

KIC 011616596

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})
011616596-01	OBS	4229.01	7.294187	136.177639	54.5	28.645	11.0	13.9	1.92	6163	1.66	784.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011616596-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—EPHEM_MATCH

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011616596-01

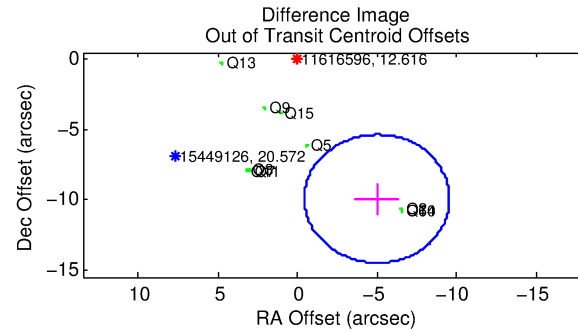
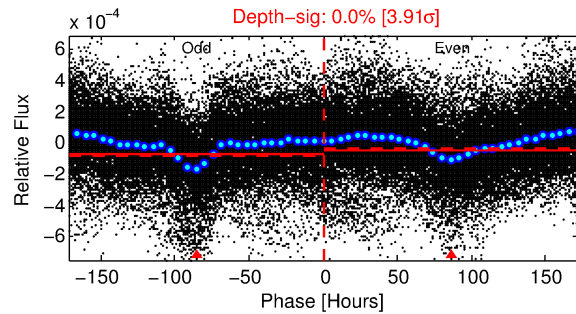
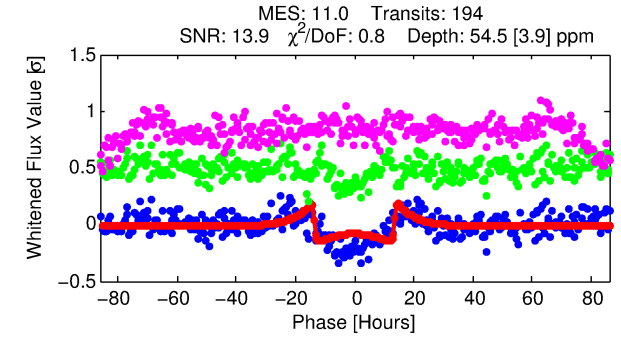
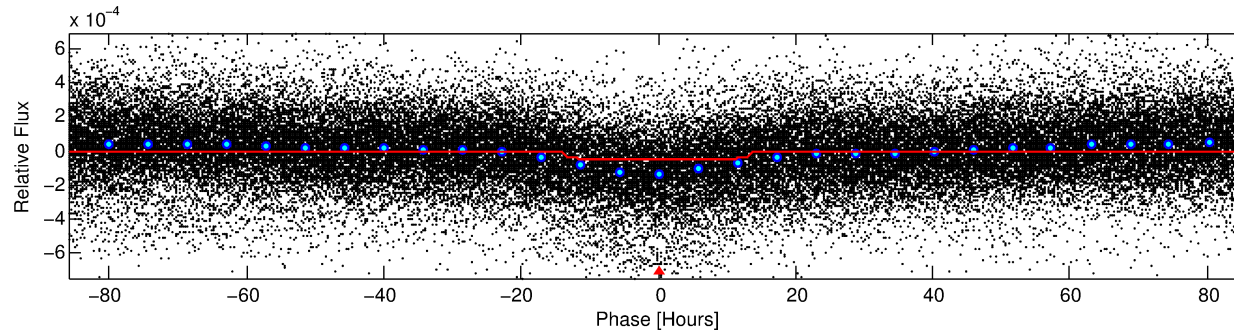
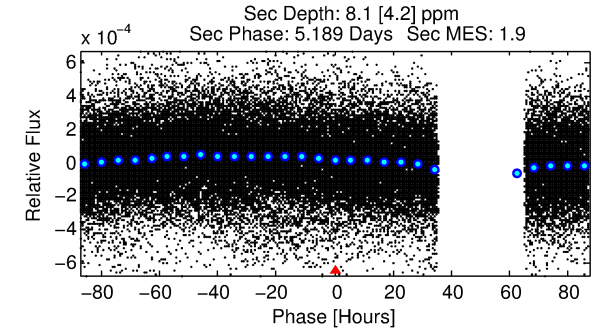
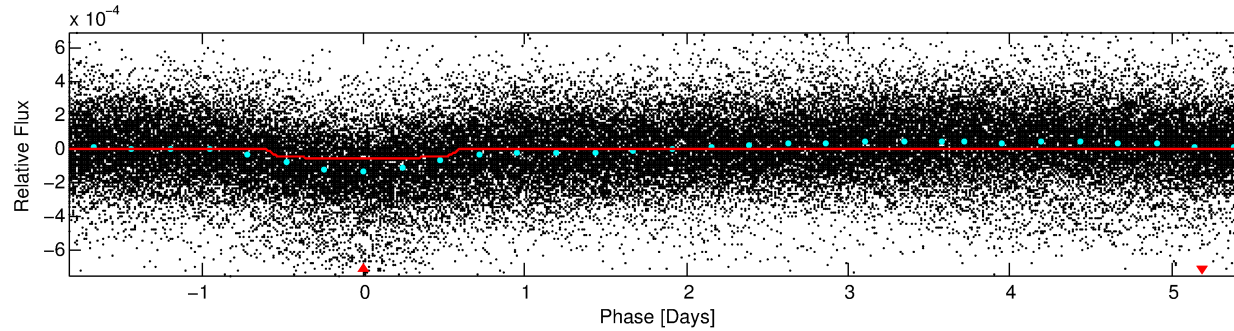
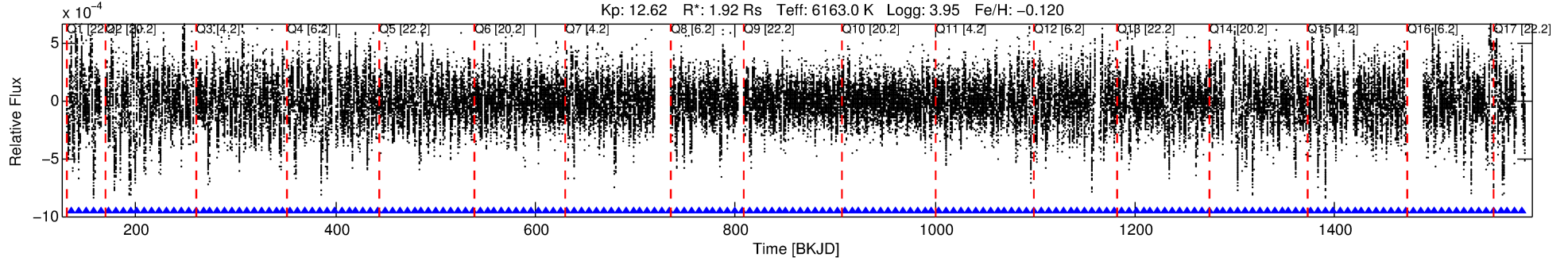
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
011616596-01	11616596	011616594-pri	11616594	1:2	28.4	4	-6	11.17	12.62	5823.60	Direct-PRF	0	4.56	0.46

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: 11616596 Candidate: 1 of 1 Period: 7.294 d
KOI: K04229 Corr: No Ephemeris Match

Kp: 12.62 R*: 1.92 Rs Teff: 6163.0 K Logg: 3.95 Fe/H: -0.120



DV Fit Results:

Period = 7.29419 [0.00009] d
Epoch = 136.1776 [0.0099] BKJD
Rp/R* = 0.0079 [0.0004]
a/R* = 1.30 [0.10]
b = 0.89 [0.04]
Seff = 784.23 [373.65]
Teq = 1349 [161] K
Rp = 1.66 [0.54] Re
a = 0.0780 [0.0231] AU
Ag = 9.82 [6.95] [1.27σ]
Teffp = 3693 [508] K [4.40σ]

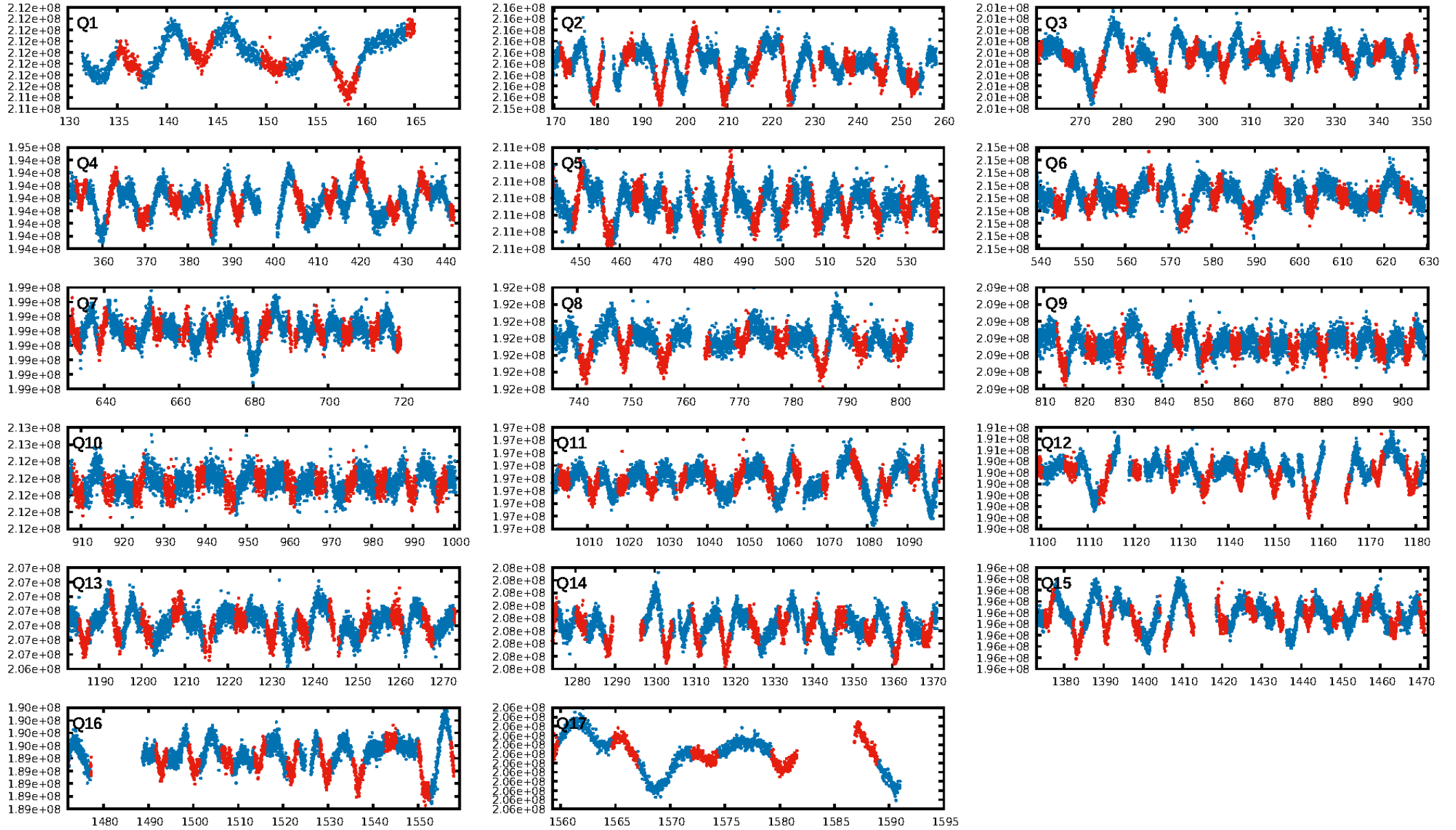
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 92.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.90e-34
RollingBand-fgt: 1.00 [185/185]
GhostDiagnostic-chr: -0.3531
Centroid-sig: 0.0%
Centroid-so: 8.461 arcsec [11.25σ]
OotOffset-rm: 11.108 arcsec [7.30σ]
KicOffset-rm: 11.208 arcsec [7.96σ]
OotOffset-st: 4/4/0/3 [11]
KicOffset-st: 4/4/0/3 [11]
DiffImageQuality-fgm: 0.36 [4/11]
DiffImageOverlap-fno: 1.00 [17/17]

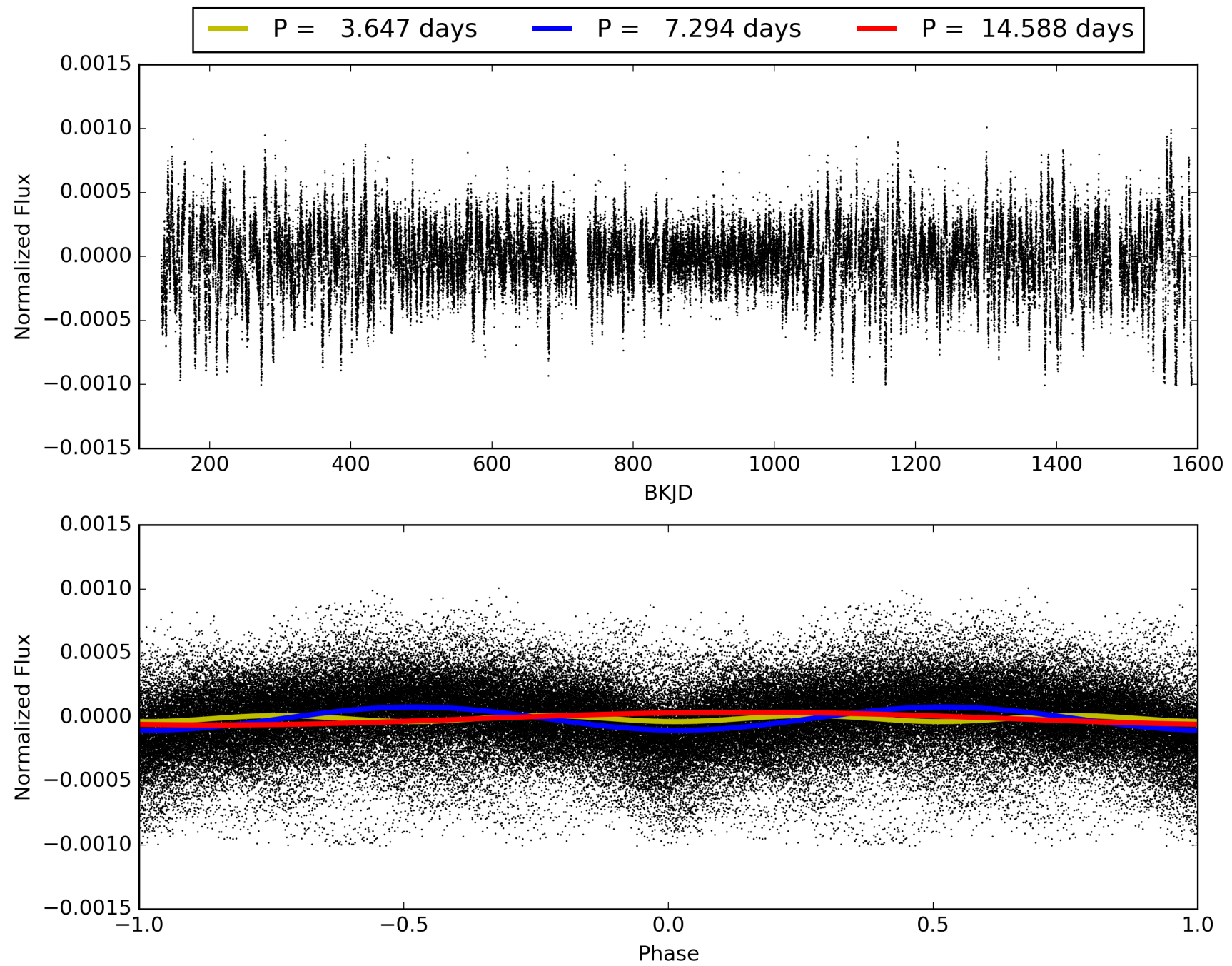
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:51:37 Z

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

TCE 011616596-01, PDC Light Curves

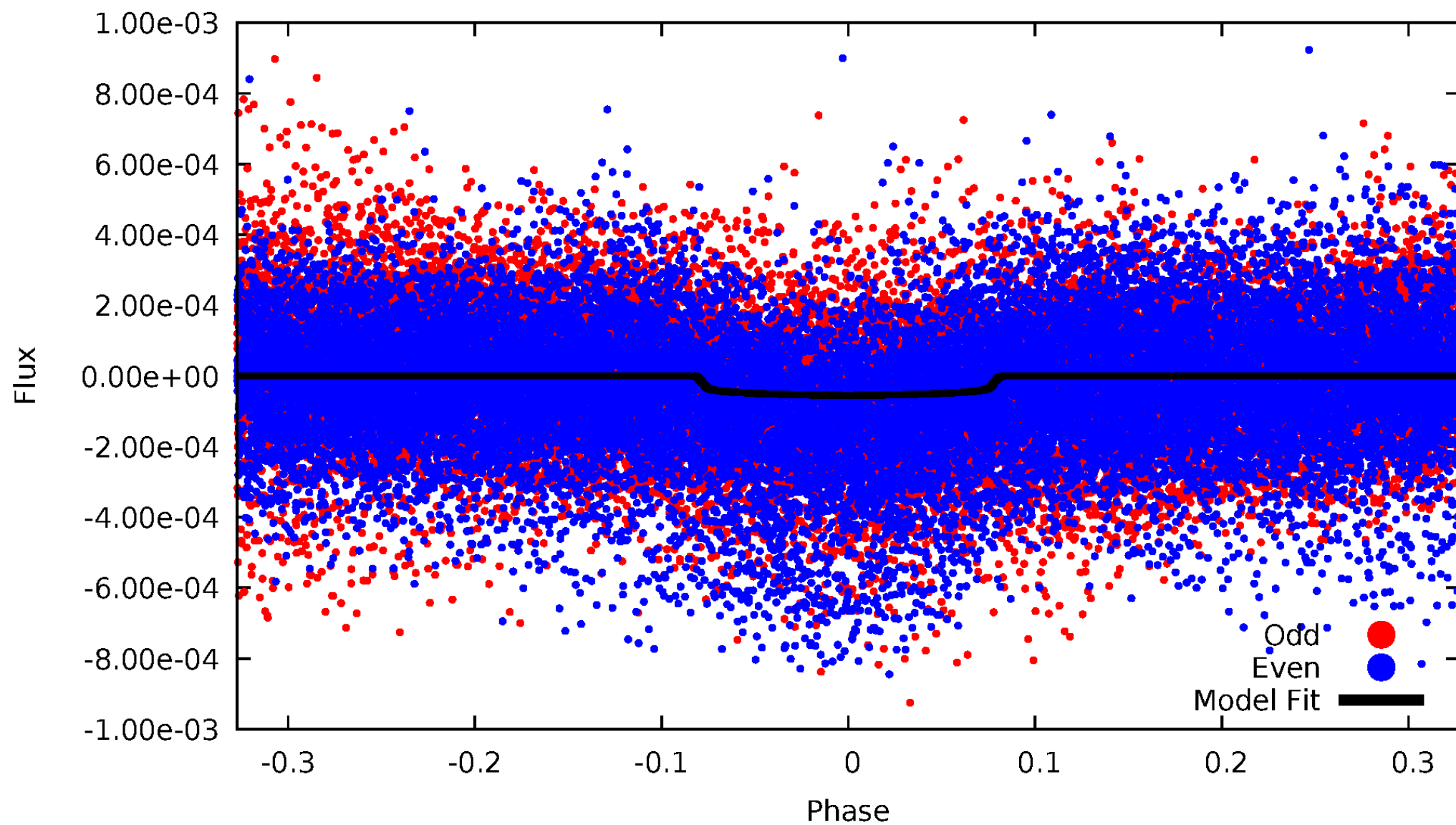


TCE 011616596-01



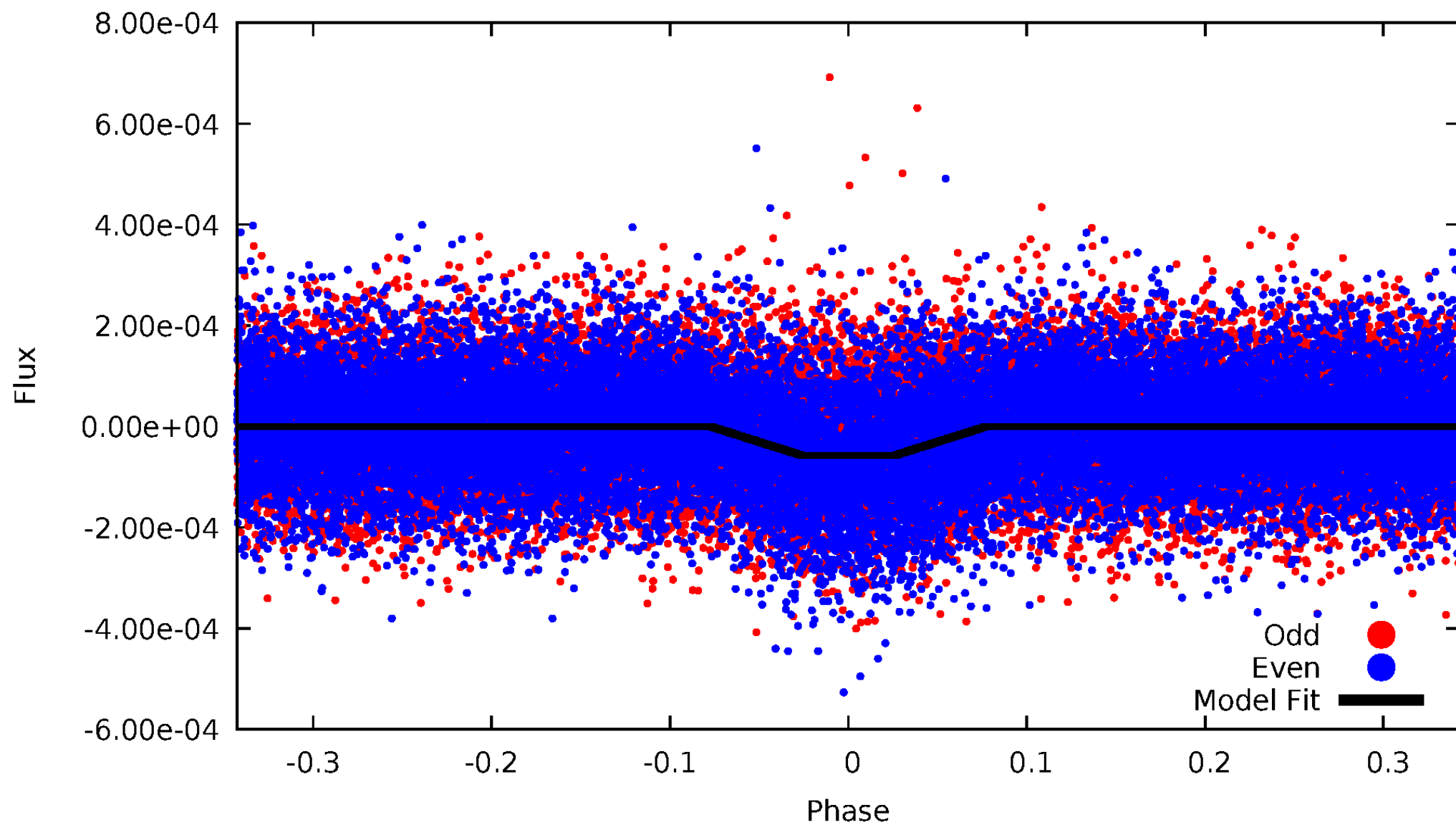
DV Odd/Even

TCE 011616596-01

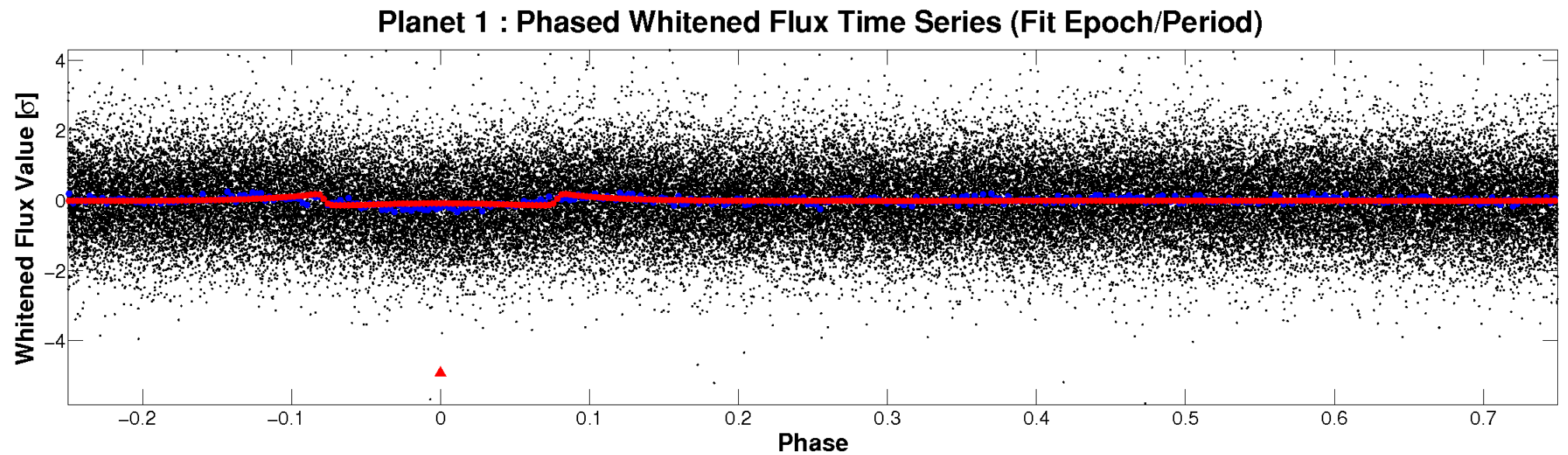
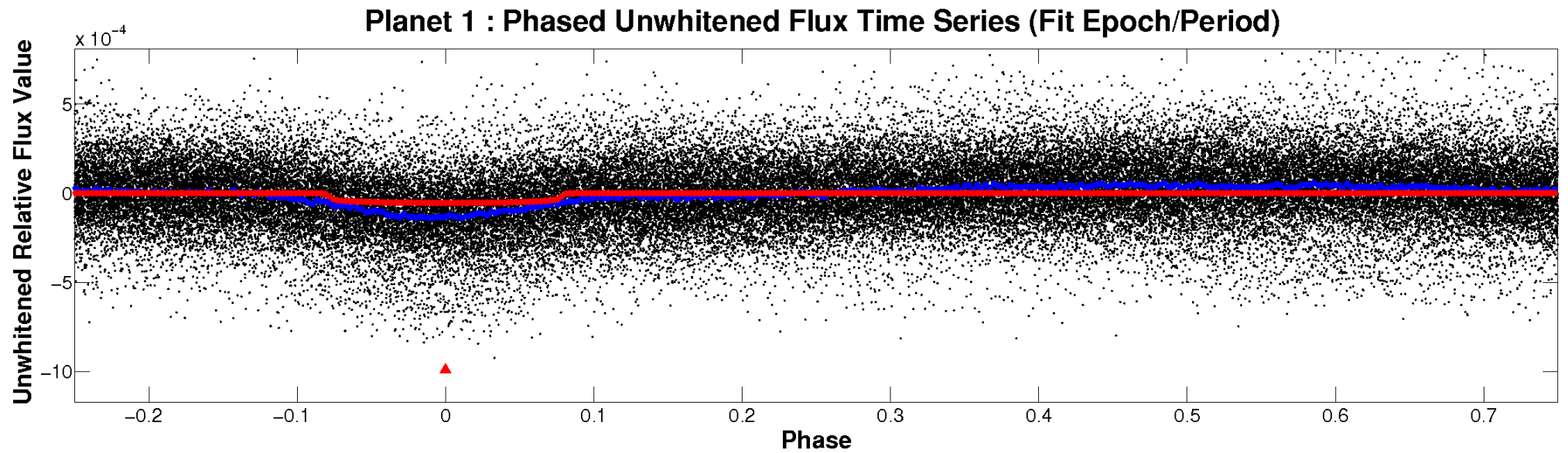


ALT Odd/Even

TCE 011616596-01

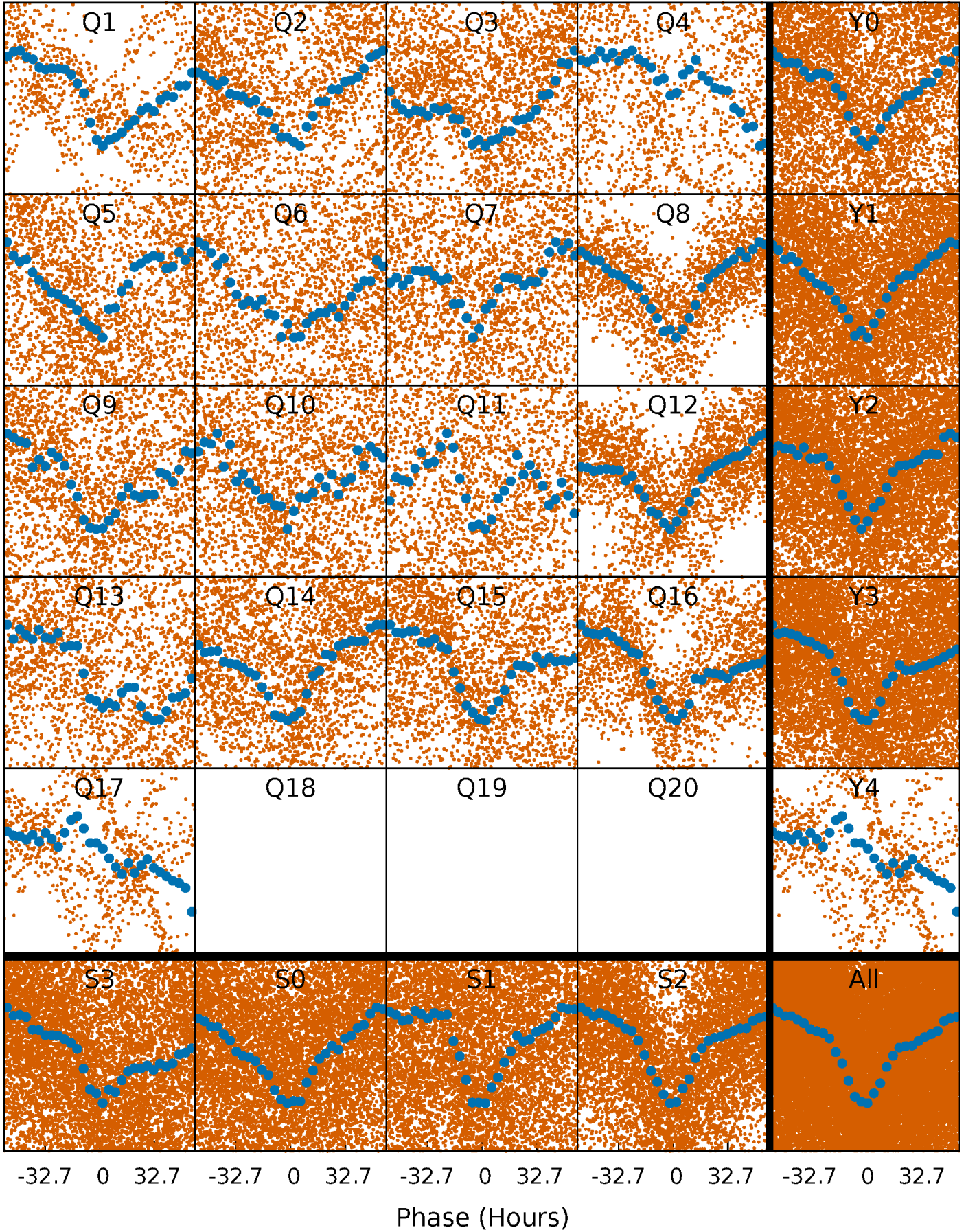


Non-Whitened Vs. Whitened Light Curve



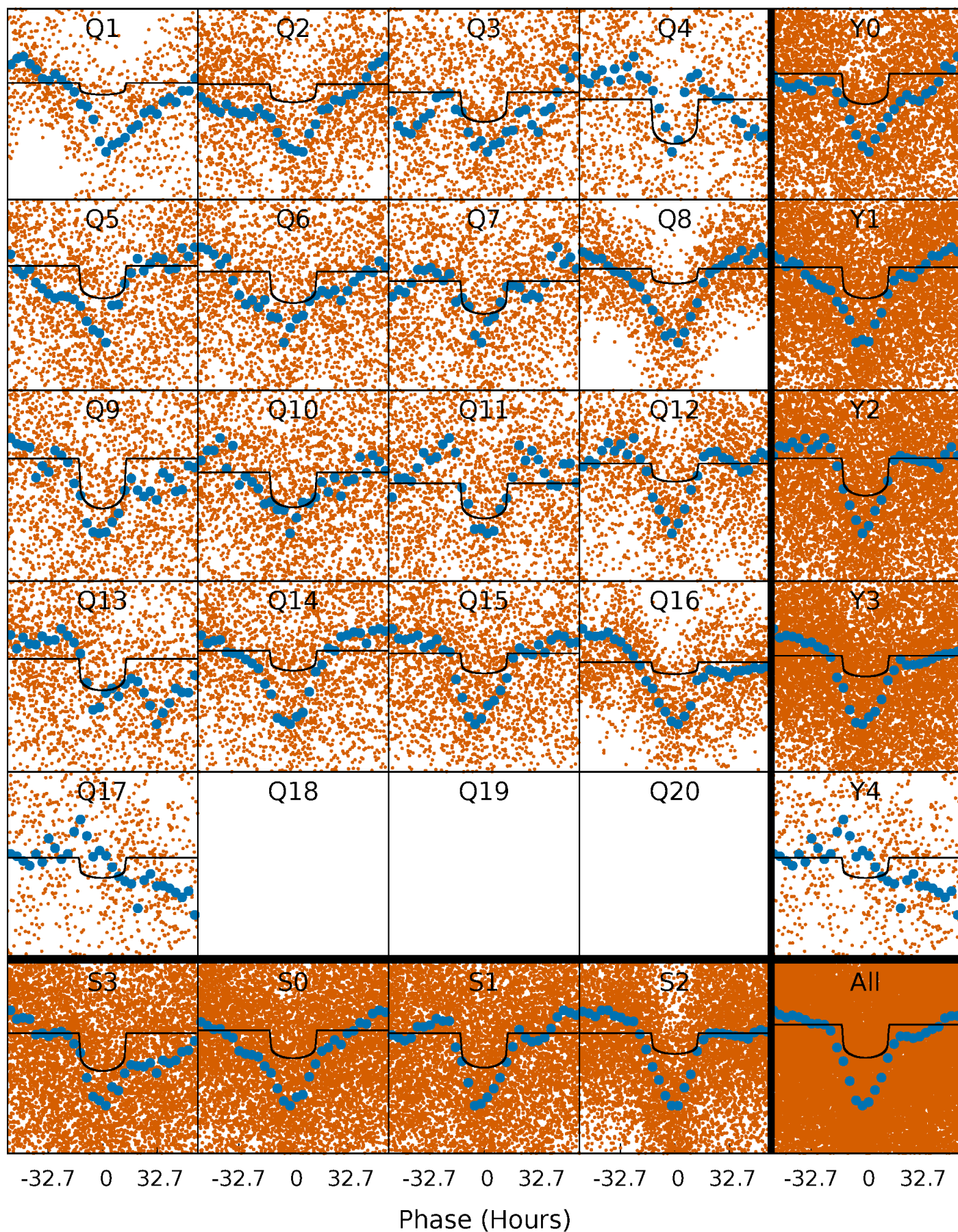
PDC Quarter-Phased Transit Curves

TCE 011616596-01 P= 7.294187 Days $T_0=136.177639$ (BKJD)



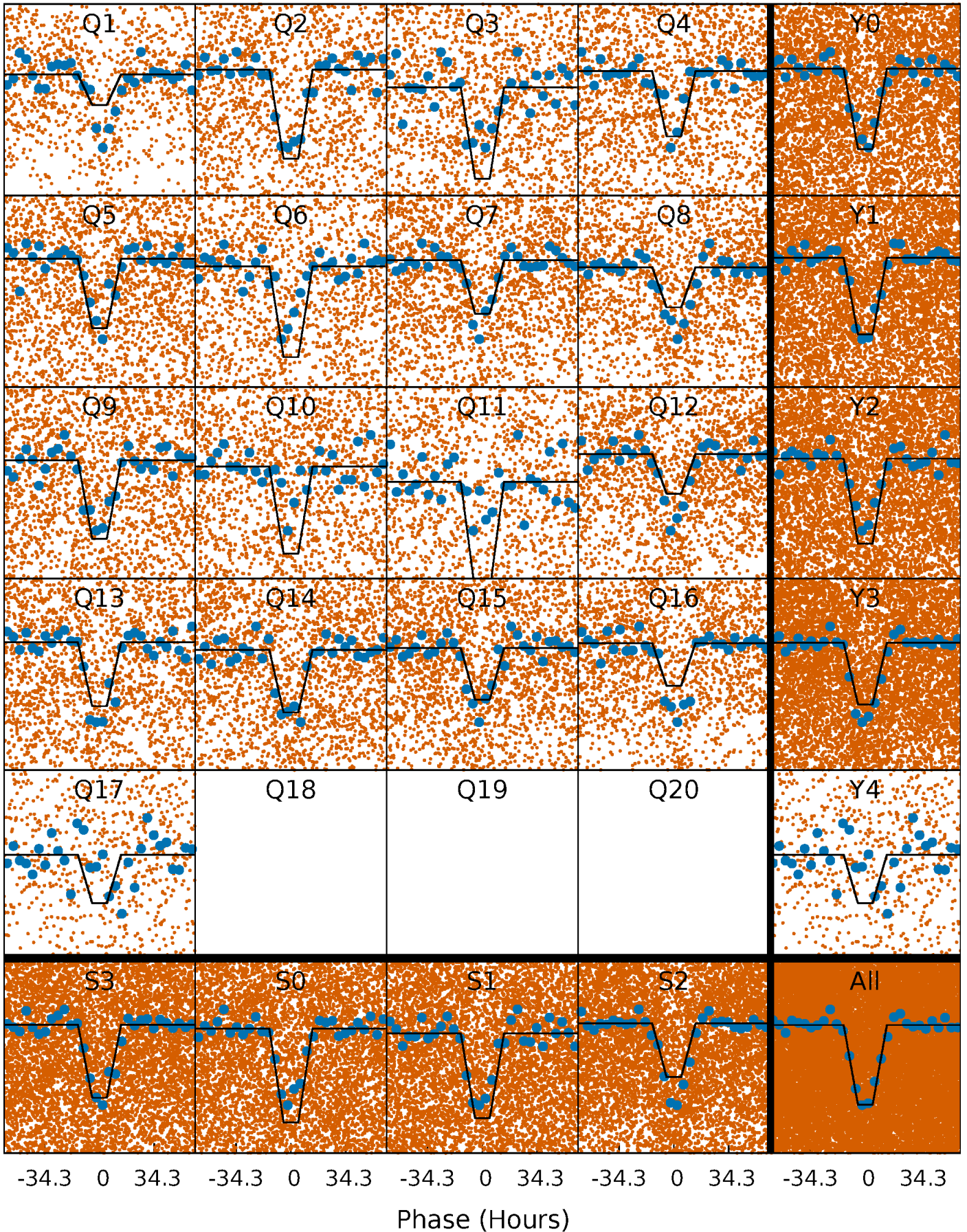
DV Quarter-Phased Transit Curves

TCE 011616596-01 P= 7.294187 Days $T_0=136.177639$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

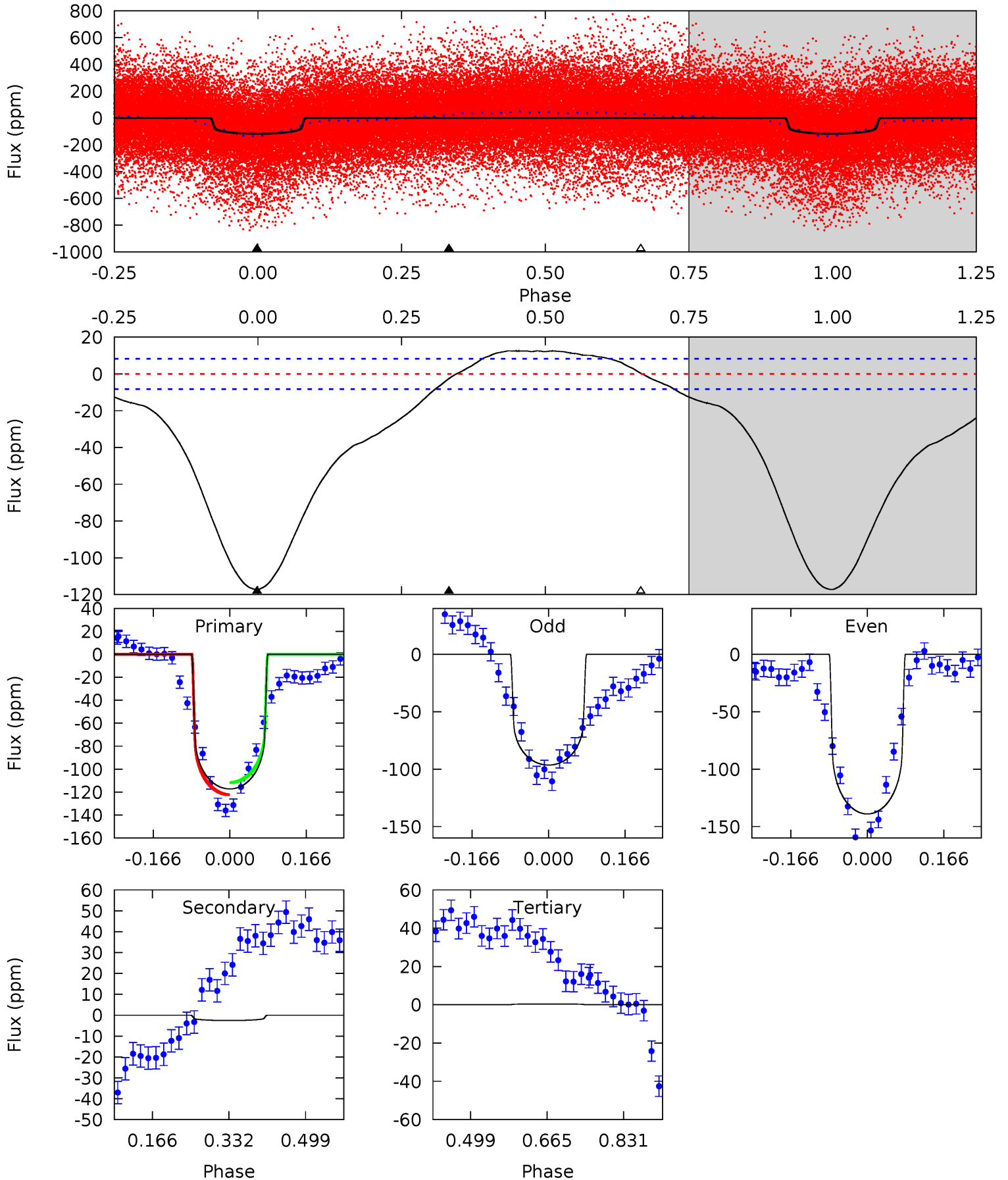
TCE 011616596-01 P= 7.293831 Days $T_0=136.181266$ (BKJD)



DV Model-Shift Uniqueness Test

011616596-01, P = 7.294187 Days, E = 128.883452 Days

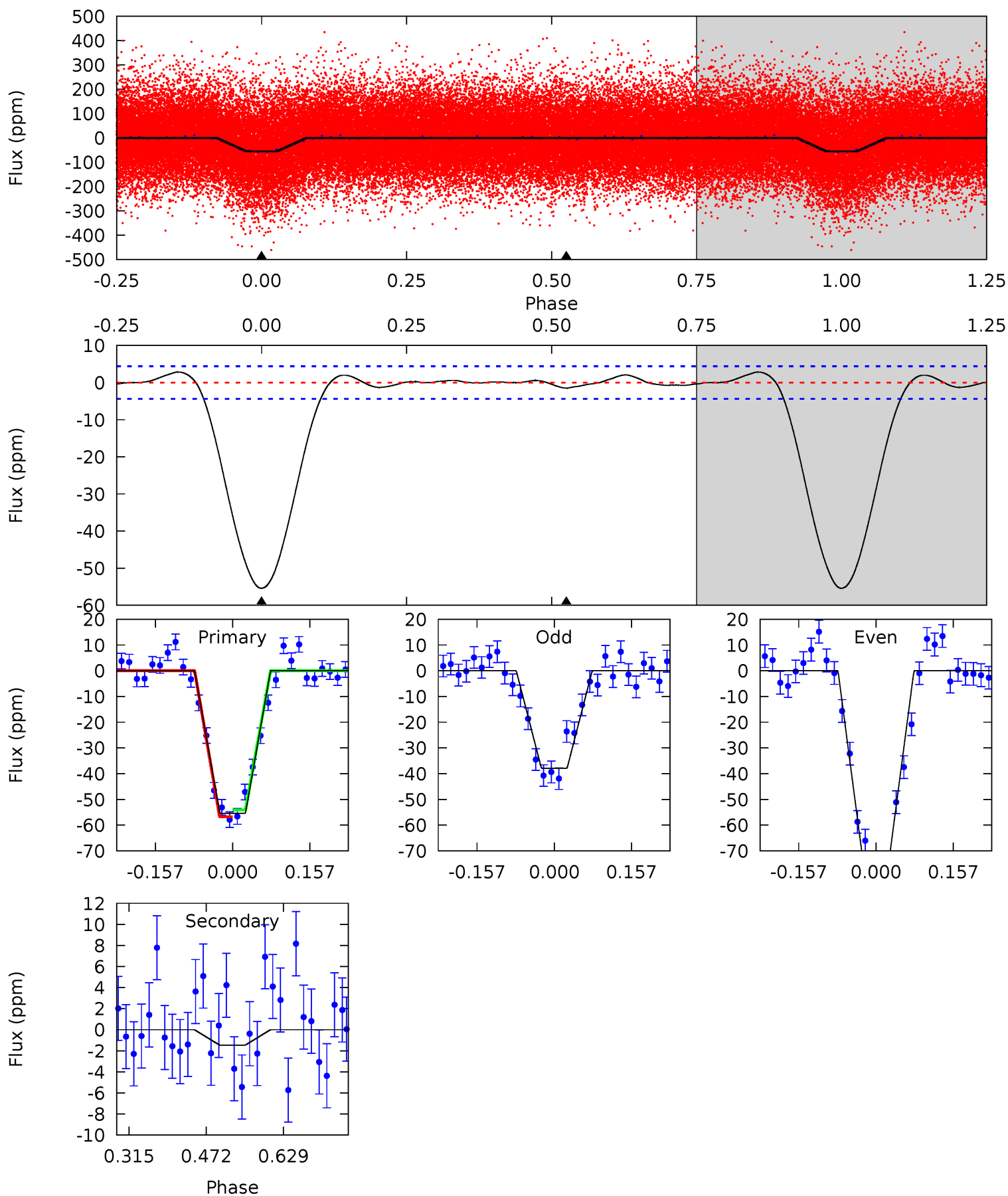
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.3	1.37	-0.21	0	4.46	1.38	6.31	63.5	63.3	1.59	1.37	12.4	1.42	0.10	3.04



Alt Model-Shift Uniqueness Test

011616596-01, P = 7.293831 Days, E = 128.887435 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.5	1.49	0	0	4.47	1.41	0.73	56.5	56.5	1.49	1.49	18.5	1.30	0.05	1.35



Stellar Parameters For KIC 011616596

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6163^{+167}_{-186}	$3.946^{+0.266}_{-0.114}$	$-0.120^{+0.300}_{-0.250}$	$1.921^{+0.411}_{-0.616}$	$1.189^{+0.218}_{-0.198}$	$0.236^{+0.374}_{-0.085}$
	+3%/-3%	+7%/-3%	+250%/-208%	+21%/-32%	+18%/-17%	+158%/-36%
Source	PHO1	FLK73	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 011616596-01 / KOI 4229.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3 ± 2	$1.61^{+0.25}_{-0.28}$	1849^{+126}_{-150}	3265^{+330}_{-604}	$3.341^{+2.982}_{-2.349}$
Alt.	-1 ± 1	$1.54^{+0.24}_{-0.27}$	1852^{+120}_{-162}	3025^{+272}_{-514}	$2.083^{+1.675}_{-1.378}$

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

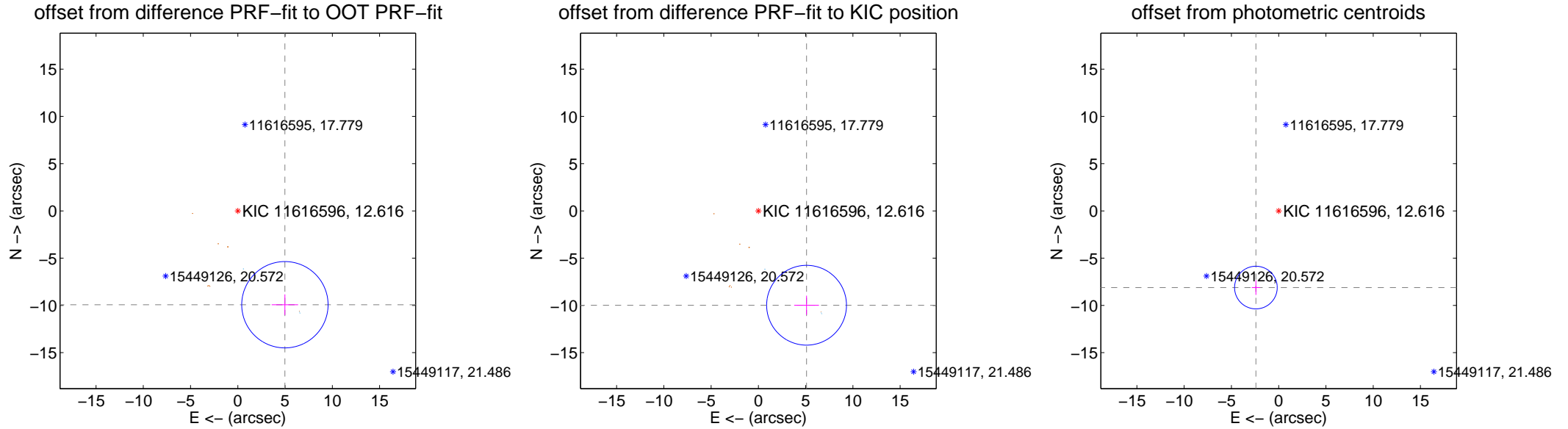
DV Centroid Data

Supplemental centroid analysis for 011616596-01. Kepler magnitude: 12.62. Transit SNR 13.92

There are 4 quarters with good PRF difference image offsets

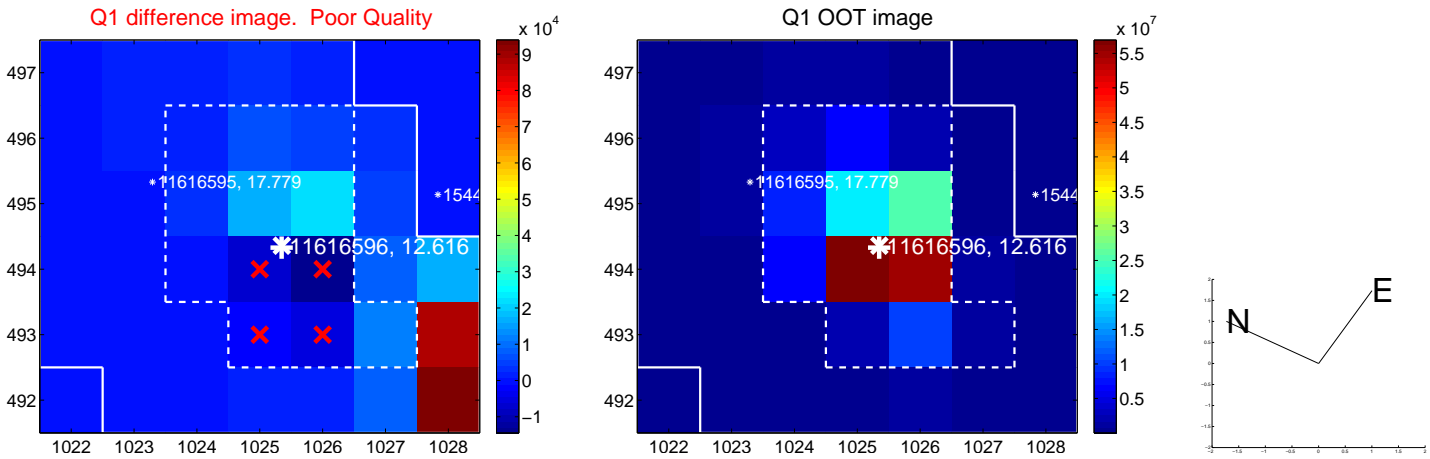
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.108 ± 1.522	7.30	-4.982 ± 1.398	-9.929 ± 1.092
PRF-fit source offset from KIC position	11.208 ± 1.408	7.96	-5.097 ± 1.312	-9.982 ± 1.012
photometric centroid source offset	8.46 ± 0.75	11.25	2.41 ± 0.44	-8.11 ± 0.77

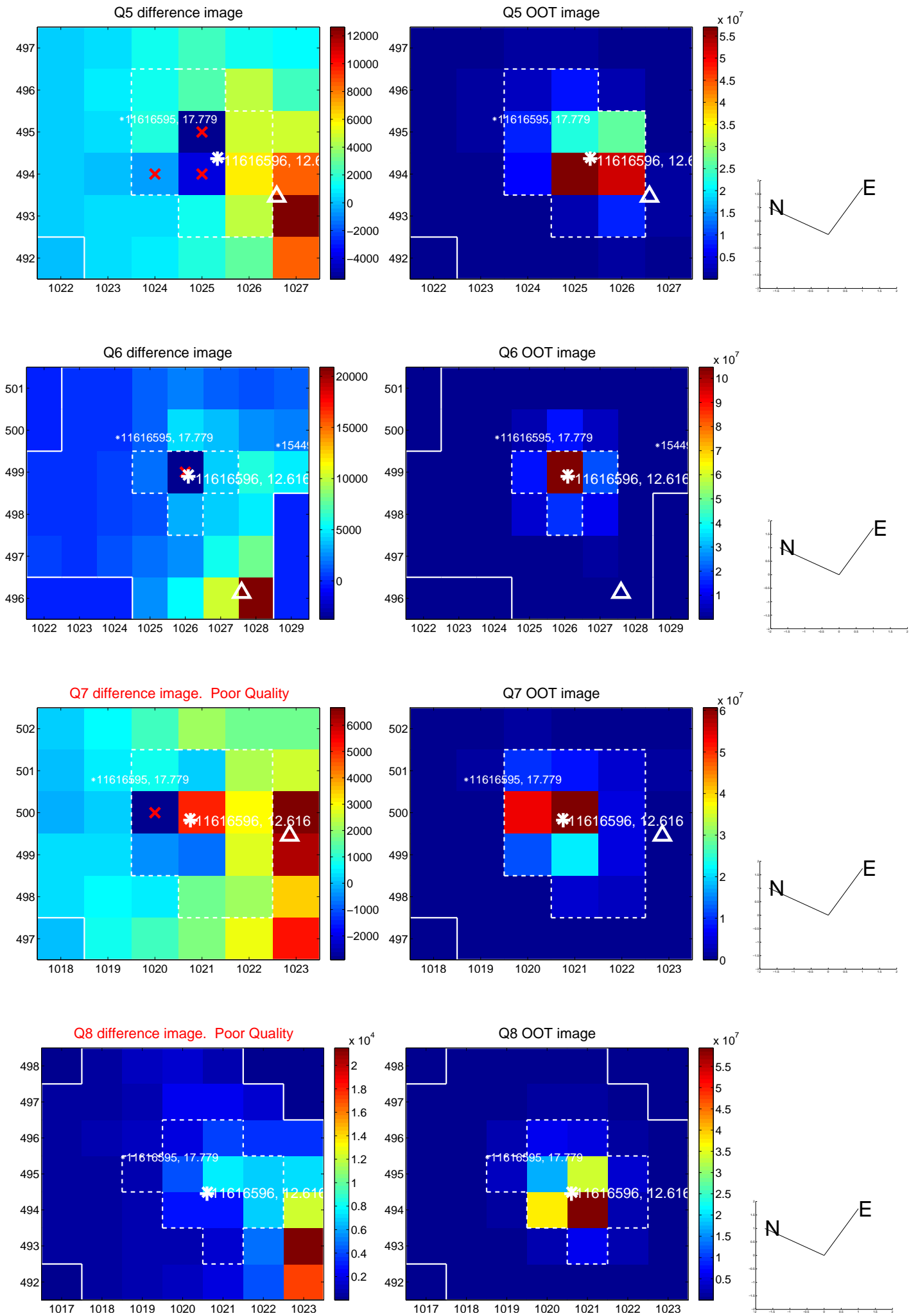


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

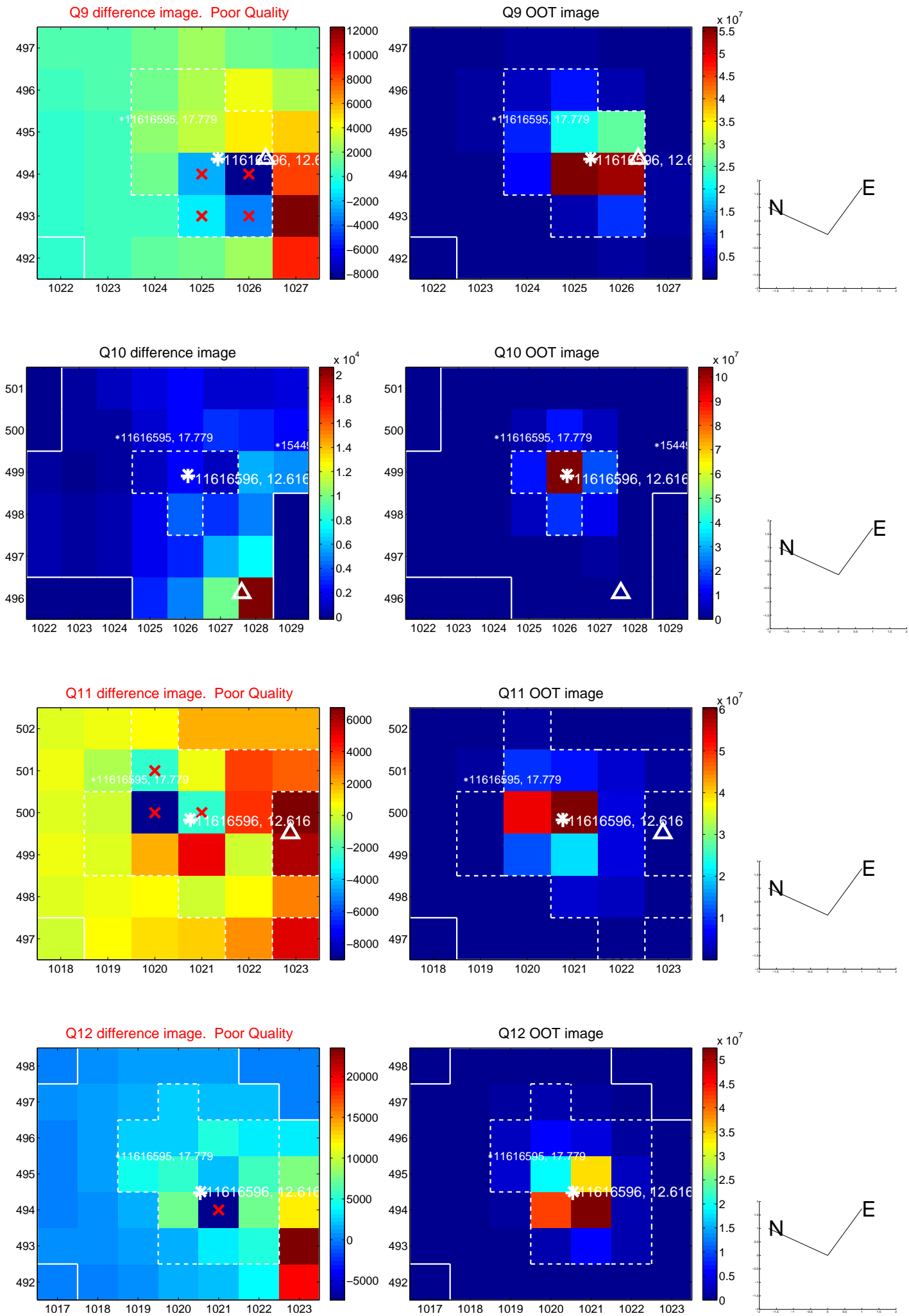
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



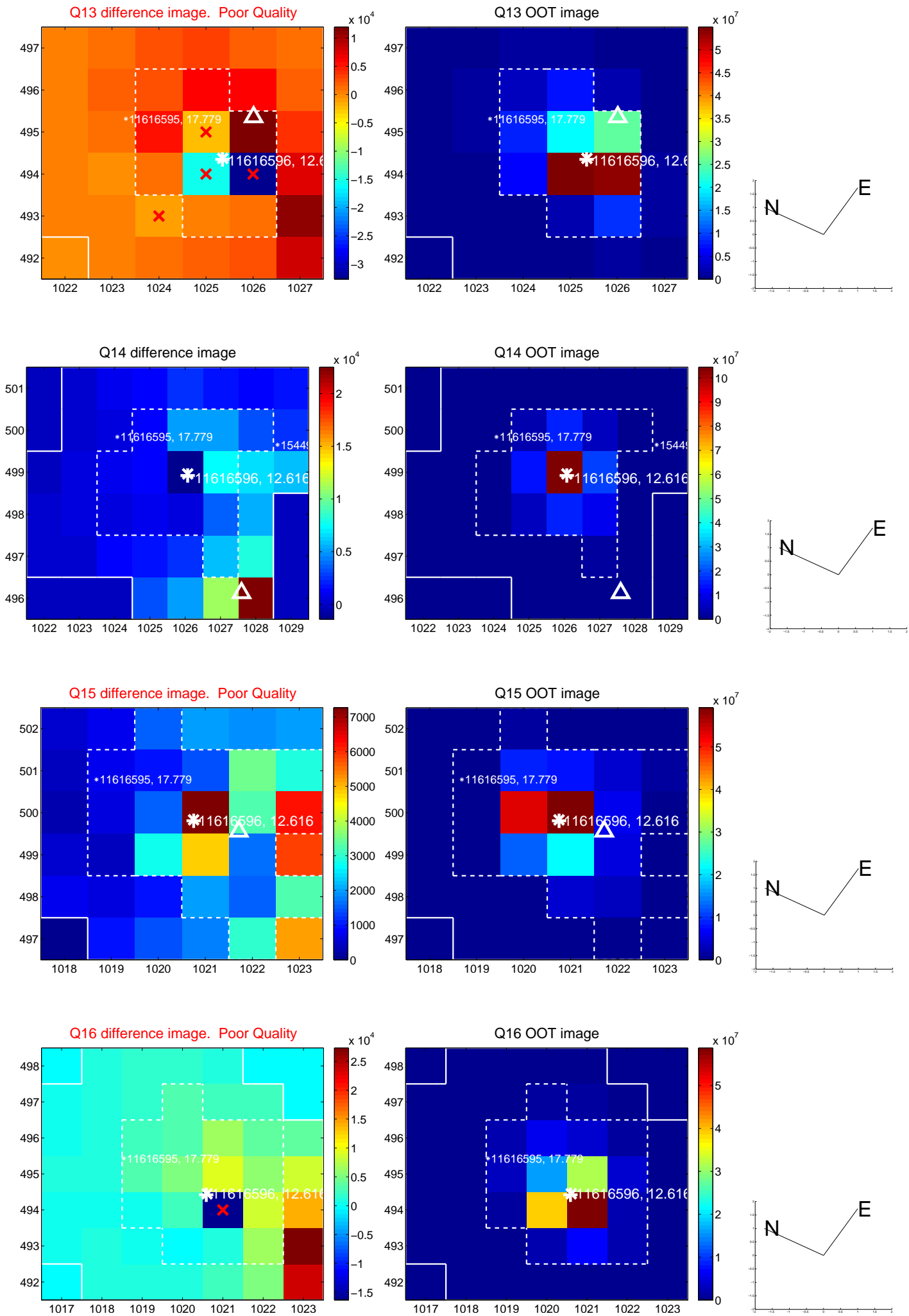
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



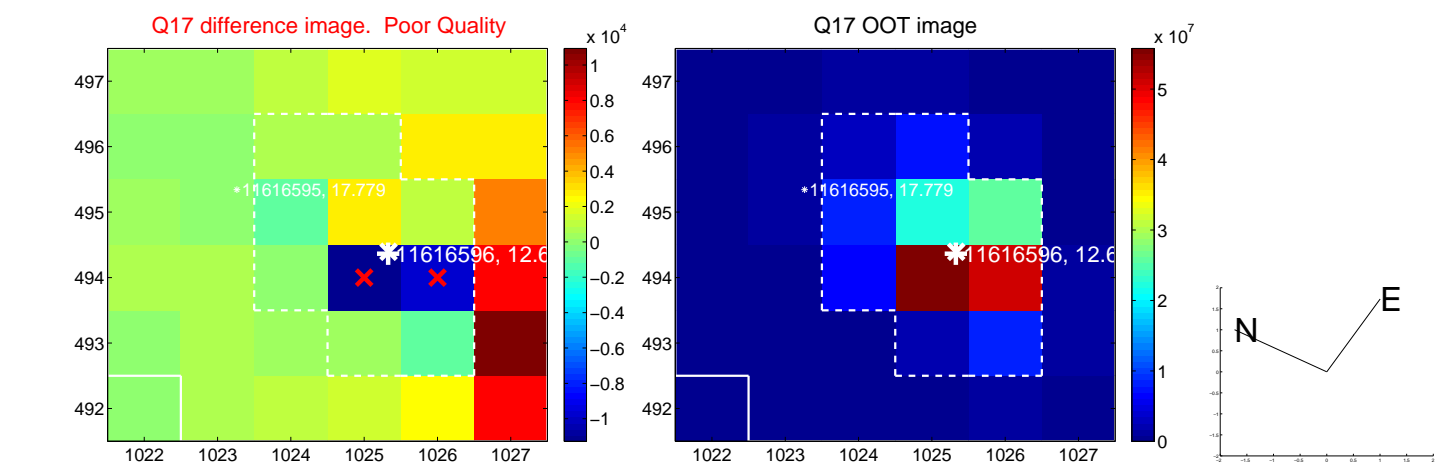
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



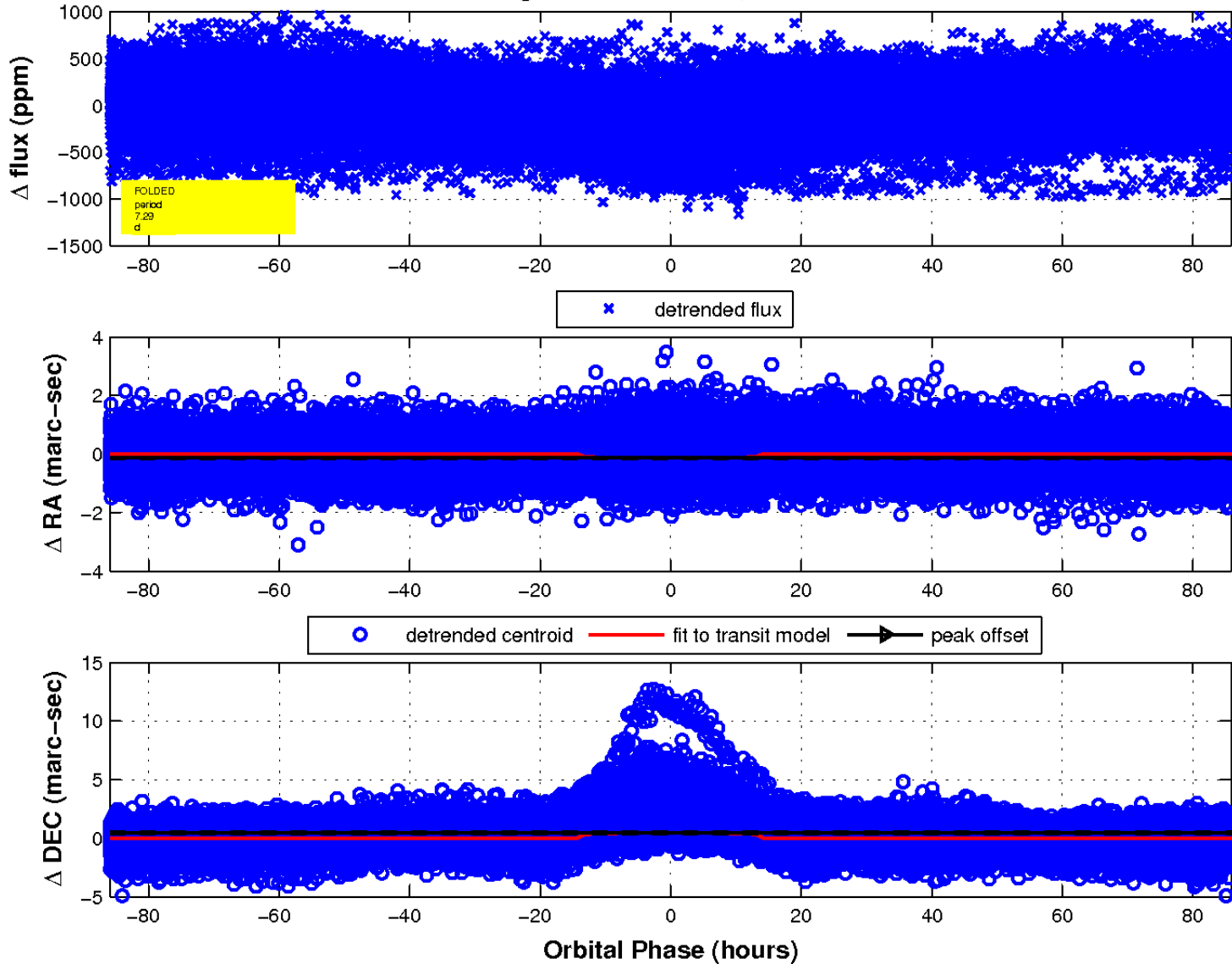
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

