

KIC 004757997

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})
004757997-01	OBS	No	0.971364	131.734108	24.8	4.192	9.2	8.1	5.01	7123	2.69	90848.87
004757997-02	OBS	No	162.232260	227.590283	362.3	12.380	8.9	6.7	5.01	7123	11.25	98.78
004757997-03	OBS	No	197.821200	151.524007	642.7	7.021	8.8	8.3	5.01	7123	22.48	75.82
004757997-05	OBS	No	114.716585	151.463704	390.4	4.932	8.1	8.3	5.01	7123	12.67	156.79
004757997-06	OBS	No	24.937261	133.170221	184.8	6.889	8.0	8.4	5.01	7123	8.40	1199.58
004757997-07	OBS	No	111.851210	221.389229	452.9	11.502	9.3	9.0	5.01	7123	20.18	162.17
004757997-08	OBS	No	265.113952	378.057033	273.0	3.177	8.9	6.4	5.01	7123	9.21	51.32
004757997-09	OBS	No	69.410357	154.726924	95.8	6.000	8.3	-1.0	5.01	7123	4.96	306.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757997-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

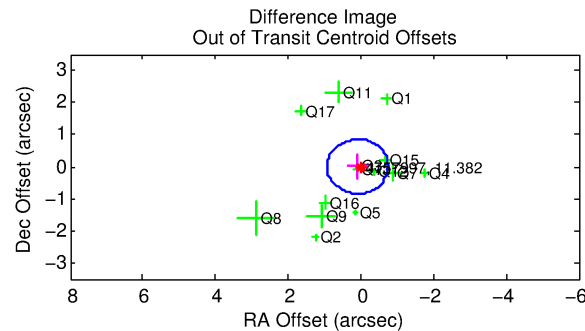
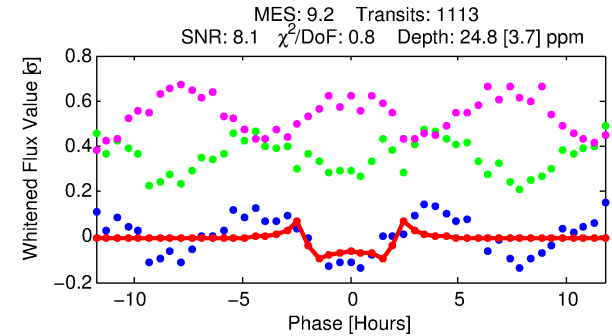
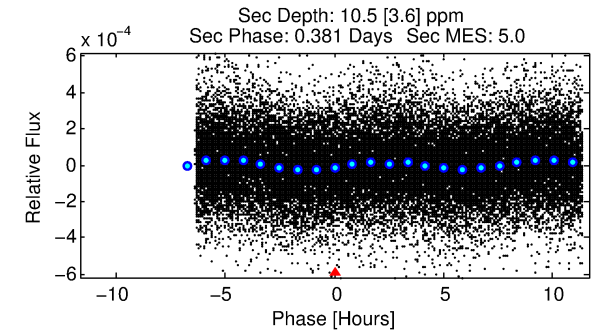
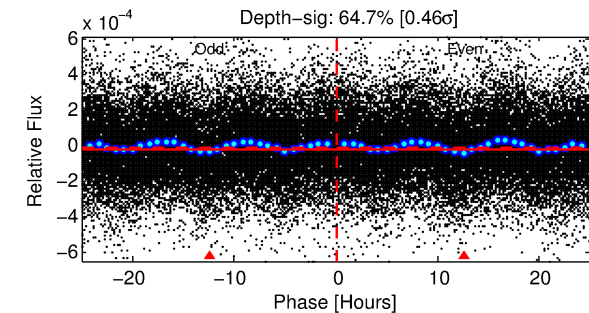
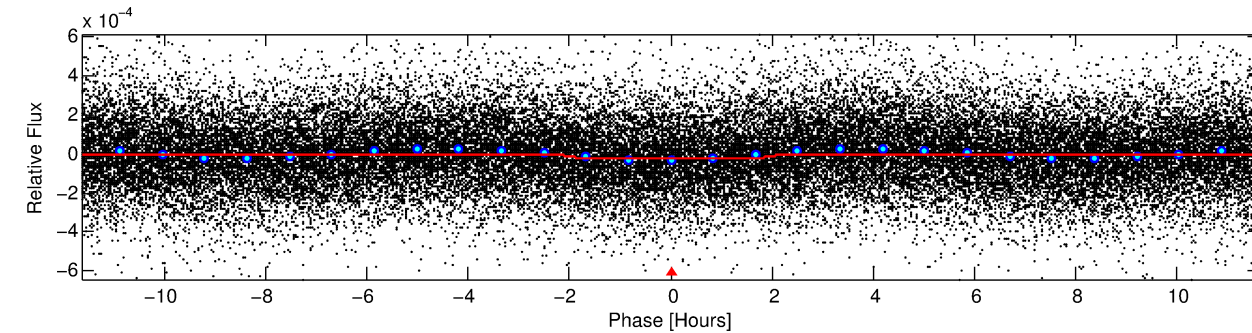
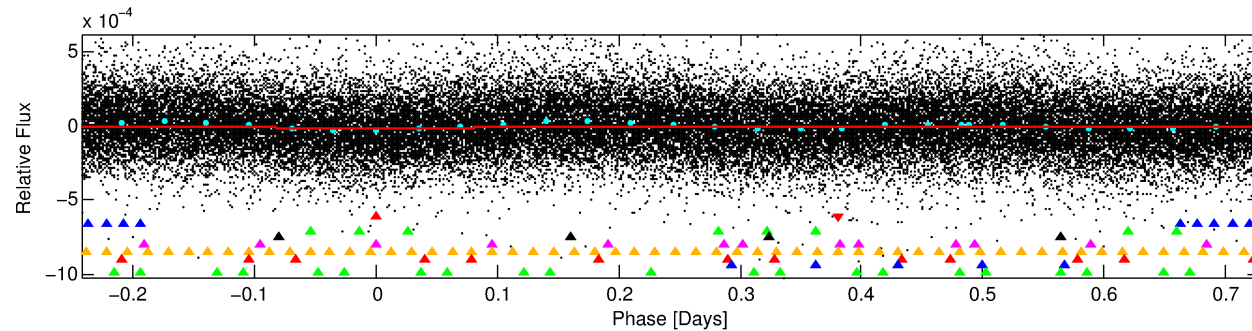
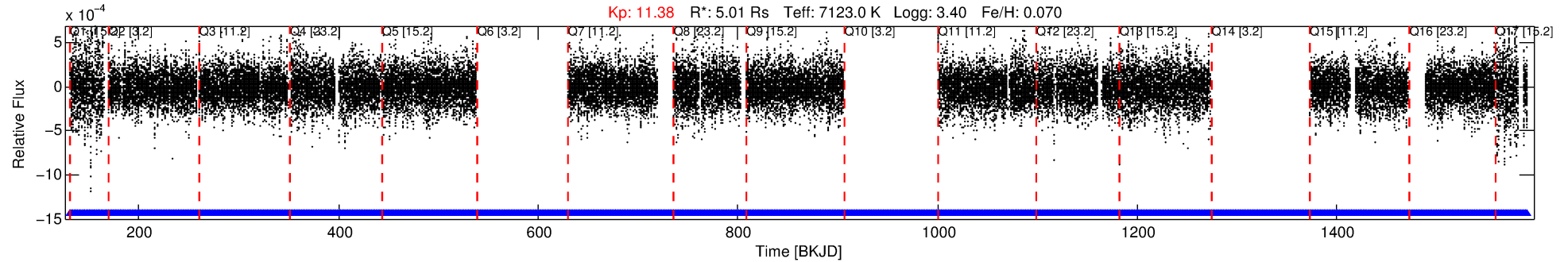
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-01

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 1 of 9 Period: 0.971 d



DV Fit Results:

Period = 0.97136 [0.00001] d
Epoch = 131.7341 [0.0023] BKJD
Rp/R* = 0.0049 [0.0010]
a/R* = 1.48 [0.90]
b = 0.73 [0.72]
Seff = 90848.87 [62182.66]
Teq = 4427 [758] K
Rp = 2.69 [1.30] Re
a = 0.0252 [0.0106] AU
Ag = 0.51 [0.43] [-1.14 σ]
Teffp = 5781 [782] K [1.24 σ]

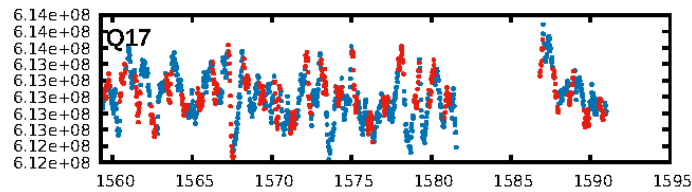
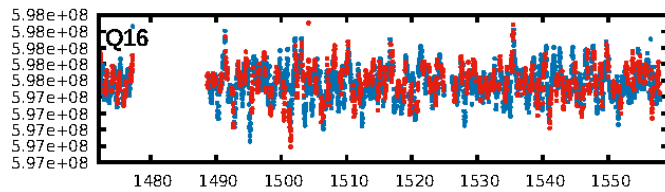
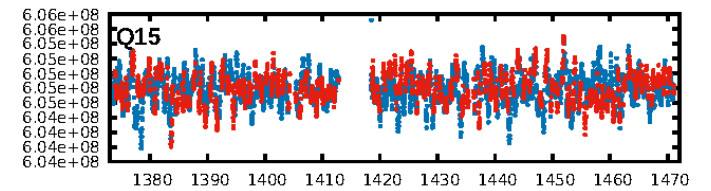
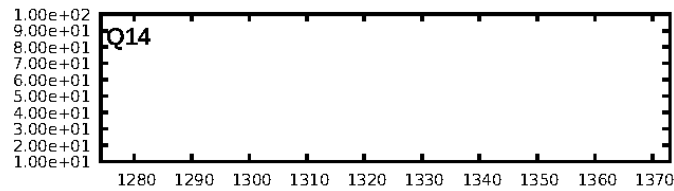
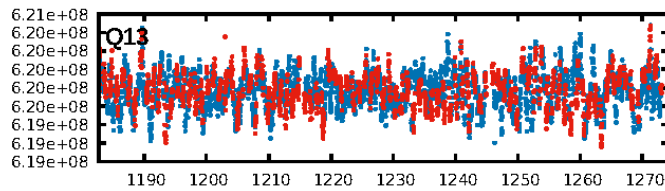
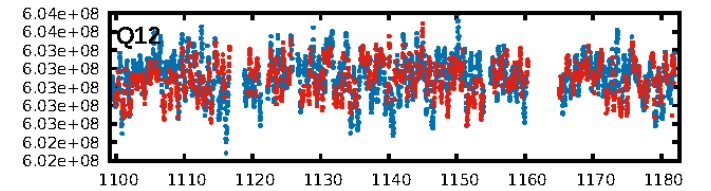
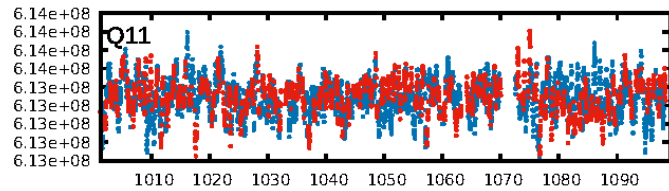
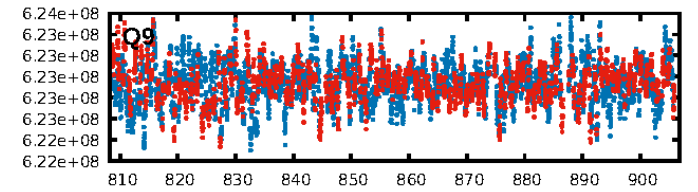
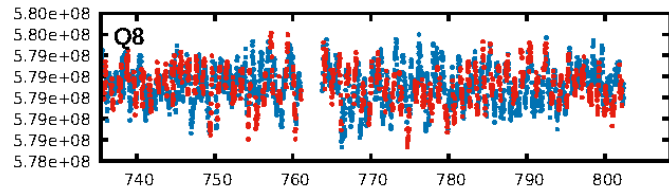
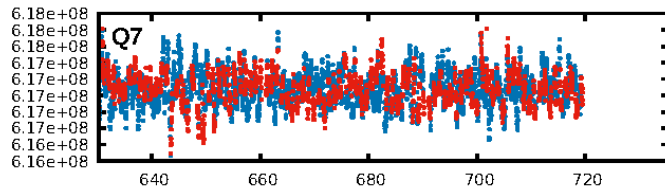
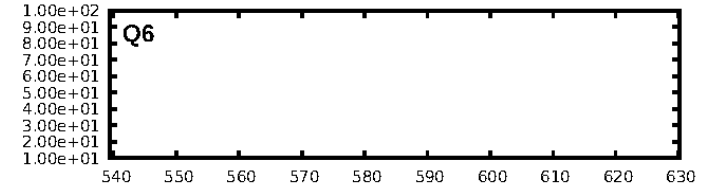
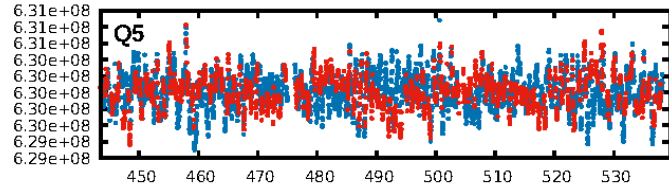
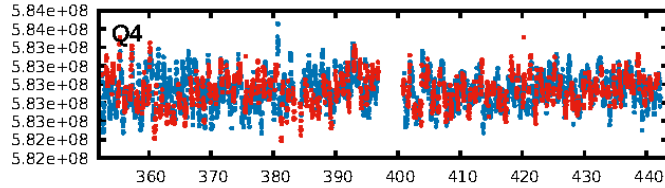
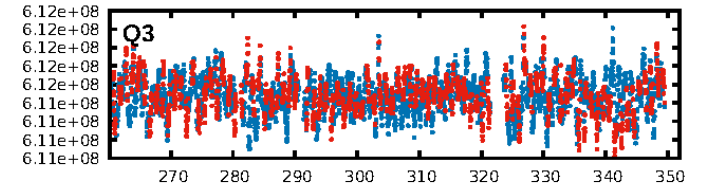
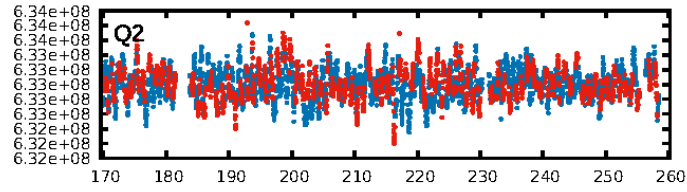
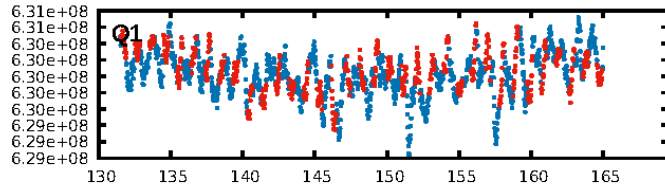
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [71.32 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1050/1050]
GhostDiagnostic-chr: 1.819
Centroid-sig: 4.6%
Centroid-so: 0.525 arcsec [1.63 σ]
OotOffset-rm: 0.091 arcsec [0.33 σ]
KicOffset-rm: 0.253 arcsec [0.74 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.86 [12/14]
DiffImageOverlap-fno: 1.00 [14/14]

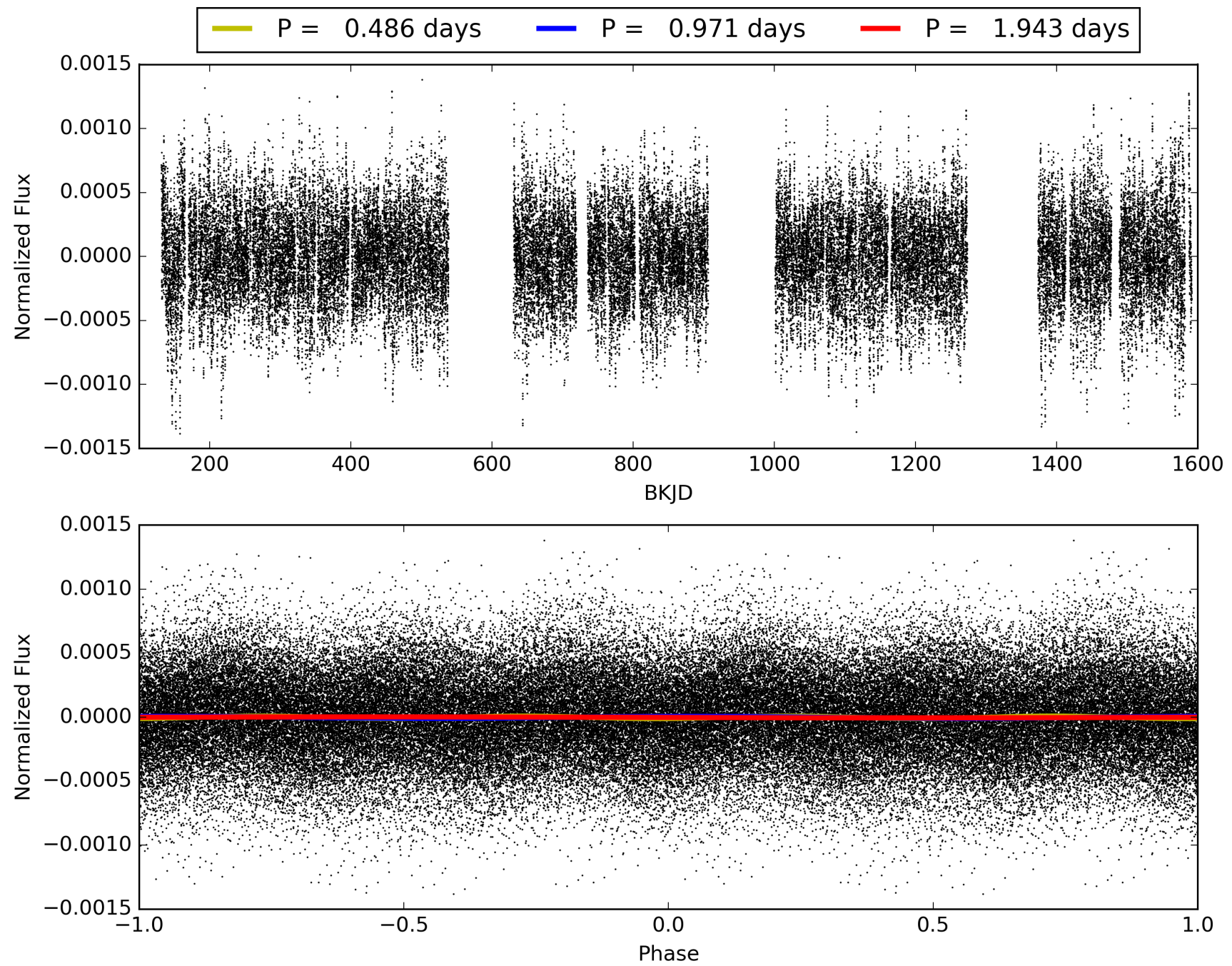
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:00 Z

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

TCE 004757997-01, PDC Light Curves

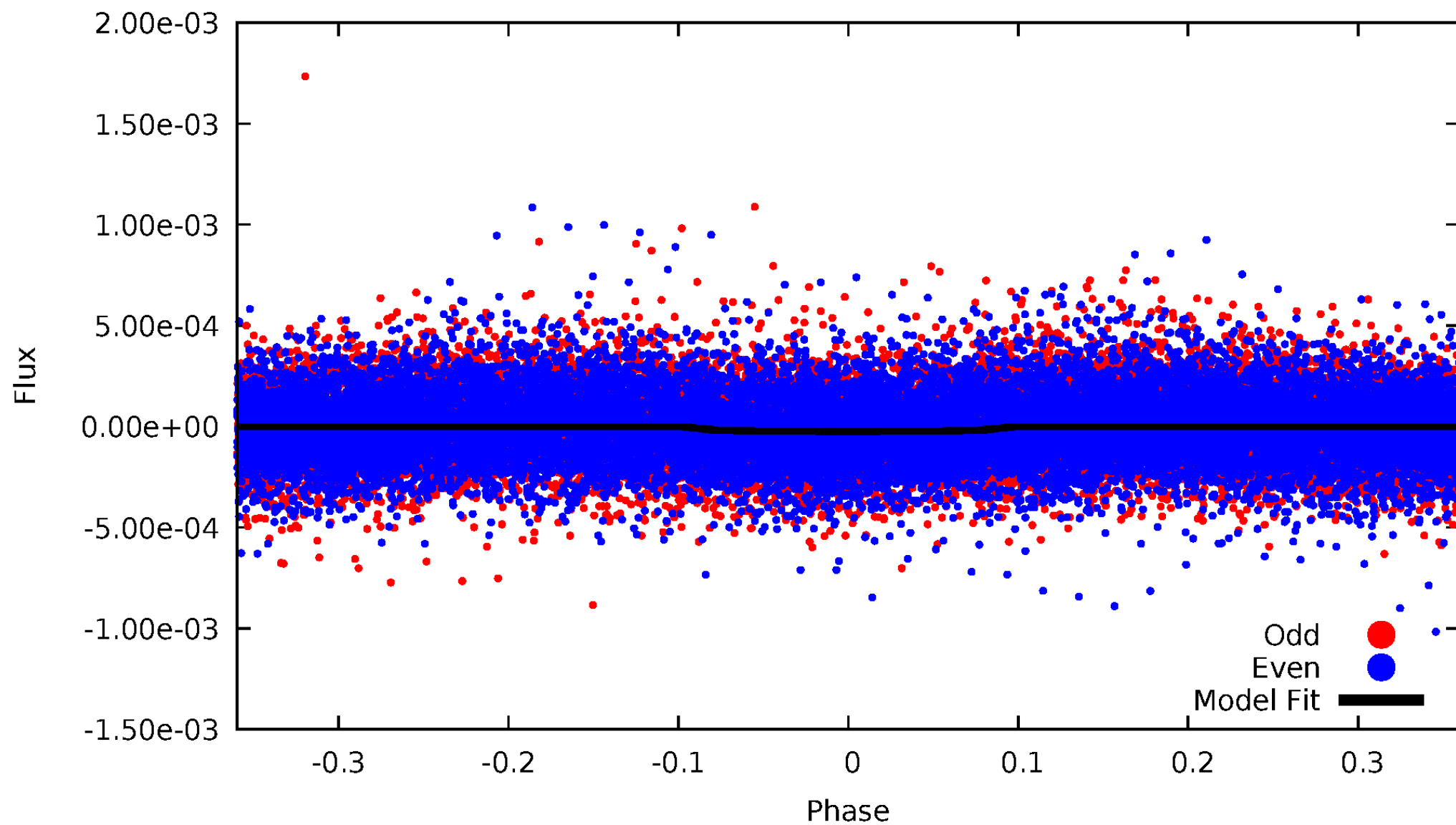


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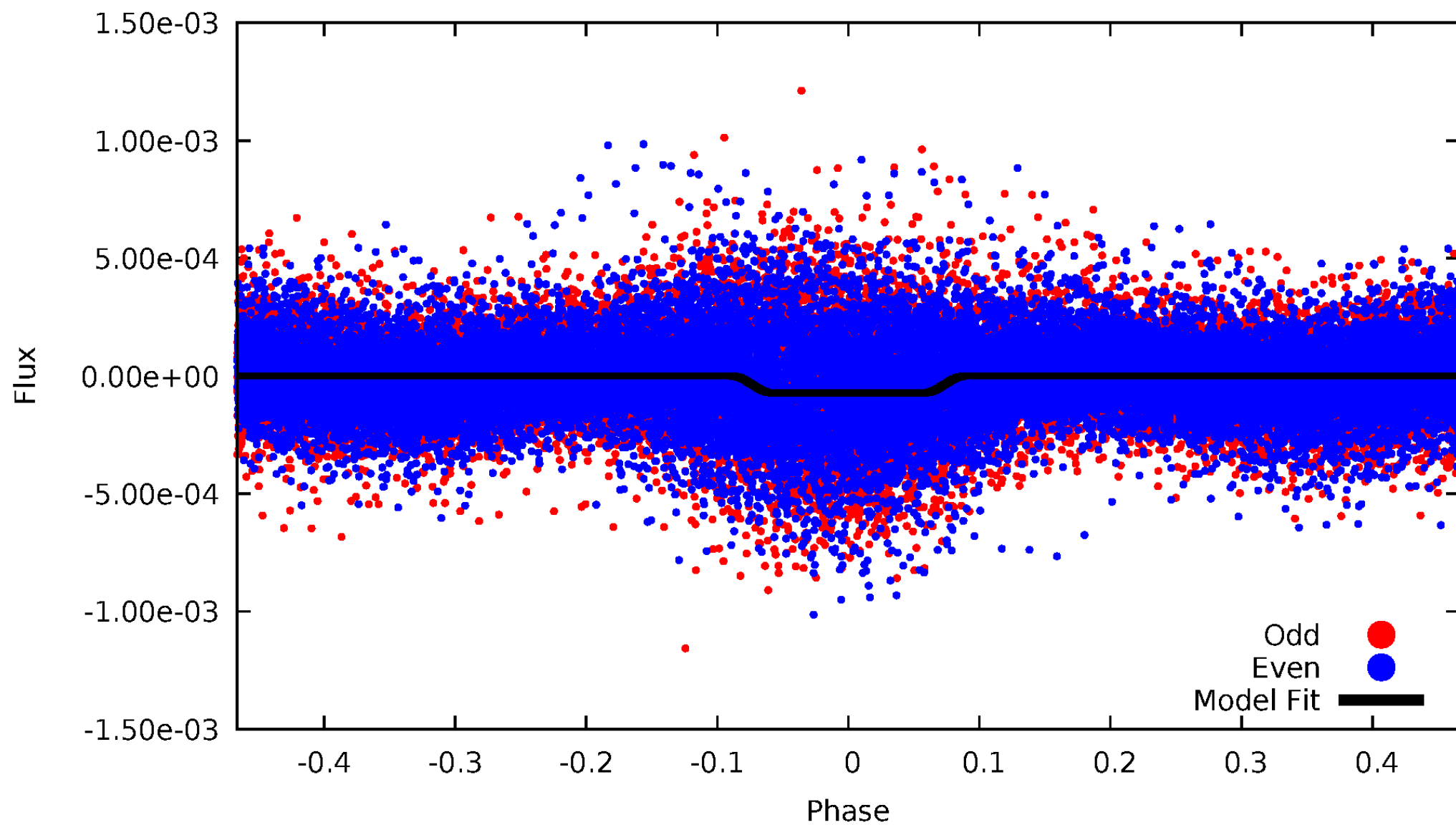
DV Odd/Even

TCE 004757997-01

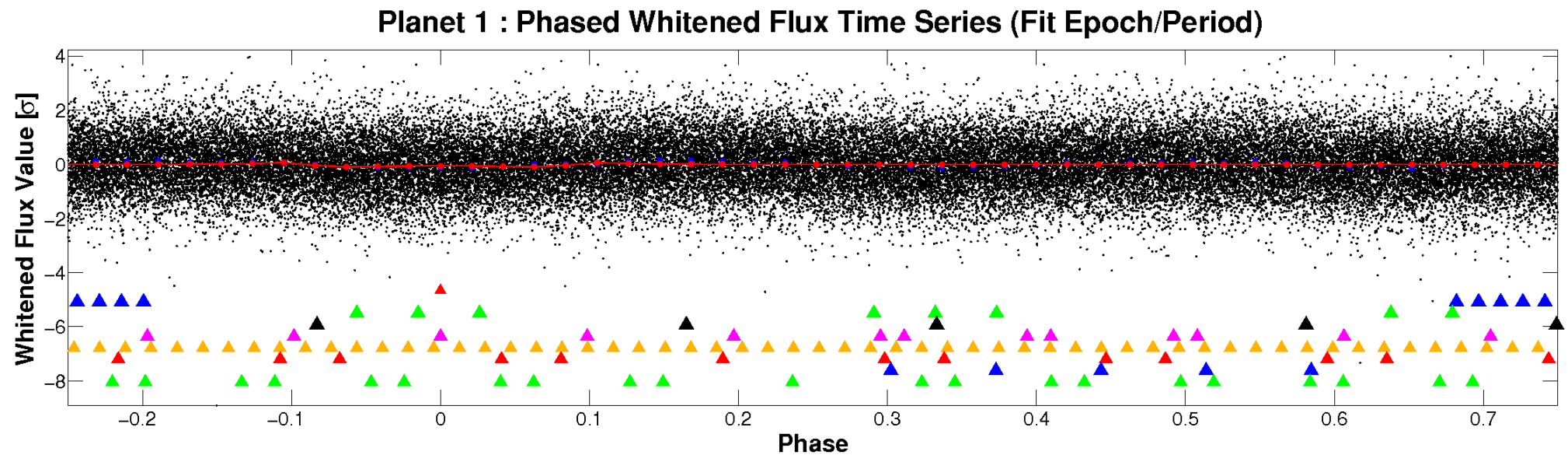
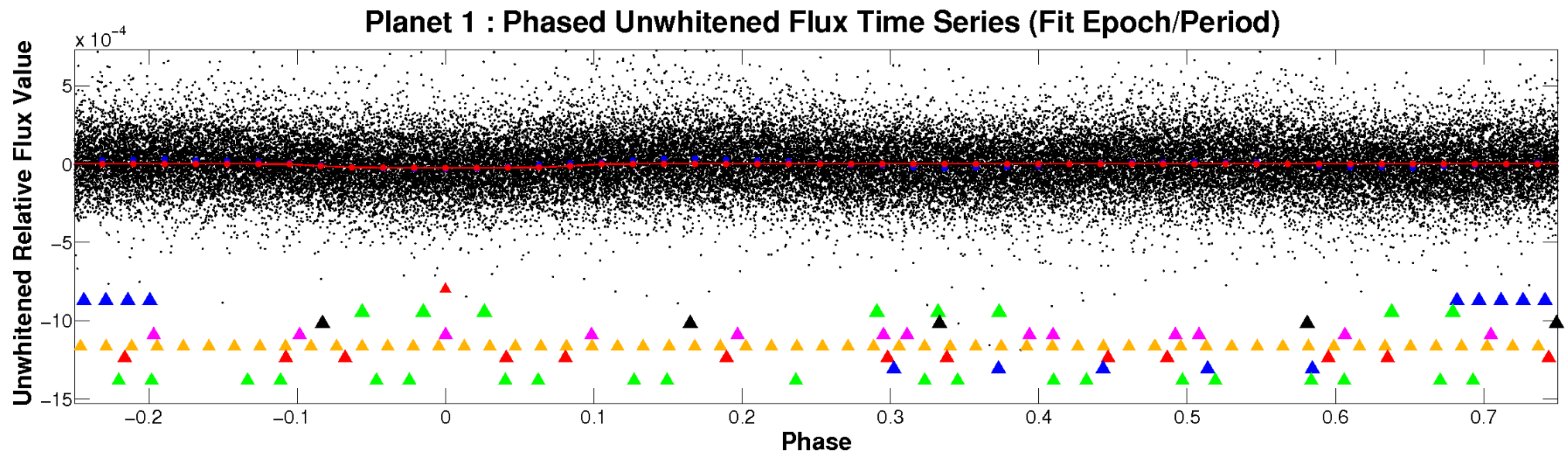


ALT Odd/Even

TCE 004757997-01

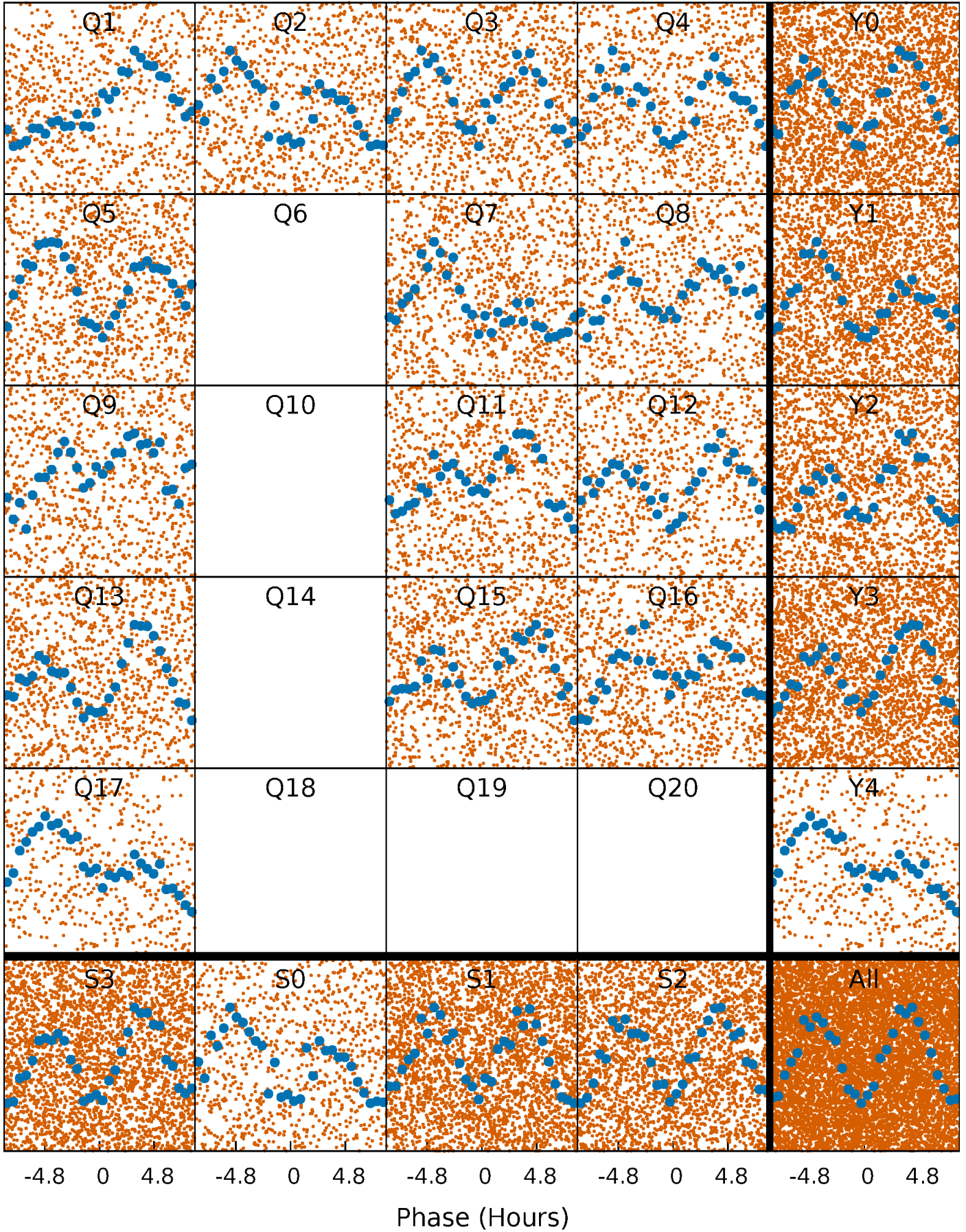


Non-Whitened Vs. Whitened Light Curve



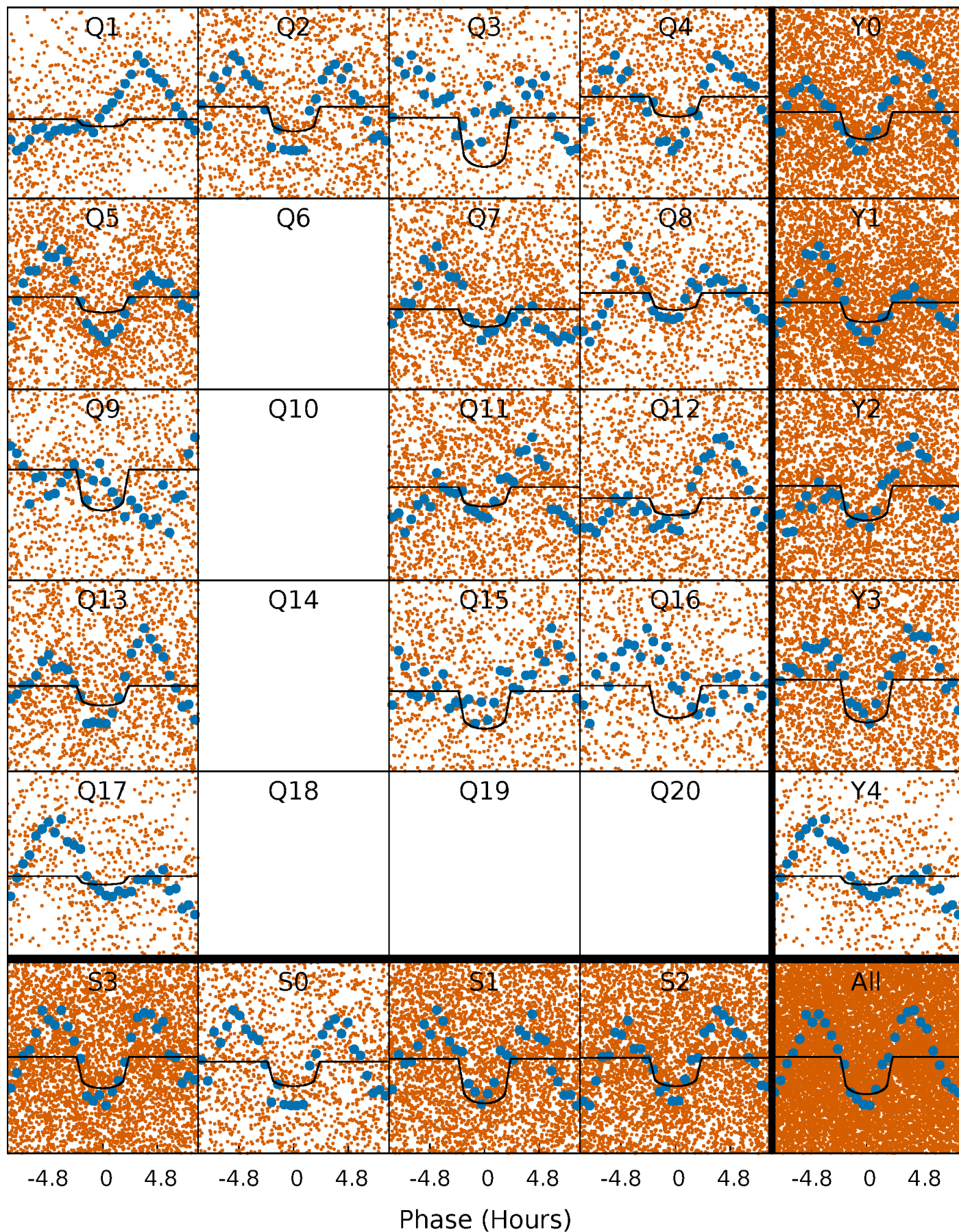
PDC Quarter-Phased Transit Curves

TCE 004757997-01 P= 0.971364 Days $T_0=131.734107$ (BKJD)



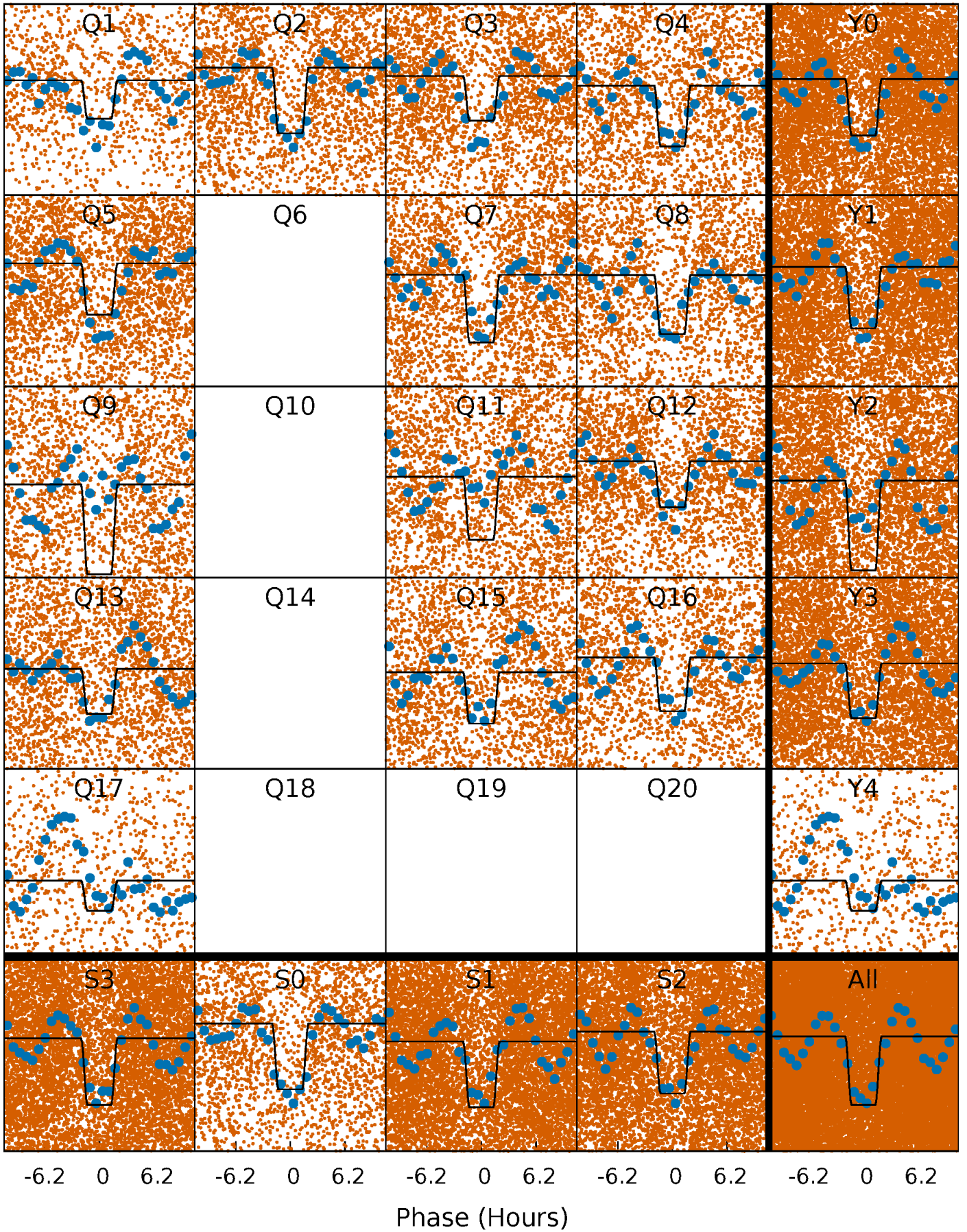
DV Quarter-Phased Transit Curves

TCE 004757997-01 P= 0.971364 Days $T_0=131.734107$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

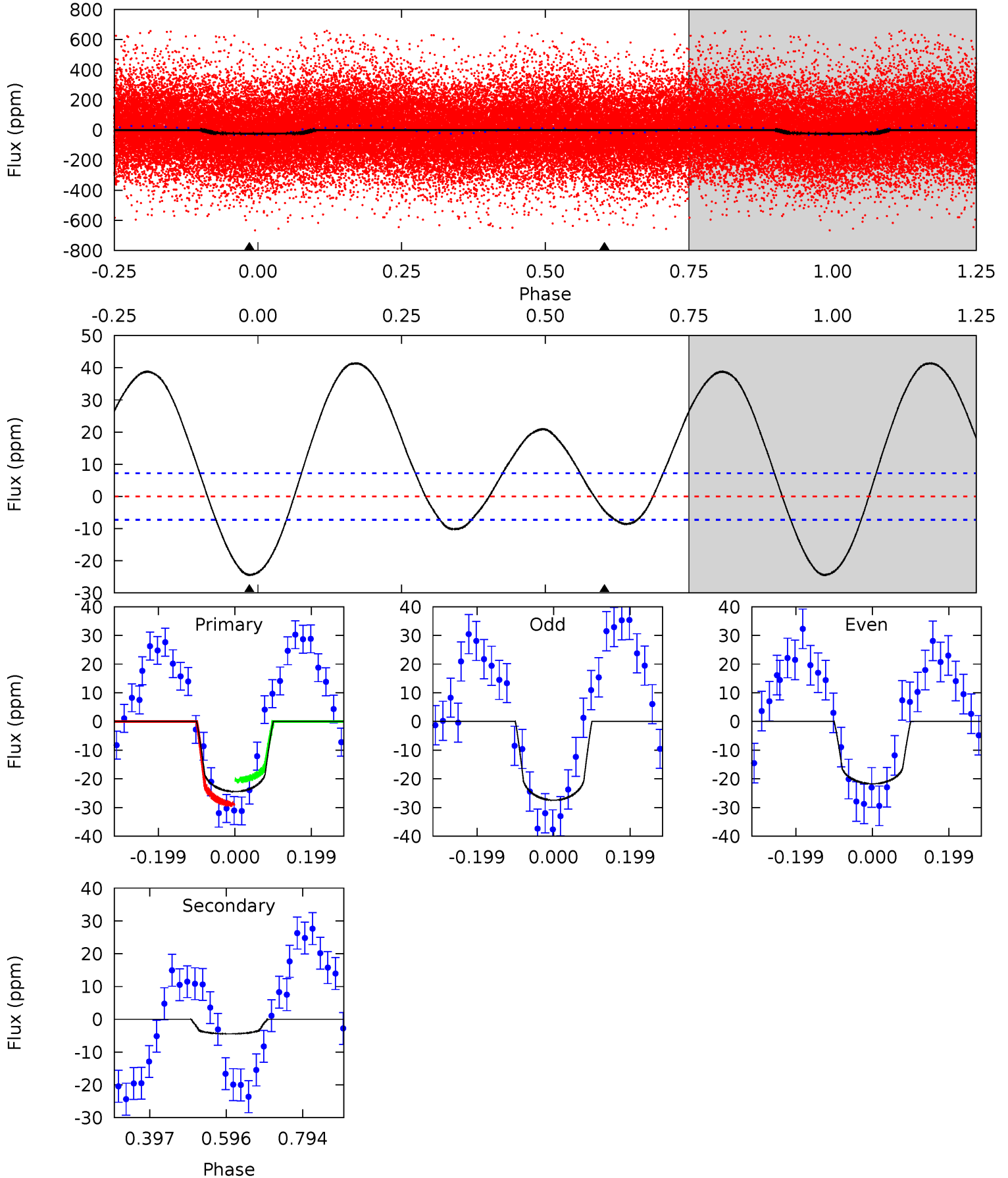
TCE 004757997-01 P= 0.971376 Days $T_0=131.714609$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-01, P = 0.971364 Days, E = 130.762743 Days

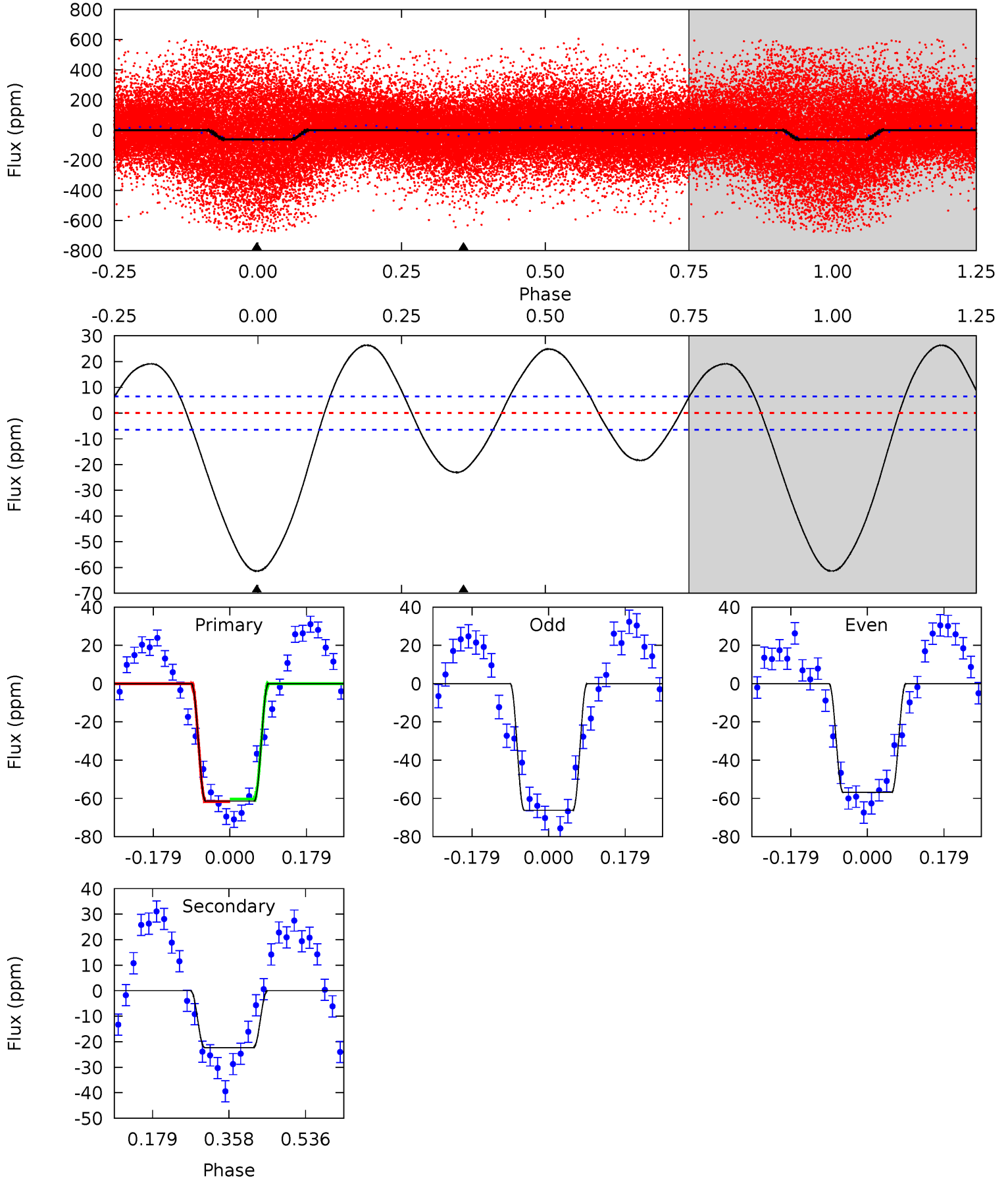
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	2.72	0	0	4.42	1.29	10.5	14.9	14.9	2.72	2.72	1.75	1.12	0.63	2.57



Alt Model-Shift Uniqueness Test

004757997-01, P = 0.971376 Days, E = 130.743233 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.1	15.3	0	0	4.44	1.34	9.23	42.1	42.1	15.3	15.3	3.21	0.94	0.30	0.48



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4 ± 2	$2.40^{+0.72}_{-0.66}$	5939^{+463}_{-644}	-3466^{+7728}_{-1013}	$0.256^{+0.239}_{-0.126}$
Alt.	-22 ± 1	$4.25^{+0.93}_{-0.94}$	5975^{+431}_{-650}	4152^{+681}_{-6885}	$0.426^{+0.256}_{-0.134}$

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 $A_{obs} \gg 1.0$

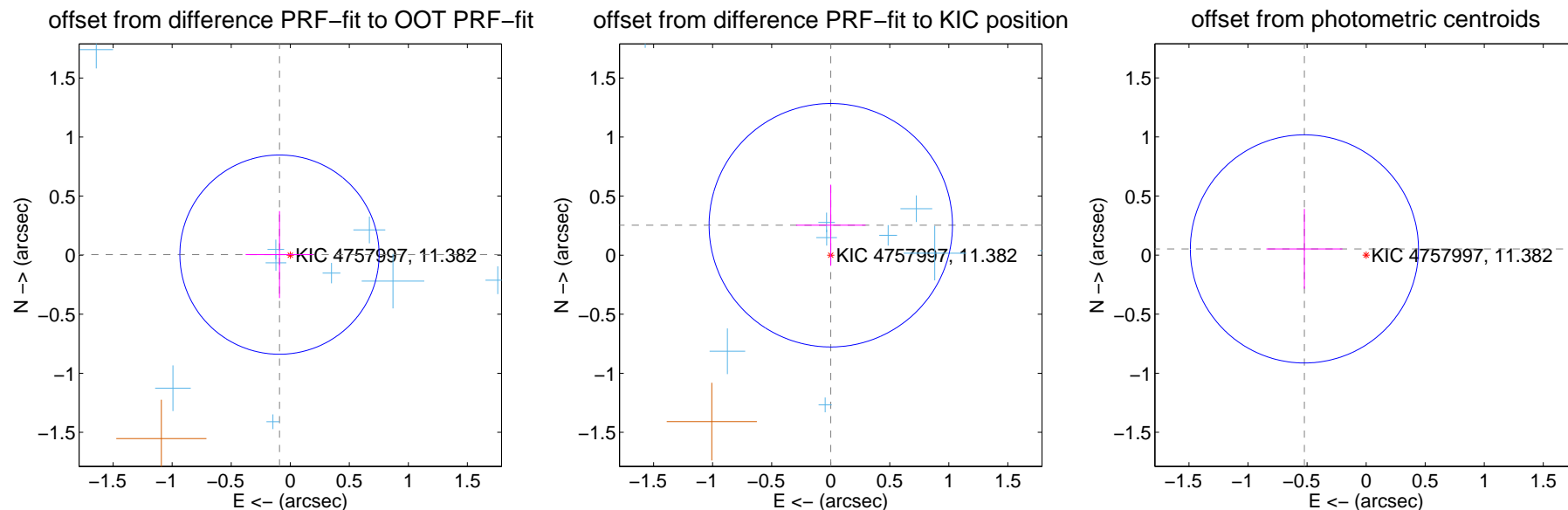
DV Centroid Data

Supplemental centroid analysis for 004757997-01. **Kepler magnitude: 11.38.** Transit SNR 8.06

There are 12 quarters with good PRF difference image offsets

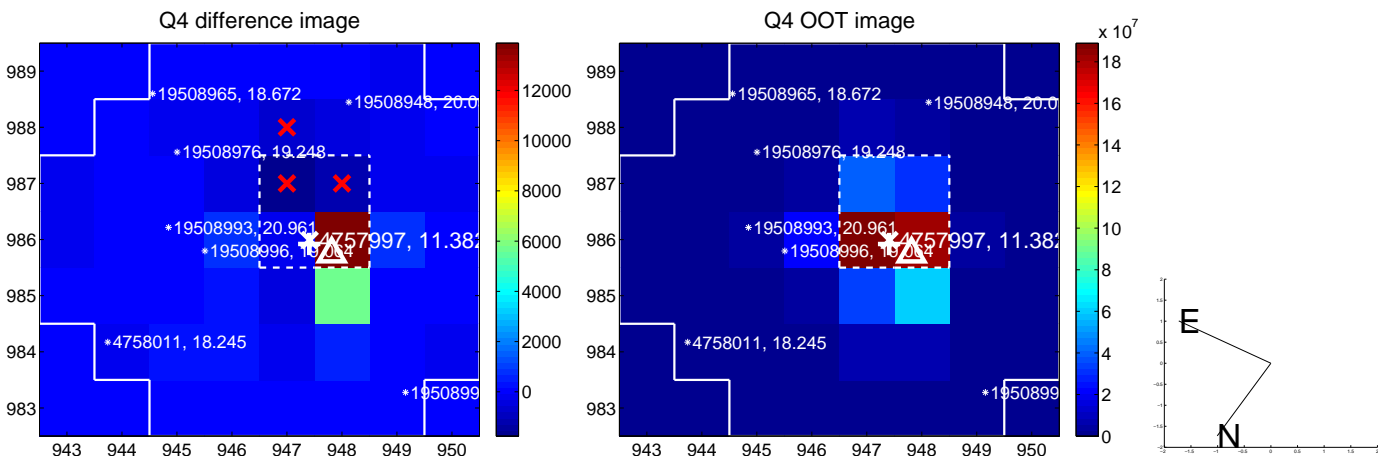
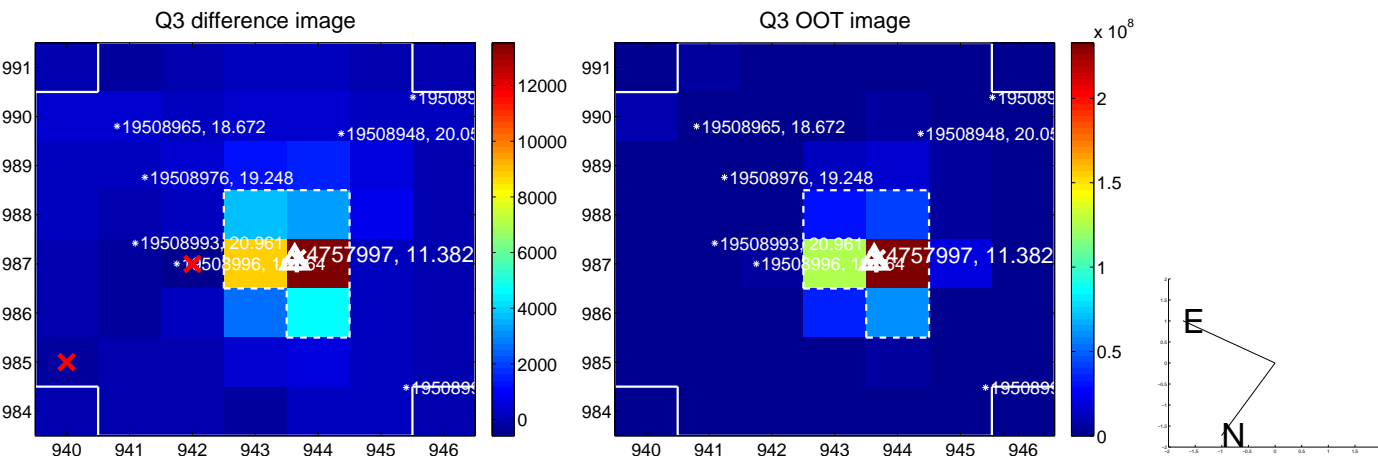
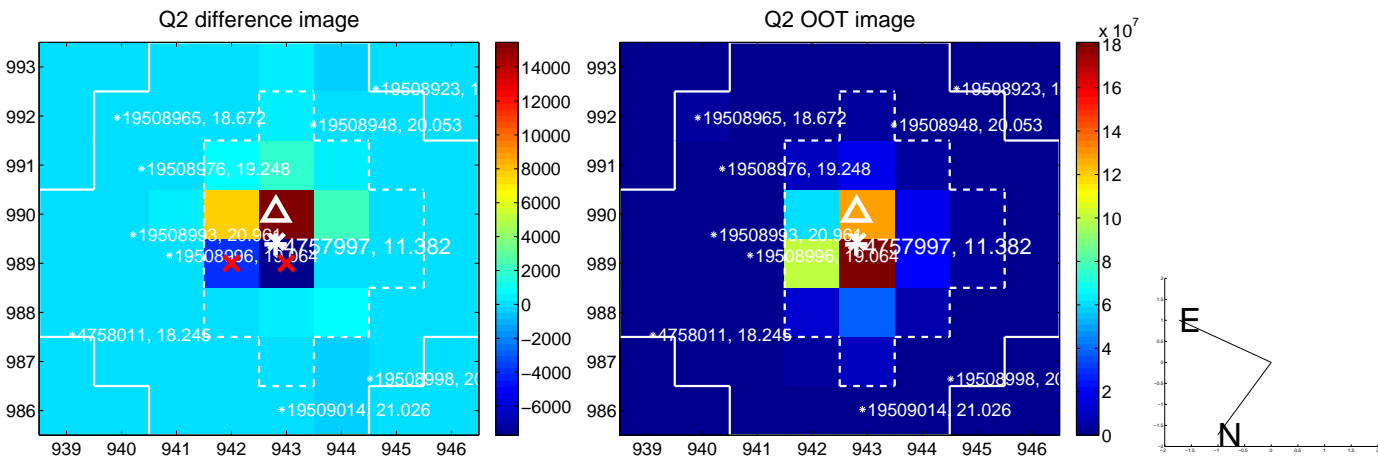
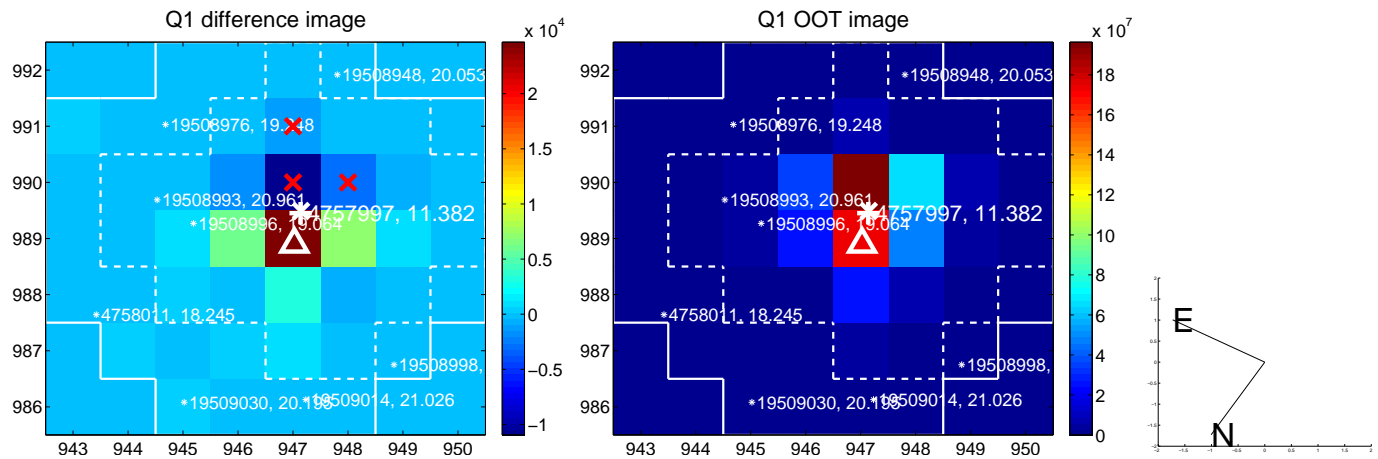
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.091 ± 0.281	0.33	0.091 ± 0.287	0.005 ± 0.368
PRF-fit source offset from KIC position	0.253 ± 0.344	0.74	-0.001 ± 0.294	0.253 ± 0.343
photometric centroid source offset	0.53 ± 0.32	1.63	0.52 ± 0.32	0.05 ± 0.34

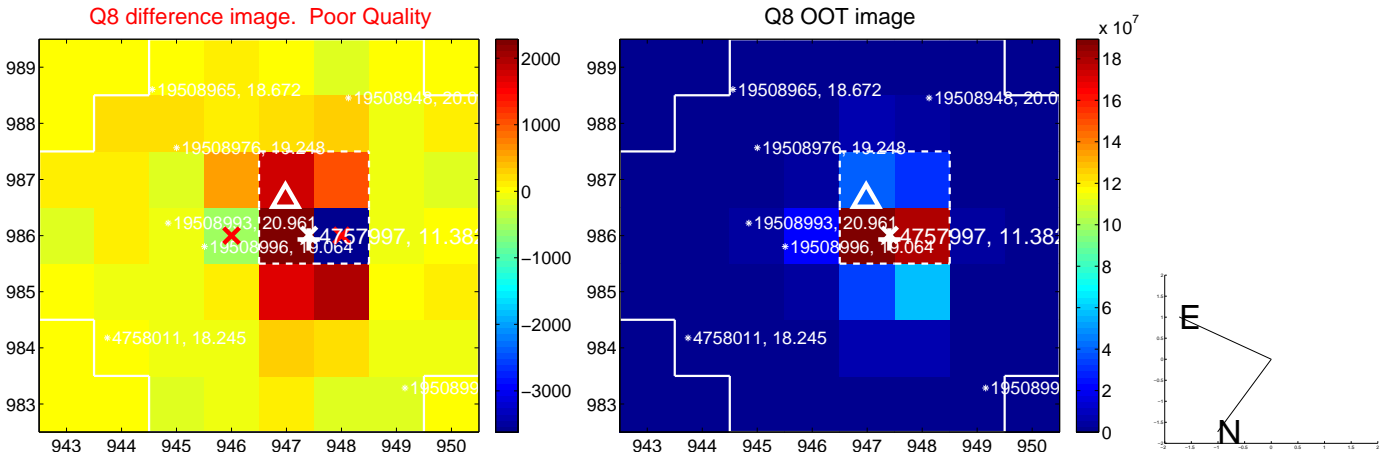
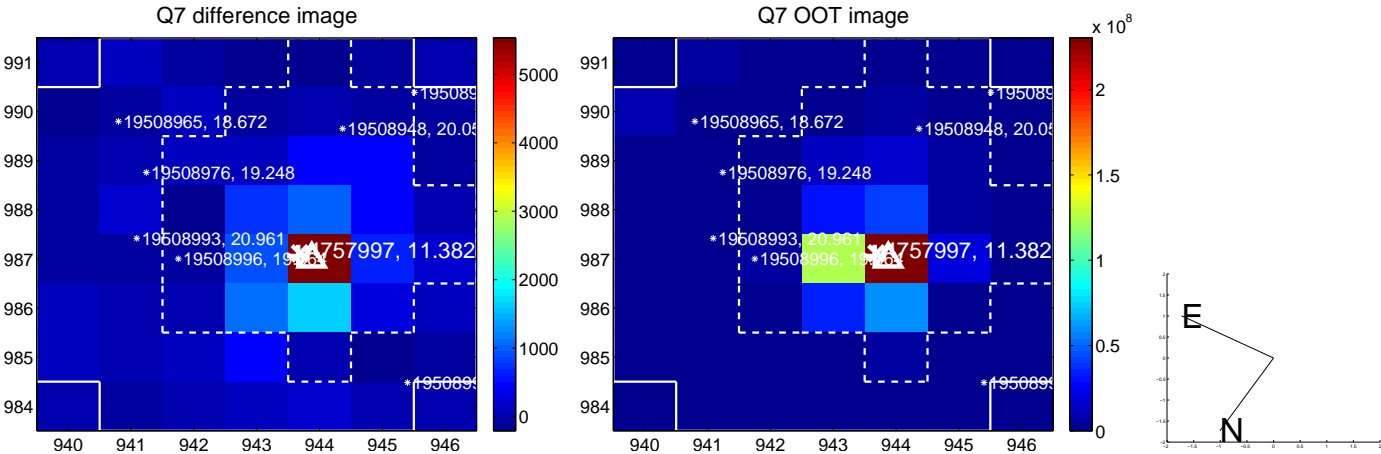
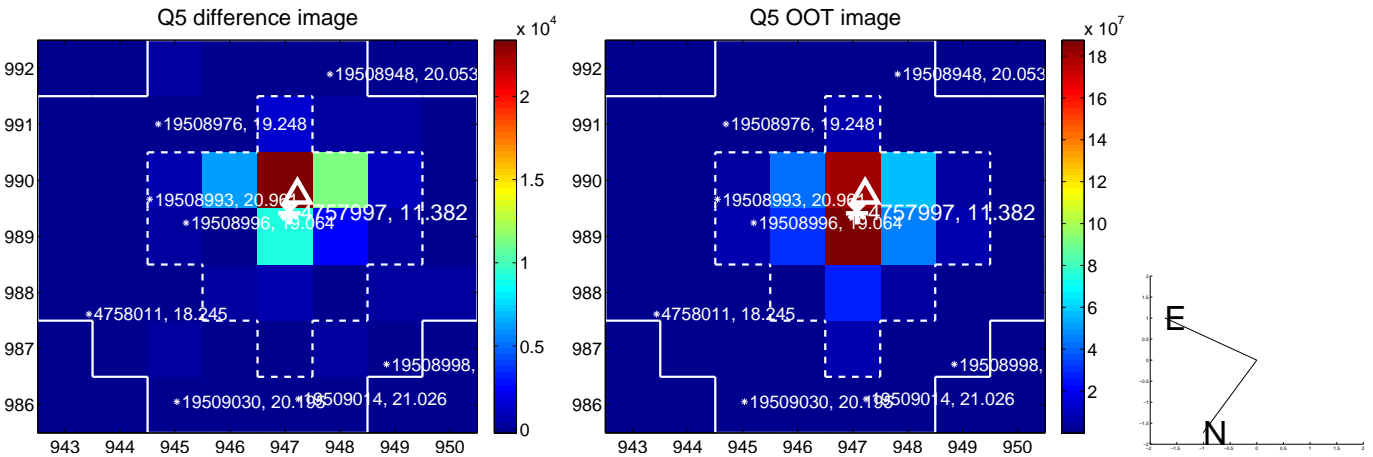


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

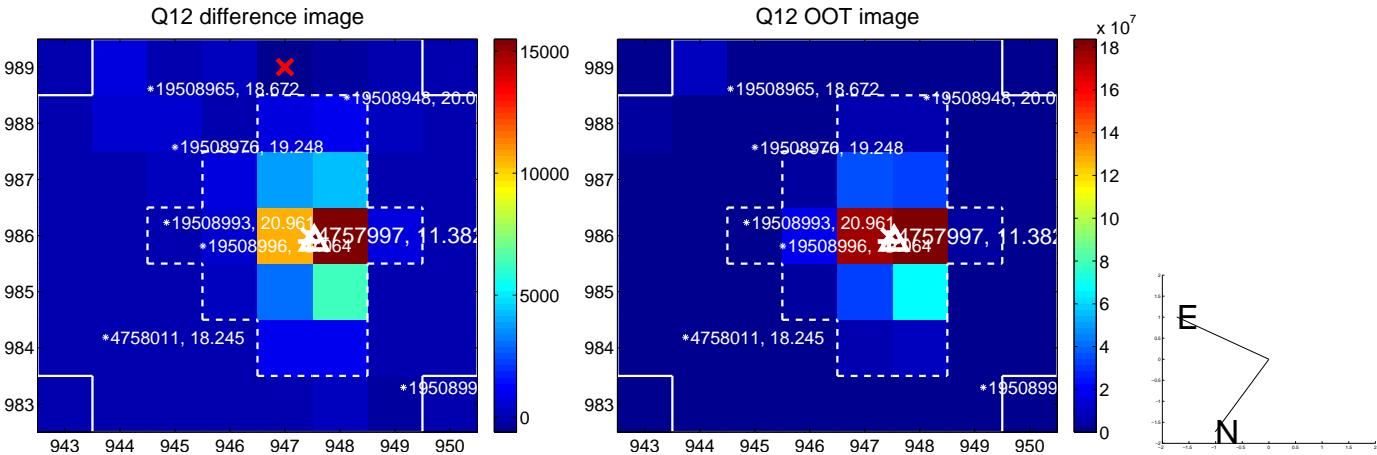
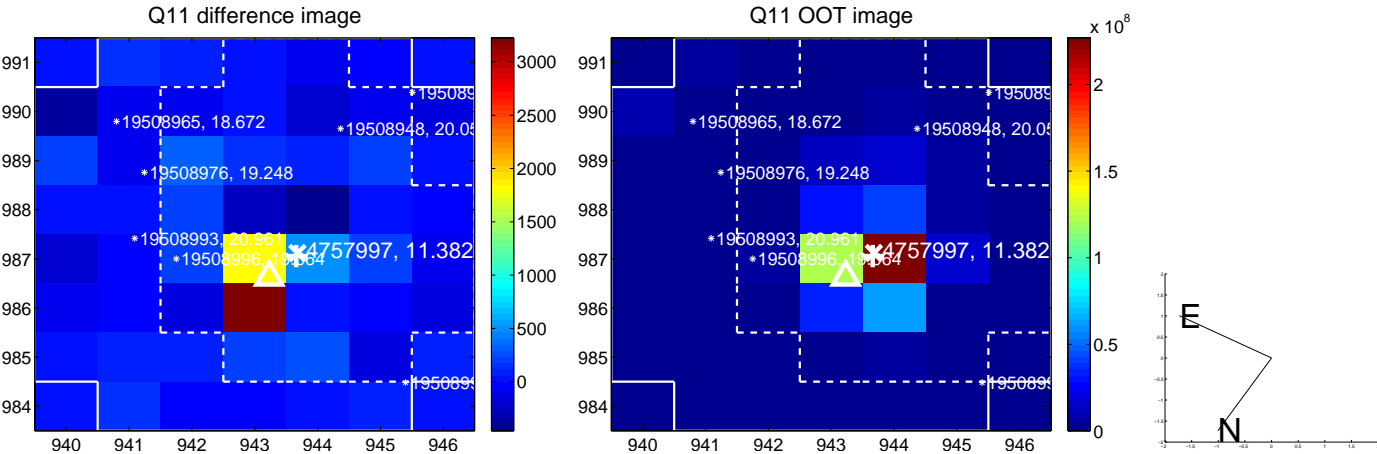
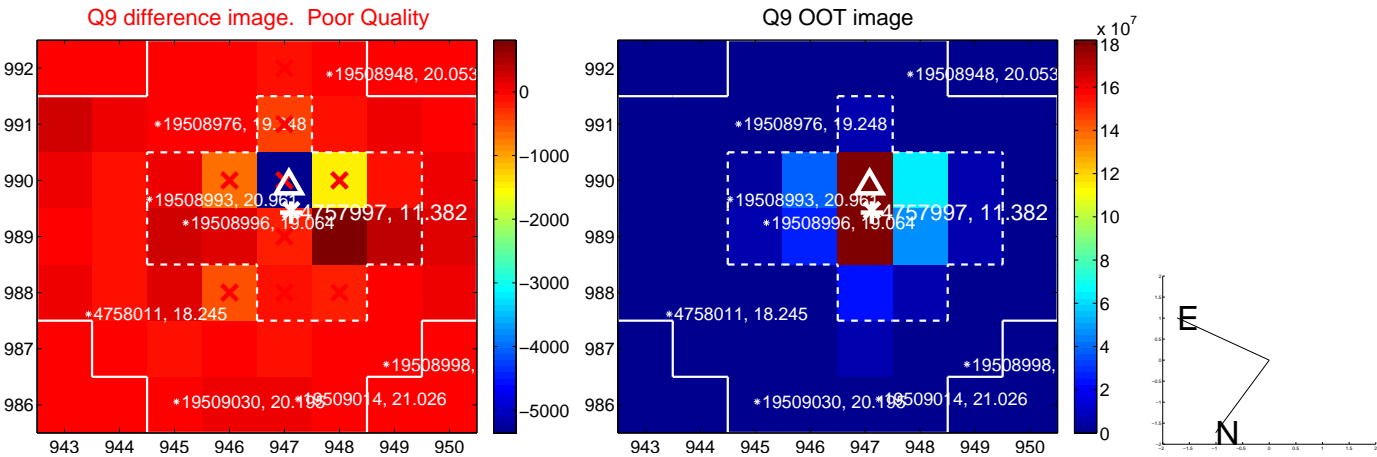
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



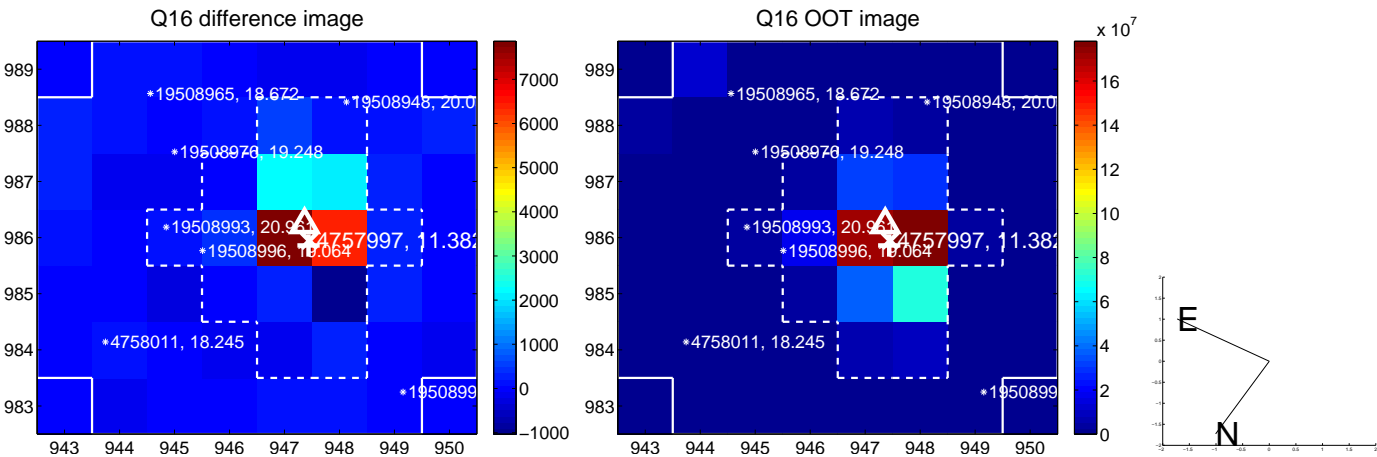
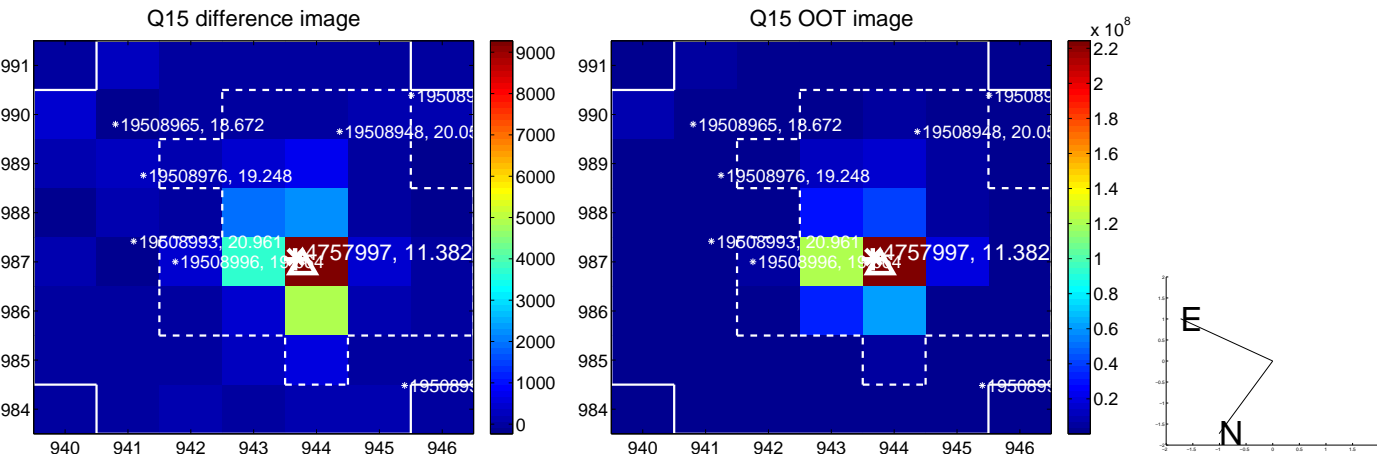
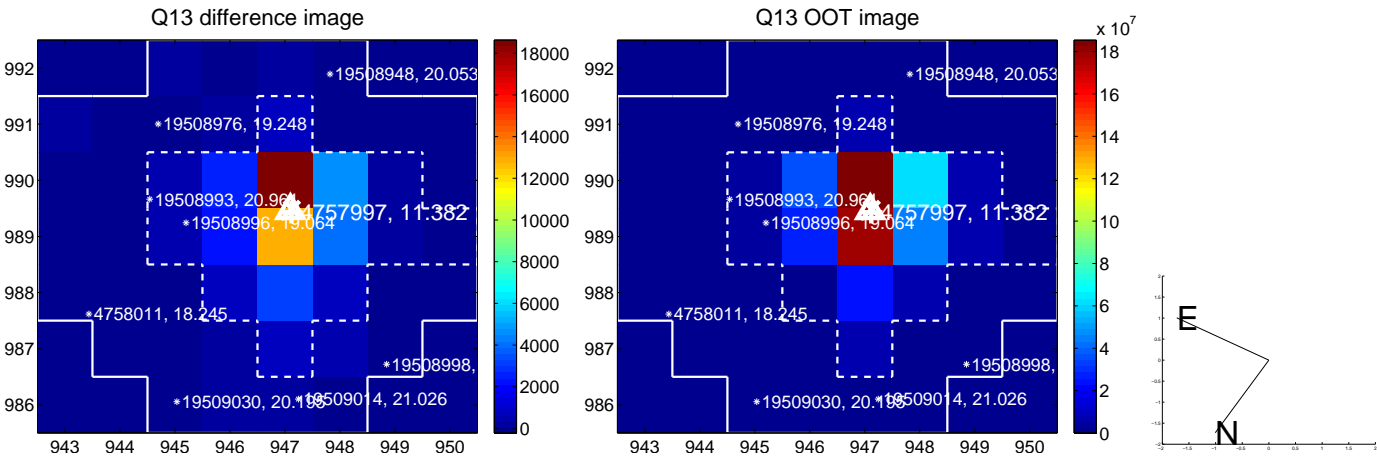
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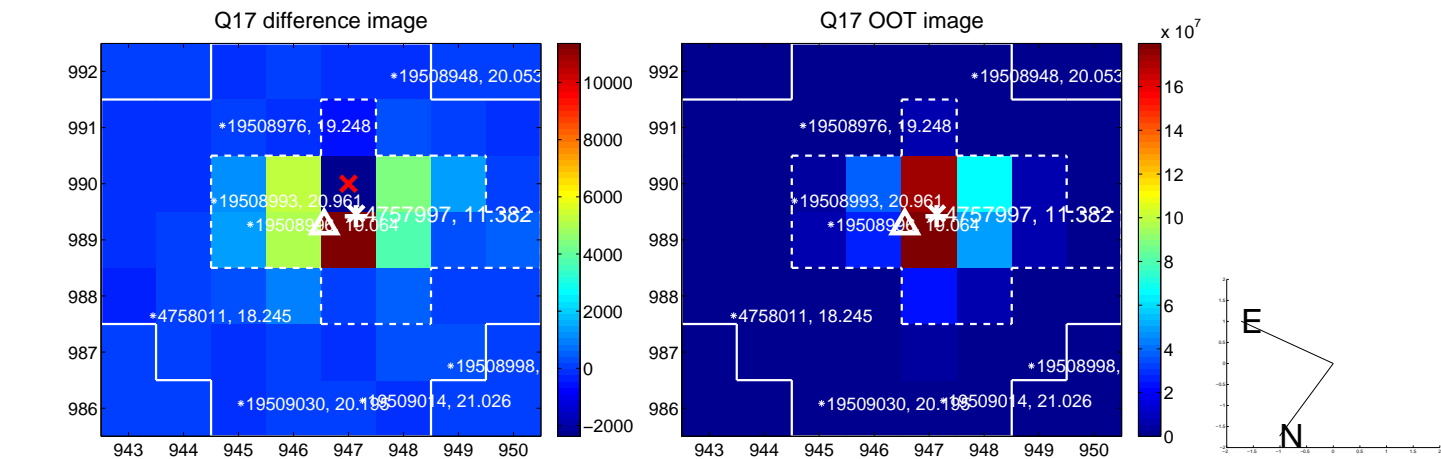
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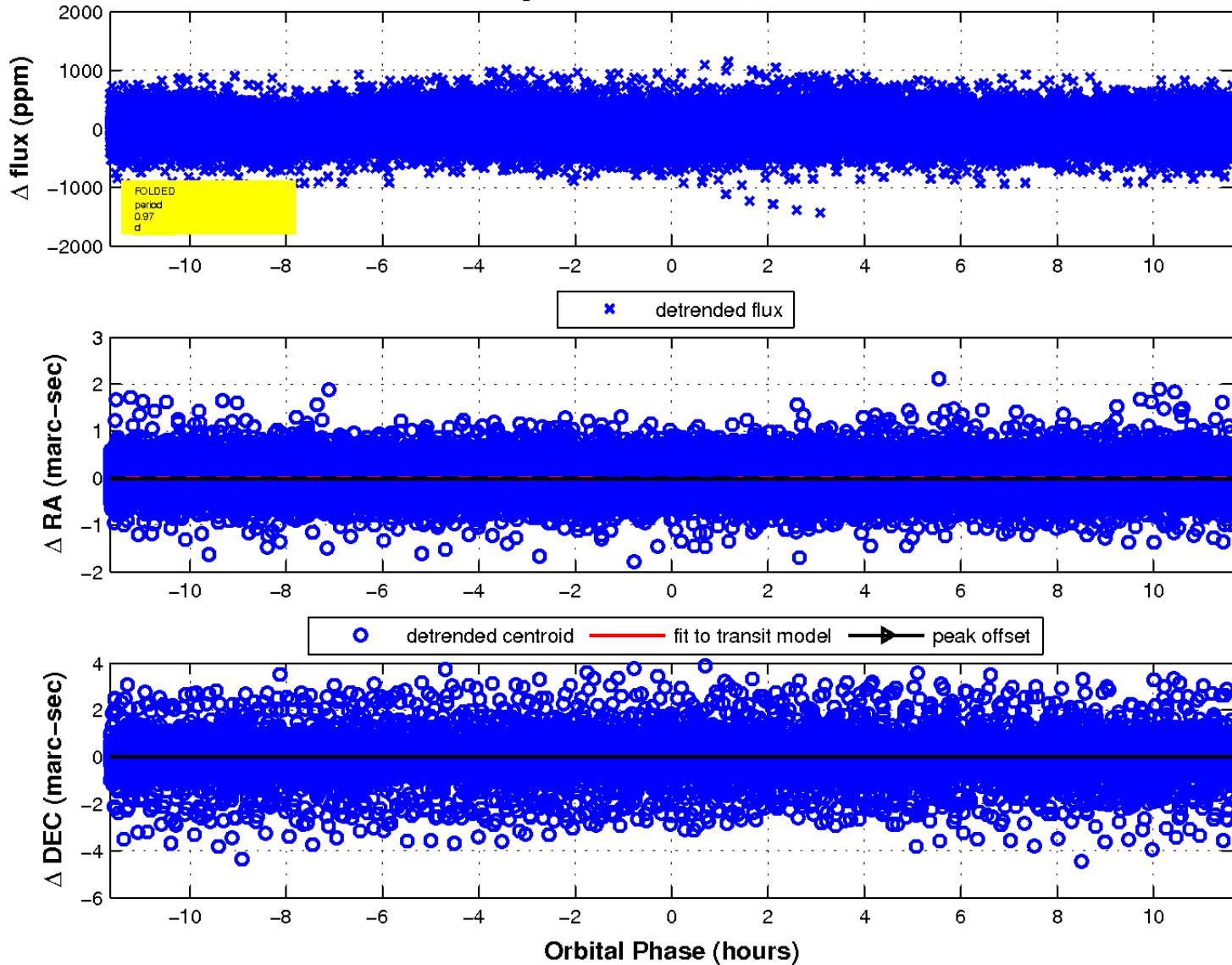
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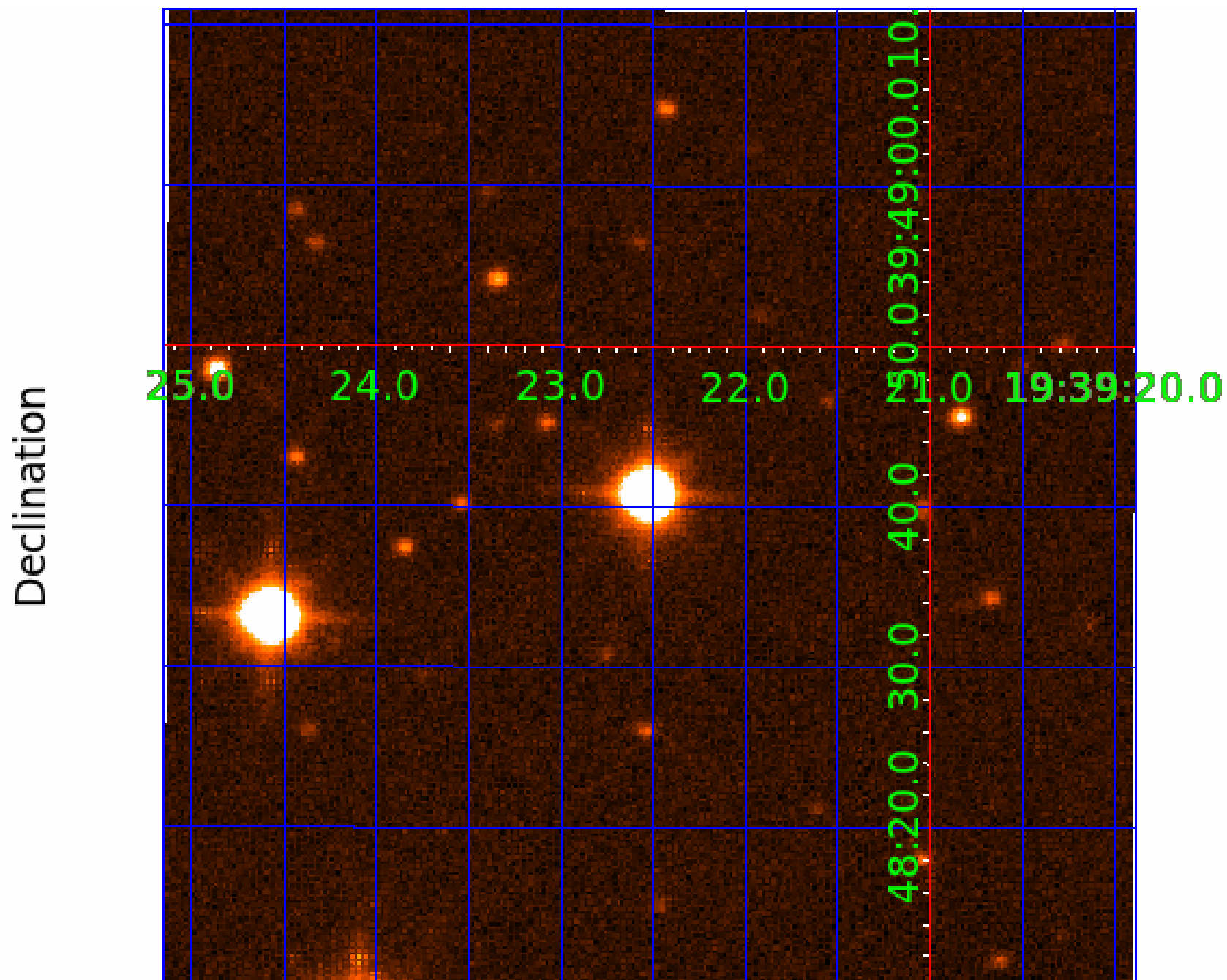
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 9



UKIRT Image



KIC 004757997

Q1-17 DR25 TCE Parameters

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Robovetter Results

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004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

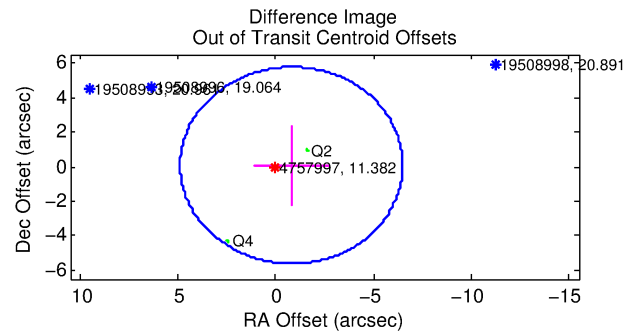
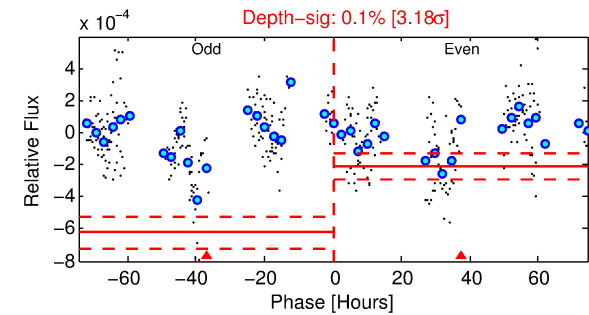
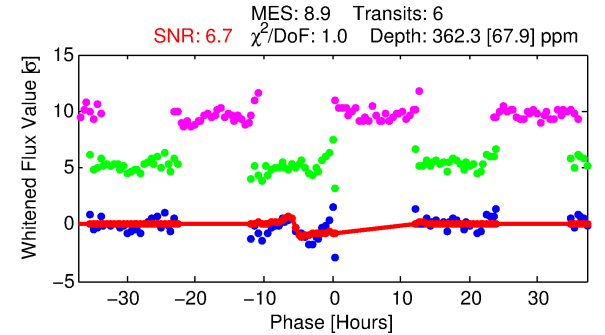
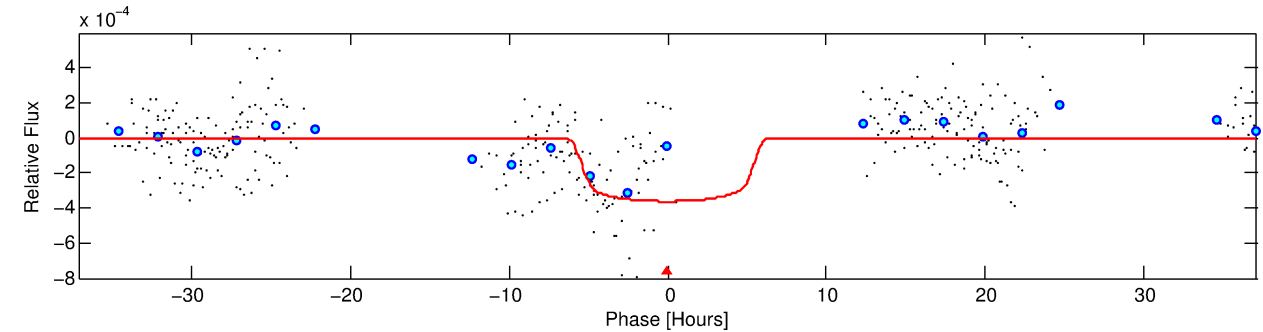
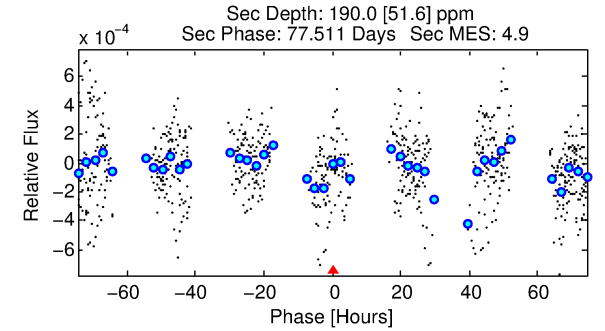
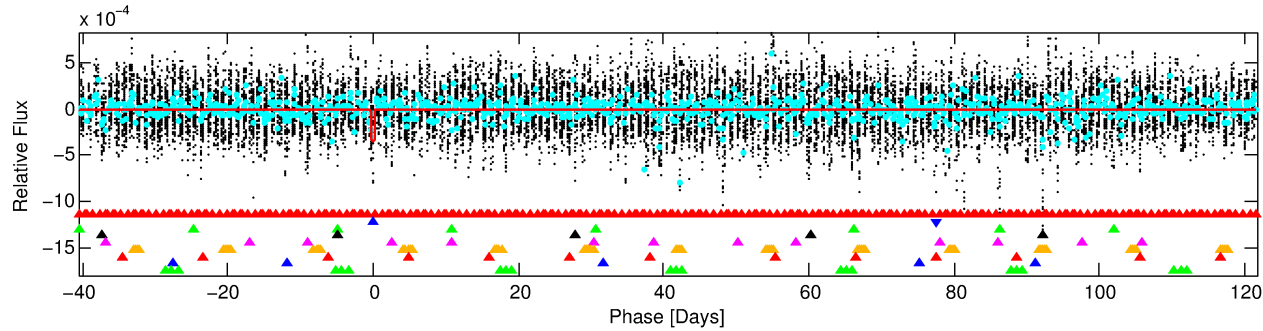
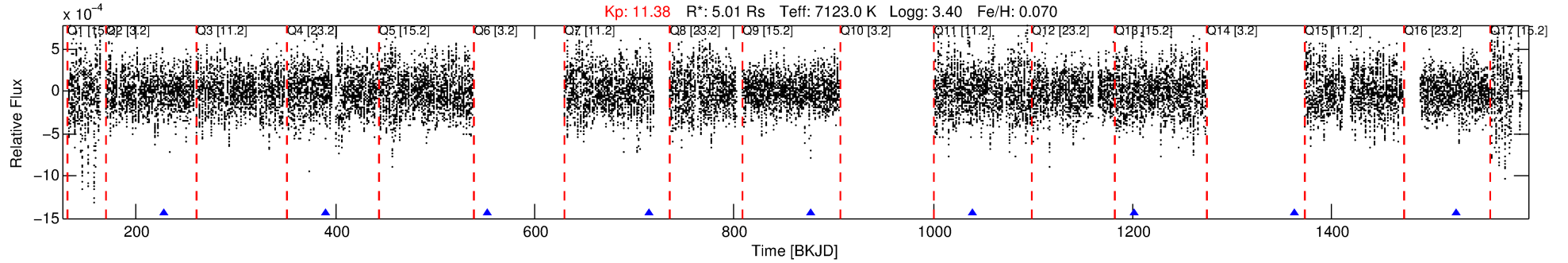
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-02

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 2 of 9 Period: 162.232 d



DV Fit Results:

Period = 162.23226 [0.00368] d
Epoch = 227.5903 [0.0674] BKJD
Rp/R* = 0.0206 [0.0020]
a/R* = 44.77 [10.09]
b = 0.92 [0.06]
Seff = 98.77 [67.61]
Teff = 804 [138] K
Rp = 11.25 [5.08] Re
a = 0.7657 [0.3221] AU
Ag = 484.27 [362.15] [1.33σ]
Teffp = 5830 [527] K [9.23σ]

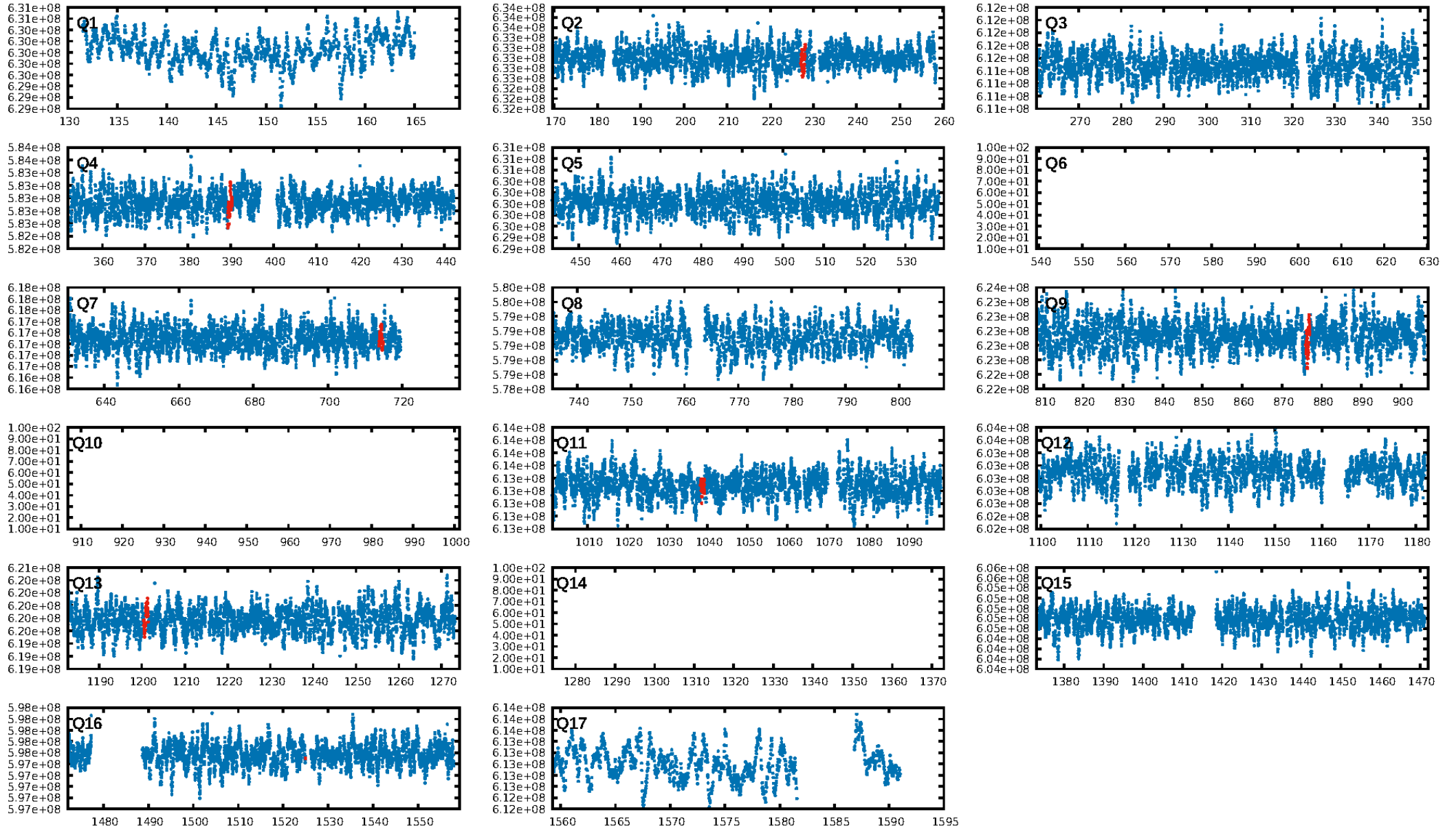
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [85.58σ]
LongPeriod-sig: 100.0% [60.02σ]
ModelChiSquare2-sig: 34.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -194.8
Centroid-sig: 4.8%
Centroid-so: 0.333 arcsec [1.09σ]
OotOffset-rm: 0.809 arcsec [0.43σ]
KicOffset-rm: 0.926 arcsec [0.48σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

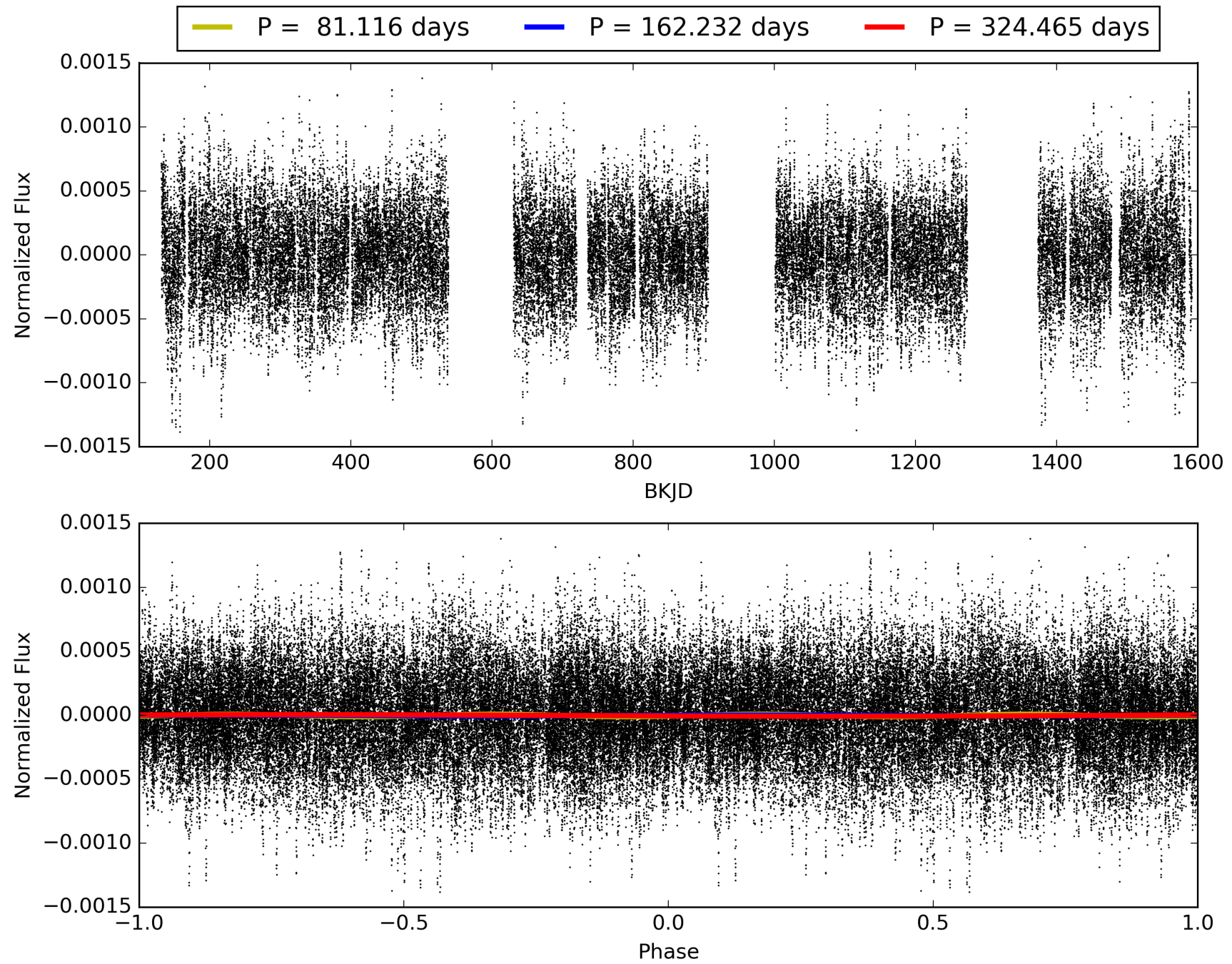
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:10 Z

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

TCE 004757997-02, PDC Light Curves

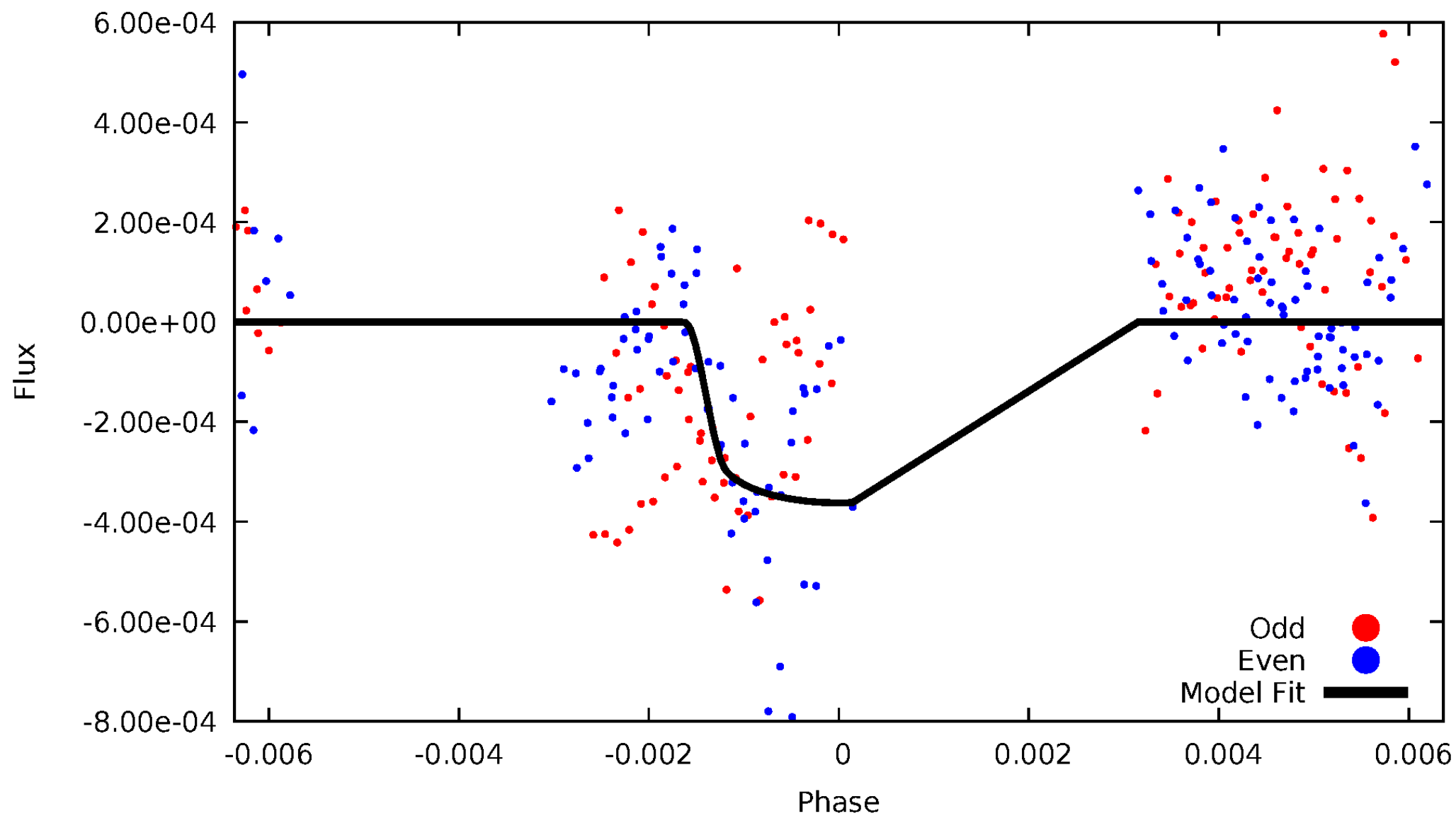


TCE 004757997-02



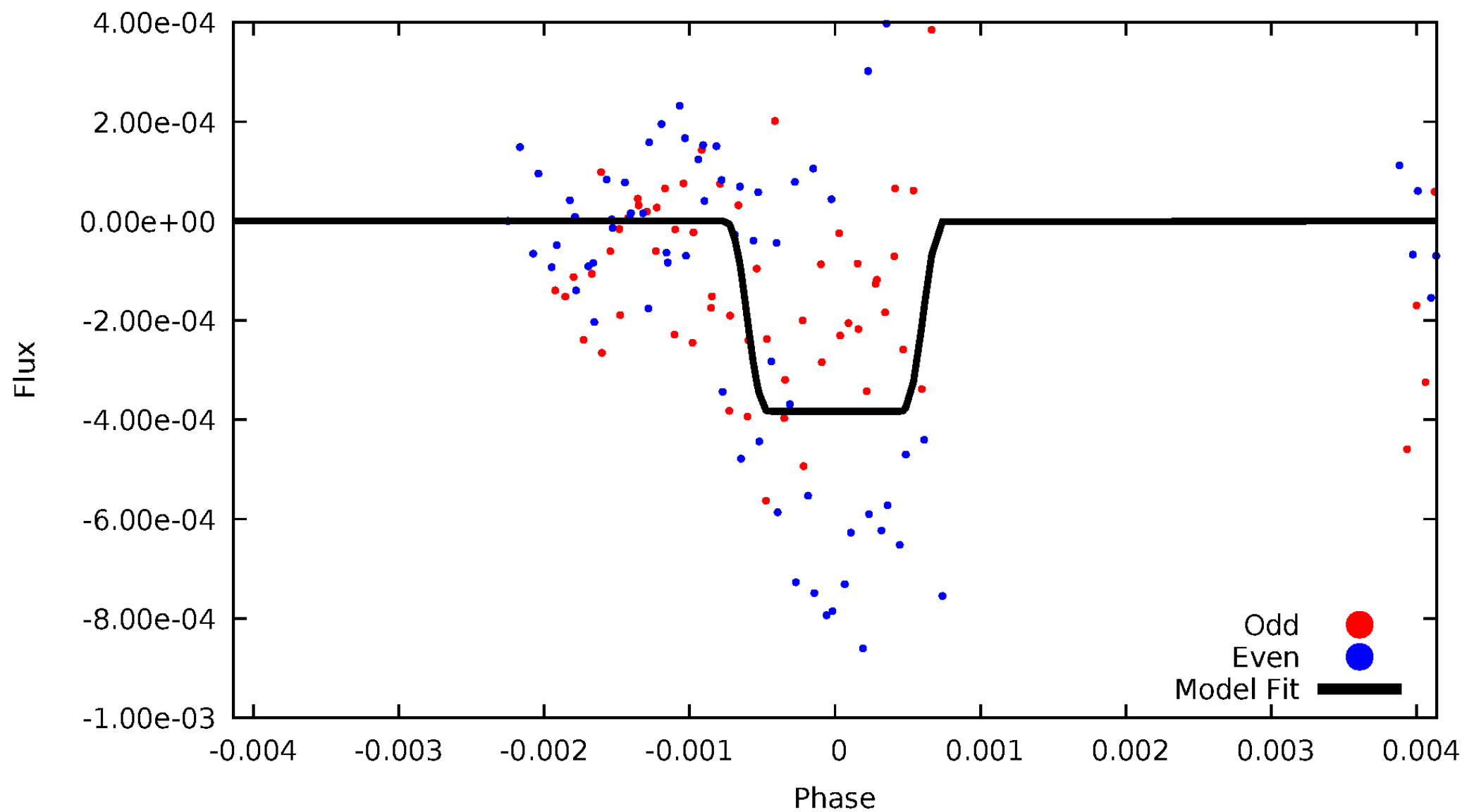
DV Odd/Even

TCE 004757997-02



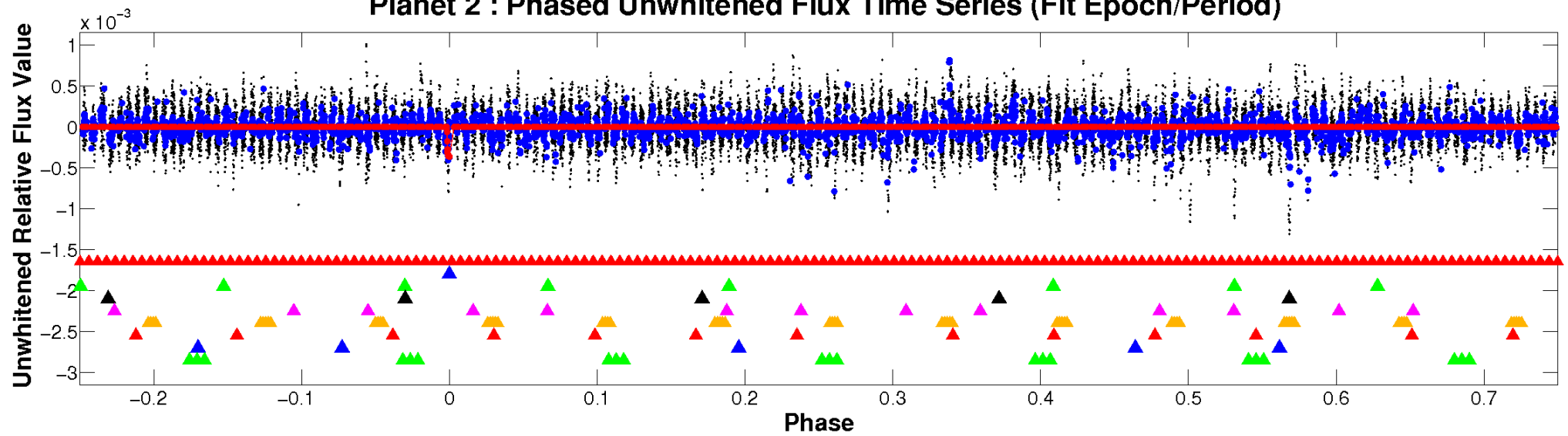
ALT Odd/Even

TCE 004757997-02

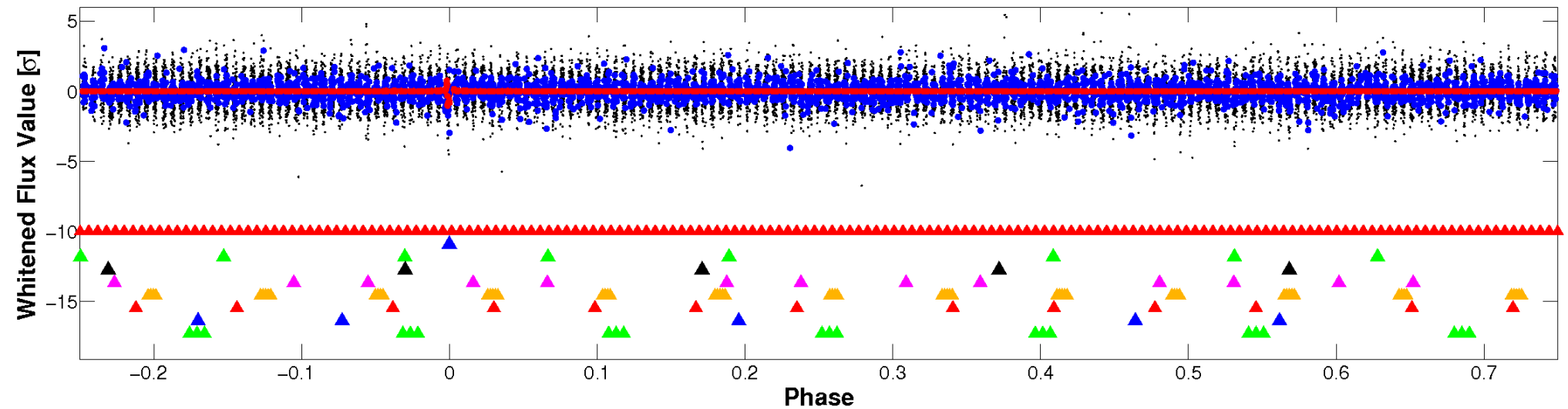


Non-Whitened Vs. Whitened Light Curve

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

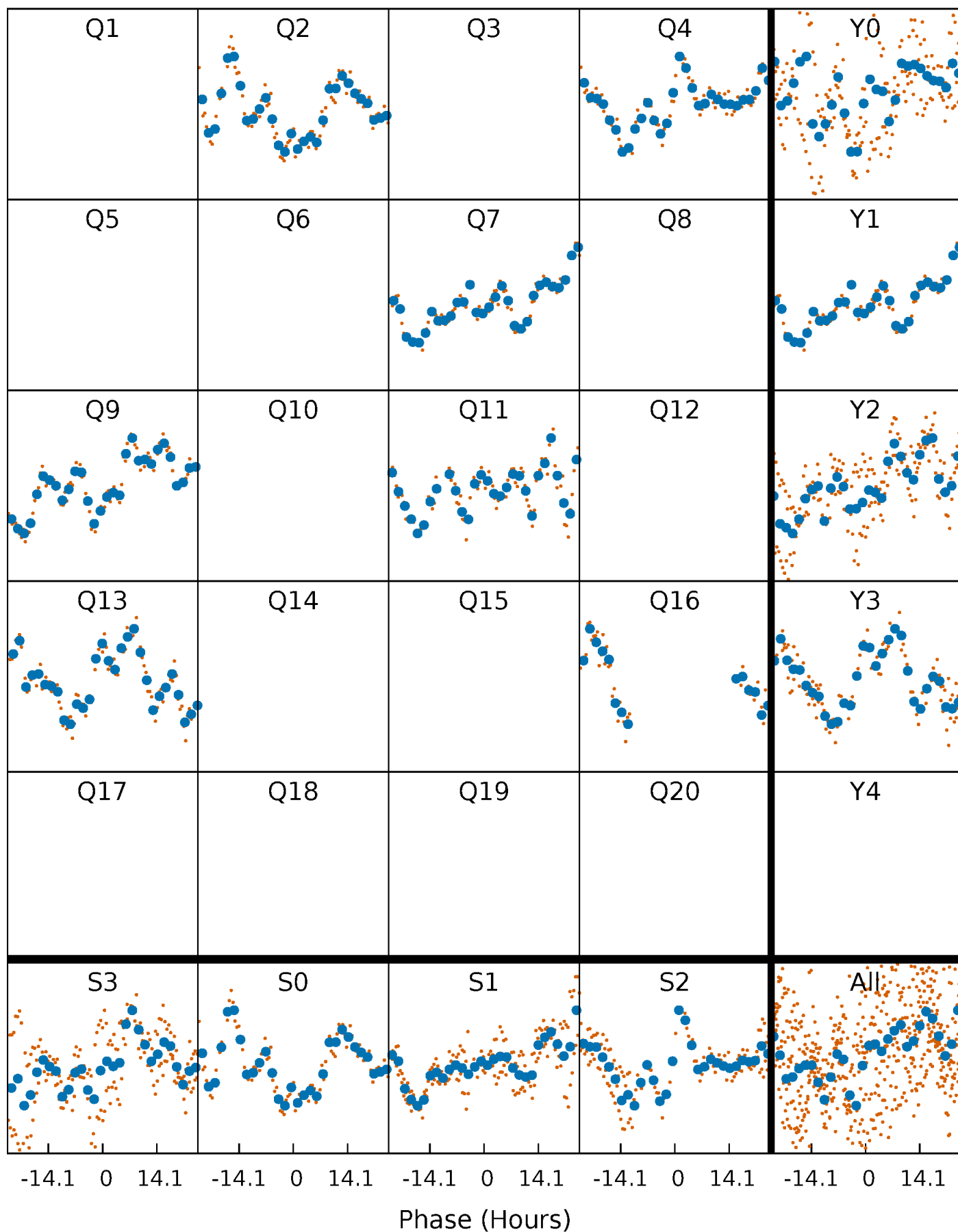


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



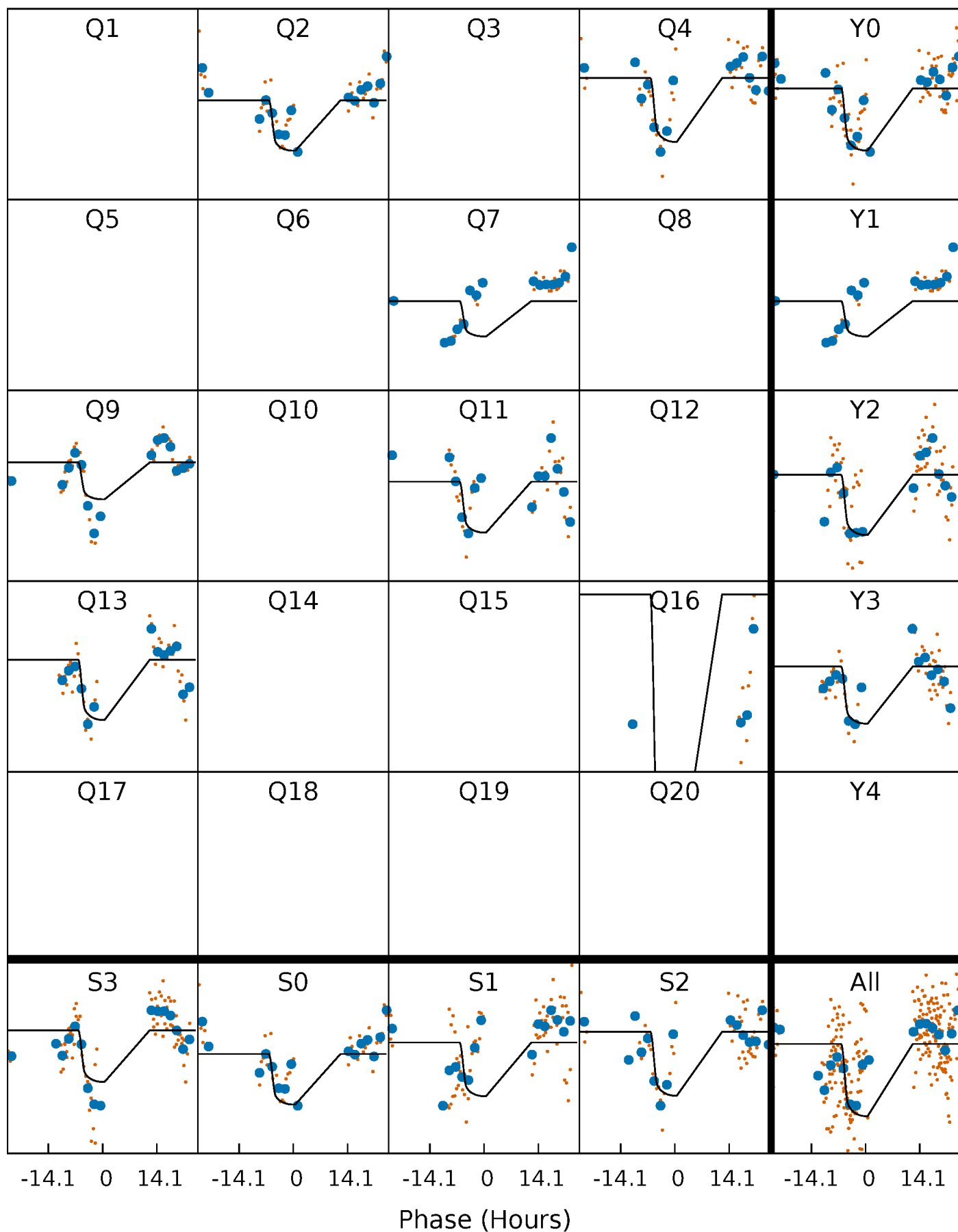
PDC Quarter-Phased Transit Curves

TCE 004757997-02 $P=162.232260$ Days $T_0=227.590283$ (BKJD)



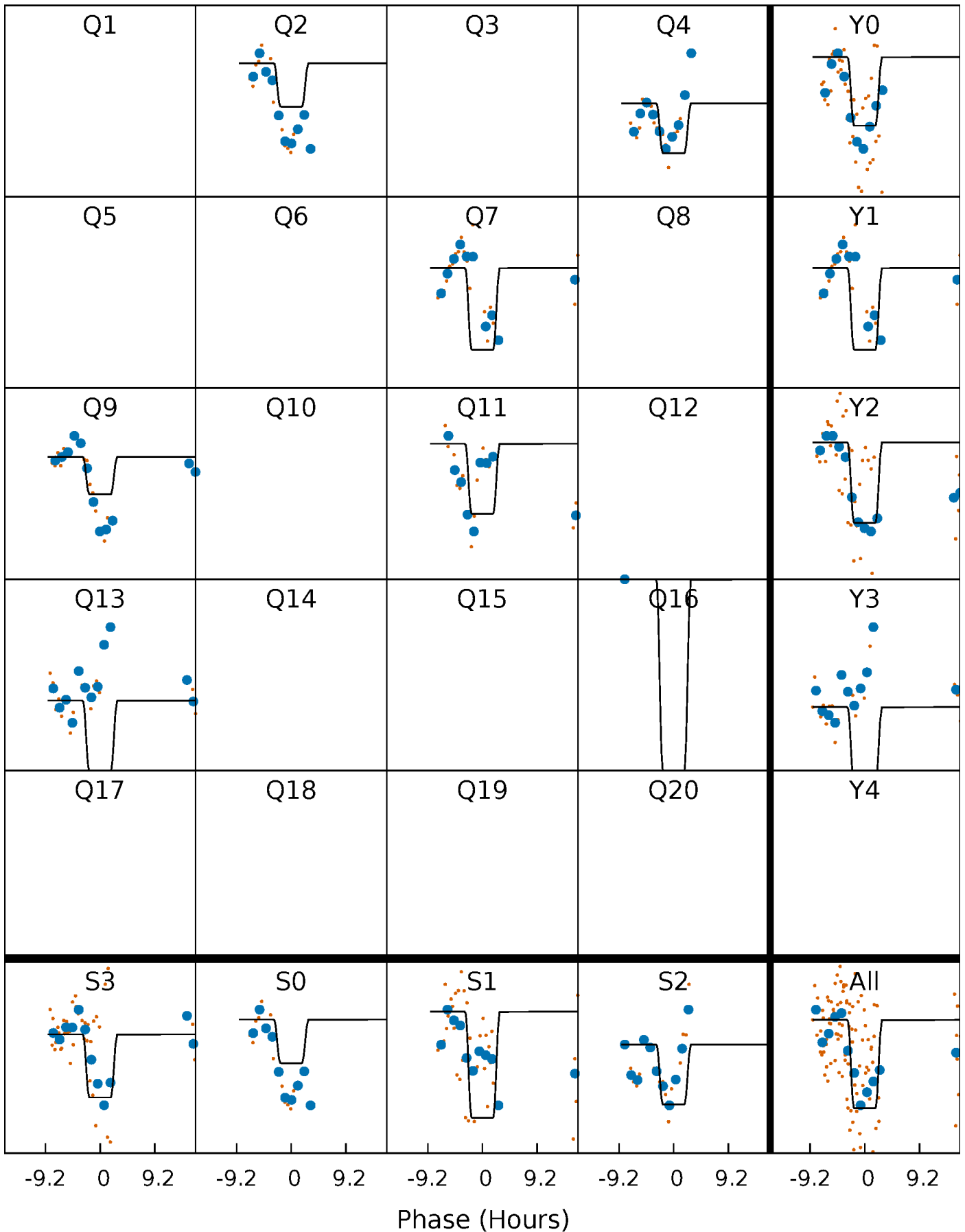
DV Quarter-Phased Transit Curves

TCE 004757997-02 P=162.232260 Days $T_0=227.590283$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

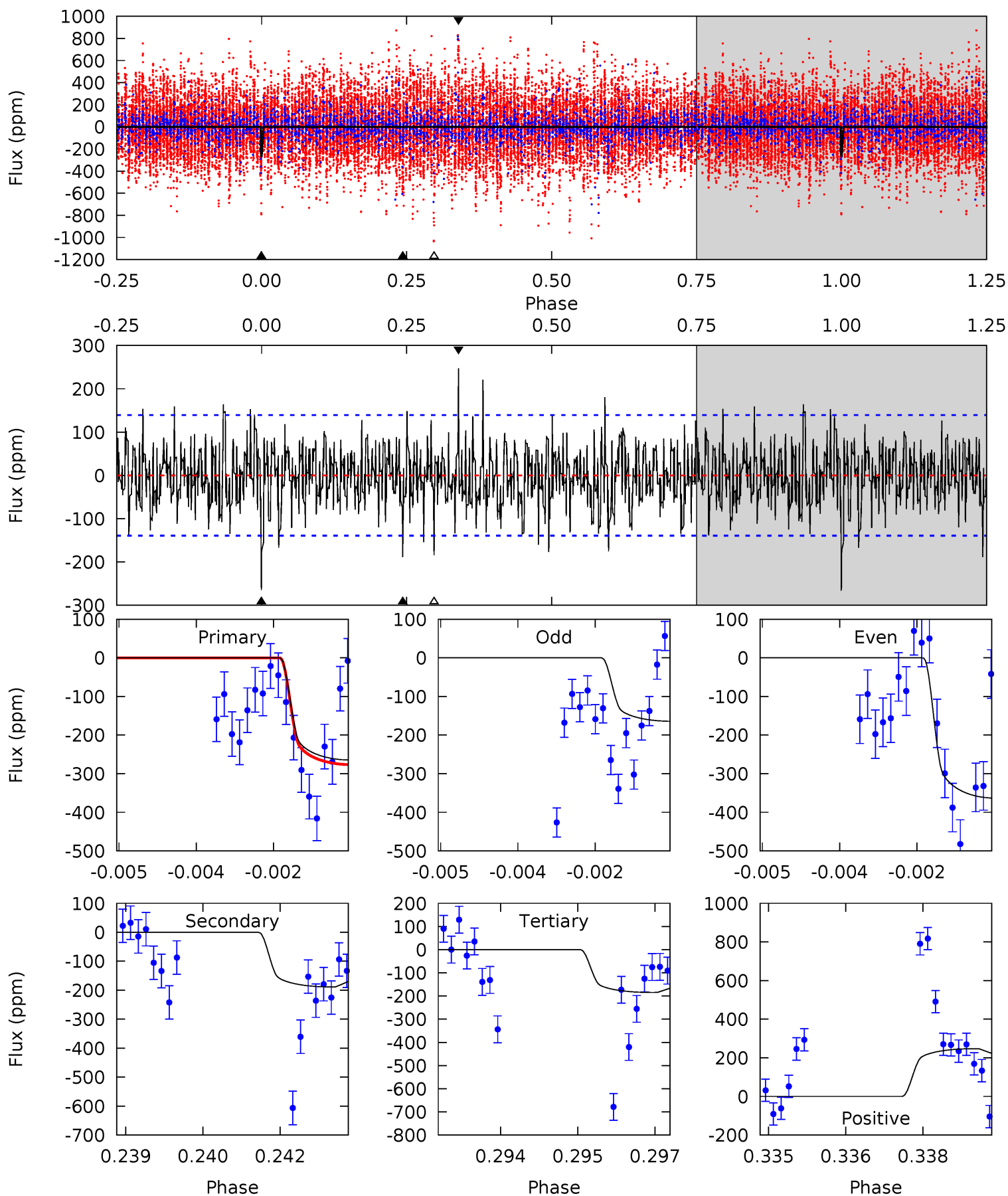
TCE 004757997-02 P=162.228598 Days $T_0=227.493995$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-02, $P = 162.232260$ Days, $E = 65.358023$ Days

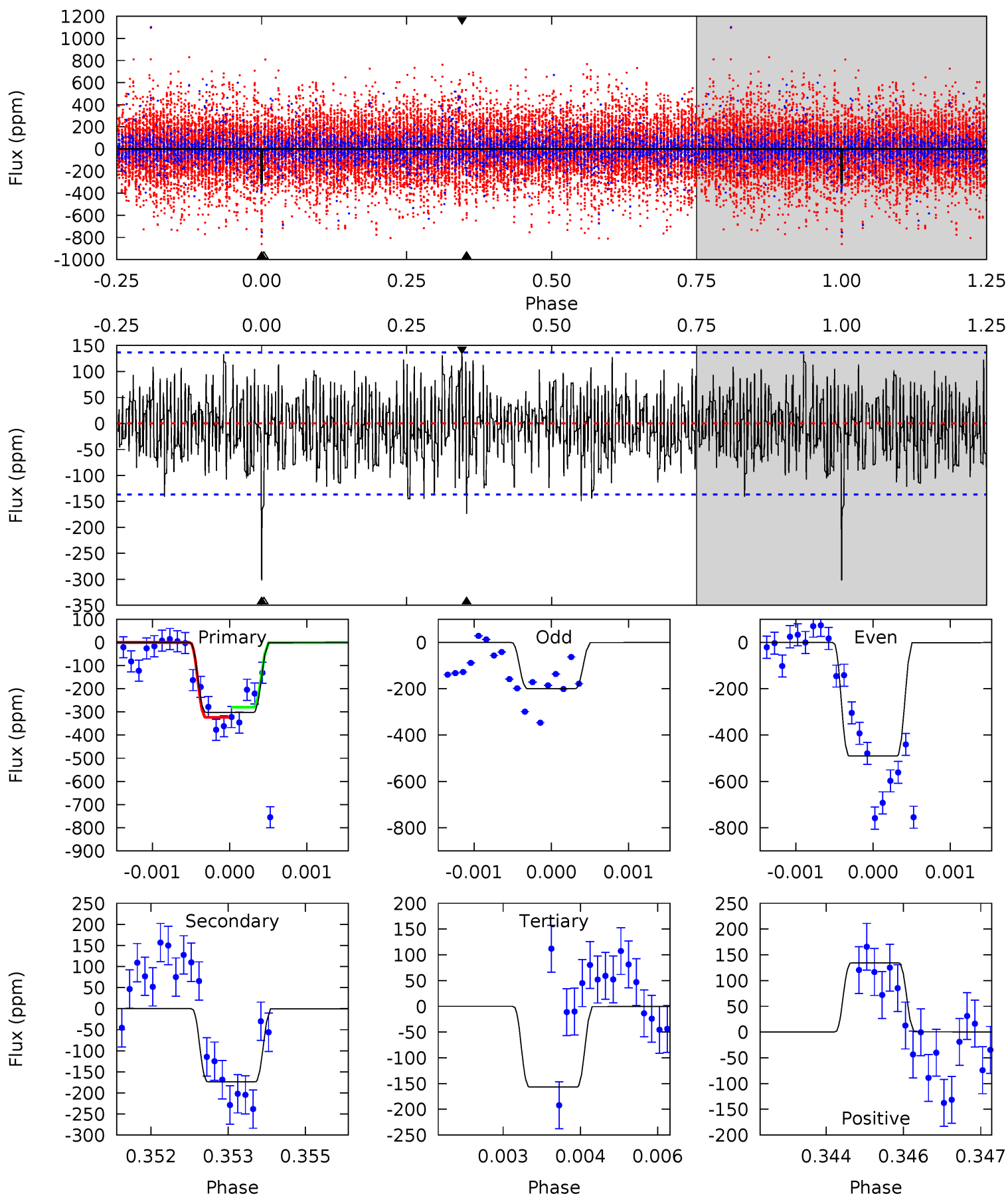
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	7.24	7.09	9.48	5.35	3.12	2.06	3.07	0.68	0.14	-2.25	3.80	1.05	0.48	1.20



Alt Model-Shift Uniqueness Test

004757997-02, P = 162.228598 Days, E = 65.265397 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	6.83	6.17	5.28	5.38	3.18	1.91	5.72	6.60	0.66	1.54	5.51	1.33	0.31	0.87



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-188 ± 26	$10.14^{+1.92}_{-2.20}$	1077^{+78}_{-115}	5733^{+394}_{-314}	568^{+348}_{-178}
Alt.	-173 ± 25	$9.76^{+2.09}_{-2.09}$	1077^{+80}_{-110}	5774^{+397}_{-349}	566^{+409}_{-180}

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

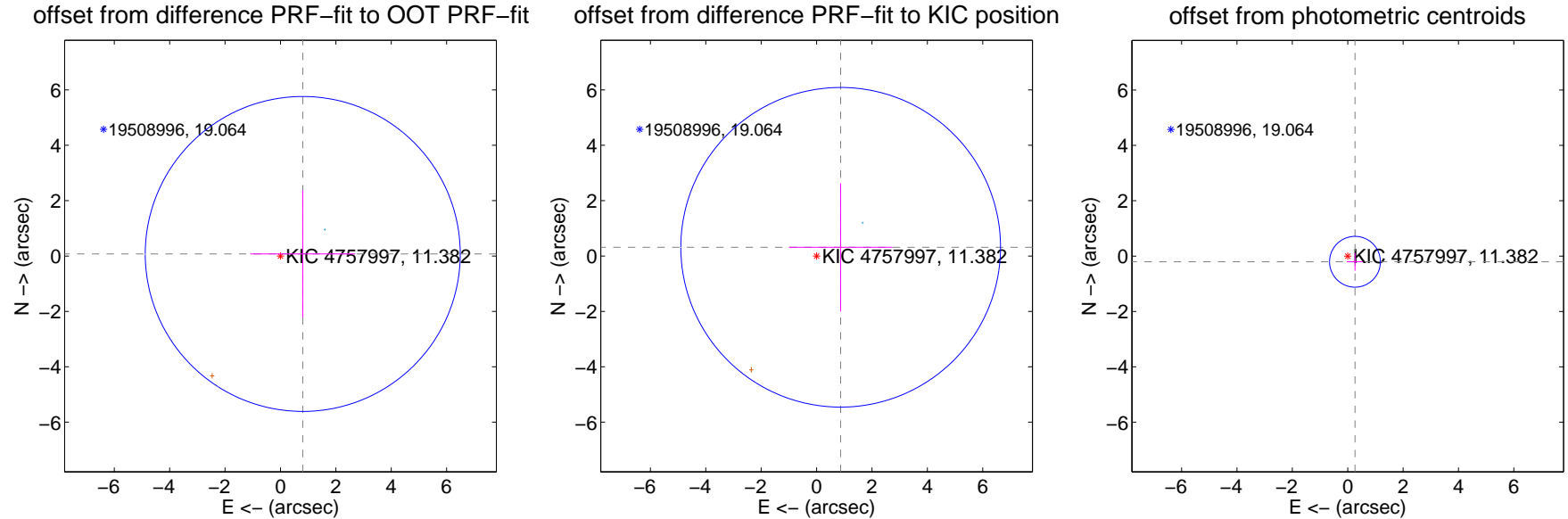
DV Centroid Data

Supplemental centroid analysis for 004757997-02. **Kepler magnitude: 11.38.** Transit SNR 6.74

There are 1 quarters with good PRF difference image offsets

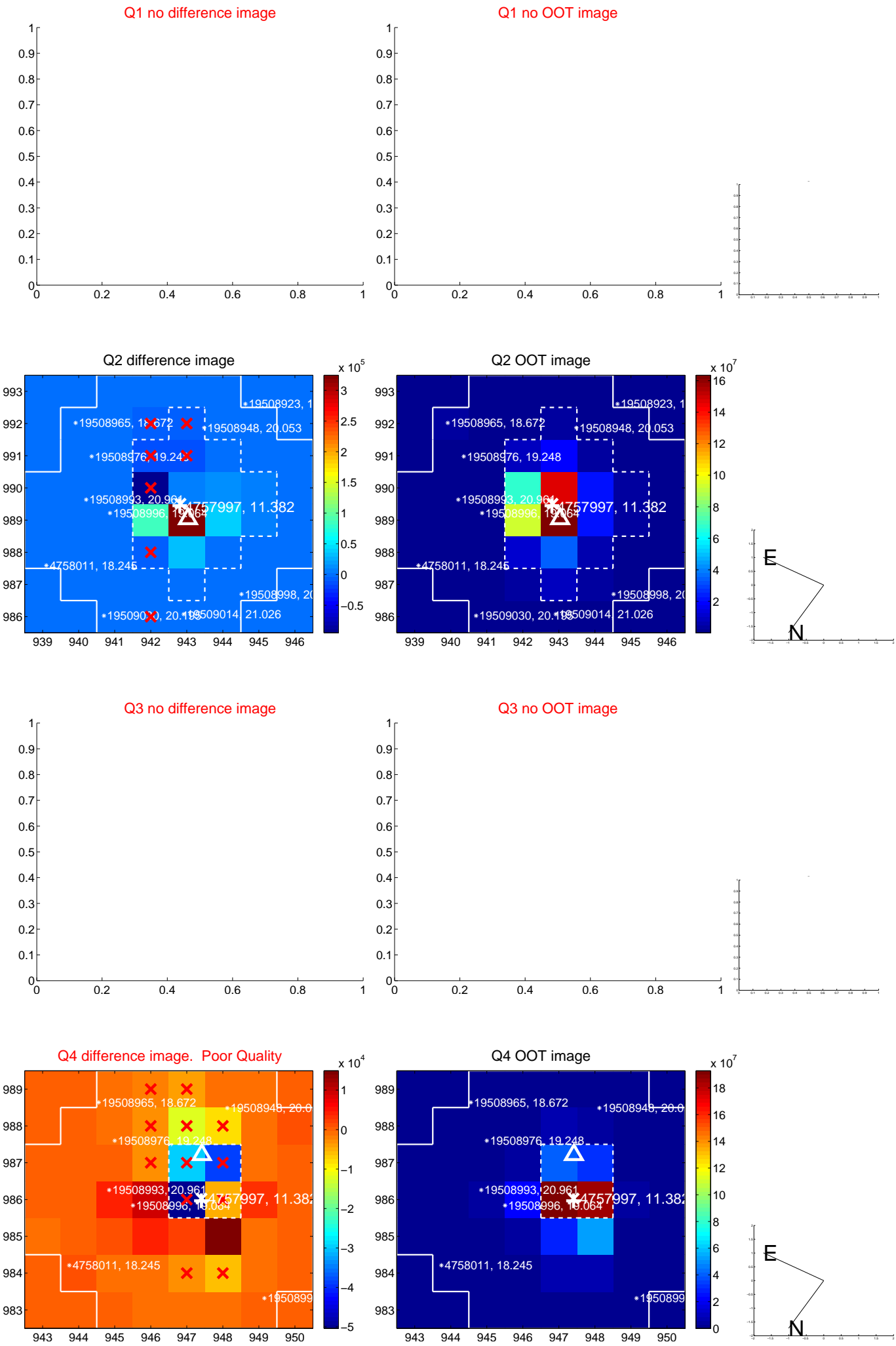
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.809 ± 1.896	0.43	-0.805 ± 1.892	0.075 ± 2.300
PRF-fit source offset from KIC position	0.926 ± 1.925	0.48	-0.871 ± 1.868	0.315 ± 2.312
photometric centroid source offset	0.33 ± 0.31	1.09	-0.26 ± 0.29	-0.20 ± 0.32

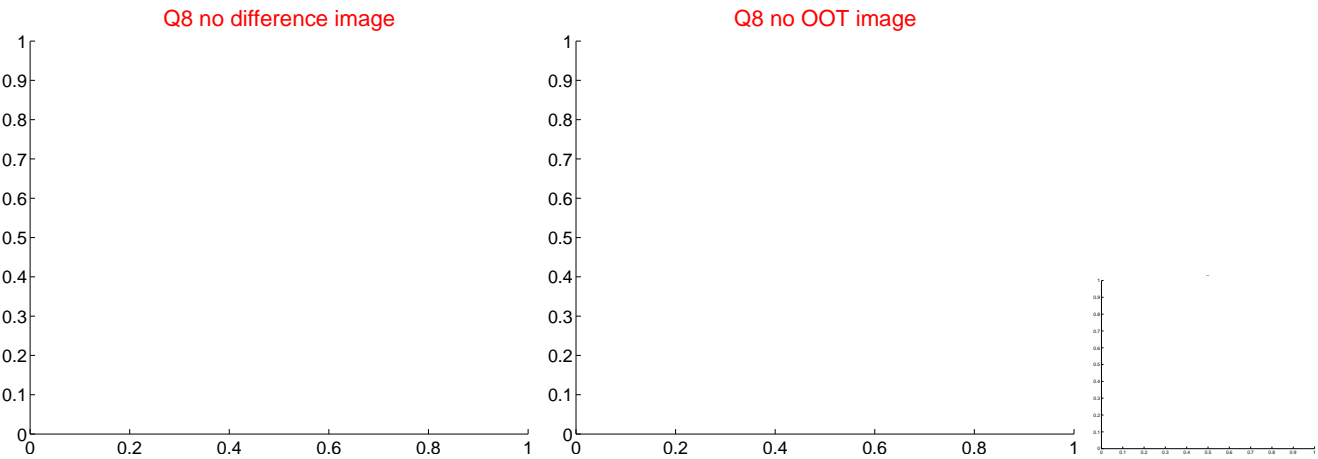
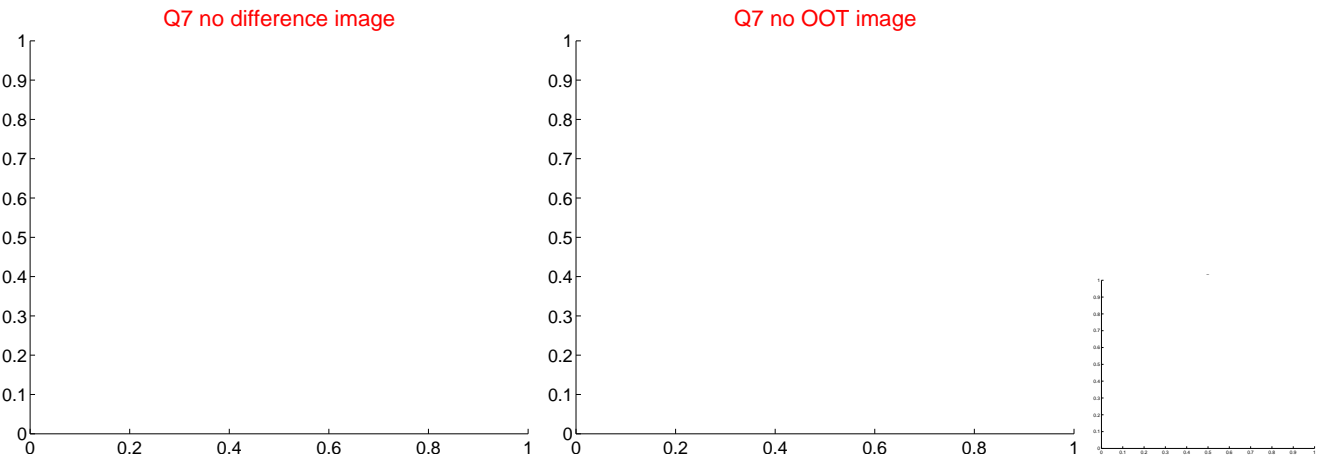
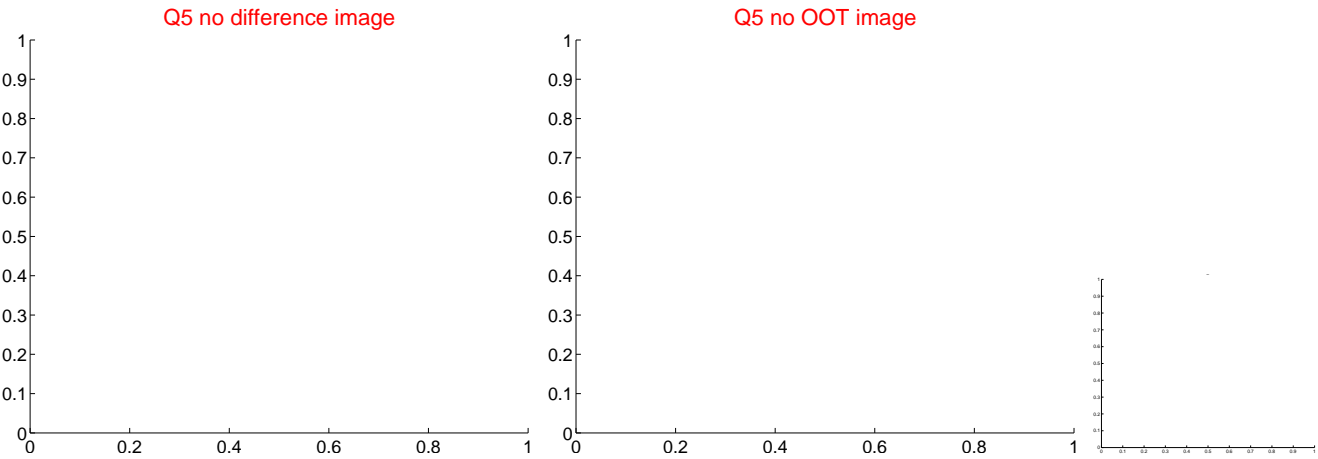


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



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



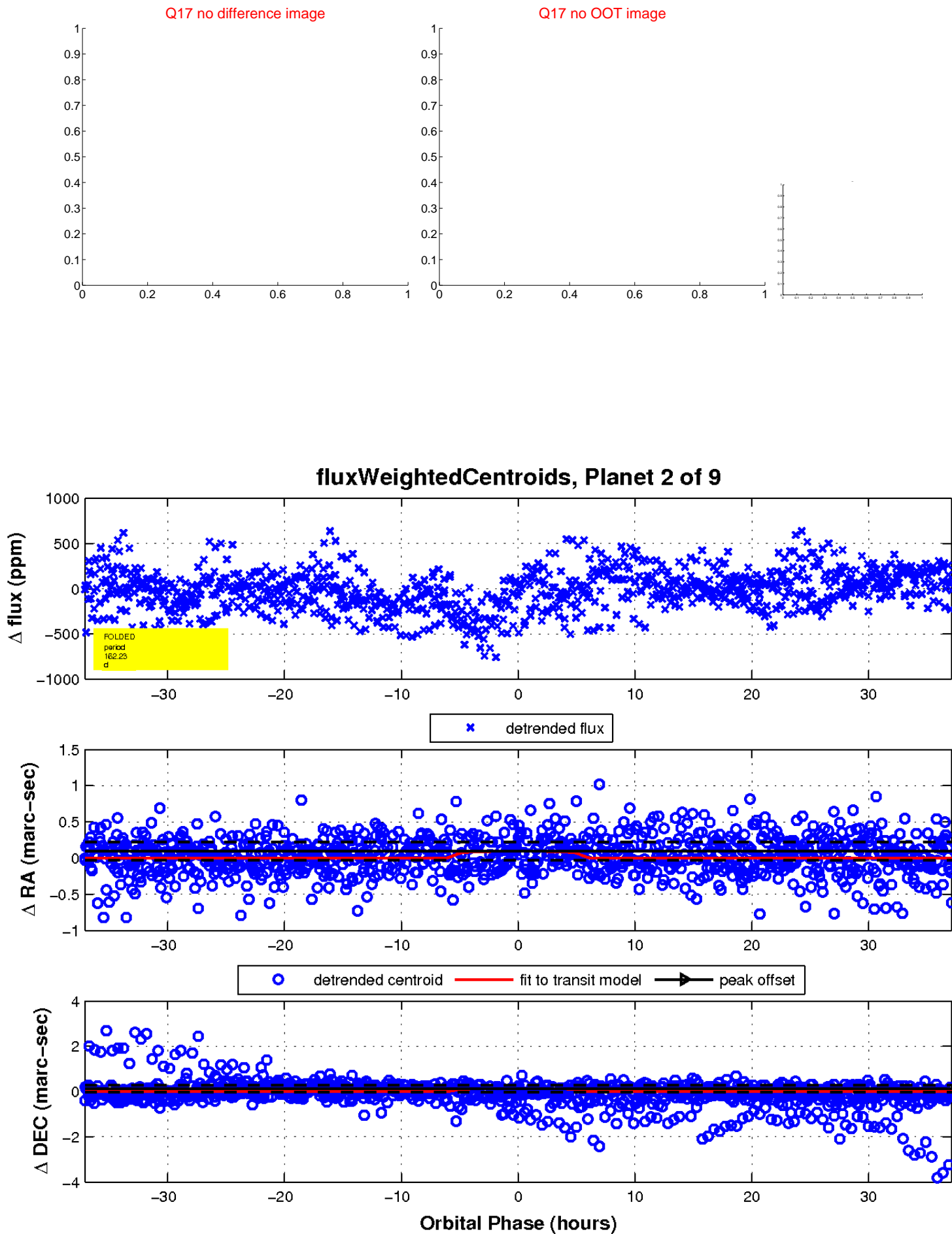
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



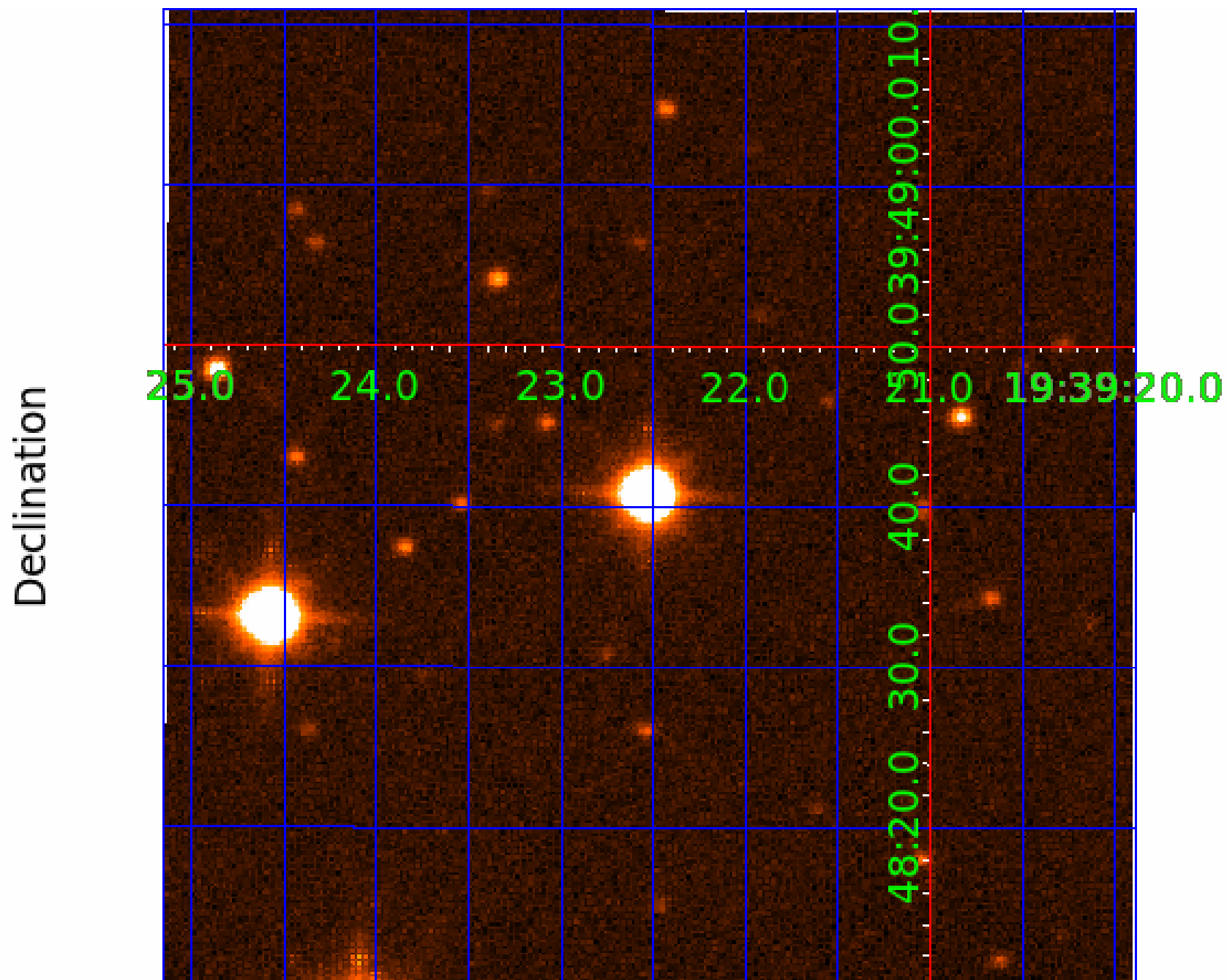
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004757997

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})
004757997-01	OBS	No	0.971364	131.734108	24.8	4.192	9.2	8.1	5.01	7123	2.69	90848.87
004757997-02	OBS	No	162.232260	227.590283	362.3	12.380	8.9	6.7	5.01	7123	11.25	98.78
004757997-03	OBS	No	197.821200	151.524007	642.7	7.021	8.8	8.3	5.01	7123	22.48	75.82
004757997-05	OBS	No	114.716585	151.463704	390.4	4.932	8.1	8.3	5.01	7123	12.67	156.79
004757997-06	OBS	No	24.937261	133.170221	184.8	6.889	8.0	8.4	5.01	7123	8.40	1199.58
004757997-07	OBS	No	111.851210	221.389229	452.9	11.502	9.3	9.0	5.01	7123	20.18	162.17
004757997-08	OBS	No	265.113952	378.057033	273.0	3.177	8.9	6.4	5.01	7123	9.21	51.32
004757997-09	OBS	No	69.410357	154.726924	95.8	6.000	8.3	-1.0	5.01	7123	4.96	306.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757997-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

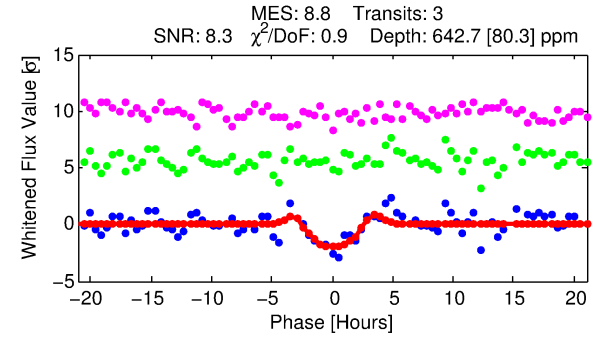
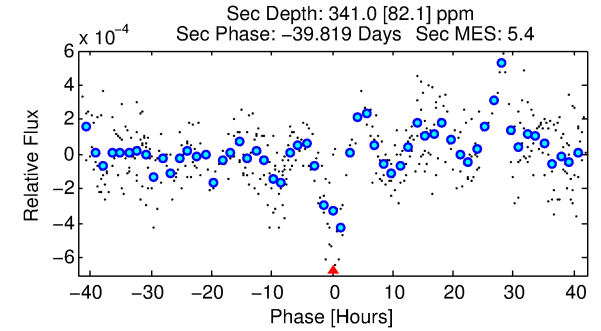
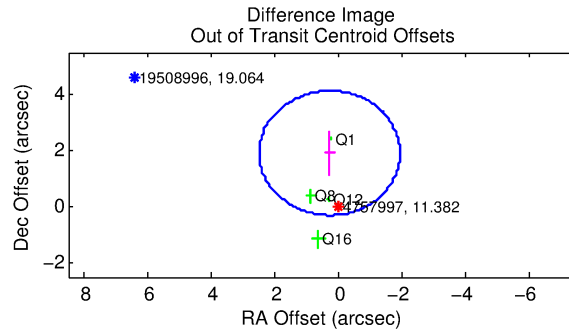
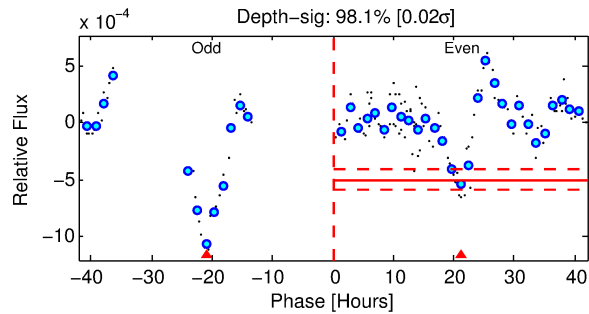
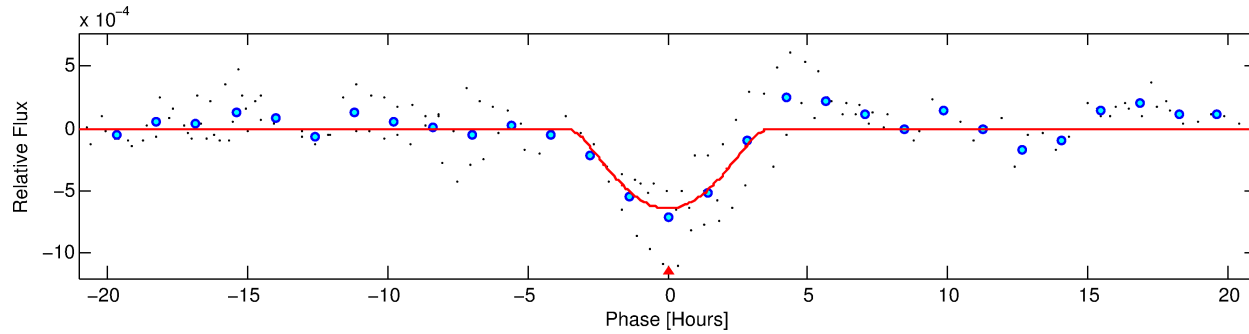
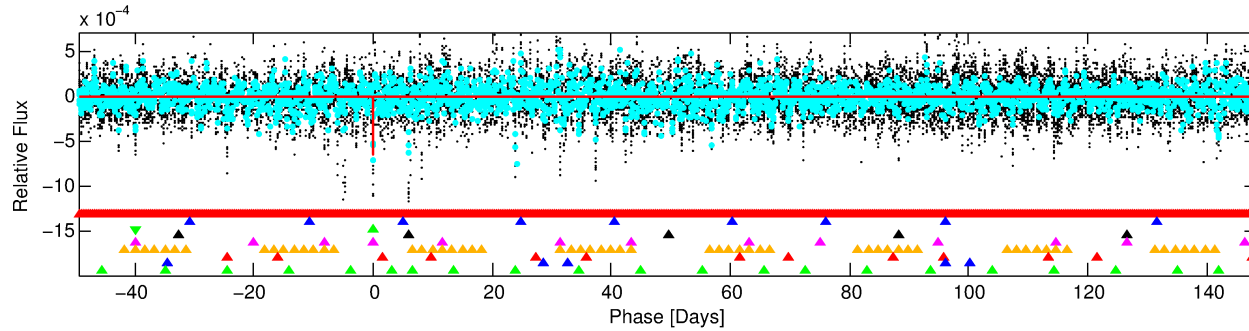
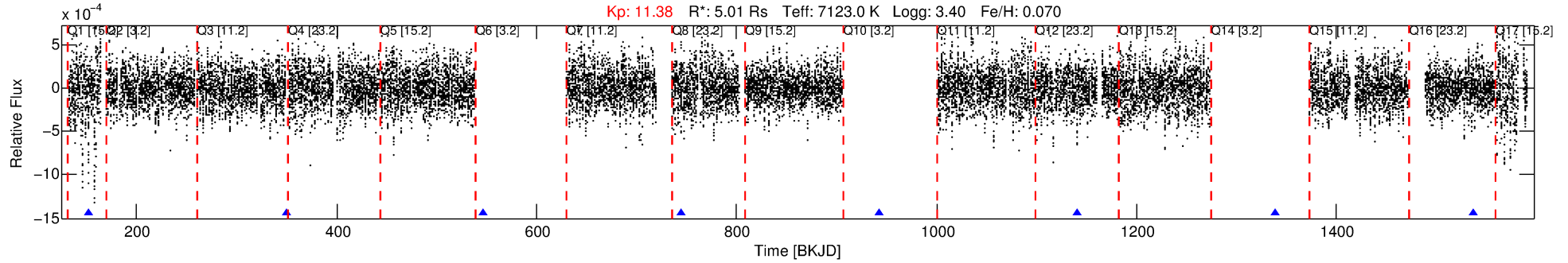
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-03

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 3 of 9 Period: 197.821 d



DV Fit Results:

Period = 197.82120 [0.00479] d
Epoch = 151.5240 [0.0165] BKJD
Rp/R* = 0.0411 [0.0675]
a/R* = 65.47 [31.99]
b = 1.00 [0.11]
Seff = 75.82 [51.90]
Teq = 752 [129] K
Rp = 22.48 [38.23] Re
a = 0.8740 [0.3676] AU
Ag = 283.47 [952.62] [0.30 σ]
Teffp = 4774 [3934] K [1.02 σ]

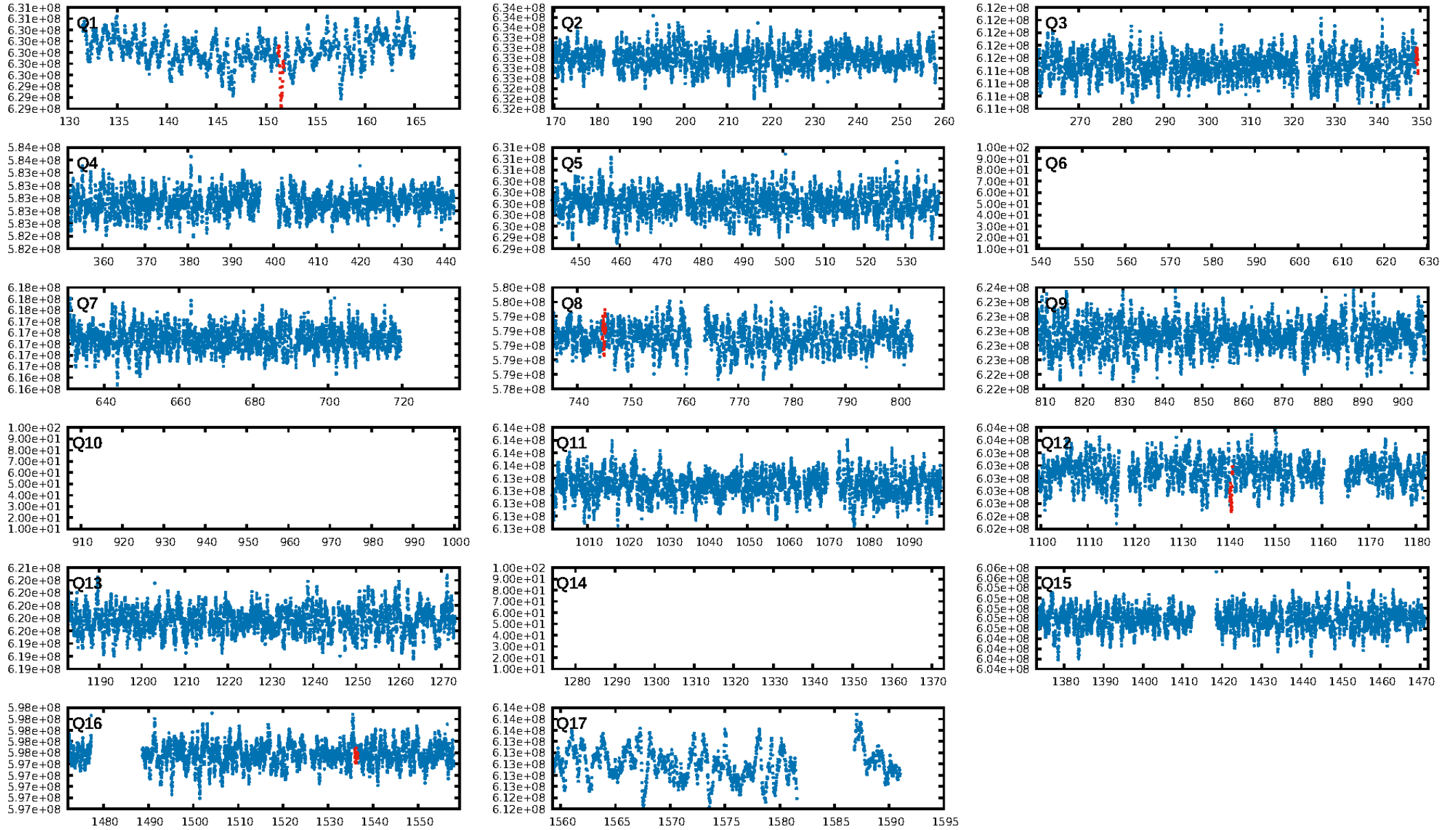
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.02 σ]
LongPeriod-sig: 100.0% [209.56 σ]
ModelChiSquare2-sig: 8.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.6268
Centroid-sig: 68.5%
Centroid-so: 0.199 arcsec [0.97 σ]
OotOffset-rm: 1.932 arcsec [2.62 σ]
OotOffset-st: 0/0/3/1 [4]
KicOffset-rm: 2.106 arcsec [3.59 σ]
KicOffset-st: 0/0/3/1 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 0.00 [0/4]

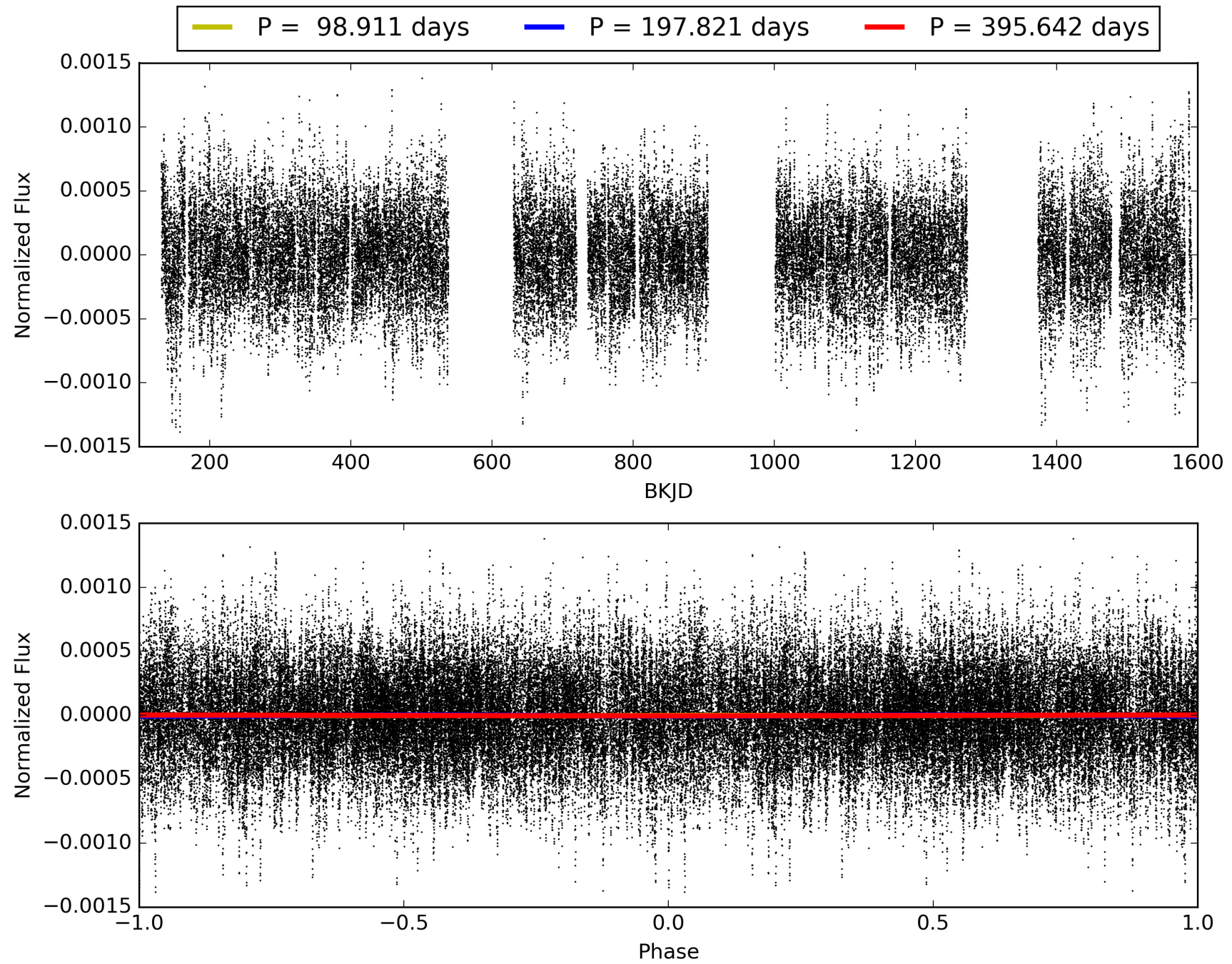
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:15 Z

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

TCE 004757997-03, PDC Light Curves

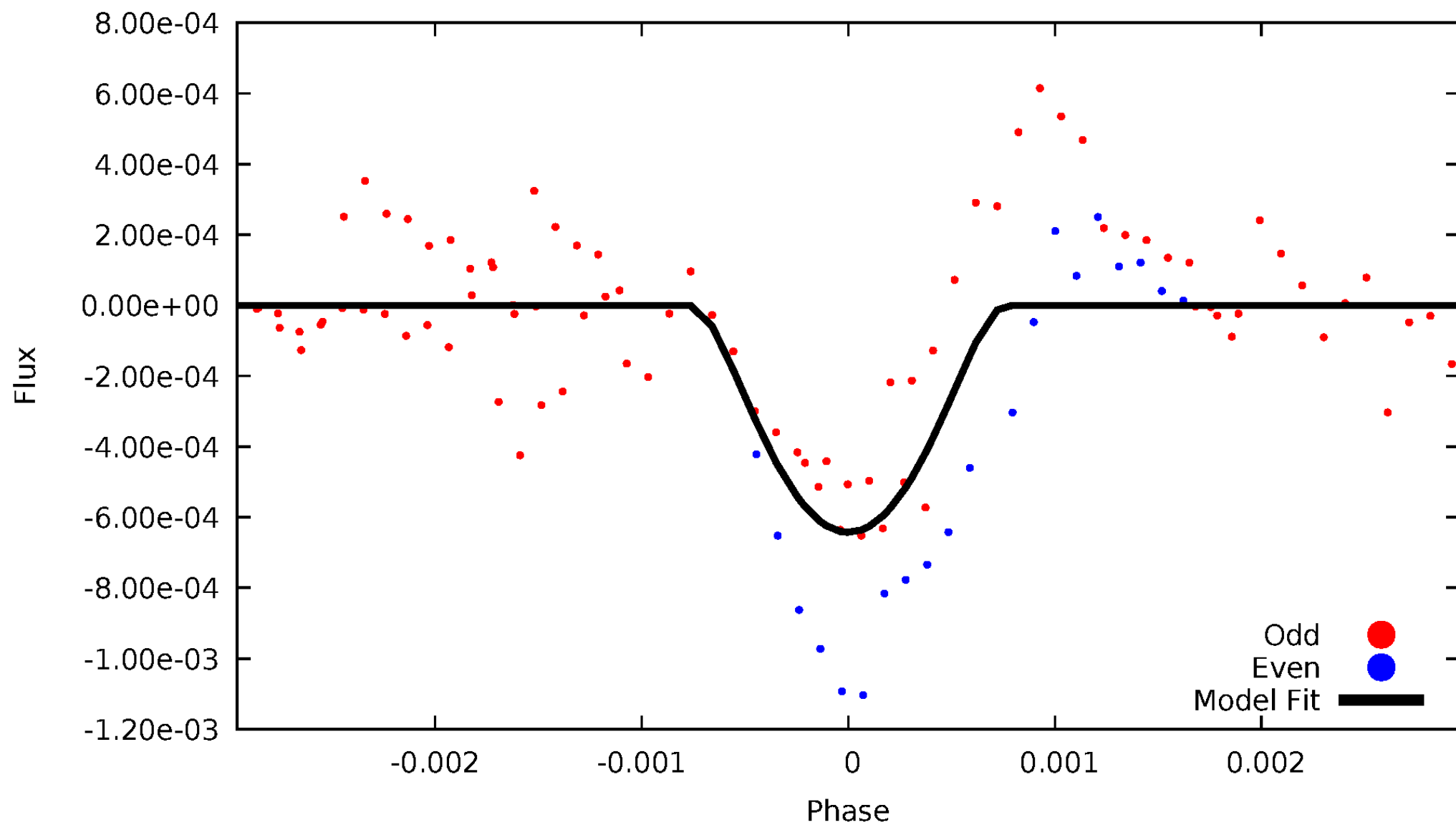


TCE 004757997-03



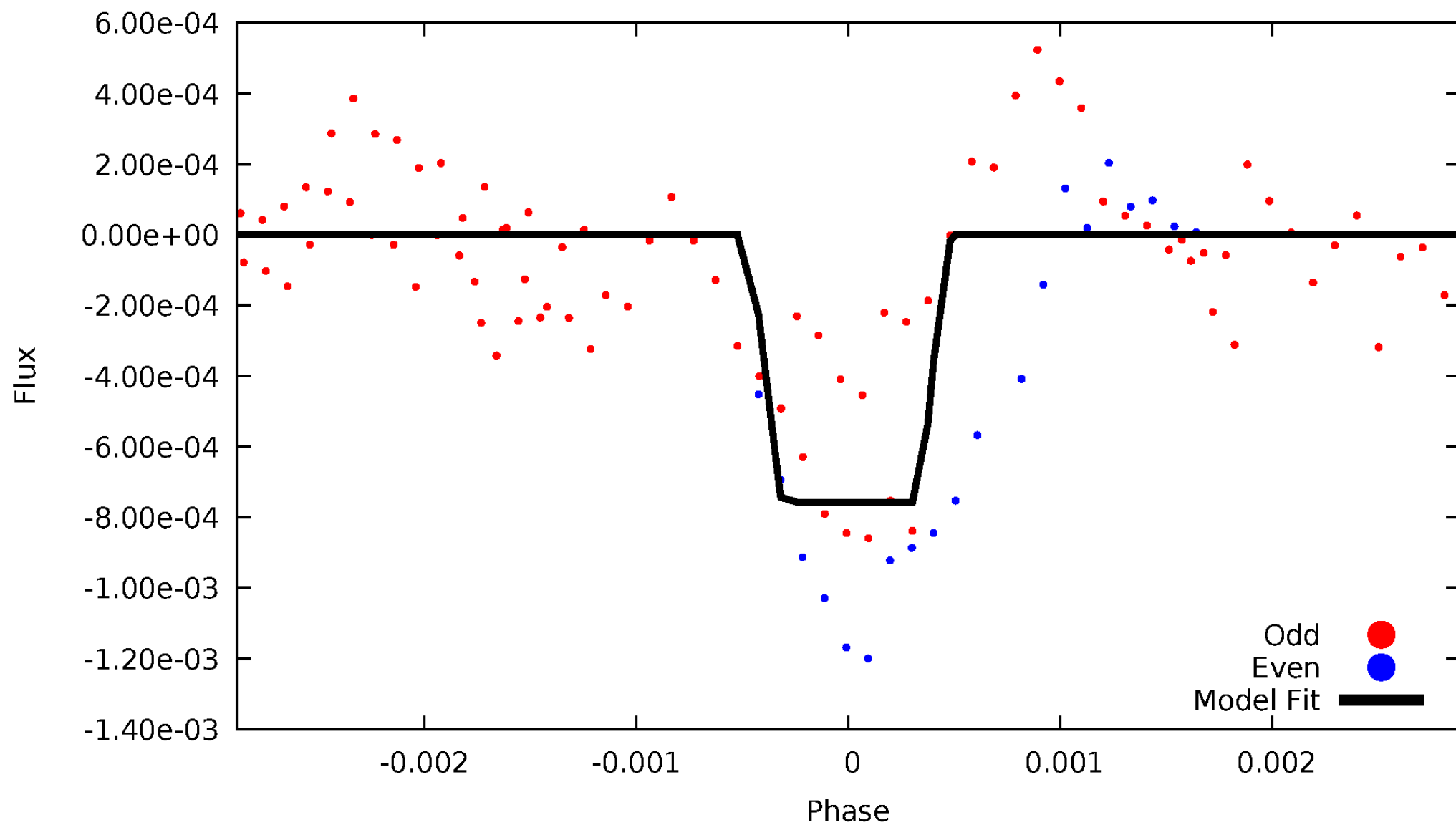
DV Odd/Even

TCE 004757997-03



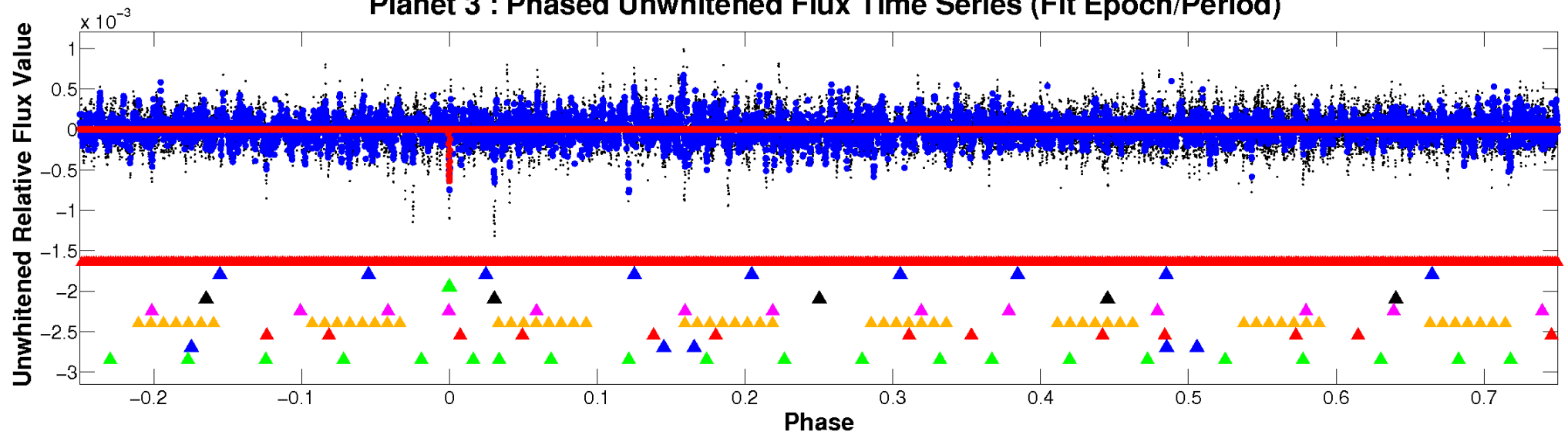
ALT Odd/Even

TCE 004757997-03

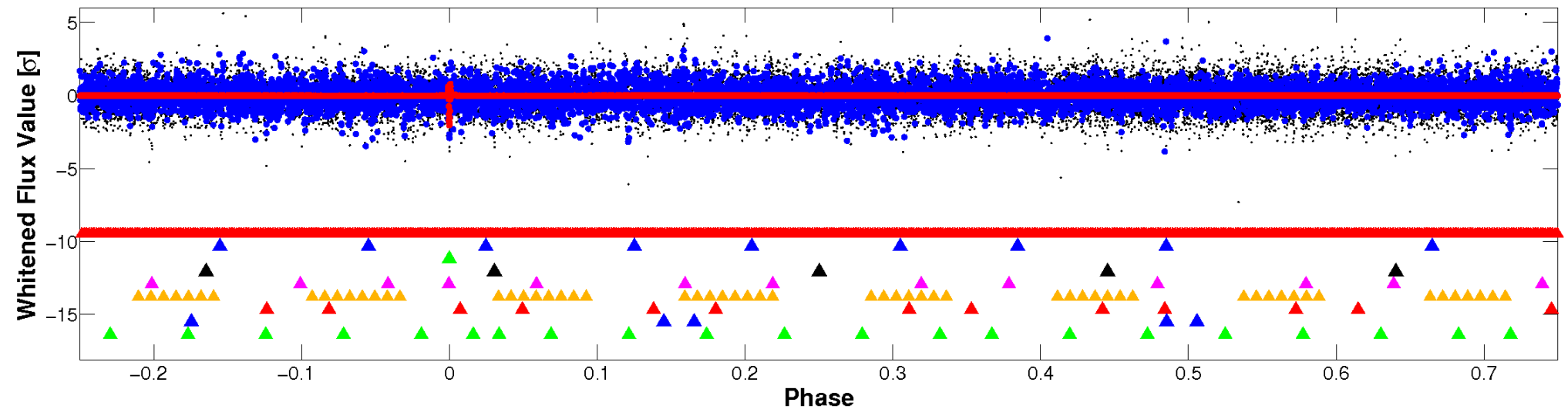


Non-Whitened Vs. Whitened Light Curve

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

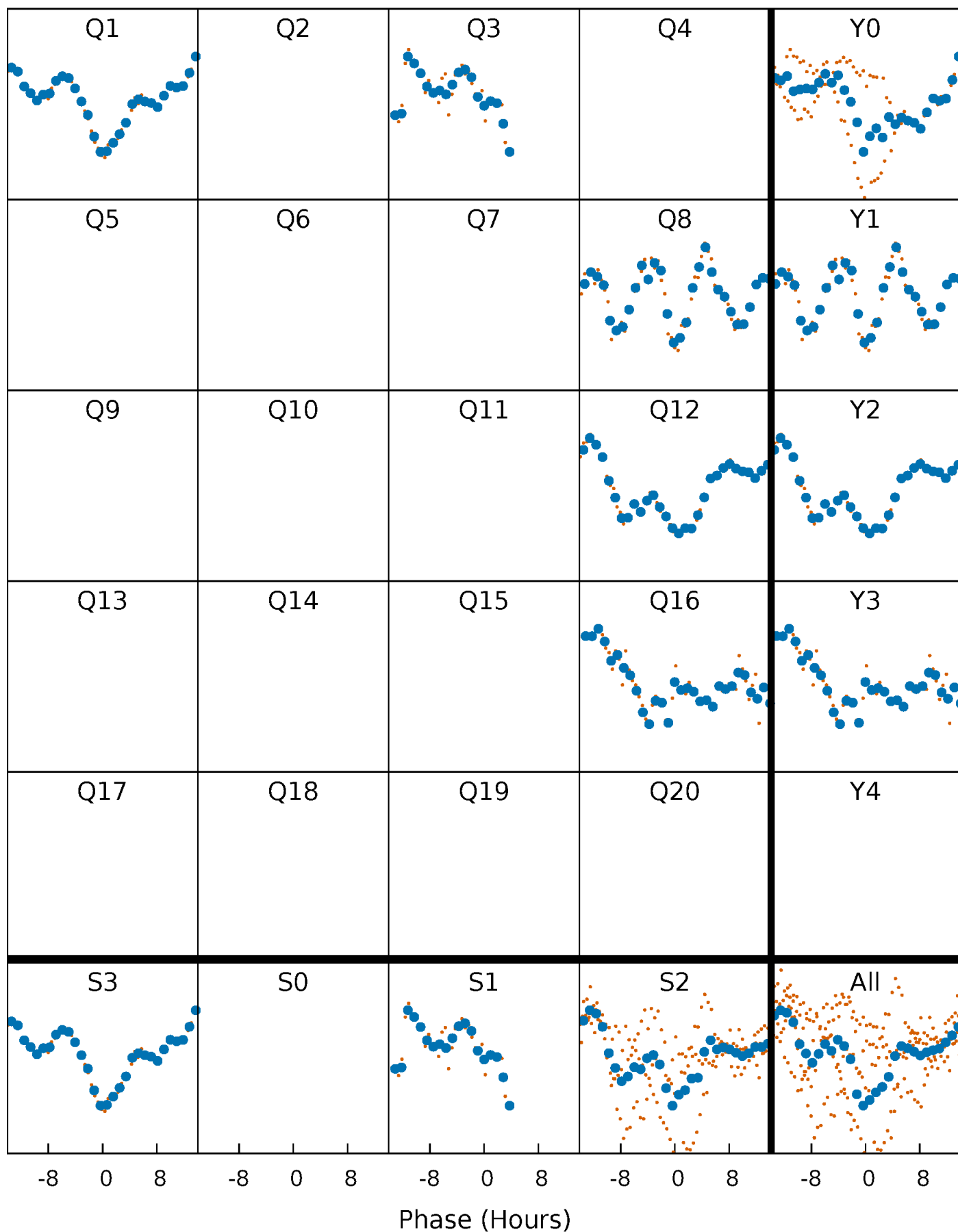


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



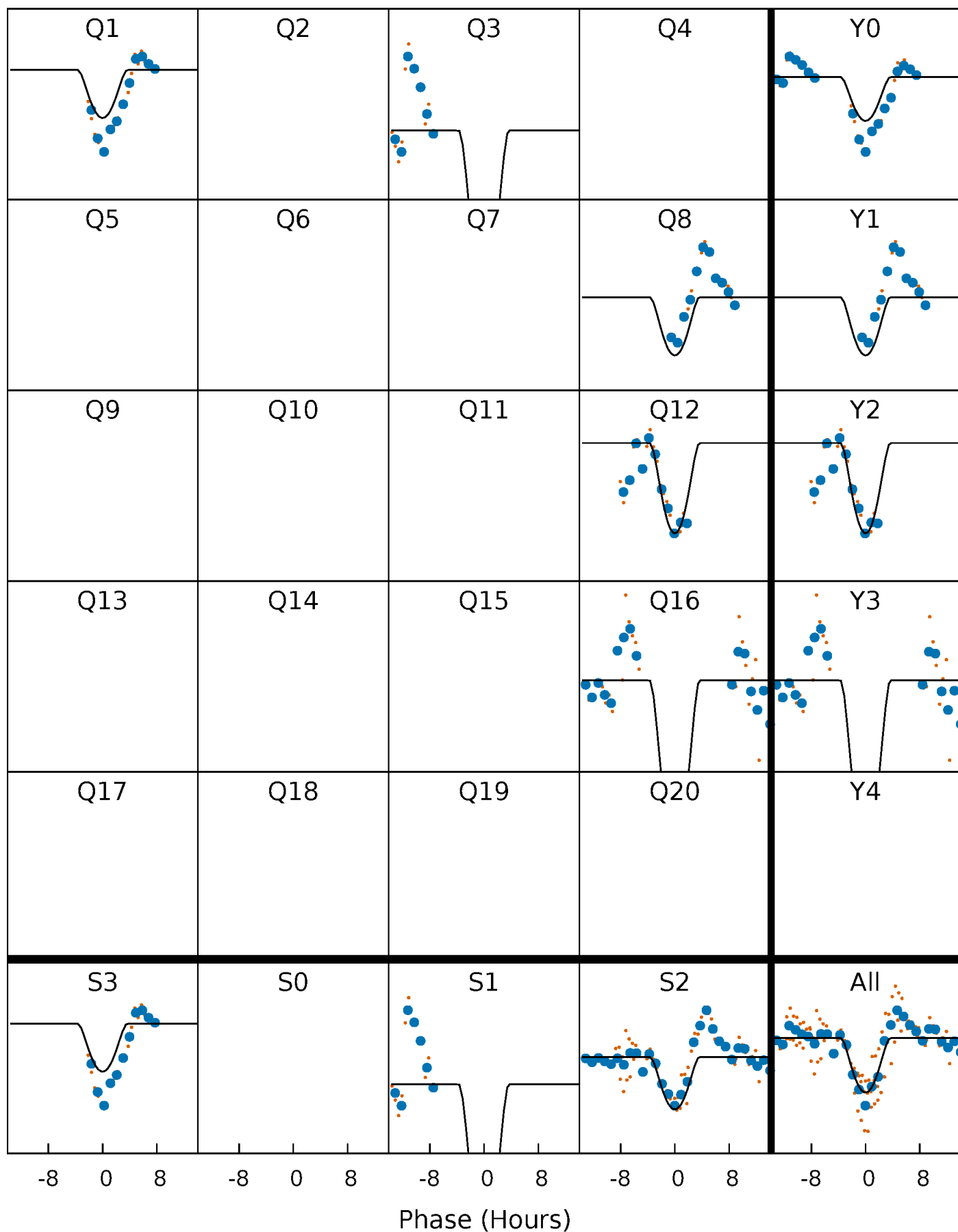
PDC Quarter-Phased Transit Curves

TCE 004757997-03 $P=197.821200$ Days $T_0=151.524007$ (BKJD)



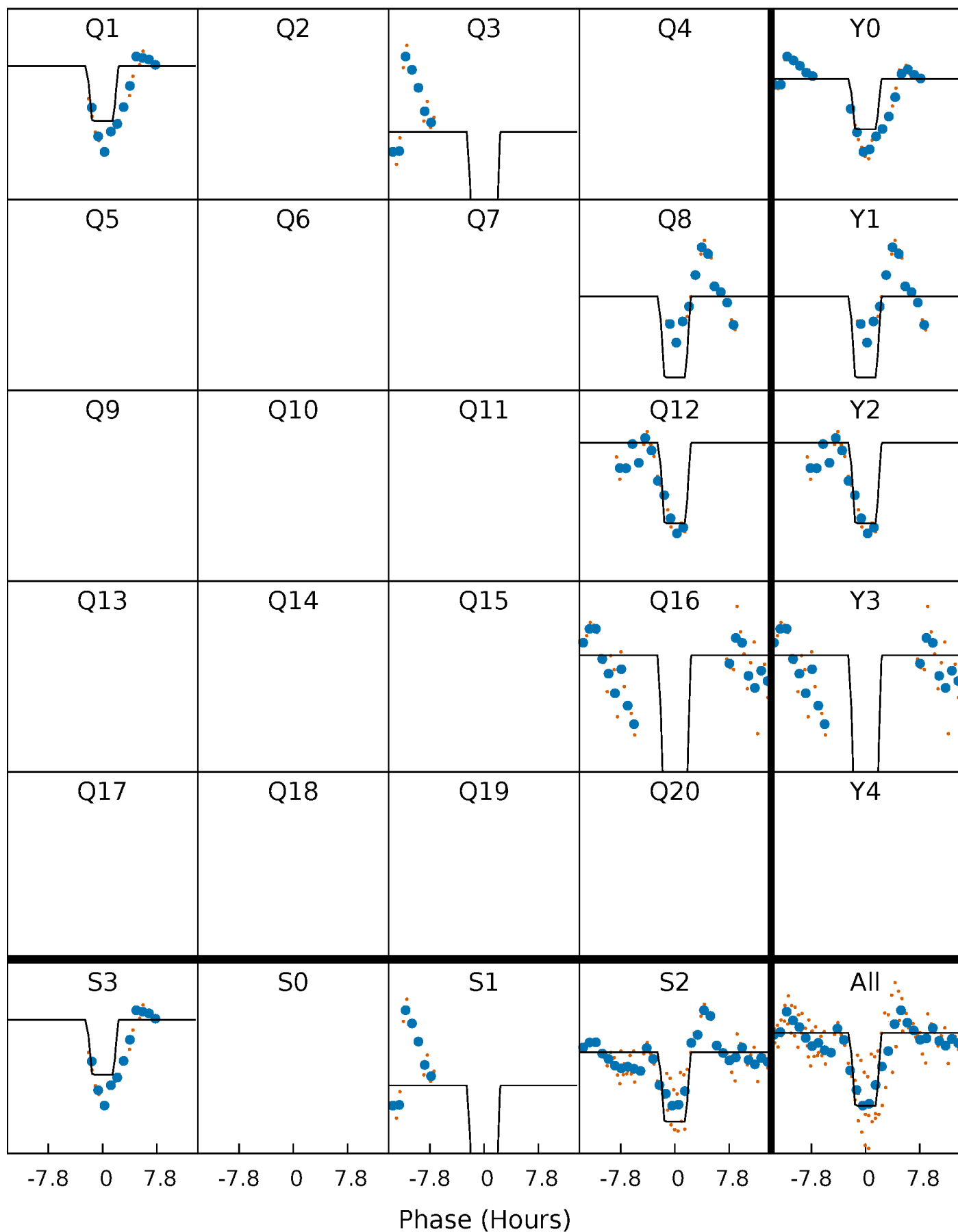
DV Quarter-Phased Transit Curves

TCE 004757997-03 P=197.821200 Days $T_0=151.524007$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

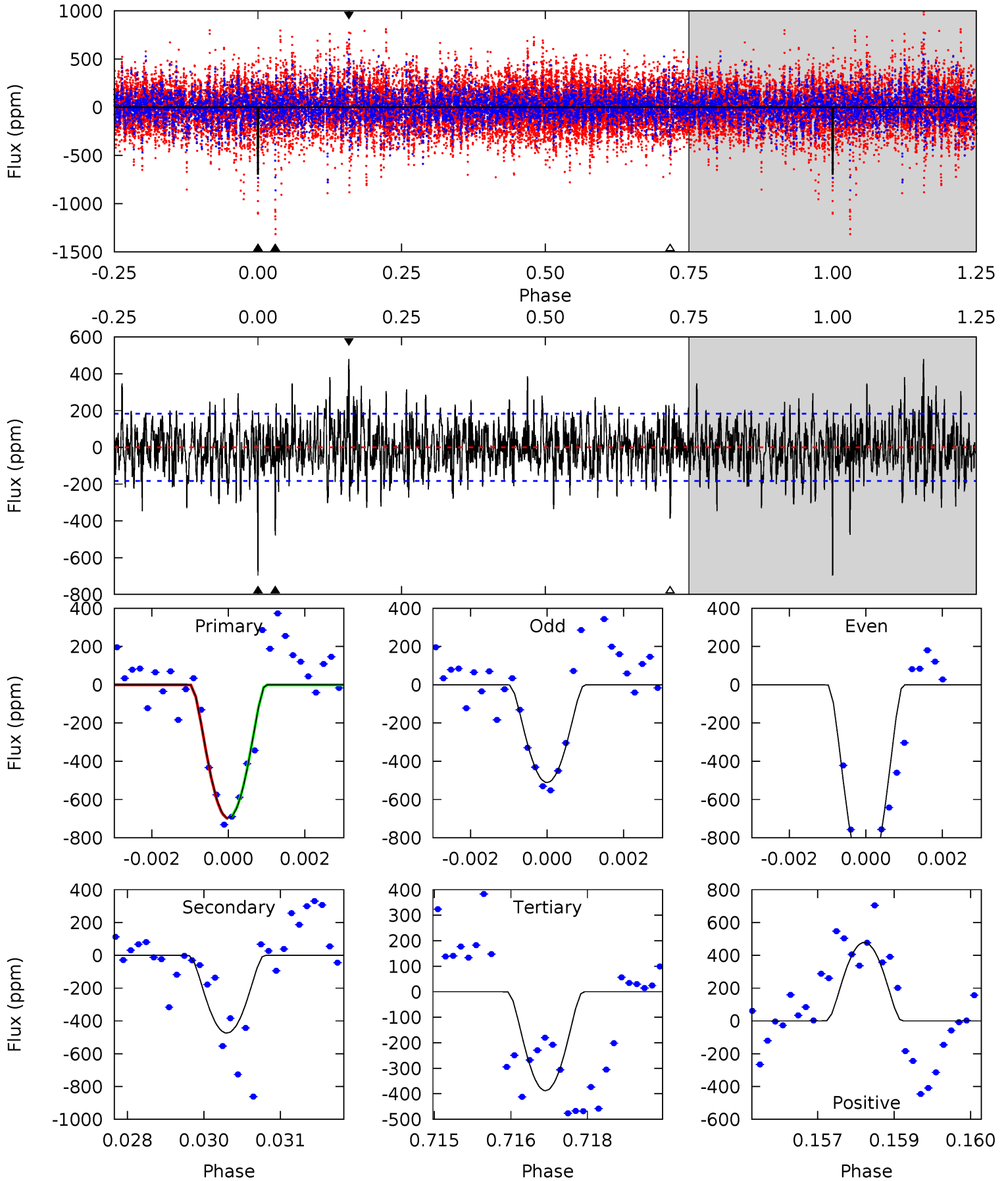
TCE 004757997-03 P=197.824872 Days $T_0=151.519718$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-03, P = 197.821200 Days, E = 151.524007 Days

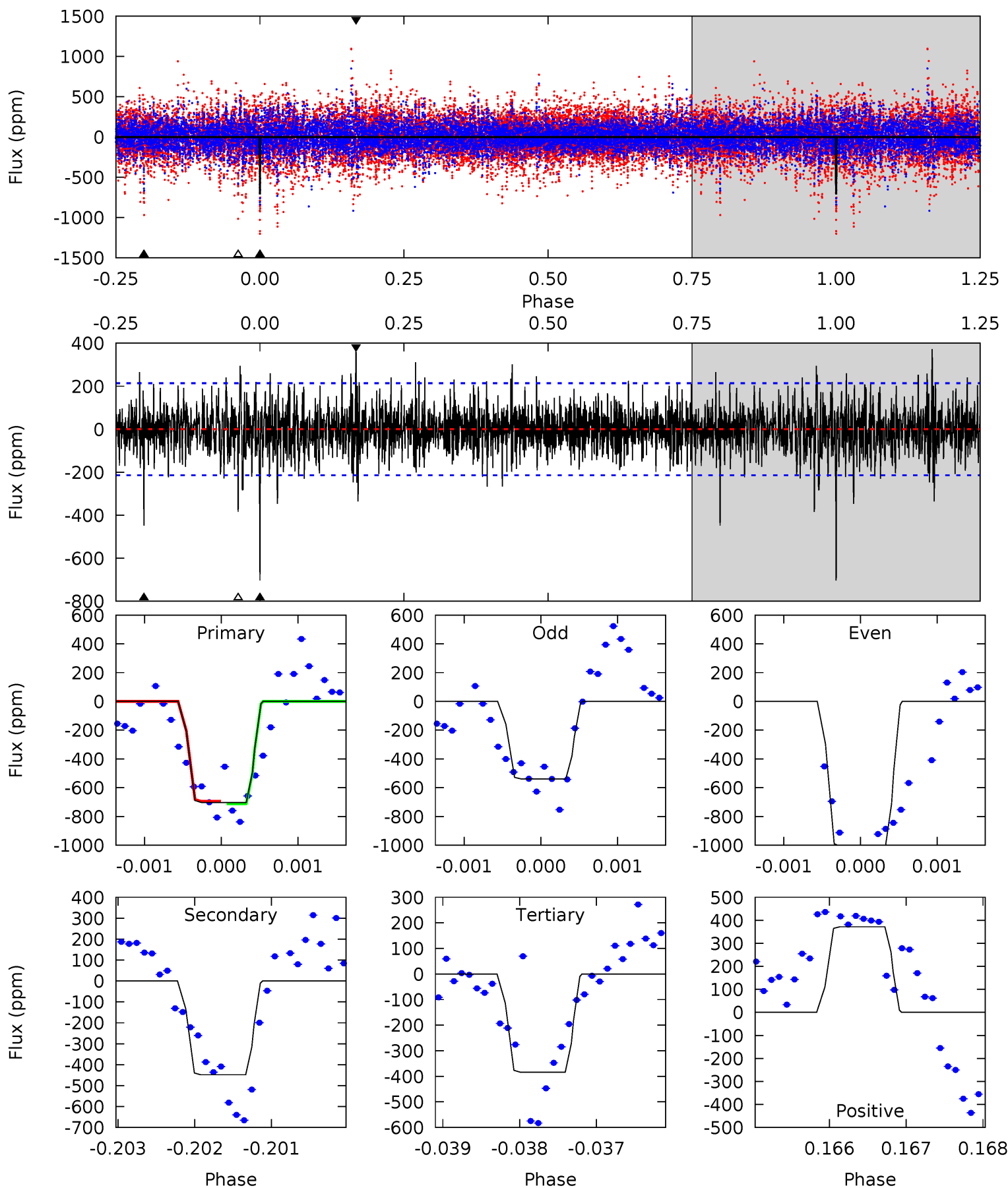
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	14.0	11.4	14.1	5.37	3.16	3.11	9.10	6.42	2.55	-0.13	7.45	1.10	0.41	0.17



Alt Model-Shift Uniqueness Test

004757997-03, P = 197.824872 Days, E = 151.519718 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	11.4	9.80	9.50	5.46	3.31	2.08	8.14	8.45	1.64	1.95	5.97	0.91	0.35	0.20



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-474 ± 34	$30.94^{+28.88}_{-19.94}$	1002^{+85}_{-103}	4267^{+2820}_{-791}	198^{+1489}_{-145}
Alt.	-448 ± 39	$27.84^{+25.23}_{-18.82}$	1011^{+73}_{-116}	4463^{+2962}_{-916}	240^{+1871}_{-177}

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

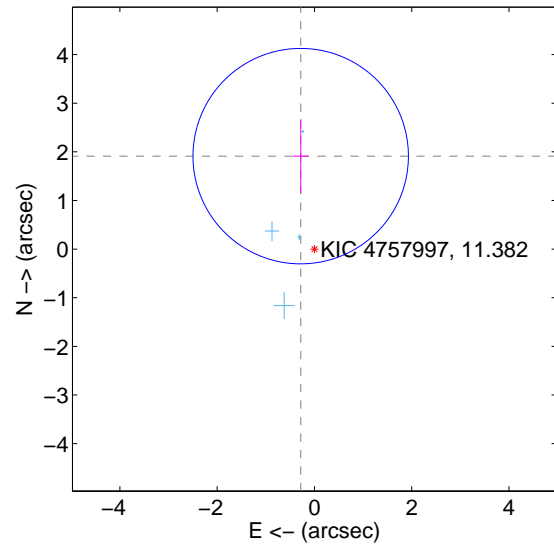
Supplemental centroid analysis for 004757997-03. **Kepler magnitude: 11.38.** Transit SNR 8.27

There are 4 quarters with good PRF difference image offsets

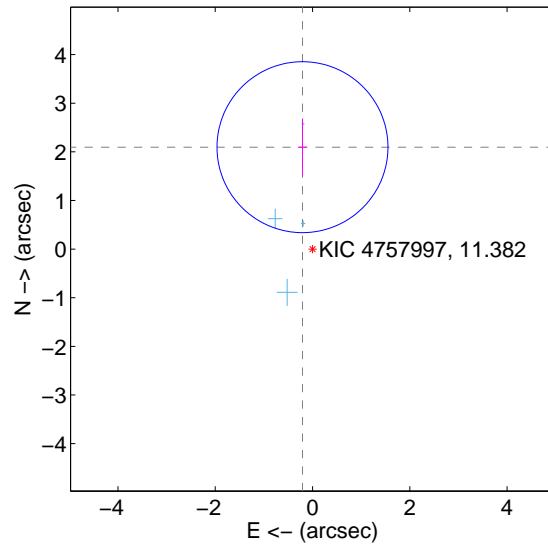
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.932 ± 0.738	2.62	0.283 ± 0.159	1.911 ± 0.761
PRF-fit source offset from KIC position	2.106 ± 0.586	3.59	0.207 ± 0.094	2.096 ± 0.589
photometric centroid source offset	0.20 ± 0.21	0.97	-0.11 ± 0.19	0.16 ± 0.21

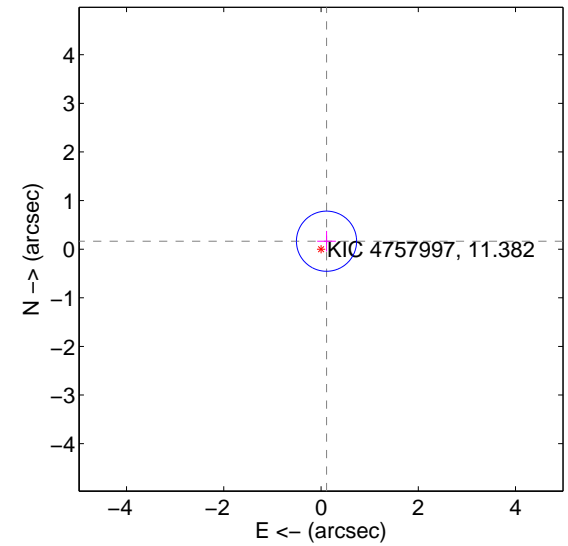
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

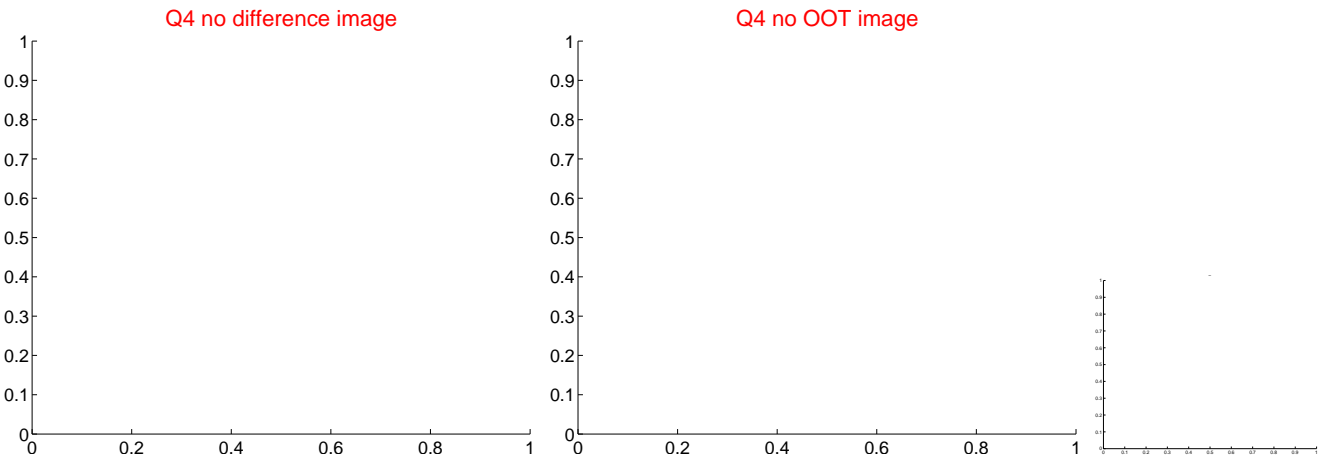
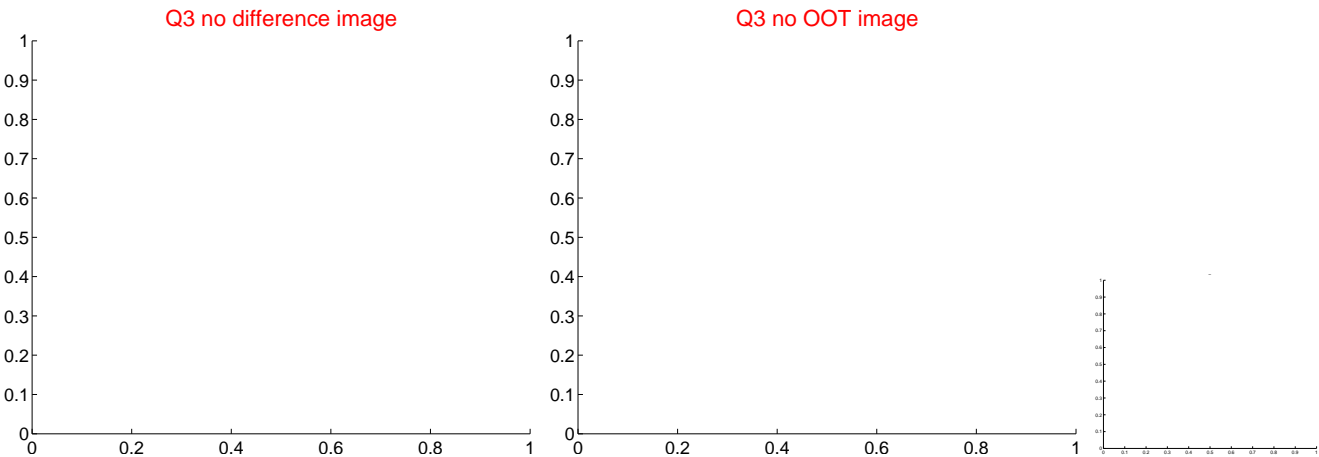
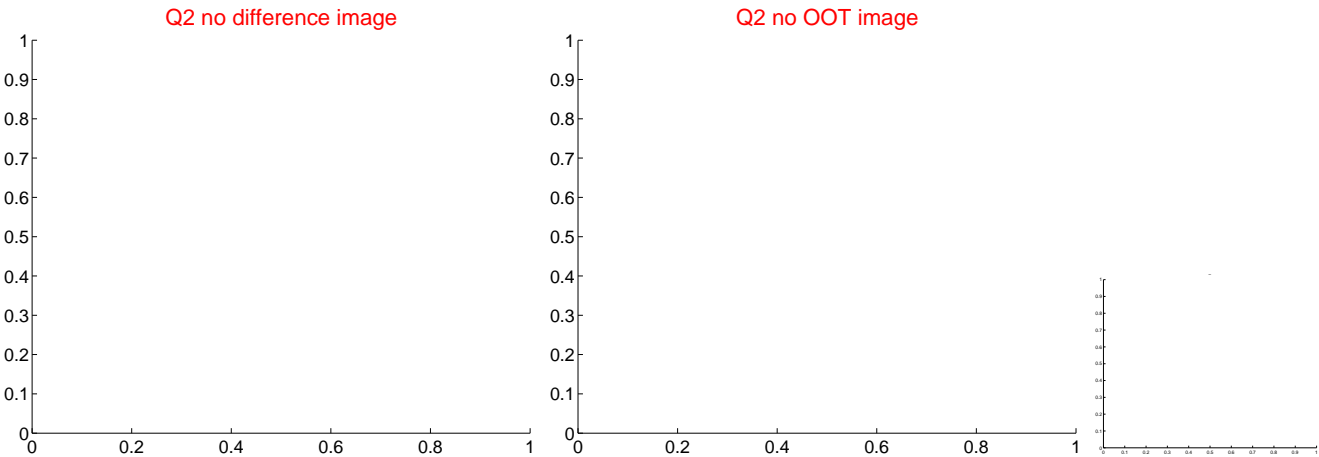
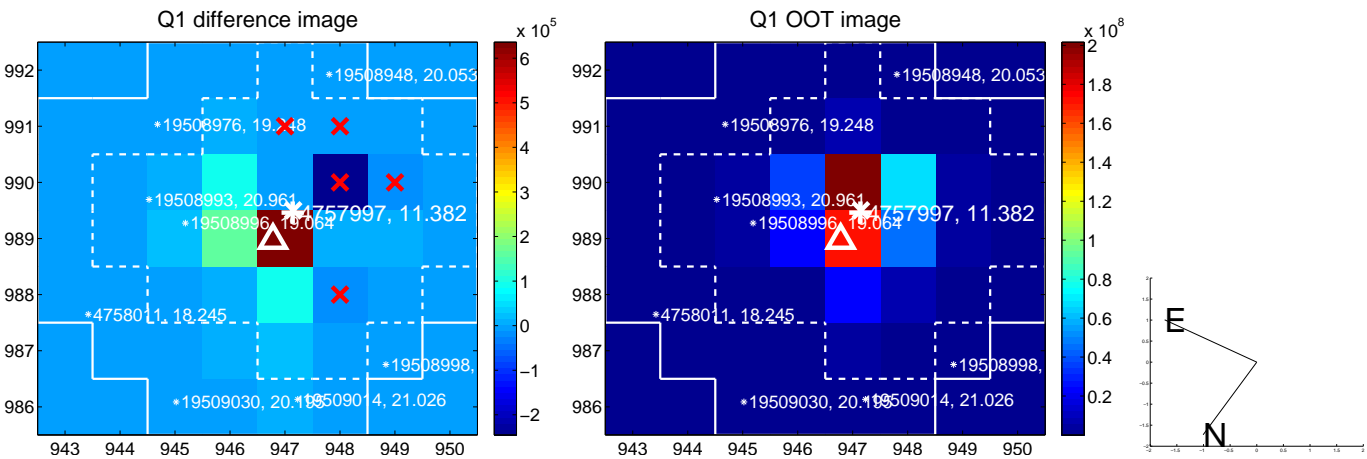


offset from photometric centroids

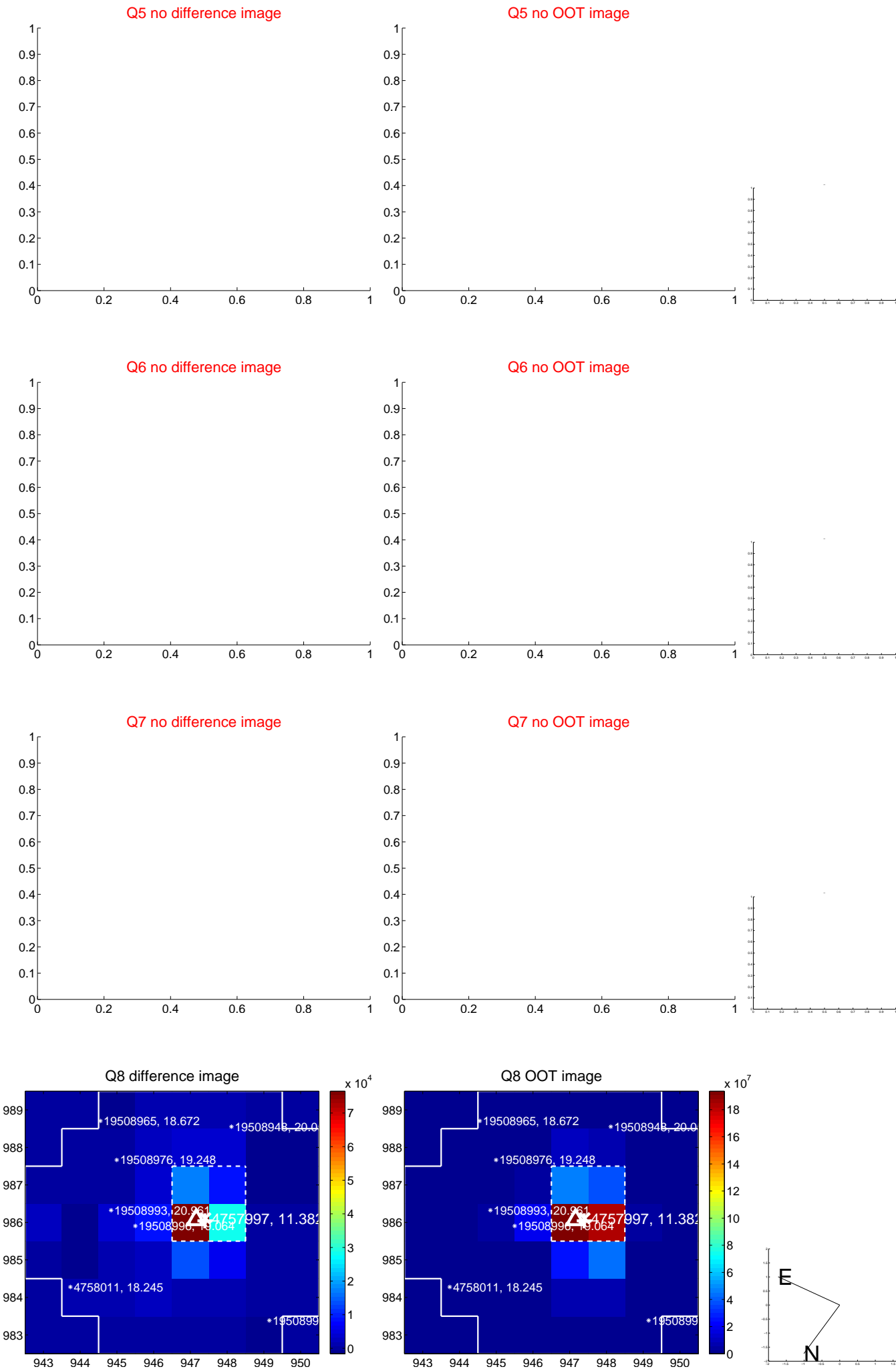


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

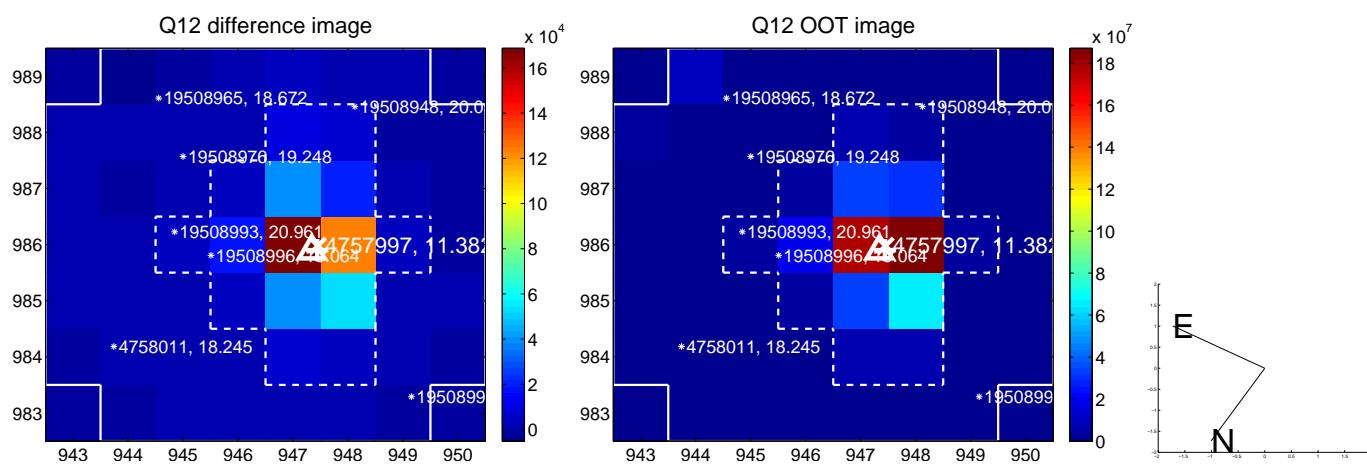
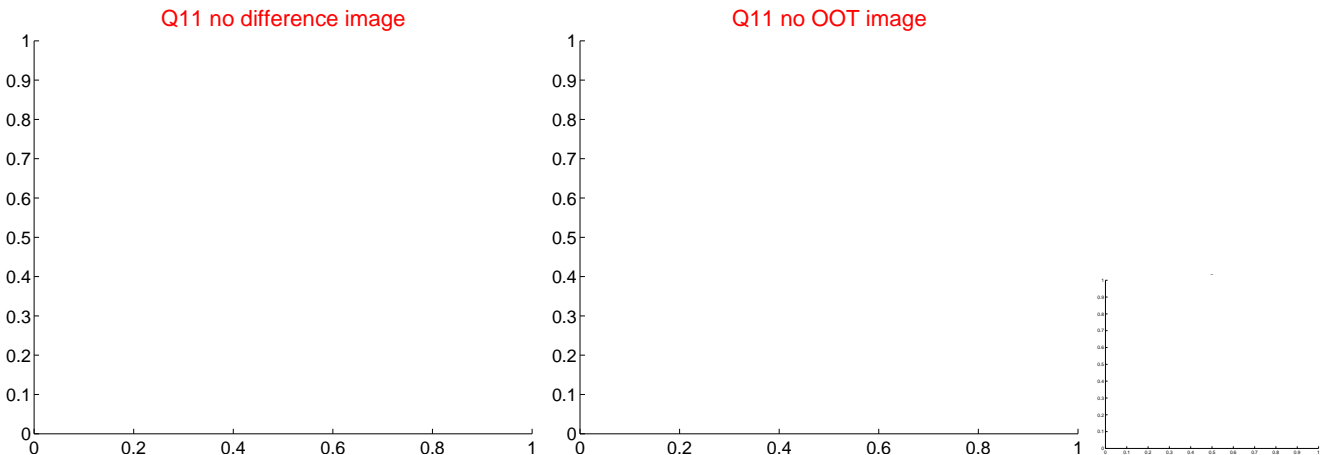
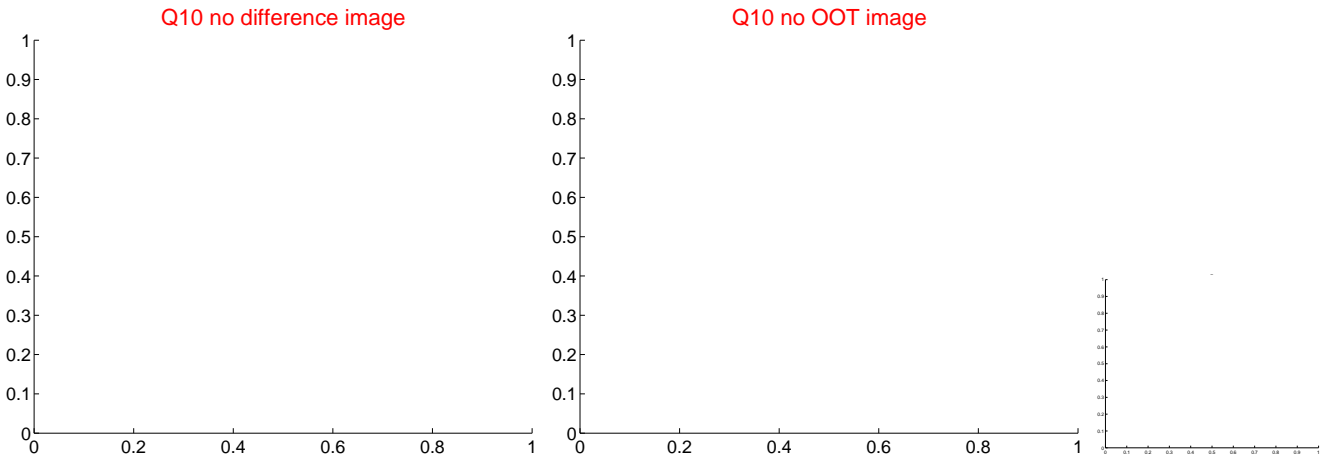
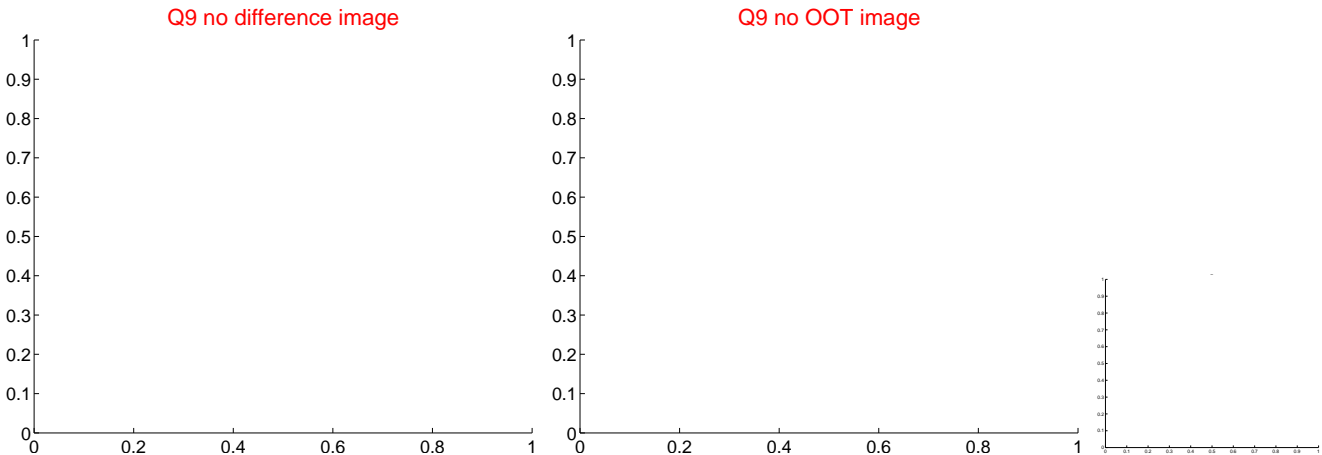
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



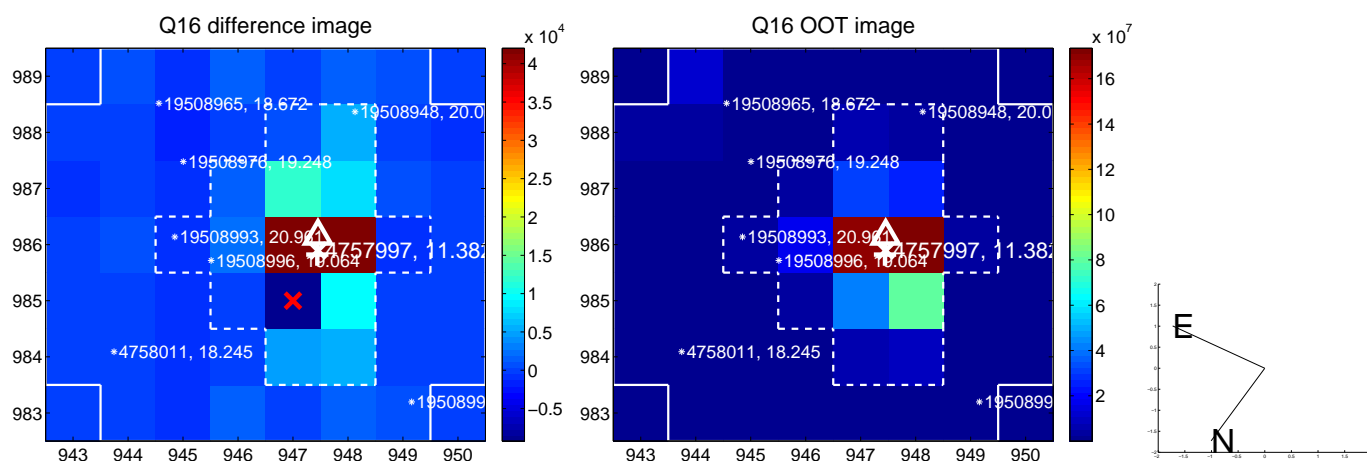
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



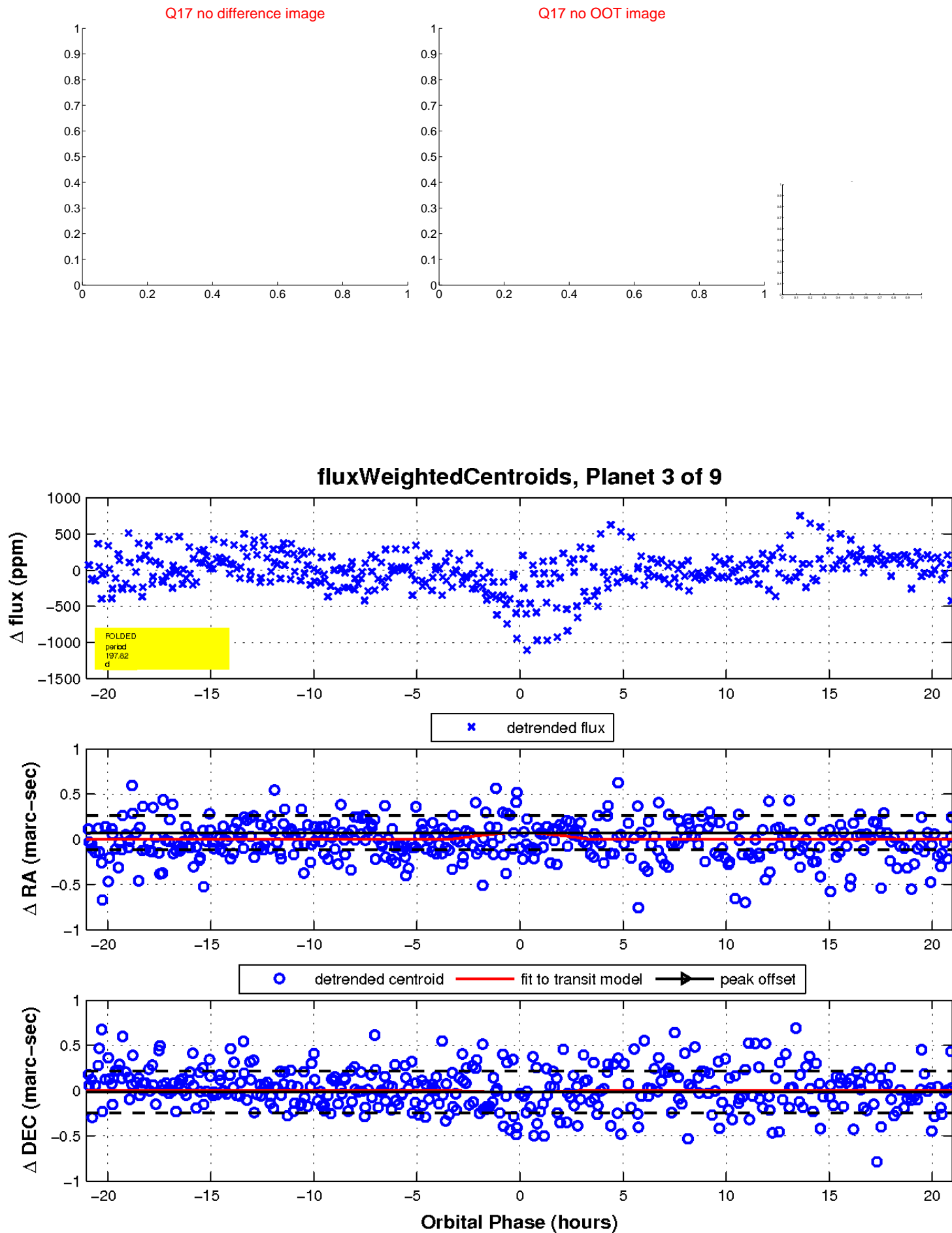
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



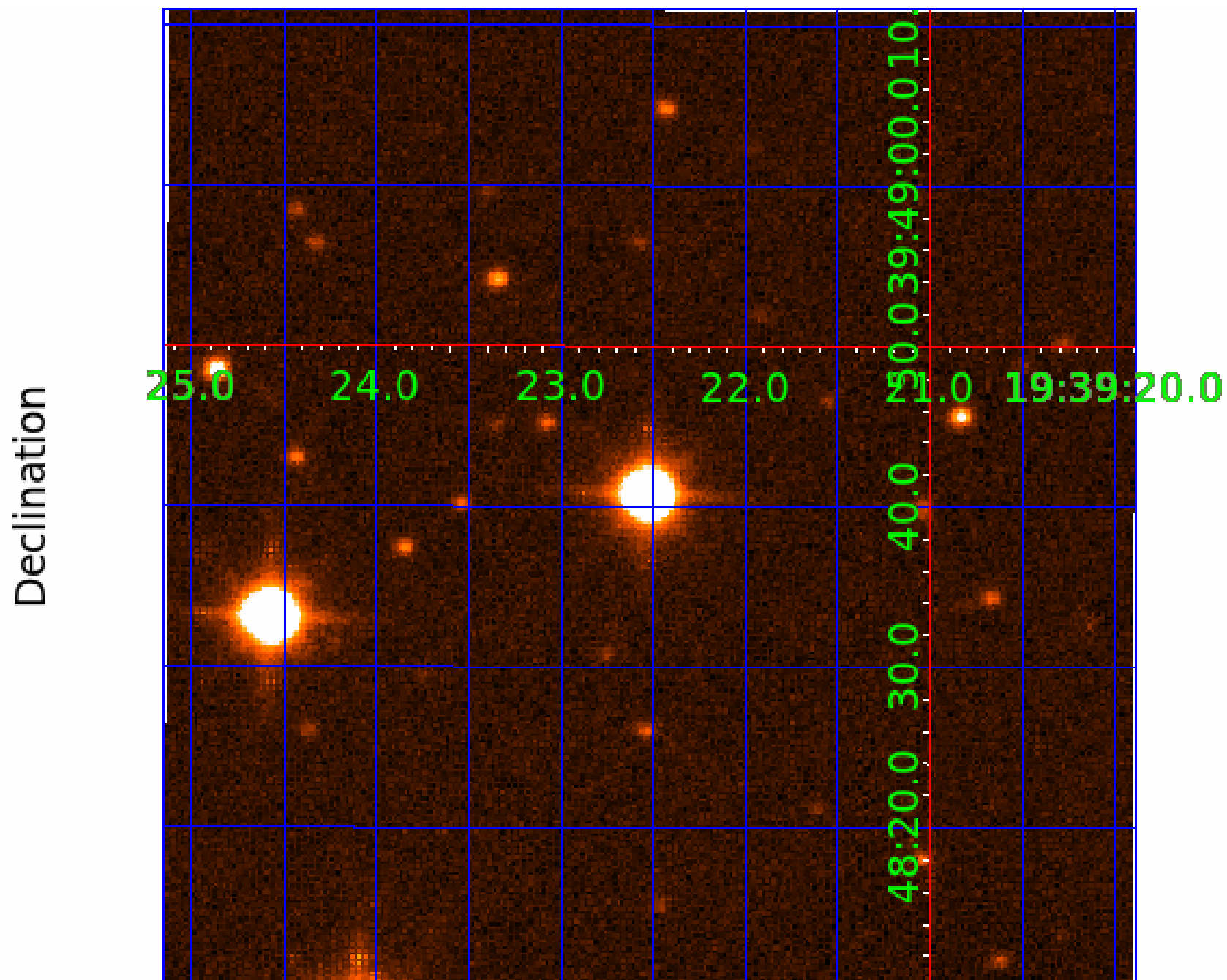
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



UKIRT Image



KIC 004757997

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})
004757997-01	OBS	No	0.971364	131.734108	24.8	4.192	9.2	8.1	5.01	7123	2.69	90848.87
004757997-02	OBS	No	162.232260	227.590283	362.3	12.380	8.9	6.7	5.01	7123	11.25	98.78
004757997-03	OBS	No	197.821200	151.524007	642.7	7.021	8.8	8.3	5.01	7123	22.48	75.82
004757997-05	OBS	No	114.716585	151.463704	390.4	4.932	8.1	8.3	5.01	7123	12.67	156.79
004757997-06	OBS	No	24.937261	133.170221	184.8	6.889	8.0	8.4	5.01	7123	8.40	1199.58
004757997-07	OBS	No	111.851210	221.389229	452.9	11.502	9.3	9.0	5.01	7123	20.18	162.17
004757997-08	OBS	No	265.113952	378.057033	273.0	3.177	8.9	6.4	5.01	7123	9.21	51.32
004757997-09	OBS	No	69.410357	154.726924	95.8	6.000	8.3	-1.0	5.01	7123	4.96	306.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757997-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

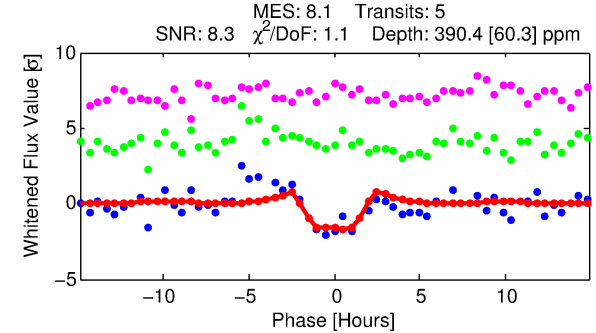
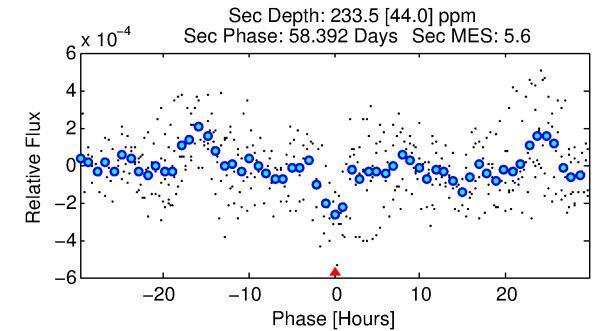
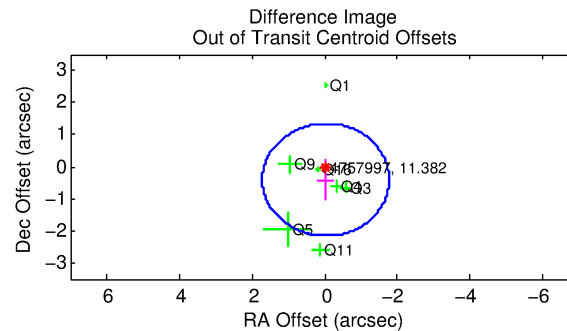
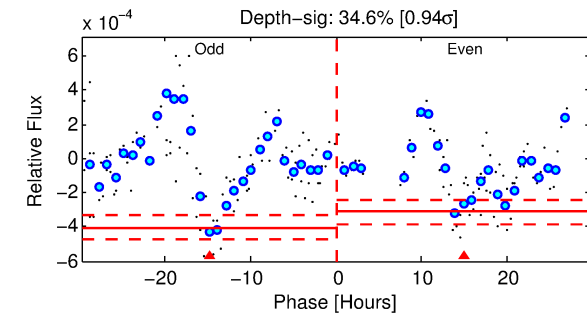
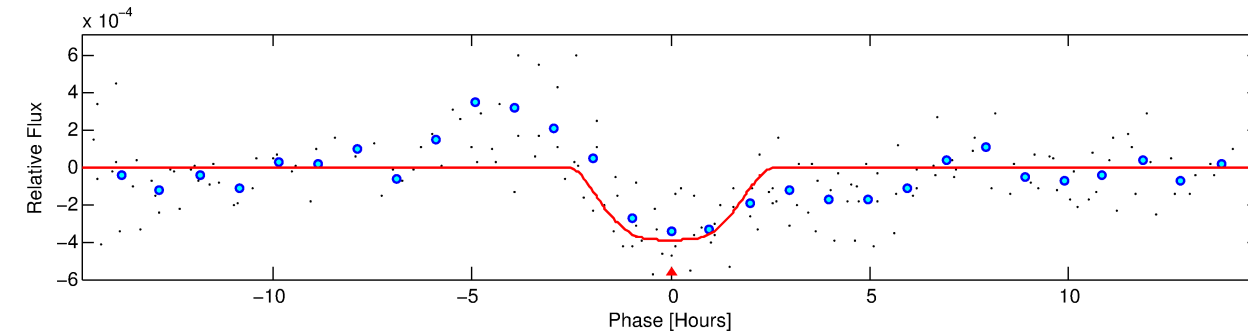
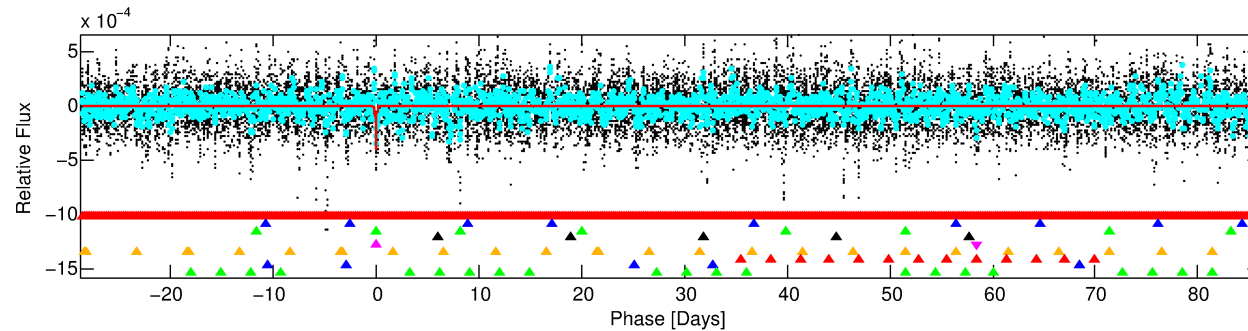
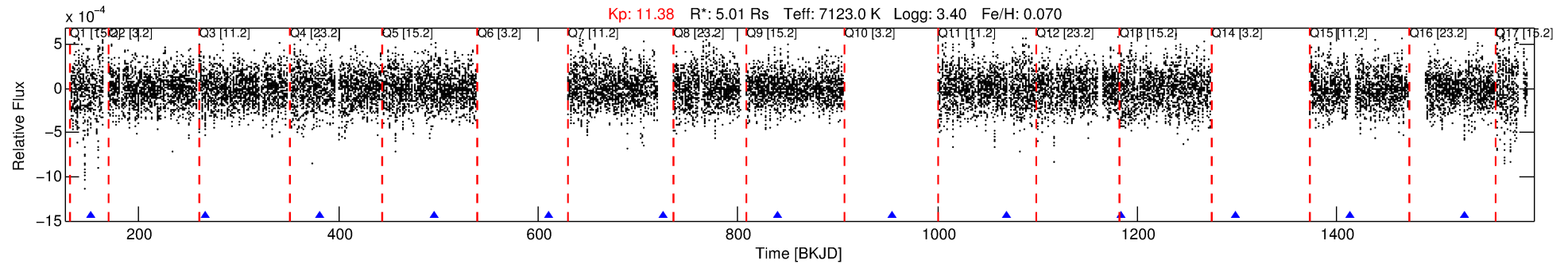
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-05

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 5 of 9 Period: 114.717 d



DV Fit Results:

Period = 114.71659 [0.00109] d
Epoch = 151.4637 [0.0082] BKJD
Rp/R* = 0.0232 [0.0021]
a/R* = 57.18 [9.02]
b = 0.97 [0.01]
Seff = 156.79 [107.32]
Teq = 902 [154] K
Rp = 12.67 [5.70] Re
a = 0.6078 [0.2556] AU
Ag = 295.38 [212.39] [1.39 σ]
Teffp = 5784 [430] K [10.68 σ]

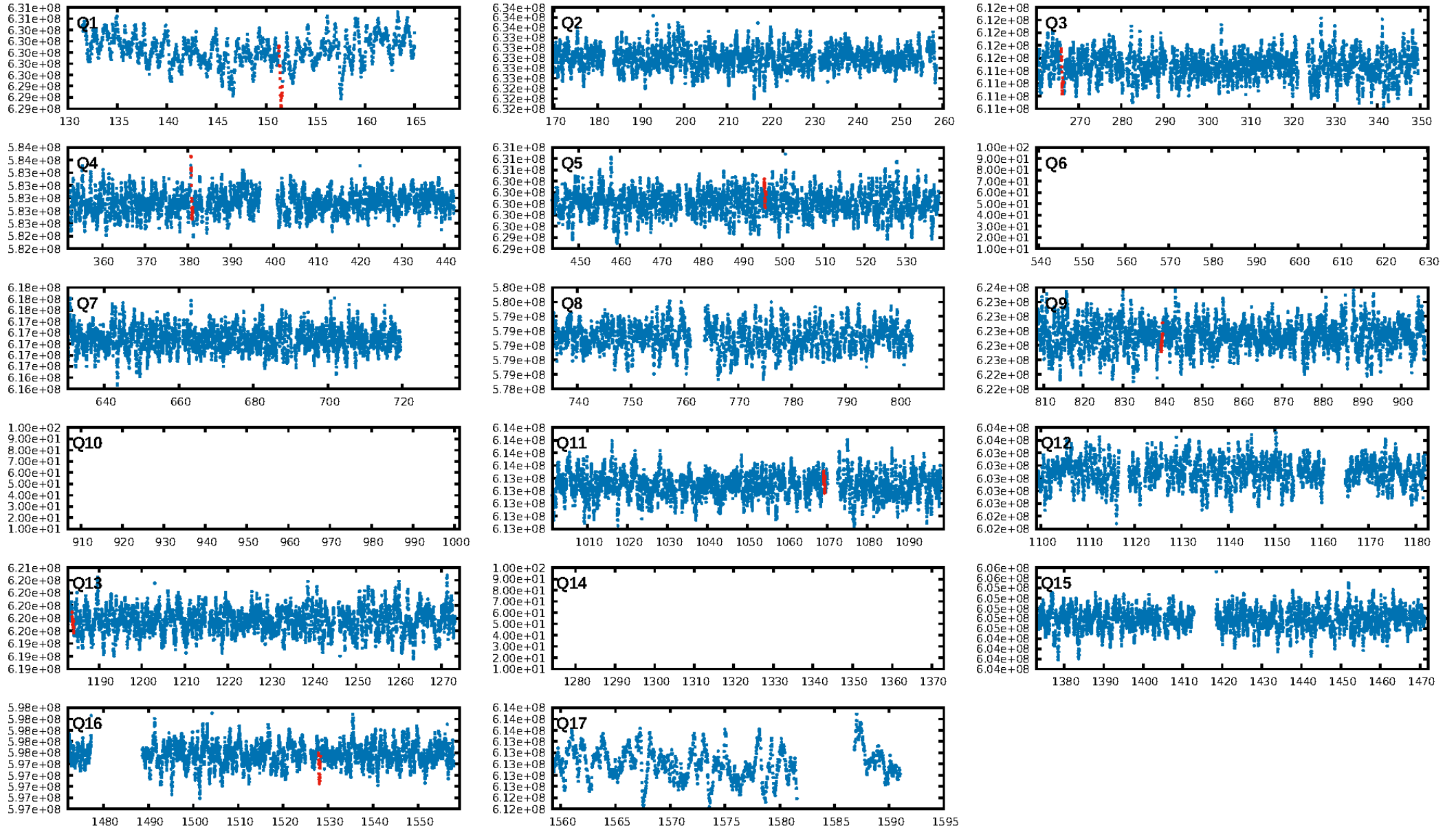
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.50 σ]
LongPeriod-sig: 100.0% [85.58 σ]
ModelChiSquare2-sig: 34.6%
ModelChiSquareGof-sig: 99.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.8717
Centroid-sig: 43.3%
Centroid-so: 0.286 arcsec [1.01 σ]
OotOffset-rm: 0.410 arcsec [0.70 σ]
KicOffset-rm: 0.207 arcsec [0.46 σ]
OotOffset-st: 0/2/2/3 [7]
KicOffset-st: 0/2/2/3 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 0.00 [0/7]

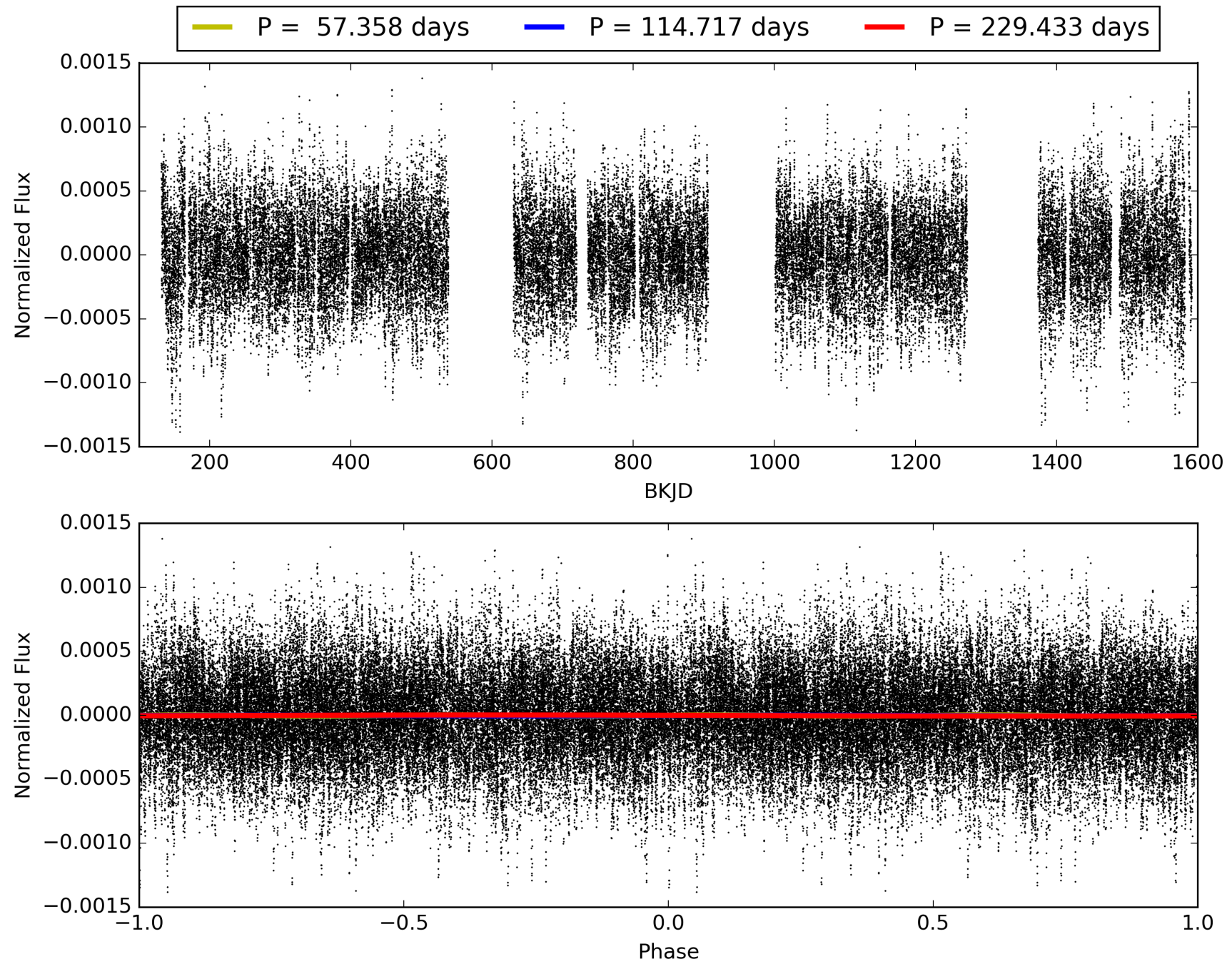
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:25 Z

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

TCE 004757997-05, PDC Light Curves

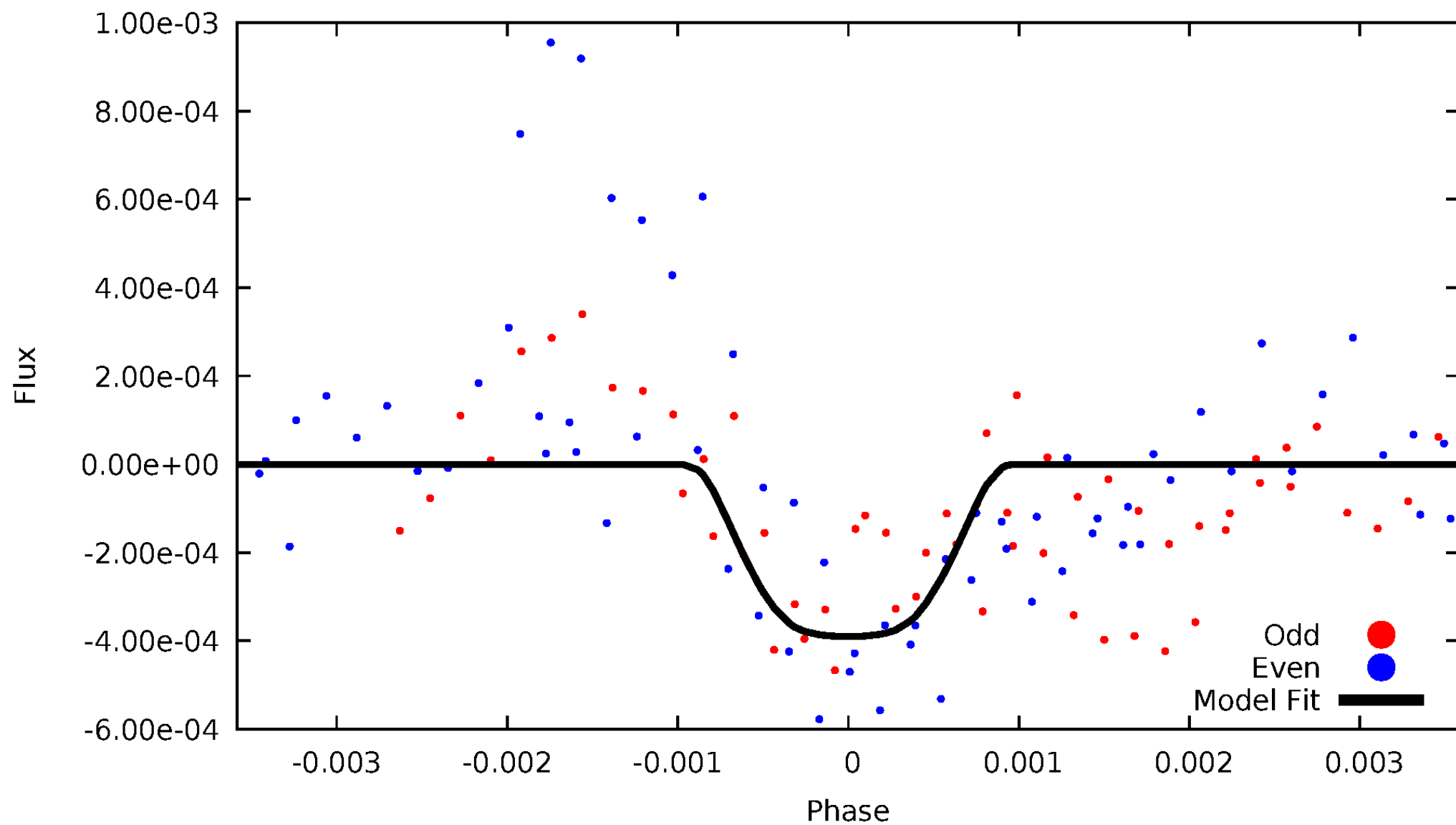


TCE 004757997-05



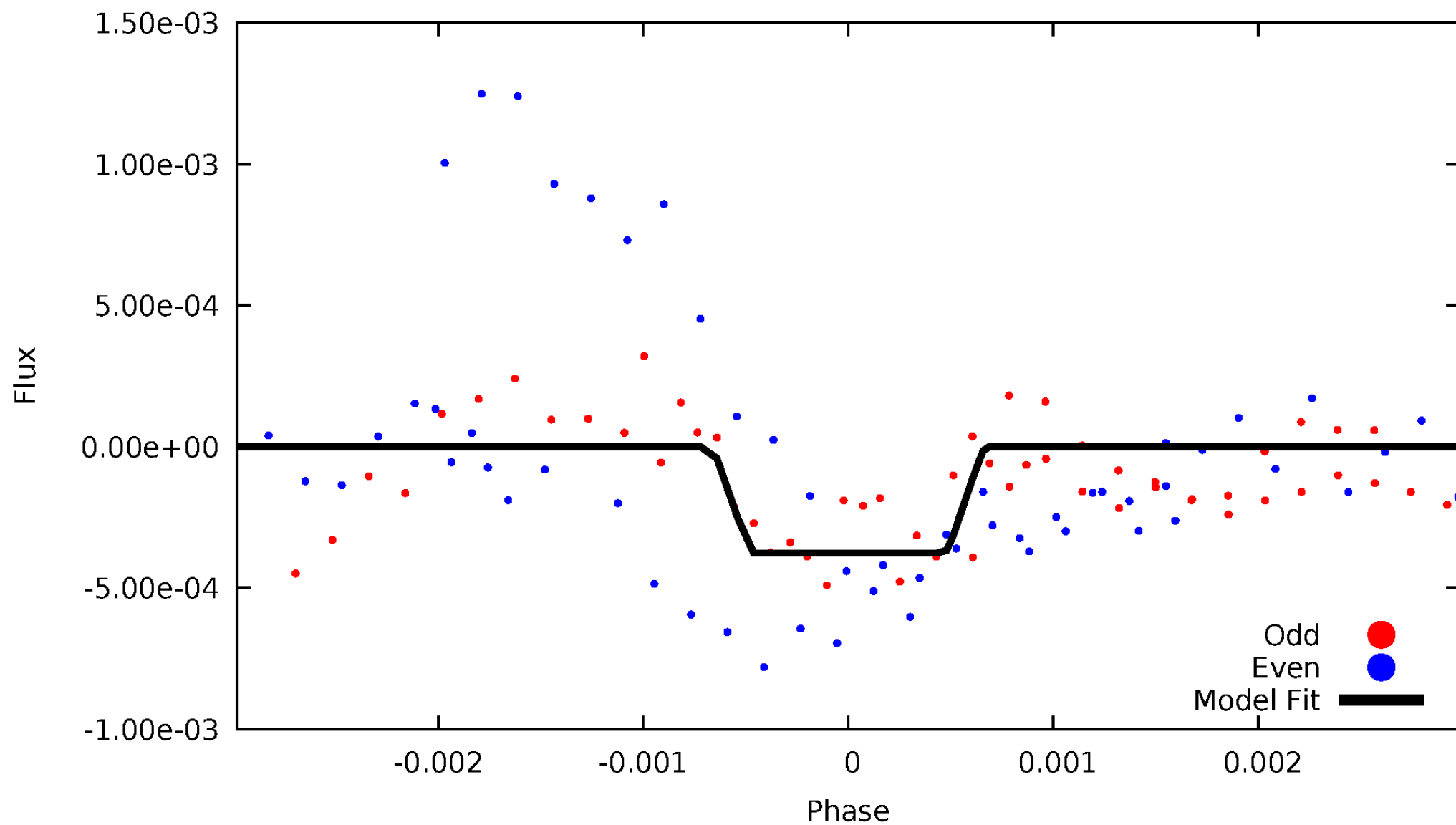
DV Odd/Even

TCE 004757997-05



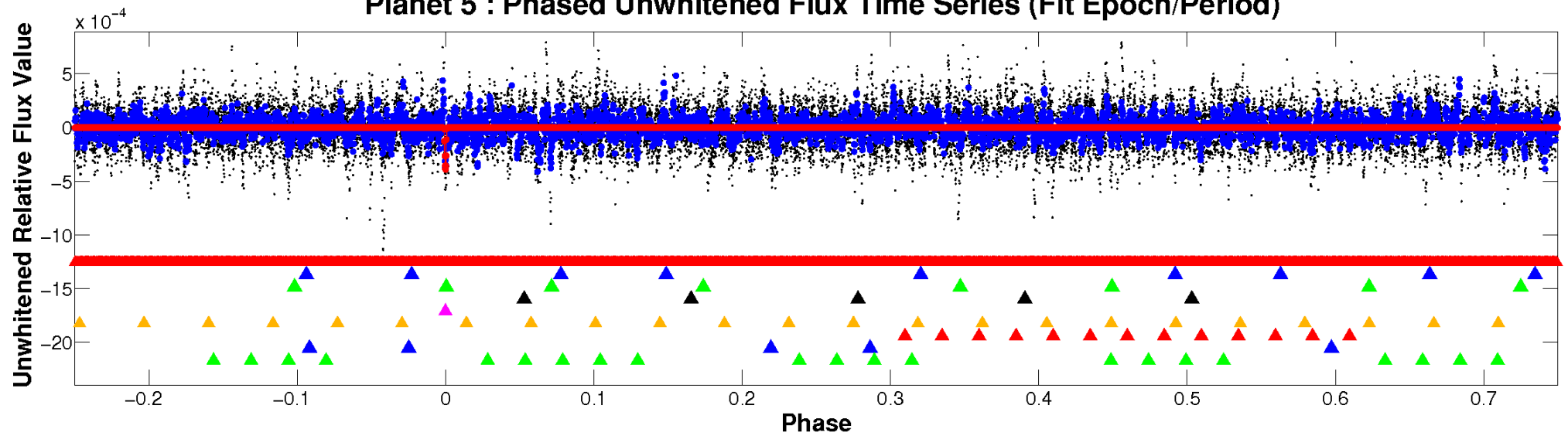
ALT Odd/Even

TCE 004757997-05

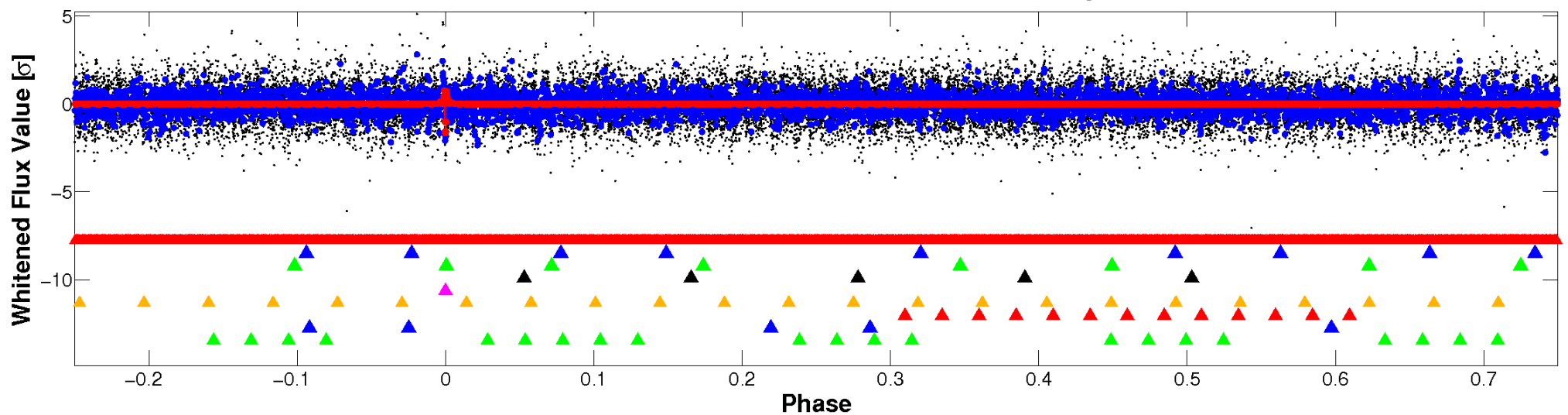


Non-Whitened Vs. Whitened Light Curve

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

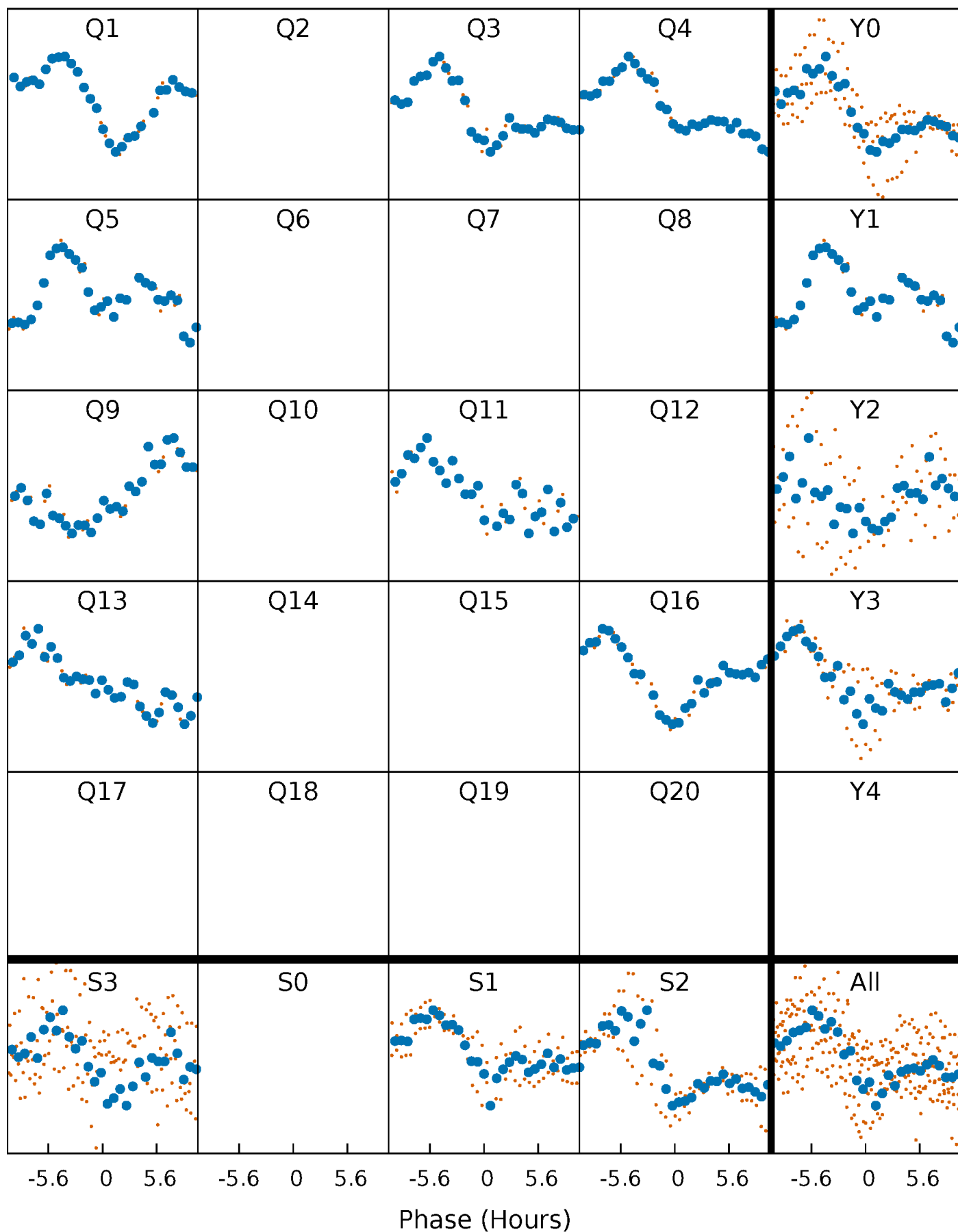


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



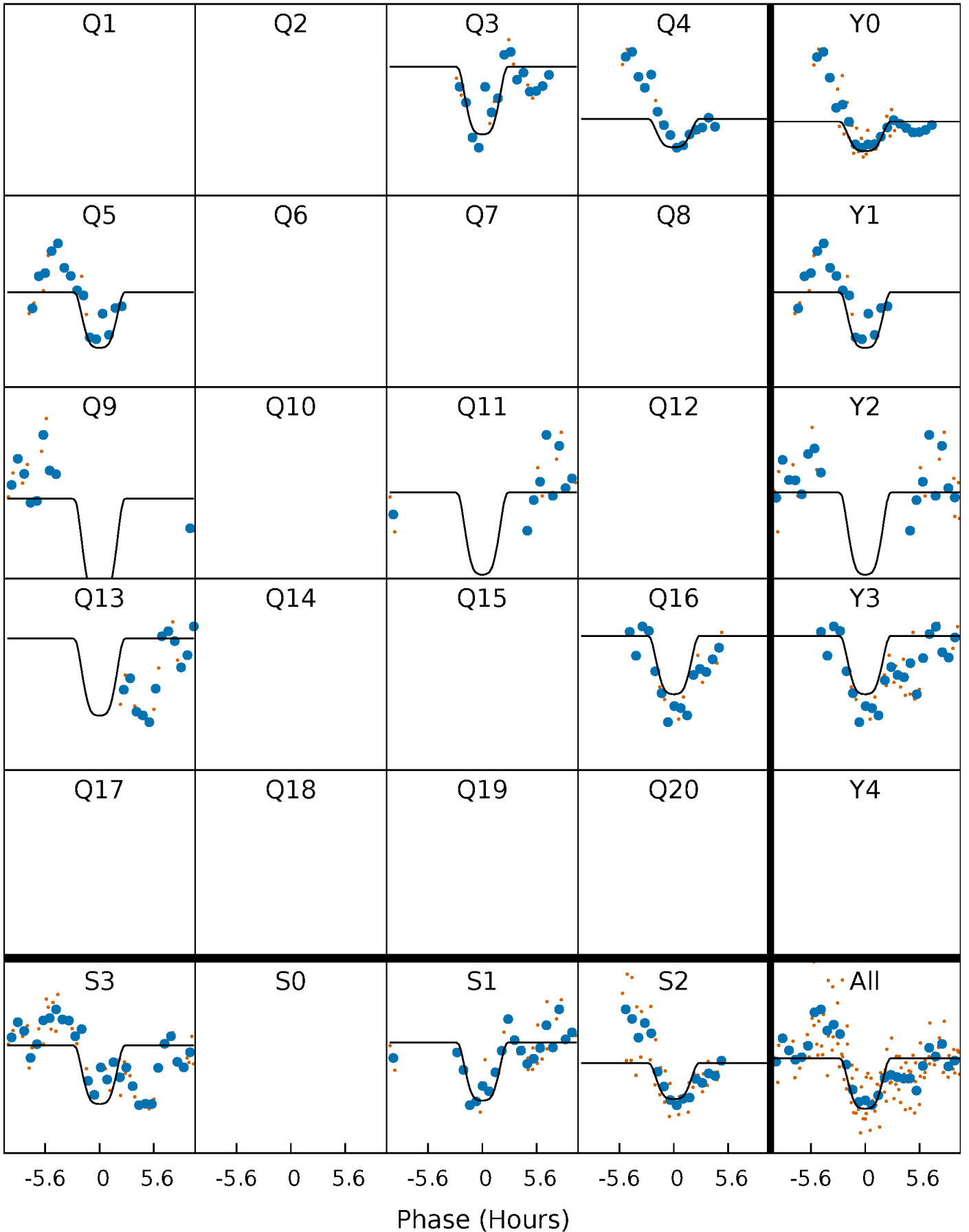
PDC Quarter-Phased Transit Curves

TCE 004757997-05 $P=114.716585$ Days $T_0=151.463705$ (BKJD)



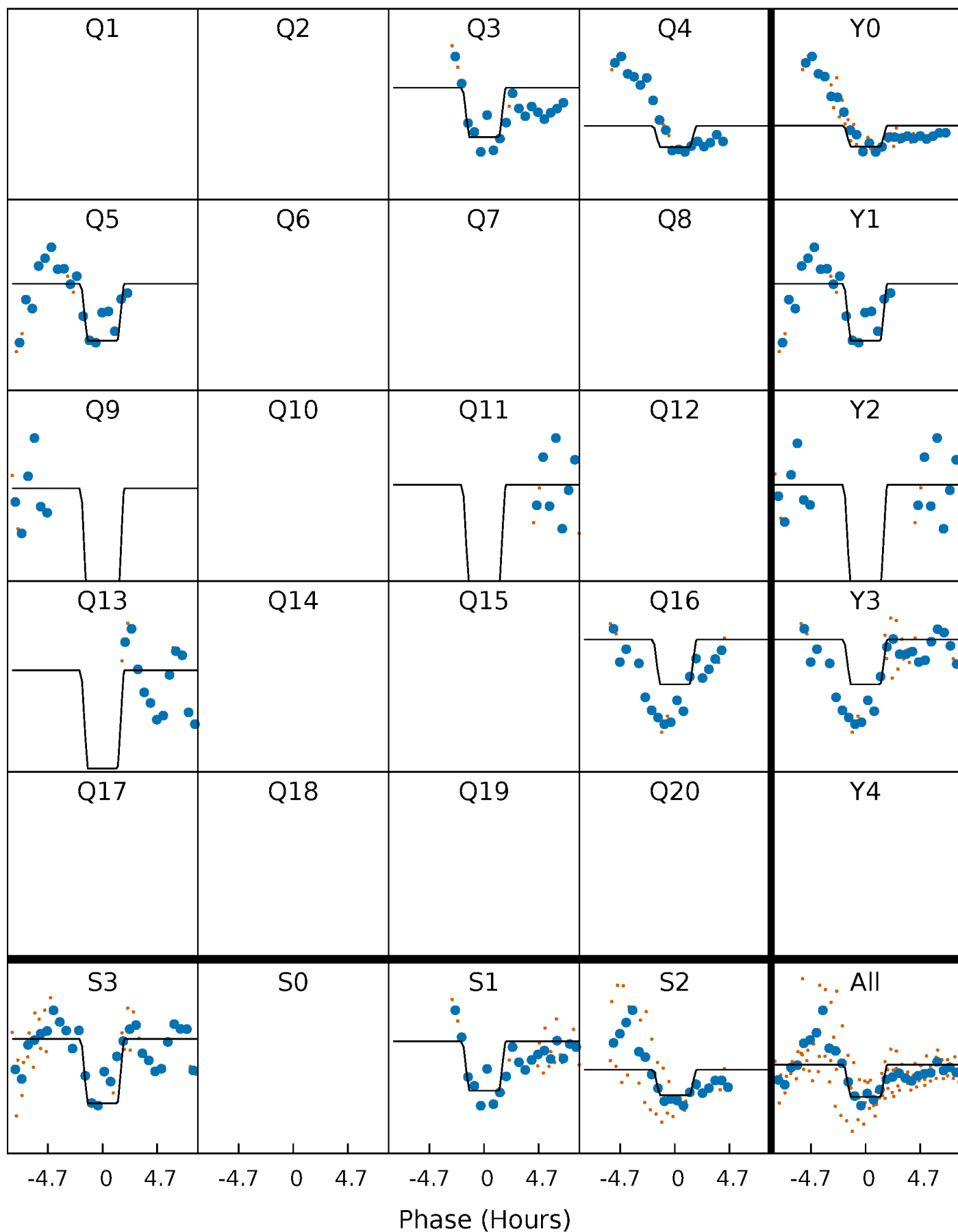
DV Quarter-Phased Transit Curves

TCE 004757997-05 $P=114.716585$ Days $T_0=151.463705$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

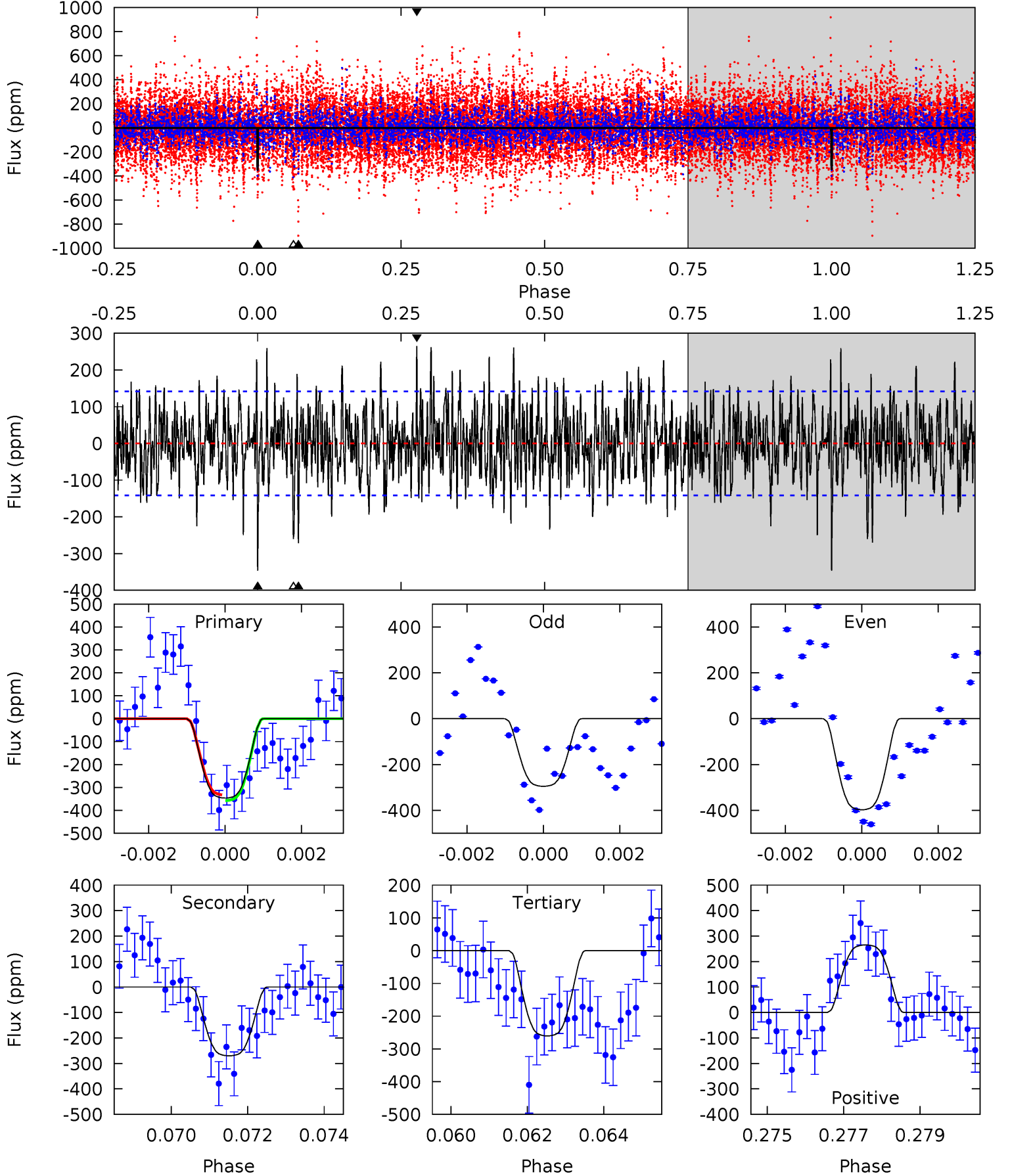
TCE 004757997-05 $P=114.718833$ Days $T_0=151.464407$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-05, $P = 114.716585$ Days, $E = 36.747120$ Days

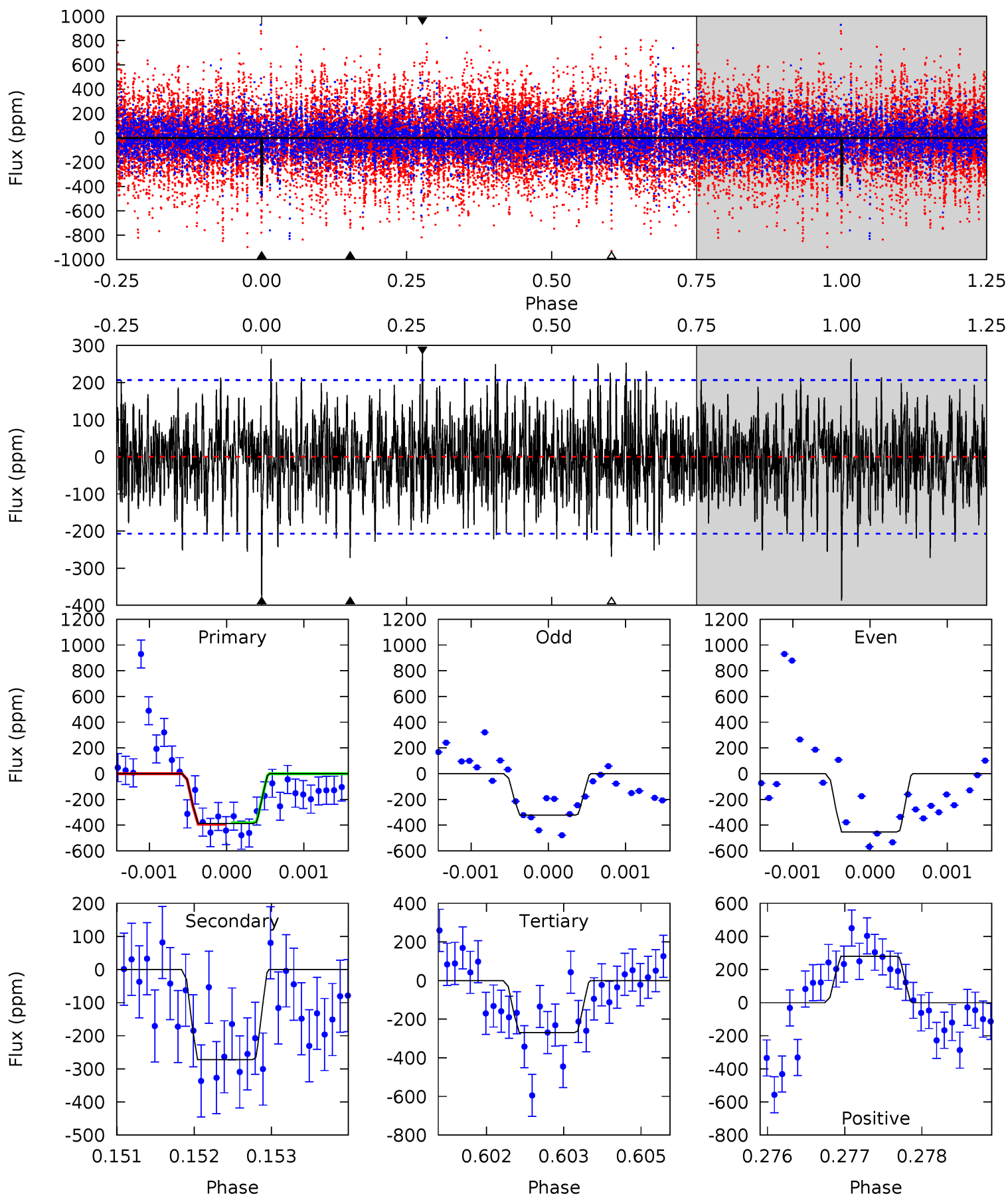
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	10.2	9.81	9.99	5.33	3.10	2.92	3.24	3.06	0.36	0.19	1.93	1.99	0.43	0.47



Alt Model-Shift Uniqueness Test

004757997-05, P = 114.718833 Days, E = 36.745574 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	7.11	7.04	7.33	5.41	3.23	2.21	3.08	2.79	0.08	-0.22	1.70	1.18	0.42	0.15



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-270 ± 27	$11.69^{+2.21}_{-2.56}$	1223^{+79}_{-131}	5926^{+356}_{-324}	397^{+217}_{-121}
Alt.	-272 ± 38	$9.62^{+2.02}_{-2.21}$	1210^{+92}_{-149}	6500^{+485}_{-467}	592^{+391}_{-198}

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

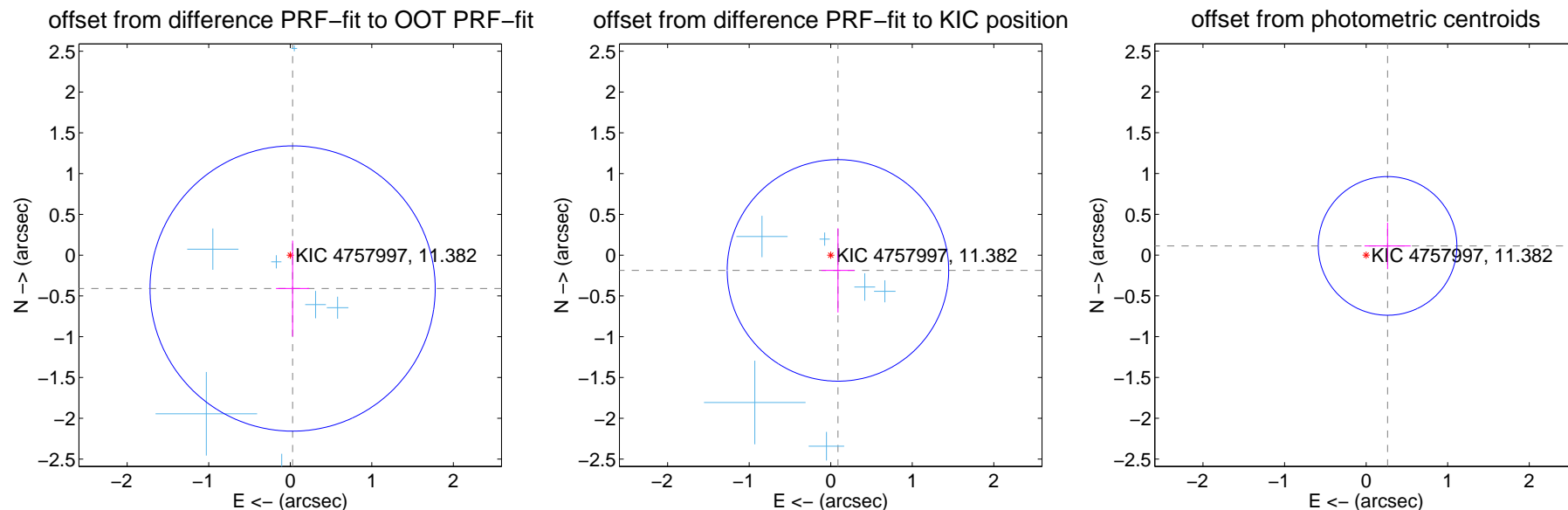
DV Centroid Data

Supplemental centroid analysis for 004757997-05. **Kepler magnitude: 11.38.** Transit SNR 8.27

There are 7 quarters with good PRF difference image offsets

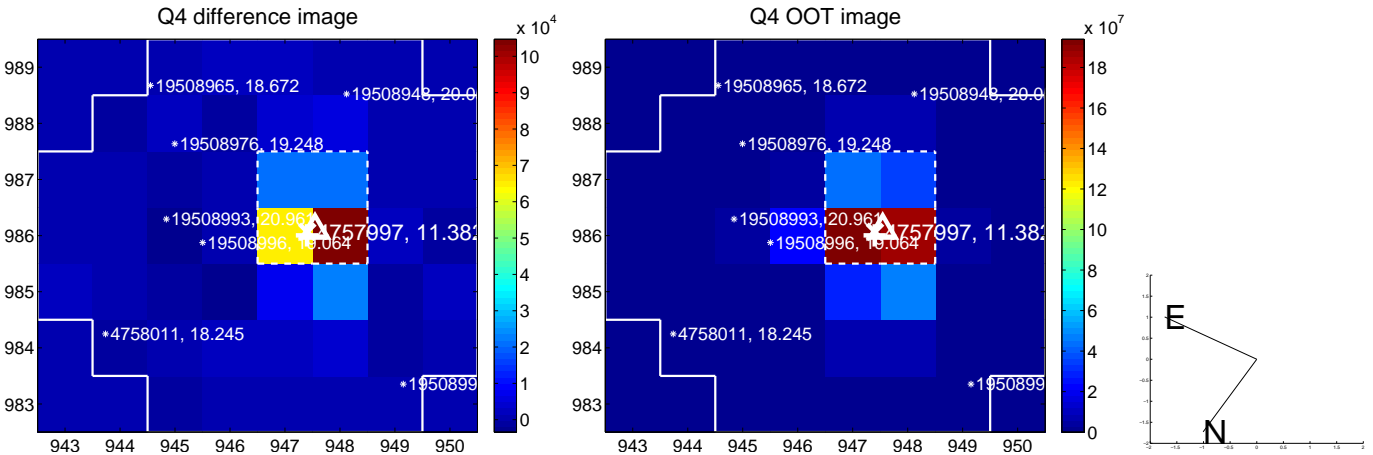
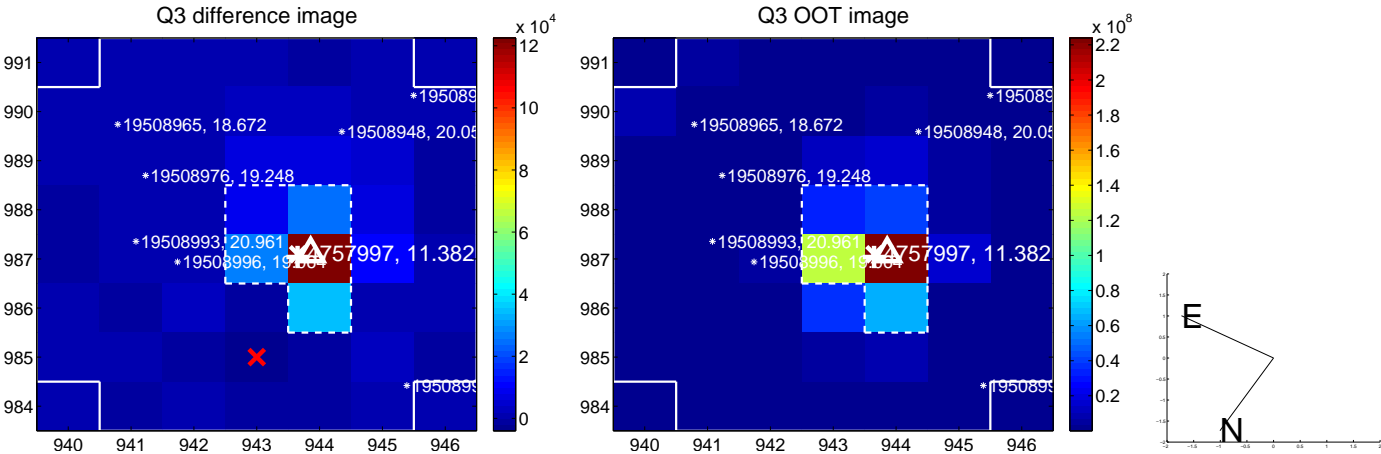
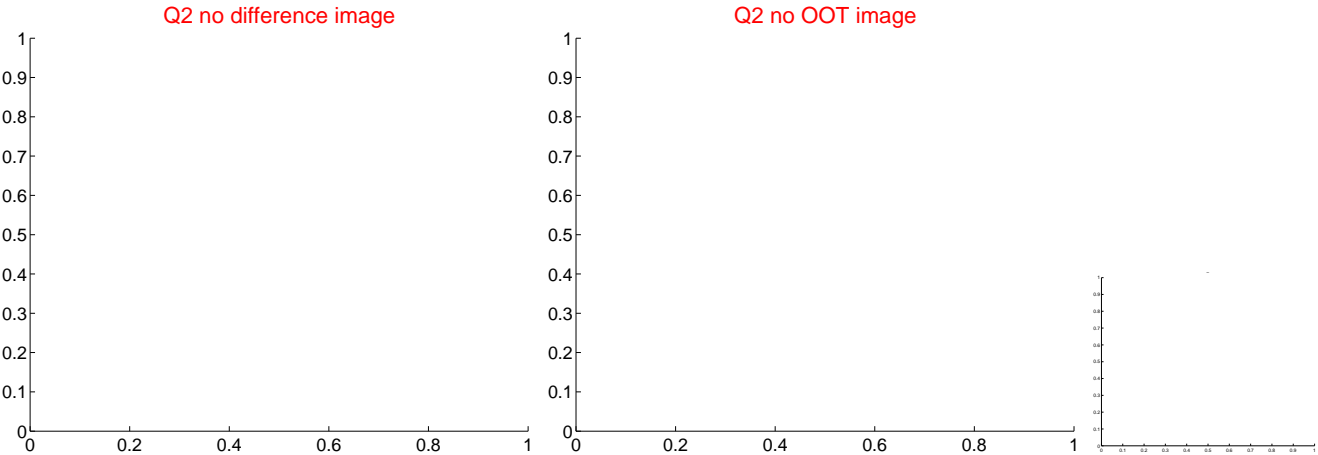
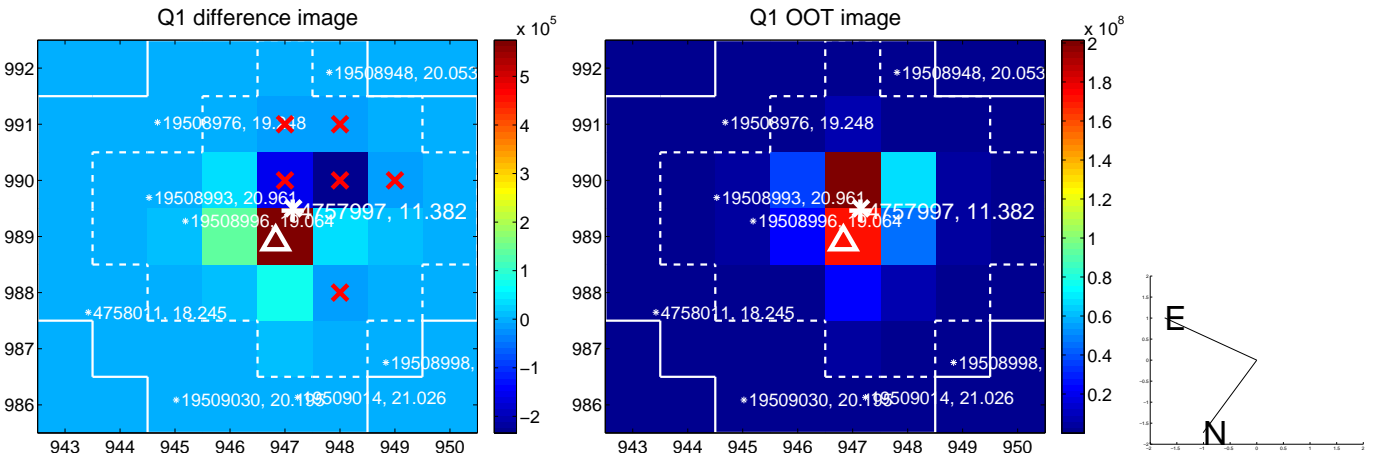
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.410 ± 0.583	0.70	-0.029 ± 0.204	-0.409 ± 0.588
PRF-fit source offset from KIC position	0.207 ± 0.453	0.46	-0.088 ± 0.204	-0.187 ± 0.517
photometric centroid source offset	0.29 ± 0.28	1.01	-0.26 ± 0.28	0.11 ± 0.28

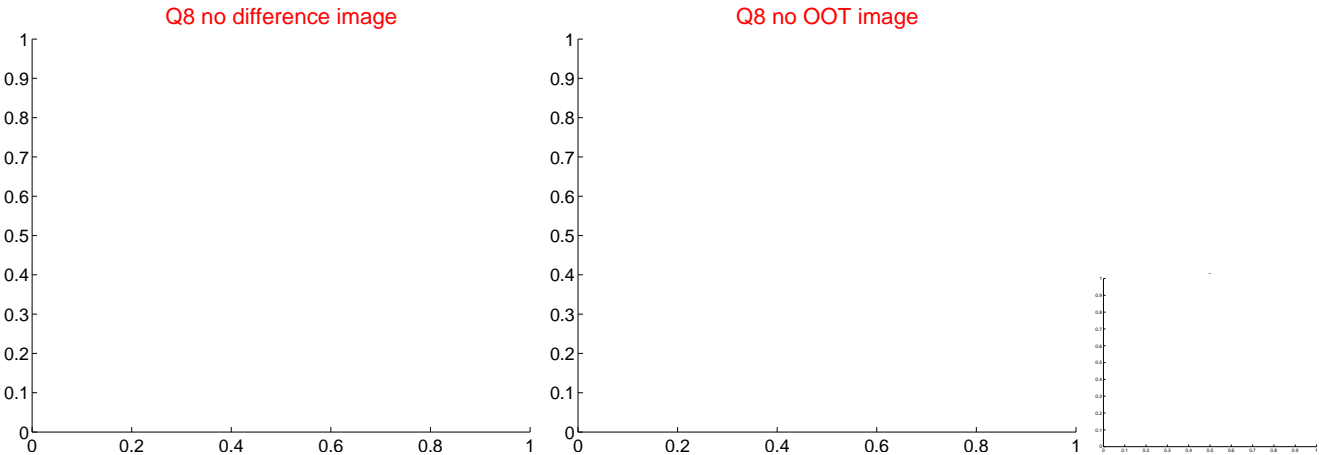
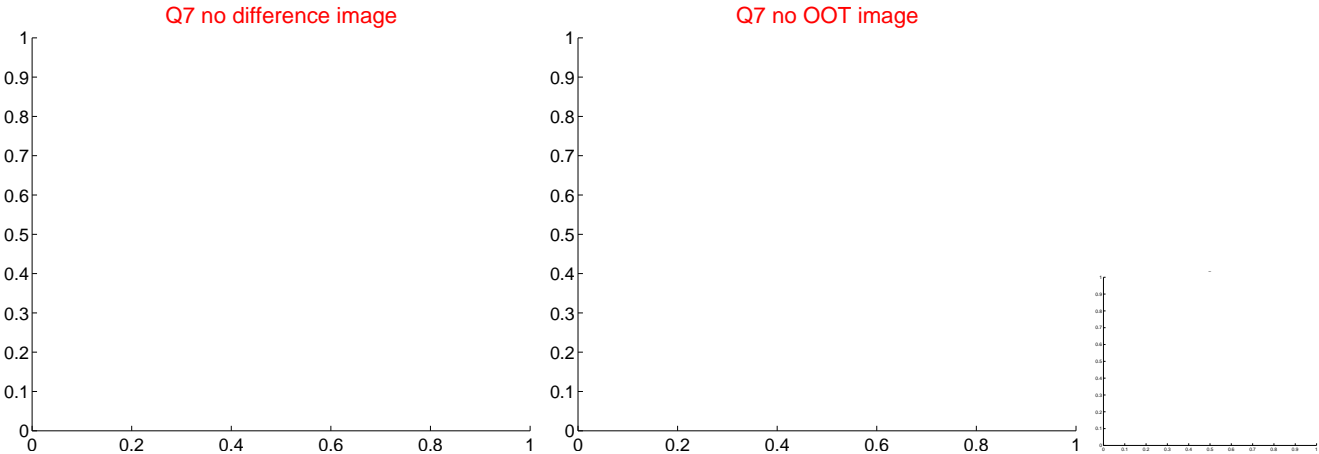
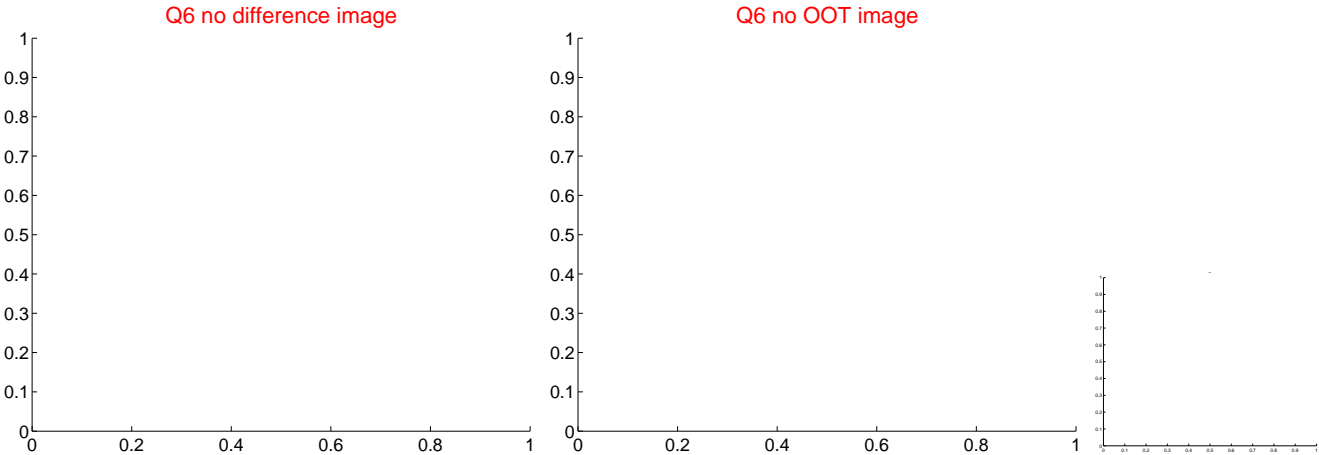
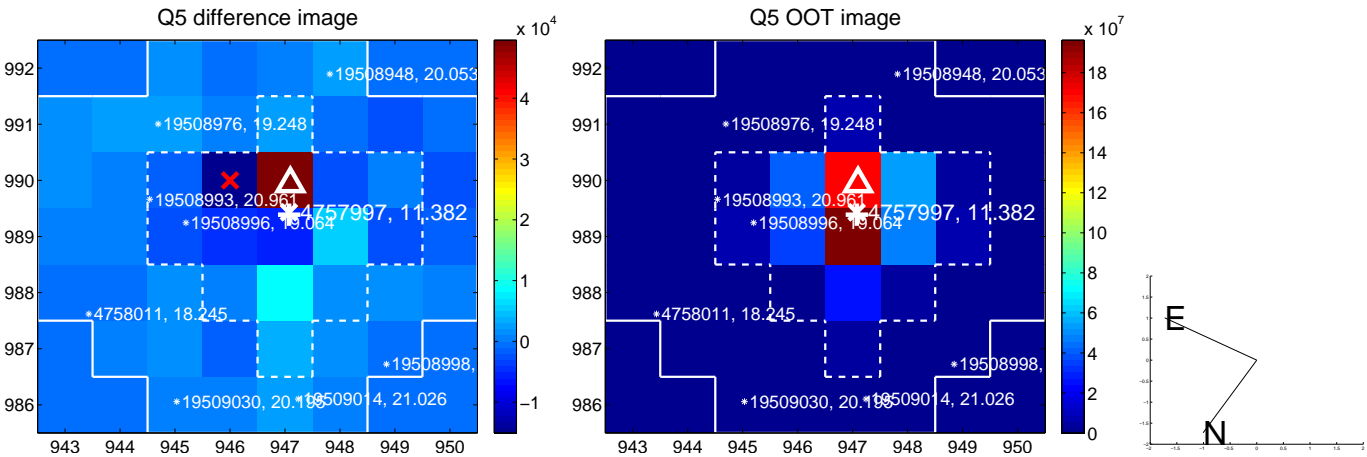


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

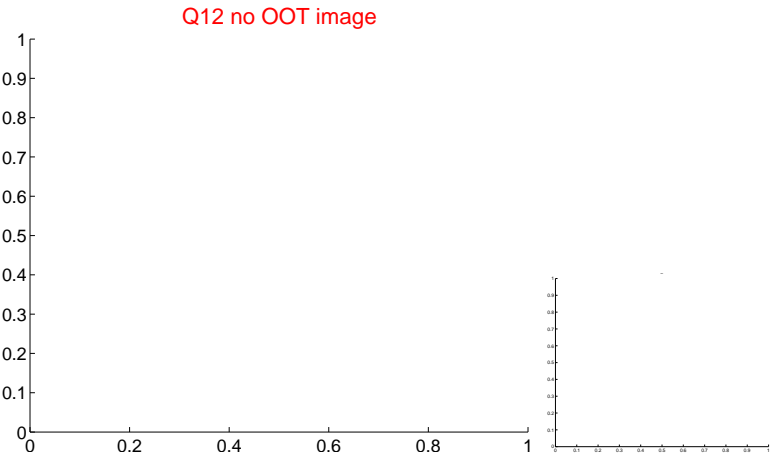
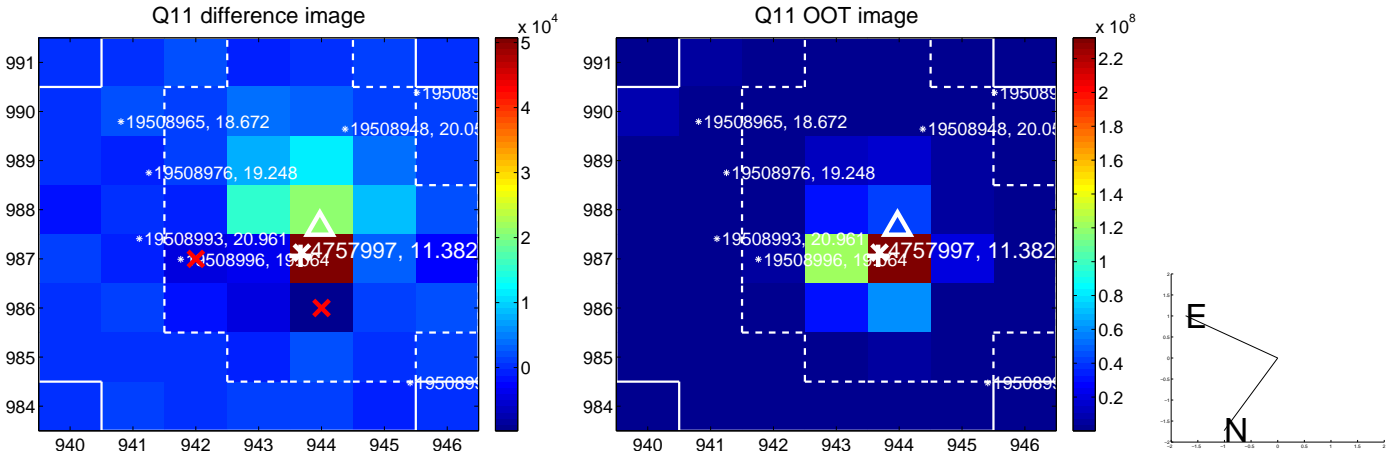
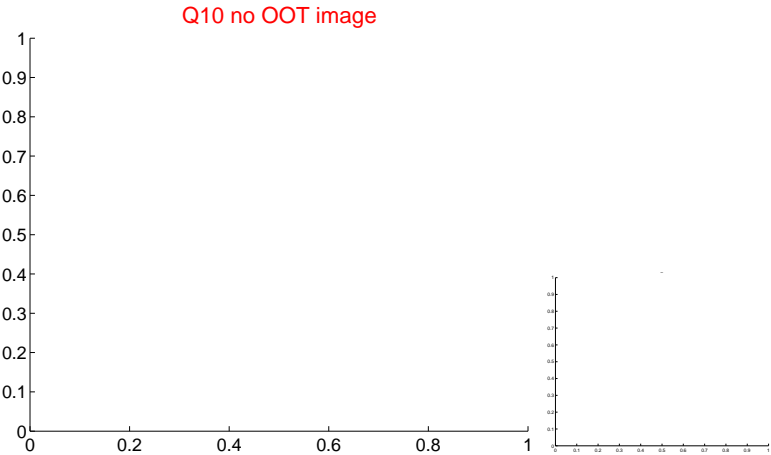
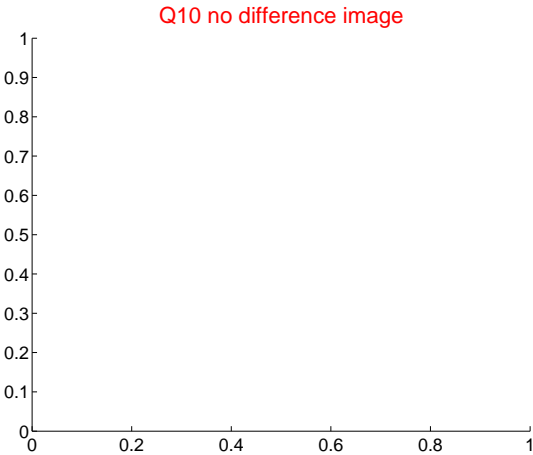
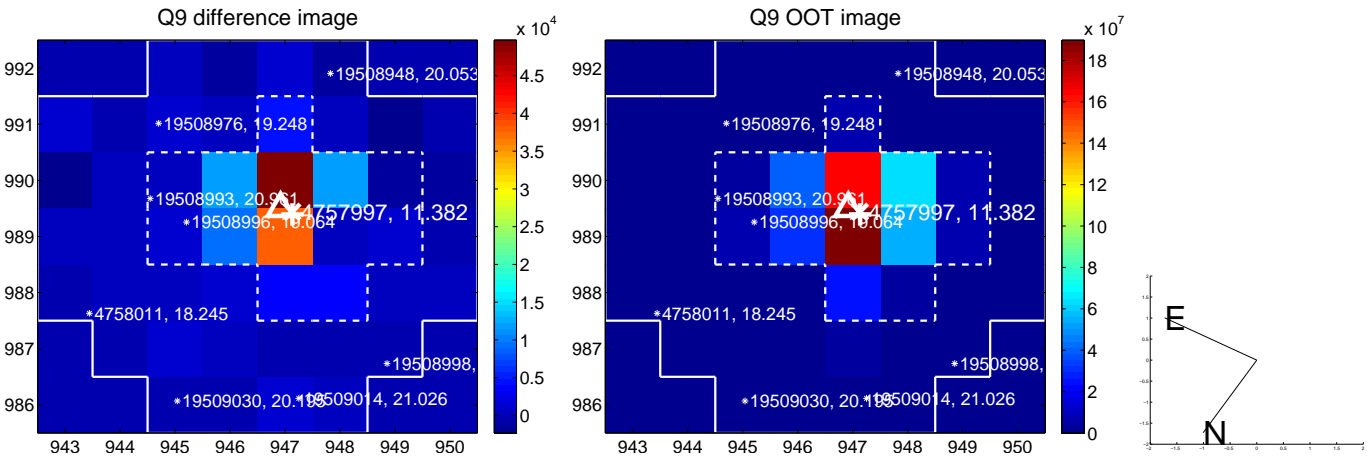
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



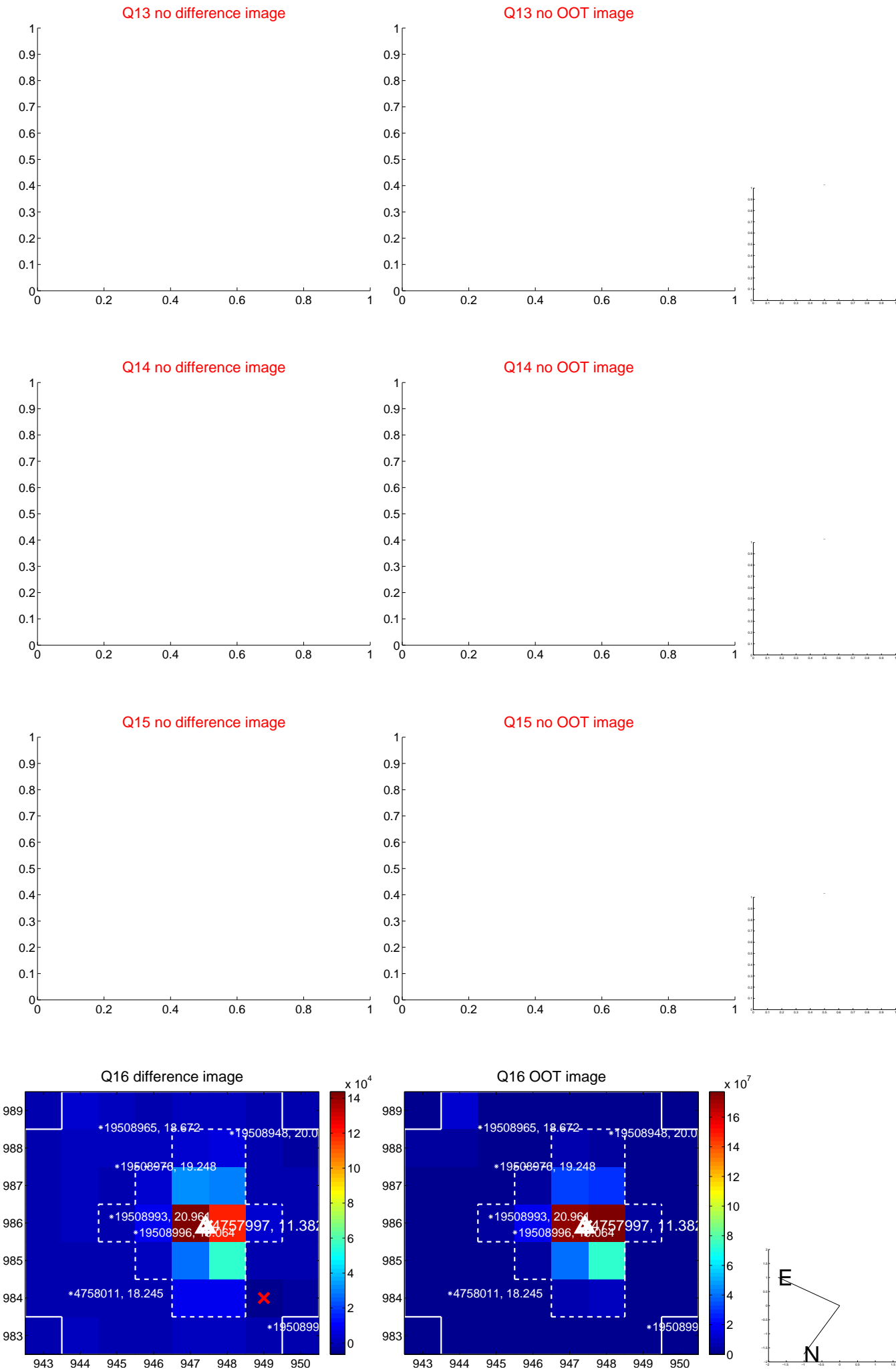
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



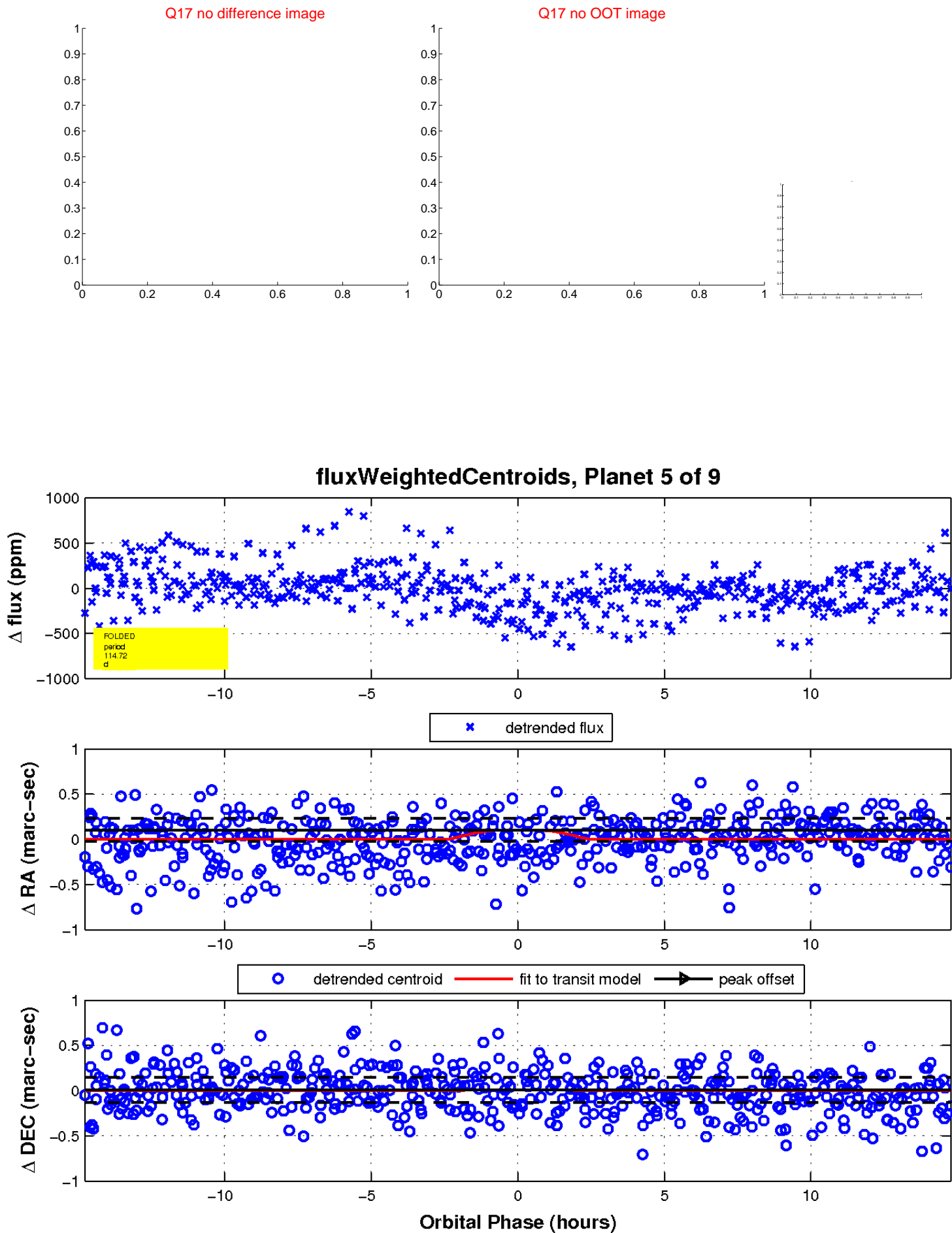
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



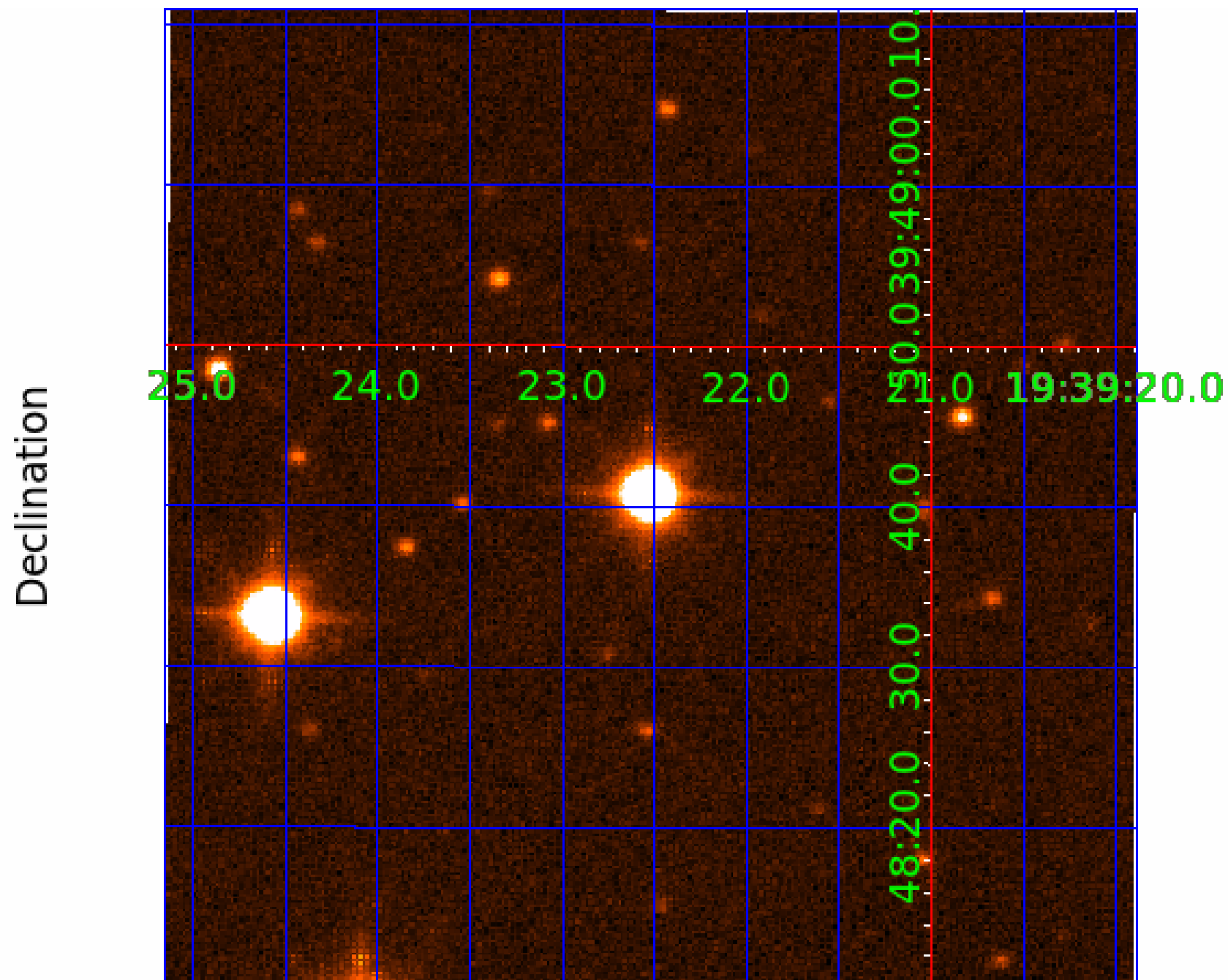
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 004757997

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})
004757997-01	OBS	No	0.971364	131.734108	24.8	4.192	9.2	8.1	5.01	7123	2.69	90848.87
004757997-02	OBS	No	162.232260	227.590283	362.3	12.380	8.9	6.7	5.01	7123	11.25	98.78
004757997-03	OBS	No	197.821200	151.524007	642.7	7.021	8.8	8.3	5.01	7123	22.48	75.82
004757997-05	OBS	No	114.716585	151.463704	390.4	4.932	8.1	8.3	5.01	7123	12.67	156.79
004757997-06	OBS	No	24.937261	133.170221	184.8	6.889	8.0	8.4	5.01	7123	8.40	1199.58
004757997-07	OBS	No	111.851210	221.389229	452.9	11.502	9.3	9.0	5.01	7123	20.18	162.17
004757997-08	OBS	No	265.113952	378.057033	273.0	3.177	8.9	6.4	5.01	7123	9.21	51.32
004757997-09	OBS	No	69.410357	154.726924	95.8	6.000	8.3	-1.0	5.01	7123	4.96	306.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757997-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

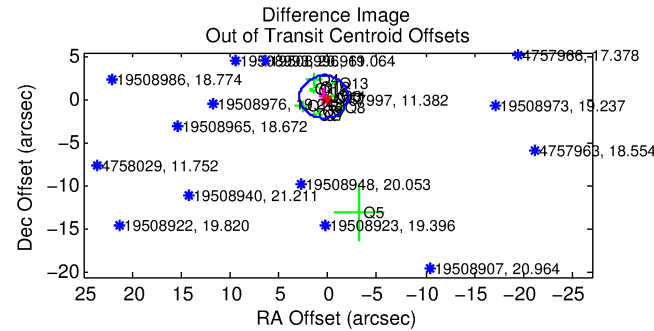
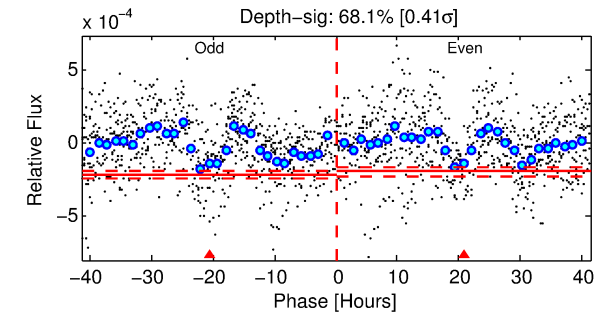
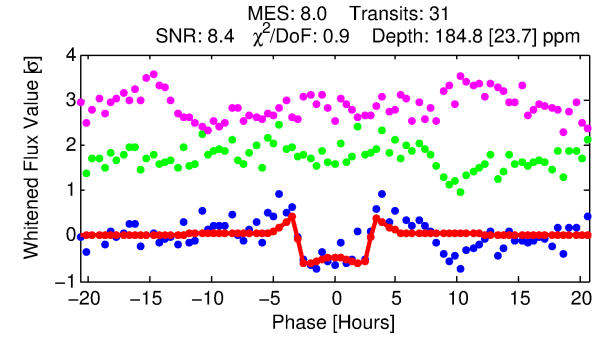
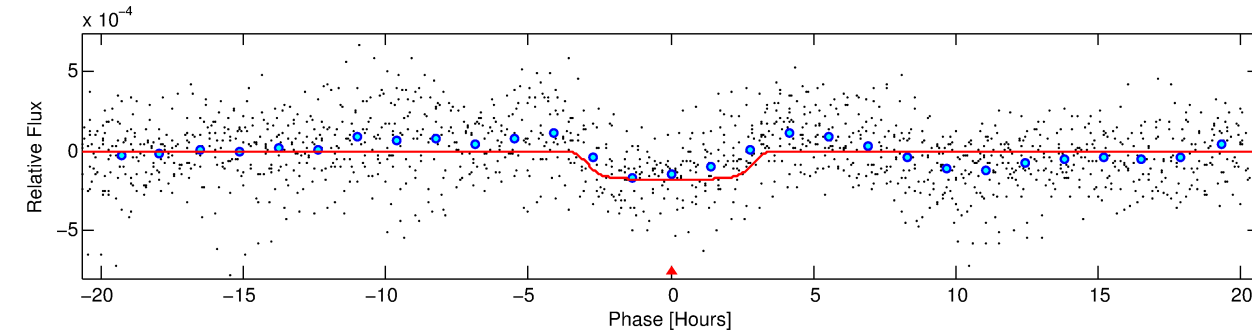
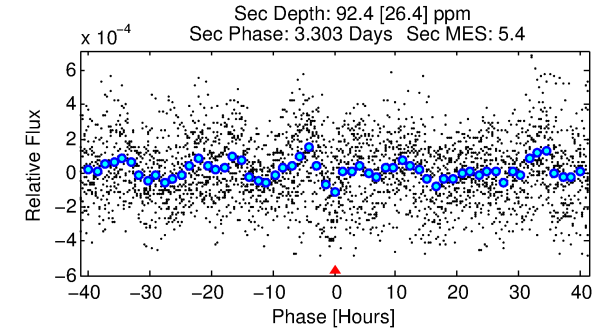
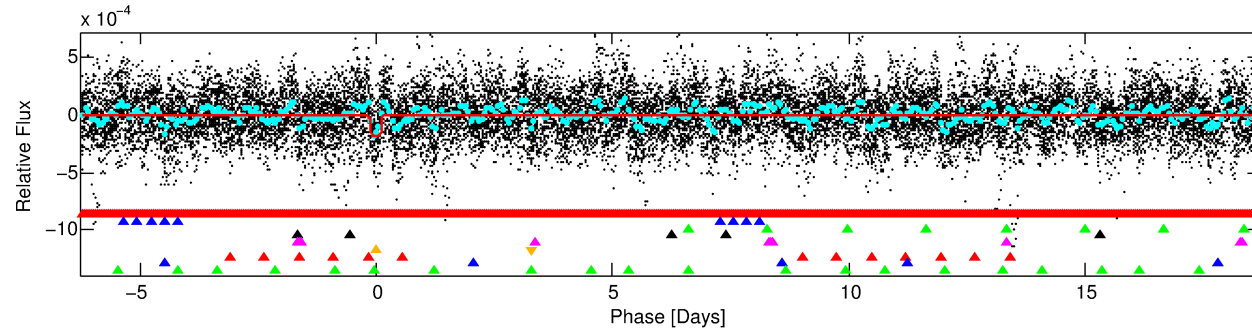
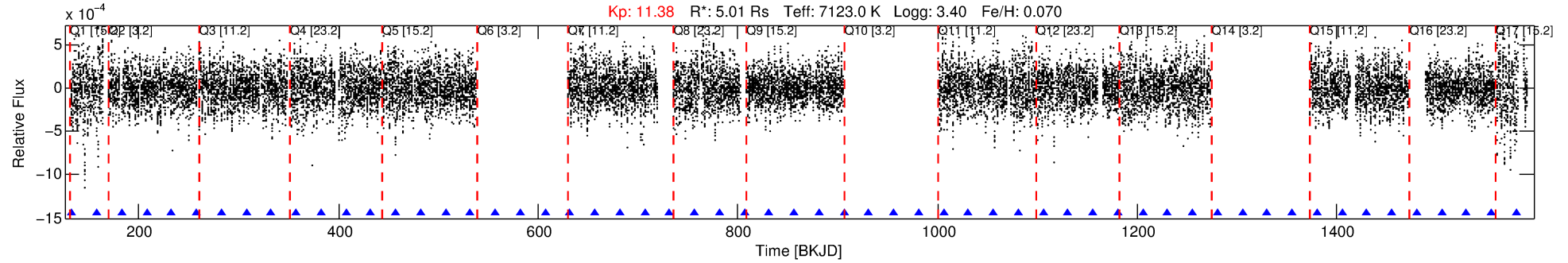
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-06

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 6 of 9 Period: 24.937 d



DV Fit Results:

Period = 24.93726 [0.00022] d
Epoch = 133.1702 [0.0067] BKJD
Rp/R* = 0.0154 [0.0012]
a/R* = 9.62 [1.81]
b = 0.95 [0.02]
Seff = 1199.58 [821.07]
Teq = 1501 [257] K
Rp = 8.40 [3.76] Re
a = 0.2197 [0.0924] AU
Ag = 34.76 [25.87] [1.31σ]
Teffp = 5634 [499] K [7.37σ]

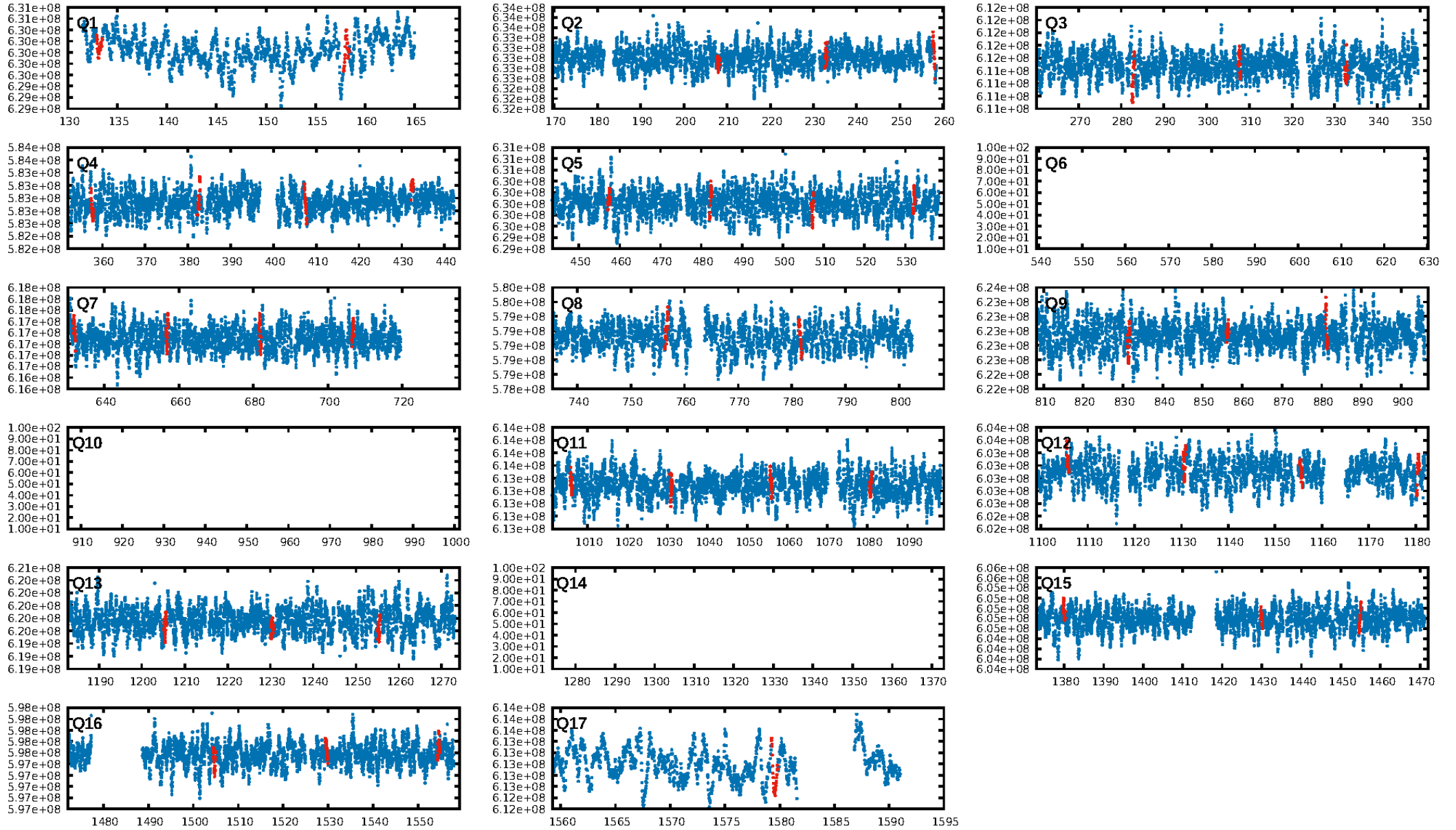
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [71.32σ]
LongPeriod-sig: 100.0% [116.83σ]
ModelChiSquare2-sig: 76.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [28/28]
GhostDiagnostic-chr: 0.9335
Centroid-sig: 42.3%
Centroid-so: 0.282 arcsec [1.25σ]
OotOffset-rm: 0.552 arcsec [0.67σ]
KicOffset-rm: 0.634 arcsec [0.65σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.50 [7/14]
DiffImageOverlap-fno: 0.00 [0/14]

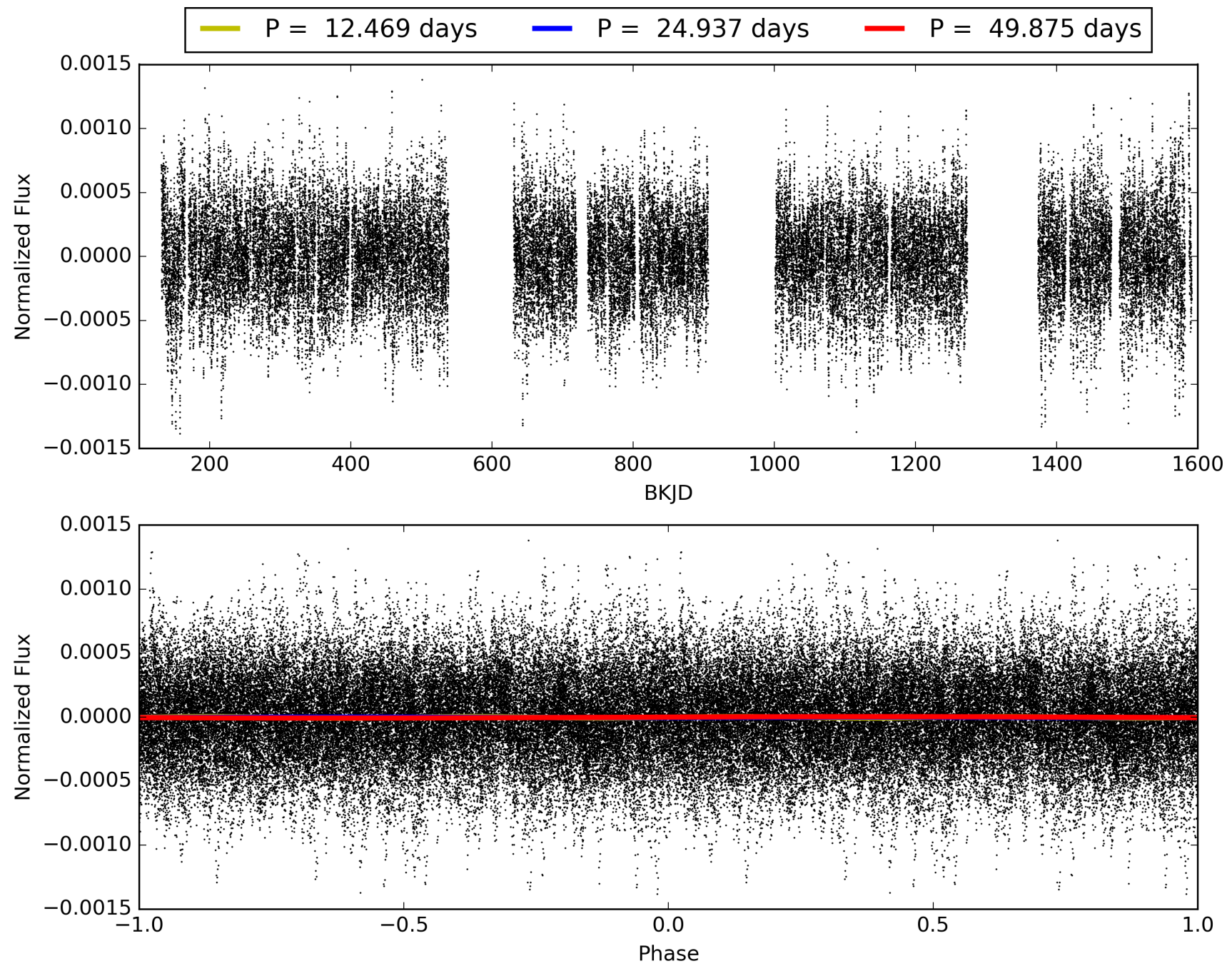
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:30 Z

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

TCE 004757997-06, PDC Light Curves

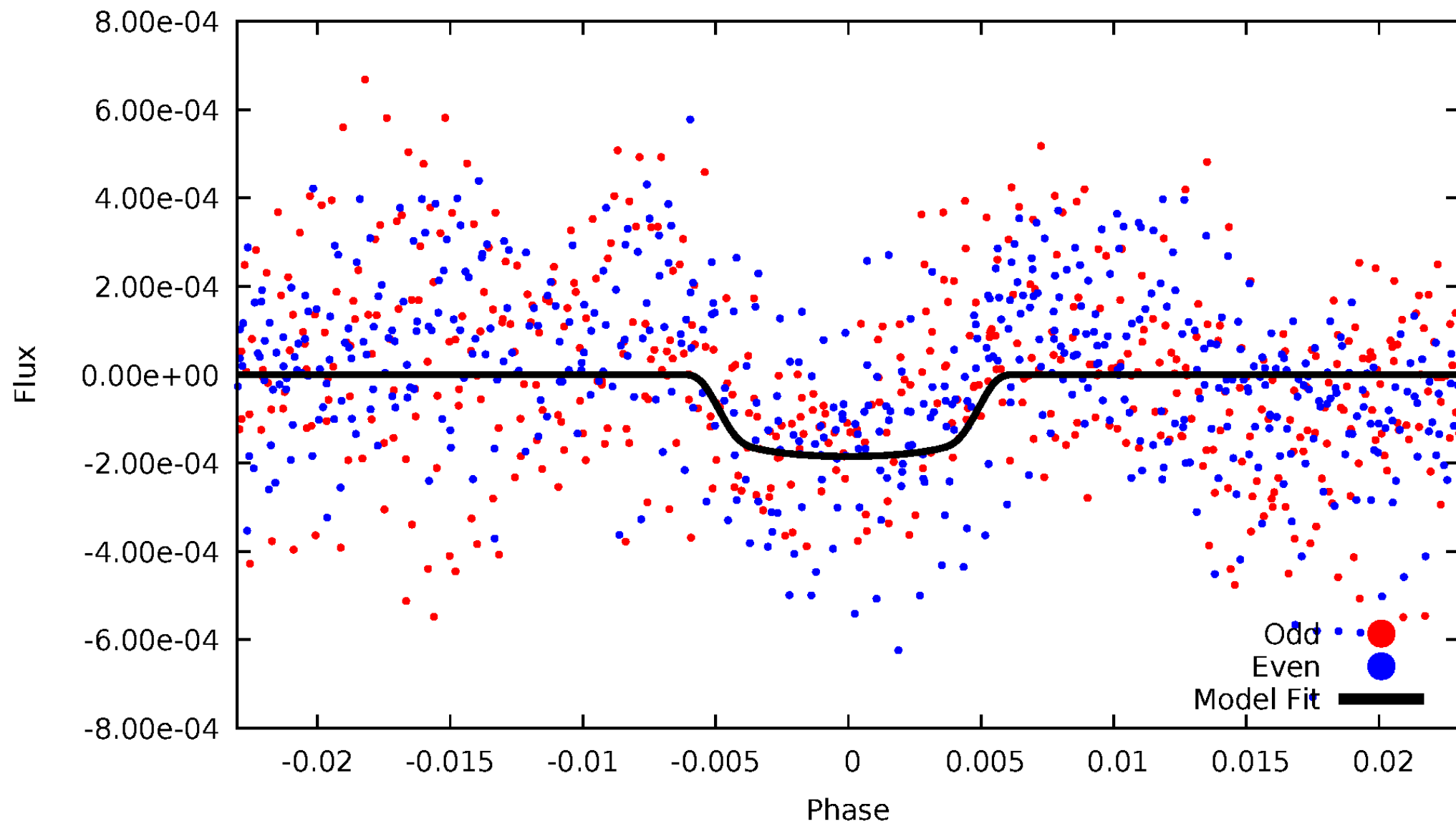


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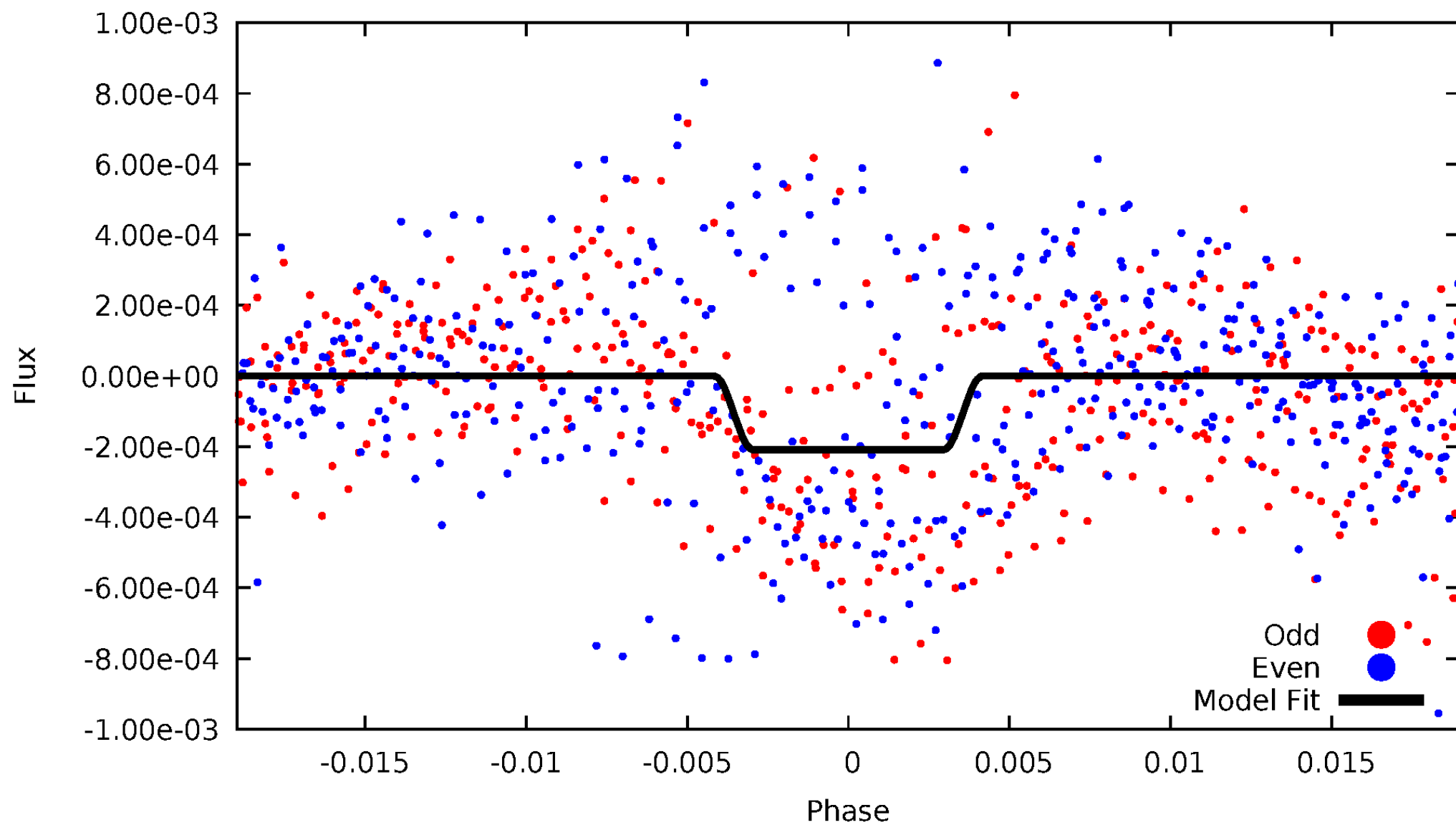
DV Odd/Even

TCE 004757997-06



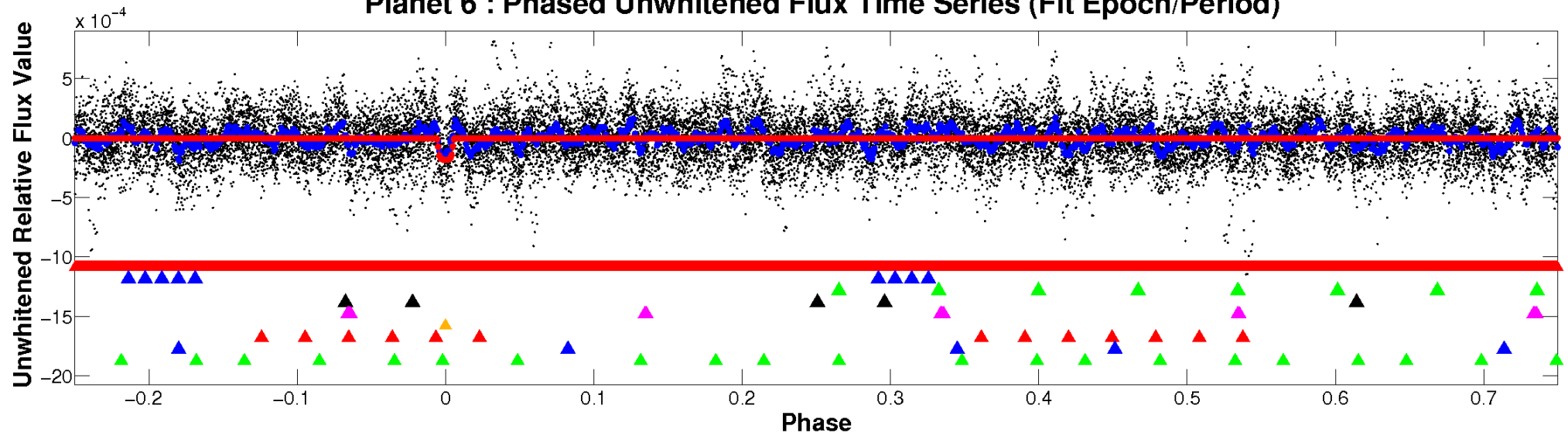
ALT Odd/Even

TCE 004757997-06

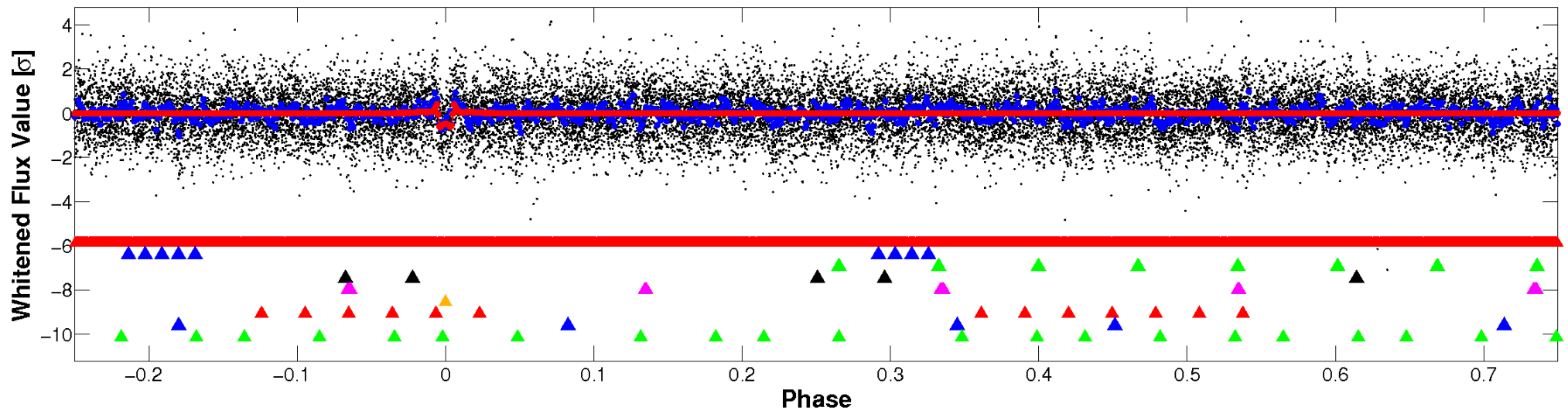


Non-Whitened Vs. Whitened Light Curve

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

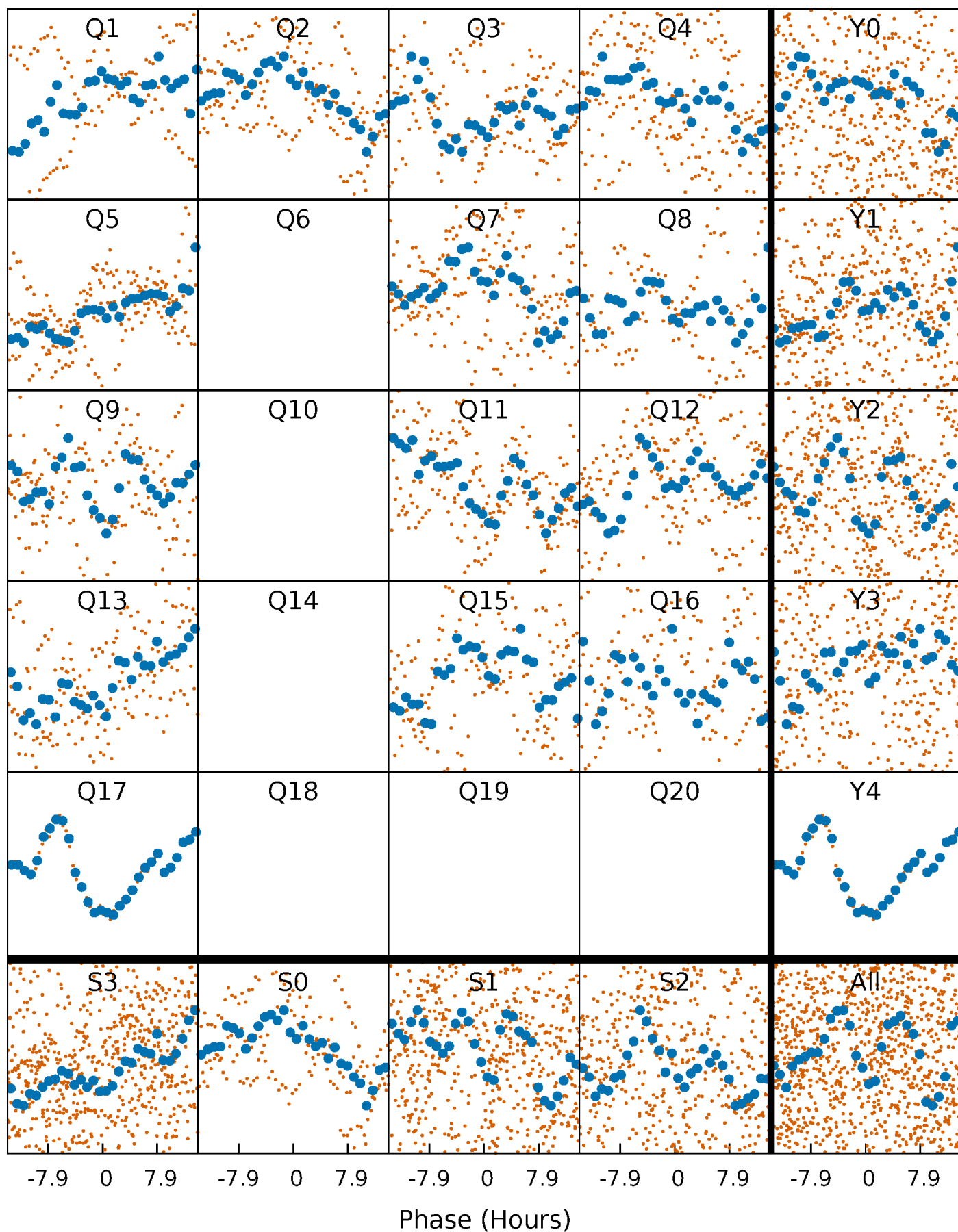


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



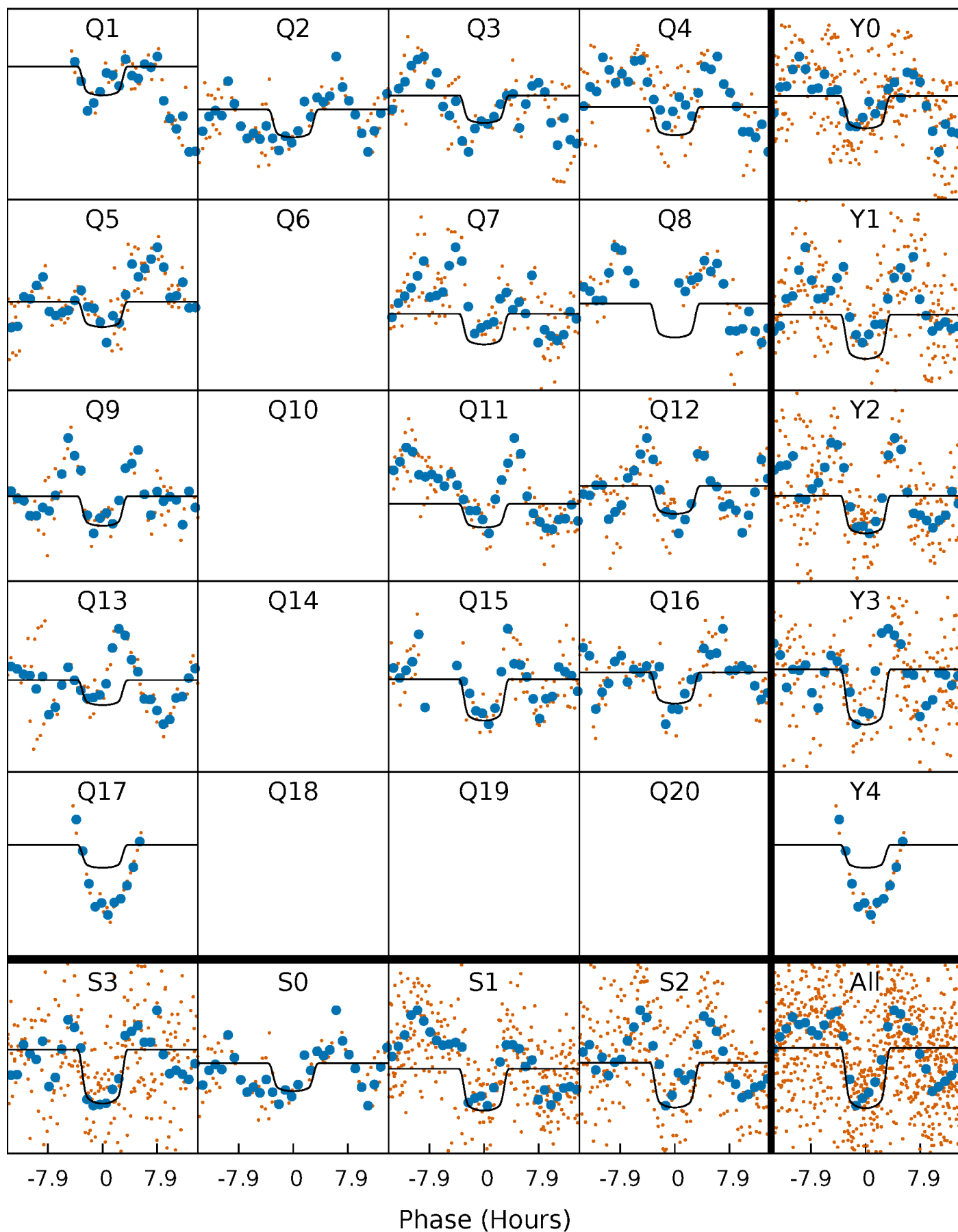
PDC Quarter-Phased Transit Curves

TCE 004757997-06 P= 24.937261 Days $T_0=133.170221$ (BKJD)



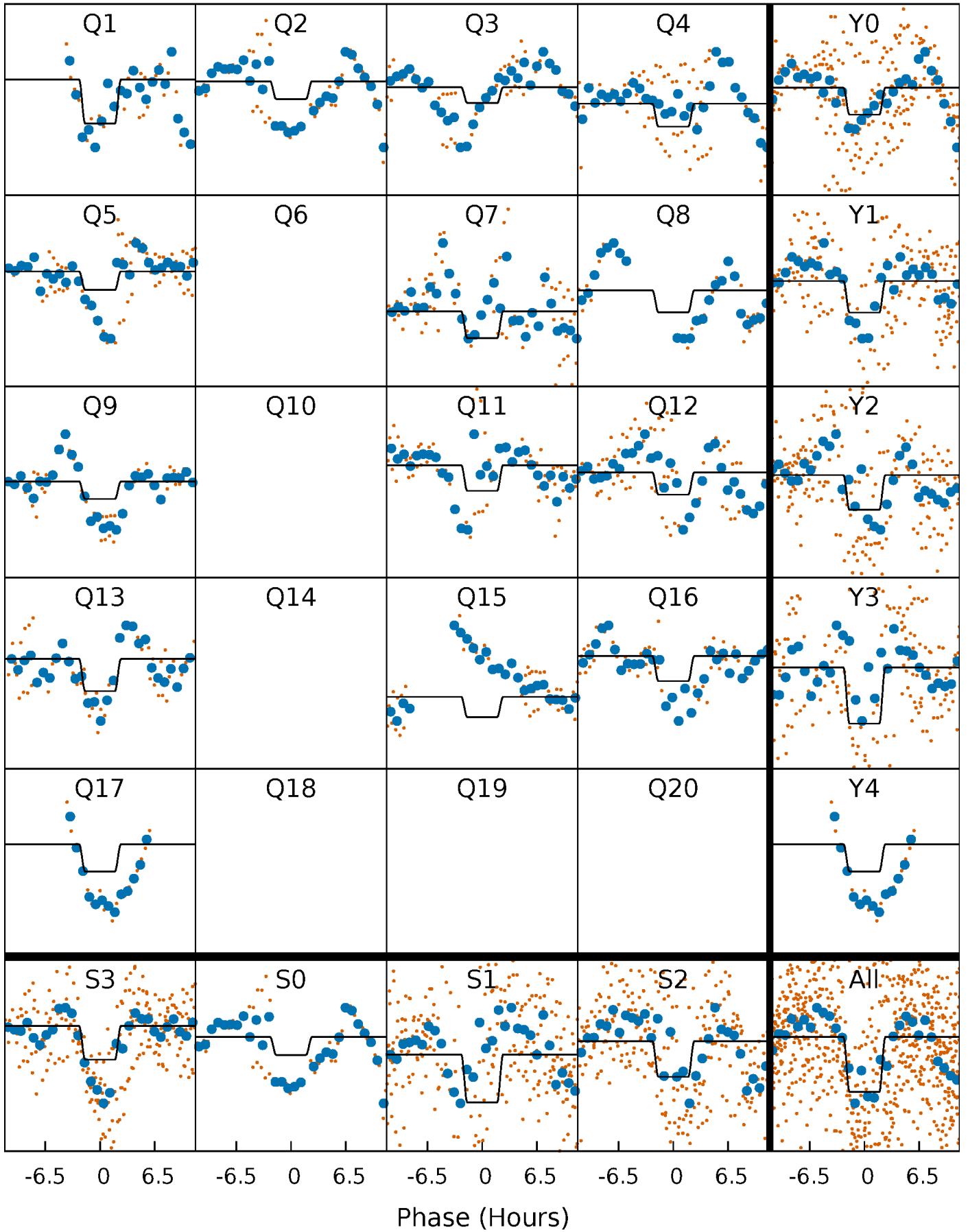
DV Quarter-Phased Transit Curves

TCE 004757997-06 P= 24.937261 Days $T_0=133.170221$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

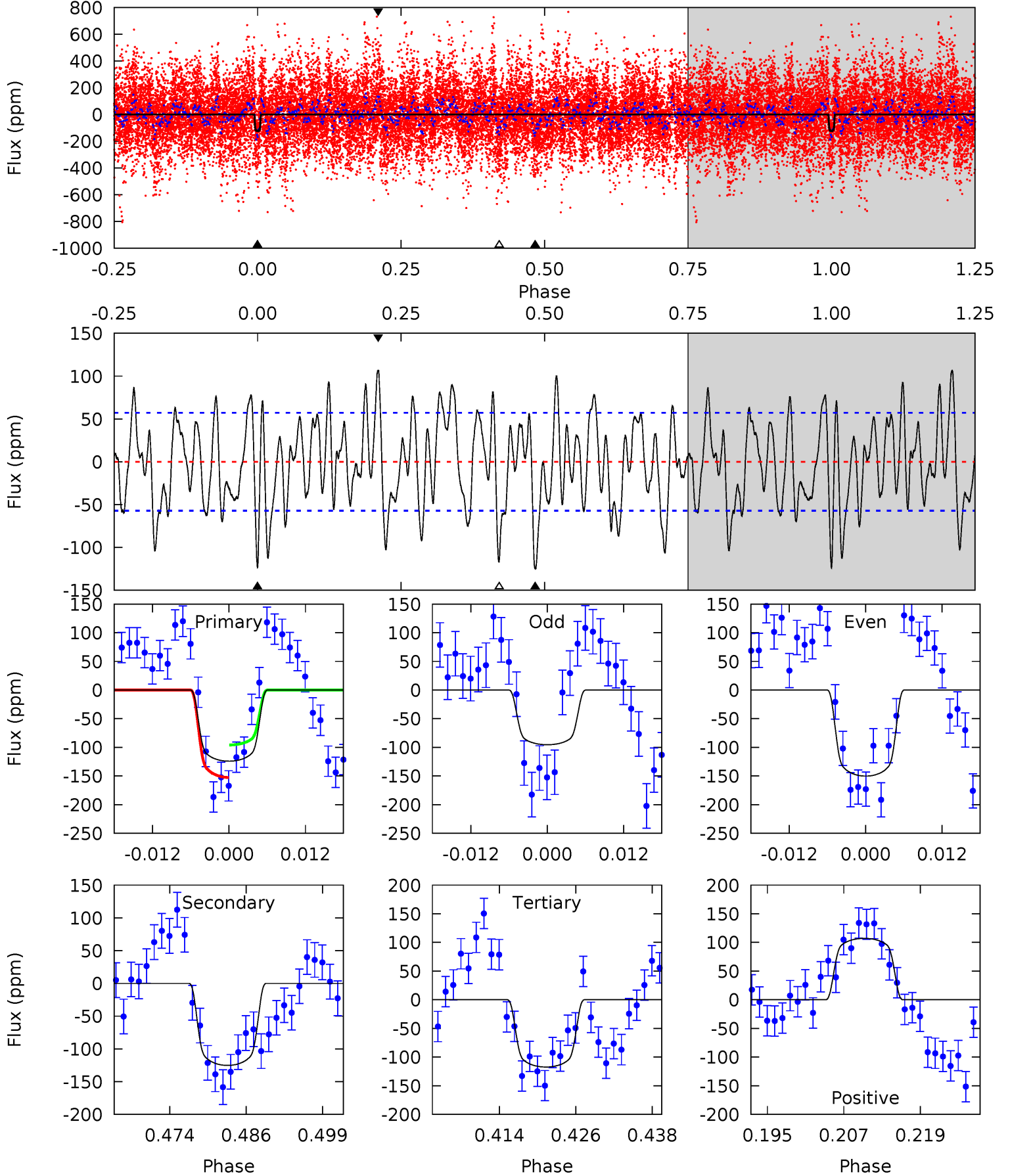
TCE 004757997-06 P= 24.937363 Days $T_0=133.149487$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-06, P = 24.937261 Days, E = 108.232960 Days

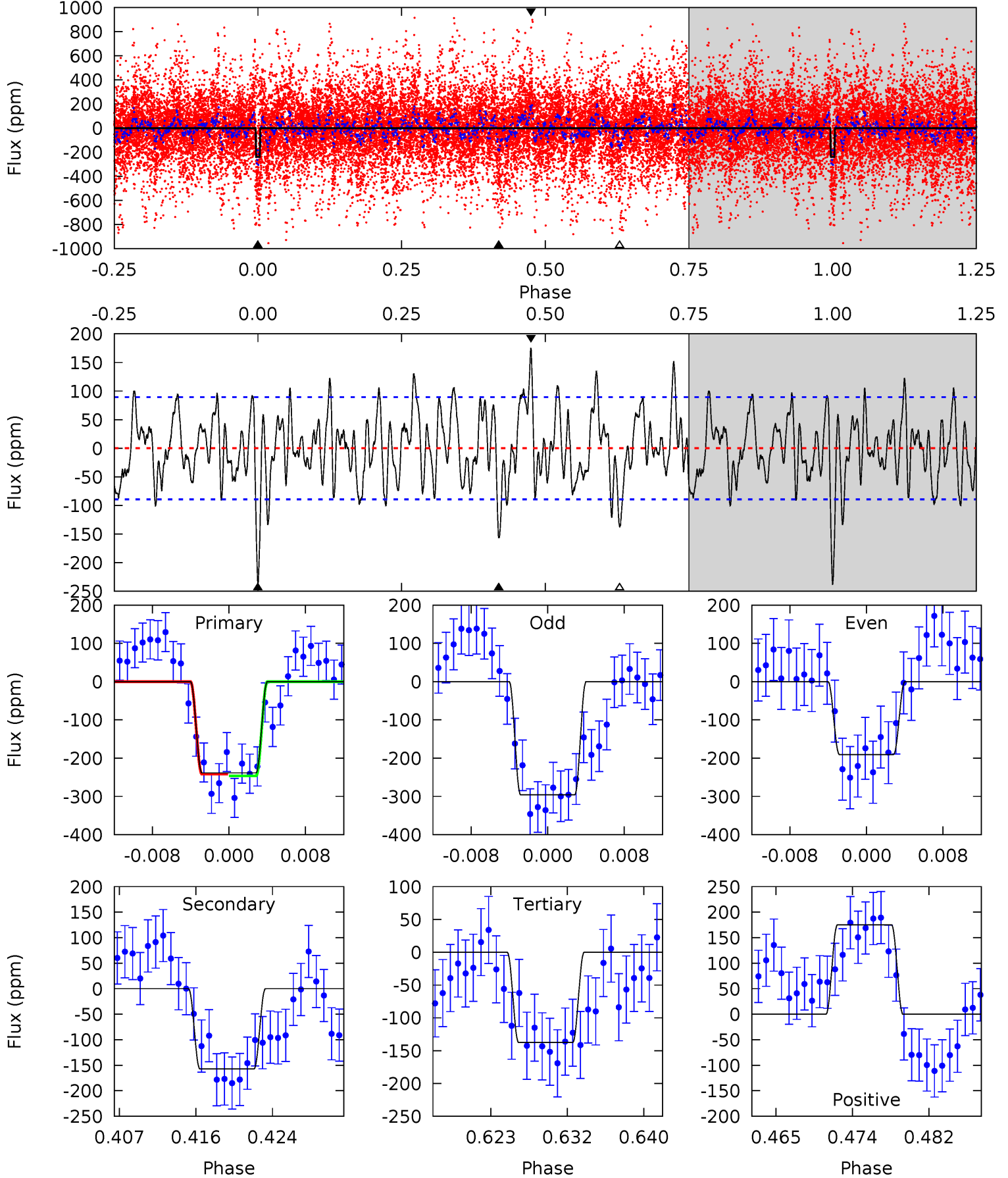
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	10.9	10.2	9.35	4.99	2.51	4.00	0.60	1.49	0.69	1.58	2.40	0.77	0.46	2.48



Alt Model-Shift Uniqueness Test

004757997-06, P = 24.937363 Days, E = 108.212124 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	8.91	7.80	9.92	5.06	2.64	3.04	5.73	3.60	1.11	-1.01	3.00	0.46	0.42	0.14



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-125 ± 11	$7.76^{+1.42}_{-1.85}$	2023^{+147}_{-250}	6003^{+313}_{-306}	56^{+36}_{-16}
Alt.	-157 ± 18	$7.35^{+1.28}_{-1.64}$	2033^{+141}_{-223}	6550^{+415}_{-346}	77^{+47}_{-23}

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

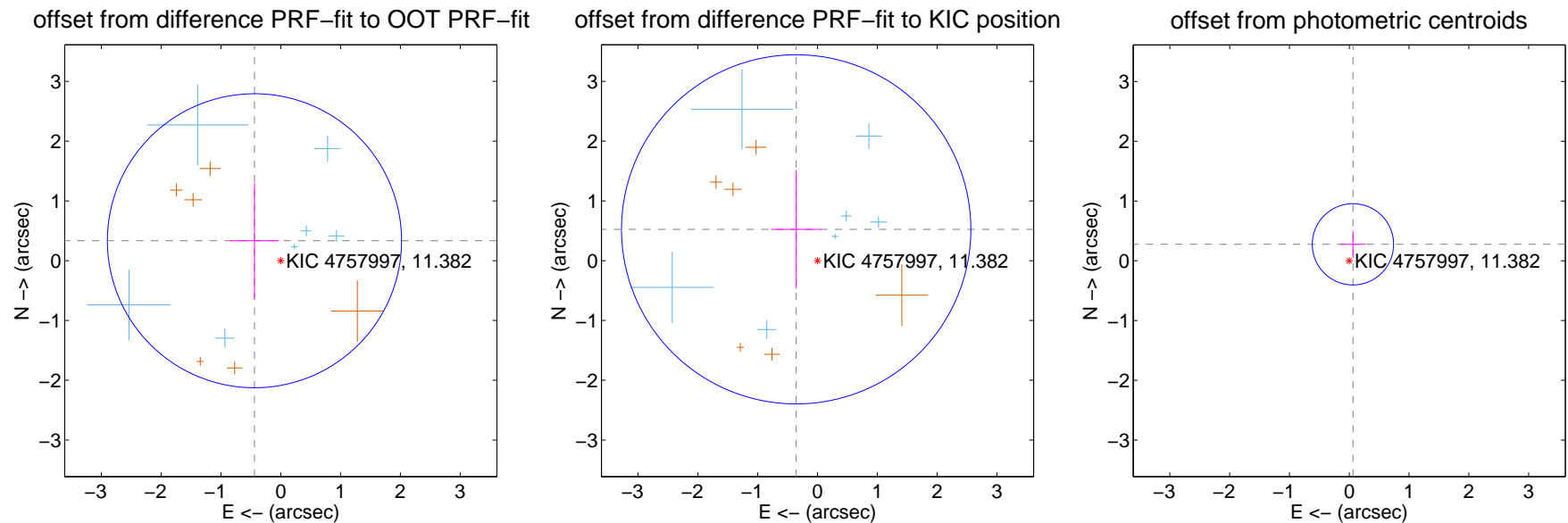
DV Centroid Data

Supplemental centroid analysis for 004757997-06. **Kepler magnitude: 11.38.** Transit SNR 8.39

There are 7 quarters with good PRF difference image offsets

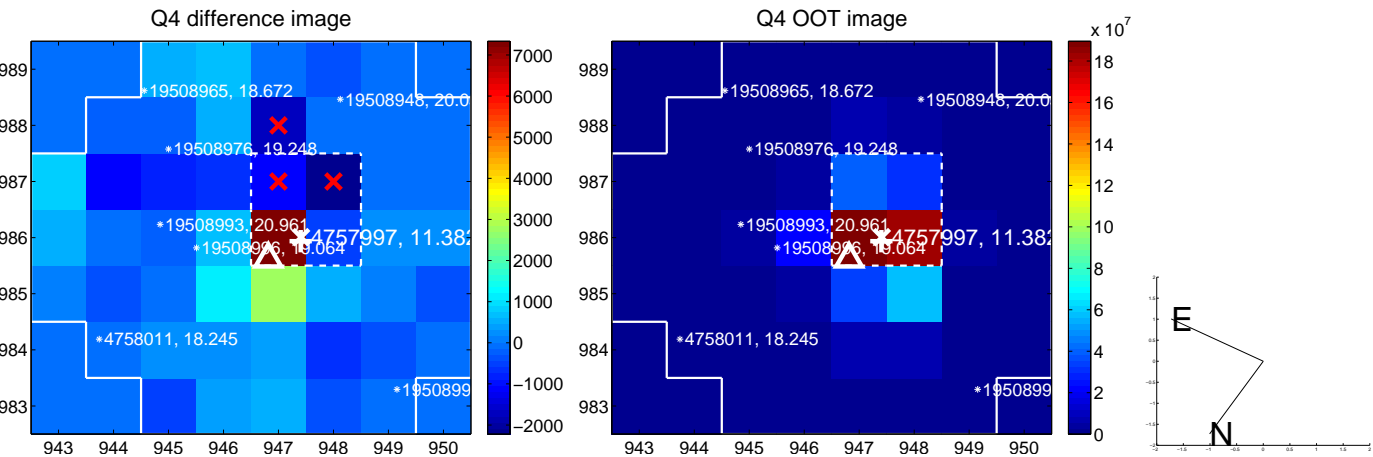
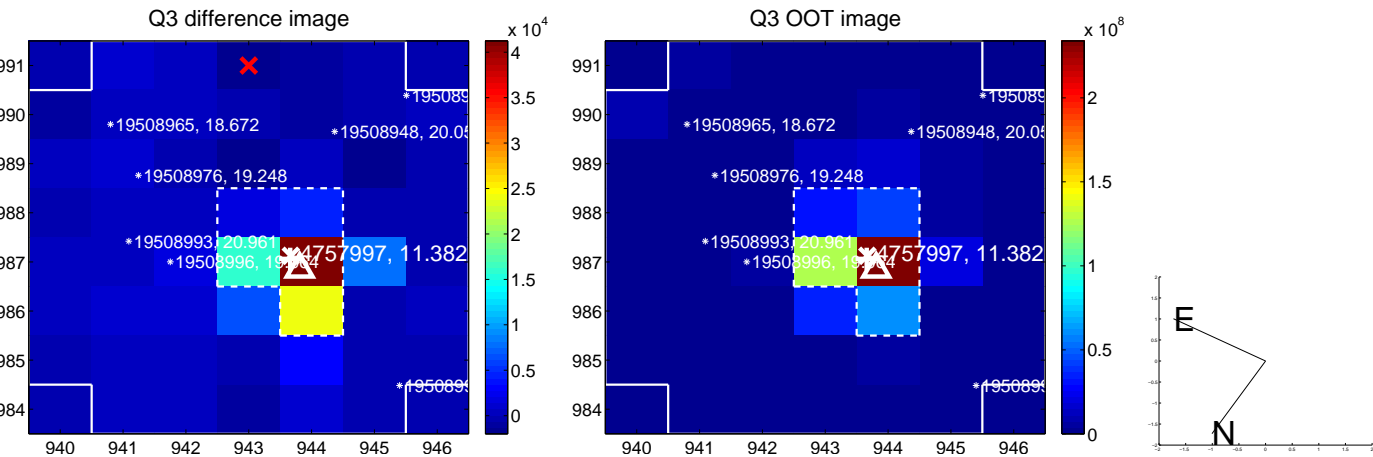
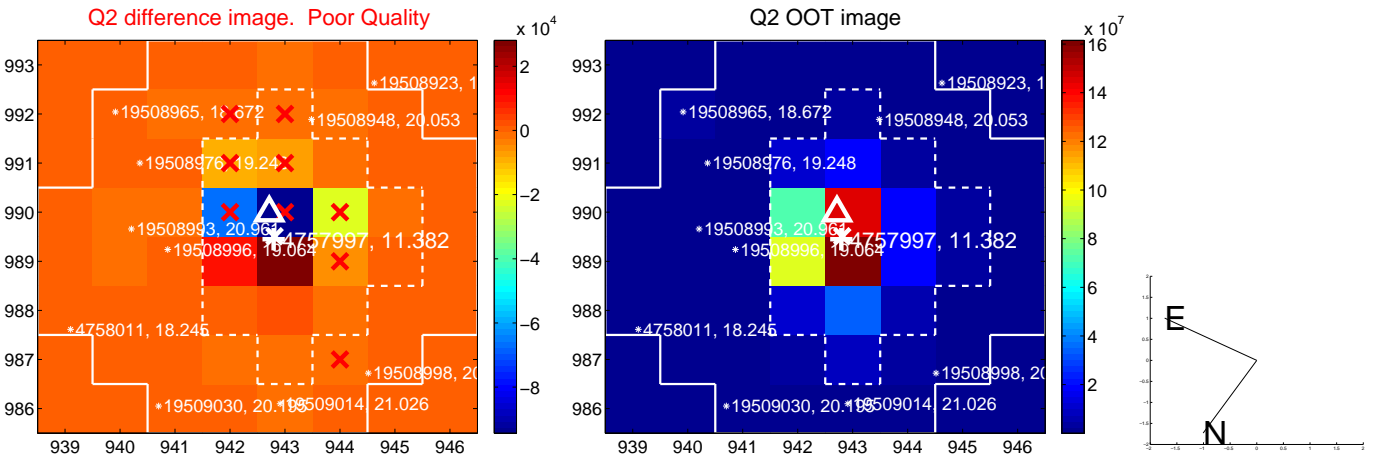
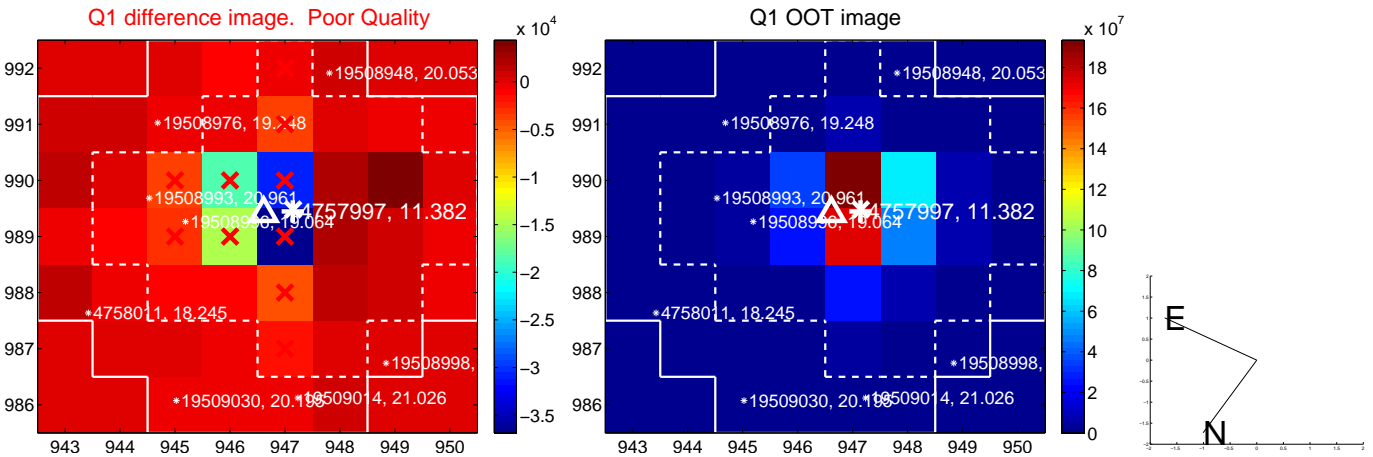
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.552 ± 0.820	0.67	0.440 ± 0.411	0.334 ± 0.965
PRF-fit source offset from KIC position	0.634 ± 0.974	0.65	0.356 ± 0.417	0.525 ± 0.987
photometric centroid source offset	0.28 ± 0.23	1.25	-0.06 ± 0.21	0.28 ± 0.23

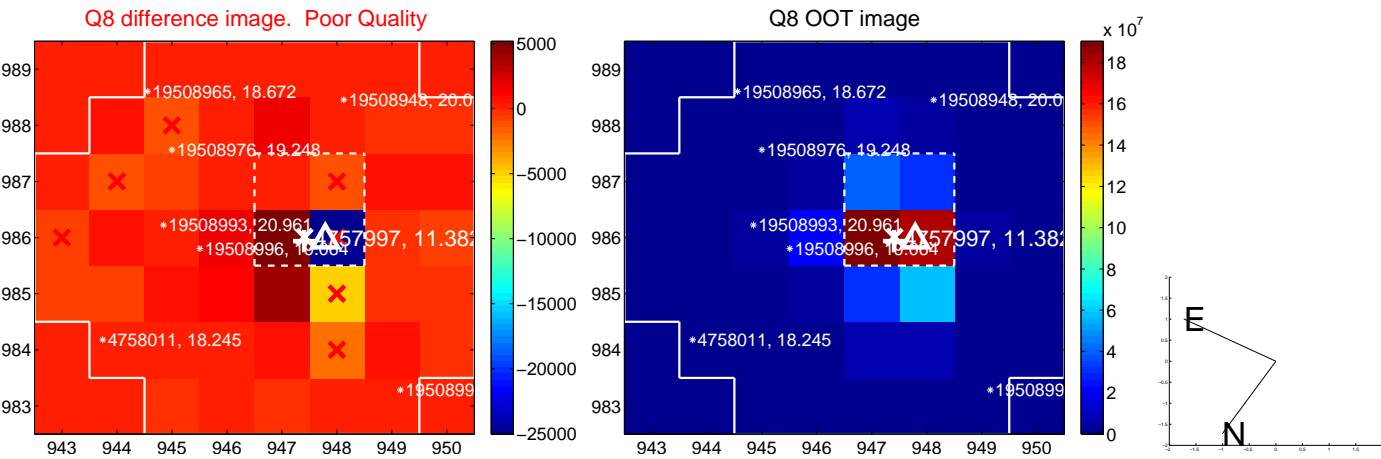
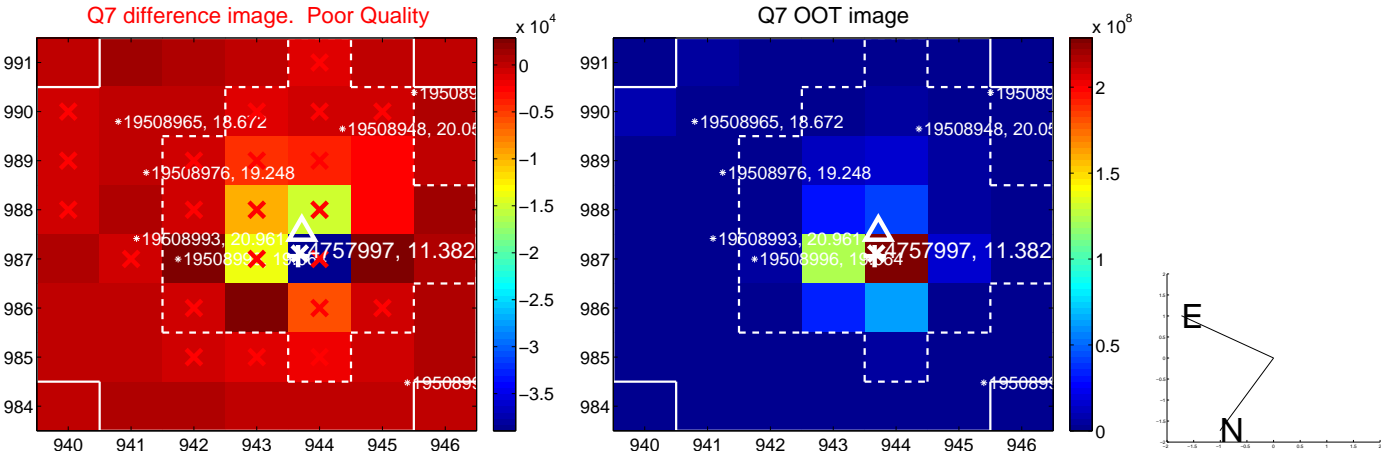
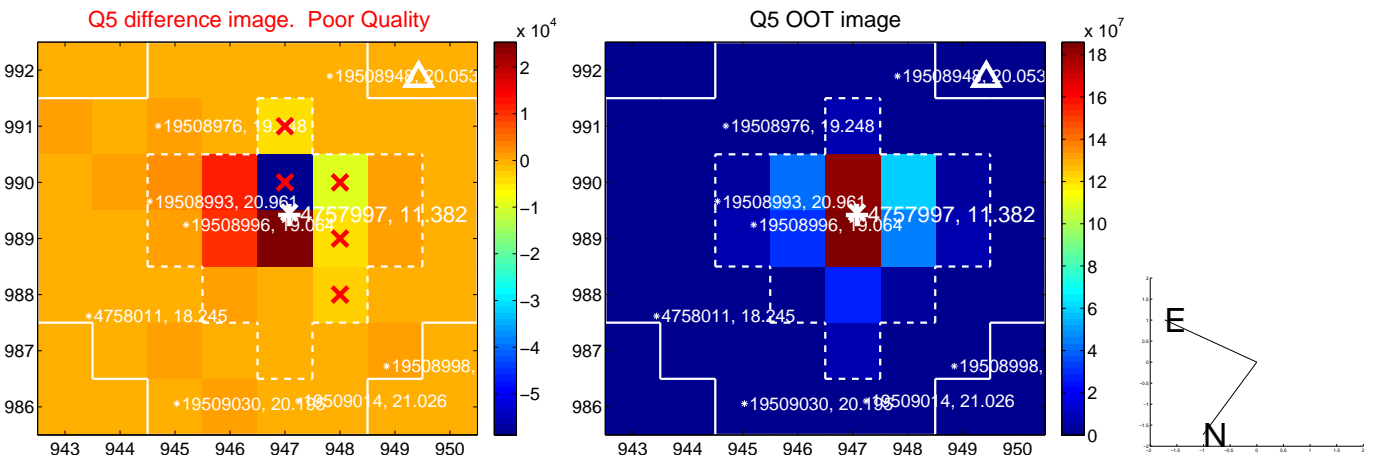


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

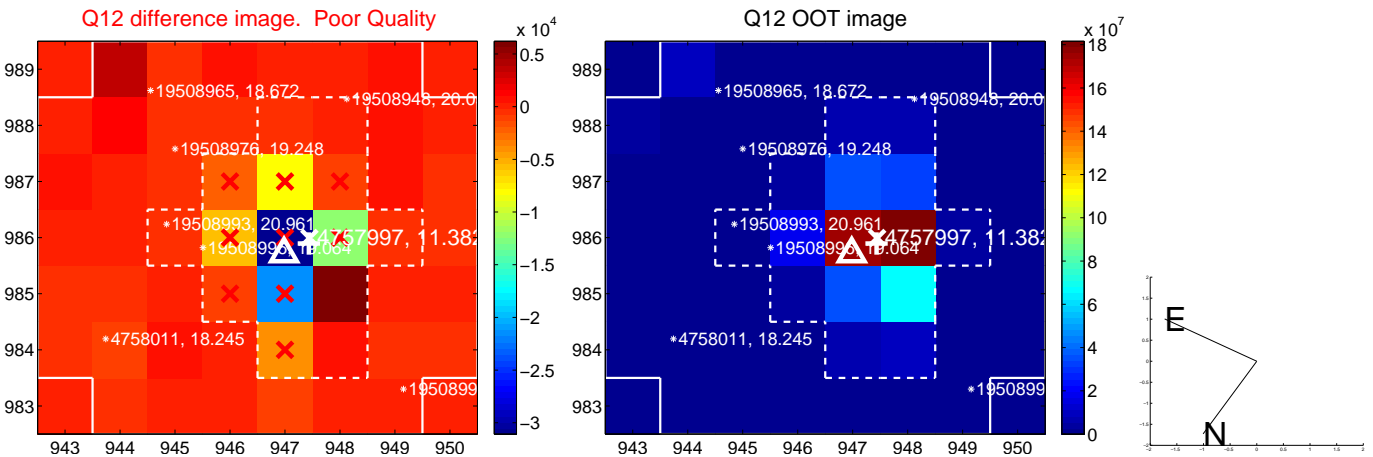
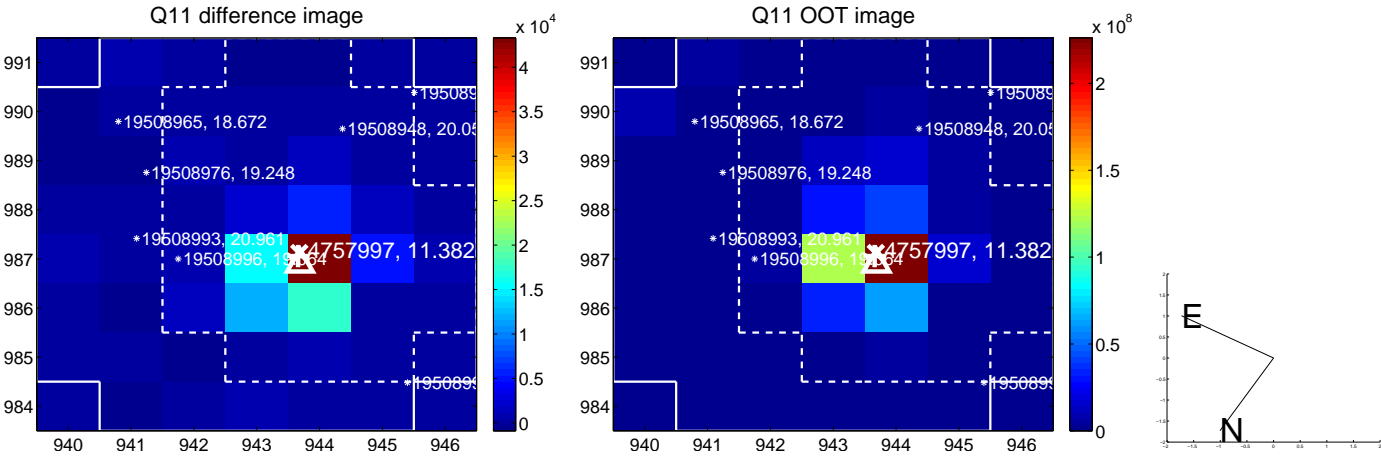
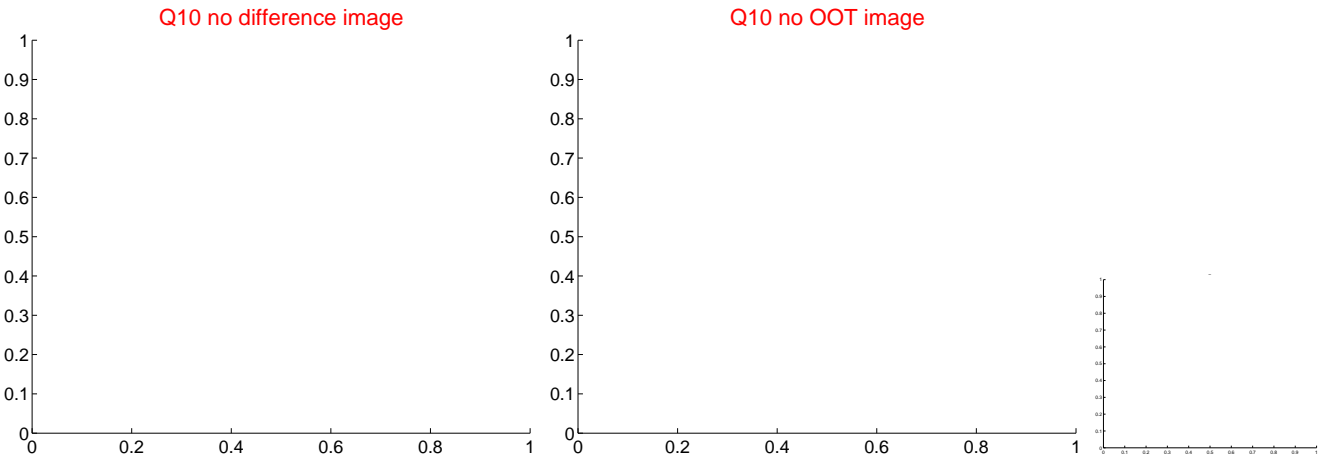
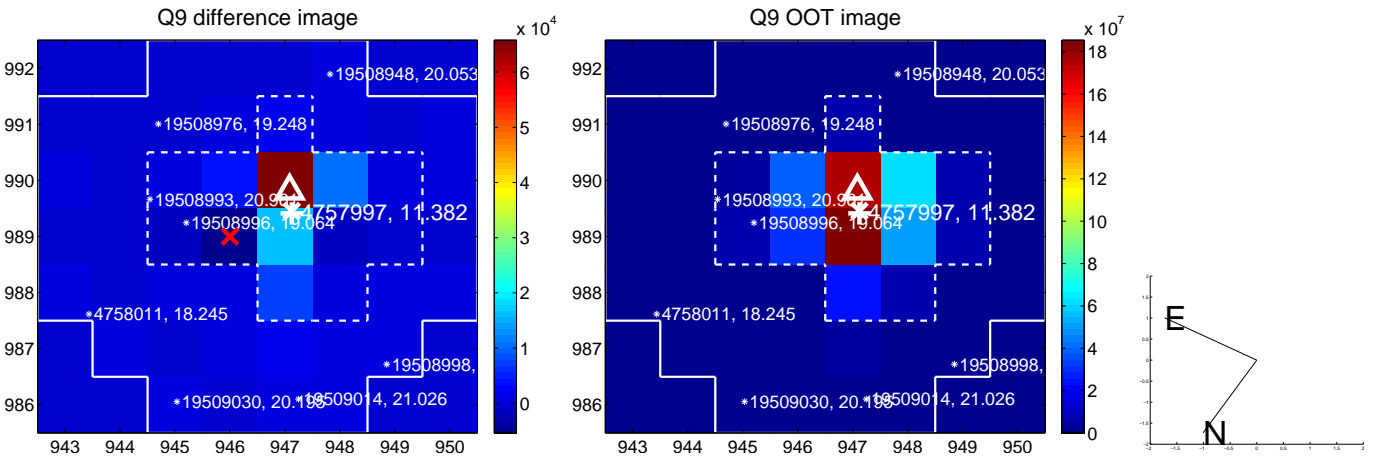
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



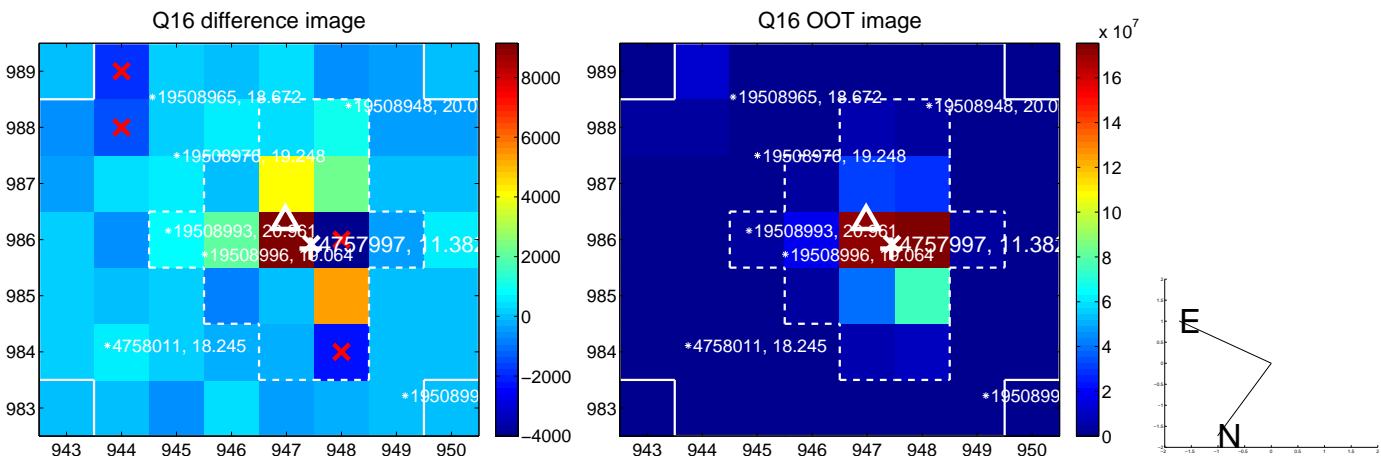
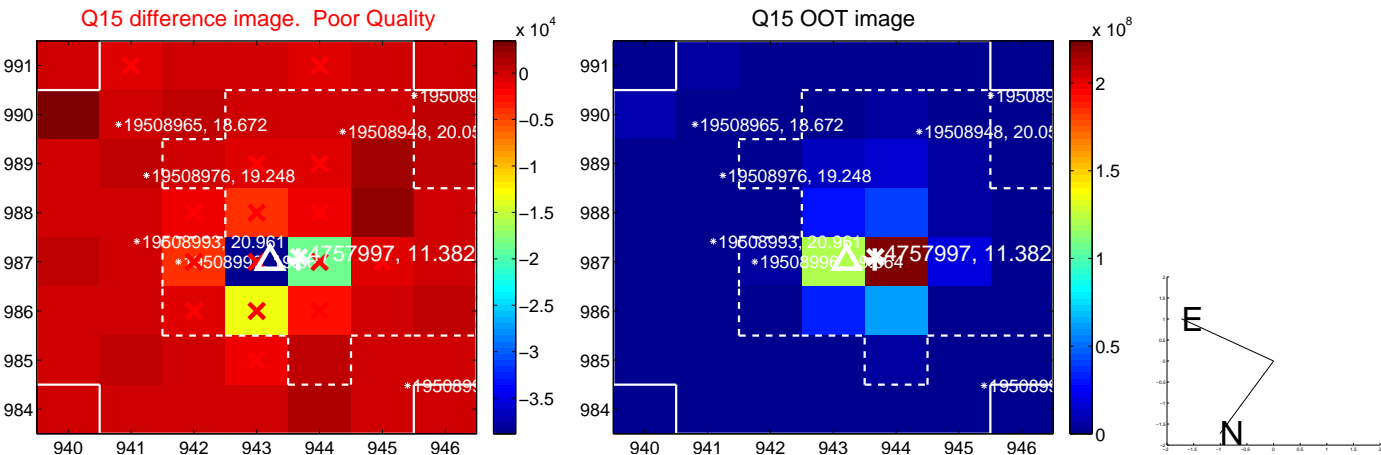
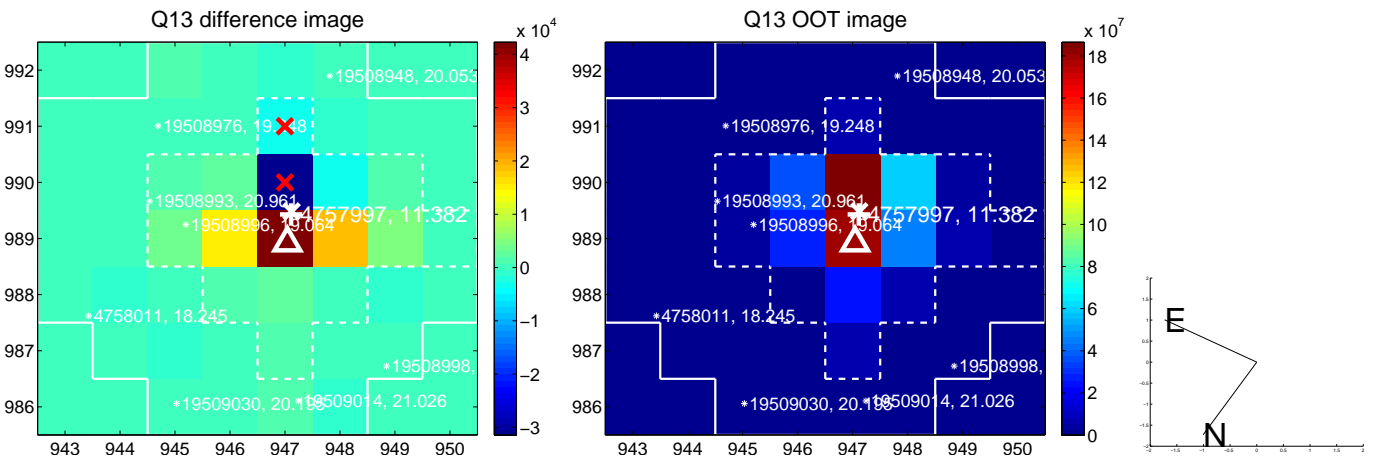
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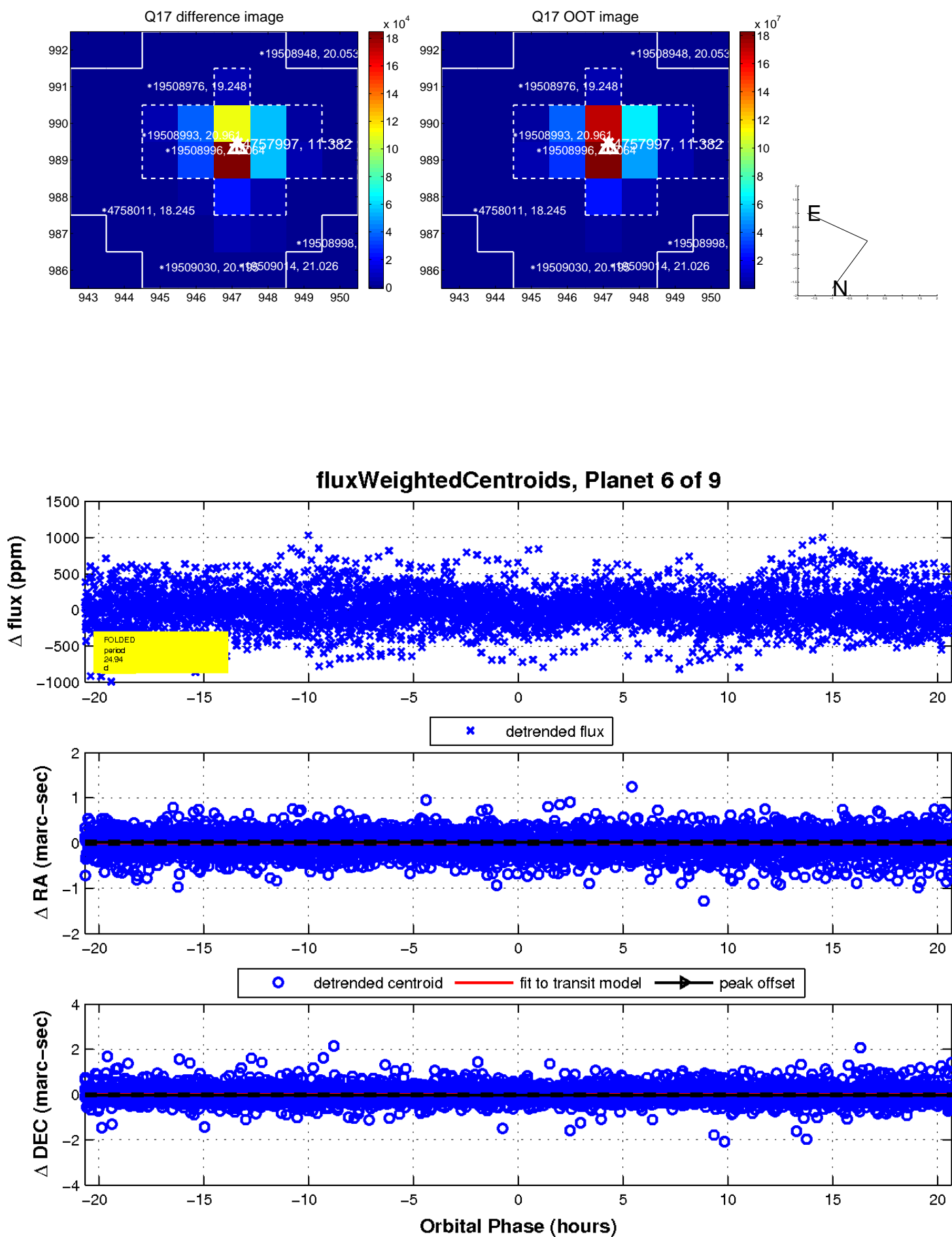
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



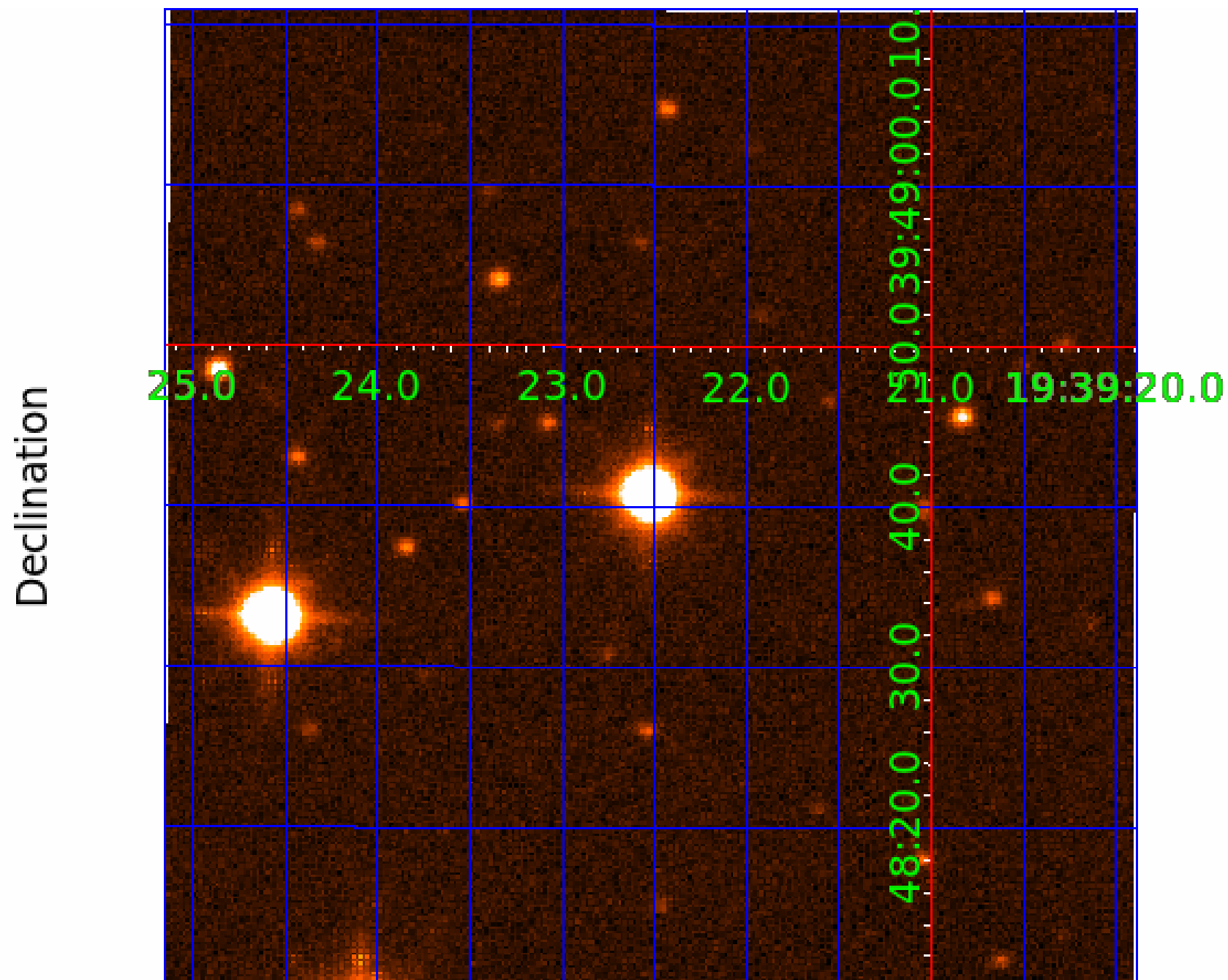
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image



KIC 004757997

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})
004757997-01	OBS	No	0.971364	131.734108	24.8	4.192	9.2	8.1	5.01	7123	2.69	90848.87
004757997-02	OBS	No	162.232260	227.590283	362.3	12.380	8.9	6.7	5.01	7123	11.25	98.78
004757997-03	OBS	No	197.821200	151.524007	642.7	7.021	8.8	8.3	5.01	7123	22.48	75.82
004757997-05	OBS	No	114.716585	151.463704	390.4	4.932	8.1	8.3	5.01	7123	12.67	156.79
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004757997-08	OBS	No	265.113952	378.057033	273.0	3.177	8.9	6.4	5.01	7123	9.21	51.32
004757997-09	OBS	No	69.410357	154.726924	95.8	6.000	8.3	-1.0	5.01	7123	4.96	306.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757997-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

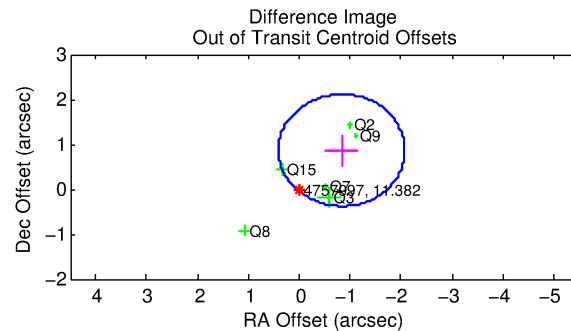
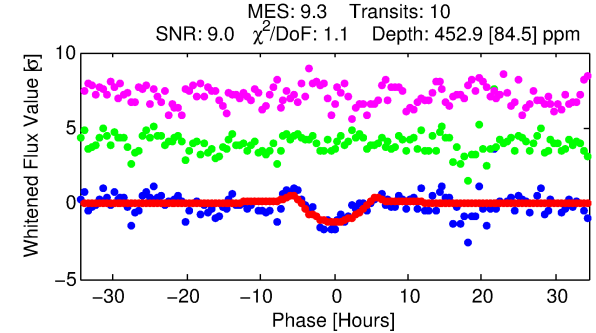
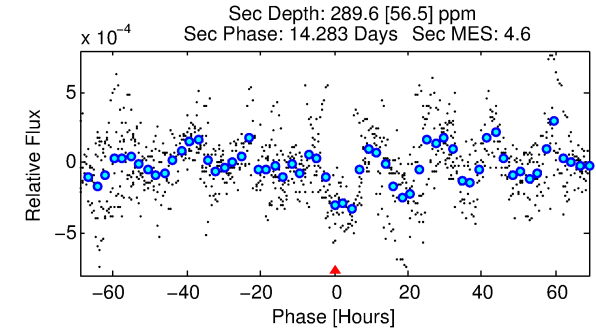
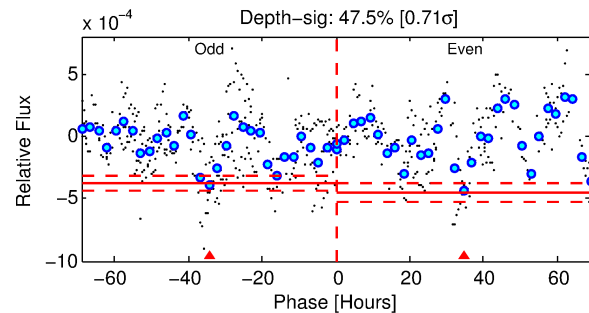
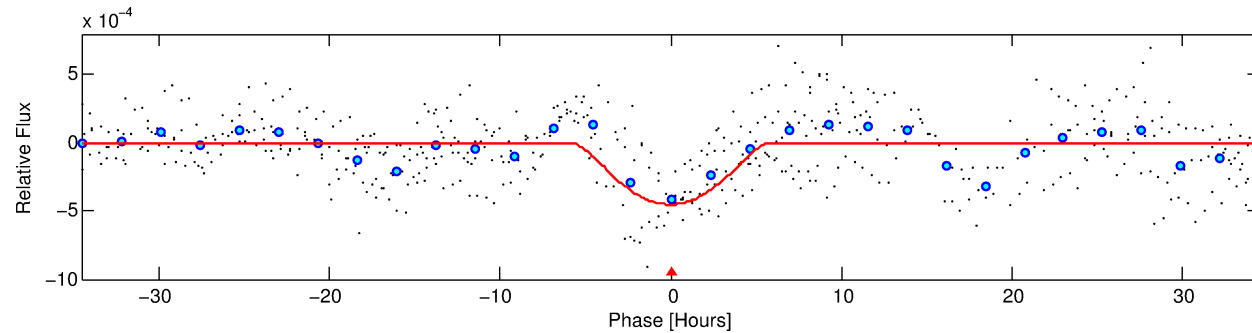
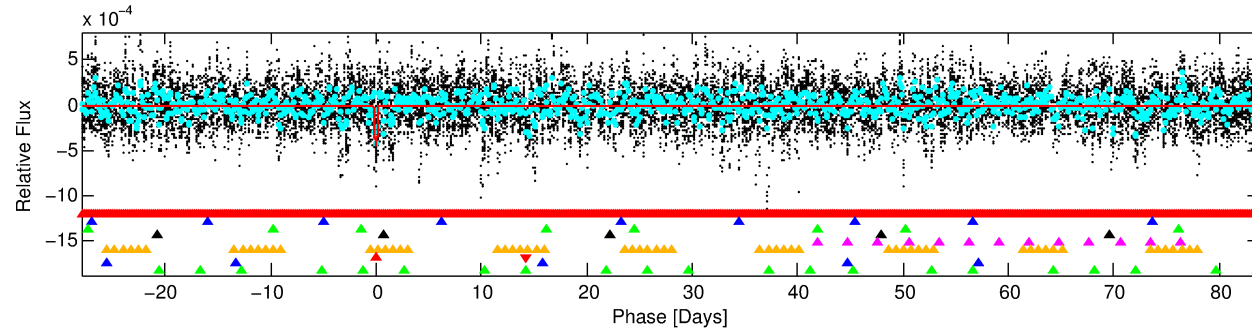
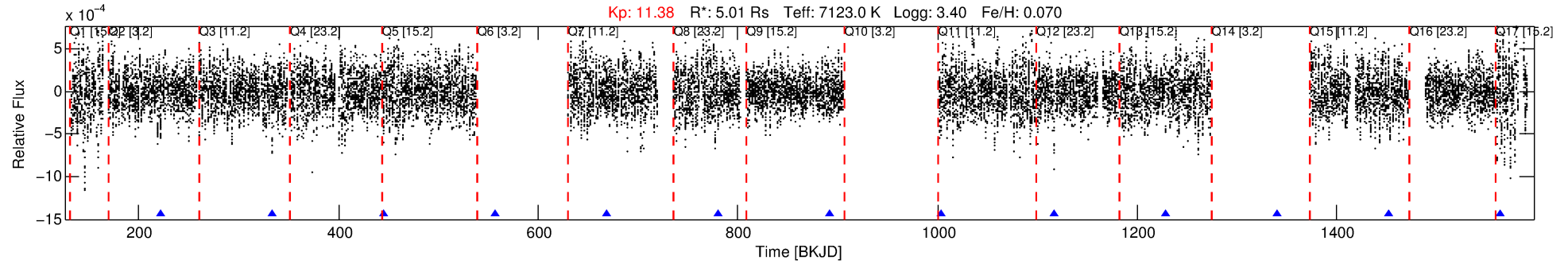
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-07

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 7 of 9 Period: 111.851 d



DV Fit Results:

Period = 111.85121 [0.00379] d
Epoch = 221.3892 [0.0242] BKJD
Rp/R* = 0.0369 [0.0691]
a/R* = 20.52 [9.73]
b = 1.00 [0.10]
Seff = 162.17 [111.00]
Teq = 910 [156] K
Rp = 20.18 [38.80] Re
a = 0.5976 [0.2513] AU
Ag = 139.69 [531.75] [0.26 σ]
Teffp = 4837 [4534] K [0.87 σ]

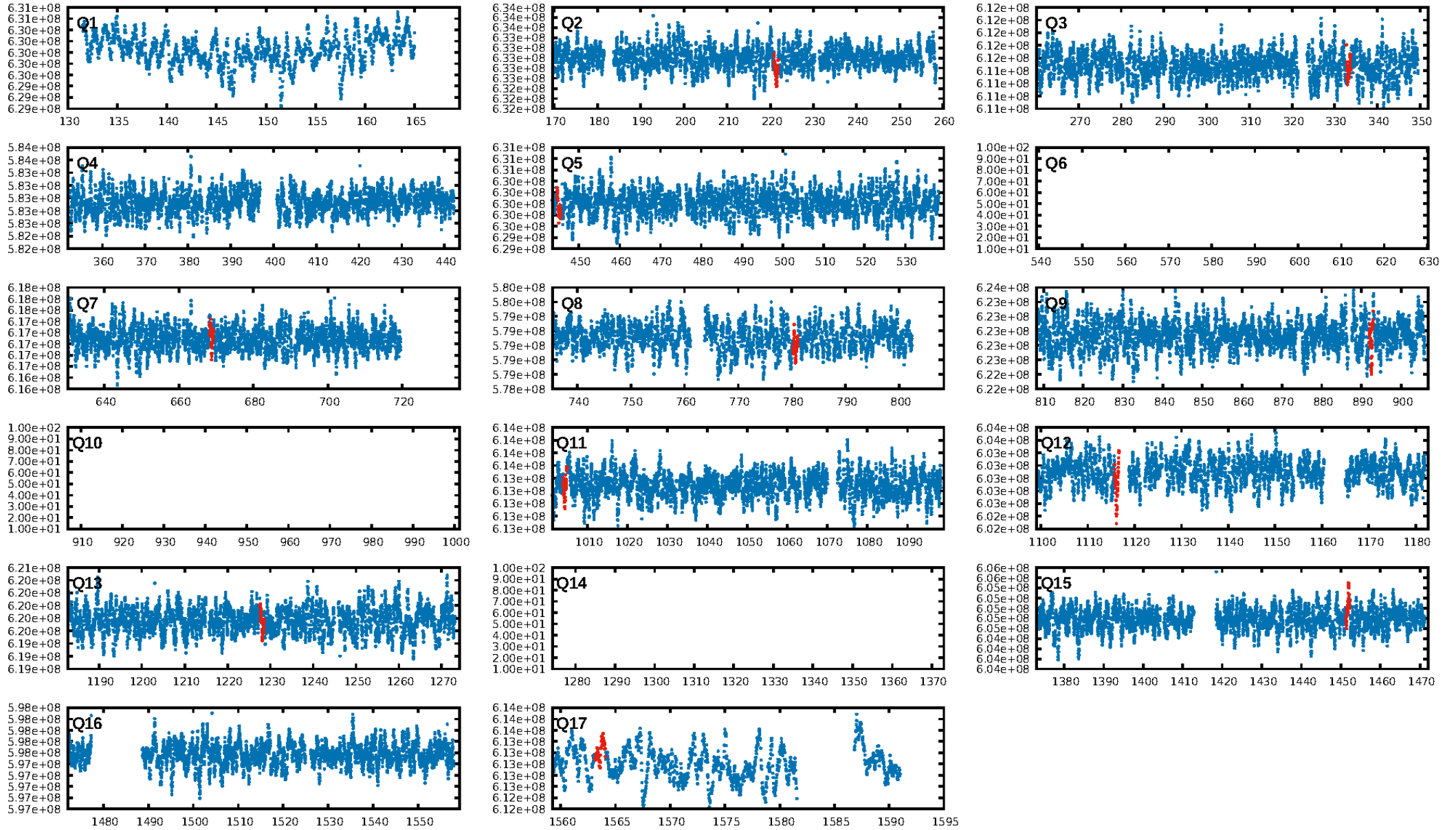
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [78.52 σ]
LongPeriod-sig: 100.0% [5.50 σ]
ModelChiSquare2-sig: 50.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -0.814
Centroid-sig: 98.6%
Centroid-so: 0.151 arcsec [0.80 σ]
OotOffset-rm: 1.201 arcsec [2.89 σ]
KicOffset-rm: 1.379 arcsec [2.65 σ]
OotOffset-st: 1/3/1/1 [6]
KicOffset-st: 1/3/1/1 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.00 [0/7]

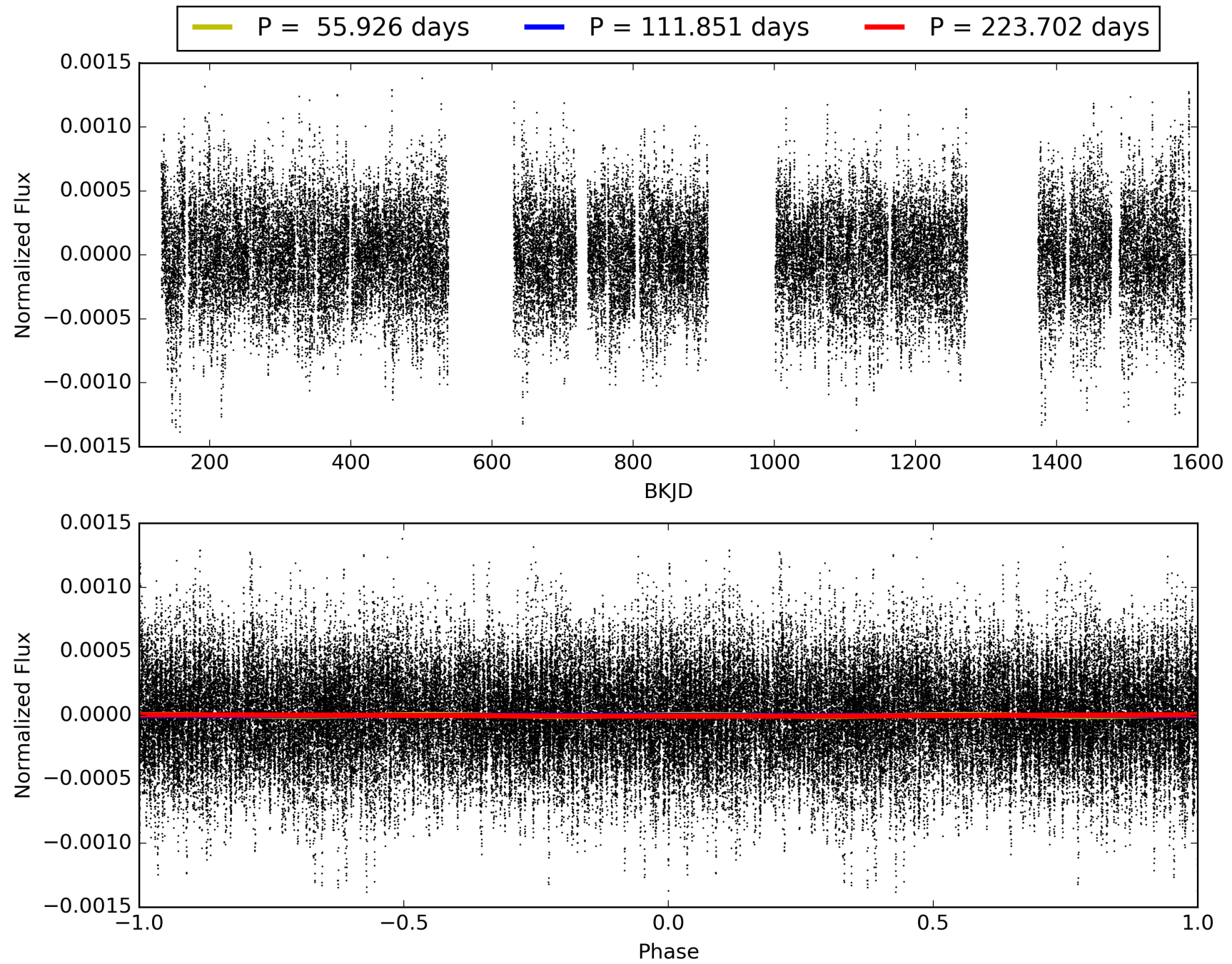
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:34 Z

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

TCE 004757997-07, PDC Light Curves

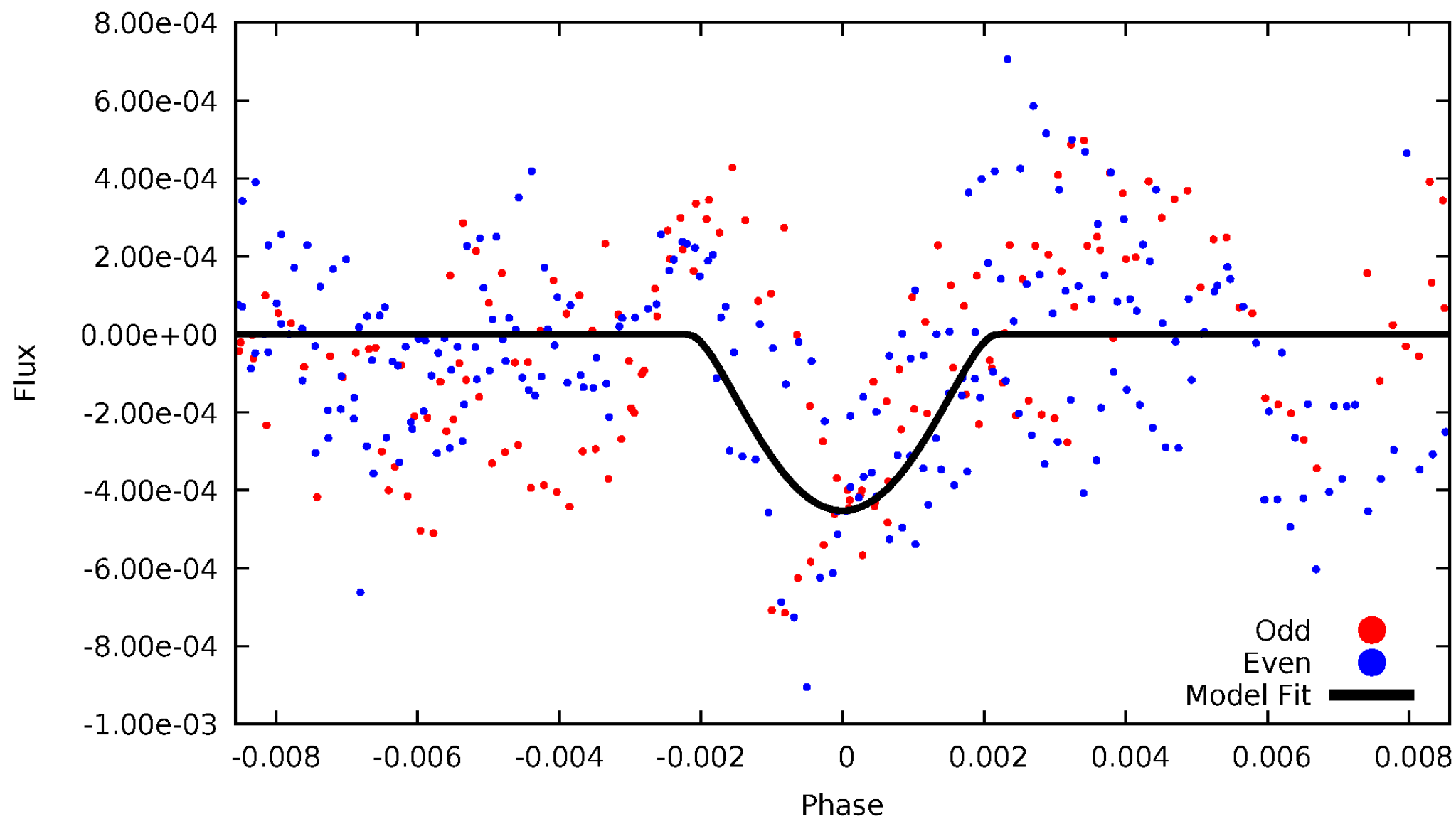


TCE 004757997-07



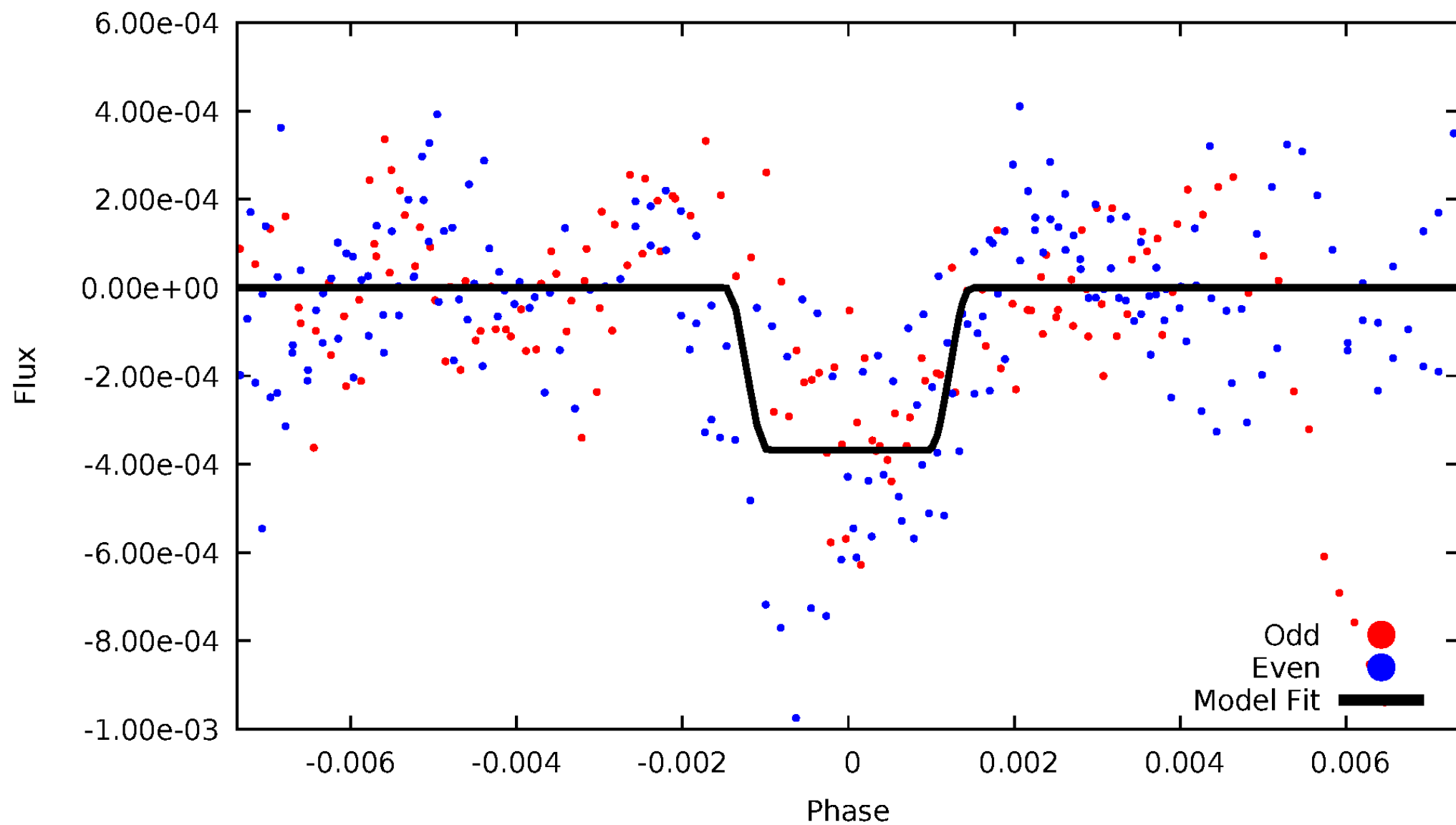
DV Odd/Even

TCE 004757997-07



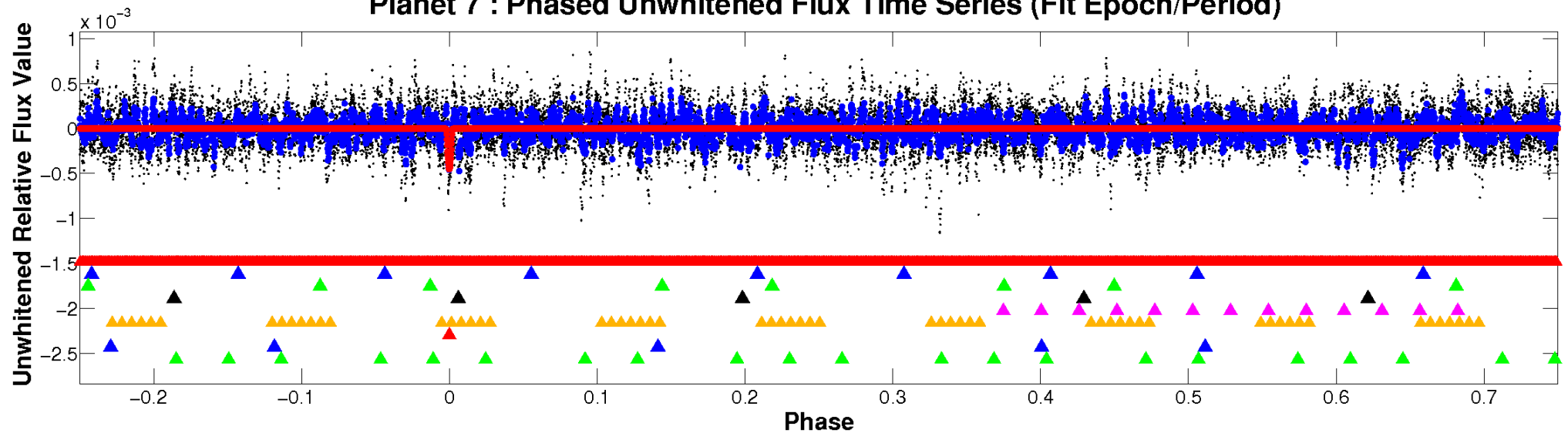
ALT Odd/Even

TCE 004757997-07

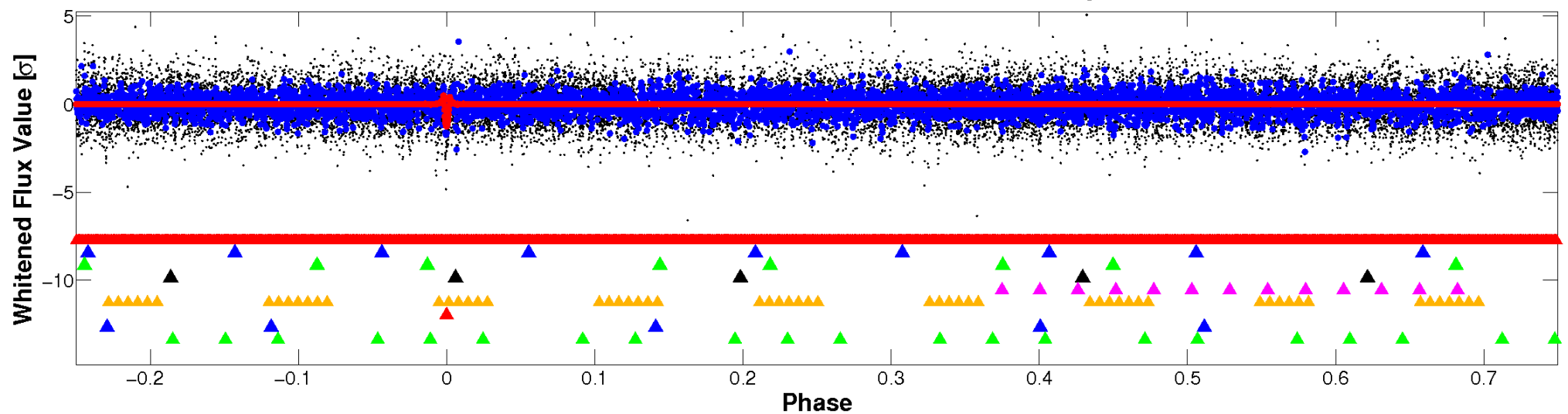


Non-Whitened Vs. Whitened Light Curve

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

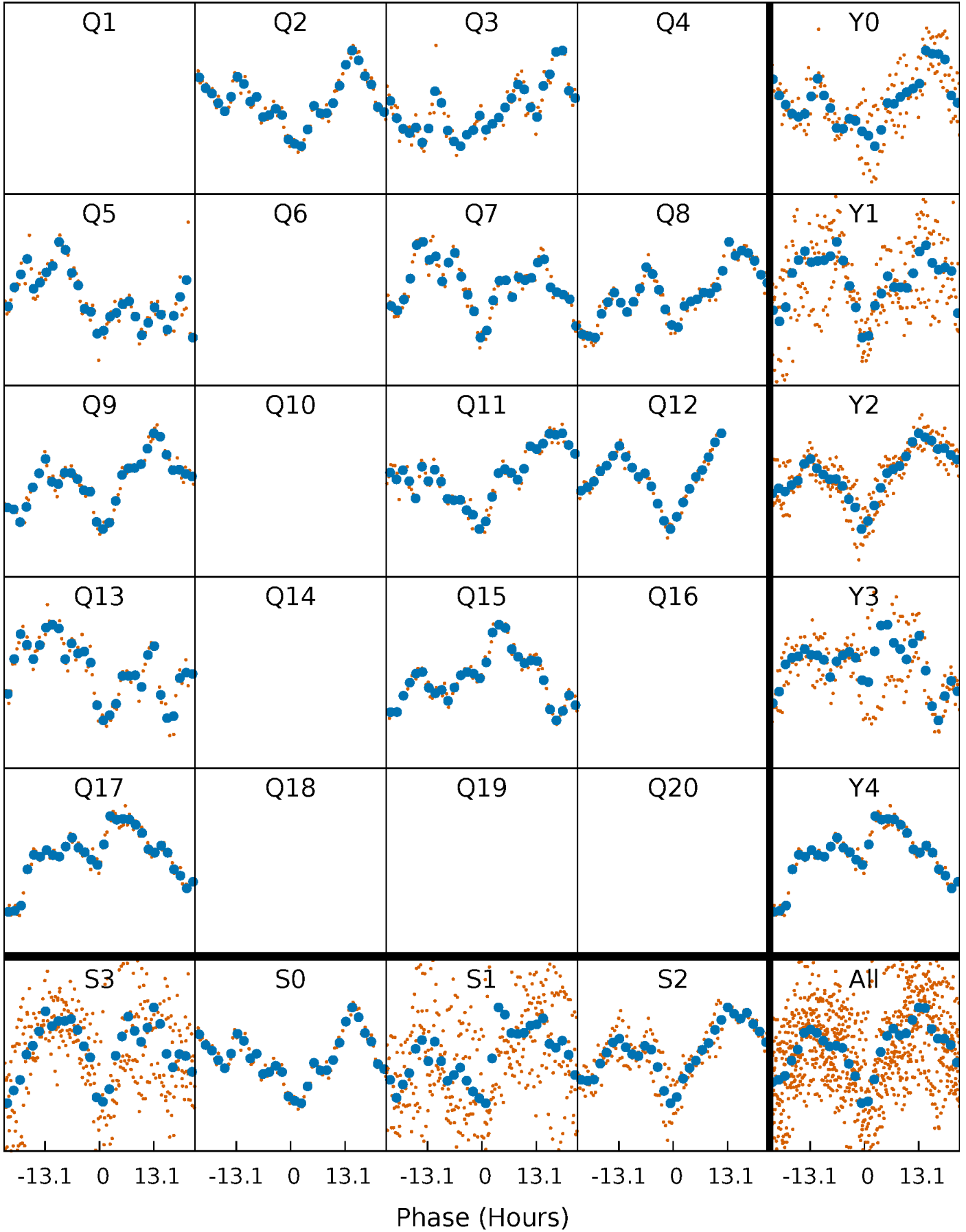


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



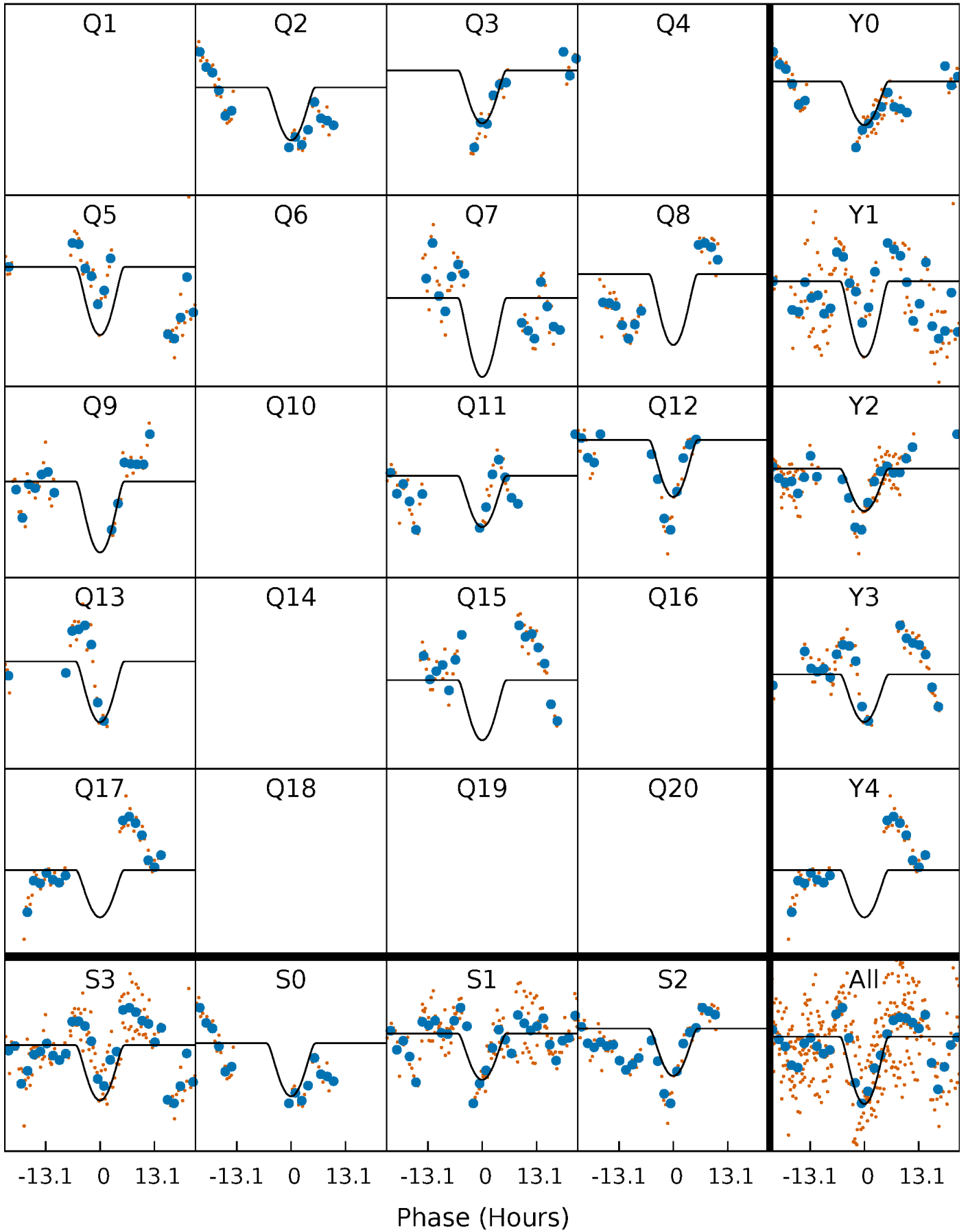
PDC Quarter-Phased Transit Curves

TCE 004757997-07 $P=111.851210$ Days $T_0=221.389229$ (BKJD)



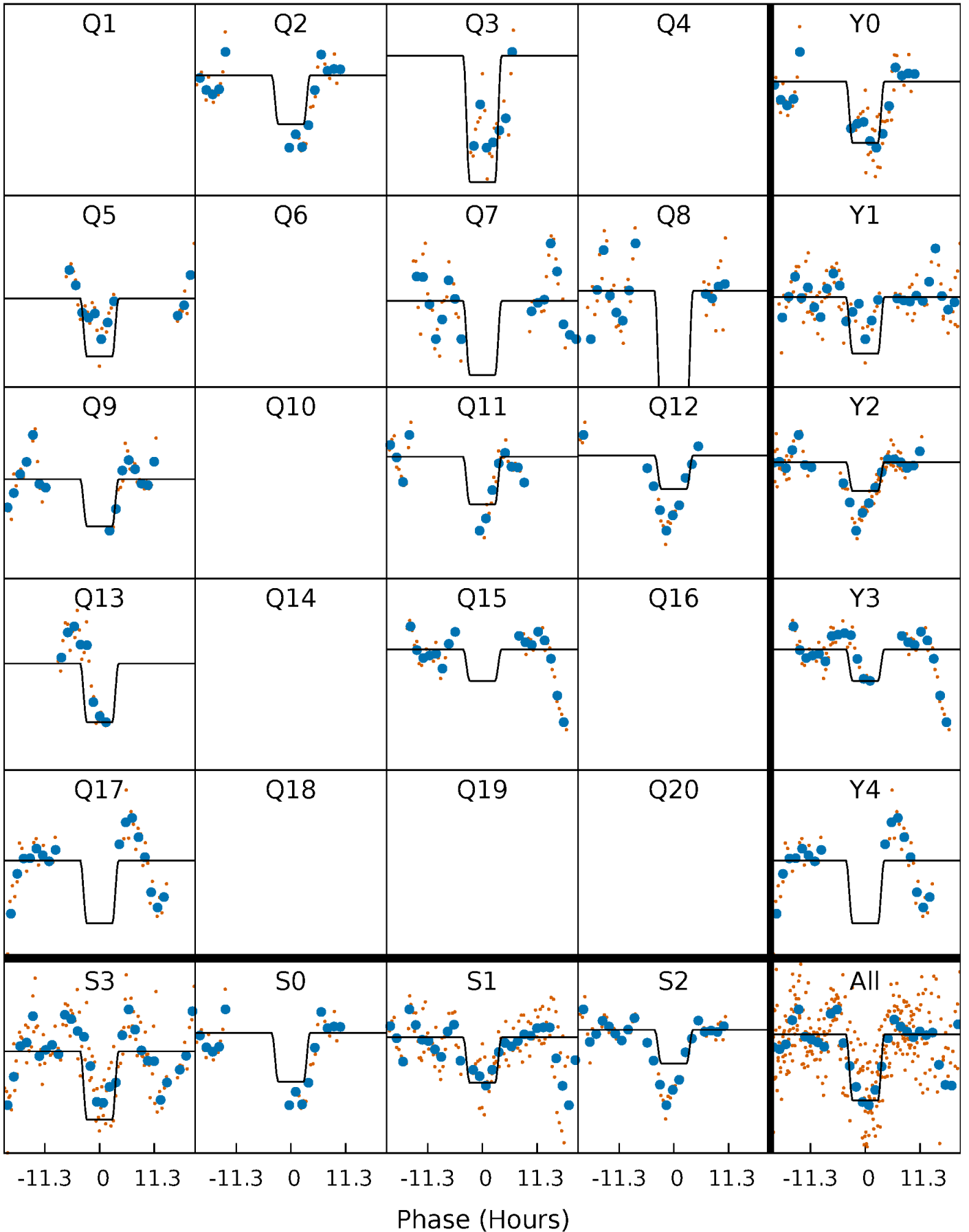
DV Quarter-Phased Transit Curves

TCE 004757997-07 $P=111.851210$ Days $T_0=221.389229$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

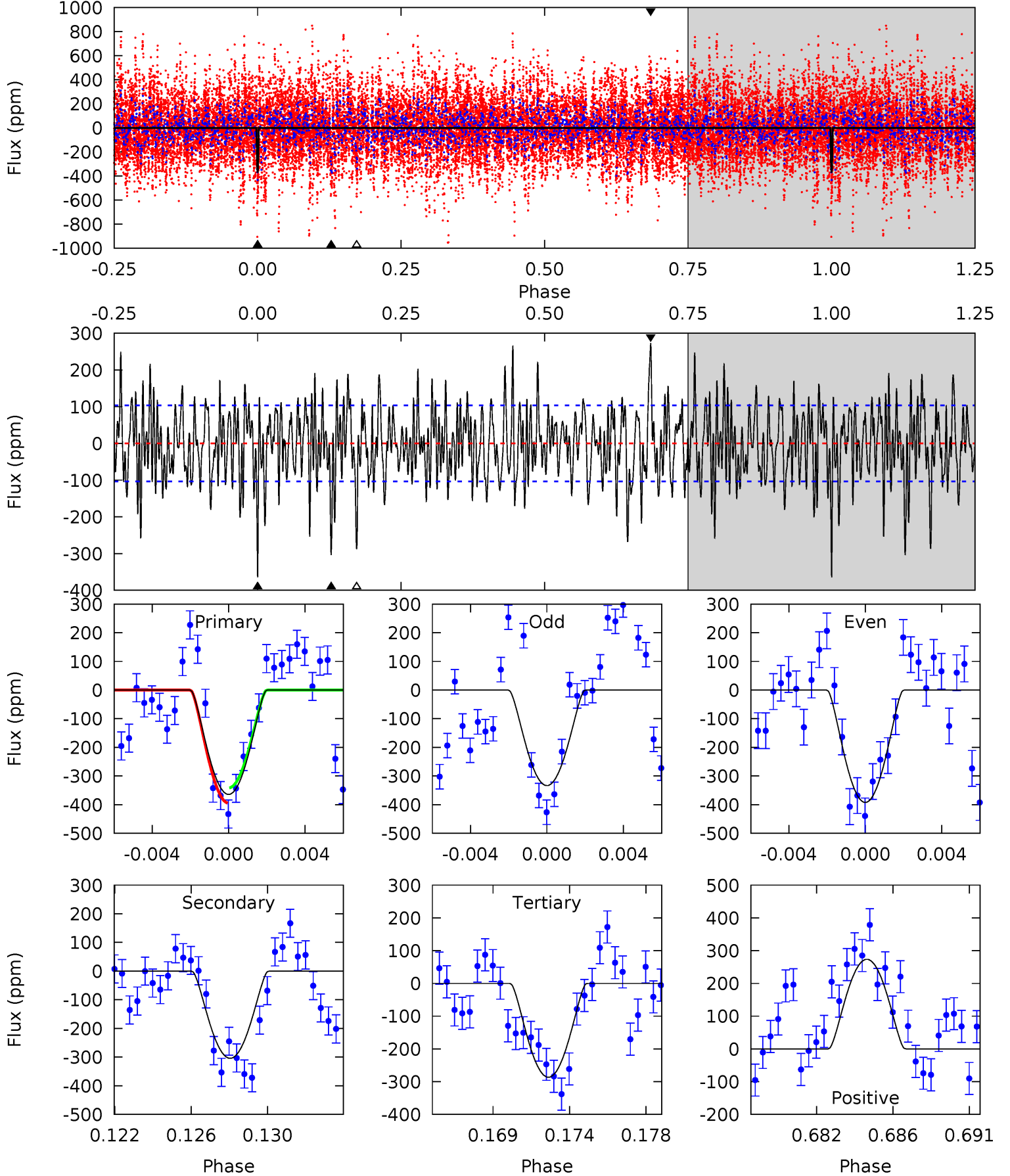
TCE 004757997-07 $P=111.854860$ Days $T_0=221.374837$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-07, P = 111.851210 Days, E = 109.538019 Days

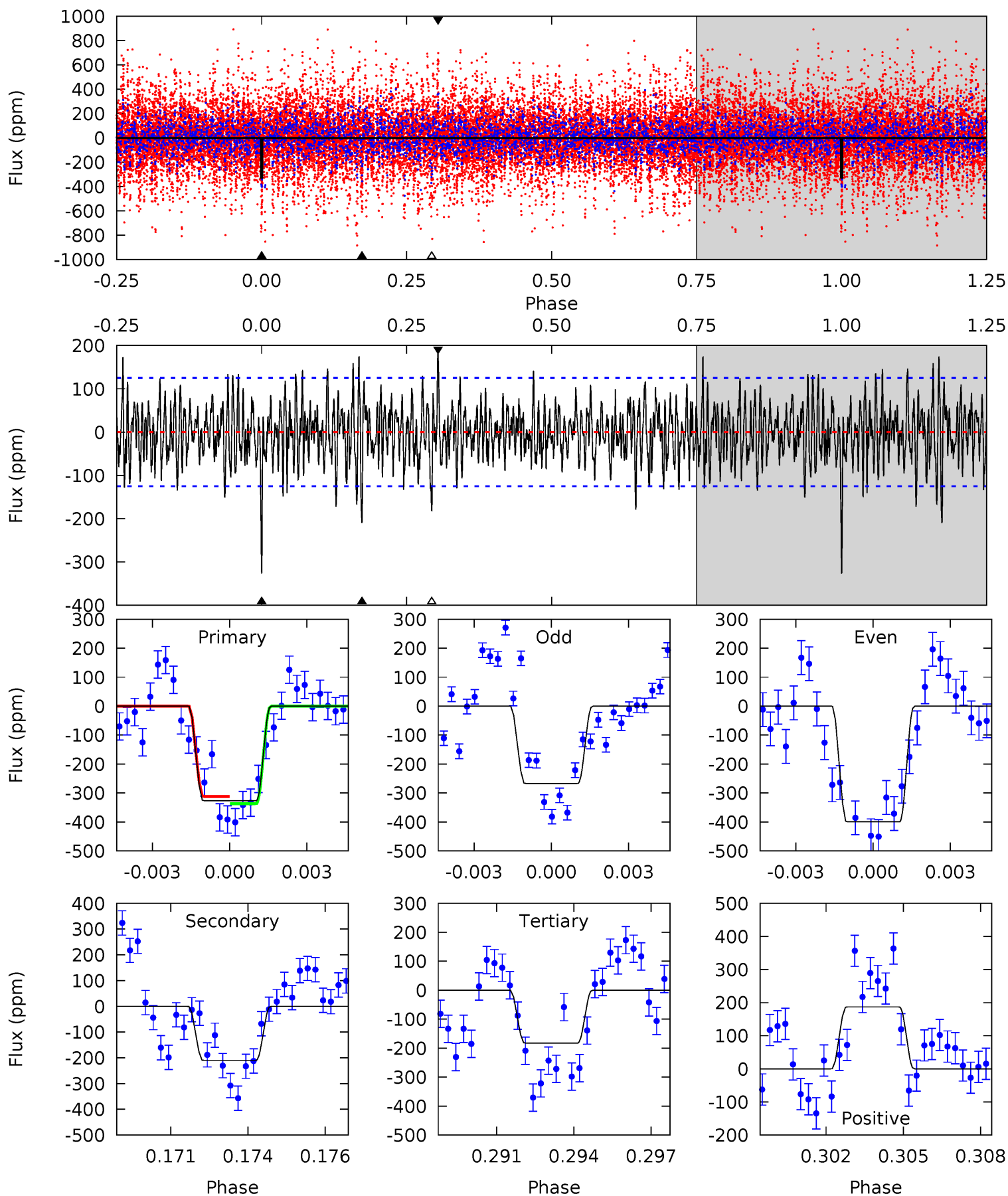
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	15.2	14.3	13.7	5.18	2.85	4.25	3.89	4.54	0.88	1.54	1.45	-2.17	0.43	1.31



Alt Model-Shift Uniqueness Test

004757997-07, P = 111.854860 Days, E = 109.519977 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	8.85	7.68	7.87	5.27	2.99	2.34	6.06	5.87	1.17	0.97	2.78	0.89	0.36	0.51



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-304 ± 20	$29.30^{+30.16}_{-19.00}$	1222^{+96}_{-128}	4075^{+2234}_{-824}	69^{+491}_{-53}
Alt.	-210 ± 24	$27.23^{+26.74}_{-18.58}$	1221^{+93}_{-143}	3904^{+2387}_{-755}	55^{+492}_{-41}

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

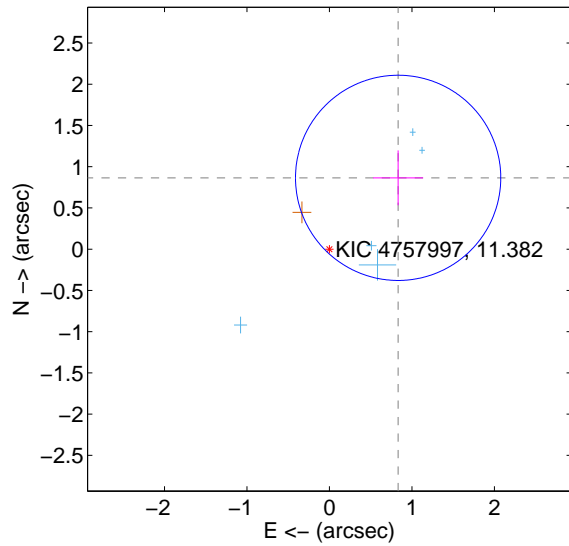
Supplemental centroid analysis for 004757997-07. **Kepler magnitude: 11.38.** Transit SNR 8.99

There are 5 quarters with good PRF difference image offsets

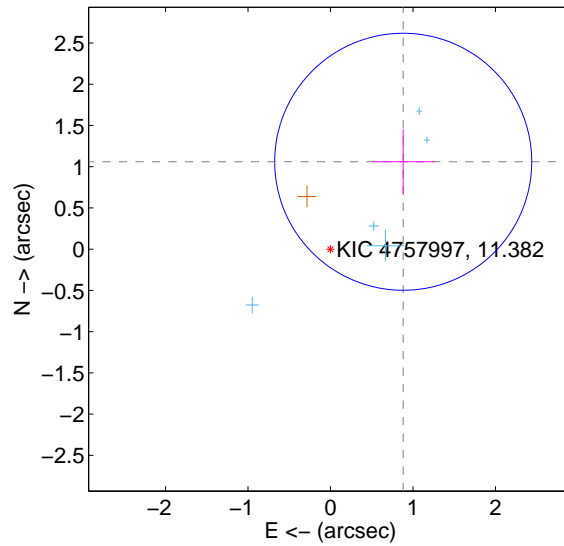
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.201 ± 0.415	2.89	-0.833 ± 0.304	0.865 ± 0.332
PRF-fit source offset from KIC position	1.379 ± 0.520	2.65	-0.882 ± 0.377	1.060 ± 0.394
photometric centroid source offset	0.15 ± 0.19	0.80	0.00 ± 0.18	0.15 ± 0.19

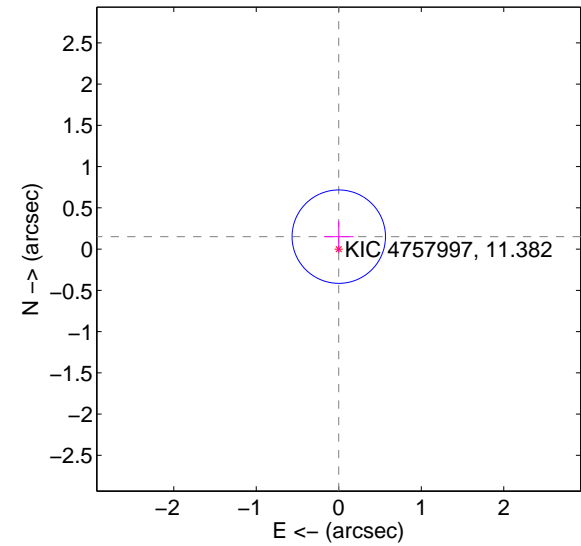
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

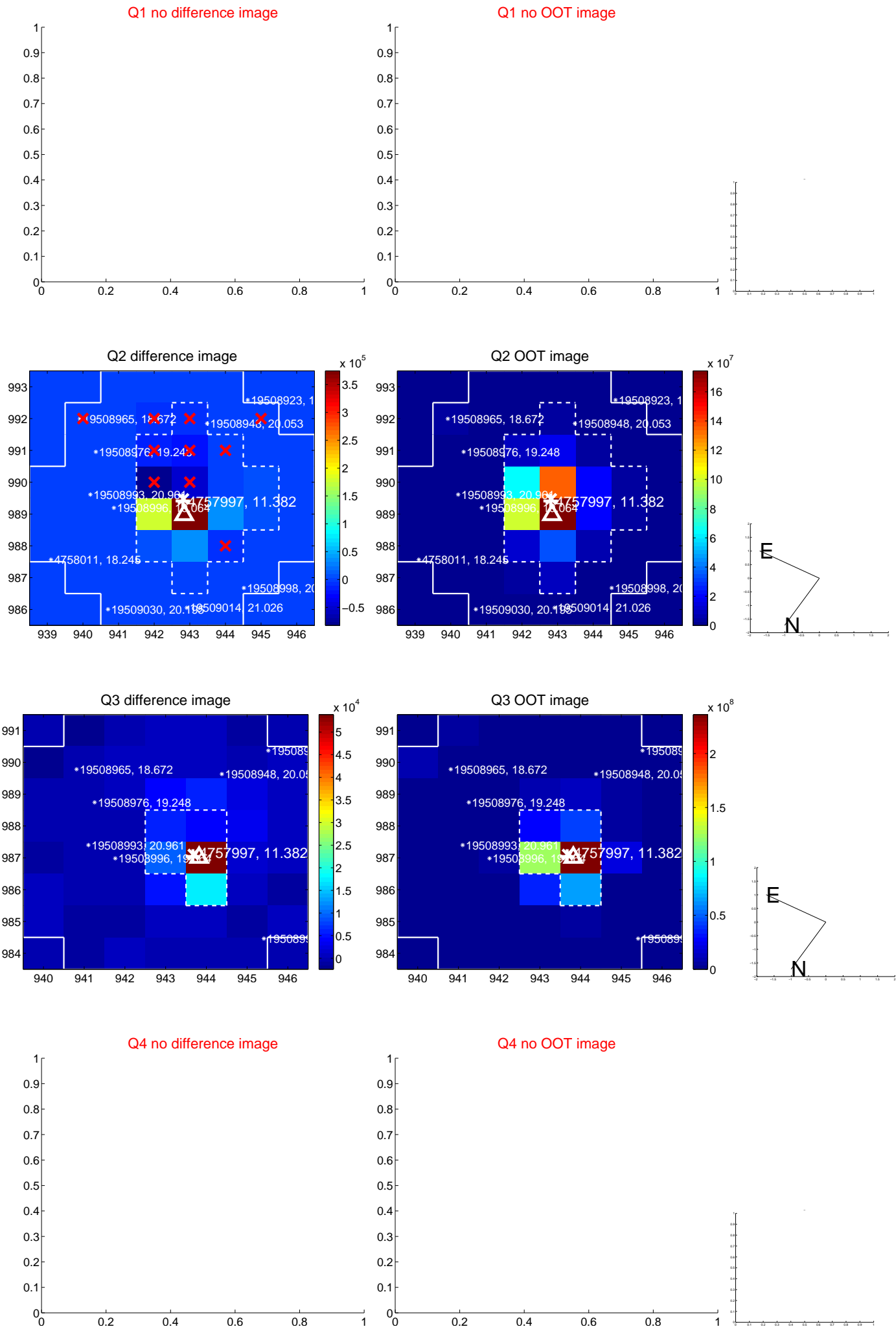


offset from photometric centroids

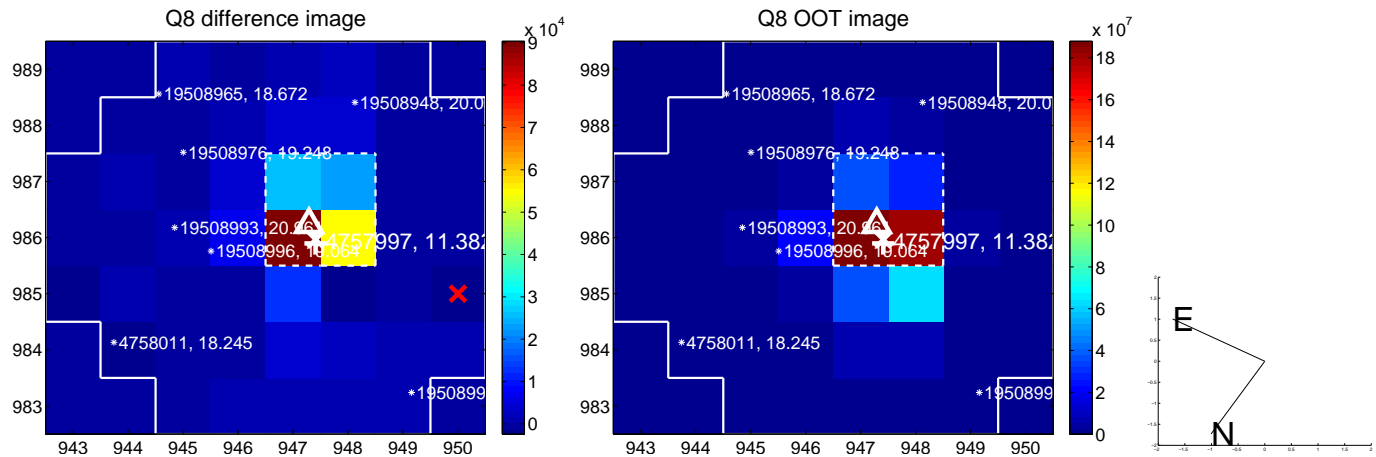
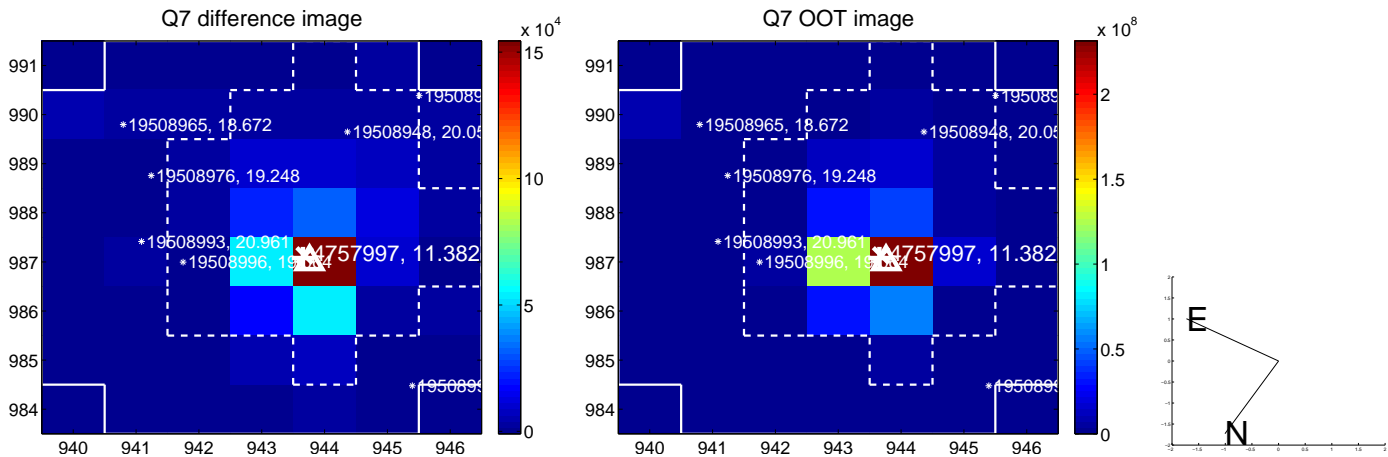
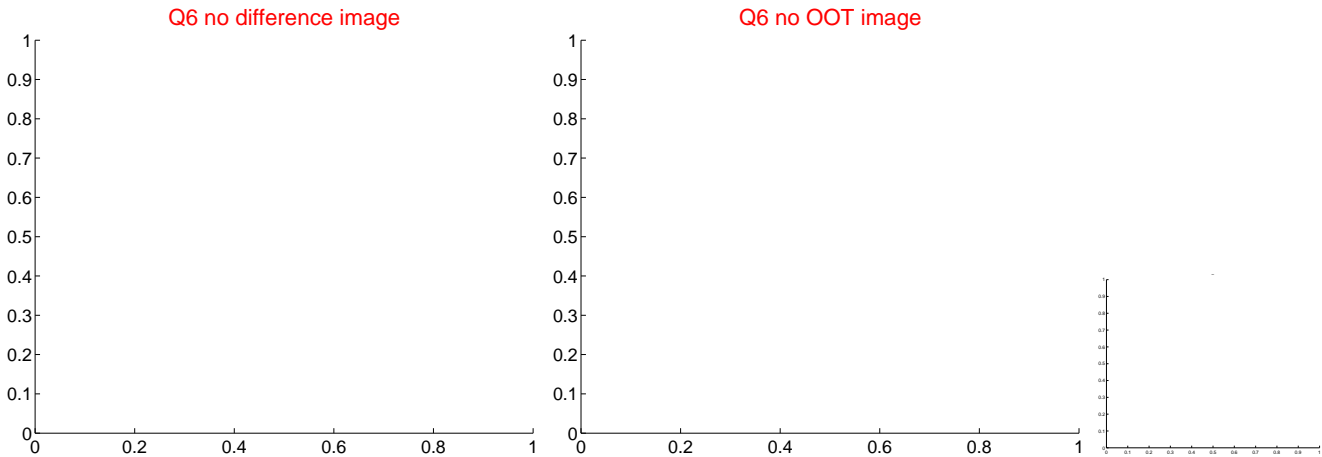
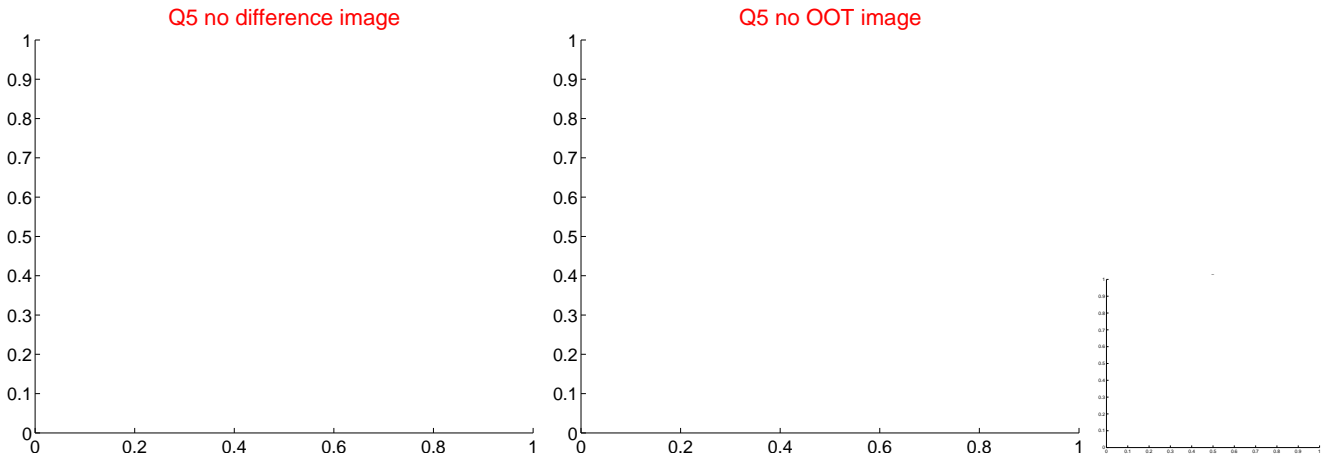


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

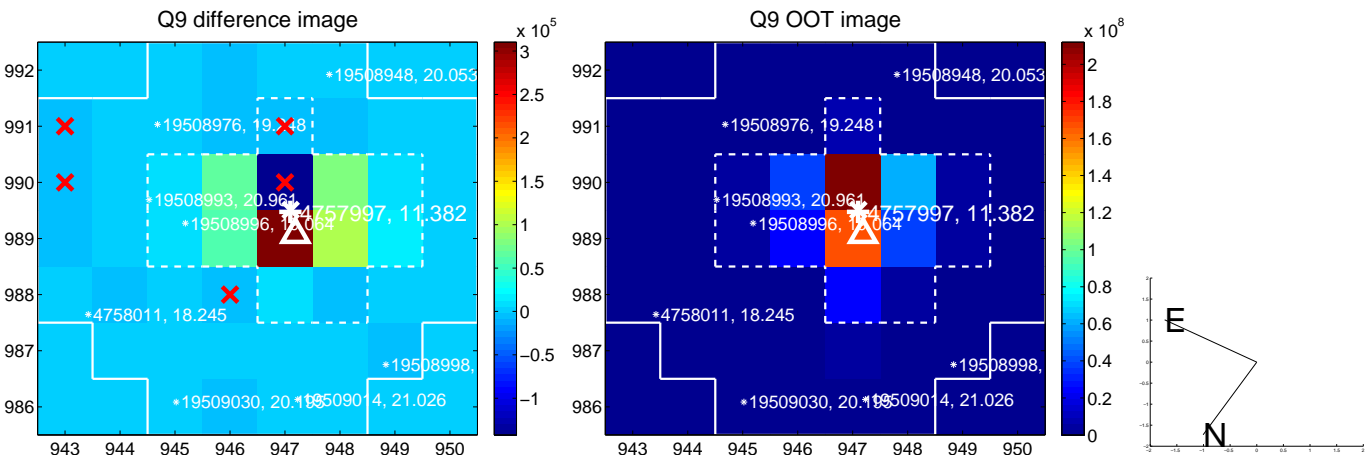
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



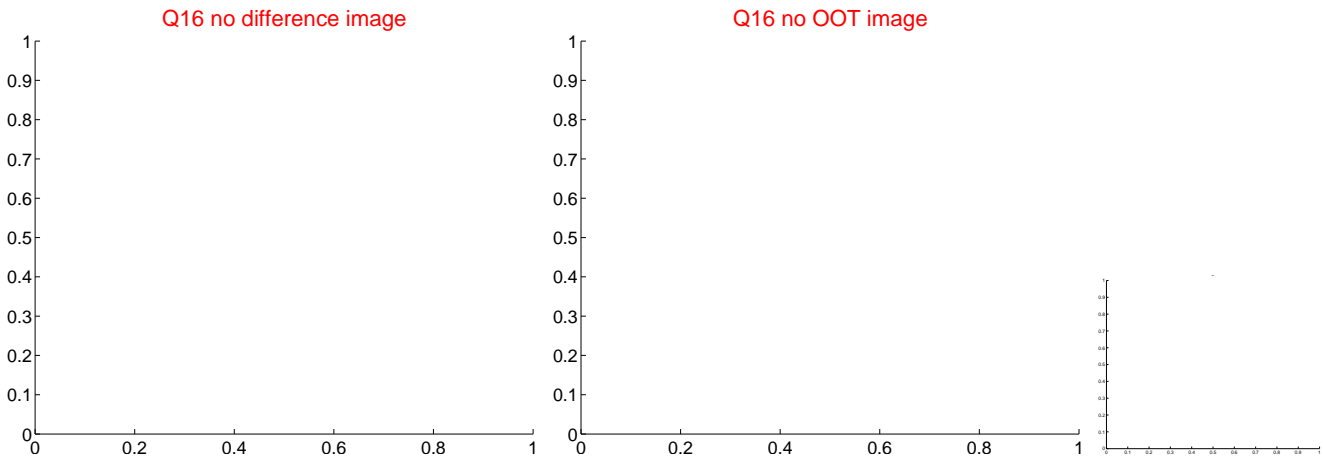
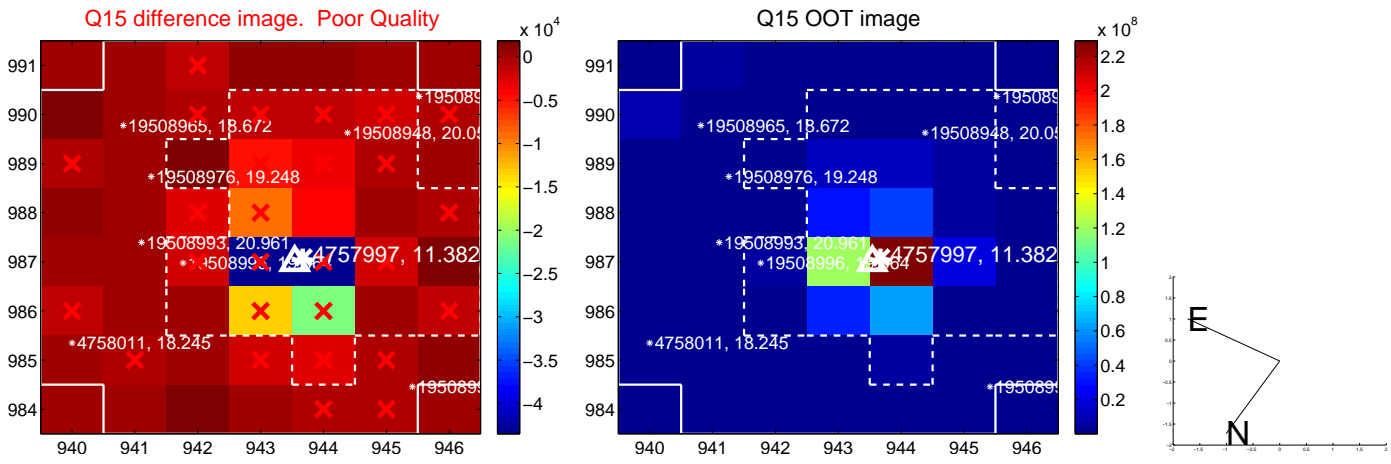
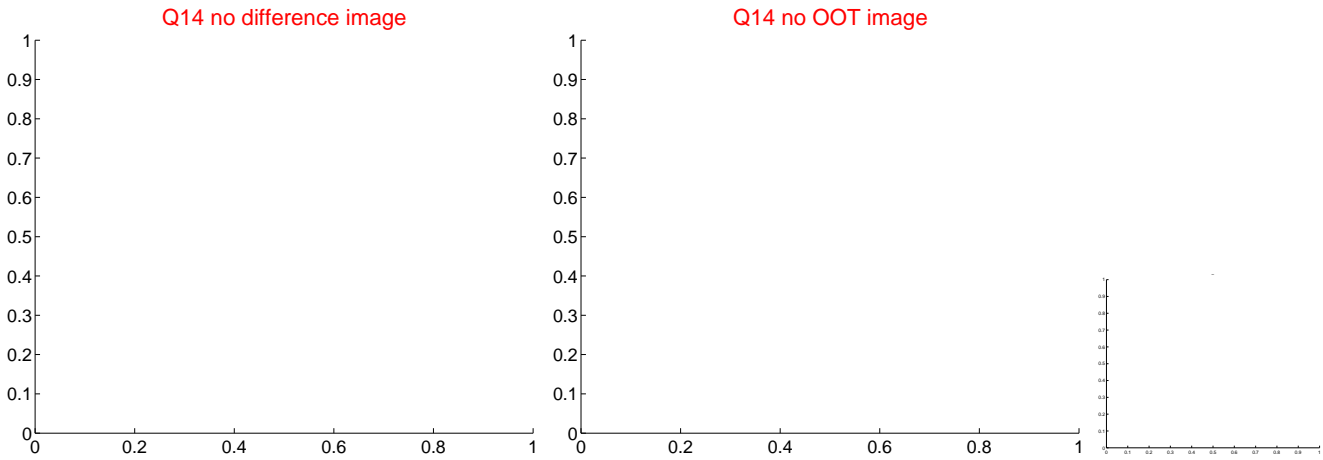
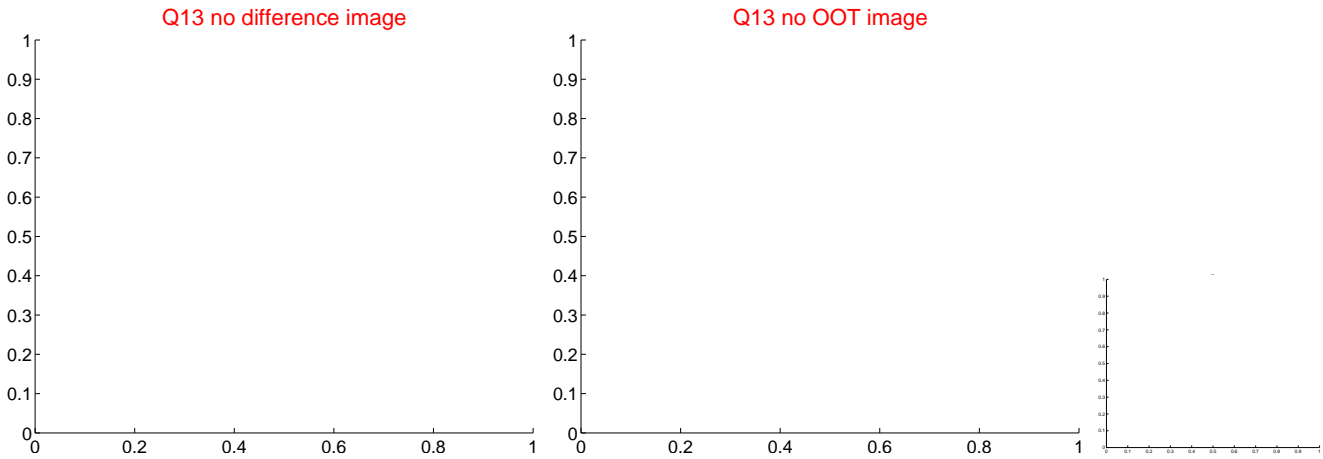
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



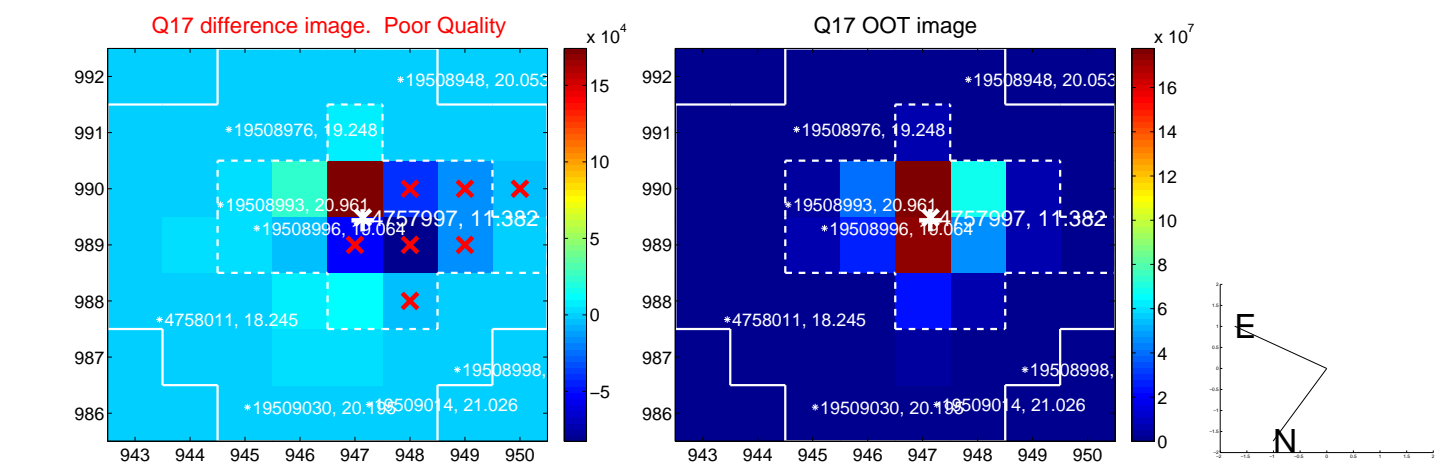
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



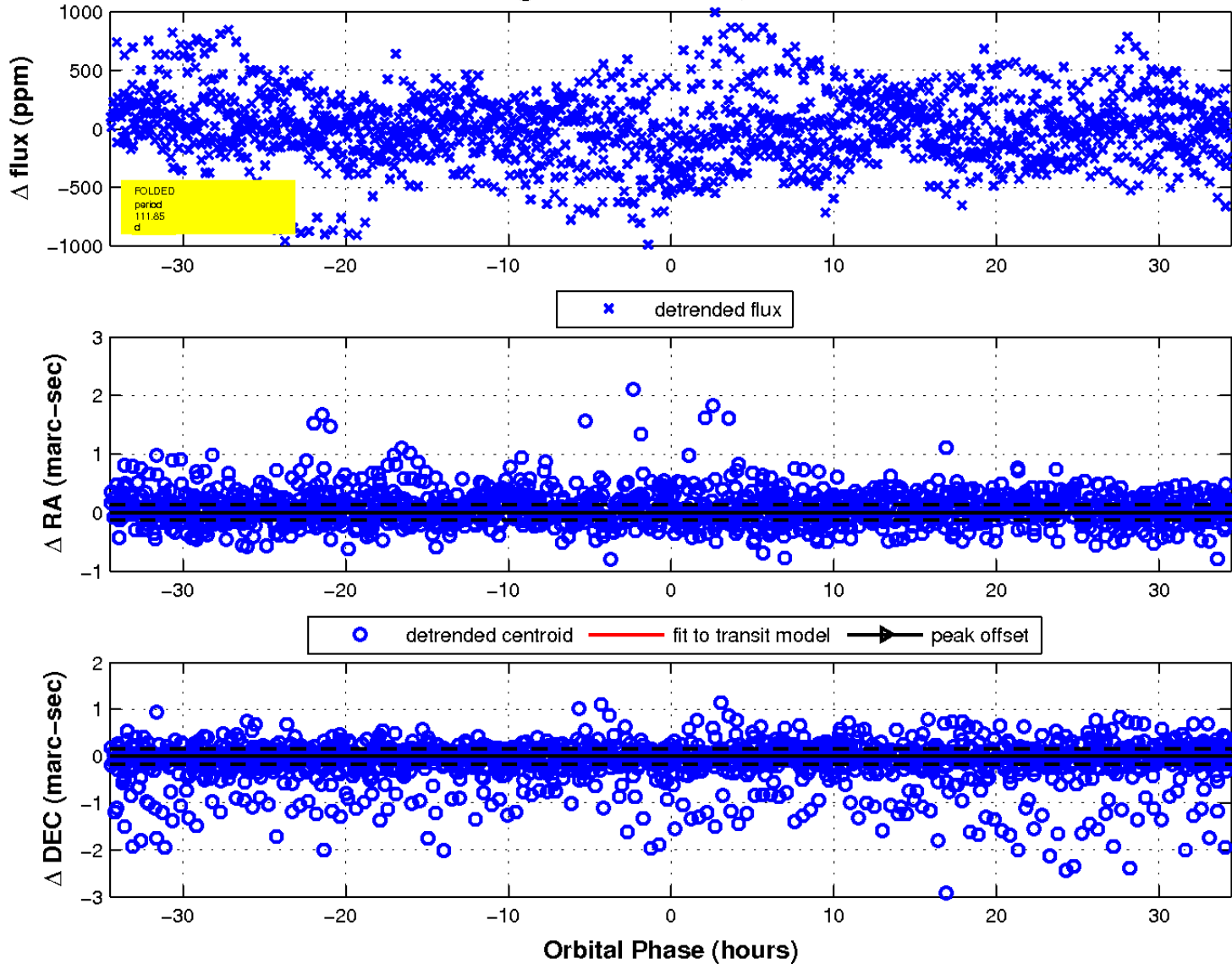
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



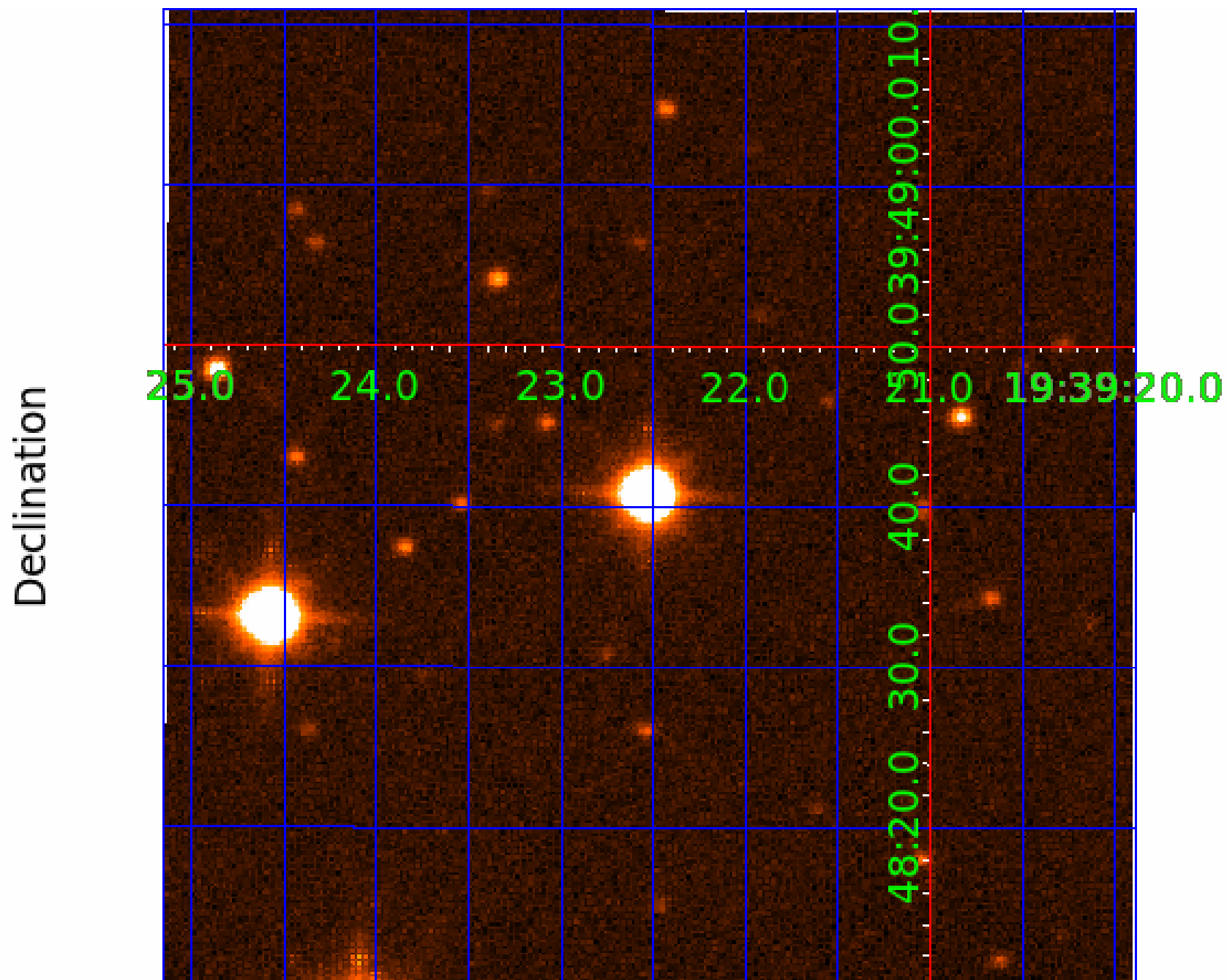
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 7 of 9



UKIRT Image



KIC 004757997

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})
004757997-01	OBS	No	0.971364	131.734108	24.8	4.192	9.2	8.1	5.01	7123	2.69	90848.87
004757997-02	OBS	No	162.232260	227.590283	362.3	12.380	8.9	6.7	5.01	7123	11.25	98.78
004757997-03	OBS	No	197.821200	151.524007	642.7	7.021	8.8	8.3	5.01	7123	22.48	75.82
004757997-05	OBS	No	114.716585	151.463704	390.4	4.932	8.1	8.3	5.01	7123	12.67	156.79
004757997-06	OBS	No	24.937261	133.170221	184.8	6.889	8.0	8.4	5.01	7123	8.40	1199.58
004757997-07	OBS	No	111.851210	221.389229	452.9	11.502	9.3	9.0	5.01	7123	20.18	162.17
004757997-08	OBS	No	265.113952	378.057033	273.0	3.177	8.9	6.4	5.01	7123	9.21	51.32
004757997-09	OBS	No	69.410357	154.726924	95.8	6.000	8.3	-1.0	5.01	7123	4.96	306.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757997-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

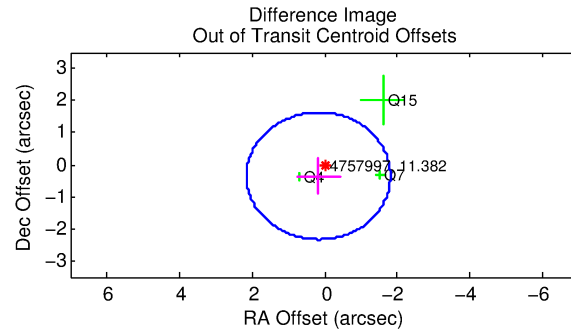
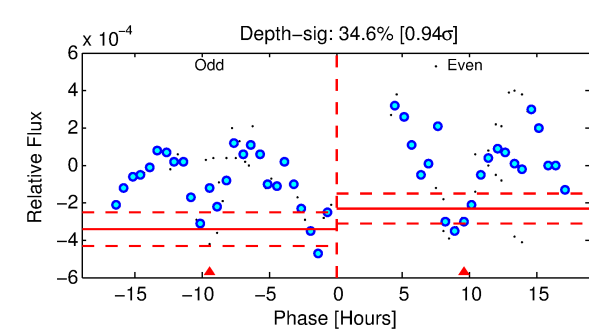
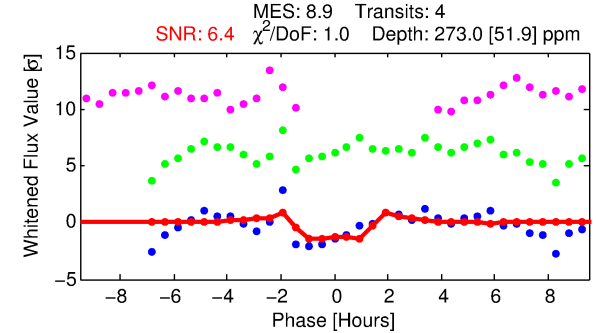
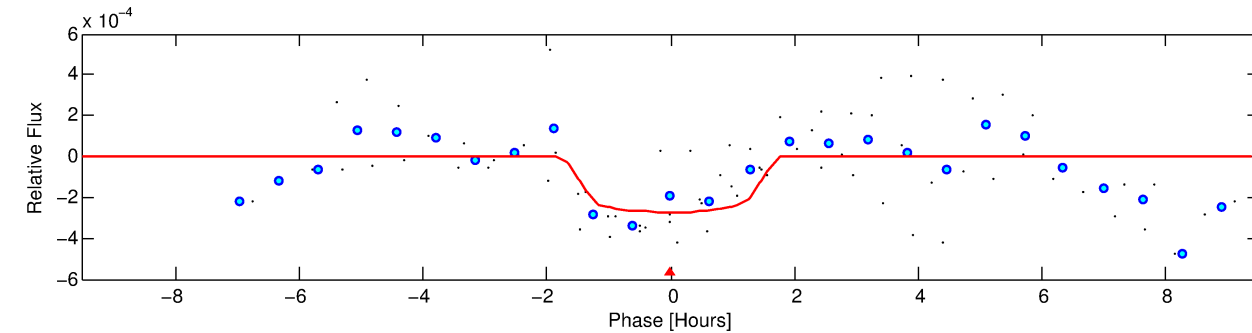
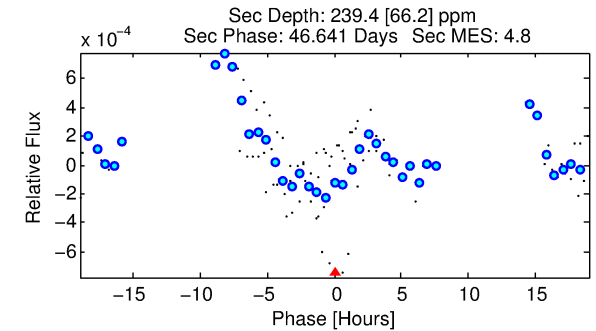
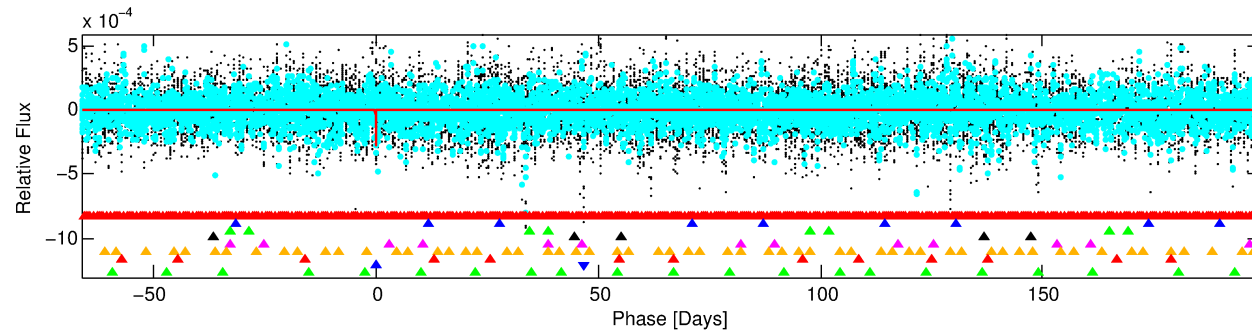
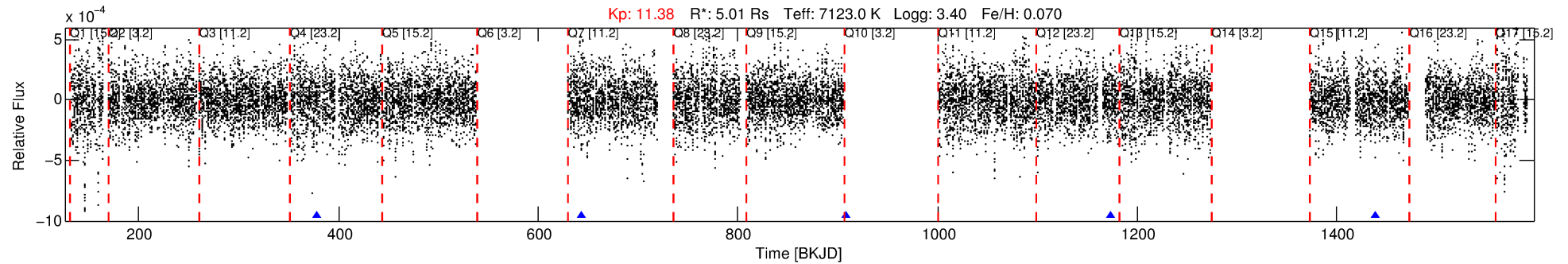
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-08

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 8 of 9 Period: 265.114 d



DV Fit Results:

Period = 265.11395 [0.00269] d
Epoch = 378.0570 [0.0055] BKJD
Rp/R* = 0.0168 [0.0234]
a/R* = 383.30 [3178.20]
b = 0.82 [3.35]
Seff = 51.32 [35.12]
Teff = 682 [117] K
Rp = 9.21 [13.43] Re
a = 1.0624 [0.4468] AU
Ag = 1751.30 [5029.15] [0.35σ]
Teffp = 6826 [4772] K [1.29σ]

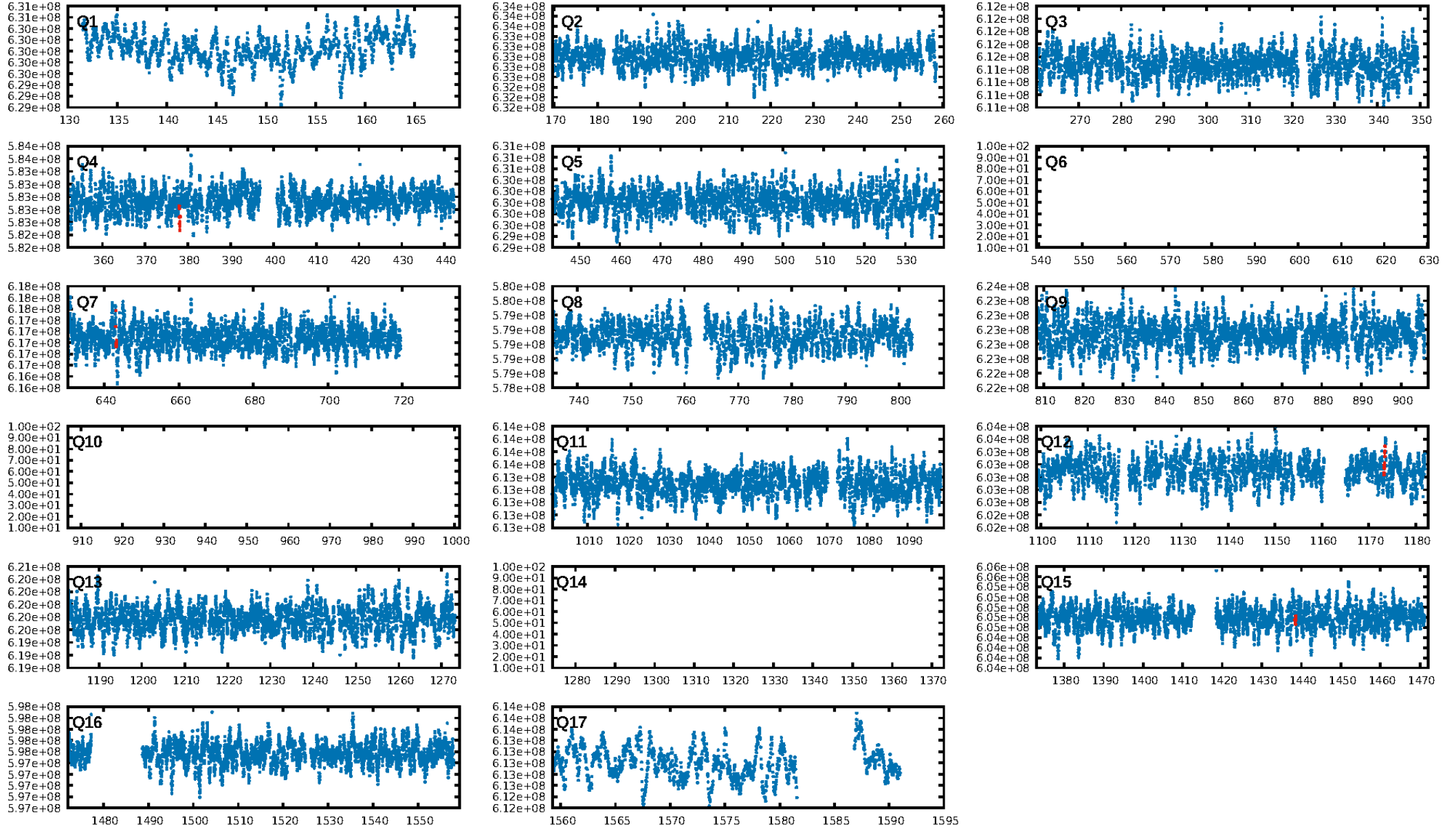
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [209.56σ]
LongPeriod-sig: 100.0% [259.05σ]
ModelChiSquare2-sig: 22.8%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.17
Centroid-sig: 42.0%
Centroid-so: 0.457 arcsec [0.78σ]
OotOffset-rm: 0.393 arcsec [0.60σ]
OotOffset-st: 0/2/1/0 [3]
KicOffset-rm: 0.166 arcsec [0.29σ]
KicOffset-st: 0/2/1/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.25 [1/4]

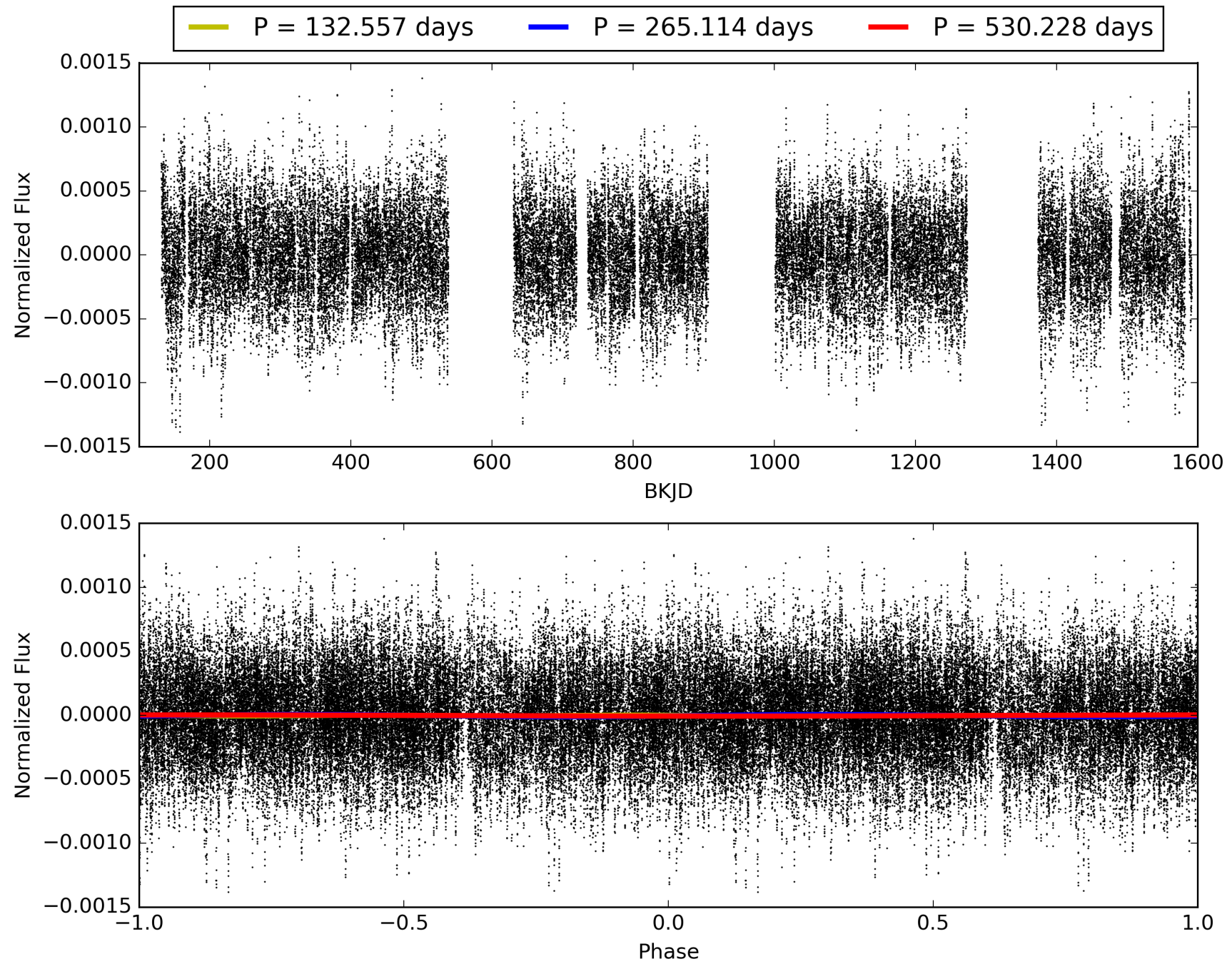
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:41 Z

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

TCE 004757997-08, PDC Light Curves

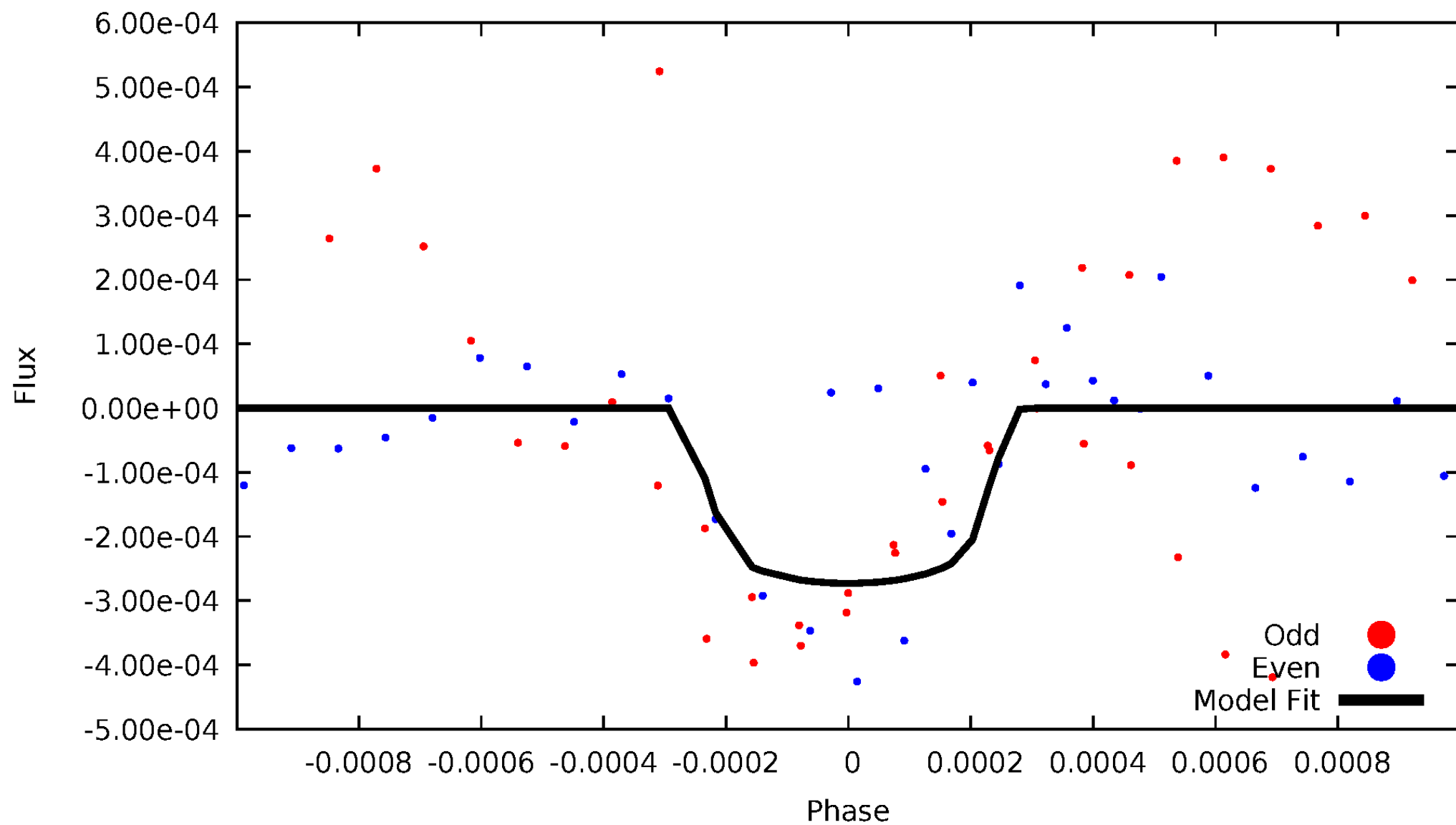


TCE 004757997-08



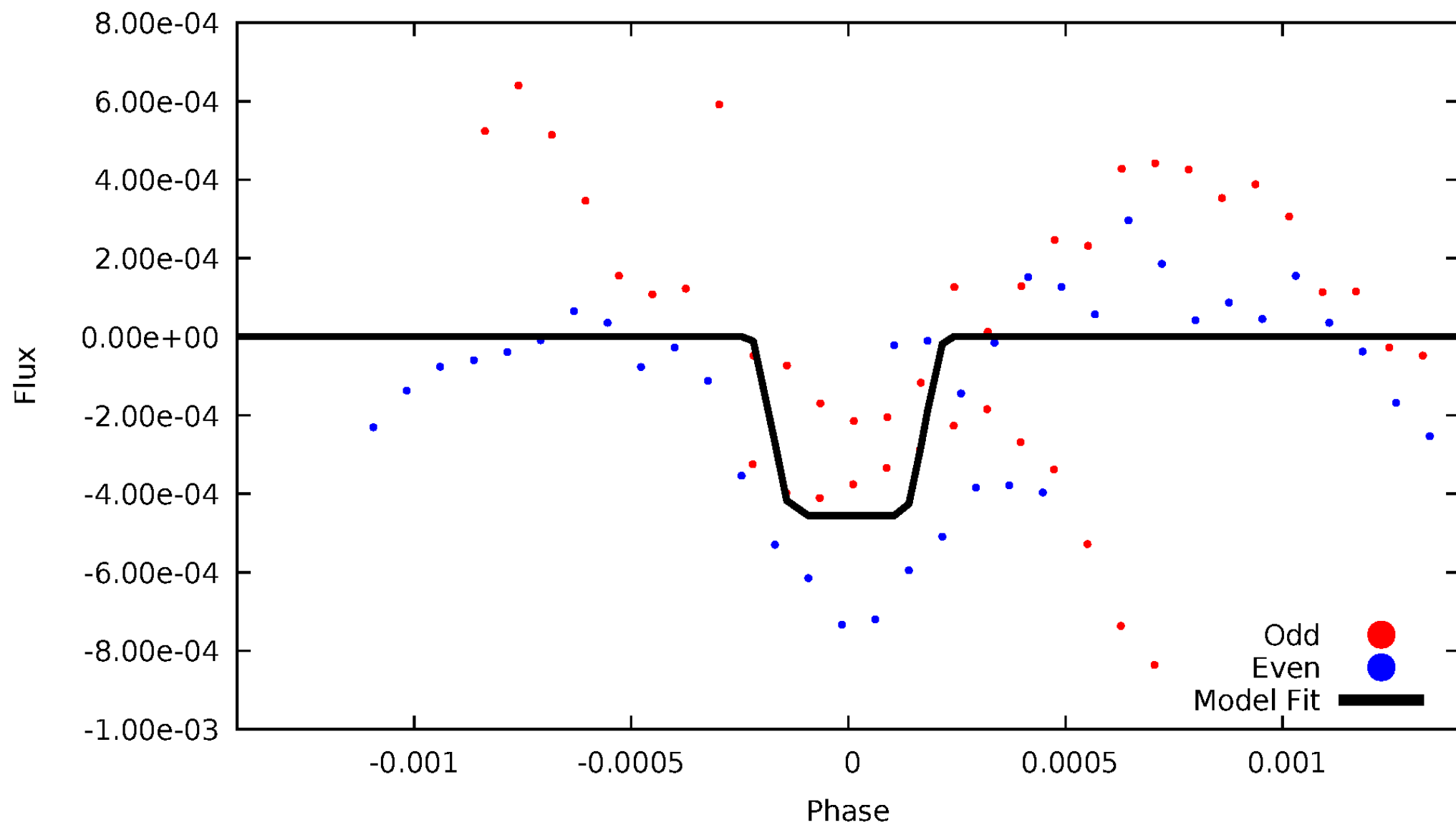
DV Odd/Even

TCE 004757997-08



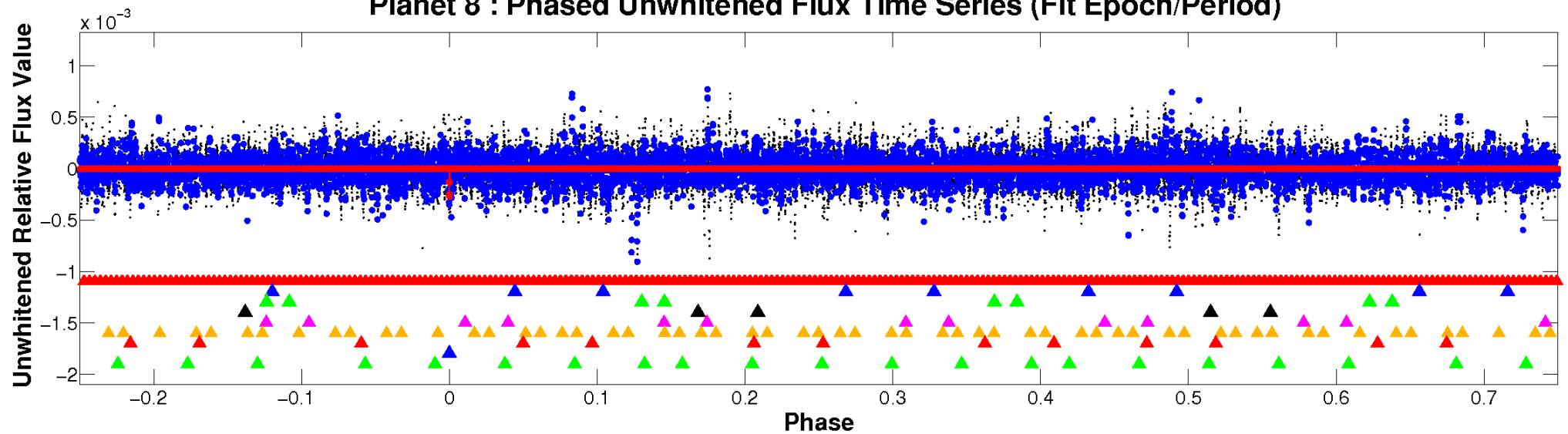
ALT Odd/Even

TCE 004757997-08

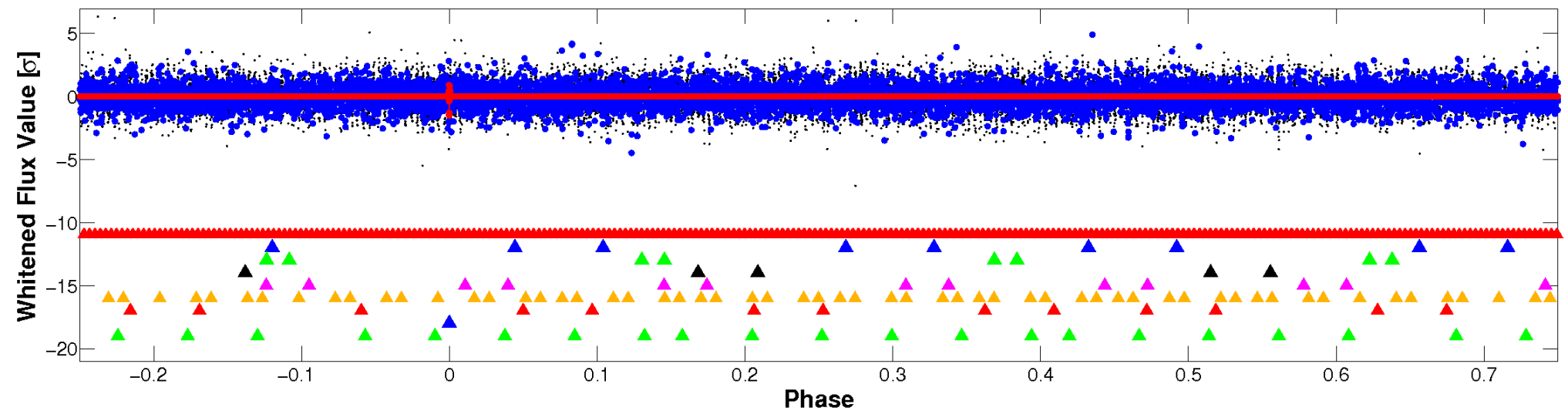


Non-Whitened Vs. Whitened Light Curve

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

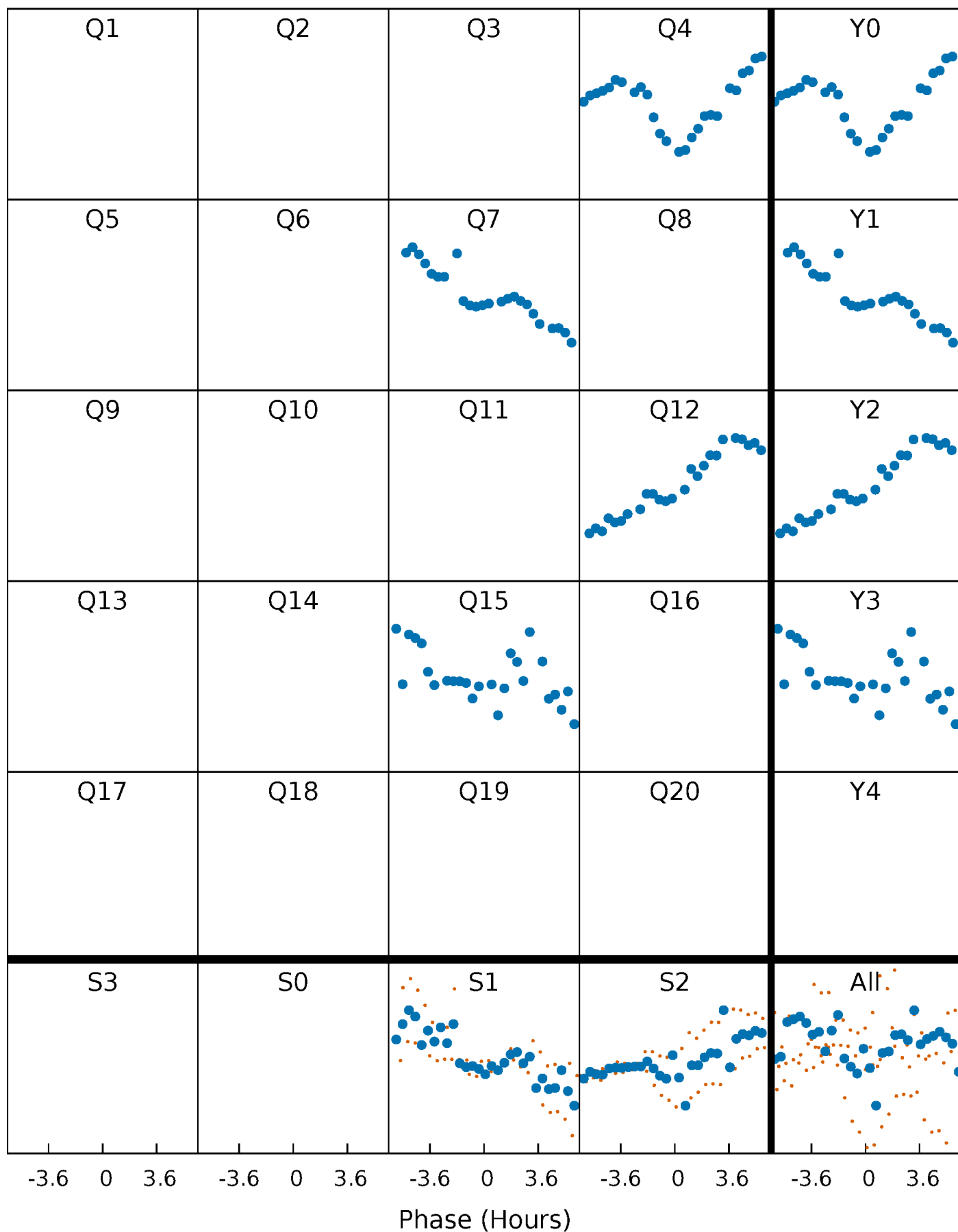


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



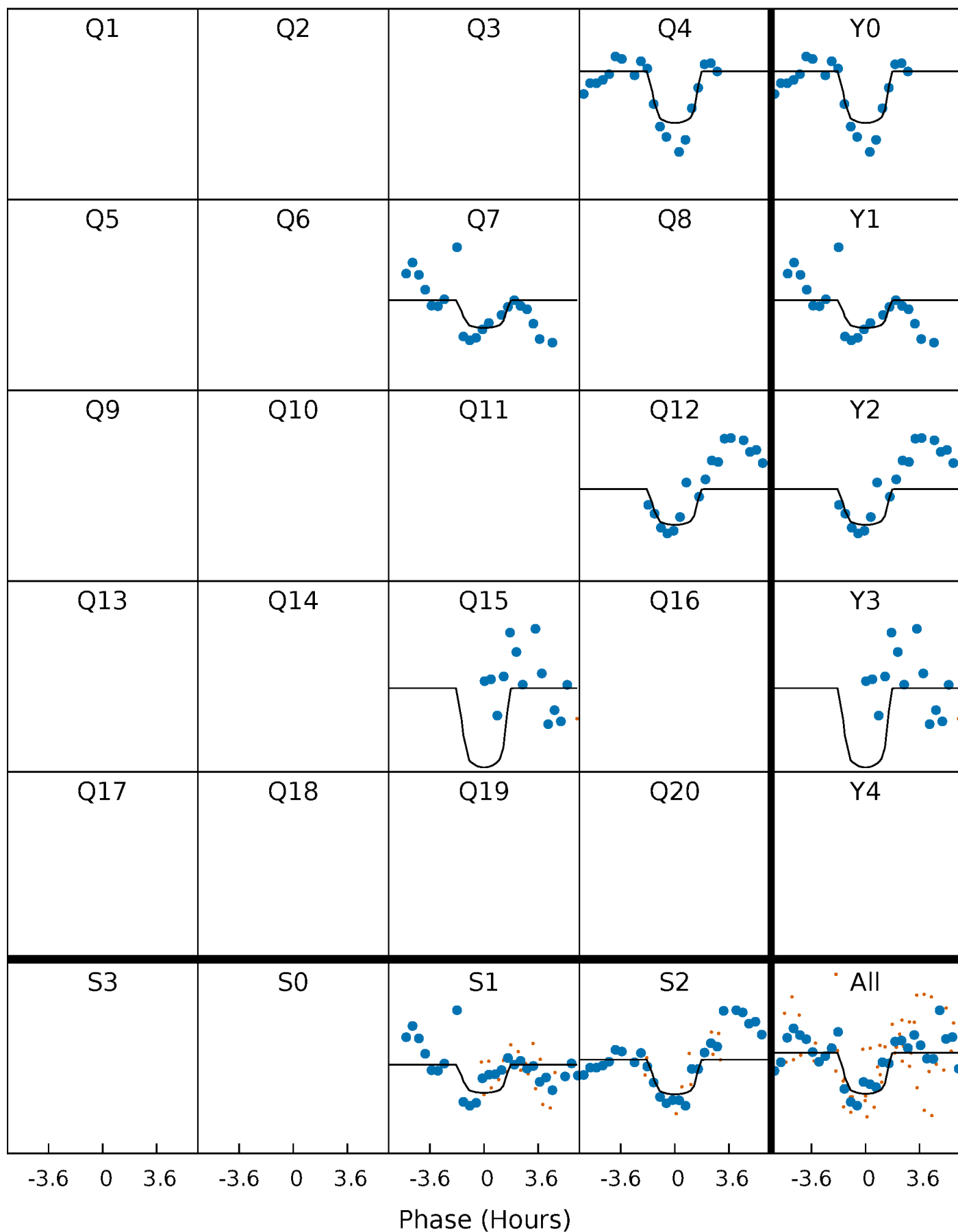
PDC Quarter-Phased Transit Curves

TCE 004757997-08 $P=265.113951$ Days $T_0=378.057033$ (BKJD)



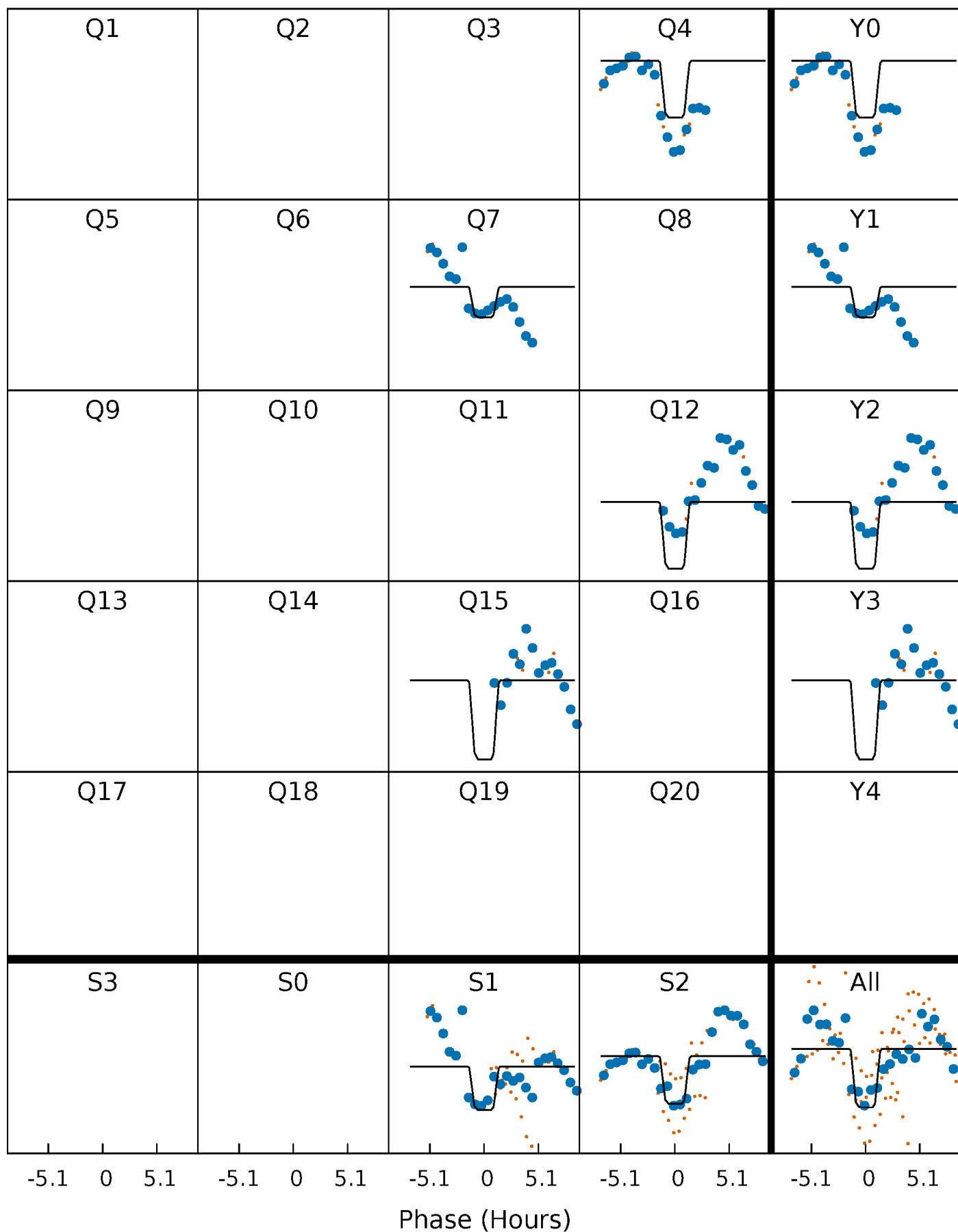
DV Quarter-Phased Transit Curves

TCE 004757997-08 $P=265.113951$ Days $T_0=378.057033$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

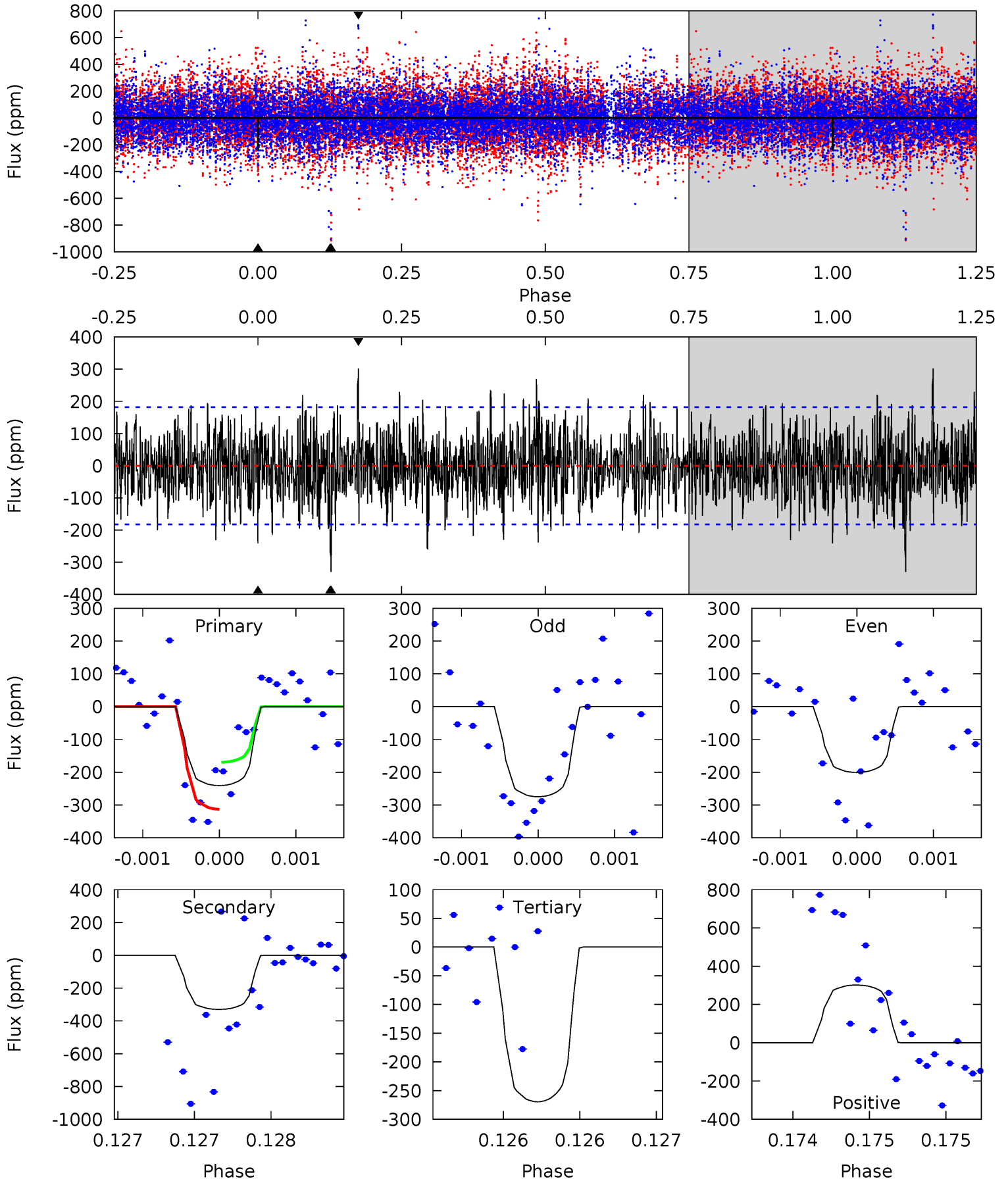
TCE 004757997-08 P=265.103163 Days $T_0=378.064753$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-08, P = 265.113951 Days, E = 112.943082 Days

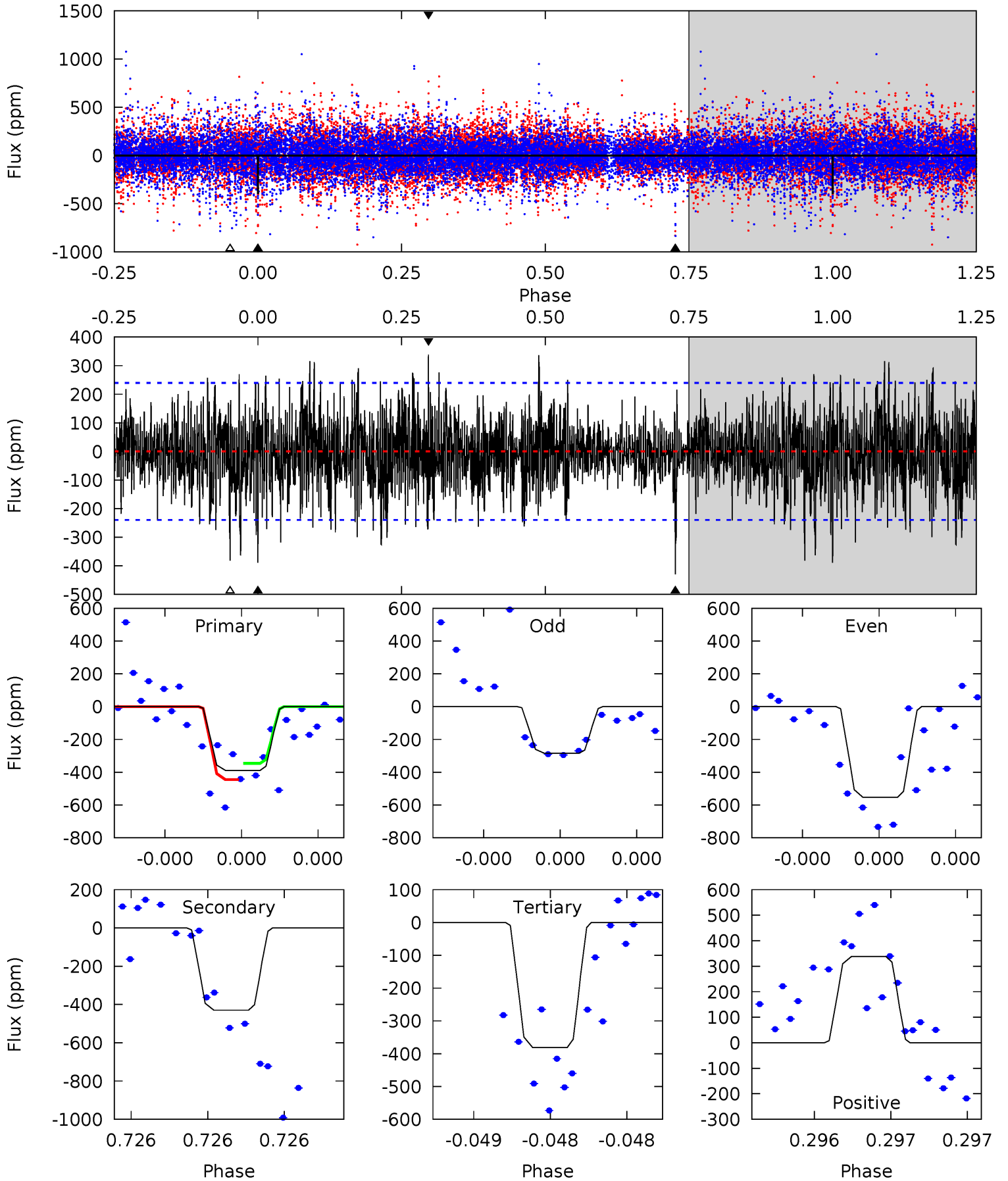
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.36	10.1	8.24	9.22	5.57	3.47	2.26	-0.88	-1.86	1.85	0.87	1.13	0.81	0.48	2.19



Alt Model-Shift Uniqueness Test

004757997-08, P = 265.103163 Days, E = 112.961590 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.10	10.0	8.91	7.90	5.60	3.52	2.05	0.19	1.20	1.14	2.15	3.21	1.14	0.44	1.18



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-330 ± 33	$11.43^{+11.36}_{-7.37}$	916^{+73}_{-104}	6130^{+5847}_{-1528}	1578^{+10890}_{-1195}
Alt.	-430 ± 43	$12.75^{+11.05}_{-7.85}$	920^{+65}_{-102}	6196^{+5394}_{-1459}	1623^{+9572}_{-1172}

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

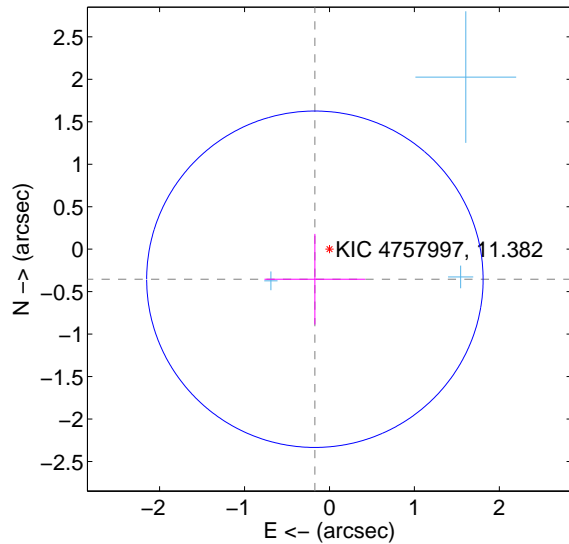
Supplemental centroid analysis for 004757997-08. **Kepler magnitude: 11.38.** Transit SNR 6.35

There are 3 quarters with good PRF difference image offsets

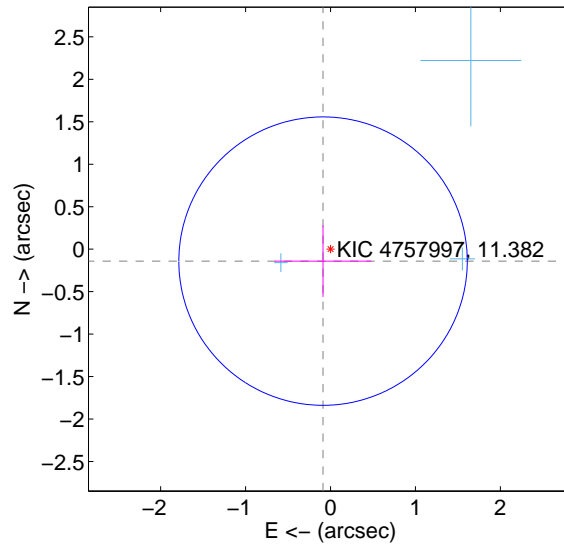
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.393 ± 0.660	0.60	0.172 ± 0.593	-0.354 ± 0.533
PRF-fit source offset from KIC position	0.166 ± 0.566	0.29	0.088 ± 0.568	-0.141 ± 0.421
photometric centroid source offset	0.46 ± 0.59	0.78	-0.46 ± 0.59	0.03 ± 0.69

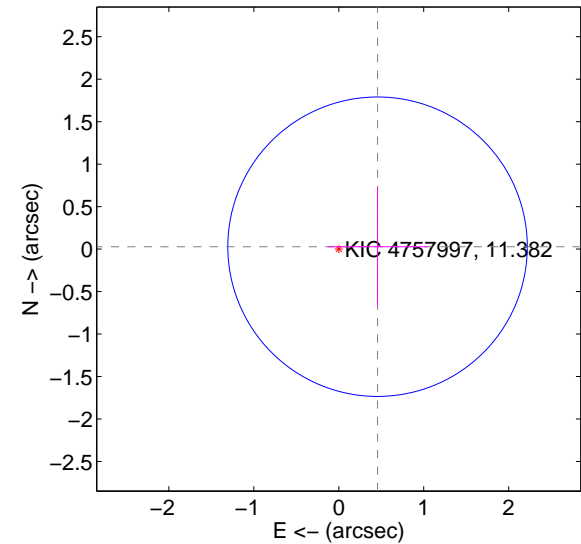
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

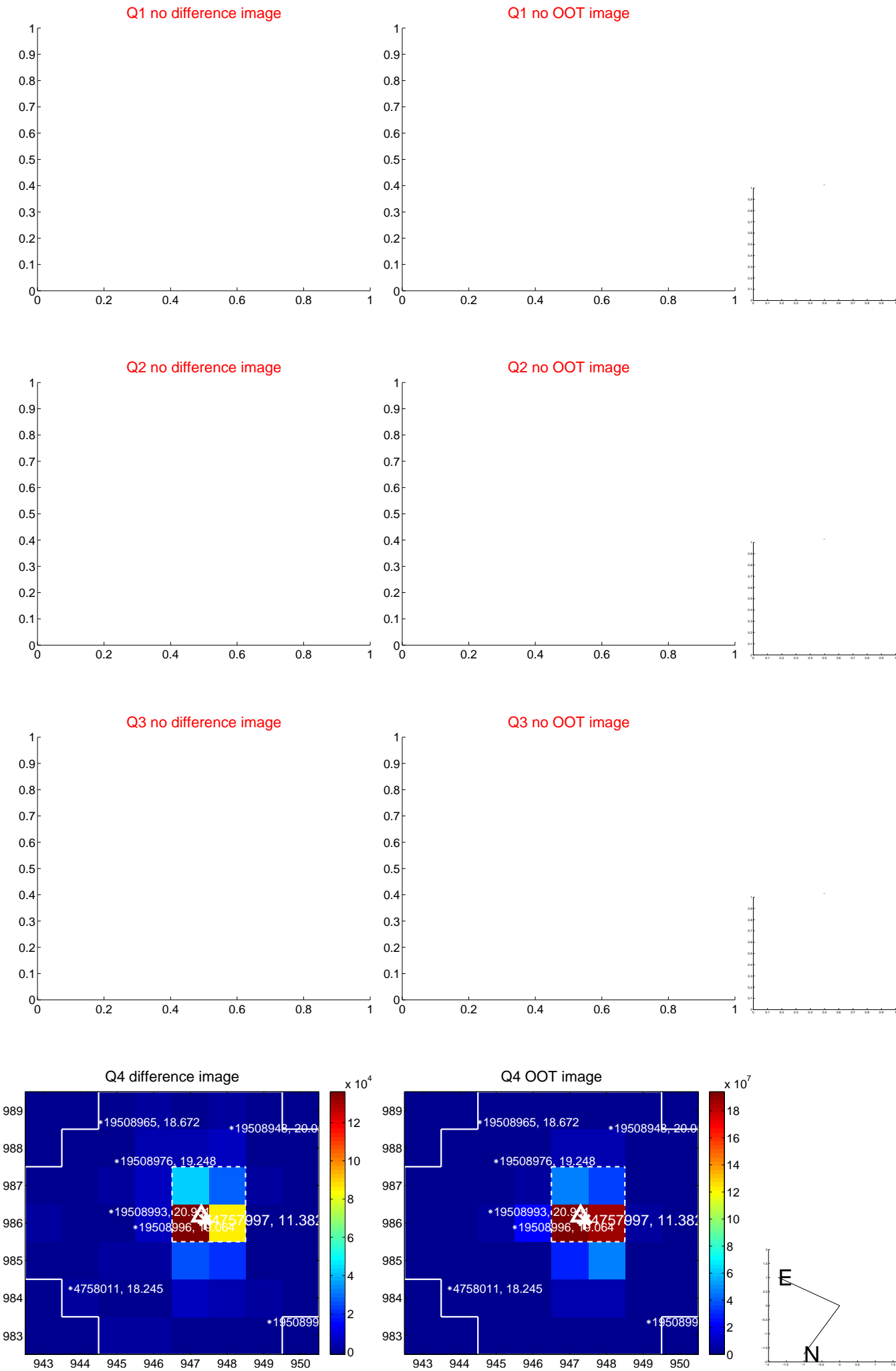


offset from photometric centroids

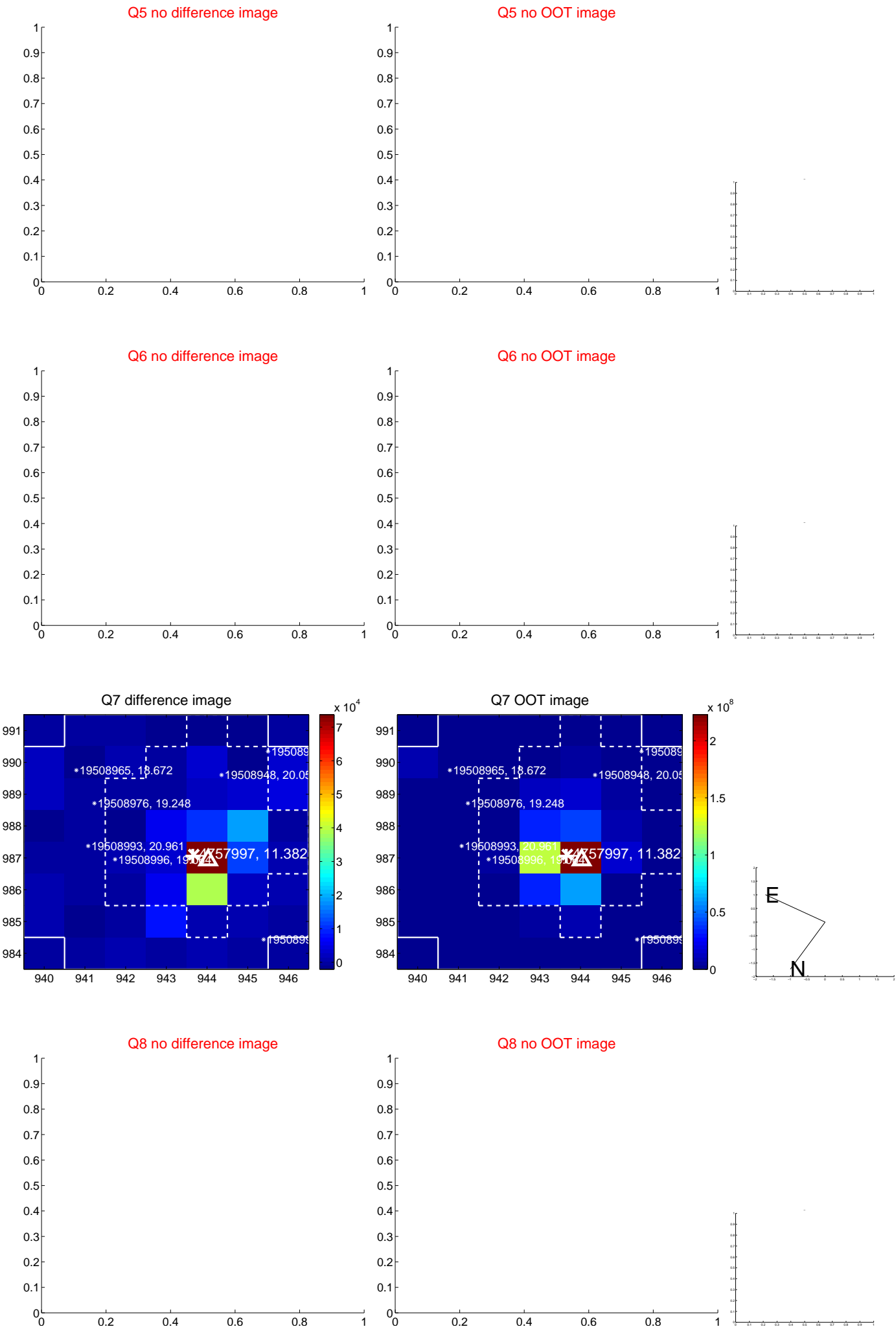


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

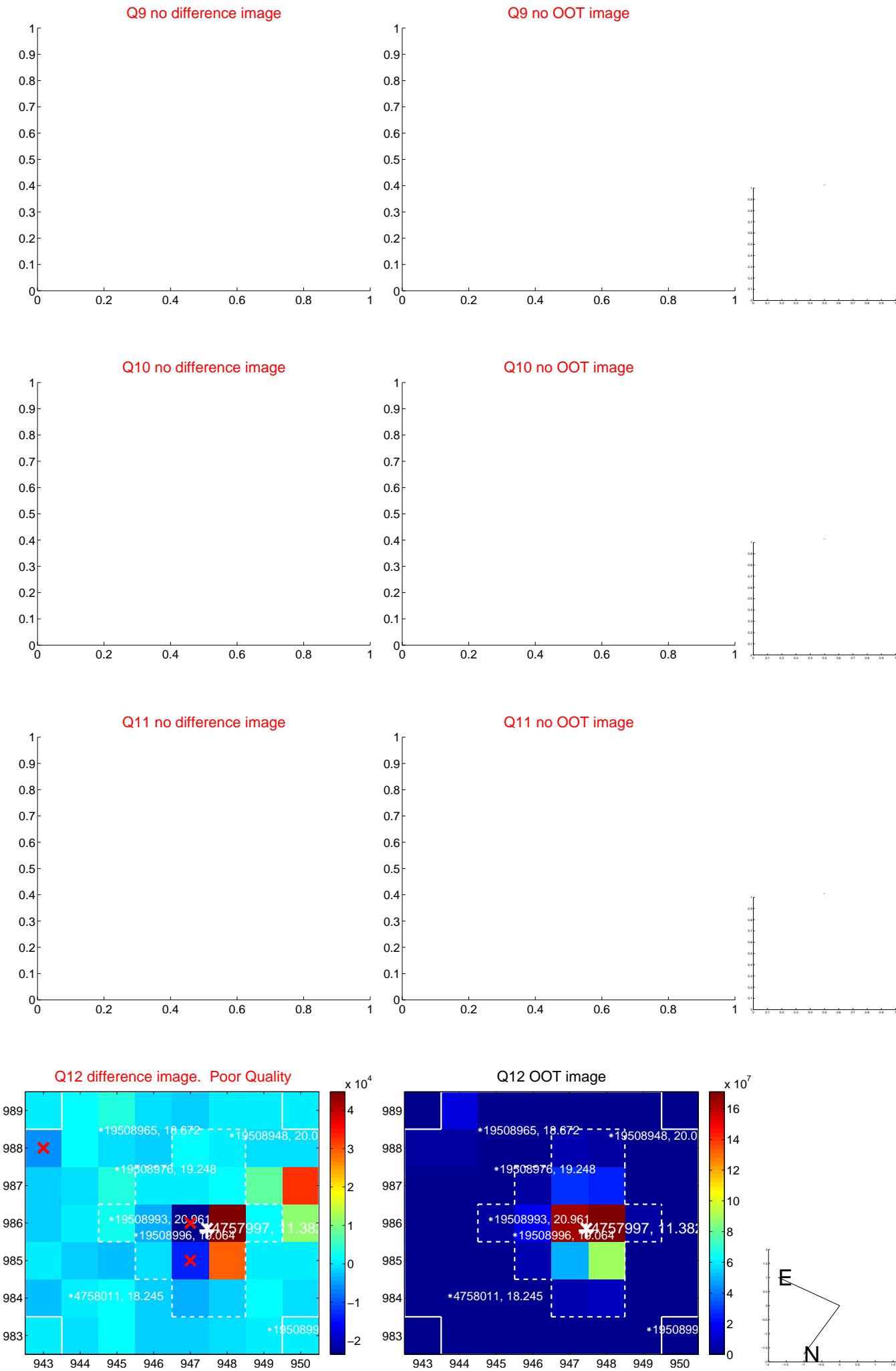
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

Q13 no difference image



Q13 no OOT image



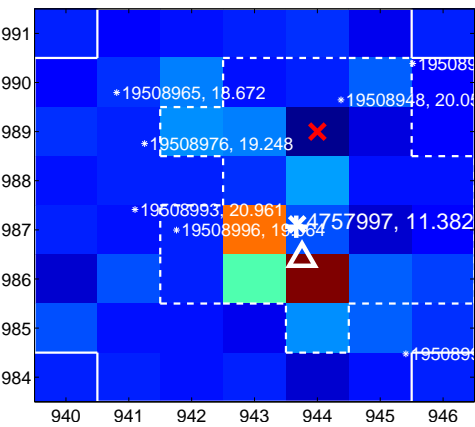
Q14 no difference image



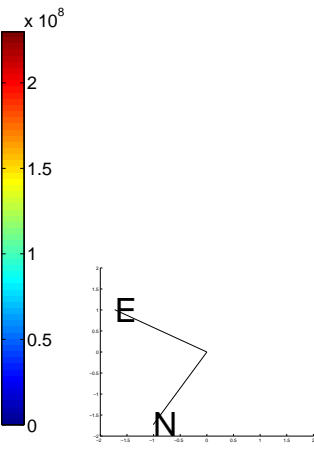
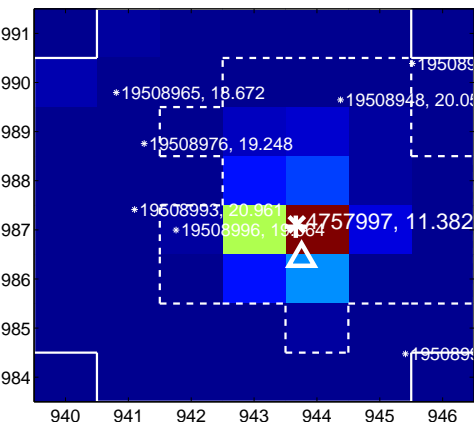
Q14 no OOT image



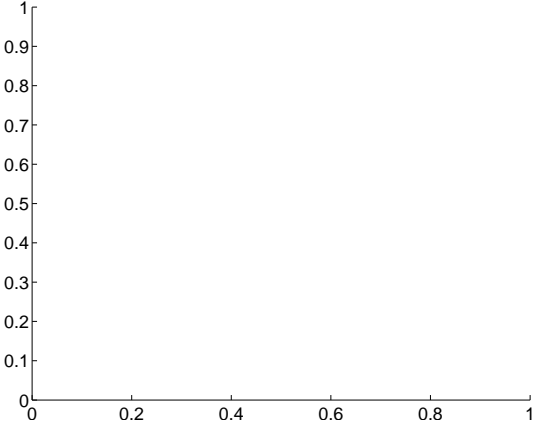
Q15 difference image



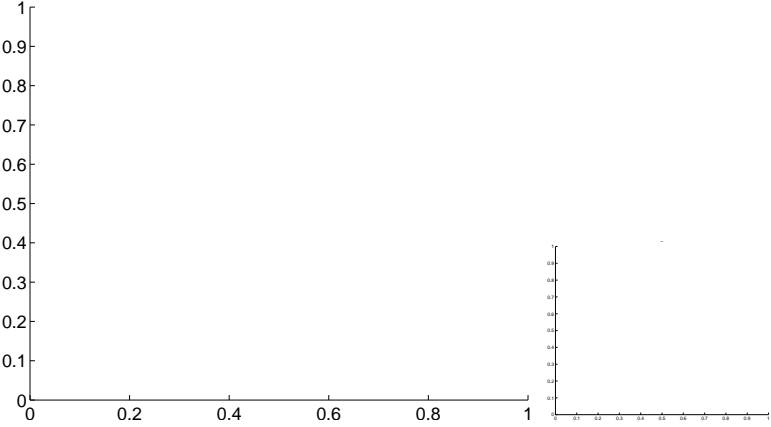
Q15 OOT image



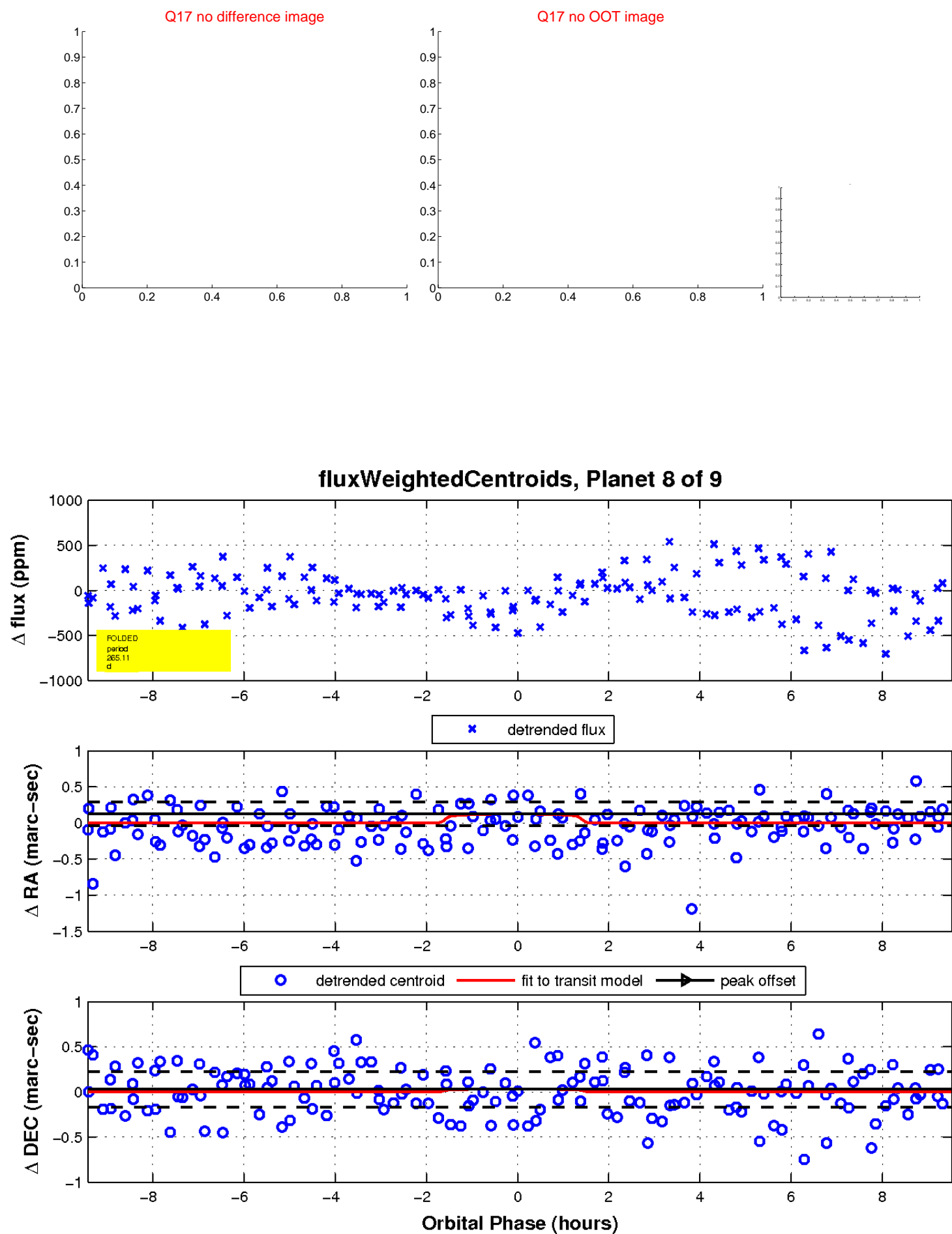
Q16 no difference image



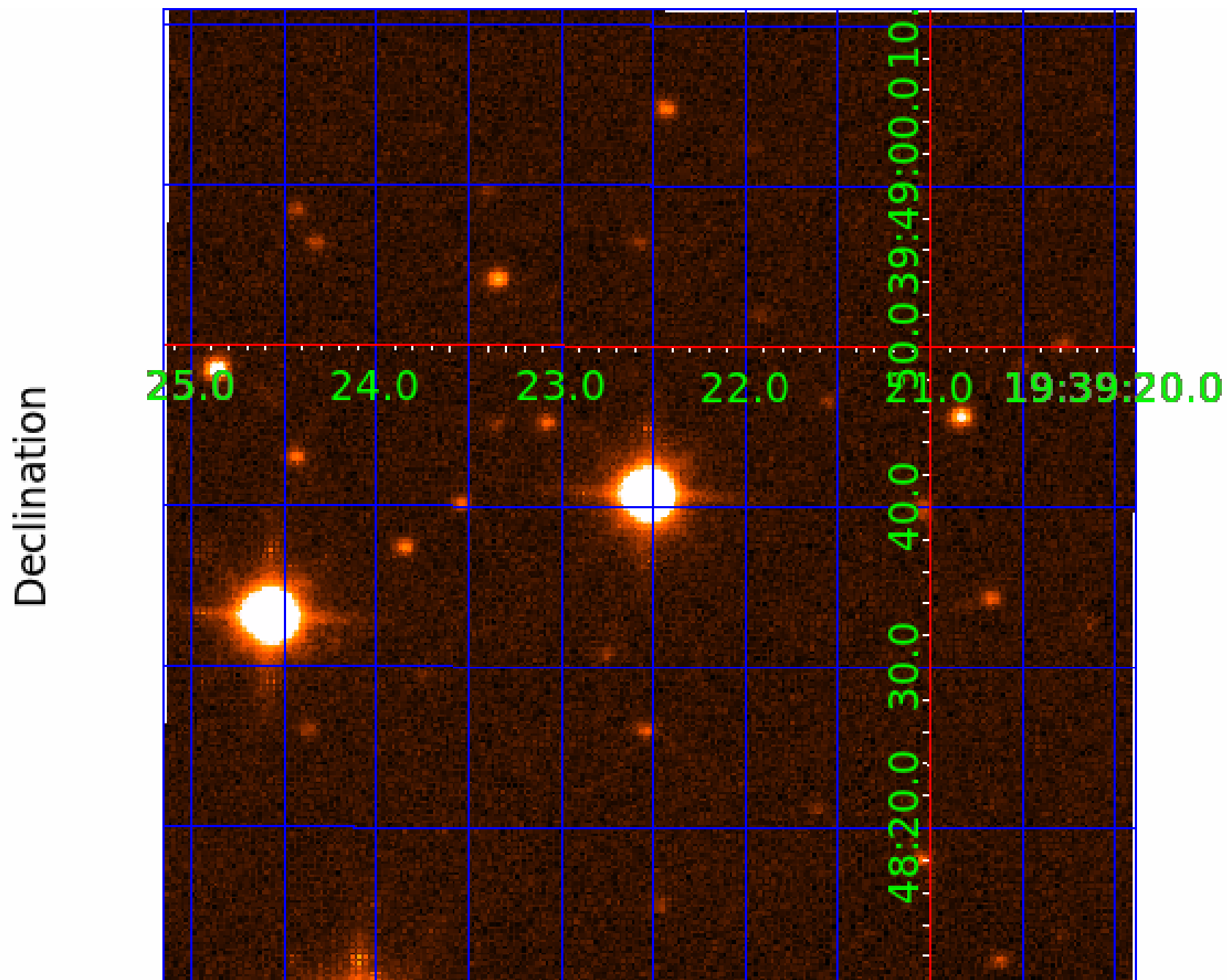
Q16 no OOT image



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



UKIRT Image



KIC 004757997

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})
004757997-01	OBS	No	0.971364	131.734108	24.8	4.192	9.2	8.1	5.01	7123	2.69	90848.87
004757997-02	OBS	No	162.232260	227.590283	362.3	12.380	8.9	6.7	5.01	7123	11.25	98.78
004757997-03	OBS	No	197.821200	151.524007	642.7	7.021	8.8	8.3	5.01	7123	22.48	75.82
004757997-05	OBS	No	114.716585	151.463704	390.4	4.932	8.1	8.3	5.01	7123	12.67	156.79
004757997-06	OBS	No	24.937261	133.170221	184.8	6.889	8.0	8.4	5.01	7123	8.40	1199.58
004757997-07	OBS	No	111.851210	221.389229	452.9	11.502	9.3	9.0	5.01	7123	20.18	162.17
004757997-08	OBS	No	265.113952	378.057033	273.0	3.177	8.9	6.4	5.01	7123	9.21	51.32
004757997-09	OBS	No	69.410357	154.726924	95.8	6.000	8.3	-1.0	5.01	7123	4.96	306.38

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004757997-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-02	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
004757997-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
004757997-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004757997-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED

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

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

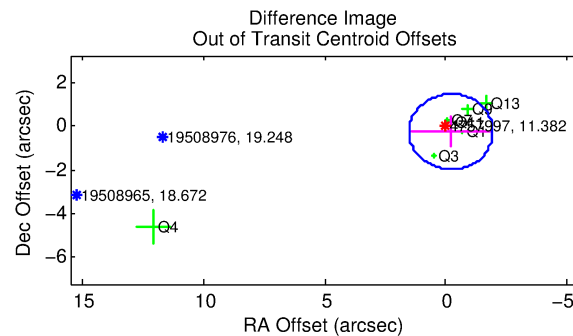
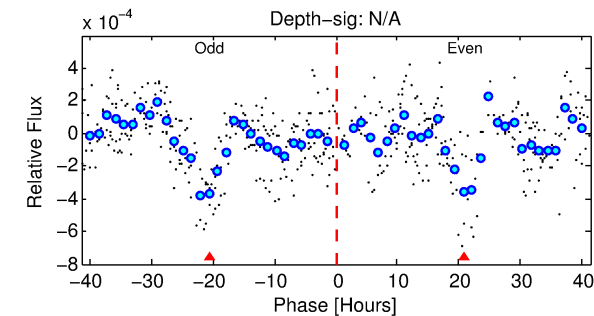
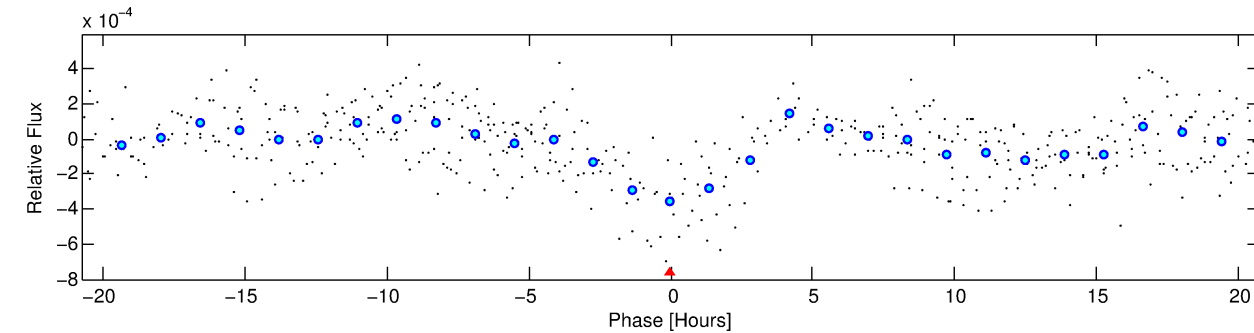
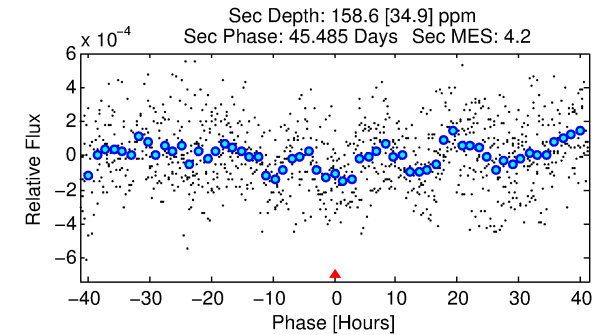
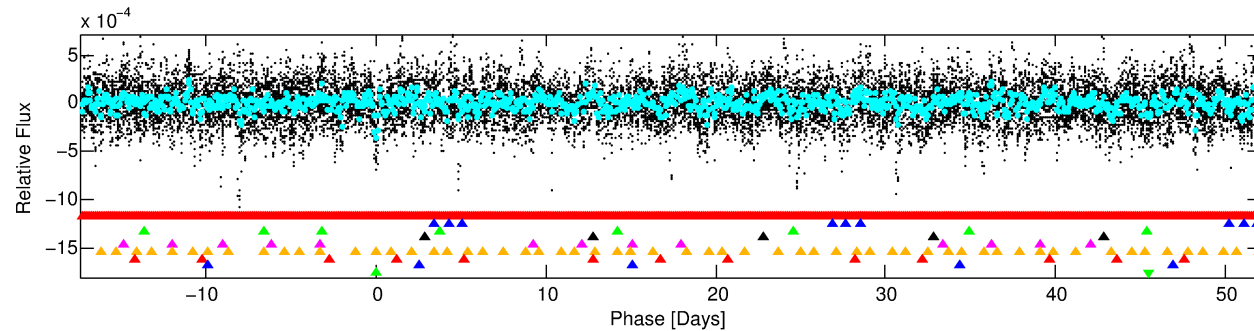
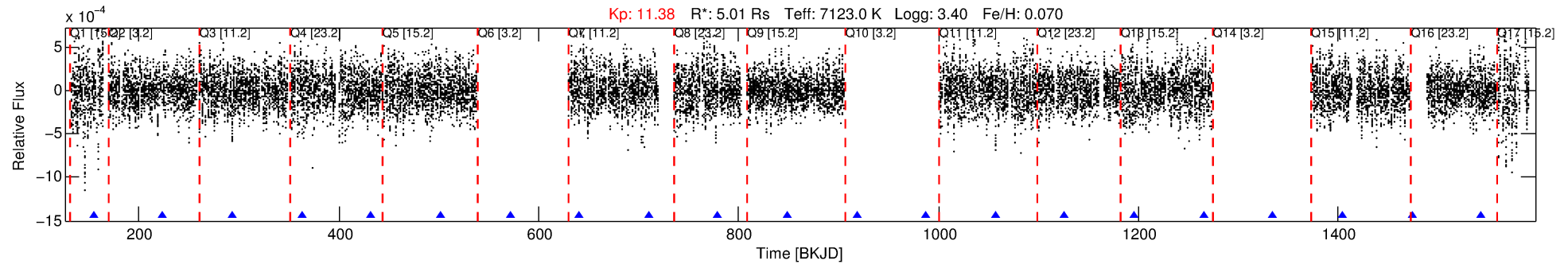
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004757997-09

No Significant Match Found

DV One-Page Summary

KIC: 4757997 Candidate: 9 of 9 Period: 69.410 d



TPS TCE Results:

Period = 69.41036 d
Epoch = 154.7269 BKJD

DV fit results are unavailable

DV Diagnostic Results:

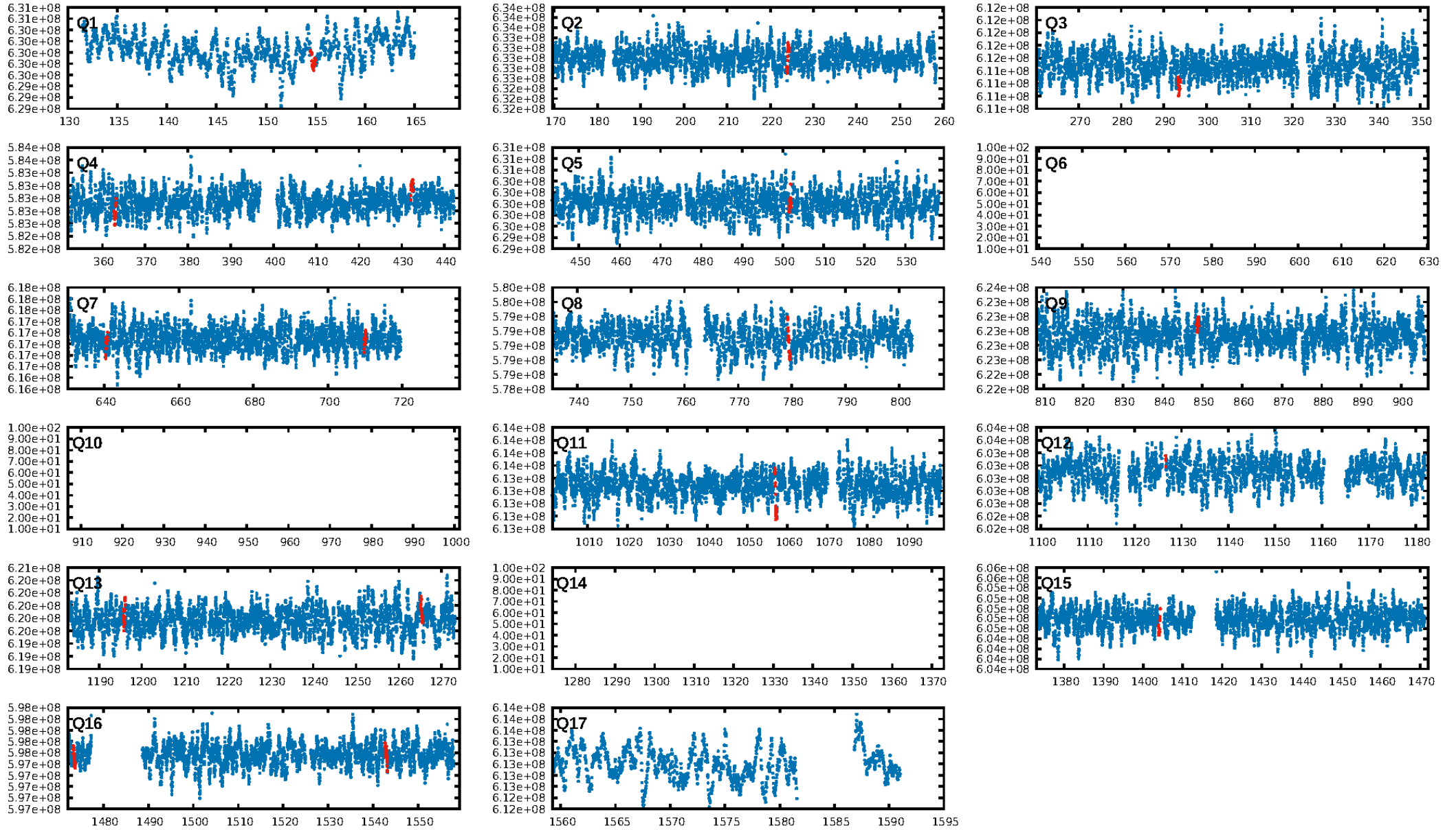
ShortPeriod-sig: 100.0% [116.83σ]
LongPeriod-sig: 100.0% [78.52σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 1.975

Centroid-sig: 95.6%
Centroid-so: 0.119 arcsec [0.88σ]
OotOffset-rm: 0.328 arcsec [0.57σ]
KicOffset-rm: 0.274 arcsec [0.18σ]
OotOffset-st: 0/3/1/3 [7]
KicOffset-st: 0/3/1/3 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/10]

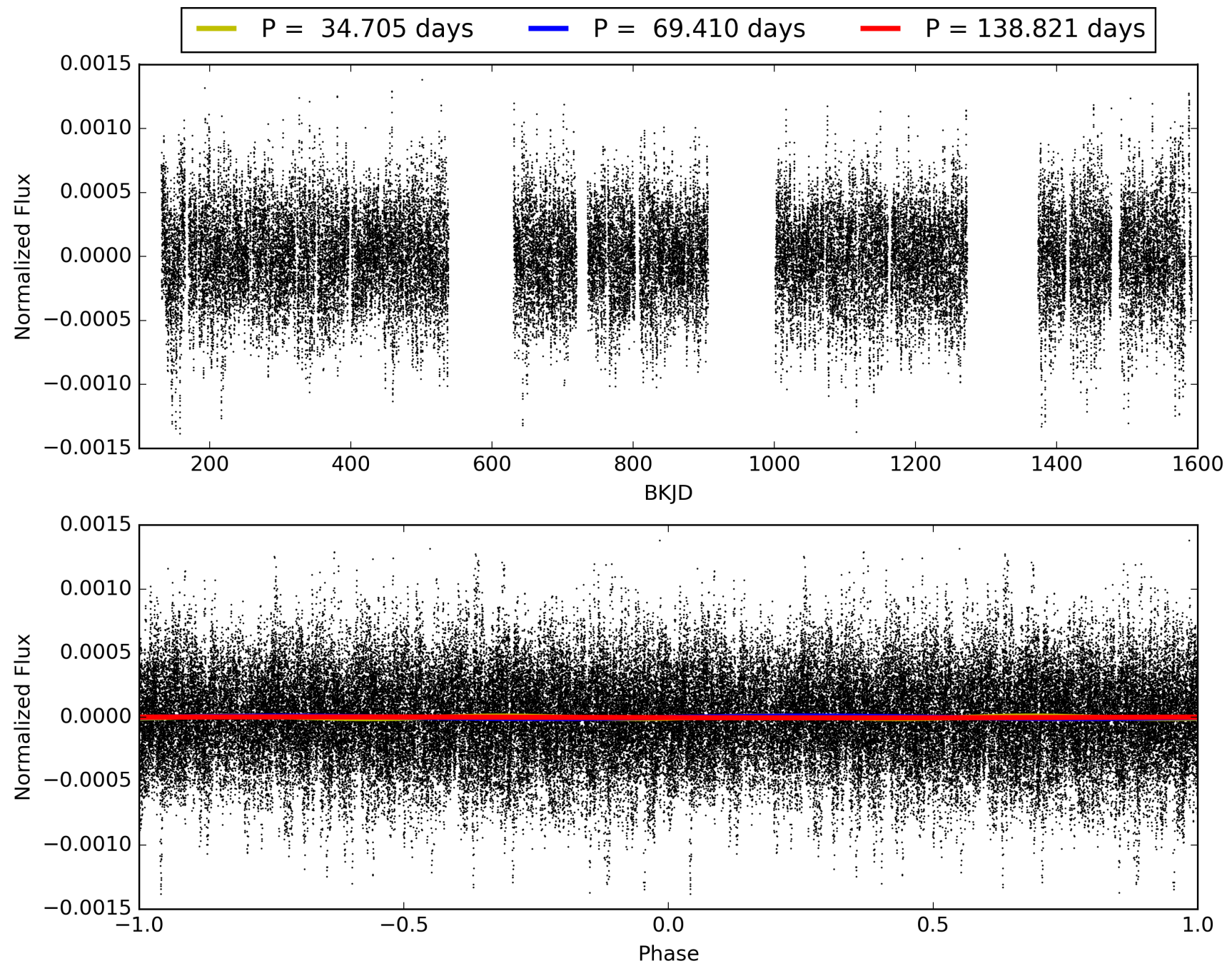
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:47:45 Z

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

TCE 004757997-09, PDC Light Curves

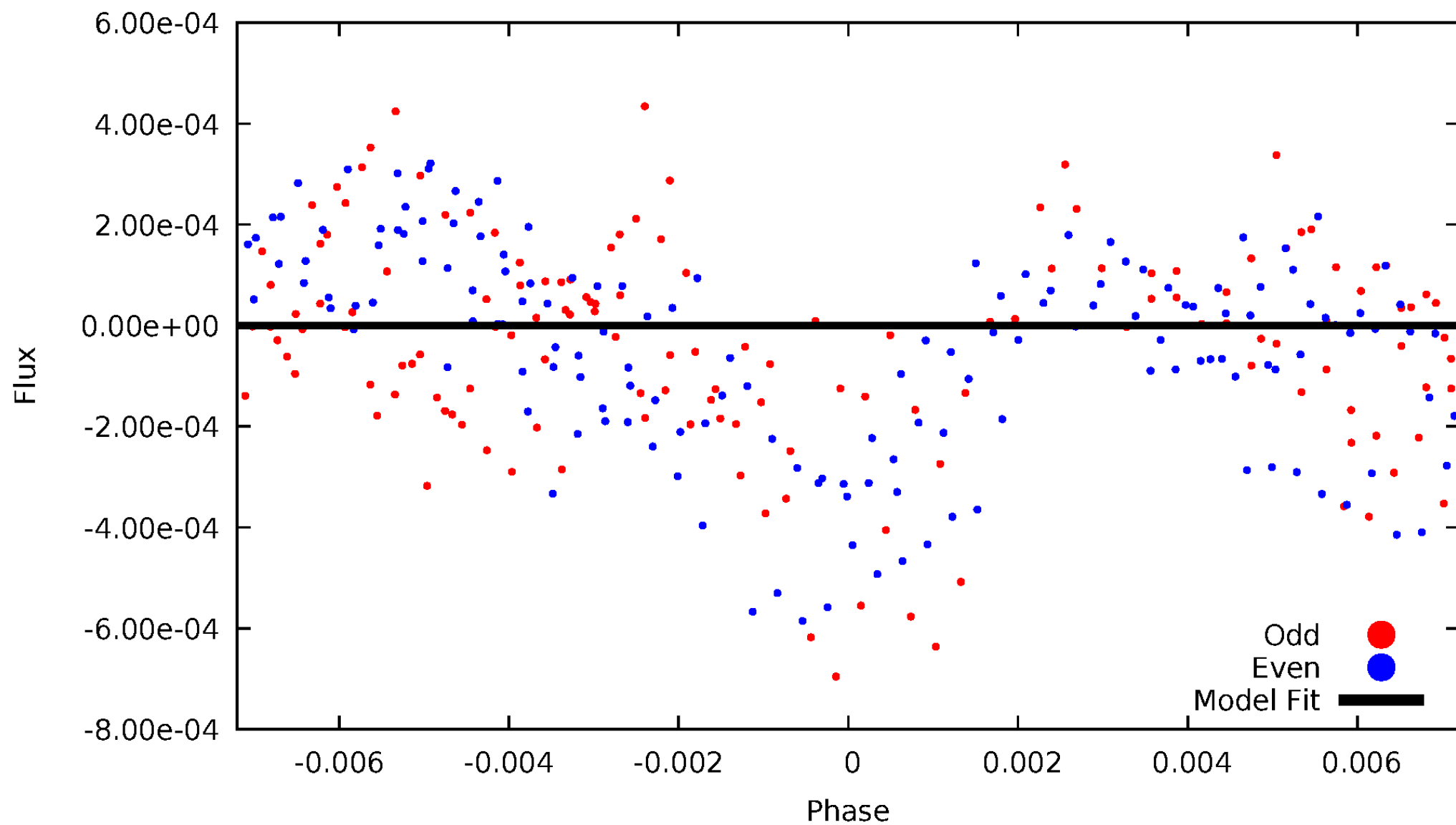


TCE 004757997-09



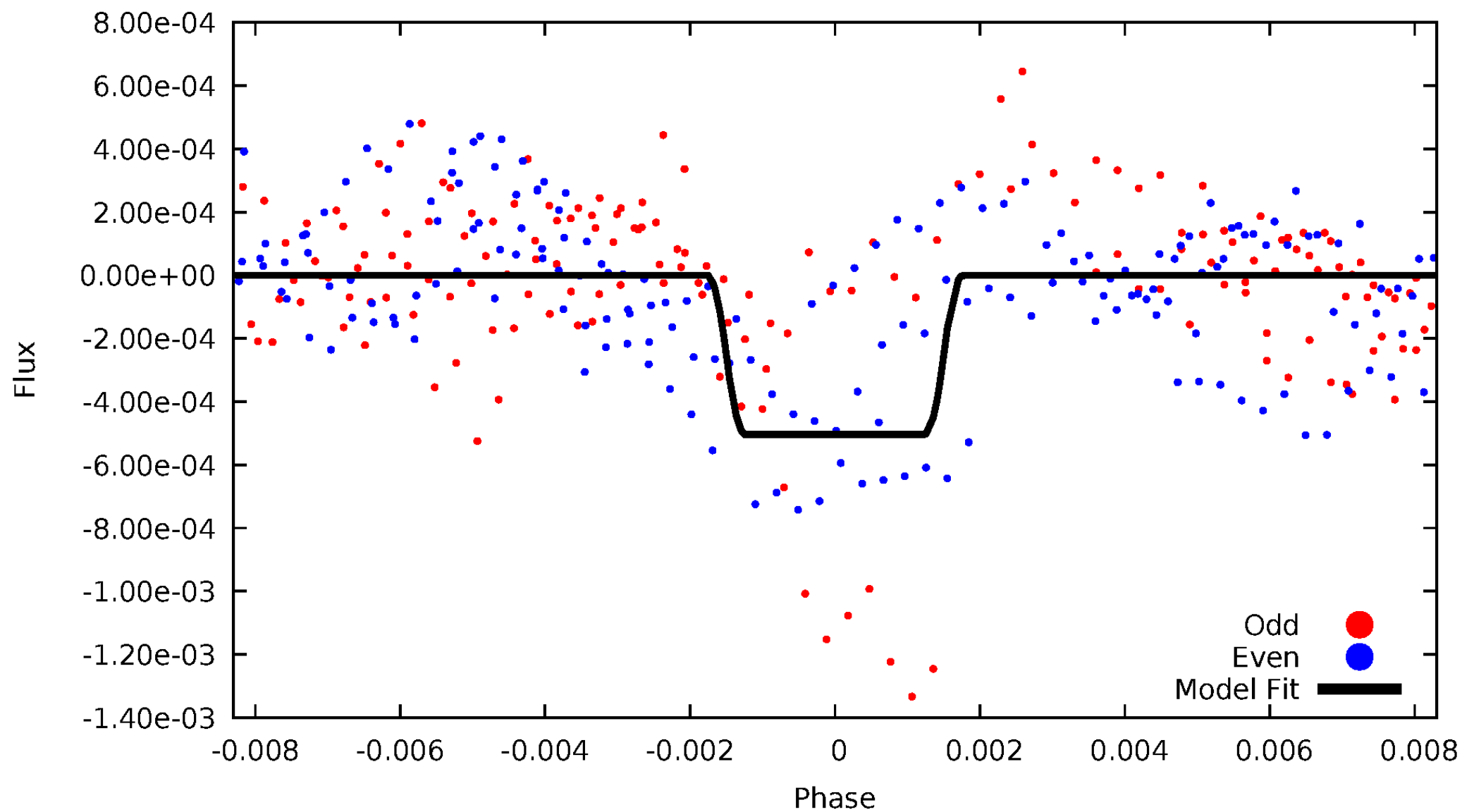
DV Odd/Even

TCE 004757997-09

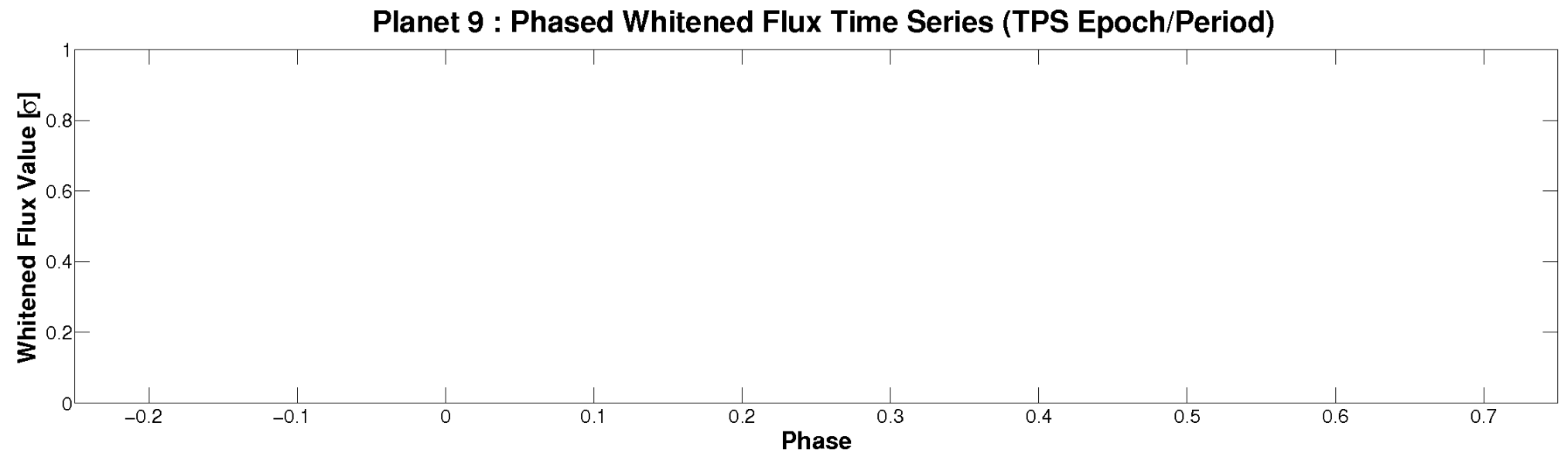
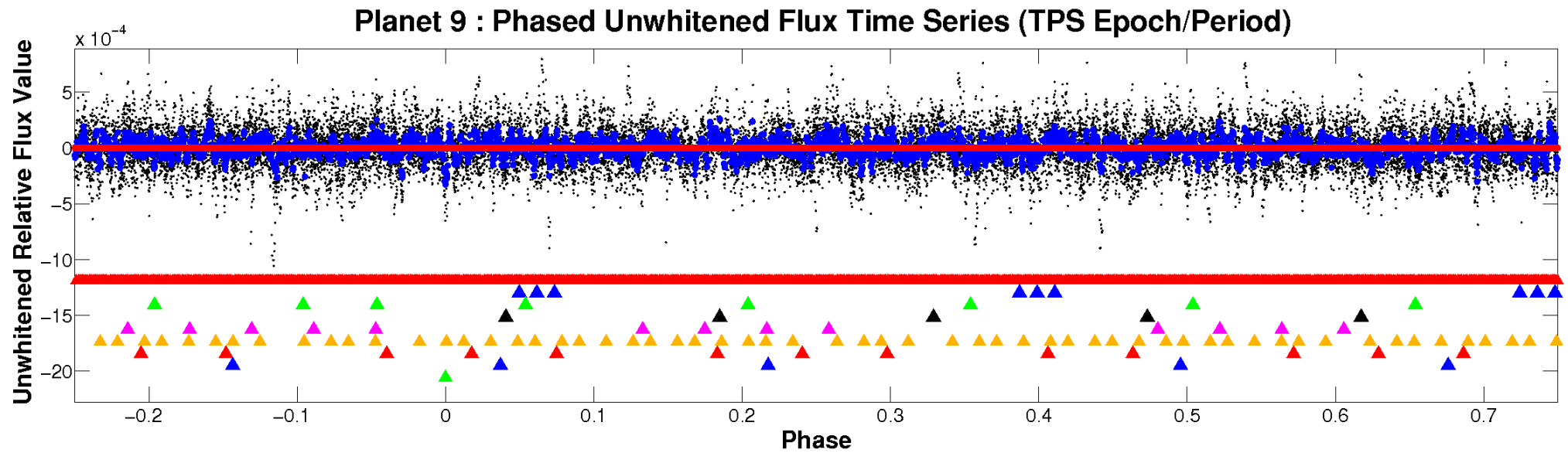


ALT Odd/Even

TCE 004757997-09

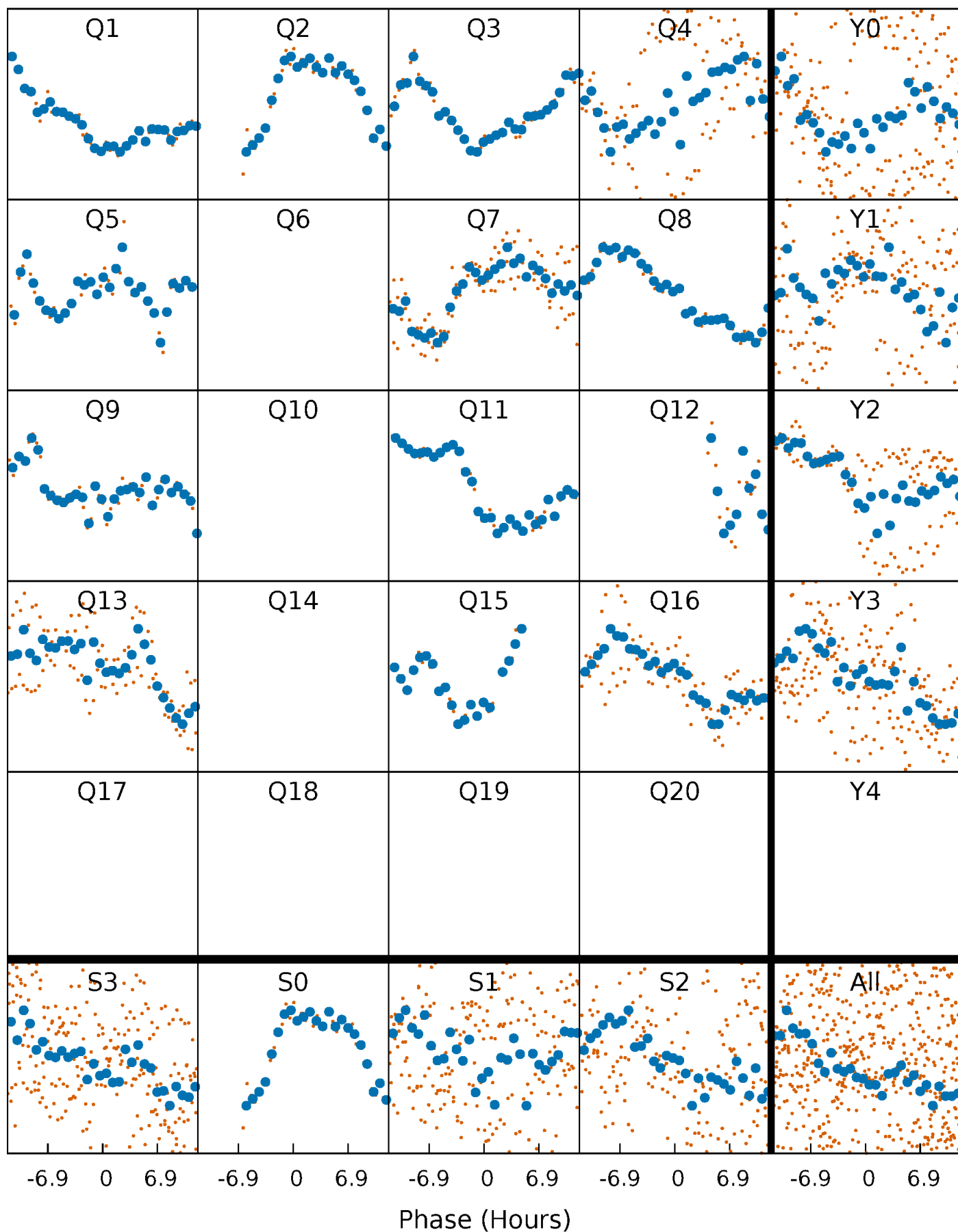


Non-Whitened Vs. Whitened Light Curve



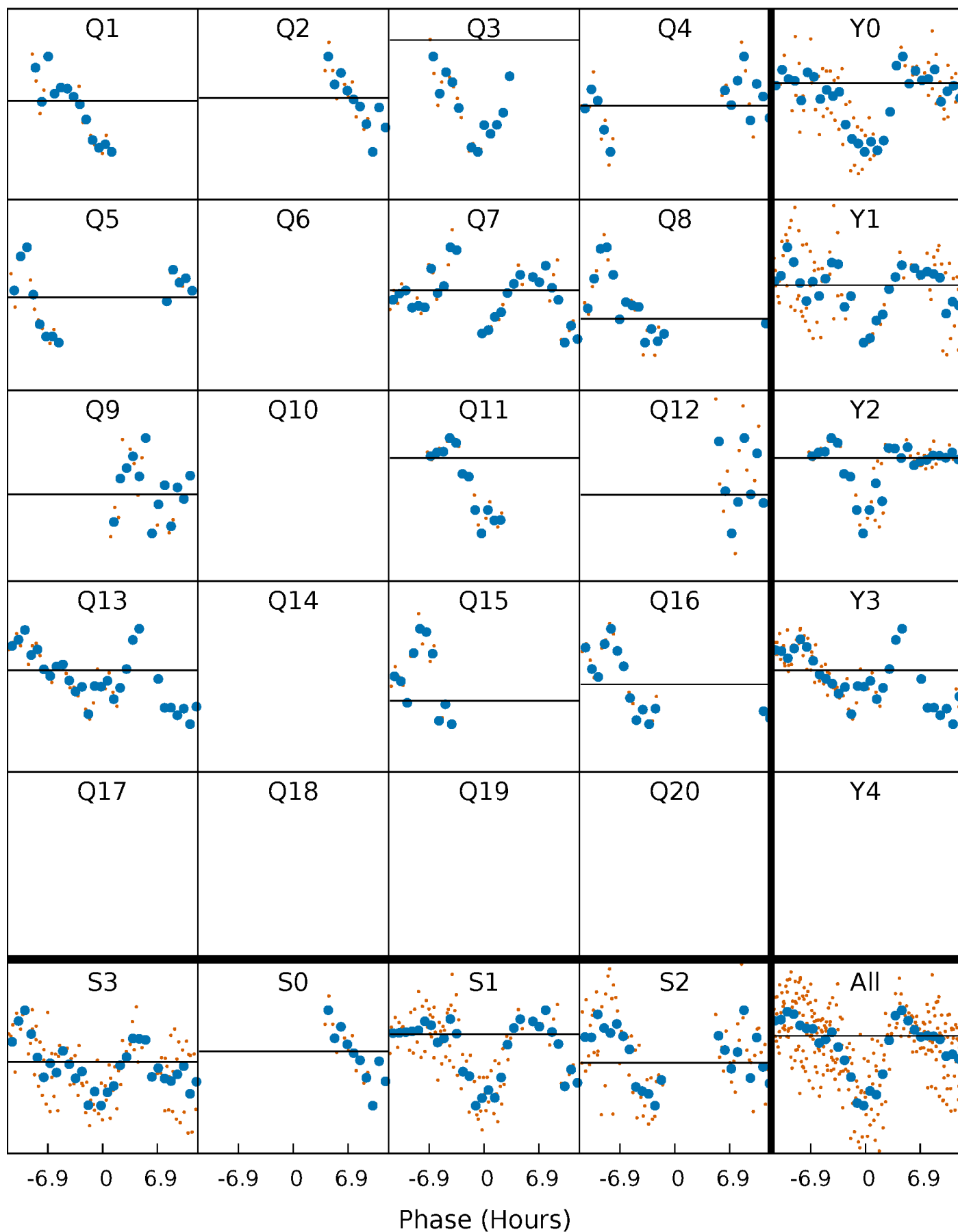
PDC Quarter-Phased Transit Curves

TCE 004757997-09 $P = 69.410357$ Days $T_0 = 154.726924$ (BKJD)



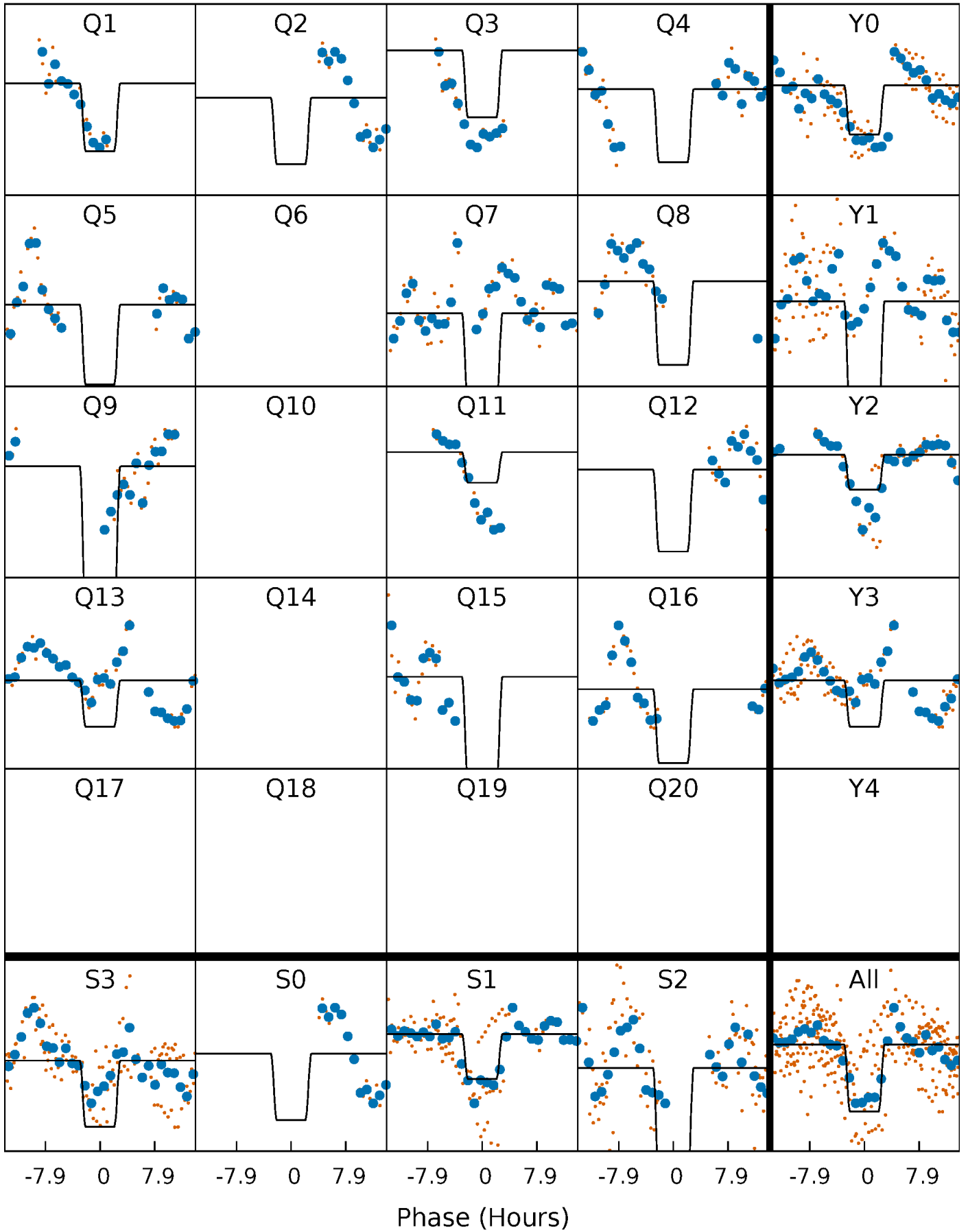
DV Quarter-Phased Transit Curves

TCE 004757997-09 $P = 69.410357$ Days $T_0 = 154.726924$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

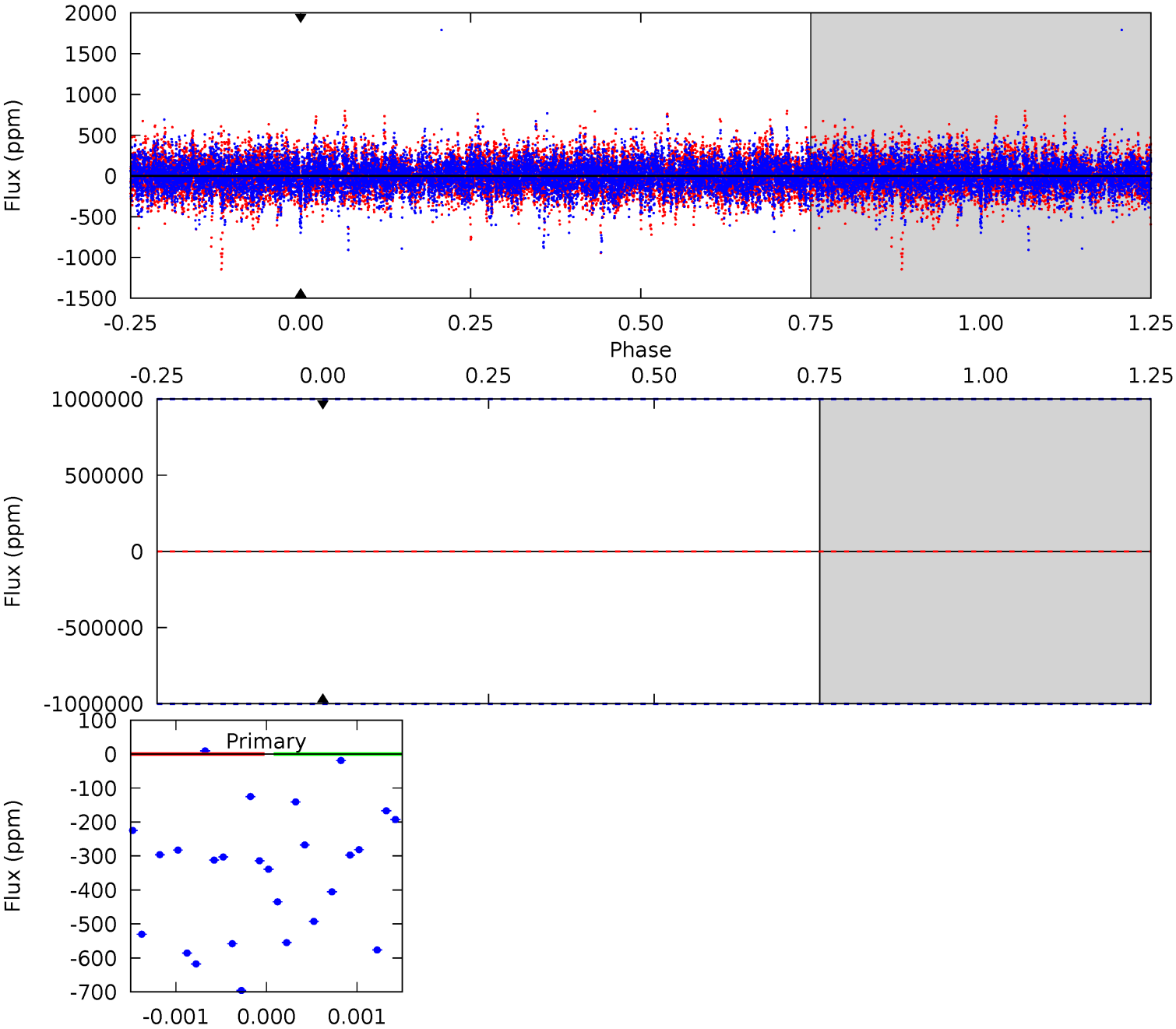
TCE 004757997-09 P= 69.410357 Days $T_0=154.724823$ (BKJD)



DV Model-Shift Uniqueness Test

004757997-09, P = 69.410357 Days, E = 85.316567 Days

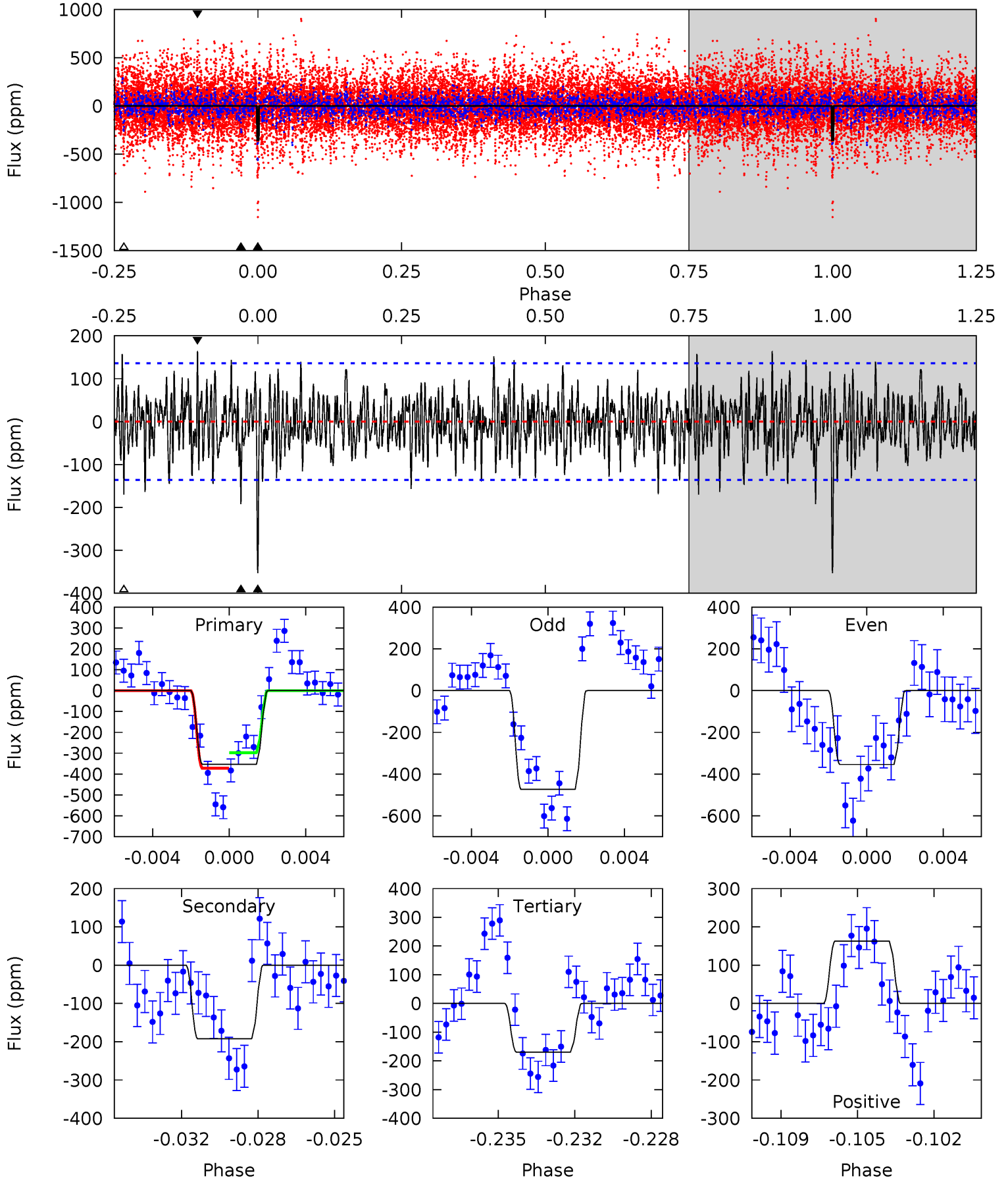
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004757997-09, P = 69.410357 Days, E = 85.314466 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	7.38	6.51	6.27	5.22	2.92	1.98	7.04	7.29	0.87	1.11	2.34	1.75	0.32	1.42



Stellar Parameters For KIC 004757997

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7123^{+168}_{-252}	$3.395^{+0.392}_{-0.098}$	$0.070^{+0.250}_{-0.250}$	$5.011^{+1.359}_{-2.209}$	$2.275^{+0.155}_{-0.464}$	$0.025^{+0.090}_{-0.009}$
	+2%/-4%	+12%/-3%	+357%/-357%	+27%/-44%	+7%/-20%	+352%/-37%
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 004757997-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$33.70^{+38.56}_{-23.63}$	1433^{+109}_{-156}	-5728^{+42626}_{-24227}	$-177.298^{+17964.818}_{-10788.551}$
Alt.	-192 ± 26	$36.15^{+40.89}_{-26.07}$	1426^{+111}_{-174}	3481^{+2206}_{-688}	15^{+170}_{-12}

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

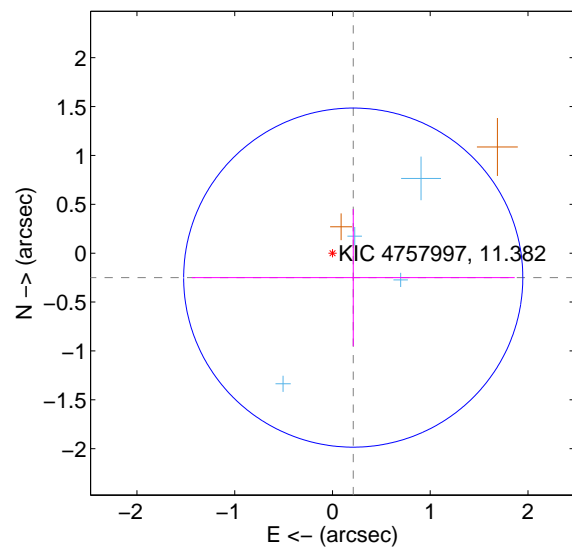
Supplemental centroid analysis for 004757997-09. **Kepler magnitude: 11.38.** Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

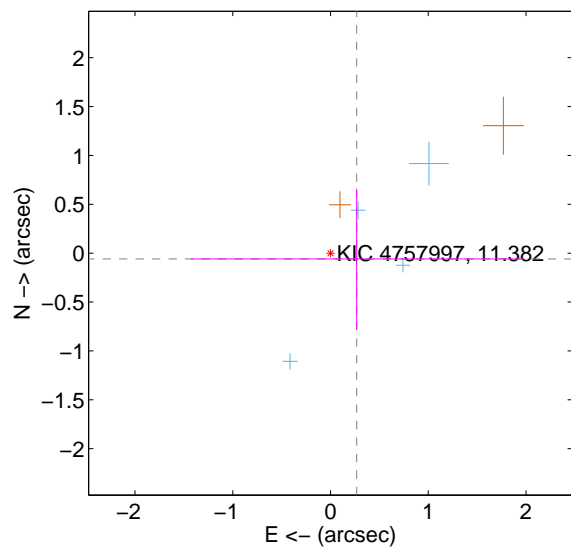
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.328 ± 0.578	0.57	-0.212 ± 1.651	-0.250 ± 0.701
PRF-fit source offset from KIC position	0.274 ± 1.510	0.18	-0.268 ± 1.694	-0.059 ± 0.717
photometric centroid source offset	0.12 ± 0.13	0.88	0.01 ± 0.13	0.12 ± 0.13

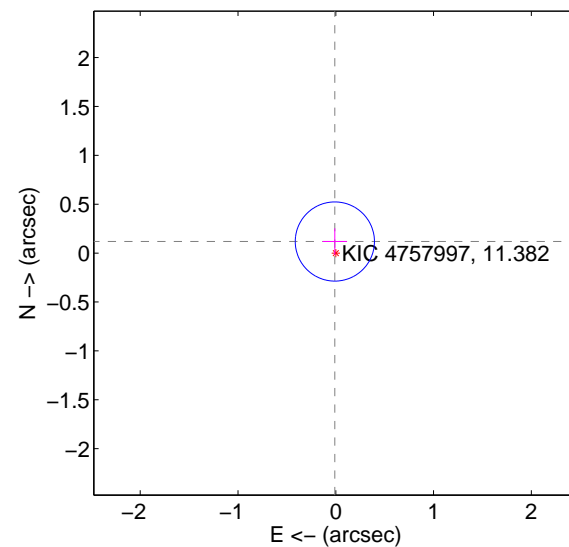
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

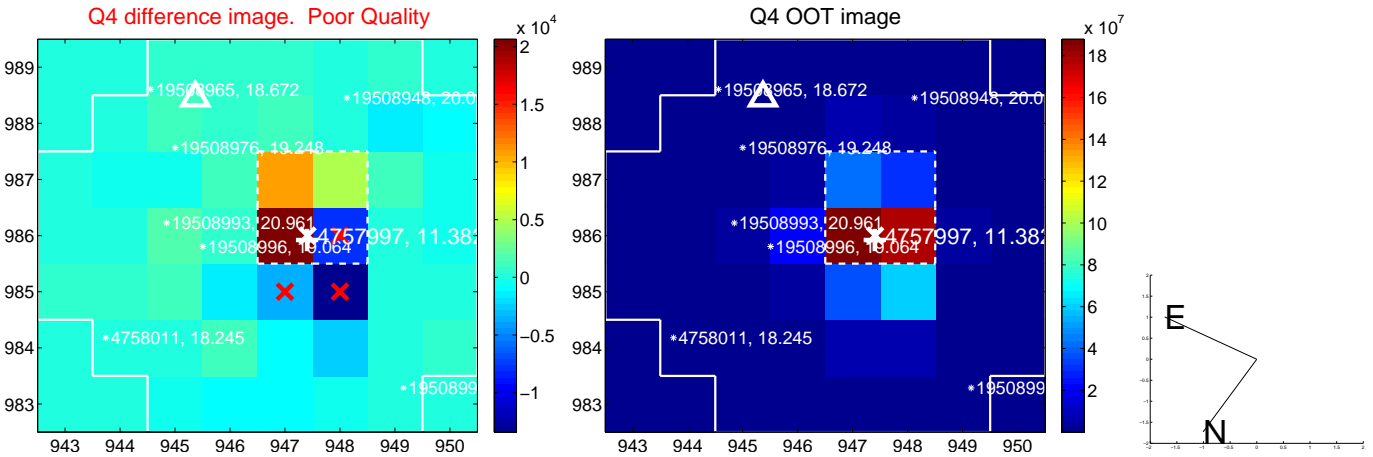
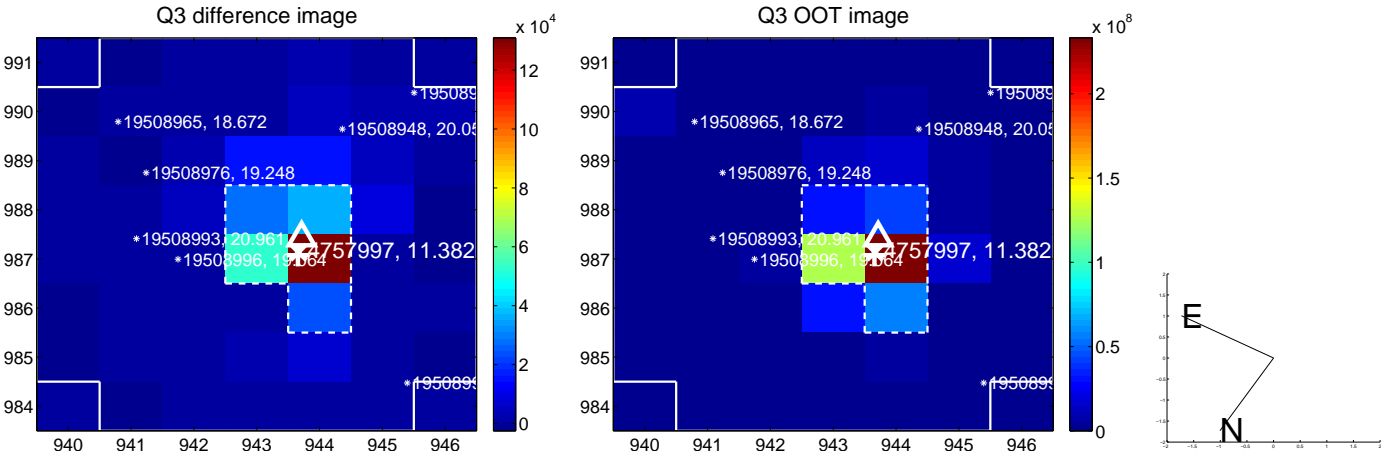
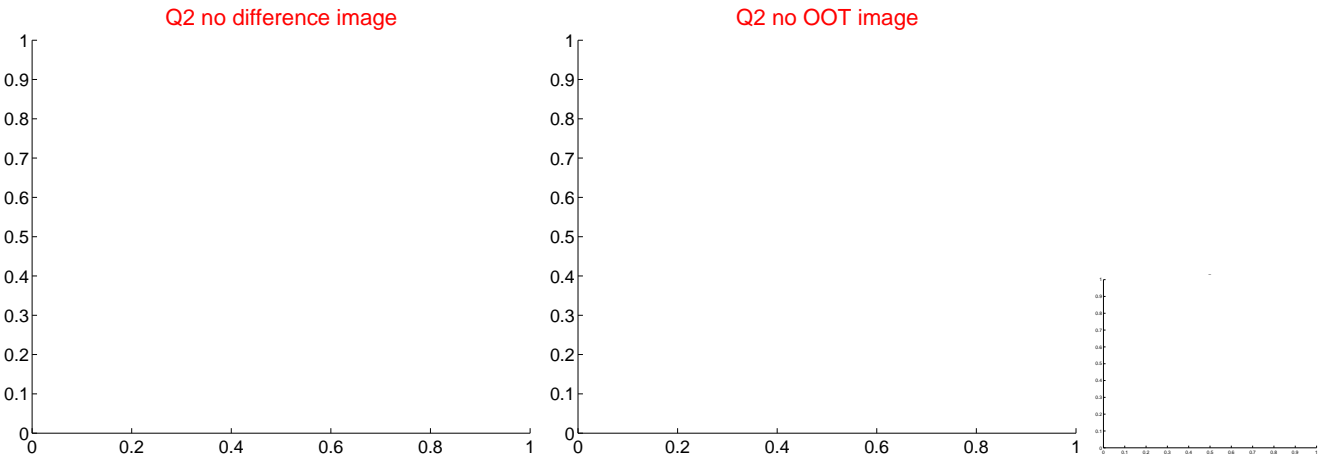
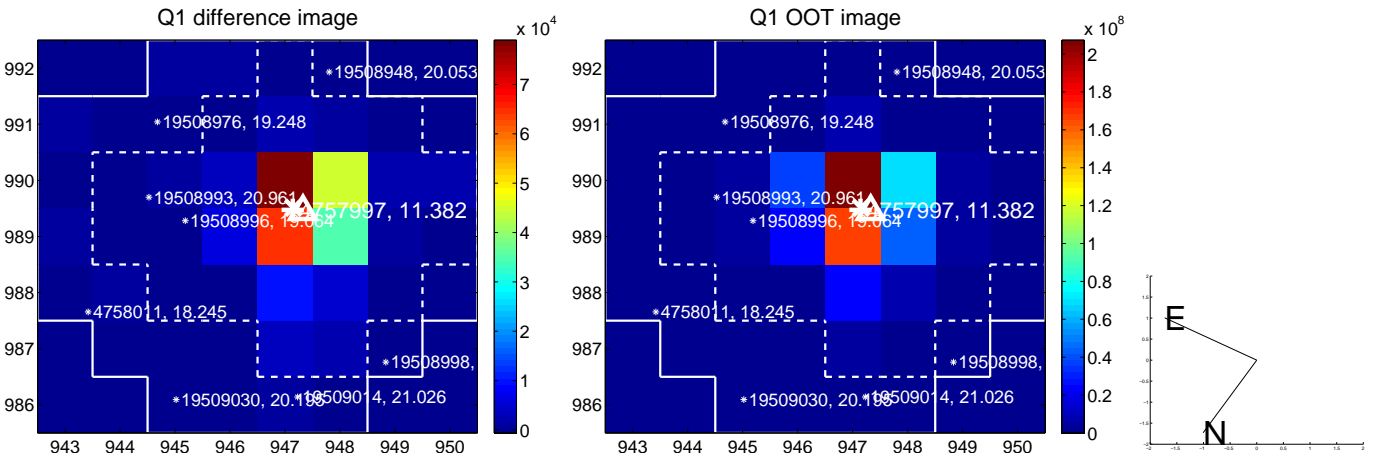


offset from photometric centroids

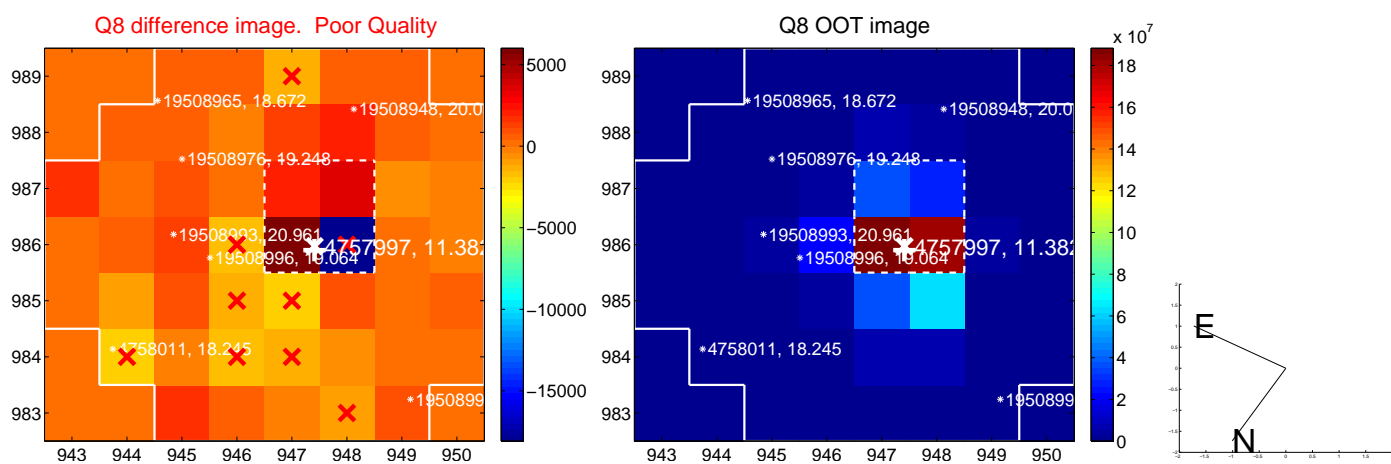
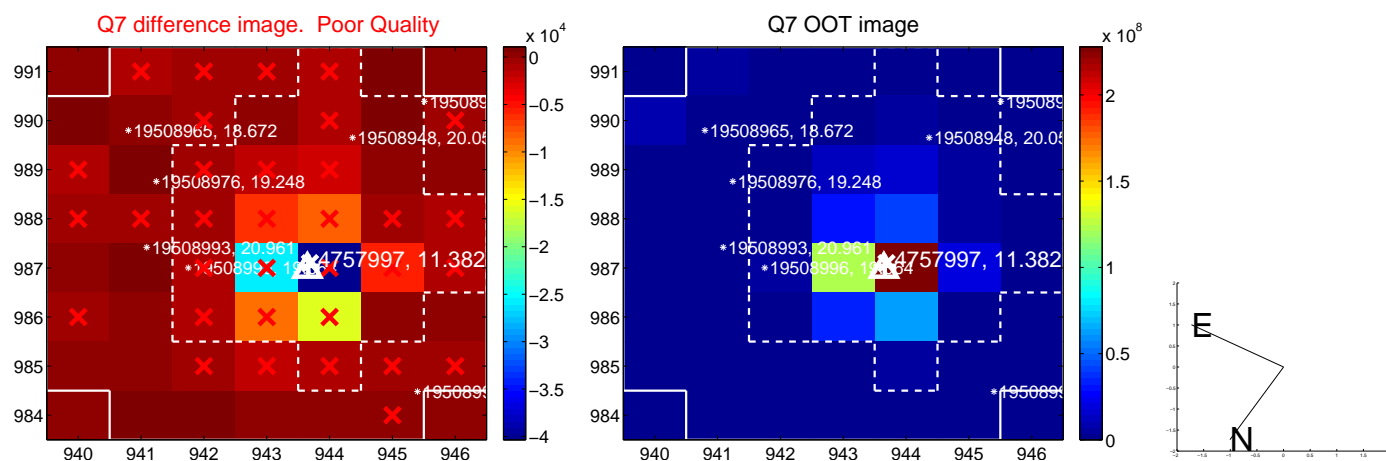
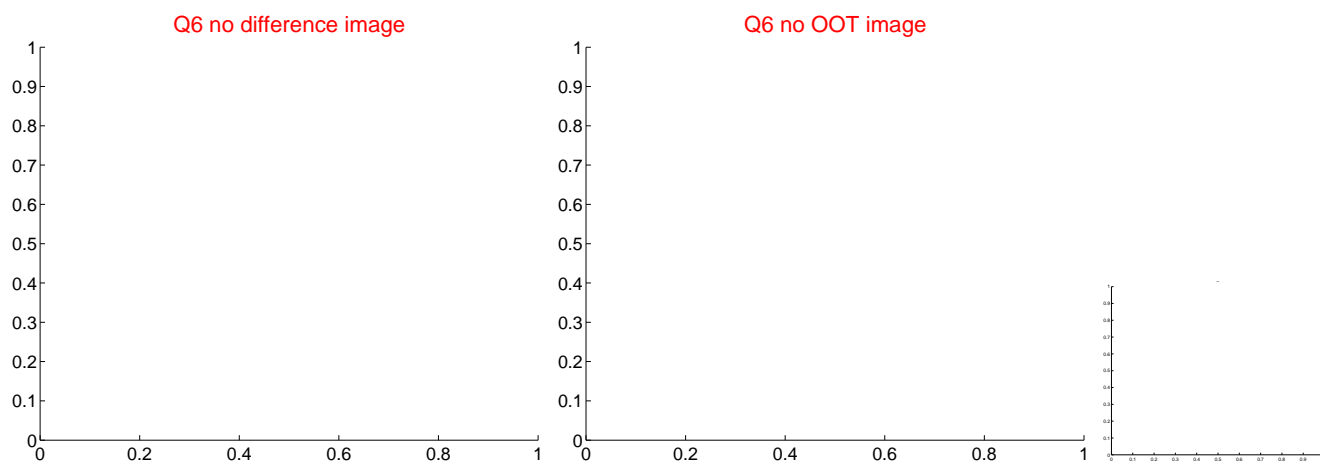
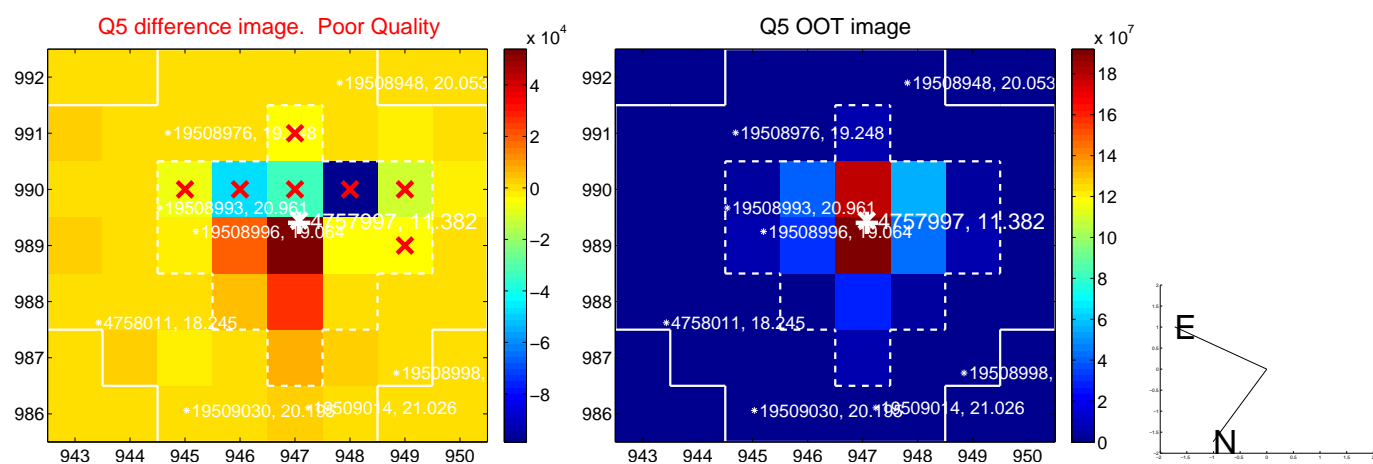


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

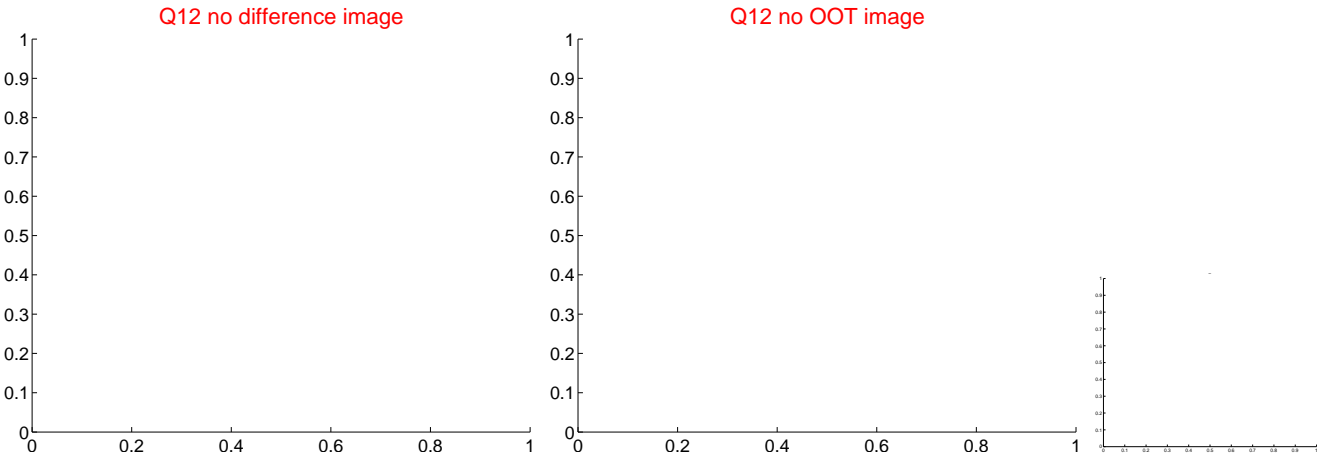
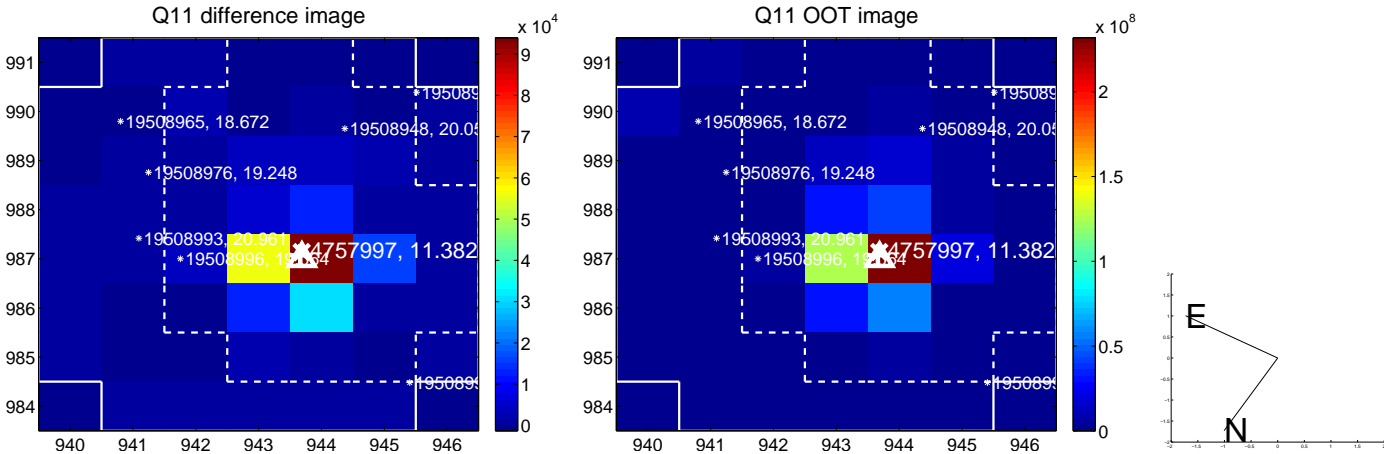
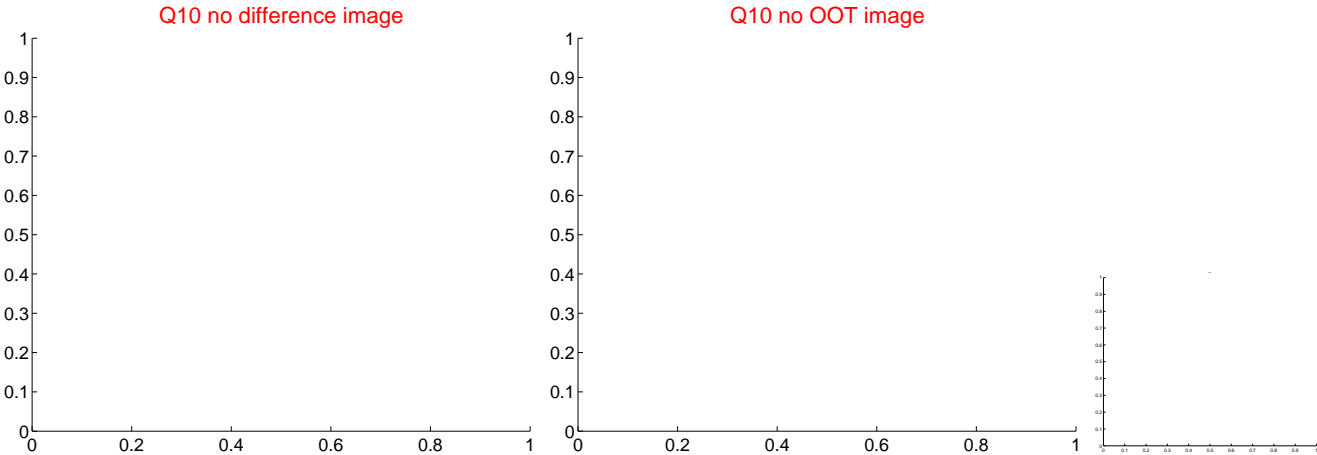
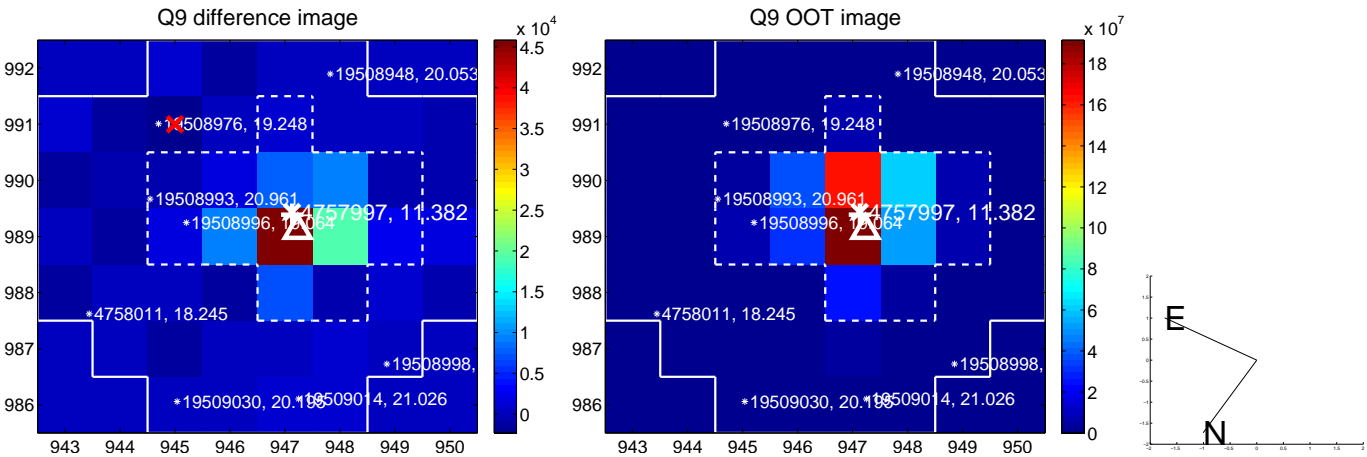
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



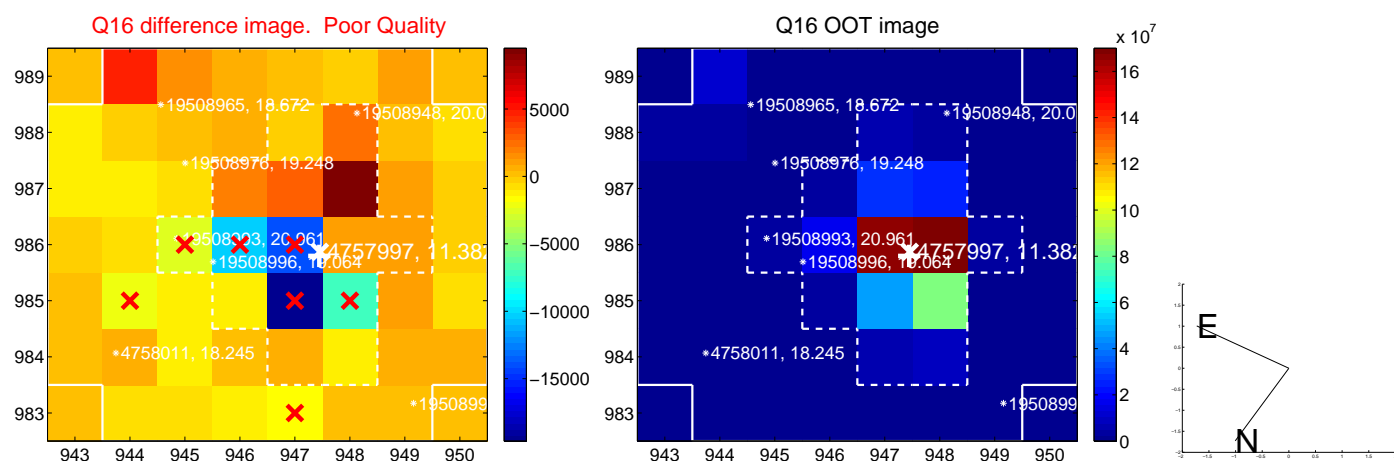
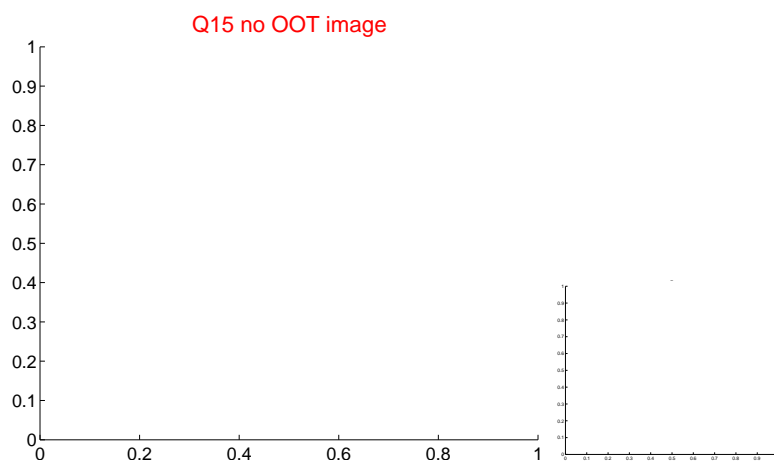
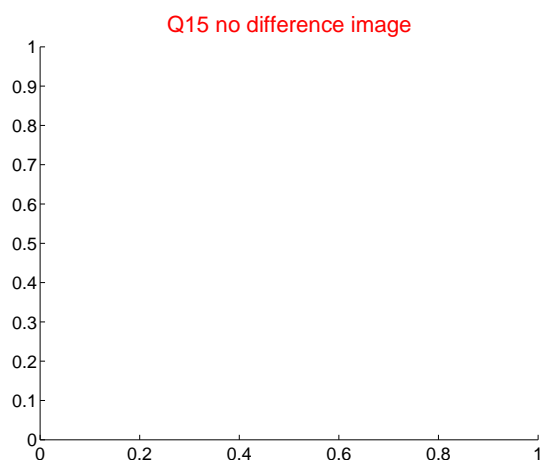
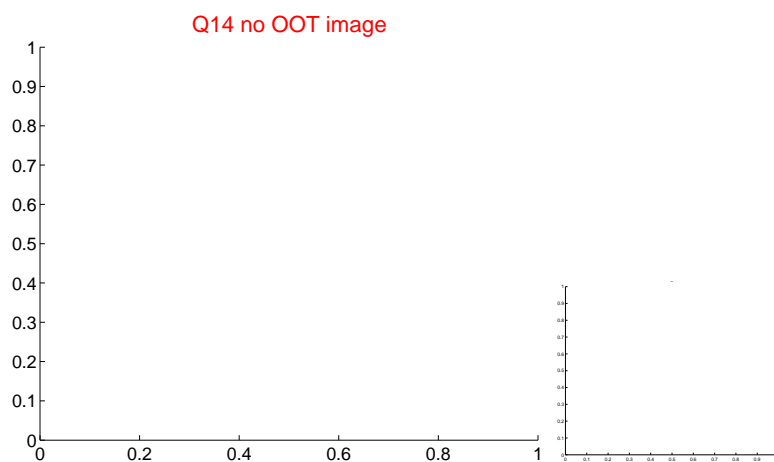
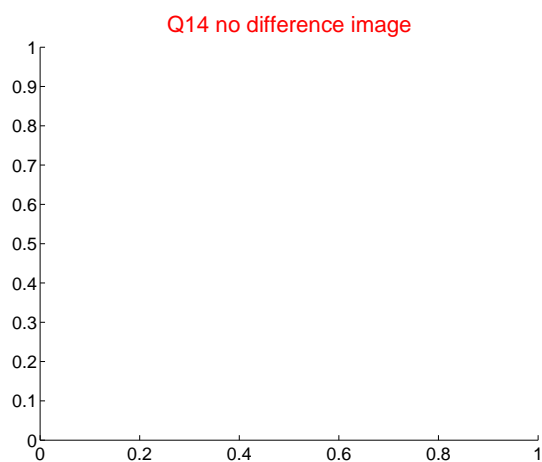
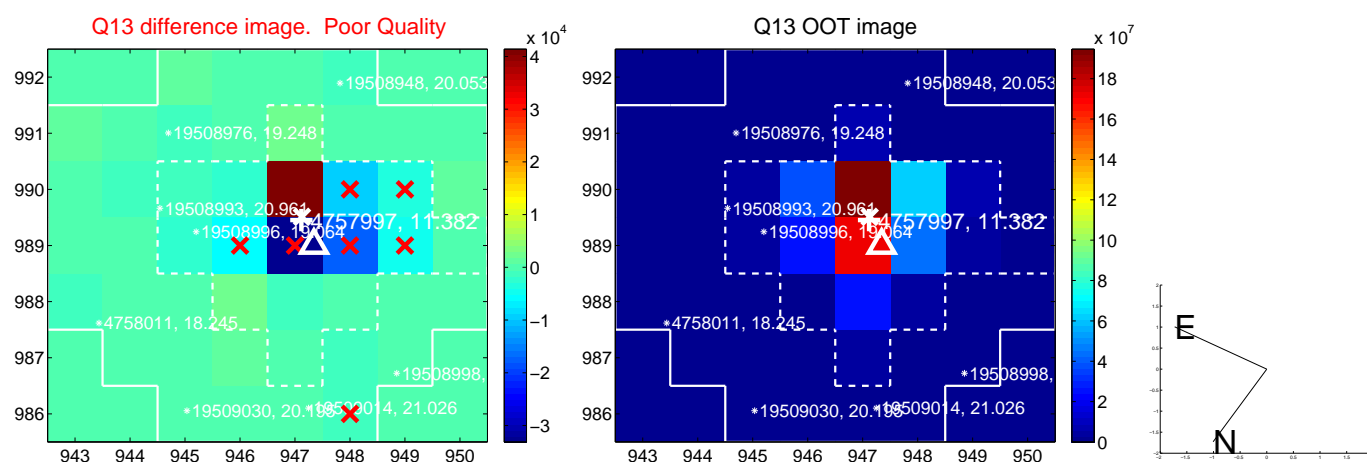
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



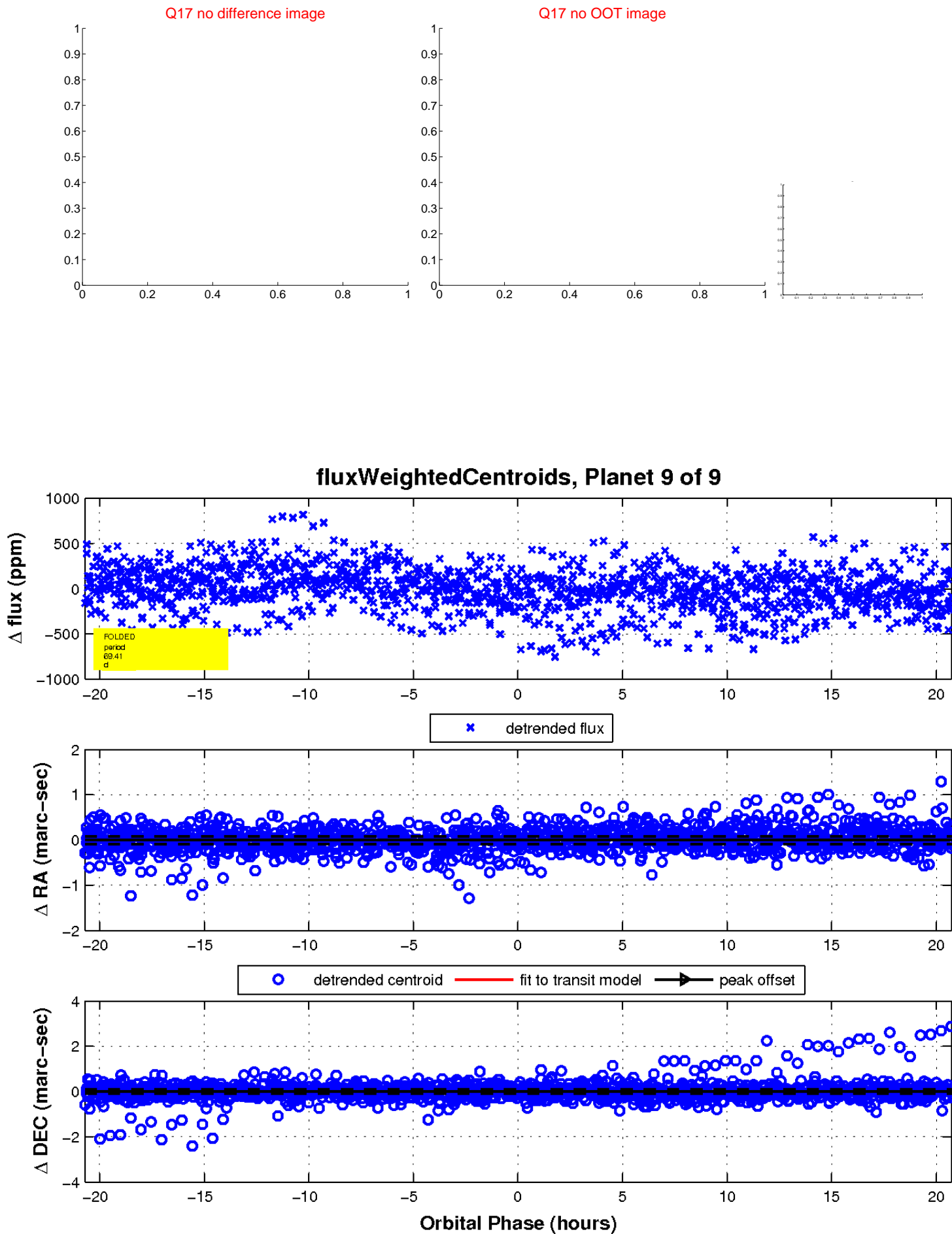
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

