

KIC 009288786

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})
009288786-01	OBS	1390.01	1.744087	132.770058	9633.3	1.933	510.0	445.4	0.70	4368	8.92	252.68
009288786-02	OBS	No	1.744100	131.892930	1100.3	1.613	53.8	64.1	0.70	4368	2.83	252.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009288786-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009288786-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

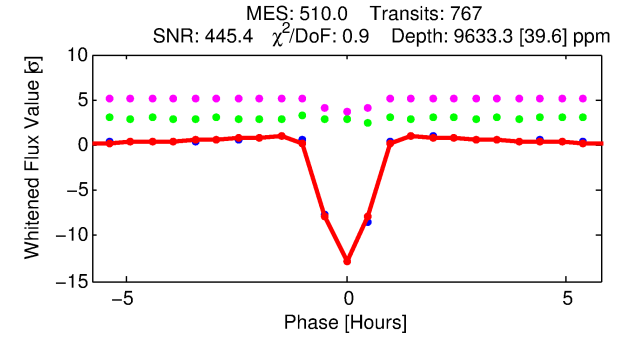
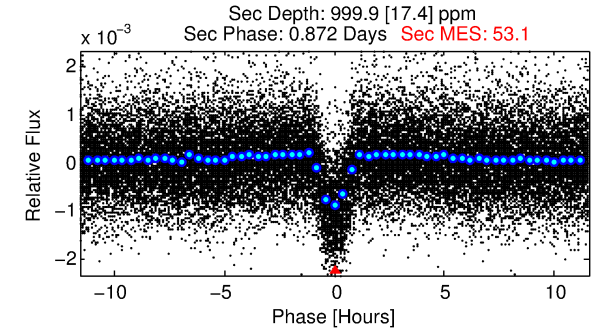
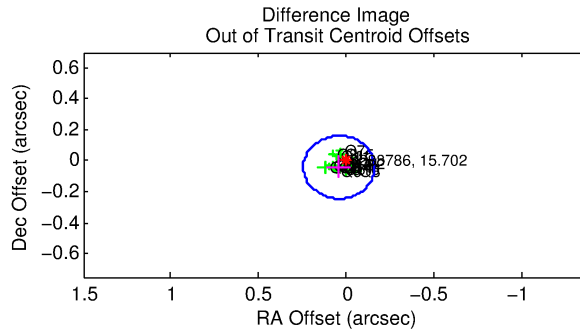
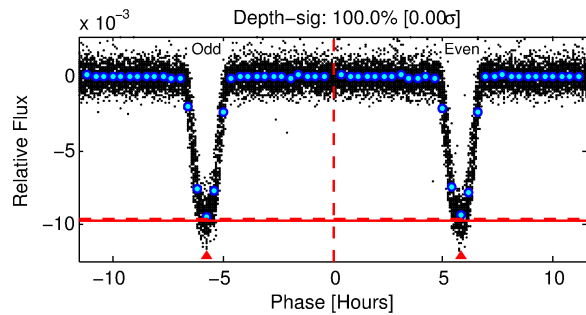
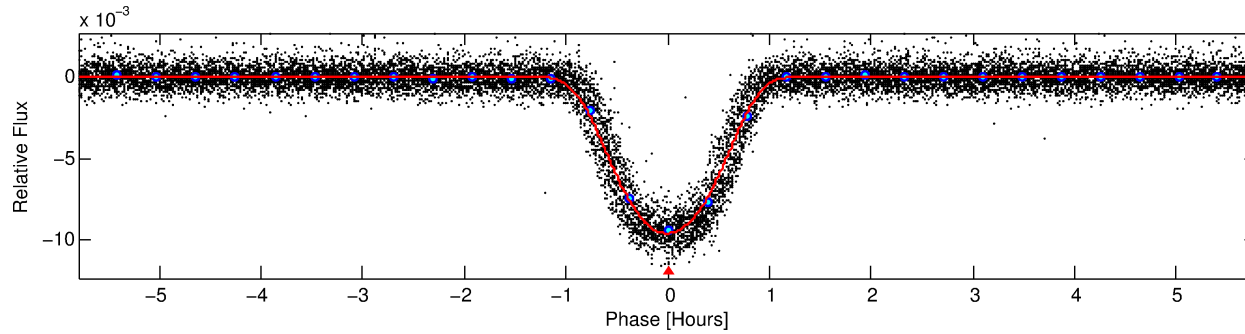
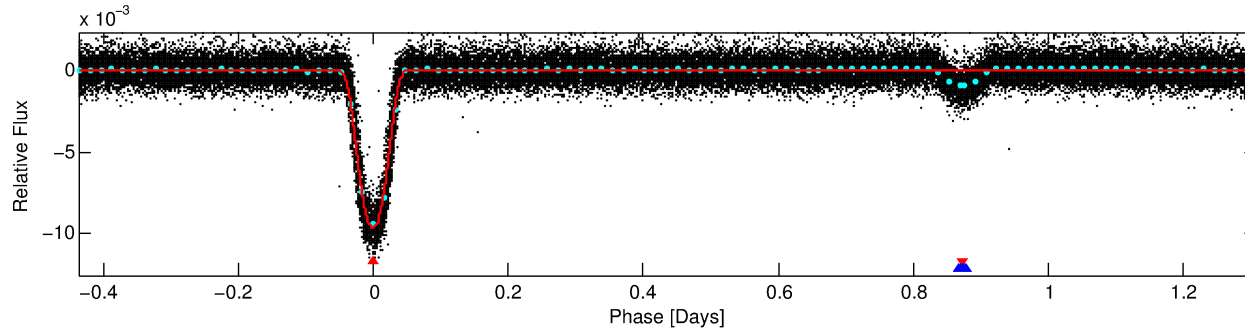
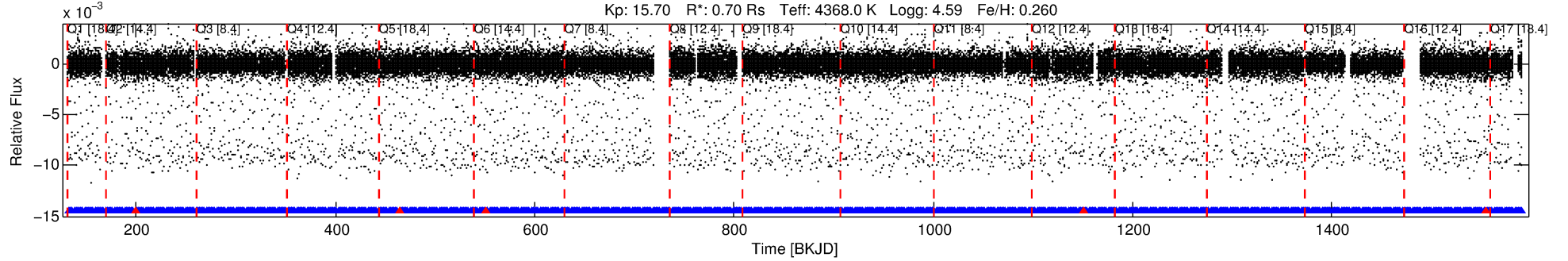
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009288786-01

No Significant Match Found

DV One-Page Summary

KIC: 9288786 Candidate: 1 of 2 Period: 1.744 d
KOI: K01390.01 Corr: 0.906



DV Fit Results:

Period = 1.74409 [0.00000] d
Epoch = 132.7701 [0.0001] BKJD
Rp/R* = 0.1163 [0.0020]
a/R* = 4.66 [0.05]
b = 0.90 [0.01]
Seff = 252.68 [40.67]
Teff = 1017 [41] K
Rp = 8.92 [0.70] Re
a = 0.0253 [0.0016] AU
Ag = 4.41 [0.44] [7.83 σ]
Teffp = 2278 [79] K [14.22 σ]

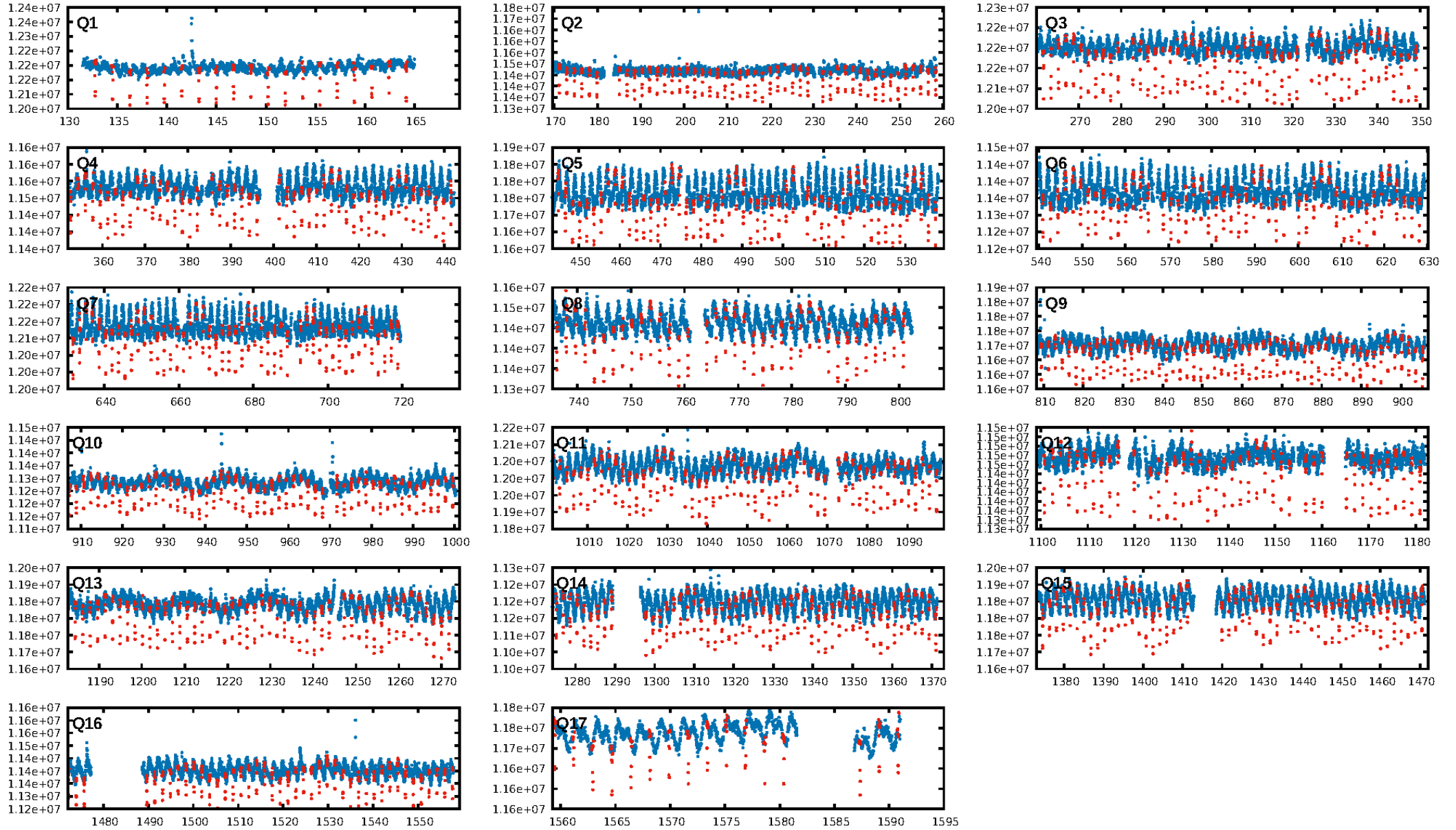
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [727/732]
GhostDiagnostic-chr: 4.301
Centroid-sig: 0.6%
Centroid-so: 0.364 arcsec [14.54 σ]
OotOffset-rm: 0.061 arcsec [0.90 σ]
KicOffset-rm: 0.225 arcsec [3.05 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

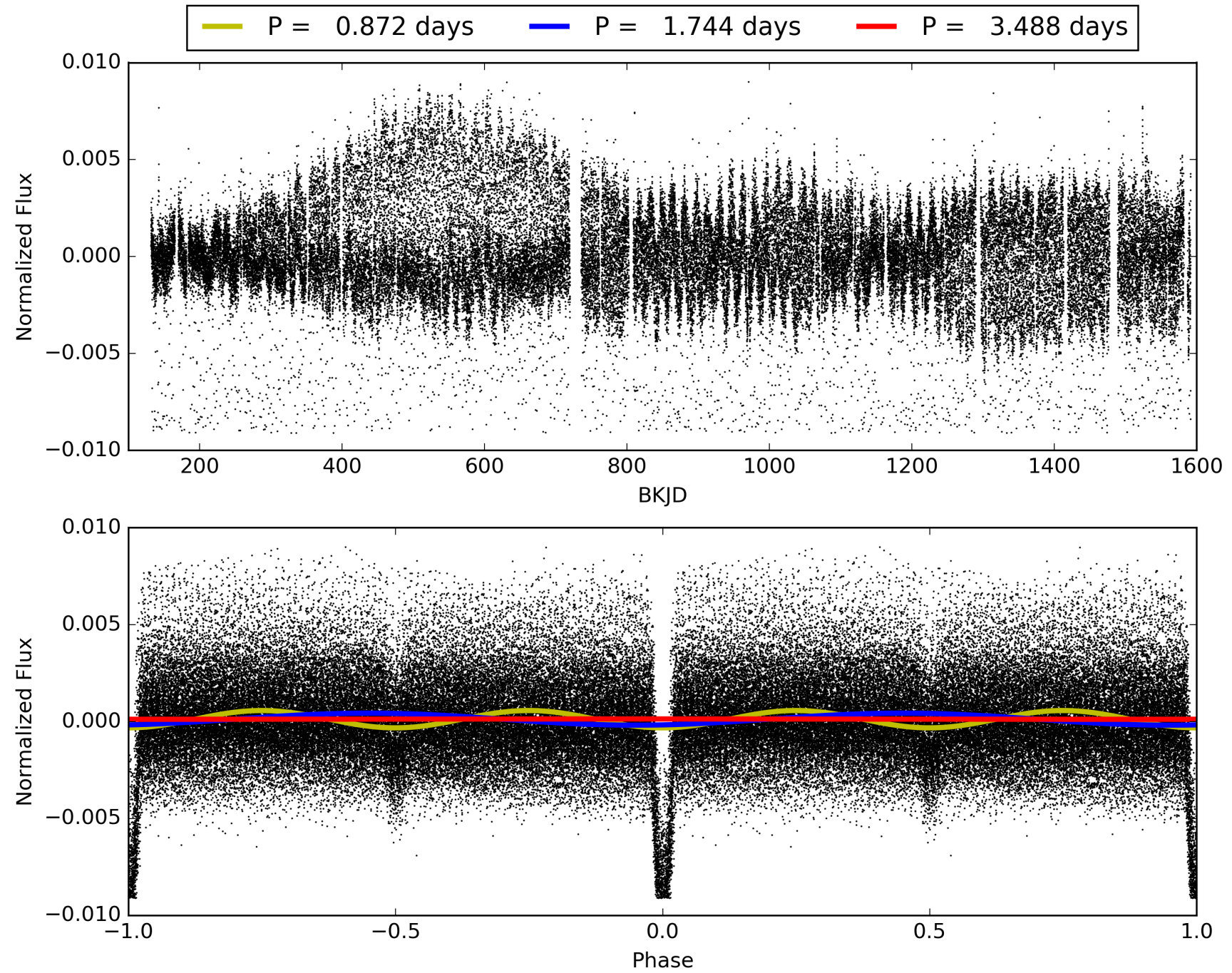
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:10:14 Z

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

TCE 009288786-01, PDC Light Curves

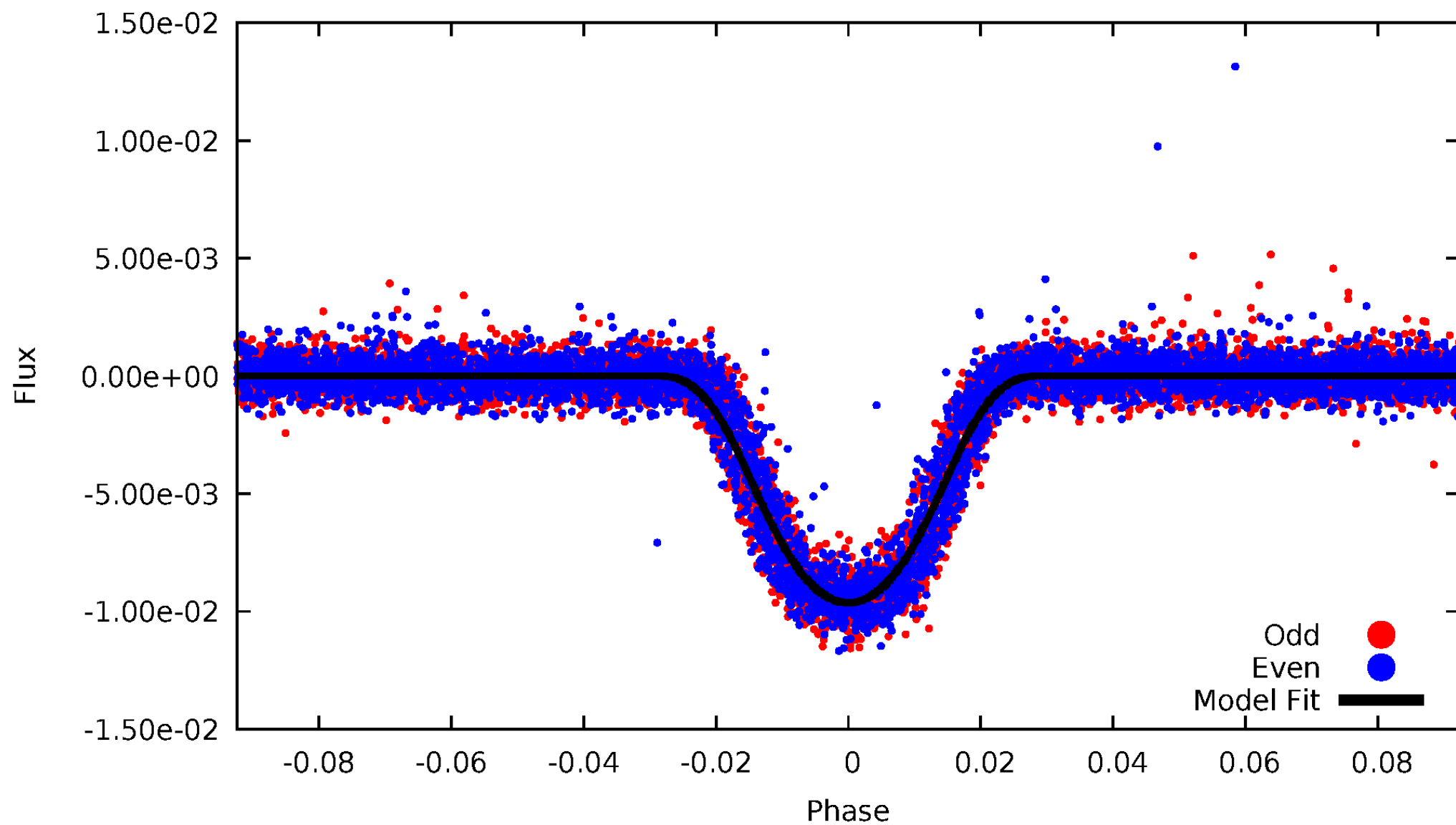


TCE 009288786-01



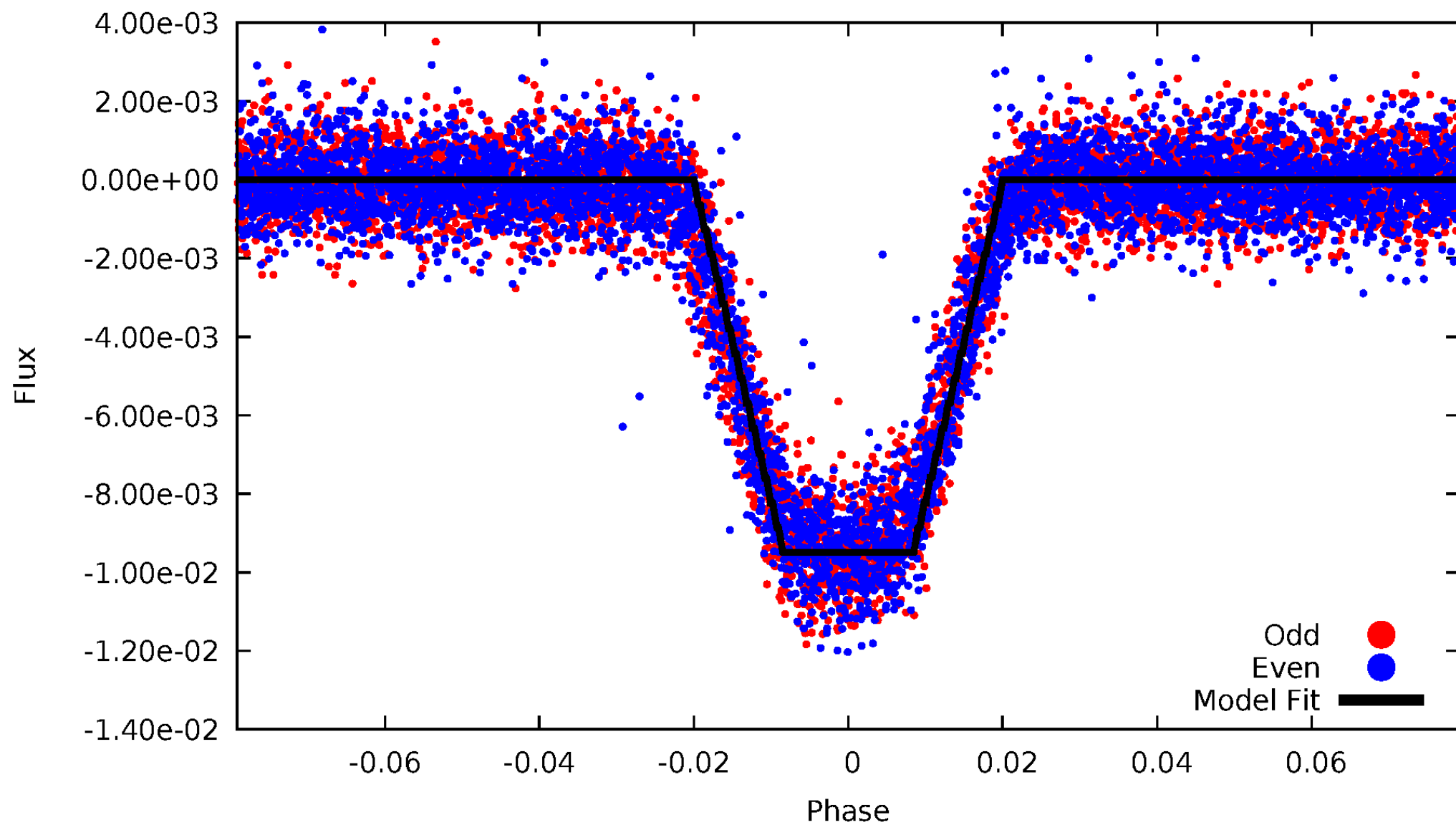
DV Odd/Even

TCE 009288786-01



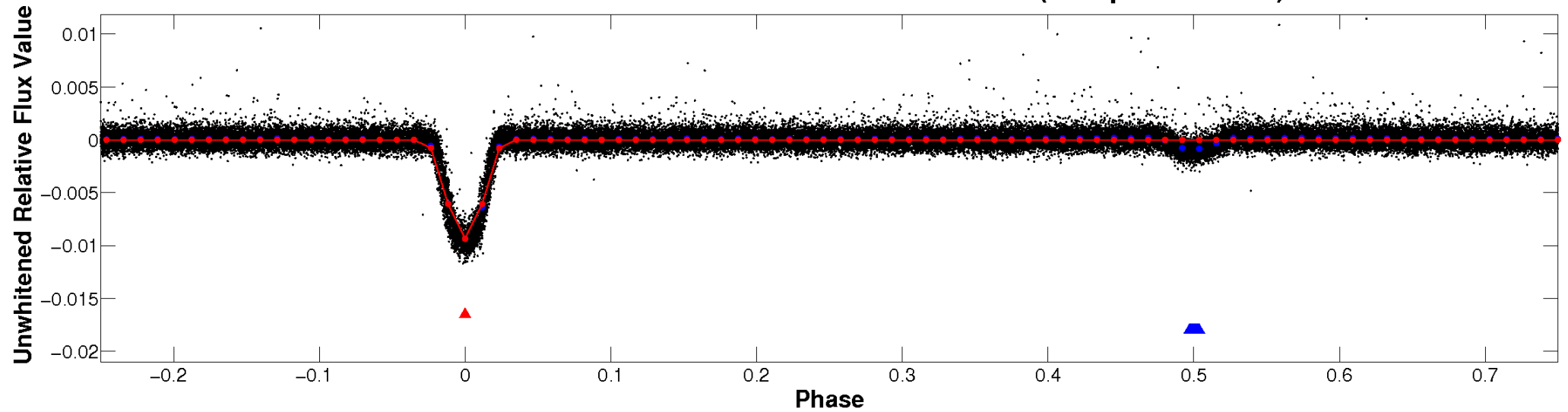
ALT Odd/Even

TCE 009288786-01

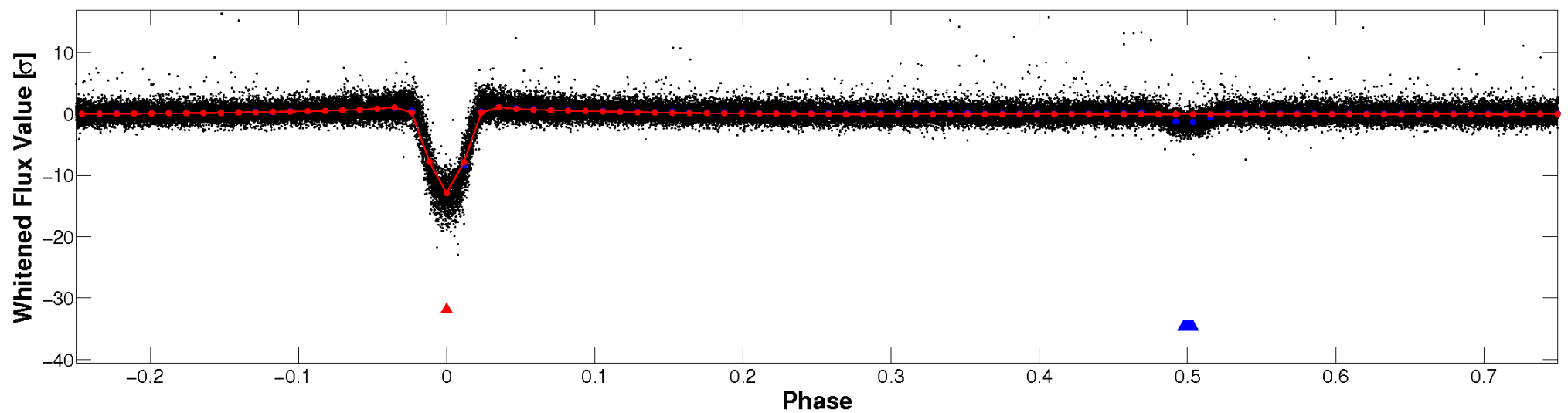


Non-Whitened Vs. Whitened Light Curve

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

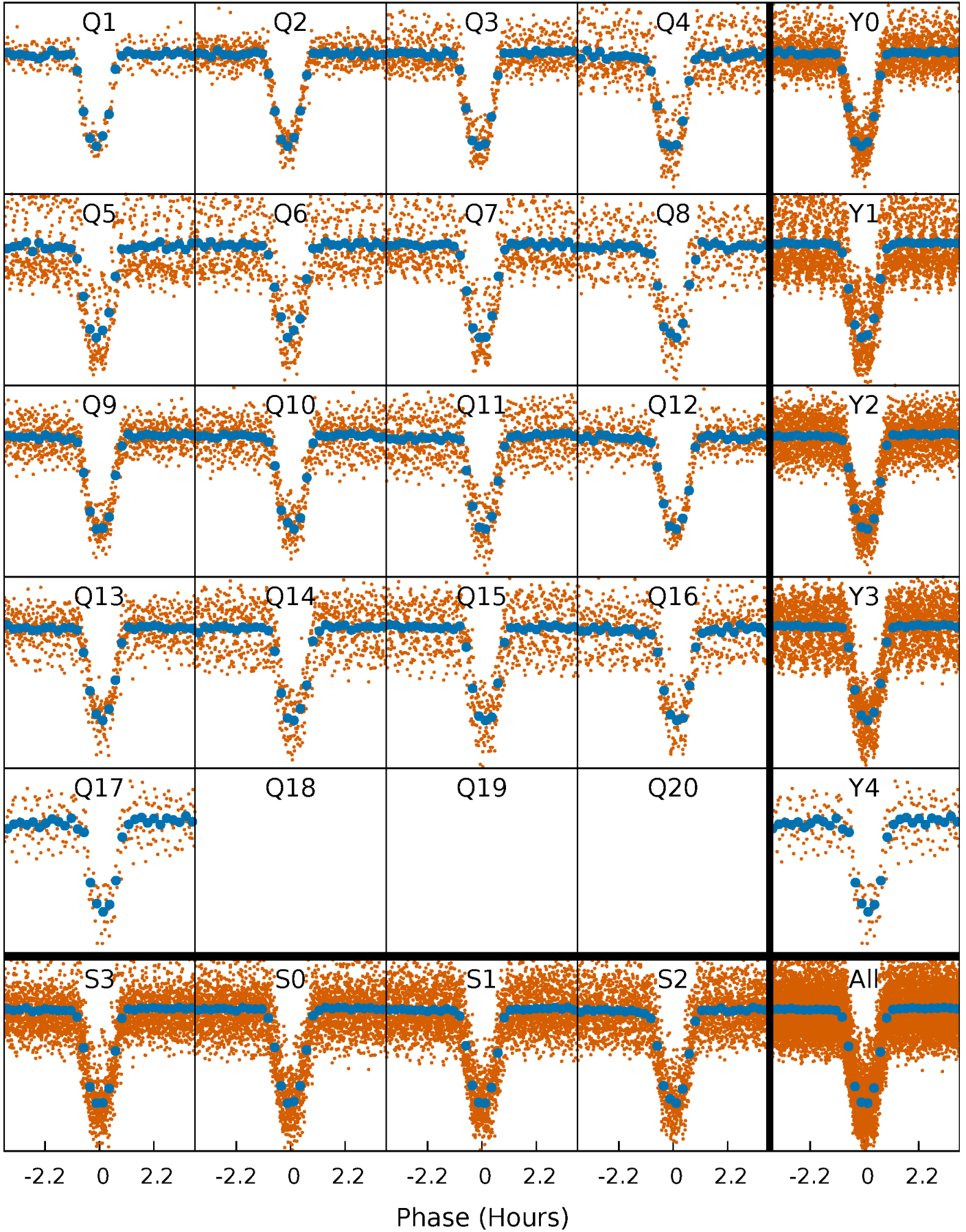


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



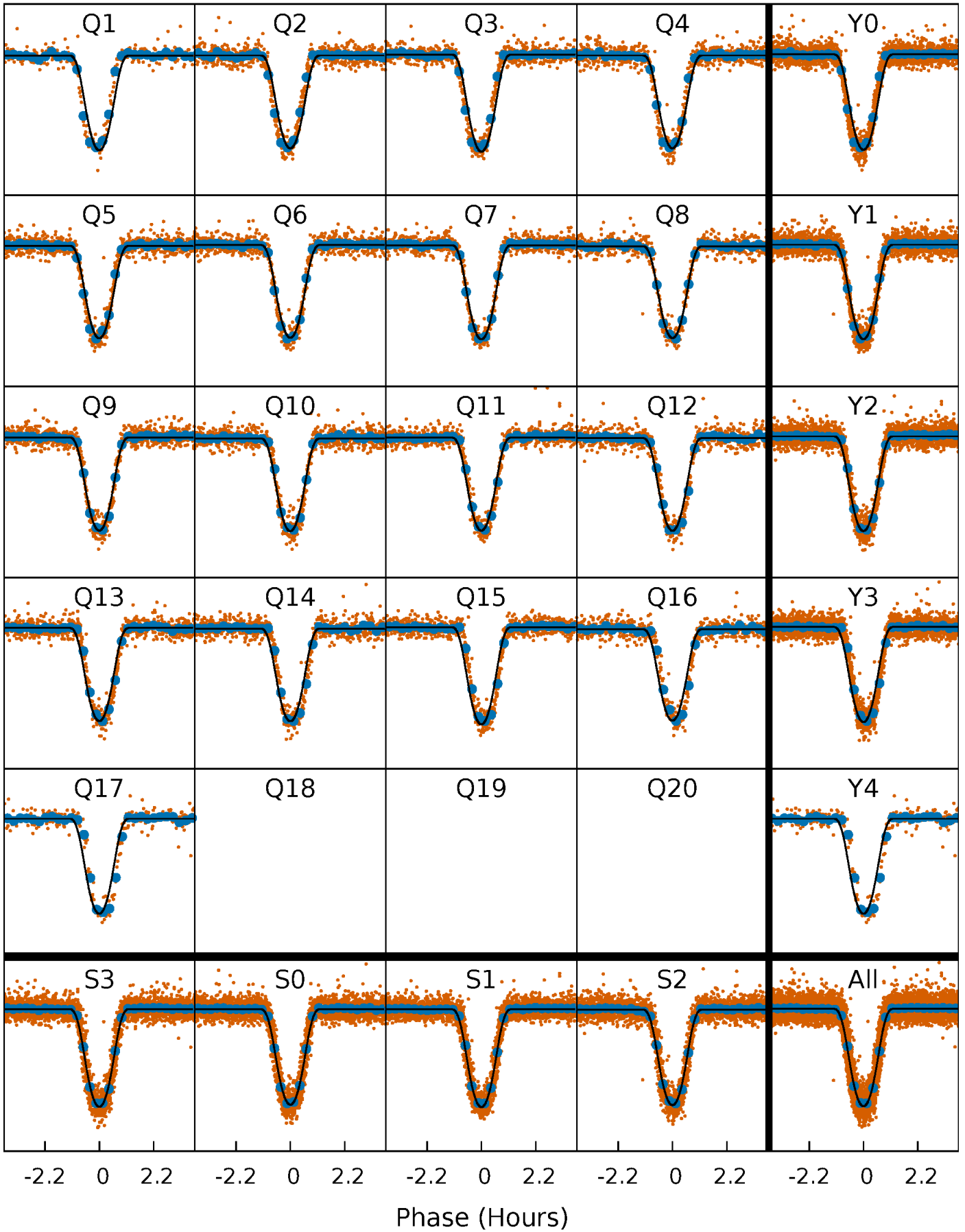
PDC Quarter-Phased Transit Curves

TCE 009288786-01 P= 1.744087 Days $T_0=132.770058$ (BKJD)



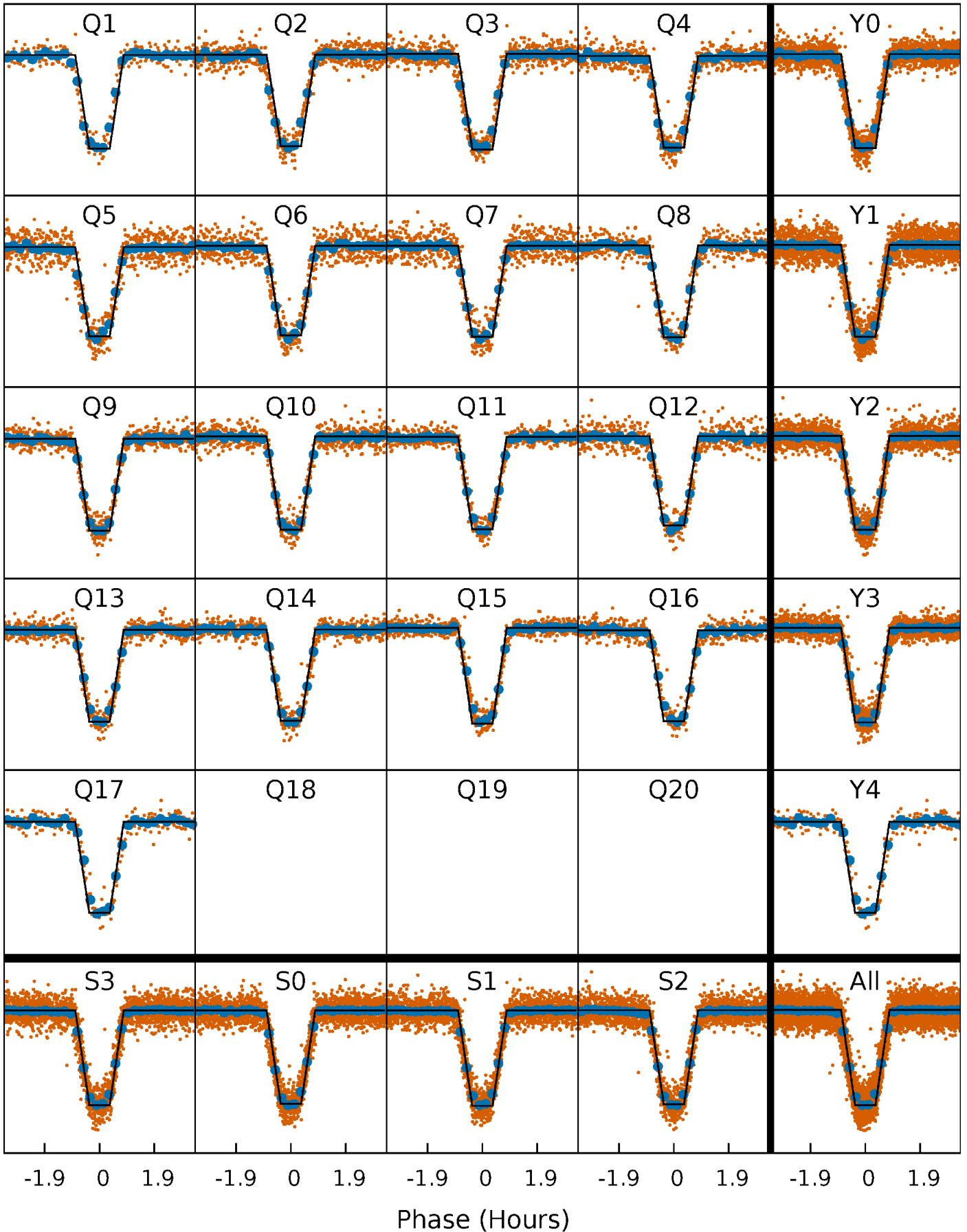
DV Quarter-Phased Transit Curves

TCE 009288786-01 P= 1.744087 Days $T_0=132.770058$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

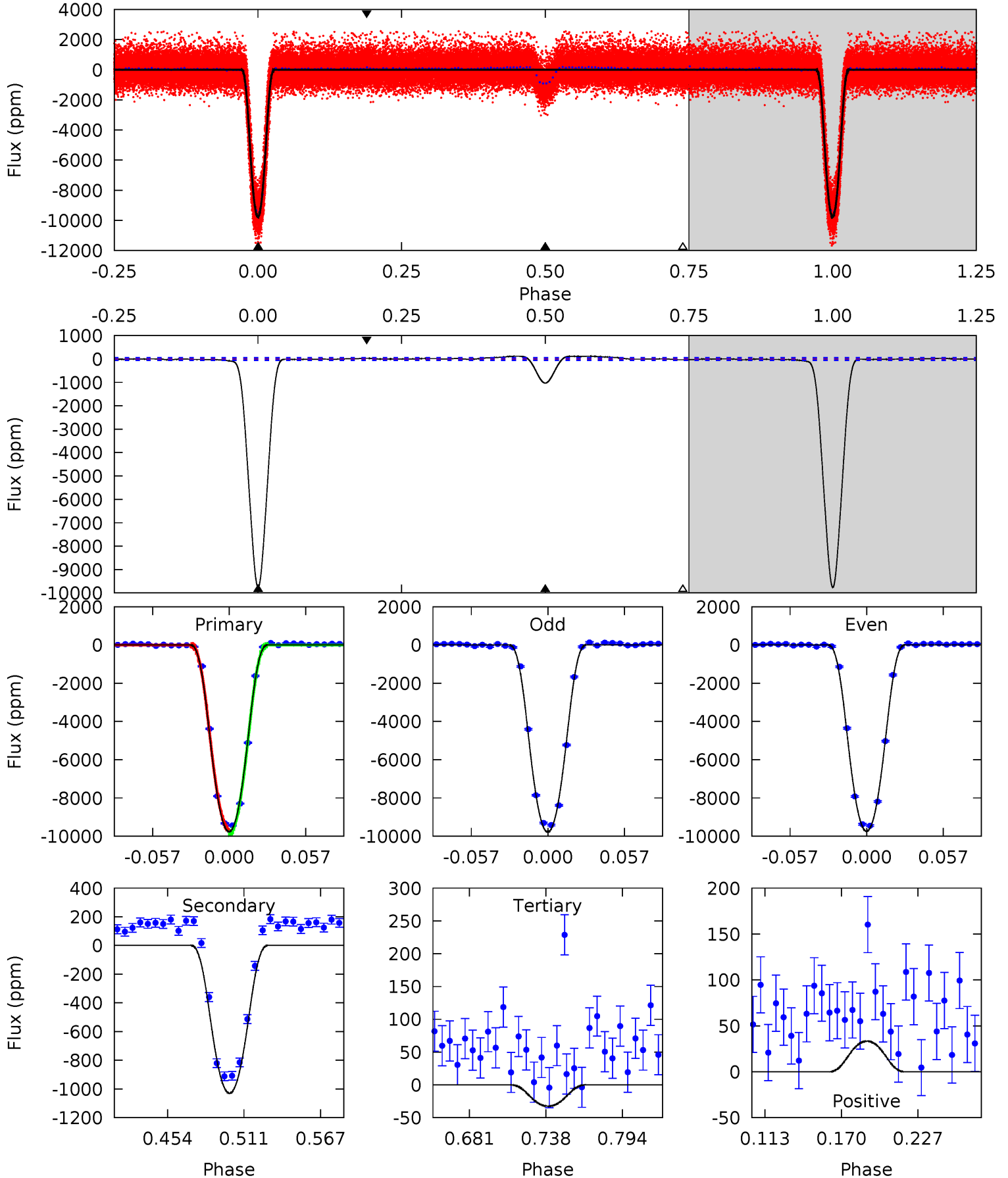
TCE 009288786-01 P= 1.744093 Days $T_0=132.768267$ (BKJD)



DV Model-Shift Uniqueness Test

009288786-01, P = 1.744087 Days, E = 131.025971 Days

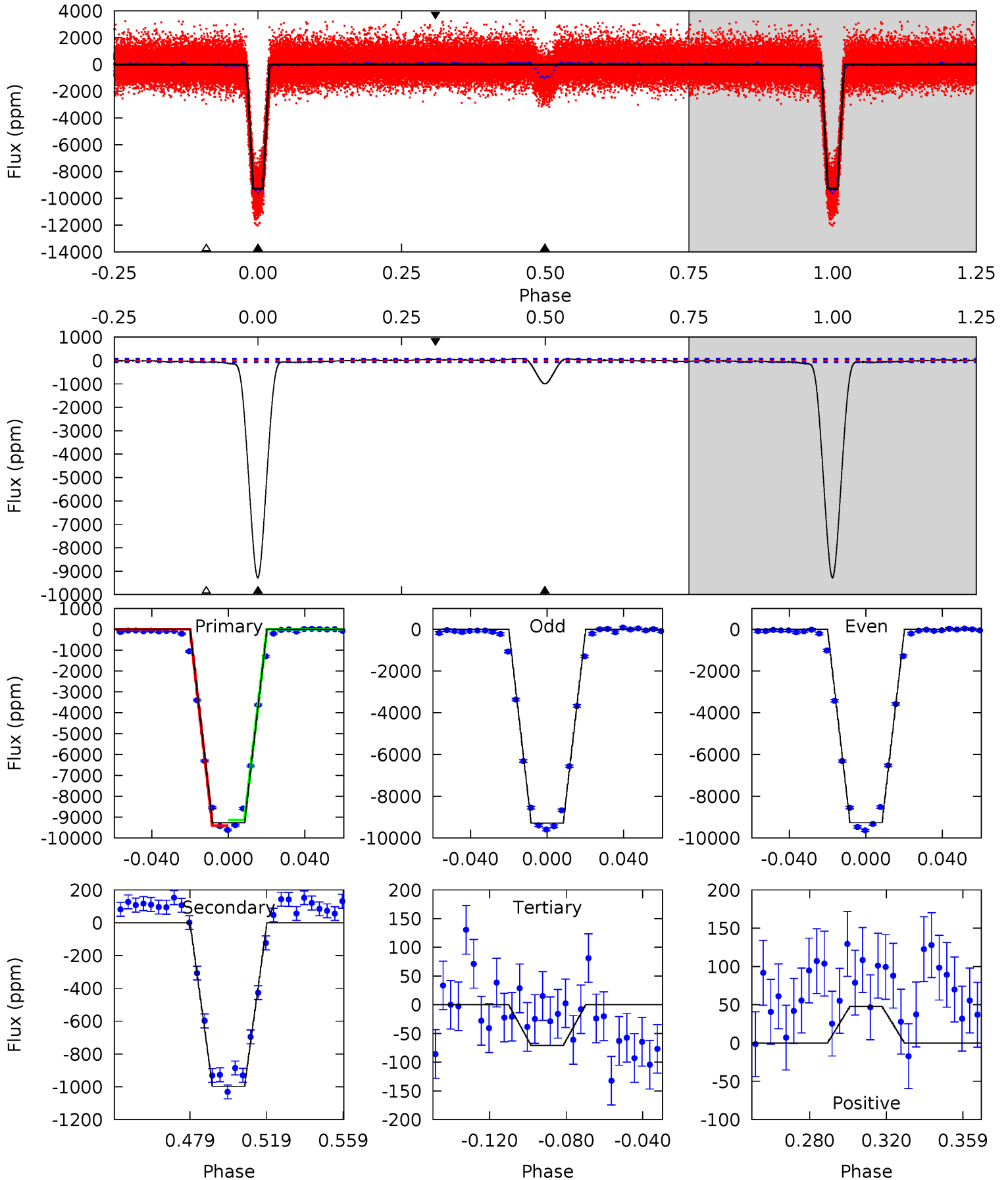
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
951.0	100.3	3.17	3.24	4.68	1.91	3.67	947.8	947.7	97.1	97.1	1.97	1.00	0.01	0



Alt Model-Shift Uniqueness Test

009288786-01, P = 1.744093 Days, E = 131.024174 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
612.2	65.9	4.69	3.16	4.75	2.05	2.71	607.5	609.0	61.2	62.7	0.63	1.00	0.01	8.89



Stellar Parameters For KIC 009288786

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4368^{+132}_{-145}	$4.593^{+0.049}_{-0.018}$	$0.260^{+0.150}_{-0.300}$	$0.703^{+0.029}_{-0.054}$	$0.706^{+0.041}_{-0.050}$	$2.865^{+0.600}_{-0.210}$
	+3%/-3%	+1%/-0%	+58%/-115%	+4%/-8%	+6%/-7%	+21%/-7%
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 009288786-01 / KOI 1390.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1030 ± 10	$8.87^{+0.30}_{-0.41}$	1410^{+48}_{-51}	2865^{+66}_{-71}	$4.635^{+0.370}_{-0.249}$
Alt.	-997 ± 15	$7.43^{+0.27}_{-0.36}$	1407^{+51}_{-50}	3001^{+74}_{-73}	$6.417^{+0.512}_{-0.372}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

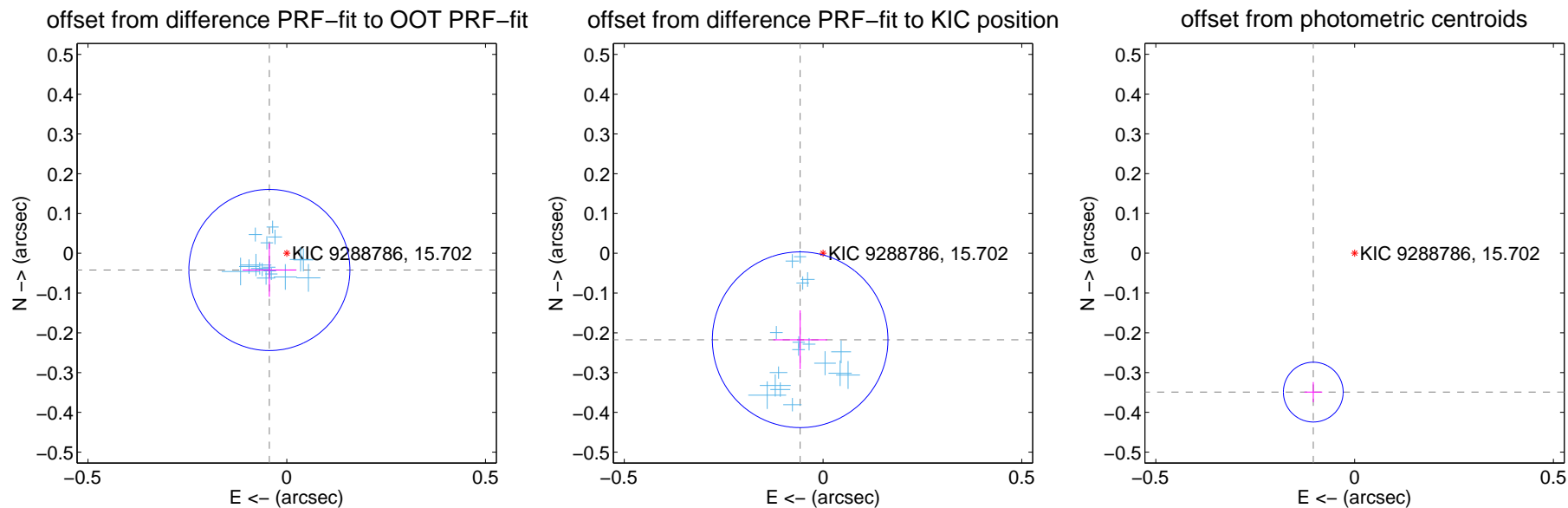
DV Centroid Data

Supplemental centroid analysis for 009288786-01. Kepler magnitude: 15.70. Transit SNR 445.44

There are 17 quarters with good PRF difference image offsets

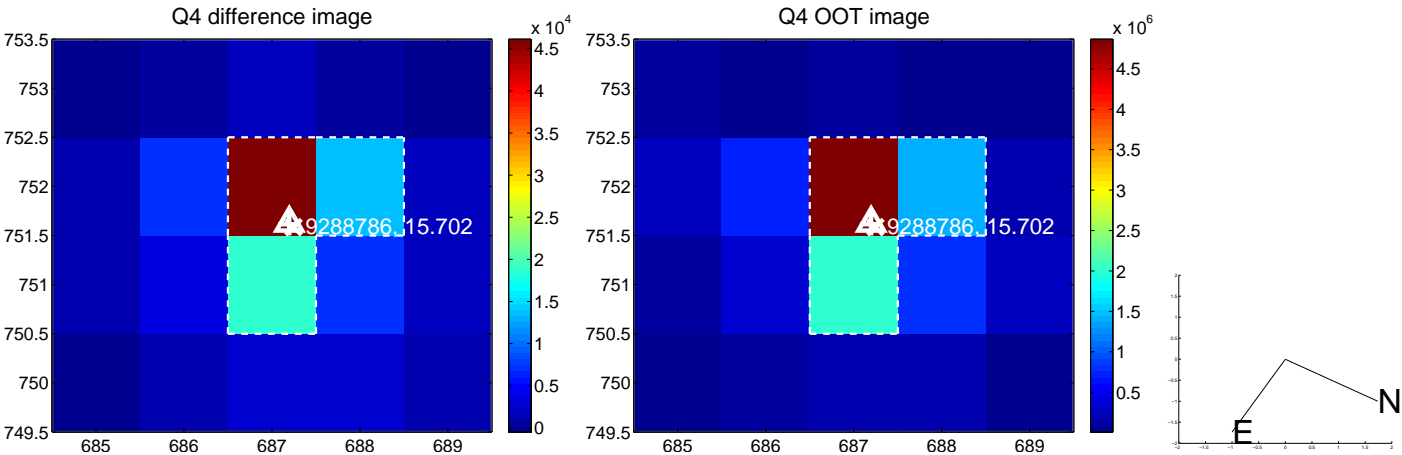
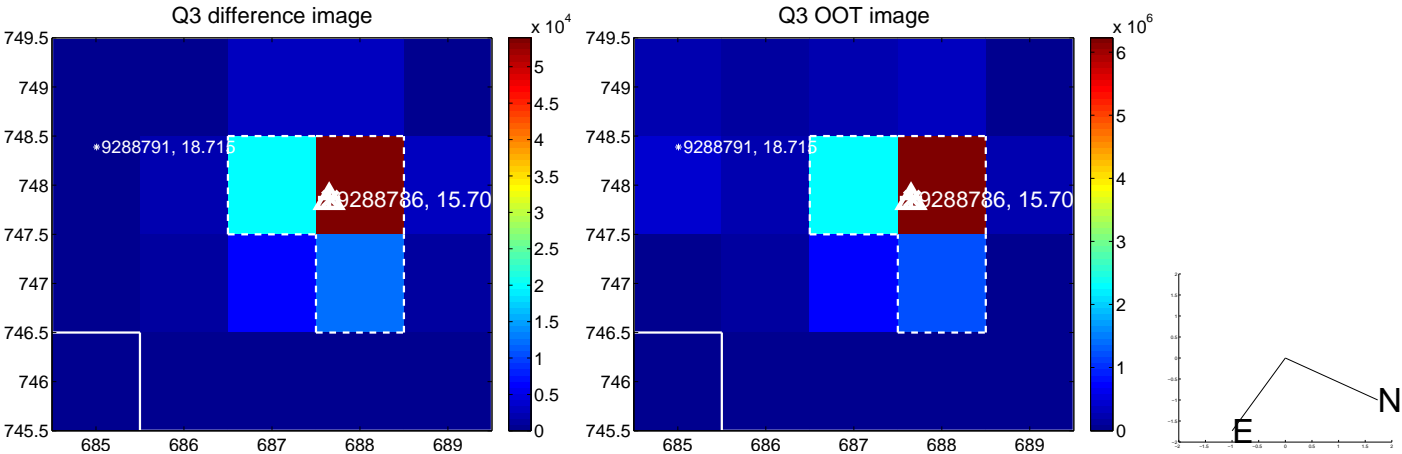
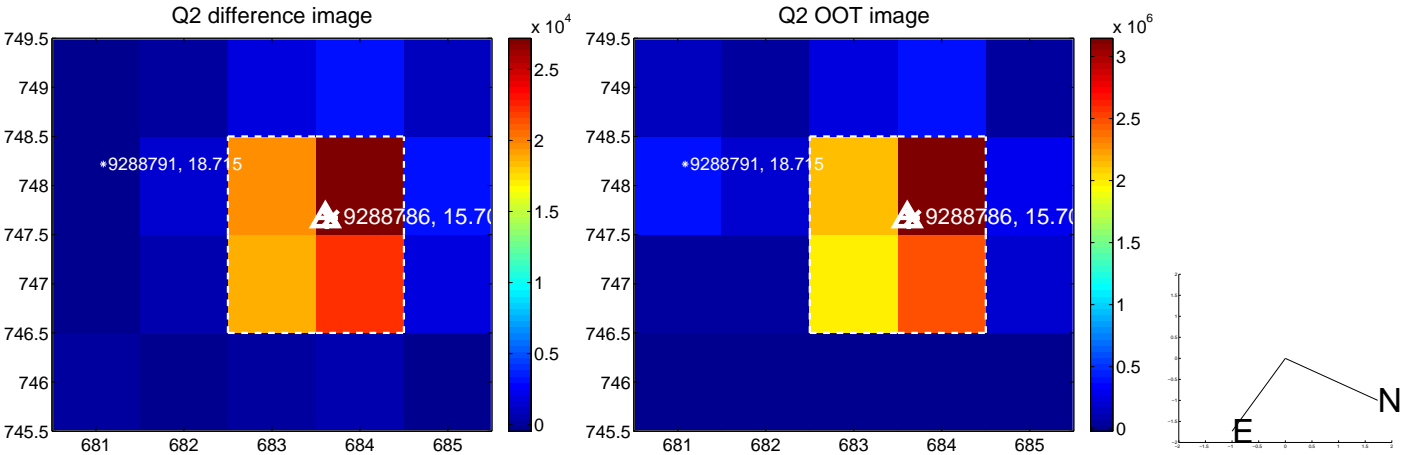
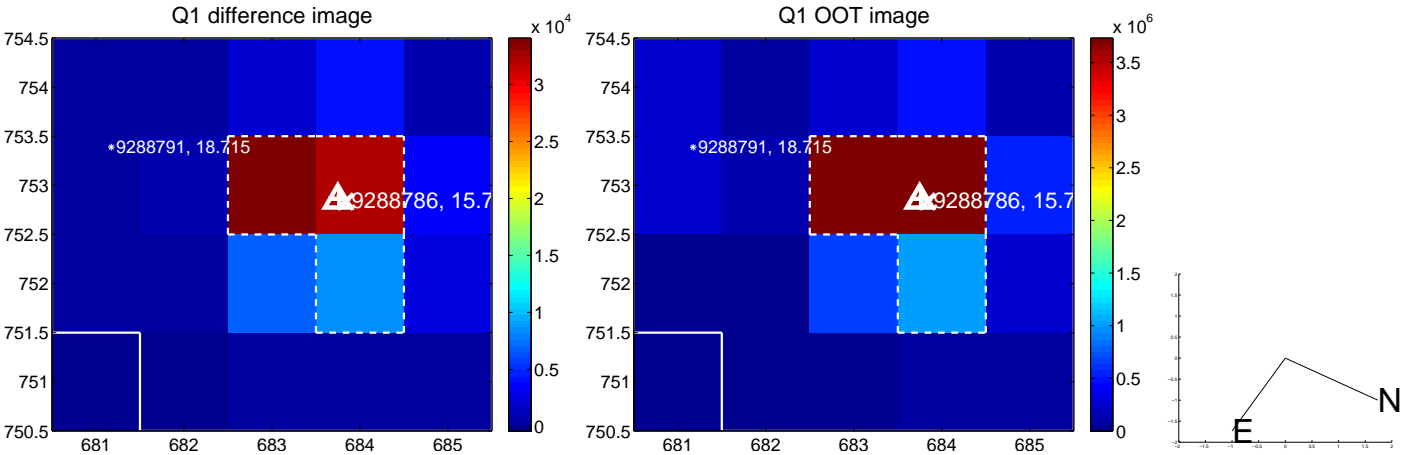
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.061 ± 0.068	0.90	0.044 ± 0.068	-0.042 ± 0.067
PRF-fit source offset from KIC position	0.225 ± 0.074	3.05	0.058 ± 0.068	-0.217 ± 0.074
photometric centroid source offset	0.36 ± 0.03	14.54	0.10 ± 0.02	-0.35 ± 0.03

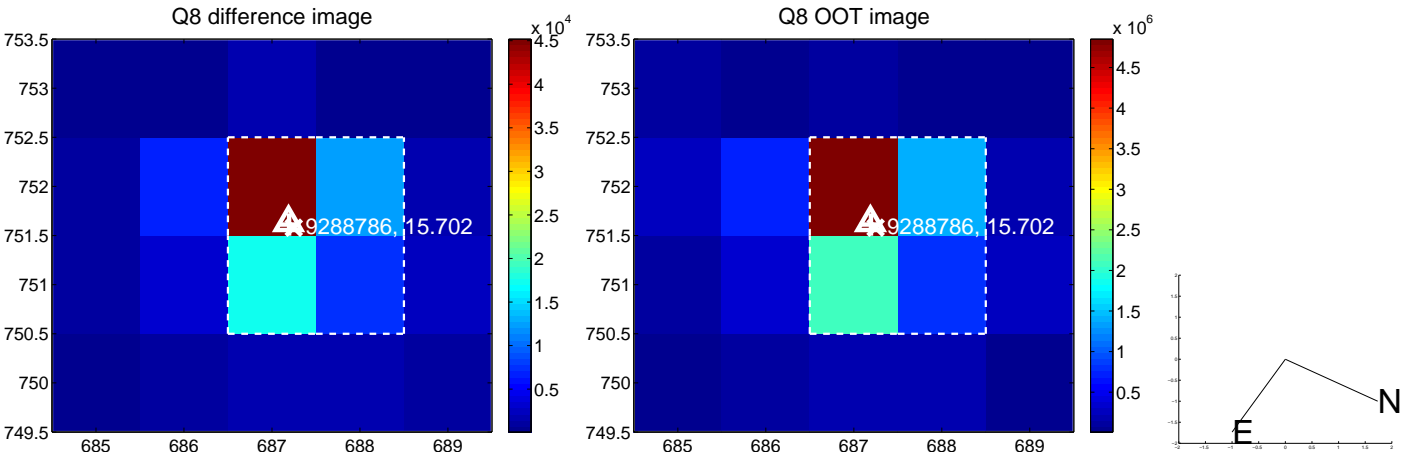
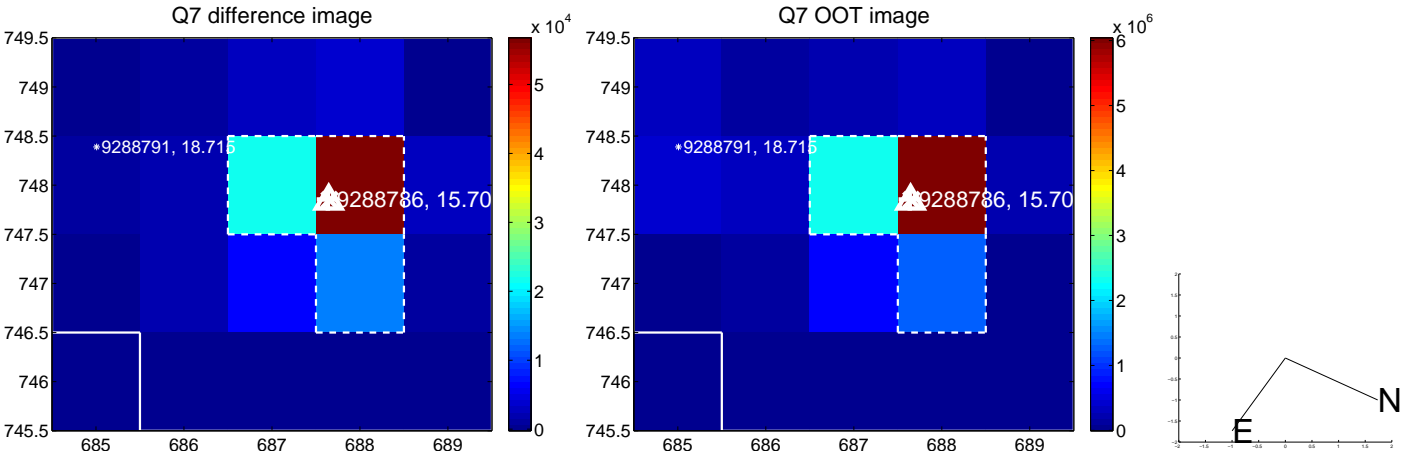
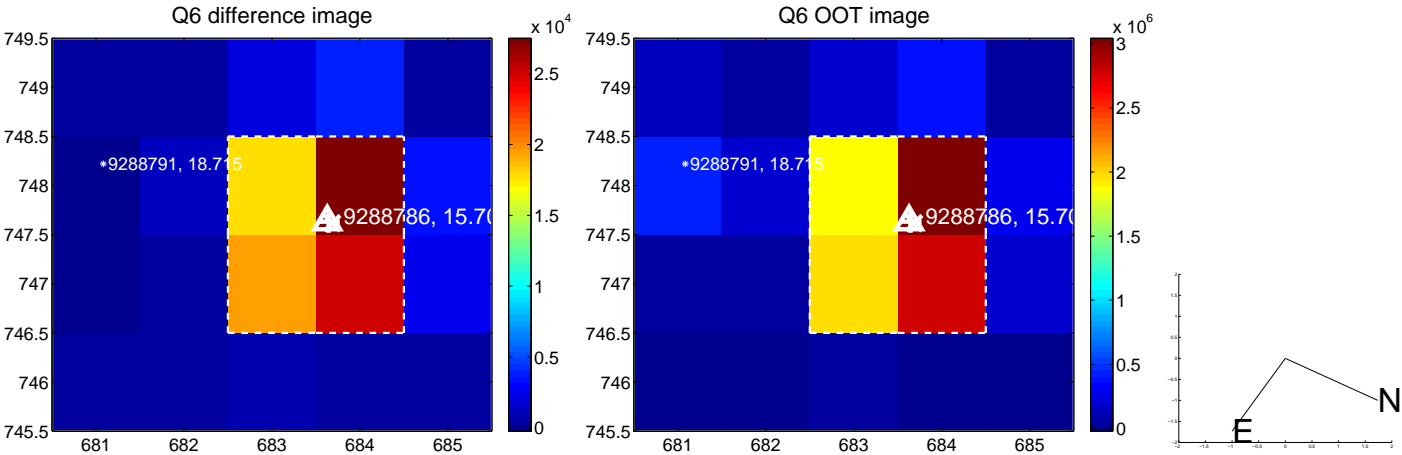
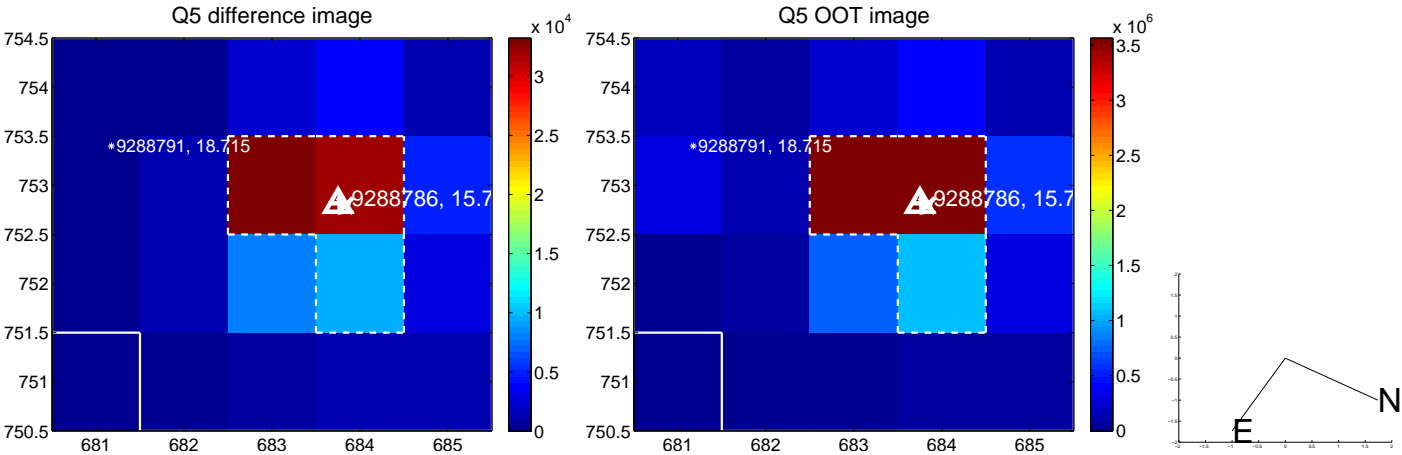


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

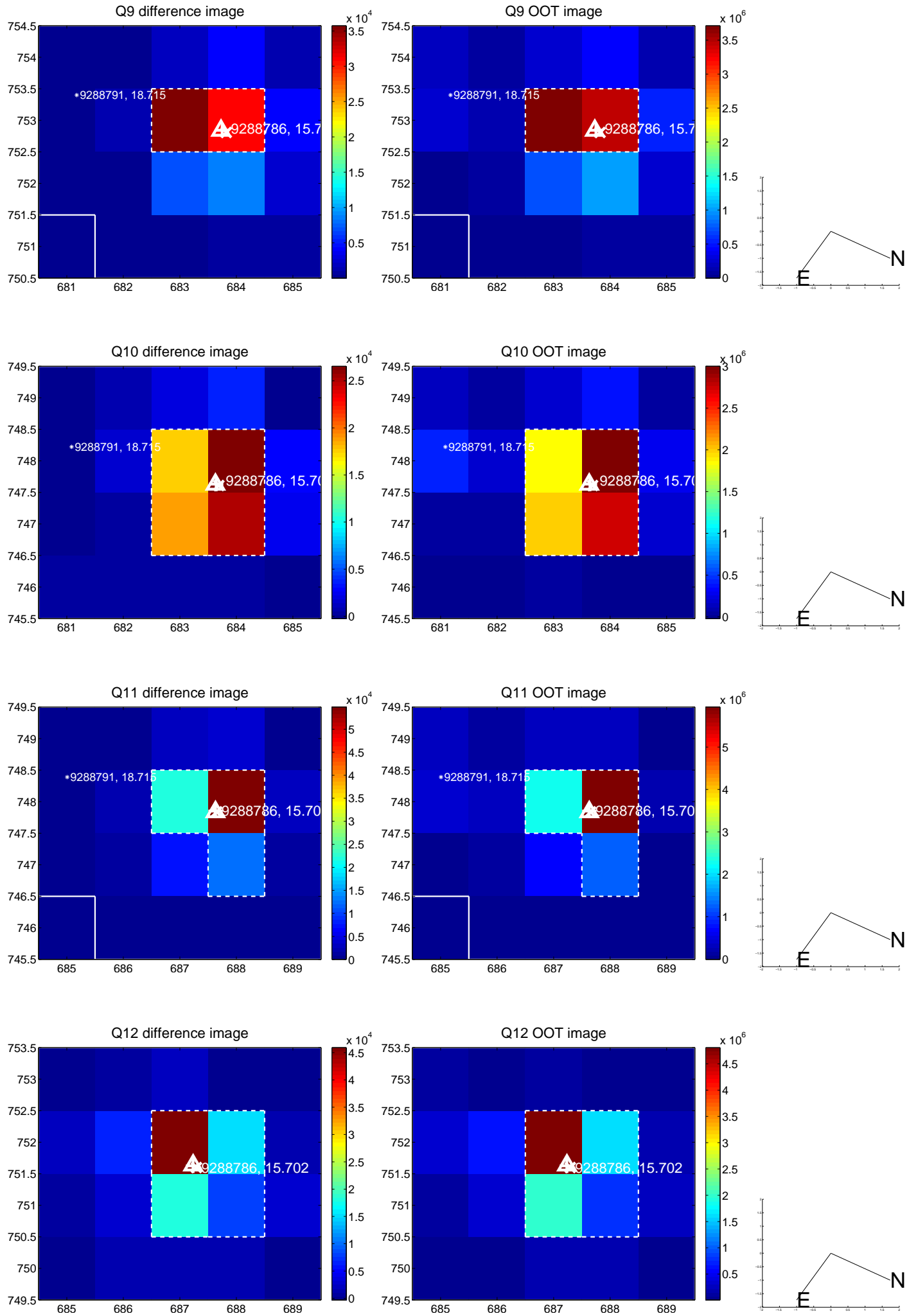
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



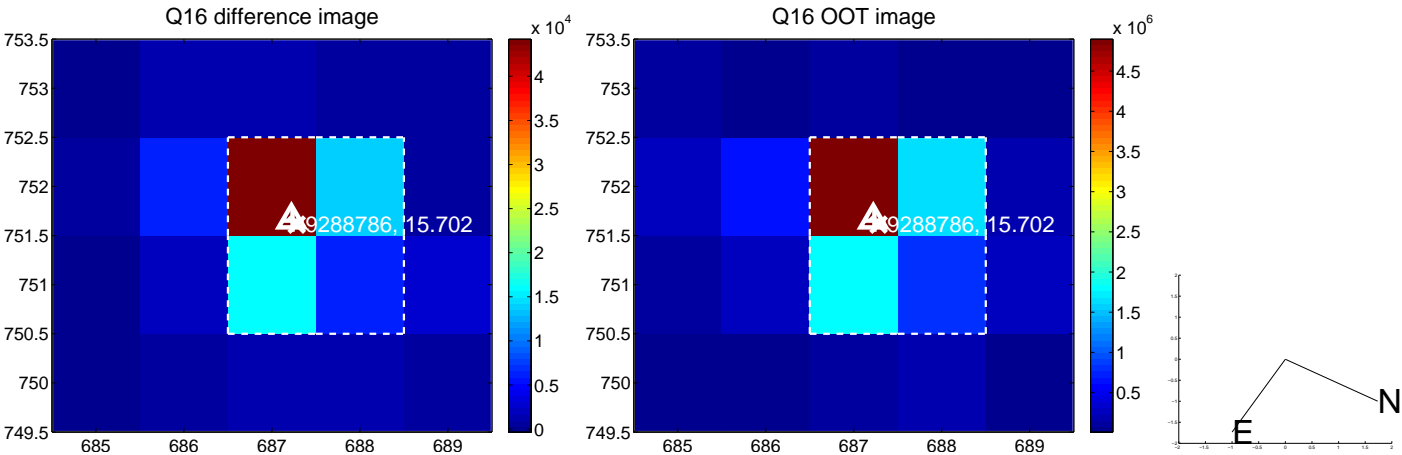
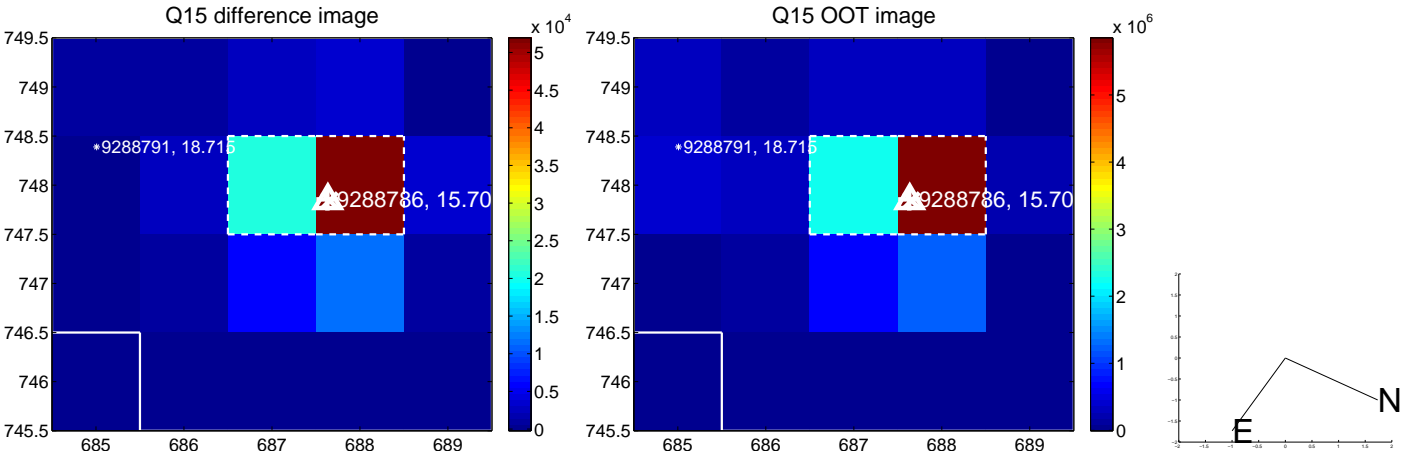
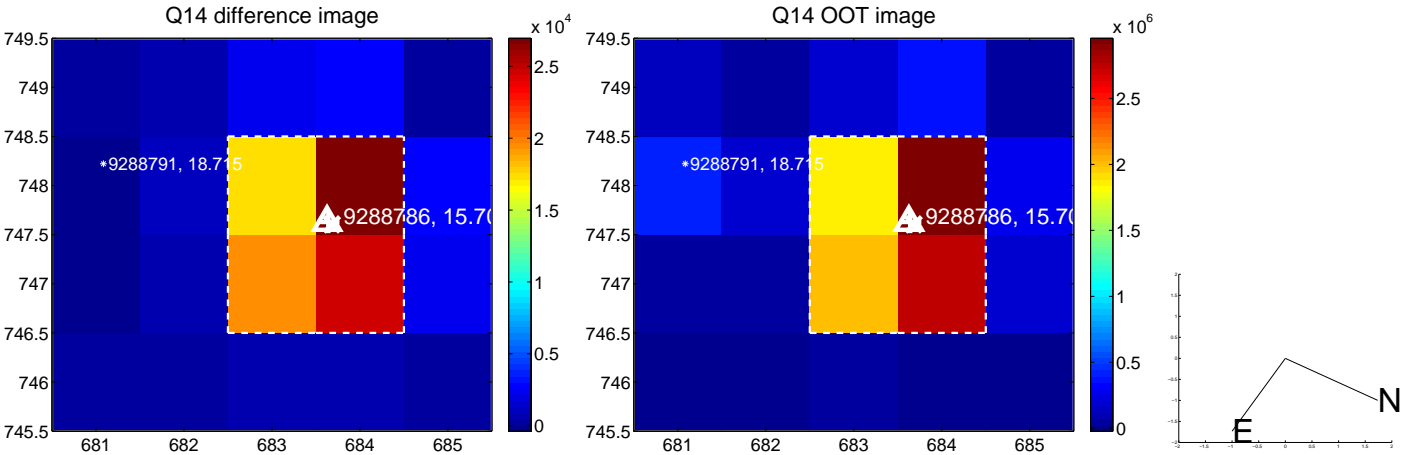
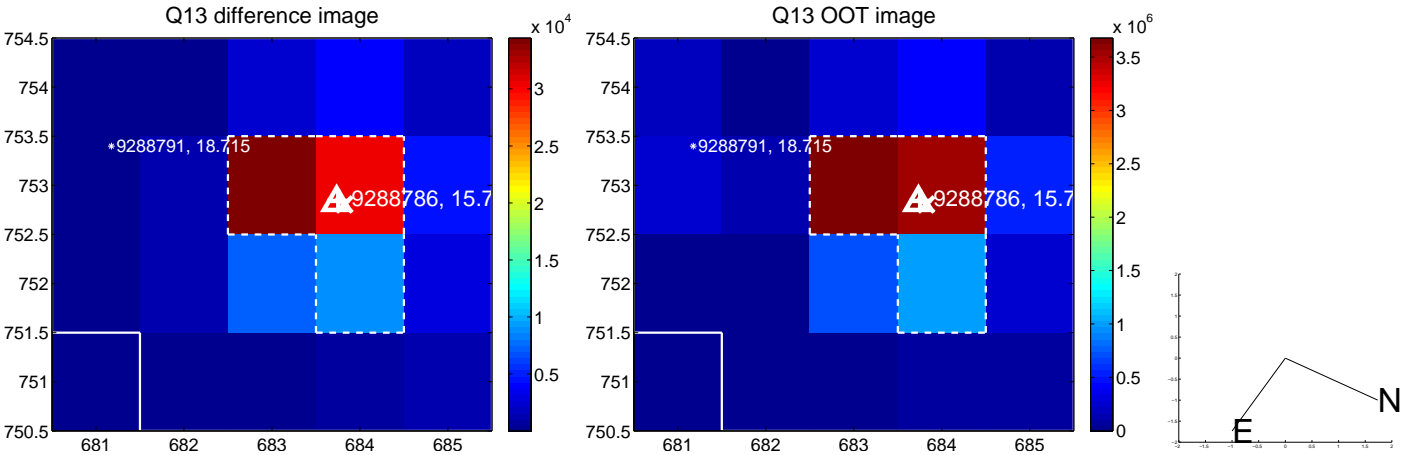
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



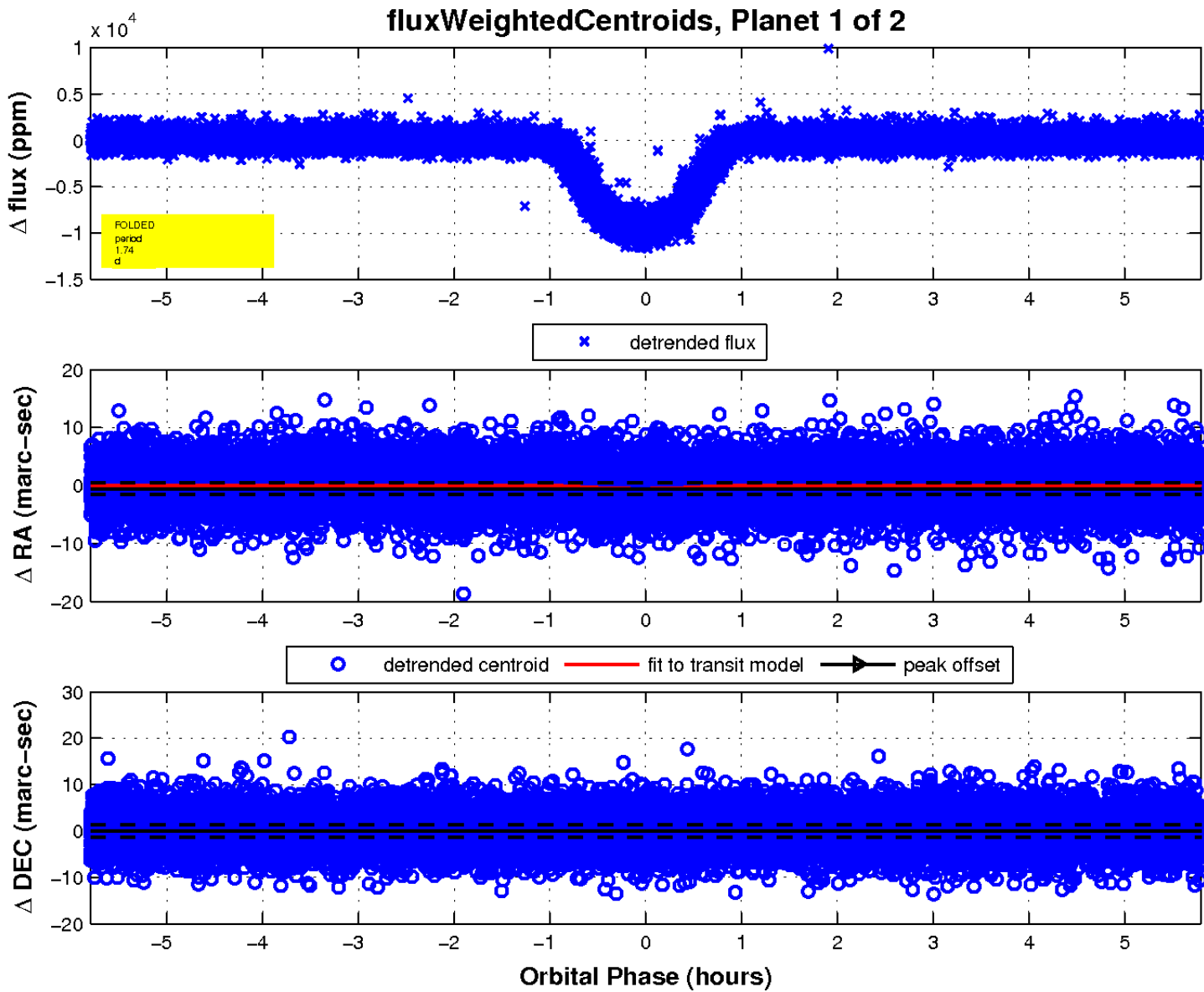
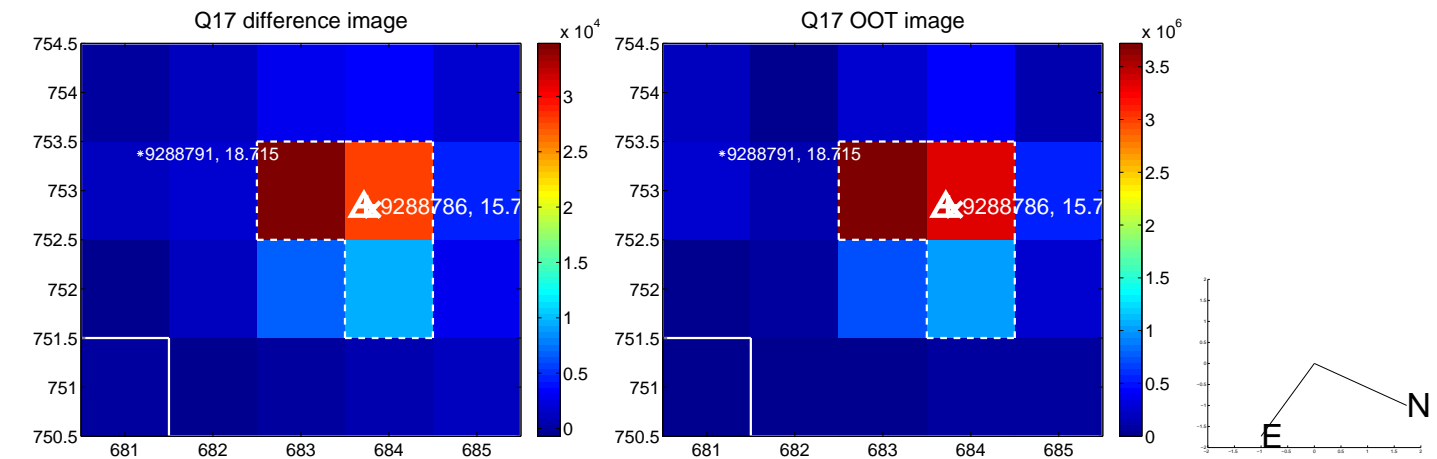
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

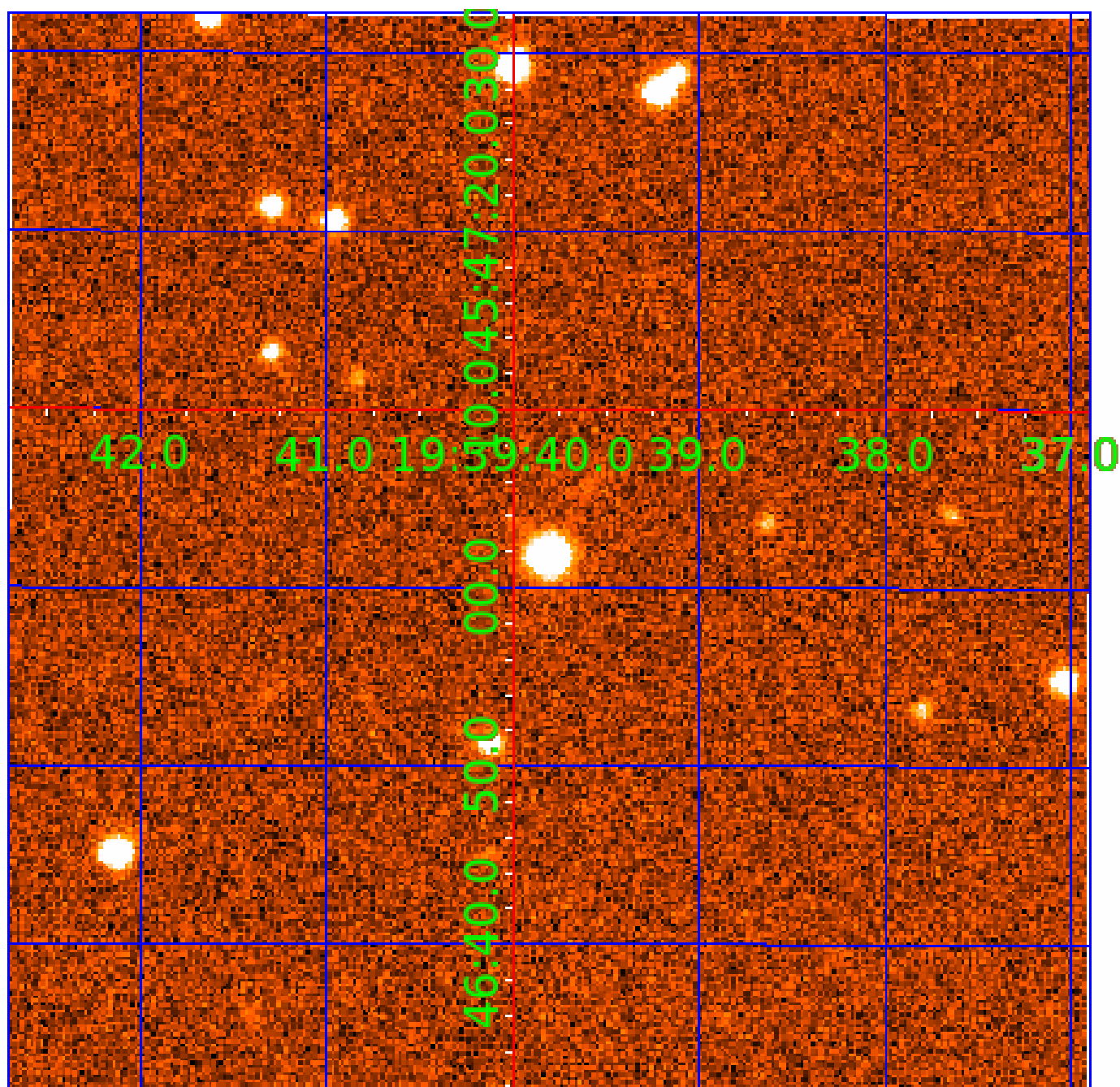


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009288786

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})
009288786-01	OBS	1390.01	1.744087	132.770058	9633.3	1.933	510.0	445.4	0.70	4368	8.92	252.68
009288786-02	OBS	No	1.744100	131.892930	1100.3	1.613	53.8	64.1	0.70	4368	2.83	252.68

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009288786-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
009288786-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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.

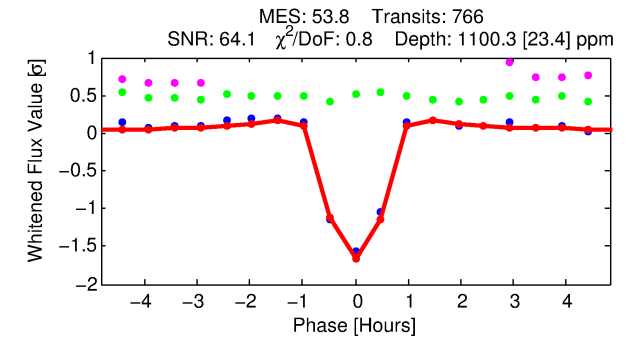
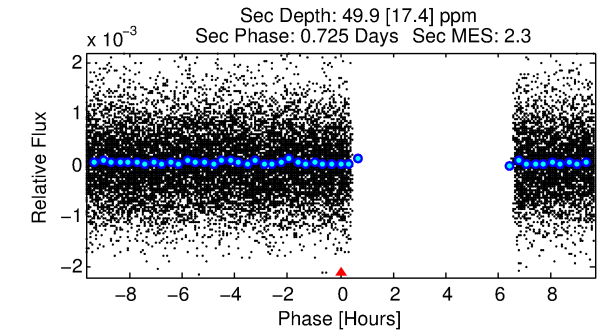
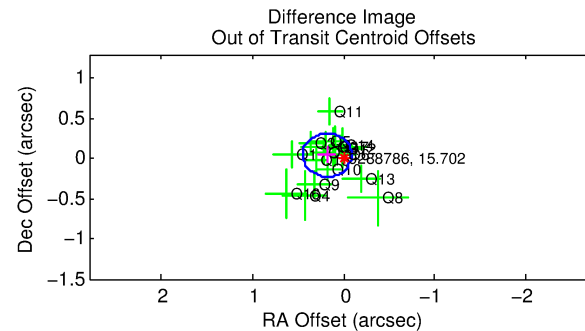
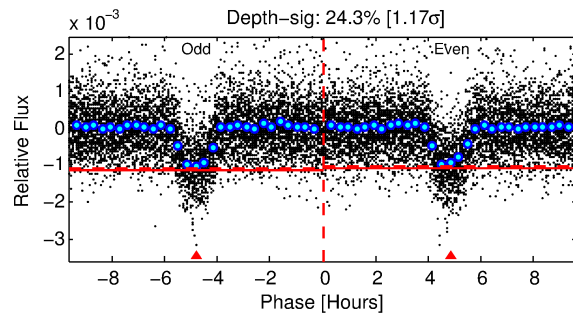
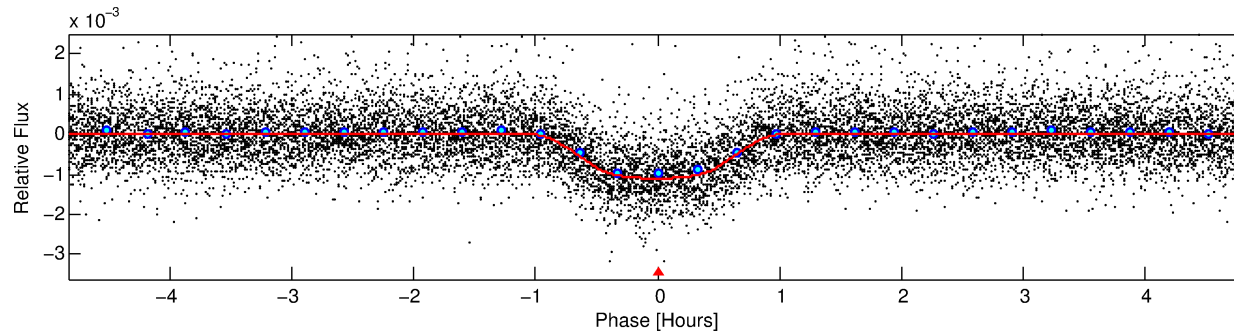
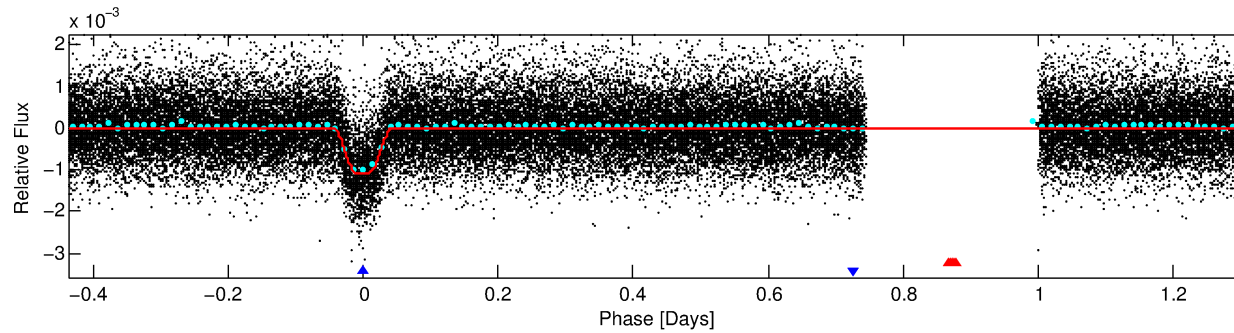
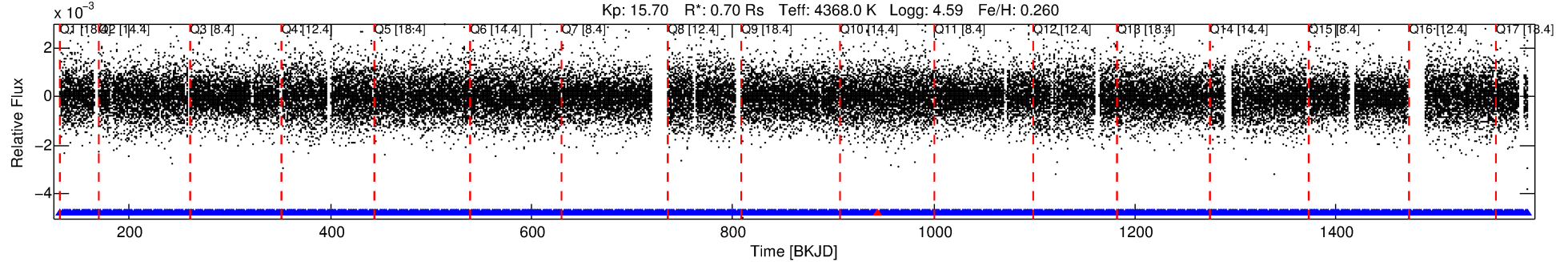
Ephemeris Match Information For 009288786-02

No Significant Match Found

DV One-Page Summary

KIC: 9288786 Candidate: 2 of 2 Period: 1.744 d
KOI: K01390 Corr: No Ephemeris Match

Kp: 15.70 R*: 0.70 Rs Teff: 4368.0 K Logg: 4.59 Fe/H: 0.260



DV Fit Results:

Period = 1.74410 [0.00000] d
Epoch = 131.8929 [0.0003] BKJD
Rp/R* = 0.0369 [0.0036]
a/R* = 4.65 [1.43]
b = 0.88 [0.09]
Seff = 252.68 [40.67]
Teq = 1017 [41] K
Rp = 2.83 [0.35] Re
a = 0.0253 [0.0016] AU
Ag = 2.18 [0.90] [1.32σ]
Teffp = 1911 [202] K [4.34σ]

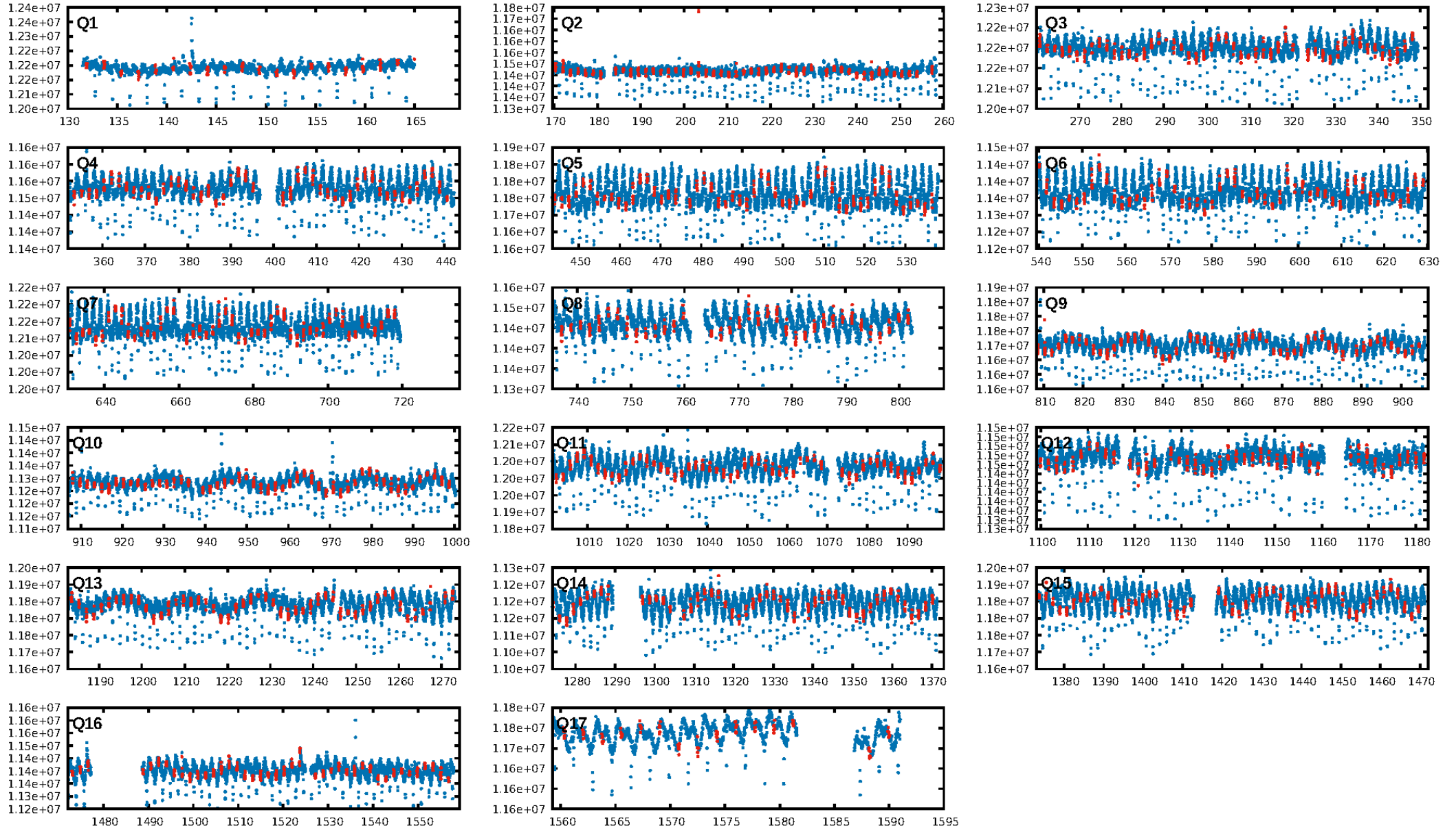
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [731/732]
GhostDiagnostic-chr: -291.3
Centroid-sig: 5.2%
Centroid-so: 0.243 arcsec [1.28σ]
OotOffset-rm: 0.186 arcsec [2.08σ]
KicOffset-rm: 0.246 arcsec [2.58σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

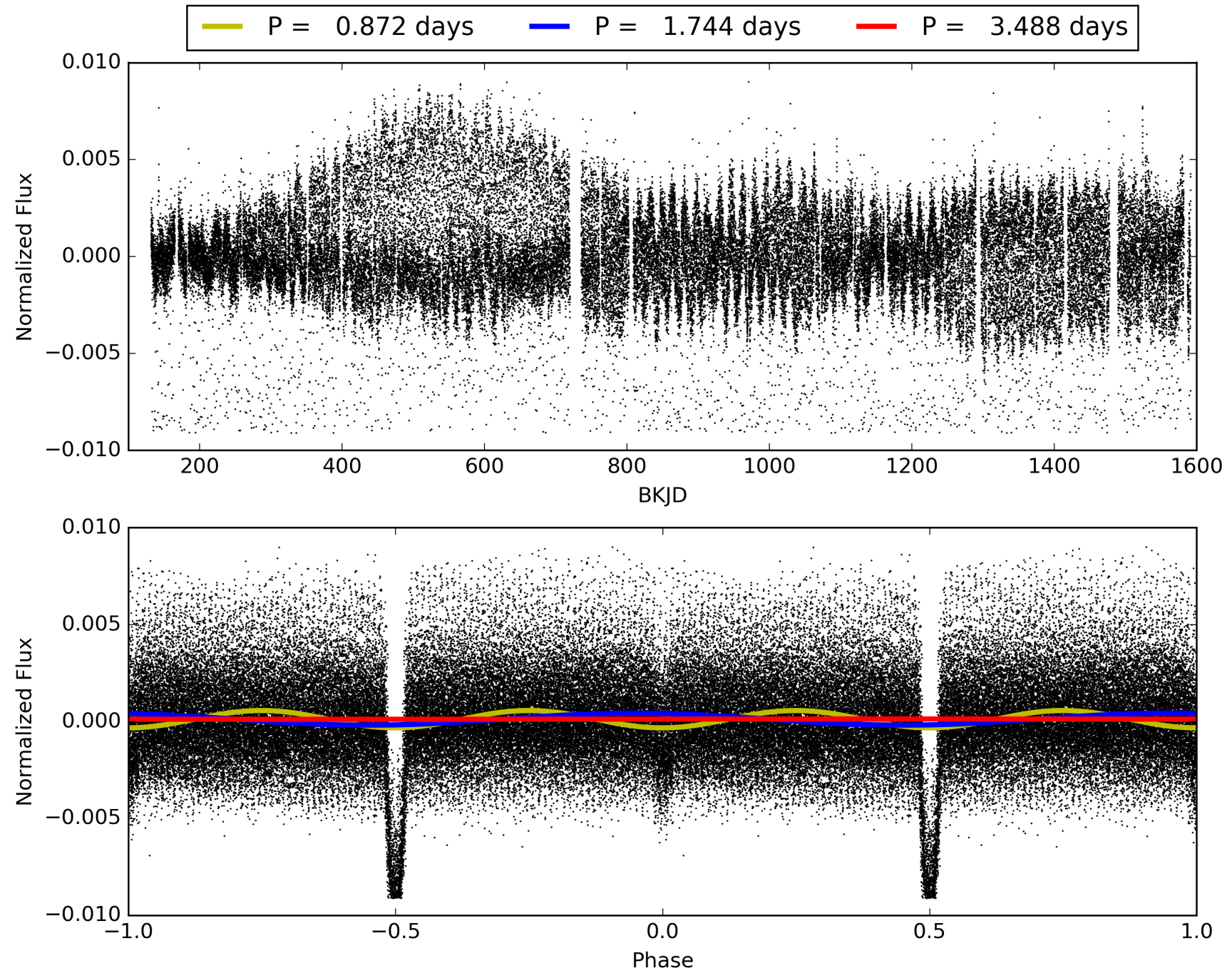
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:10:22 Z

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

TCE 009288786-02, PDC Light Curves

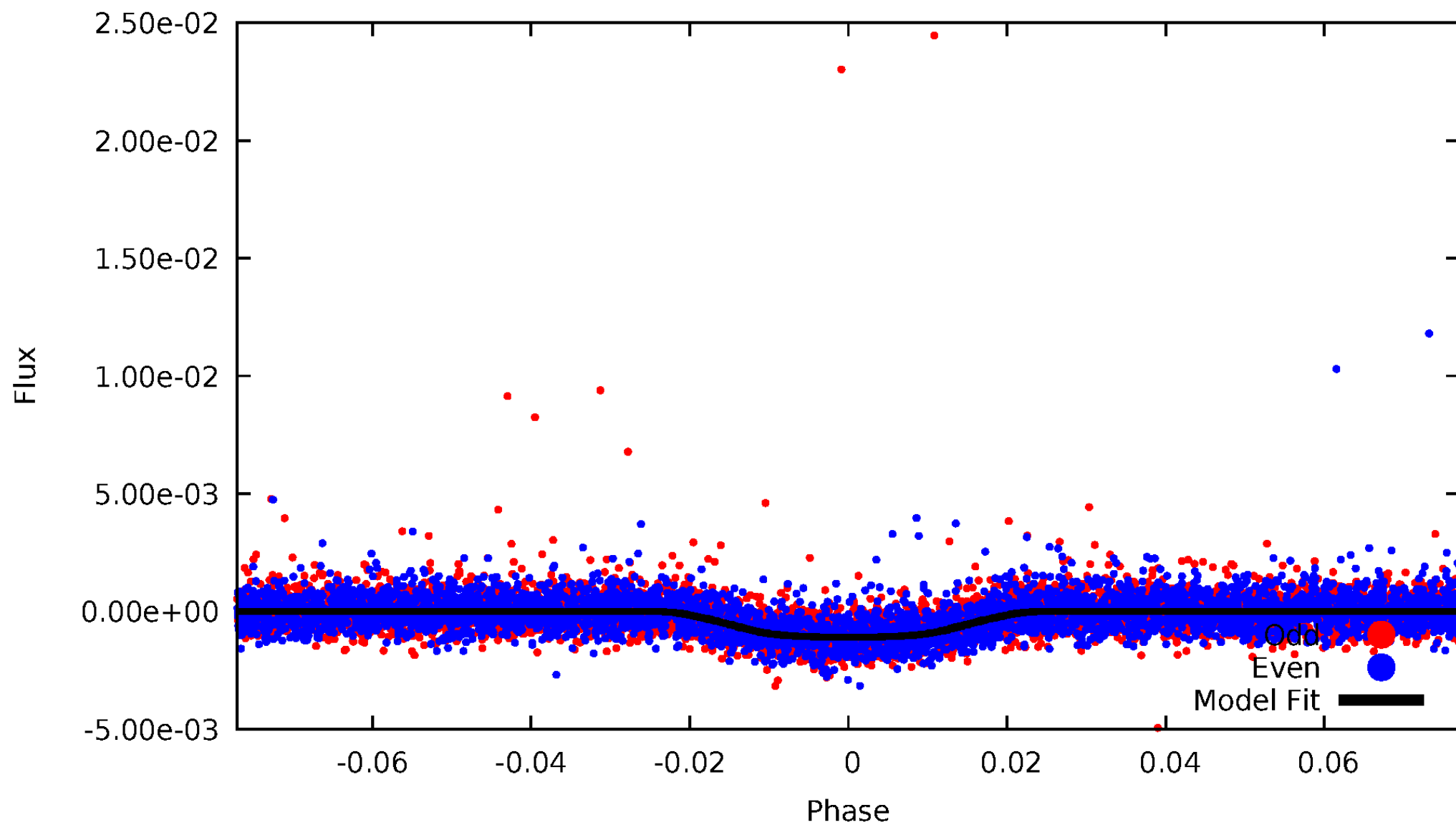


TCE 009288786-02



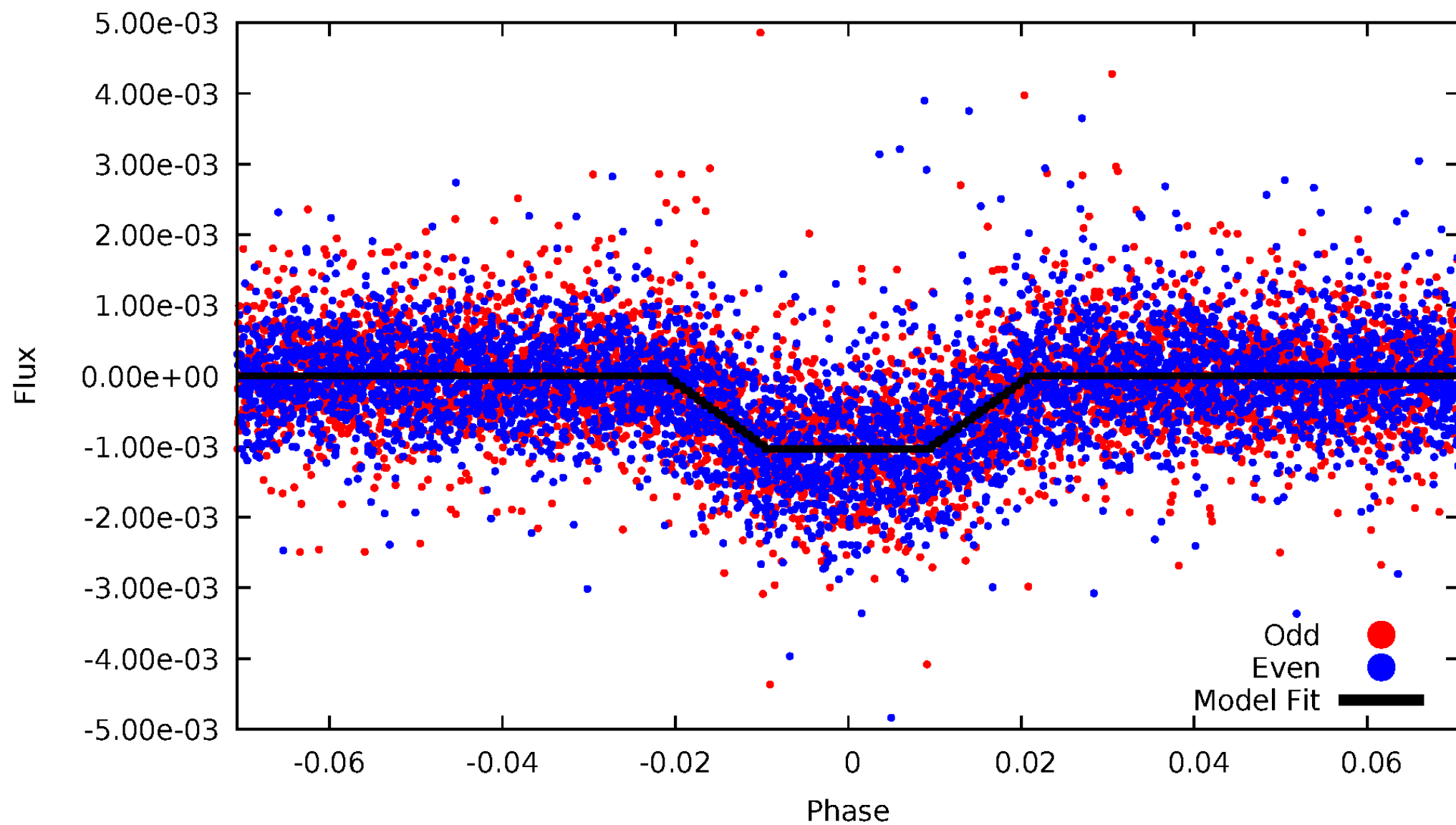
DV Odd/Even

TCE 009288786-02



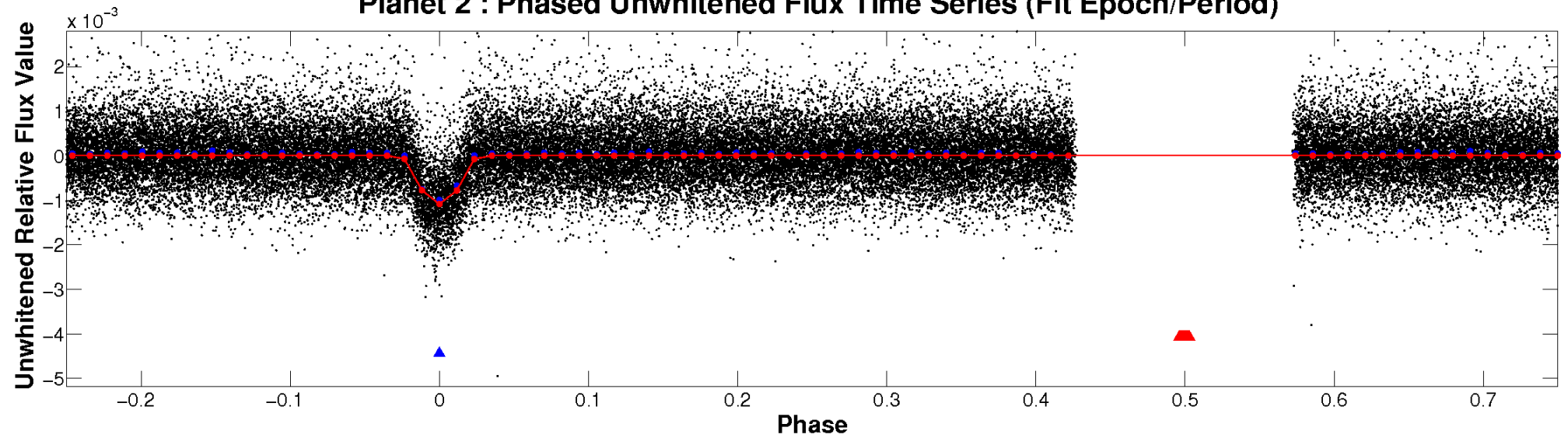
ALT Odd/Even

TCE 009288786-02

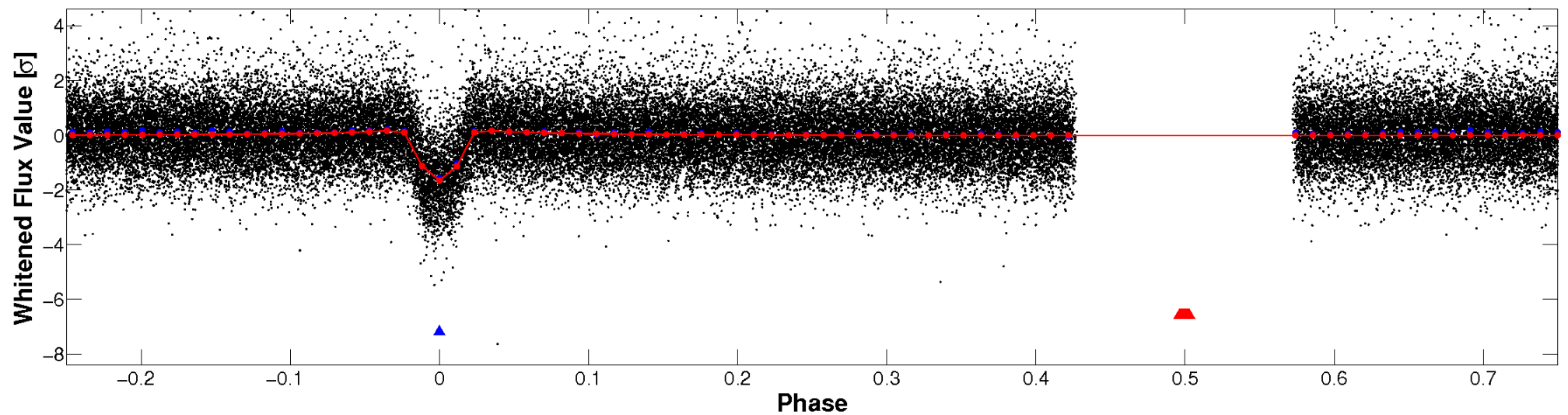


Non-Whitened Vs. Whitened Light Curve

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

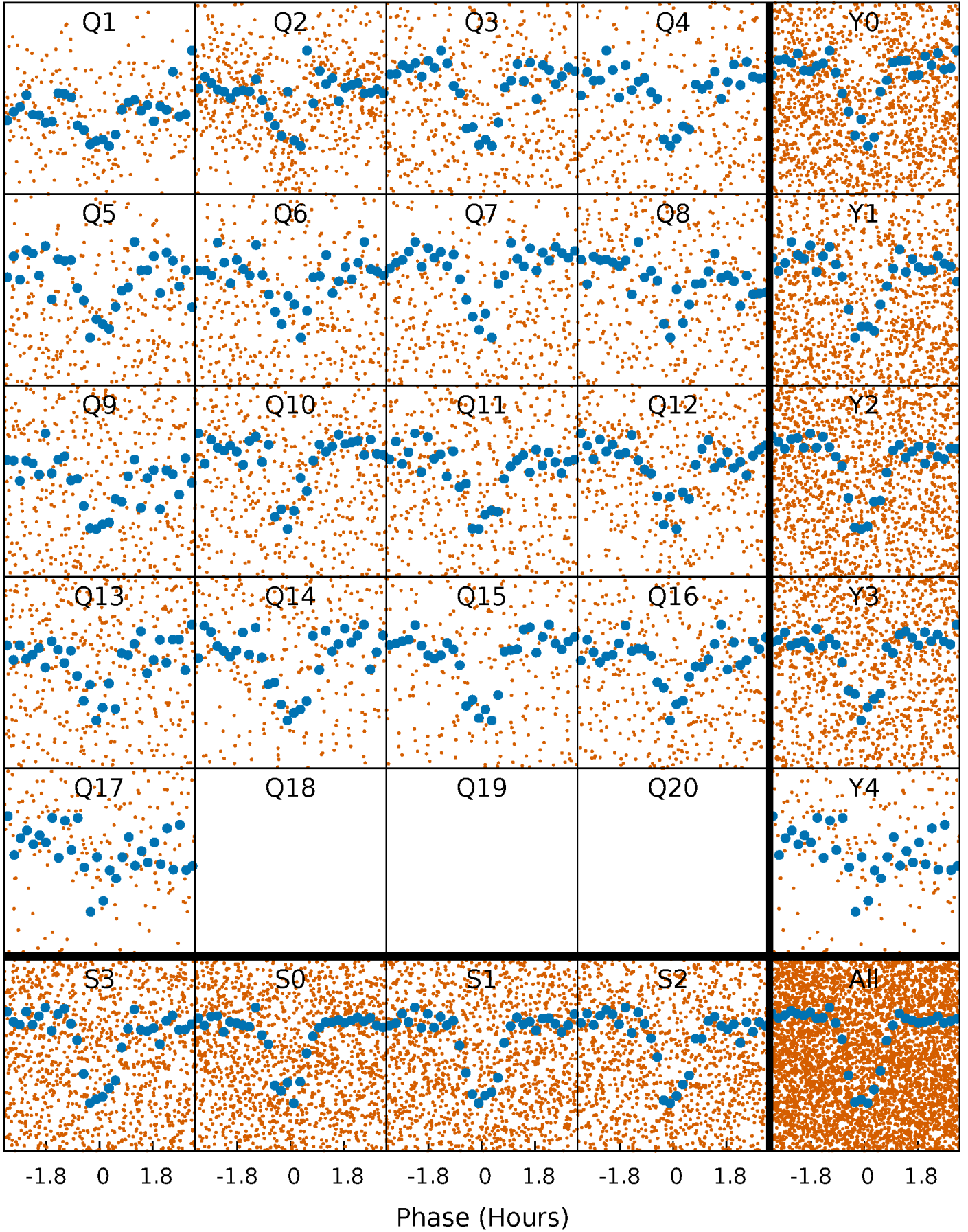


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



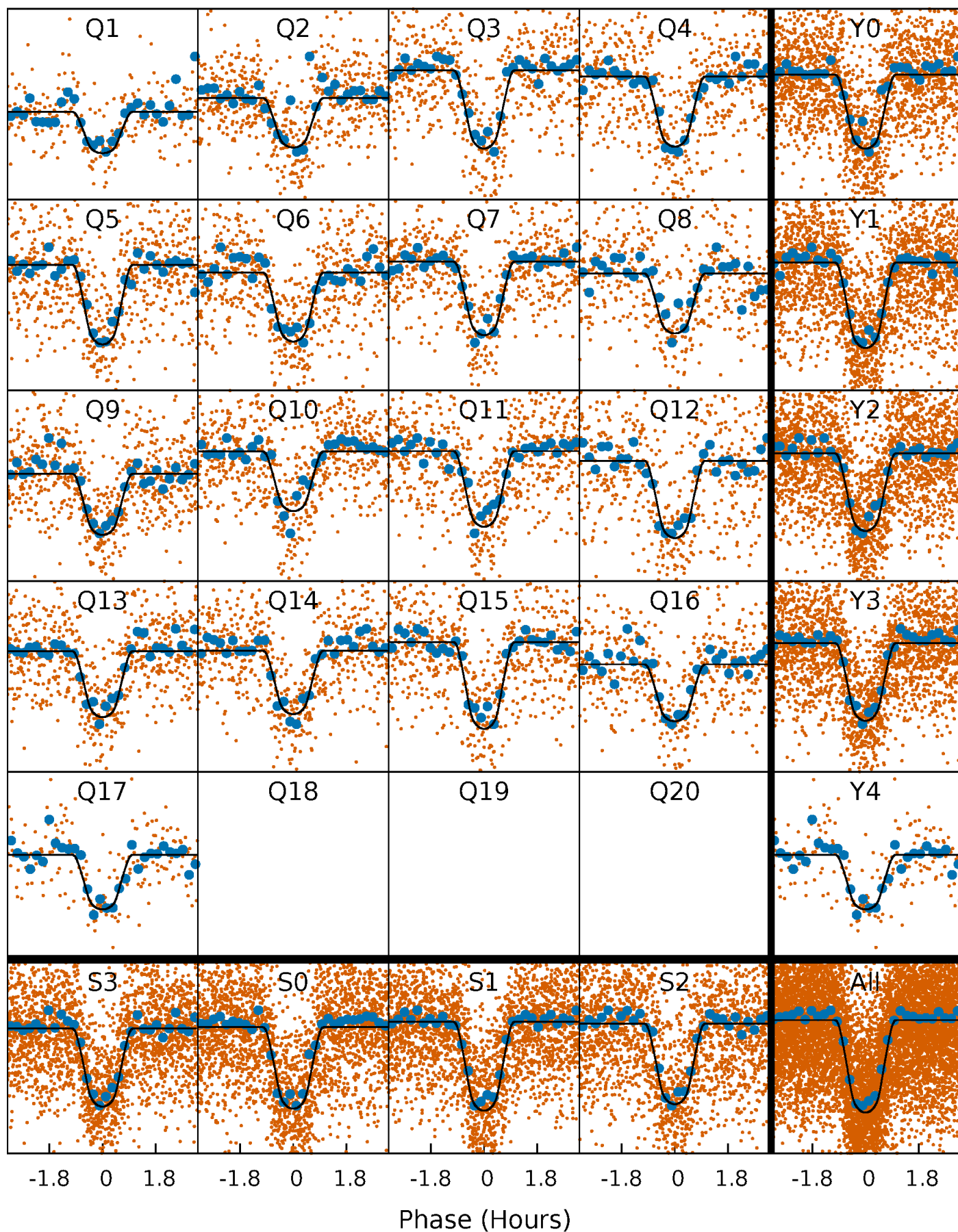
PDC Quarter-Phased Transit Curves

TCE 009288786-02 P= 1.744100 Days $T_0=131.892930$ (BKJD)



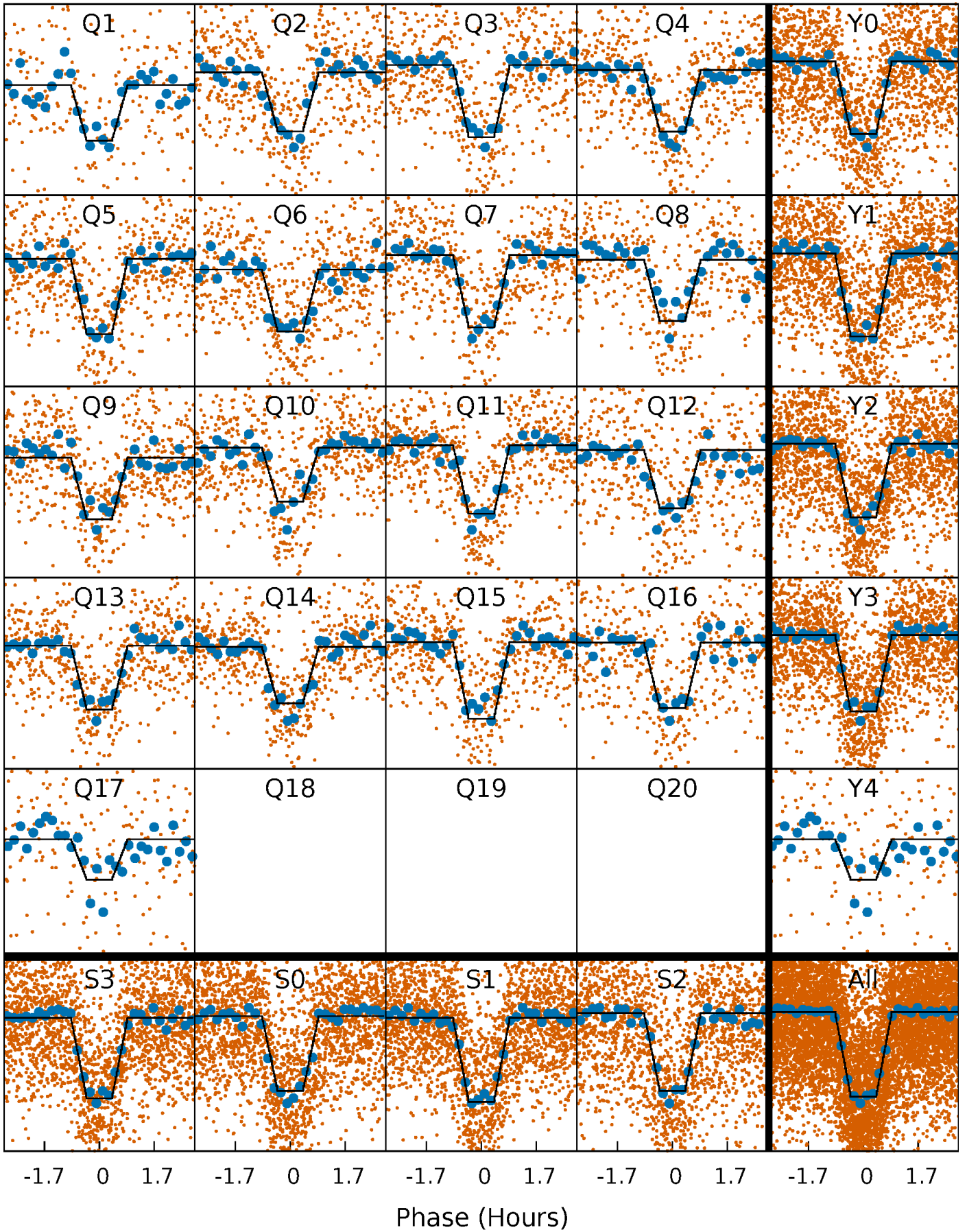
DV Quarter-Phased Transit Curves

TCE 009288786-02 P= 1.744100 Days $T_0=131.892930$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

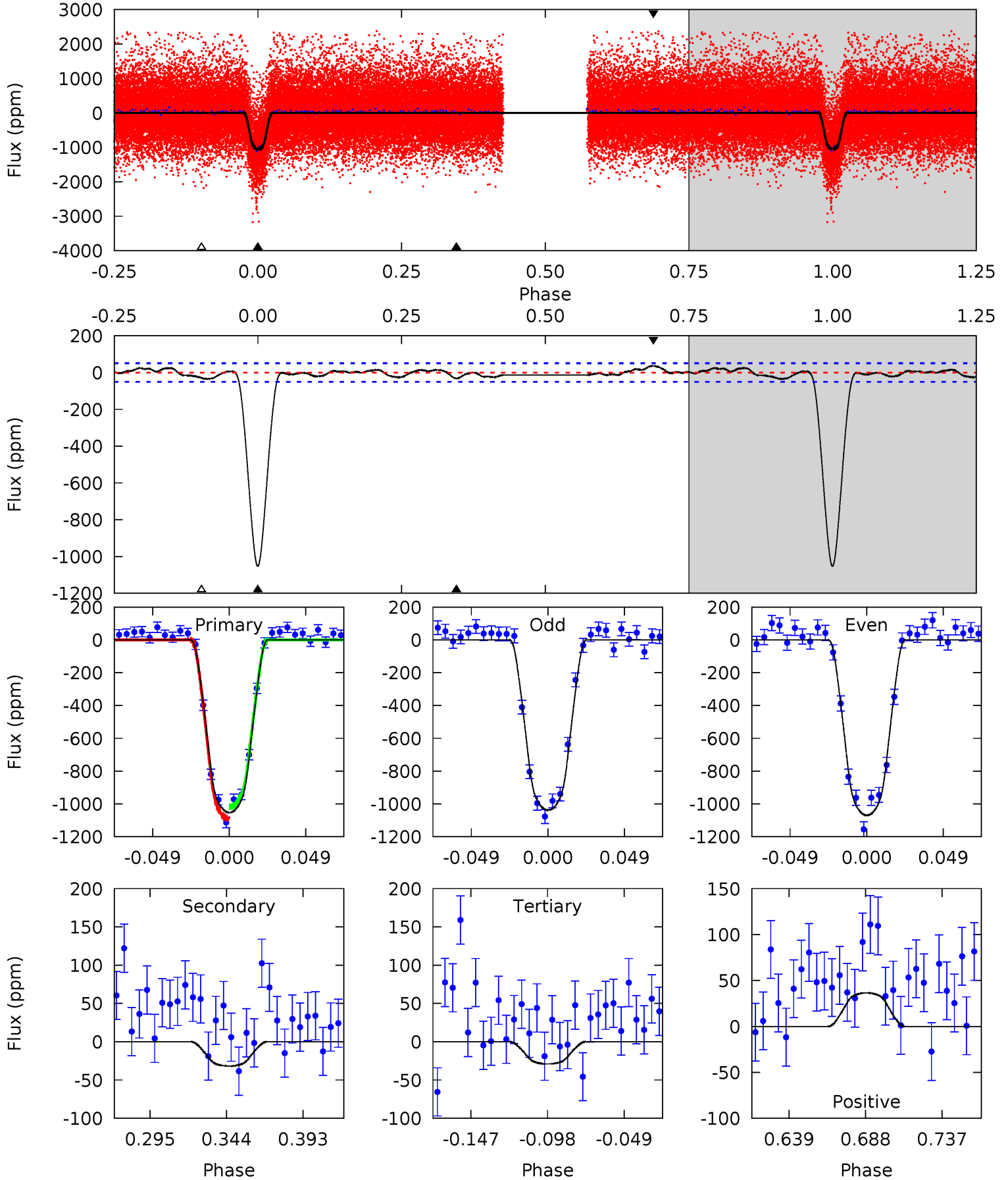
TCE 009288786-02 P= 1.744101 Days $T_0=131.892168$ (BKJD)



DV Model-Shift Uniqueness Test

009288786-02, P = 1.744100 Days, E = 130.148830 Days

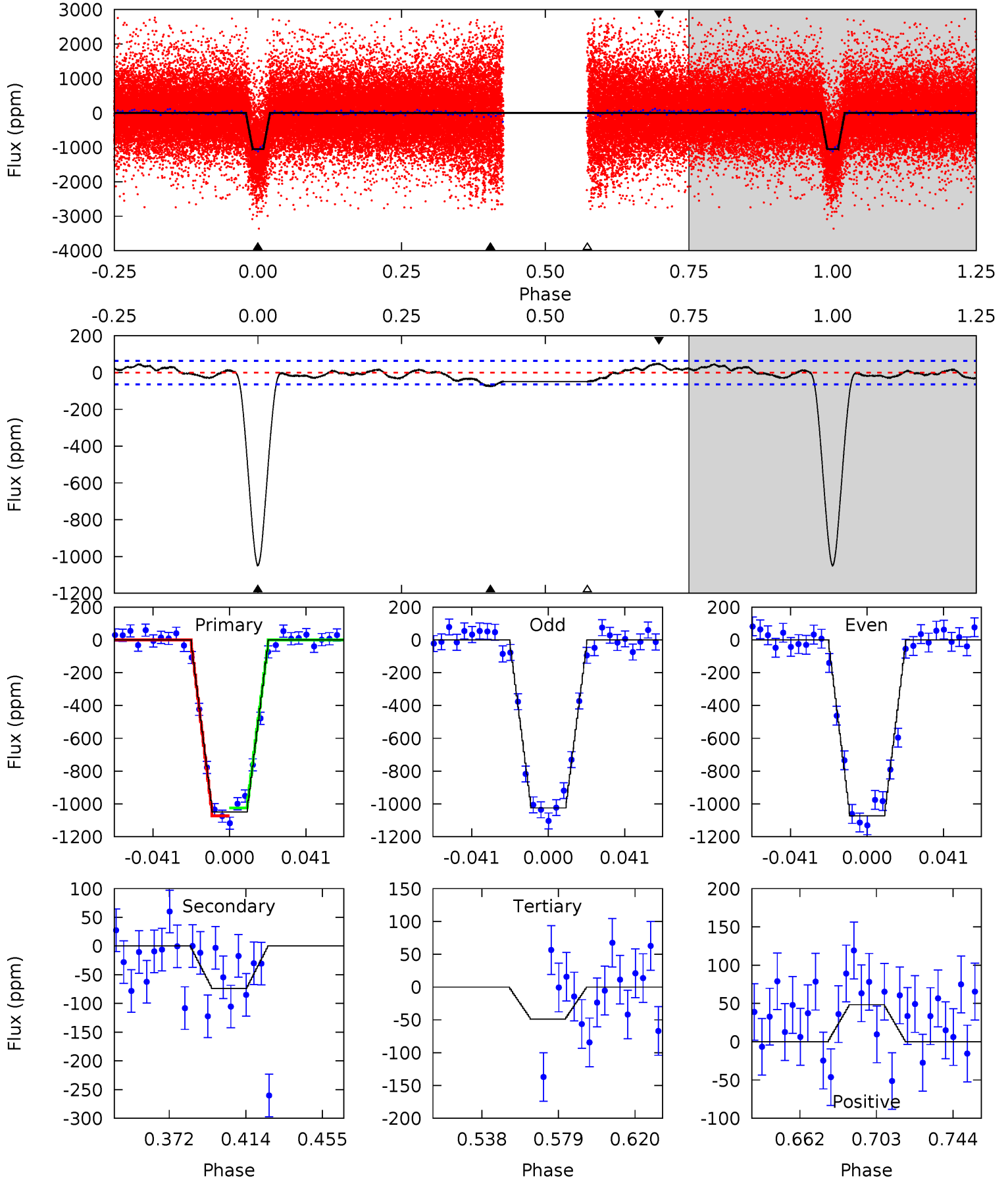
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
98.1	2.96	2.70	3.41	4.71	1.97	1.47	95.4	94.7	0.26	-0.44	1.47	0.94	0.03	3.50



Alt Model-Shift Uniqueness Test

009288786-02, P = 1.744101 Days, E = 130.148067 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
77.5	5.46	3.60	3.58	4.75	2.04	1.64	73.9	74.0	1.86	1.88	1.77	0.97	0.04	1.79



Stellar Parameters For KIC 009288786

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4368^{+132}_{-145}	$4.593^{+0.049}_{-0.018}$	$0.260^{+0.150}_{-0.300}$	$0.703^{+0.029}_{-0.054}$	$0.706^{+0.041}_{-0.050}$	$2.865^{+0.600}_{-0.210}$
	+3%/-3%	+1%/-0%	+58%/-115%	+4%/-8%	+6%/-7%	+21%/-7%
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 009288786-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-32 ± 11	$2.79^{+0.31}_{-0.29}$	1414^{+48}_{-52}	2410^{+144}_{-165}	$1.438^{+0.593}_{-0.531}$
Alt.	-74 ± 14	$2.44^{+0.27}_{-0.30}$	1412^{+45}_{-50}	2841^{+142}_{-137}	$4.415^{+1.510}_{-1.188}$

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

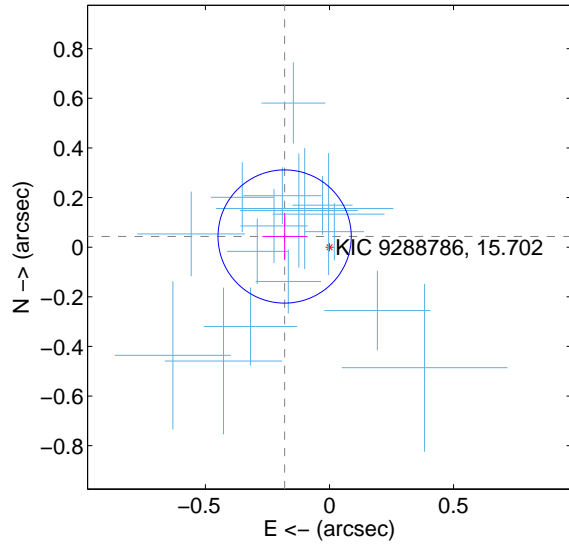
Supplemental centroid analysis for 009288786-02. Kepler magnitude: 15.70. Transit SNR 64.13

There are 17 quarters with good PRF difference image offsets

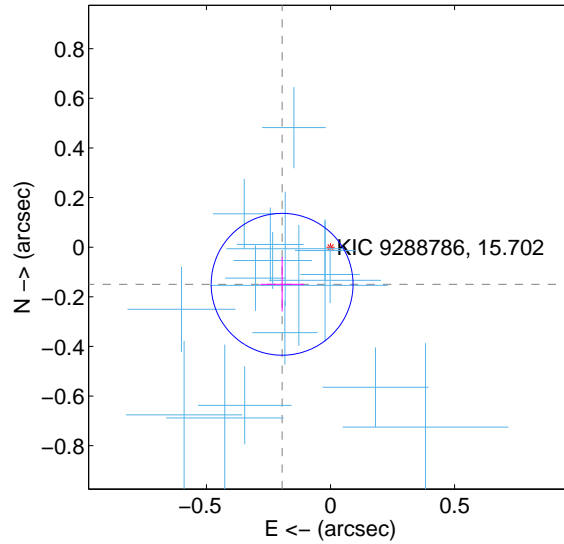
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.186 ± 0.089	2.08	0.181 ± 0.089	0.043 ± 0.095
PRF-fit source offset from KIC position	0.246 ± 0.095	2.58	0.195 ± 0.088	-0.150 ± 0.109
photometric centroid source offset	0.24 ± 0.19	1.28	0.22 ± 0.18	-0.11 ± 0.21

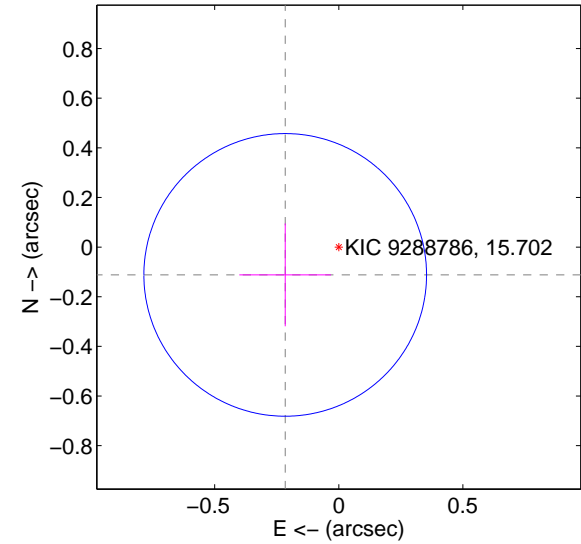
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

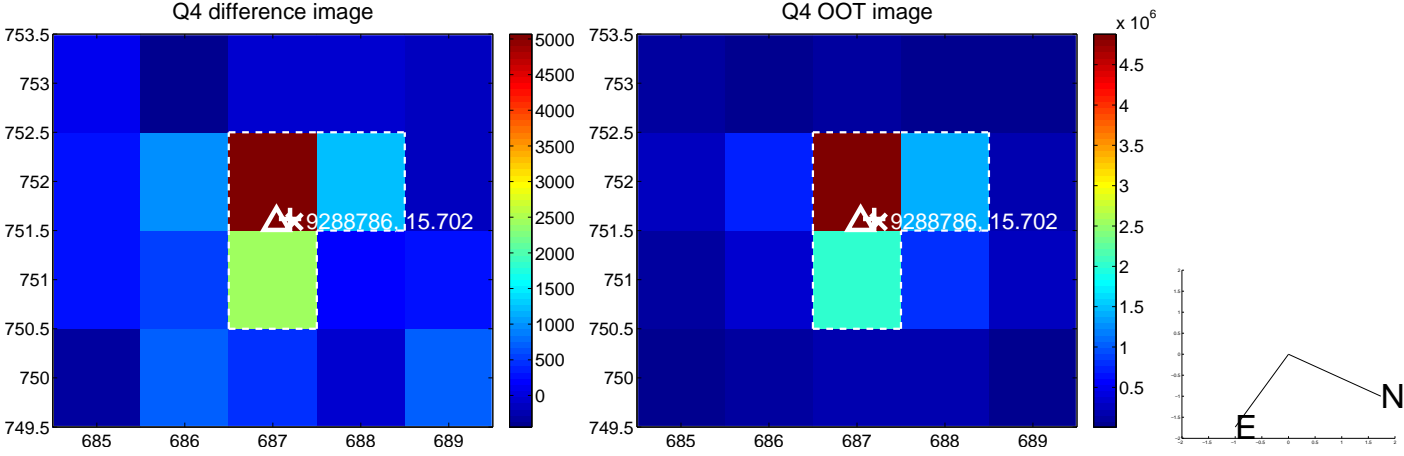
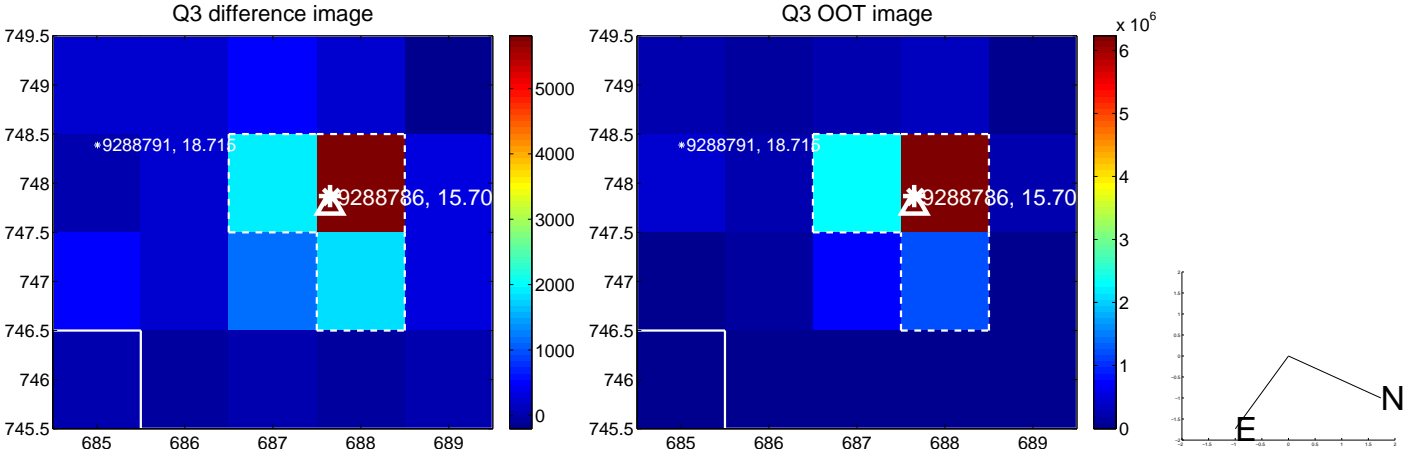
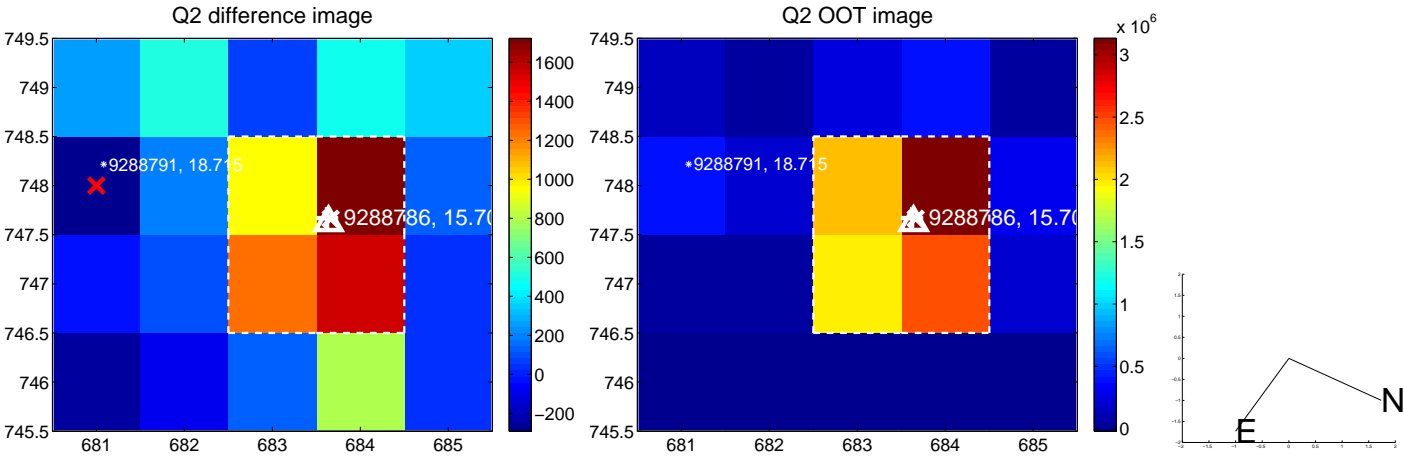
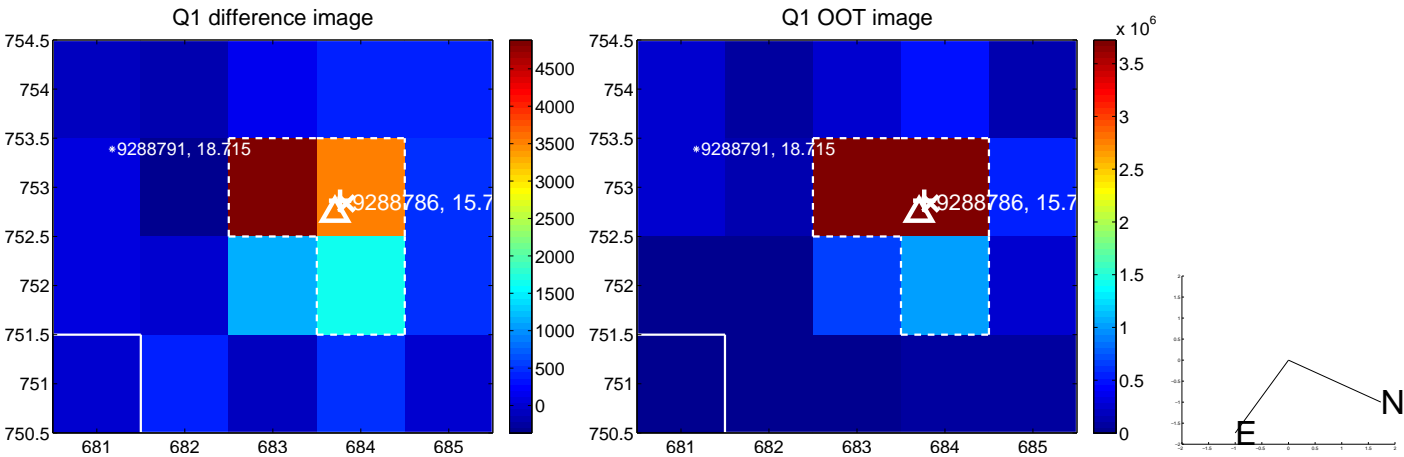


offset from photometric centroids

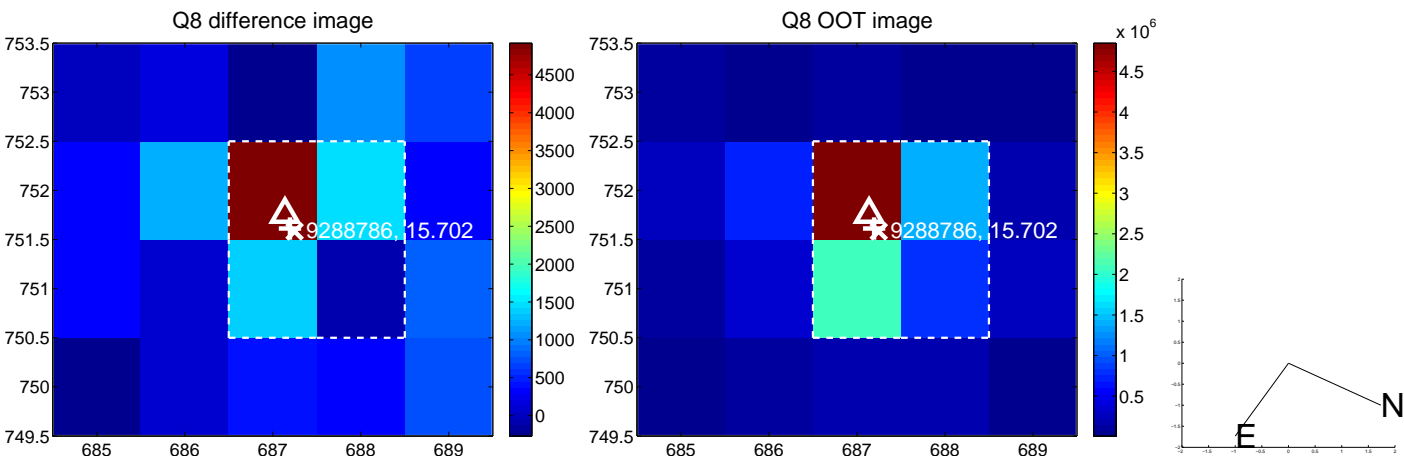
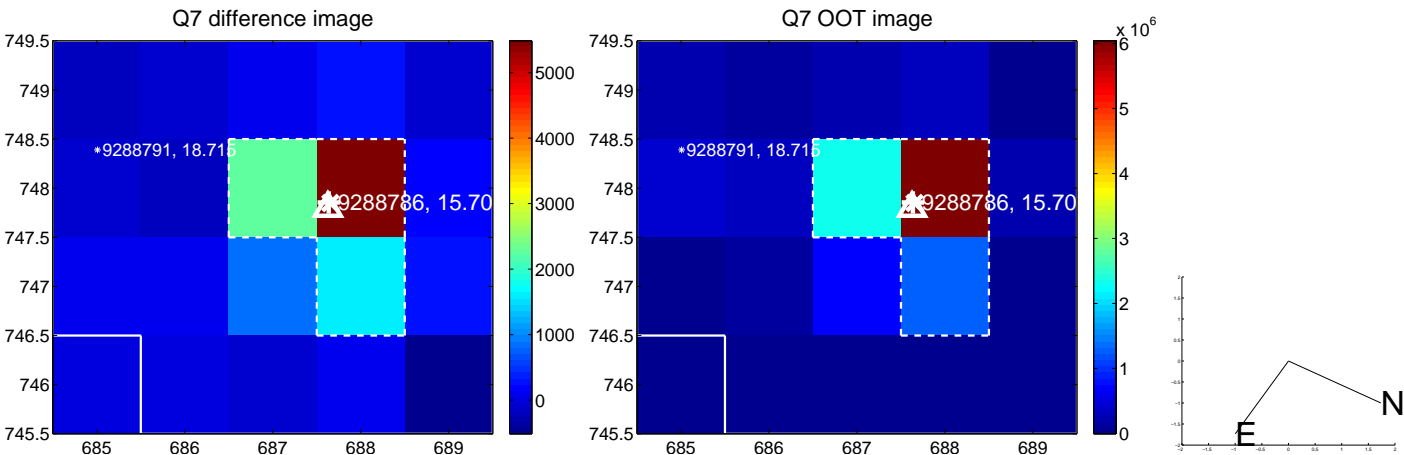
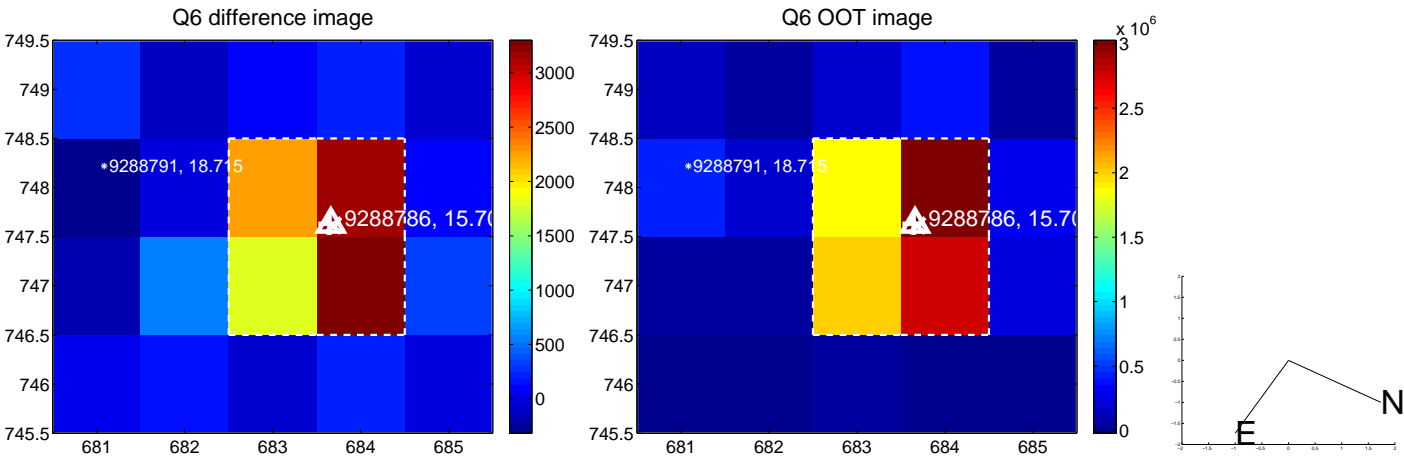
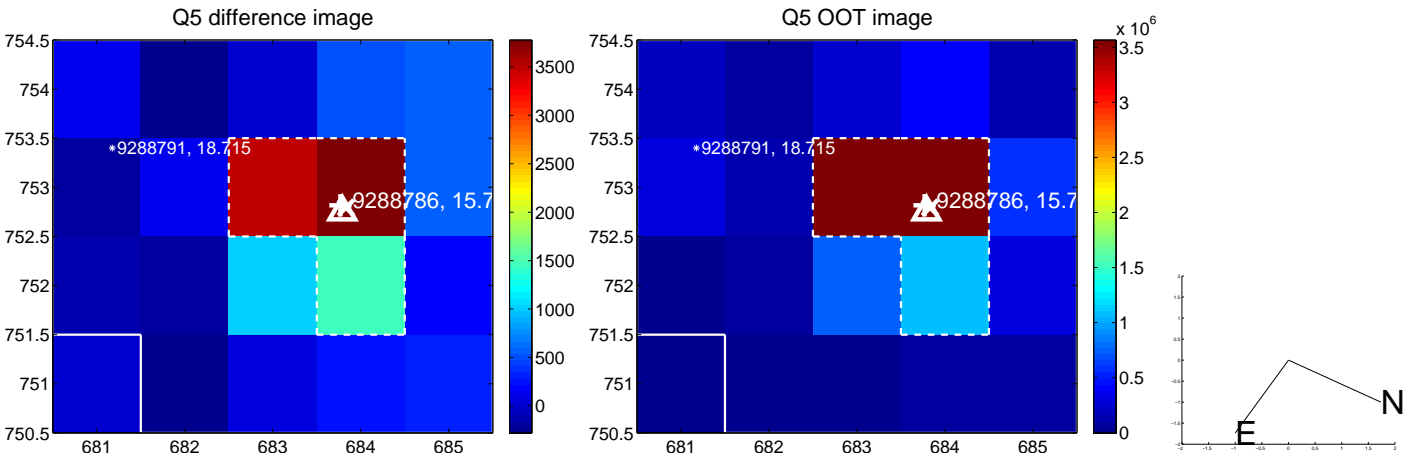


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

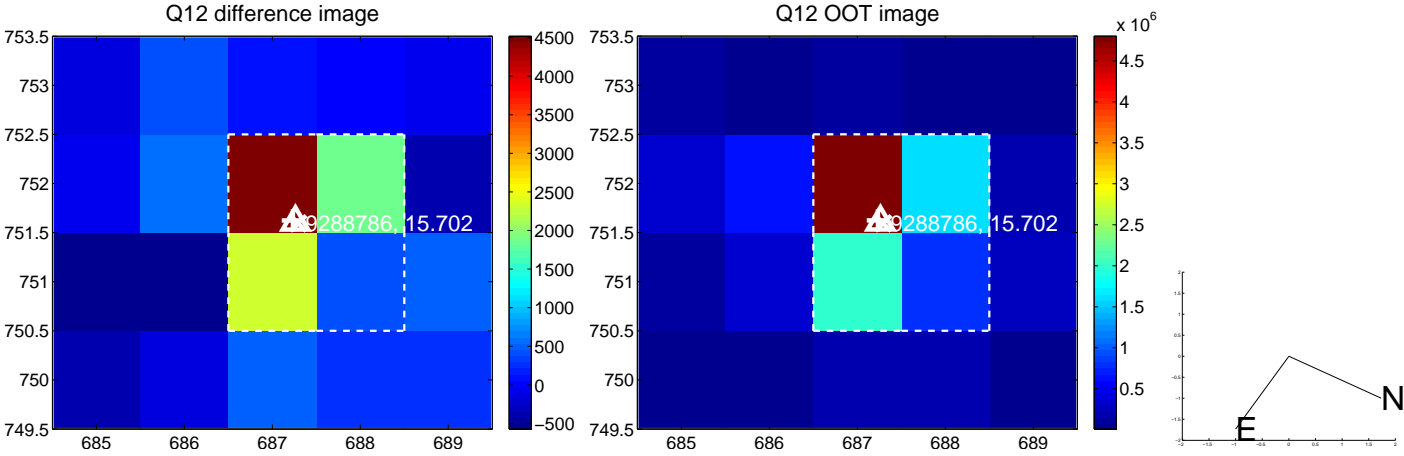
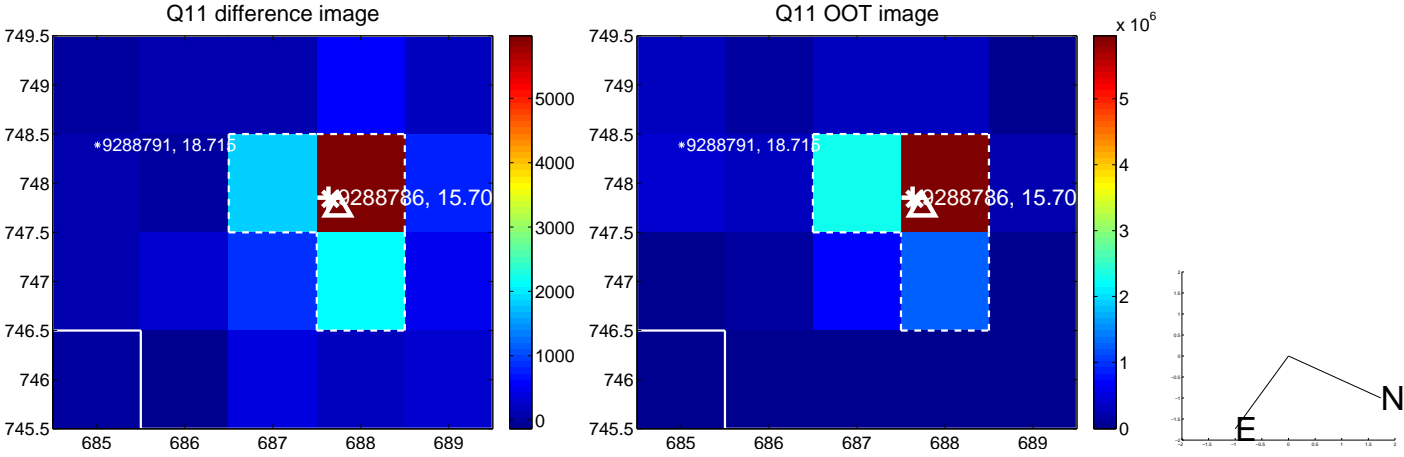
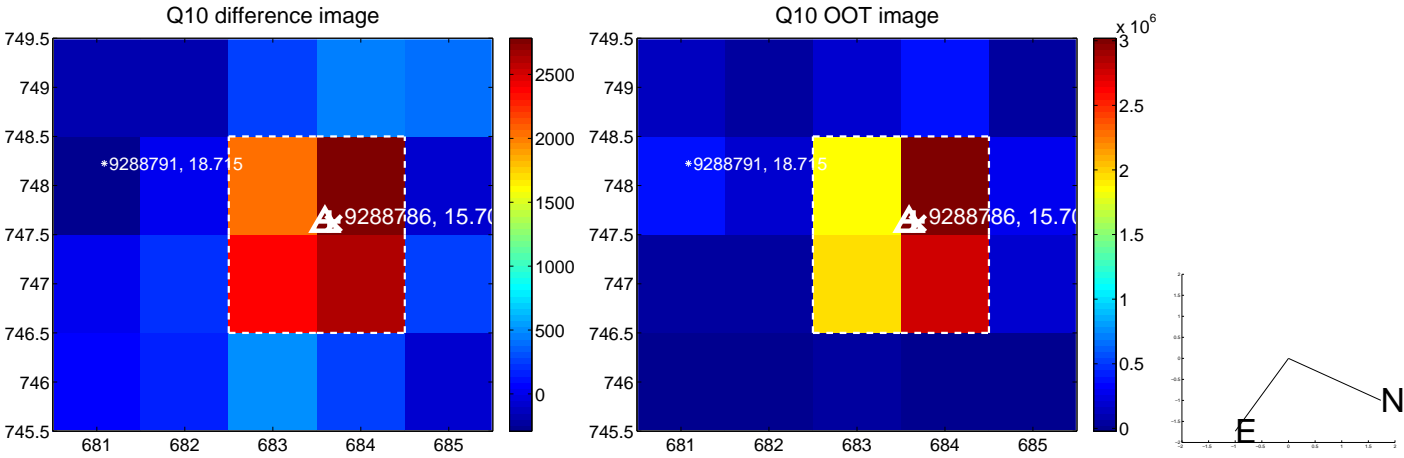
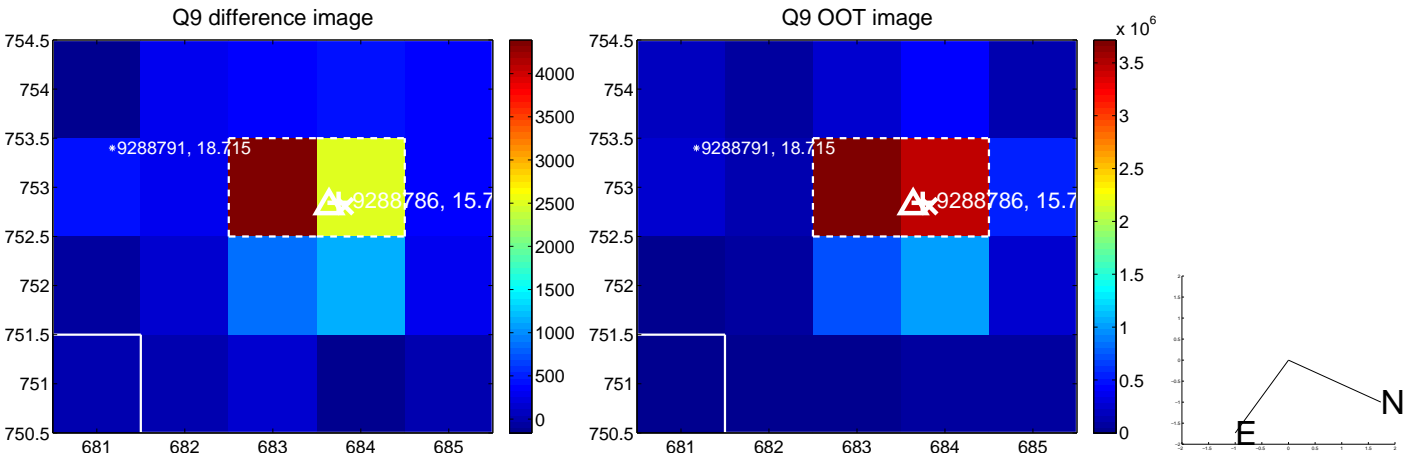
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



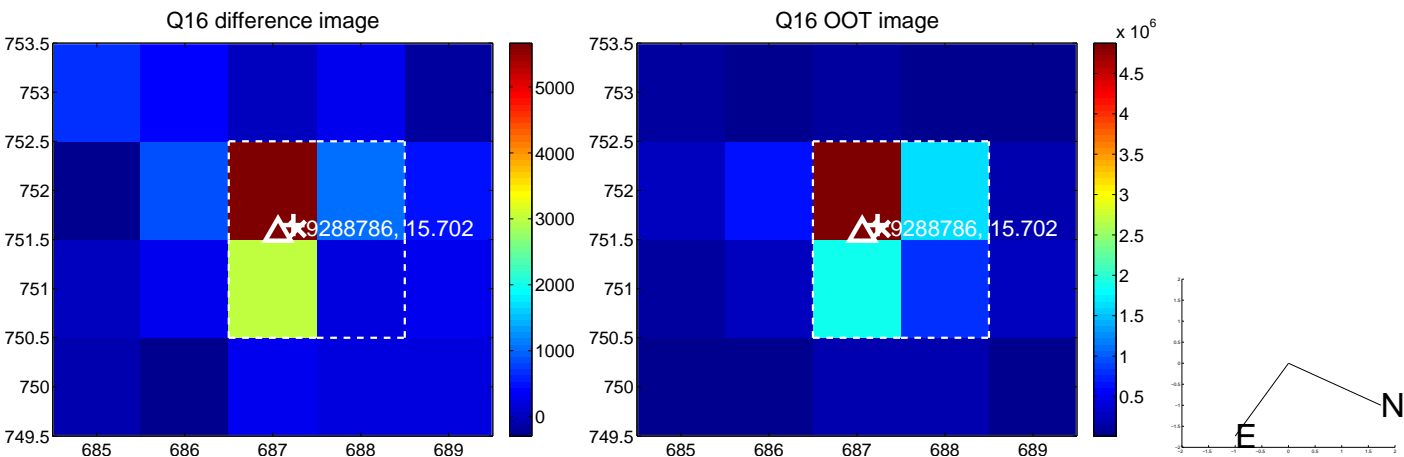
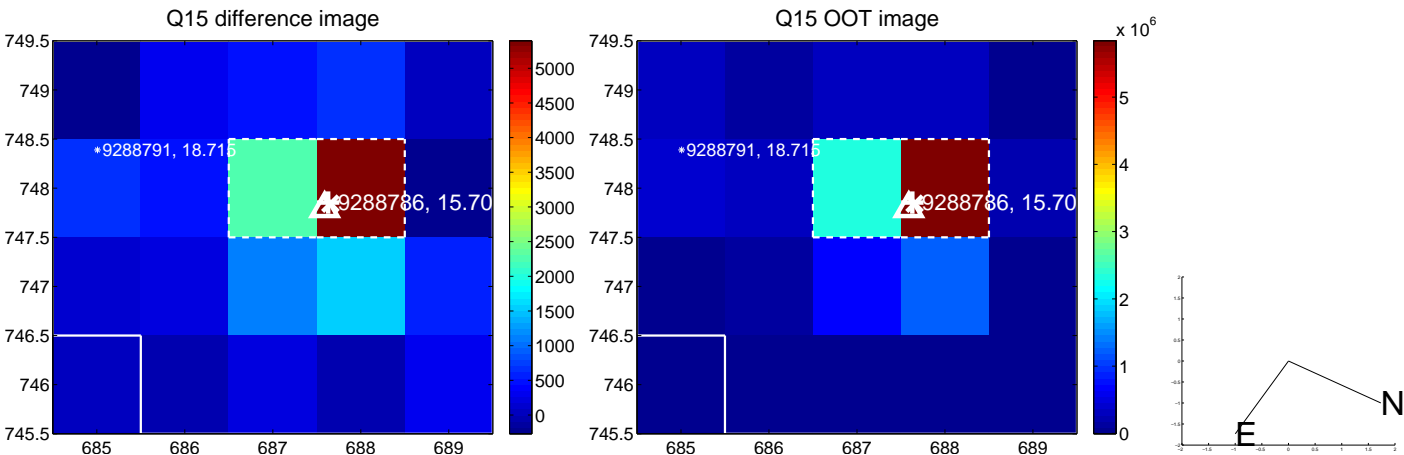
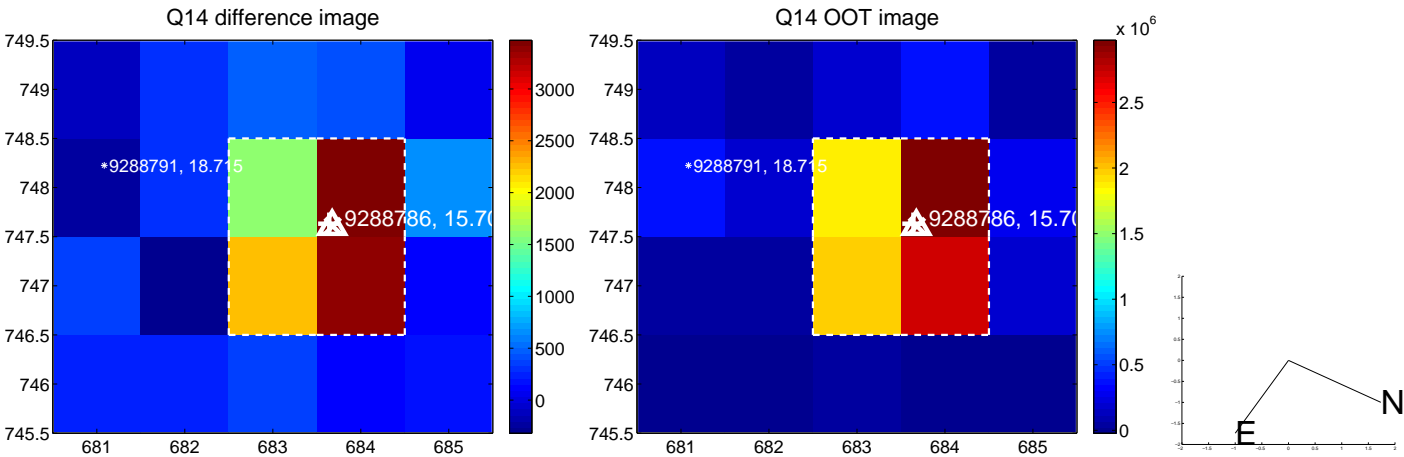
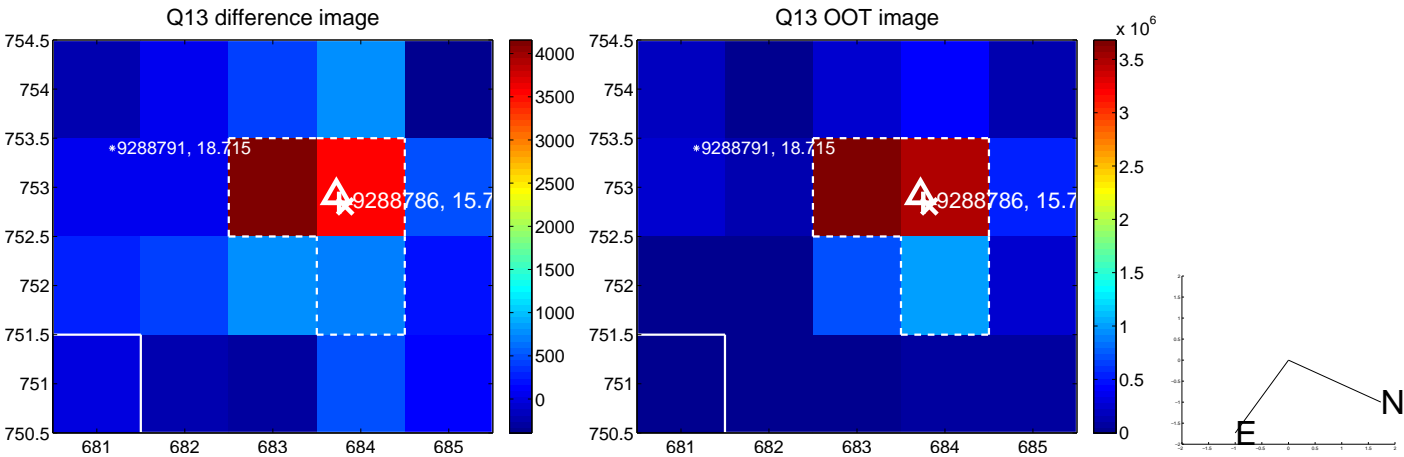
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



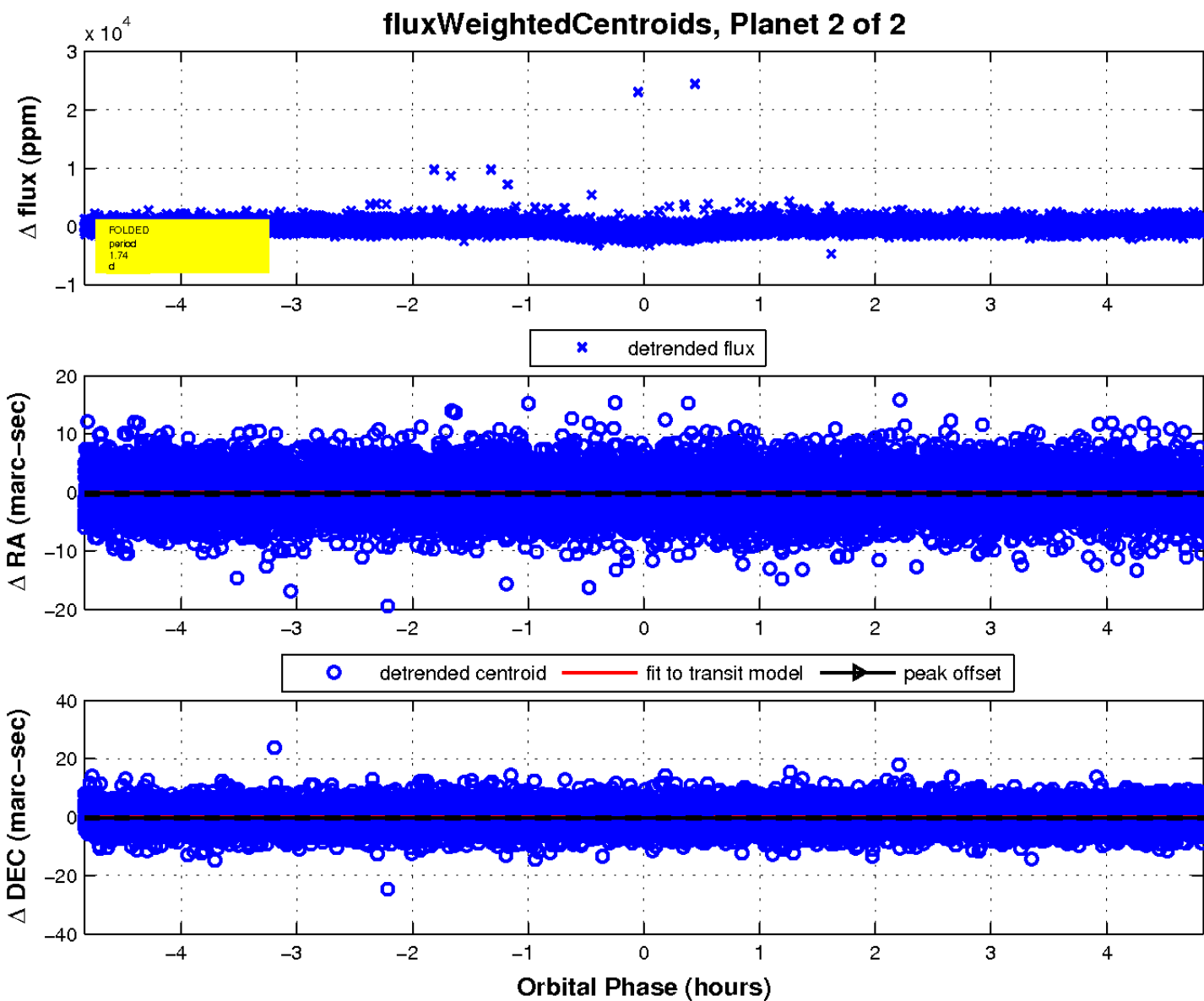
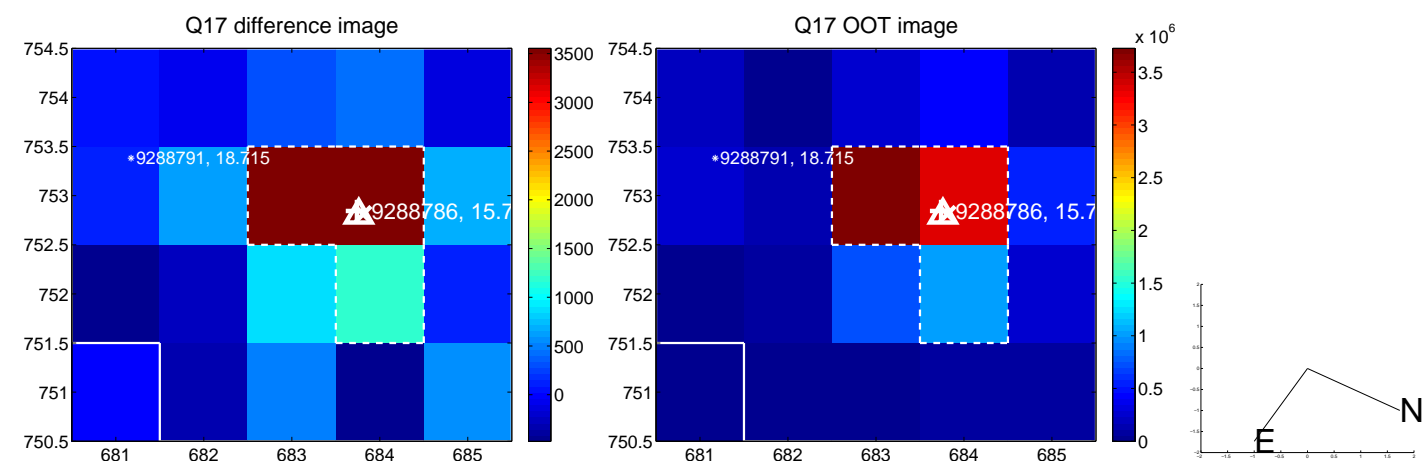
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

