

KIC 005475736

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})
005475736-01	OBS	3798.01	2.991832	134.188933	388.2	6.056	175.9	63.4	0.84	5750	2.00	506.79
005475736-02	OBS	No	2.991810	132.699460	162.6	5.395	52.8	31.4	0.84	5750	1.27	506.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005475736-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005475736-02	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.

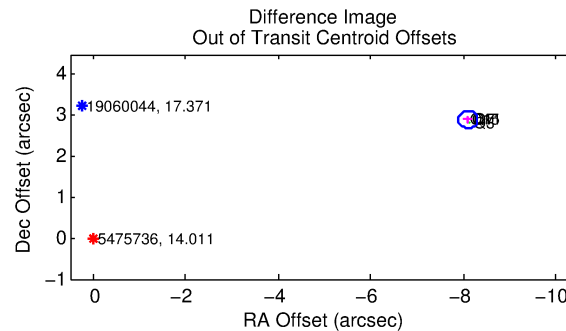
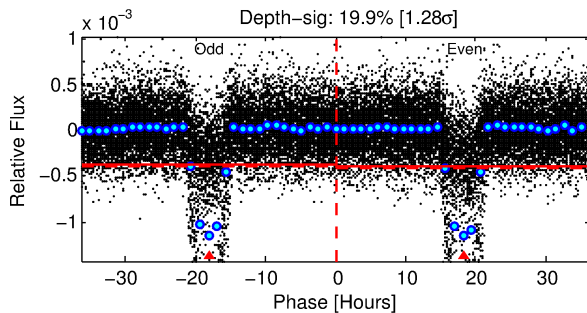
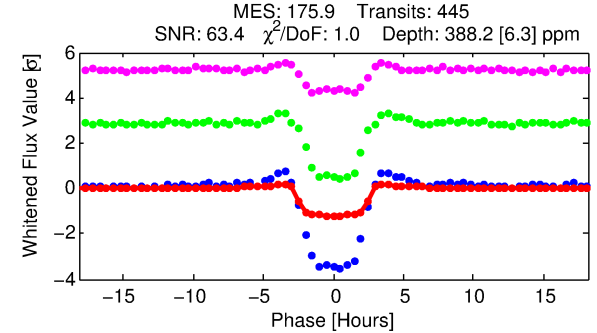
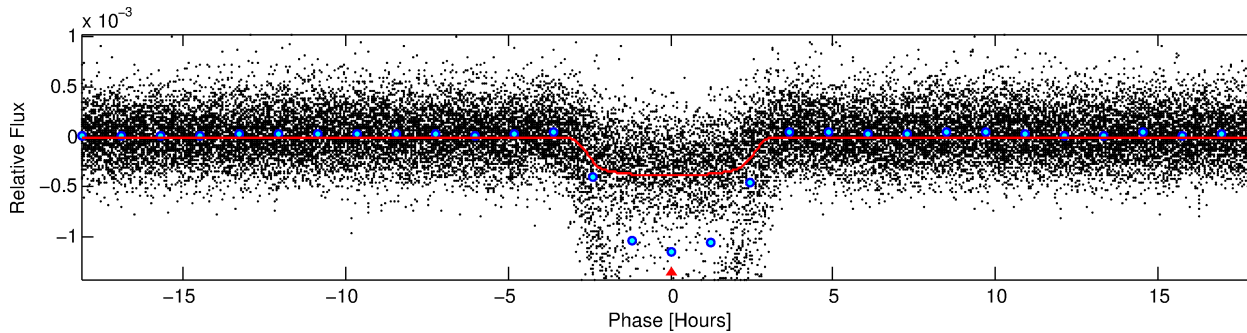
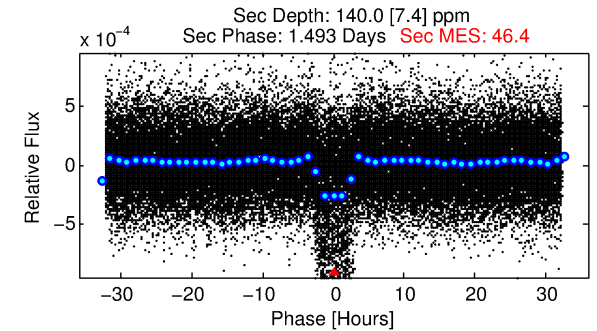
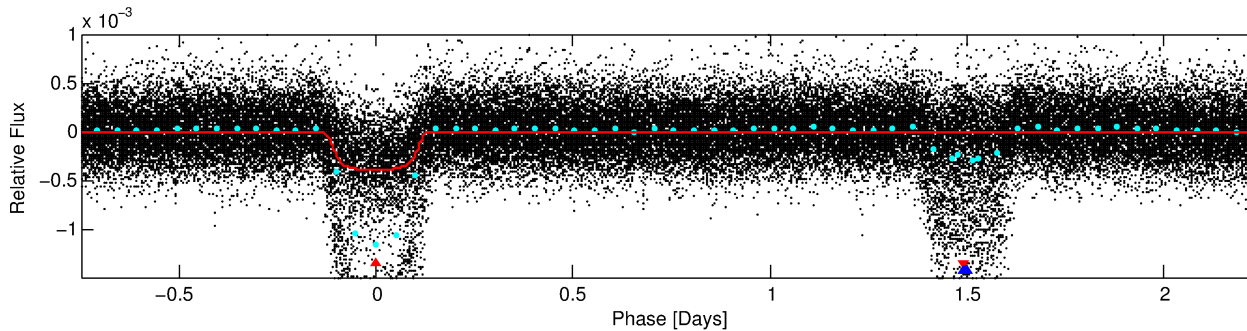
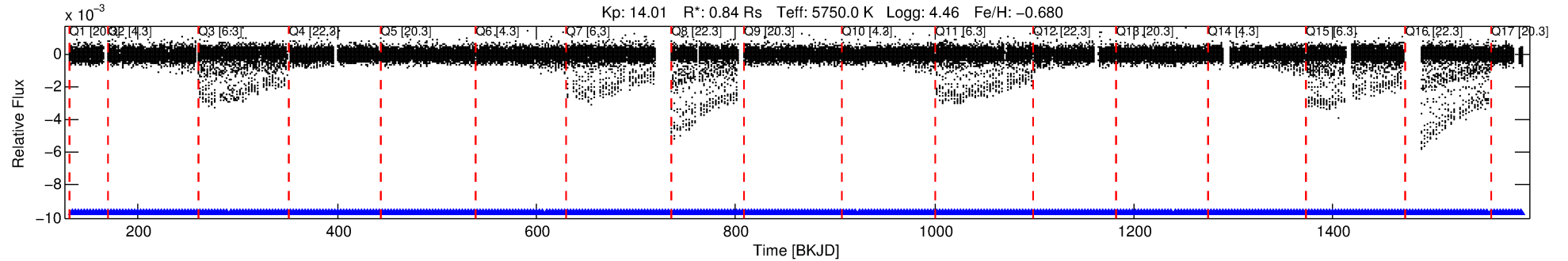
Ephemeris Match Information For 005475736-01

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
005475736-01	5475736	6588.01	5475712	1:1	12.6	-2	-2	13.28	14.01	365.10	Direct-PRF	0	1.06	0.64

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: 5475736 Candidate: 1 of 2 Period: 2.992 d
KOI: K03798.01 Corr: 0.926



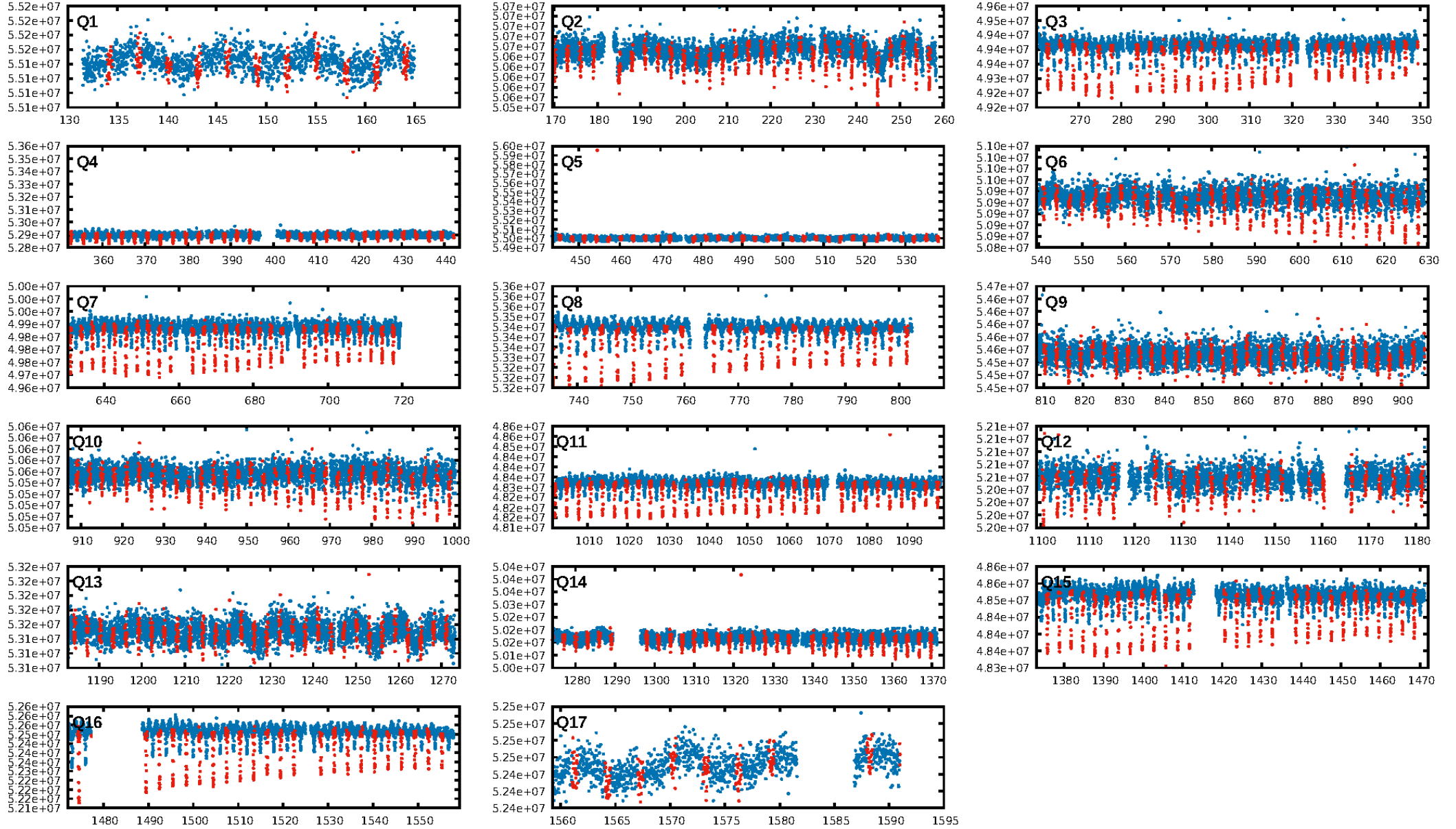
DV Fit Results:

Period = 2.99183 [0.00001] d
Epoch = 134.1889 [0.0012] BKJD
Rp/R* = 0.0219 [0.0004]
a/R* = 1.88 [0.10]
b = 0.93 [0.01]
Seff = 506.79 [153.17]
Teff = 1210 [91] K
Rp = 2.00 [0.44] Re
a = 0.0369 [0.0069] AU
Ag = 26.07 [7.42] [3.38σ]
Teffp = 4227 [143] K [17.81σ]

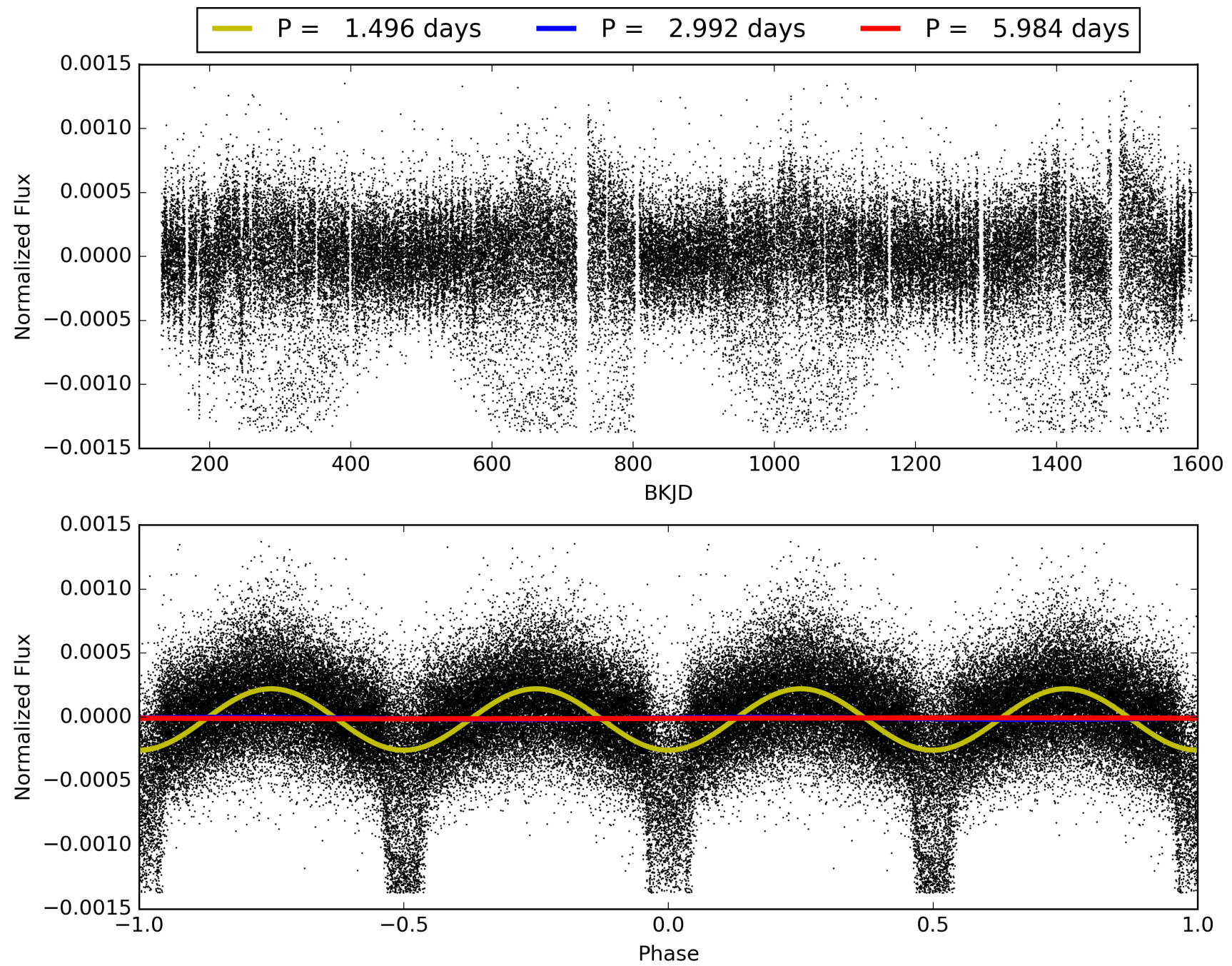
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [426/426]
GhostDiagnostic-chr: -0.7187
Centroid-sig: N/A
Centroid-so: 135.777 arcsec [450.83σ]
OotOffset-rm: 8.604 arcsec [123.31σ]
KicOffset-rm: 8.810 arcsec [130.48σ]
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]

TCE 005475736-01, PDC Light Curves

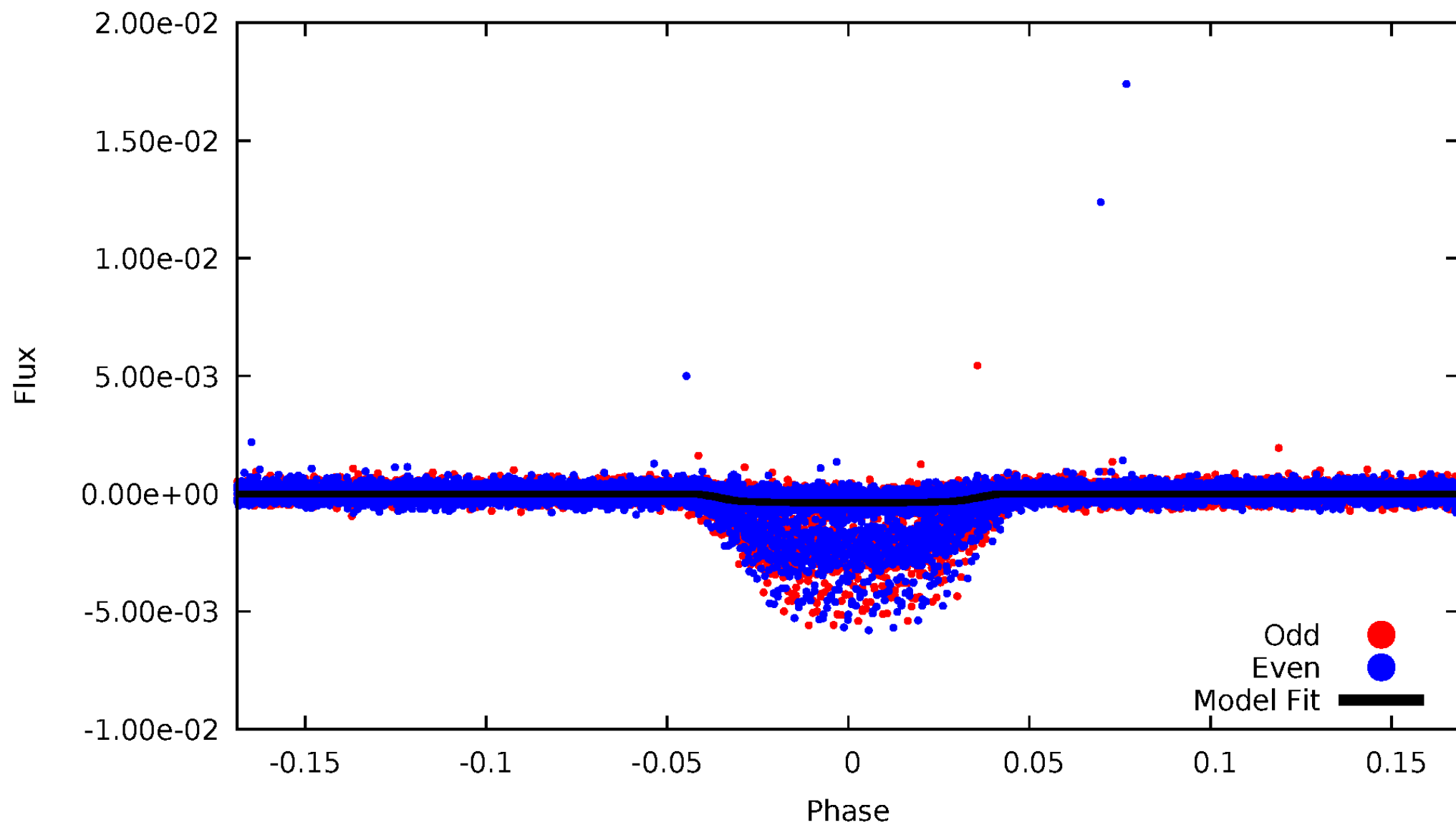


TCE 005475736-01



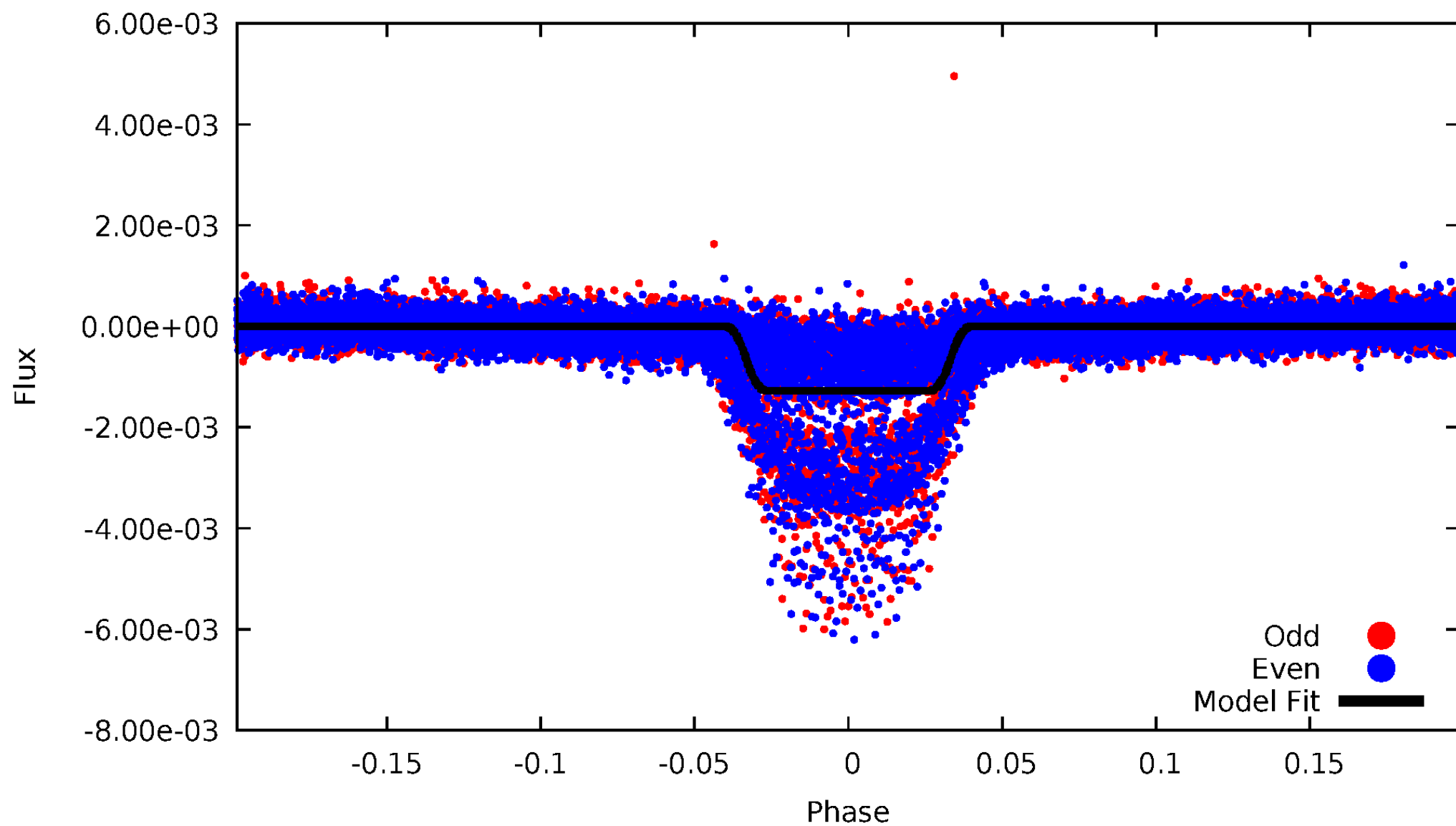
DV Odd/Even

TCE 005475736-01



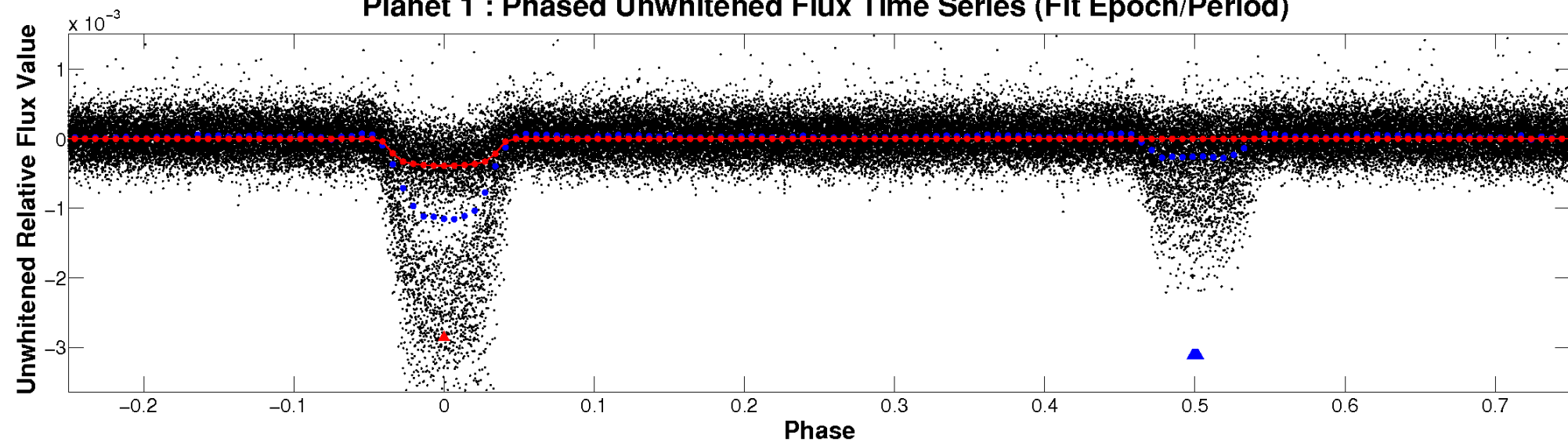
ALT Odd/Even

TCE 005475736-01

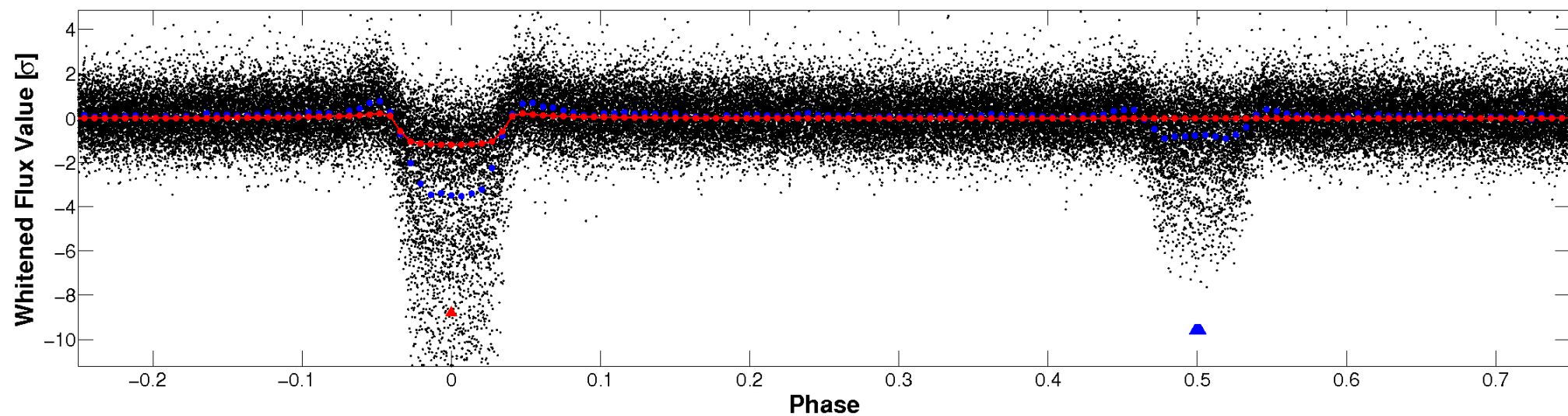


Non-Whitened Vs. Whitened Light Curve

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

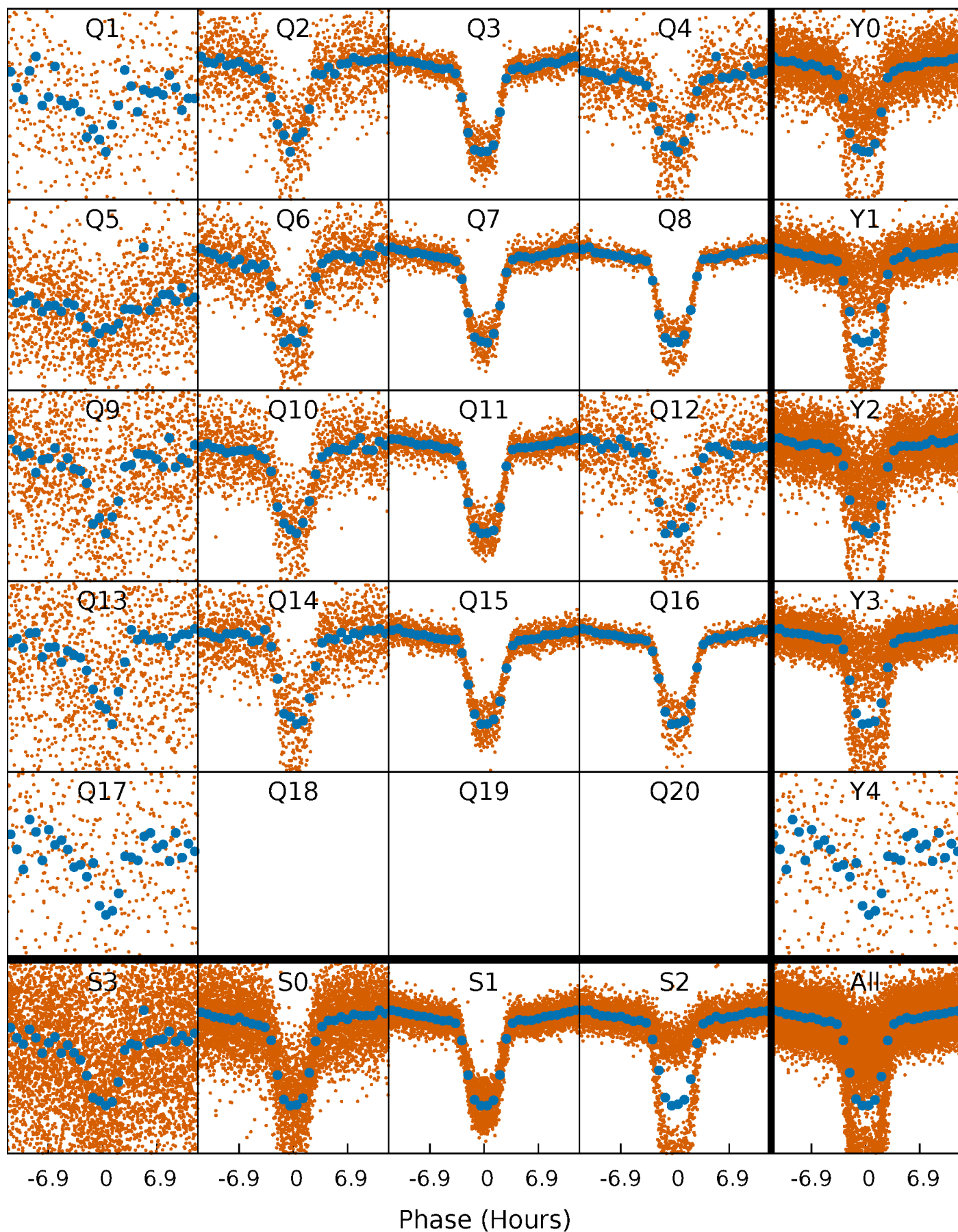


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



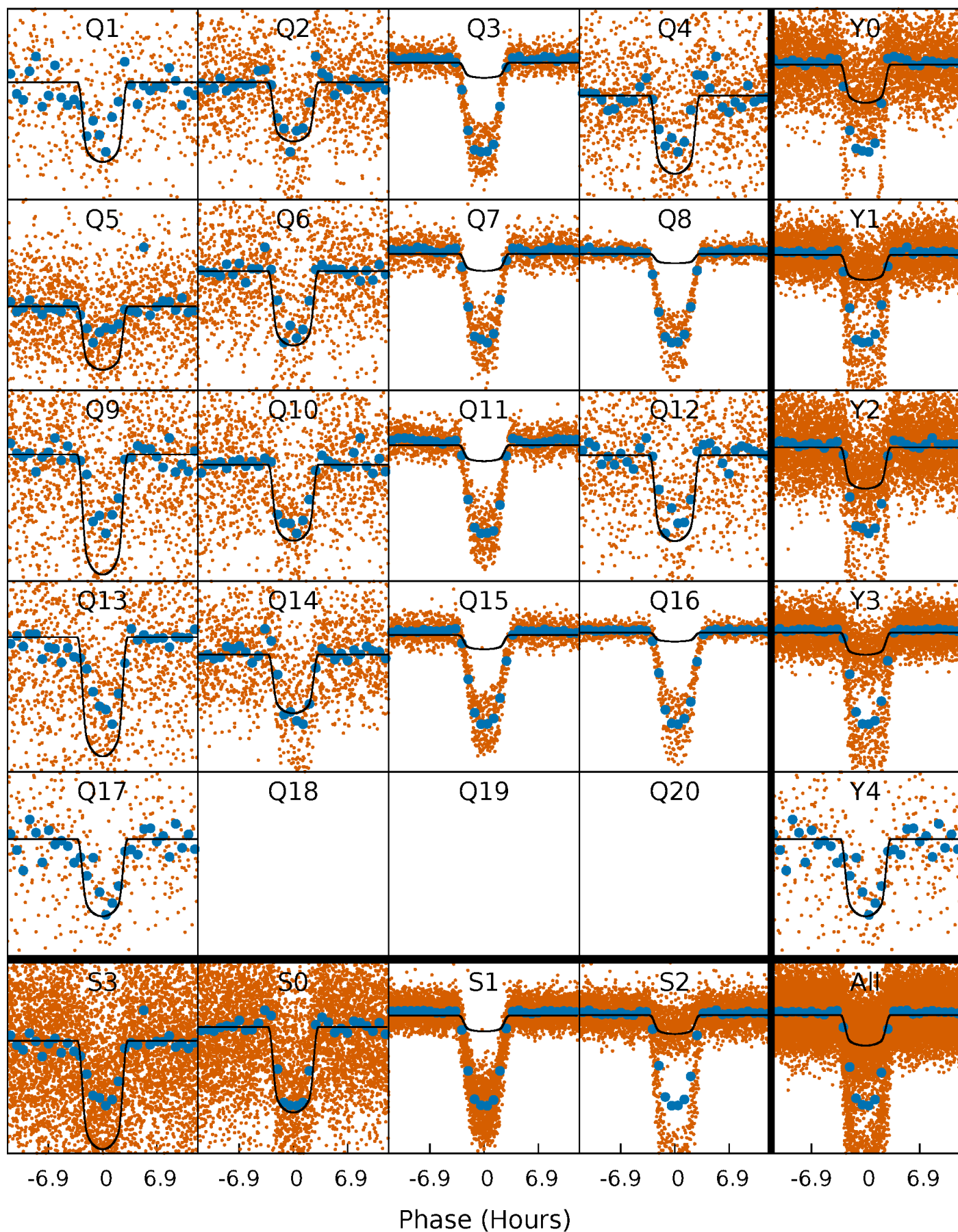
PDC Quarter-Phased Transit Curves

TCE 005475736-01 P= 2.991832 Days $T_0=134.188933$ (BKJD)



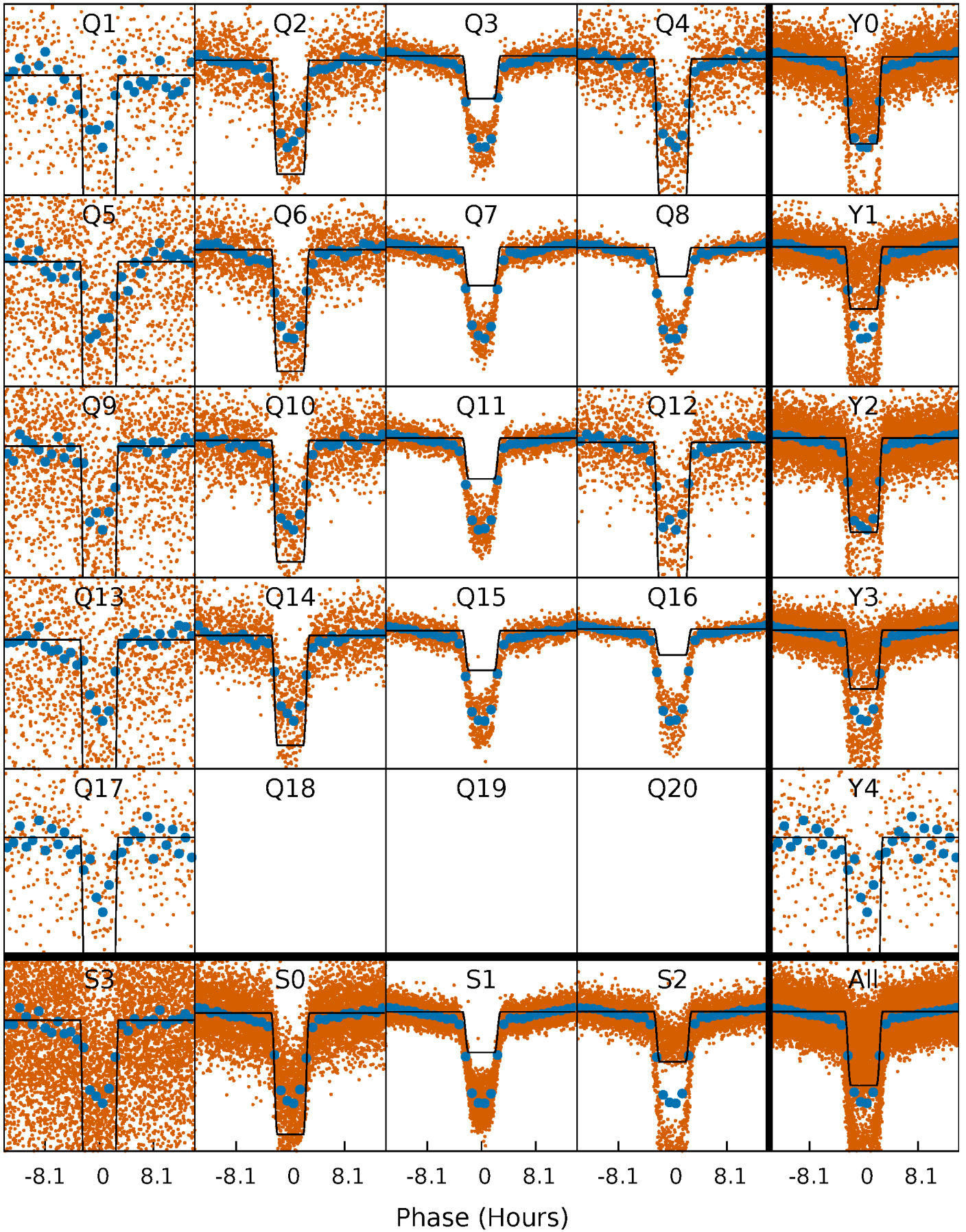
DV Quarter-Phased Transit Curves

TCE 005475736-01 P= 2.991832 Days $T_0=134.188933$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

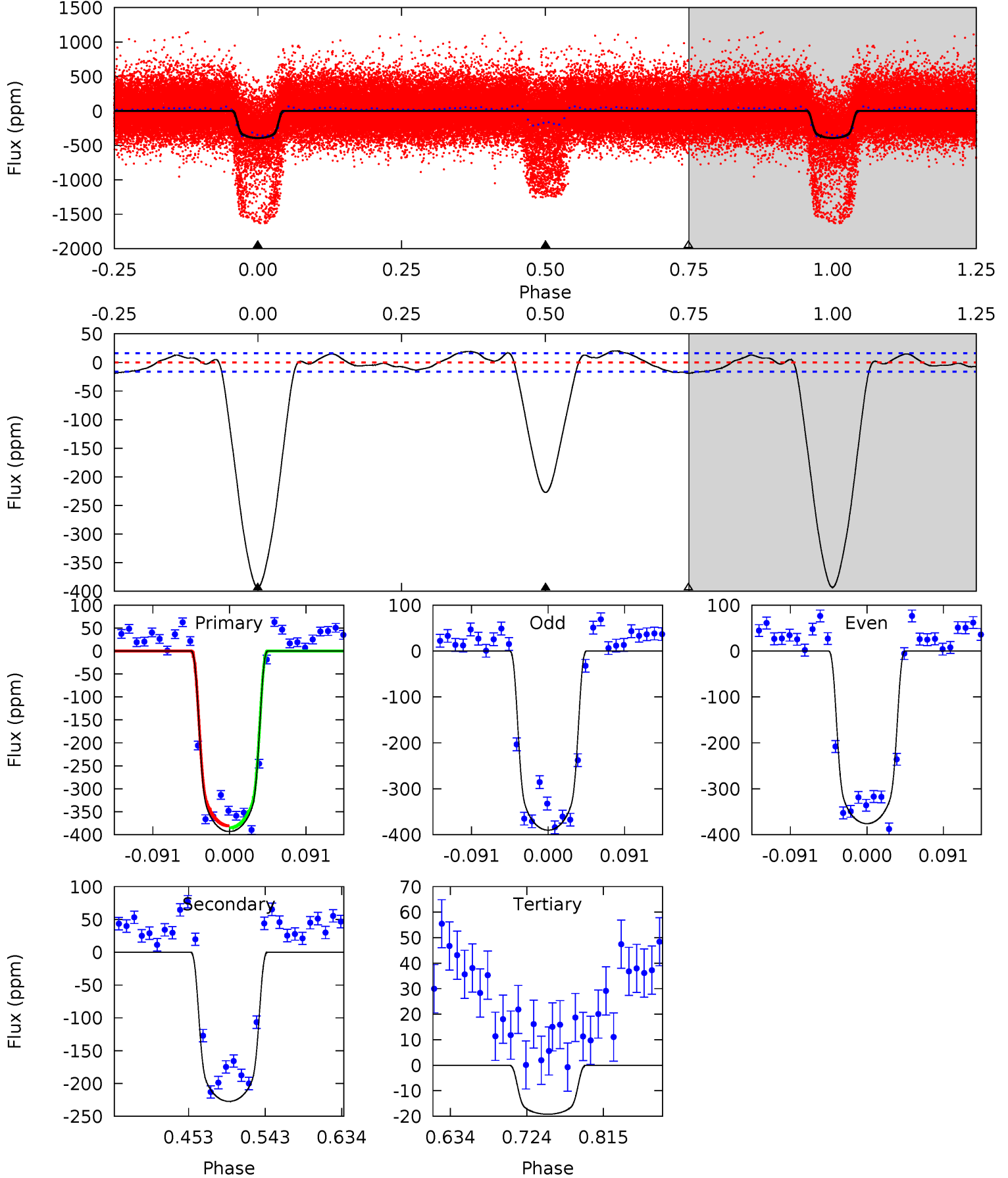
TCE 005475736-01 P= 2.991887 Days $T_0=134.175492$ (BKJD)



DV Model-Shift Uniqueness Test

005475736-01, P = 2.991832 Days, E = 131.197101 Days

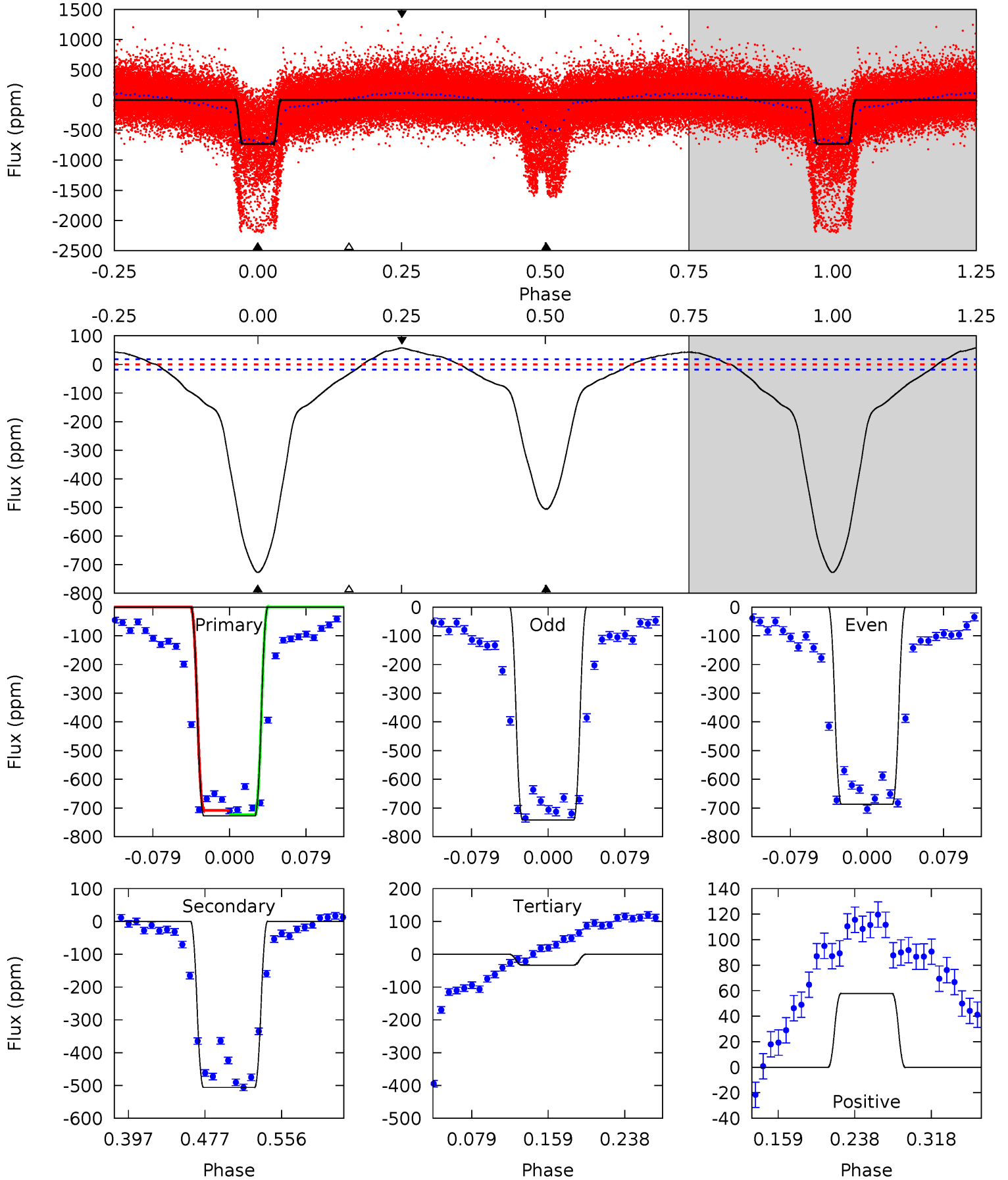
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
111.2	64.3	5.42	0	4.59	1.69	3.20	105.8	111.2	58.8	64.3	2.00	2.63	0.05	0.58



Alt Model-Shift Uniqueness Test

005475736-01, P = 2.991887 Days, E = 131.183605 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
182.8	127.2	8.36	14.5	4.61	1.75	13.7	174.4	168.2	118.8	112.6	6.82	1.59	0.07	0



Stellar Parameters For KIC 005475736

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5750^{+172}_{-155}	$4.464^{+0.140}_{-0.154}$	$-0.680^{+0.300}_{-0.300}$	$0.839^{+0.183}_{-0.122}$	$0.747^{+0.099}_{-0.043}$	$1.783^{+0.998}_{-0.747}$
	+3%/-3%	+3%/-3%	+44%/-44%	+22%/-15%	+13%/-6%	+56%/-42%
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 005475736-01 / KOI 3798.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-227 ± 4	$2.01^{+0.26}_{-0.19}$	1700^{+107}_{-101}	4873^{+137}_{-120}	42^{+9}_{-9}
Alt.	-506 ± 4	$3.28^{+0.40}_{-0.28}$	1693^{+101}_{-90}	4692^{+124}_{-107}	35^{+7}_{-7}

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

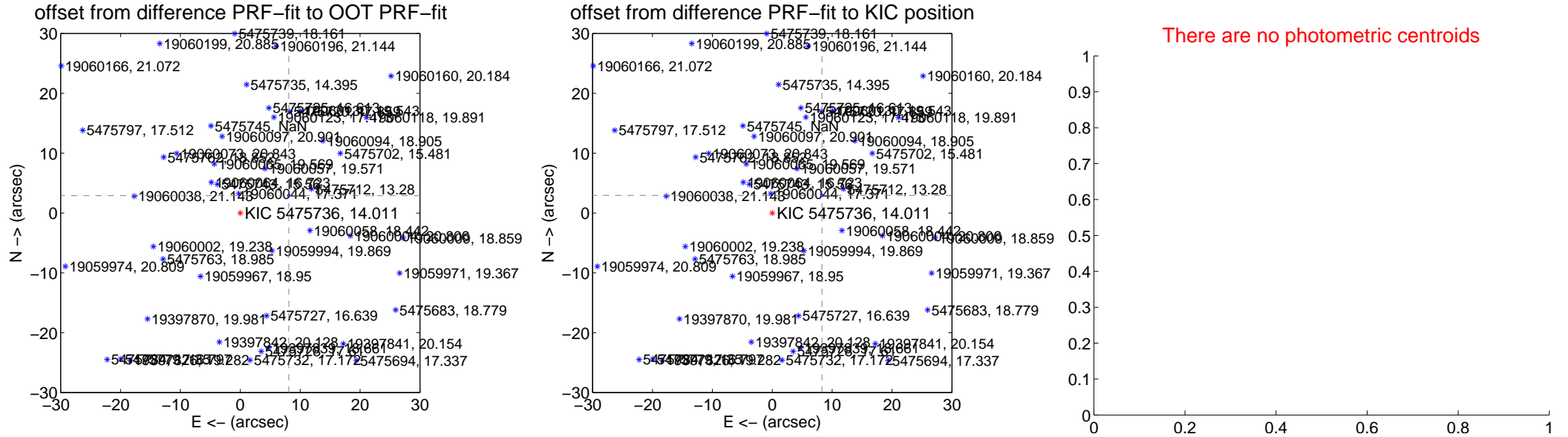
DV Centroid Data

Supplemental centroid analysis for 005475736-01. Kepler magnitude: 14.01. Transit SNR 63.39

There are 4 quarters with good PRF difference image offsets

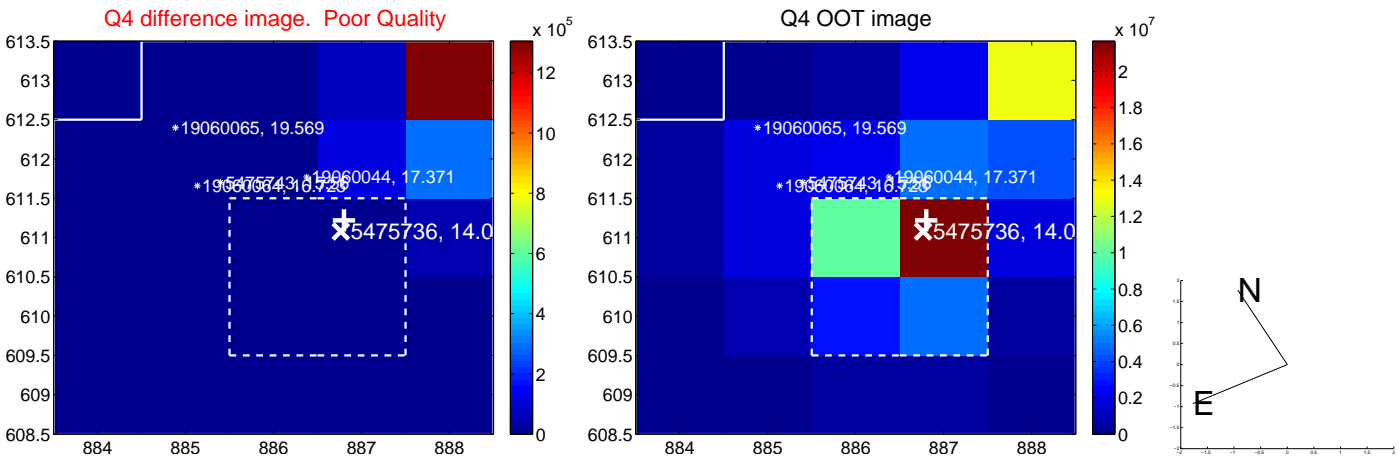
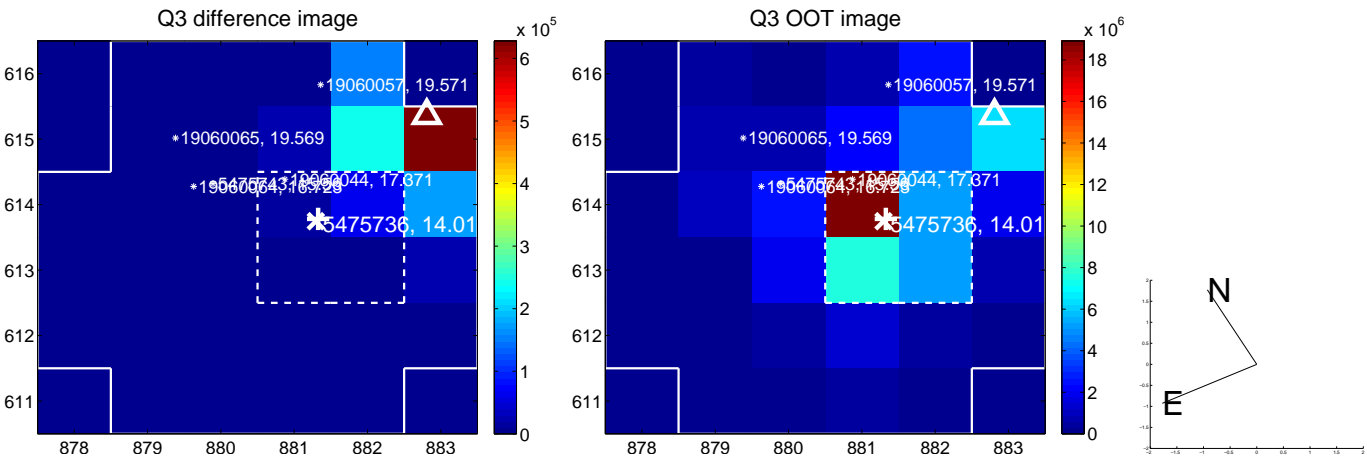
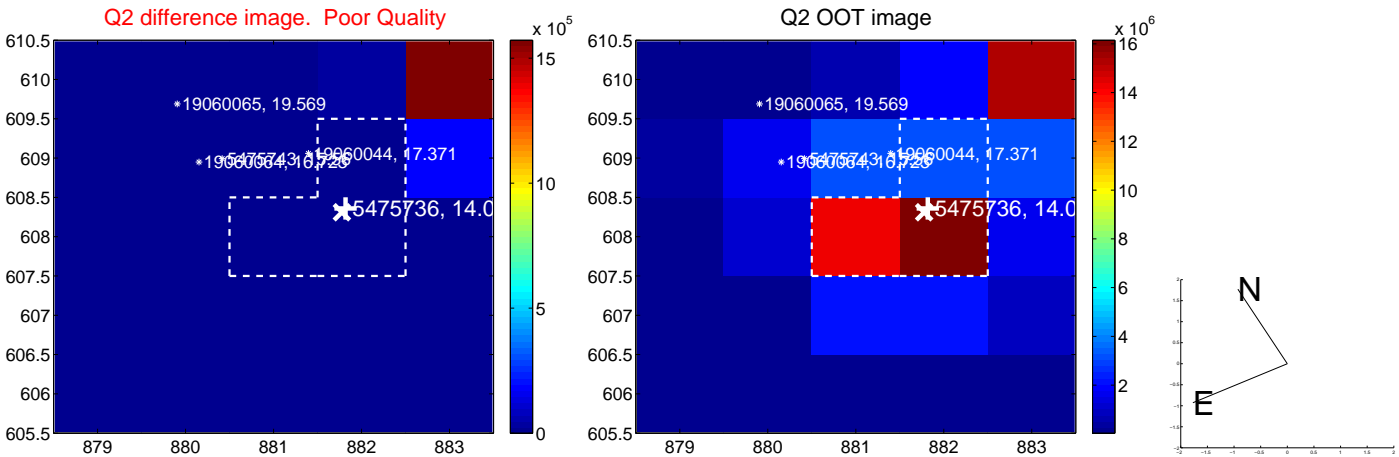
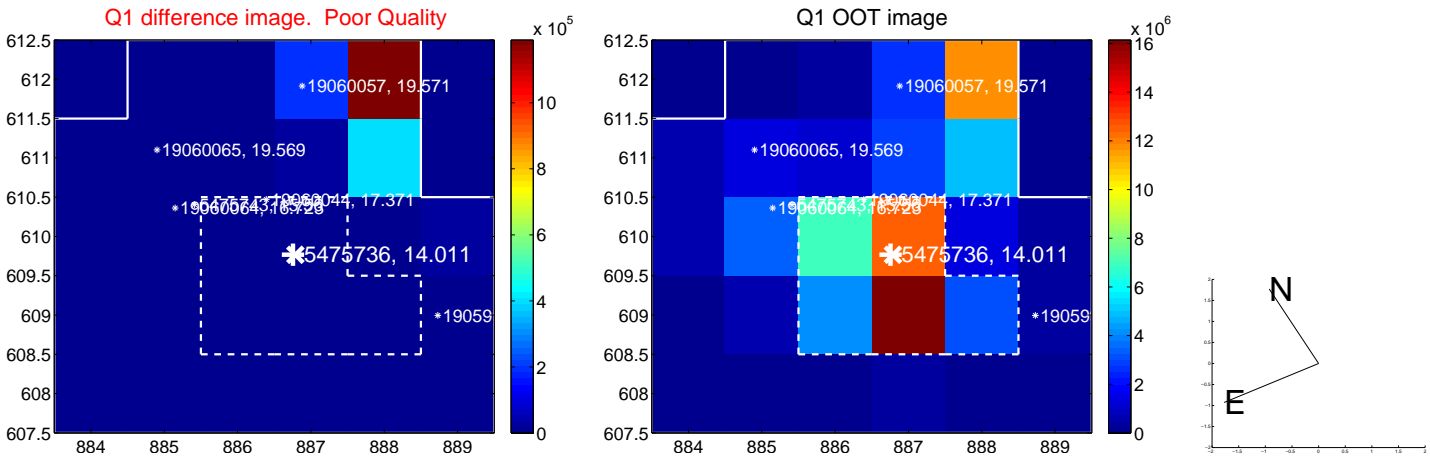
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.604 \pm 0.070	123.31	-8.100 \pm 0.069	2.902 \pm 0.072
PRF-fit source offset from KIC position	8.810 \pm 0.068	130.48	-8.305 \pm 0.067	2.942 \pm 0.070
photometric centroid source offset	—	—	—	—

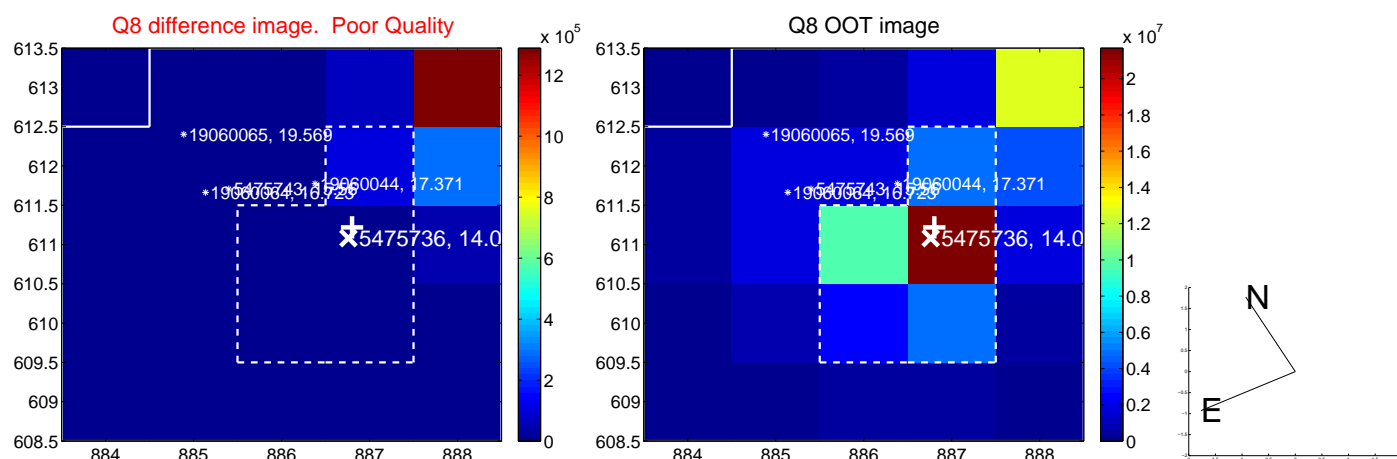
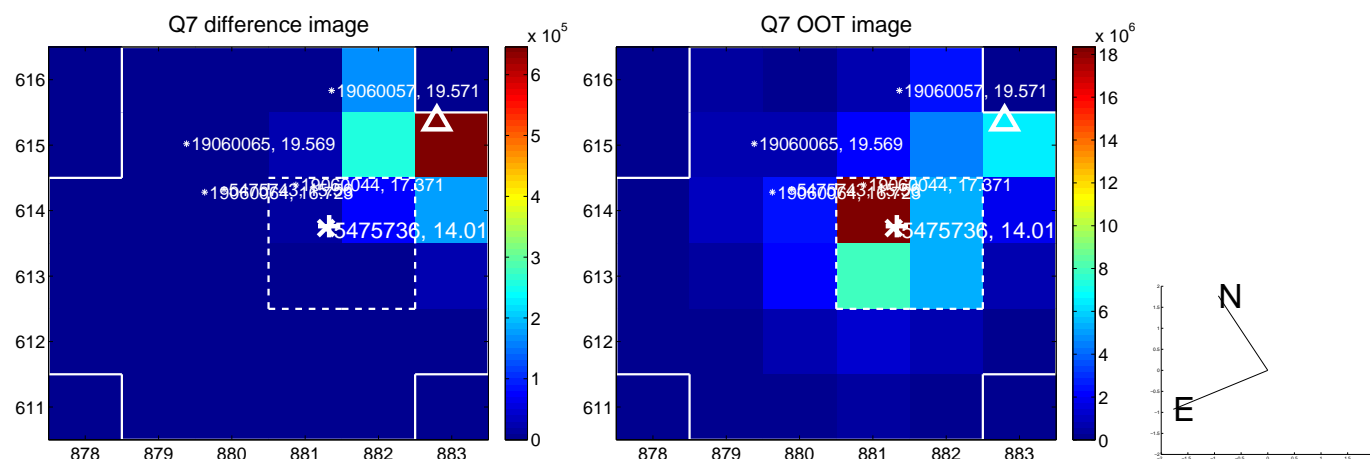
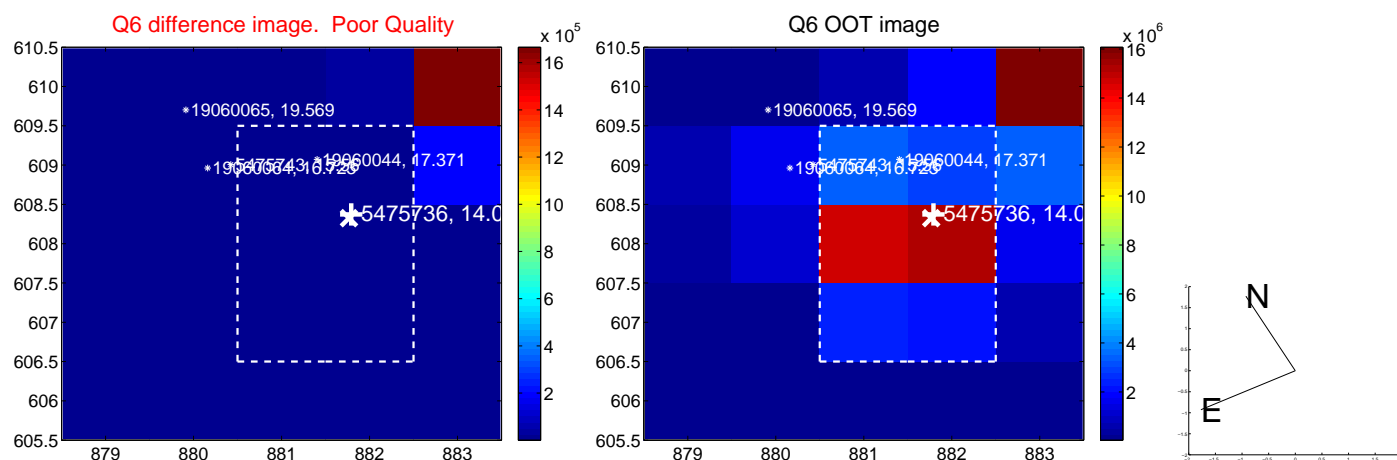
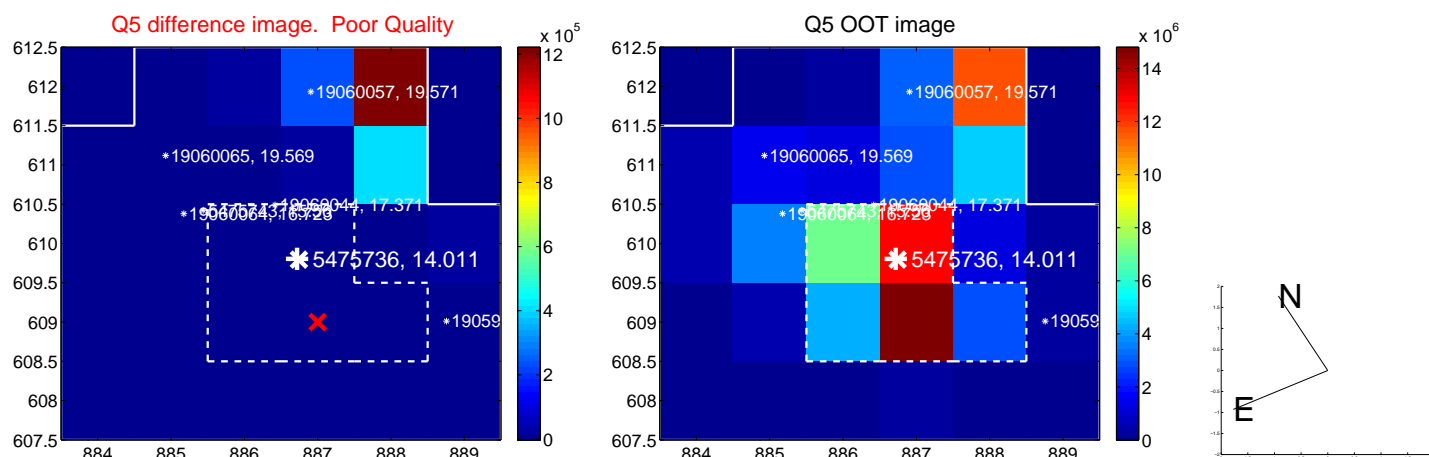


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

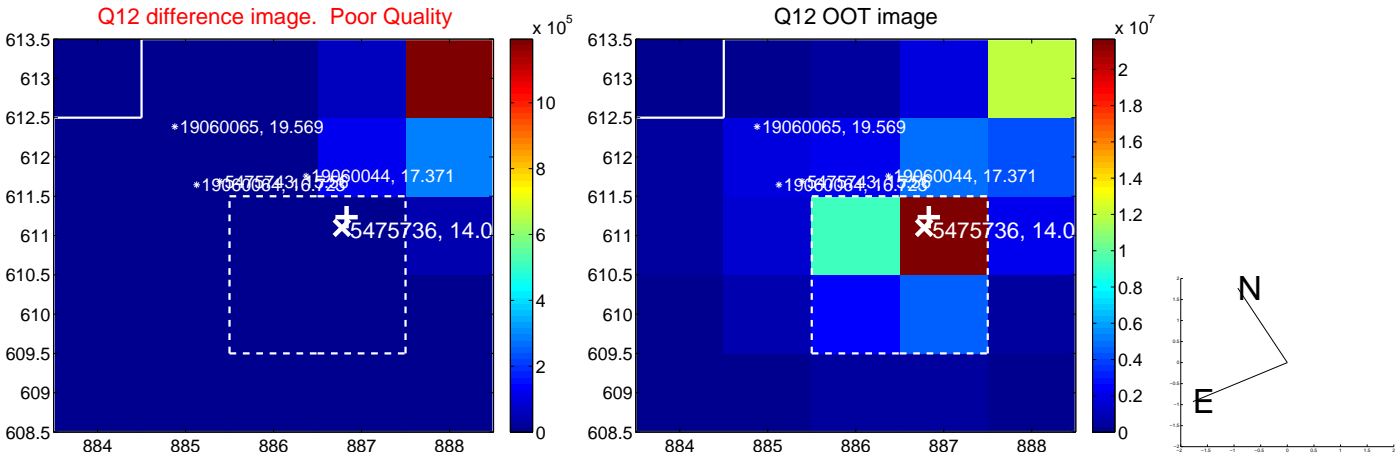
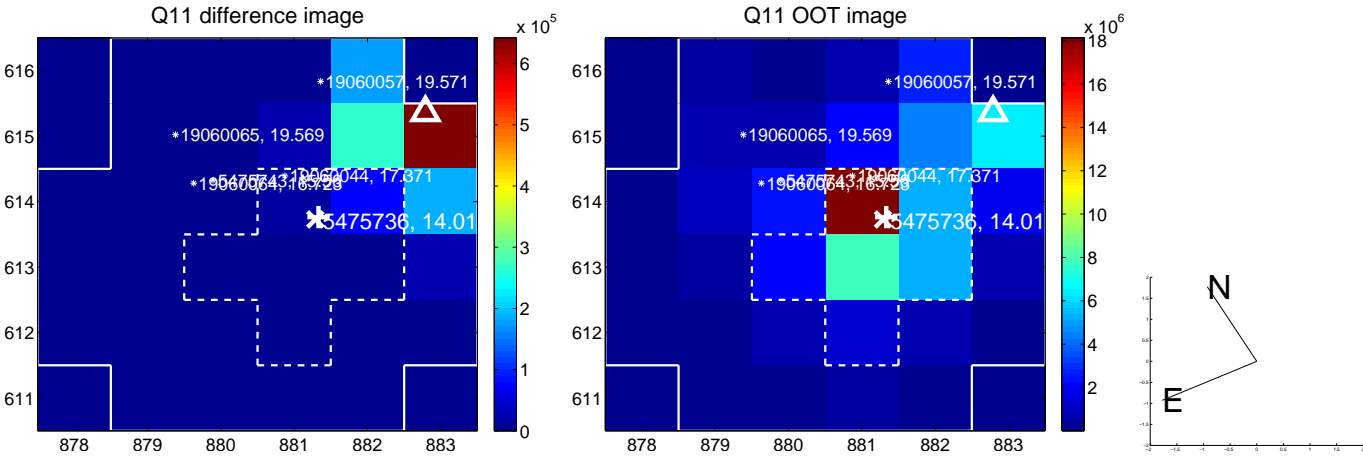
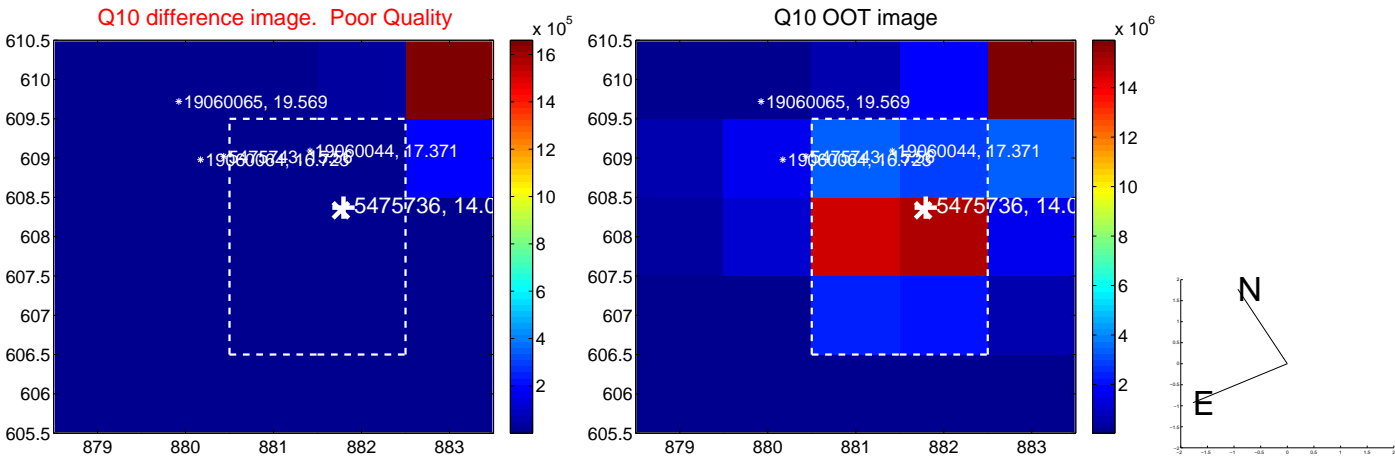
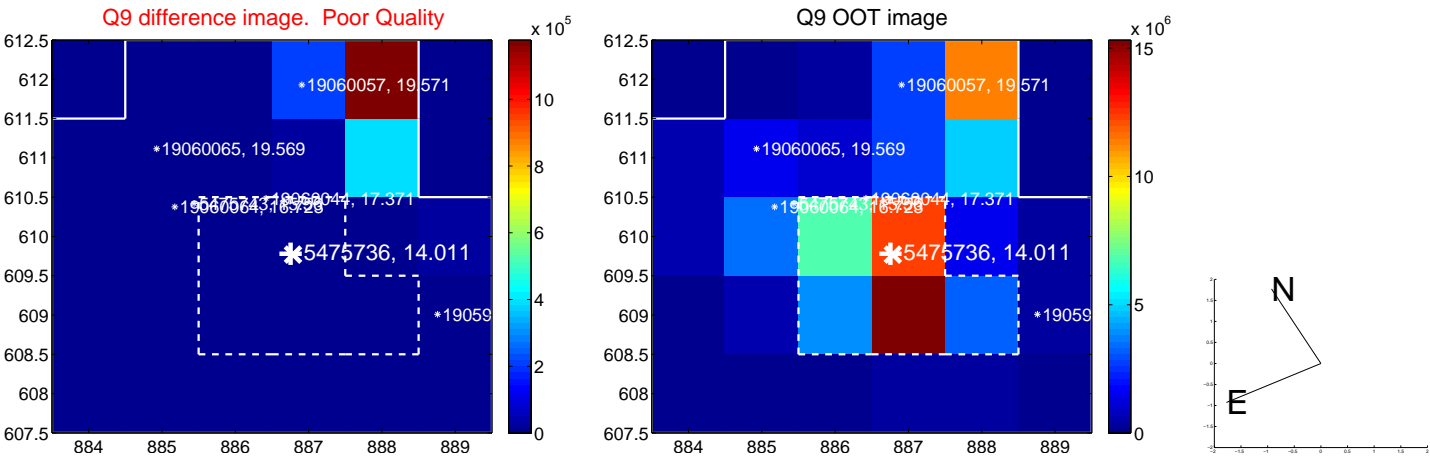
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



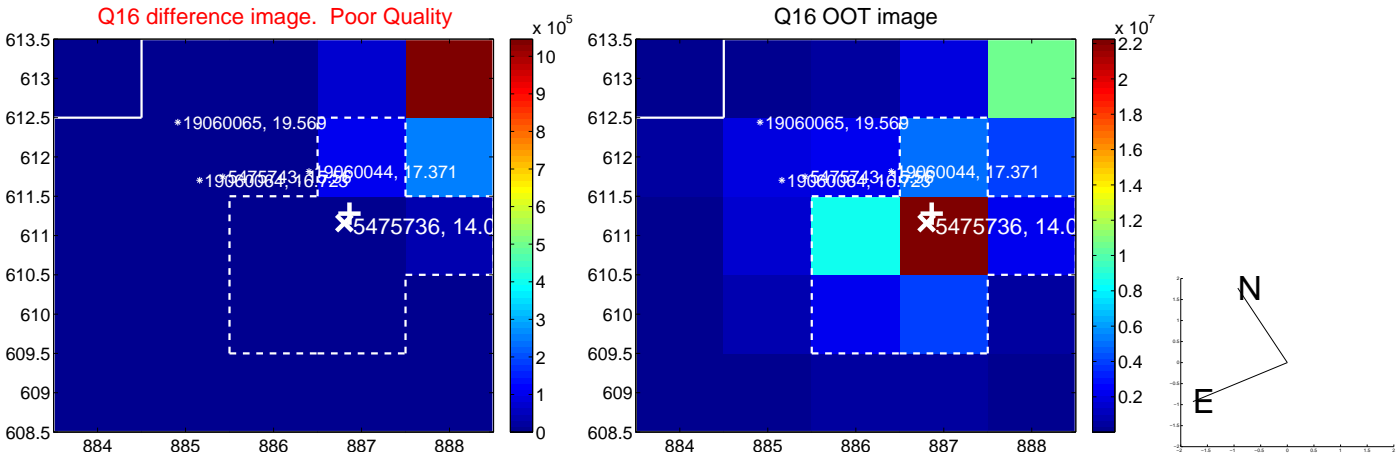
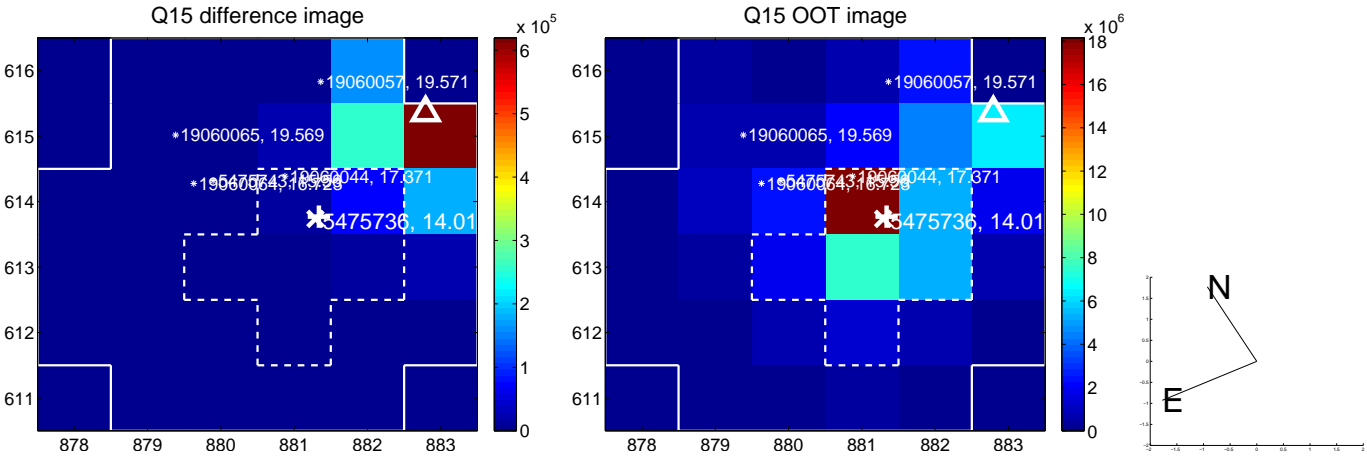
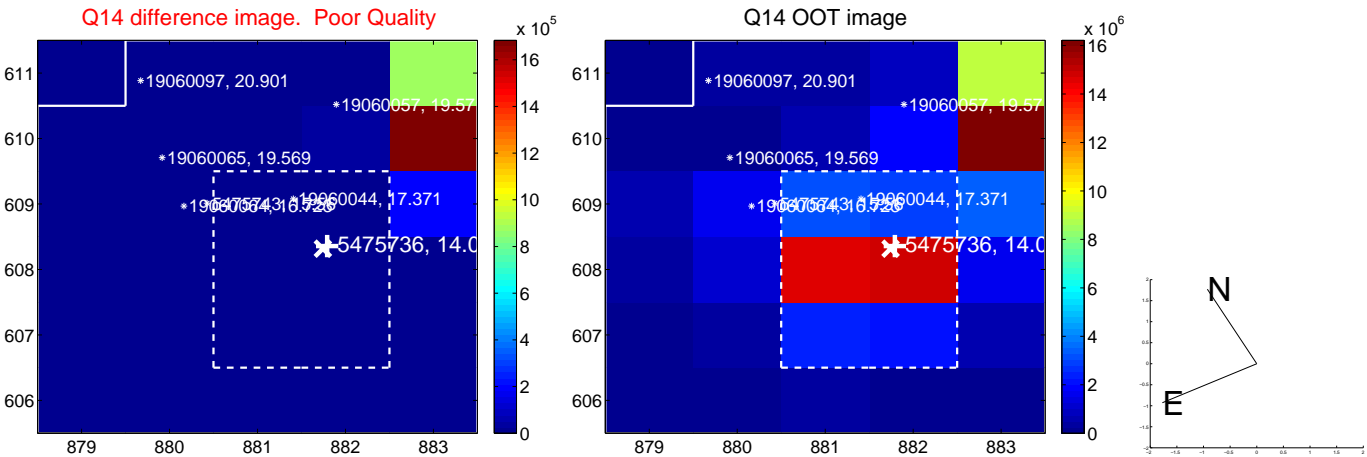
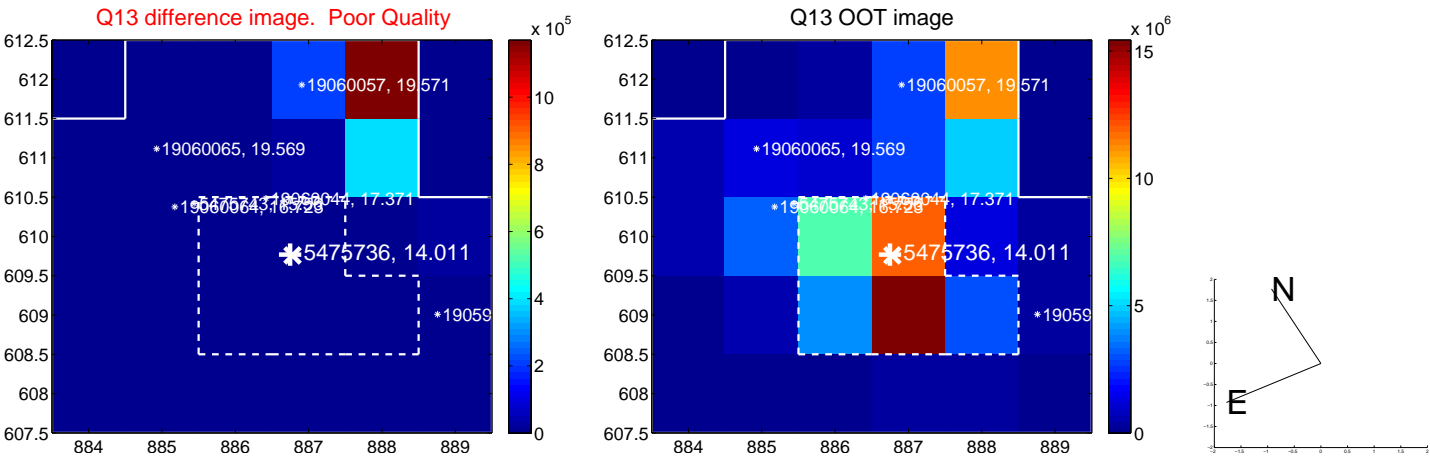
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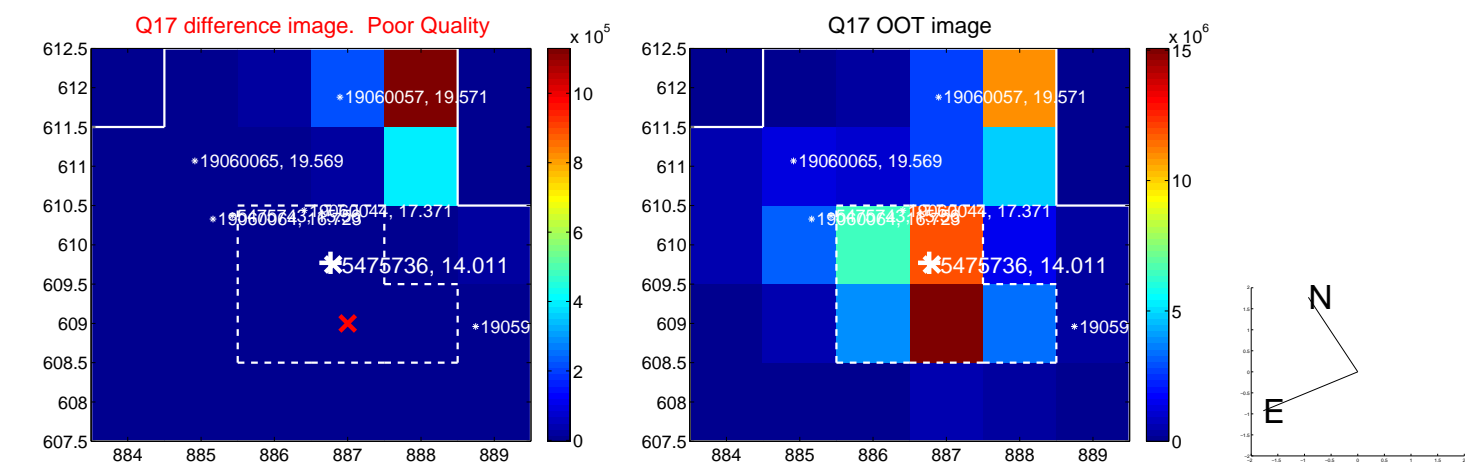
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



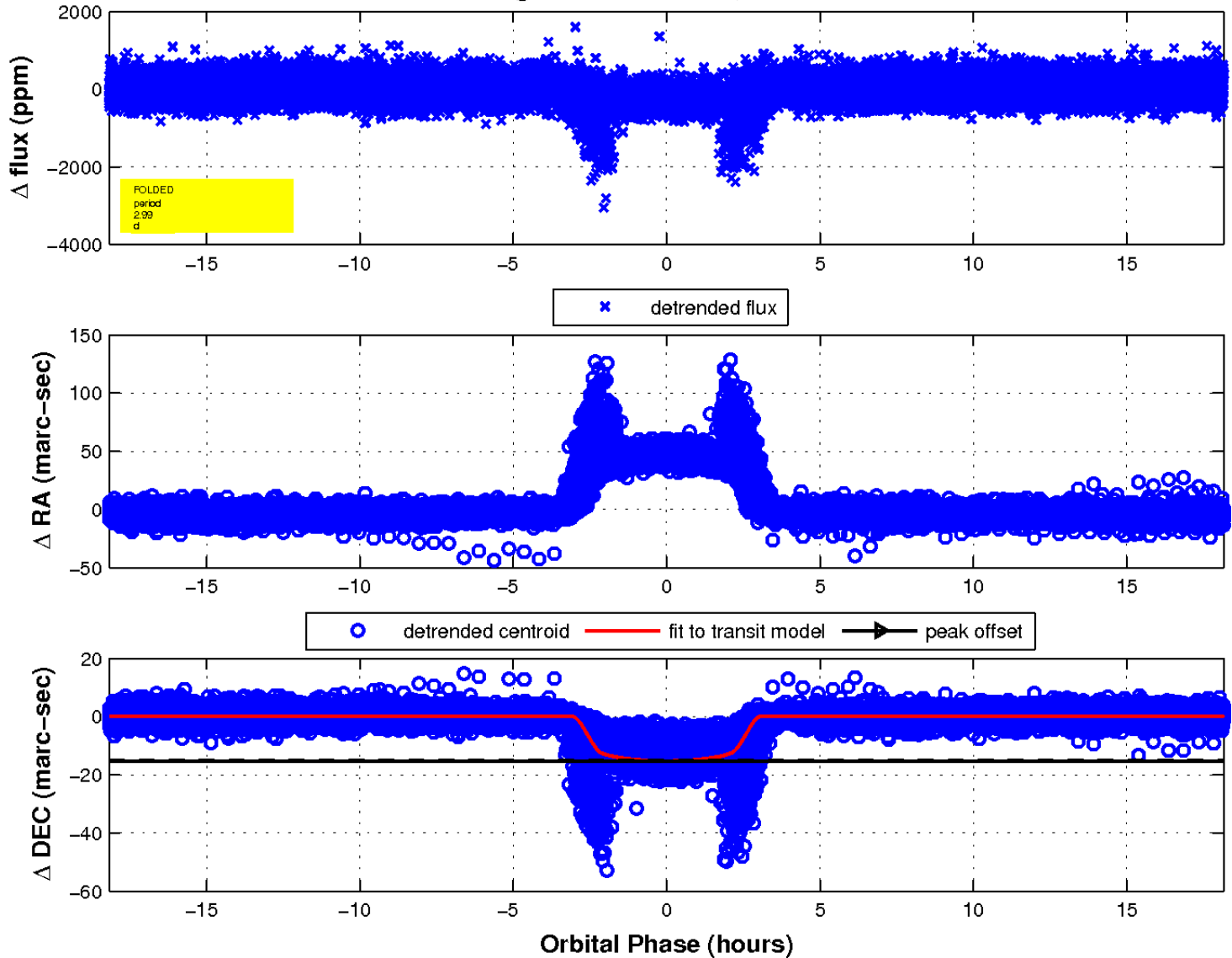
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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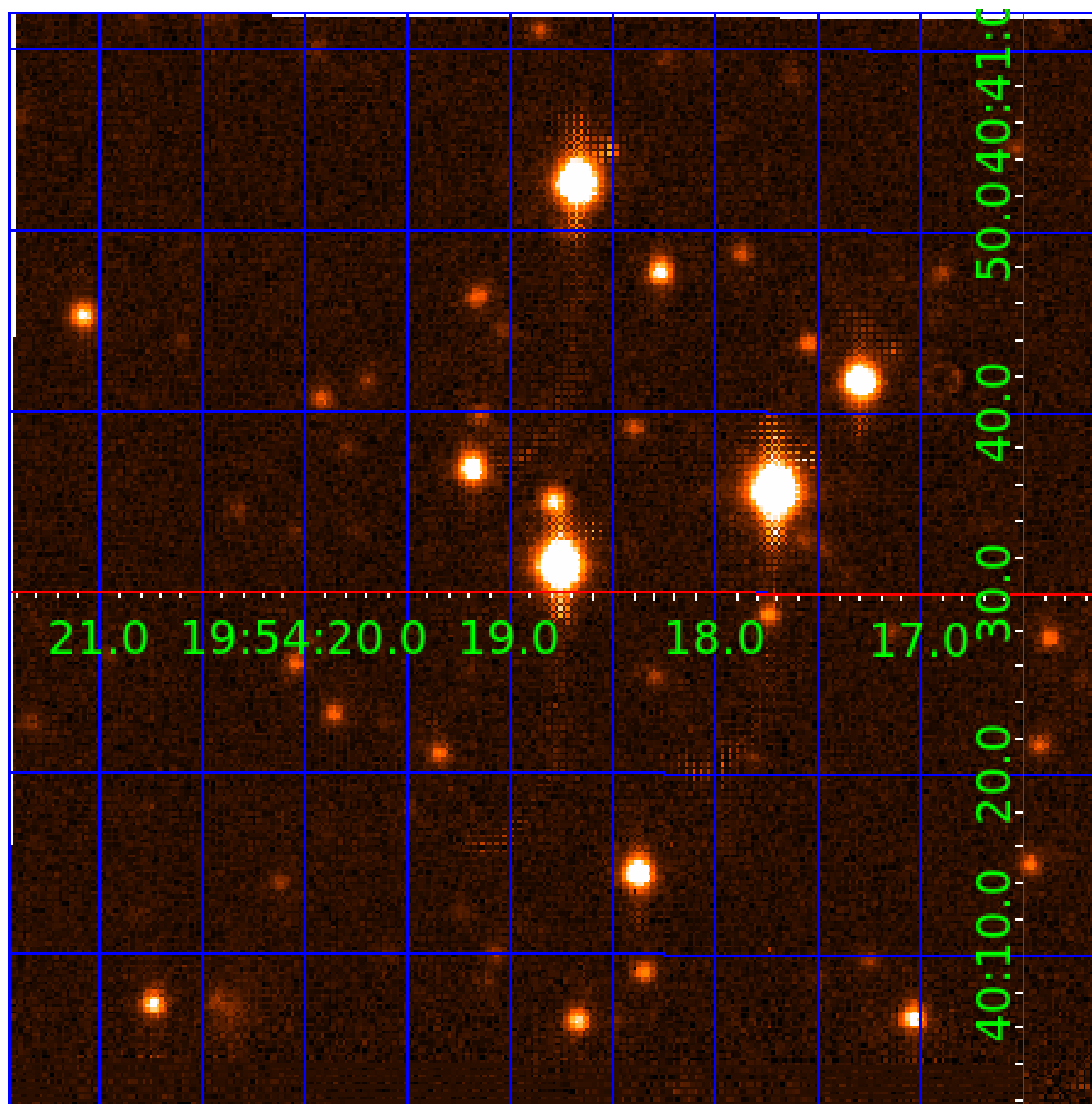


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005475736

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})
005475736-01	OBS	3798.01	2.991832	134.188933	388.2	6.056	175.9	63.4	0.84	5750	2.00	506.79
005475736-02	OBS	No	2.991810	132.699460	162.6	5.395	52.8	31.4	0.84	5750	1.27	506.79

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005475736-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005475736-02	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 005475736-02

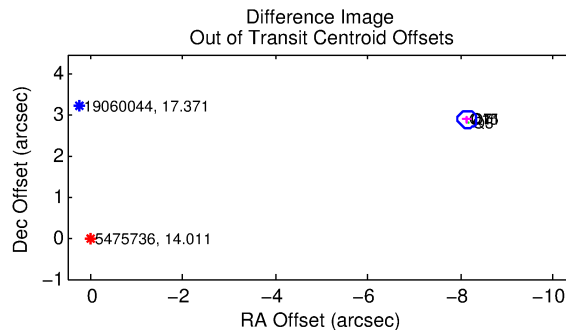
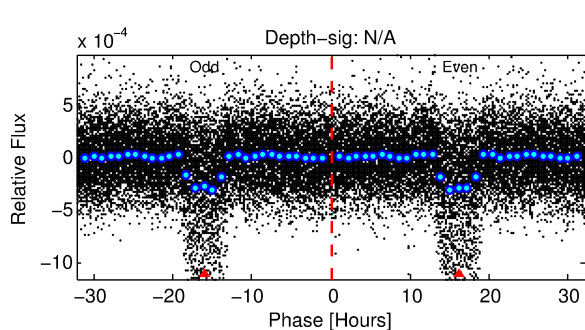
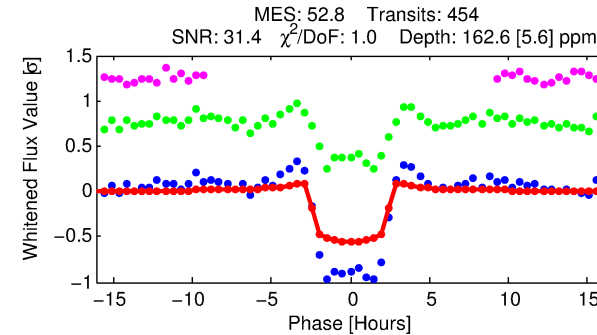
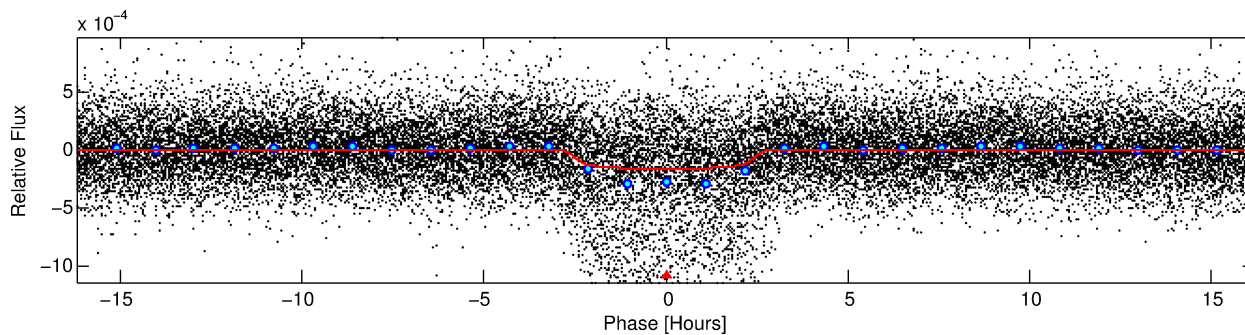
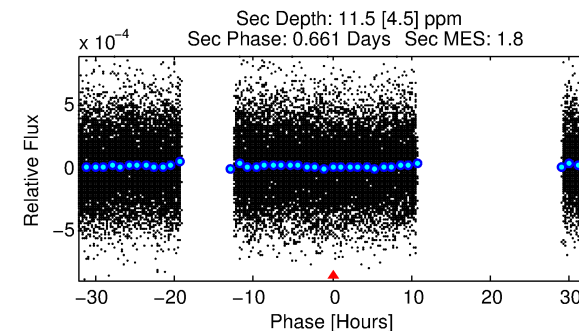
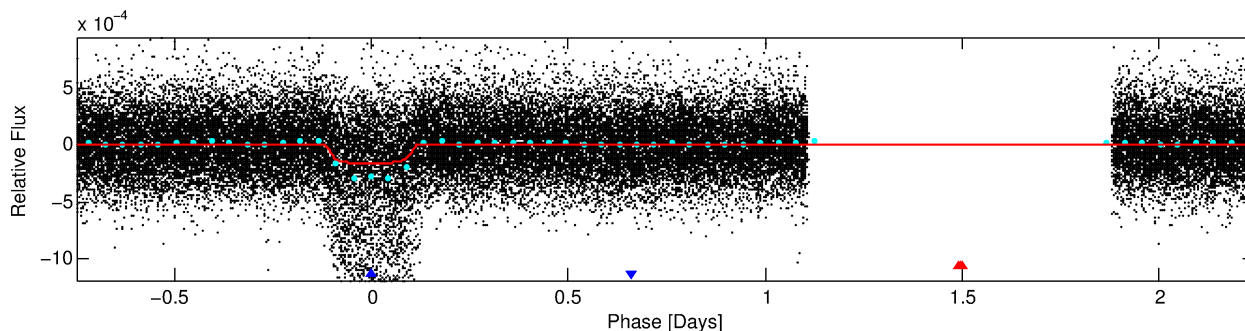
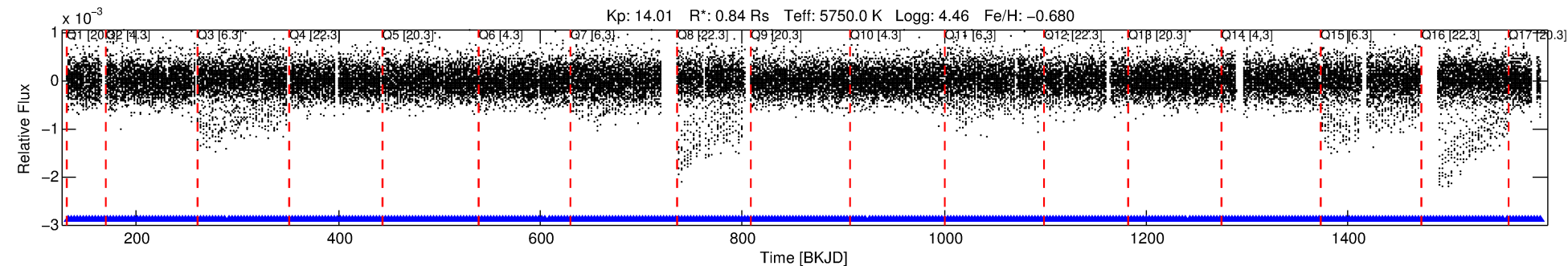
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005475736-02	5475736	005475712-sec	5475712	1:1	12.6	-2	-2	13.28	14.01	420.25	Direct-PRF	0	1.54	1.09

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: 5475736 Candidate: 2 of 2 Period: 2.992 d
KOI: K03798 Corr: No Ephemeris Match

Kp: 14.01 R*: 0.84 Rs Teff: 5750.0 K Logg: 4.46 Fe/H: -0.680



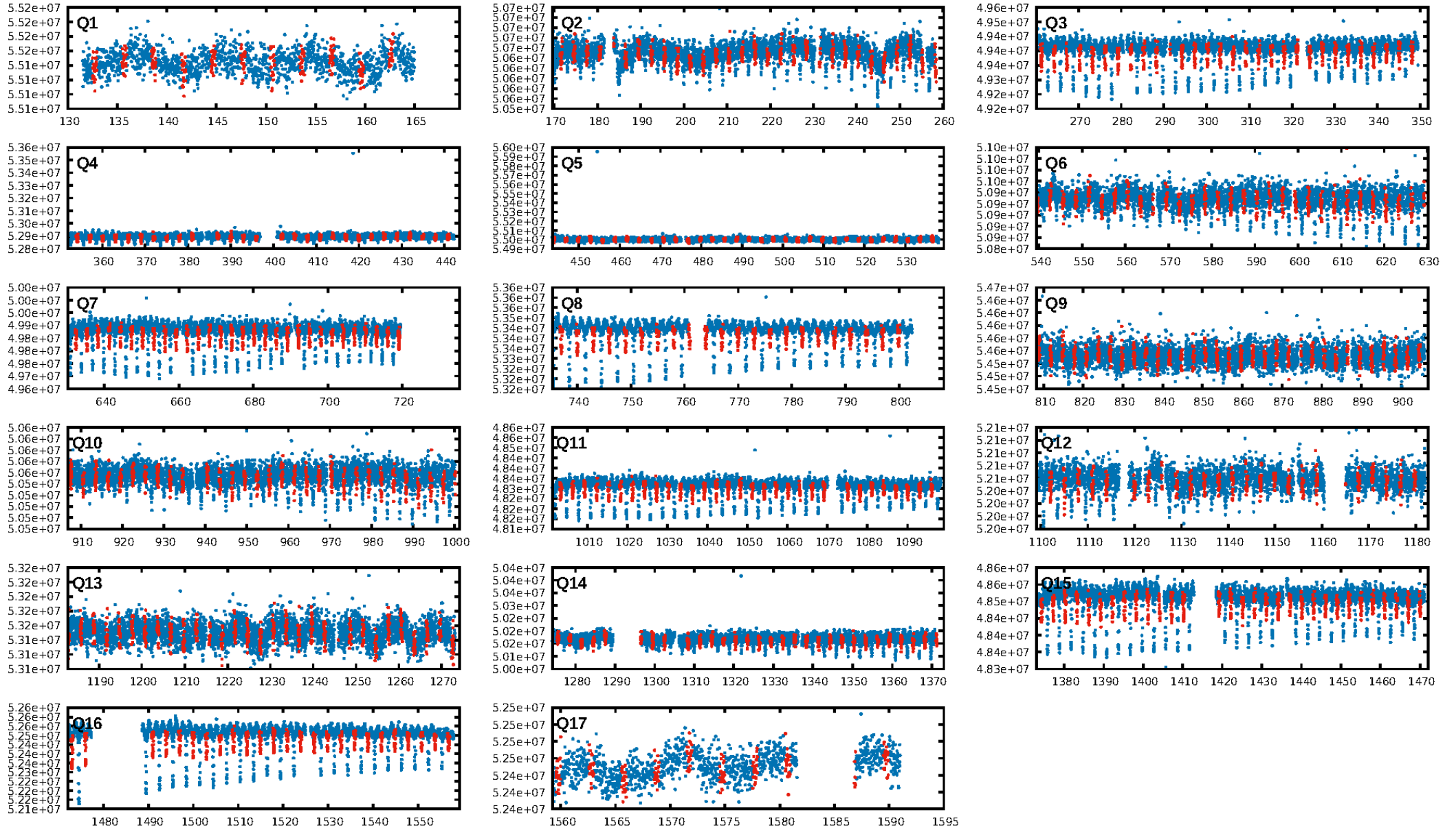
DV Fit Results:

Period = 2.99181 [0.00001] d
Epoch = 132.6995 [0.0021] BKJD
Rp/R* = 0.0139 [0.0011]
a/R* = 2.12 [0.69]
b = 0.91 [0.08]
Seff = 506.79 [153.17]
Teq = 1210 [91] K
Rp = 1.27 [0.30] Re
a = 0.0369 [0.0069] AU
Ag = 5.31 [2.71] [1.59σ]
Teff = 2839 [316] K [4.96σ]

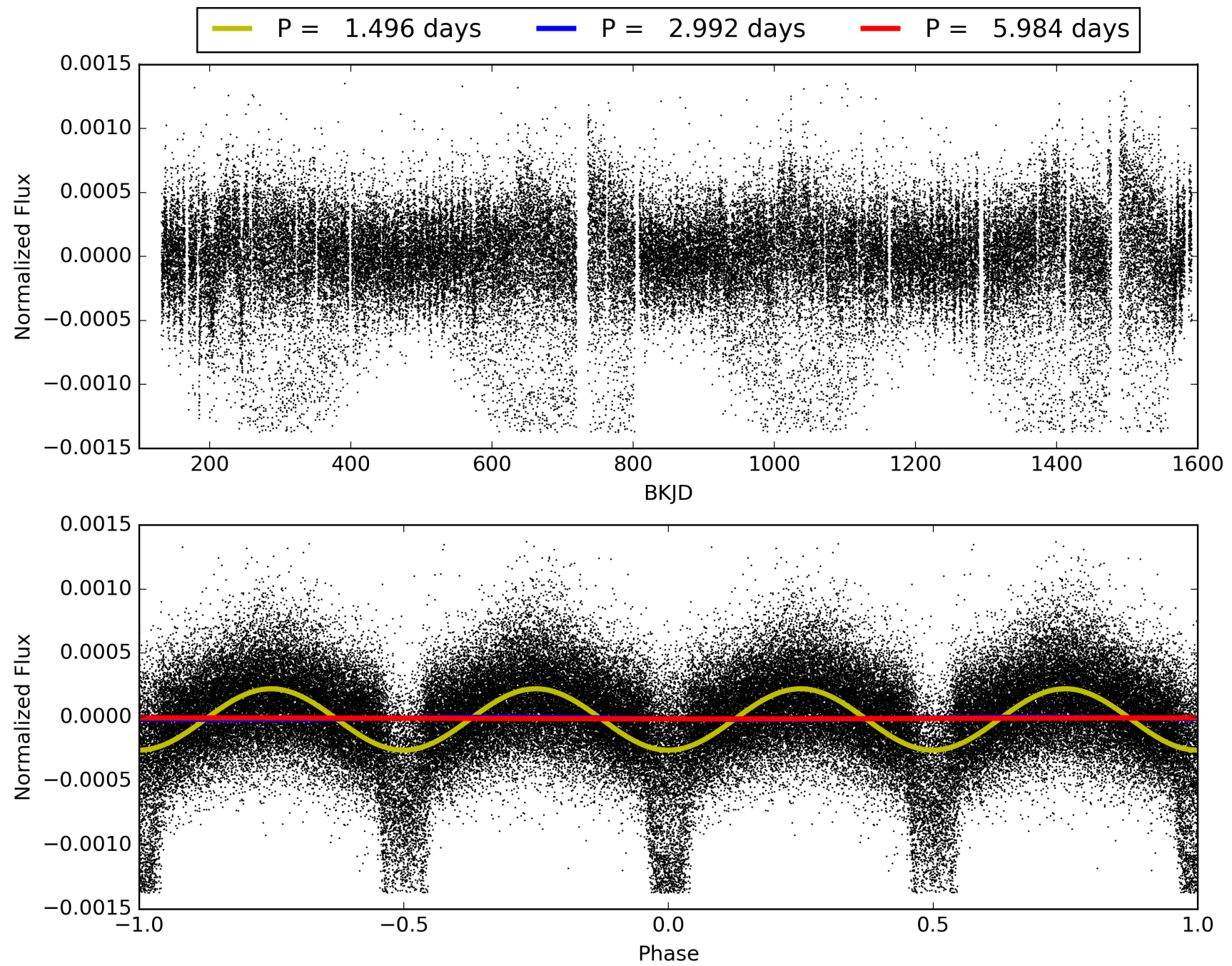
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [433/433]
GhostDiagnostic-chr: -0.8259
Centroid-sig: N/A
Centroid-so: 125.153 arcsec [175.30σ]
OotOffset-rm: 8.641 arcsec [124.63σ]
KicOffset-rm: 8.839 arcsec [131.09σ]
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]

TCE 005475736-02, PDC Light Curves

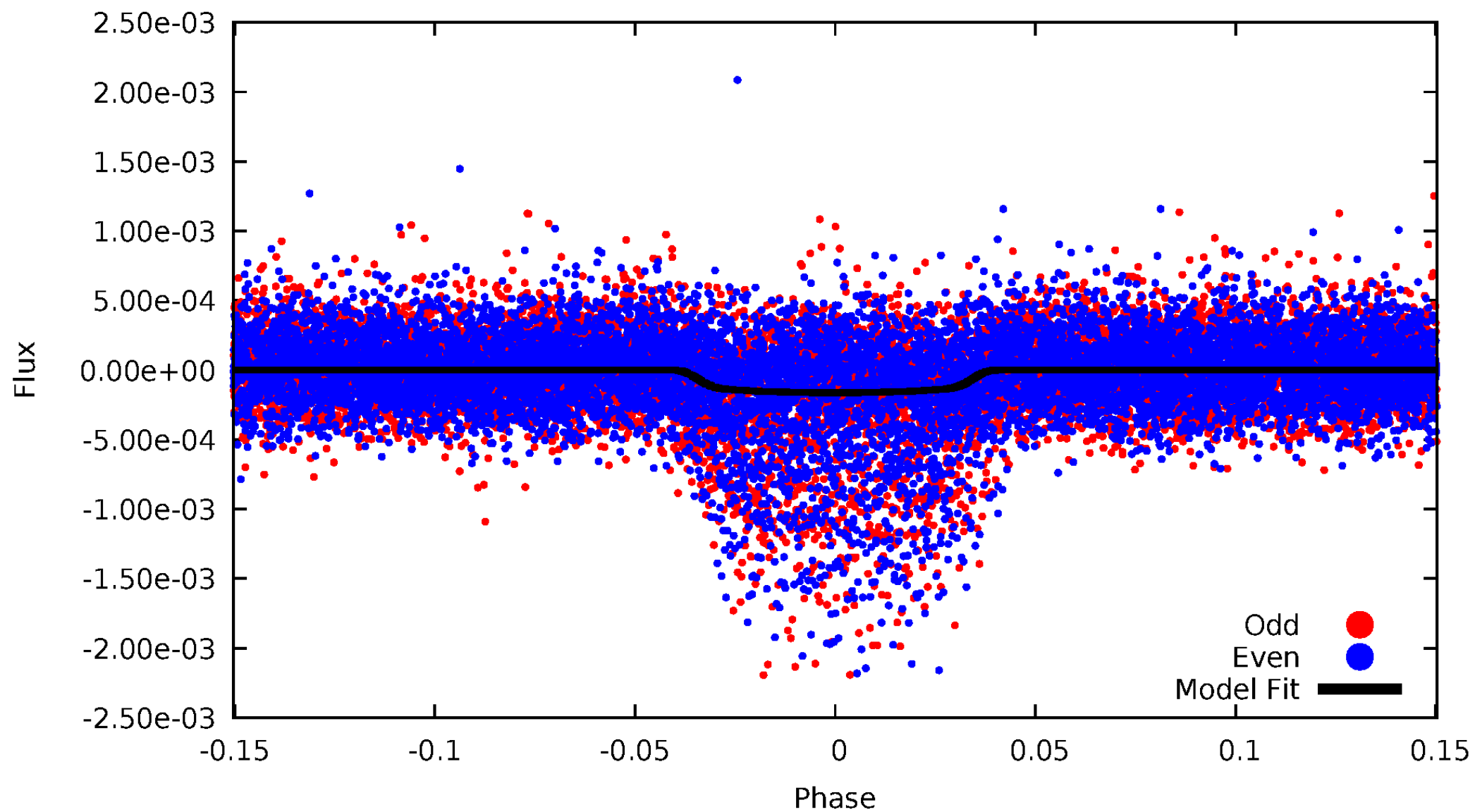


TCE 005475736-02



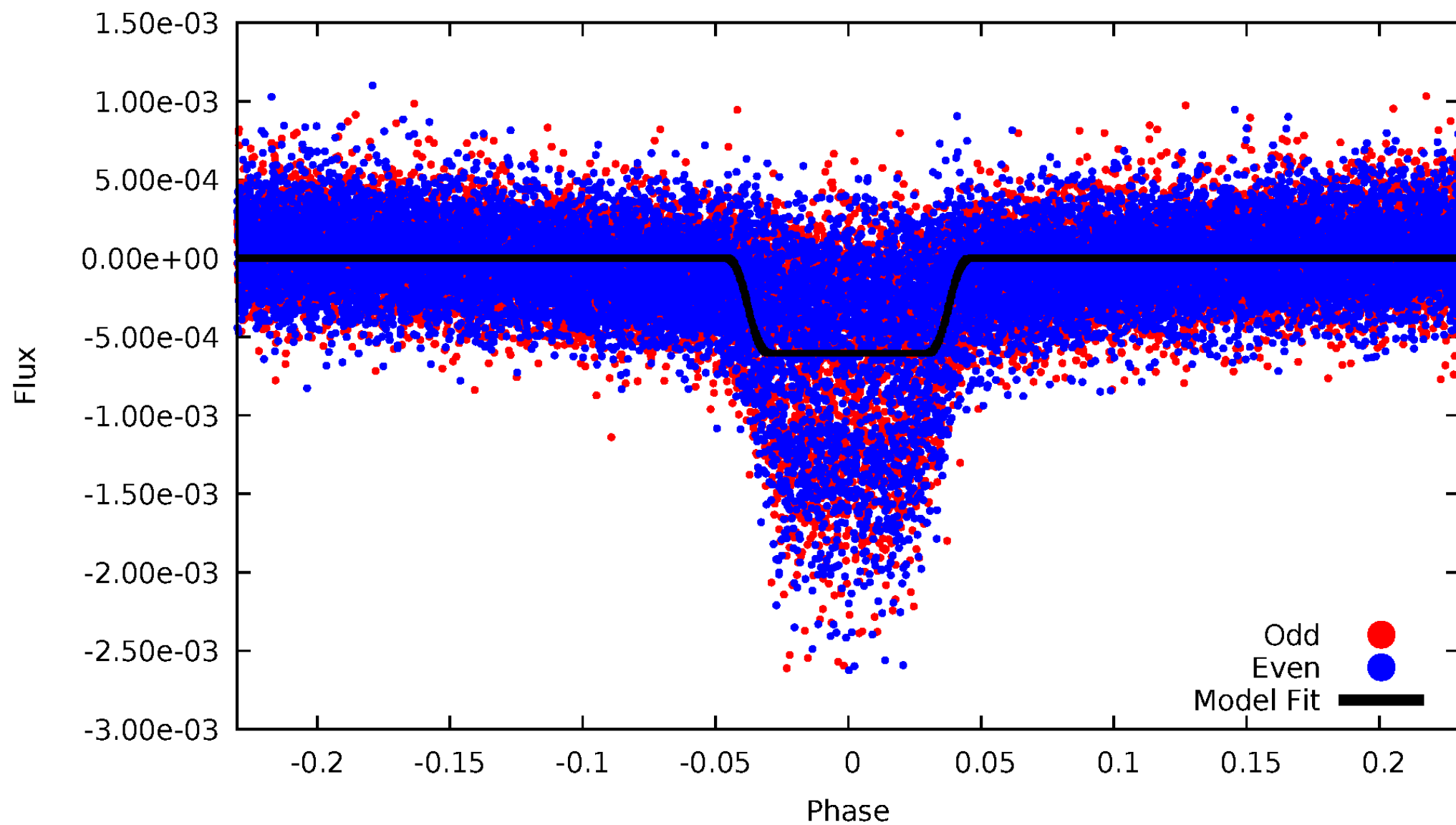
DV Odd/Even

TCE 005475736-02



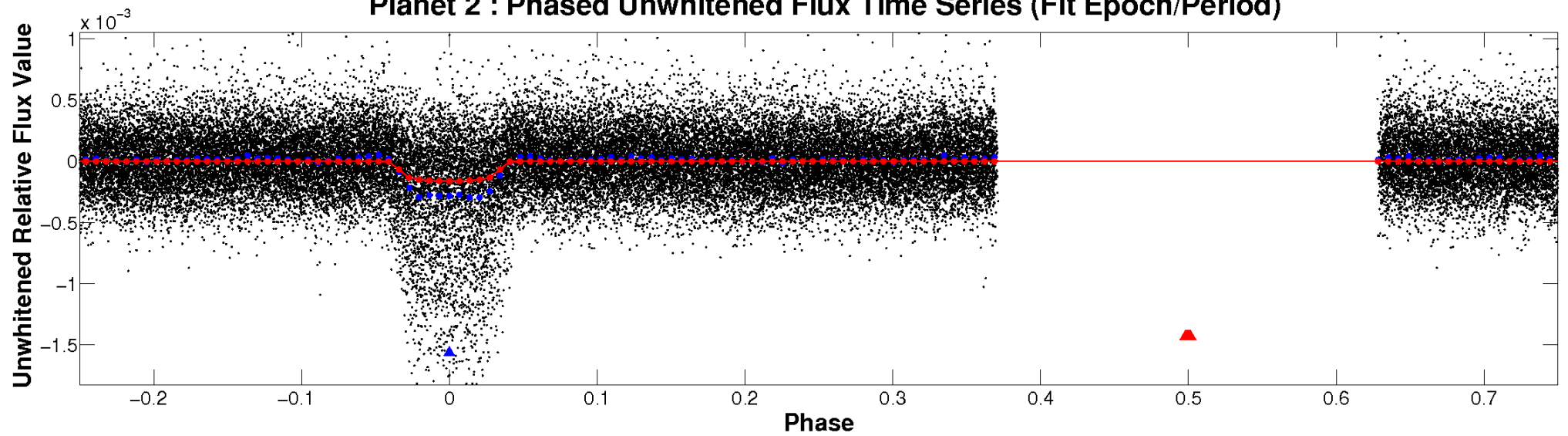
ALT Odd/Even

TCE 005475736-02

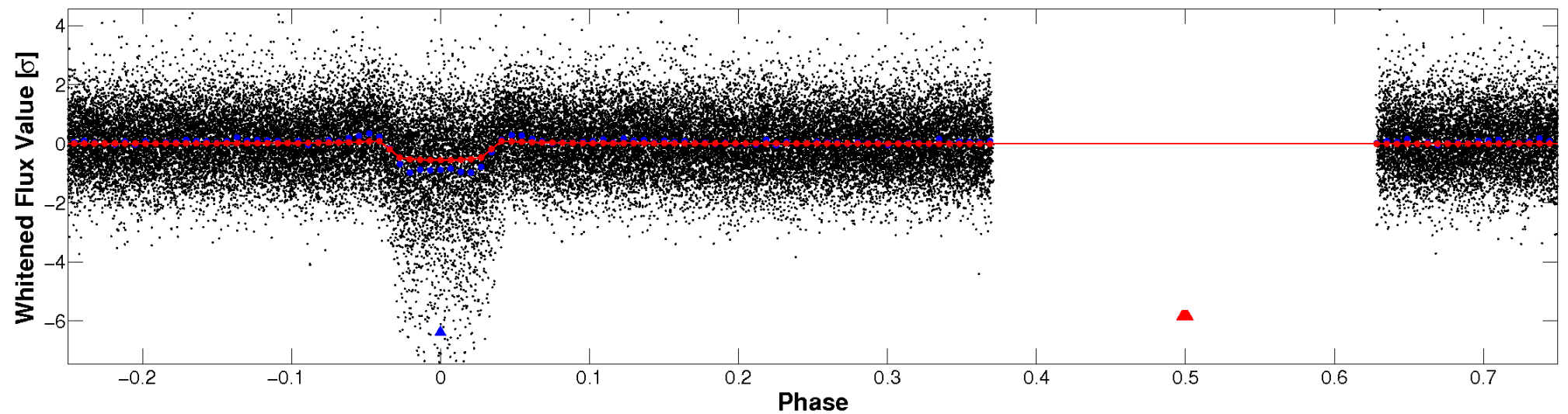


Non-Whitened Vs. Whitened Light Curve

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

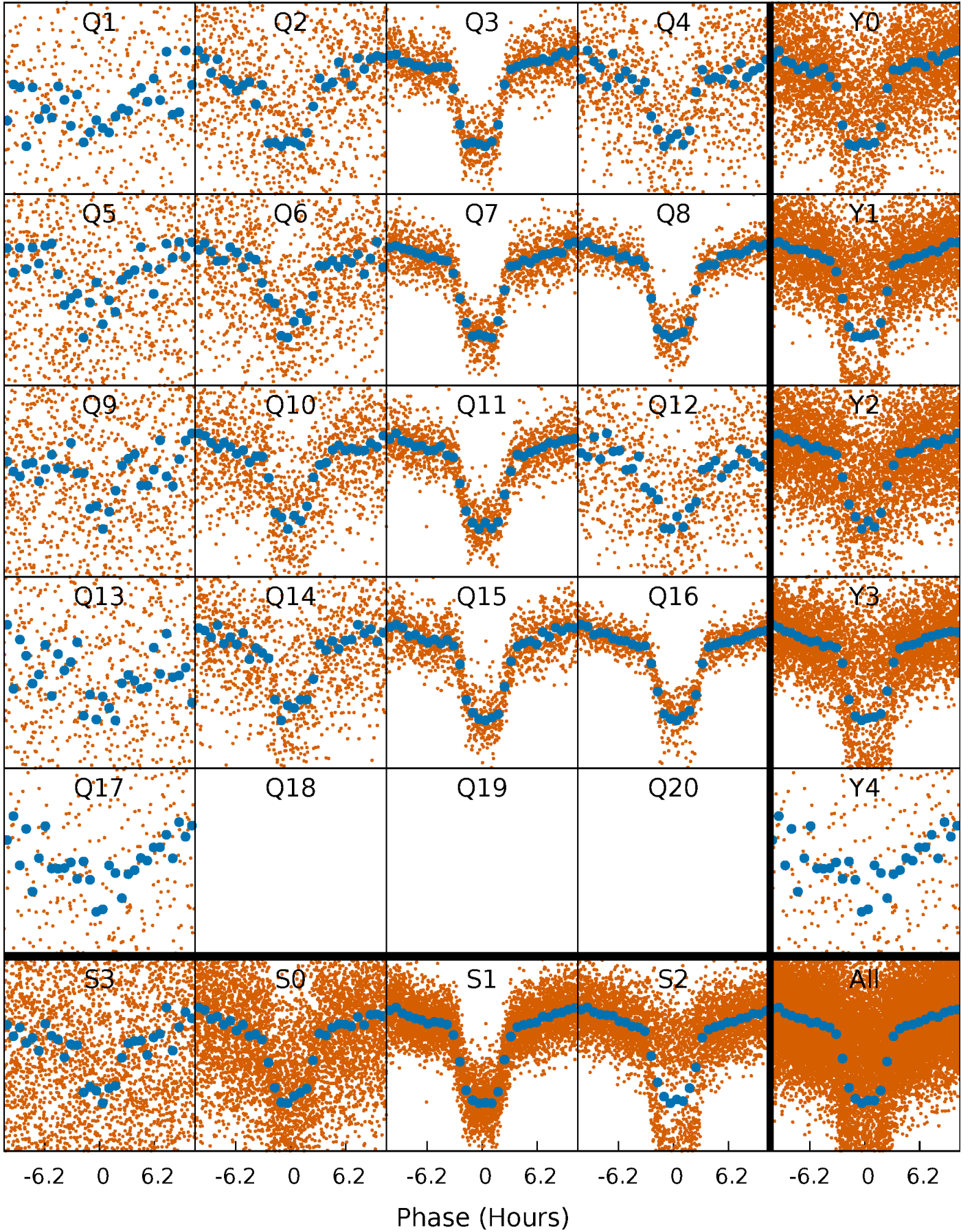


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



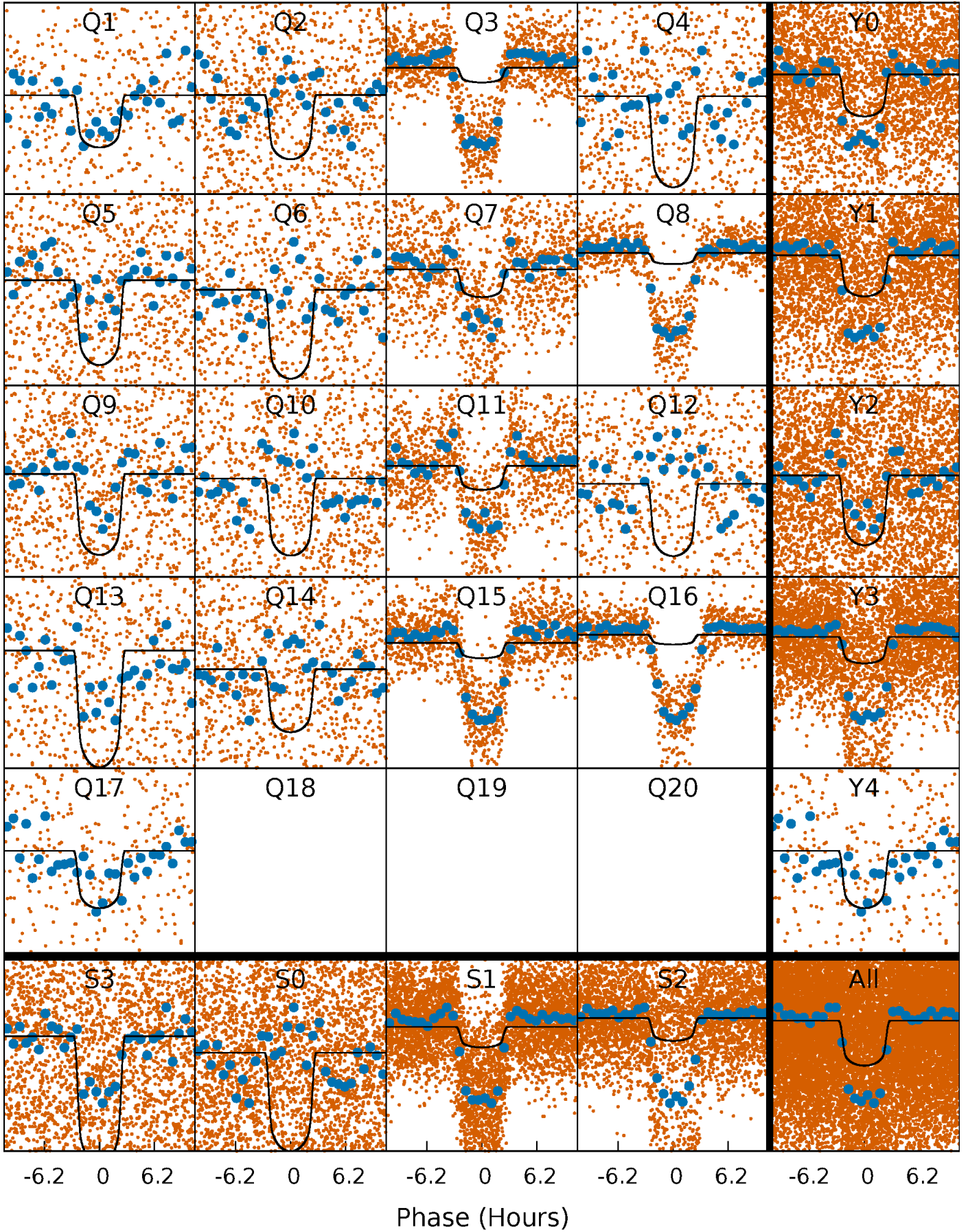
PDC Quarter-Phased Transit Curves

TCE 005475736-02 P= 2.991810 Days $T_0=132.699460$ (BKJD)



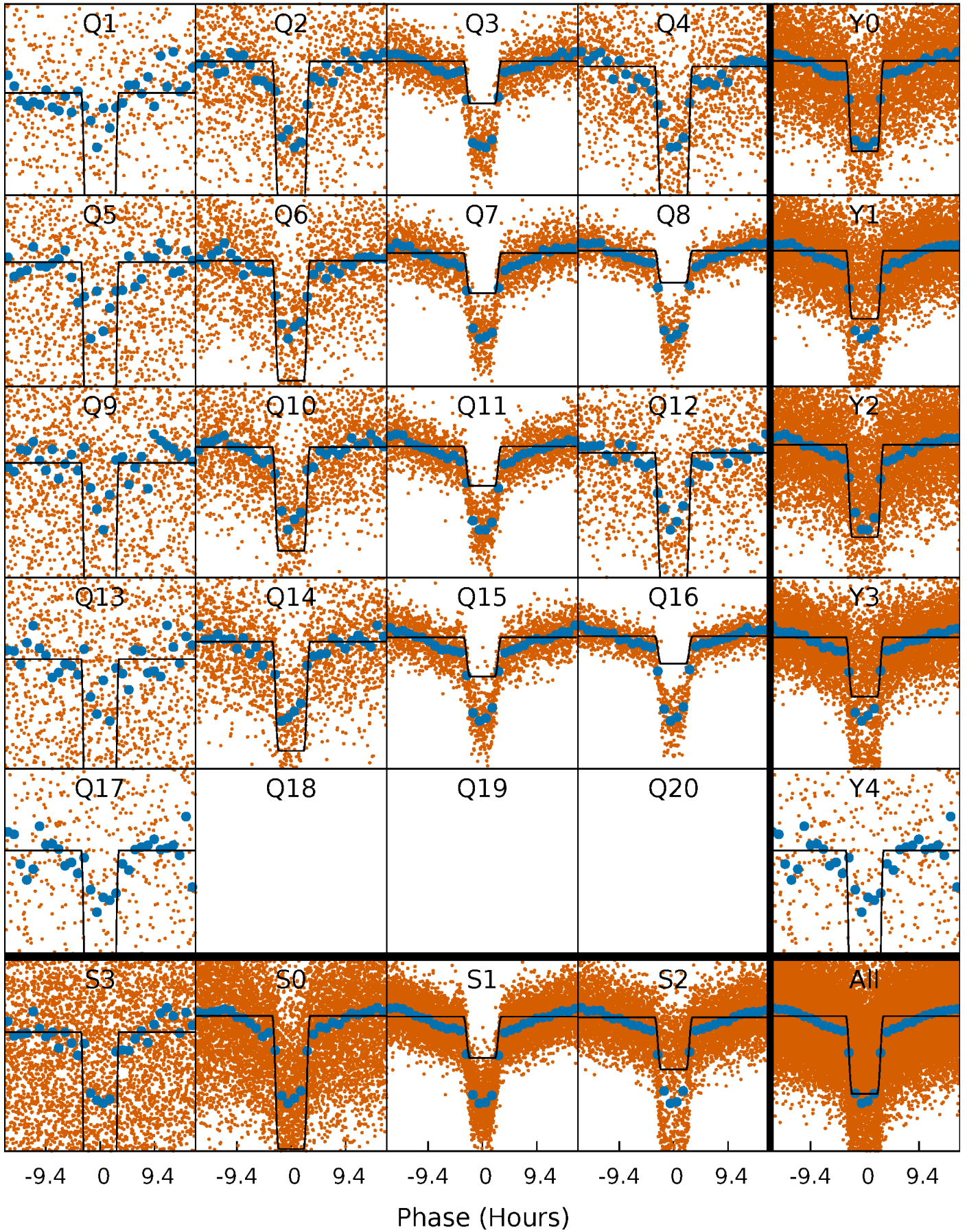
DV Quarter-Phased Transit Curves

TCE 005475736-02 P= 2.991810 Days $T_0=132.699460$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

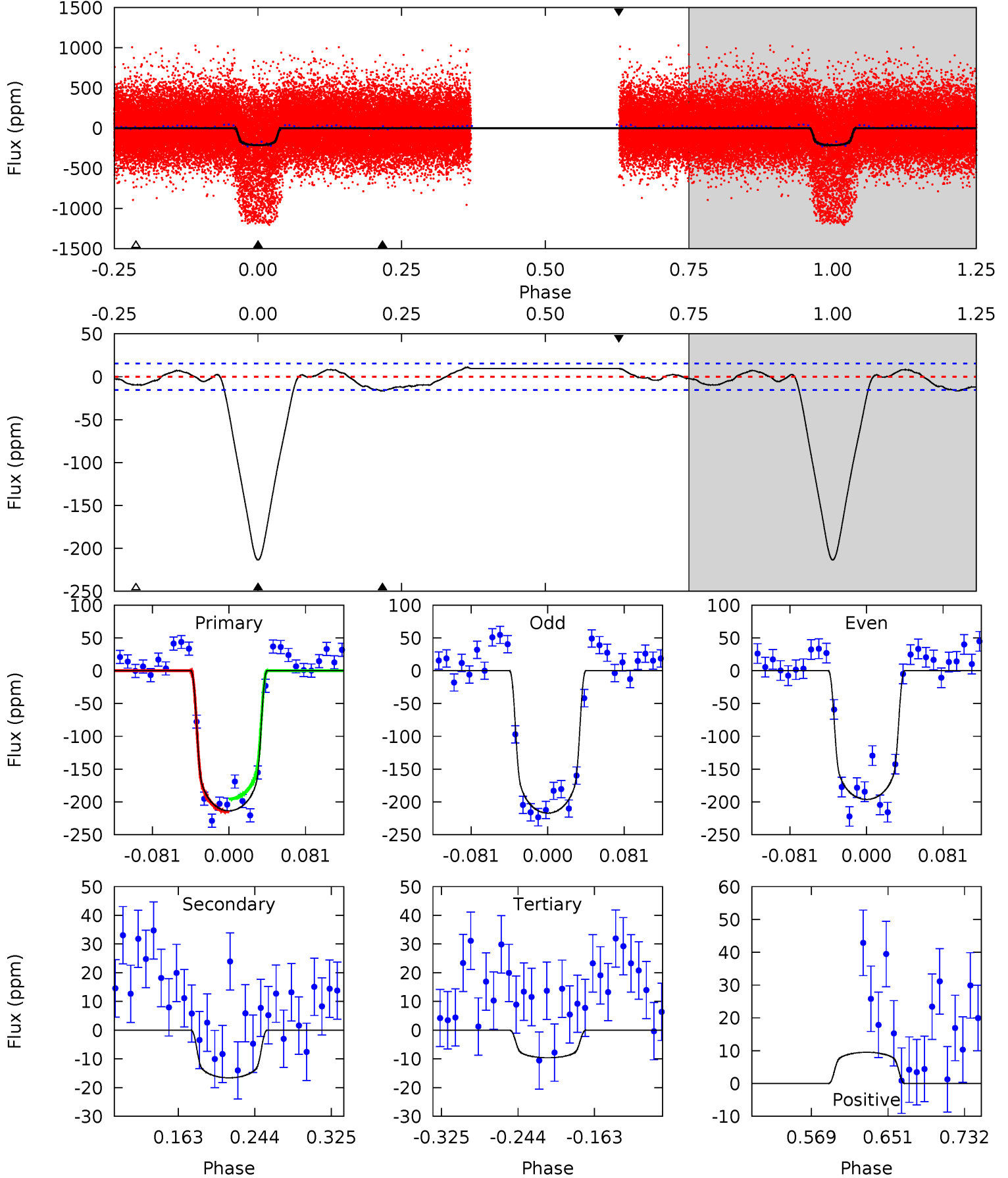
TCE 005475736-02 P= 2.991886 Days $T_0=132.680366$ (BKJD)



DV Model-Shift Uniqueness Test

005475736-02, P = 2.991810 Days, E = 129.707650 Days

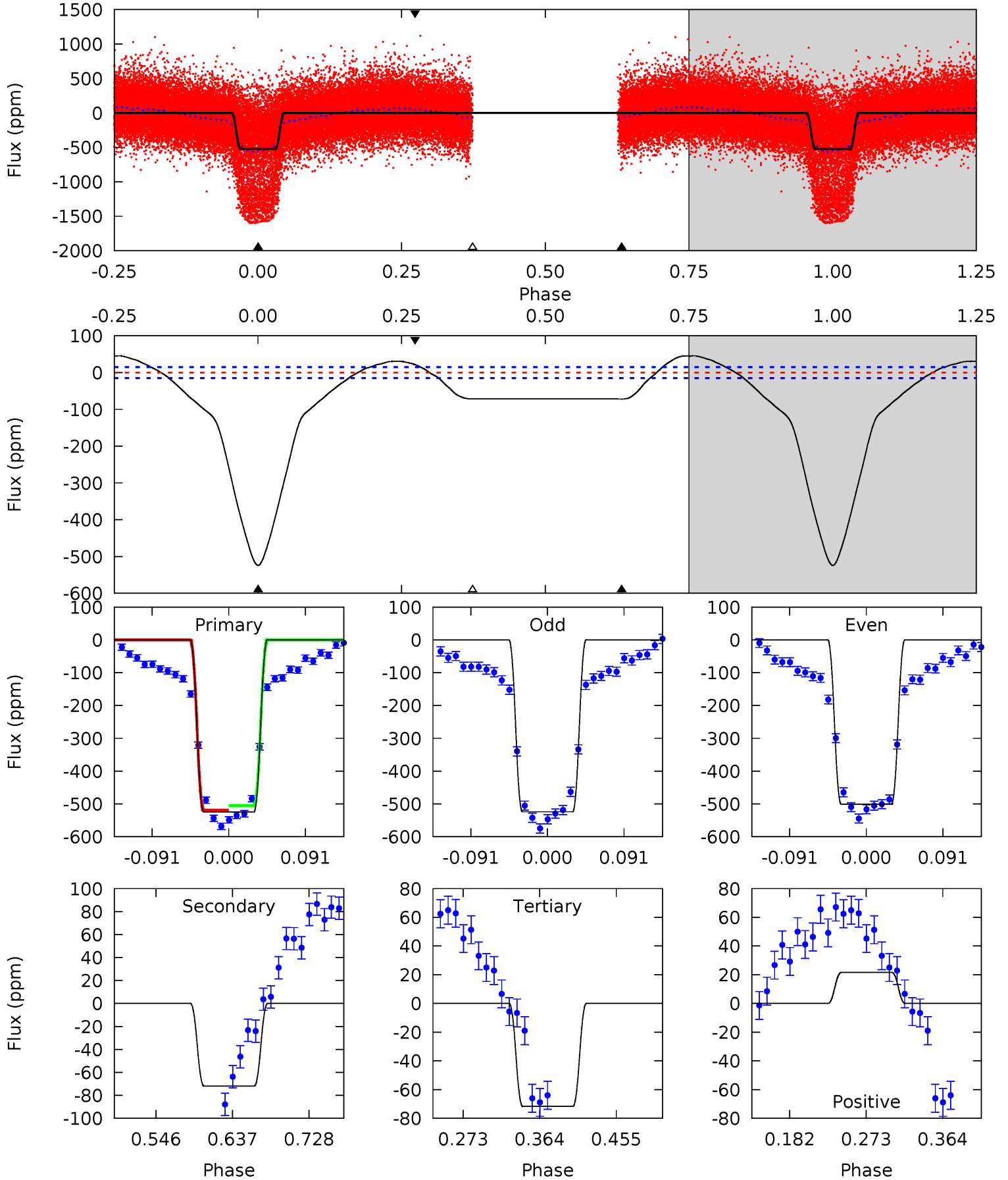
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
64.0	4.98	2.88	2.85	4.61	1.74	1.60	61.1	61.1	2.09	2.12	3.12	2.64	0.05	2.94



Alt Model-Shift Uniqueness Test

005475736-02, P = 2.991886 Days, E = 129.688480 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
162.8	22.3	22.2	6.72	4.58	1.69	13.1	140.5	156.1	0.07	15.6	3.60	1.61	0.08	2.00



Stellar Parameters For KIC 005475736

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5750^{+172}_{-155}	$4.464^{+0.140}_{-0.154}$	$-0.680^{+0.300}_{-0.300}$	$0.839^{+0.183}_{-0.122}$	$0.747^{+0.099}_{-0.043}$	$1.783^{+0.998}_{-0.747}$
	+3%/-3%	+3%/-3%	+44%/-44%	+22%/-15%	+13%/-6%	+56%/-42%
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 005475736-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17 ± 3	$1.27^{+0.19}_{-0.16}$	1687^{+106}_{-91}	3553^{+163}_{-180}	$7.642^{+3.081}_{-2.191}$
Alt.	-72 ± 3	$2.28^{+0.29}_{-0.23}$	1700^{+100}_{-101}	3745^{+107}_{-95}	10^{+2}_{-2}

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

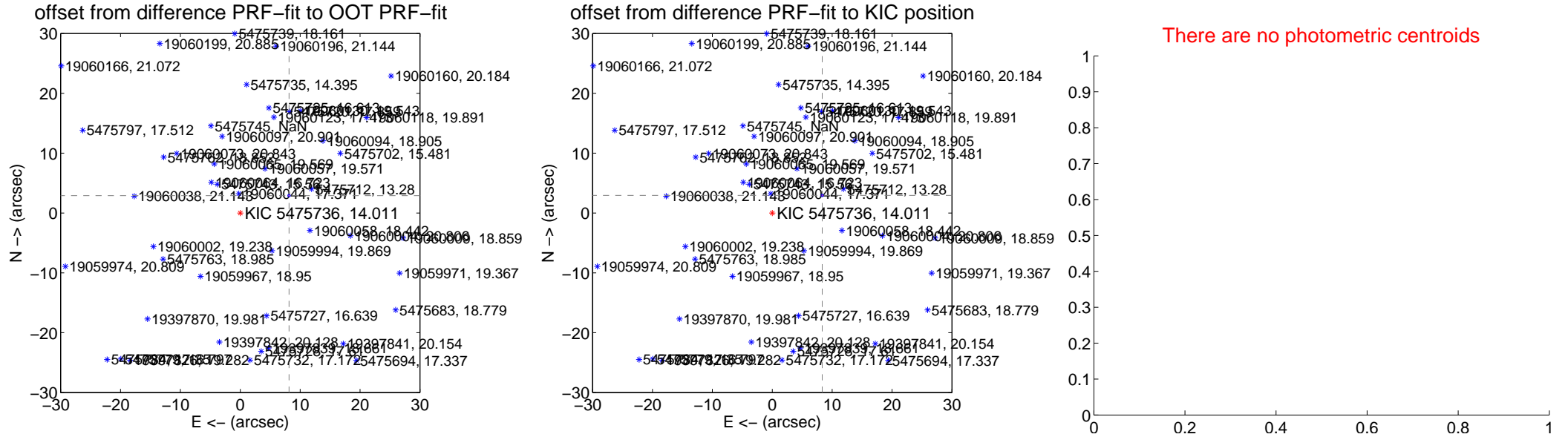
DV Centroid Data

Supplemental centroid analysis for 005475736-02. Kepler magnitude: 14.01. Transit SNR 31.45

There are 4 quarters with good PRF difference image offsets

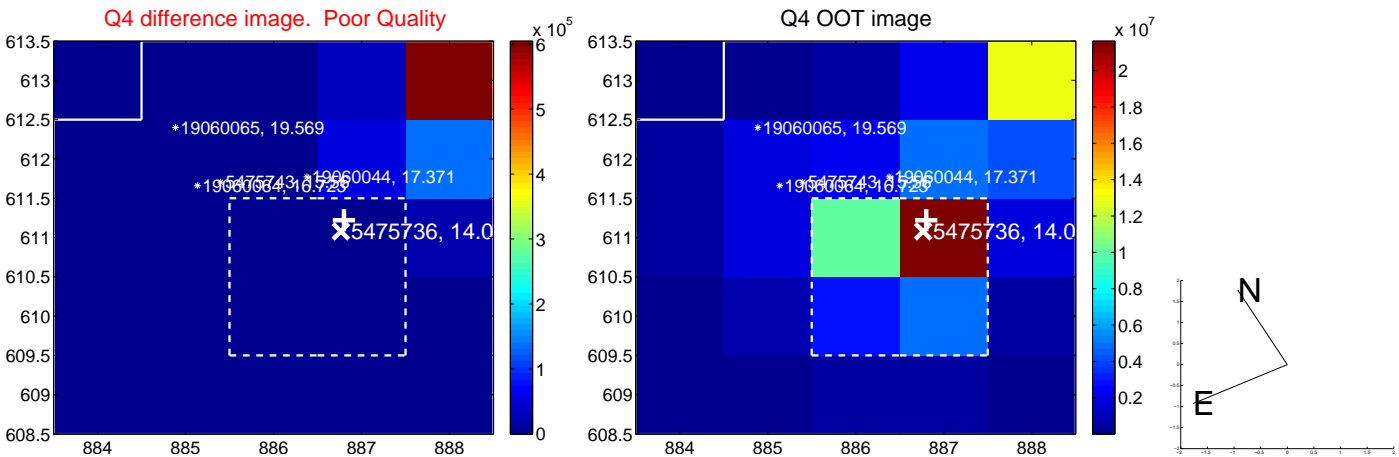
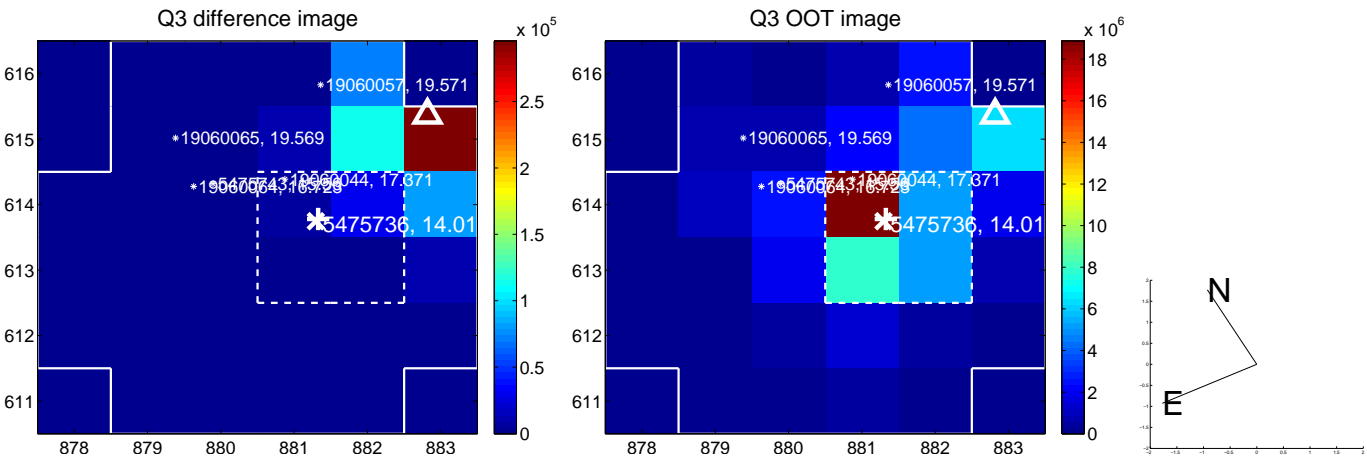
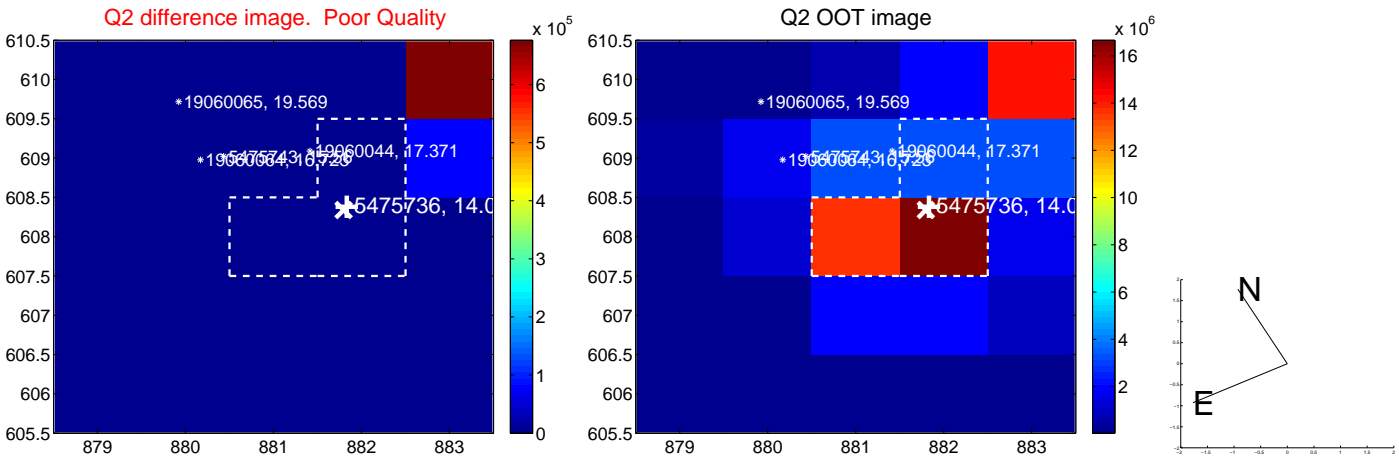
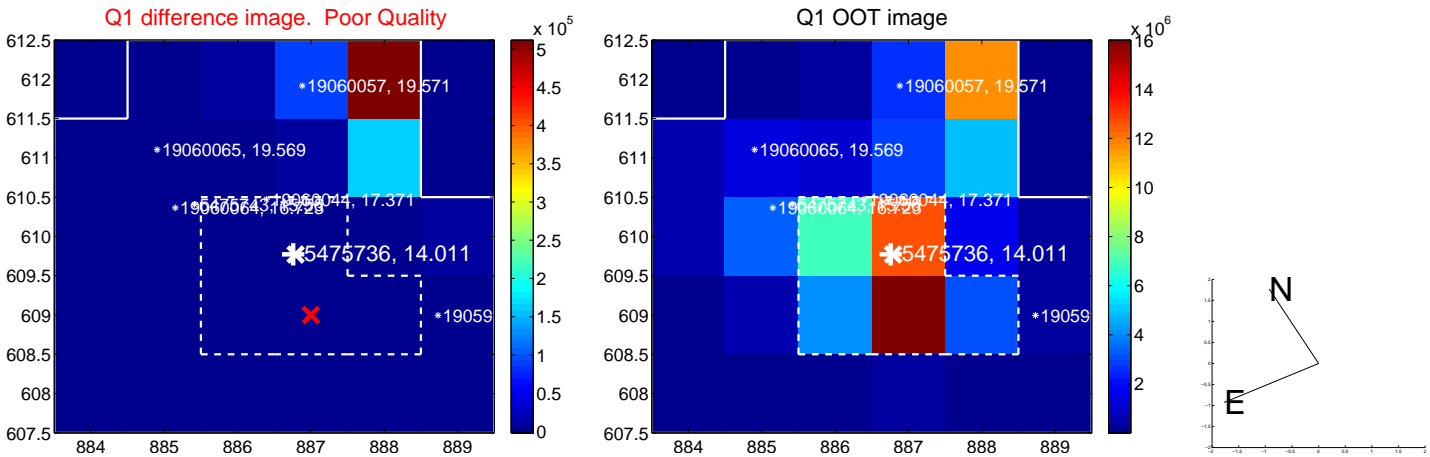
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.641 \pm 0.069	124.63	-8.137 \pm 0.070	2.909 \pm 0.067
PRF-fit source offset from KIC position	8.839 \pm 0.067	131.09	-8.336 \pm 0.067	2.939 \pm 0.068
photometric centroid source offset	—	—	—	—

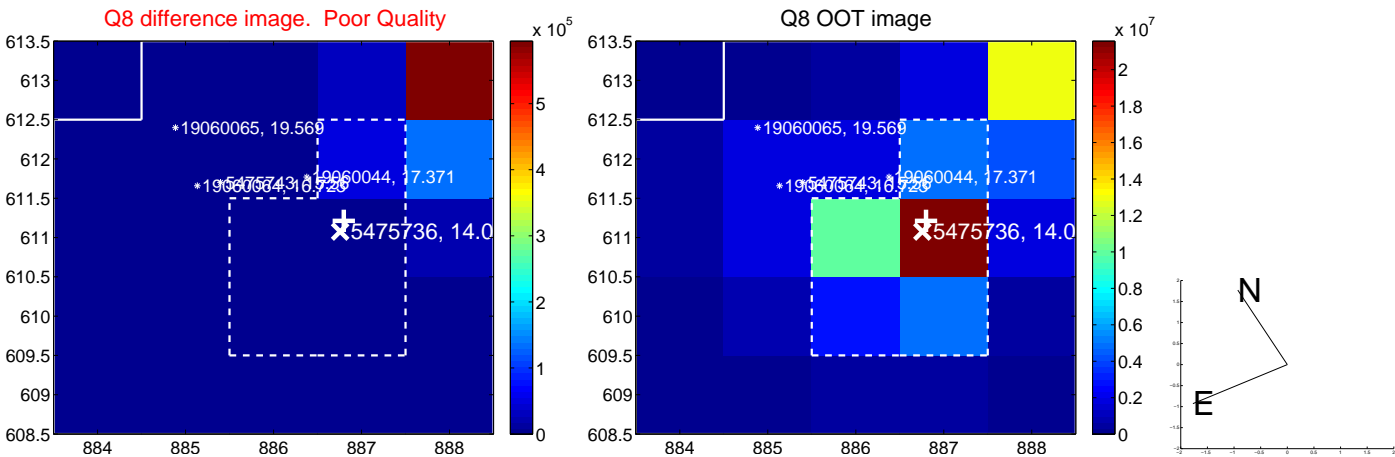
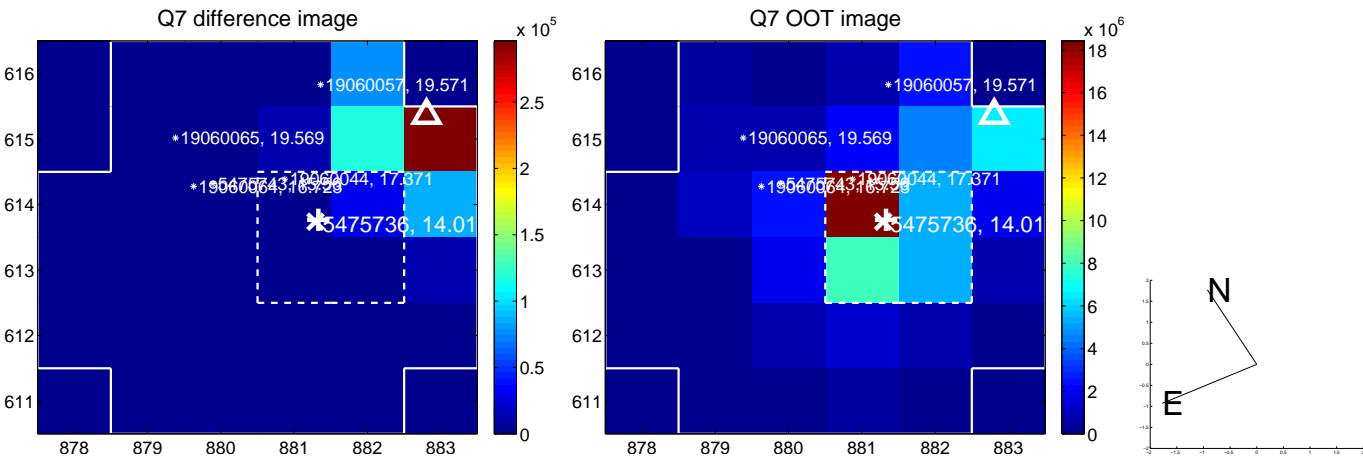
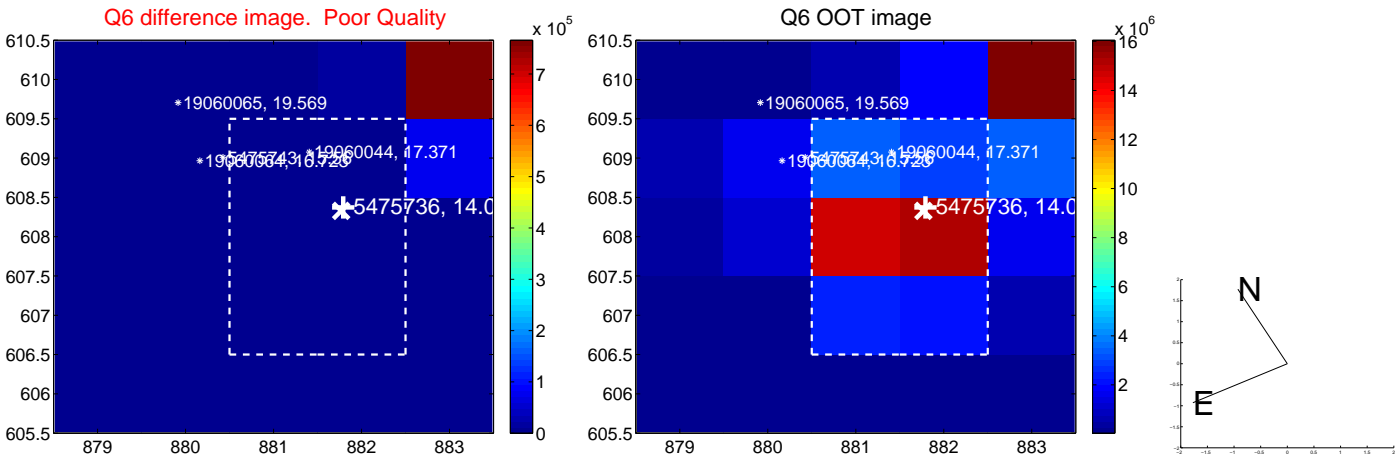
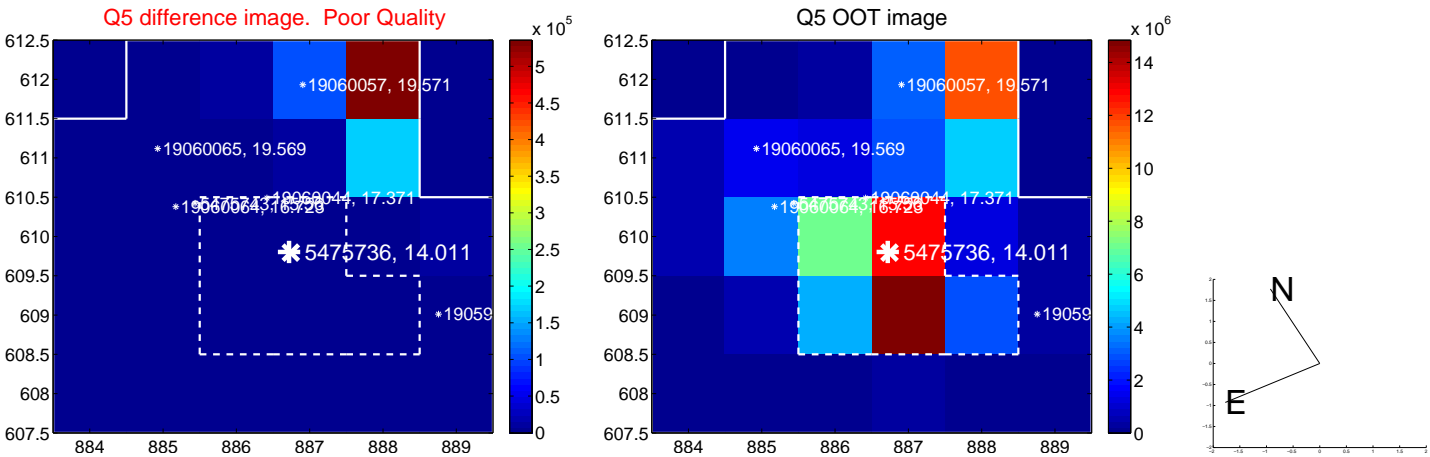


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

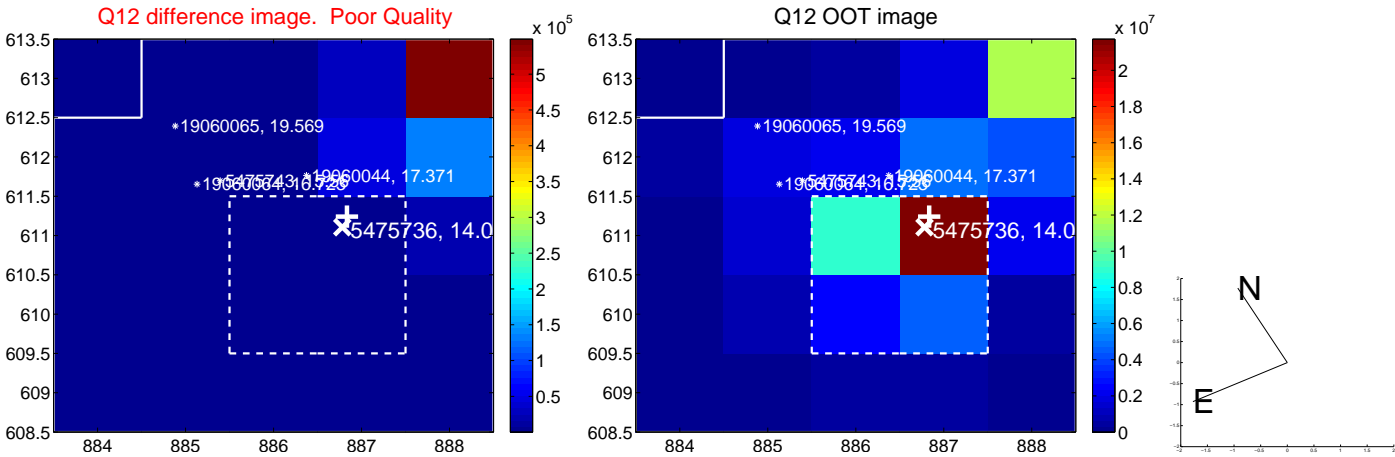
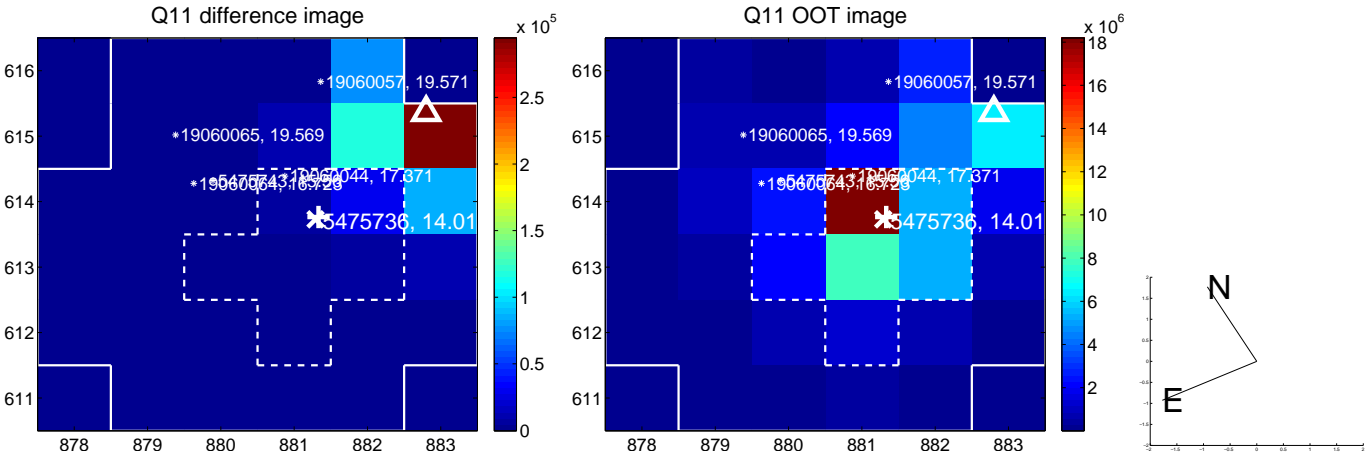
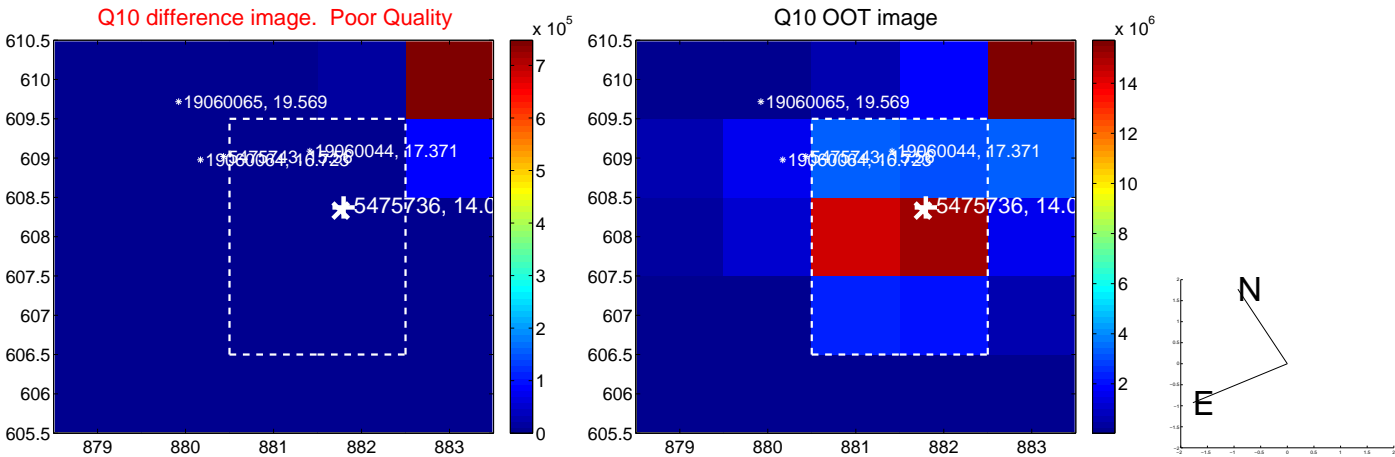
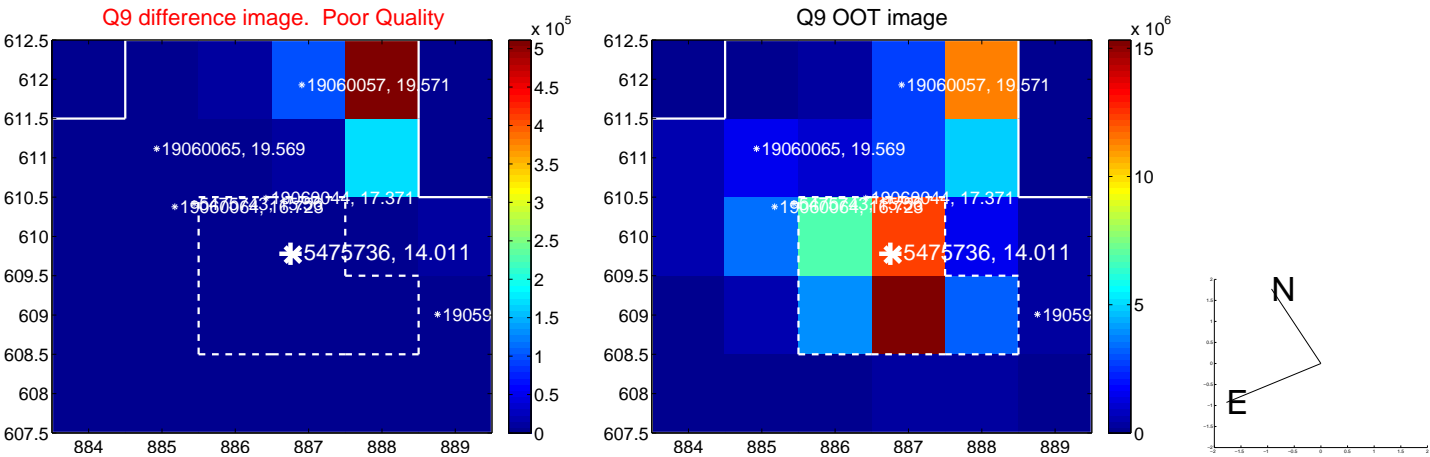
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



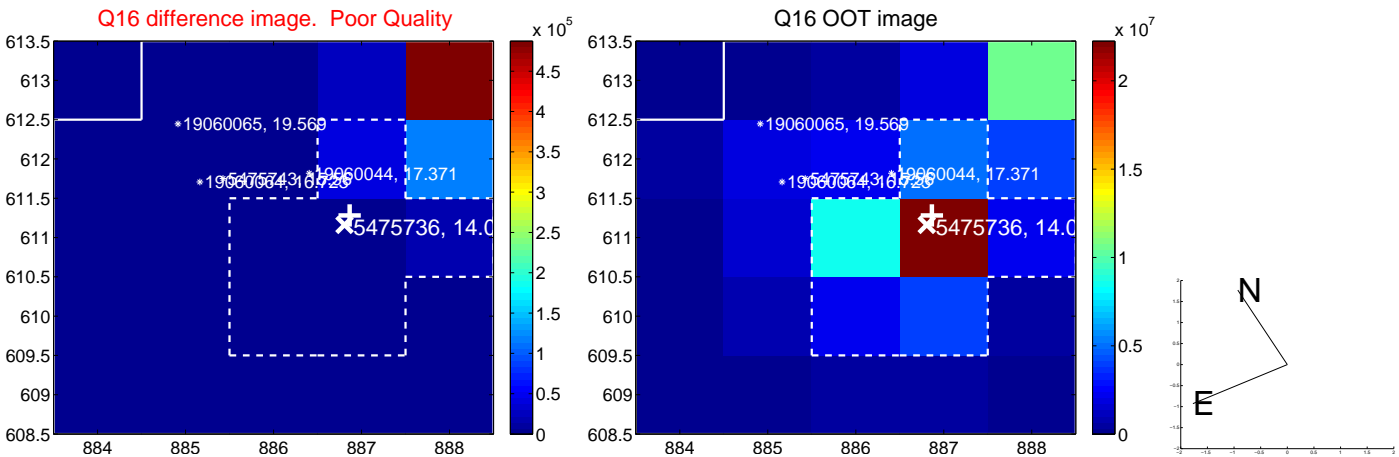
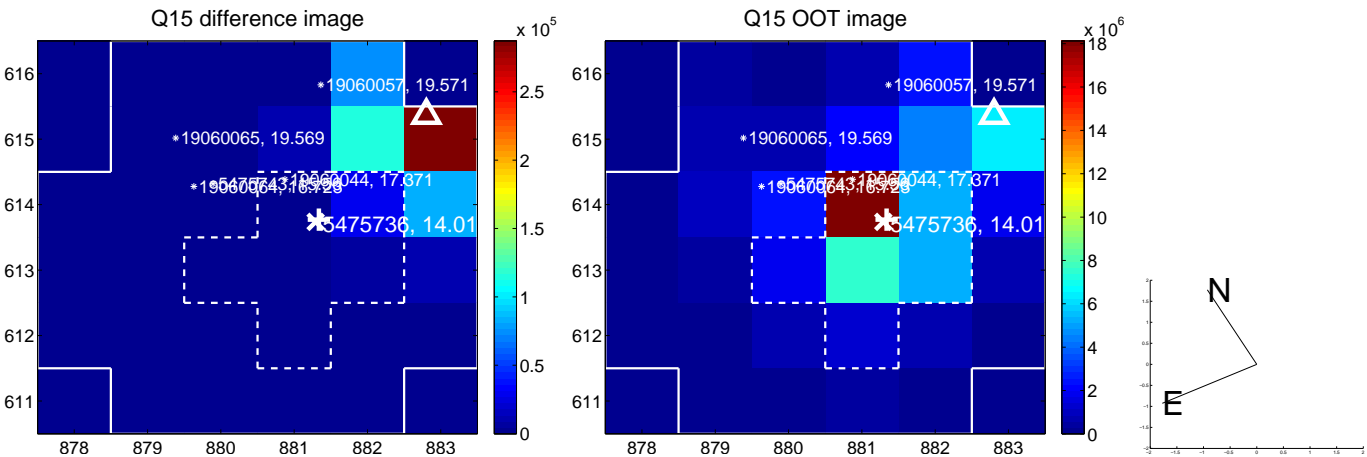
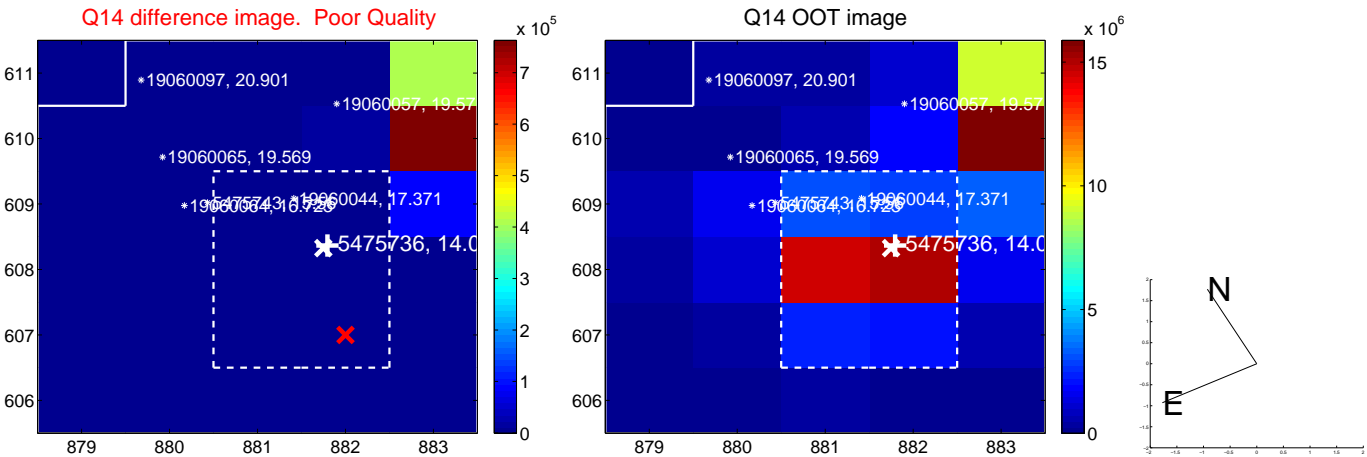
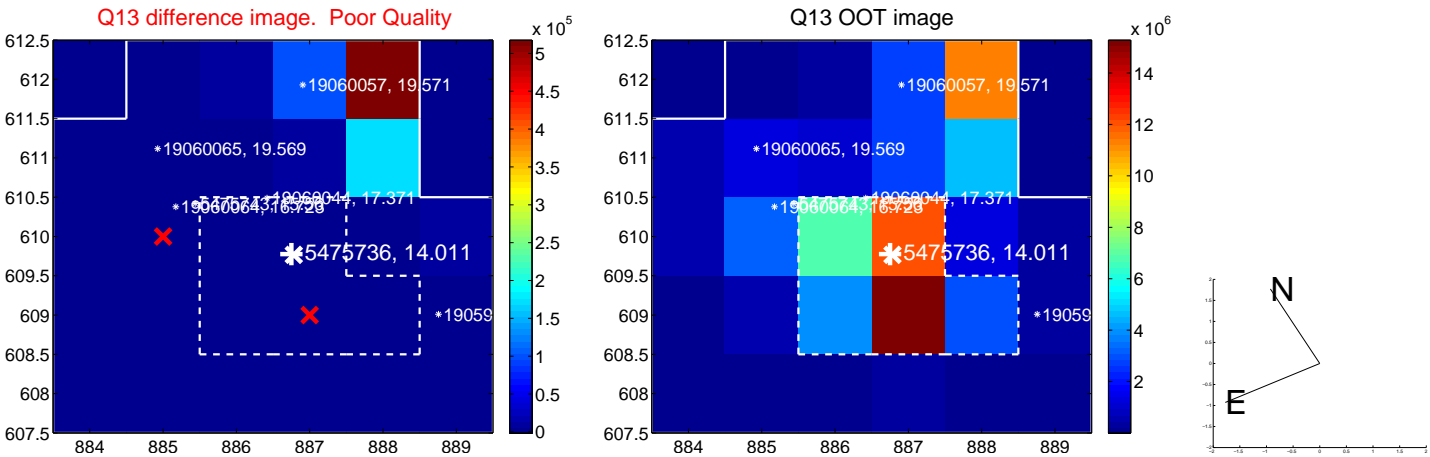
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



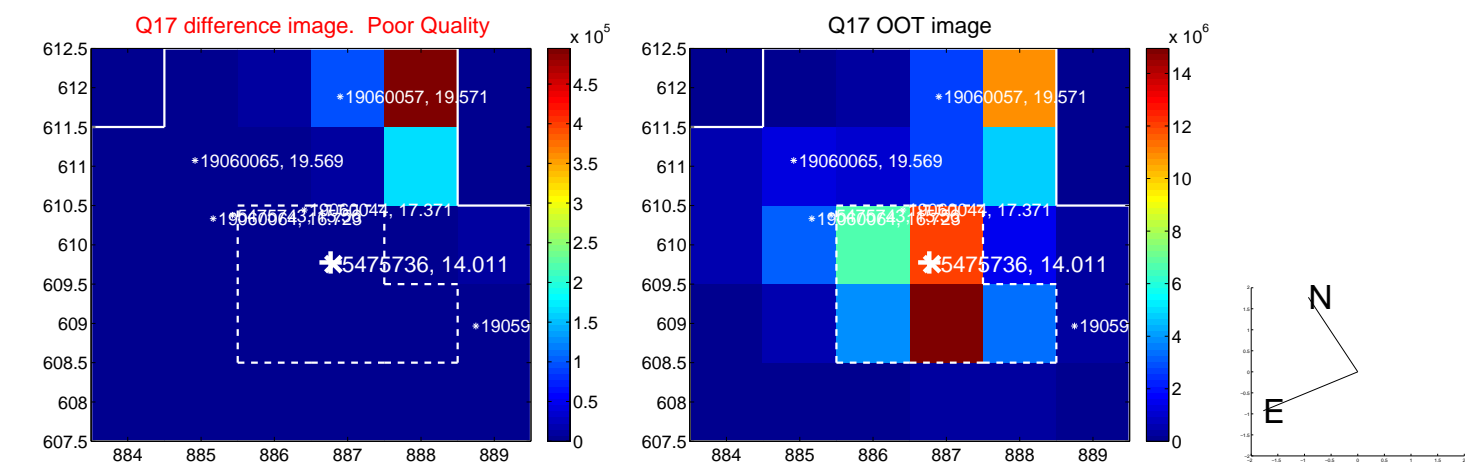
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



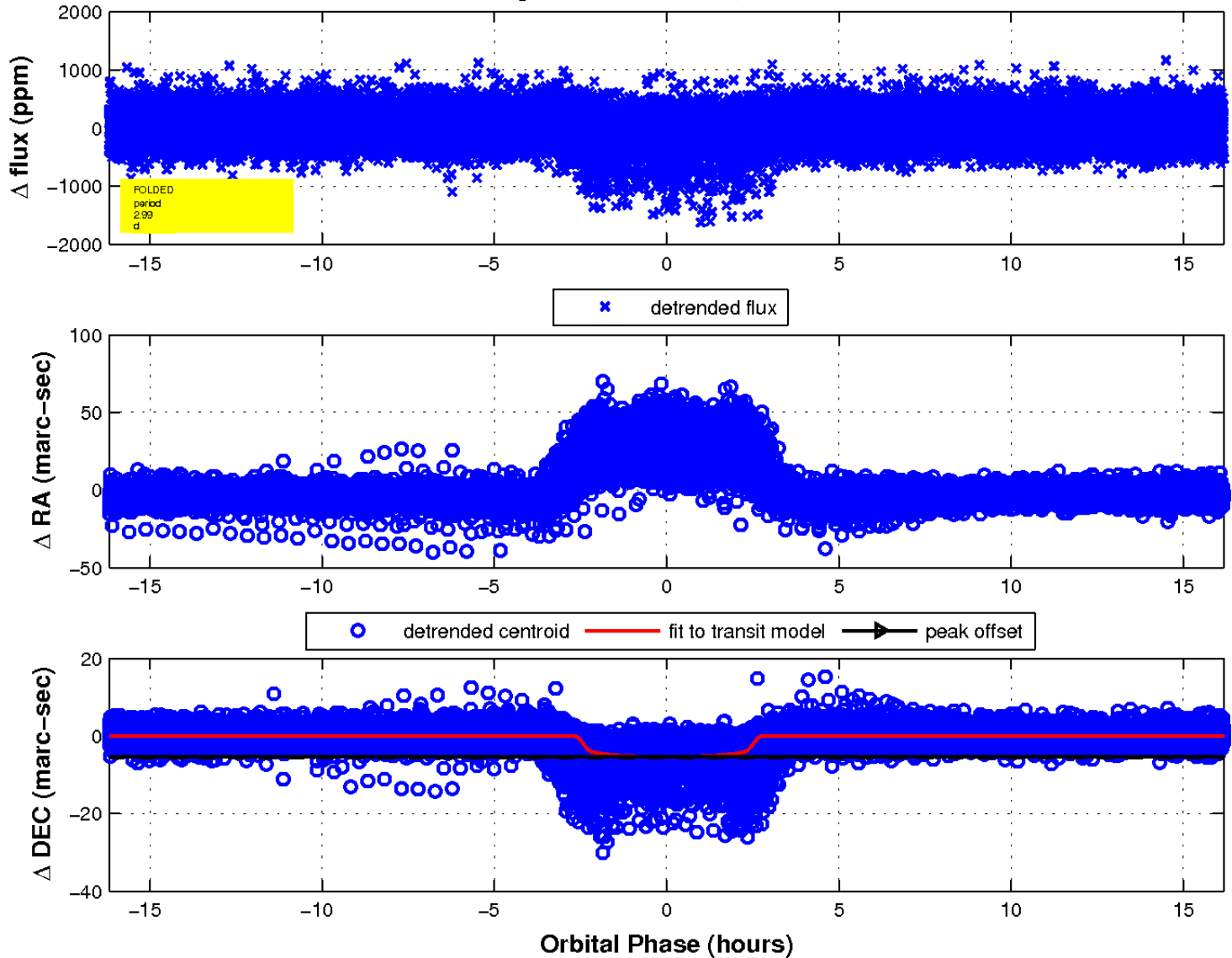
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

