

KIC 010288922

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})
010288922-01	OBS	6078.01	10.157713	139.442636	9980.4	3.013	255.4	228.5	0.99	5993	17.79	125.60
010288922-02	OBS	No	10.157717	134.590693	7816.7	2.957	196.1	177.4	0.99	5993	15.65	125.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010288922-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
010288922-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

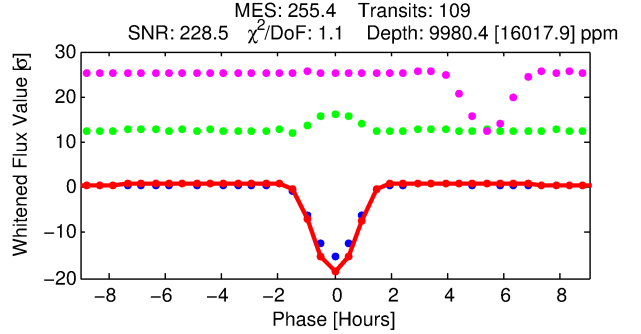
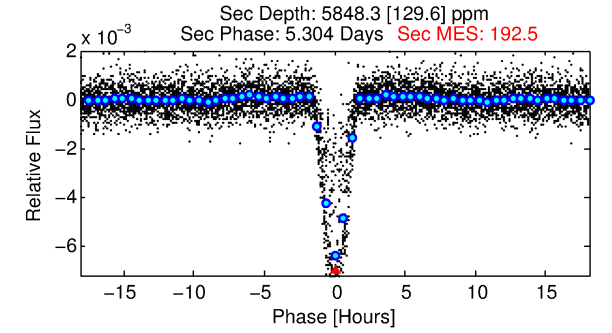
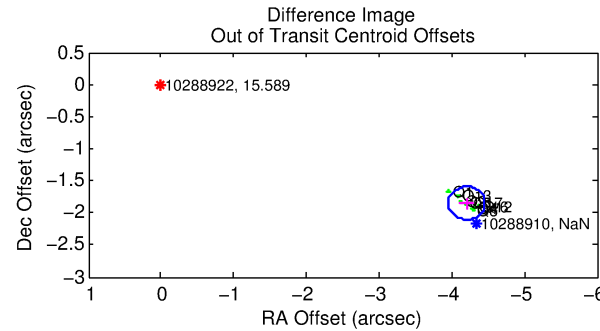
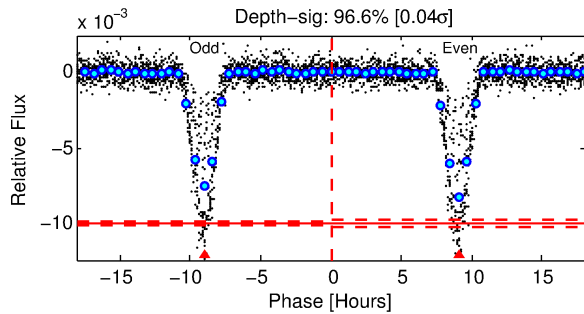
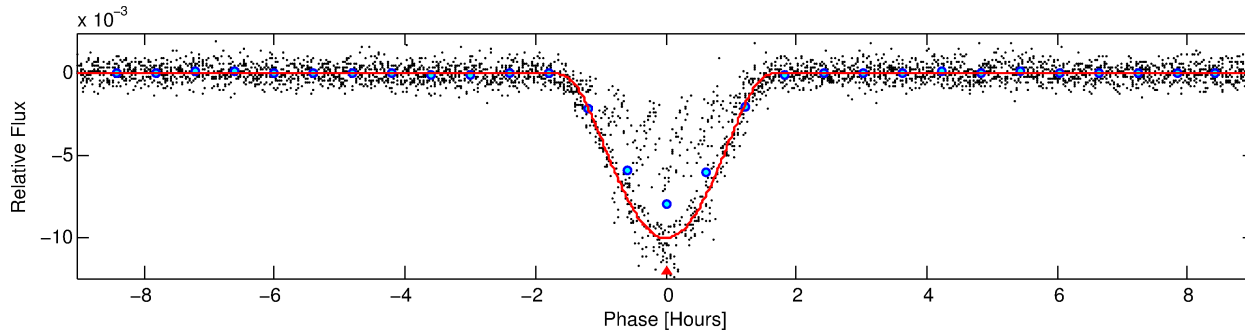
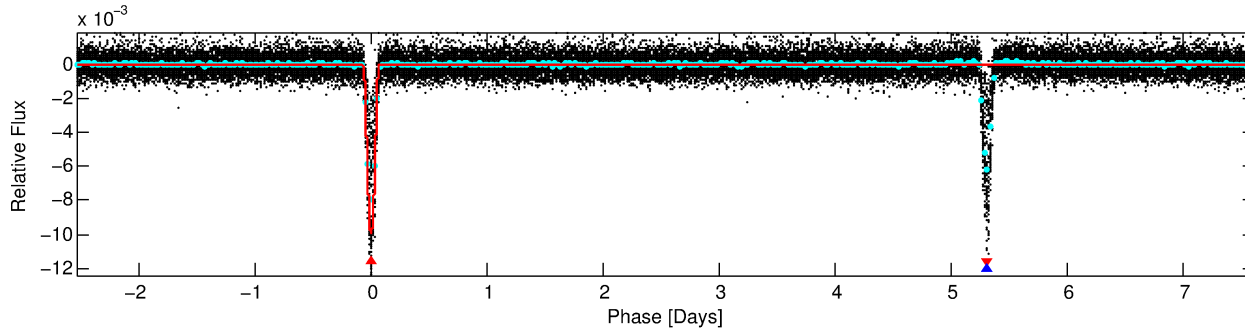
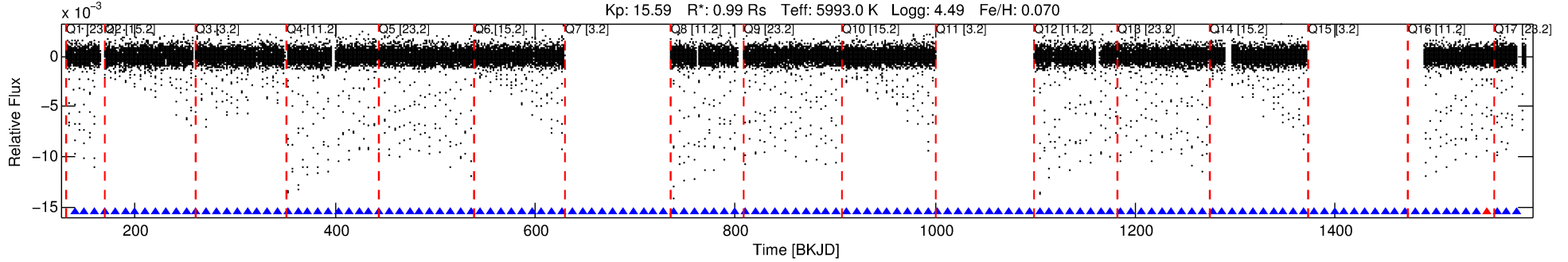
Ephemeris Match Information For 010288922-01

No Significant Match Found

DV One-Page Summary

KIC: 10288922 Candidate: 1 of 2 Period: 10.158 d
KOI: K06078.01 Corr: 0.985

Kp: 15.59 R*: 0.99 Rs Teff: 5993.0 K Logg: 4.49 Fe/H: 0.070



DV Fit Results:

Period = 10.15771 [0.00000] d
Epoch = 139.4426 [0.0003] BKJD
Rp/R* = 0.1654 [0.0405]
a/R* = 15.45 [0.55]
b = 1.00 [0.23]
Seff = 125.60 [52.44]
Teq = 854 [89] K
Rp = 17.79 [7.02] Re
a = 0.0946 [0.0248] AU
Ag = 90.90 [56.67] [1.59σ]
Teff = 4075 [525] K [6.04σ]

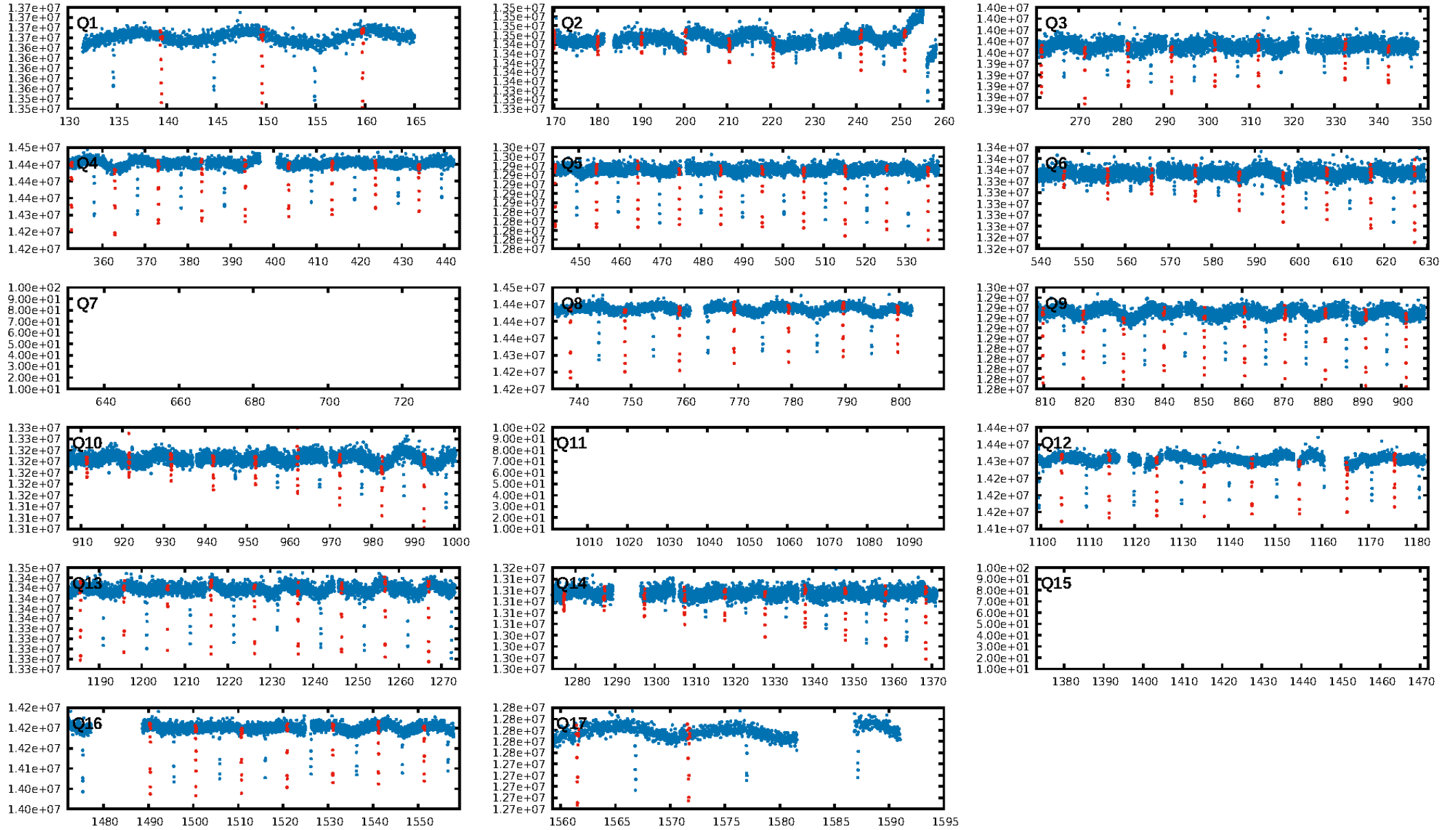
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [103/104]
GhostDiagnostic-chr: -0.1975
Centroid-sig: 0.0%
Centroid-so: 12.231 arcsec [298.36σ]
OotOffset-rm: 4.588 arcsec [54.17σ]
KicOffset-rm: 4.836 arcsec [63.88σ]
OotOffset-st: 0/0/4/5 [9]
KicOffset-st: 0/0/4/5 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [14/14]

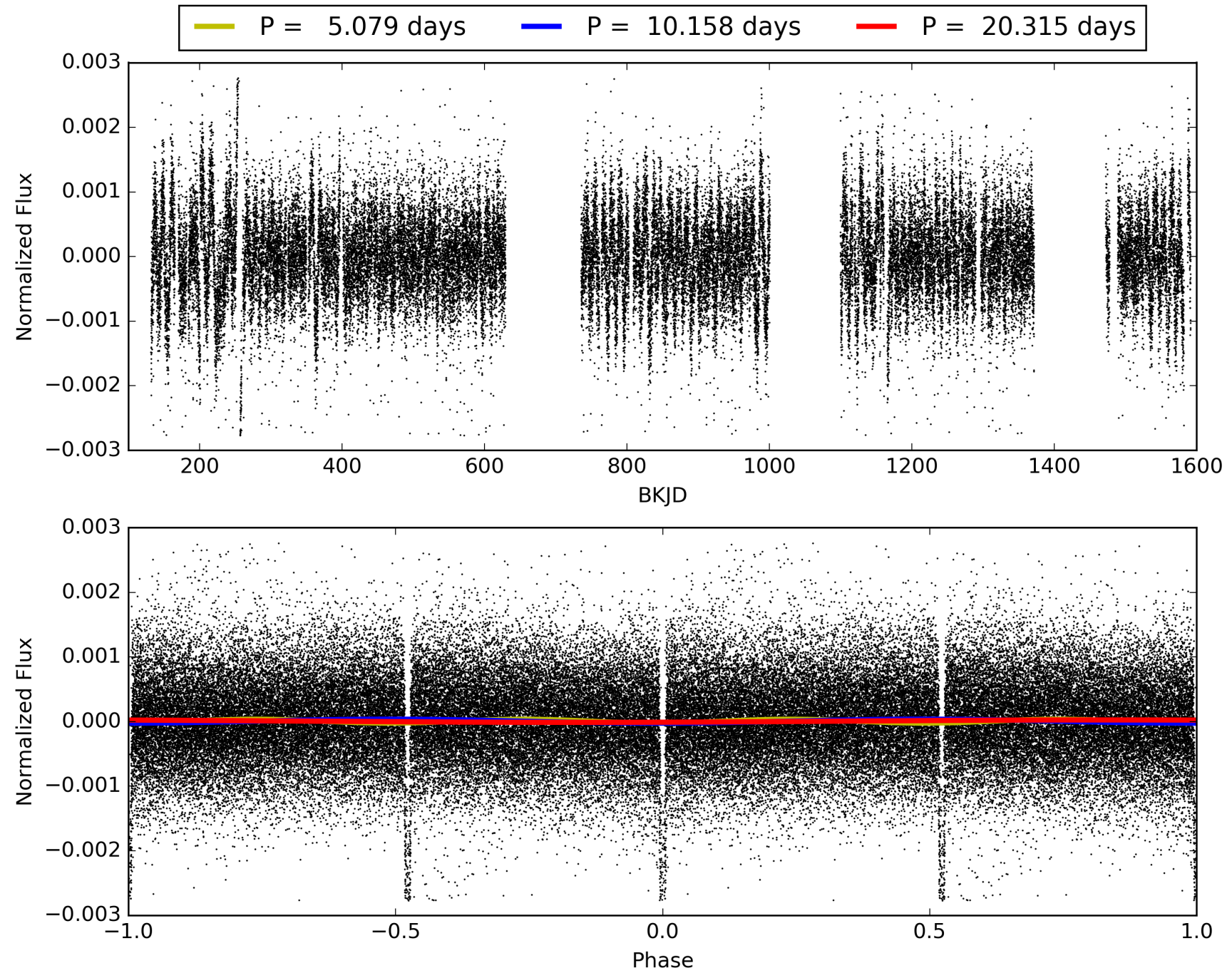
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:17:51 Z

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

TCE 010288922-01, PDC Light Curves

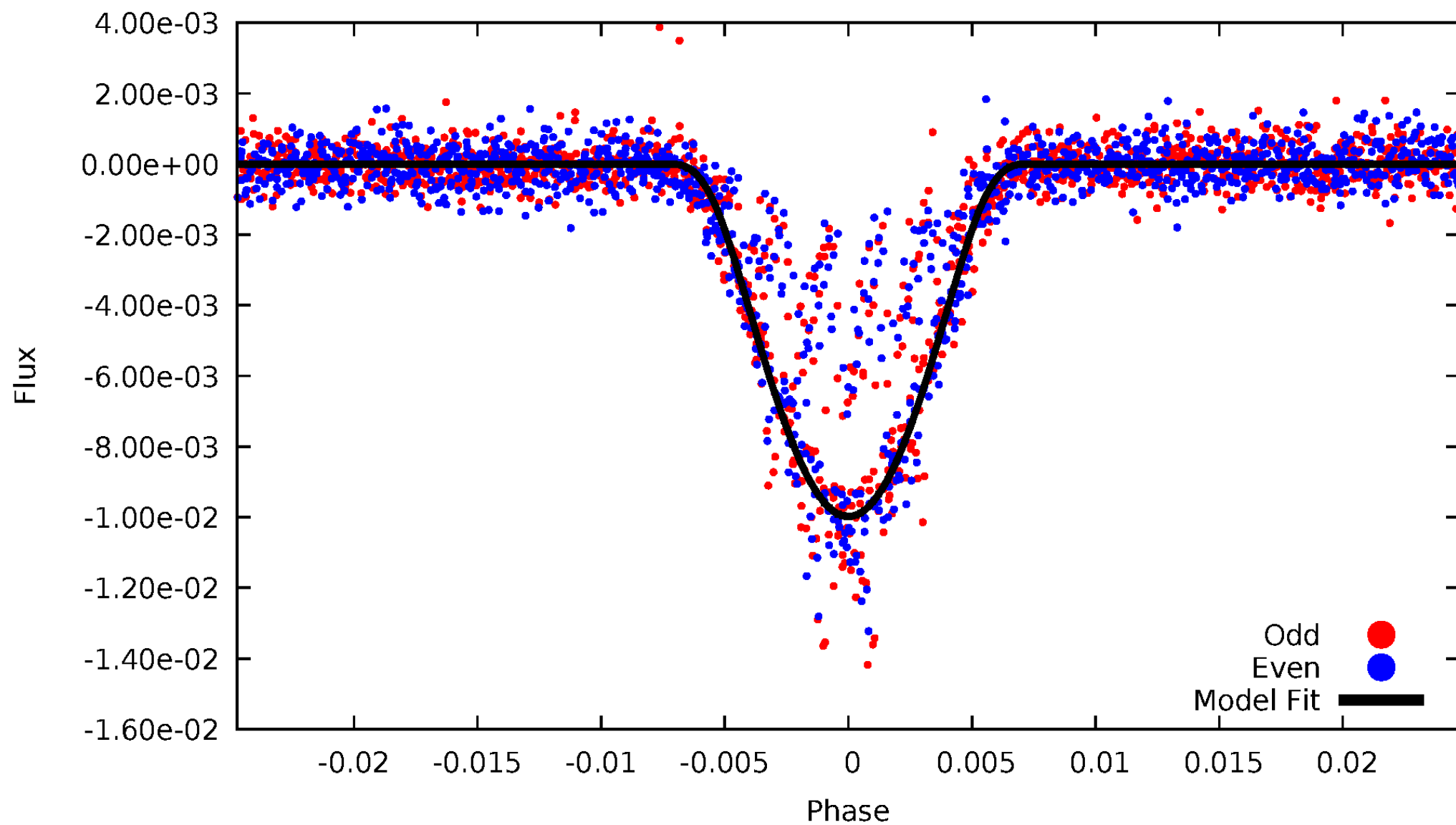


TCE 010288922-01



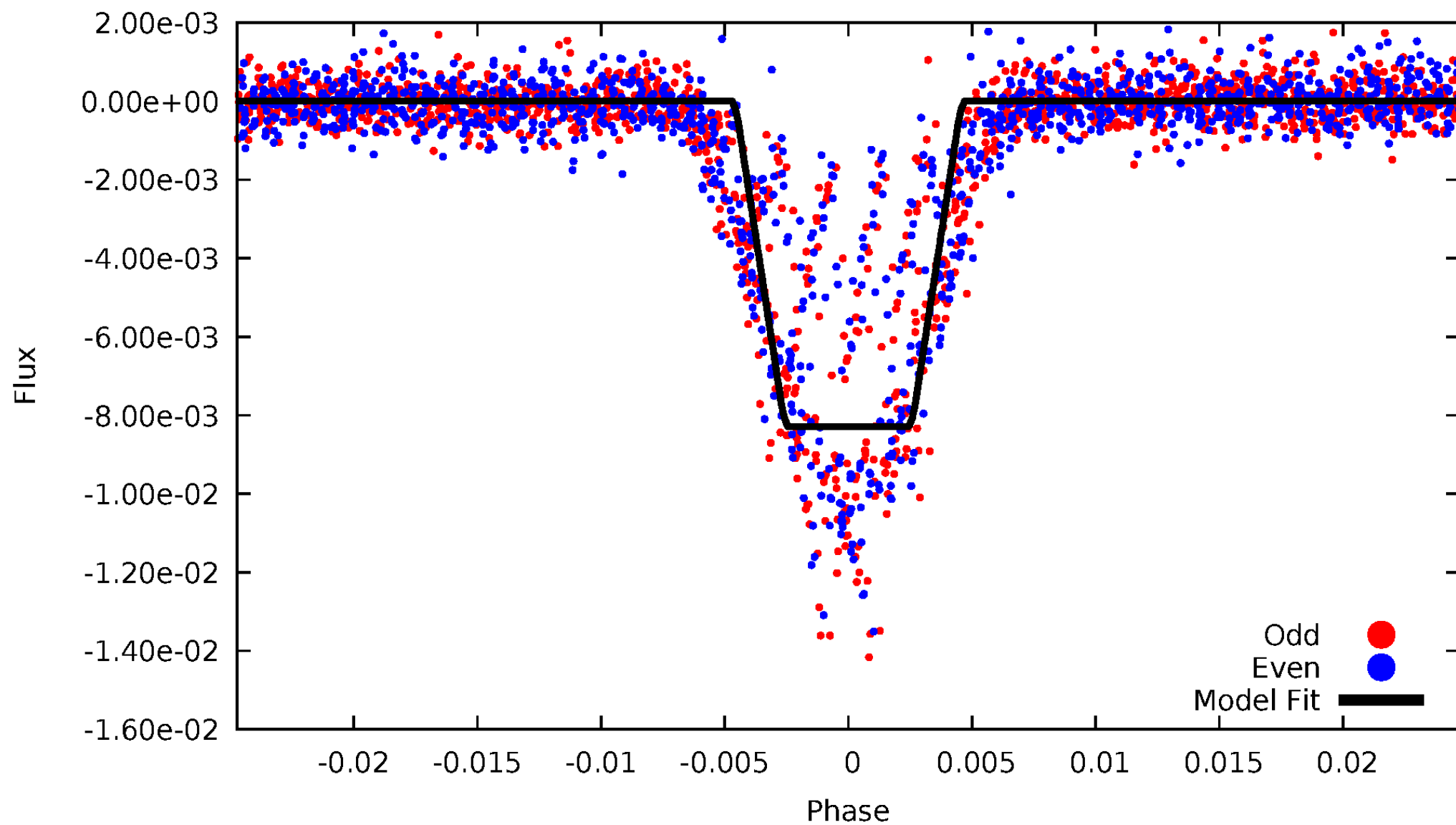
DV Odd/Even

TCE 010288922-01

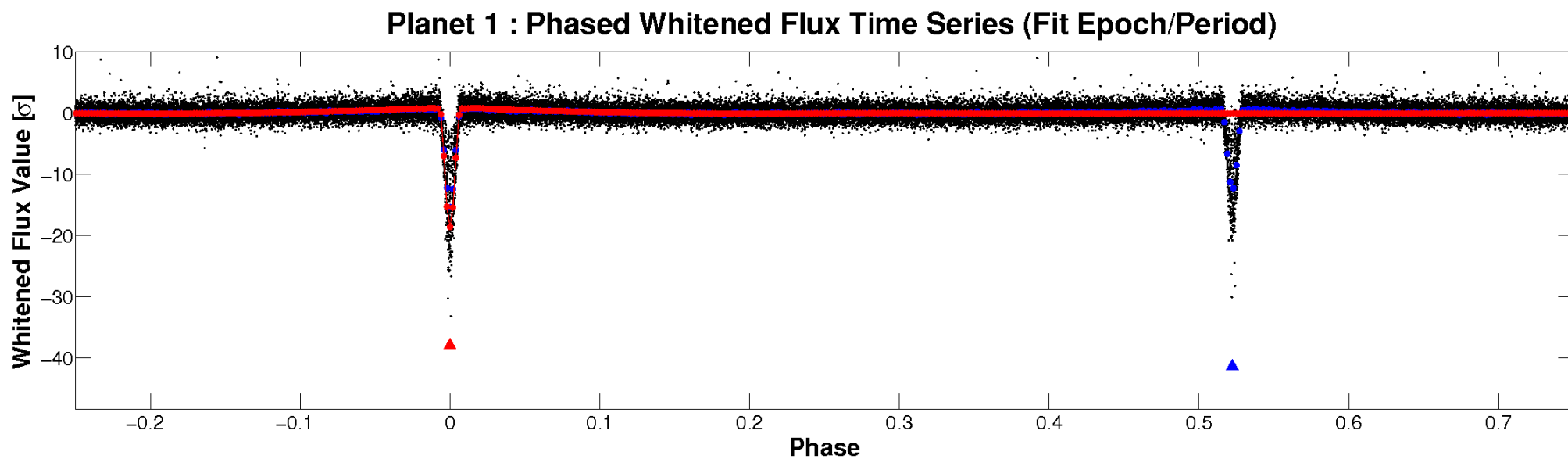
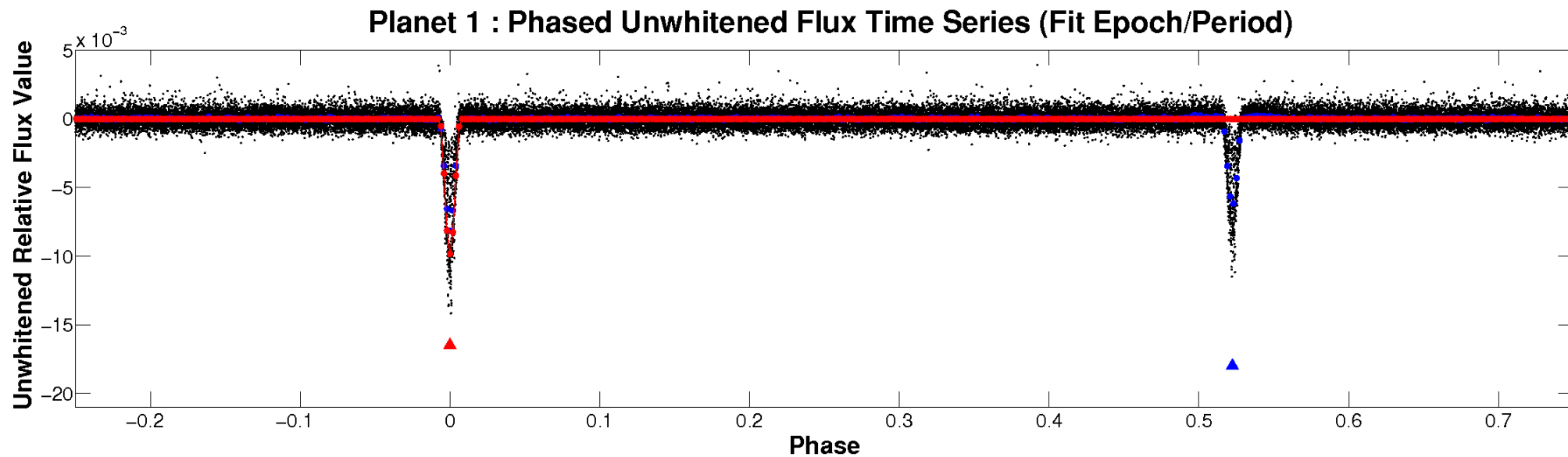


ALT Odd/Even

TCE 010288922-01

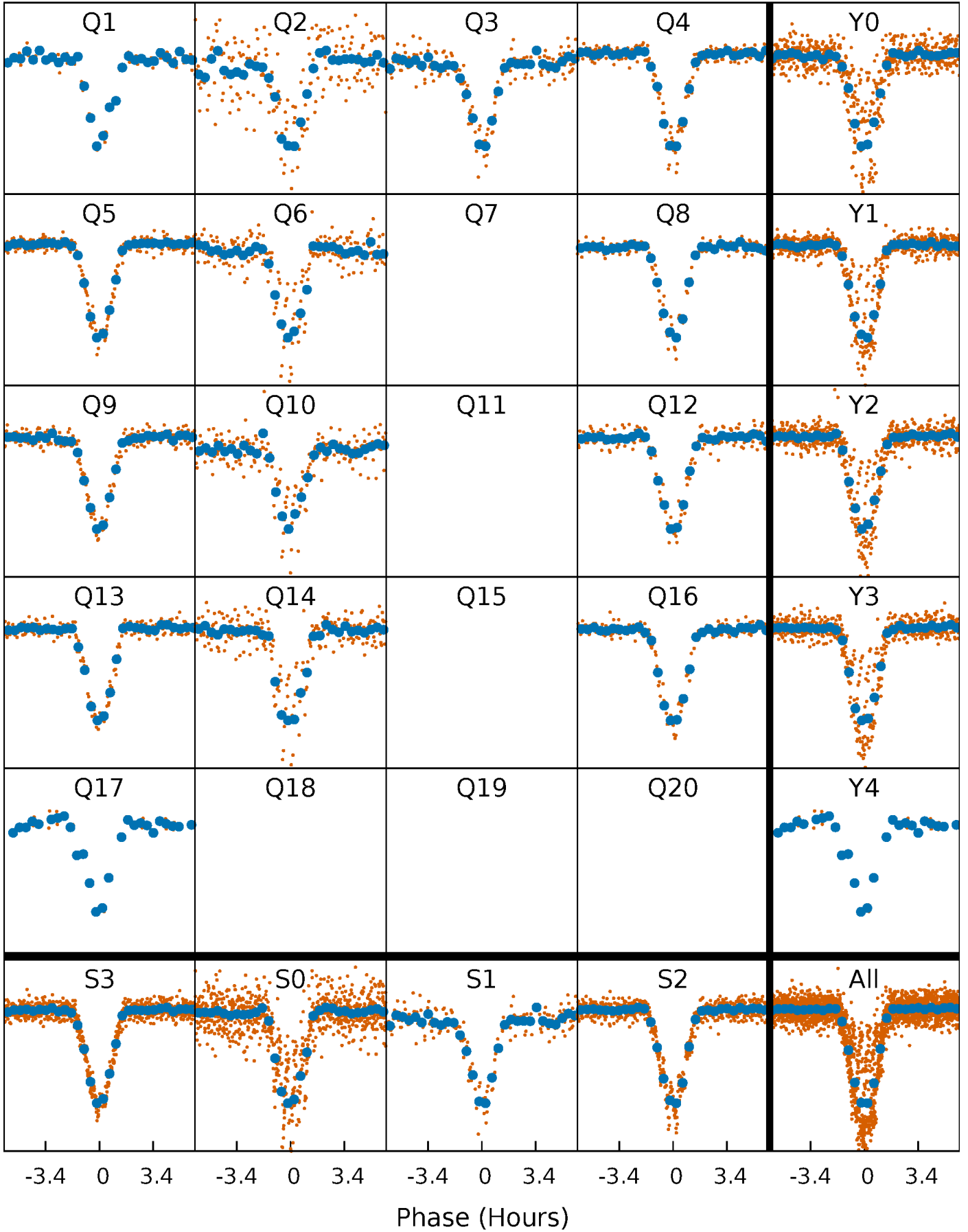


Non-Whitened Vs. Whitened Light Curve



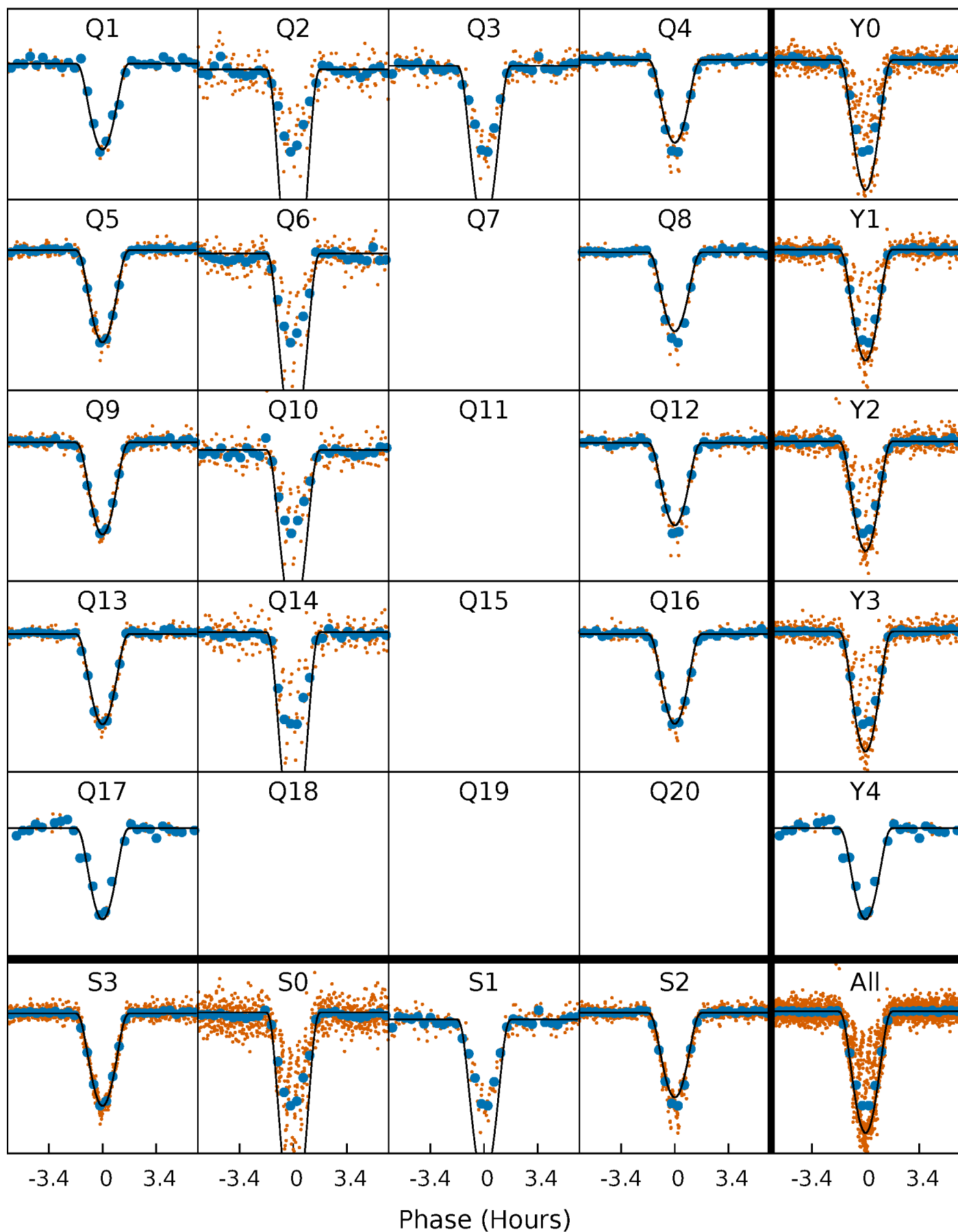
PDC Quarter-Phased Transit Curves

TCE 010288922-01 P= 10.157713 Days $T_0=139.442636$ (BKJD)



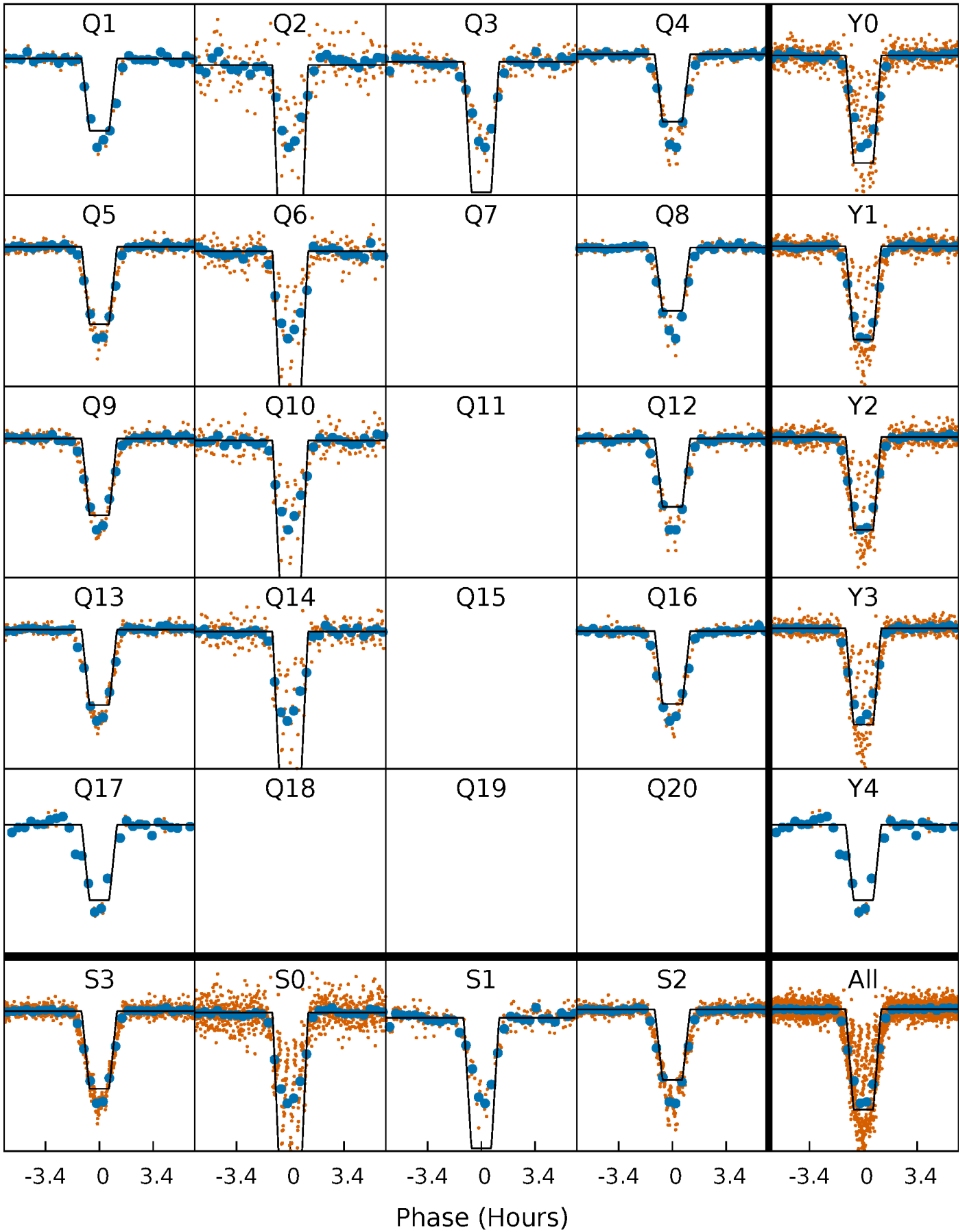
DV Quarter-Phased Transit Curves

TCE 010288922-01 P= 10.157713 Days $T_0=139.442636$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

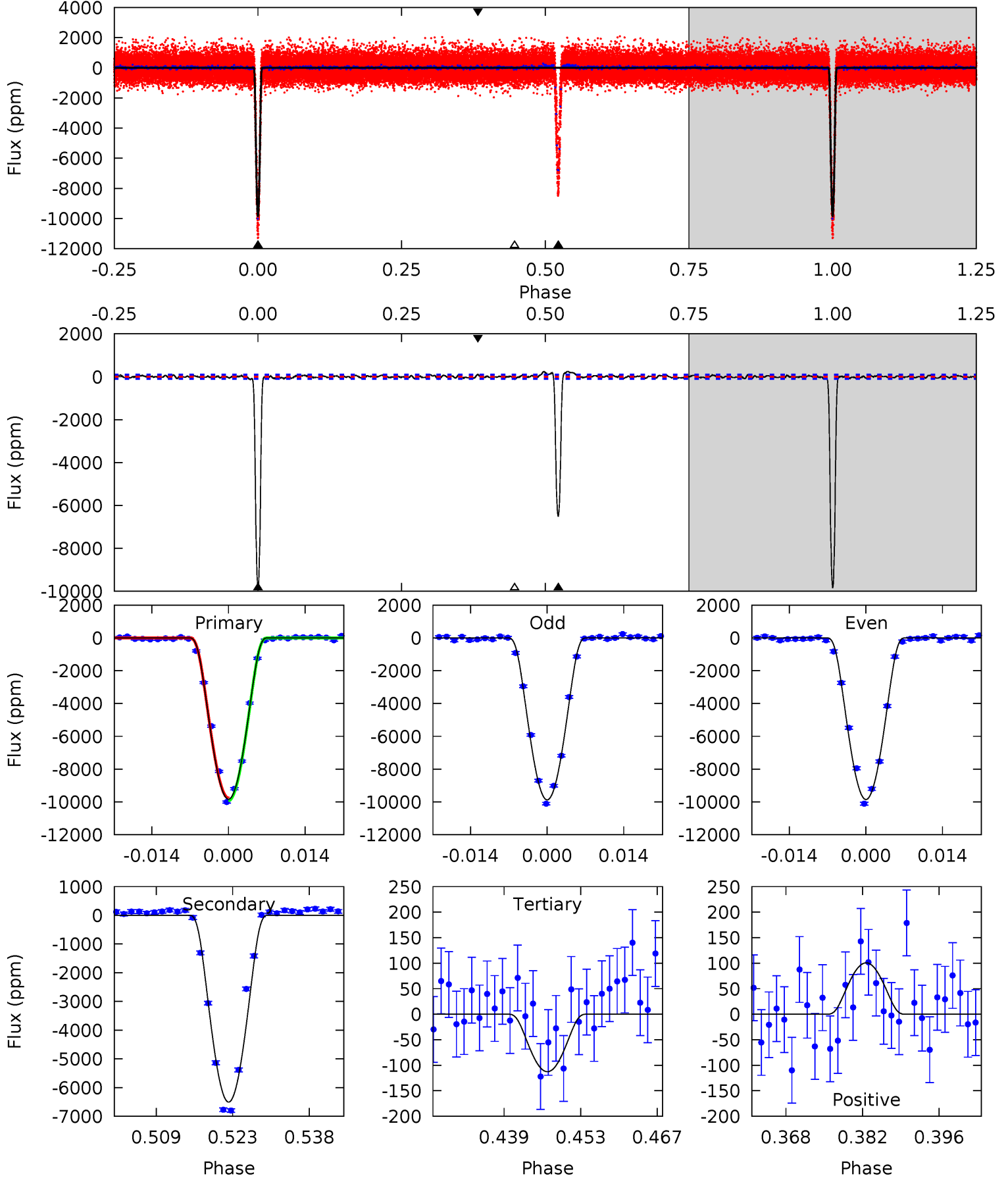
TCE 010288922-01 P= 10.157757 Days $T_0=139.439604$ (BKJD)



DV Model-Shift Uniqueness Test

010288922-01, P = 10.157713 Days, E = 129.284923 Days

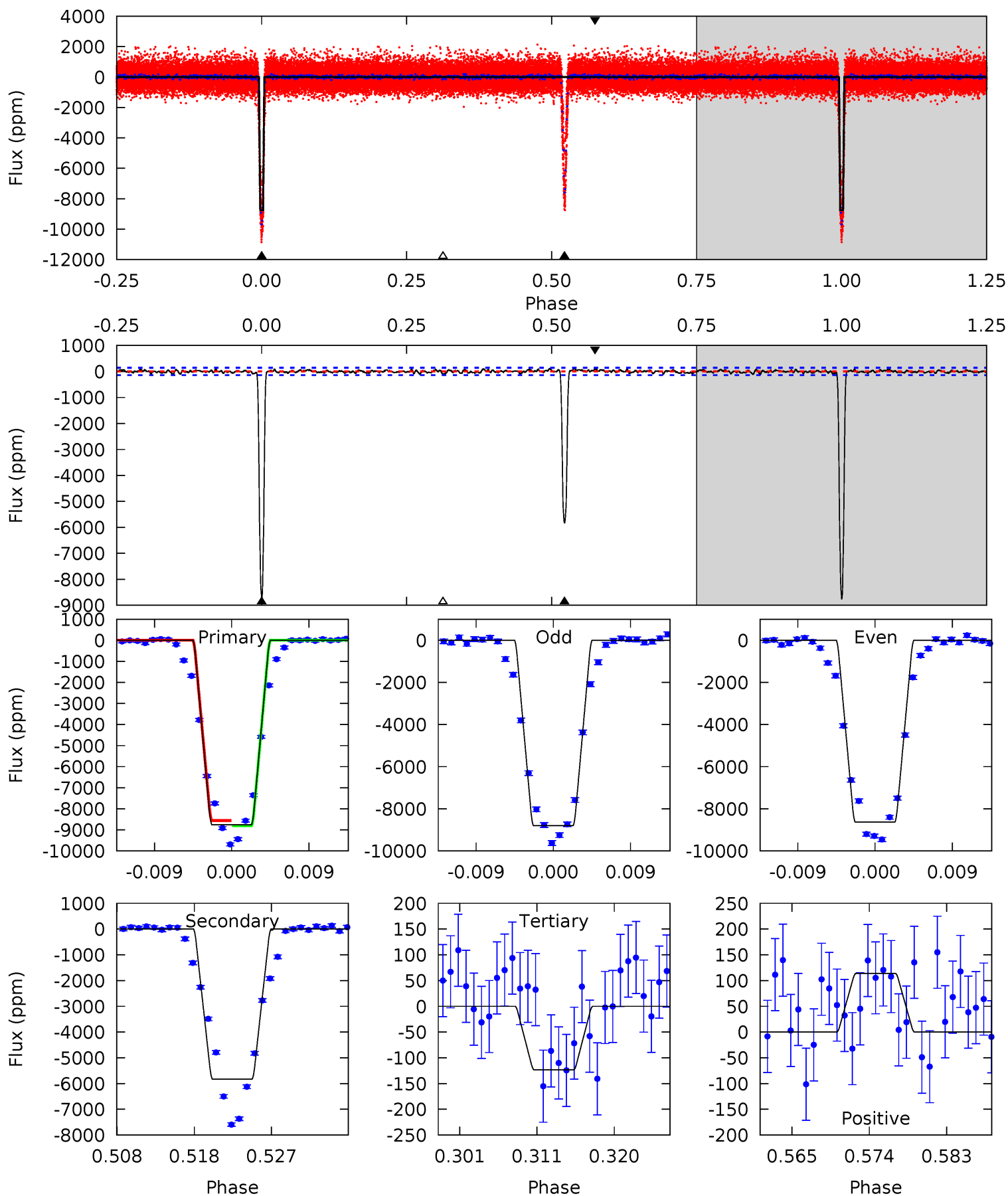
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
479.3	317.1	5.49	4.91	4.96	2.45	2.47	473.8	474.4	311.6	312.2	0.65	0.86	0.02	0



Alt Model-Shift Uniqueness Test

010288922-01, $P = 10.157757$ Days, $E = 129.281847$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
311.6	207.5	4.39	4.05	5.04	2.60	1.37	307.2	307.5	203.1	203.4	2.93	0.86	0.01	0



Stellar Parameters For KIC 010288922

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5993^{+193}_{-241}	$4.489^{+0.050}_{-0.212}$	$0.070^{+0.250}_{-0.300}$	$0.986^{+0.305}_{-0.095}$	$1.093^{+0.130}_{-0.145}$	$1.607^{+0.338}_{-0.862}$
	+3%/-4%	+1%/-5%	+357%/-429%	+31%/-10%	+12%/-13%	+21%/-54%
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 010288922-01 / KOI 6078.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-6505 ± 21	$18.34^{+5.72}_{-4.53}$	1217^{+91}_{-66}	4406^{+581}_{-381}	94^{+72}_{-38}
Alt.	-5826 ± 28	$10.18^{+5.10}_{-4.33}$	1217^{+86}_{-64}	5544^{+1779}_{-895}	276^{+536}_{-154}

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

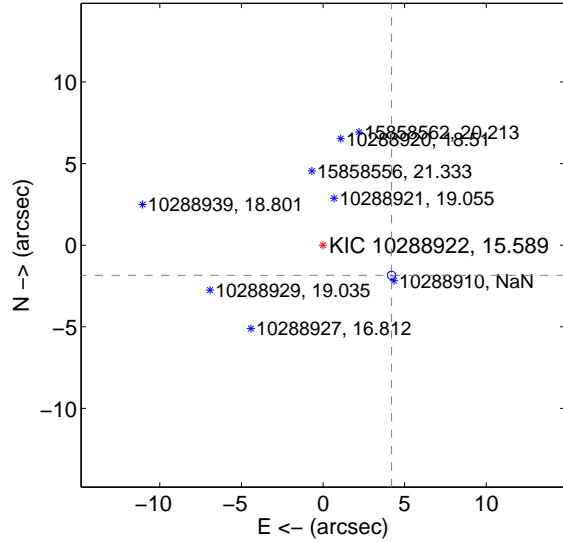
Supplemental centroid analysis for 010288922-01. Kepler magnitude: 15.59. Transit SNR 228.50

There are 9 quarters with good PRF difference image offsets

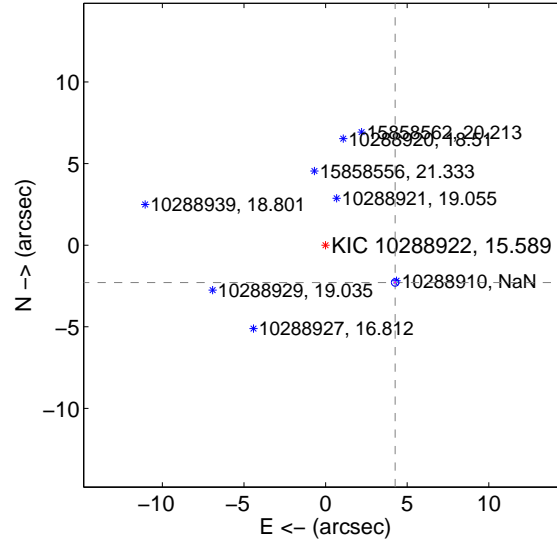
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.588 ± 0.085	54.17	-4.199 ± 0.080	-1.849 ± 0.073
PRF-fit source offset from KIC position	4.836 ± 0.076	63.88	-4.261 ± 0.078	-2.288 ± 0.069
photometric centroid source offset	12.23 ± 0.04	298.36	-11.41 ± 0.04	-4.40 ± 0.04

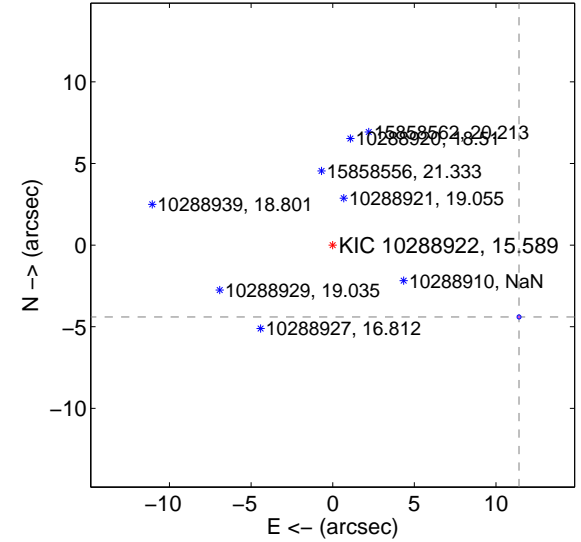
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

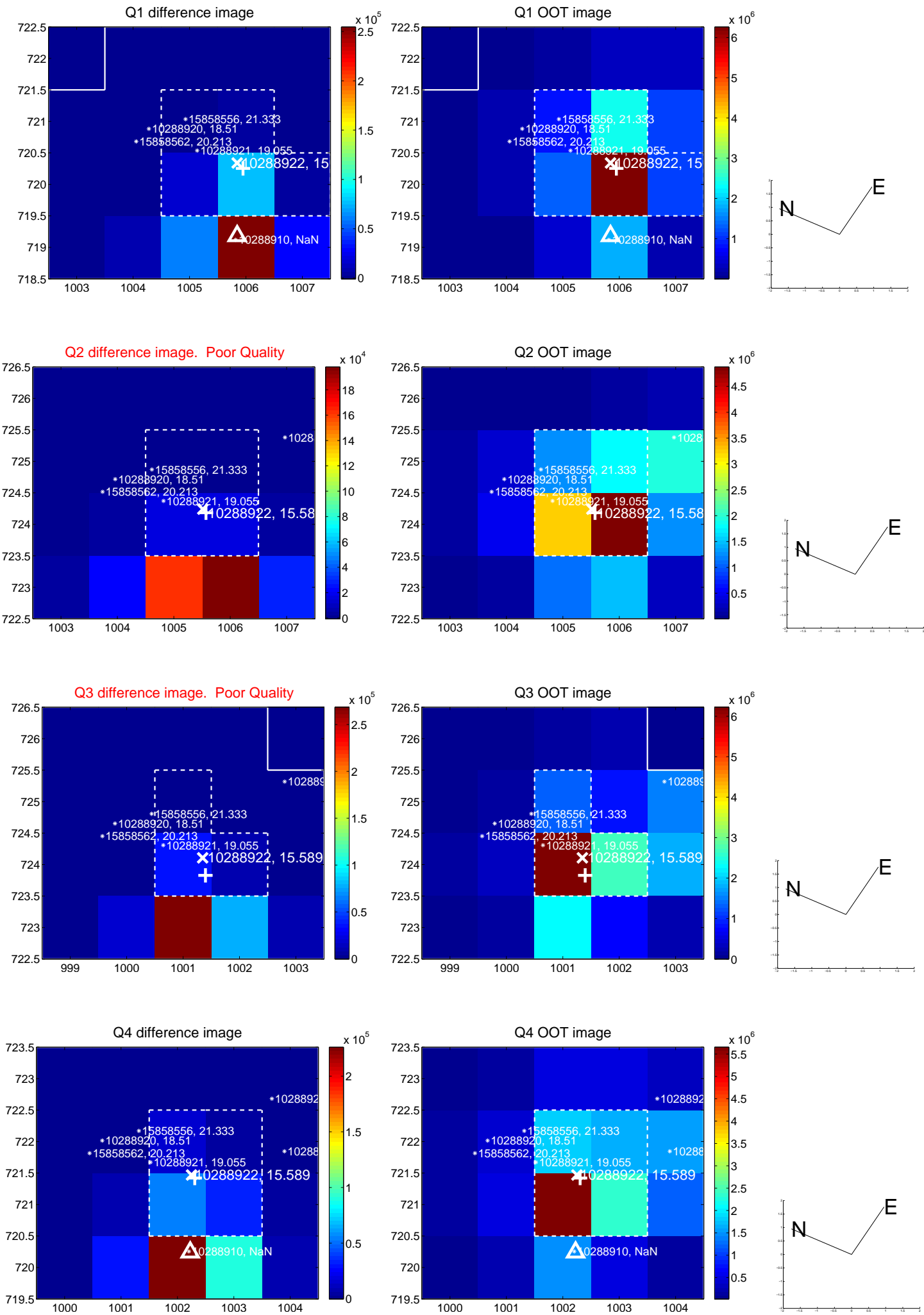


offset from photometric centroids

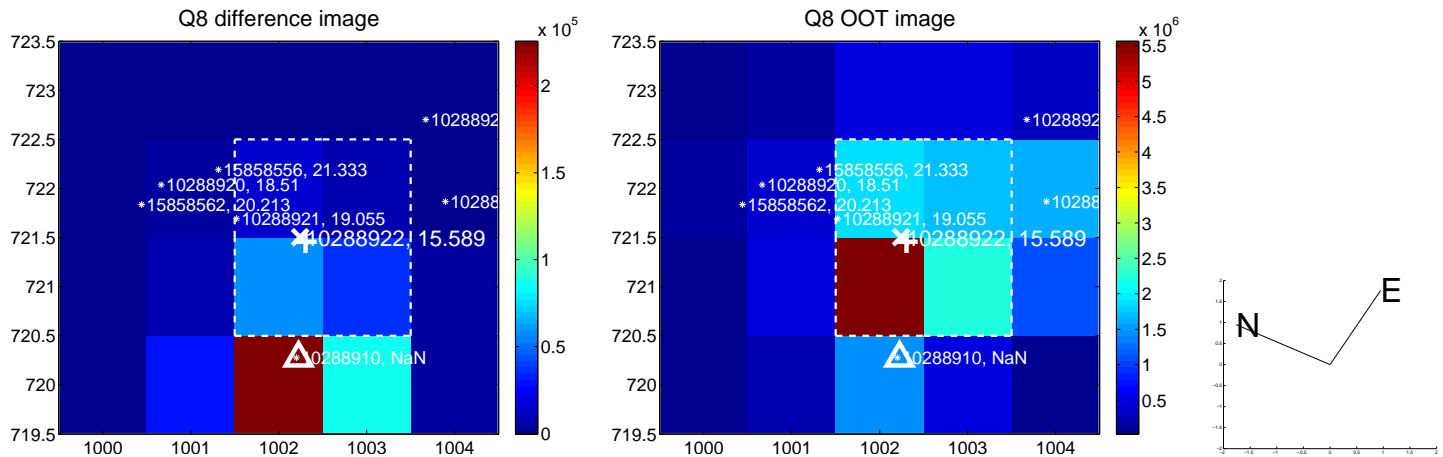
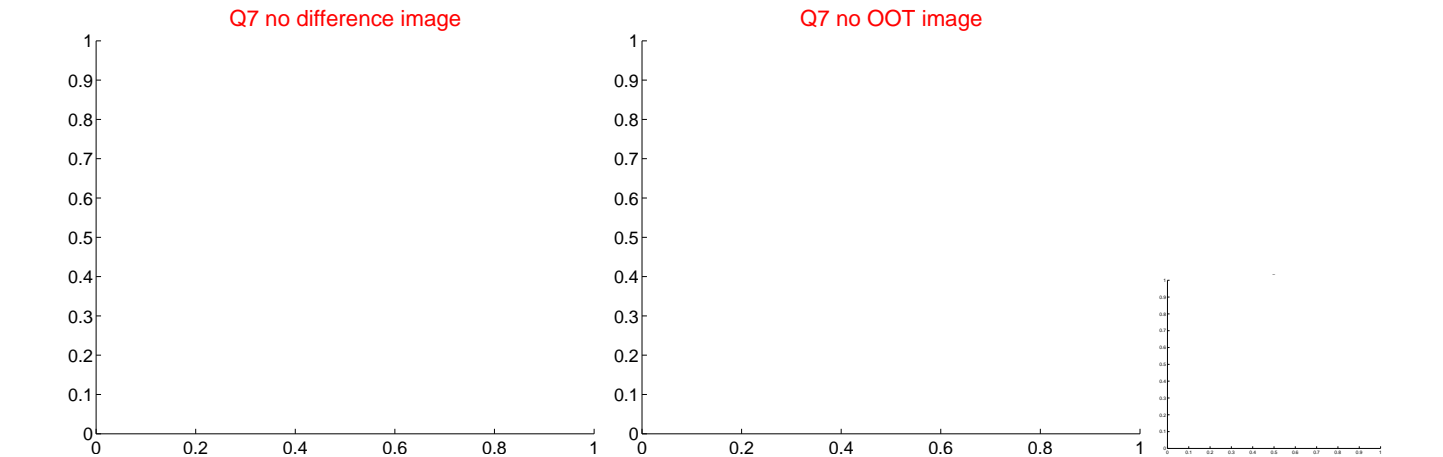
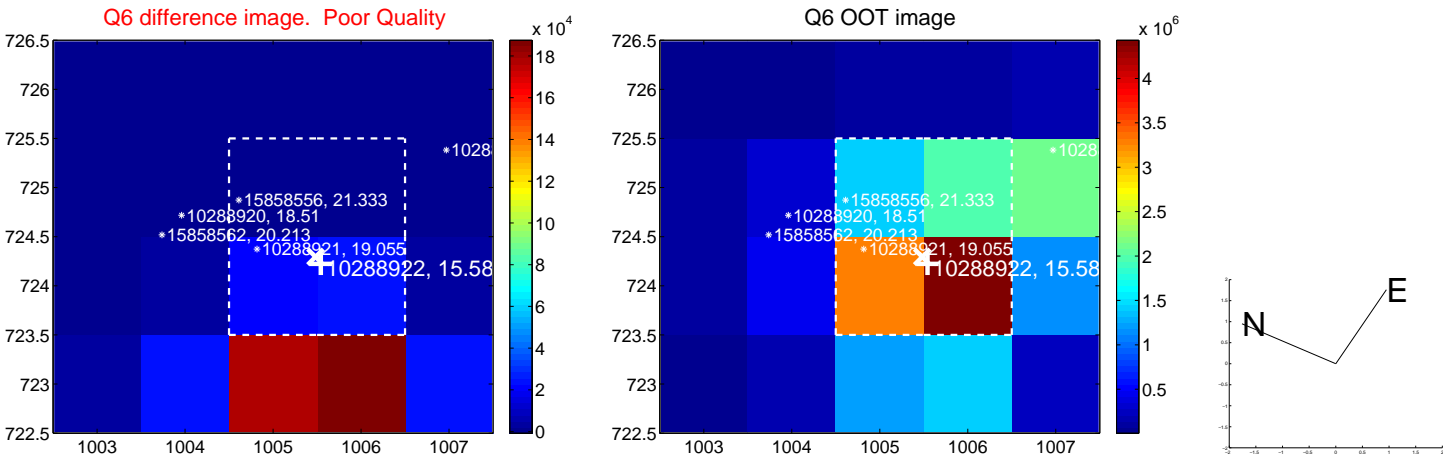
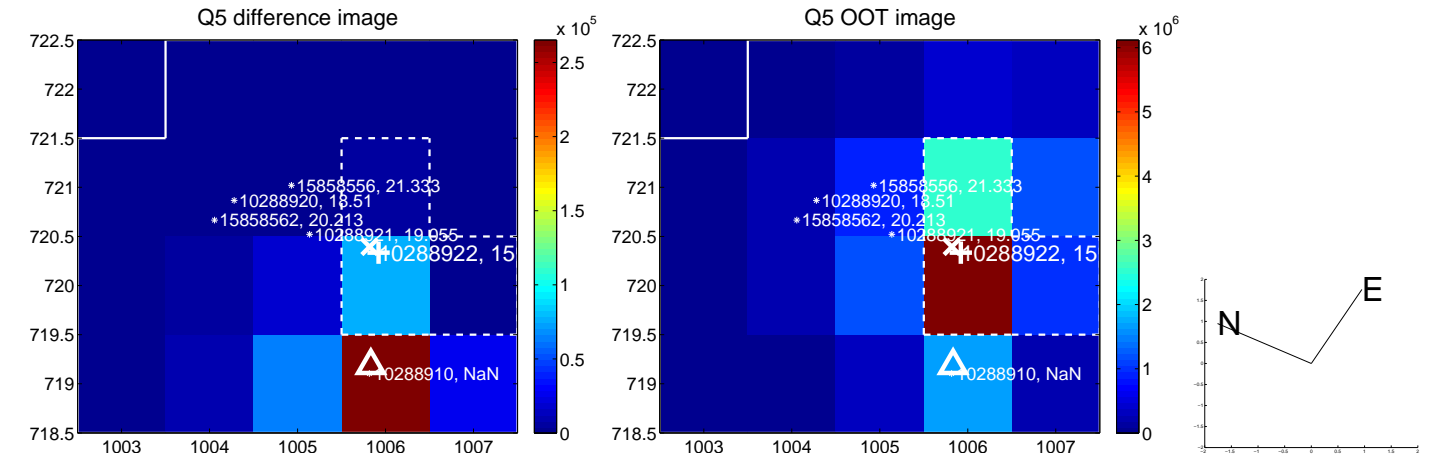


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

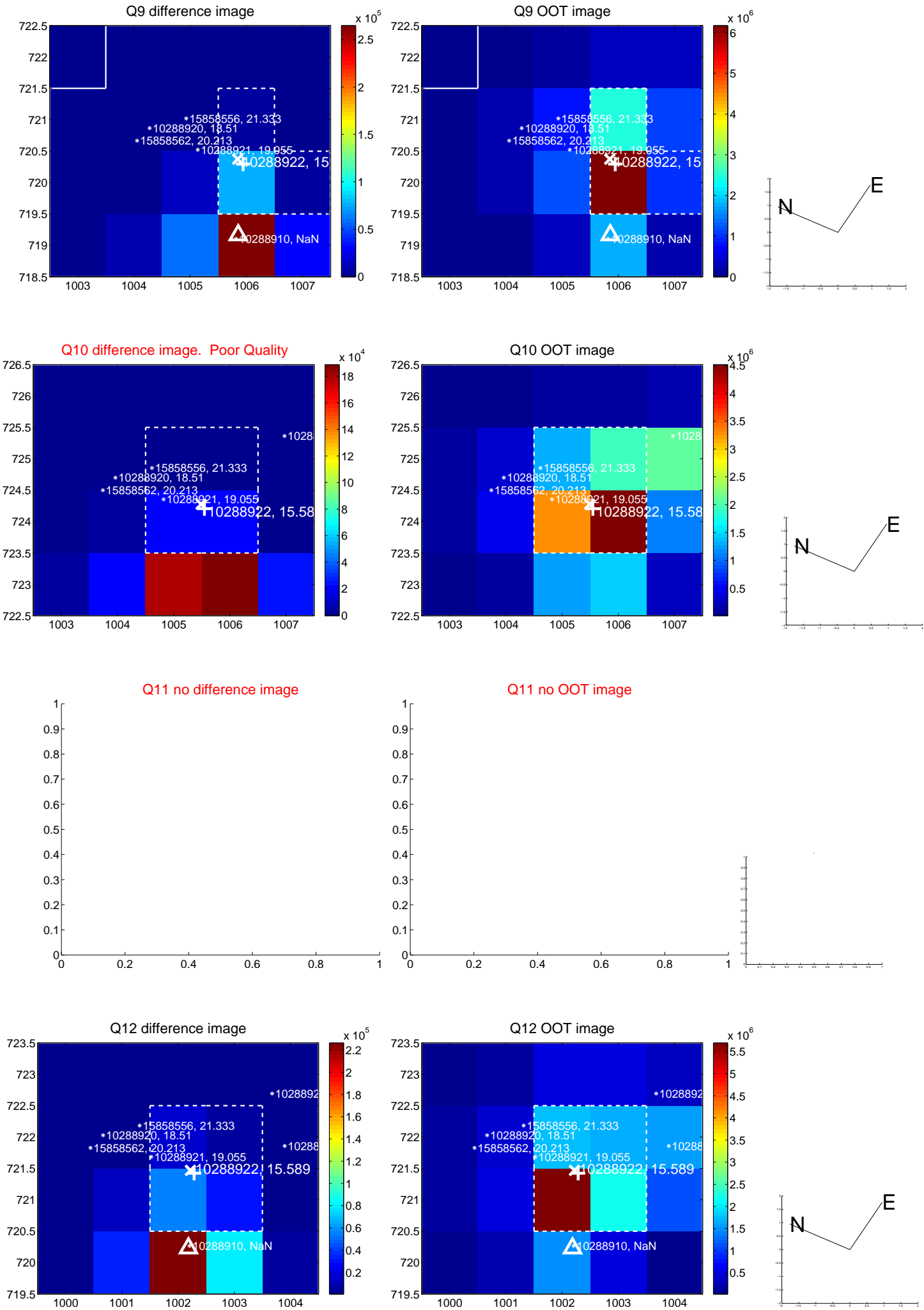
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



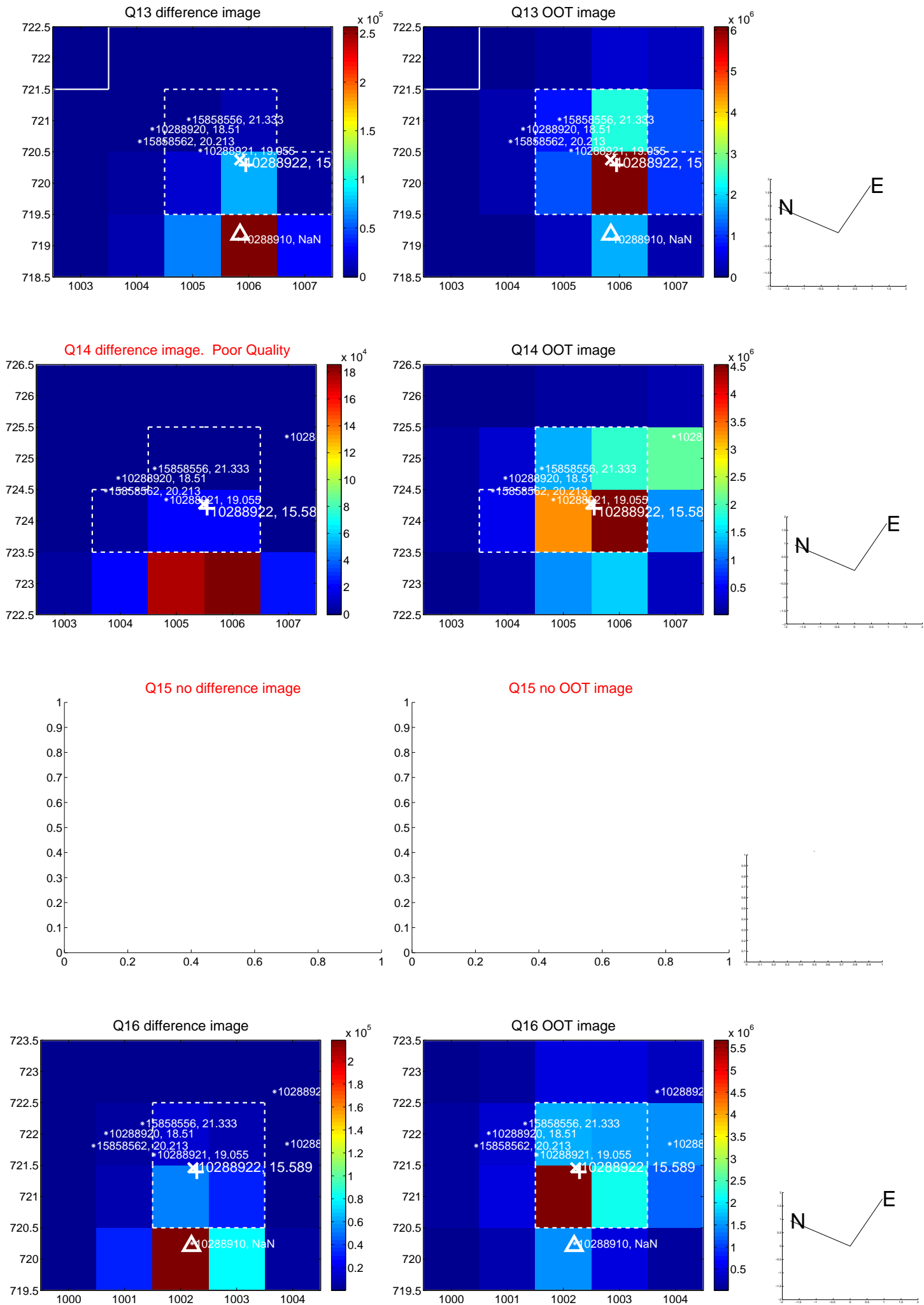
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



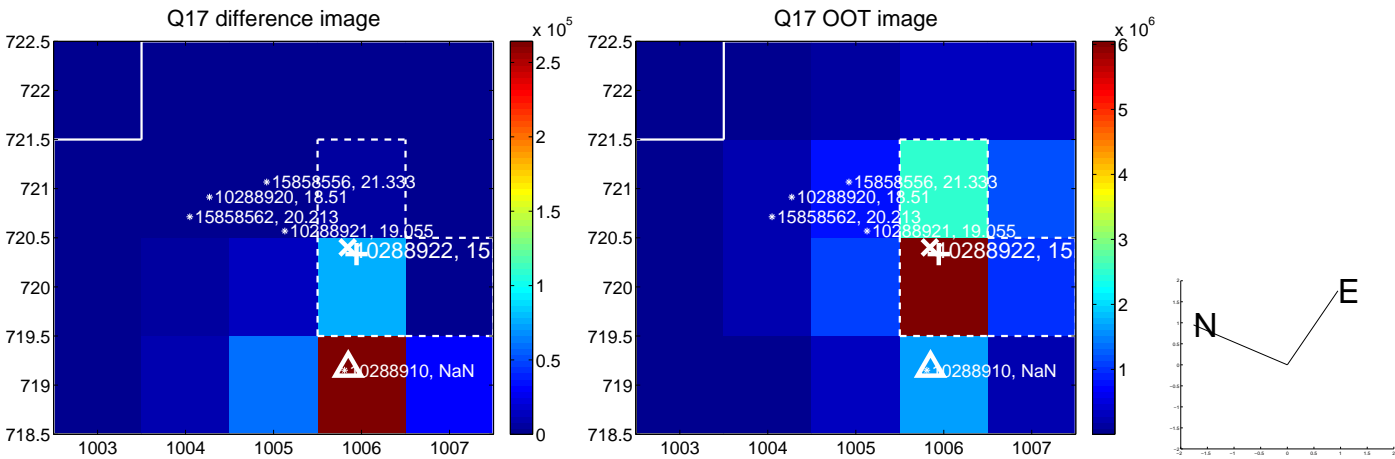
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



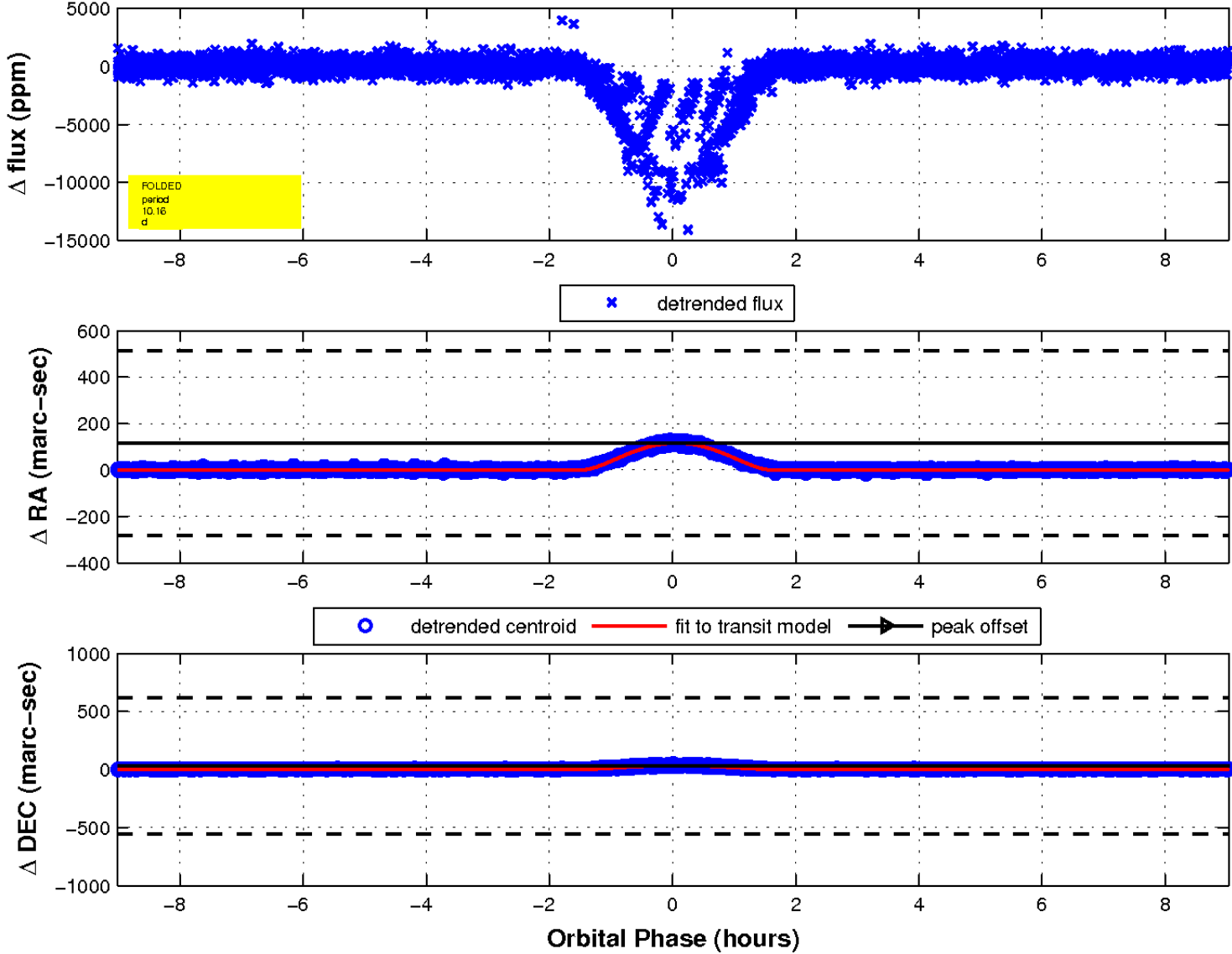
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

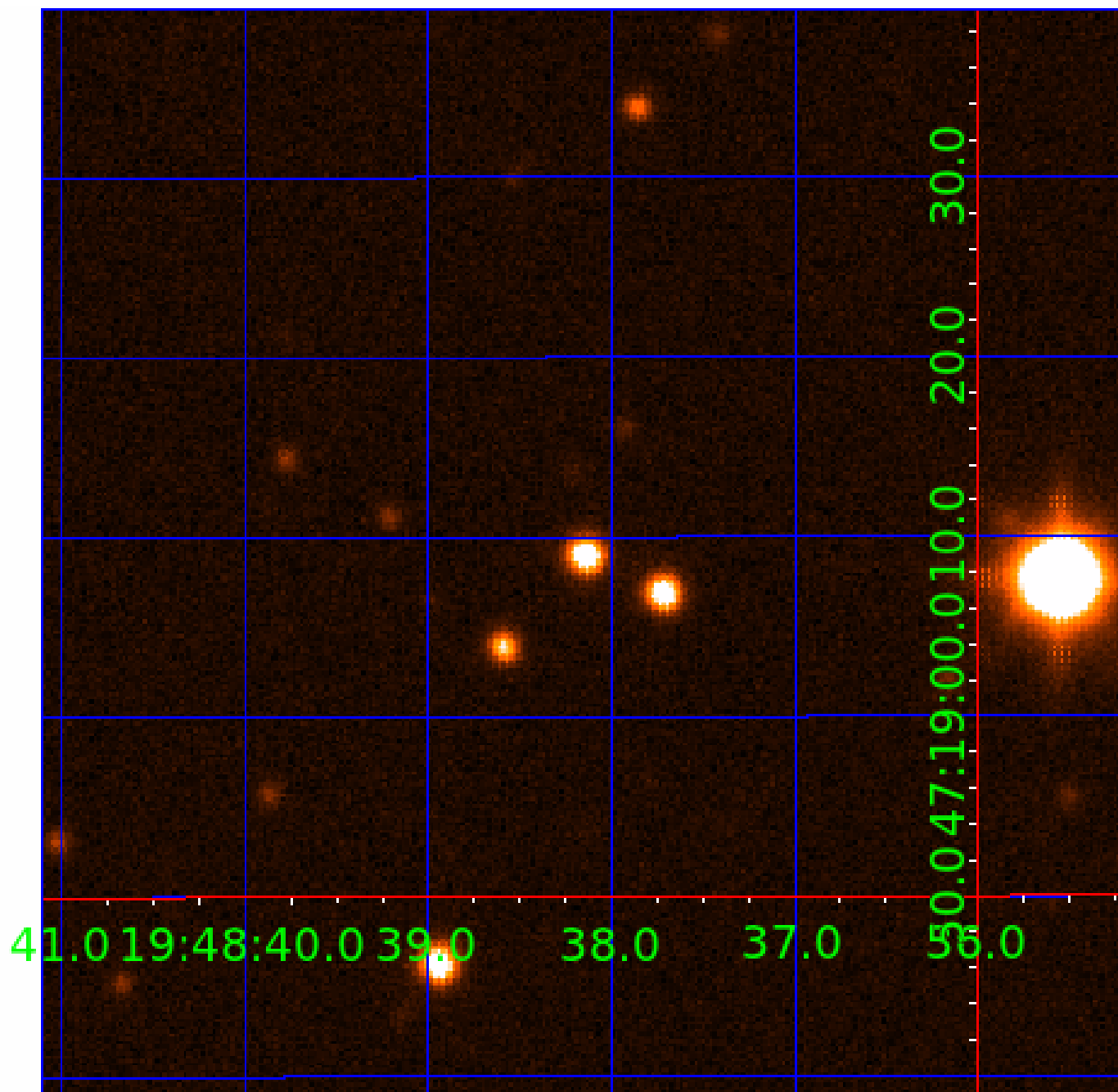


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 010288922

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})
010288922-01	OBS	6078.01	10.157713	139.442636	9980.4	3.013	255.4	228.5	0.99	5993	17.79	125.60
010288922-02	OBS	No	10.157717	134.590693	7816.7	2.957	196.1	177.4	0.99	5993	15.65	125.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010288922-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
010288922-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST

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.

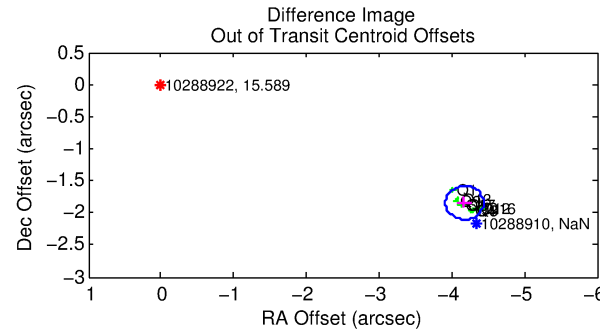
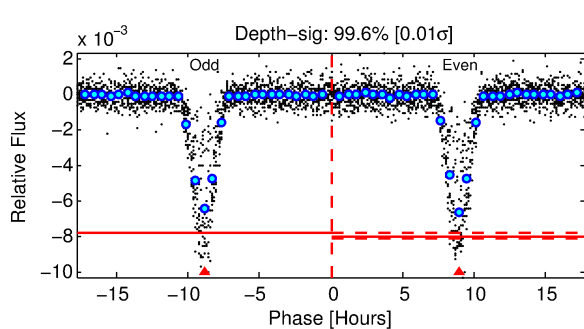
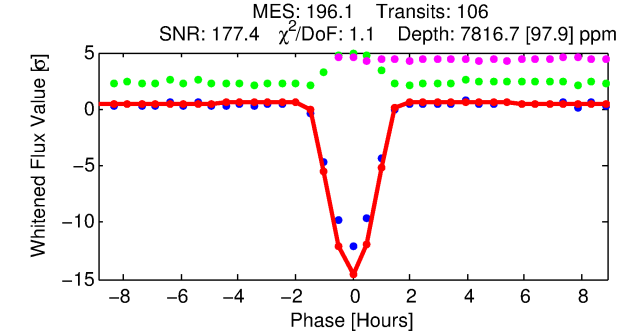
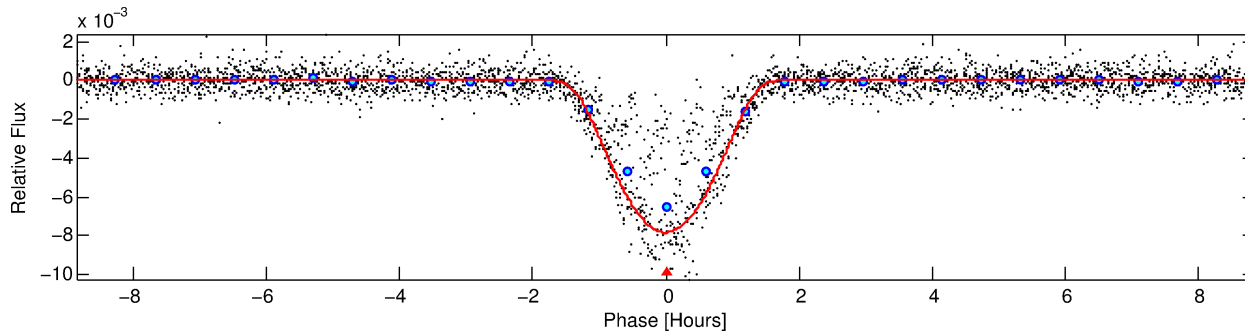
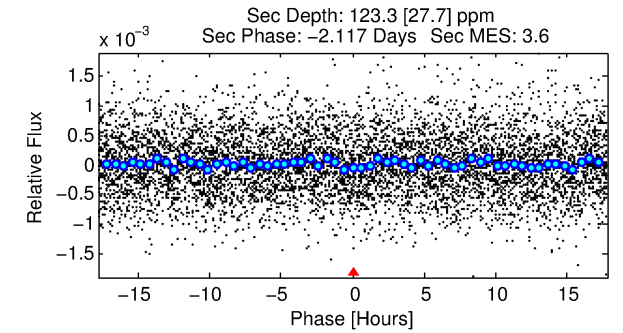
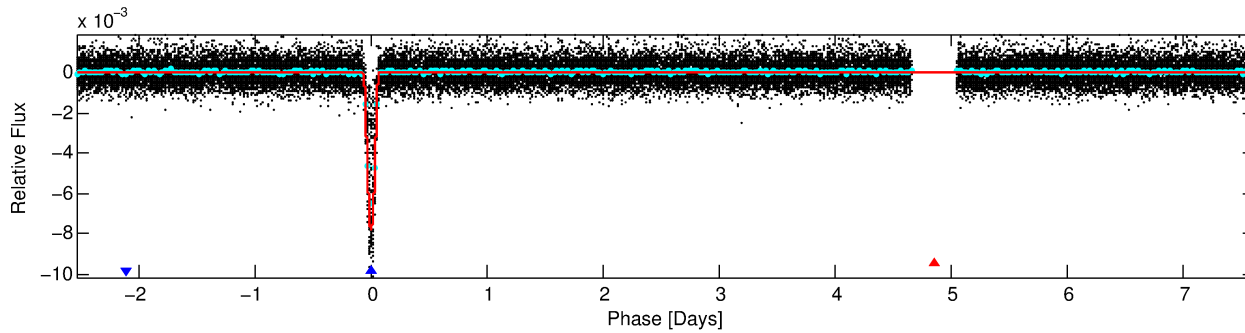
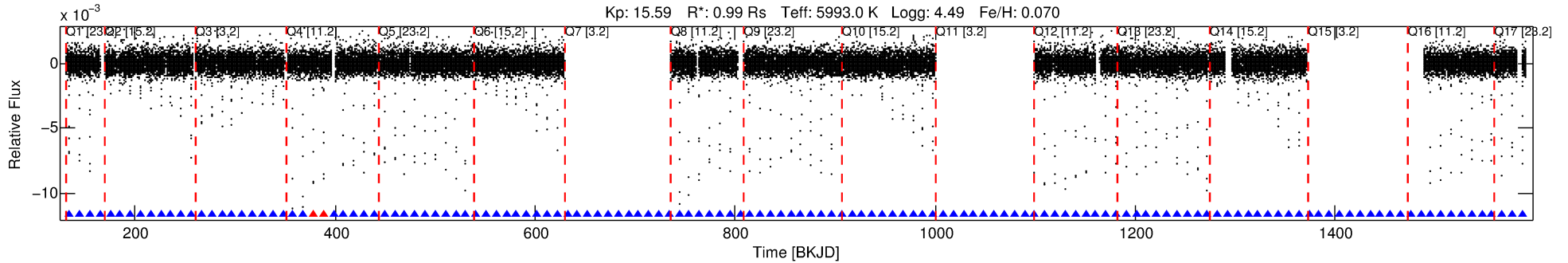
Ephemeris Match Information For 010288922-02

No Significant Match Found

DV One-Page Summary

KIC: 10288922 Candidate: 2 of 2 Period: 10.158 d
KOI: K06078 Corr: No Ephemeris Match

Kp: 15.59 R*: 0.99 Rs Teff: 5993.0 K Logg: 4.49 Fe/H: 0.070



DV Fit Results:

Period = 10.15772 [0.00000] d
Epoch = 134.5907 [0.0003] BKJD
Rp/R* = 0.1454 [0.0408]
a/R* = 14.84 [0.68]
b = 1.00 [0.06]
Seff = 125.60 [52.44]
Teq = 854 [89] K
Rp = 15.65 [6.53] Re
a = 0.0946 [0.0248] AU
Ag = 2.48 [1.77] [0.83σ]
Teffp = 1656 [259] K [2.93σ]

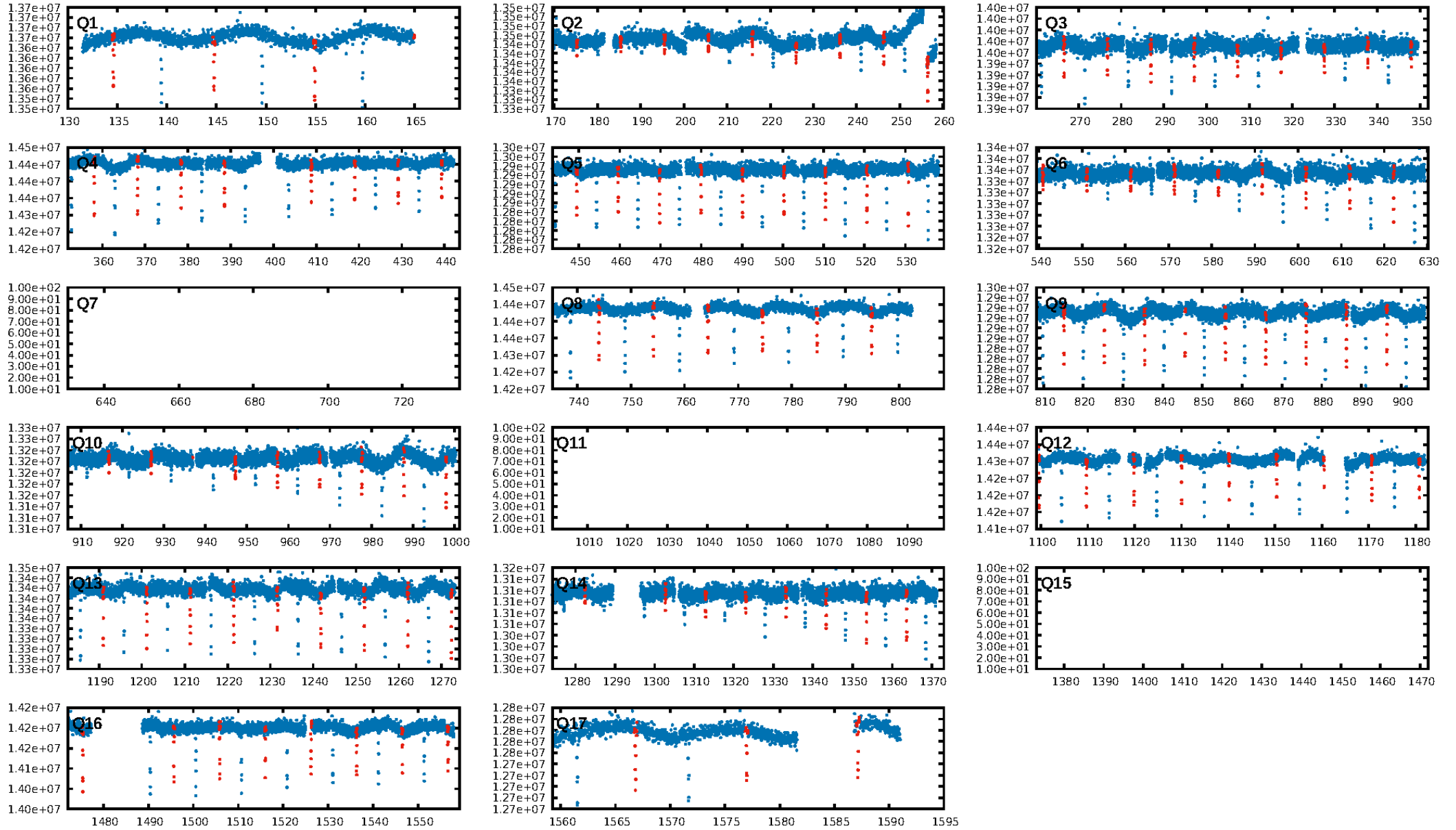
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.98 [98/100]
GhostDiagnostic-chr: -0.1802
Centroid-sig: 0.0%
Centroid-so: 11.879 arcsec [221.86σ]
OotOffset-rm: 4.561 arcsec [52.07σ]
KicOffset-rm: 4.812 arcsec [65.08σ]
OotOffset-st: 0/0/4/5 [9]
KicOffset-st: 0/0/4/5 [9]
DiffImageQuality-fgm: 1.00 [9/9]
DiffImageOverlap-fno: 1.00 [14/14]

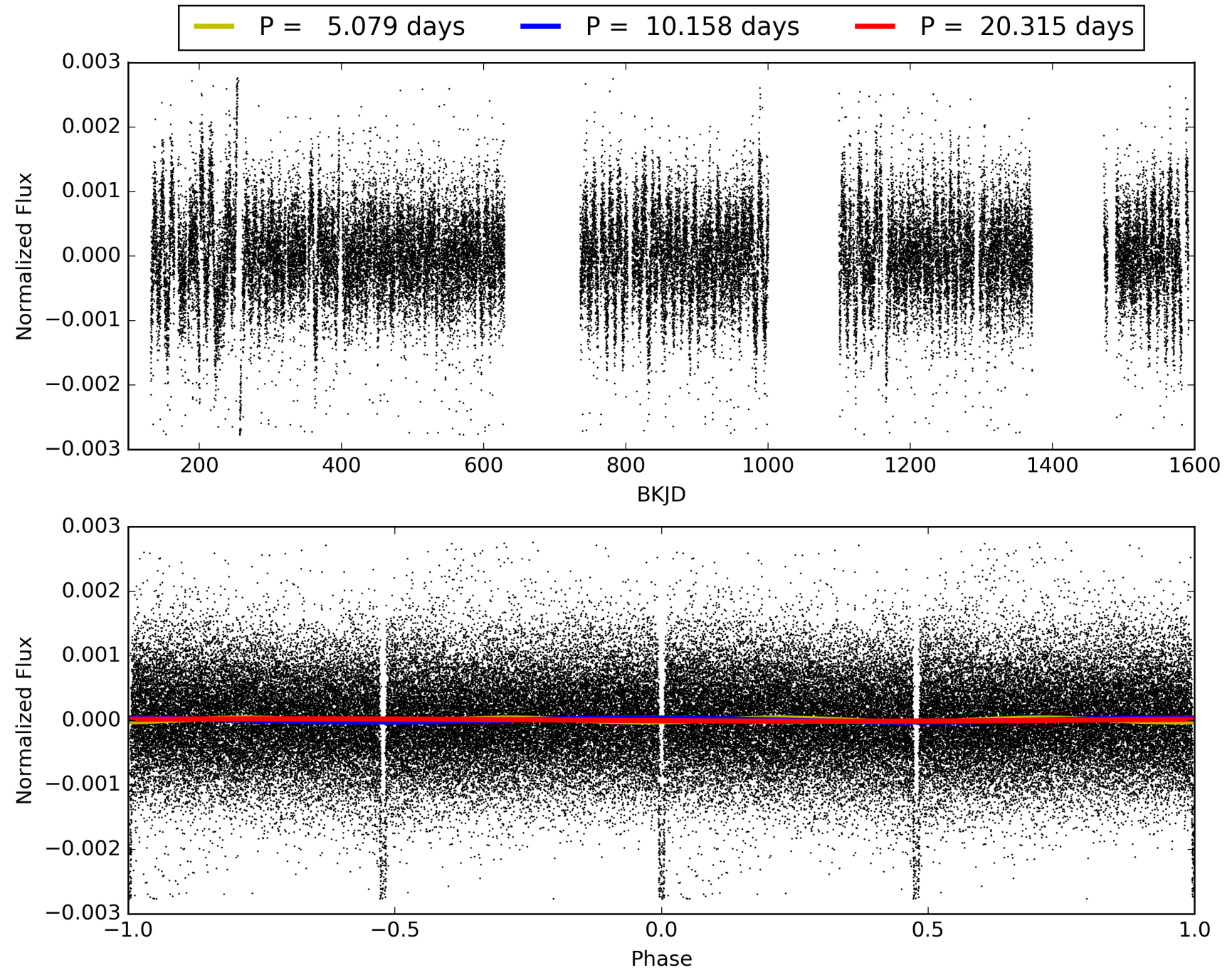
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:17:56 Z

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

TCE 010288922-02, PDC Light Curves

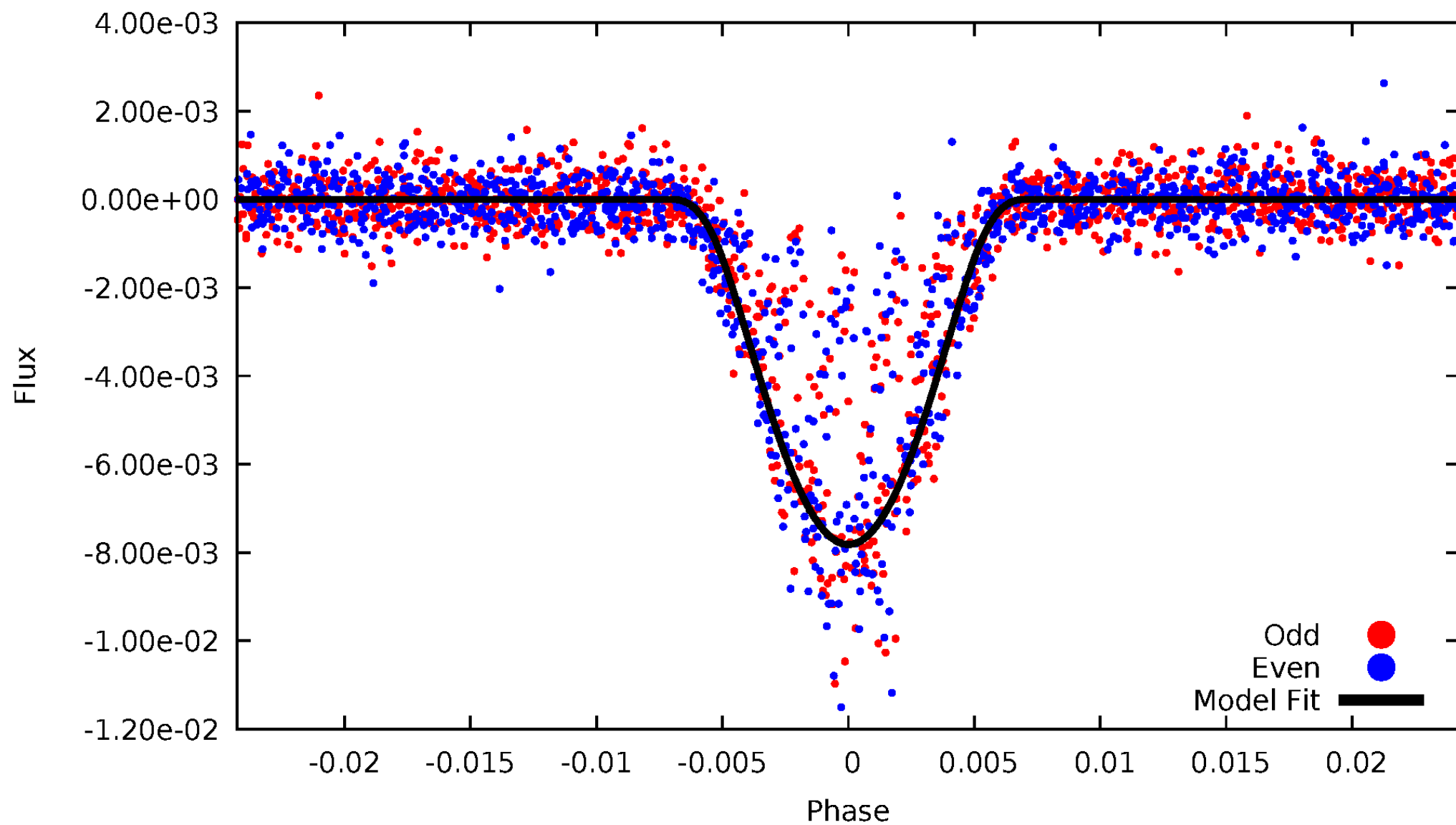


TCE 010288922-02



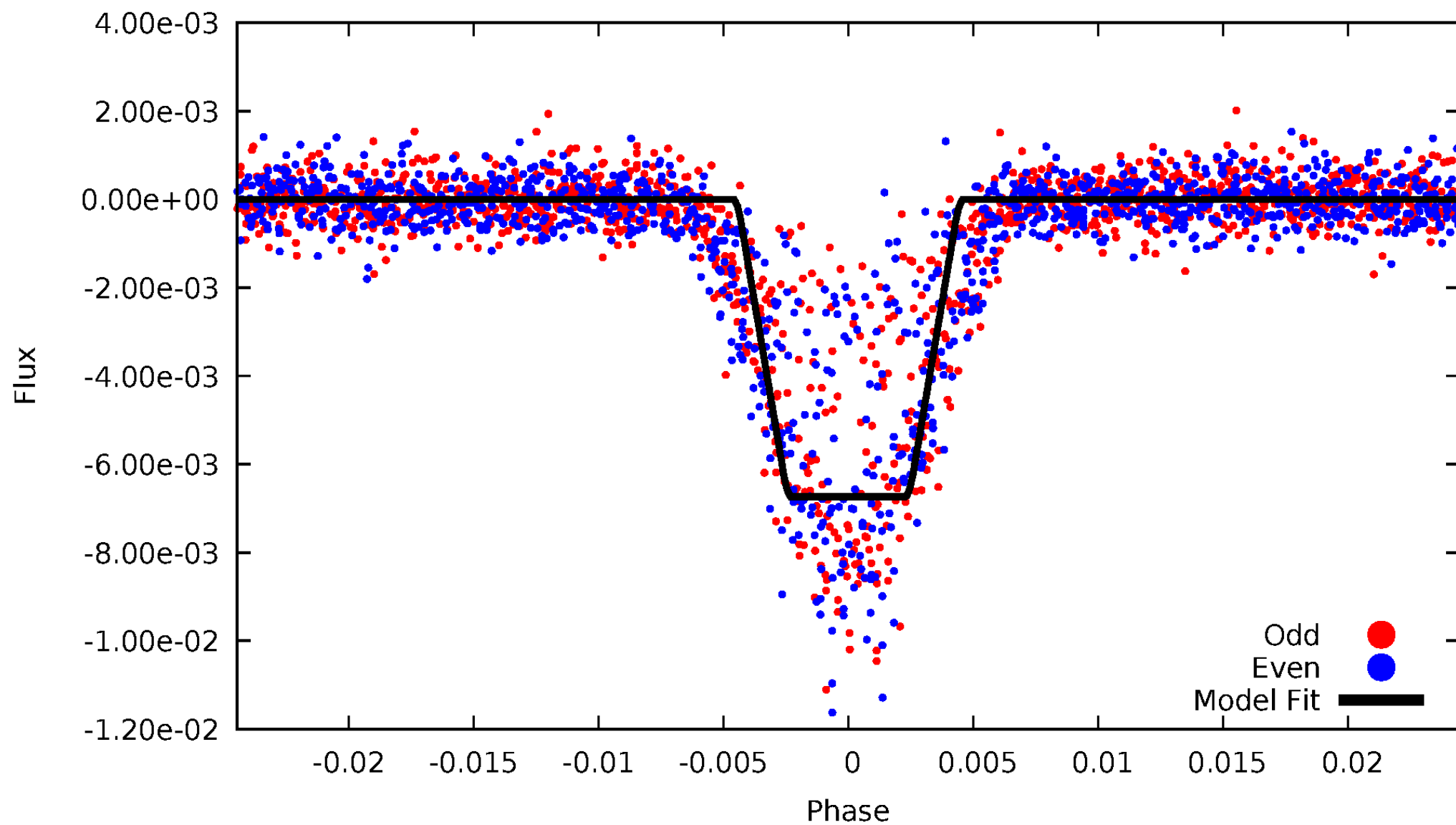
DV Odd/Even

TCE 010288922-02



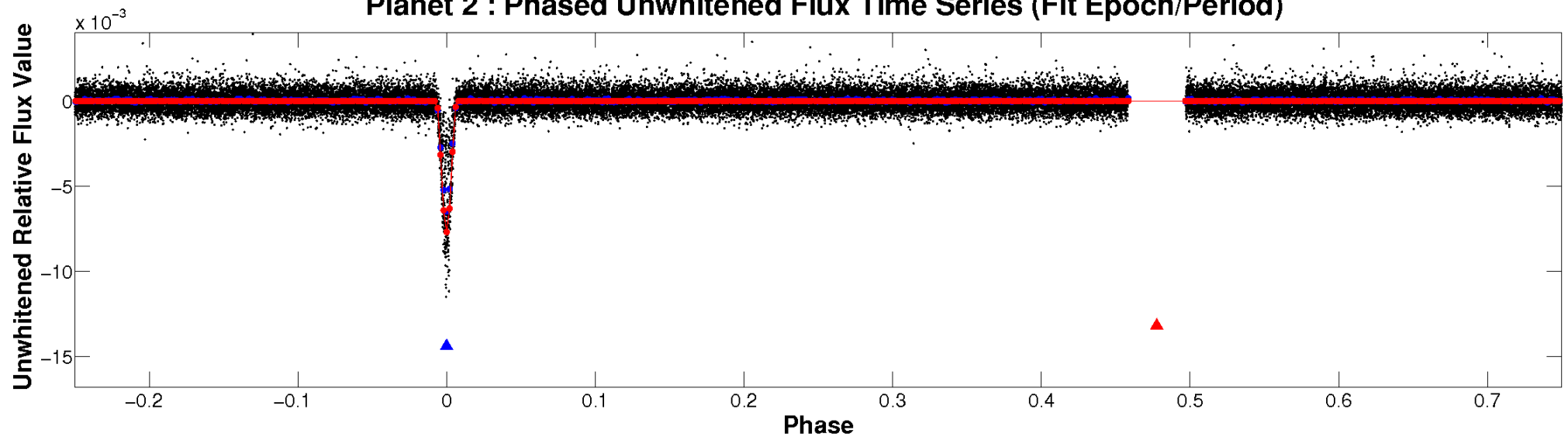
ALT Odd/Even

TCE 010288922-02

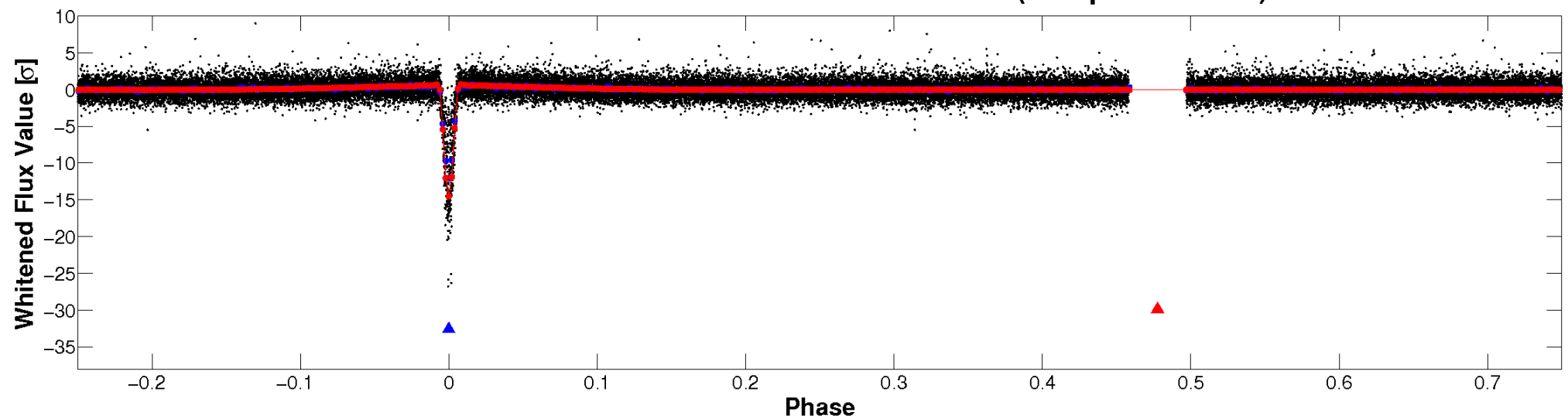


Non-Whitened Vs. Whitened Light Curve

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

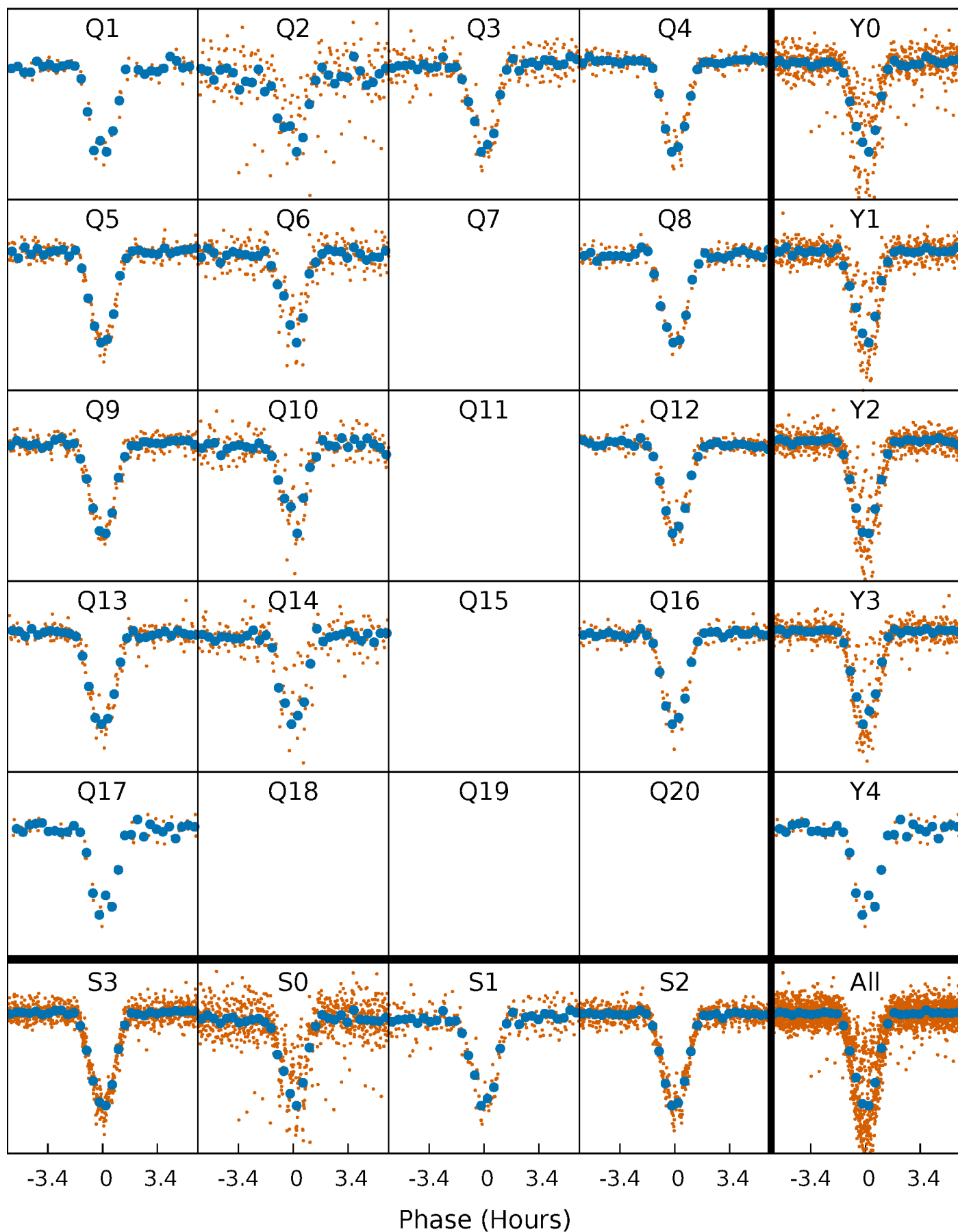


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



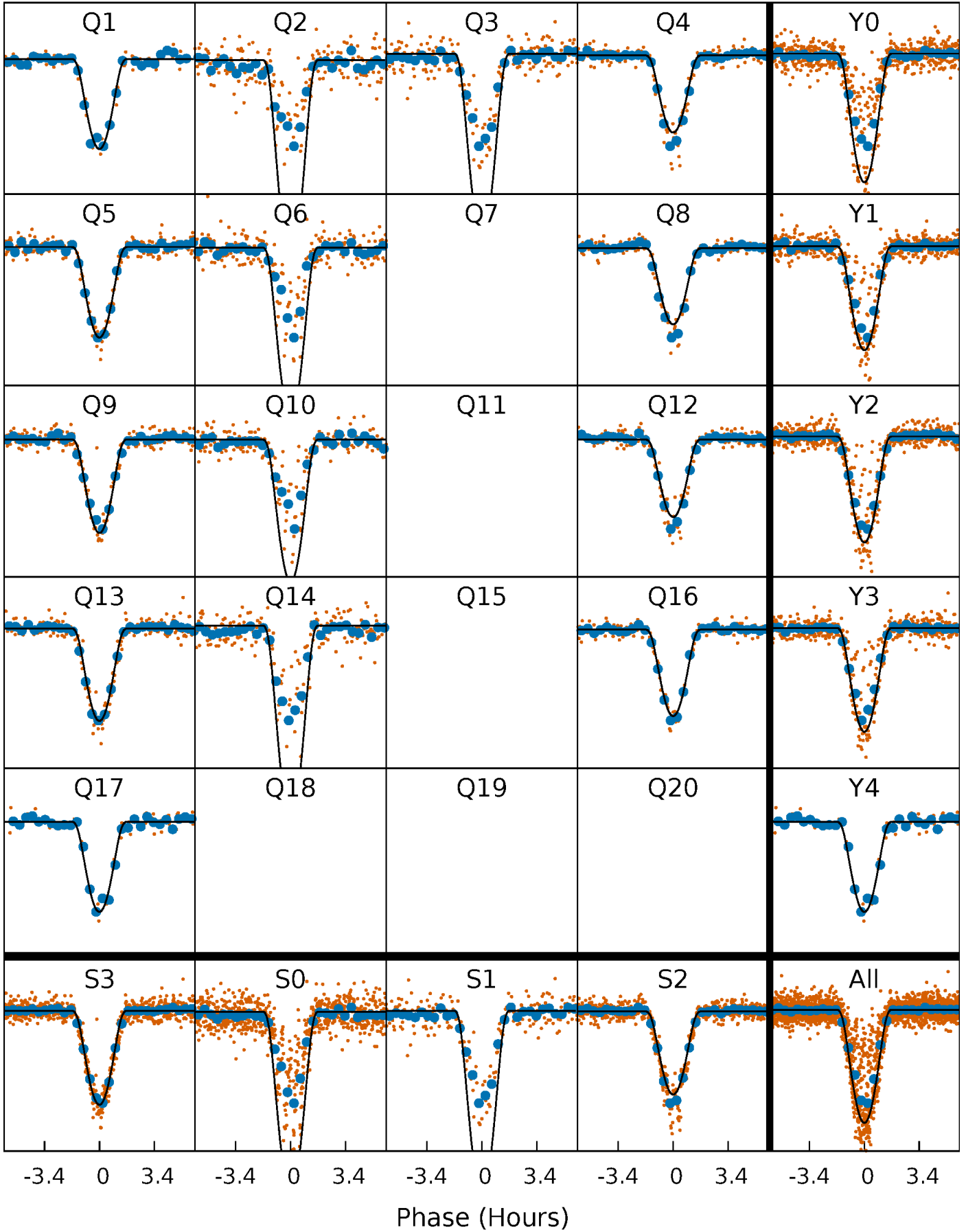
PDC Quarter-Phased Transit Curves

TCE 010288922-02 P= 10.157717 Days $T_0=134.590693$ (BKJD)



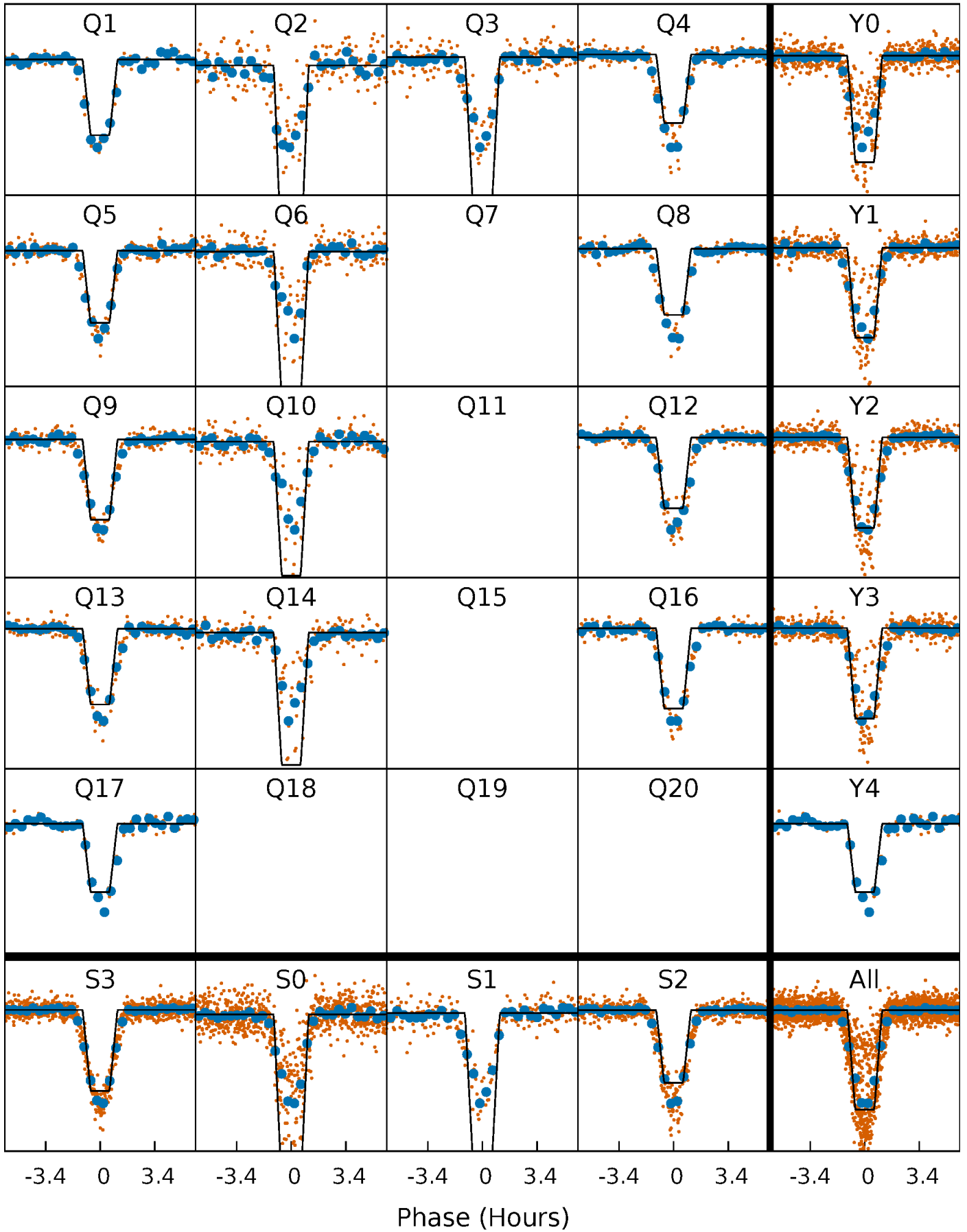
DV Quarter-Phased Transit Curves

TCE 010288922-02 P= 10.157717 Days $T_0=134.590693$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

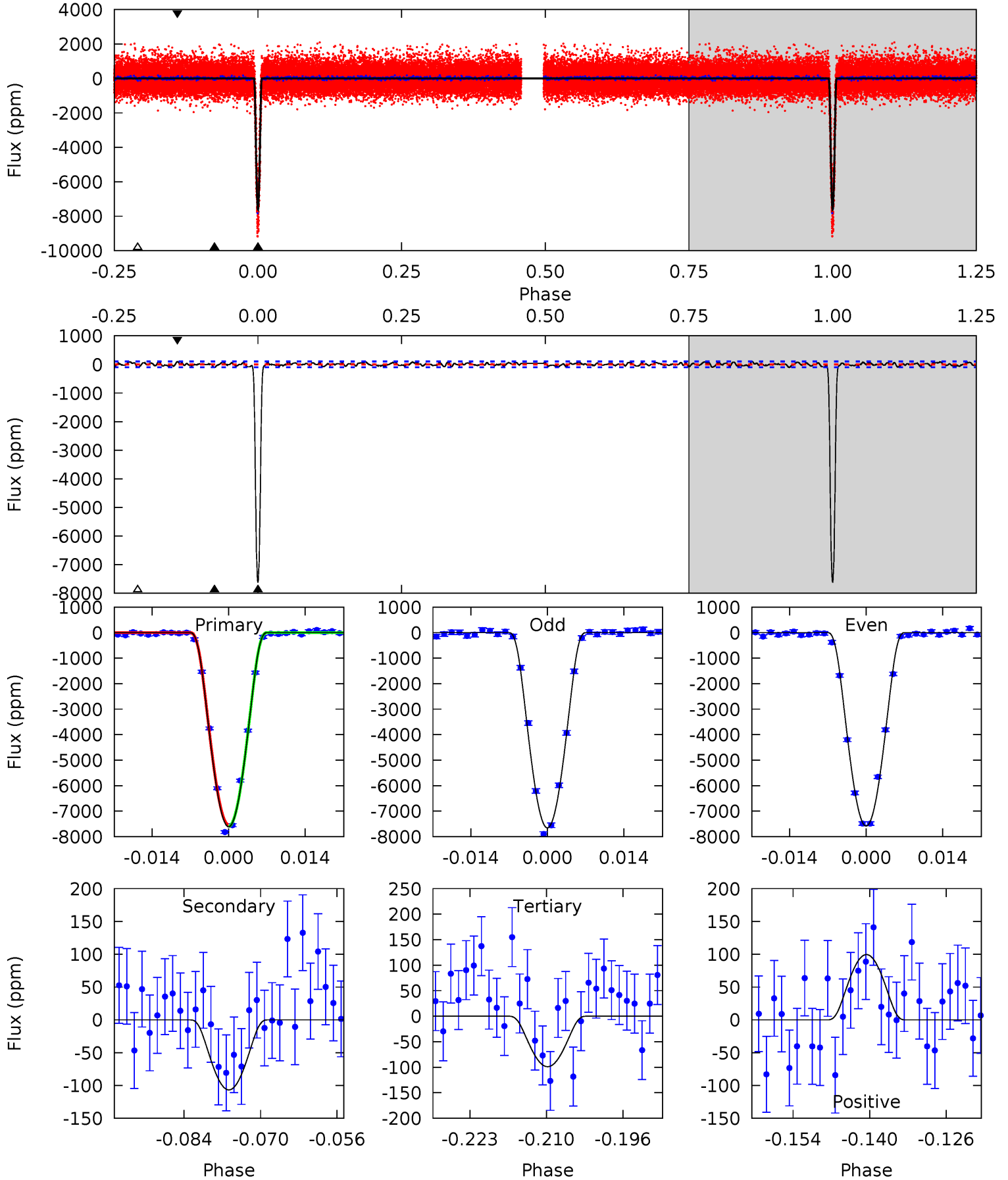
TCE 010288922-02 $P = 10.157641$ Days $T_0 = 134.595990$ (BKJD)



DV Model-Shift Uniqueness Test

010288922-02, P = 10.157717 Days, E = 124.432976 Days

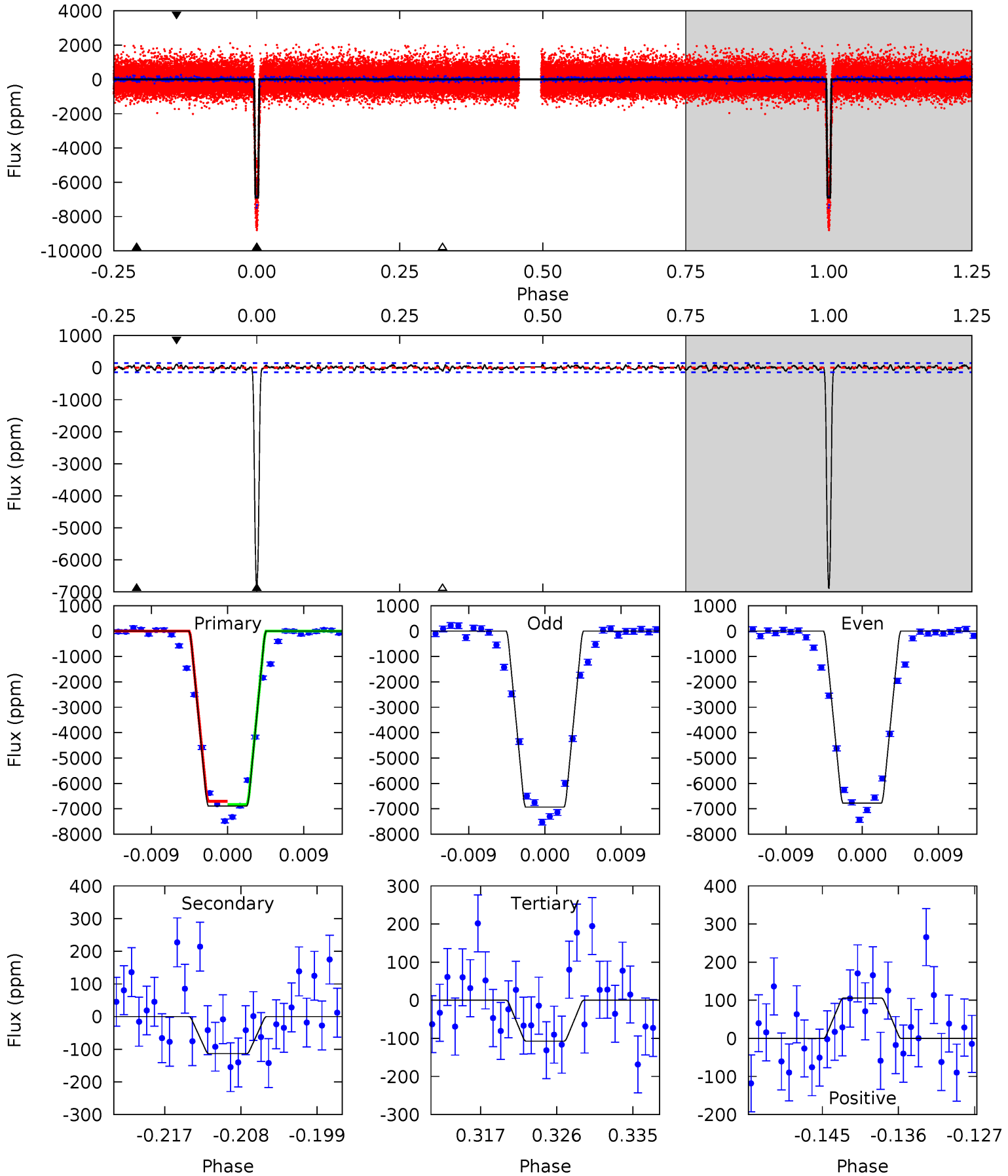
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
370.8	5.20	4.82	4.85	4.96	2.46	1.82	366.0	365.9	0.38	0.35	1.73	0.87	0.01	0



Alt Model-Shift Uniqueness Test

010288922-02, $P = 10.157641$ Days, $E = 124.438349$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
243.7	4.00	3.79	3.73	5.05	2.61	1.29	239.9	239.9	0.21	0.27	2.74	0.87	0.02	2.10



Stellar Parameters For KIC 010288922

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5993^{+193}_{-241}	$4.489^{+0.050}_{-0.212}$	$0.070^{+0.250}_{-0.300}$	$0.986^{+0.305}_{-0.095}$	$1.093^{+0.130}_{-0.145}$	$1.607^{+0.338}_{-0.862}$
	+3%/-4%	+1%/-5%	+357%/-429%	+31%/-10%	+12%/-13%	+21%/-54%
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 010288922-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-107 ± 21	$16.43^{+5.24}_{-4.77}$	1215^{+86}_{-65}	2396^{+250}_{-187}	$1.874^{+2.000}_{-0.818}$
Alt.	-113 ± 28	$9.03^{+4.78}_{-4.10}$	1217^{+93}_{-60}	2874^{+565}_{-347}	$6.687^{+15.281}_{-4.007}$

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

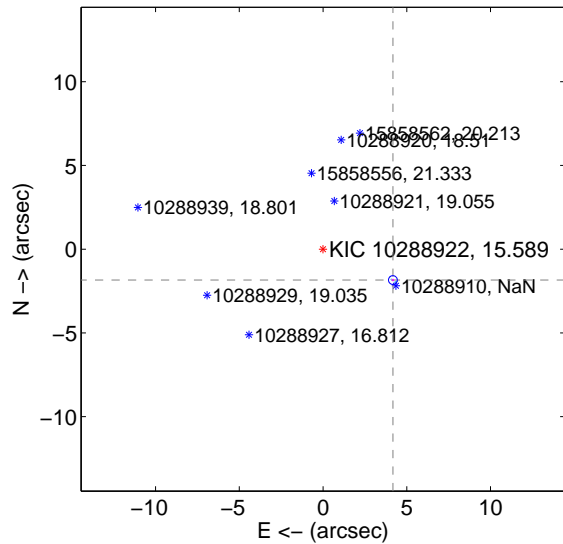
Supplemental centroid analysis for 010288922-02. Kepler magnitude: 15.59. Transit SNR 177.37

There are 9 quarters with good PRF difference image offsets

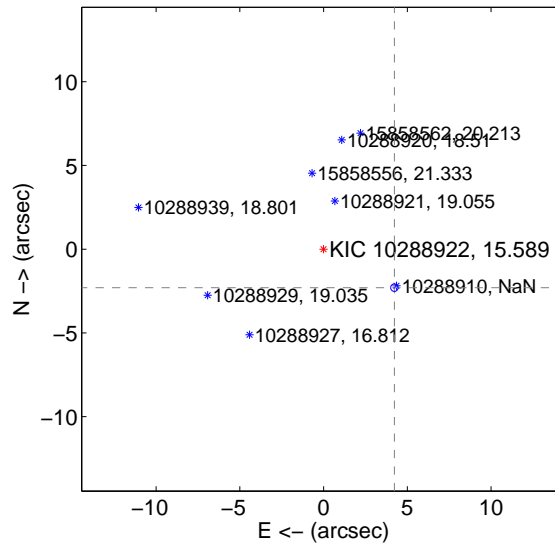
The direct PRF centroid is offset from the target star catalog position by about 0.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.561 ± 0.088	52.07	-4.172 ± 0.082	-1.844 ± 0.075
PRF-fit source offset from KIC position	4.812 ± 0.074	65.08	-4.227 ± 0.076	-2.300 ± 0.069
photometric centroid source offset	11.88 ± 0.05	221.86	-11.26 ± 0.05	-3.78 ± 0.05

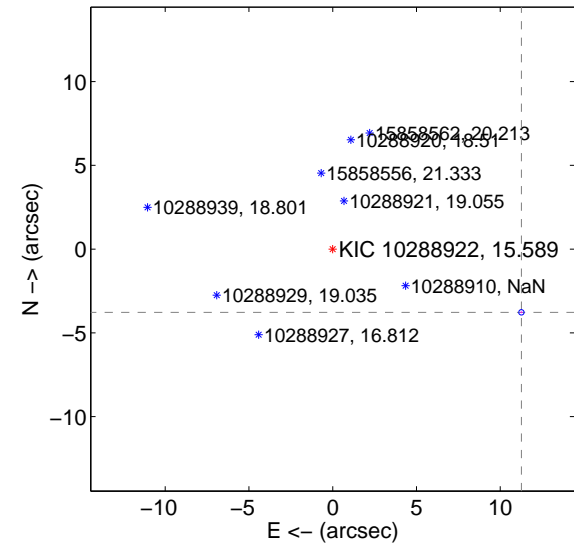
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

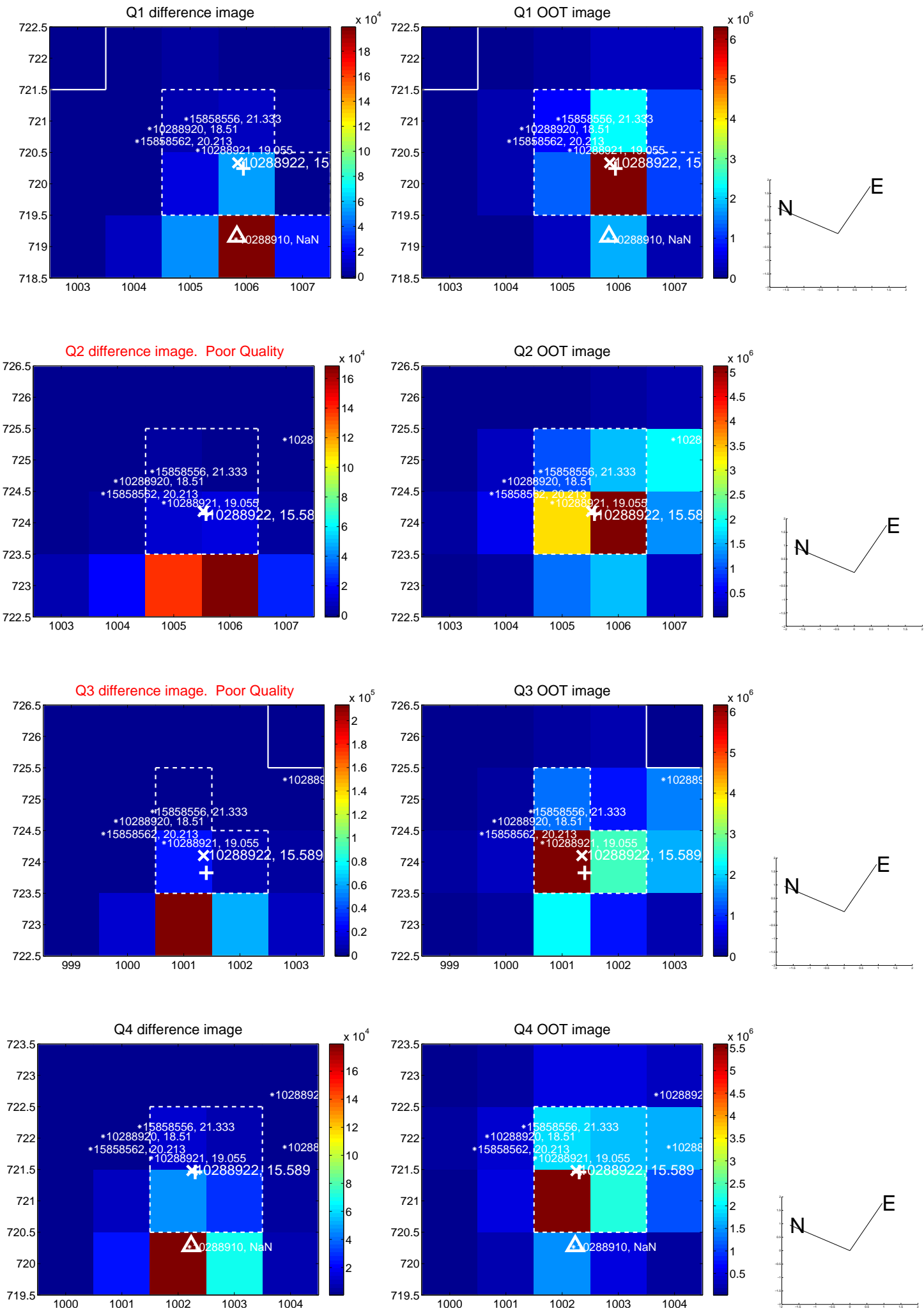


offset from photometric centroids

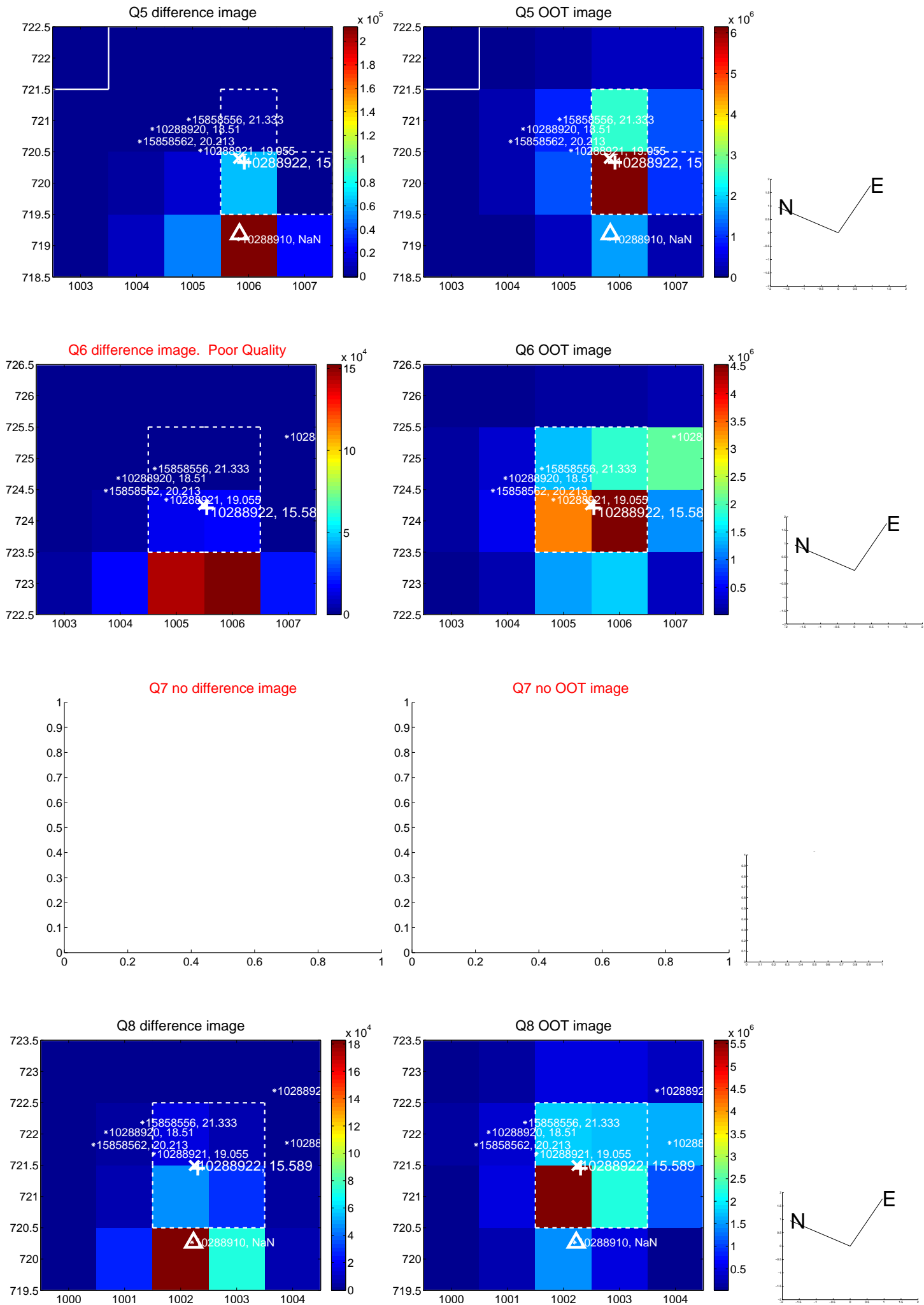


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

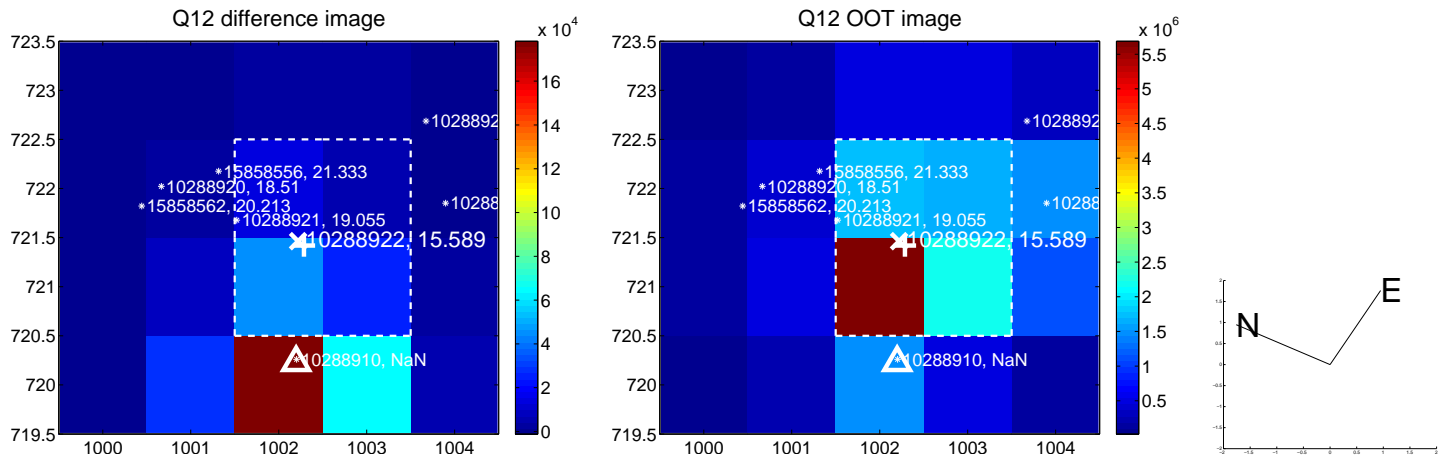
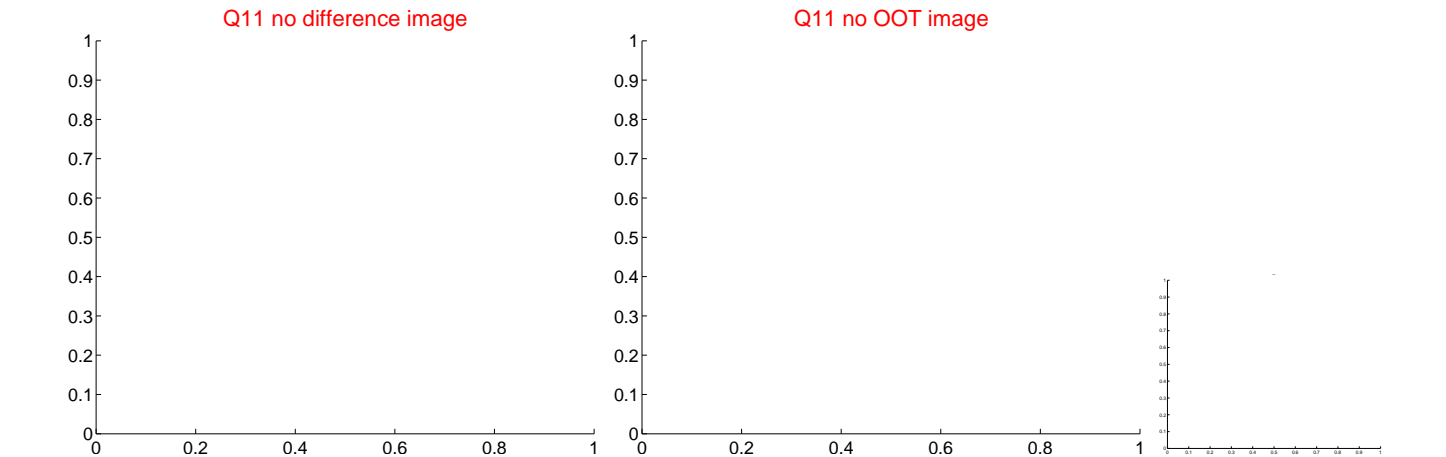
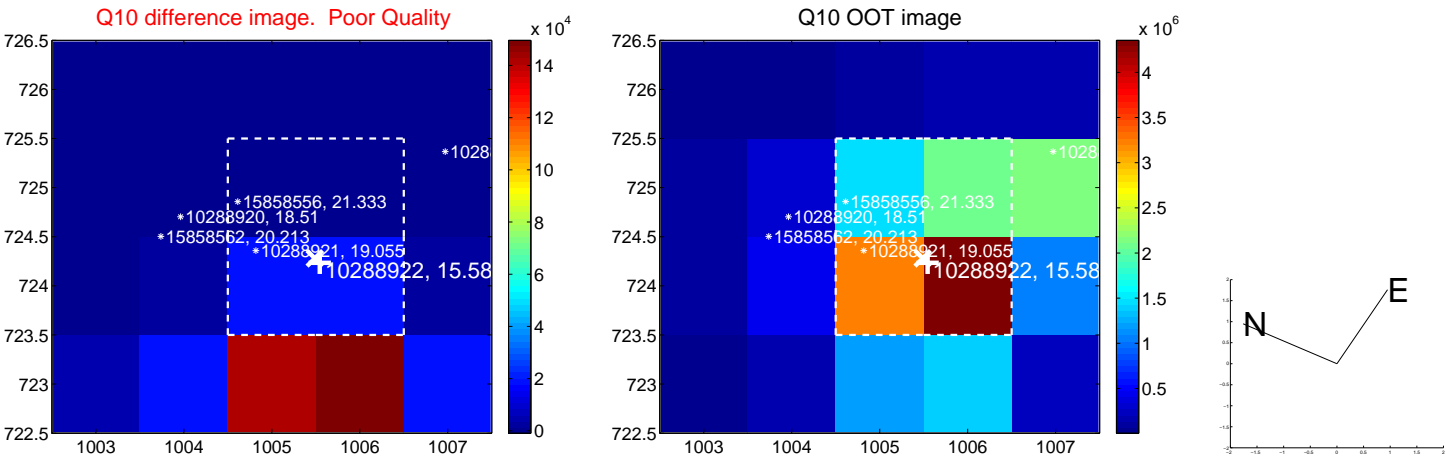
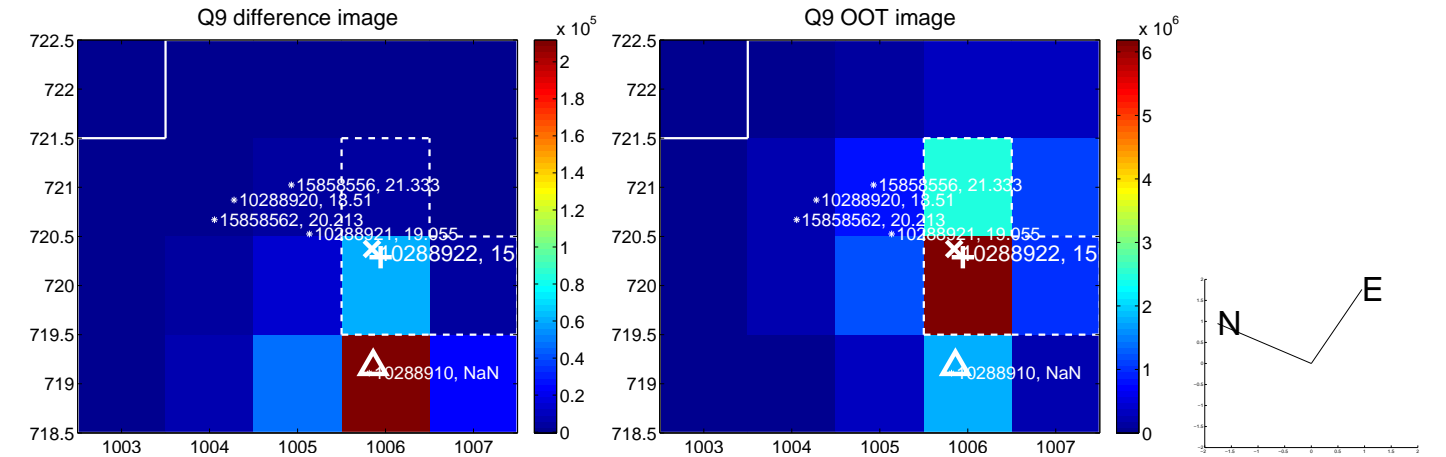
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



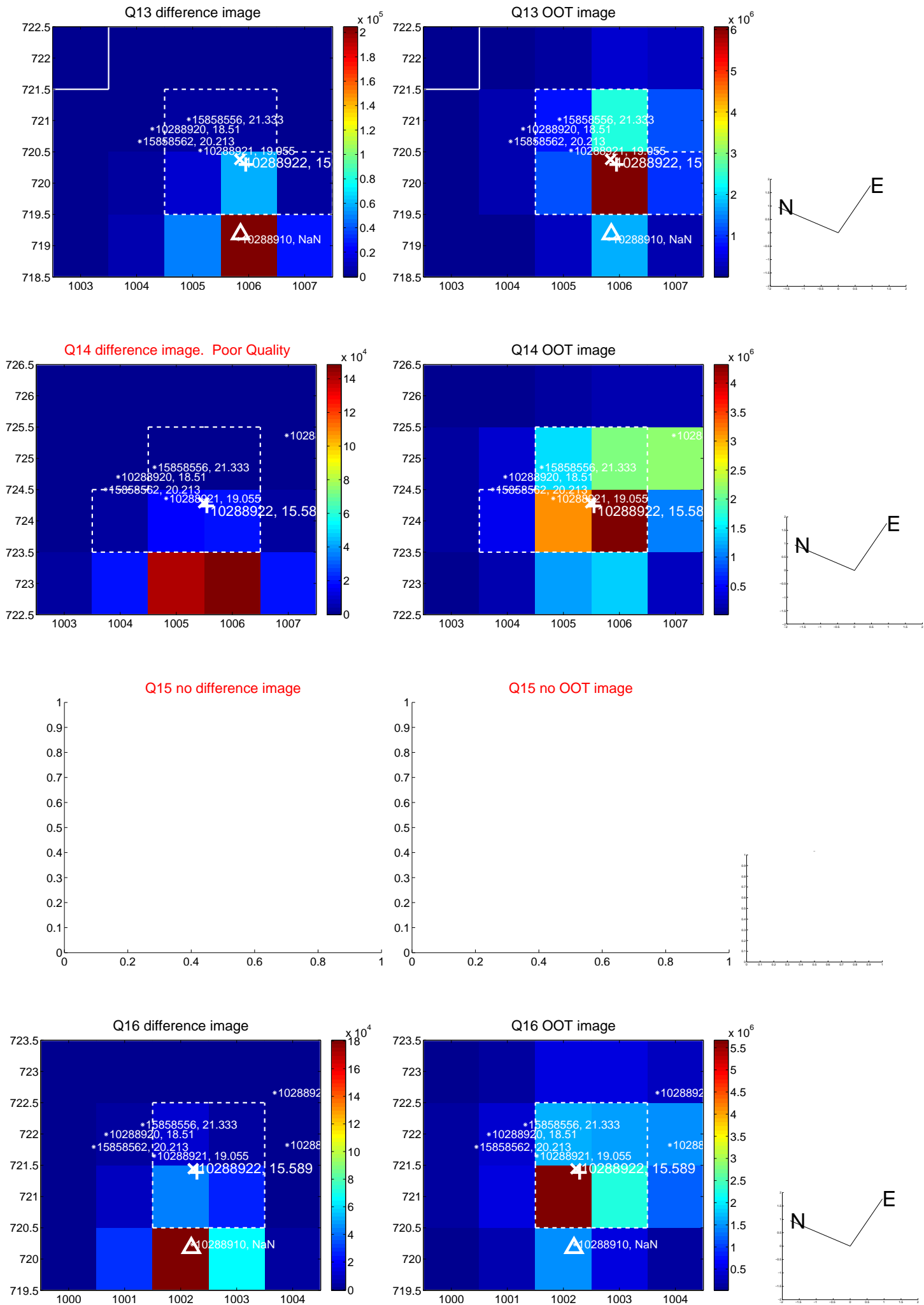
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



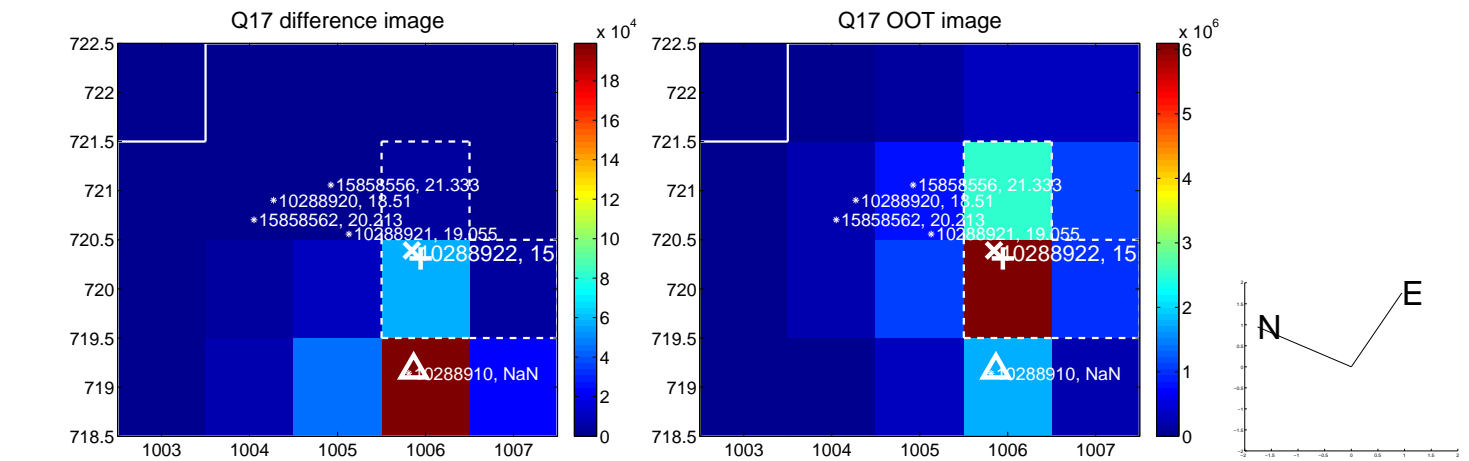
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



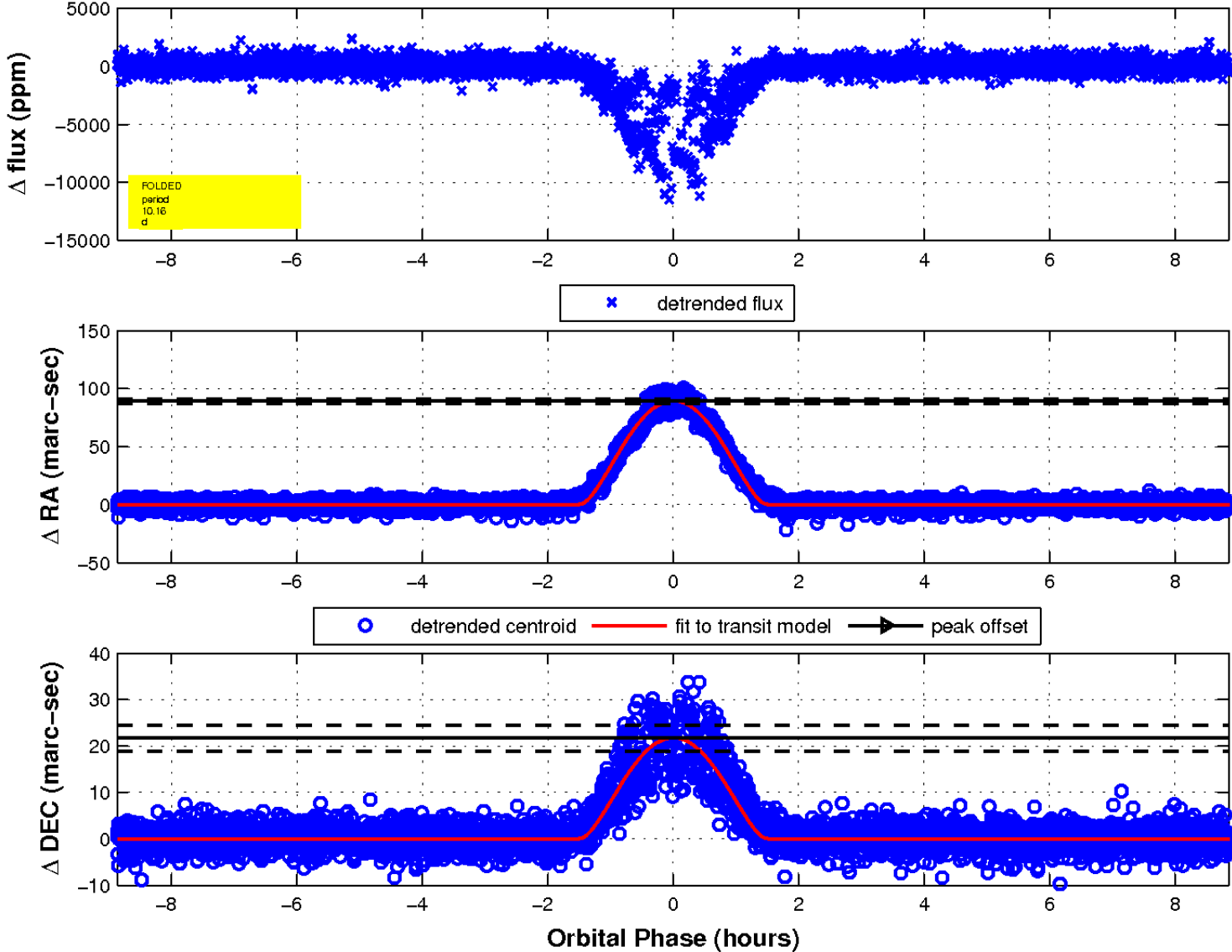
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

