

KIC 005289854

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})
005289854-01	OBS	1593.01	9.694931	133.984756	519.7	2.861	16.7	18.4	0.91	5896	2.38	114.21
005289854-02	OBS	1593.02	15.382563	139.079046	528.9	4.171	15.5	17.1	0.91	5896	2.46	61.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005289854-01	OBS	PC	0.96	0	0	0	0	CENT_KIC_POS
005289854-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

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.

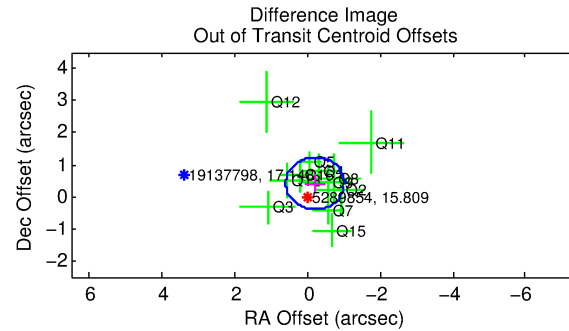
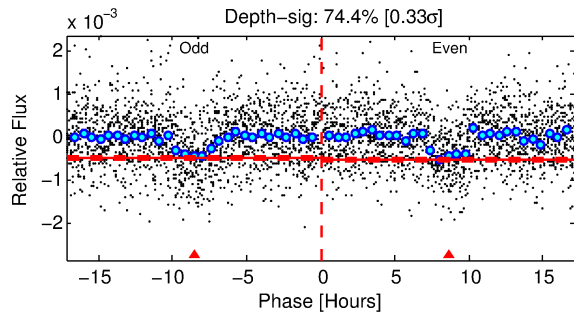
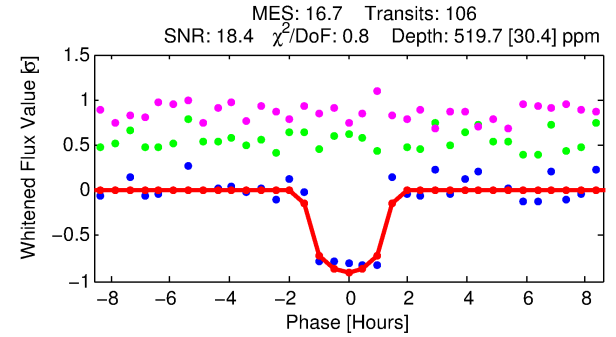
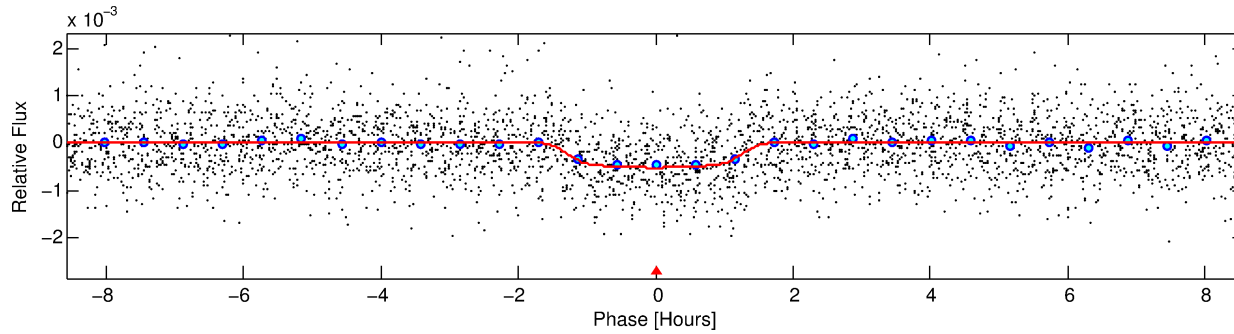
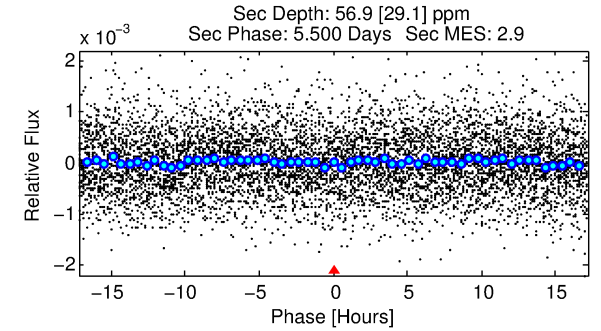
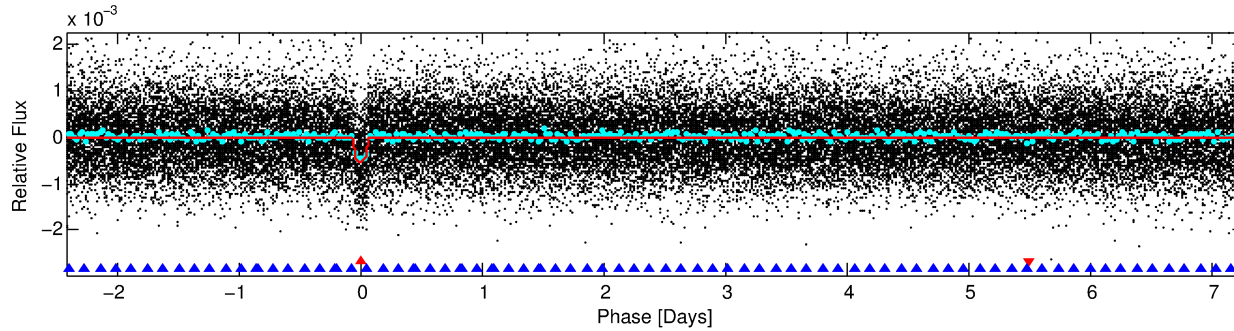
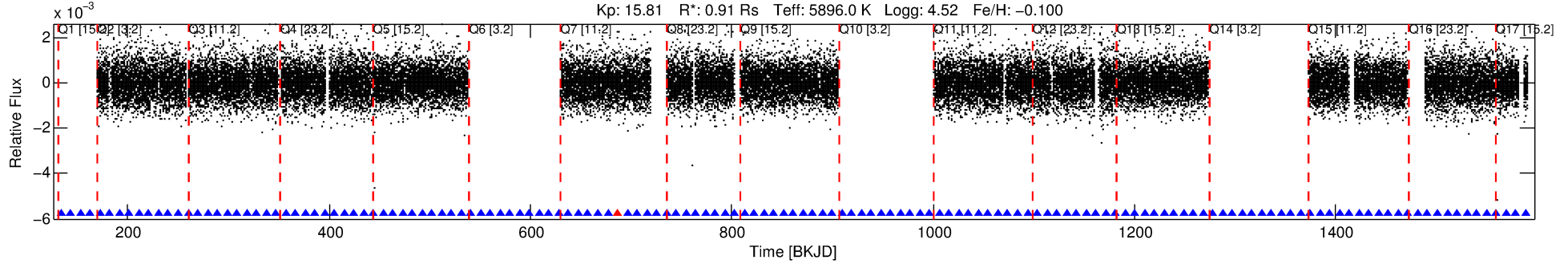
Ephemeris Match Information For 005289854-01

No Significant Match Found

DV One-Page Summary

KIC: 5289854 Candidate: 1 of 2 Period: 9.695 d
KOI: K01593.01 Name: Kepler-308b Corr: 0.961

Kp: 15.81 R*: 0.91 Rs Teff: 5896.0 K Logg: 4.52 Fe/H: -0.100



DV Fit Results:

Period = 9.69493 [0.00004] d
Epoch = 133.9848 [0.0036] BKJD
Rp/R* = 0.0239 [0.0075]
a/R* = 14.64 [21.72]
b = 0.85 [0.48]
Seff = 114.21 [45.57]
Teff = 834 [83] K
Rp = 2.38 [1.03] Re
a = 0.0890 [0.0228] AU
Ag = 43.72 [38.94] [1.10σ]
Teffp = 3314 [678] K [3.63σ]

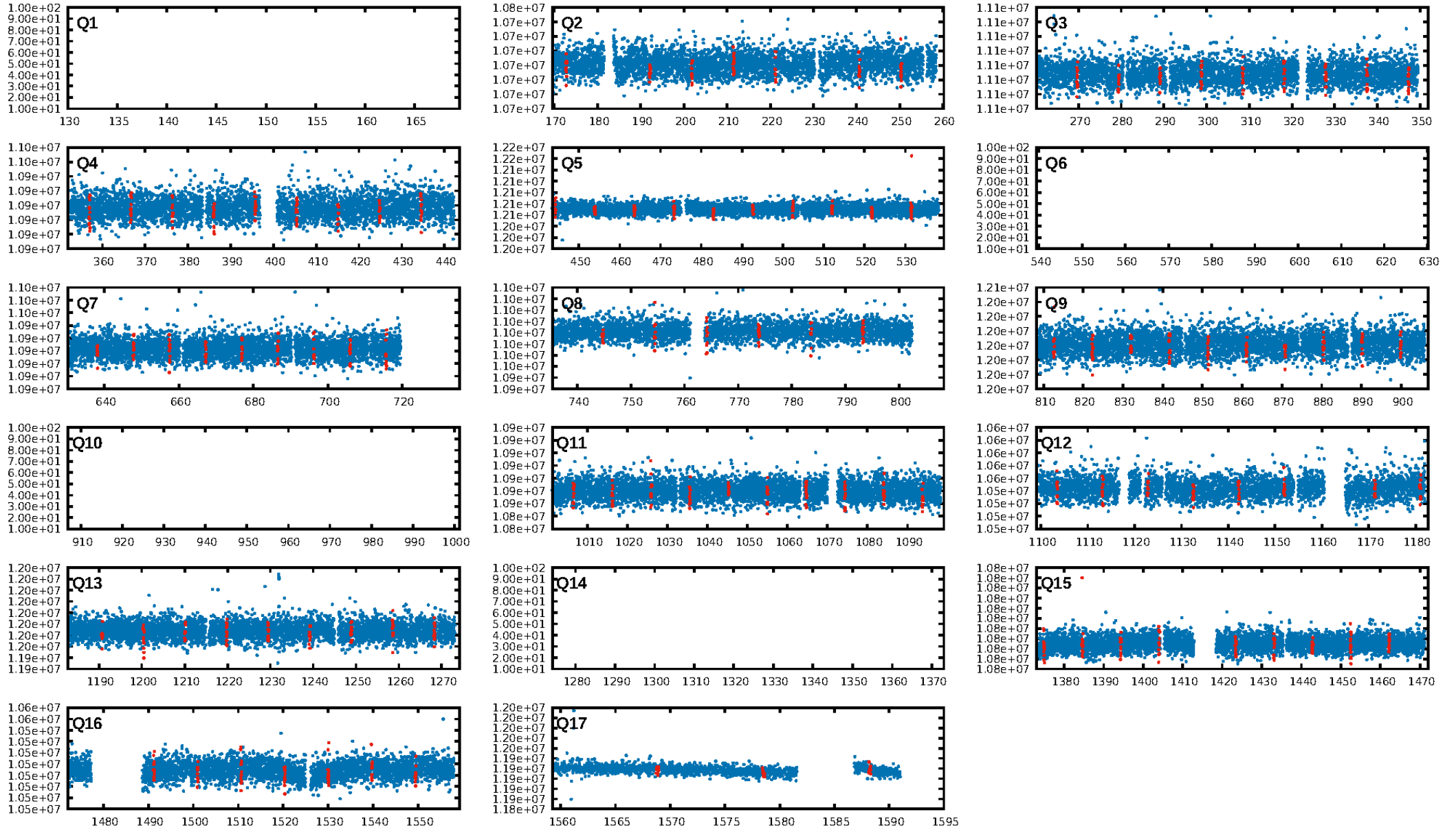
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [26.99σ]
ModelChiSquare2-sig: 88.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.09e-60
RollingBand-fgt: 0.99 [102/103]
GhostDiagnostic-chr: 2.099
Centroid-sig: 1.1%
Centroid-so: 2.275 arcsec [2.84σ]
OotOffset-rm: 0.466 arcsec [1.73σ]
KicOffset-rm: 0.788 arcsec [2.43σ]
OotOffset-st: 1/4/4/3 [12]
KicOffset-st: 1/4/4/3 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [13/13]

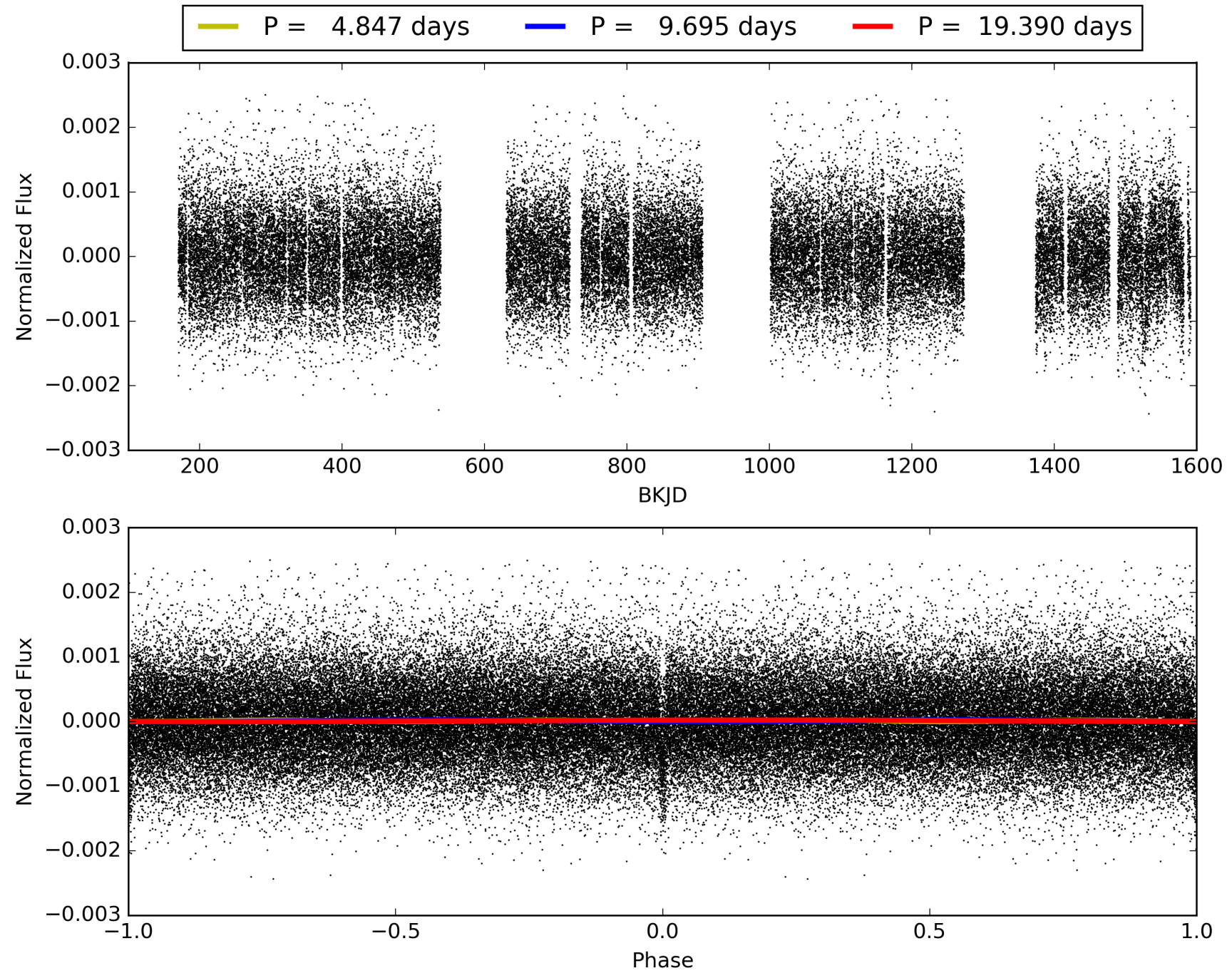
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 23:18:05 Z

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

TCE 005289854-01, PDC Light Curves

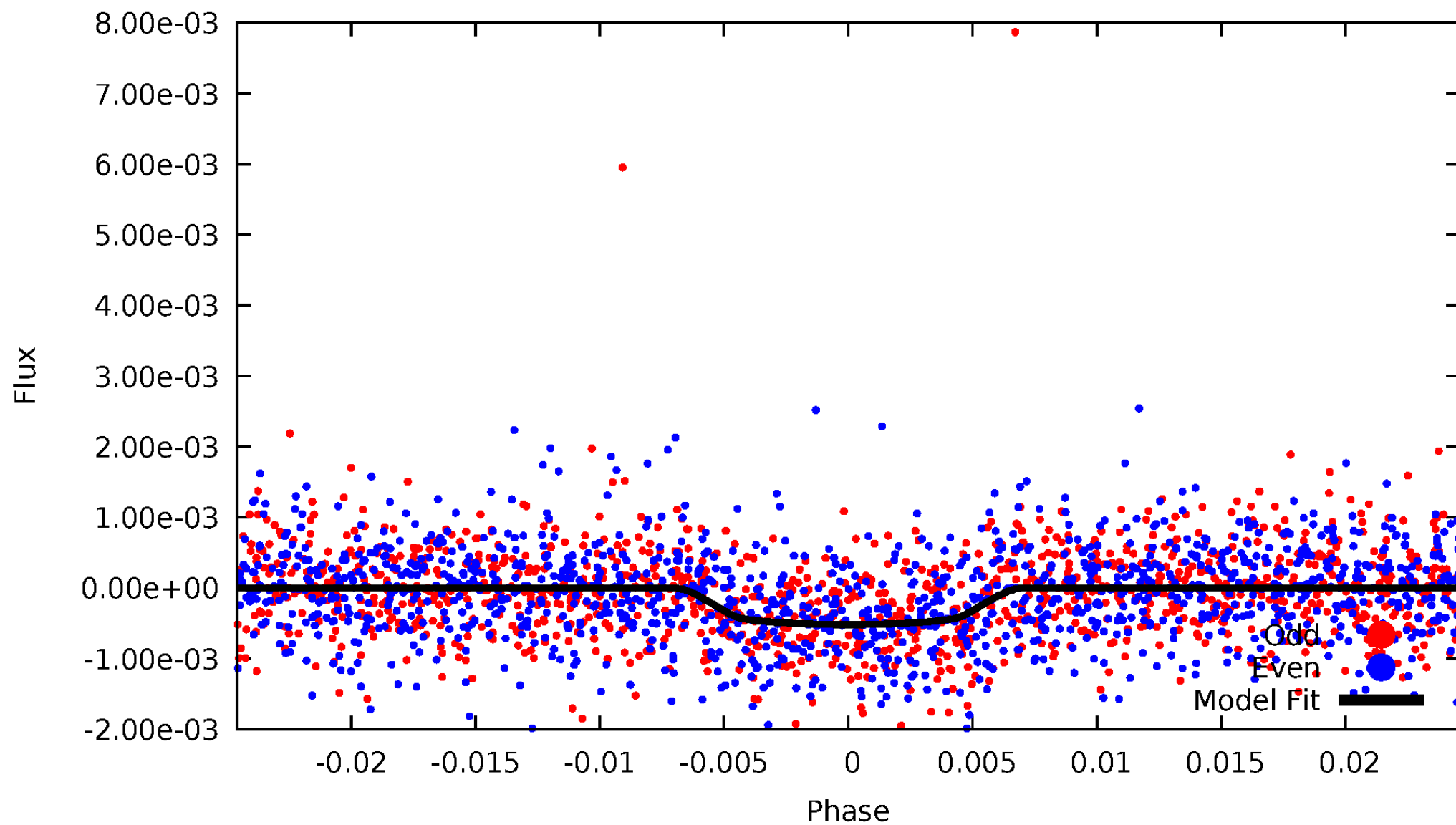


TCE 005289854-01



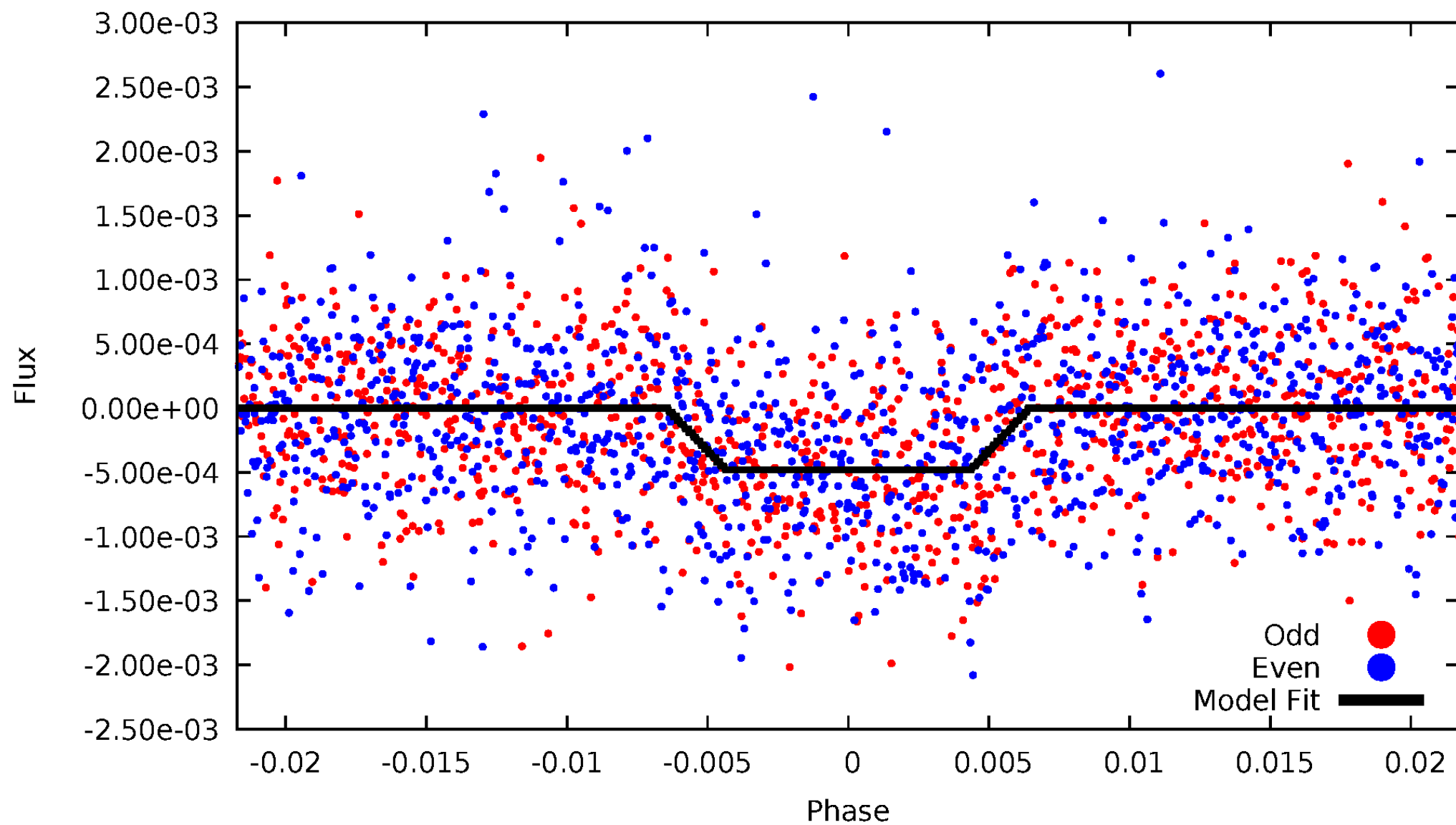
DV Odd/Even

TCE 005289854-01



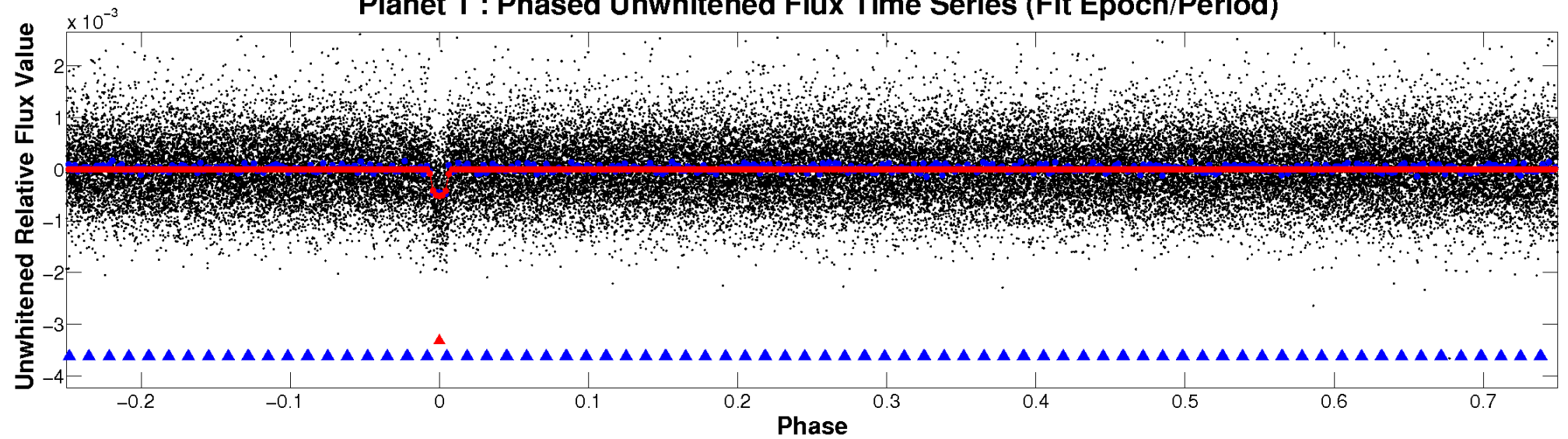
ALT Odd/Even

TCE 005289854-01

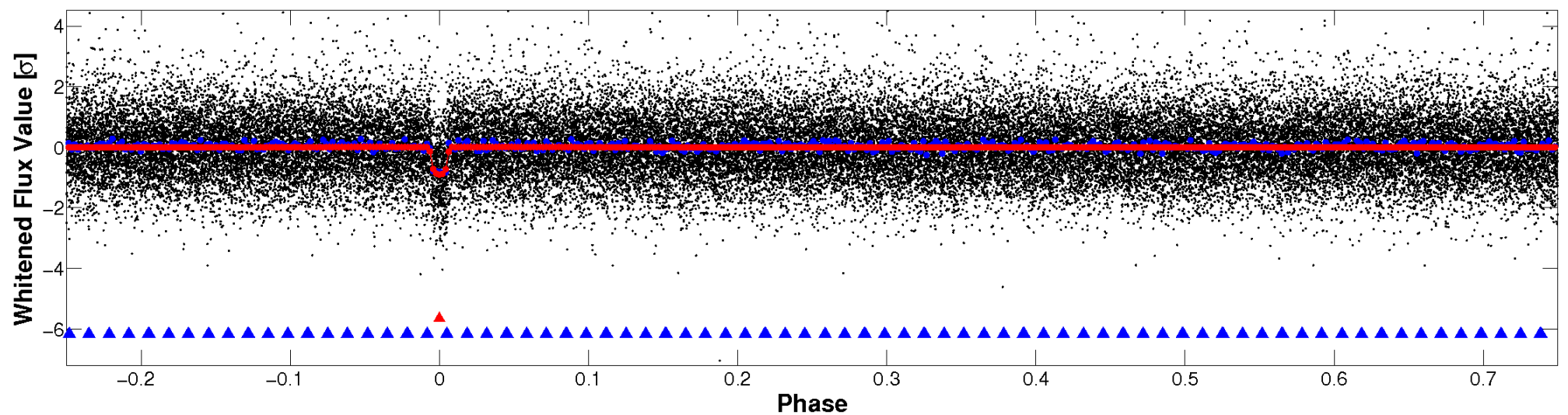


Non-Whitened Vs. Whitened Light Curve

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

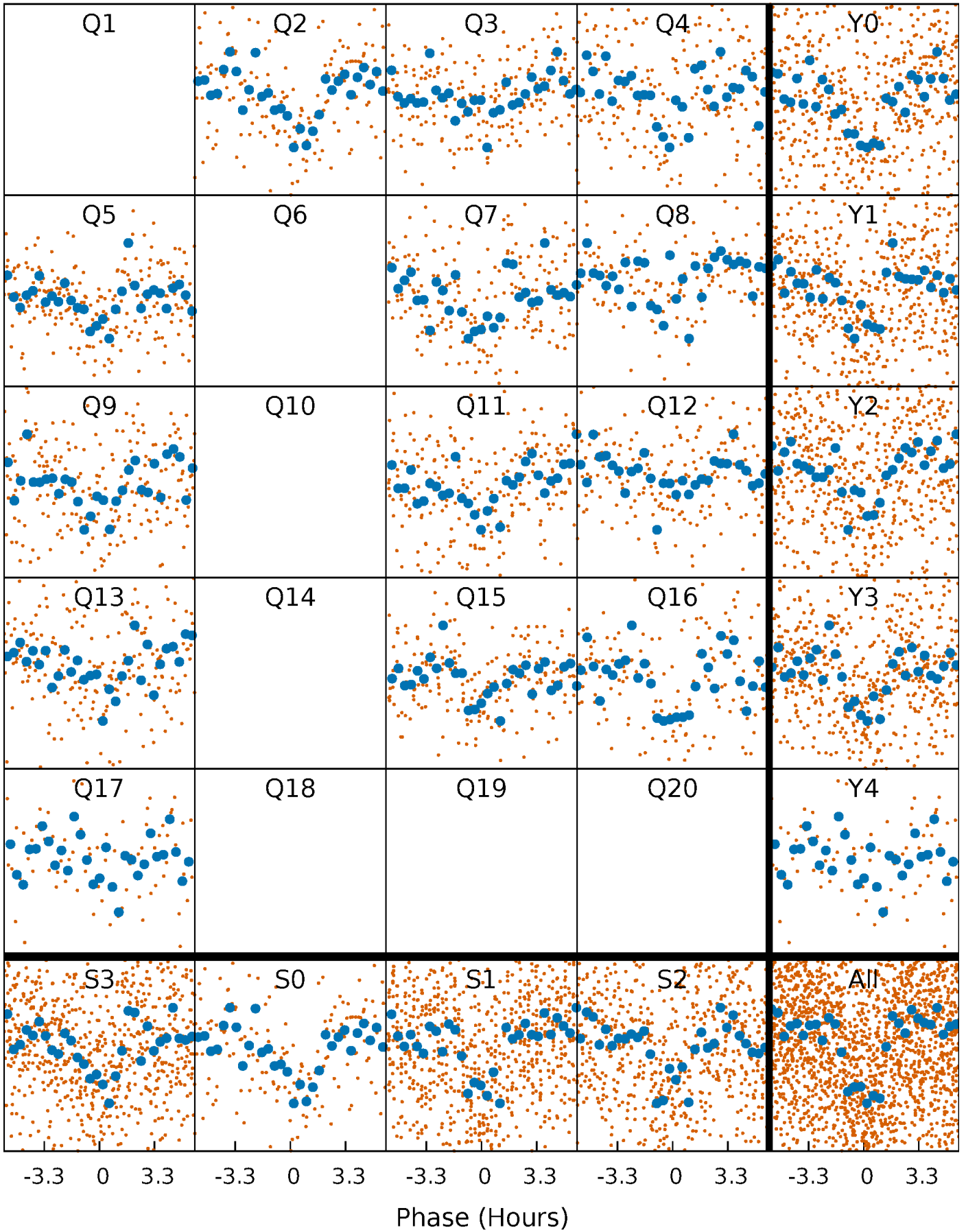


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



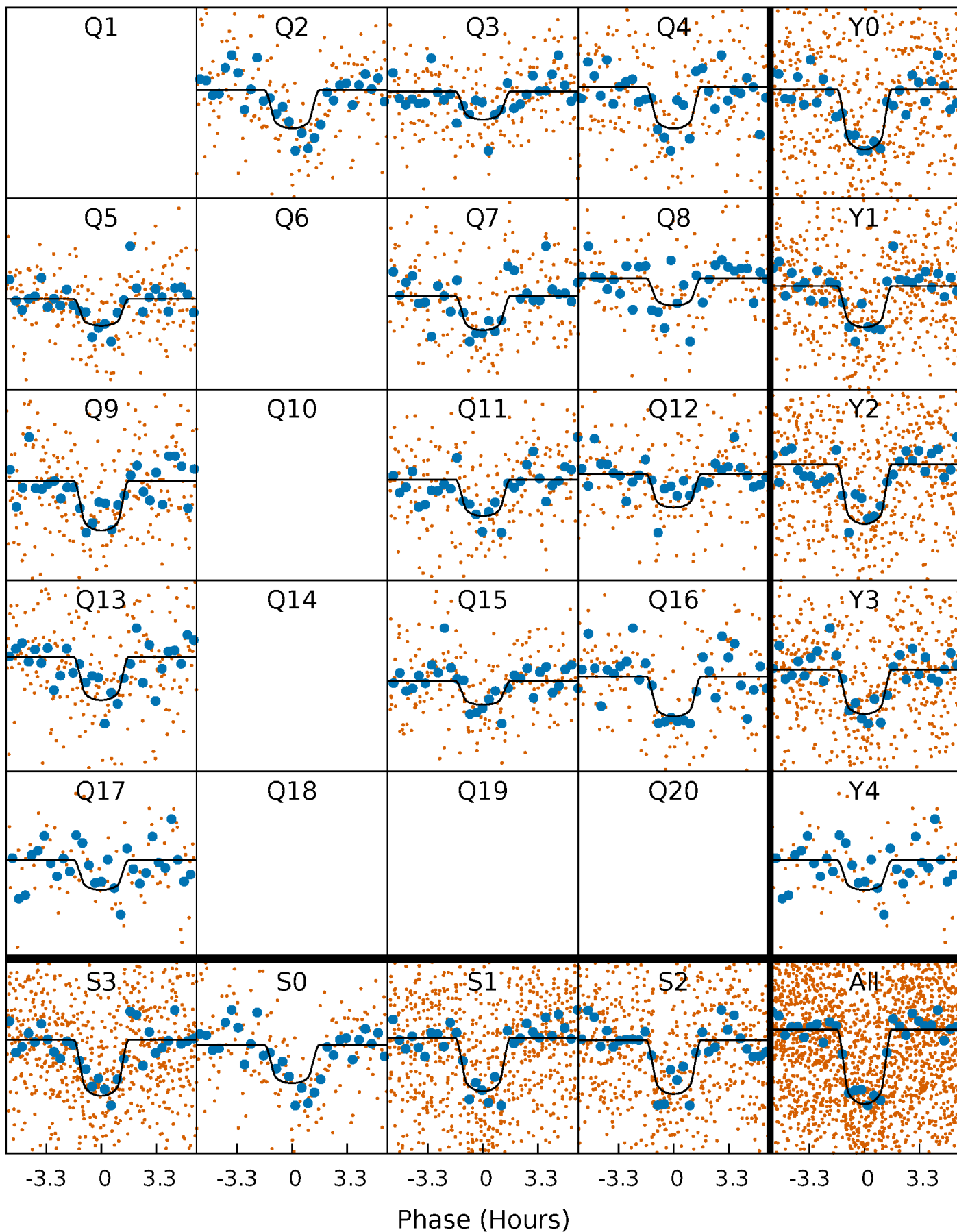
PDC Quarter-Phased Transit Curves

TCE 005289854-01 P= 9.694931 Days $T_0=133.984756$ (BKJD)



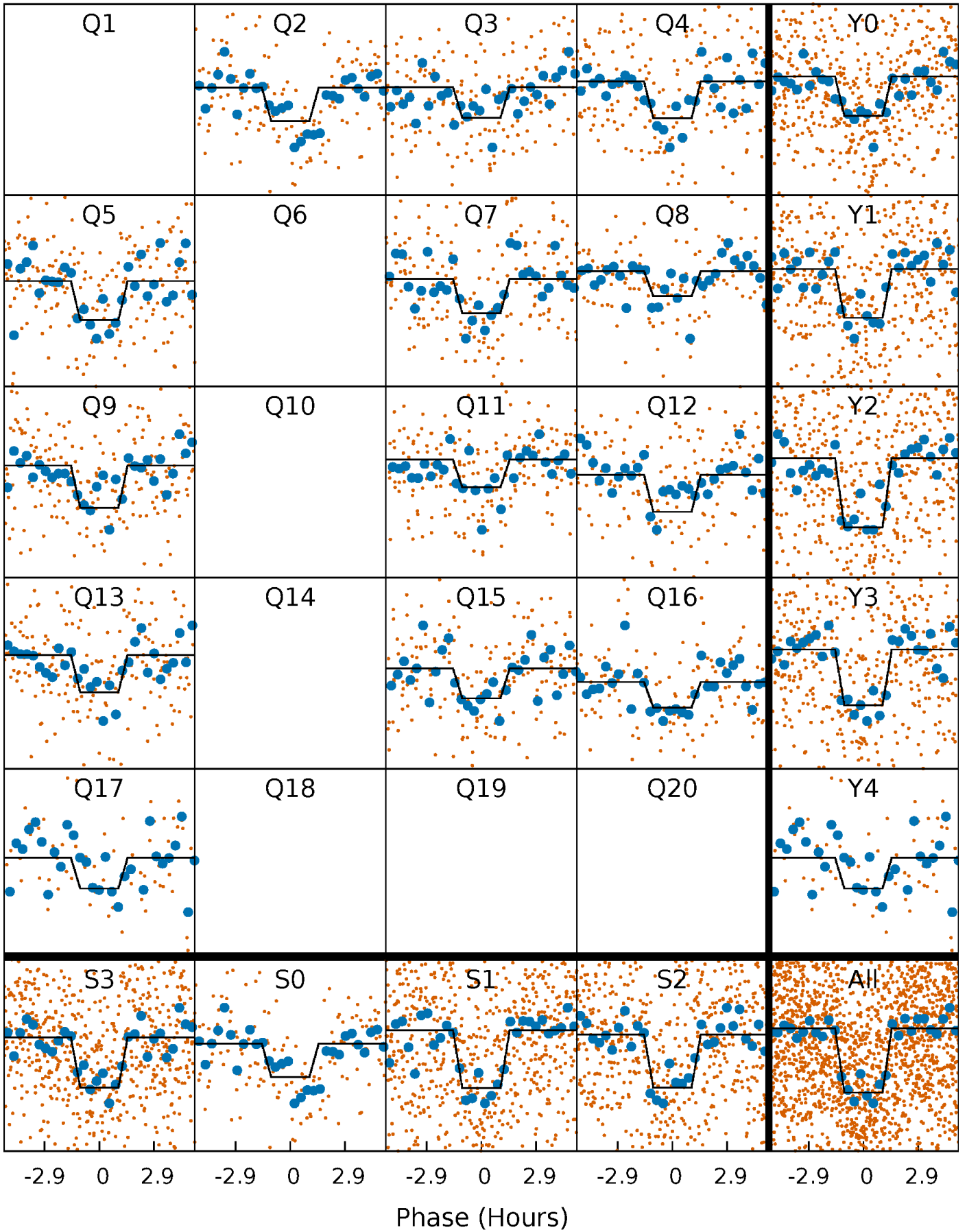
DV Quarter-Phased Transit Curves

TCE 005289854-01 P= 9.694931 Days $T_0=133.984756$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

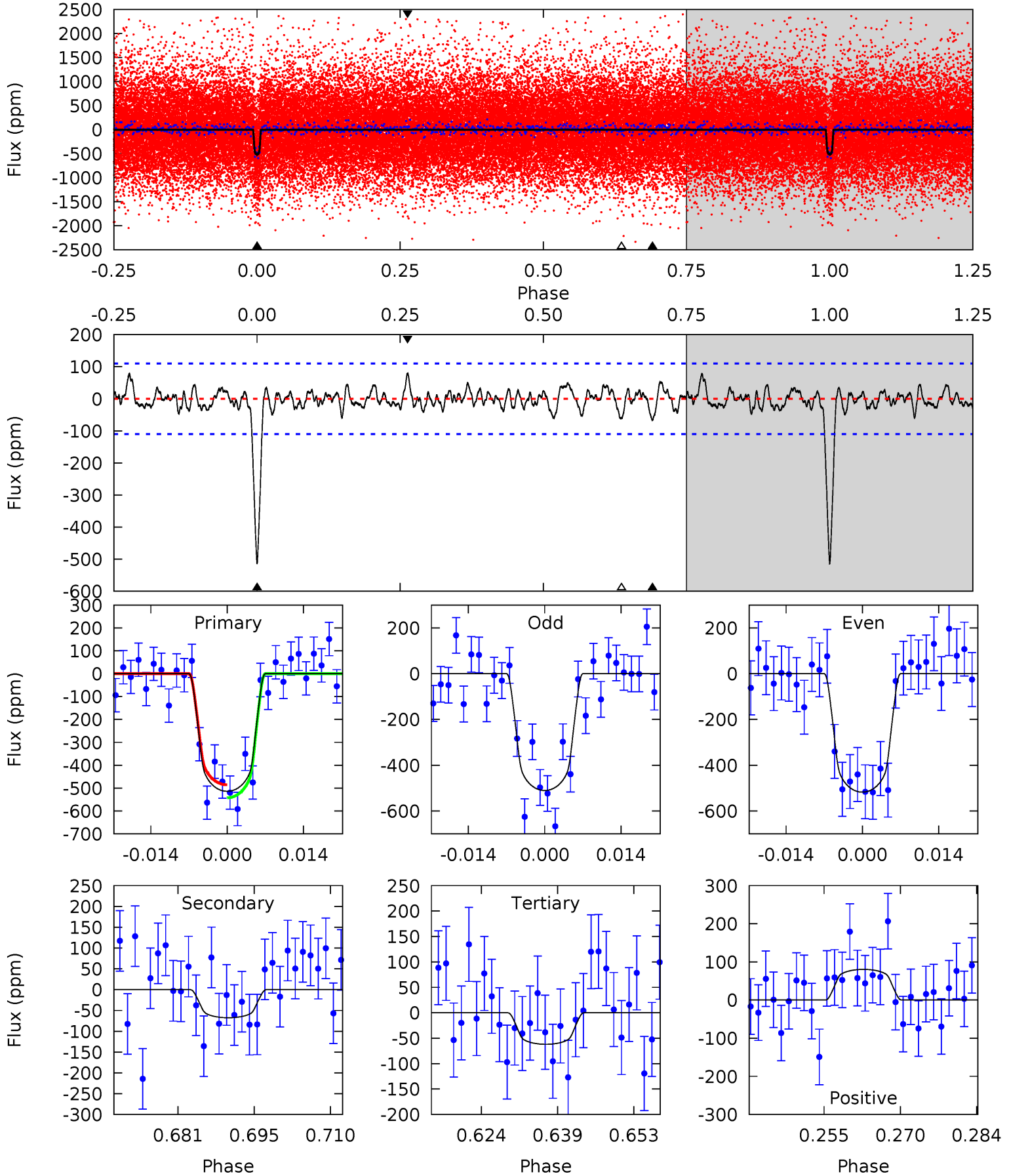
TCE 005289854-01 P= 9.695012 Days $T_0=133.979087$ (BKJD)



DV Model-Shift Uniqueness Test

005289854-01, P = 9.694931 Days, E = 133.984756 Days

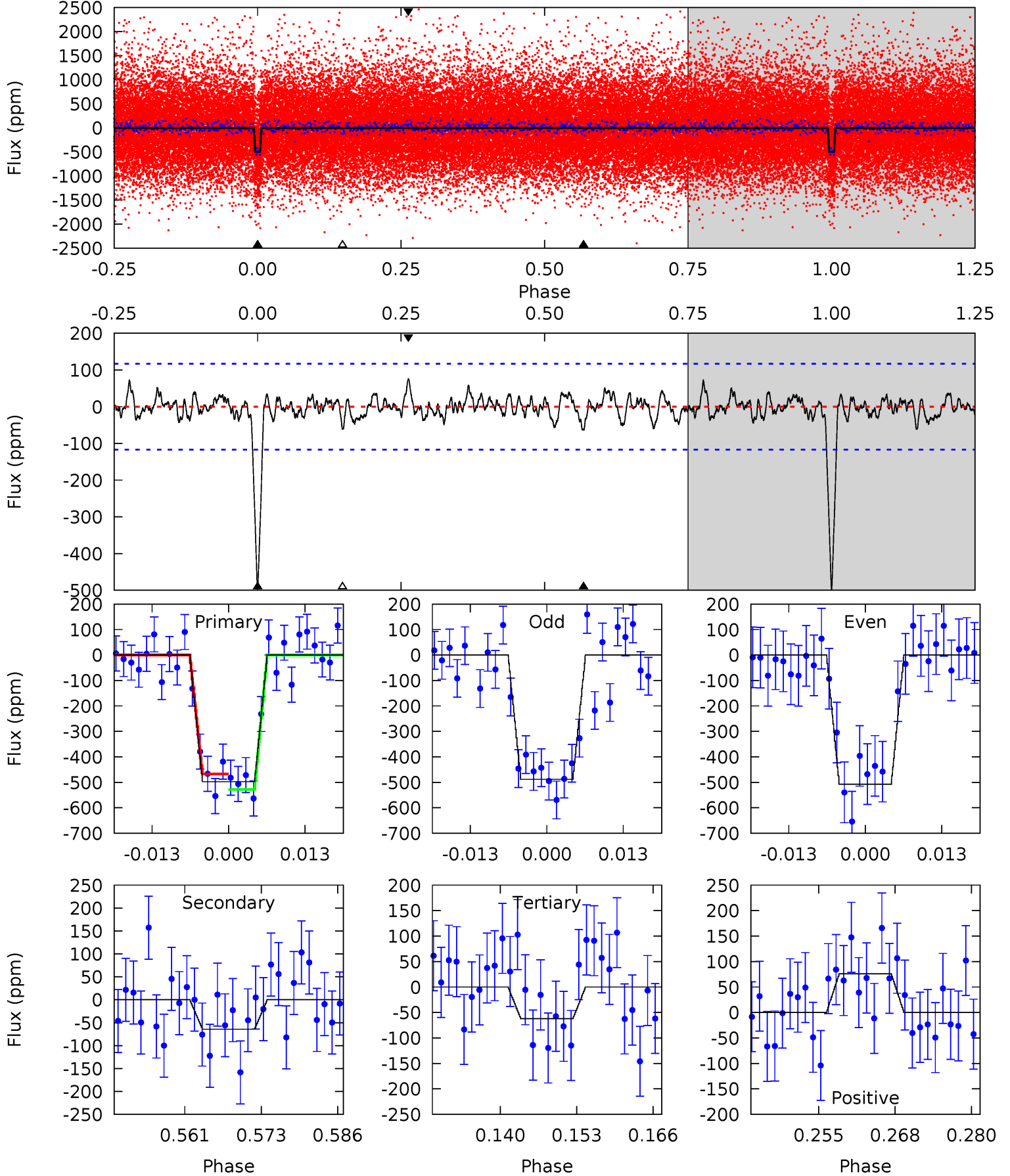
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	3.04	2.79	3.62	4.96	2.45	1.07	20.4	19.5	0.25	-0.58	0.16	0.96	0.14	1.28



Alt Model-Shift Uniqueness Test

005289854-01, P = 9.695012 Days, E = 133.979087 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.2	2.74	2.65	3.23	4.98	2.49	0.97	18.6	18.0	0.09	-0.49	0.41	0.95	0.13	1.29



Stellar Parameters For KIC 005289854

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5896^{+176}_{-194}	$4.516^{+0.052}_{-0.208}$	$-0.100^{+0.300}_{-0.300}$	$0.914^{+0.274}_{-0.091}$	$1.000^{+0.117}_{-0.130}$	$1.846^{+0.385}_{-0.983}$
	+3%/-3%	+1%/-5%	+300%/-300%	+30%/-10%	+12%/-13%	+21%/-53%
Source	PHO1	KIC0	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 005289854-01 / KOI 1593.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-68 ± 22	$2.49^{+0.91}_{-0.76}$	1189^{+91}_{-56}	3813^{+576}_{-434}	45^{+56}_{-24}
Alt.	-64 ± 23	$2.28^{+0.83}_{-0.79}$	1191^{+85}_{-61}	3859^{+713}_{-448}	50^{+67}_{-28}

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

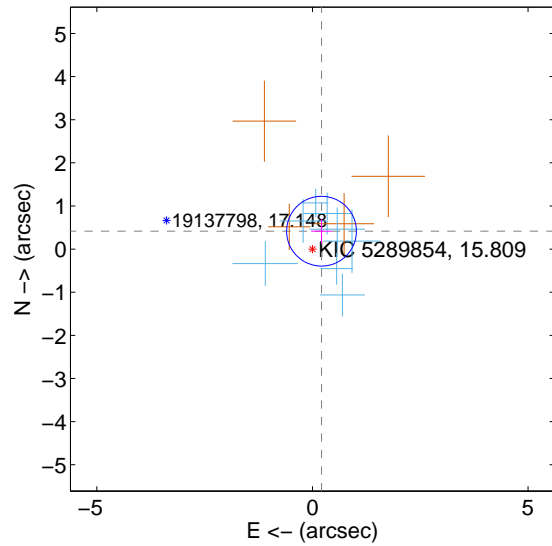
Supplemental centroid analysis for 005289854-01. Kepler magnitude: 15.81. Transit SNR 18.35

There are 8 quarters with good PRF difference image offsets

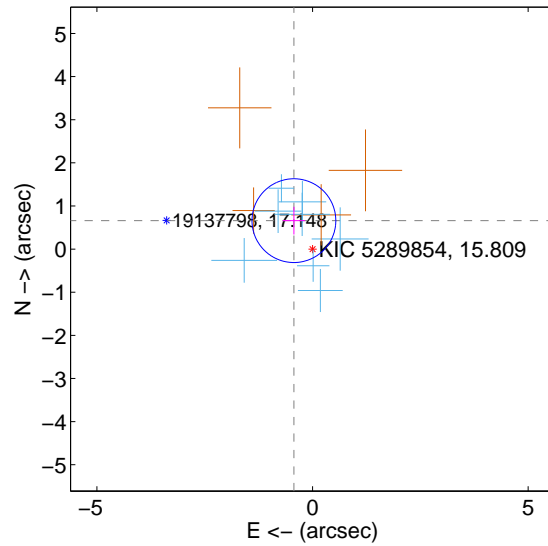
The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.466 ± 0.270	1.73	-0.210 ± 0.239	0.415 ± 0.285
PRF-fit source offset from KIC position	0.788 ± 0.324	2.43	0.432 ± 0.259	0.660 ± 0.321
photometric centroid source offset	2.27 ± 0.80	2.84	1.89 ± 0.81	1.27 ± 0.78

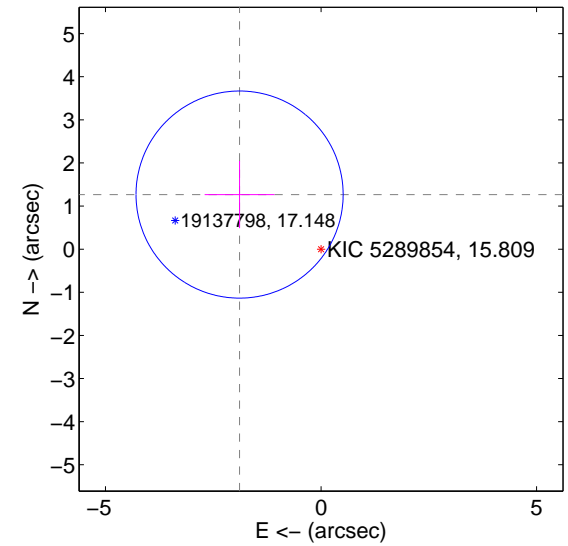
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

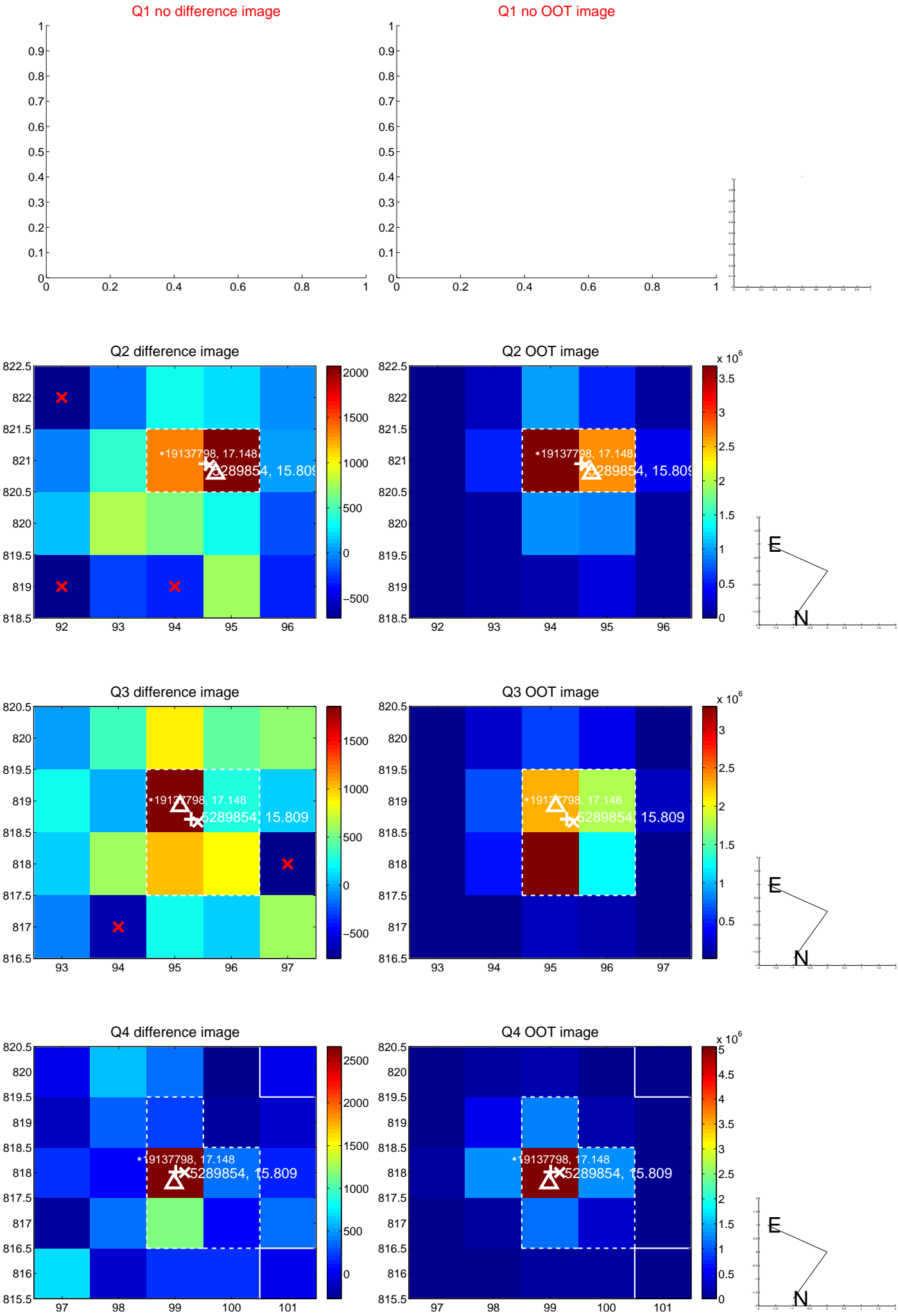


offset from photometric centroids

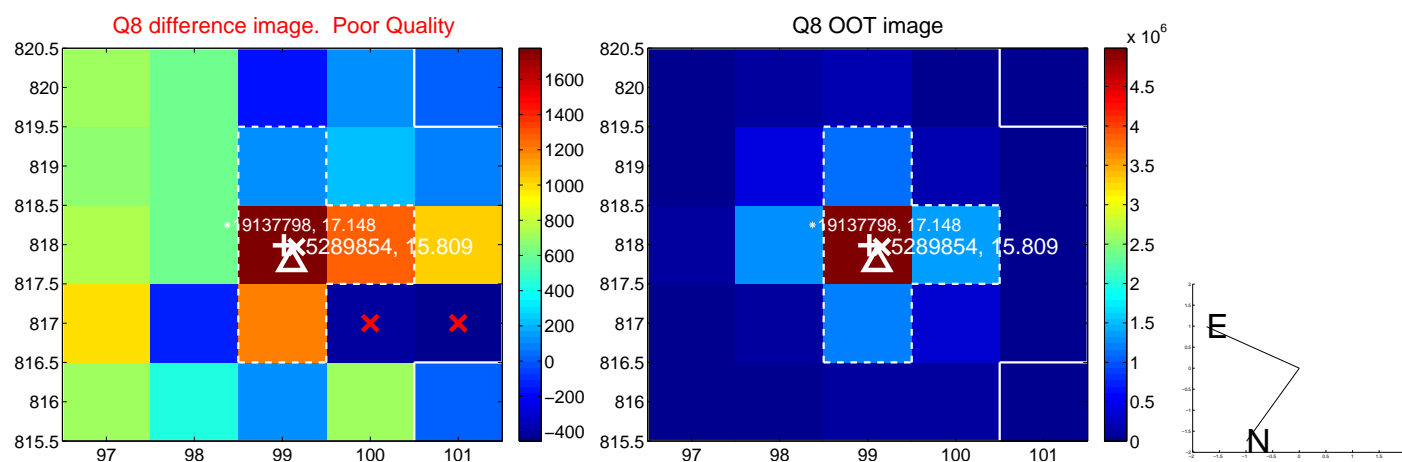
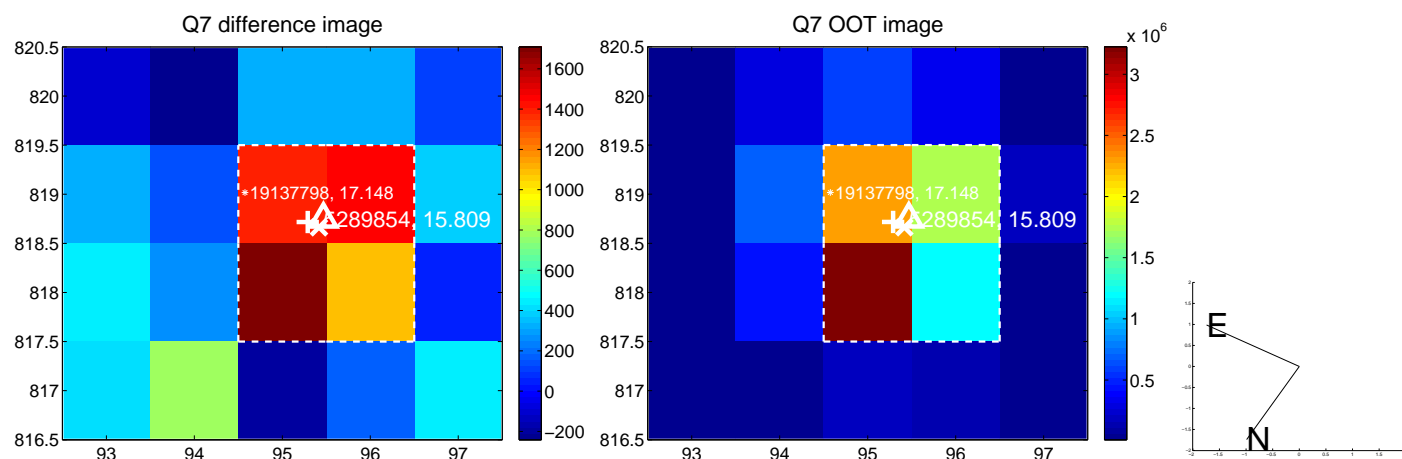
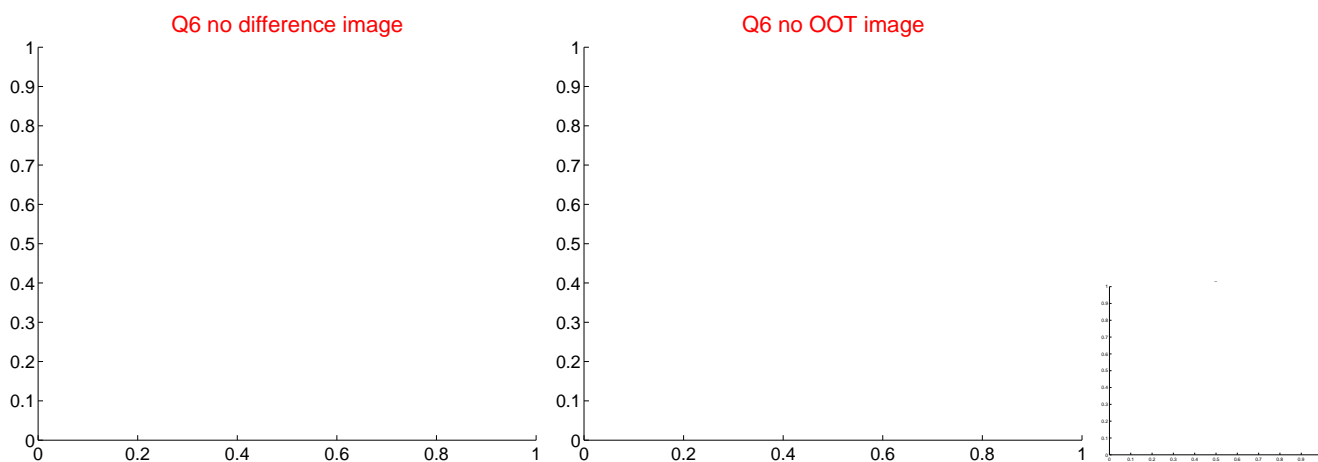
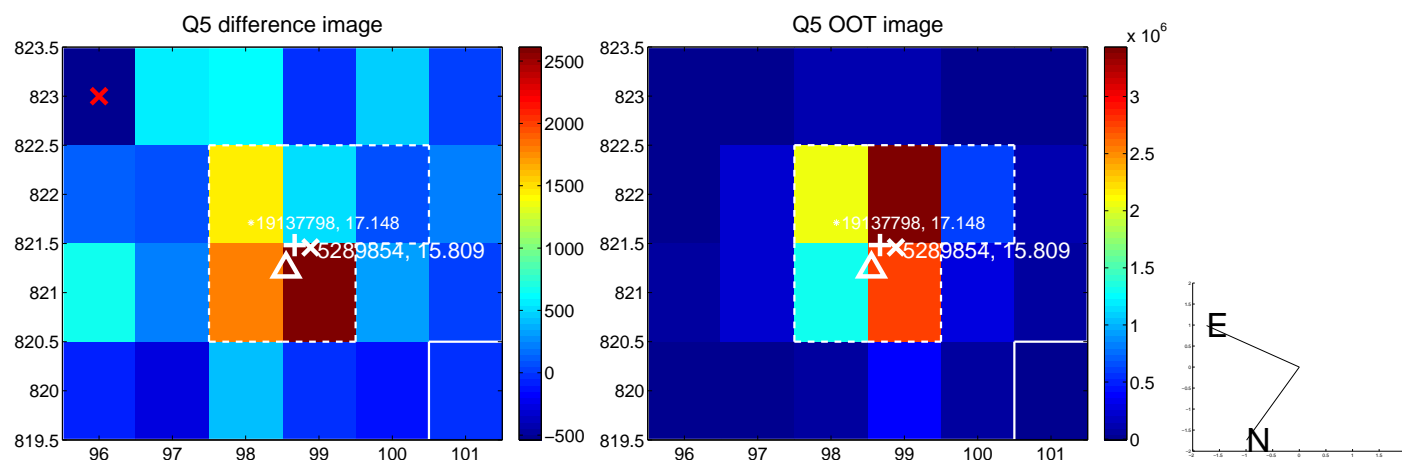


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

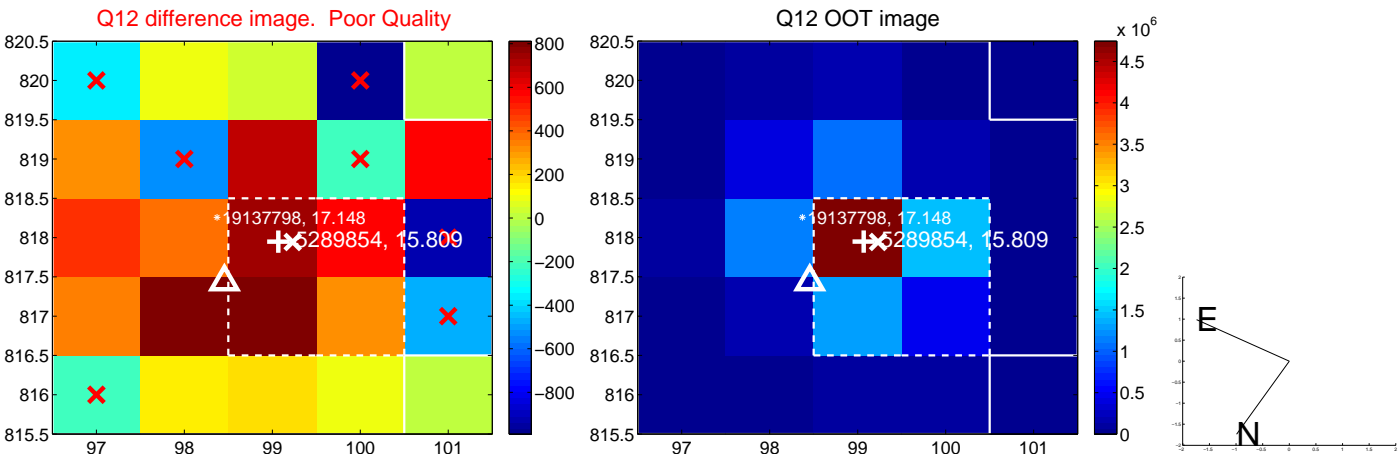
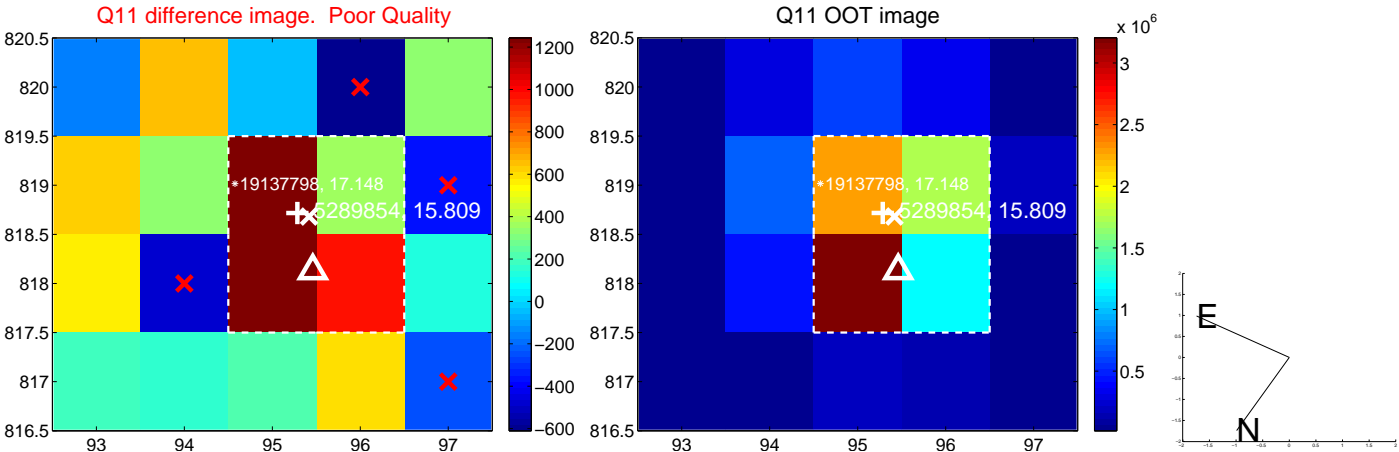
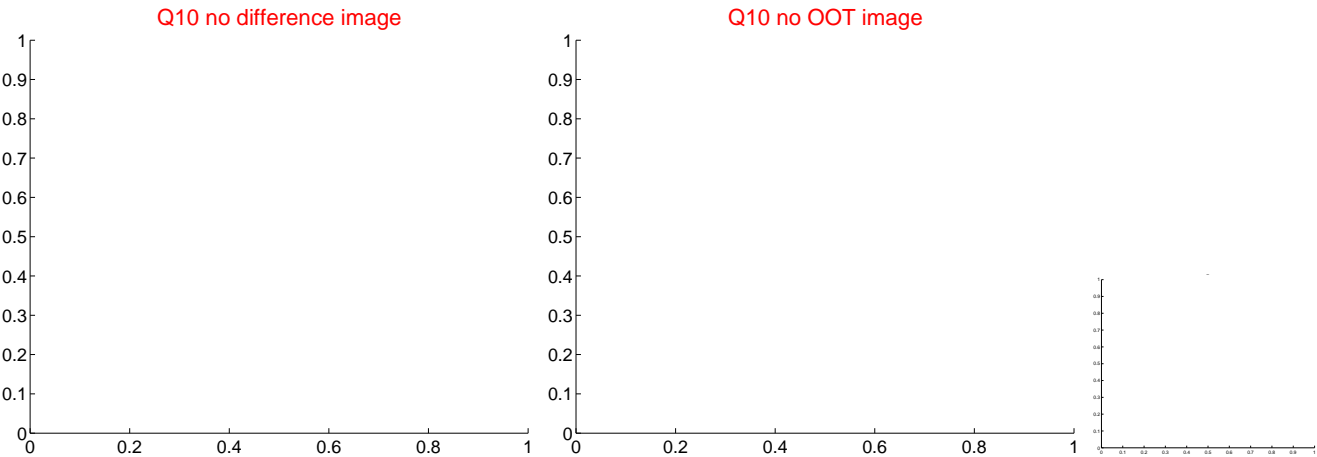
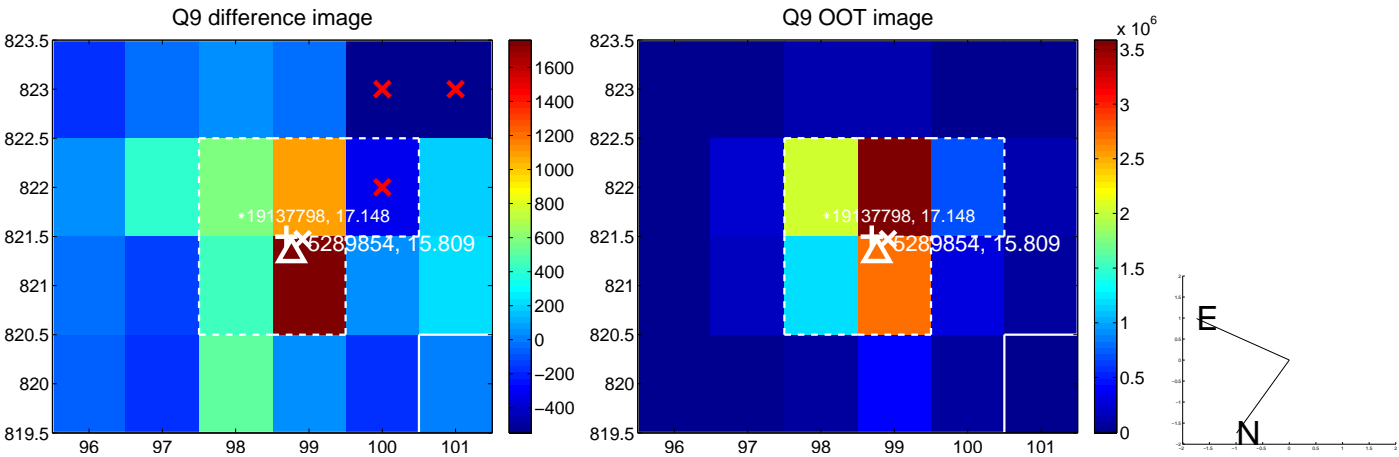
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



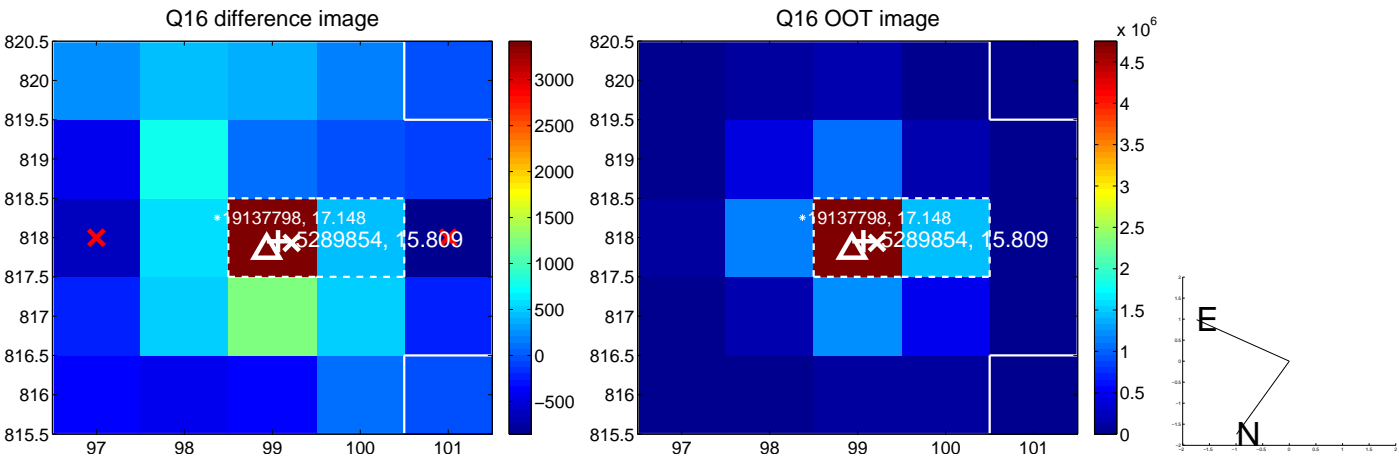
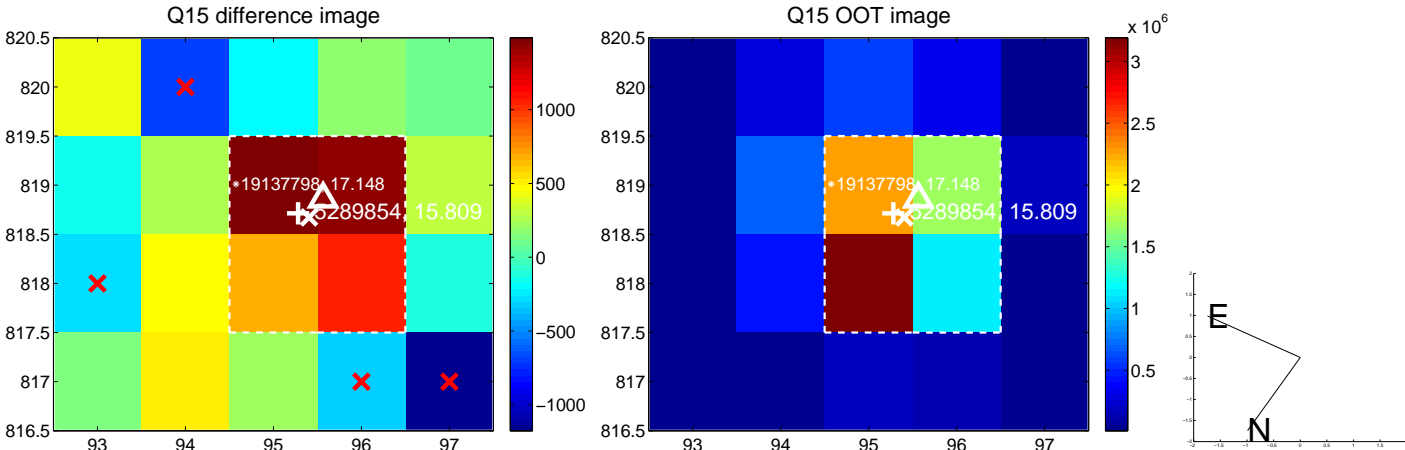
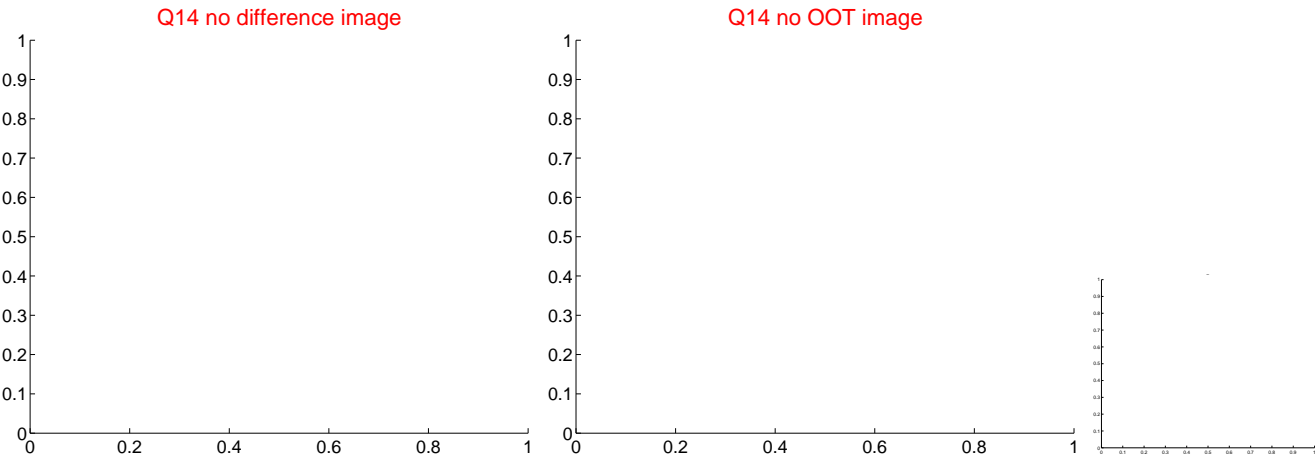
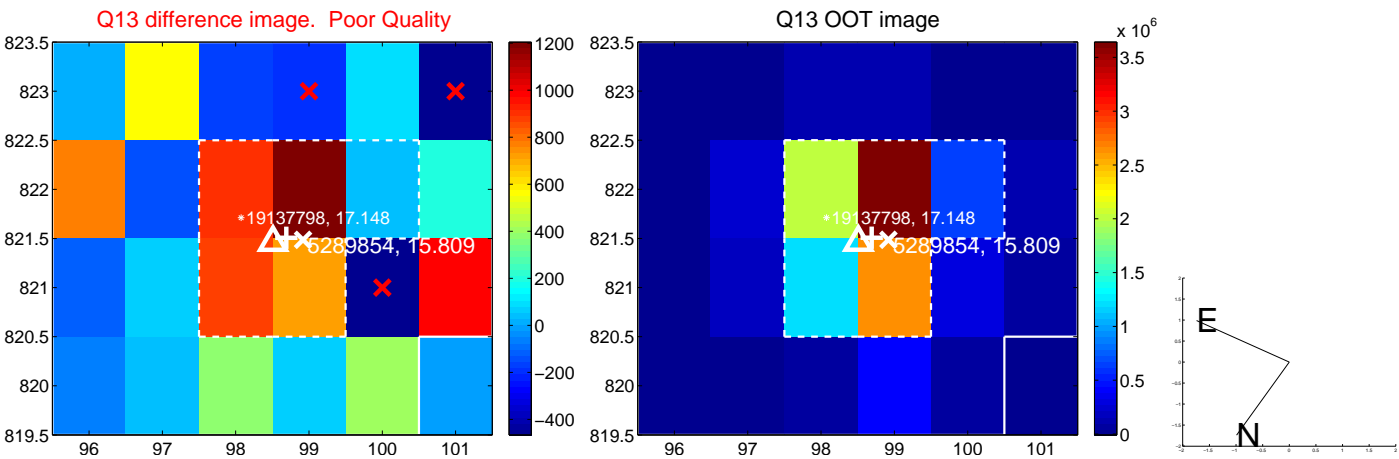
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

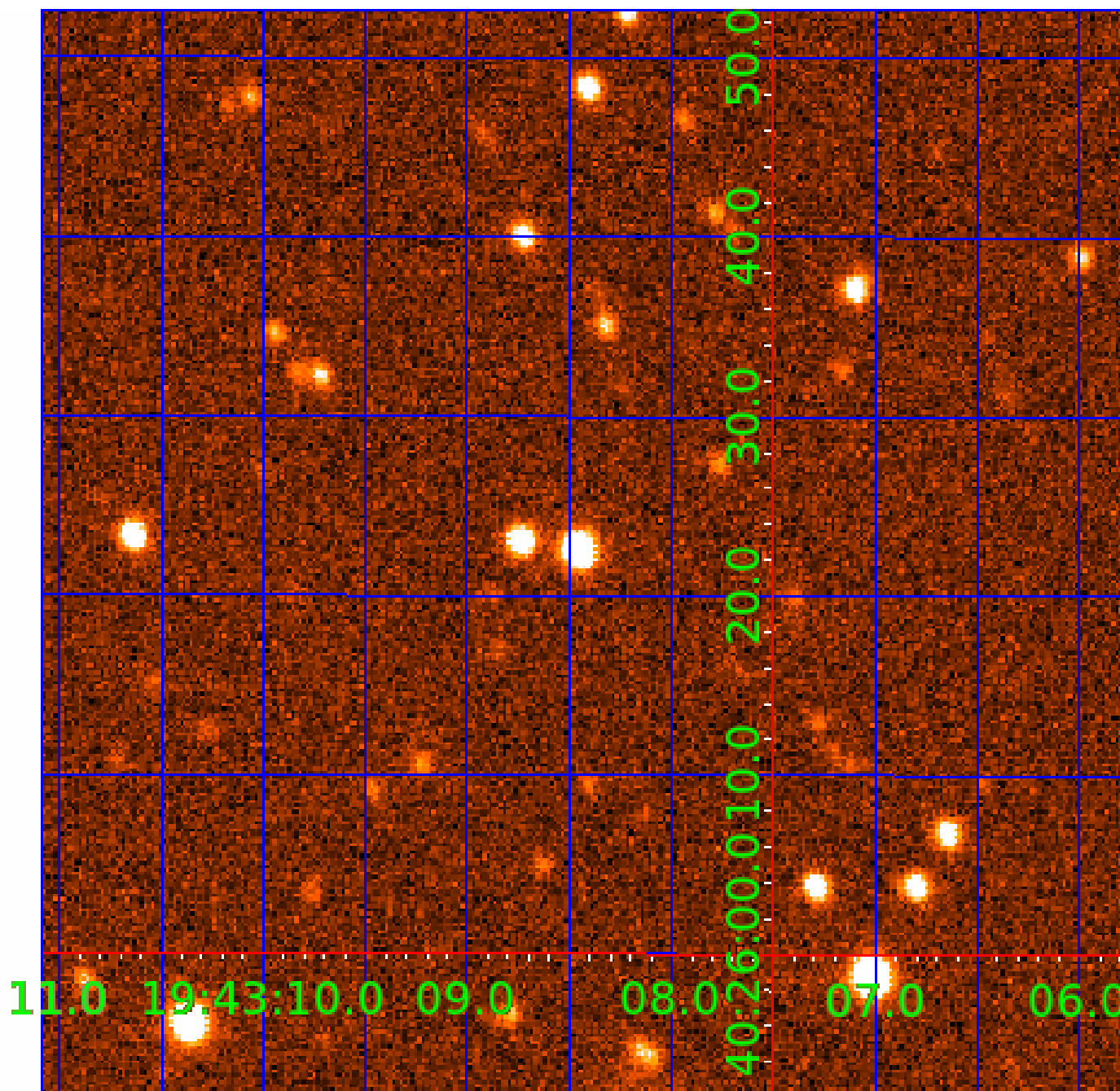


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005289854

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})
005289854-01	OBS	1593.01	9.694931	133.984756	519.7	2.861	16.7	18.4	0.91	5896	2.38	114.21
005289854-02	OBS	1593.02	15.382563	139.079046	528.9	4.171	15.5	17.1	0.91	5896	2.46	61.71

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005289854-01	OBS	PC	0.96	0	0	0	0	CENT_KIC_POS
005289854-02	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

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.

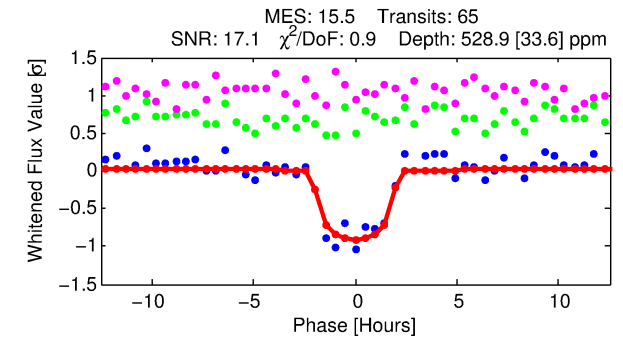
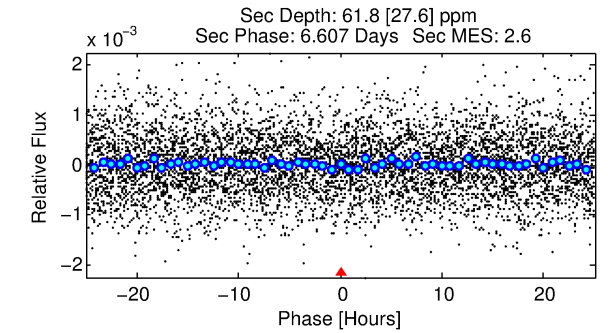
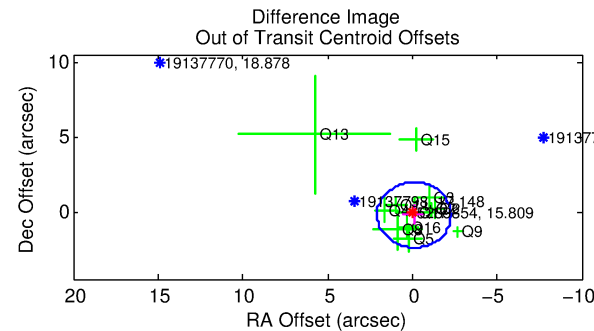
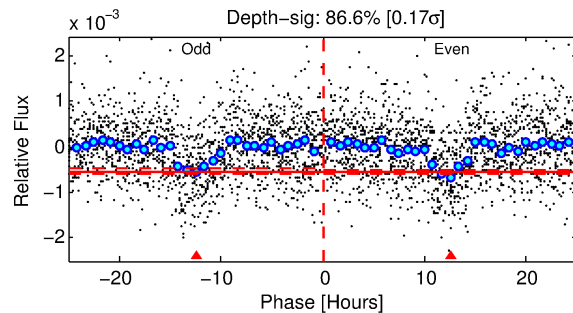
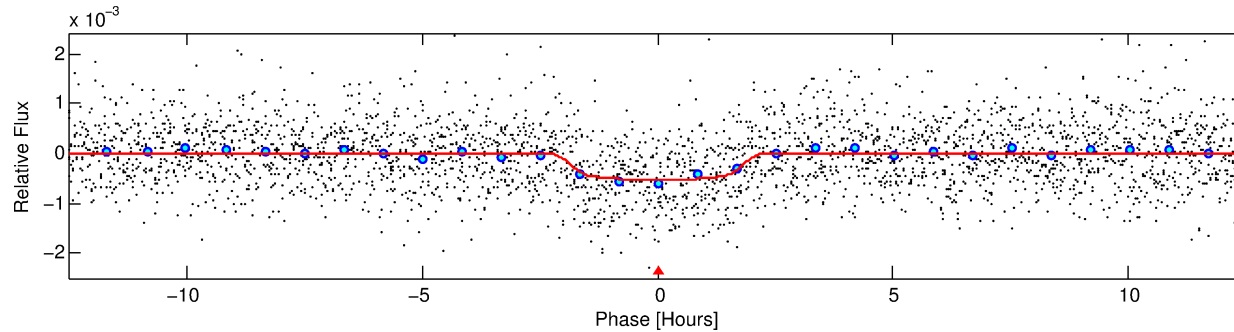
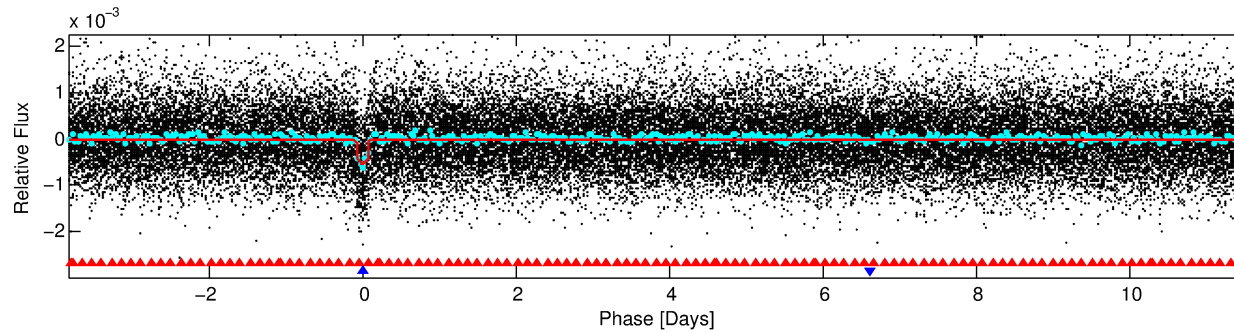
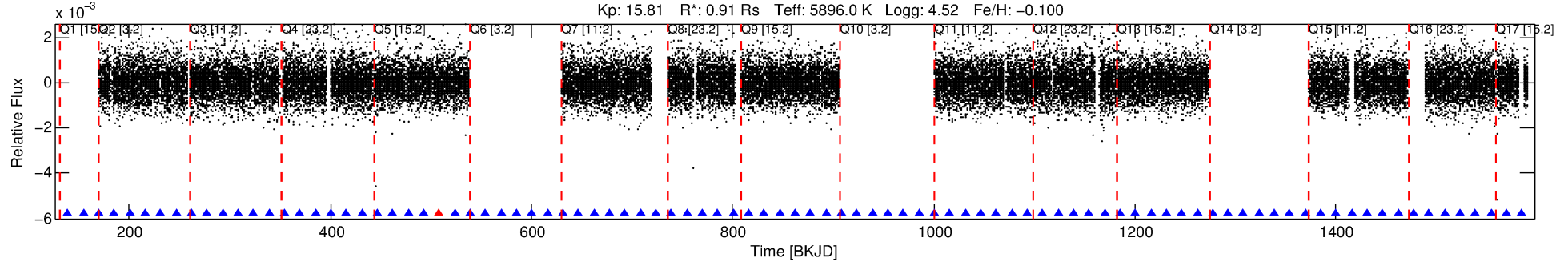
Ephemeris Match Information For 005289854-02

No Significant Match Found

DV One-Page Summary

KIC: 5289854 Candidate: 2 of 2 Period: 15.383 d
KOI: K01593.02 Name: Kepler-308c Corr: 0.966

Kp: 15.81 R*: 0.91 Rs Teff: 5896.0 K Logg: 4.52 Fe/H: -0.100



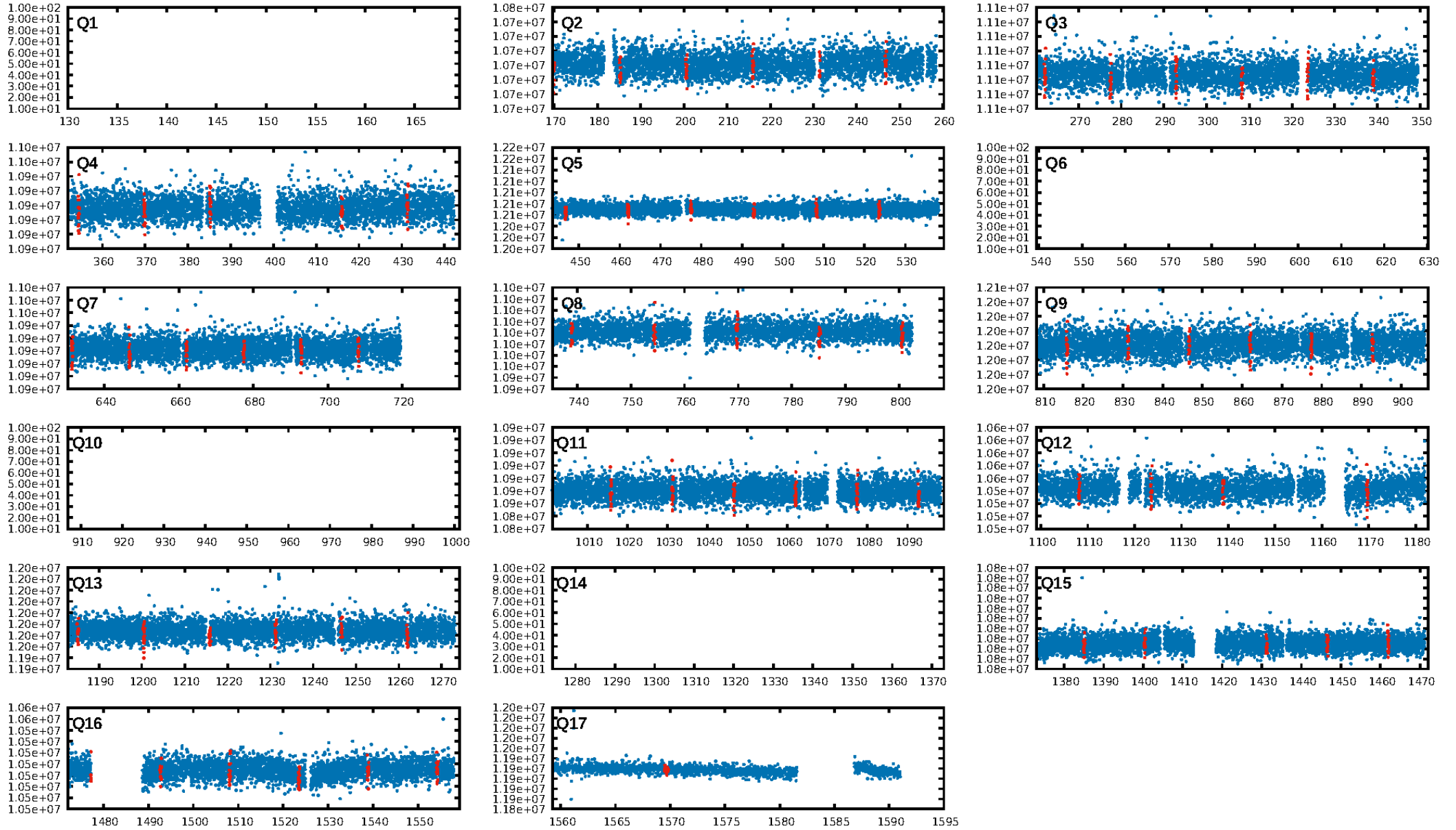
DV Fit Results:

Period = 15.38256 [0.00011] d
Epoch = 139.0790 [0.0055] BKJD
Rp/R* = 0.0246 [0.0043]
a/R* = 14.56 [11.96]
b = 0.89 [0.20]
Seff = 61.71 [24.62]
Teq = 715 [71] K
Rp = 2.46 [0.85] Re
a = 0.1211 [0.0310] AU
Ag = 82.60 [56.27] [1.45σ]
Teffp = 3331 [485] K [5.34σ]

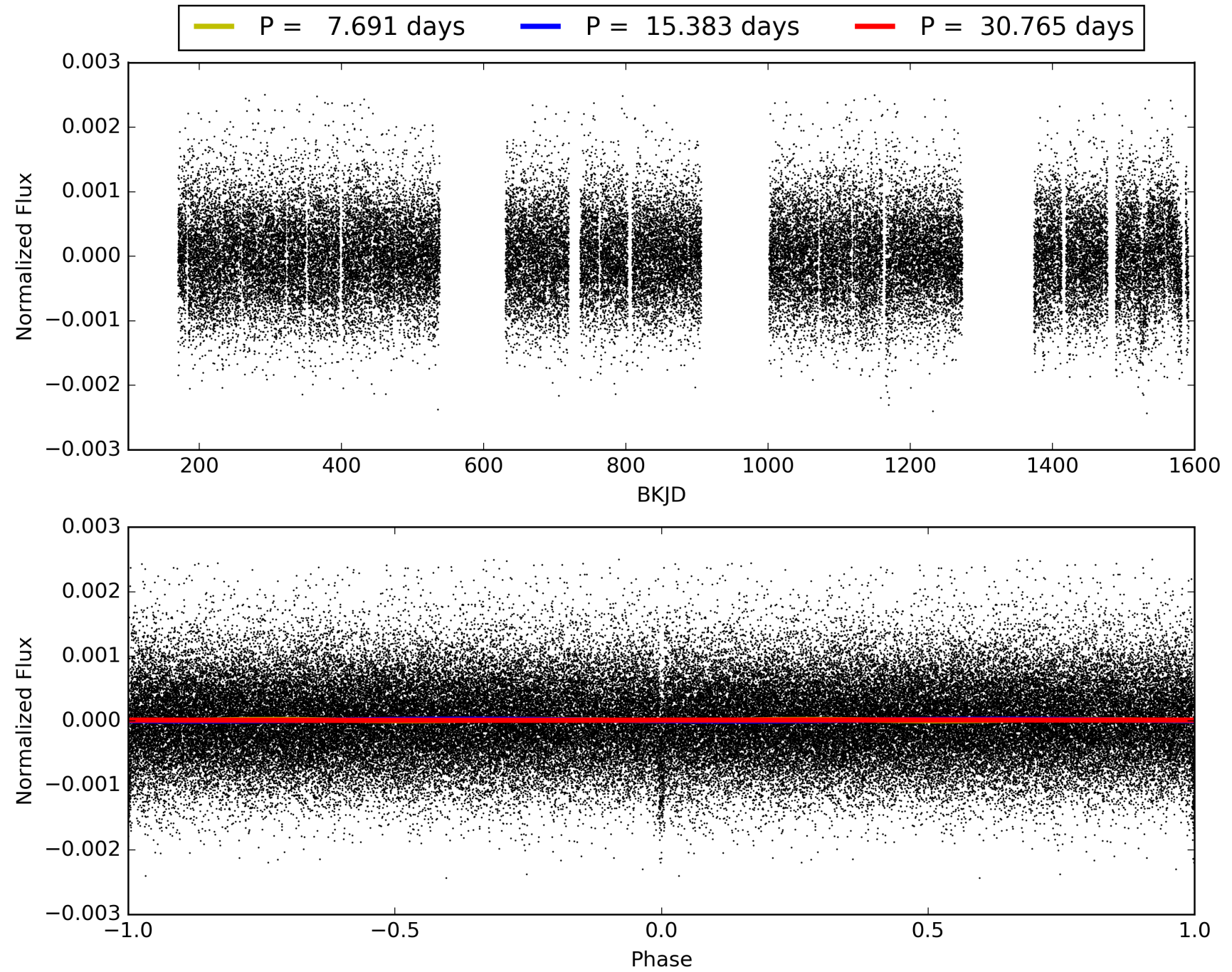
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.99σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 98.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.32e-54
RollingBand-fgt: 0.98 [63/64]
GhostDiagnostic-chr: 1.944
Centroid-sig: 64.1%
Centroid-so: 0.693 arcsec [0.86σ]
OotOffset-rm: 0.249 arcsec [0.34σ]
KicOffset-rm: 0.472 arcsec [0.88σ]
OotOffset-st: 1/4/3/4 [12]
KicOffset-st: 1/4/3/4 [12]
DiffImageQuality-fgm: 0.58 [7/12]
DiffImageOverlap-fno: 1.00 [13/13]

TCE 005289854-02, PDC Light Curves

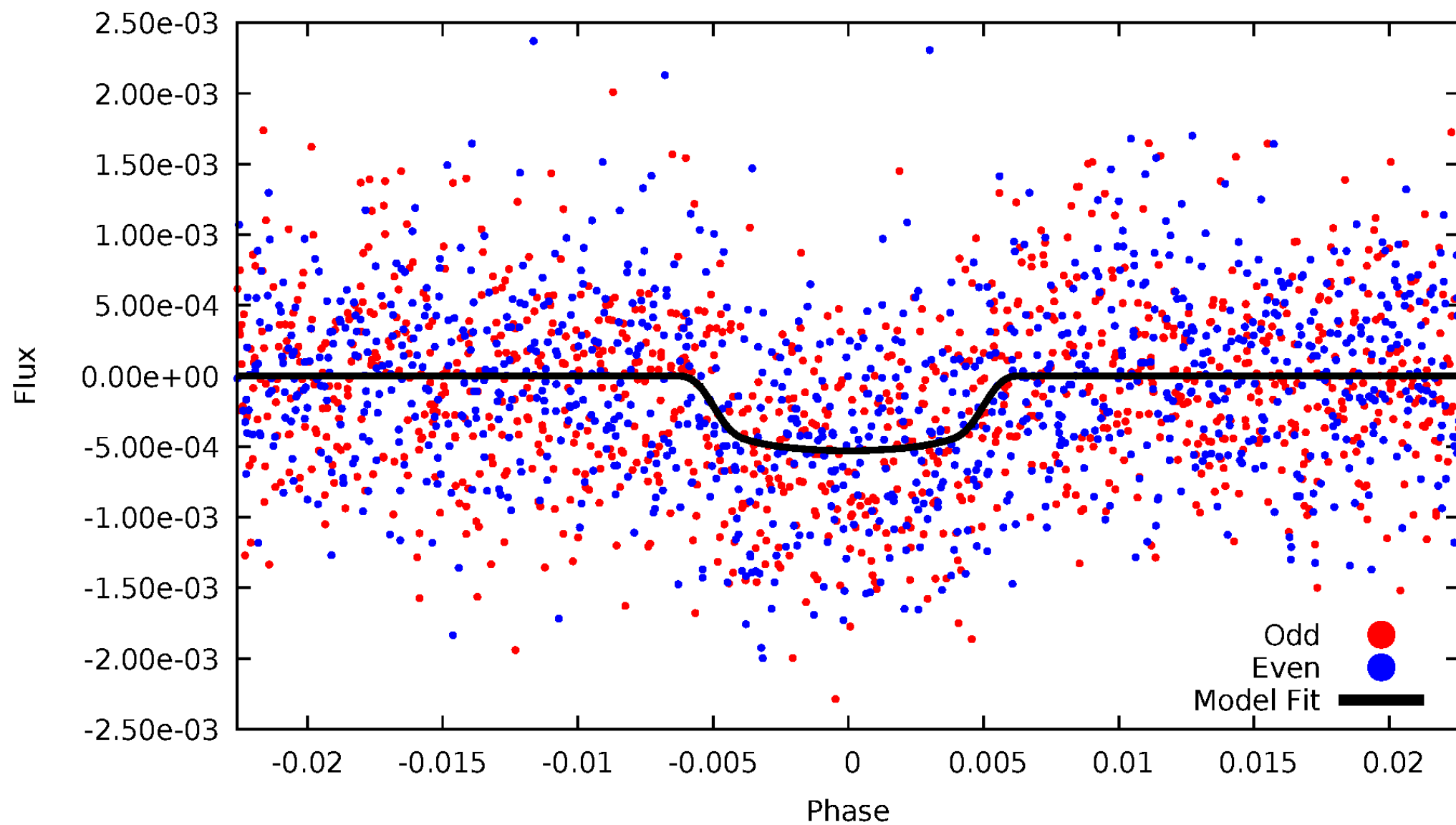


TCE 005289854-02



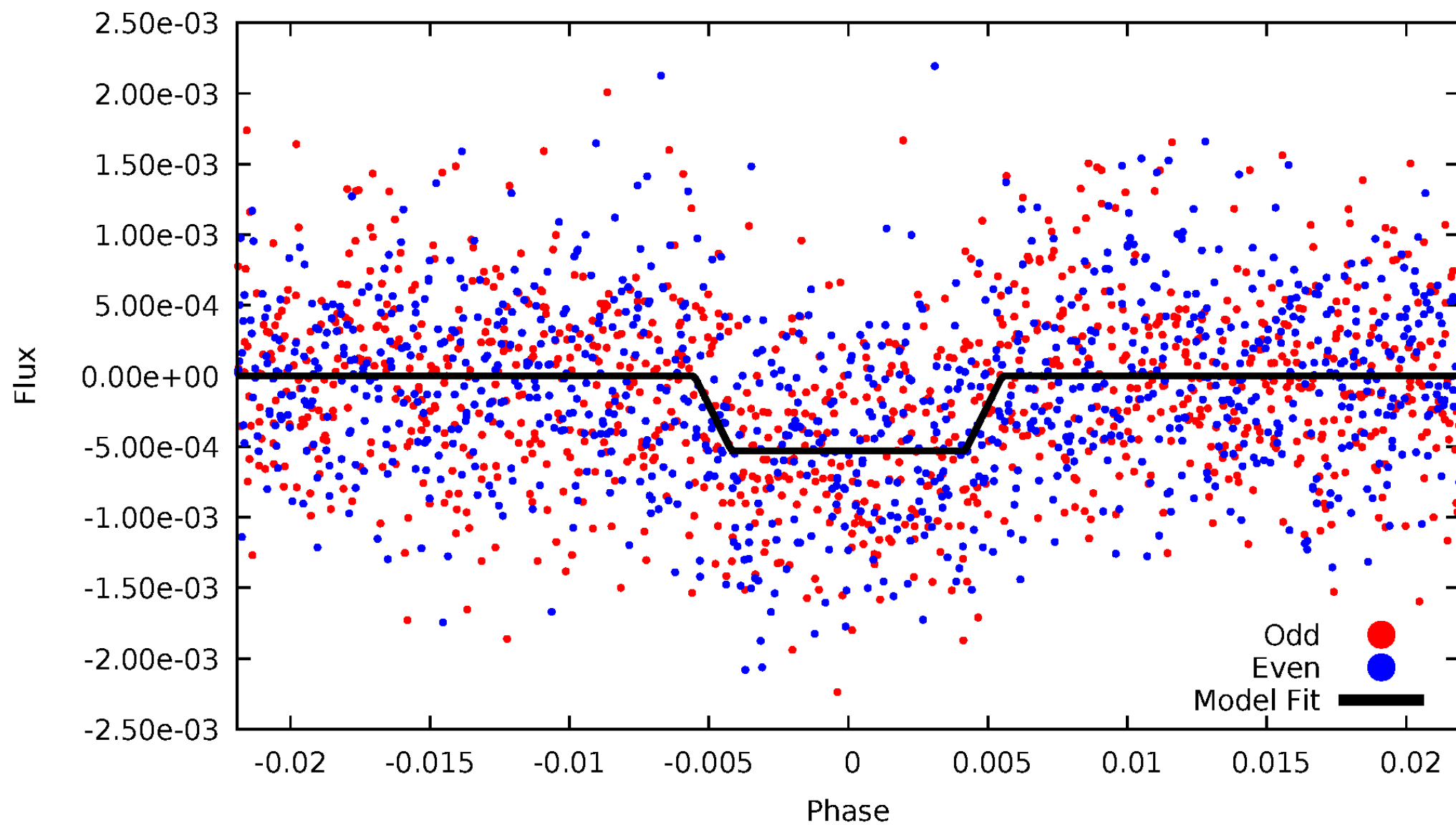
DV Odd/Even

TCE 005289854-02



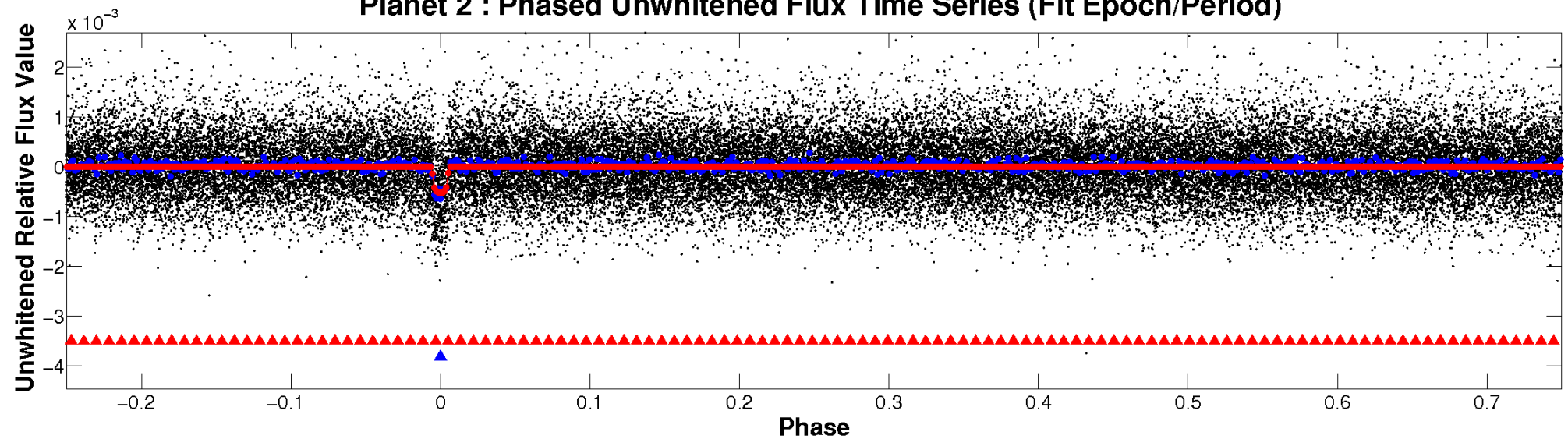
ALT Odd/Even

TCE 005289854-02

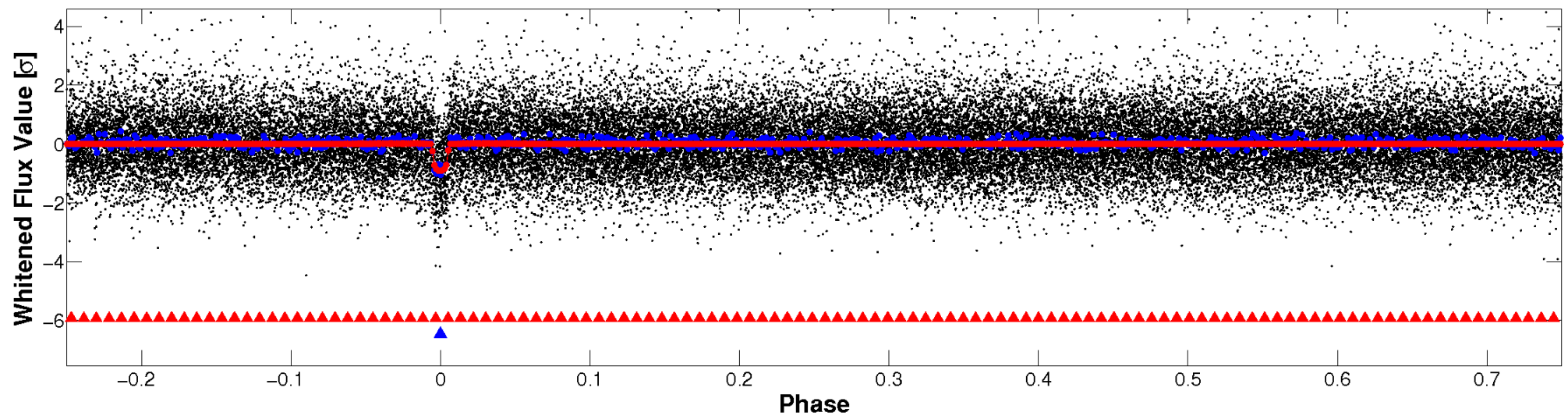


Non-Whitened Vs. Whitened Light Curve

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

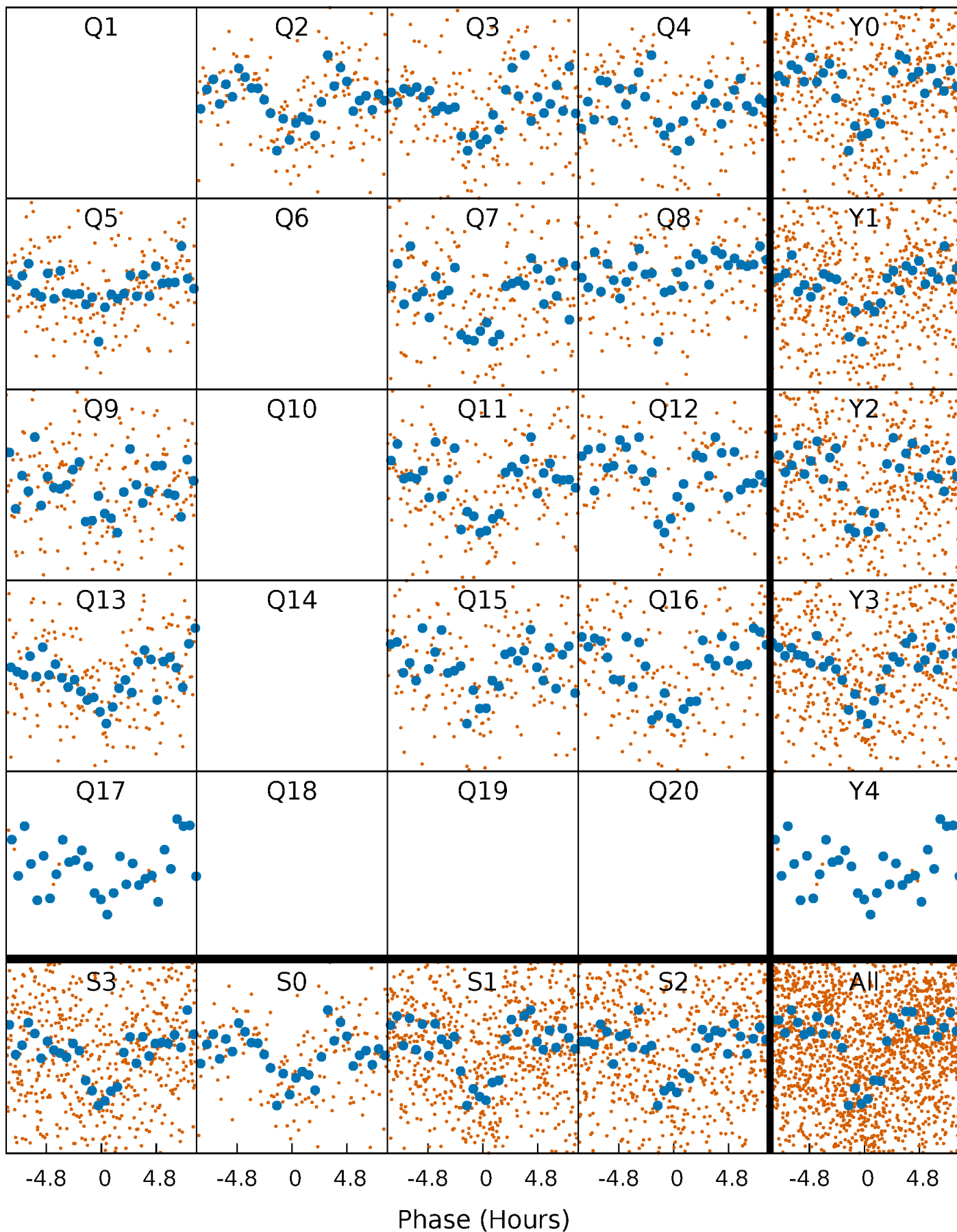


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



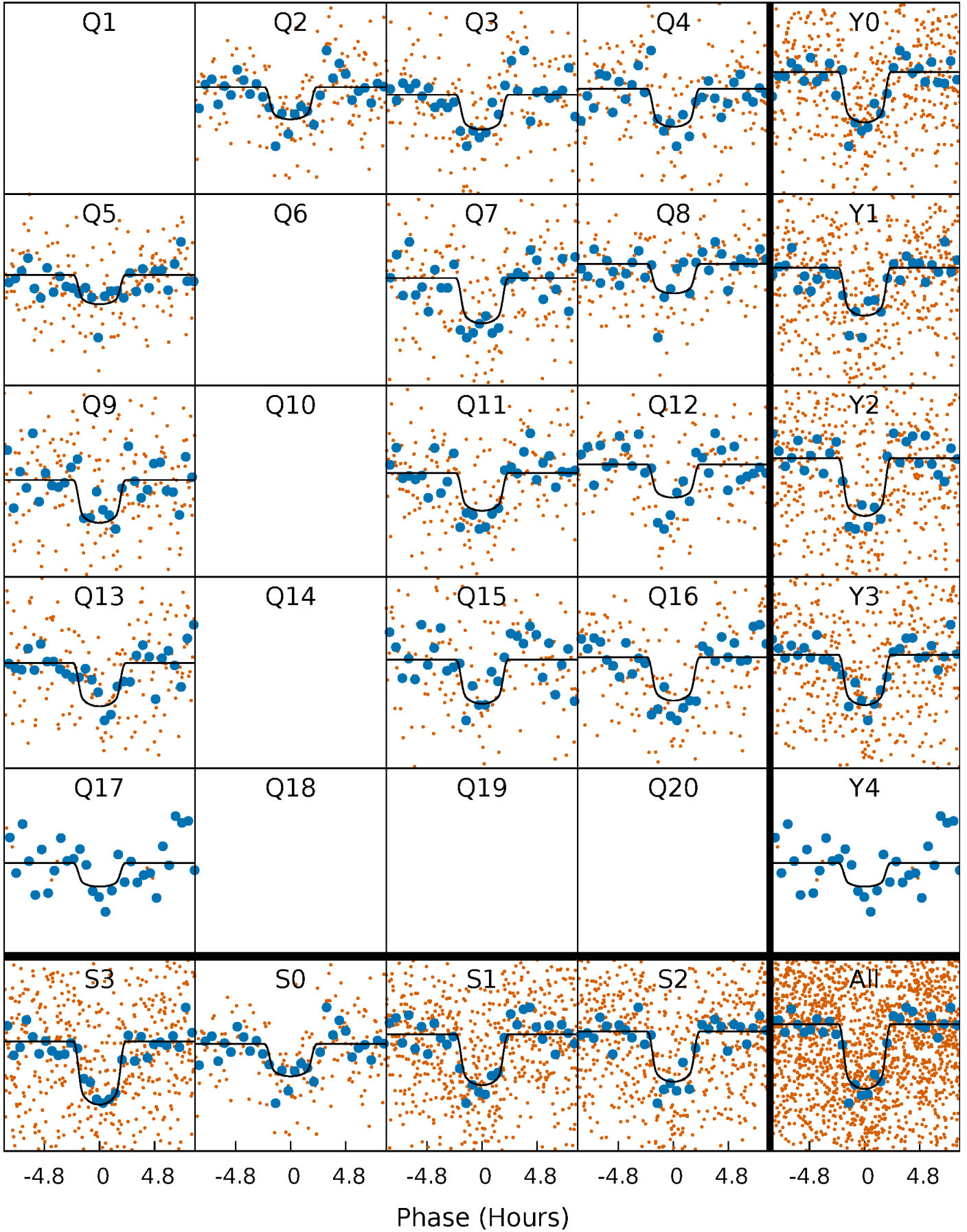
PDC Quarter-Phased Transit Curves

TCE 005289854-02 P= 15.382563 Days $T_0=139.079046$ (BKJD)



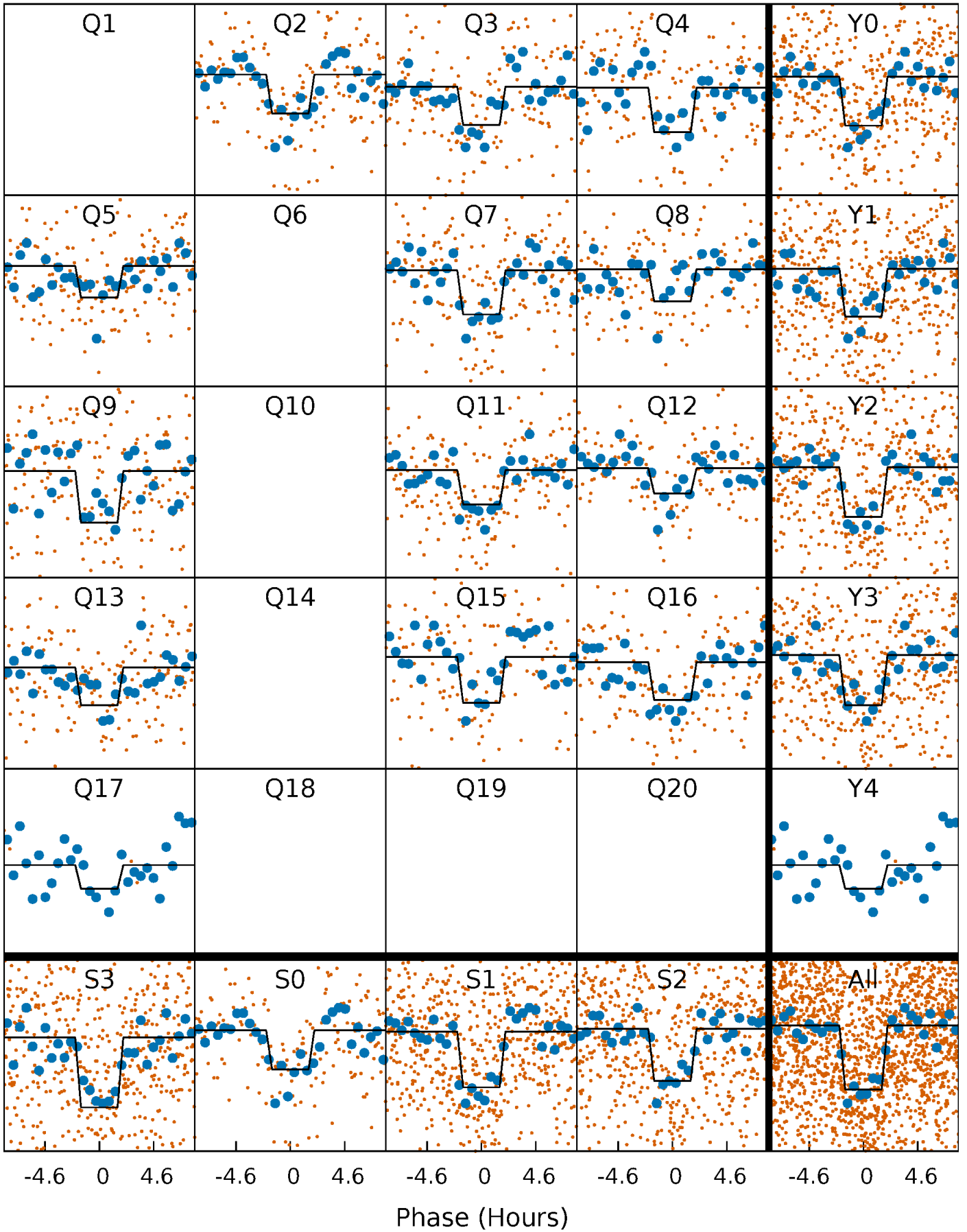
DV Quarter-Phased Transit Curves

TCE 005289854-02 P= 15.382563 Days $T_0=139.079046$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

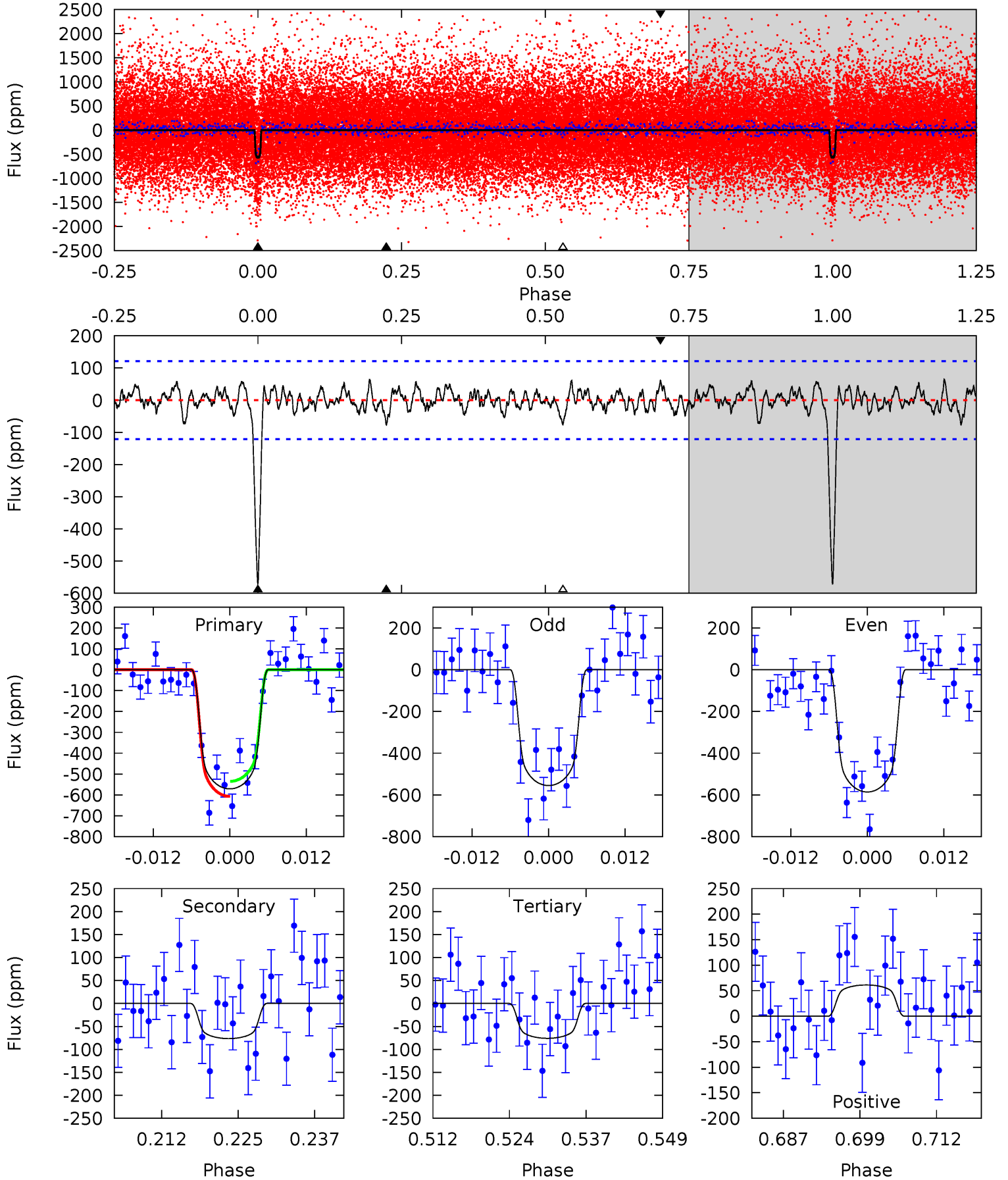
TCE 005289854-02 P= 15.382570 Days $T_0=139.077620$ (BKJD)



DV Model-Shift Uniqueness Test

005289854-02, P = 15.382563 Days, E = 139.079046 Days

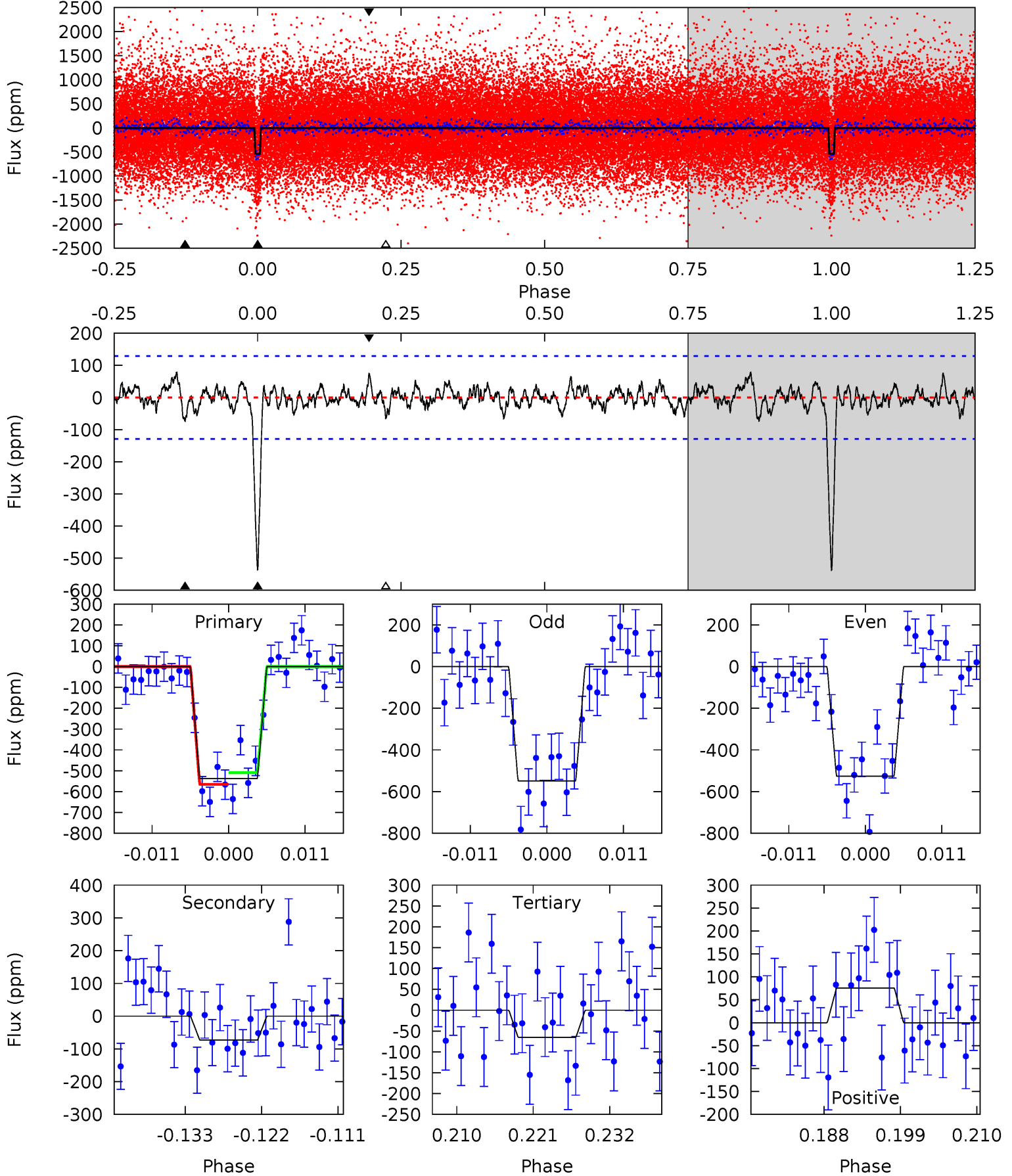
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.5	3.14	3.12	2.52	4.98	2.50	1.02	20.4	21.0	0.02	0.63	0.64	1.02	0.10	1.48



Alt Model-Shift Uniqueness Test

005289854-02, $P = 15.382570$ Days, $E = 139.077620$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.8	2.84	2.53	2.93	5.01	2.54	0.95	18.3	17.9	0.31	-0.10	0.44	1.01	0.13	1.10



Stellar Parameters For KIC 005289854

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5896^{+176}_{-194}	$4.516^{+0.052}_{-0.208}$	$-0.100^{+0.300}_{-0.300}$	$0.914^{+0.274}_{-0.091}$	$1.000^{+0.117}_{-0.130}$	$1.846^{+0.385}_{-0.983}$
	+3%/-3%	+1%/-5%	+300%/-300%	+30%/-10%	+12%/-13%	+21%/-53%
Source	PHO1	KIC0	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 005289854-02 / KOI 1593.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-76 ± 24	$2.57^{+0.57}_{-0.51}$	1021^{+70}_{-49}	3854^{+374}_{-340}	87^{+65}_{-38}
Alt.	-73 ± 26	$2.38^{+0.61}_{-0.50}$	1018^{+72}_{-48}	3918^{+409}_{-346}	99^{+76}_{-44}

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

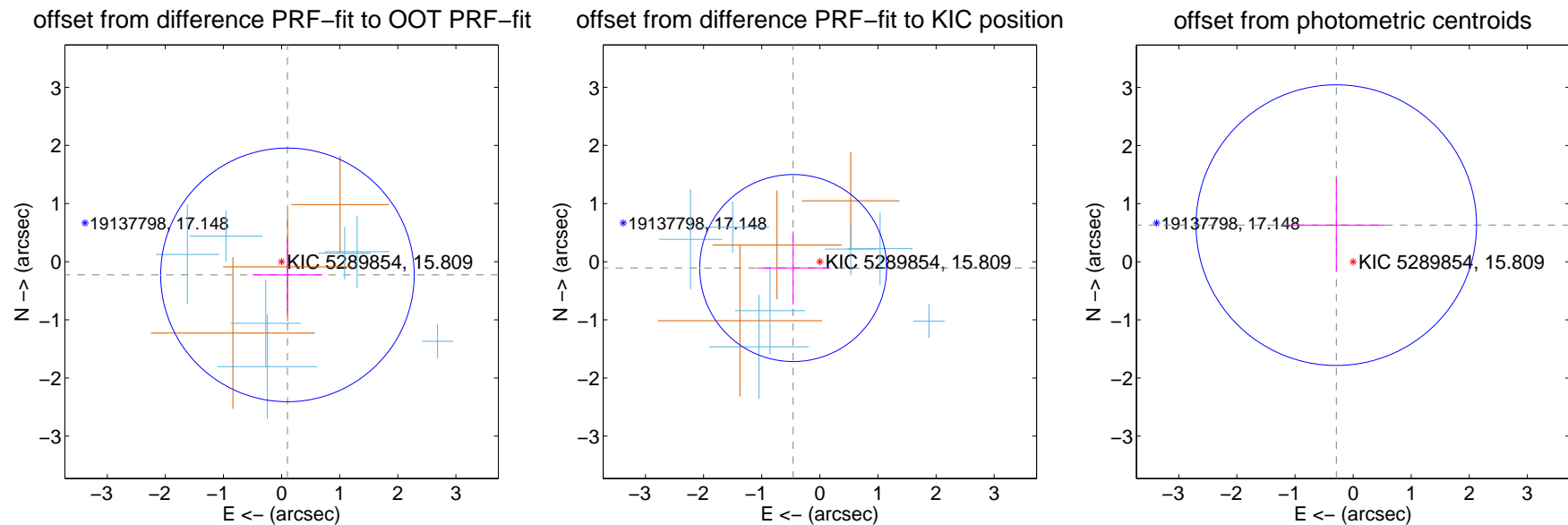
DV Centroid Data

Supplemental centroid analysis for 005289854-02. Kepler magnitude: 15.81. Transit SNR 17.05

There are 7 quarters with good PRF difference image offsets

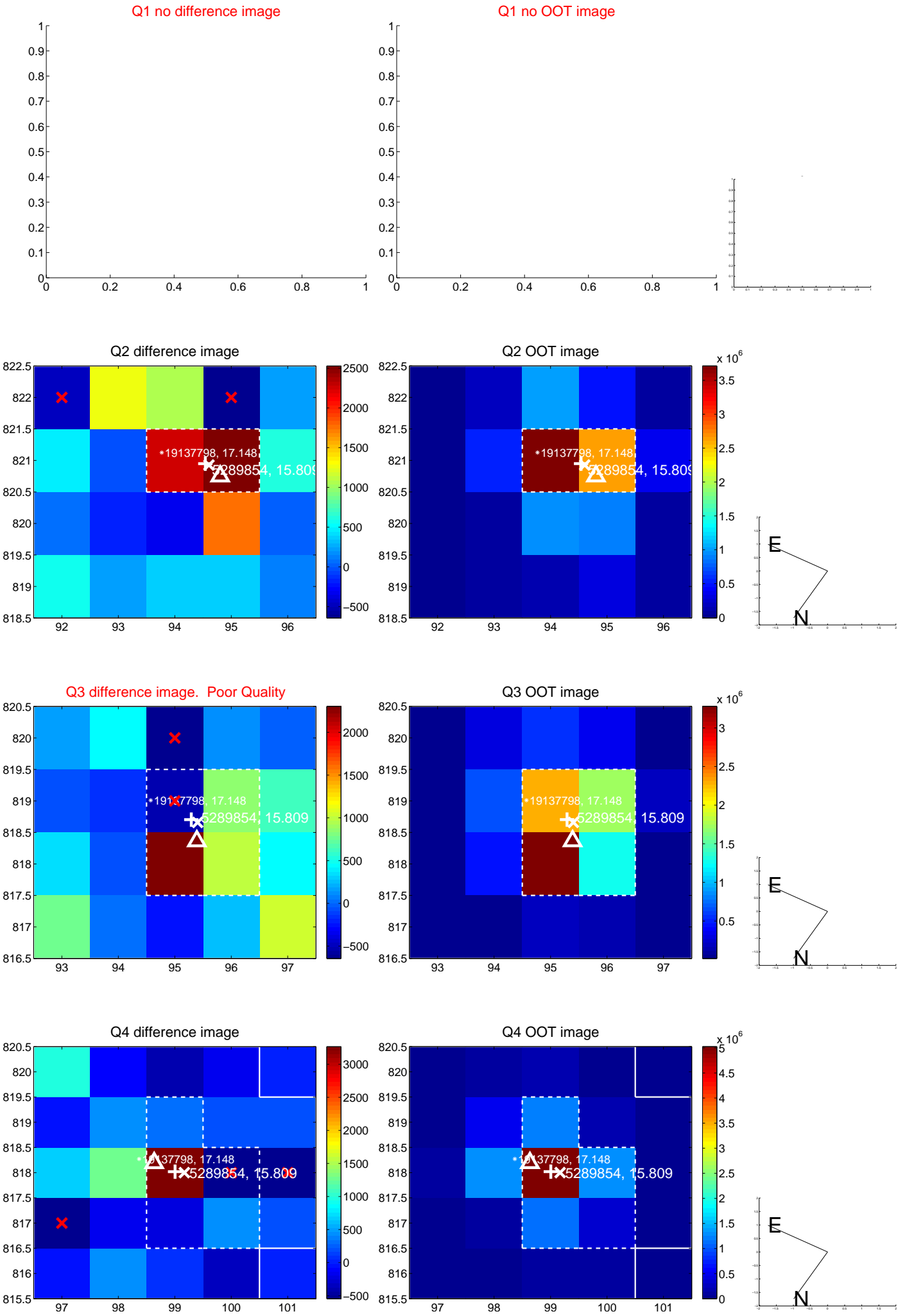
The direct PRF centroid is offset from the target star catalog position by about 0.92 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.249 ± 0.727	0.34	-0.101 ± 0.603	-0.227 ± 0.618
PRF-fit source offset from KIC position	0.472 ± 0.536	0.88	0.459 ± 0.623	-0.109 ± 0.631
photometric centroid source offset	0.69 ± 0.80	0.86	0.29 ± 0.84	0.63 ± 0.80

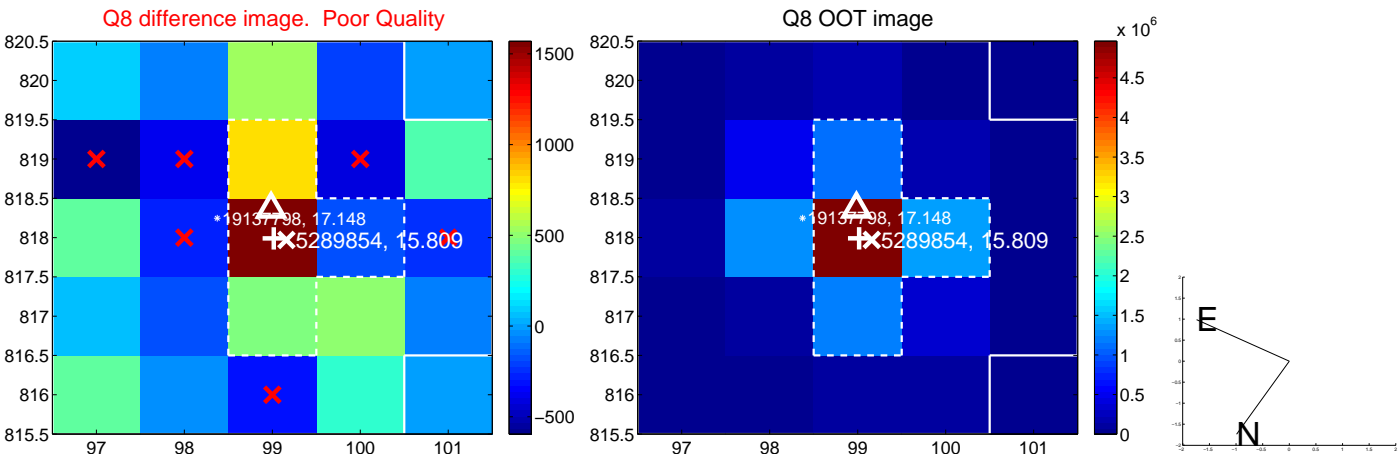
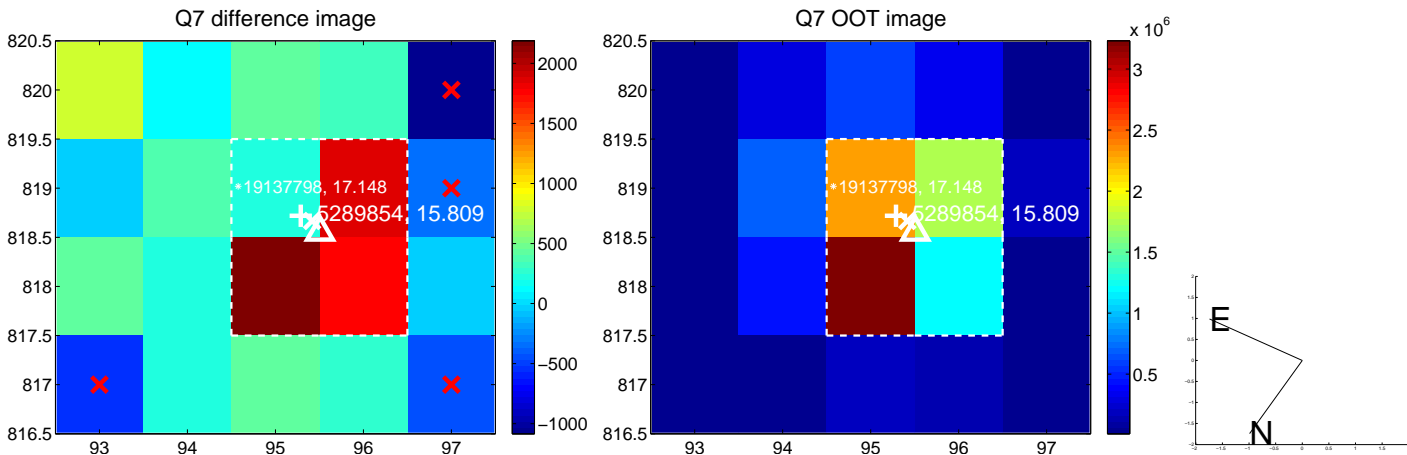
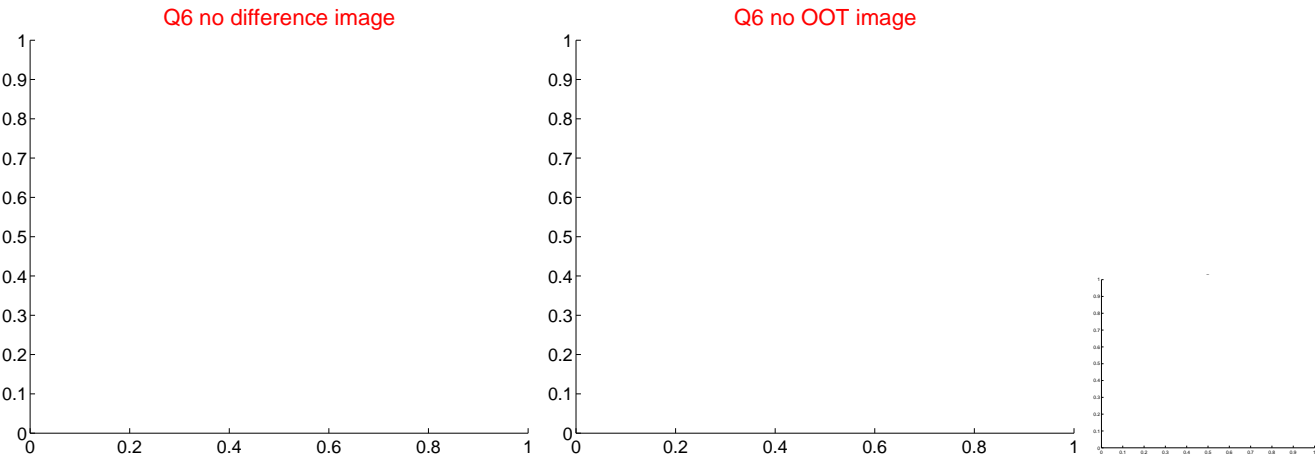
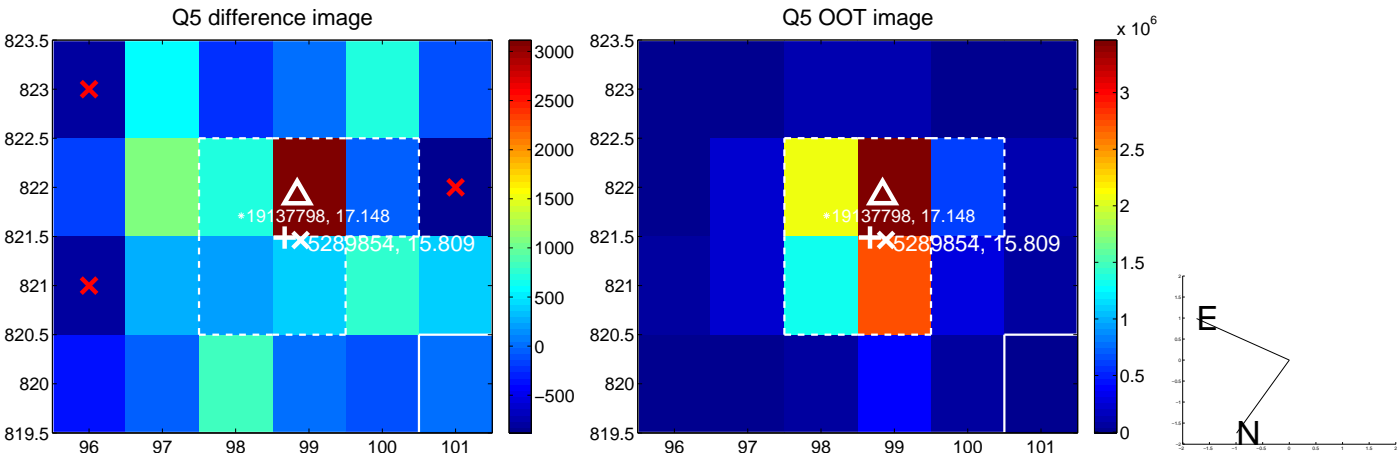


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

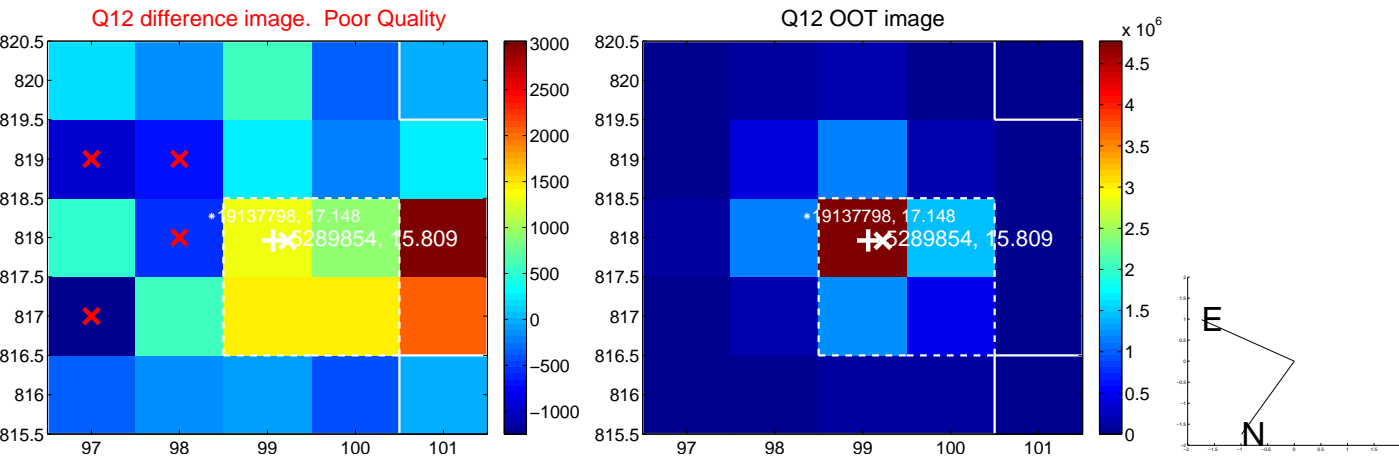
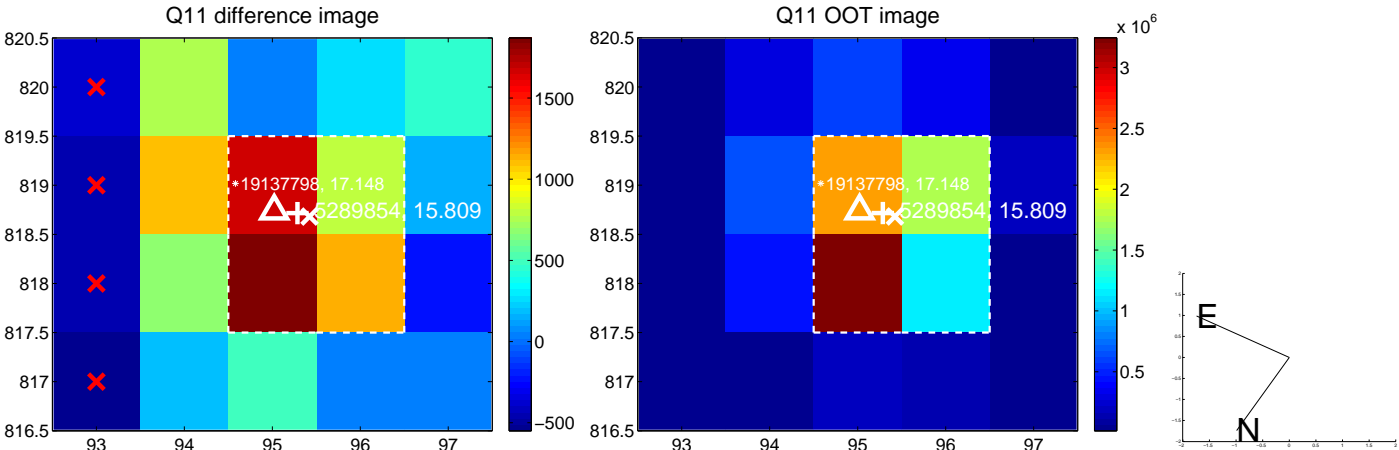
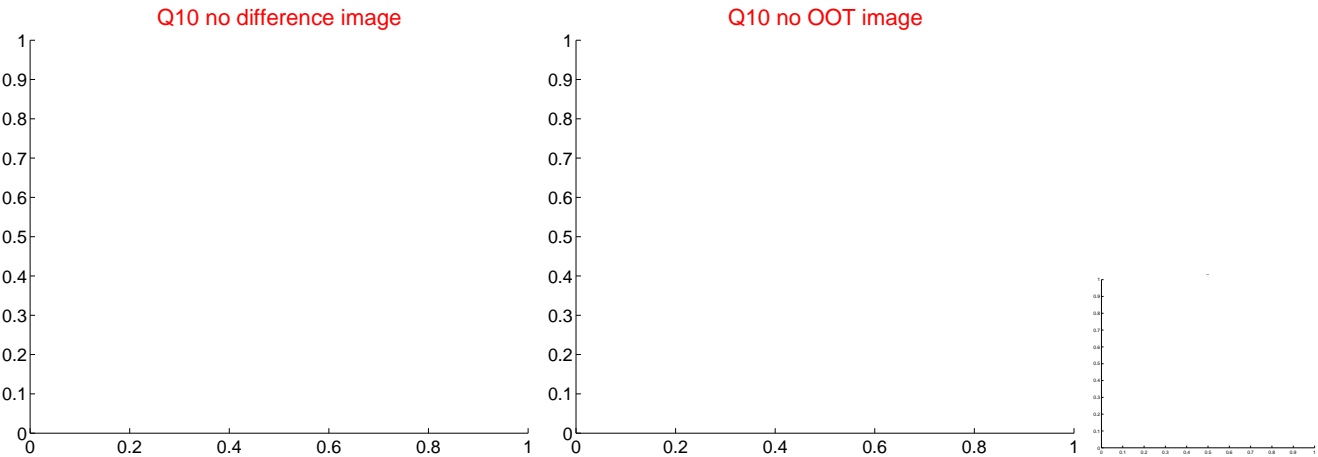
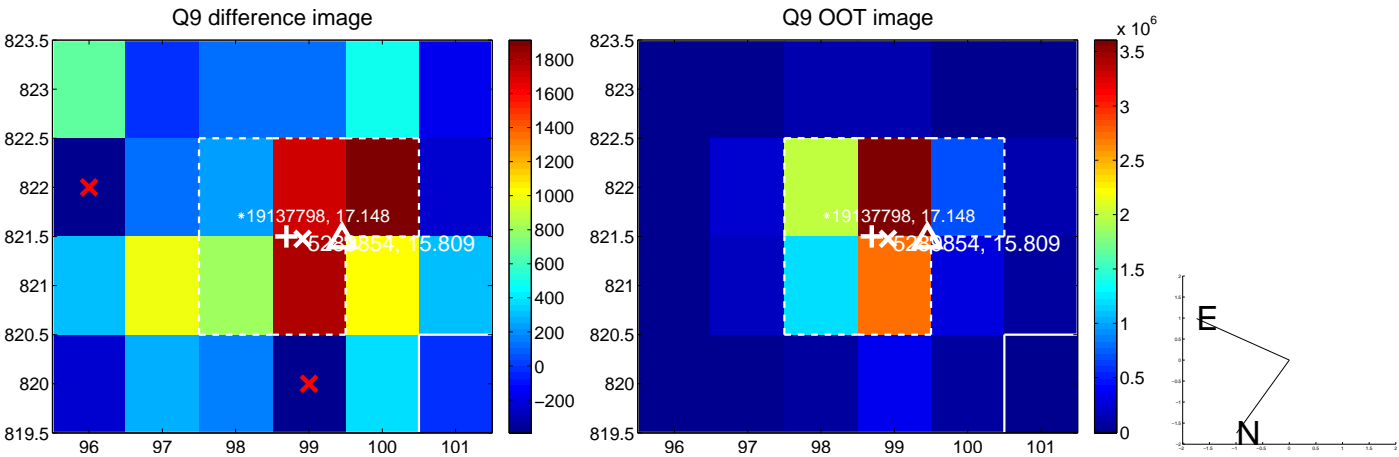
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



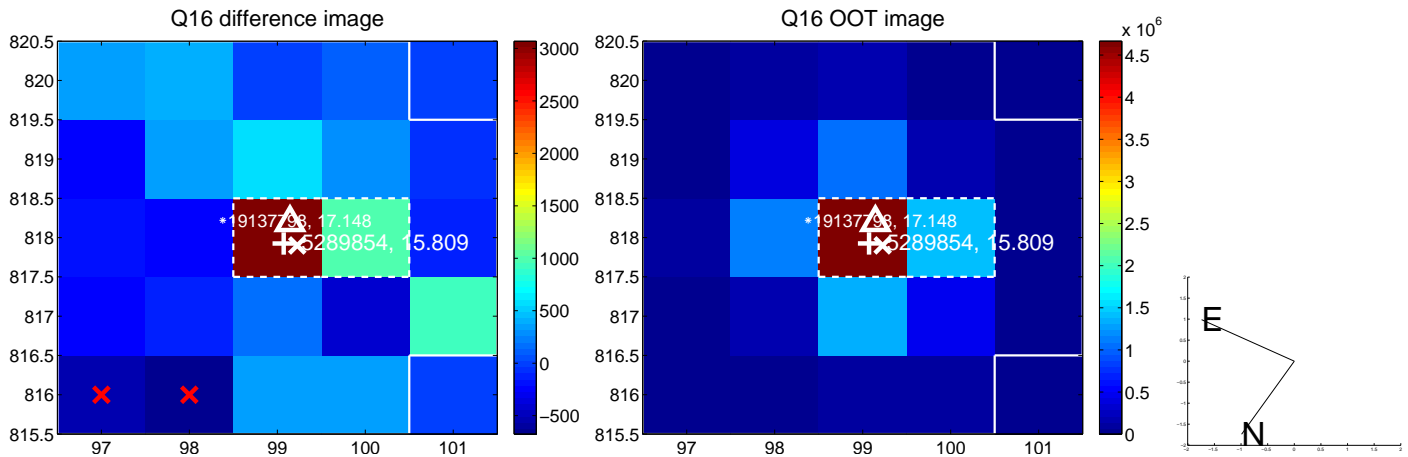
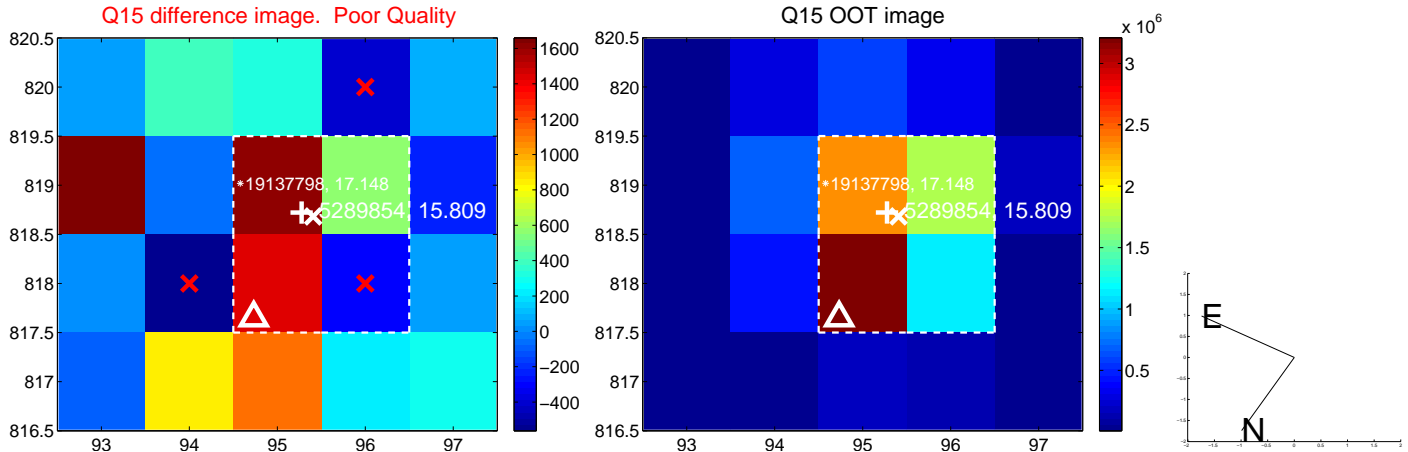
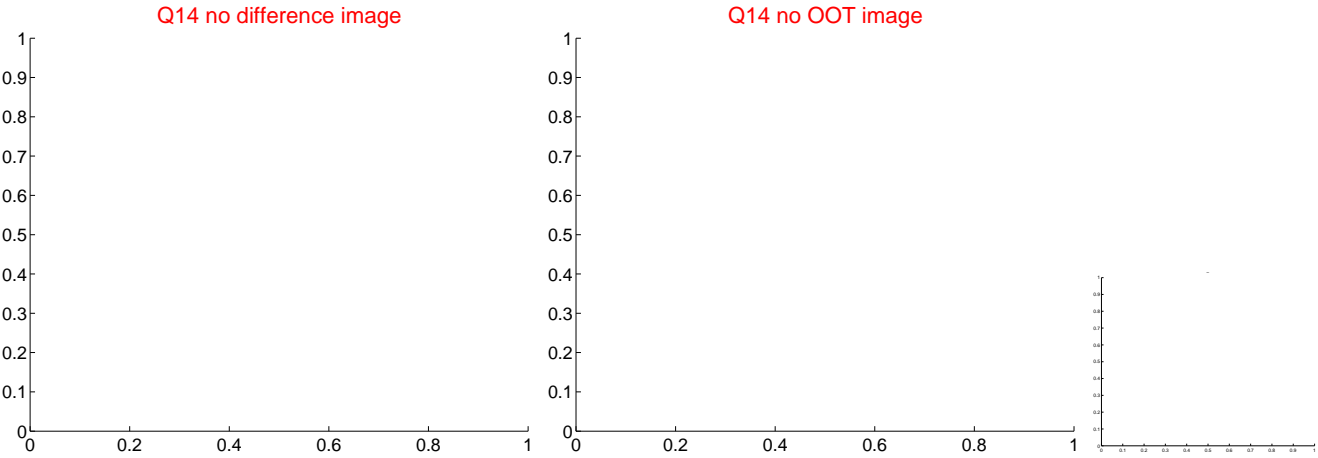
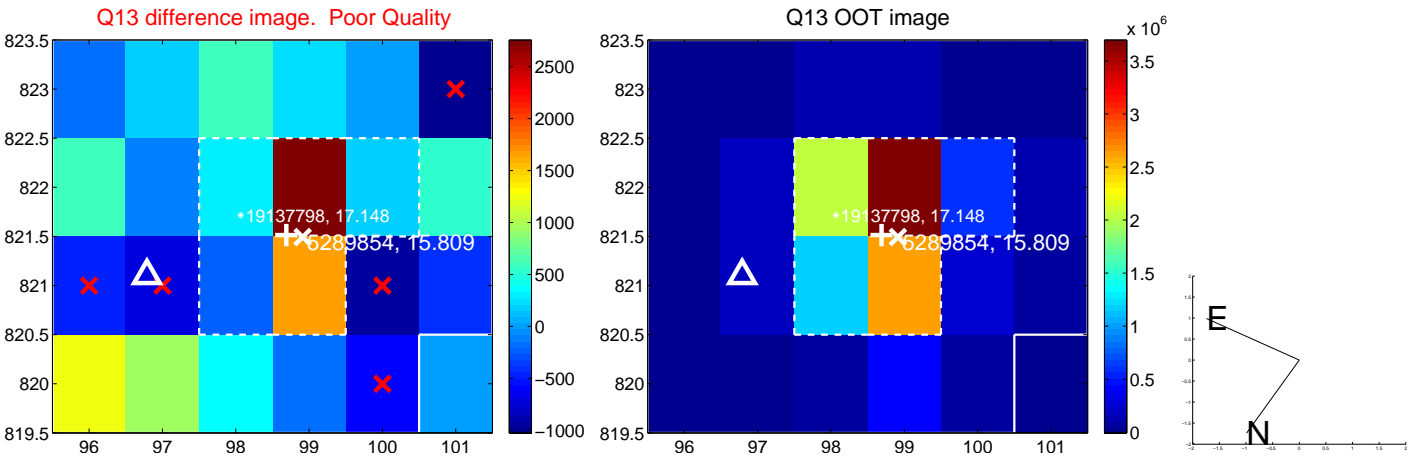
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



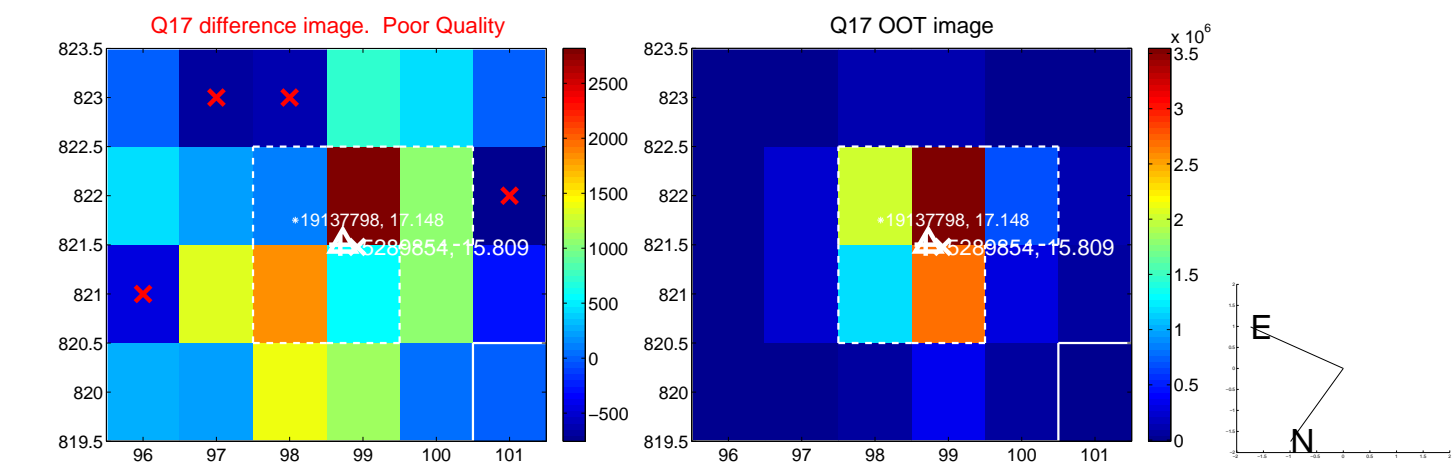
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



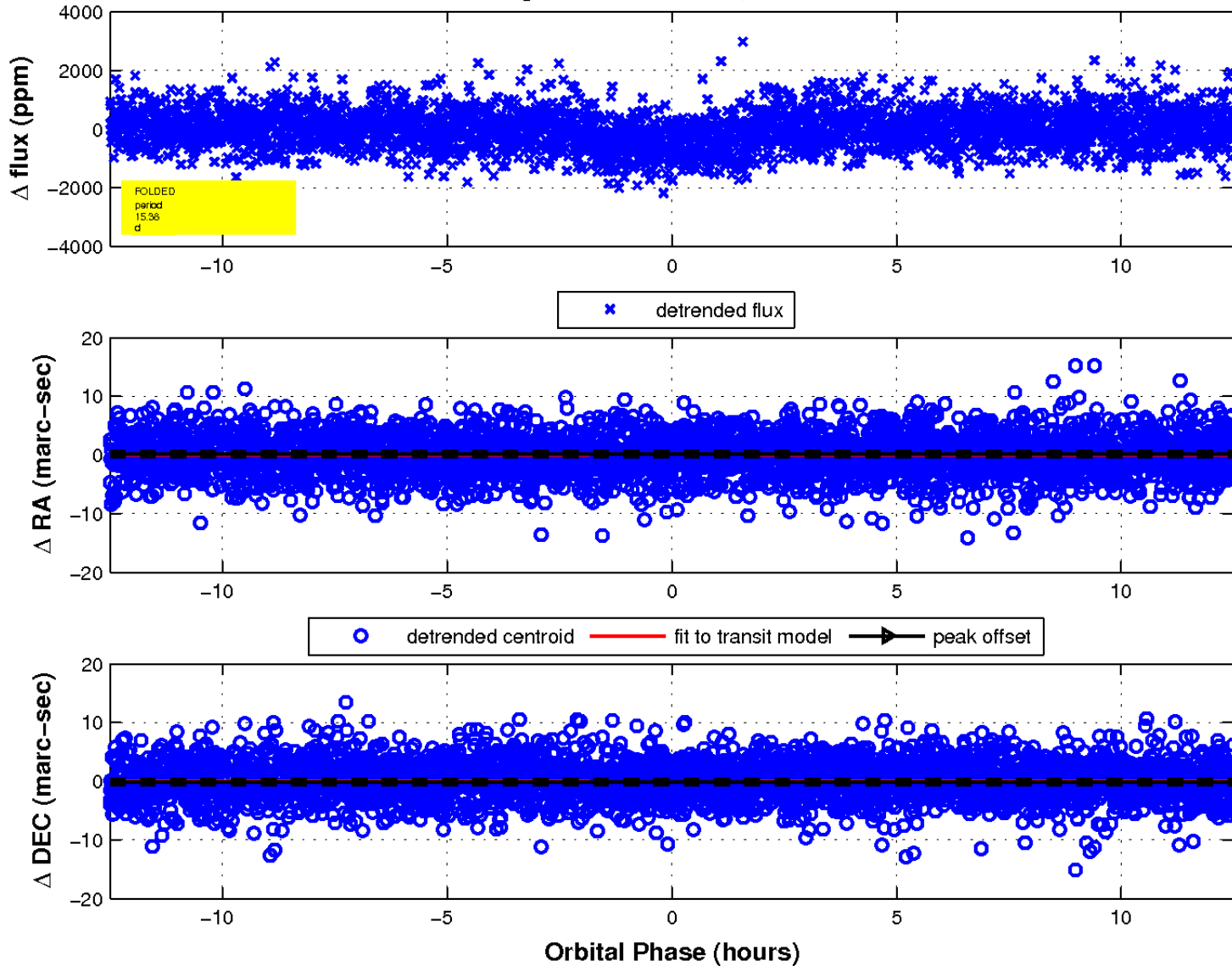
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

