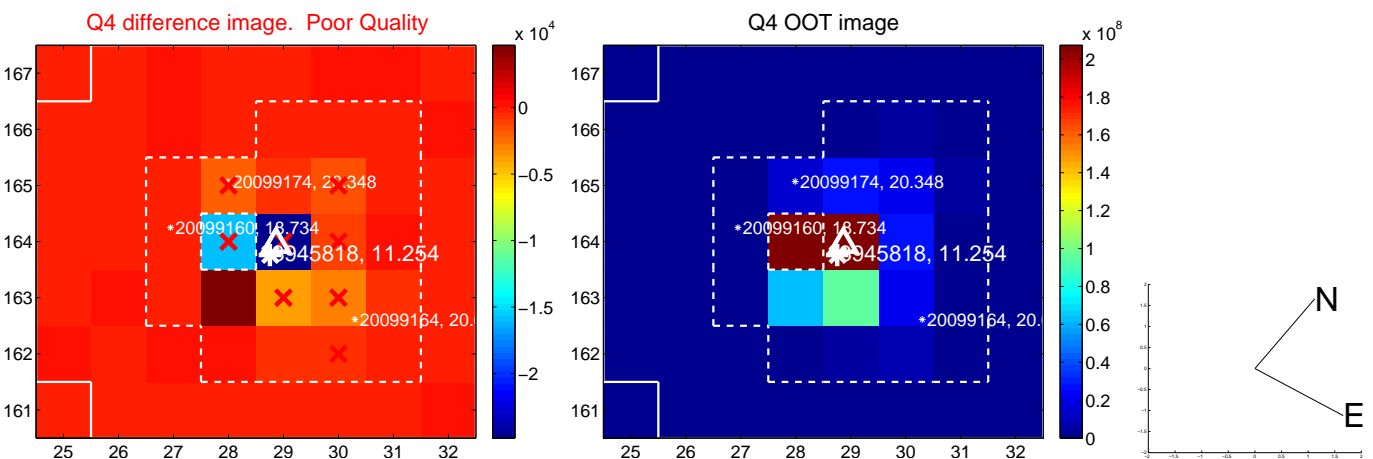
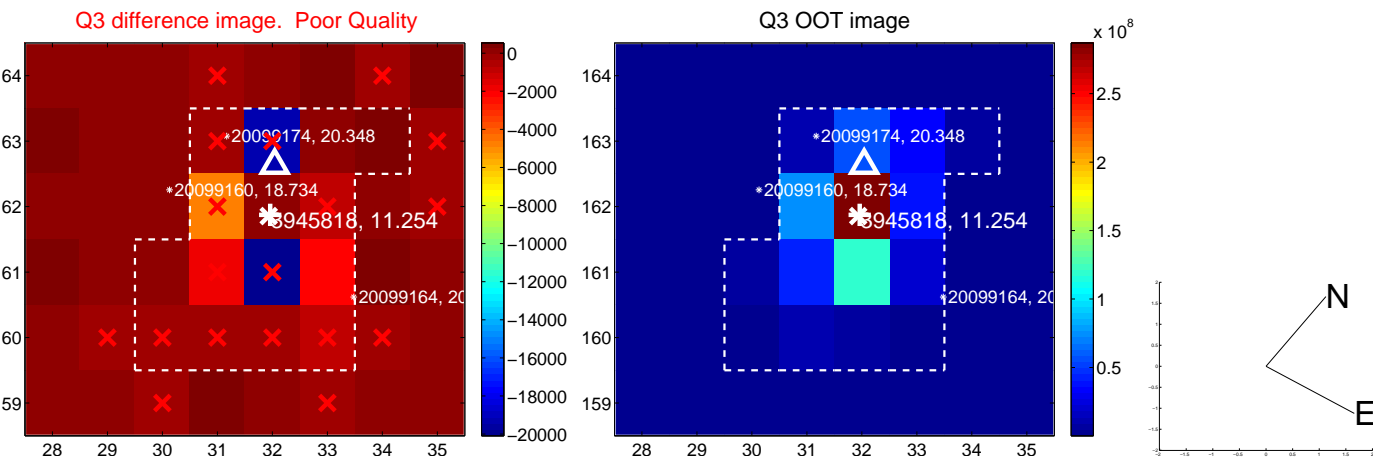
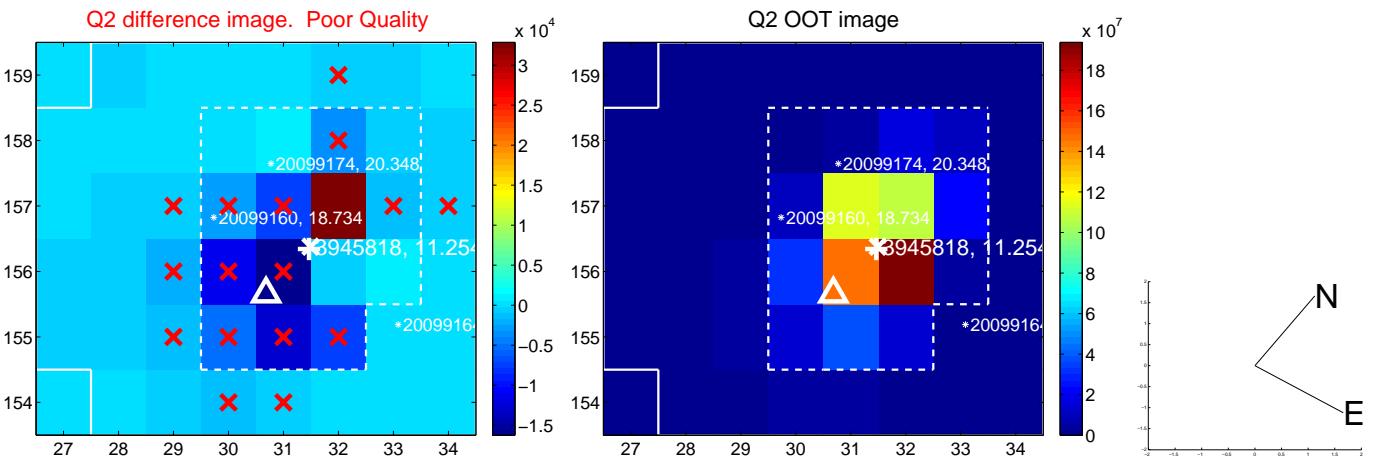
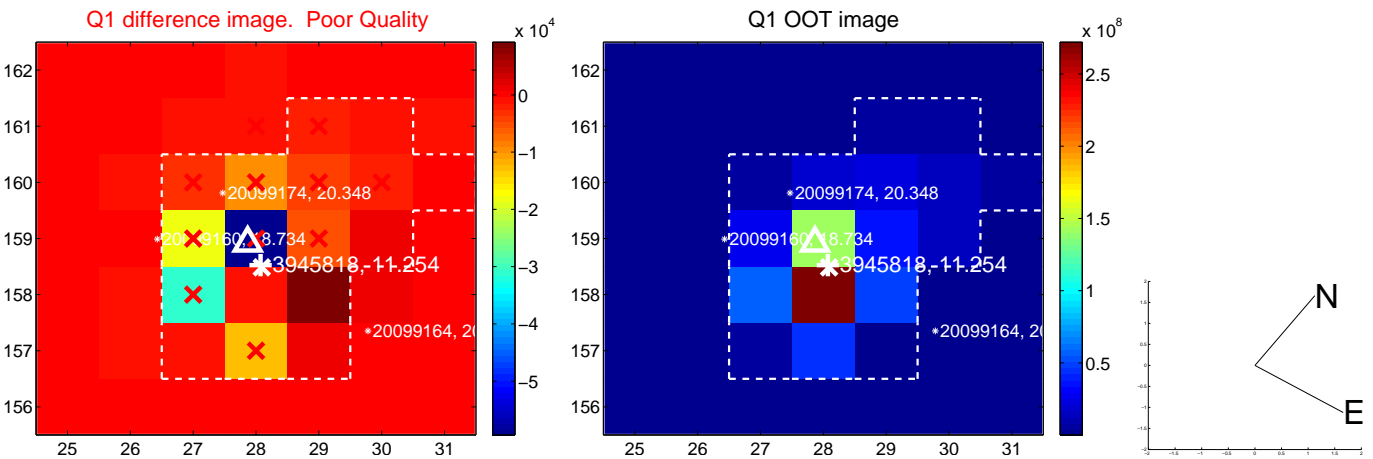
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.956 ± 0.504	1.90	-0.477 ± 0.410	0.828 ± 0.631
PRF-fit source offset from KIC position	0.964 ± 0.515	1.87	-0.478 ± 0.408	0.837 ± 0.630
photometric centroid source offset	0.15 ± 0.25	0.62	-0.15 ± 0.25	-0.00 ± 0.32

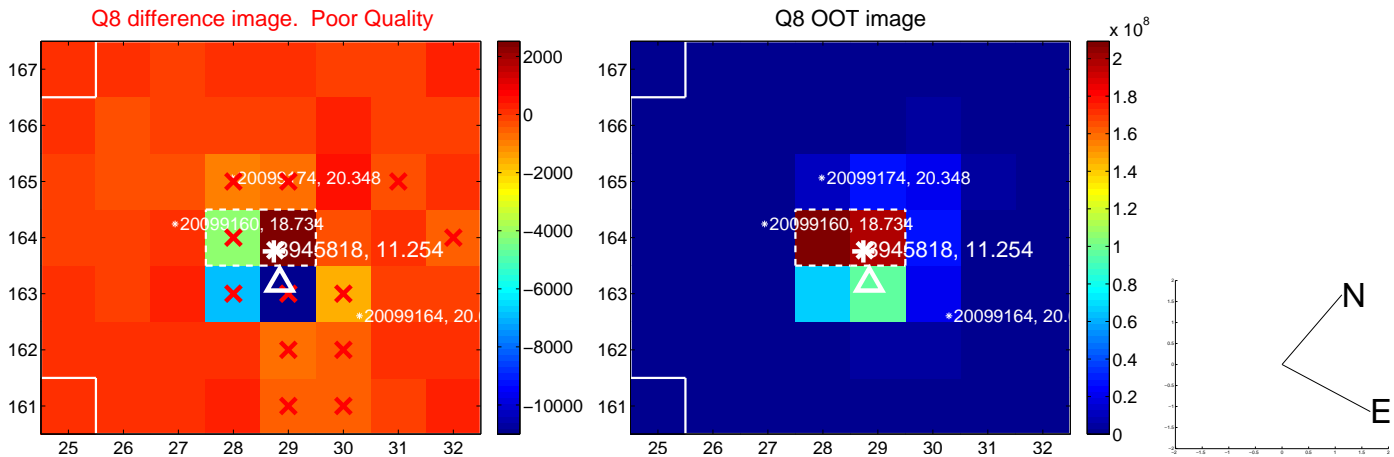
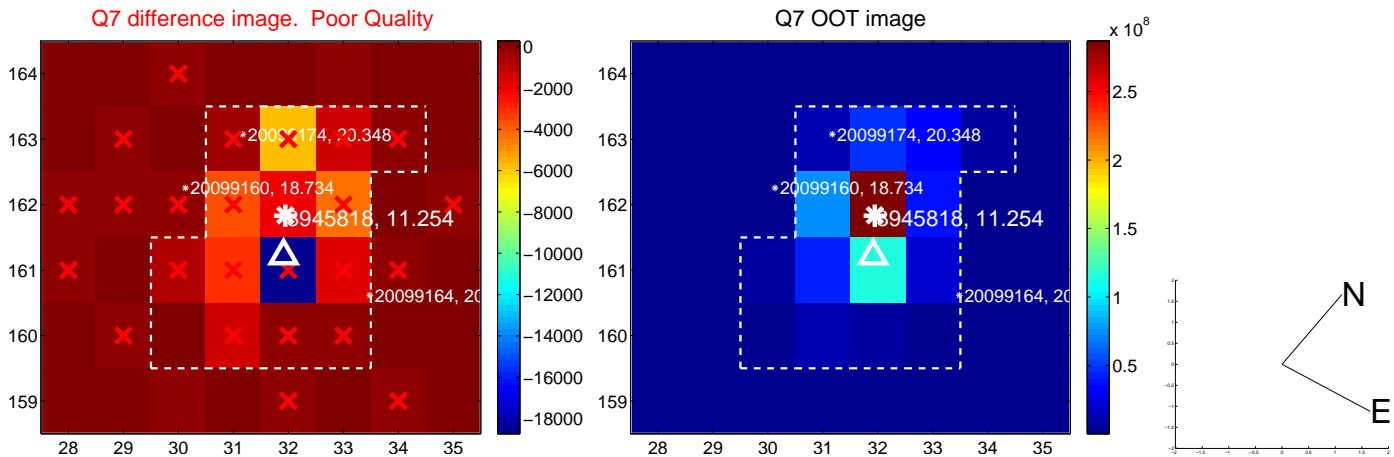
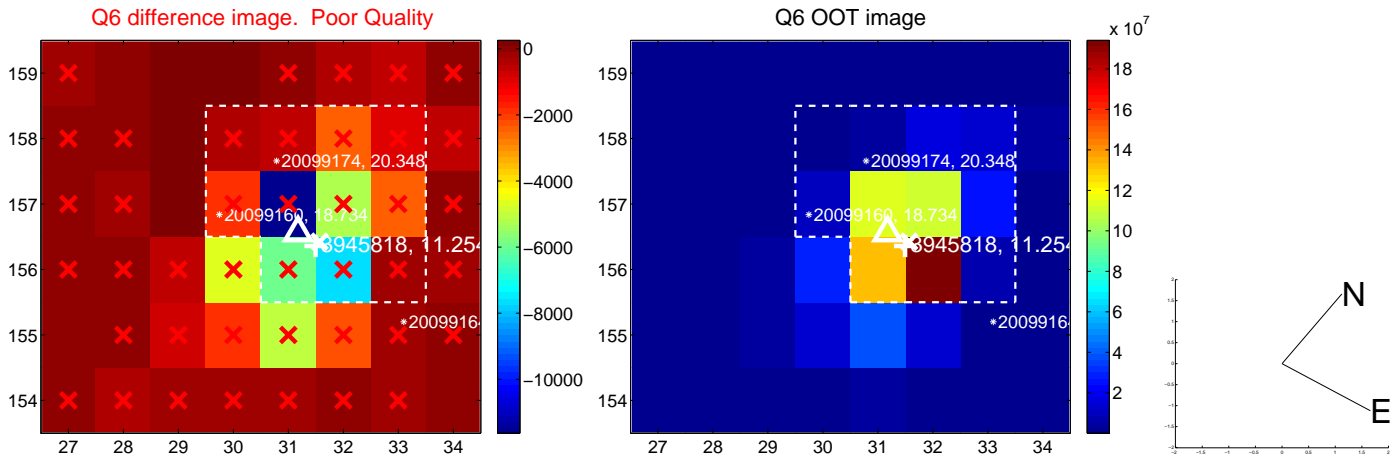
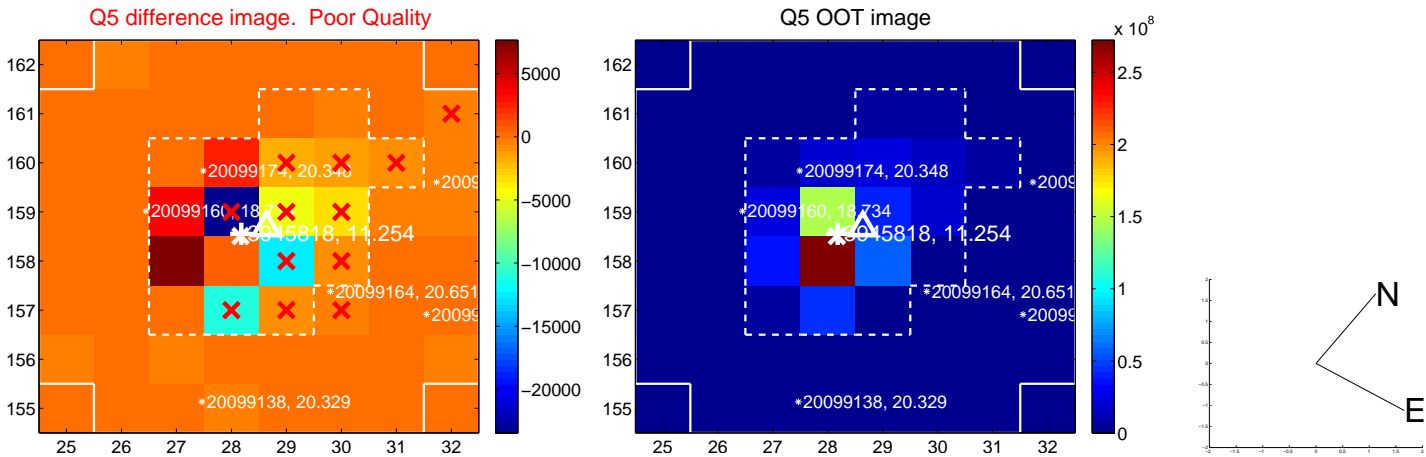


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

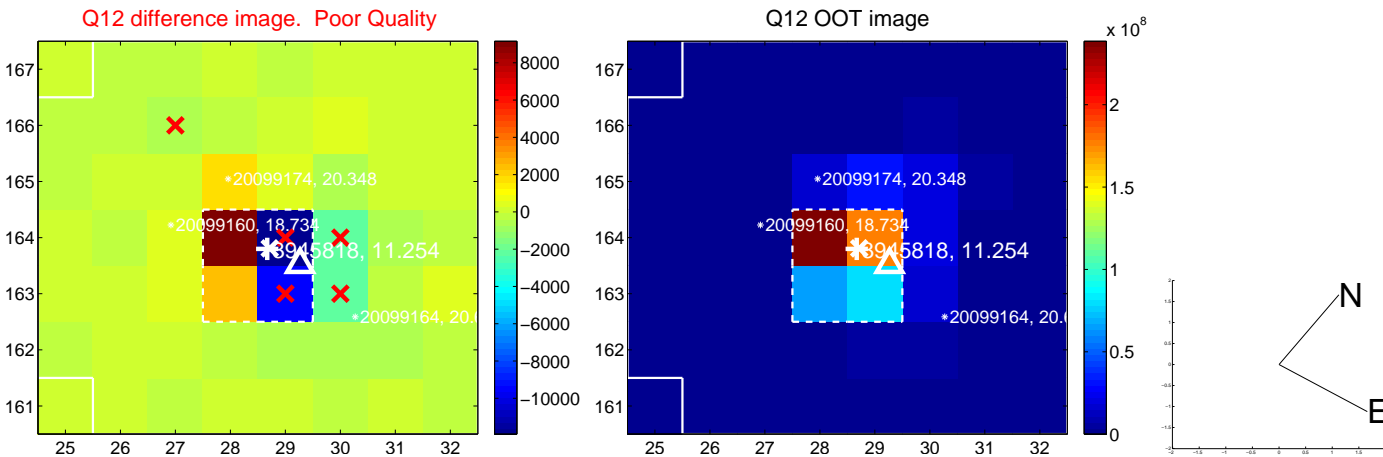
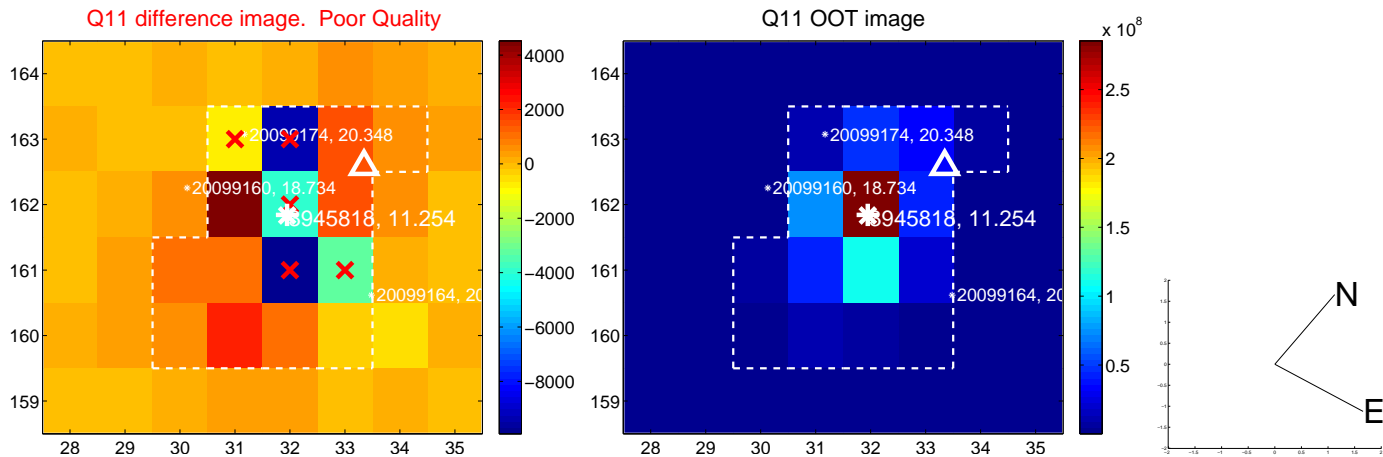
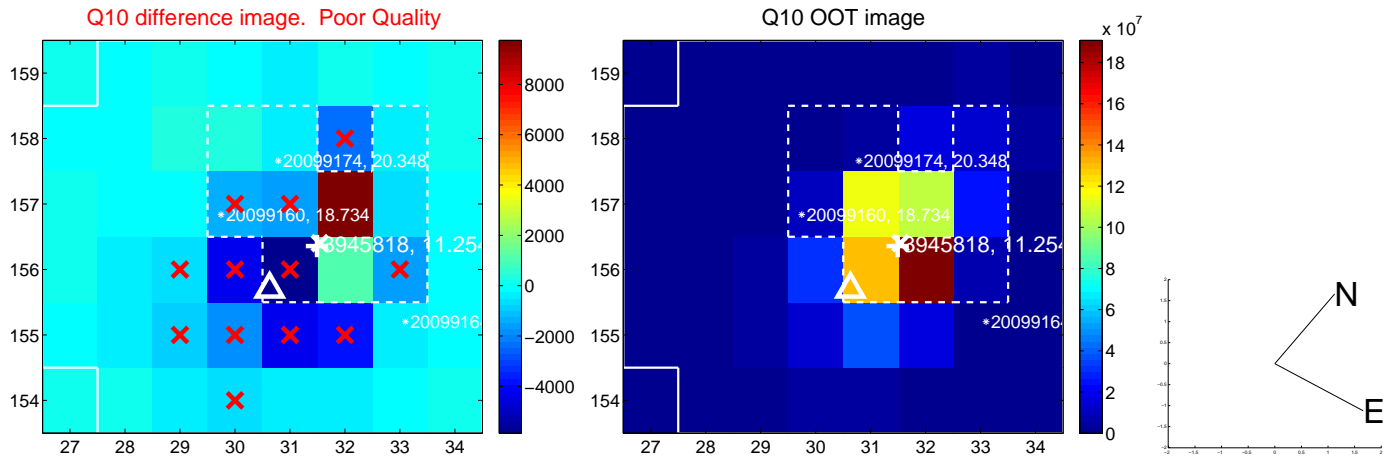
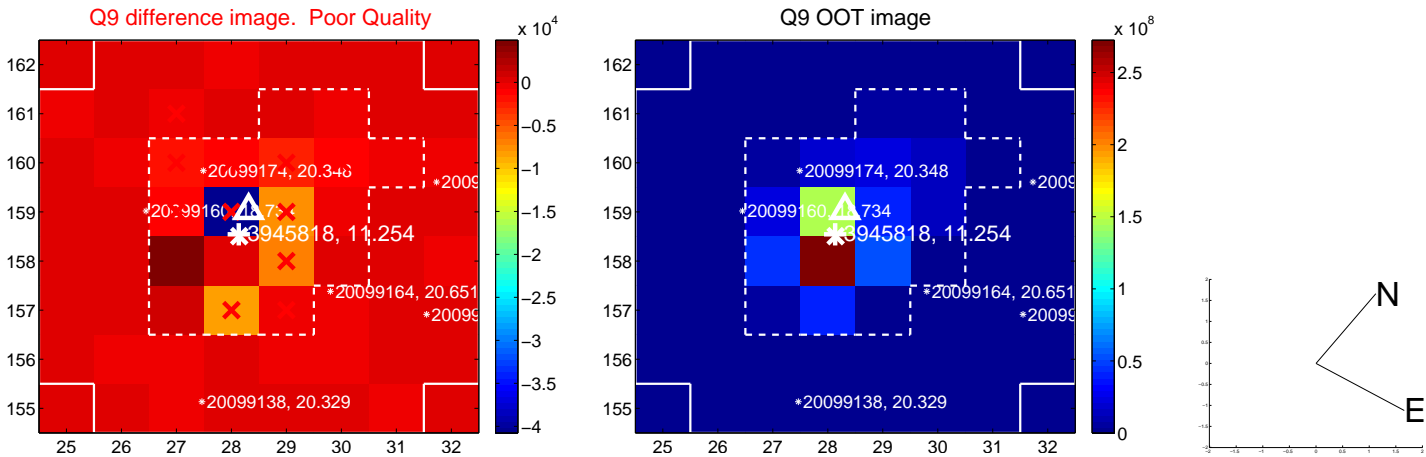
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



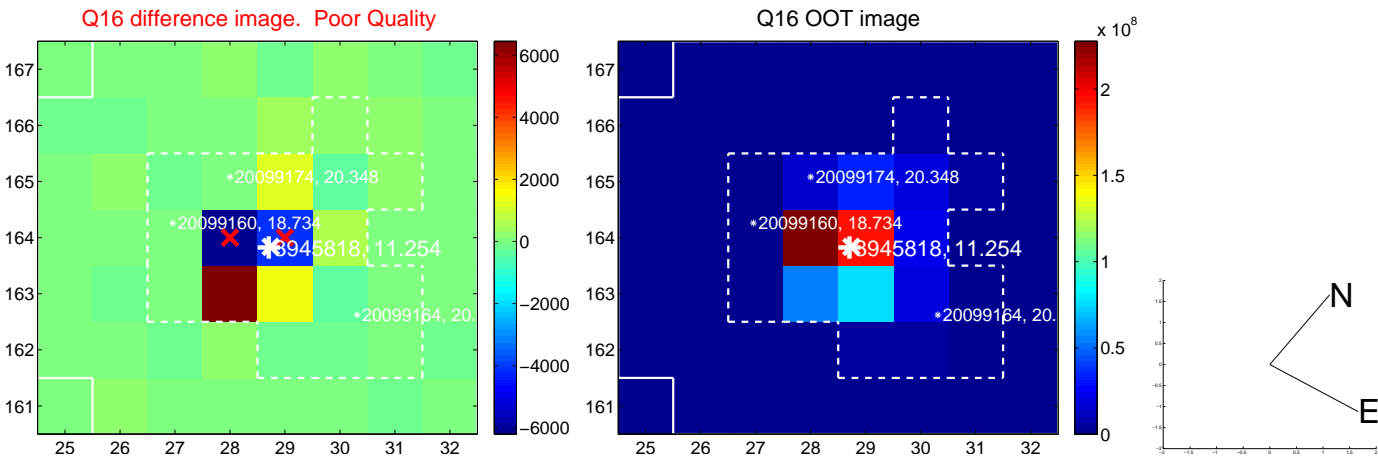
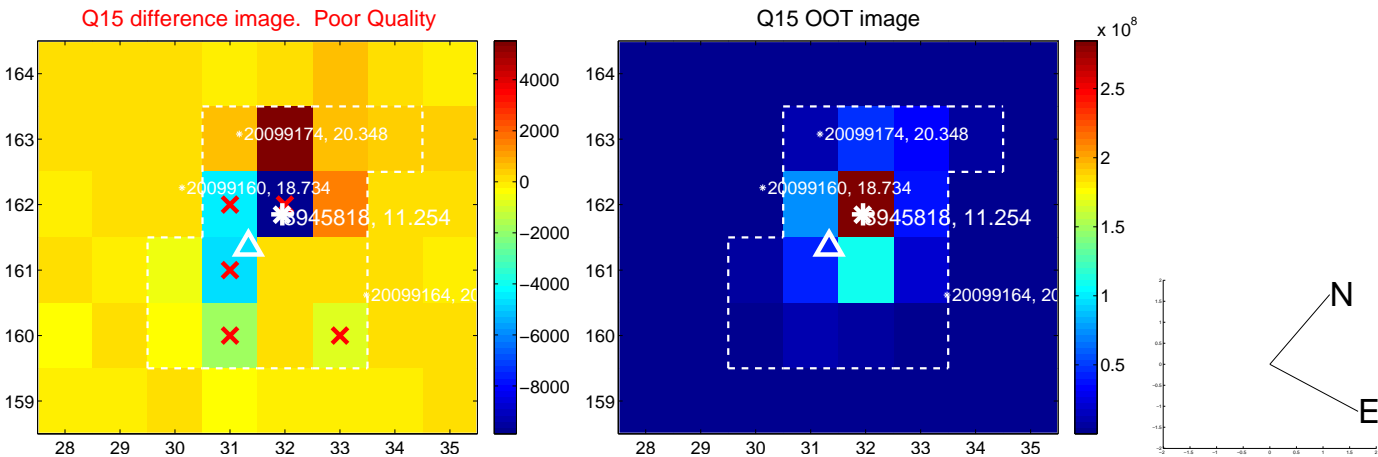
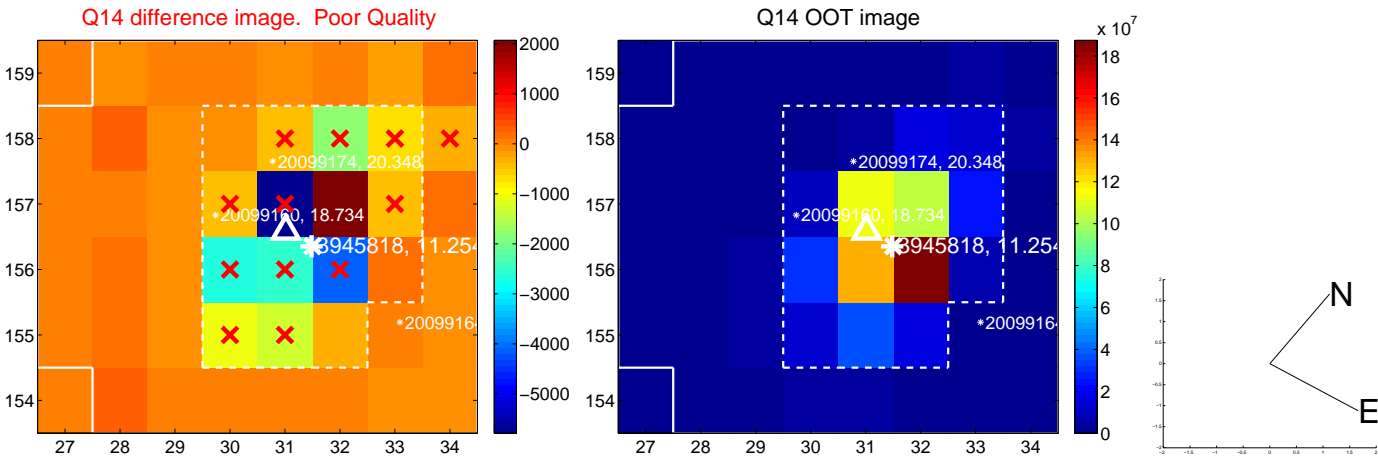
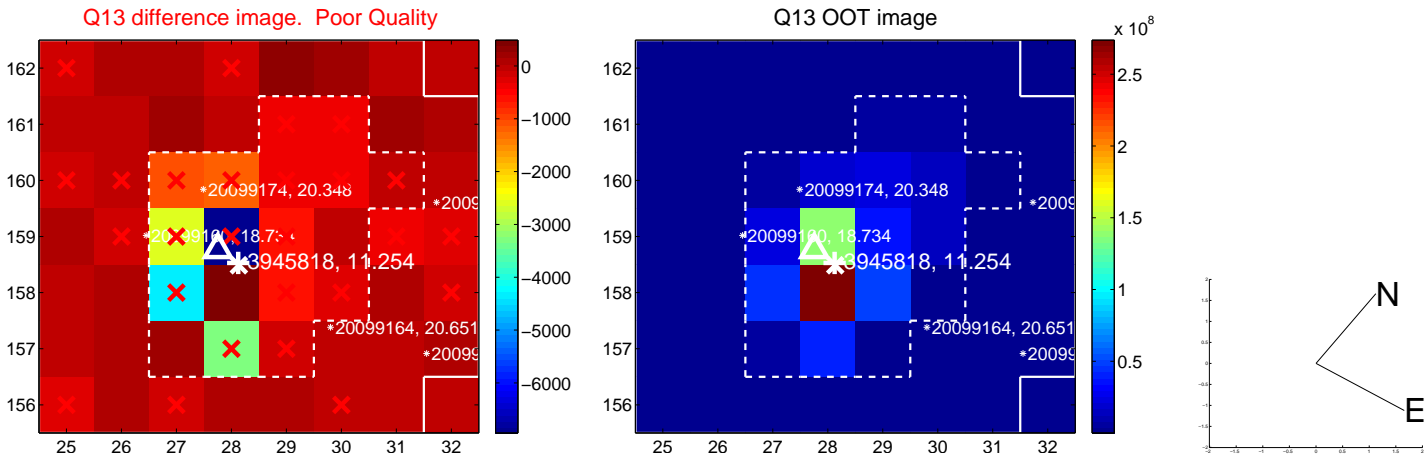
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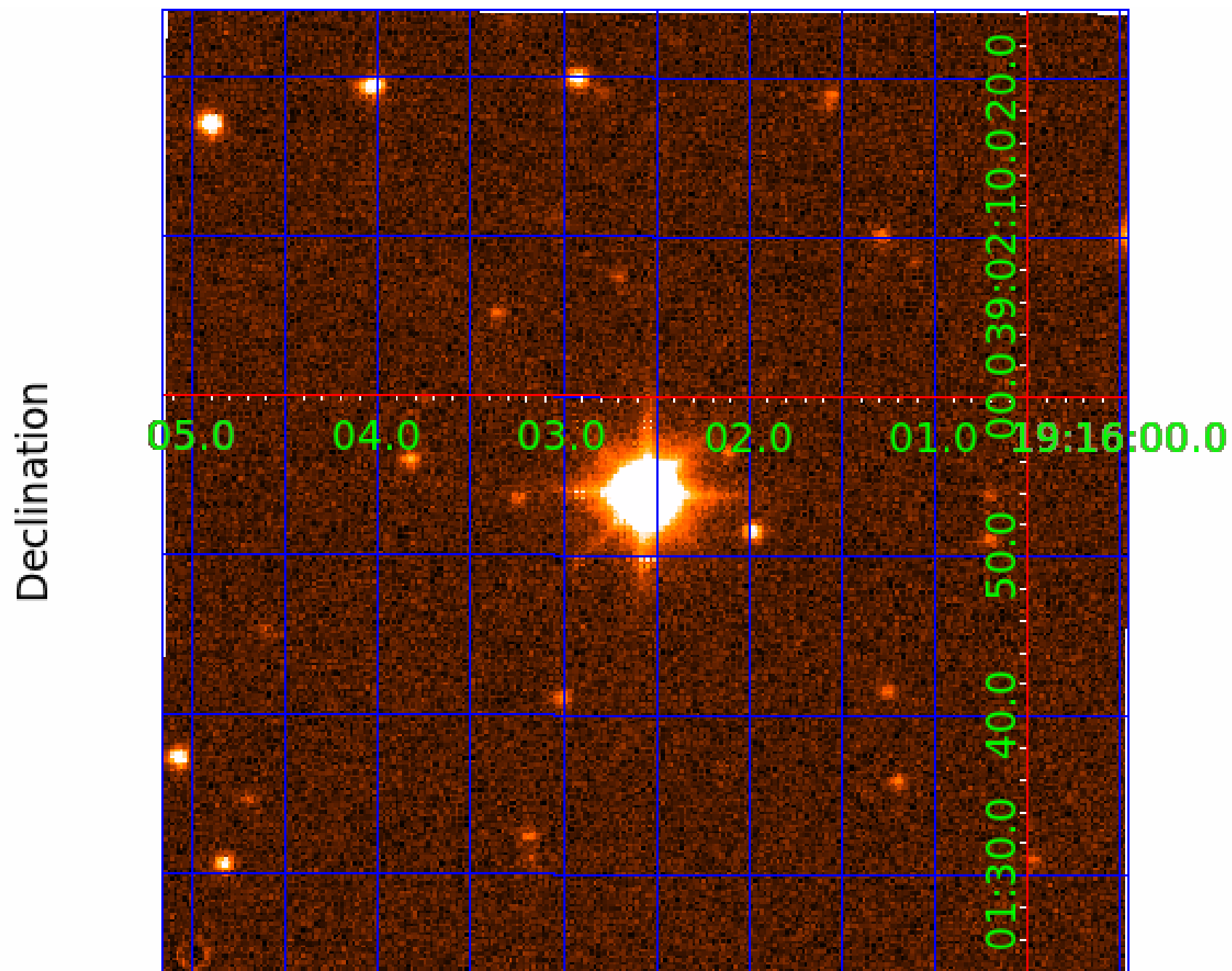
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UKIRT Image



KIC 003945818

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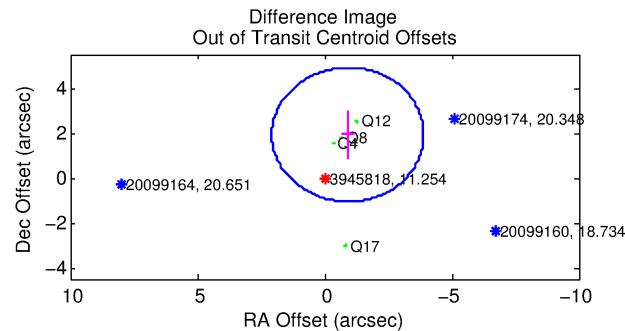
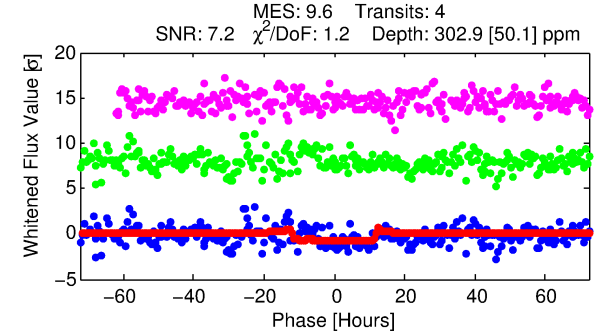
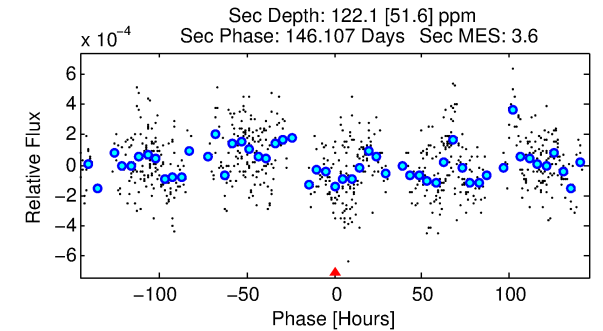
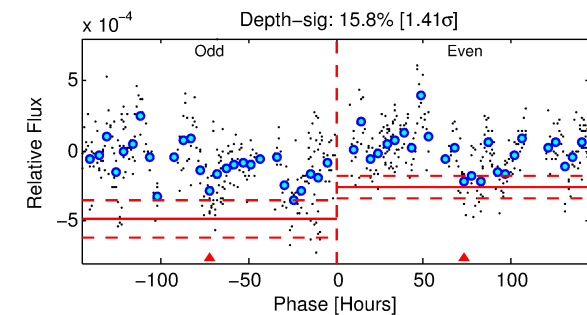
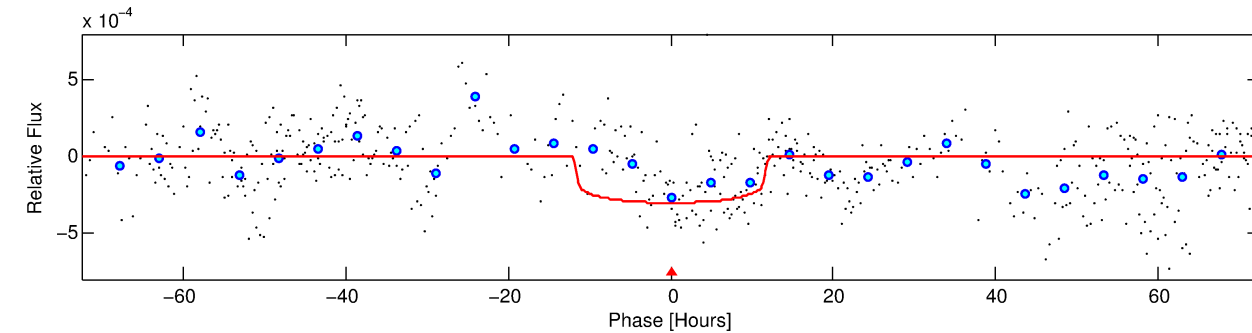
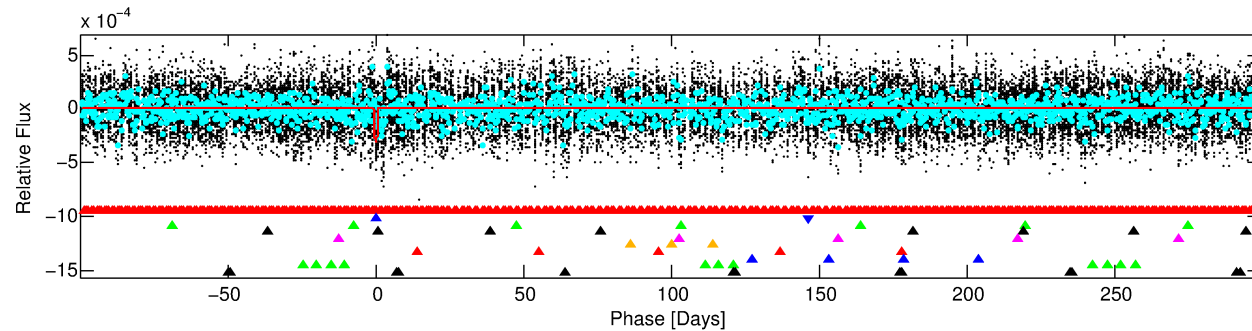
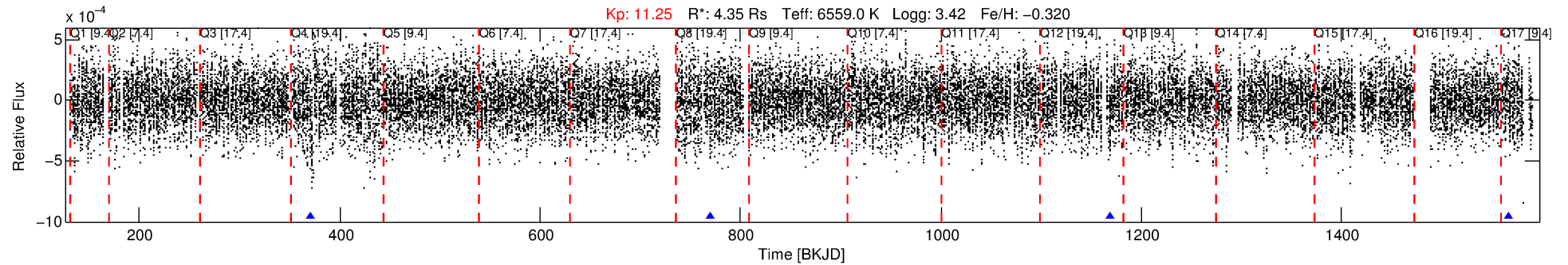
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-02

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 2 of 10 Period: 398.854 d



DV Fit Results:

Period = 398.85364 [0.01628] d
Epoch = 370.5780 [0.0230] BKJD
Rp/R* = 0.0170 [0.0031]
a/R* = 95.23 [83.16]
b = 0.68 [0.69]
Seff = 18.75 [13.05]
Teq = 531 [92] K
Rp = 8.07 [4.03] Re
a = 1.2943 [0.5640] AU
Ag = 1726.82 [1531.02] [1.13 σ]
Teffp = 5288 [754] K [6.26 σ]

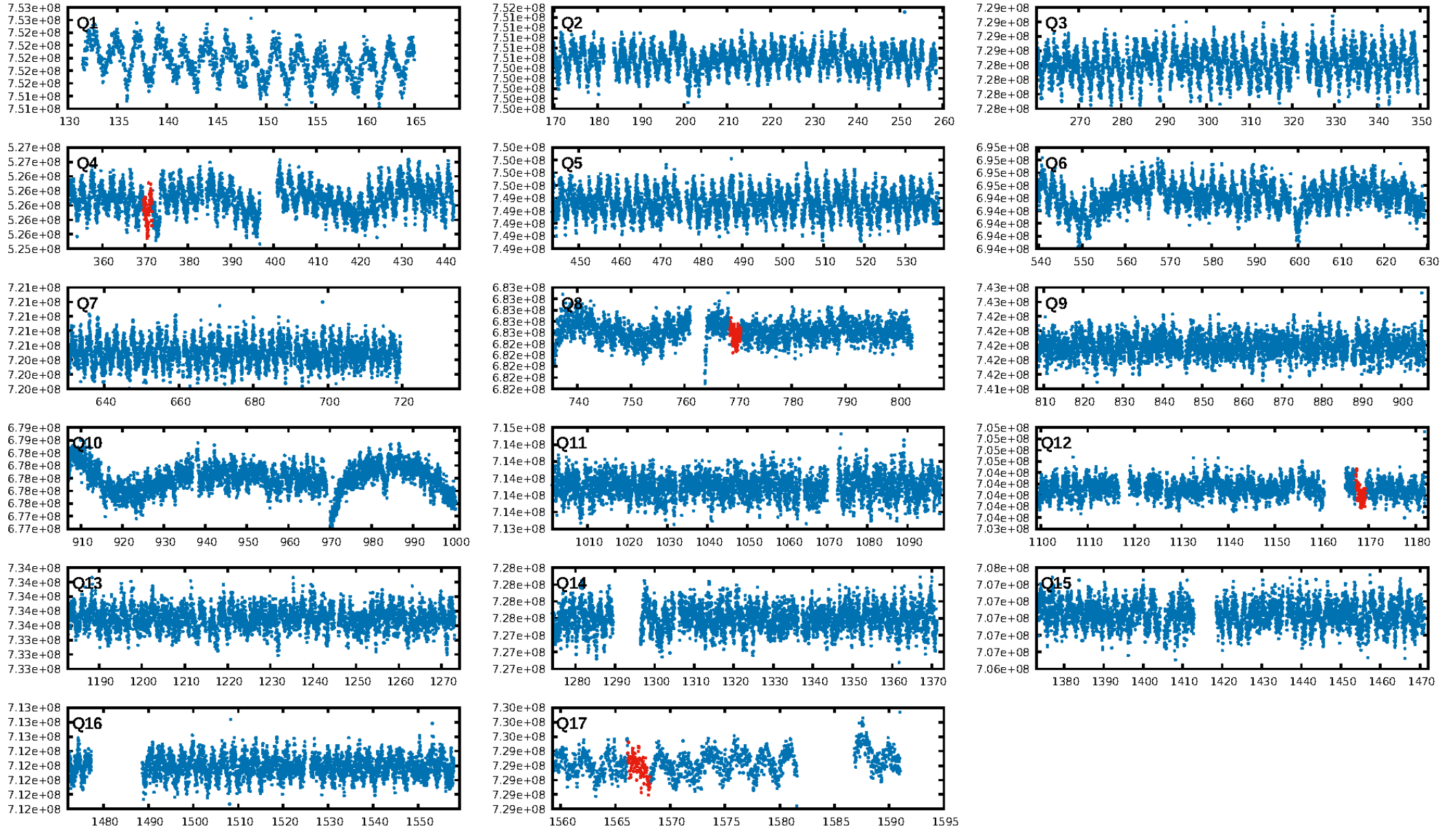
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.31 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.857
Centroid-sig: 10.2%
Centroid-so: 0.273 arcsec [1.21 σ]
OotOffset-rm: 2.129 arcsec [2.14 σ]
KicOffset-rm: 2.122 arcsec [2.23 σ]
OotOffset-st: 0/0/3/1 [4]
KicOffset-st: 0/0/3/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

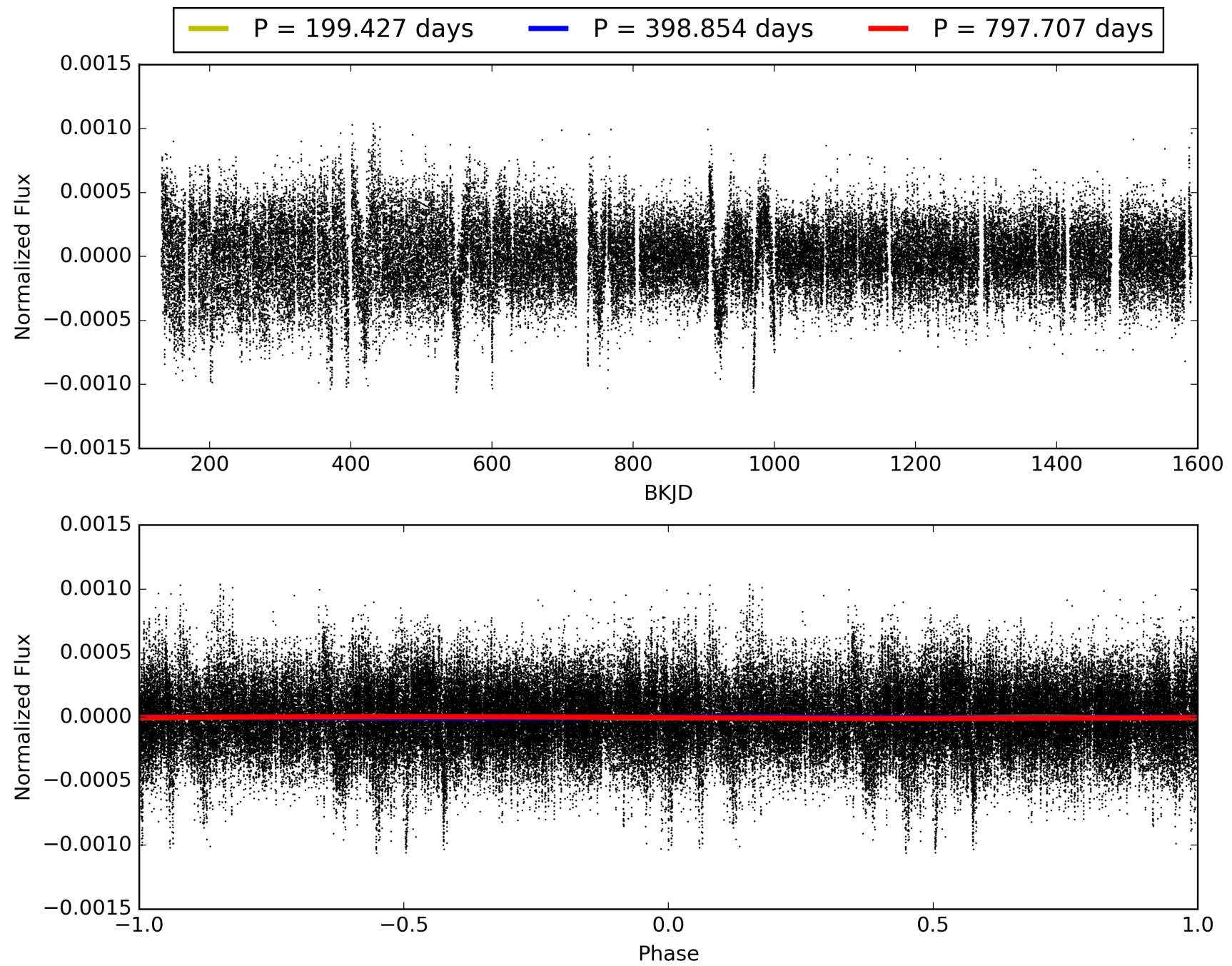
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:03 Z

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

TCE 003945818-02, PDC Light Curves

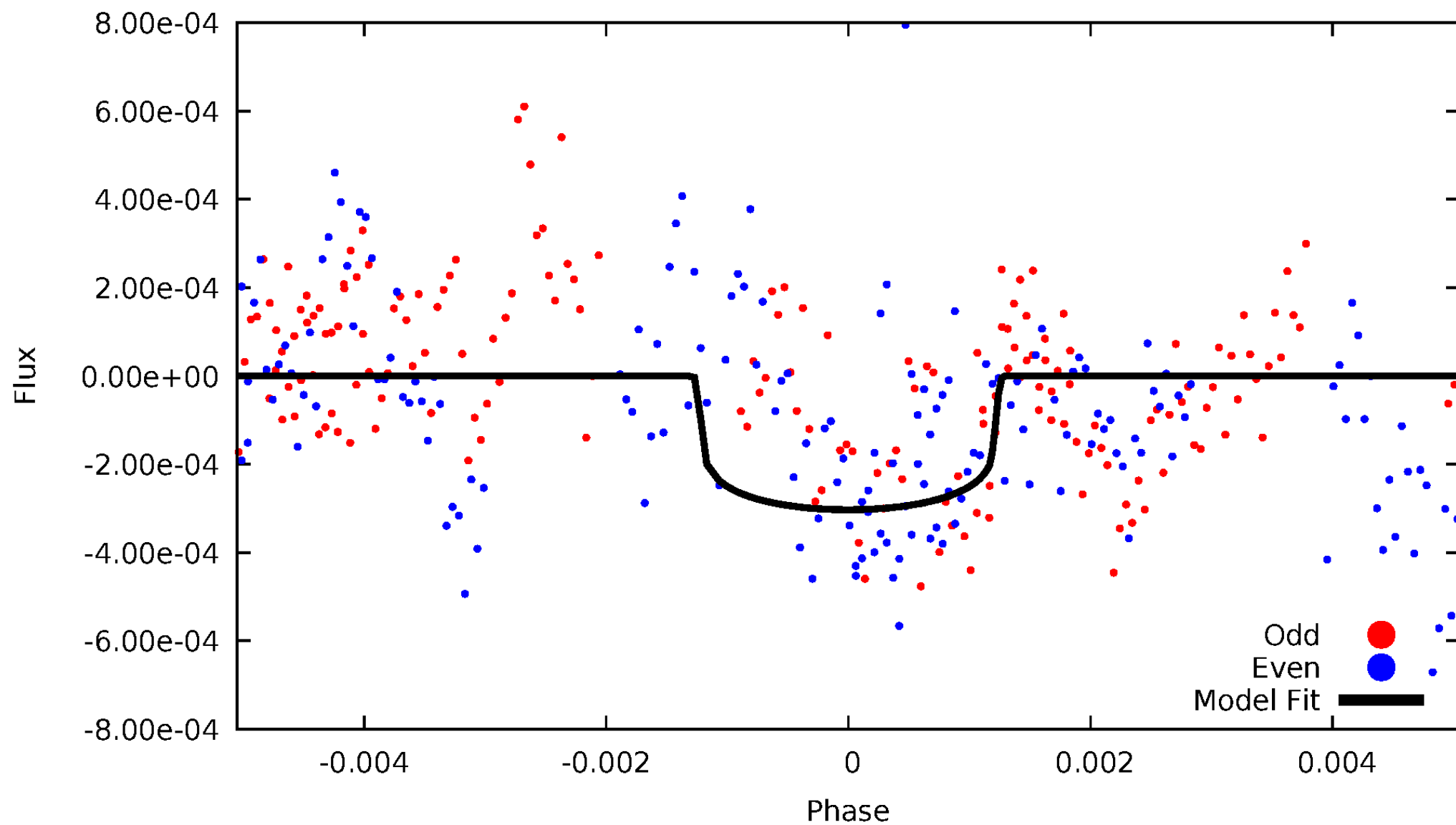


TCE 003945818-02



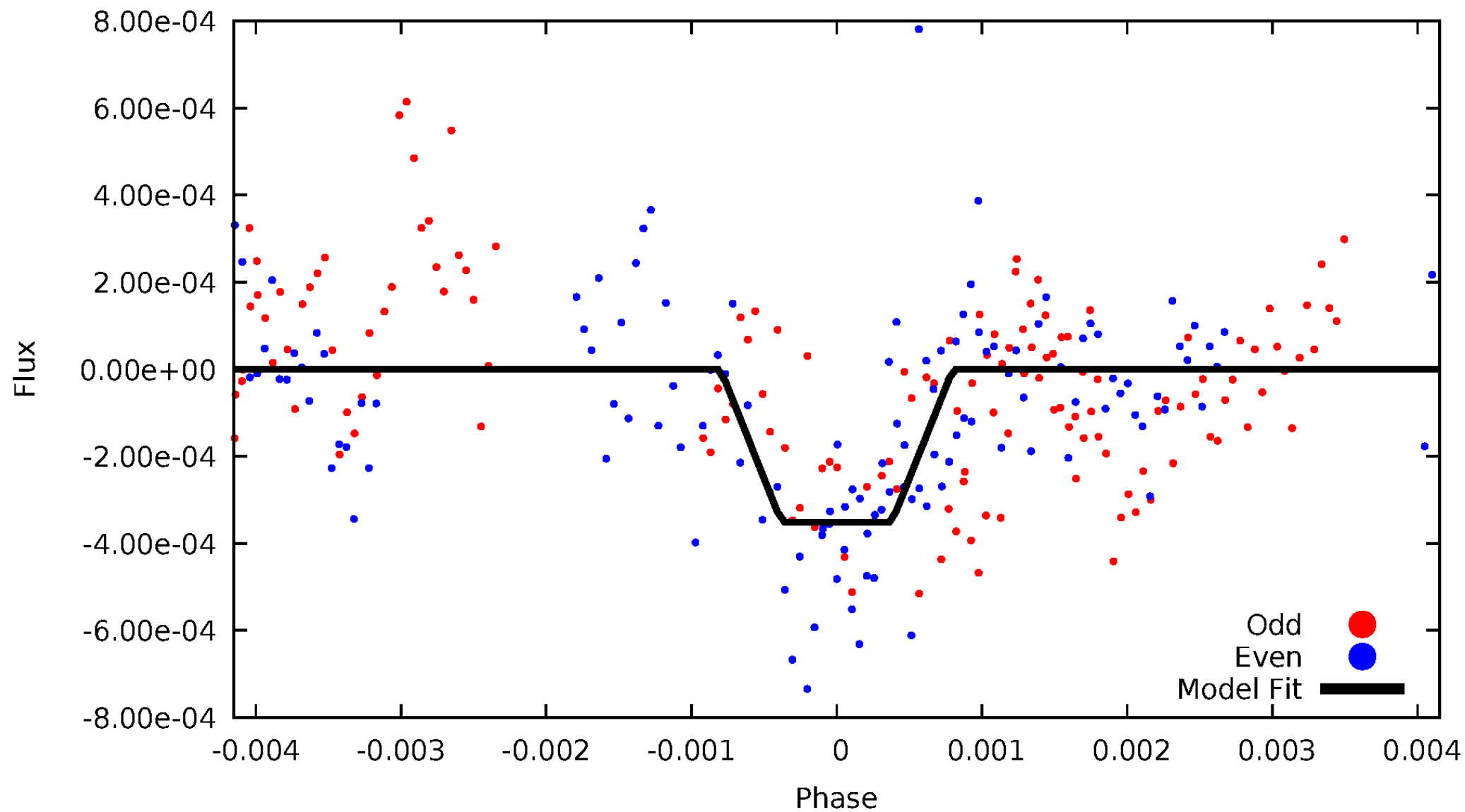
DV Odd/Even

TCE 003945818-02



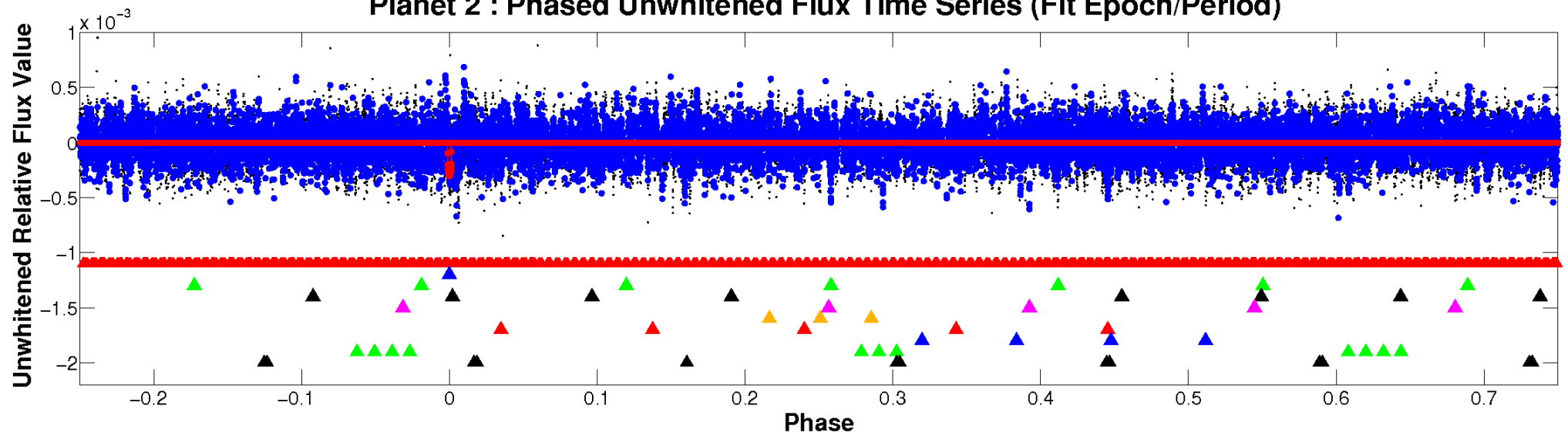
ALT Odd/Even

TCE 003945818-02

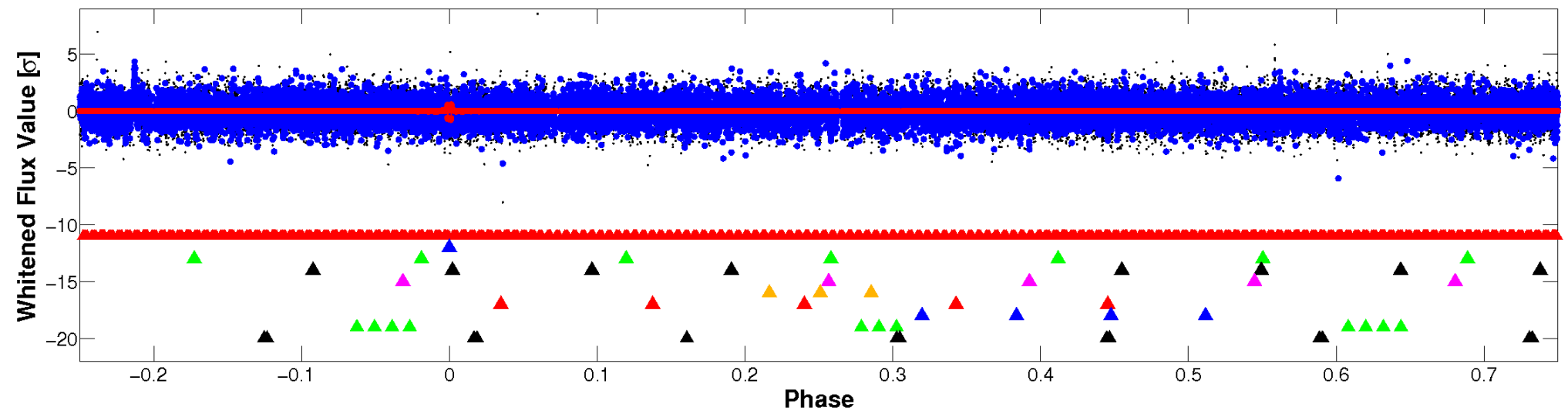


Non-Whitened Vs. Whitened Light Curve

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 003945818-02 $P=398.853636$ Days $T_0=370.578040$ (BKJD)



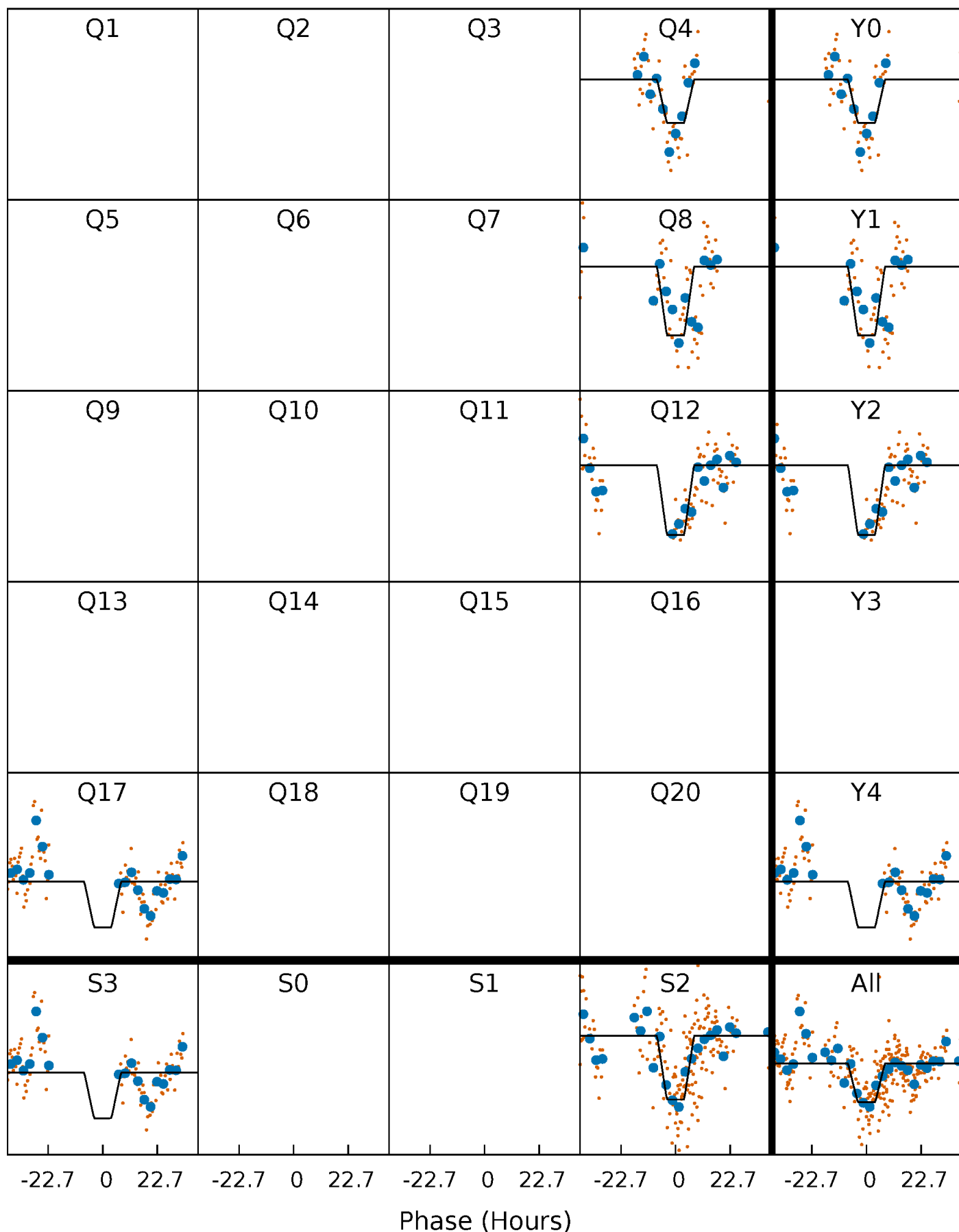
DV Quarter-Phased Transit Curves

TCE 003945818-02 $P=398.853636$ Days $T_0=370.578040$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

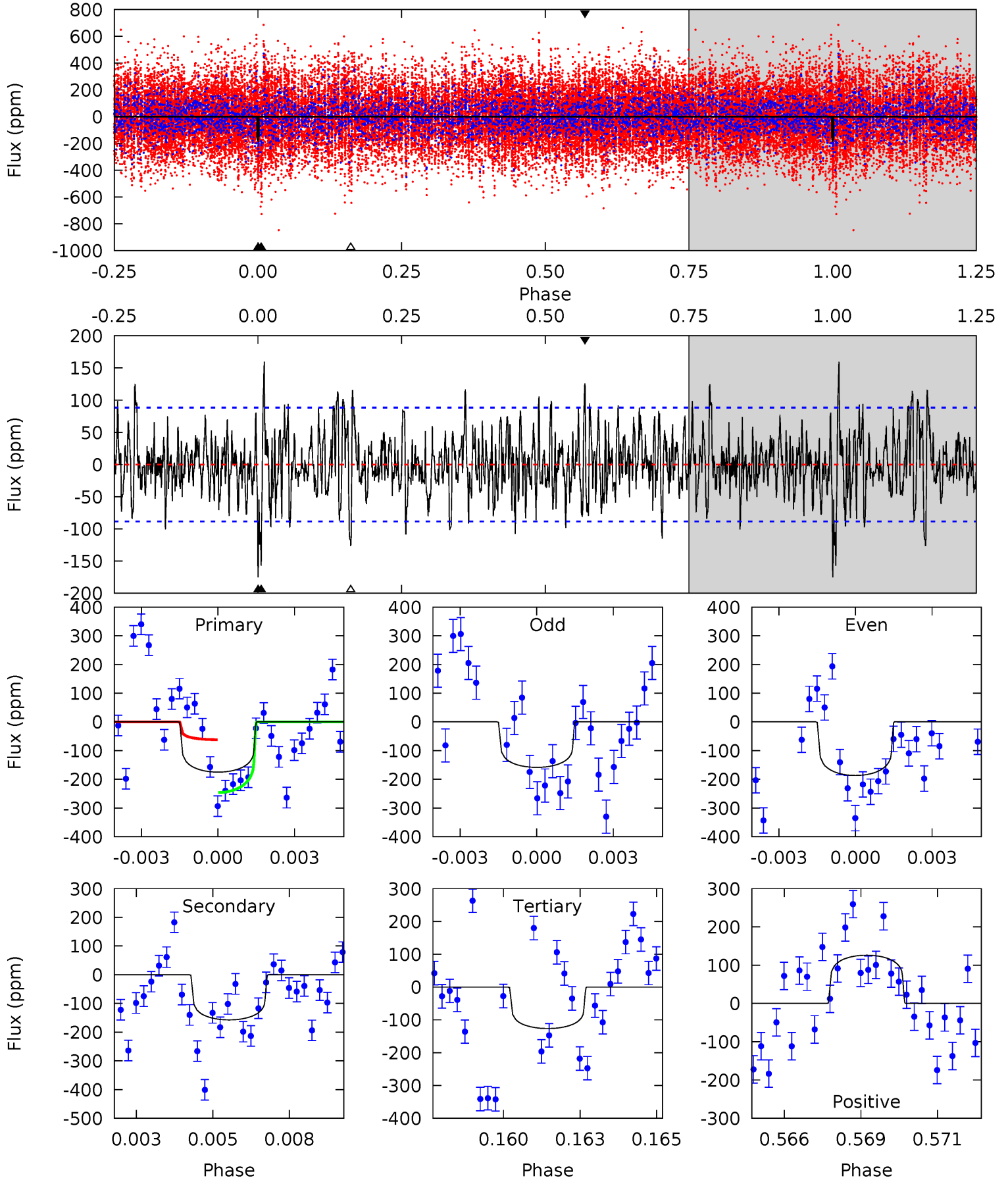
TCE 003945818-02 P=398.903958 Days $T_0=370.540699$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-02, P = 398.853636 Days, E = 370.578040 Days

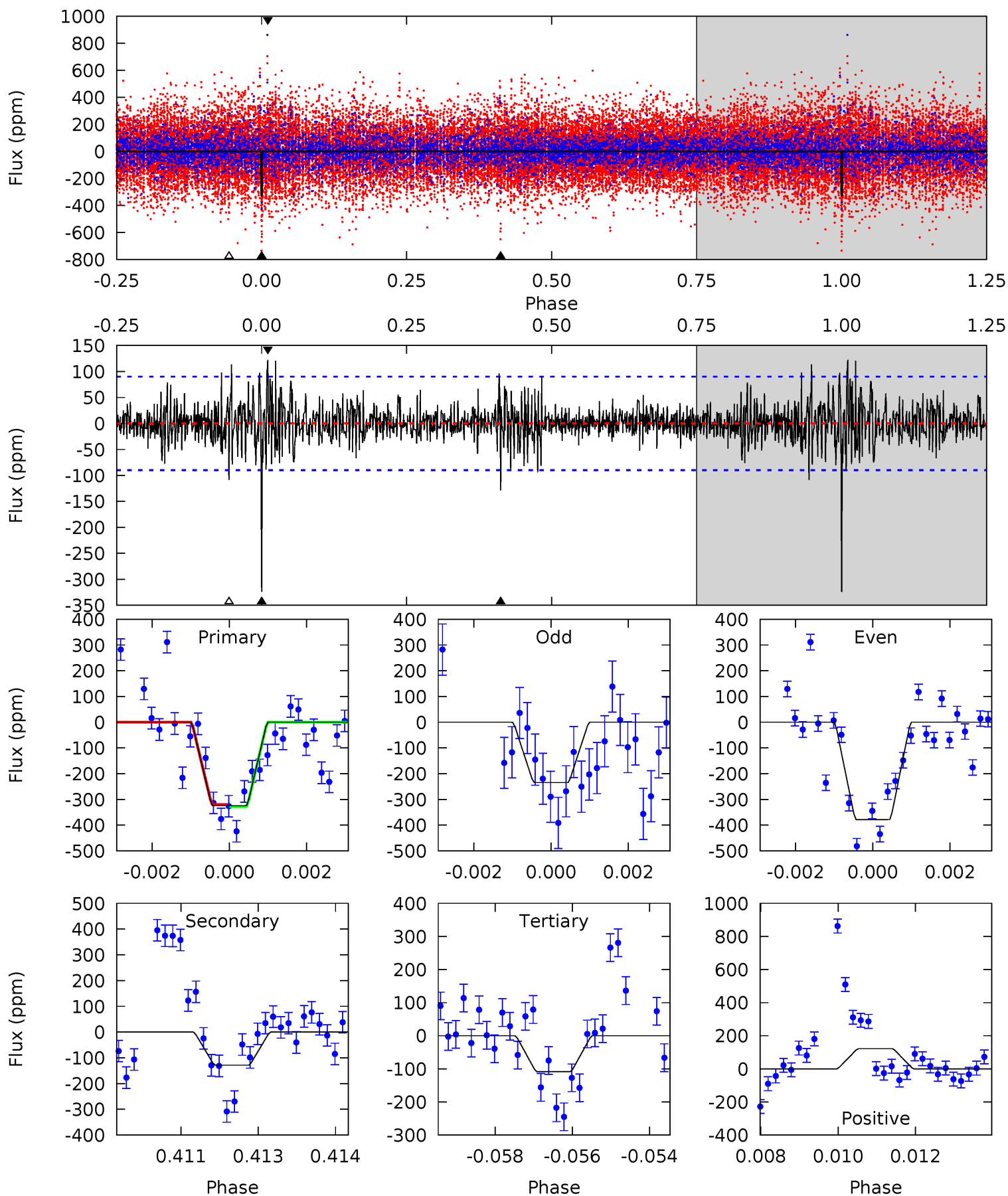
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	9.39	7.55	7.52	5.28	3.02	2.35	2.91	2.93	1.84	1.86	0.84	1.22	0.48	5.32



Alt Model-Shift Uniqueness Test

003945818-02, P = 398.903958 Days, E = 370.540699 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	7.66	6.46	7.28	5.36	3.15	1.52	12.9	12.0	1.20	0.38	4.16	1.02	0.27	0.22



Stellar Parameters For KIC 003945818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-157 ± 17	$7.34^{+2.13}_{-1.97}$	724^{+43}_{-81}	5655^{+640}_{-470}	2642^{+2181}_{-1002}
Alt.	-129 ± 17	$8.18^{+2.00}_{-2.15}$	720^{+43}_{-80}	5147^{+421}_{-371}	1750^{+1379}_{-595}

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 $A_{obs} \gg 1.0$

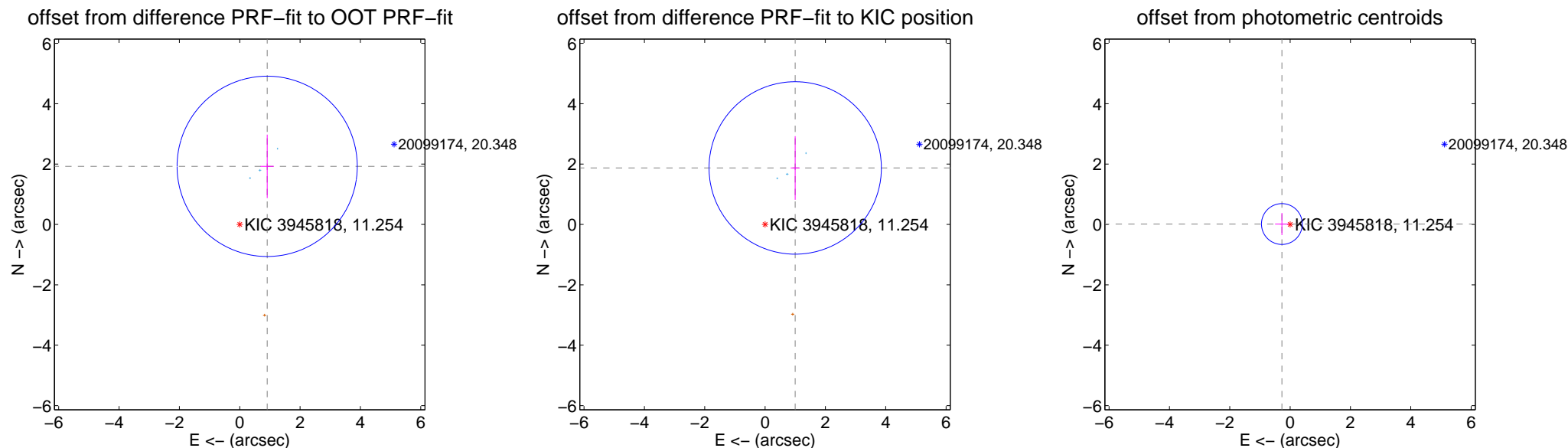
DV Centroid Data

Supplemental centroid analysis for 003945818-02. **Kepler magnitude: 11.25.** Transit SNR 7.16

There are 3 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.129 ± 0.995	2.14	-0.910 ± 0.220	1.925 ± 1.051
PRF-fit source offset from KIC position	2.122 ± 0.952	2.23	-0.999 ± 0.150	1.872 ± 1.054
photometric centroid source offset	0.27 ± 0.23	1.21	0.27 ± 0.22	0.01 ± 0.37



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



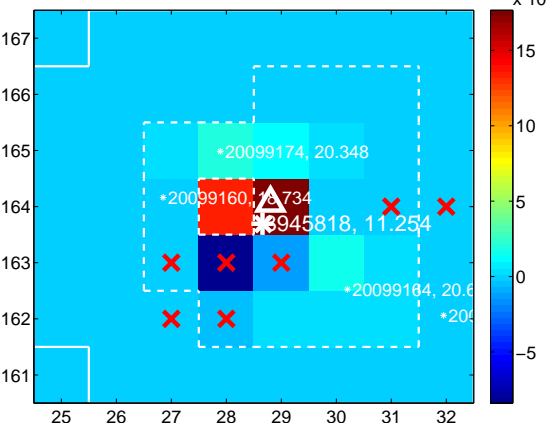
Q3 no difference image



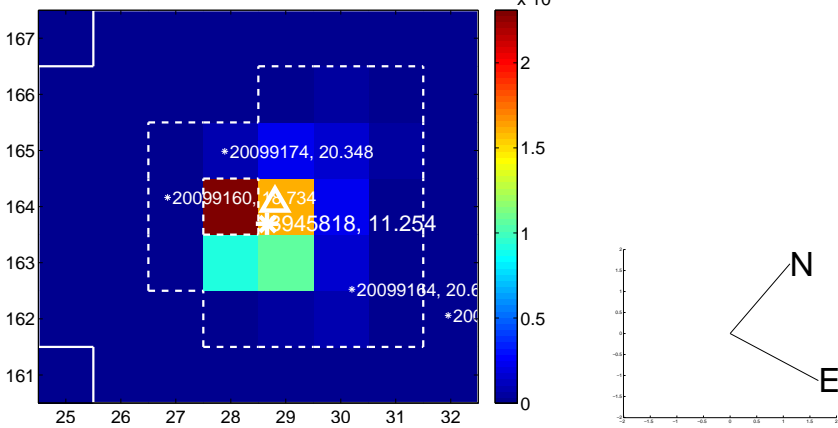
Q3 no OOT image



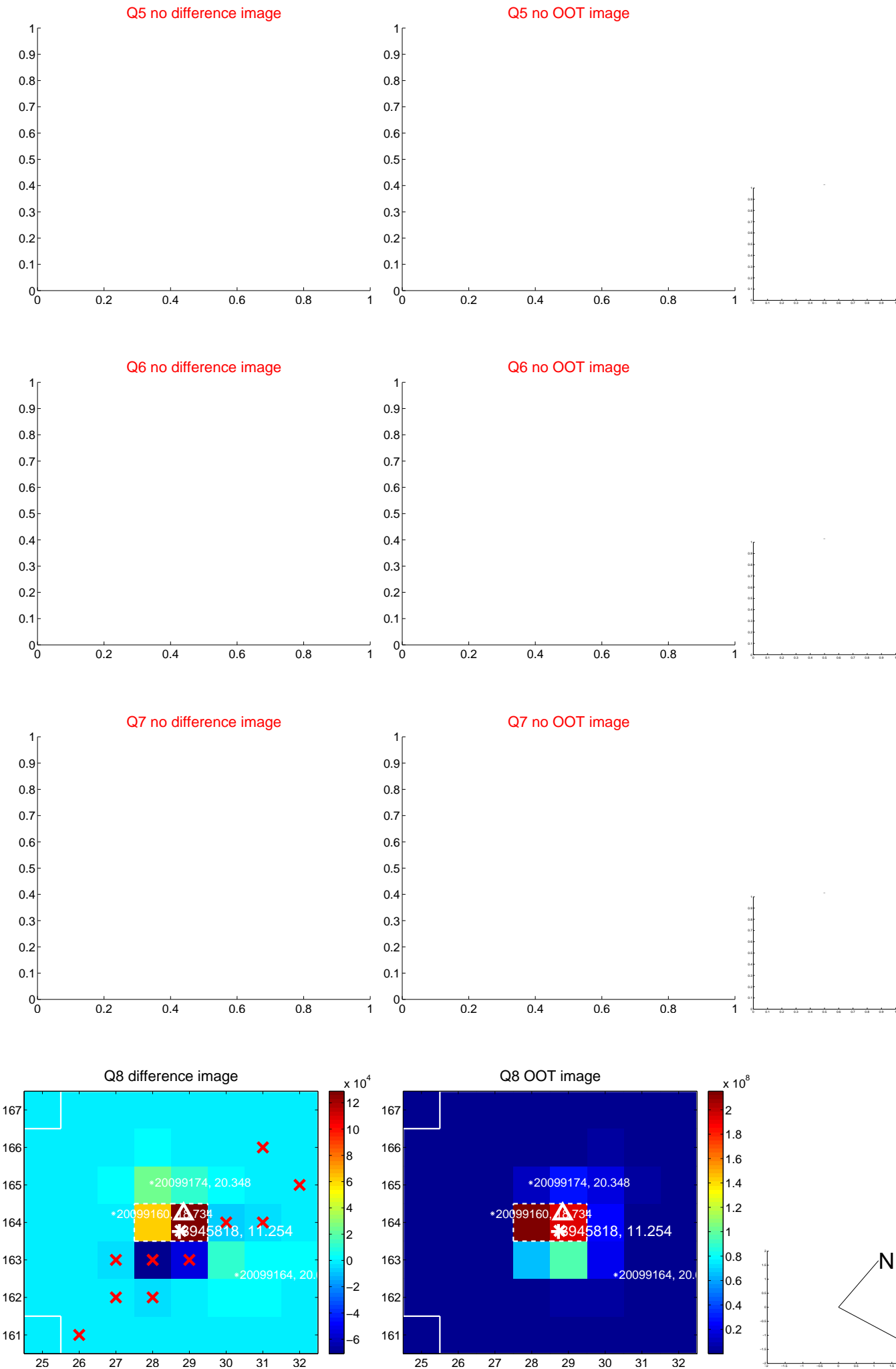
Q4 difference image



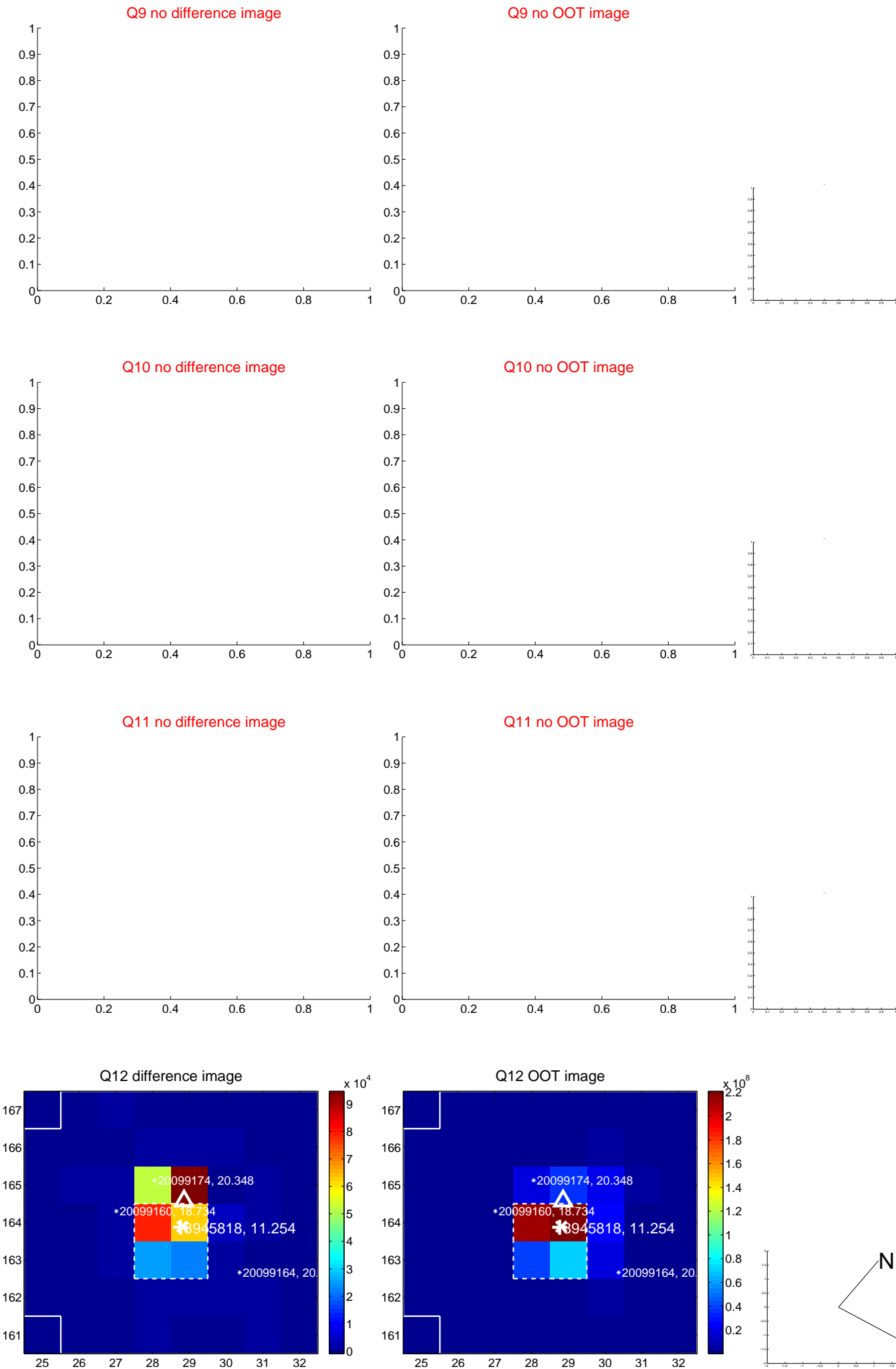
Q4 OOT image



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



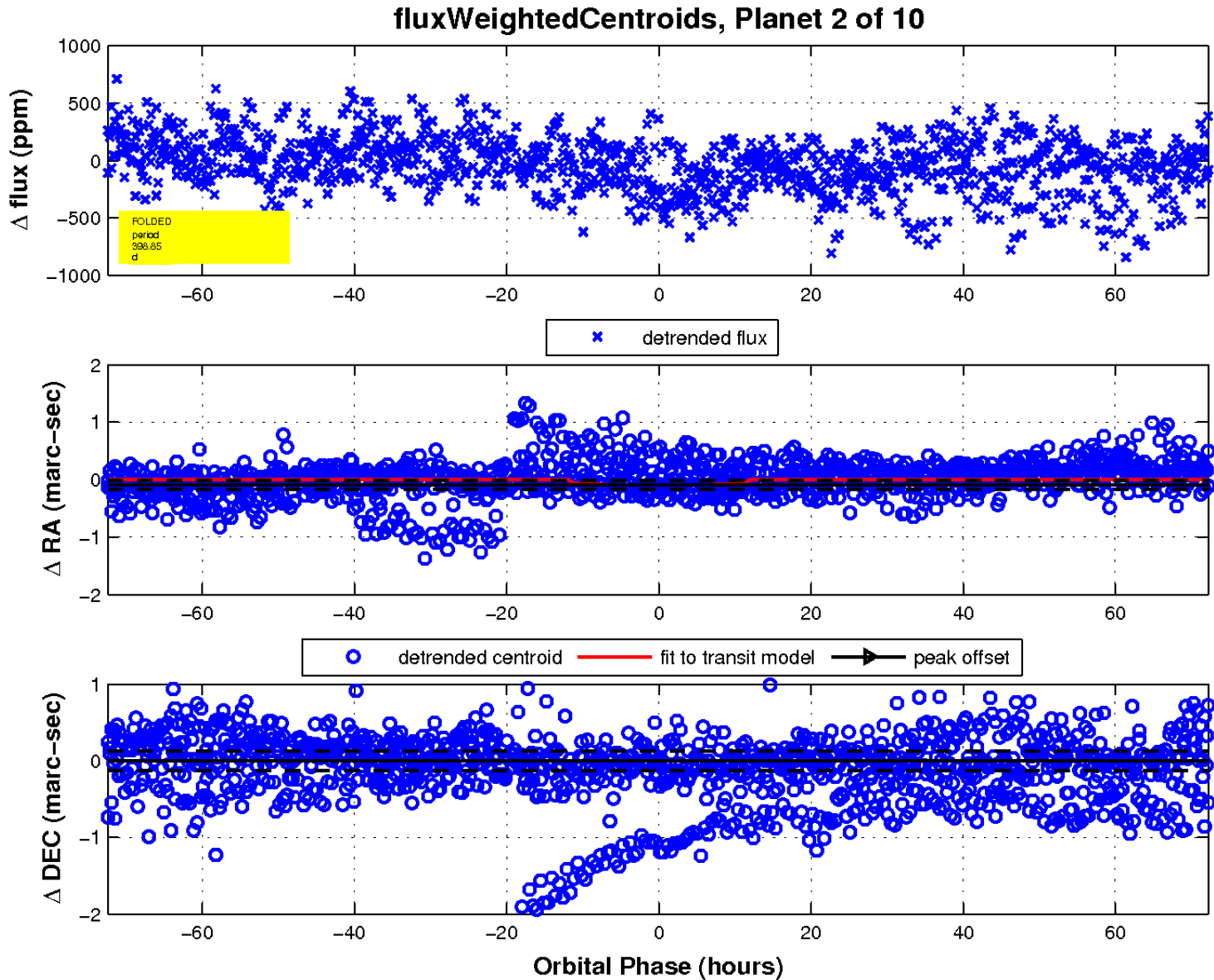
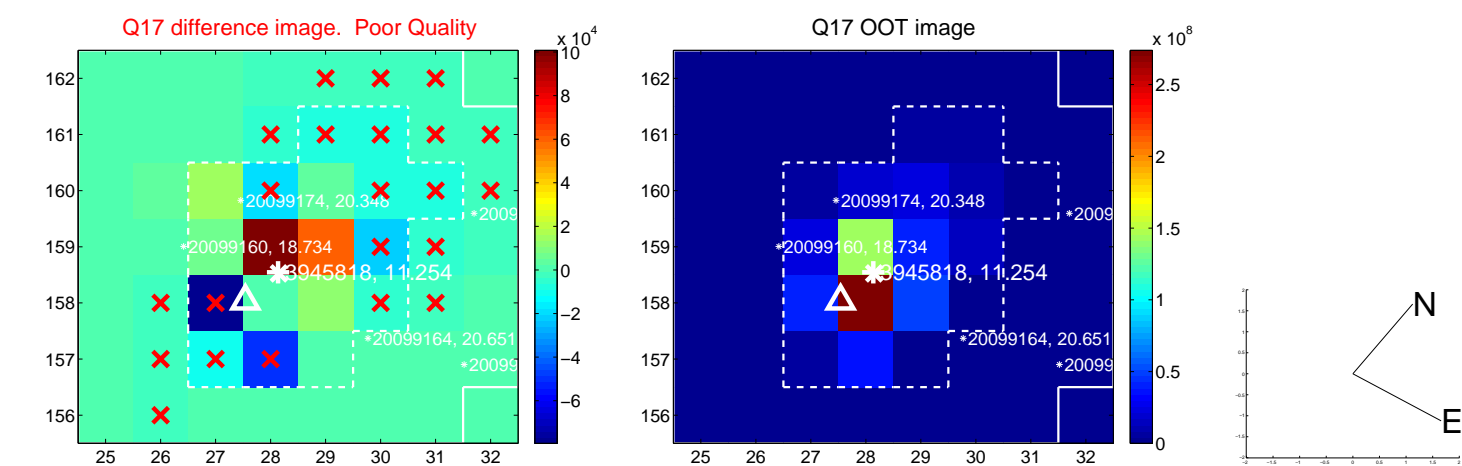
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



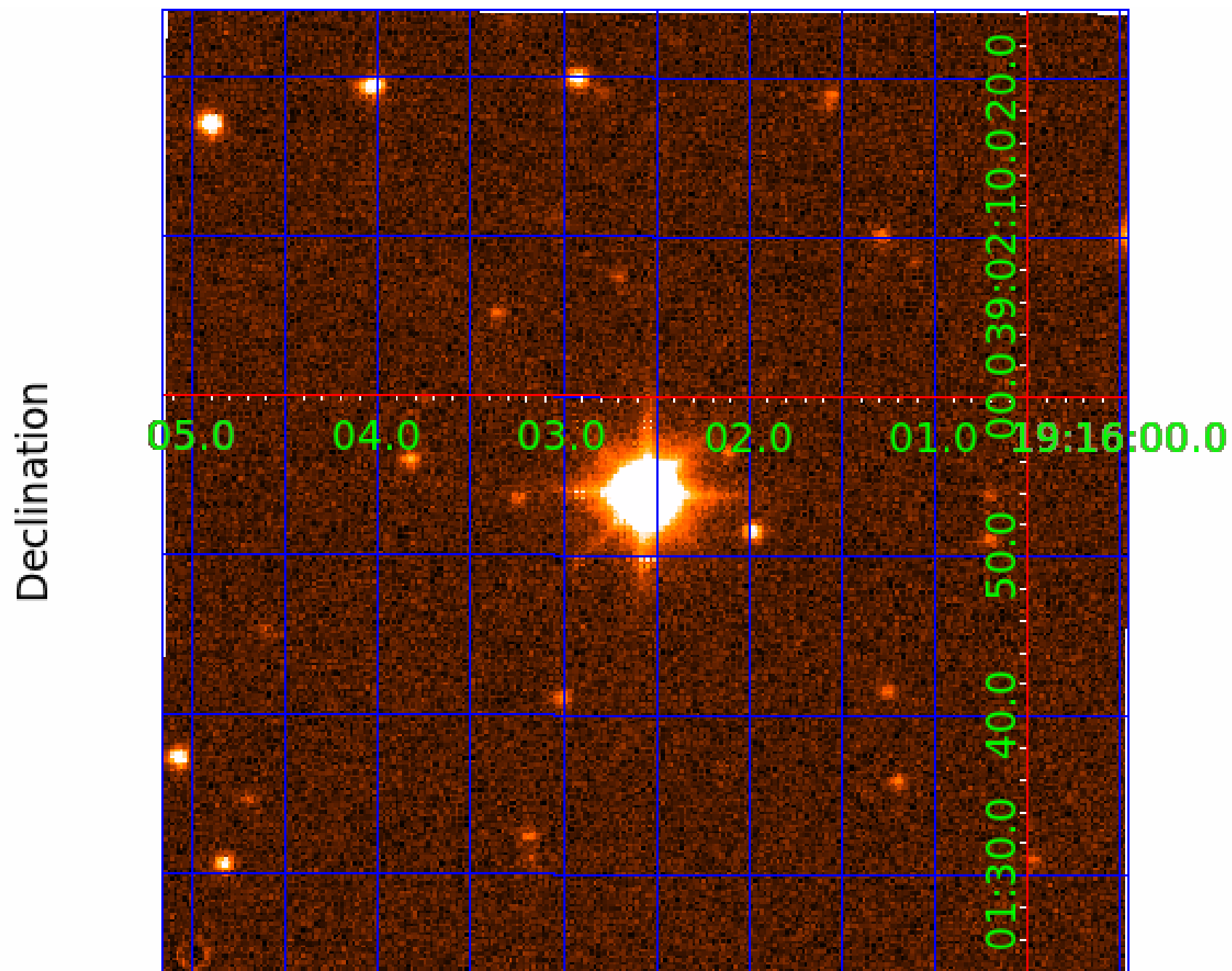
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

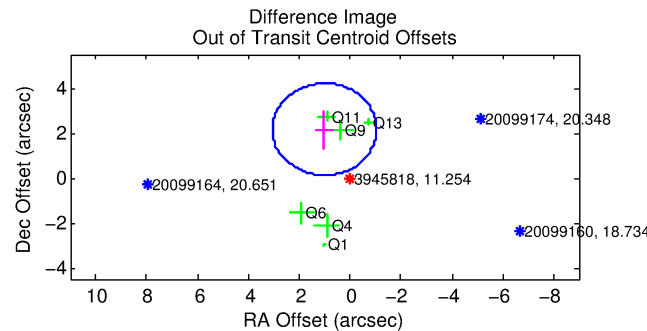
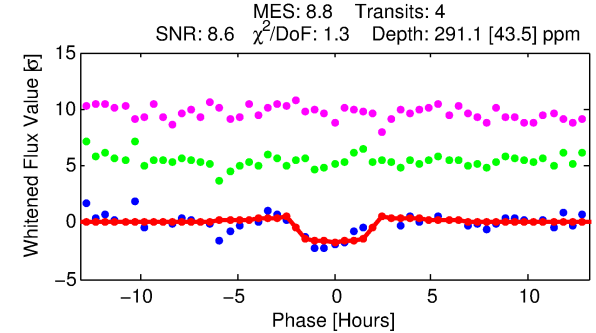
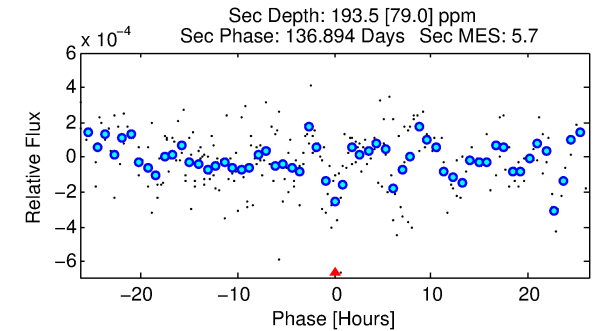
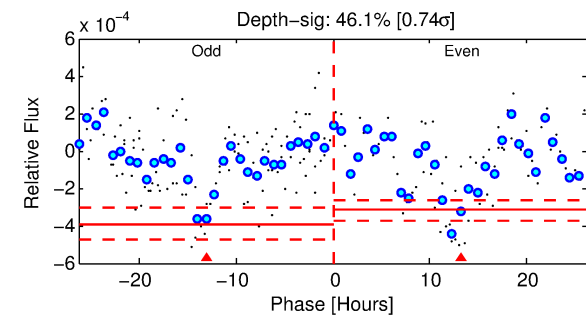
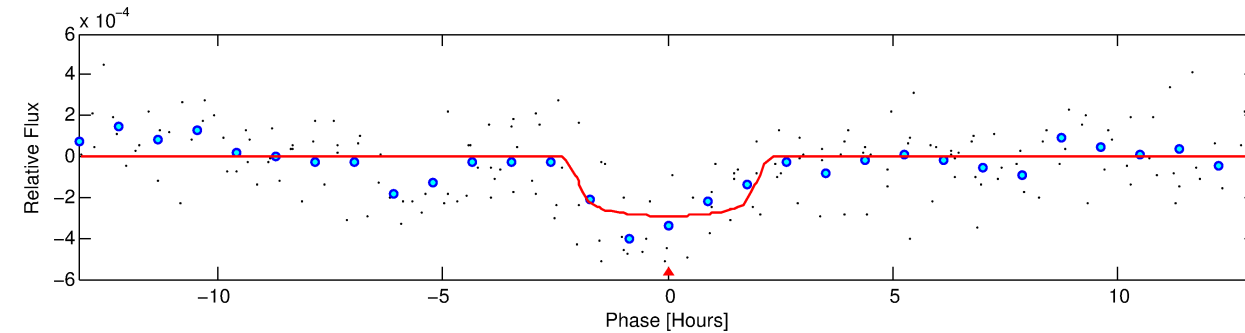
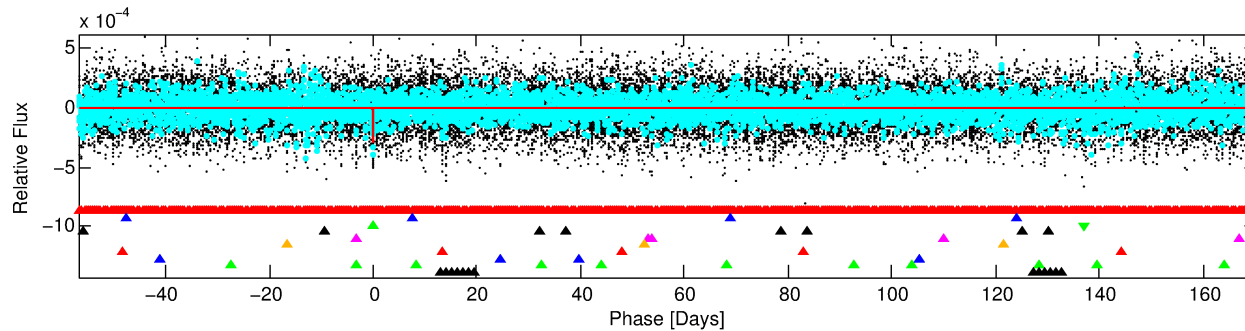
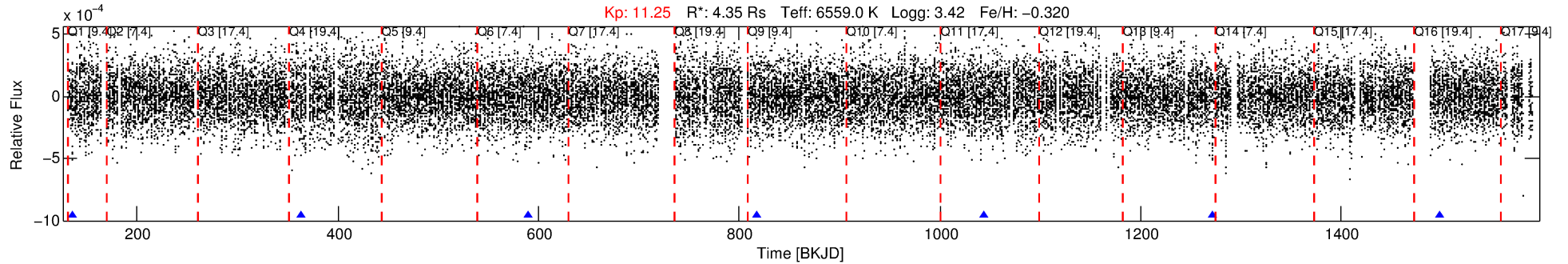
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-03

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 3 of 10 Period: 227.051 d



DV Fit Results:

Period = 227.05059 [0.00181] d
Epoch = 136.0085 [0.0077] BKJD
Rp/R* = 0.0181 [0.0168]
a/R* = 198.32 [1085.53]
b = 0.89 [1.33]
Seff = 39.74 [27.66]
Teff = 640 [111] K
Rp = 8.58 [8.93] Re
a = 0.8890 [0.3874] AU
Ag = 1143.50 [2320.27] [0.49 σ]
Teffp = 5756 [2752] K [1.86 σ]

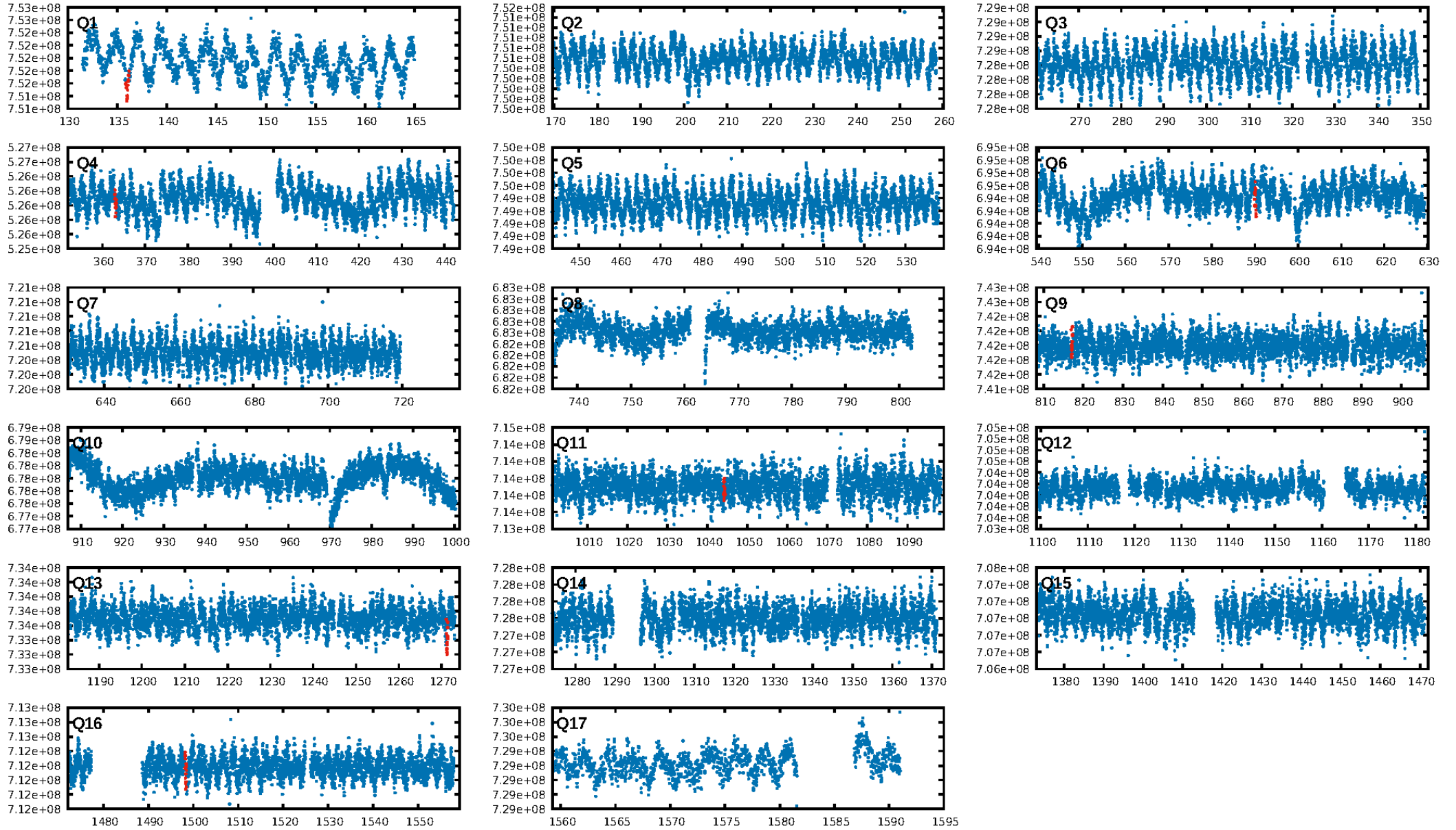
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [200.65 σ]
LongPeriod-sig: 100.0% [188.26 σ]
ModelChiSquare2-sig: 1.0%
ModelChiSquareGoF-sig: 36.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.111
Centroid-sig: 19.1%
Centroid-so: 0.480 arcsec [1.08 σ]
OotOffset-rm: 2.386 arcsec [3.50 σ]
KicOffset-rm: 2.200 arcsec [3.00 σ]
OotOffset-st: 1/1/1/3 [6]
KicOffset-st: 1/1/1/3 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.50 [3/6]

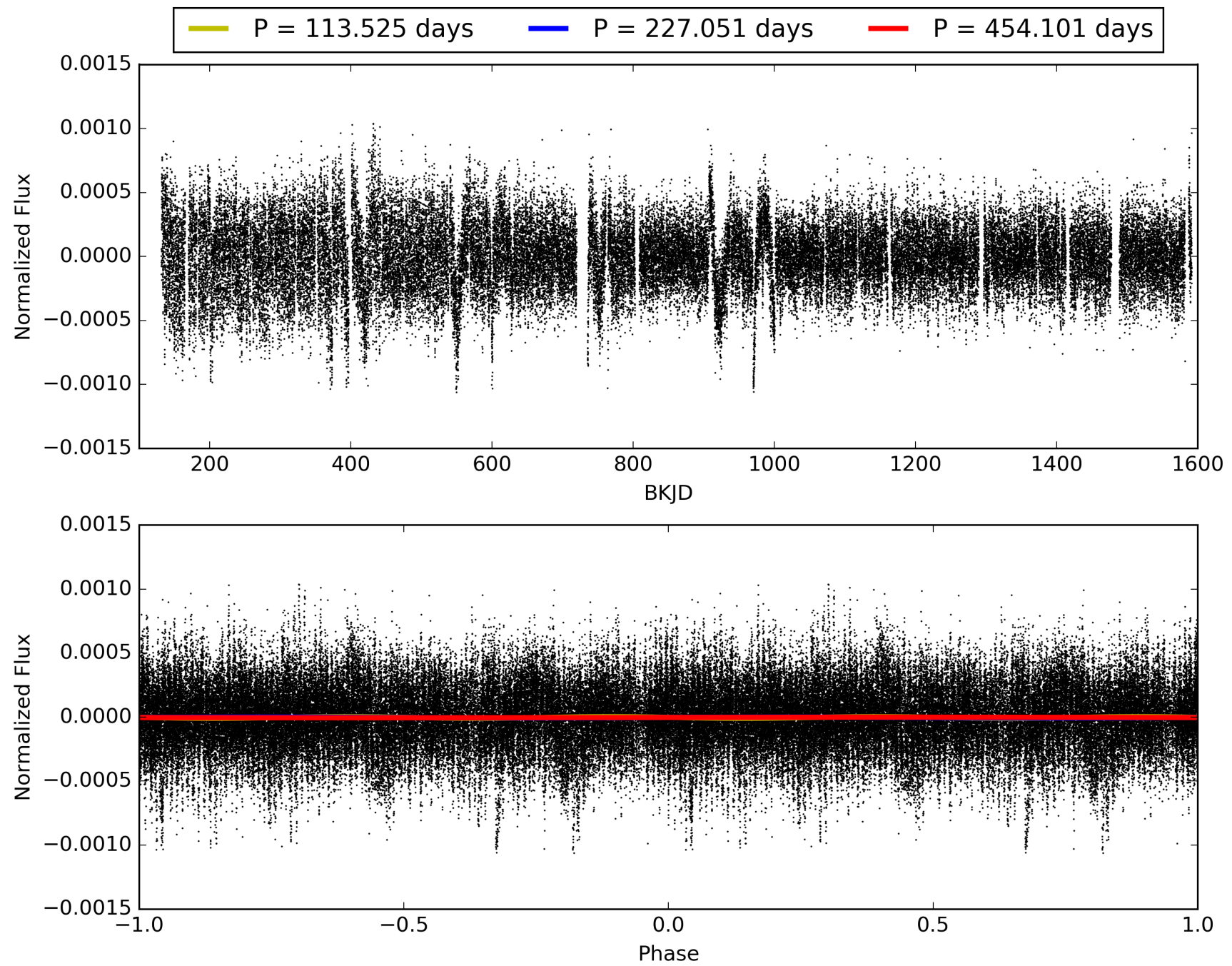
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:10 Z

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

TCE 003945818-03, PDC Light Curves

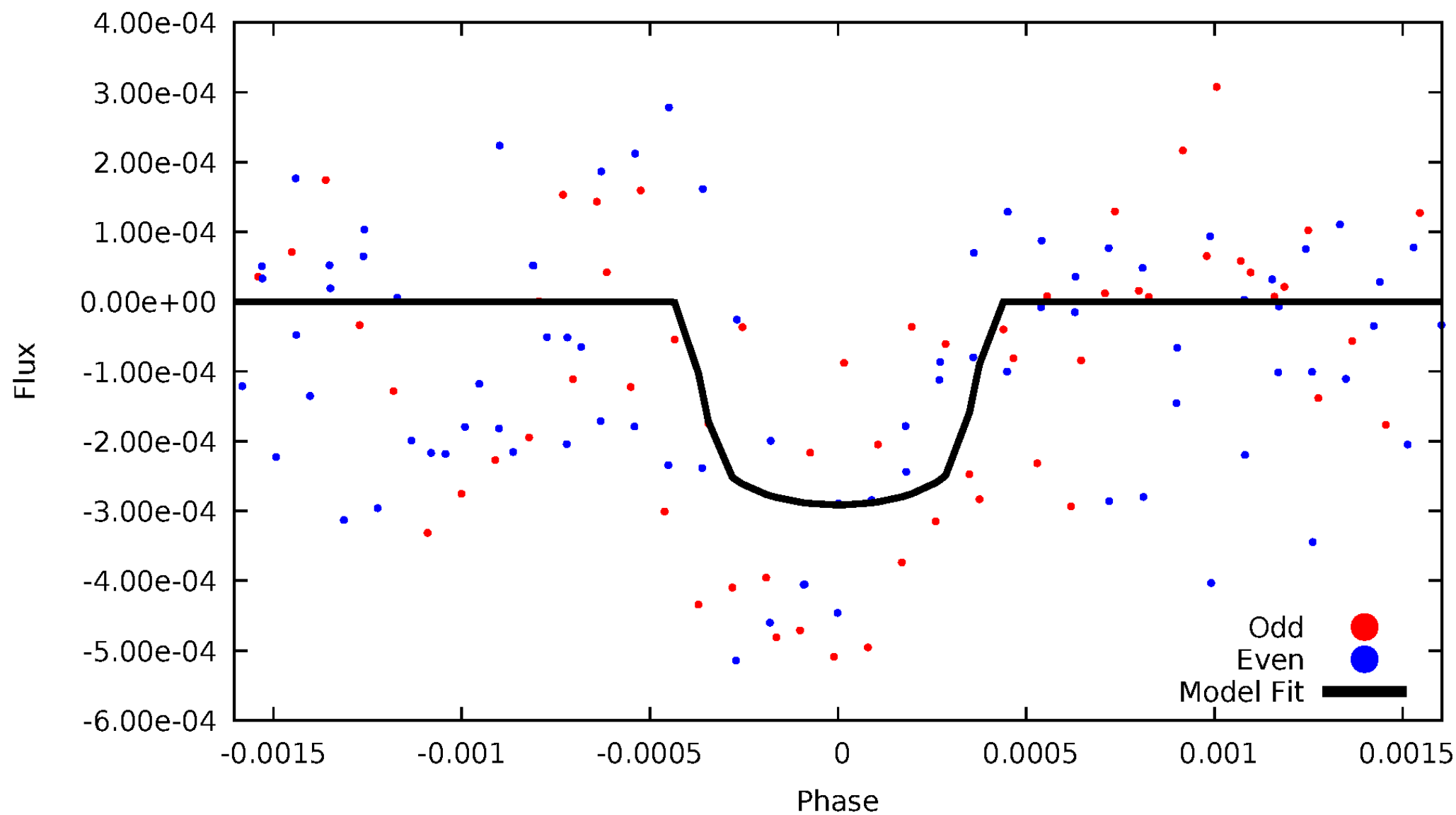


TCE 003945818-03



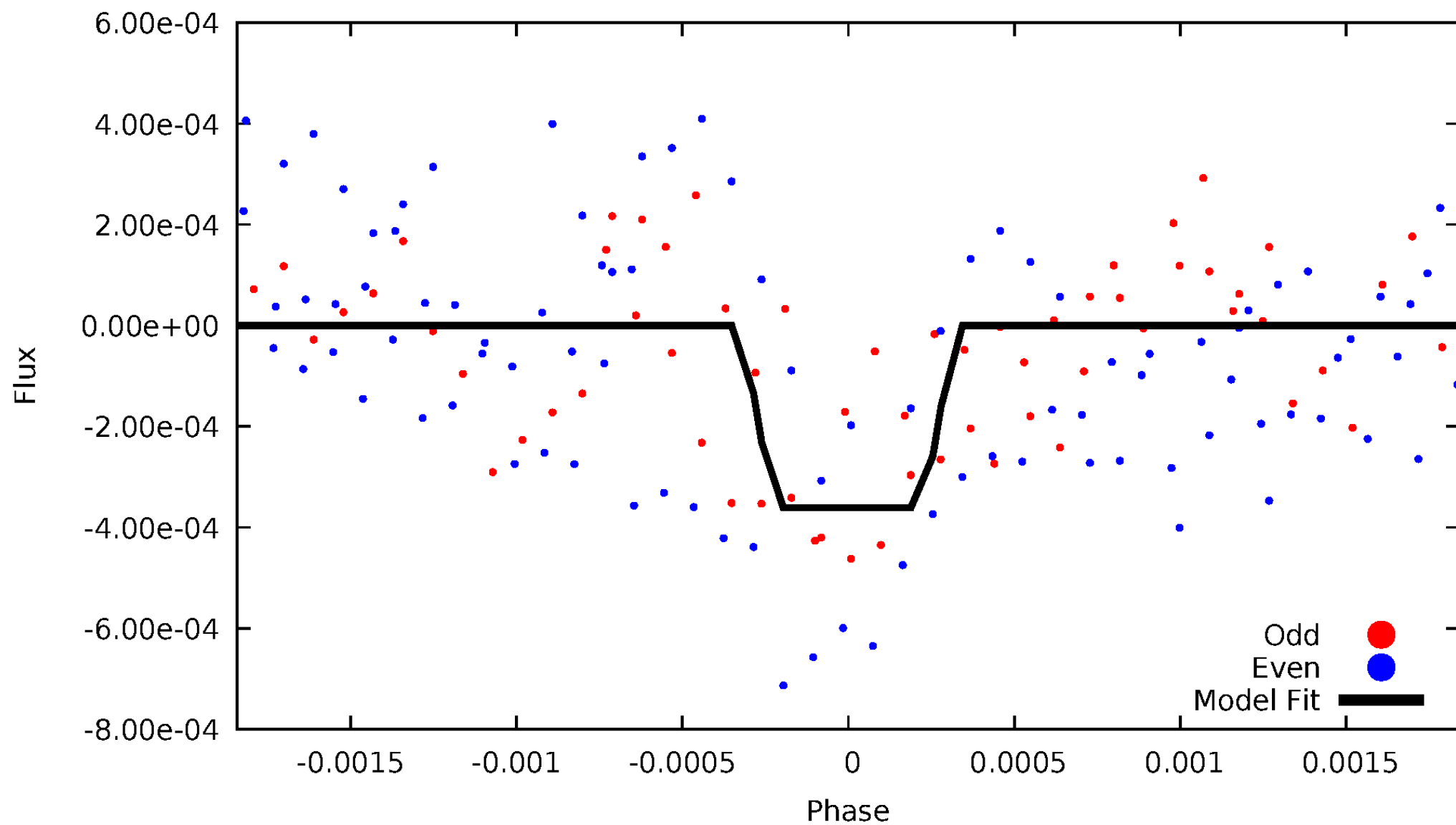
DV Odd/Even

TCE 003945818-03



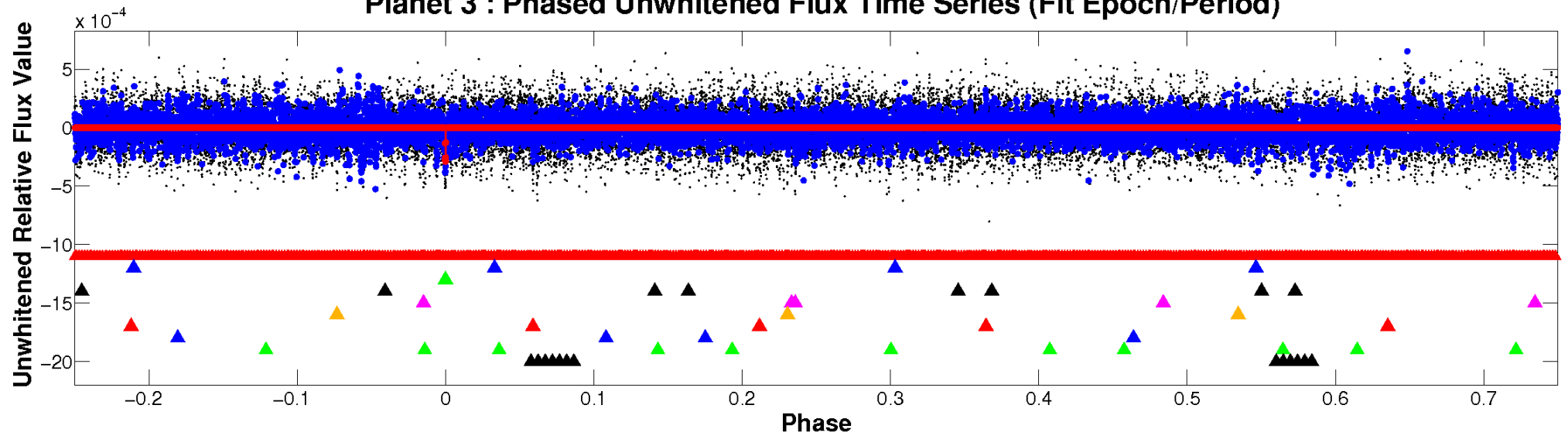
ALT Odd/Even

TCE 003945818-03

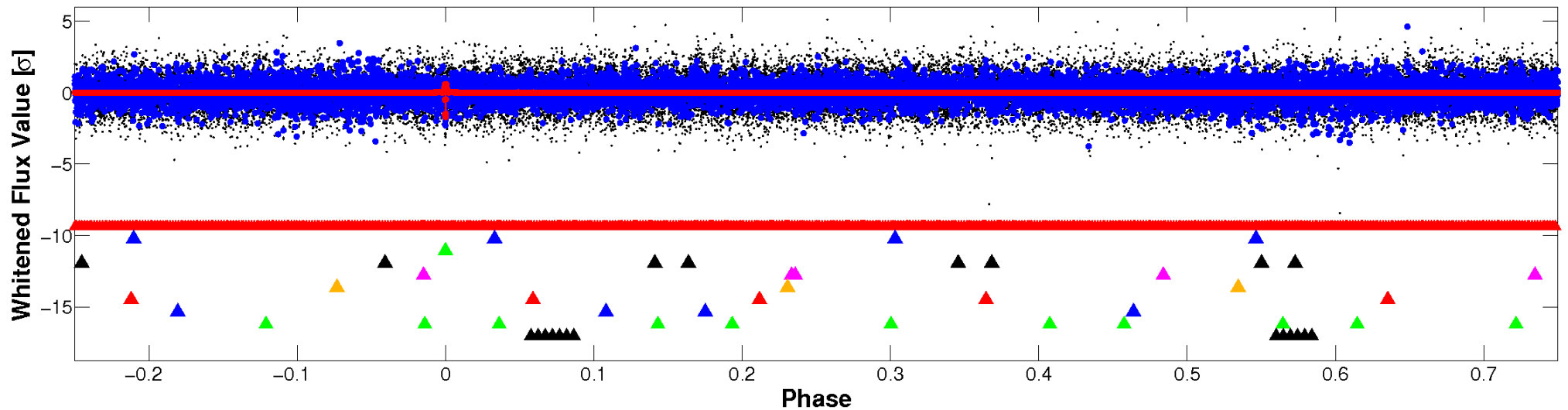


Non-Whitened Vs. Whitened Light Curve

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

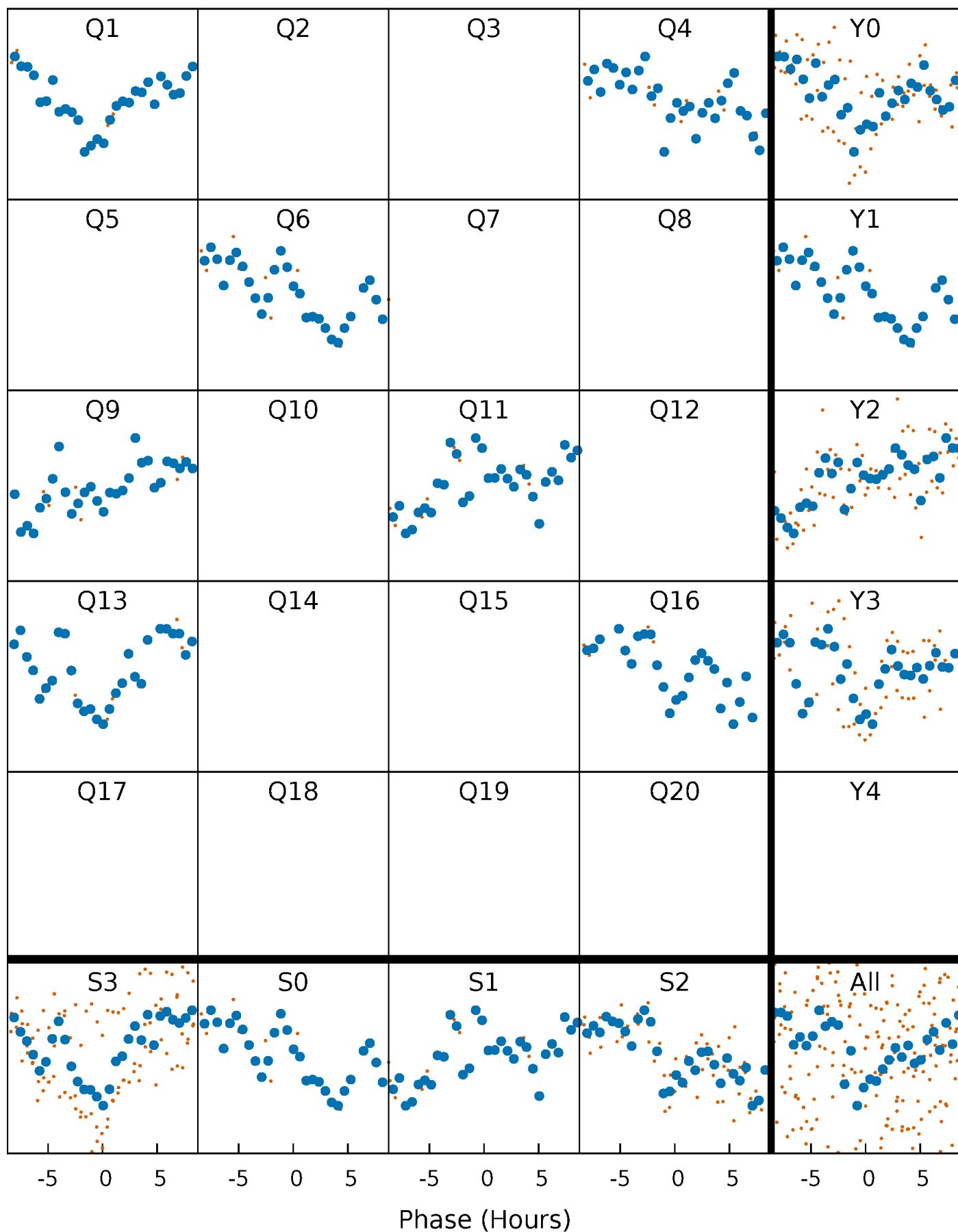


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



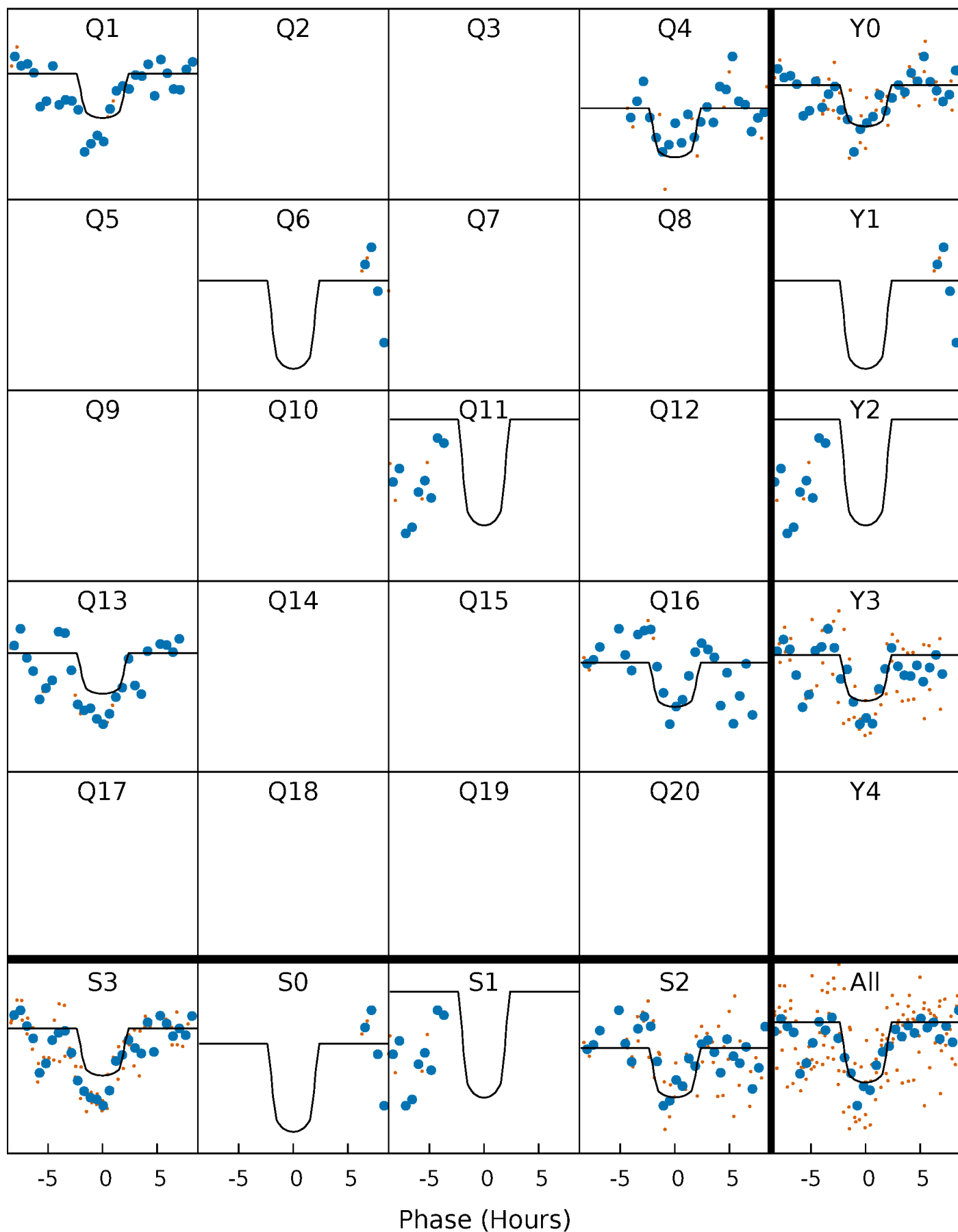
PDC Quarter-Phased Transit Curves

TCE 003945818-03 $P=227.050592$ Days $T_0=136.008538$ (BKJD)



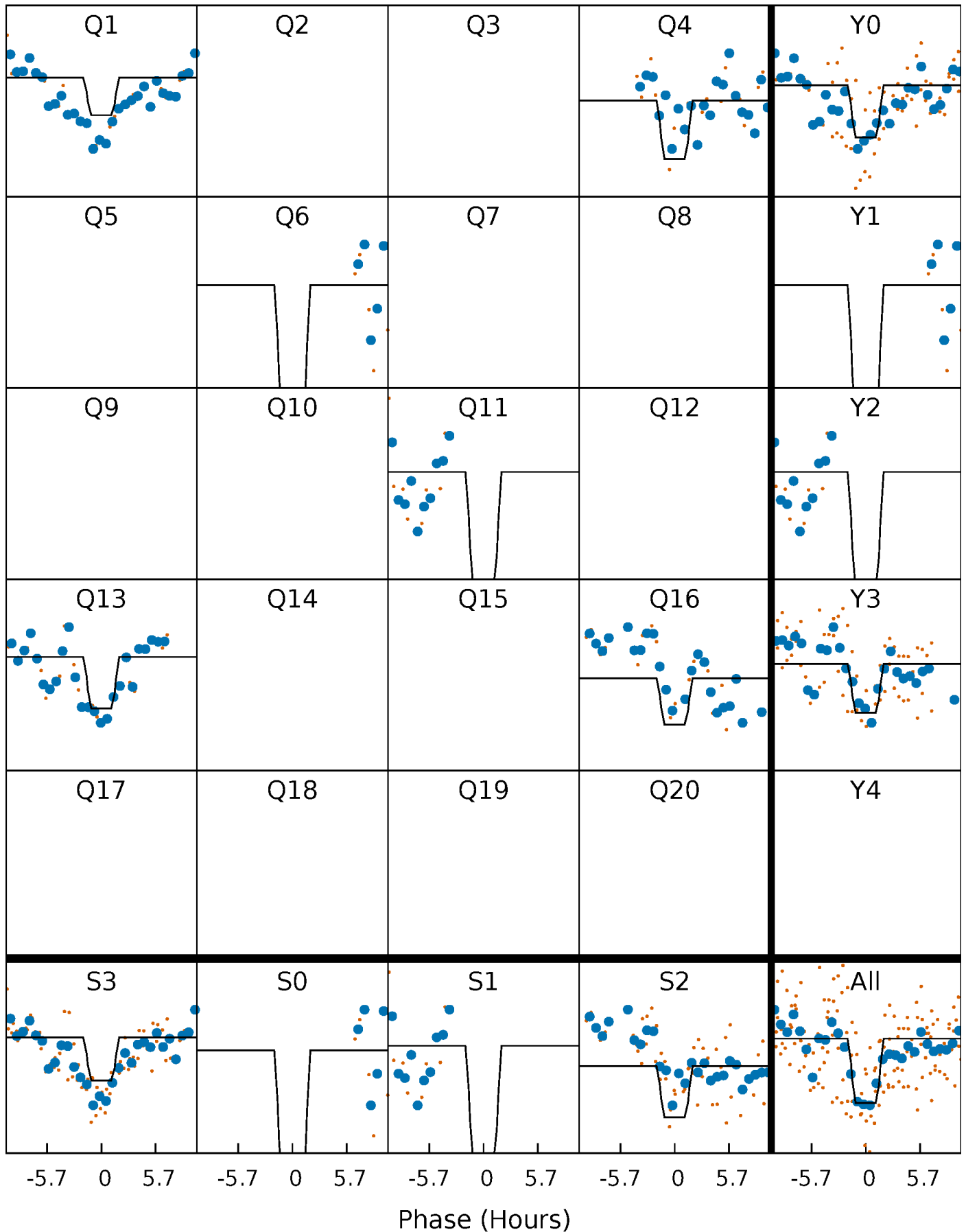
DV Quarter-Phased Transit Curves

TCE 003945818-03 $P=227.050592$ Days $T_0=136.008538$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

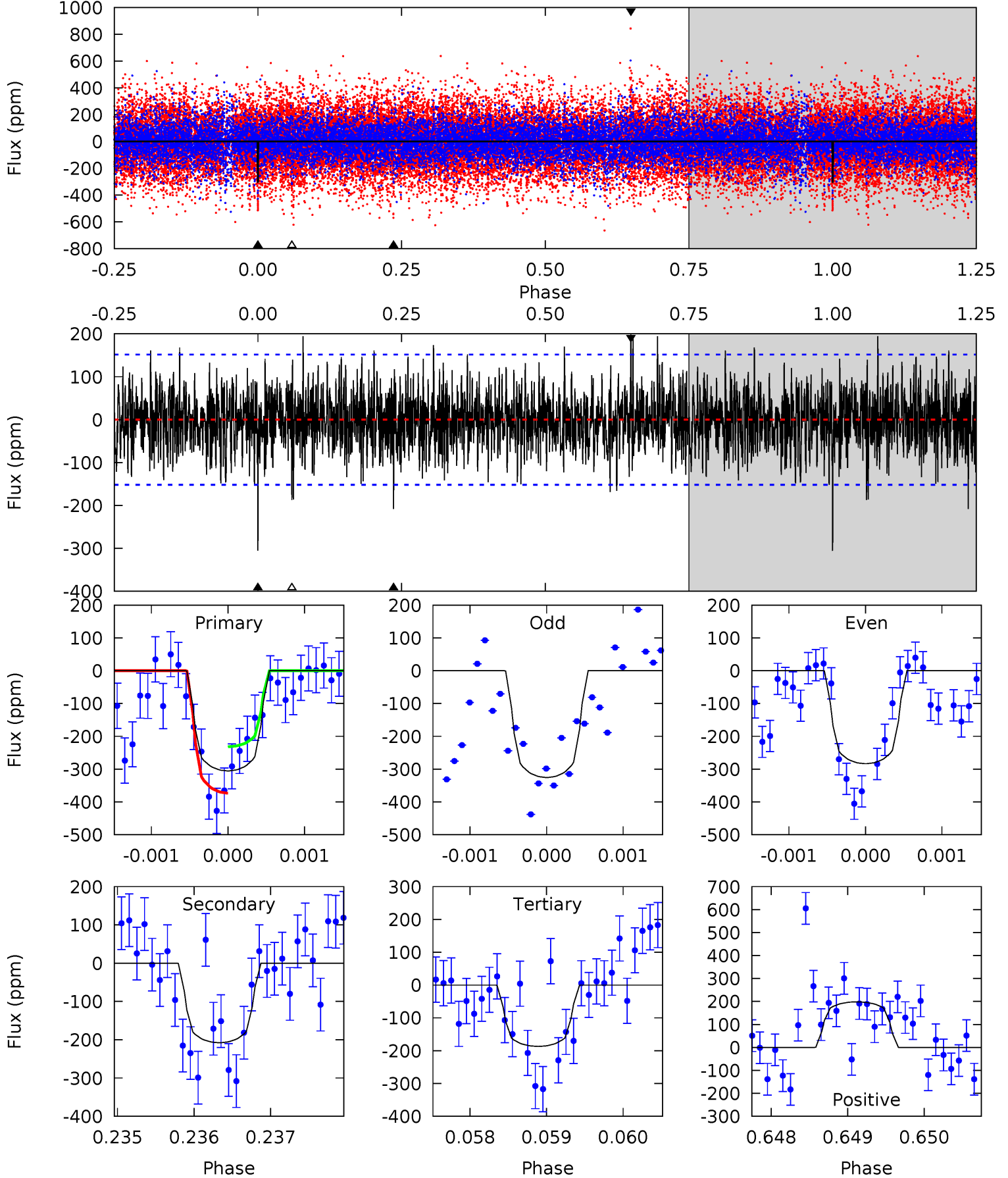
TCE 003945818-03 P=227.053154 Days $T_0=135.991480$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-03, P = 227.050592 Days, E = 136.008538 Days

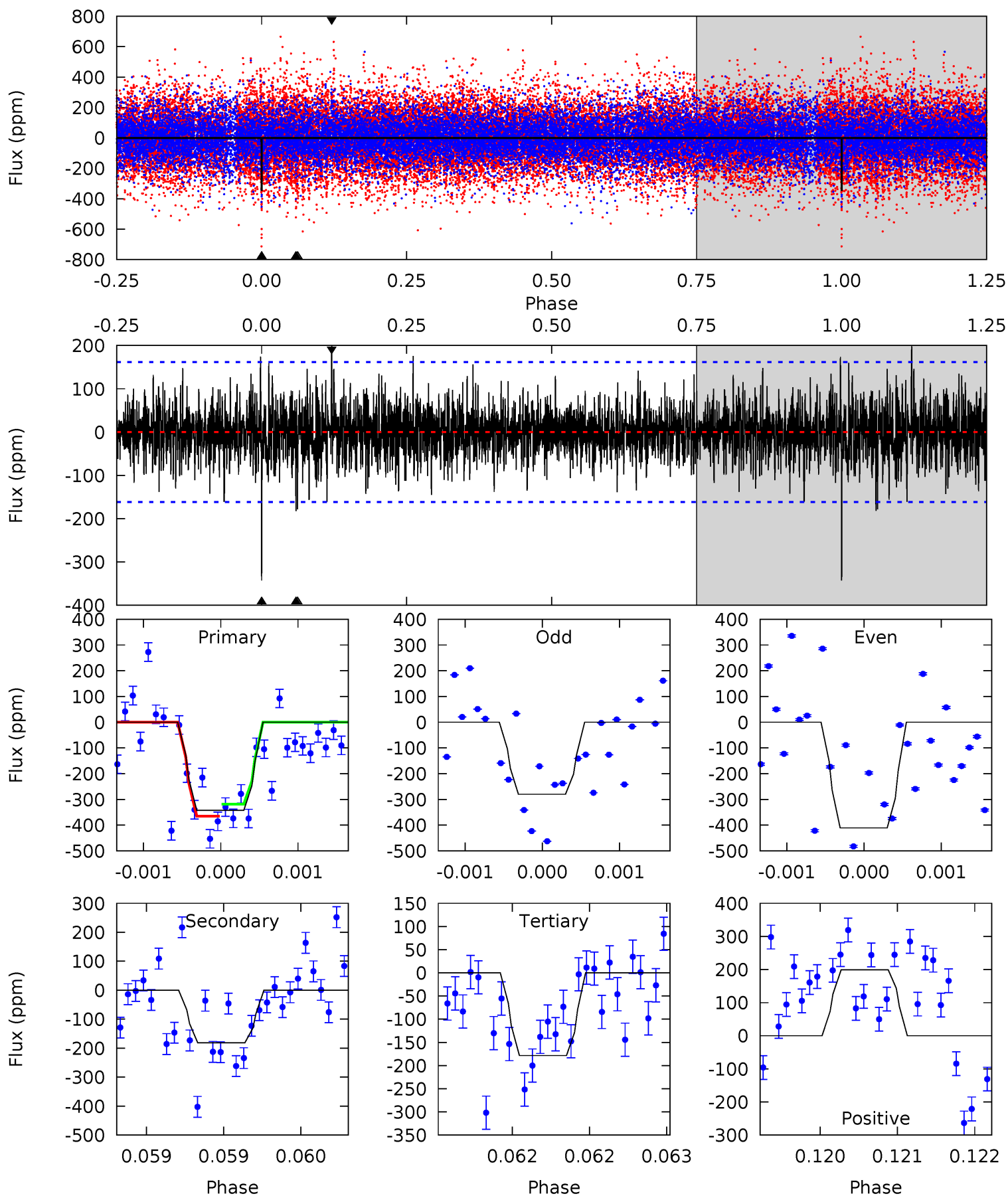
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	7.52	6.77	7.18	5.49	3.35	1.94	4.29	3.88	0.75	0.34	0.76	1.09	0.39	2.56



Alt Model-Shift Uniqueness Test

003945818-03, P = 227.053154 Days, E = 135.991480 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	6.22	6.11	6.81	5.53	3.42	1.59	5.61	4.90	0.12	-0.59	2.23	1.19	0.37	0.79



Stellar Parameters For KIC 003945818

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-208 ± 28	$8.60^{+7.51}_{-5.41}$	869^{+52}_{-94}	5524^{+3981}_{-1184}	1219^{+7489}_{-864}
Alt.	-182 ± 29	$9.11^{+7.45}_{-5.73}$	871^{+54}_{-101}	5265^{+3754}_{-1088}	929^{+5747}_{-645}

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

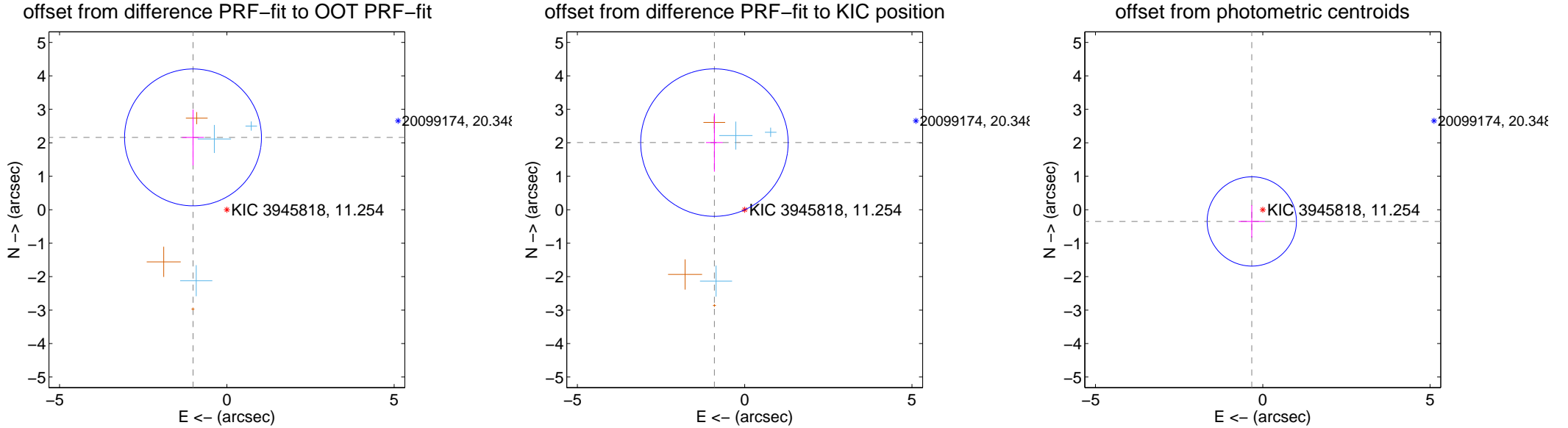
DV Centroid Data

Supplemental centroid analysis for 003945818-03. **Kepler magnitude: 11.25**. Transit SNR 8.62

There are 3 quarters with good PRF difference image offsets

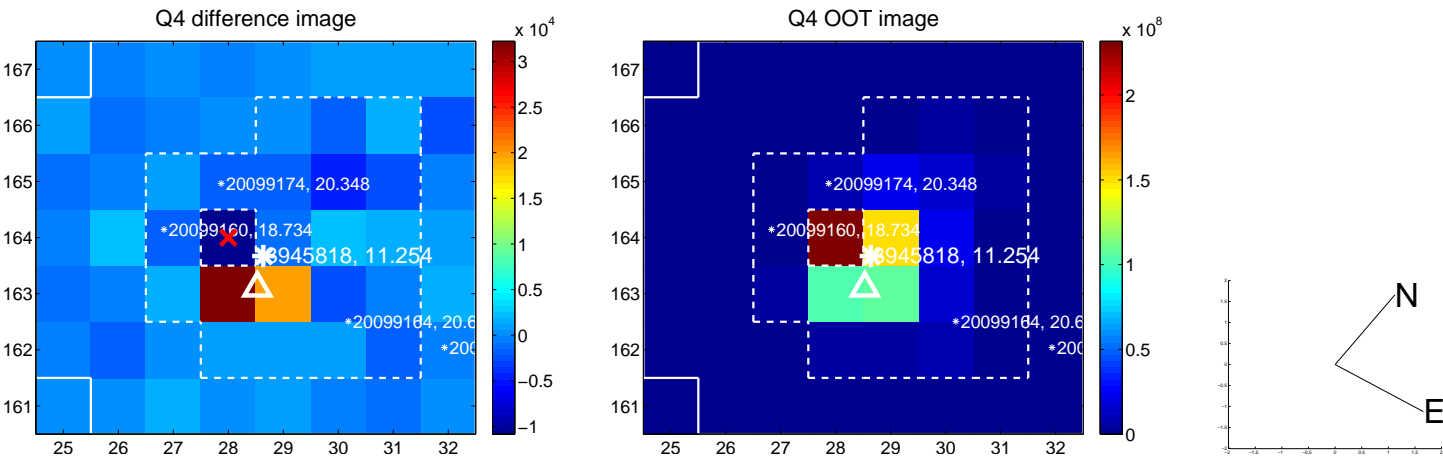
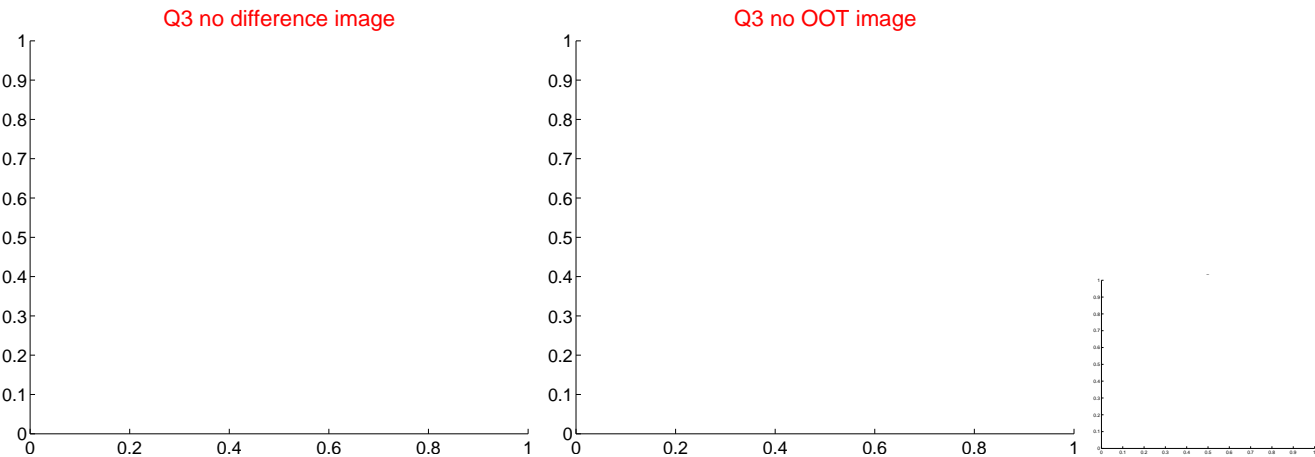
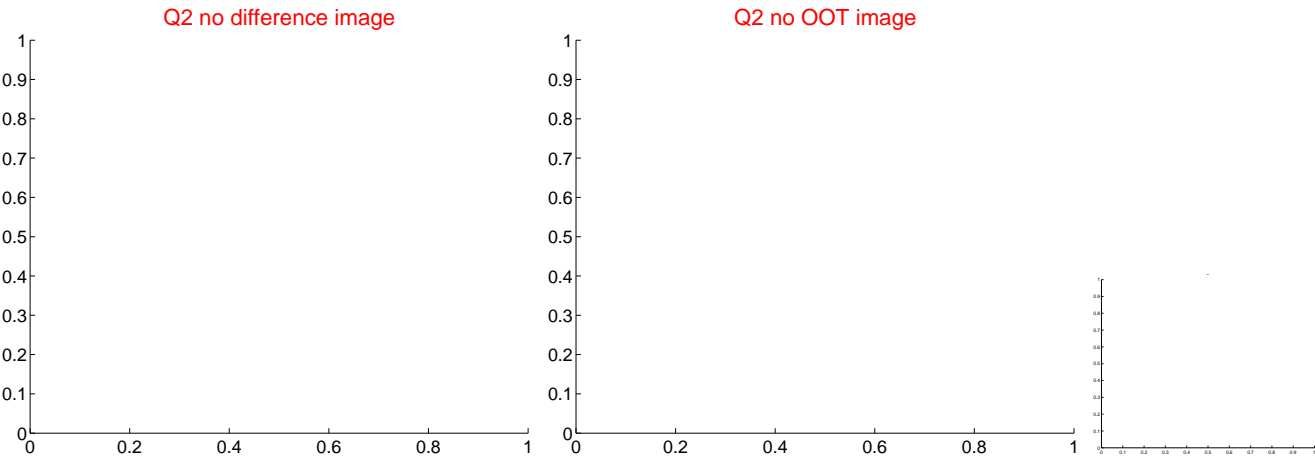
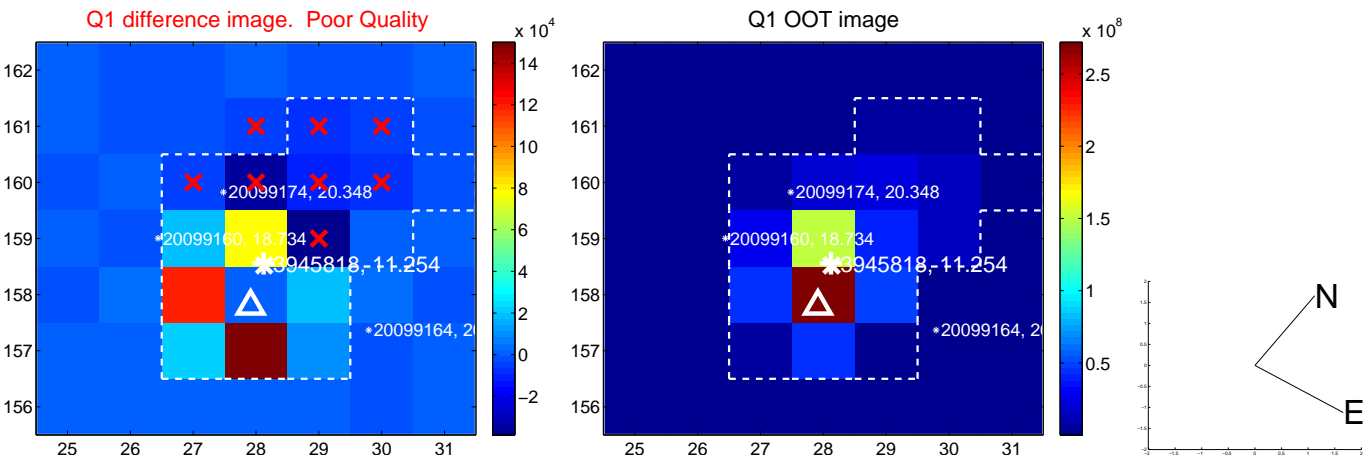
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.386 \pm 0.682	3.50	1.011 \pm 0.328	2.161 \pm 0.836
PRF-fit source offset from KIC position	2.200 \pm 0.734	3.00	0.904 \pm 0.249	2.006 \pm 0.871
photometric centroid source offset	0.48 \pm 0.44	1.08	0.33 \pm 0.39	-0.35 \pm 0.49

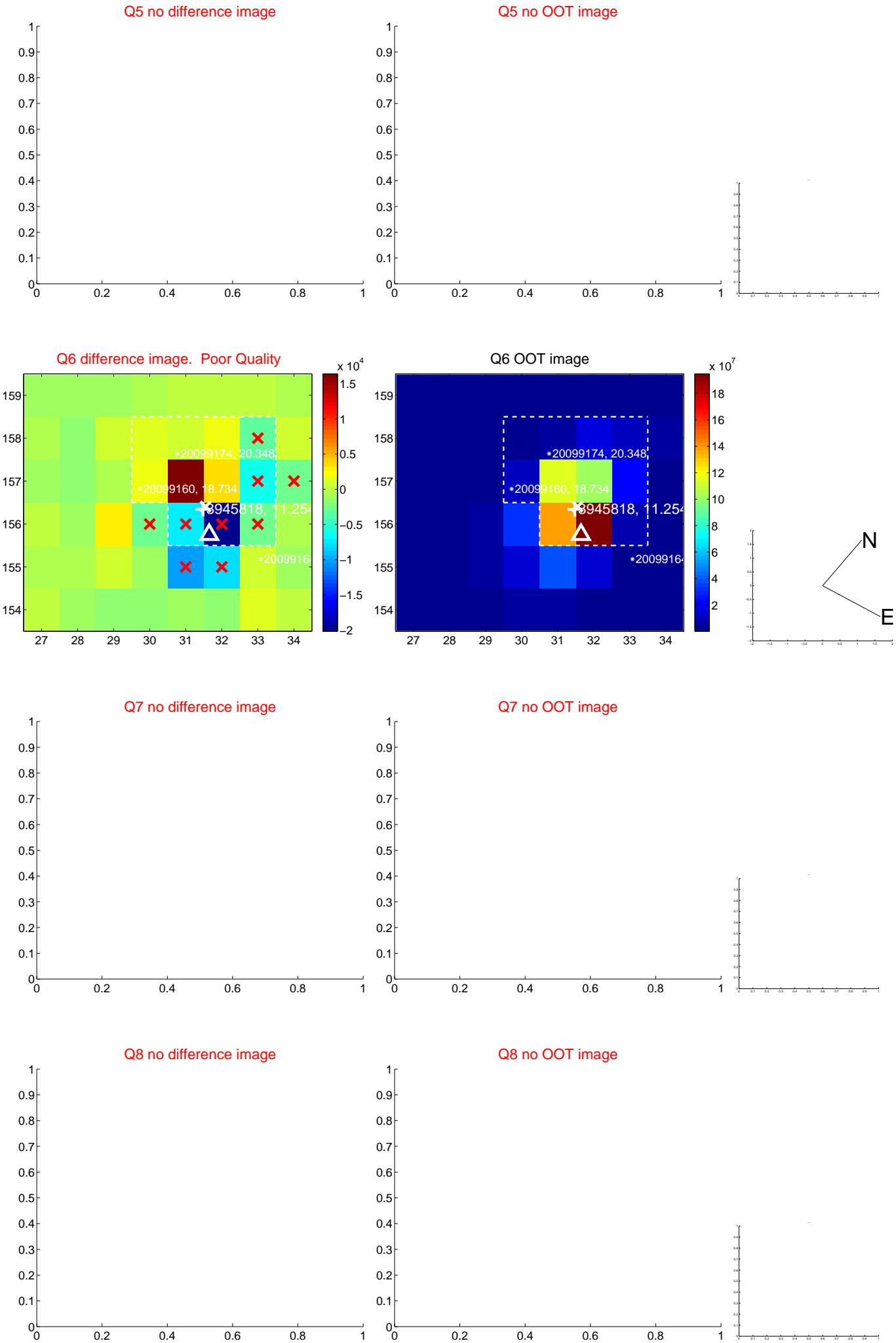


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

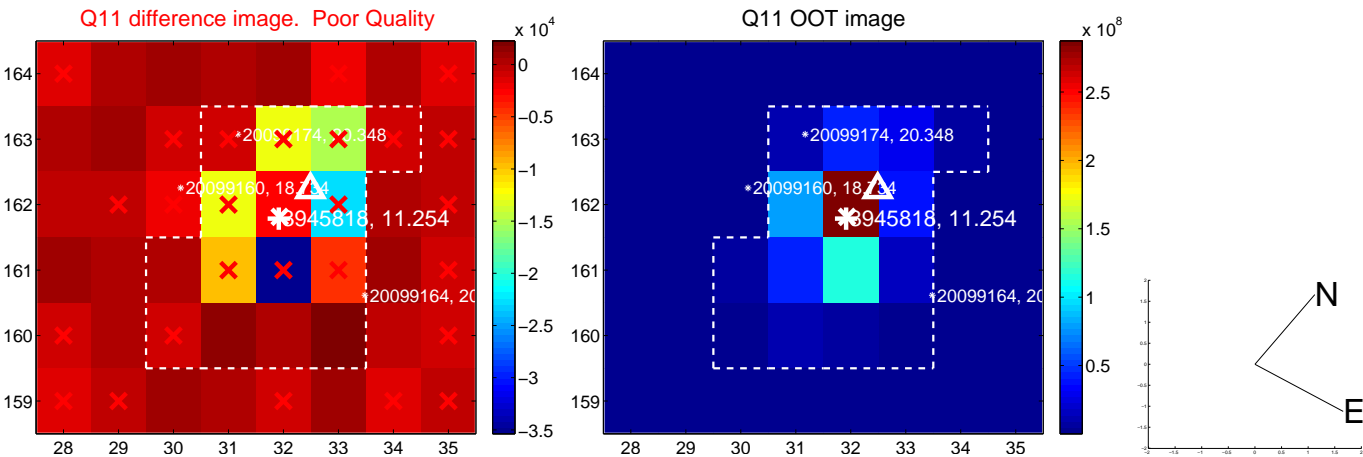
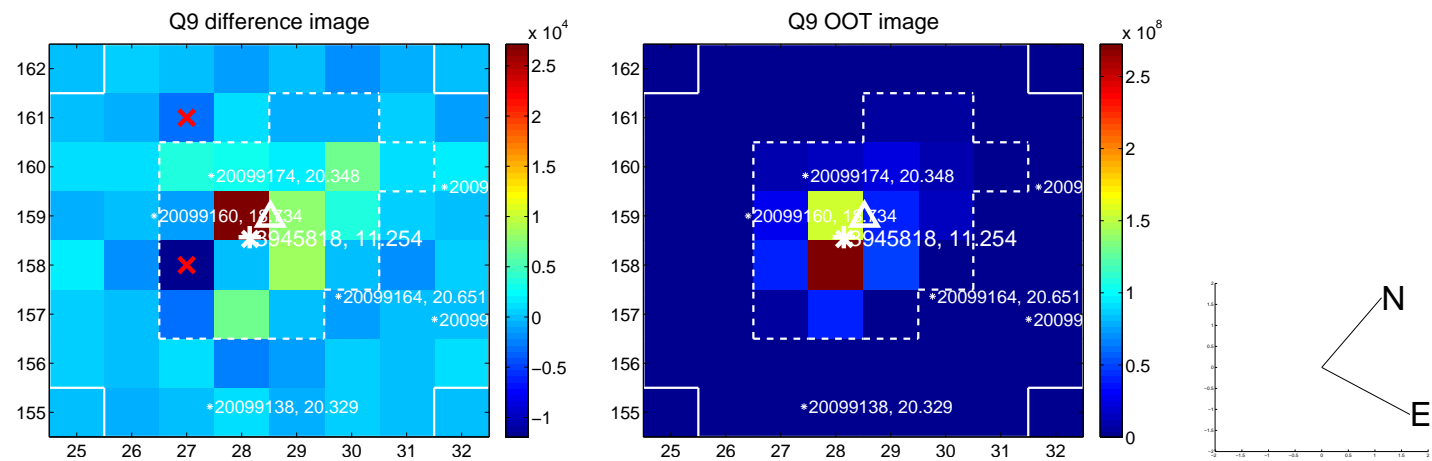
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



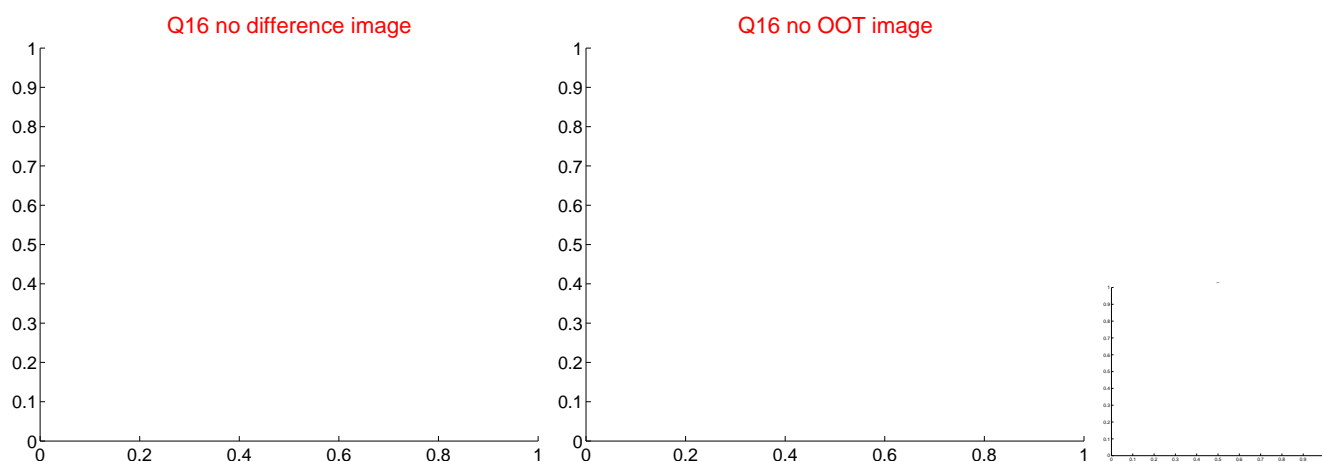
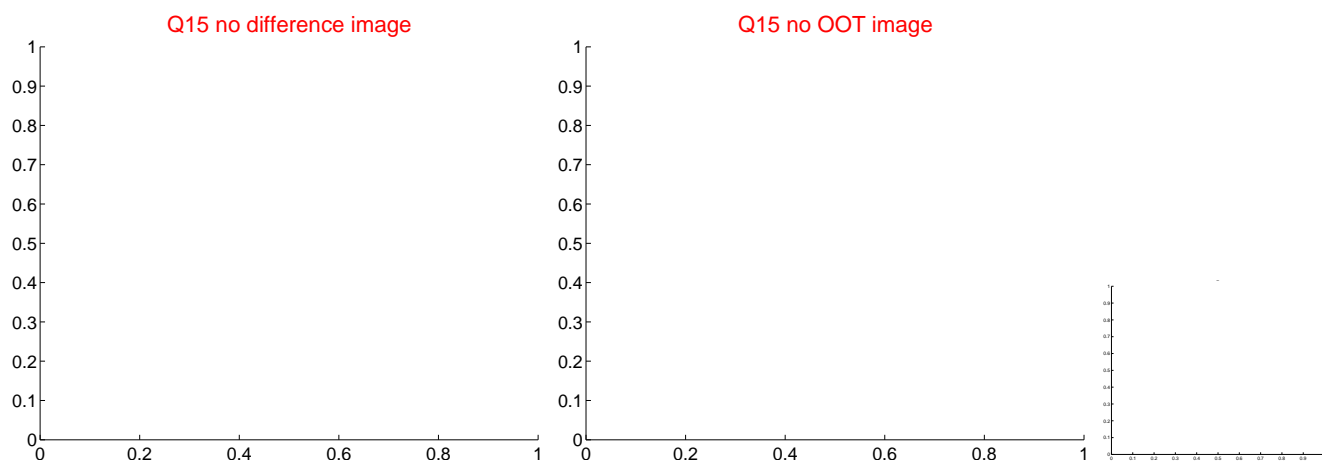
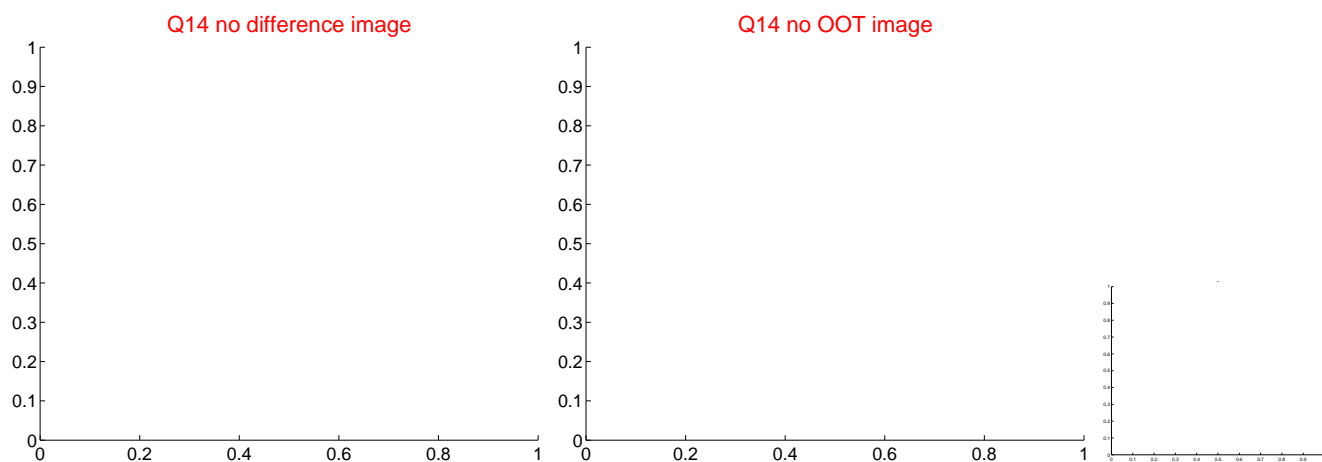
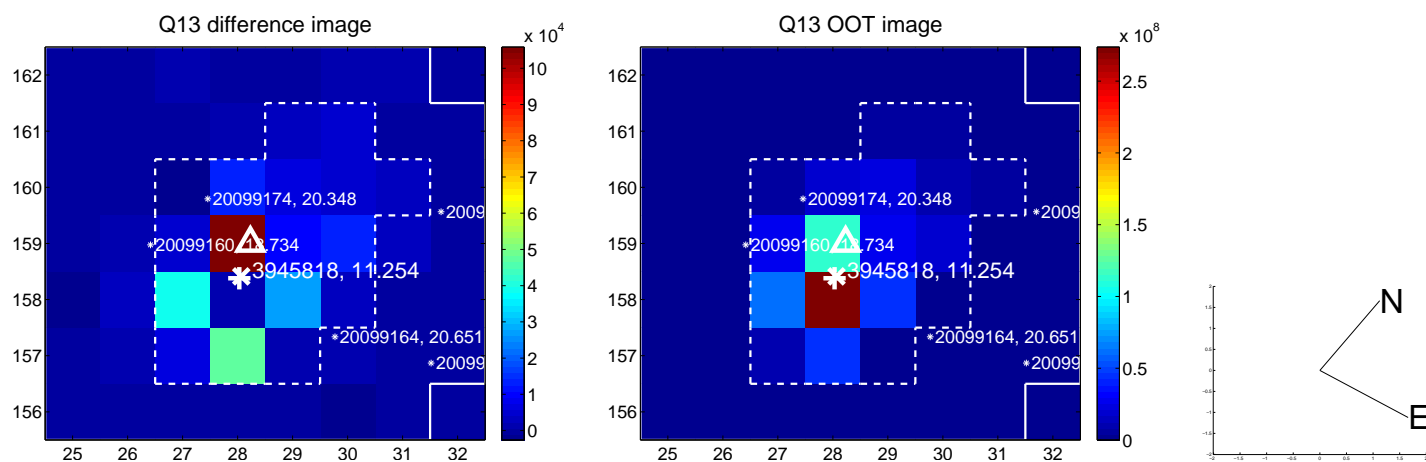
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



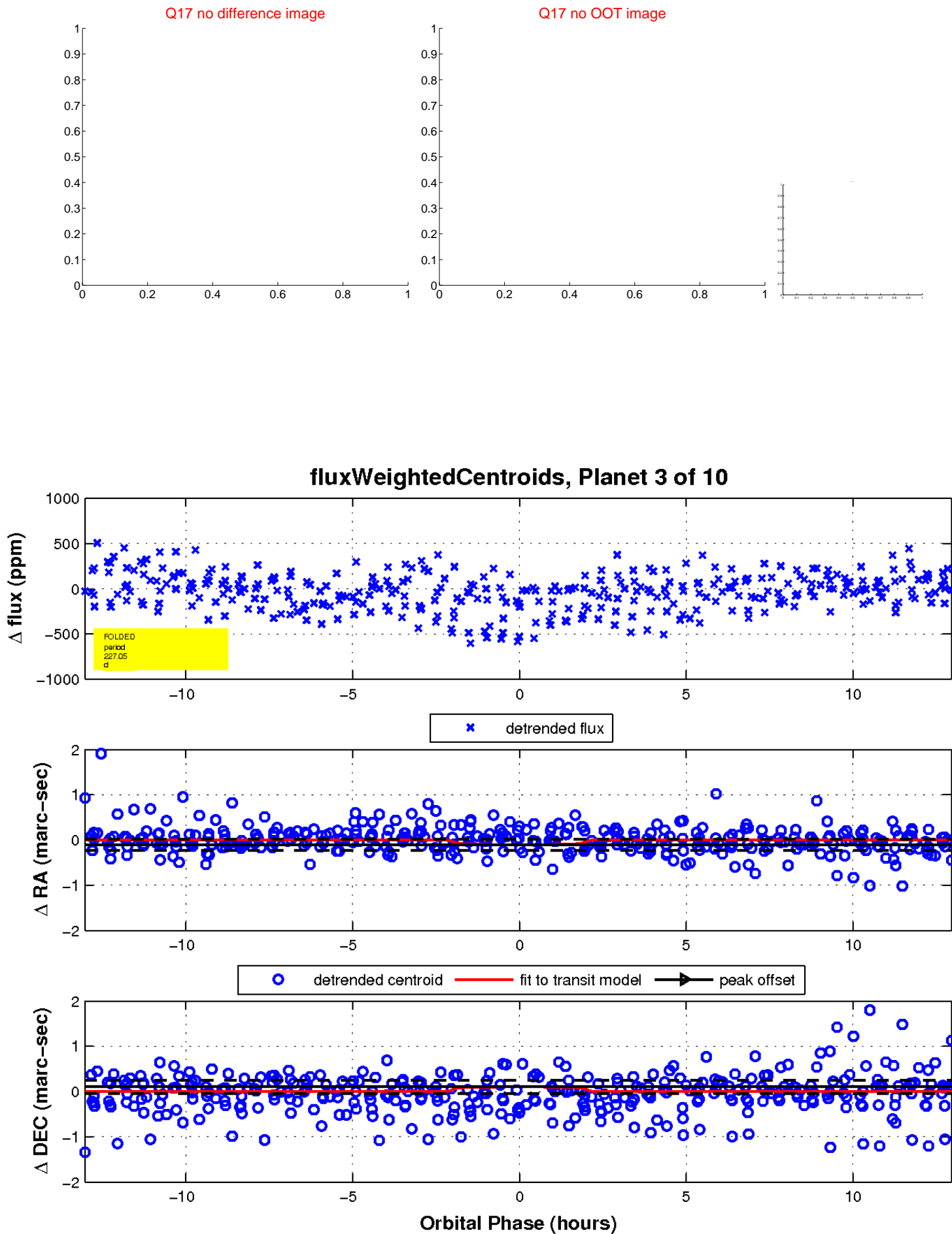
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



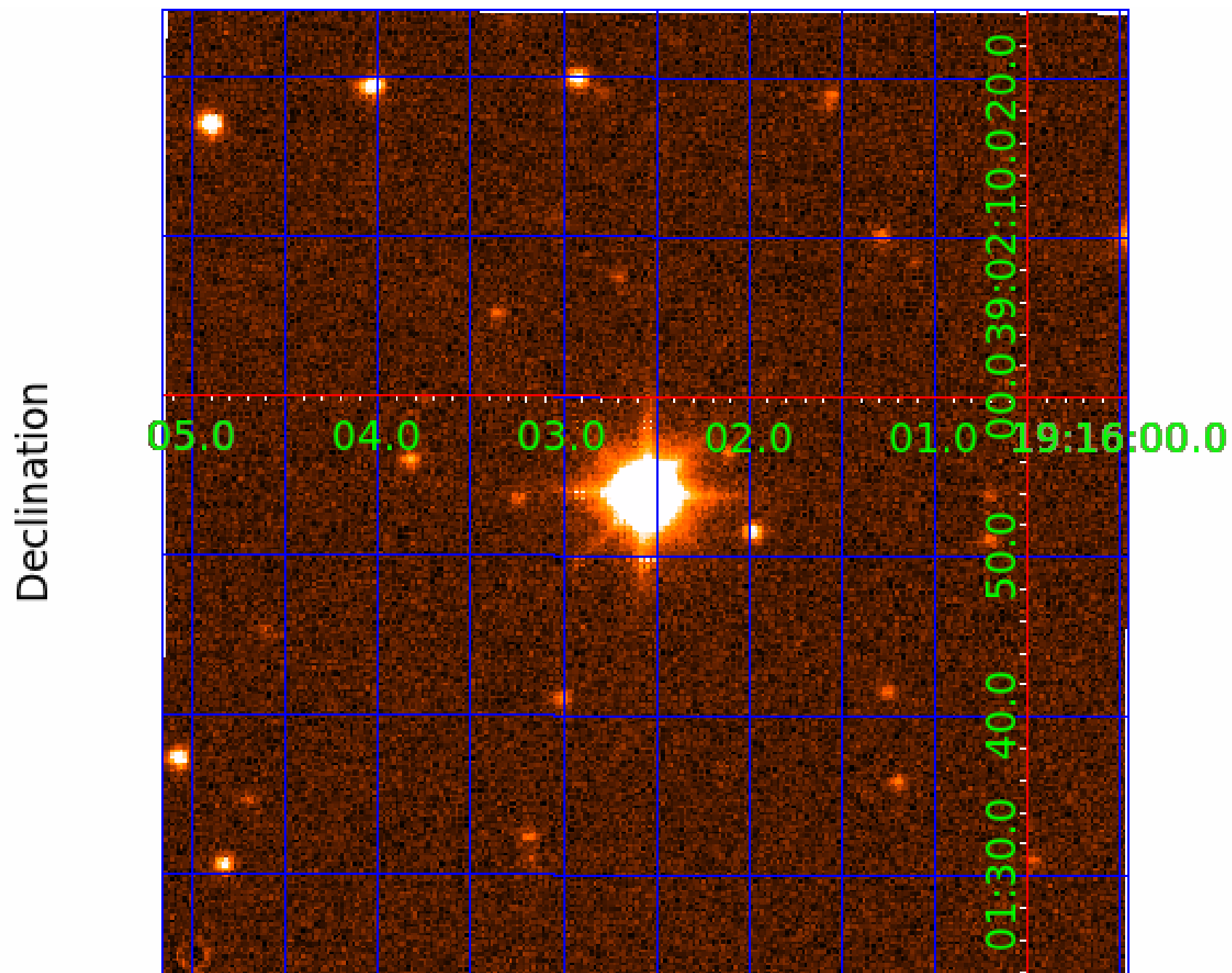
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

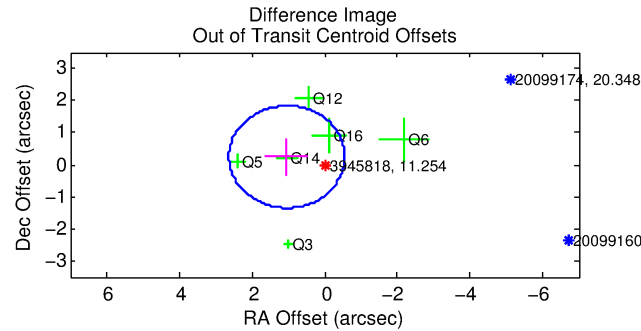
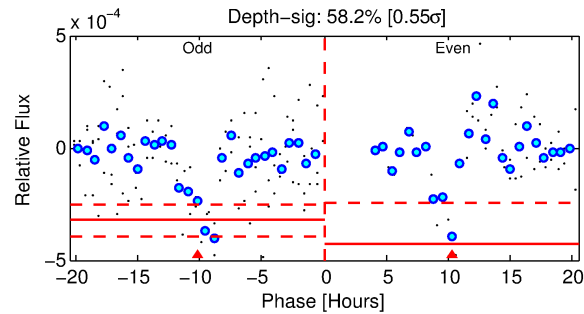
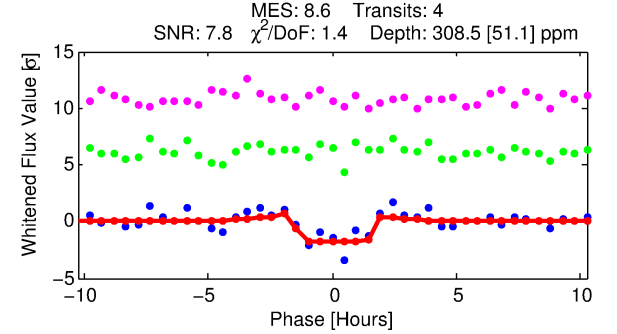
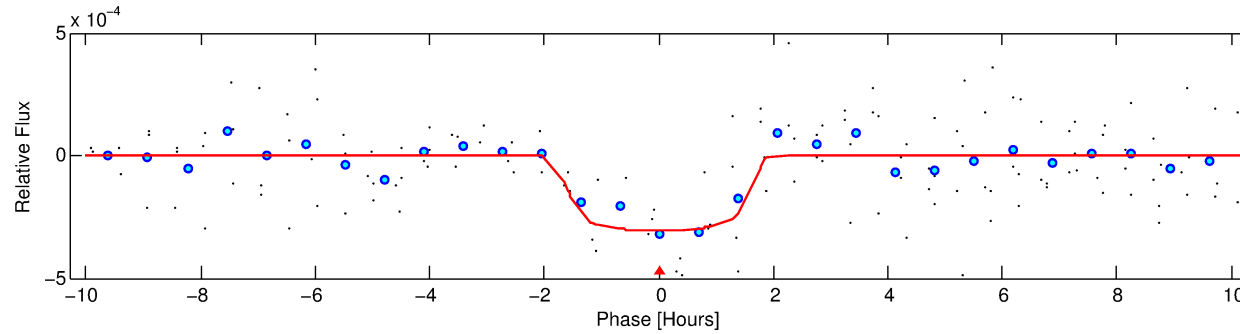
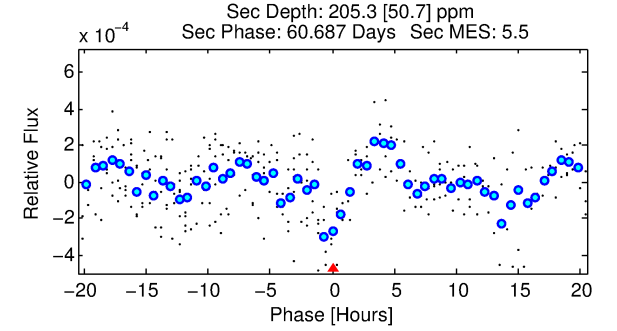
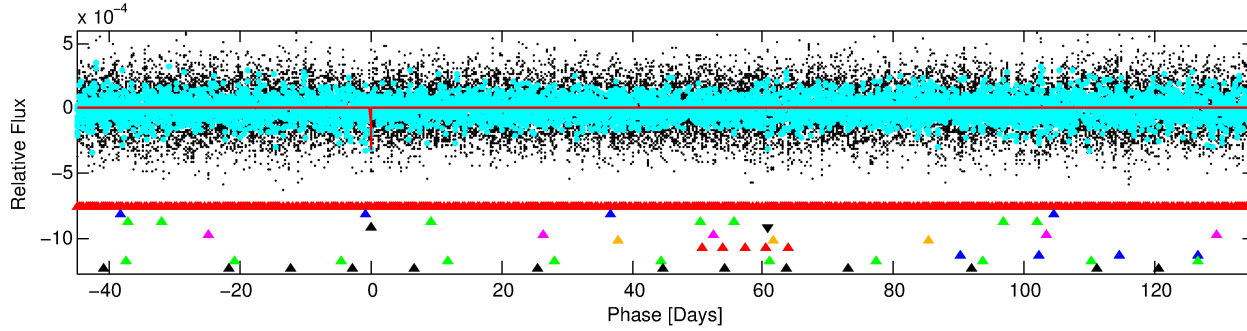
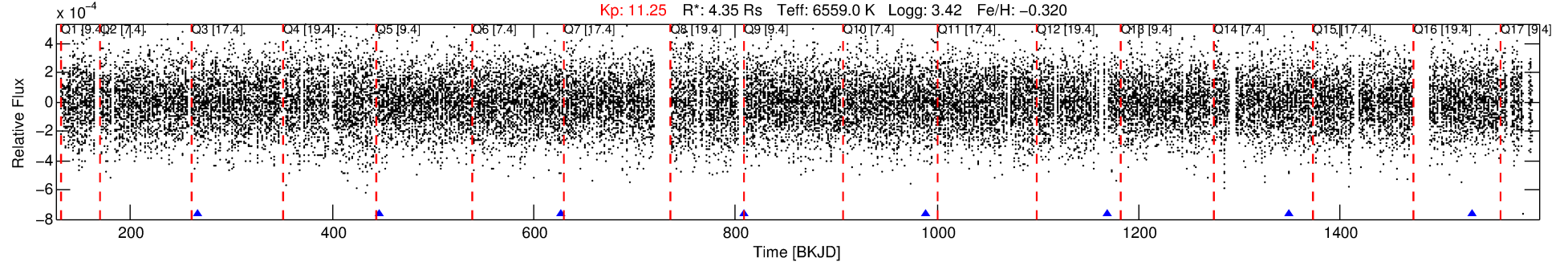
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-04

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 4 of 10 Period: 180.613 d



DV Fit Results:

Period = 180.61254 [0.00176] d
Epoch = 266.0728 [0.0059] BKJD
Rp/R* = 0.0175 [0.0096]
a/R* = 273.15 [821.85]
b = 0.76 [1.70]
Seff = 53.91 [37.53]
Teq = 691 [120] K
Rp = 8.32 [5.99] Re
a = 0.7632 [0.3326] AU
Ag = 950.14 [1254.05] [0.76σ]
Teffp = 5931 [1678] K [3.11σ]

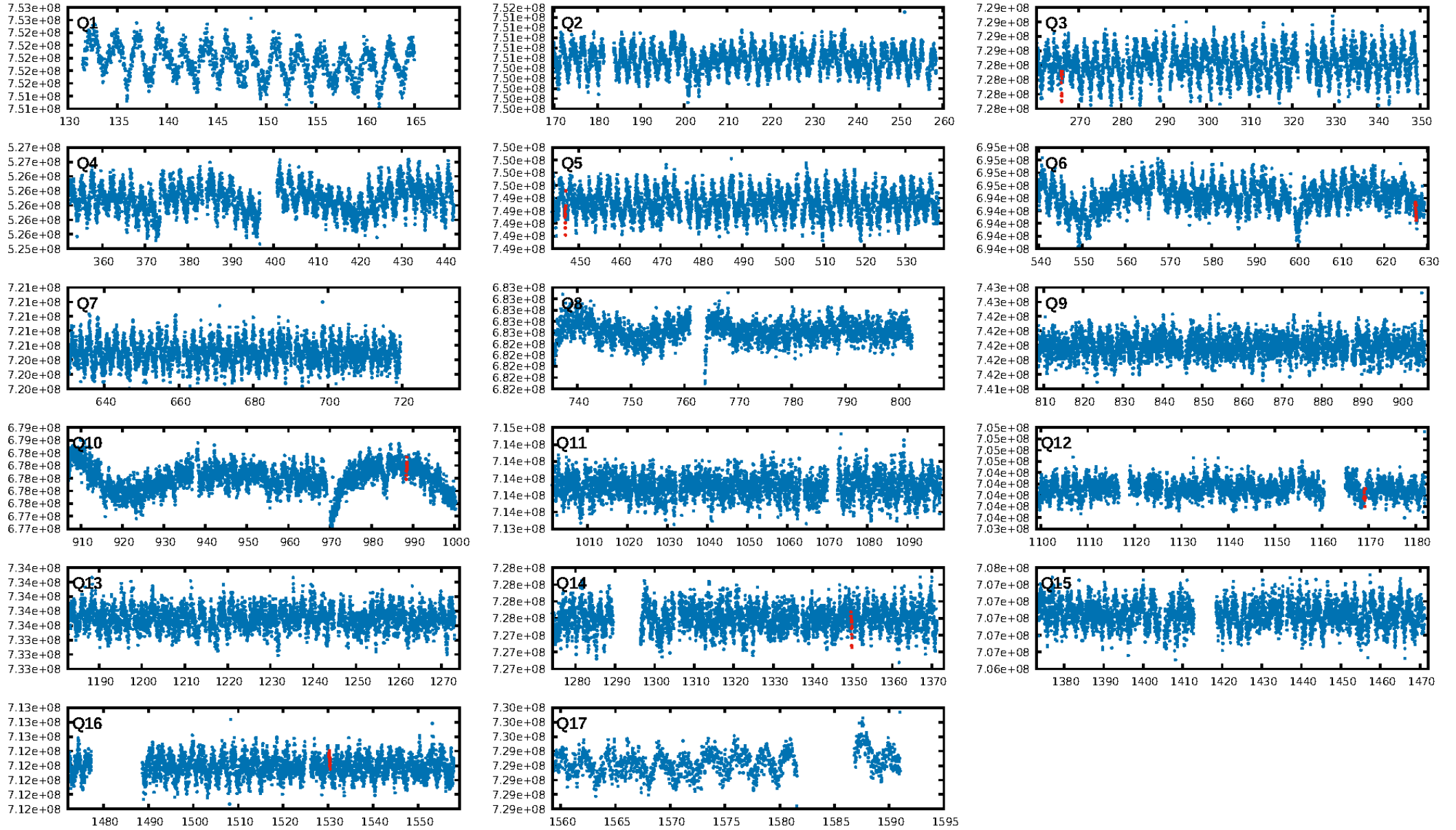
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [261.63σ]
LongPeriod-sig: 100.0% [200.65σ]
ModelChiSquare2-sig: 10.1%
ModelChiSquareGof-sig: 65.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.096
Centroid-sig: 1.5%
Centroid-so: 0.748 arcsec [1.58σ]
OotOffset-rm: 1.069 arcsec [2.02σ]
KicOffset-rm: 1.137 arcsec [1.92σ]
OotOffset-st: 2/1/2/1 [6]
KicOffset-st: 2/1/2/1 [6]
DiffImageQuality-fgm: 0.67 [4/6]
DiffImageOverlap-fno: 0.71 [5/7]

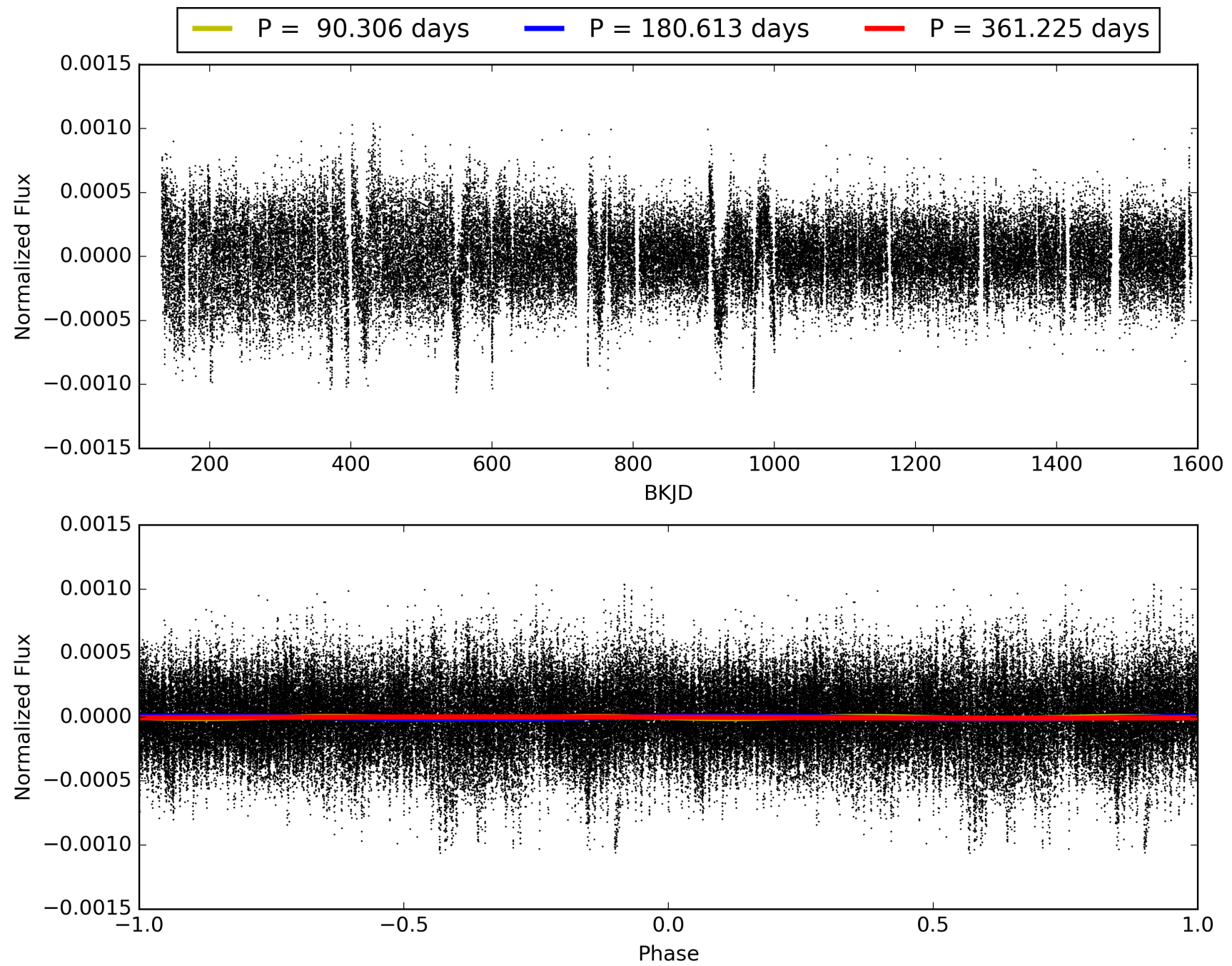
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:18 Z

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

TCE 003945818-04, PDC Light Curves

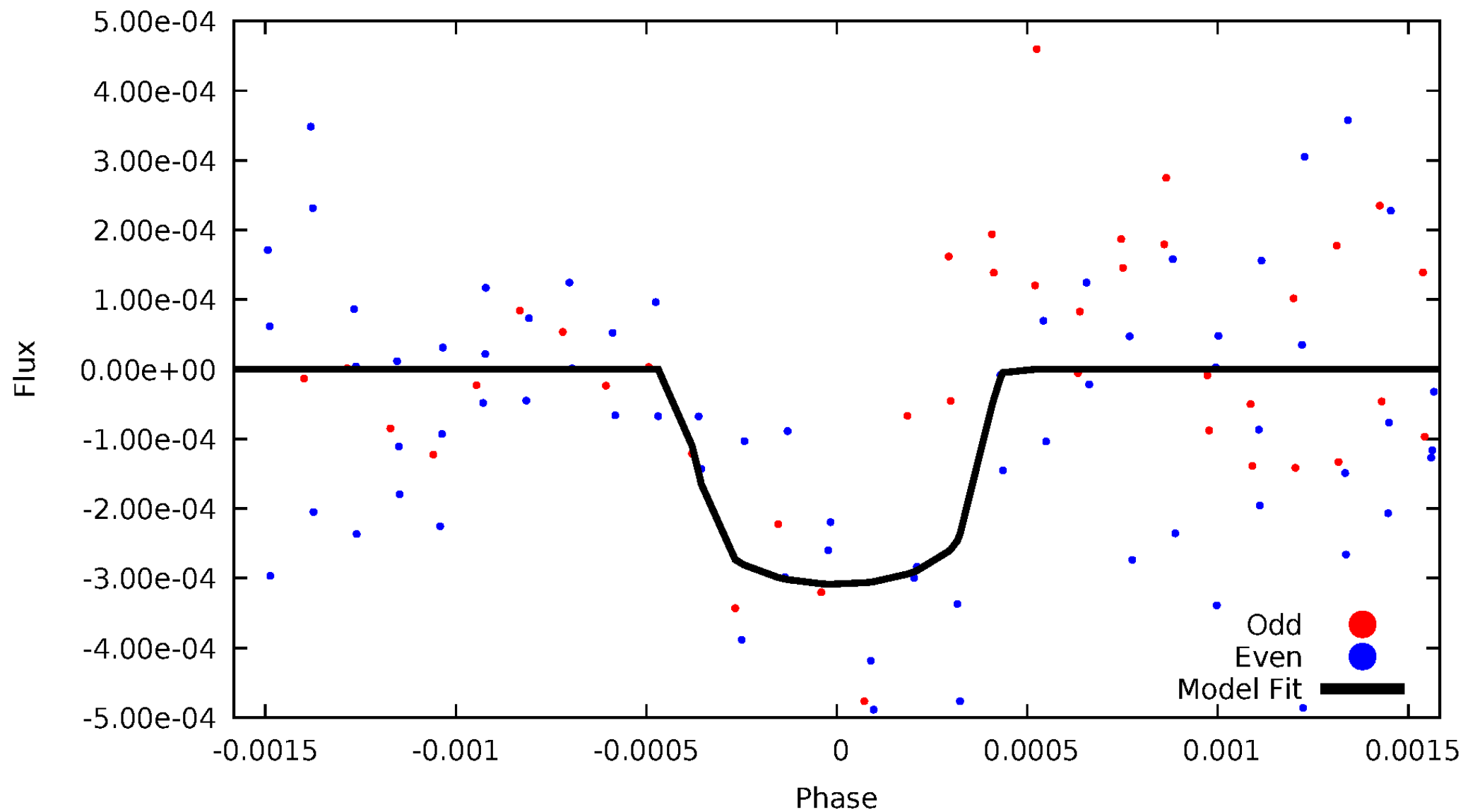


TCE 003945818-04



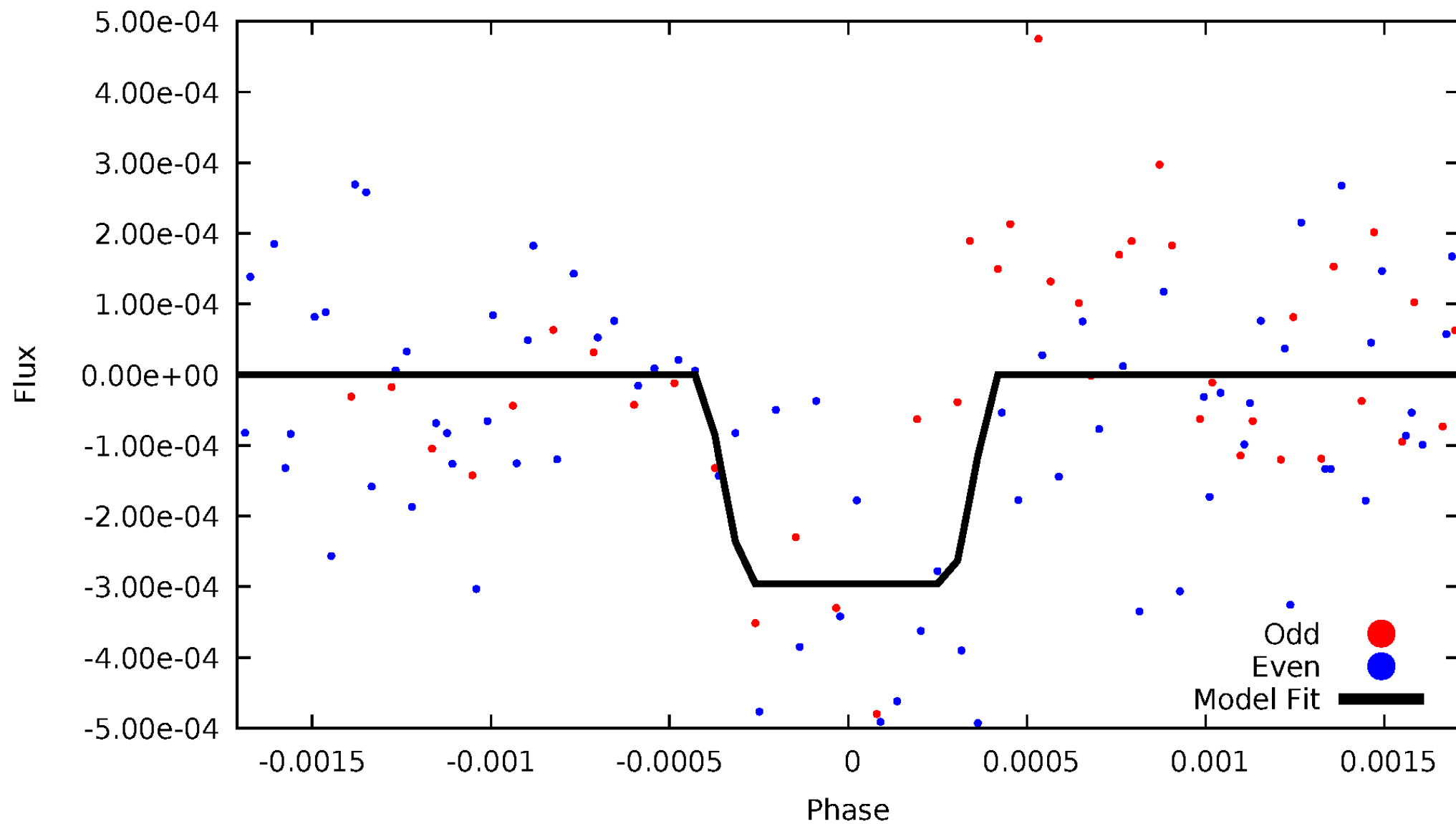
DV Odd/Even

TCE 003945818-04



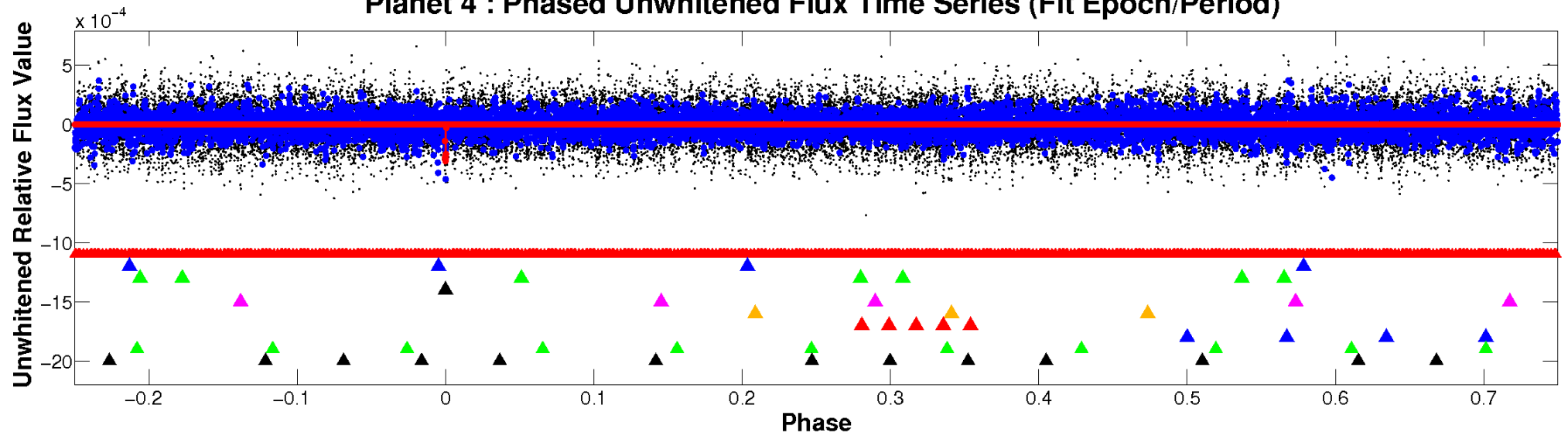
ALT Odd/Even

TCE 003945818-04

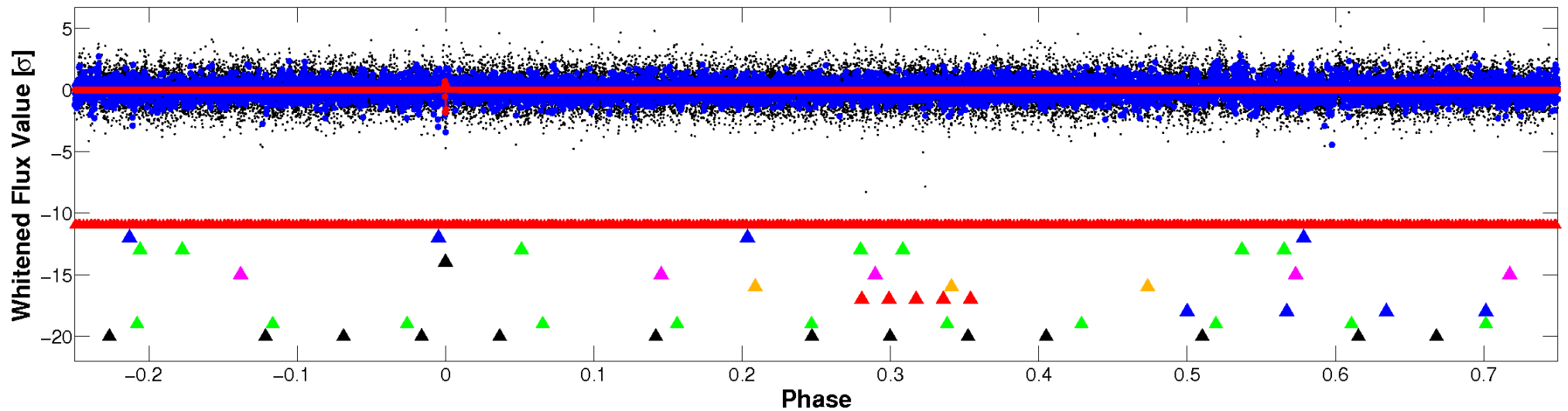


Non-Whitened Vs. Whitened Light Curve

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

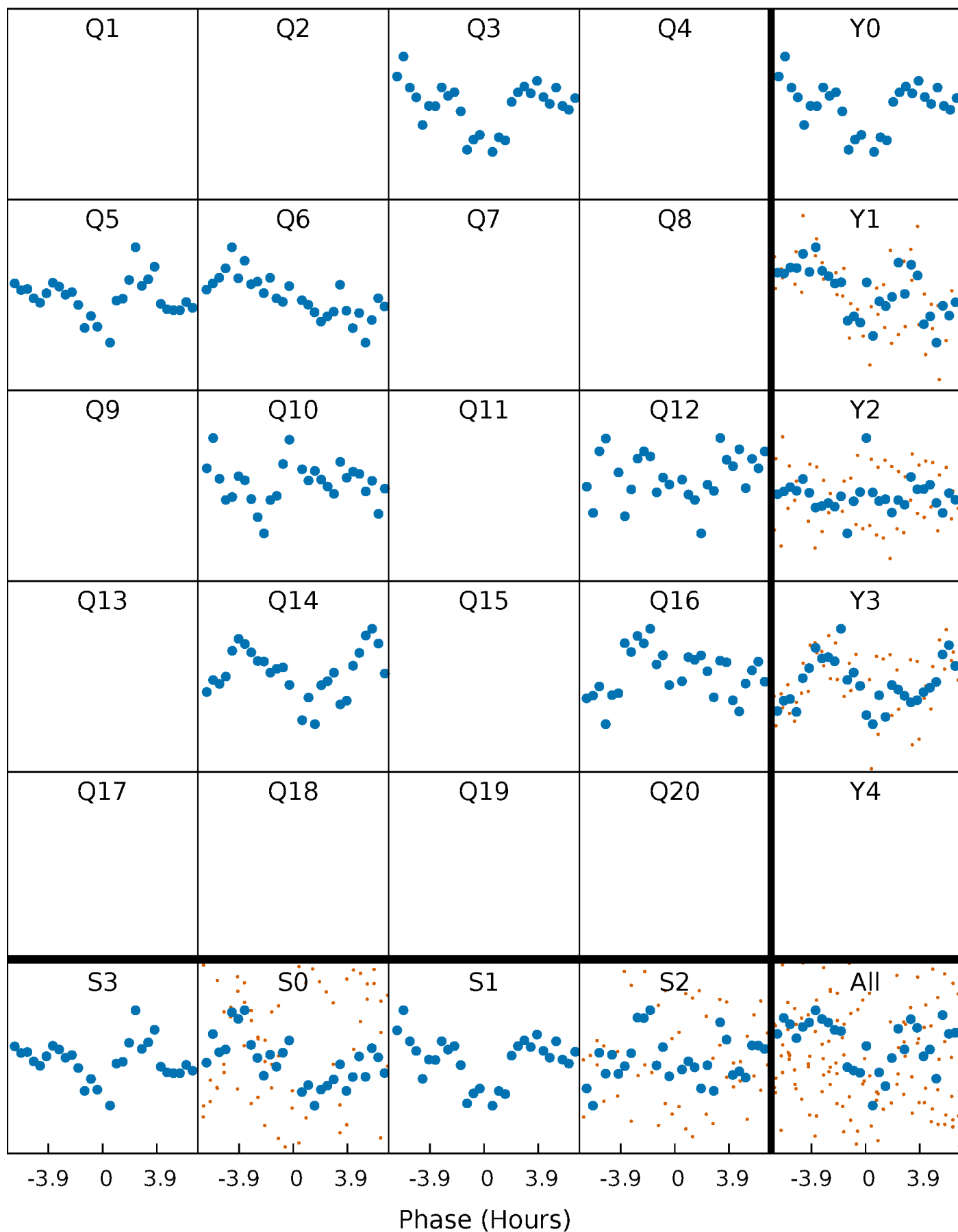


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



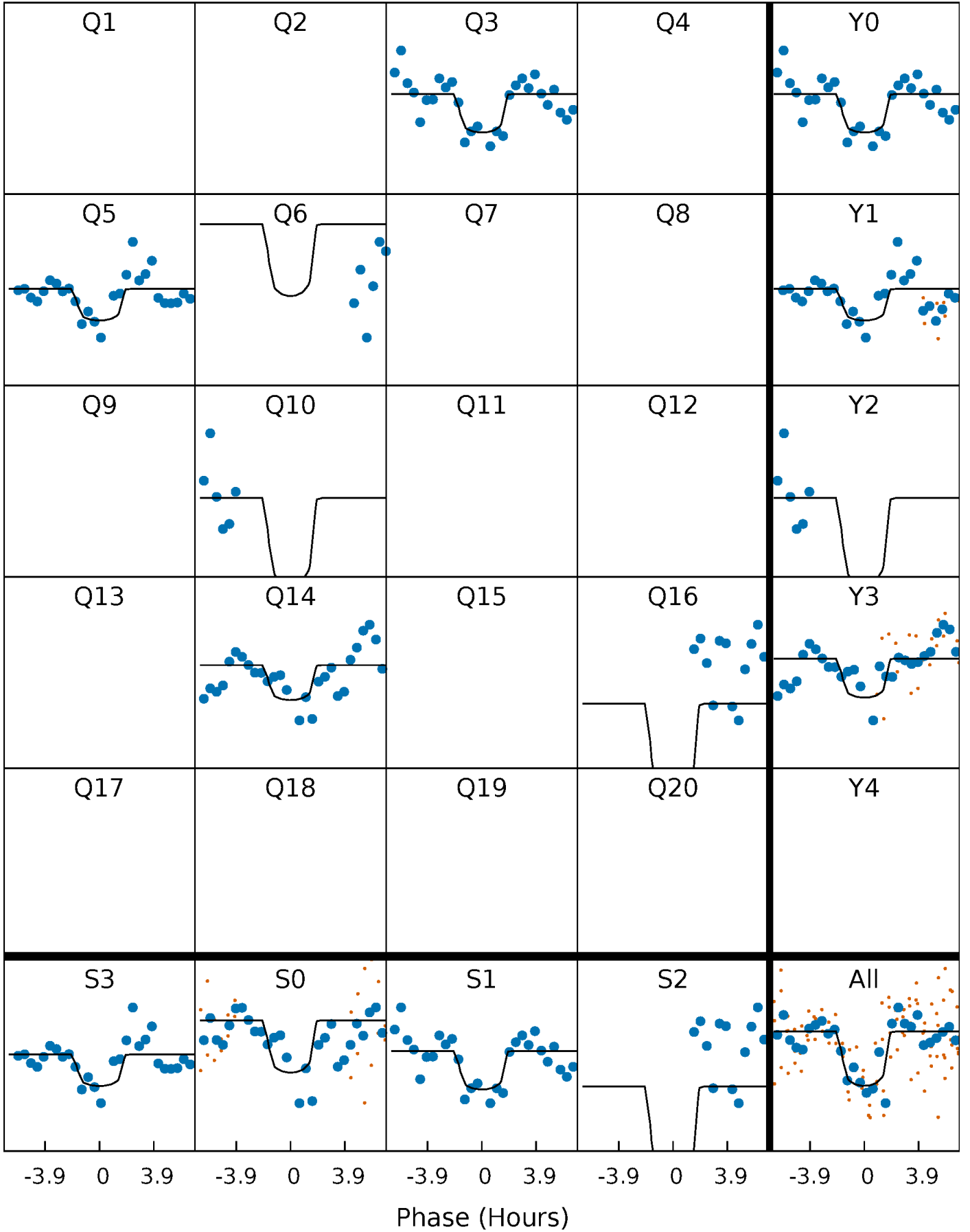
PDC Quarter-Phased Transit Curves

TCE 003945818-04 P=180.612545 Days $T_0=266.072801$ (BKJD)



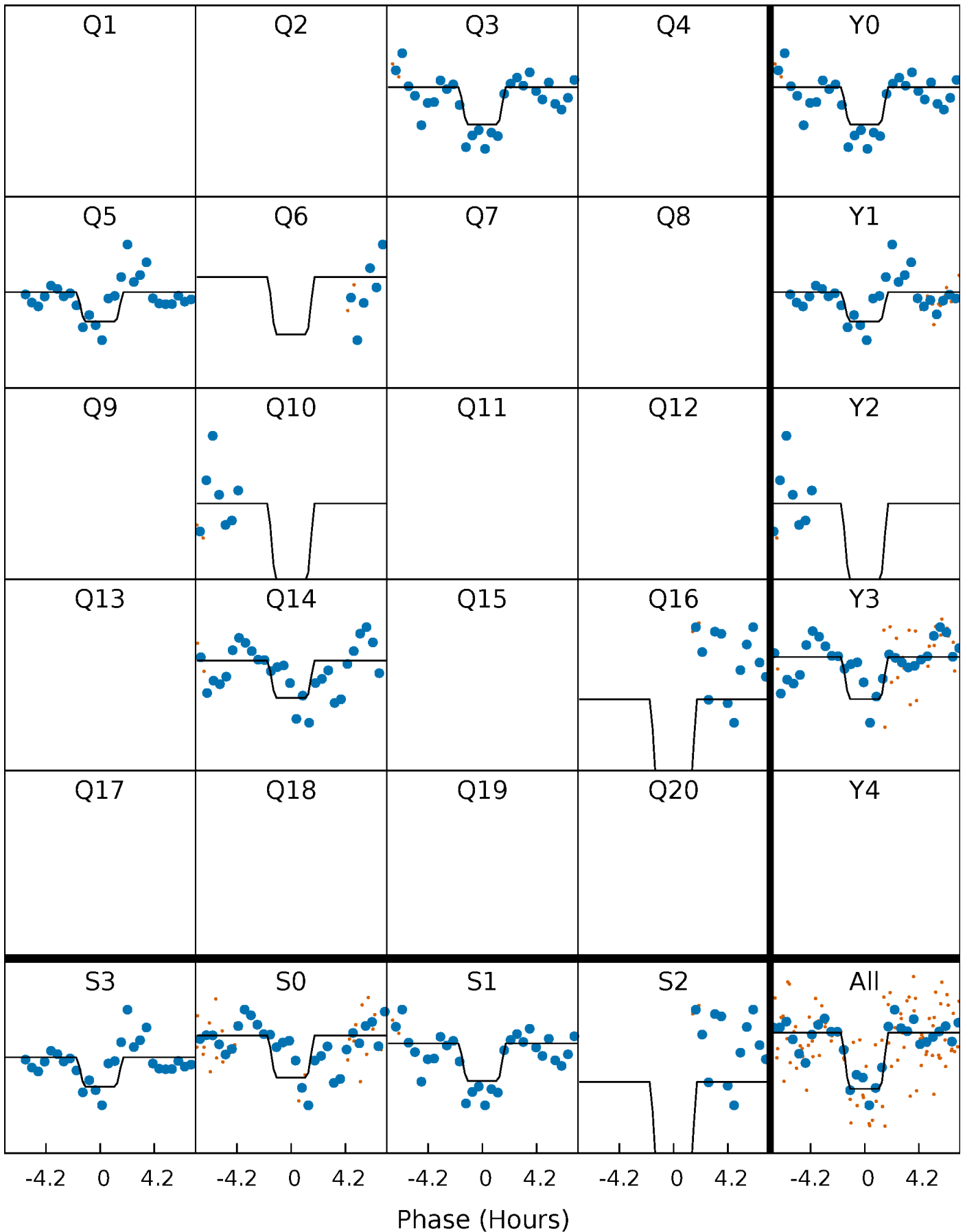
DV Quarter-Phased Transit Curves

TCE 003945818-04 $P=180.612545$ Days $T_0=266.072801$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

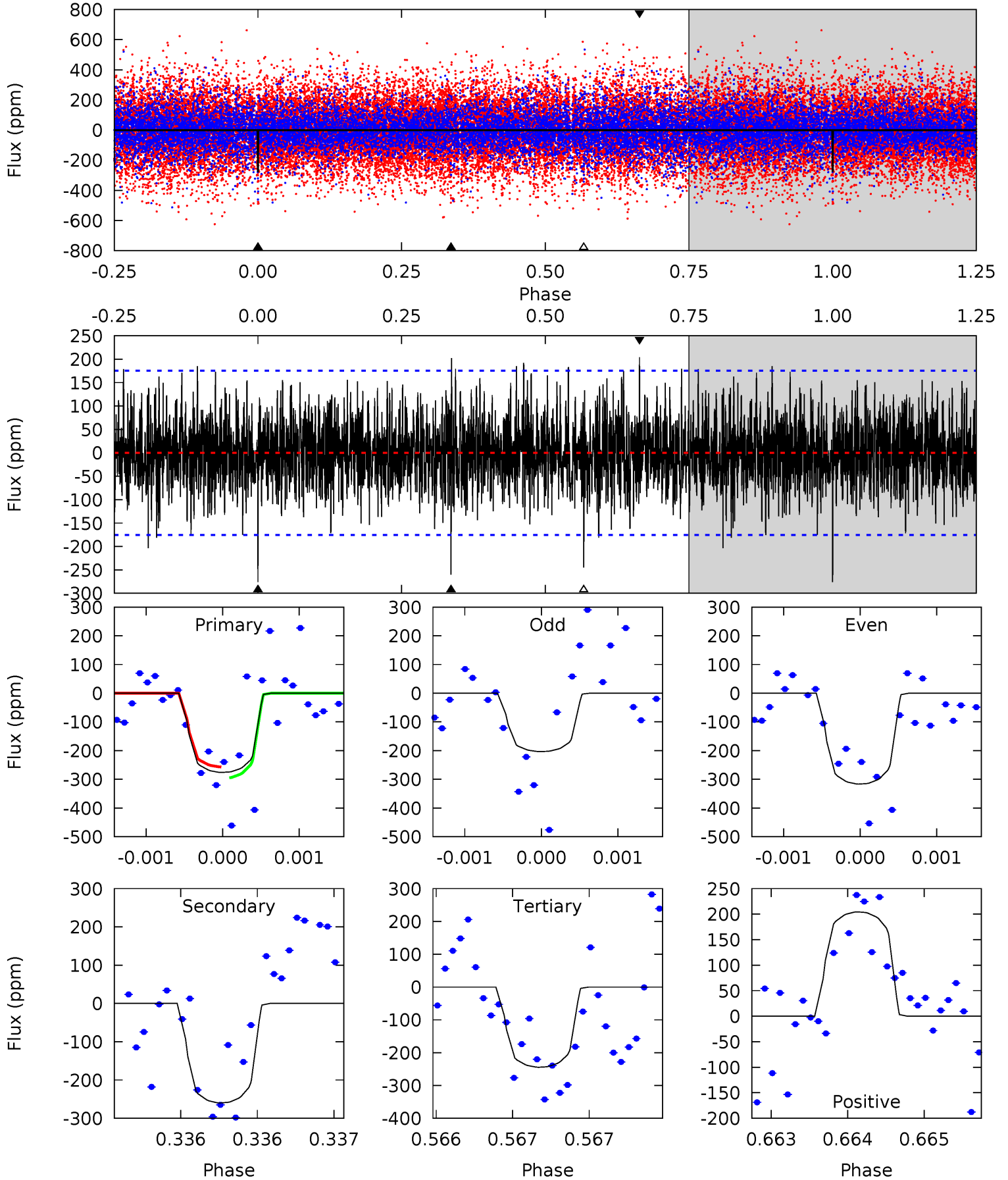
TCE 003945818-04 P=180.611363 Days $T_0=266.072777$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-04, P = 180.612545 Days, E = 85.460256 Days

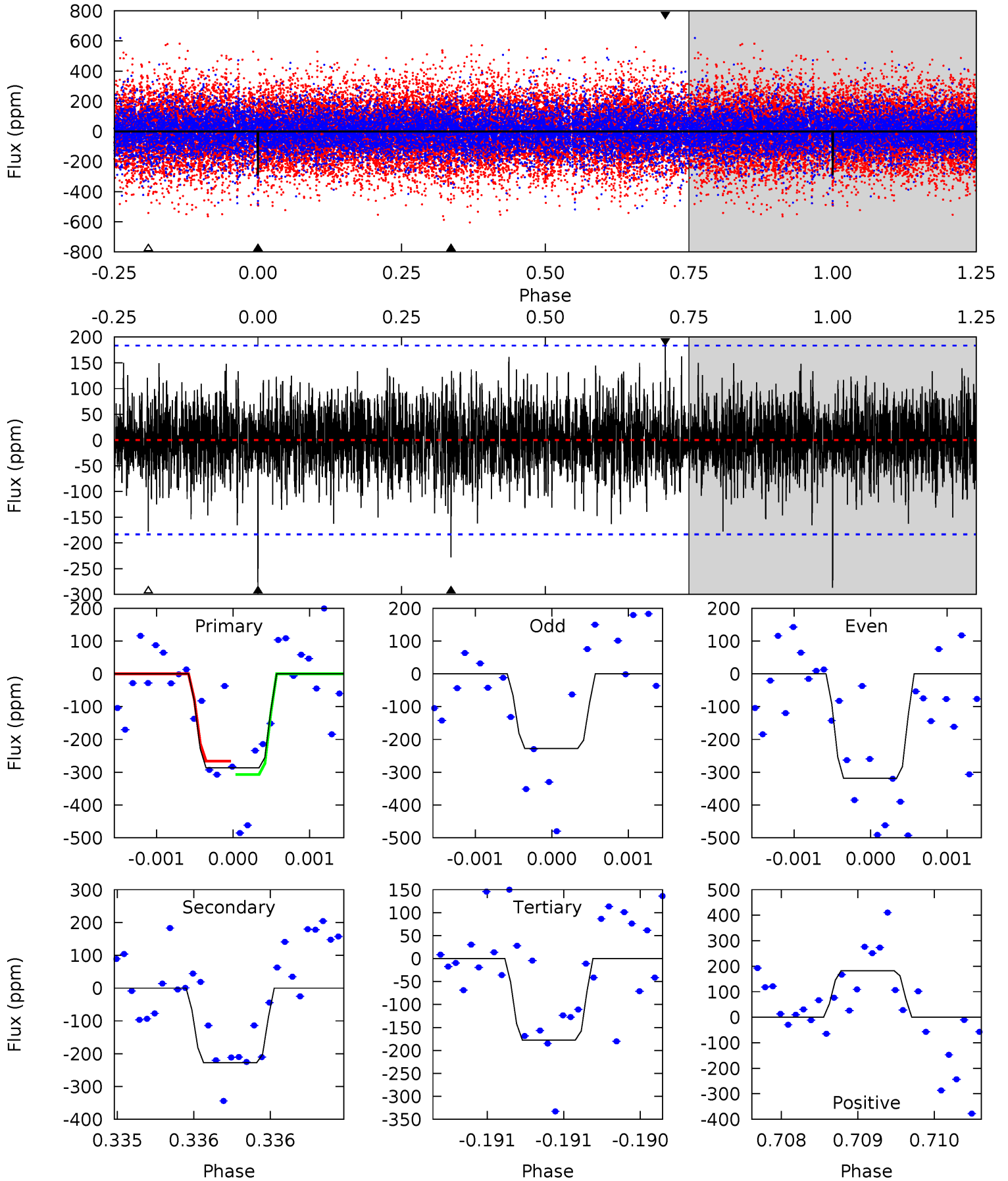
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.64	8.13	7.64	6.39	5.49	3.35	1.83	0.99	2.24	0.48	1.73	1.70	0.61	0.43	0.59



Alt Model-Shift Uniqueness Test

003945818-04, P = 180.611363 Days, E = 85.461414 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.61	6.84	5.33	5.48	5.51	3.38	1.47	3.28	3.13	1.51	1.35	1.28	1.15	0.39	0.61



Stellar Parameters For KIC 003945818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-260 ± 32	$7.86^{+4.71}_{-3.94}$	939^{+54}_{-99}	6096^{+2978}_{-1053}	1289^{+3961}_{-755}
Alt.	-228 ± 33	$7.34^{+4.48}_{-3.85}$	943^{+53}_{-97}	6035^{+2988}_{-1078}	1270^{+4320}_{-765}

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

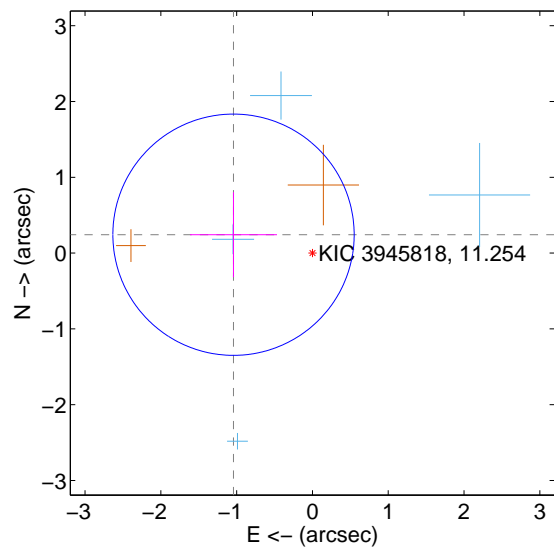
Supplemental centroid analysis for 003945818-04. **Kepler magnitude: 11.25.** Transit SNR 7.78

There are 4 quarters with good PRF difference image offsets

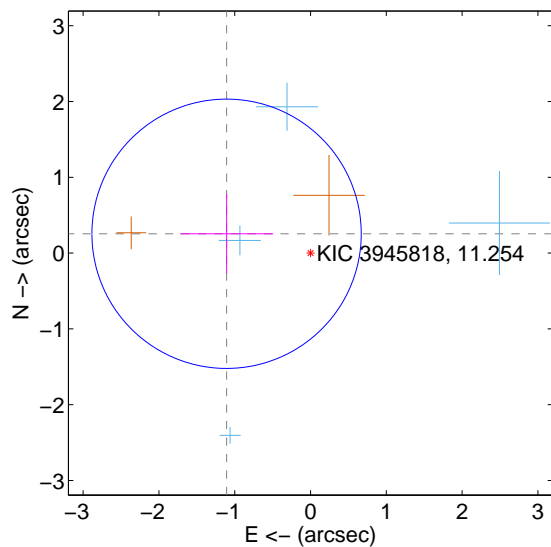
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.069 ± 0.531	2.02	1.041 ± 0.573	0.242 ± 0.560
PRF-fit source offset from KIC position	1.137 ± 0.592	1.92	1.108 ± 0.614	0.255 ± 0.523
photometric centroid source offset	0.75 ± 0.47	1.58	-0.33 ± 0.41	-0.67 ± 0.49

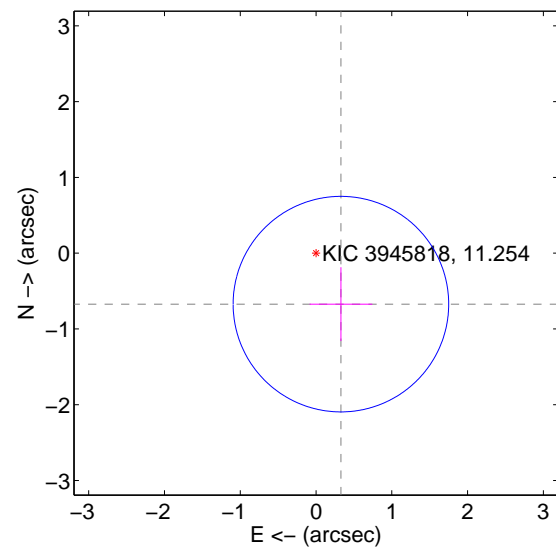
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

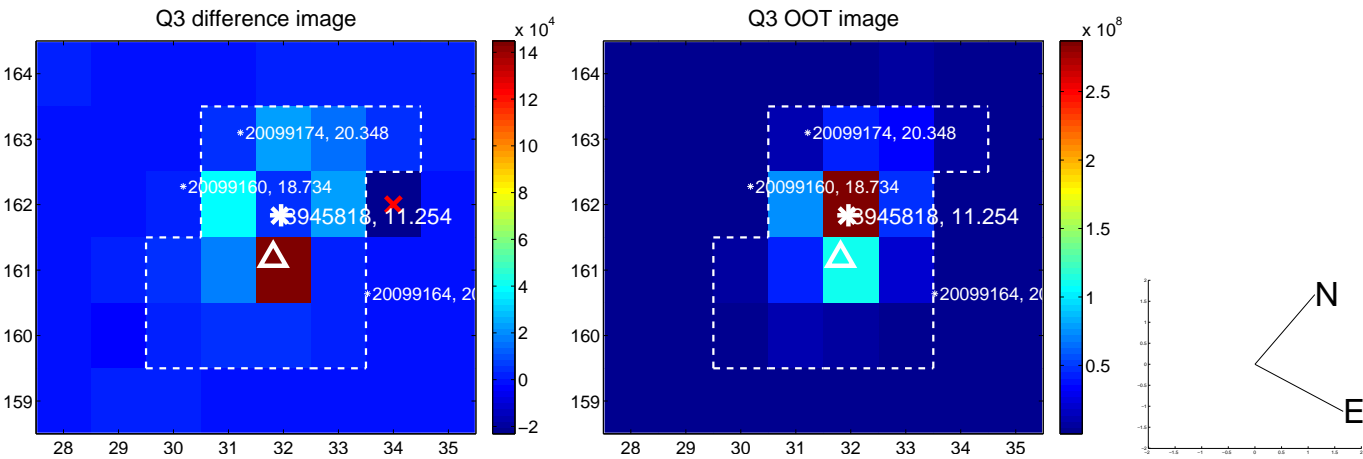


offset from photometric centroids

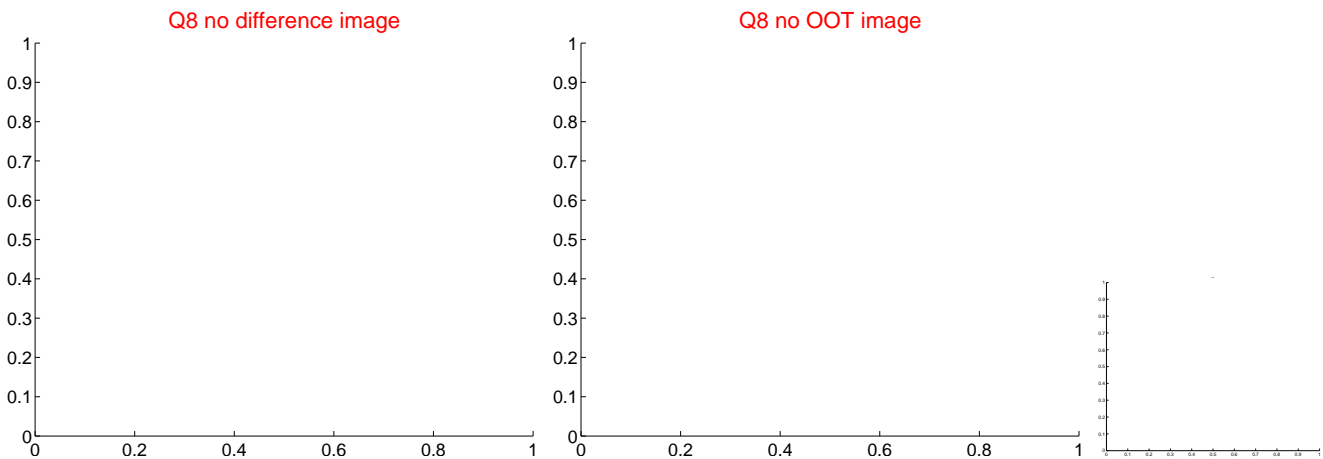
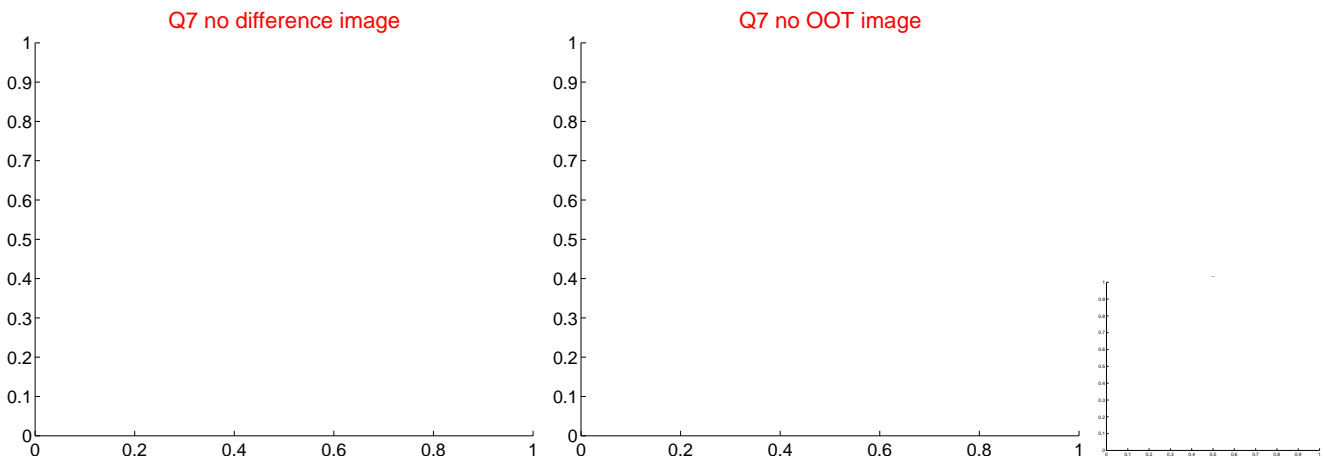
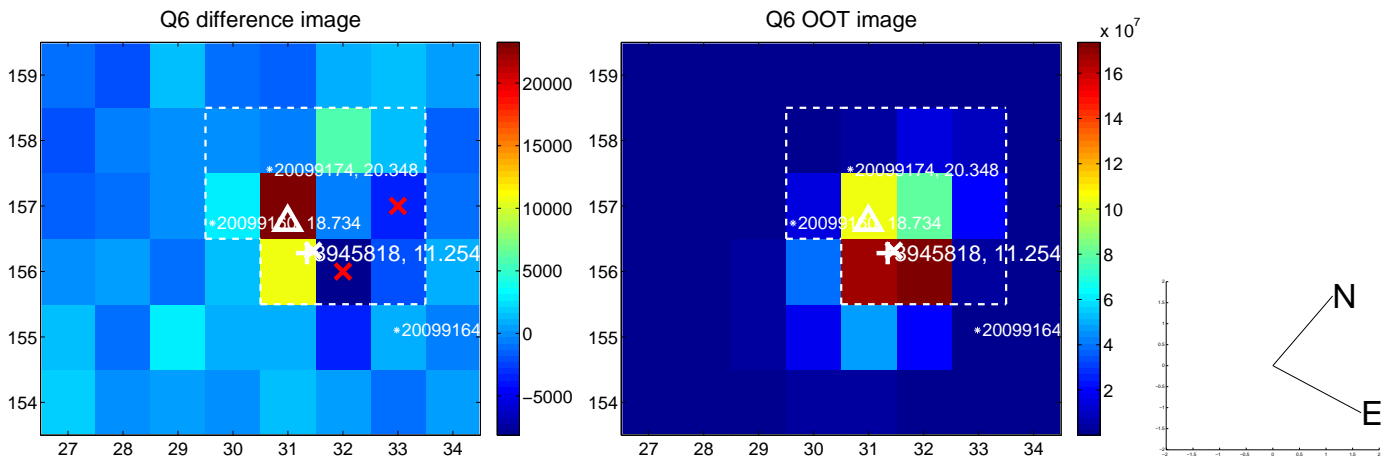
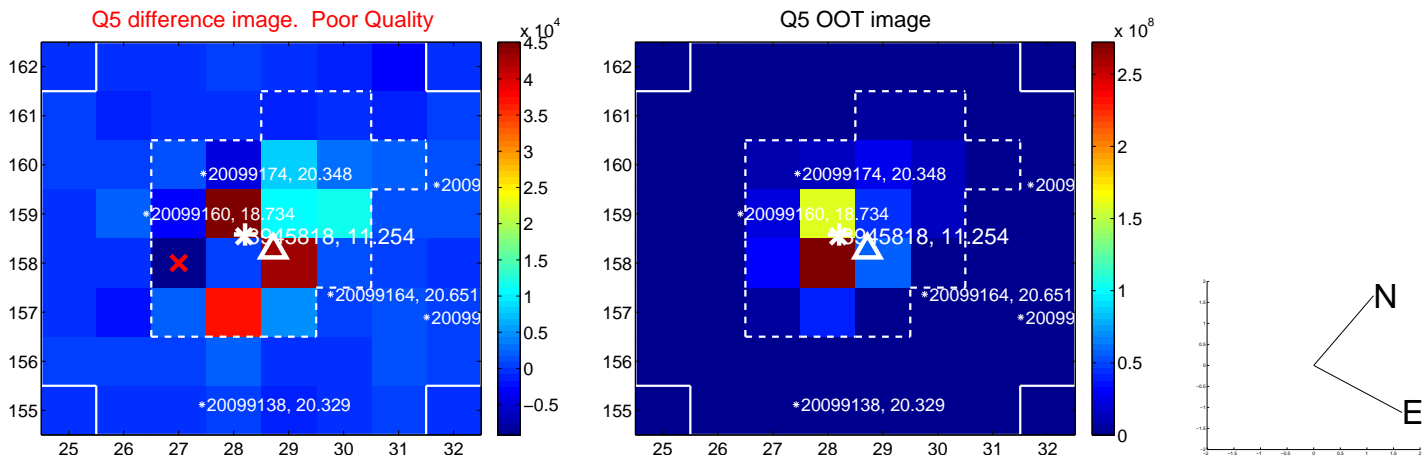


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

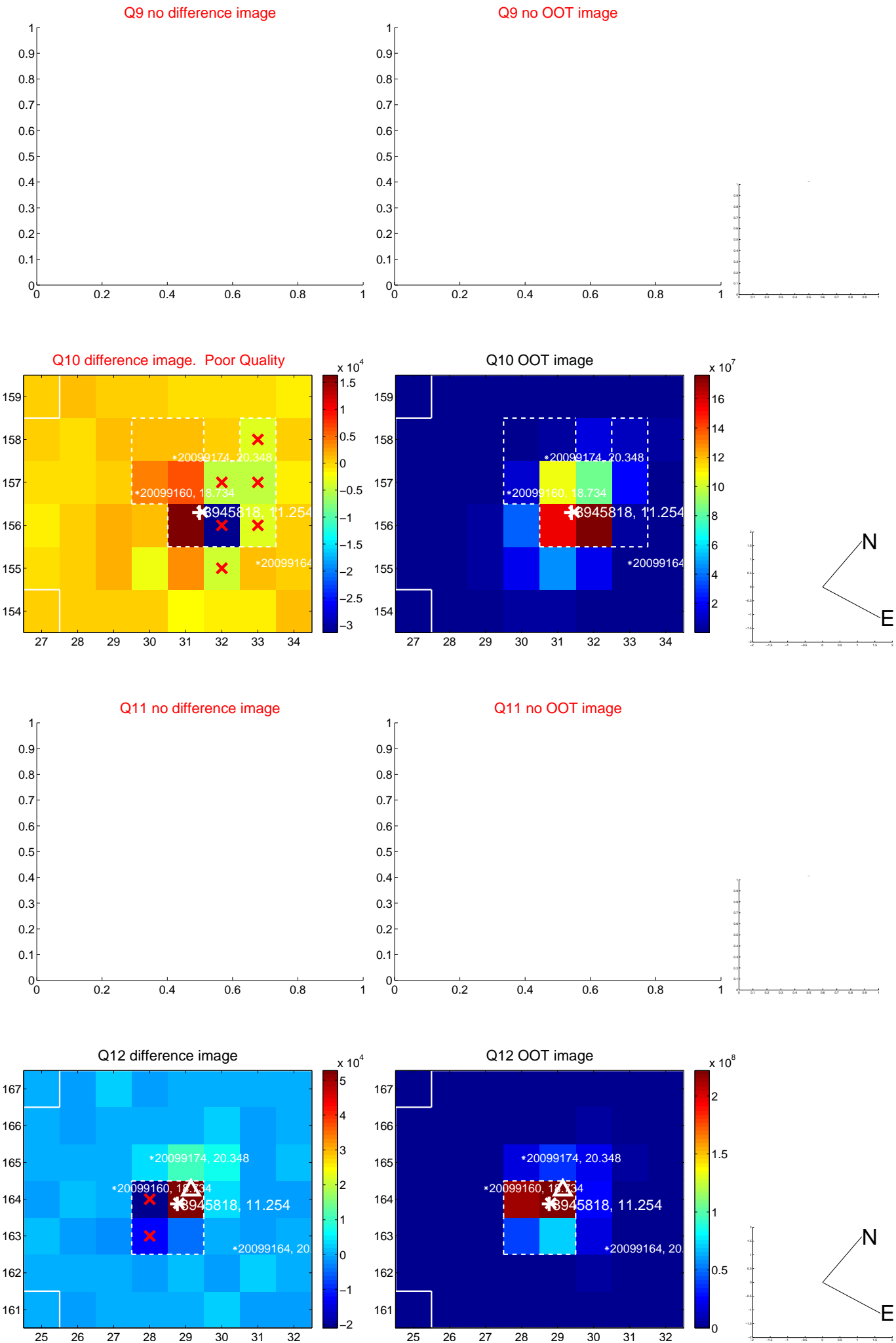
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



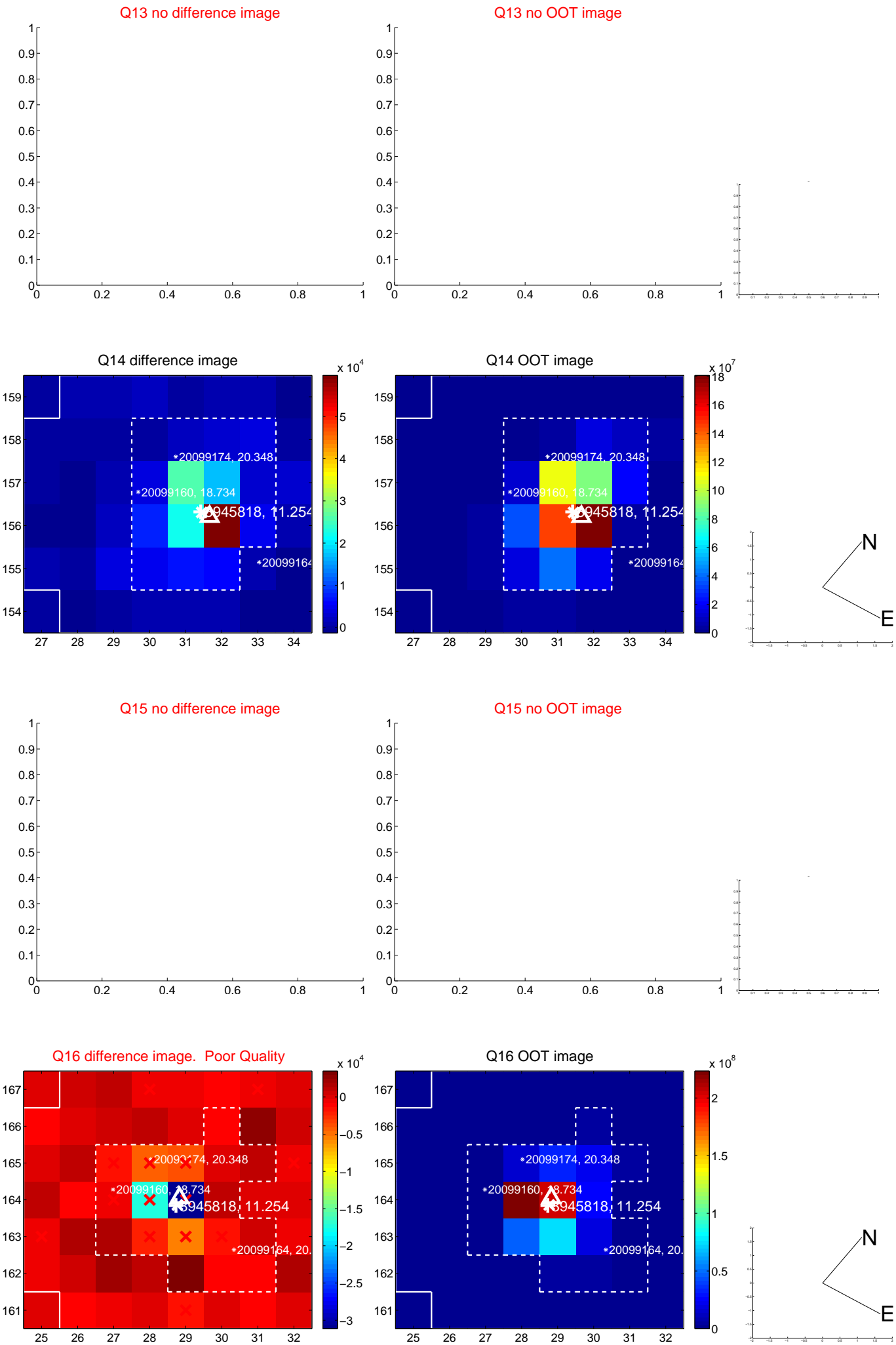
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



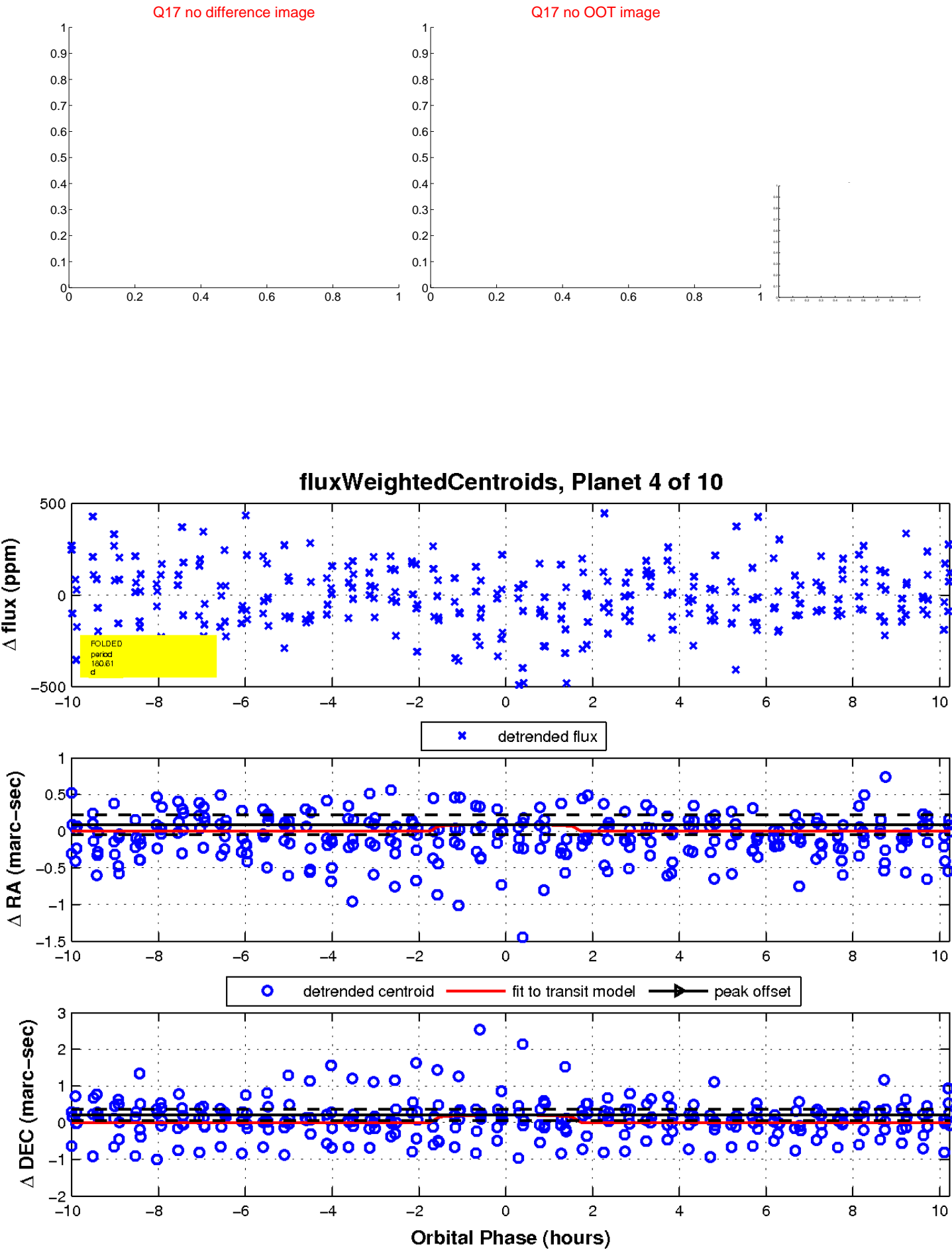
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



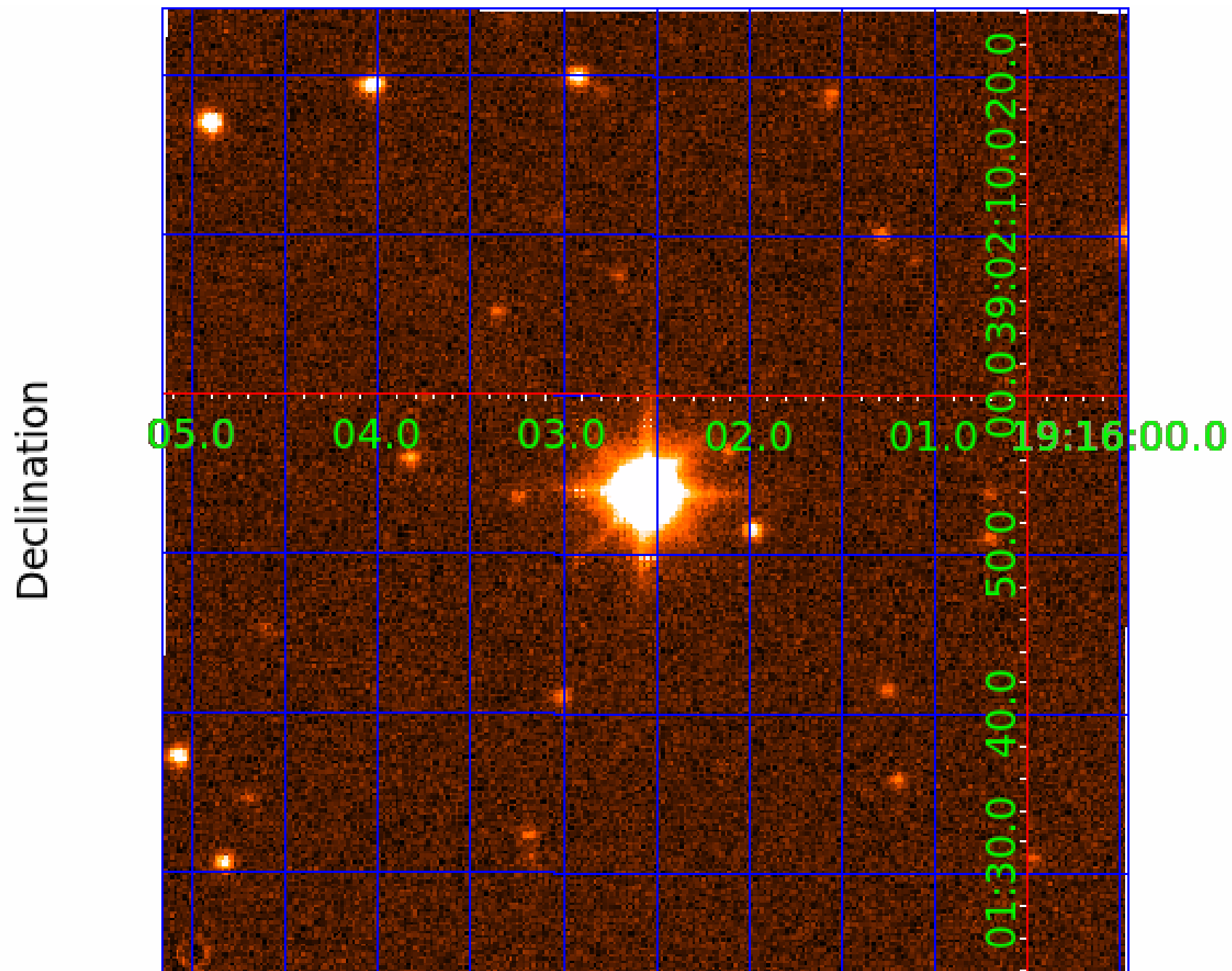
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

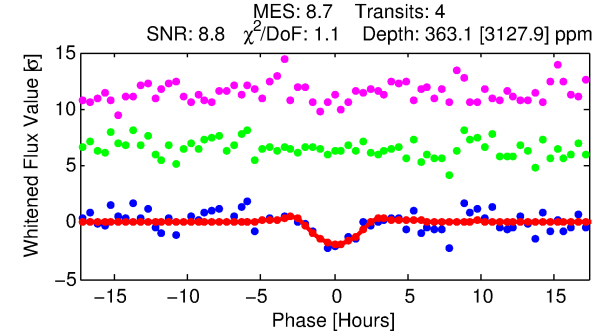
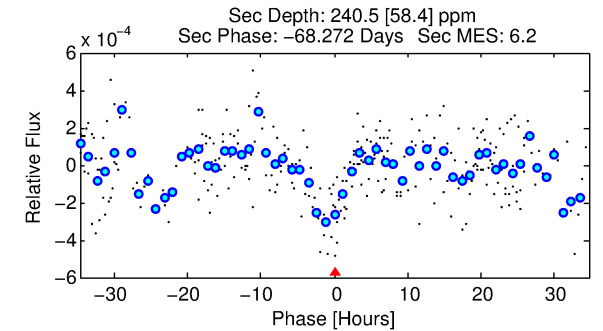
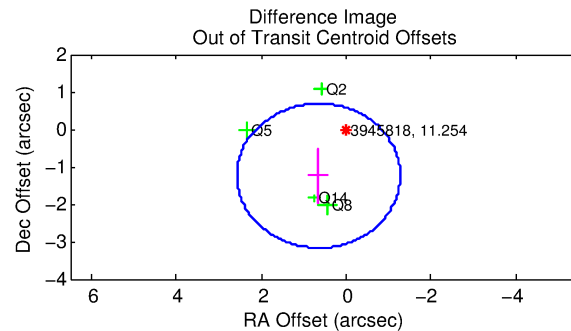
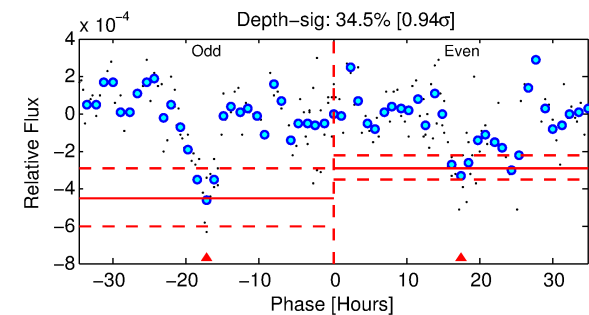
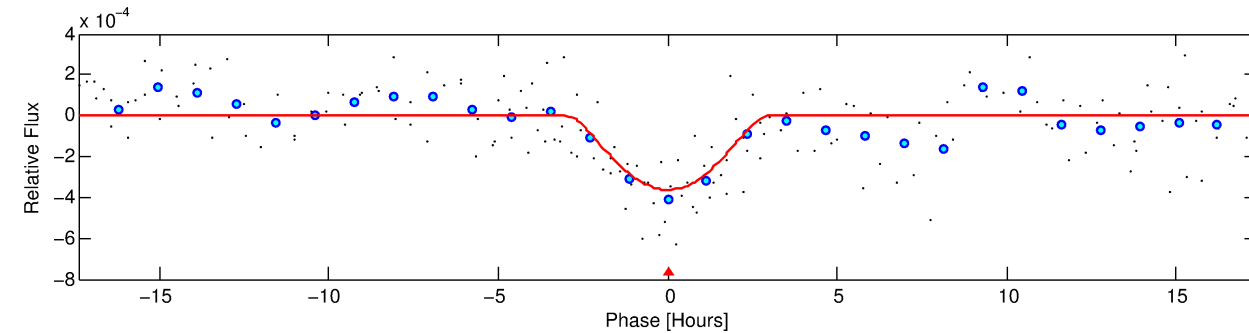
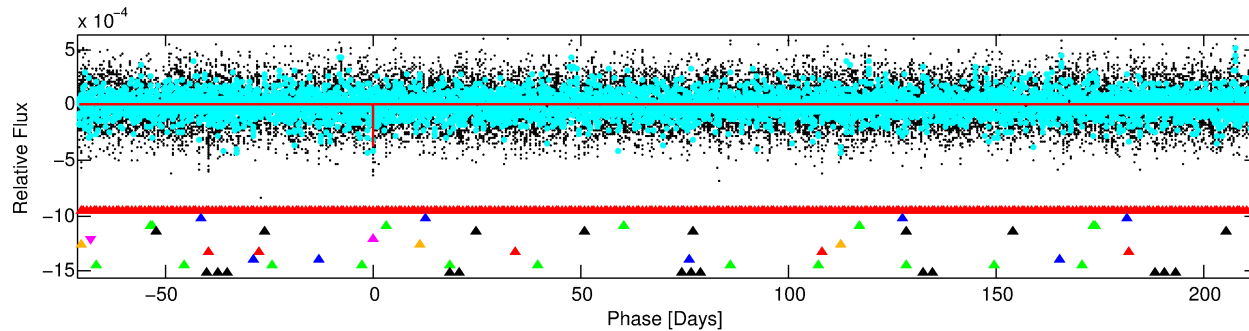
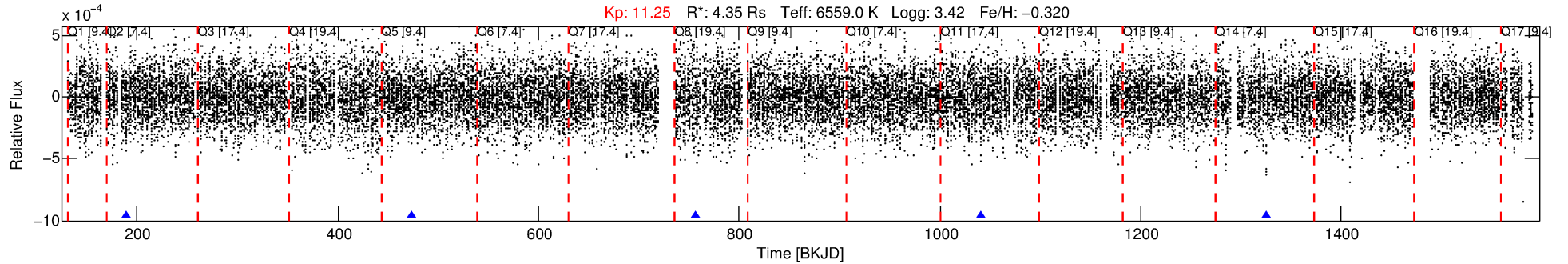
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-05

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 5 of 10 Period: 283.954 d



DV Fit Results:

Period = 283.95369 [0.00470] d
Epoch = 188.9910 [0.0118] BKJD
Rp/R* = 0.0339 [0.1156]
a/R* = 98.32 [87.71]
b = 1.00 [0.03]
Seff = 29.49 [20.53]
Teq = 594 [103] K
Rp = 16.08 [55.39] Re
a = 1.0319 [0.4497] AU
Ag = 544.77 [3739.28] [0.15 σ]
Teffp = 4439 [7579] K [0.51 σ]

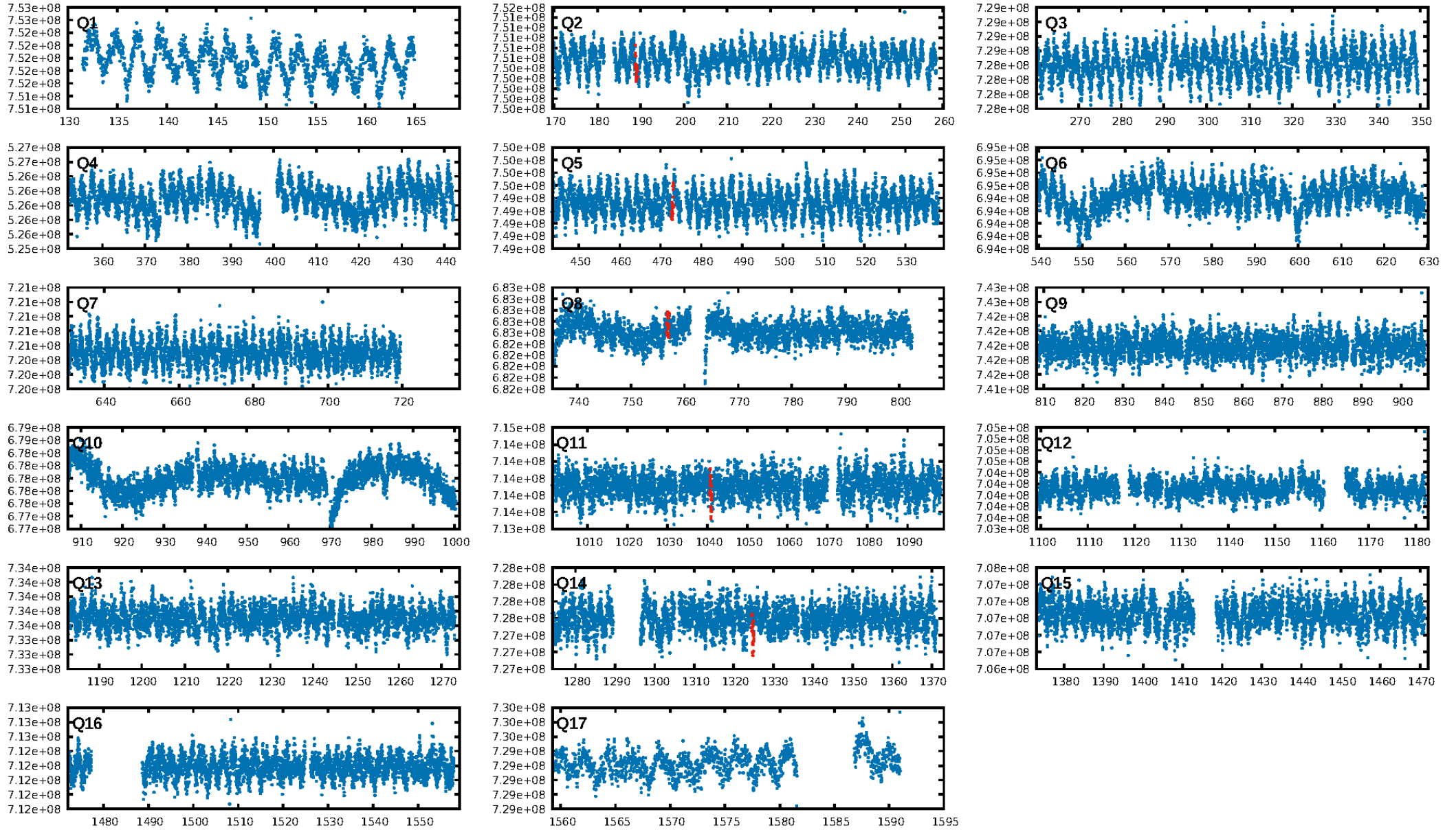
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [188.26 σ]
LongPeriod-sig: 100.0% [217.77 σ]
ModelChiSquare2-sig: 8.2%
ModelChiSquareGof-sig: 86.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.888
Centroid-sig: 91.9%
Centroid-so: 0.078 arcsec [0.17 σ]
OotOffset-rm: 1.400 arcsec [2.18 σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-rm: 1.455 arcsec [2.28 σ]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.75 [3/4]

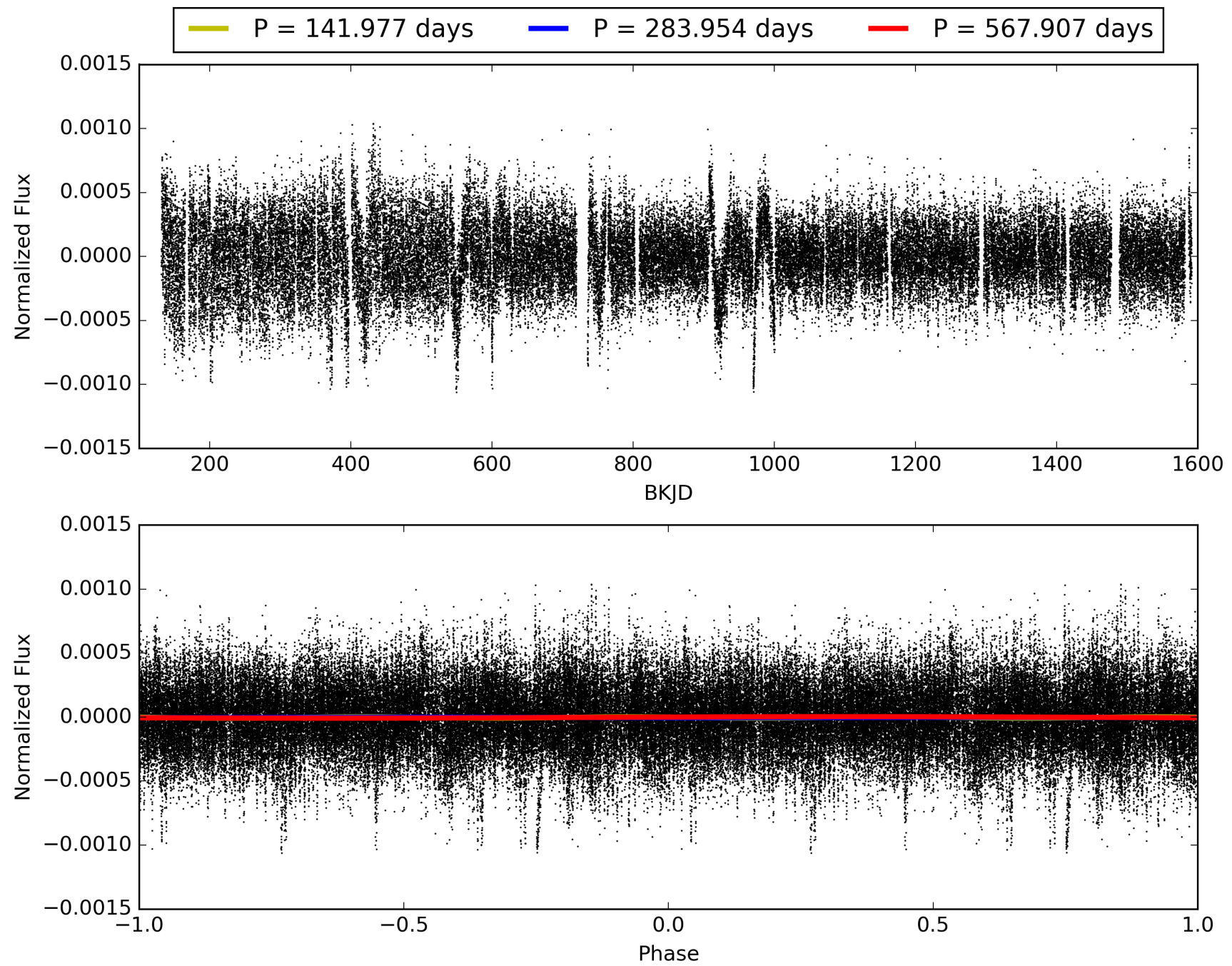
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:25 Z

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

TCE 003945818-05, PDC Light Curves

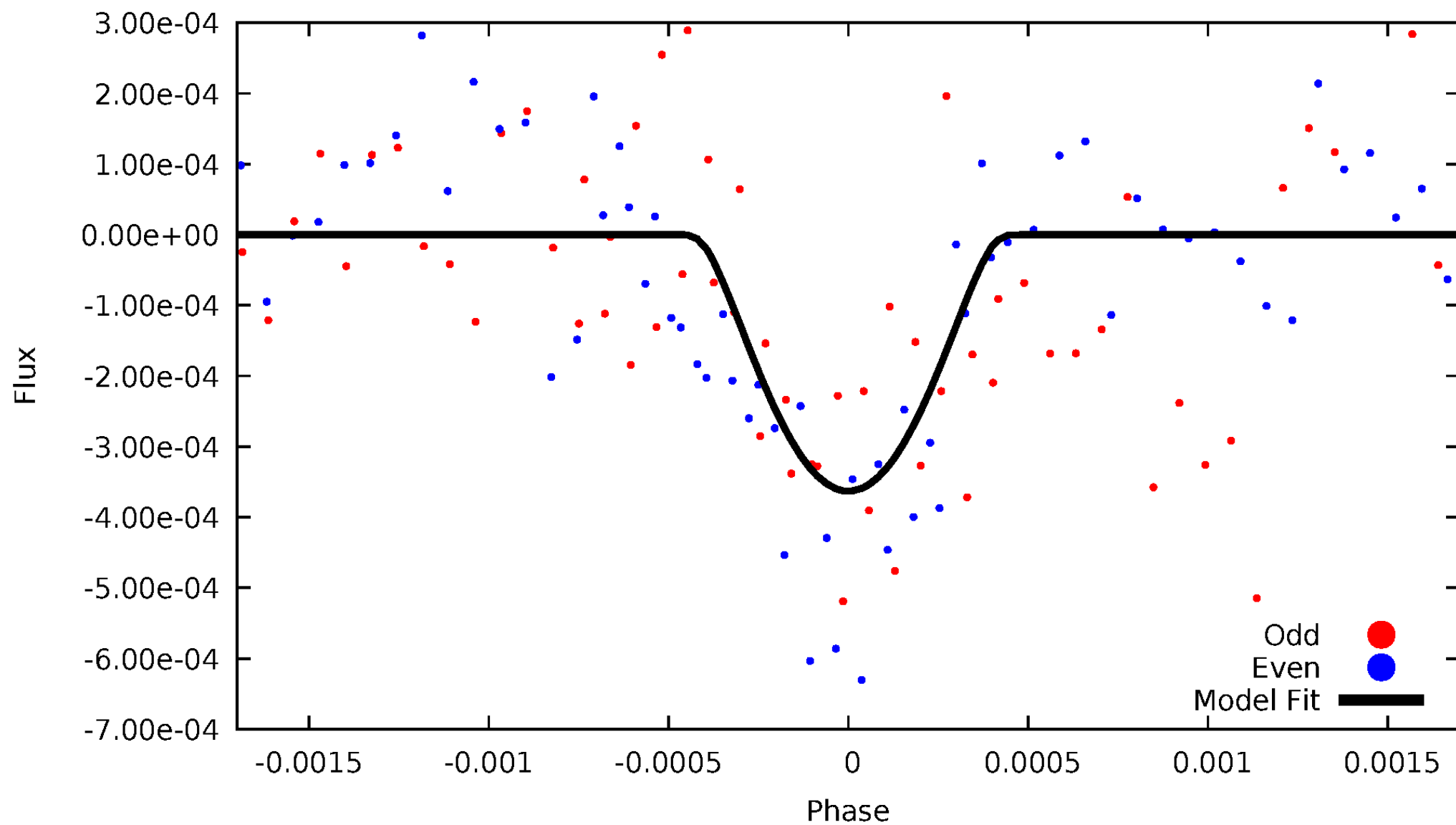


TCE 003945818-05



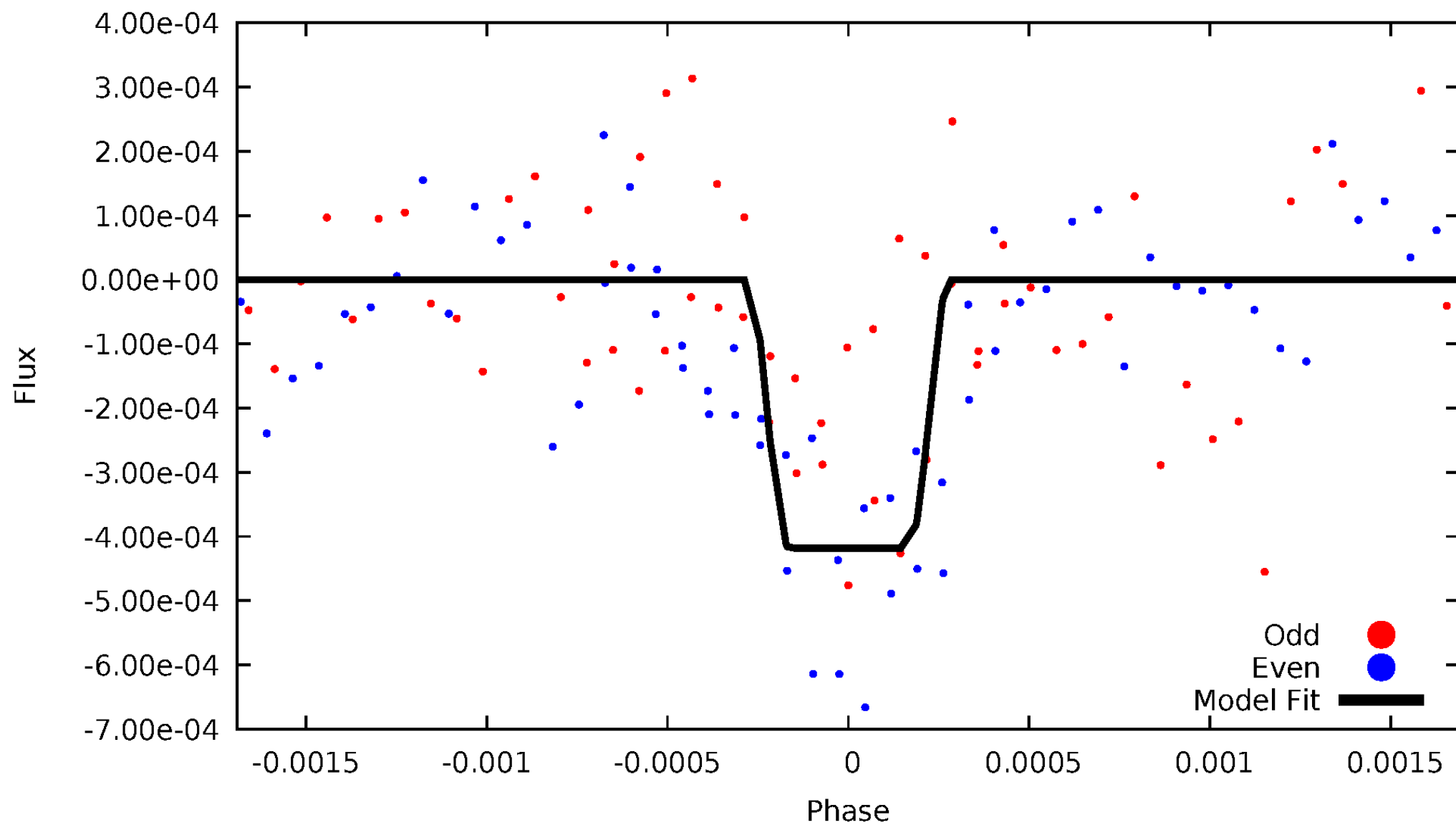
DV Odd/Even

TCE 003945818-05



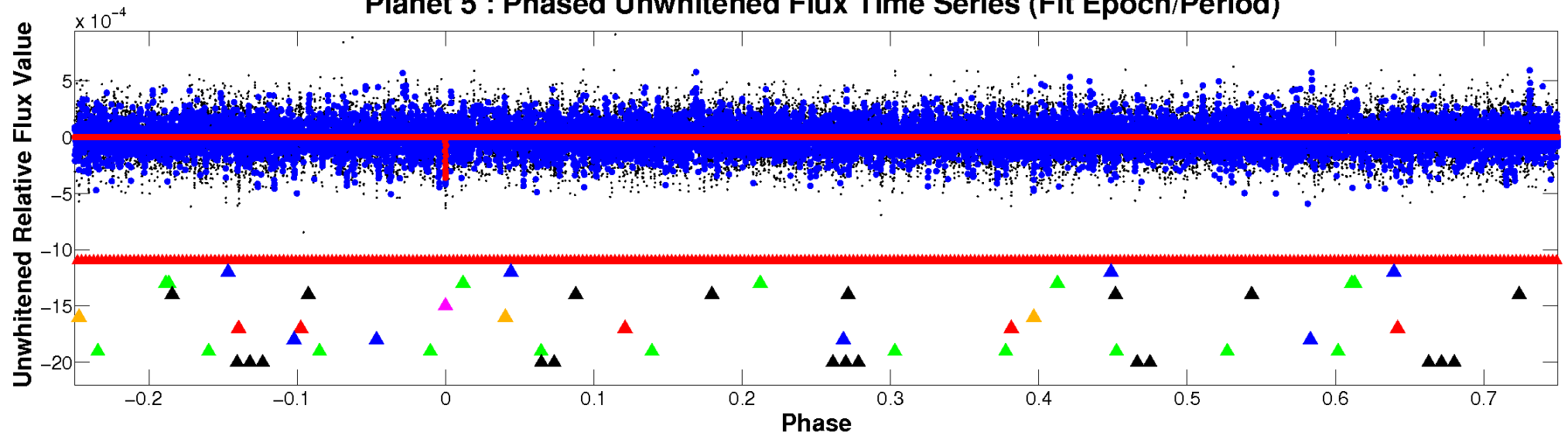
ALT Odd/Even

TCE 003945818-05

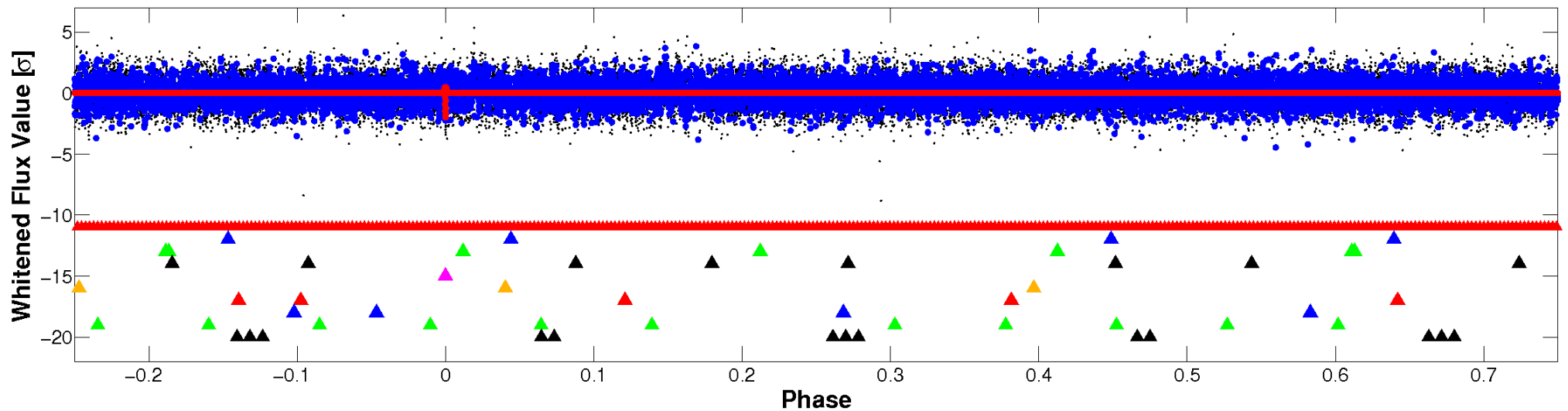


Non-Whitened Vs. Whitened Light Curve

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

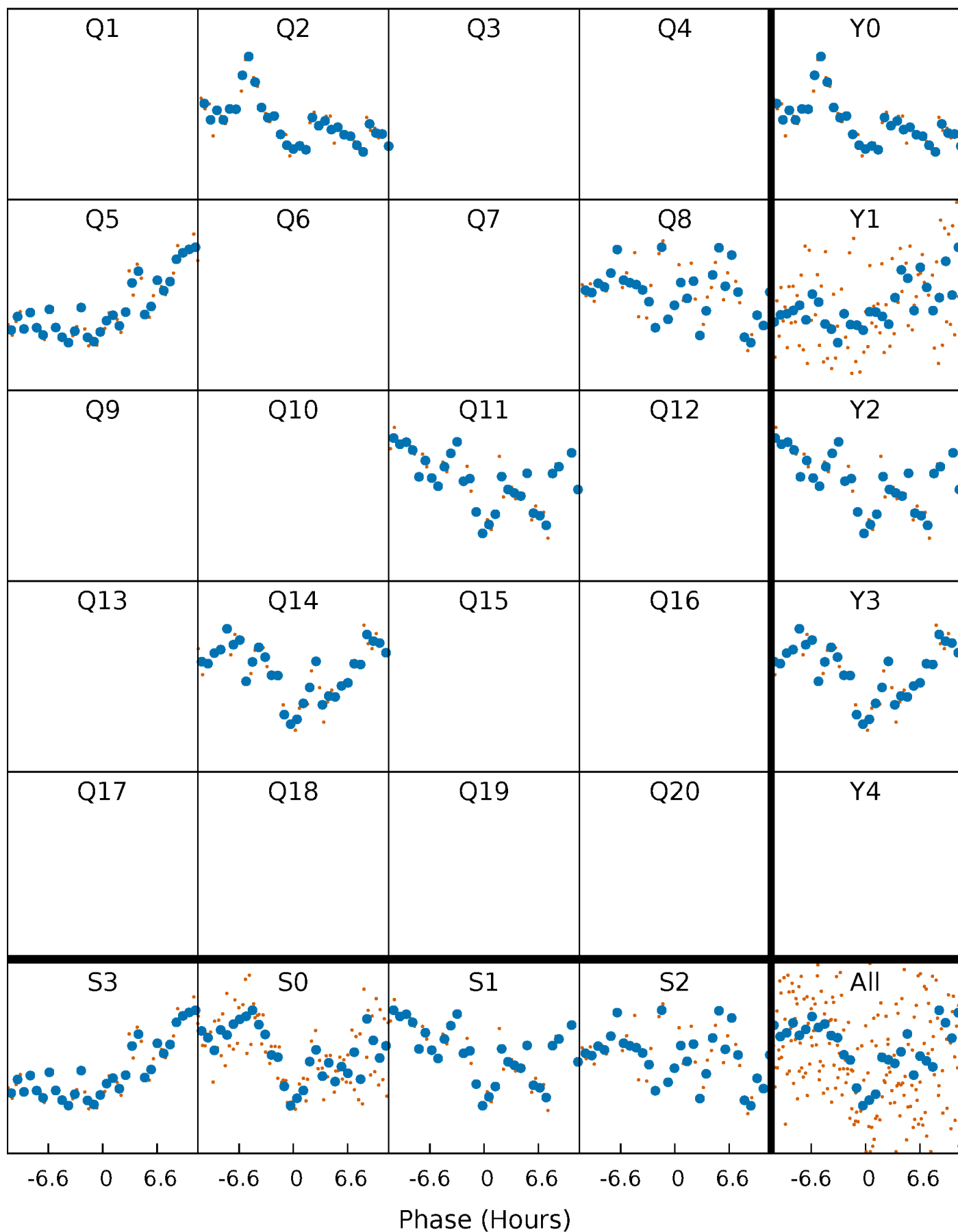


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



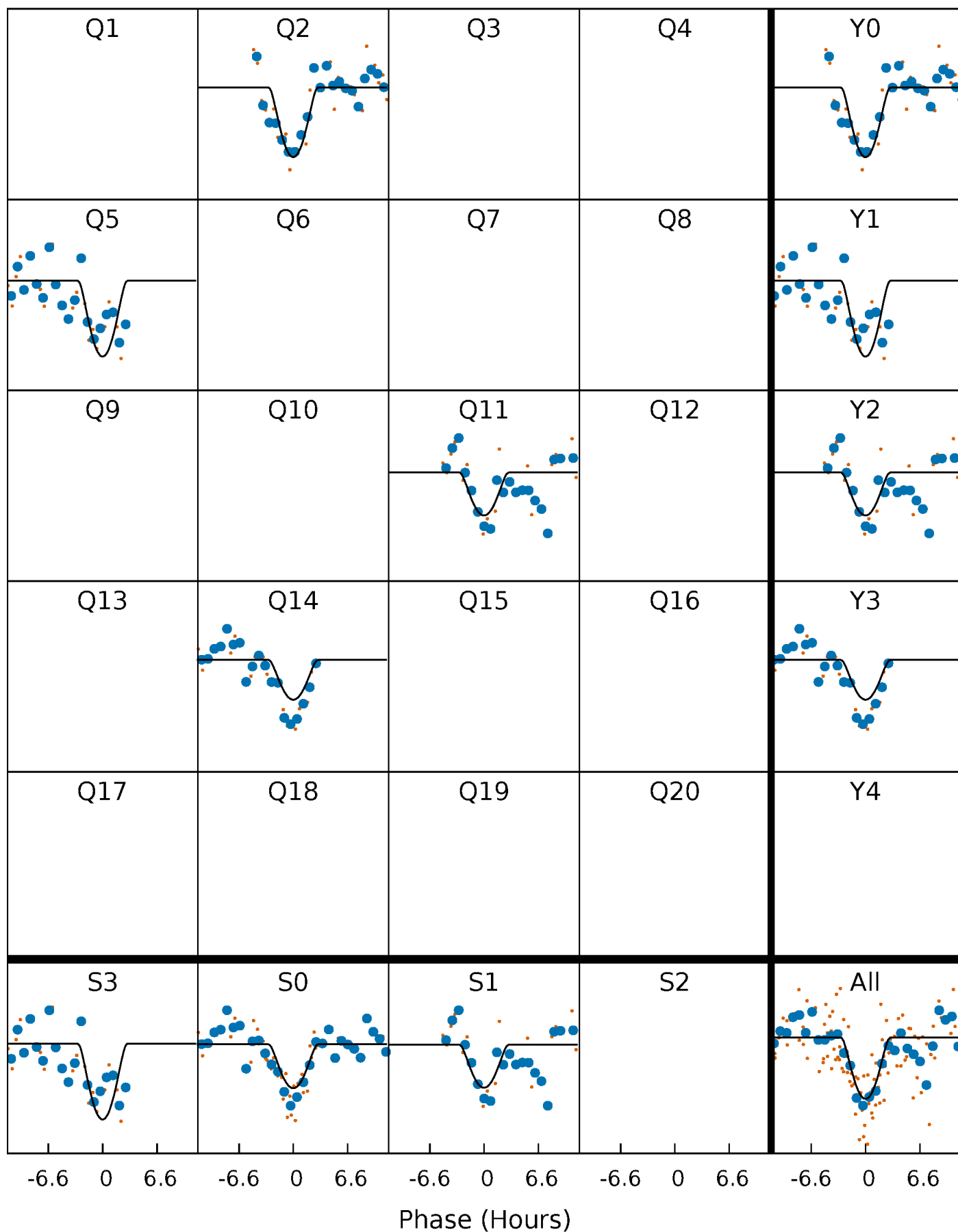
PDC Quarter-Phased Transit Curves

TCE 003945818-05 $P=283.953695$ Days $T_0=188.991043$ (BKJD)



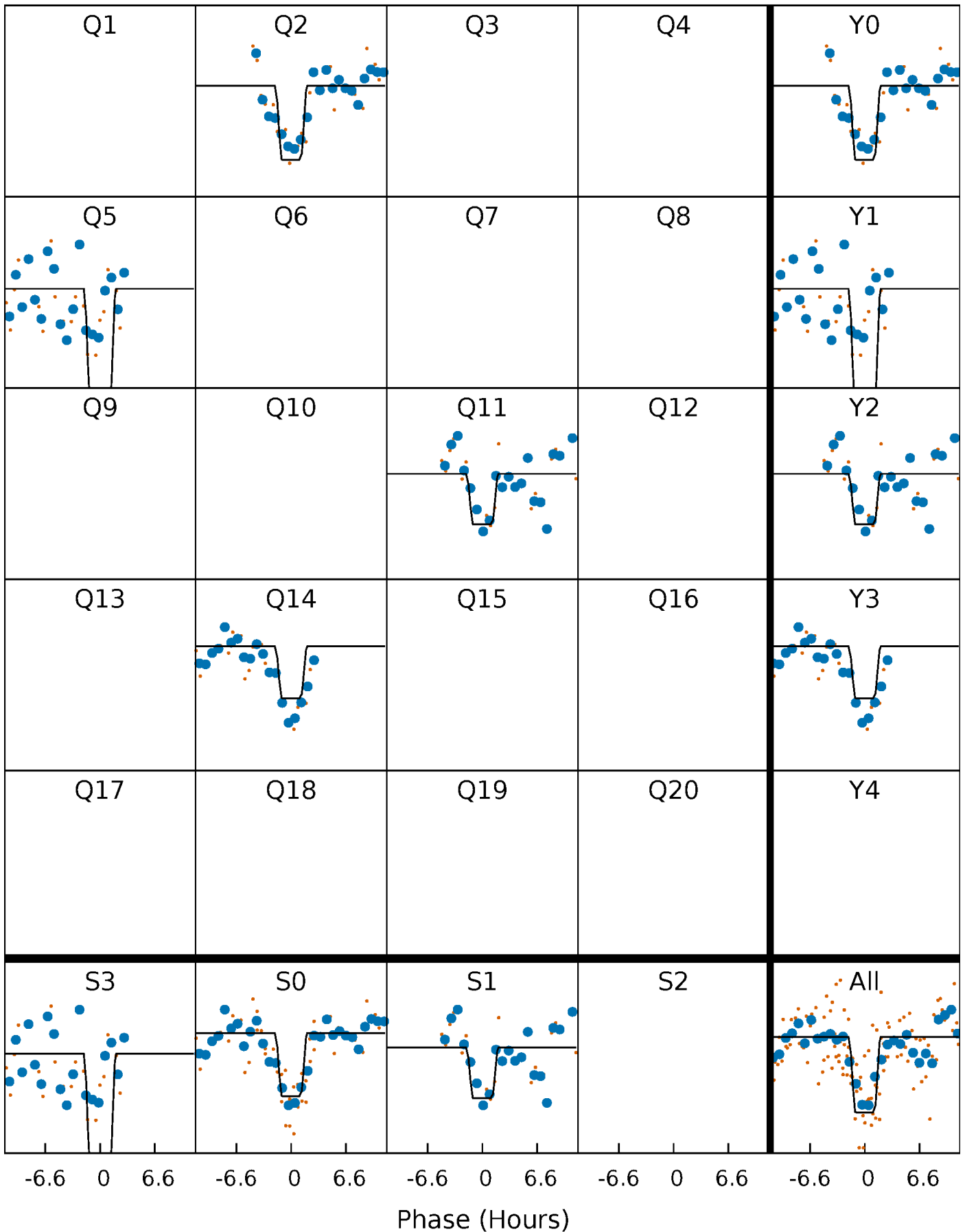
DV Quarter-Phased Transit Curves

TCE 003945818-05 $P=283.953695$ Days $T_0=188.991043$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

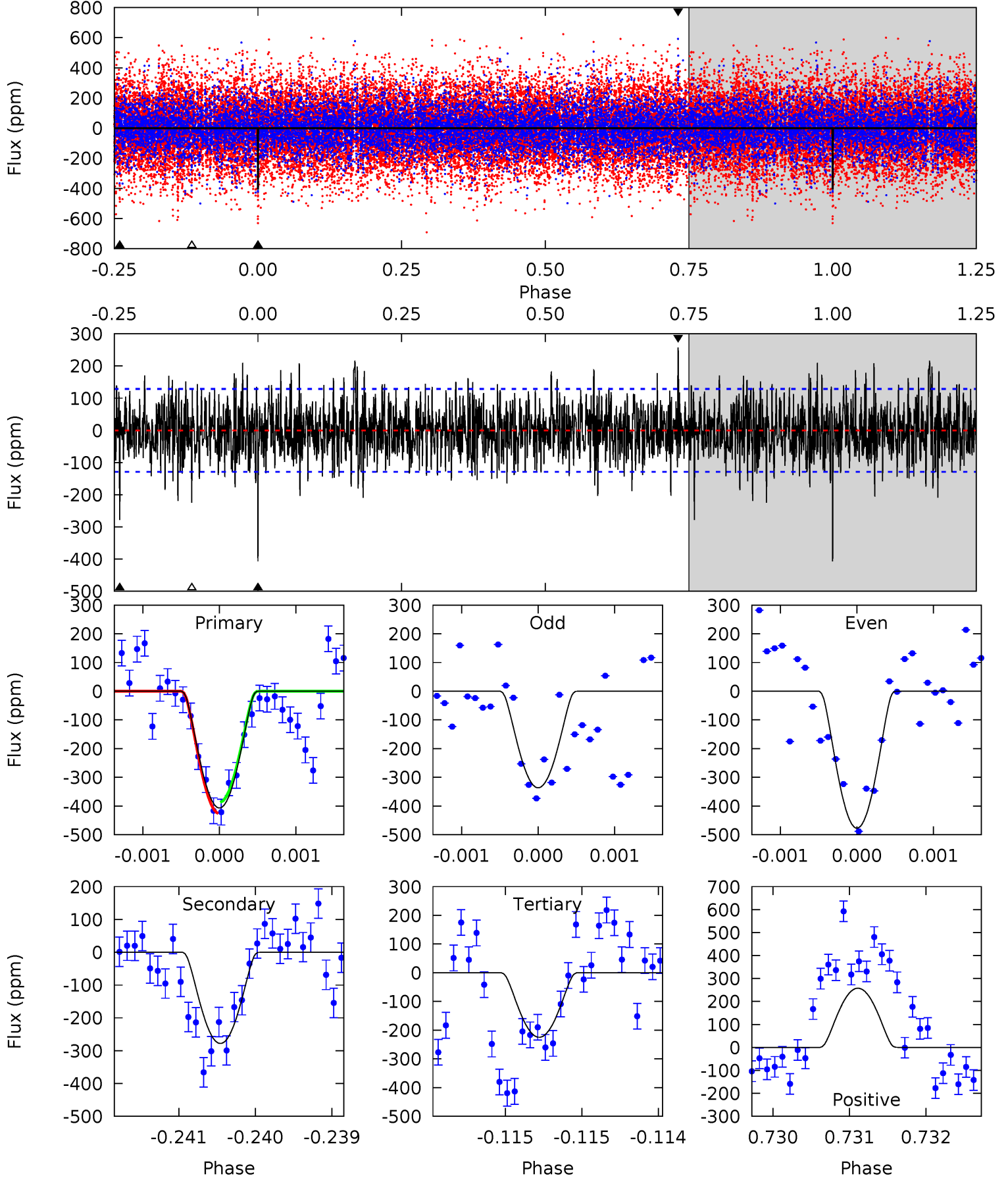
TCE 003945818-05 P=283.955311 Days $T_0=188.981945$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-05, P = 283.953695 Days, E = 188.991043 Days

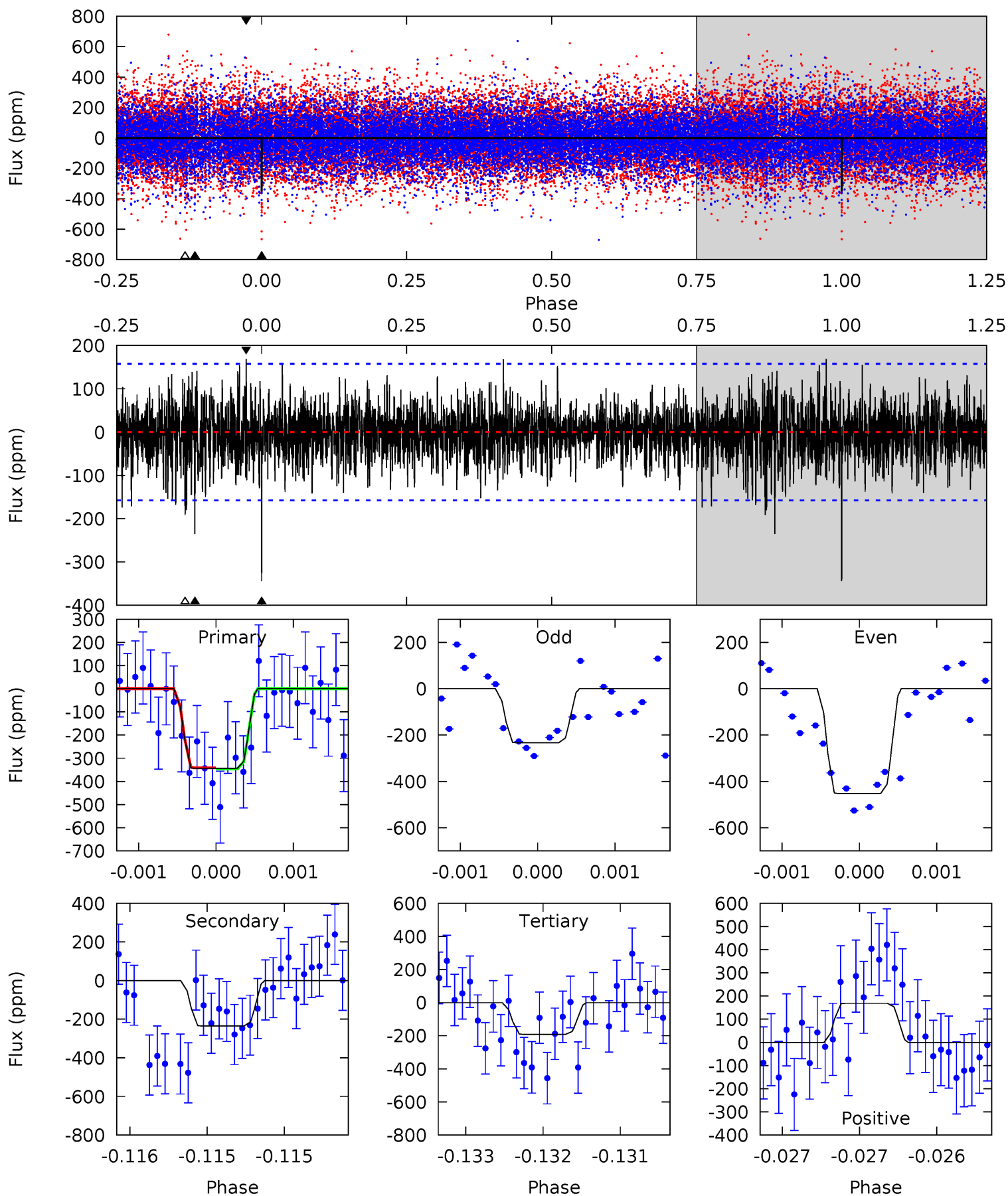
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.2	11.8	9.53	10.9	5.47	3.32	2.69	7.72	6.33	2.26	0.87	2.99	1.07	0.39	0.82



Alt Model-Shift Uniqueness Test

003945818-05, P = 283.955311 Days, E = 188.981945 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	8.29	6.75	5.94	5.56	3.47	1.66	5.39	6.20	1.54	2.35	3.93	0.98	0.33	0.09



Stellar Parameters For KIC 003945818

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-278 ± 24	$37.62^{+41.68}_{-26.37}$	808^{+47}_{-92}	3328^{+1856}_{-586}	114^{+1149}_{-89}
Alt.	-235 ± 28	$34.98^{+42.32}_{-24.02}$	805^{+49}_{-84}	3308^{+1857}_{-602}	108^{+1002}_{-86}

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 $A_{obs} \gg 1.0$

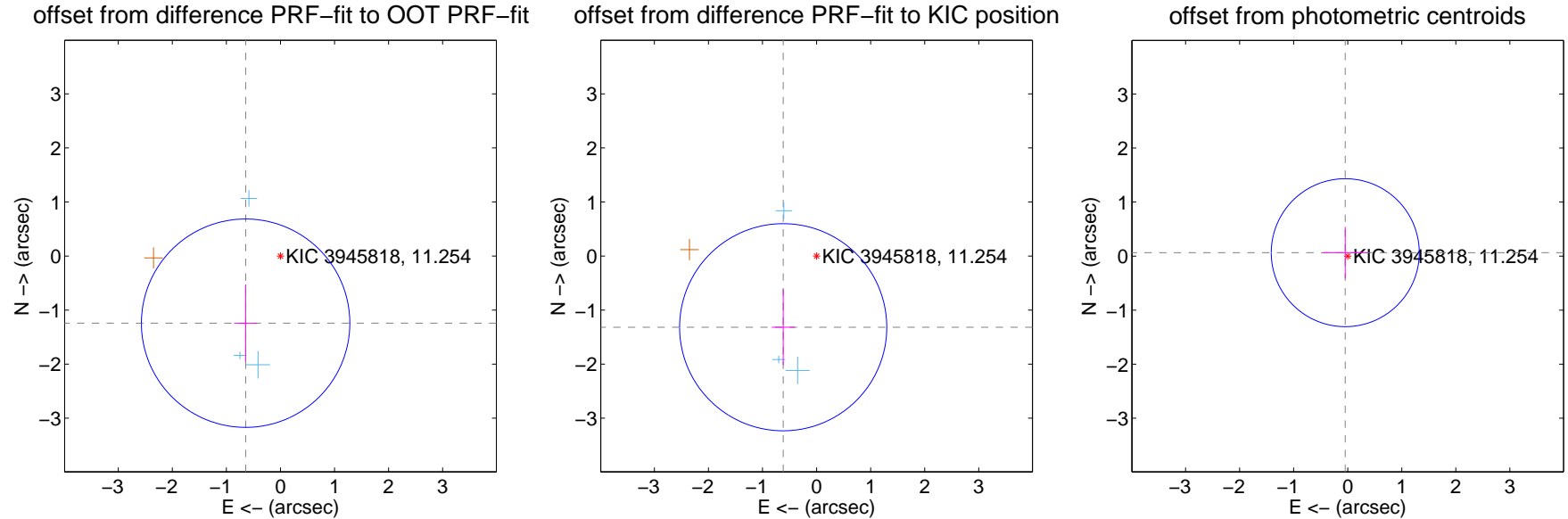
DV Centroid Data

Supplemental centroid analysis for 003945818-05. **Kepler magnitude: 11.25.** Transit SNR 8.75

There are 3 quarters with good PRF difference image offsets

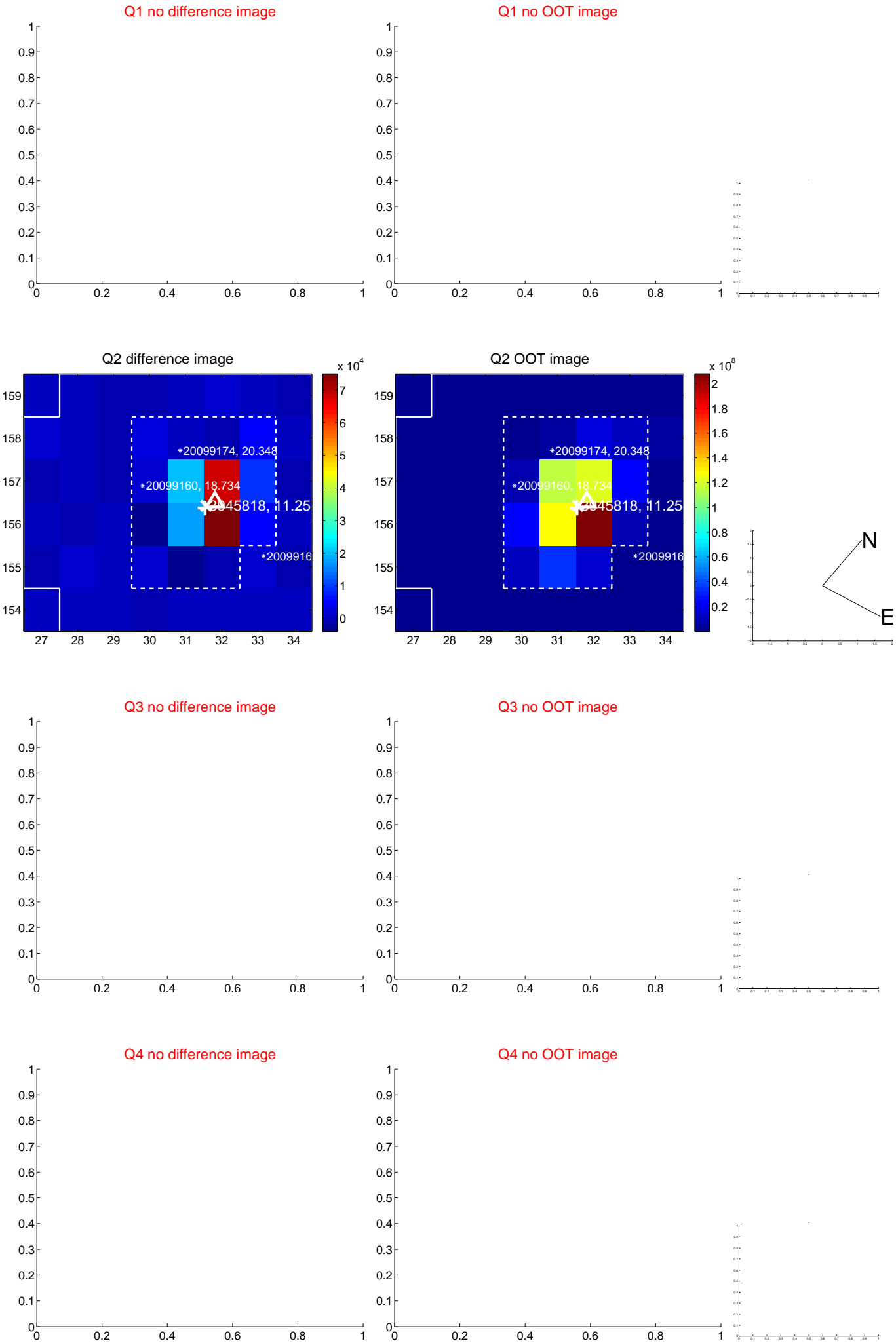
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.400 ± 0.643	2.18	0.644 ± 0.210	-1.243 ± 0.716
PRF-fit source offset from KIC position	1.455 ± 0.639	2.28	0.618 ± 0.211	-1.318 ± 0.698
photometric centroid source offset	0.08 ± 0.46	0.17	0.05 ± 0.41	0.06 ± 0.48

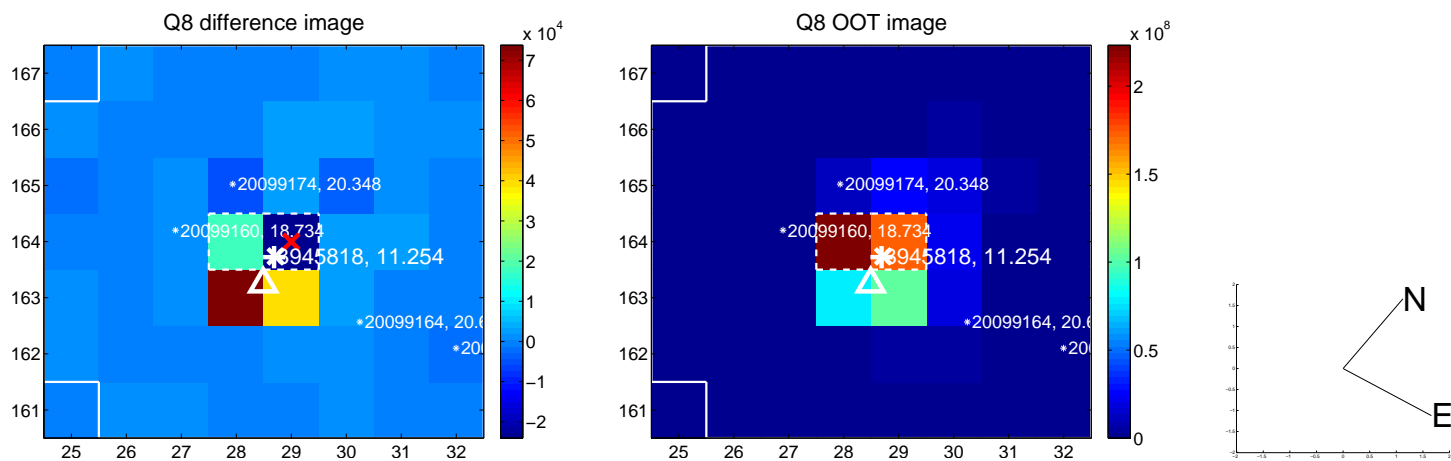
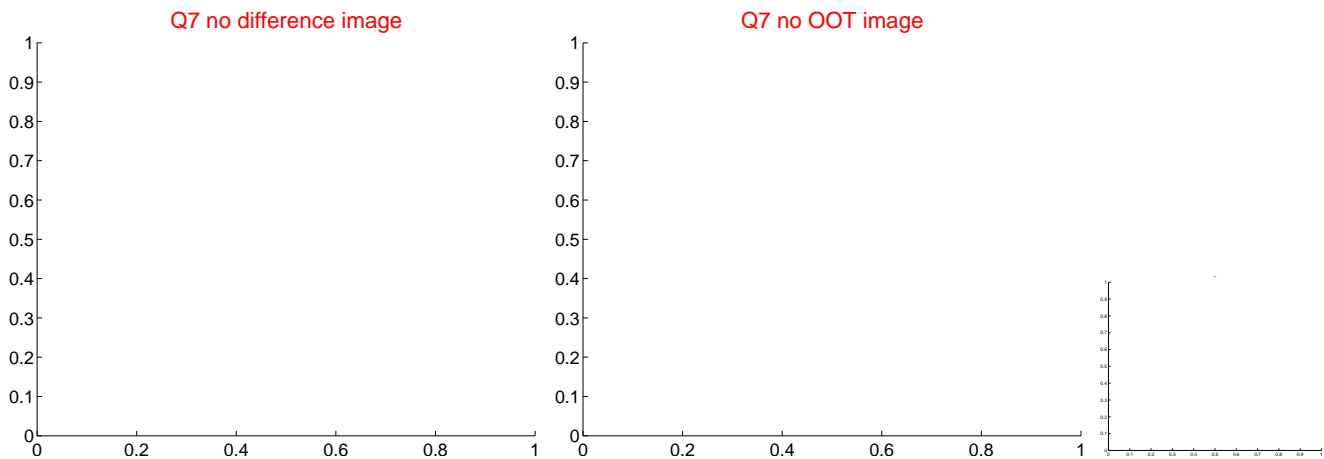
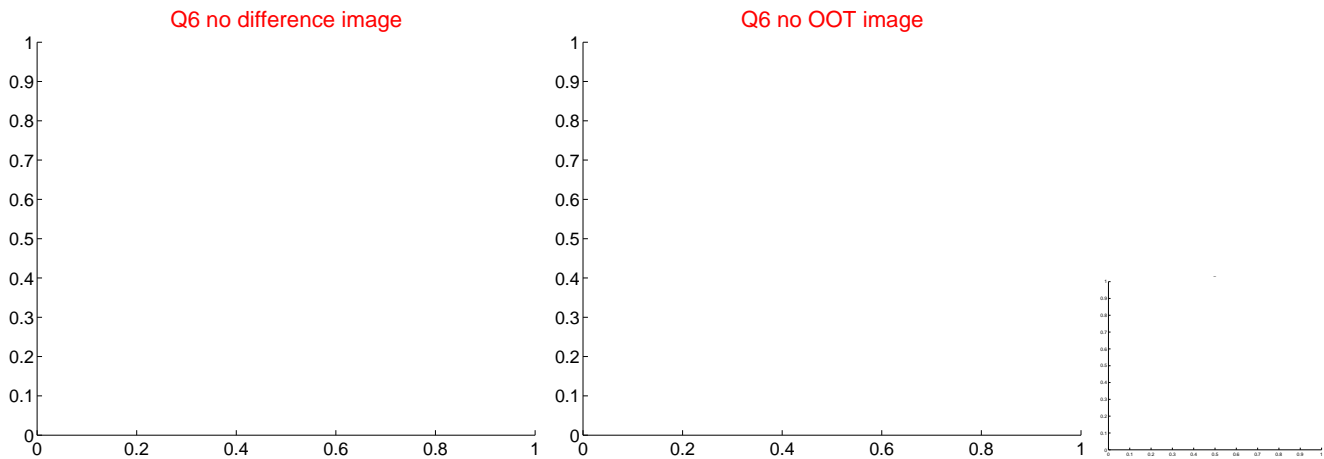
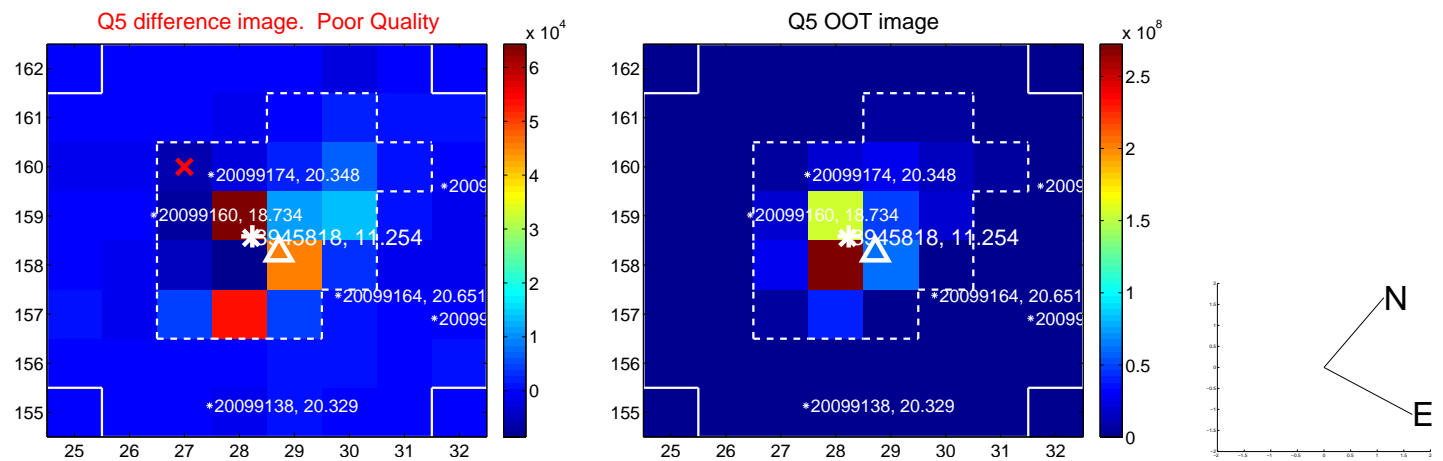


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

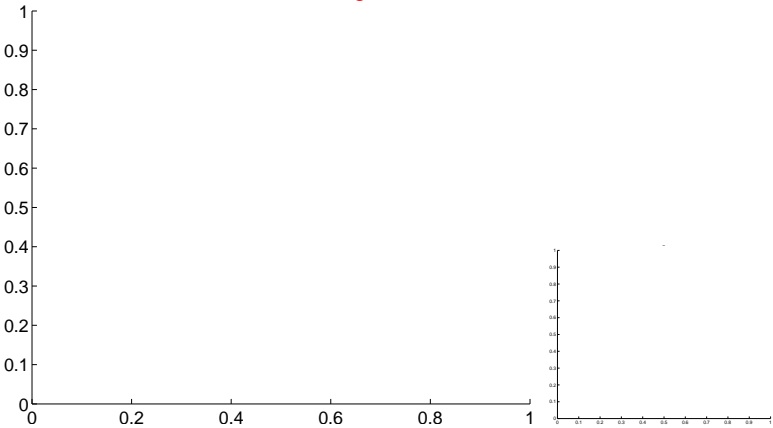


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

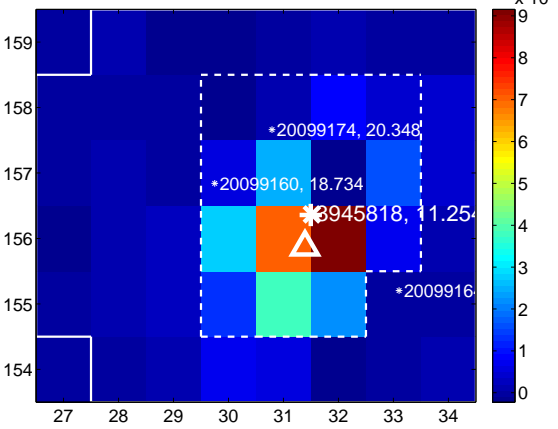
Q13 no difference image



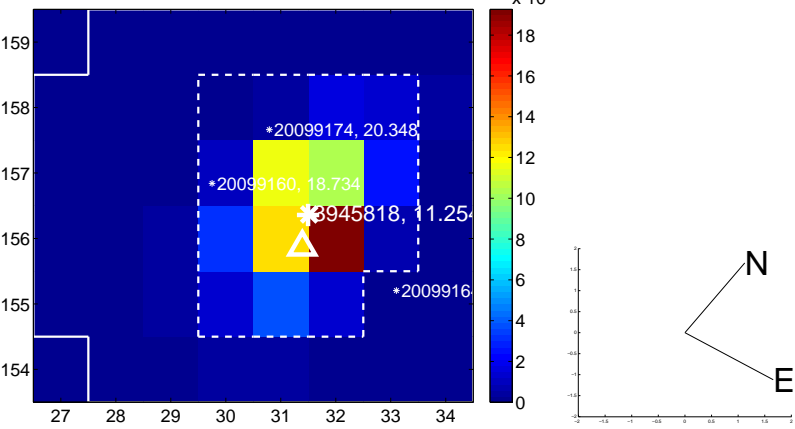
Q13 no OOT image



Q14 difference image



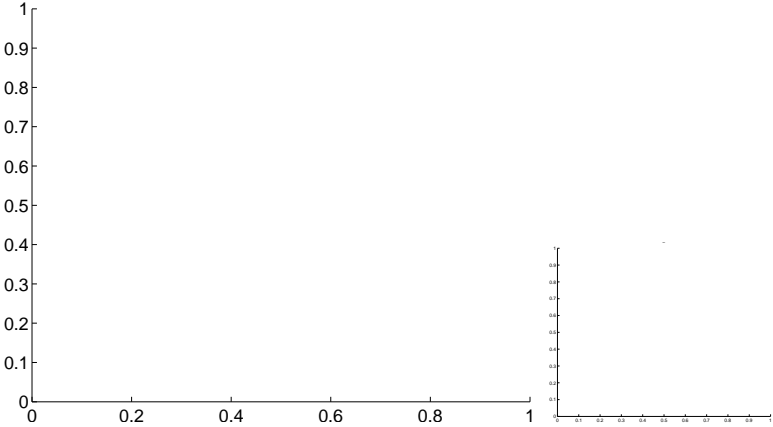
Q14 OOT image



Q15 no difference image



Q15 no OOT image



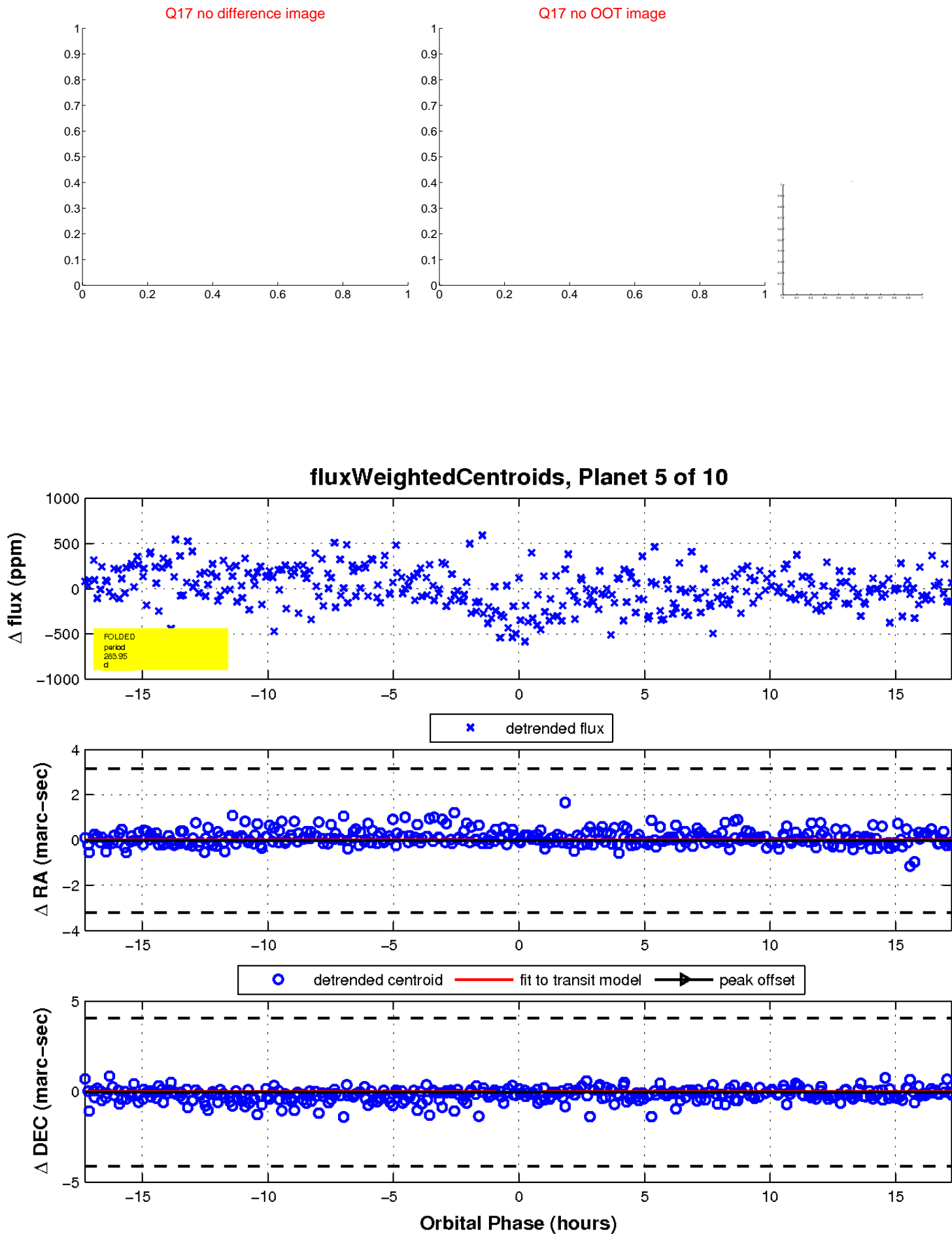
Q16 no difference image



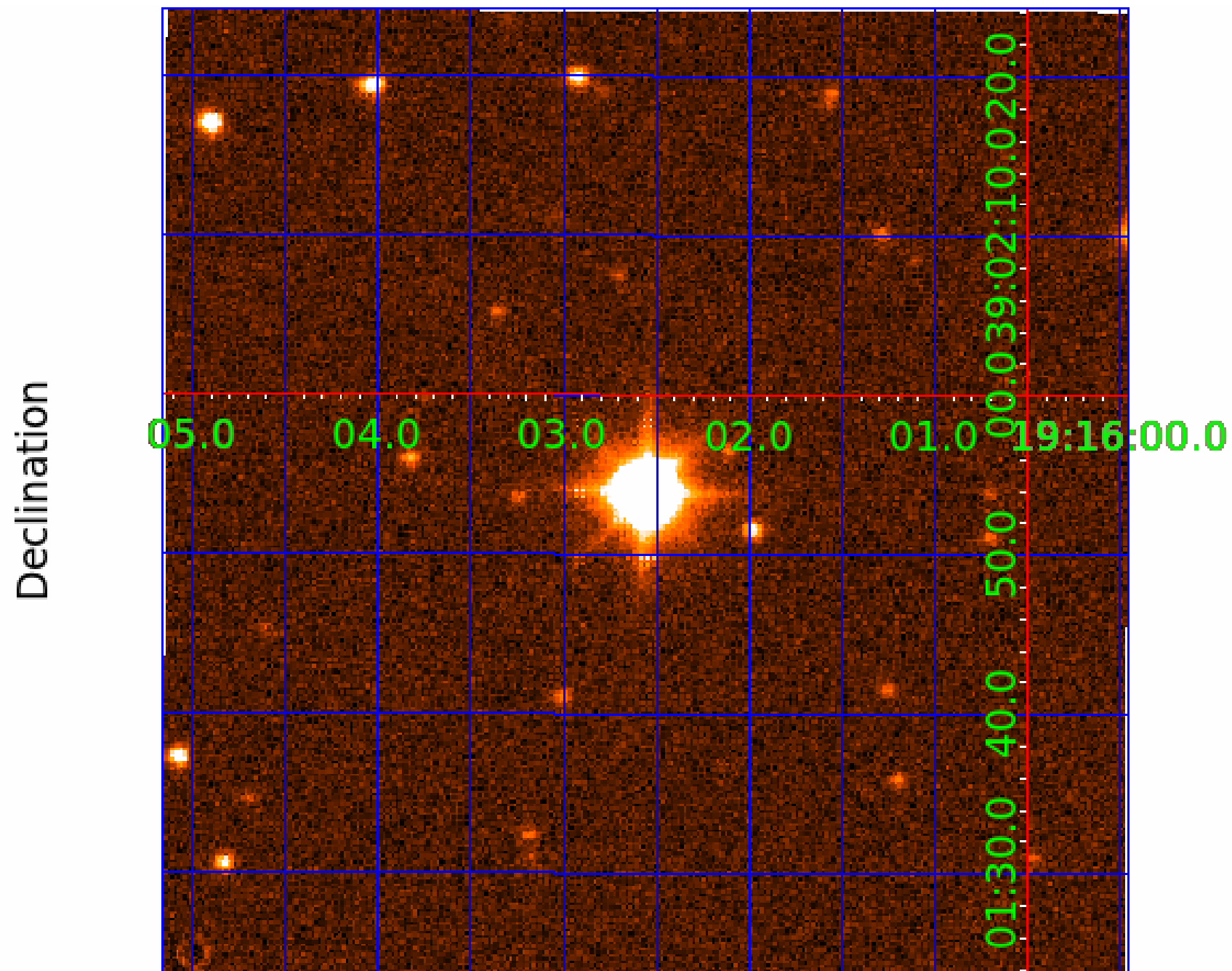
Q16 no OOT image



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
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003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

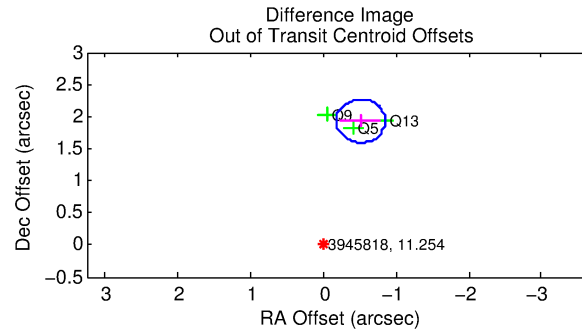
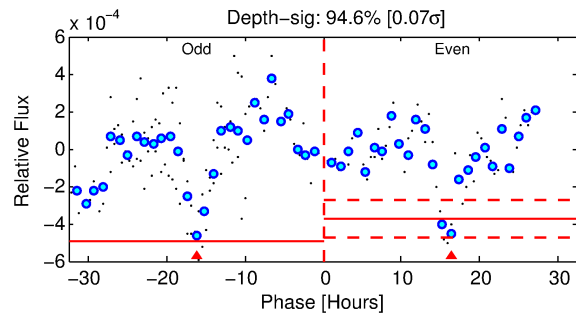
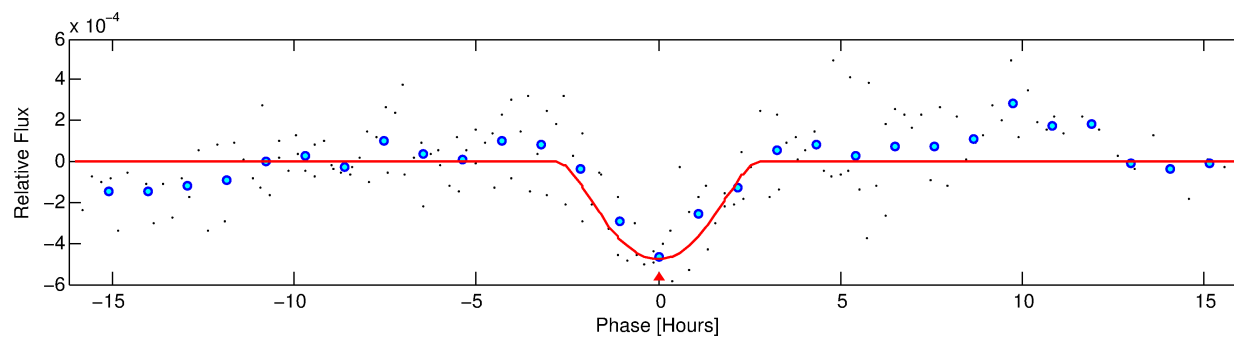
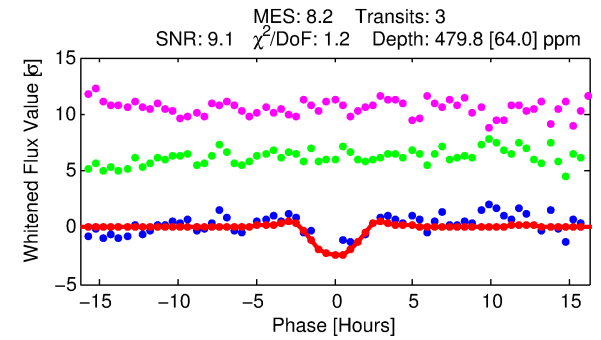
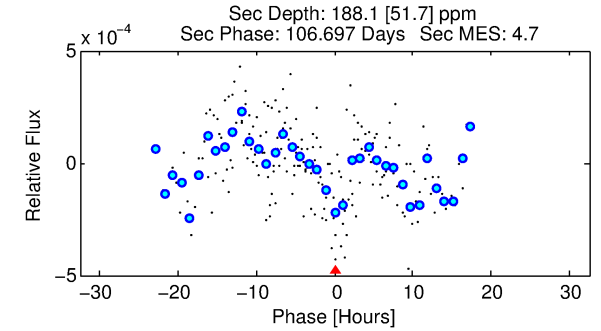
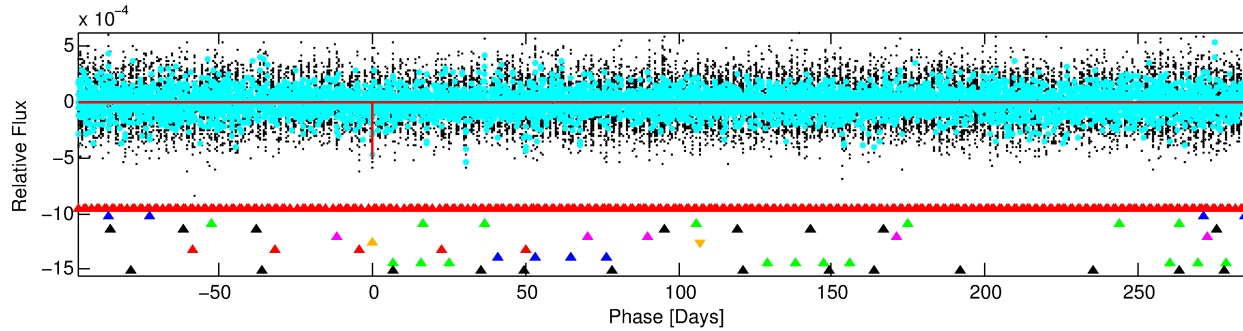
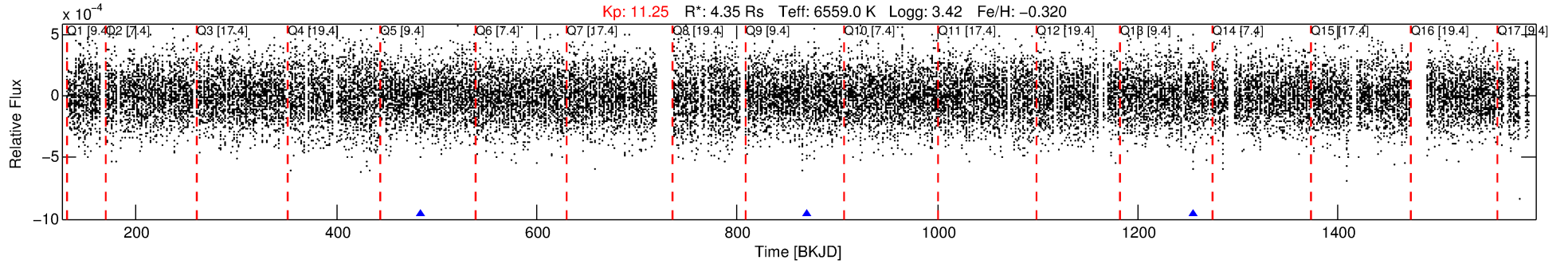
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-06

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 6 of 10 Period: 385.122 d



DV Fit Results:

Period = 385.12217 [0.00886] d
Epoch = 484.4061 [0.0104] BKJD
Rp/R* = 0.0361 [0.0893]
a/R* = 155.12 [108.27]
b = 1.00 [0.14]
Seff = 19.64 [13.68]
Teq = 537 [93] K
Rp = 17.17 [43.16] Re
a = 1.2644 [0.5510] AU
Ag = 561.41 [2805.36] [0.20σ]
Teffp = 4040 [5000] K [0.70σ]

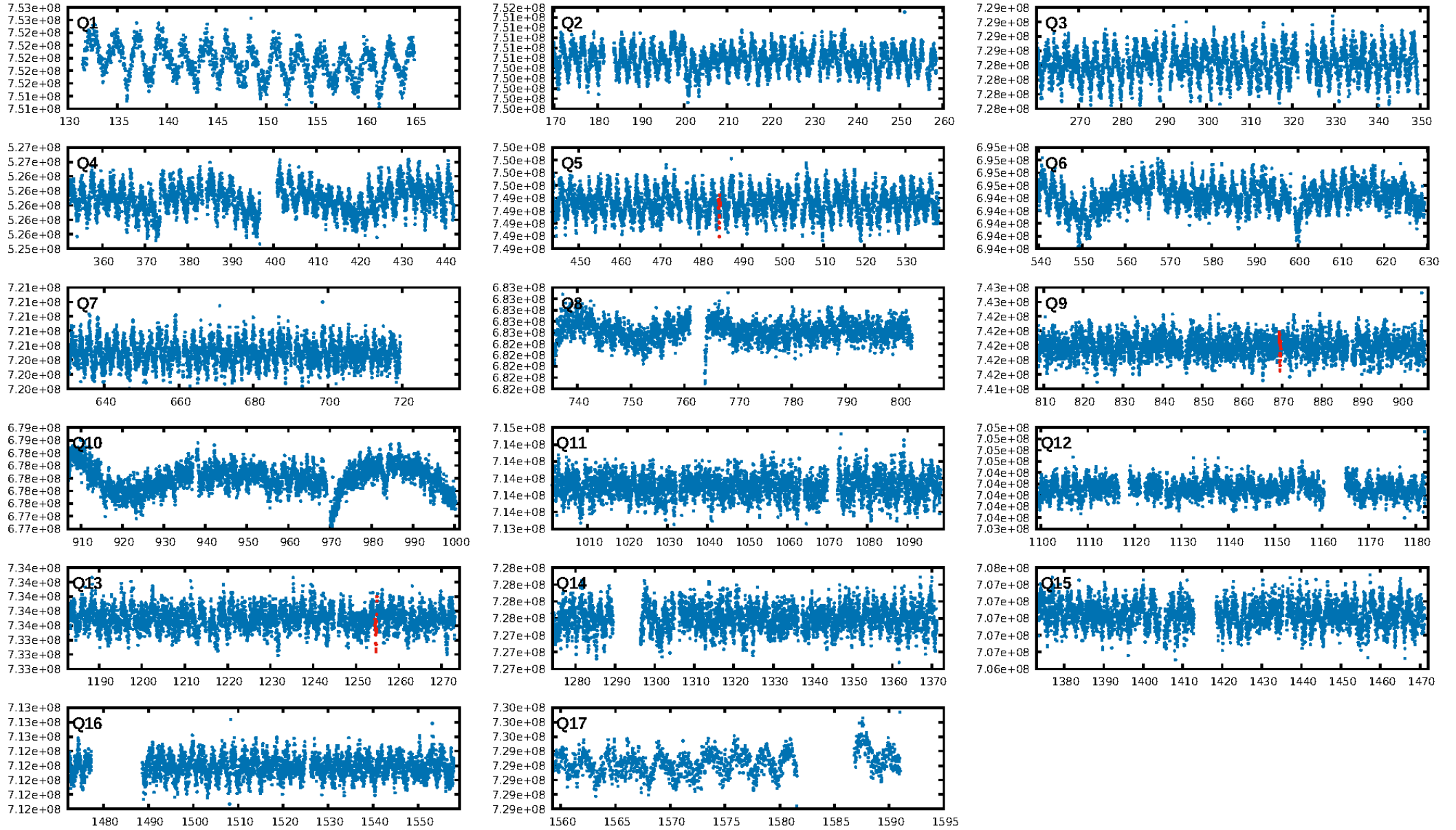
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.56σ]
LongPeriod-sig: 100.0% [13.31σ]
ModelChiSquare2-sig: 63.6%
ModelChiSquareGof-sig: 90.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.6226
Centroid-sig: 0.7%
Centroid-so: 0.915 arcsec [1.65σ]
OotOffset-rm: 1.998 arcsec [17.76σ]
KicOffset-rm: 2.107 arcsec [17.26σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

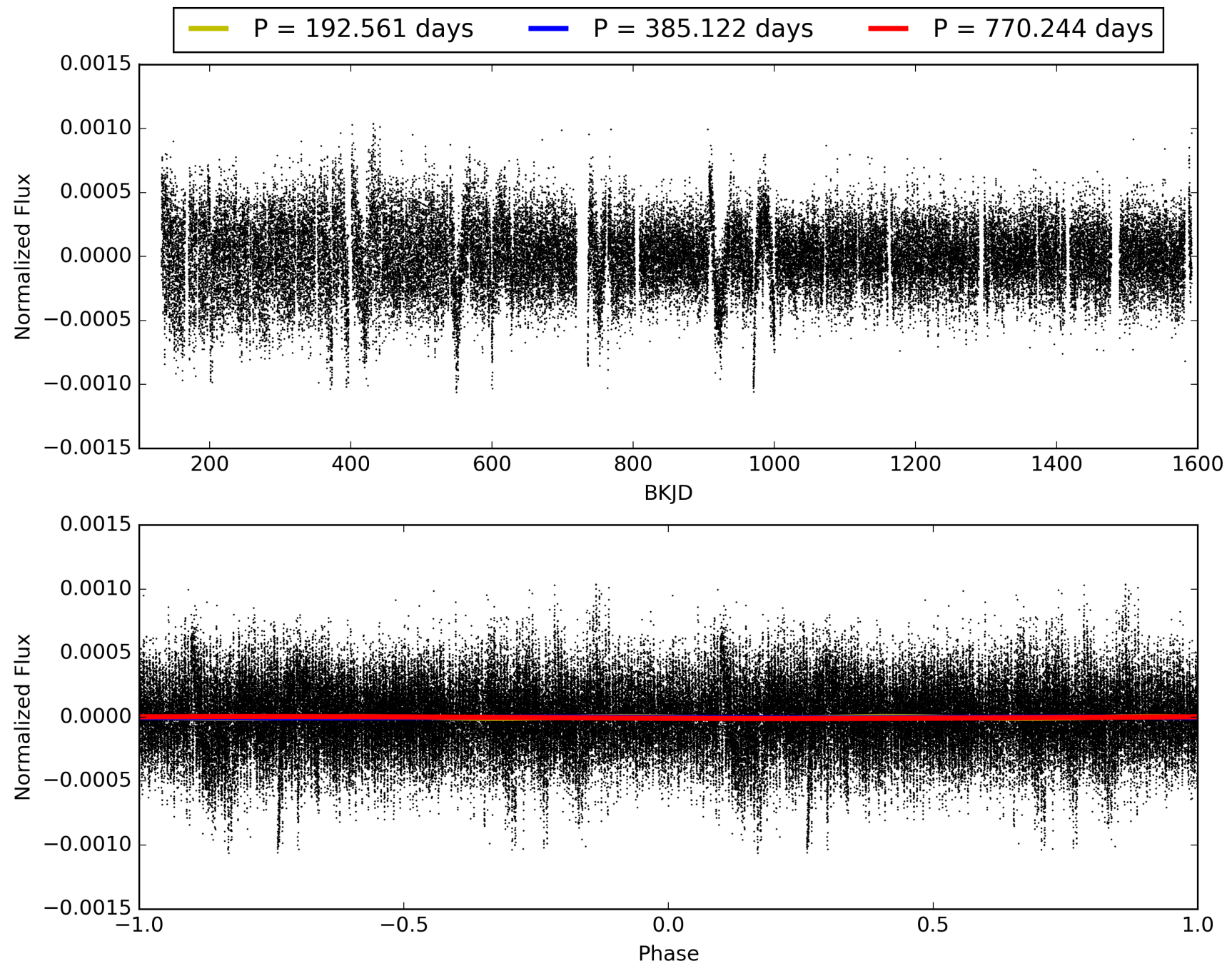
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:33 Z

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

TCE 003945818-06, PDC Light Curves

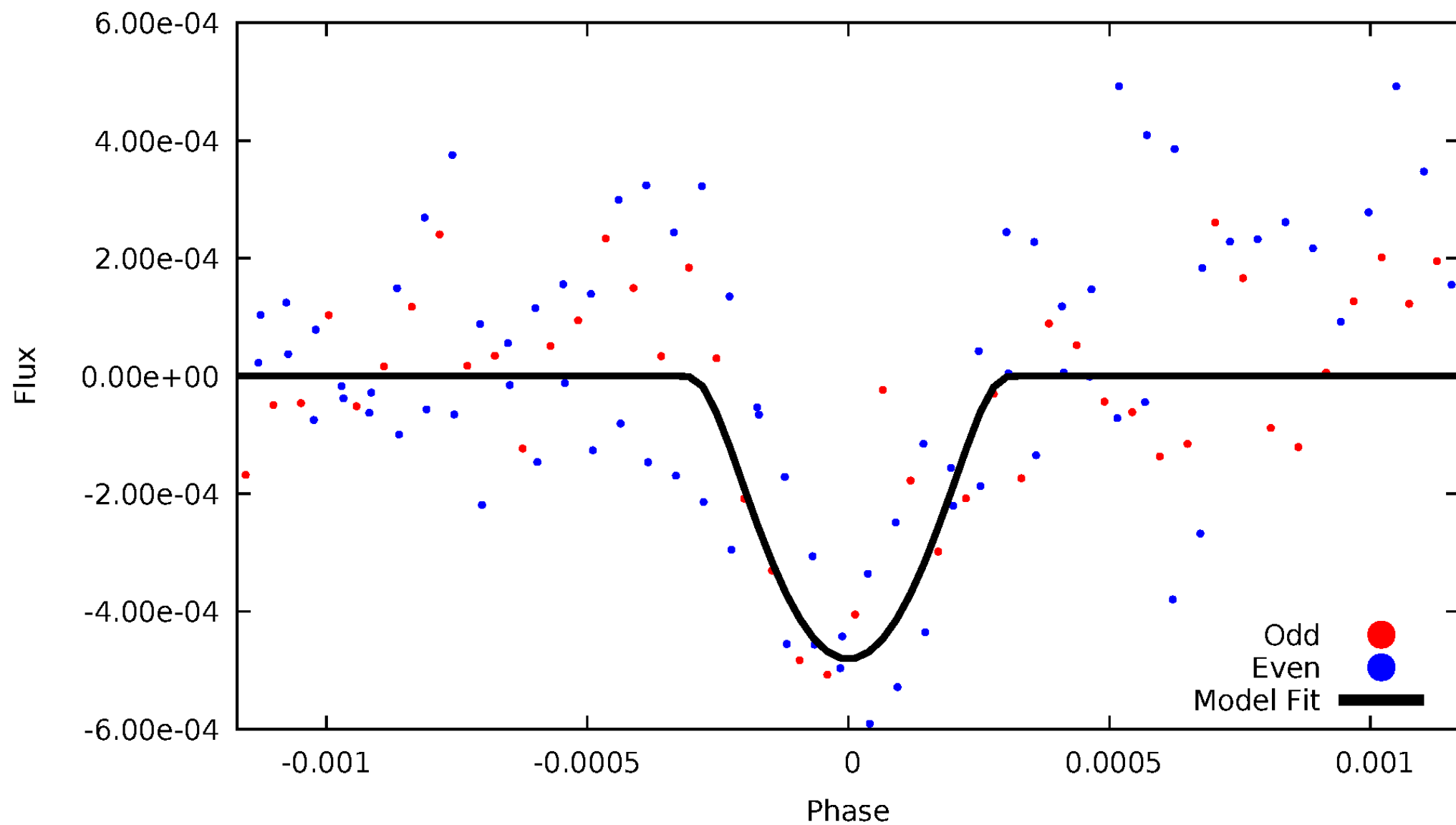


TCE 003945818-06



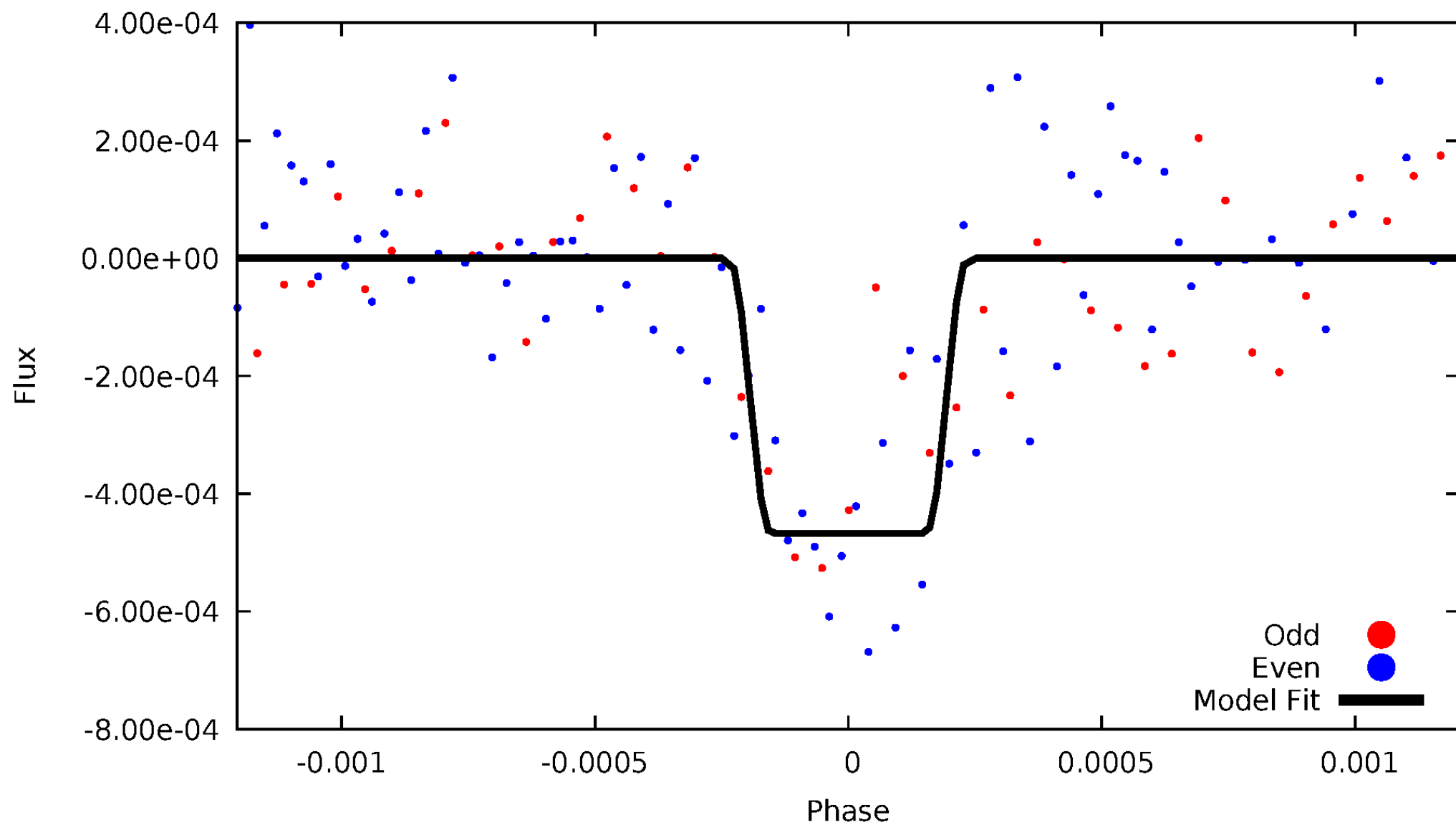
DV Odd/Even

TCE 003945818-06



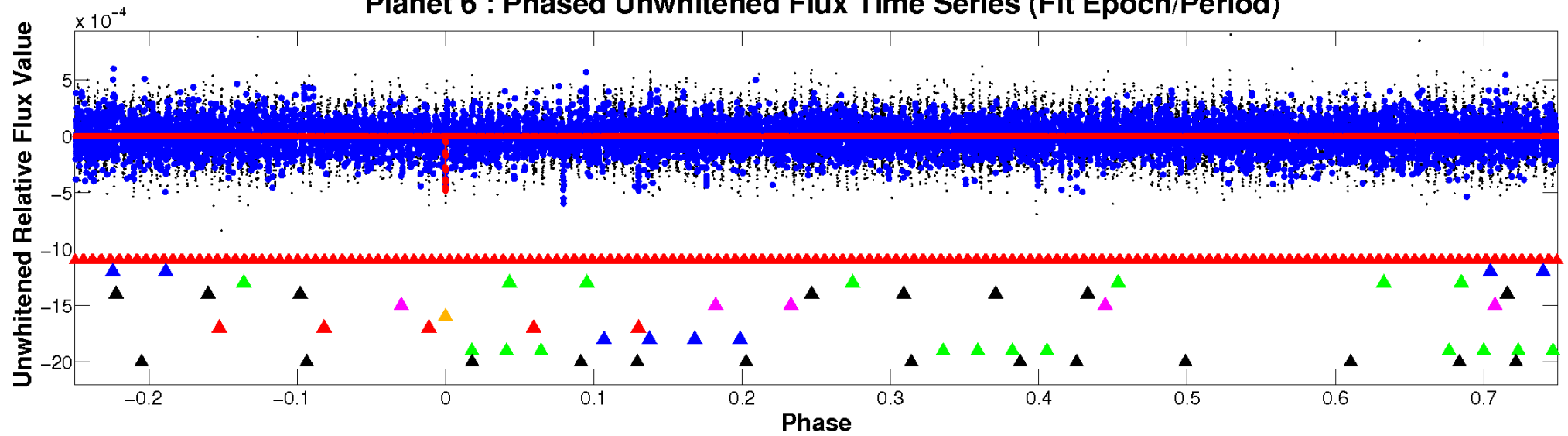
ALT Odd/Even

TCE 003945818-06

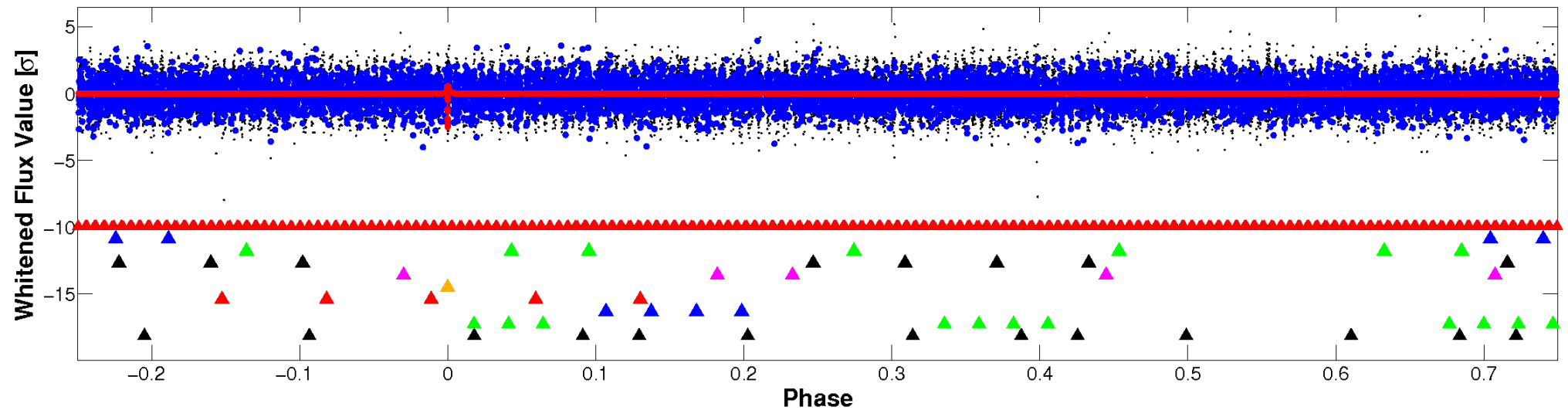


Non-Whitened Vs. Whitened Light Curve

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

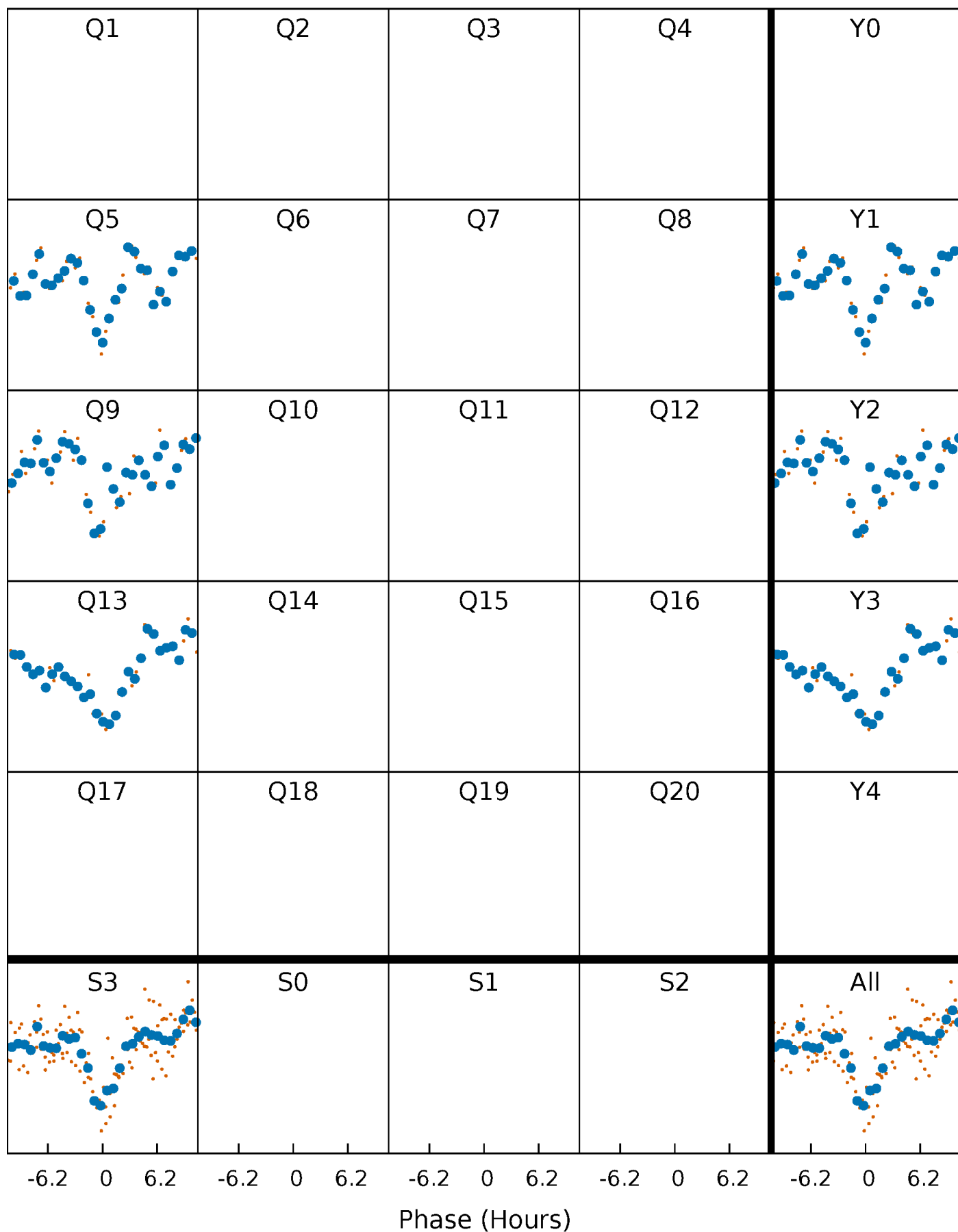


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



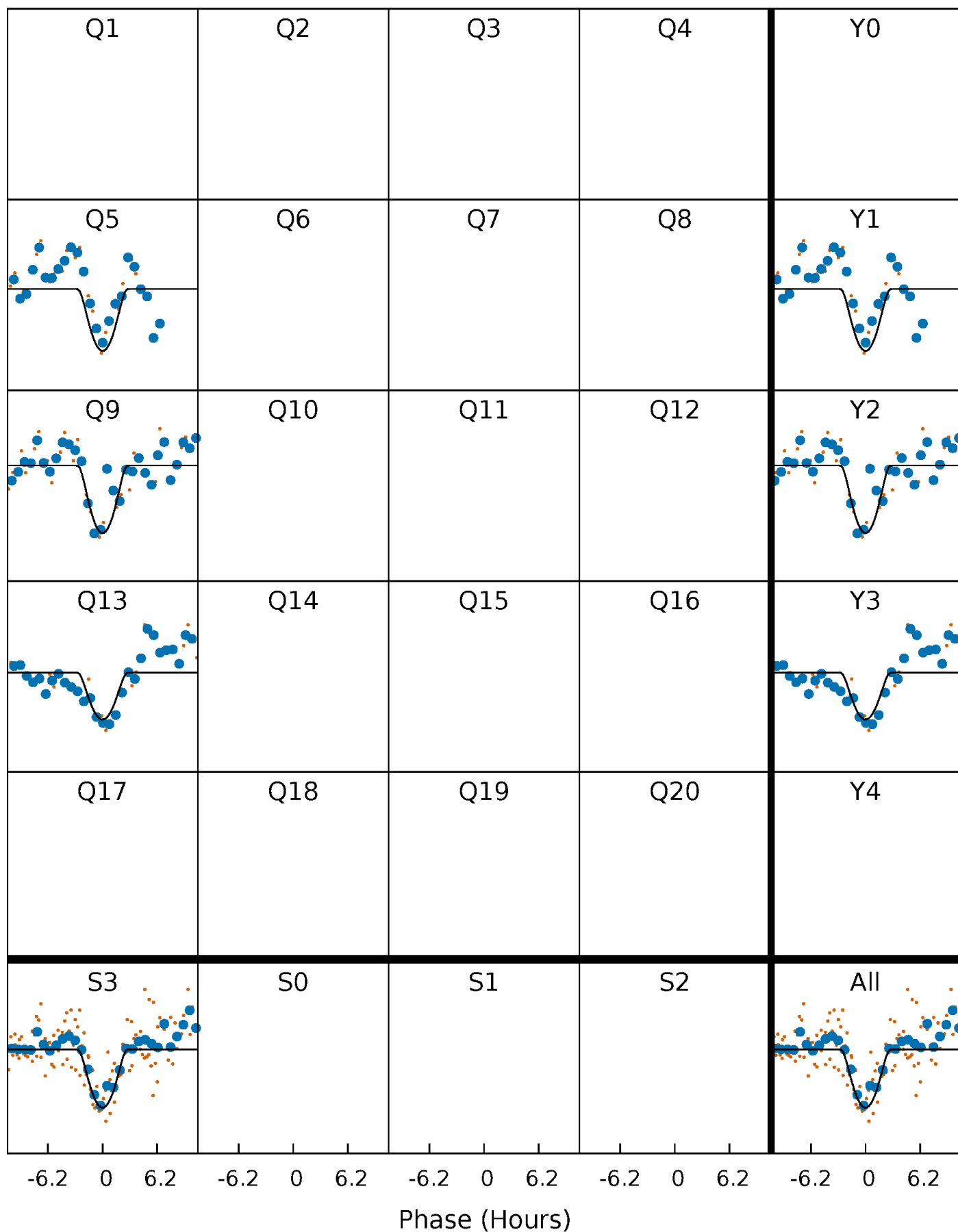
PDC Quarter-Phased Transit Curves

TCE 003945818-06 $P=385.122171$ Days $T_0=484.406122$ (BKJD)



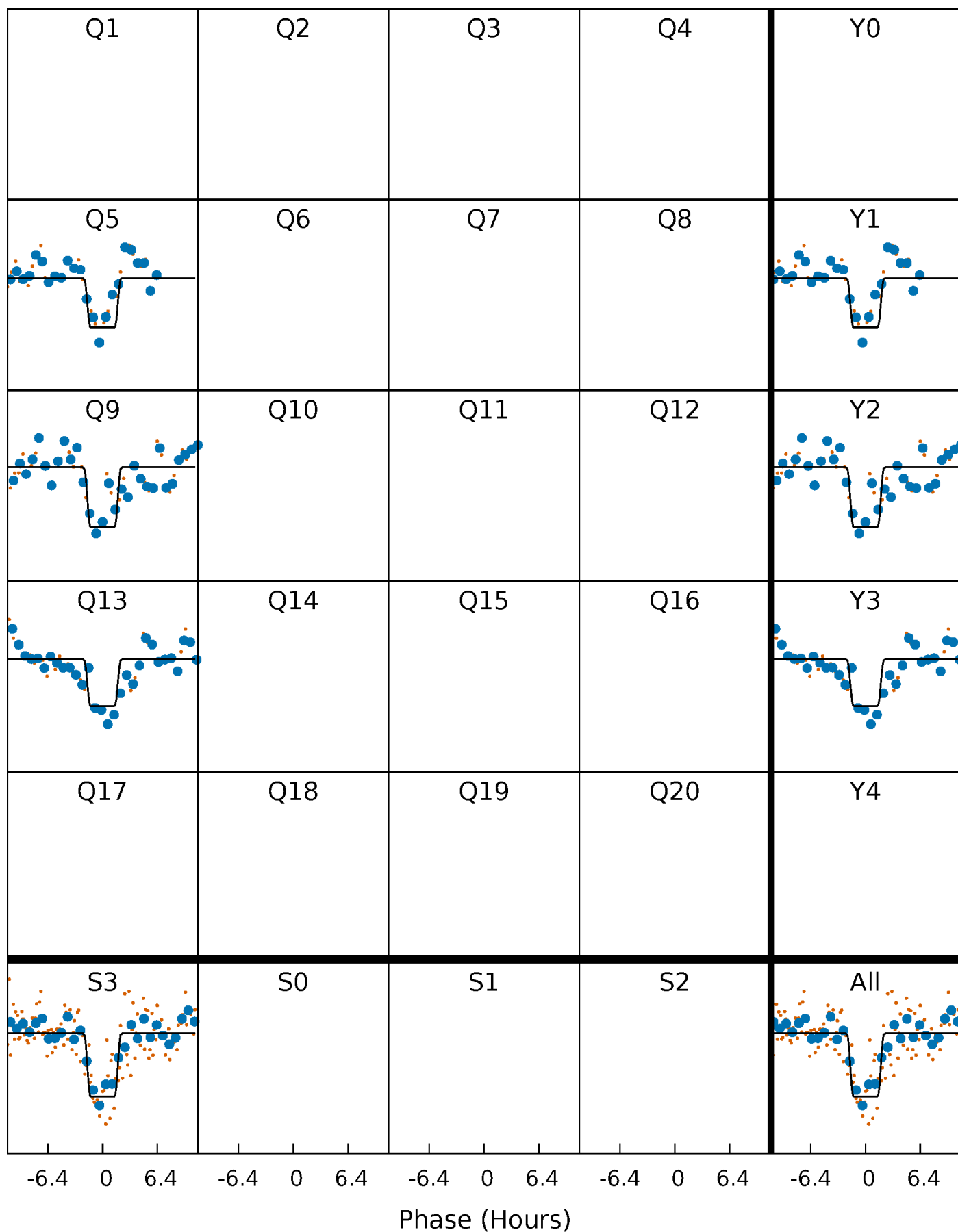
DV Quarter-Phased Transit Curves

TCE 003945818-06 $P=385.122171$ Days $T_0=484.406122$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

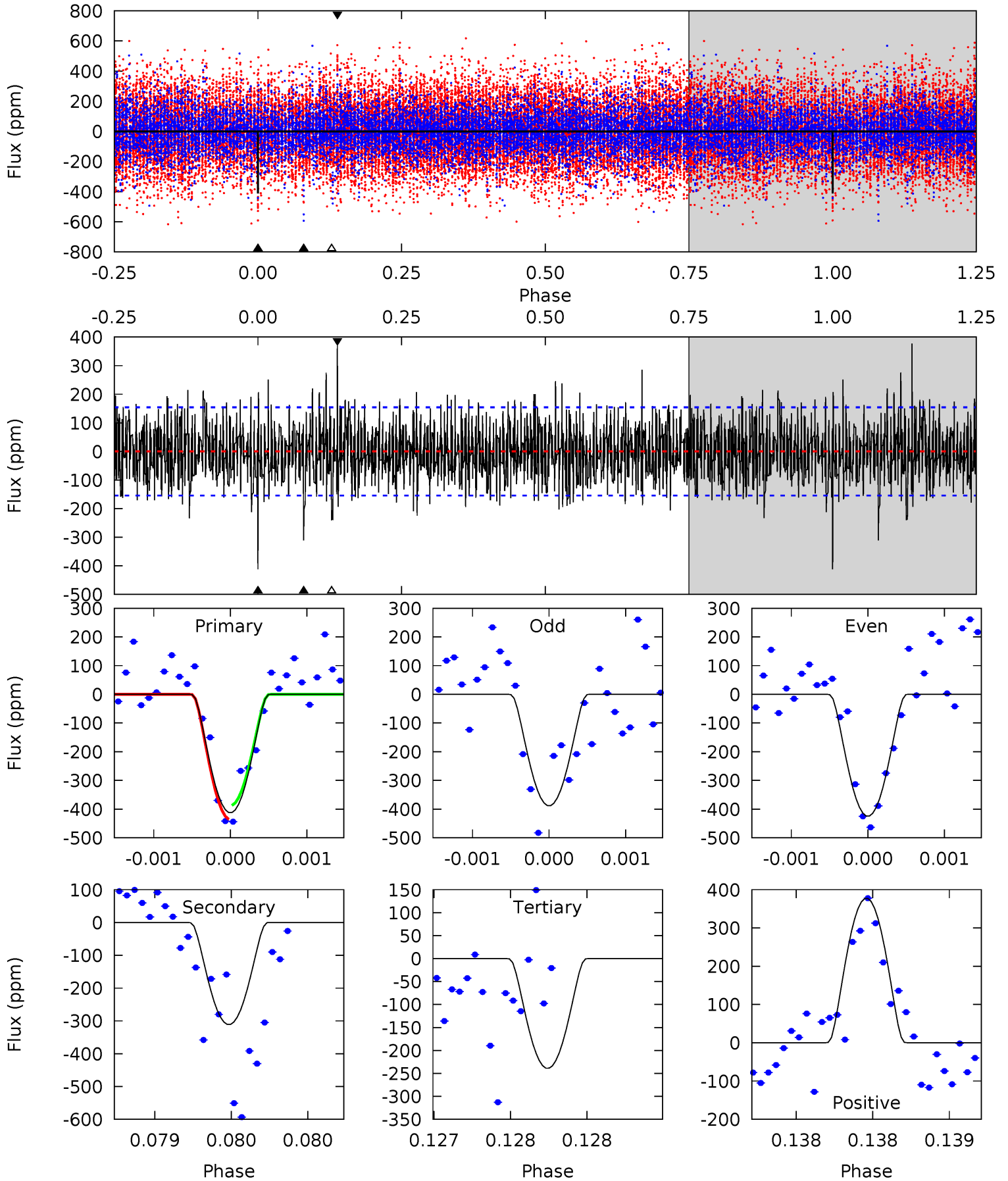
TCE 003945818-06 P=385.118116 Days $T_0=484.414713$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-06, P = 385.122171 Days, E = 99.283951 Days

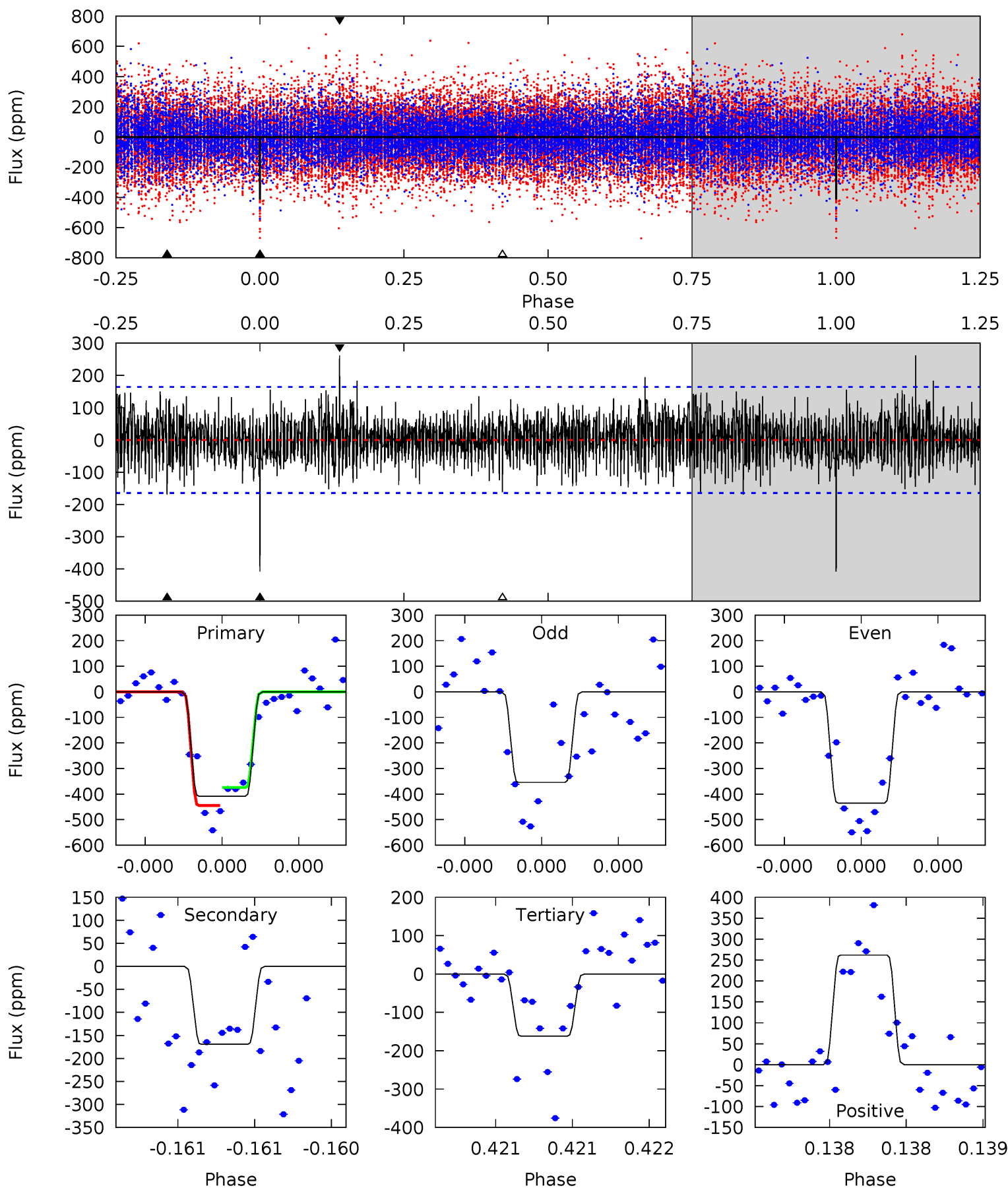
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	11.2	8.58	13.5	5.54	3.43	2.63	6.23	1.26	2.59	-2.38	0.61	1.06	0.48	0.87



Alt Model-Shift Uniqueness Test

003945818-06, P = 385.118116 Days, E = 99.296597 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	5.75	5.49	8.90	5.58	3.49	1.63	8.37	4.97	0.26	-3.14	1.30	1.14	0.39	1.18



Stellar Parameters For KIC 003945818

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-311 ± 28	$32.54^{+34.77}_{-22.48}$	729^{+47}_{-80}	3603^{+1852}_{-695}	260^{+2308}_{-201}
Alt.	-169 ± 29	$29.78^{+33.86}_{-20.75}$	729^{+44}_{-80}	3345^{+1727}_{-629}	164^{+1600}_{-127}

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

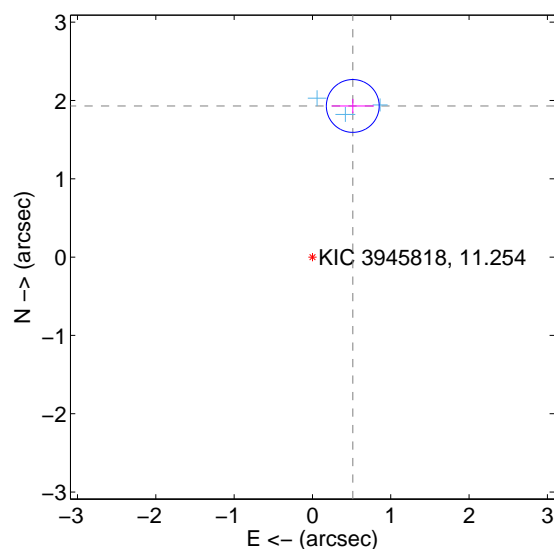
Supplemental centroid analysis for 003945818-06. **Kepler magnitude: 11.25.** Transit SNR 9.07

There are 3 quarters with good PRF difference image offsets

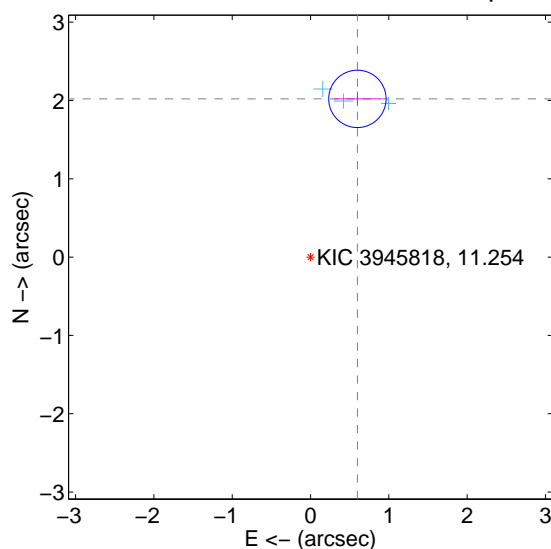
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.998 ± 0.112	17.76	-0.515 ± 0.272	1.930 ± 0.091
PRF-fit source offset from KIC position	2.107 ± 0.122	17.26	-0.599 ± 0.298	2.021 ± 0.092
photometric centroid source offset	0.91 ± 0.55	1.65	-0.42 ± 0.37	0.81 ± 0.59

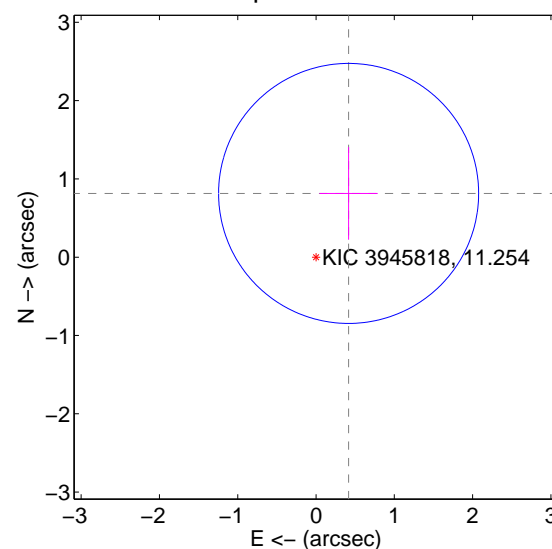
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

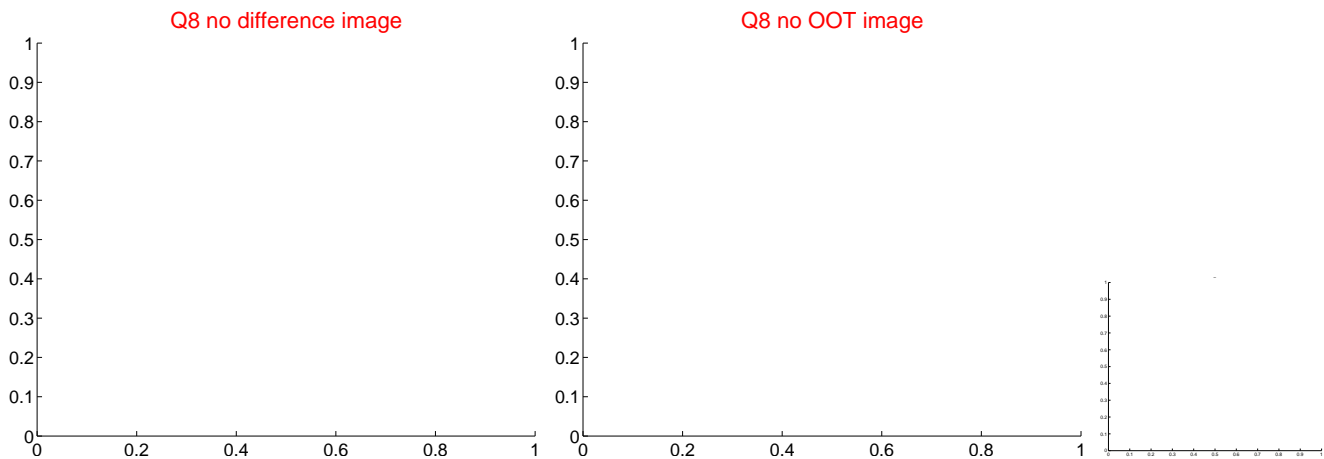
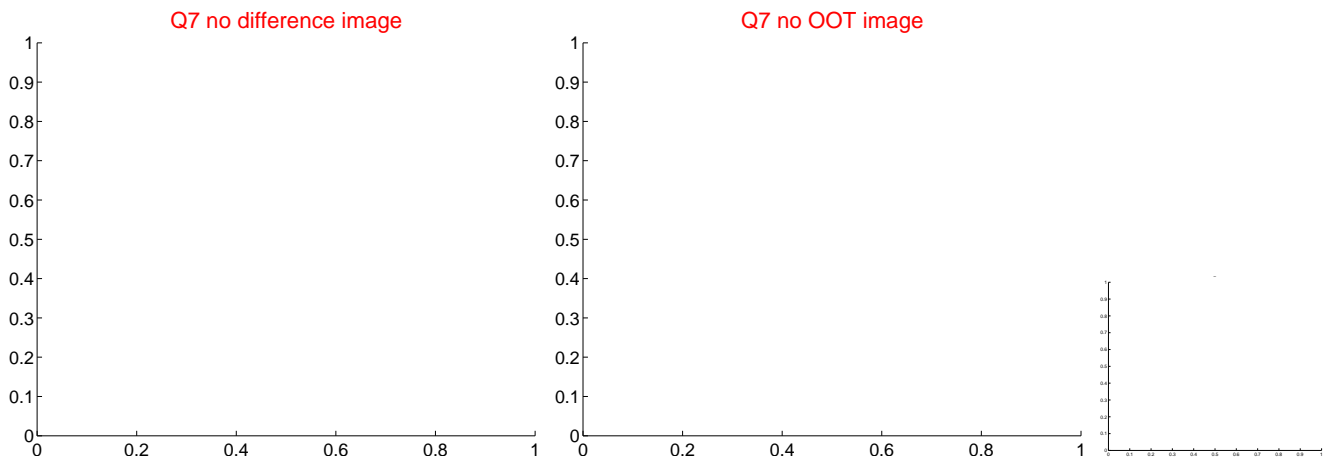
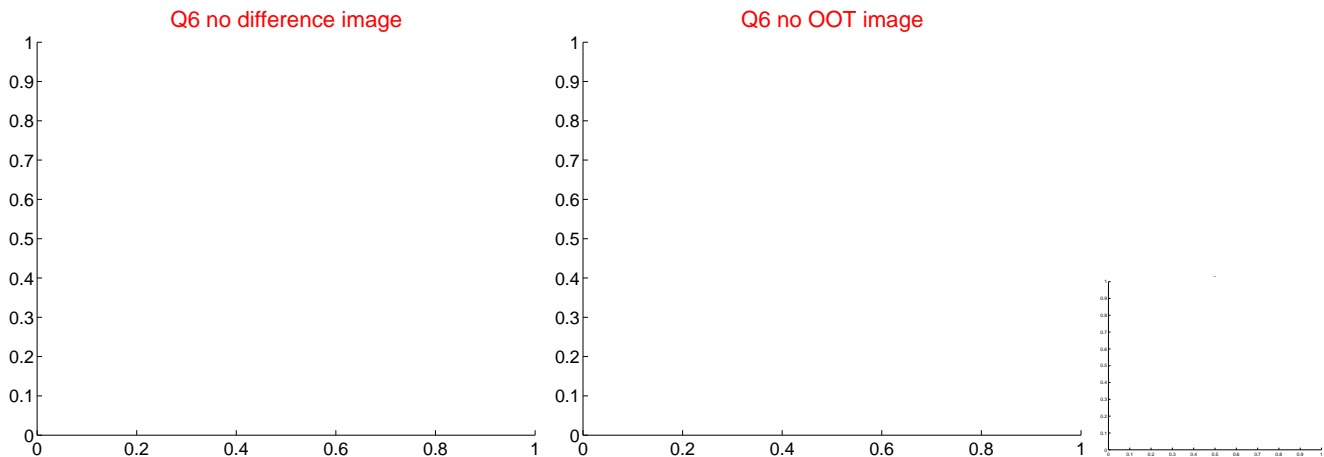
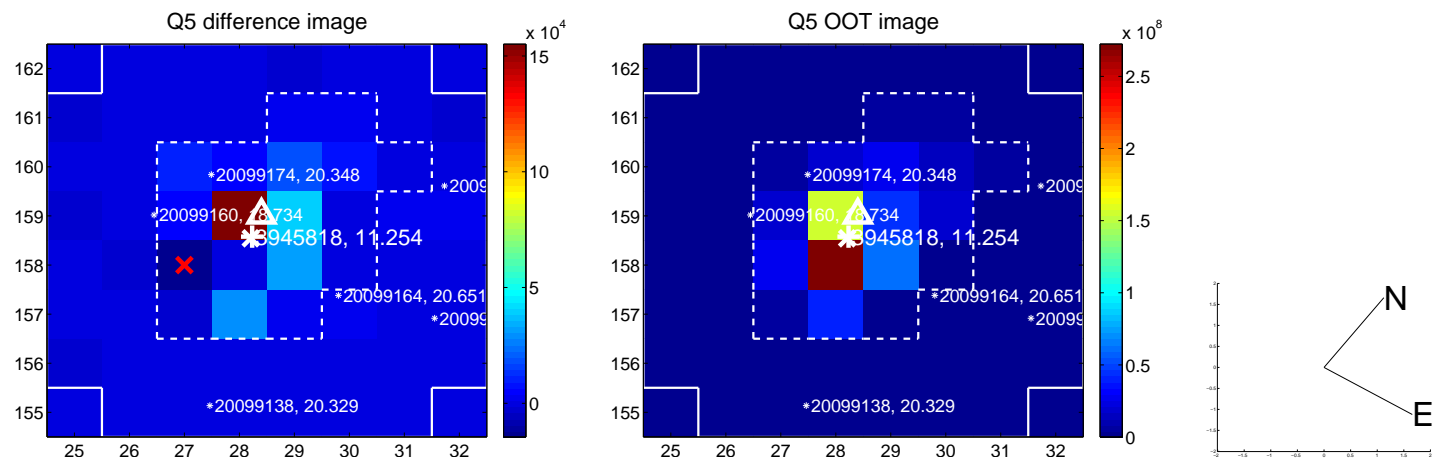


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

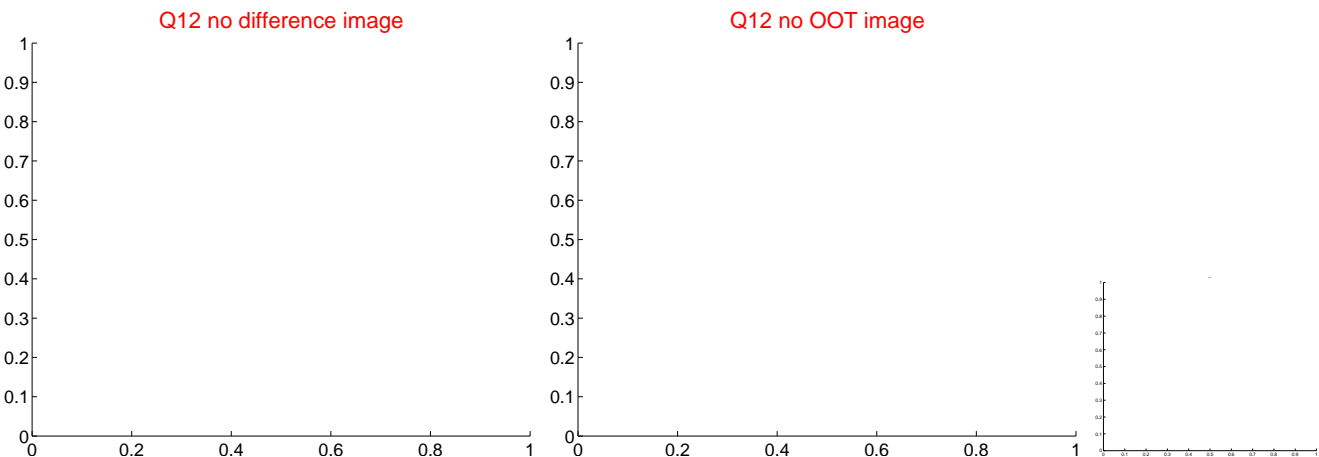
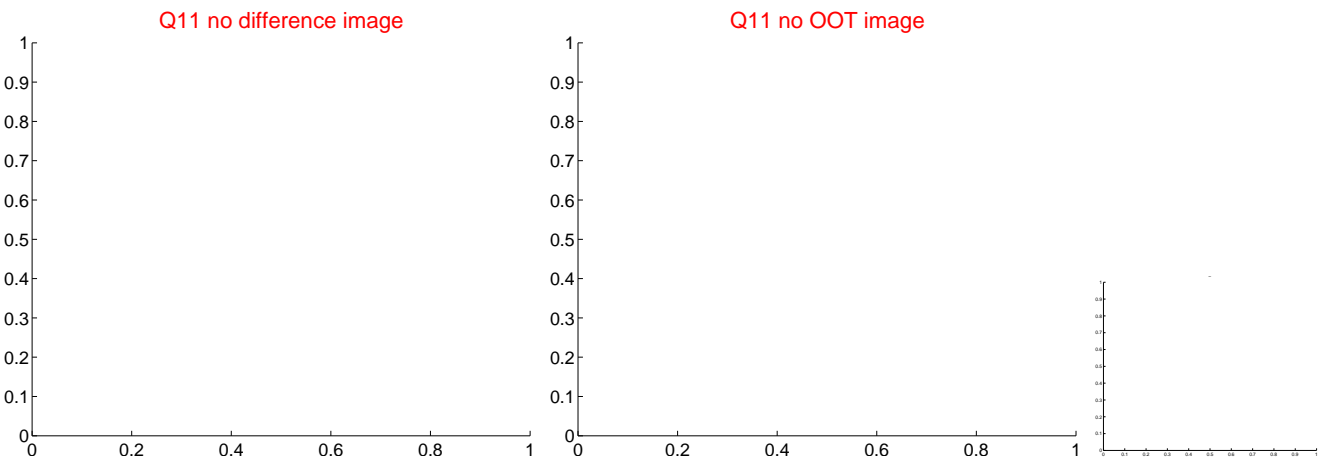
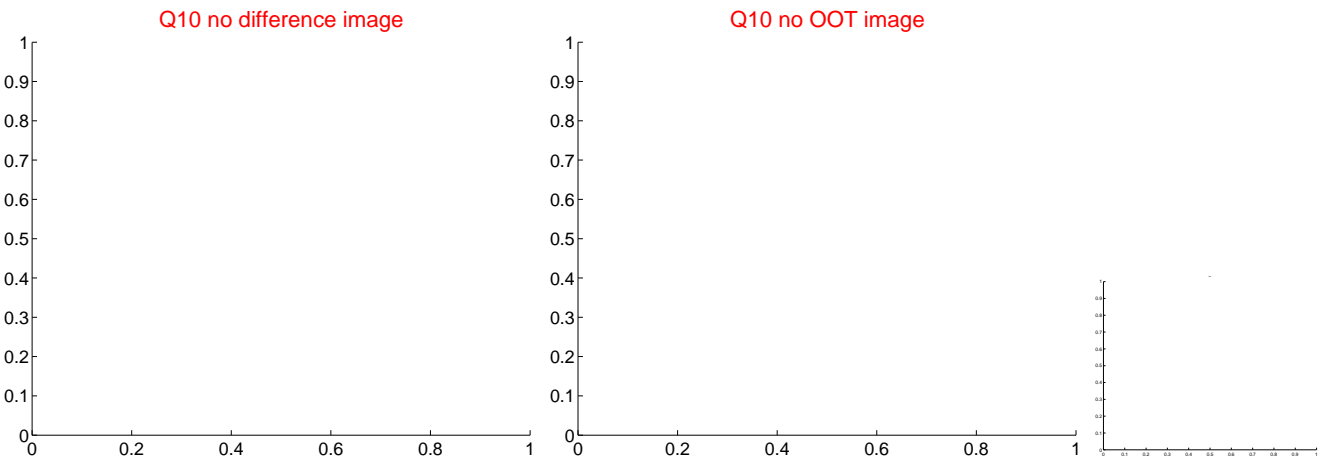
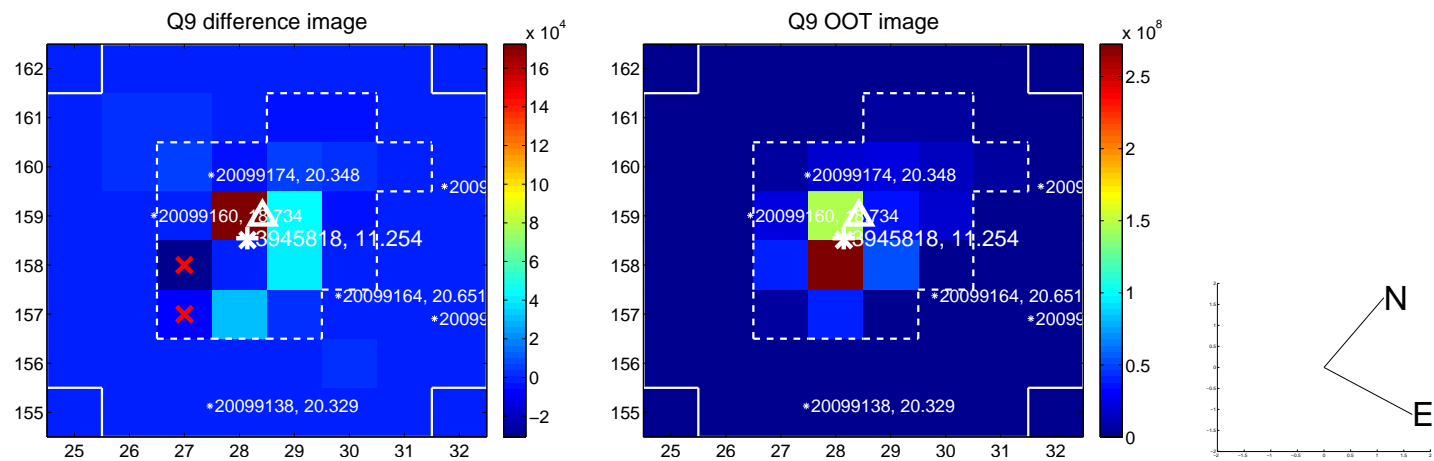
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



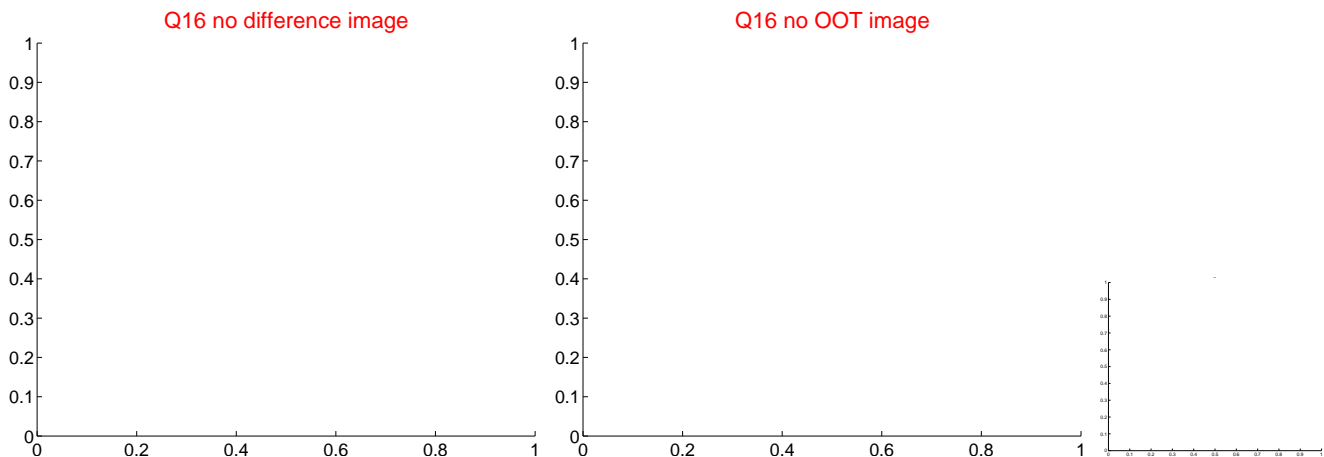
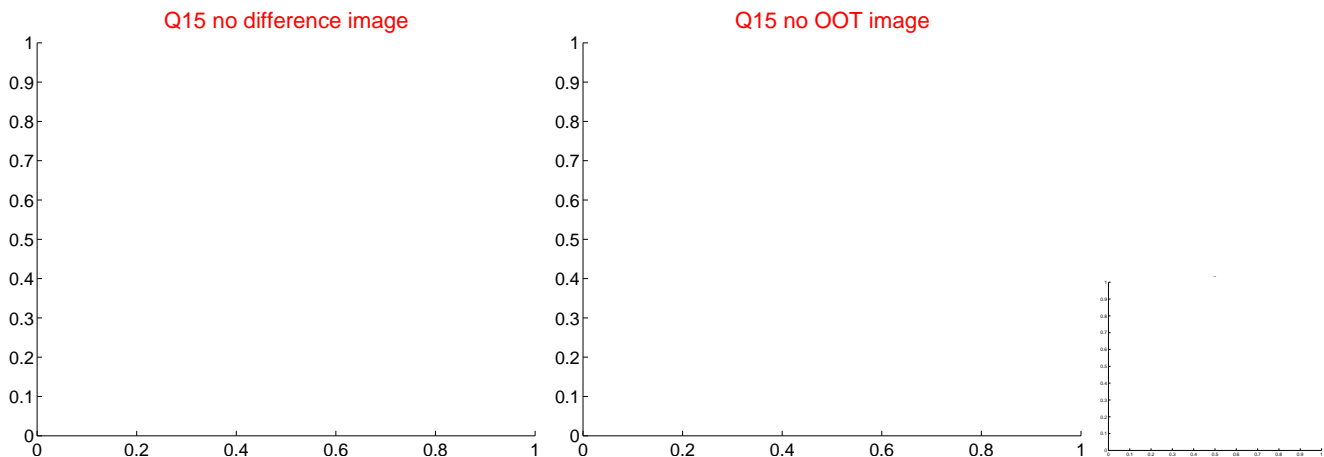
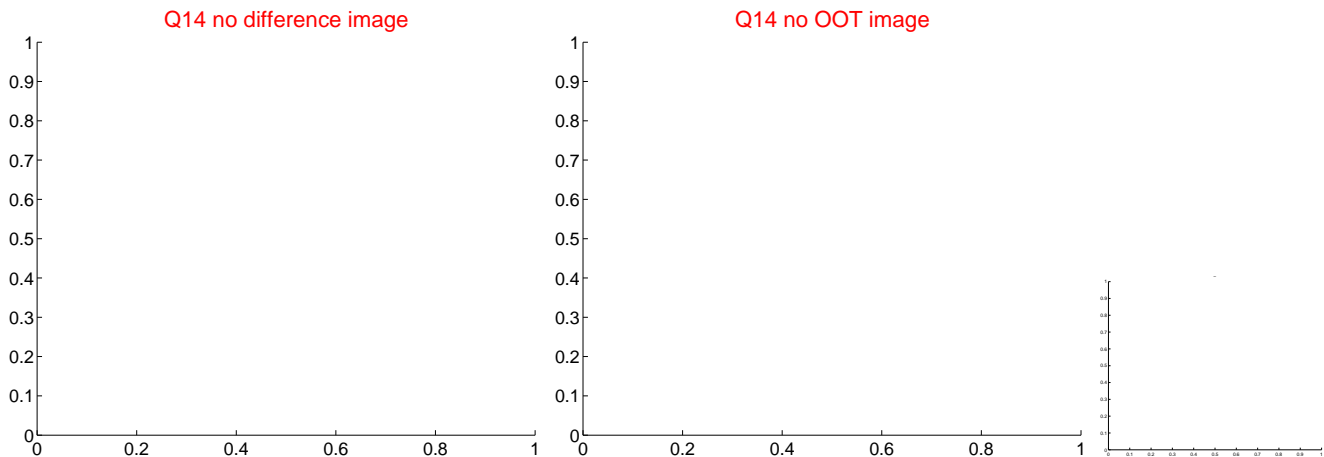
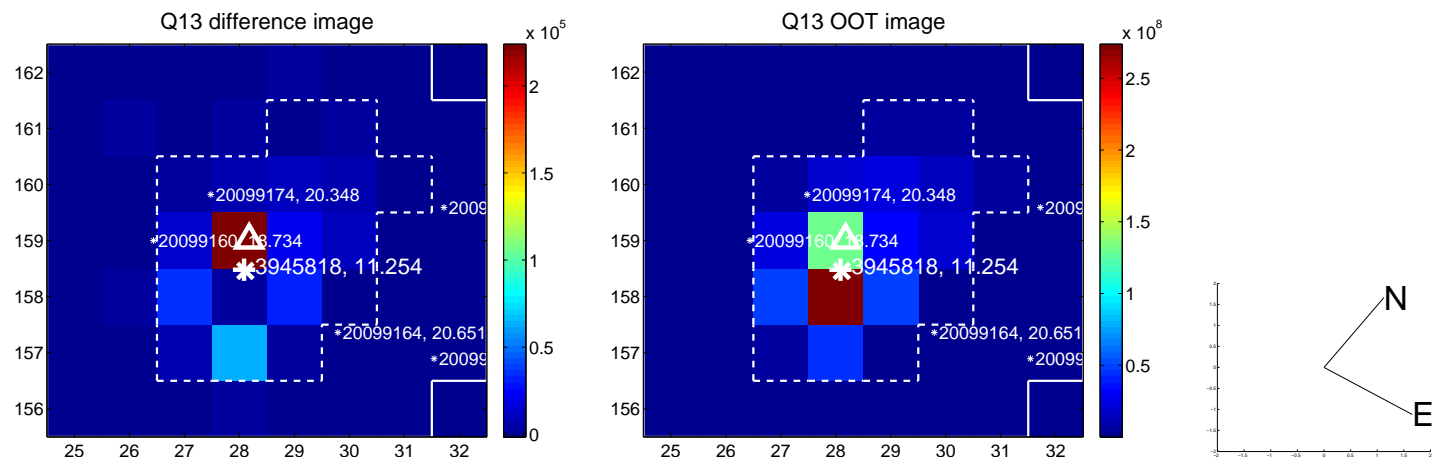
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



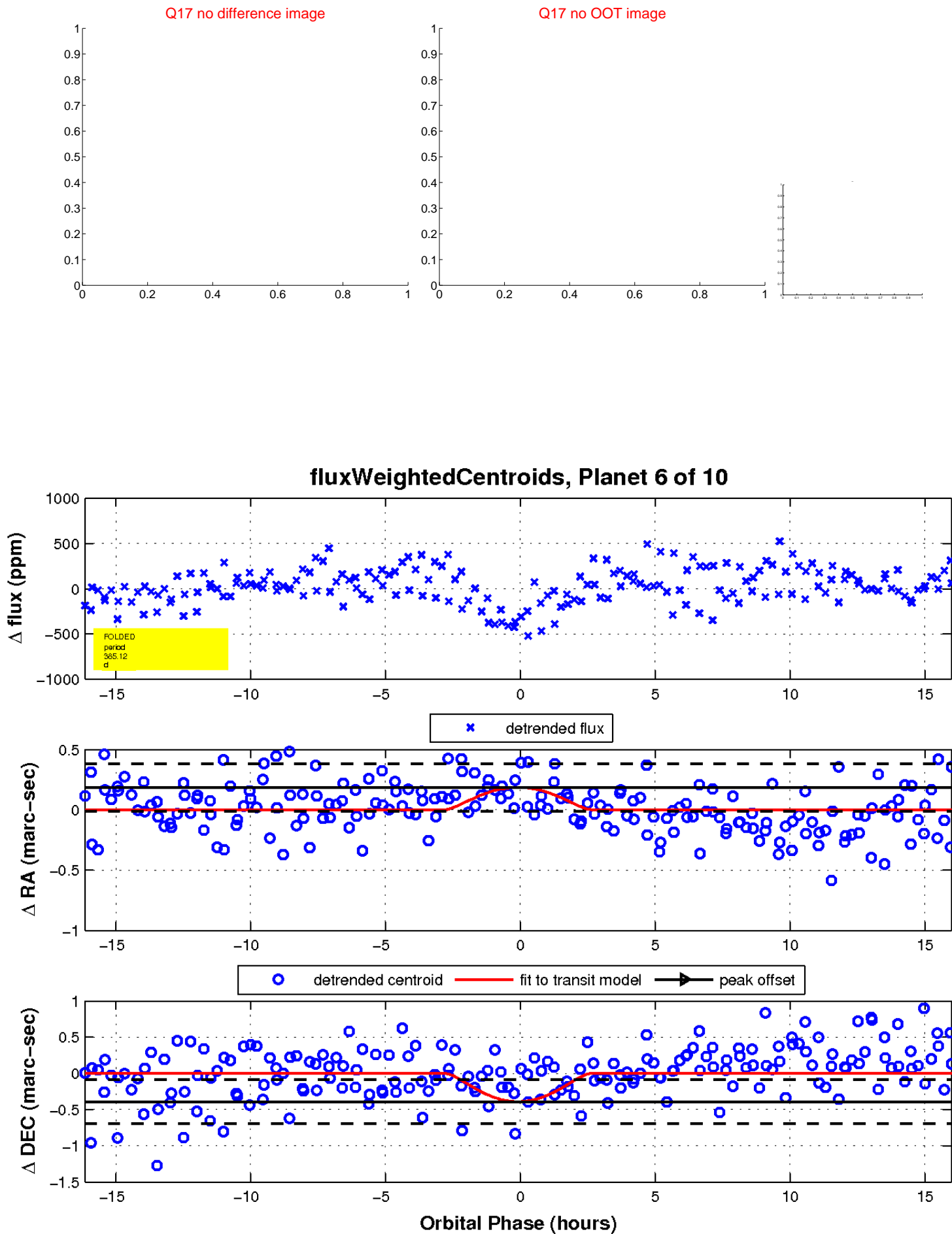
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



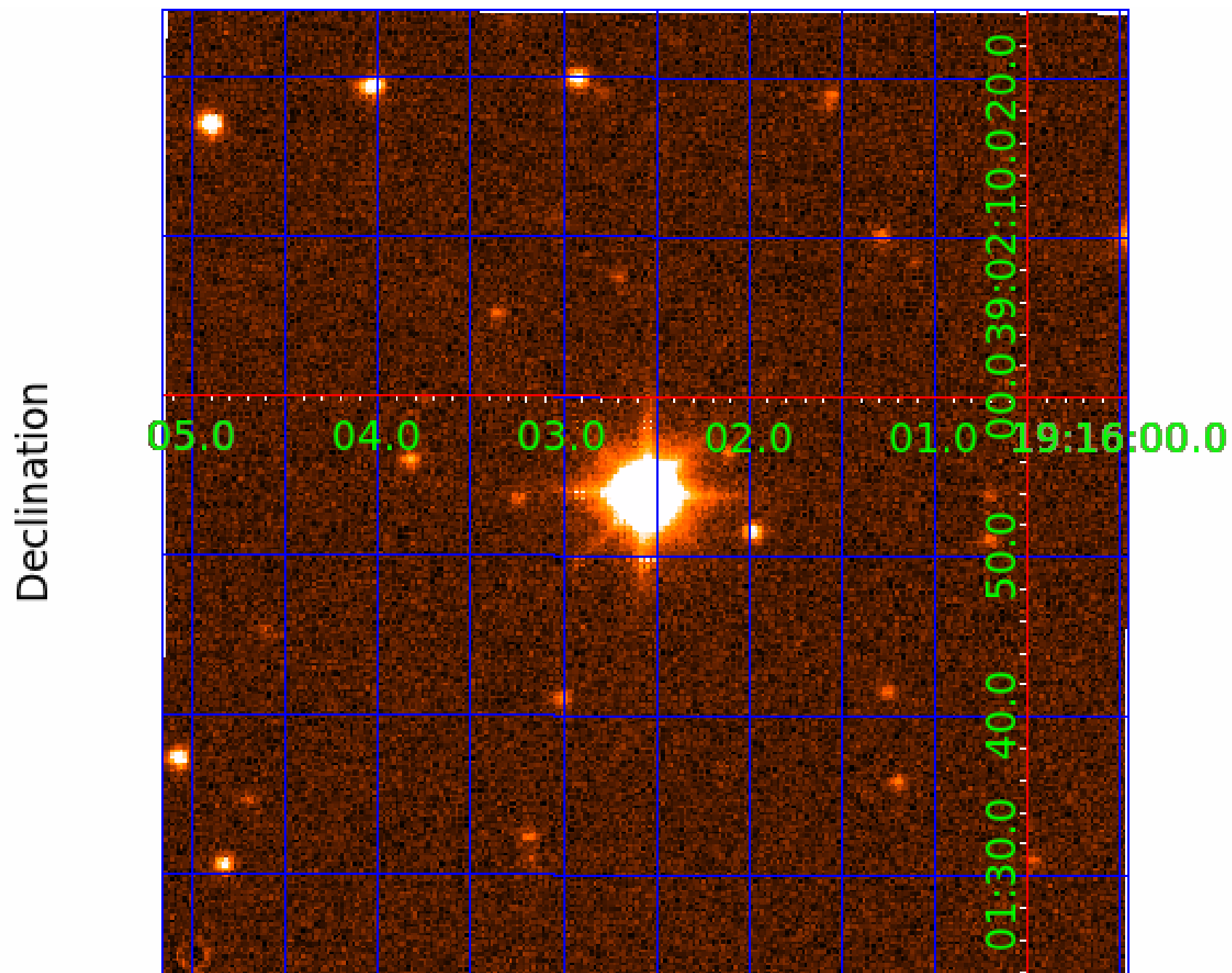
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

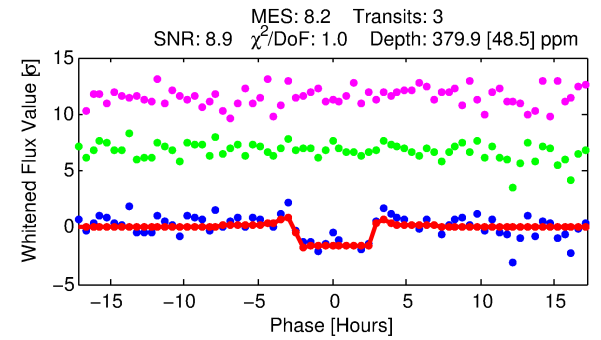
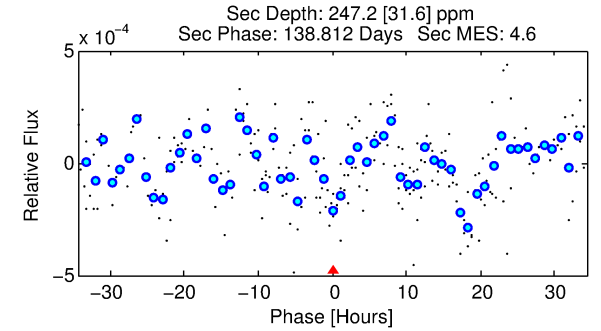
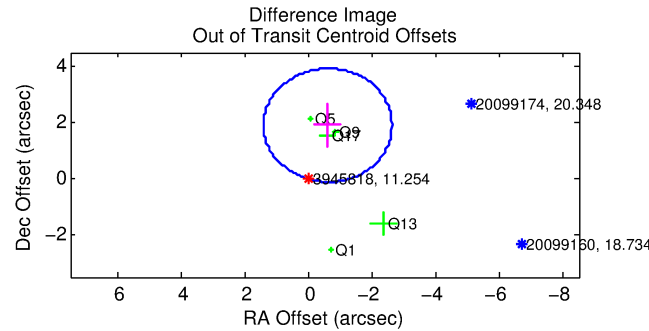
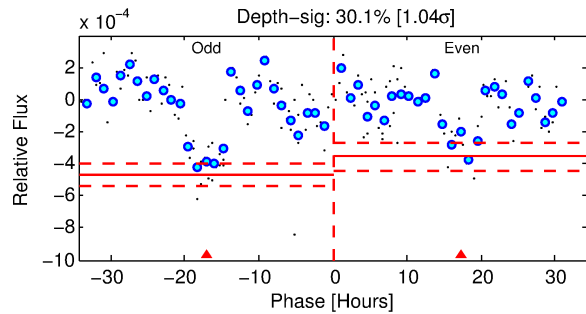
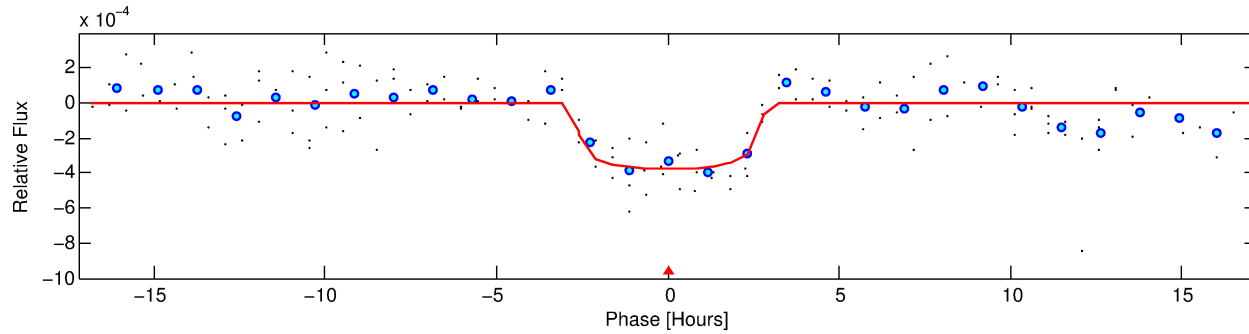
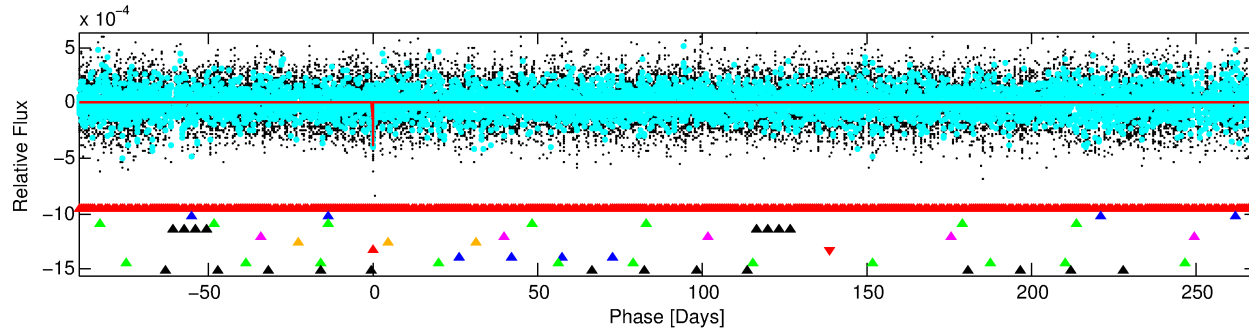
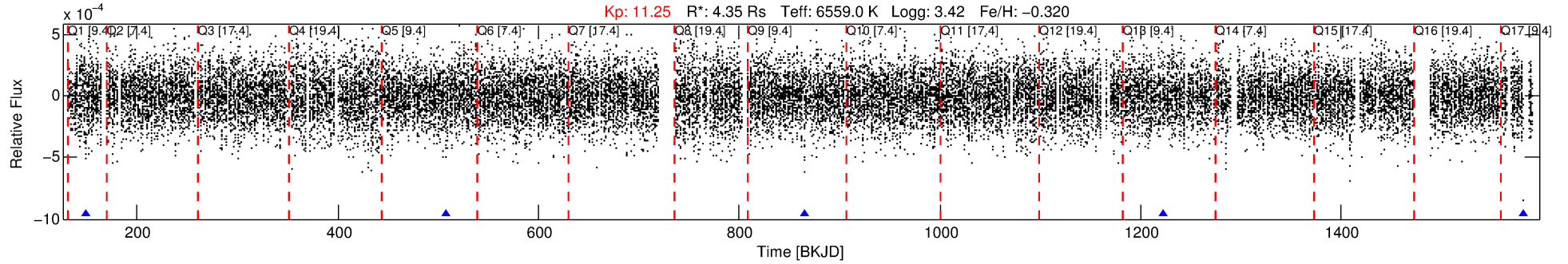
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-07

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 7 of 10 Period: 357.914 d



DV Fit Results:

Period = 357.91401 [0.01006] d
Epoch = 149.3998 [0.0123] BKJD
 R_p/R^* = 0.0202 [0.0083]
 a/R^* = 268.13 [611.93]
 b = 0.85 [0.74]
 S_{eff} = 21.66 [15.08]
 T_{eq} = 550 [96] K
 R_p = 9.59 [5.93] R_e
 a = 1.2041 [0.5247] AU
 A_g = 2144.94 [2309.42] [0.93 σ]
 T_{eff} = 5788 [1209] K [4.32 σ]

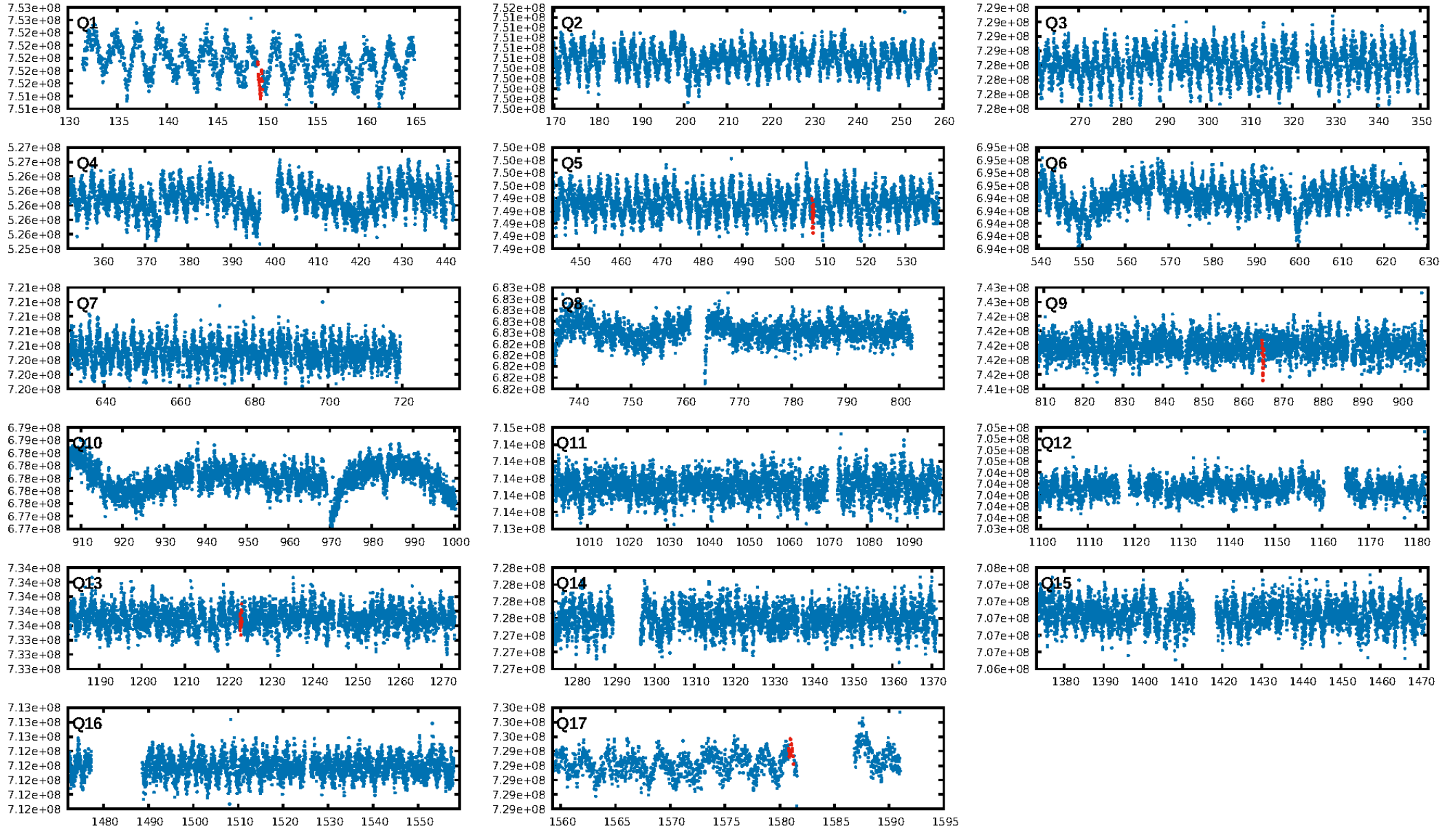
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [217.77 σ]
LongPeriod-sig: 100.0% [40.47 σ]
ModelChiSquare2-sig: 43.1%
ModelChiSquareGof-sig: 95.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.032
Centroid-sig: 8.2%
Centroid-so: 0.476 arcsec [1.00 σ]
OotOffset-rm: 1.995 arcsec [2.96 σ]
KicOffset-rm: 2.183 arcsec [2.77 σ]
OotOffset-st: 0/0/0/5 [5]
KicOffset-st: 0/0/0/5 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 0.40 [2/5]

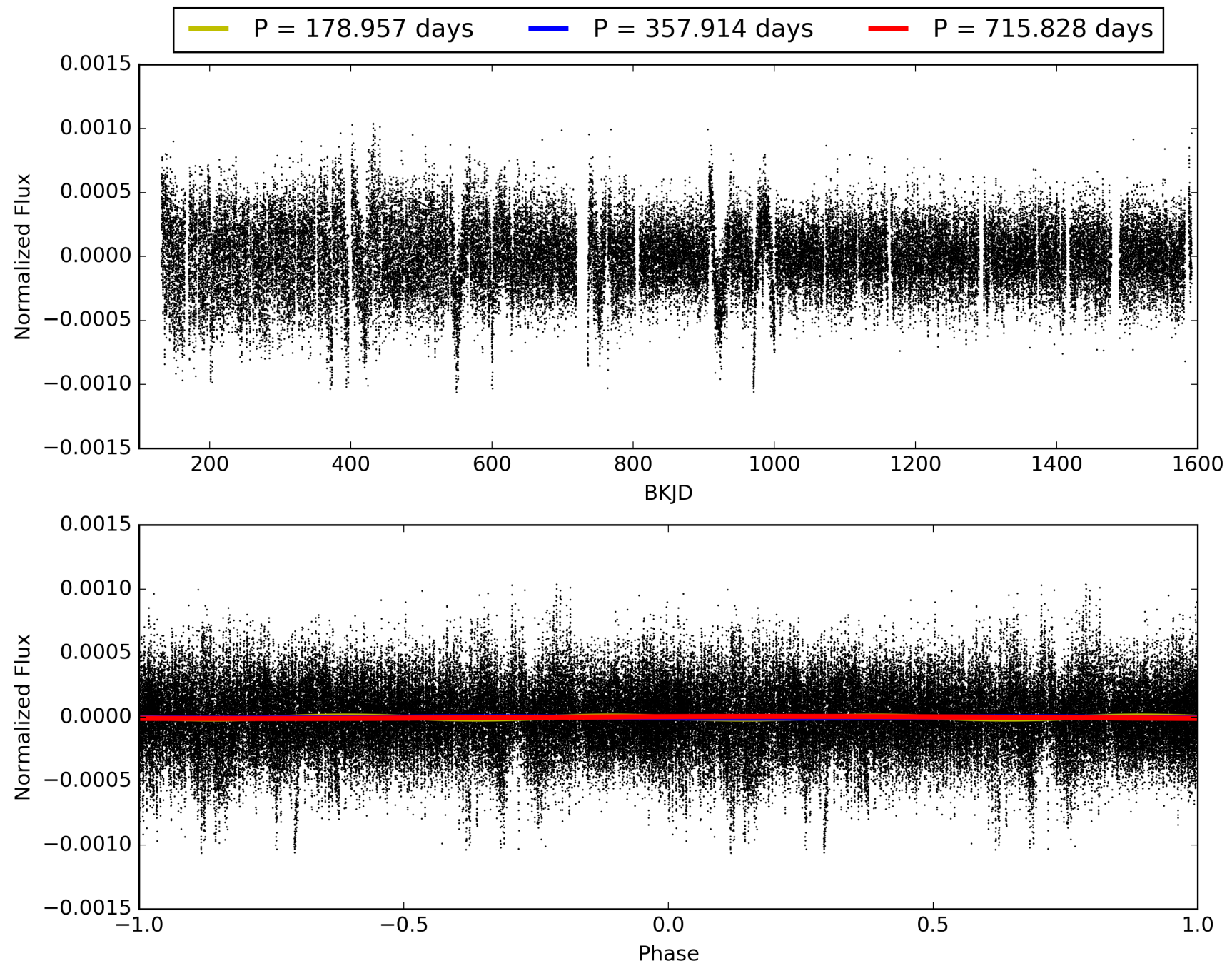
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:41 Z

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

TCE 003945818-07, PDC Light Curves

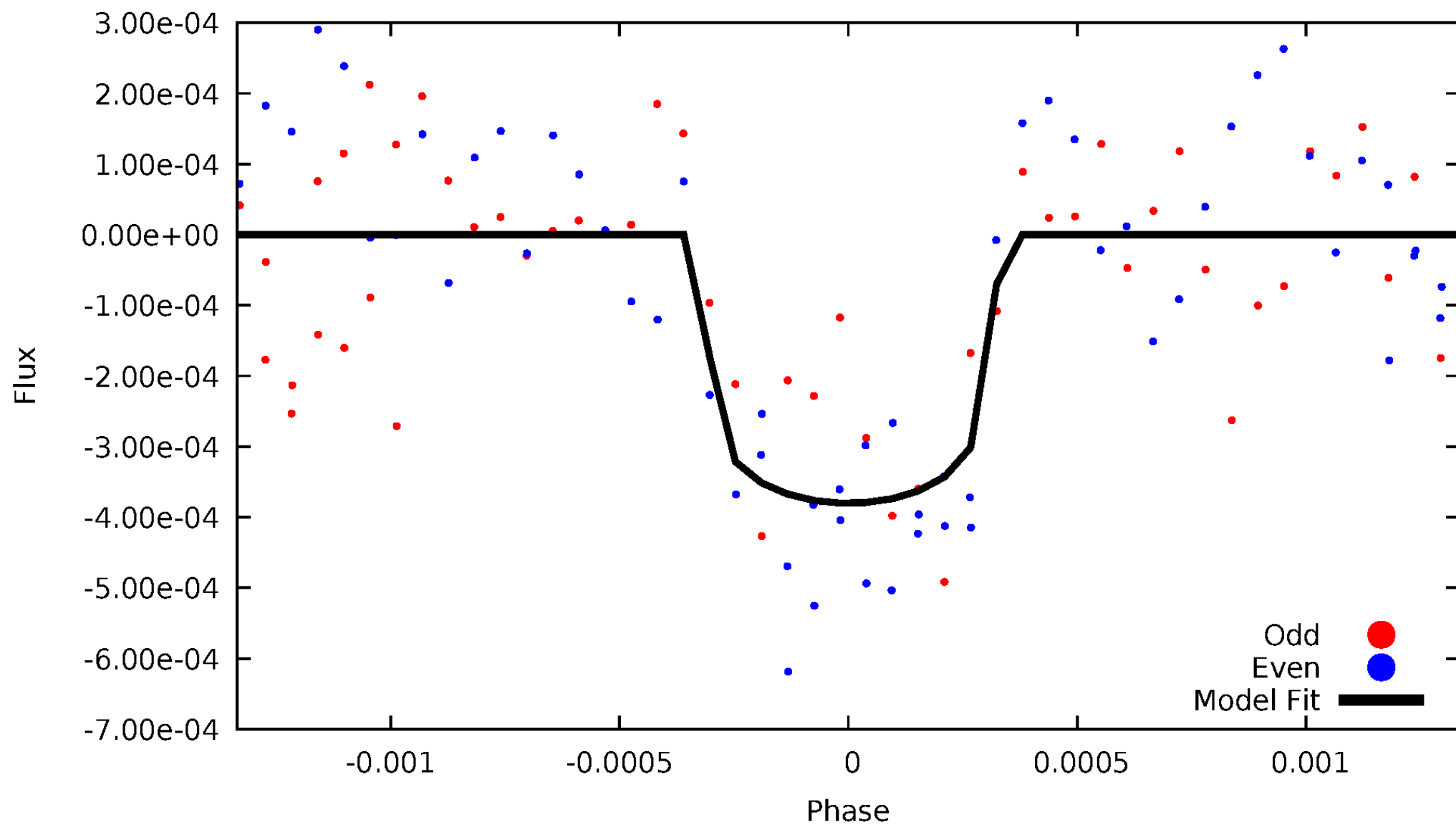


TCE 003945818-07



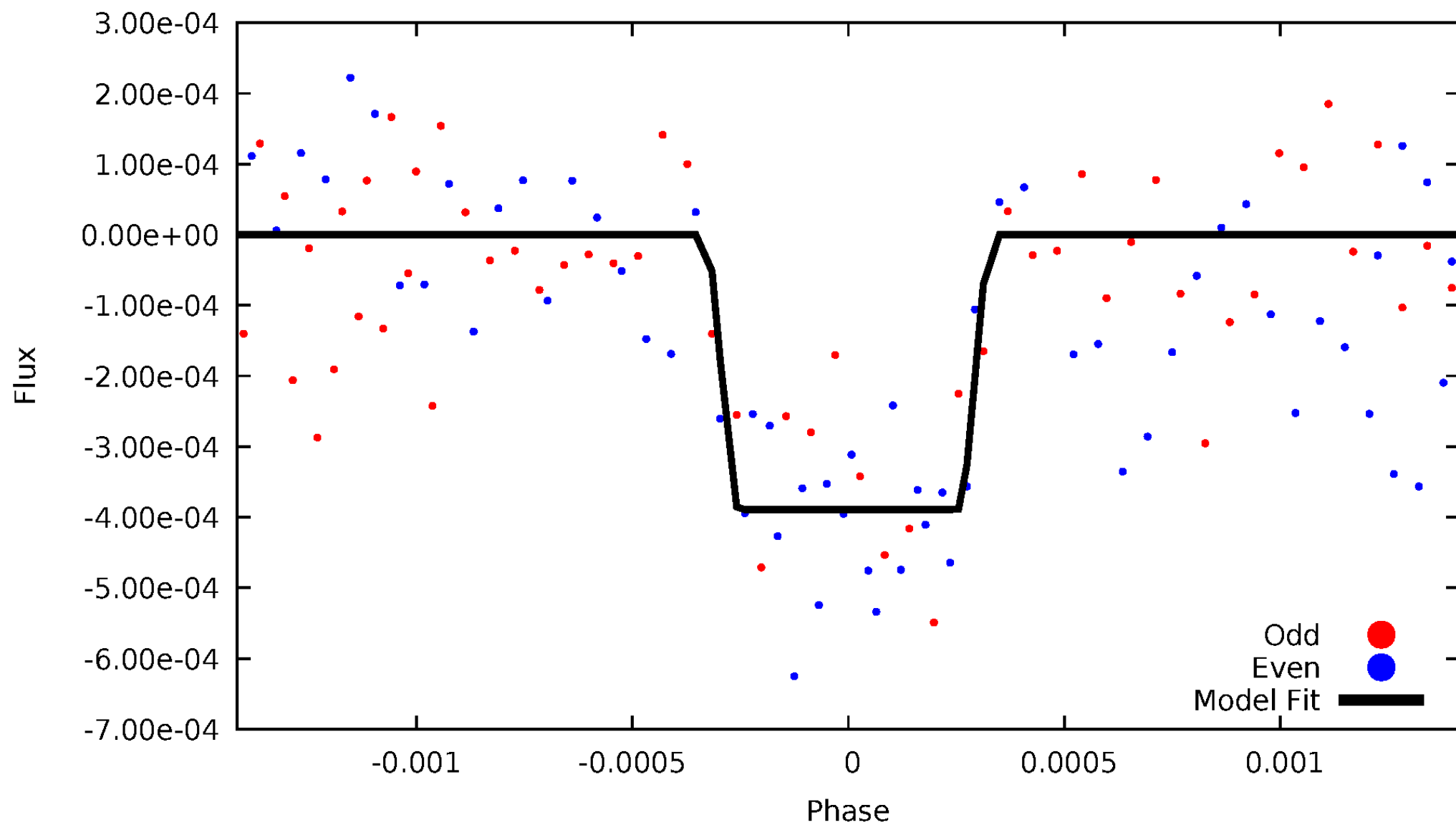
DV Odd/Even

TCE 003945818-07



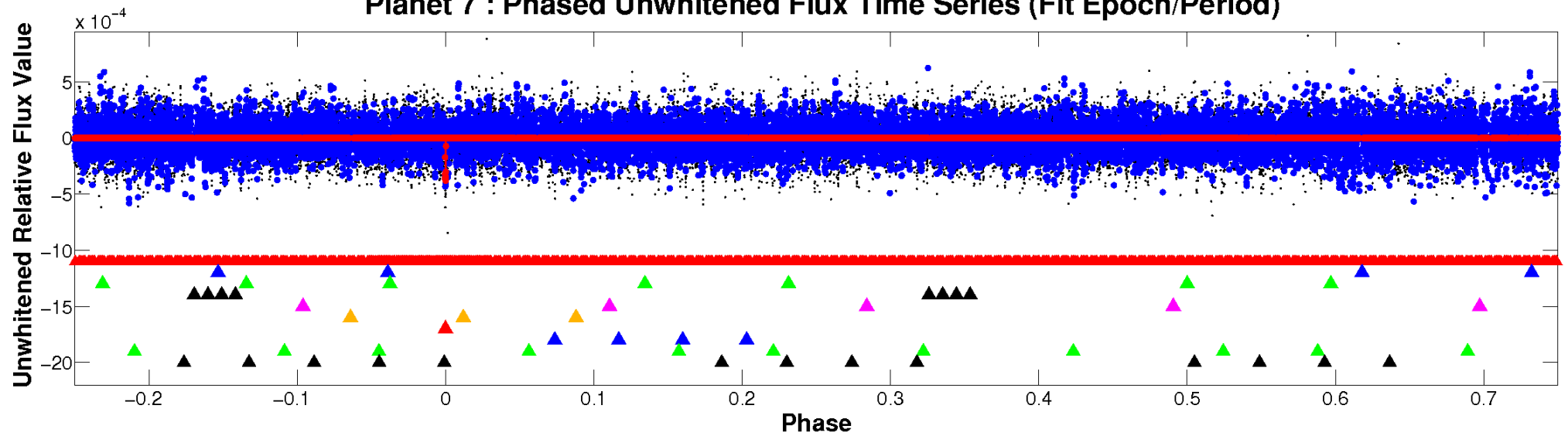
ALT Odd/Even

TCE 003945818-07

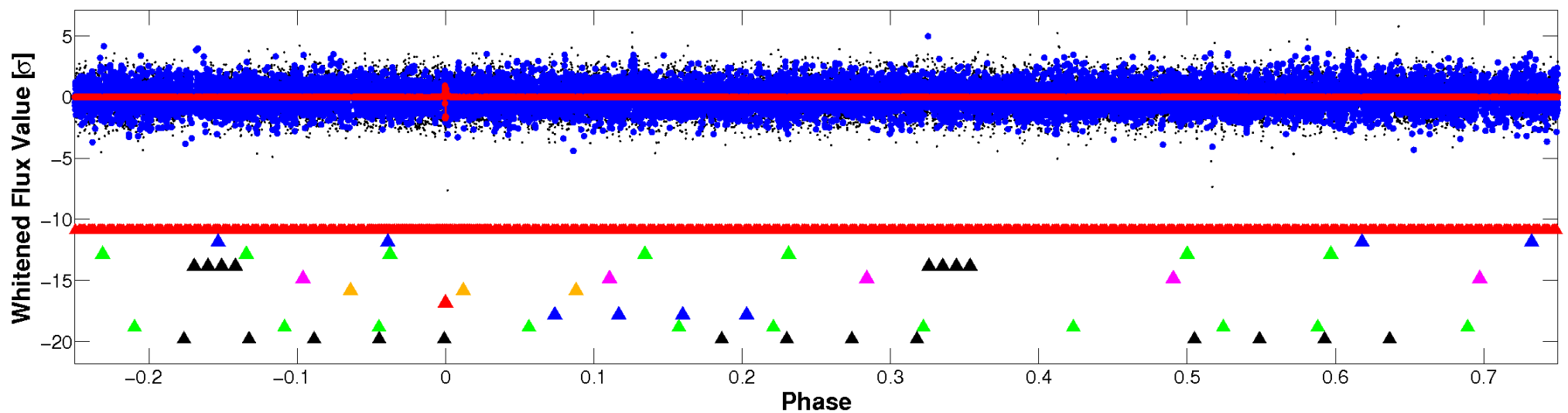


Non-Whitened Vs. Whitened Light Curve

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

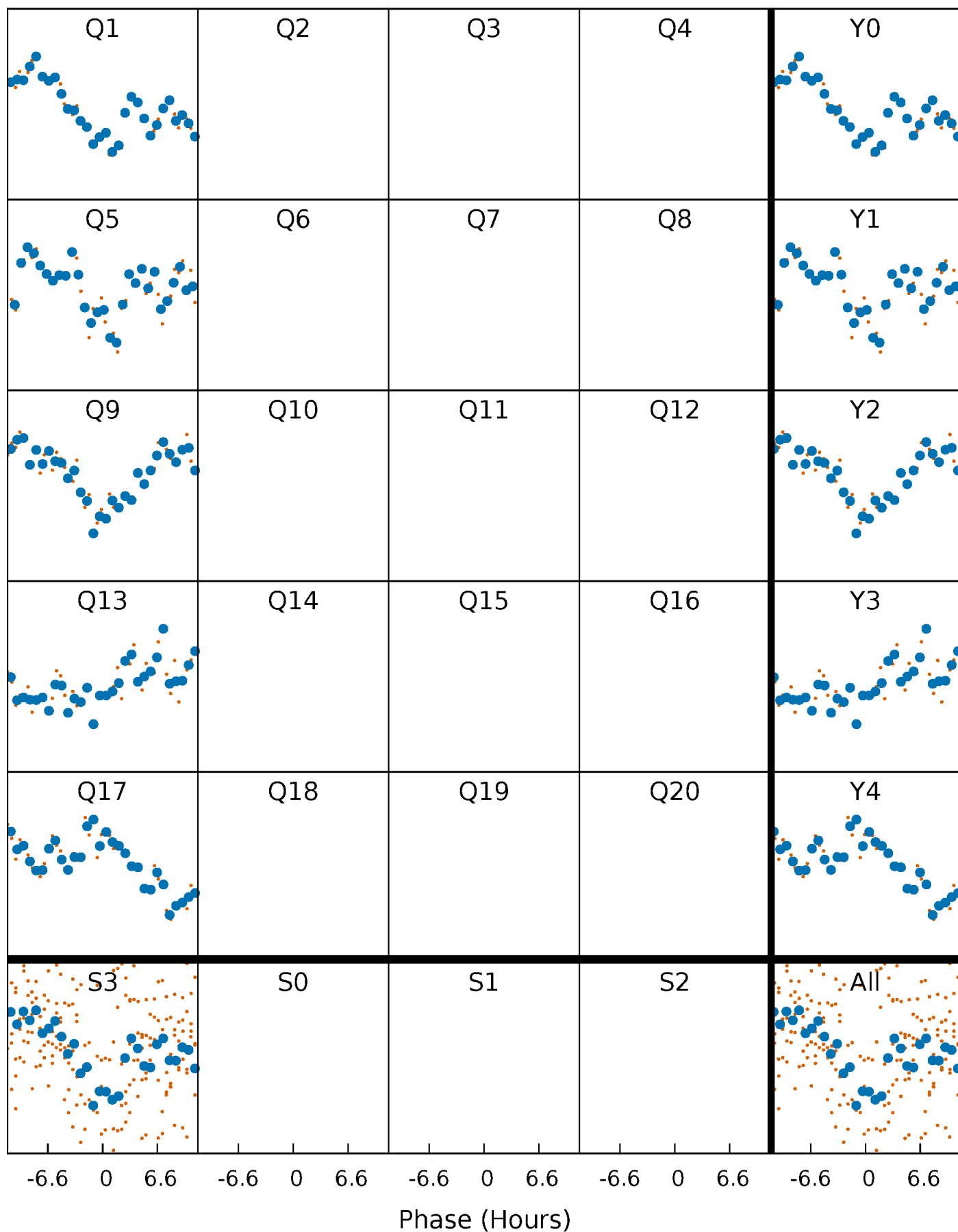


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



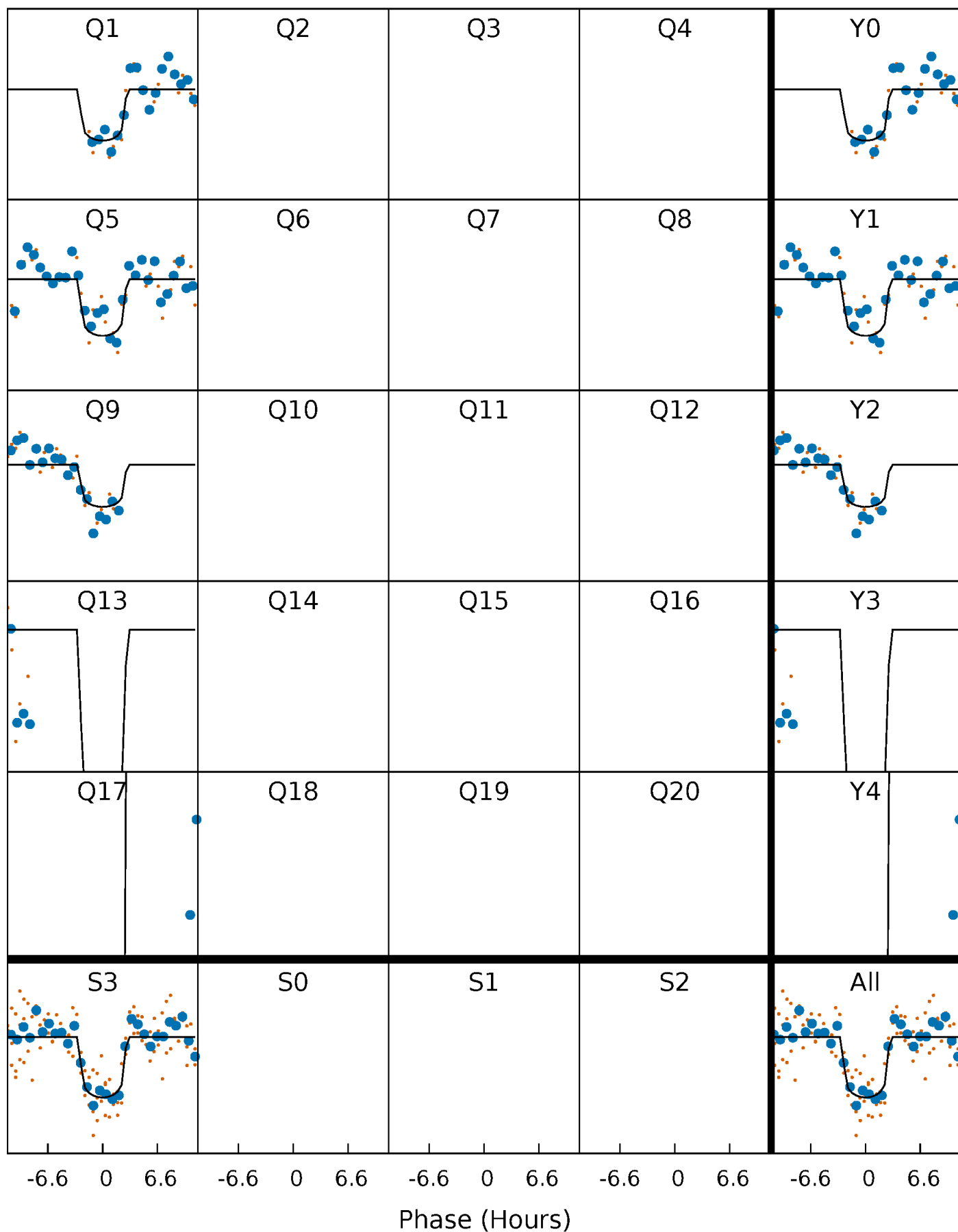
PDC Quarter-Phased Transit Curves

TCE 003945818-07 $P=357.914013$ Days $T_0=149.399809$ (BKJD)



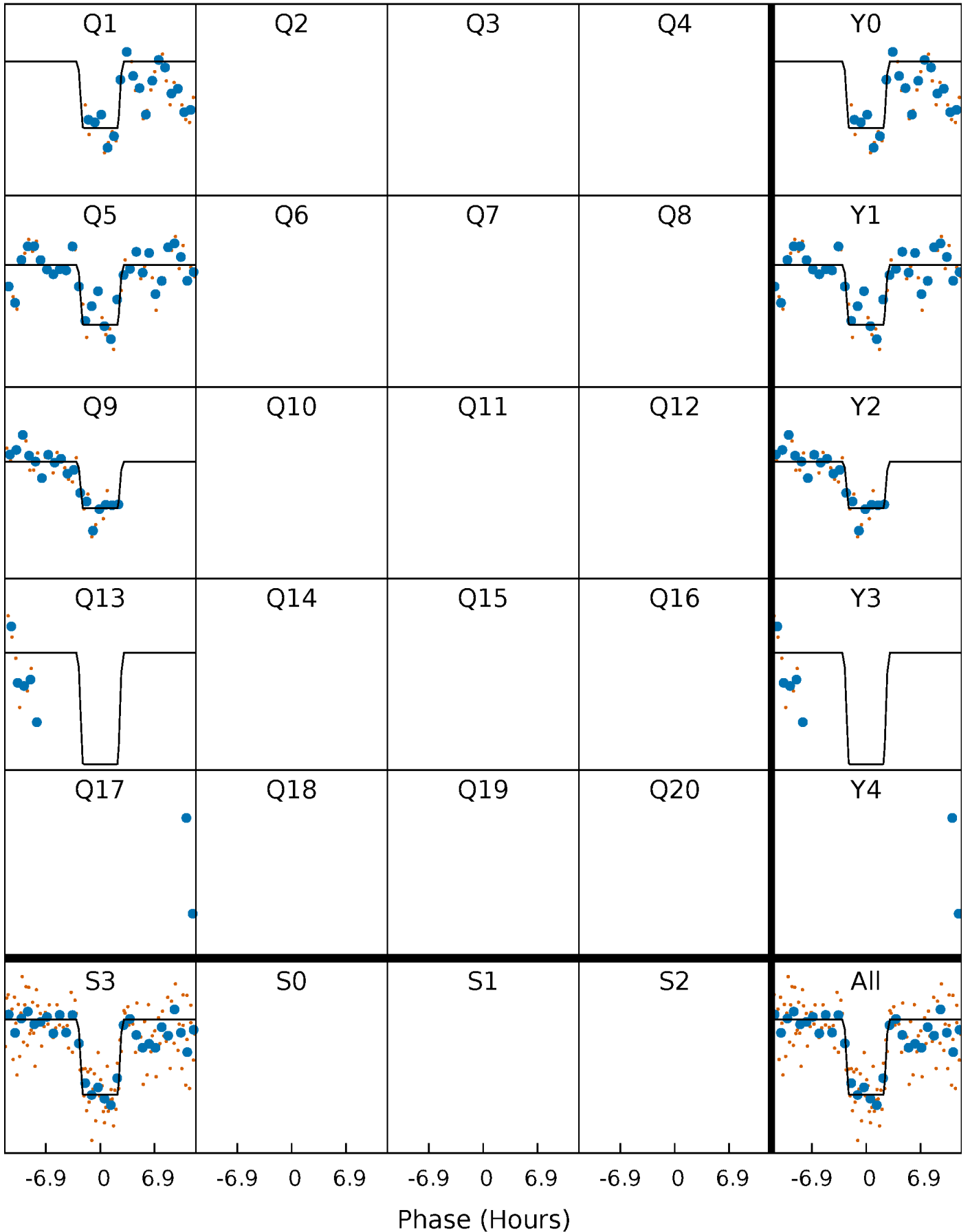
DV Quarter-Phased Transit Curves

TCE 003945818-07 $P=357.914013$ Days $T_0=149.399809$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

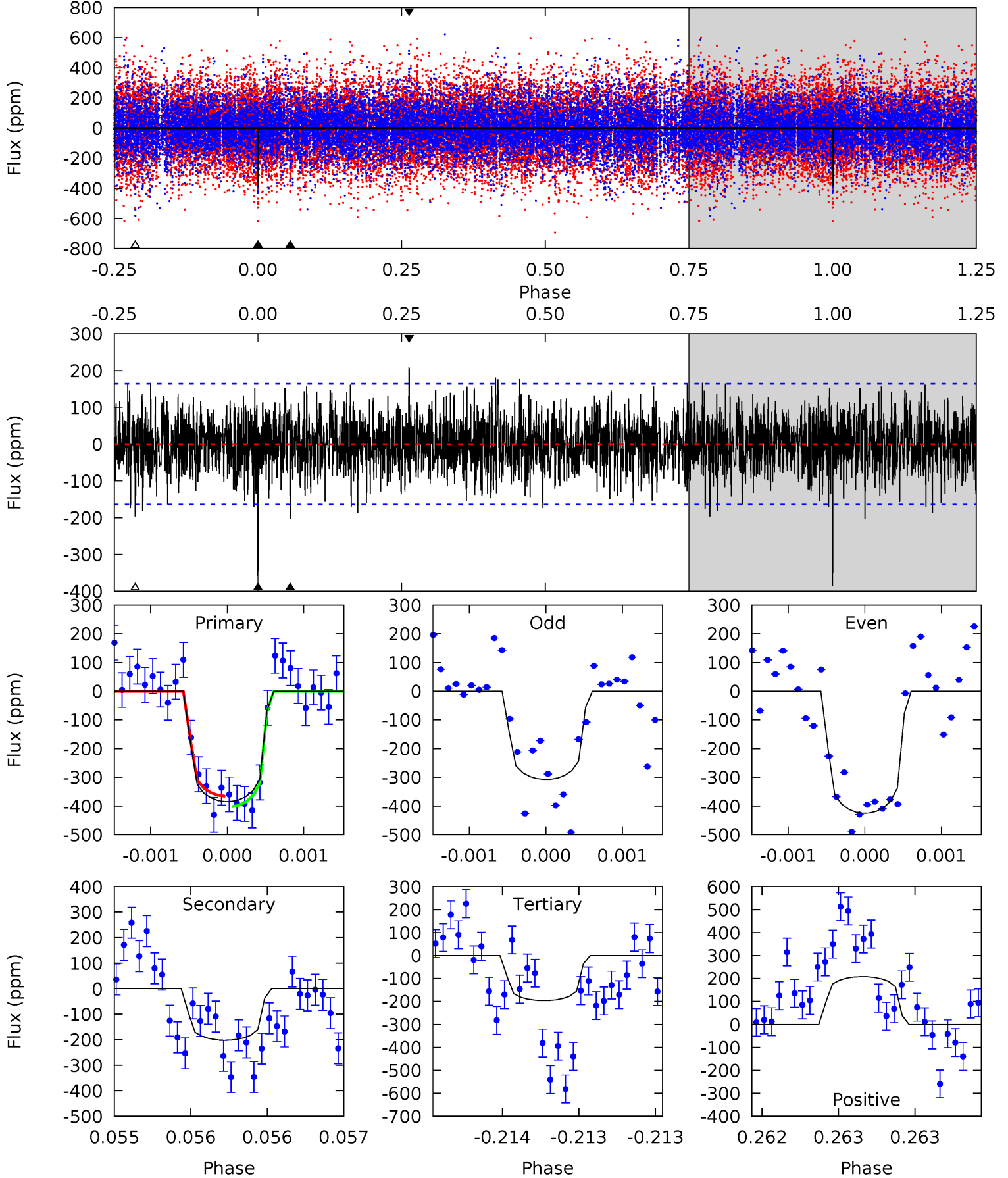
TCE 003945818-07 $P=357.907426$ Days $T_0=149.410672$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-07, P = 357.914013 Days, E = 149.399809 Days

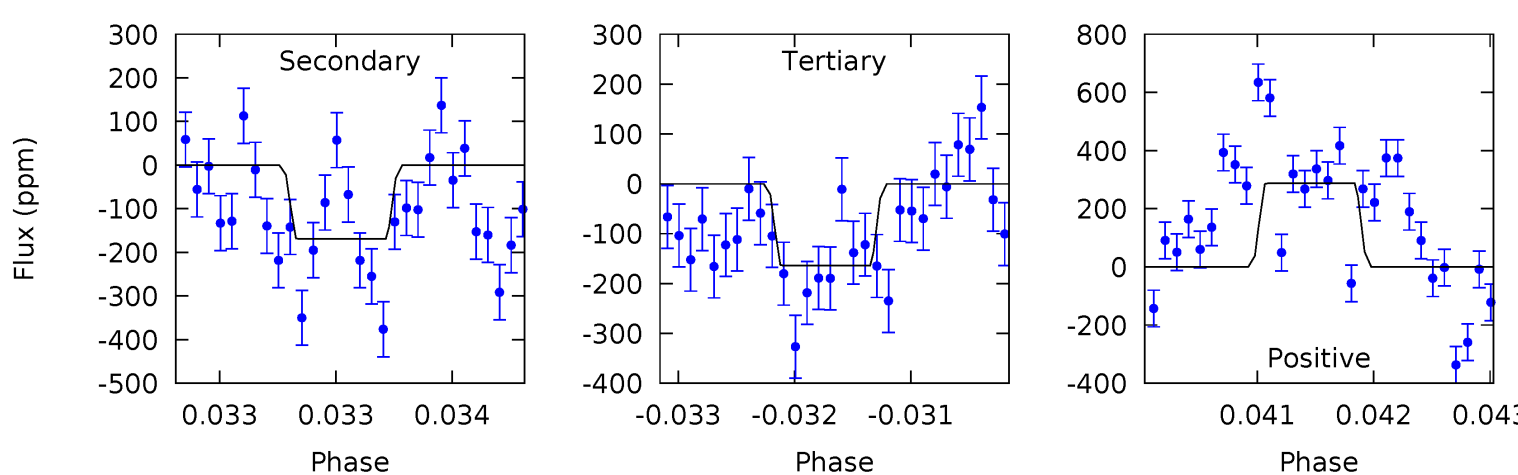
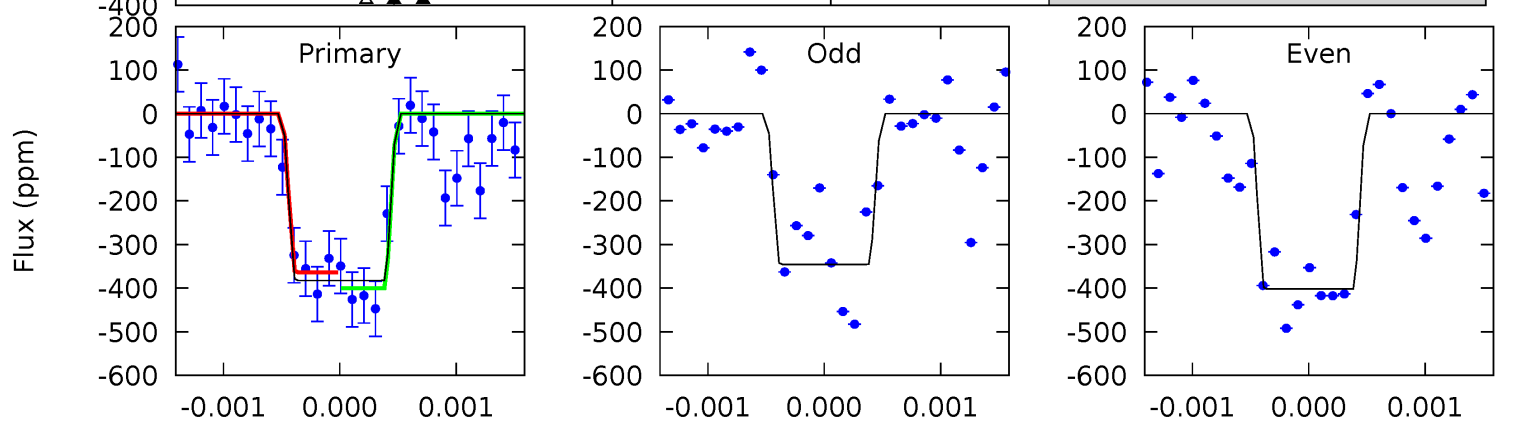
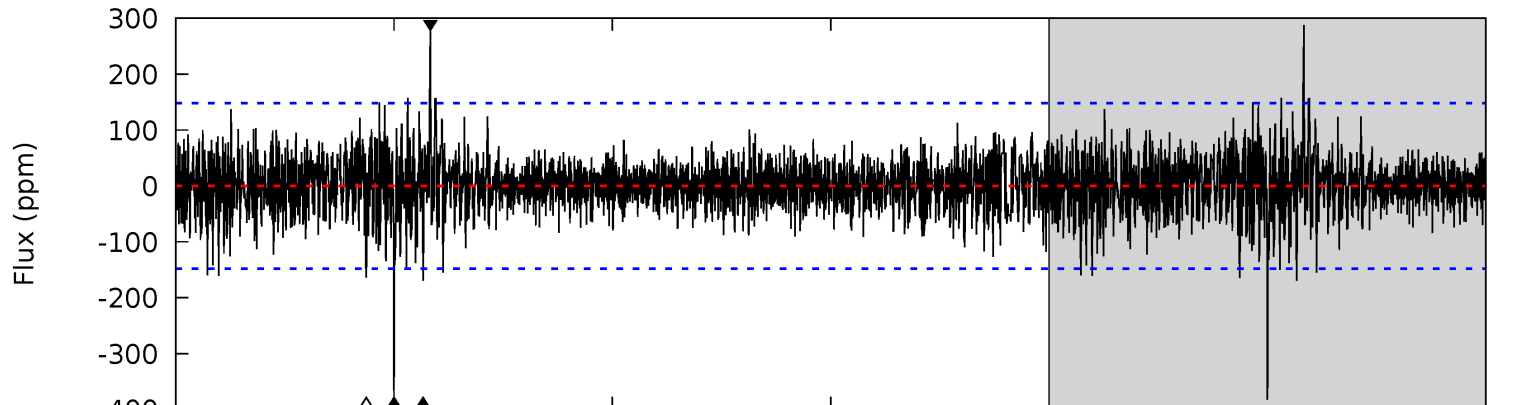
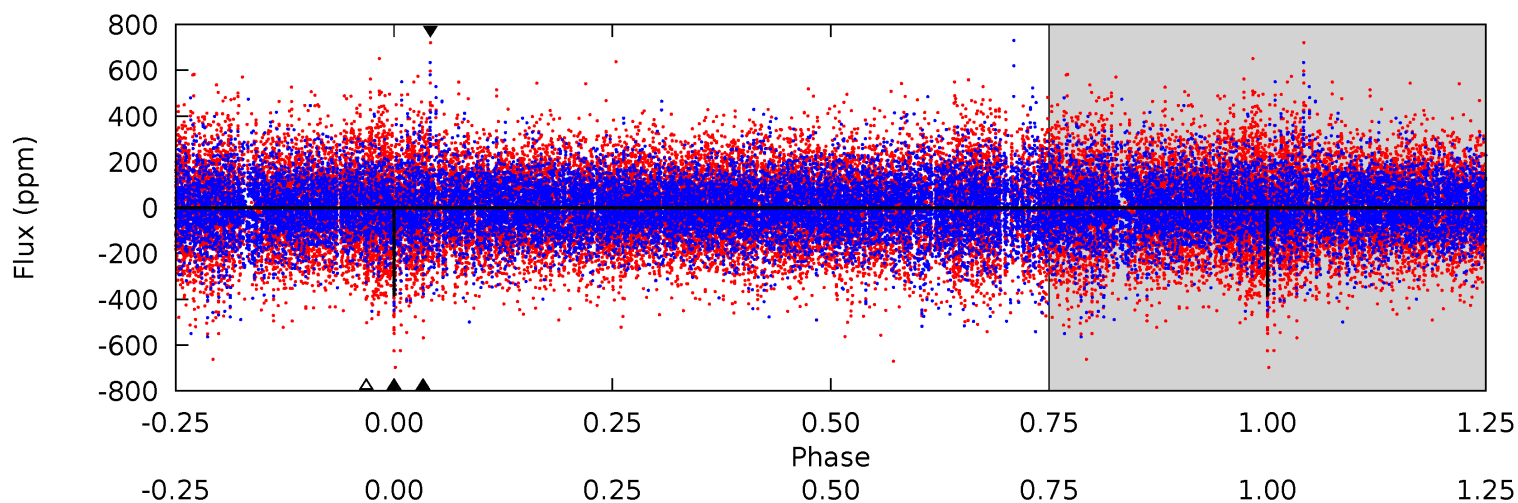
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	6.79	6.61	7.01	5.53	3.42	1.89	6.33	5.94	0.18	-0.21	1.87	0.95	0.35	0.62



Alt Model-Shift Uniqueness Test

003945818-07, P = 357.907426 Days, E = 149.410672 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	6.32	6.12	10.7	5.52	3.40	1.47	8.14	3.53	0.20	-4.41	1.00	0.97	0.43	0.68



Stellar Parameters For KIC 003945818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-202 ± 30	$8.78^{+4.03}_{-3.50}$	749^{+43}_{-77}	5453^{+1429}_{-717}	2056^{+3250}_{-1072}
Alt.	-170 ± 27	$8.32^{+4.36}_{-3.53}$	747^{+48}_{-86}	5374^{+1690}_{-799}	1874^{+4082}_{-1059}

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

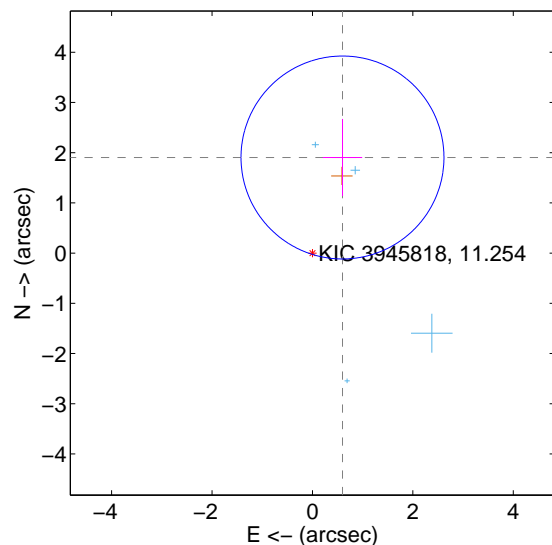
Supplemental centroid analysis for 003945818-07. **Kepler magnitude: 11.25.** Transit SNR 8.86

There are 4 quarters with good PRF difference image offsets

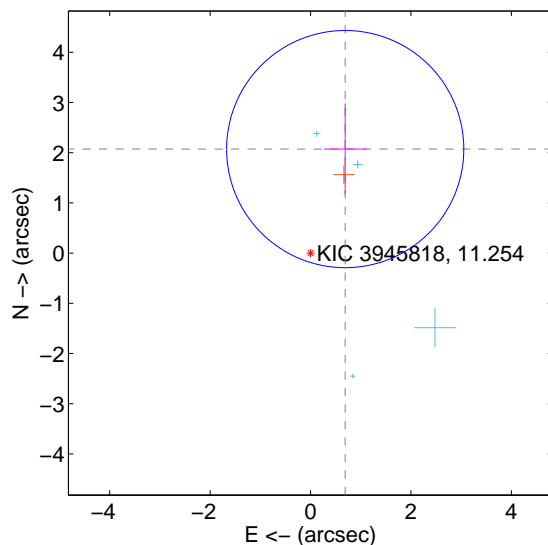
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.995 ± 0.673	2.96	-0.598 ± 0.393	1.904 ± 0.768
PRF-fit source offset from KIC position	2.183 ± 0.787	2.77	-0.691 ± 0.429	2.071 ± 0.909
photometric centroid source offset	0.48 ± 0.48	1.00	0.14 ± 0.28	0.46 ± 0.49

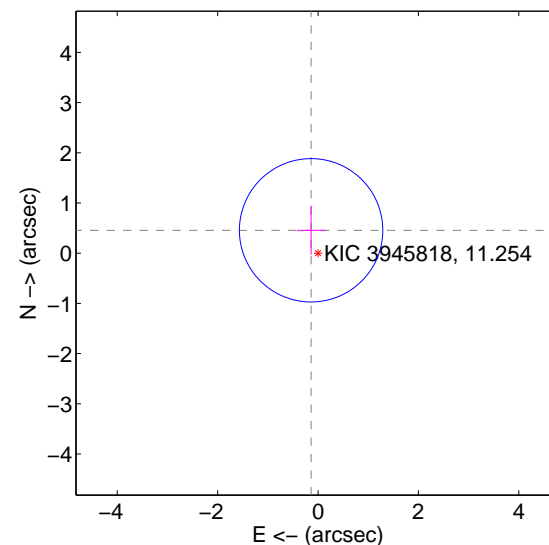
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

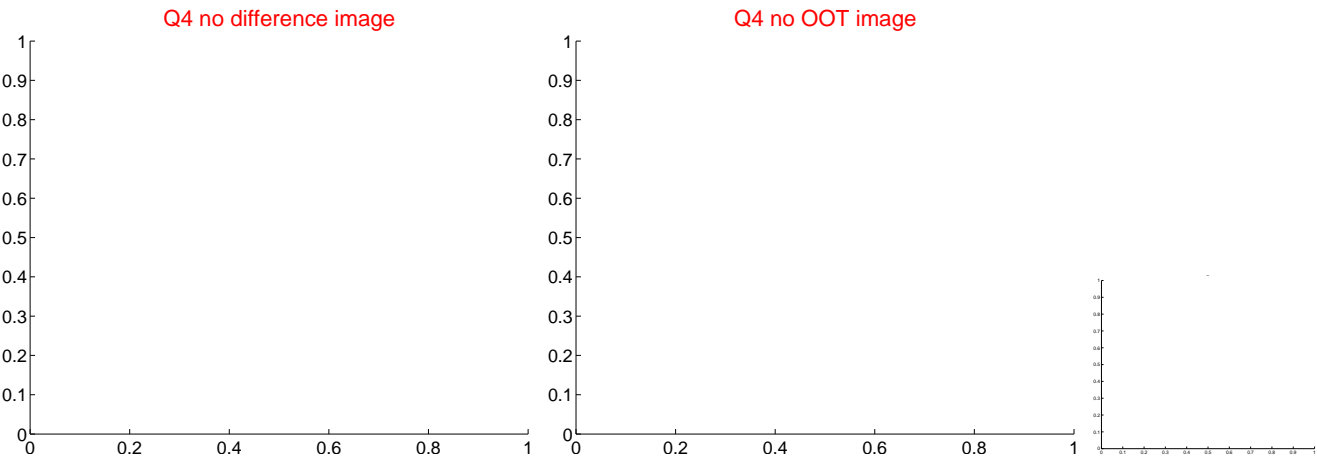
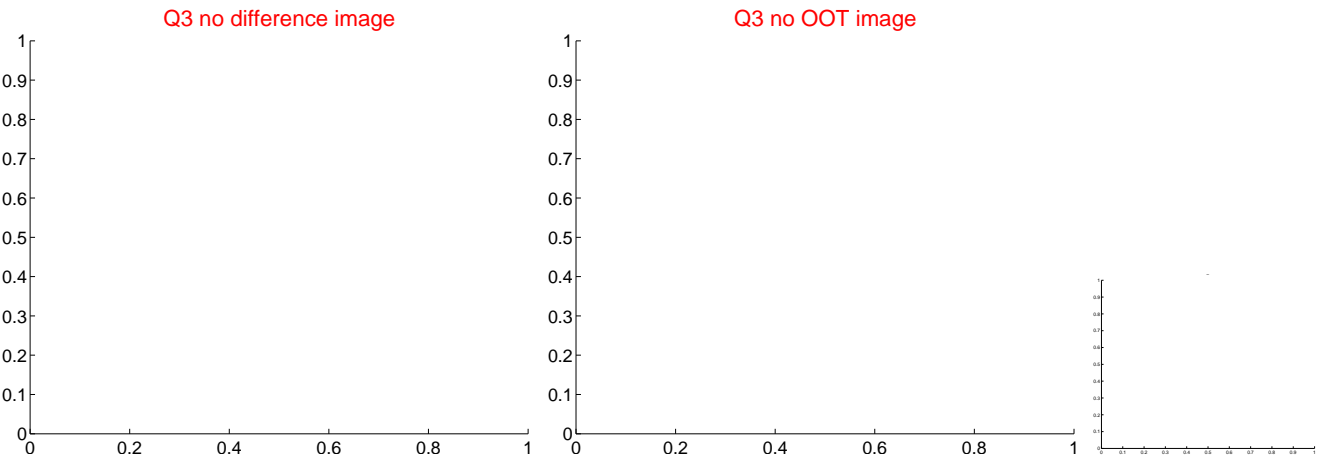
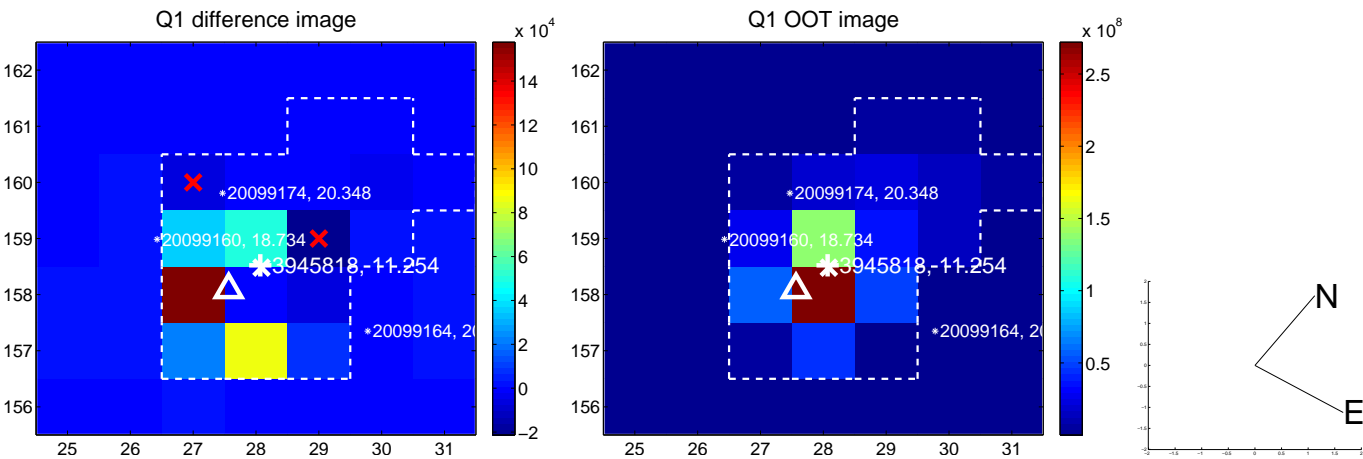


offset from photometric centroids

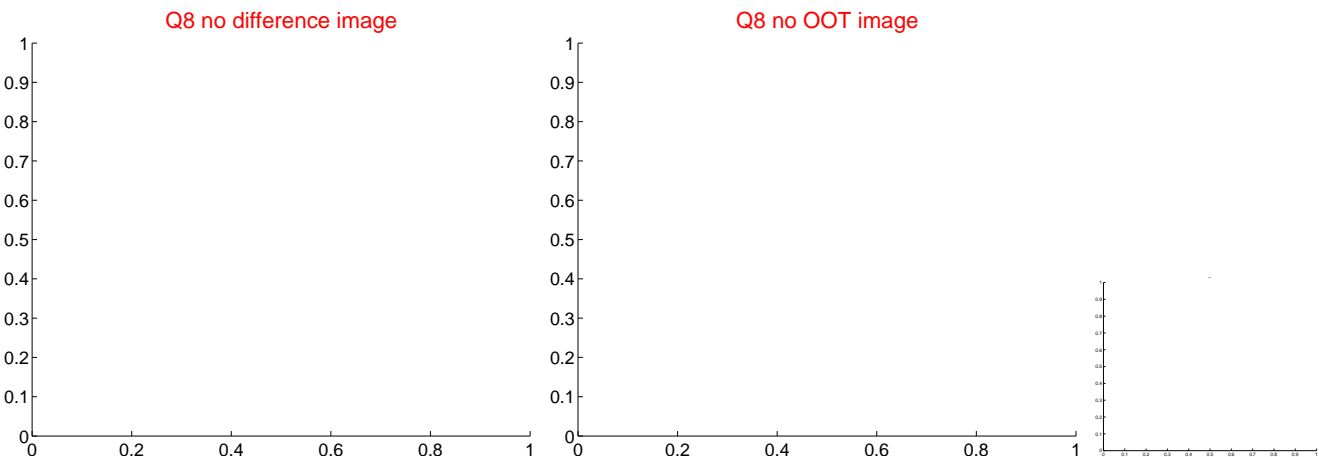
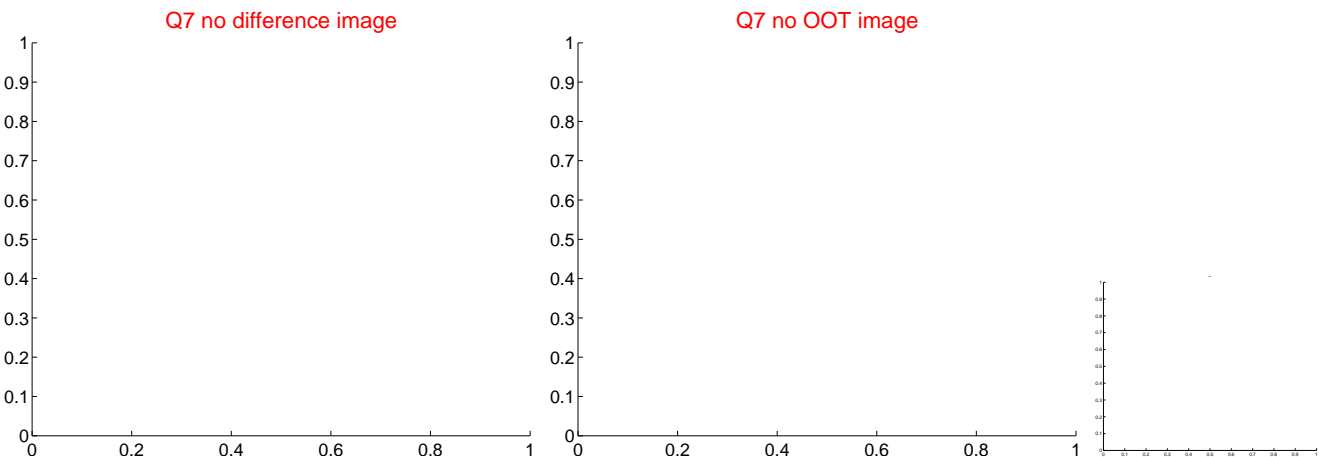
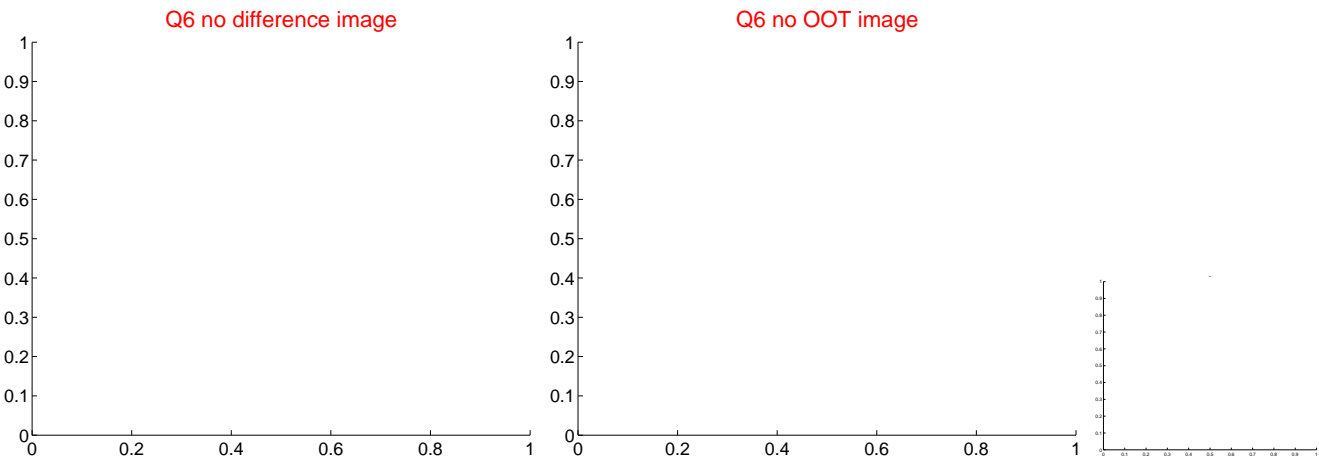
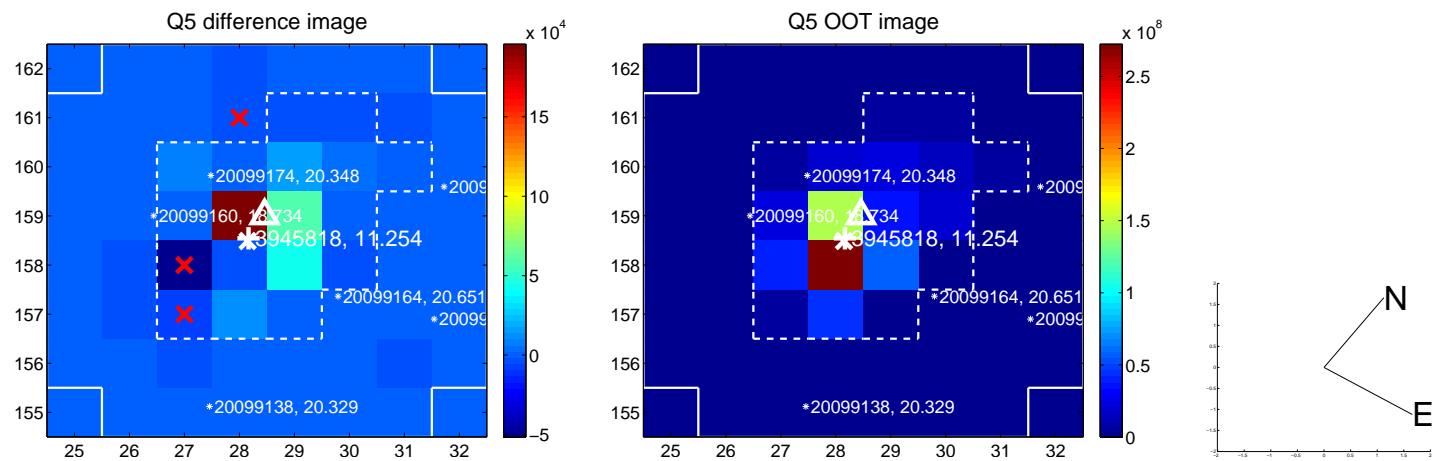


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

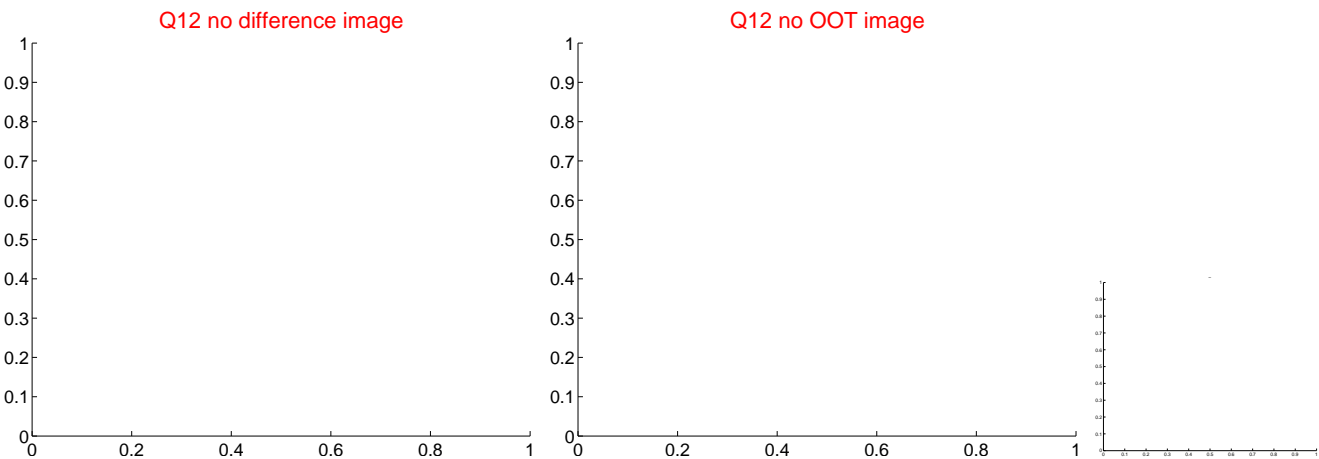
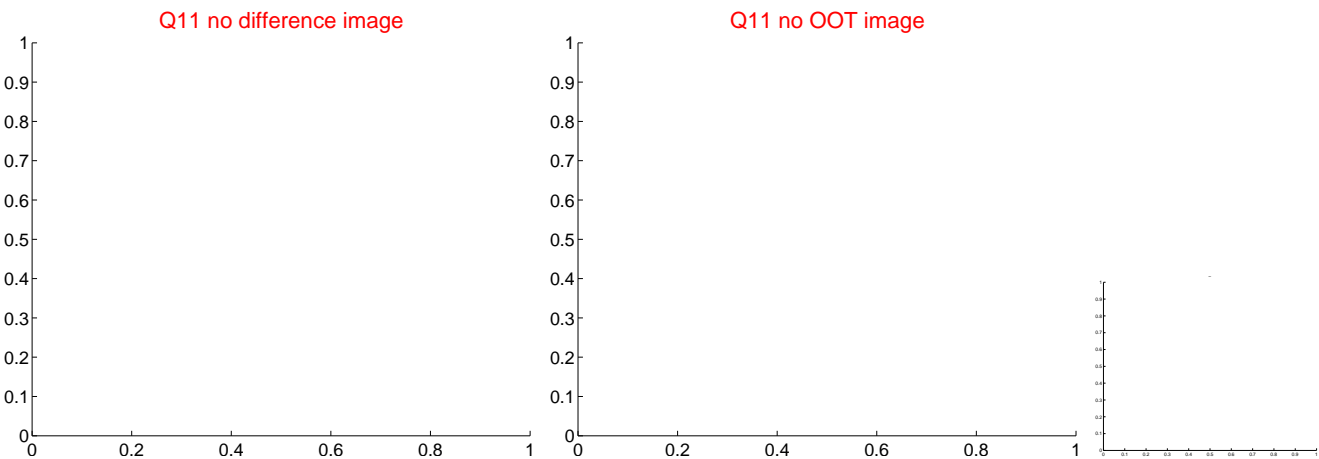
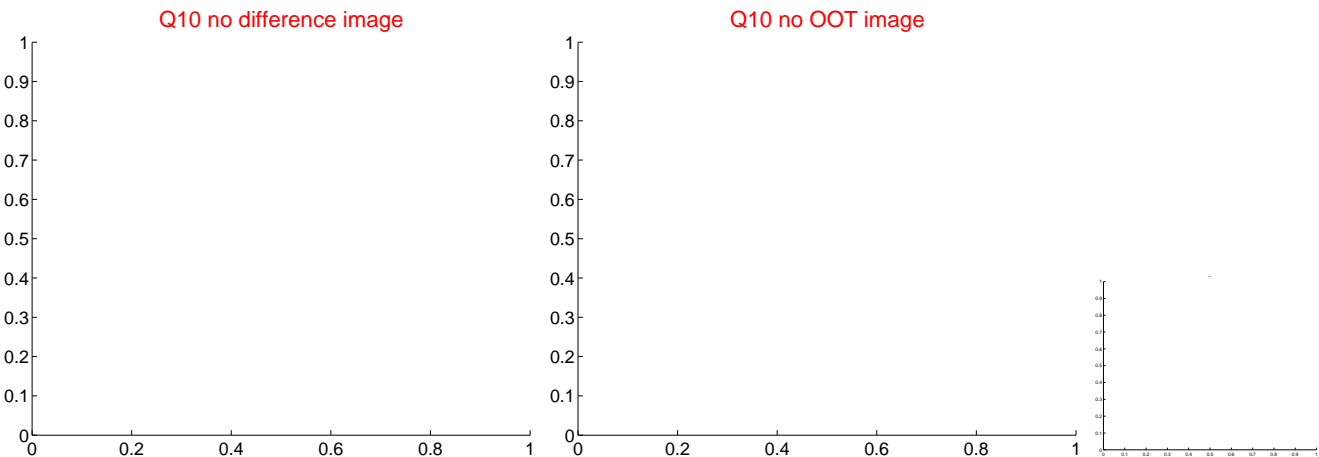
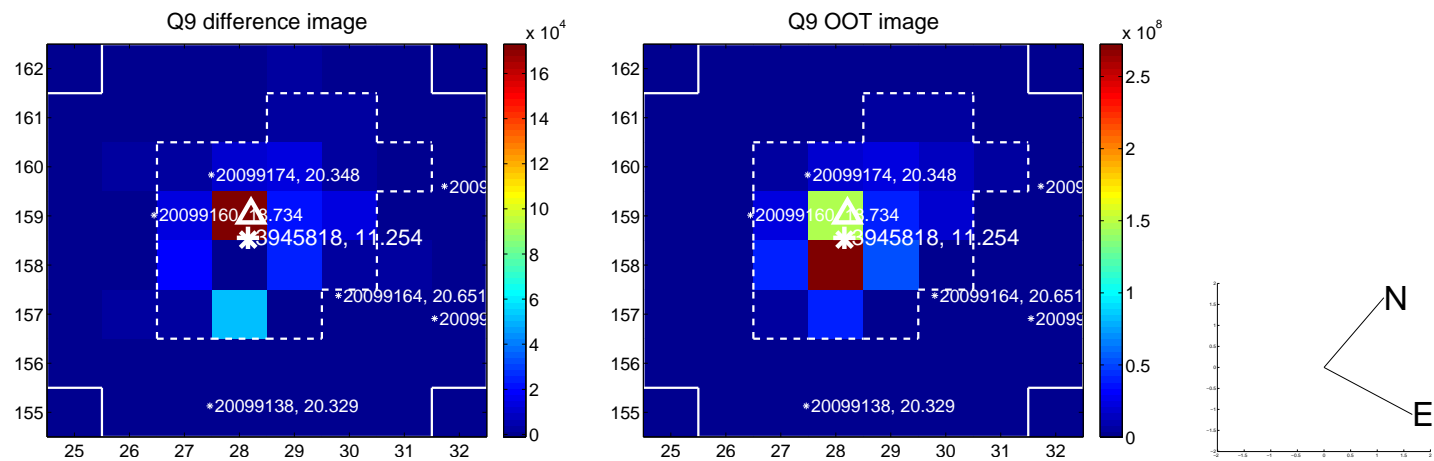
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



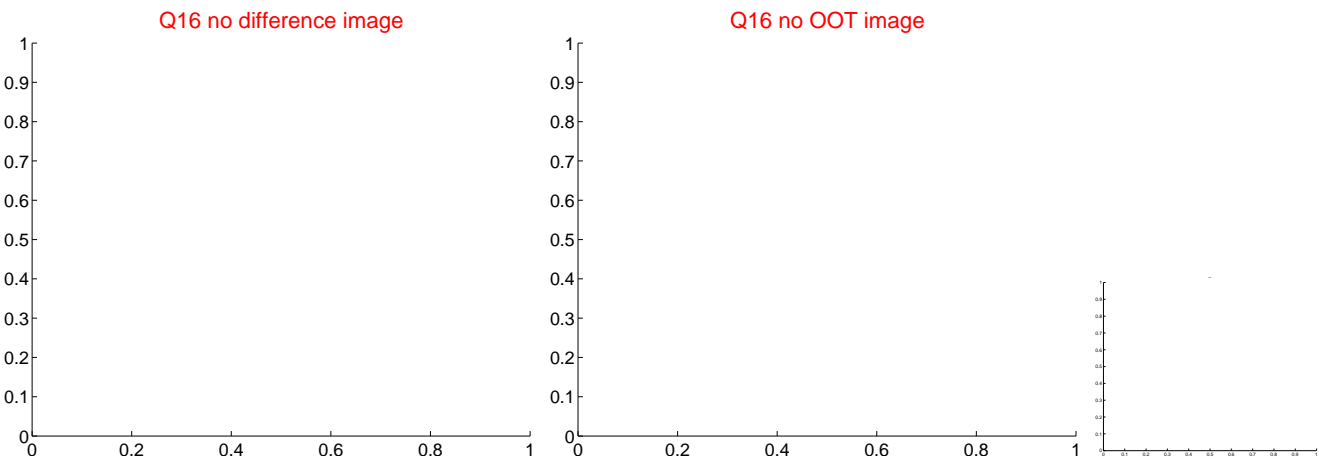
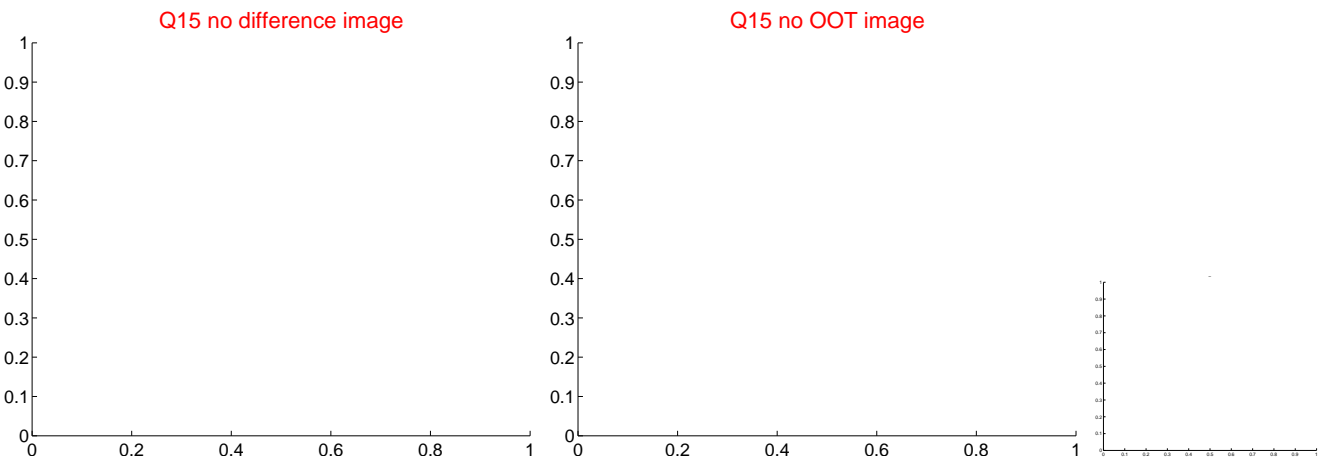
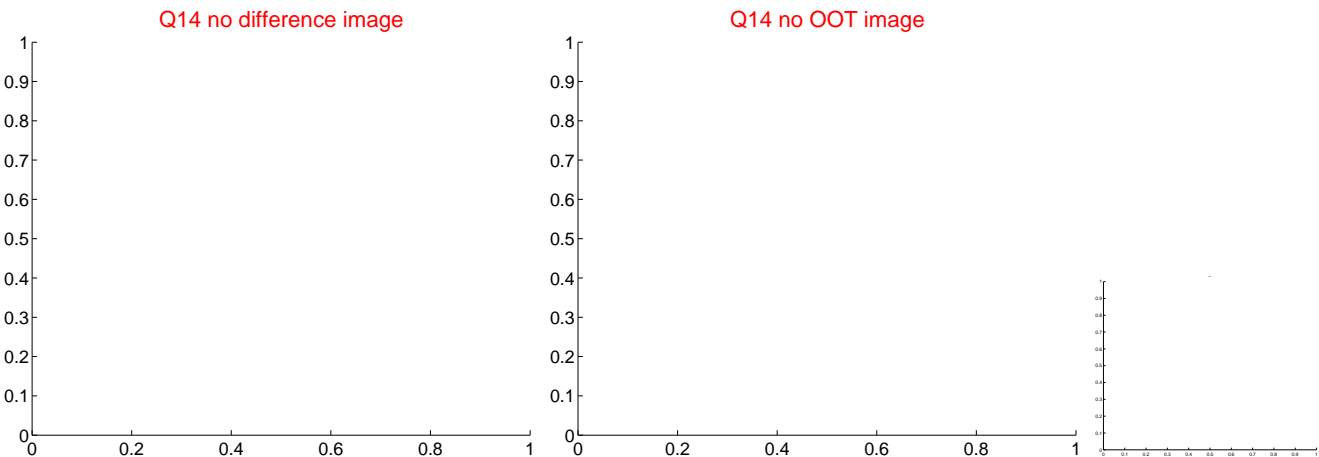
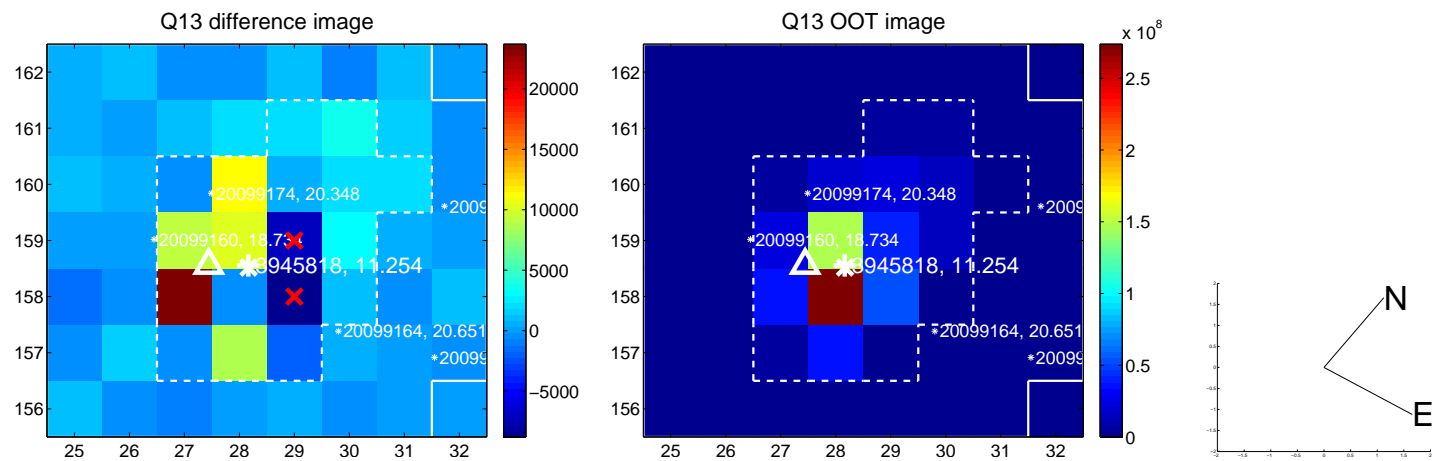
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



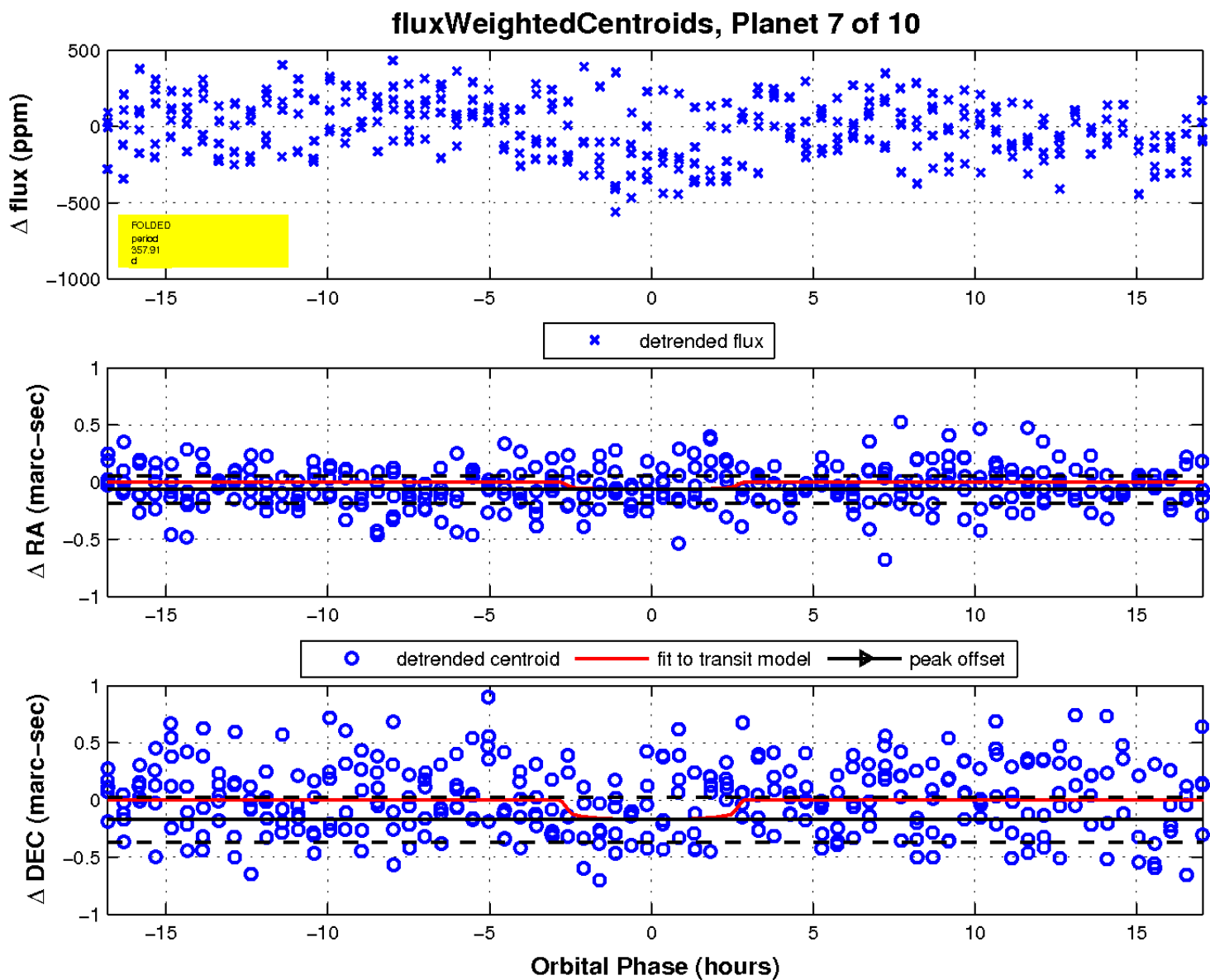
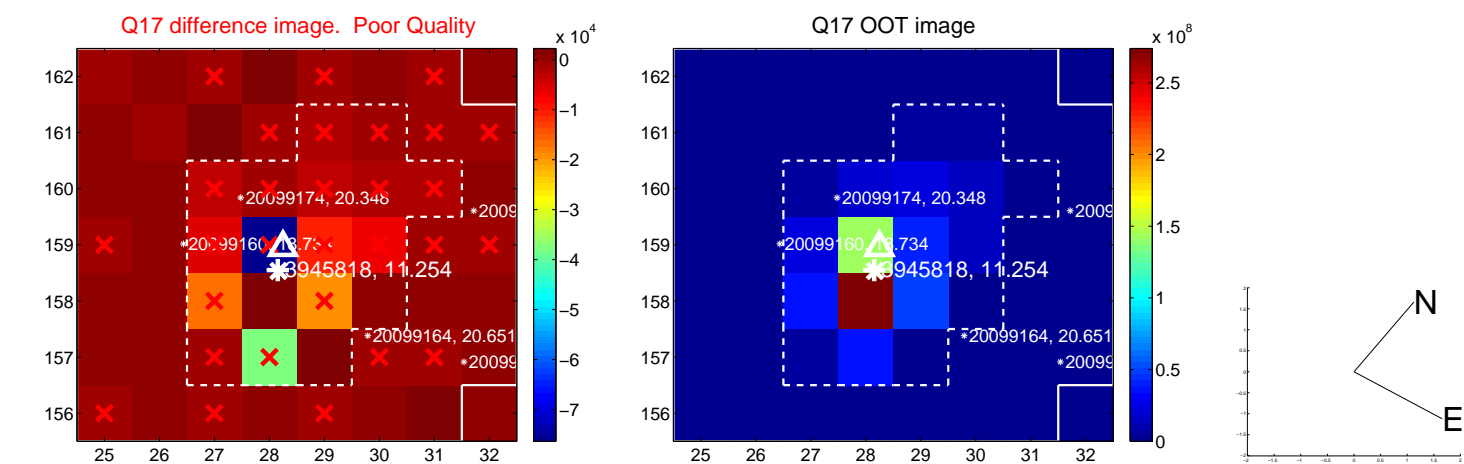
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



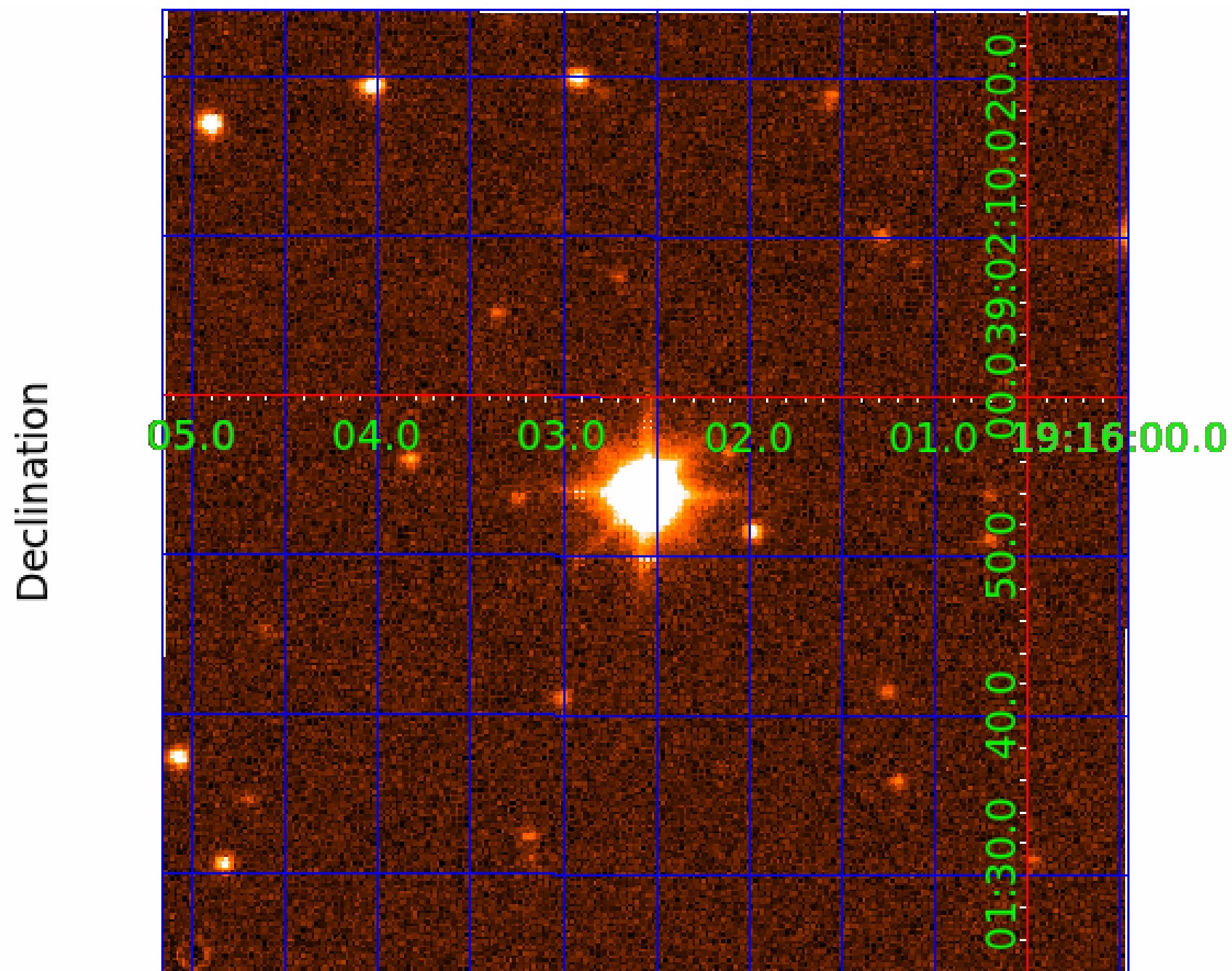
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

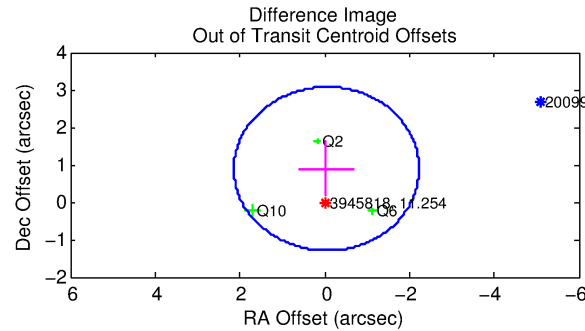
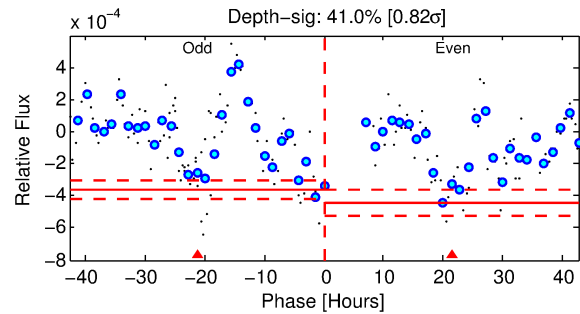
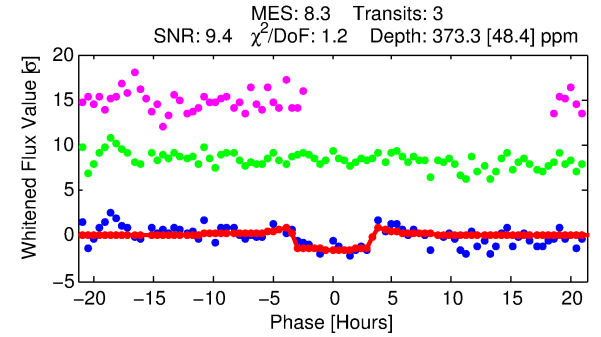
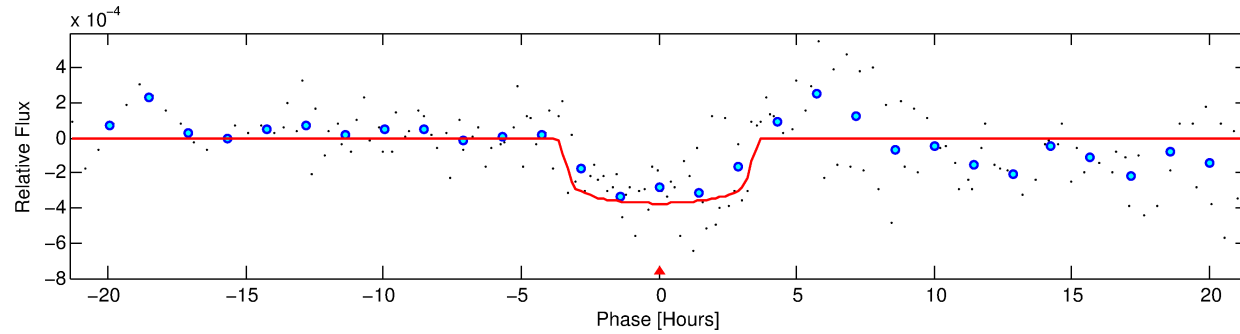
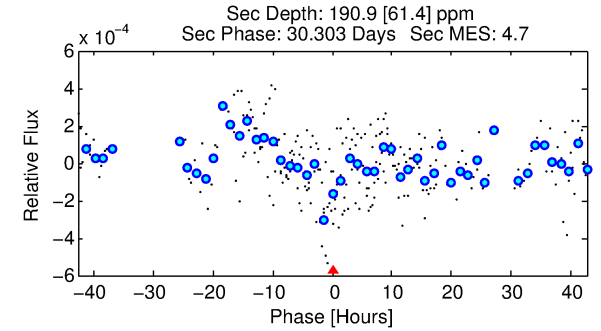
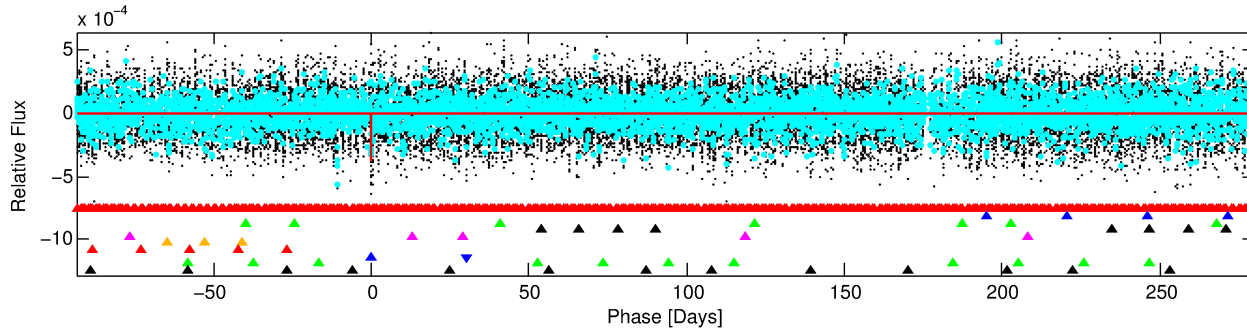
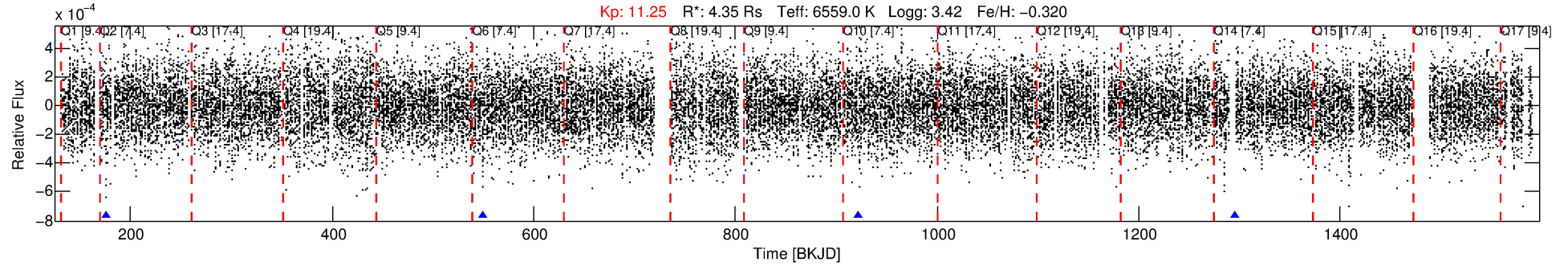
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-08

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 8 of 10 Period: 373.349 d



DV Fit Results:

Period = 373.34909 [0.00623] d
Epoch = 175.7825 [0.0085] BKJD
 R_p/R^* = 0.0193 [0.0062]
 a/R^* = 272.51 [476.42]
 b = 0.76 [0.99]
 S_{eff} = 20.47 [14.25]
 T_{eq} = 542 [94] K
 R_p = 9.15 [5.18] R_e
 a = 1.2385 [0.5397] AU
 A_g = 1925.48 [1921.02] [1.00σ]
 T_{effp} = 5555 [1015] K [4.92σ]

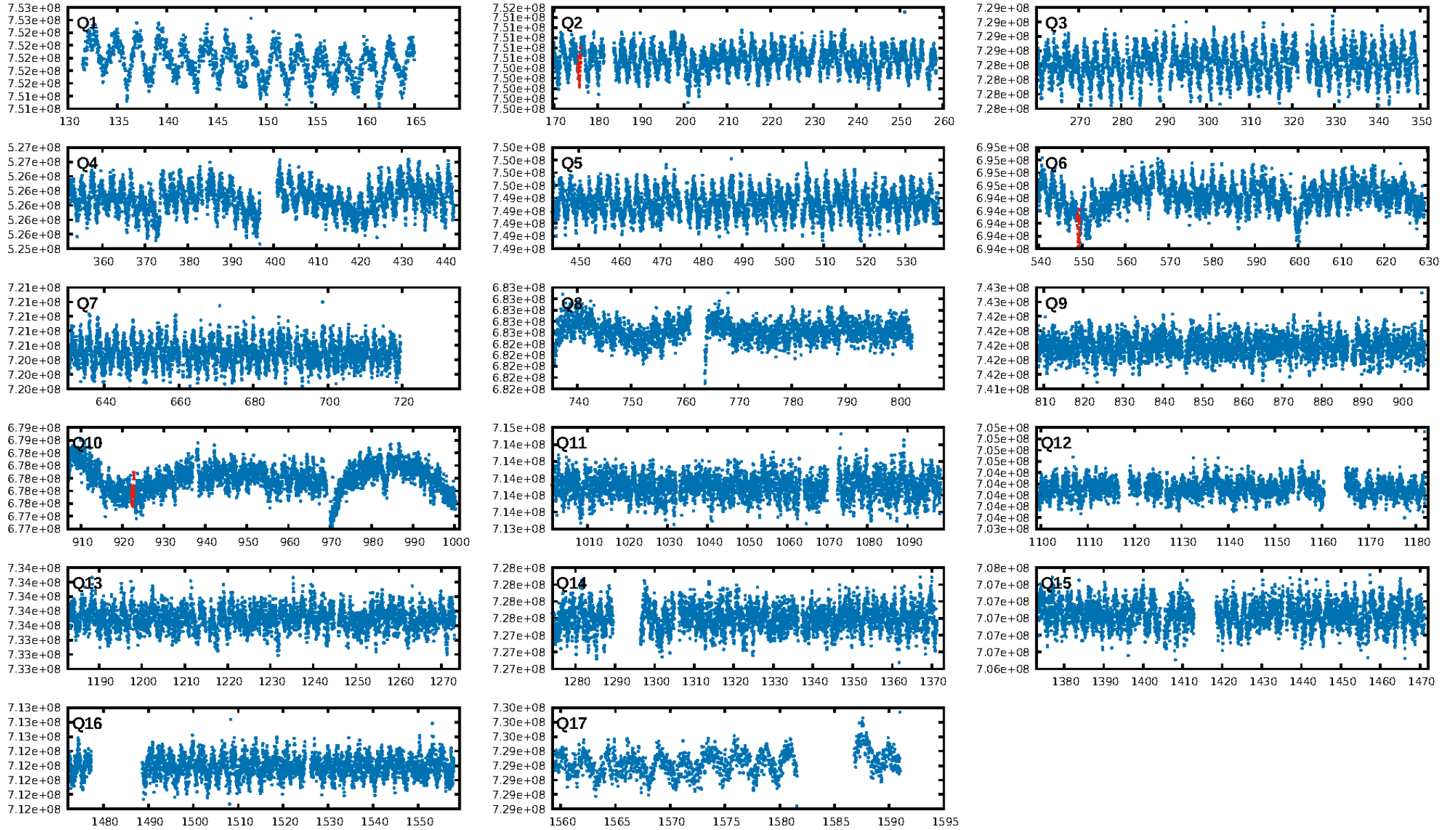
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.47σ]
LongPeriod-sig: 100.0% [31.56σ]
ModelChiSquare2-sig: 27.8%
ModelChiSquareGof-sig: 94.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.511
Centroid-sig: 0.0%
Centroid-so: 1.095 arcsec [2.41σ]
OotOffset-rm: 0.889 arcsec [1.22σ]
KicOffset-rm: 0.591 arcsec [0.75σ]
OotOffset-st: 3/0/0/0 [3]
KicOffset-st: 3/0/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 1.00 [3/3]

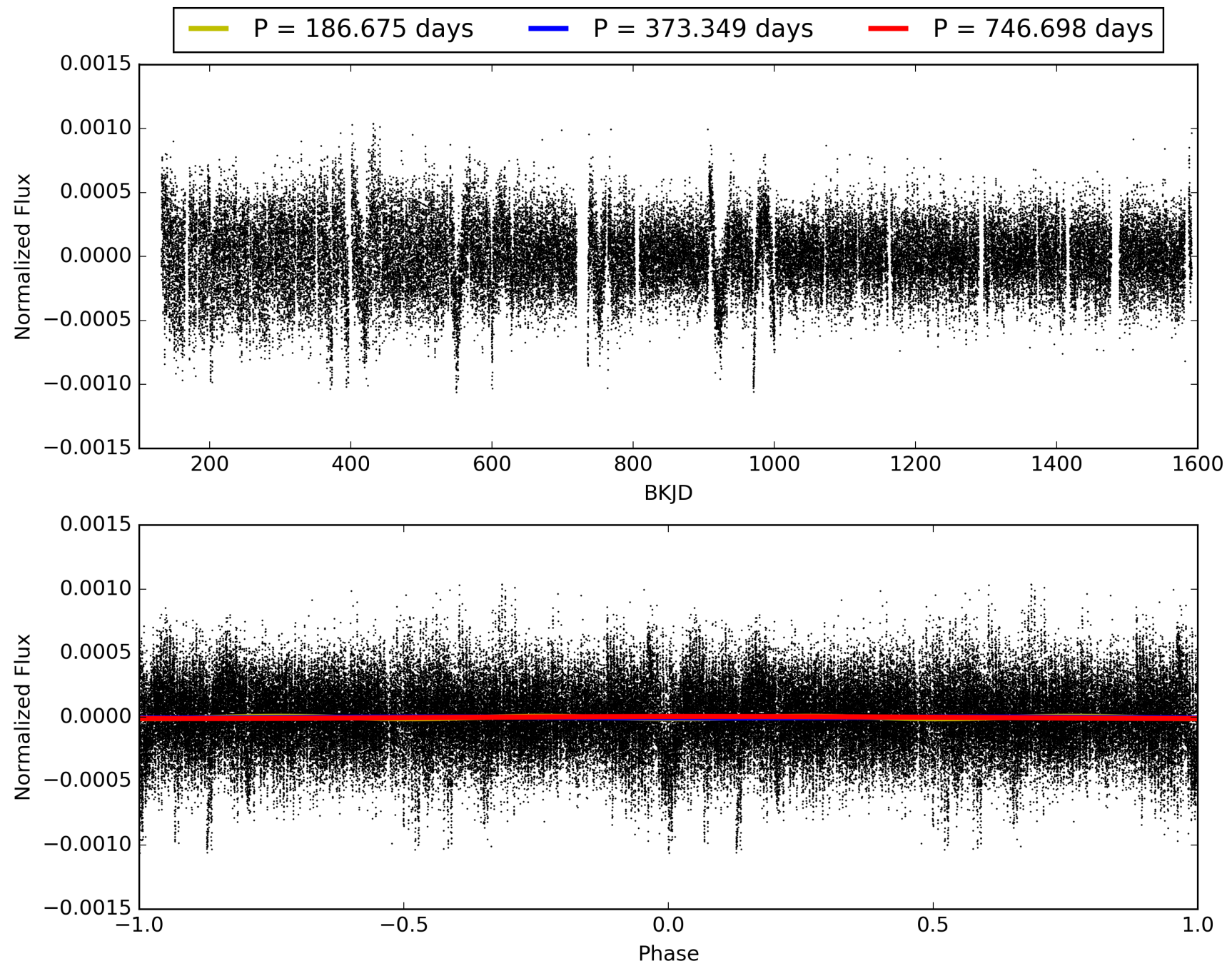
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:48 Z

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

TCE 003945818-08, PDC Light Curves

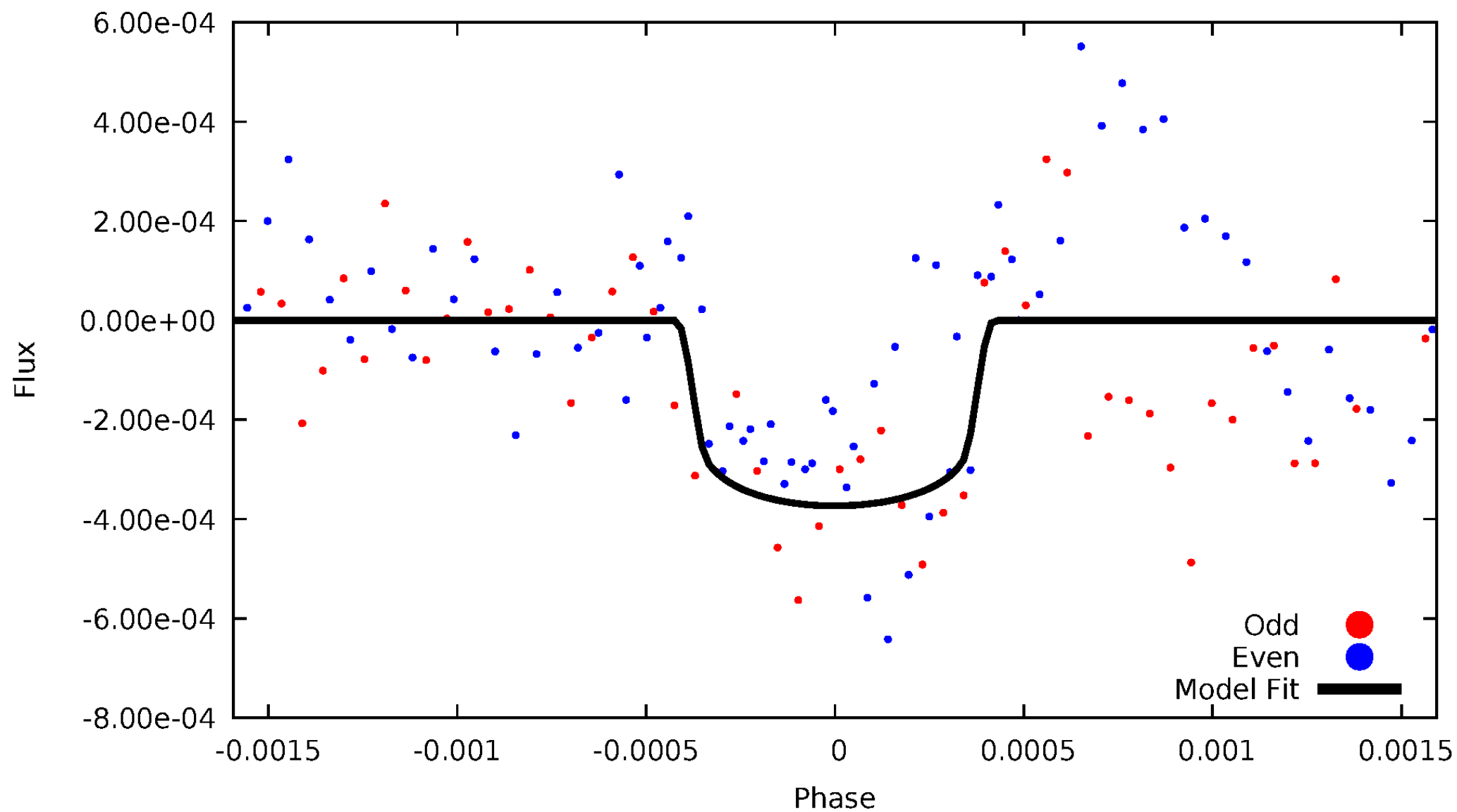


TCE 003945818-08



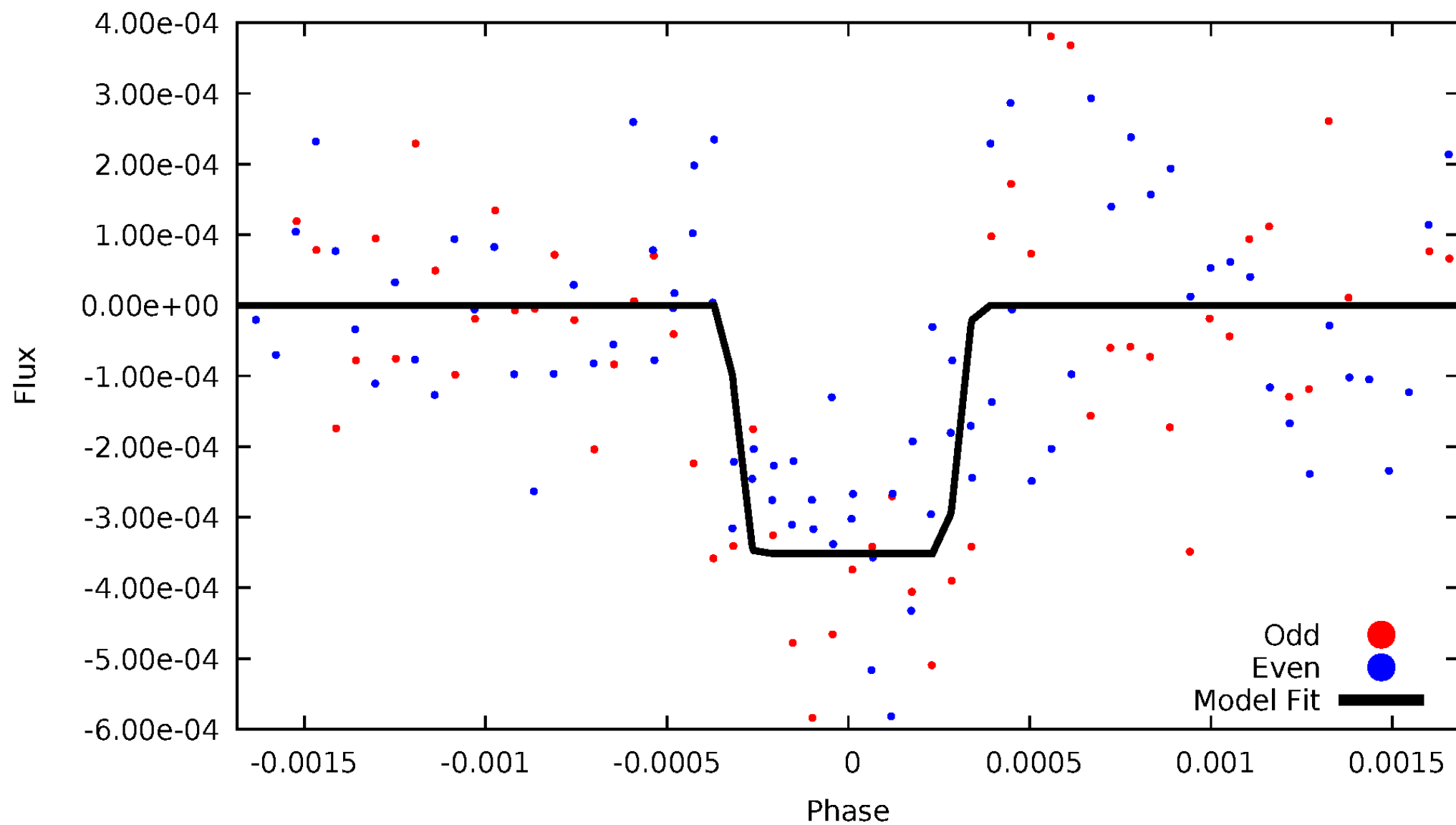
DV Odd/Even

TCE 003945818-08



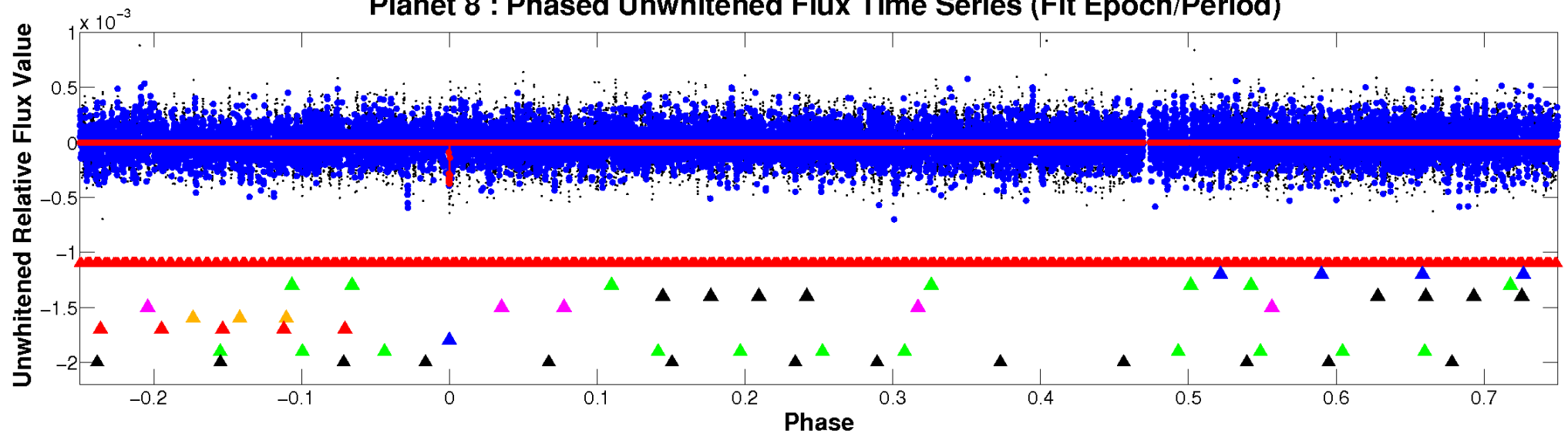
ALT Odd/Even

TCE 003945818-08

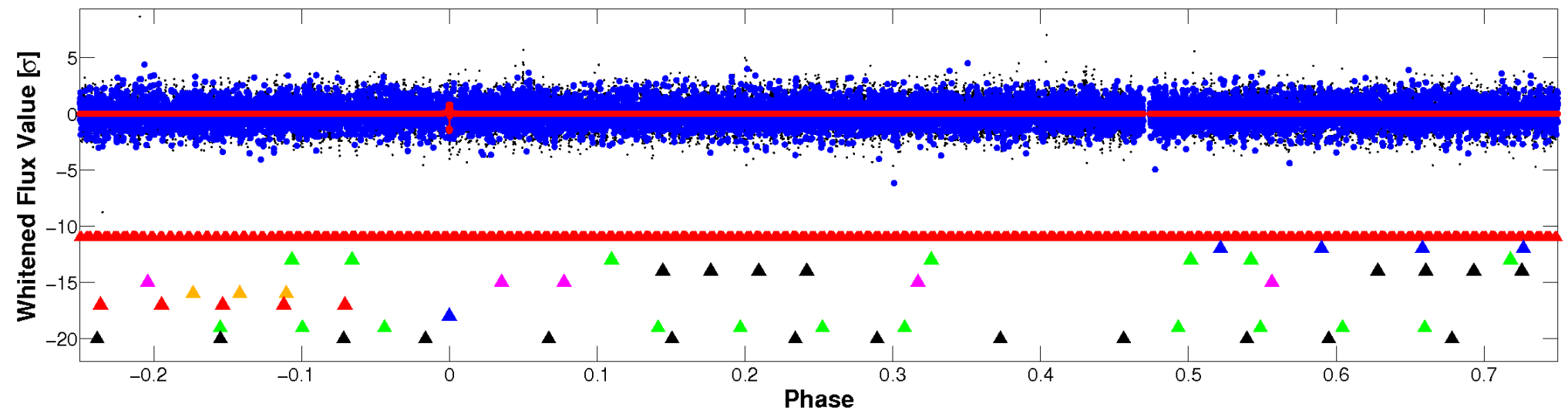


Non-Whitened Vs. Whitened Light Curve

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

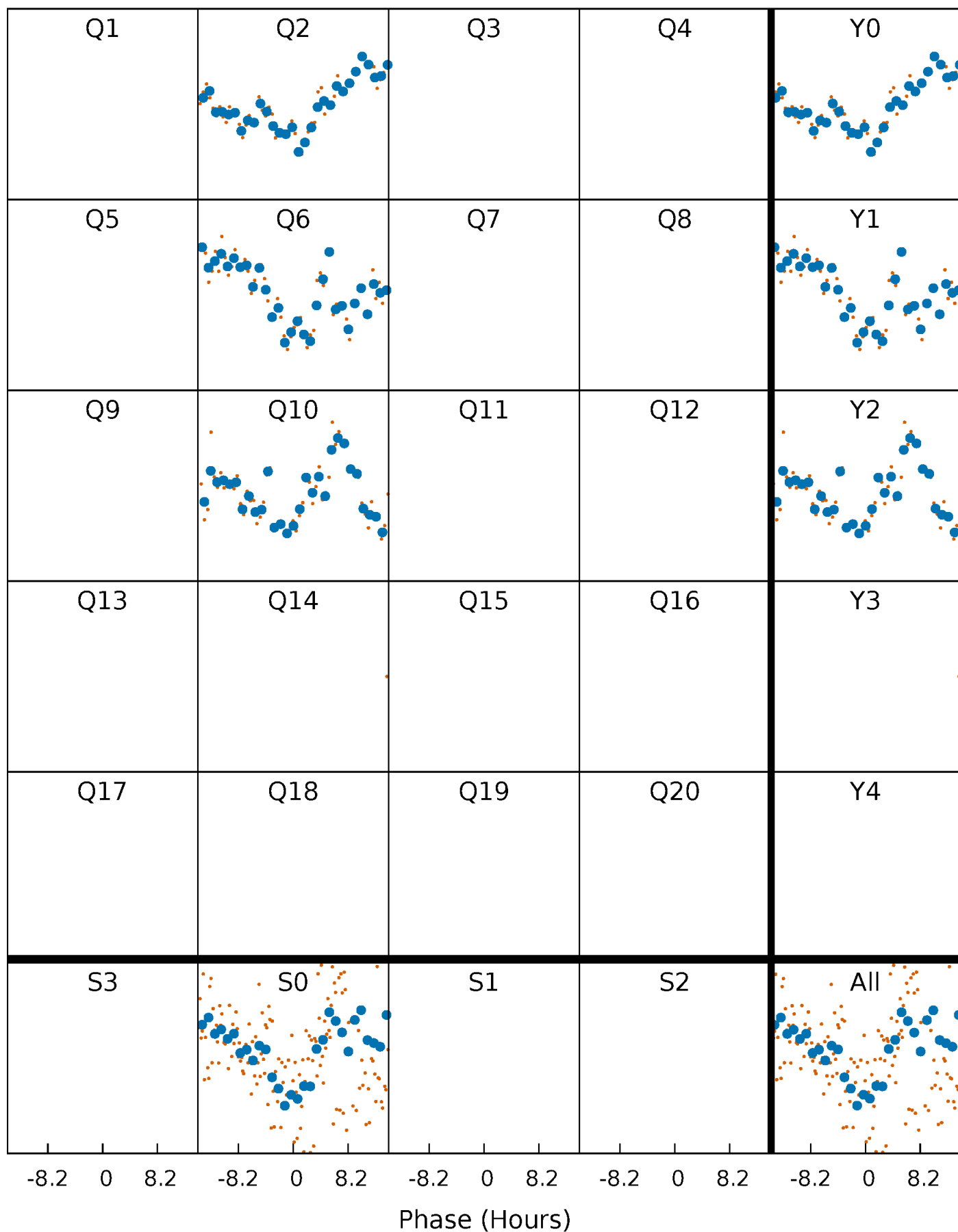


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



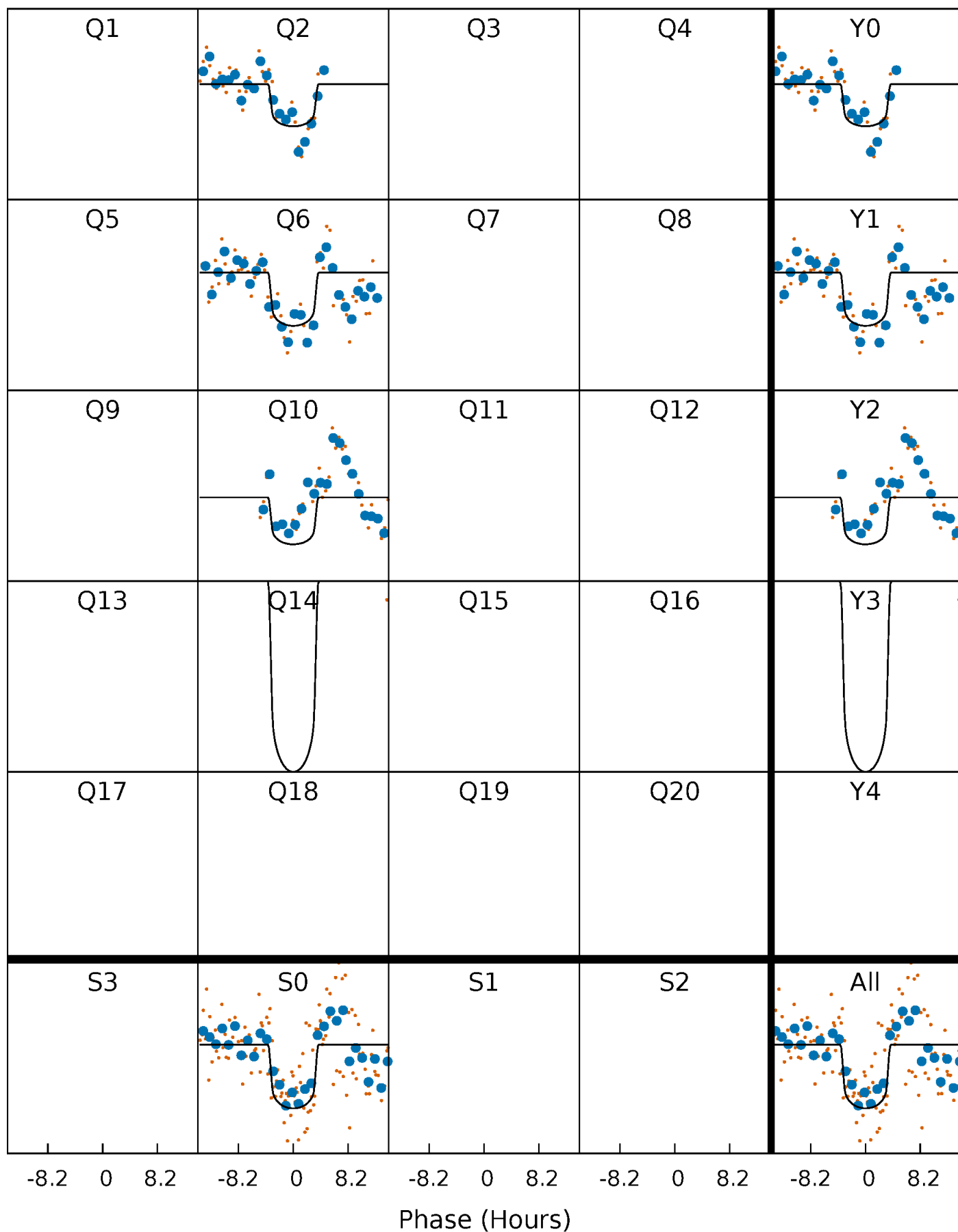
PDC Quarter-Phased Transit Curves

TCE 003945818-08 $P=373.349090$ Days $T_0=175.782464$ (BKJD)



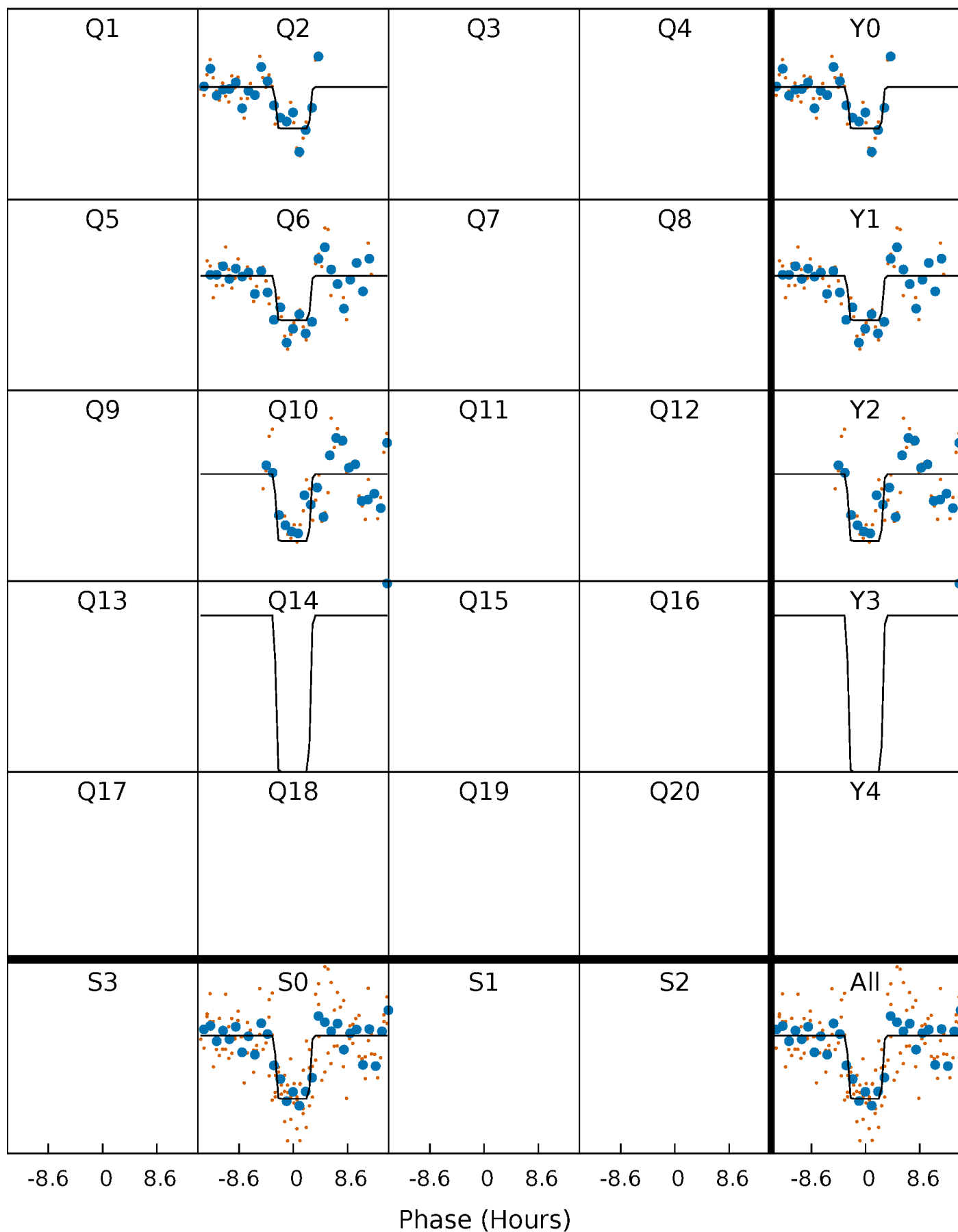
DV Quarter-Phased Transit Curves

TCE 003945818-08 $P=373.349090$ Days $T_0=175.782464$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

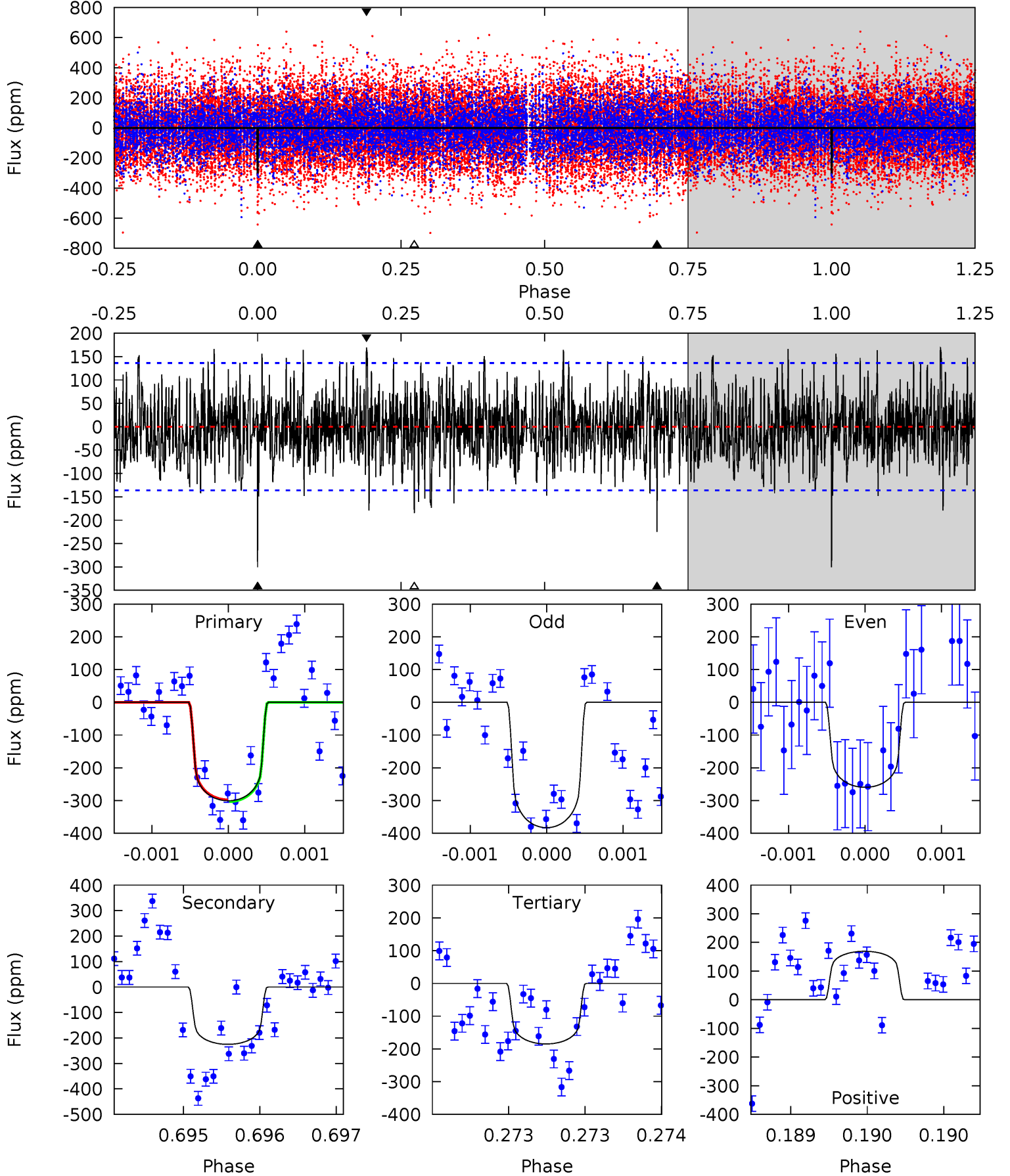
TCE 003945818-08 P=373.341575 Days $T_0=175.790604$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-08, P = 373.349090 Days, E = 175.782464 Days

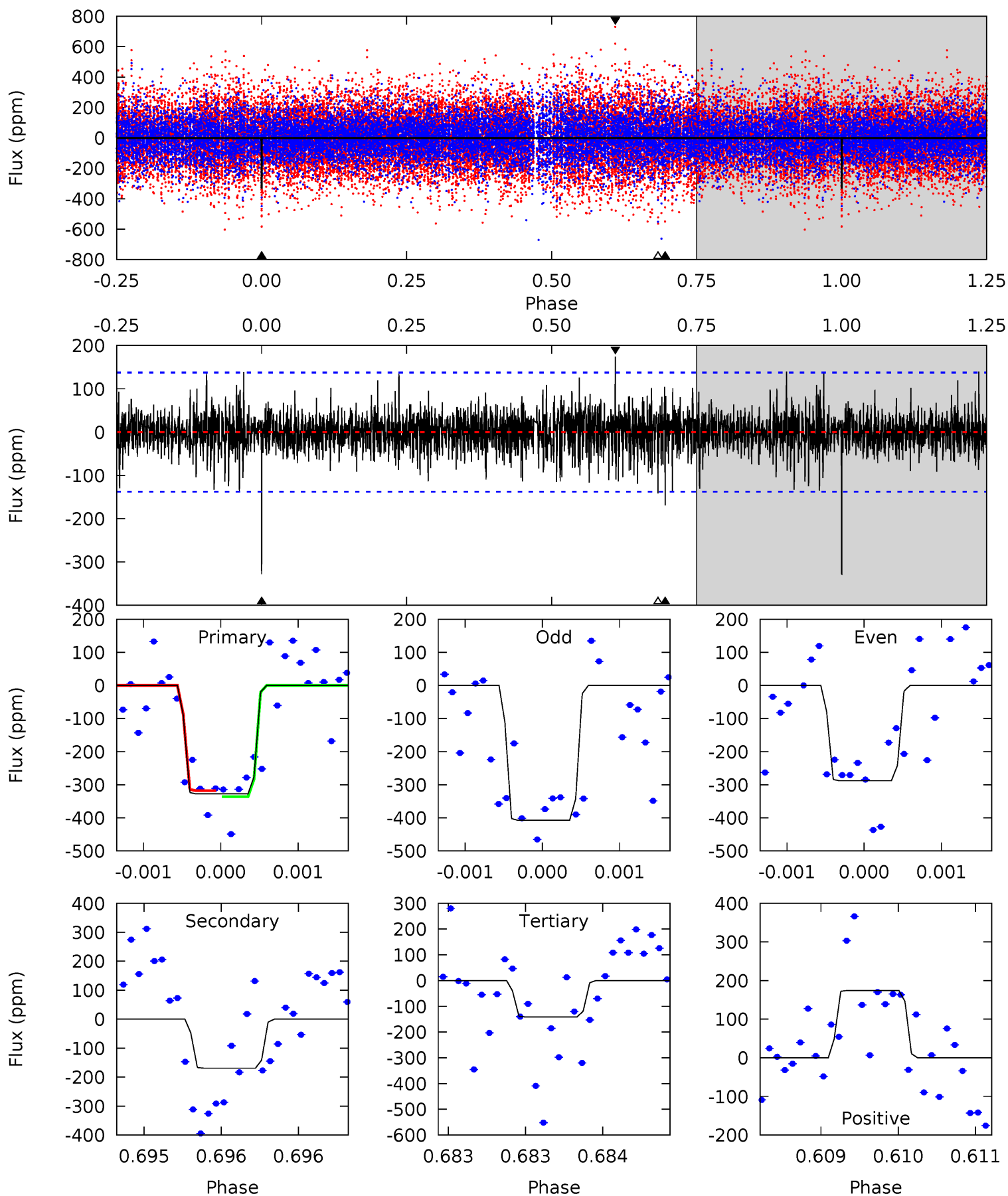
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	9.07	7.45	6.81	5.49	3.35	2.11	4.67	5.30	1.62	2.25	2.36	0.81	0.36	0.11



Alt Model-Shift Uniqueness Test

003945818-08, P = 373.341575 Days, E = 175.790604 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	6.78	5.68	7.00	5.53	3.41	1.40	7.49	6.16	1.11	-0.22	2.28	0.97	0.35	0.36



Stellar Parameters For KIC 003945818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-225 ± 25	$8.12^{+3.65}_{-3.03}$	738^{+43}_{-82}	5743^{+1358}_{-698}	2752^{+4377}_{-1360}
Alt.	-169 ± 25	$7.93^{+3.26}_{-2.74}$	737^{+45}_{-80}	5458^{+1111}_{-660}	2208^{+2747}_{-1116}

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 $A_{obs} \gg 1.0$

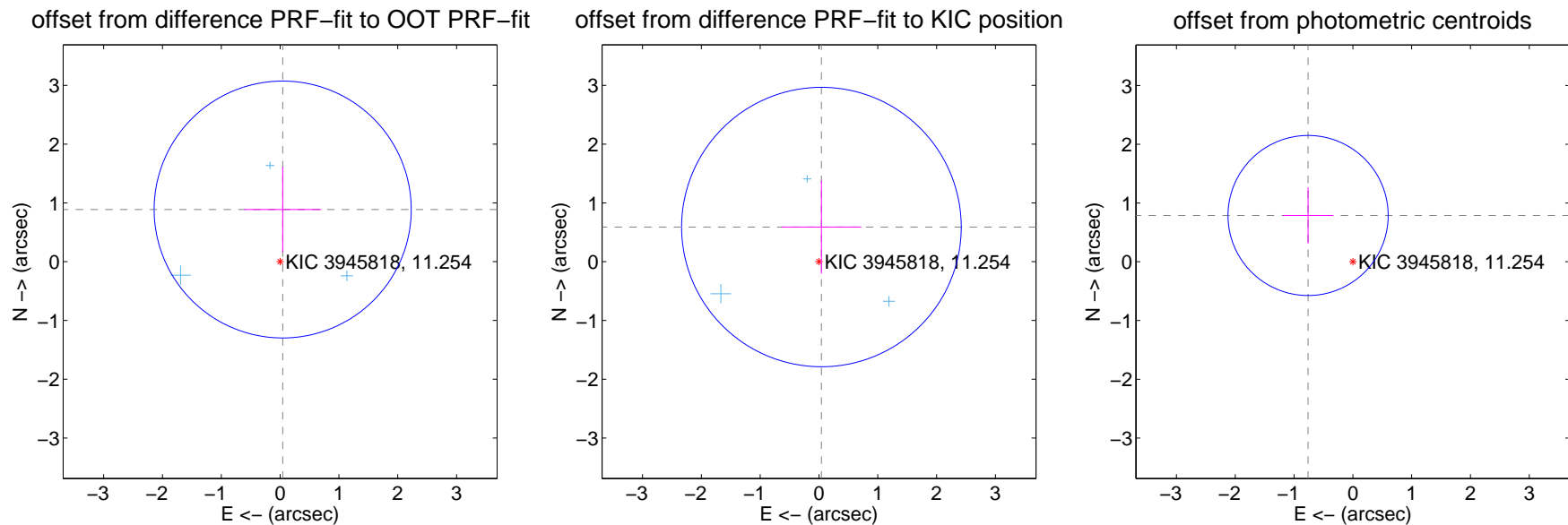
DV Centroid Data

Supplemental centroid analysis for 003945818-08. **Kepler magnitude: 11.25.** Transit SNR 9.44

There are 3 quarters with good PRF difference image offsets

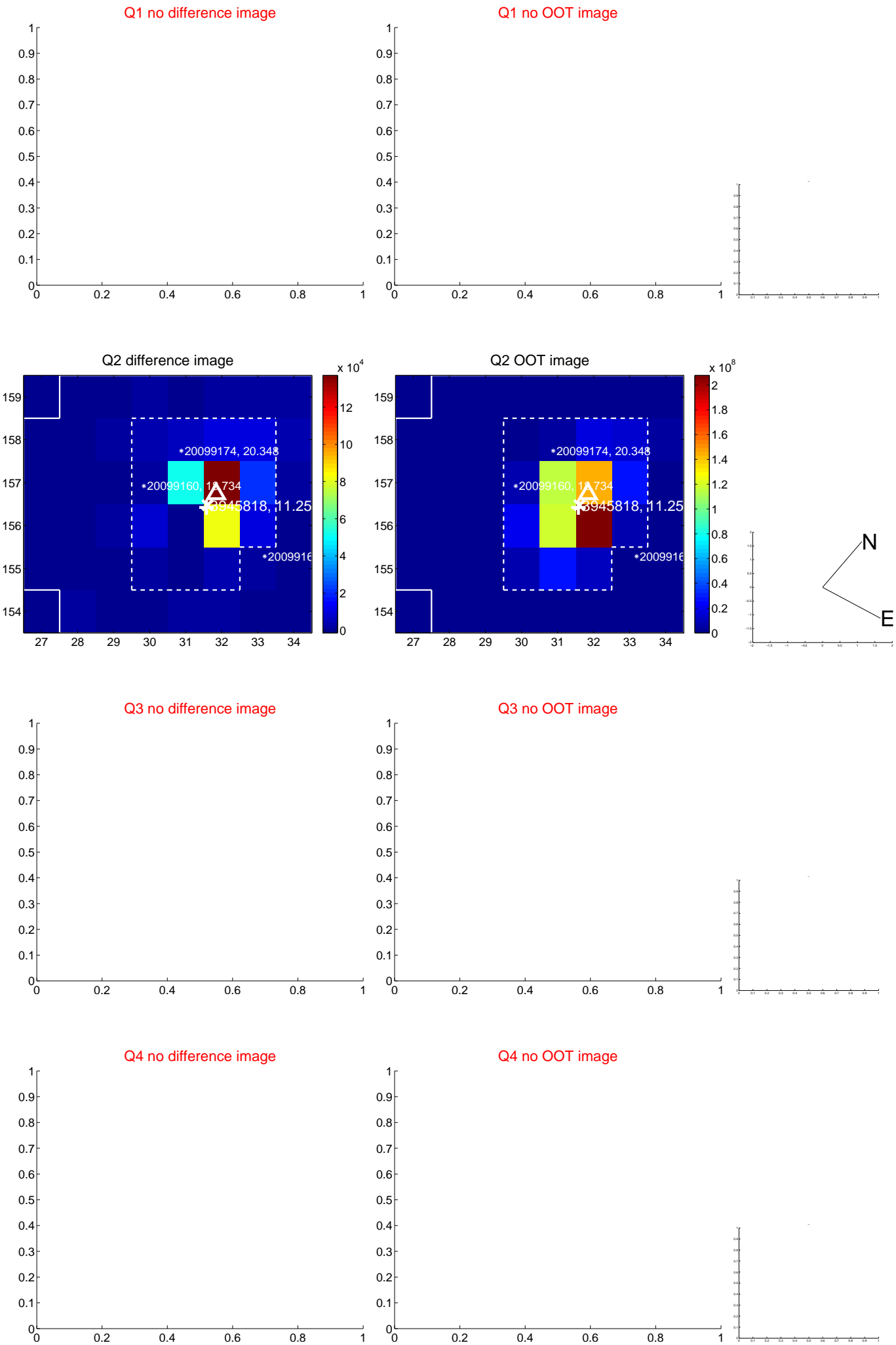
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.889 ± 0.728	1.22	-0.044 ± 0.654	0.887 ± 0.728
PRF-fit source offset from KIC position	0.591 ± 0.792	0.75	-0.041 ± 0.678	0.589 ± 0.793
photometric centroid source offset	1.10 ± 0.45	2.41	0.76 ± 0.43	0.79 ± 0.48

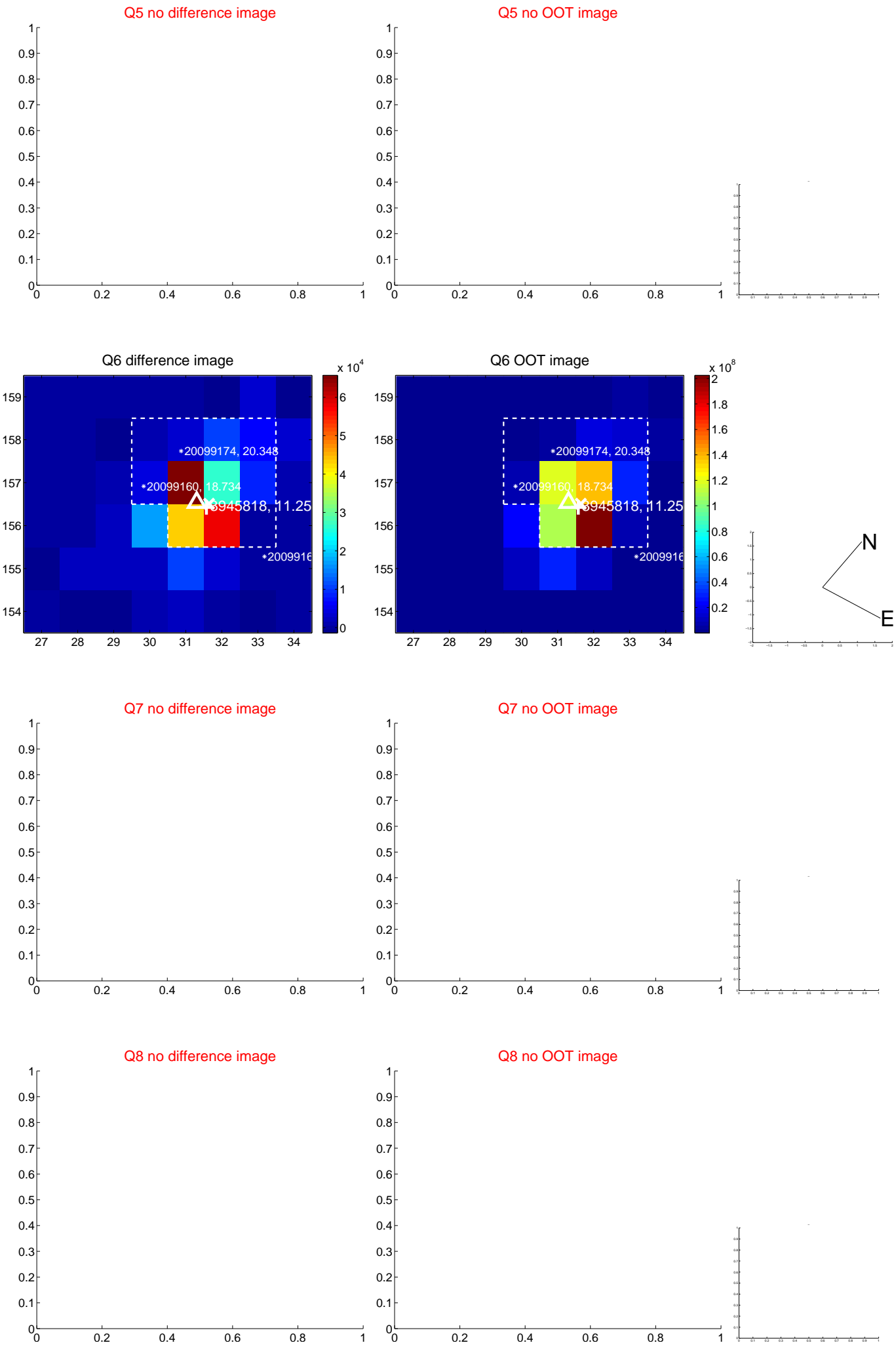


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

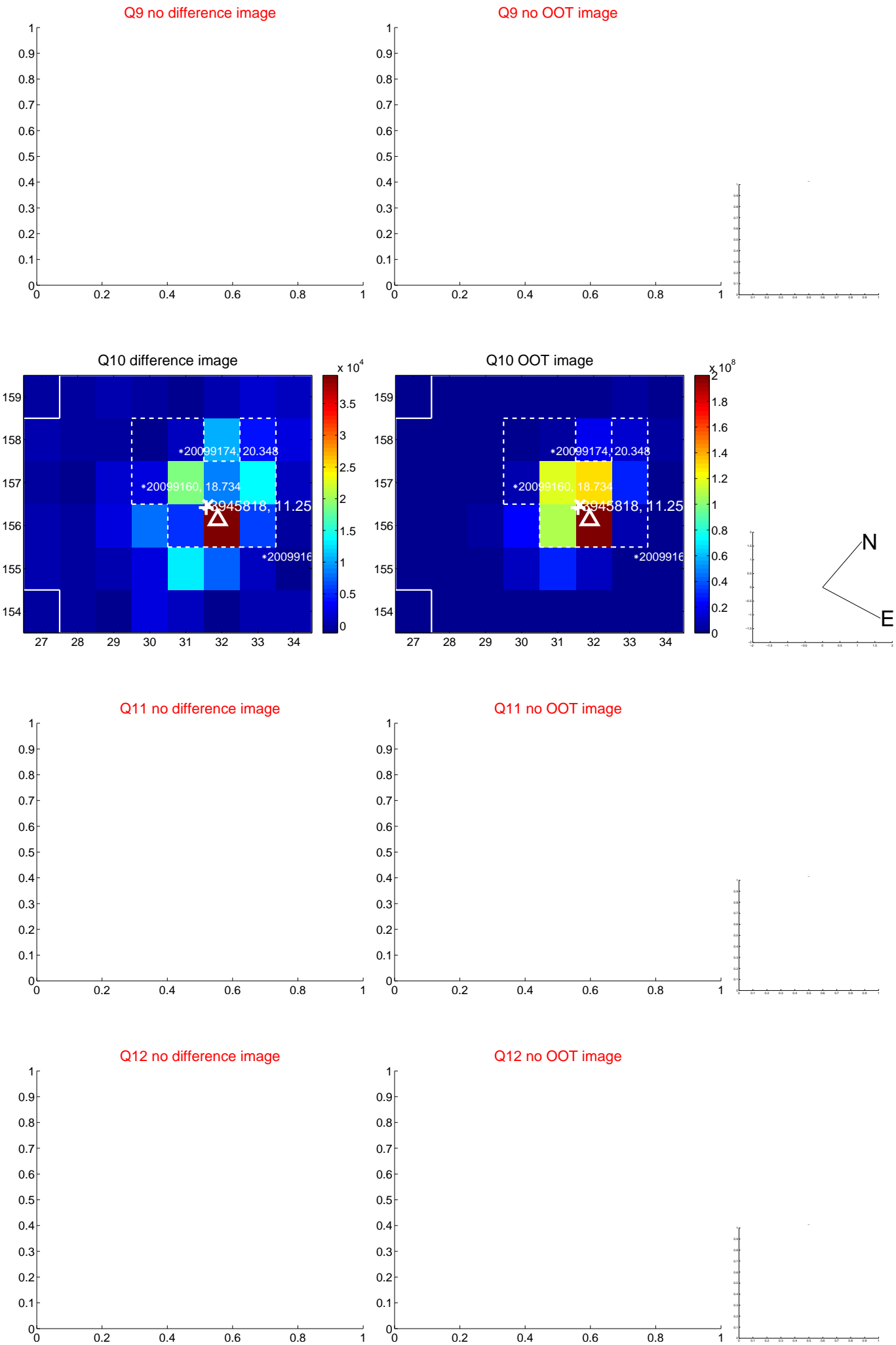
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



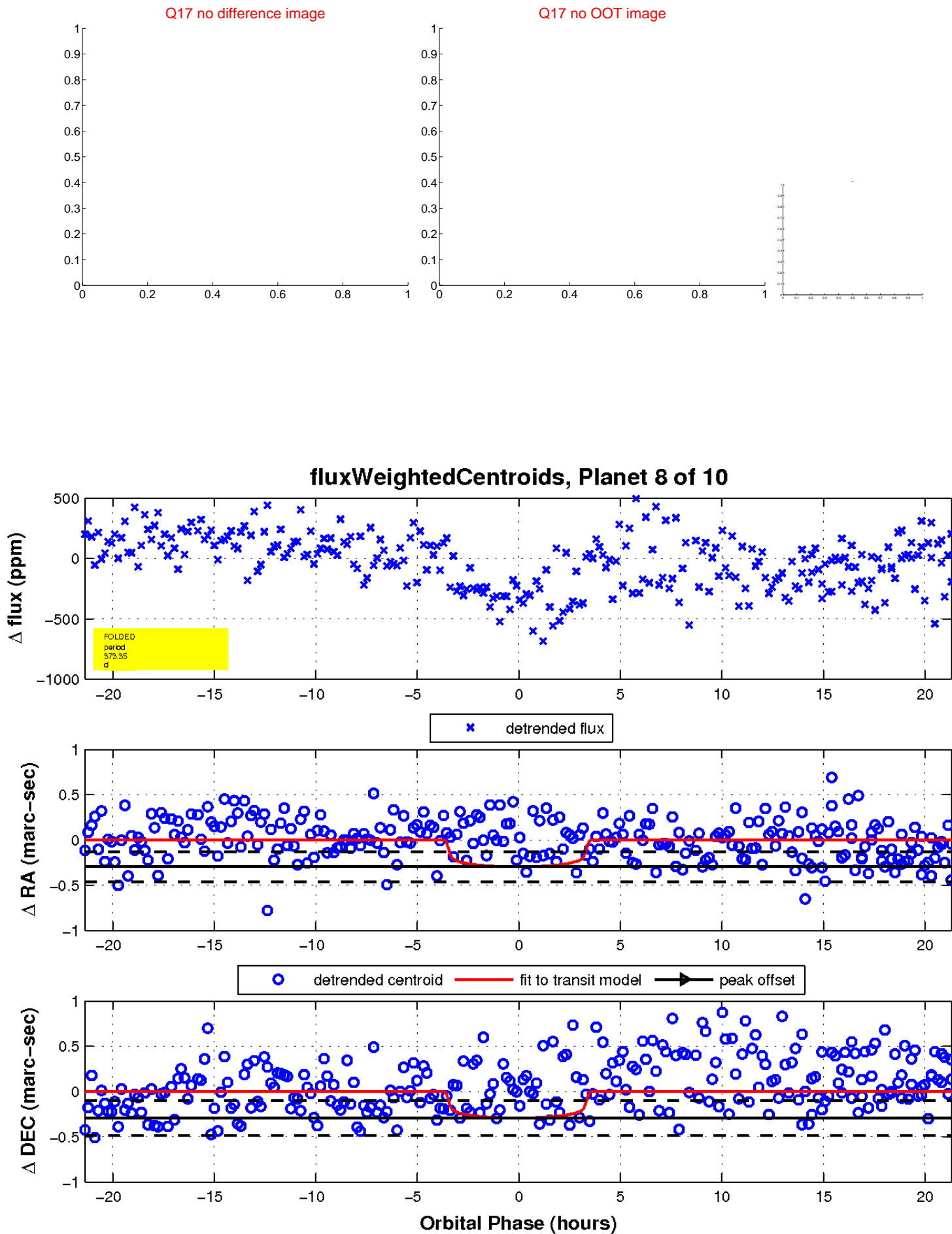
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



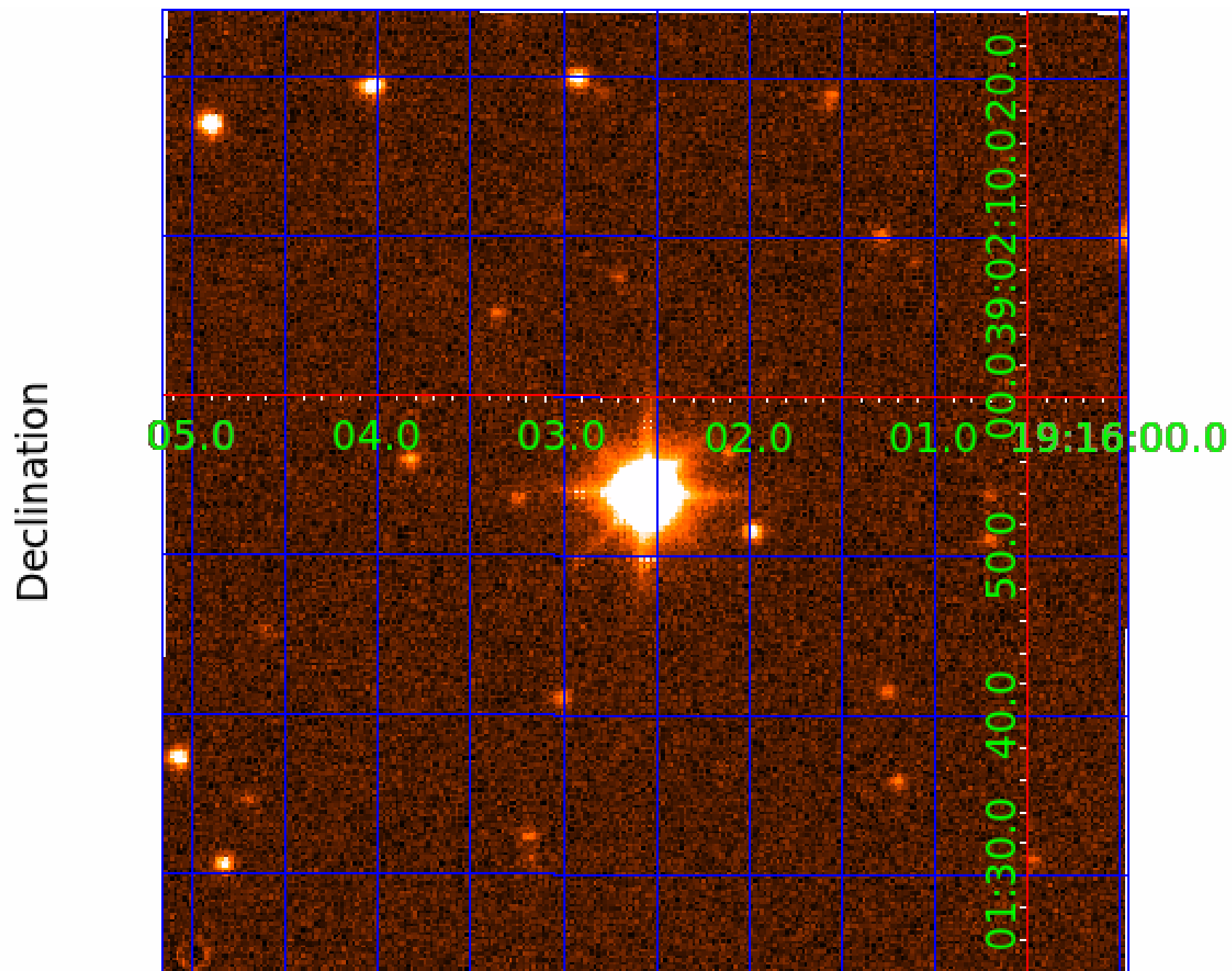
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

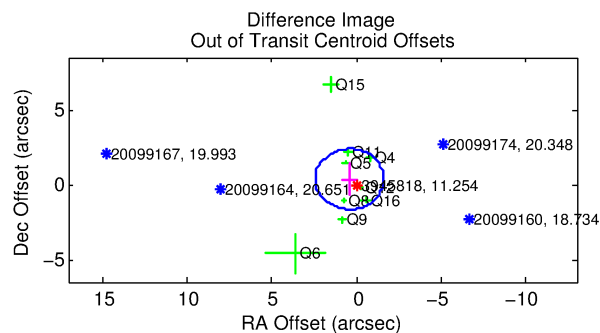
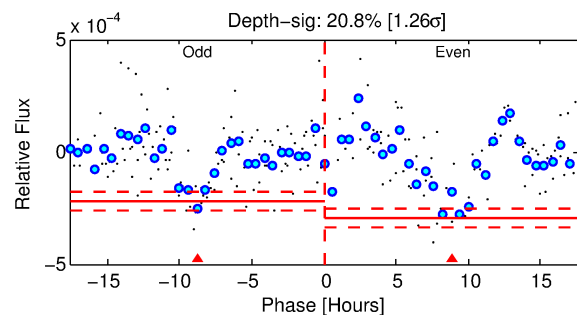
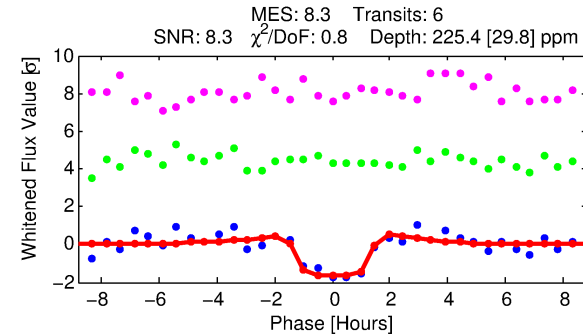
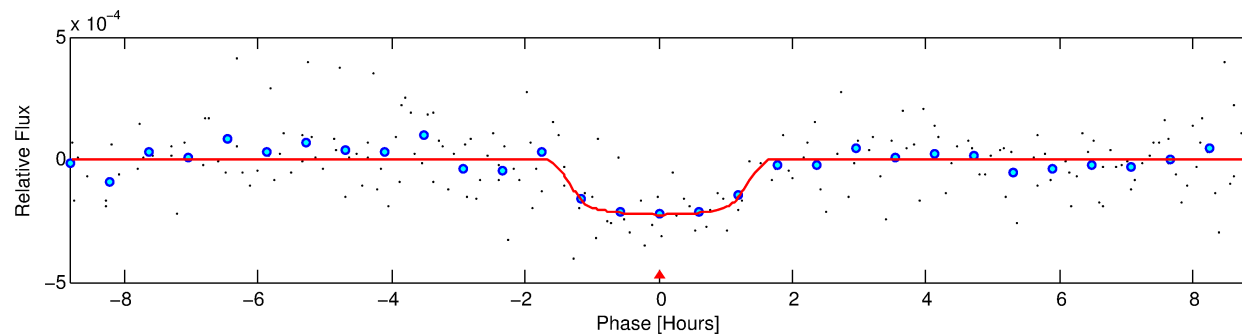
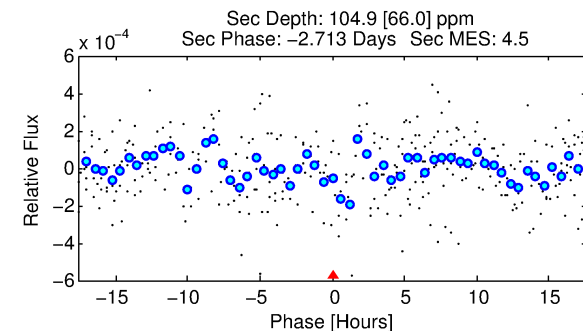
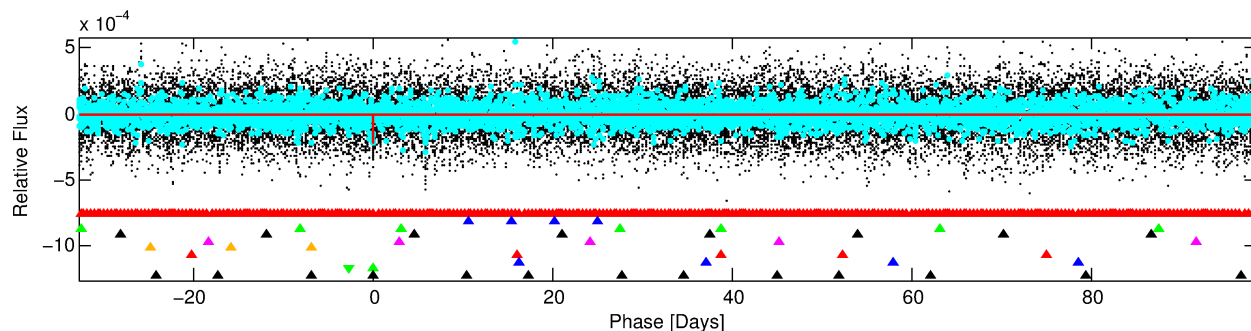
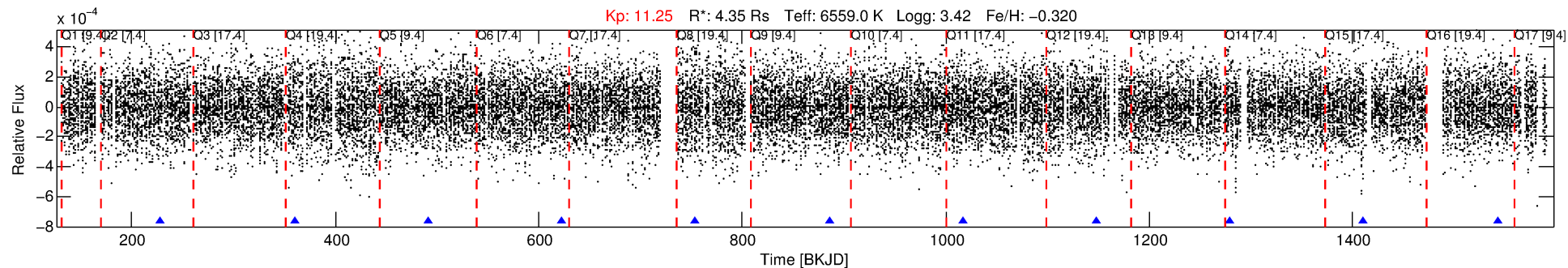
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-09

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 9 of 10 Period: 131.369 d



DV Fit Results:

Period = 131.36876 [0.00092] d
Epoch = 228.5174 [0.0059] BKJD
Rp/R* = 0.0159 [0.0107]
a/R* = 167.60 [653.00]
b = 0.89 [0.92]
Seff = 82.42 [57.38]
Teff = 768 [134] K
Rp = 7.56 [6.16] Re
a = 0.6173 [0.2690] AU
Ag = 384.36 [626.72] [0.61σ]
Teffp = 5260 [1949] K [2.30σ]

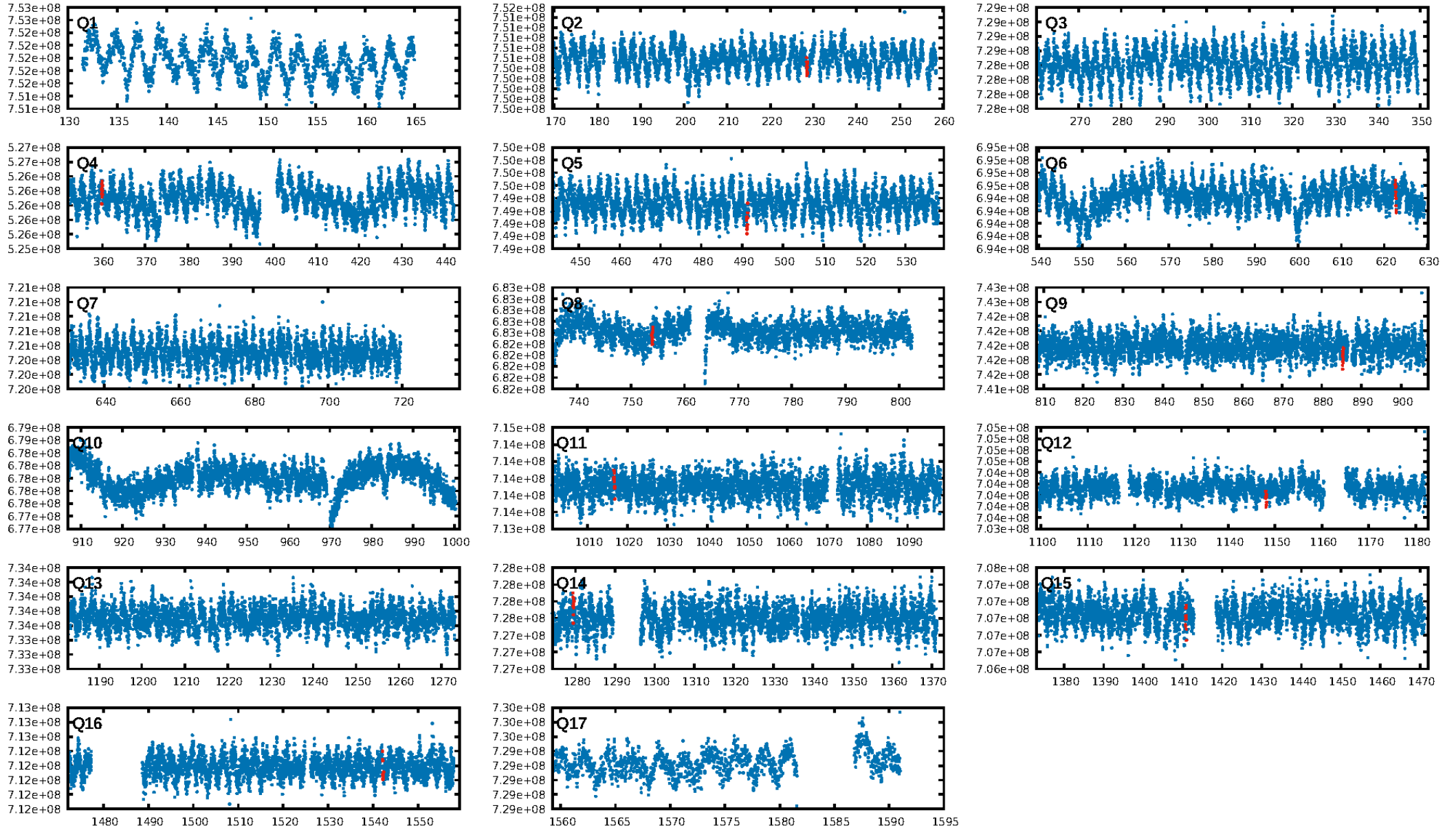
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [115.23σ]
LongPeriod-sig: 100.0% [261.63σ]
ModelChiSquare2-sig: 21.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 1.127
Centroid-sig: 88.2%
Centroid-so: 0.110 arcsec [0.22σ]
OotOffset-rm: 0.556 arcsec [0.83σ]
OotOffset-st: 1/2/4/2 [9]
KicOffset-rm: 0.491 arcsec [0.77σ]
KicOffset-st: 1/2/4/2 [9]
DiffImageQuality-fgm: 0.56 [5/9]
DiffImageOverlap-fno: 0.60 [6/10]

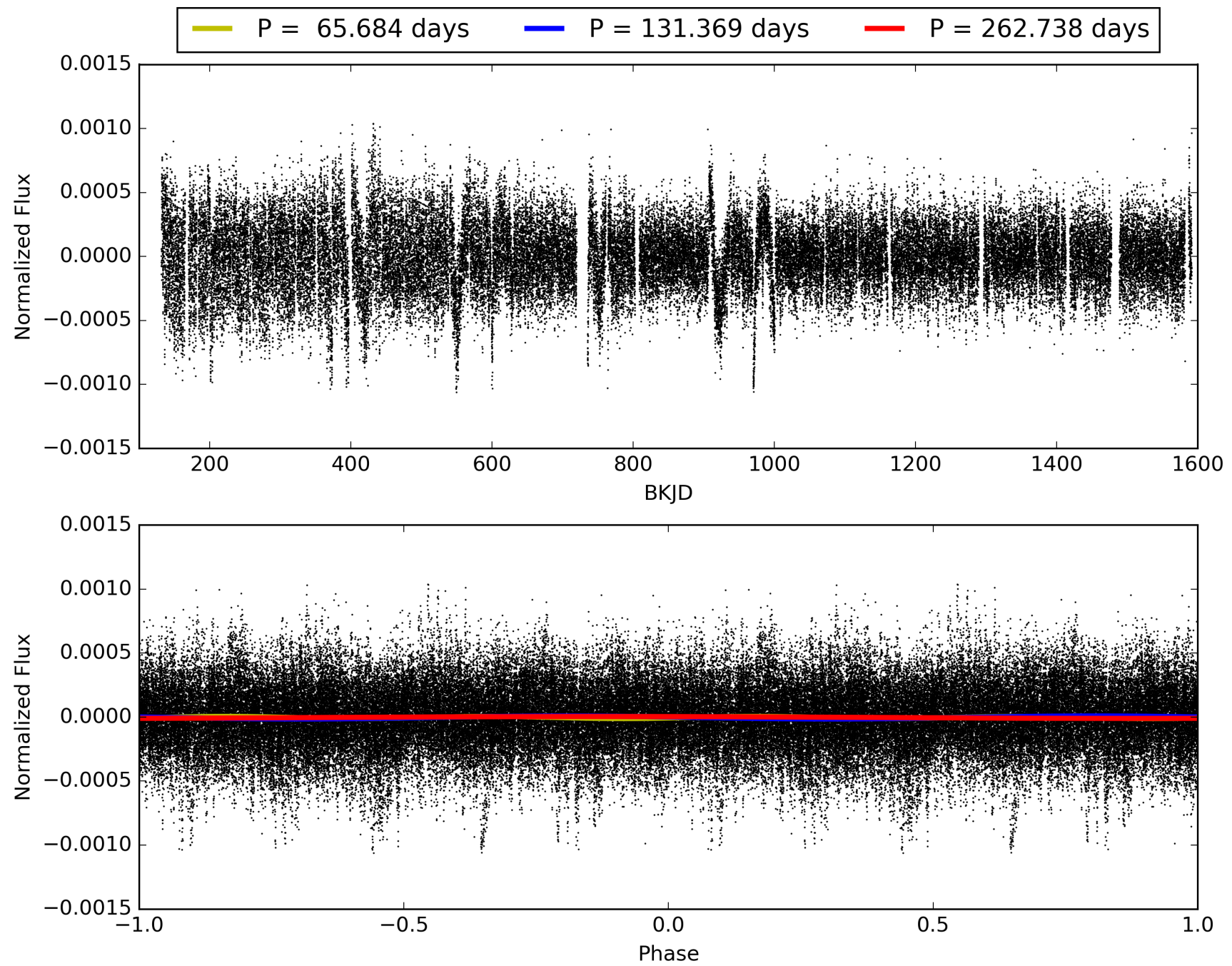
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:02:55 Z

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

TCE 003945818-09, PDC Light Curves

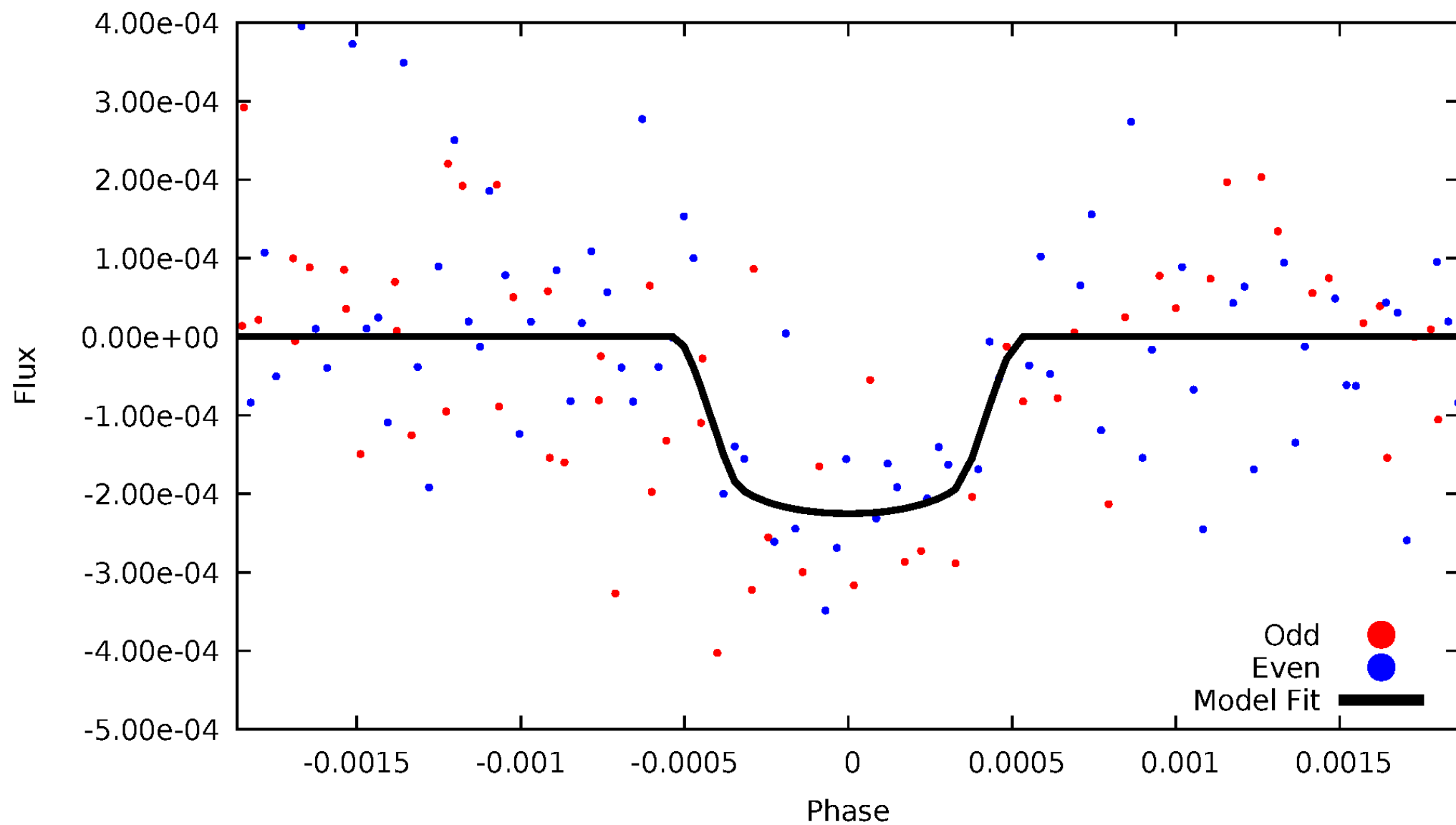


TCE 003945818-09



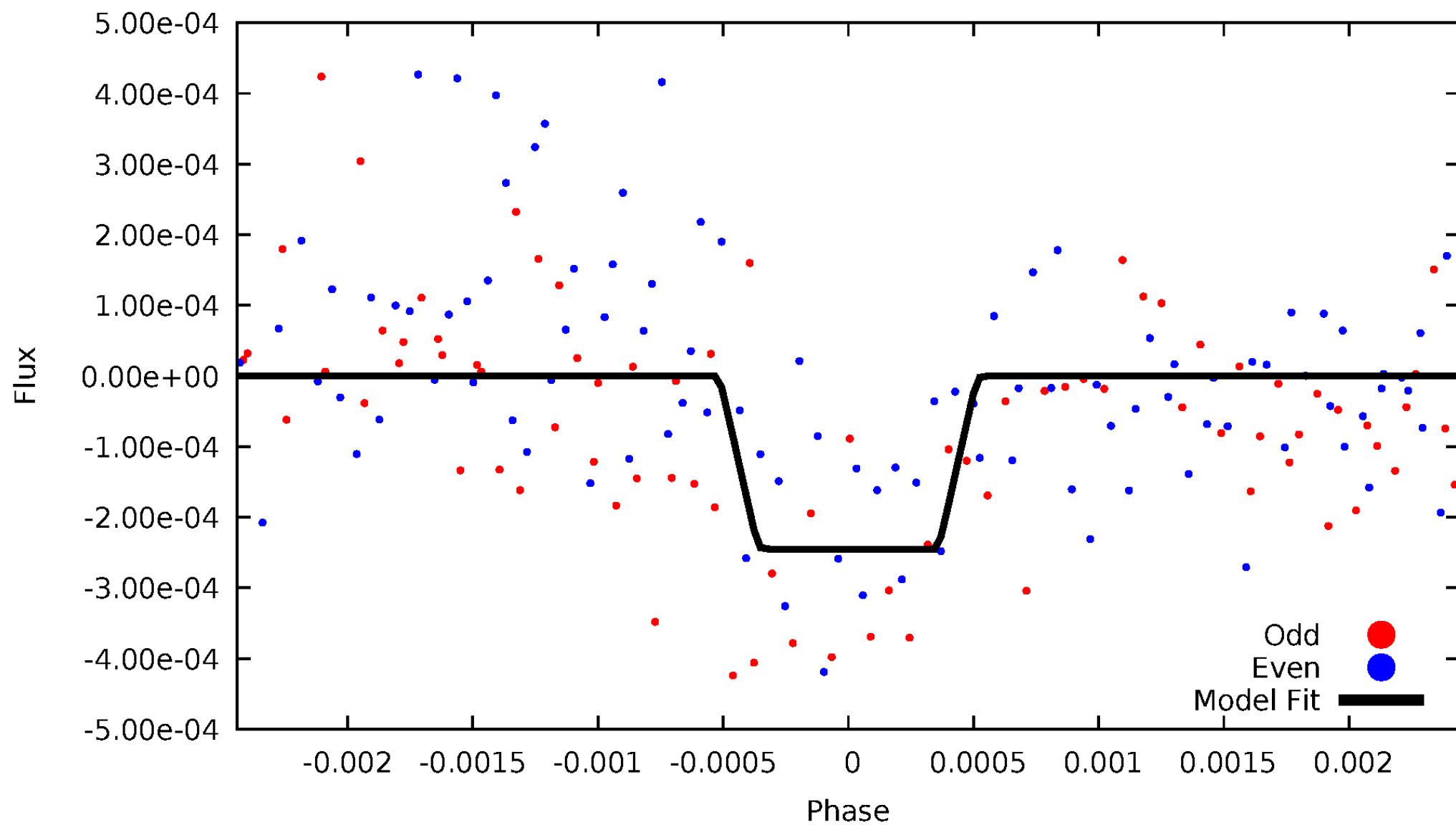
DV Odd/Even

TCE 003945818-09



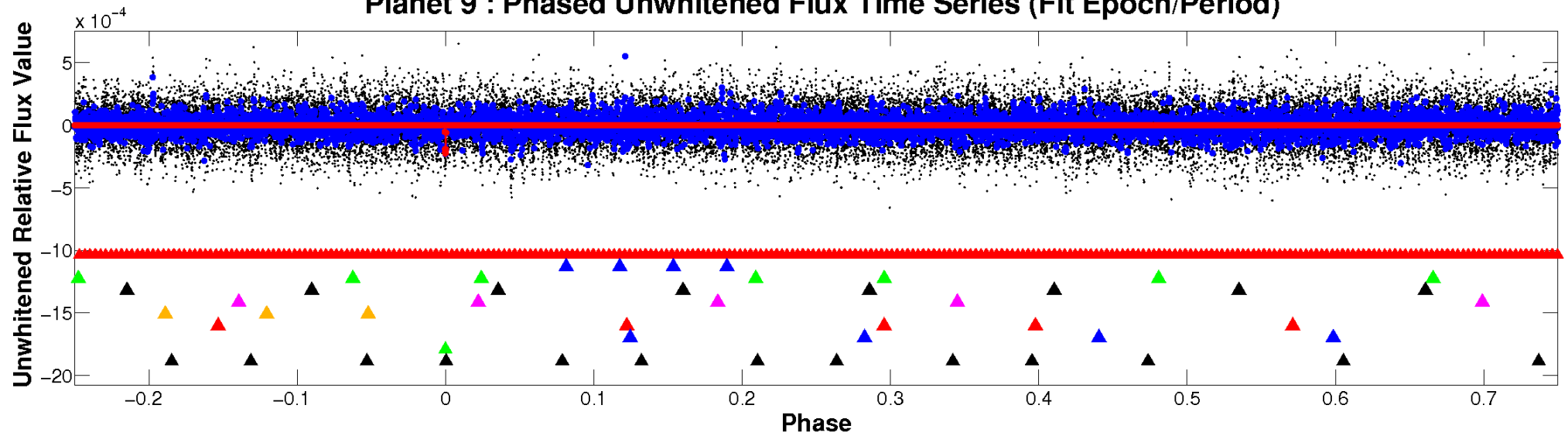
ALT Odd/Even

TCE 003945818-09

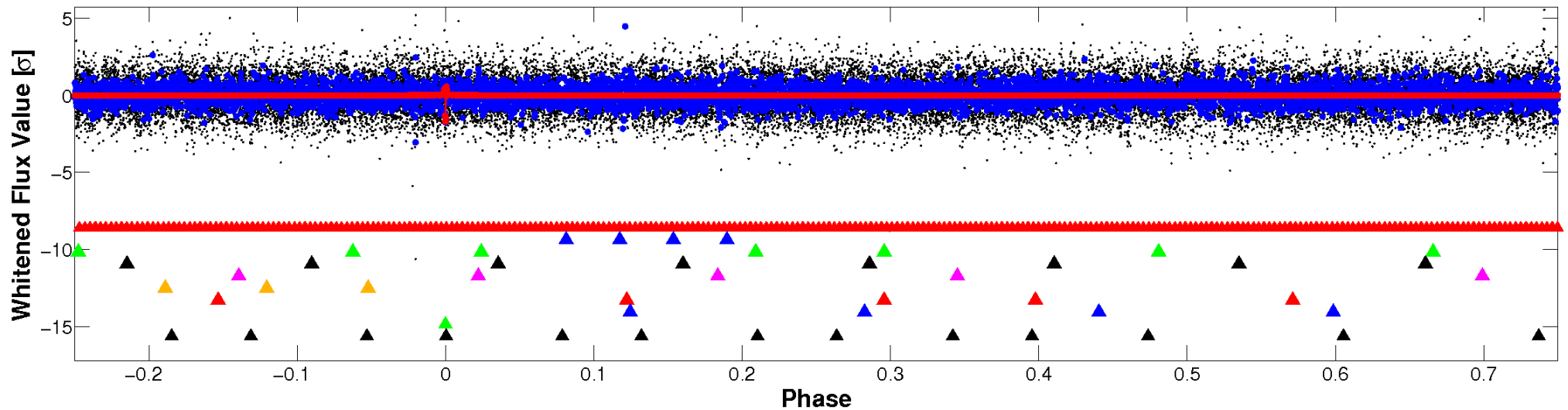


Non-Whitened Vs. Whitened Light Curve

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

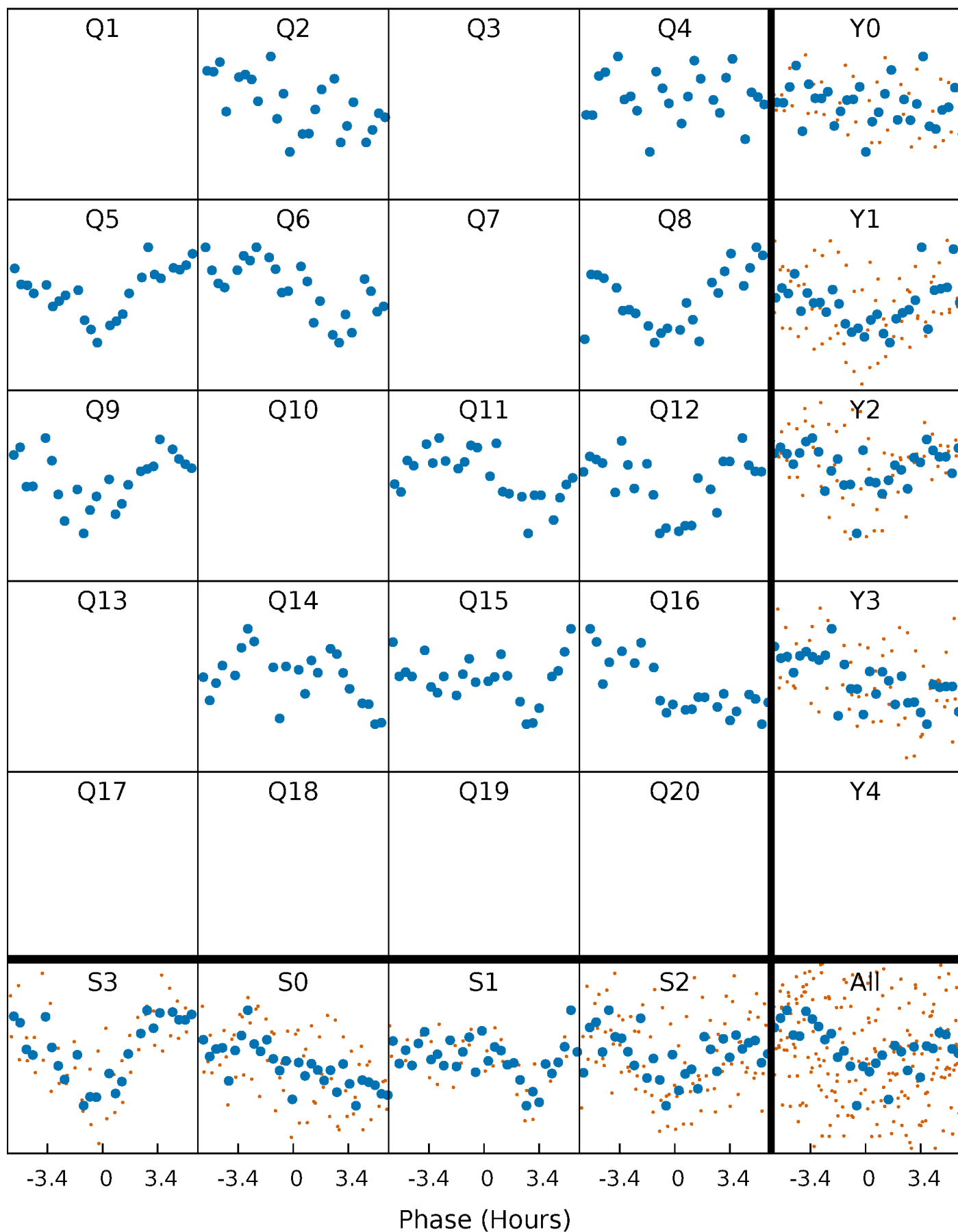


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



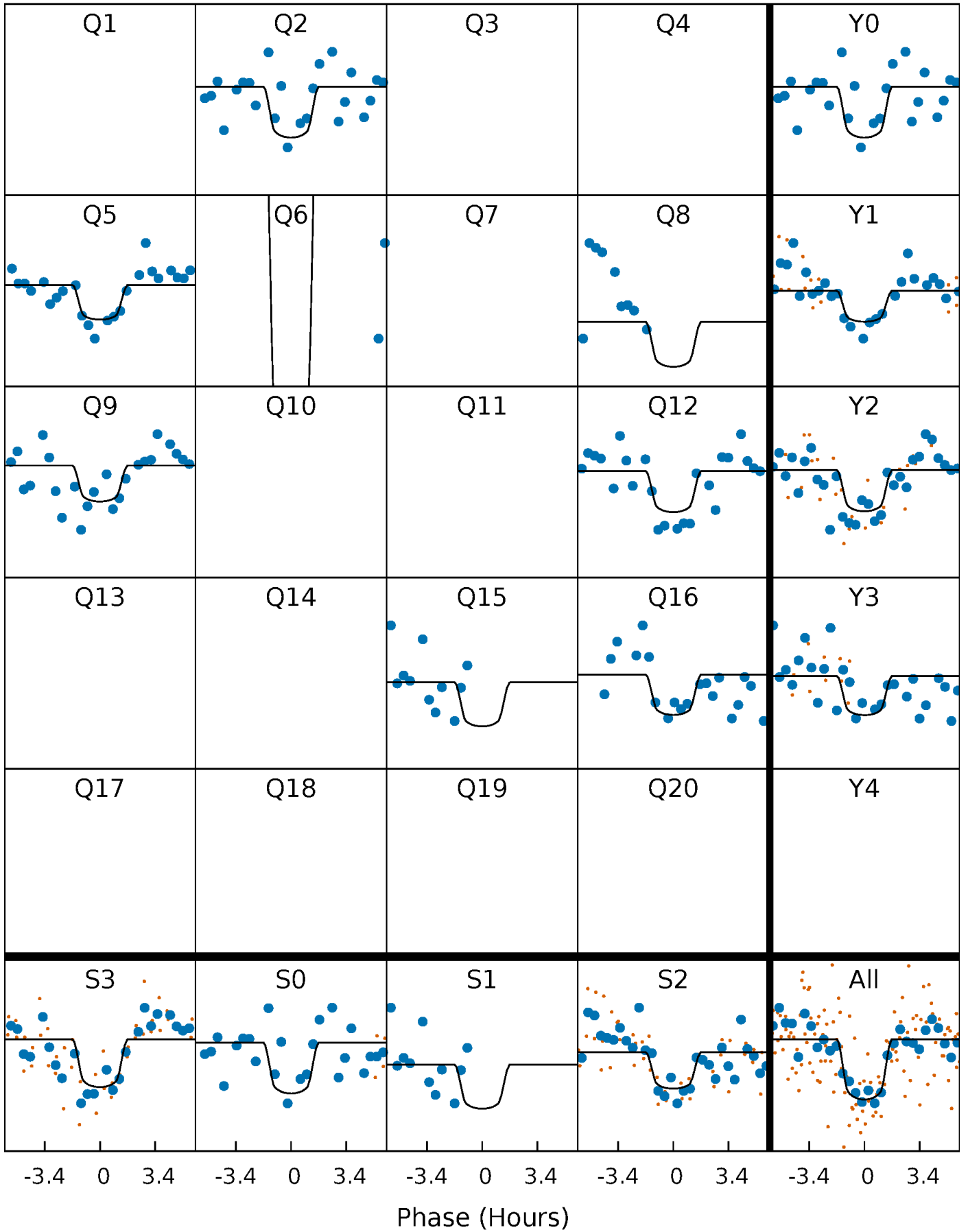
PDC Quarter-Phased Transit Curves

TCE 003945818-09 P=131.368762 Days $T_0=228.517449$ (BKJD)



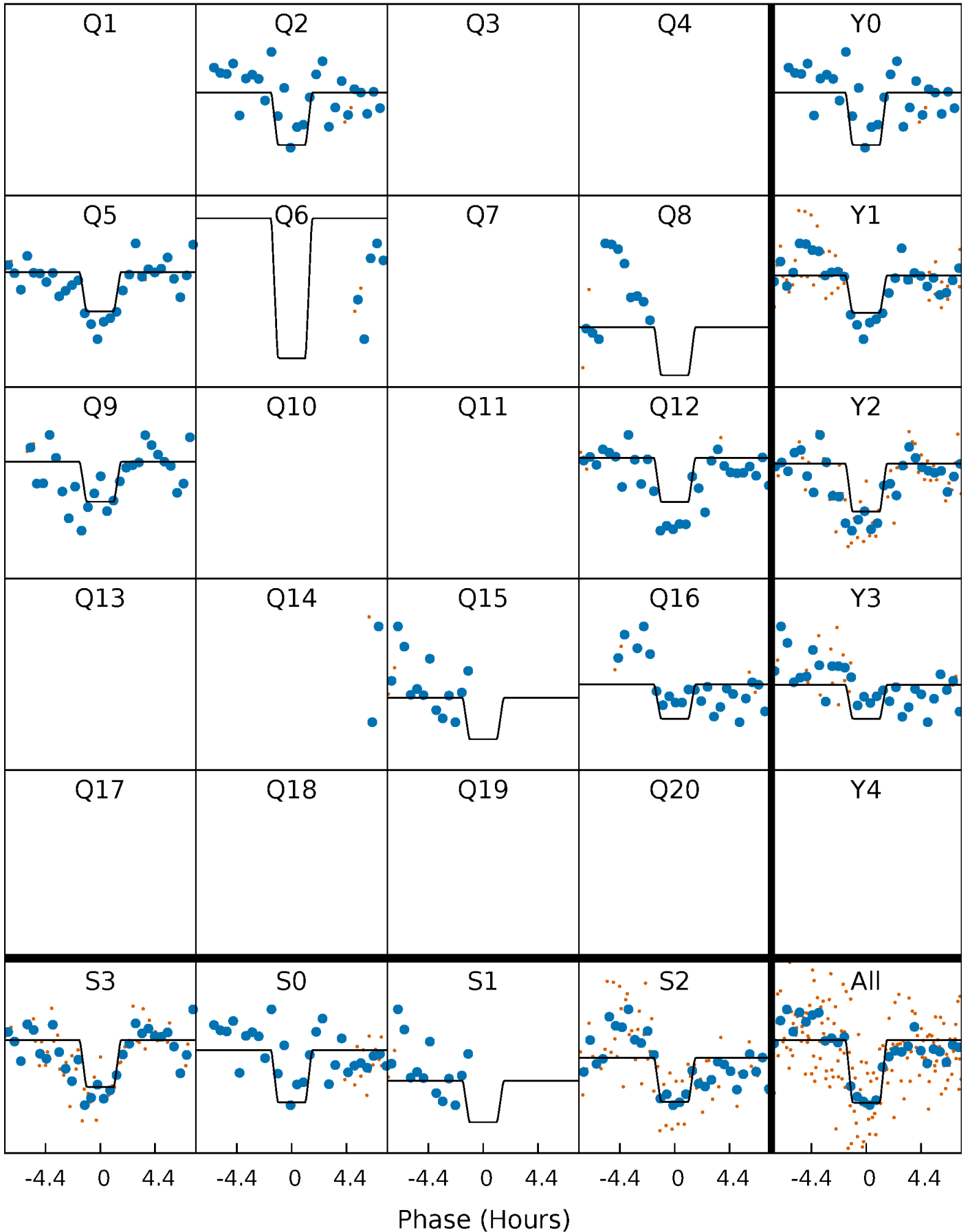
DV Quarter-Phased Transit Curves

TCE 003945818-09 P=131.368762 Days $T_0=228.517449$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

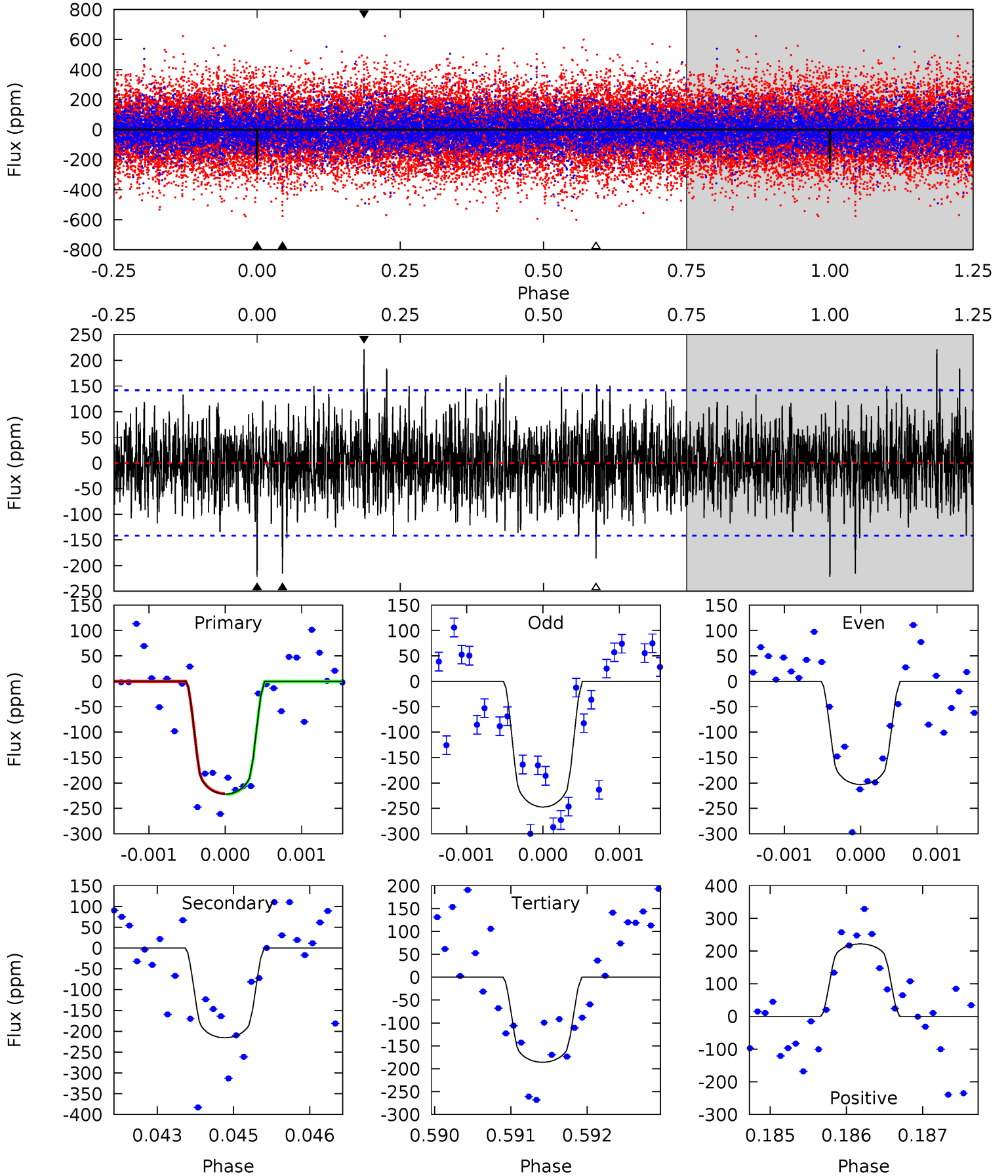
TCE 003945818-09 P=131.370227 Days $T_0=228.518081$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-09, P = 131.368762 Days, E = 97.148687 Days

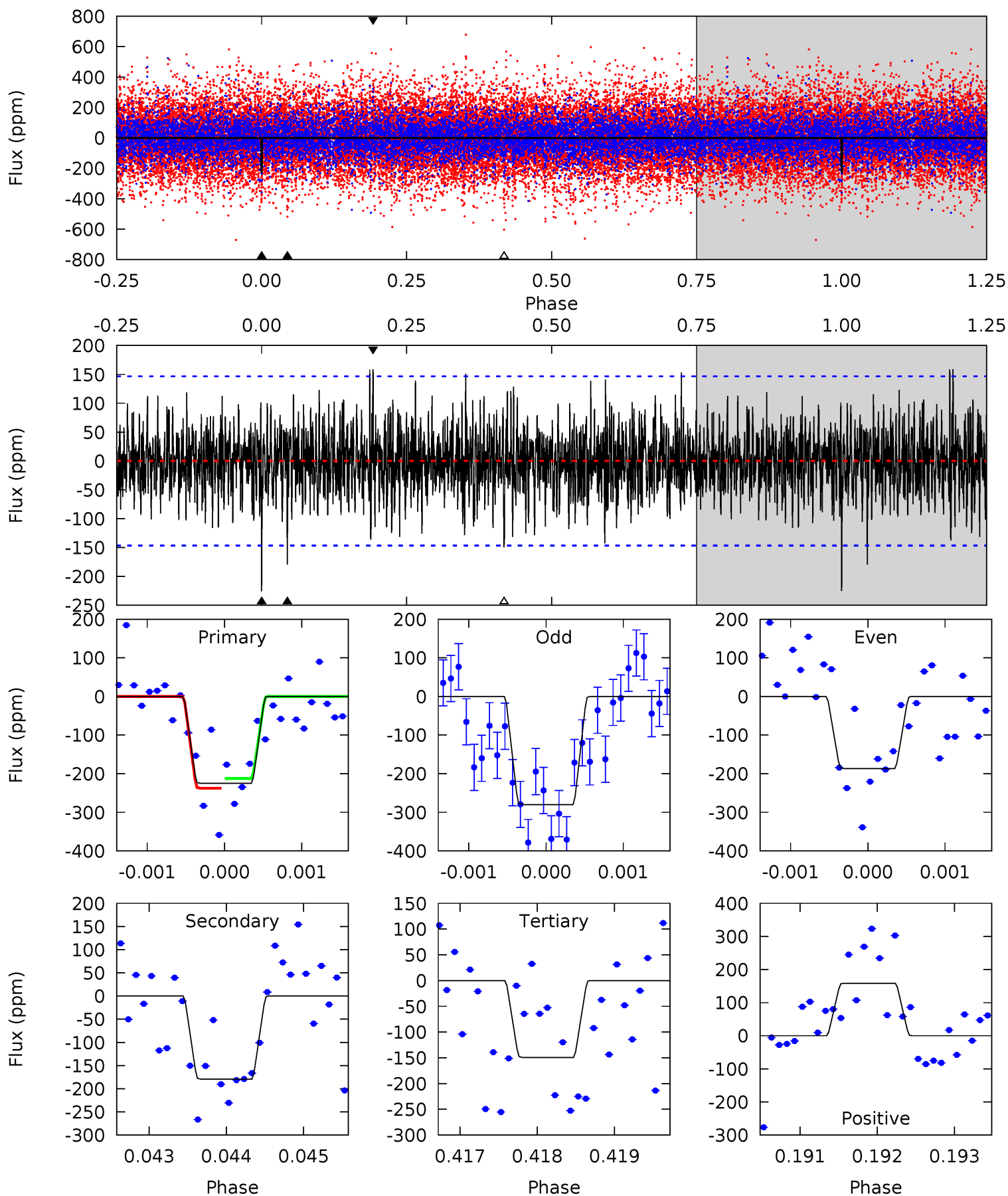
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.52	8.28	7.14	8.52	5.45	3.28	1.92	1.38	0.00	1.14	-0.23	0.84	0.85	0.50	0.03



Alt Model-Shift Uniqueness Test

003945818-09, P = 131.370227 Days, E = 97.147854 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.37	6.68	5.56	5.90	5.45	3.29	1.65	2.81	2.47	1.12	0.77	1.72	0.95	0.41	0.48



Stellar Parameters For KIC 003945818

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-216 ± 26	$6.98^{+5.24}_{-3.73}$	1042^{+63}_{-123}	5987^{+3639}_{-1133}	873^{+3208}_{-571}
Alt.	-179 ± 27	$7.05^{+4.66}_{-3.96}$	1044^{+63}_{-120}	5829^{+3374}_{-1098}	715^{+2962}_{-448}

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

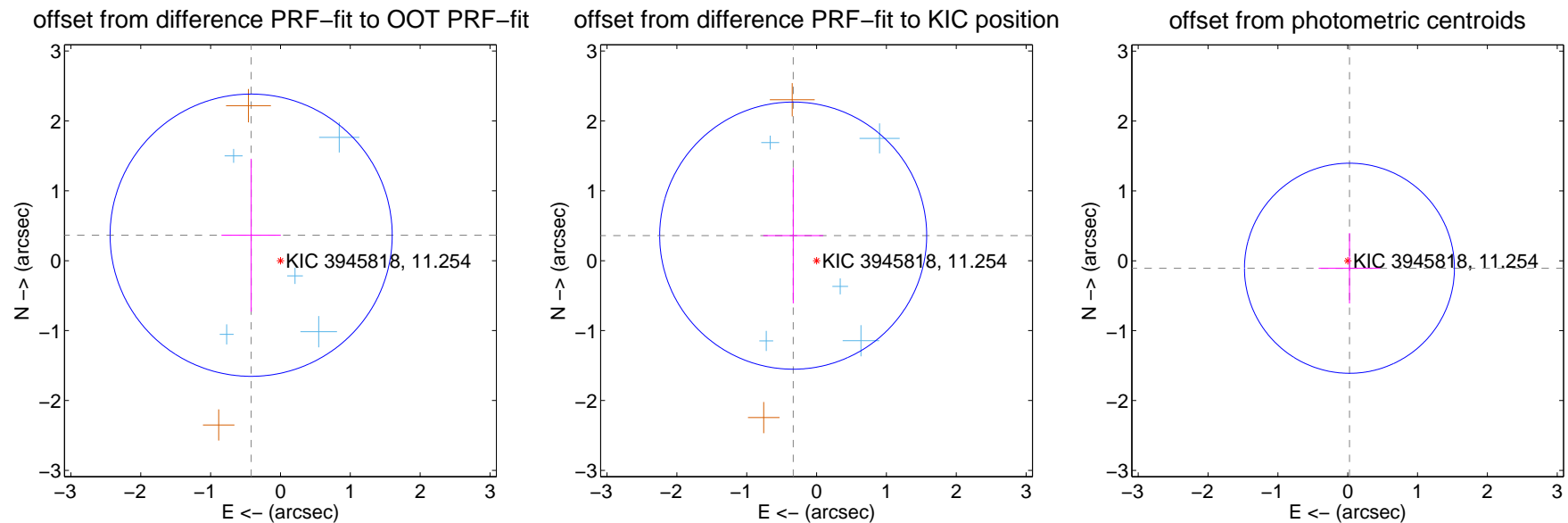
DV Centroid Data

Supplemental centroid analysis for 003945818-09. **Kepler magnitude: 11.25.** Transit SNR 8.27

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.556 ± 0.673	0.83	0.420 ± 0.425	0.365 ± 1.094
PRF-fit source offset from KIC position	0.491 ± 0.637	0.77	0.335 ± 0.429	0.359 ± 0.969
photometric centroid source offset	0.11 ± 0.50	0.22	-0.02 ± 0.44	-0.11 ± 0.50



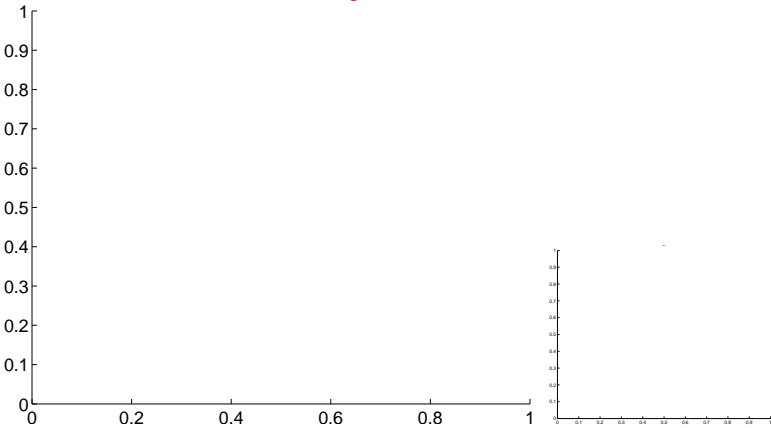
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

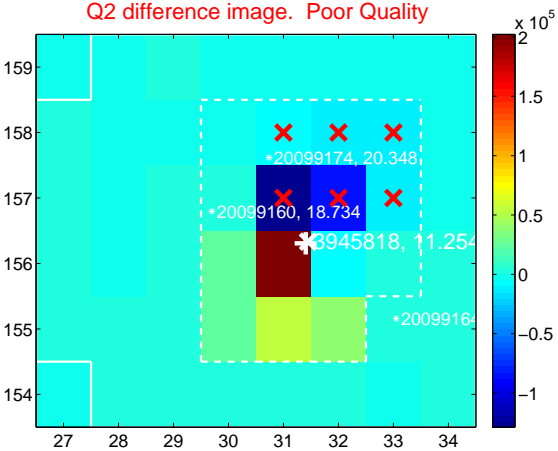
Q1 no difference image



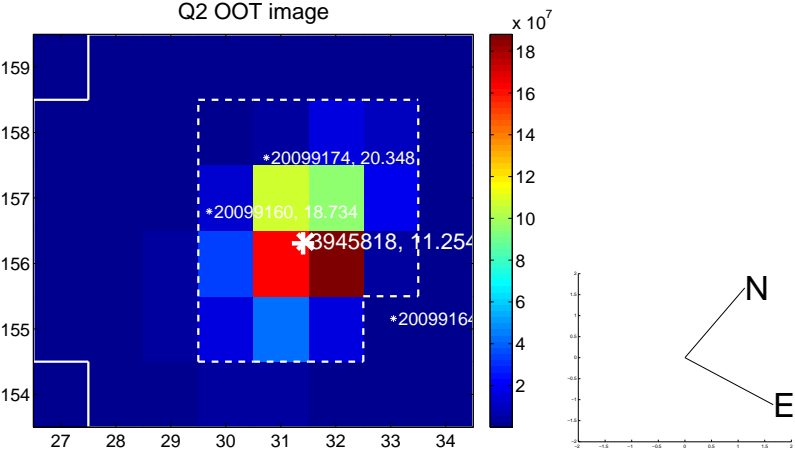
Q1 no OOT image



Q2 difference image. Poor Quality



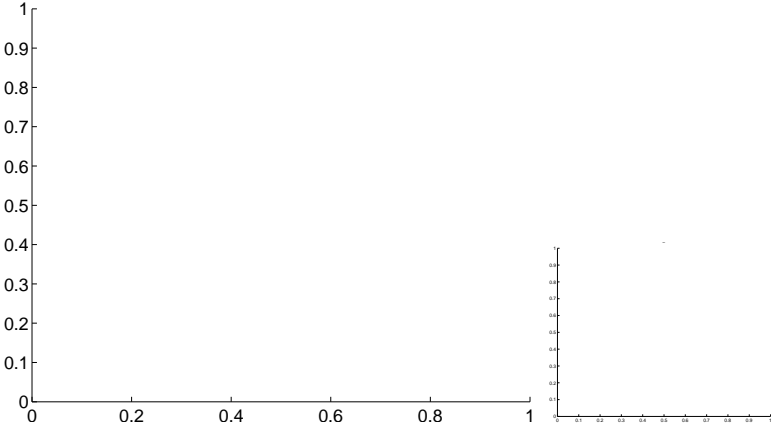
Q2 OOT image



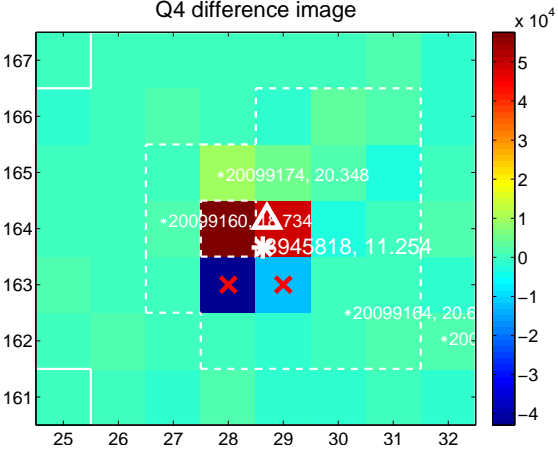
Q3 no difference image



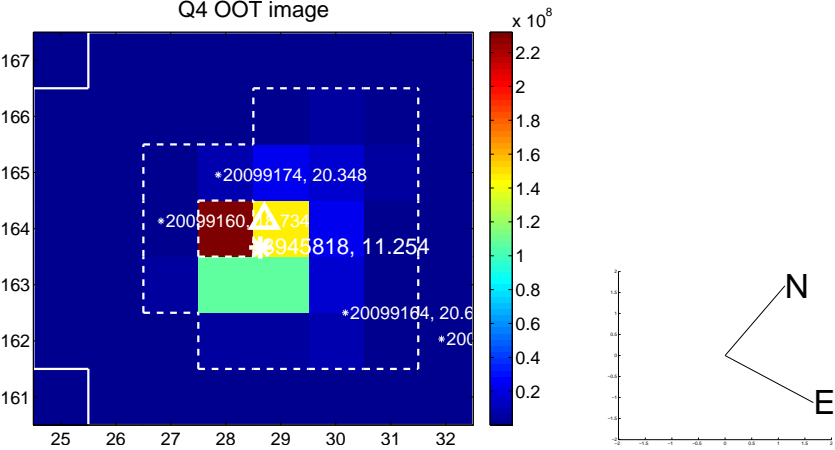
Q3 no OOT image



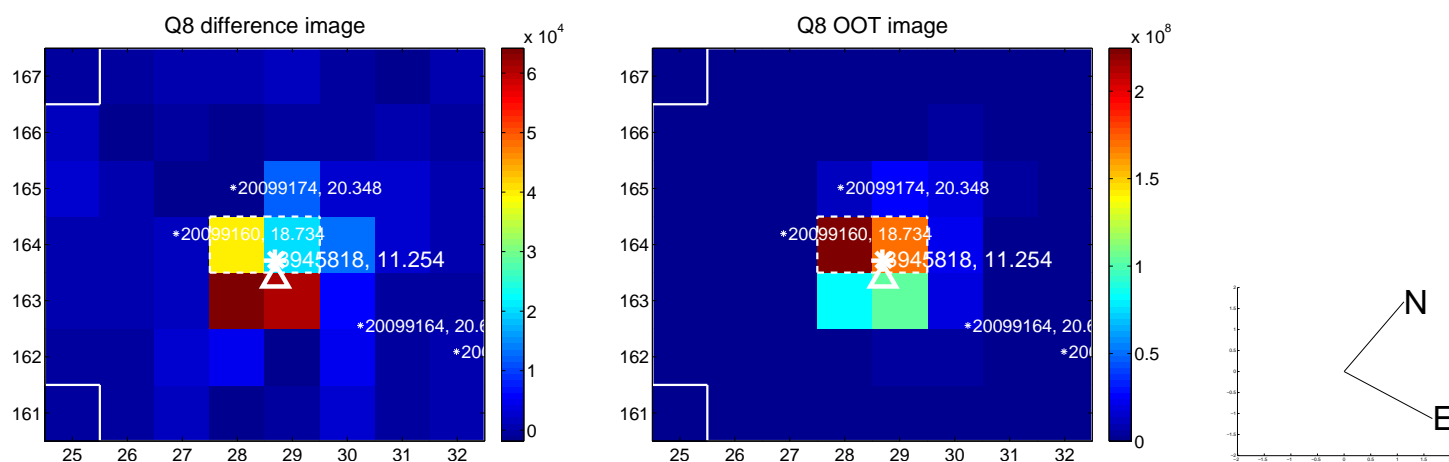
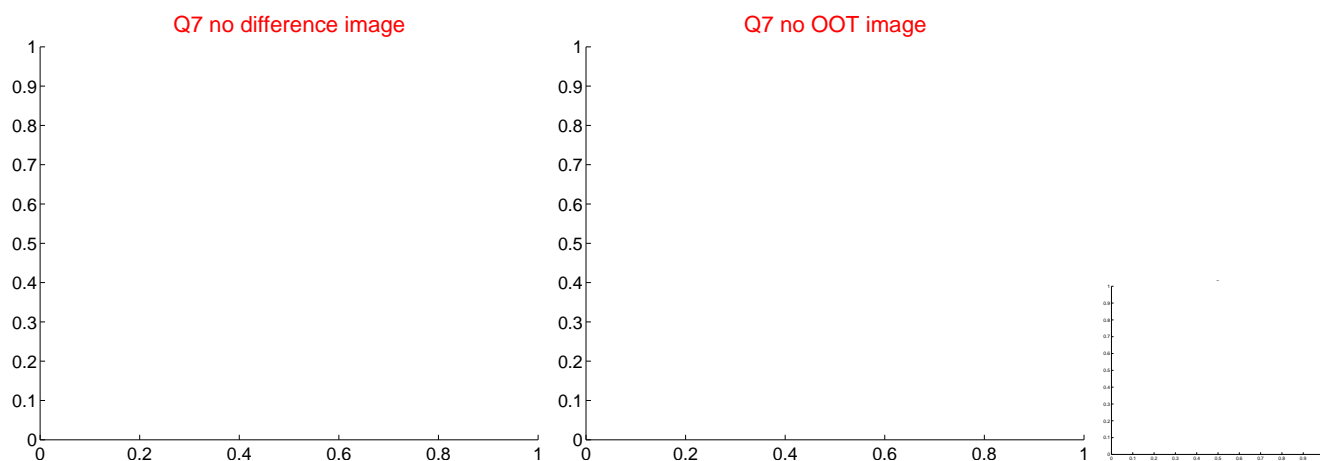
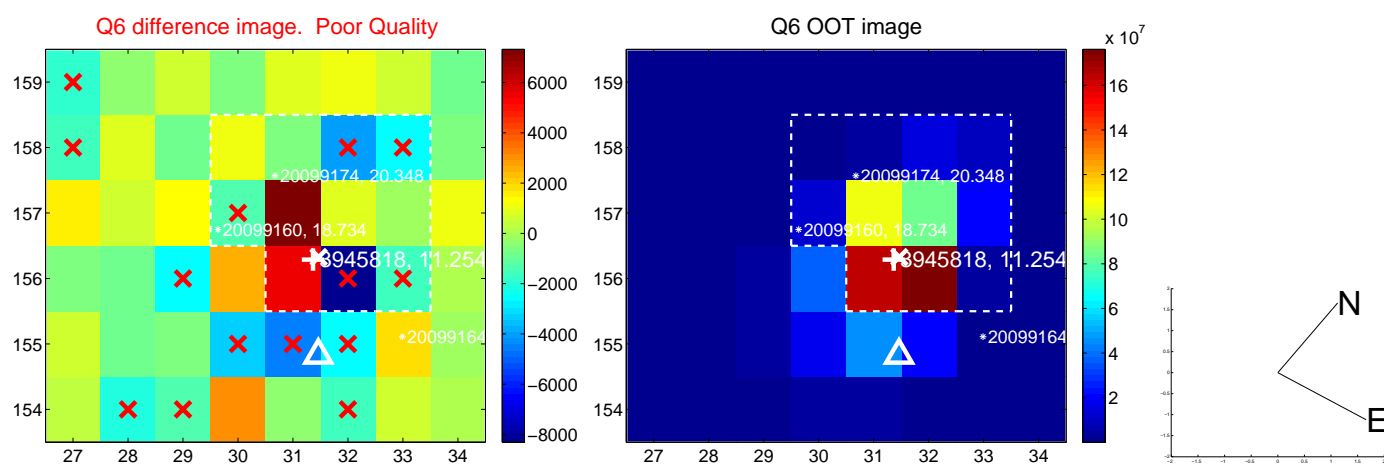
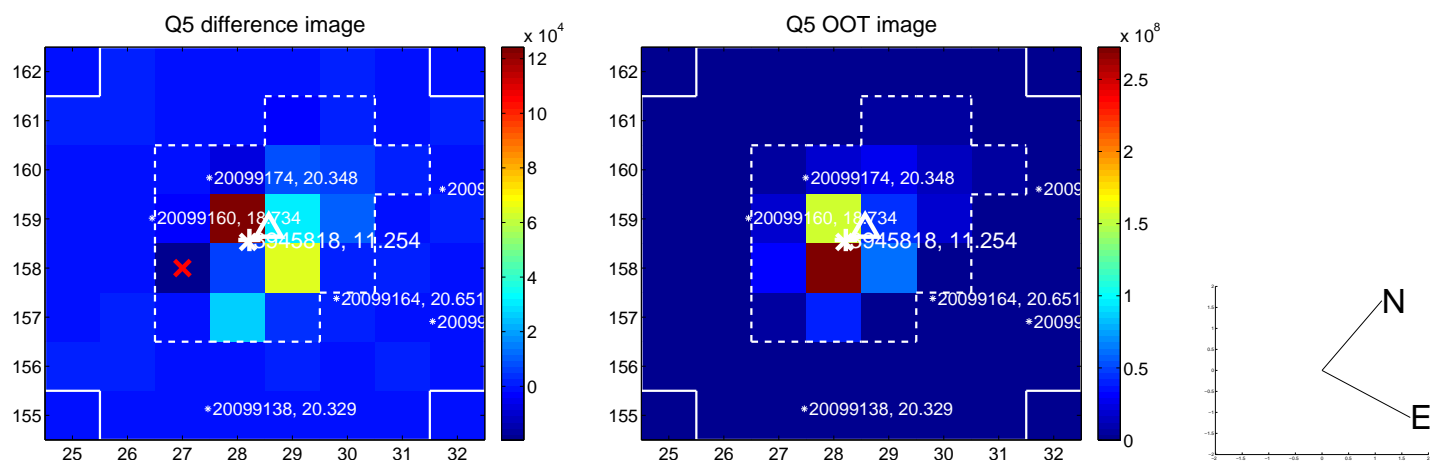
Q4 difference image



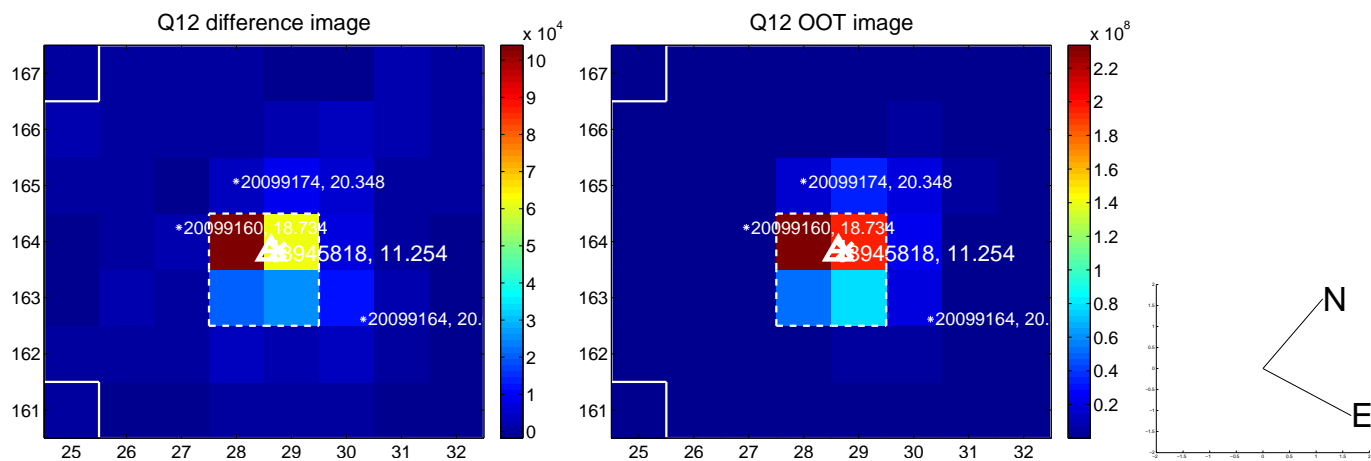
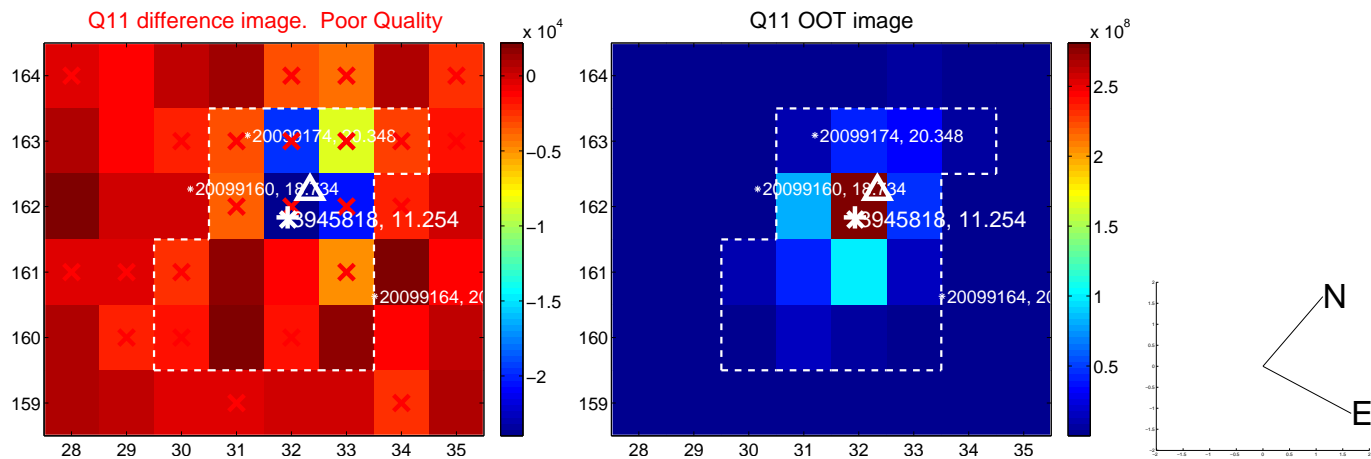
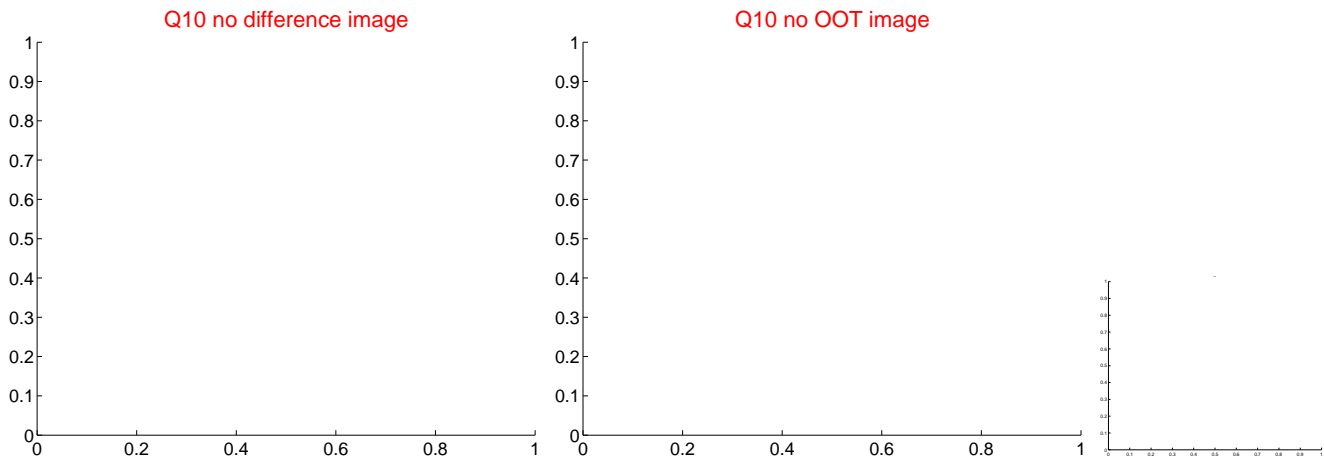
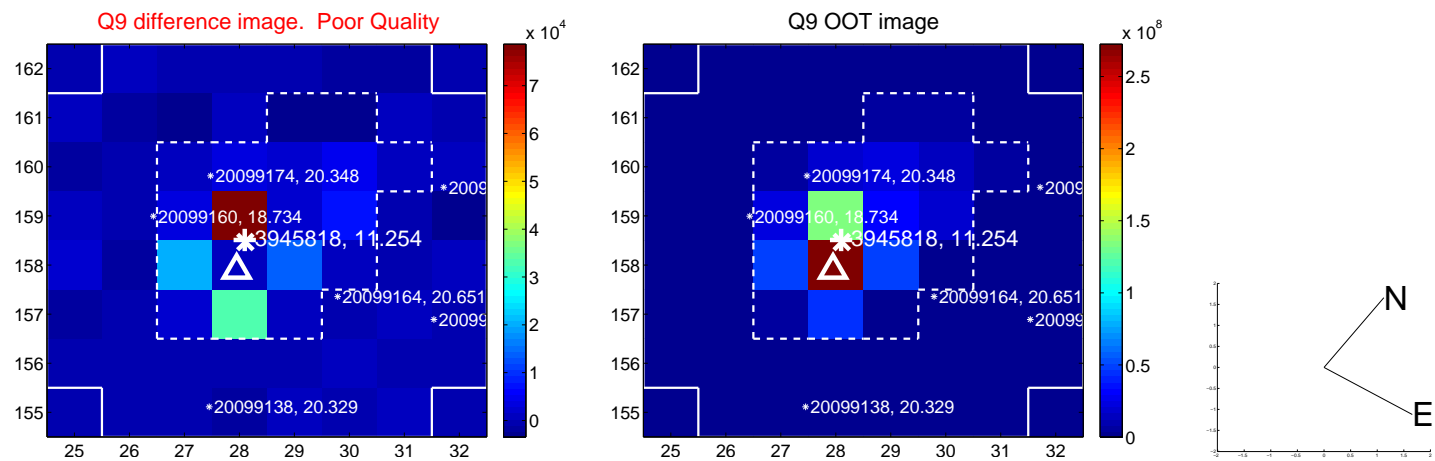
Q4 OOT image



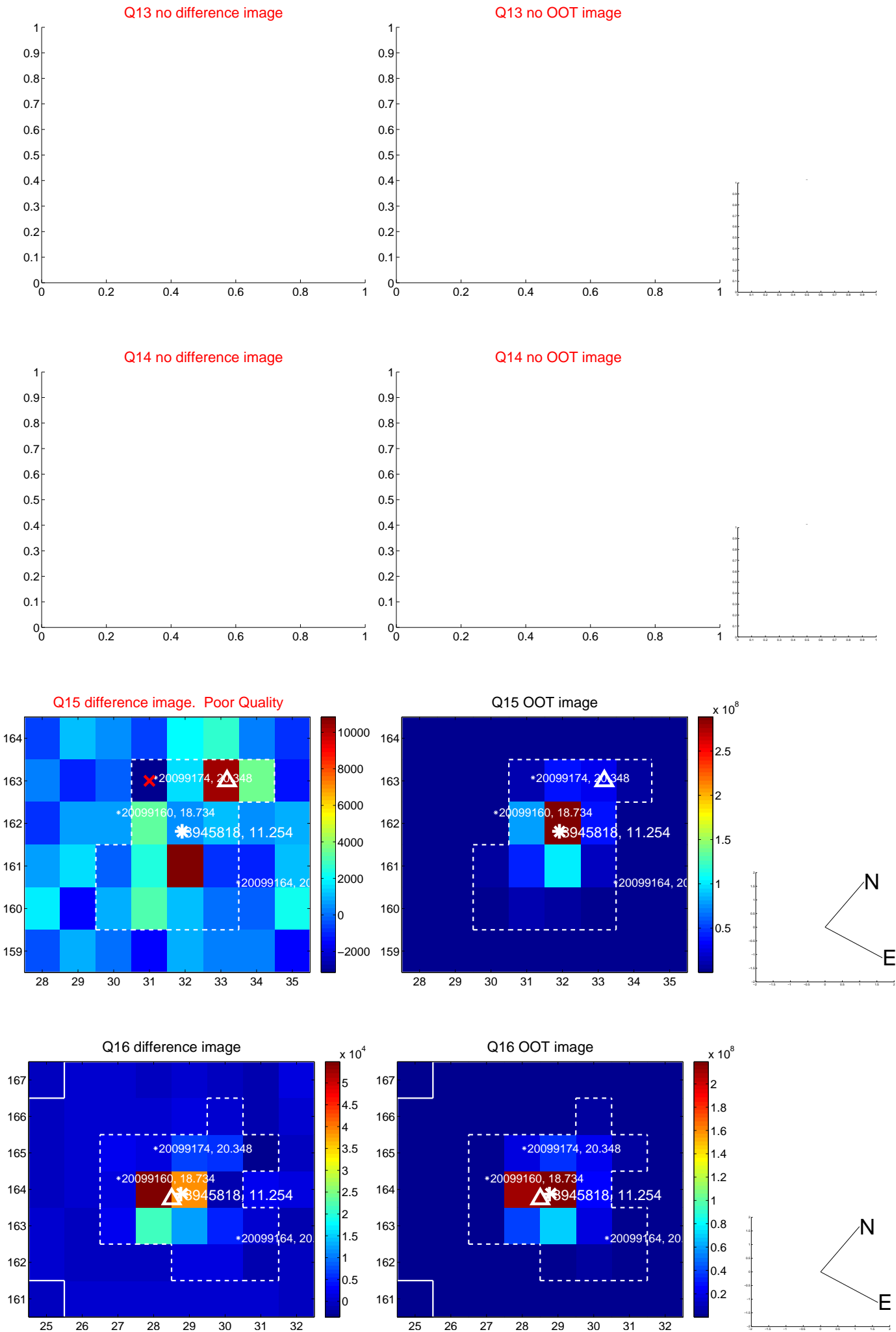
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



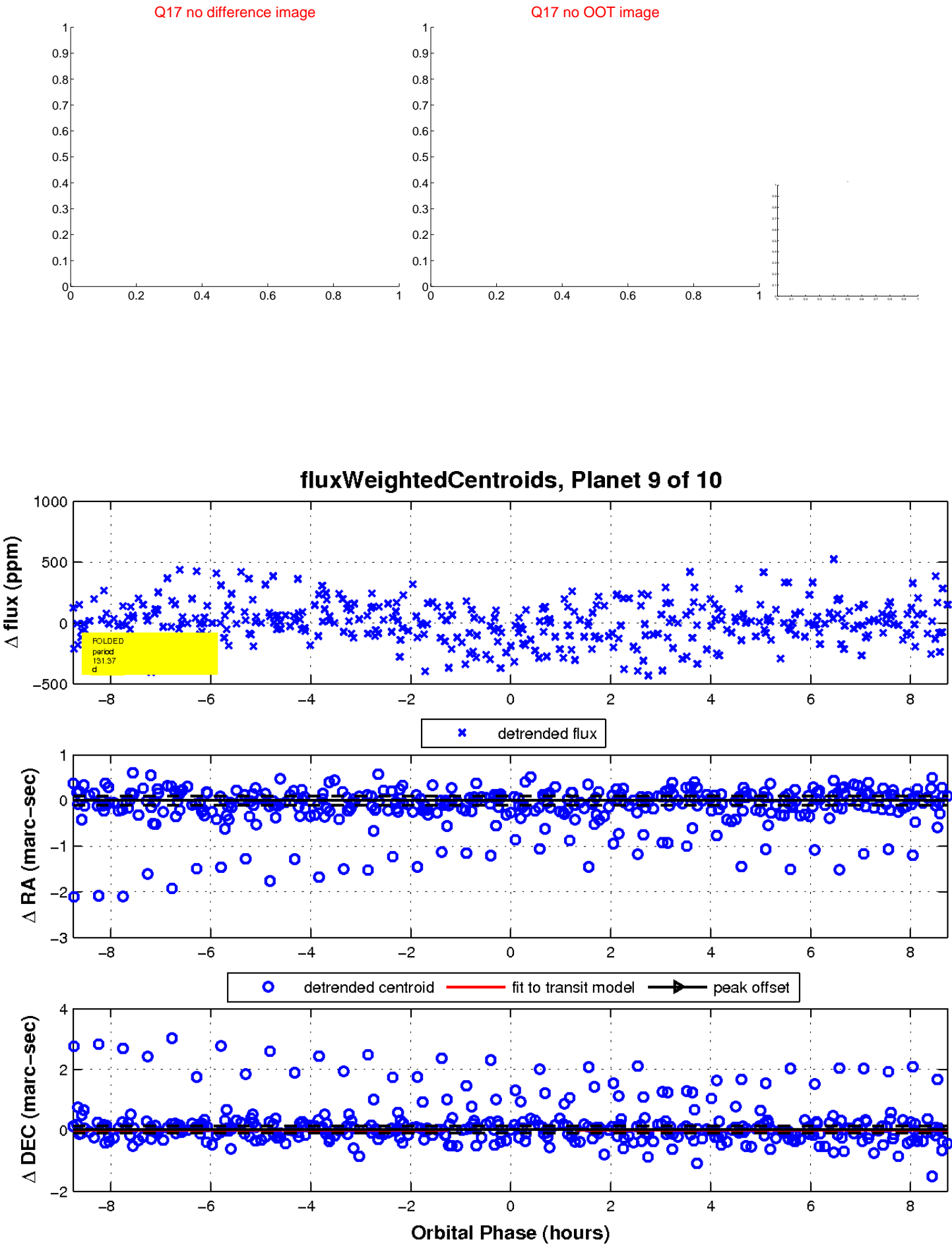
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



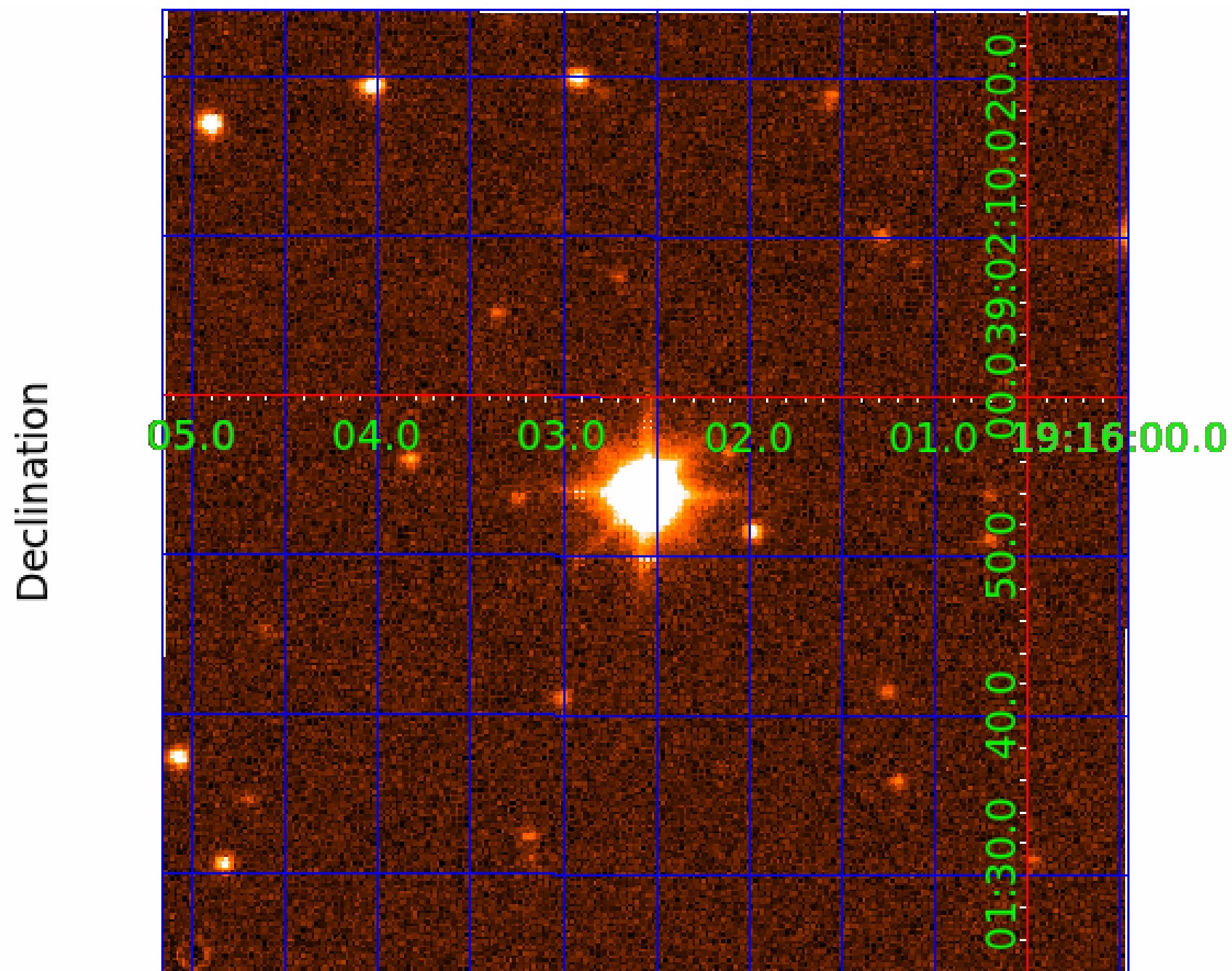
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 003945818

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})
003945818-01	OBS	No	2.321165	132.461422	50.7	9.526	11.7	11.2	4.35	6559	6.00	17910.02
003945818-02	OBS	No	398.853636	370.578040	302.9	24.153	9.6	7.2	4.35	6559	8.07	18.75
003945818-03	OBS	No	227.050592	136.008538	291.1	4.369	8.8	8.6	4.35	6559	8.58	39.74
003945818-04	OBS	No	180.612545	266.072801	308.5	3.430	8.6	7.8	4.35	6559	8.32	53.91
003945818-05	OBS	No	283.953695	188.991043	363.1	5.791	8.7	8.8	4.35	6559	16.08	29.49
003945818-06	OBS	No	385.122171	484.406122	479.8	5.409	8.2	9.1	4.35	6559	17.17	19.64
003945818-07	OBS	No	357.914013	149.399809	379.9	5.737	8.2	8.9	4.35	6559	9.59	21.66
003945818-08	OBS	No	373.349090	175.782464	373.3	7.134	8.3	9.4	4.35	6559	9.15	20.48
003945818-09	OBS	No	131.368762	228.517449	225.4	2.940	8.3	8.3	4.35	6559	7.56	82.42
003945818-10	OBS	No	114.071257	149.097032	283.4	2.082	8.7	7.5	4.35	6559	7.97	99.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003945818-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003945818-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003945818-10	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED—HALO_GHOST

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

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

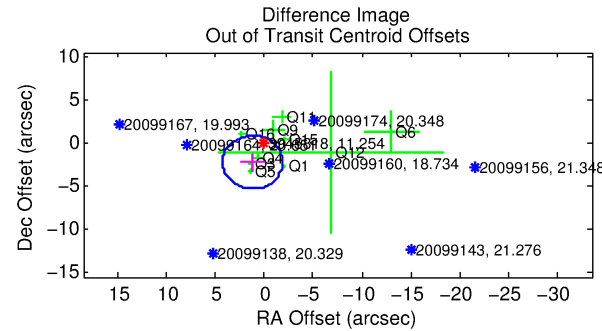
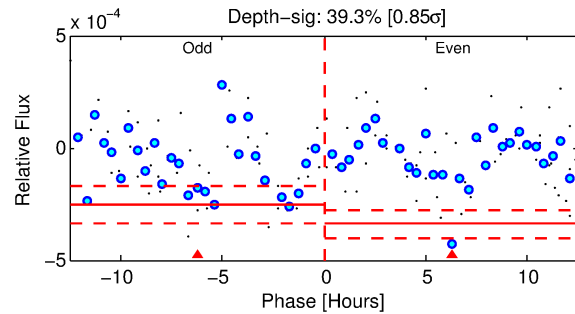
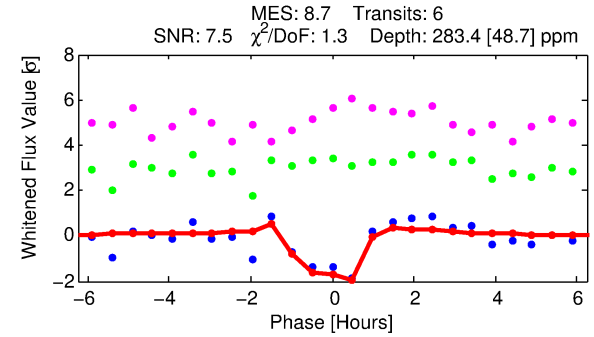
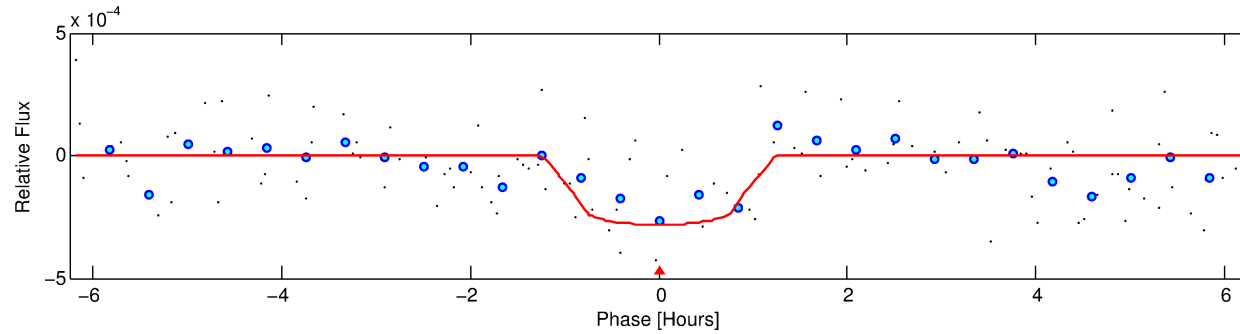
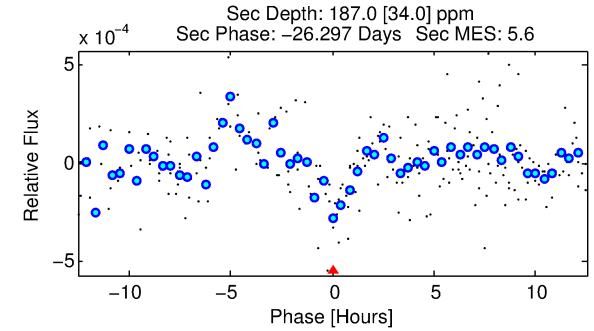
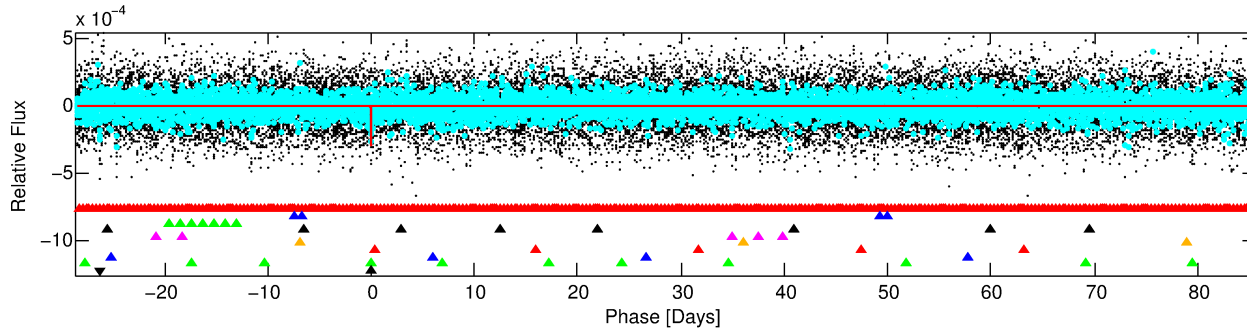
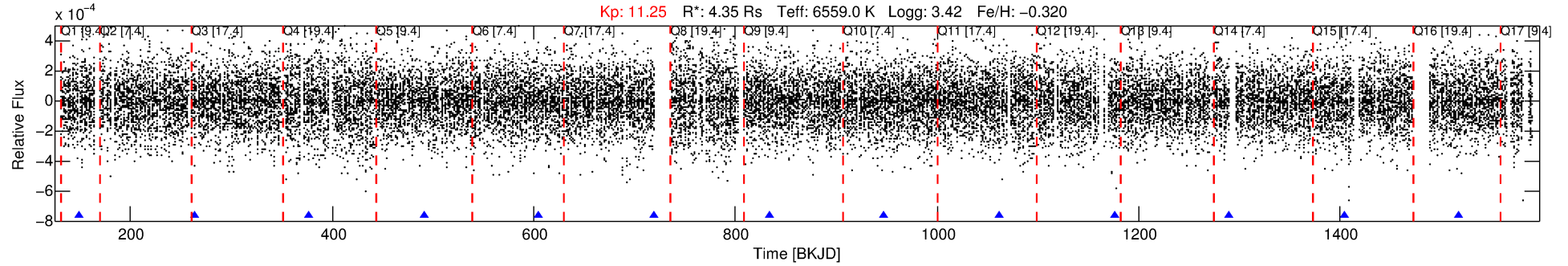
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003945818-10

No Significant Match Found

DV One-Page Summary

KIC: 3945818 Candidate: 10 of 10 Period: 114.071 d



DV Fit Results:

Period = 114.07126 [0.00086] d
Epoch = 149.0970 [0.0050] BKJD
Rp/R* = 0.0168 [0.0115]
a/R* = 286.22 [1074.98]
b = 0.75 [2.19]
Seff = 99.50 [69.26]
Teff = 805 [140] K
Rp = 7.97 [6.61] Re
a = 0.5618 [0.2448] AU
Ag = 511.15 [791.07] [0.64σ]
Teffp = 5920 [2059] K [2.48σ]

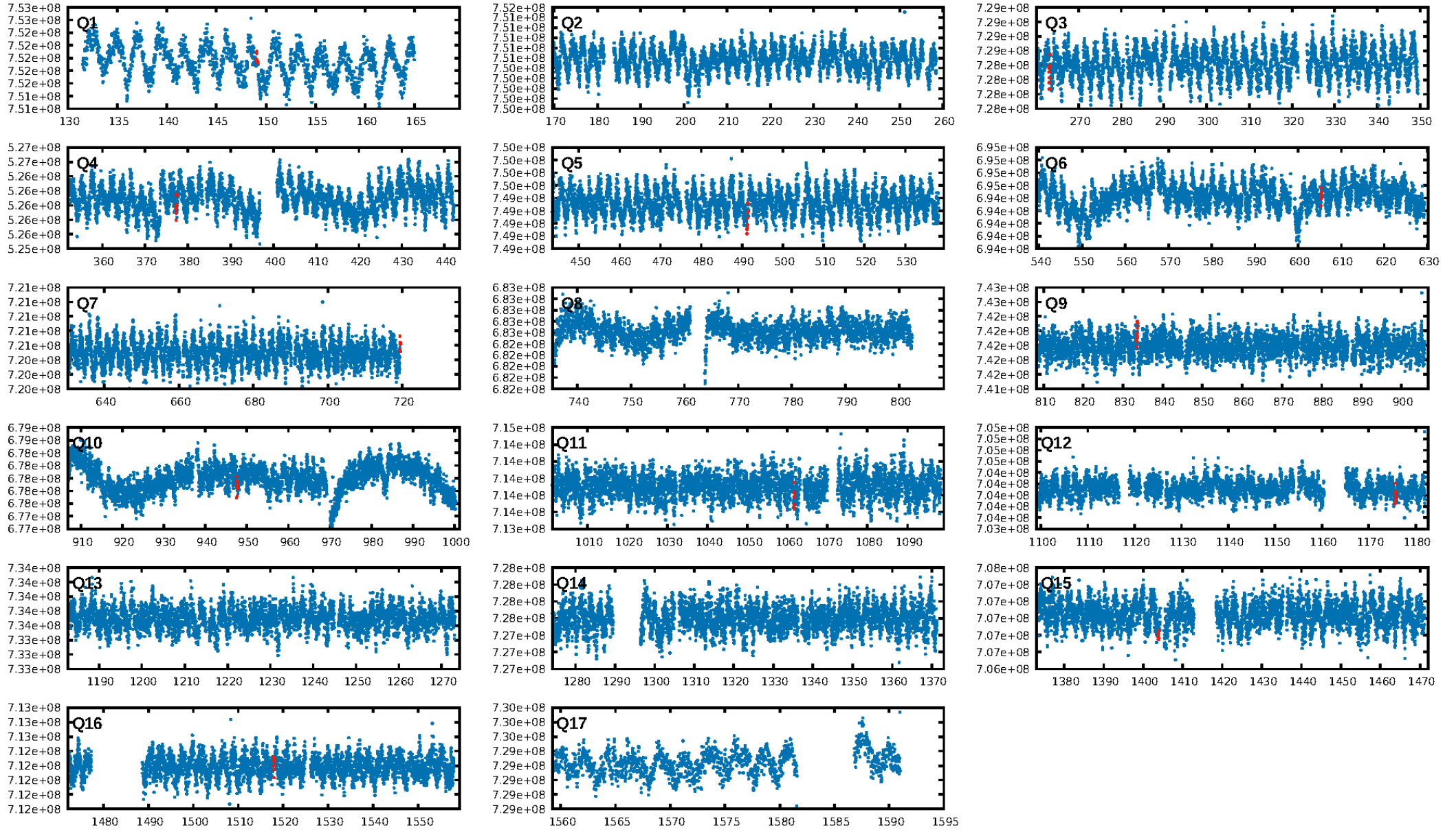
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [275.06σ]
LongPeriod-sig: 100.0% [115.23σ]
ModelChiSquare2-sig: 41.2%
ModelChiSquareGof-sig: 88.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.02105
Centroid-sig: 36.1%
Centroid-so: 0.422 arcsec [0.99σ]
OotOffset-rm: 2.542 arcsec [2.48σ]
KicOffset-rm: 2.467 arcsec [2.39σ]
OotOffset-st: 1/3/3/3 [10]
KicOffset-st: 1/3/3/3 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 0.55 [6/11]

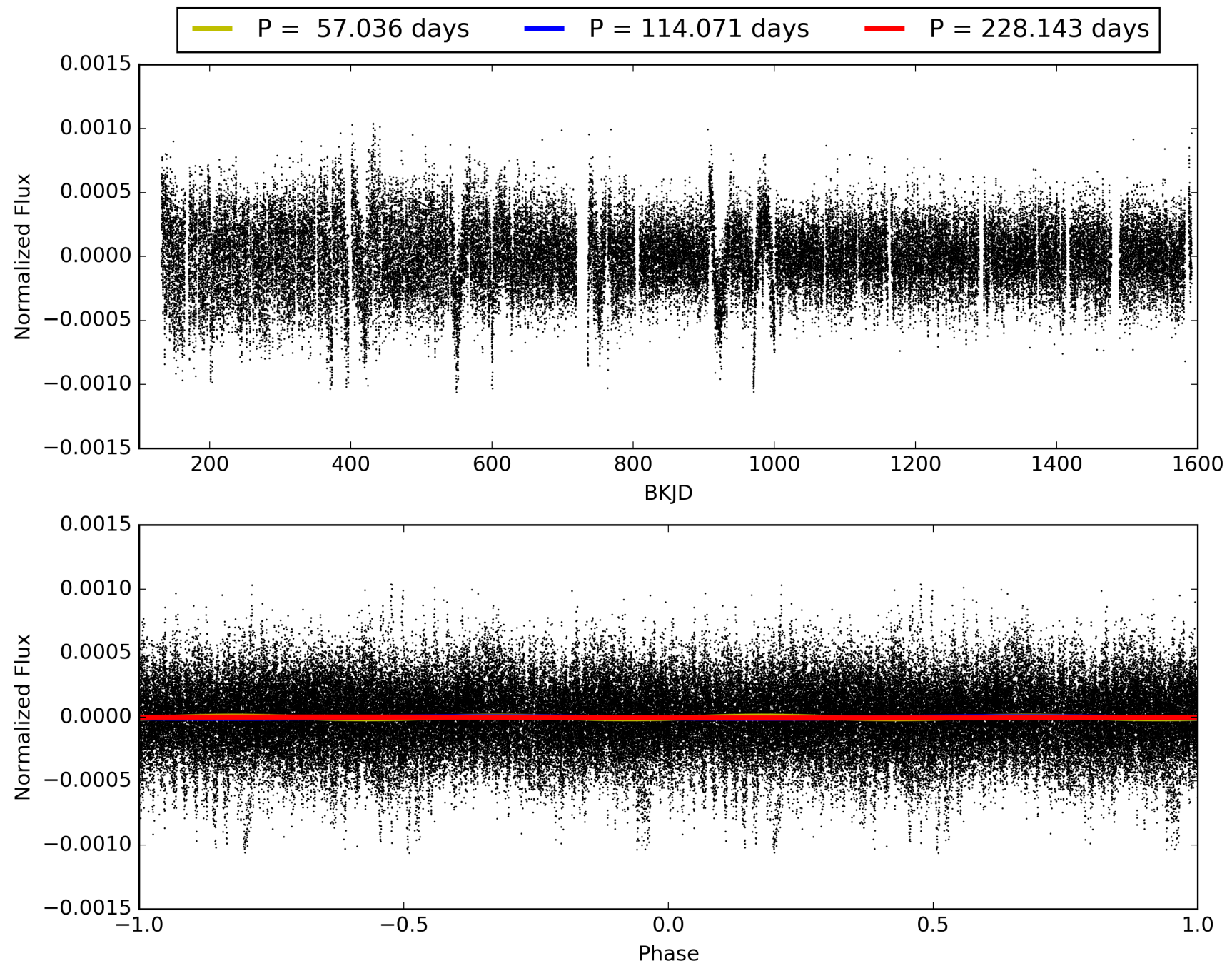
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:03:02 Z

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

TCE 003945818-10, PDC Light Curves

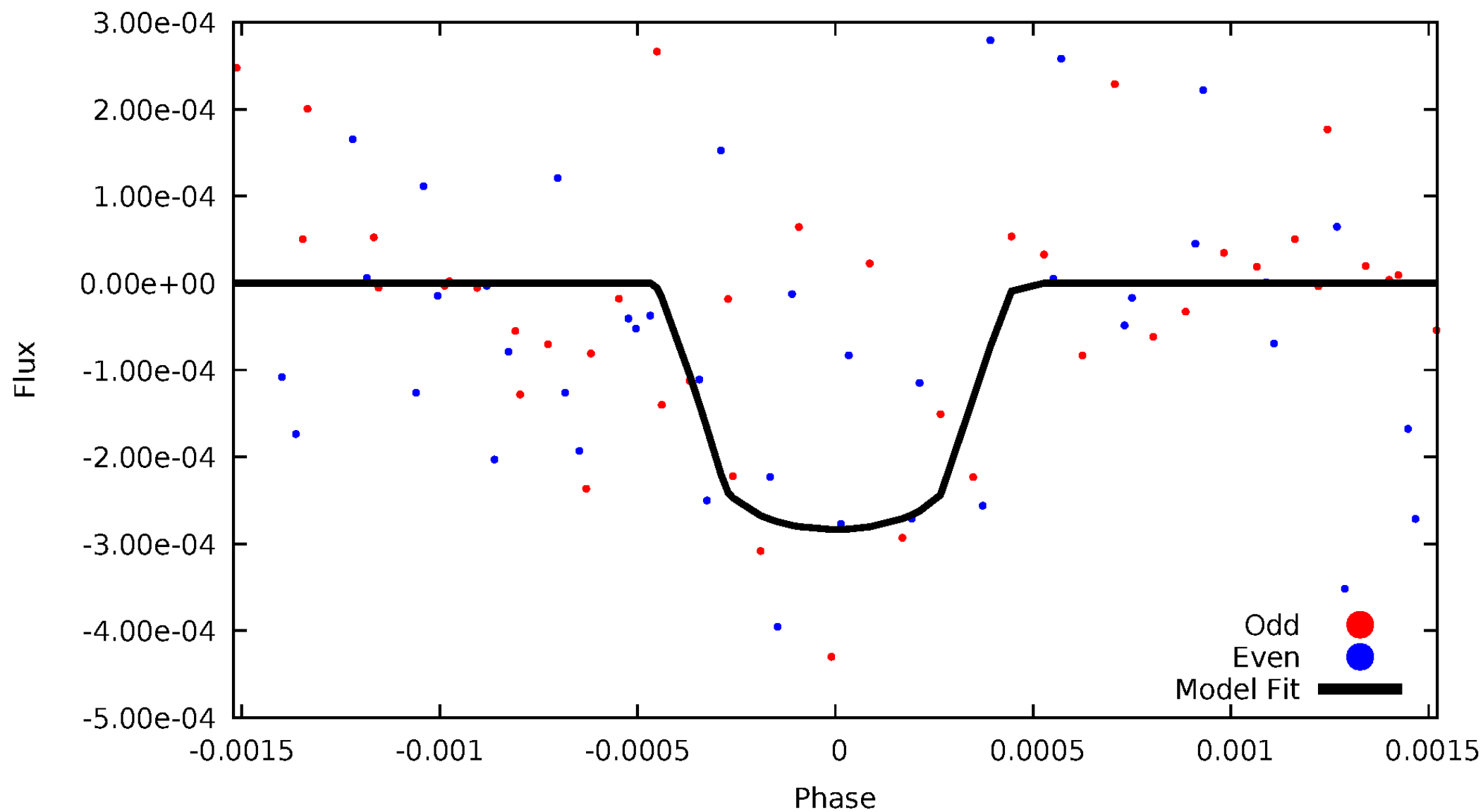


TCE 003945818-10



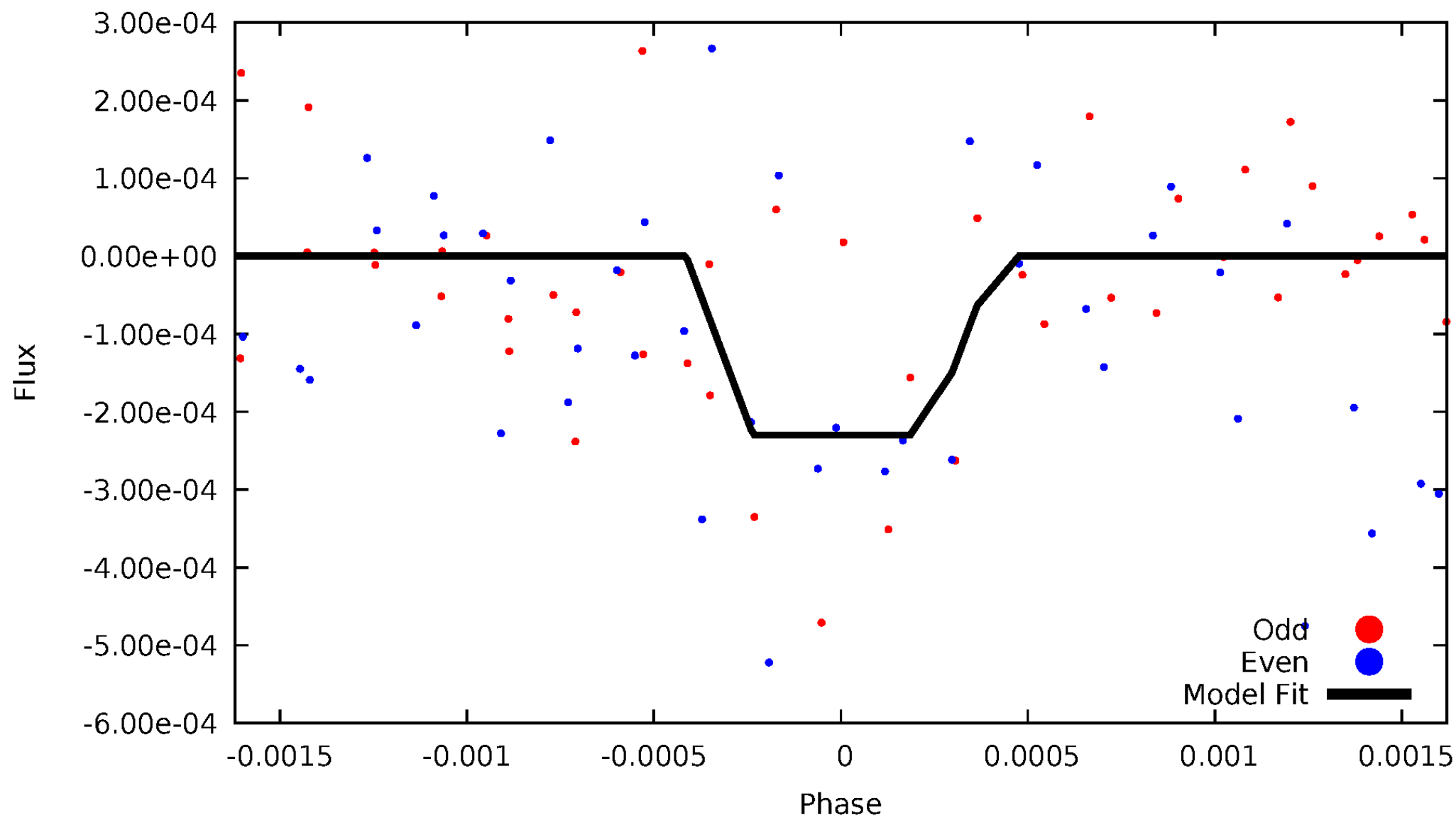
DV Odd/Even

TCE 003945818-10



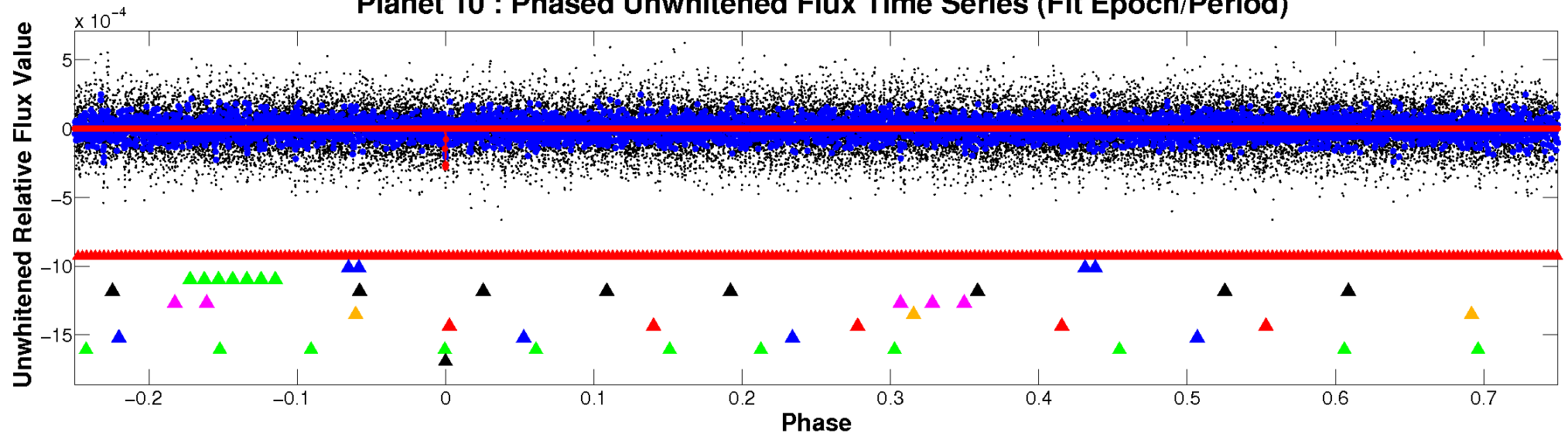
ALT Odd/Even

TCE 003945818-10

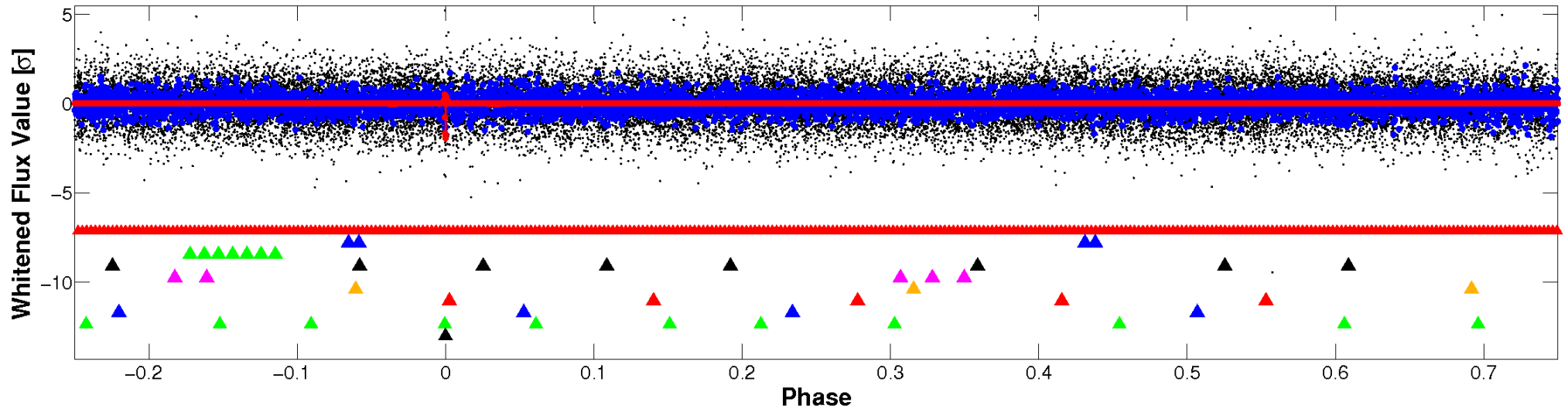


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

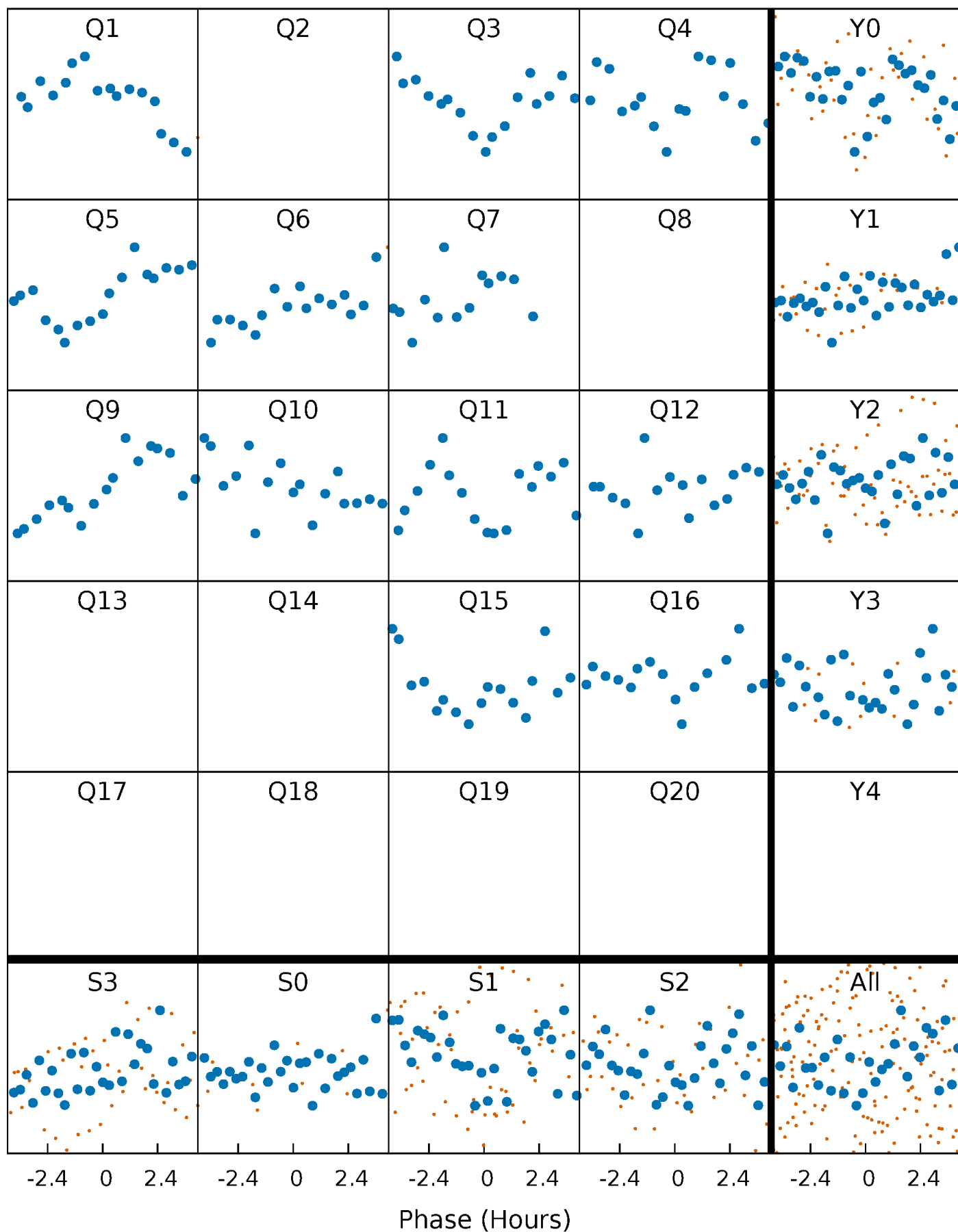


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



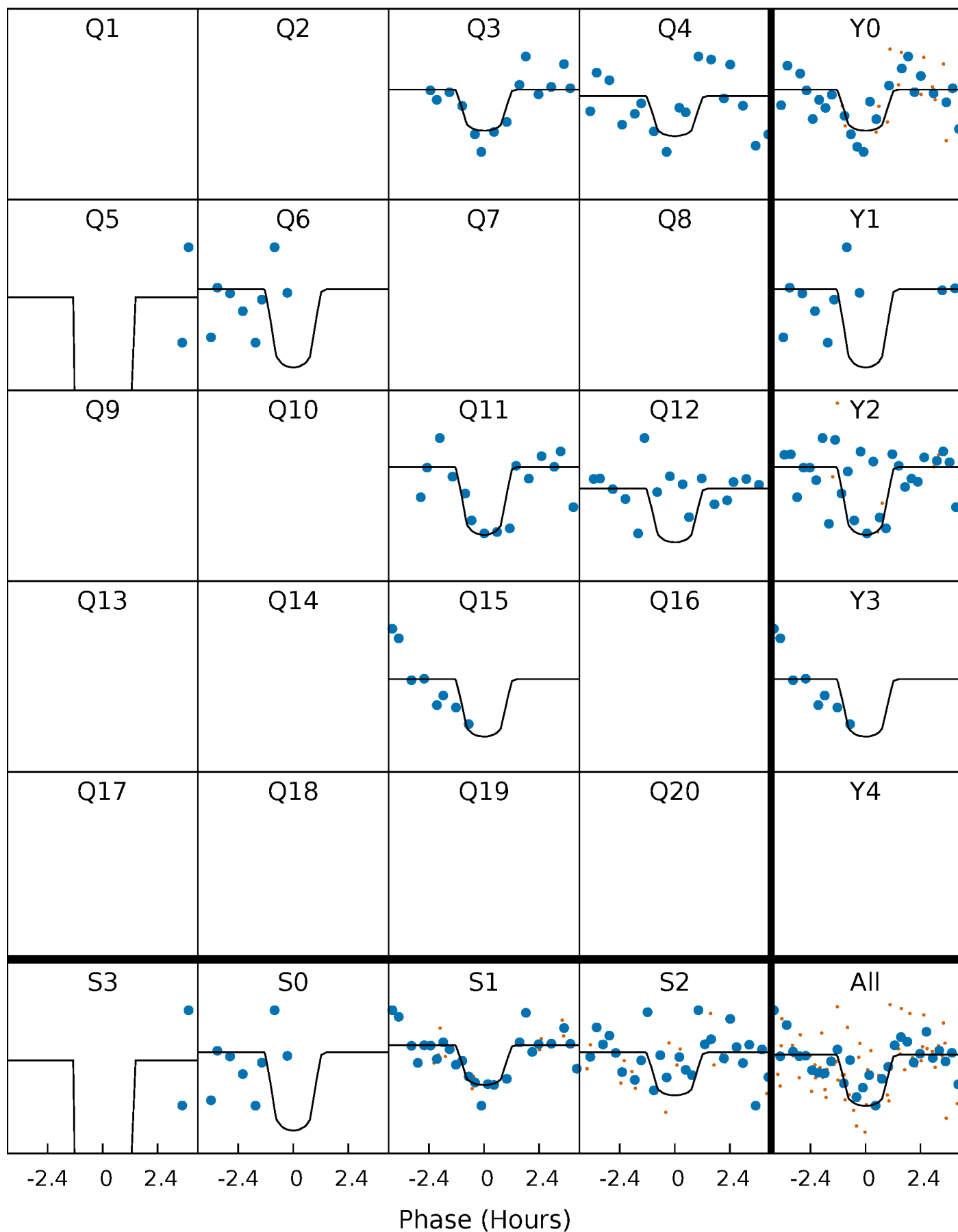
PDC Quarter-Phased Transit Curves

TCE 003945818-10 P=114.071257 Days $T_0=149.097032$ (BKJD)



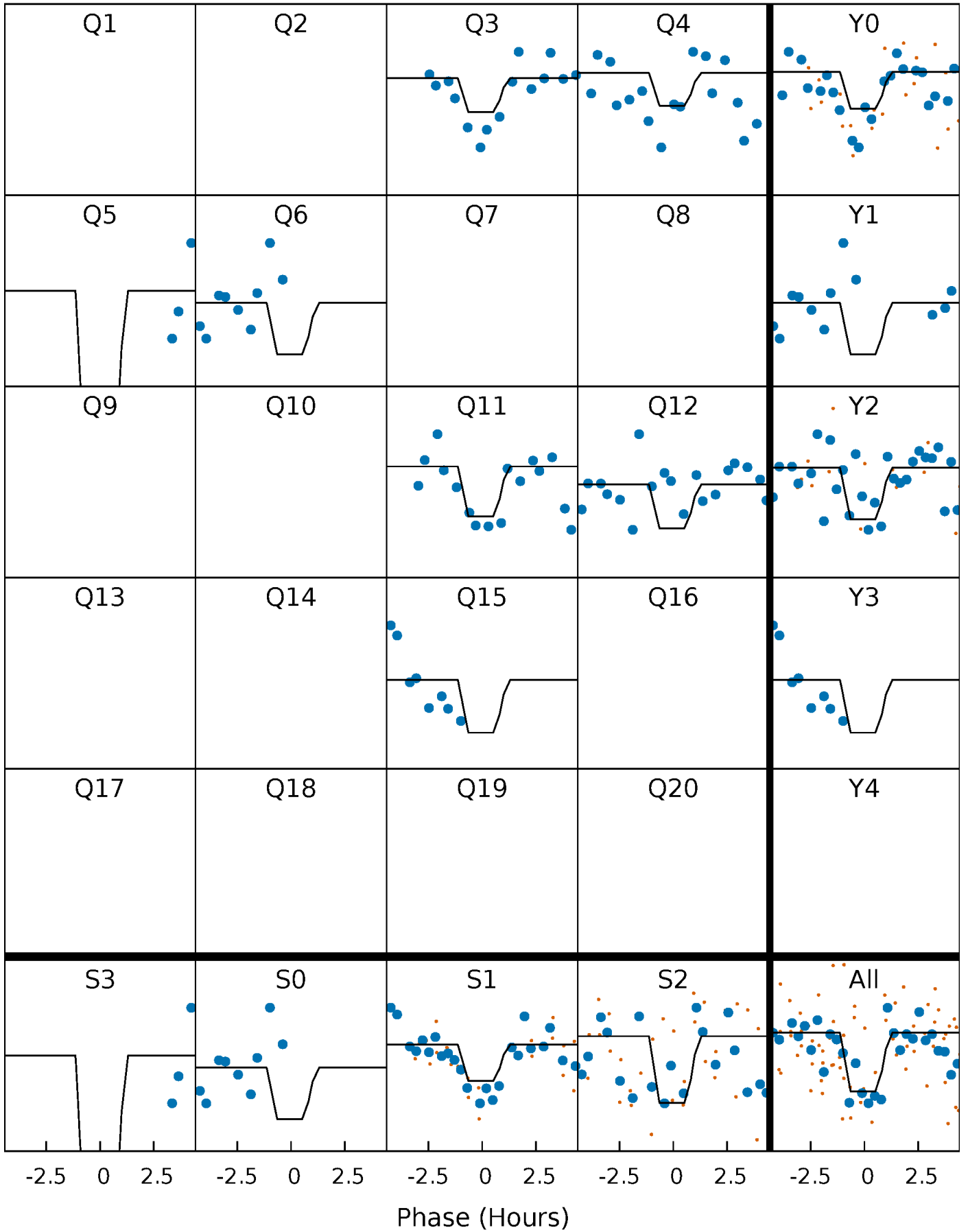
DV Quarter-Phased Transit Curves

TCE 003945818-10 P=114.071257 Days $T_0=149.097032$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

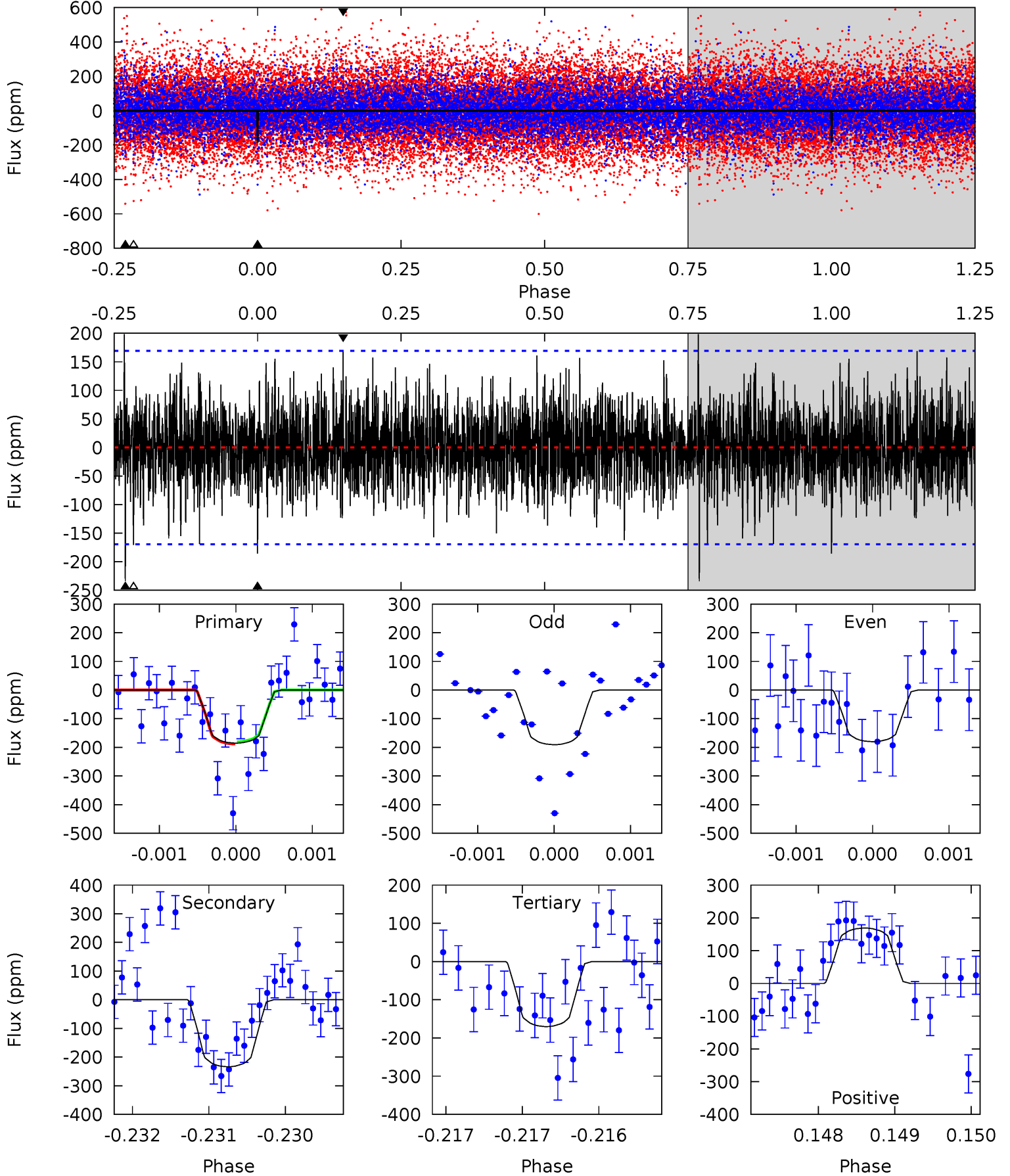
TCE 003945818-10 P=114.071804 Days $T_0=149.101288$ (BKJD)



DV Model-Shift Uniqueness Test

003945818-10, $P = 114.071257$ Days, $E = 35.025775$ Days

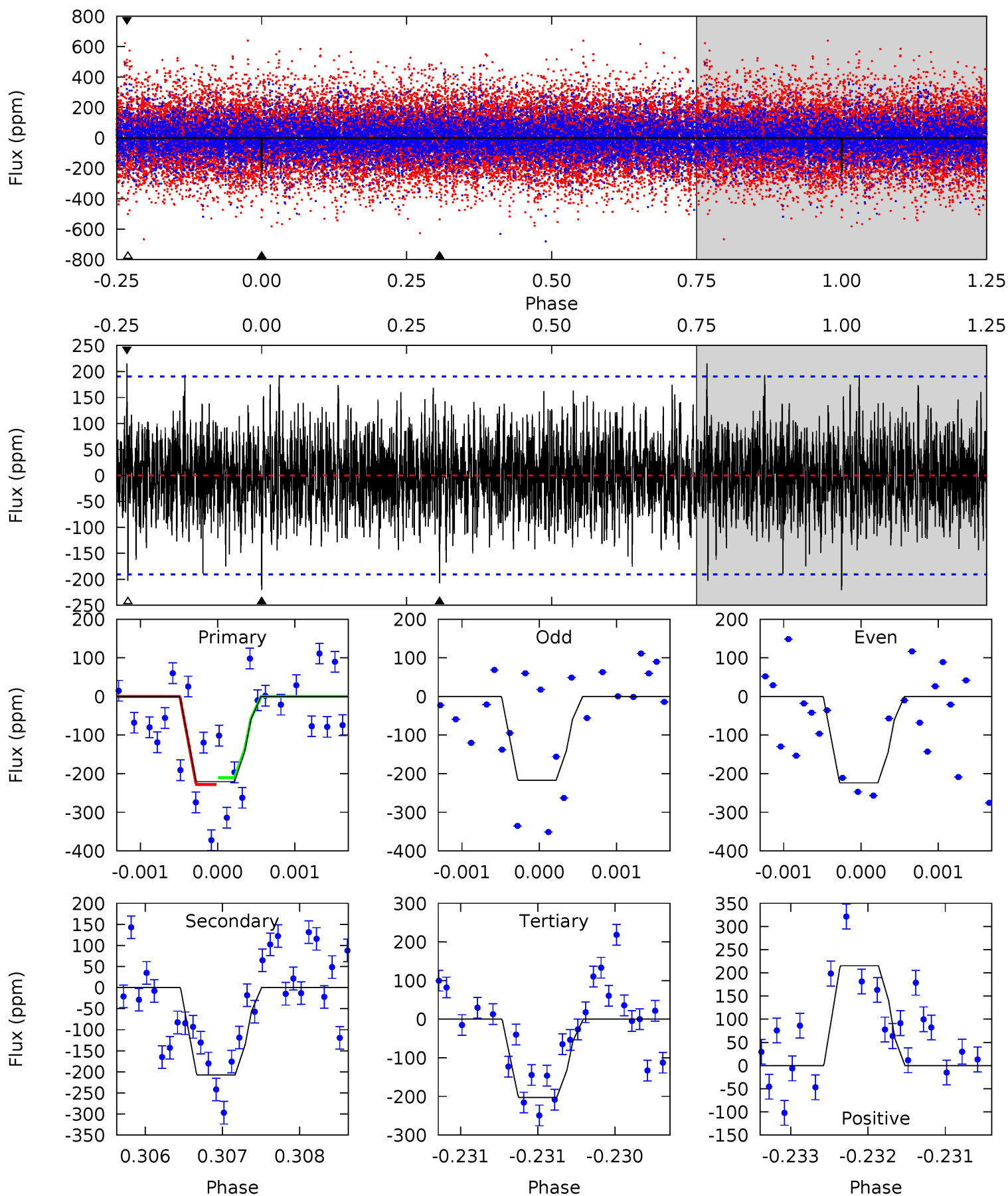
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.99	7.56	5.50	5.46	5.47	3.33	1.58	0.49	0.53	2.06	2.10	0.17	0.76	0.46	0.12



Alt Model-Shift Uniqueness Test

003945818-10, $P = 114.071804$ Days, $E = 35.029484$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.35	5.97	5.83	6.19	5.48	3.34	1.59	0.51	0.16	0.14	-0.22	0.09	0.60	0.49	0.26



Stellar Parameters For KIC 003945818

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6559^{+159}_{-179}	$3.420^{+0.400}_{-0.075}$	$-0.320^{+0.350}_{-0.300}$	$4.352^{+0.631}_{-2.019}$	$1.817^{+0.153}_{-0.459}$	$0.031^{+0.123}_{-0.008}$
	+2%/-3%	+12%/-2%	+109%/-94%	+14%/-46%	+8%/-25%	+395%/-25%
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 003945818-10 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-234 ± 31	$7.39^{+5.24}_{-4.21}$	1091^{+69}_{-128}	6043^{+4283}_{-1183}	737^{+3227}_{-489}
Alt.	-208 ± 35	$6.92^{+4.92}_{-4.06}$	1093^{+66}_{-128}	6049^{+4178}_{-1192}	720^{+3442}_{-472}

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 $A_{obs} \gg 1.0$

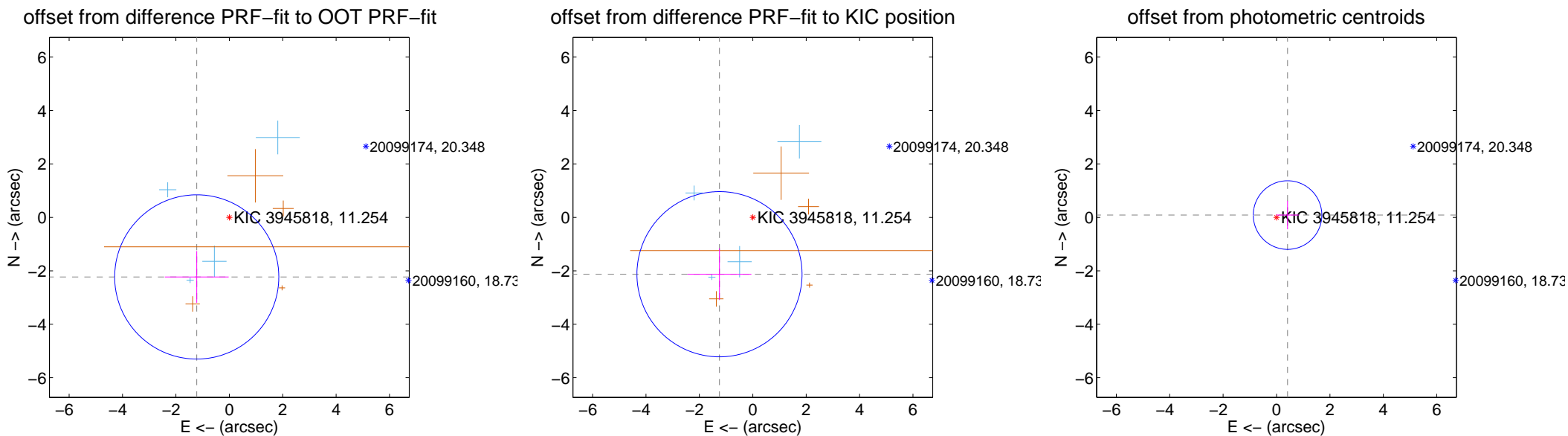
DV Centroid Data

Supplemental centroid analysis for 003945818-10. **Kepler magnitude: 11.25**. Transit SNR 7.47

There are 4 quarters with good PRF difference image offsets

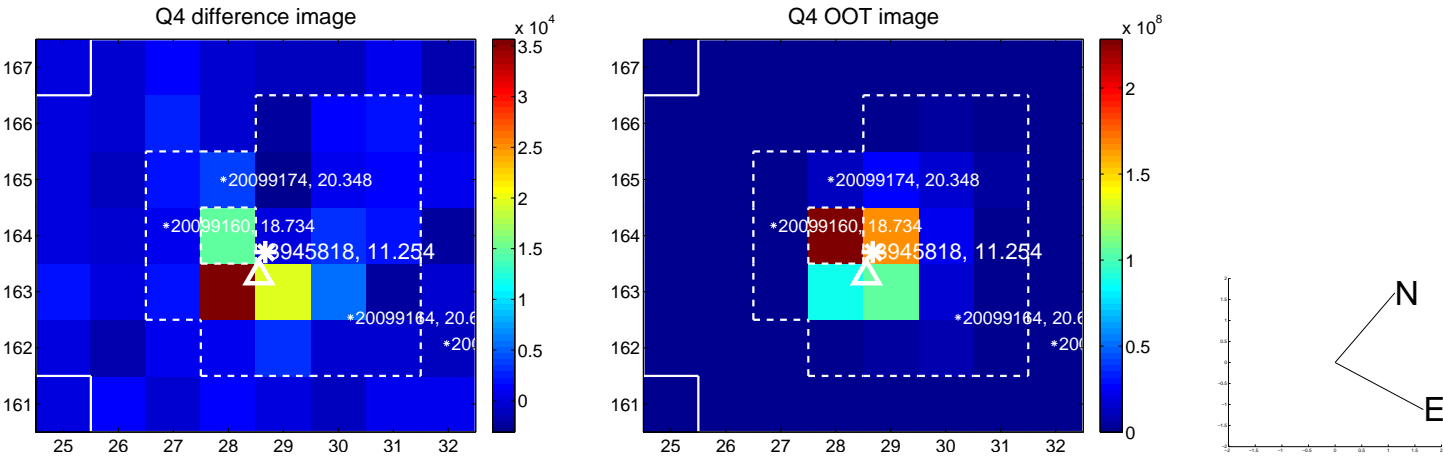
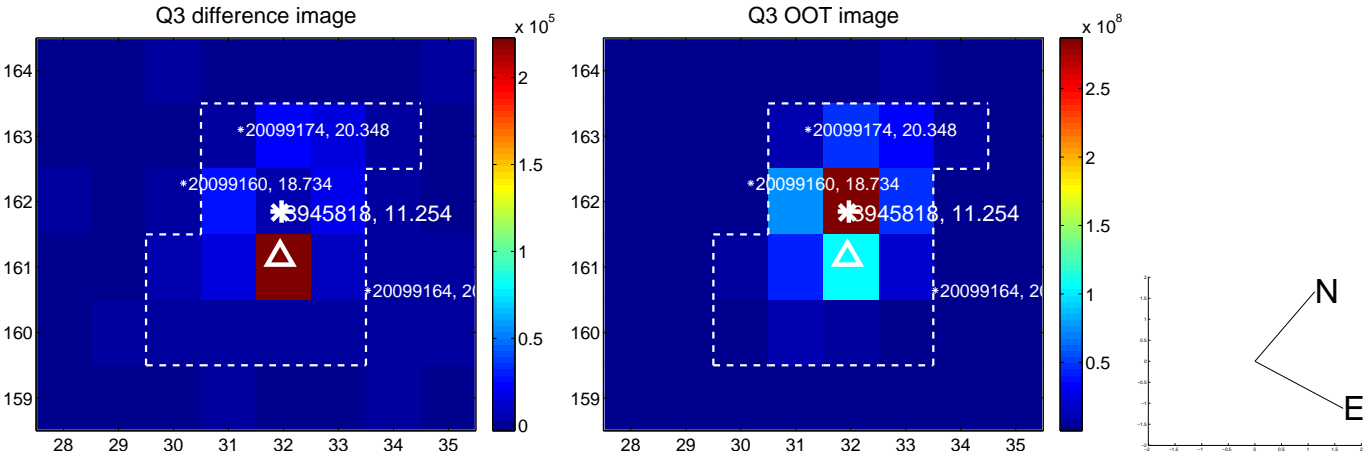
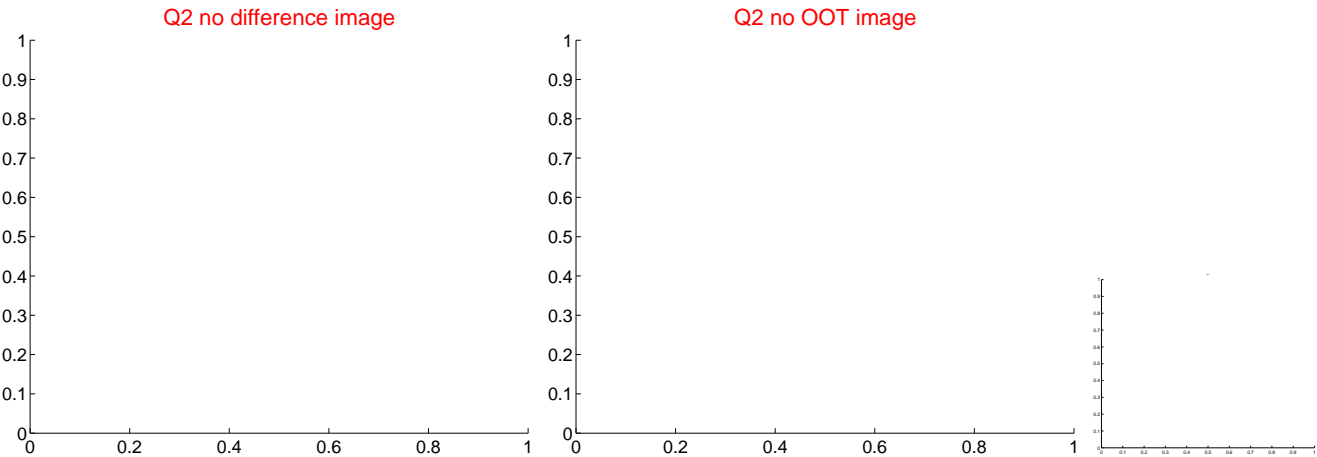
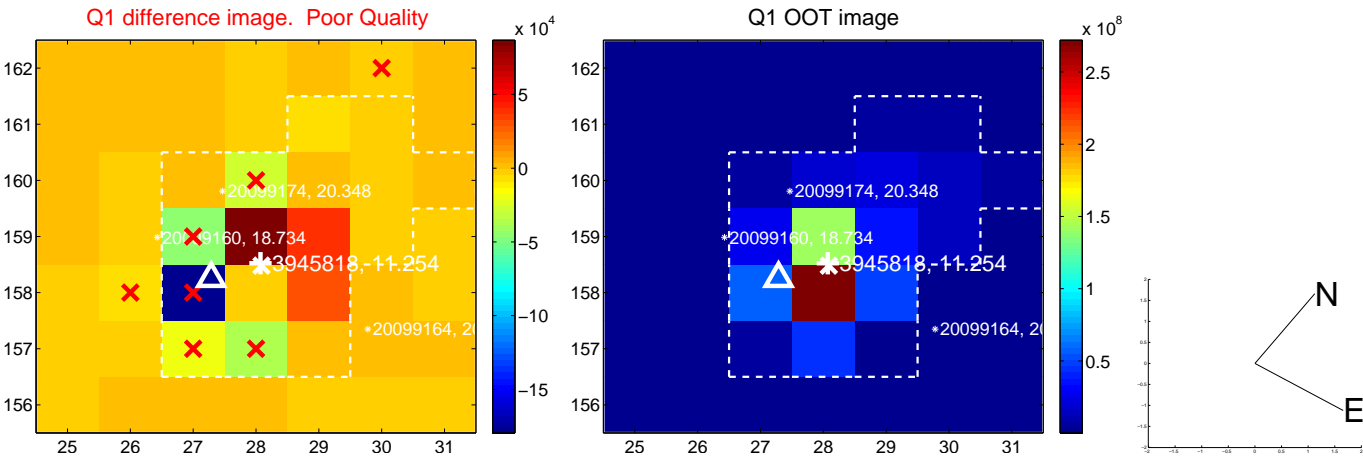
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.542 ± 1.025	2.48	1.221 ± 1.196	-2.229 ± 0.967
PRF-fit source offset from KIC position	2.467 ± 1.031	2.39	1.248 ± 1.196	-2.128 ± 0.967
photometric centroid source offset	0.42 ± 0.43	0.99	-0.41 ± 0.42	0.09 ± 0.53

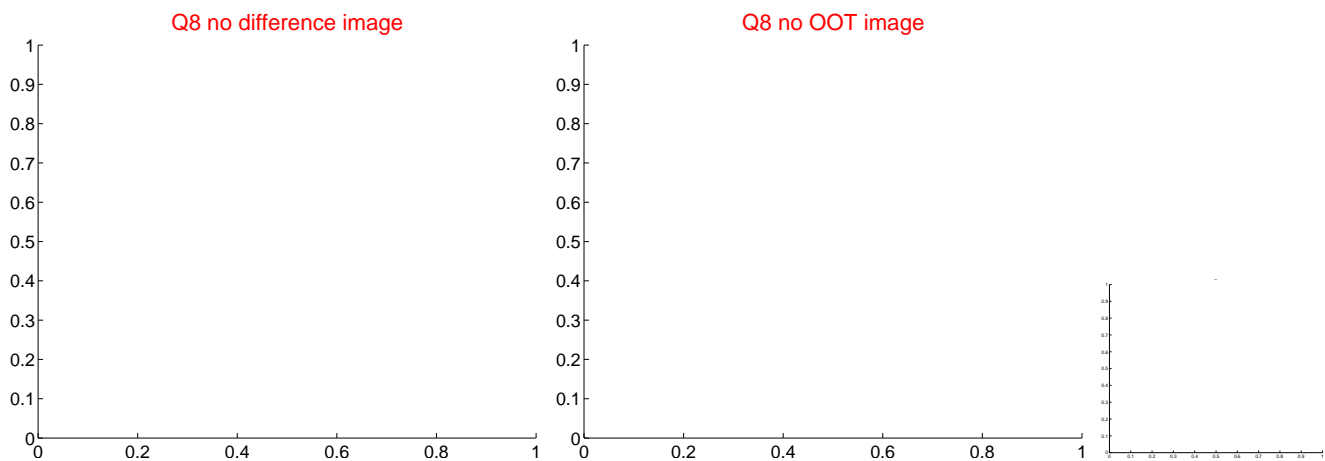
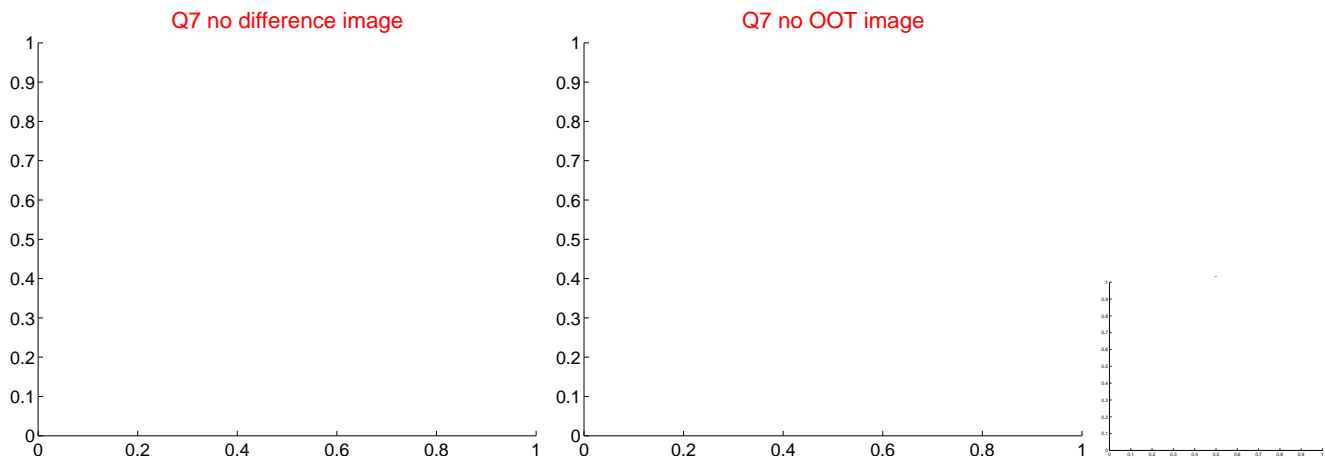
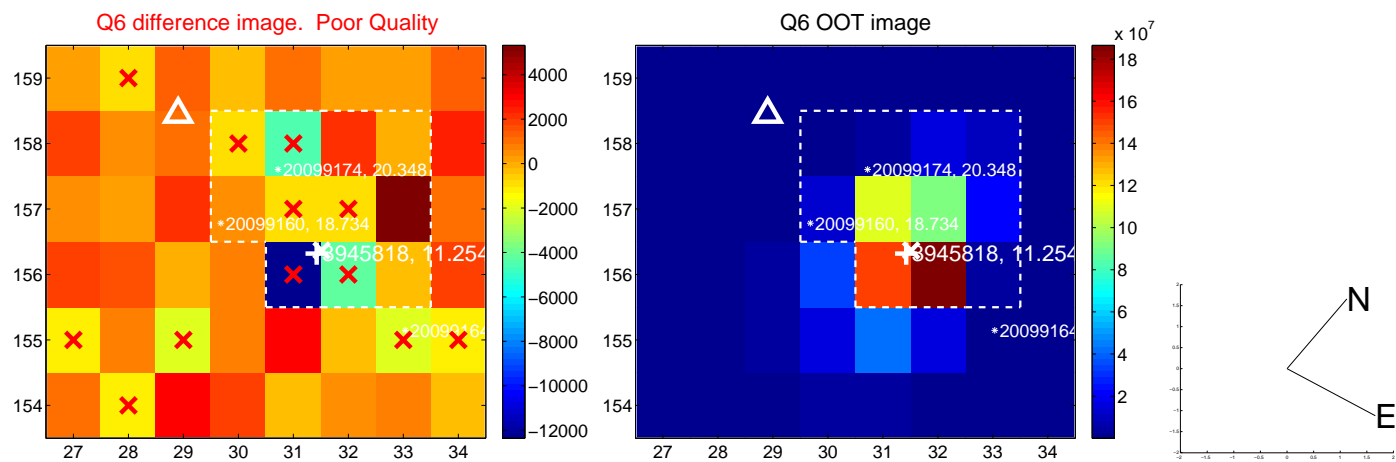
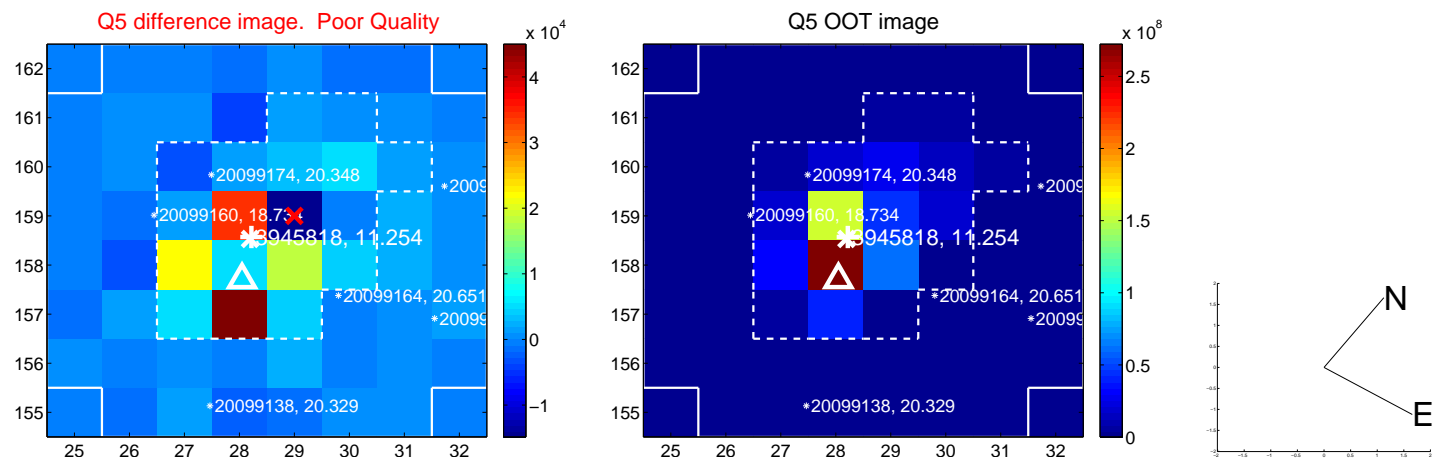


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

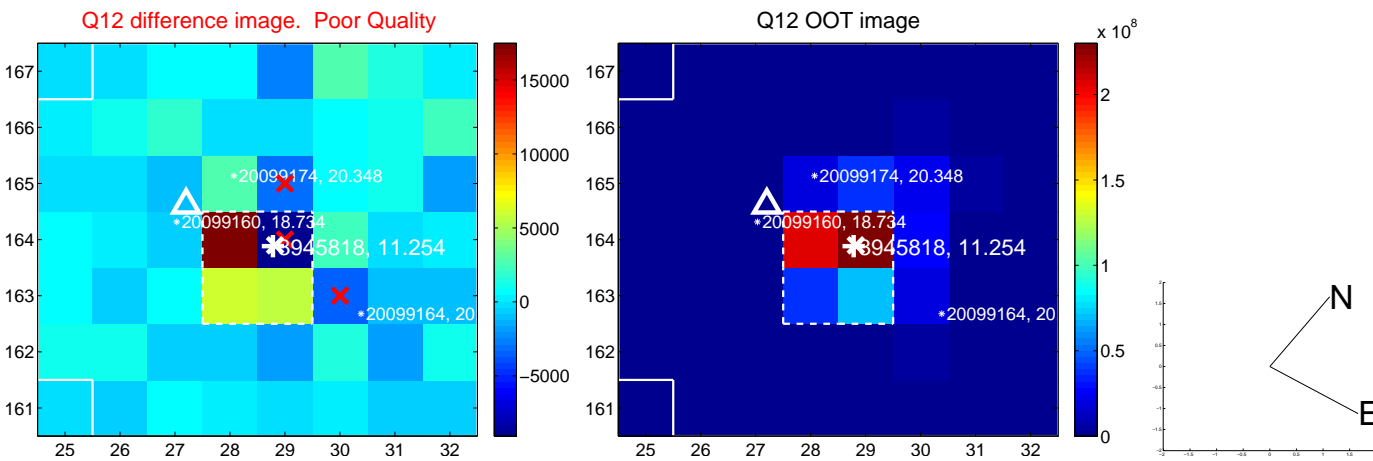
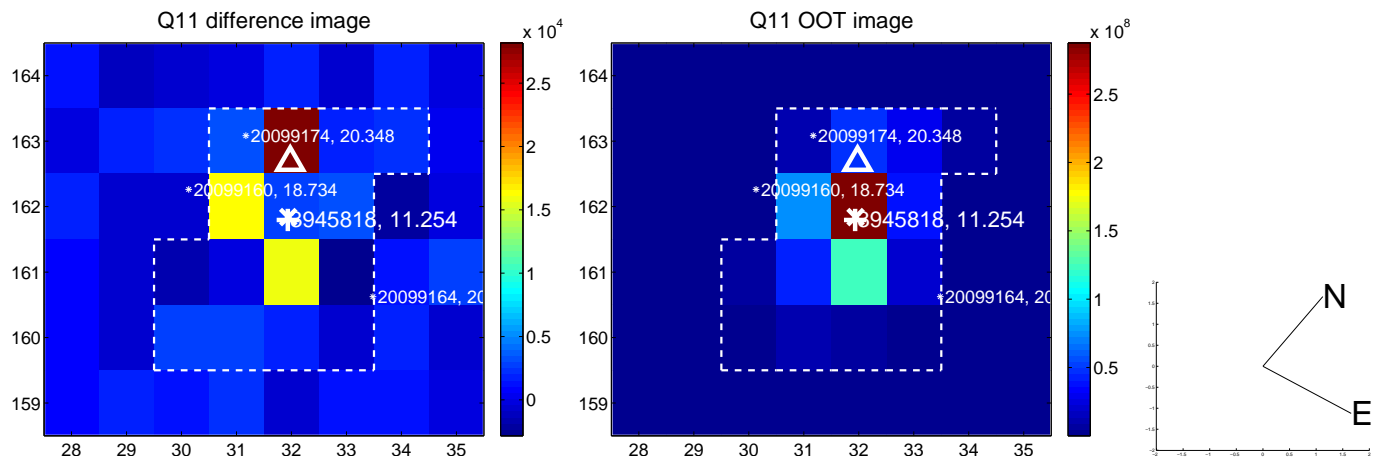
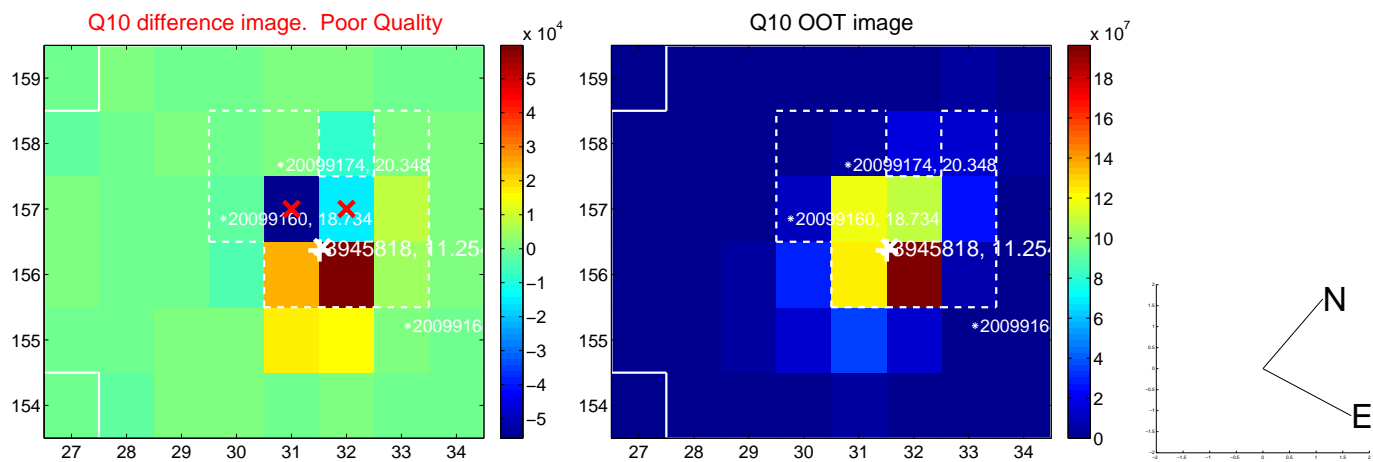
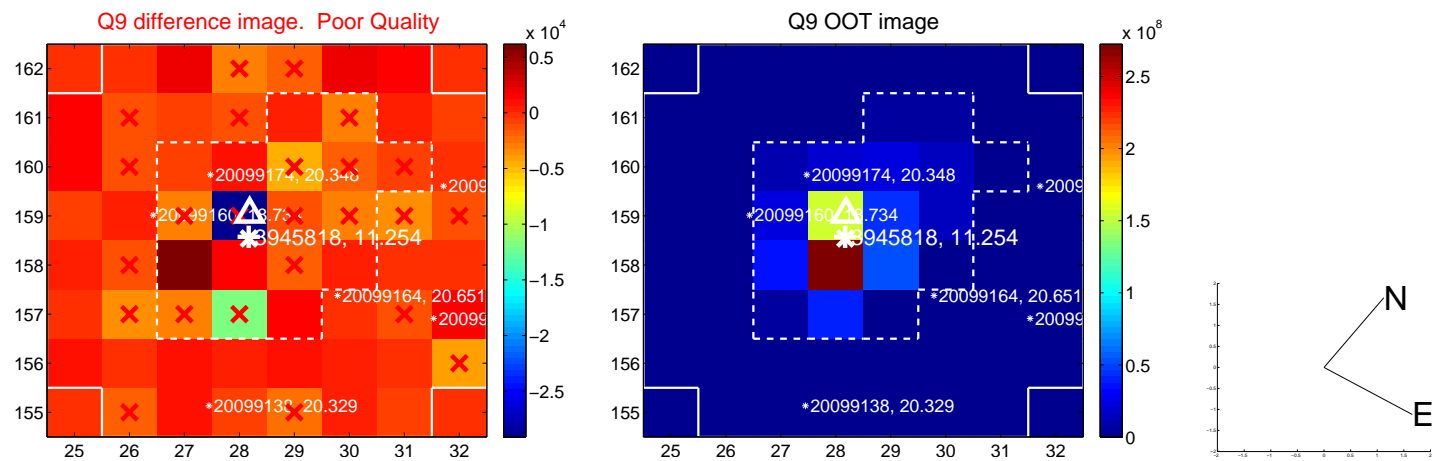
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



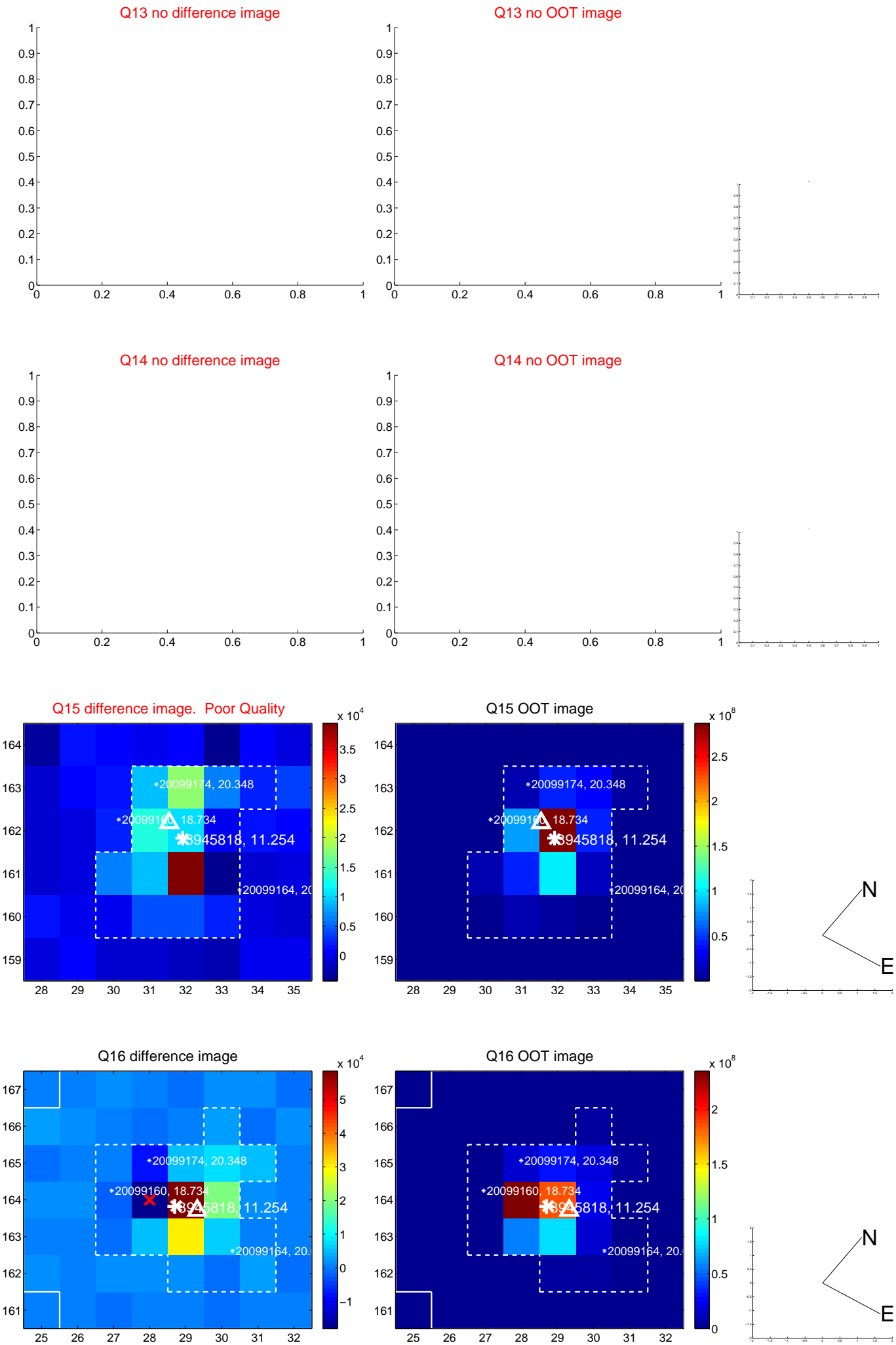
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



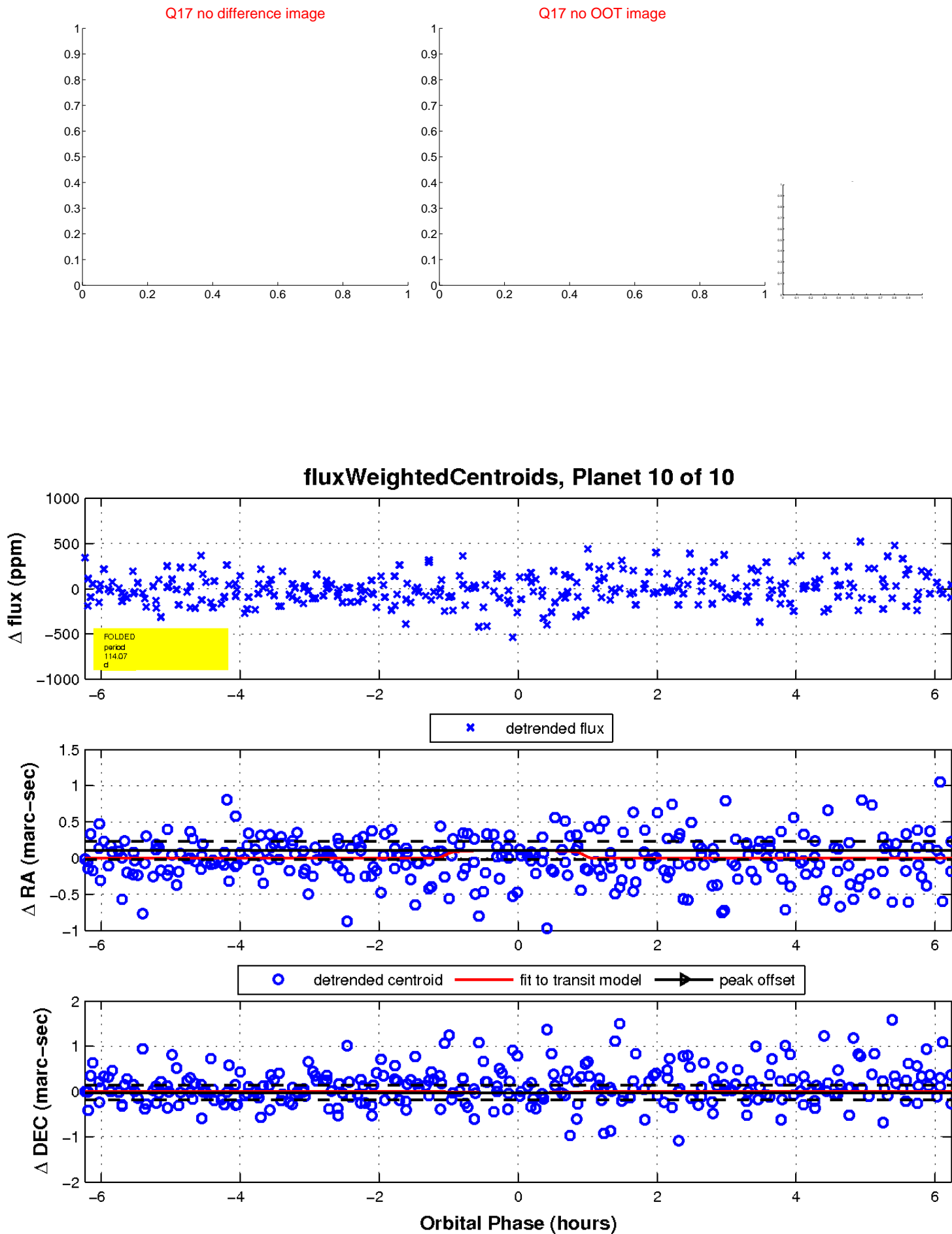
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

