

KIC 005471217

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})
005471217-01	OBS	6010.01	12.424860	141.597608	131.7	24.596	13.4	17.2	0.83	5514	1.29	54.08
005471217-02	OBS	No	12.424696	134.017017	139.2	30.645	13.6	18.0	0.83	5514	1.41	54.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471217-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
005471217-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS—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 005471217-01

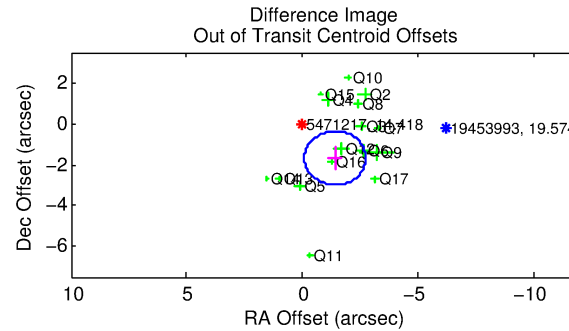
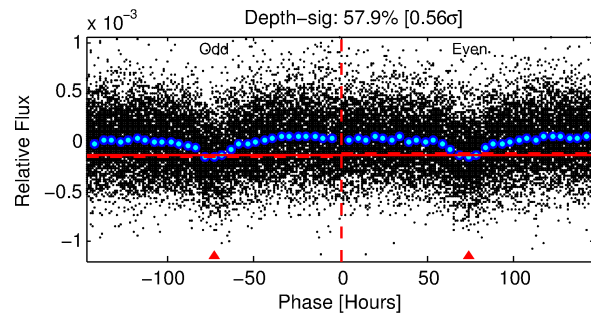
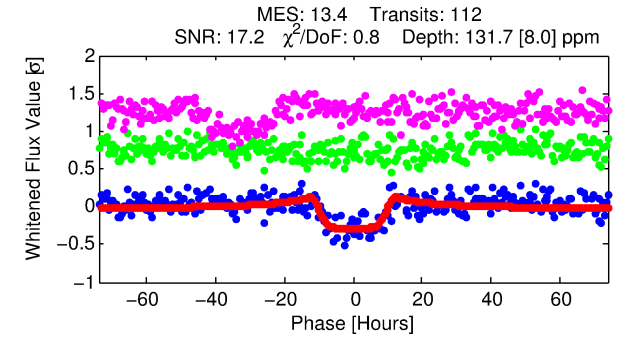
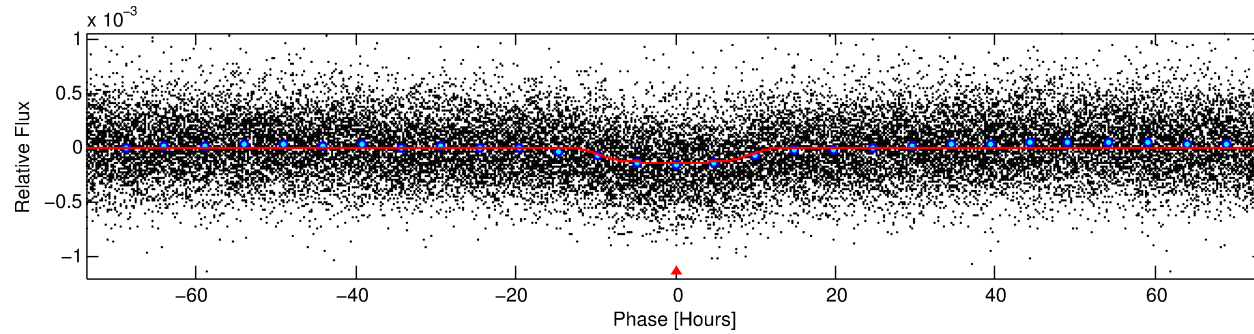
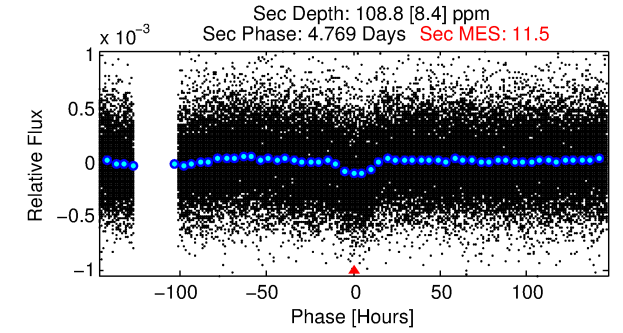
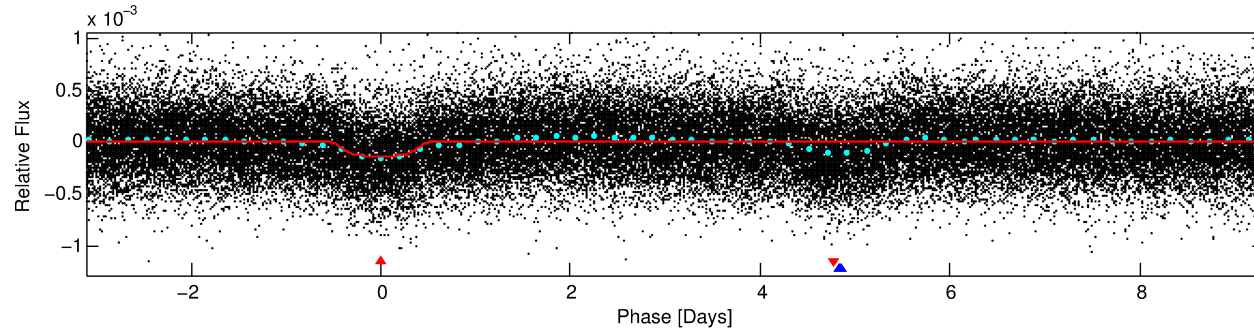
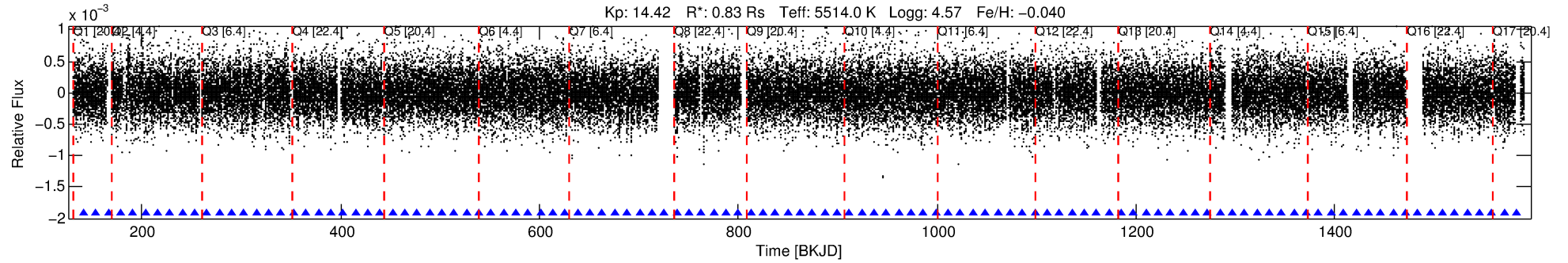
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471217-01	5471217	V380-Cyg-pri	5385723	1:1	274.3	68	-10	5.77	14.42	1098.00	Direct-PRF	0	2.46	1.72

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: 5471217 Candidate: 1 of 2 Period: 12.425 d

KOI: K06010.01 Corr: 0.887



DV Fit Results:

Period = 12.42486 [0.00035] d
Epoch = 141.5976 [0.0234] BKJD
Rp/R* = 0.0144 [0.0006]
a/R* = 1.47 [0.08]
b = 0.97 [0.01]
Seff = 54.08 [17.85]
Teff = 691 [57] K
Rp = 1.29 [0.32] Re
a = 0.1022 [0.0213] AU
Ag = 373.31 [122.01] [3.05σ]
Teffp = 4699 [193] K [19.95σ]

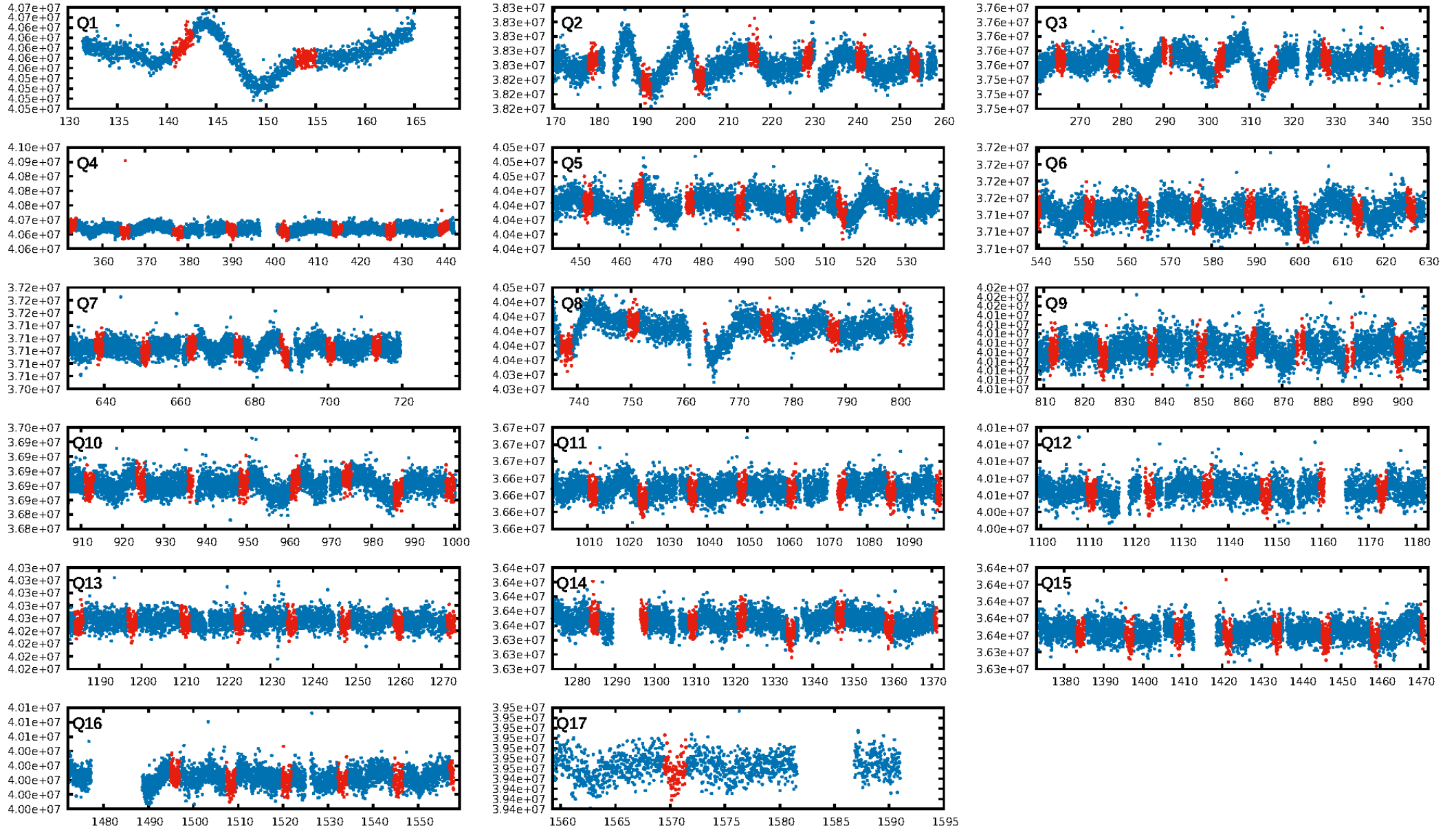
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 78.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.61e-44
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.07649
Centroid-sig: 53.8%
Centroid-so: 0.666 arcsec [1.28σ]
OotOffset-rm: 2.194 arcsec [4.98σ]
KicOffset-rm: 2.145 arcsec [4.73σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.44 [7/16]
DiffImageOverlap-fno: 1.00 [17/17]

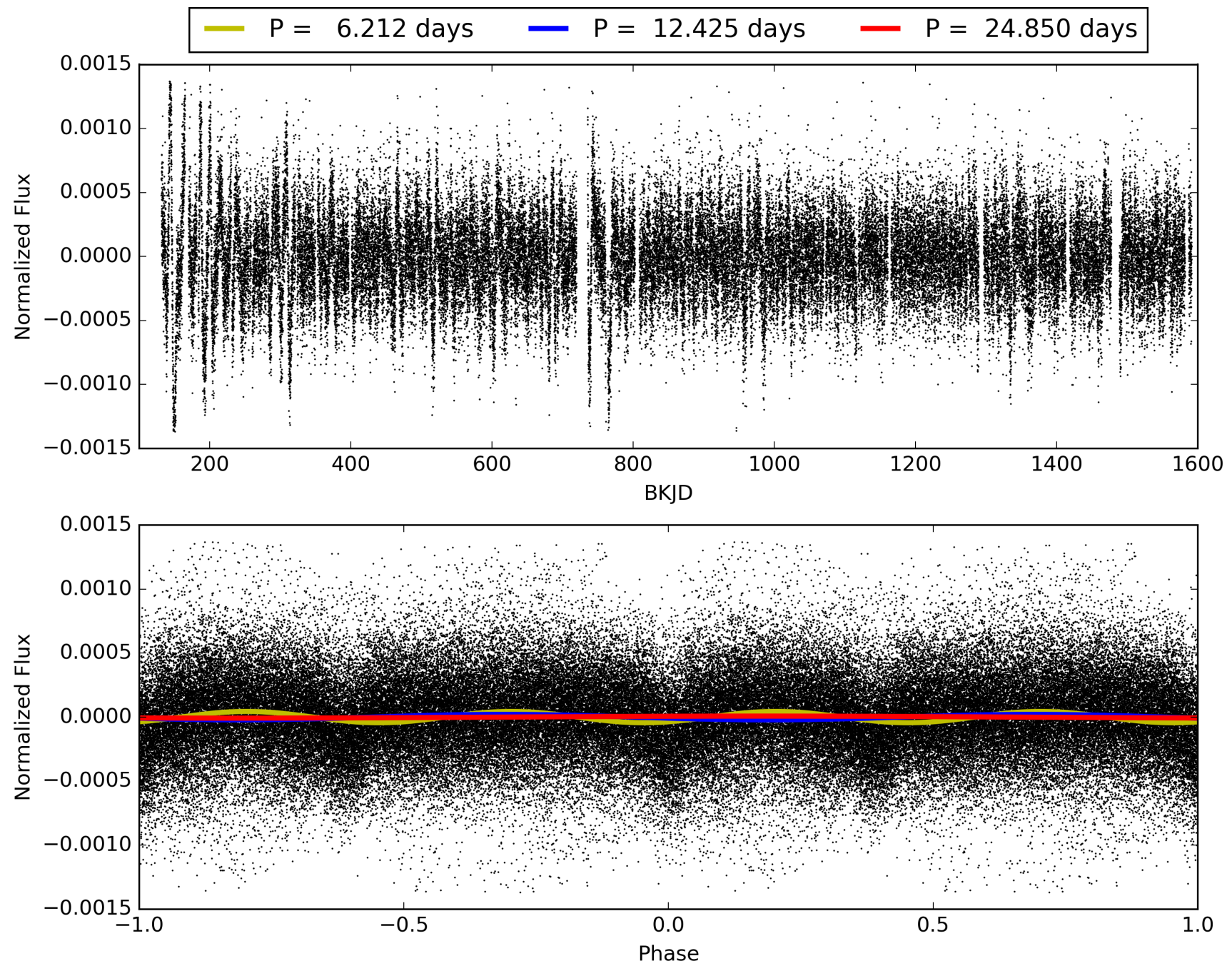
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 16:54:38 Z

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

TCE 005471217-01, PDC Light Curves

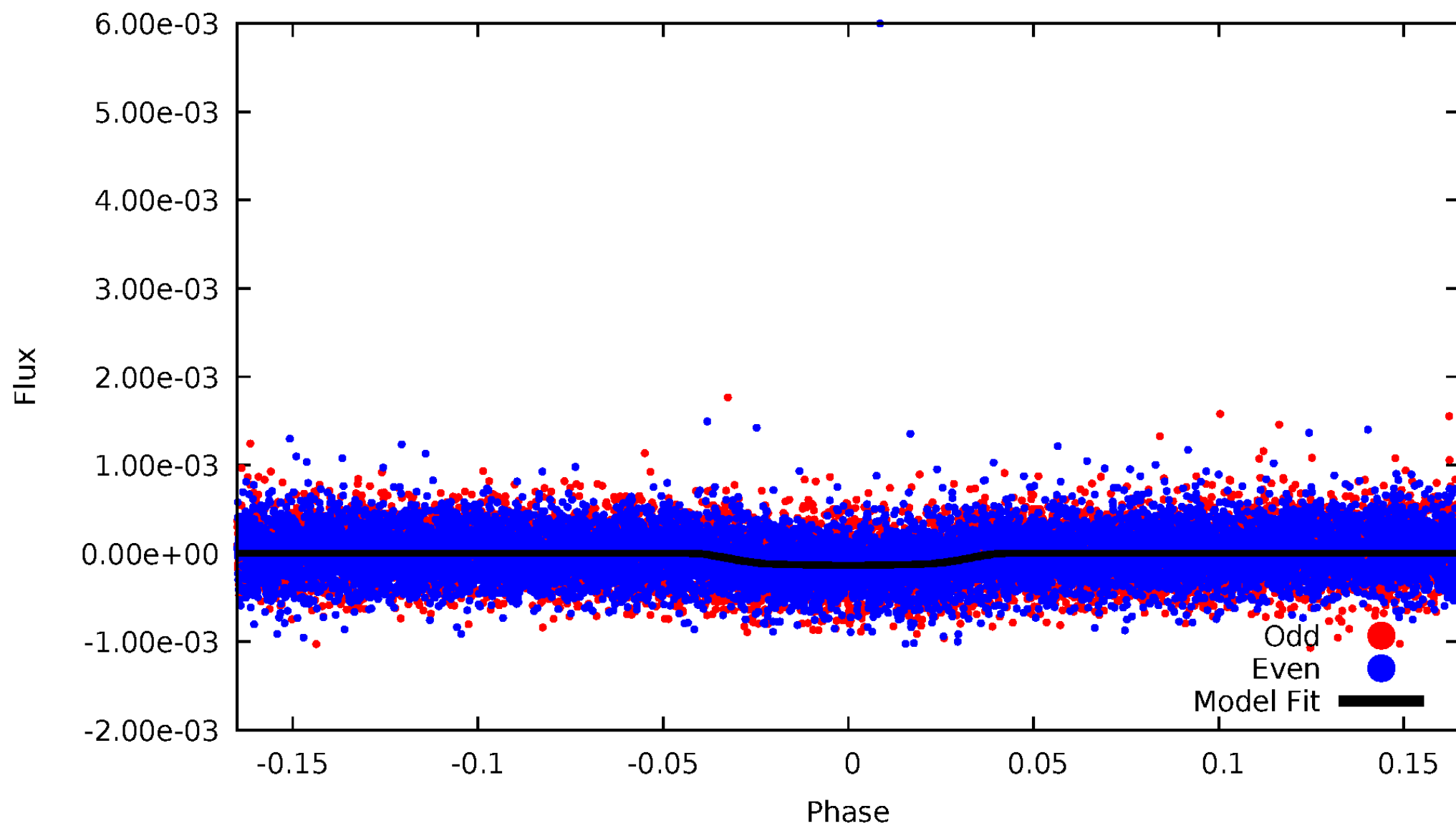


TCE 005471217-01



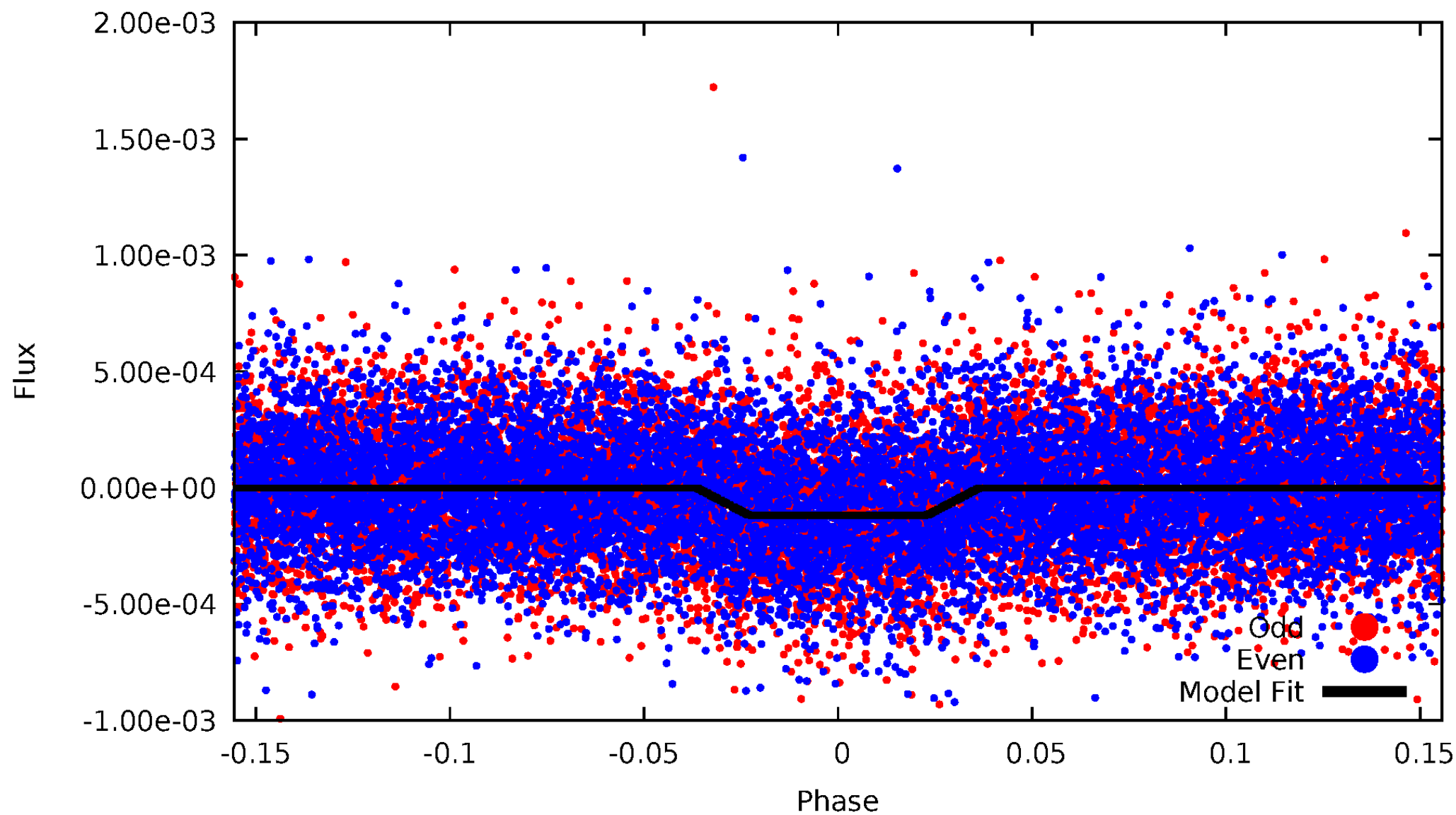
DV Odd/Even

TCE 005471217-01

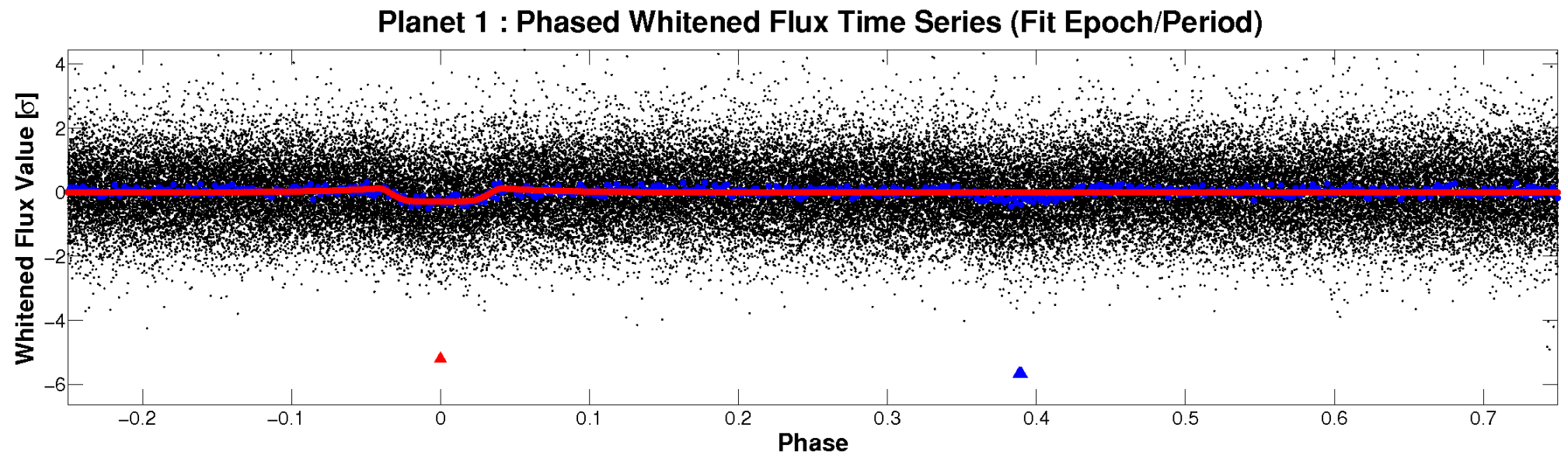
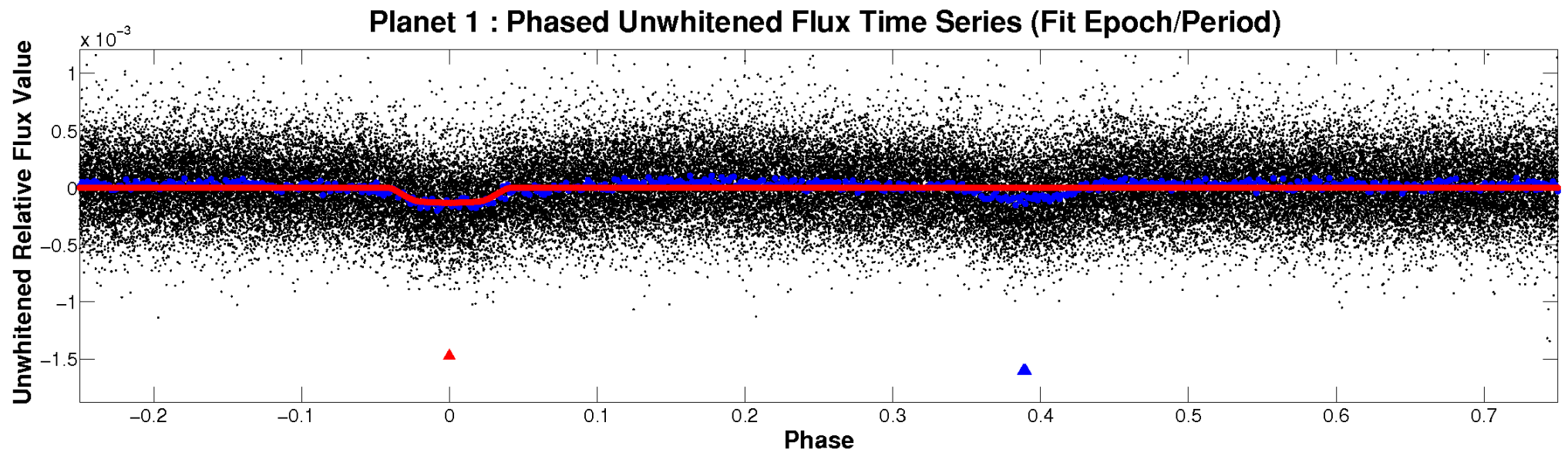


ALT Odd/Even

TCE 005471217-01

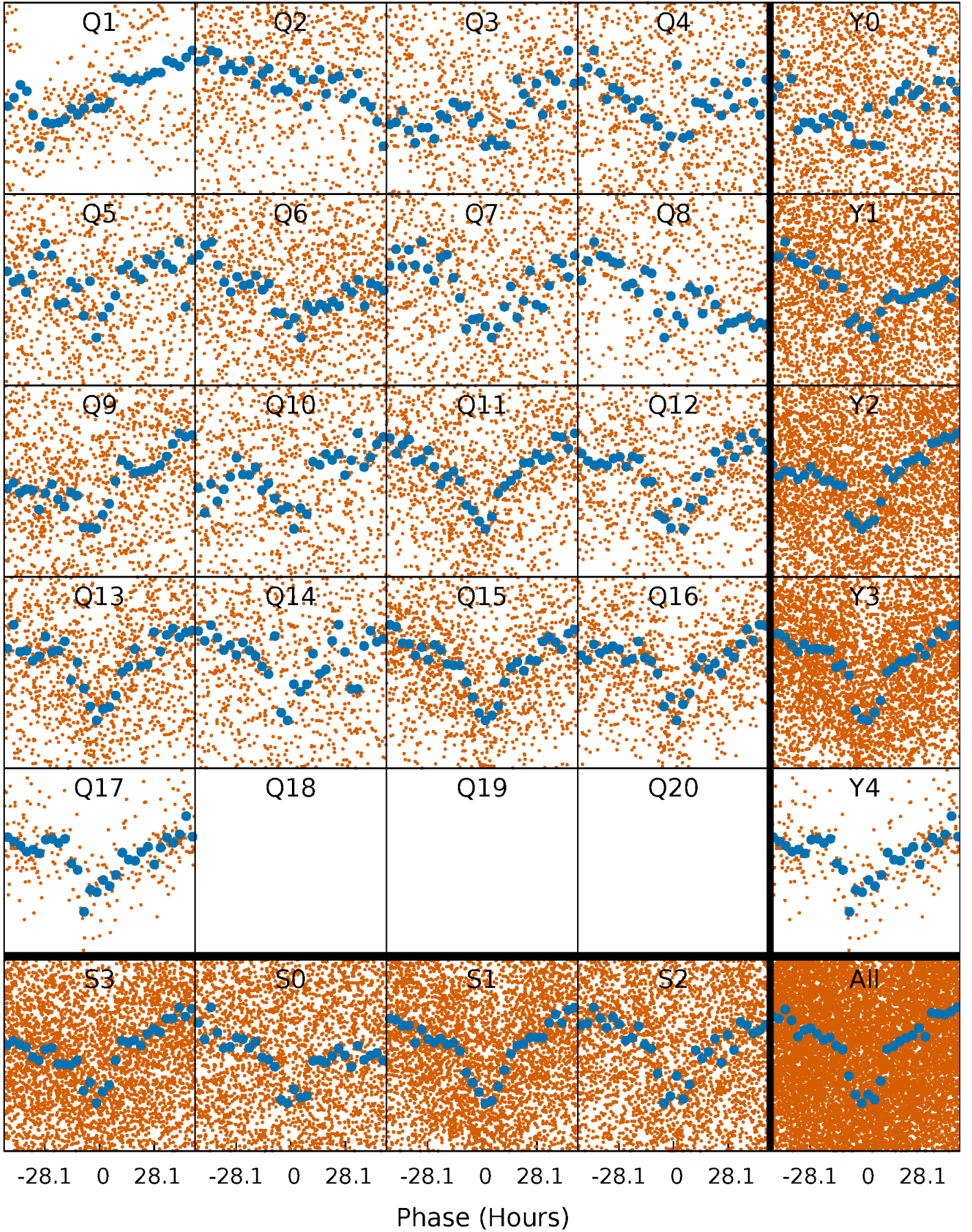


Non-Whitened Vs. Whitened Light Curve



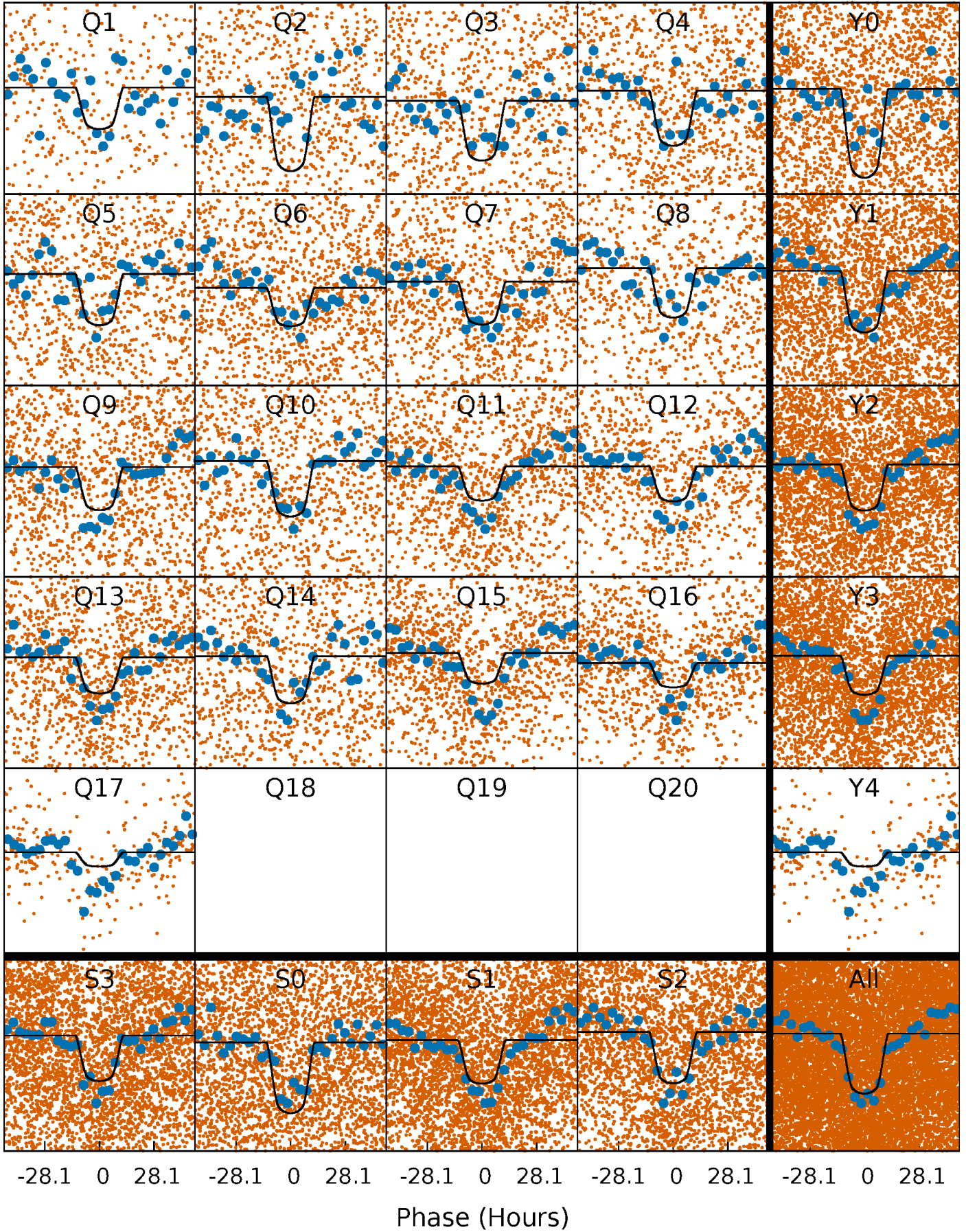
PDC Quarter-Phased Transit Curves

TCE 005471217-01 P= 12.424860 Days $T_0=141.597608$ (BKJD)



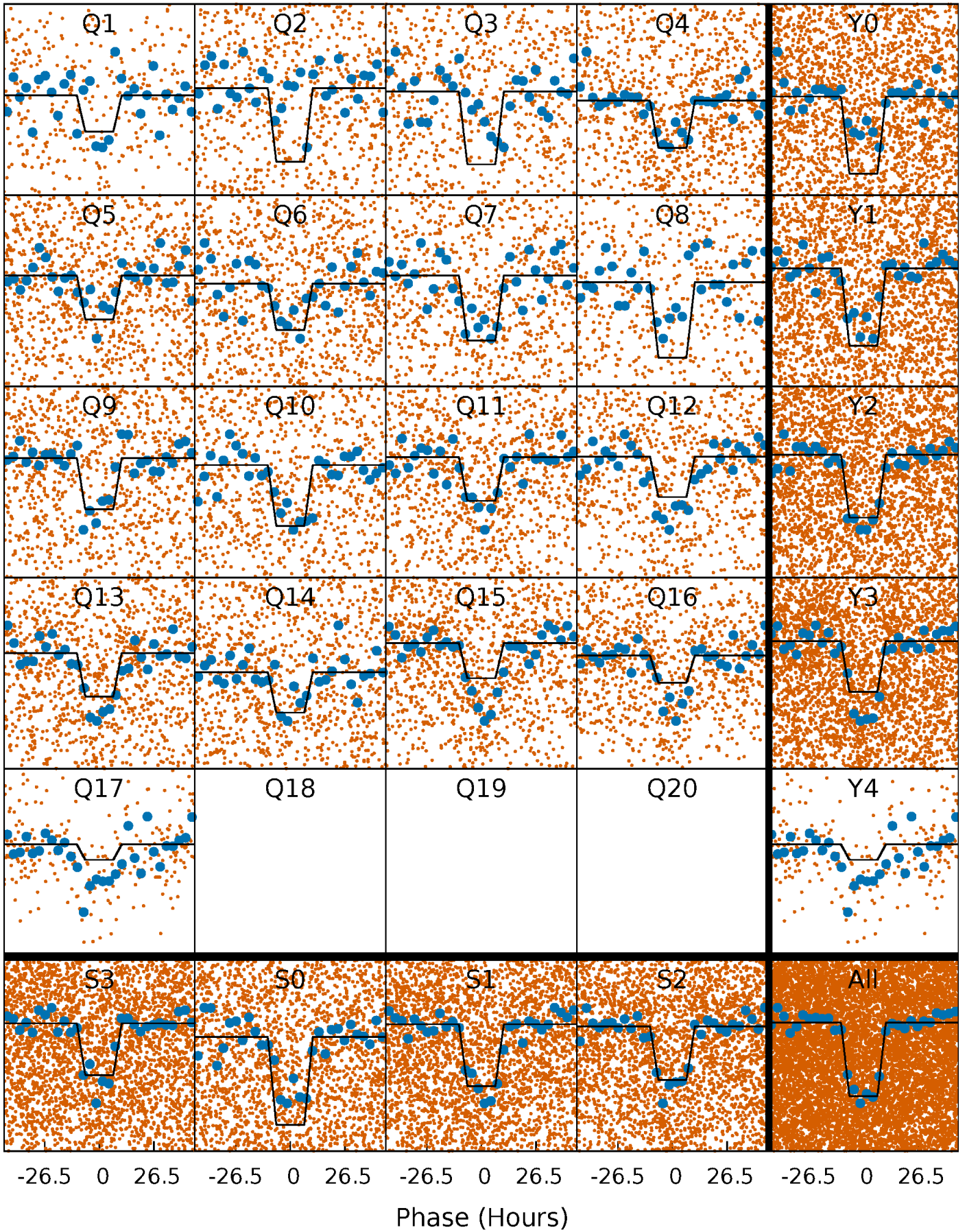
DV Quarter-Phased Transit Curves

TCE 005471217-01 P= 12.424860 Days $T_0=141.597608$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

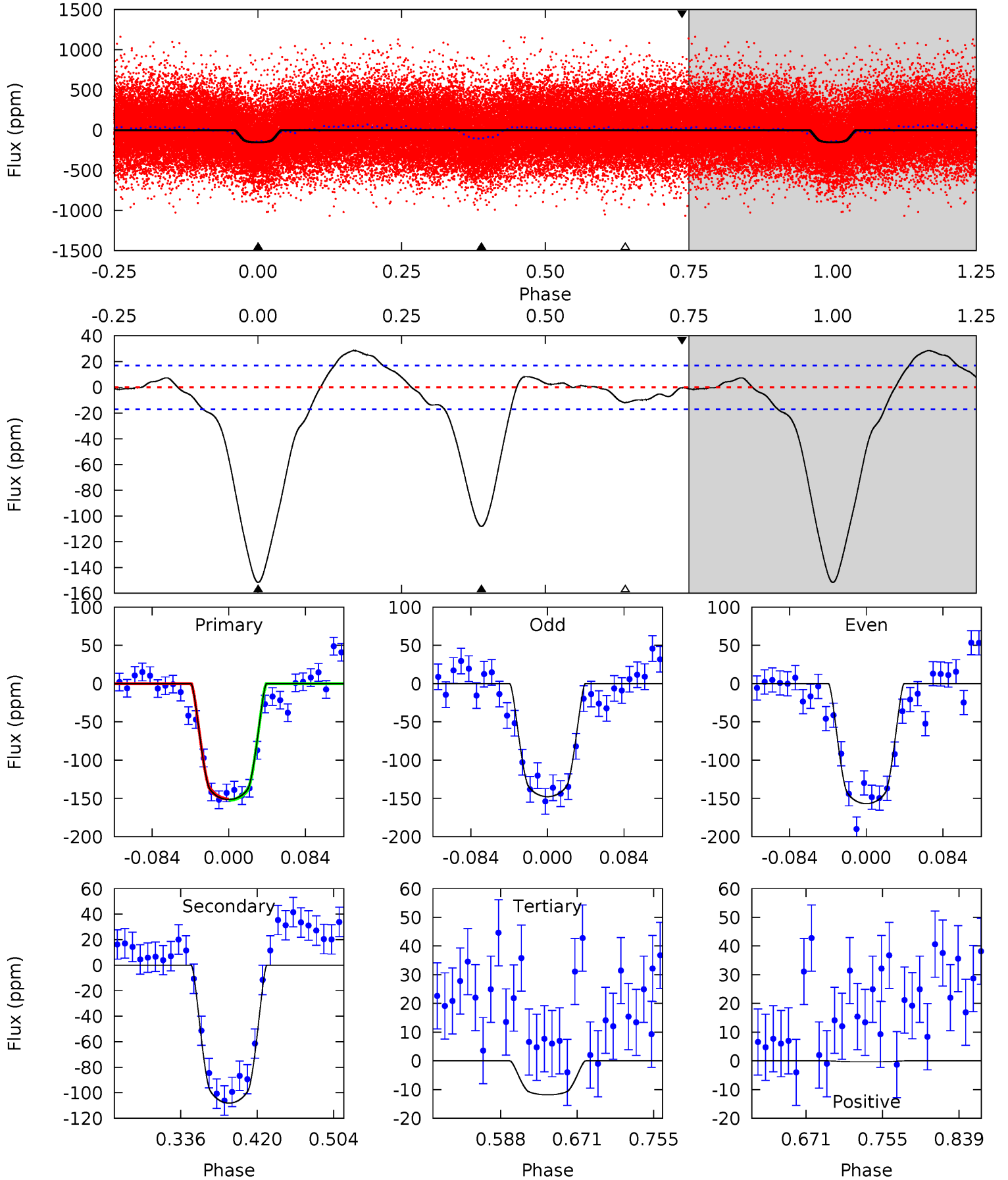
TCE 005471217-01 P= 12.424613 Days $T_0=141.617788$ (BKJD)



DV Model-Shift Uniqueness Test

005471217-01, P = 12.424860 Days, E = 129.172748 Days

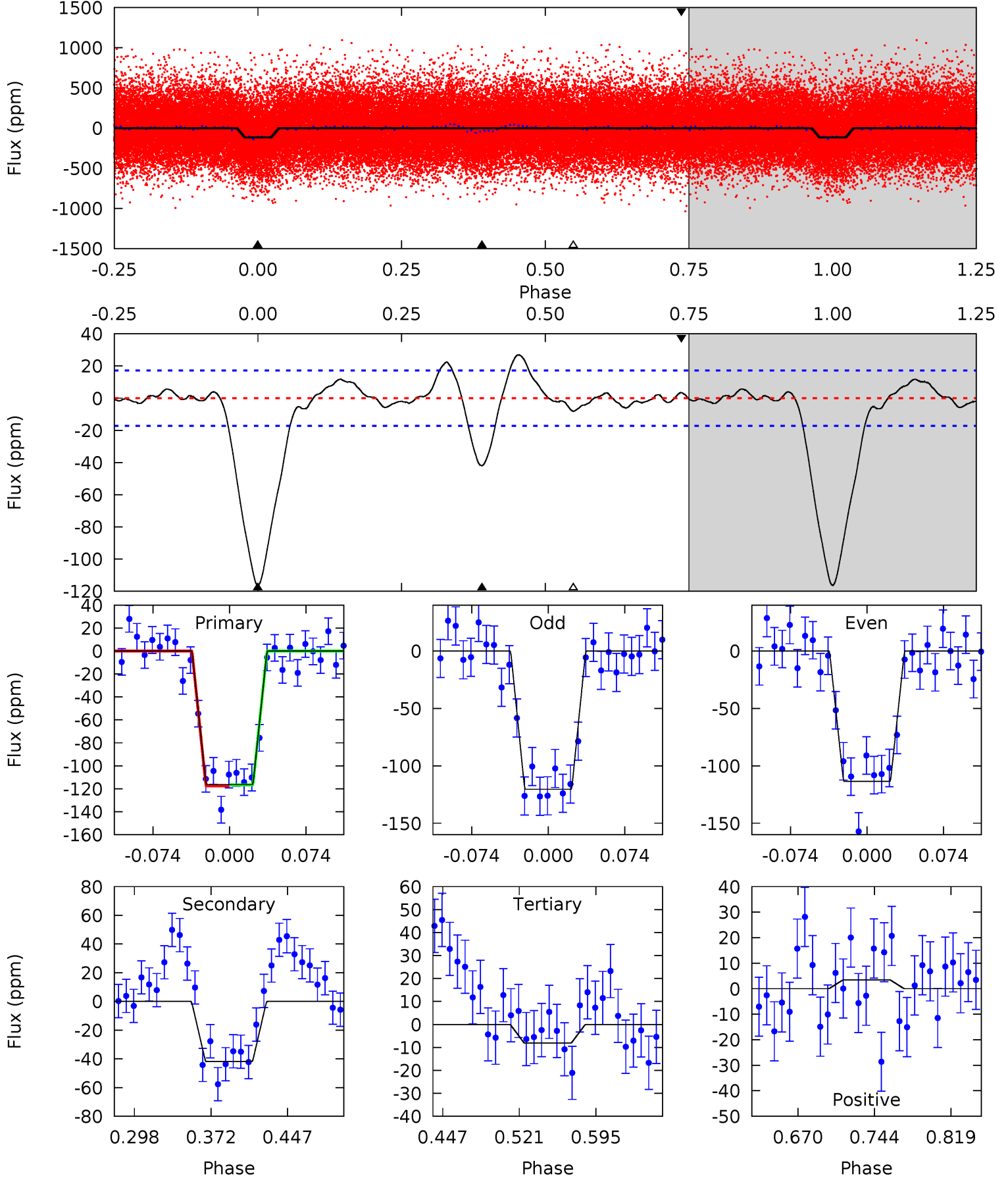
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.0	29.2	3.20	-0.09	4.60	1.73	3.02	37.8	41.1	26.0	29.3	1.24	0.91	0.16	0.19



Alt Model-Shift Uniqueness Test

005471217-01, P = 12.424613 Days, E = 129.193175 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.3	11.3	2.19	0.94	4.63	1.78	1.36	29.1	30.4	9.07	10.3	0.93	1.04	0.19	0.13



Stellar Parameters For KIC 005471217

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5514^{+166}_{-166}	$4.569^{+0.030}_{-0.170}$	$-0.040^{+0.300}_{-0.300}$	$0.826^{+0.201}_{-0.067}$	$0.926^{+0.083}_{-0.102}$	$2.312^{+0.375}_{-1.042}$
	+3%/-3%	+1%/-4%	+750%/-750%	+24%/-8%	+9%/-11%	+16%/-45%
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 005471217-01 / KOI 6010.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-108 ± 4	$1.34^{+0.19}_{-0.11}$	987^{+60}_{-43}	4786^{+164}_{-146}	340^{+58}_{-70}
Alt.	-42 ± 4	$1.02^{+0.13}_{-0.09}$	986^{+61}_{-40}	4425^{+170}_{-152}	225^{+49}_{-46}

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

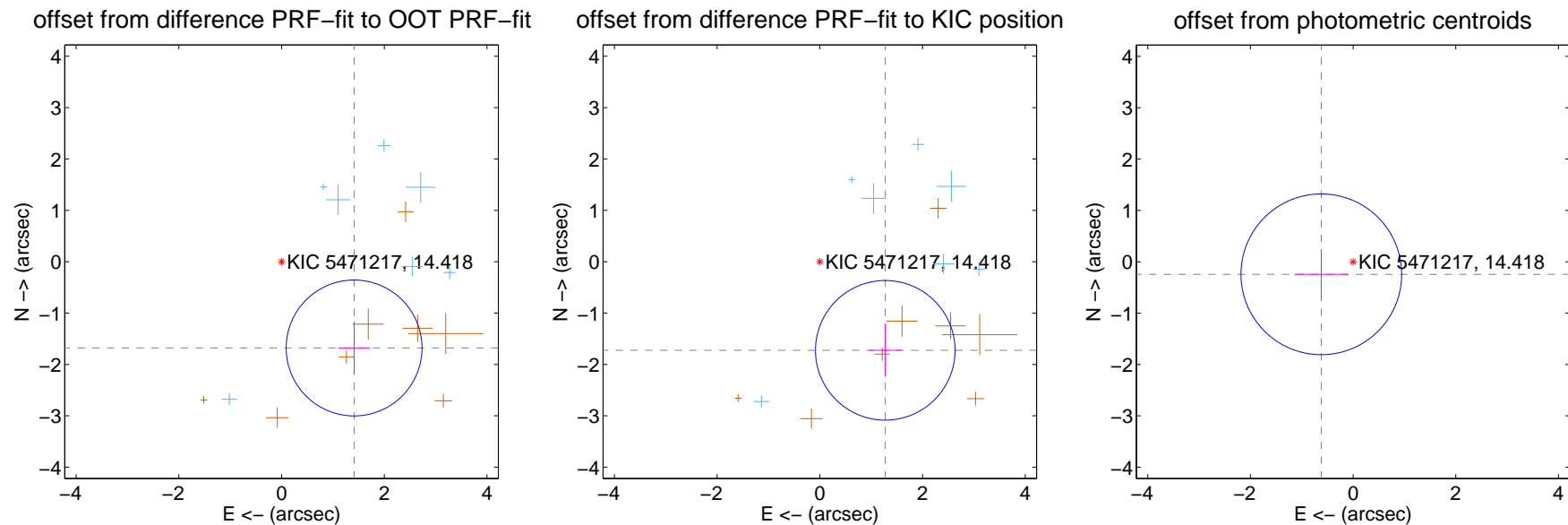
DV Centroid Data

Supplemental centroid analysis for 005471217-01. Kepler magnitude: 14.42. Transit SNR 17.17

There are 7 quarters with good PRF difference image offsets

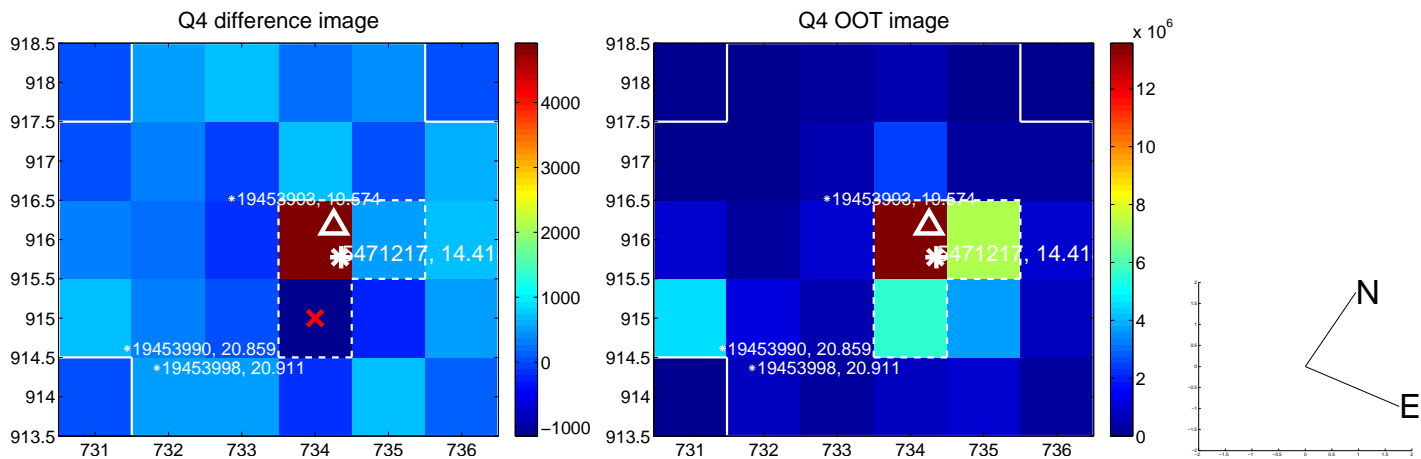
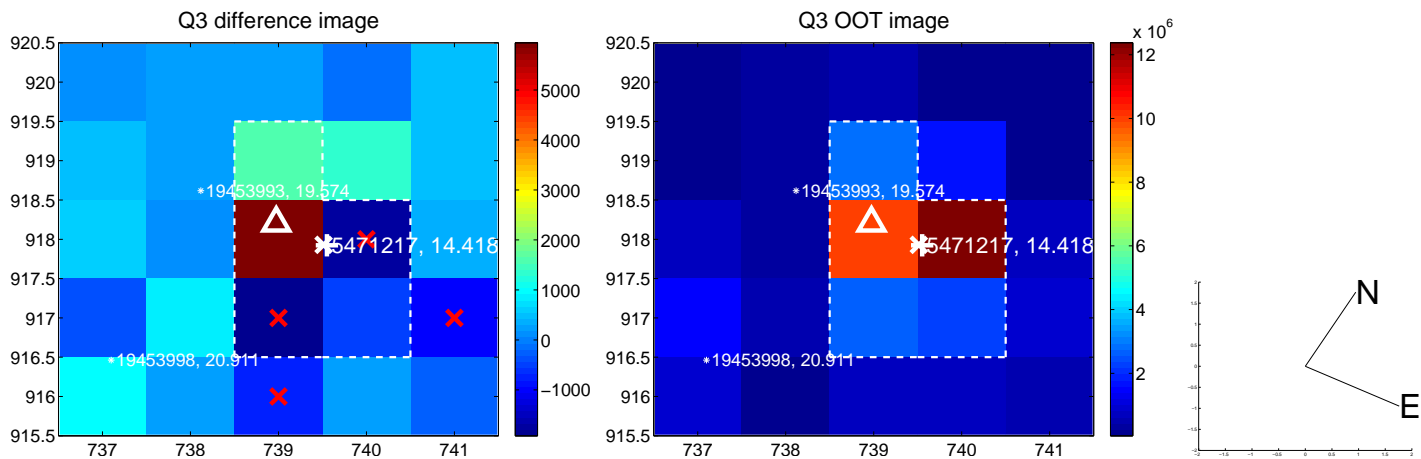
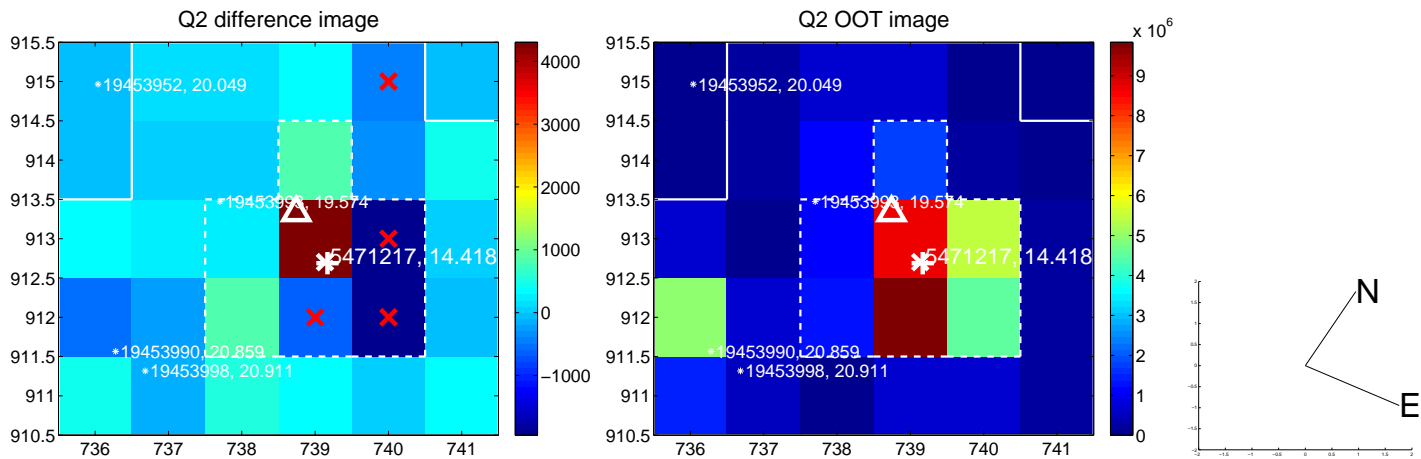
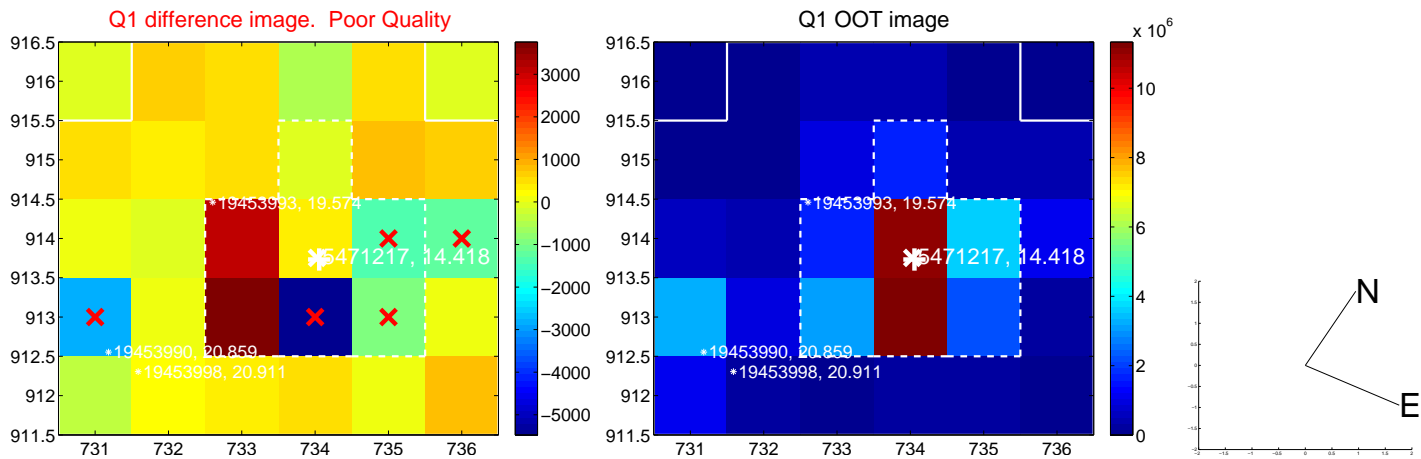
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.194 ± 0.441	4.98	-1.412 ± 0.308	-1.680 ± 0.514
PRF-fit source offset from KIC position	2.145 ± 0.453	4.73	-1.274 ± 0.314	-1.725 ± 0.513
photometric centroid source offset	0.67 ± 0.52	1.28	0.62 ± 0.53	-0.24 ± 0.48

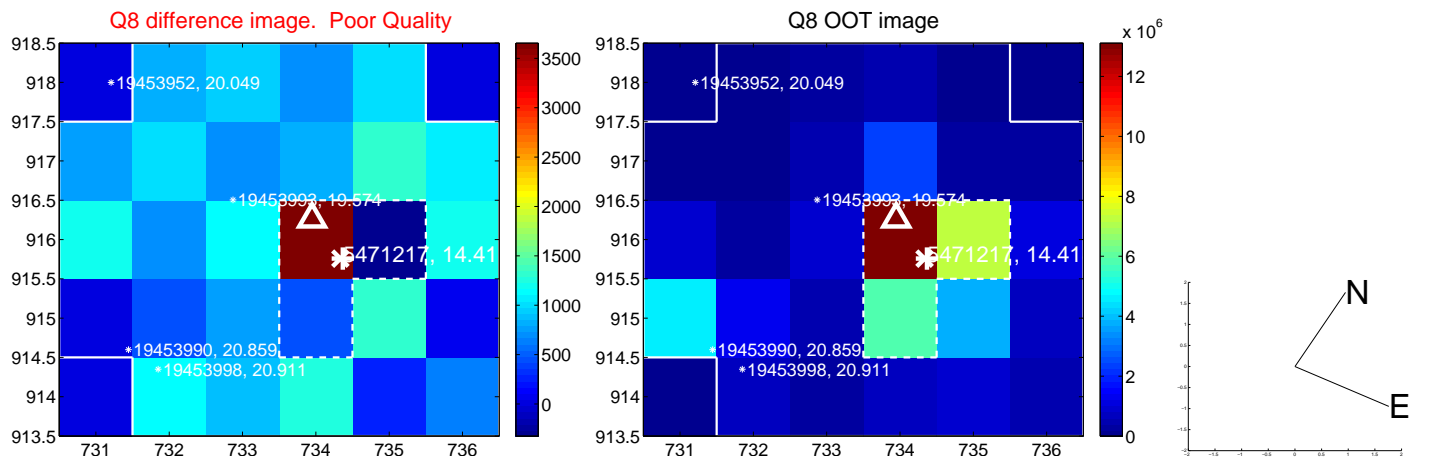
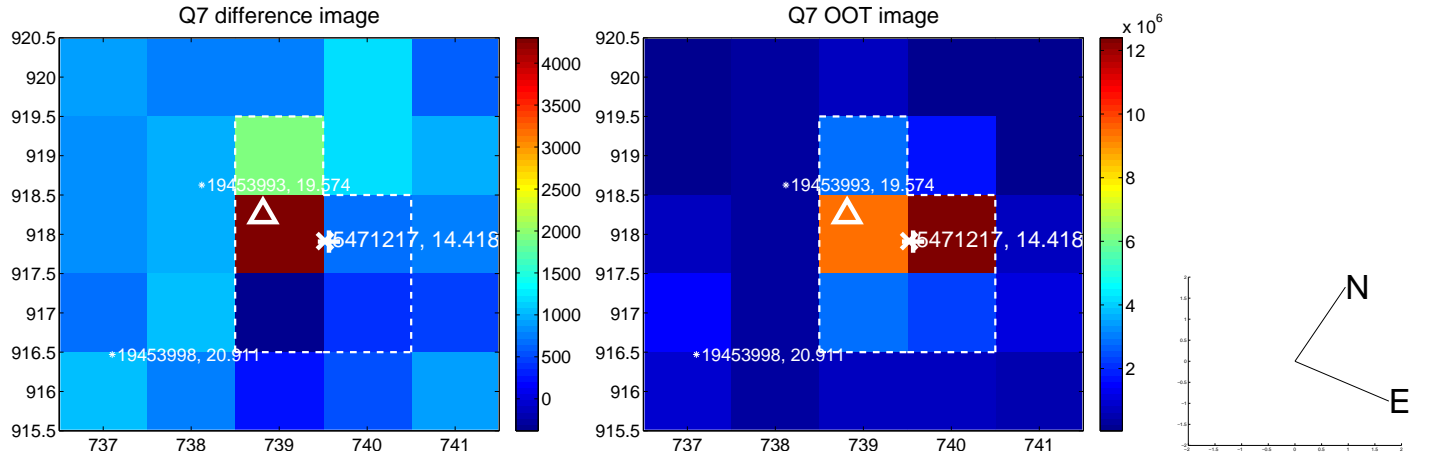
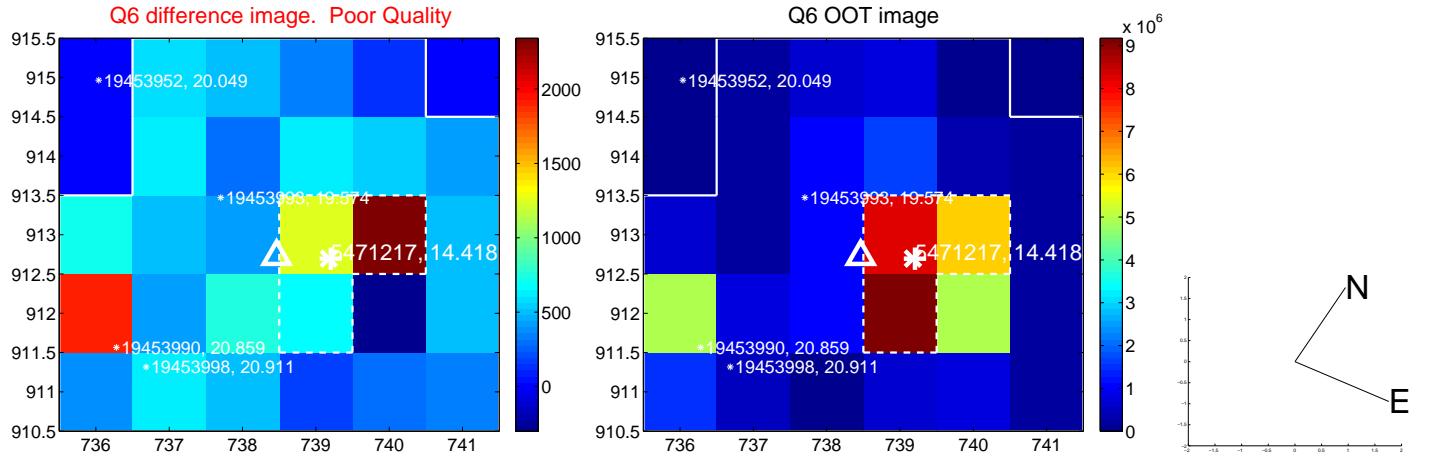
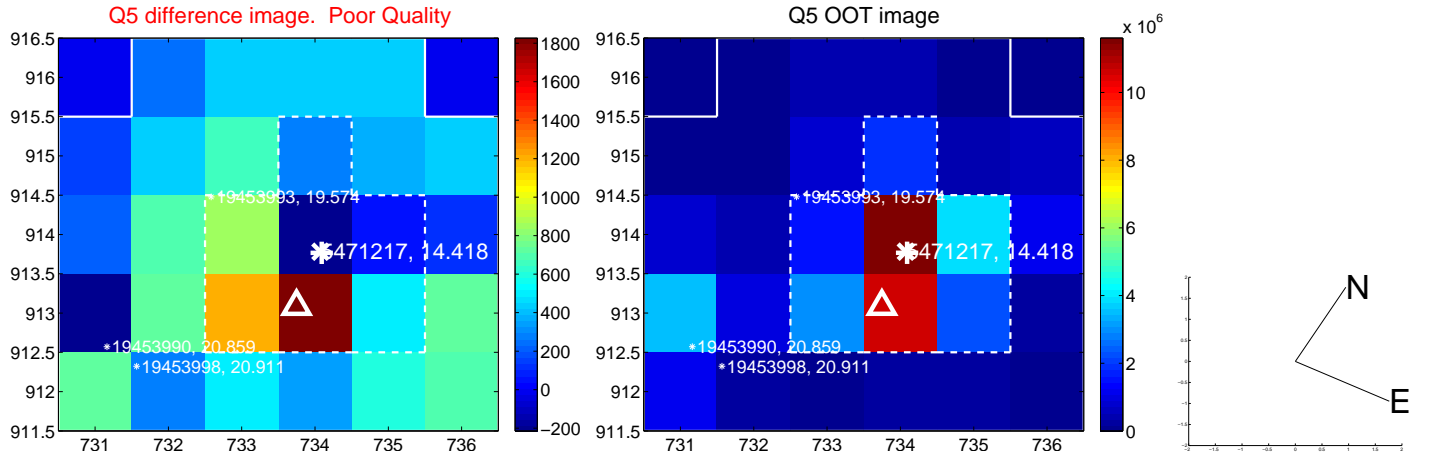


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

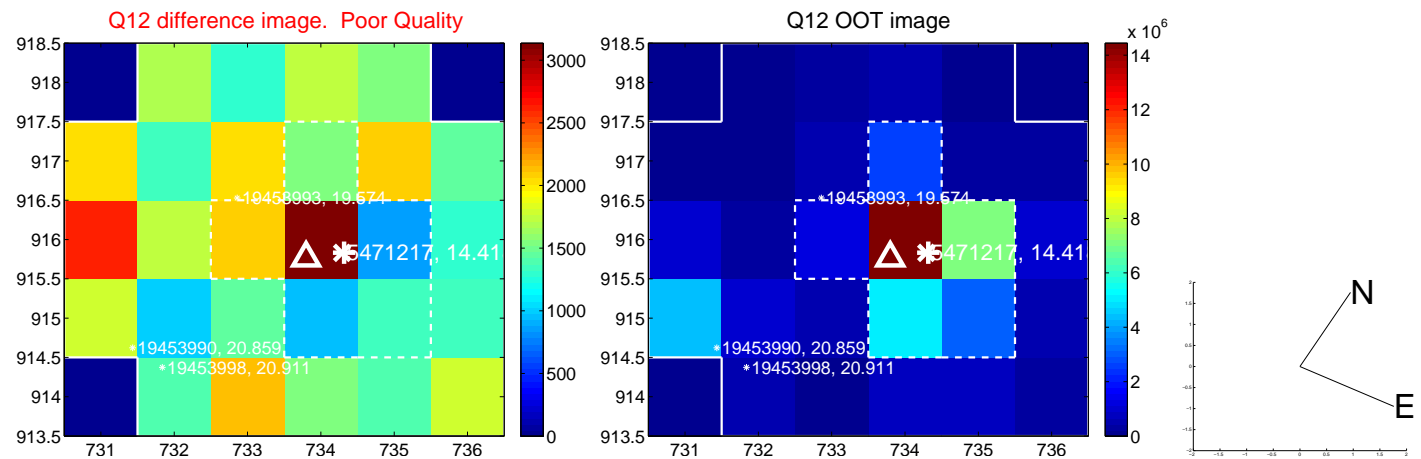
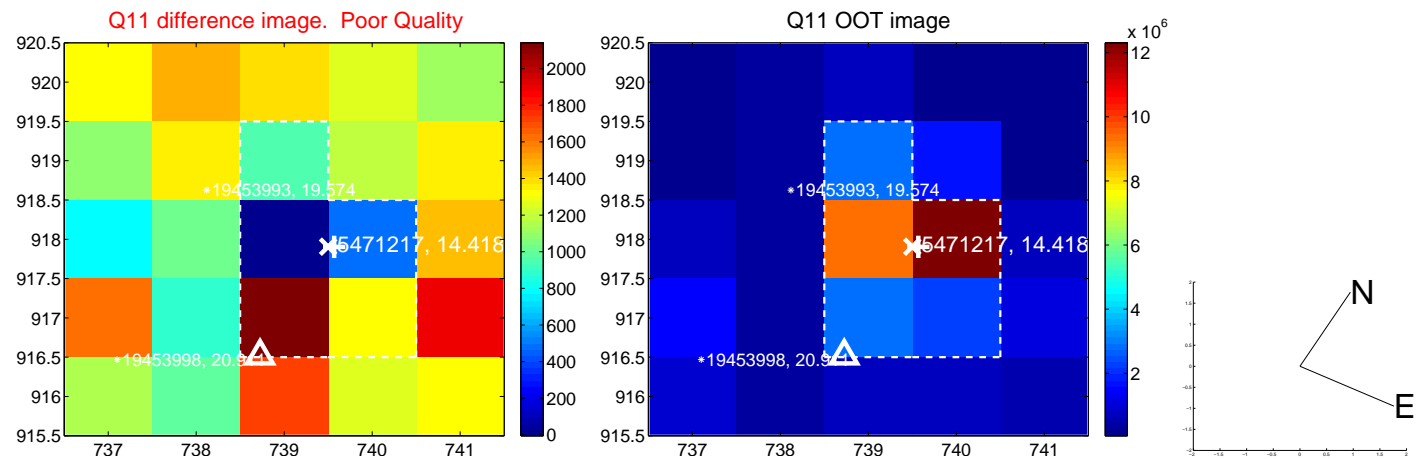
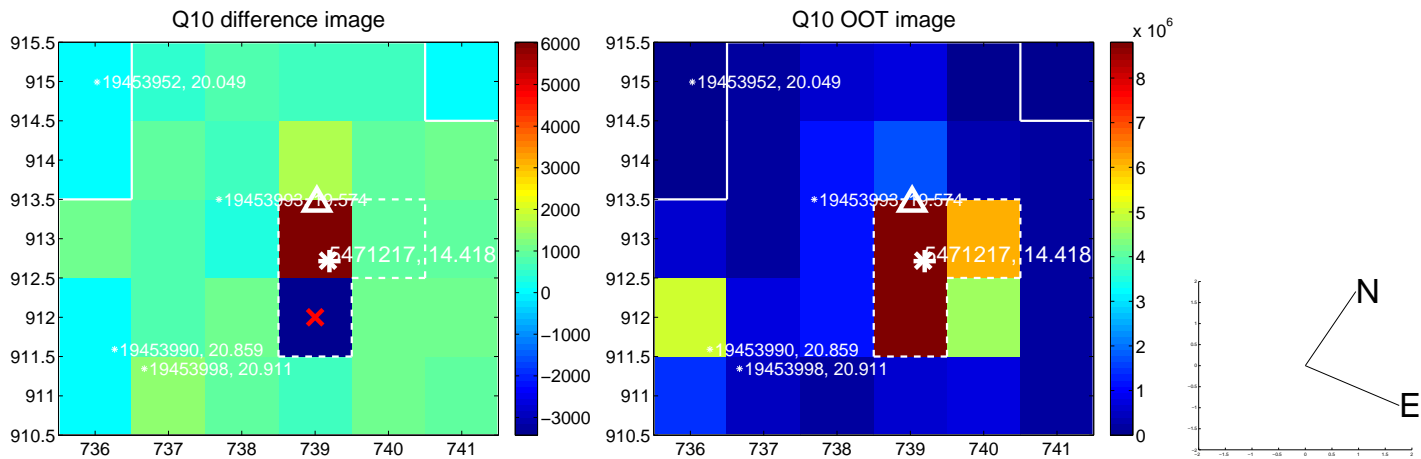
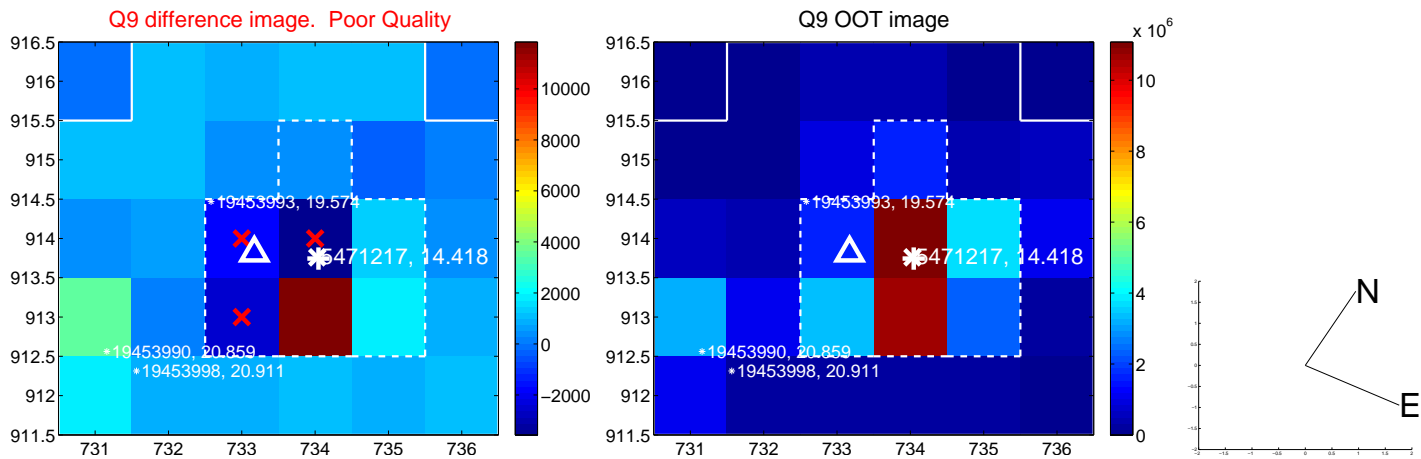
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



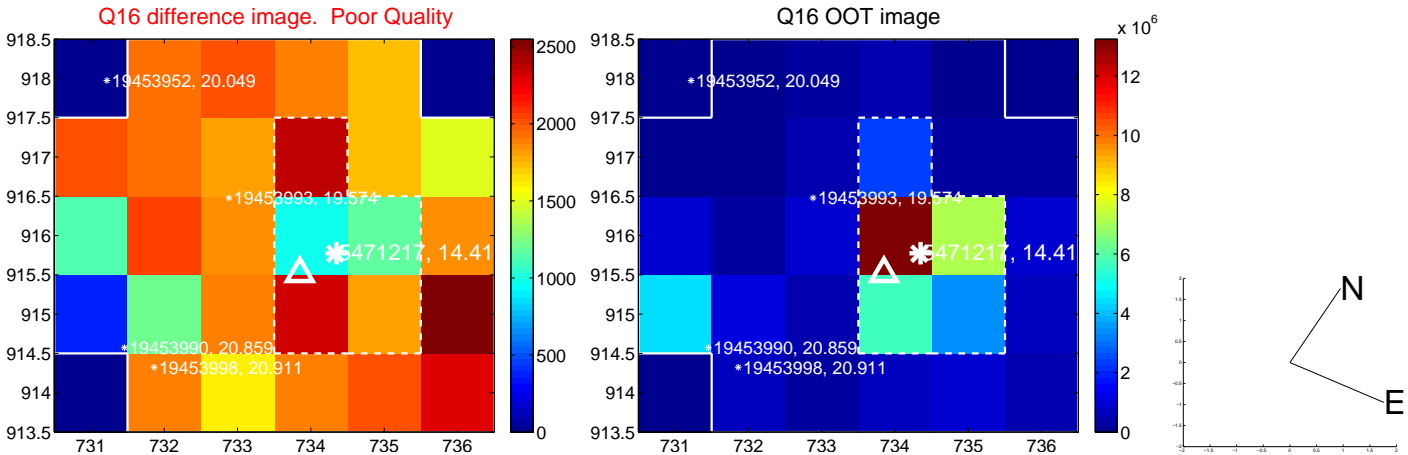
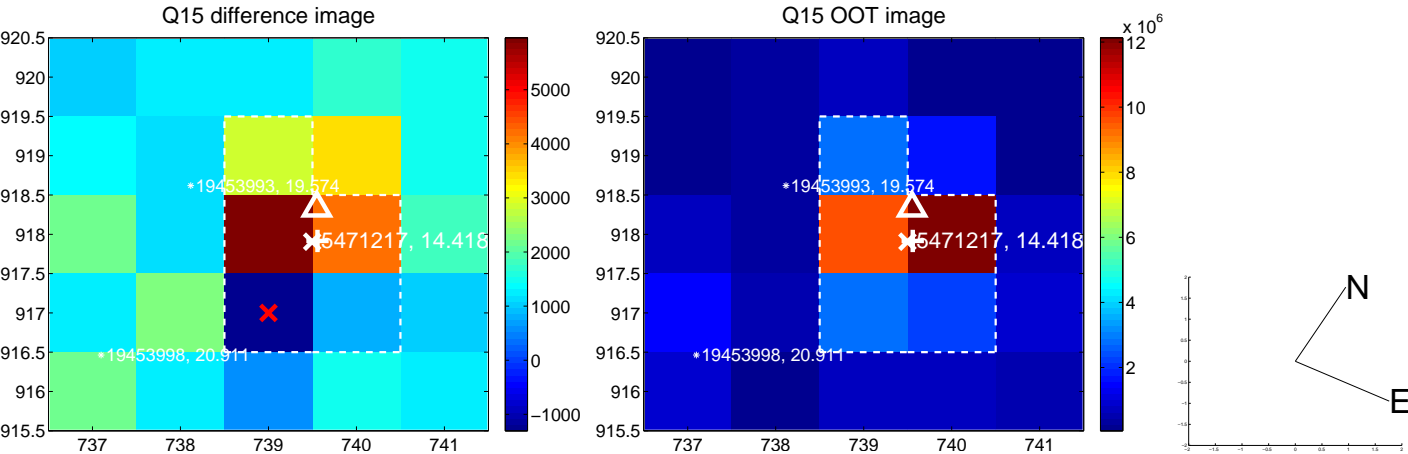
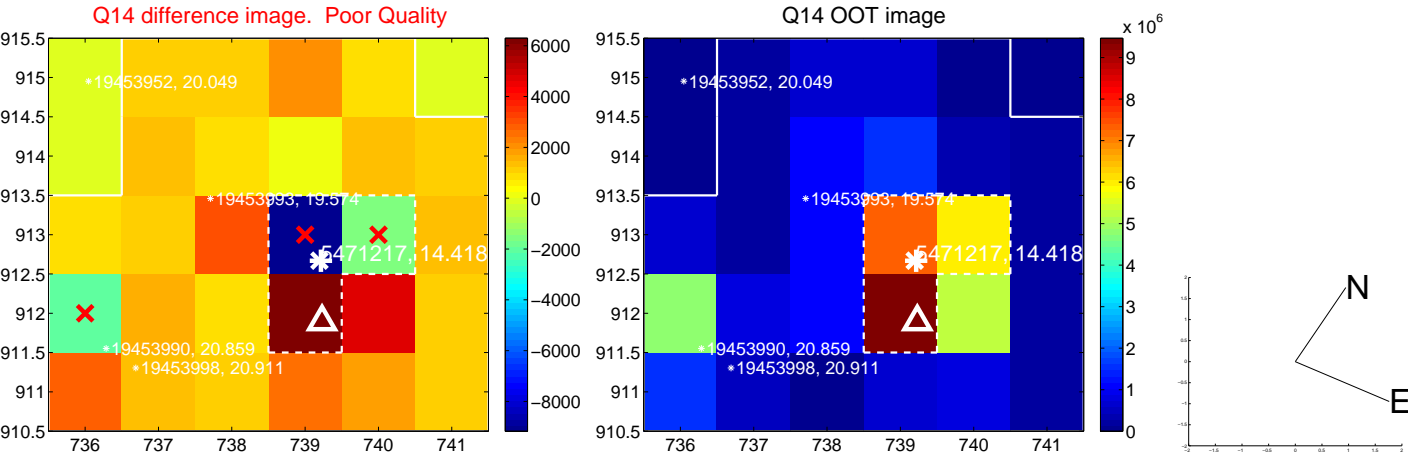
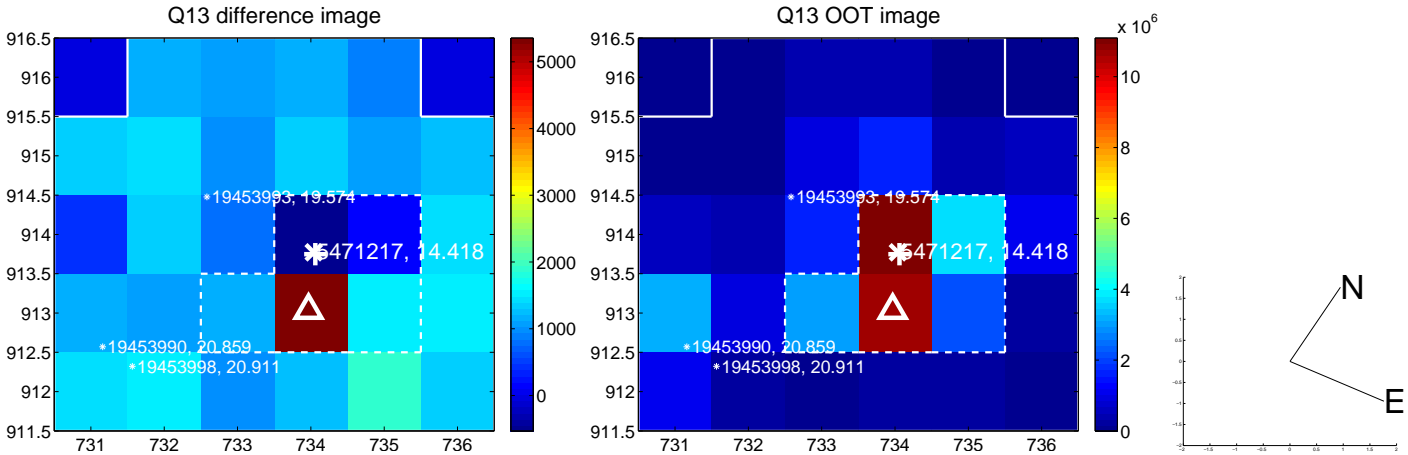
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



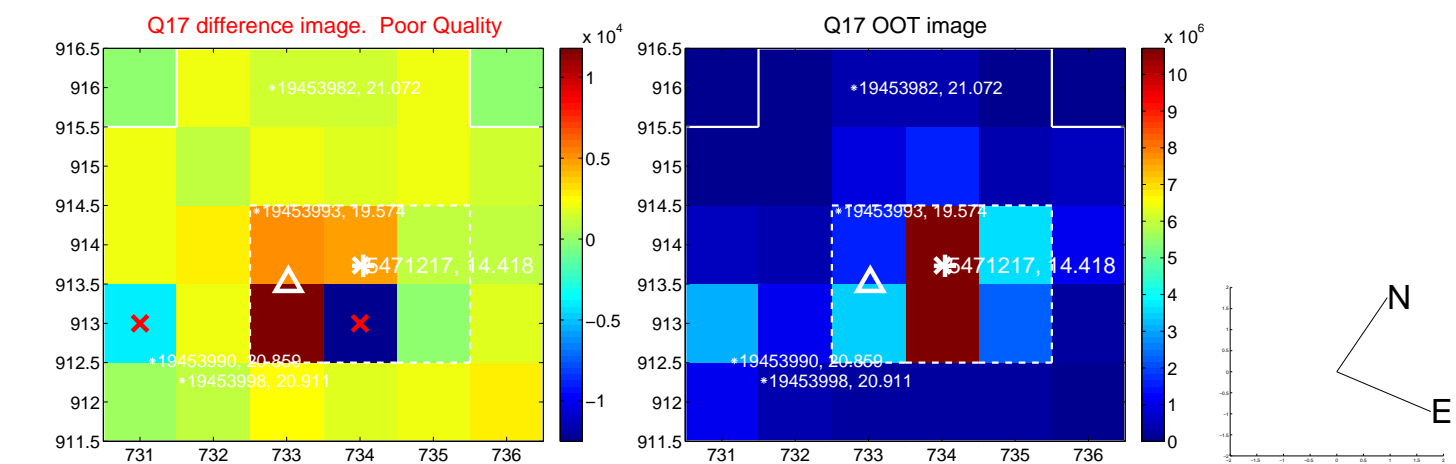
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



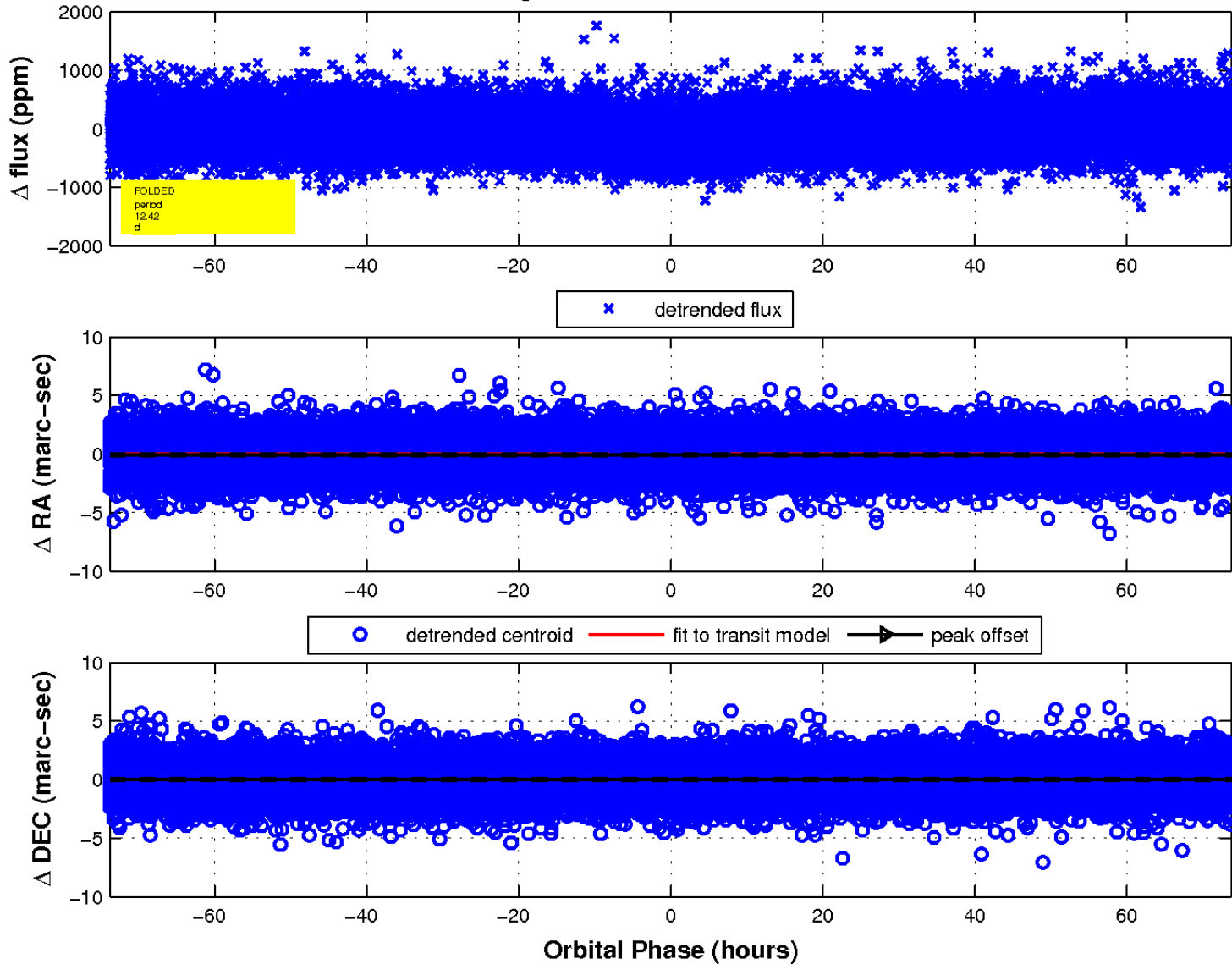
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



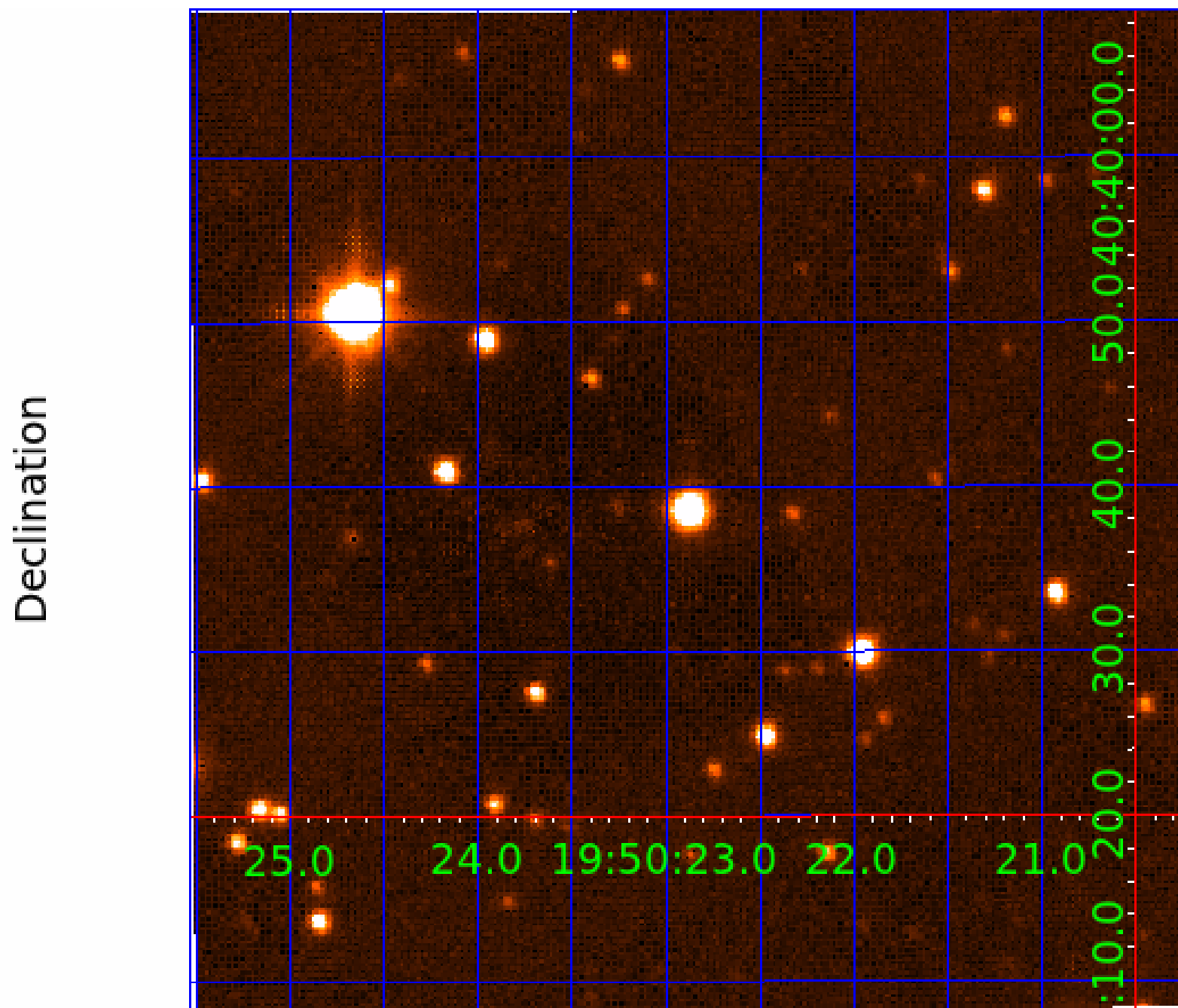
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 005471217

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})
005471217-01	OBS	6010.01	12.424860	141.597608	131.7	24.596	13.4	17.2	0.83	5514	1.29	54.08
005471217-02	OBS	No	12.424696	134.017017	139.2	30.645	13.6	18.0	0.83	5514	1.41	54.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471217-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
005471217-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS—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 005471217-02

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
005471217-02	5471217	V380-Cyg-sec	5385723	1:1	274.3	68	-10	5.77	14.42	928.32	Direct-PRF	0	2.26	2.17

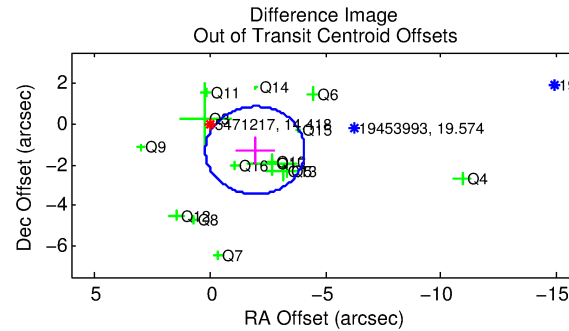
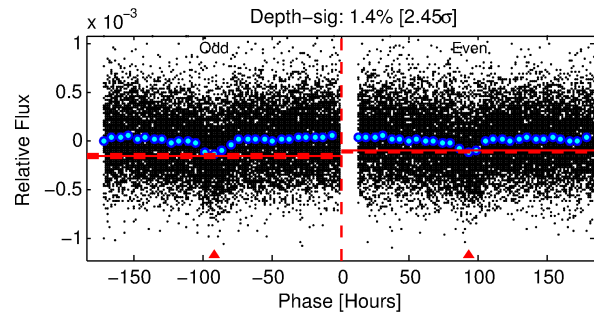
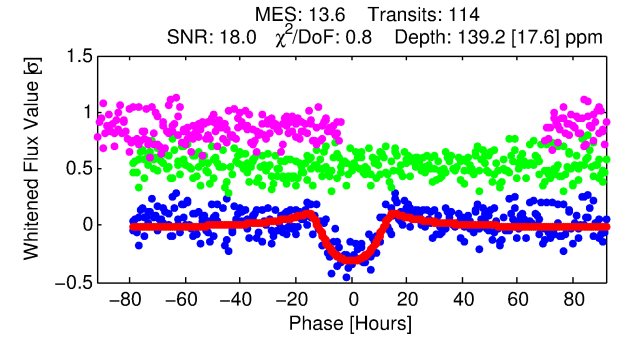
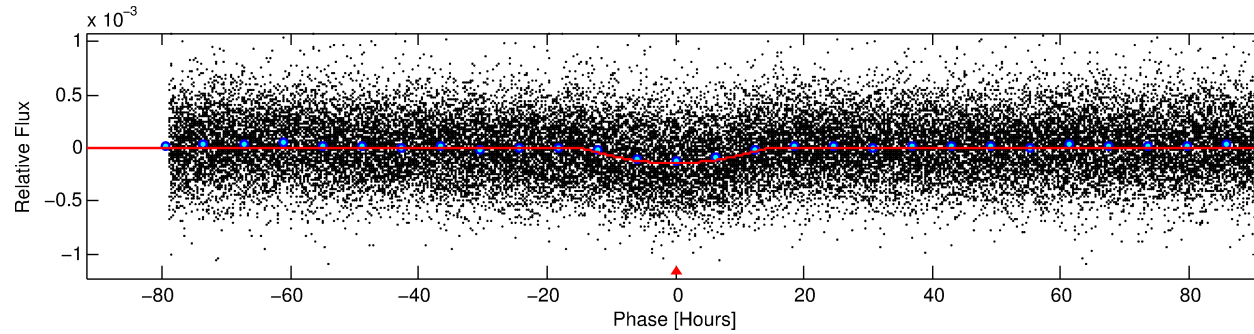
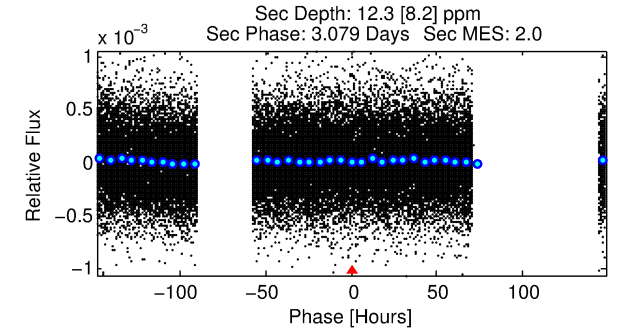
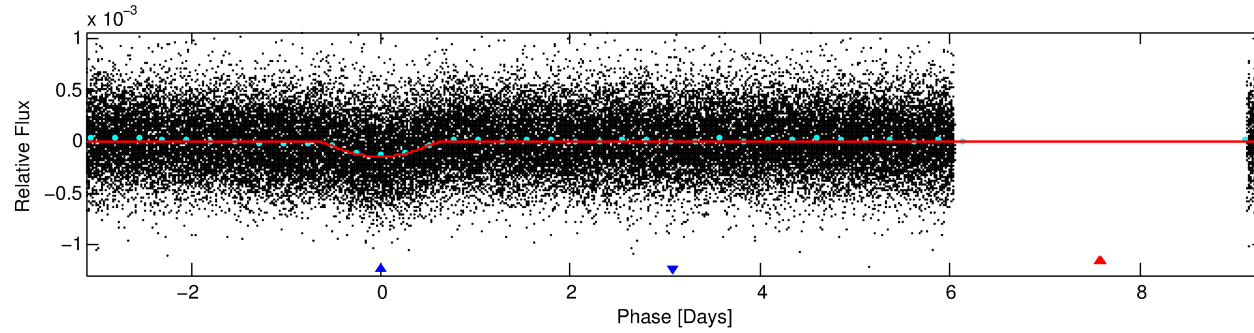
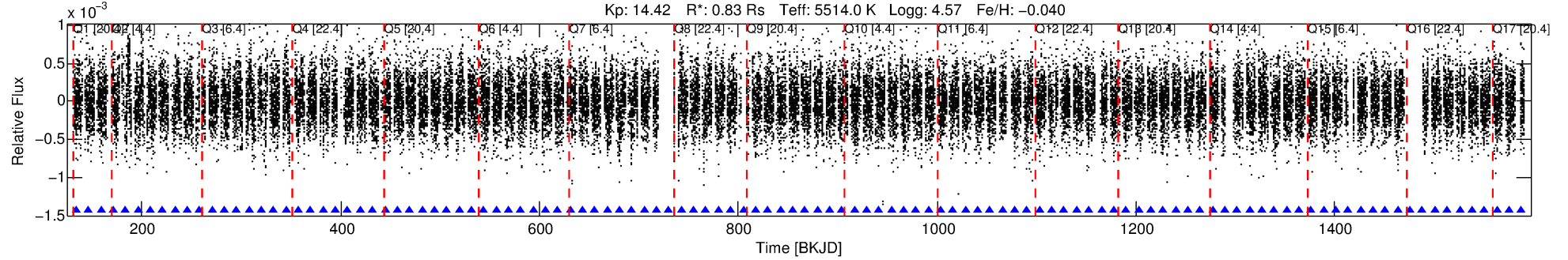
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 5471217 Candidate: 2 of 2 Period: 12.425 d

KOI: K06010 Corr: No Ephemeris Match

Kp: 14.42 R*: 0.83 Rs Teff: 5514.0 K Logg: 4.57 Fe/H: -0.040



DV Fit Results:

Period = 12.42470 [0.00049] d
Epoch = 134.0170 [0.0336] BKJD
Rp/R* = 0.0156 [0.0016]
a/R* = 1.25 [0.04]
b = 0.99 [0.01]
Seff = 54.08 [17.85]
Teff = 691 [57] K
Rp = 1.41 [0.37] Re
a = 0.1022 [0.0213] AU
Ag = 35.72 [27.30] [1.27σ]
Teffp = 2614 [464] K [4.11σ]

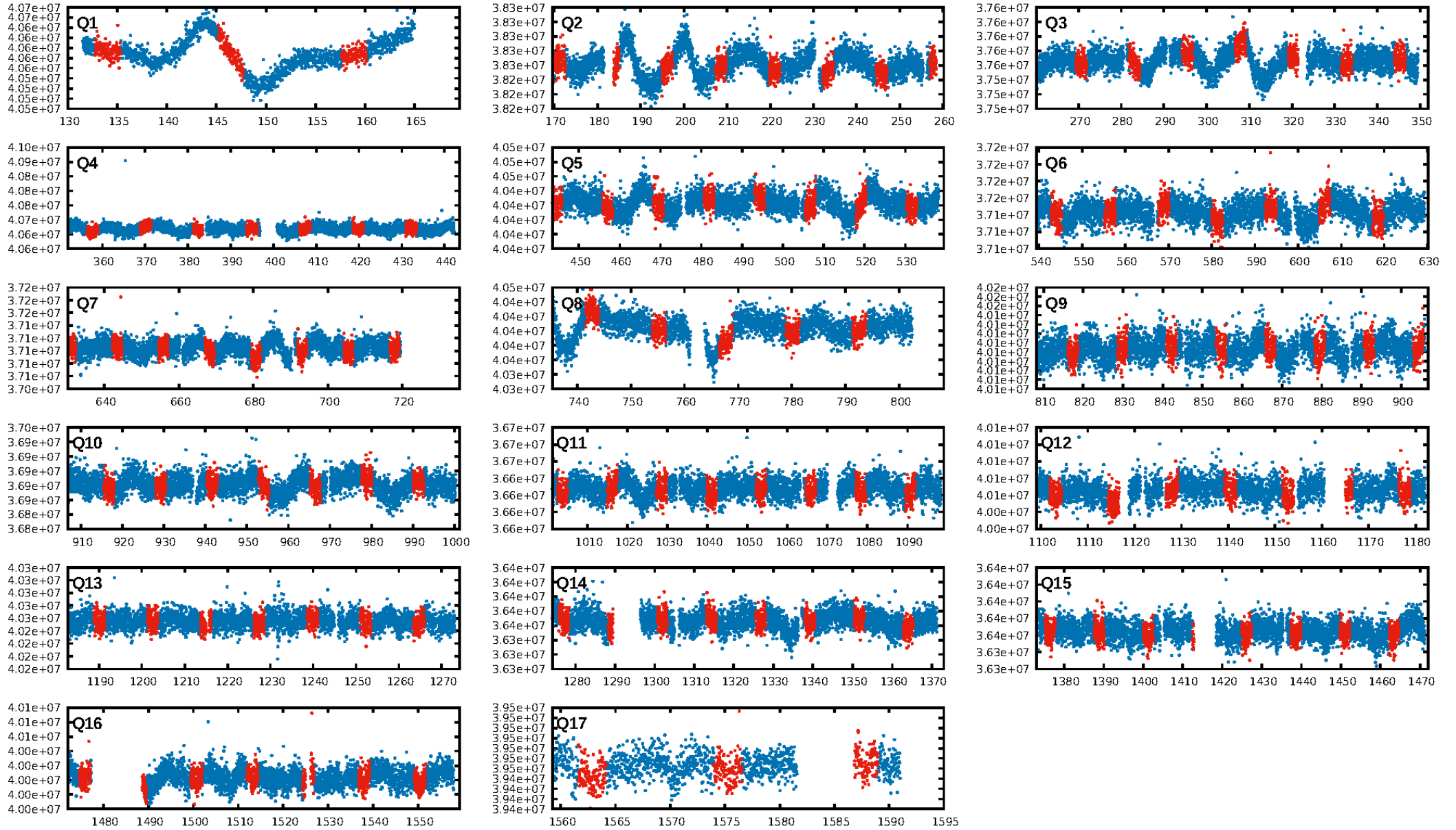
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 32.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.74e-45
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: 0.1755
Centroid-sig: 47.5%
Centroid-so: 0.164 arcsec [0.33σ]
OotOffset-rm: 2.352 arcsec [3.28σ]
KicOffset-rm: 2.264 arcsec [3.46σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.07 [1/15]
DiffImageOverlap-fno: 1.00 [17/17]

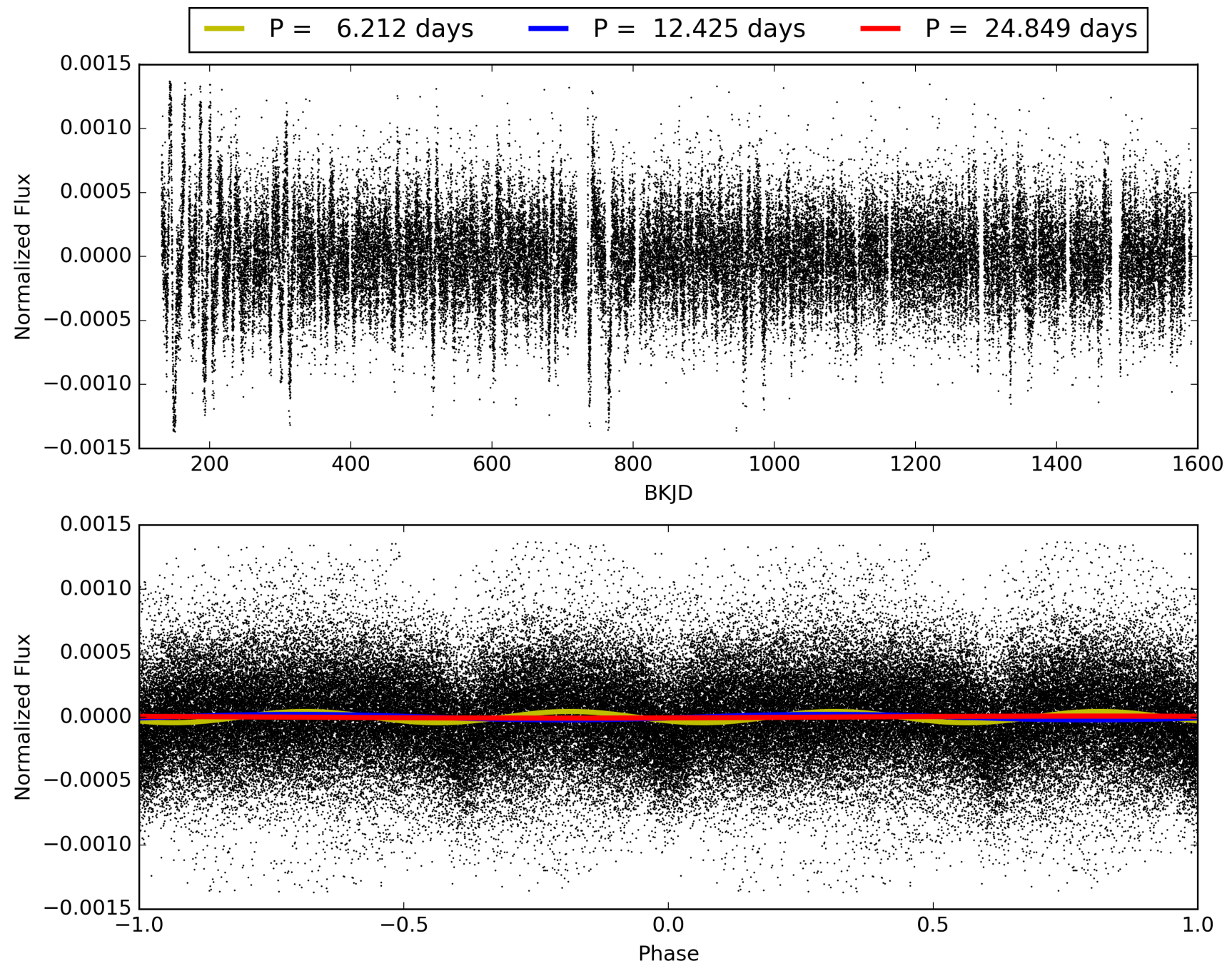
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471217-02, PDC Light Curves

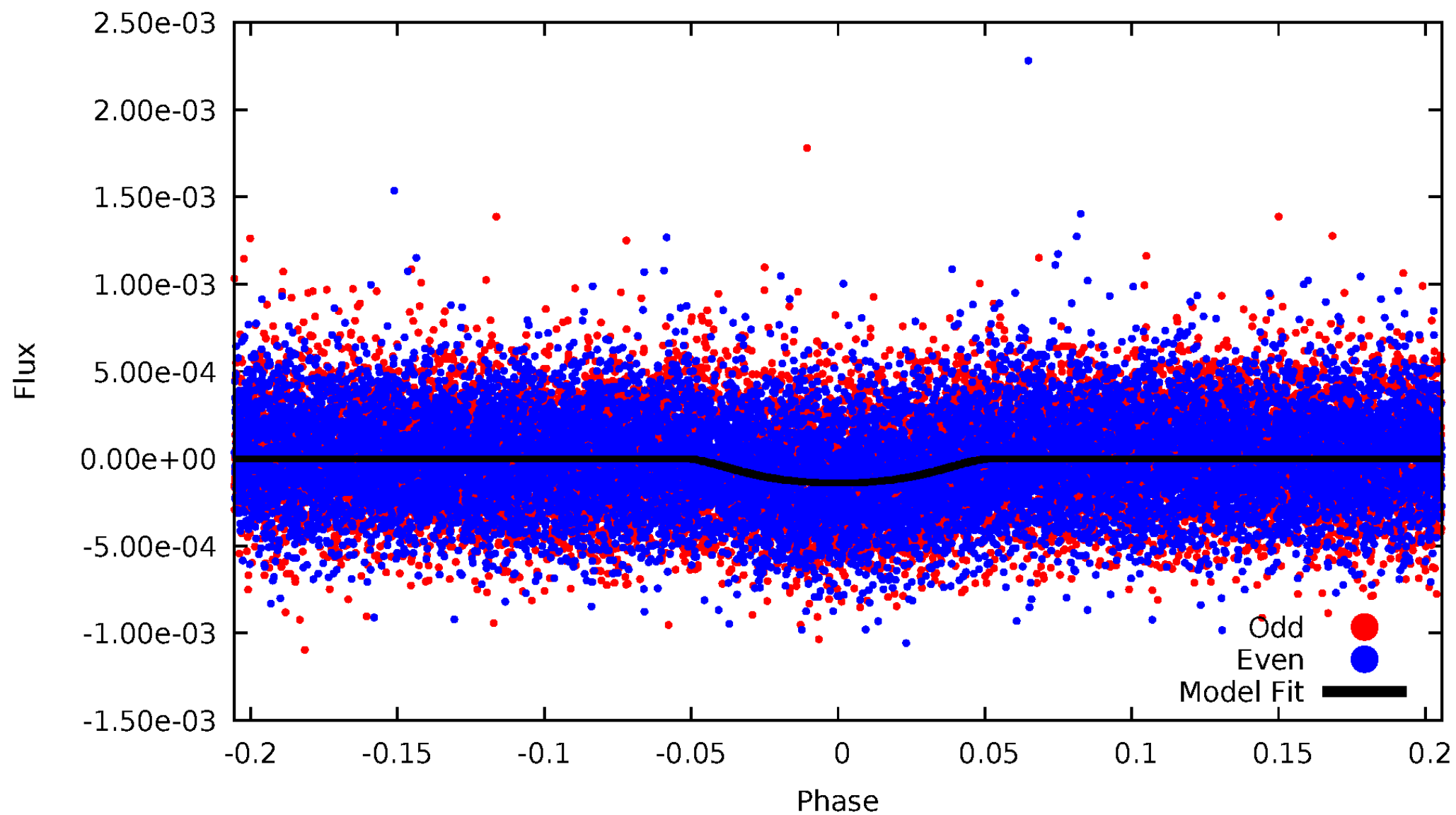


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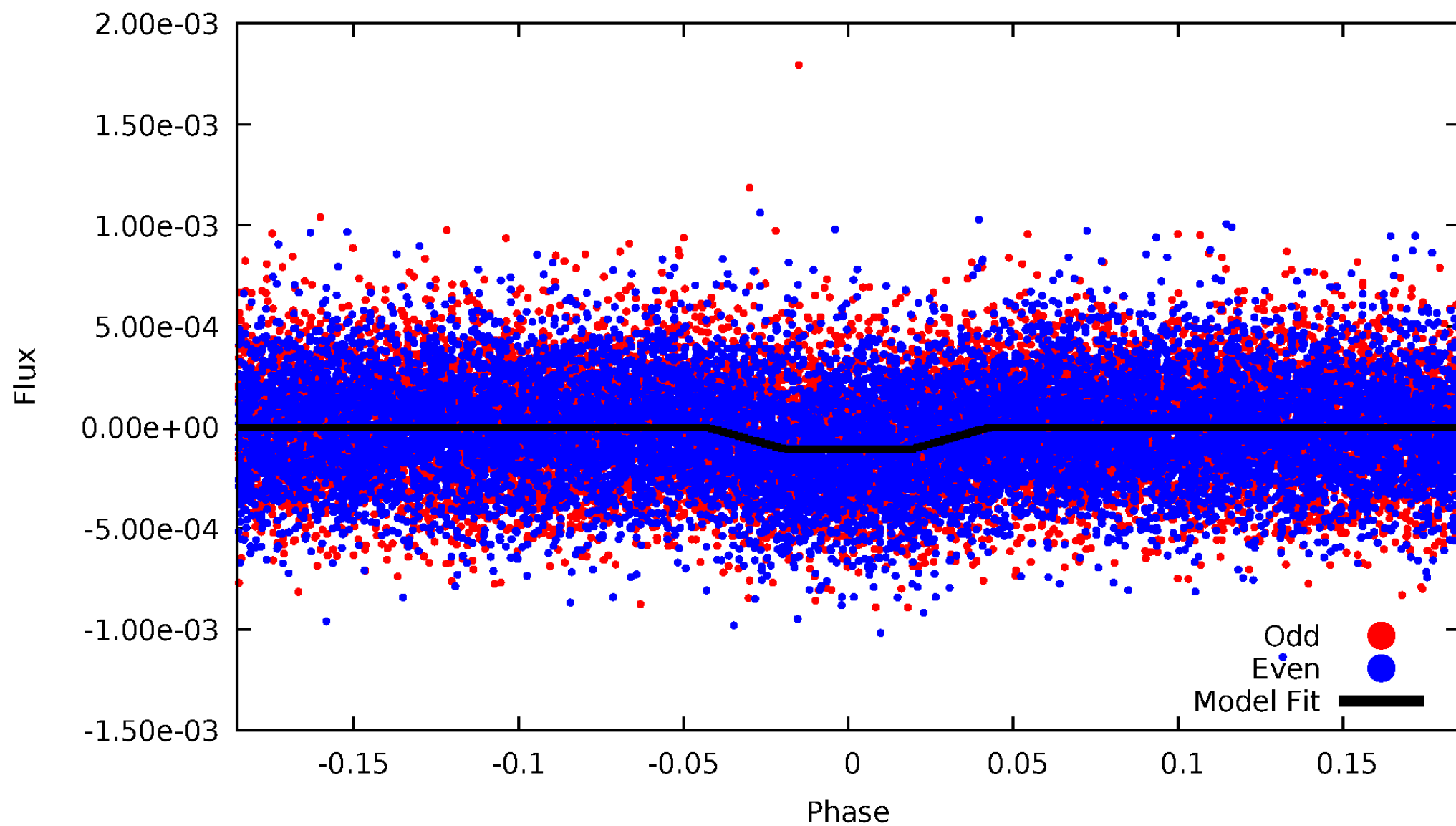
DV Odd/Even

TCE 005471217-02



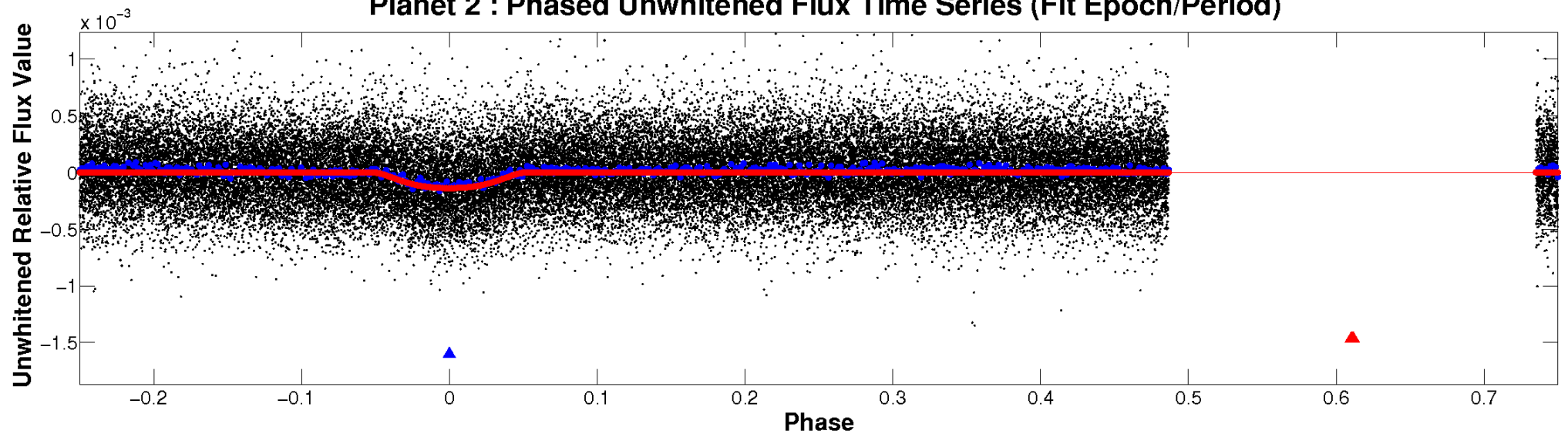
ALT Odd/Even

TCE 005471217-02

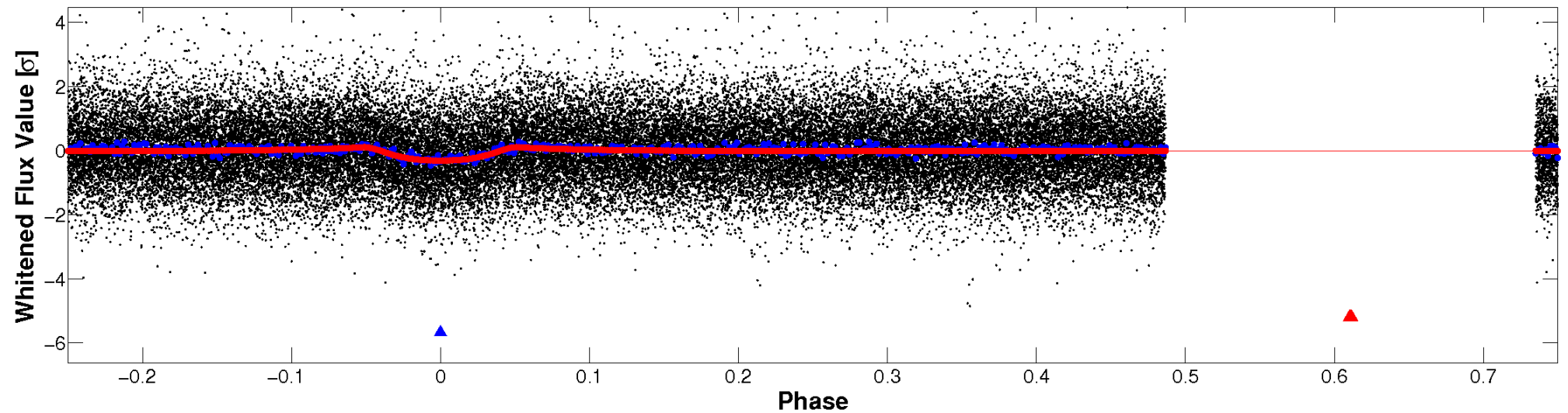


Non-Whitened Vs. Whitened Light Curve

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

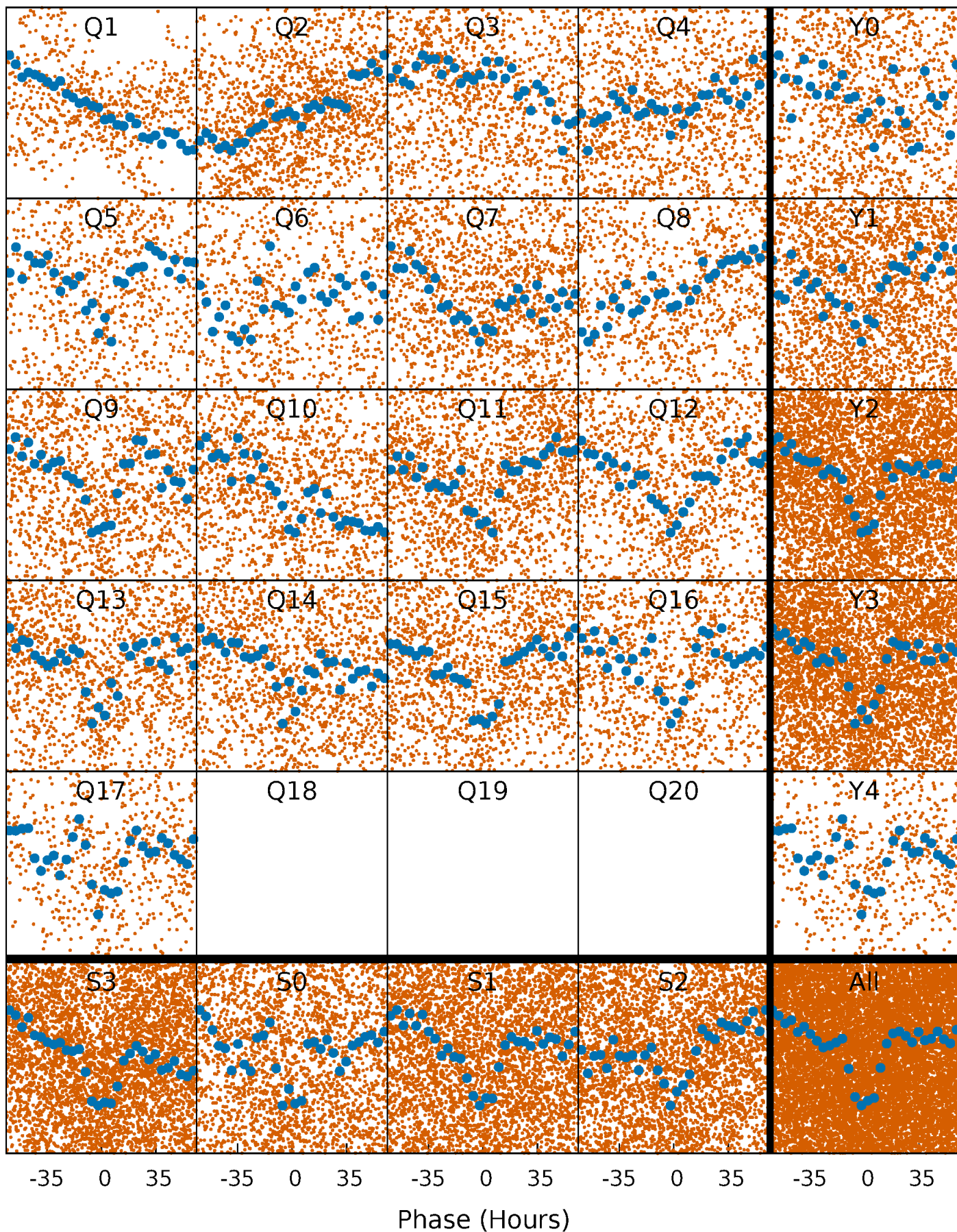


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



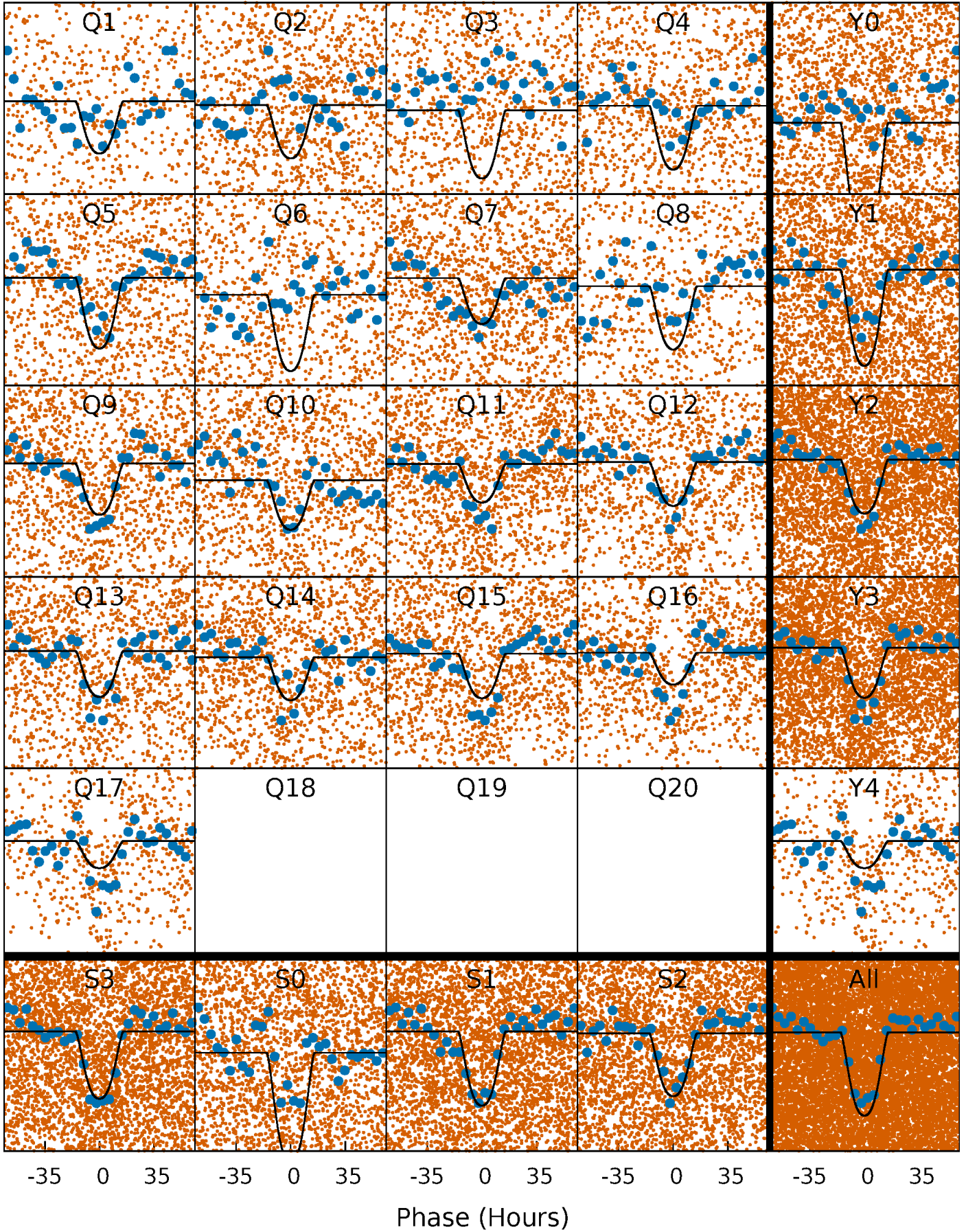
PDC Quarter-Phased Transit Curves

TCE 005471217-02 P= 12.424696 Days $T_0=134.017017$ (BKJD)



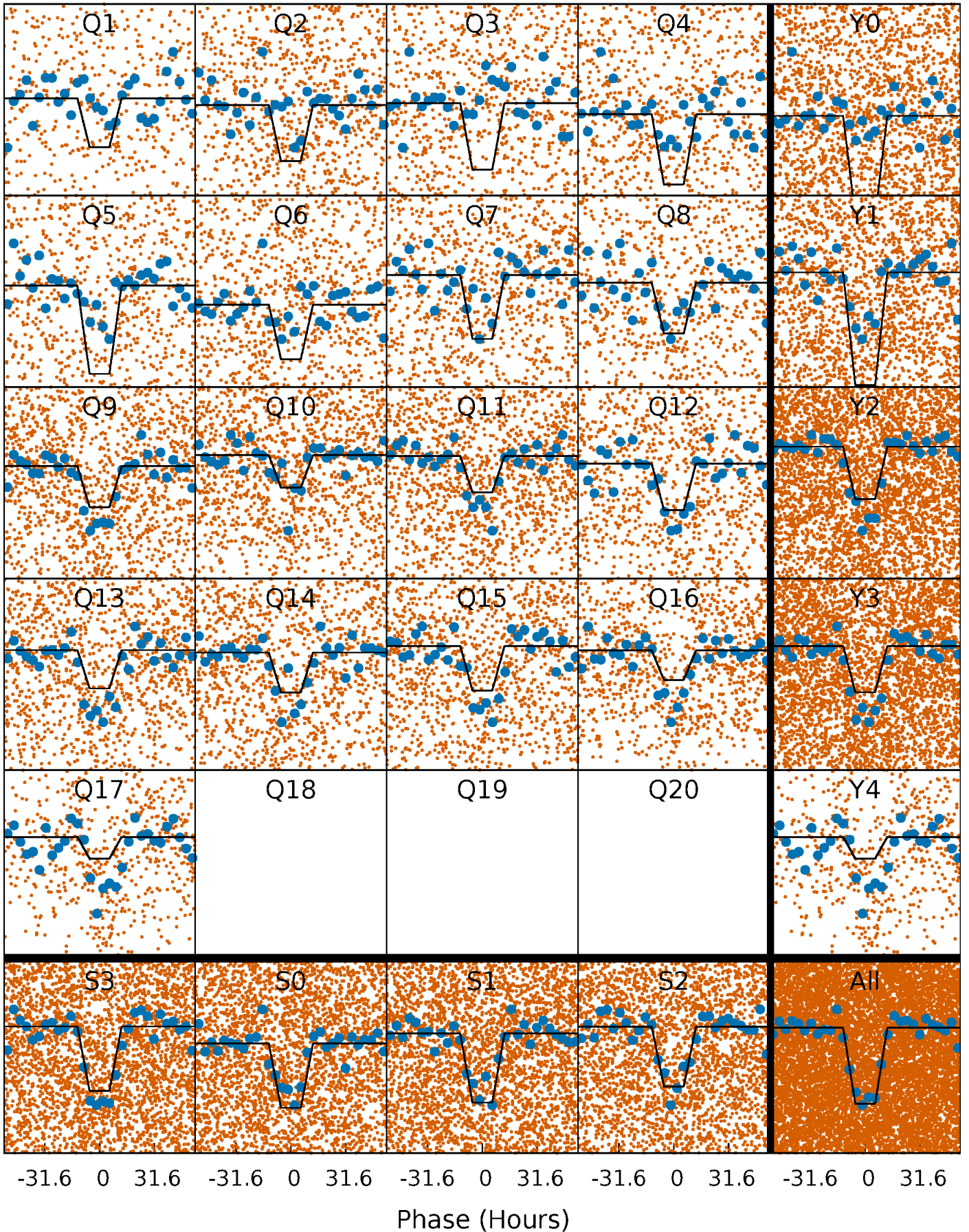
DV Quarter-Phased Transit Curves

TCE 005471217-02 P= 12.424696 Days $T_0=134.017017$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

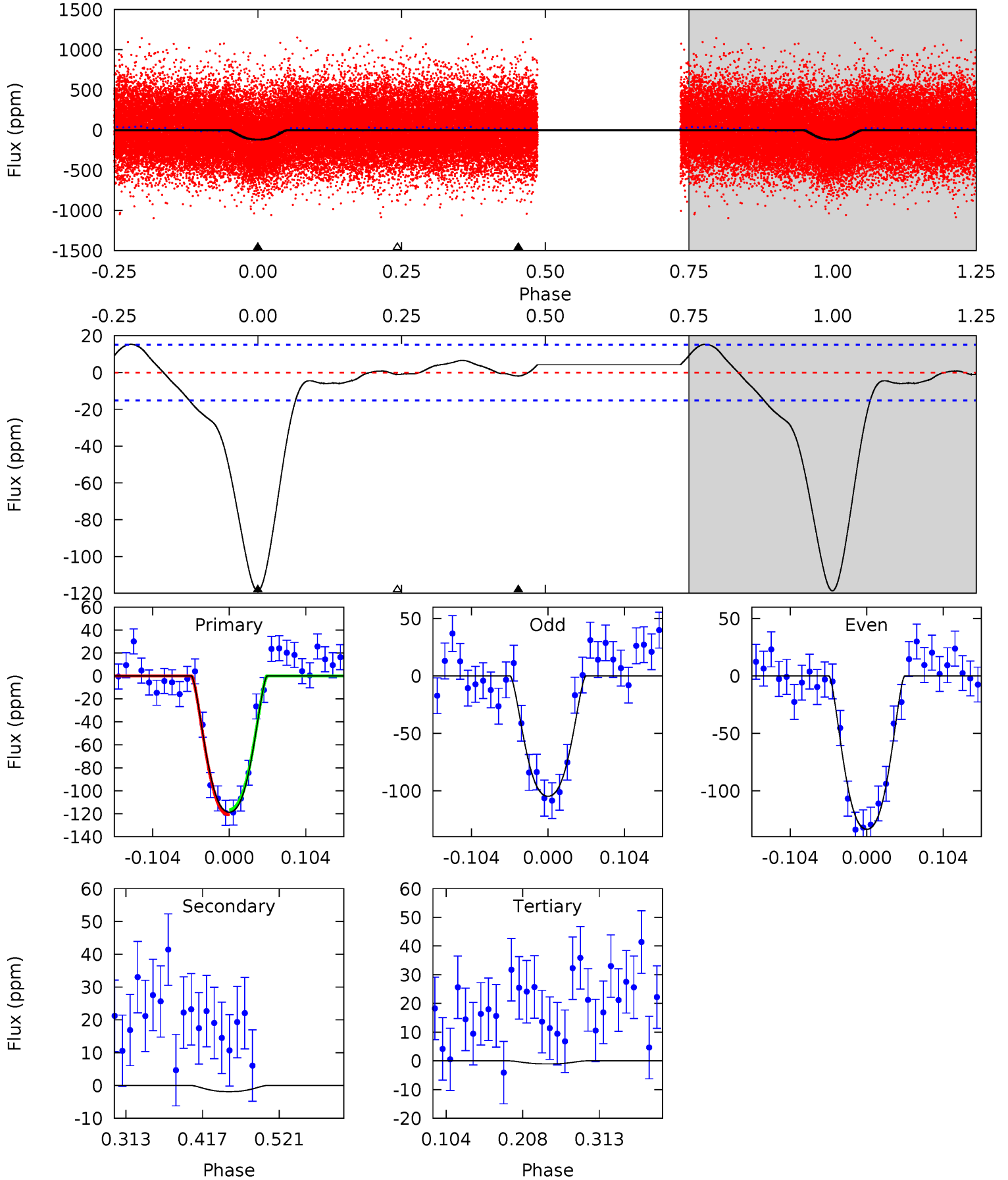
TCE 005471217-02 P= 12.423554 Days $T_0=134.114983$ (BKJD)



DV Model-Shift Uniqueness Test

005471217-02, $P = 12.424696$ Days, $E = 121.592321$ Days

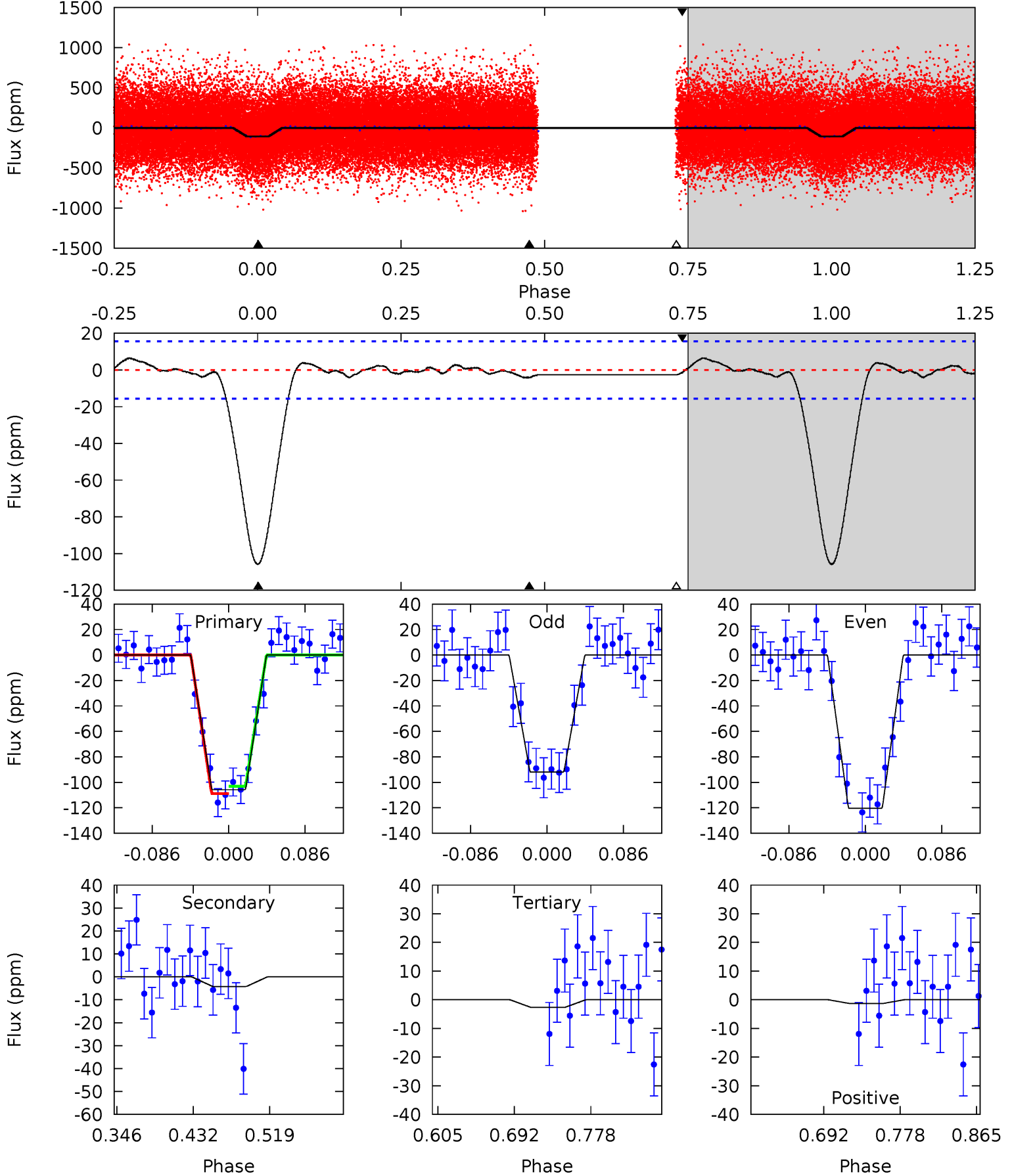
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.7	0.57	0.32	0	4.56	1.62	2.27	35.4	35.7	0.25	0.57	4.35	0.73	0.11	0.64



Alt Model-Shift Uniqueness Test

005471217-02, P = 12.423554 Days, E = 121.691429 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.1	1.23	0.79	-0.38	4.60	1.71	0.67	30.3	31.5	0.45	1.62	4.19	0.89	0.06	0.85



Stellar Parameters For KIC 005471217

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5514^{+166}_{-166}	$4.569^{+0.030}_{-0.170}$	$-0.040^{+0.300}_{-0.300}$	$0.826^{+0.201}_{-0.067}$	$0.926^{+0.083}_{-0.102}$	$2.312^{+0.375}_{-1.042}$
	+3%/-3%	+1%/-4%	+750%/-750%	+24%/-8%	+9%/-11%	+16%/-45%
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 005471217-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2 ± 3	$1.46^{+0.20}_{-0.18}$	990^{+54}_{-43}	2465^{+359}_{-4869}	$4.744^{+9.147}_{-7.944}$
Alt.	-4 ± 3	$0.96^{+0.19}_{-0.15}$	987^{+53}_{-43}	3058^{+333}_{-717}	24^{+26}_{-20}

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

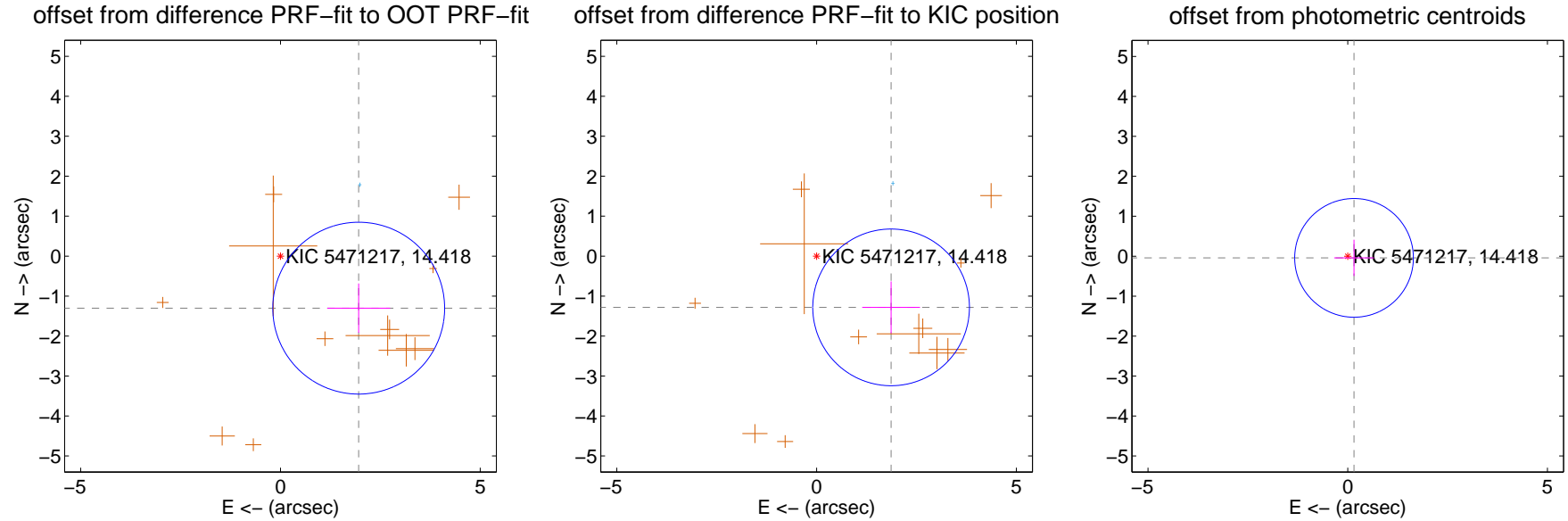
DV Centroid Data

Supplemental centroid analysis for 005471217-02. Kepler magnitude: 14.42. Transit SNR 17.96

There are 1 quarters with good PRF difference image offsets

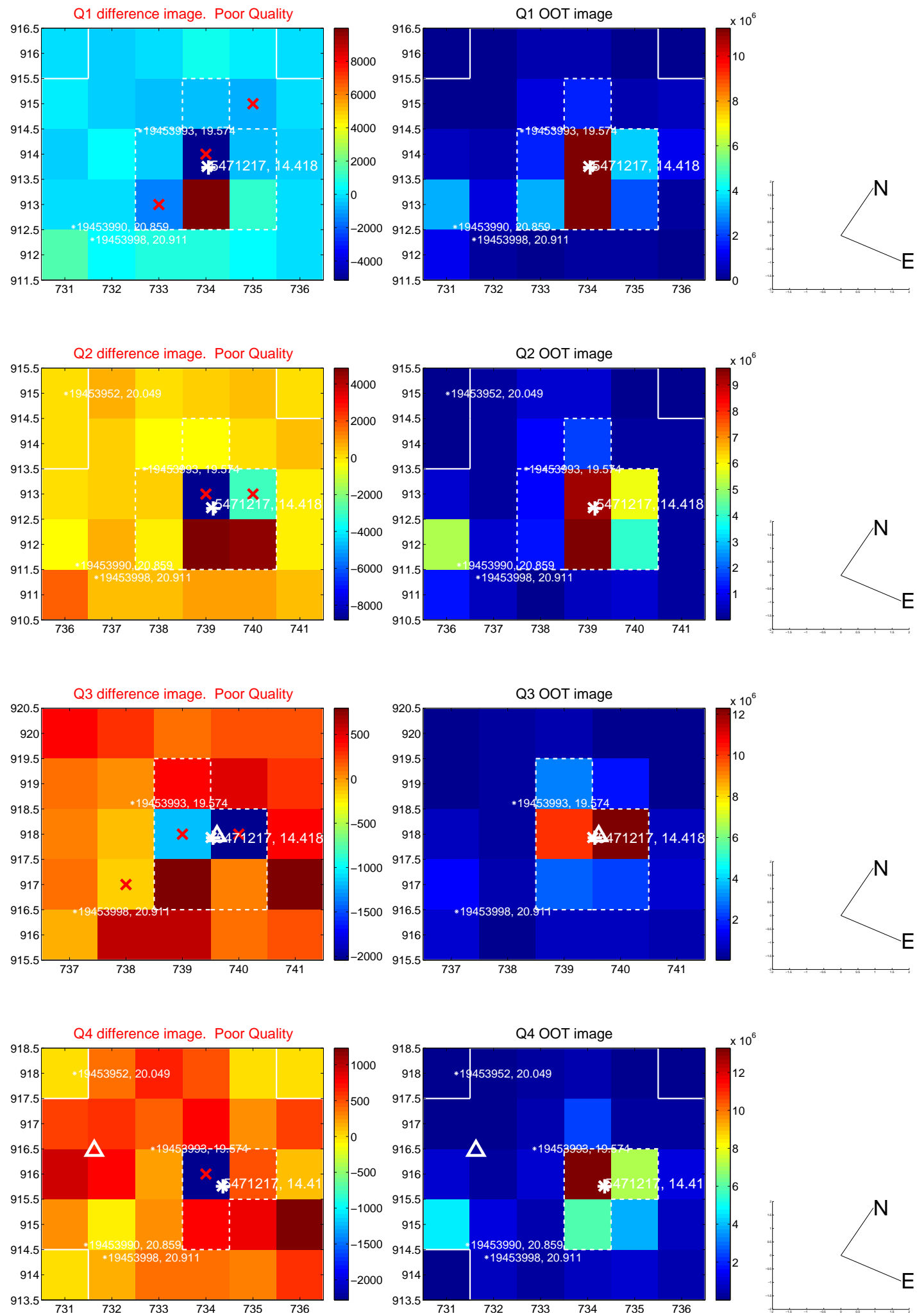
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.352 ± 0.717	3.28	-1.959 ± 0.787	-1.302 ± 0.618
PRF-fit source offset from KIC position	2.264 ± 0.654	3.46	-1.866 ± 0.725	-1.283 ± 0.649
photometric centroid source offset	0.16 ± 0.50	0.33	-0.16 ± 0.50	-0.04 ± 0.45

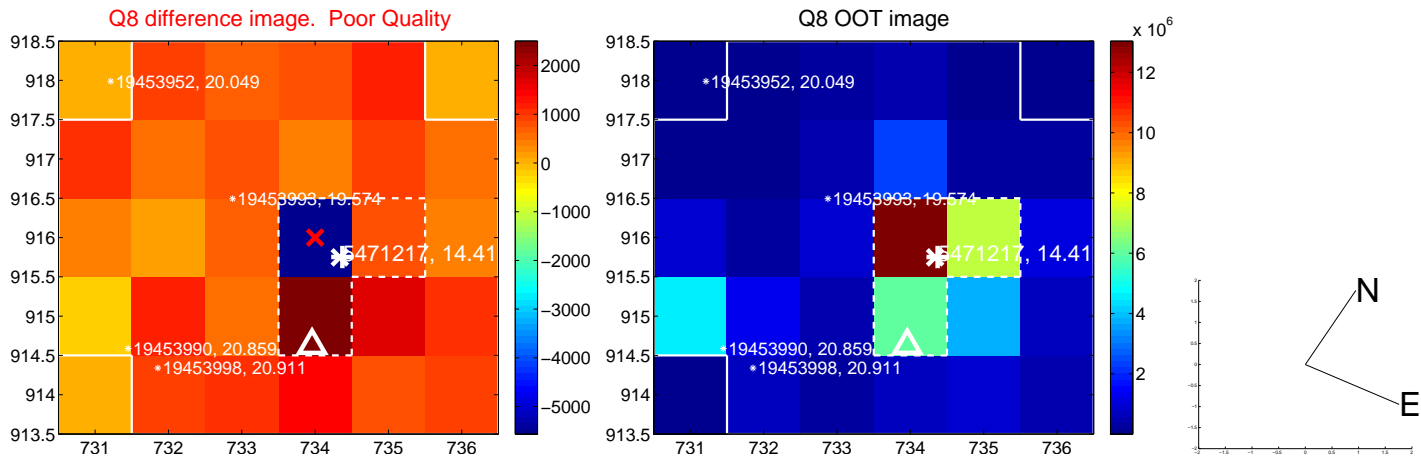
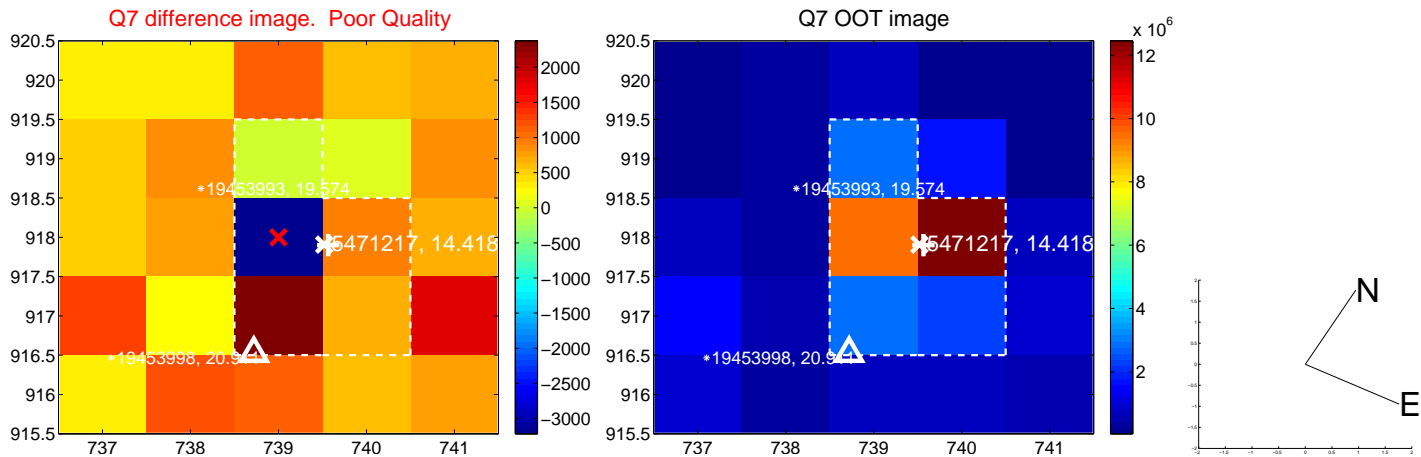
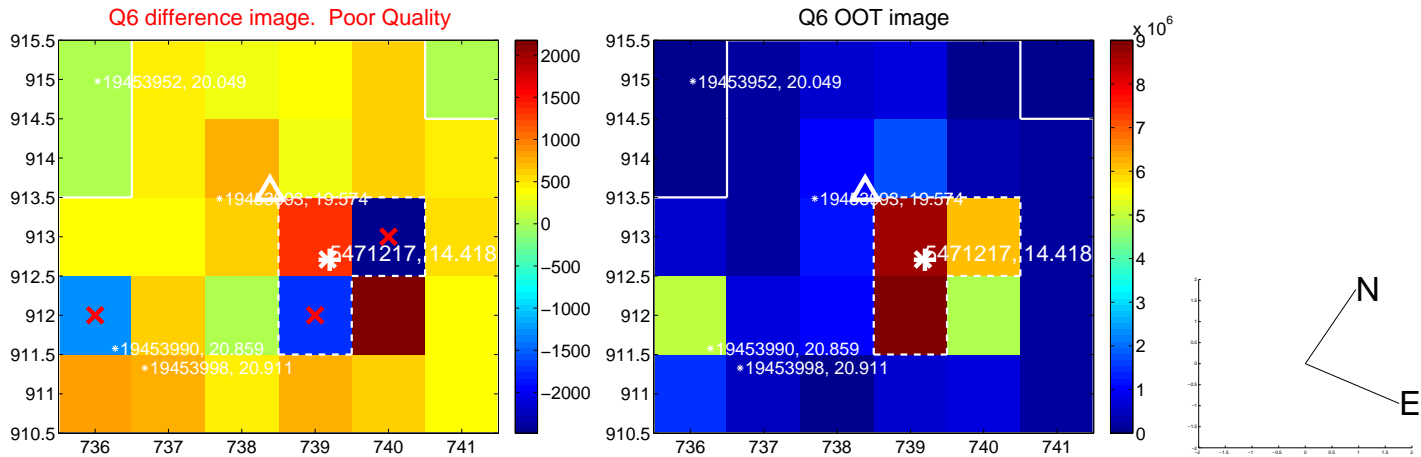
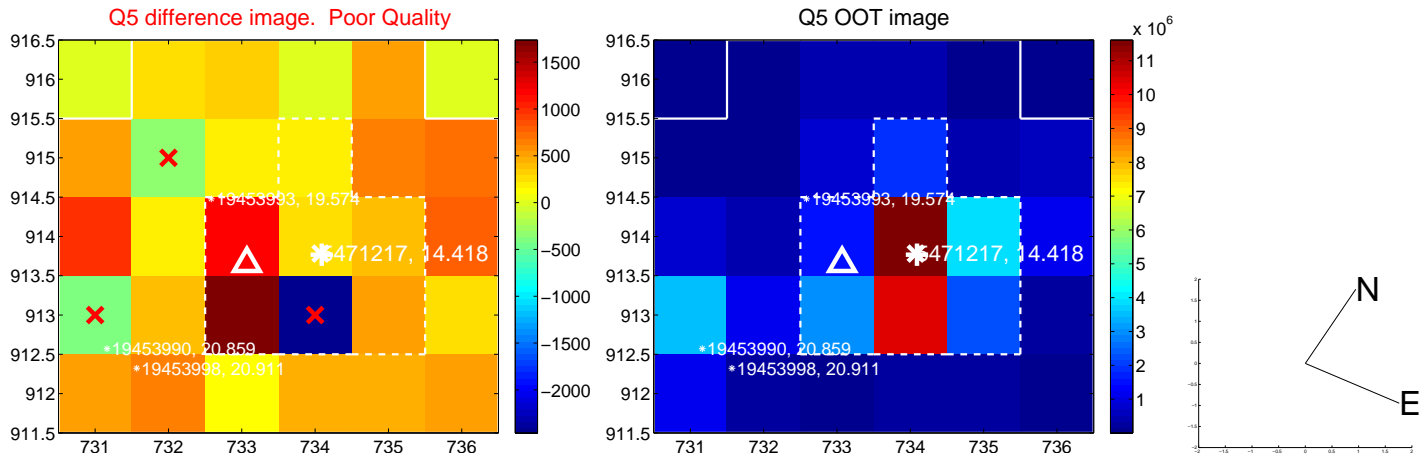


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

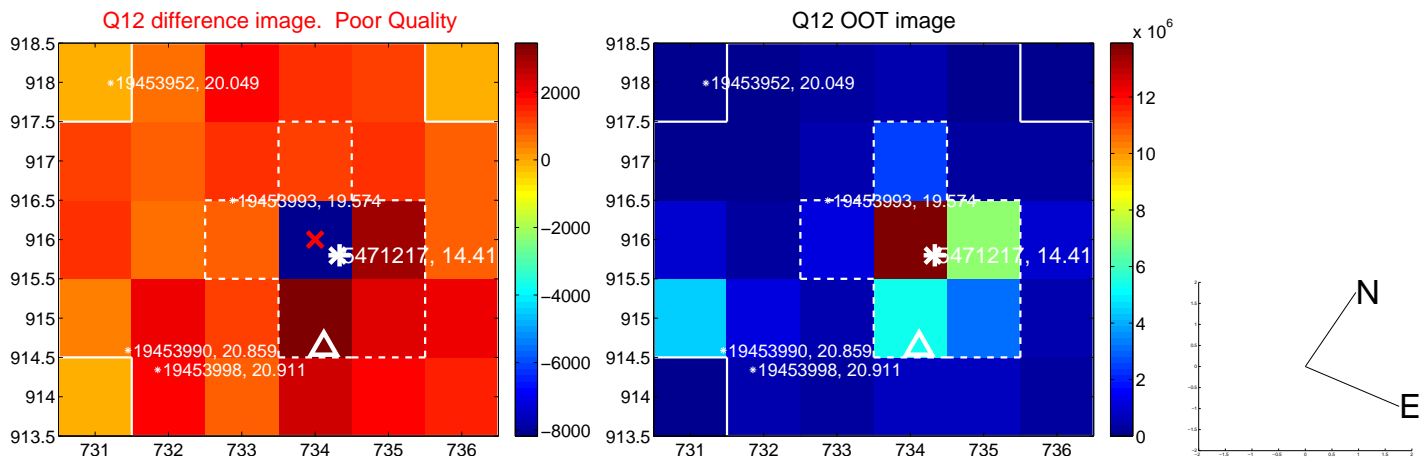
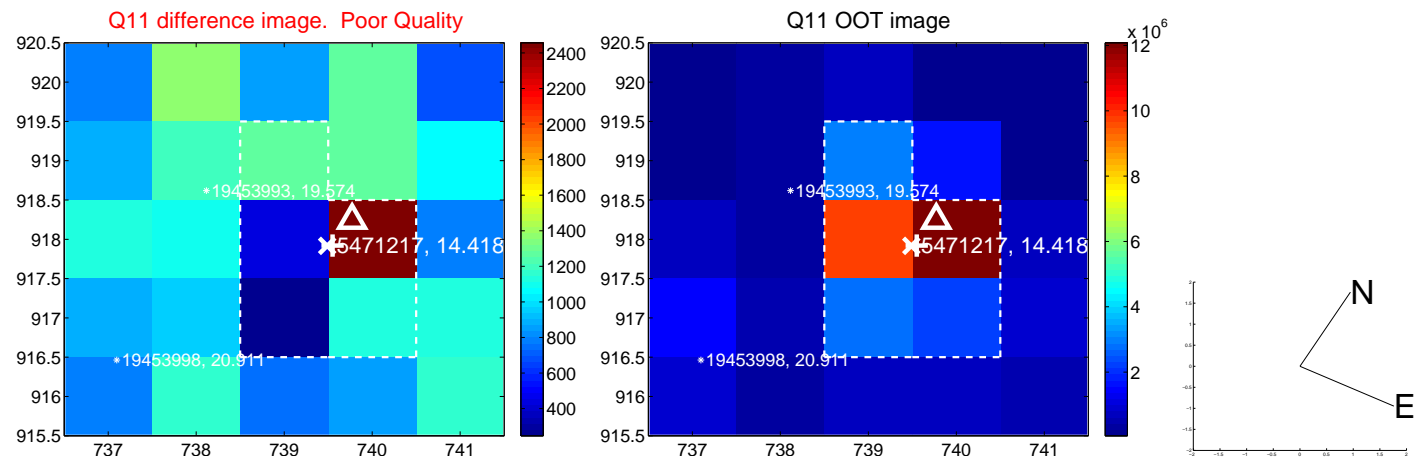
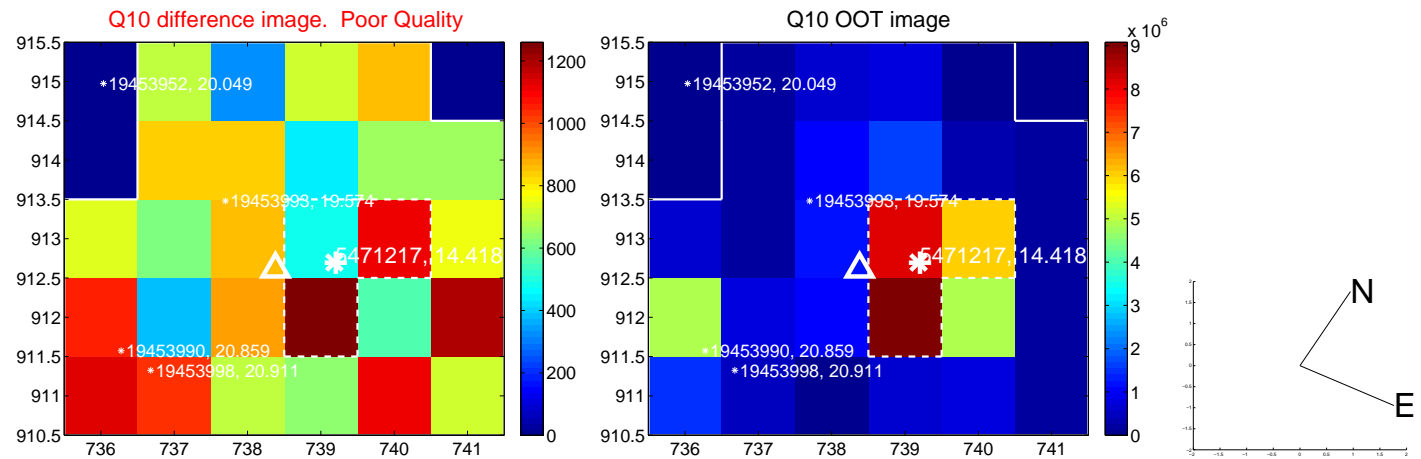
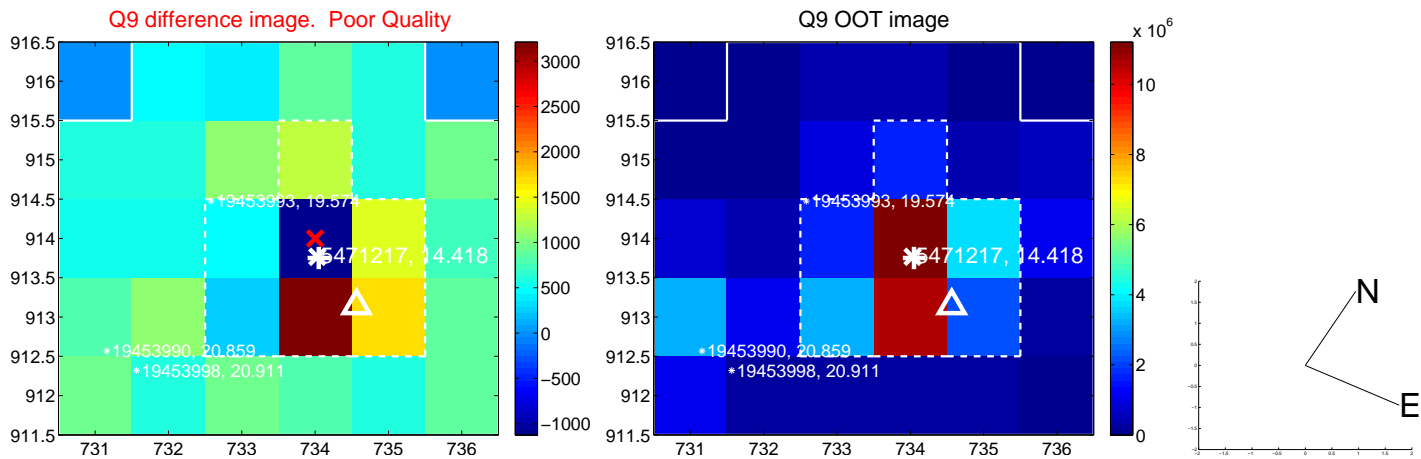
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



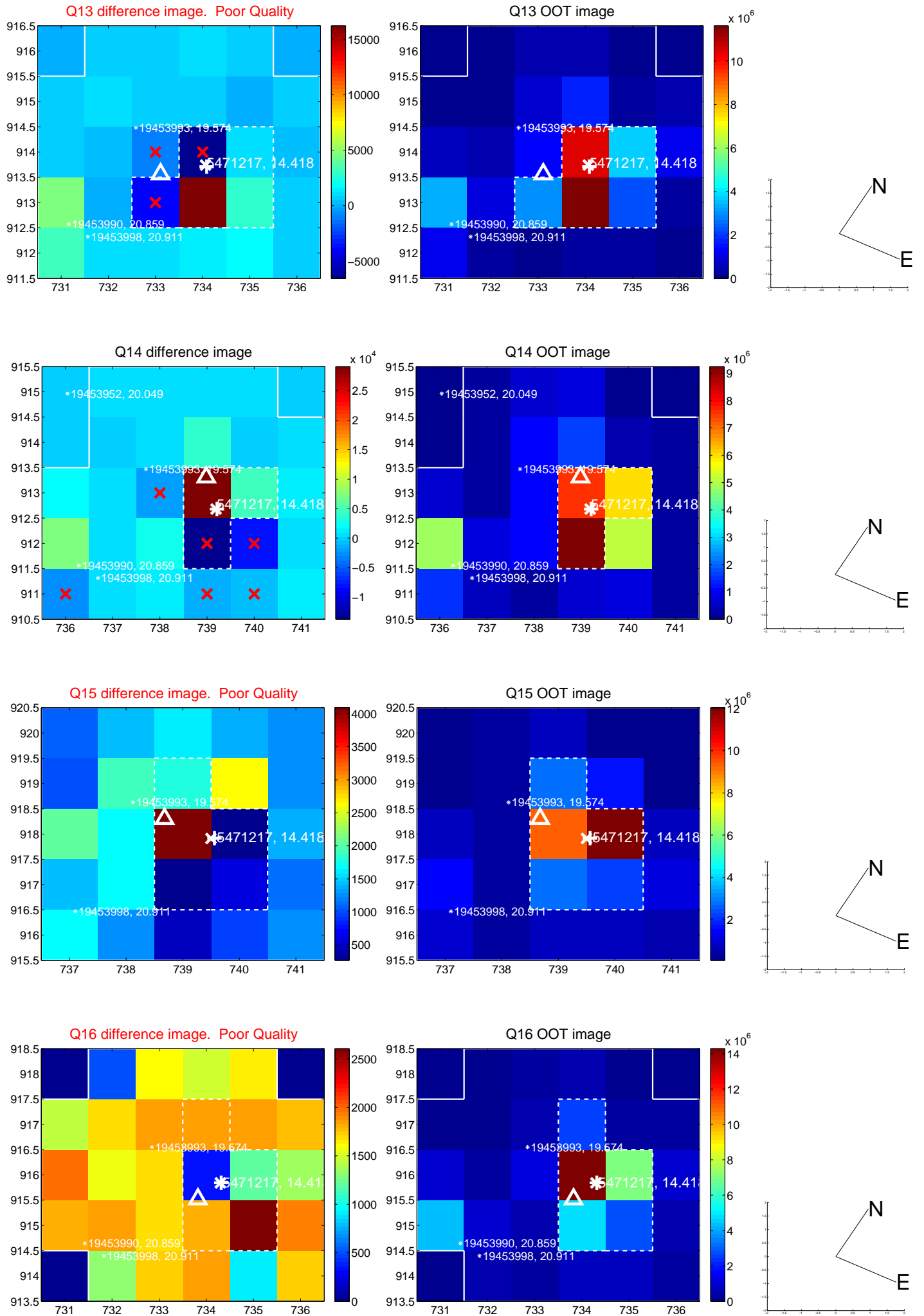
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



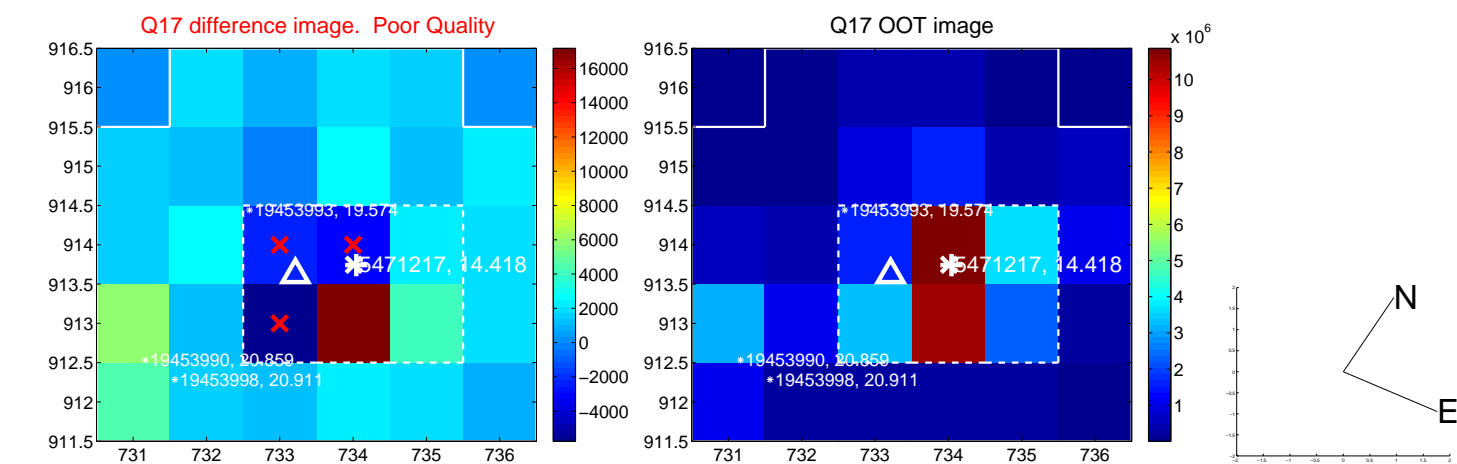
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



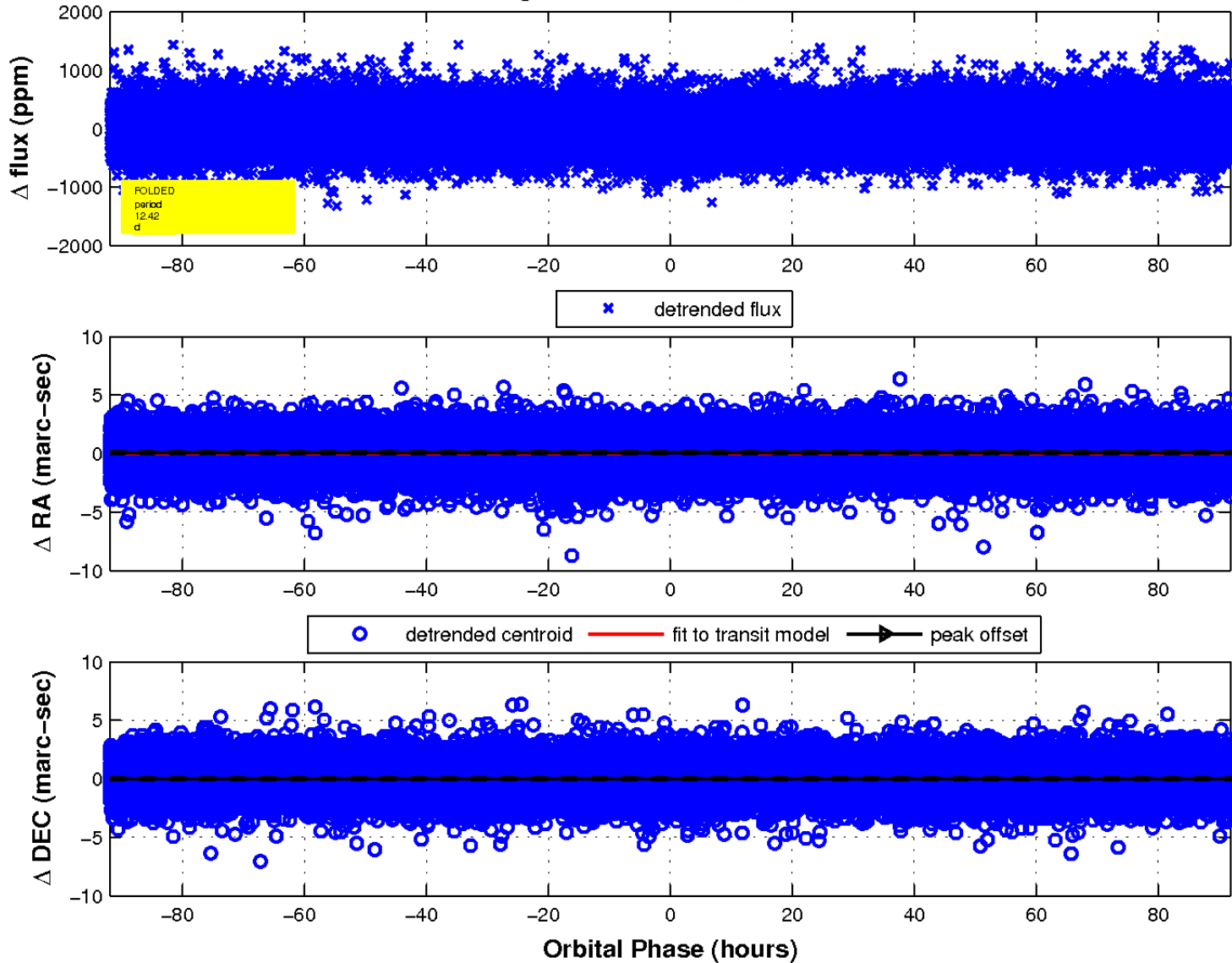
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

