

KIC 005471289

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})
005471289-01	OBS	3485.01	12.425984	141.496467	230.2	23.571	18.9	23.6	0.97	5952	1.93	92.45
005471289-02	OBS	No	12.426081	133.922799	198.3	25.094	17.5	24.2	0.97	5952	1.74	92.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471289-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471289-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—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.

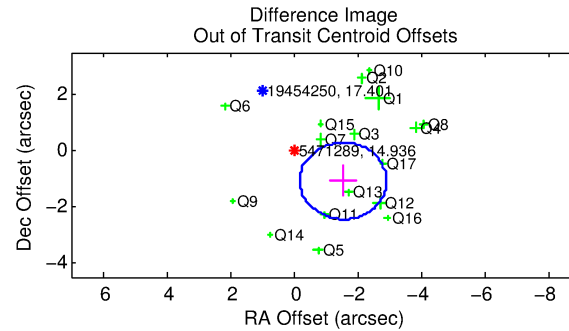
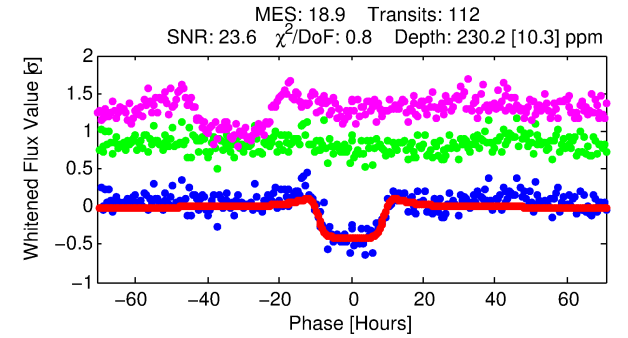
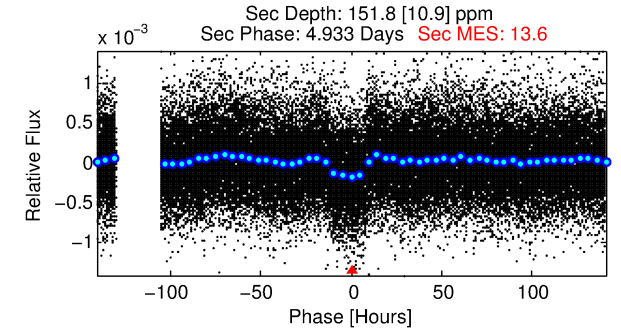
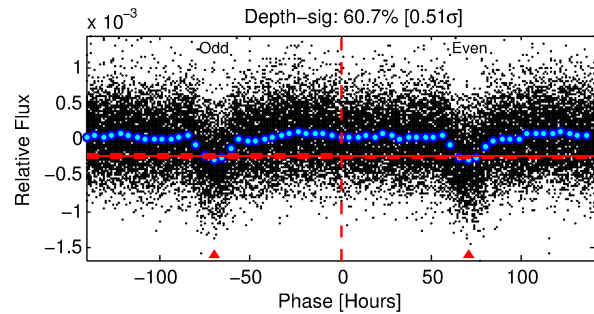
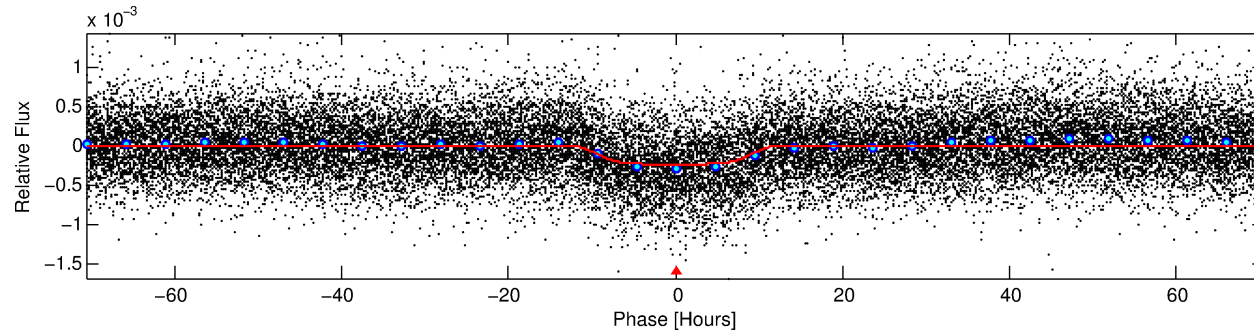
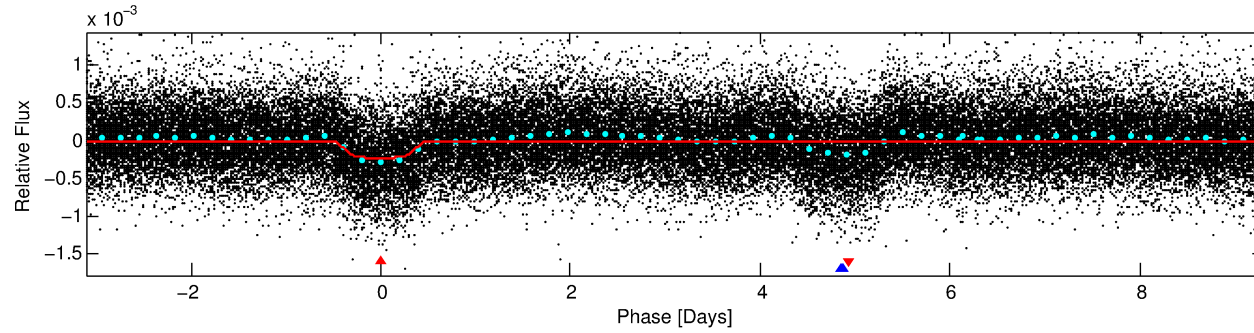
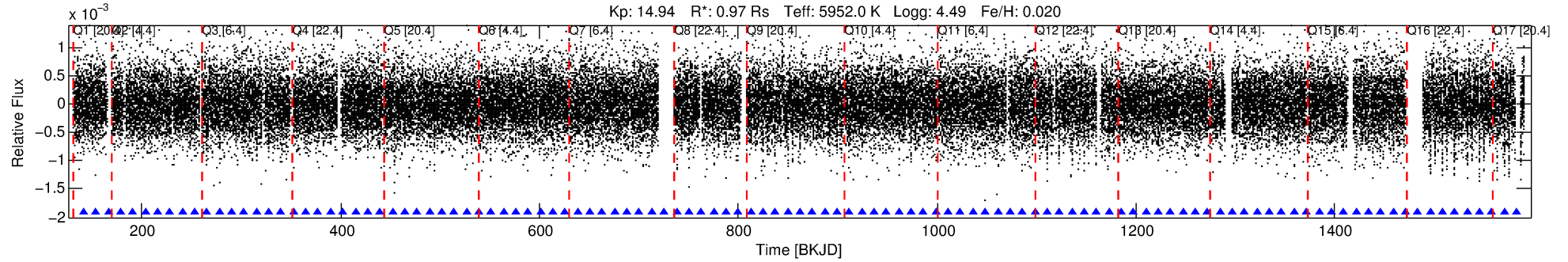
Ephemeris Match Information For 005471289-01

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
005471289-01	5471289	V380-Cyg-pri	5385723	1:1	220.1	55	-5	5.77	14.93	630.14	Direct-PRF	0	0.76	1.37

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: 5471289 Candidate: 1 of 2 Period: 12.426 d
KOI: K03485.01 Corr: 0.870



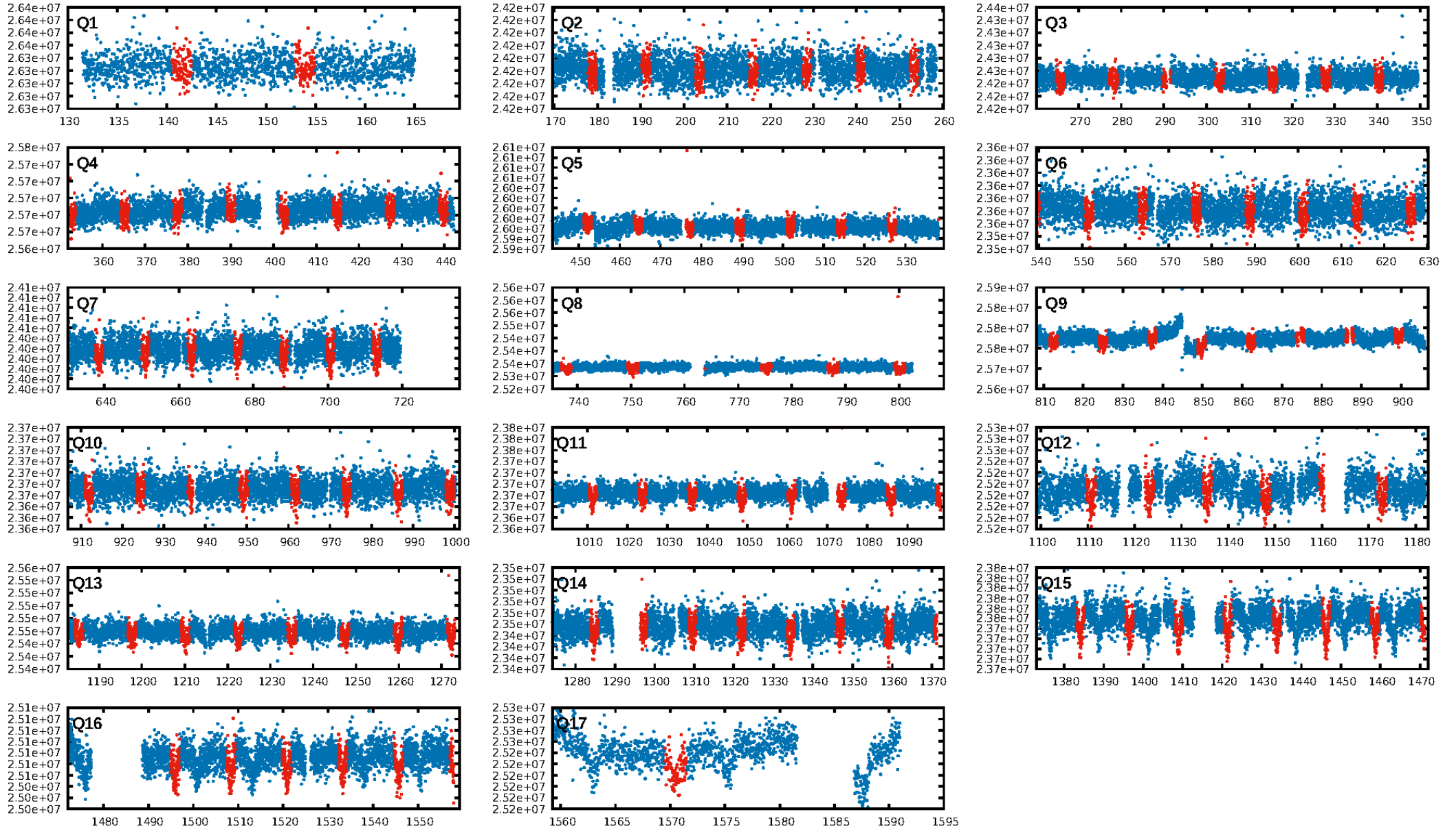
DV Fit Results:

Period = 12.42598 [0.00027] d
Epoch = 141.4965 [0.0173] BKJD
Rp/R* = 0.0182 [0.0006]
a/R* = 1.62 [0.09]
b = 0.97 [0.01]
Seff = 92.45 [37.74]
Teff = 791 [81] K
Rp = 1.93 [0.59] Re
a = 0.1071 [0.0277] AU
Ag = 258.19 [100.81] [2.55 σ]
Teffp = 4900 [219] K [17.60 σ]

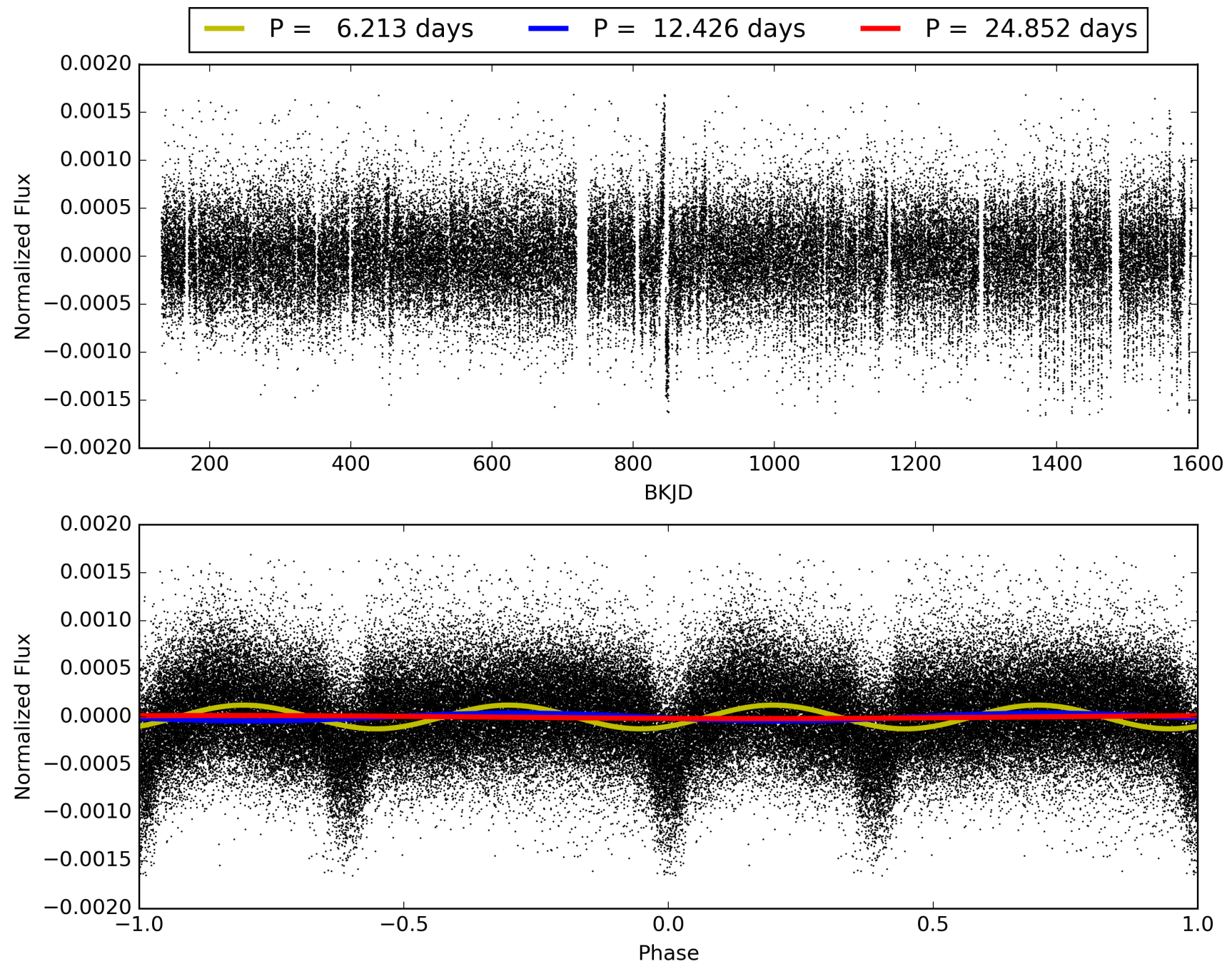
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 1.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.27e-87
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.06184
Centroid-sig: 0.0%
Centroid-so: 0.937 arcsec [2.04 σ]
OotOffset-rm: 1.893 arcsec [4.16 σ]
KicOffset-rm: 1.585 arcsec [3.28 σ]
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]

TCE 005471289-01, PDC Light Curves

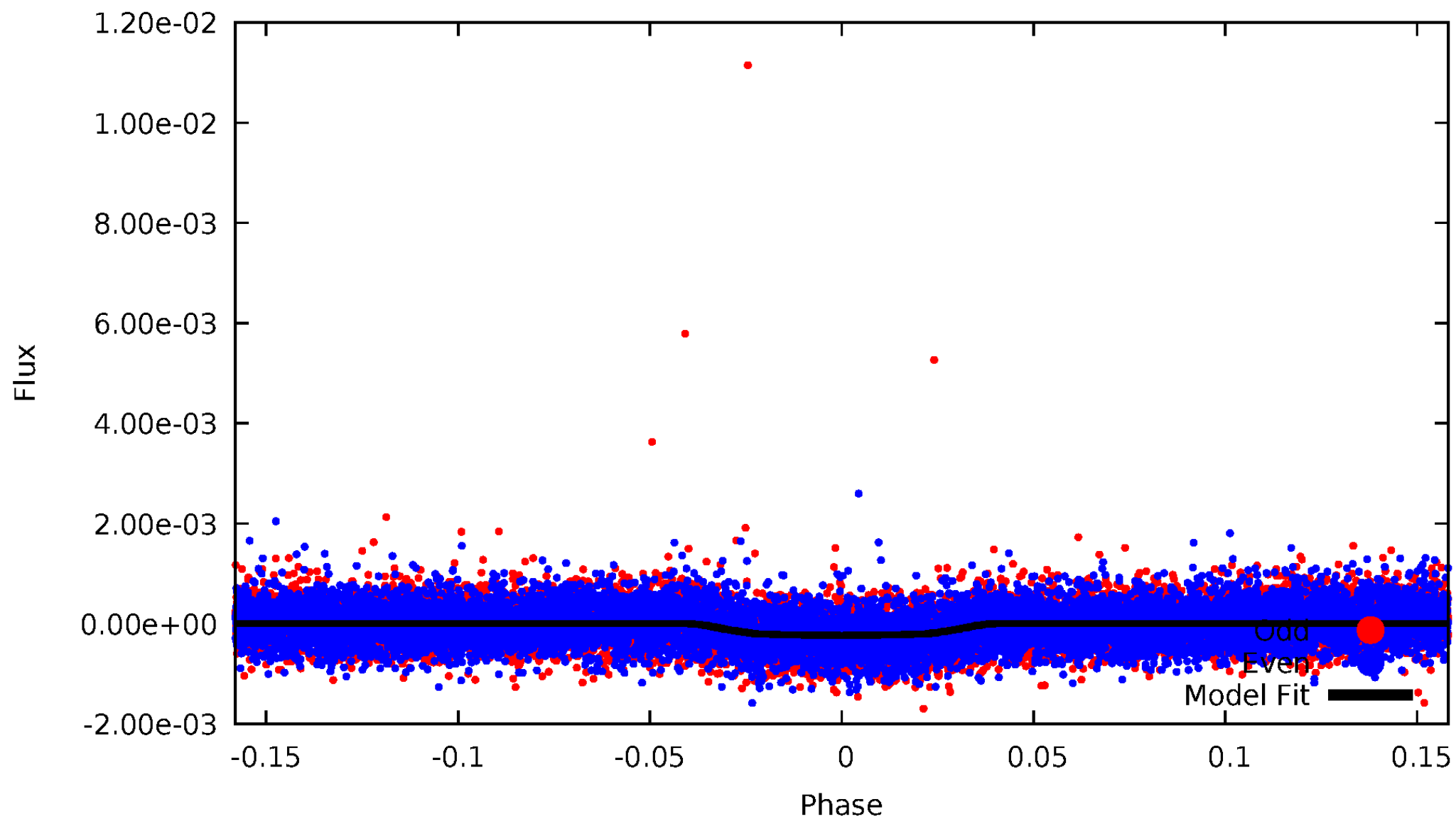


TCE 005471289-01



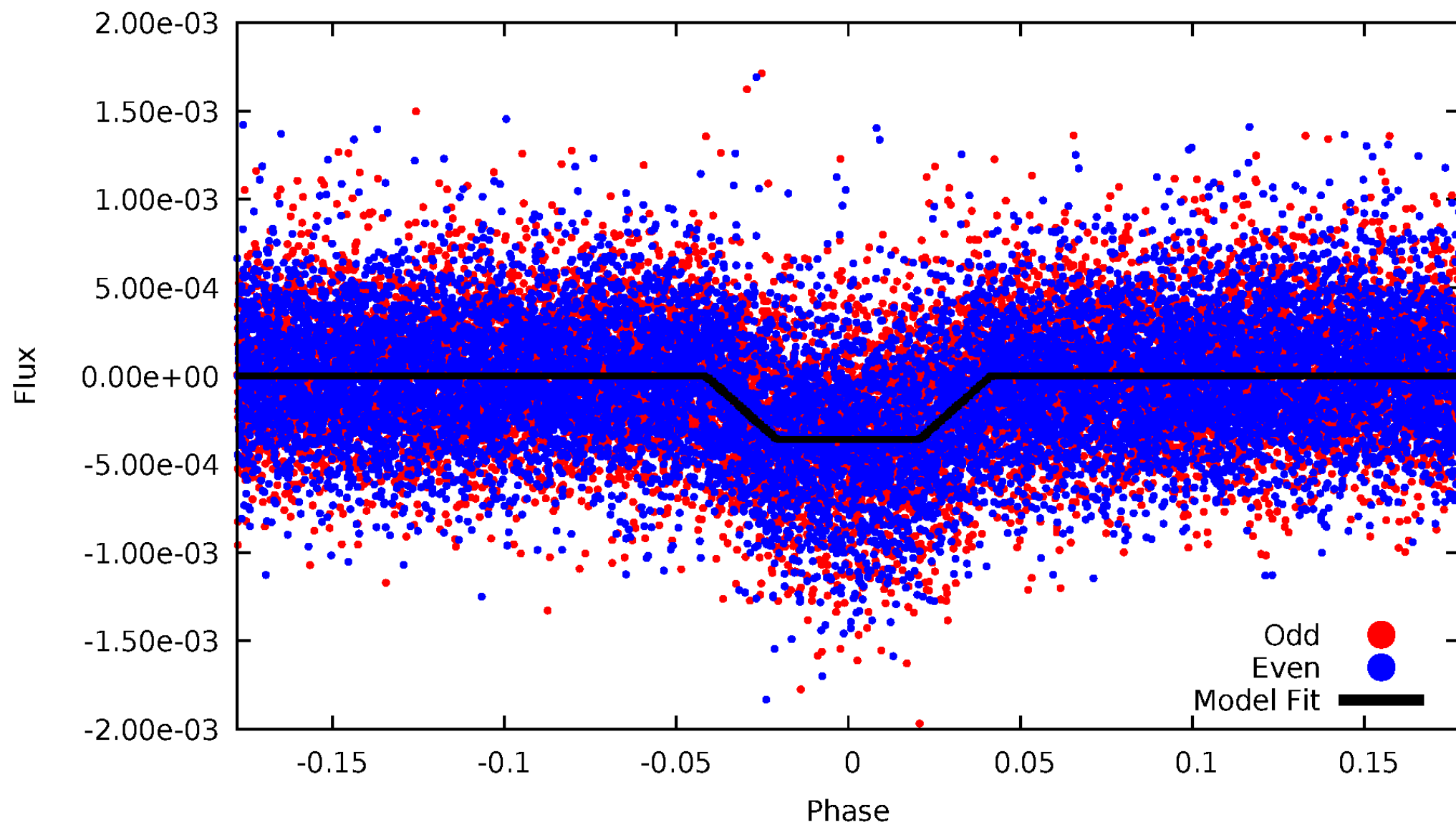
DV Odd/Even

TCE 005471289-01



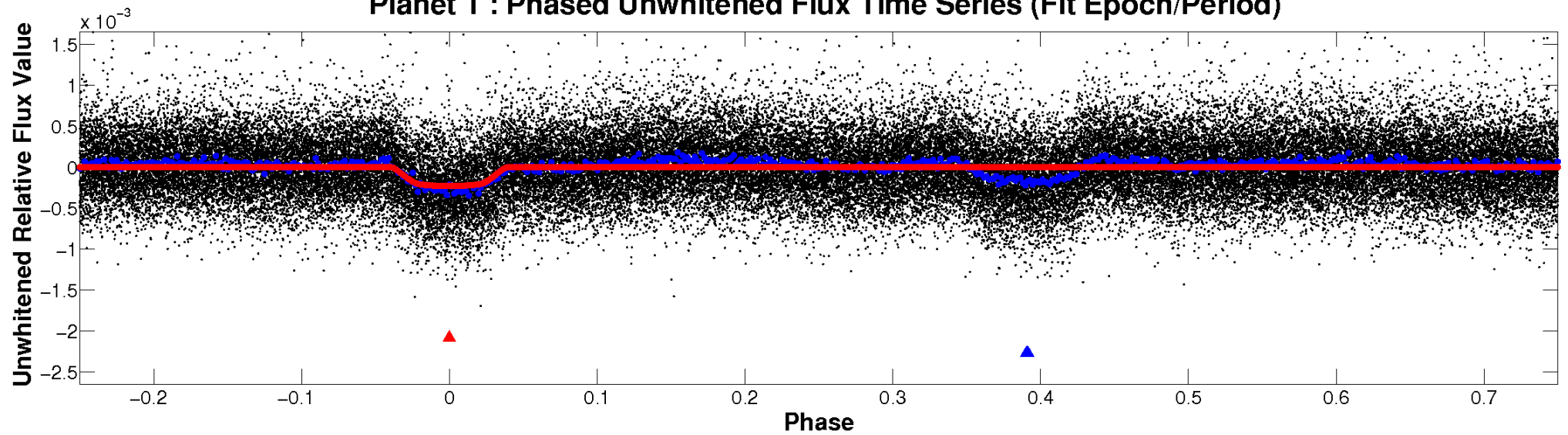
ALT Odd/Even

TCE 005471289-01

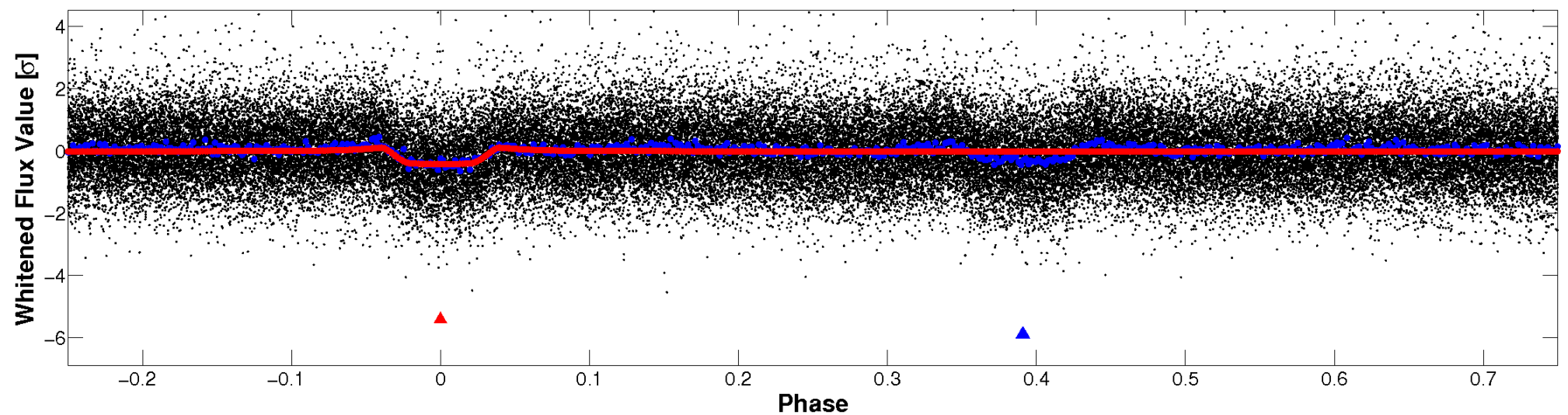


Non-Whitened Vs. Whitened Light Curve

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

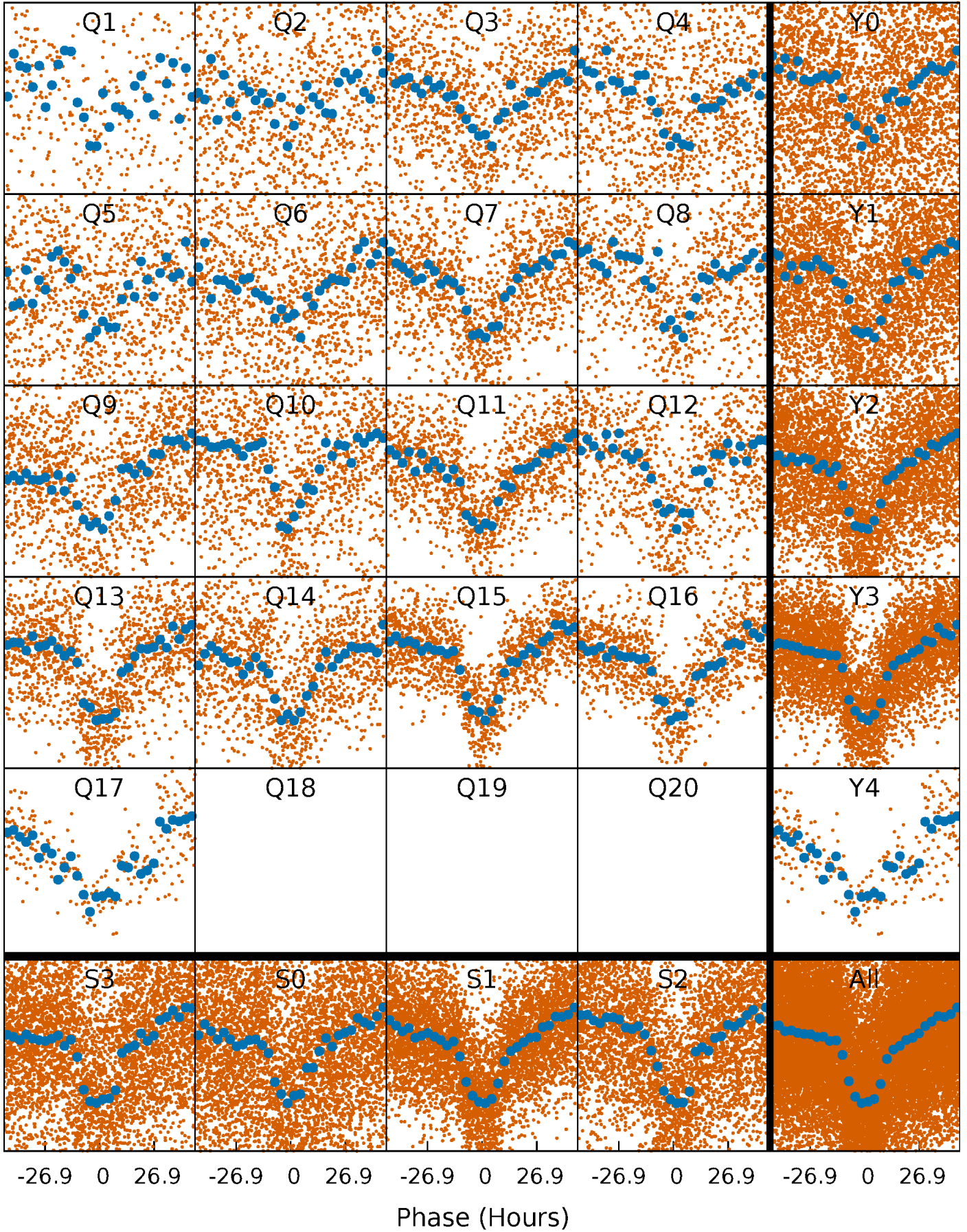


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



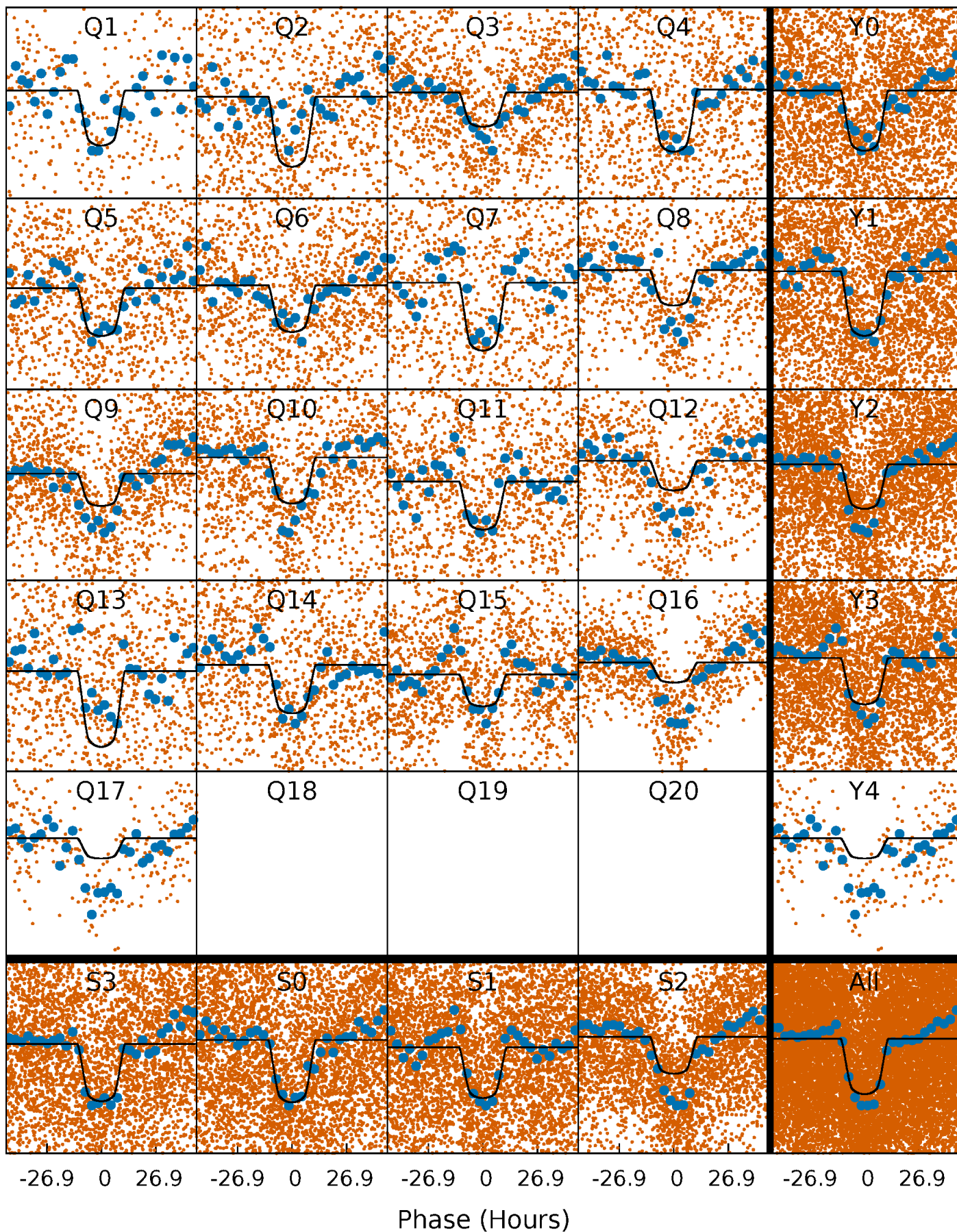
PDC Quarter-Phased Transit Curves

TCE 005471289-01 P= 12.425984 Days $T_0=141.496467$ (BKJD)



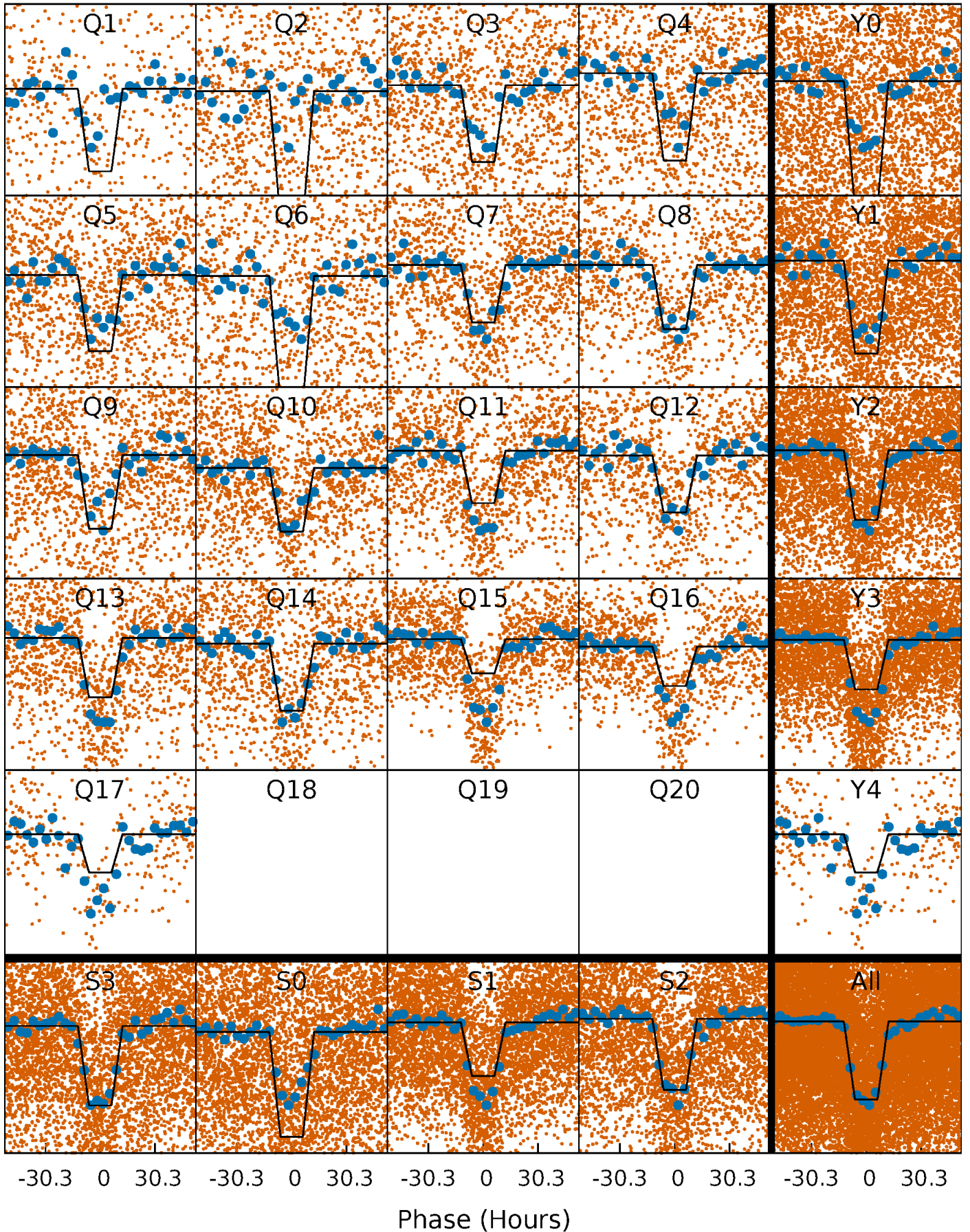
DV Quarter-Phased Transit Curves

TCE 005471289-01 P= 12.425984 Days $T_0=141.496467$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

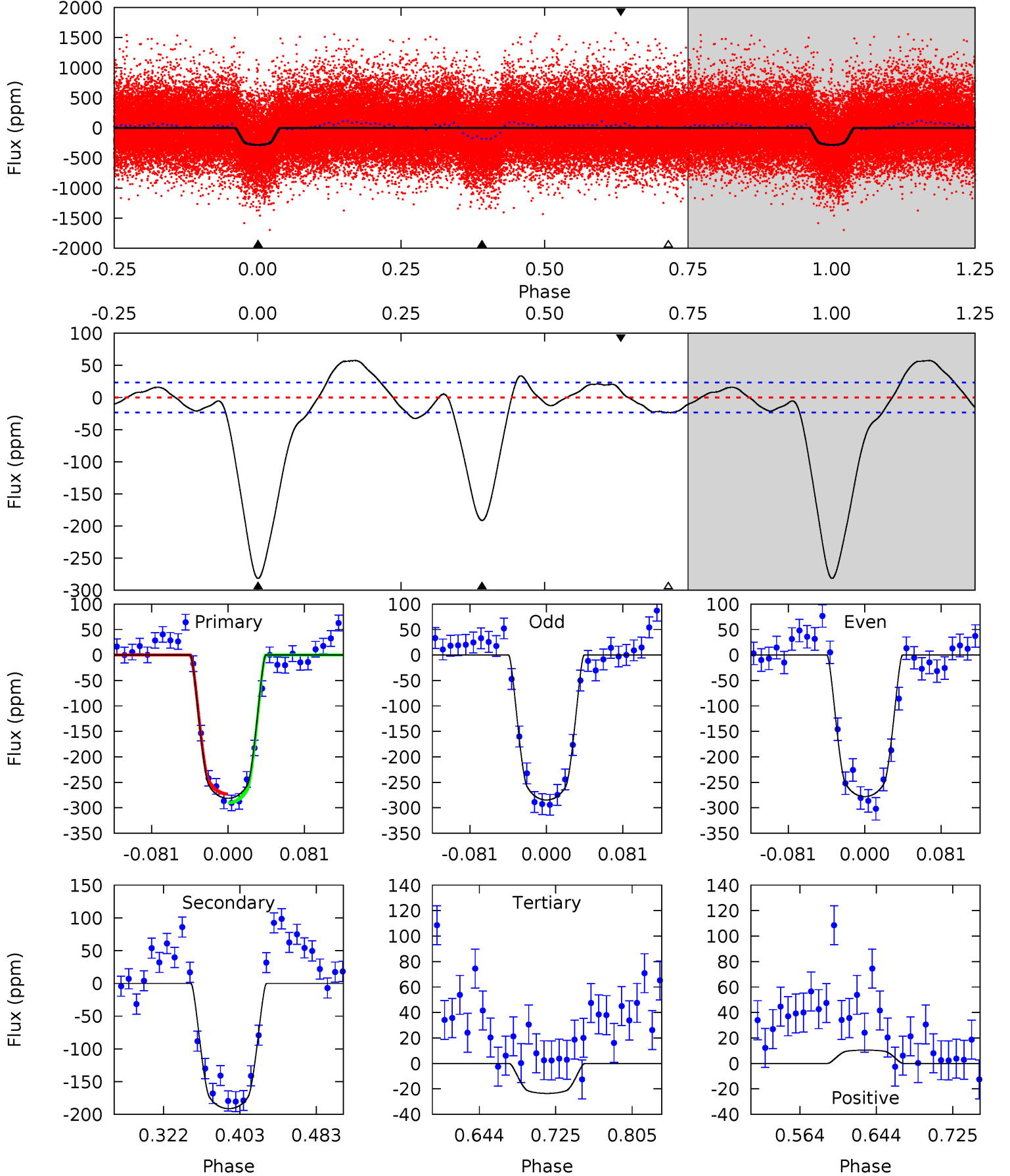
TCE 005471289-01 P= 12.425672 Days $T_0=141.526977$ (BKJD)



DV Model-Shift Uniqueness Test

005471289-01, P = 12.425984 Days, E = 129.070483 Days

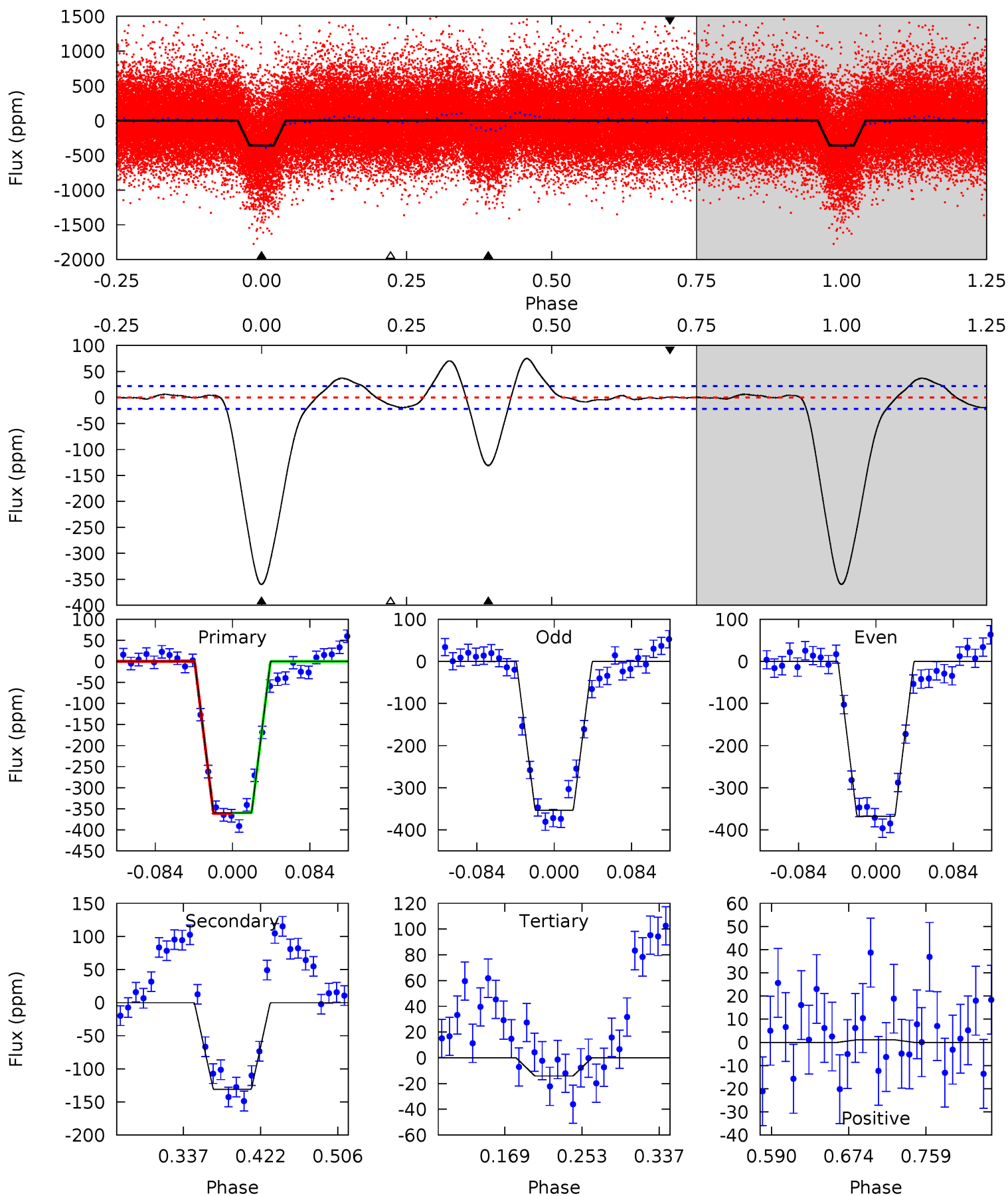
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.7	37.8	4.66	2.08	4.61	1.75	4.46	51.0	53.6	33.2	35.8	0.66	1.07	0.17	1.70



Alt Model-Shift Uniqueness Test

005471289-01, P = 12.425672 Days, E = 129.101305 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
75.3	27.4	2.96	0.23	4.60	1.73	2.90	72.3	75.1	24.4	27.2	1.47	1.02	0.17	0.13



Stellar Parameters For KIC 005471289

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5952^{+184}_{-226}	$4.489^{+0.052}_{-0.208}$	$0.020^{+0.250}_{-0.300}$	$0.971^{+0.297}_{-0.099}$	$1.057^{+0.124}_{-0.138}$	$1.629^{+0.443}_{-0.835}$
	+3%/-4%	+1%/-5%	+1250%/-1500%	+31%/-10%	+12%/-13%	+27%/-51%
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 005471289-01 / KOI 3485.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-191 ± 5	$1.97^{+0.33}_{-0.17}$	1126^{+87}_{-60}	5237^{+178}_{-209}	303^{+51}_{-74}
Alt.	-131 ± 5	$2.06^{+0.30}_{-0.18}$	1125^{+82}_{-53}	4753^{+148}_{-162}	190^{+31}_{-44}

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 $A_{obs} \gg 1.0$

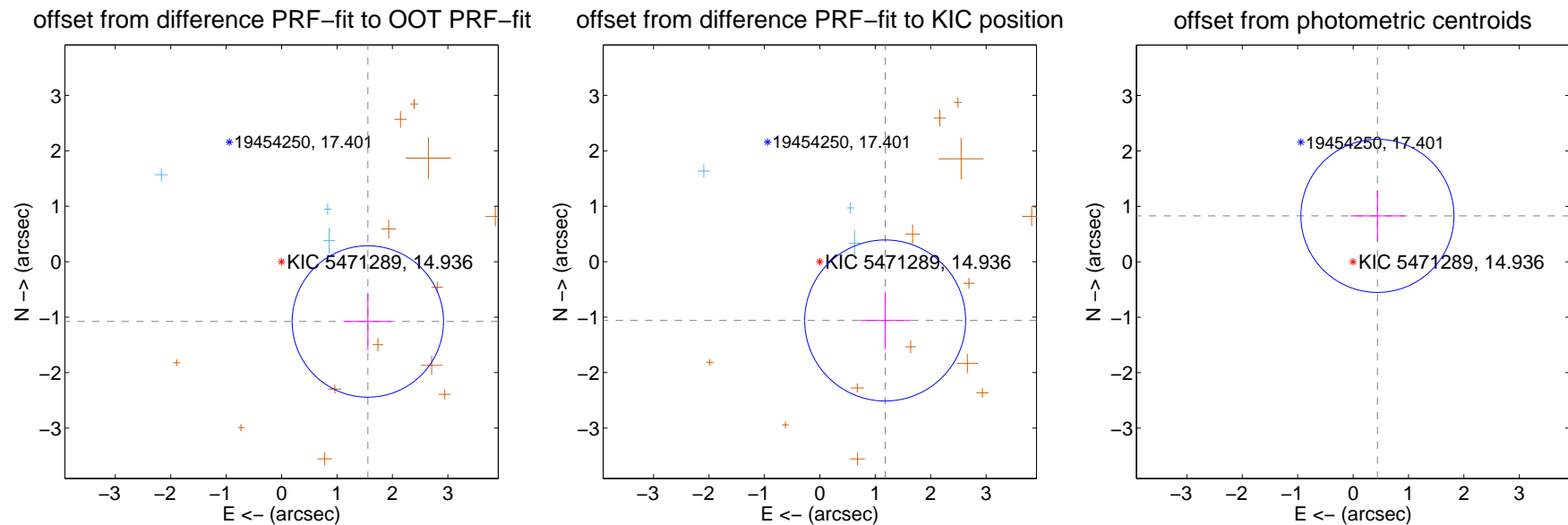
DV Centroid Data

Supplemental centroid analysis for 005471289-01. Kepler magnitude: 14.94. Transit SNR 23.59

There are 3 quarters with good PRF difference image offsets

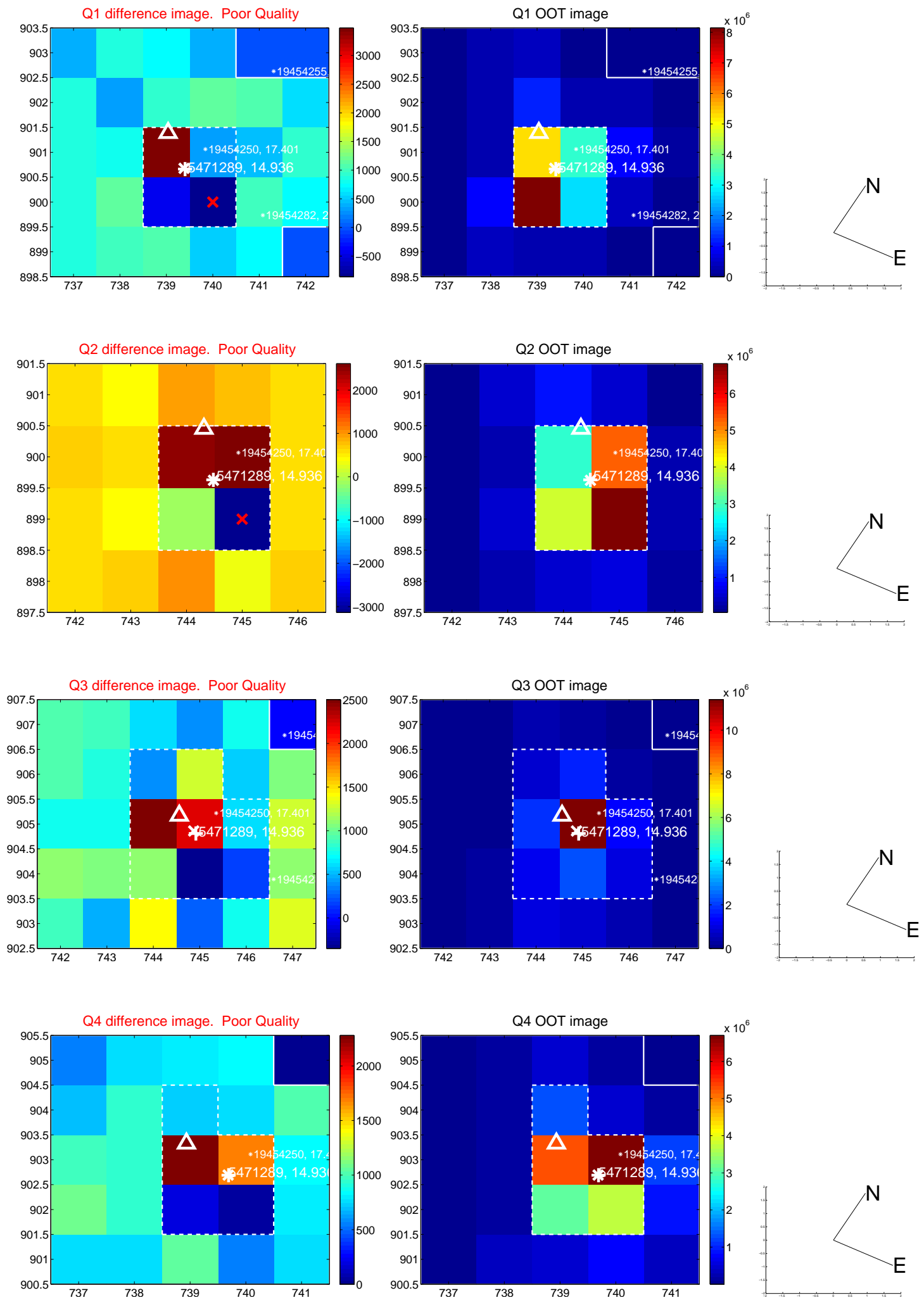
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.893 ± 0.455	4.16	-1.556 ± 0.423	-1.078 ± 0.516
PRF-fit source offset from KIC position	1.585 ± 0.484	3.28	-1.179 ± 0.455	-1.060 ± 0.517
photometric centroid source offset	0.94 ± 0.46	2.04	-0.44 ± 0.49	0.83 ± 0.45

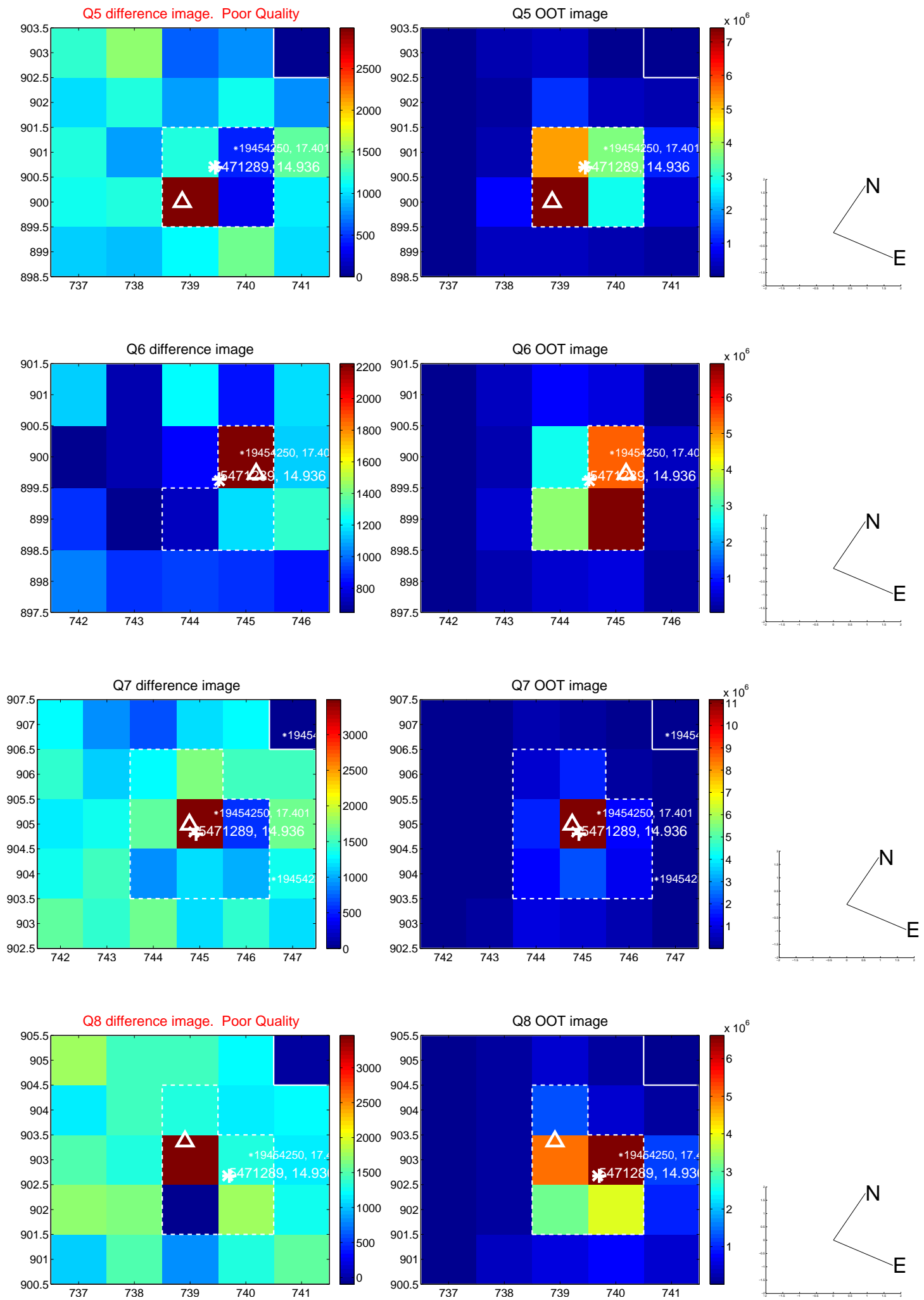


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

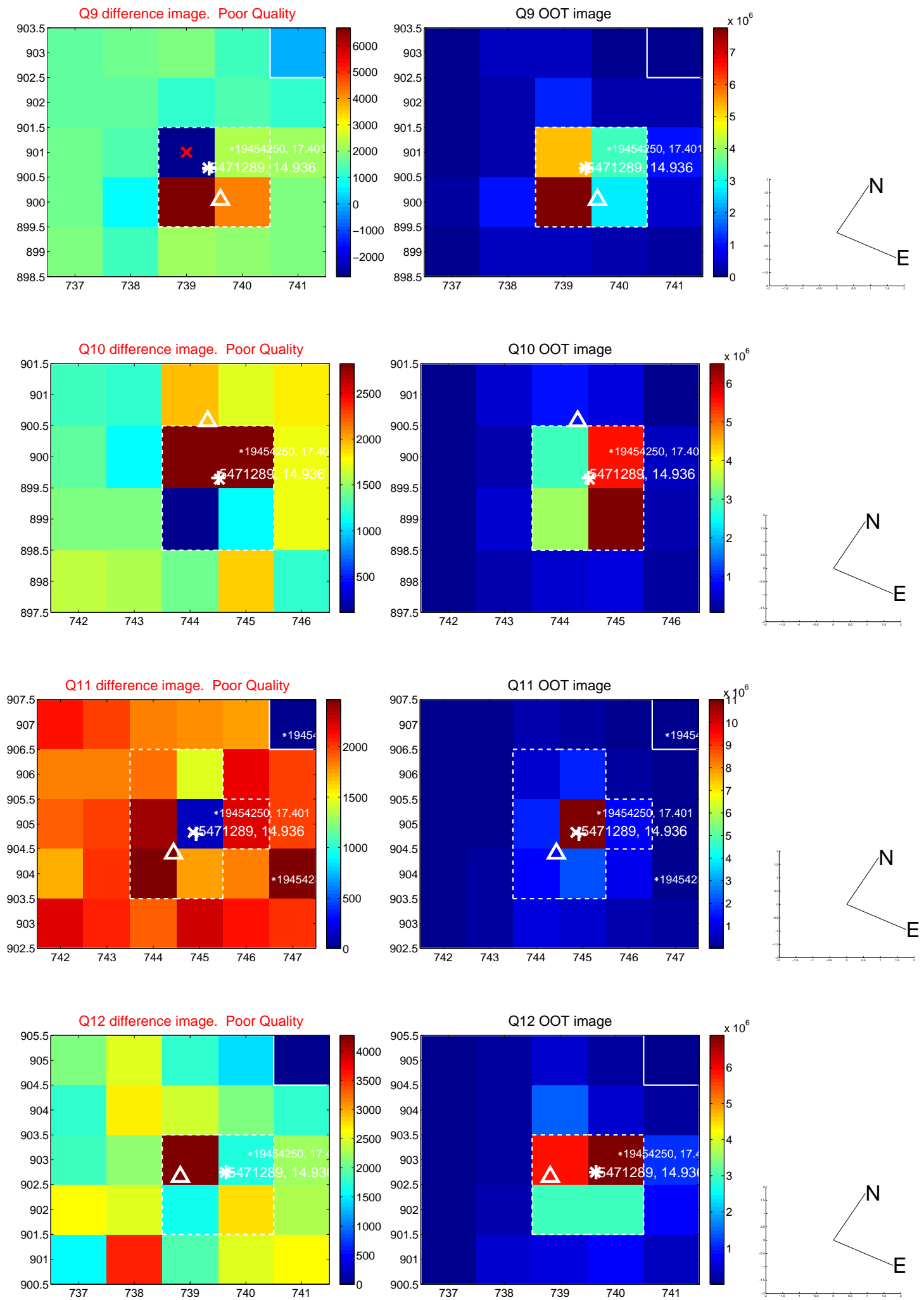
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



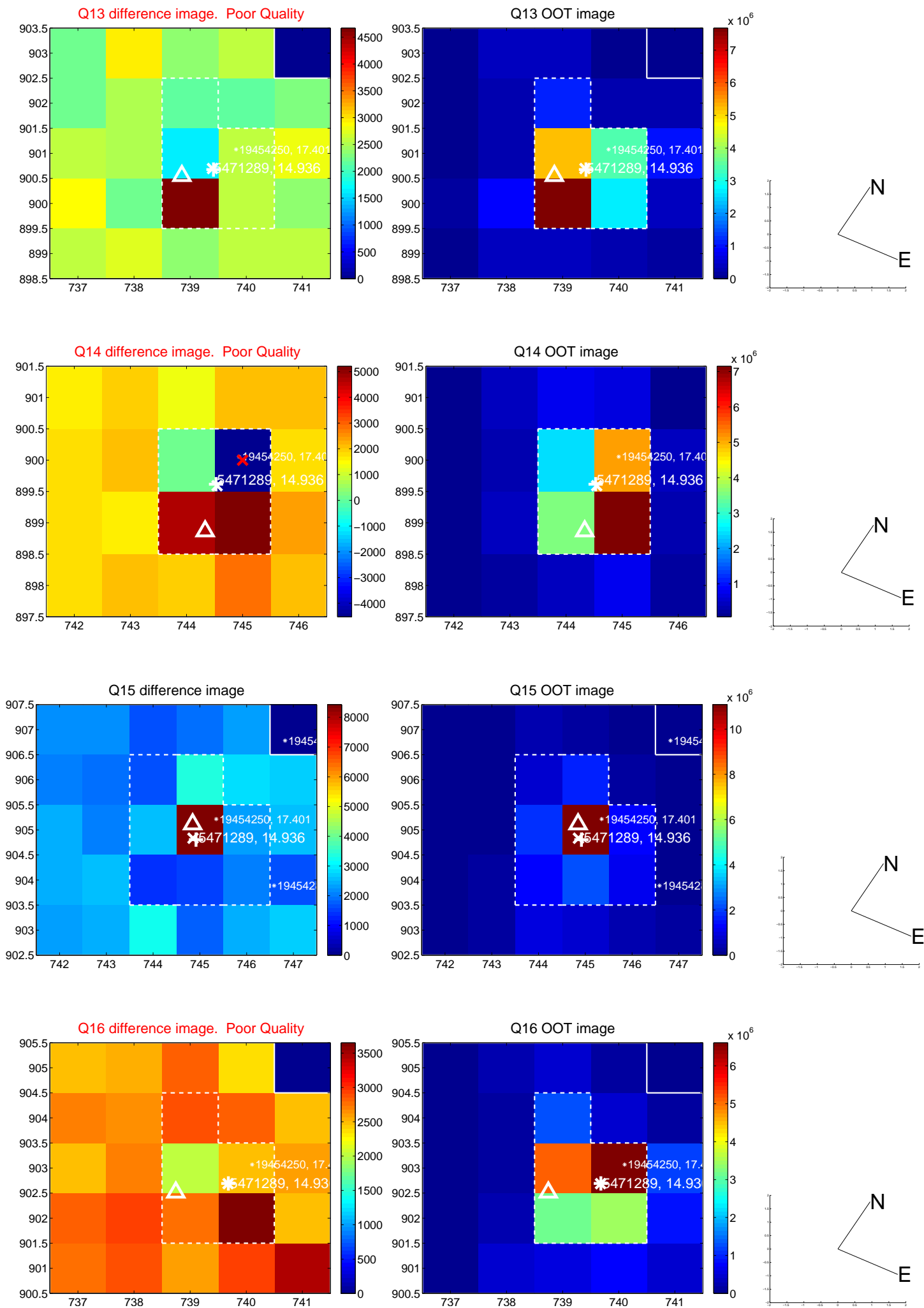
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



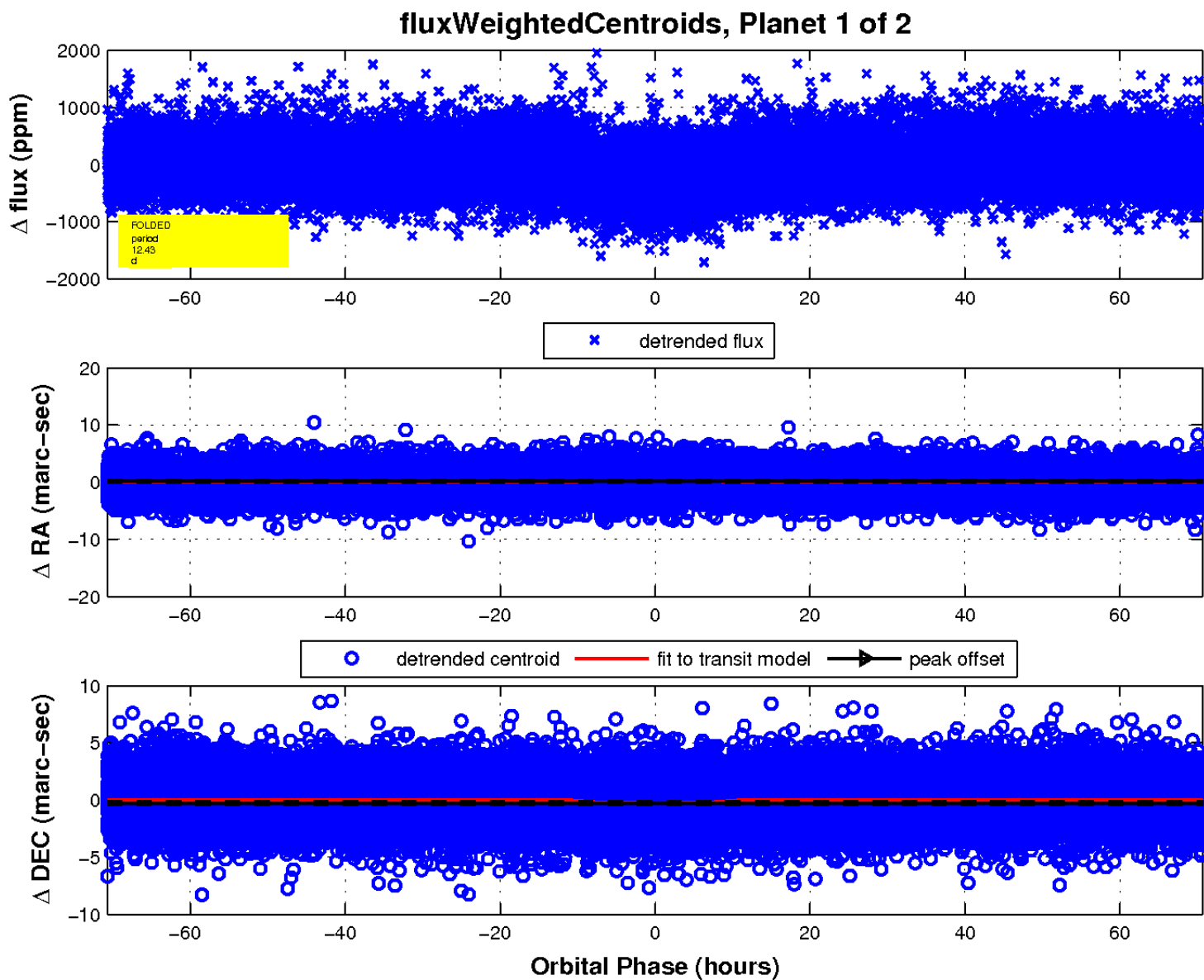
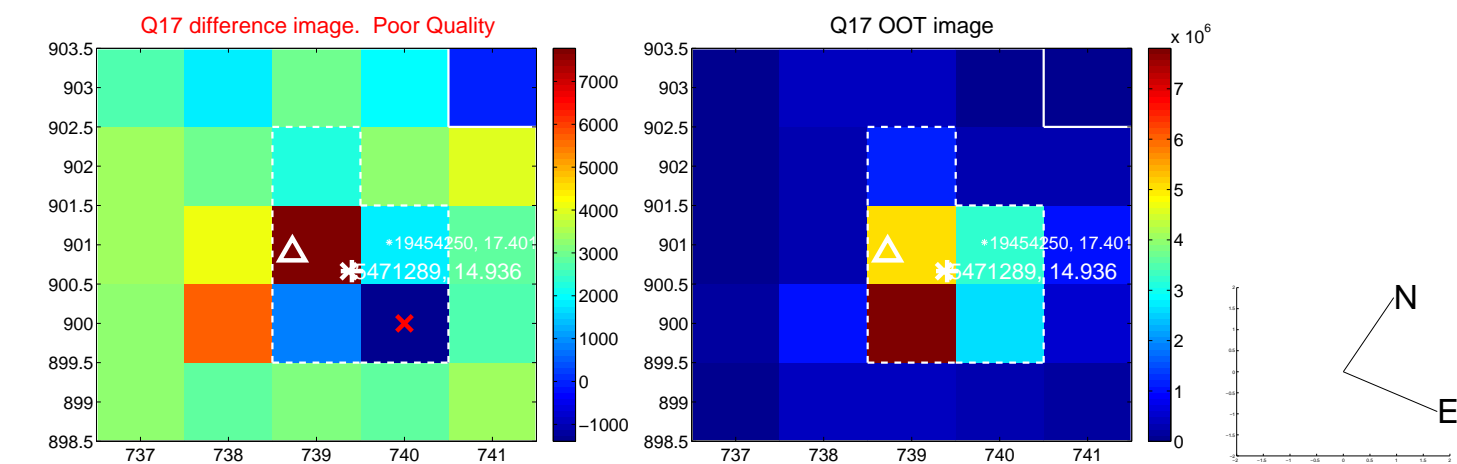
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

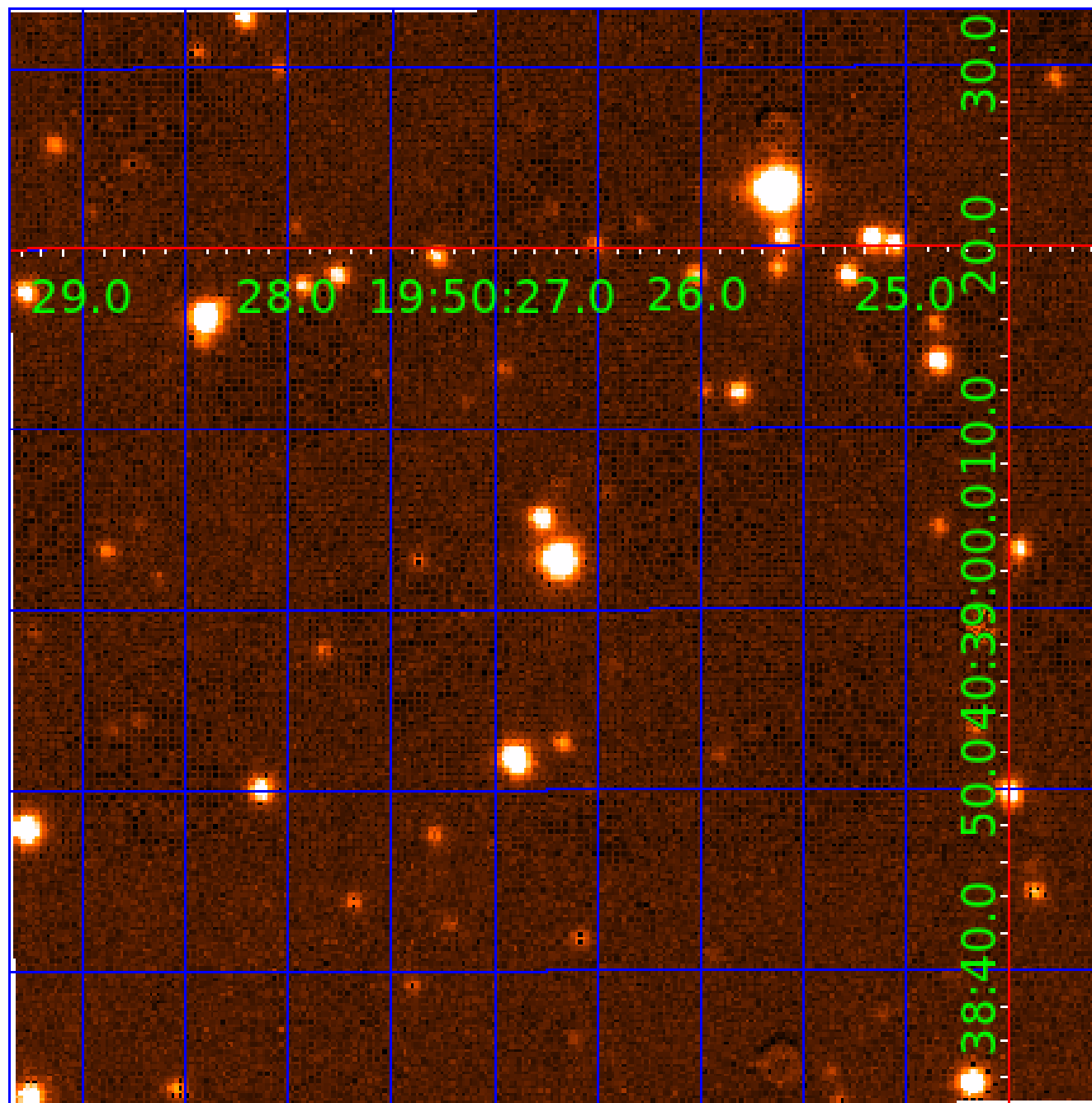


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005471289

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})
005471289-01	OBS	3485.01	12.425984	141.496467	230.2	23.571	18.9	23.6	0.97	5952	1.93	92.45
005471289-02	OBS	No	12.426081	133.922799	198.3	25.094	17.5	24.2	0.97	5952	1.74	92.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471289-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005471289-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—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 005471289-02

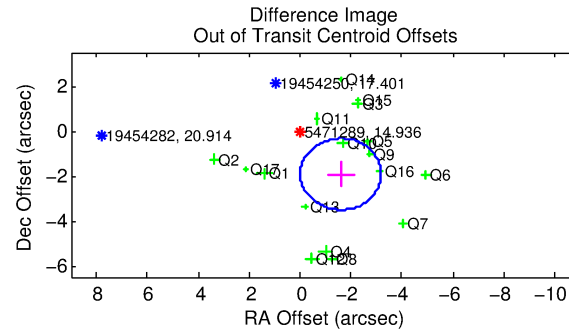
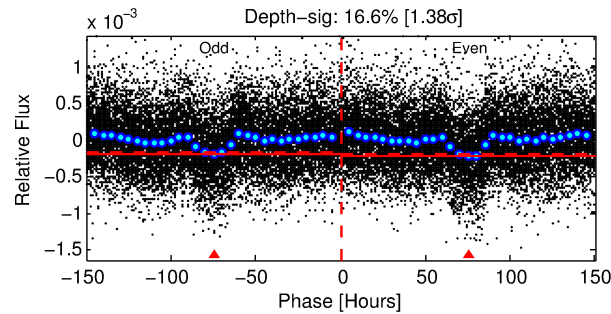
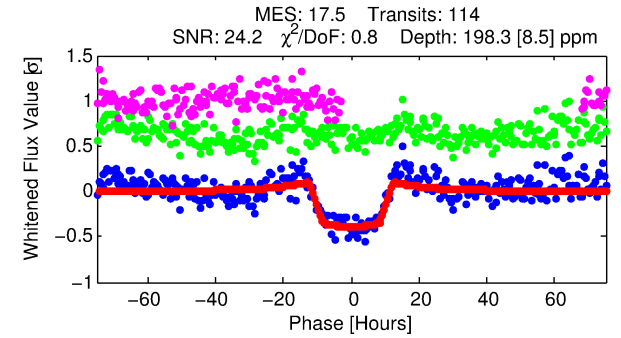
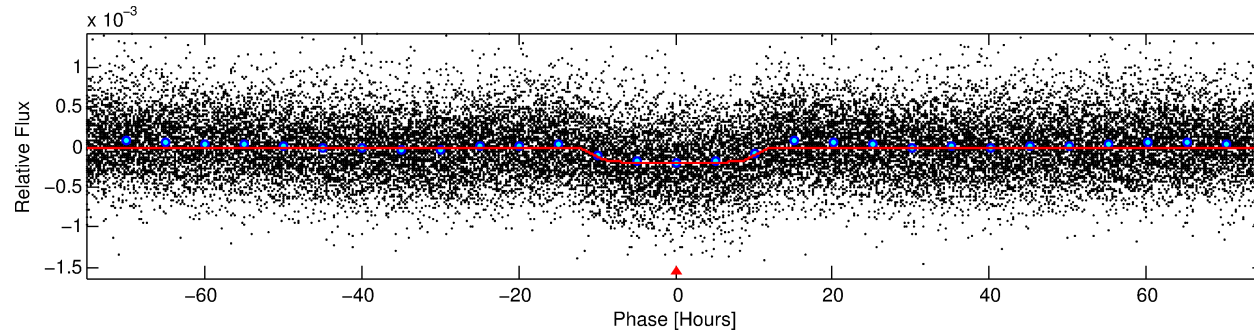
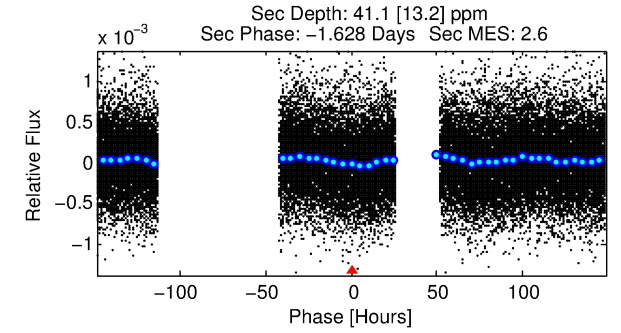
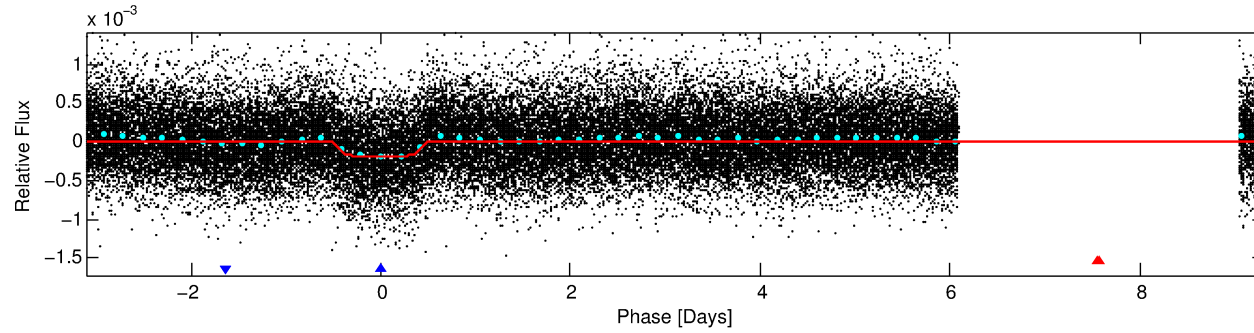
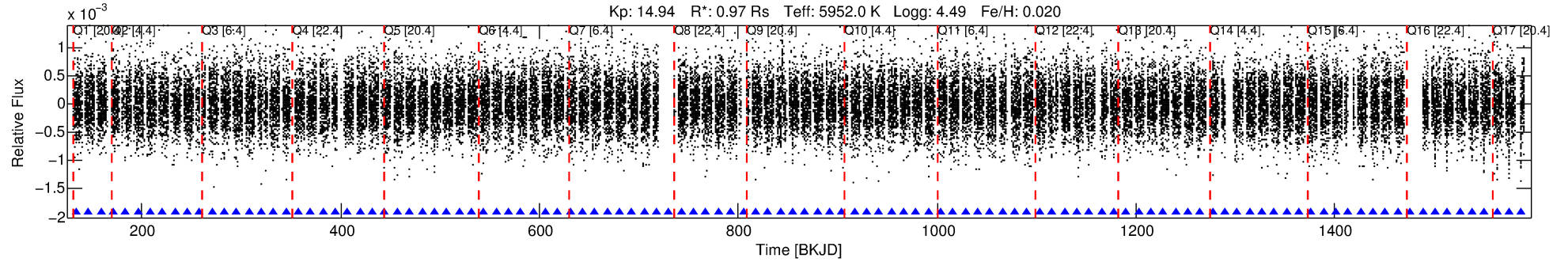
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471289-02	5471289	V380-Cyg-sec	5385723	1:1	220.1	55	-5	5.77	14.93	651.70	Direct-PRF	0	1.71	0.70

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: 5471289 Candidate: 2 of 2 Period: 12.426 d

KOI: K03485 Corr: No Ephemeris Match



DV Fit Results:

Period = 12.42608 [0.00027] d
Epoch = 133.9228 [0.0171] BKJD
Rp/R* = 0.0164 [0.0006]
a/R* = 1.65 [0.13]
b = 0.95 [0.01]
Seff = 92.45 [37.74]
Teq = 791 [81] K
Rp = 1.73 [0.53] Re
a = 0.1071 [0.0277] AU
Ag = 86.15 [43.25] [1.97σ]
Teffp = 3724 [338] K [8.45σ]

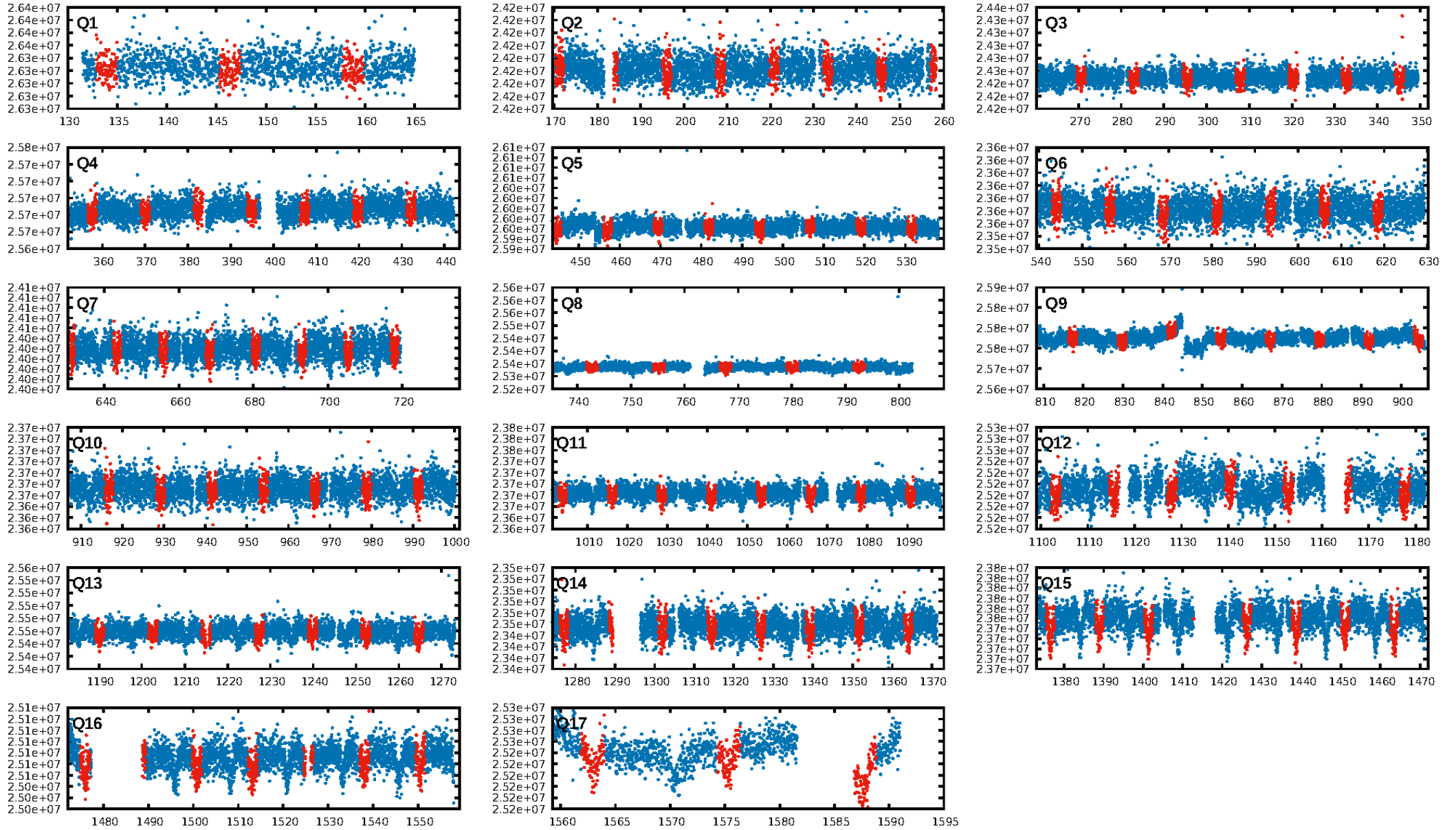
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 25.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.29e-75
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: 0.04033
Centroid-sig: 0.0%
Centroid-so: 0.824 arcsec [1.71σ]
OotOffset-rm: 2.498 arcsec [4.71σ]
KicOffset-rm: 2.566 arcsec [5.01σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.06 [1/17]
DiffImageOverlap-fno: 1.00 [17/17]

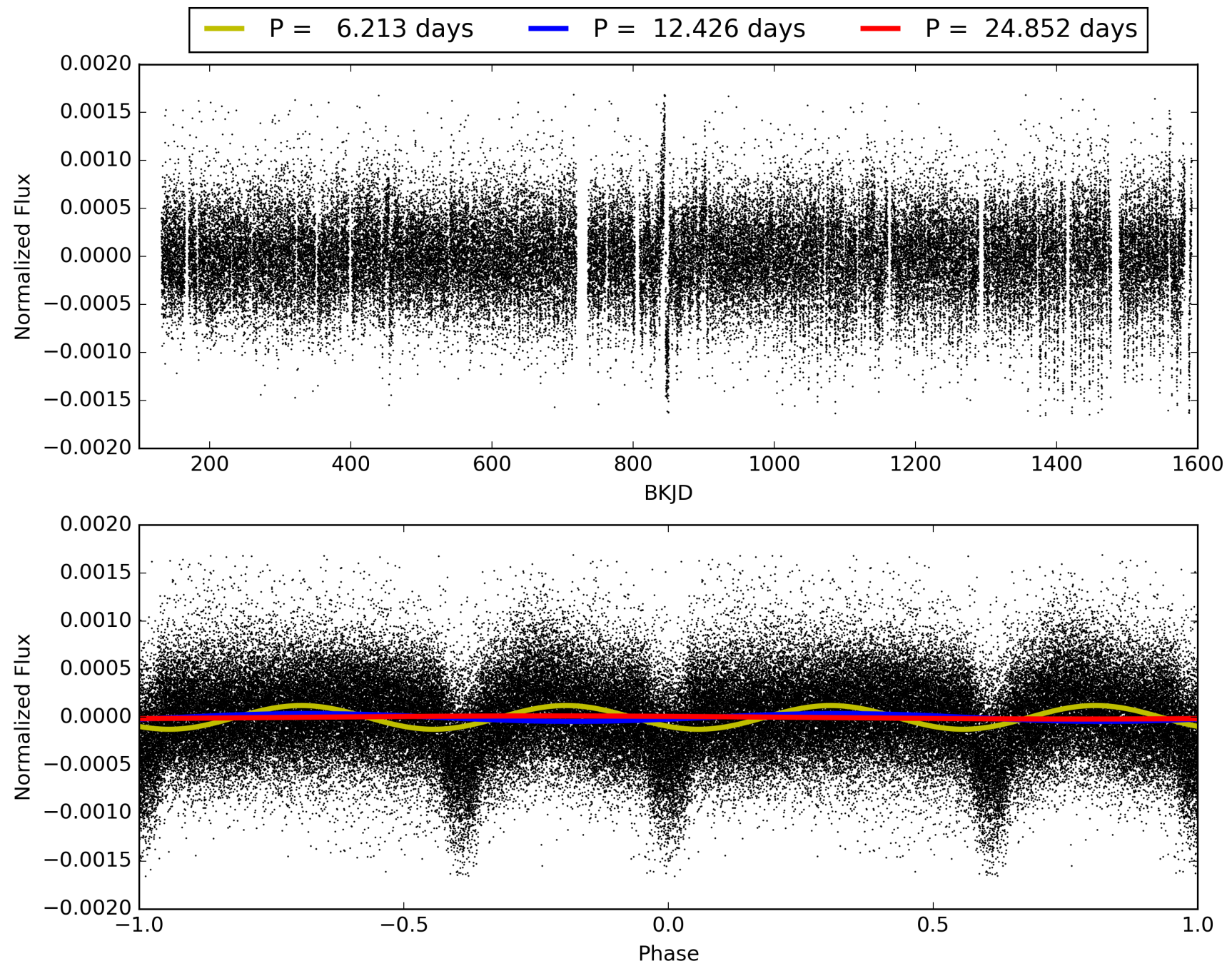
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:46:08 Z

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

TCE 005471289-02, PDC Light Curves

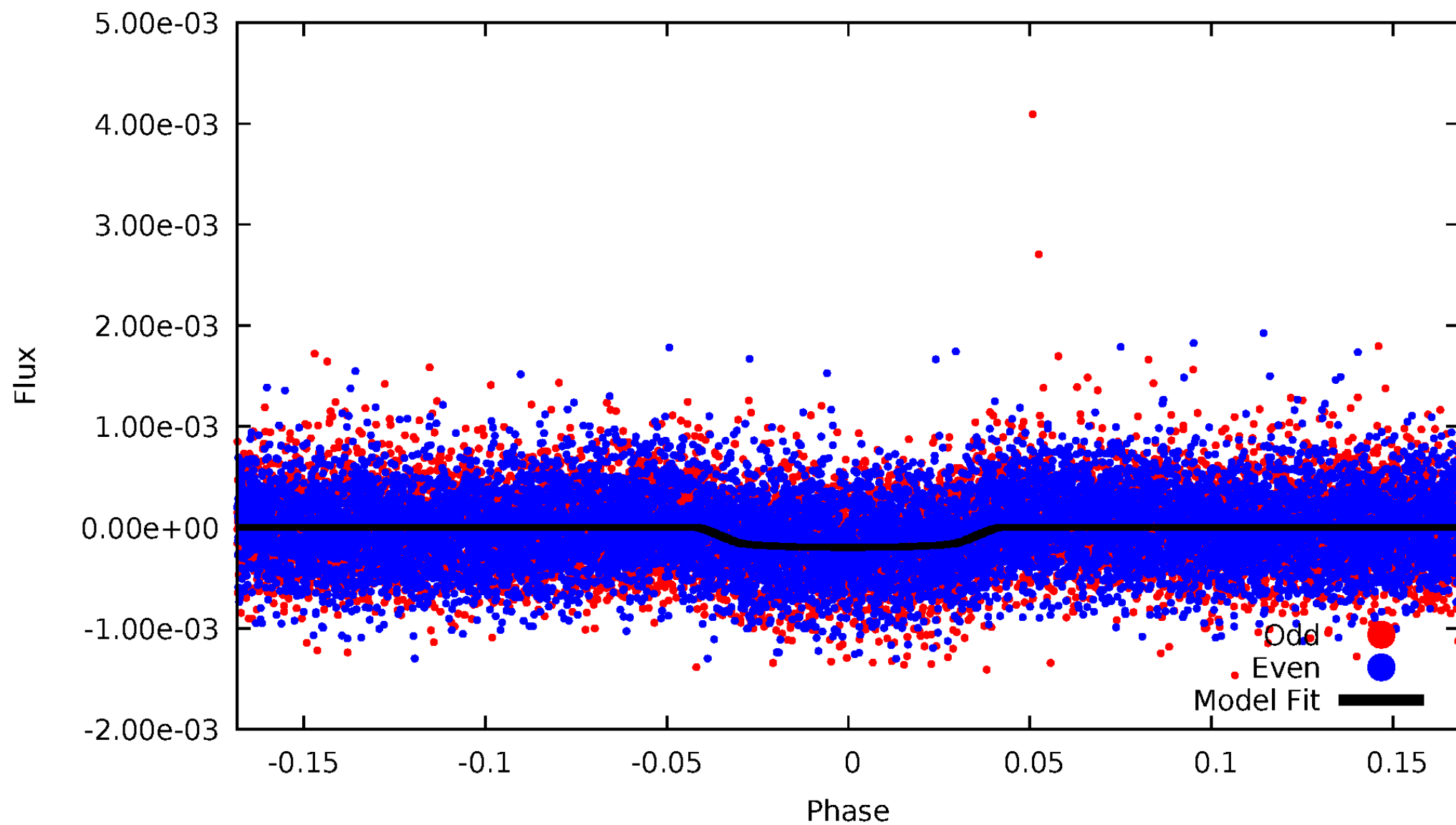


TCE 005471289-02



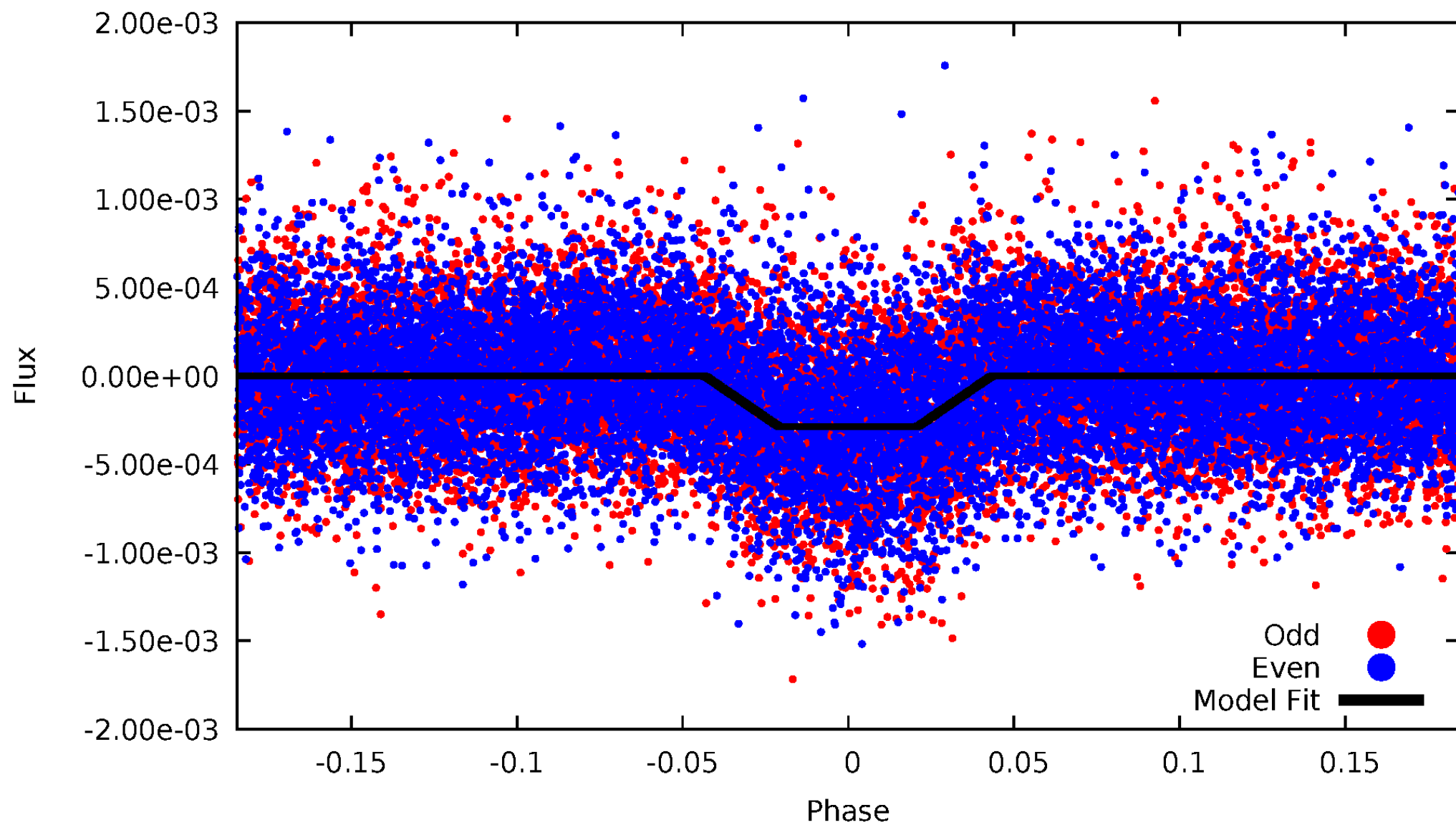
DV Odd/Even

TCE 005471289-02



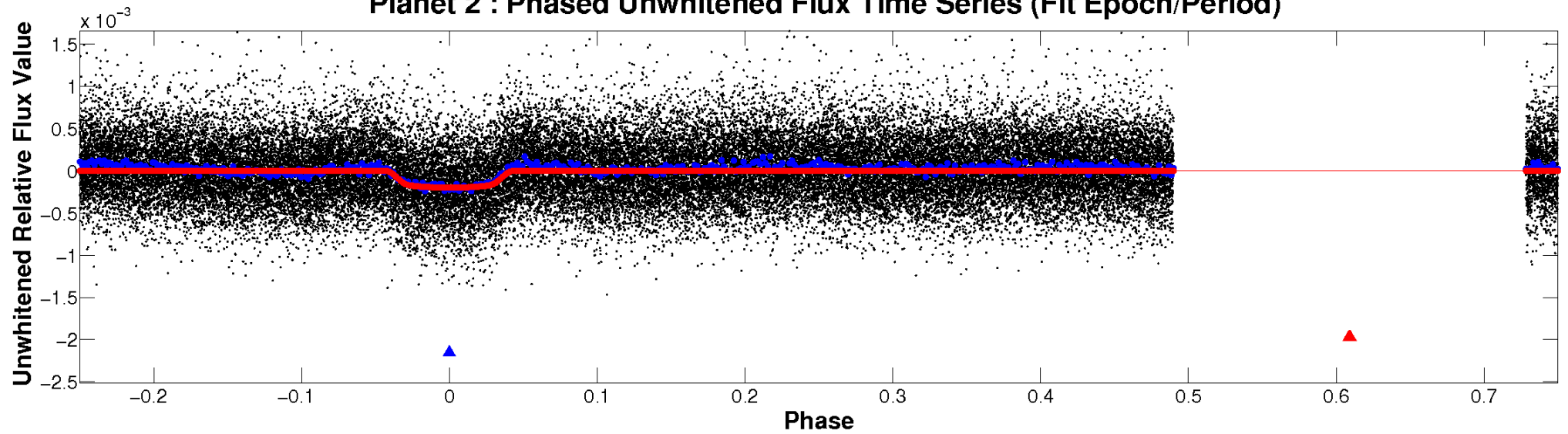
ALT Odd/Even

TCE 005471289-02

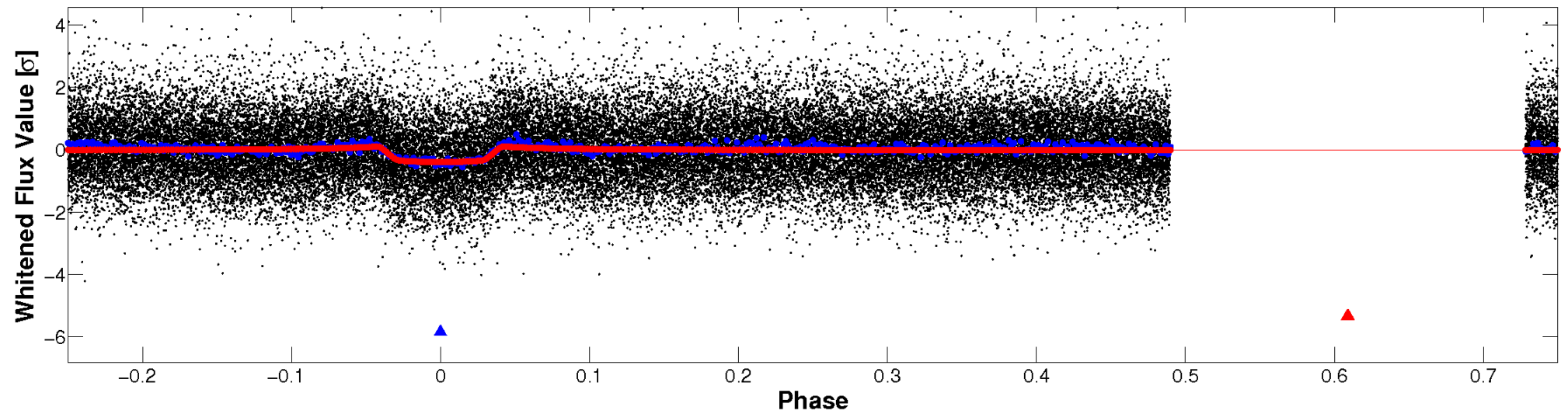


Non-Whitened Vs. Whitened Light Curve

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

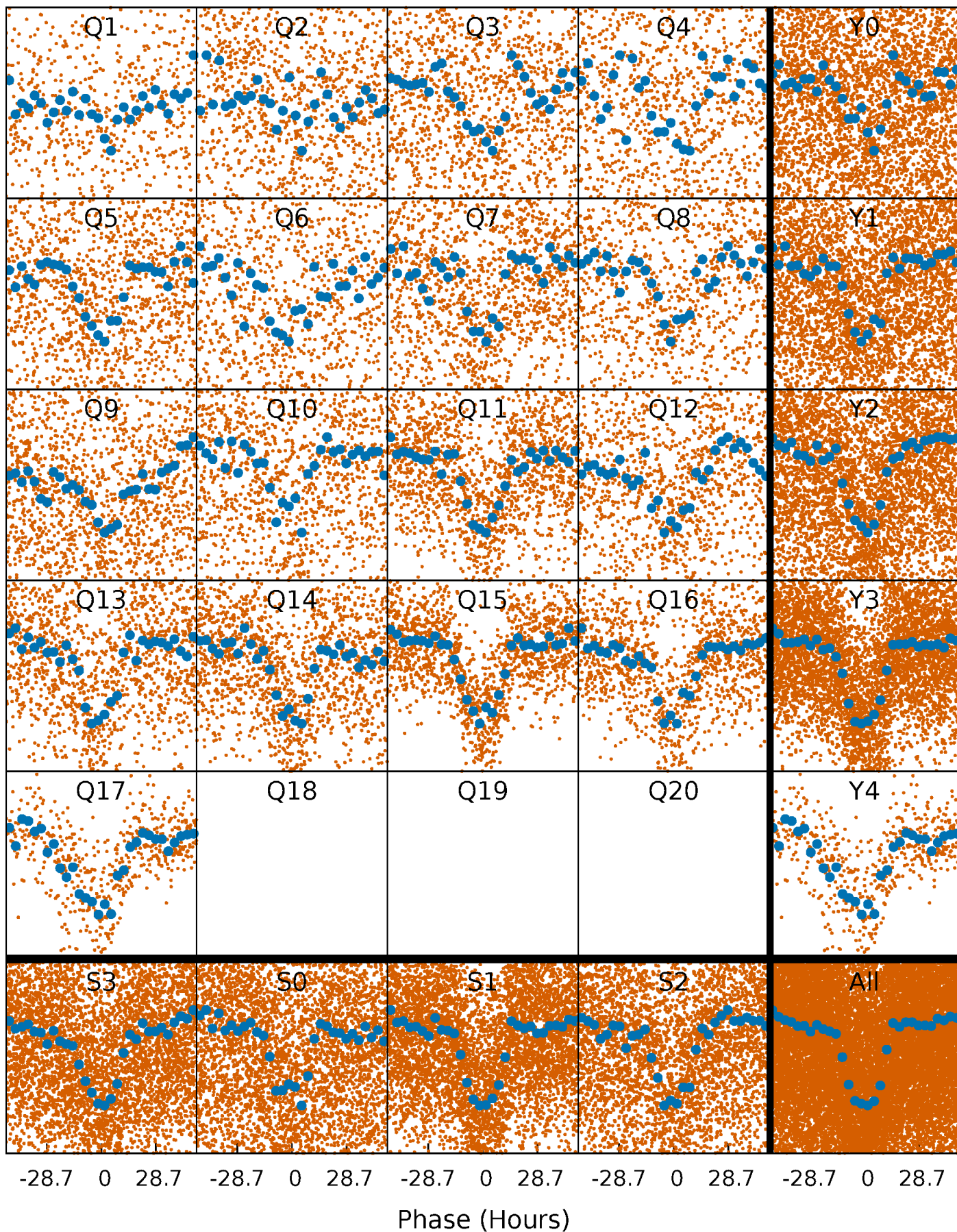


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



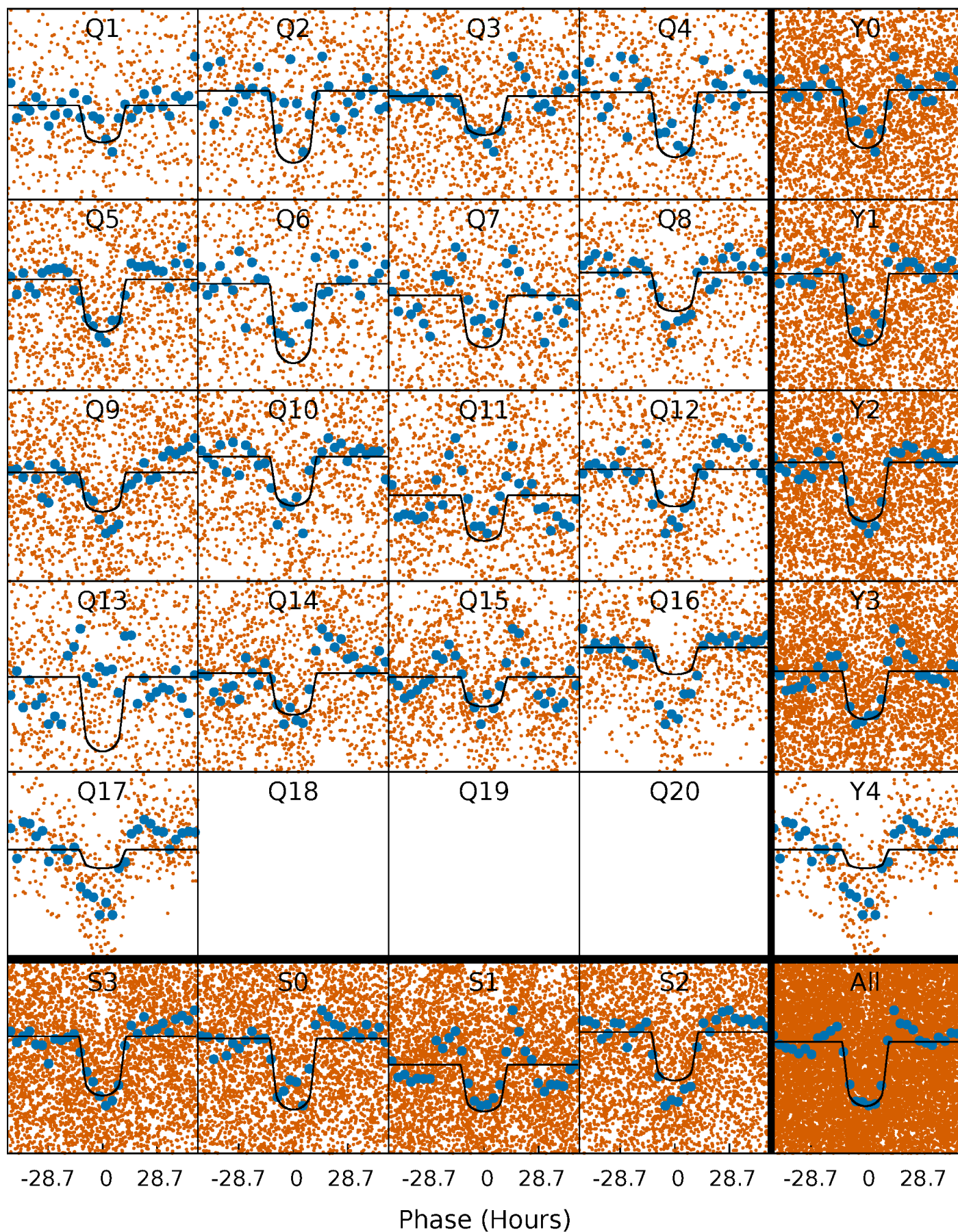
PDC Quarter-Phased Transit Curves

TCE 005471289-02 P= 12.426081 Days $T_0=133.922799$ (BKJD)



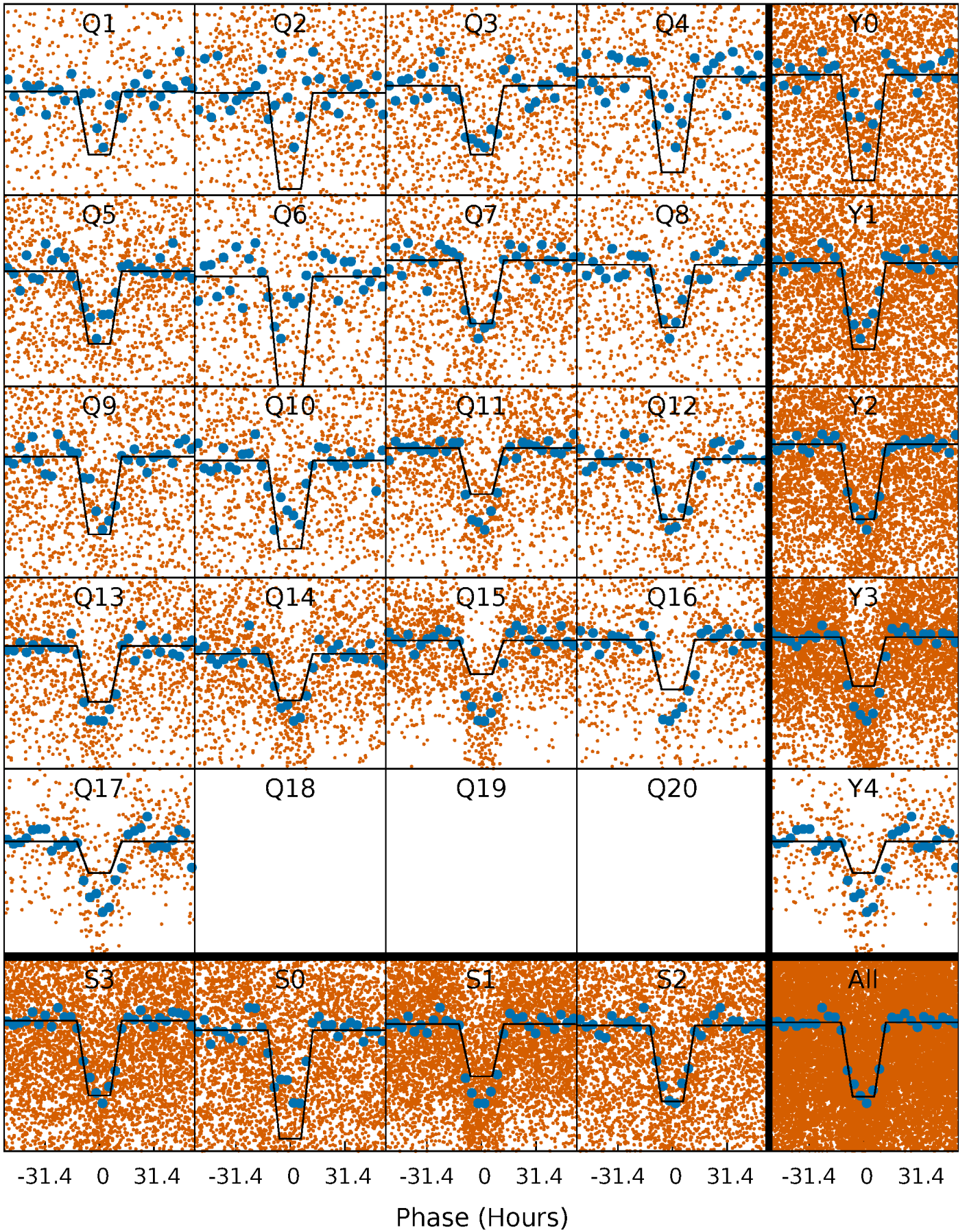
DV Quarter-Phased Transit Curves

TCE 005471289-02 P= 12.426081 Days $T_0=133.922799$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

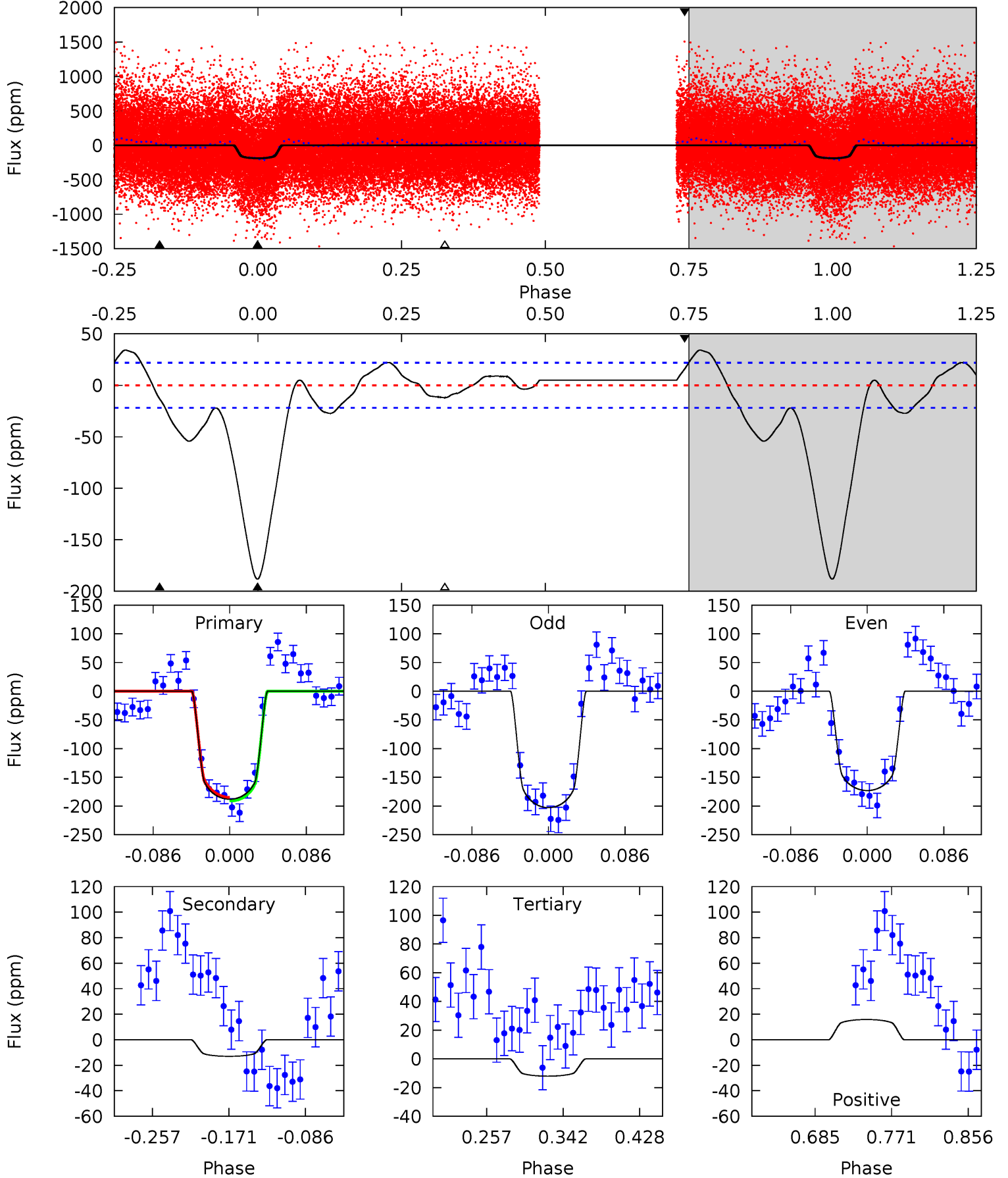
TCE 005471289-02 P= 12.424613 Days $T_0=134.028323$ (BKJD)



DV Model-Shift Uniqueness Test

005471289-02, P = 12.426081 Days, E = 121.496718 Days

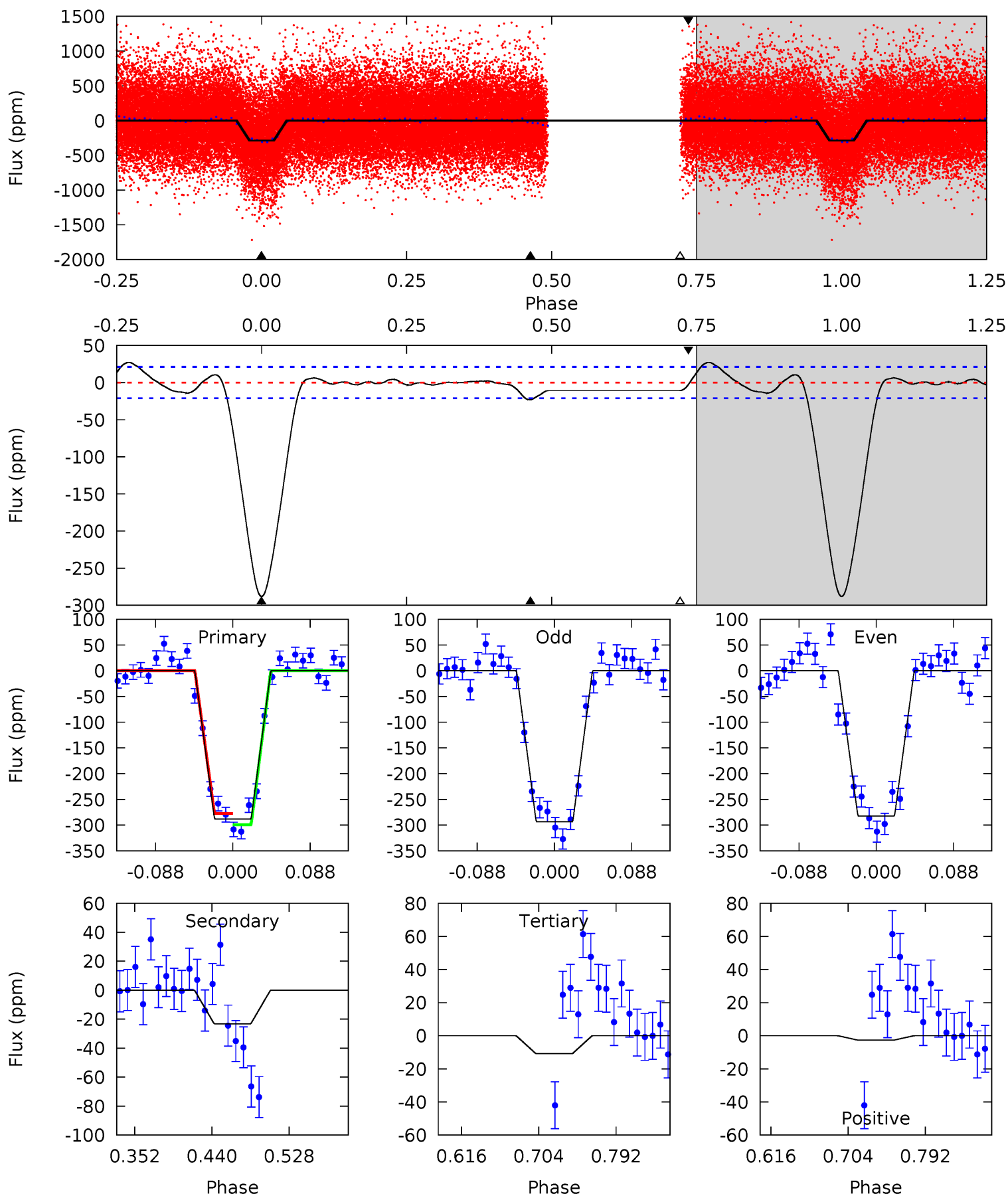
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.4	2.73	2.52	3.32	4.60	1.72	2.64	36.9	36.1	0.21	-0.59	3.12	1.00	0.15	0.61



Alt Model-Shift Uniqueness Test

005471289-02, P = 12.424613 Days, E = 121.603710 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.5	5.03	2.34	-0.57	4.59	1.71	1.86	60.1	63.1	2.69	5.60	1.18	1.10	0.09	2.36



Stellar Parameters For KIC 005471289

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5952^{+184}_{-226}	$4.489^{+0.052}_{-0.208}$	$0.020^{+0.250}_{-0.300}$	$0.971^{+0.297}_{-0.099}$	$1.057^{+0.124}_{-0.138}$	$1.629^{+0.443}_{-0.835}$
	+3%/-4%	+1%/-5%	+1250%/-1500%	+31%/-10%	+12%/-13%	+27%/-51%
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 005471289-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-13 ± 5	$1.78^{+0.30}_{-0.15}$	1125^{+84}_{-52}	3322^{+189}_{-218}	24^{+11}_{-9}
Alt.	-23 ± 5	$1.84^{+0.30}_{-0.15}$	1128^{+80}_{-59}	3601^{+148}_{-142}	40^{+13}_{-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 $A_{obs} \gg 1.0$

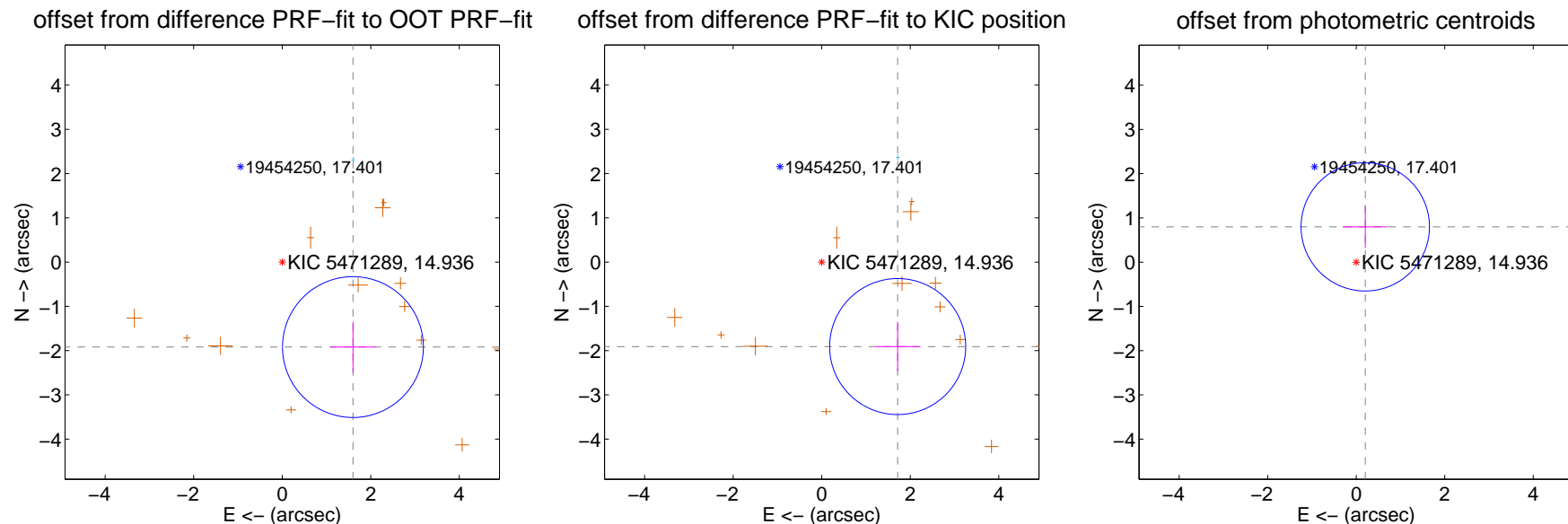
DV Centroid Data

Supplemental centroid analysis for 005471289-02. Kepler magnitude: 14.94. Transit SNR 24.18

There are 1 quarters with good PRF difference image offsets

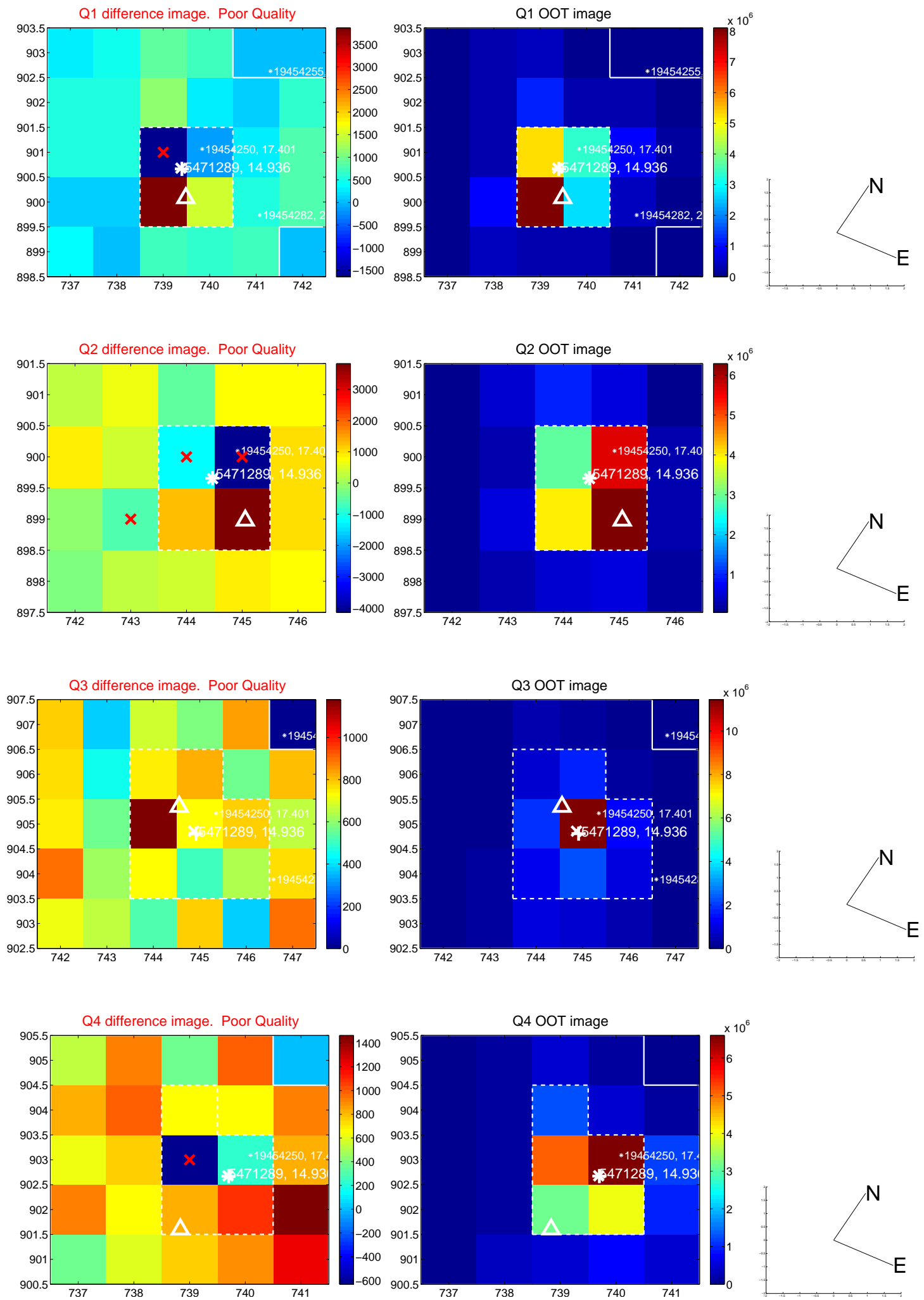
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.498 ± 0.530	4.71	-1.598 ± 0.508	-1.920 ± 0.571
PRF-fit source offset from KIC position	2.566 ± 0.512	5.01	-1.716 ± 0.499	-1.909 ± 0.559
photometric centroid source offset	0.82 ± 0.48	1.71	-0.20 ± 0.51	0.80 ± 0.48

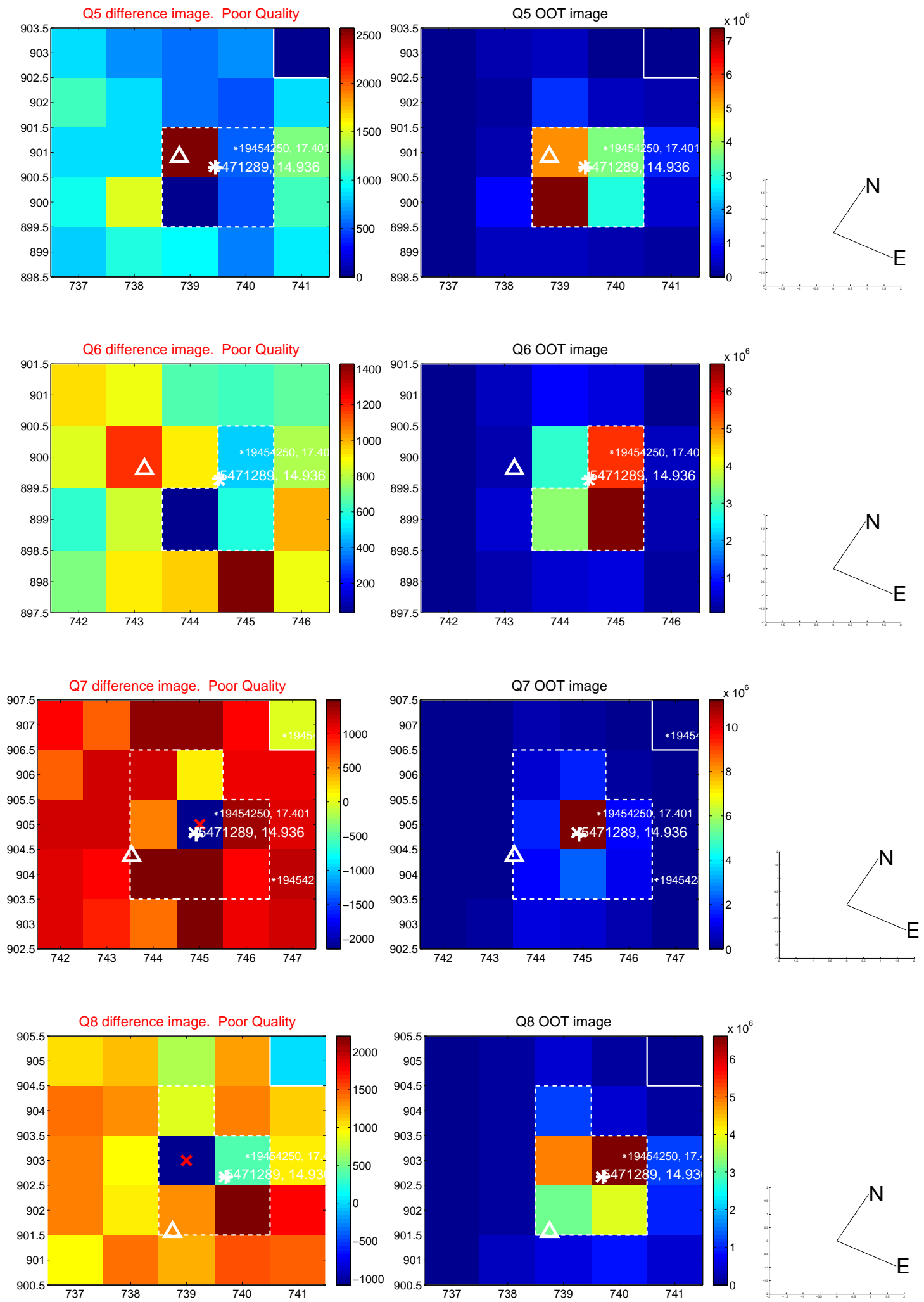


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

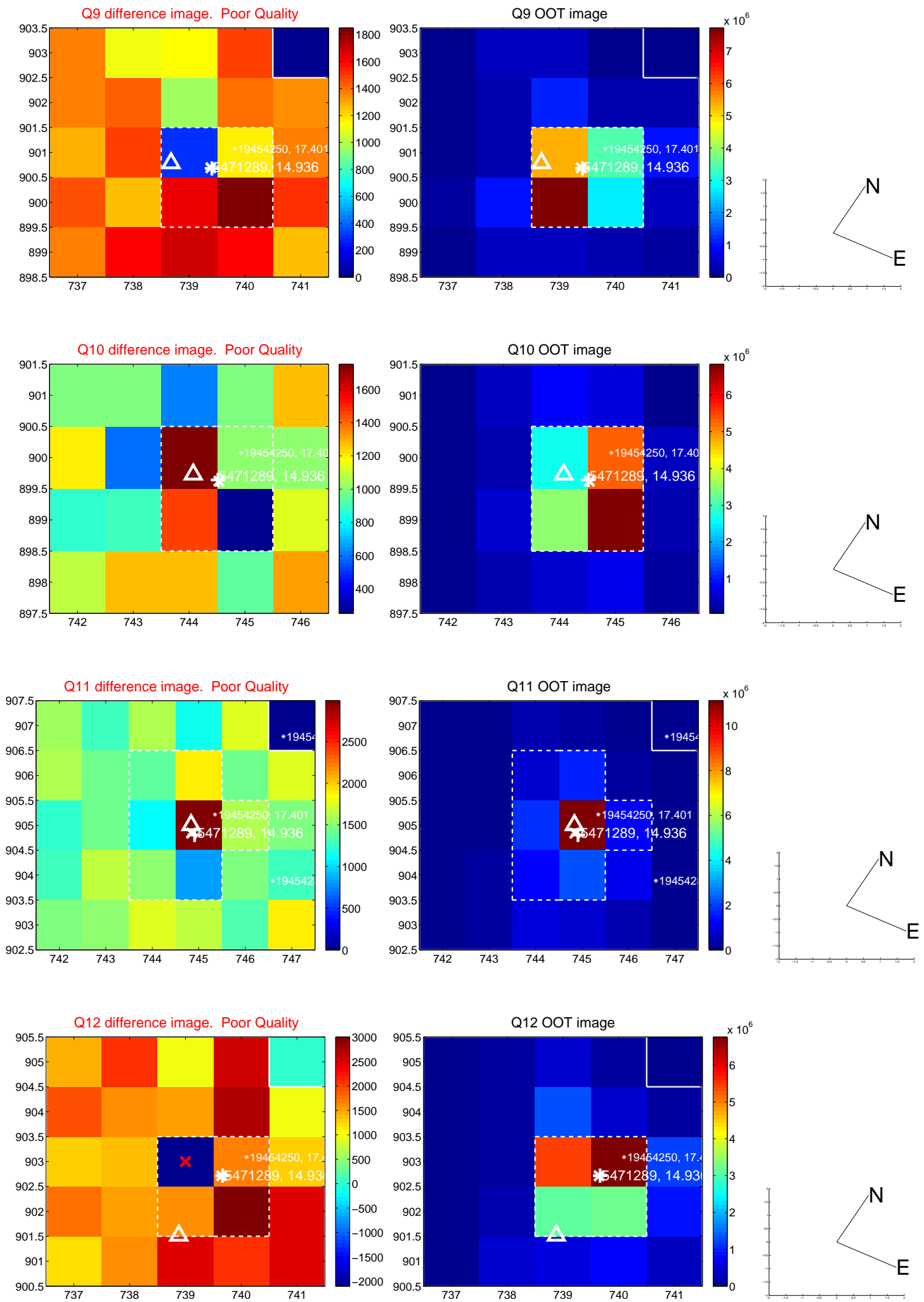
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



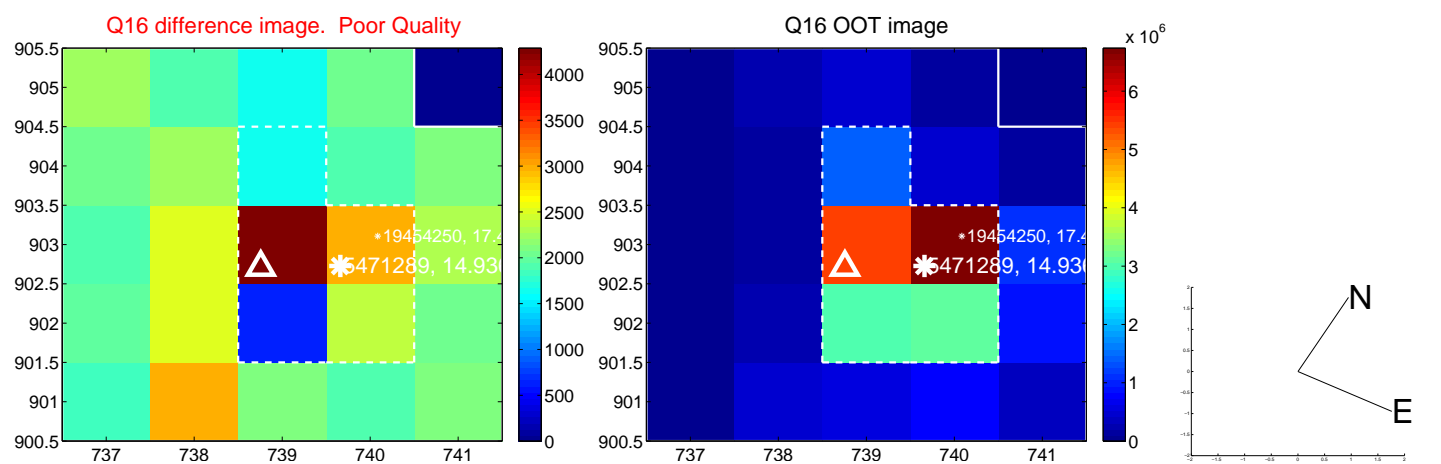
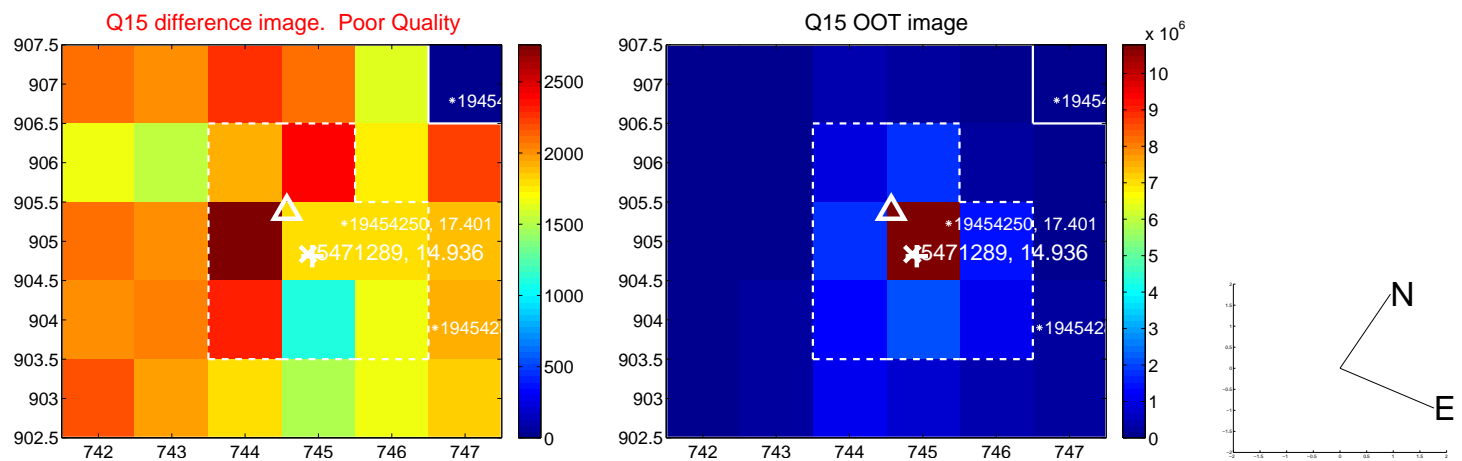
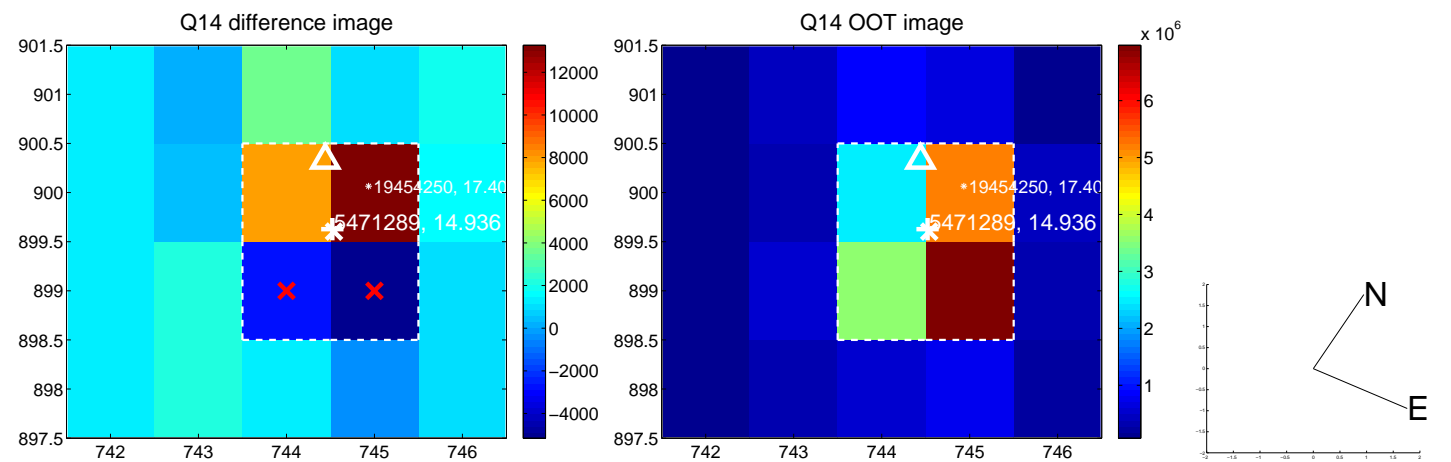
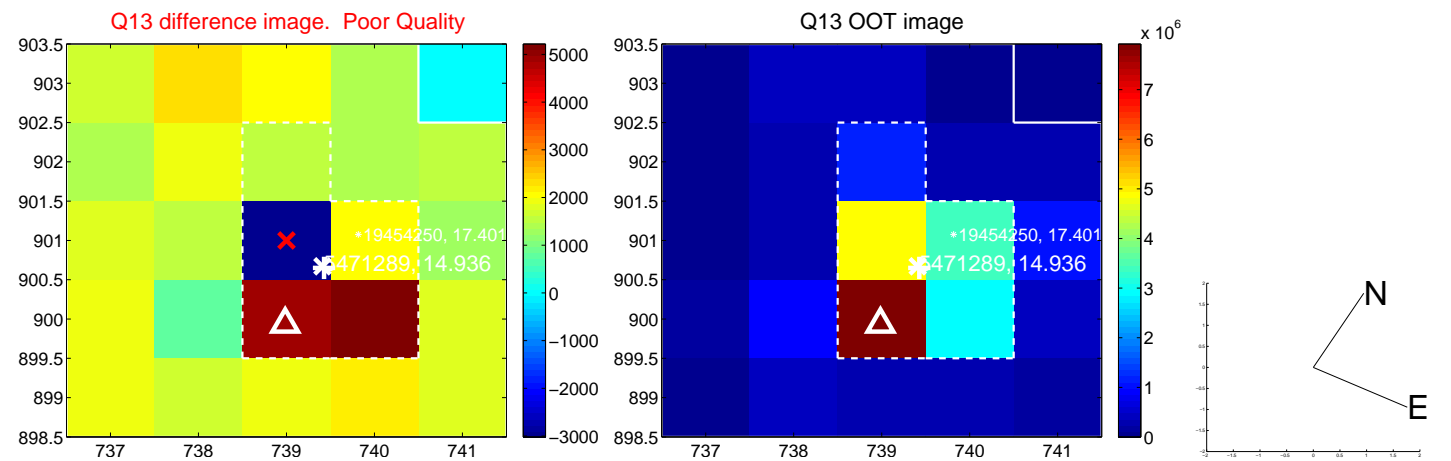
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



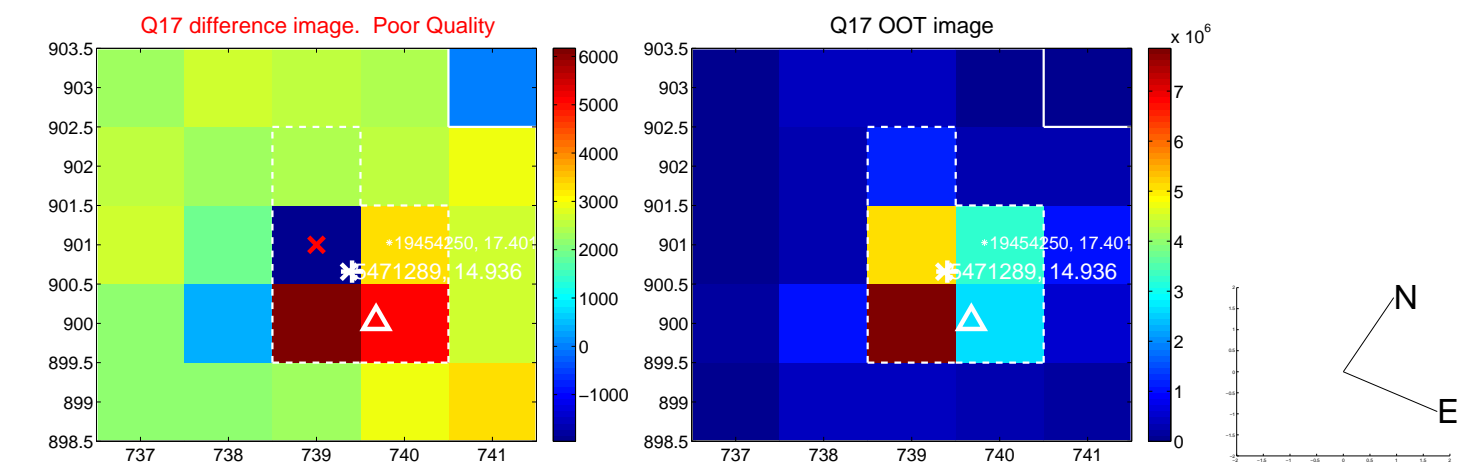
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



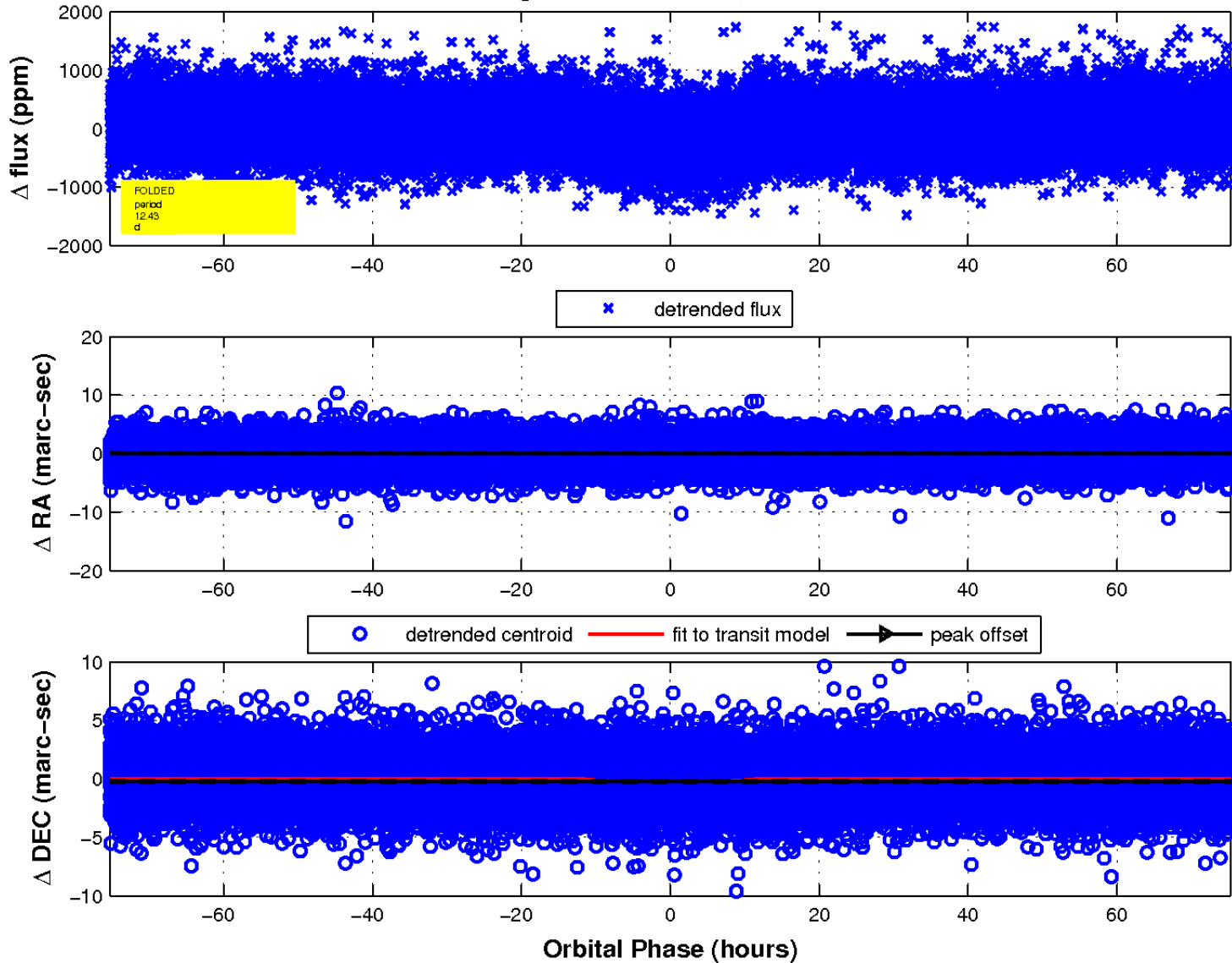
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

