

KIC 007970717

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})
007970717-01	OBS	No	513.397477	239.903401	1788.6	12.945	7.6	7.3	1.00	5780	4.29	0.64
007970717-02	OBS	No	357.268874	238.988204	3026.2	14.508	20.3	5.0	1.00	5780	5.49	1.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007970717-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007970717-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

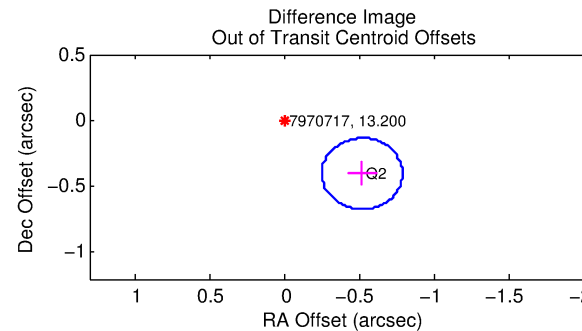
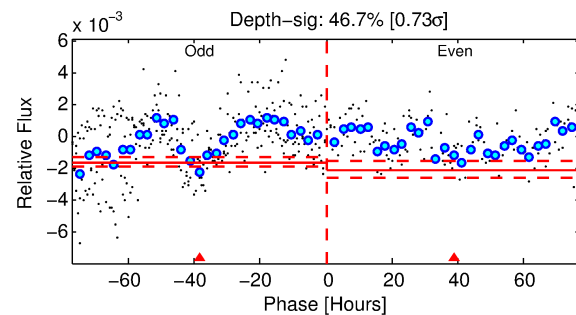
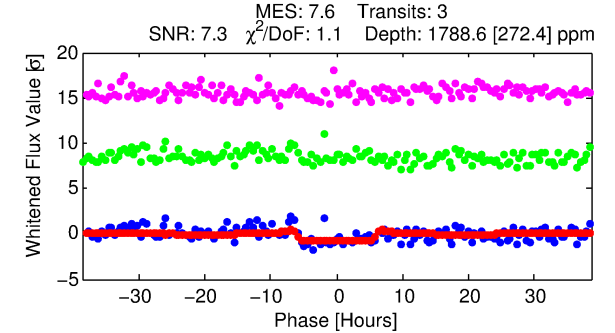
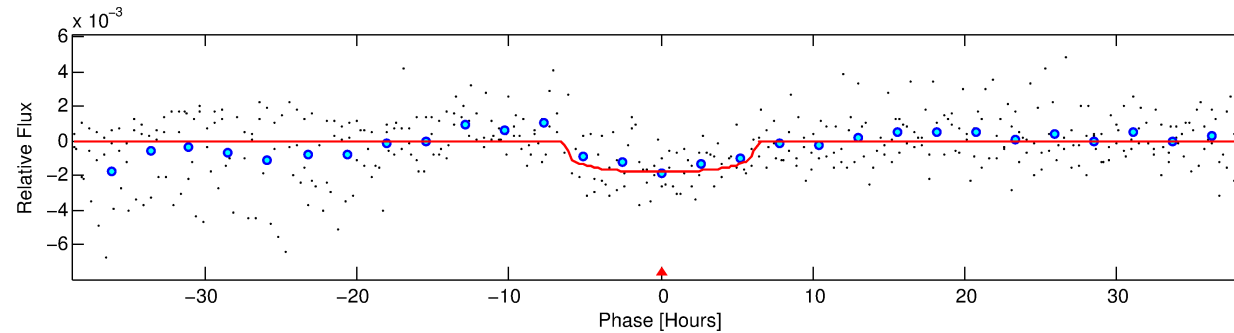
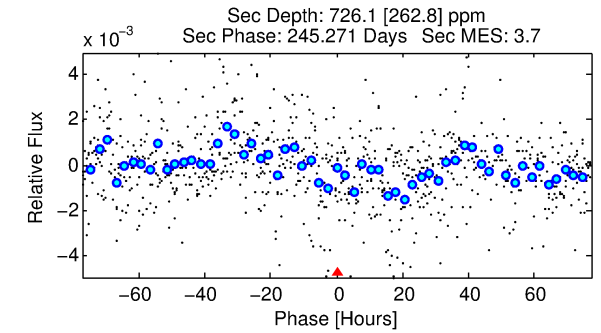
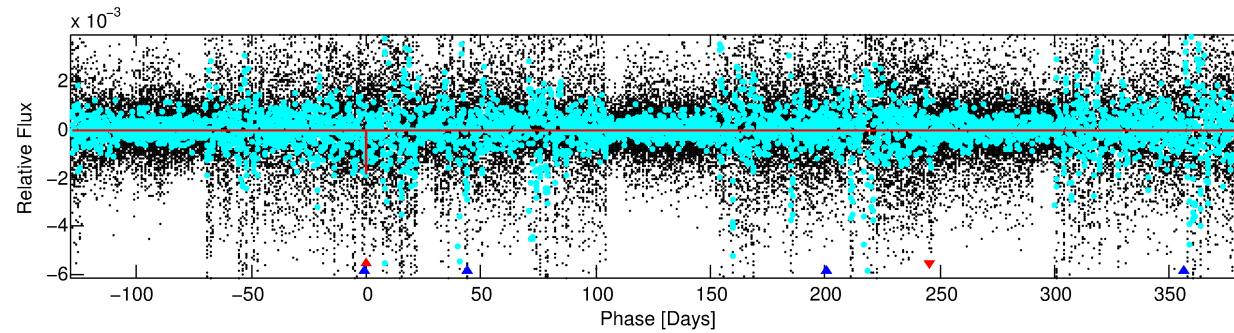
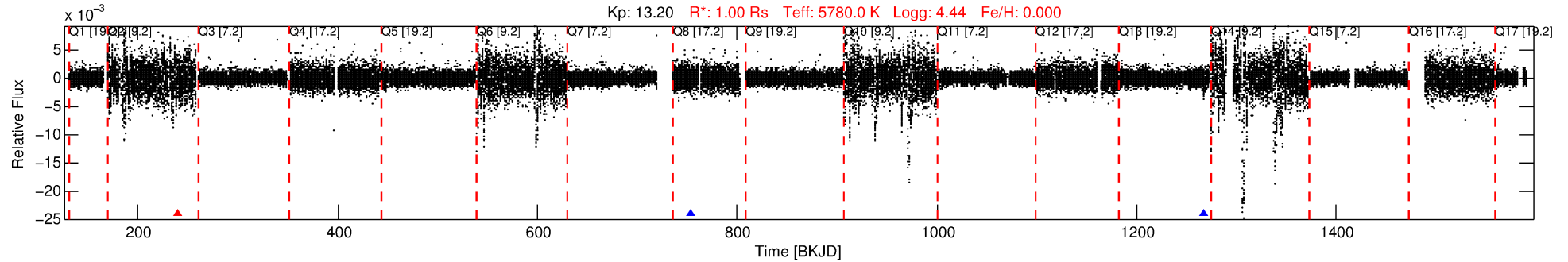
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007970717-01

No Significant Match Found

DV One-Page Summary

KIC: 7970717 Candidate: 1 of 2 Period: 513.397 d



DV Fit Results:

Period = 513.39748 [0.01545] d
Epoch = 239.9034 [0.0257] BKJD
Rp/R* = 0.0393 [0.0147]
a/R* = 285.22 [443.69]
b = 0.44 [2.87]
Seff = 0.63 [0.00]
Teq = 228 [0] K
Rp = 4.29 [1.60] Re
a = 1.2551 [0.0000] AU
Ag = 34257.88 [28409.30] [1.21σ]
Teffp = 4788 [993] K [4.59σ]

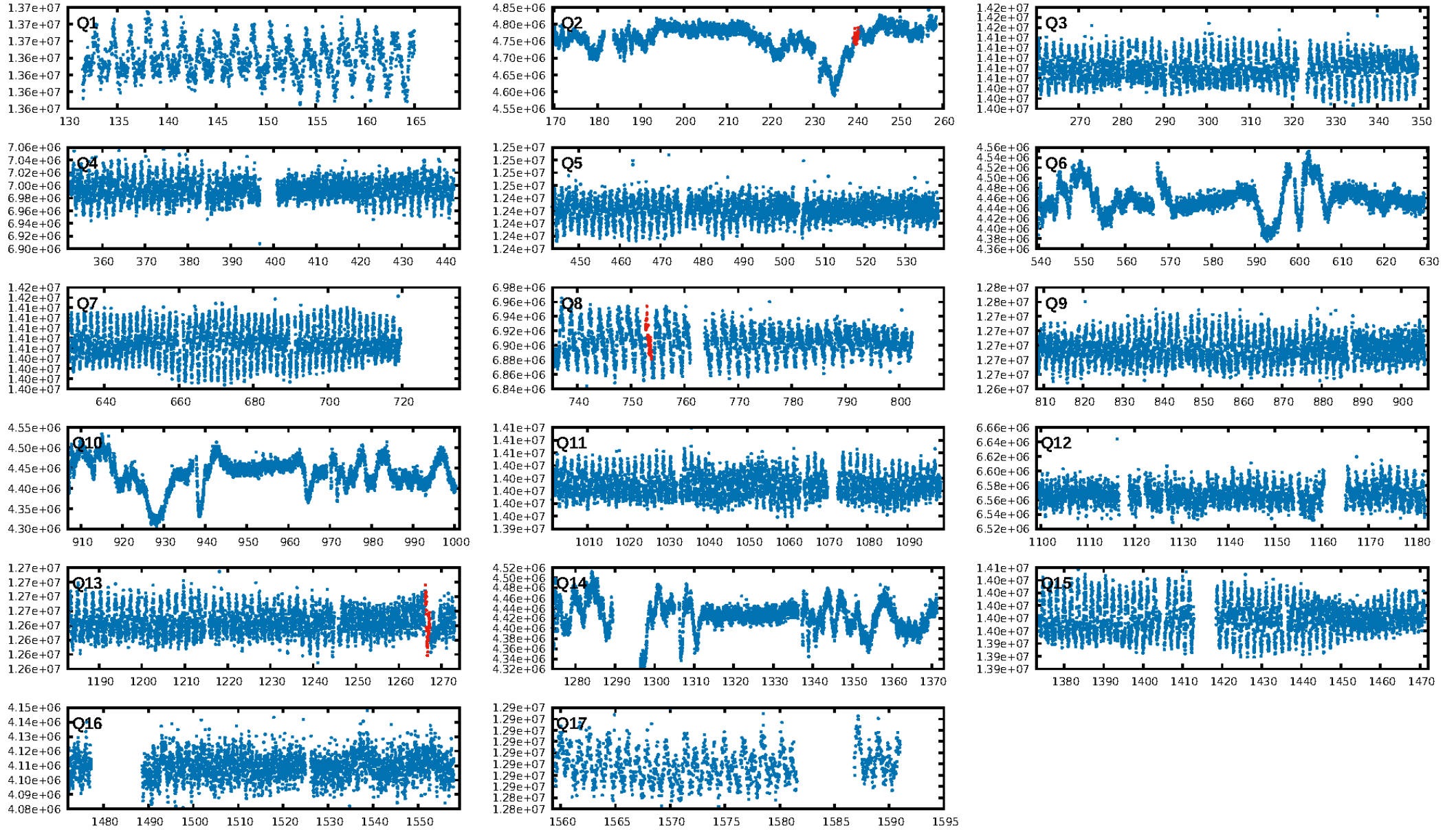
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [192.71σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.5%
ModelChiSquareGof-sig: 99.8%
Bootstrap-pfa: 7.33e-07
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 0.7832
Centroid-sig: 2.1%
Centroid-so: 5.197 arcsec [56.81σ]
OotOffset-rm: 0.660 arcsec [7.35σ]
KicOffset-rm: 6.253 arcsec [73.32σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.50 [1/2]

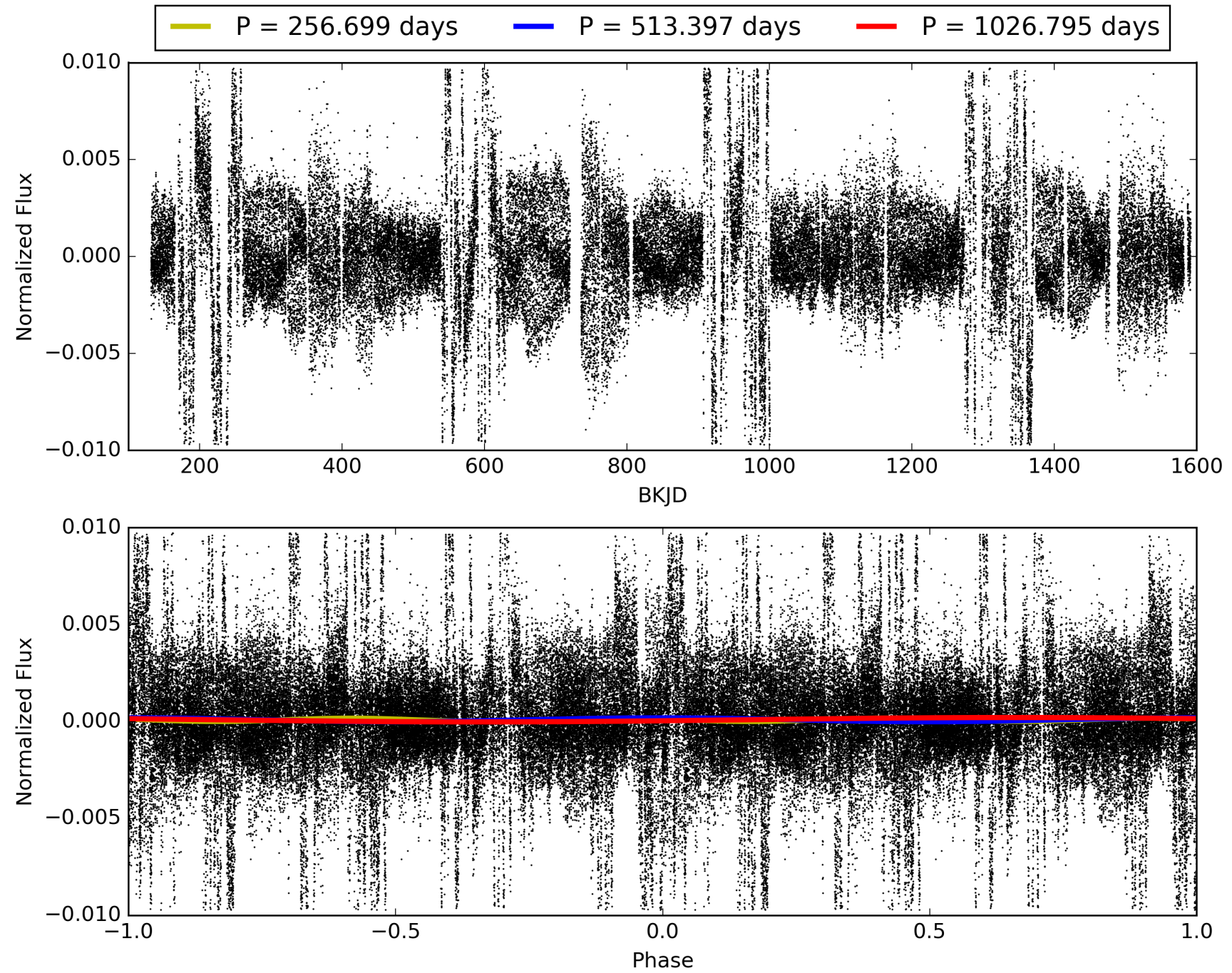
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:21:20 Z

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

TCE 007970717-01, PDC Light Curves

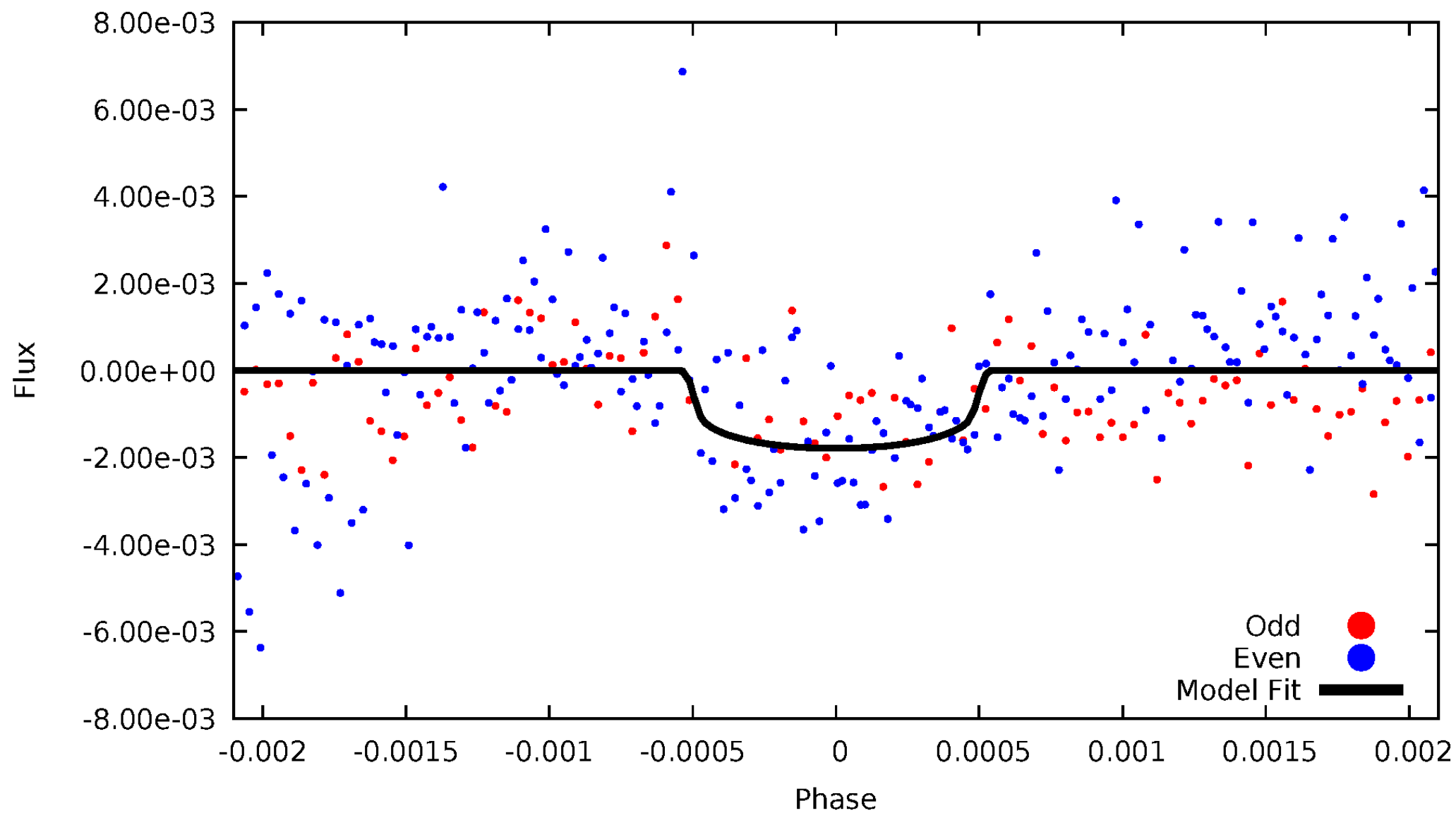


TCE 007970717-01



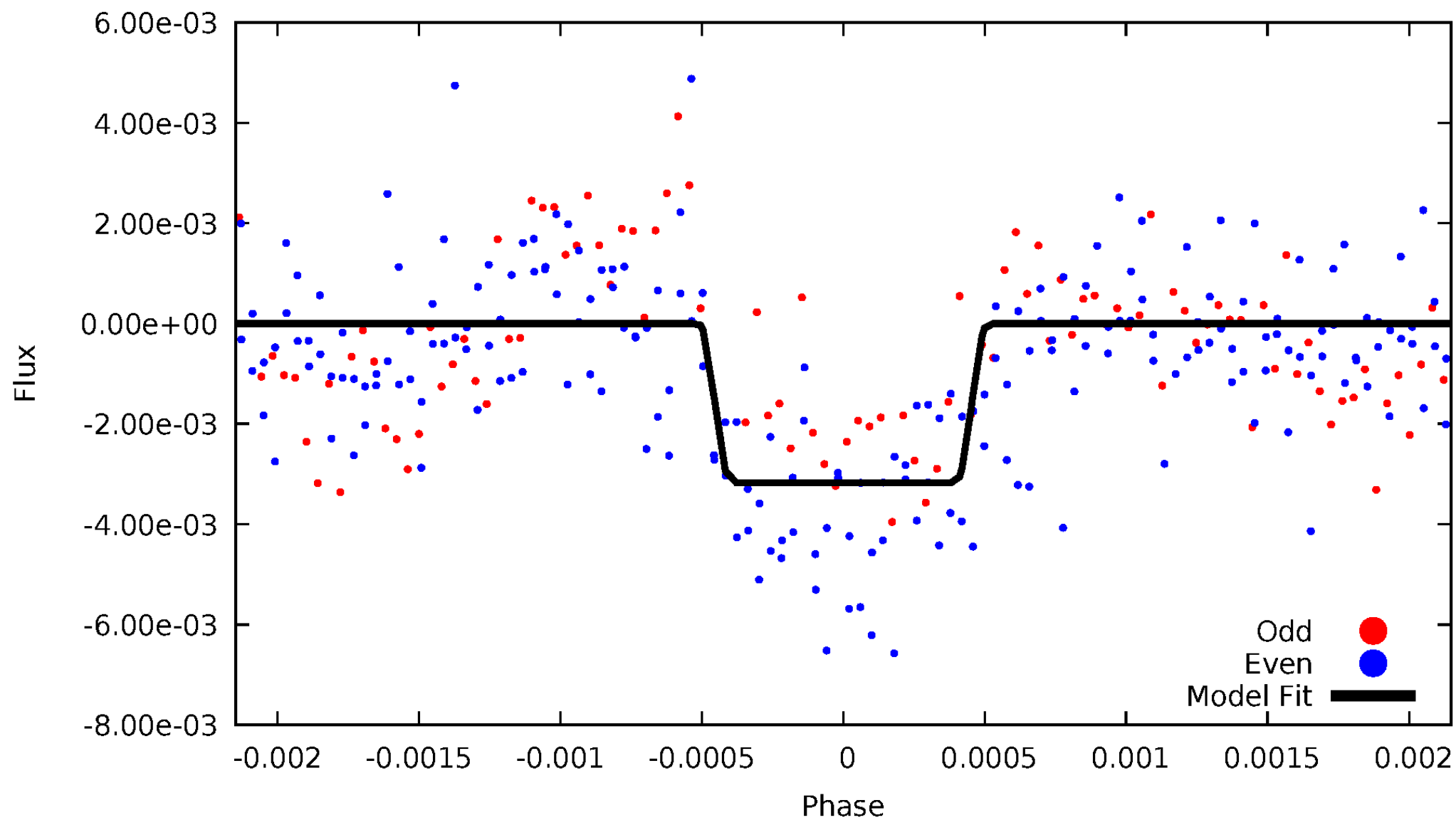
DV Odd/Even

TCE 007970717-01



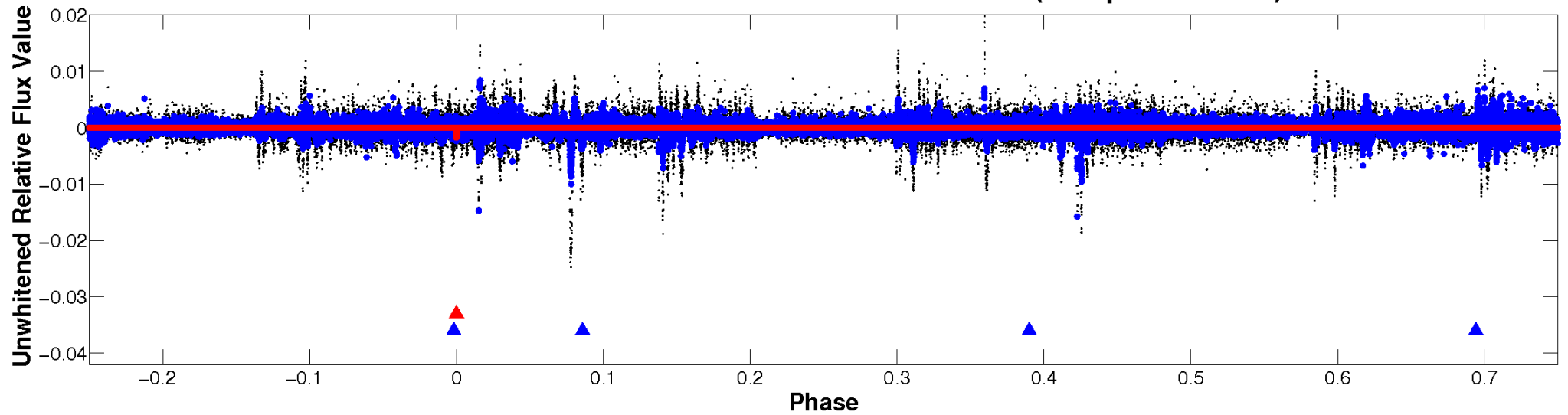
ALT Odd/Even

TCE 007970717-01

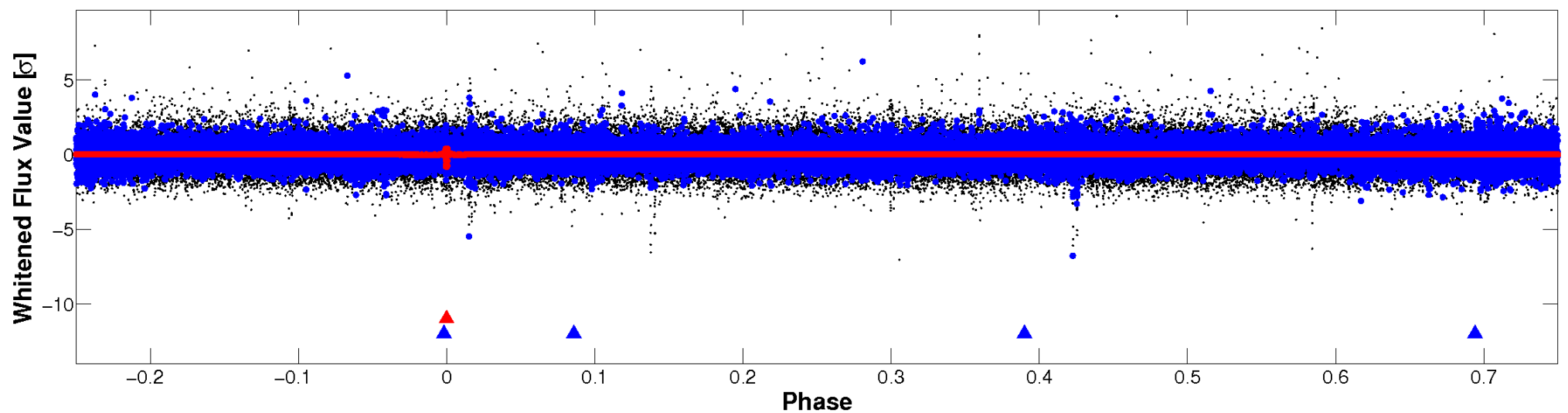


Non-Whitened Vs. Whitened Light Curve

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

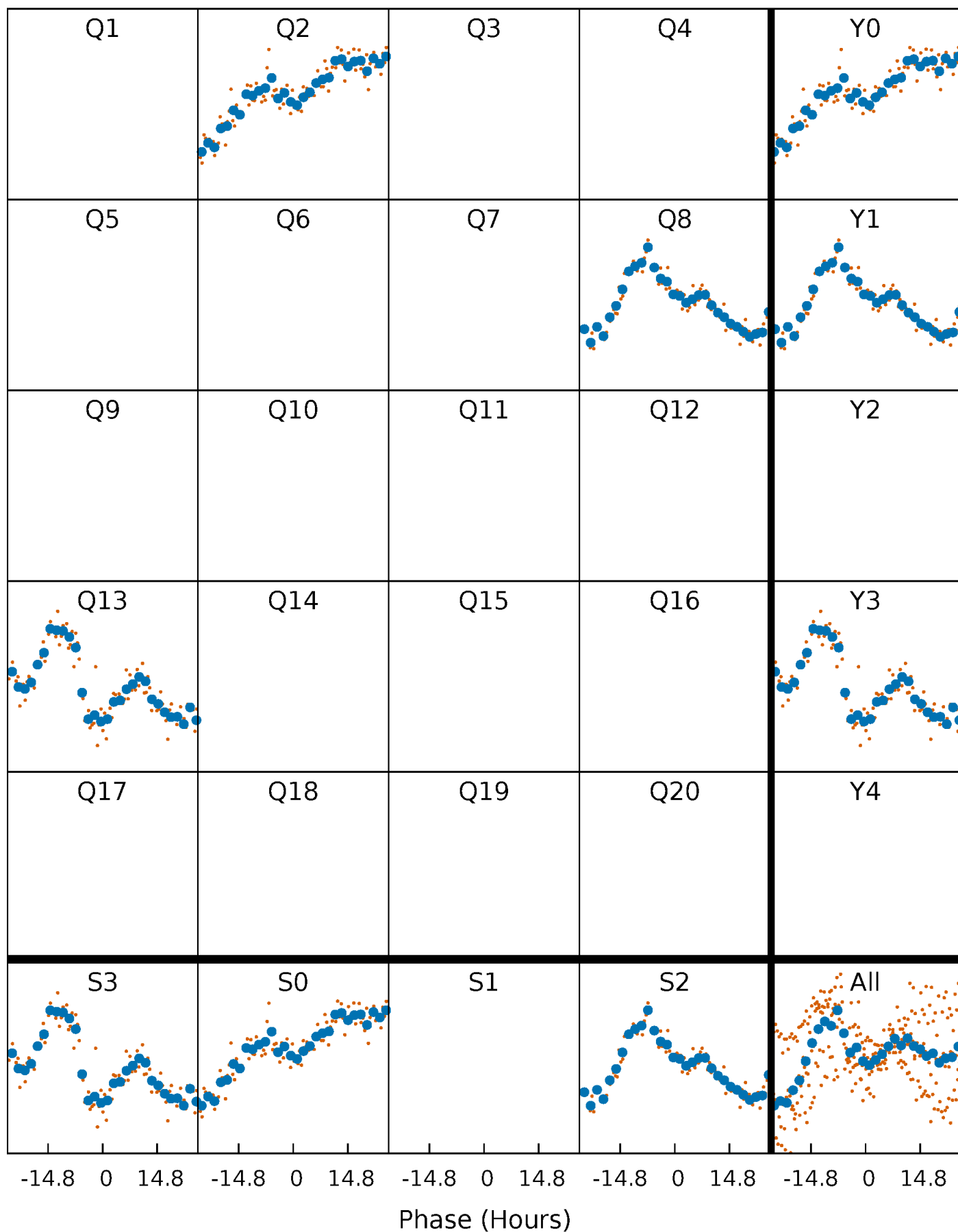


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



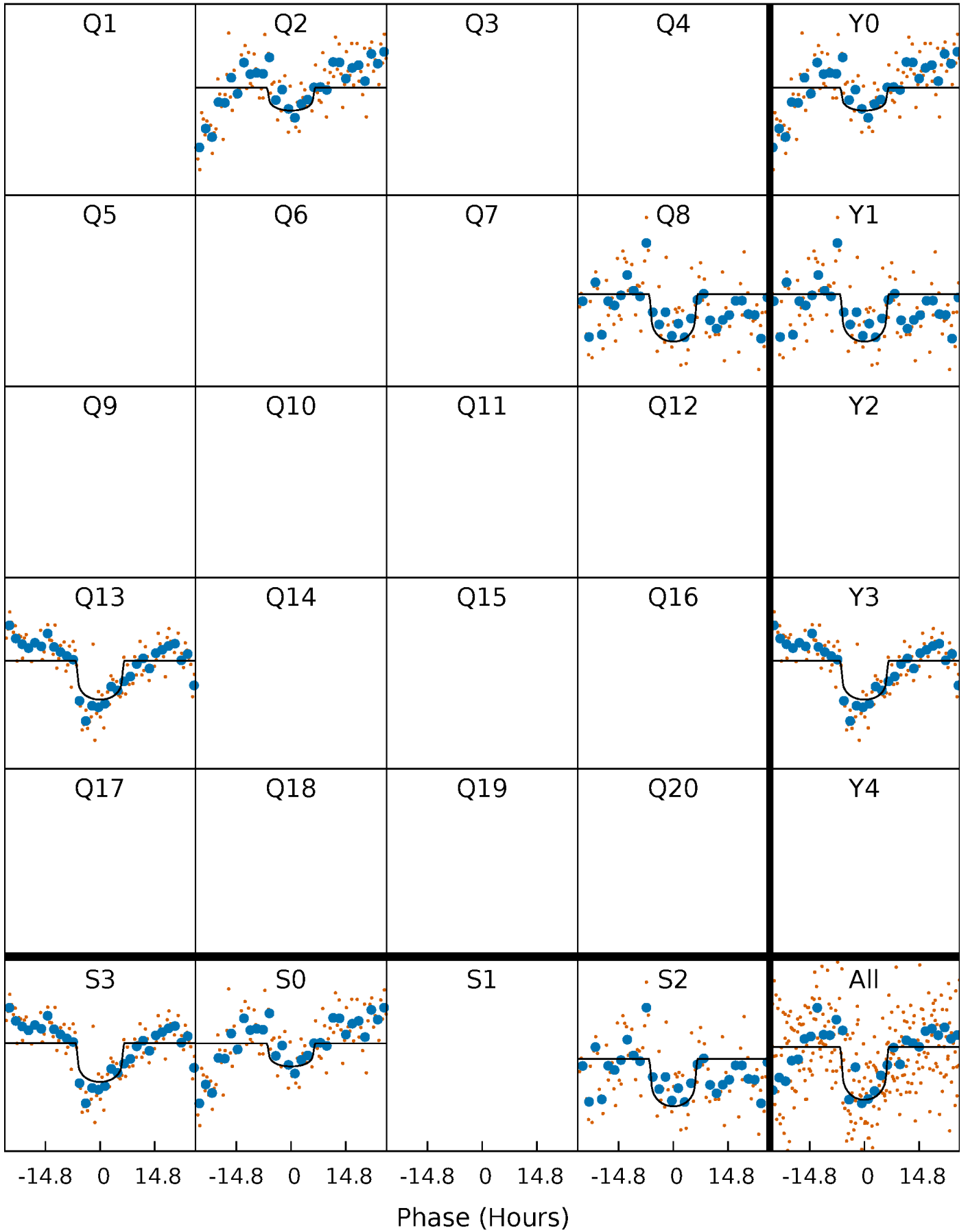
PDC Quarter-Phased Transit Curves

TCE 007970717-01 P=513.397477 Days $T_0=239.903401$ (BKJD)



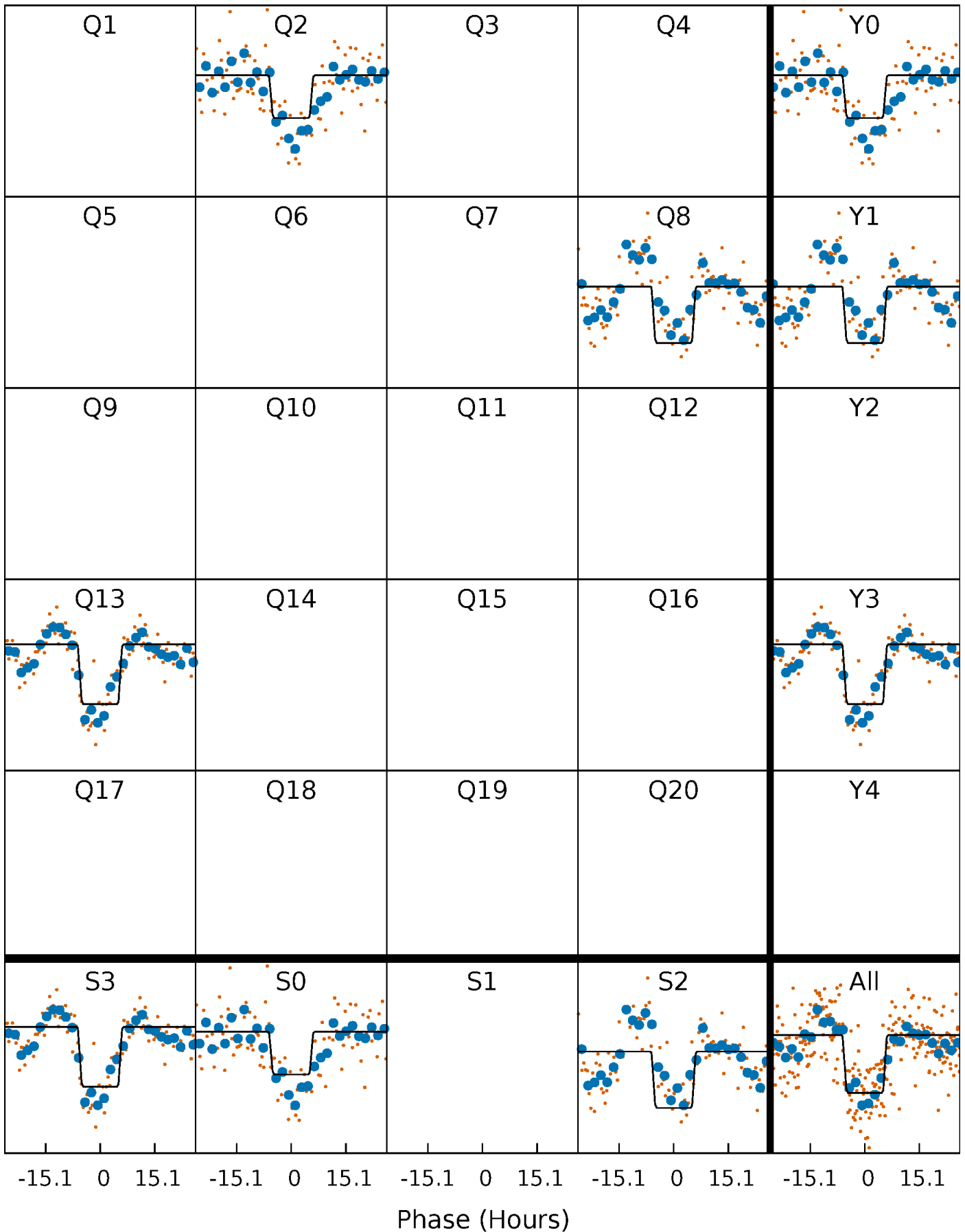
DV Quarter-Phased Transit Curves

TCE 007970717-01 P=513.397477 Days $T_0=239.903401$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

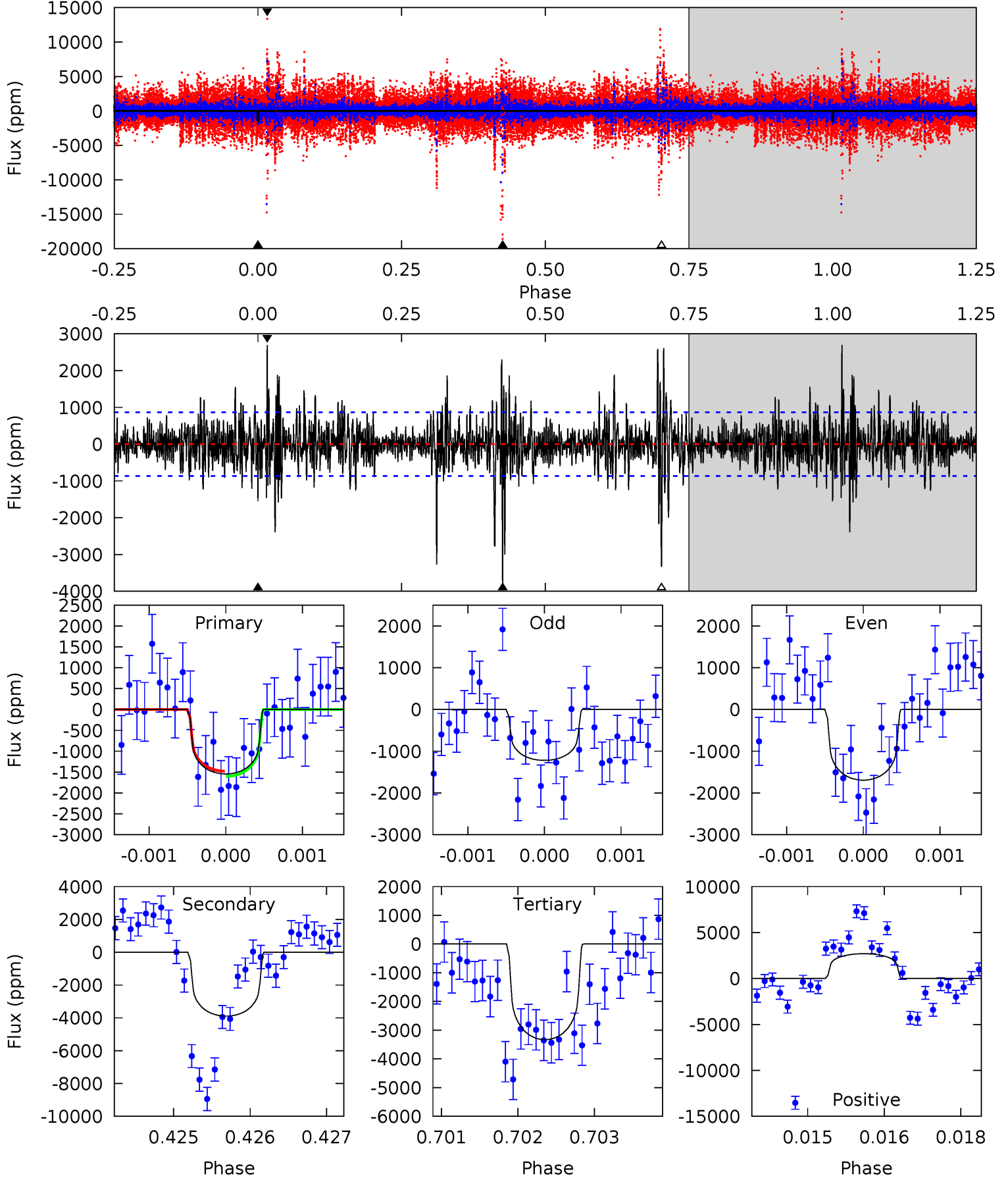
TCE 007970717-01 P=513.393195 Days $T_0=239.904058$ (BKJD)



DV Model-Shift Uniqueness Test

007970717-01, P = 513.397477 Days, E = 239.903401 Days

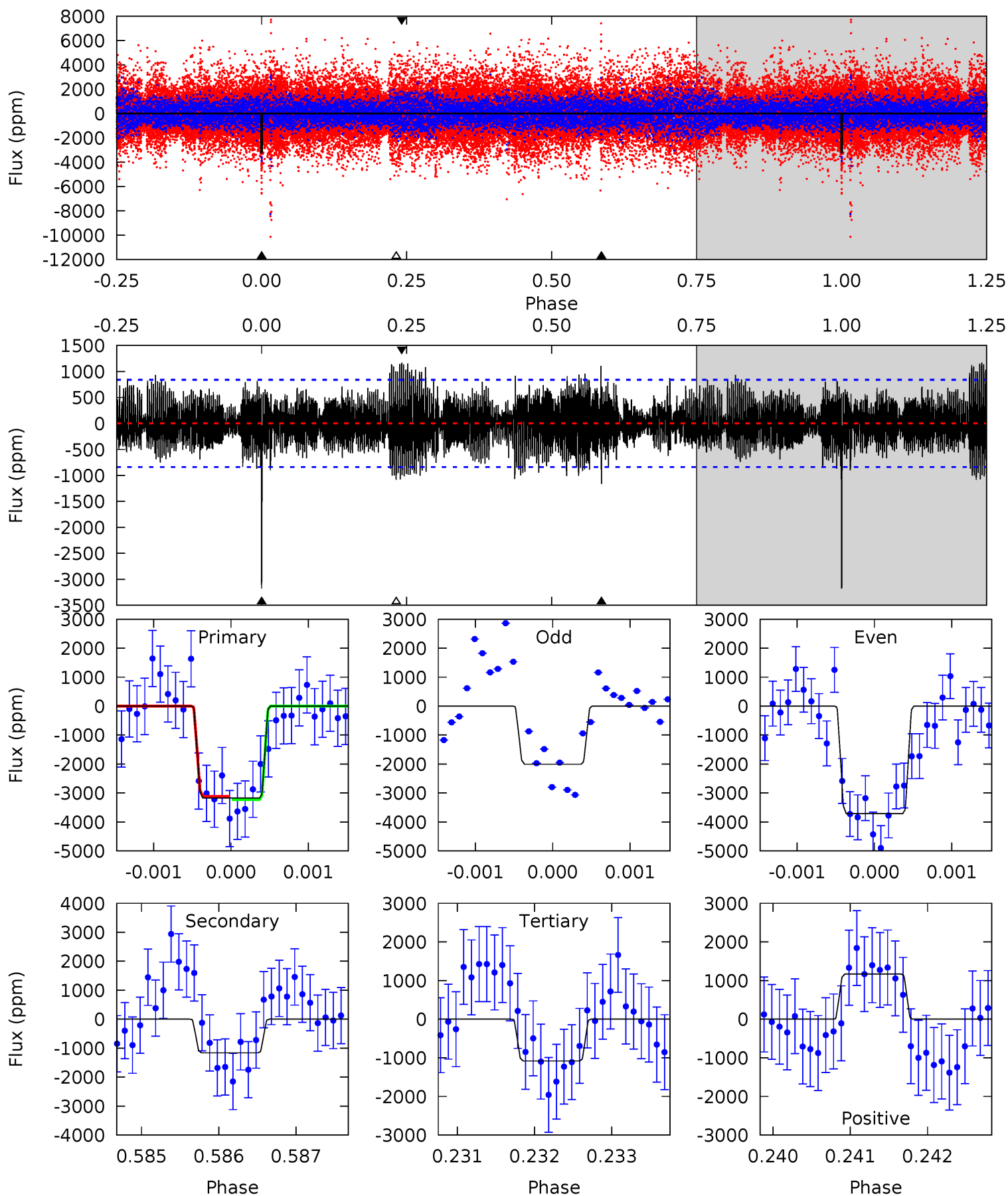
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.71	24.5	20.9	16.9	5.43	3.26	3.14	-11.2	-7.22	3.53	7.53	1.16	1.25	0.41	0.39



Alt Model-Shift Uniqueness Test

007970717-01, P = 513.393195 Days, E = 239.904058 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	7.53	7.01	7.57	5.45	3.28	2.27	13.6	13.0	0.52	-0.04	5.06	0.96	0.27	0.35



Stellar Parameters For KIC 007970717

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 007970717-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3894±159	$4.17^{+1.65}_{-1.50}$	319^{+14}_{-15}	7409^{+2623}_{-1134}	$192089^{+281453}_{-90950}$
Alt.	-1163±154	$6.11^{+1.61}_{-1.71}$	318^{+15}_{-14}	4663^{+689}_{-422}	27381^{+23665}_{-10632}

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

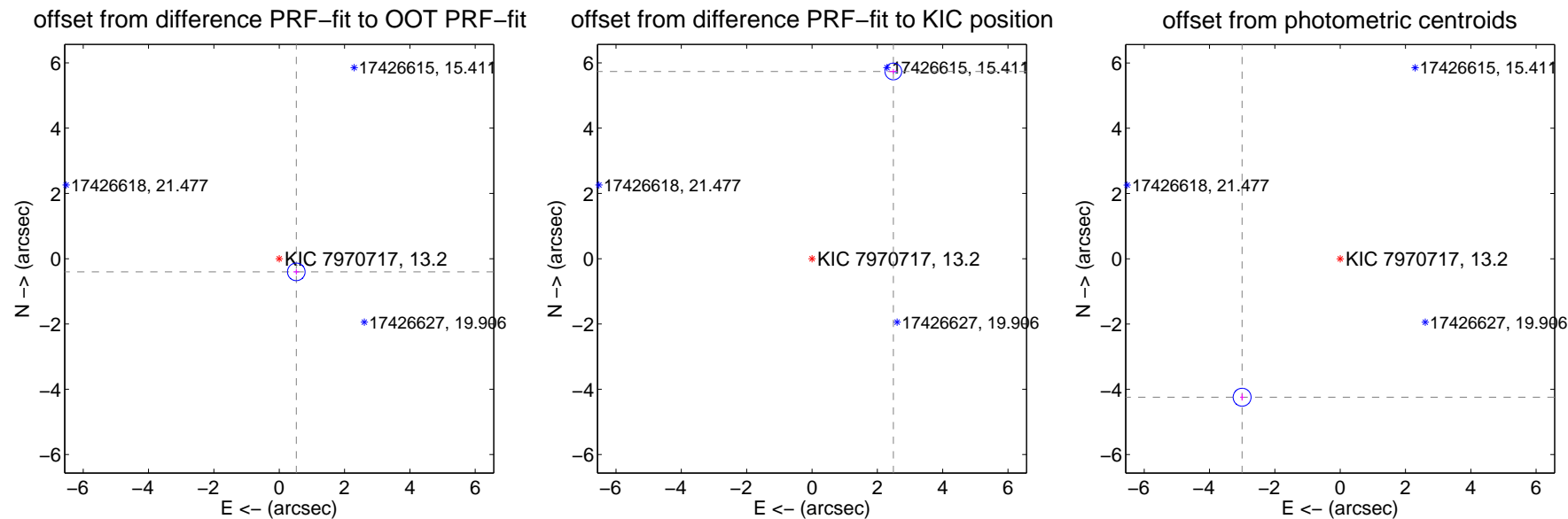
DV Centroid Data

Supplemental centroid analysis for 007970717-01. Kepler magnitude: 13.20. Transit SNR 7.32

There are 1 quarters with good PRF difference image offsets

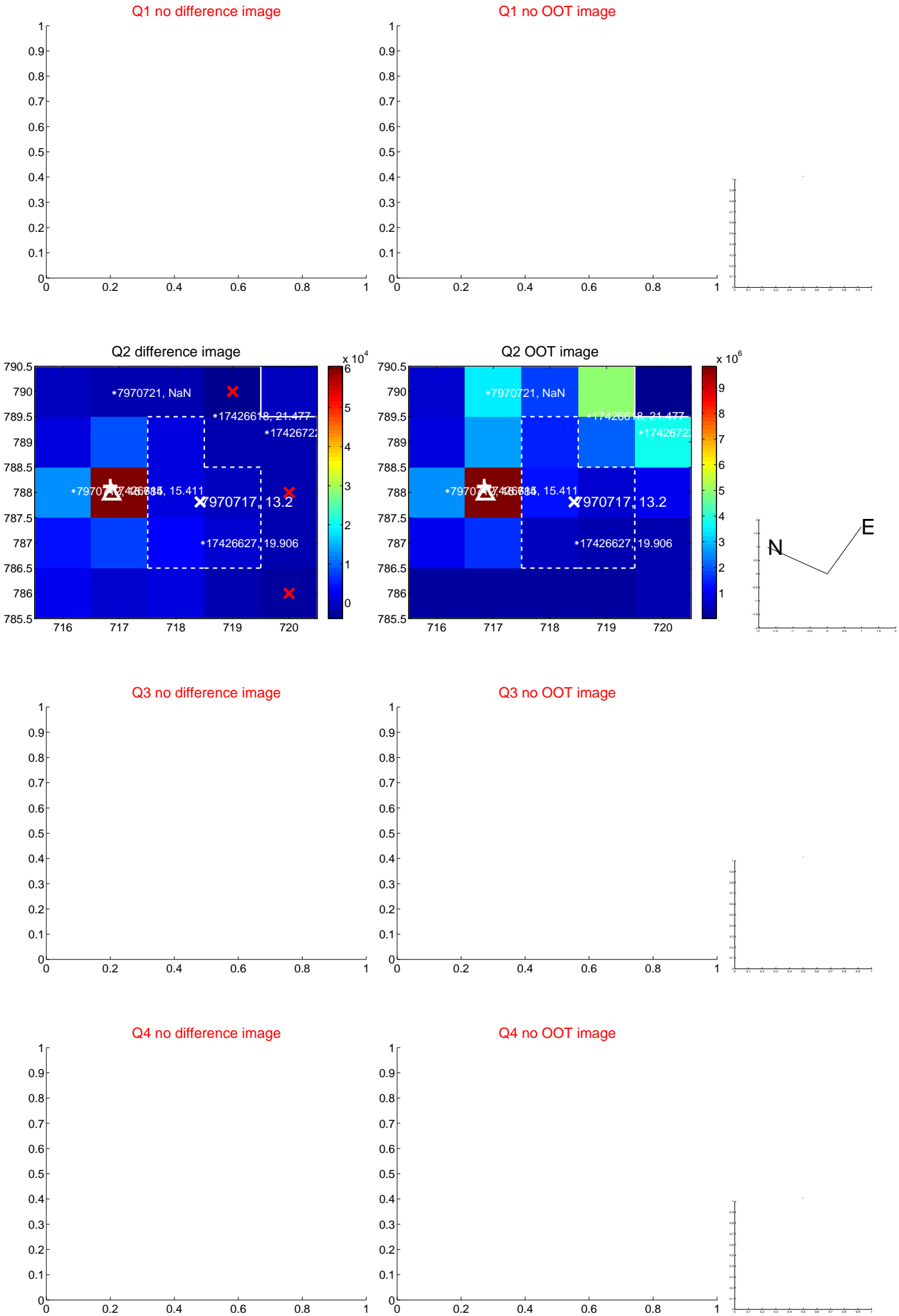
The OOT PRF centroid is offset from the target star catalog position by about 6.45 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.660 ± 0.090	7.35	-0.522 ± 0.092	-0.403 ± 0.087
PRF-fit source offset from KIC position	6.253 ± 0.085	73.32	-2.490 ± 0.123	5.736 ± 0.076
photometric centroid source offset	5.20 ± 0.09	56.81	3.00 ± 0.06	-4.24 ± 0.10

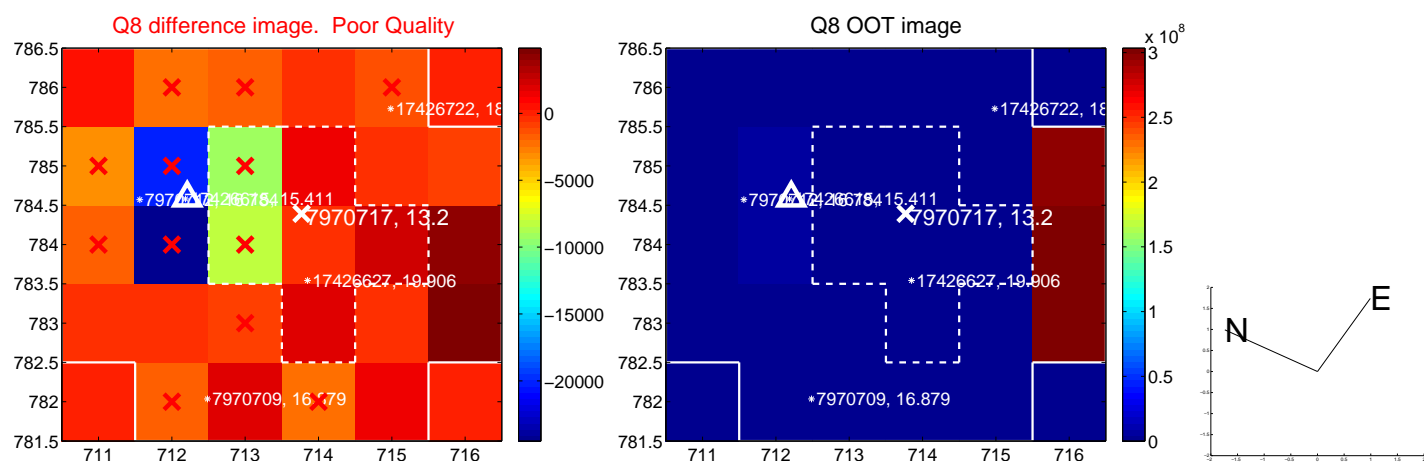
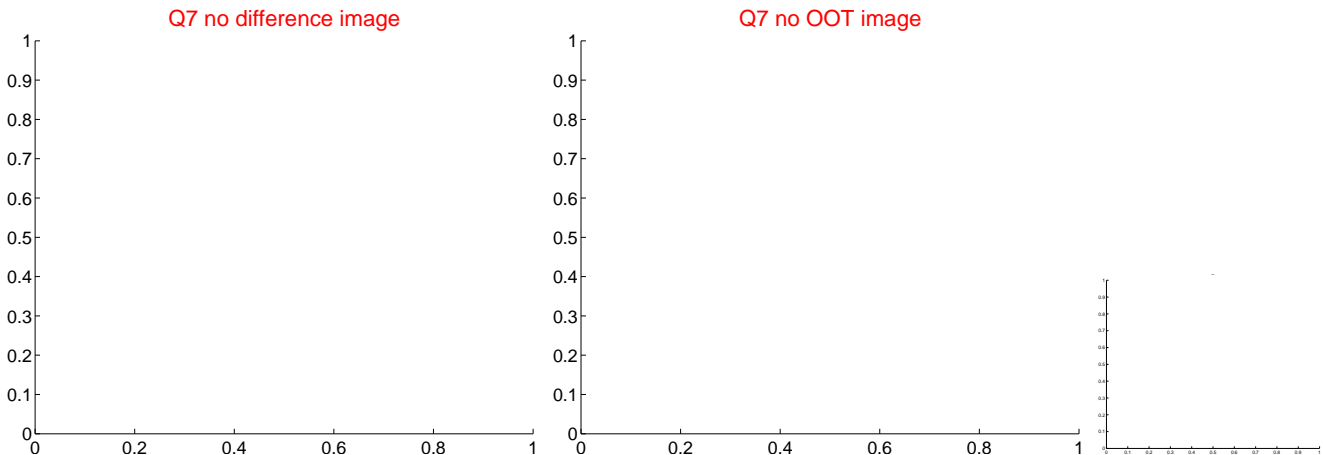
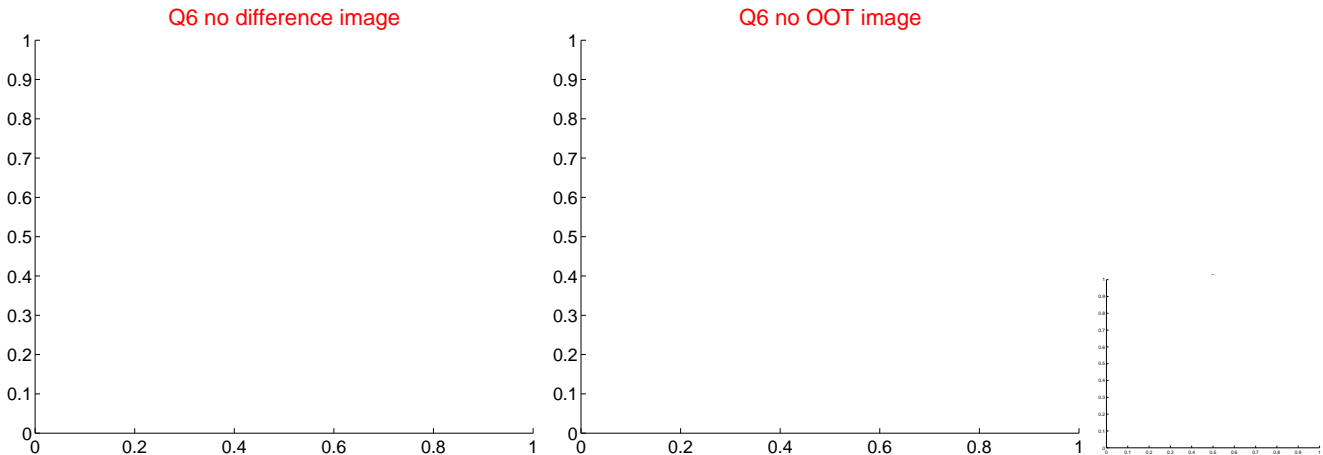
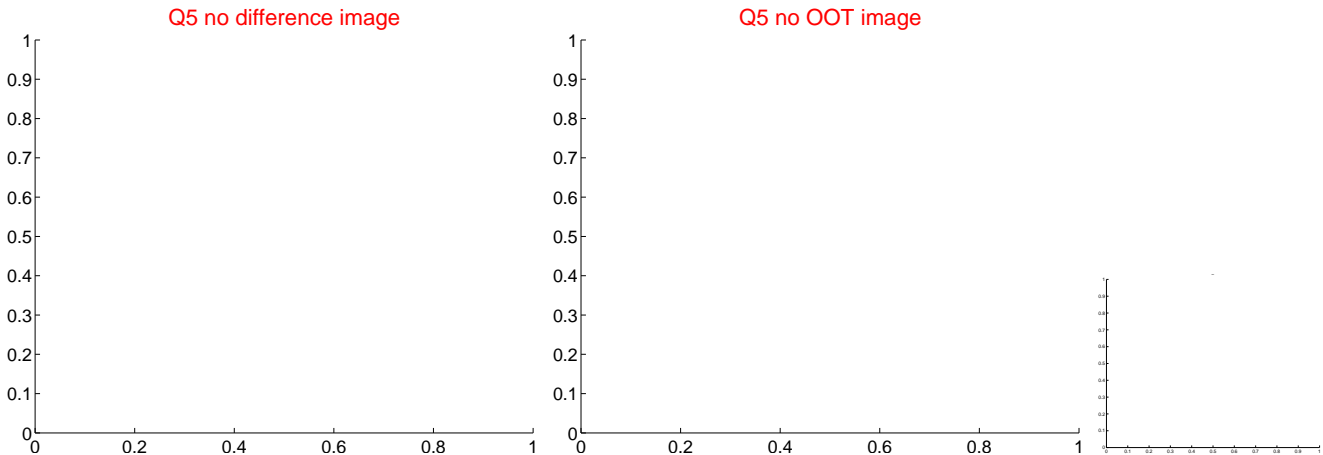


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



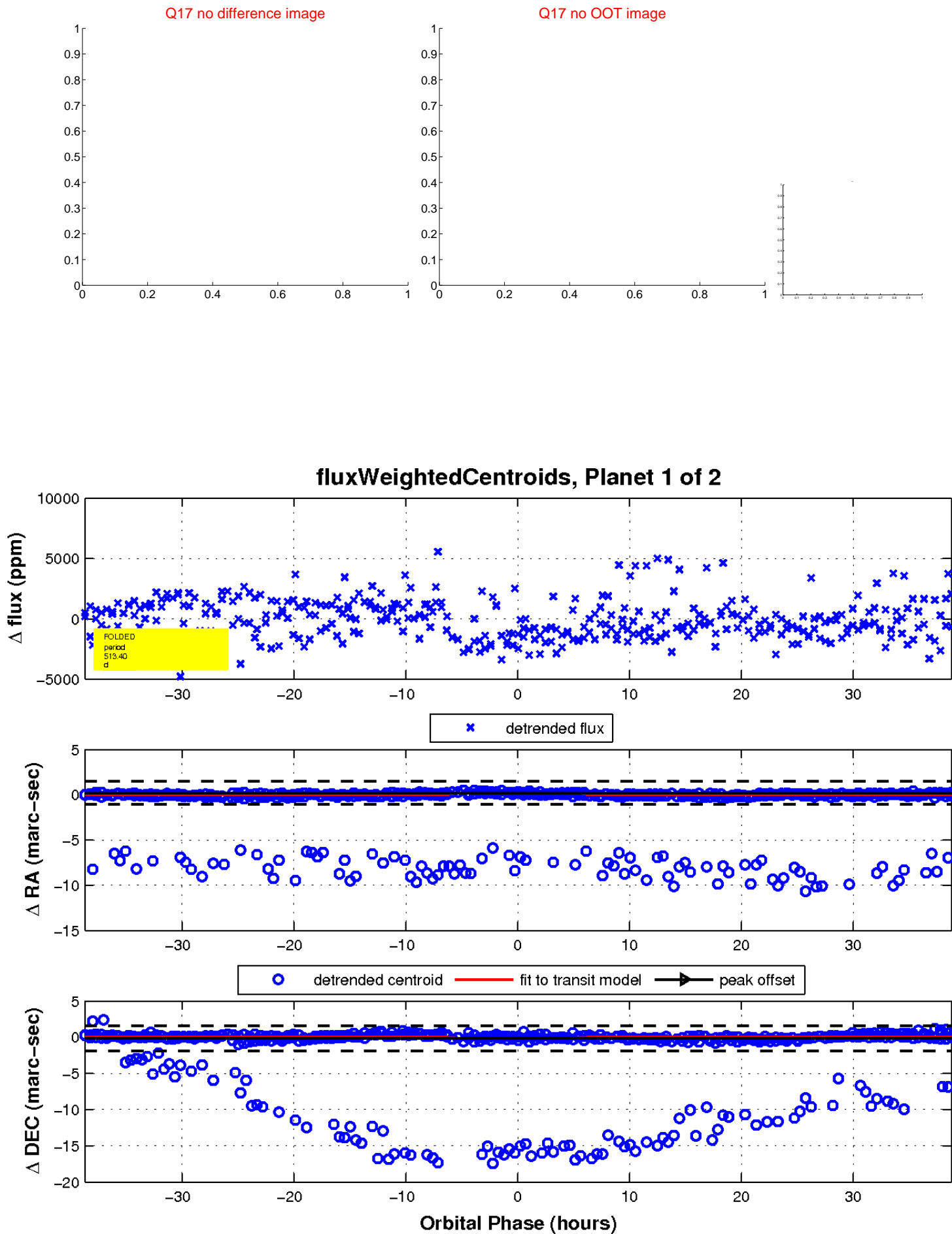
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



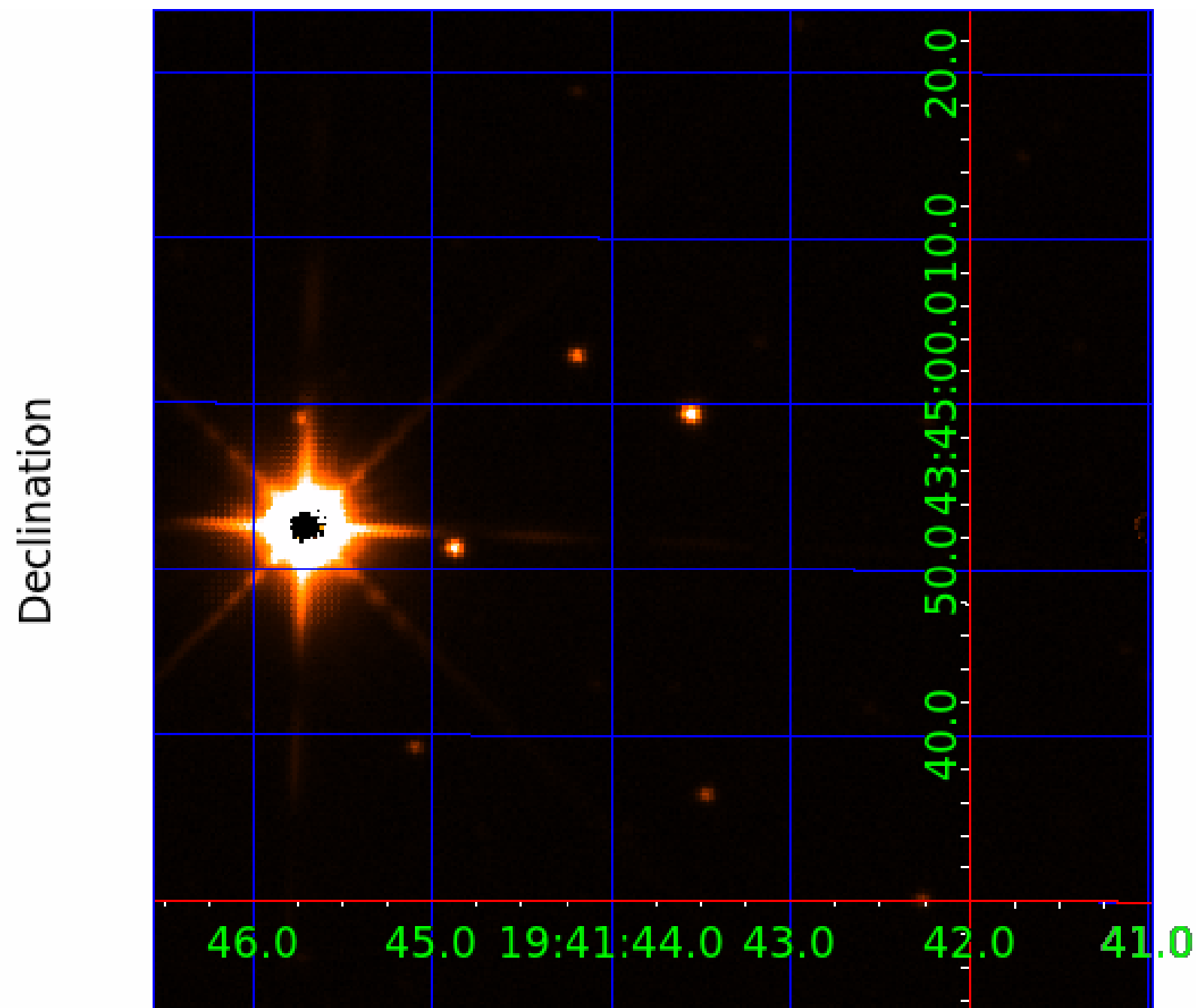
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007970717

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})
007970717-01	OBS	No	513.397477	239.903401	1788.6	12.945	7.6	7.3	1.00	5780	4.29	0.64
007970717-02	OBS	No	357.268874	238.988204	3026.2	14.508	20.3	5.0	1.00	5780	5.49	1.03

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007970717-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
007970717-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

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

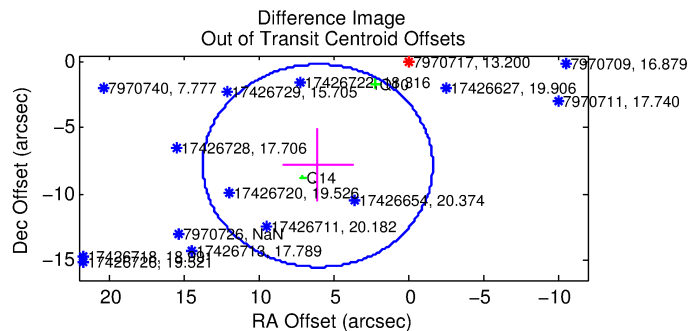
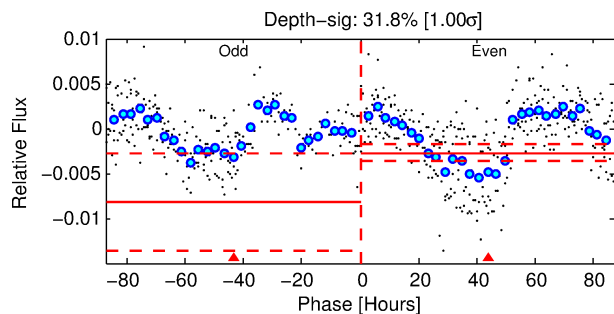
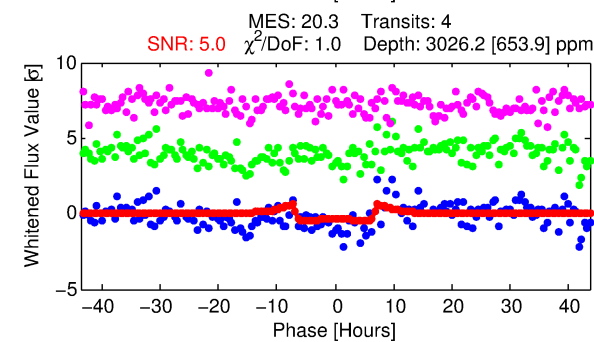
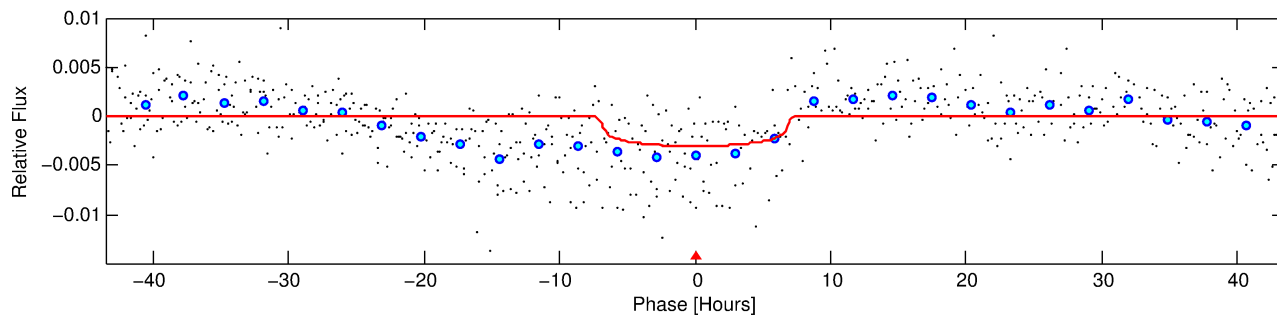
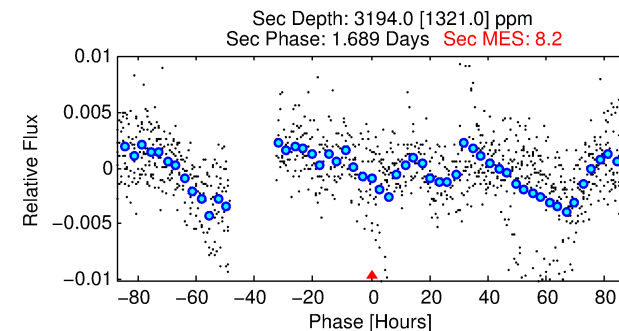
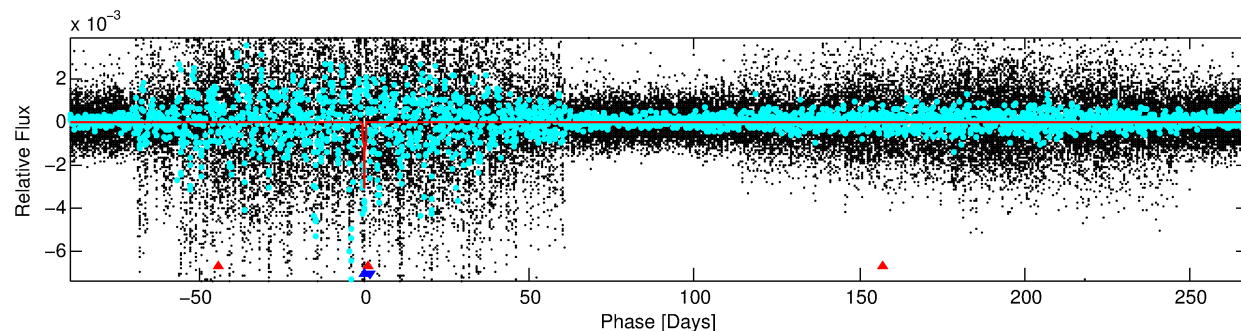
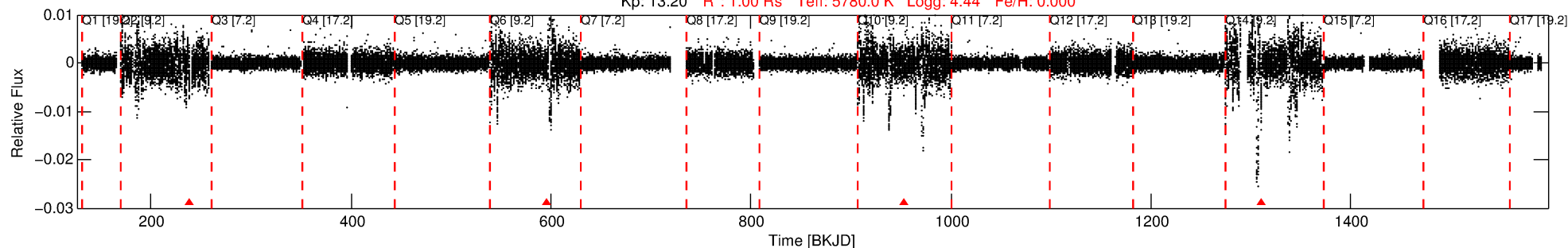
Ephemeris Match Information For 007970717-02

No Significant Match Found

DV One-Page Summary

KIC: 7970717 Candidate: 2 of 2 Period: 357.269 d

Kp: 13.20 R*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



DV Fit Results:

Period = 357.26887 [0.00984] d
Epoch = 238.9882 [0.0201] BKJD
Rp/R* = 0.0503 [0.0154]
a/R* = 190.28 [220.23]
b = 0.28 [3.78]
Seff = 1.03 [0.00]
Teq = 257 [0] K
Rp = 5.49 [1.68] Re
a = 0.9856 [0.0000] AU
Ag = 56587.39 [41745.85] [1.36σ]
Teff = 6125 [1130] K [5.19σ]

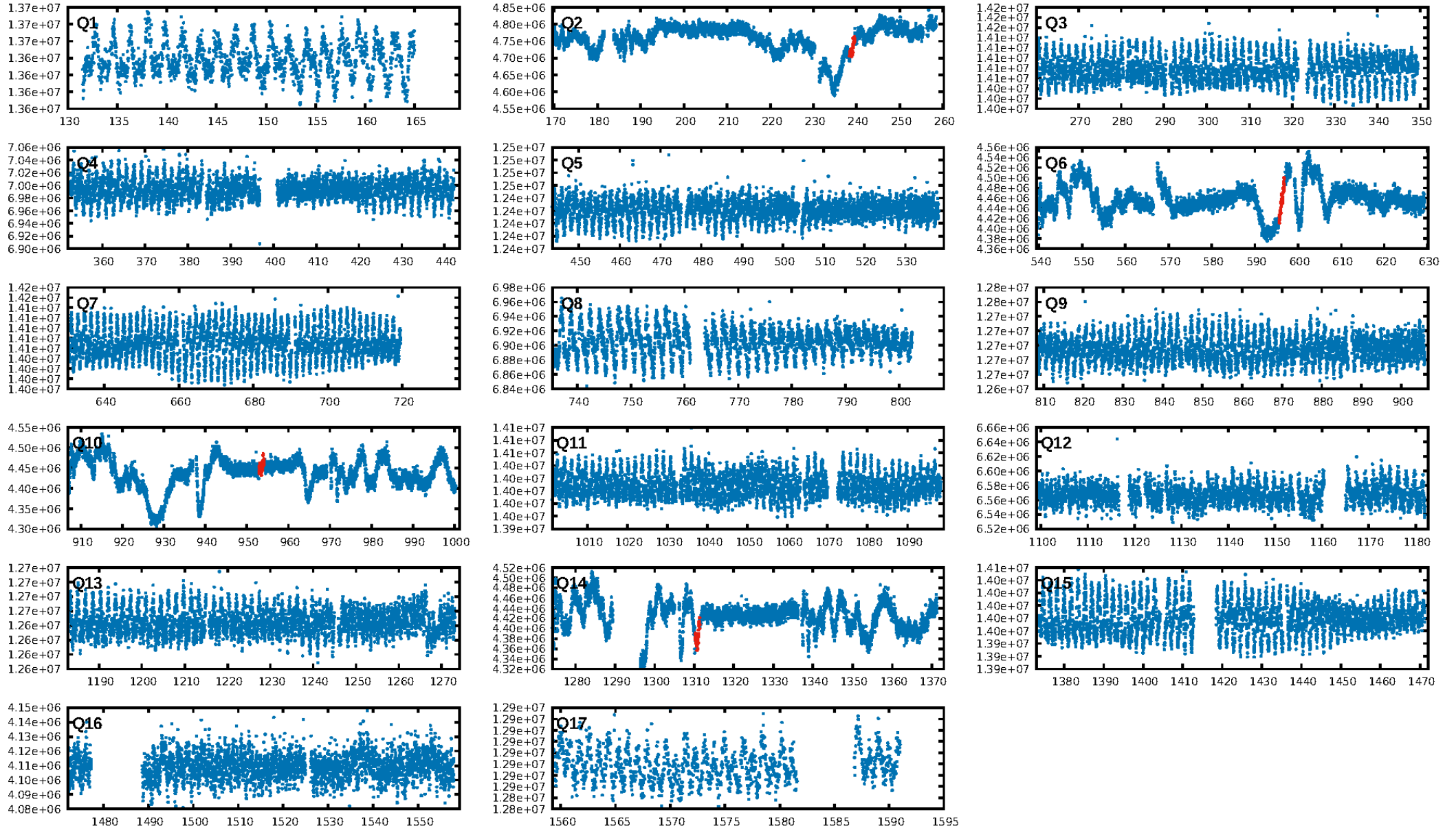
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [192.71σ]
ModelChiSquare2-sig: 0.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.08e-19
RollingBand-fgt: 0.00 [0/4]
GhostDiagnostic-chr: -0.2455
Centroid-sig: 0.0%
Centroid-so: 5.364 arcsec [61.25σ]
OotOffset-rm: 9.893 arcsec [3.87σ]
KicOffset-rm: 4.392 arcsec [1.84σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.75 [3/4]

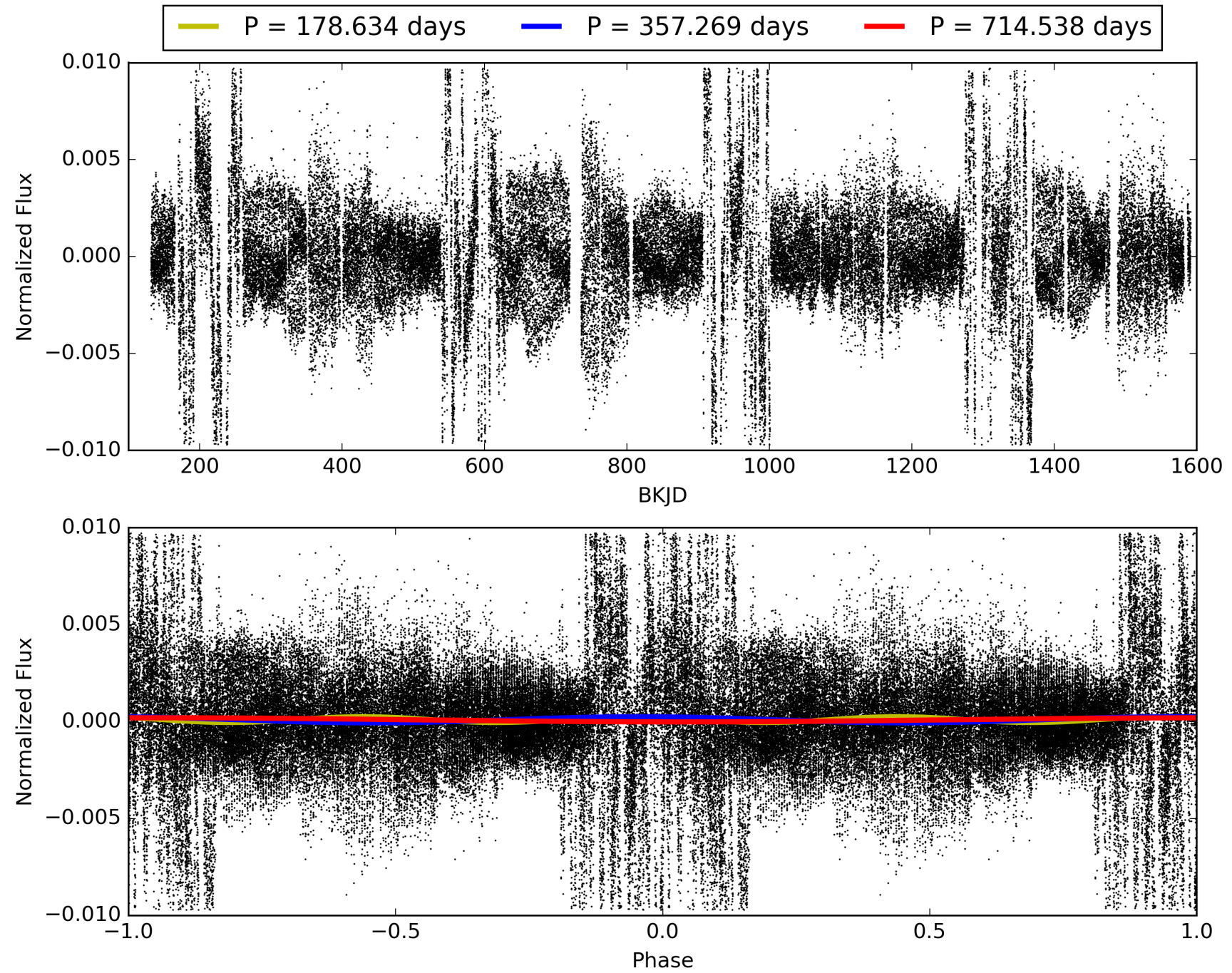
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 08:21:28 Z

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

TCE 007970717-02, PDC Light Curves

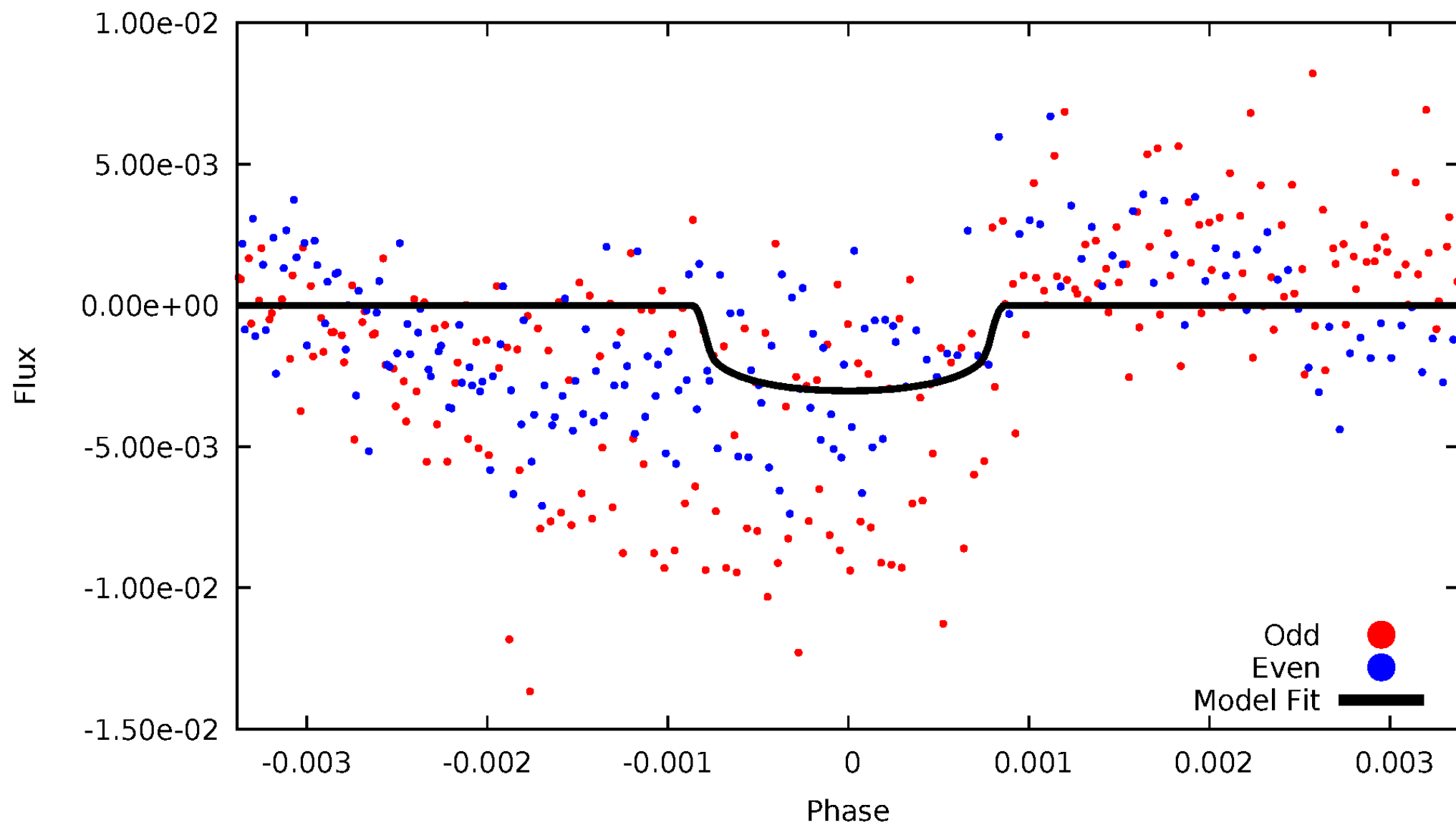


TCE 007970717-02



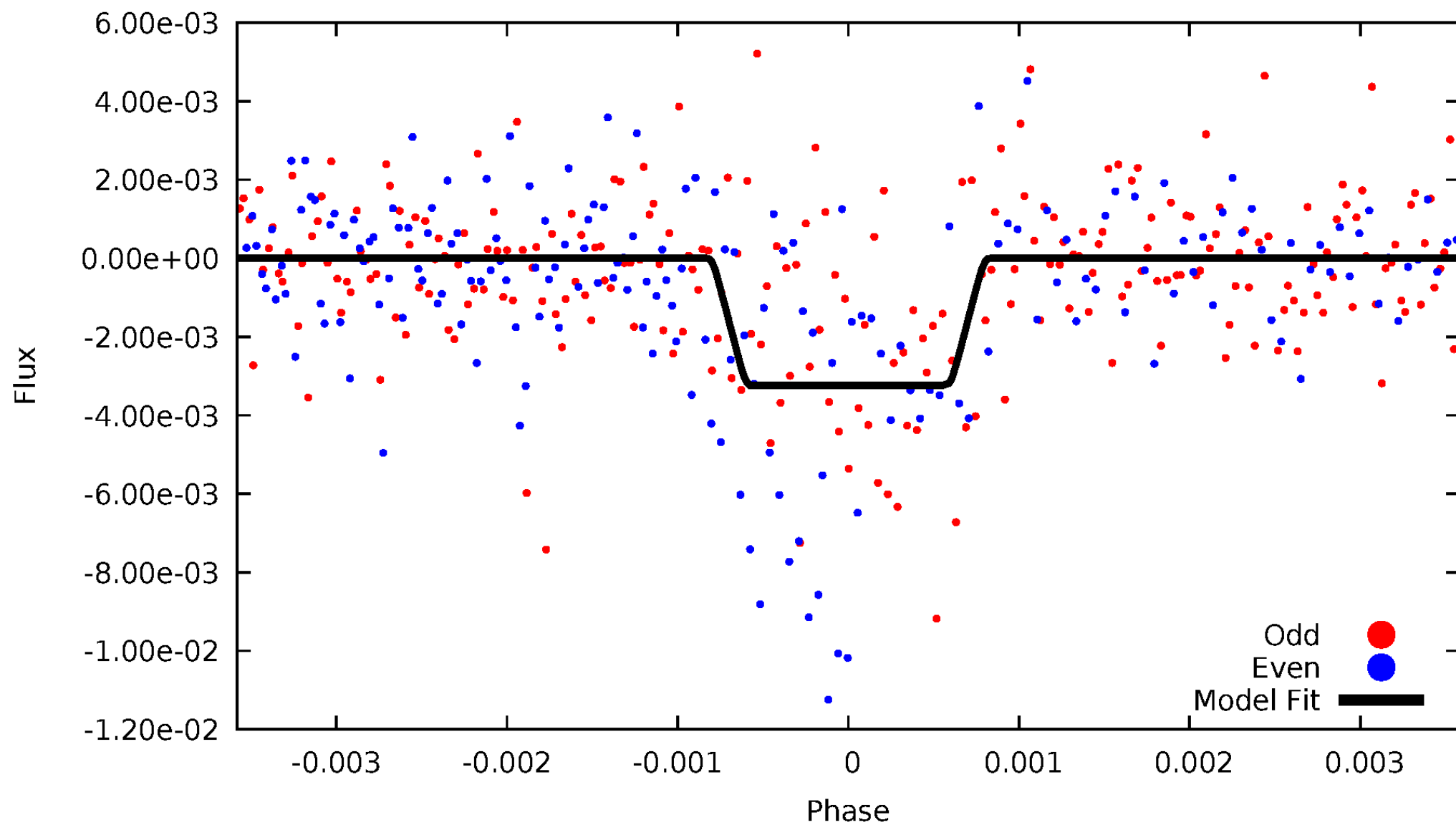
DV Odd/Even

TCE 007970717-02



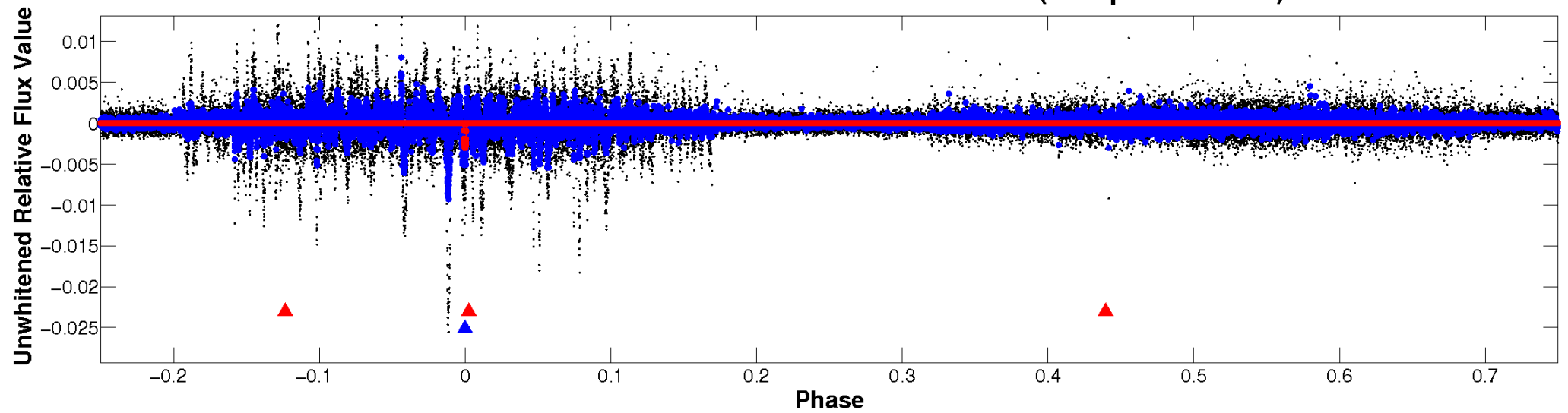
ALT Odd/Even

TCE 007970717-02

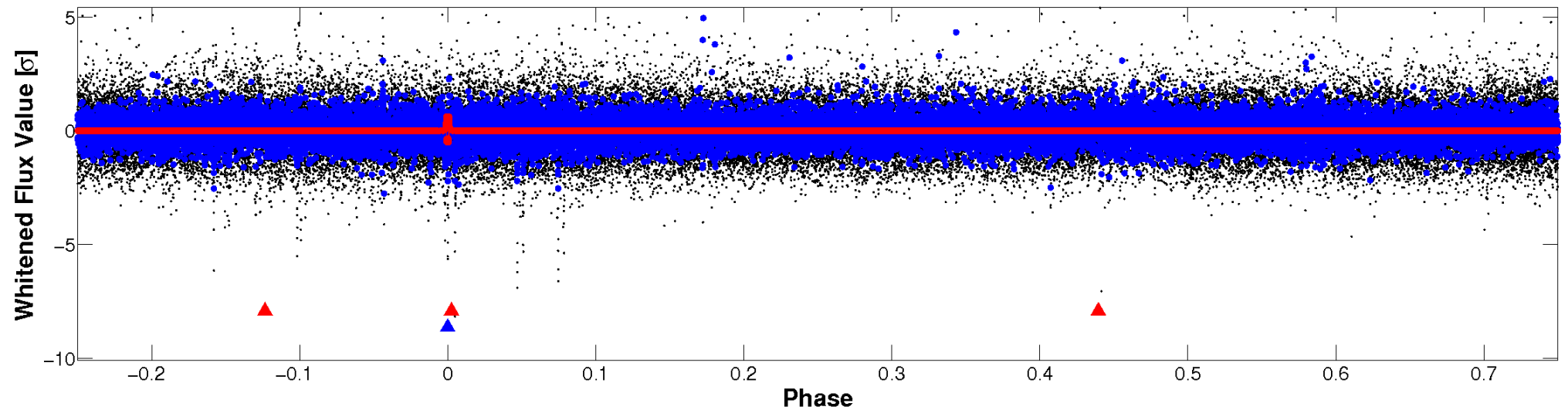


Non-Whitened Vs. Whitened Light Curve

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

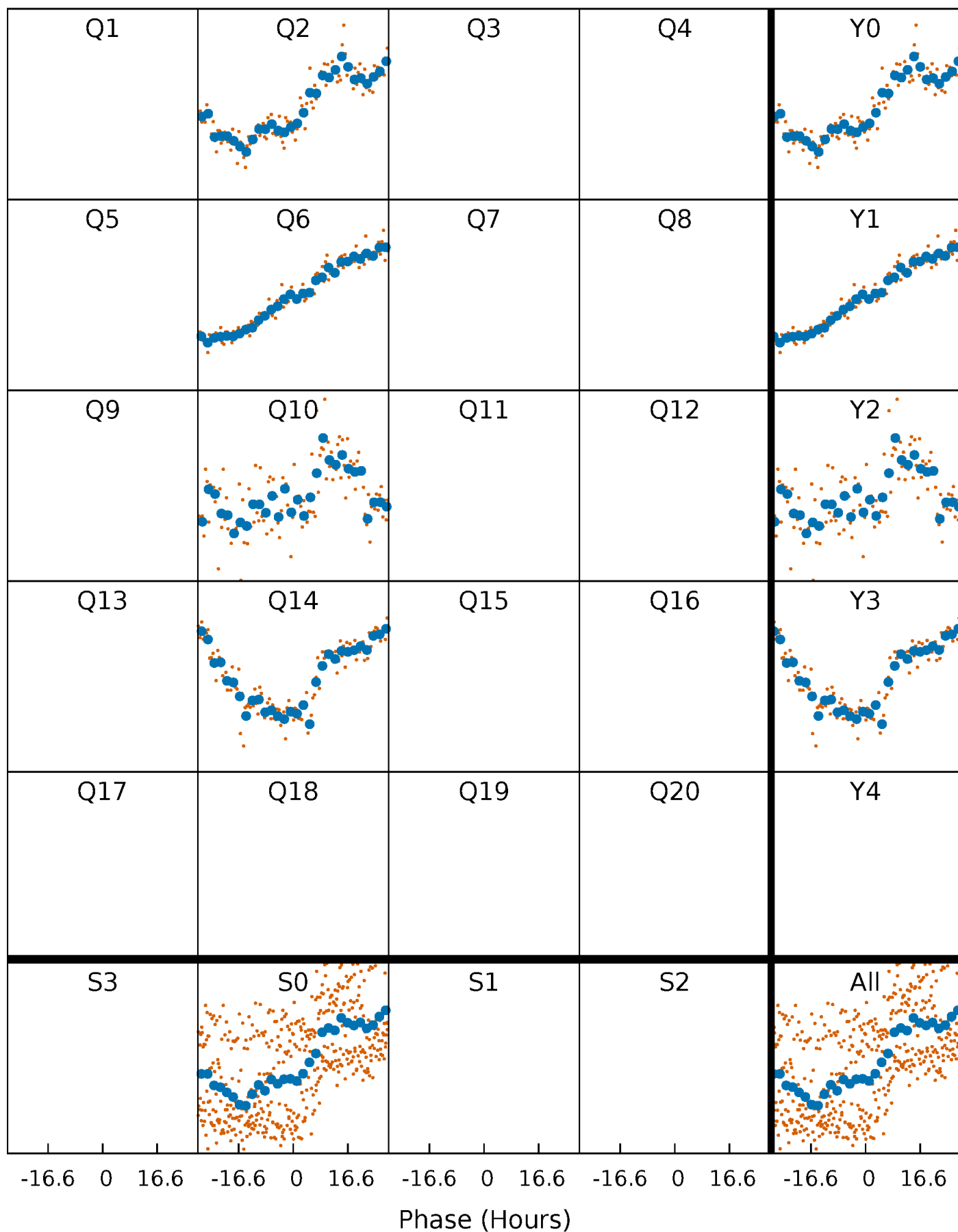


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



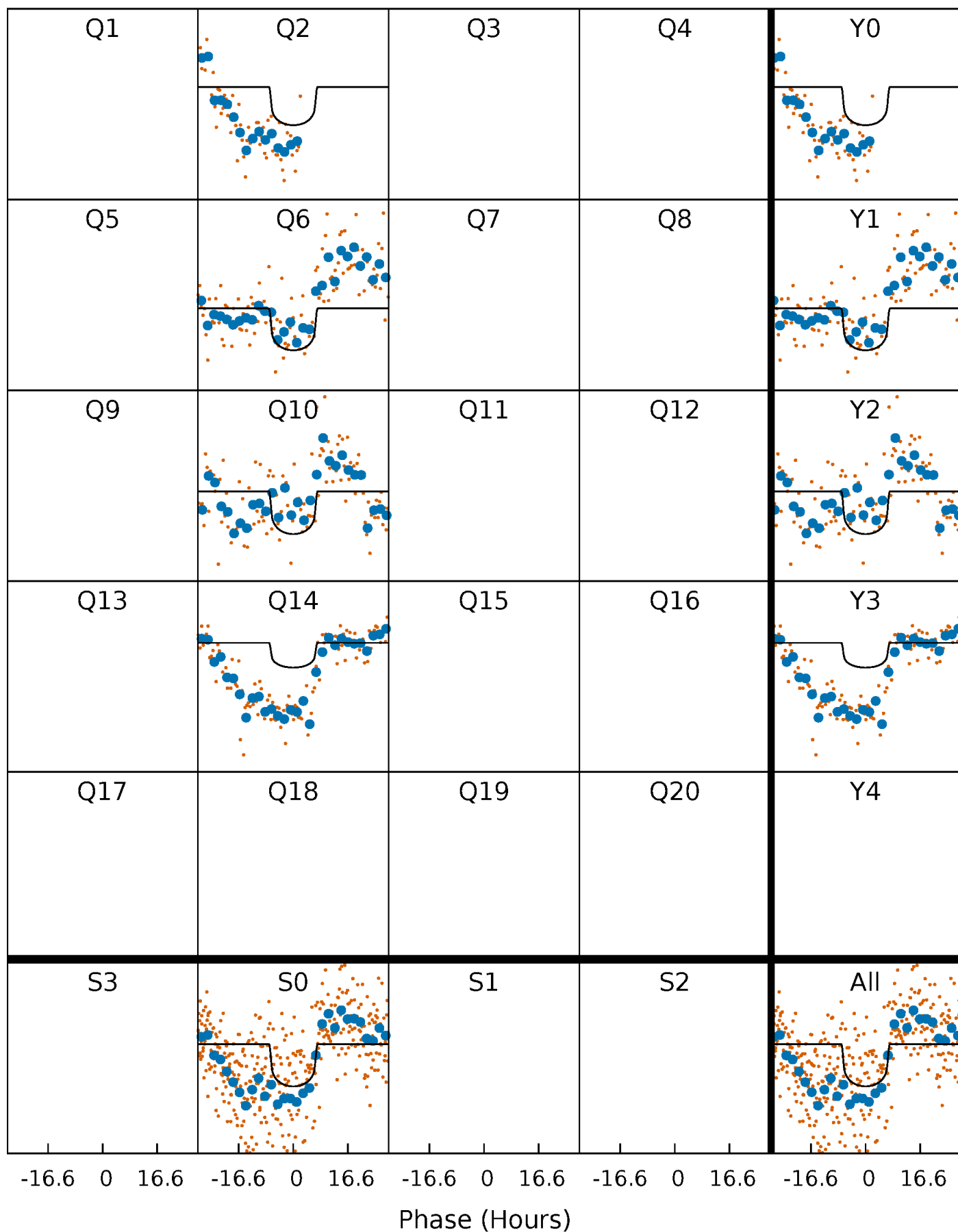
PDC Quarter-Phased Transit Curves

TCE 007970717-02 P=357.268874 Days $T_0=238.988204$ (BKJD)



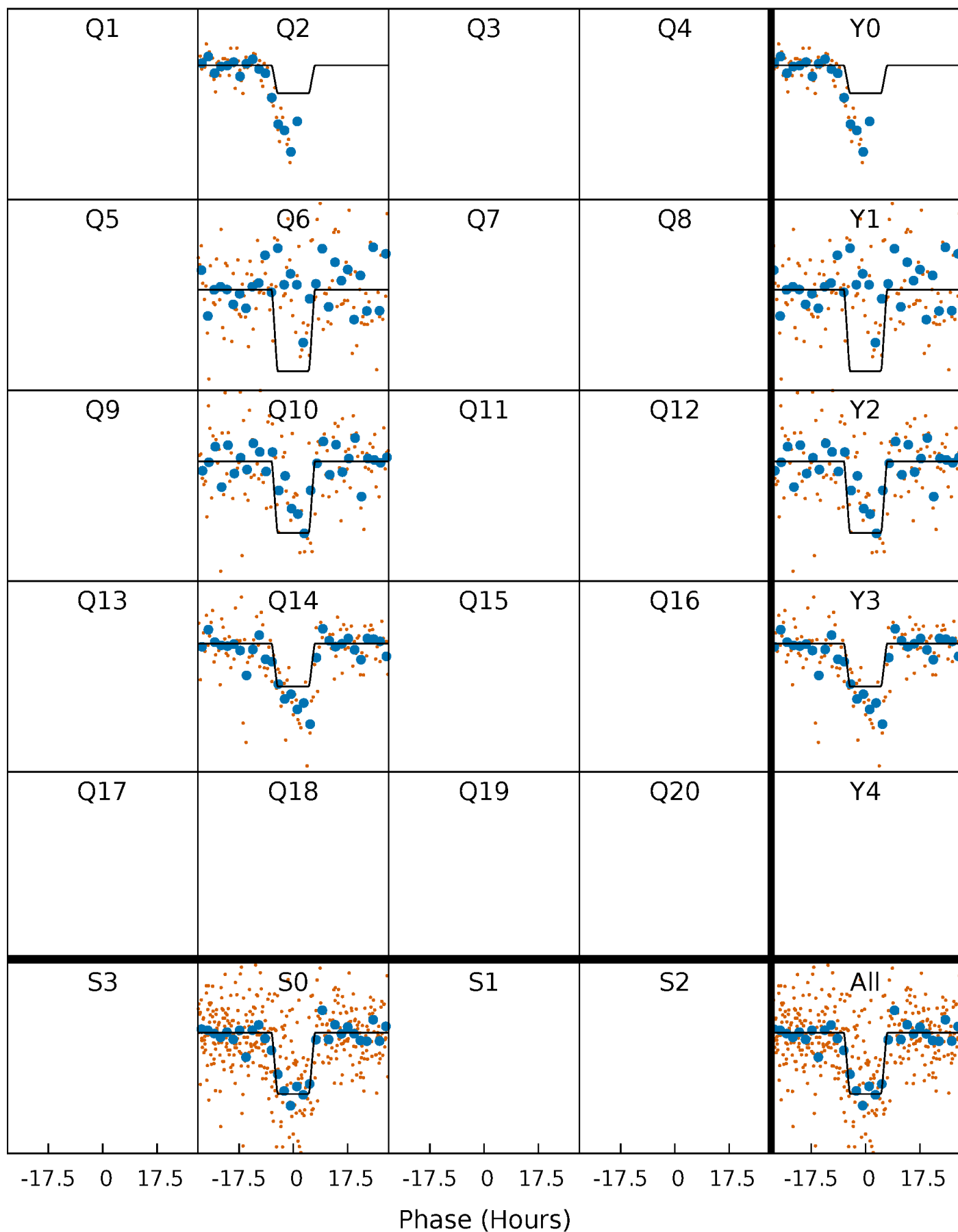
DV Quarter-Phased Transit Curves

TCE 007970717-02 P=357.268874 Days $T_0=238.988204$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

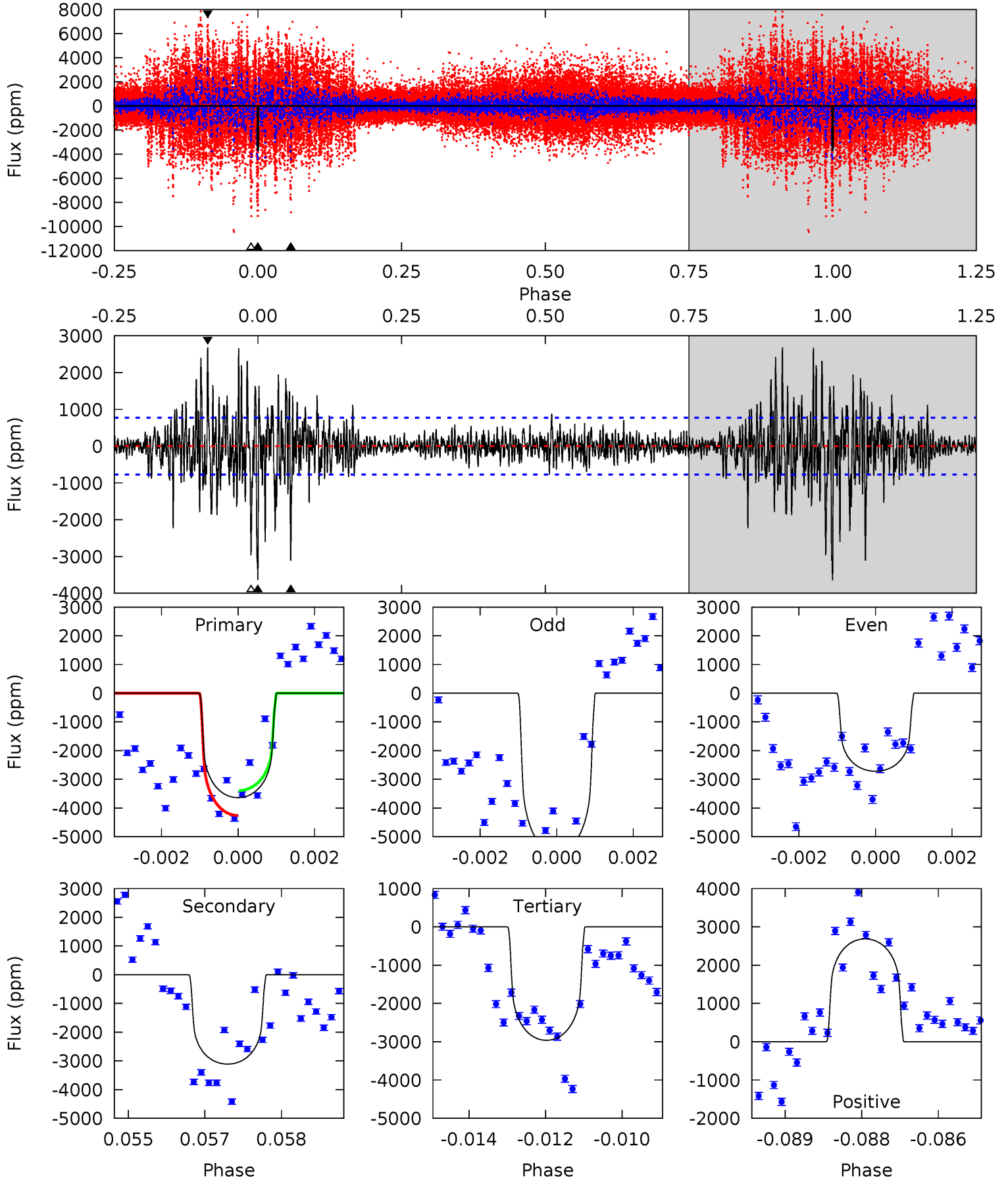
TCE 007970717-02 P=357.246741 Days $T_0=239.057459$ (BKJD)



DV Model-Shift Uniqueness Test

007970717-02, P = 357.268874 Days, E = 238.988204 Days

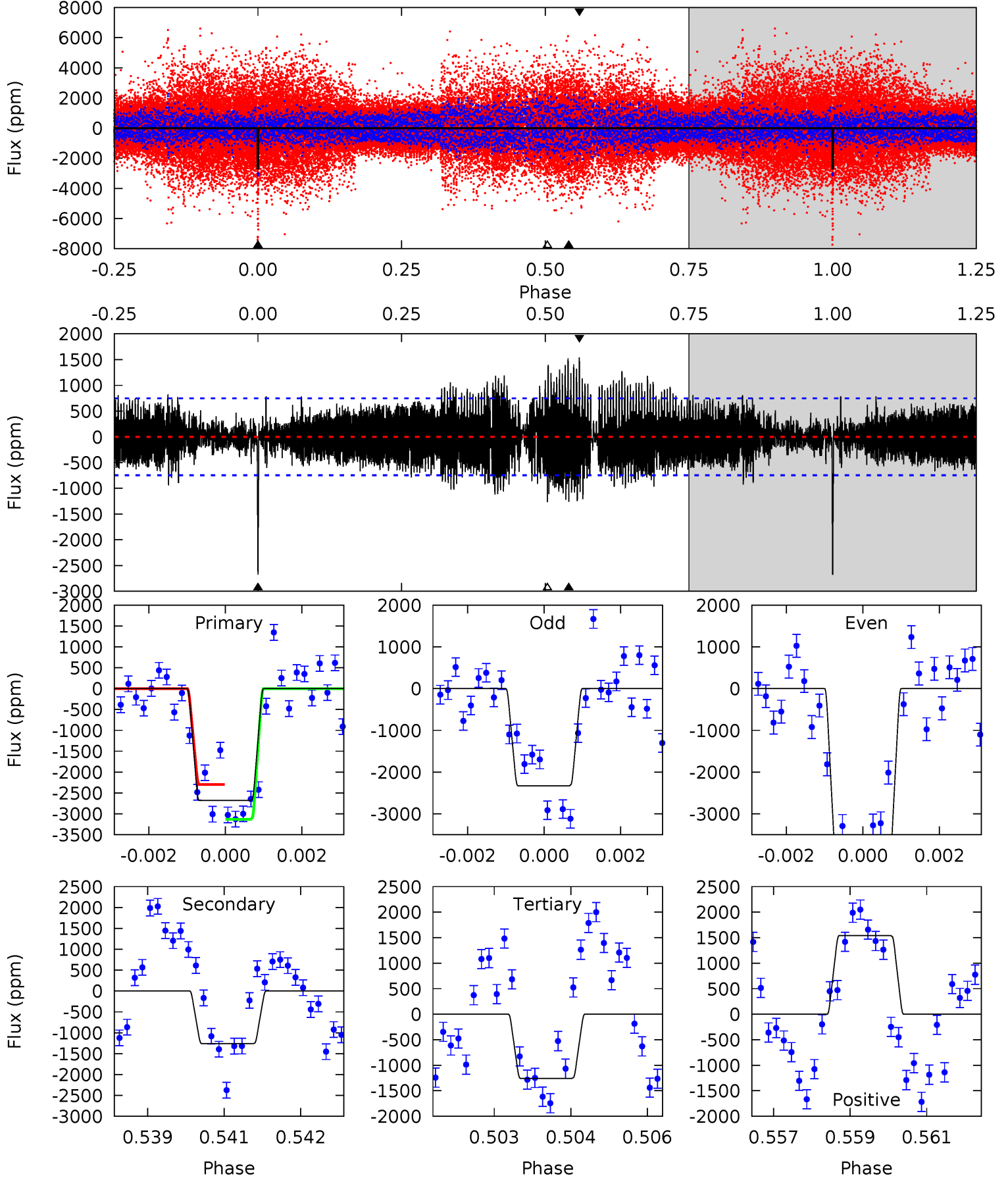
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	21.6	20.6	18.6	5.35	3.14	3.29	4.70	6.61	1.04	2.96	8.68	1.27	0.42	3.05



Alt Model-Shift Uniqueness Test

007970717-02, $P = 357.246741$ Days, $E = 239.057459$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	9.05	9.01	11.0	5.36	3.15	3.12	10.2	8.16	0.04	-2.00	6.82	1.12	0.37	0



Stellar Parameters For KIC 007970717

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5780^{+1}_{-1}	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

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

Secondary Eclipse Parameters for KIC 007970717-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3112±144	$5.44^{+1.80}_{-1.91}$	358^{+16}_{-16}	6087^{+1567}_{-780}	56345^{+71384}_{-24594}
Alt.	-1262±139	$6.16^{+2.00}_{-1.69}$	359^{+17}_{-17}	4725^{+676}_{-464}	17779^{+15688}_{-7666}

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

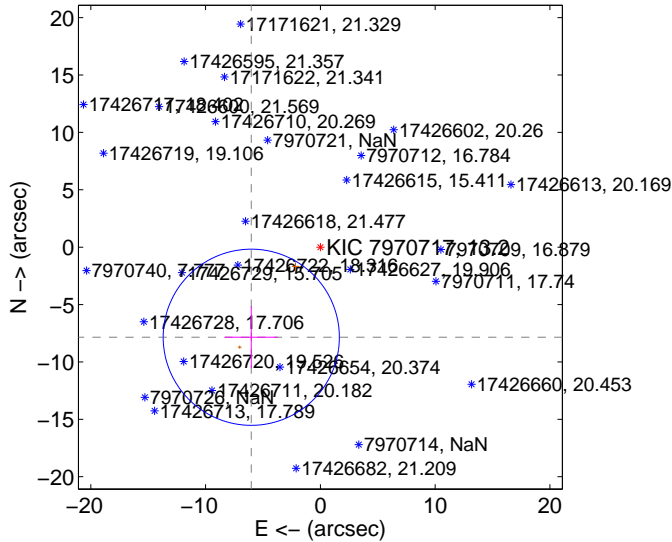
Supplemental centroid analysis for 007970717-02. Kepler magnitude: 13.20. Transit SNR 5.01

There are 0 quarters with good PRF difference image offsets

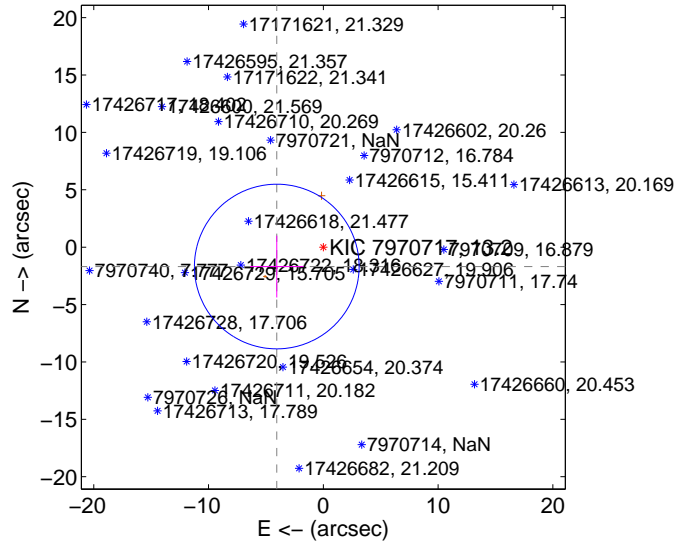
The OOT PRF centroid is offset from the target star catalog position by about 6.47 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.893 \pm 2.559	3.87	6.021 \pm 2.302	-7.850 \pm 2.698
PRF-fit source offset from KIC position	4.392 \pm 2.391	1.84	4.055 \pm 2.335	-1.687 \pm 2.694
photometric centroid source offset	5.36 \pm 0.09	61.25	2.76 \pm 0.06	-4.60 \pm 0.10

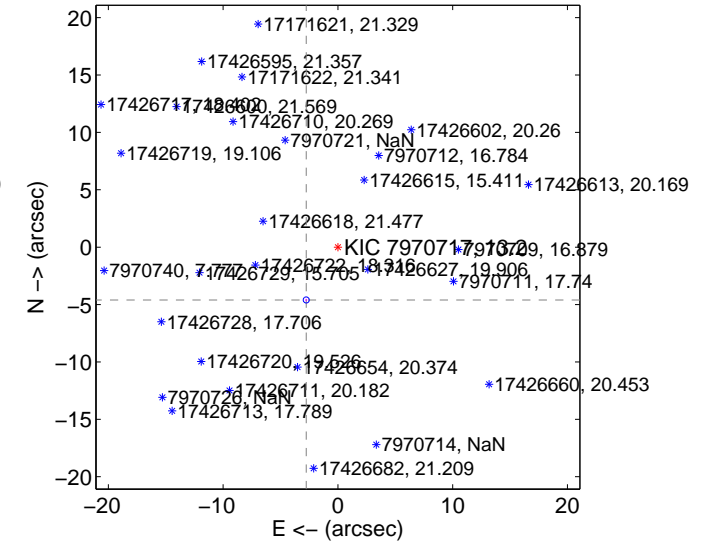
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

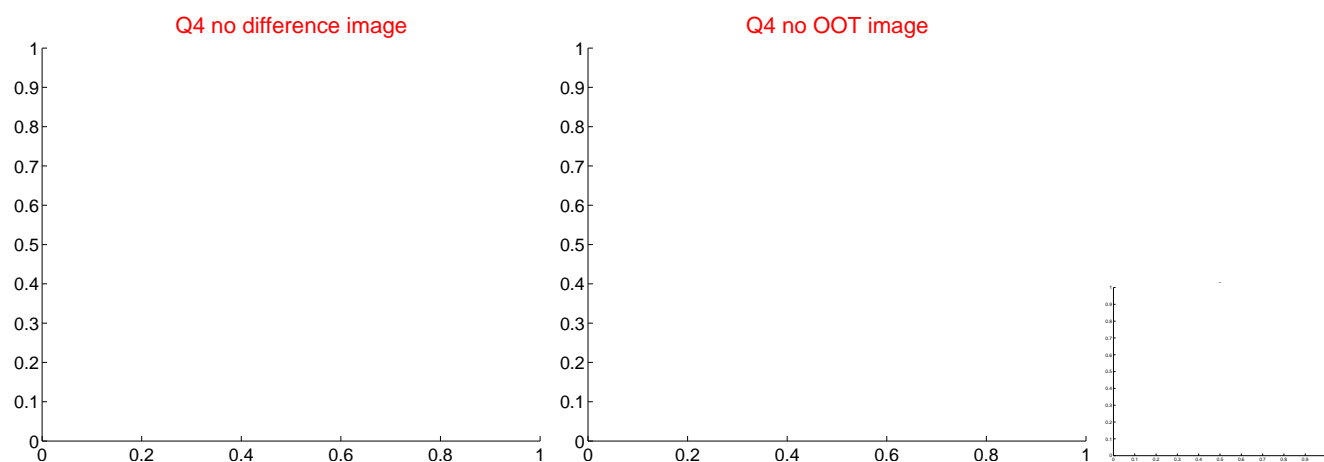
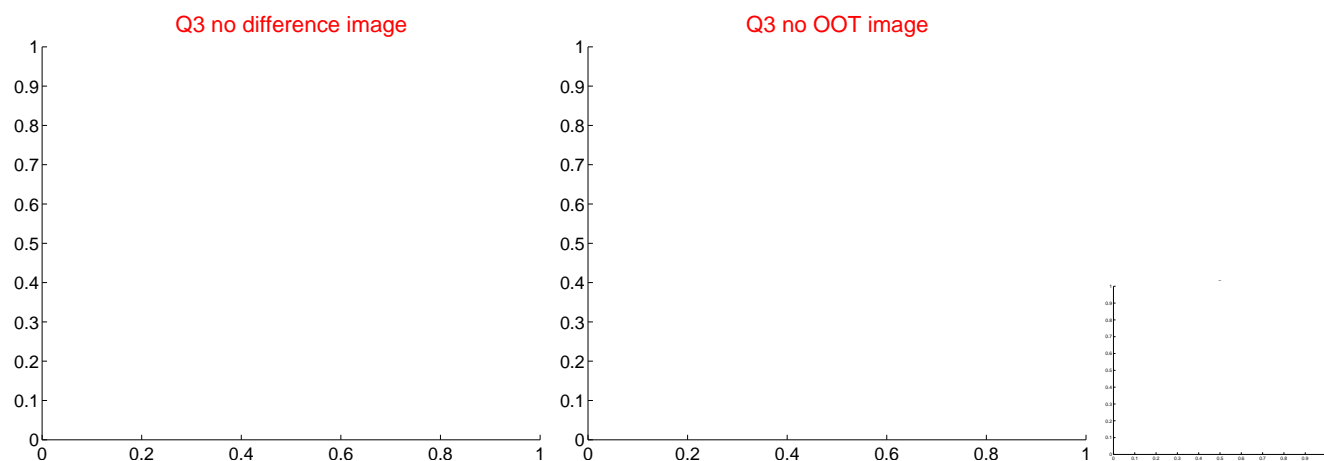
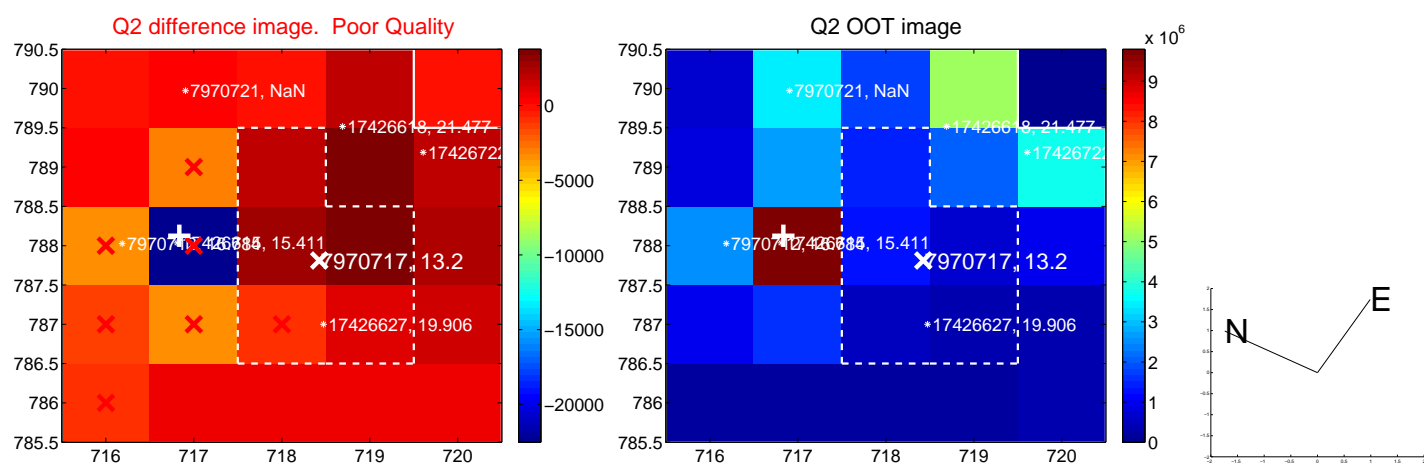
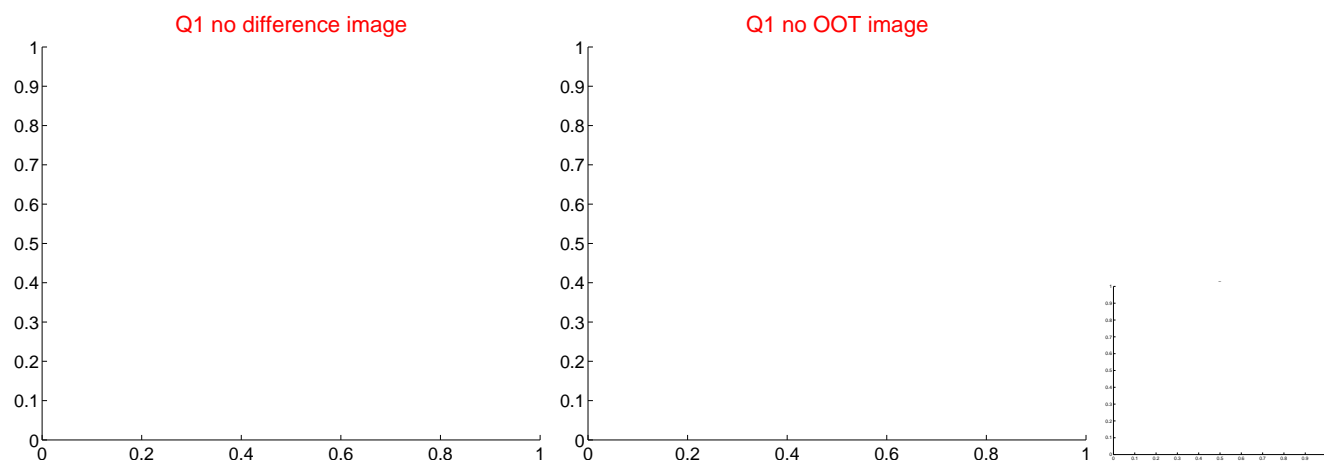


offset from photometric centroids

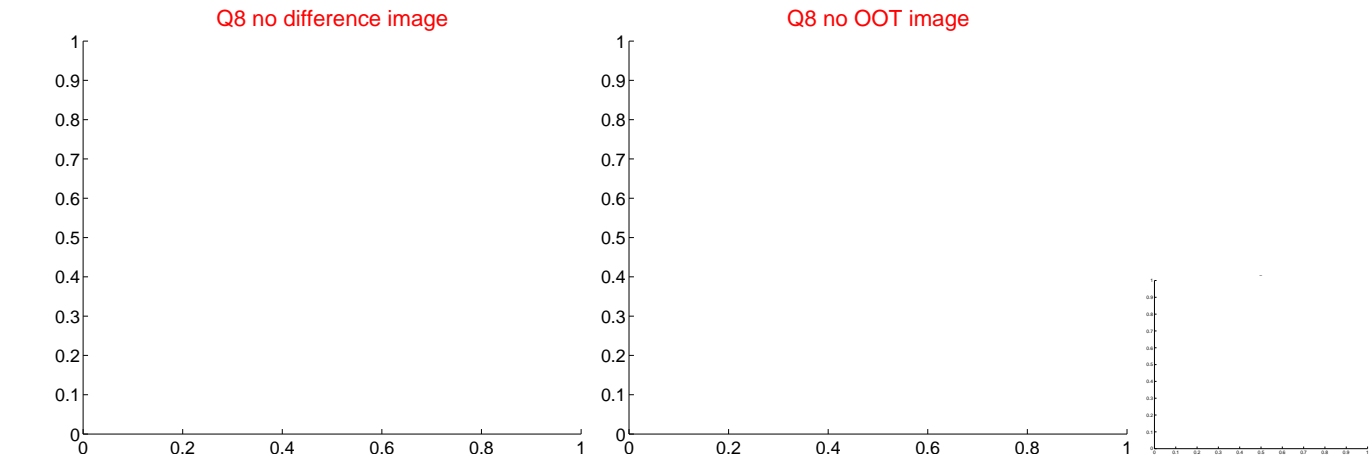
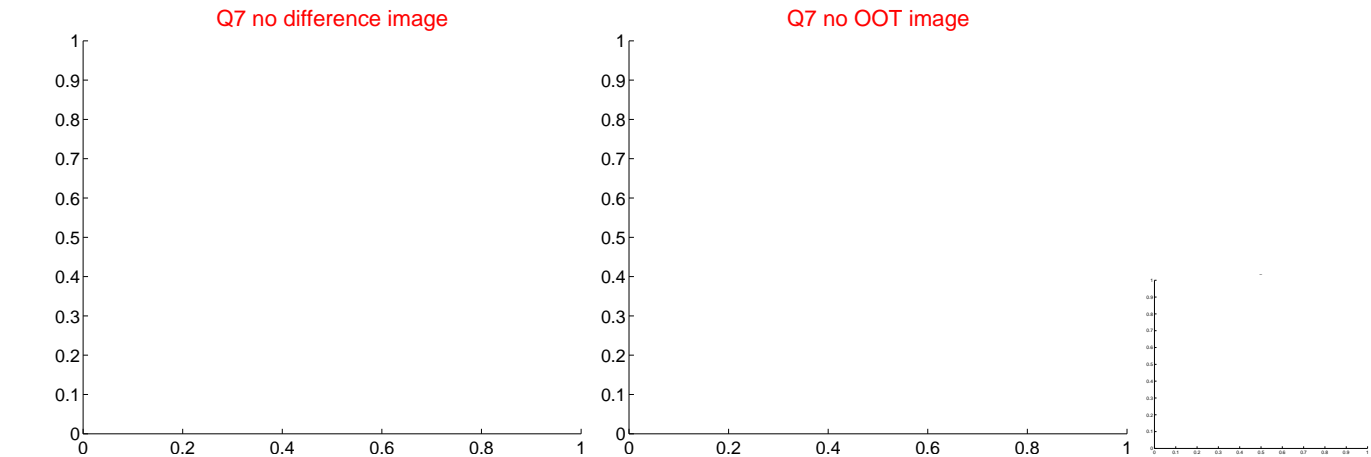
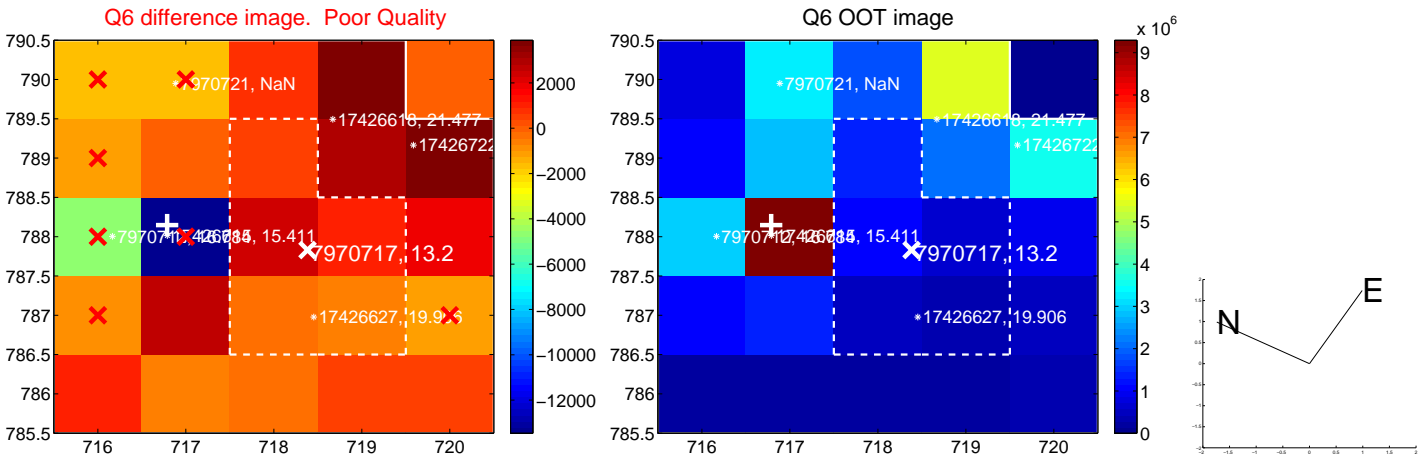
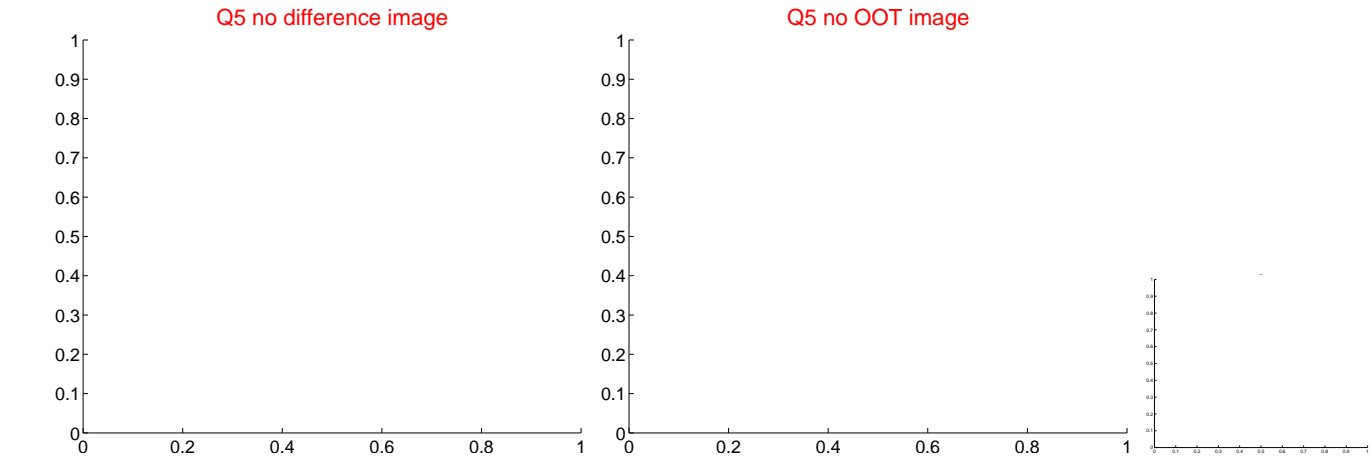


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

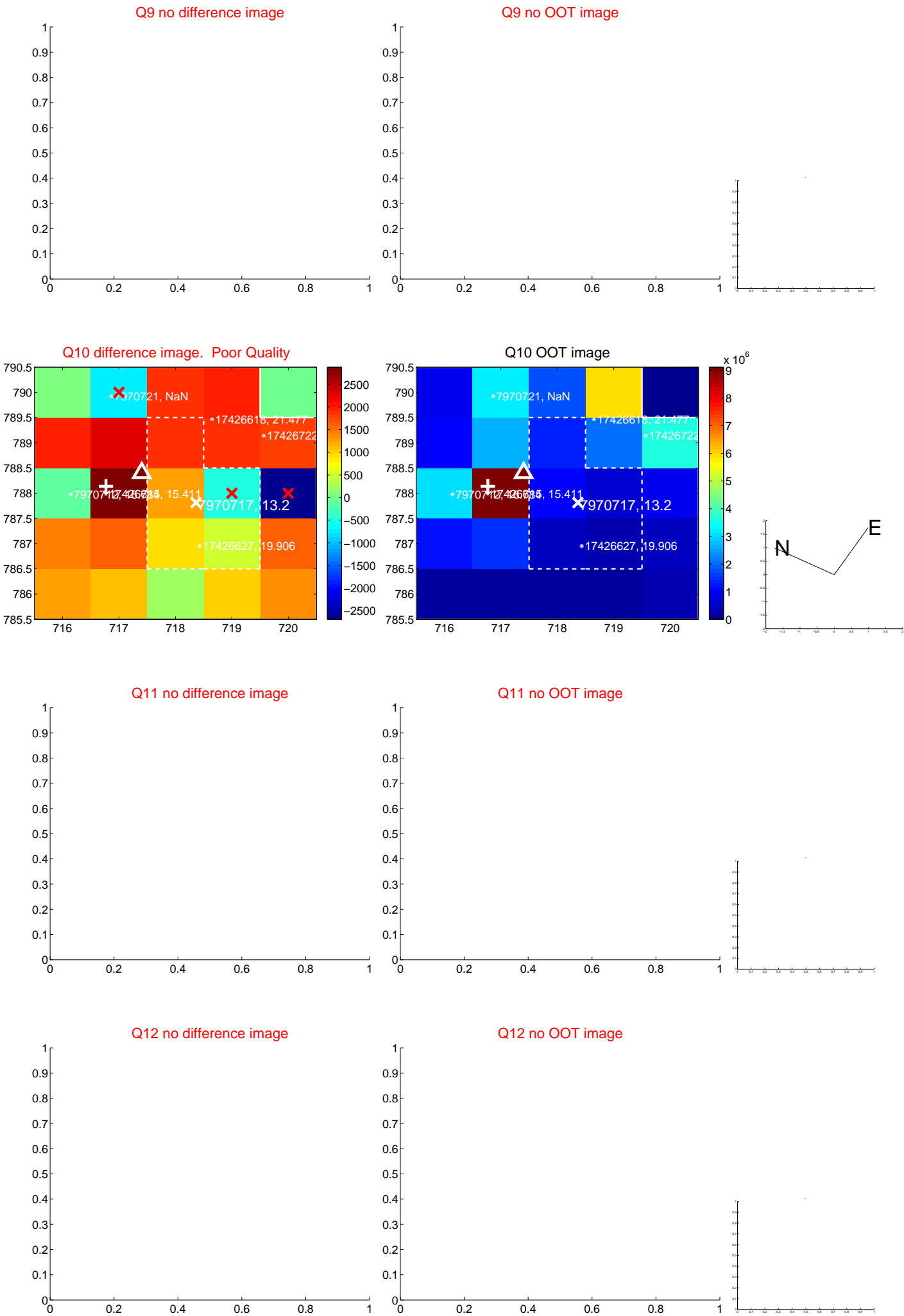
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

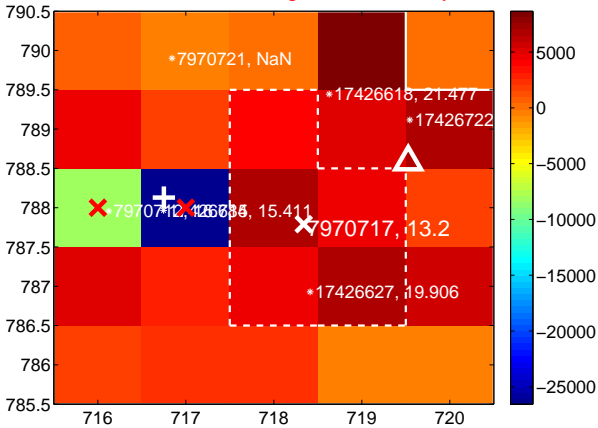
Q13 no difference image



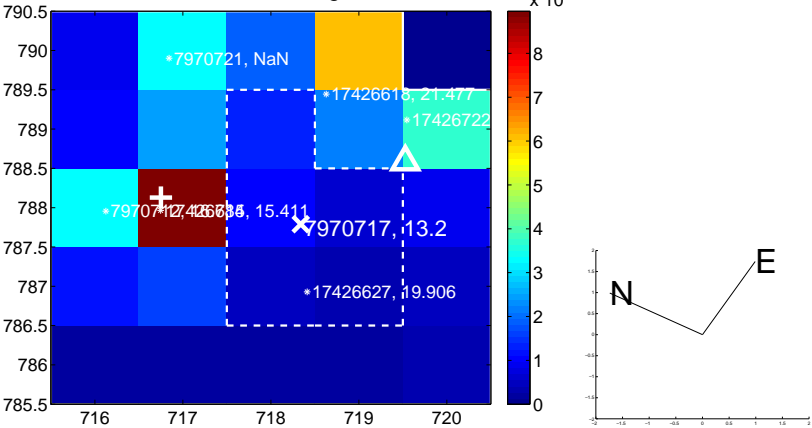
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



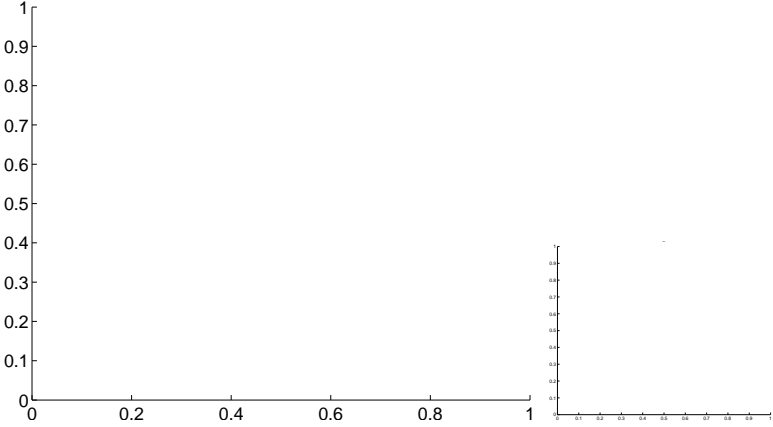
Q15 no OOT image



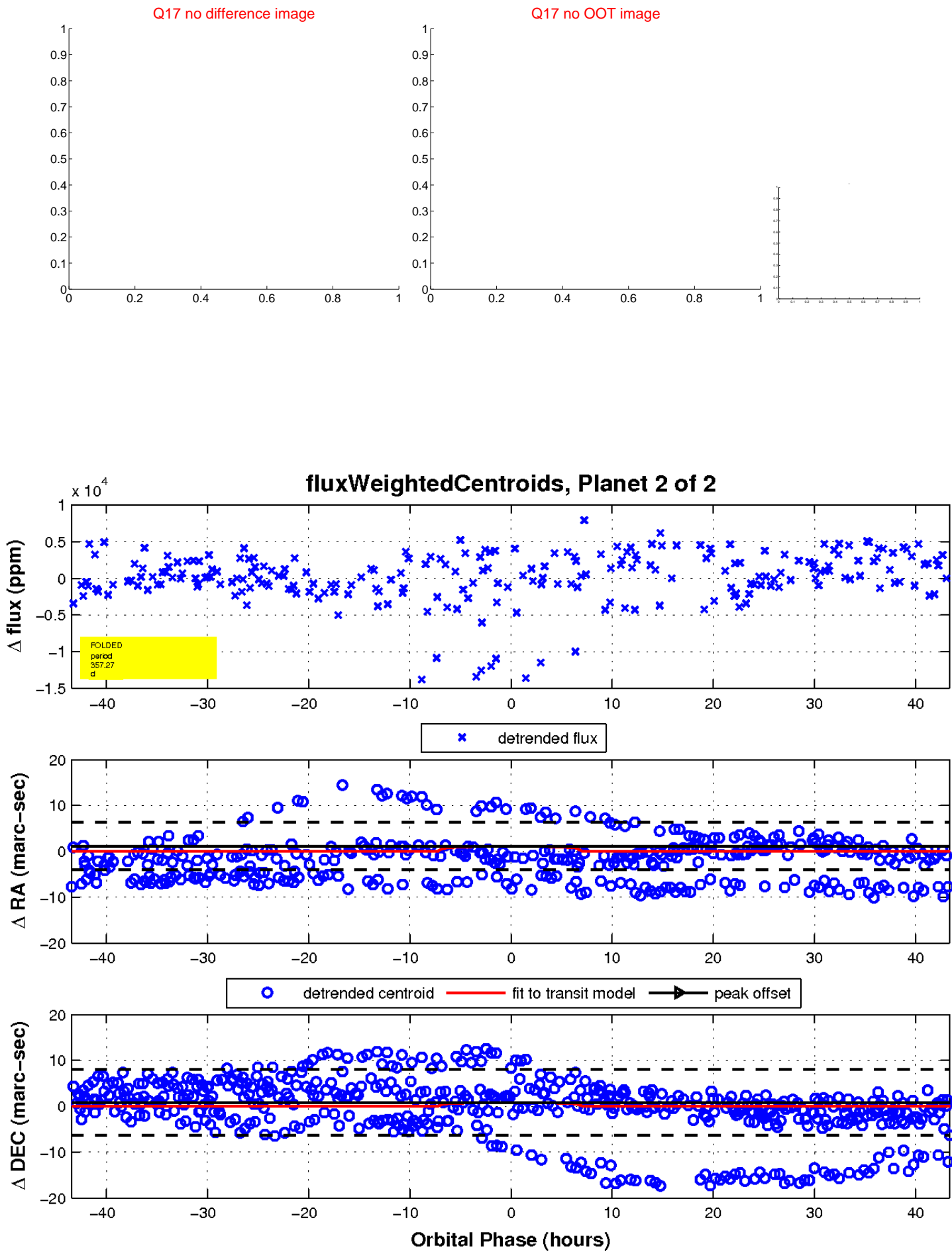
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

