

KIC 009772531

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})
009772531-01	OBS	0950.01	31.201695	152.205867	34468.8	2.212	595.1	614.9	0.45	3748	8.50	1.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009772531-01	OBS	PC	0.99	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 009772531-01

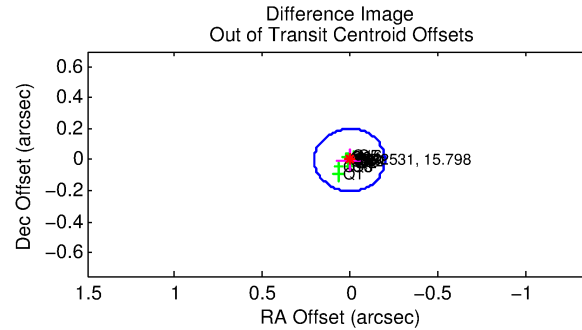
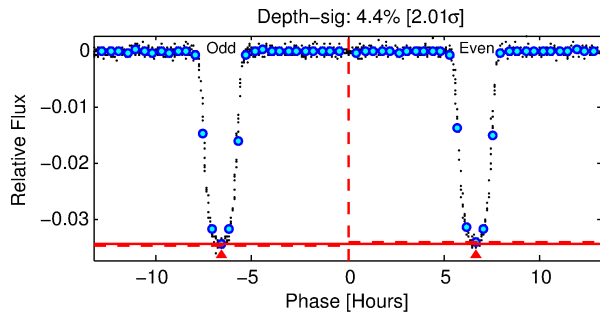
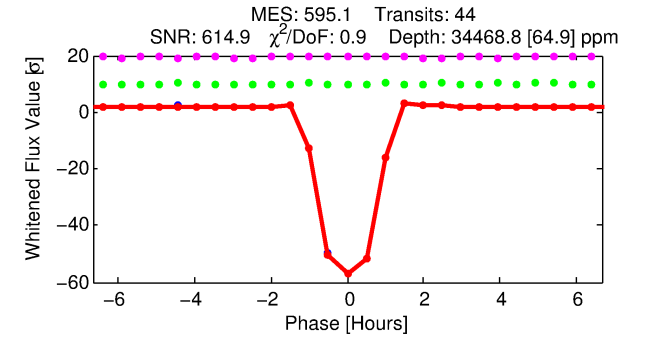
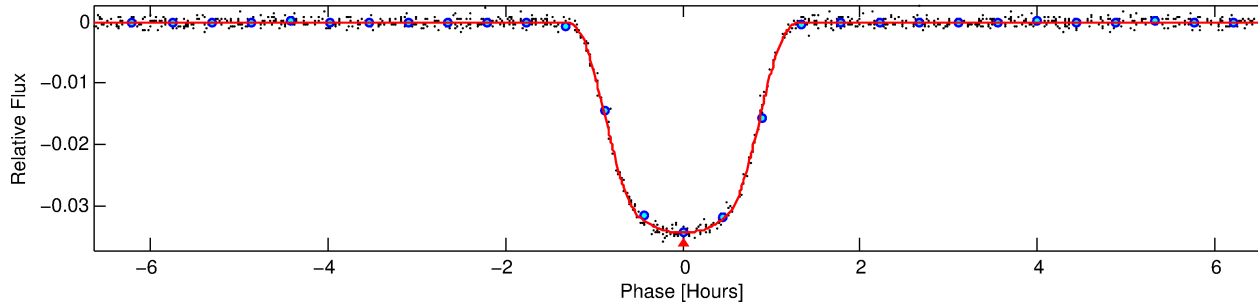
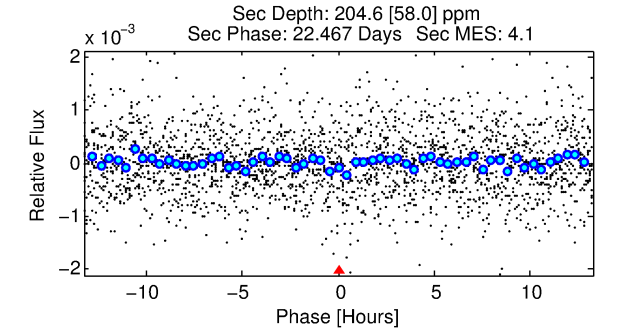
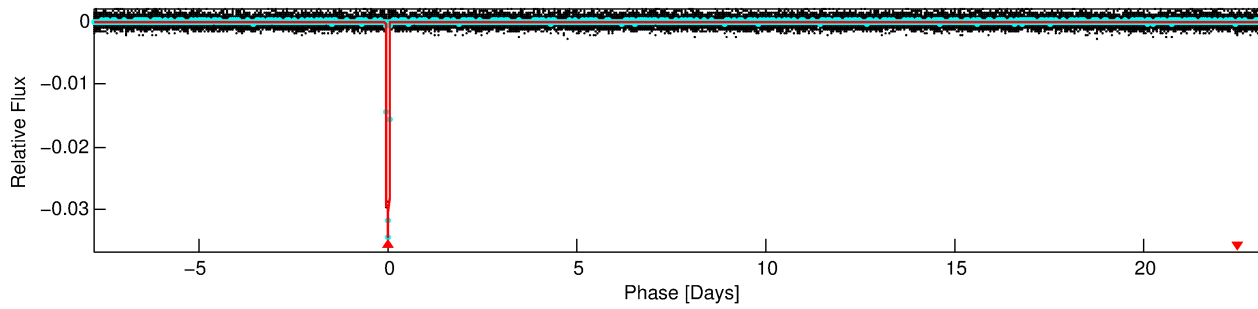
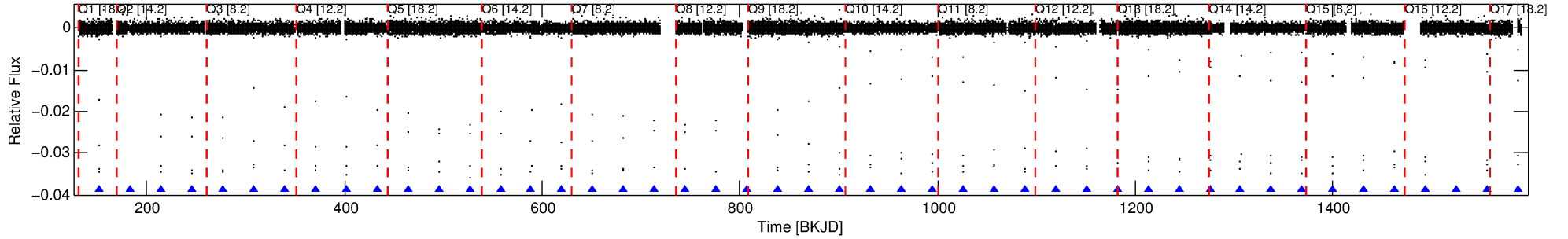
No Significant Match Found

DV One-Page Summary

KIC: 9772531 Candidate: 1 of 1 Period: 31.202 d

KOI: K00950.01 Corr: 0.993

Kp: 15.80 R*: 0.45 Rs Teff: 3748.0 K Logg: 4.80 Fe/H: -0.300



DV Fit Results:

Period = 31.20169 [0.00000] d
Epoch = 152.2059 [0.0001] BKJD
Rp/R* = 0.1734 [0.0007]
a/R* = 118.93 [1.90]
b = 0.40 [0.03]
Seff = 1.59 [0.17]
Teq = 286 [7] K
Rp = 8.50 [0.64] Re
a = 0.1497 [0.0090] AU
Ag = 34.95 [10.31] [3.29σ]
Teffp = 1076 [78] K [10.05σ]

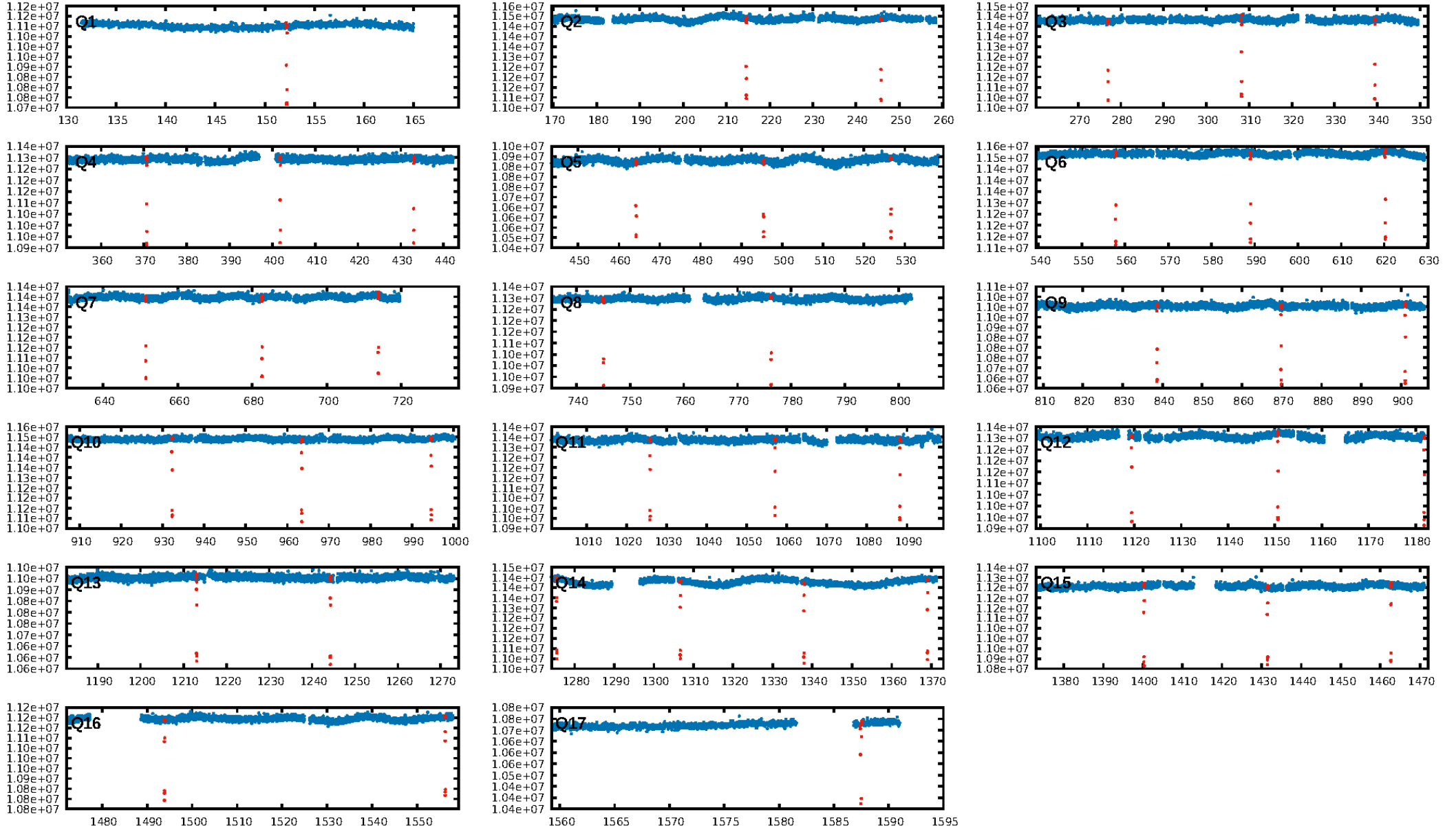
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 7.3%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [42/42]
GhostDiagnostic-chr: 6.175
Centroid-sig: 53.5%
Centroid-so: 0.324 arcsec [12.05σ]
OotOffset-rm: 0.005 arcsec [0.08σ]
KicOffset-rm: 0.416 arcsec [5.98σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

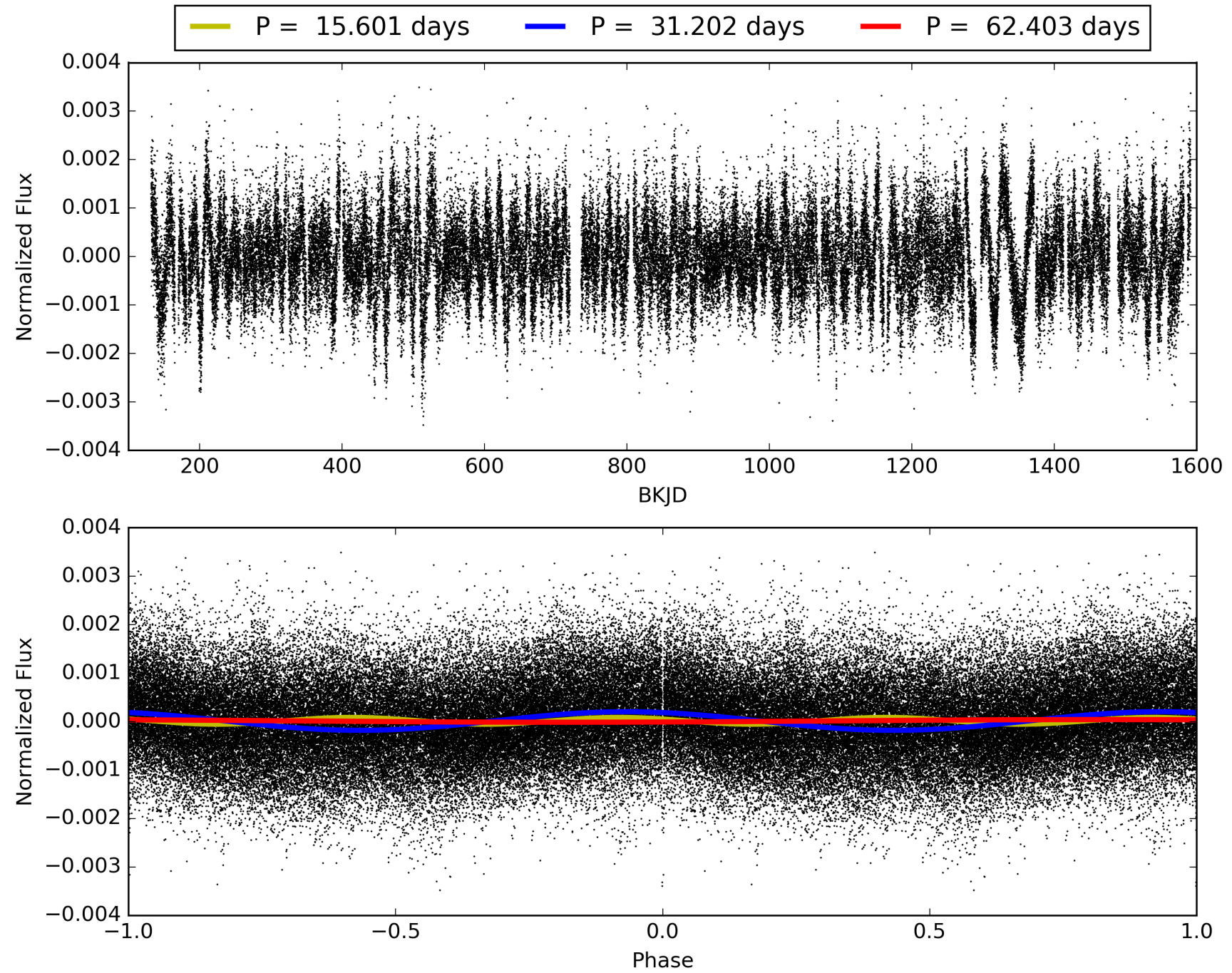
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:22:39 Z

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

TCE 009772531-01, PDC Light Curves

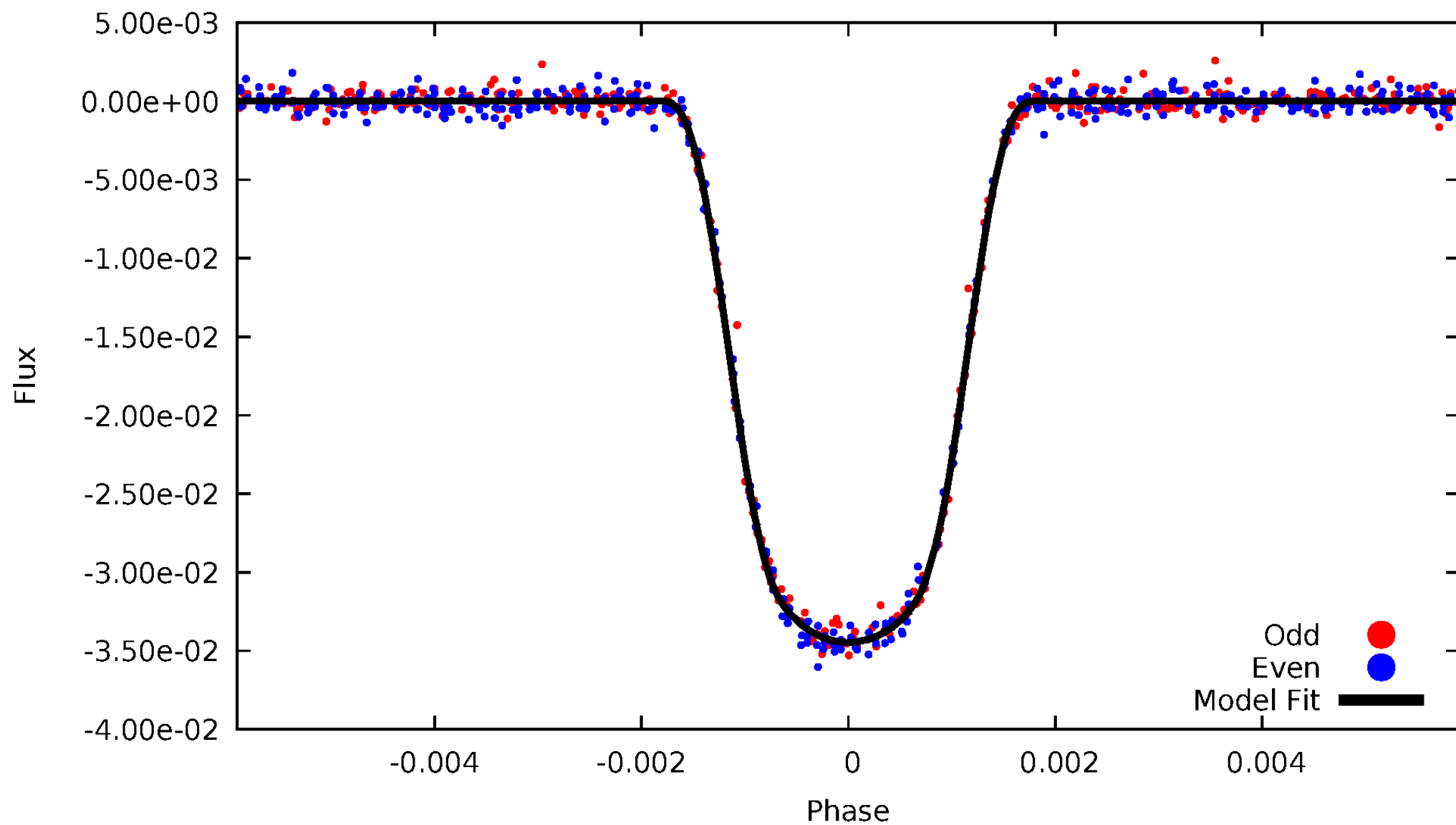


TCE 009772531-01



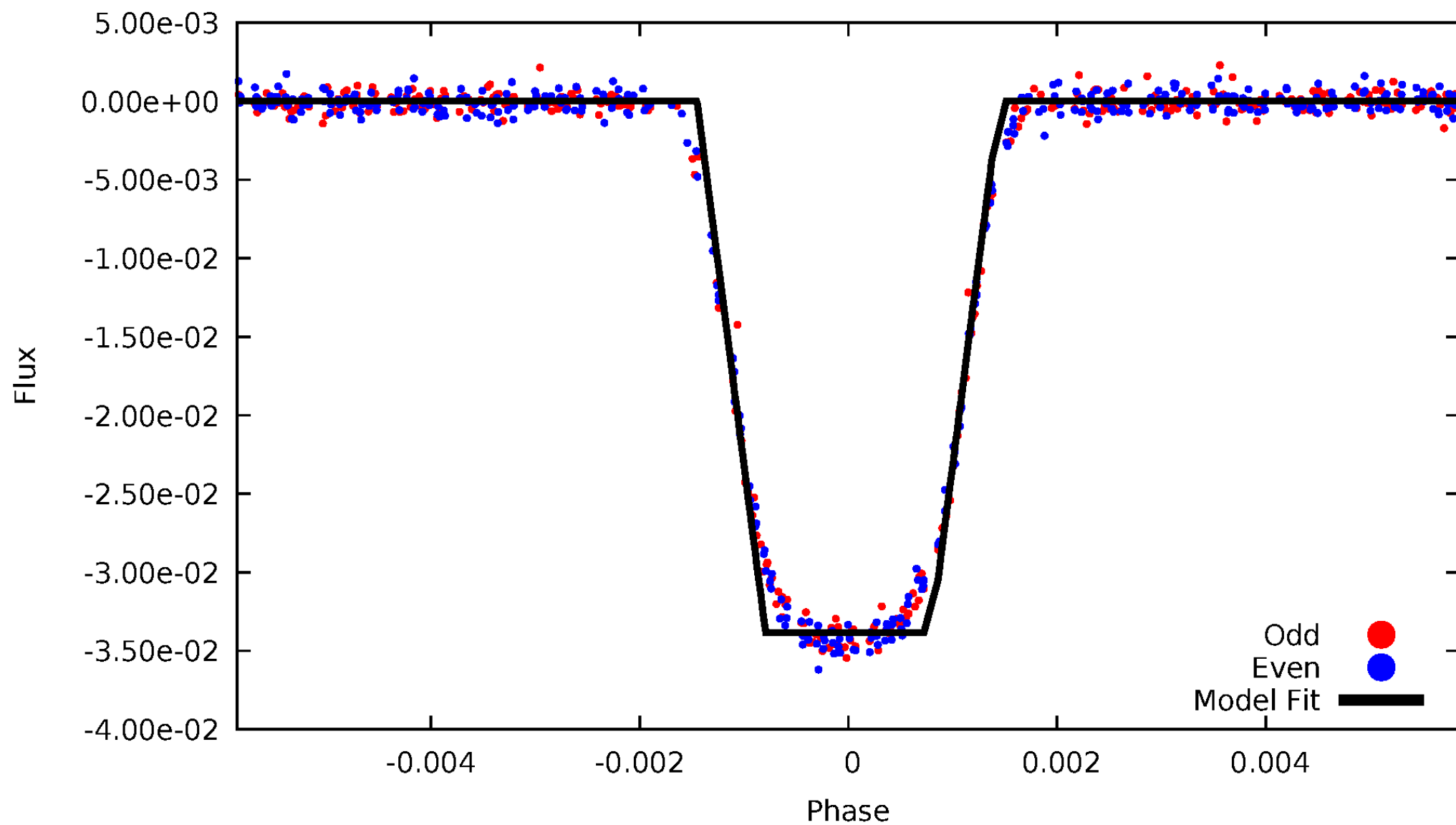
DV Odd/Even

TCE 009772531-01



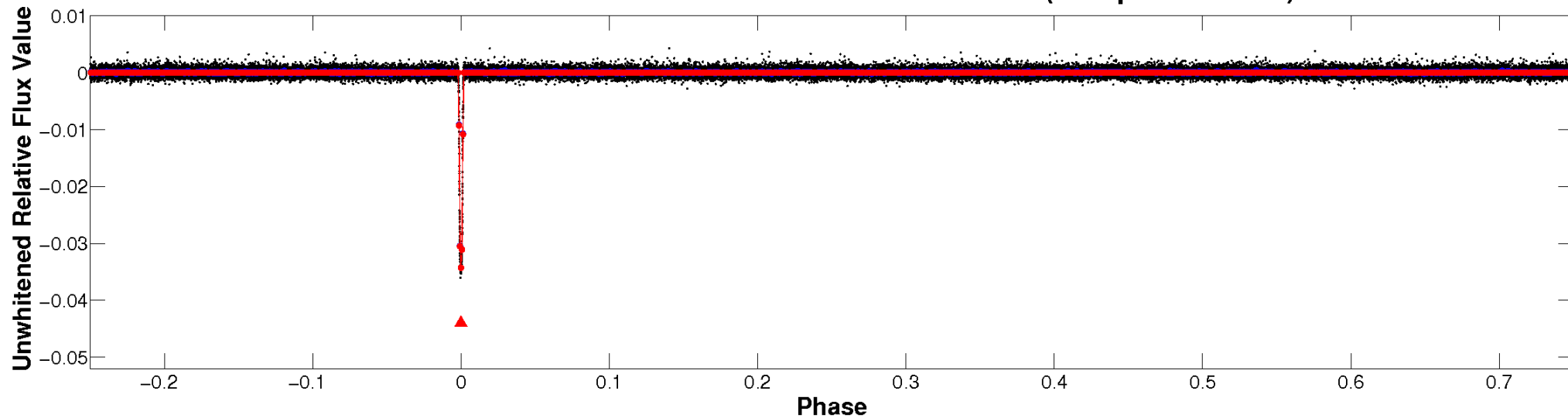
ALT Odd/Even

TCE 009772531-01

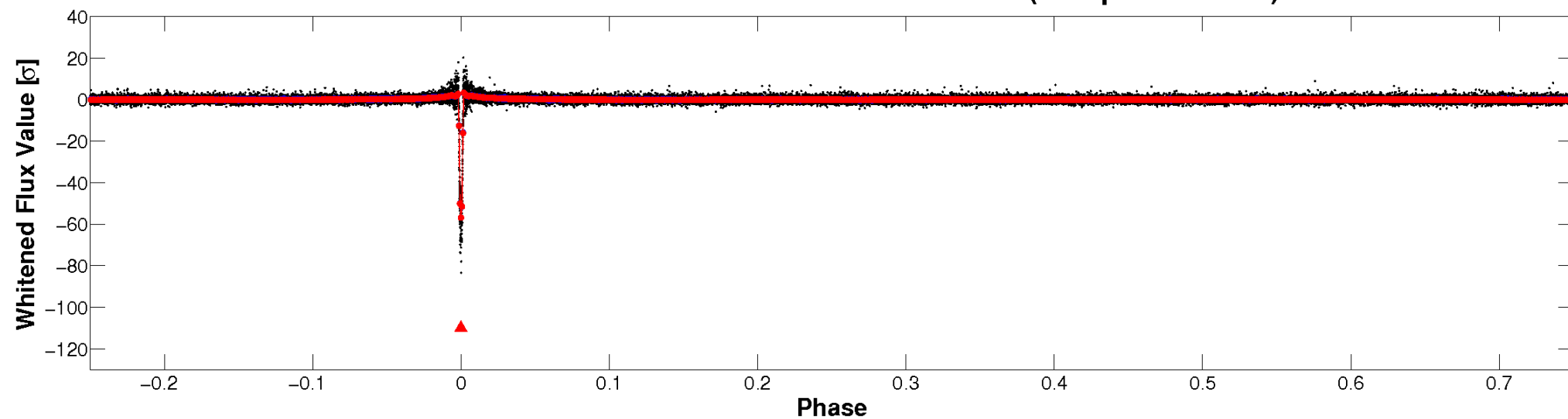


Non-Whitened Vs. Whitened Light Curve

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

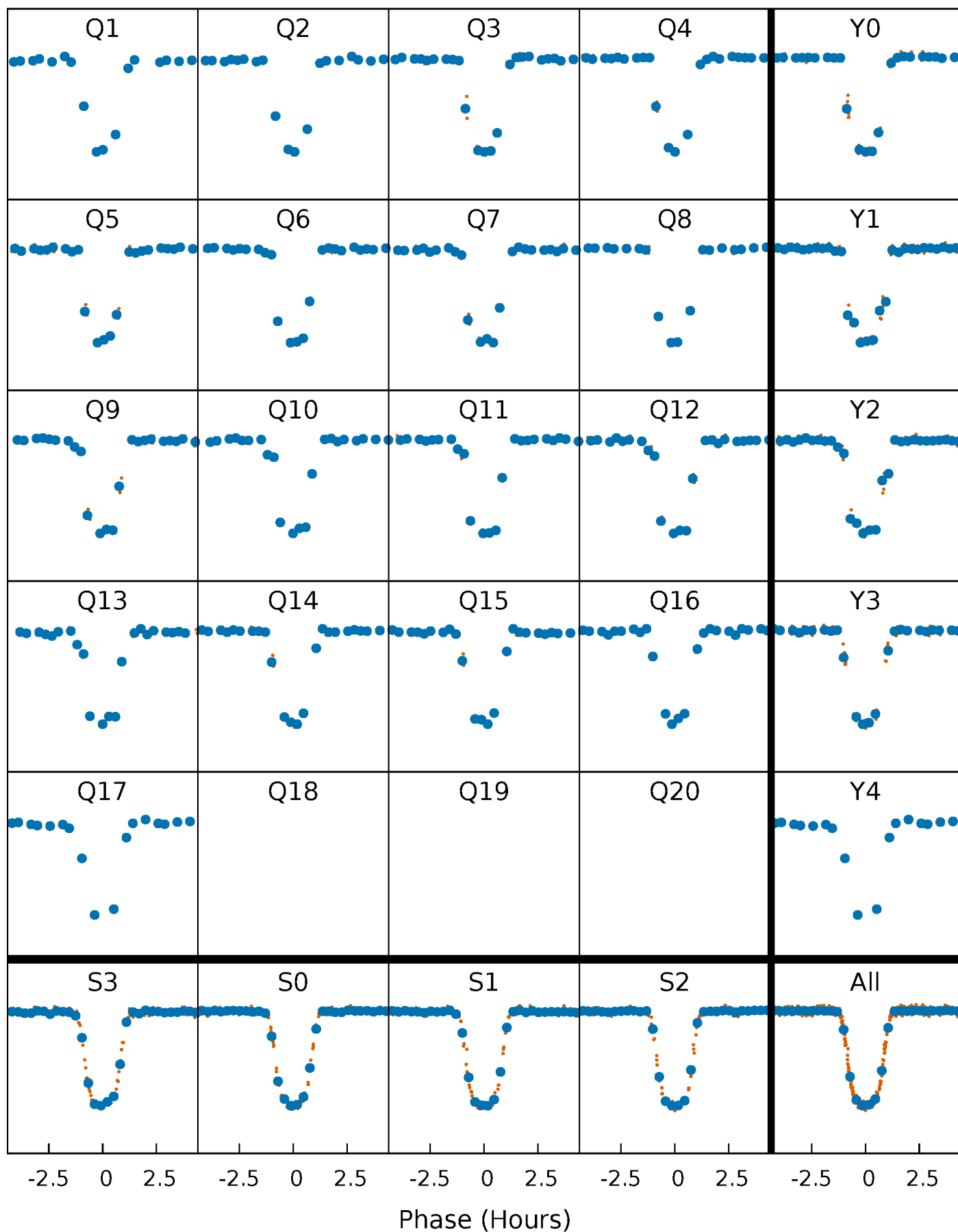


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



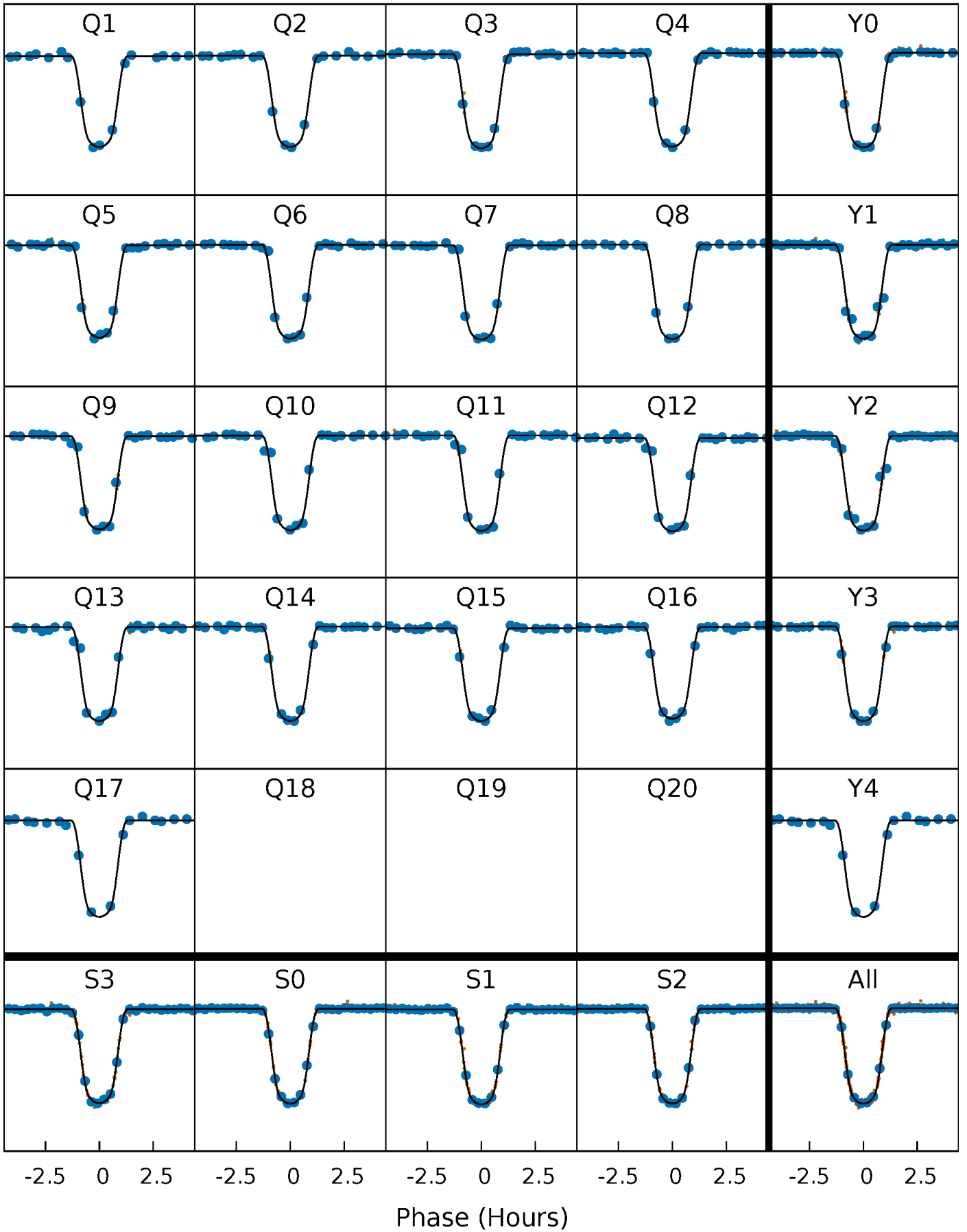
PDC Quarter-Phased Transit Curves

TCE 009772531-01 P= 31.201695 Days $T_0=152.205867$ (BKJD)



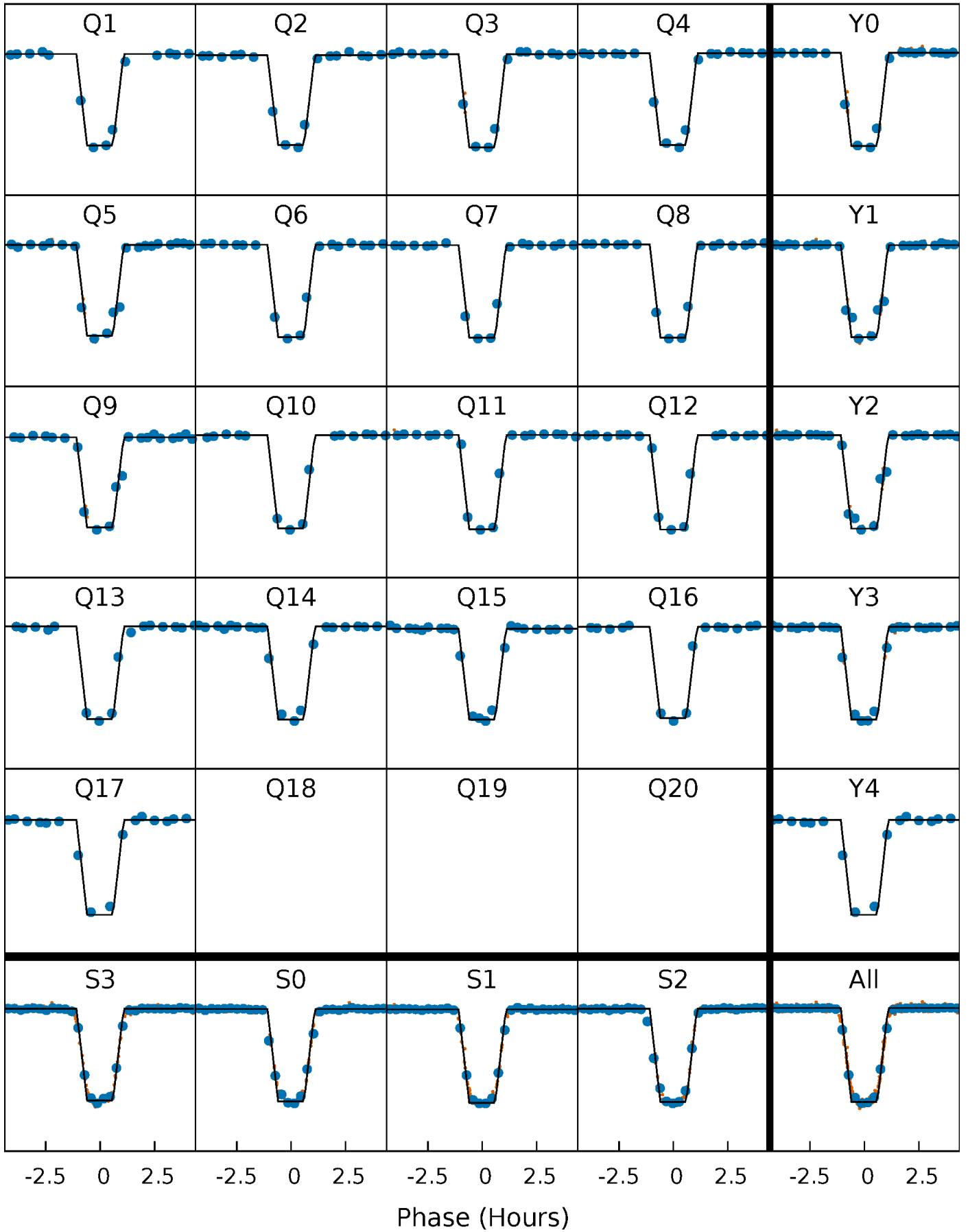
DV Quarter-Phased Transit Curves

TCE 009772531-01 P= 31.201695 Days $T_0=152.205867$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

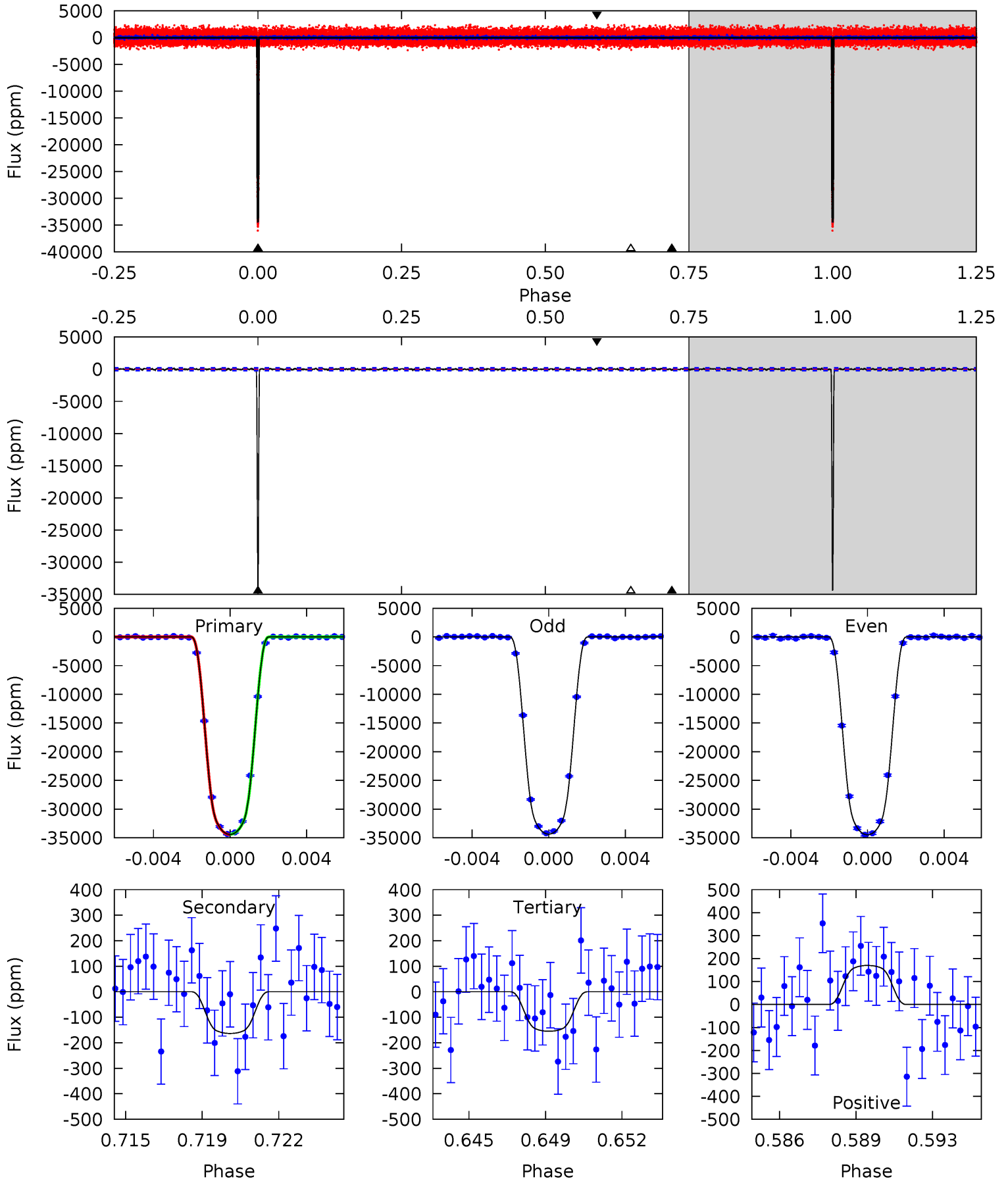
TCE 009772531-01 P= 31.201723 Days $T_0=152.205314$ (BKJD)



DV Model-Shift Uniqueness Test

009772531-01, P = 31.201695 Days, E = 121.004172 Days

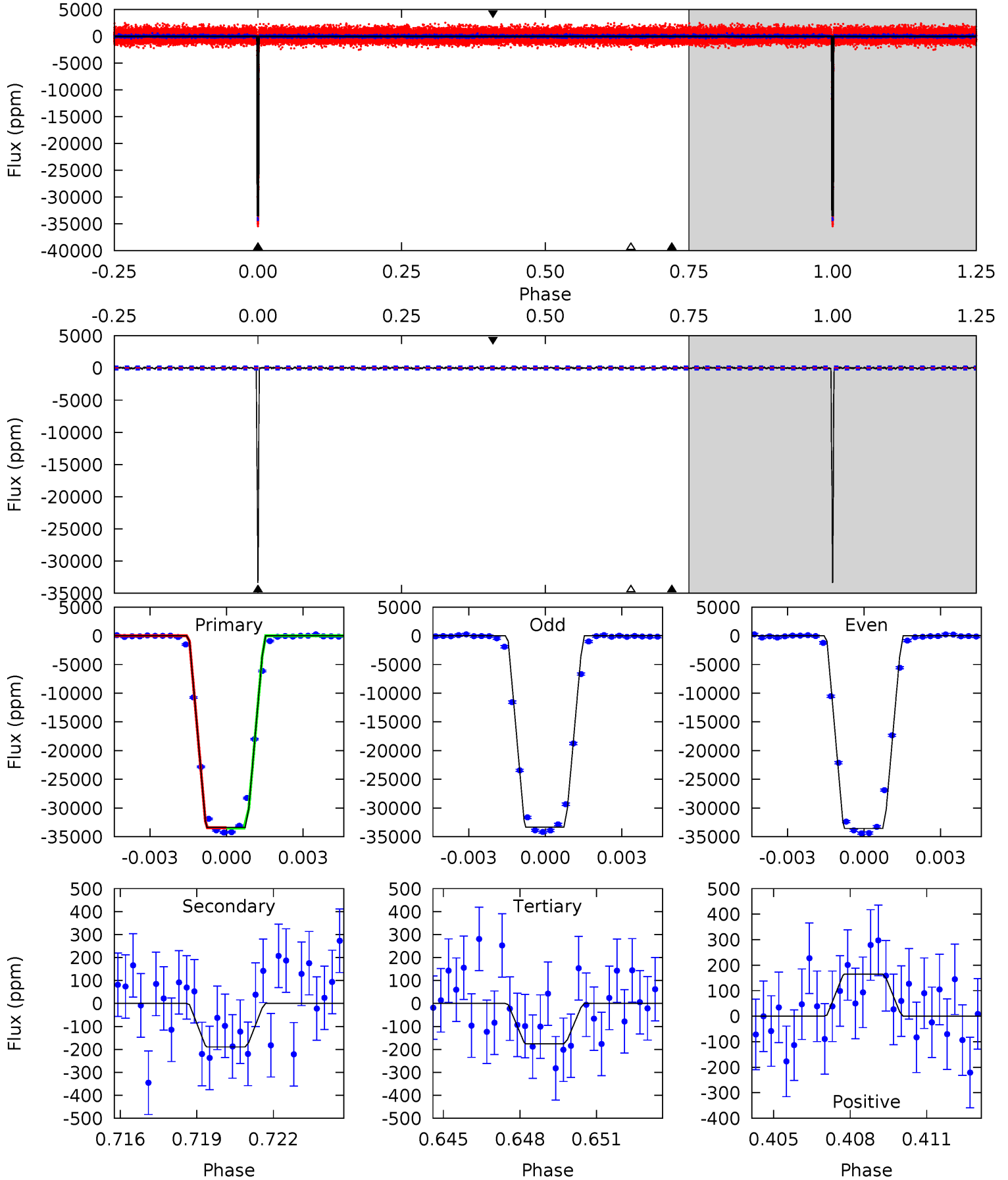
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
898.9	4.27	4.05	4.45	5.22	2.92	1.35	894.9	894.5	0.22	-0.17	1.49	1.00	0.00	0.67



Alt Model-Shift Uniqueness Test

009772531-01, P = 31.201723 Days, E = 121.003591 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
719.5	4.08	3.78	3.56	5.26	2.97	1.17	715.7	715.9	0.30	0.52	2.61	1.00	0.00	0.70



Stellar Parameters For KIC 009772531

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3748^{+56}_{-61}	$4.796^{+0.042}_{-0.028}$	$-0.300^{+0.100}_{-0.100}$	$0.449^{+0.028}_{-0.034}$	$0.461^{+0.028}_{-0.031}$	$7.155^{+1.407}_{-0.807}$
	+1%/-2%	+1%/-1%	+33%/-33%	+6%/-8%	+6%/-7%	+20%/-11%
Source	PHO2	PHO2	PHO2	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 009772531-01 / KOI 0950.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-164 ± 38	$8.51^{+0.28}_{-0.38}$	399^{+9}_{-10}	1925^{+46}_{-48}	28^{+6}_{-6}
Alt.	-189 ± 46	$9.01^{+0.33}_{-0.38}$	399^{+8}_{-8}	1931^{+48}_{-53}	29^{+8}_{-7}

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

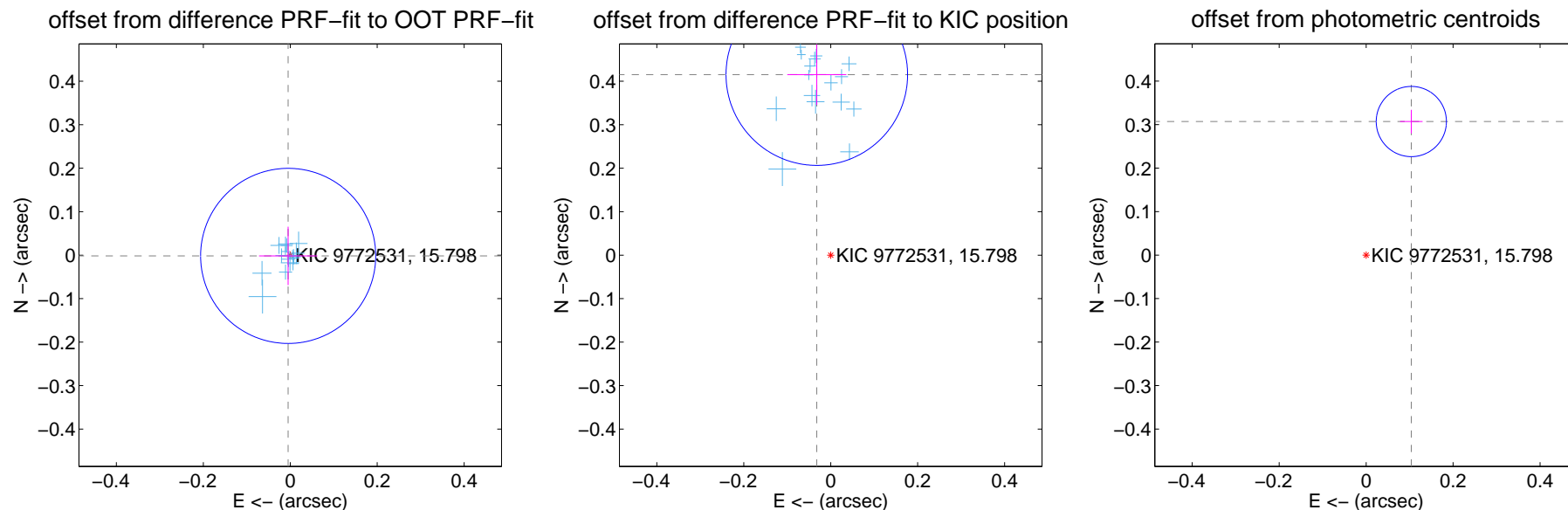
DV Centroid Data

Supplemental centroid analysis for 009772531-01. Kepler magnitude: 15.80. Transit SNR 614.94

There are 16 quarters with good PRF difference image offsets

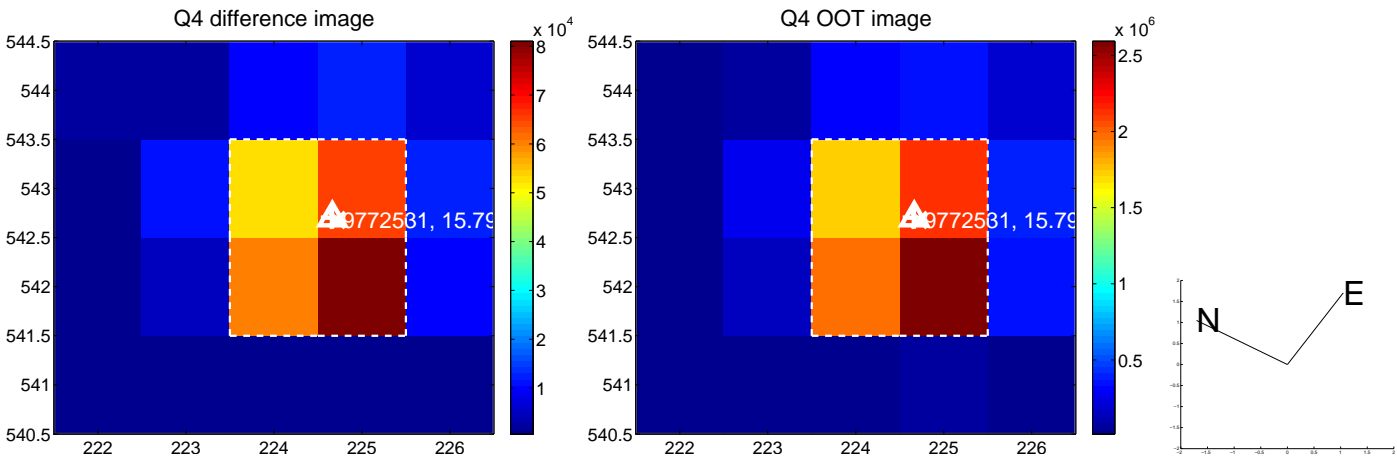
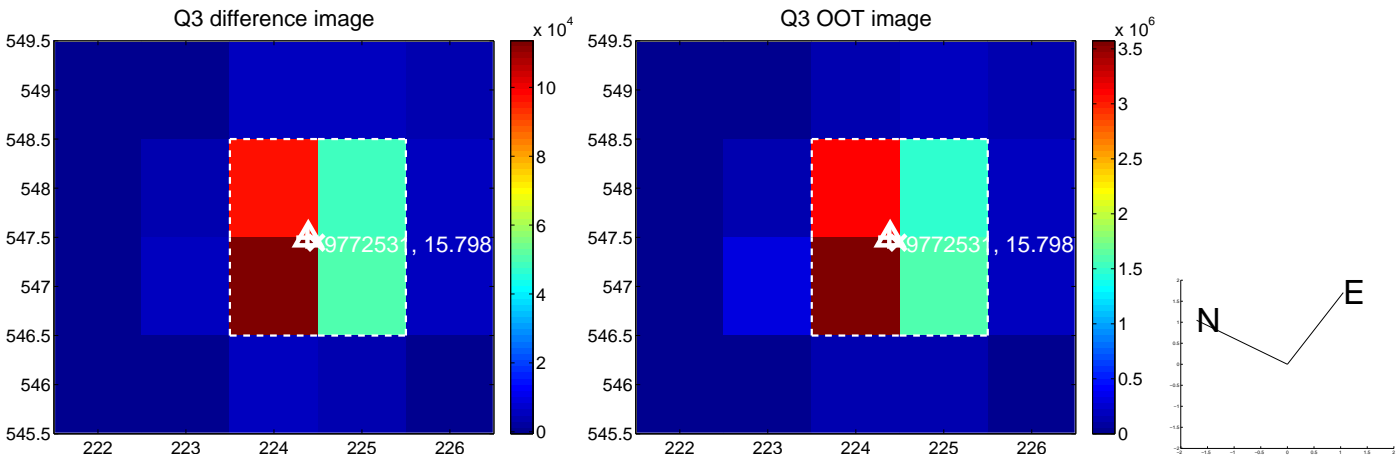
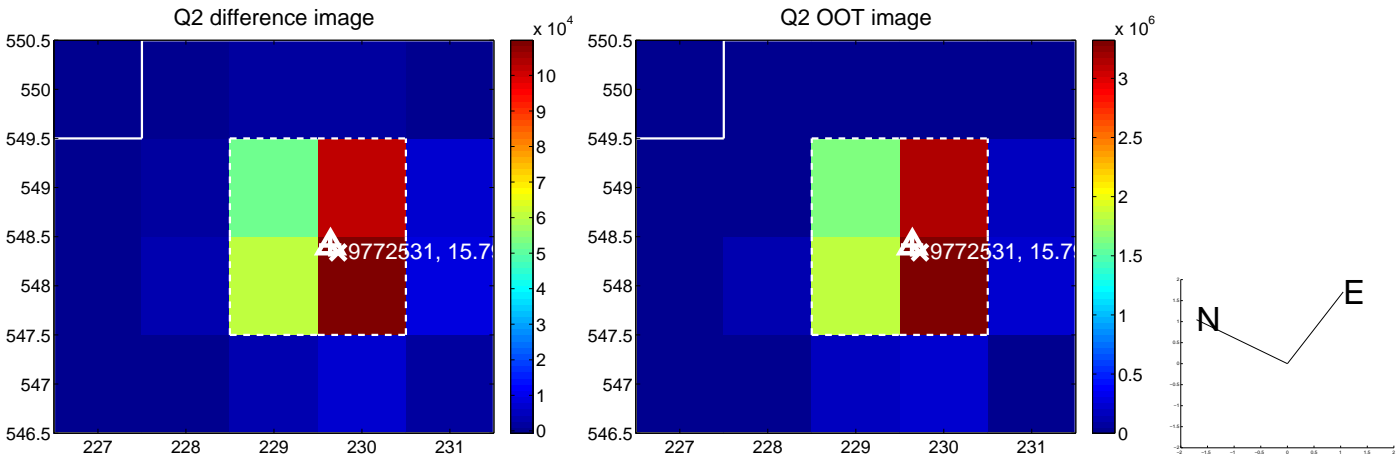
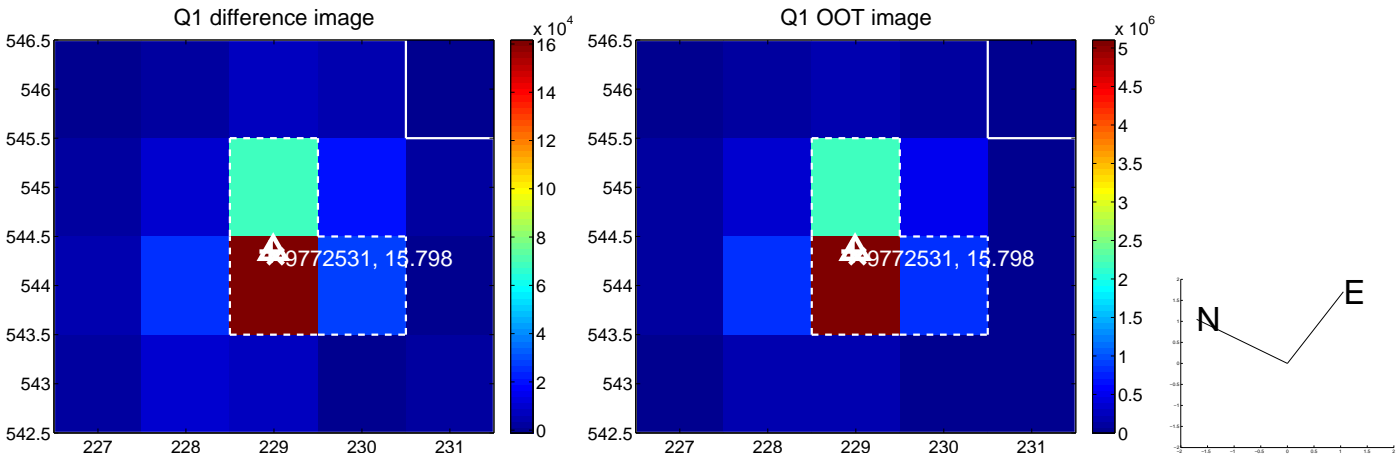
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.005 ± 0.067	0.08	0.005 ± 0.067	-0.002 ± 0.067
PRF-fit source offset from KIC position	0.416 ± 0.070	5.98	0.032 ± 0.068	0.415 ± 0.070
photometric centroid source offset	0.32 ± 0.03	12.05	-0.10 ± 0.03	0.31 ± 0.03

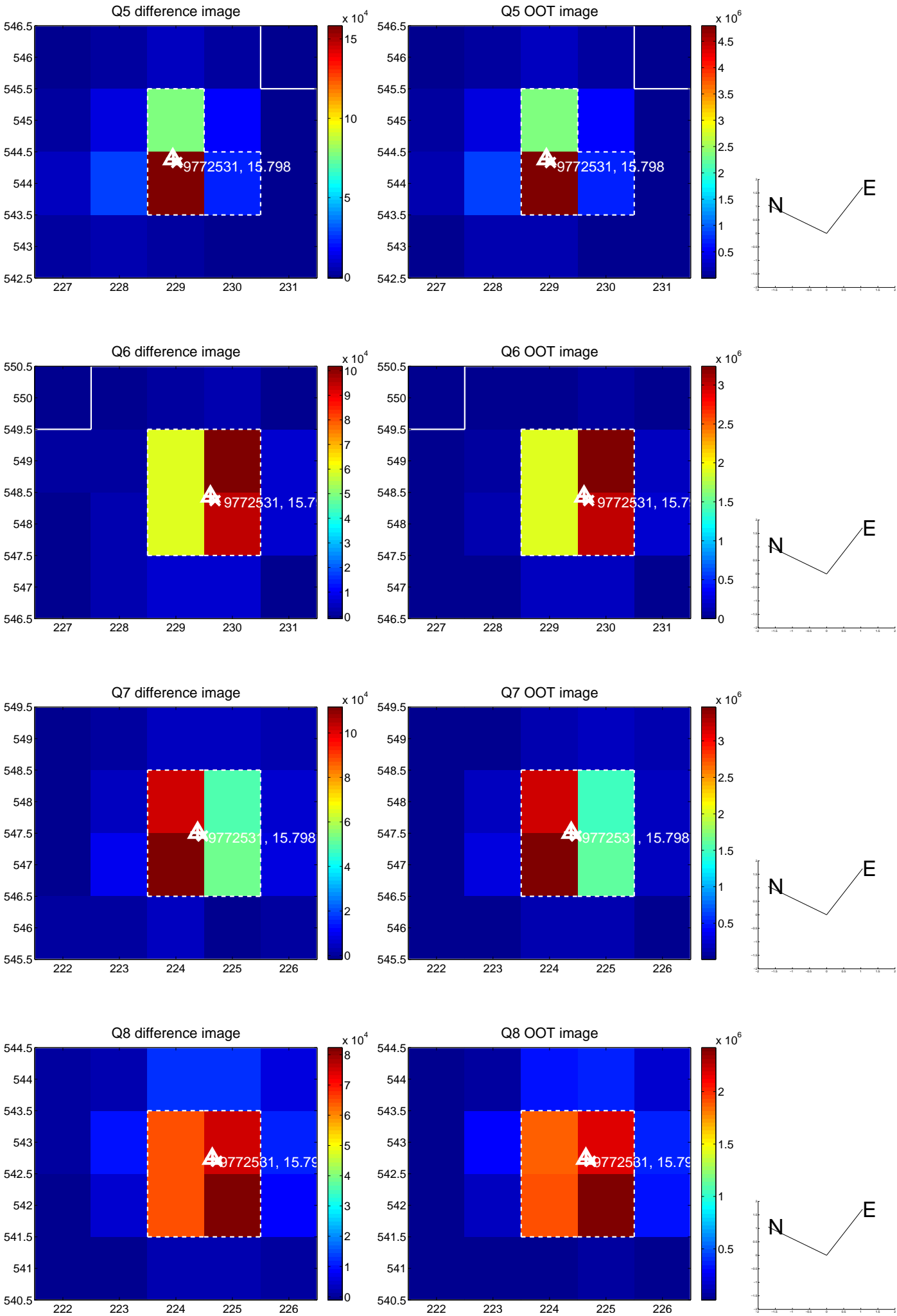


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

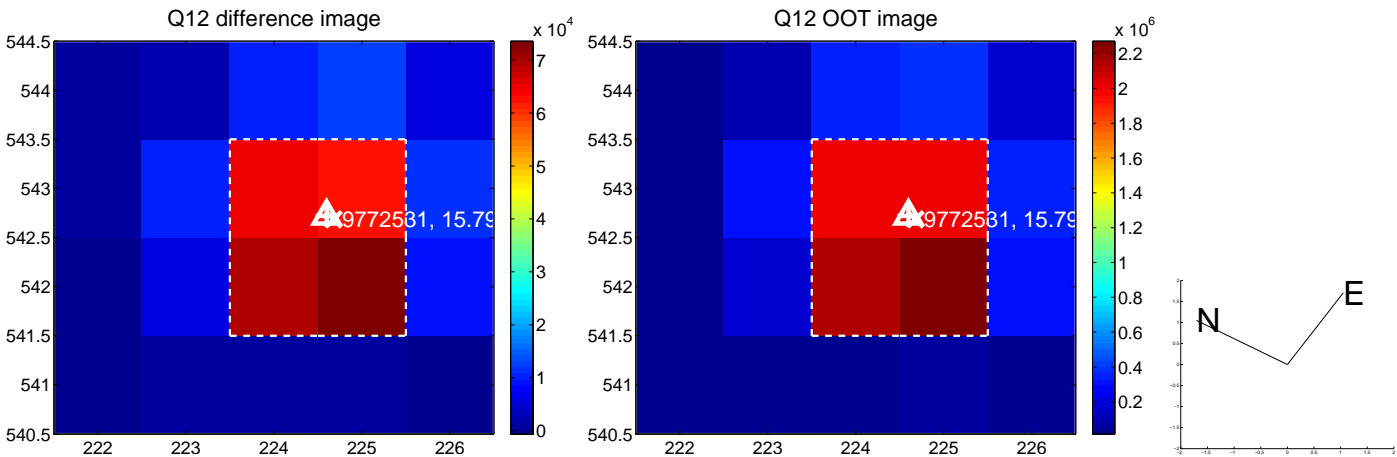
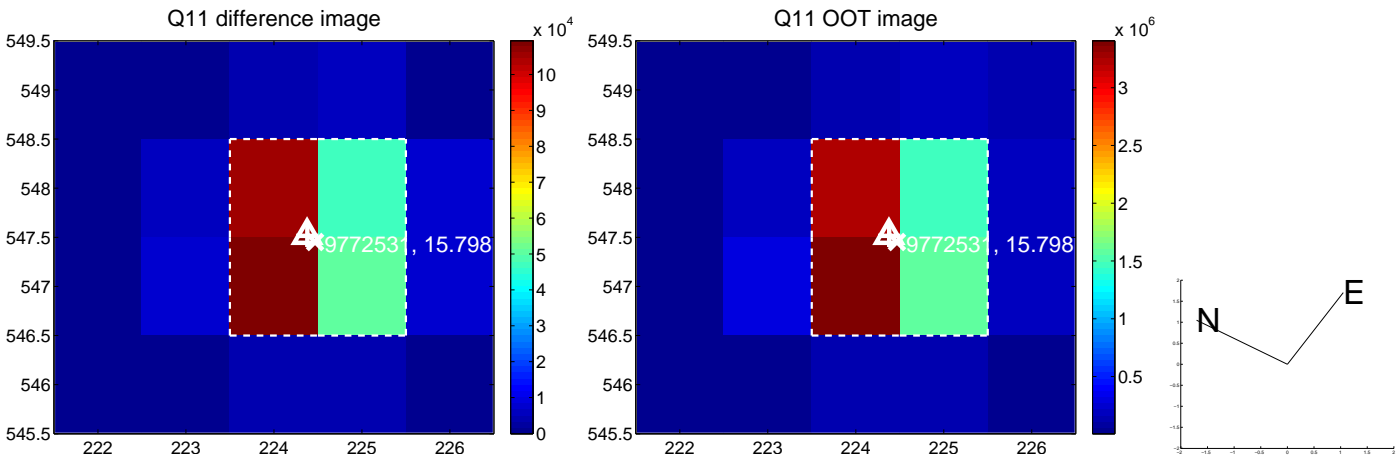
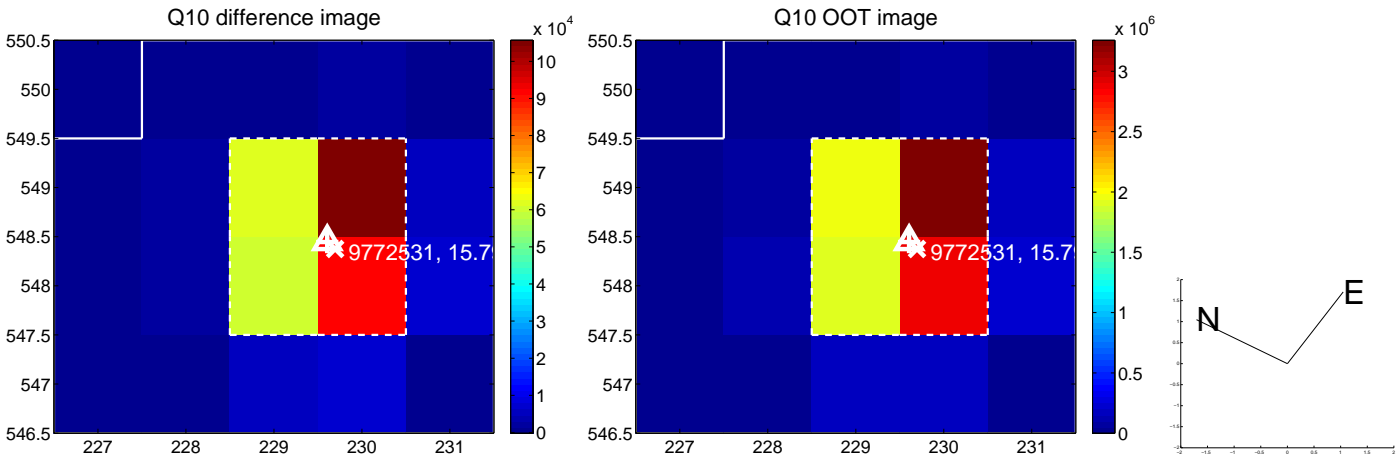
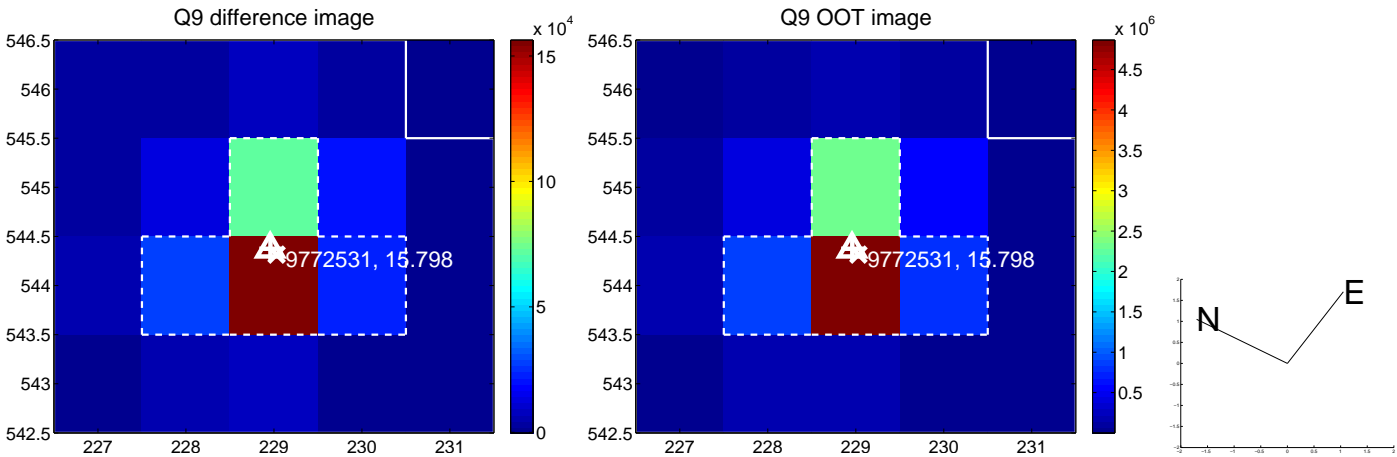
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



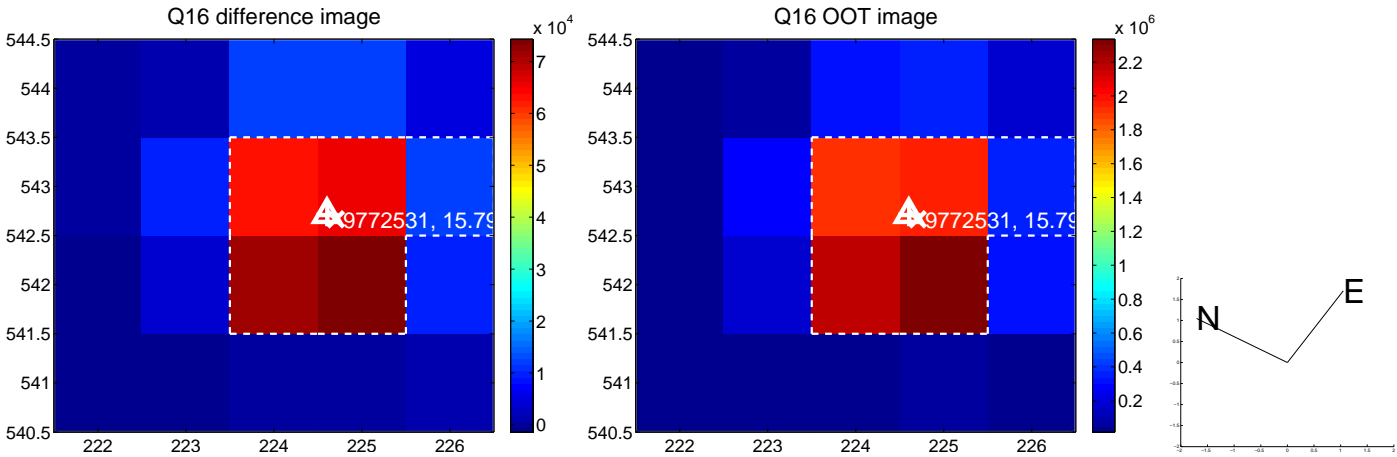
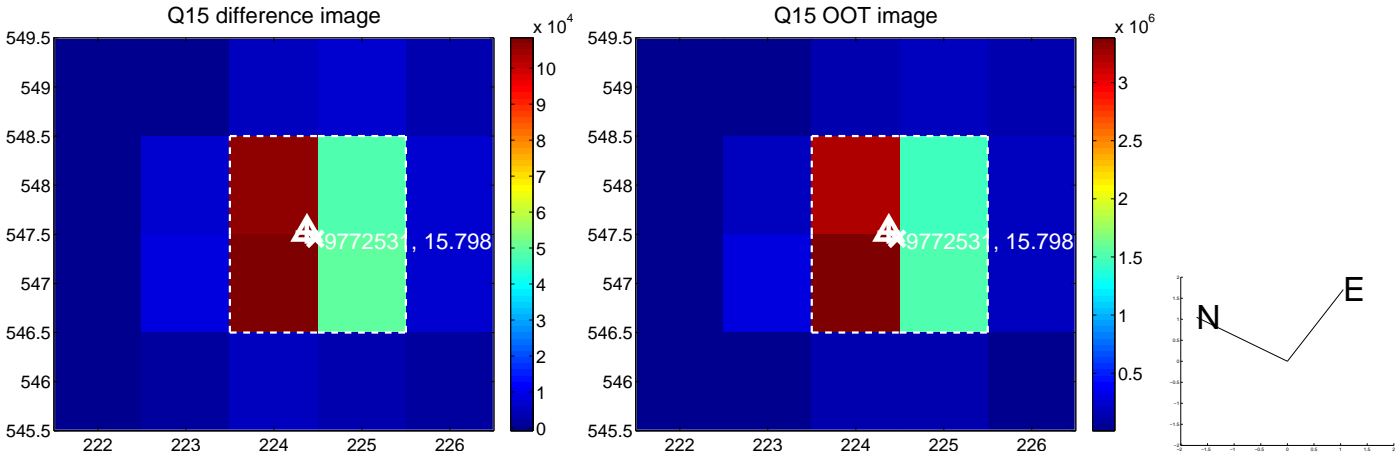
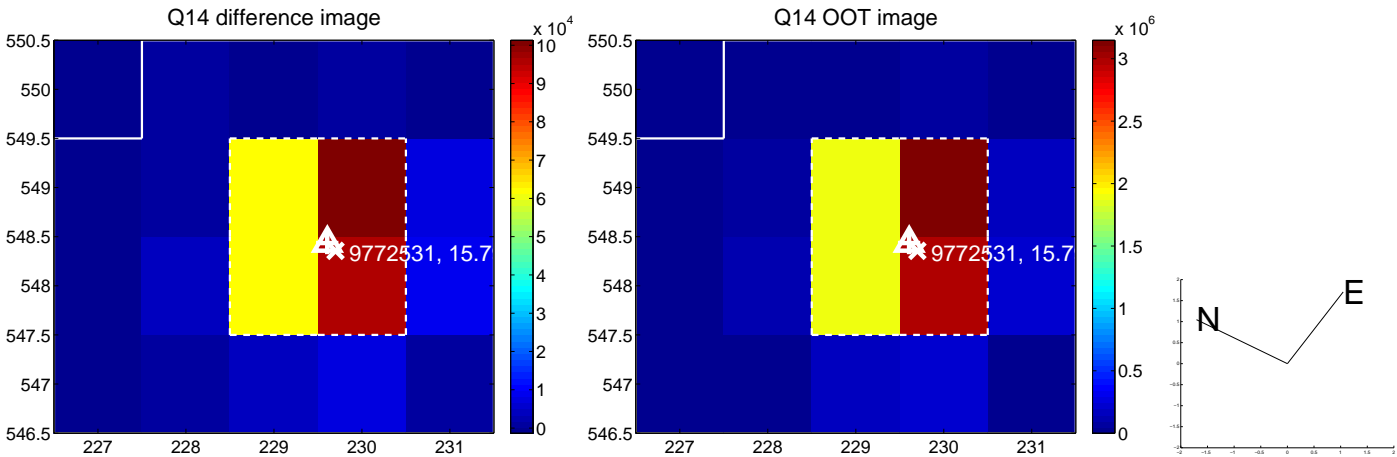
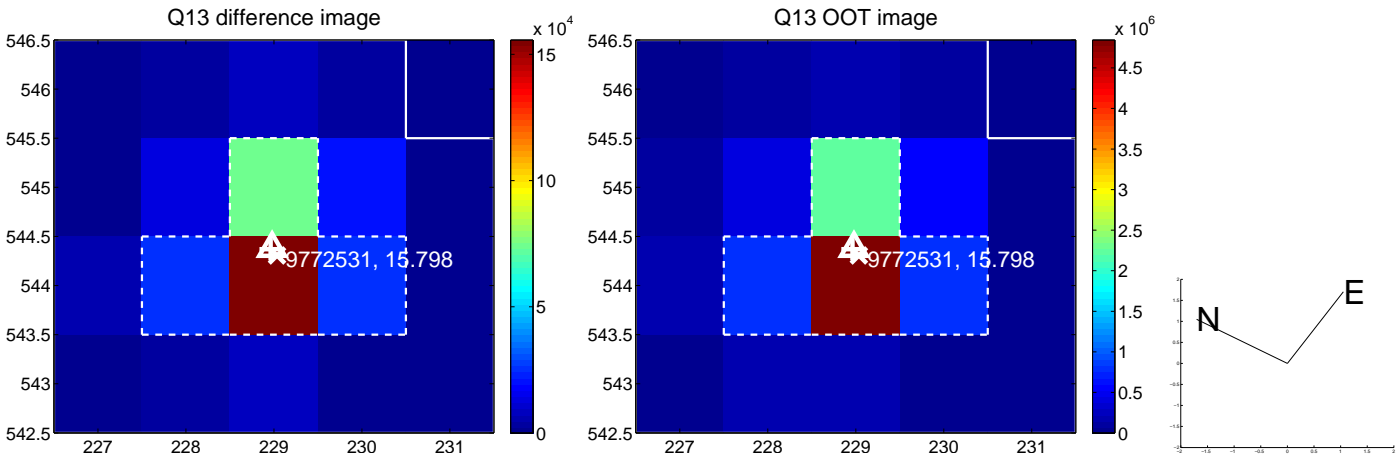
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



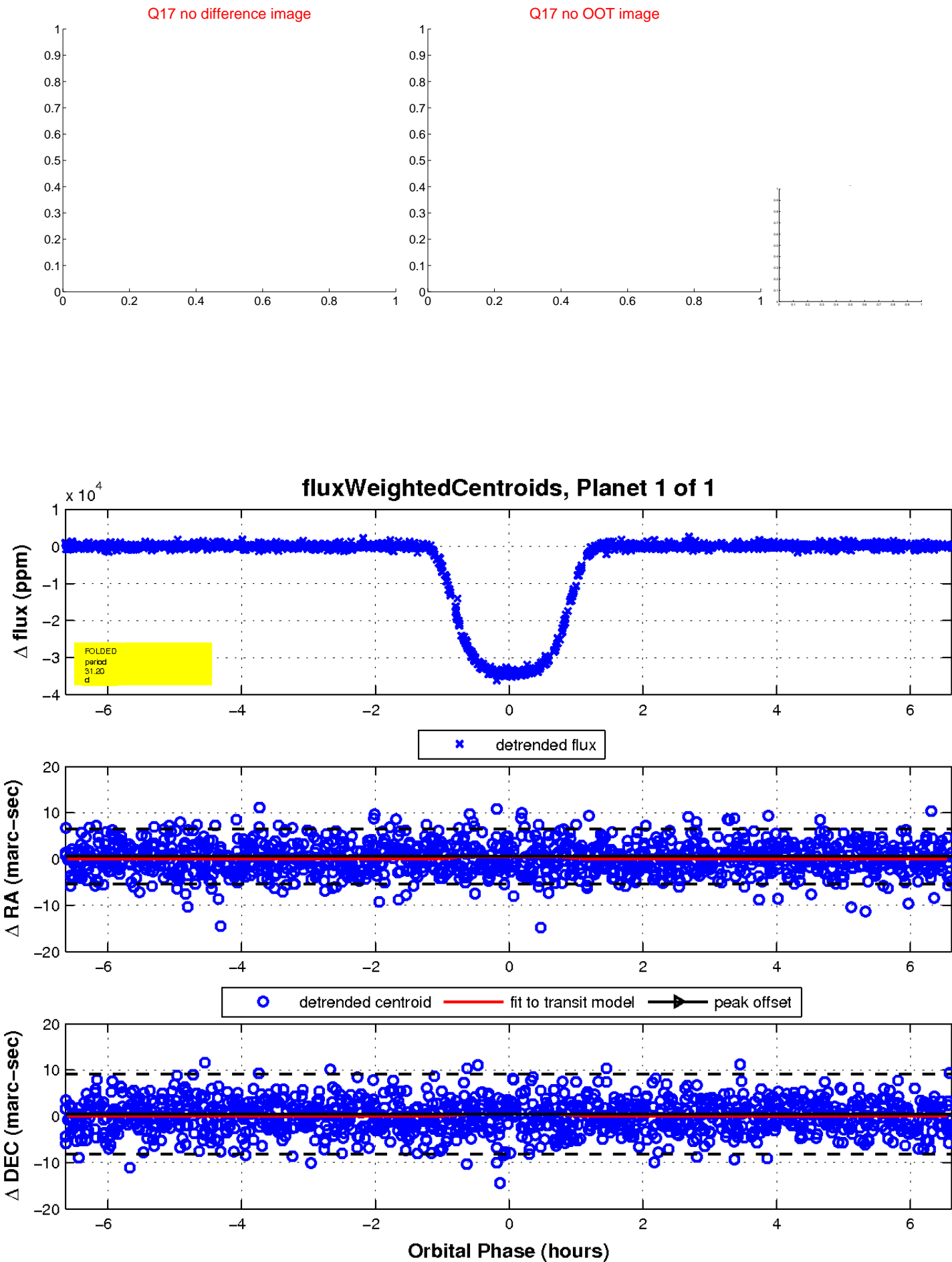
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

