

KIC 009093859

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})
009093859-01	OBS	8177.01	3.044928	132.363236	75.5	6.393	7.6	7.8	0.78	5390	0.80	299.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009093859-01	OBS	FP	0.00	1	0	1	1	MOD_NONUNIQ_ALT—HALO_GHOST—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.

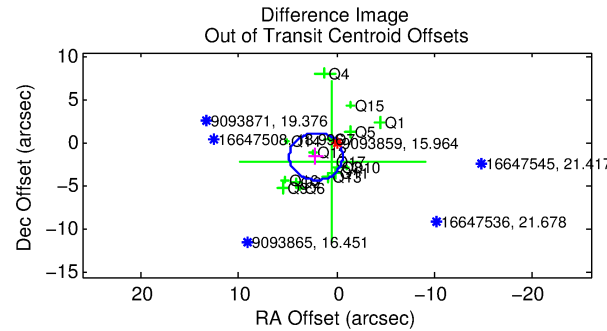
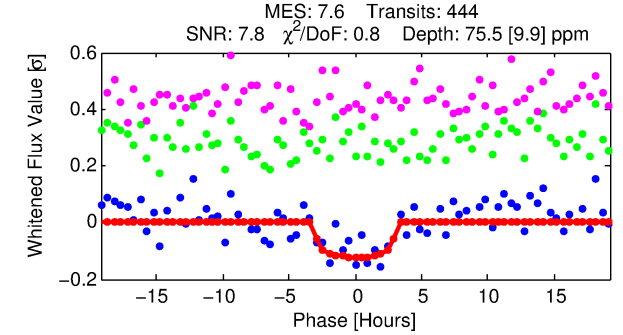
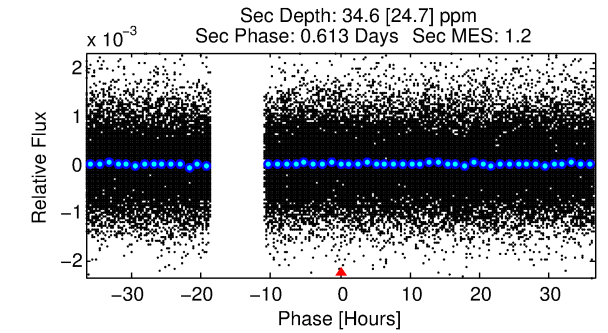
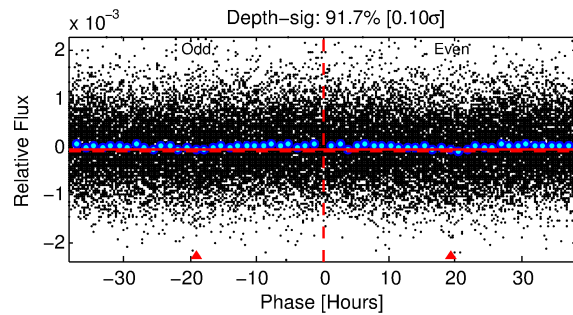
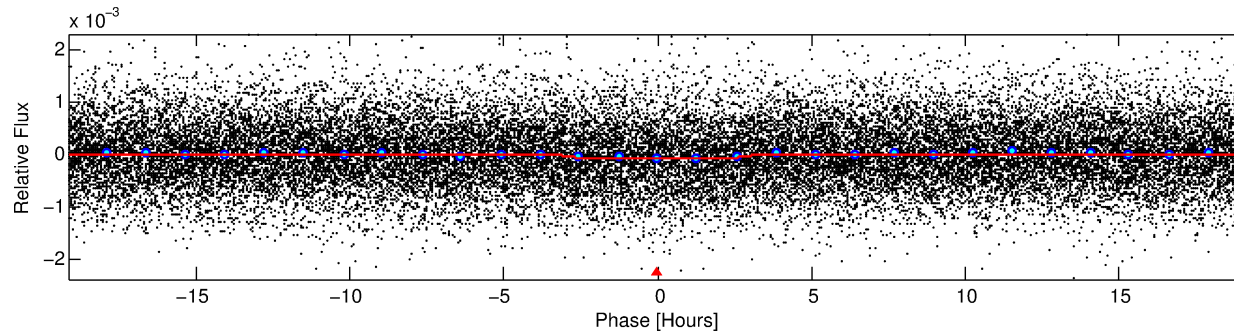
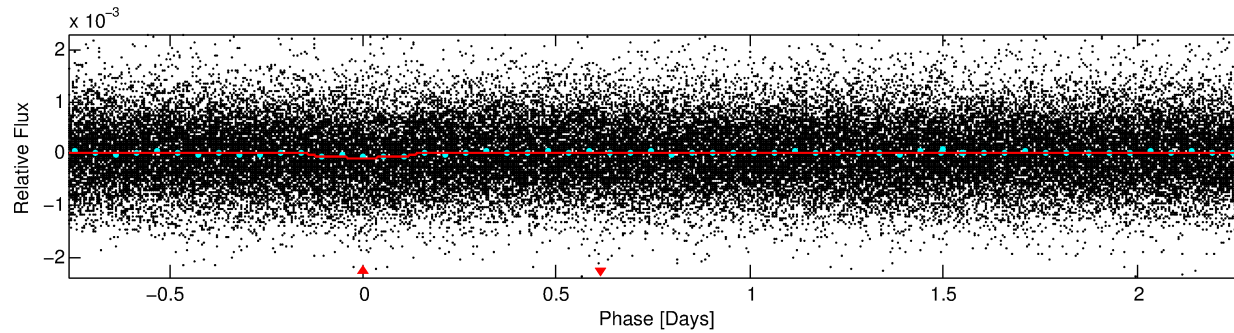
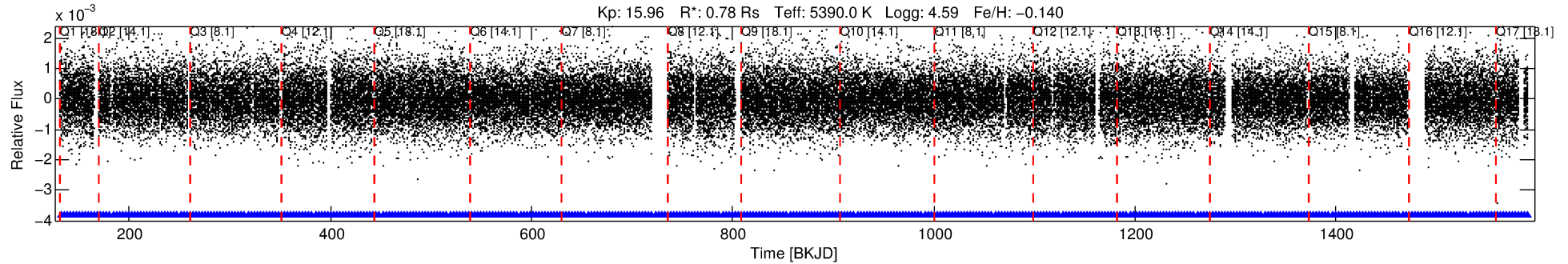
Ephemeris Match Information For 009093859-01

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
009093859-01	9093859	009159301-pri	9159301	1:1	93.3	-23	-6	12.15	15.97	6431.60	Direct-PRF	0	3.13	3.60

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: 9093859 Candidate: 1 of 1 Period: 3.045 d



DV Fit Results:

Period = 3.04493 [0.00005] d
Epoch = 132.3632 [0.0108] BKJD
Rp/R* = 0.0094 [0.0062]
a/R* = 2.00 [4.37]
b = 0.88 [0.73]
Seff = 299.60 [71.03]
Teq = 1061 [63] K
Rp = 0.80 [0.54] Re
a = 0.0392 [0.0056] AU
Ag = 45.71 [69.15] [0.65 σ]
Teffp = 4265 [1603] K [2.00 σ]

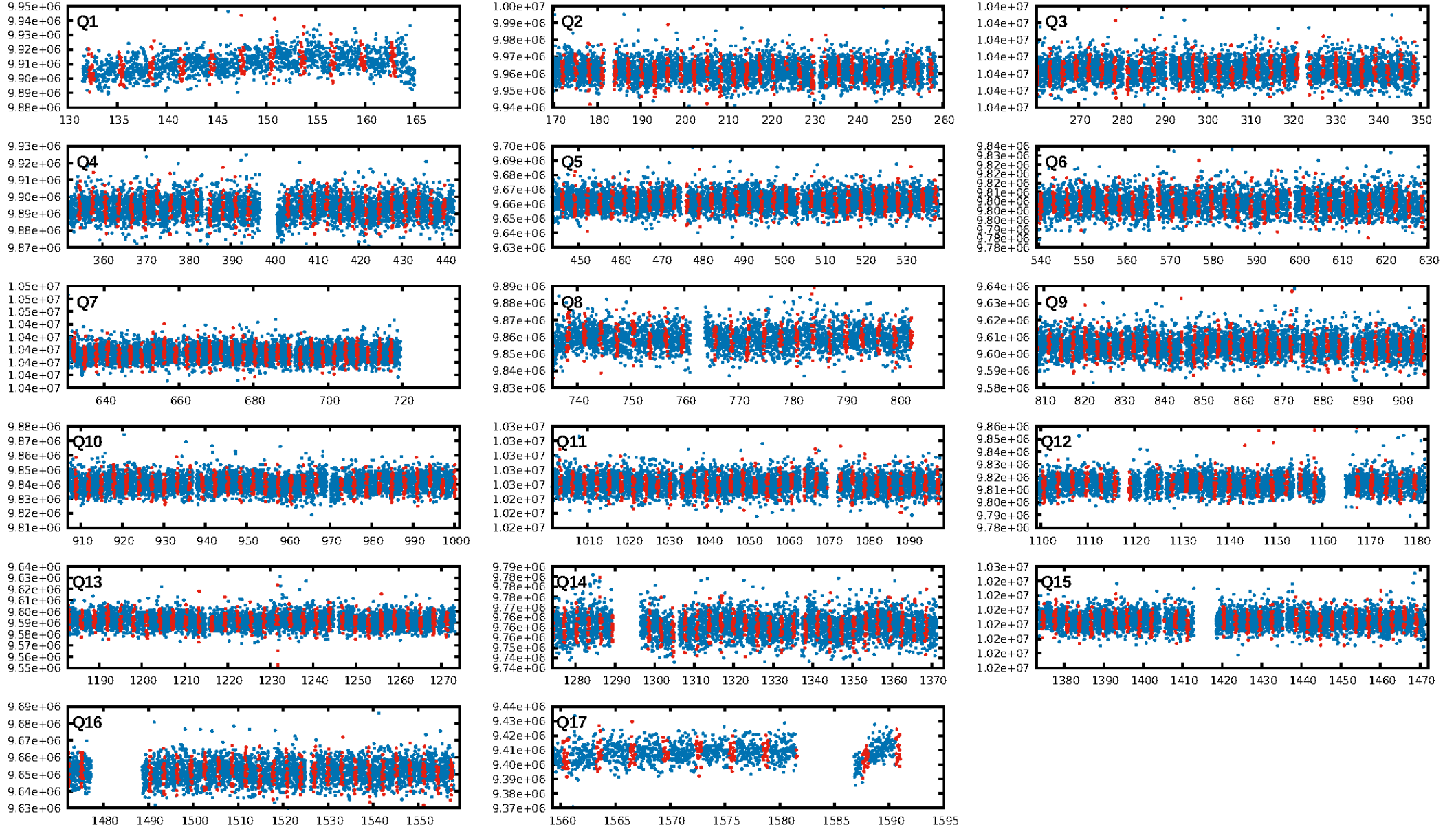
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.21e-16
RollingBand-fgt: 1.00 [424/424]
GhostDiagnostic-chr: -0.09034
Centroid-sig: 0.0%
Centroid-so: 4.004 arcsec [2.19 σ]
OotOffset-rm: 2.629 arcsec [2.90 σ]
KicOffset-rm: 2.567 arcsec [2.71 σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.19 [3/16]
DiffImageOverlap-fno: 1.00 [17/17]

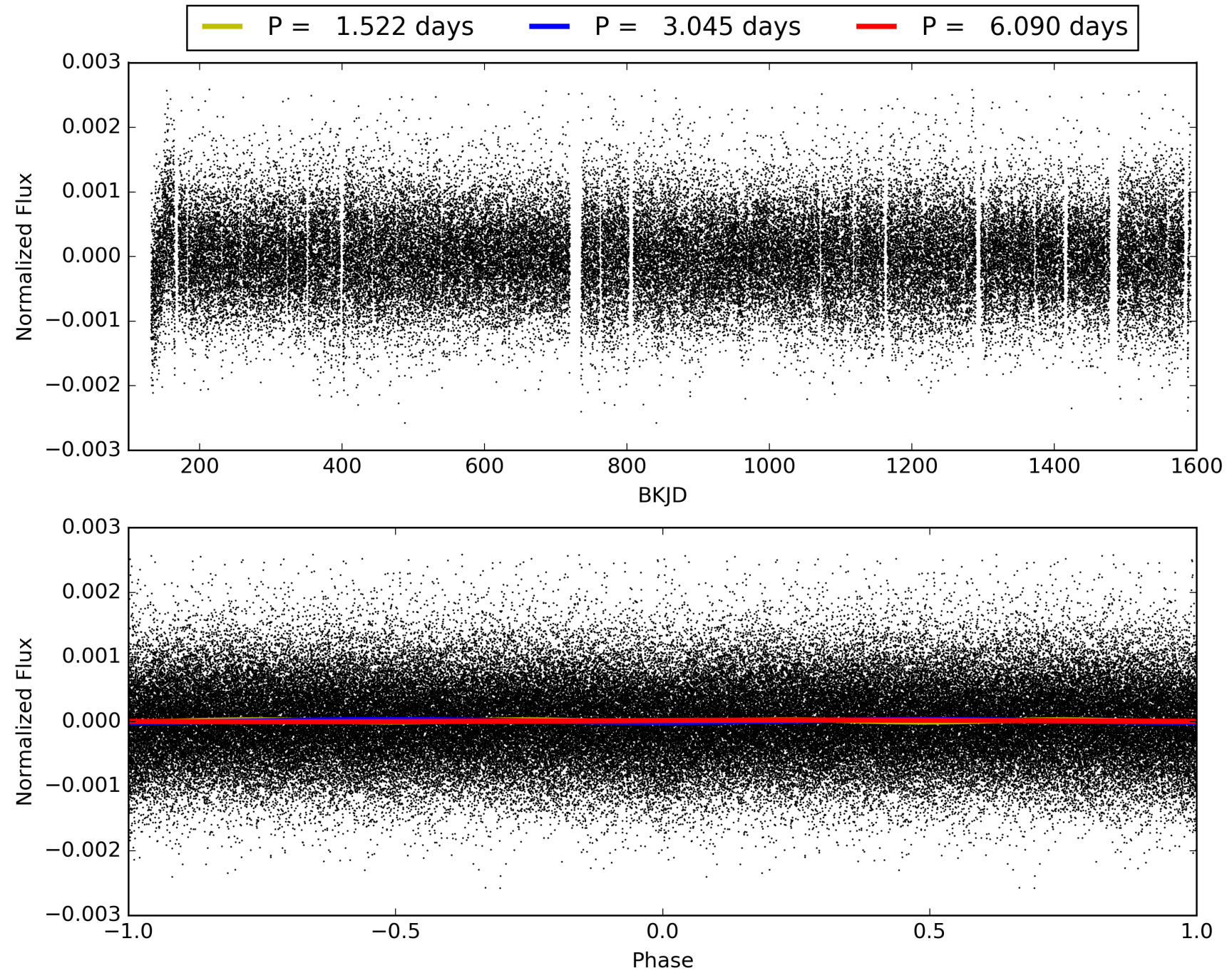
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:23:46 Z

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

TCE 009093859-01, PDC Light Curves

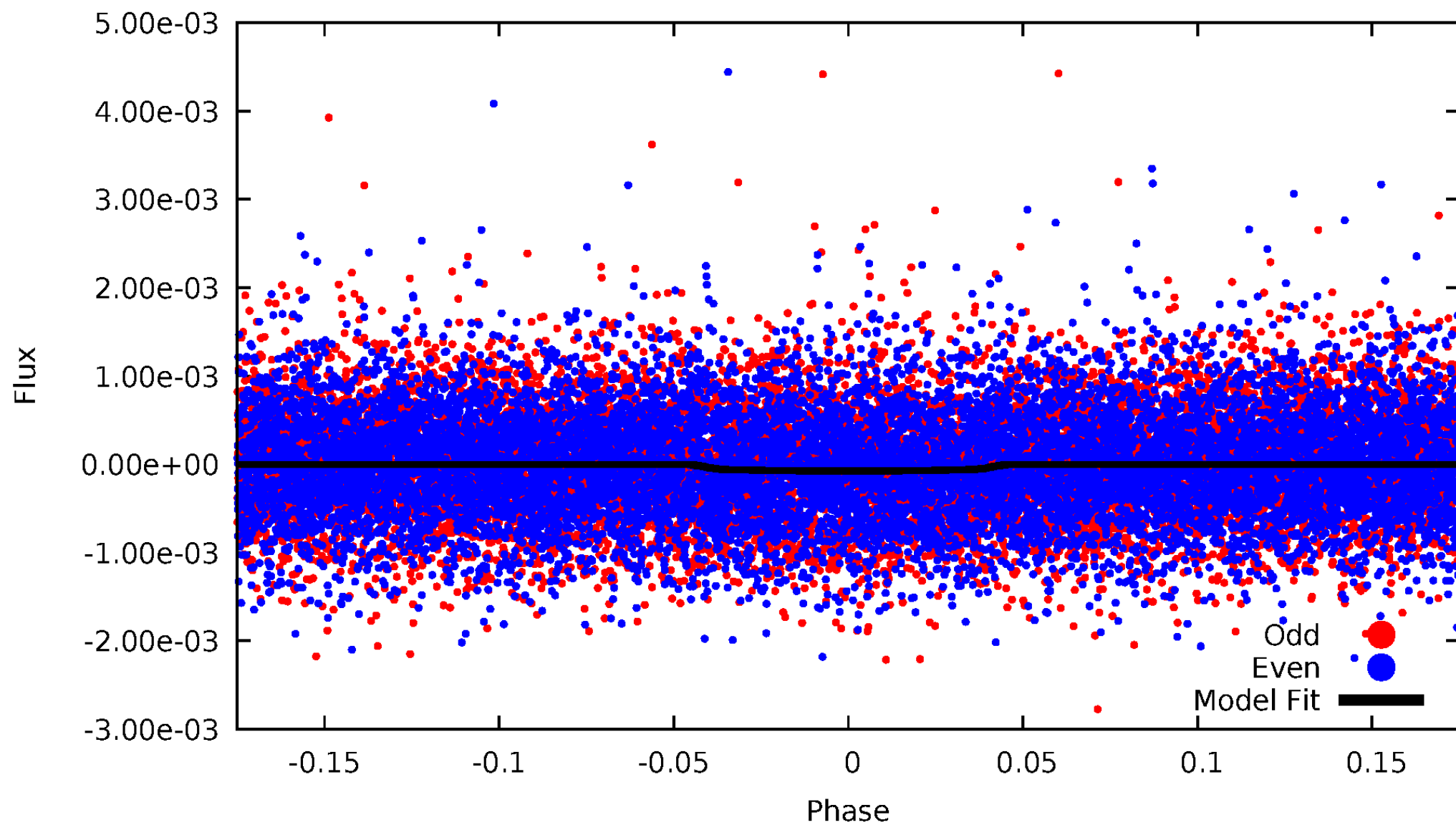


TCE 009093859-01



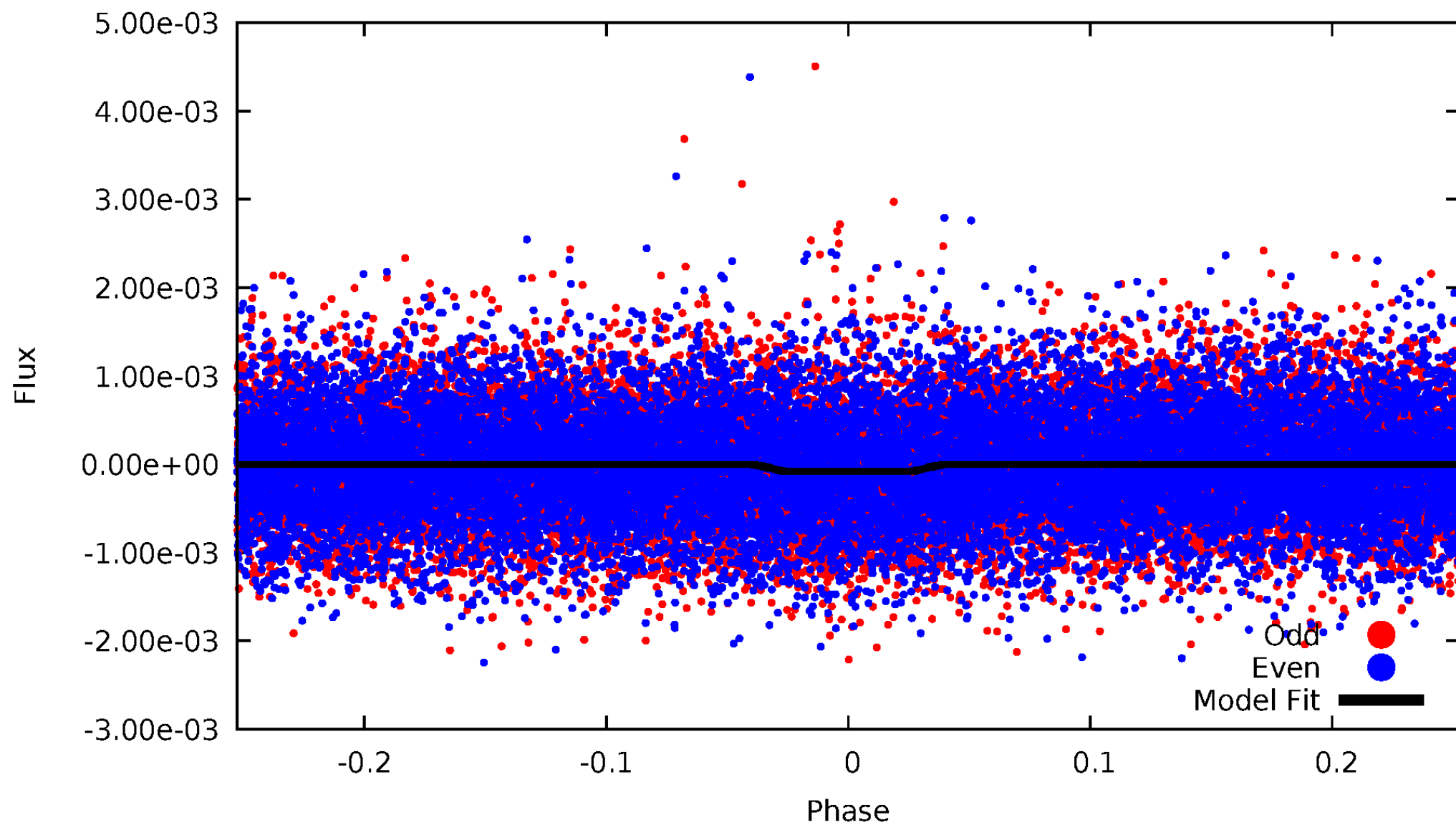
DV Odd/Even

TCE 009093859-01

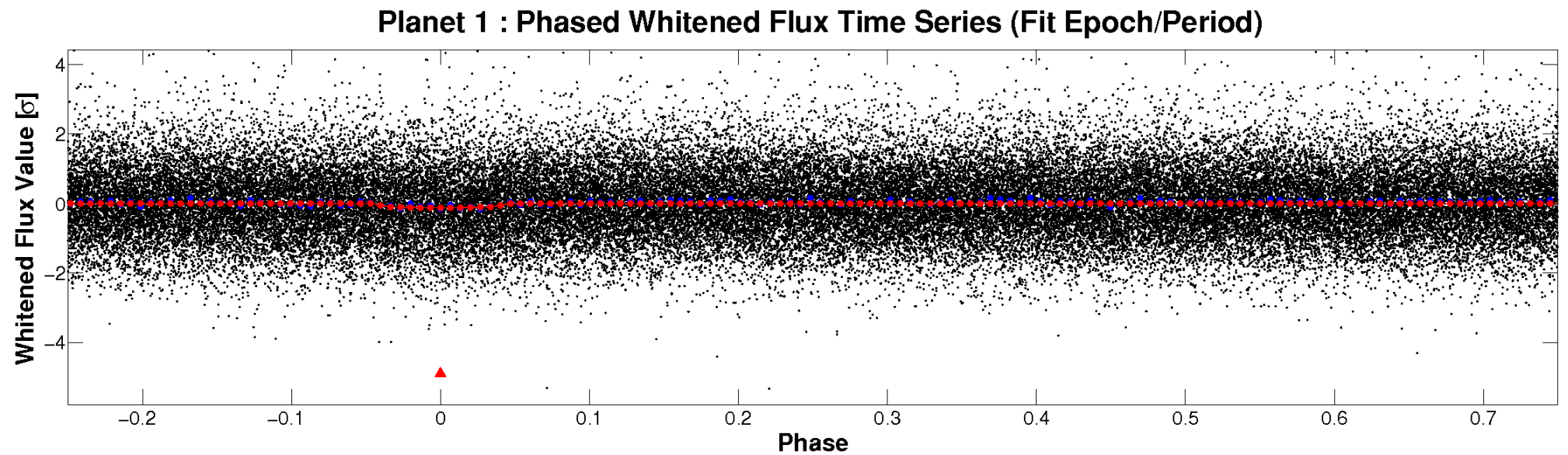
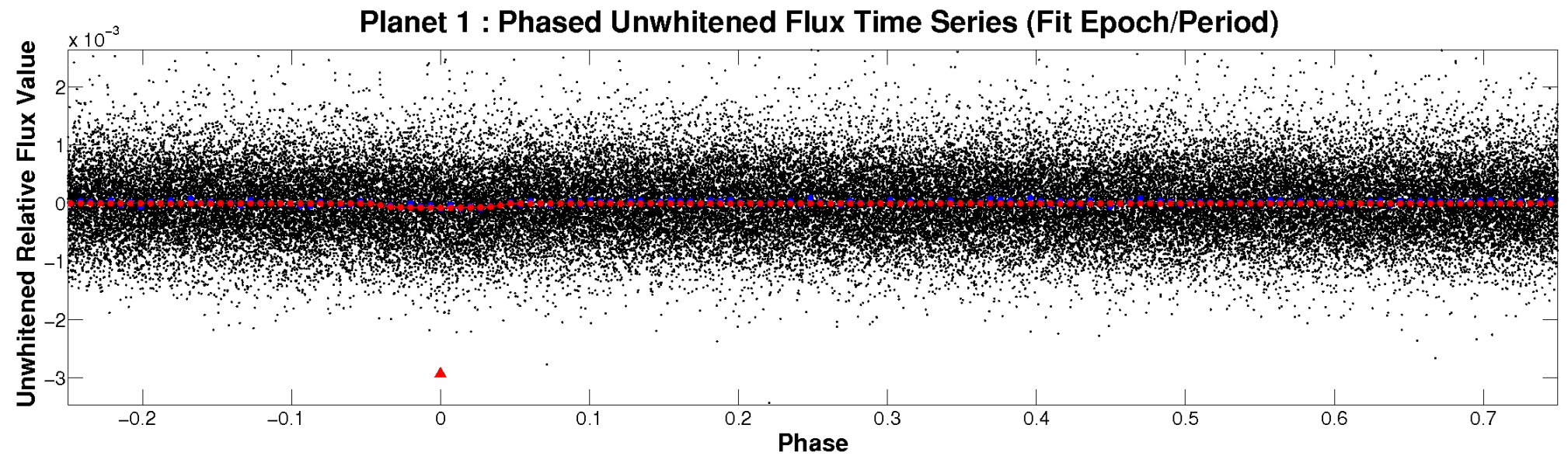


ALT Odd/Even

TCE 009093859-01

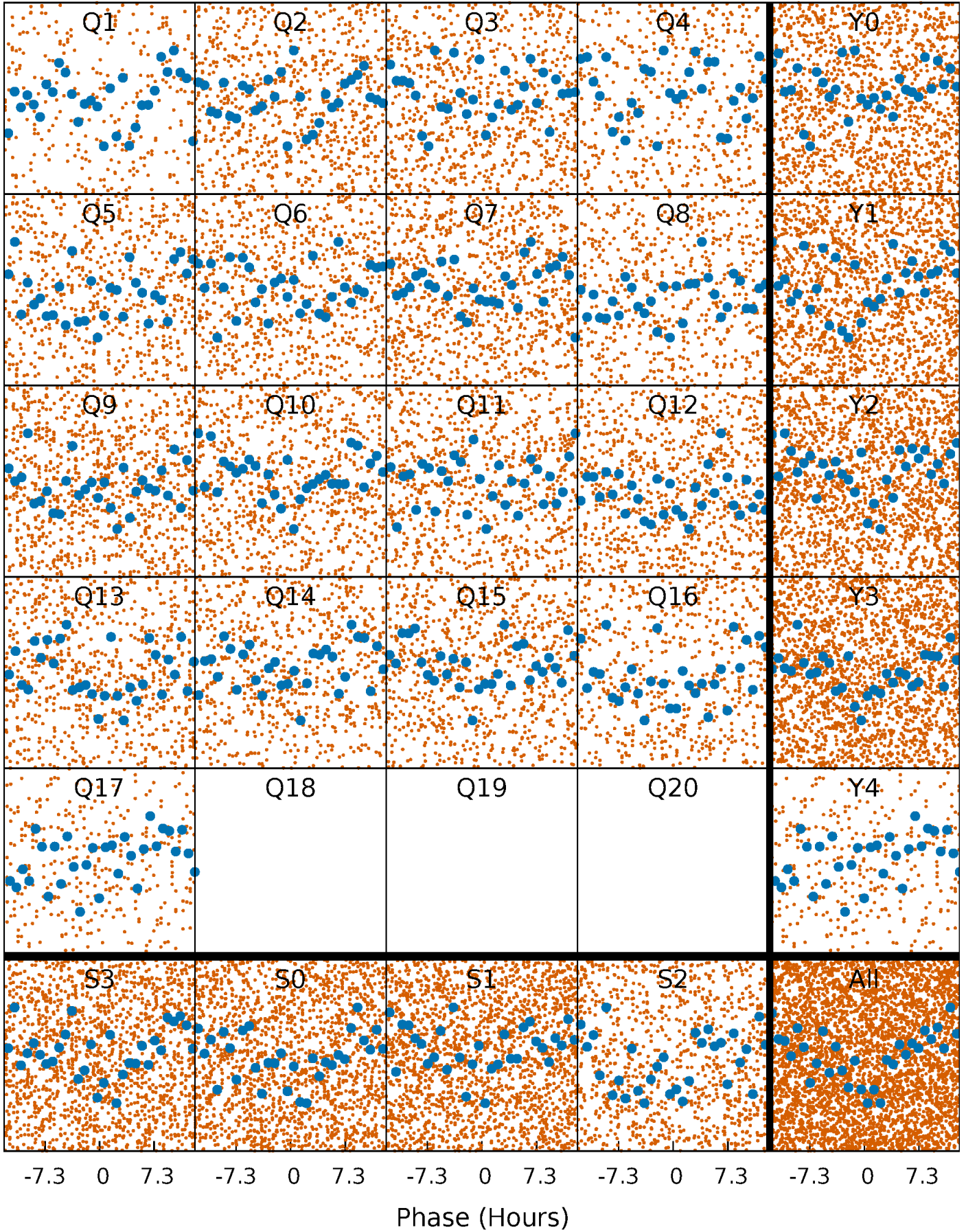


Non-Whitened Vs. Whitened Light Curve



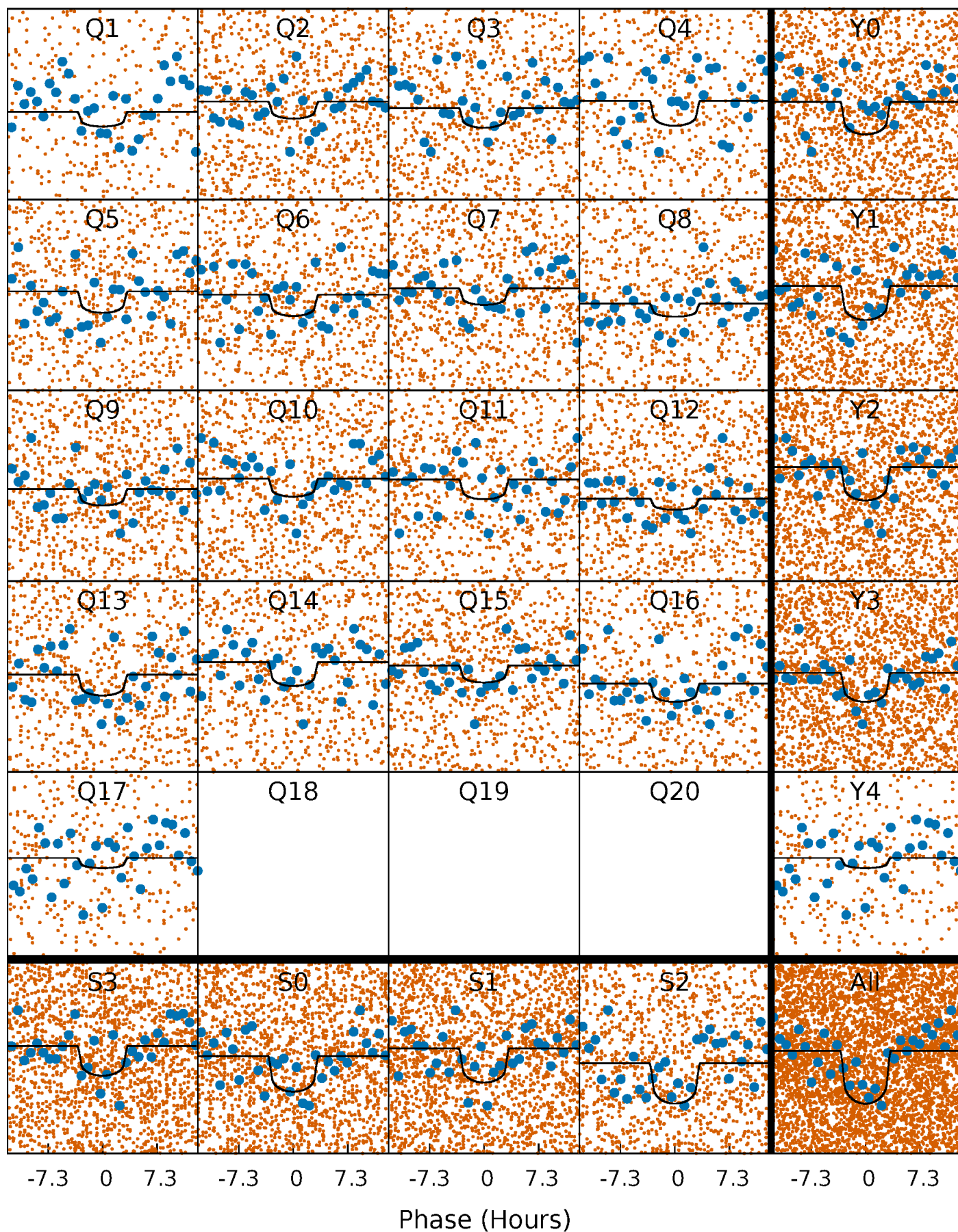
PDC Quarter-Phased Transit Curves

TCE 009093859-01 P= 3.044928 Days $T_0=132.363236$ (BKJD)



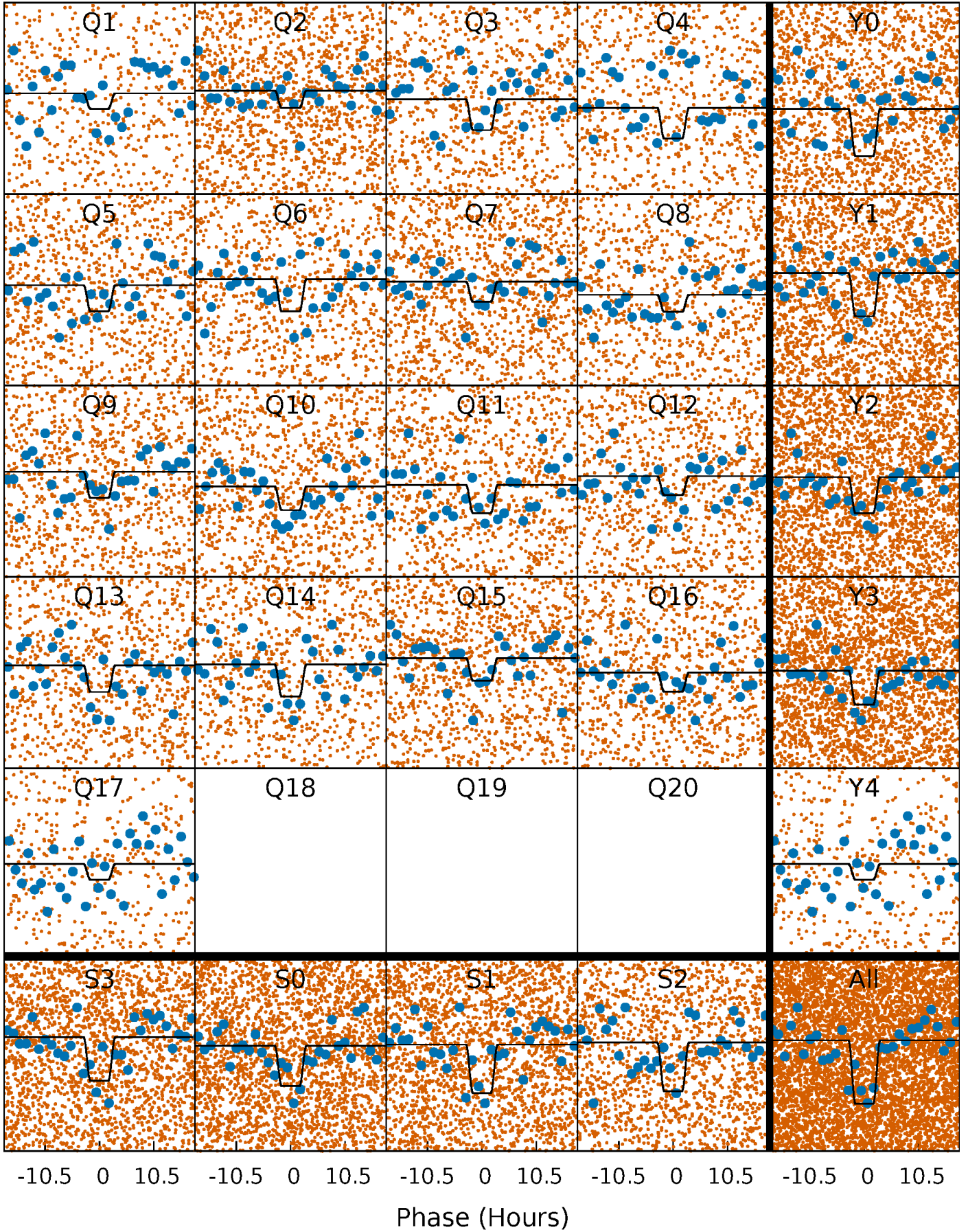
DV Quarter-Phased Transit Curves

TCE 009093859-01 P= 3.044928 Days $T_0=132.363236$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

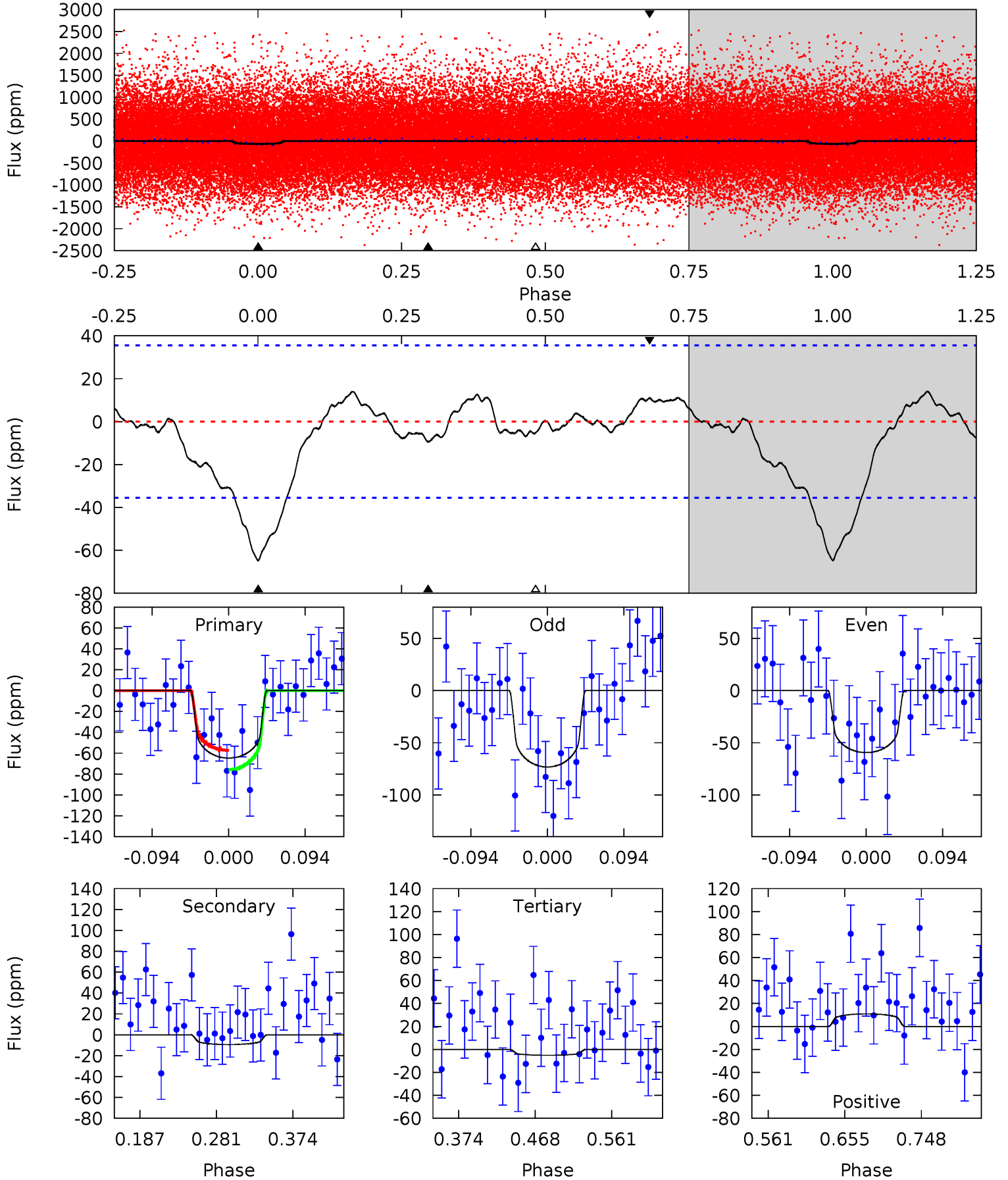
TCE 009093859-01 P= 3.044873 Days $T_0=132.401022$ (BKJD)



DV Model-Shift Uniqueness Test

009093859-01, P = 3.044928 Days, E = 129.318308 Days

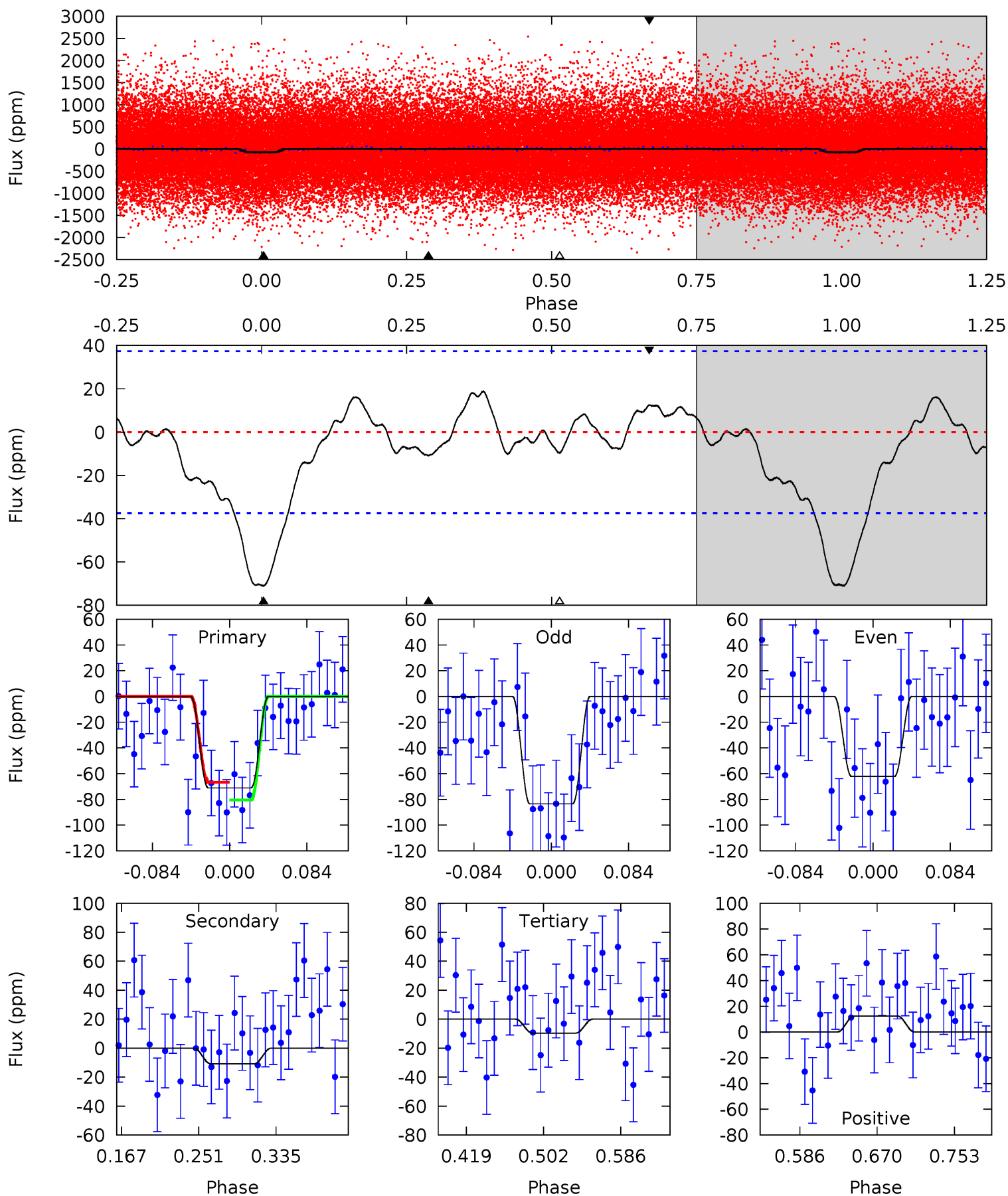
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.33	1.21	0.67	1.41	4.58	1.68	0.95	7.66	6.92	0.55	-0.20	0.89	1.33	0.18	1.19



Alt Model-Shift Uniqueness Test

009093859-01, P = 3.044873 Days, E = 129.356149 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.73	1.33	1.18	1.53	4.60	1.73	1.20	7.55	7.20	0.15	-0.20	1.31	1.12	0.21	0.85



Stellar Parameters For KIC 009093859

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5390^{+159}_{-159}	$4.591^{+0.035}_{-0.112}$	$-0.140^{+0.300}_{-0.300}$	$0.780^{+0.132}_{-0.066}$	$0.875^{+0.070}_{-0.104}$	$2.593^{+0.474}_{-0.892}$
	+3%/-3%	+1%/-2%	+214%/-214%	+17%/-8%	+8%/-12%	+18%/-34%
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 009093859-01 / KOI 8177.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-9 ± 8	$0.90^{+0.56}_{-0.51}$	1506^{+71}_{-57}	3315^{+1177}_{-961}	$7.814^{+36.513}_{-6.950}$
Alt.	-11 ± 8	$0.85^{+0.54}_{-0.47}$	1502^{+71}_{-59}	3450^{+1294}_{-767}	10^{+50}_{-8}

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

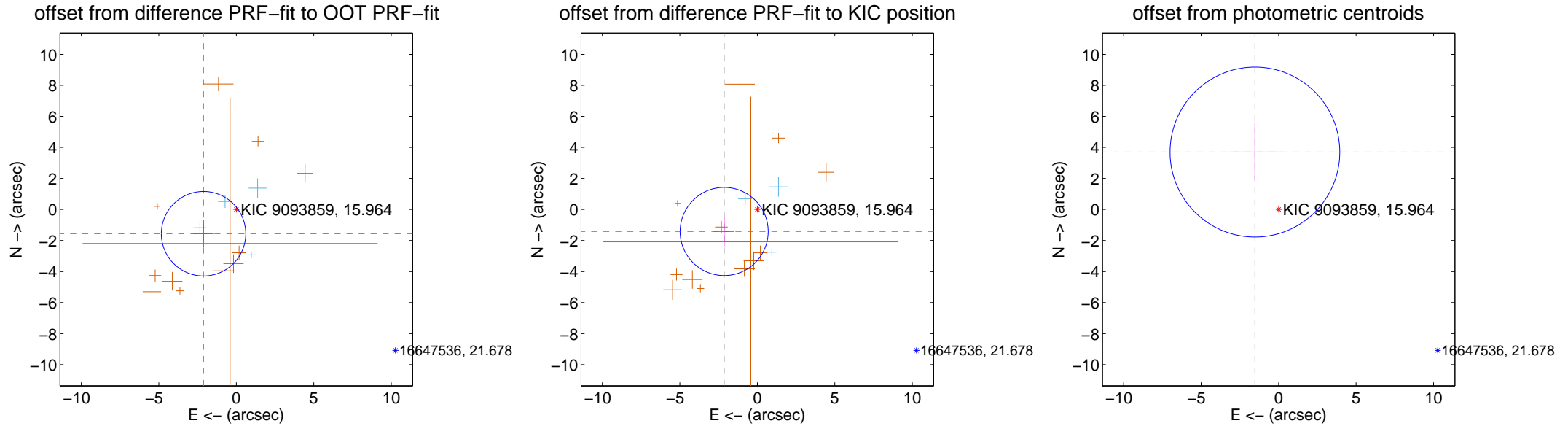
DV Centroid Data

Supplemental centroid analysis for 009093859-01. Kepler magnitude: 15.96. Transit SNR 7.82

There are 3 quarters with good PRF difference image offsets

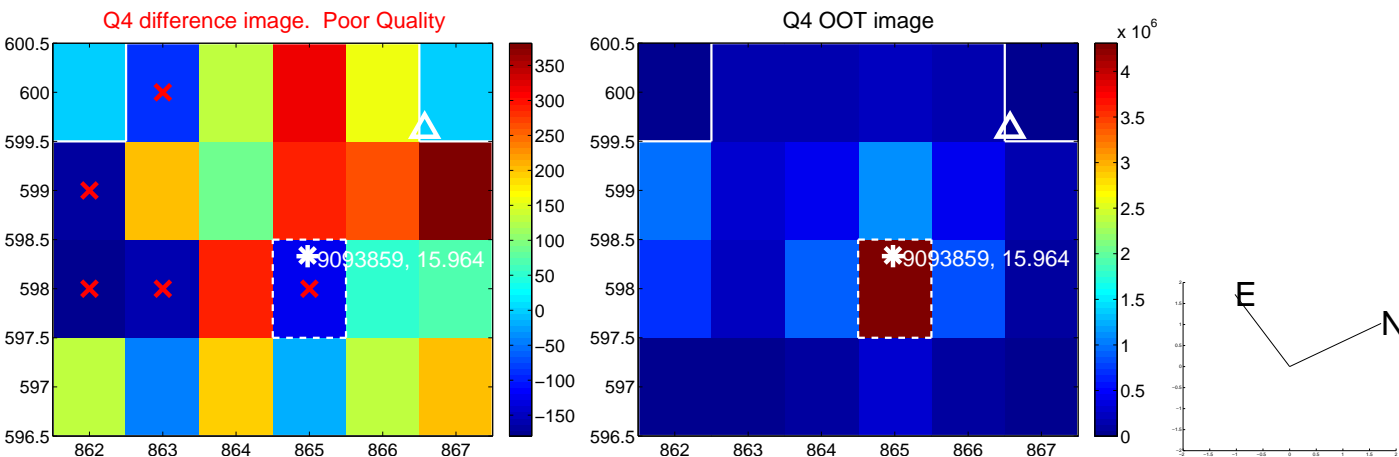
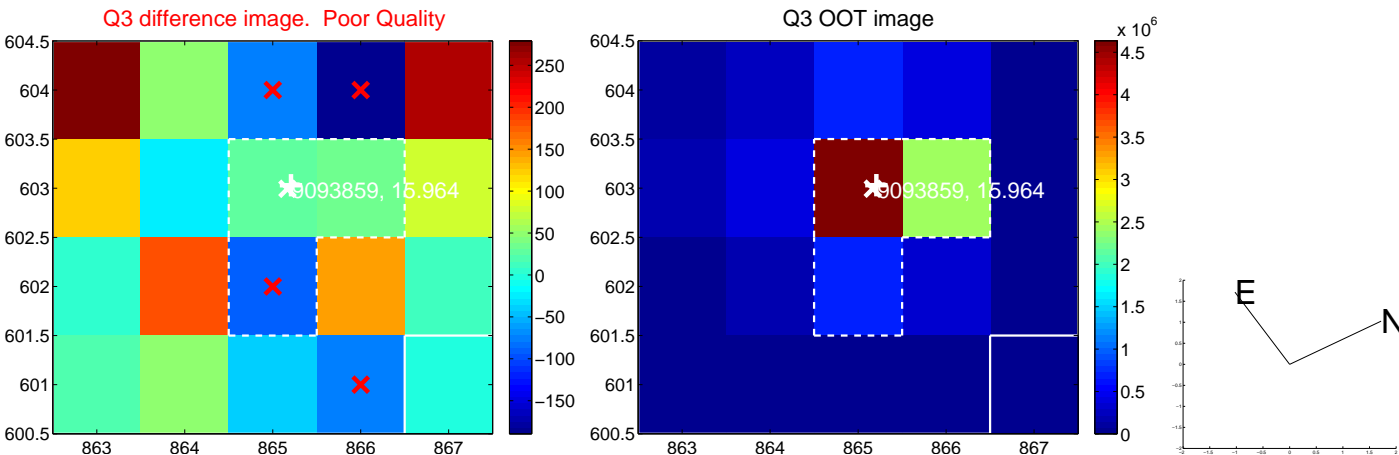
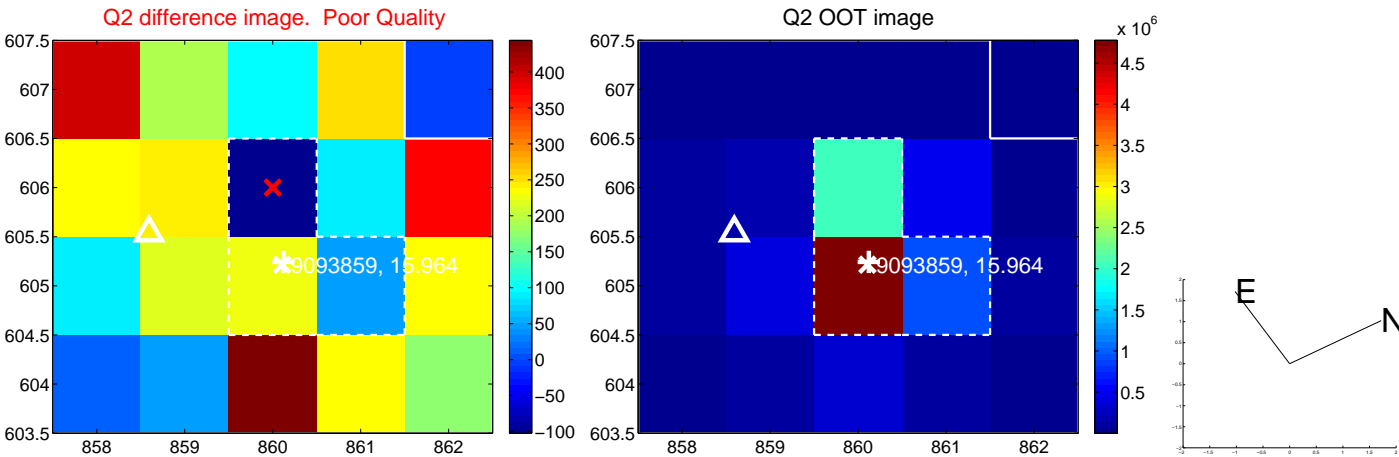
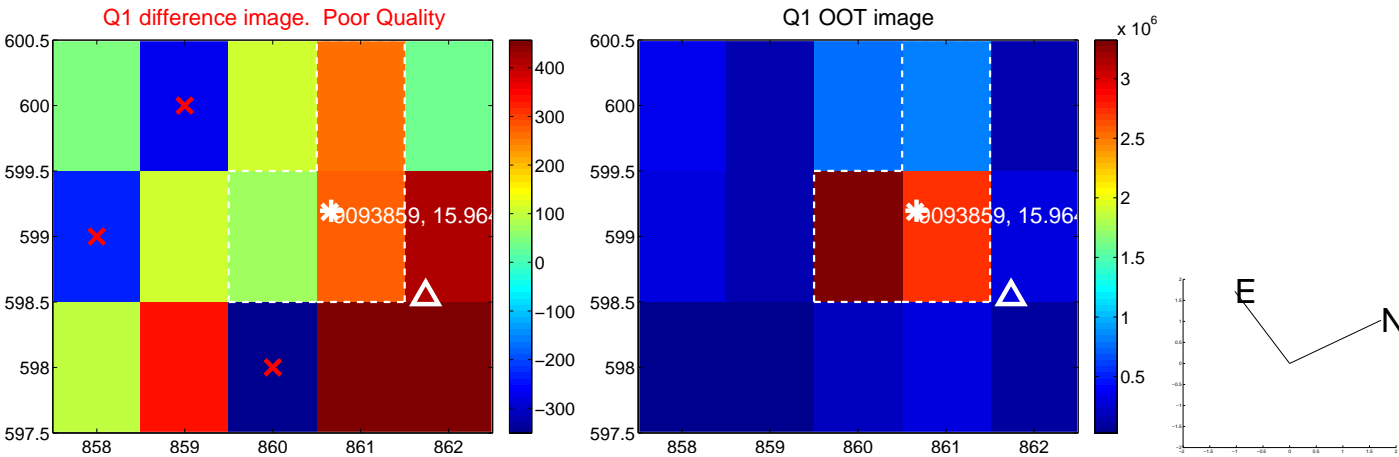
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.629 ± 0.908	2.90	2.114 ± 0.667	-1.562 ± 0.889
PRF-fit source offset from KIC position	2.567 ± 0.947	2.71	2.139 ± 0.669	-1.418 ± 0.940
photometric centroid source offset	4.00 ± 1.83	2.19	1.53 ± 1.69	3.70 ± 1.85

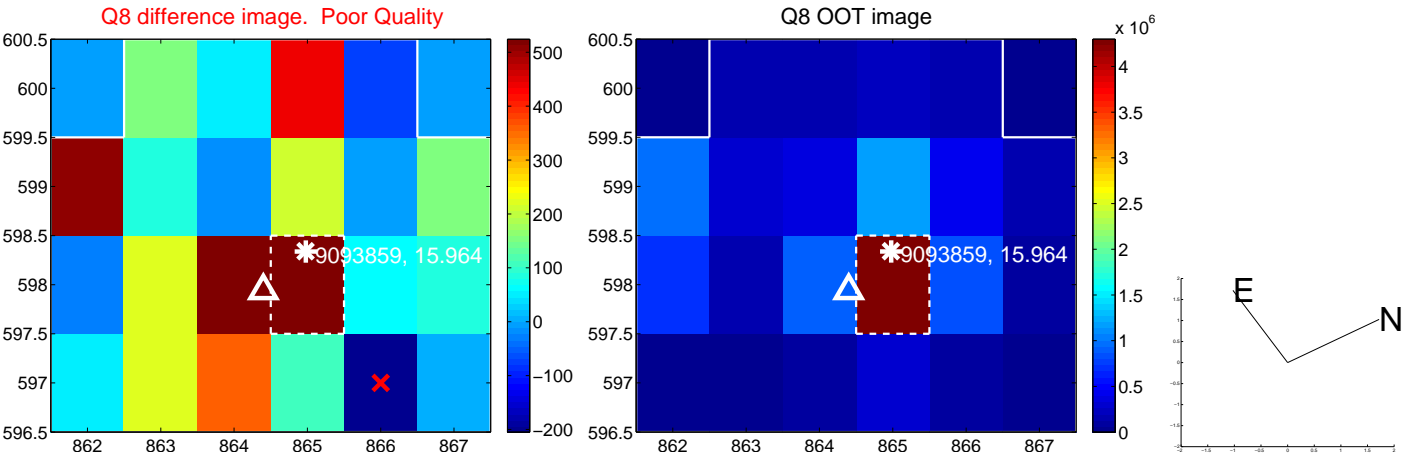
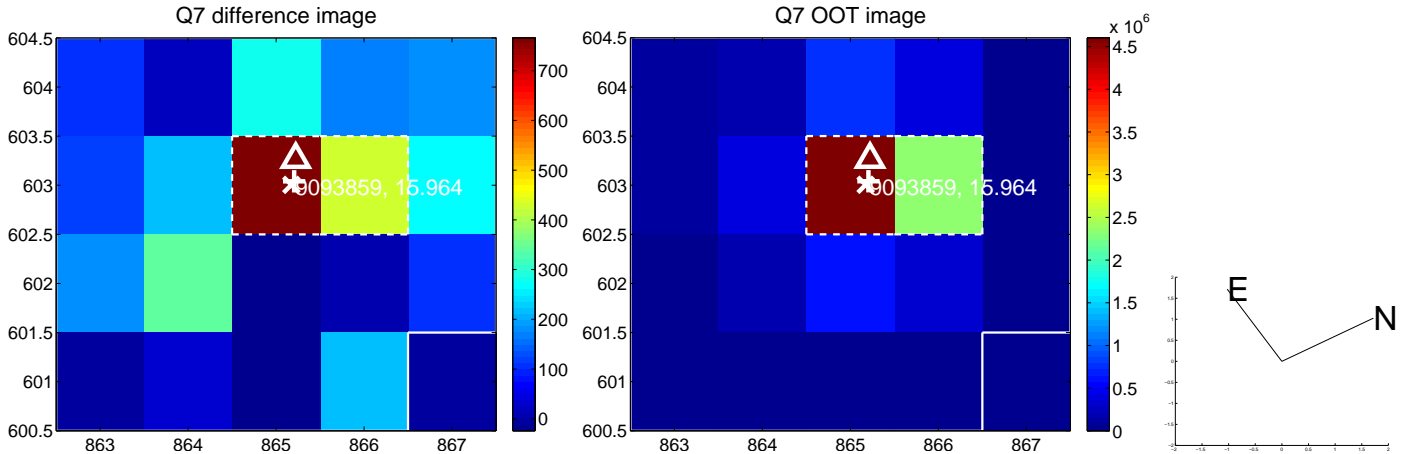
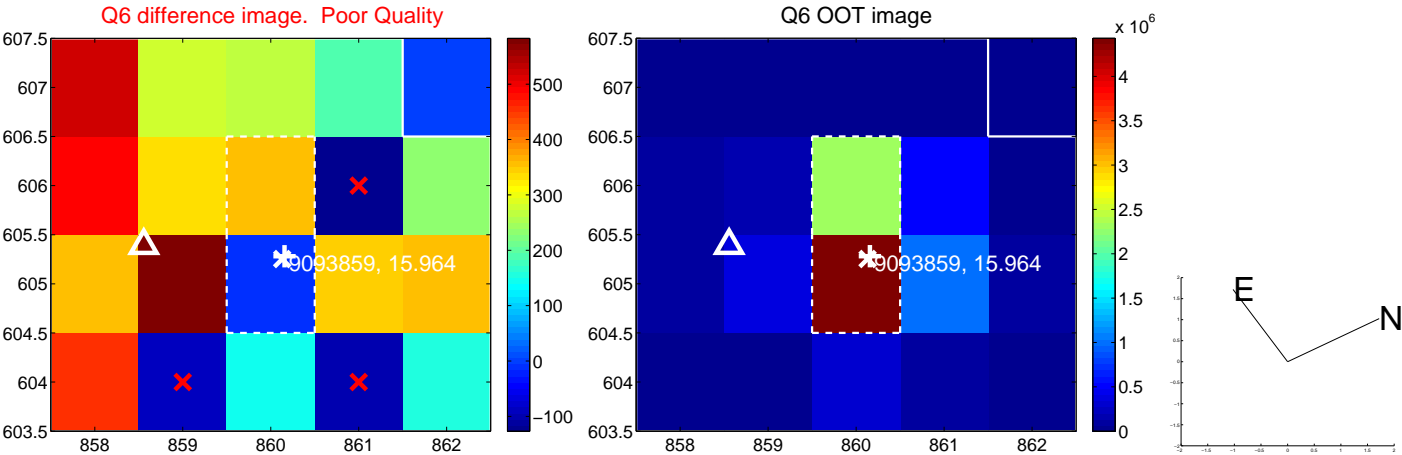
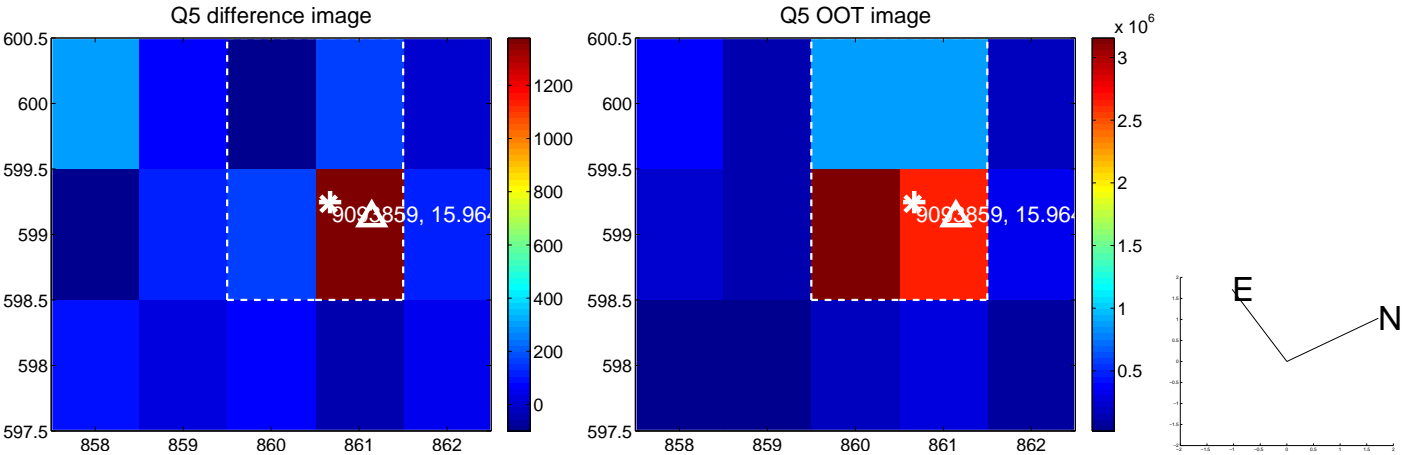


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

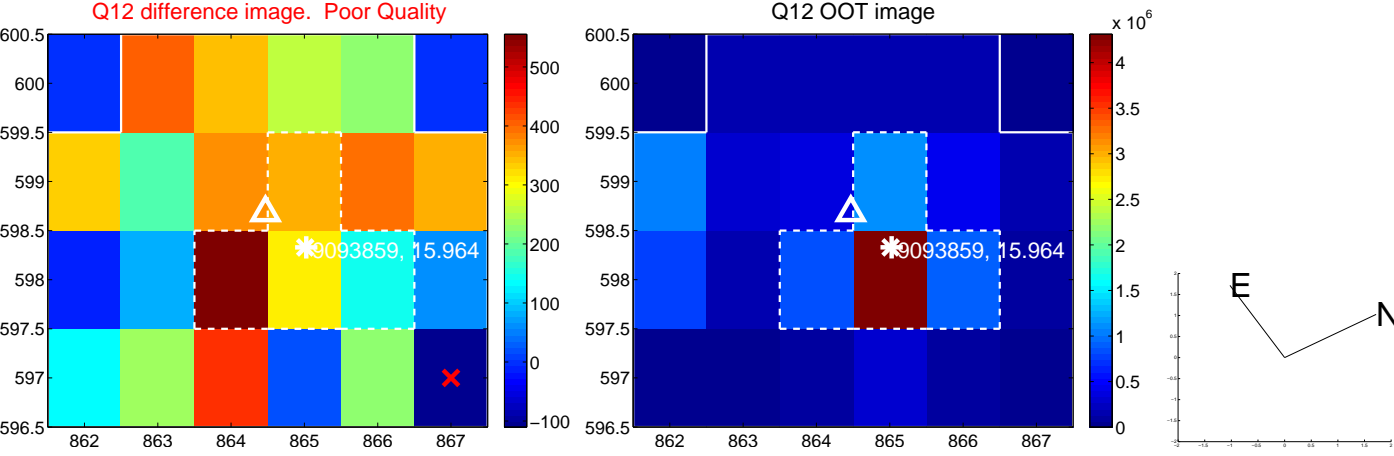
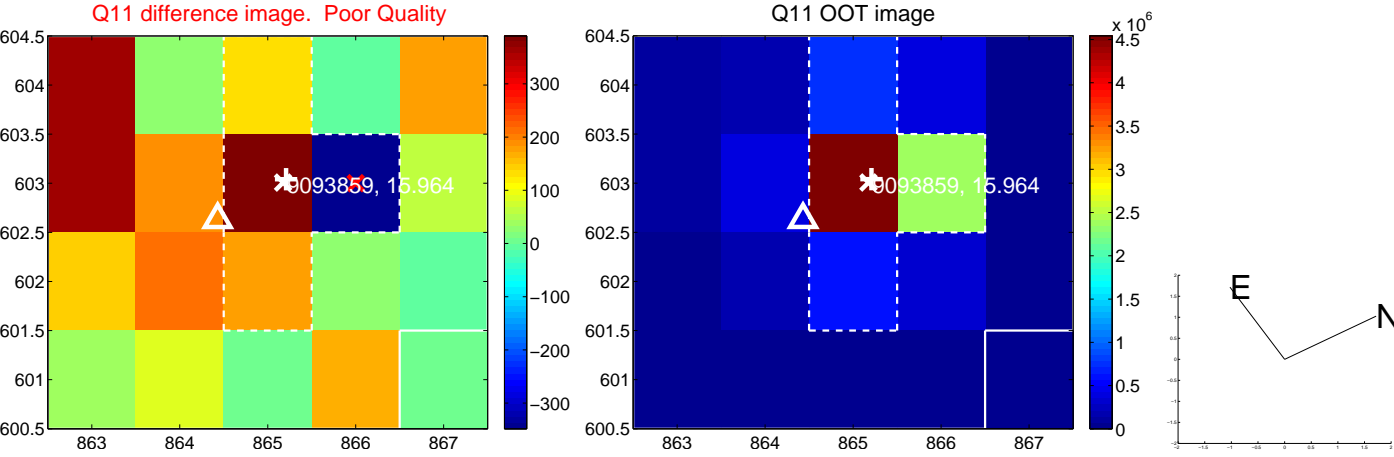
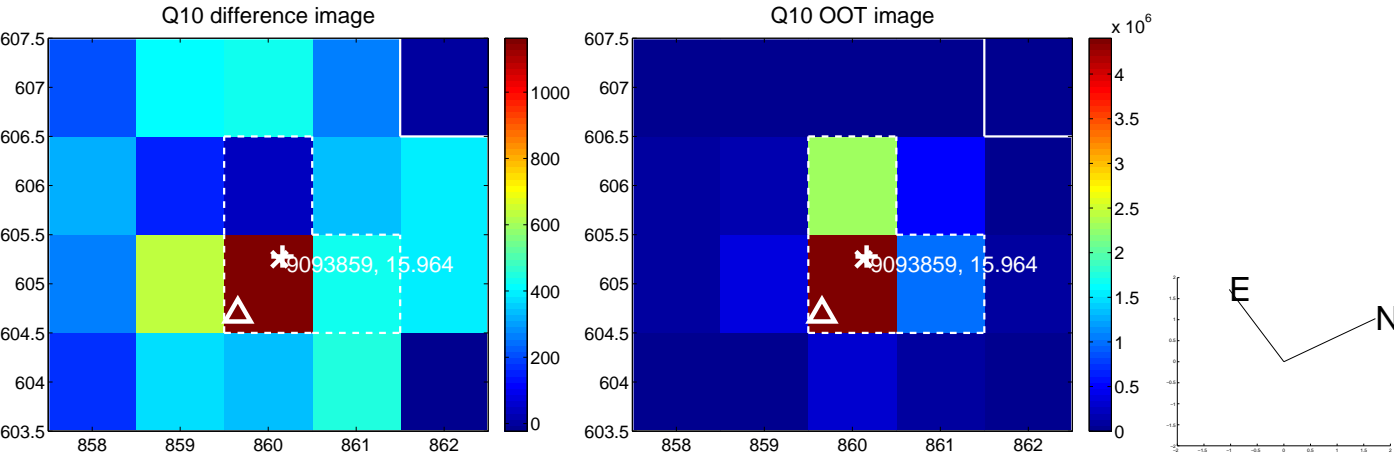
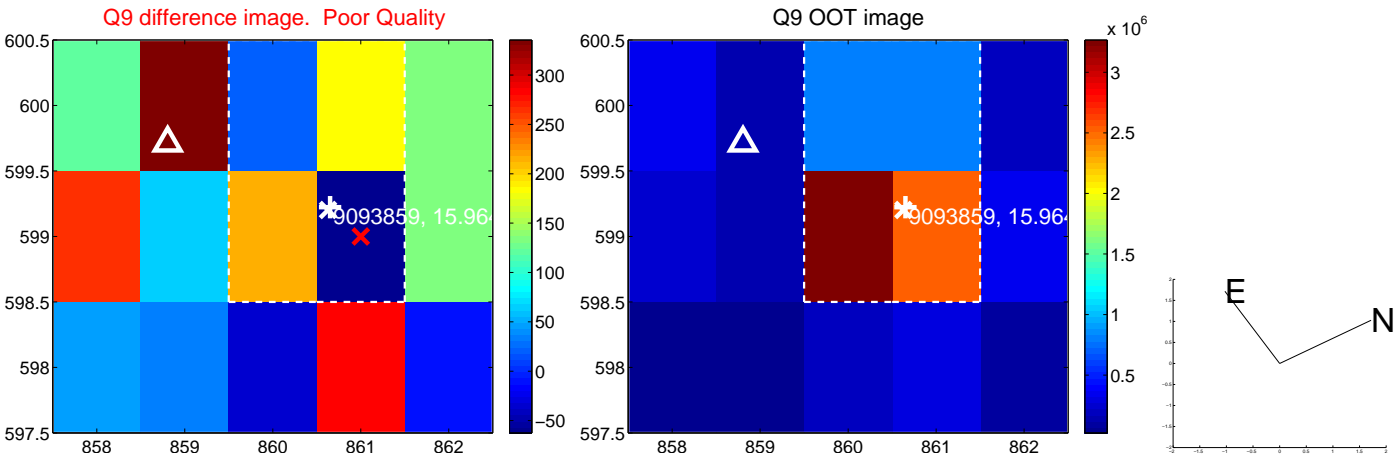
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



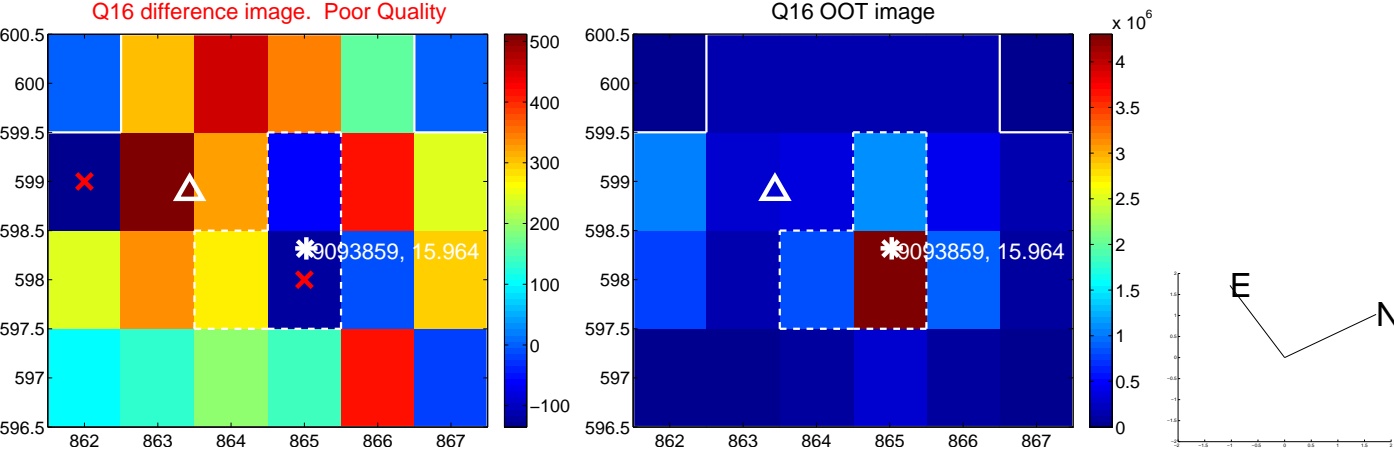
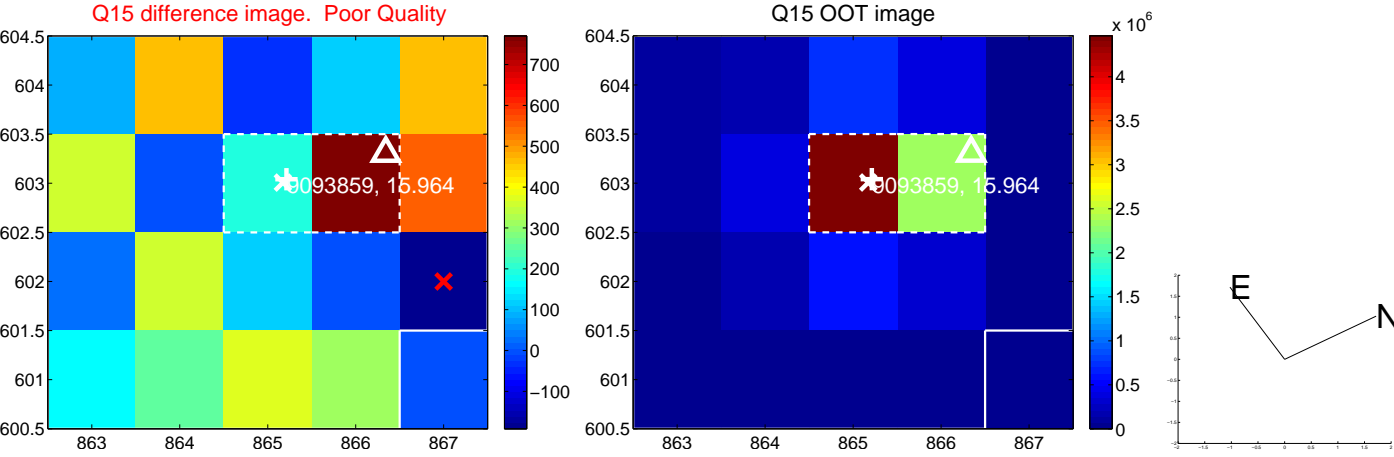
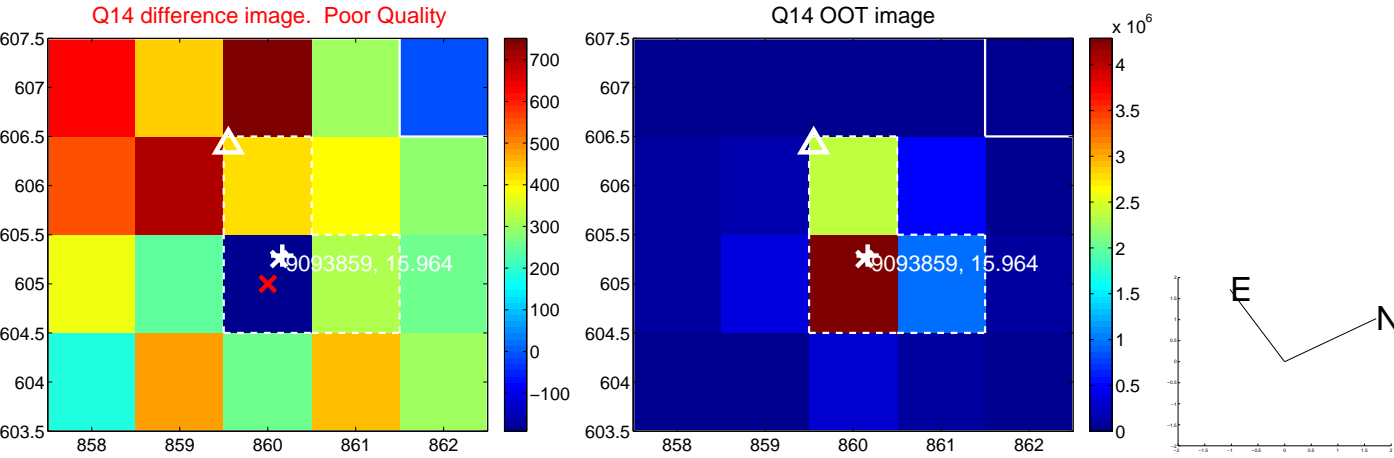
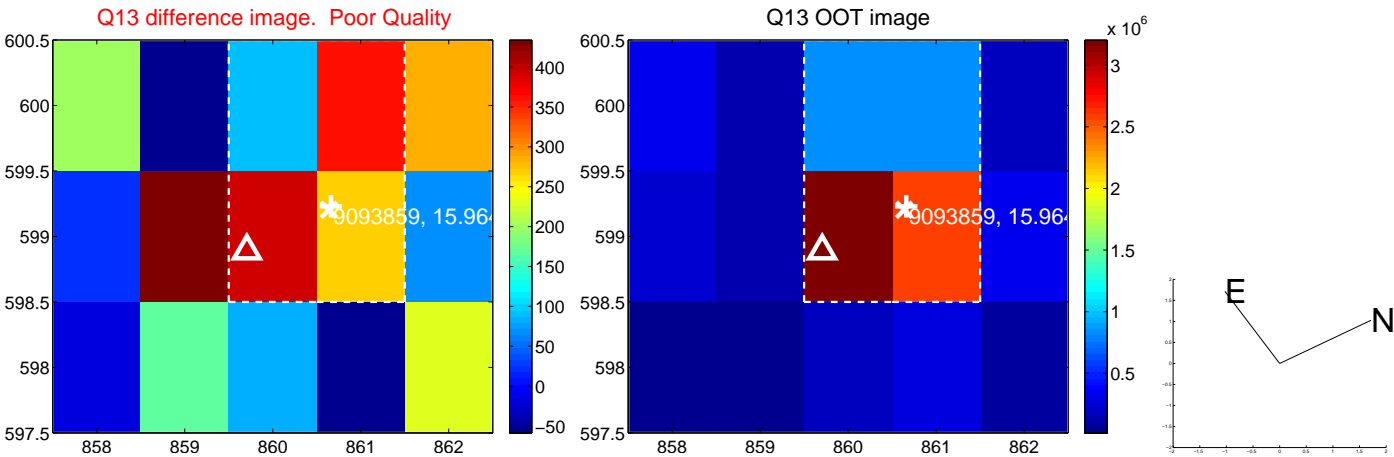
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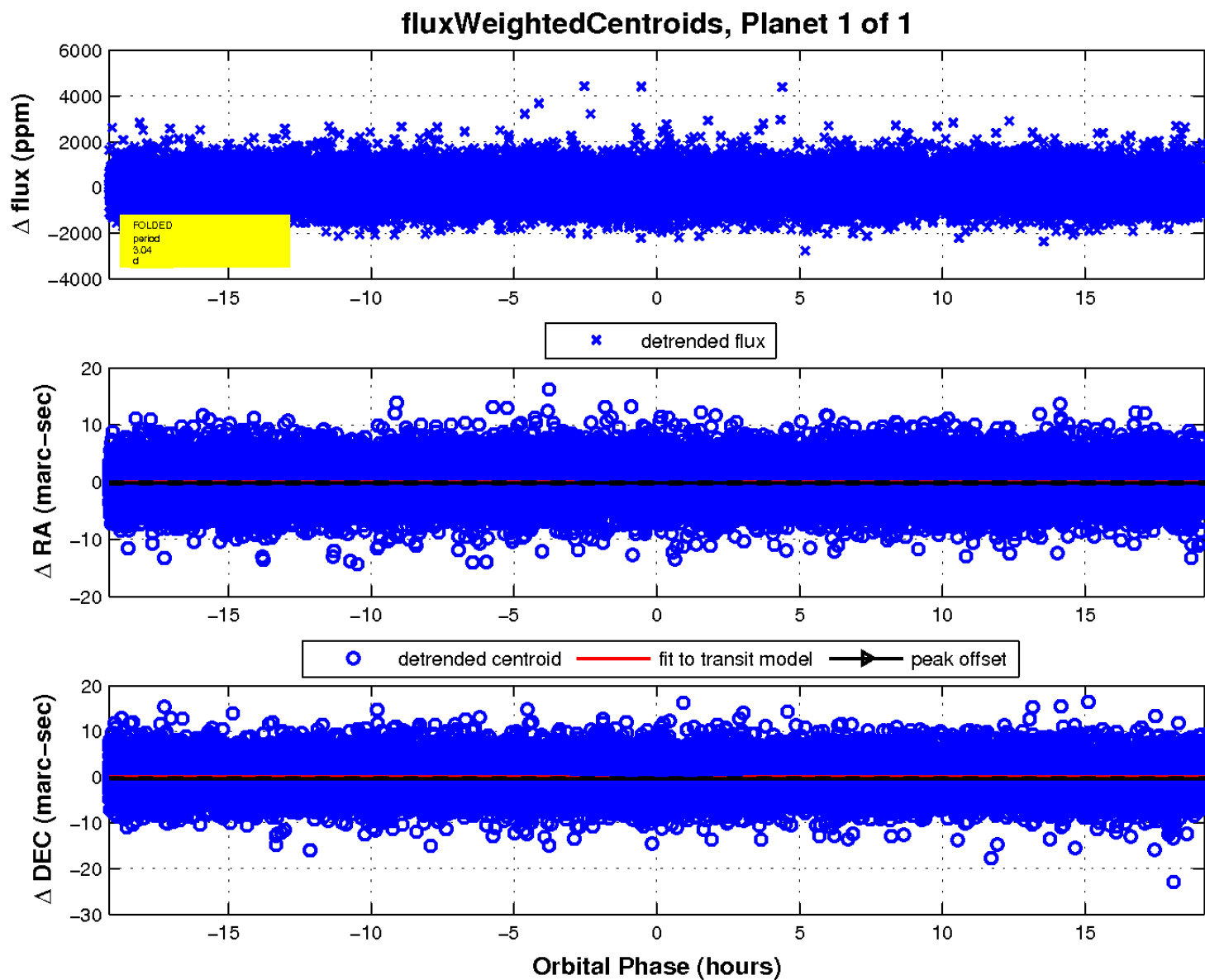
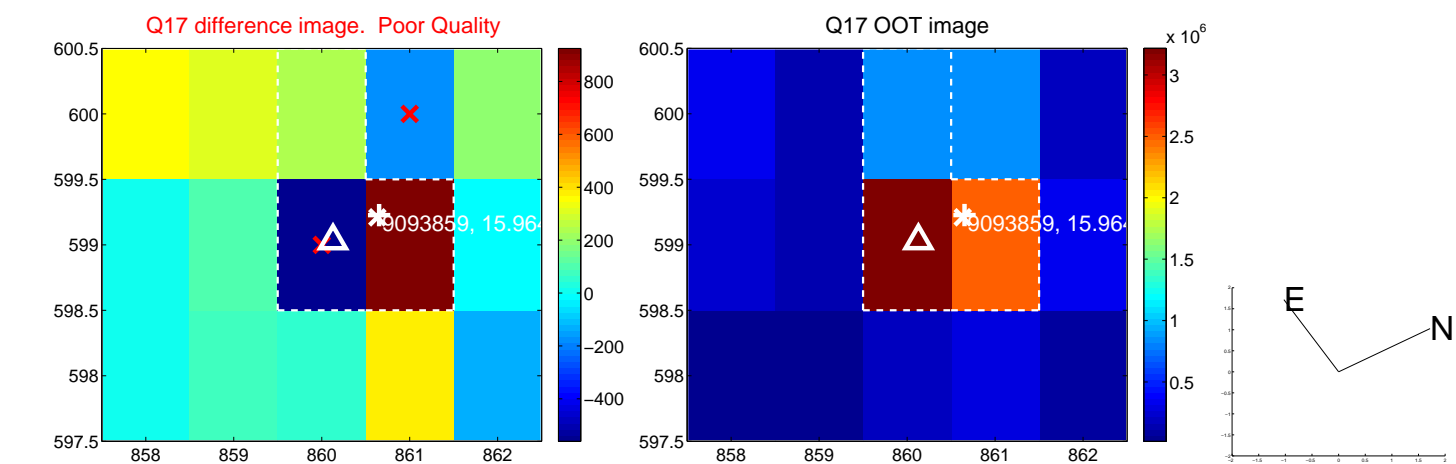
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UKIRT Image

Declination

