

KIC 005471328

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})
005471328-01	OBS	No	12.425627	141.515946	598.8	20.988	17.3	21.7	0.70	4922	2.09	30.53
005471328-02	OBS	No	4.141670	134.038410	180.7	23.402	9.5	10.4	0.70	4922	1.20	132.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471328-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471328-02	OBS	FP	0.00	1	0	1	1	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—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.

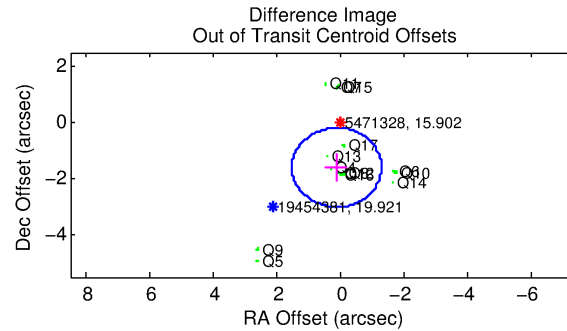
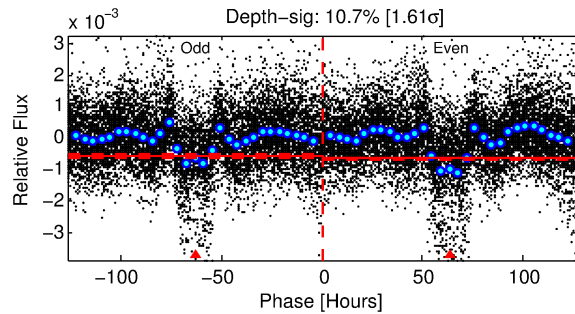
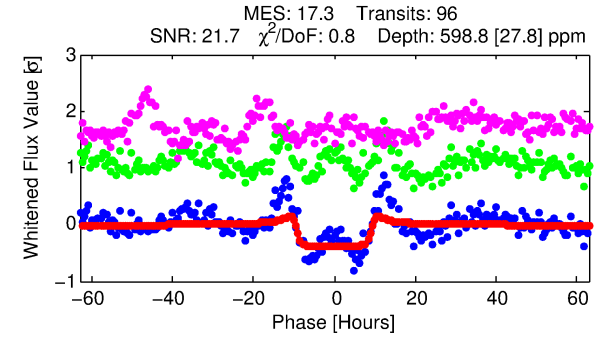
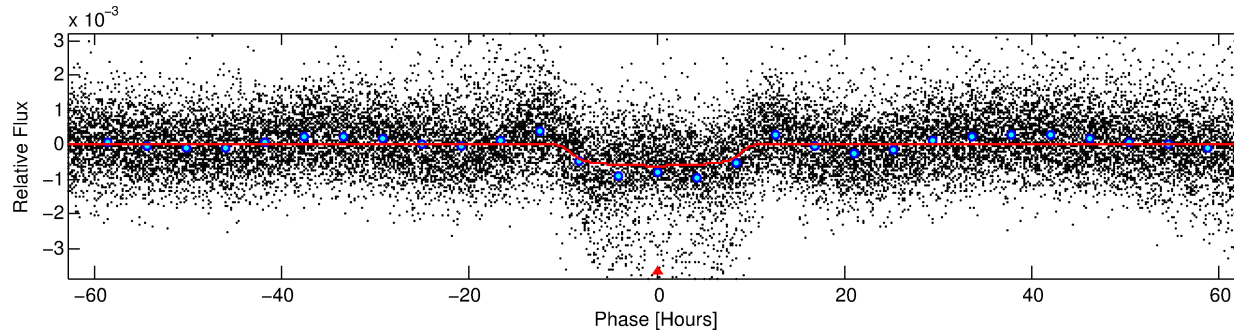
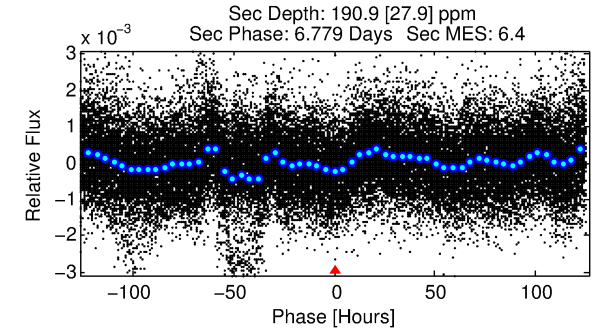
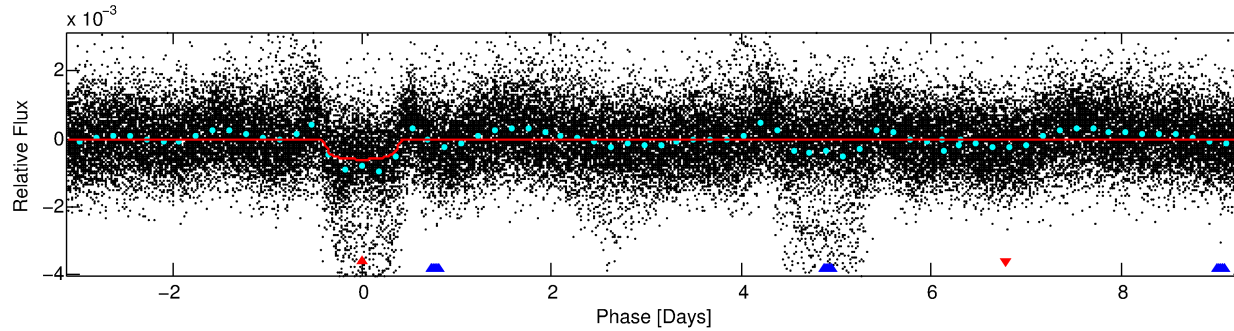
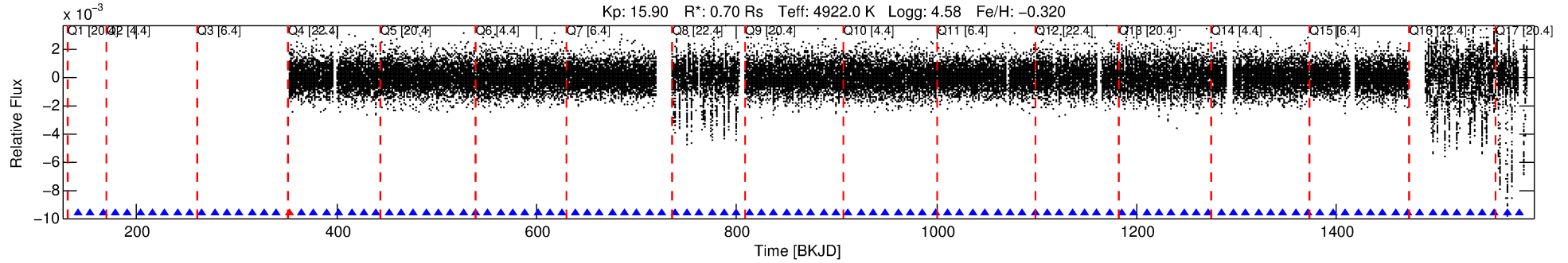
Ephemeris Match Information For 005471328-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471328-01	5471328	V380-Cyg-pri	5385723	1:1	93.6	14	-18	5.77	15.90	241.96	Direct-PRF	0	0.27	0.78

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: 5471328 Candidate: 1 of 2 Period: 12.426 d
KOI: K06585 Corr: No Ephemeris Match



DV Fit Results:

Period = 12.42563 [0.00024] d
Epoch = 141.5159 [0.0164] BKJD
Rp/R* = 0.0272 [0.0012]
a/R* = 2.45 [0.27]
b = 0.90 [0.03]
Seff = 30.53 [5.76]
Teq = 599 [28] K
Rp = 2.09 [0.22] Re
a = 0.0924 [0.0079] AU
Ag = 205.38 [43.63] [4.68σ]
Teffp = 3508 [192] K [15.02σ]

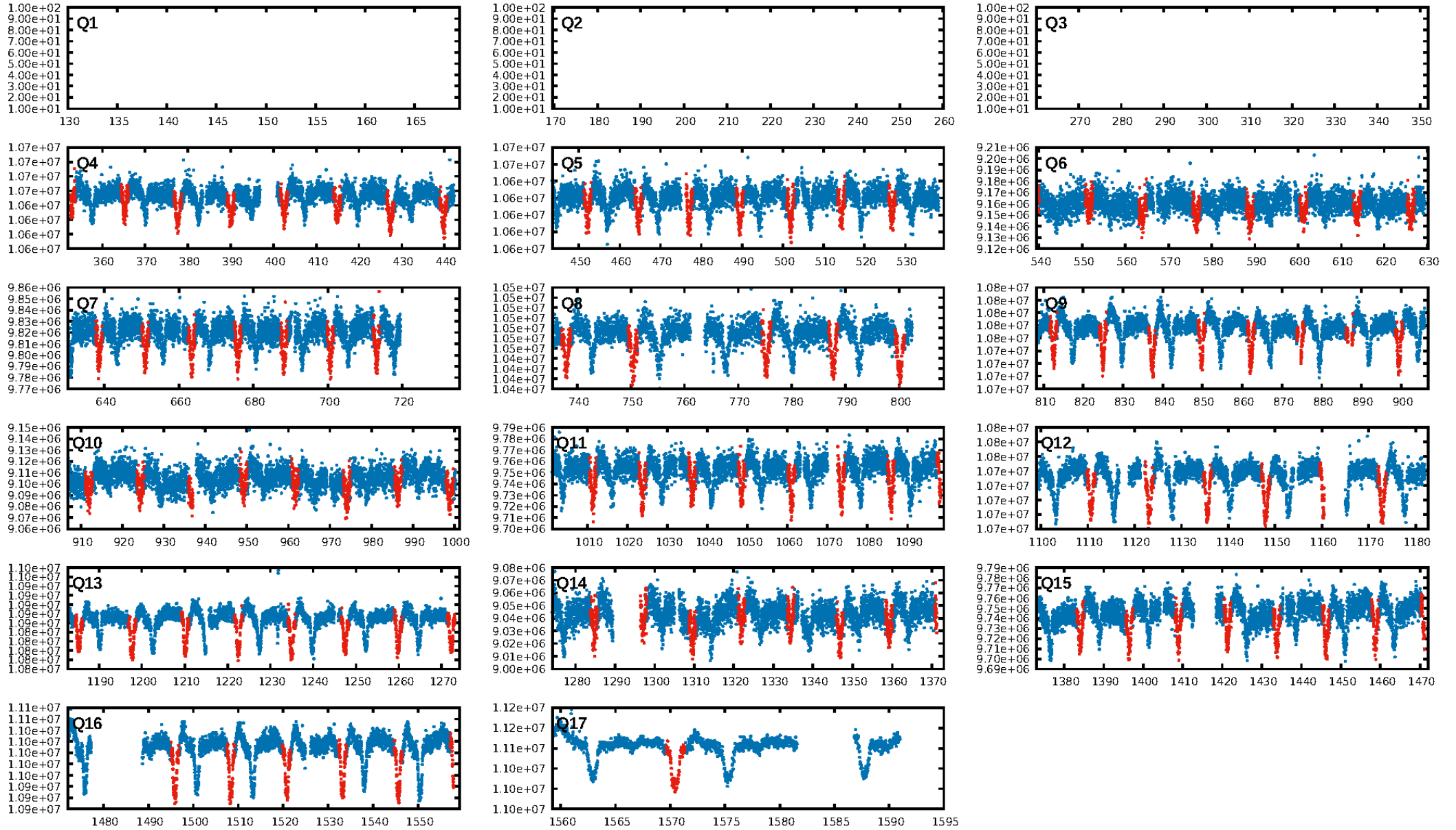
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.32σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.51e-54
RollingBand-fgt: 0.99 [94/95]
GhostDiagnostic-chr: -0.2234
Centroid-sig: 0.0%
Centroid-so: 5.512 arcsec [10.90σ]
OotOffset-rm: 1.604 arcsec [3.41σ]
KicOffset-rm: 1.840 arcsec [3.77σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.00 [0/14]
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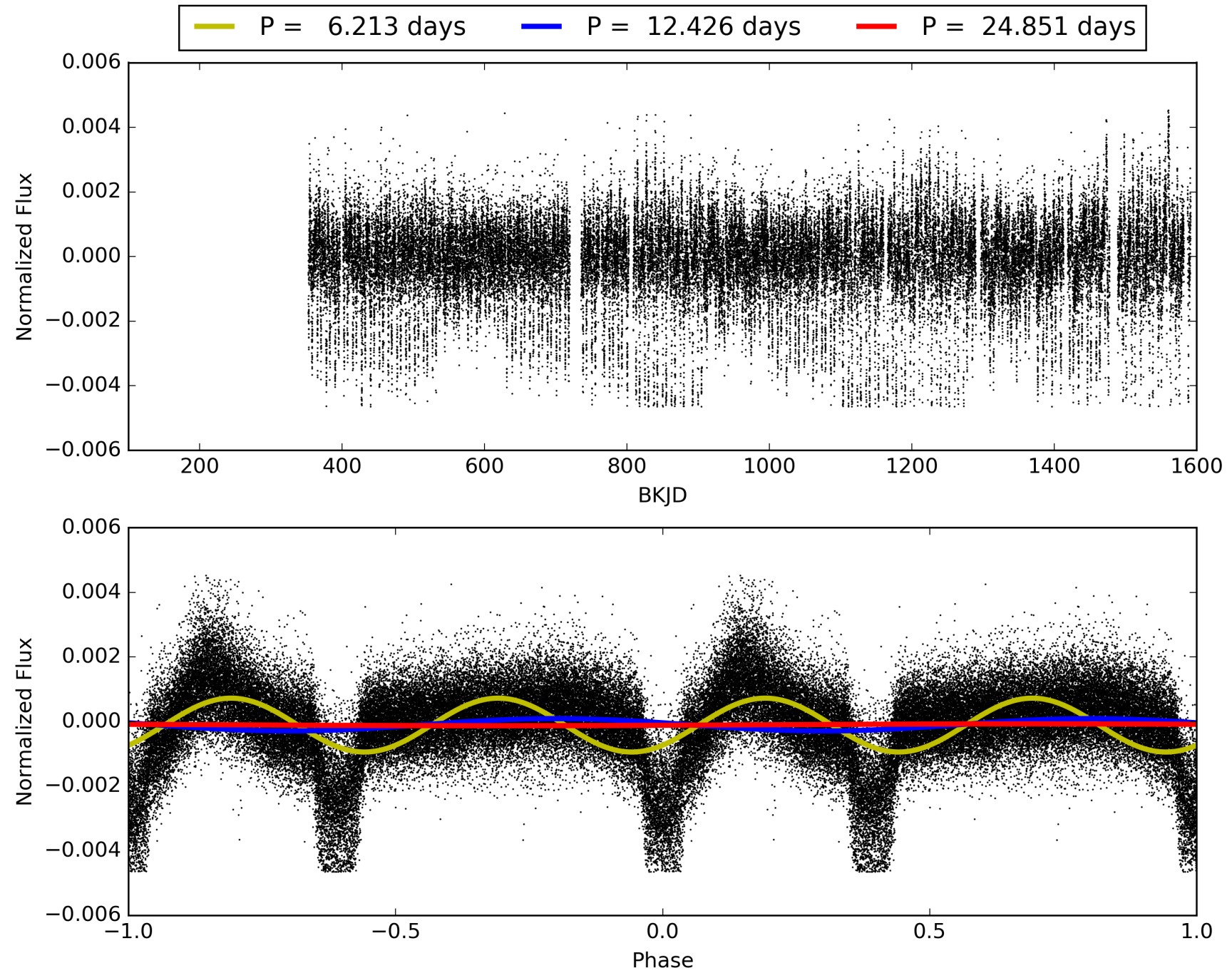
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471328-01, PDC Light Curves

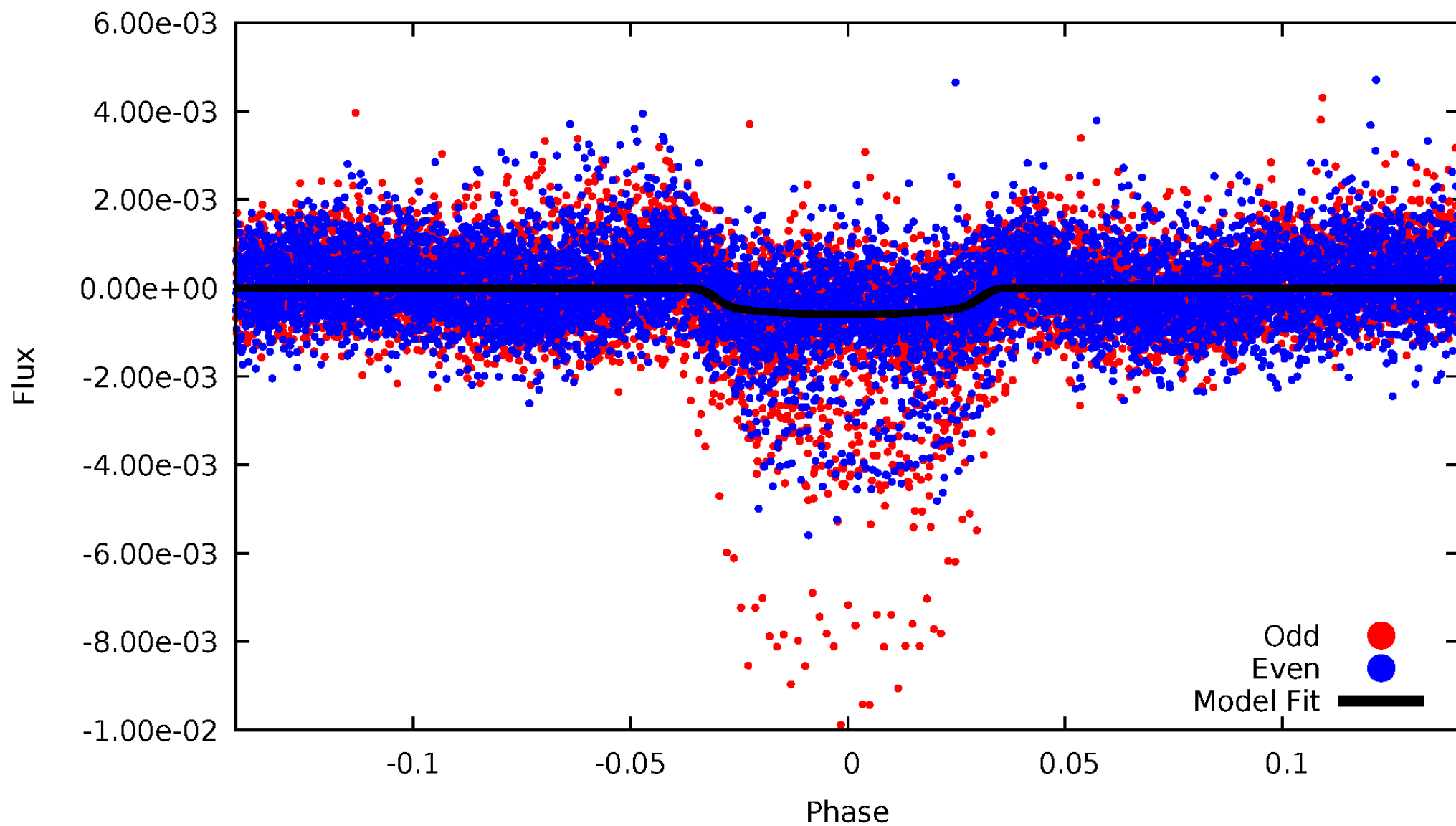


TCE 005471328-01



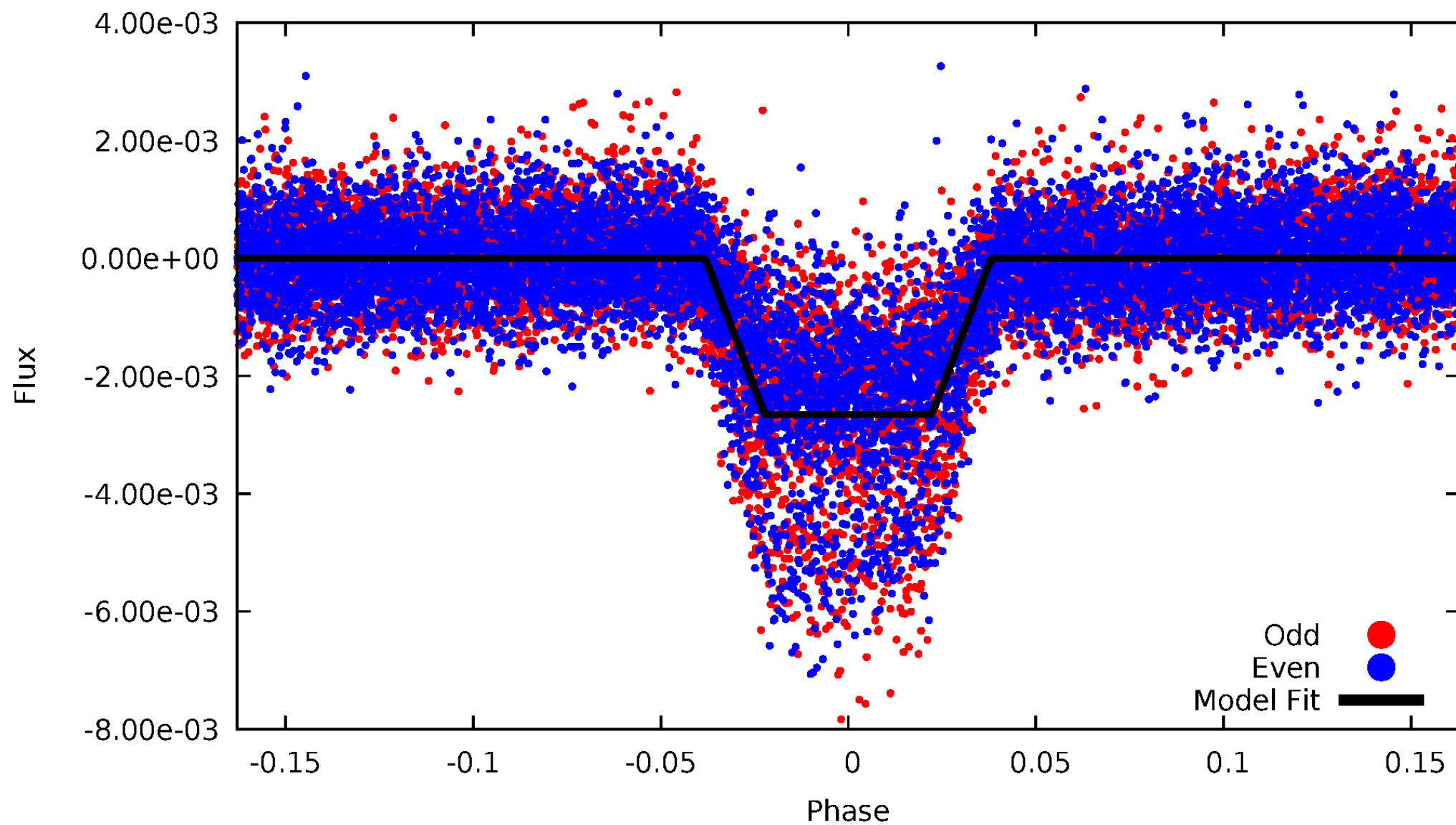
DV Odd/Even

TCE 005471328-01

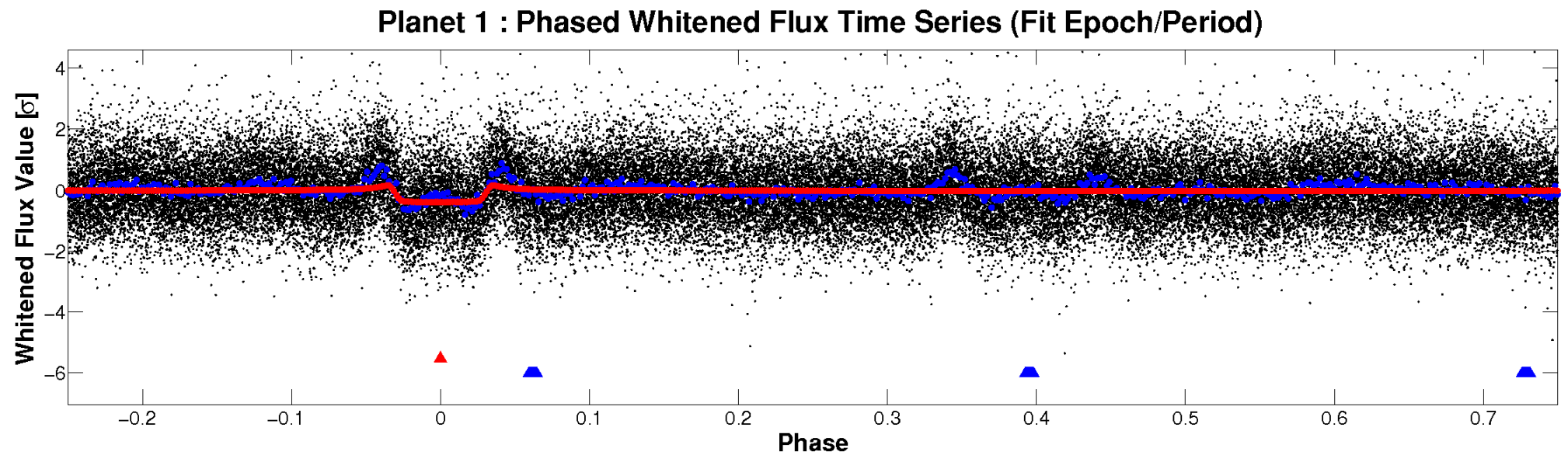
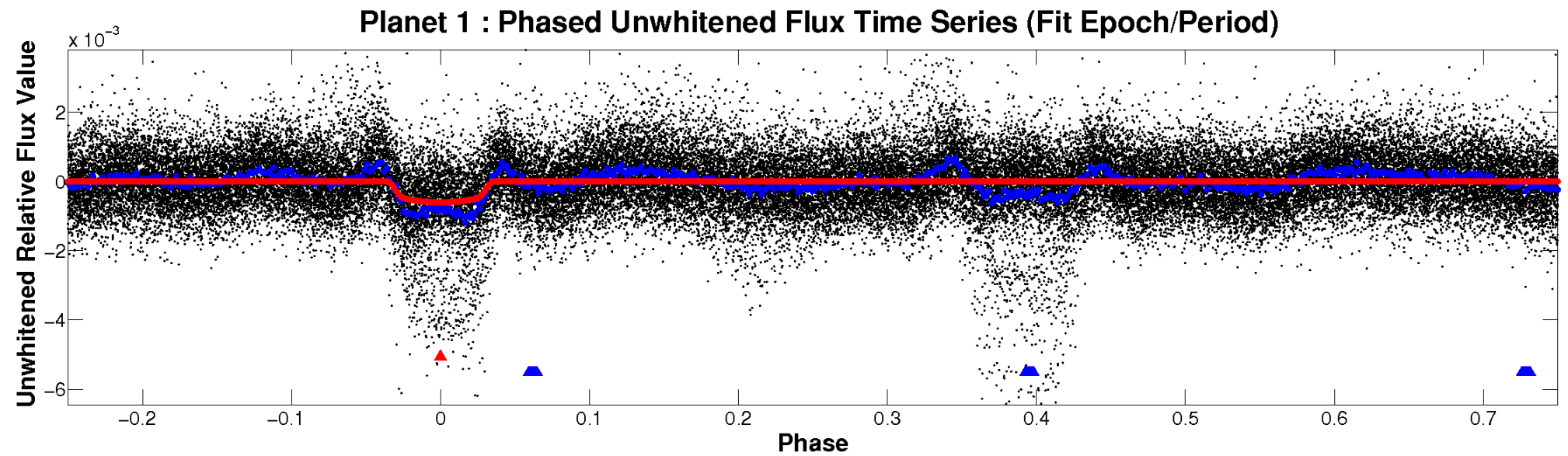


ALT Odd/Even

TCE 005471328-01

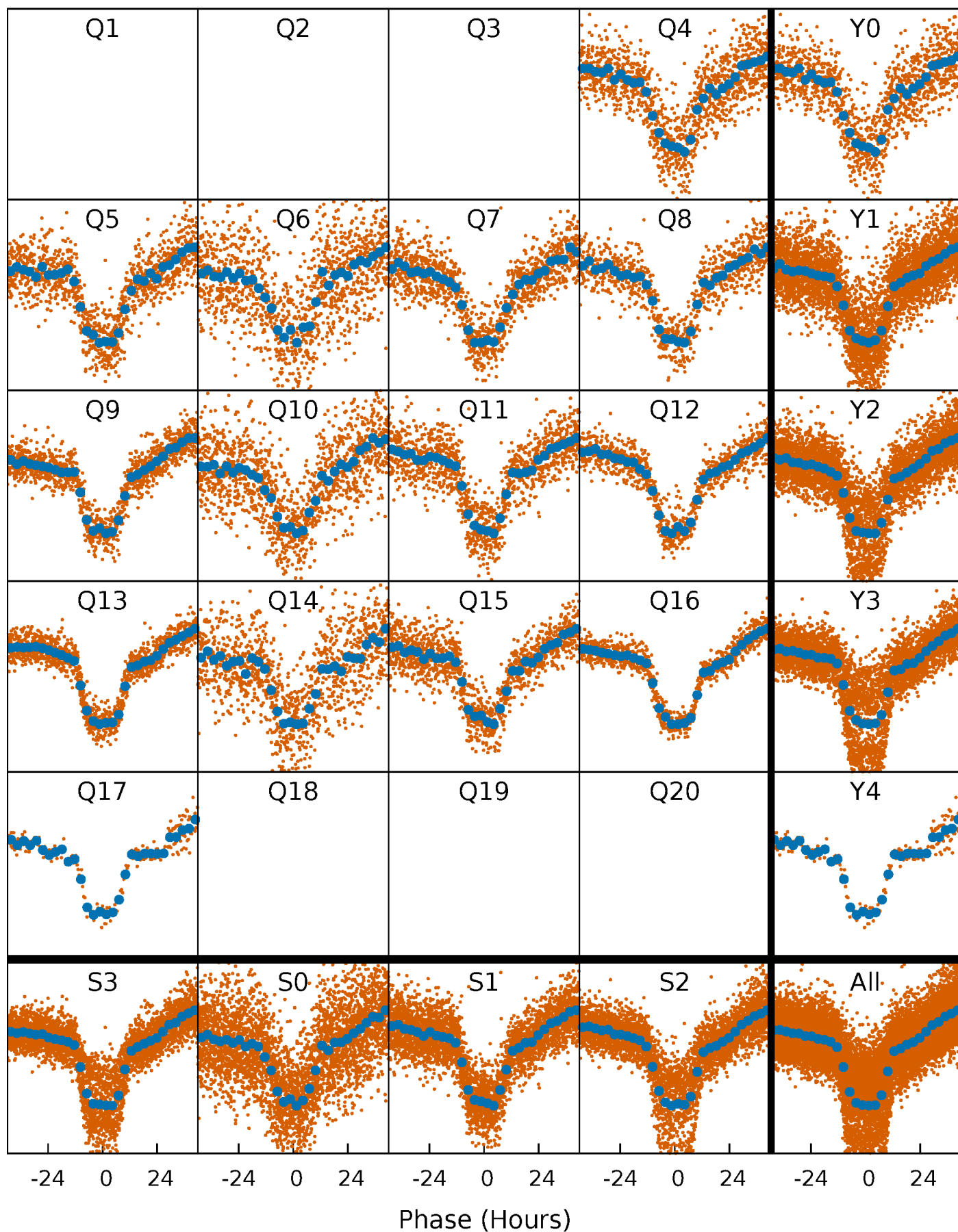


Non-Whitened Vs. Whitened Light Curve



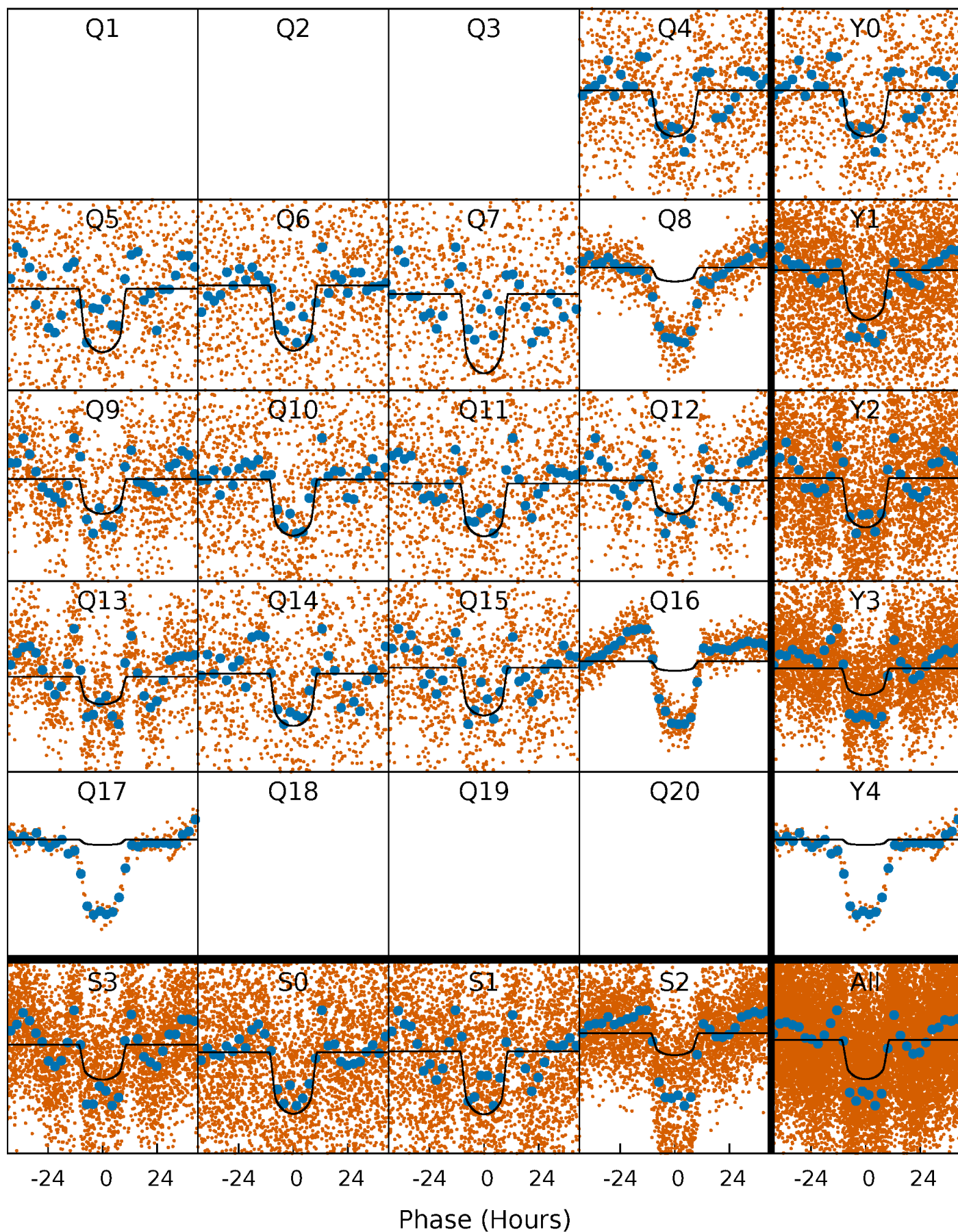
PDC Quarter-Phased Transit Curves

TCE 005471328-01 P= 12.425627 Days $T_0=141.515946$ (BKJD)



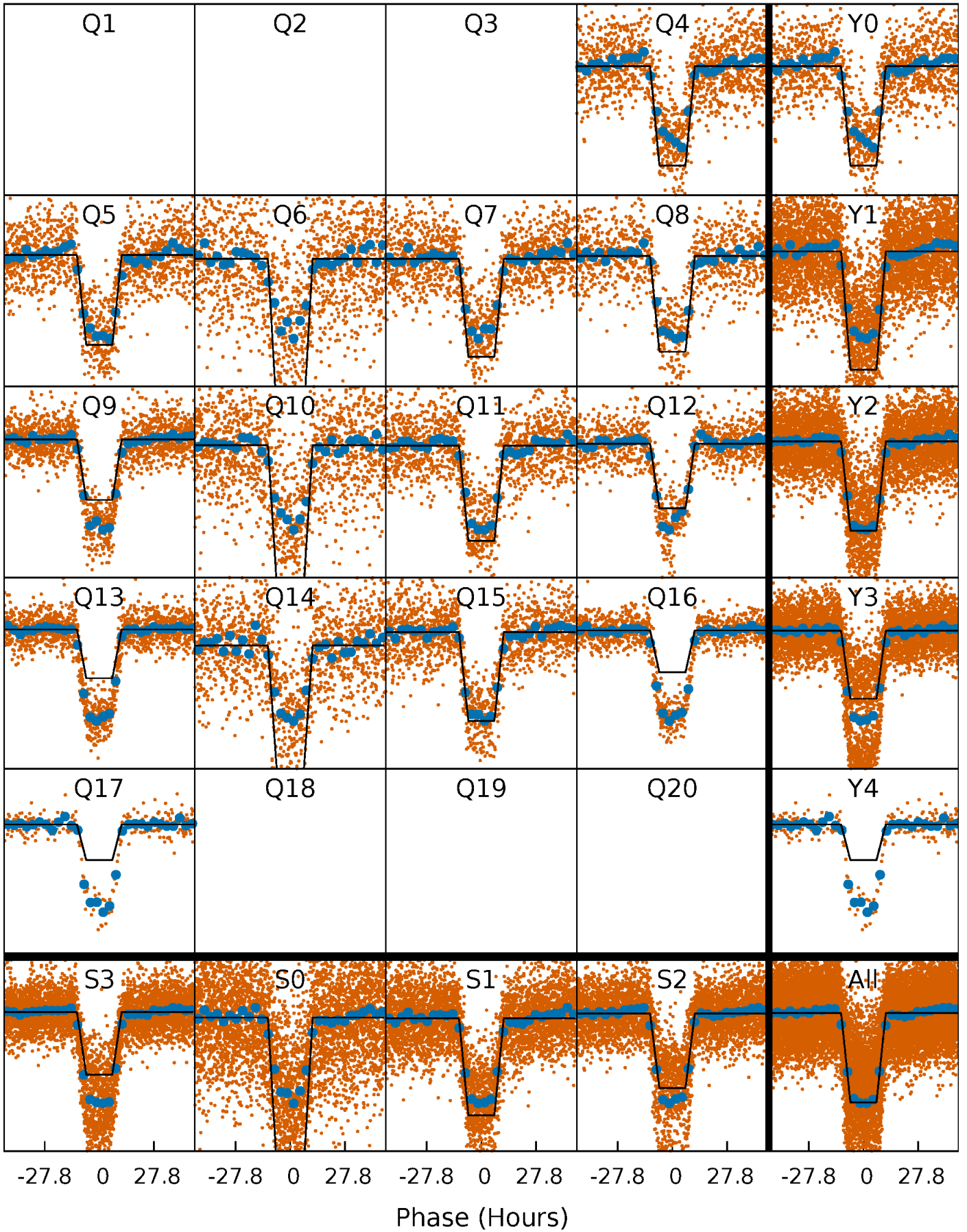
DV Quarter-Phased Transit Curves

TCE 005471328-01 P= 12.425627 Days $T_0=141.515946$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

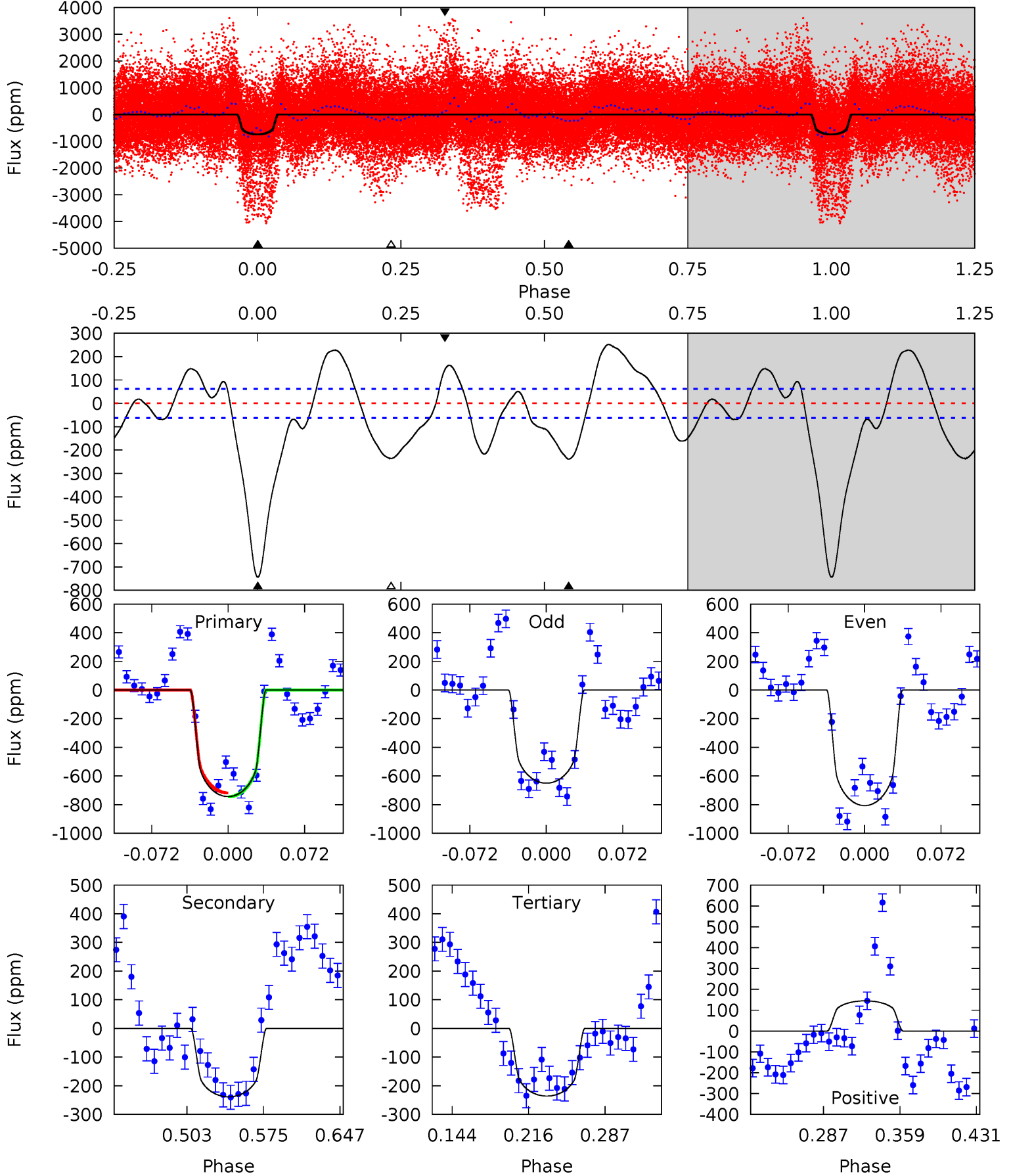
TCE 005471328-01 P= 12.425672 Days $T_0=141.515909$ (BKJD)



DV Model-Shift Uniqueness Test

005471328-01, P = 12.425627 Days, E = 141.515946 Days

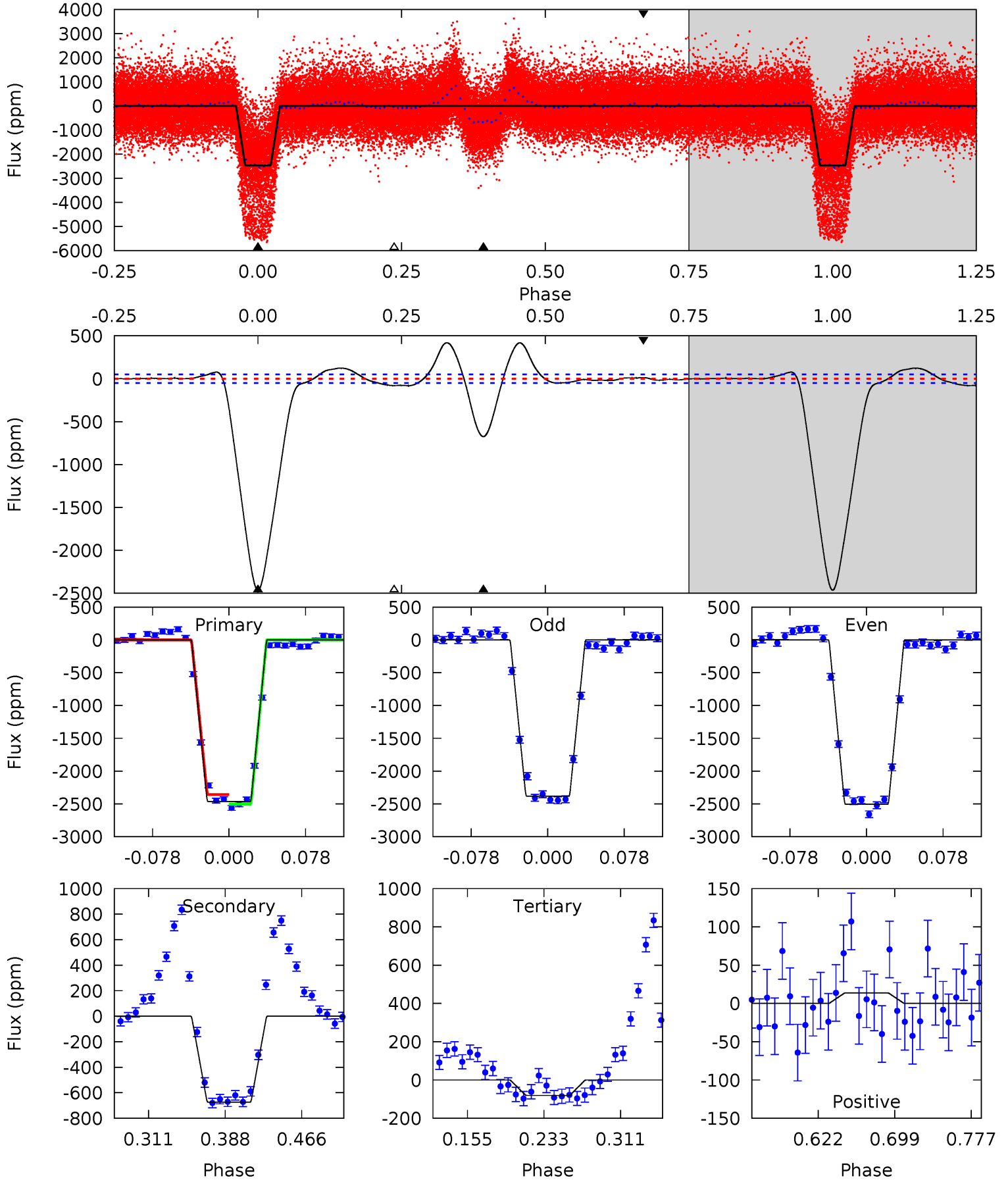
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.3	17.8	17.6	10.8	4.63	1.80	9.61	37.7	44.5	0.20	6.98	5.90	1.44	0.25	1.02



Alt Model-Shift Uniqueness Test

005471328-01, P = 12.425672 Days, E = 141.515909 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
226.8	62.0	7.42	1.26	4.62	1.76	5.57	219.4	225.5	54.6	60.8	5.68	1.18	0.15	6.45



Stellar Parameters For KIC 005471328

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4922^{+170}_{-170}	$4.576^{+0.072}_{-0.039}$	$-0.320^{+0.300}_{-0.300}$	$0.704^{+0.069}_{-0.069}$	$0.681^{+0.090}_{-0.045}$	$2.749^{+0.817}_{-0.437}$
	+3%/-3%	+2%/-1%	+94%/-94%	+10%/-10%	+13%/-7%	+30%/-16%
Source	KIC0	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 005471328-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-239 ± 13	$2.08^{+0.14}_{-0.15}$	830^{+34}_{-36}	3952^{+150}_{-134}	263^{+38}_{-31}
Alt.	-674 ± 11	$3.92^{+0.25}_{-0.23}$	832^{+34}_{-34}	3807^{+115}_{-116}	206^{+25}_{-16}

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 $A_{obs} \gg 1.0$

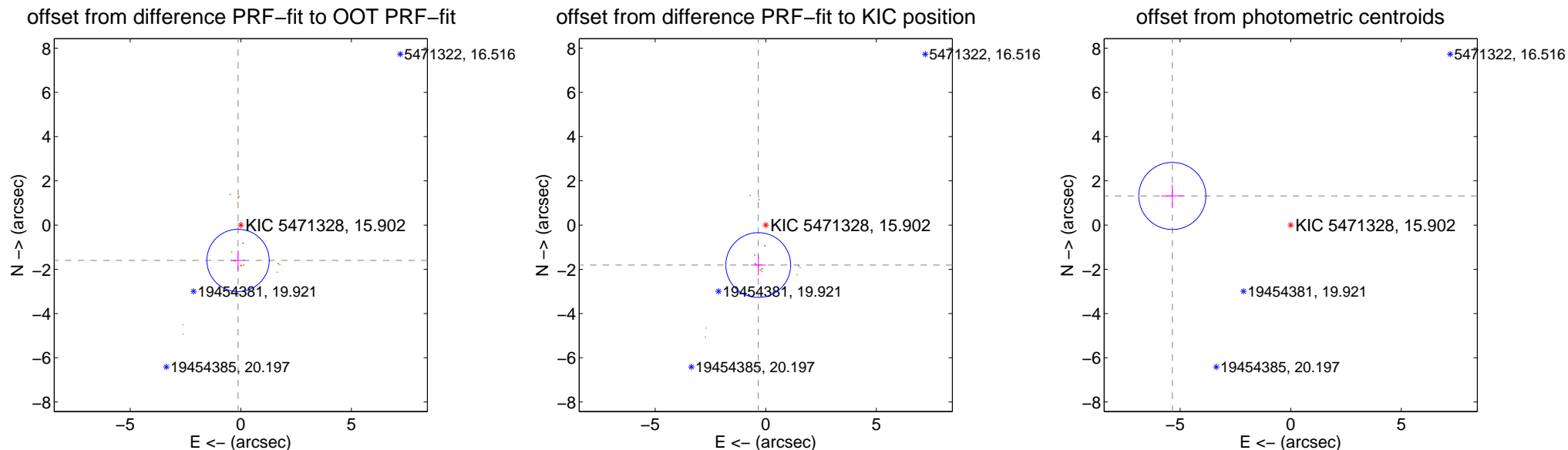
DV Centroid Data

Supplemental centroid analysis for 005471328-01. Kepler magnitude: 15.90. Transit SNR 21.65

There are 0 quarters with good PRF difference image offsets

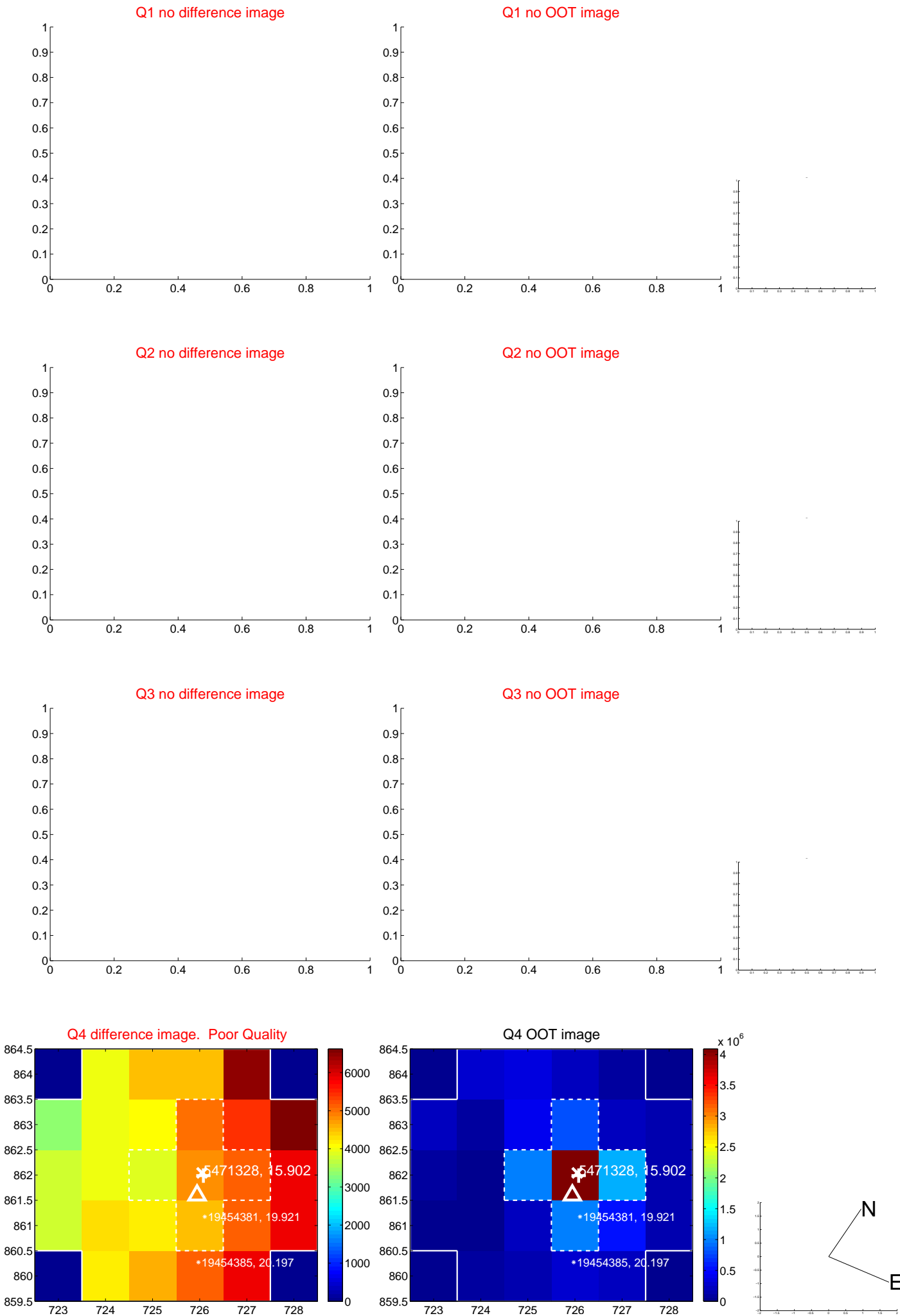
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.604 ± 0.470	3.41	0.123 ± 0.327	-1.599 ± 0.461
PRF-fit source offset from KIC position	1.840 ± 0.488	3.77	0.339 ± 0.331	-1.808 ± 0.468
photometric centroid source offset	5.51 ± 0.51	10.90	5.35 ± 0.51	1.32 ± 0.51

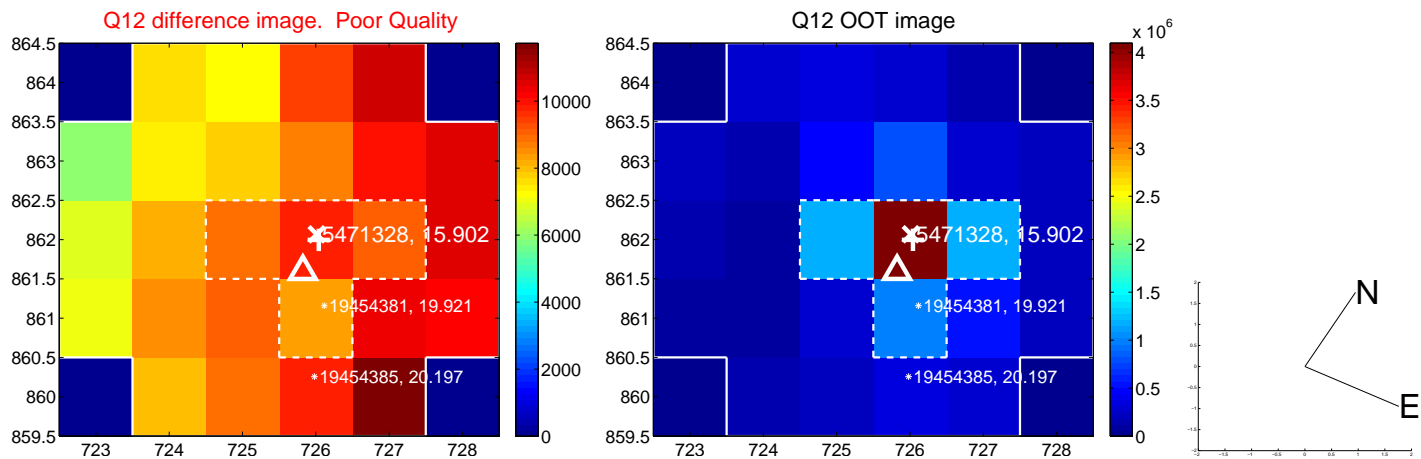
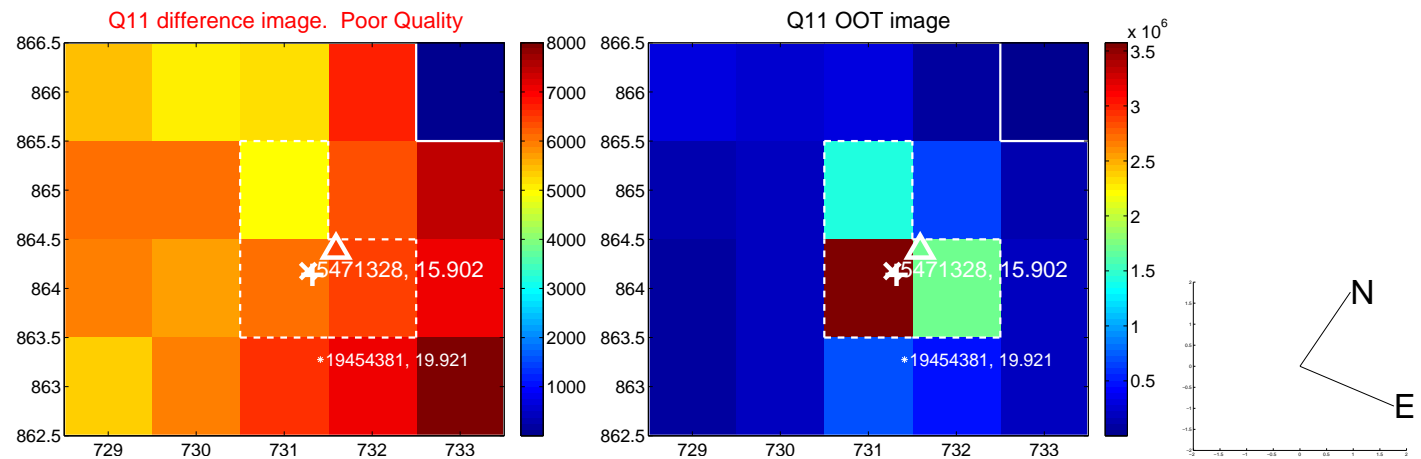
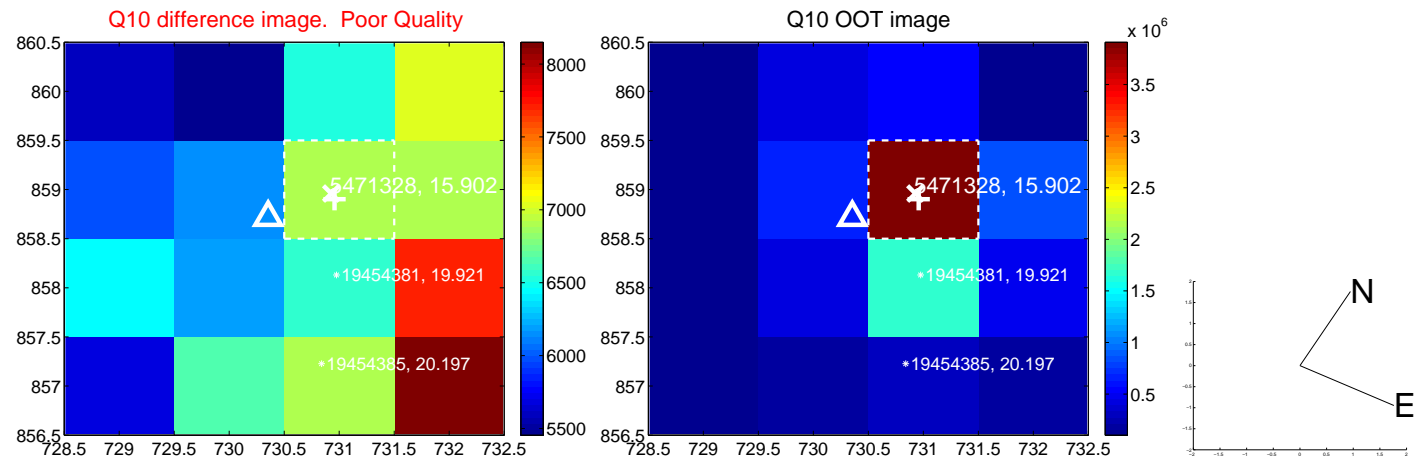
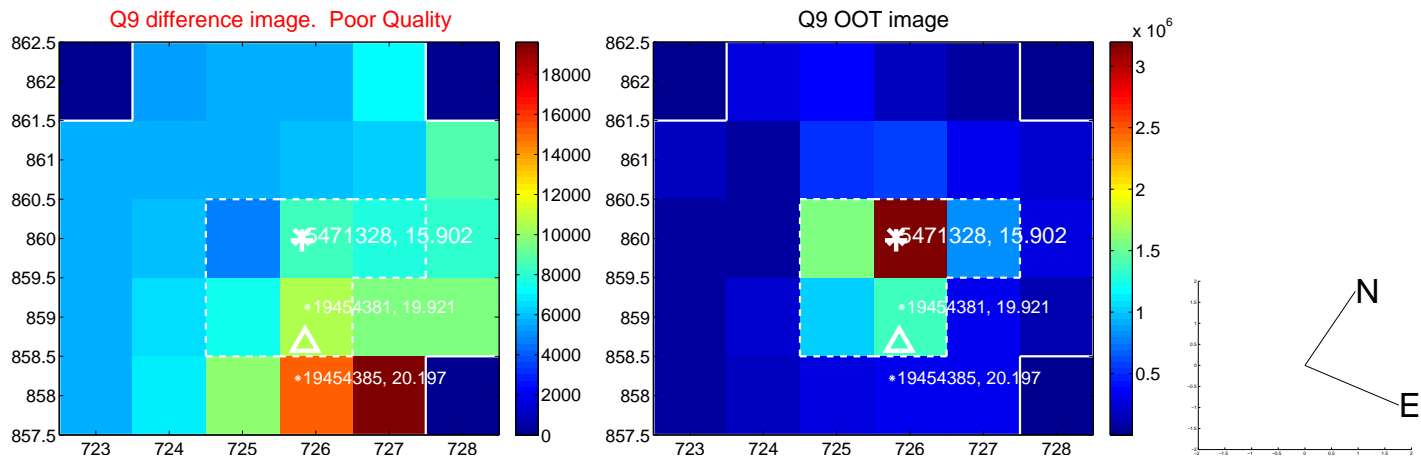


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

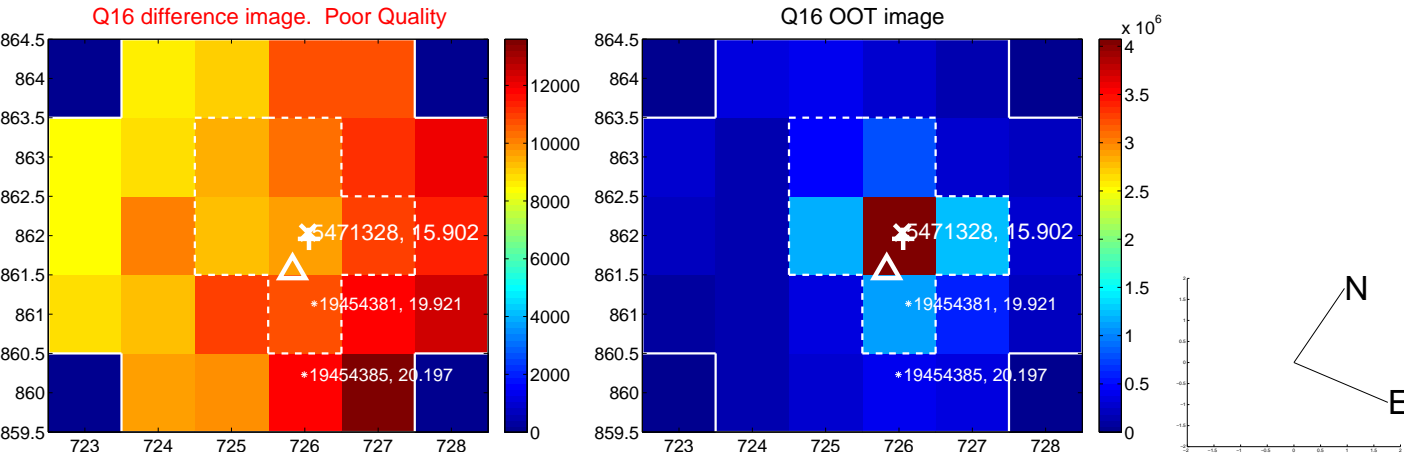
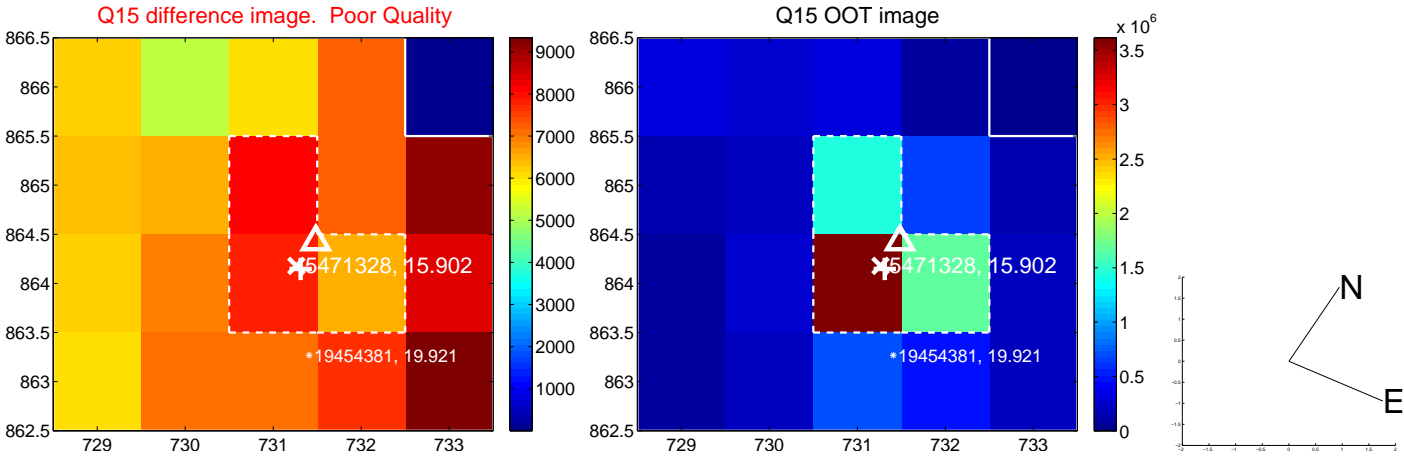
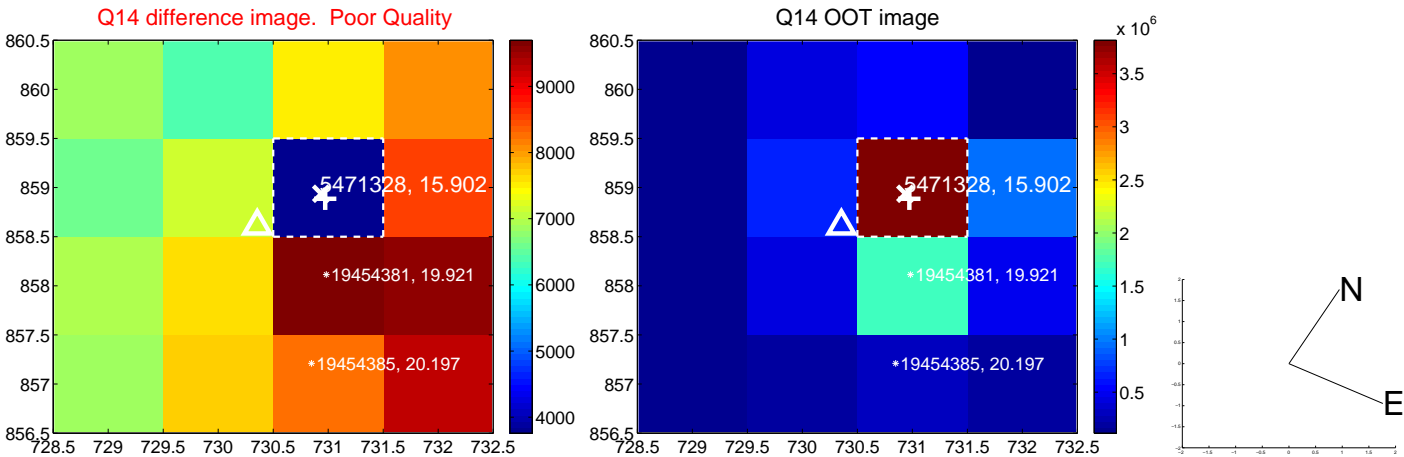
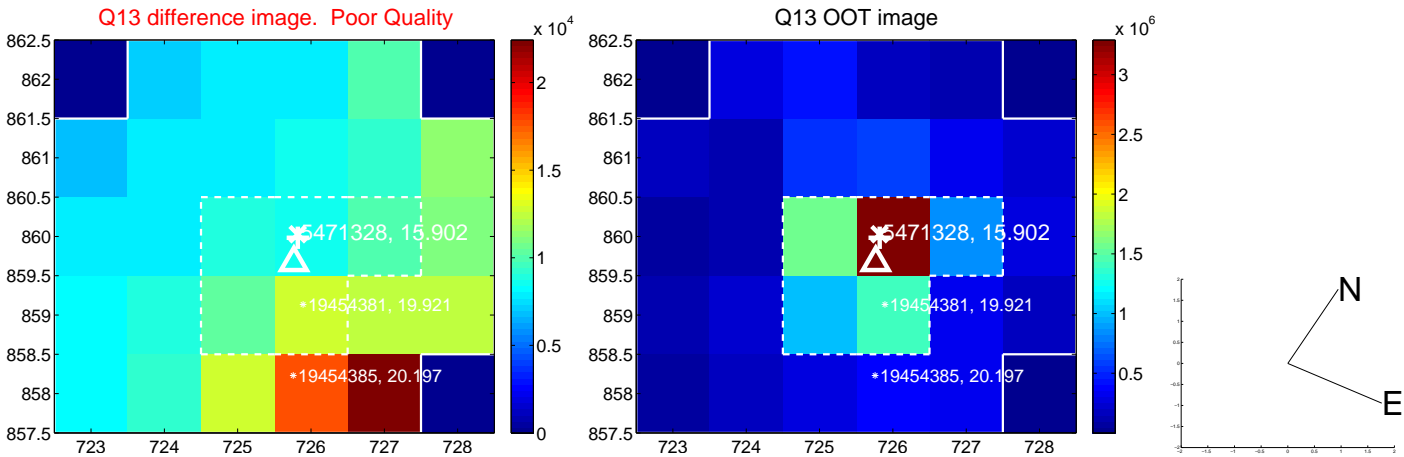
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



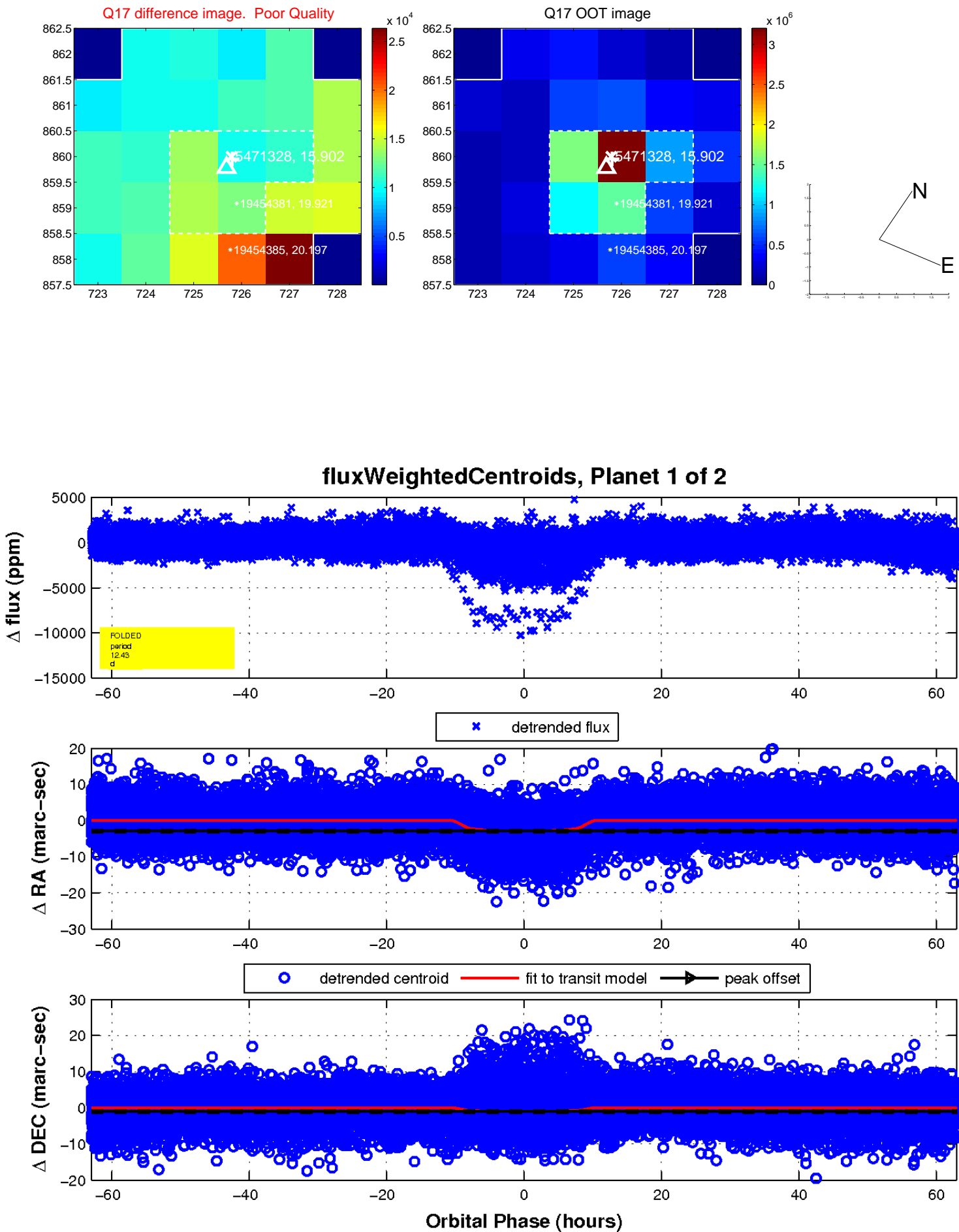
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

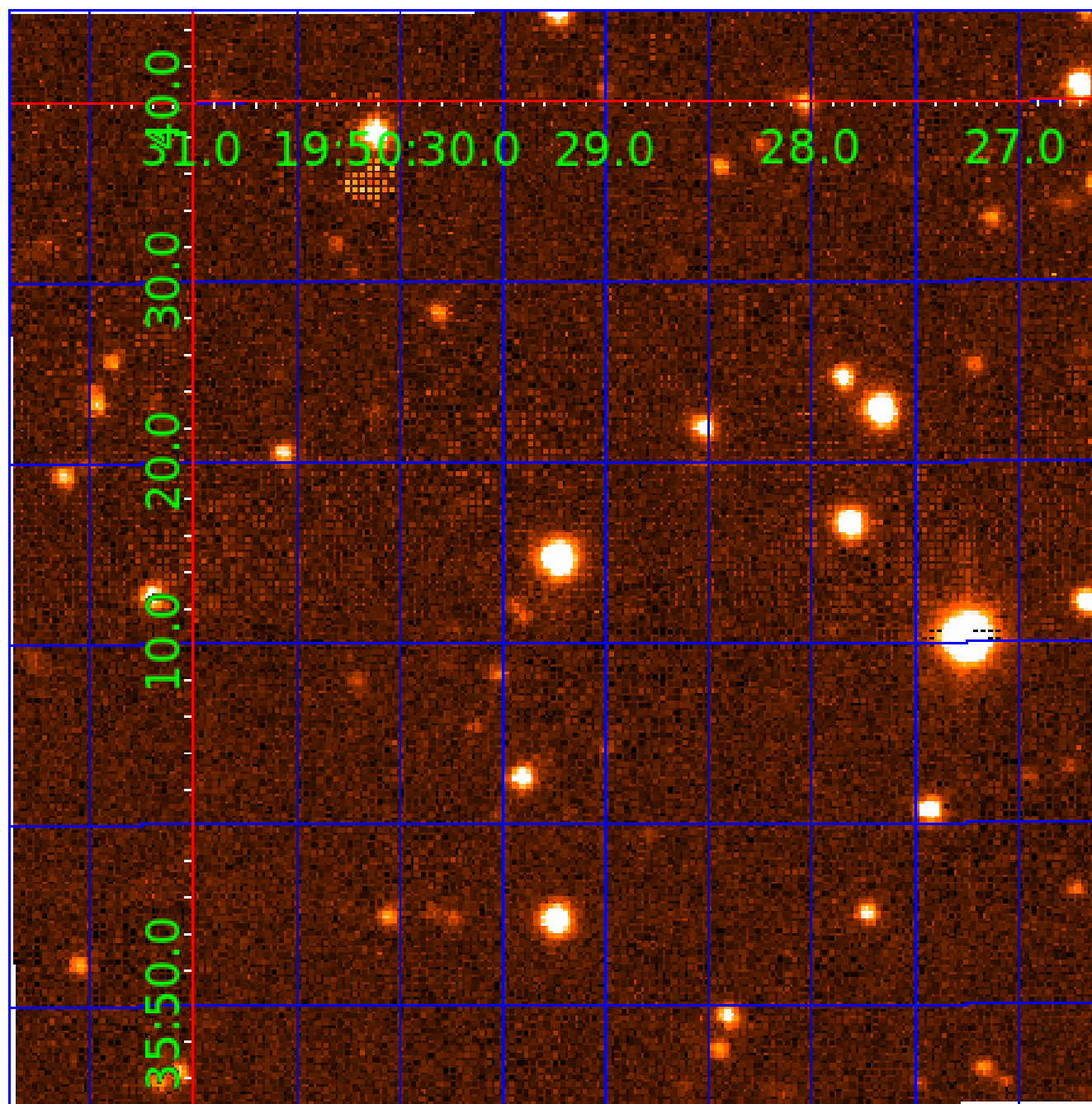


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005471328

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})
005471328-01	OBS	No	12.425627	141.515946	598.8	20.988	17.3	21.7	0.70	4922	2.09	30.53
005471328-02	OBS	No	4.141670	134.038410	180.7	23.402	9.5	10.4	0.70	4922	1.20	132.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471328-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471328-02	OBS	FP	0.00	1	0	1	1	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—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.

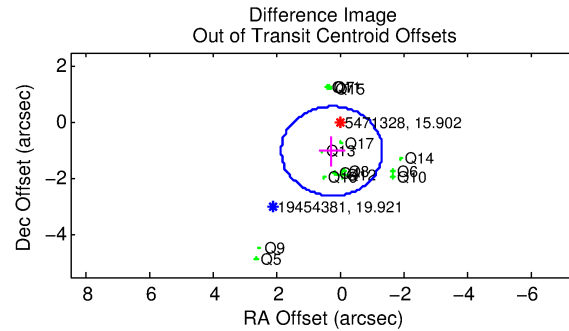
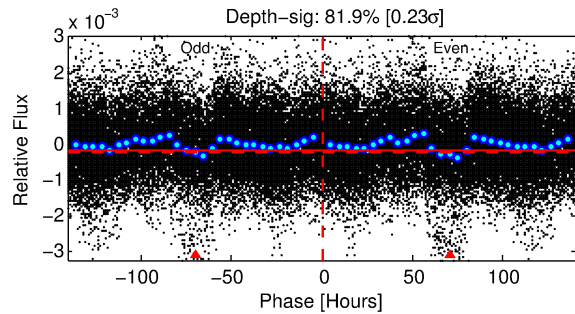
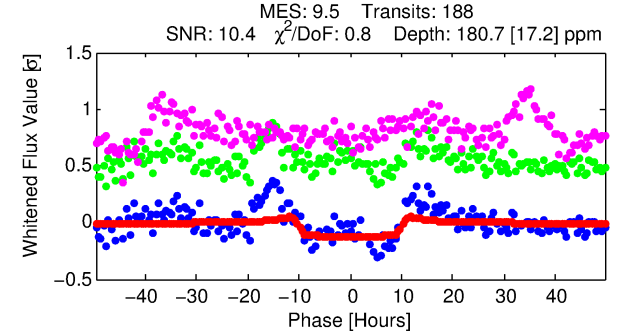
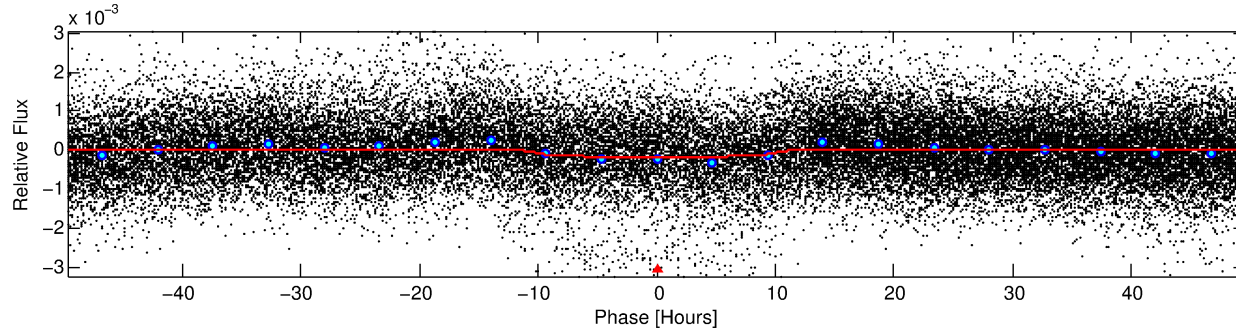
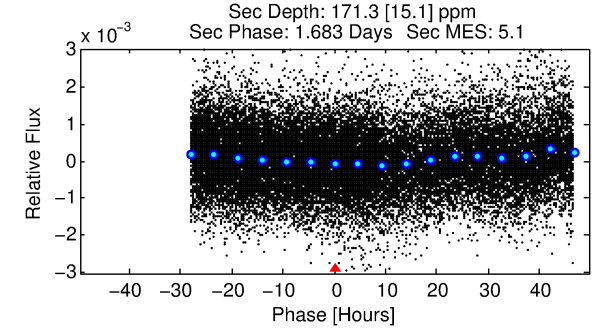
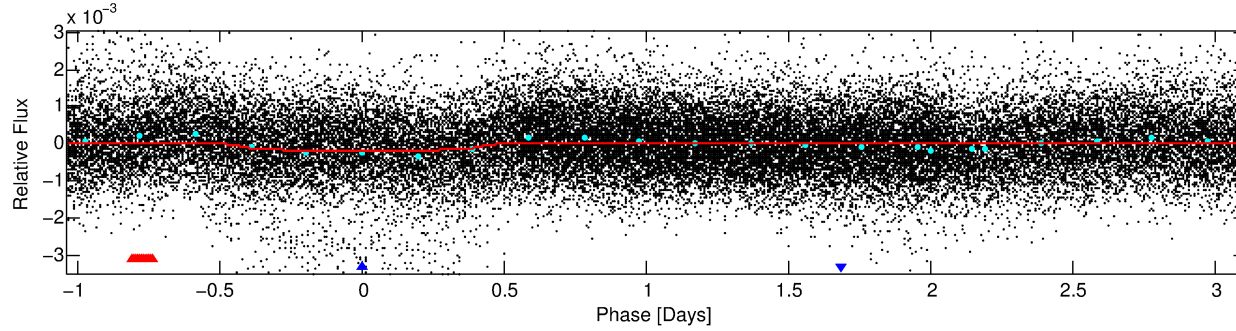
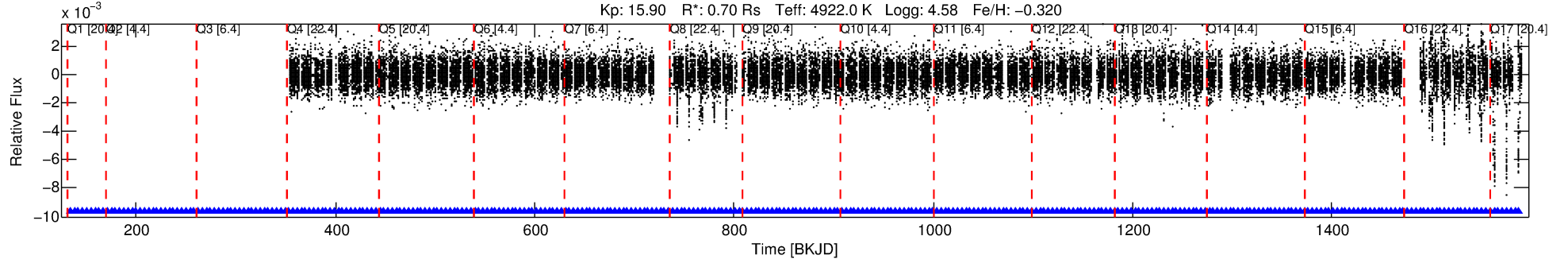
Ephemeris Match Information For 005471328-02

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
005471328-02	5471328	005385778-03	5385778	1:3	152.5	34	-17	12.70	15.91	6.28	Direct-PRF	1	4.95	2.25

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: 5471328 Candidate: 2 of 2 Period: 4.142 d
KOI: K06585 Corr: No Ephemeris Match



DV Fit Results:

Period = 4.14167 [0.00018] d
Epoch = 134.0384 [0.0369] BKJD
Rp/R* = 0.0156 [0.0014]
a/R* = 1.11 [0.06]
b = 0.93 [0.05]
Seff = 132.11 [24.92]
Teq = 864 [41] K
Rp = 1.20 [0.16] Re
a = 0.0444 [0.0038] AU
Ag = 129.09 [30.39] [4.21σ]
Teffp = 4505 [271] K [13.27σ]

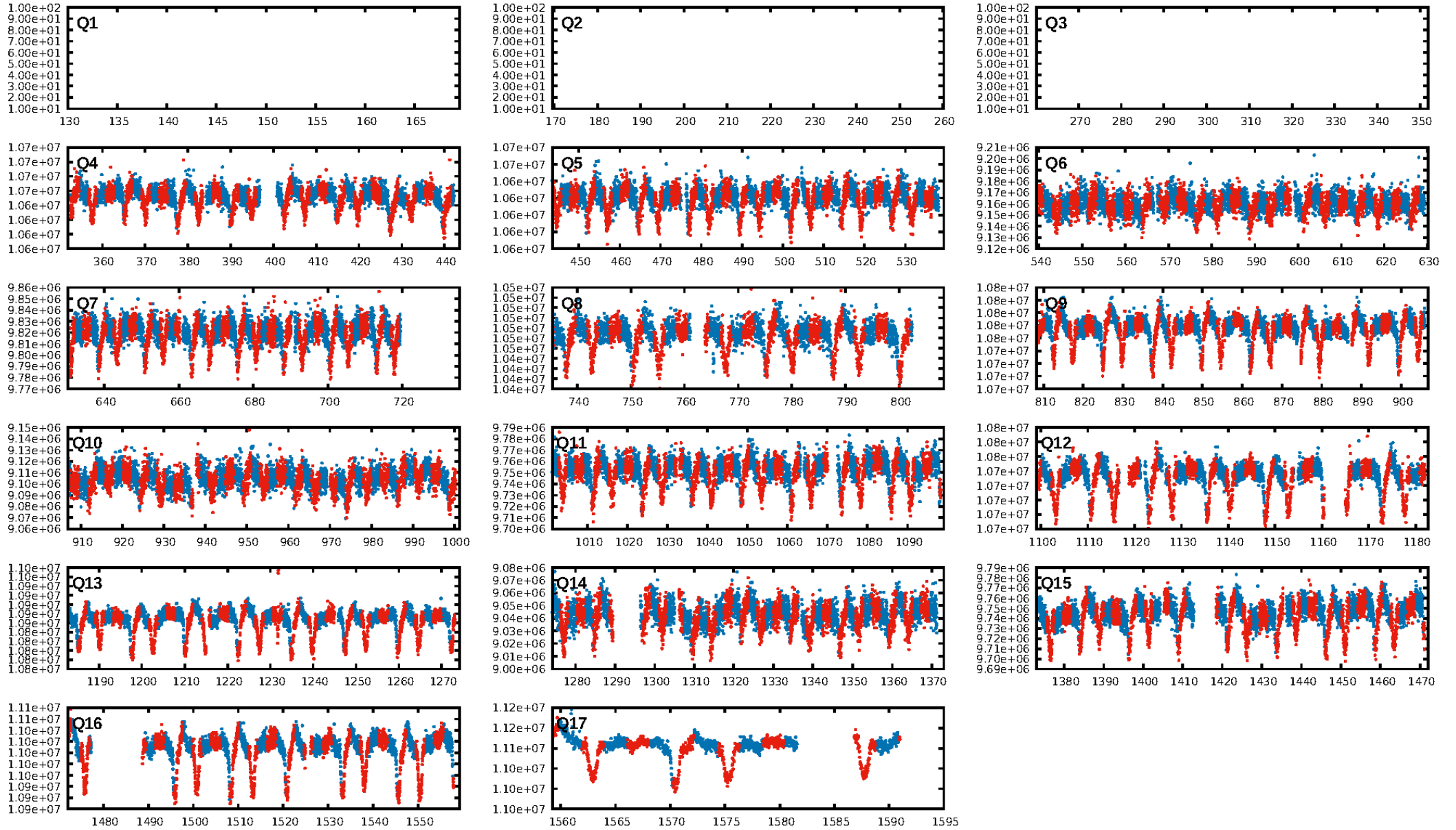
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.32σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.62e-19
RollingBand-fgt: 1.00 [183/183]
GhostDiagnostic-chr: -0.343
Centroid-sig: 0.0%
Centroid-so: 7.267 arcsec [8.26σ]
OotOffset-rm: 1.054 arcsec [1.99σ]
KicOffset-rm: 1.259 arcsec [2.33σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
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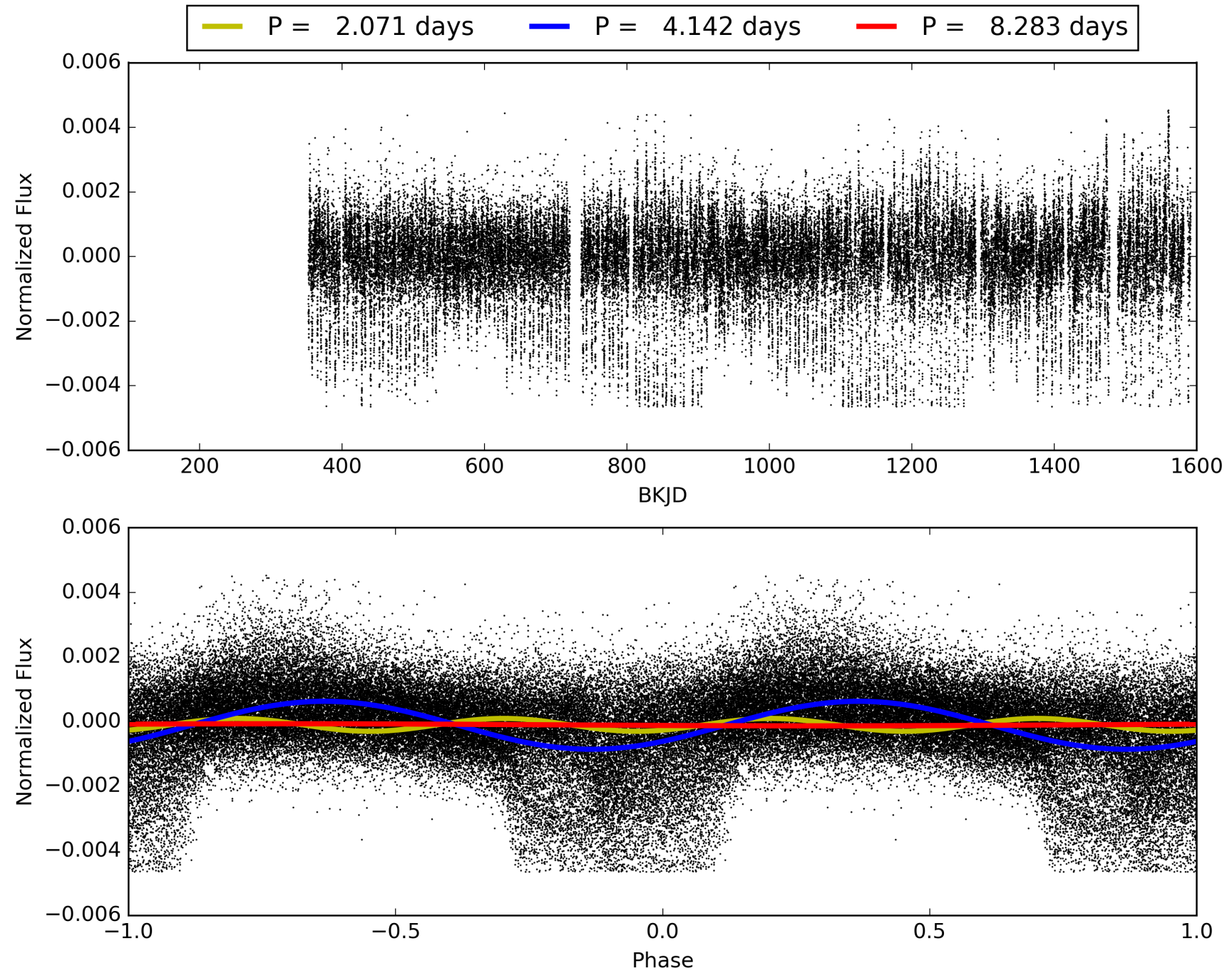
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471328-02, PDC Light Curves

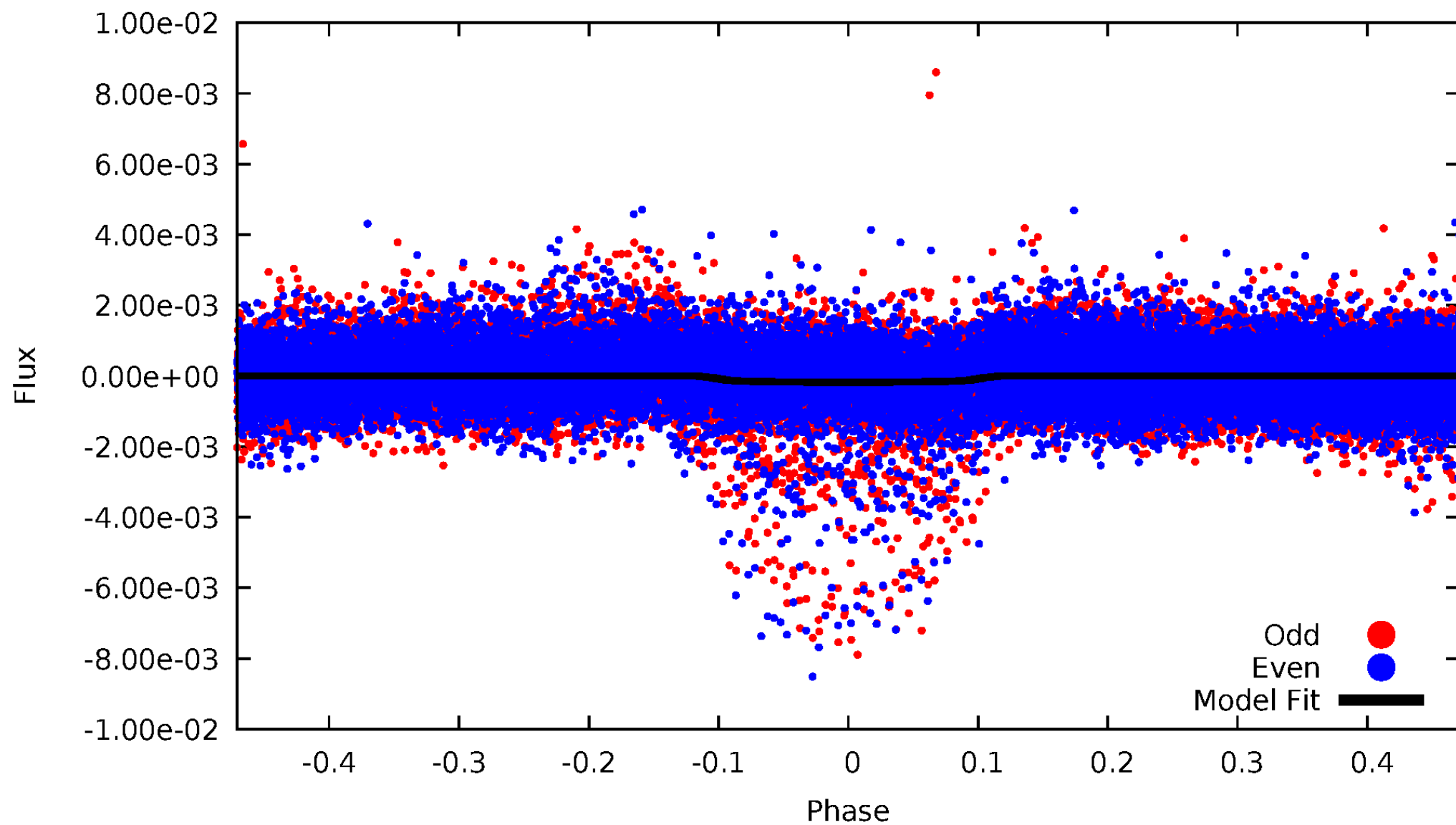


TCE 005471328-02



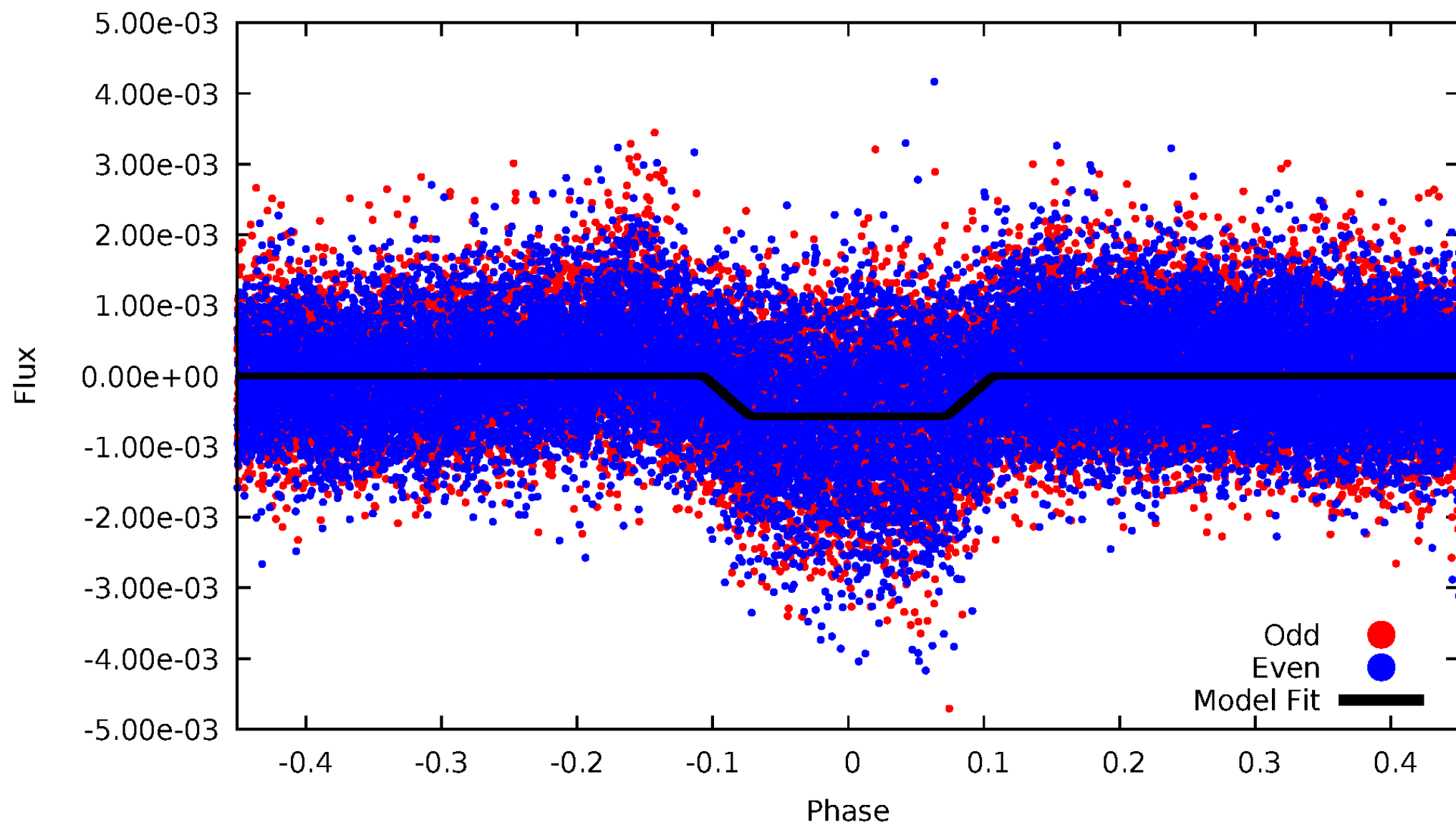
DV Odd/Even

TCE 005471328-02



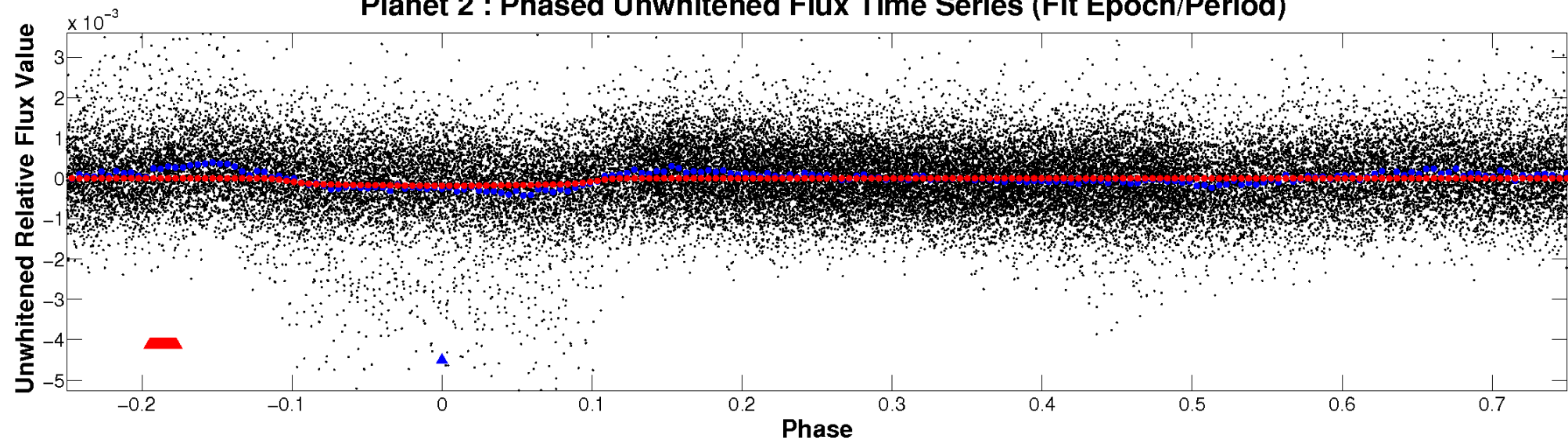
ALT Odd/Even

TCE 005471328-02

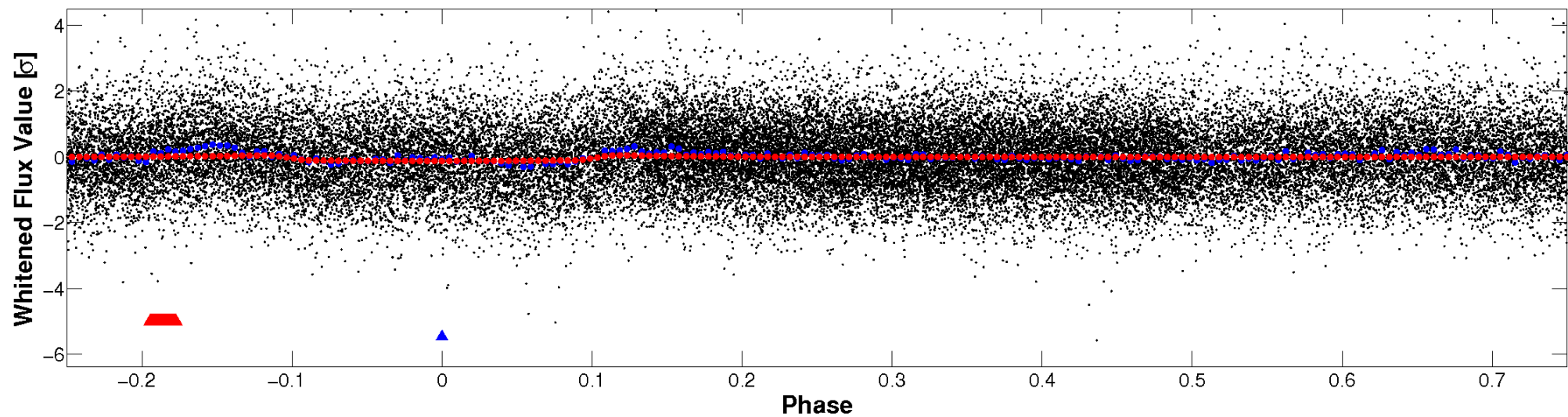


Non-Whitened Vs. Whitened Light Curve

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

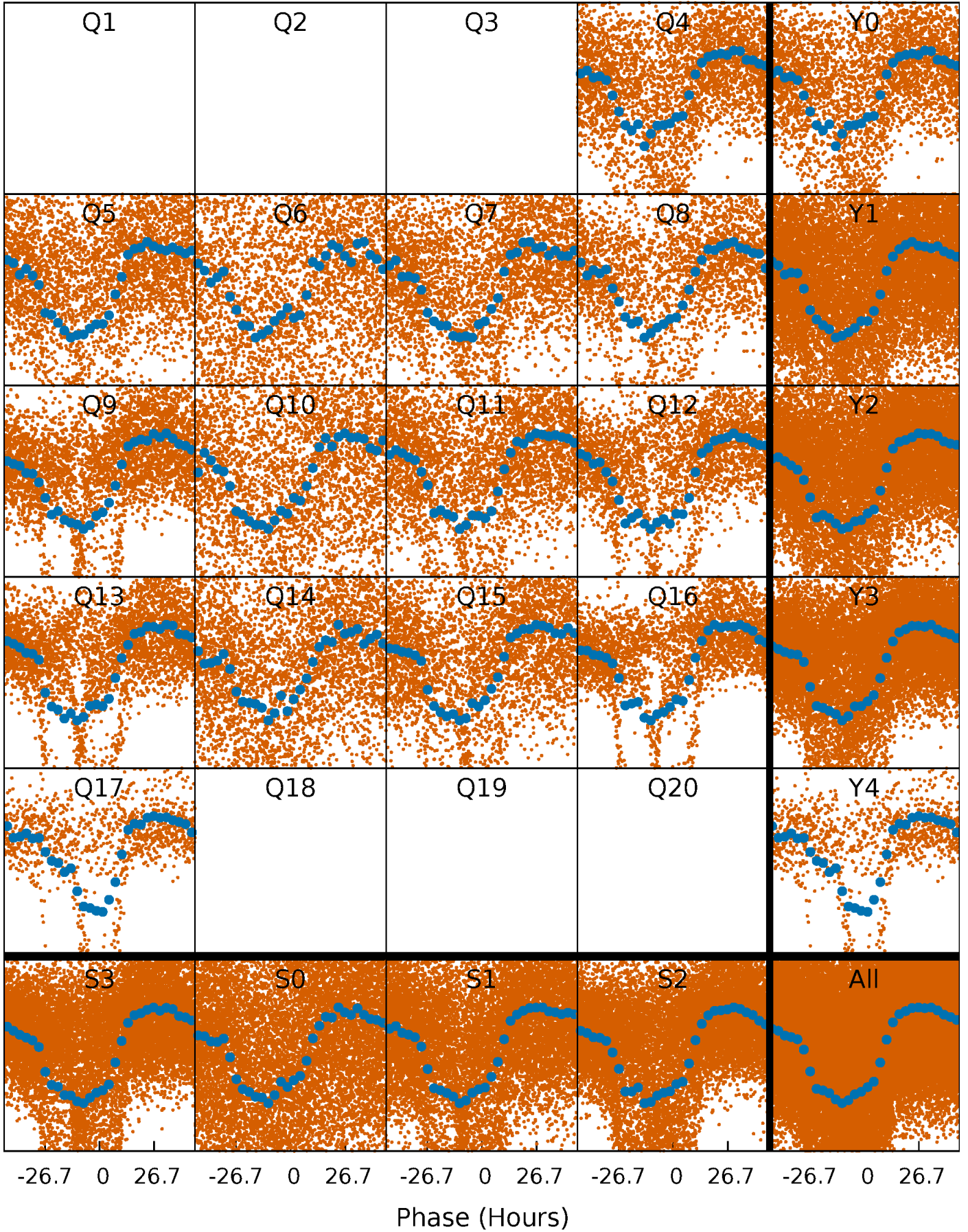


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



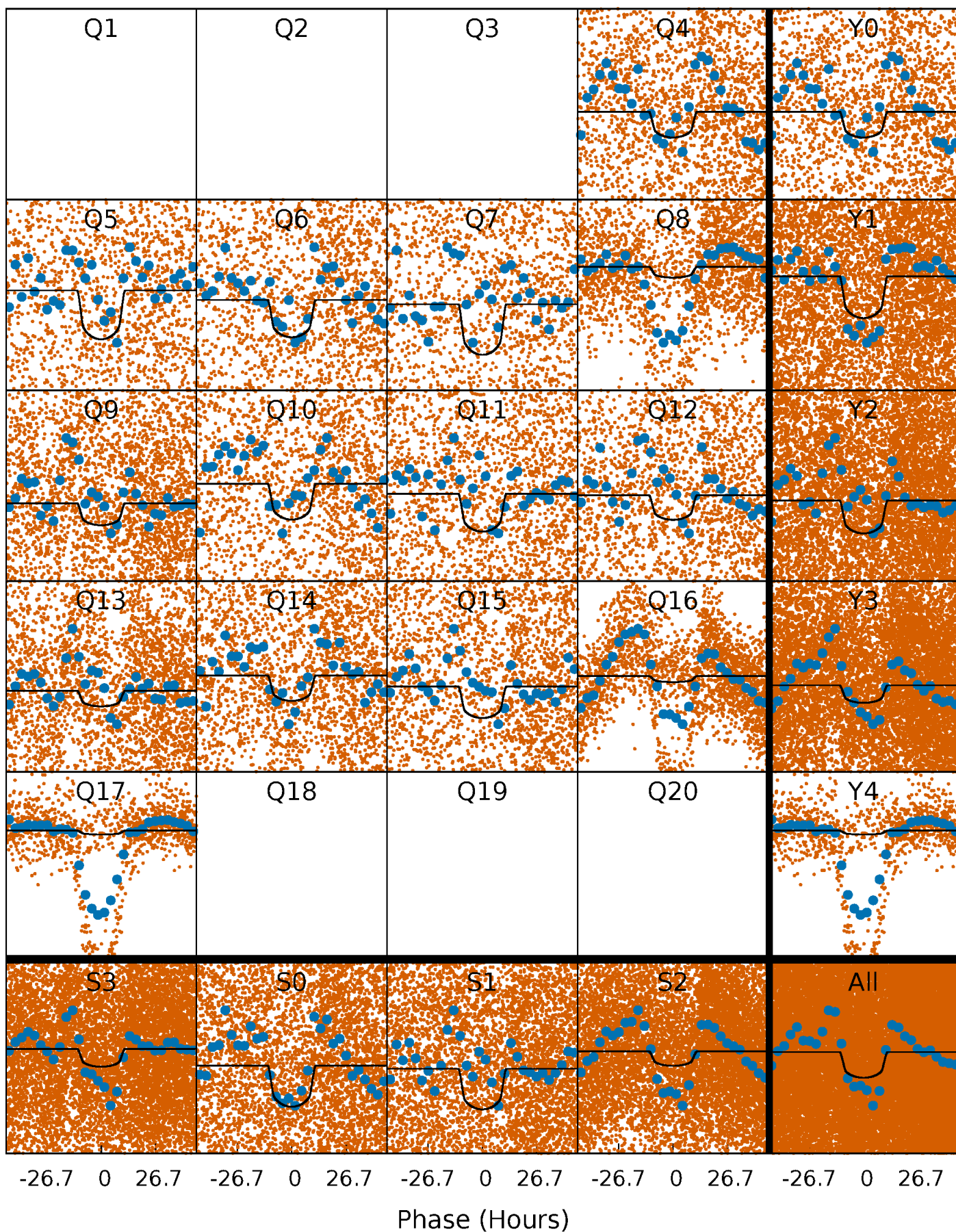
PDC Quarter-Phased Transit Curves

TCE 005471328-02 P= 4.141670 Days $T_0=134.038410$ (BKJD)



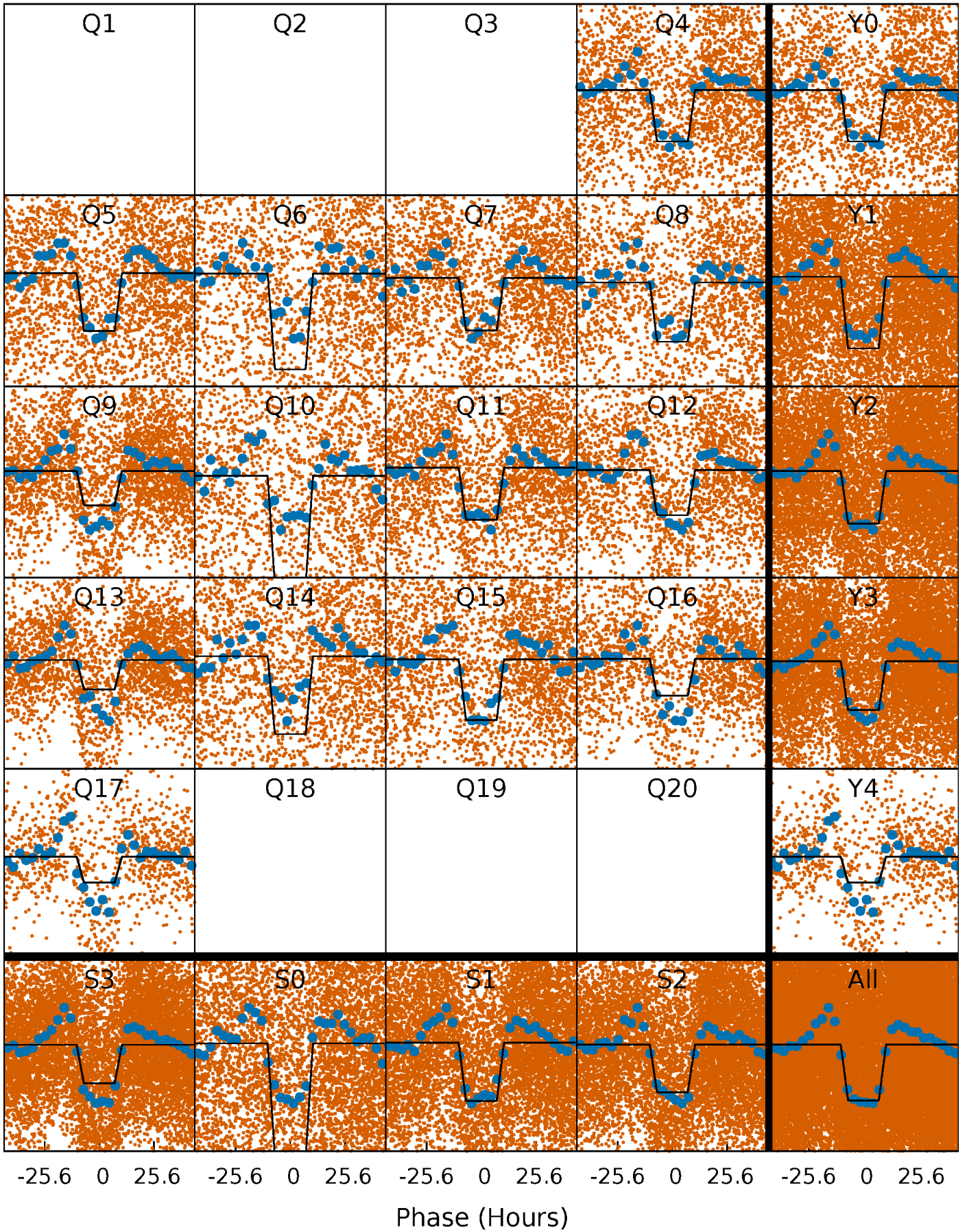
DV Quarter-Phased Transit Curves

TCE 005471328-02 P= 4.141670 Days $T_0=134.038410$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

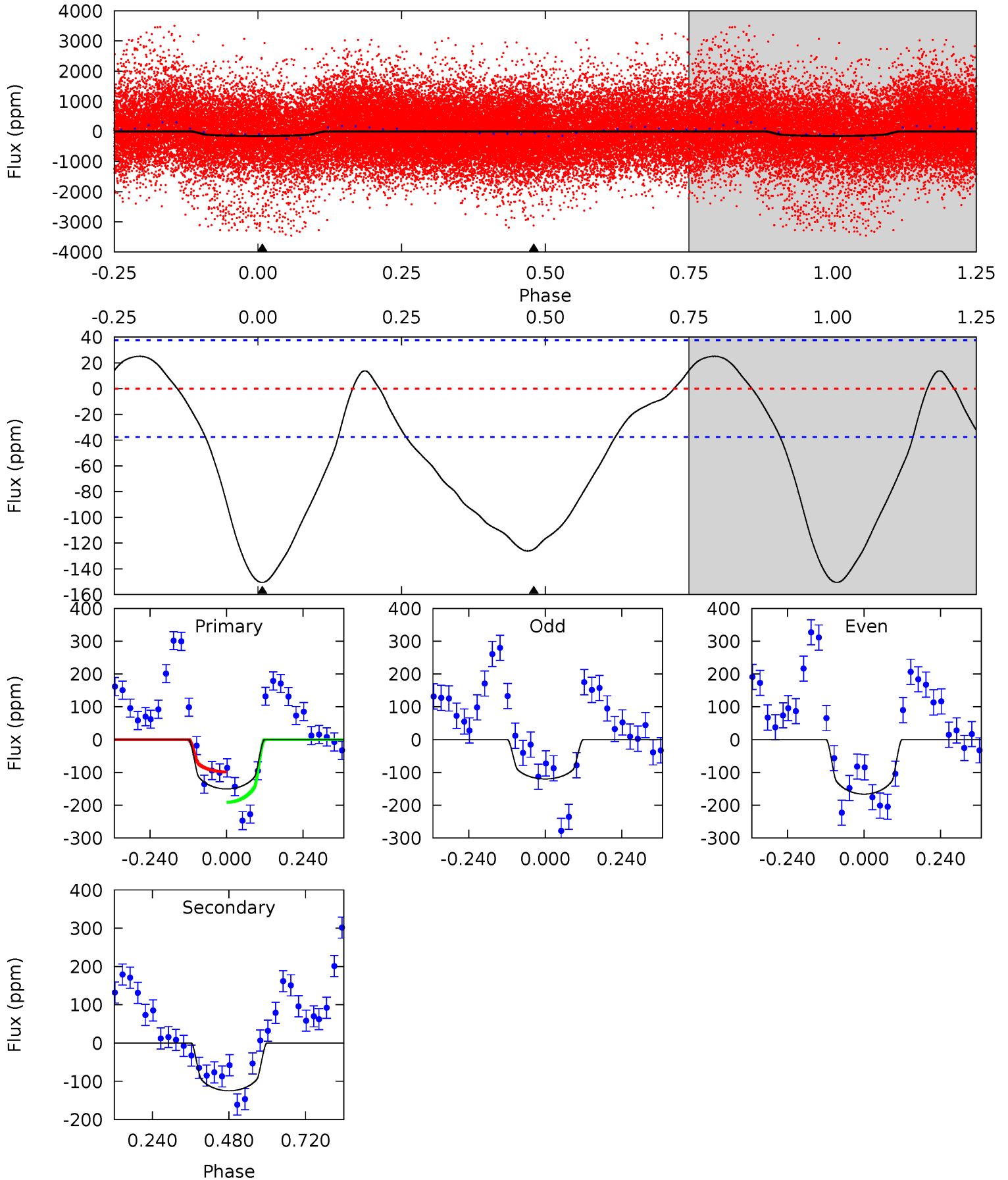
TCE 005471328-02 P= 4.141861 Days $T_0=133.992641$ (BKJD)



DV Model-Shift Uniqueness Test

005471328-02, P = 4.141670 Days, E = 134.038410 Days

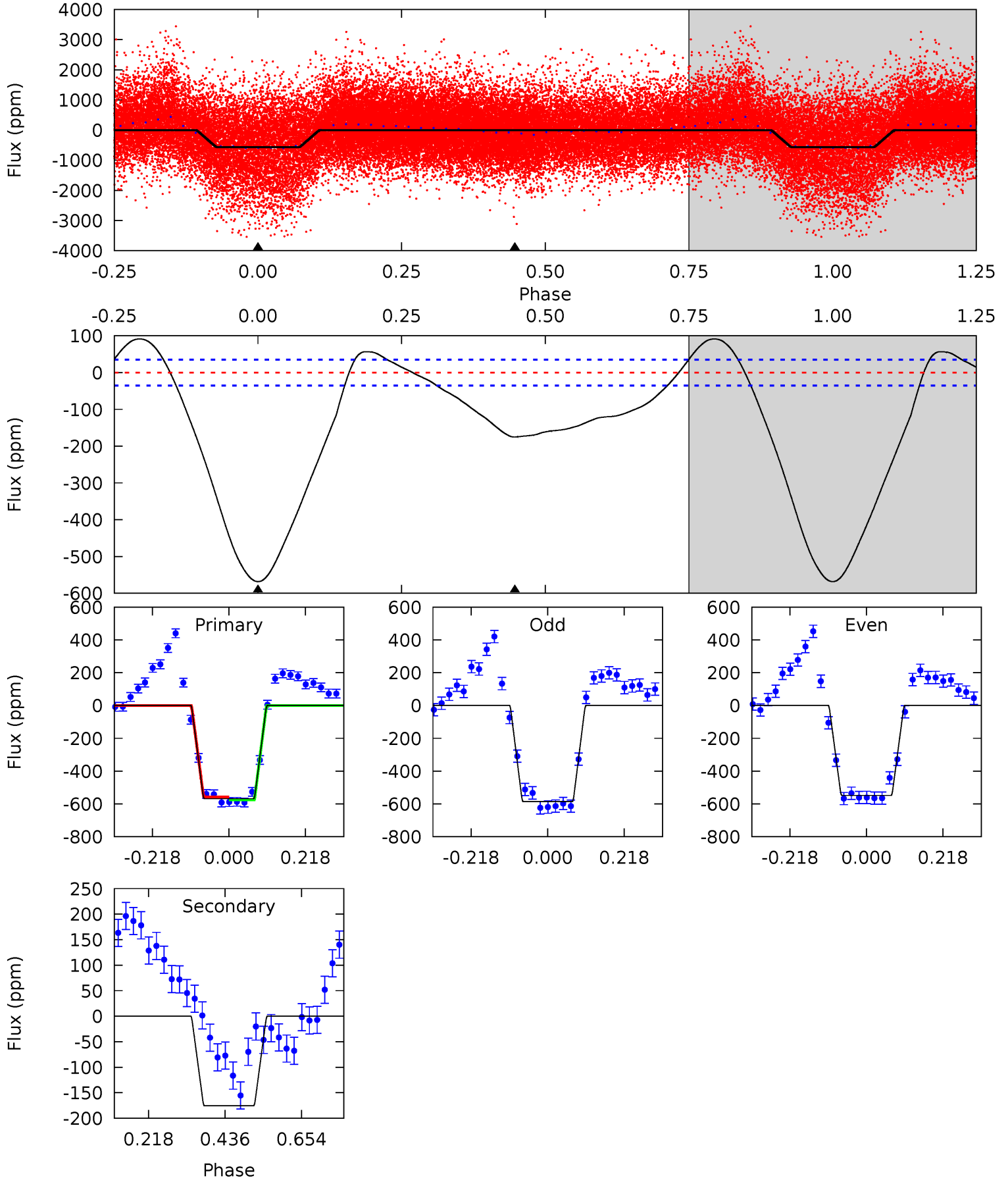
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	14.5	0	0	4.38	1.18	2.32	17.5	17.5	14.5	14.5	2.64	4.28	0.14	5.31



Alt Model-Shift Uniqueness Test

005471328-02, P = 4.141861 Days, E = 133.992641 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
71.4	22.0	0	0	4.40	1.23	7.00	71.4	71.4	22.0	22.0	2.29	1.50	0.14	1.14



Stellar Parameters For KIC 005471328

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4922^{+170}_{-170}	$4.576^{+0.072}_{-0.039}$	$-0.320^{+0.300}_{-0.300}$	$0.704^{+0.069}_{-0.069}$	$0.681^{+0.090}_{-0.045}$	$2.749^{+0.817}_{-0.437}$
	+3%/-3%	+2%/-1%	+94%/-94%	+10%/-10%	+13%/-7%	+30%/-16%
Source	KIC0	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 005471328-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-125 ± 9	$1.20^{+0.13}_{-0.14}$	1200^{+49}_{-49}	4302^{+224}_{-200}	95^{+27}_{-18}
Alt.	-175 ± 8	$1.84^{+0.16}_{-0.15}$	1204^{+47}_{-53}	3931^{+137}_{-143}	58^{+10}_{-8}

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 $A_{obs} \gg 1.0$

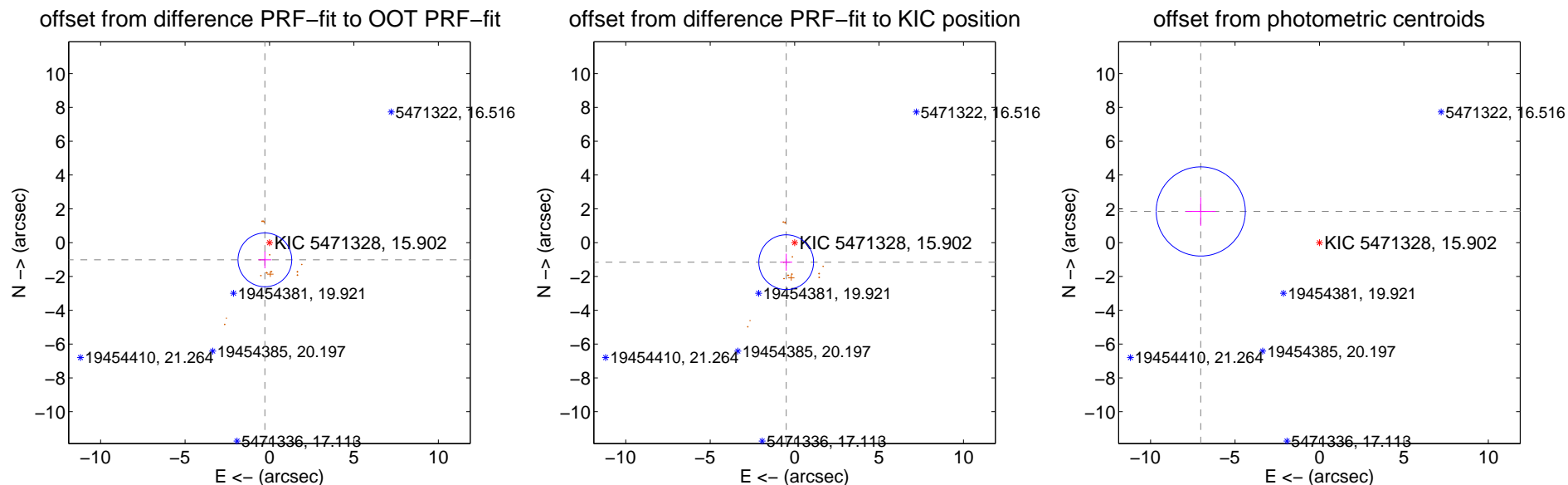
DV Centroid Data

Supplemental centroid analysis for 005471328-02. Kepler magnitude: 15.90. Transit SNR 10.36

There are 0 quarters with good PRF difference image offsets

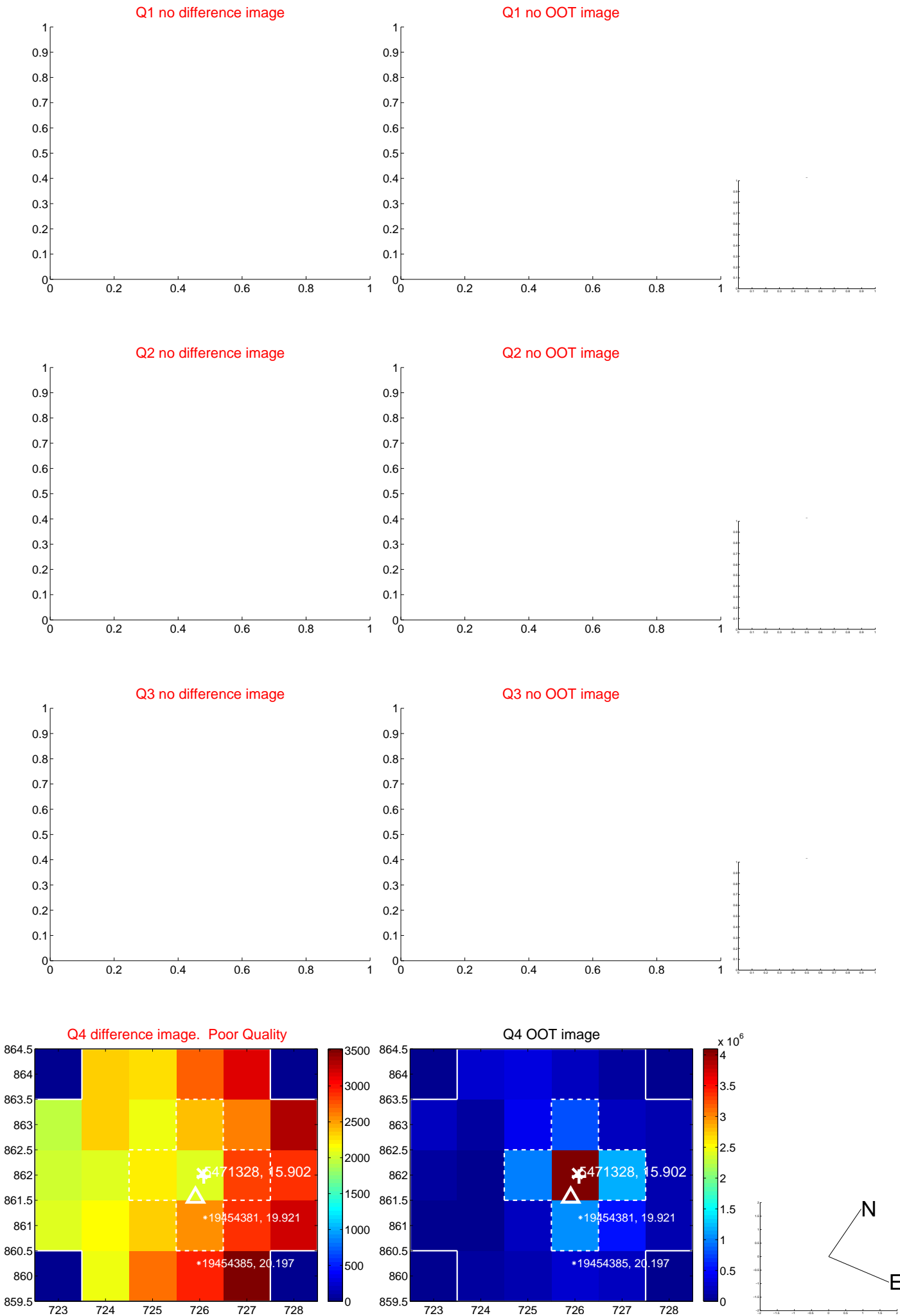
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.054 ± 0.530	1.99	0.273 ± 0.377	-1.018 ± 0.500
PRF-fit source offset from KIC position	1.259 ± 0.540	2.33	0.499 ± 0.357	-1.156 ± 0.503
photometric centroid source offset	7.27 ± 0.88	8.26	7.03 ± 0.88	1.85 ± 0.85

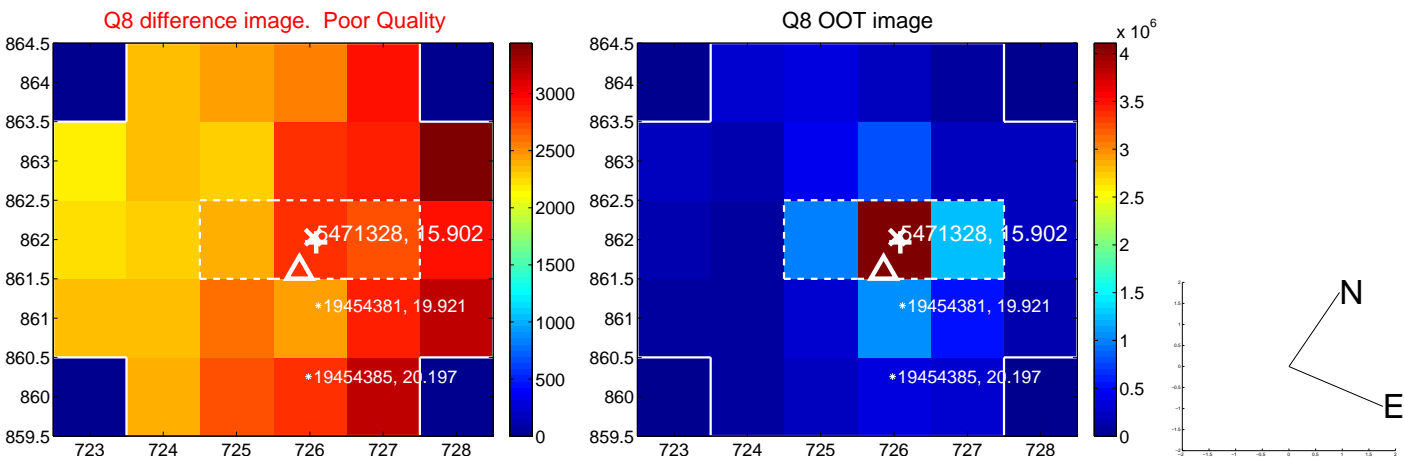
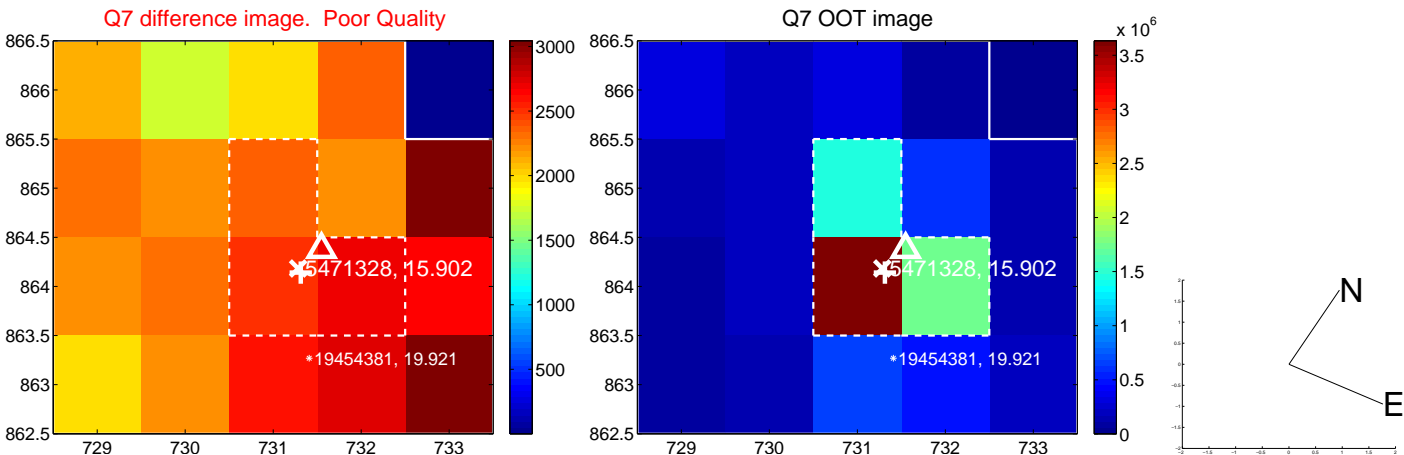
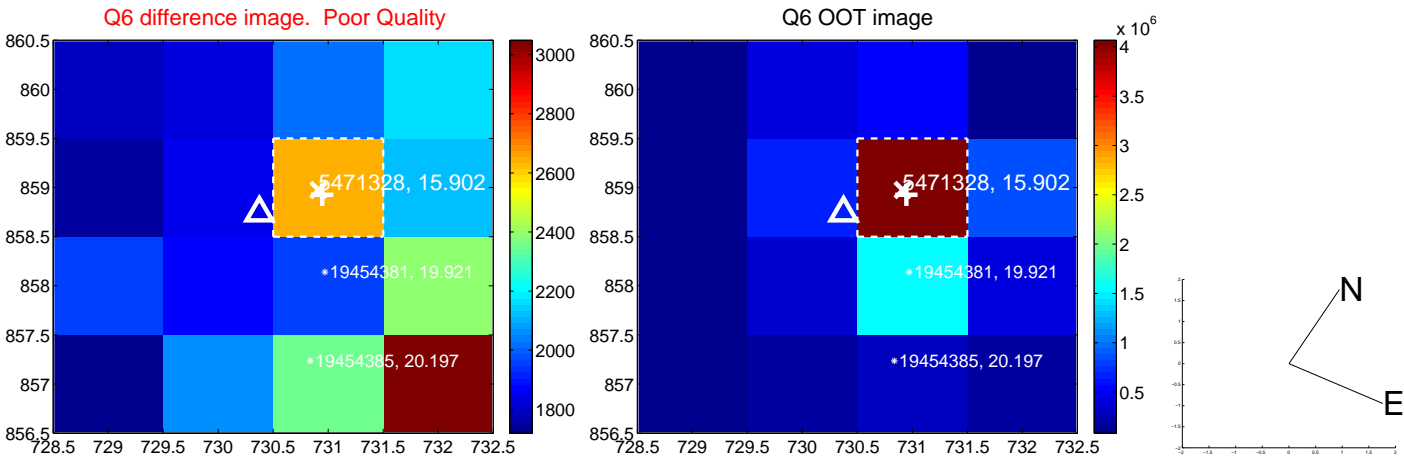
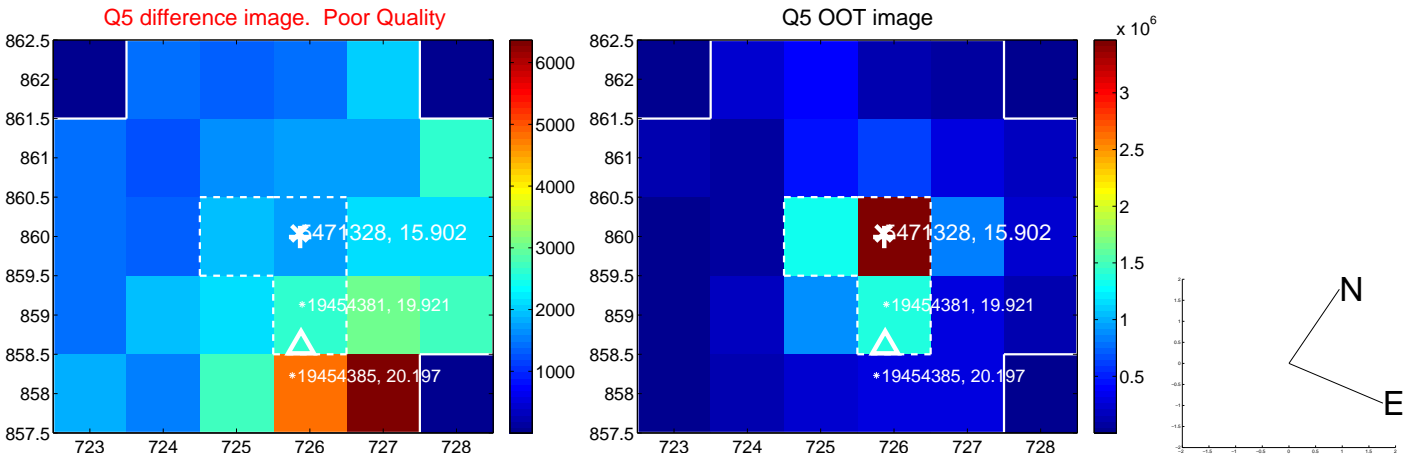


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

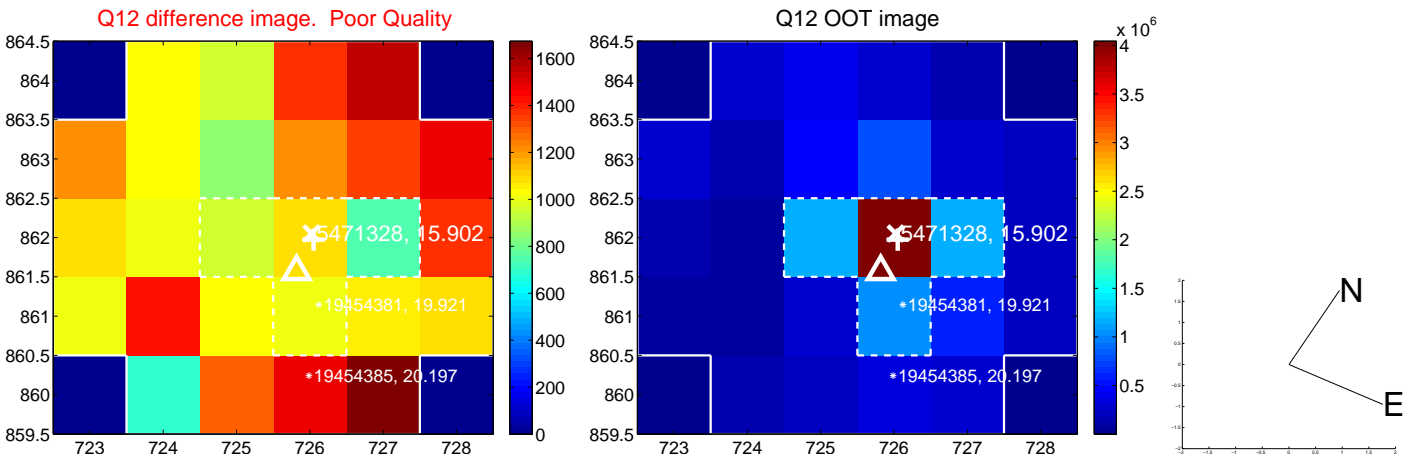
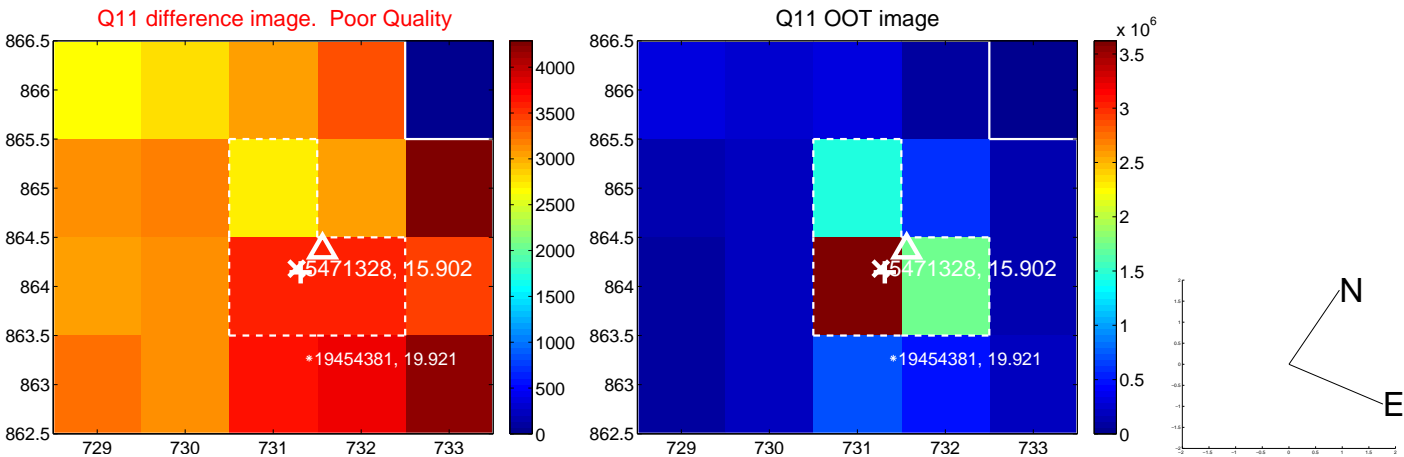
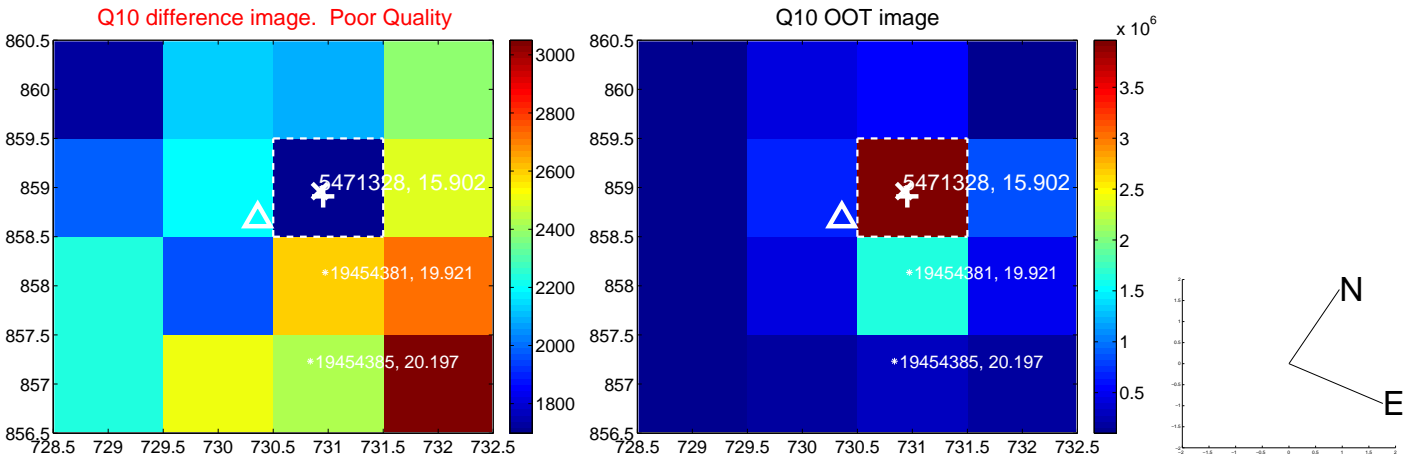
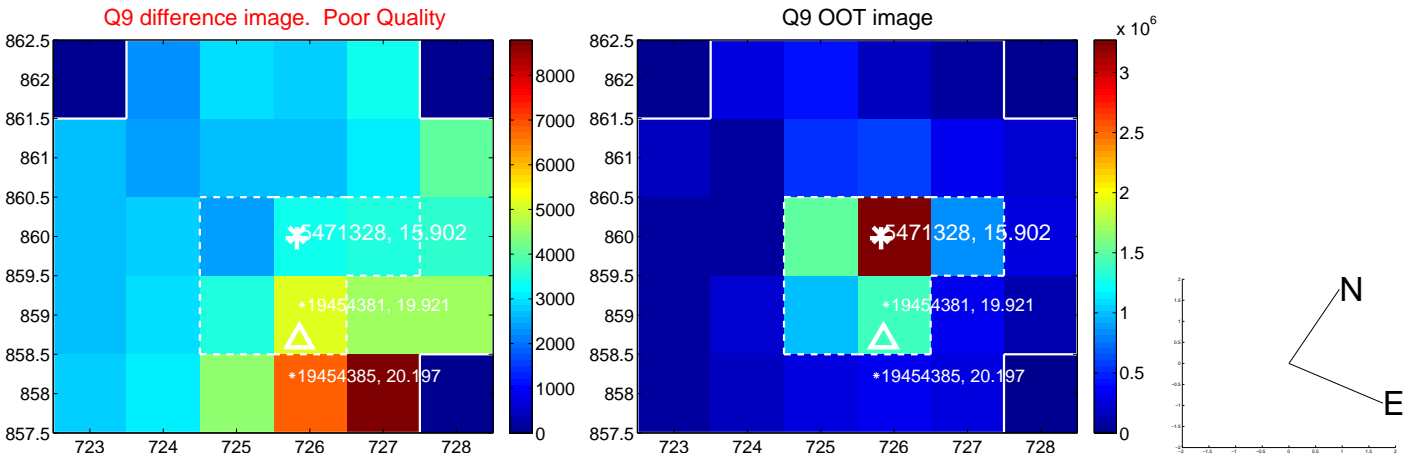
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



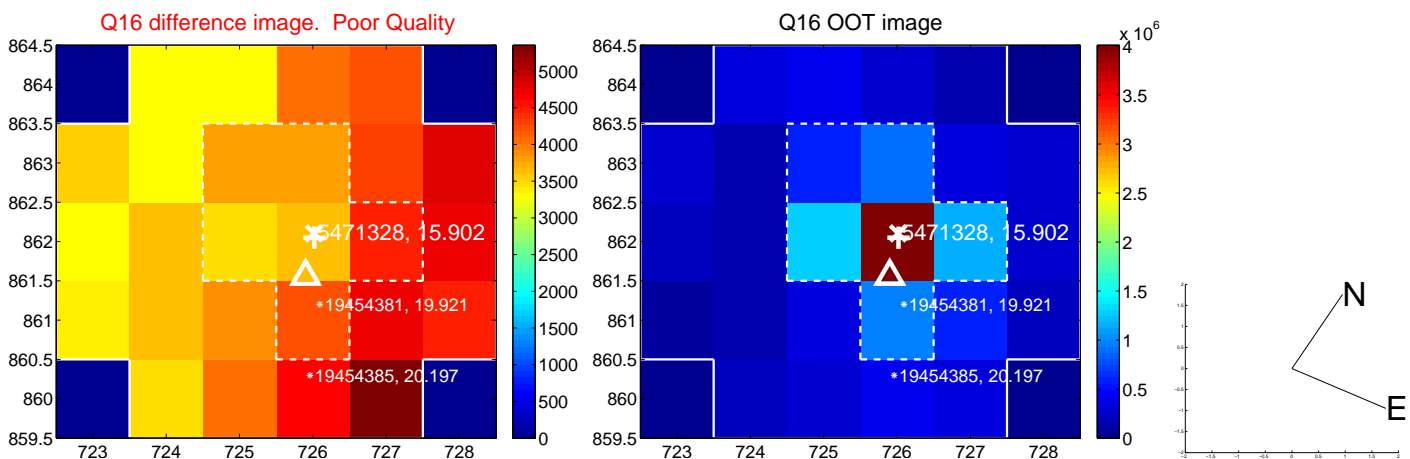
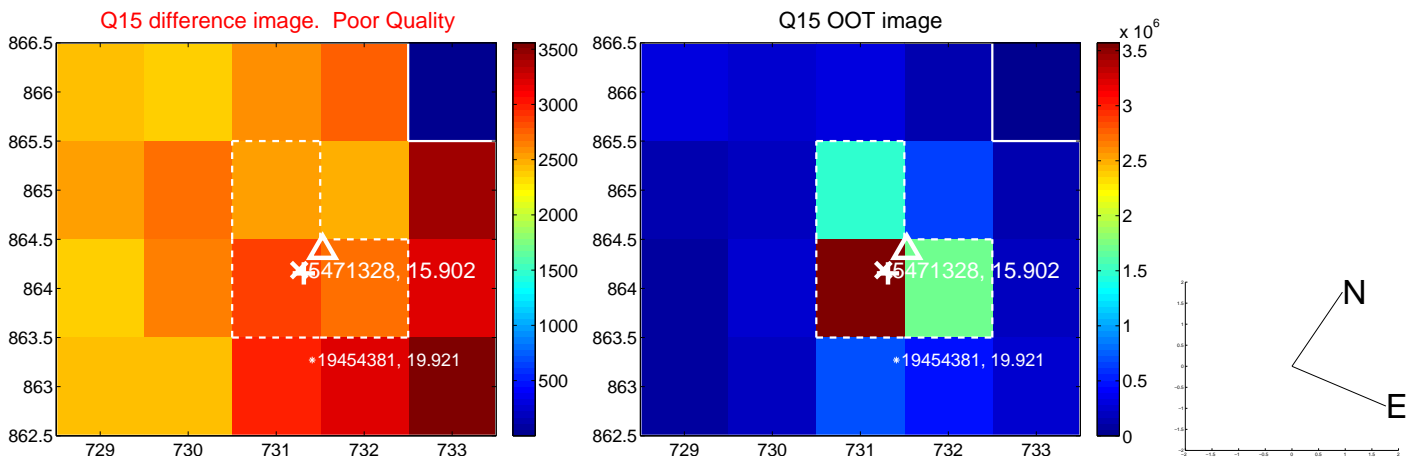
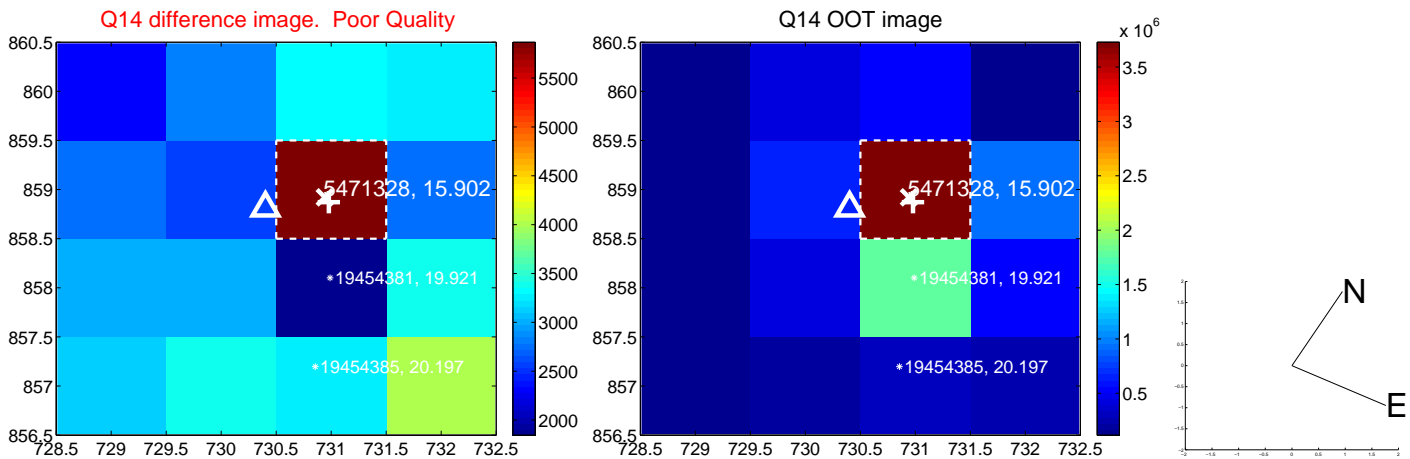
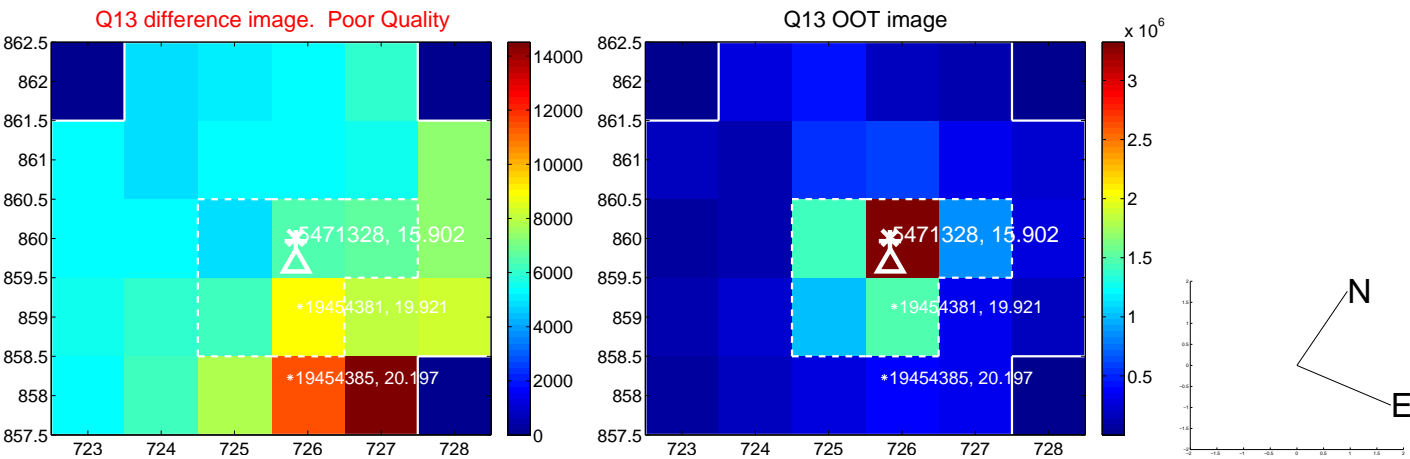
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



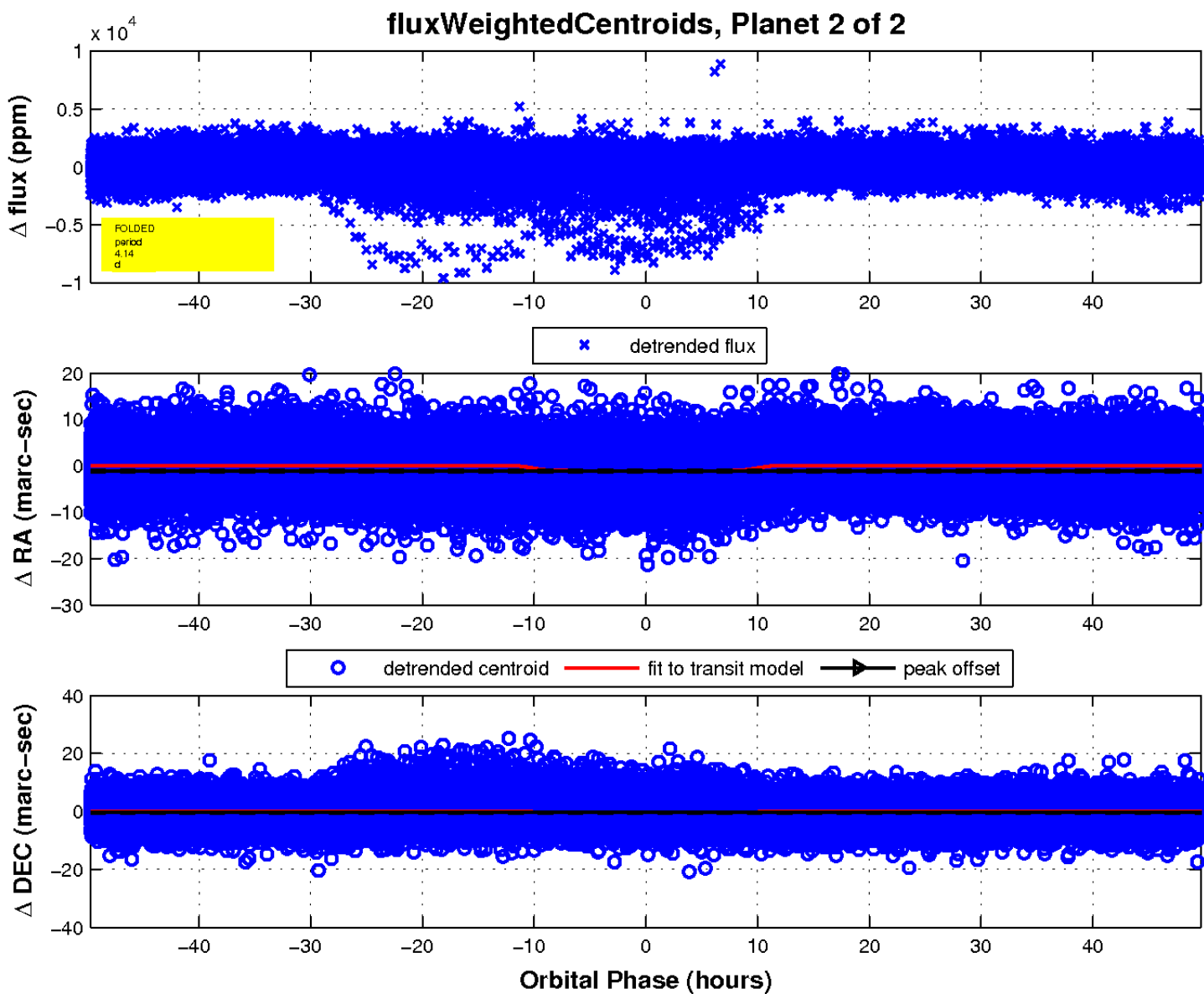
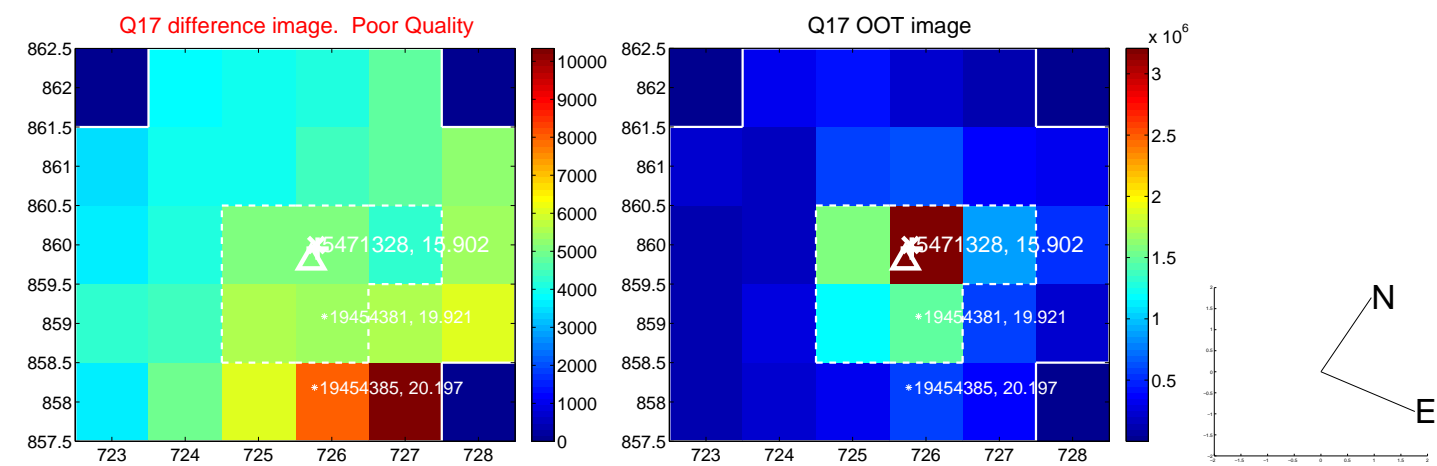
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

