

KIC 005471202

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})
005471202-01	OBS	2911.01	12.425832	141.504663	268.9	24.483	18.3	23.2	0.99	6185	2.09	112.17
005471202-02	OBS	No	12.425965	133.939095	263.8	28.512	18.9	26.6	0.99	6185	2.10	112.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471202-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005471202-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—HALO_GHOST—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 005471202-01

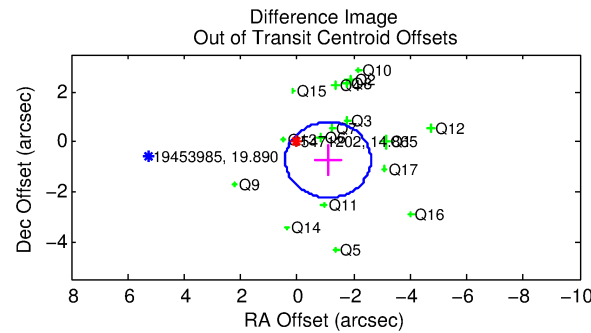
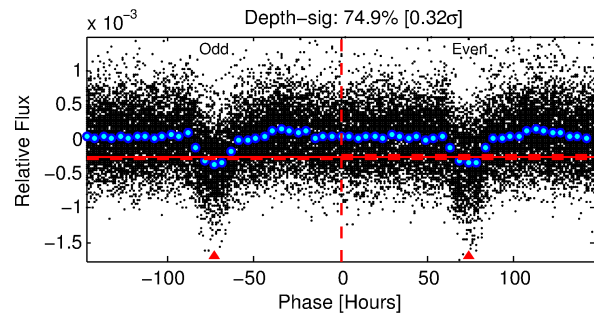
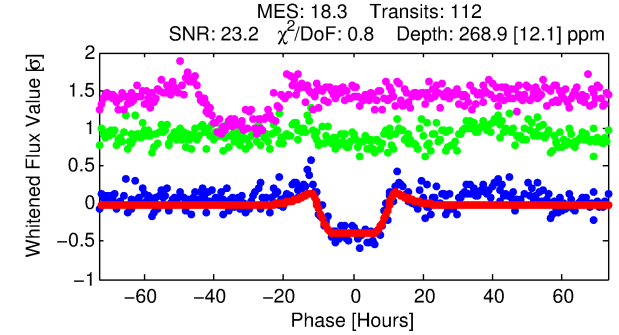
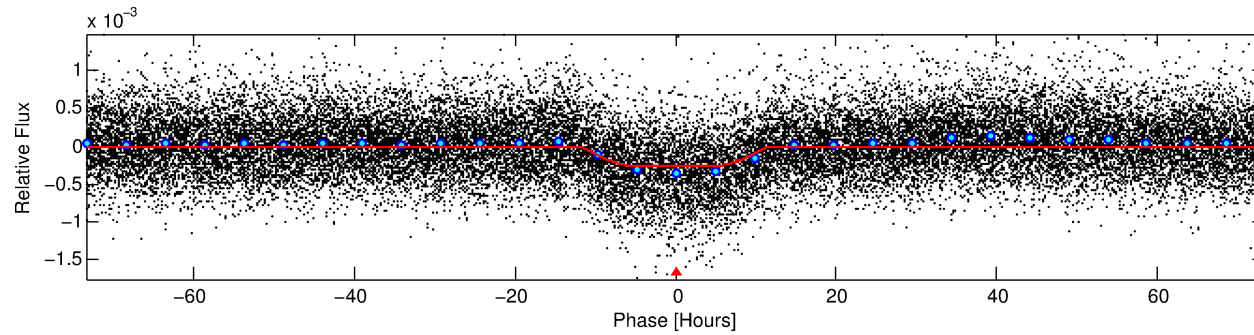
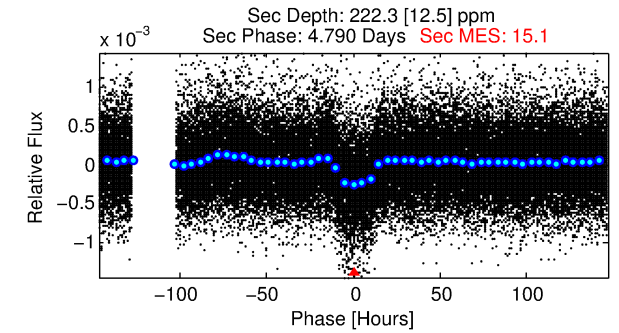
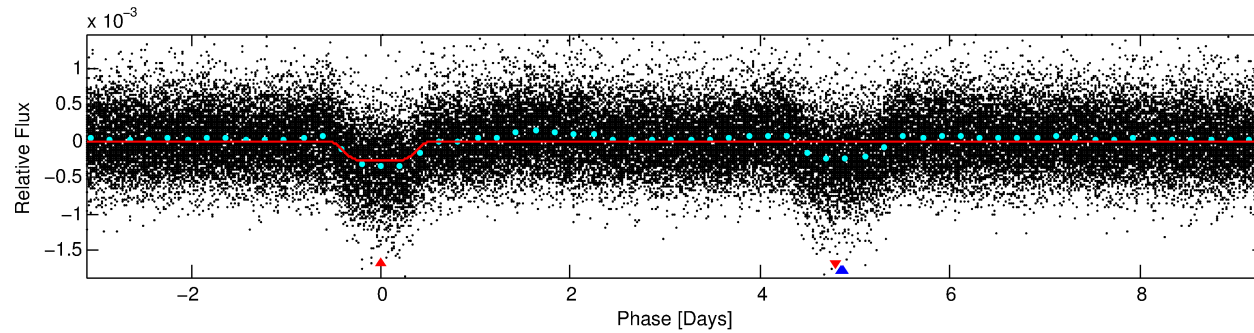
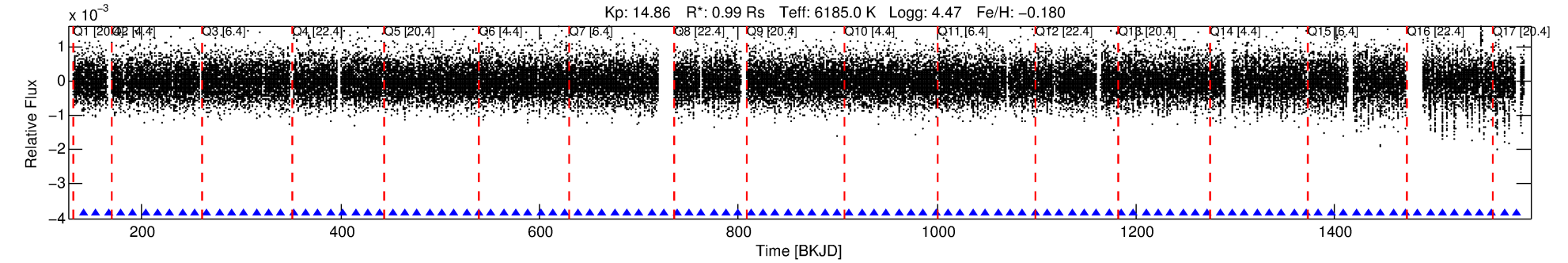
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471202-01	5471202	V380-Cyg-pri	5385723	1:1	179.6	23	-38	5.77	14.86	538.78	Direct-PRF	0	0.32	1.13

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: 5471202 Candidate: 1 of 2 Period: 12.426 d

KOI: K02911.01 Corr: 0.966



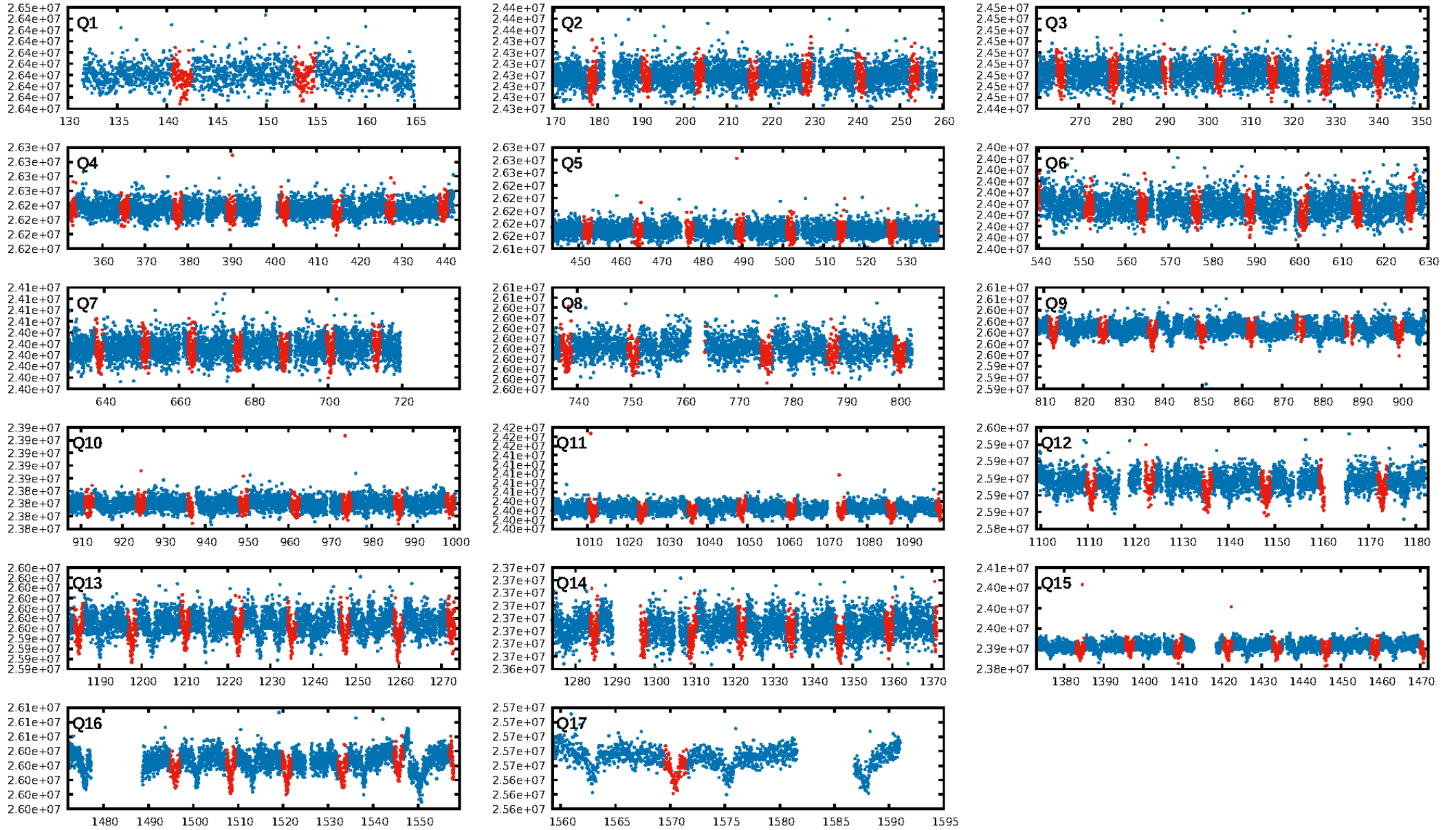
DV Fit Results:

Period = 12.42583 [0.00026] d
Epoch = 141.5047 [0.0160] BKJD
Rp/R* = 0.0193 [0.0005]
a/R* = 1.60 [0.07]
b = 0.97 [0.01]
Seff = 112.17 [41.87]
Teq = 830 [77] K
Rp = 2.09 [0.59] Re
a = 0.1071 [0.0255] AU
Ag = 321.17 [114.88] [2.79σ]
Teffp = 5431 [211] K [20.49σ]

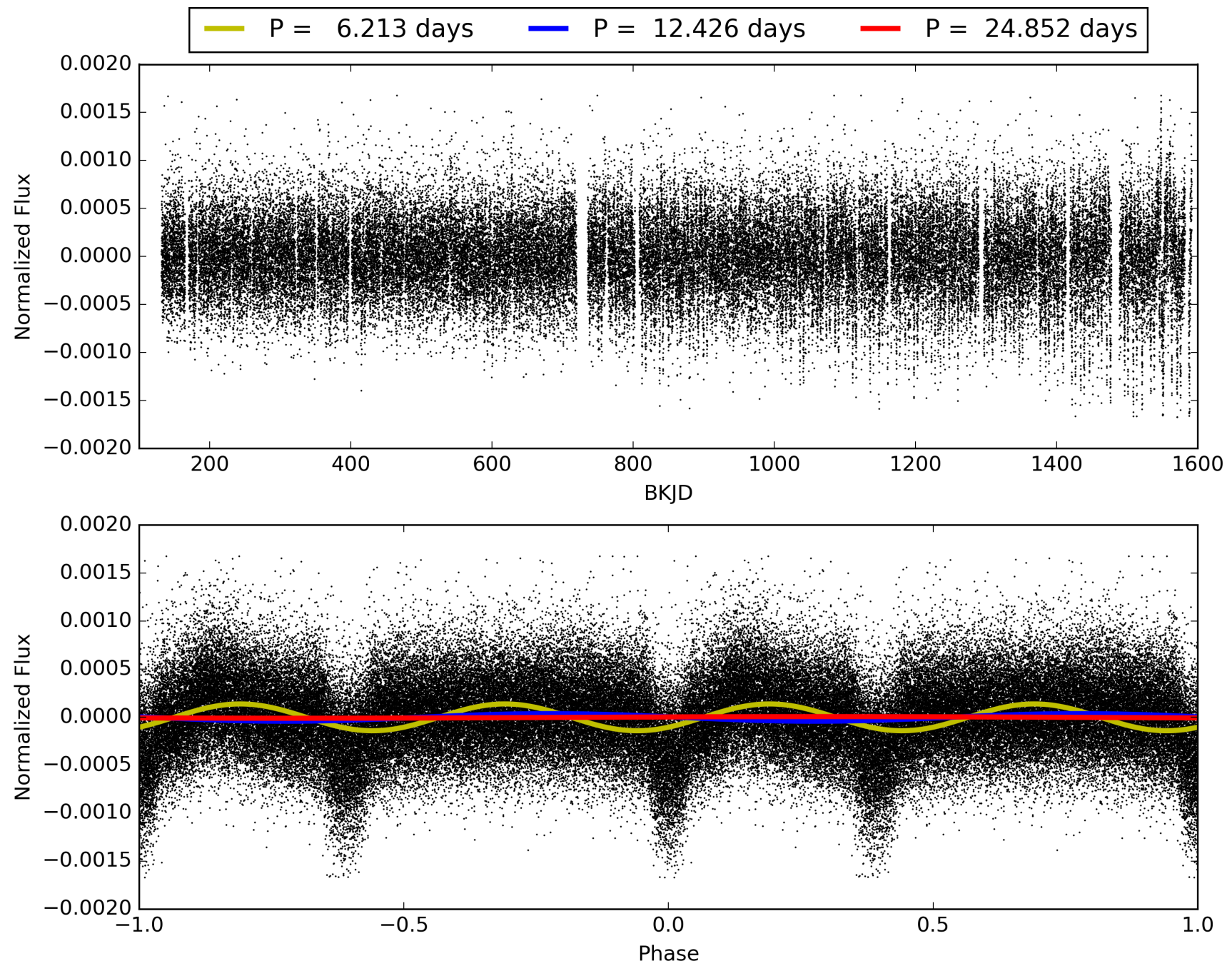
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 36.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.10e-65
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: -0.1321
Centroid-sig: 0.1%
Centroid-so: 0.956 arcsec [2.26σ]
OotOffset-rm: 1.312 arcsec [2.60σ]
KicOffset-rm: 1.292 arcsec [2.54σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.29 [5/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005471202-01, PDC Light Curves

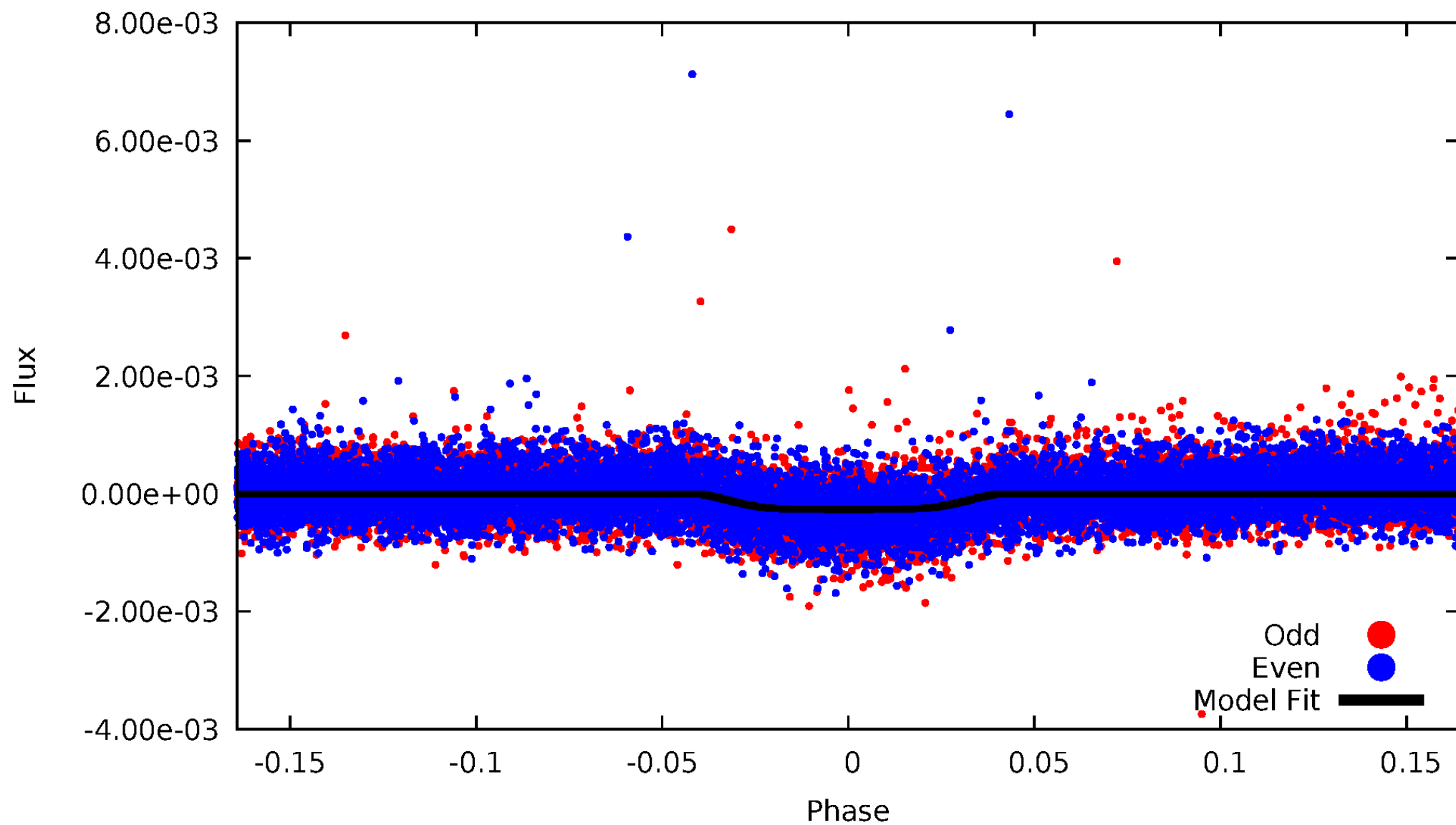


TCE 005471202-01



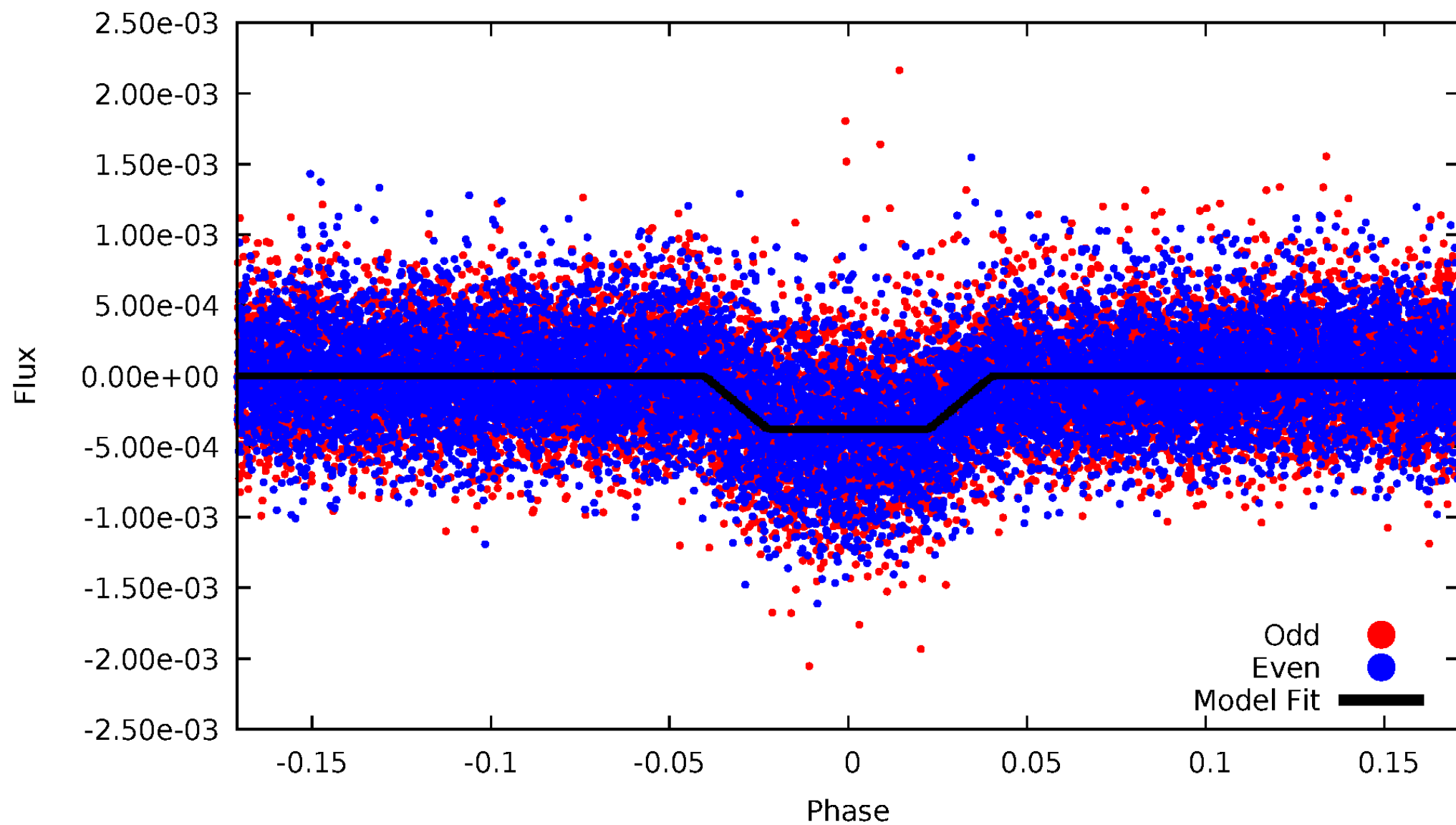
DV Odd/Even

TCE 005471202-01

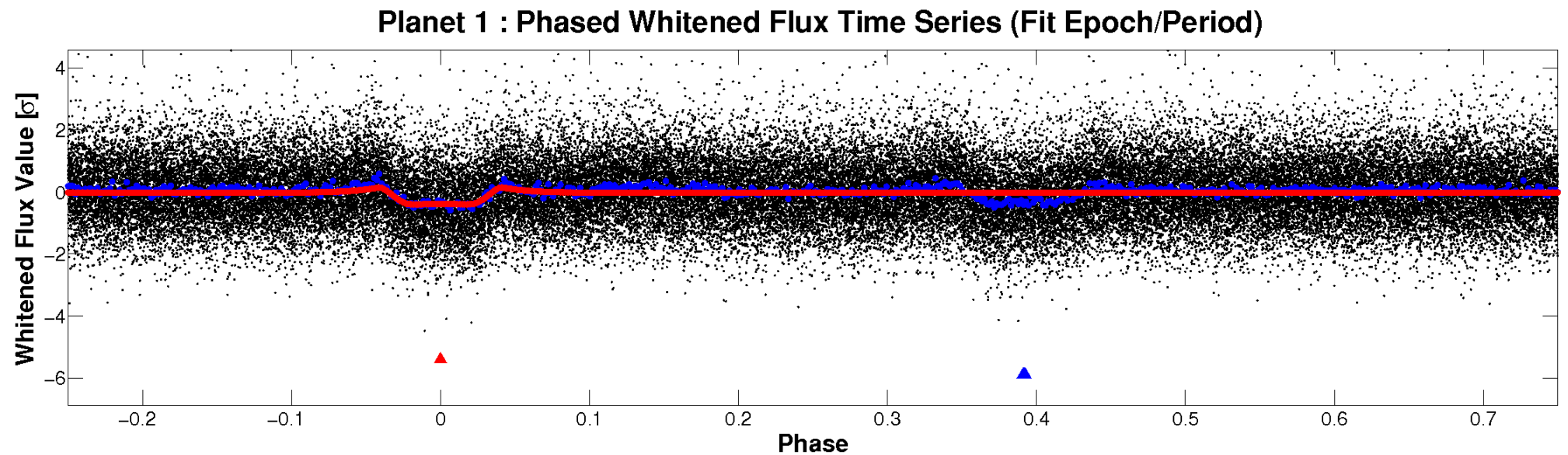
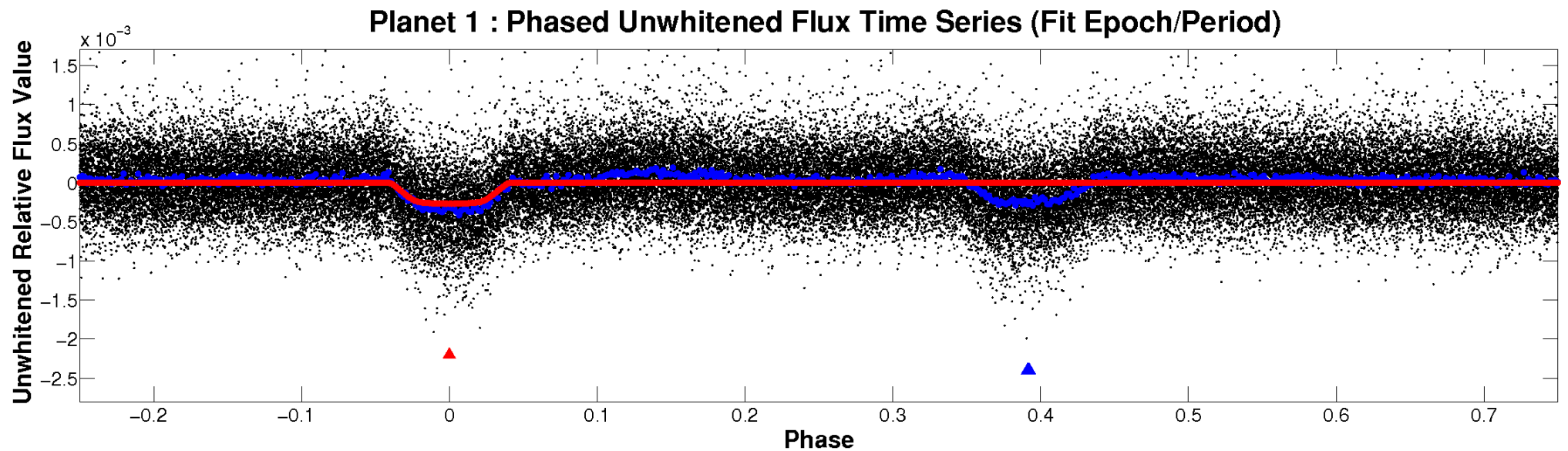


ALT Odd/Even

TCE 005471202-01

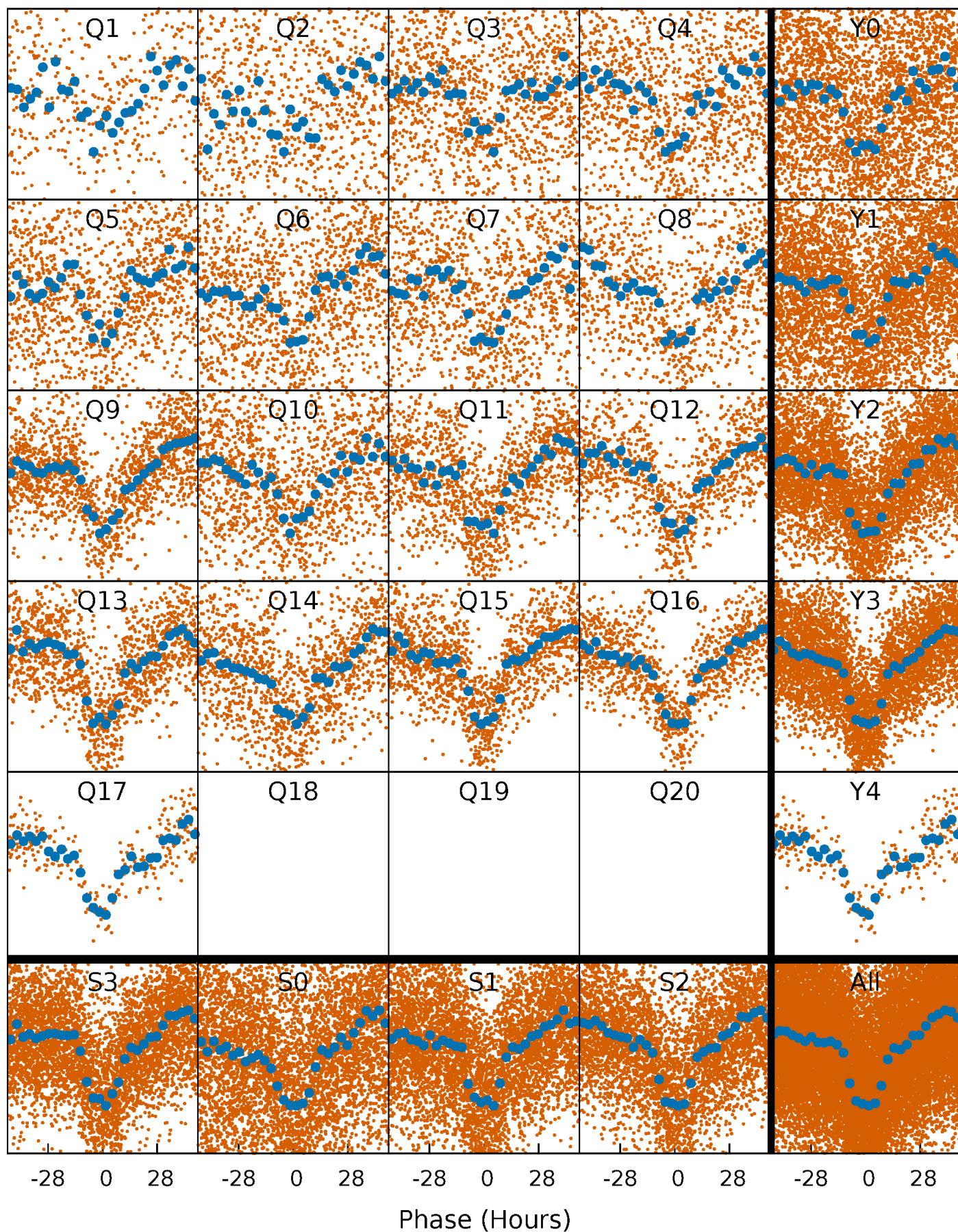


Non-Whitened Vs. Whitened Light Curve



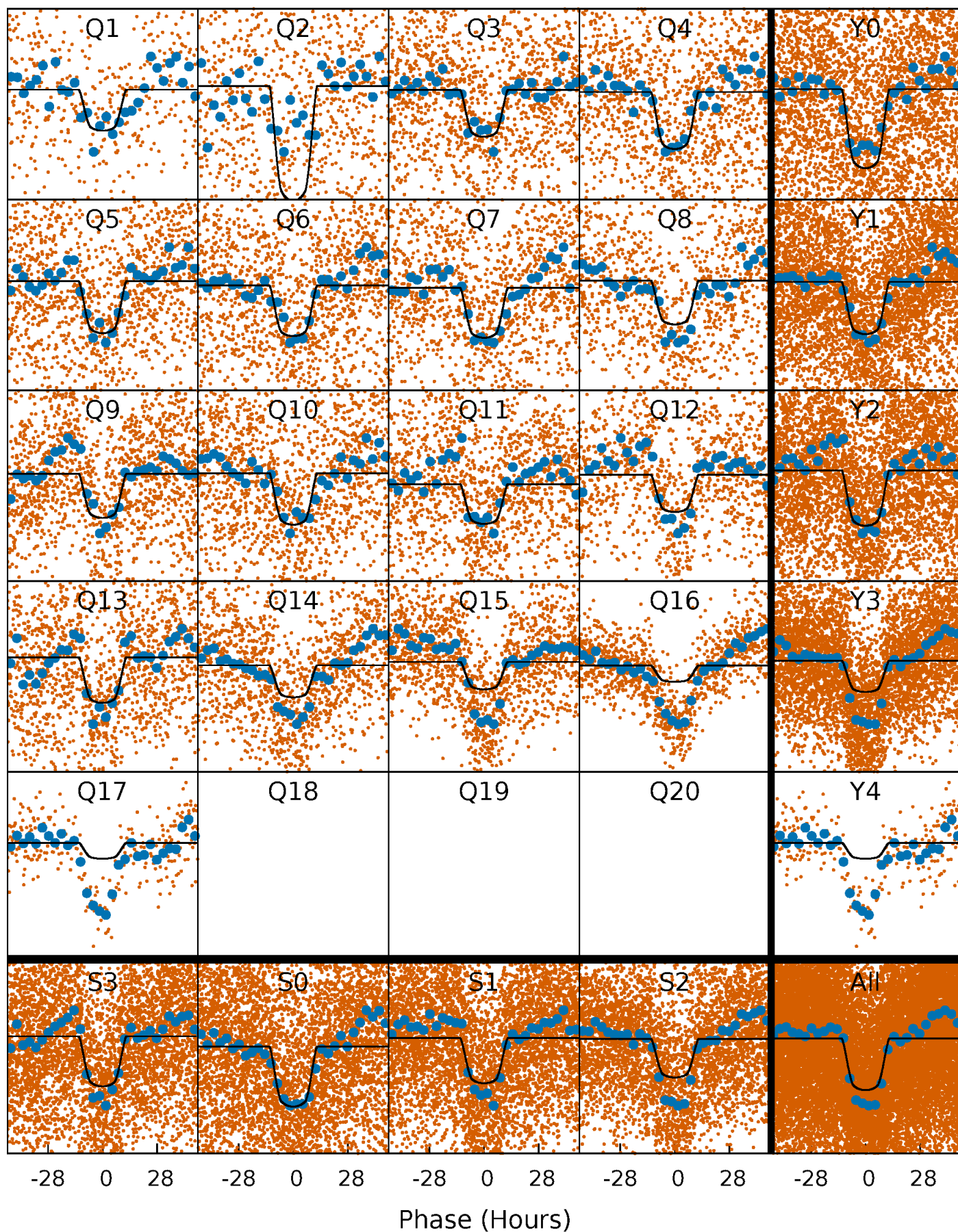
PDC Quarter-Phased Transit Curves

TCE 005471202-01 P= 12.425832 Days $T_0=141.504662$ (BKJD)



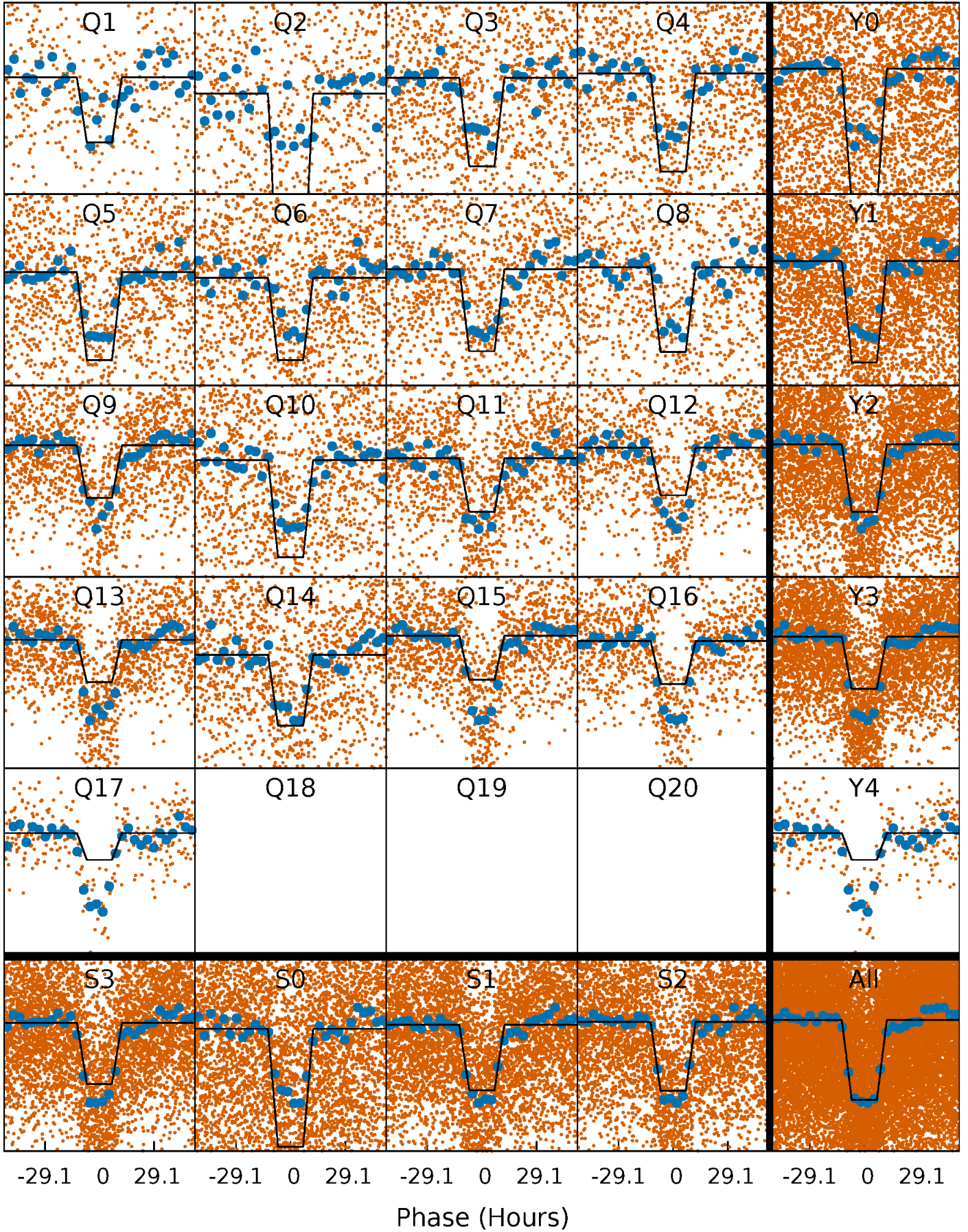
DV Quarter-Phased Transit Curves

TCE 005471202-01 P= 12.425832 Days $T_0=141.504662$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

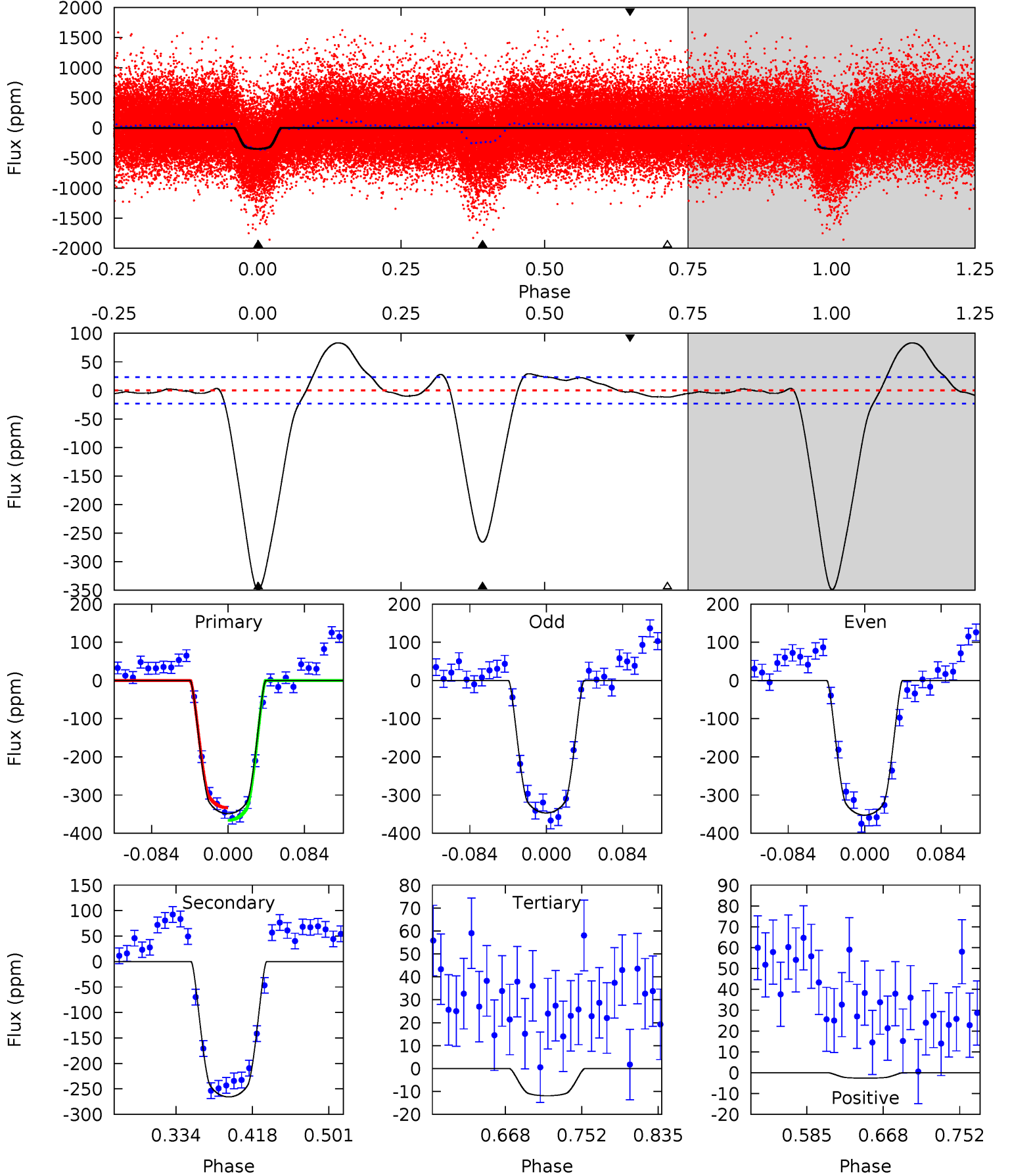
TCE 005471202-01 P= 12.425672 Days $T_0=141.526778$ (BKJD)



DV Model-Shift Uniqueness Test

005471202-01, P = 12.425832 Days, E = 129.078830 Days

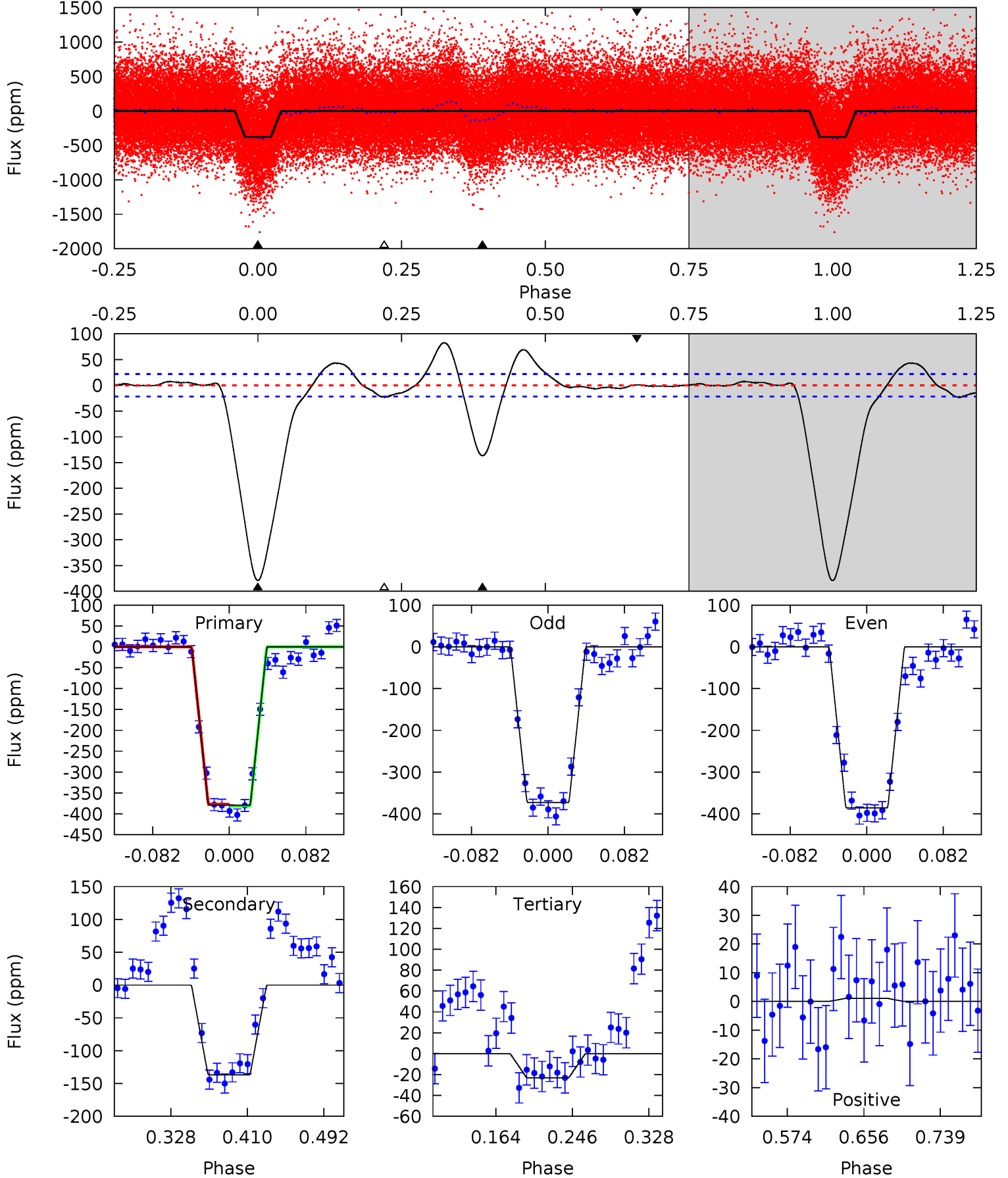
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
69.6	53.0	2.37	-0.52	4.60	1.73	4.85	67.2	70.1	50.6	53.5	0.55	1.08	0.19	3.19



Alt Model-Shift Uniqueness Test

005471202-01, P = 12.425672 Days, E = 129.101106 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
79.8	28.8	4.87	0.23	4.61	1.74	3.46	74.9	79.6	23.9	28.6	1.37	1.09	0.18	0.44



Stellar Parameters For KIC 005471202

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6185^{+168}_{-206}	$4.472^{+0.048}_{-0.192}$	$-0.180^{+0.250}_{-0.300}$	$0.991^{+0.277}_{-0.111}$	$1.060^{+0.130}_{-0.144}$	$1.537^{+0.380}_{-0.740}$
	+3%/-3%	+1%/-4%	+139%/-167%	+28%/-11%	+12%/-14%	+25%/-48%
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 005471202-01 / KOI 2911.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-266 ± 5	$2.14^{+0.35}_{-0.17}$	1185^{+78}_{-59}	5677^{+187}_{-174}	357^{+54}_{-85}
Alt.	-137 ± 5	$2.16^{+0.32}_{-0.19}$	1184^{+76}_{-55}	4896^{+139}_{-139}	180^{+30}_{-39}

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

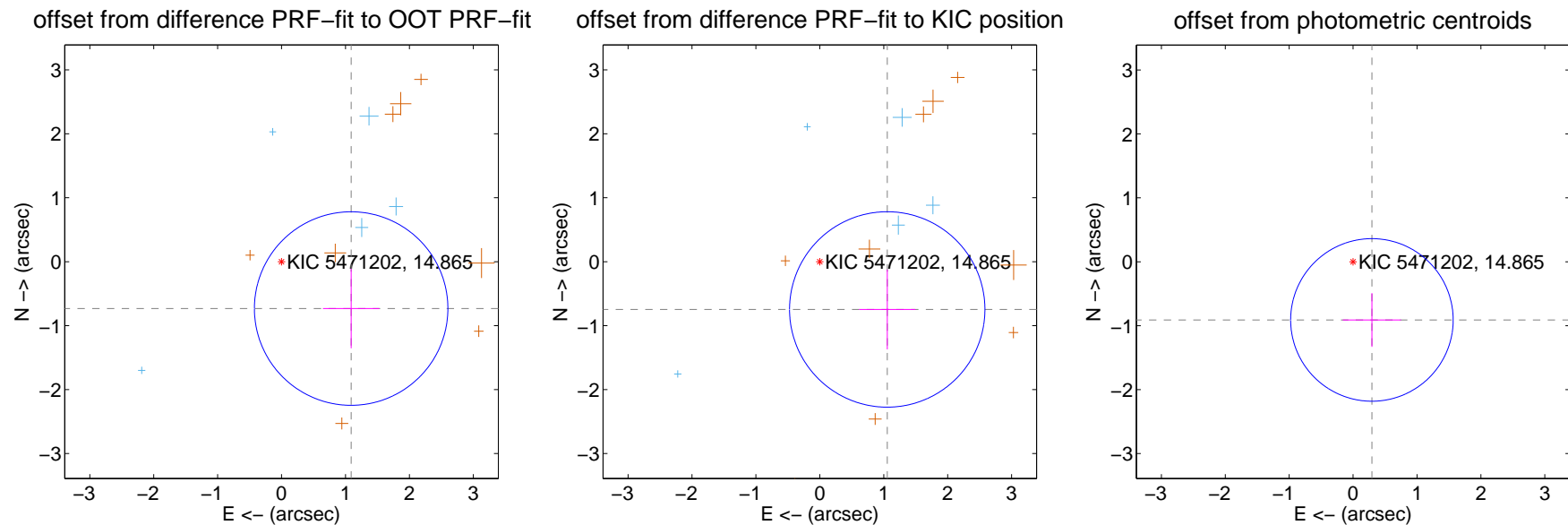
DV Centroid Data

Supplemental centroid analysis for 005471202-01. Kepler magnitude: 14.87. Transit SNR 23.21

There are 5 quarters with good PRF difference image offsets

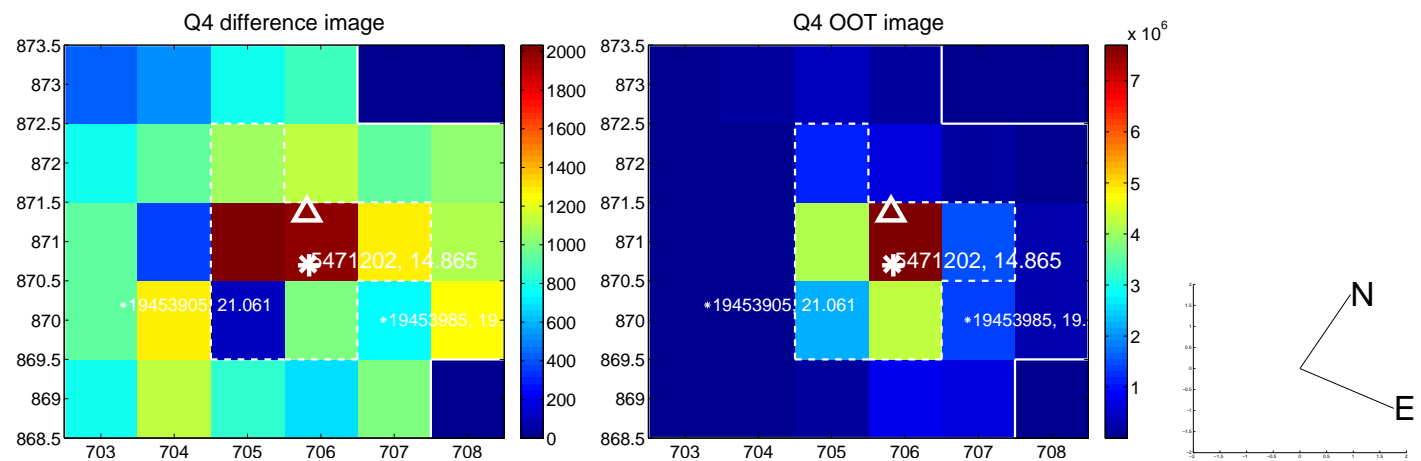
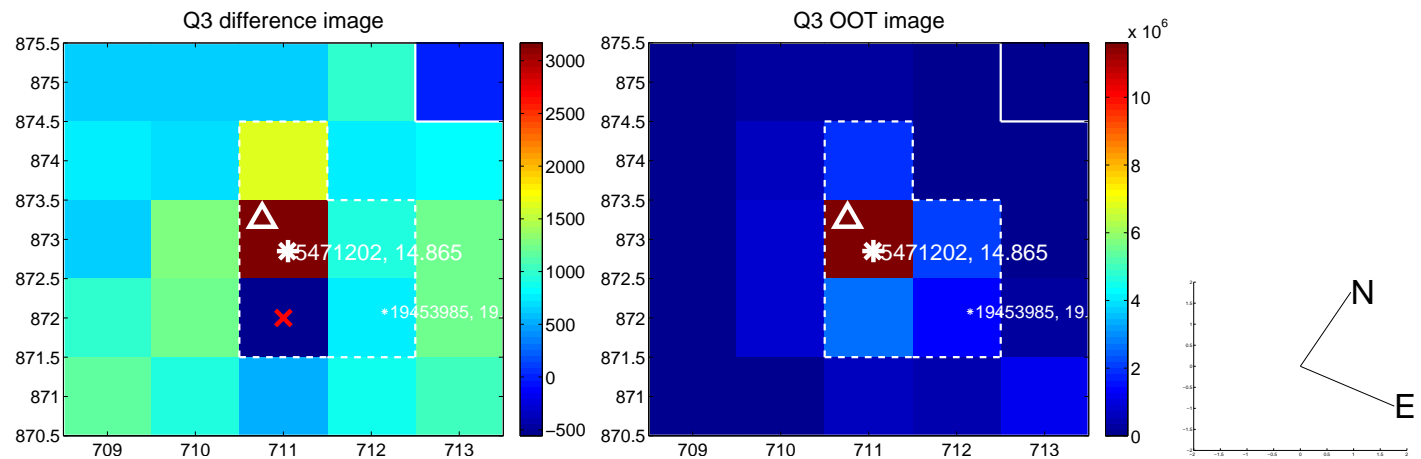
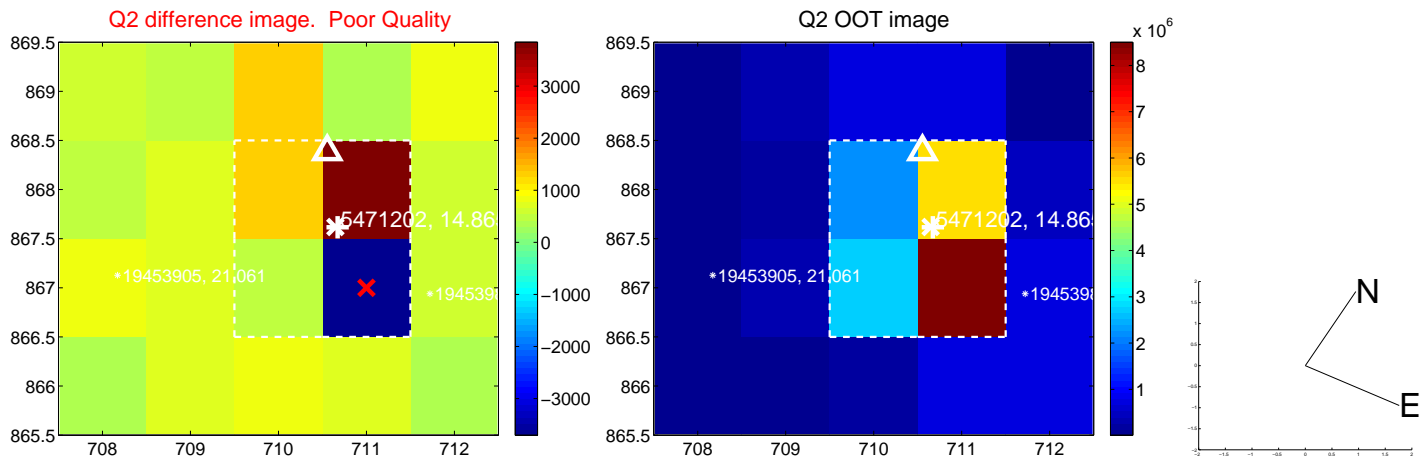
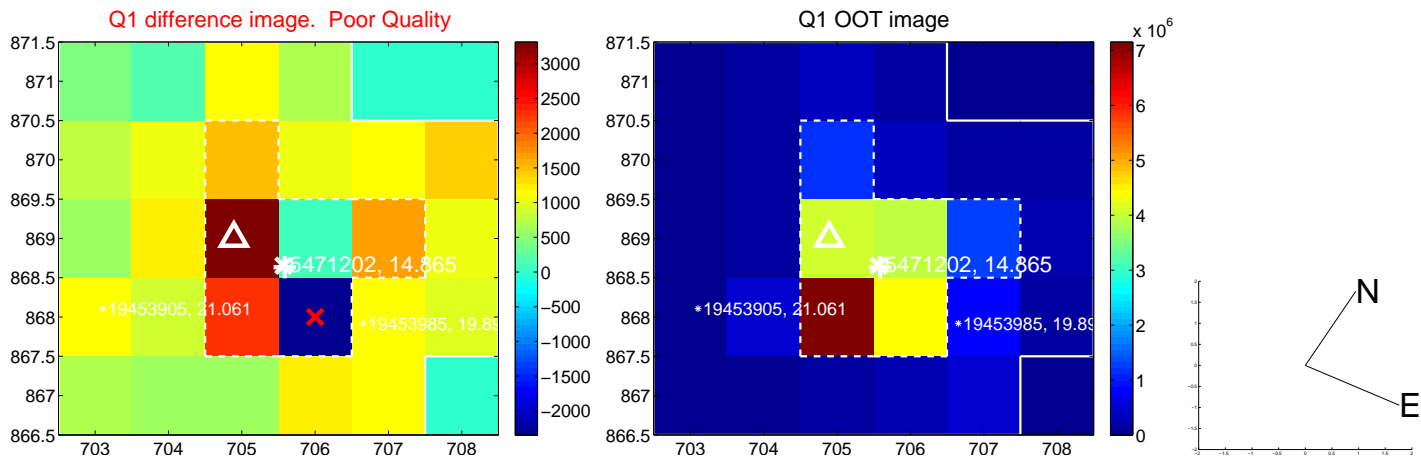
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.312 ± 0.504	2.60	-1.088 ± 0.441	-0.733 ± 0.621
PRF-fit source offset from KIC position	1.292 ± 0.509	2.54	-1.054 ± 0.441	-0.747 ± 0.624
photometric centroid source offset	0.96 ± 0.42	2.26	-0.29 ± 0.46	-0.91 ± 0.42

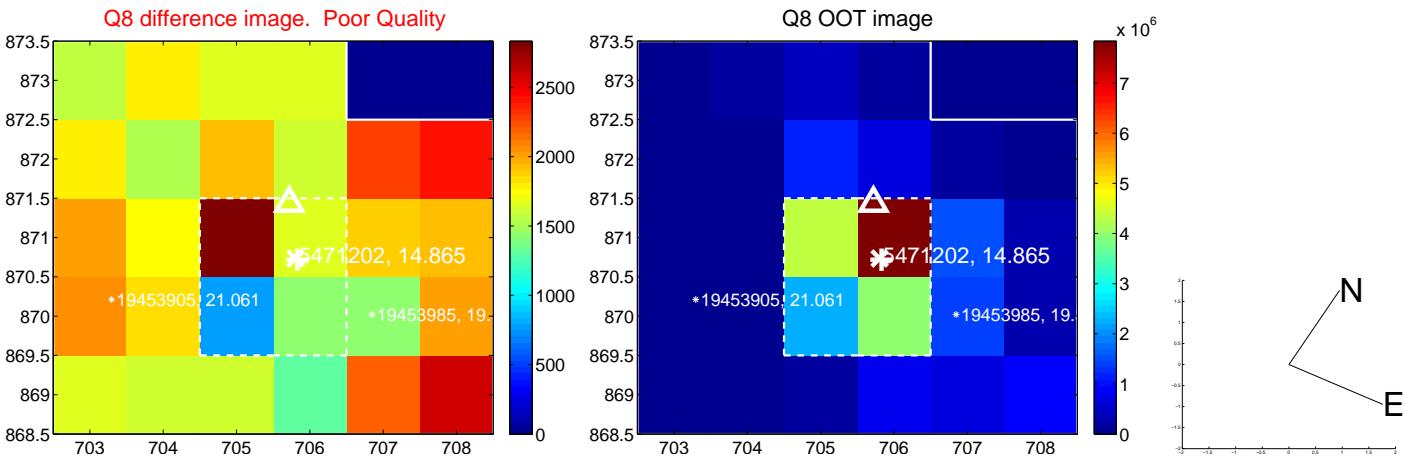
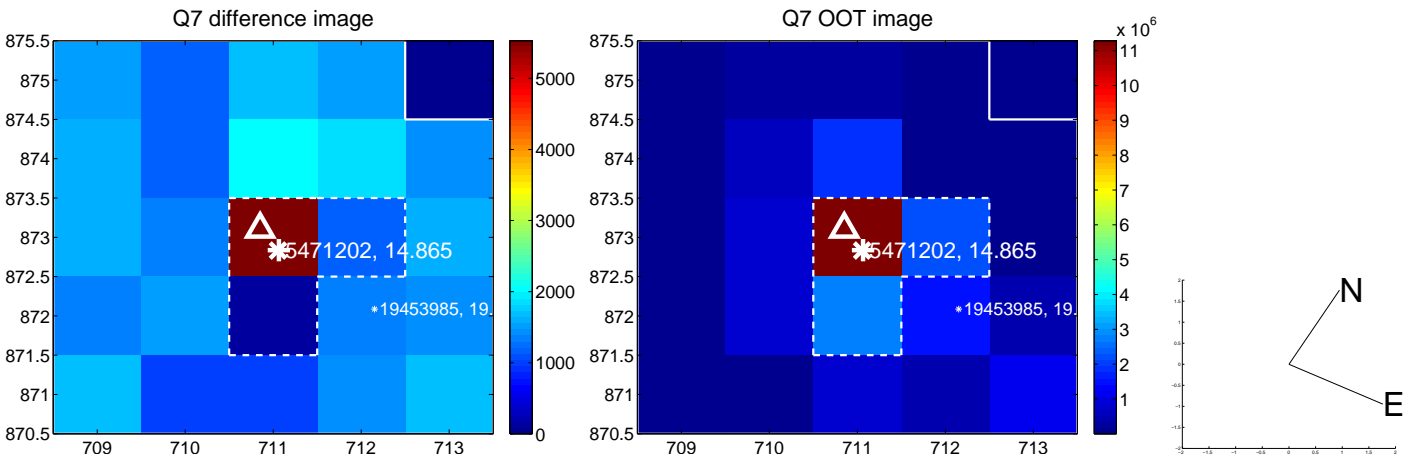
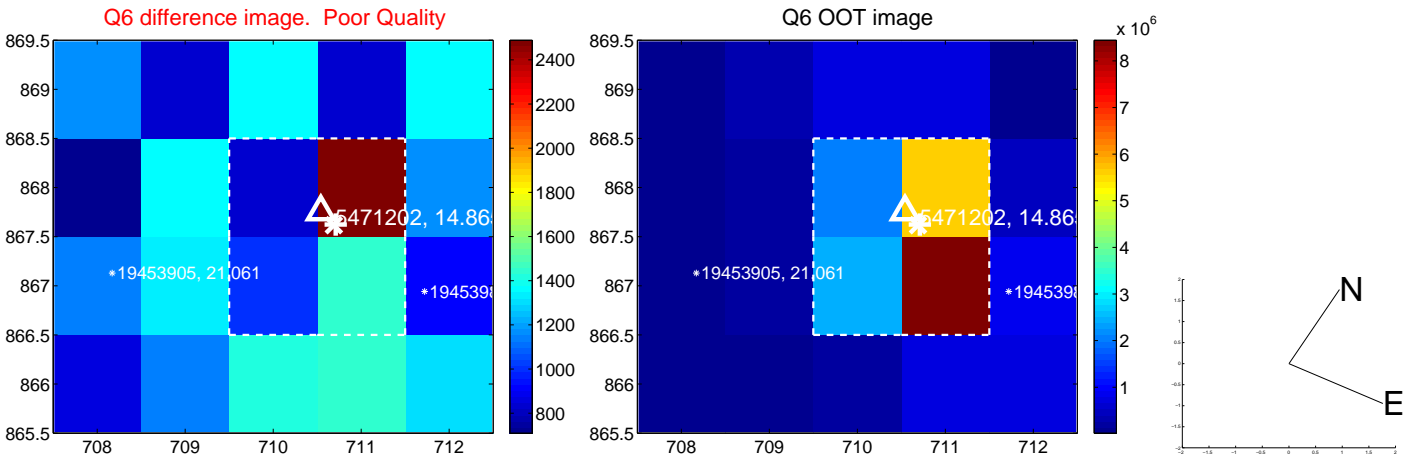
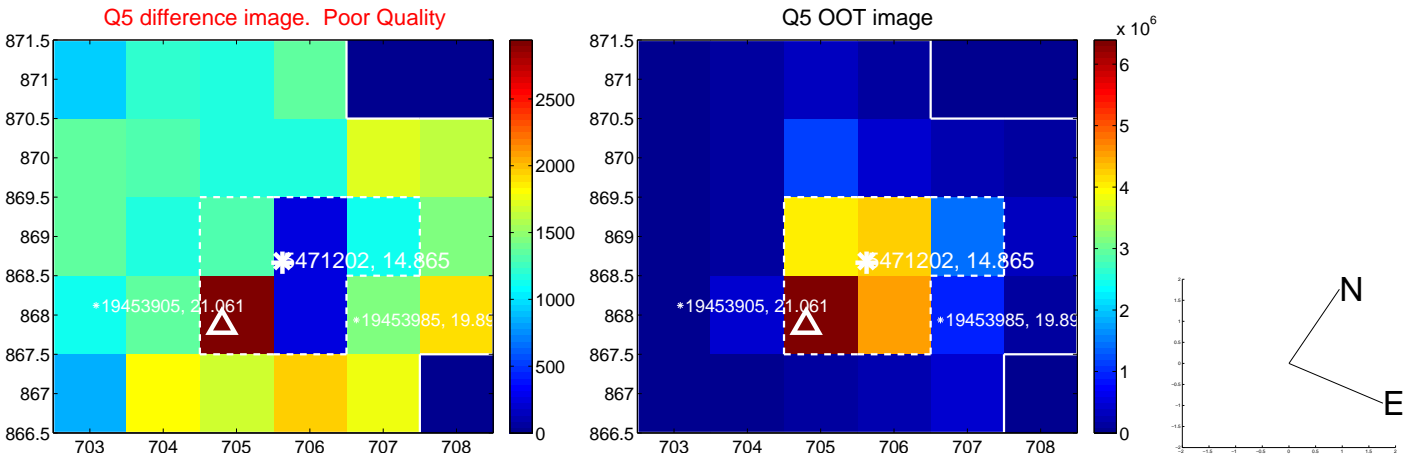


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

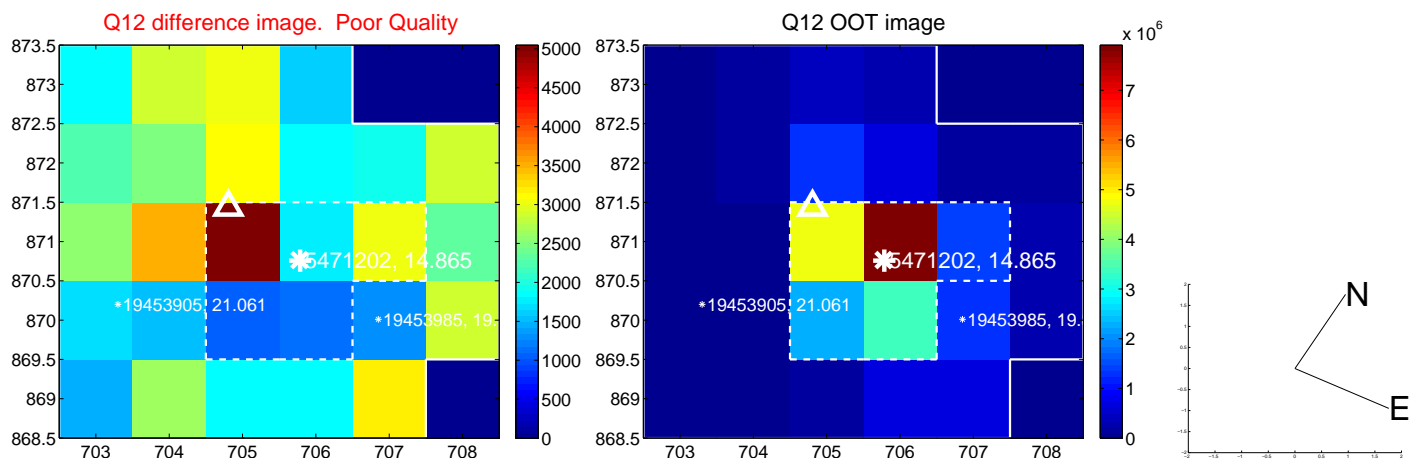
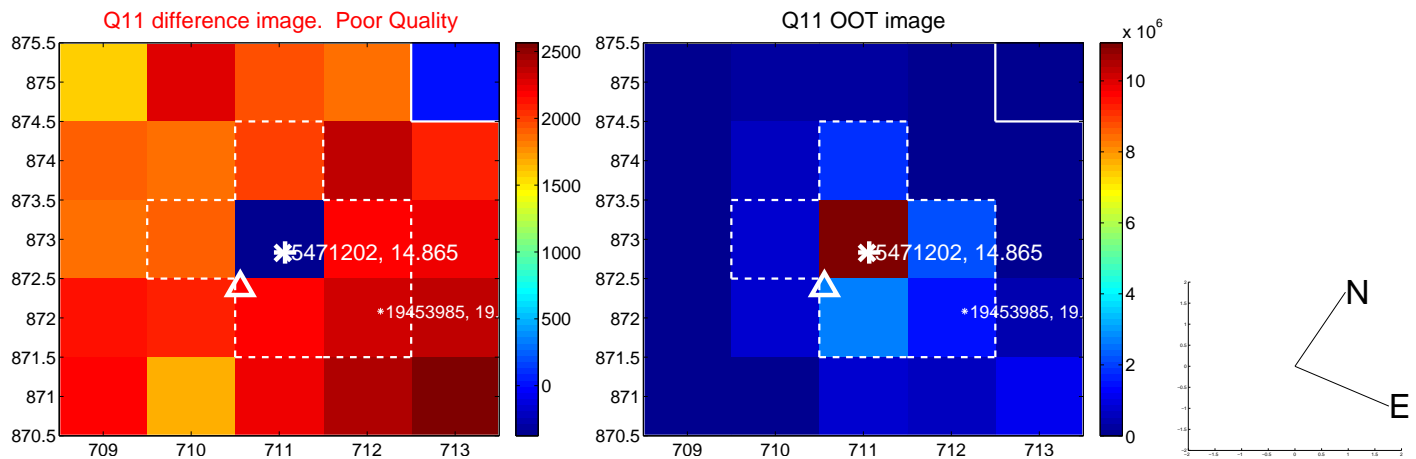
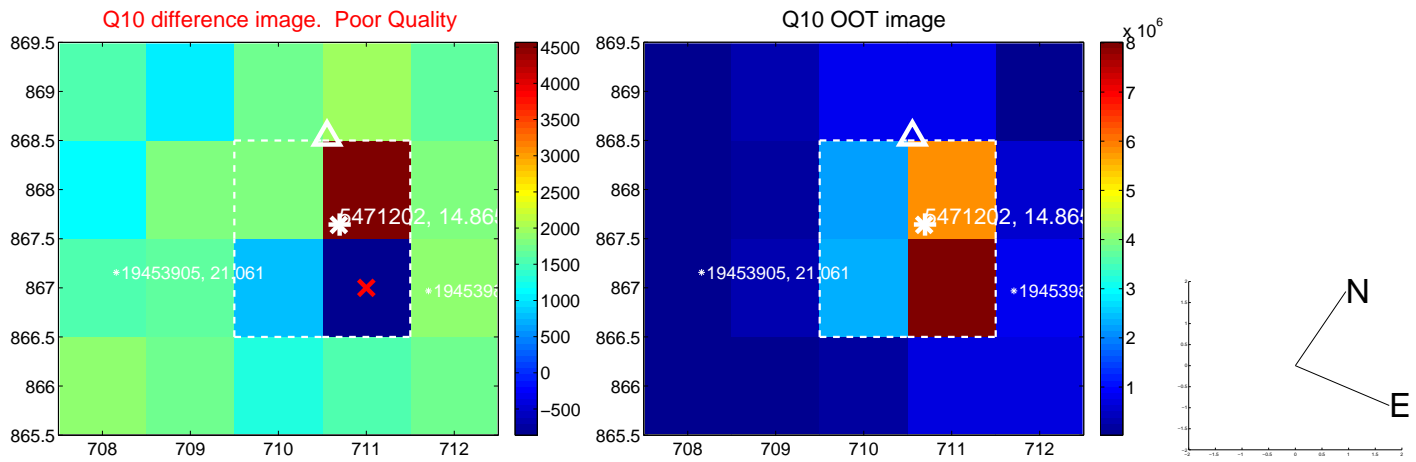
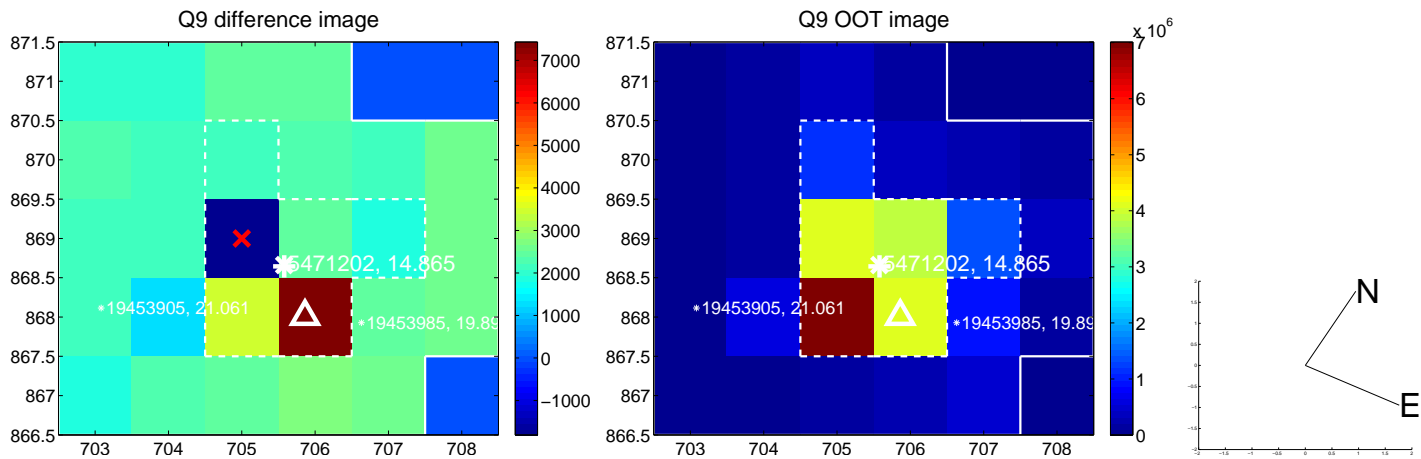
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



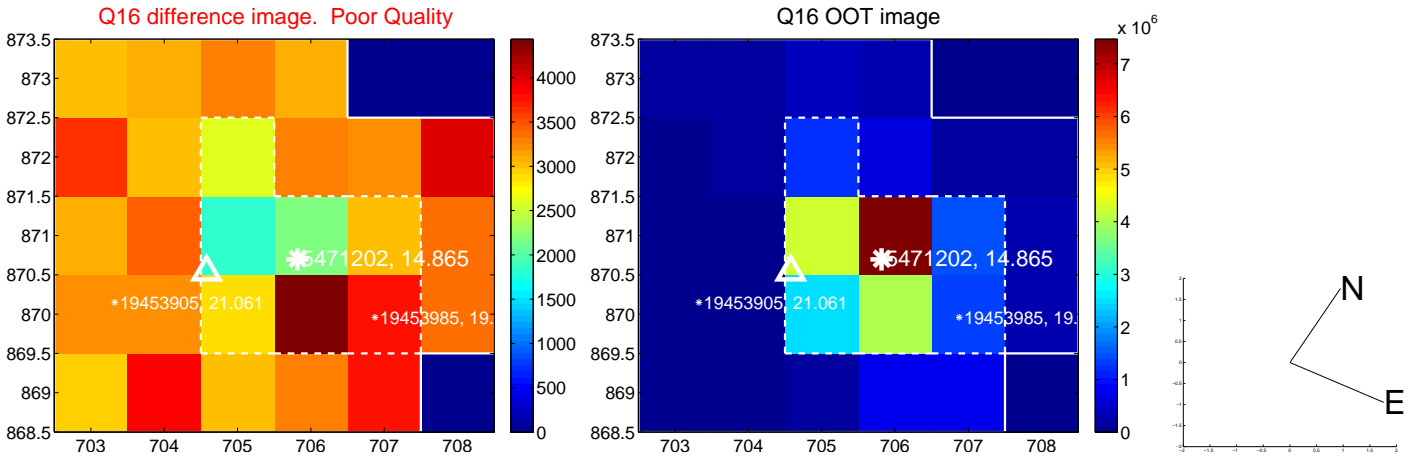
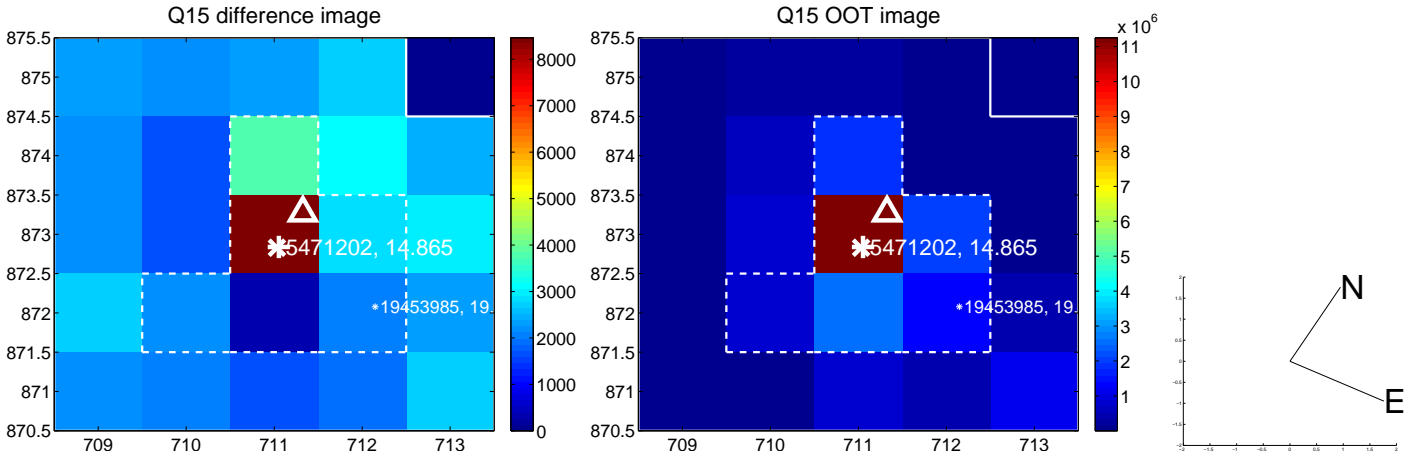
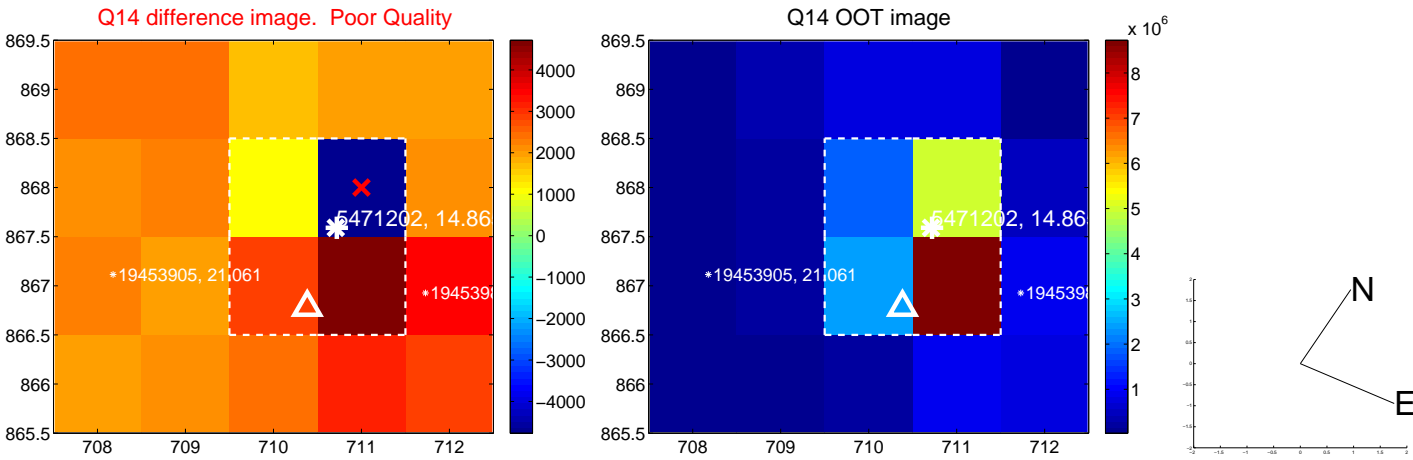
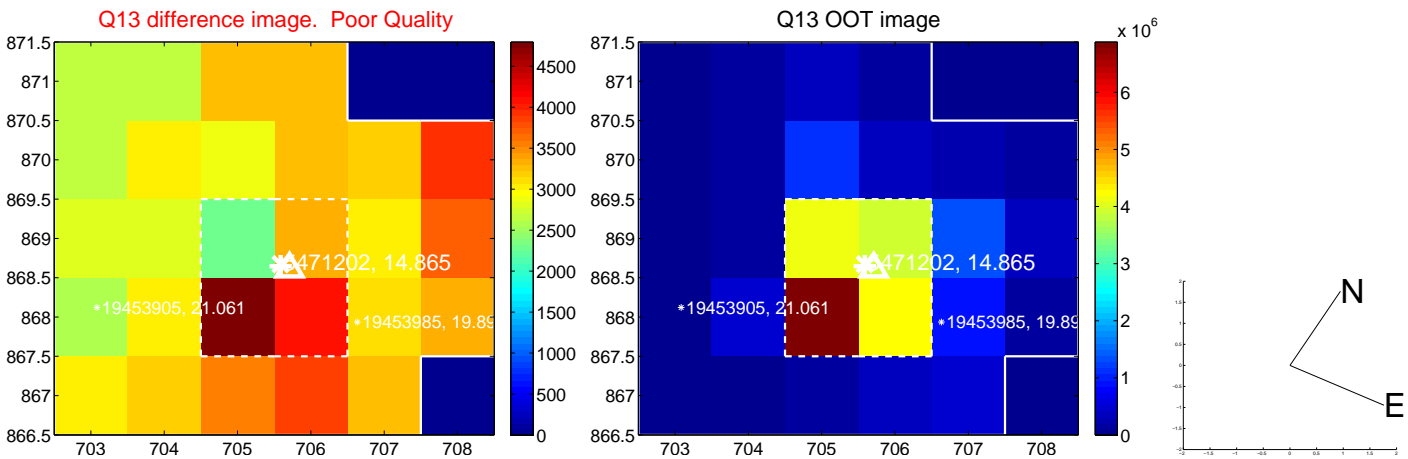
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



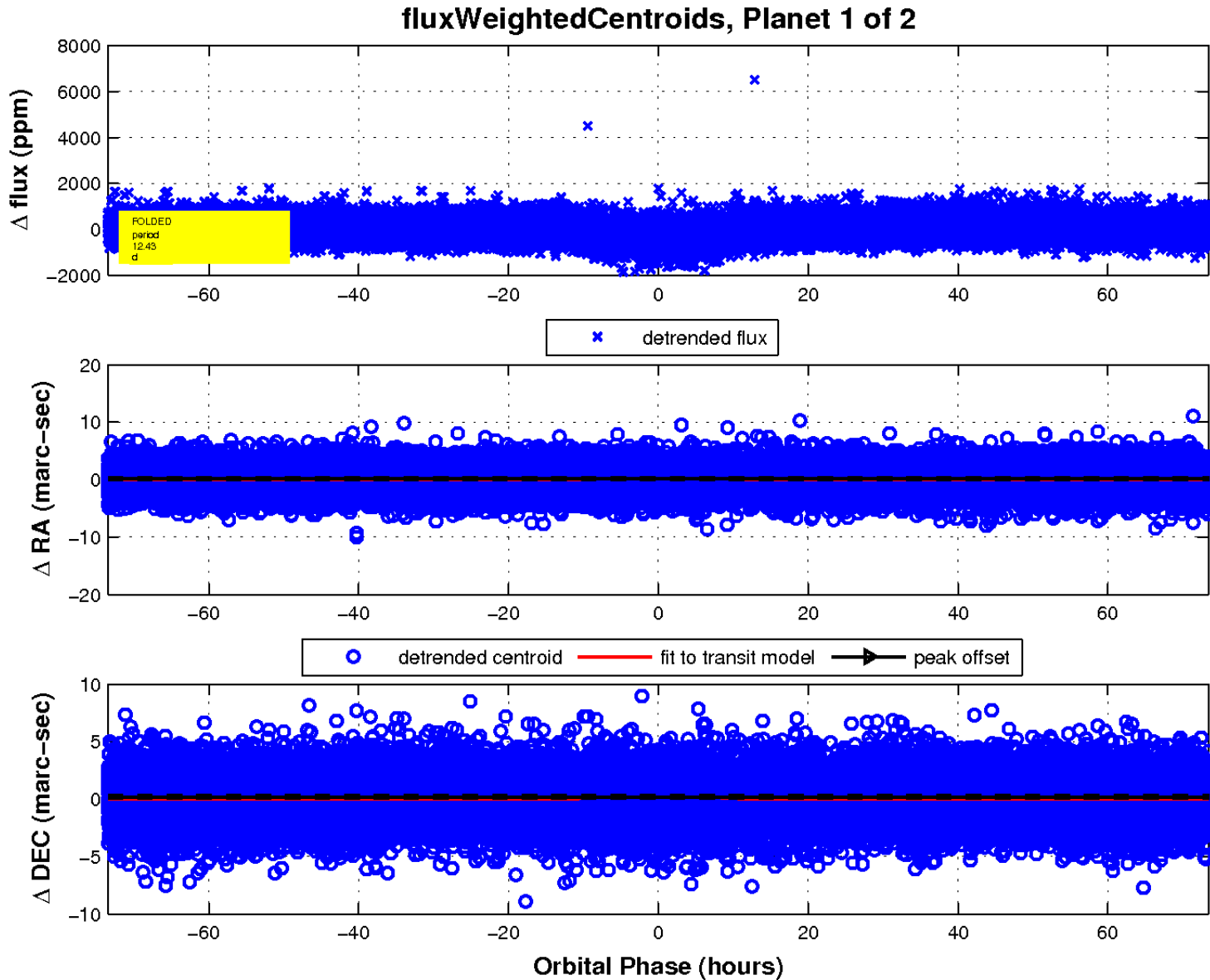
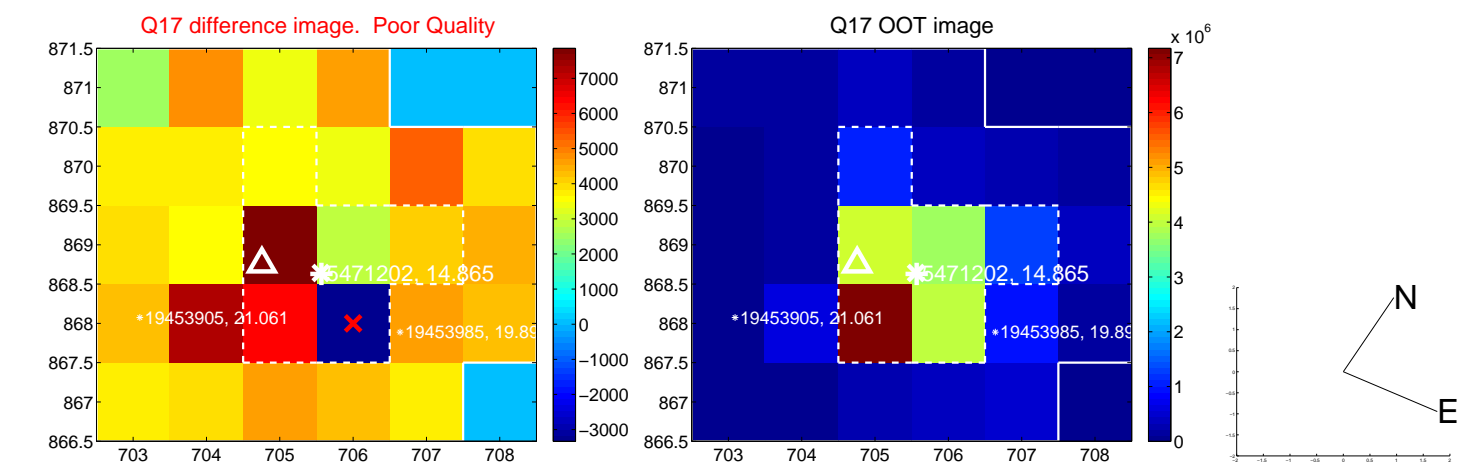
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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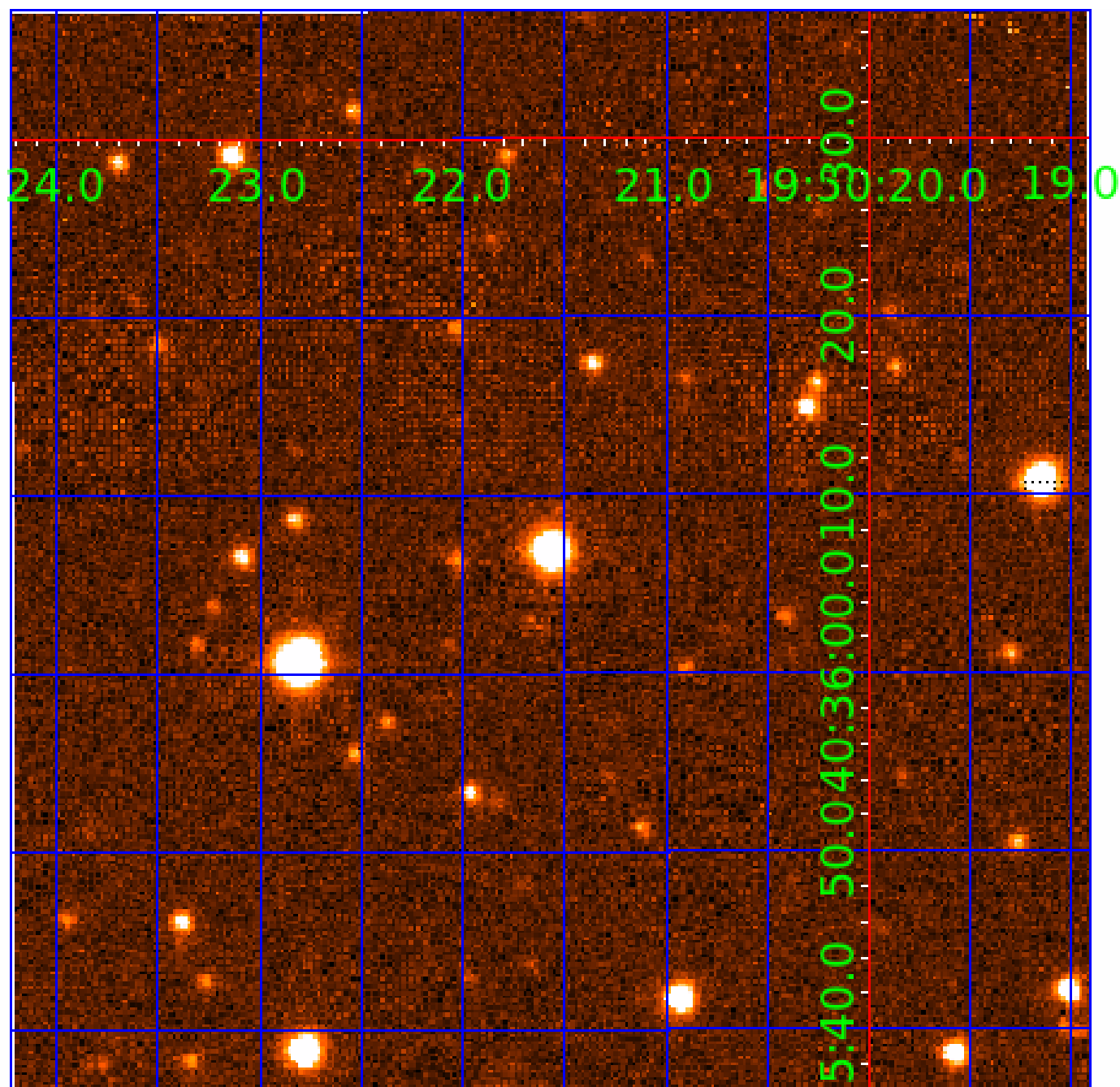


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005471202

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})
005471202-01	OBS	2911.01	12.425832	141.504663	268.9	24.483	18.3	23.2	0.99	6185	2.09	112.17
005471202-02	OBS	No	12.425965	133.939095	263.8	28.512	18.9	26.6	0.99	6185	2.10	112.17

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471202-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005471202-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—HALO_GHOST—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 005471202-02

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
005471202-02	5471202	V380-Cyg-sec	5385723	1:1	179.6	23	-38	5.77	14.86	488.77	Direct-PRF	0	1.38	0.23

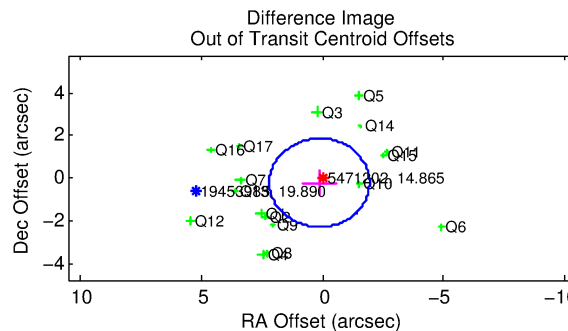
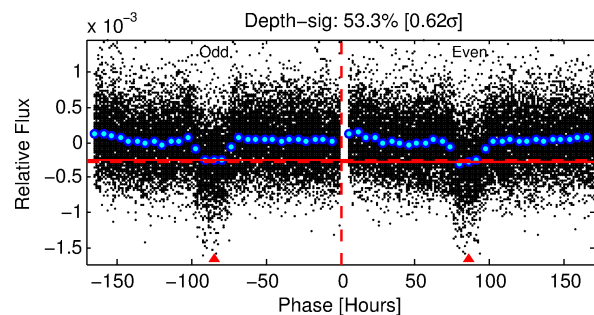
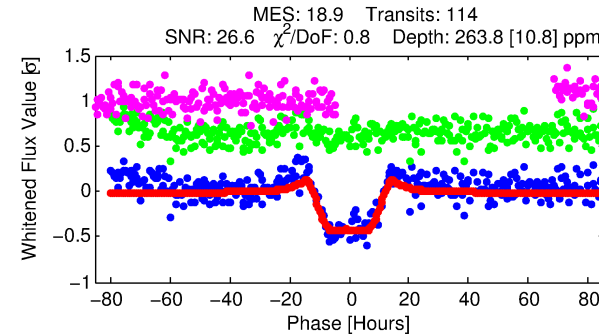
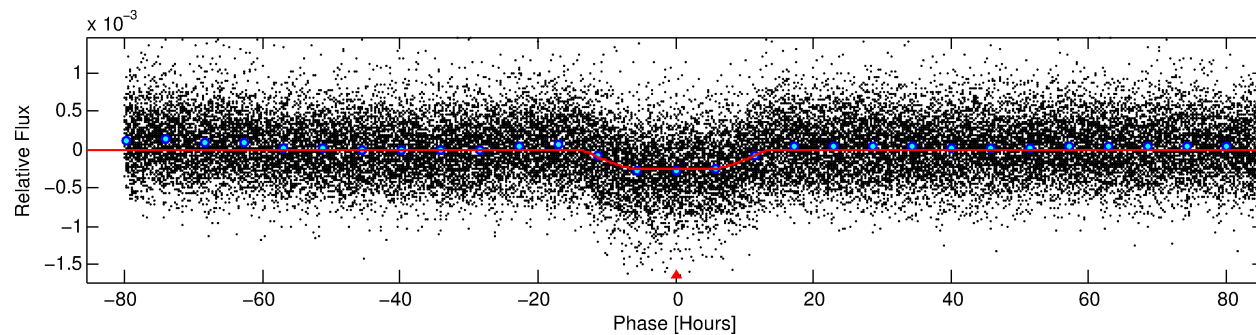
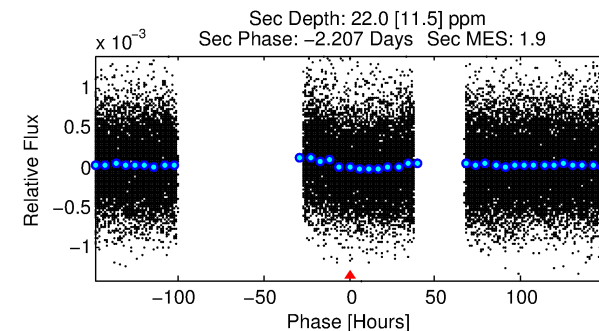
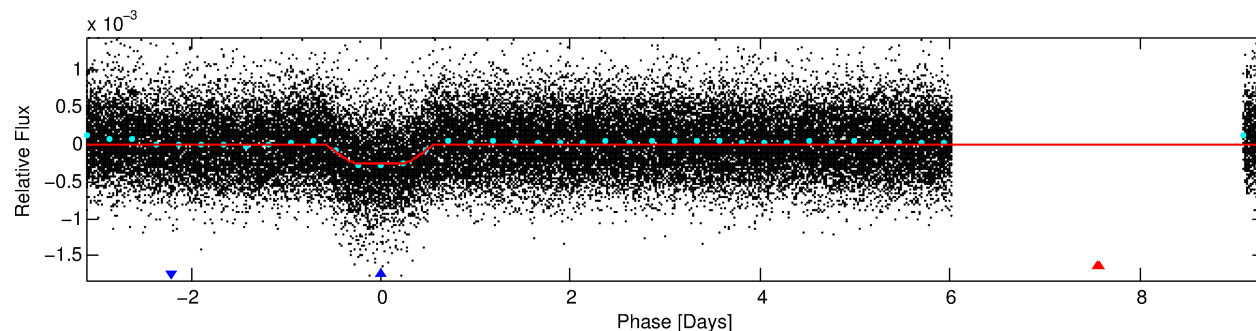
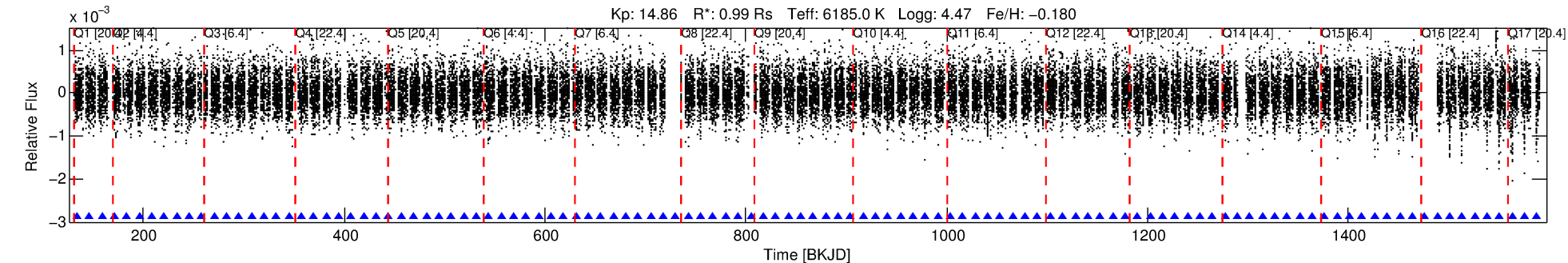
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 5471202 Candidate: 2 of 2 Period: 12.426 d

KOI: K02911 Corr: No Ephemeris Match

Kp: 14.86 R*: 0.99 Rs Teff: 6185.0 K Logg: 4.47 Fe/H: -0.180



DV Fit Results:

Period = 12.42596 [0.00029] d
Epoch = 133.9391 [0.0180] BKJD
Rp/R* = 0.0194 [0.0005]
a/R* = 1.43 [0.04]
b = 0.97 [0.00]
Seff = 112.17 [41.87]
Teff = 830 [77] K
Rp = 2.10 [0.59] Re
a = 0.1071 [0.0255] AU
Ag = 31.57 [19.86] [1.54σ]
Teffp = 3041 [411] K [5.29σ]

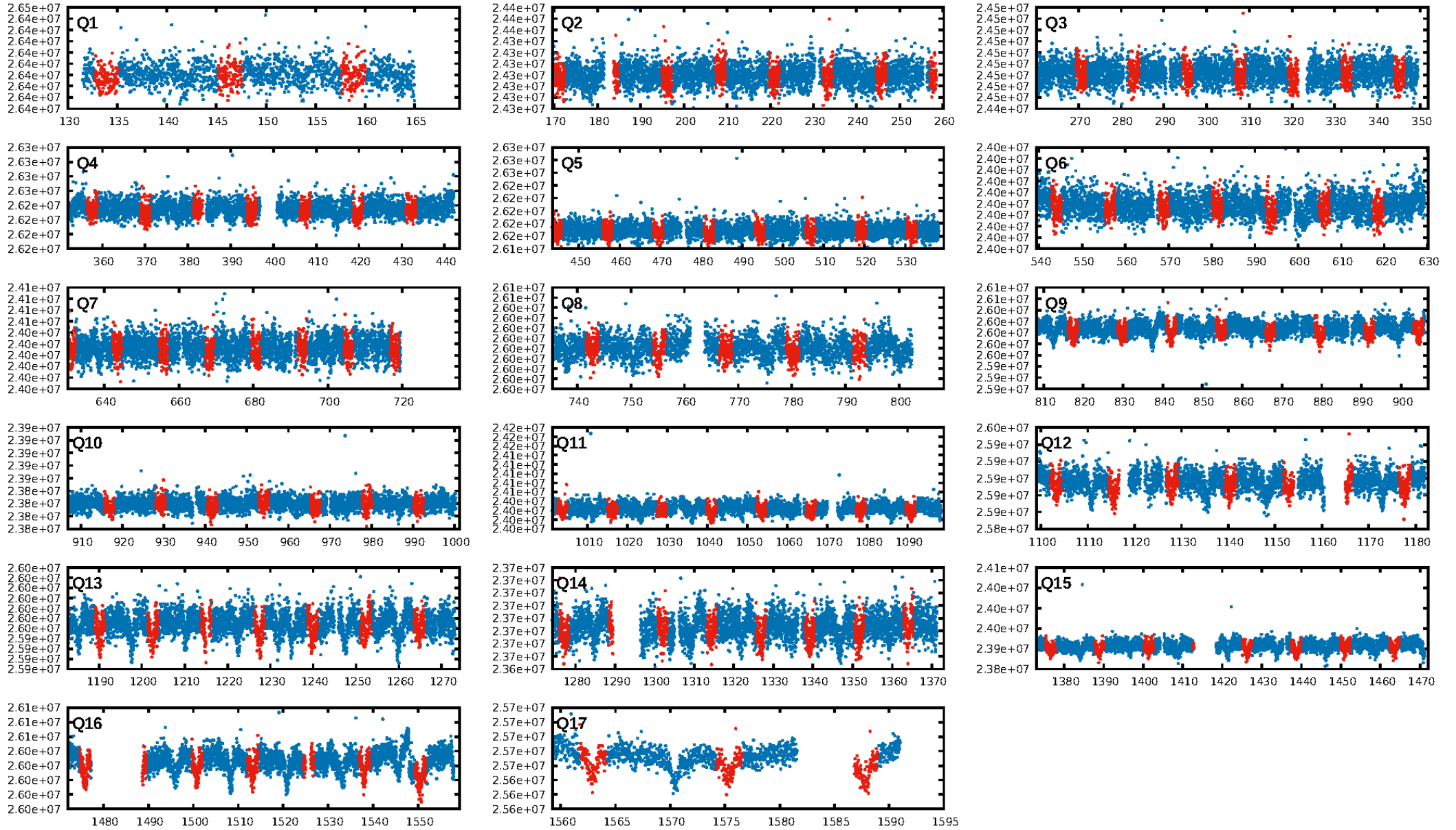
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.13e-69
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: 0.0502
Centroid-sig: 1.1%
Centroid-so: 0.285 arcsec [0.68σ]
OotOffset-rm: 0.243 arcsec [0.35σ]
KicOffset-rm: 0.285 arcsec [0.39σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.18 [3/17]
DiffImageOverlap-fno: 1.00 [17/17]

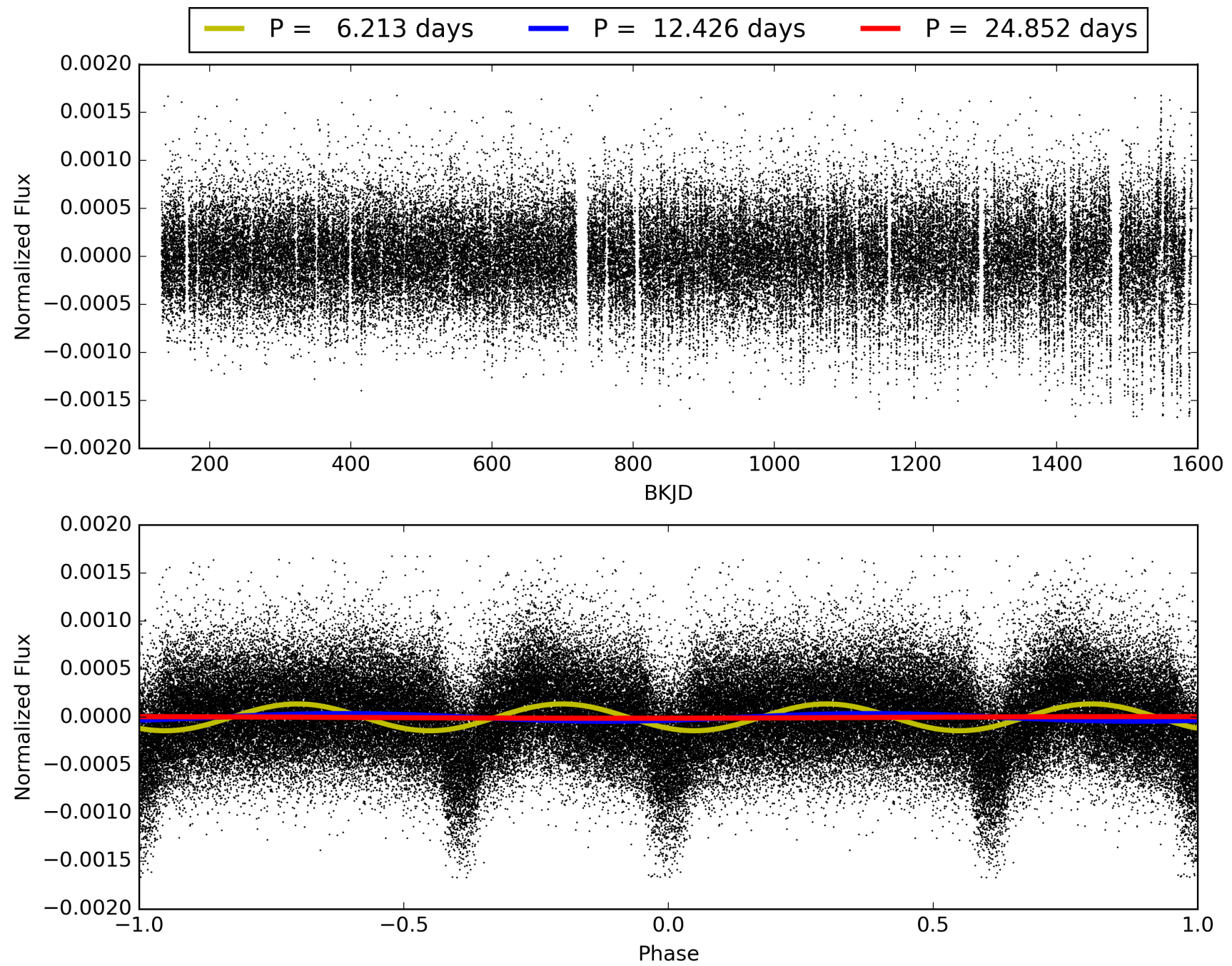
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471202-02, PDC Light Curves

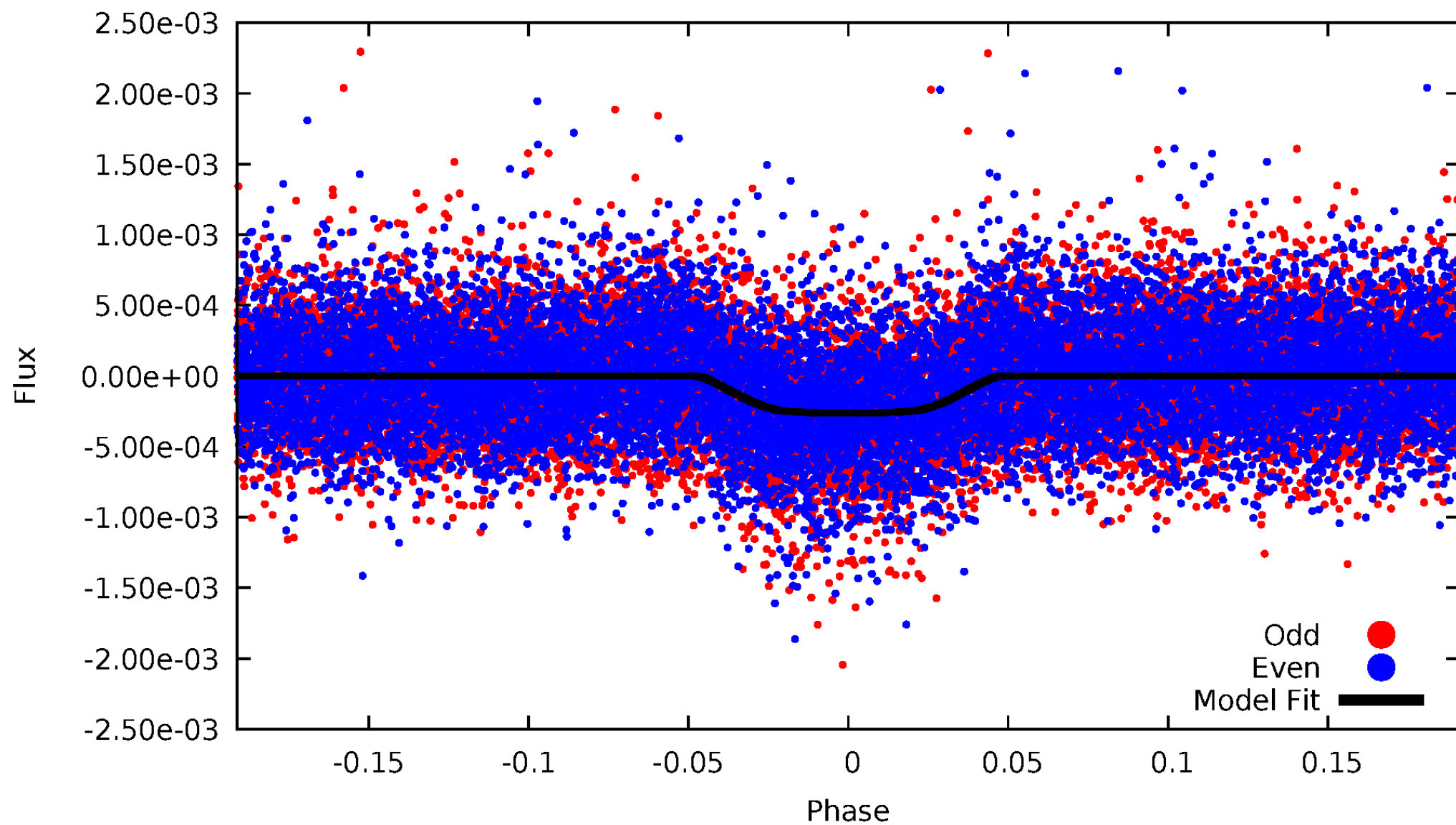


TCE 005471202-02



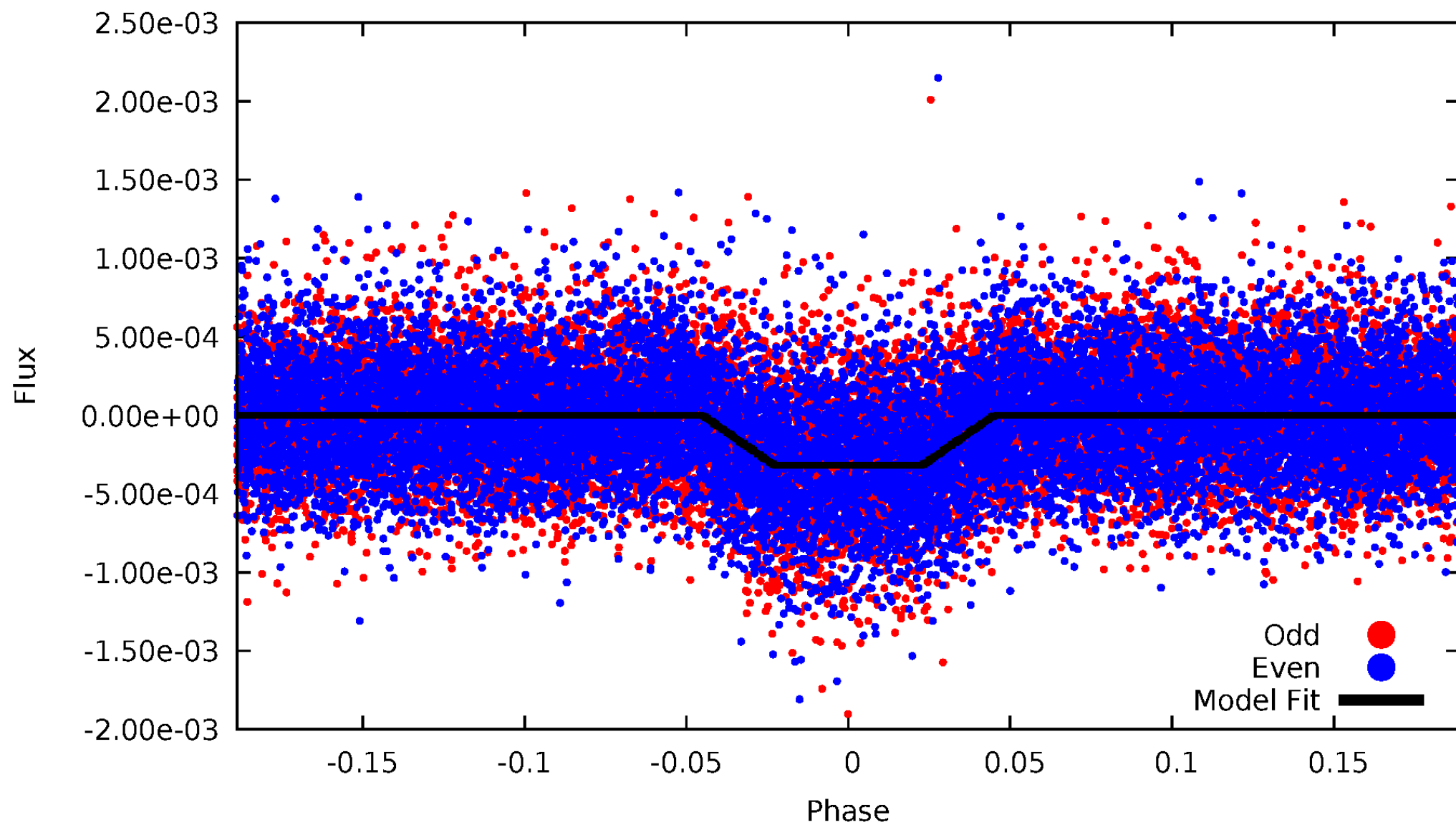
DV Odd/Even

TCE 005471202-02



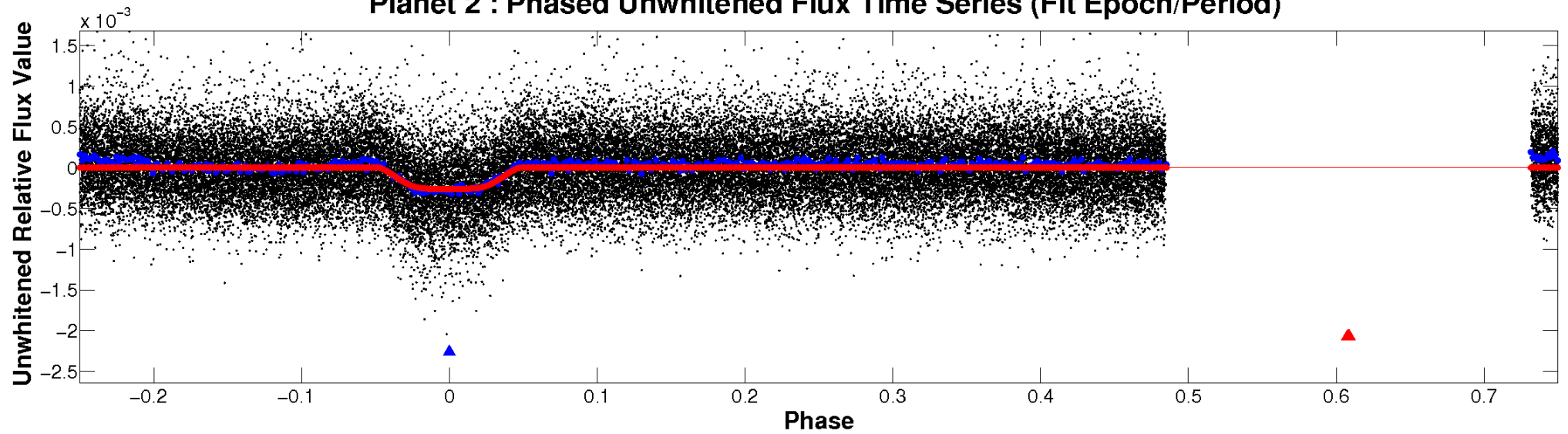
ALT Odd/Even

TCE 005471202-02

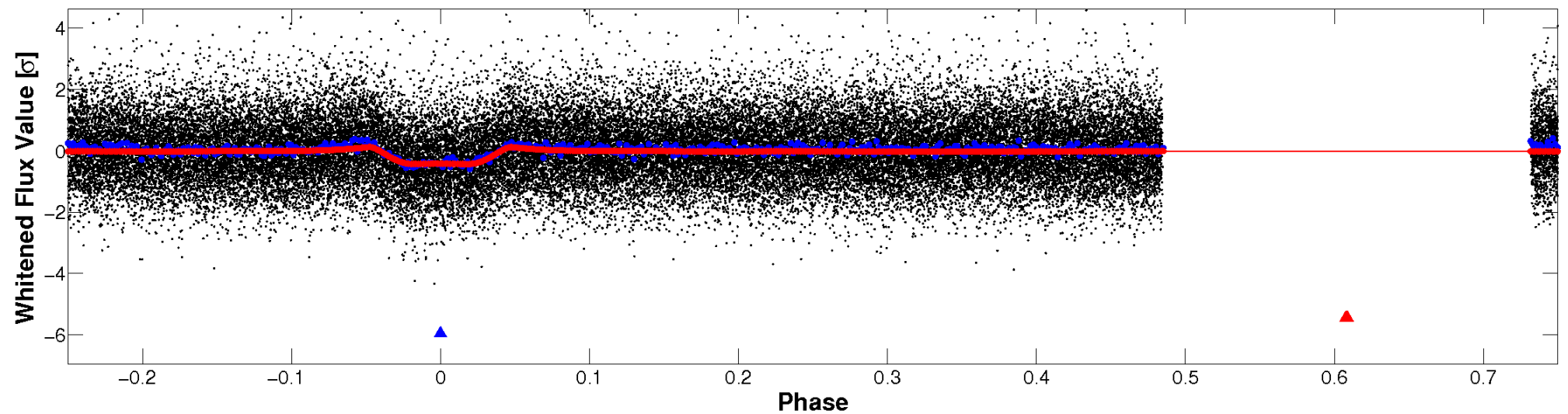


Non-Whitened Vs. Whitened Light Curve

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

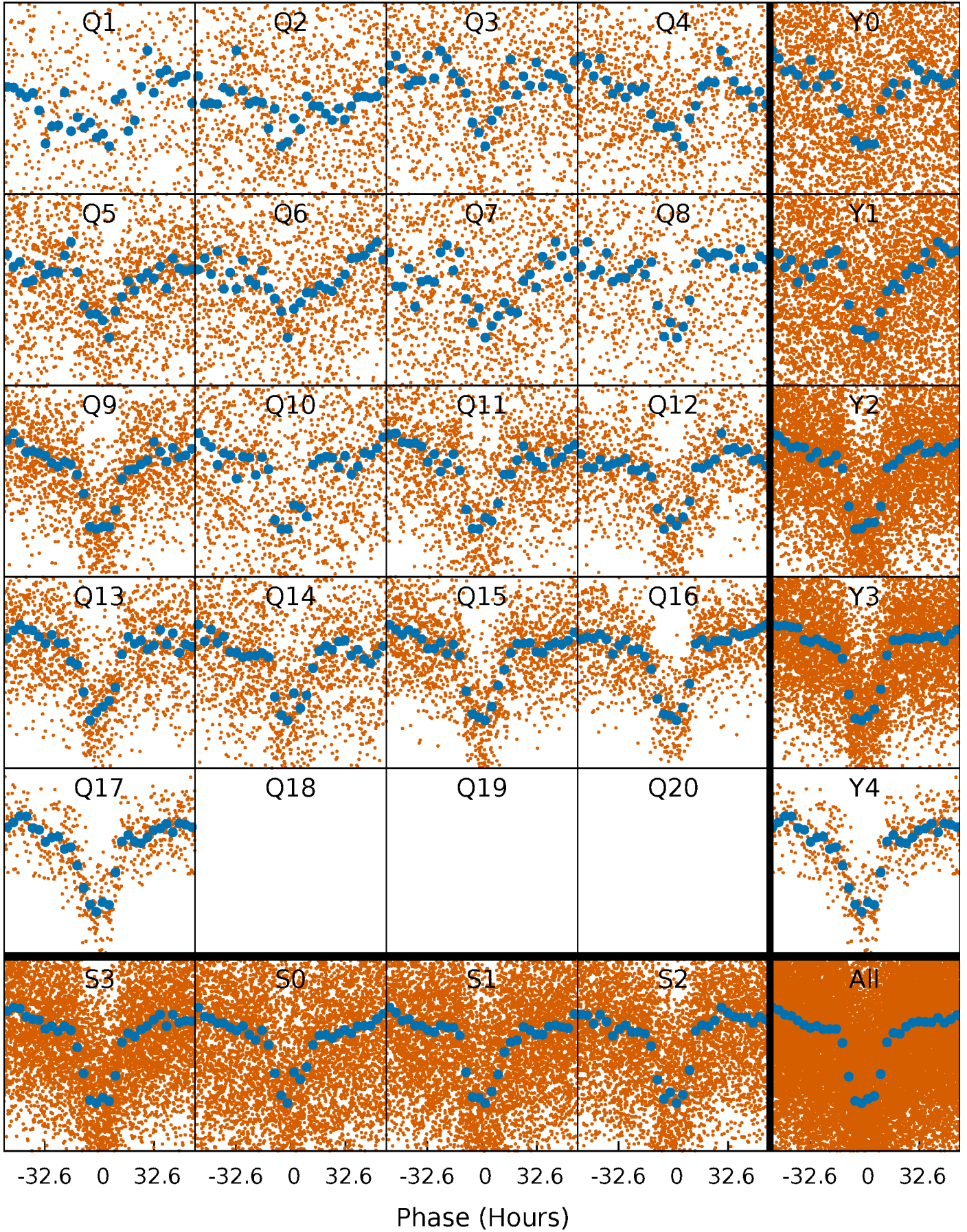


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



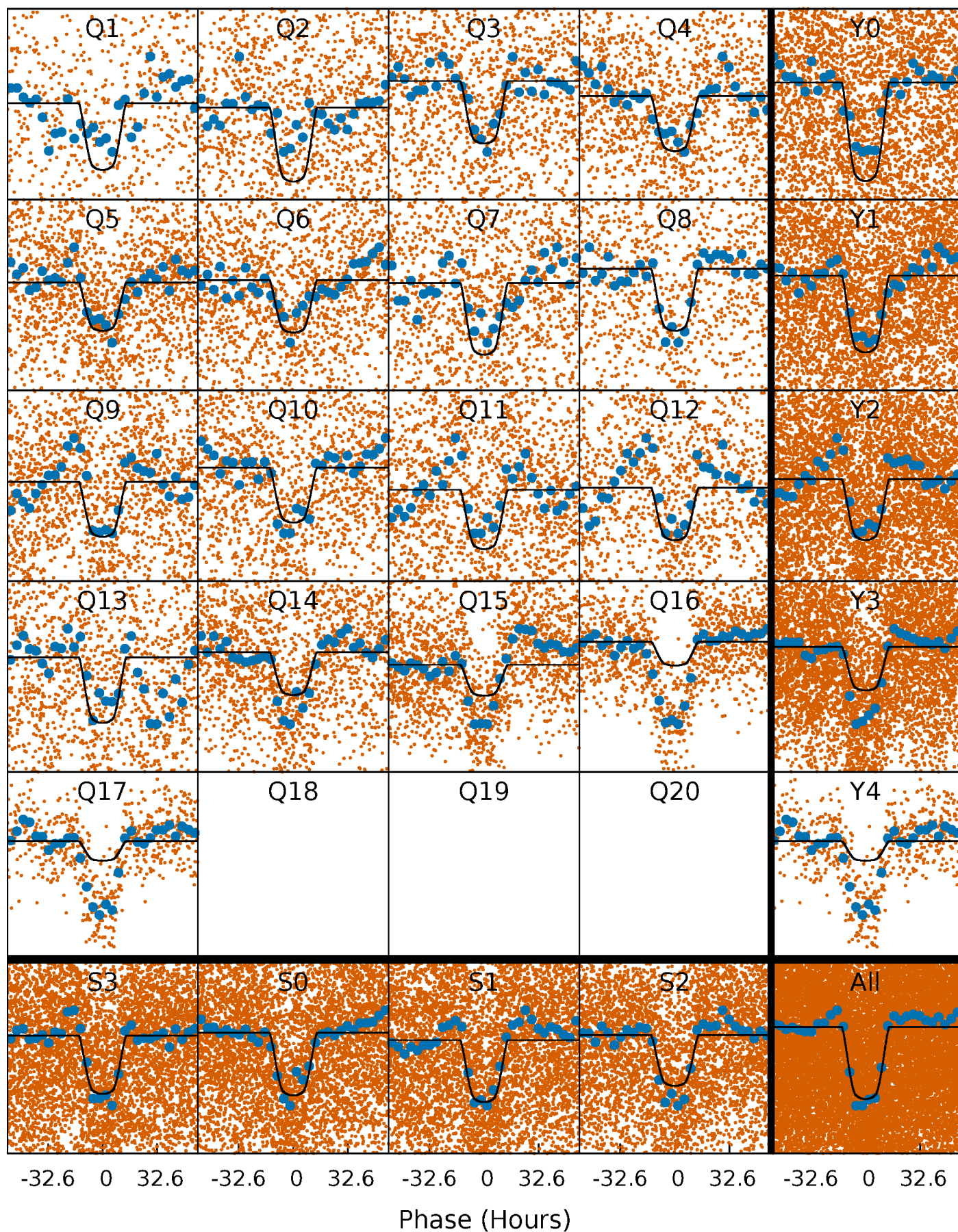
PDC Quarter-Phased Transit Curves

TCE 005471202-02 P= 12.425965 Days $T_0=133.939095$ (BKJD)



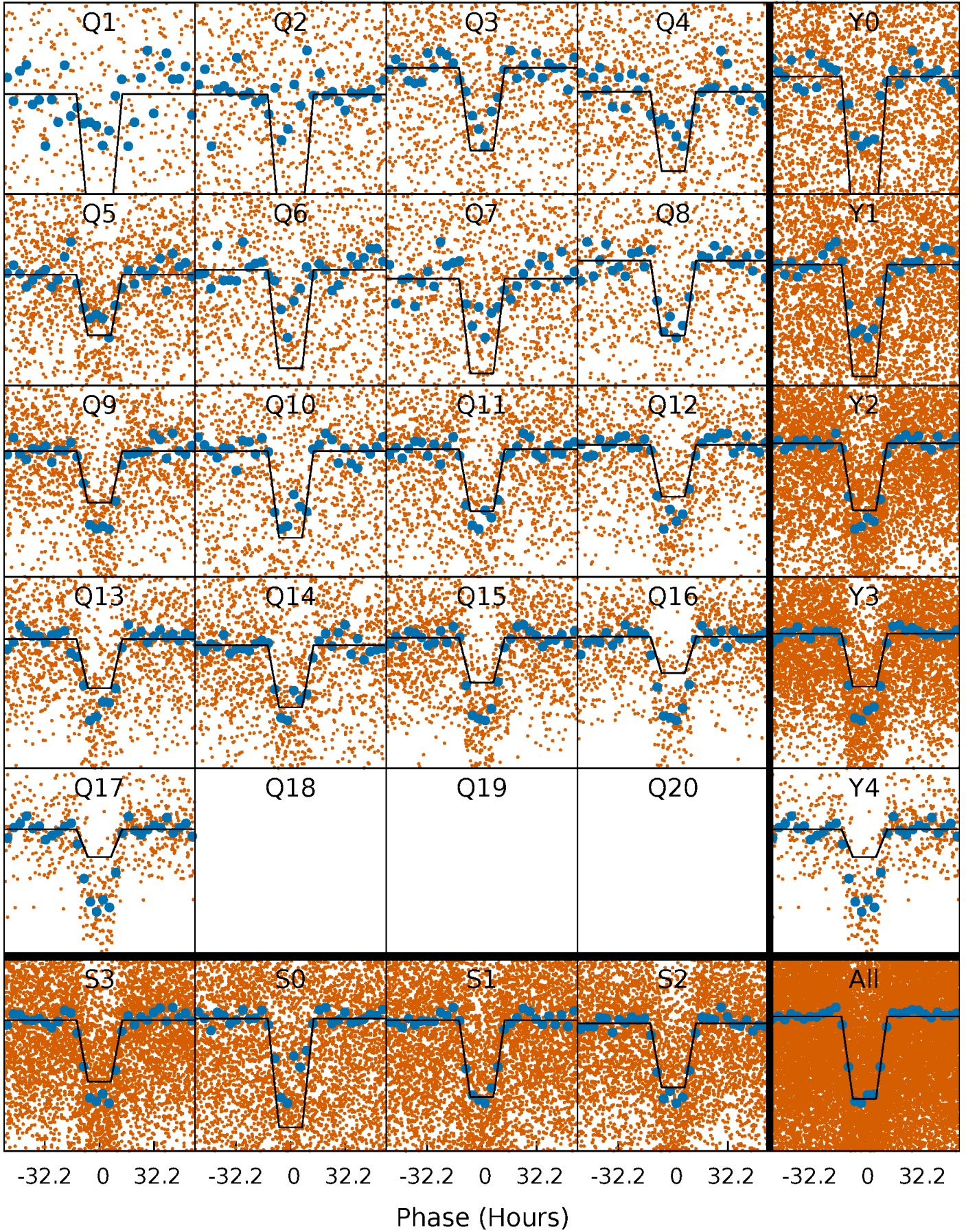
DV Quarter-Phased Transit Curves

TCE 005471202-02 P= 12.425965 Days $T_0=133.939095$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

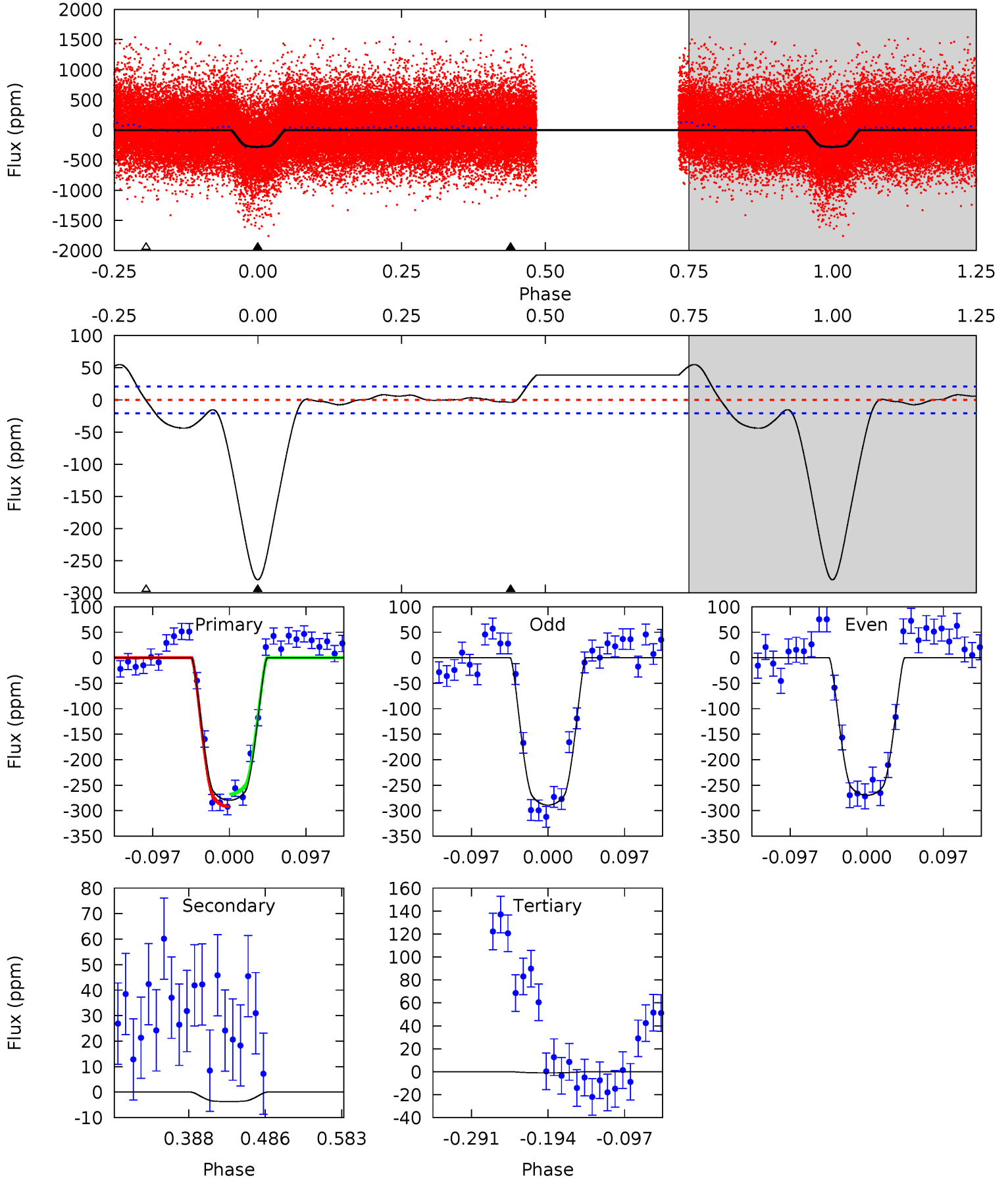
TCE 005471202-02 $P = 12.425672$ Days $T_0 = 133.953068$ (BKJD)



DV Model-Shift Uniqueness Test

005471202-02, P = 12.425965 Days, E = 121.513130 Days

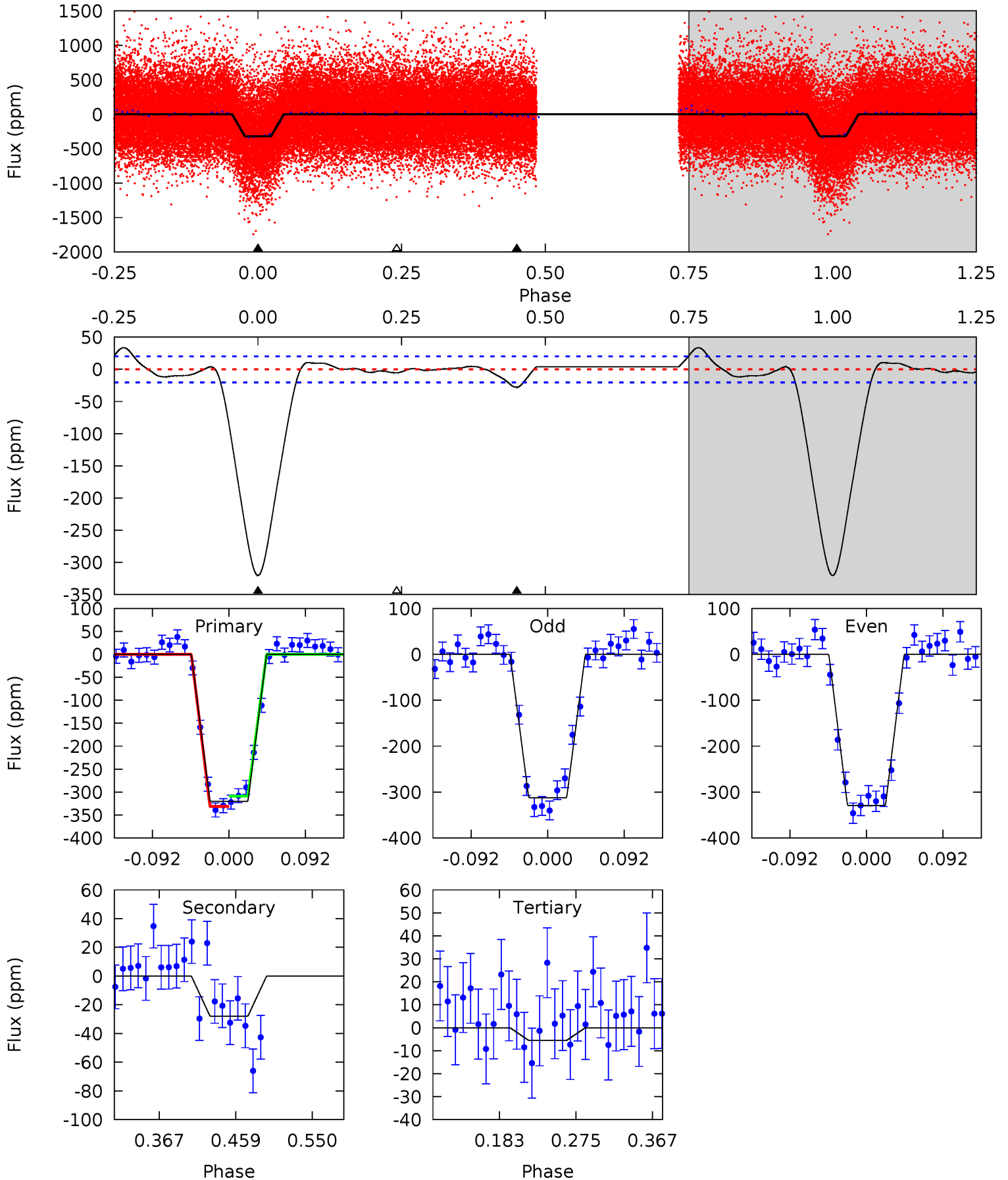
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.5	0.82	0.20	0	4.57	1.66	5.40	61.3	61.5	0.62	0.82	2.11	1.21	0.16	2.74



Alt Model-Shift Uniqueness Test

005471202-02, P = 12.425672 Days, E = 121.527396 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
72.6	6.33	1.25	0	4.58	1.69	2.28	71.4	72.6	5.08	6.33	1.90	1.07	0.09	2.57



Stellar Parameters For KIC 005471202

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6185^{+168}_{-206}	$4.472^{+0.048}_{-0.192}$	$-0.180^{+0.250}_{-0.300}$	$0.991^{+0.277}_{-0.111}$	$1.060^{+0.130}_{-0.144}$	$1.537^{+0.380}_{-0.740}$
	+3%/-3%	+1%/-4%	+139%/-167%	+28%/-11%	+12%/-14%	+25%/-48%
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 005471202-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-4 ± 5	$2.17^{+0.34}_{-0.19}$	1184^{+85}_{-51}	2717^{+302}_{-5045}	$4.818^{+5.942}_{-5.808}$
Alt.	-28 ± 4	$2.00^{+0.28}_{-0.17}$	1187^{+79}_{-55}	3752^{+126}_{-139}	42^{+11}_{-11}

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 $A_{obs} \gg 1.0$

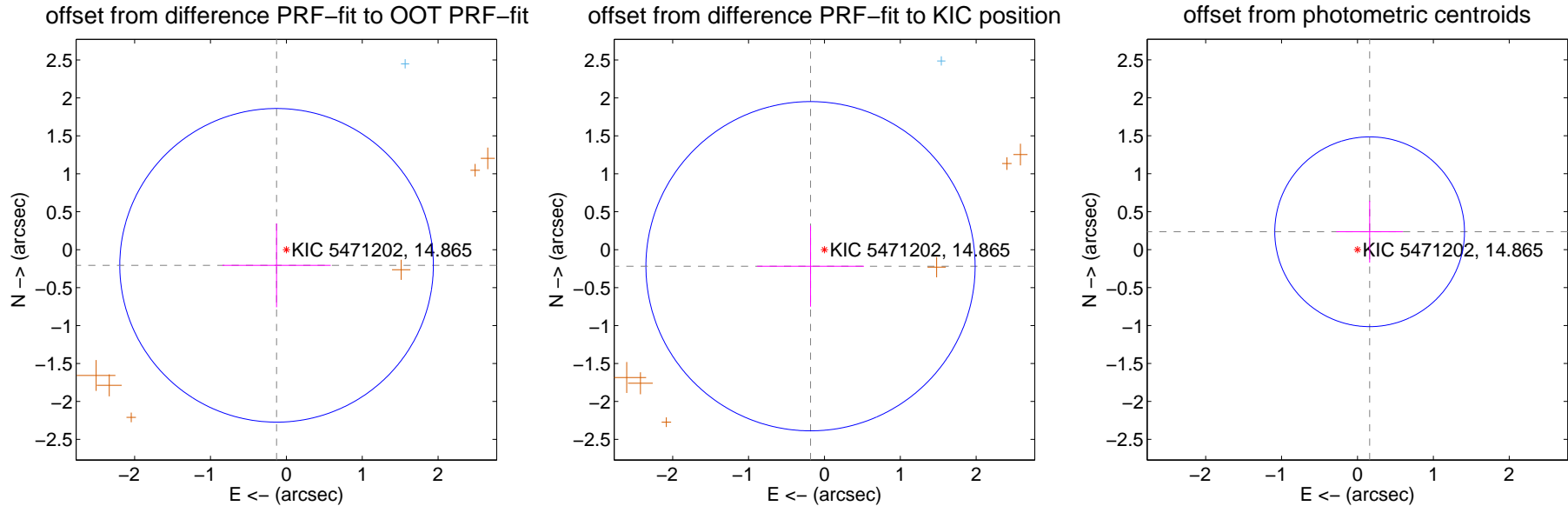
DV Centroid Data

Supplemental centroid analysis for 005471202-02. Kepler magnitude: 14.87. Transit SNR 26.61

There are 3 quarters with good PRF difference image offsets

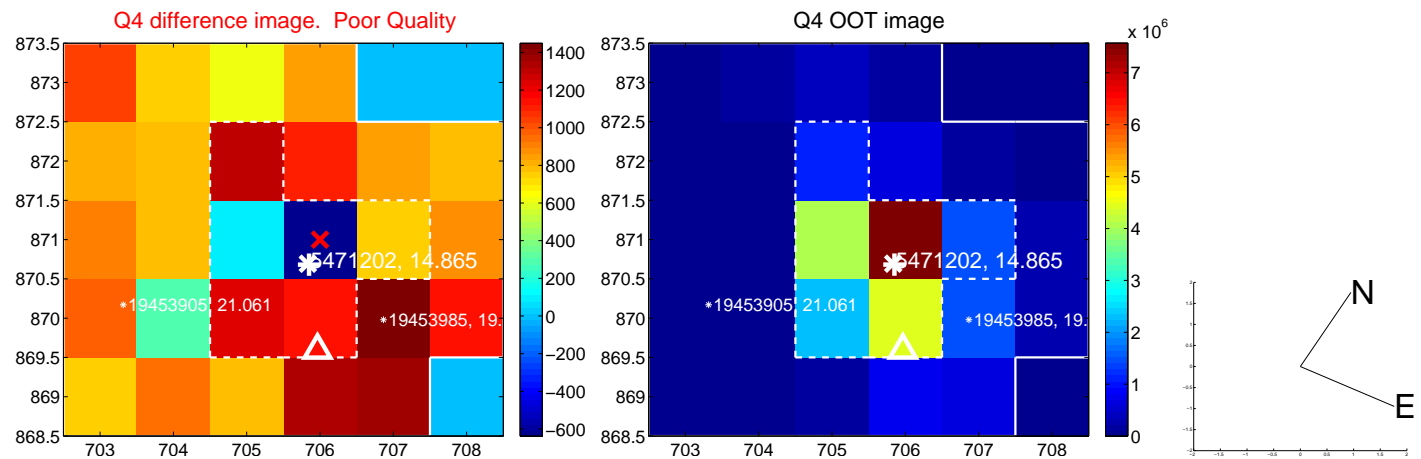
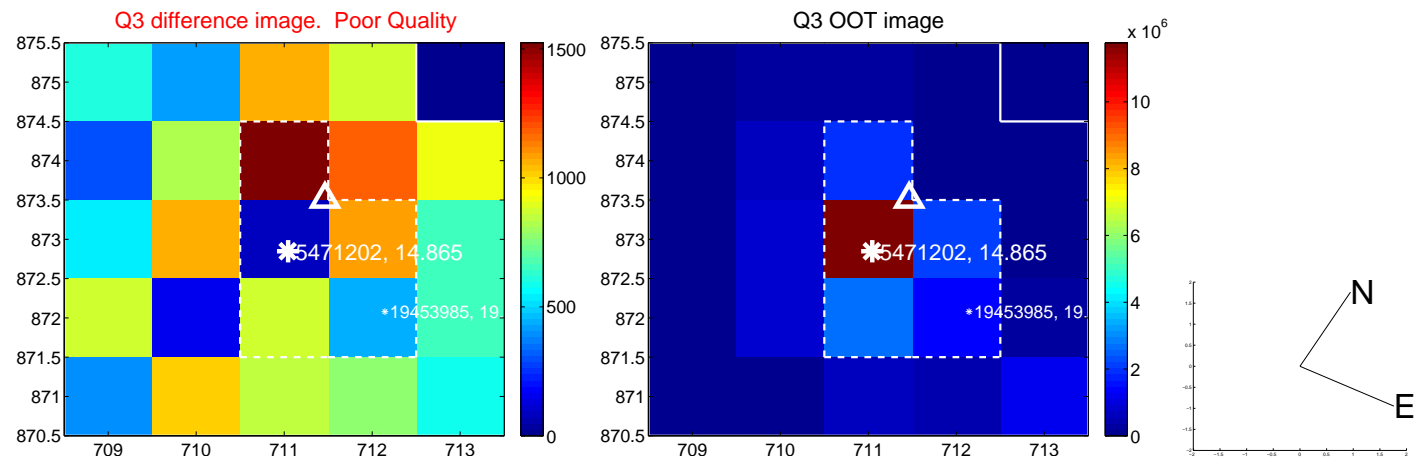
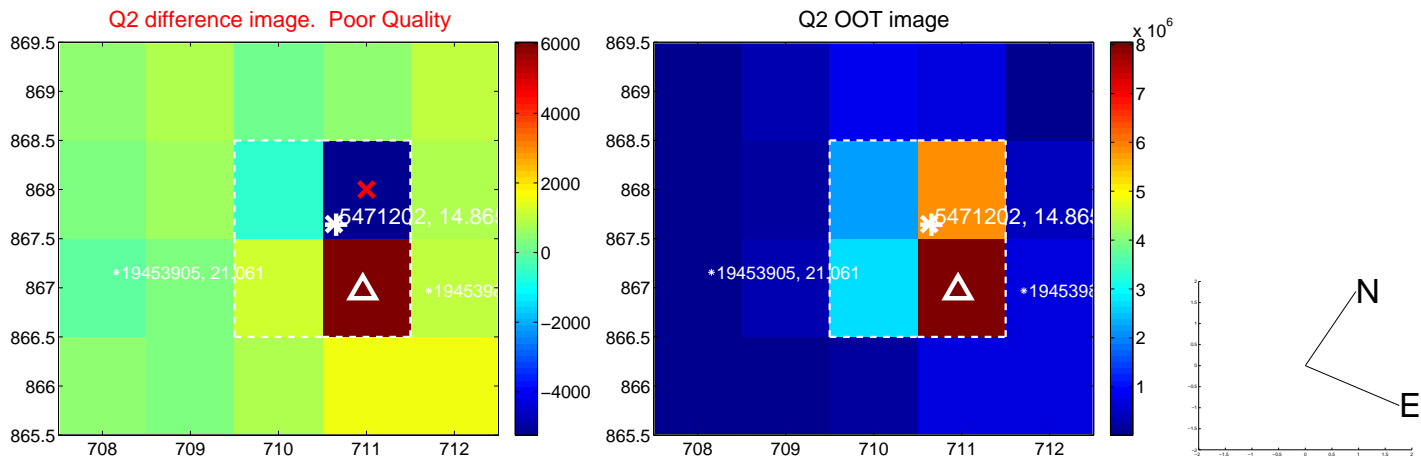
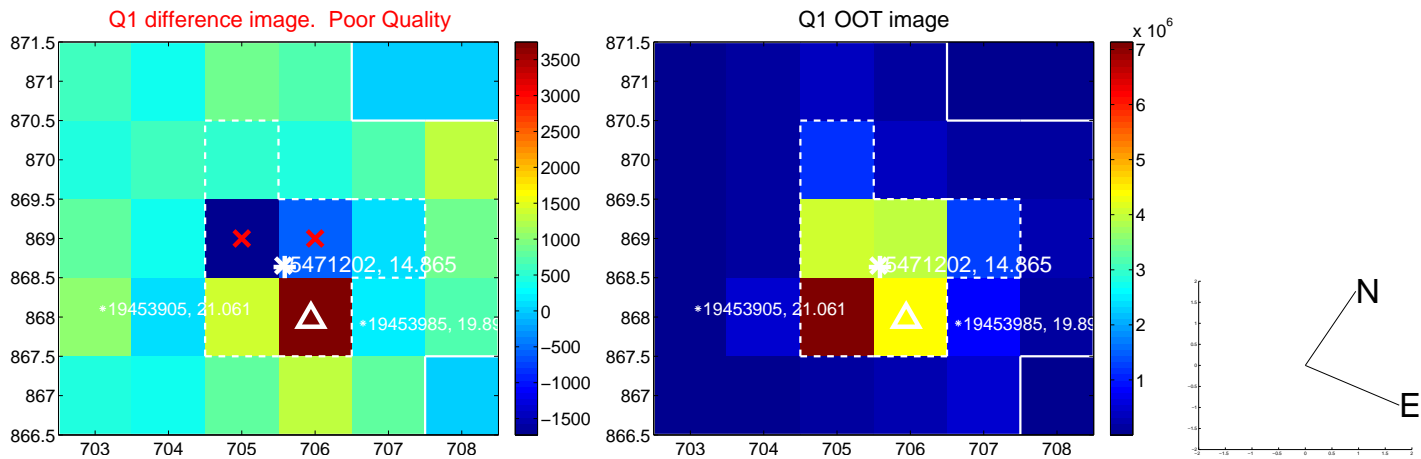
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.243 ± 0.689	0.35	0.129 ± 0.713	-0.206 ± 0.552
PRF-fit source offset from KIC position	0.285 ± 0.723	0.39	0.183 ± 0.704	-0.218 ± 0.533
photometric centroid source offset	0.28 ± 0.42	0.68	-0.16 ± 0.44	0.24 ± 0.41

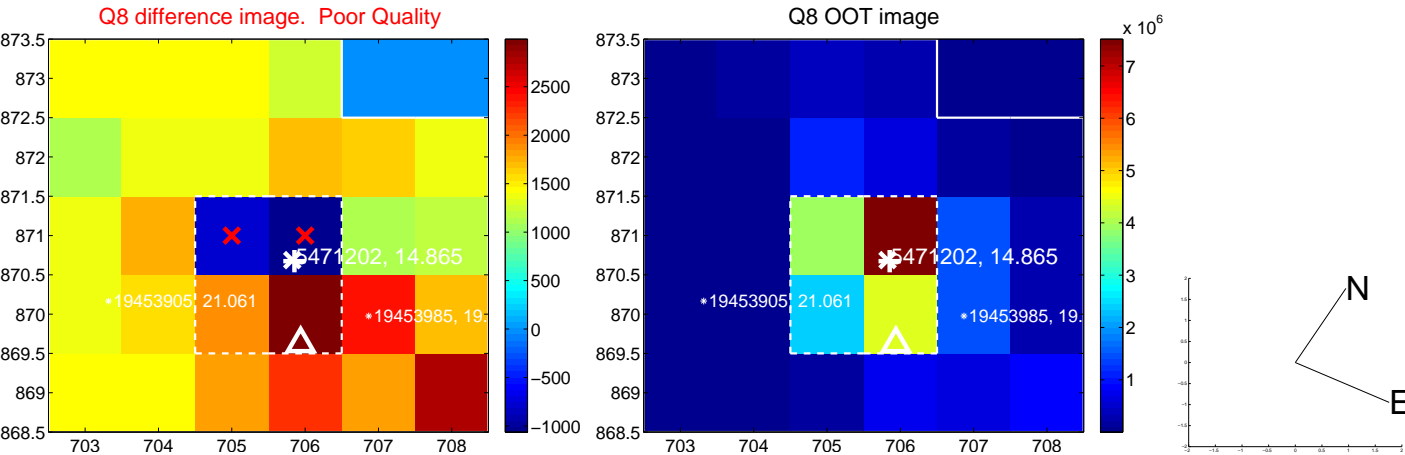
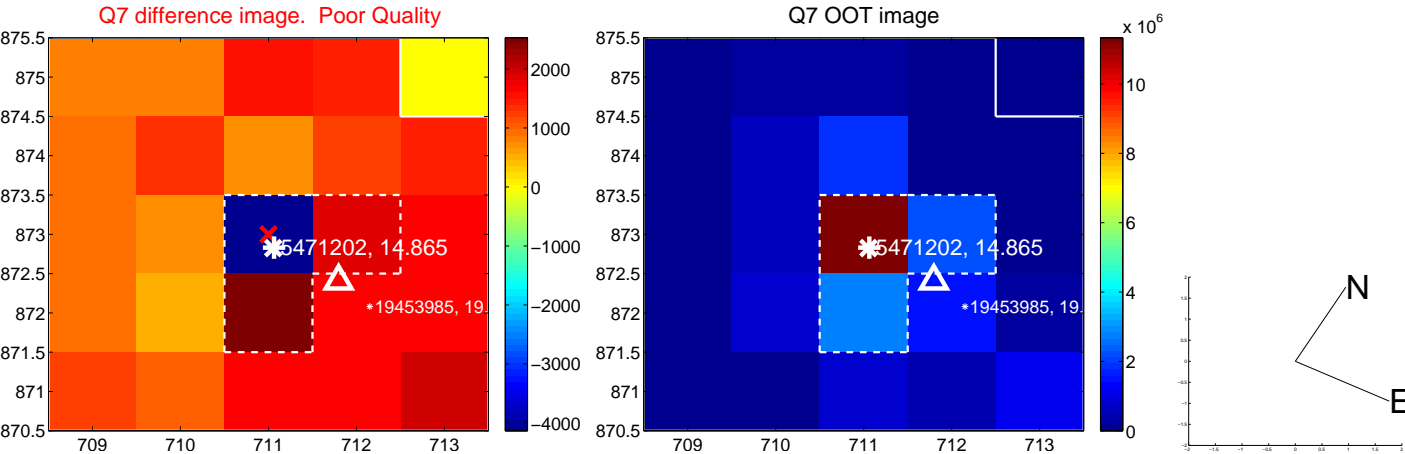
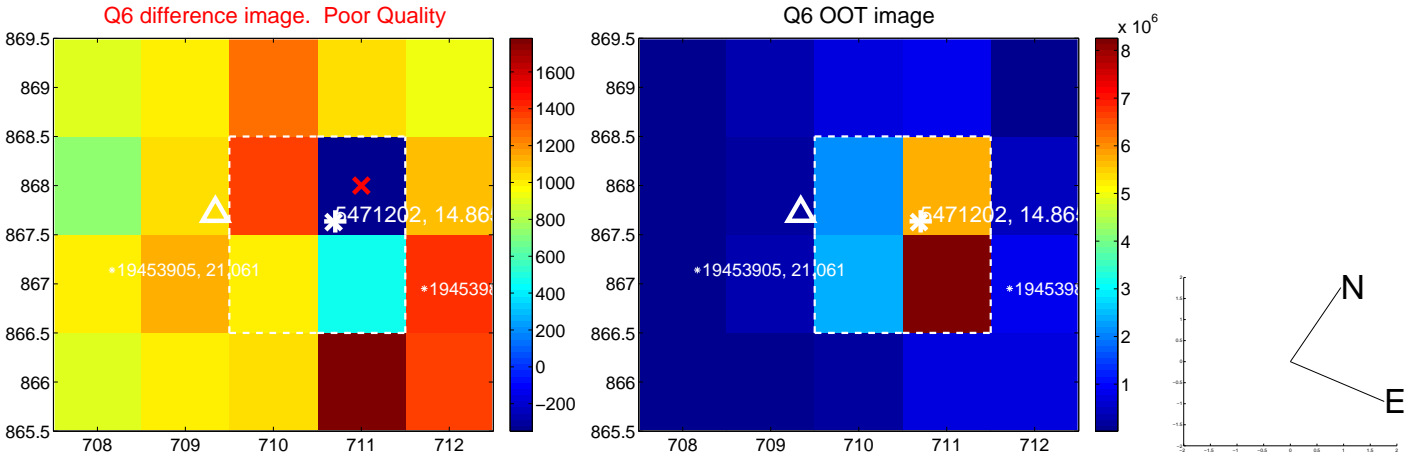
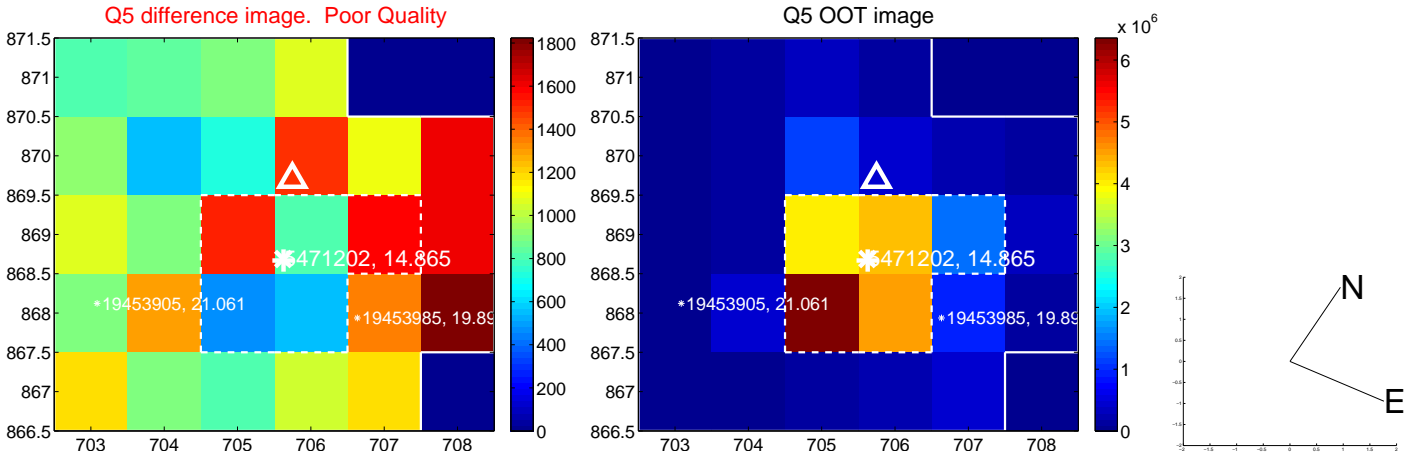


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

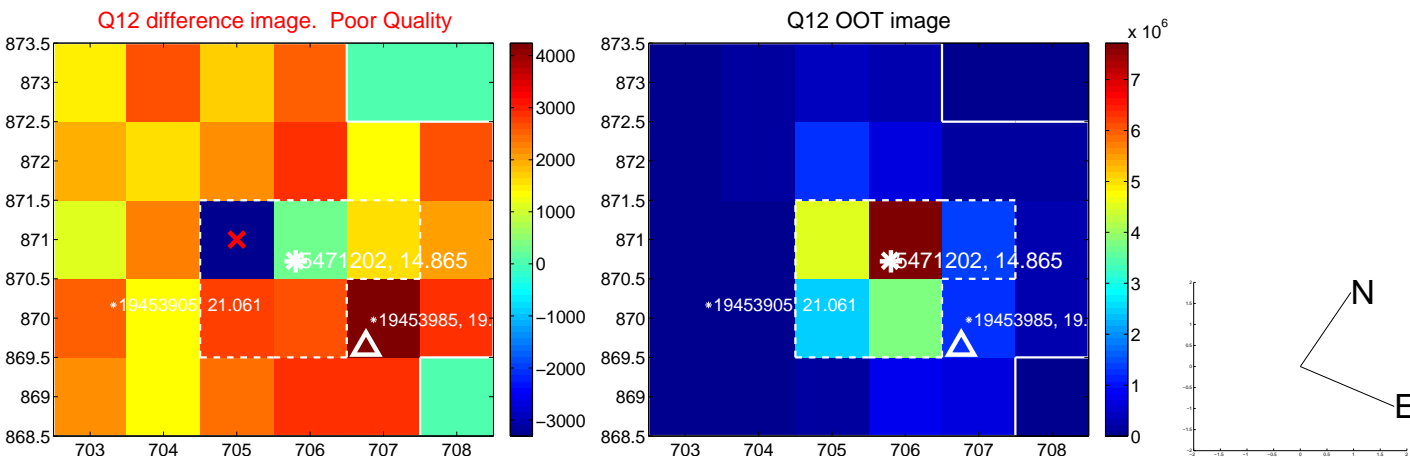
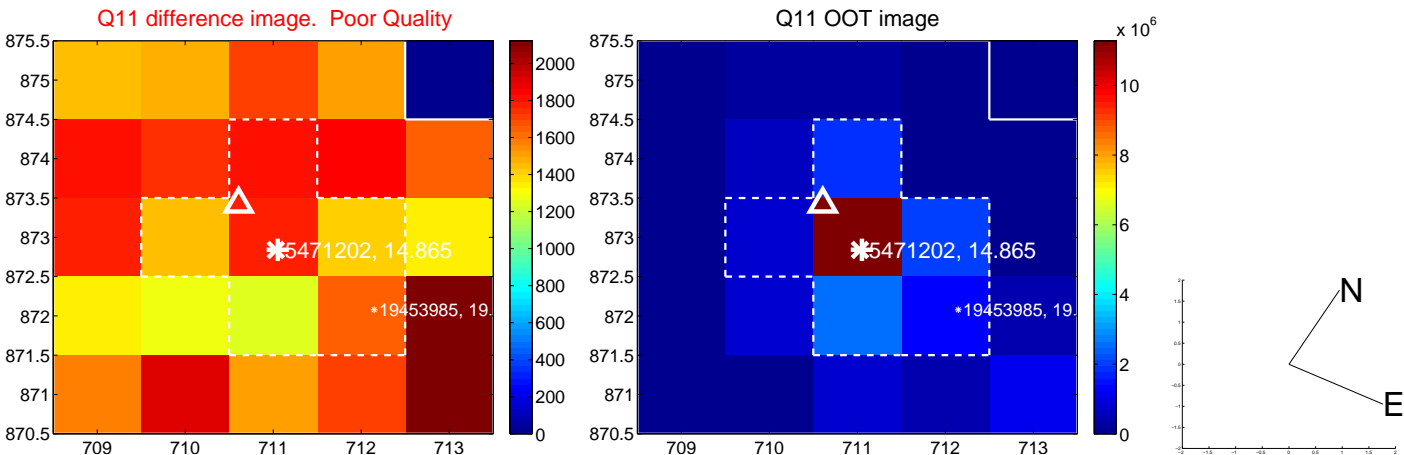
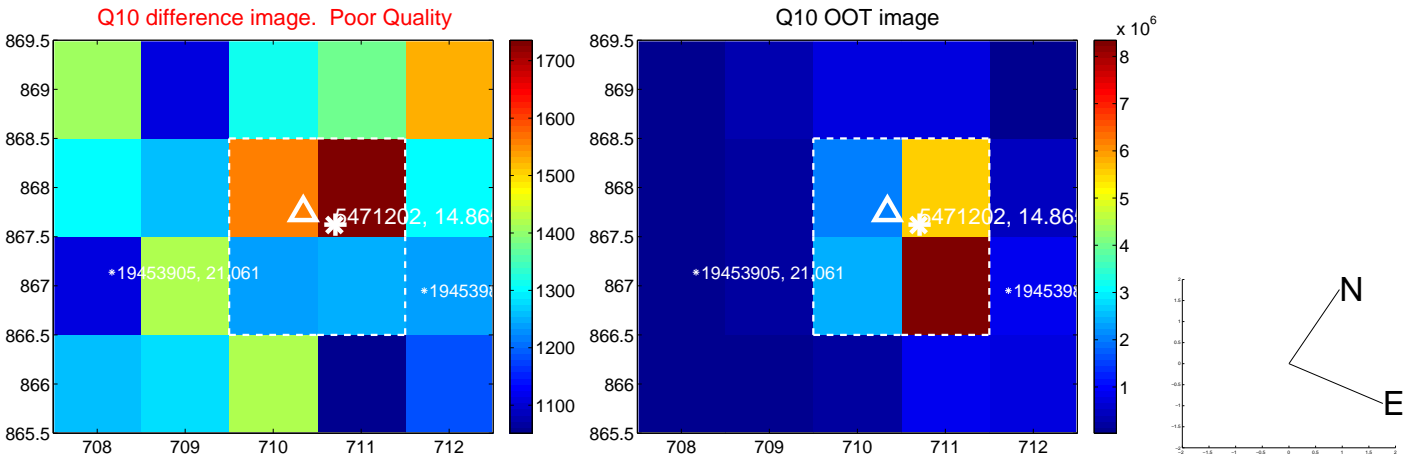
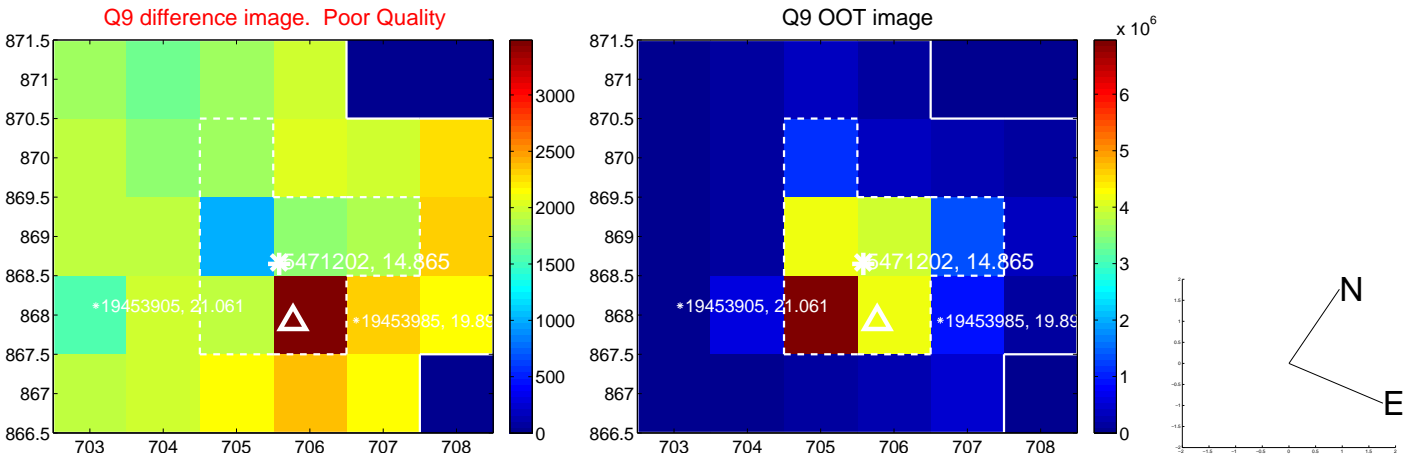
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



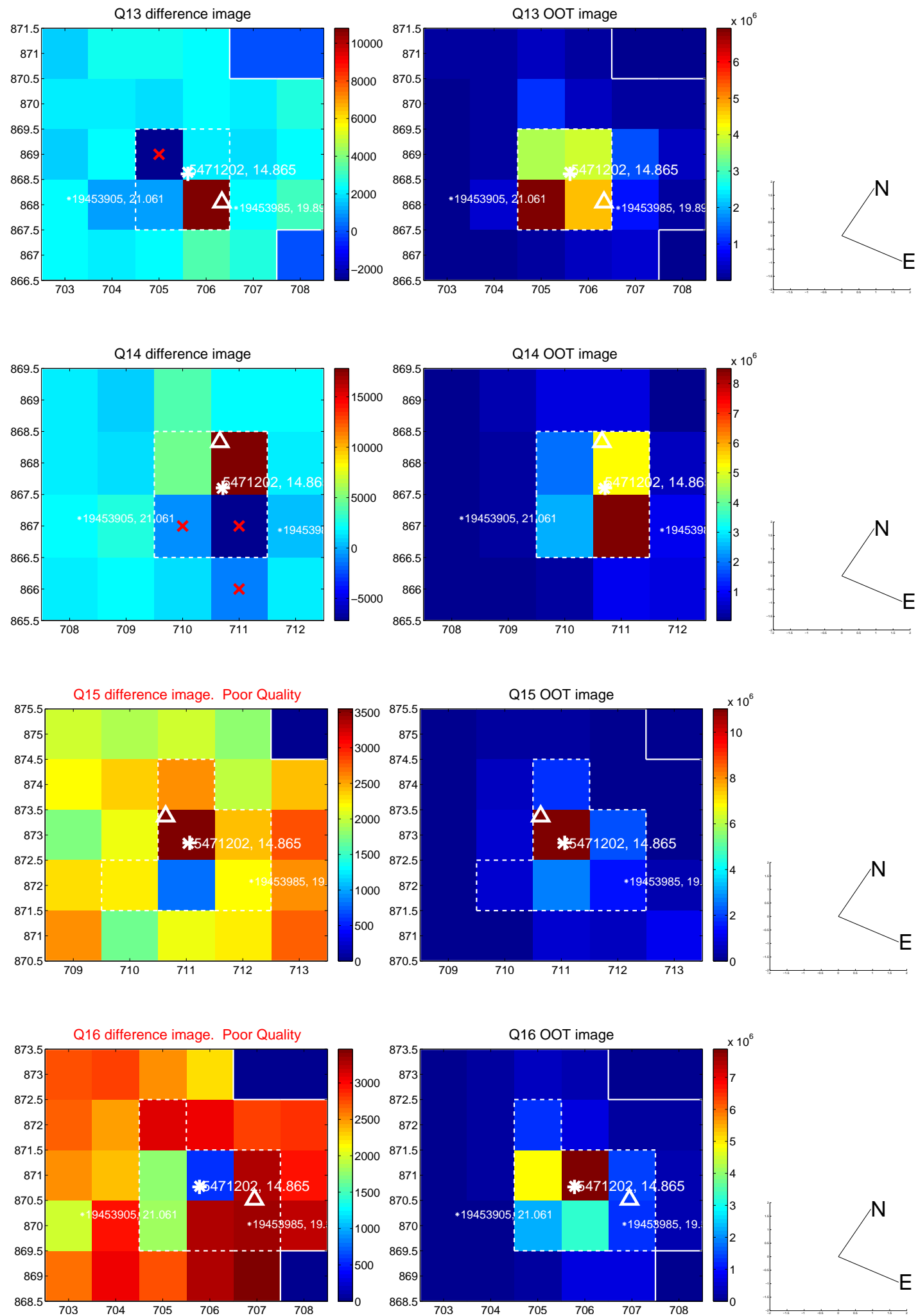
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



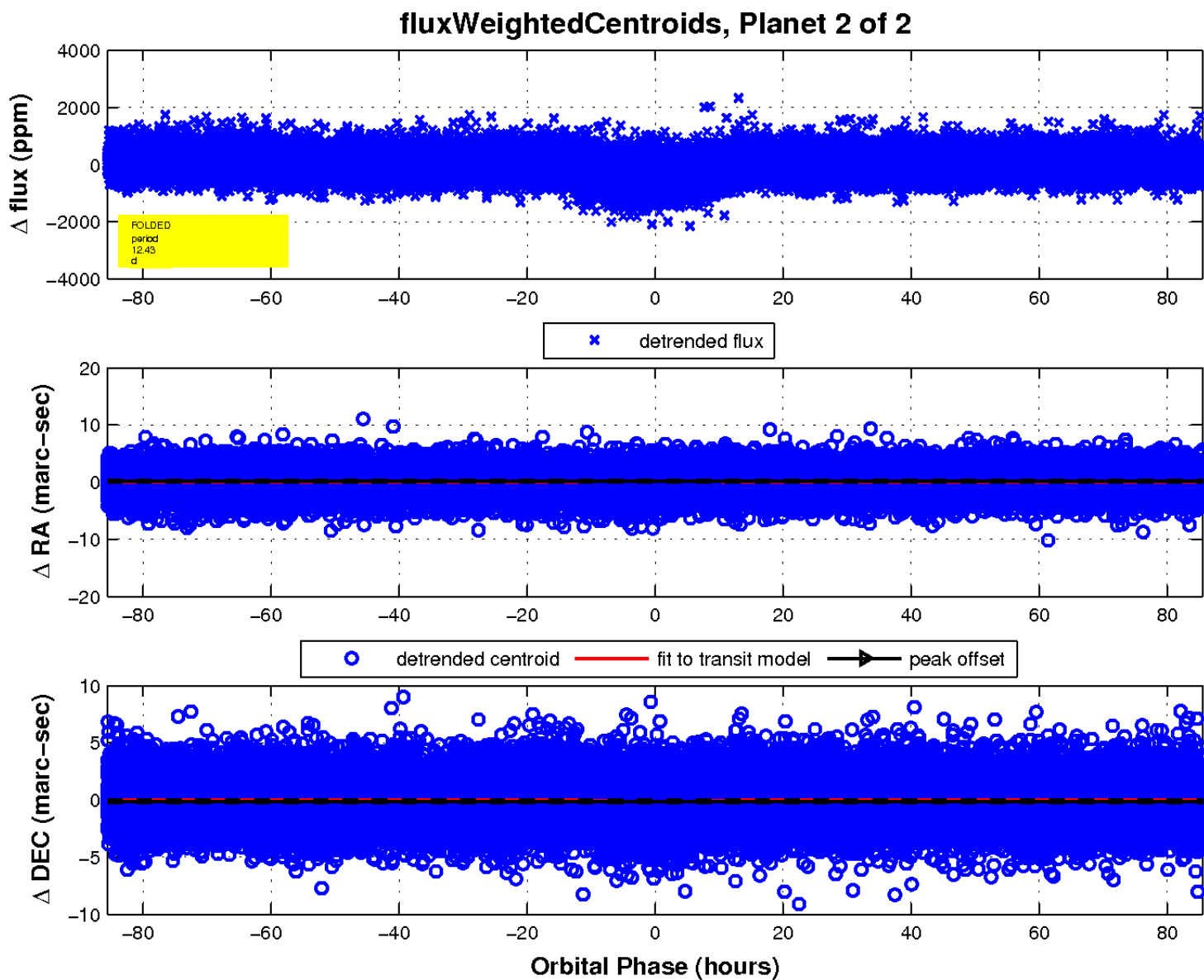
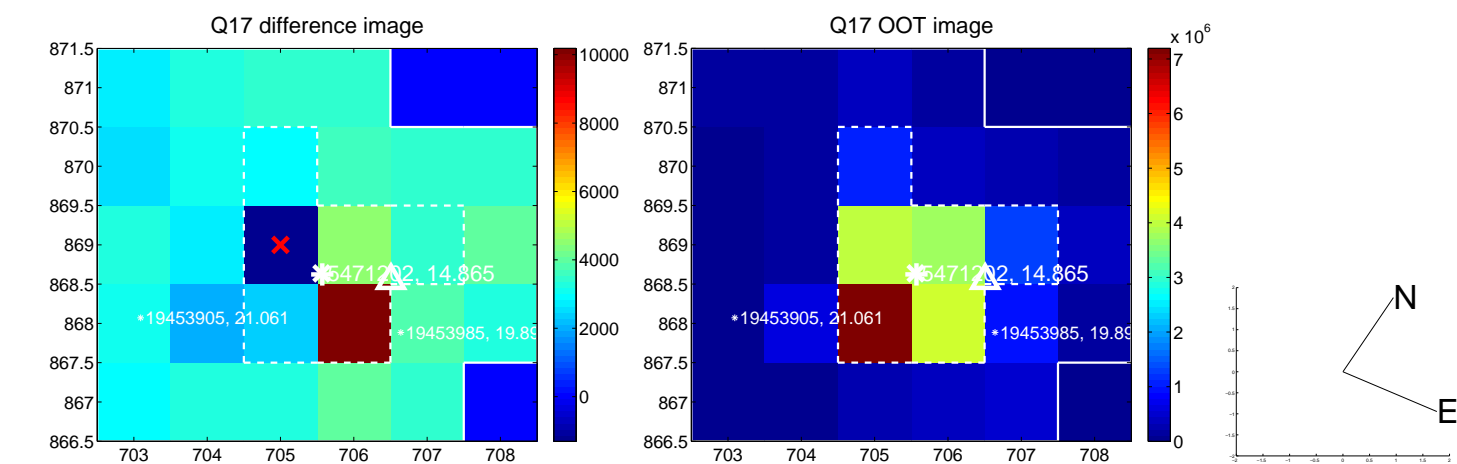
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

