

KIC 005738496

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})
005738496-01	OBS	0556.01	9.501538	137.664091	403.1	6.632	29.0	25.6	0.91	5938	3.05	119.80
005738496-02	OBS	No	9.501683	131.964244	331.9	3.555	23.3	20.4	0.91	5938	1.98	119.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005738496-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005738496-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 005738496-01

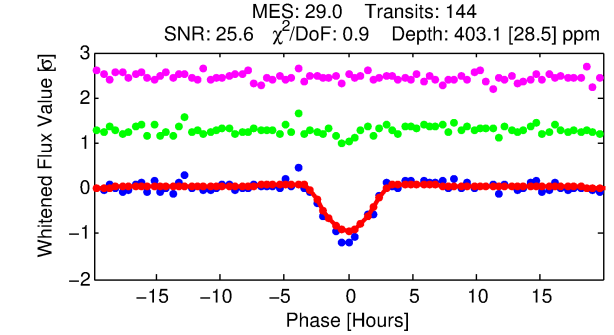
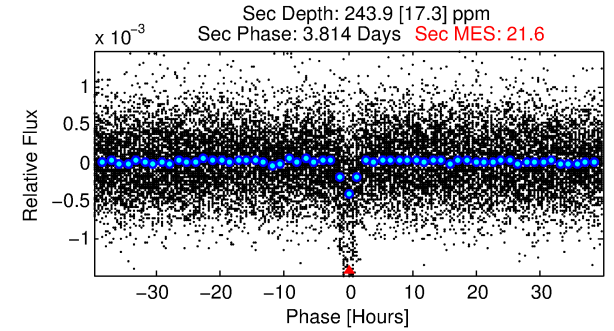
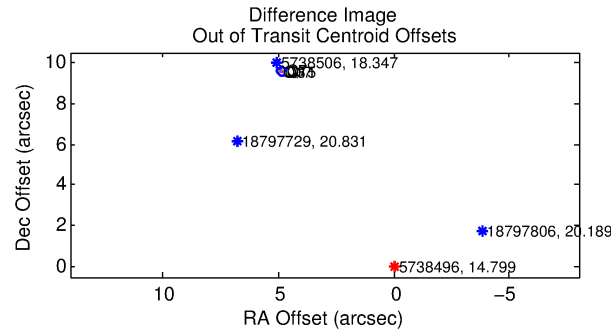
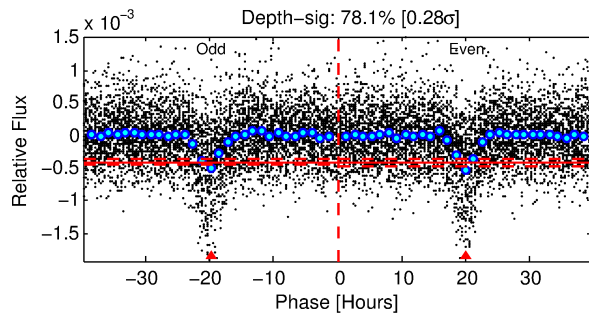
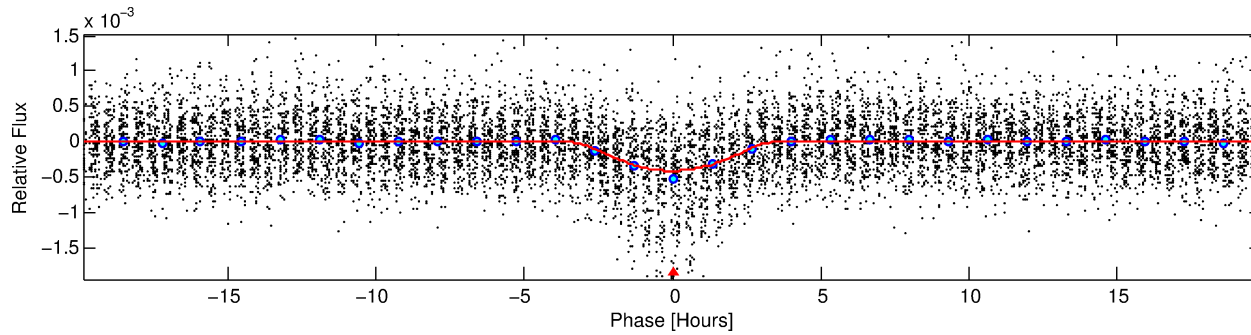
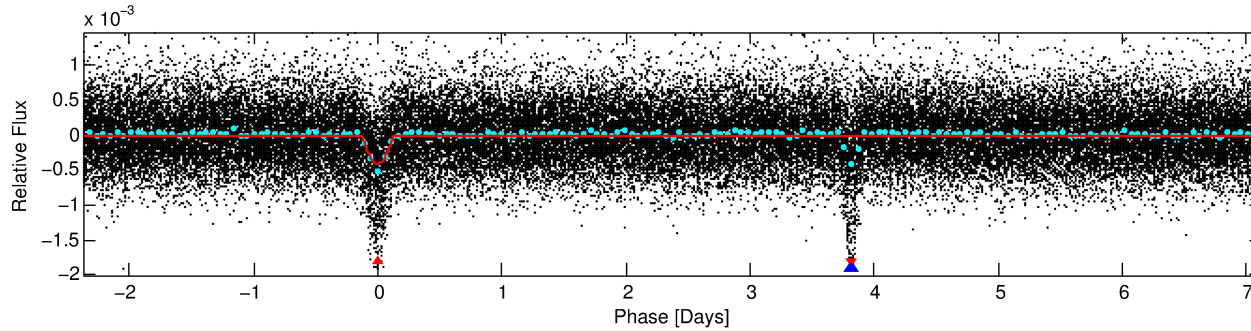
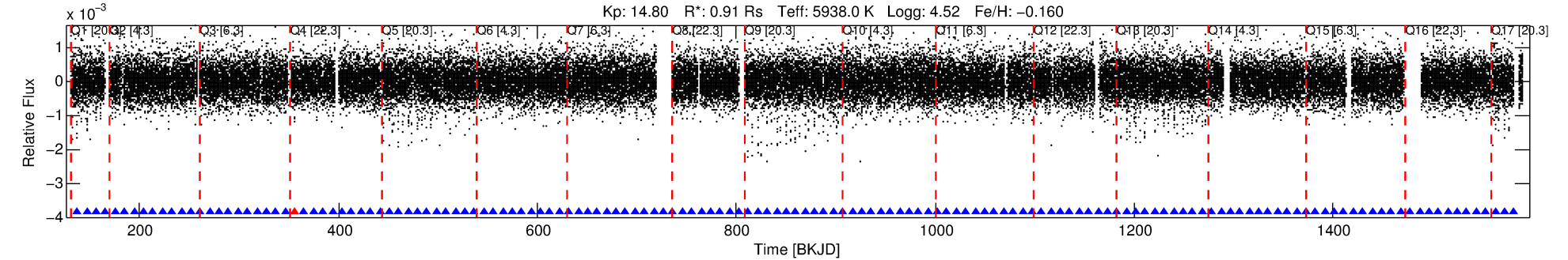
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005738496-01	5738496	005738506-01	5738506	1:1	11.2	-1	2	18.35	14.80	1157.10	Direct-PRF	0	0.12	0.08

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5738496 Candidate: 1 of 2 Period: 9.502 d
KOI: K00556.01 Corr: 0.975

Kp: 14.80 R*: 0.91 Rs Teff: 5938.0 K Logg: 4.52 Fe/H: -0.160



DV Fit Results:

Period = 9.50154 [0.00007] d
Epoch = 137.6641 [0.0058] BKJD
Rp/R* = 0.0308 [0.0212]
a/R* = 3.27 [0.70]
b = 0.99 [0.04]
Seff = 119.80 [47.83]
Teq = 844 [84] K
Rp = 3.05 [2.29] Re
a = 0.0876 [0.0224] AU
Ag = 110.44 [157.95] [0.69σ]
Teff = 4228 [1465] K [2.31σ]

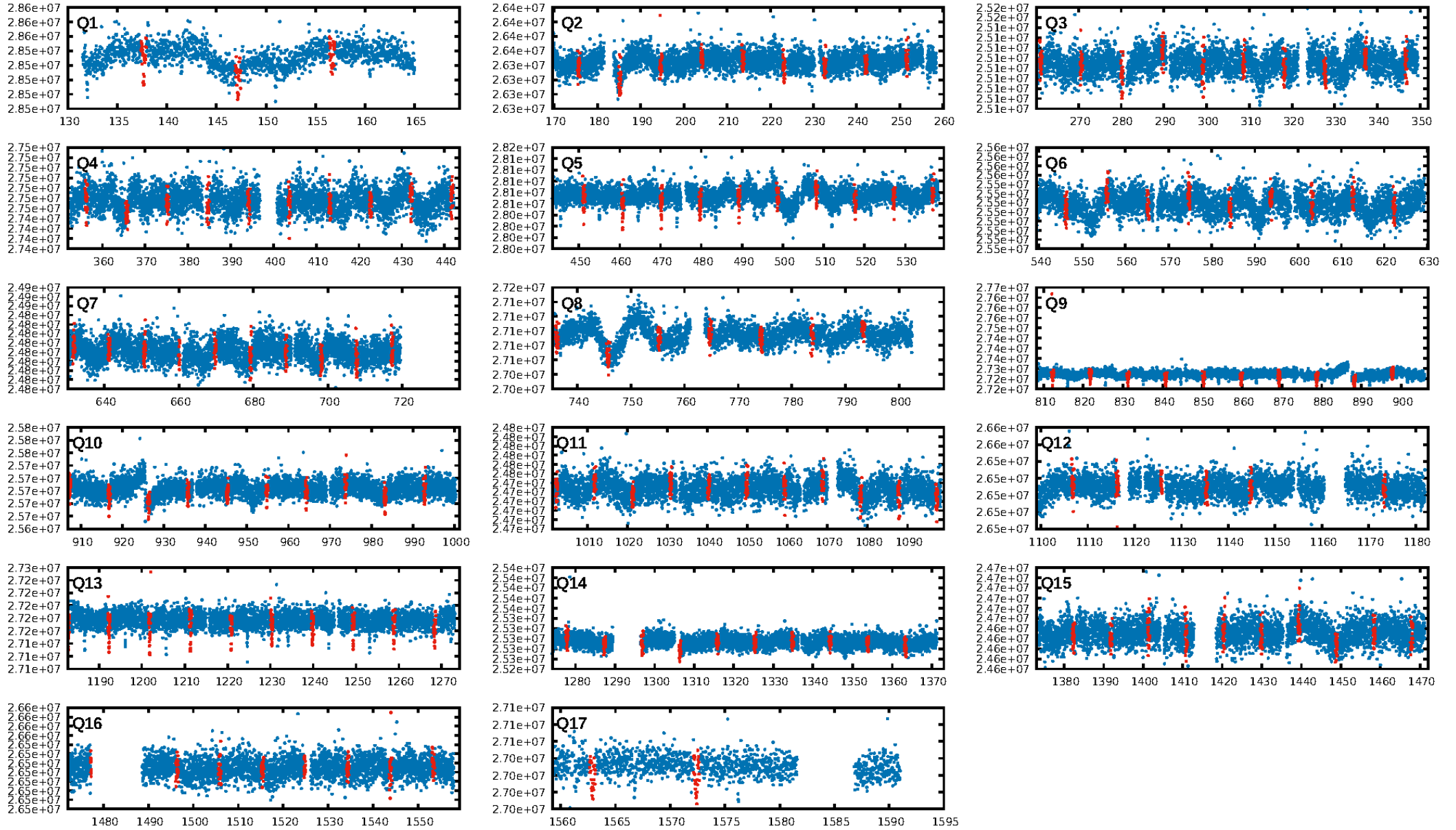
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.94e-174
RollingBand-fgt: 0.99 [138/139]
GhostDiagnostic-chr: -0.4448
Centroid-sig: N/A
Centroid-so: 94.219 arcsec [187.62σ]
OotOffset-rm: 10.737 arcsec [158.81σ]
KicOffset-rm: 10.729 arcsec [153.59σ]
OotOffset-st: 0/4/0/1 [5]
KicOffset-st: 0/4/0/1 [5]
DiffImageQuality-fgm: 1.00 [5/5]
DiffImageOverlap-fno: 1.00 [17/17]

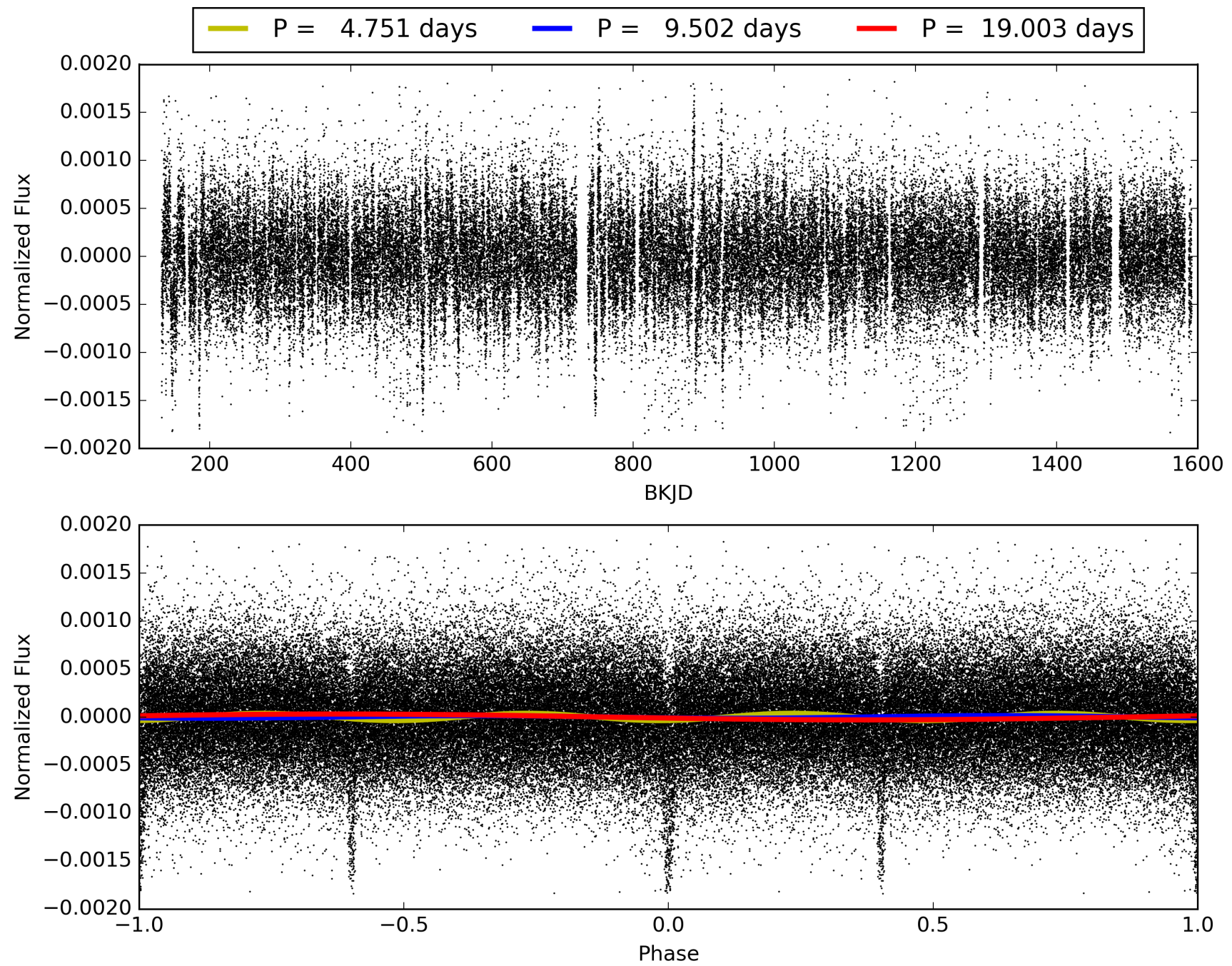
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:48:51 Z

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

TCE 005738496-01, PDC Light Curves

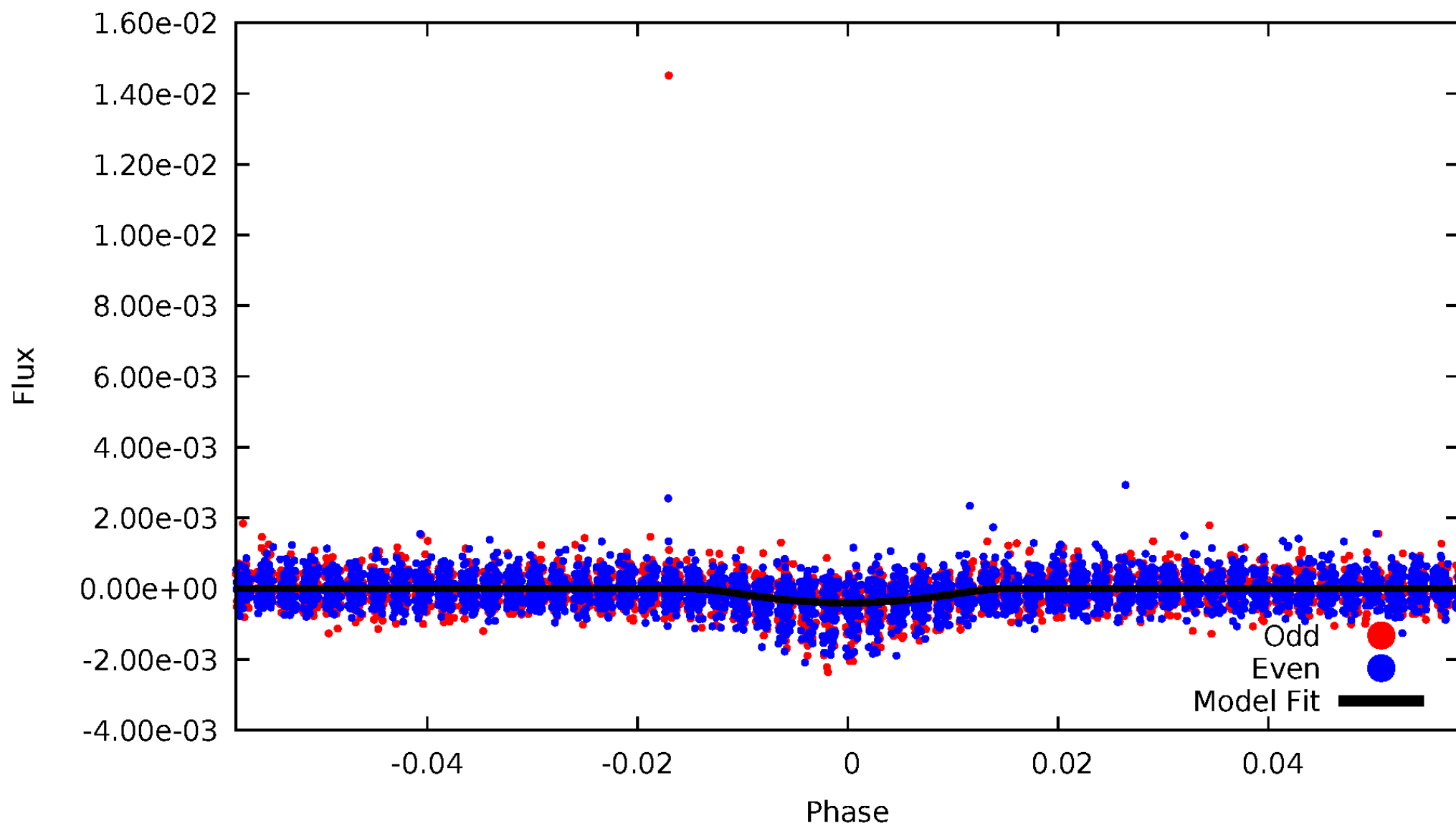


TCE 005738496-01



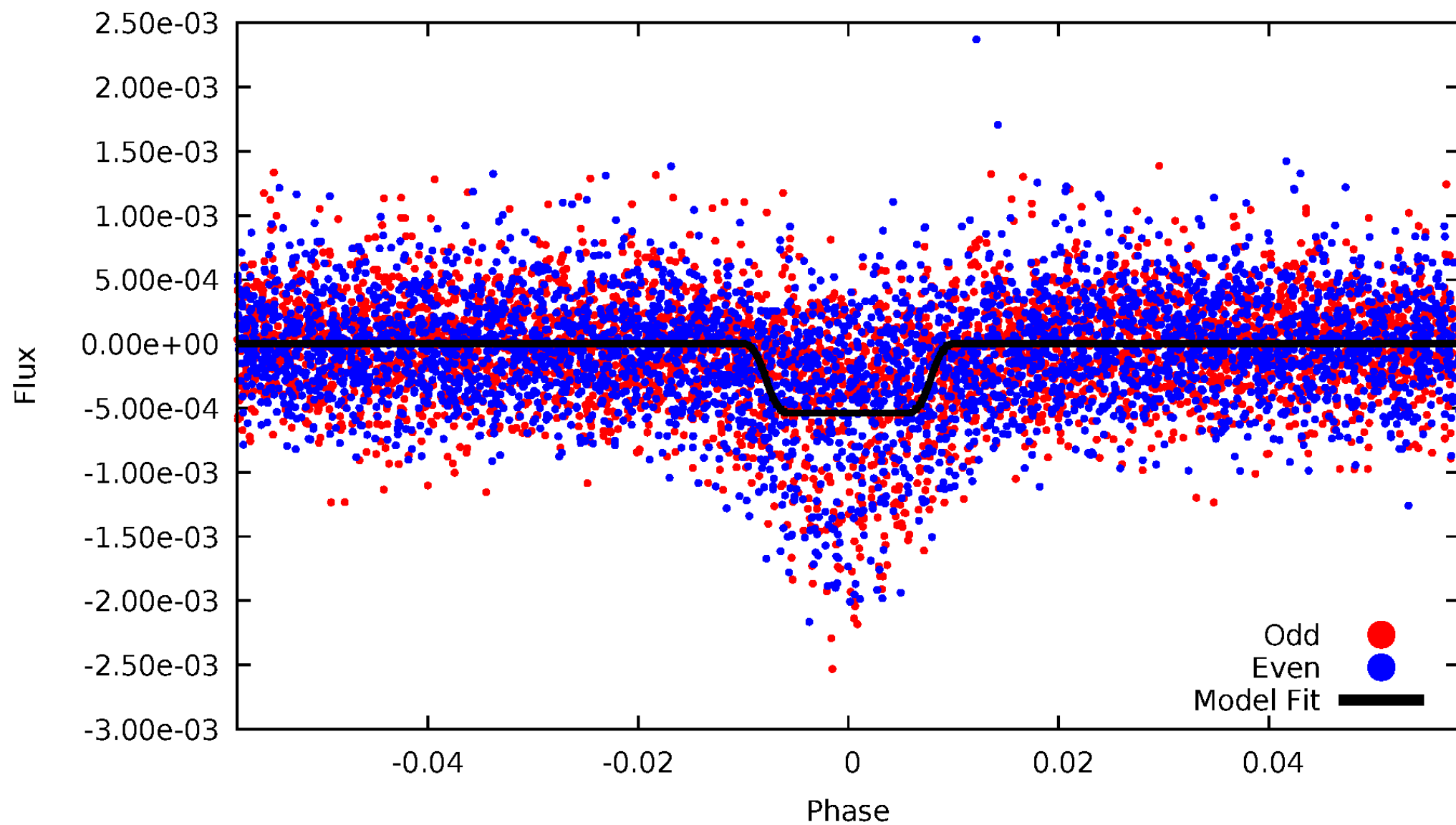
DV Odd/Even

TCE 005738496-01



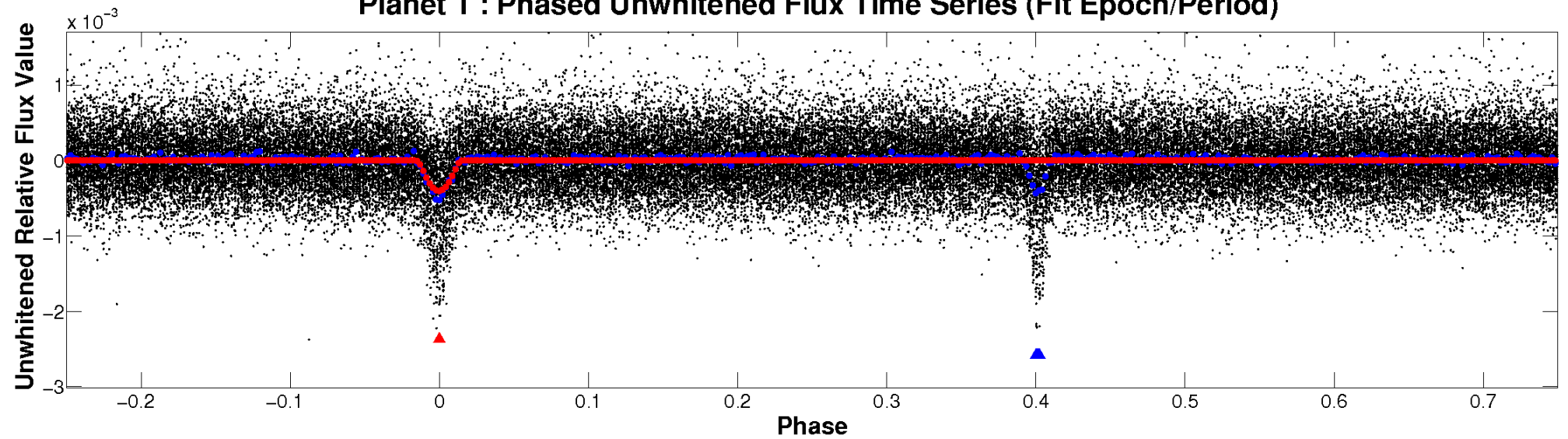
ALT Odd/Even

TCE 005738496-01

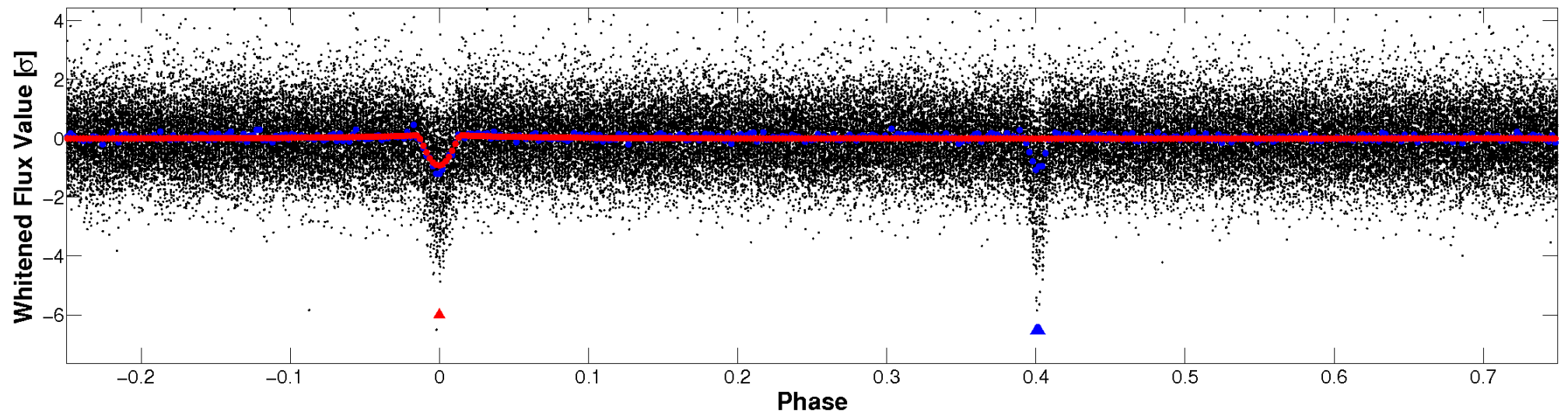


Non-Whitened Vs. Whitened Light Curve

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

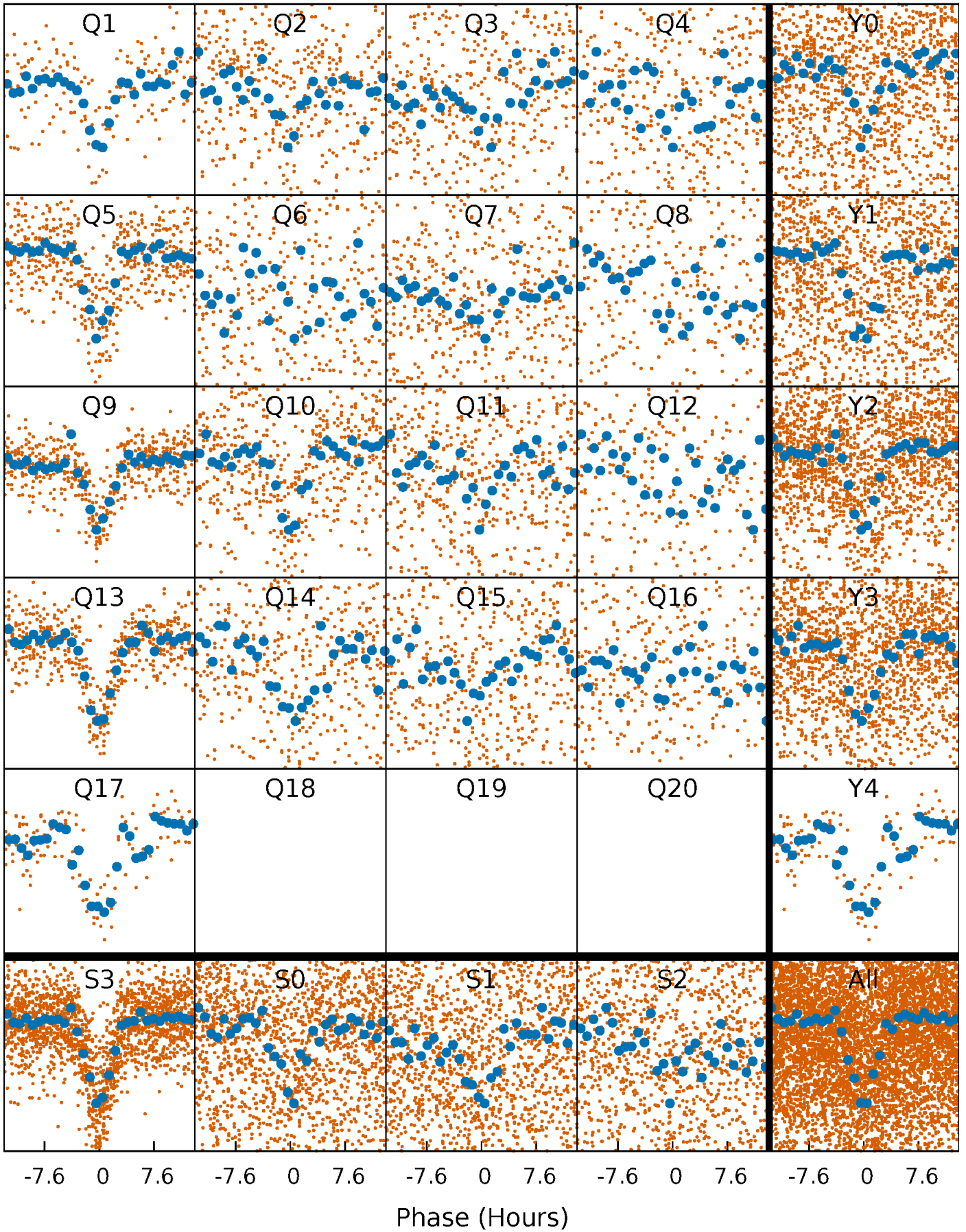


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



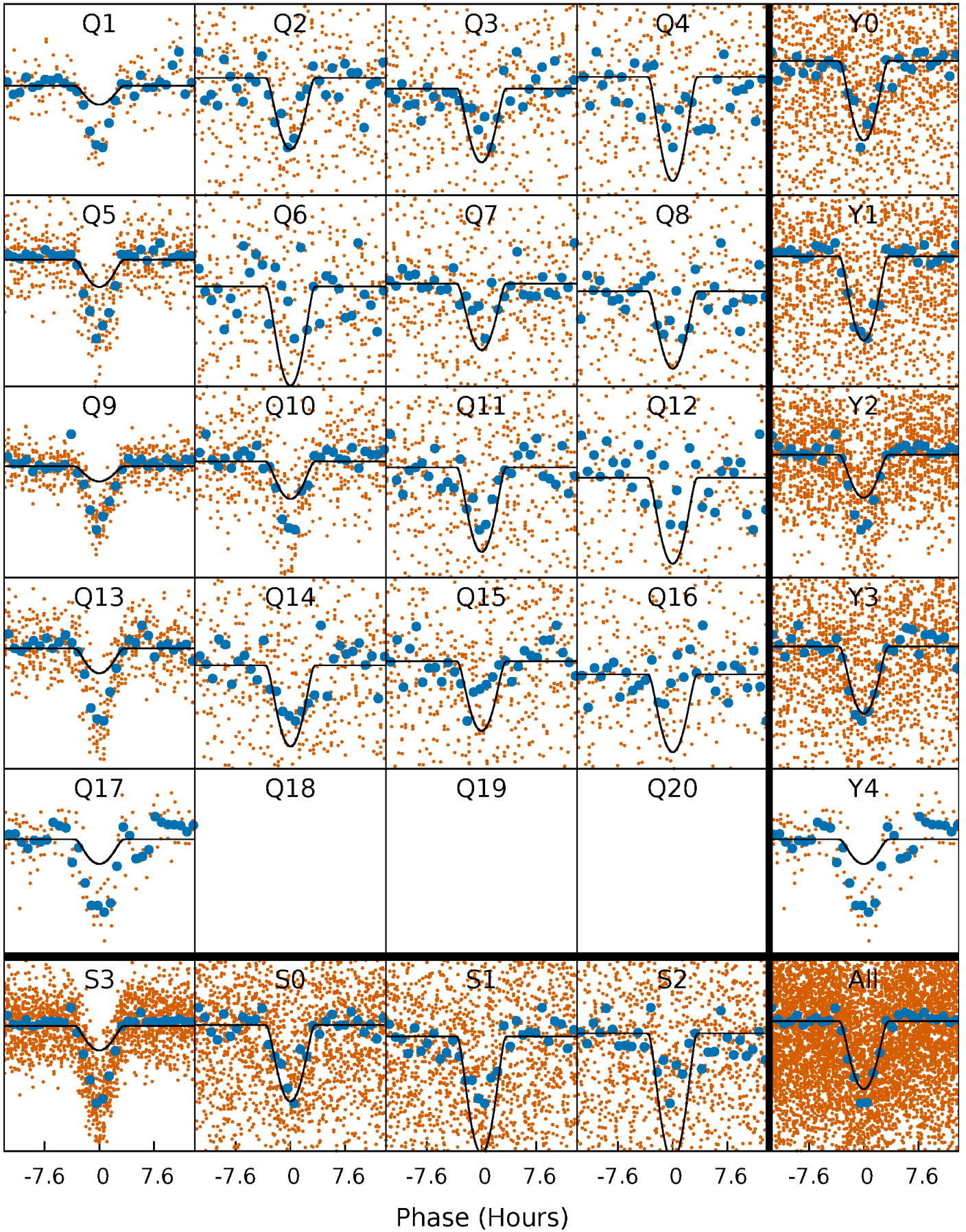
PDC Quarter-Phased Transit Curves

TCE 005738496-01 P= 9.501538 Days $T_0=137.664091$ (BKJD)



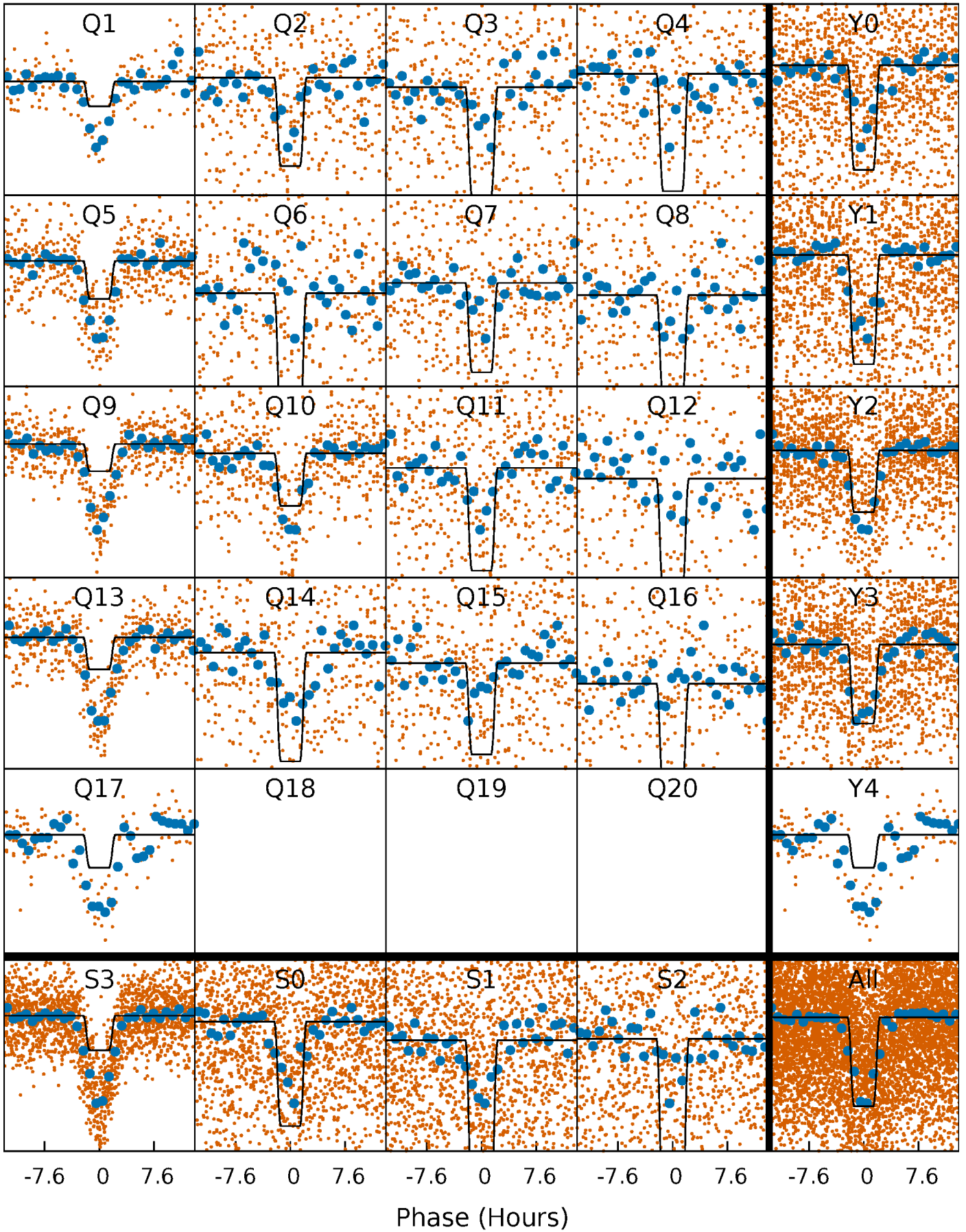
DV Quarter-Phased Transit Curves

TCE 005738496-01 P= 9.501538 Days $T_0=137.664091$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

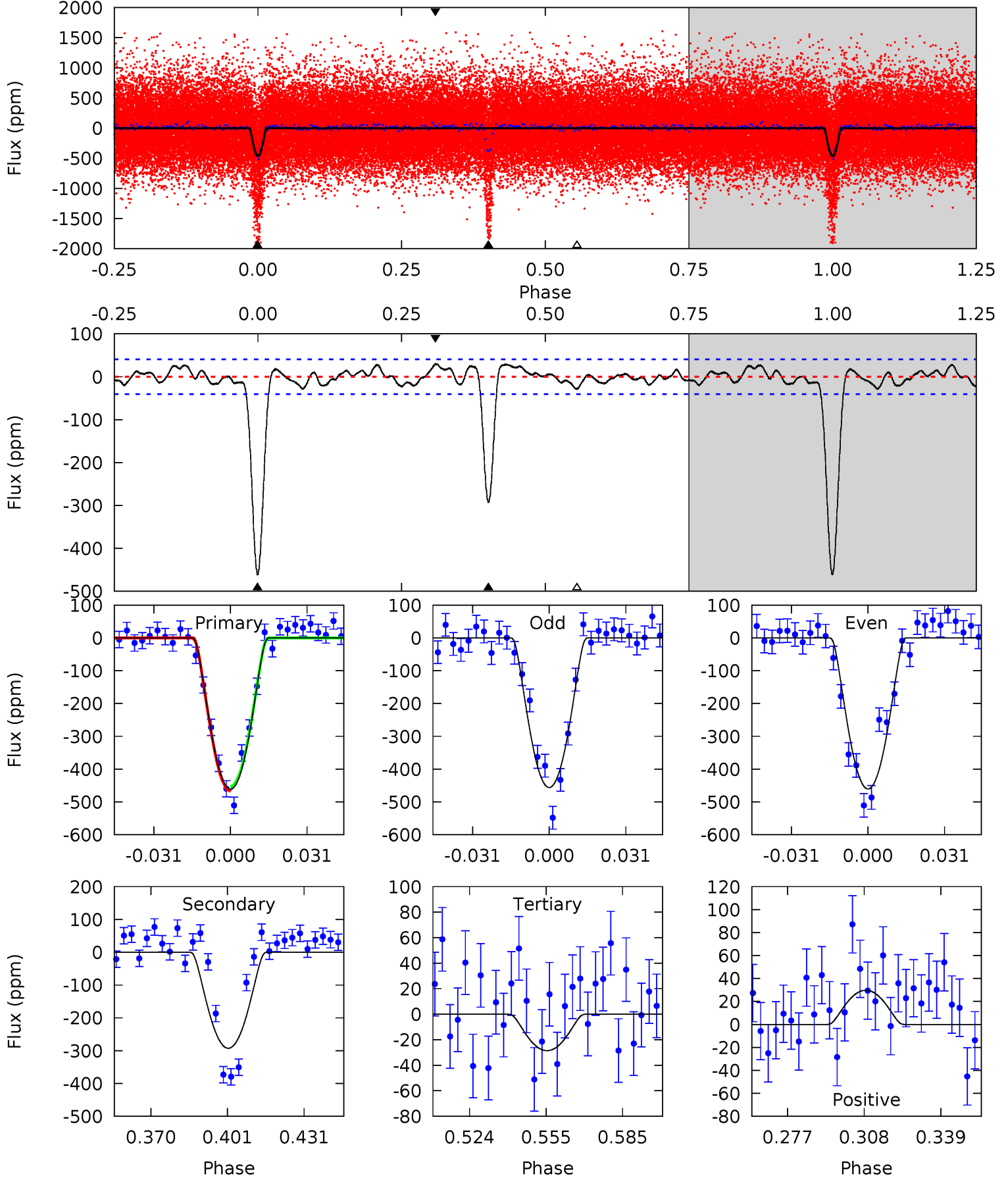
TCE 005738496-01 P= 9.501509 Days $T_0=137.662824$ (BKJD)



DV Model-Shift Uniqueness Test

005738496-01, P = 9.501538 Days, E = 128.162553 Days

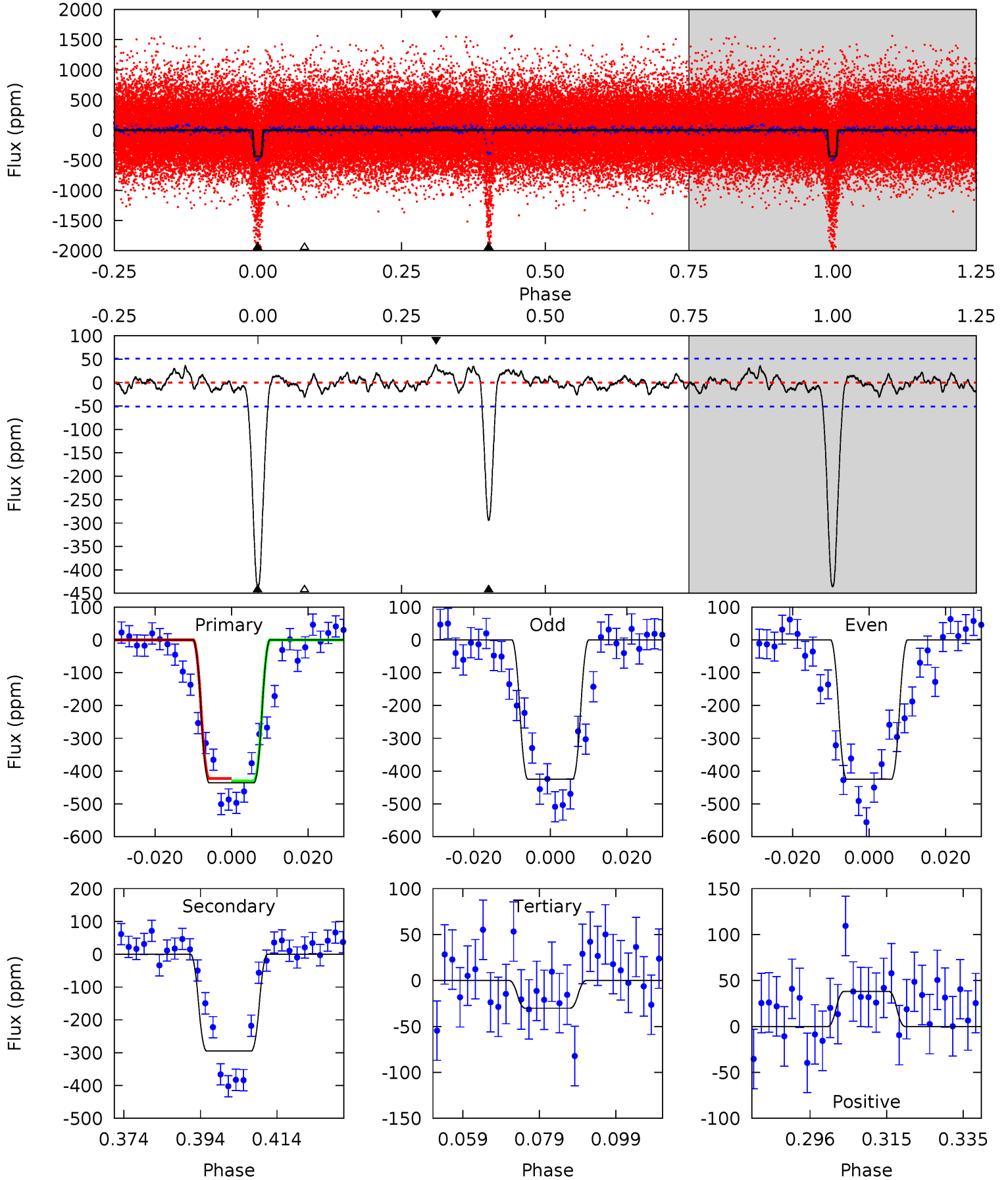
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.8	34.8	3.39	3.54	4.81	2.16	1.58	51.4	51.3	31.4	31.3	0.27	1.60	0.06	0.77



Alt Model-Shift Uniqueness Test

005738496-01, P = 9.501509 Days, E = 128.161315 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.6	28.1	2.89	3.64	4.89	2.33	1.22	38.7	38.0	25.3	24.5	0.00	1.83	0.08	0.35



Stellar Parameters For KIC 005738496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5938^{+159}_{-195}	$4.518^{+0.052}_{-0.208}$	$-0.160^{+0.300}_{-0.300}$	$0.908^{+0.273}_{-0.091}$	$0.992^{+0.116}_{-0.129}$	$1.864^{+0.382}_{-0.975}$
	+3%/-3%	+1%/-5%	+188%/-188%	+30%/-10%	+12%/-13%	+21%/-52%
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 005738496-01 / KOI 0556.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-293 ± 8	$3.43^{+2.14}_{-2.01}$	1201^{+87}_{-57}	4479^{+2218}_{-729}	105^{+497}_{-66}
Alt.	-295 ± 10	$2.81^{+2.00}_{-1.65}$	1201^{+89}_{-61}	4832^{+2527}_{-880}	156^{+740}_{-102}

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 $A_{obs} \gg 1.0$

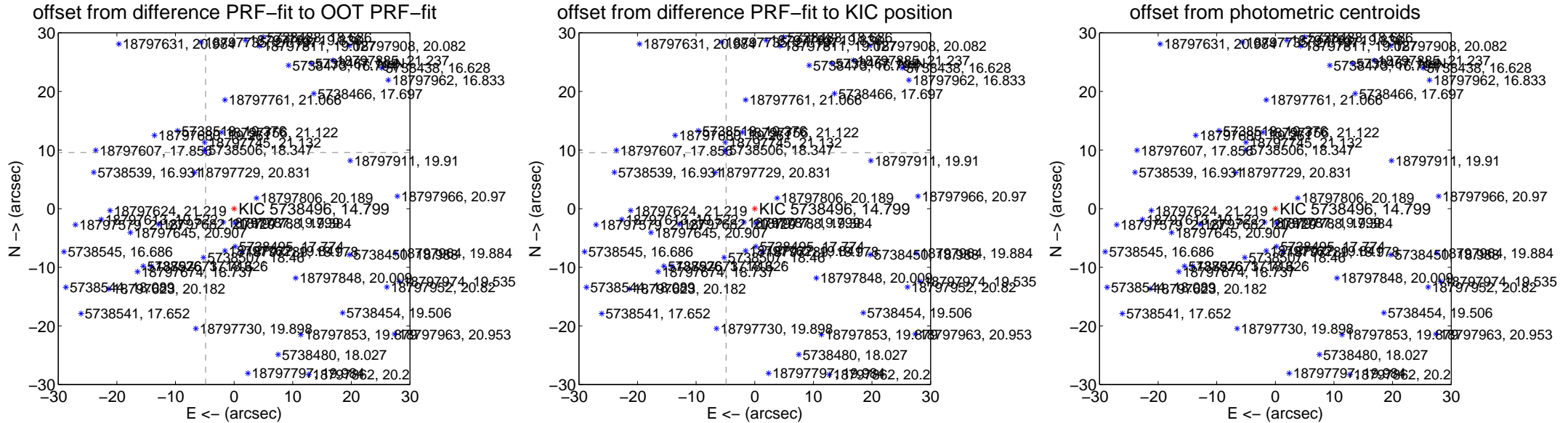
DV Centroid Data

Supplemental centroid analysis for 005738496-01. Kepler magnitude: 14.80. Transit SNR 25.61

There are 5 quarters with good PRF difference image offsets

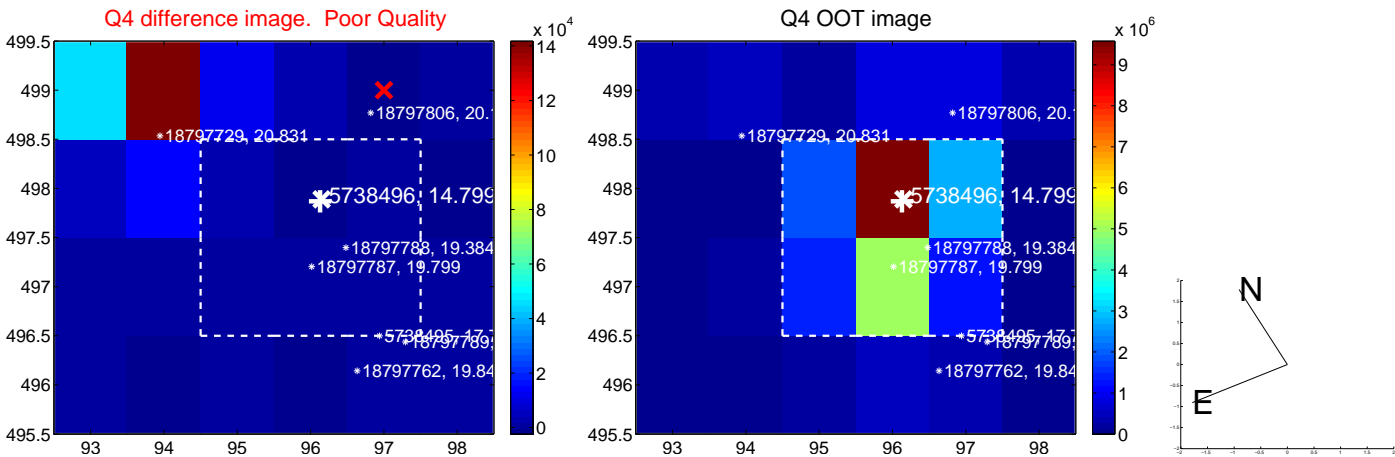
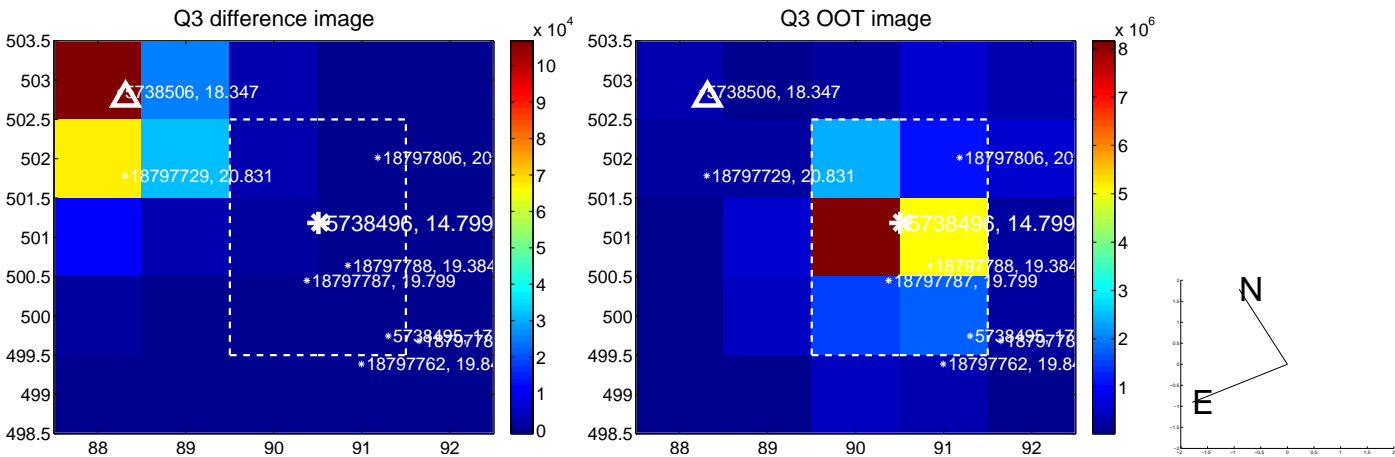
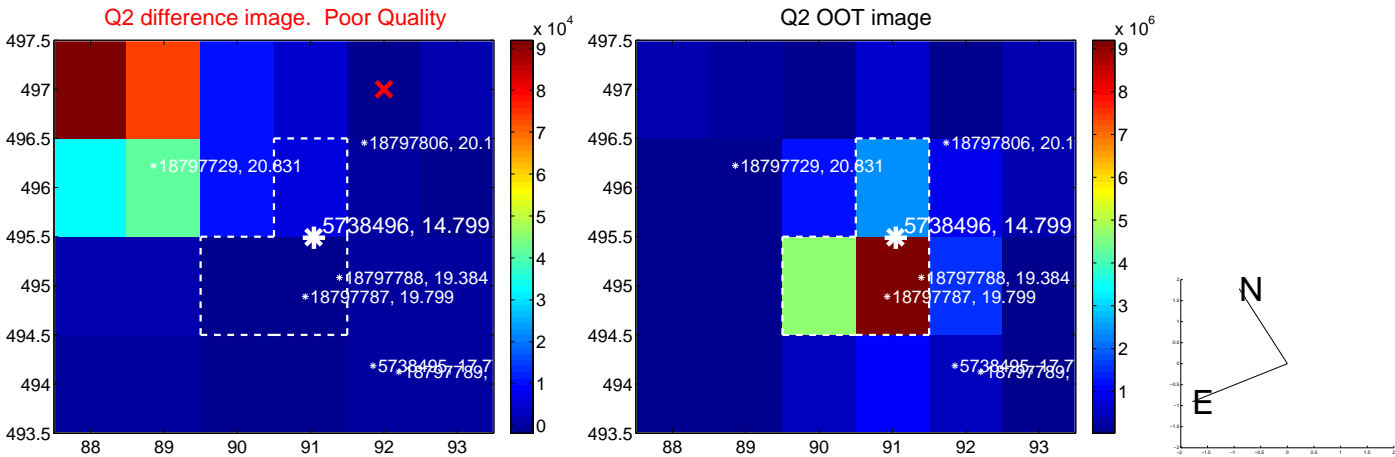
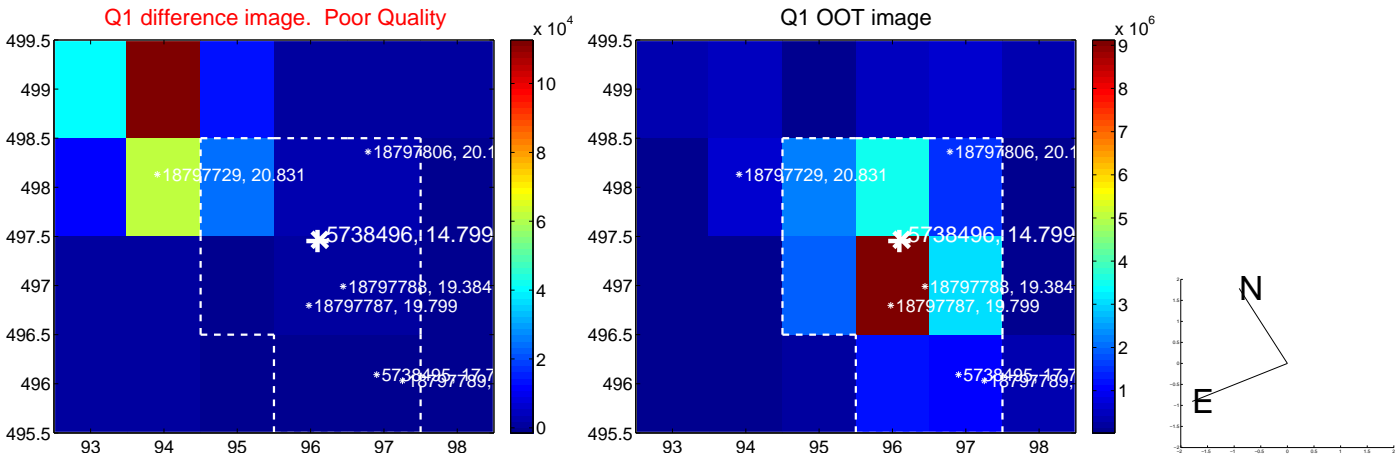
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.737 \pm 0.068	158.81	4.864 \pm 0.070	9.573 \pm 0.067
PRF-fit source offset from KIC position	10.729 \pm 0.070	153.59	4.897 \pm 0.075	9.546 \pm 0.067
photometric centroid source offset	94.21 \pm 0.50	187.63	35.08 \pm 0.56	87.44 \pm 0.49

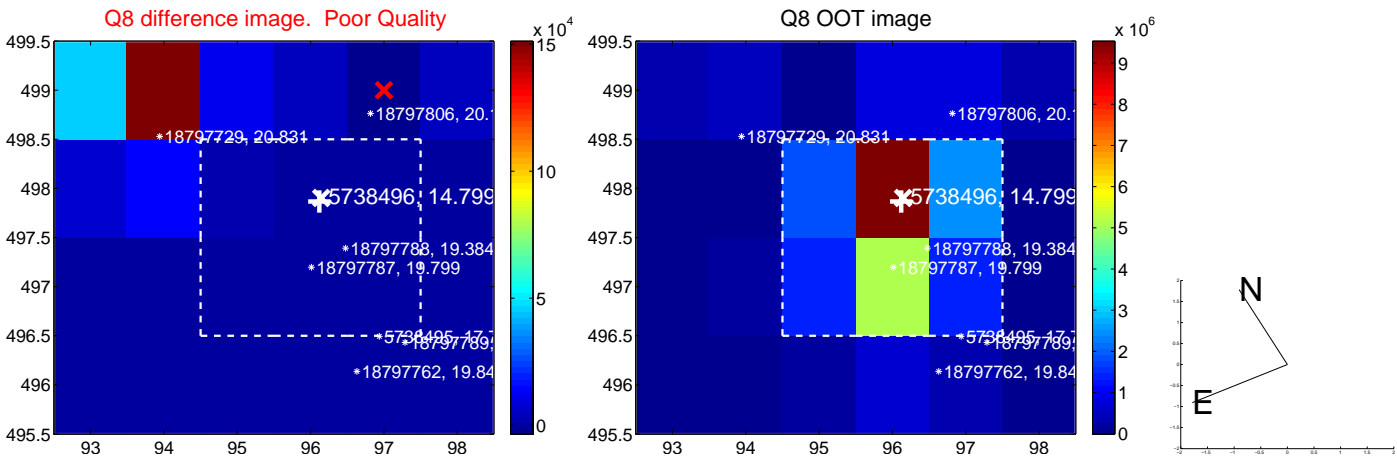
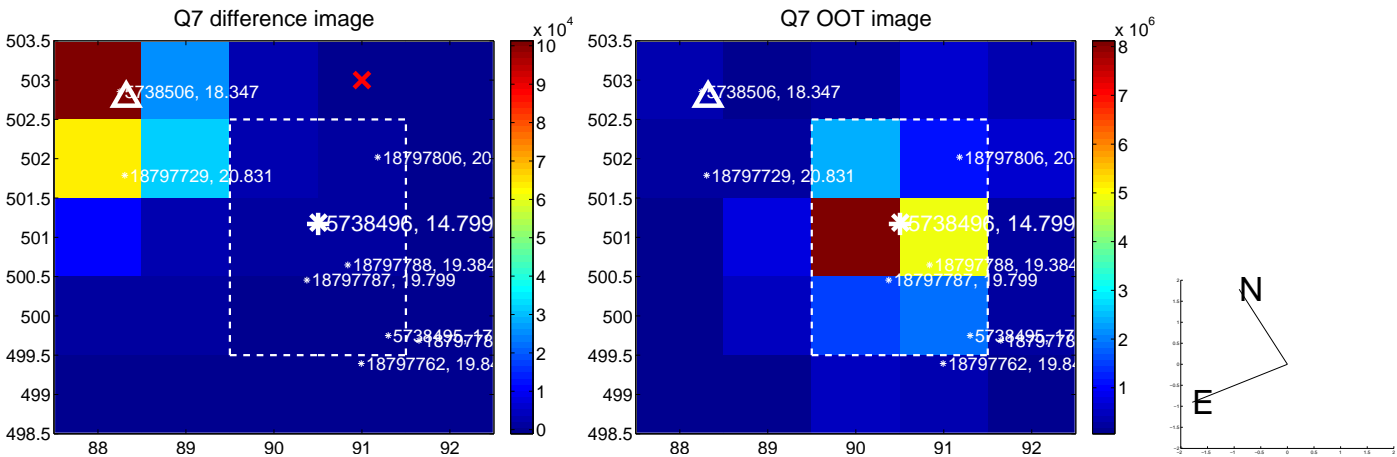
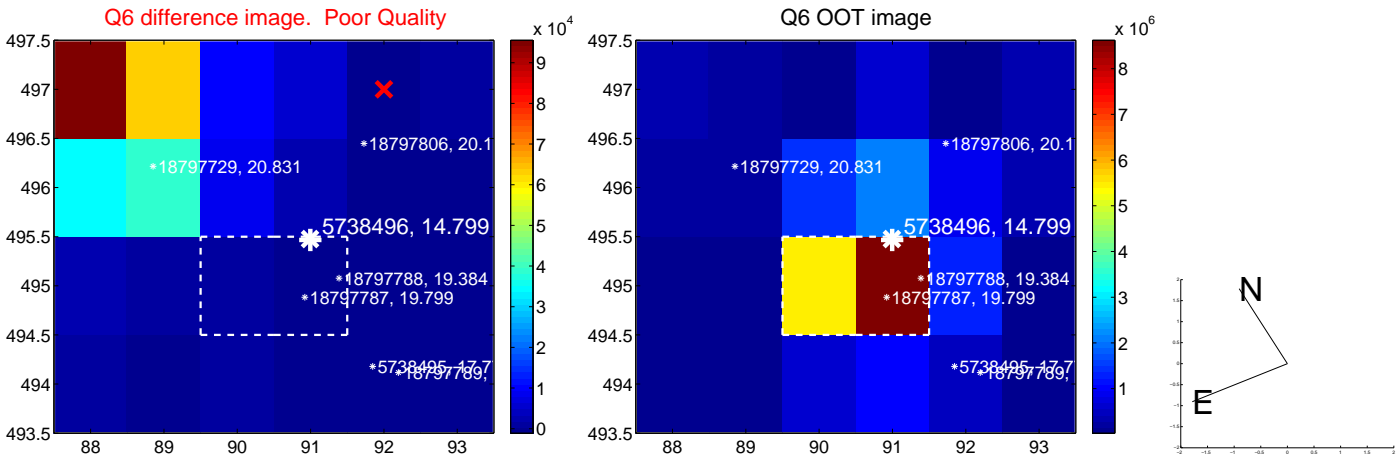
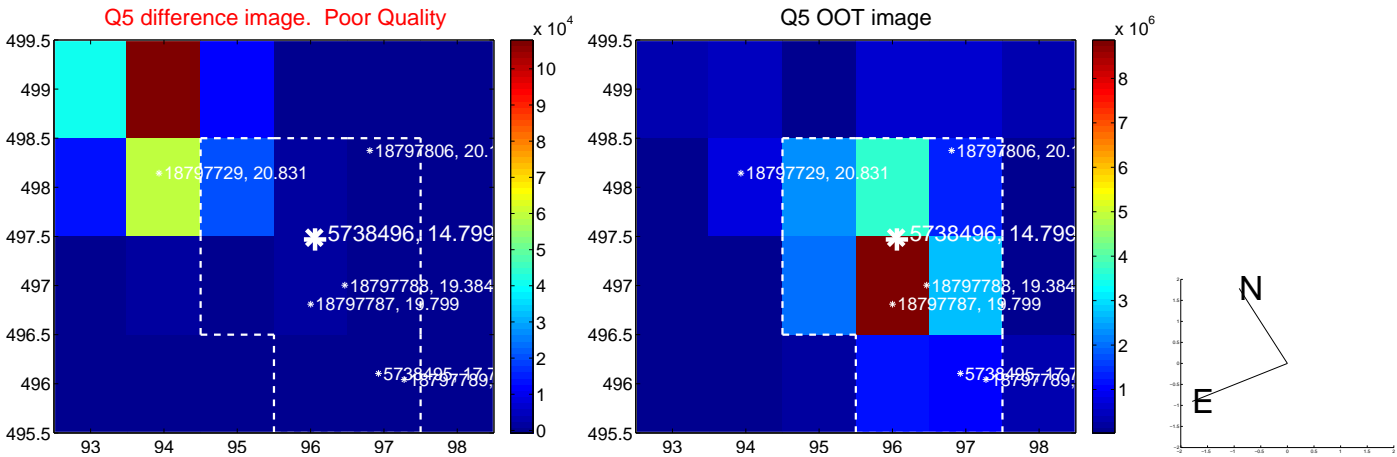


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

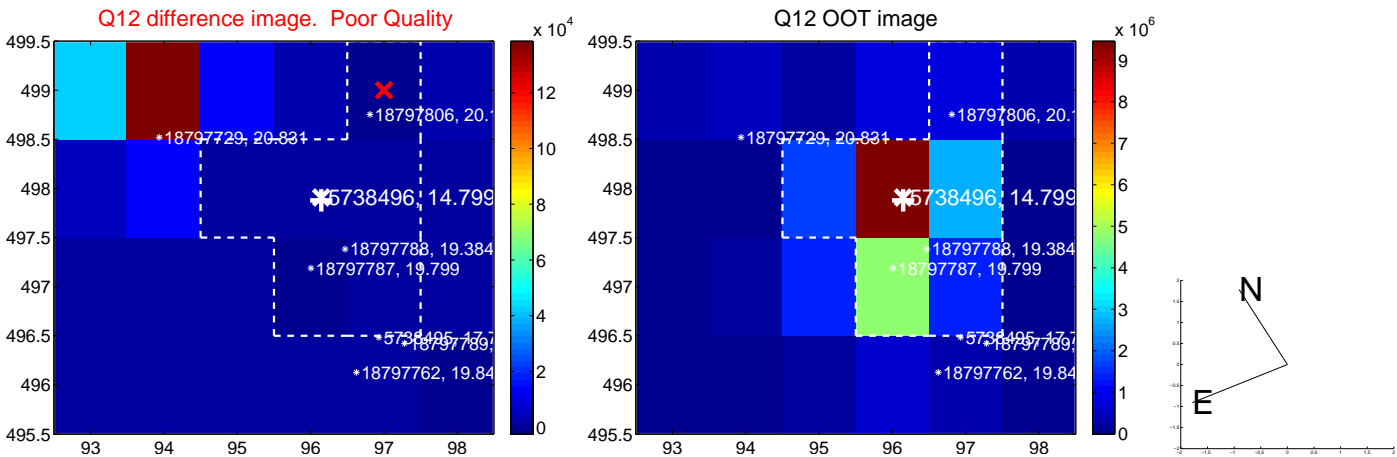
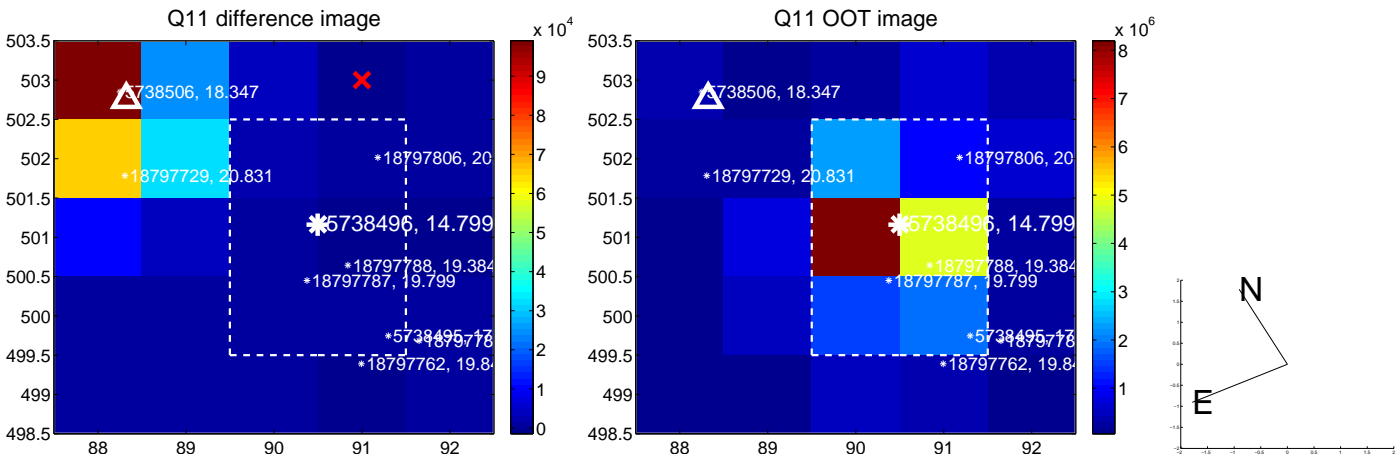
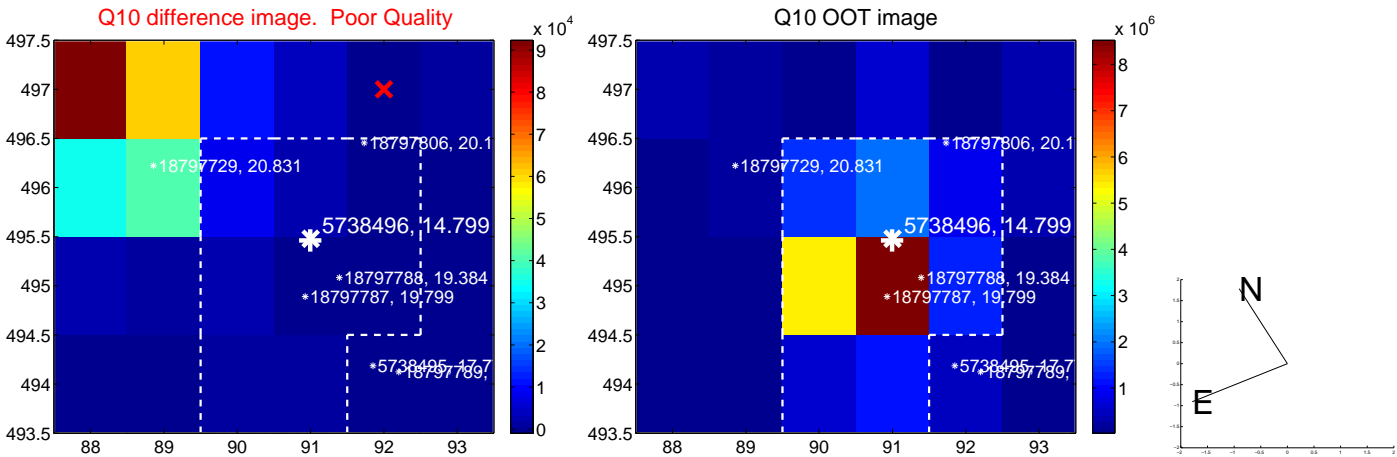
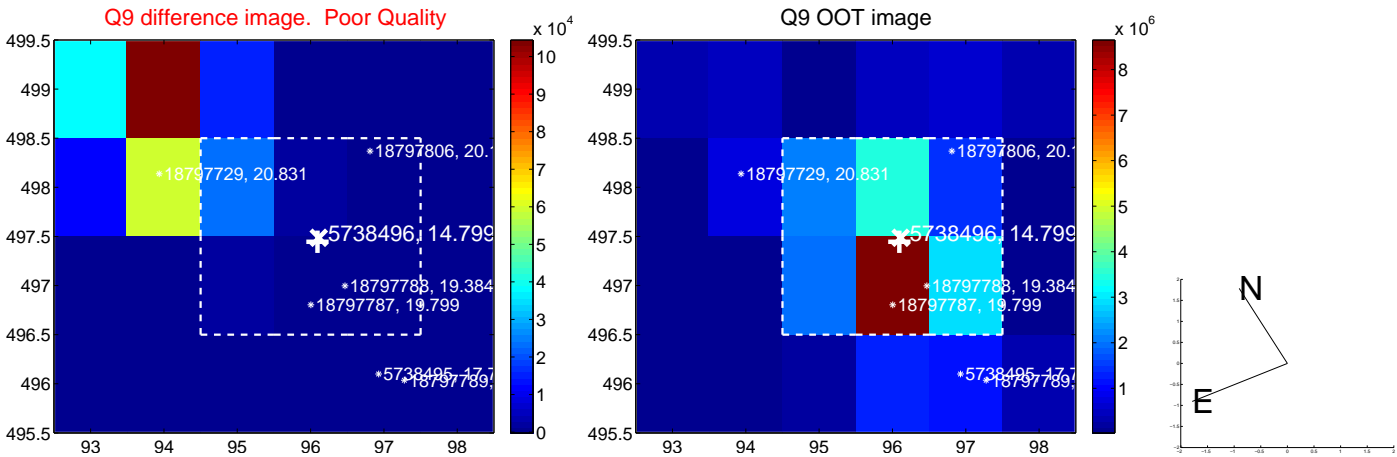
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



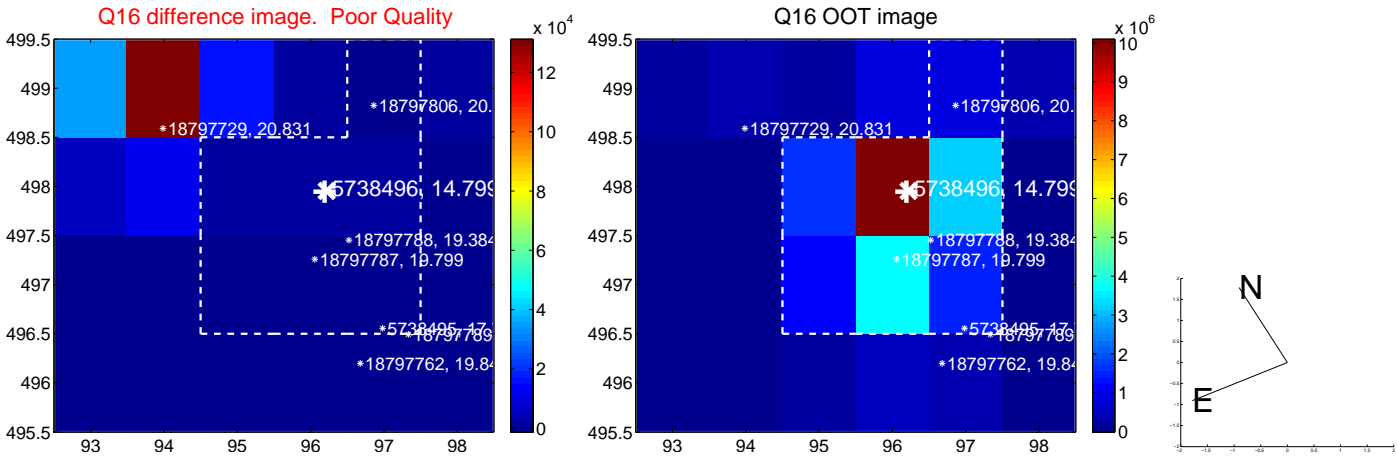
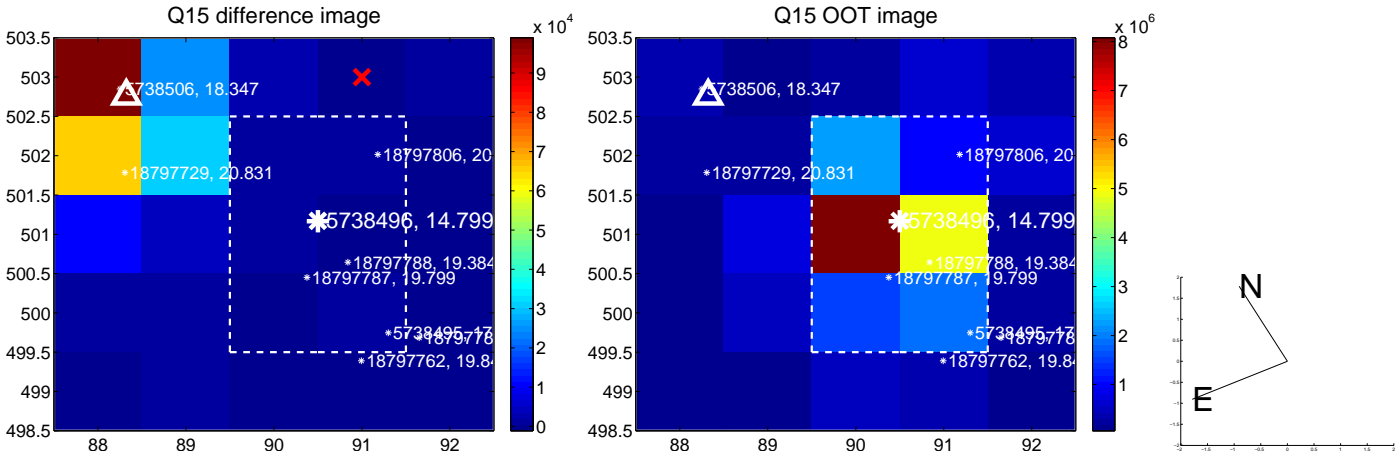
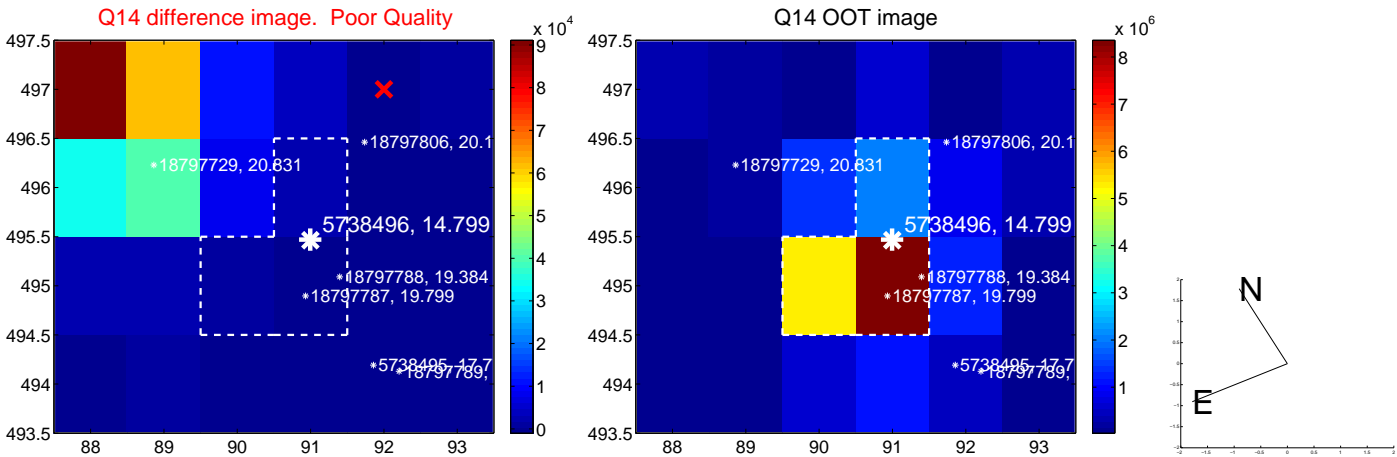
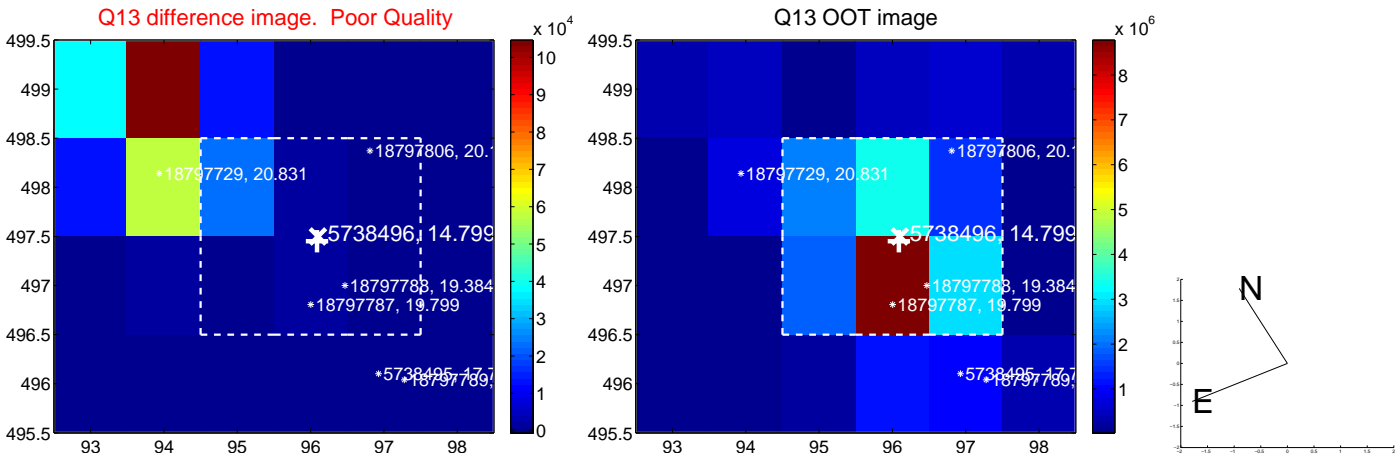
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



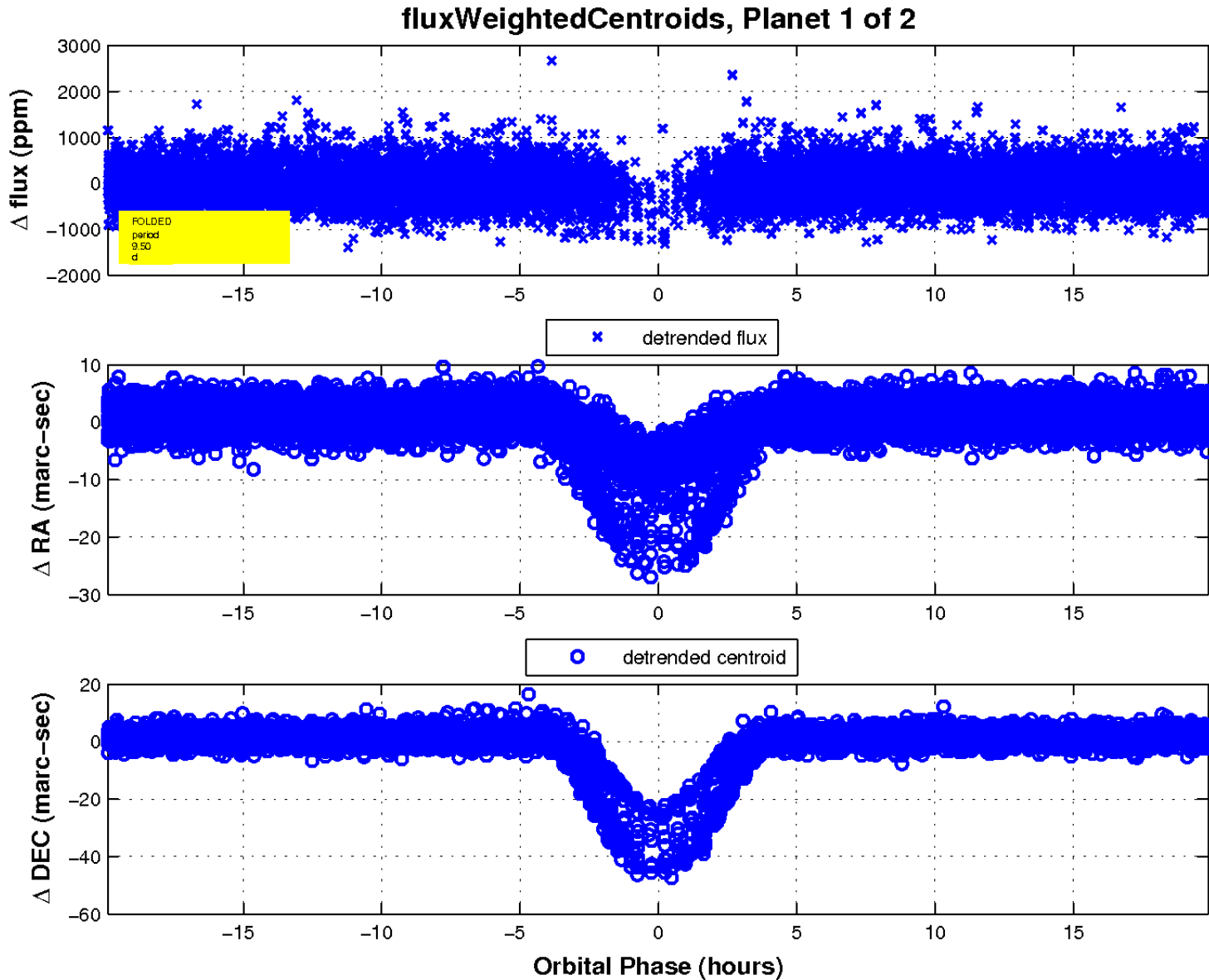
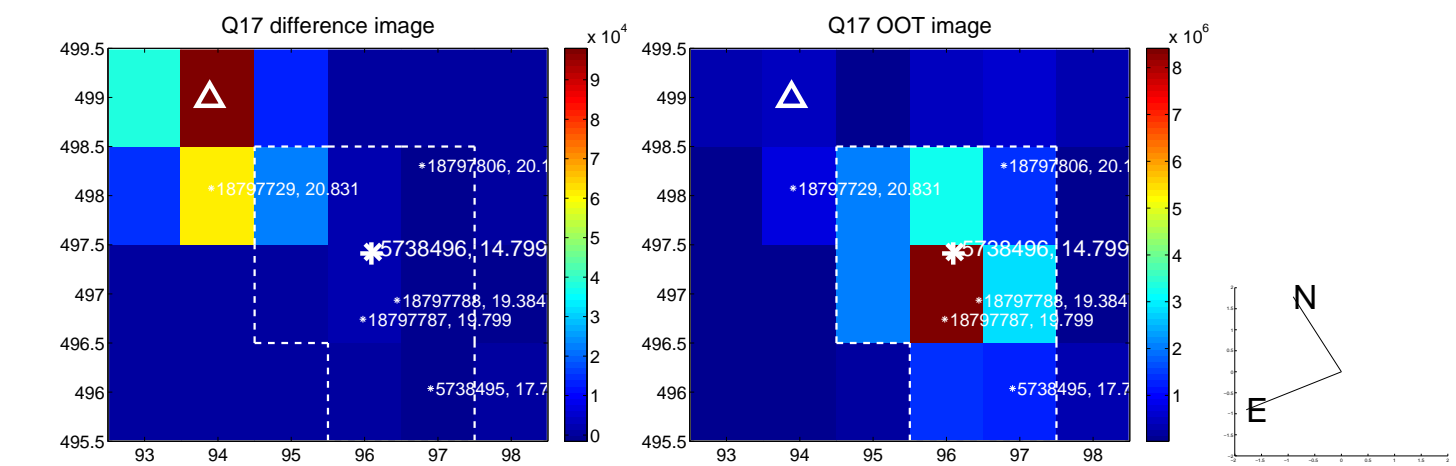
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

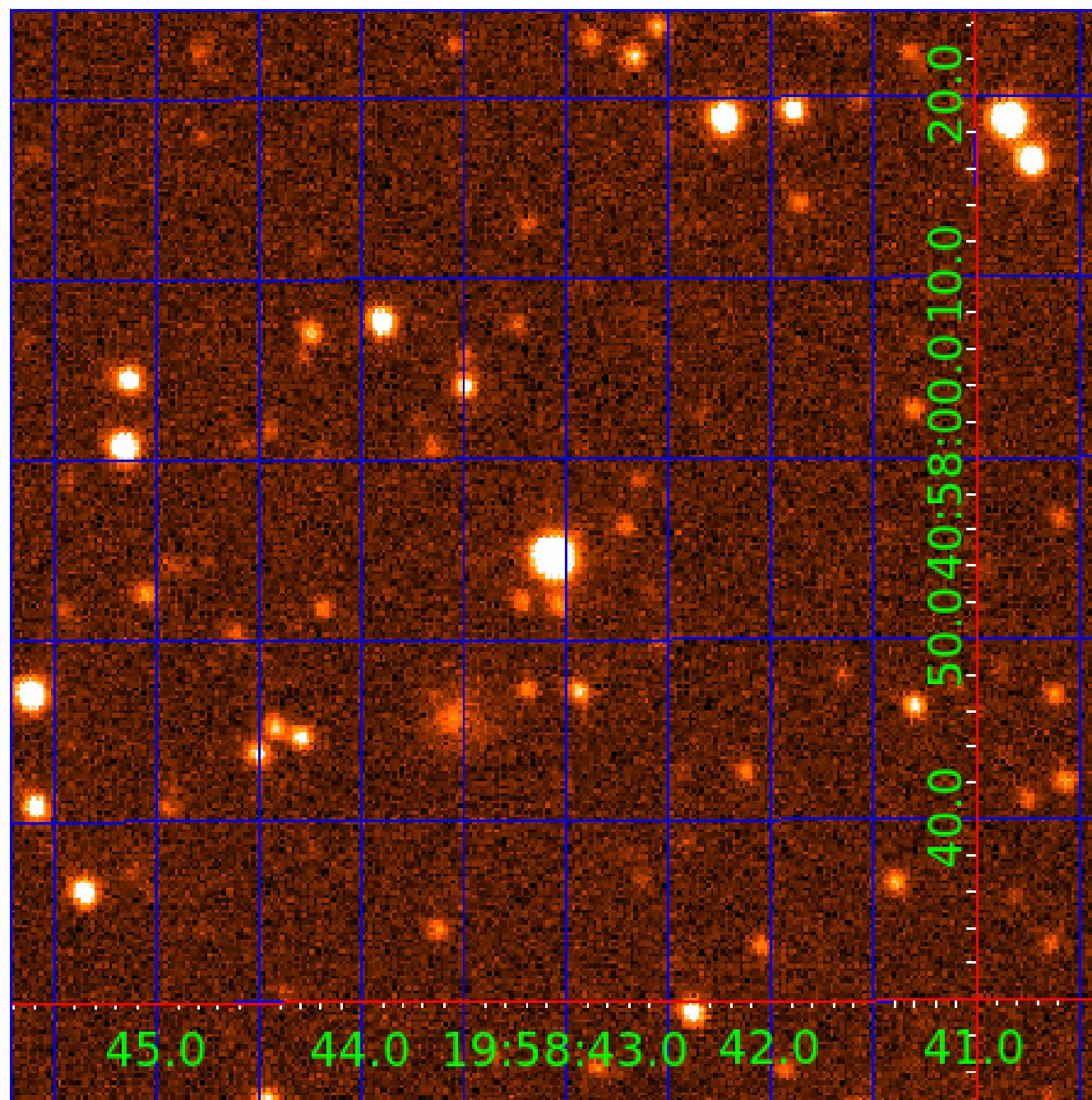


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005738496

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})
005738496-01	OBS	0556.01	9.501538	137.664091	403.1	6.632	29.0	25.6	0.91	5938	3.05	119.80
005738496-02	OBS	No	9.501683	131.964244	331.9	3.555	23.3	20.4	0.91	5938	1.98	119.80

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005738496-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005738496-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH

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 005738496-02

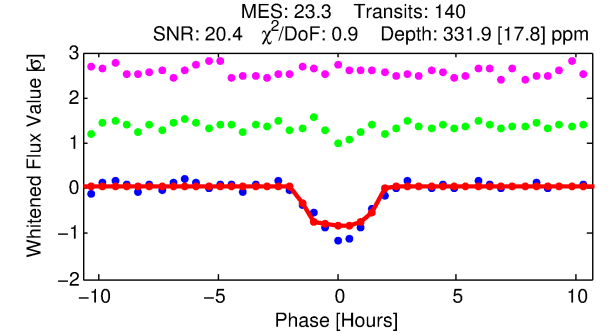
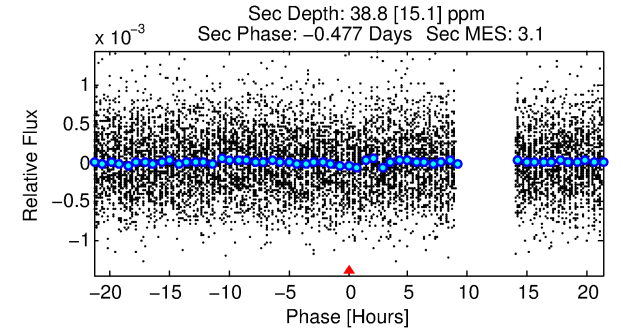
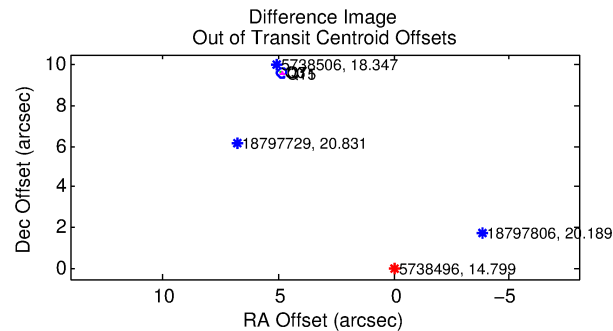
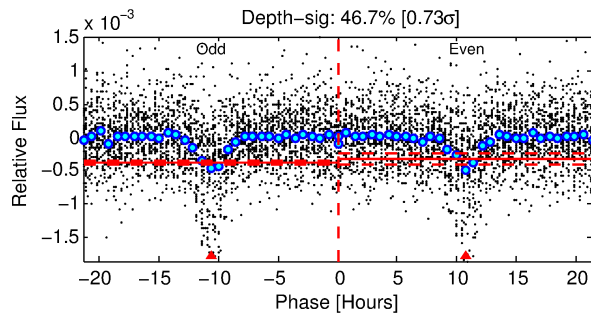
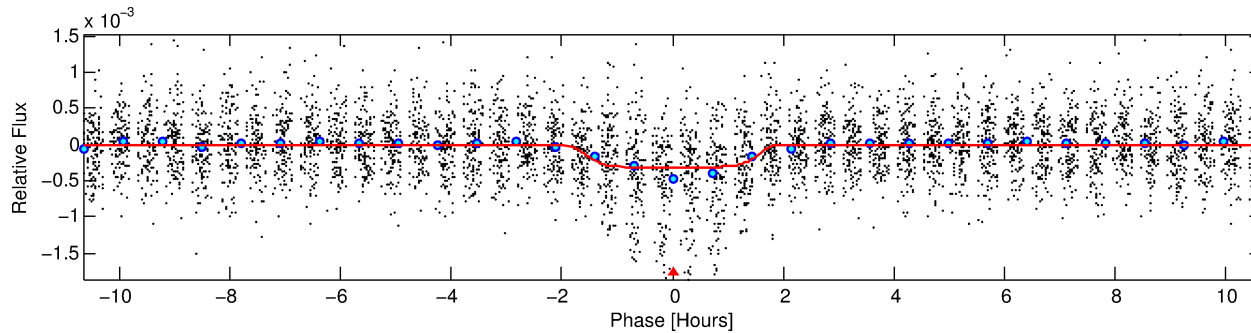
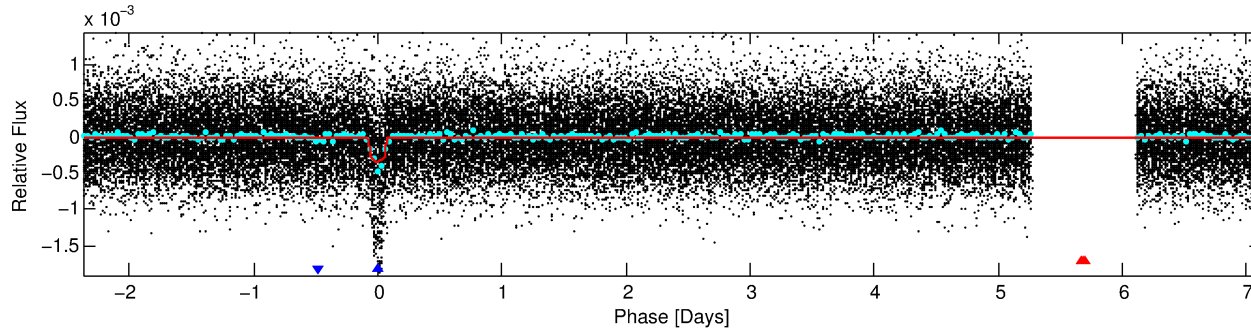
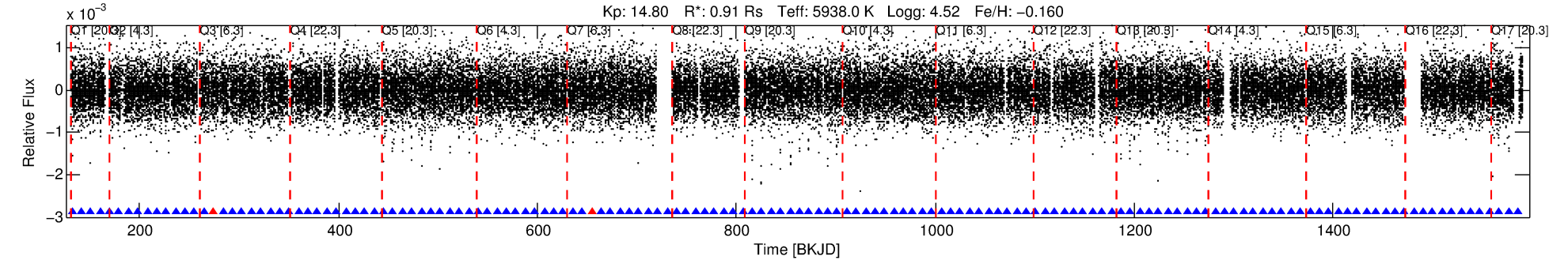
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005738496-02	5738496	3676.01	5738506	1:1	11.2	-1	2	18.35	14.80	2124.90	Direct-PRF	0	0.43	0.35

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5738496 Candidate: 2 of 2 Period: 9.502 d
KOI: K00556 Corr: No Ephemeris Match

Kp: 14.80 R*: 0.91 Rs Teff: 5938.0 K Logg: 4.52 Fe/H: -0.160



DV Fit Results:

Period = 9.50168 [0.00005] d
Epoch = 131.9642 [0.0039] BKJD
Rp/R* = 0.0199 [0.0029]
a/R* = 9.44 [6.52]
b = 0.91 [0.13]
Seff = 119.80 [47.83]
Teq = 844 [84] K
Rp = 1.97 [0.66] Re
a = 0.0876 [0.0224] AU
Ag = 41.99 [25.75] [1.59σ]
Teff = 3320 [416] K [5.83σ]

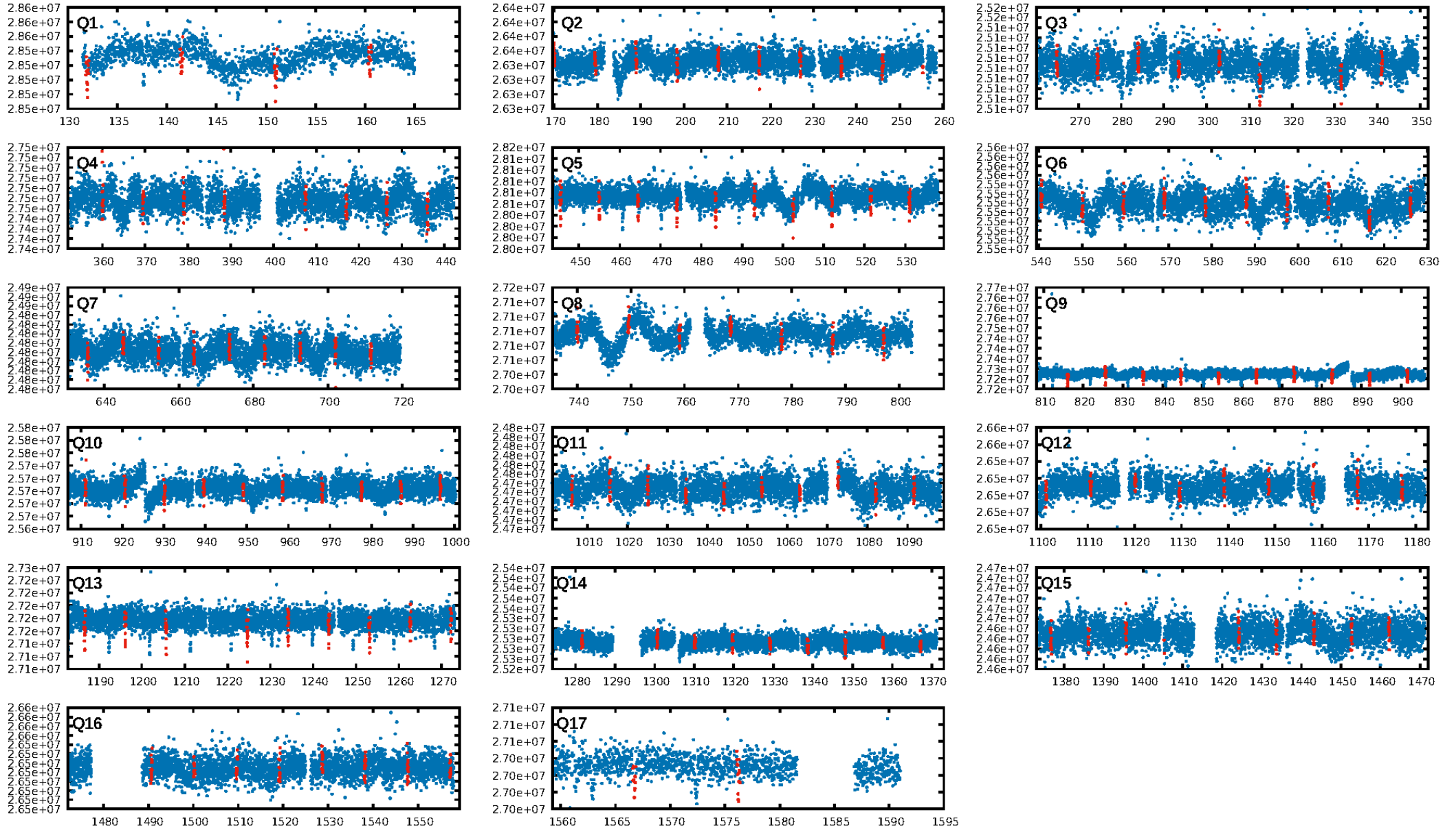
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.03e-115
RollingBand-fgt: 0.99 [132/134]
GhostDiagnostic-chr: -0.8819
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 10.735 arcsec [150.09σ]
KicOffset-rm: 10.725 arcsec [148.61σ]
OotOffset-st: 0/4/0/0 [4]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [17/17]

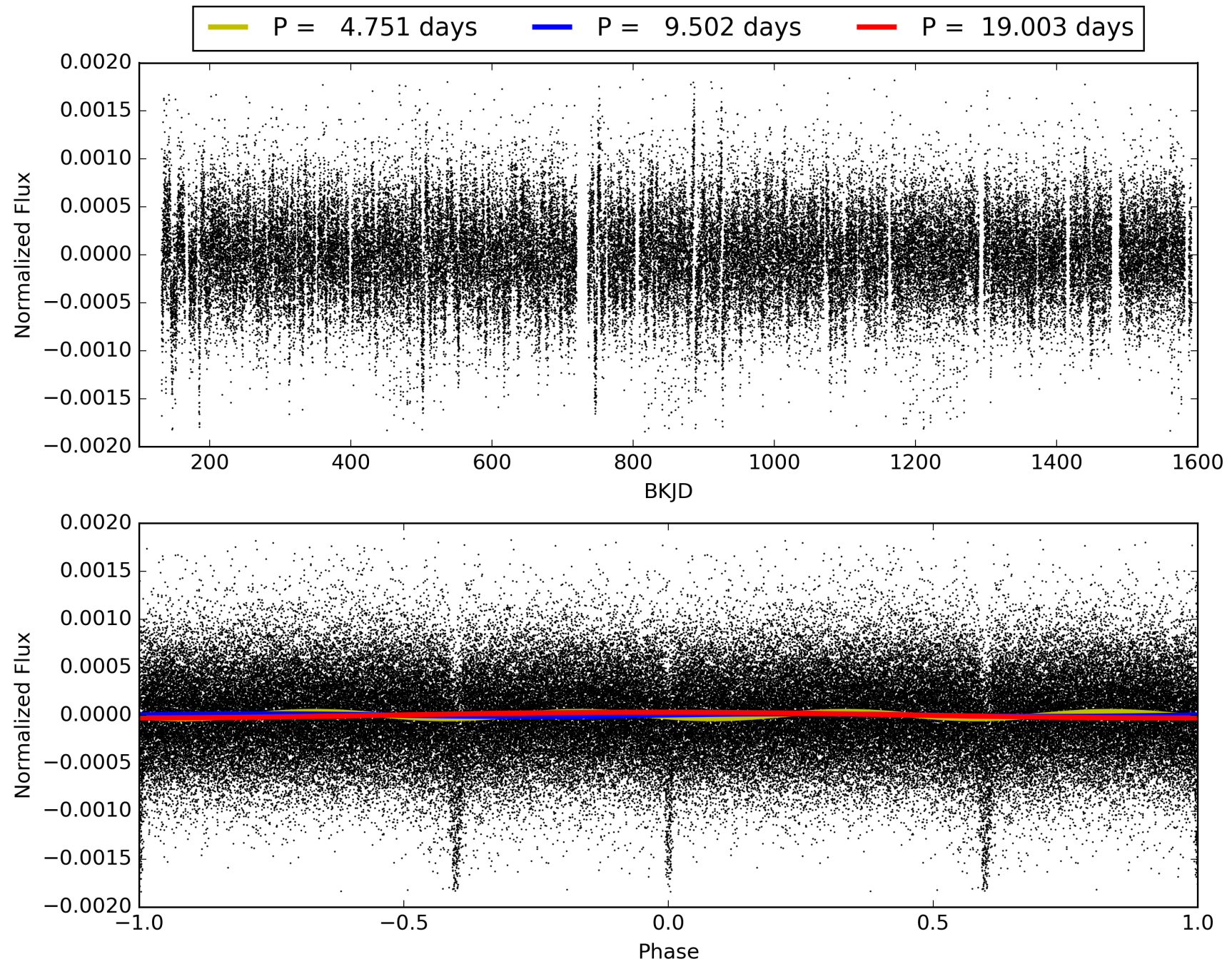
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:48:58 Z

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

TCE 005738496-02, PDC Light Curves

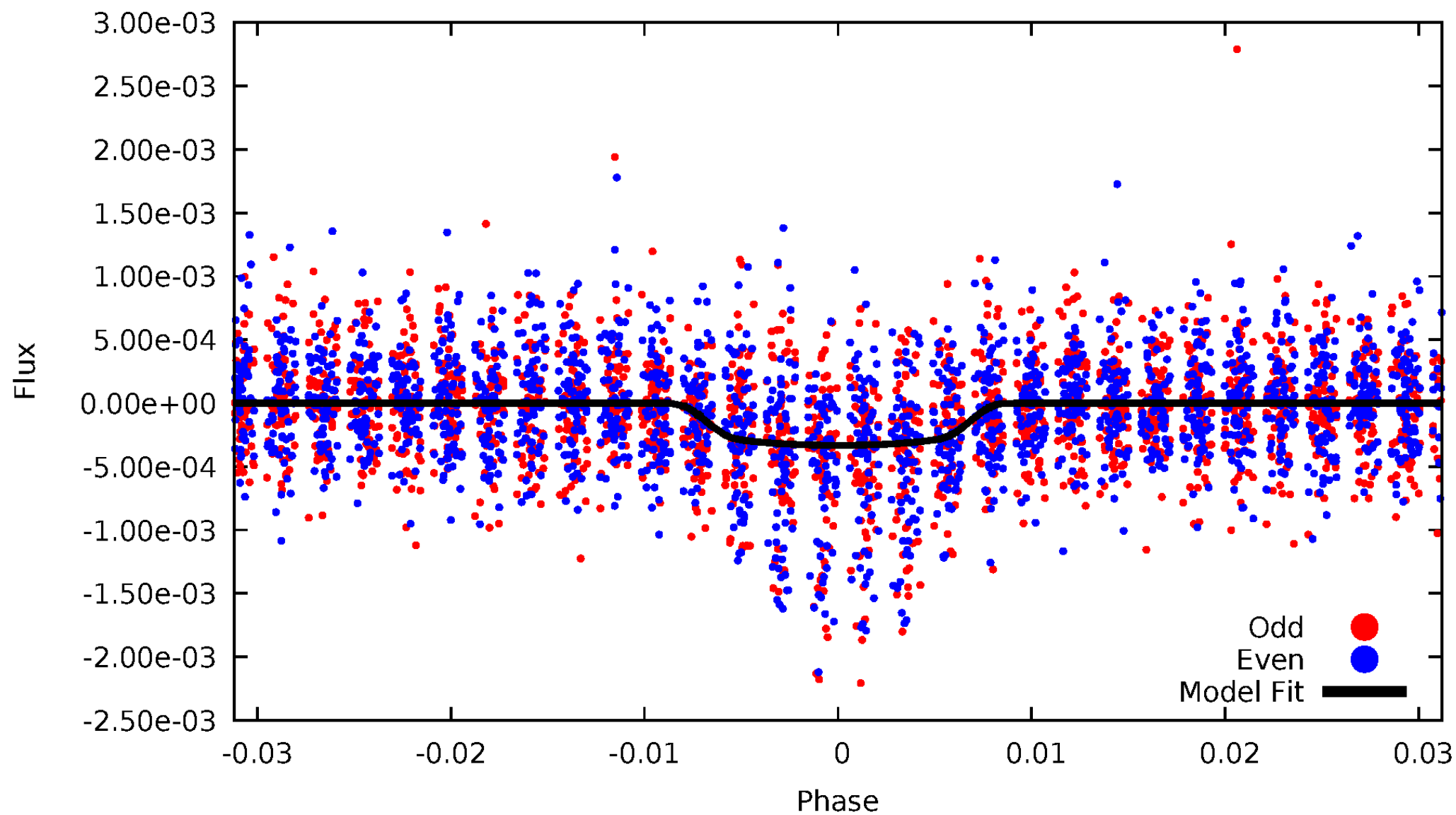


TCE 005738496-02



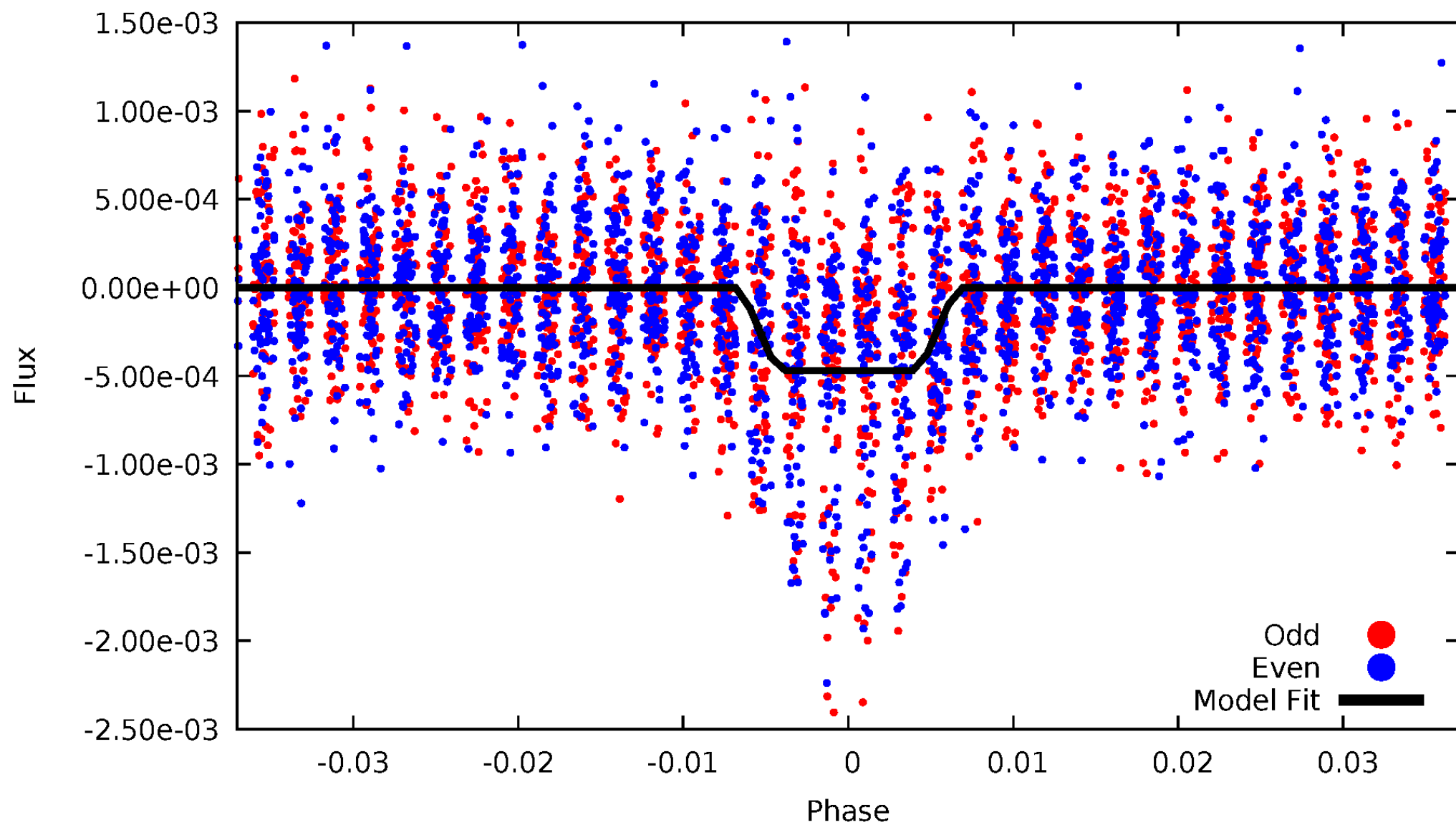
DV Odd/Even

TCE 005738496-02



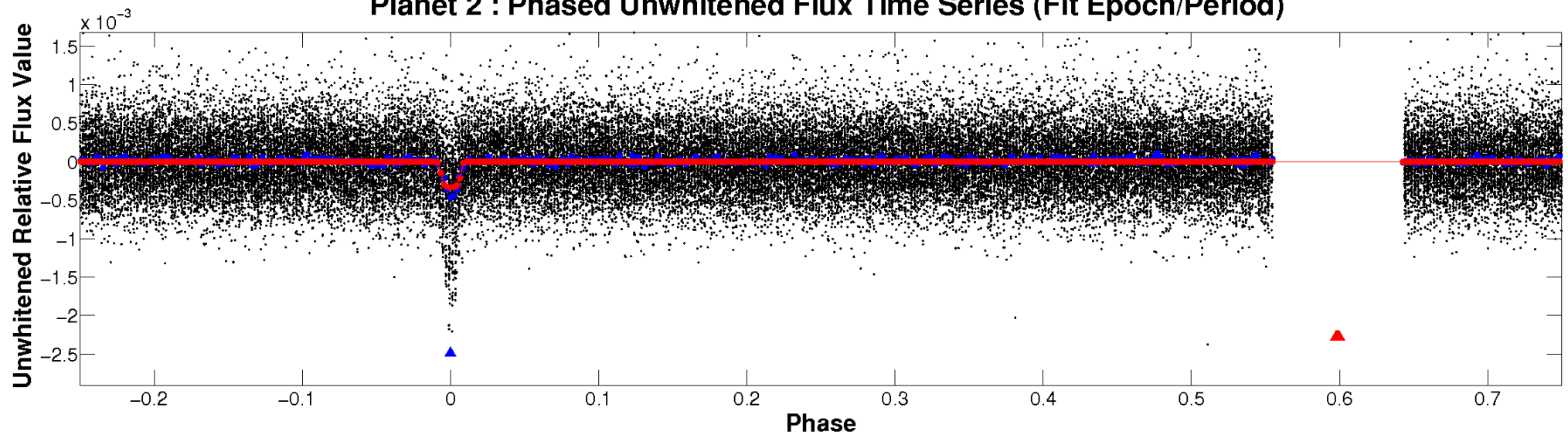
ALT Odd/Even

TCE 005738496-02

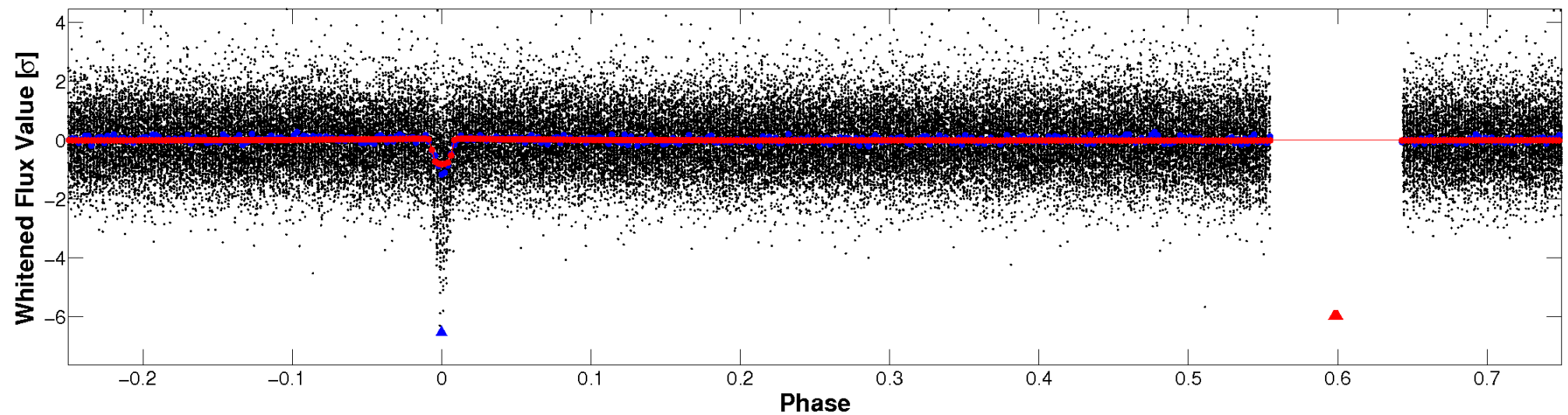


Non-Whitened Vs. Whitened Light Curve

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

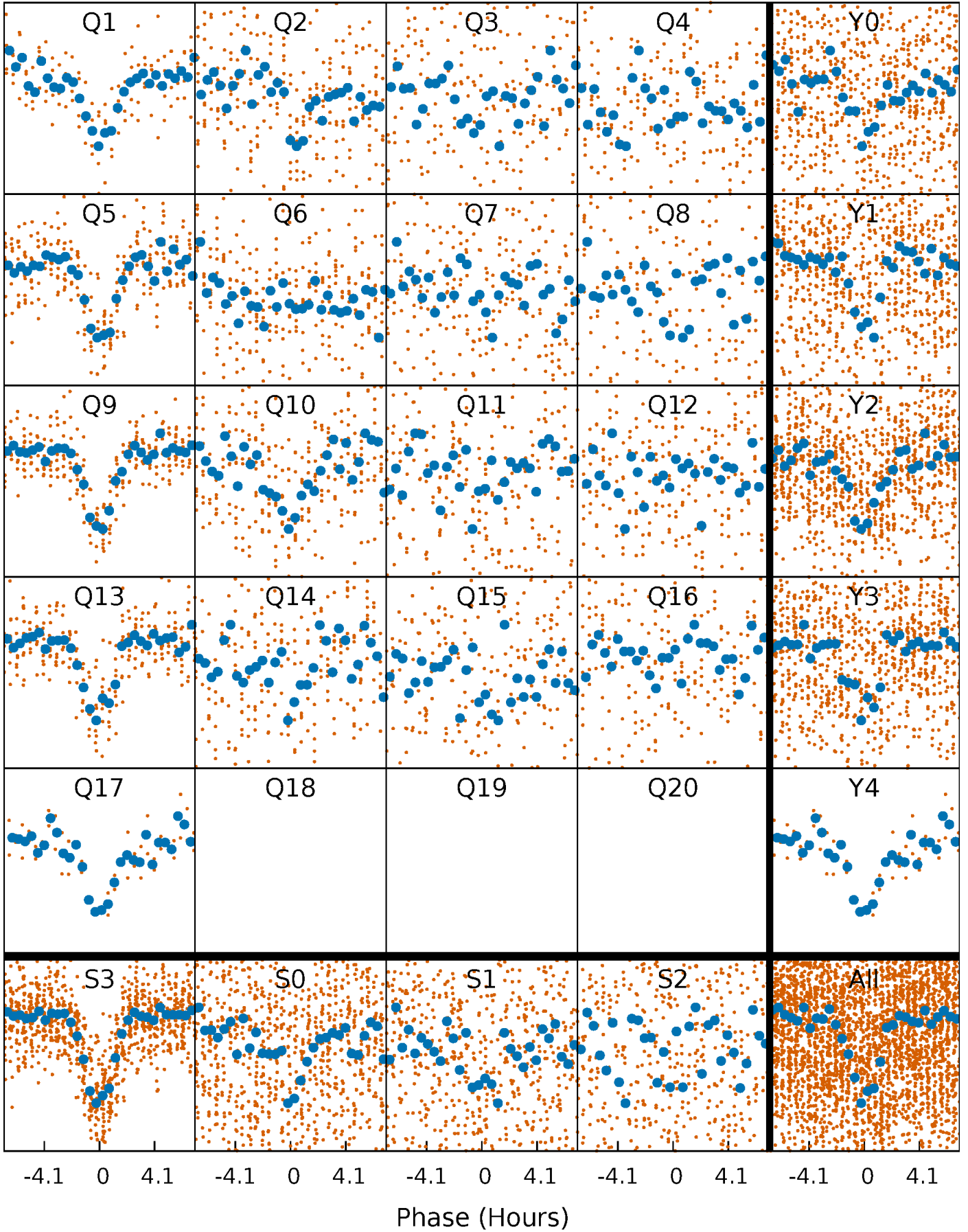


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



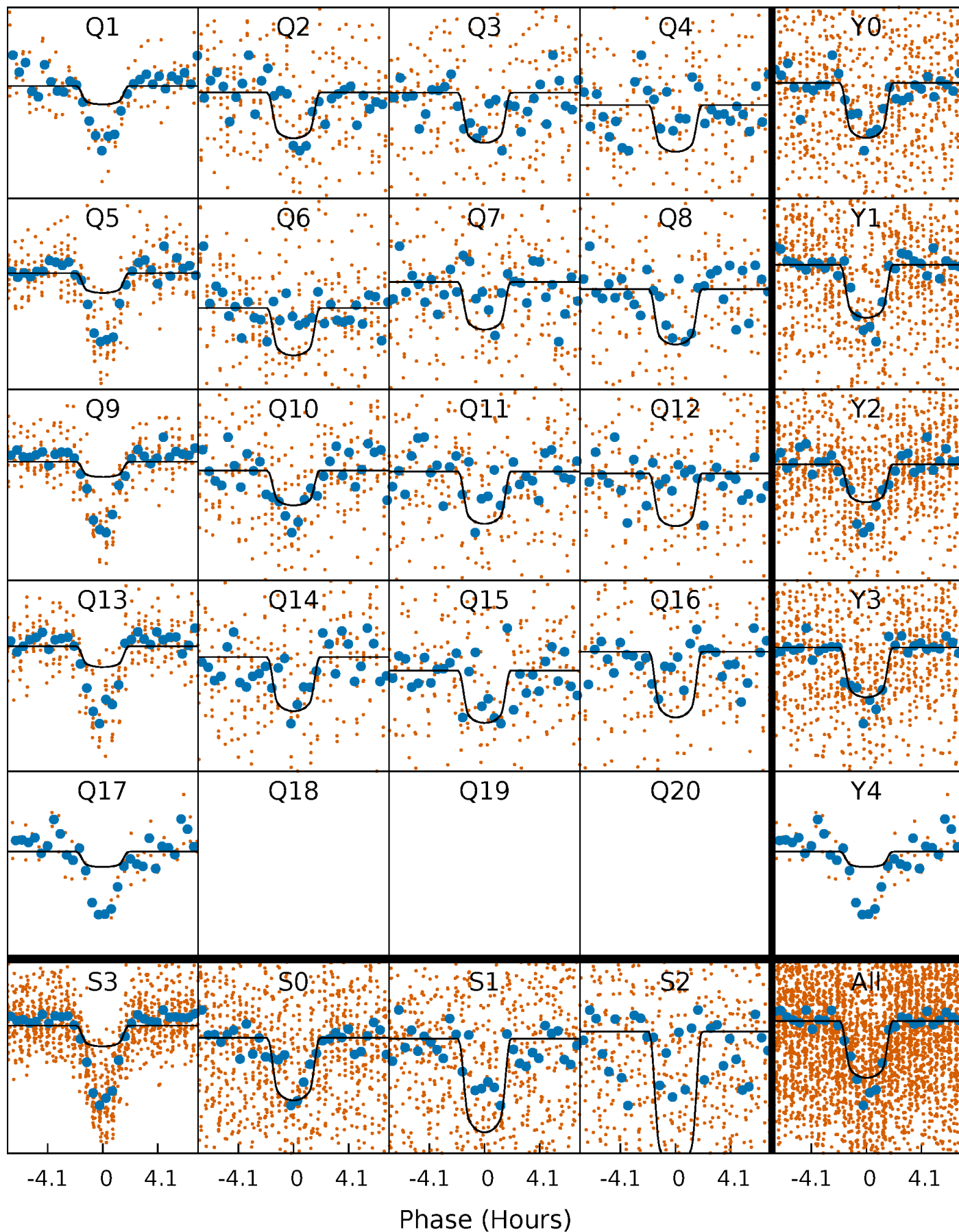
PDC Quarter-Phased Transit Curves

TCE 005738496-02 P= 9.501683 Days $T_0=131.964244$ (BKJD)



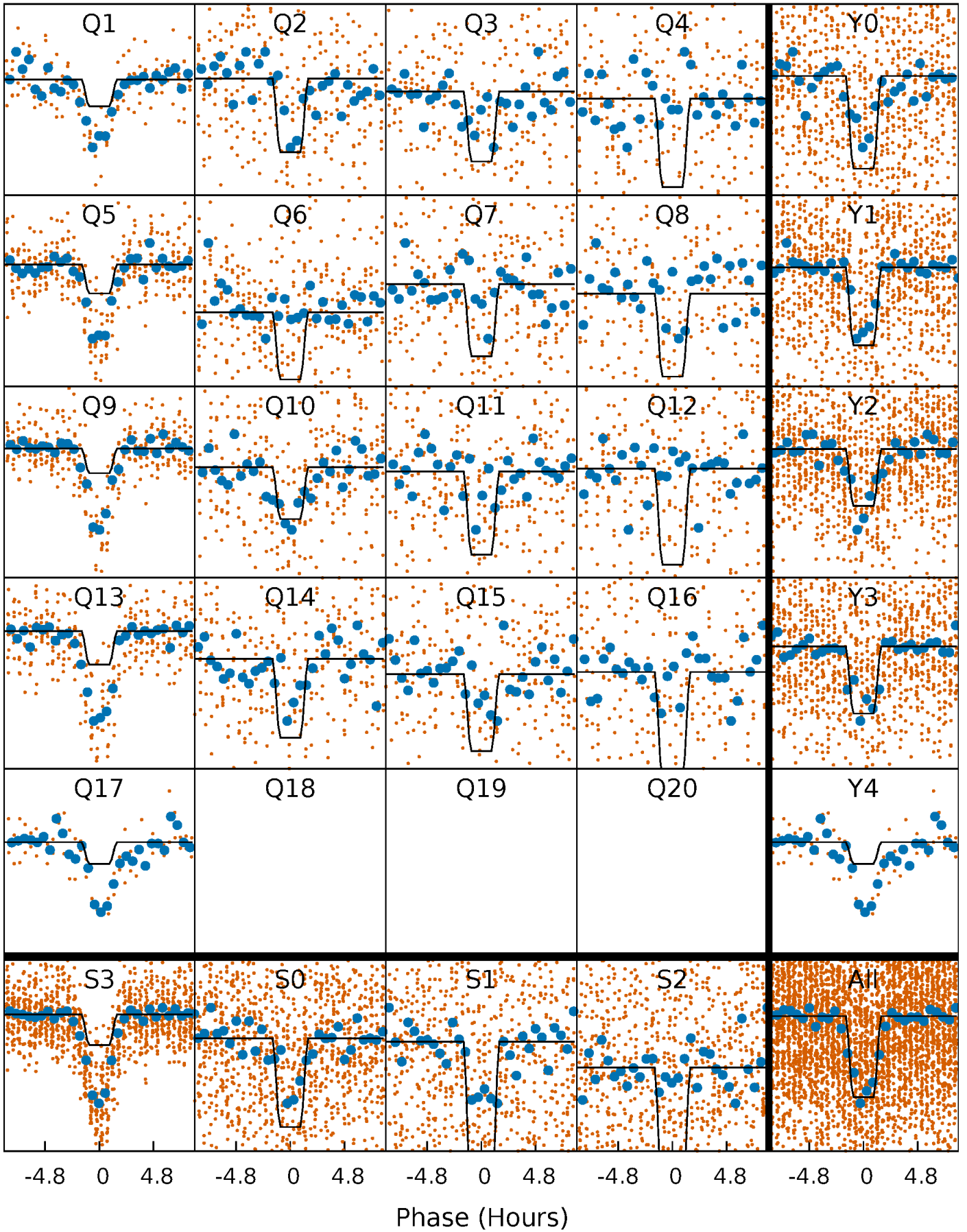
DV Quarter-Phased Transit Curves

TCE 005738496-02 P= 9.501683 Days $T_0=131.964244$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

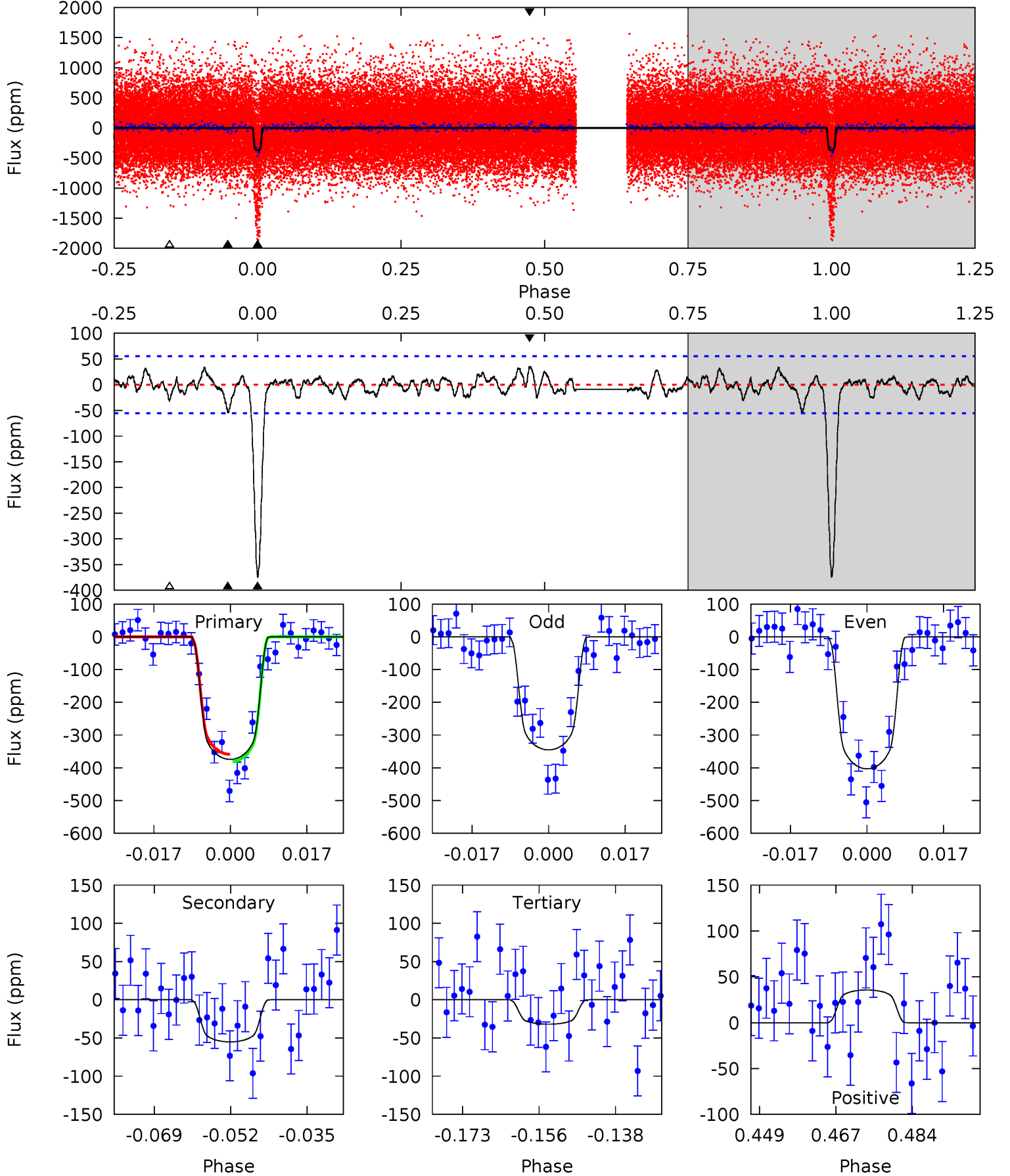
TCE 005738496-02 P= 9.501560 Days $T_0=131.975990$ (BKJD)



DV Model-Shift Uniqueness Test

005738496-02, P = 9.501683 Days, E = 122.462561 Days

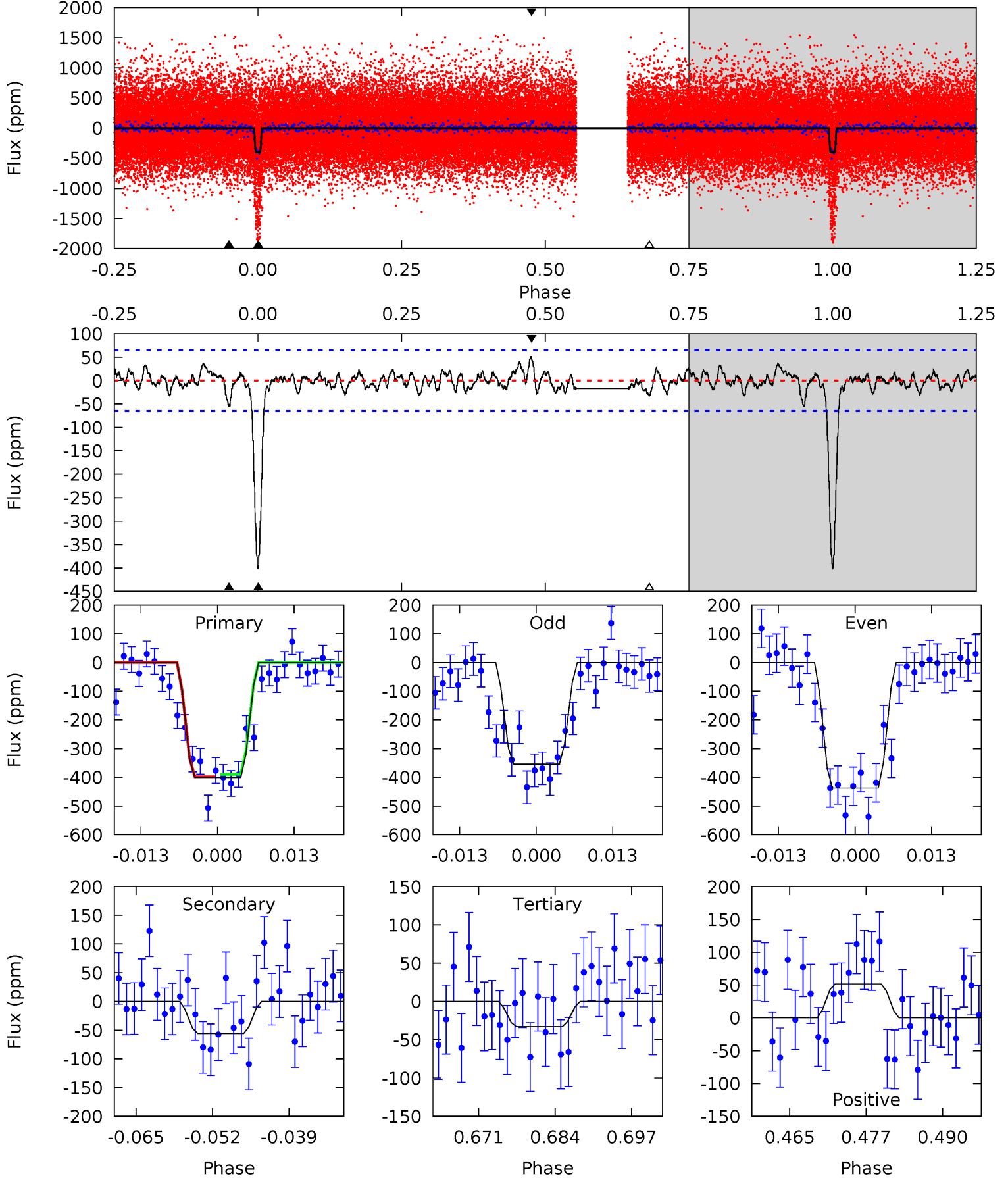
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.2	4.89	2.84	3.17	4.92	2.38	1.13	30.4	30.1	2.05	1.72	2.57	1.62	0.09	1.02



Alt Model-Shift Uniqueness Test

005738496-02, P = 9.501560 Days, E = 122.474430 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.7	4.26	2.52	3.96	4.98	2.49	1.12	28.2	26.7	1.74	0.30	3.19	1.82	0.11	0.33



Stellar Parameters For KIC 005738496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5938^{+159}_{-195}	$4.518^{+0.052}_{-0.208}$	$-0.160^{+0.300}_{-0.300}$	$0.908^{+0.273}_{-0.091}$	$0.992^{+0.116}_{-0.129}$	$1.864^{+0.382}_{-0.975}$
	+3%/-3%	+1%/-5%	+188%/-188%	+30%/-10%	+12%/-13%	+21%/-52%
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 005738496-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-55 ± 11	$2.08^{+0.38}_{-0.33}$	1205^{+86}_{-59}	3933^{+297}_{-221}	51^{+27}_{-16}
Alt.	-56 ± 13	$2.22^{+0.41}_{-0.35}$	1201^{+80}_{-54}	3834^{+267}_{-235}	45^{+22}_{-15}

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 $A_{obs} \gg 1.0$

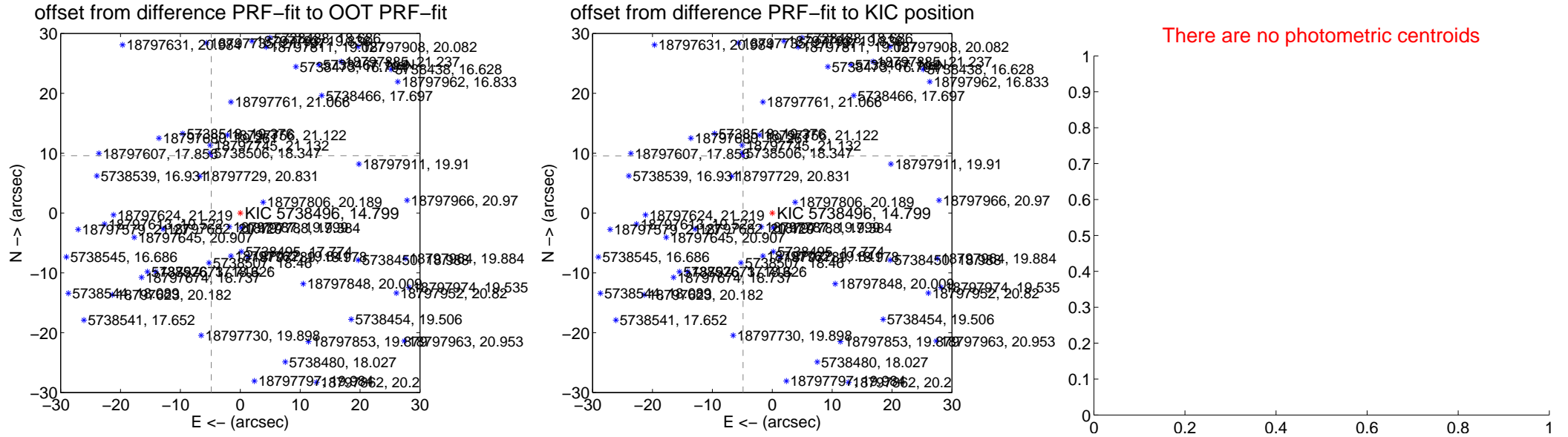
DV Centroid Data

Supplemental centroid analysis for 005738496-02. Kepler magnitude: 14.80. Transit SNR 20.35

There are 4 quarters with good PRF difference image offsets

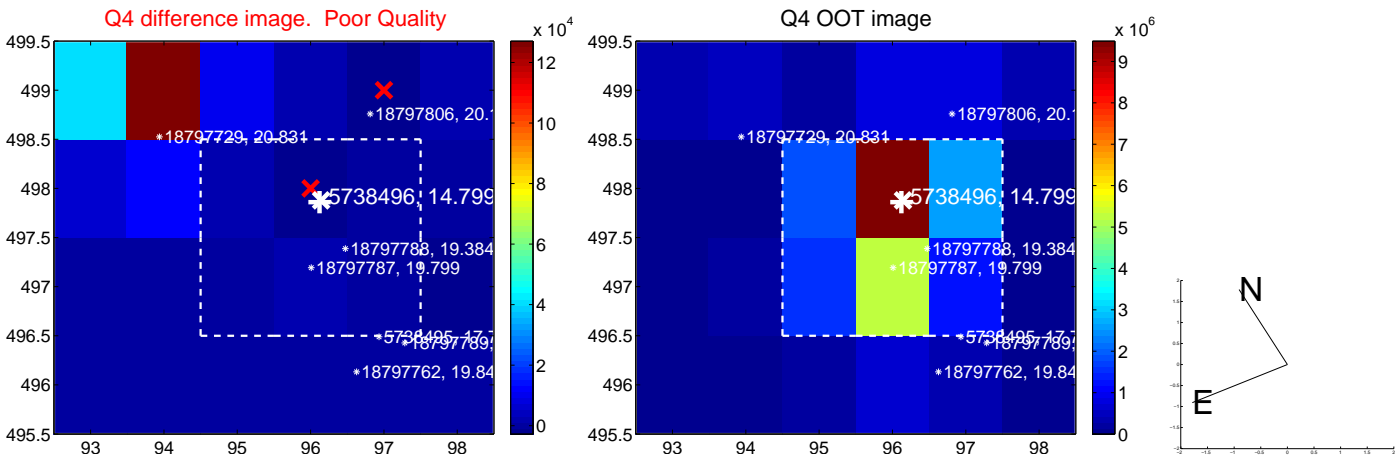
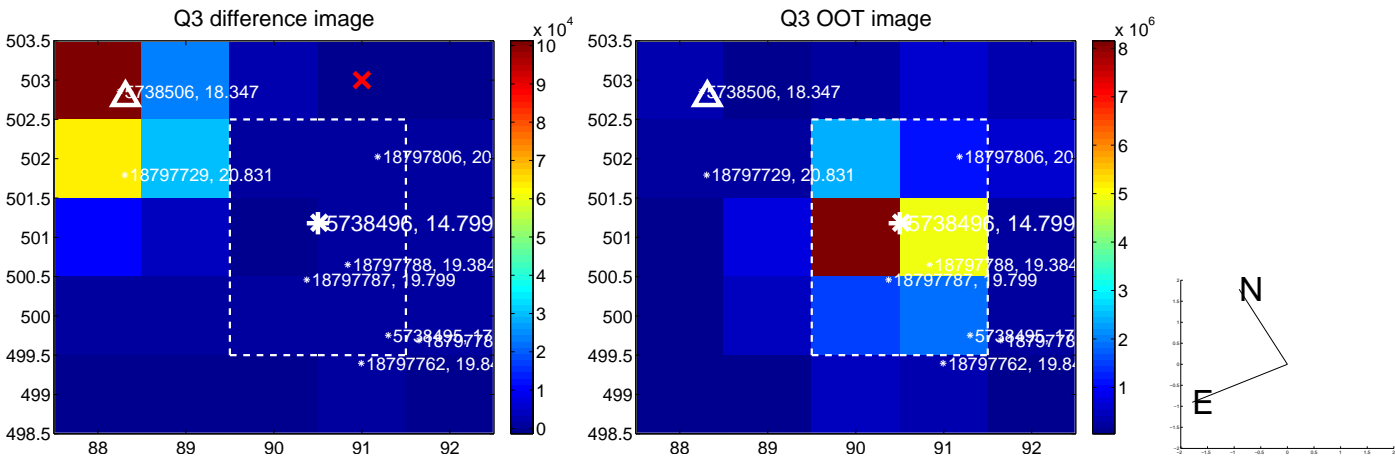
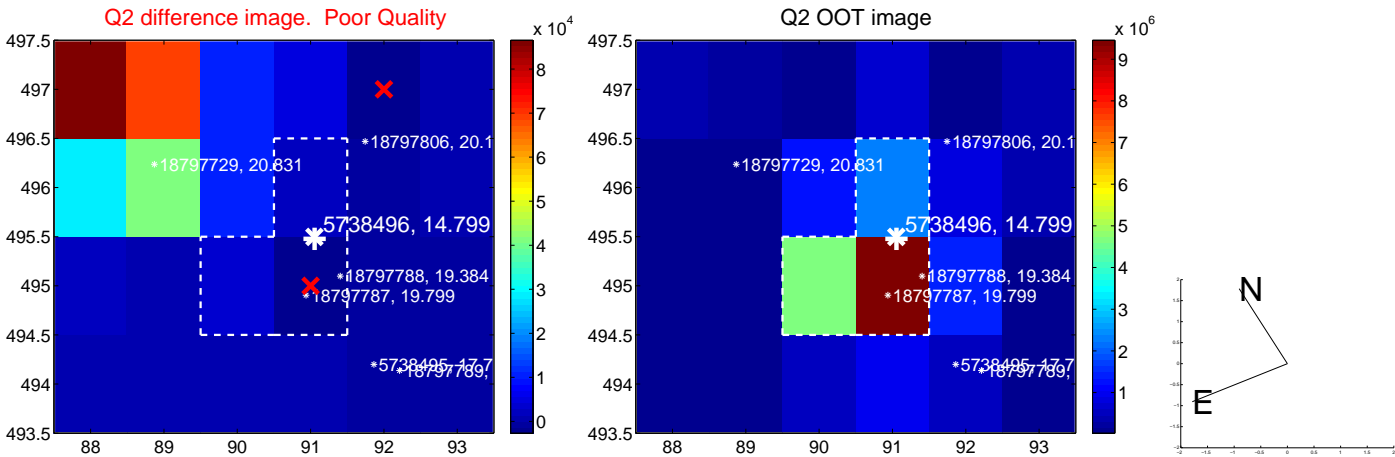
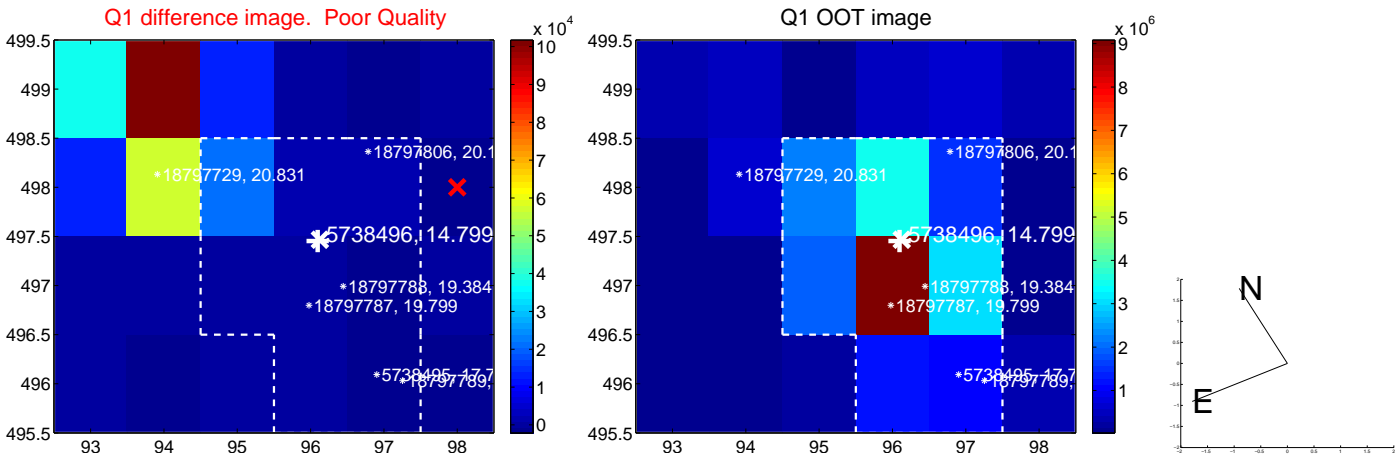
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	10.735 \pm 0.072	150.09	4.846 \pm 0.068	9.580 \pm 0.070
PRF-fit source offset from KIC position	10.725 \pm 0.072	148.61	4.875 \pm 0.074	9.553 \pm 0.072
photometric centroid source offset	—	—	—	—

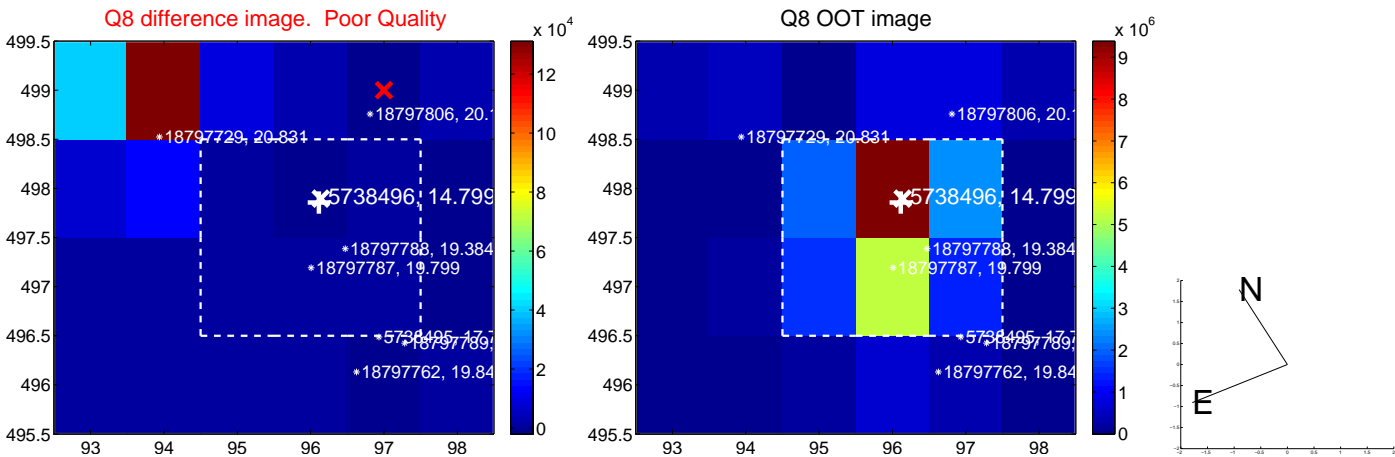
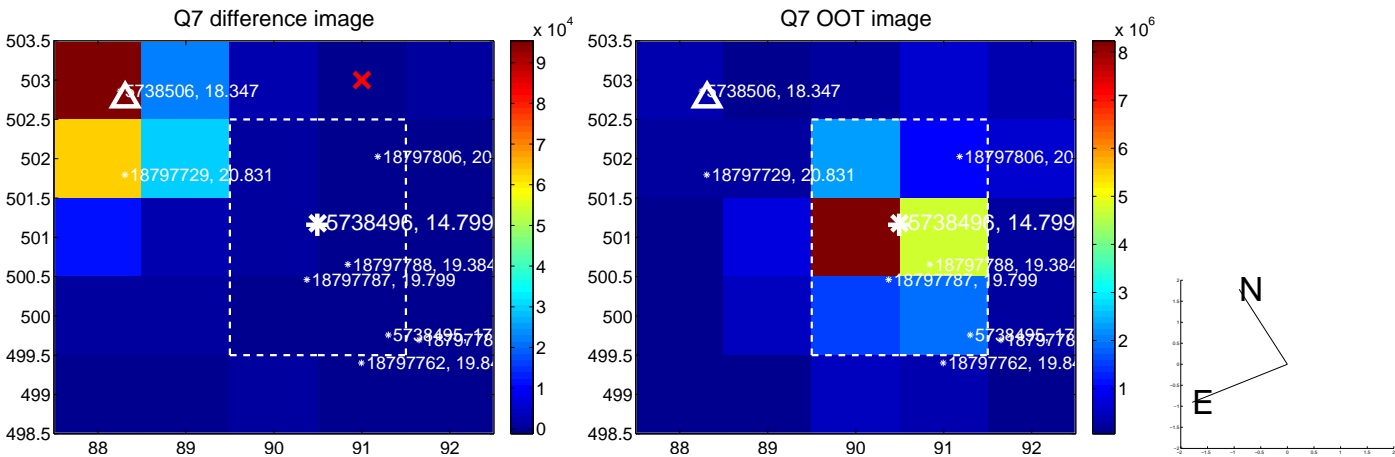
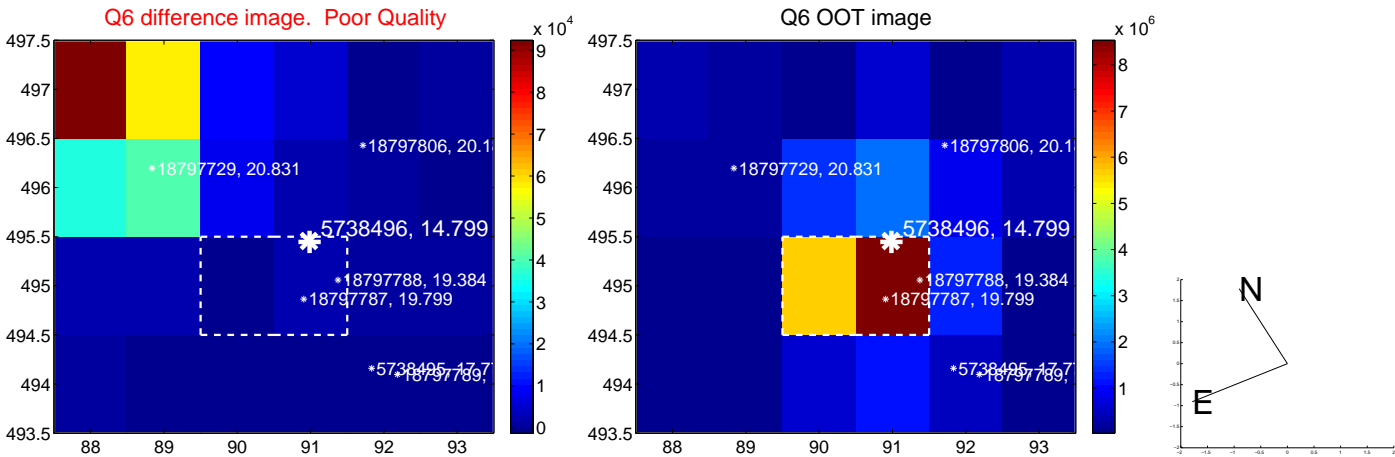
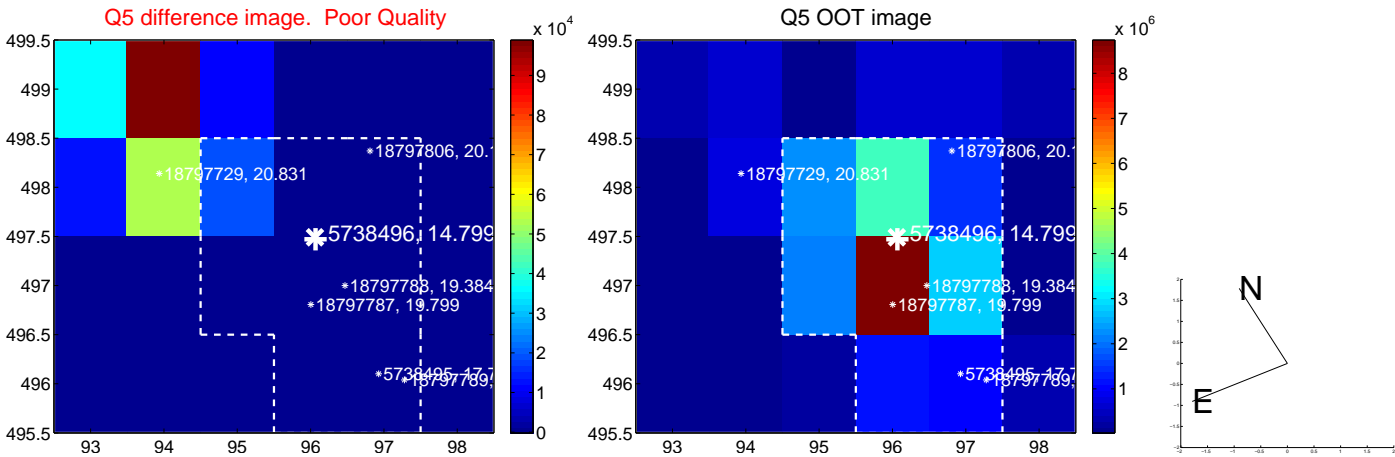


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

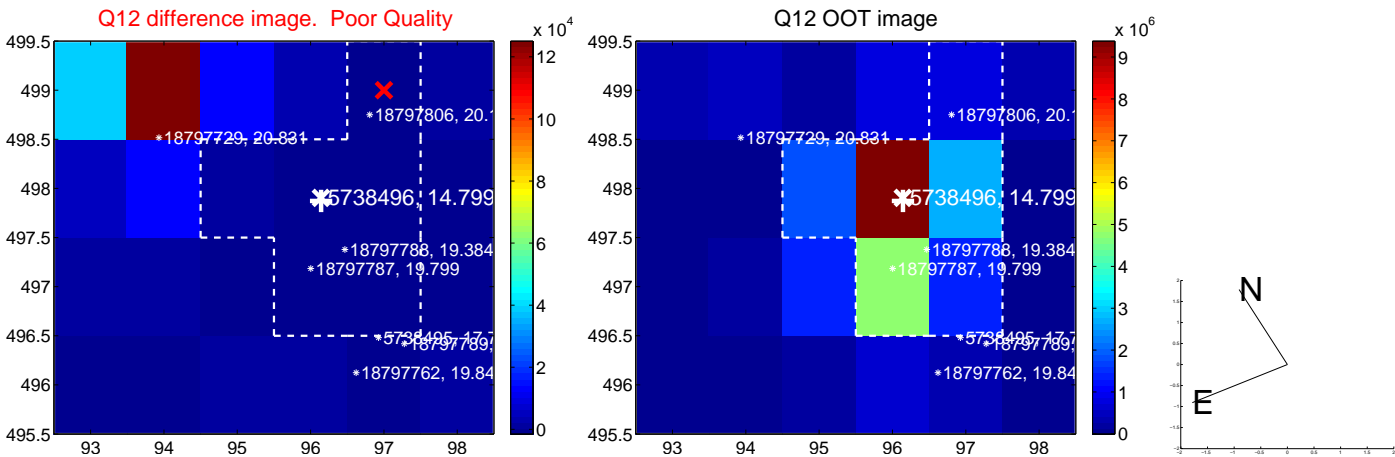
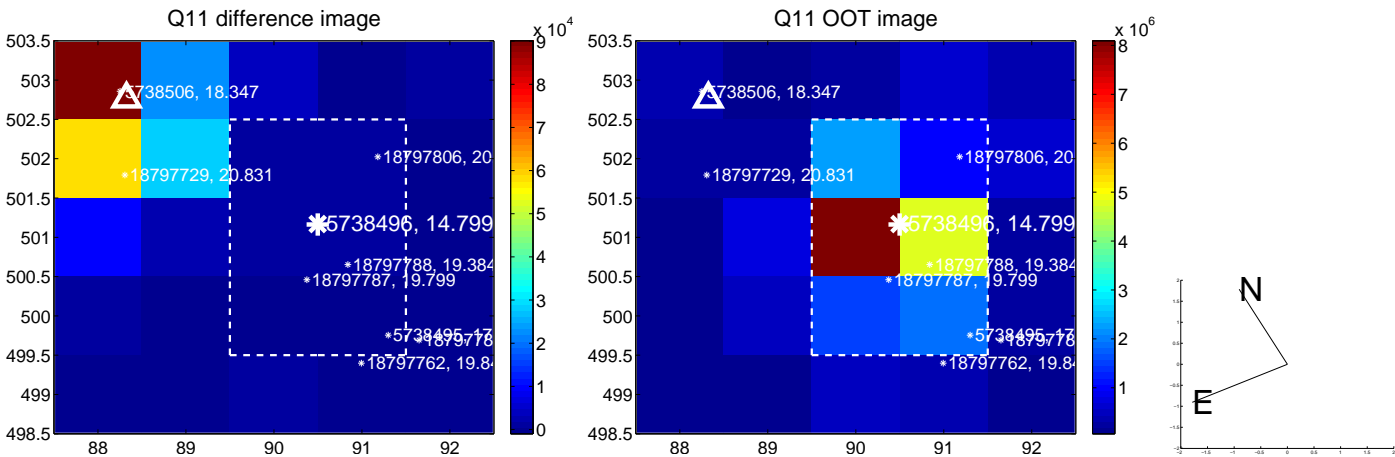
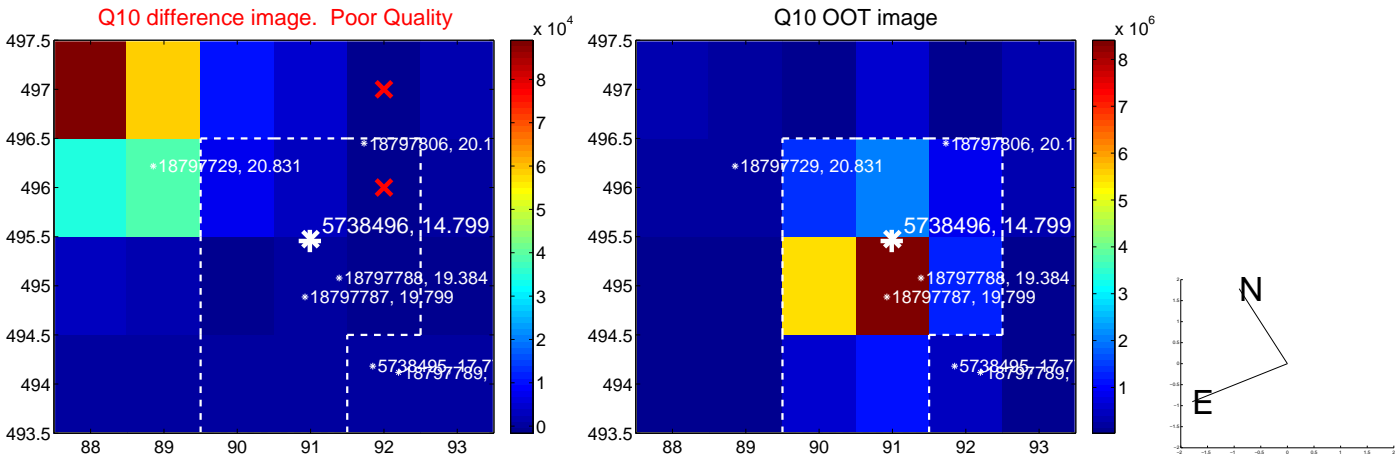
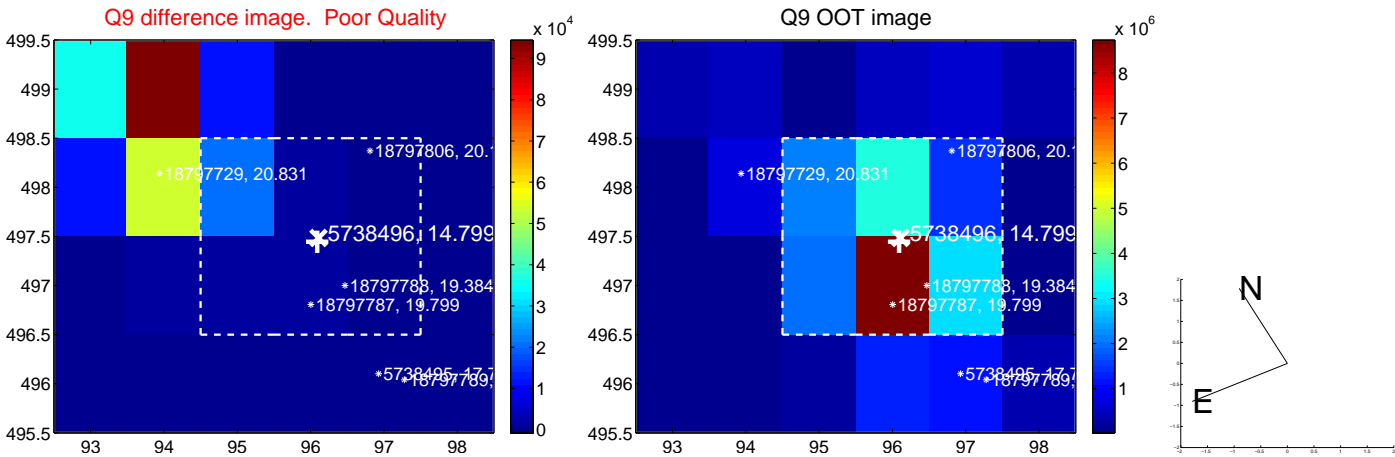
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



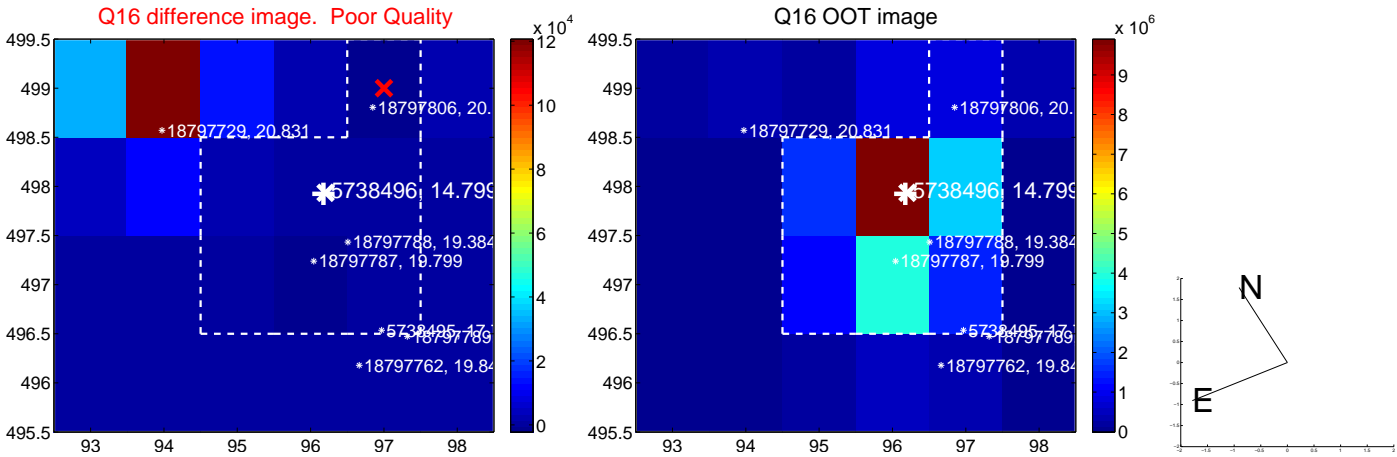
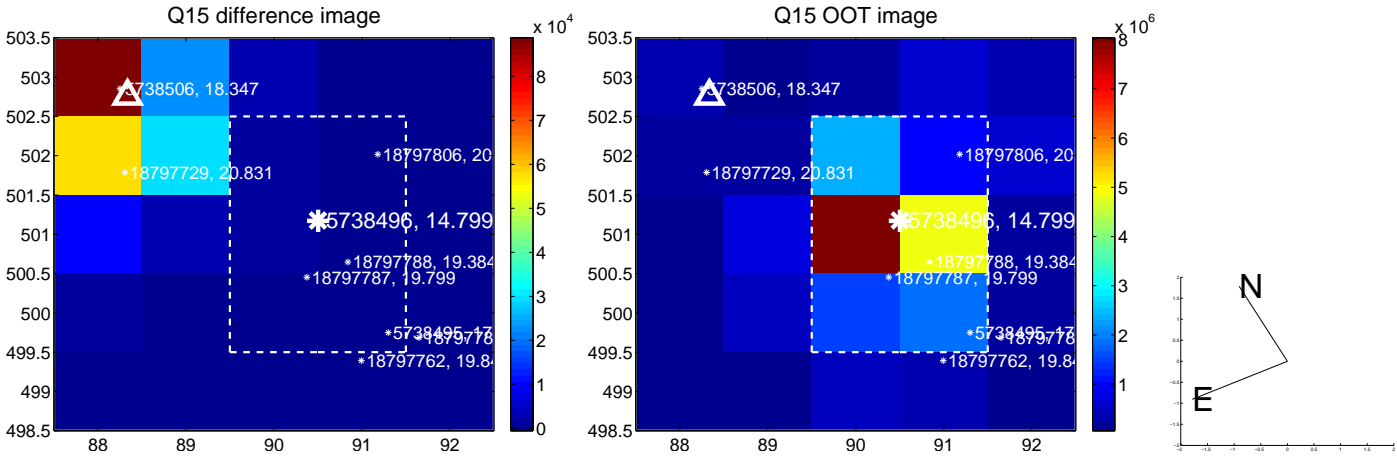
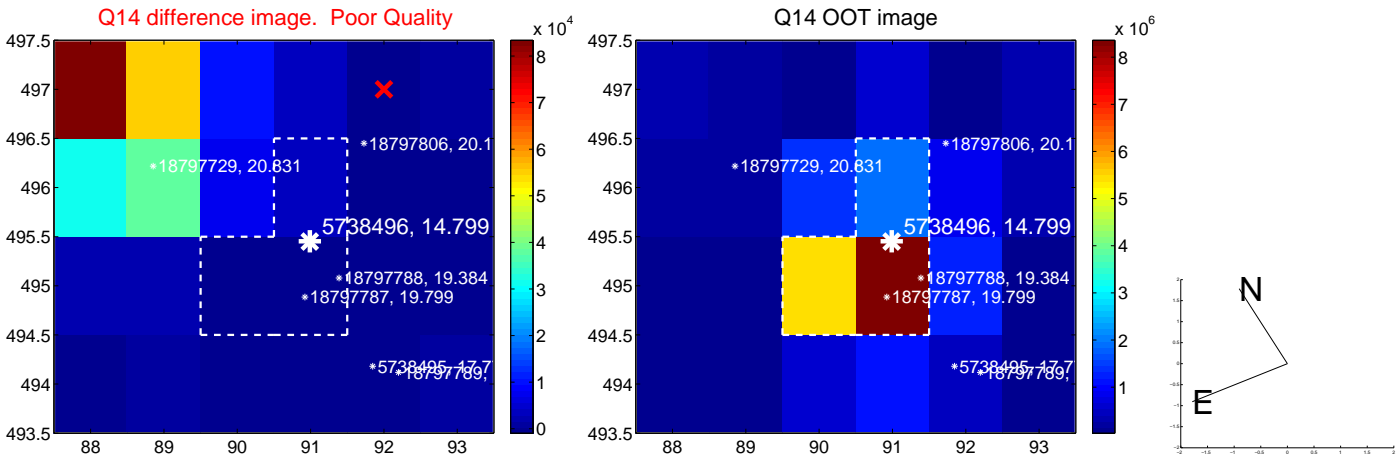
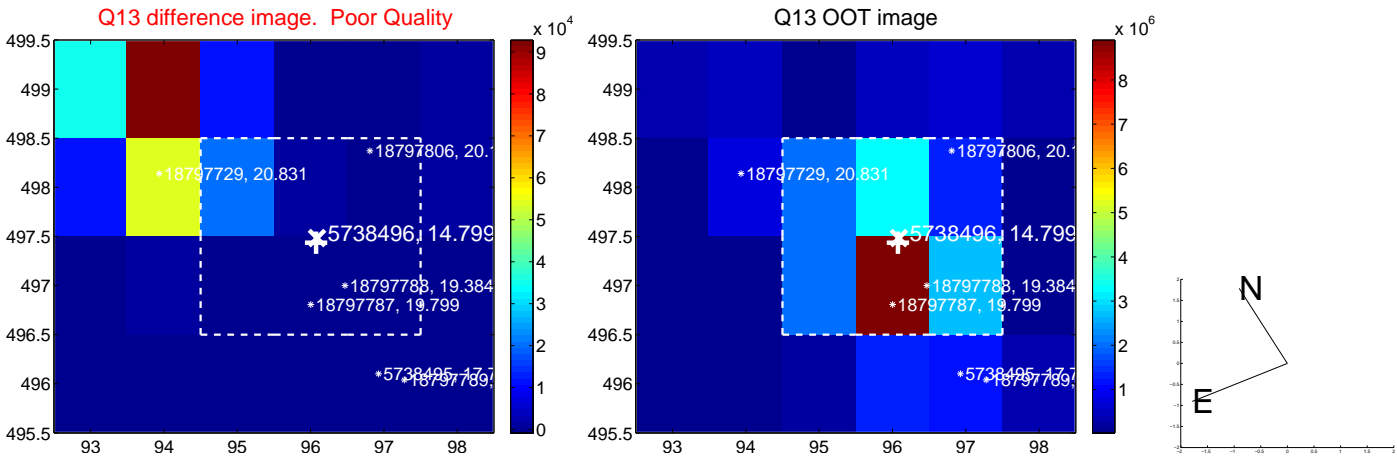
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



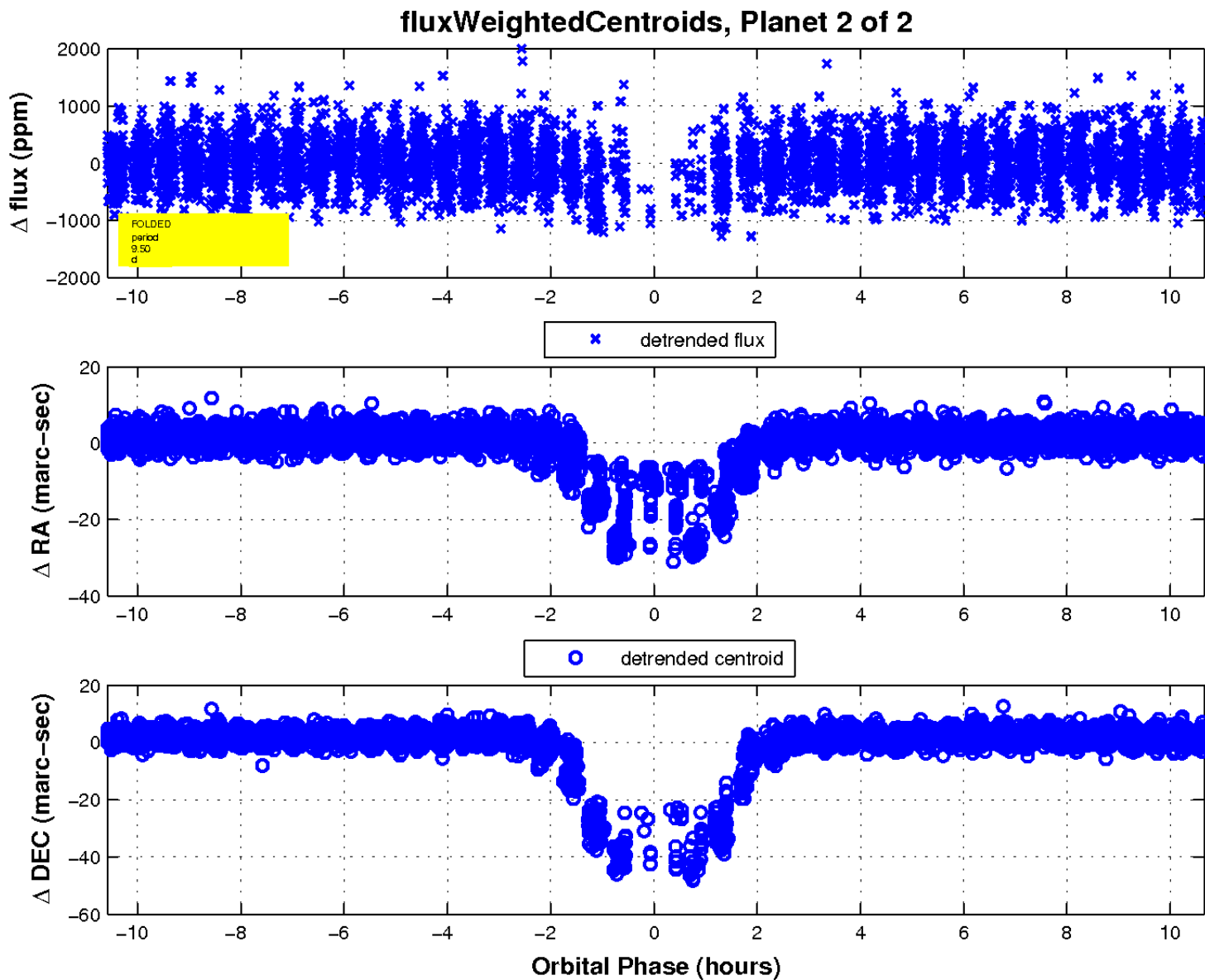
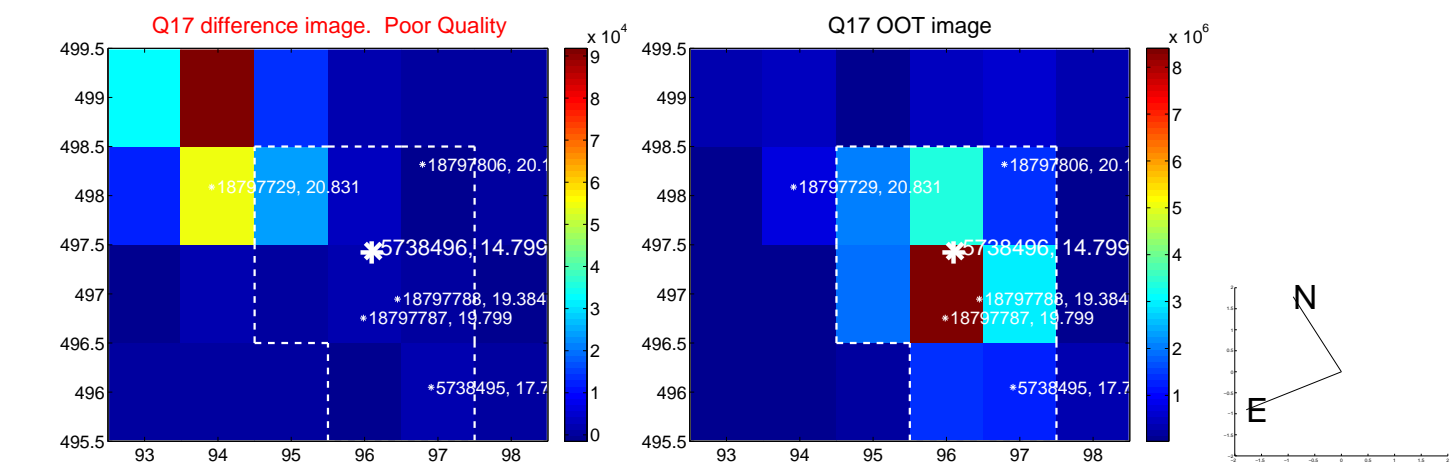
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

