

KIC 004164393

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})
004164393-01	OBS	3413.01	49.612763	165.998350	130587.8	7.072	2892.8	2156.0	1.03	6241	54.78	19.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004164393-01	OBS	FP	0.00	0	1	0	0	DEEP_V_SHAPED

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 004164393-01

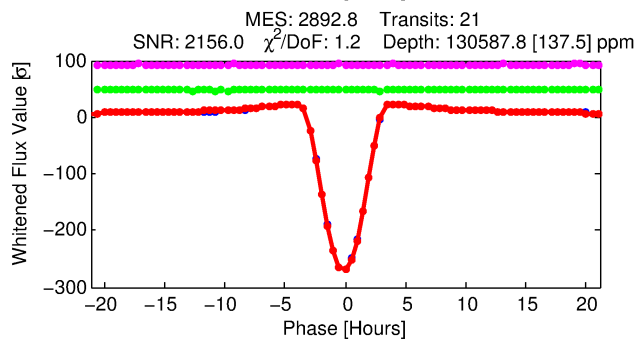
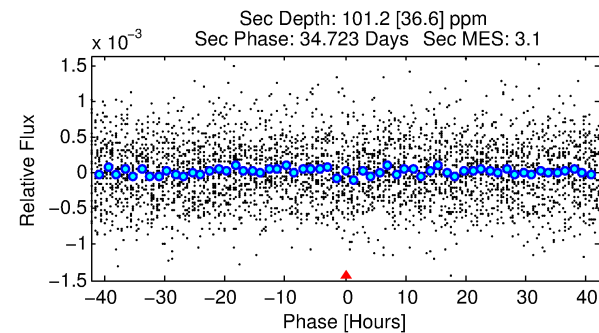
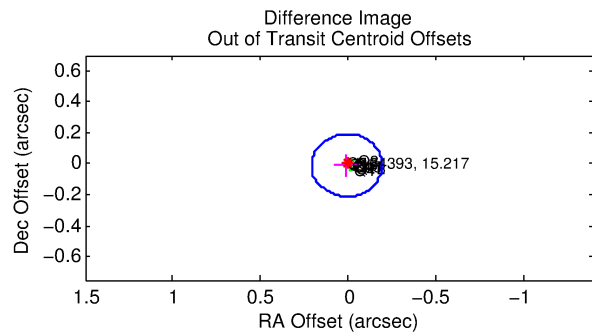
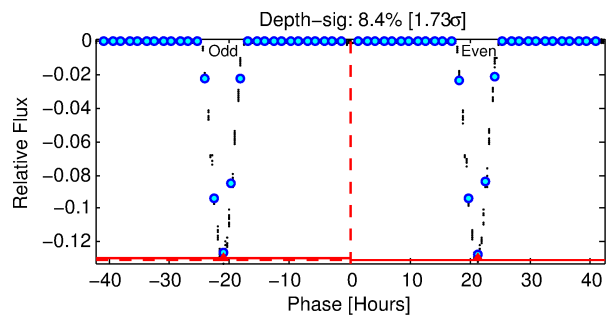
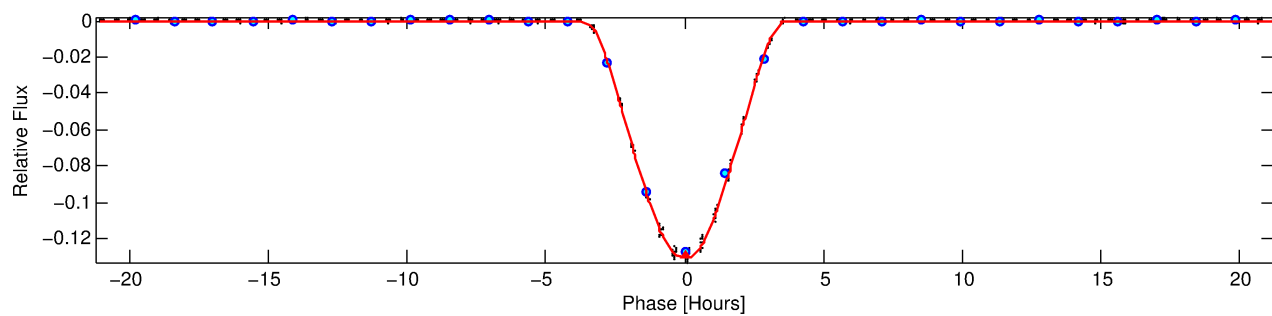
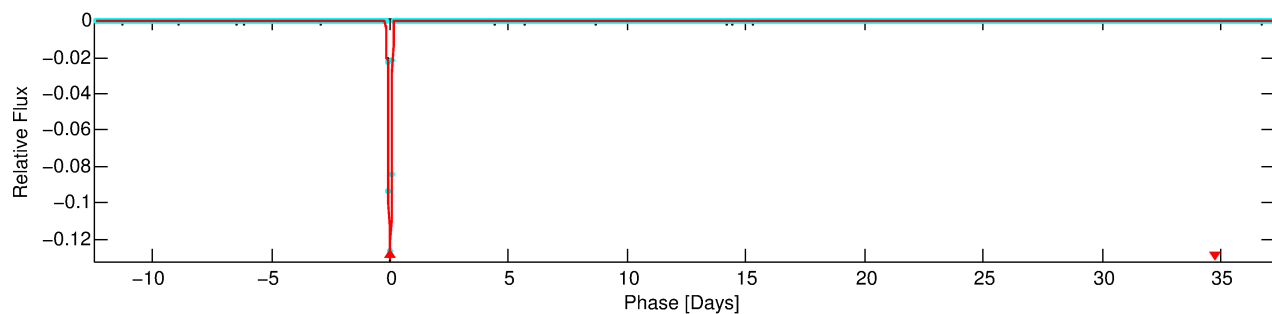
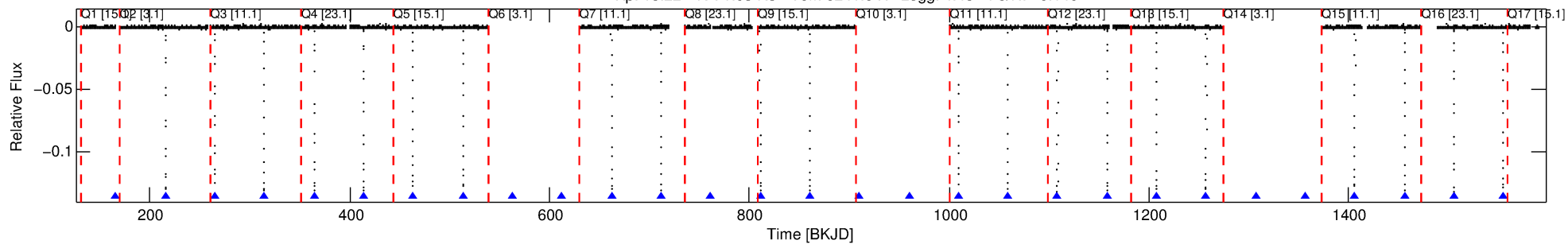
No Significant Match Found

DV One-Page Summary

KIC: 4164393 Candidate: 1 of 1 Period: 49.613 d

KOI: K03413.01 Corr: 0.998

Kp: 15.22 R*: 1.03 Rs Teff: 6241.0 K Logg: 4.45 Fe/H: -0.140



DV Fit Results:

Period = 49.61276 [0.00000] d
Epoch = 165.9983 [0.0001] BKJD
Rp/R* = 0.4869 [0.0526]
a/R* = 63.45 [0.46]
b = 0.90 [0.08]
Seff = 19.50 [8.47]
Teff = 536 [58] K
Rp = 54.78 [19.46] Re
a = 0.2722 [0.0772] AU
Ag = 1.37 [0.81] [0.46σ]
Teffp = 897 [100] K [3.13σ]

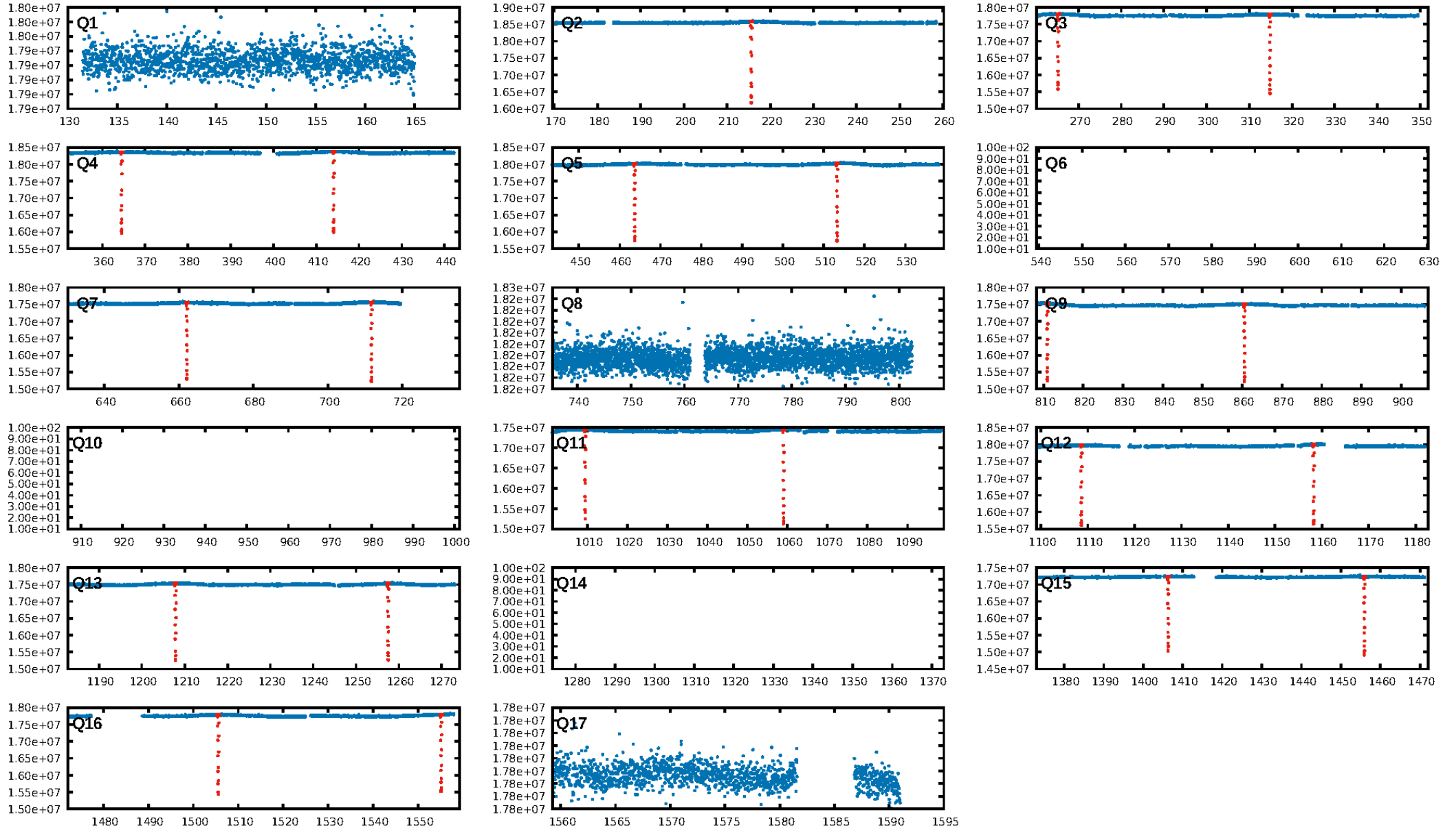
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 70.1%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [21/21]
GhostDiagnostic-chr: 4.28
Centroid-sig: 0.0%
Centroid-so: 0.120 arcsec [23.92σ]
OotOffset-rm: 0.013 arcsec [0.20σ]
KicOffset-rm: 0.027 arcsec [0.36σ]
OotOffset-st: 1/3/3/3 [10]
KicOffset-st: 1/3/3/3 [10]
DiffImageQuality-fgm: 1.00 [10/10]
DiffImageOverlap-fno: 1.00 [10/10]

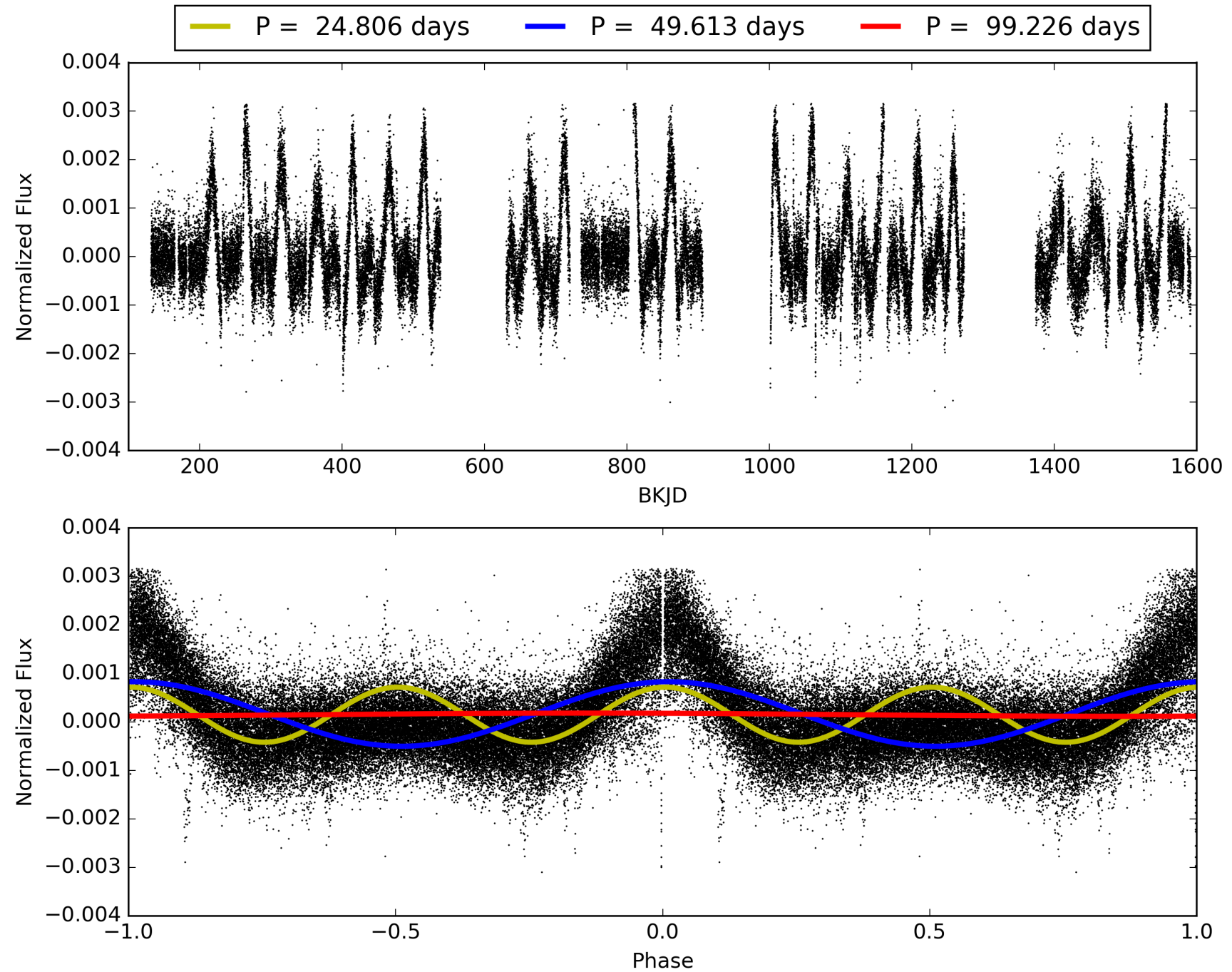
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:18:56 Z

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

TCE 004164393-01, PDC Light Curves

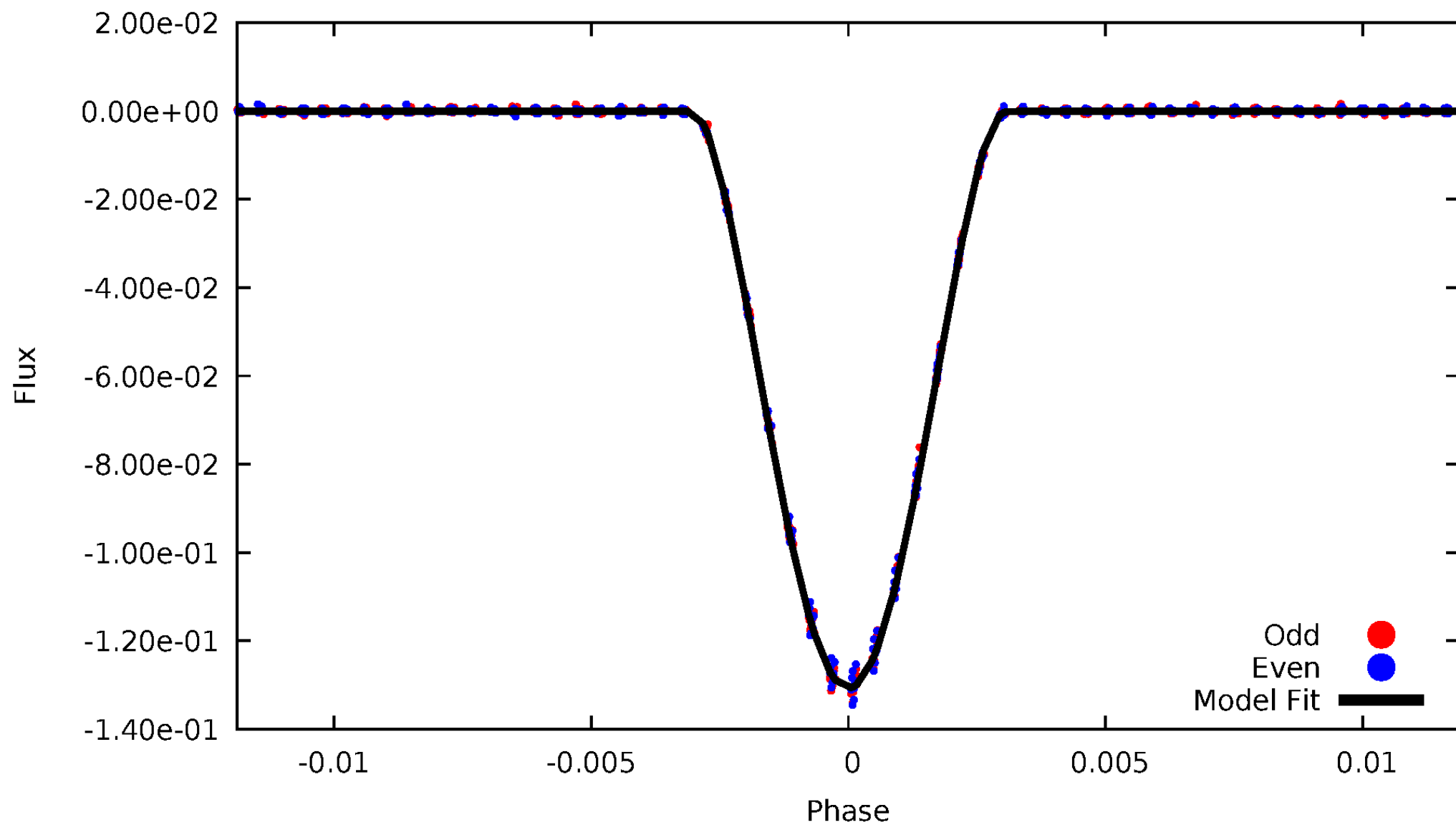


TCE 004164393-01



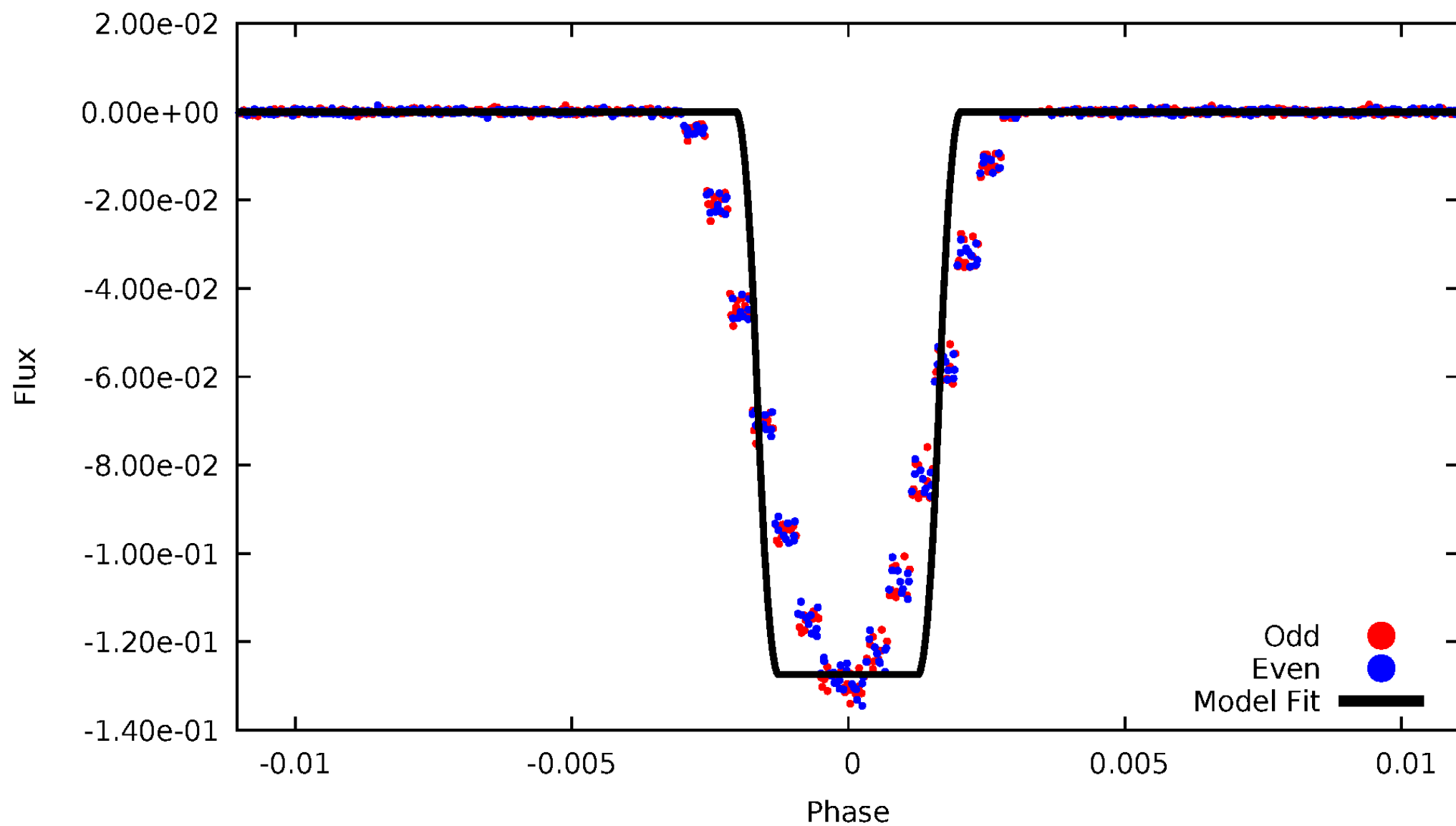
DV Odd/Even

TCE 004164393-01



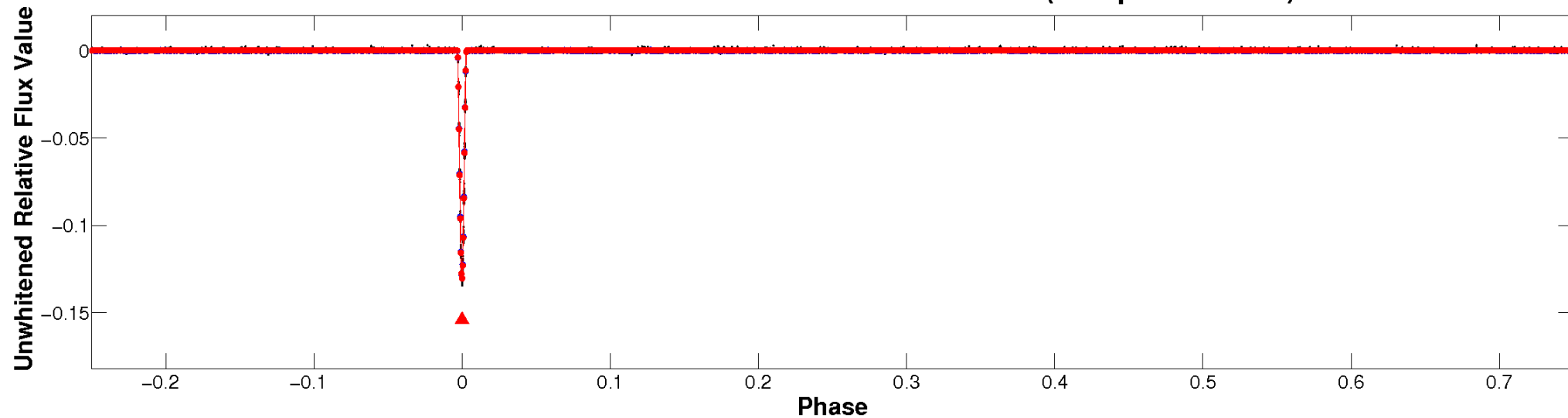
ALT Odd/Even

TCE 004164393-01

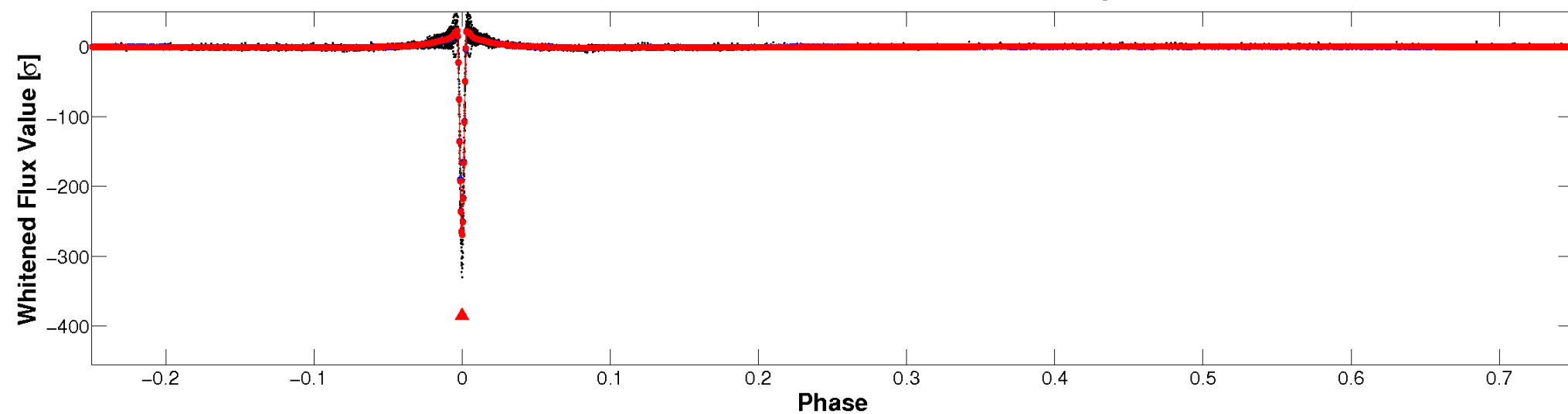


Non-Whitened Vs. Whitened Light Curve

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

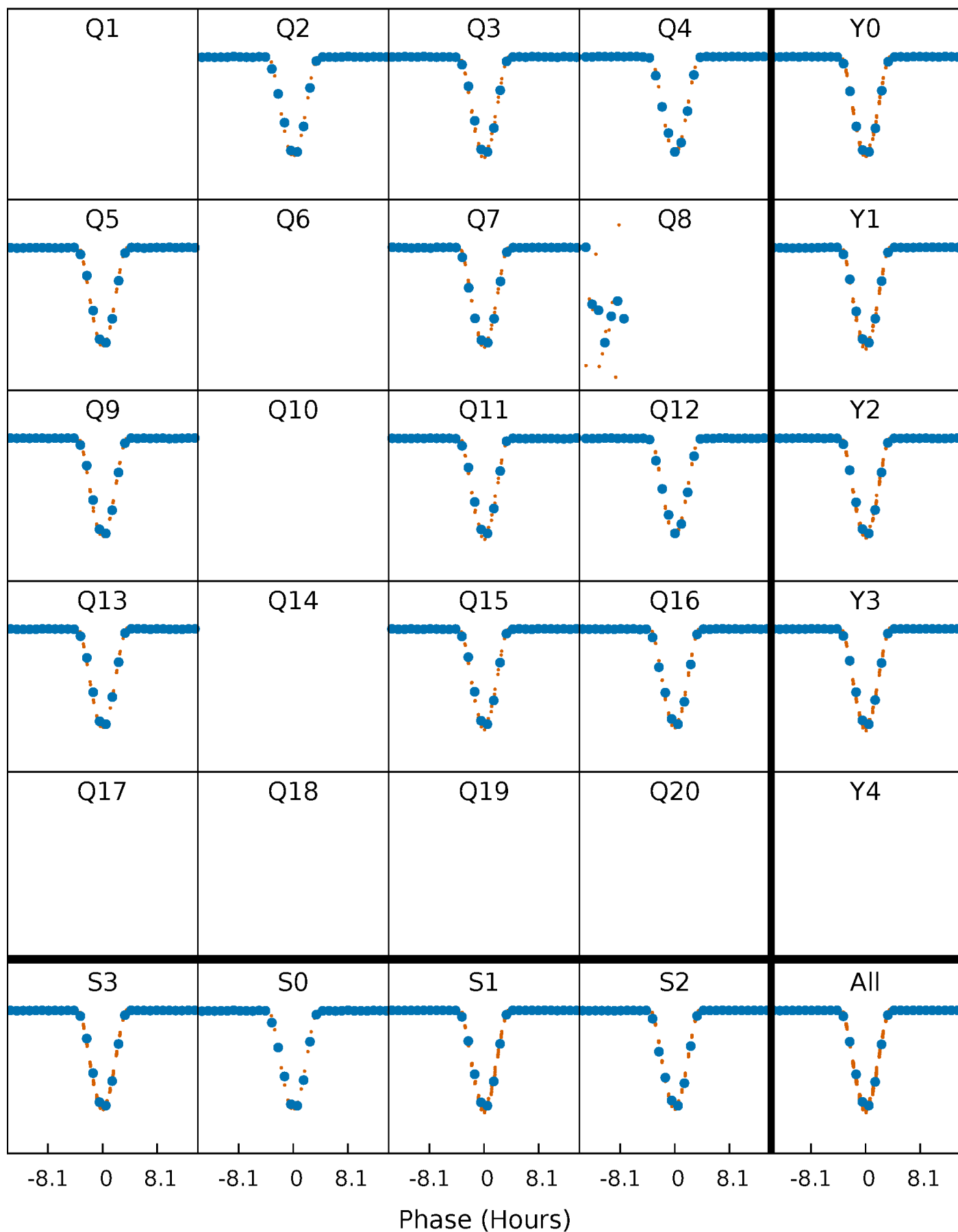


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



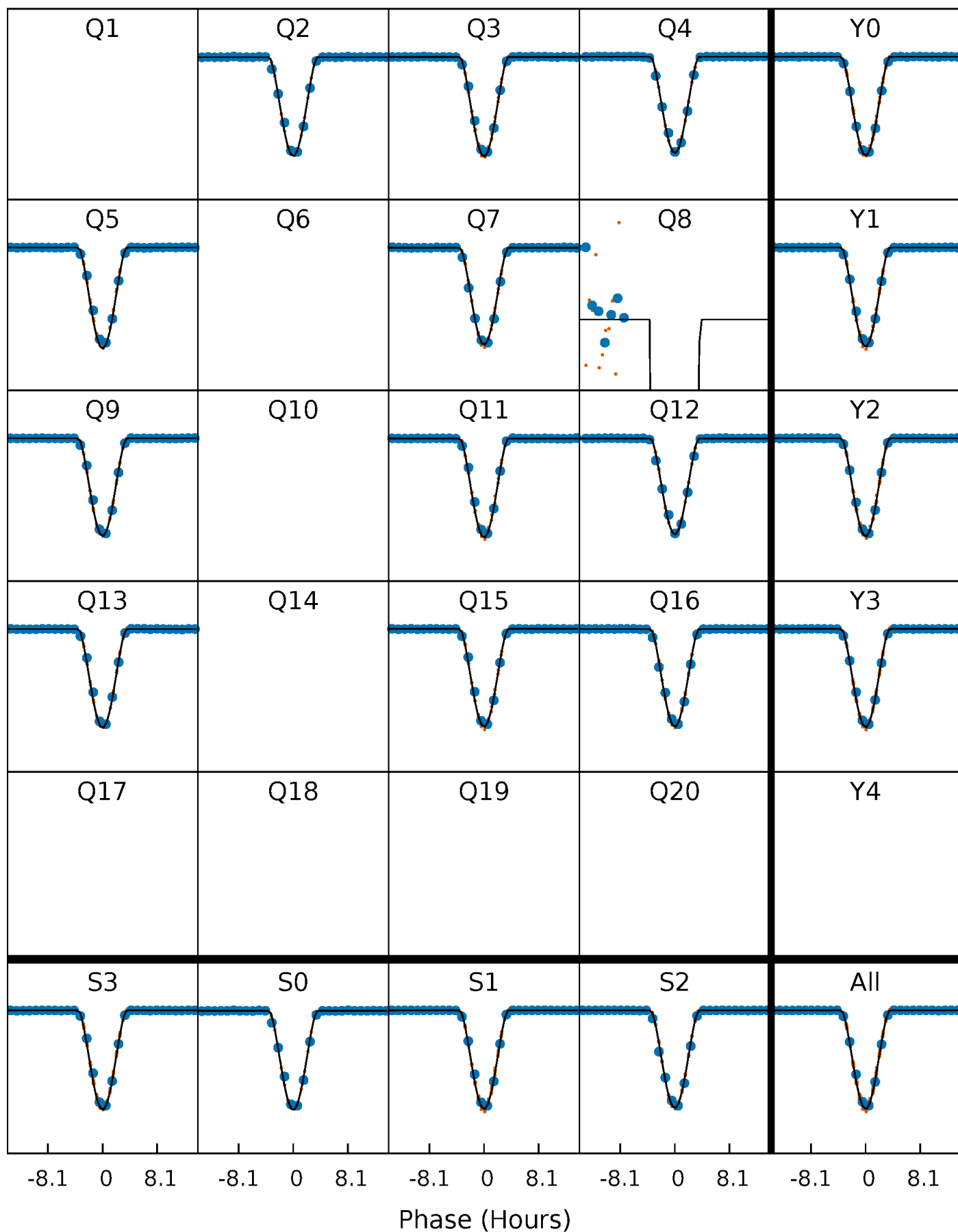
PDC Quarter-Phased Transit Curves

TCE 004164393-01 P= 49.612763 Days $T_0=165.998349$ (BKJD)



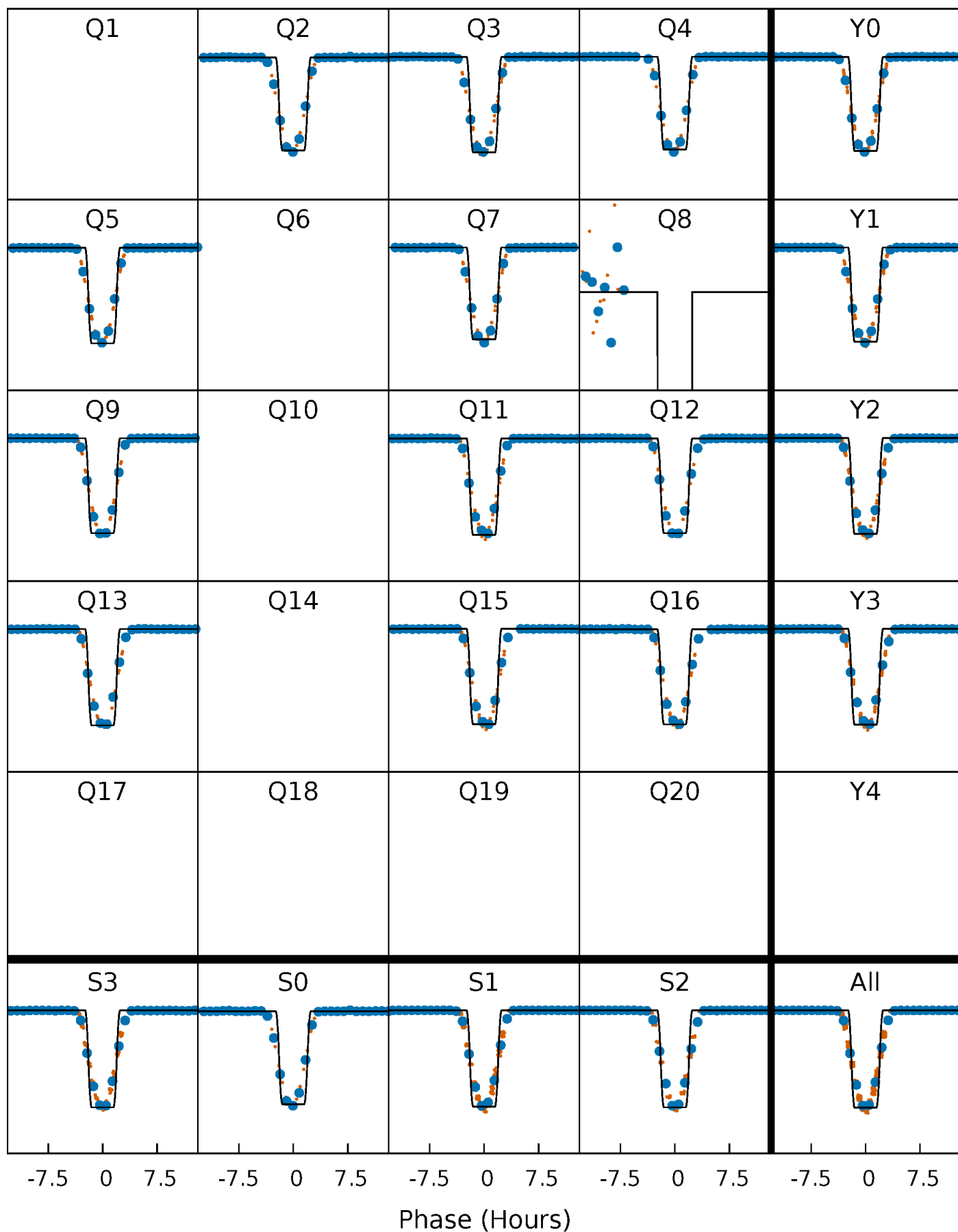
DV Quarter-Phased Transit Curves

TCE 004164393-01 P= 49.612763 Days $T_0=165.998349$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

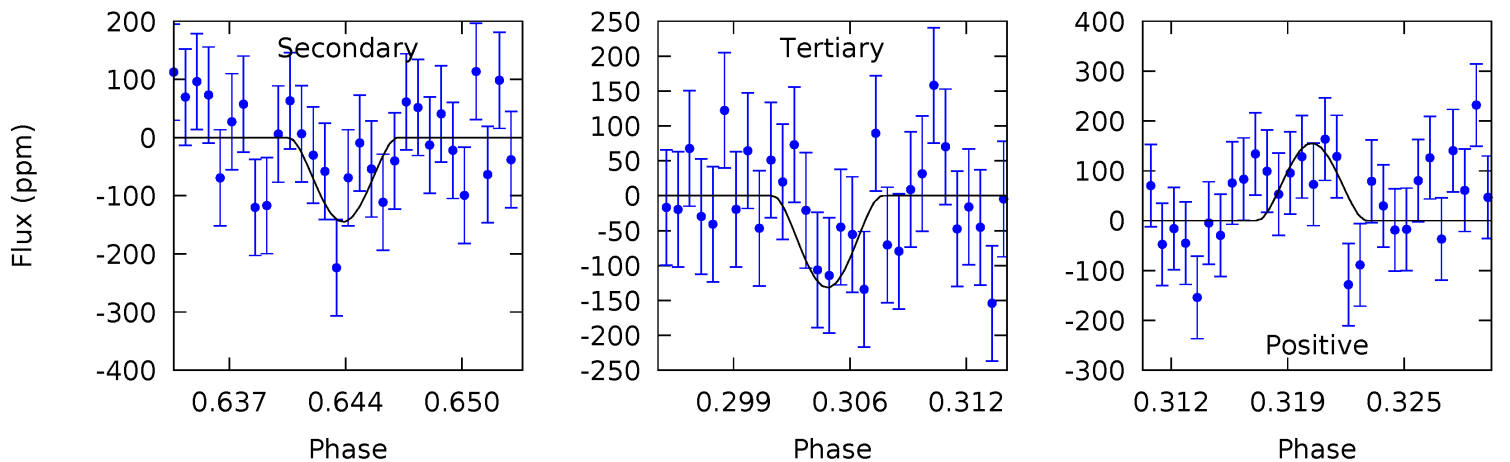
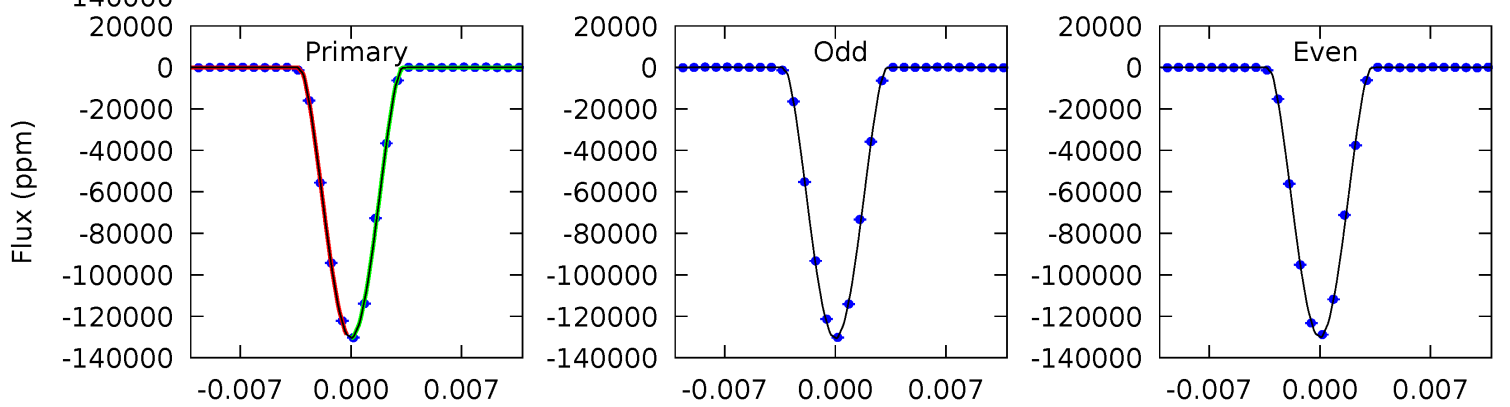
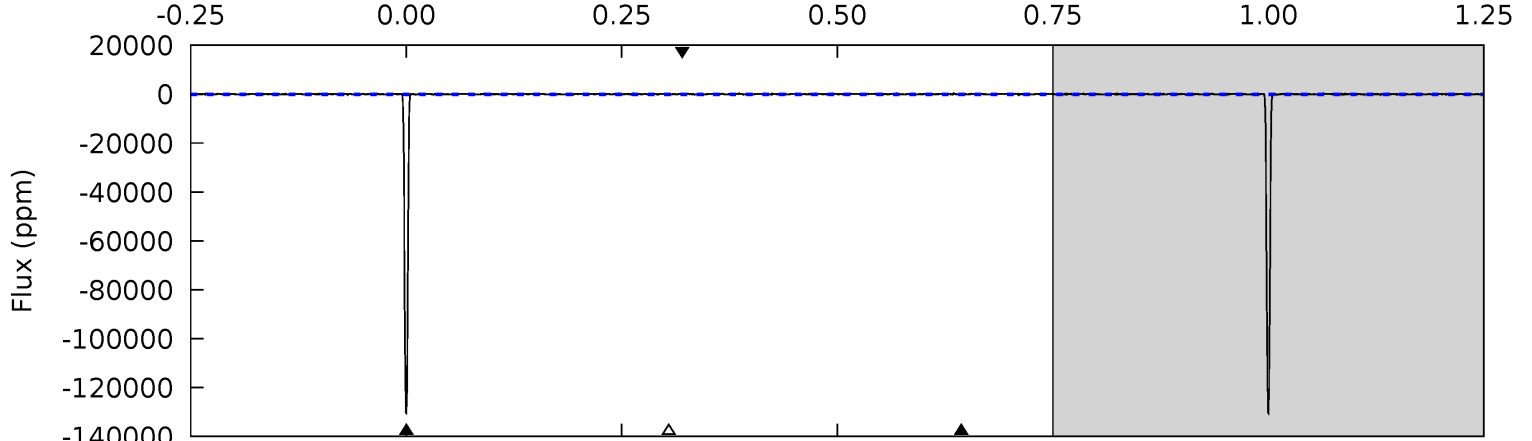
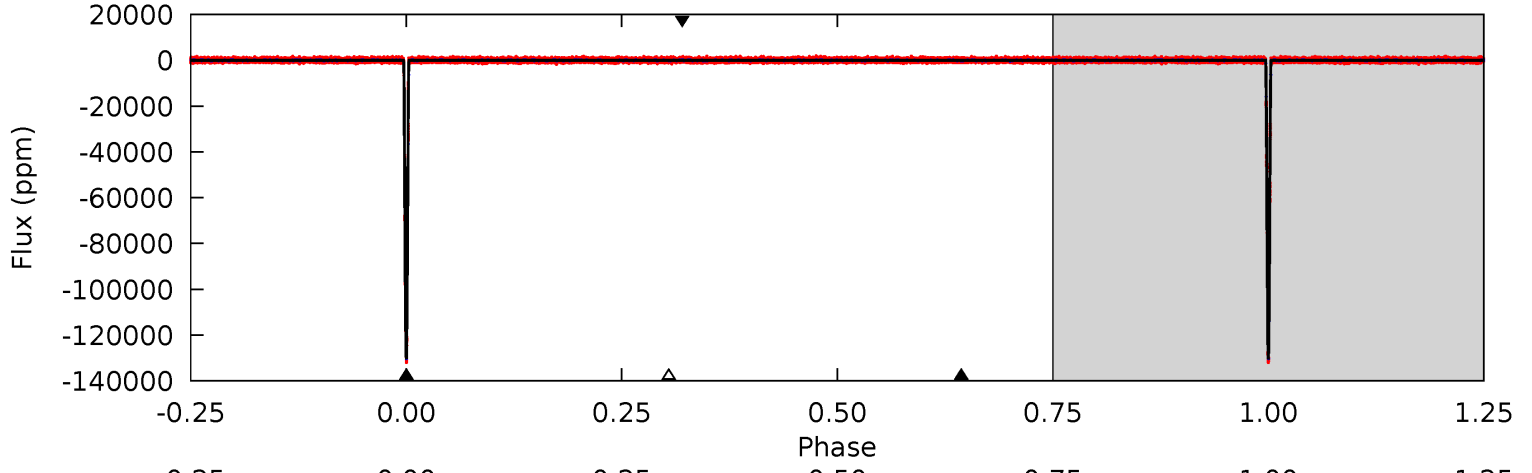
TCE 004164393-01 P= 49.612053 Days $T_0=166.008373$ (BKJD)



DV Model-Shift Uniqueness Test

004164393-01, P = 49.612763 Days, E = 116.385586 Days

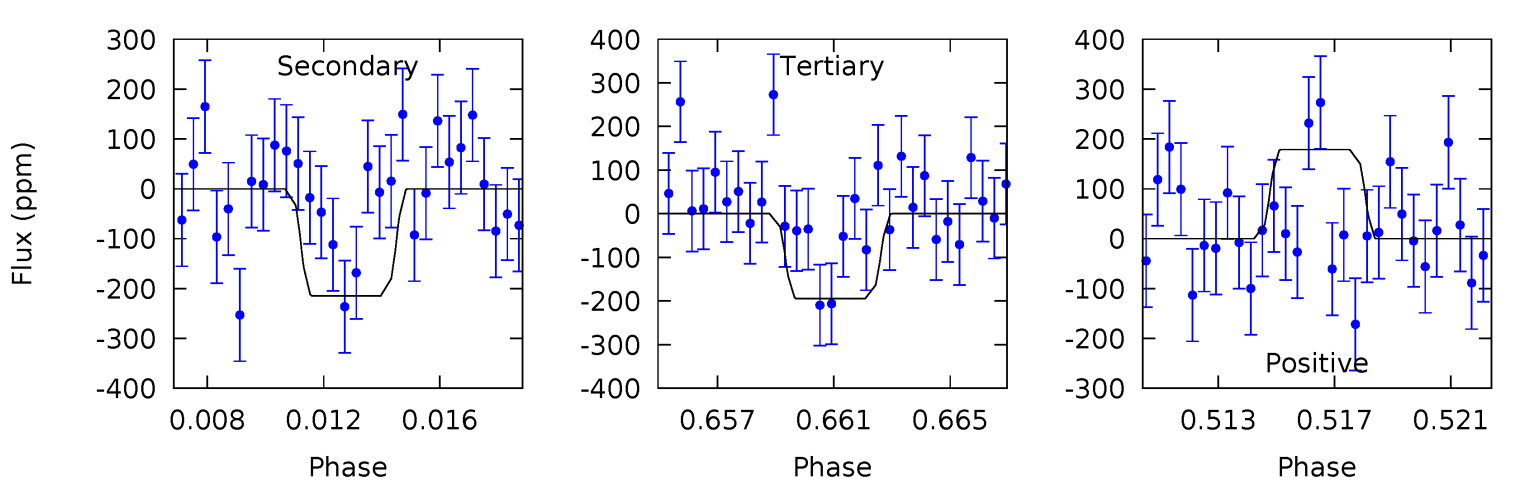
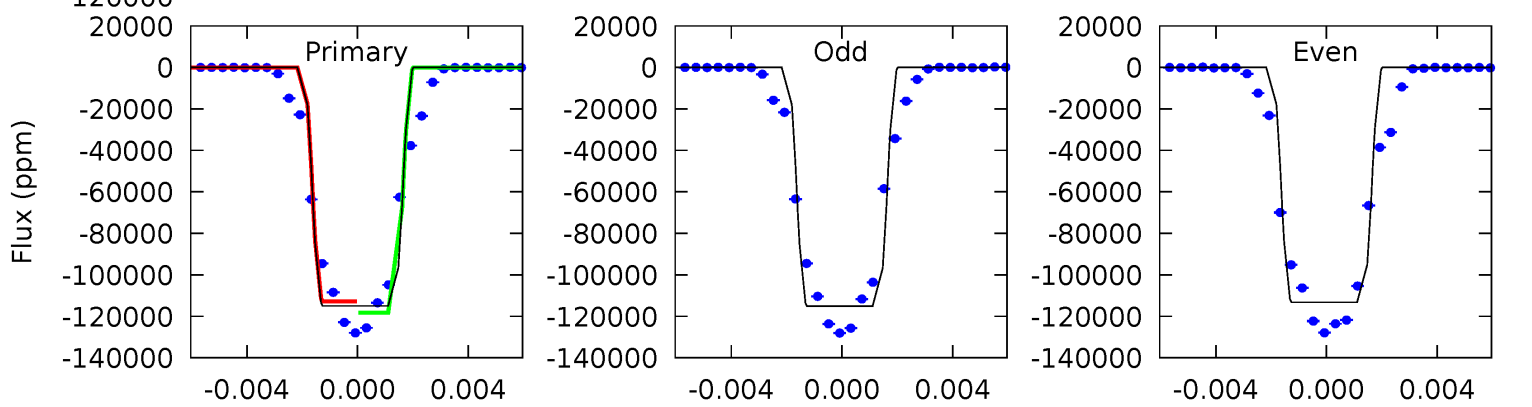
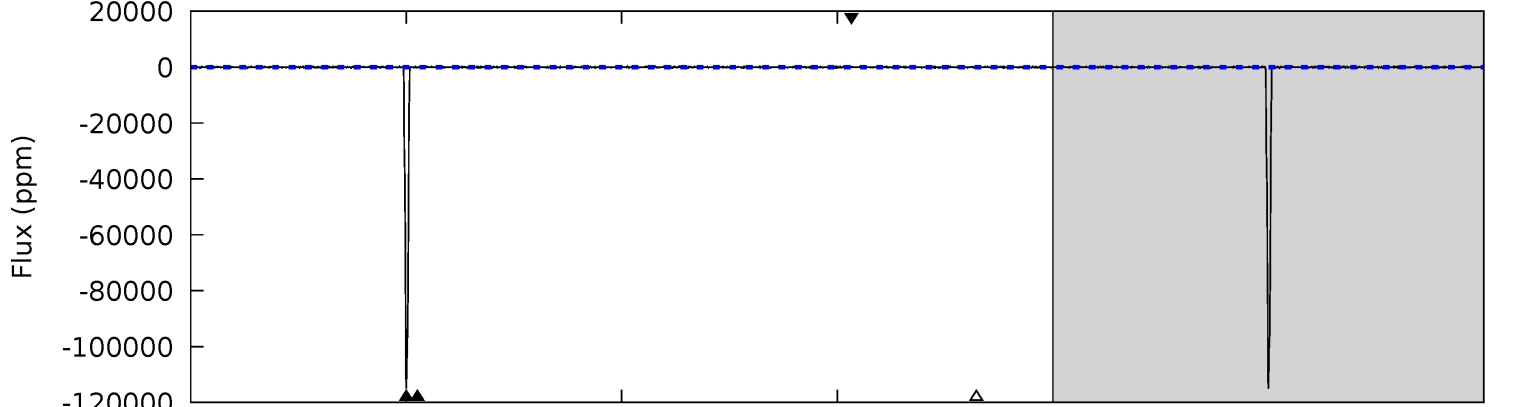
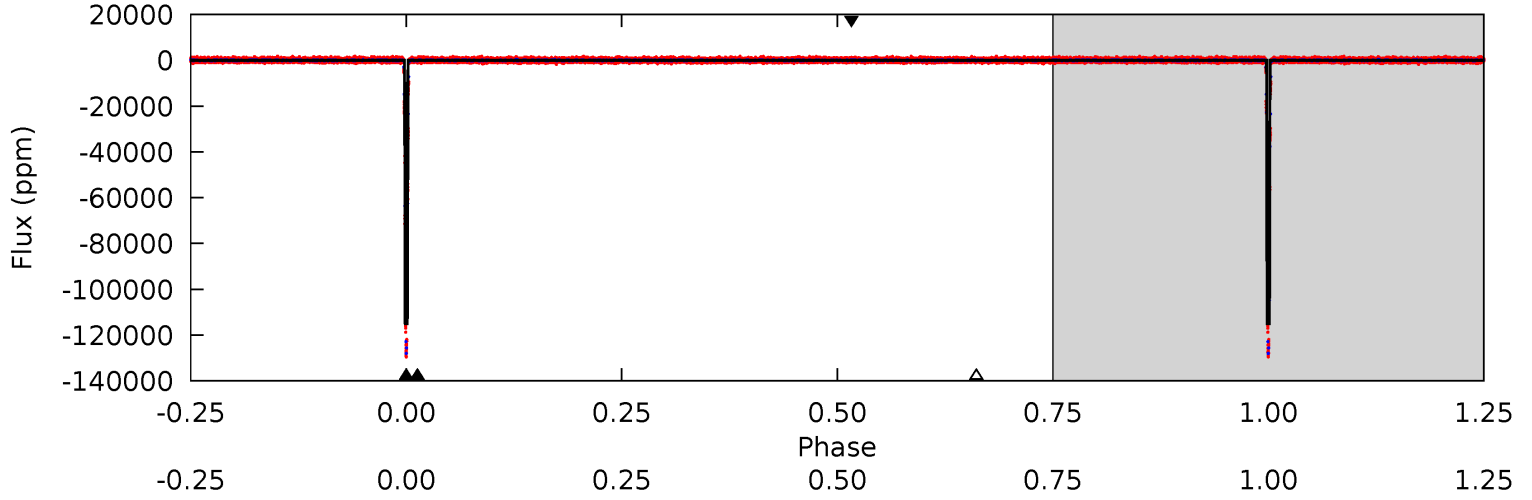
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4957	5.50	5.00	5.90	5.11	2.72	1.88	4952	4951	0.51	-0.39	10.3	1.00	0.00	31.7



Alt Model-Shift Uniqueness Test

004164393-01, P = 49.612053 Days, E = 116.396320 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2338	4.36	3.96	3.63	5.20	2.88	1.12	2334	2334	0.40	0.73	19.7	1.00	0.00	0



Stellar Parameters For KIC 004164393

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6241^{+175}_{-219}	$4.450^{+0.056}_{-0.224}$	$-0.140^{+0.250}_{-0.300}$	$1.031^{+0.349}_{-0.116}$	$1.088^{+0.154}_{-0.154}$	$1.400^{+0.415}_{-0.750}$
	+3%/-4%	+1%/-5%	+179%/-214%	+34%/-11%	+14%/-14%	+30%/-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 004164393-01 / KOI 3413.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-145 ± 26	$57.15^{+12.07}_{-8.21}$	767^{+61}_{-45}	1948^{+71}_{-77}	$1.766^{+0.713}_{-0.602}$
Alt.	-214 ± 49	$42.34^{+9.13}_{-7.95}$	765^{+58}_{-40}	2189^{+111}_{-102}	$4.723^{+2.784}_{-1.800}$

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

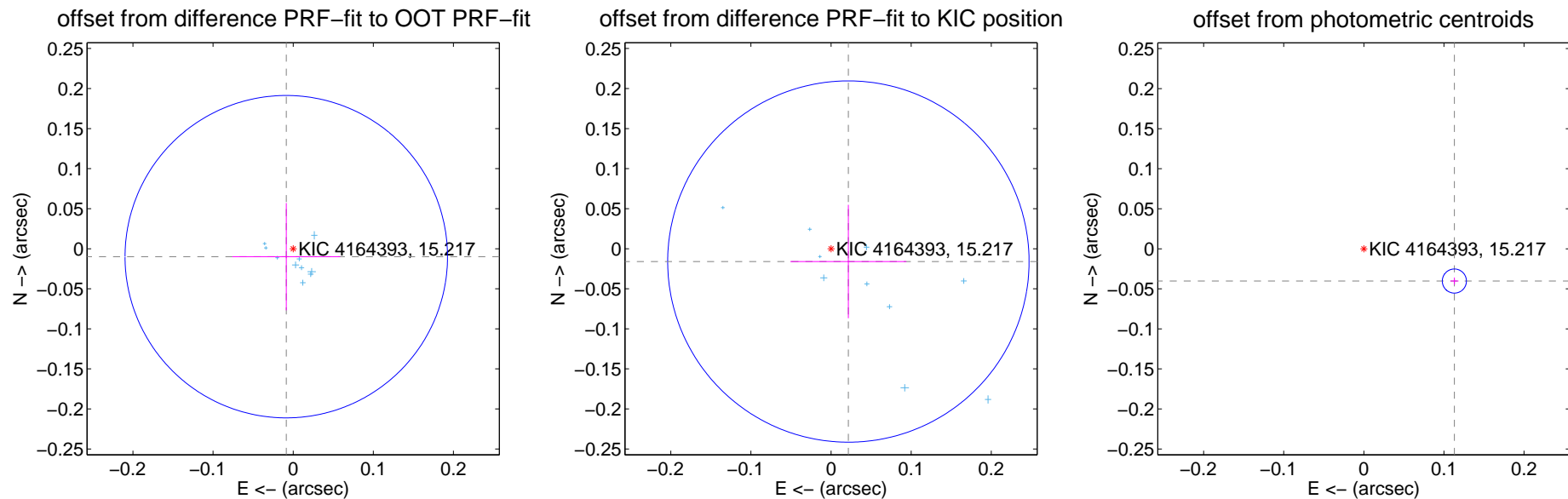
DV Centroid Data

Supplemental centroid analysis for 004164393-01. Kepler magnitude: 15.22. Transit SNR 2155.97

There are 10 quarters with good PRF difference image offsets

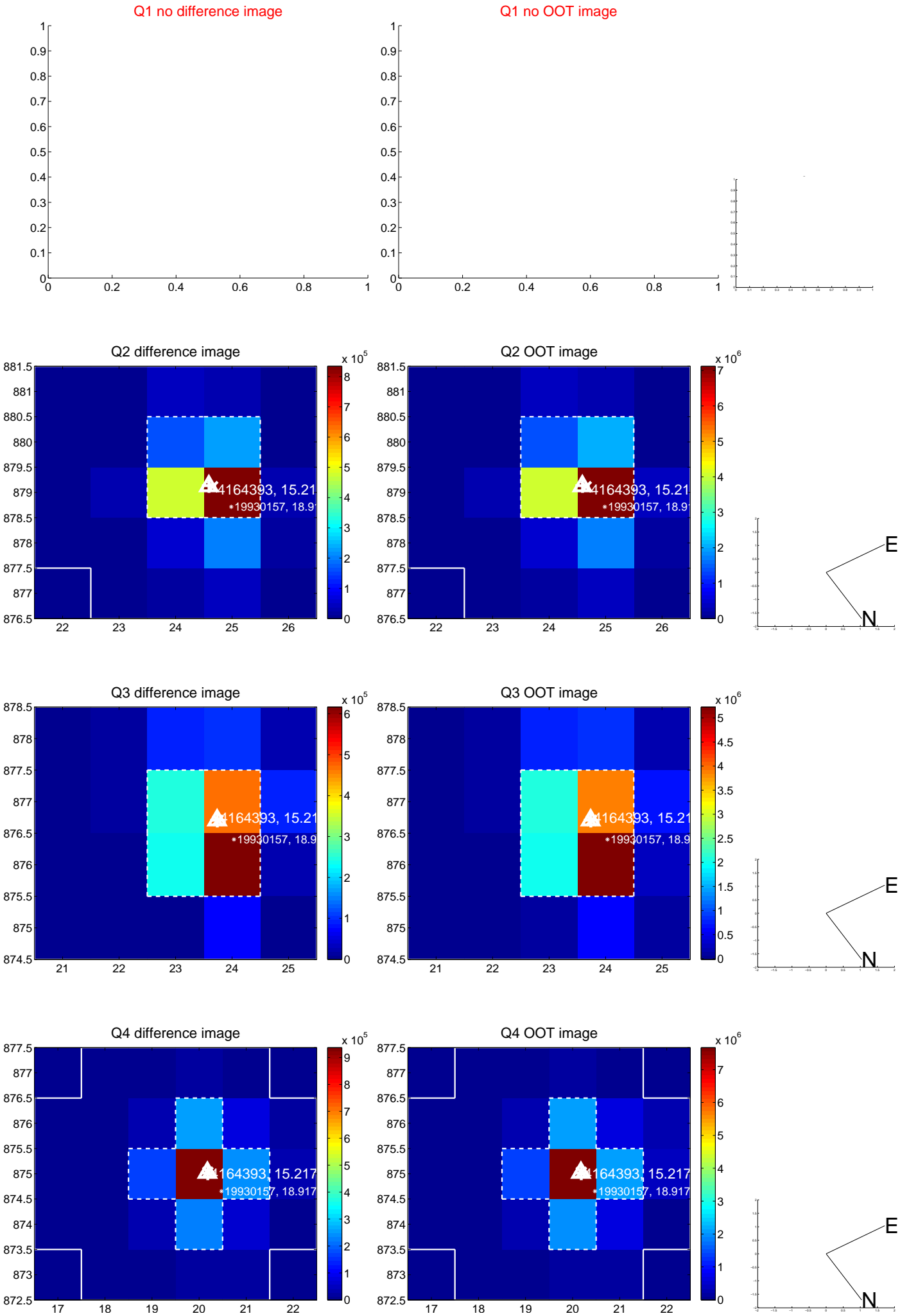
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.013 ± 0.067	0.20	0.009 ± 0.067	-0.010 ± 0.067
PRF-fit source offset from KIC position	0.027 ± 0.075	0.36	-0.022 ± 0.072	-0.016 ± 0.071
photometric centroid source offset	0.12 ± 0.01	23.92	-0.11 ± 0.01	-0.04 ± 0.00

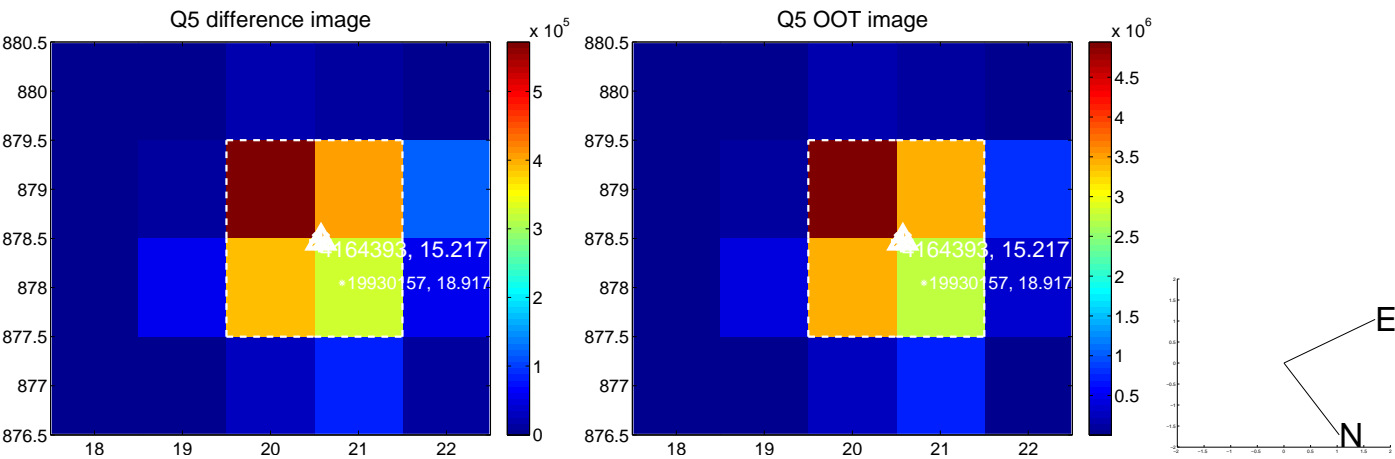


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

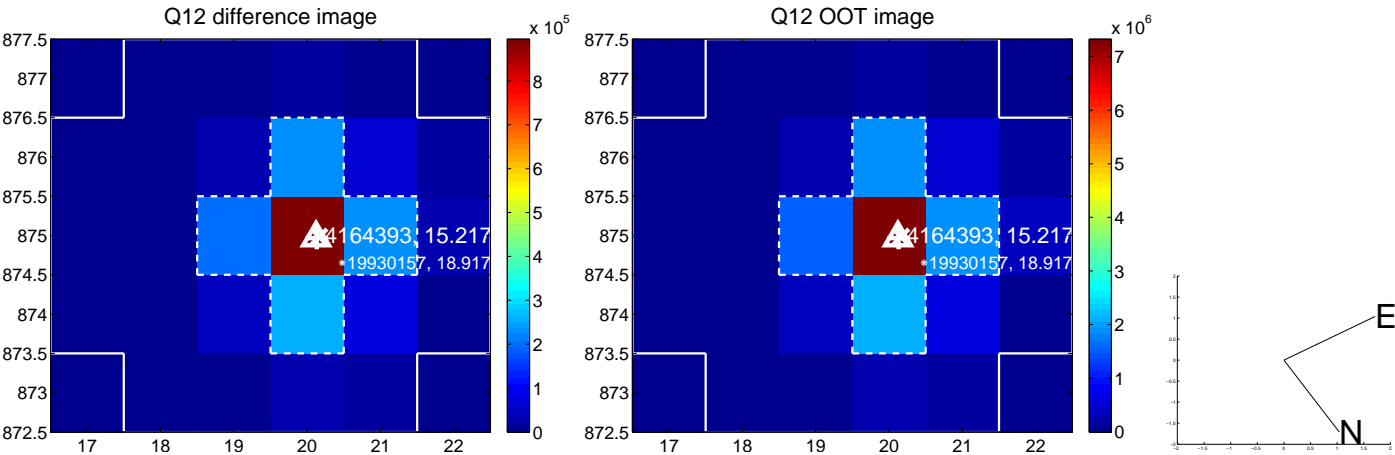
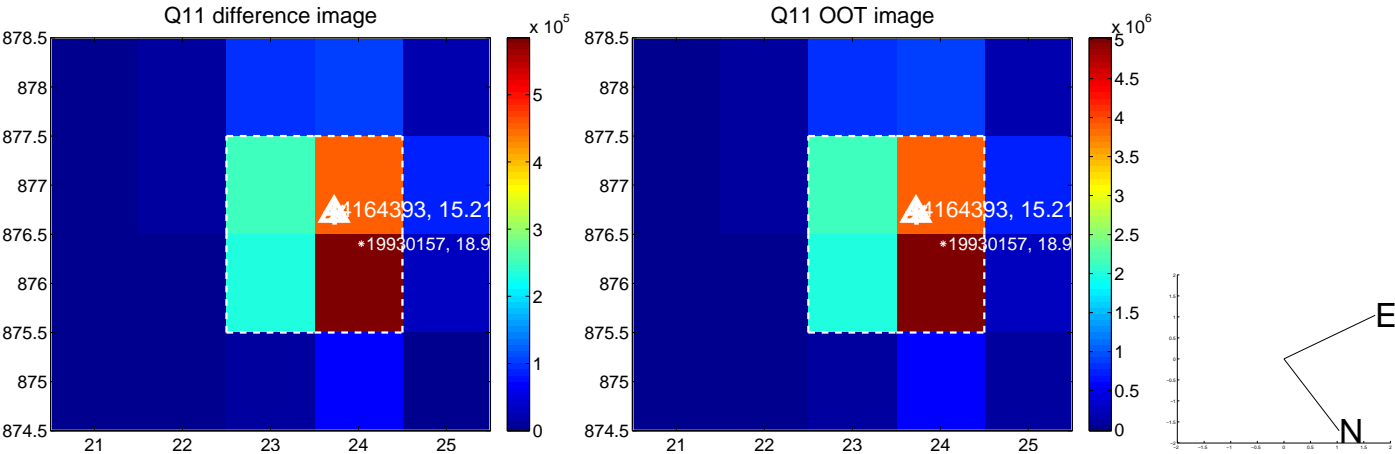
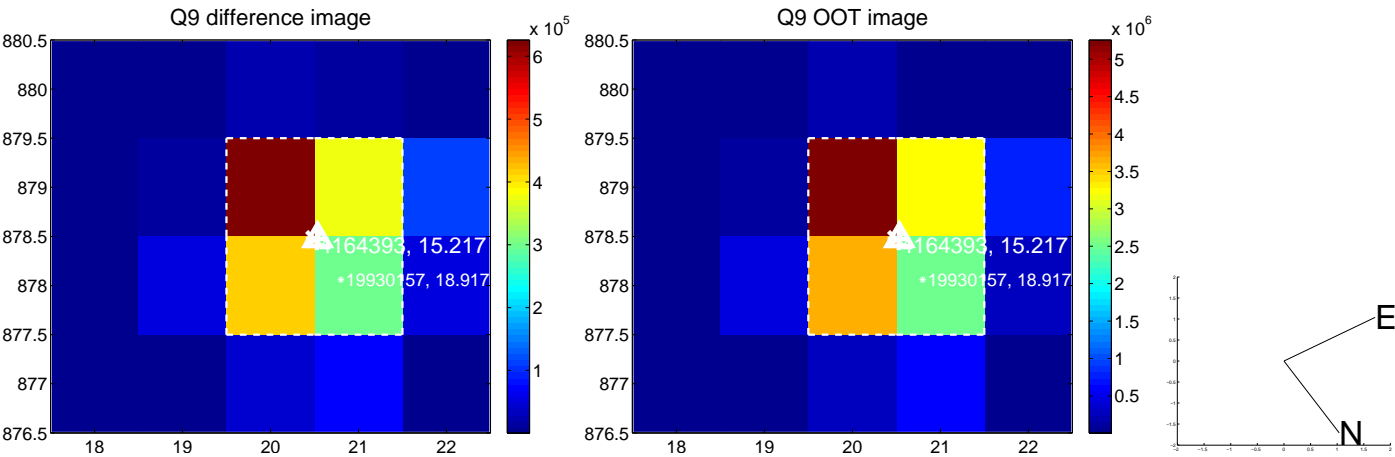
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



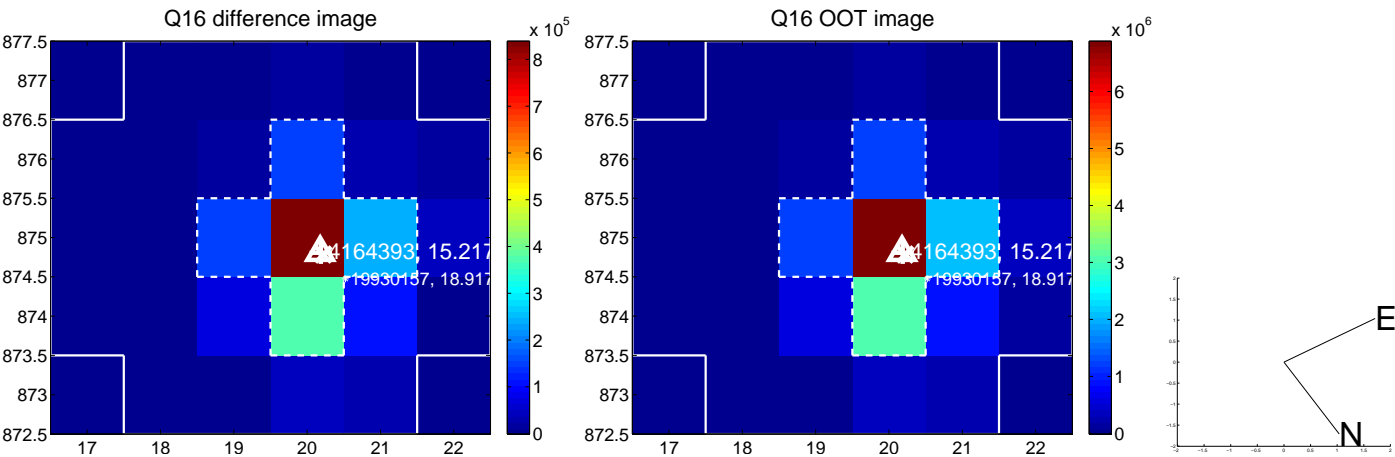
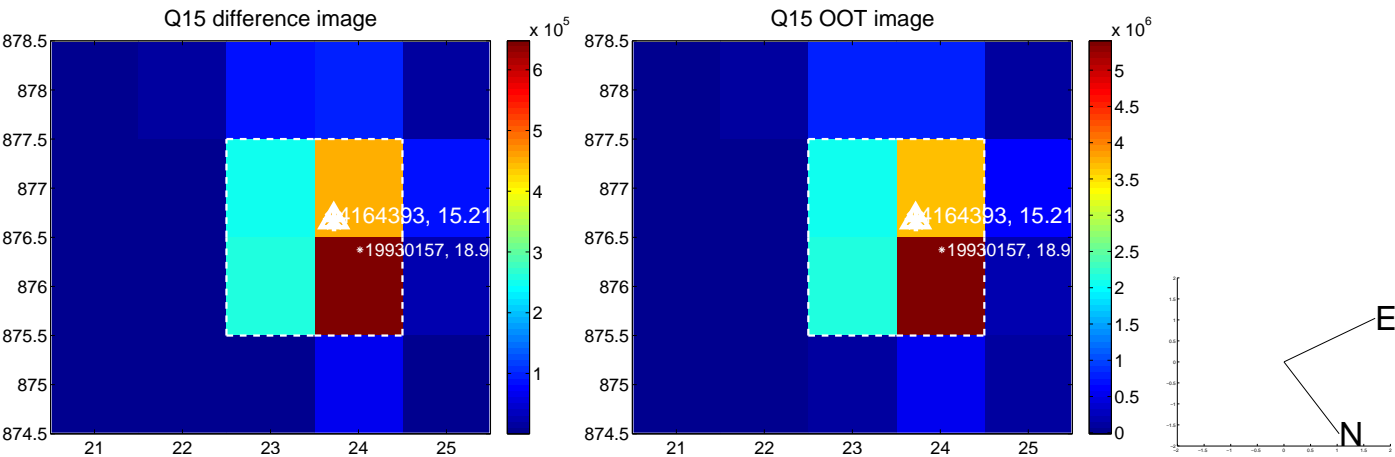
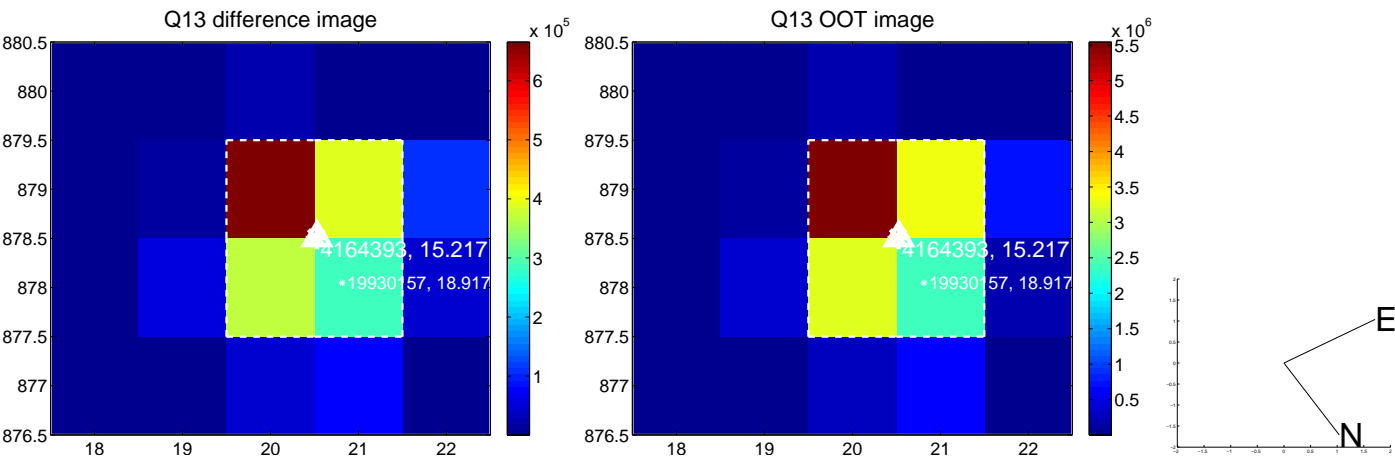
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



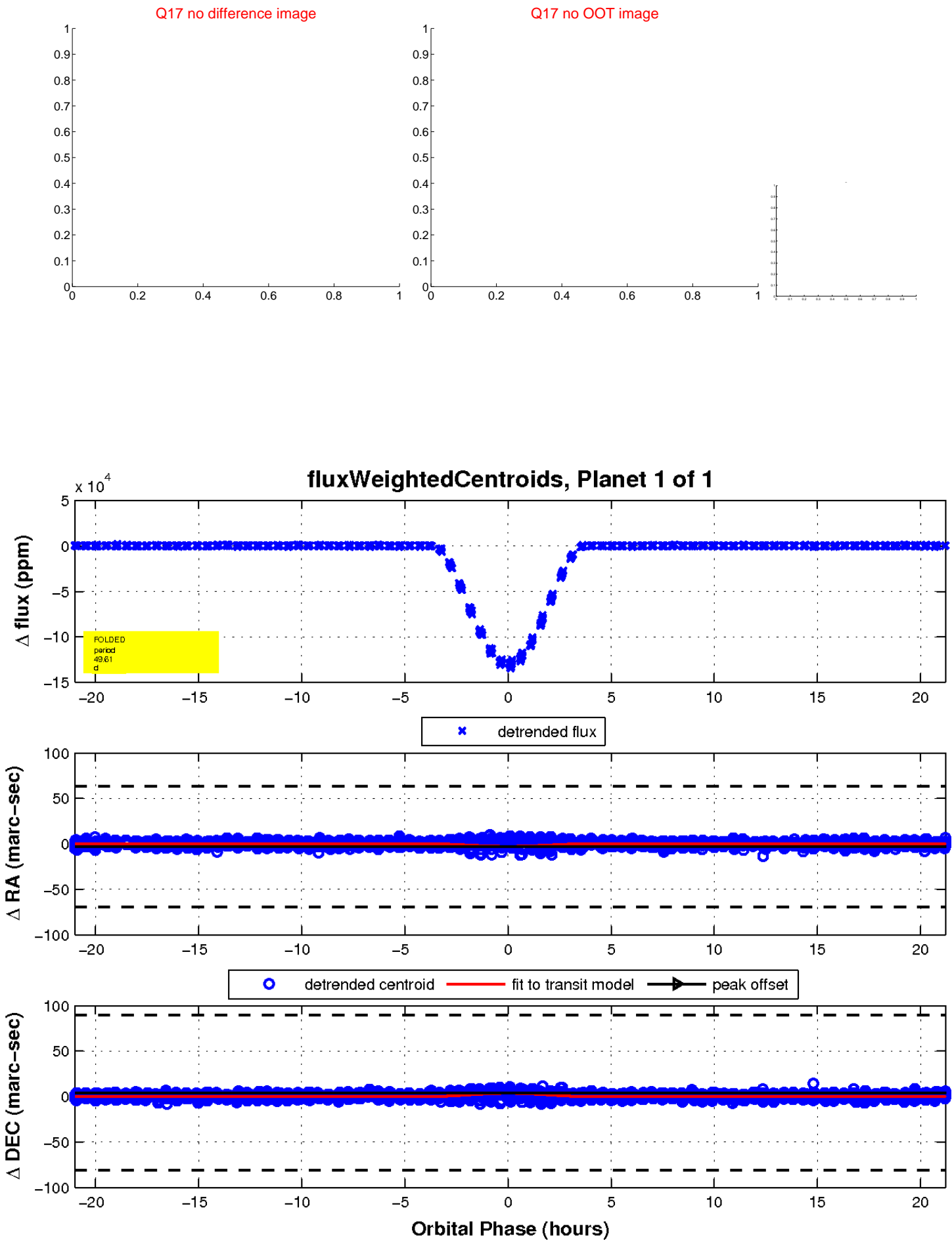
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

