

KIC 009166862

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})
009166862-01	OBS	0931.01	3.855602	132.123231	16564.4	3.244	1321.7	1209.4	1.05	6033	13.58	510.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009166862-01	OBS	PC	1.00	0	0	0	0	CENT_KIC_POS

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

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

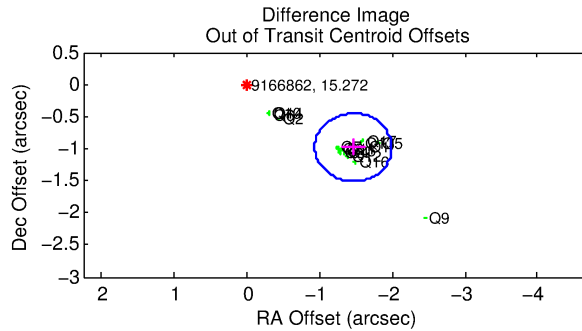
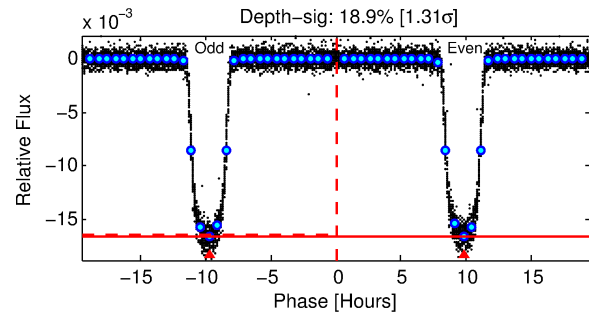
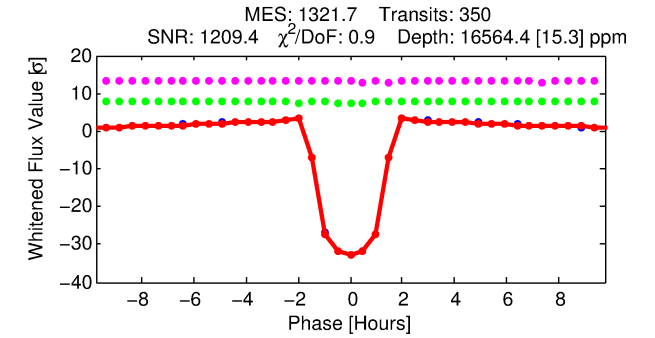
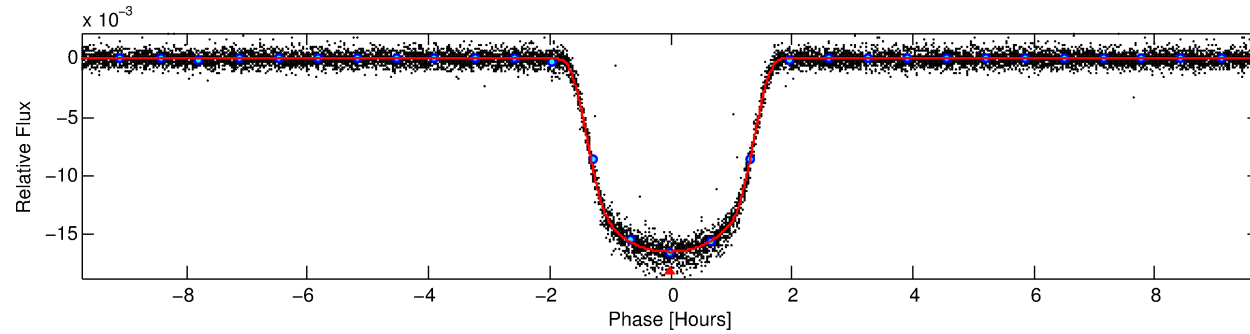
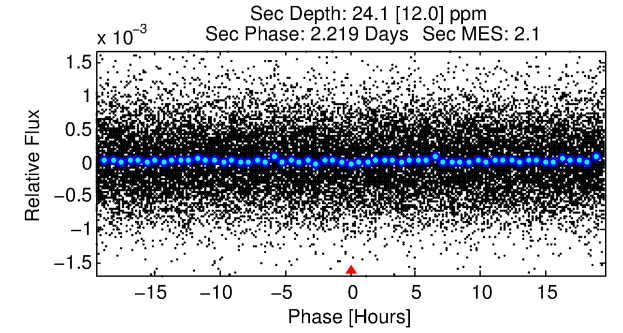
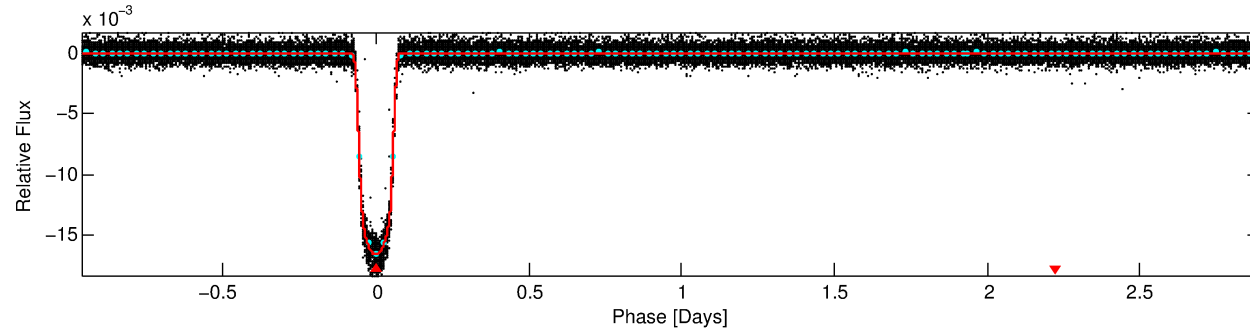
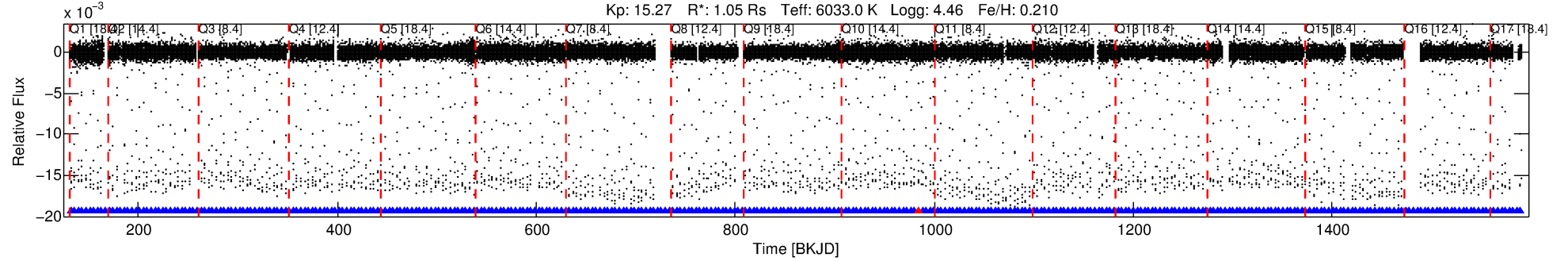
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009166862-01

No Significant Match Found

DV One-Page Summary

KIC: 9166862 Candidate: 1 of 1 Period: 3.856 d
KOI: K00931.01 Corr: 0.995



DV Fit Results:

Period = 3.85560 [0.00000] d
Epoch = 132.1232 [0.0000] BKJD
Rp/R* = 0.1190 [0.0003]
a/R* = 9.67 [0.11]
b = 0.35 [0.03]
Seff = 510.42 [199.24]
Teq = 1212 [118] K
Rp = 13.58 [3.79] Re
a = 0.0504 [0.0120] AU
Ag = 0.18 [0.11] [-7.35σ]
Teffp = 1225 [162] K [0.07σ]

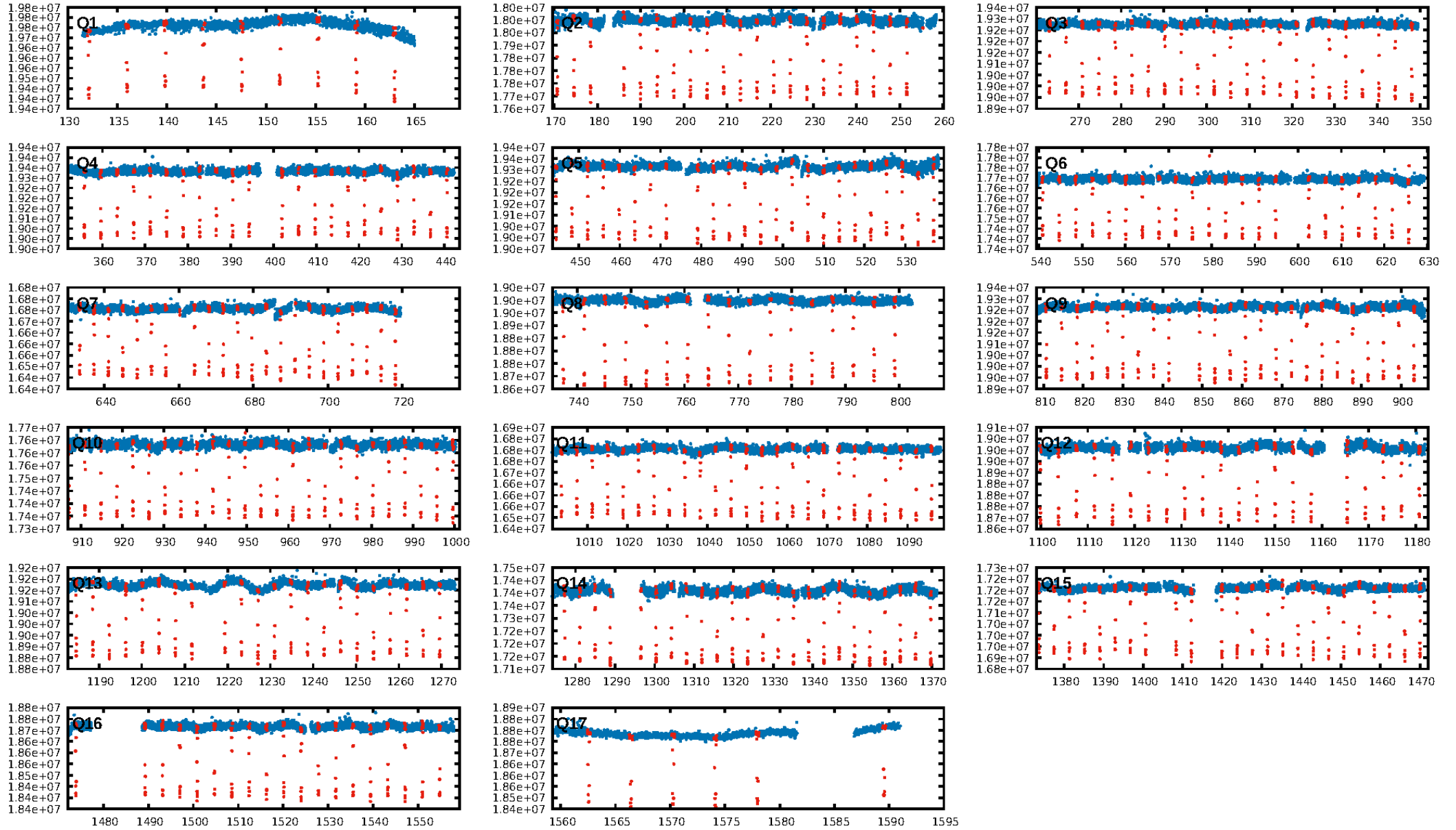
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [334/335]
GhostDiagnostic-chr: 6.767
Centroid-sig: 0.0%
Centroid-so: 0.559 arcsec [66.07σ]
OotOffset-rm: 1.763 arcsec [9.99σ]
KicOffset-rm: 0.095 arcsec [1.37σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

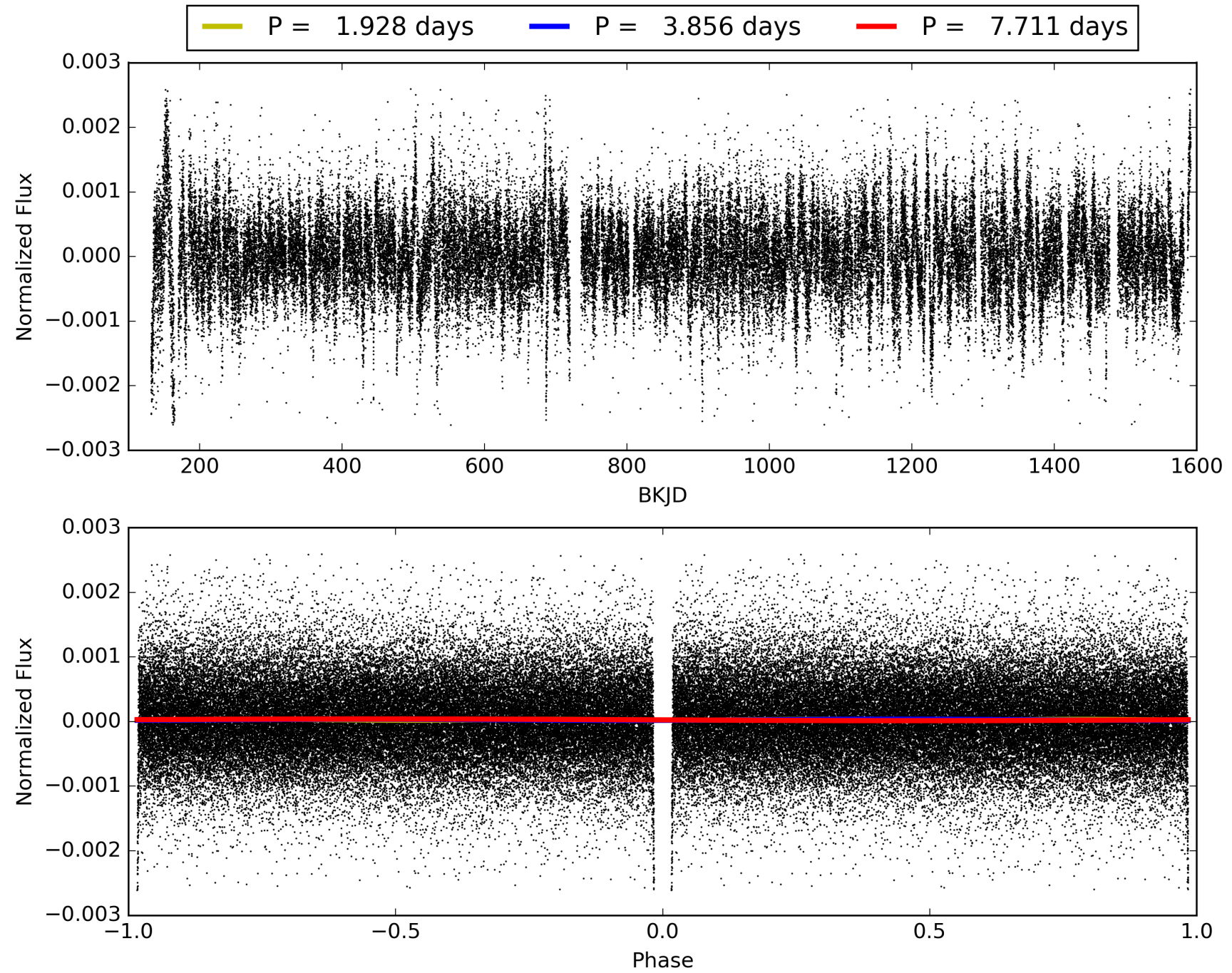
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 11:13:00 Z

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

TCE 009166862-01, PDC Light Curves

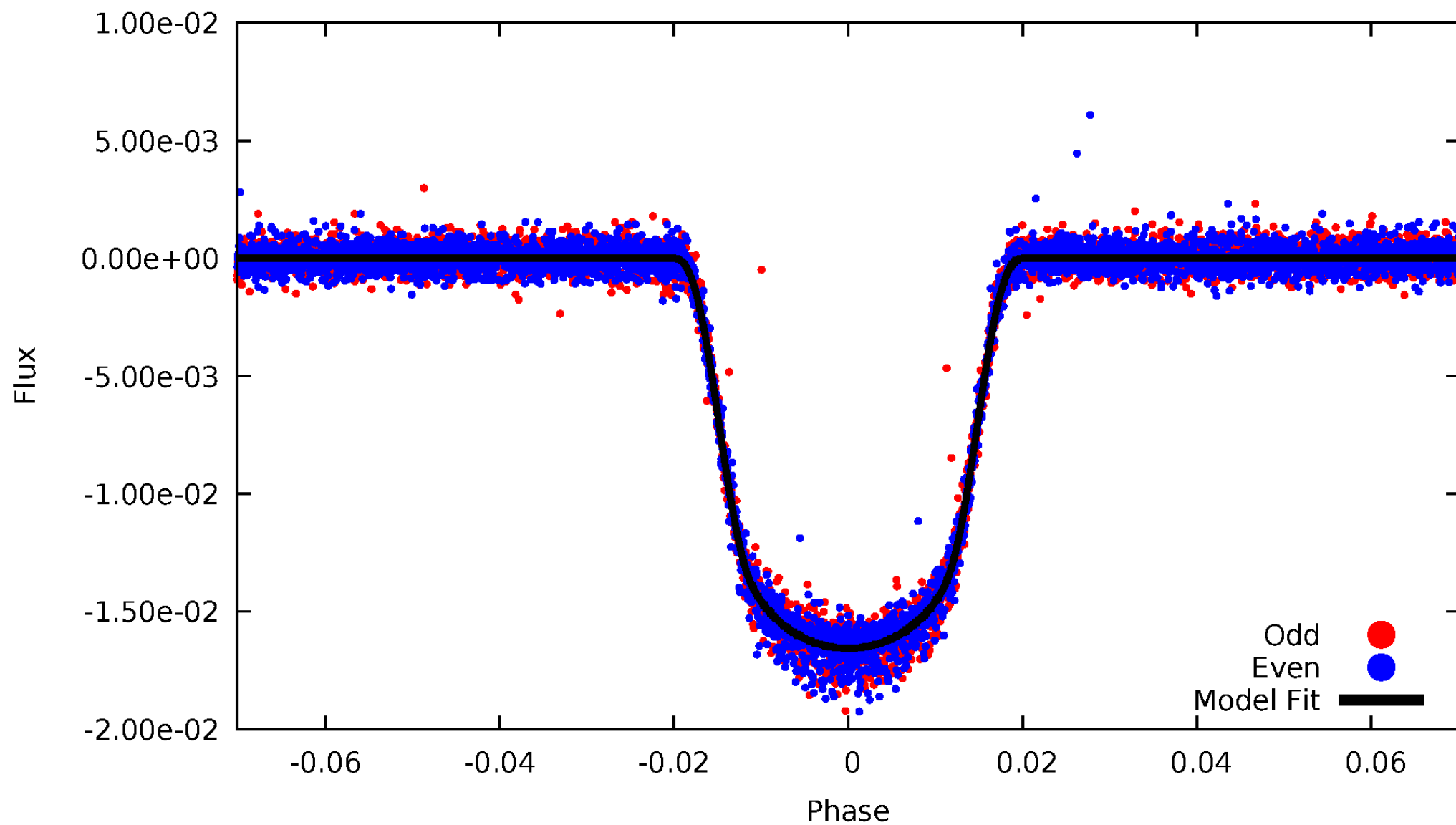


TCE 009166862-01



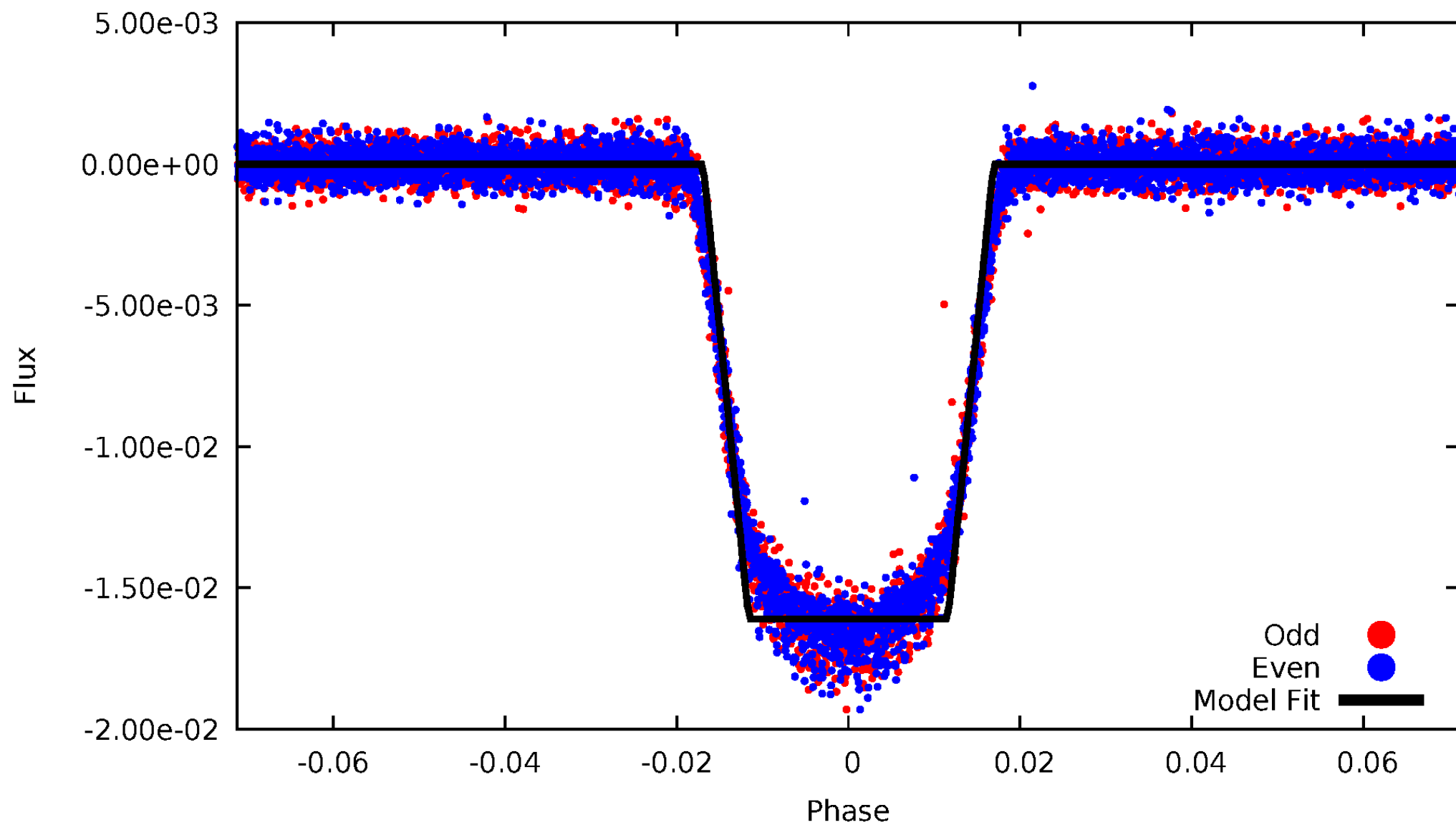
DV Odd/Even

TCE 009166862-01



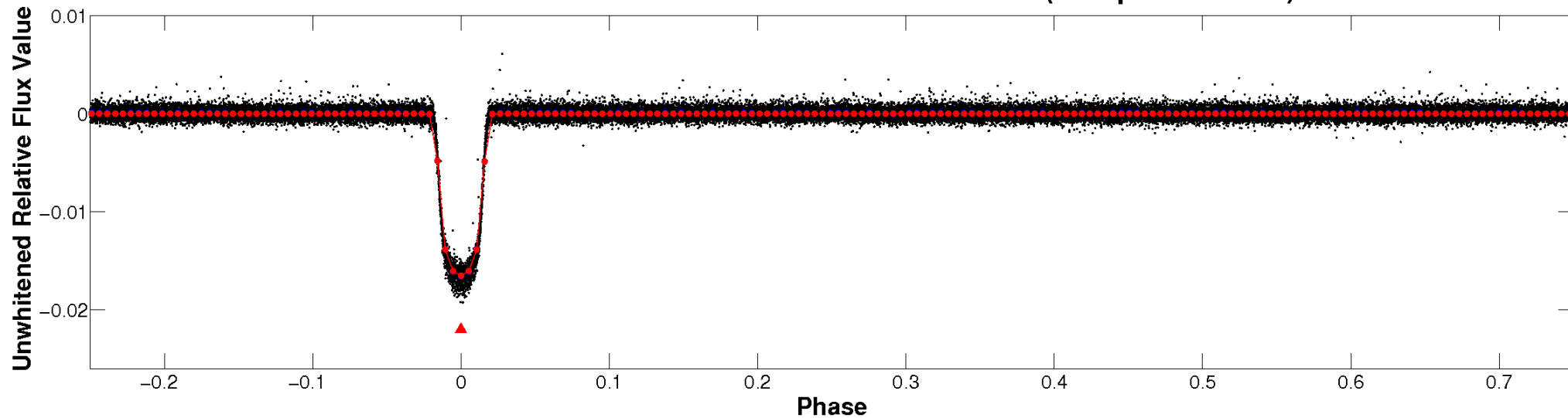
ALT Odd/Even

TCE 009166862-01

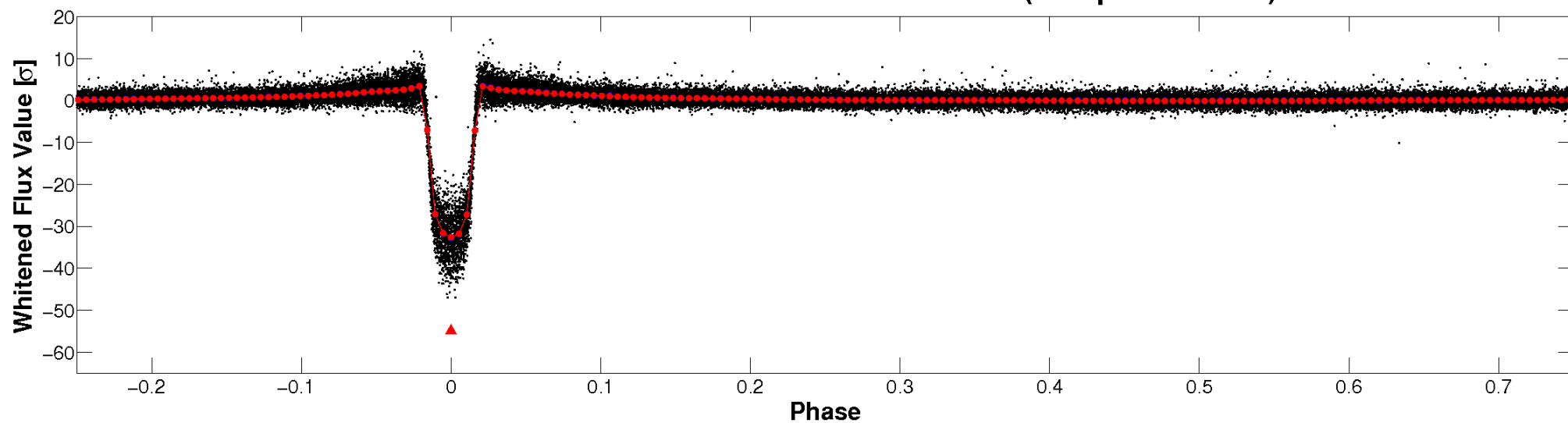


Non-Whitened Vs. Whitened Light Curve

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

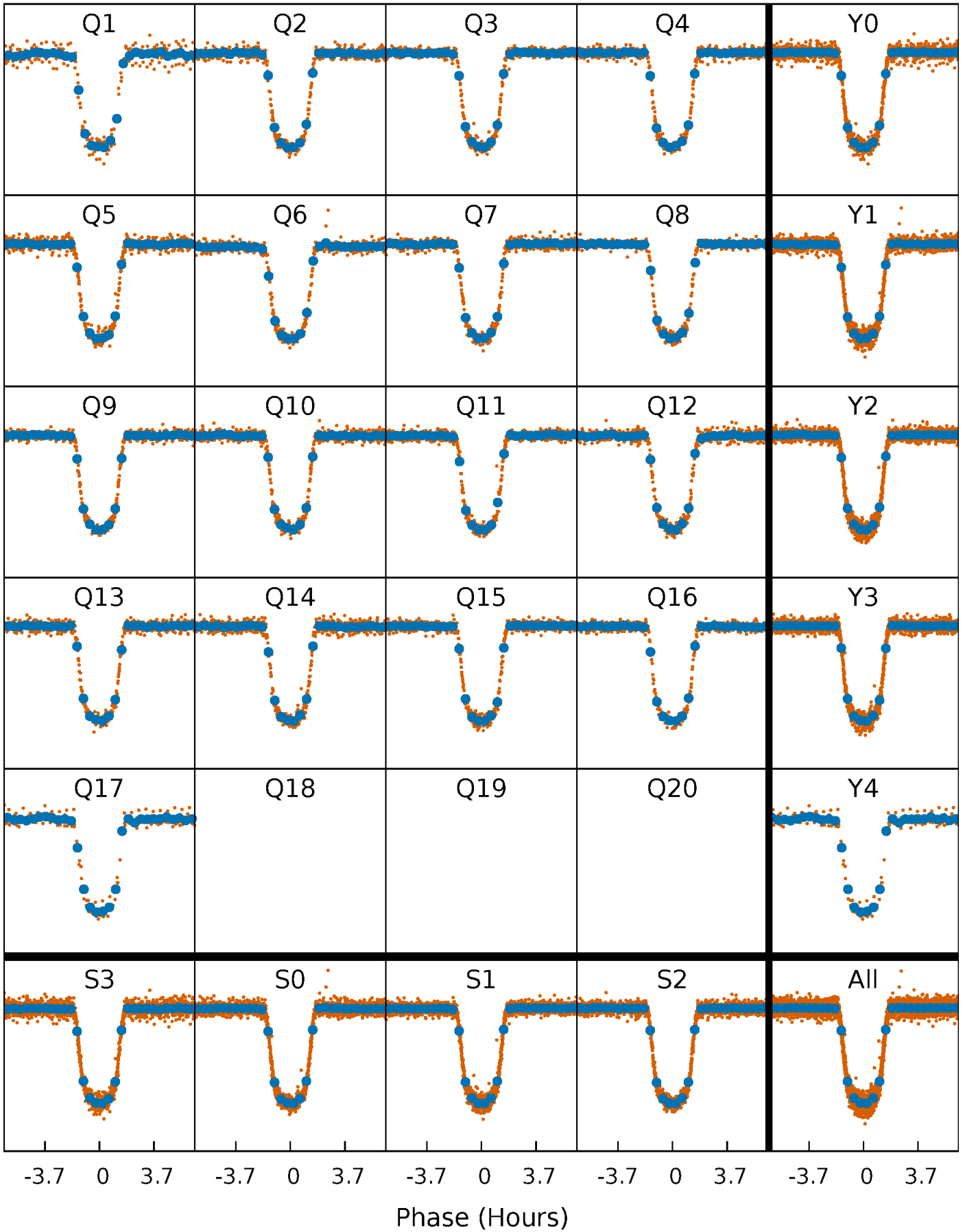


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



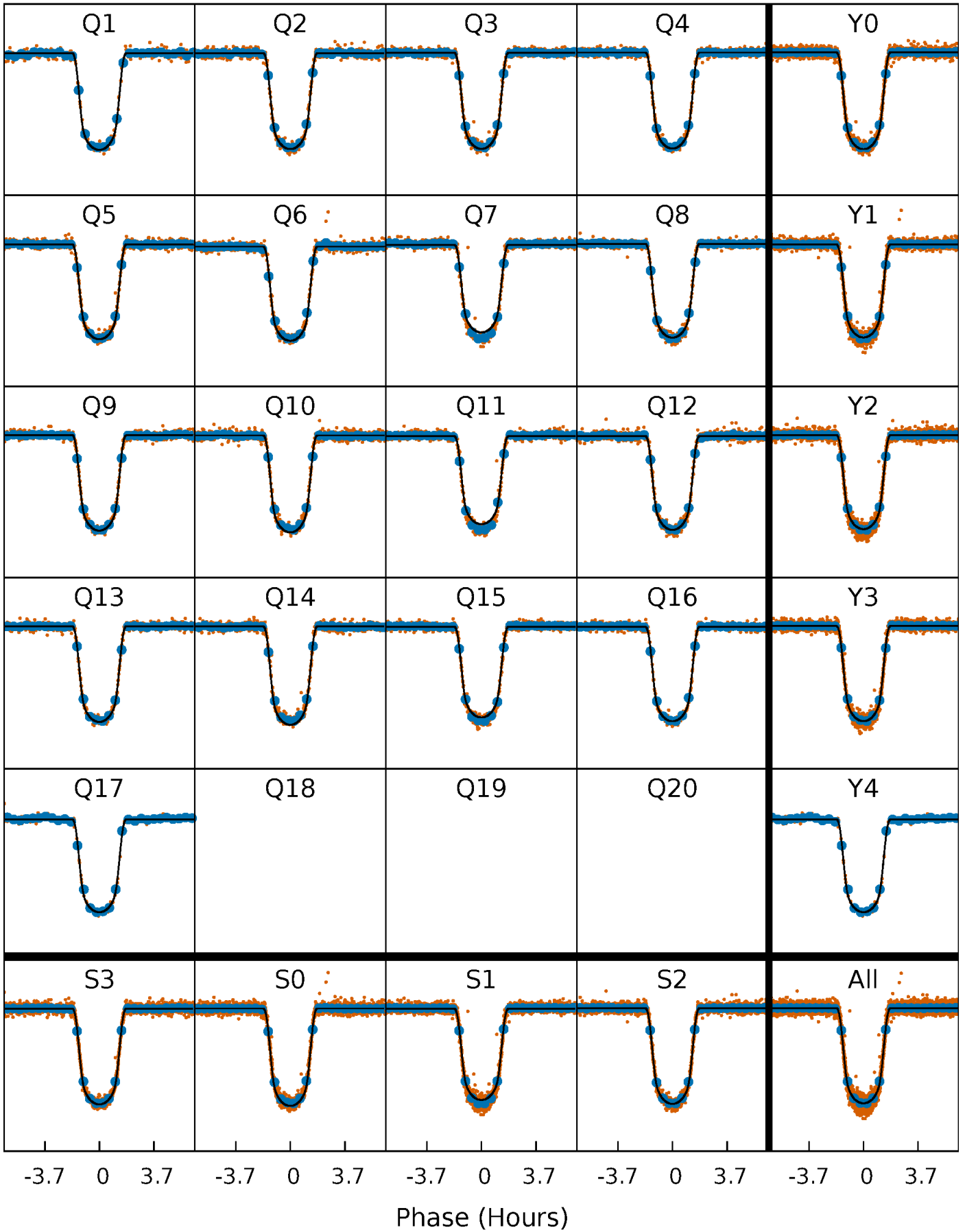
PDC Quarter-Phased Transit Curves

TCE 009166862-01 P= 3.855602 Days $T_0=132.123231$ (BKJD)



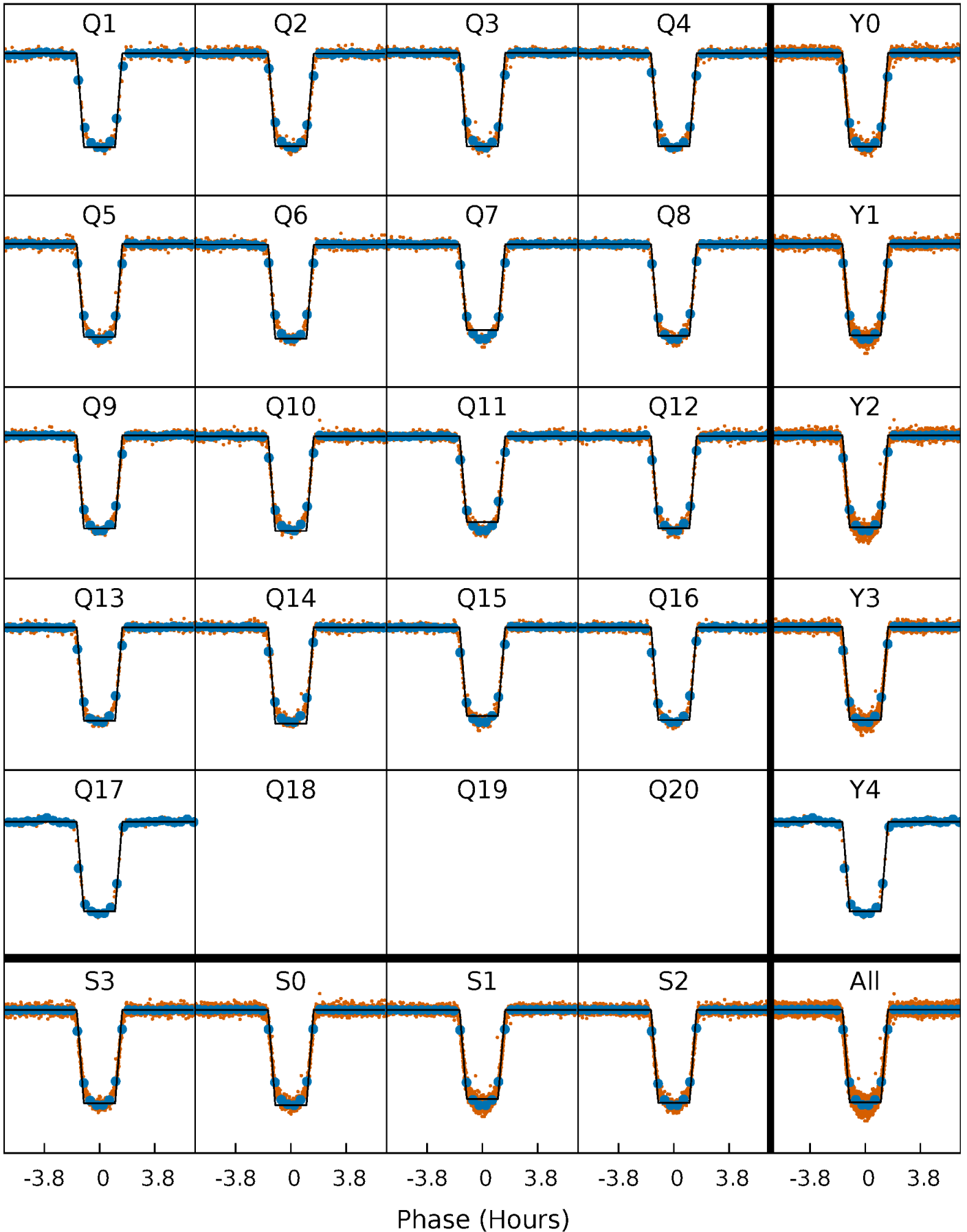
DV Quarter-Phased Transit Curves

TCE 009166862-01 P= 3.855602 Days $T_0=132.123231$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

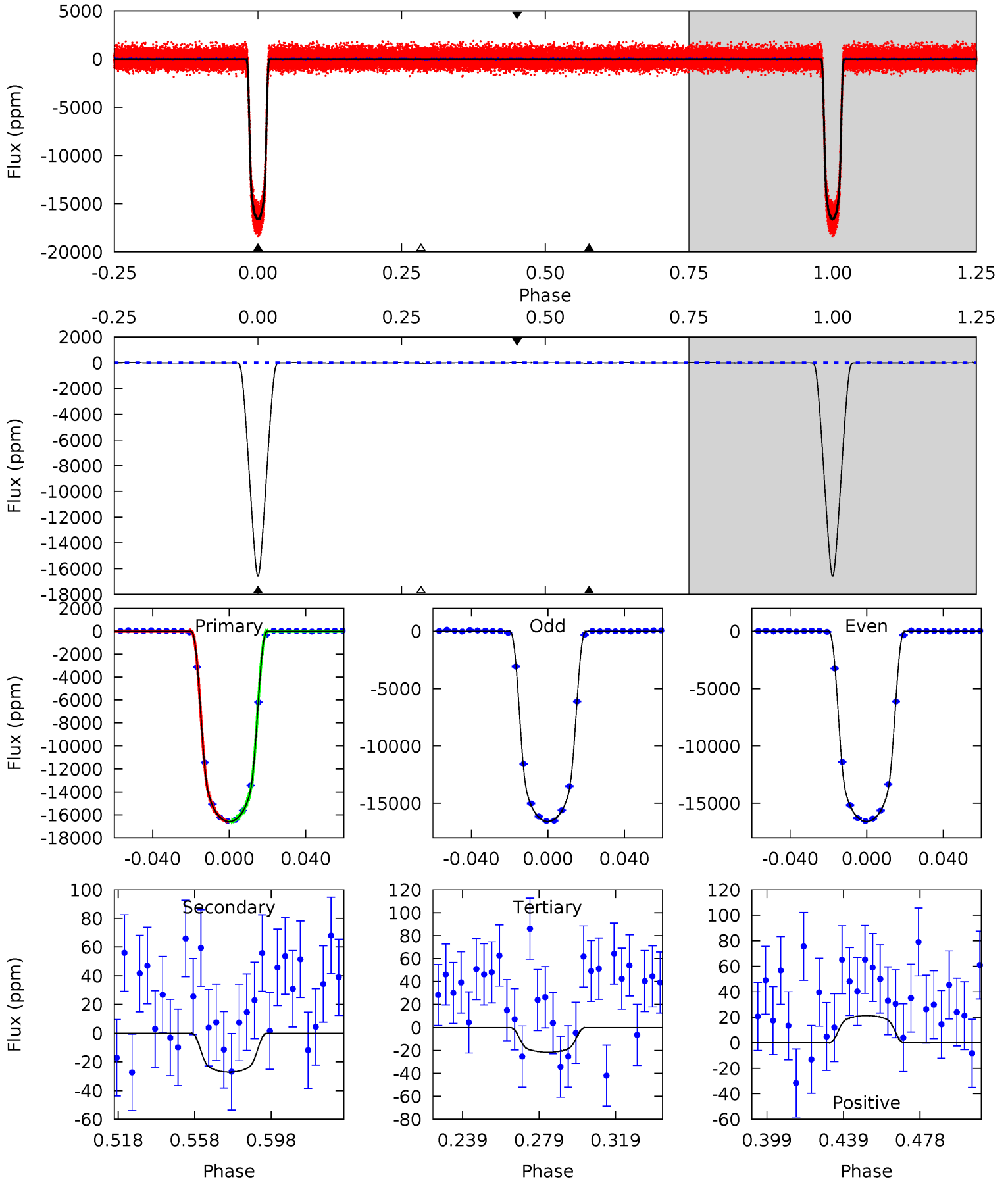
TCE 009166862-01 P= 3.855613 Days $T_0=132.121109$ (BKJD)



DV Model-Shift Uniqueness Test

009166862-01, P = 3.855602 Days, E = 128.267629 Days

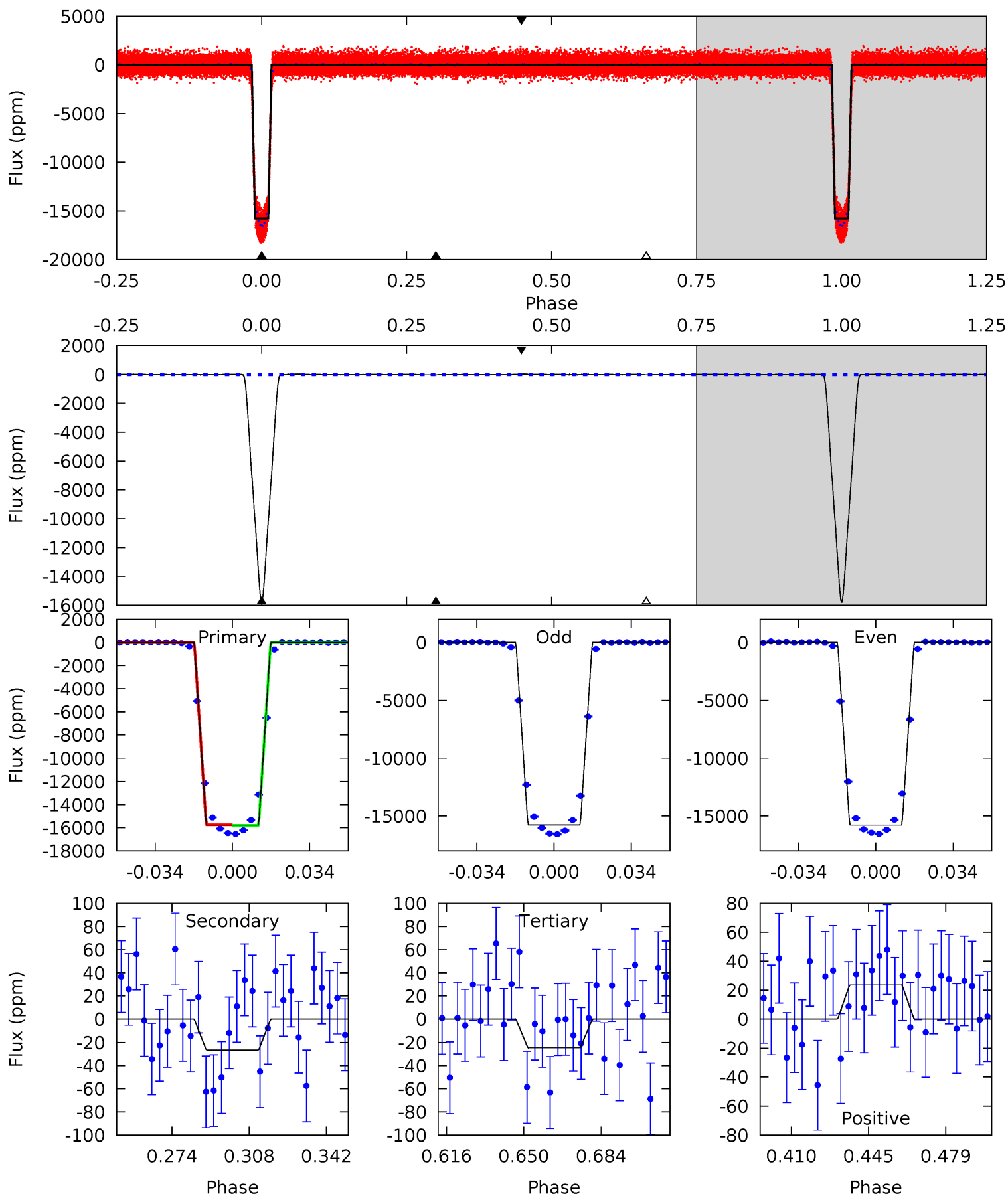
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1857	3.04	2.42	2.38	4.75	2.06	1.07	1855	1855	0.62	0.65	0.02	1.01	0.00	1.06



Alt Model-Shift Uniqueness Test

009166862-01, P = 3.855613 Days, E = 128.265496 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1559	2.62	2.43	2.33	4.78	2.12	0.88	1556	1556	0.19	0.29	0.26	1.01	0.00	2.39



Stellar Parameters For KIC 009166862

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6033^{+193}_{-265}	$4.460^{+0.048}_{-0.192}$	$0.210^{+0.200}_{-0.250}$	$1.046^{+0.292}_{-0.104}$	$1.153^{+0.125}_{-0.152}$	$1.418^{+0.362}_{-0.738}$
	+3%/-4%	+1%/-4%	+95%/-119%	+28%/-10%	+11%/-13%	+26%/-52%
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 009166862-01 / KOI 0931.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-27 ± 9	$13.87^{+2.07}_{-0.99}$	1725^{+124}_{-93}	-2095^{+220}_{-158}	$0.183^{+0.075}_{-0.069}$
Alt.	-26 ± 10	$14.76^{+2.37}_{-0.99}$	1725^{+127}_{-93}	-2139^{+186}_{-130}	$0.161^{+0.071}_{-0.069}$

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

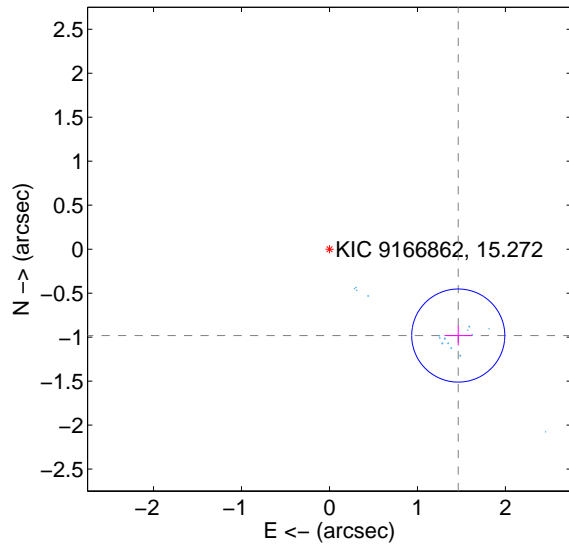
Supplemental centroid analysis for 009166862-01. Kepler magnitude: 15.27. Transit SNR 1209.44

There are 17 quarters with good PRF difference image offsets

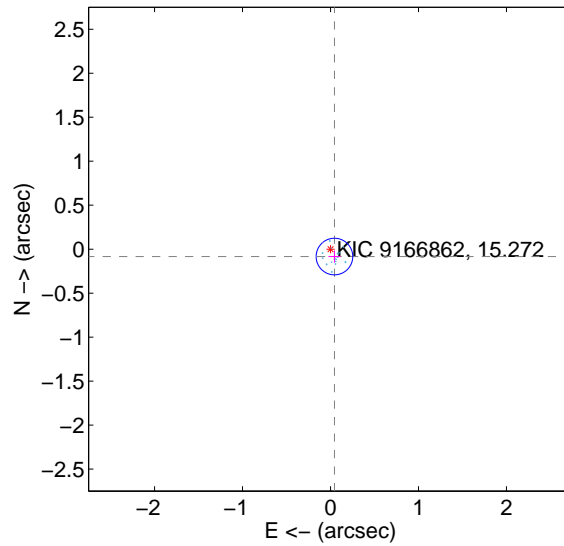
The direct PRF centroid is offset from the target star catalog position by about 1.87 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.763 ± 0.176	9.99	-1.464 ± 0.156	-0.982 ± 0.112
PRF-fit source offset from KIC position	0.095 ± 0.069	1.37	-0.045 ± 0.069	-0.084 ± 0.069
photometric centroid source offset	0.56 ± 0.01	66.07	0.49 ± 0.01	0.26 ± 0.01

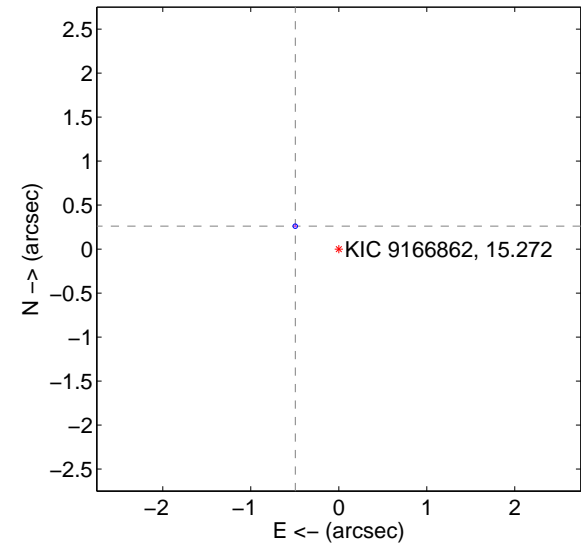
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

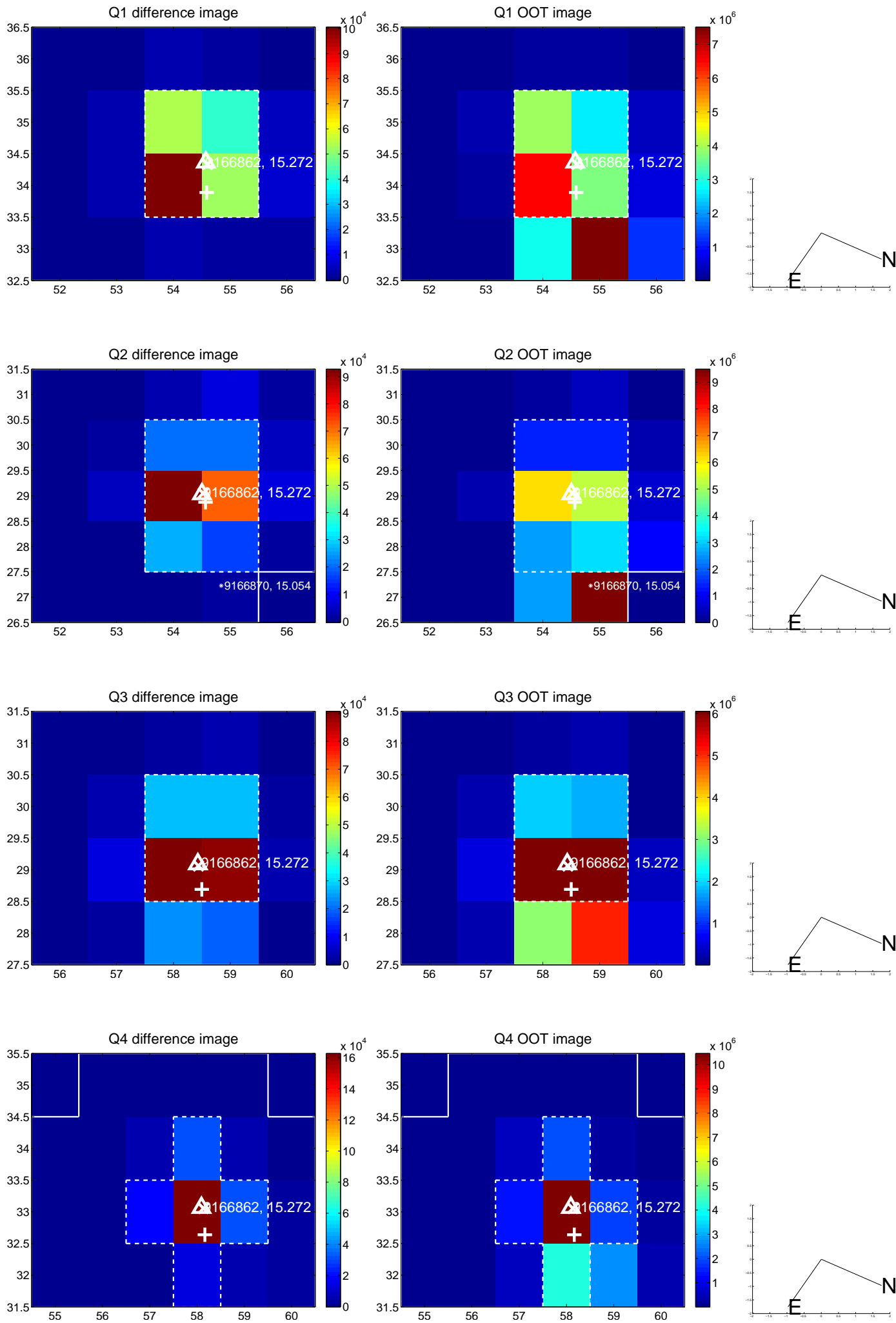


offset from photometric centroids

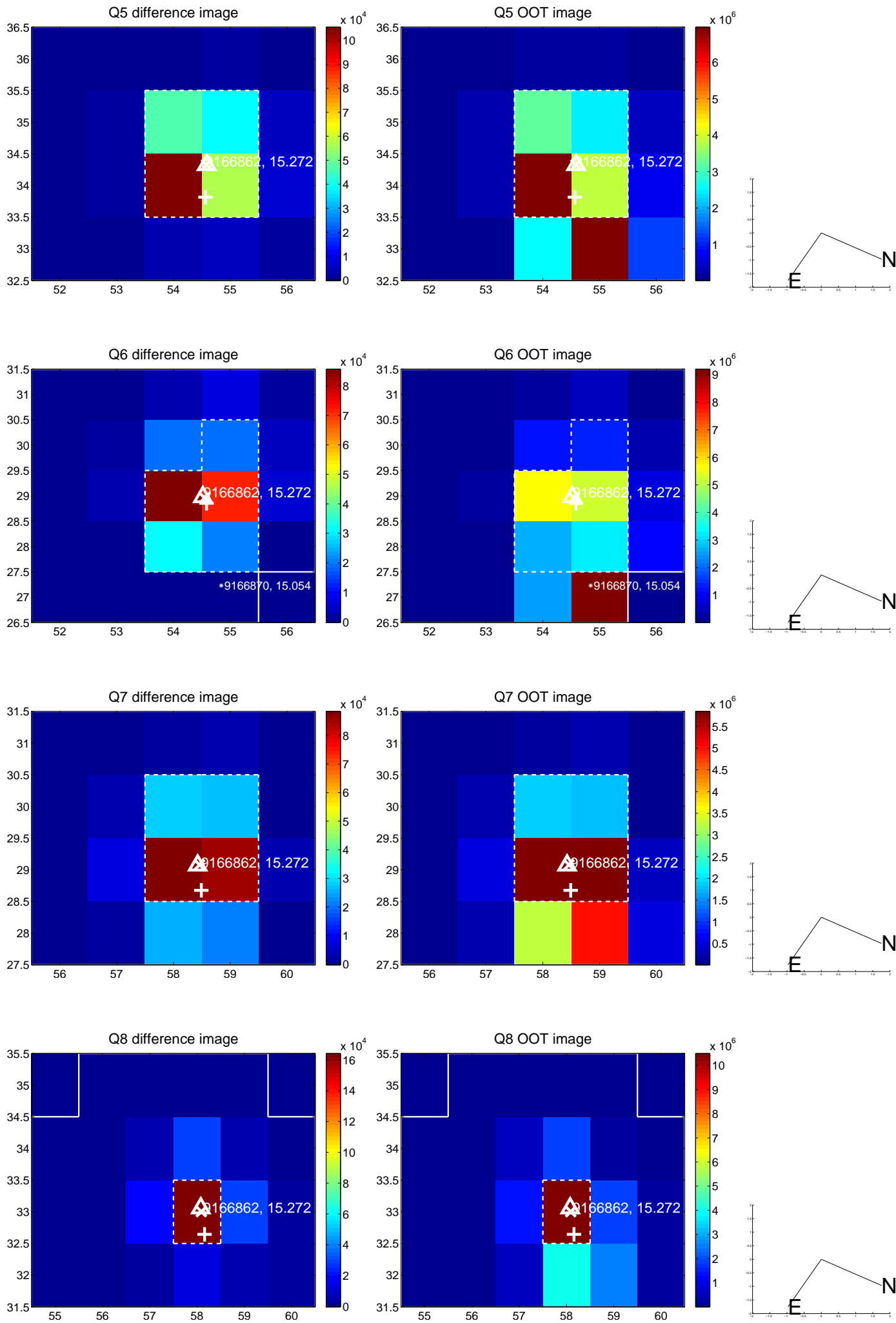


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

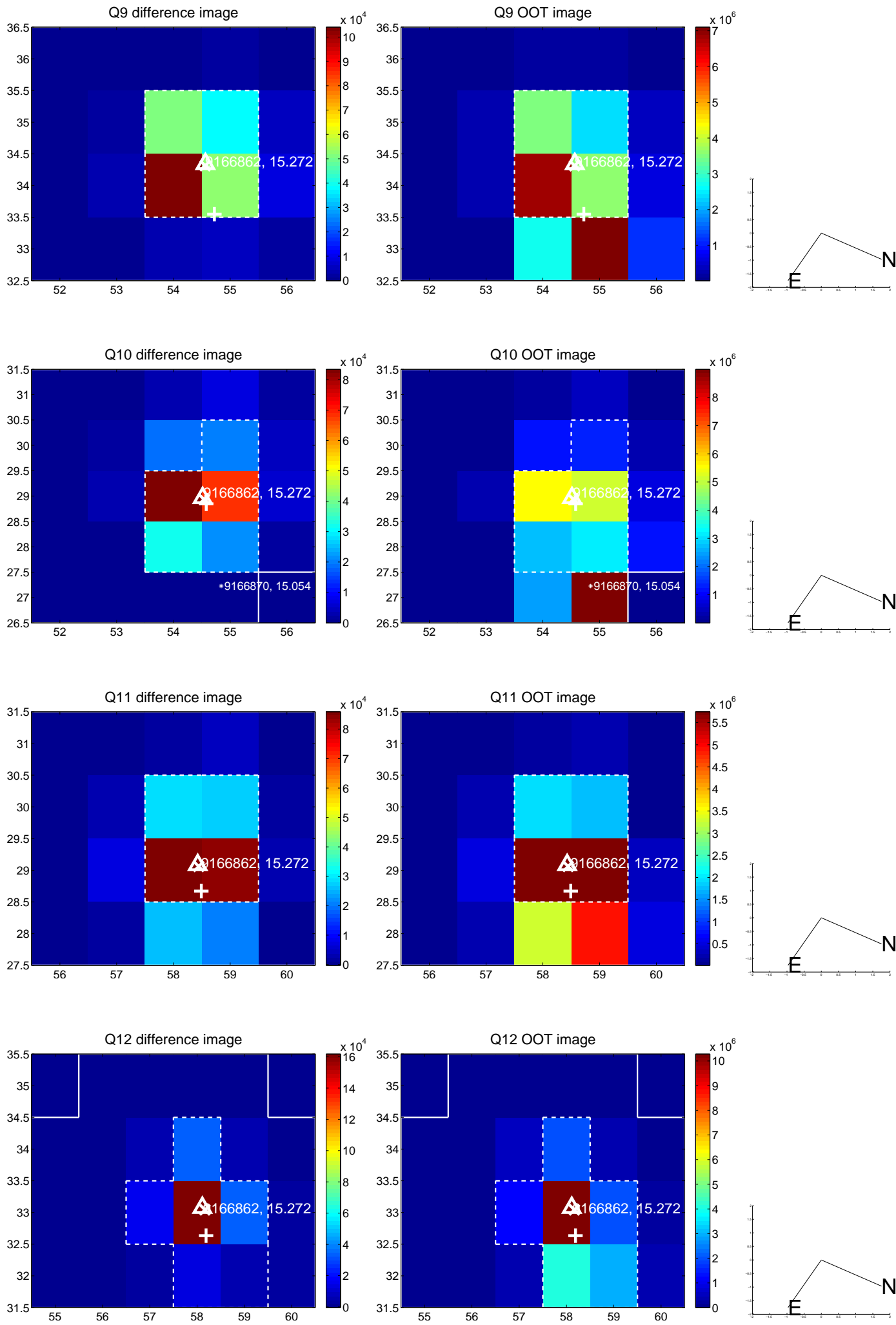
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



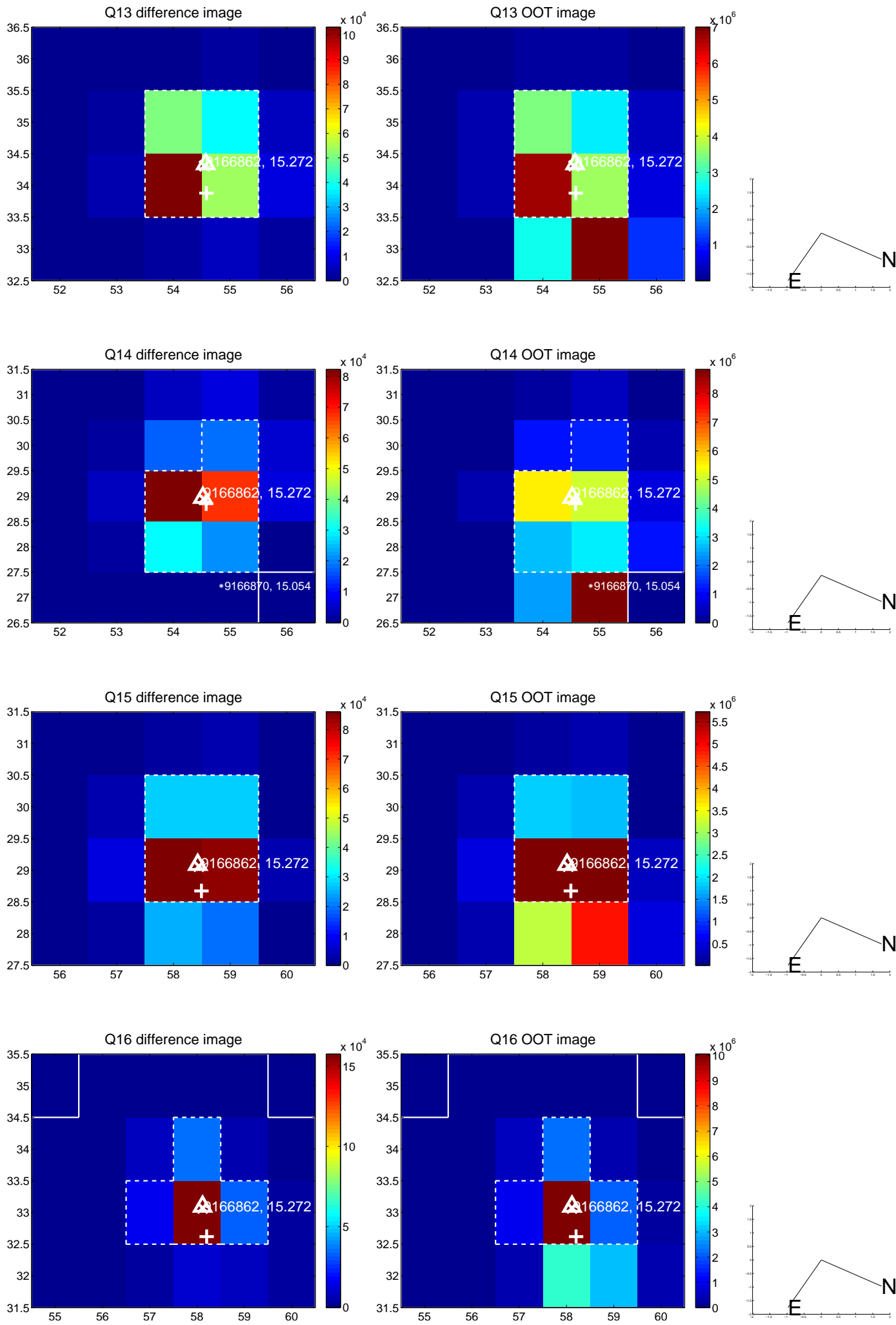
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



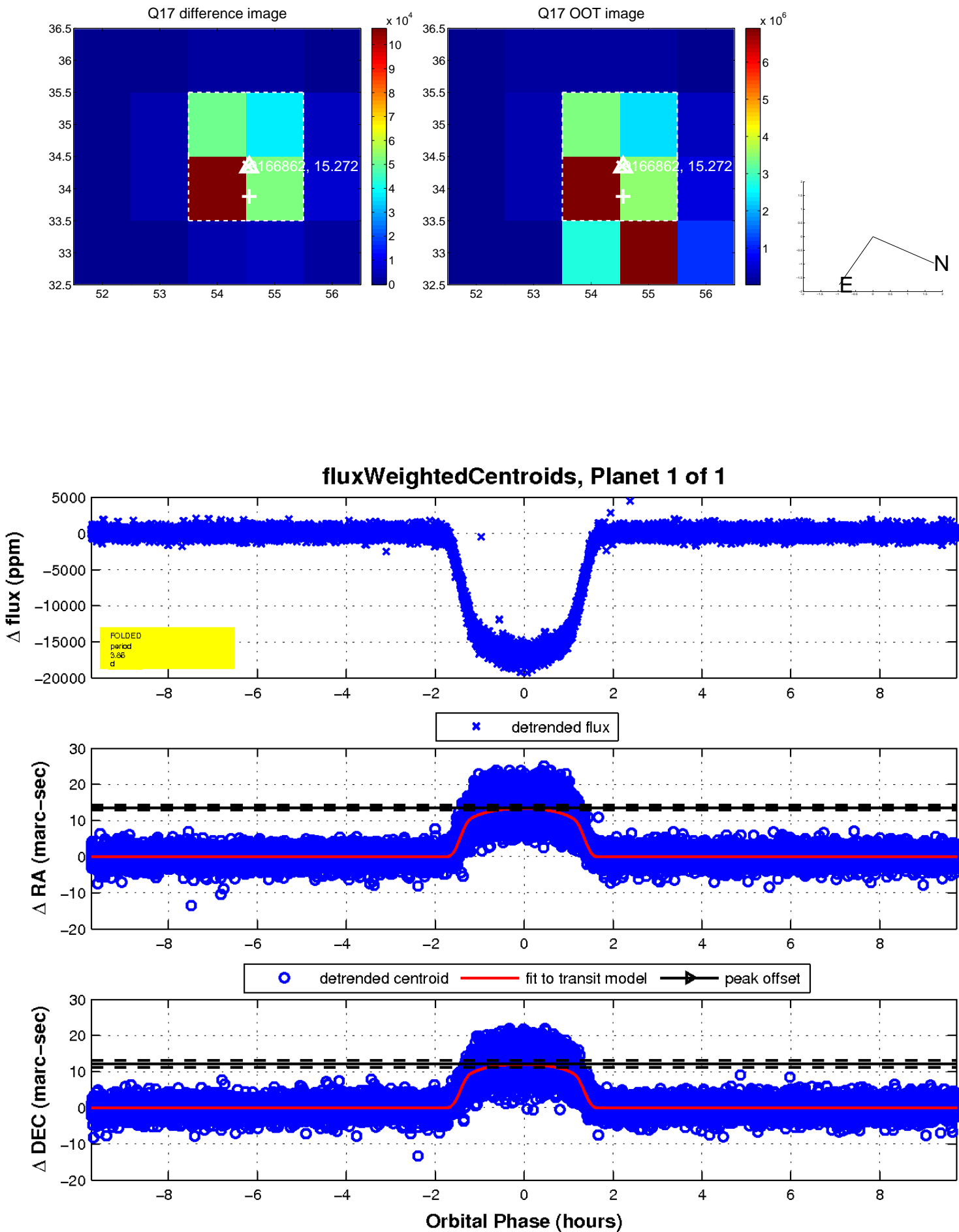
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

