

KIC 009457728

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})
009457728-01	OBS	4637.01	4.379907	133.988885	14.2	5.237	9.2	9.4	1.92	6311	0.85	1582.10

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009457728-01	OBS	PC	0.98	0	0	0	0	CENT_SATURATED

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

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

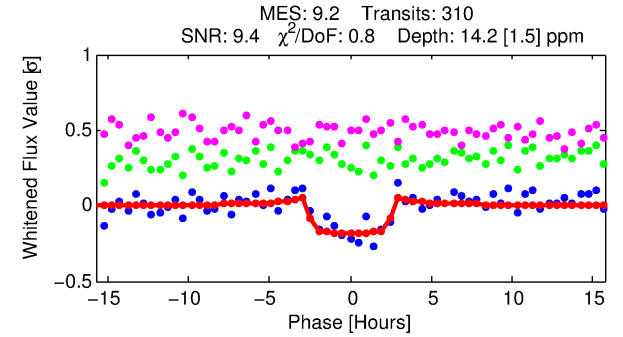
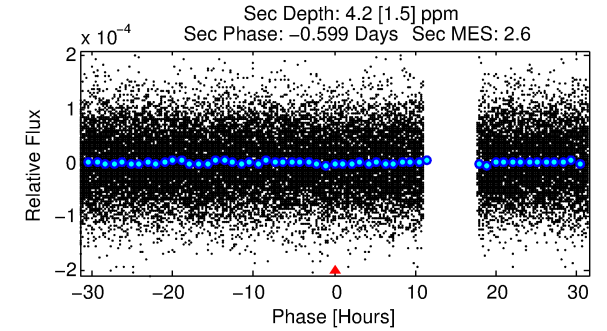
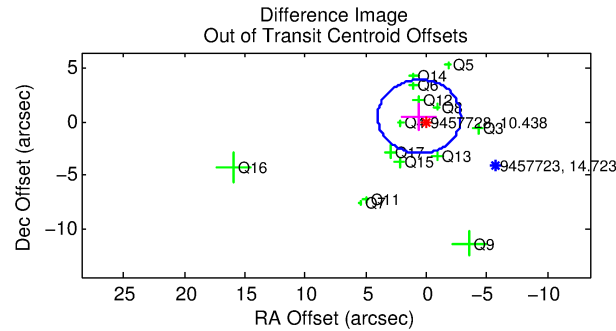
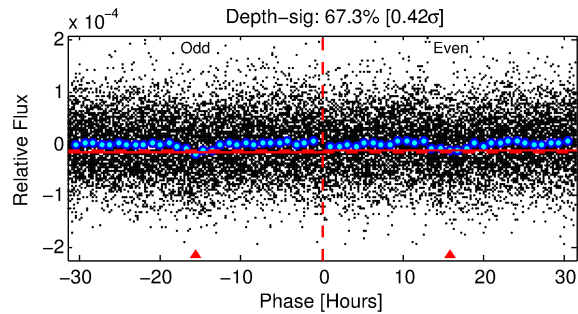
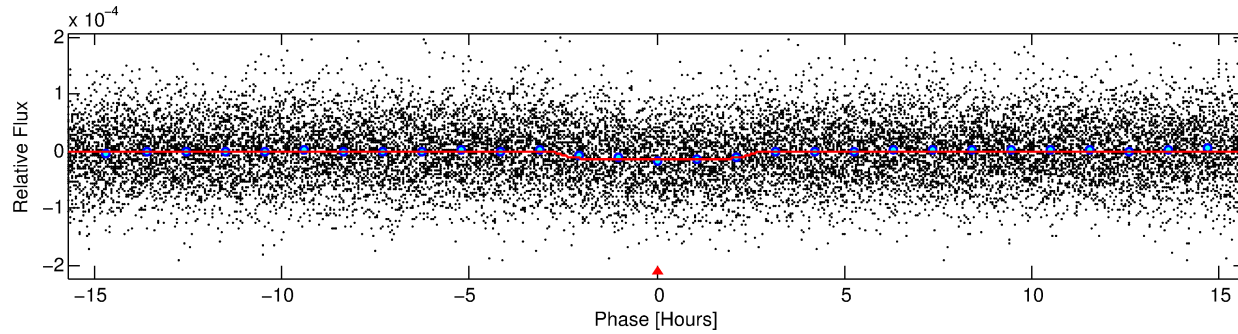
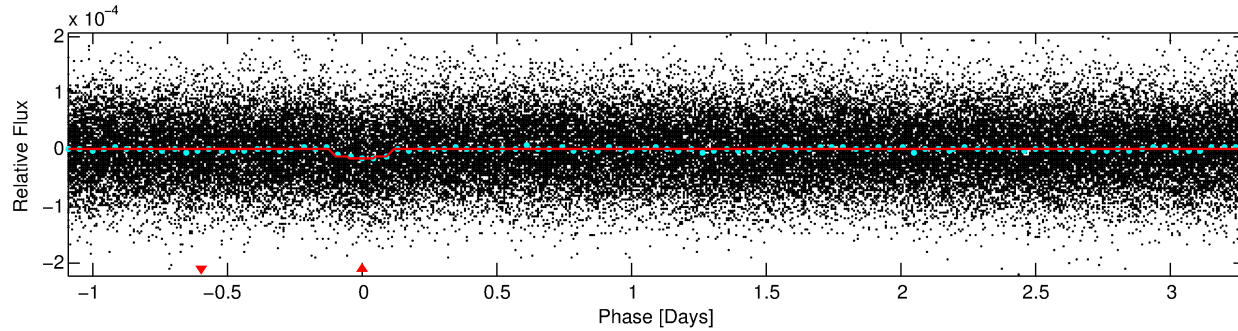
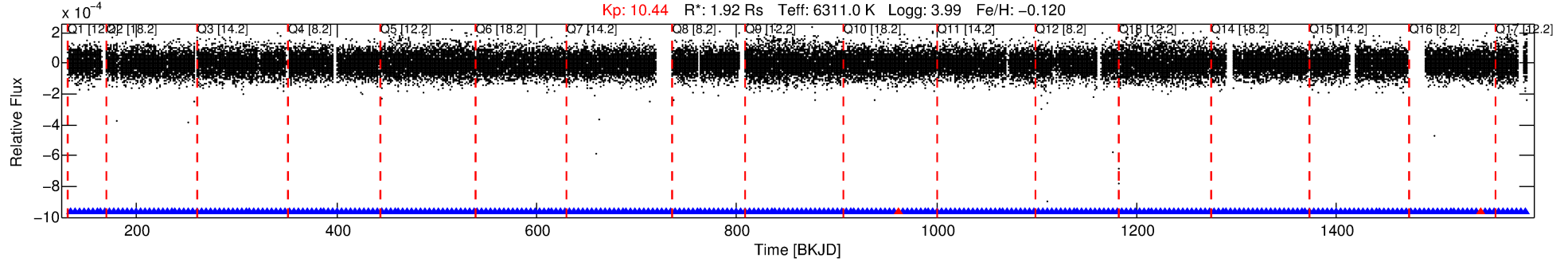
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009457728-01

No Significant Match Found

DV One-Page Summary

KIC: 9457728 Candidate: 1 of 1 Period: 4.380 d
KOI: K04637.01 Corr: 0.972



DV Fit Results:

Period = 4.37991 [0.00004] d
Epoch = 133.9889 [0.0055] BKJD
 R_p/R^* = 0.0041 [0.0009]
 a/R^* = 2.96 [3.10]
 b = 0.90 [0.24]
 S_{eff} = 1582.10 [112.58]
 T_{eq} = 1608 [29] K
 R_p = 0.85 [0.19] R_e
 a = 0.0575 [0.0027] AU
 A_g = 10.66 [6.00] [1.61 σ]
 T_{eff} = 4493 [632] K [4.56 σ]

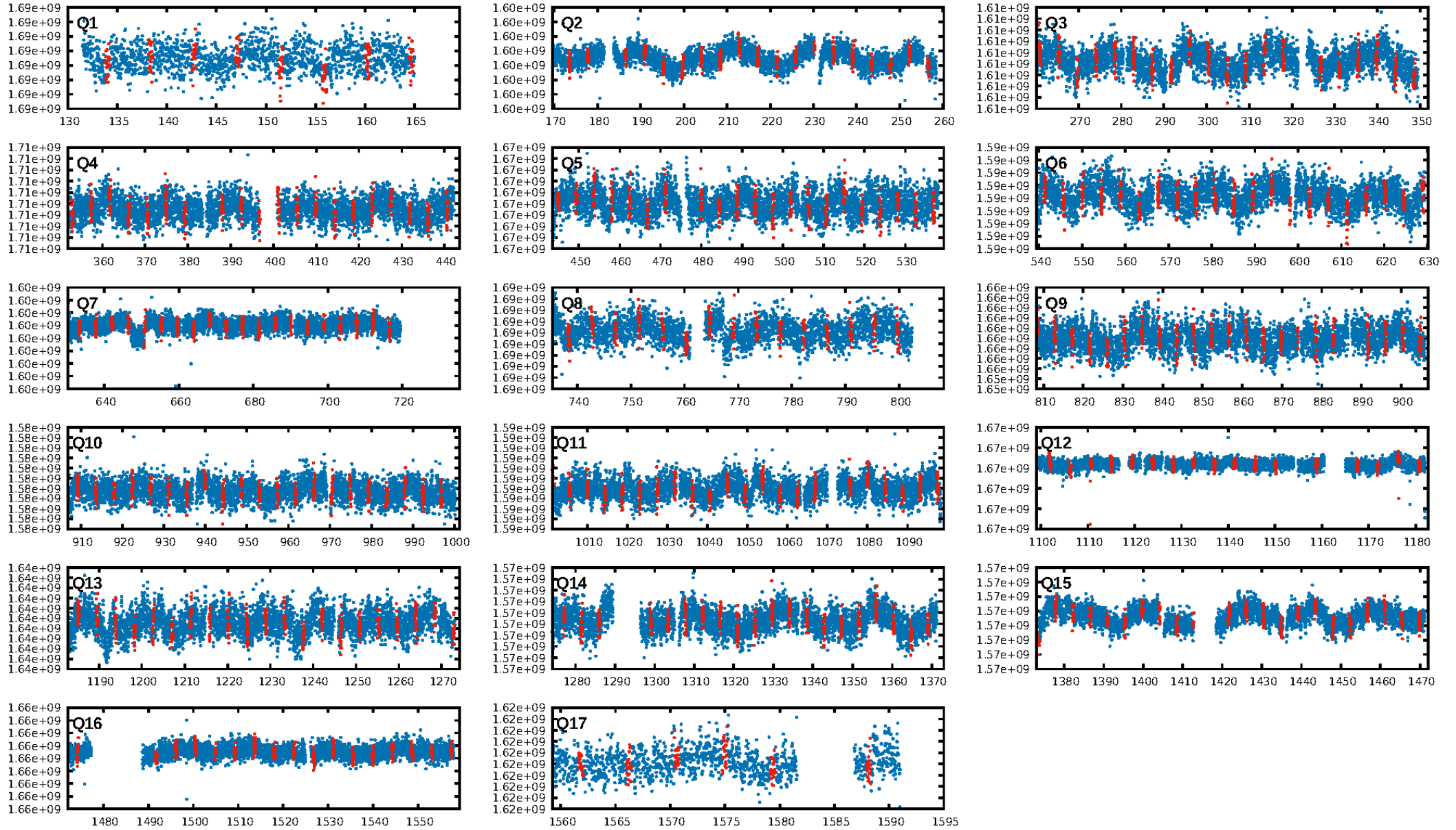
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.77e-18
RollingBand-fgt: 0.99 [294/296]
GhostDiagnostic-chr: -6.3
Centroid-sig: 59.8%
Centroid-so: 0.933 arcsec [1.12 σ]
OotOffset-rm: 0.773 arcsec [0.67 σ]
KicOffset-rm: 1.109 arcsec [0.89 σ]
OotOffset-st: 2/4/4/4 [14]
KicOffset-st: 2/4/4/4 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 1.00 [17/17]

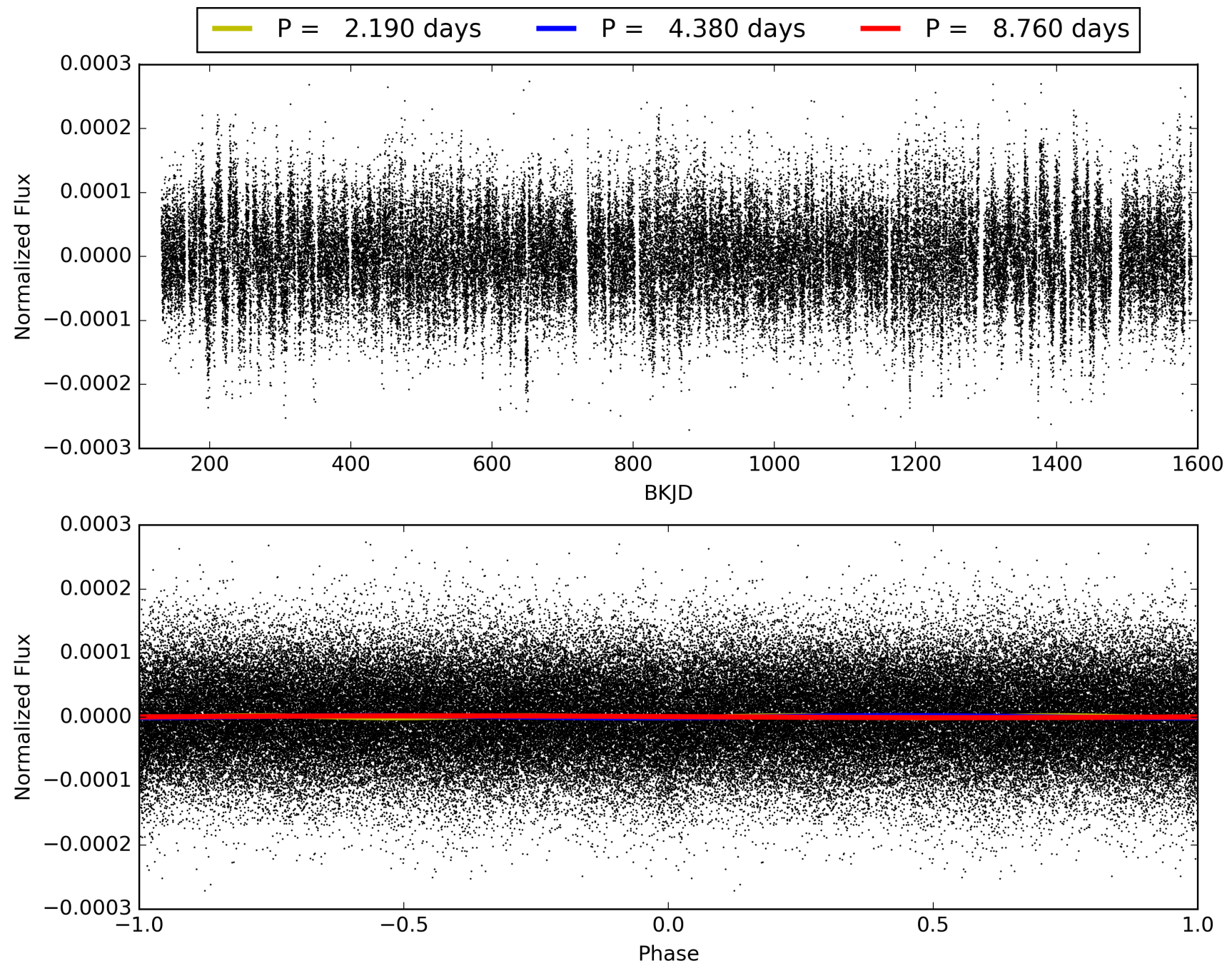
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:08:34 Z

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

TCE 009457728-01, PDC Light Curves

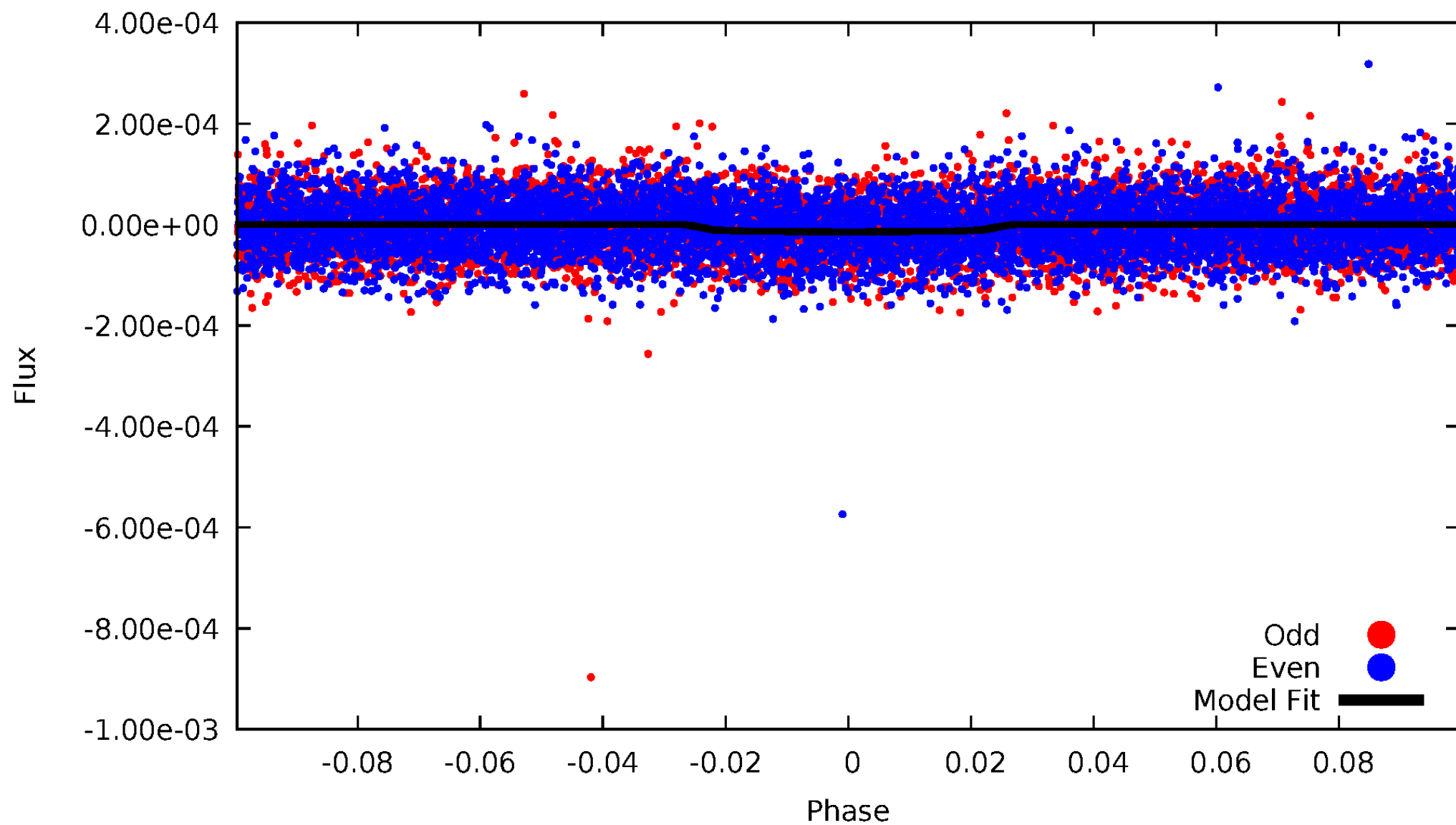


TCE 009457728-01



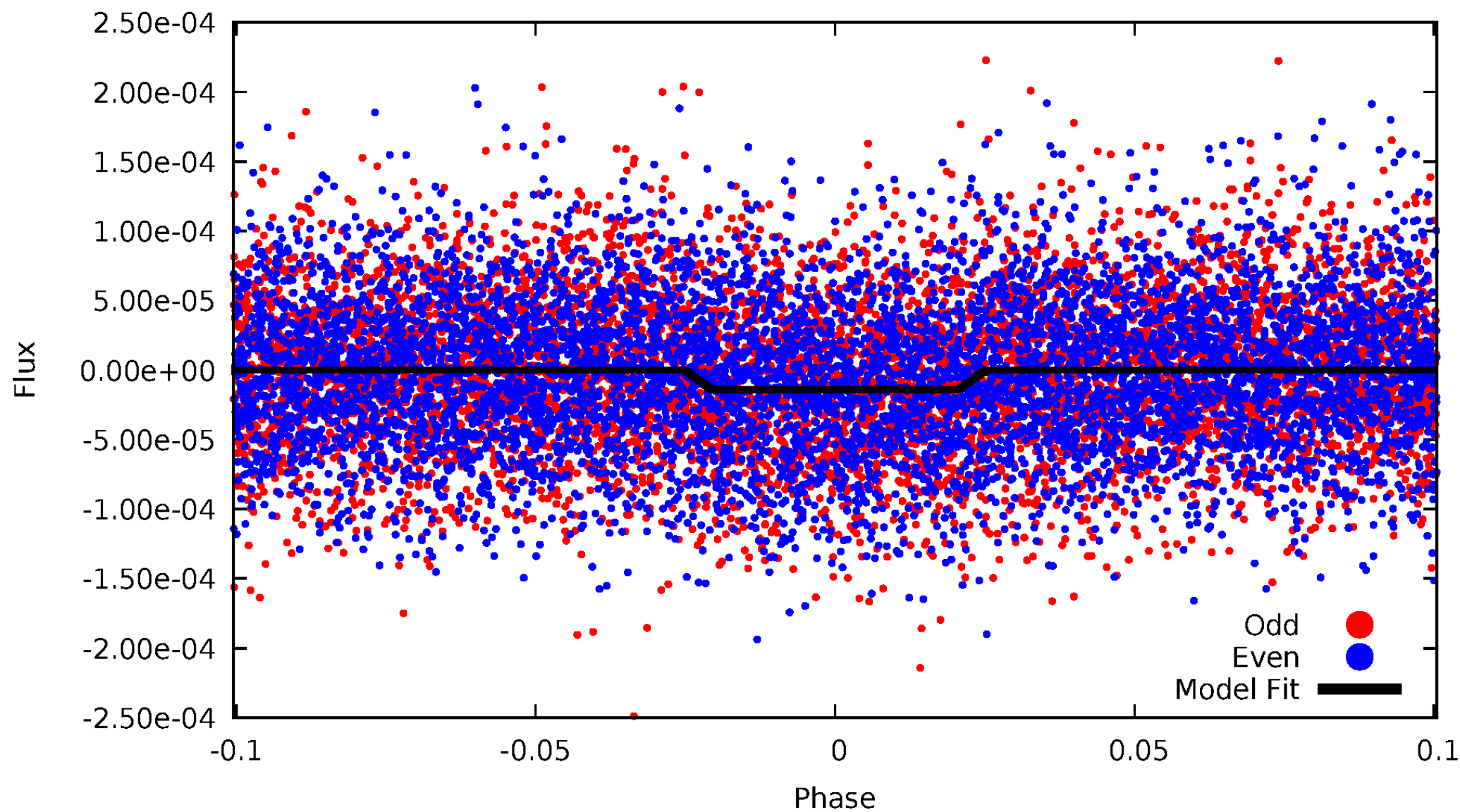
DV Odd/Even

TCE 009457728-01

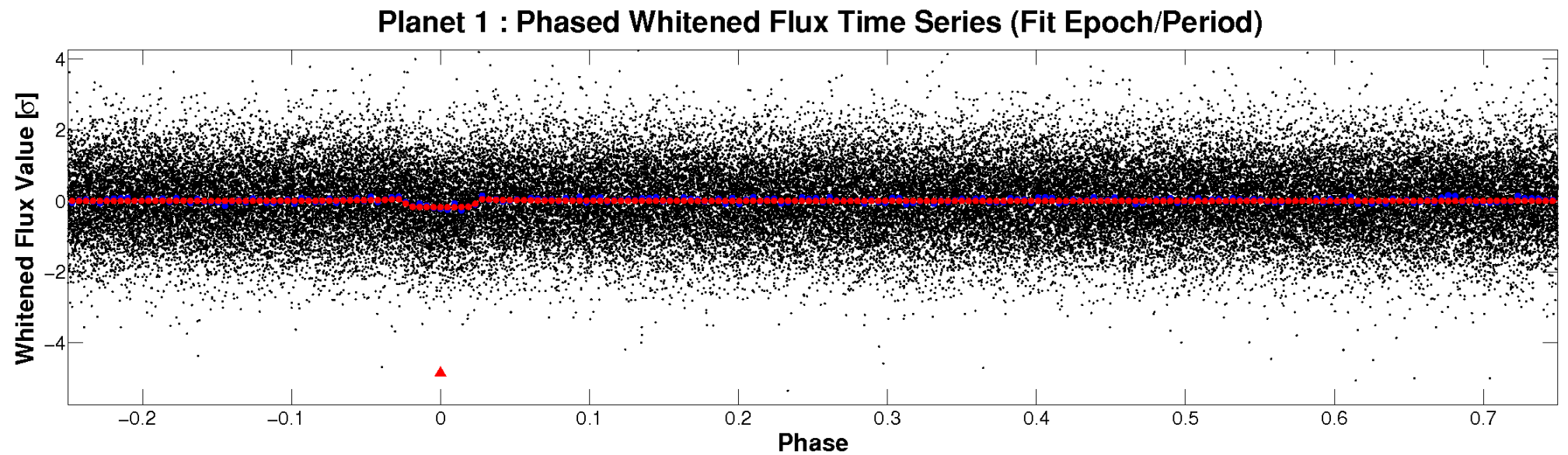
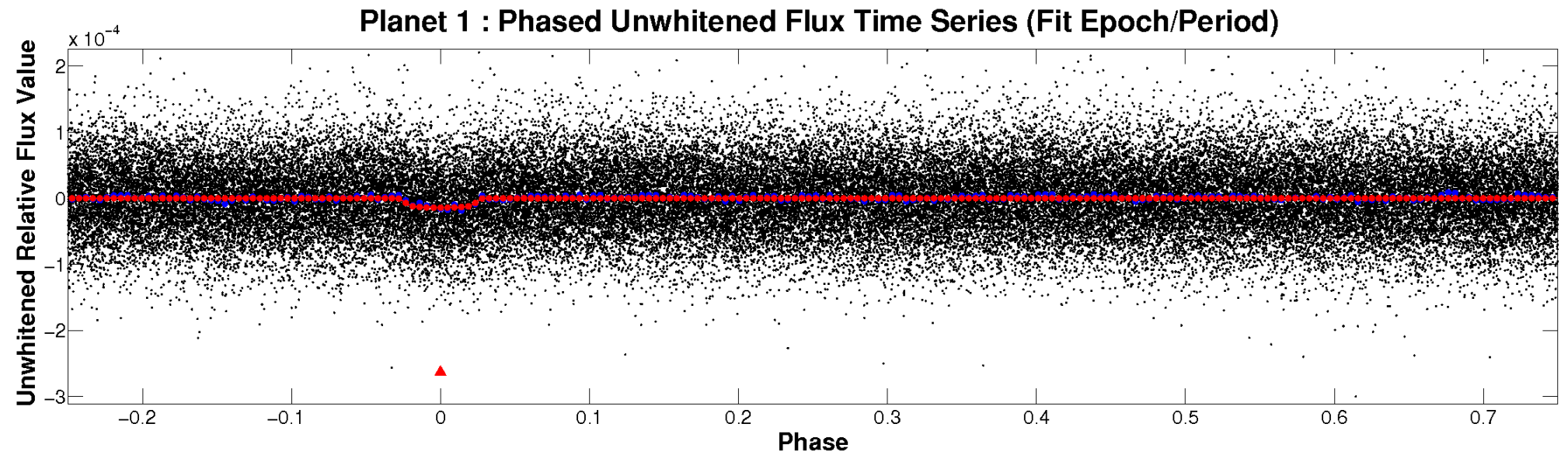


ALT Odd/Even

TCE 009457728-01

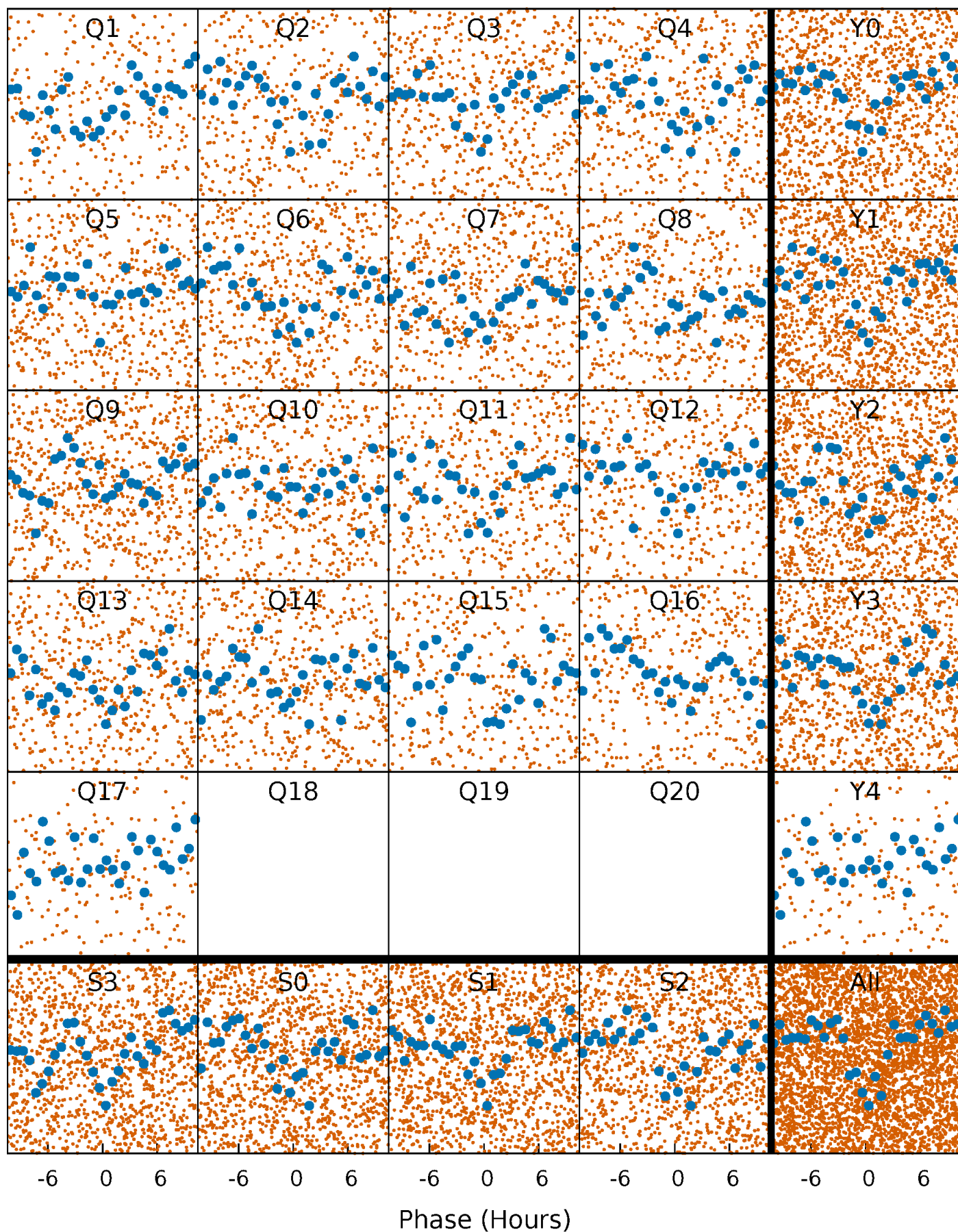


Non-Whitened Vs. Whitened Light Curve



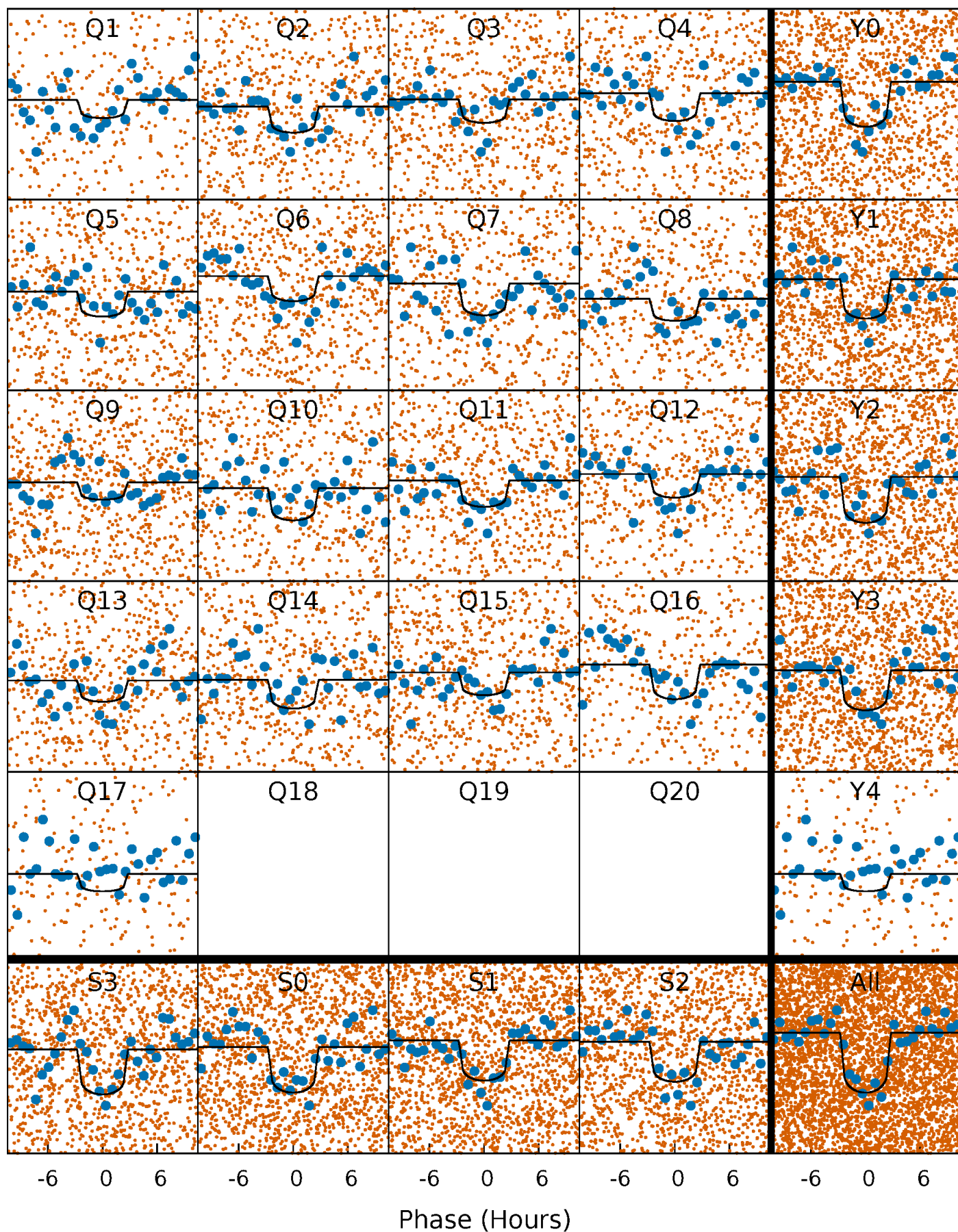
PDC Quarter-Phased Transit Curves

TCE 009457728-01 P= 4.379907 Days $T_0=133.988885$ (BKJD)



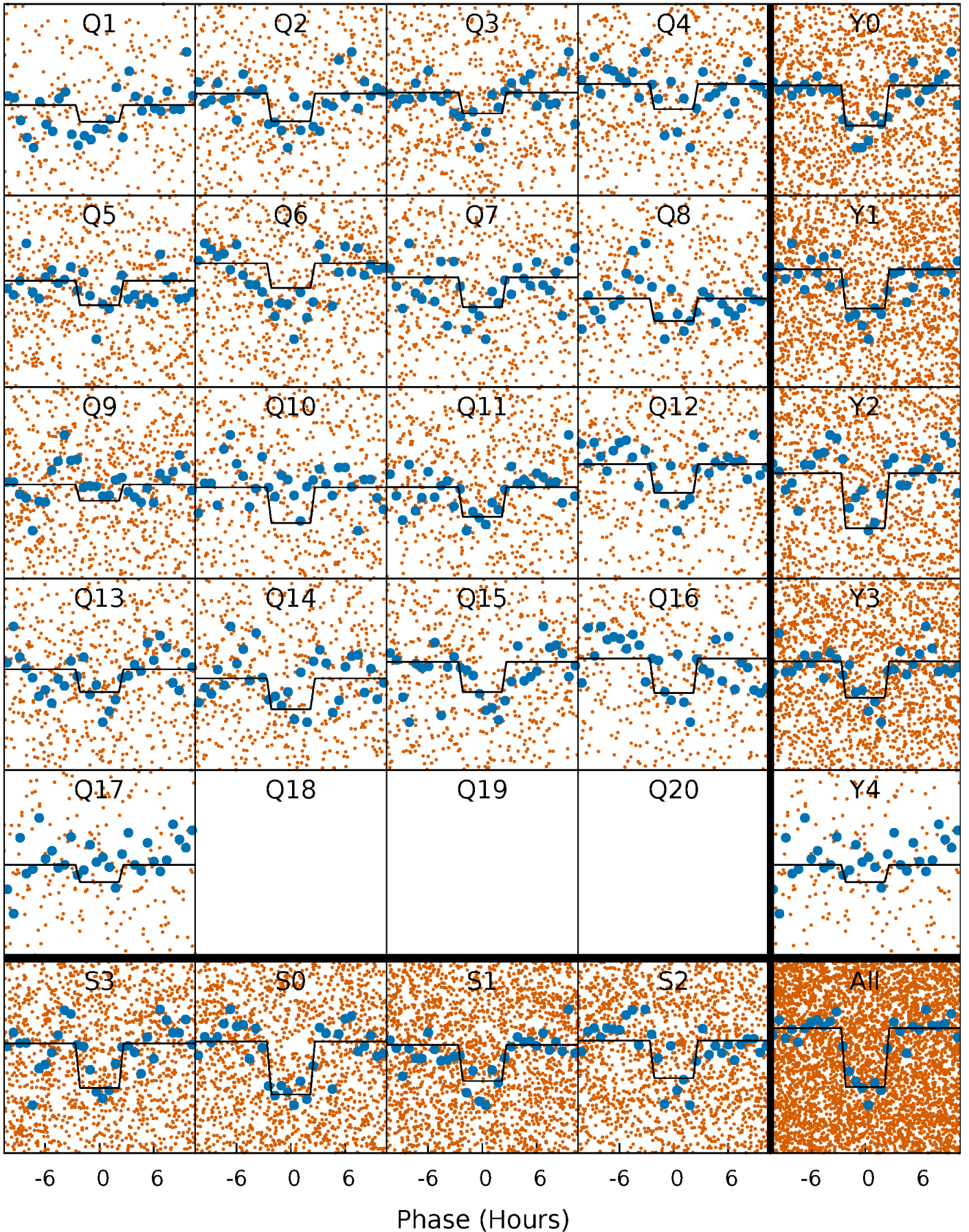
DV Quarter-Phased Transit Curves

TCE 009457728-01 P= 4.379907 Days $T_0=133.988885$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

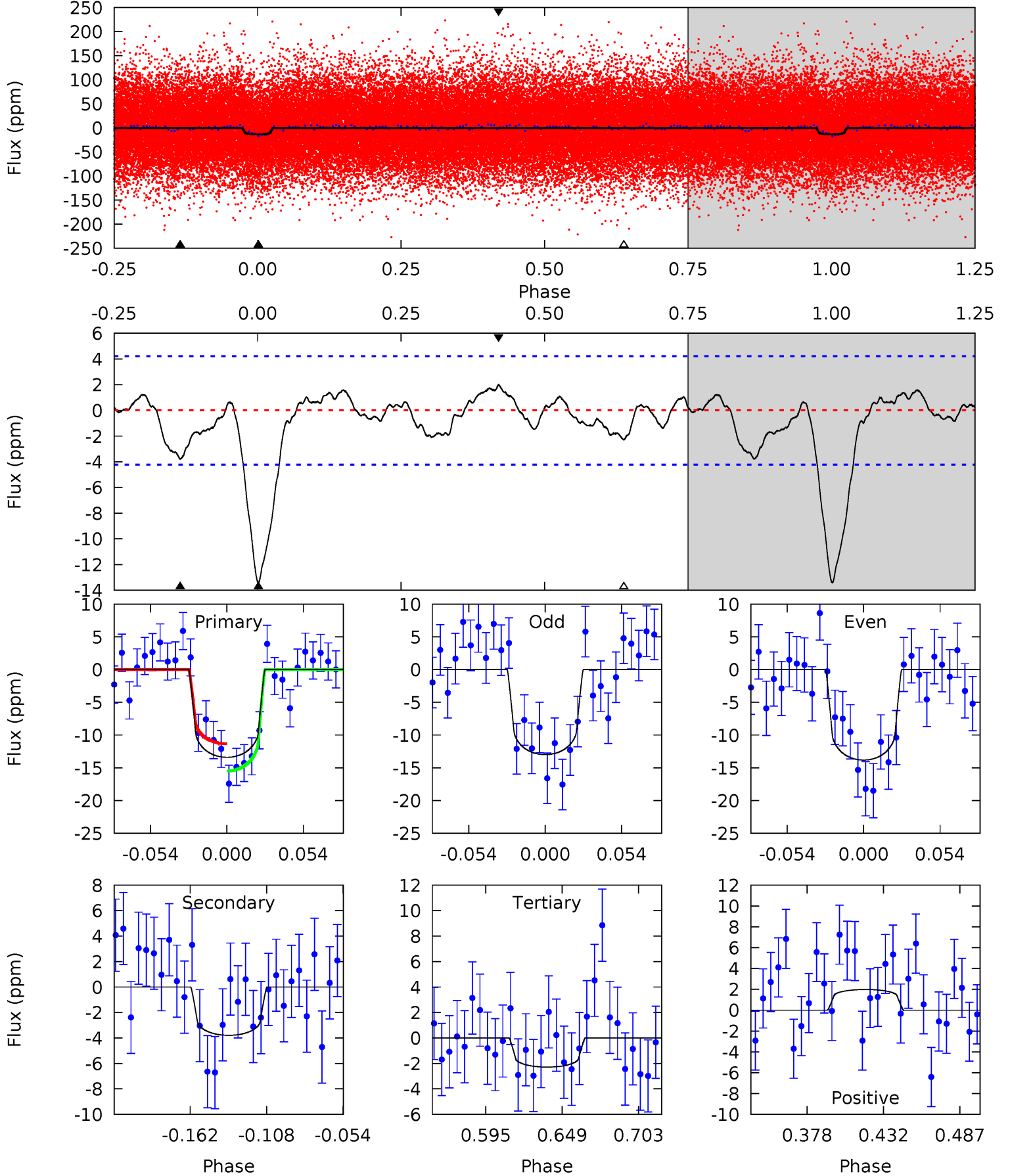
TCE 009457728-01 P= 4.379919 Days $T_0=133.990248$ (BKJD)



DV Model-Shift Uniqueness Test

009457728-01, P = 4.379907 Days, E = 129.608978 Days

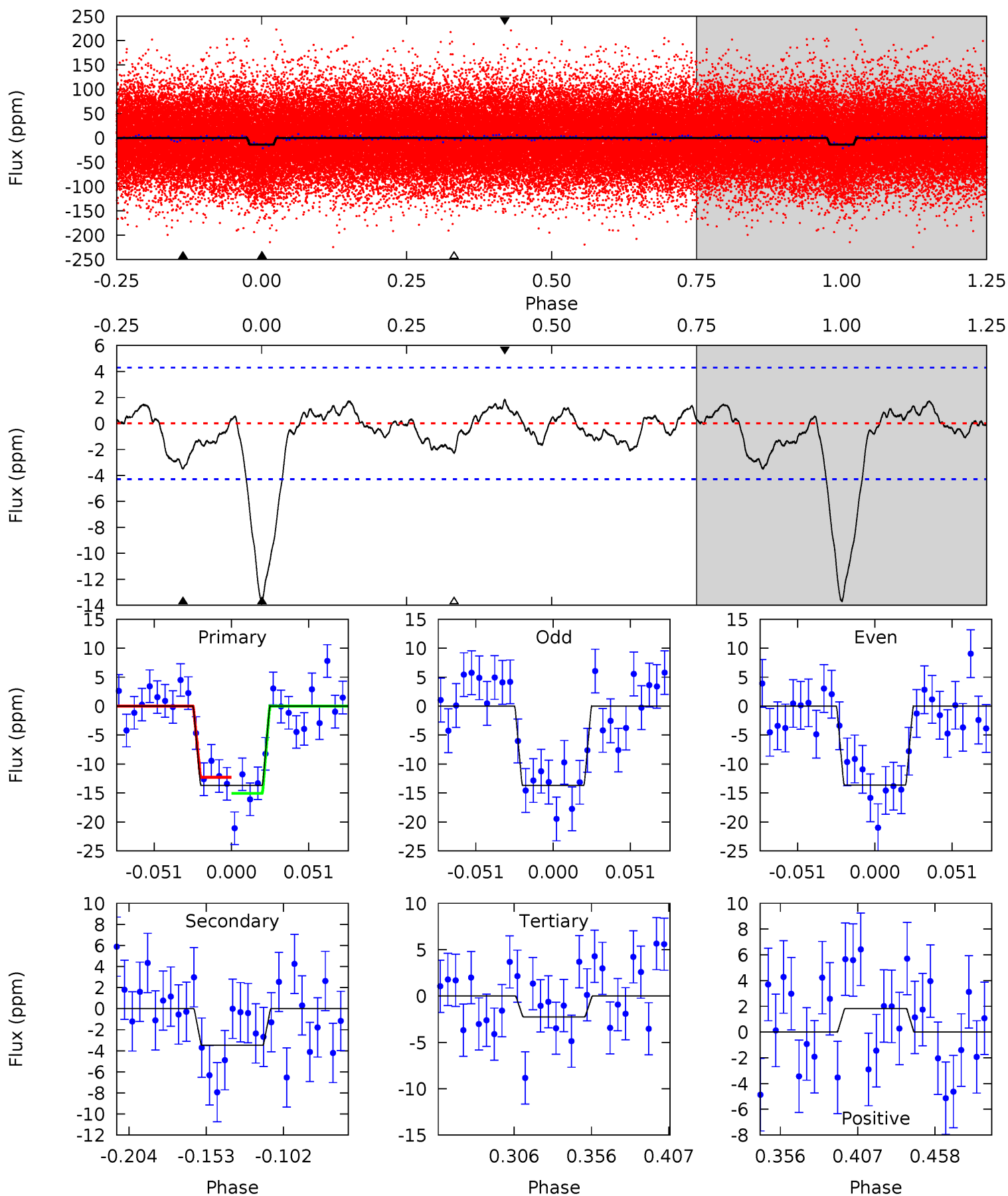
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.9	4.21	2.54	2.20	4.69	1.93	1.14	12.3	12.7	1.67	2.01	0.46	0.98	0.13	2.32



Alt Model-Shift Uniqueness Test

009457728-01, P = 4.379919 Days, E = 129.610329 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	3.82	2.48	2.00	4.70	1.95	1.07	12.5	13.0	1.34	1.82	0.03	0.98	0.12	1.52



Stellar Parameters For KIC 009457728

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6311^{+76}_{-76}	$3.993^{+0.016}_{-0.018}$	$-0.120^{+0.150}_{-0.100}$	$1.918^{+0.069}_{-0.128}$	$1.324^{+0.067}_{-0.155}$	$0.264^{+0.025}_{-0.019}$
	+1%/-1%	+0%/-0%	+125%/-83%	+4%/-7%	+5%/-12%	+9%/-7%
Source	SPE72	AST10	SPE72	DSEP		

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

Secondary Eclipse Parameters for KIC 009457728-01 / KOI 4637.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-4 ± 1	$0.85^{+0.20}_{-0.20}$	2250^{+33}_{-33}	4543^{+566}_{-415}	$9.845^{+6.875}_{-4.002}$
Alt.	-3 ± 1	$0.79^{+0.17}_{-0.19}$	2248^{+33}_{-35}	4574^{+625}_{-424}	10^{+8}_{-4}

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 $A_{obs} \gg 1.0$

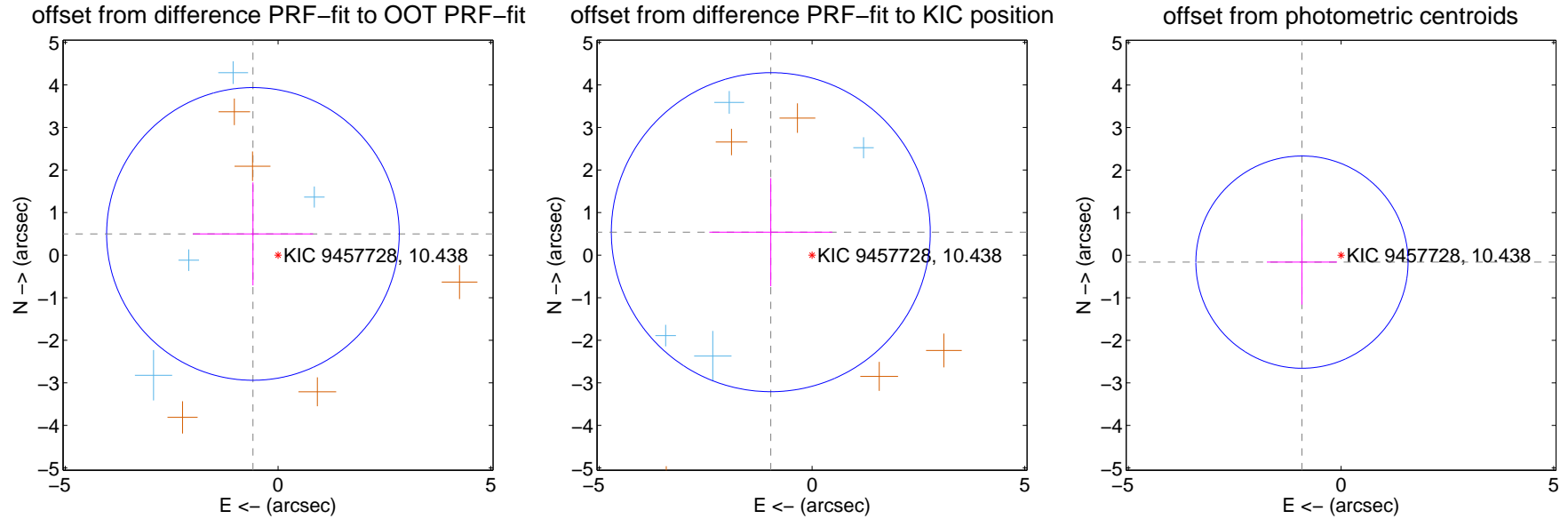
DV Centroid Data

Supplemental centroid analysis for 009457728-01. **Kepler magnitude: 10.44.** Transit SNR 9.35

There are 6 quarters with good PRF difference image offsets

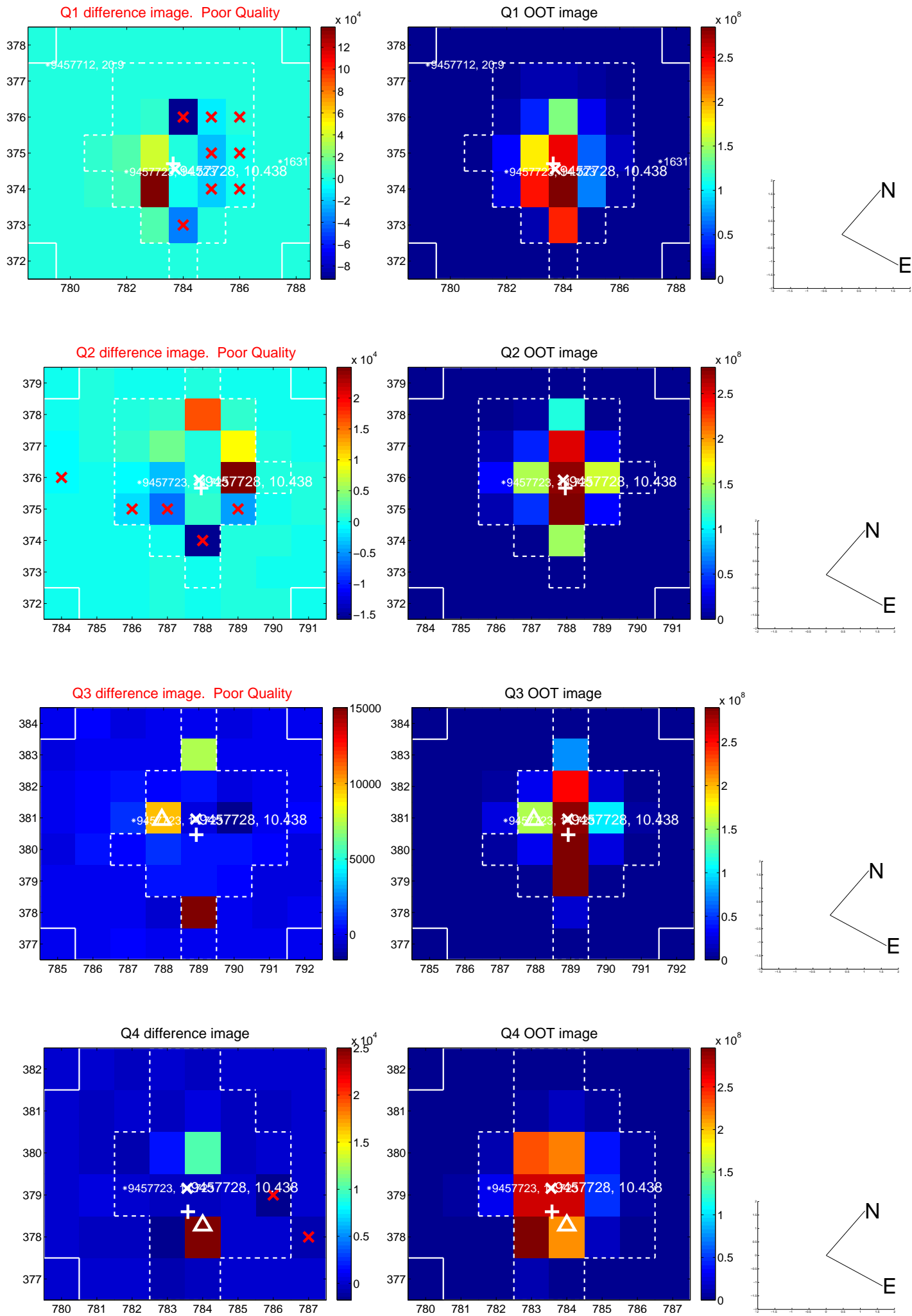
The direct PRF centroid is offset from the target star catalog position by about 0.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.773 ± 1.146	0.67	0.590 ± 1.414	0.499 ± 1.211
PRF-fit source offset from KIC position	1.109 ± 1.249	0.89	0.969 ± 1.446	0.540 ± 1.270
photometric centroid source offset	0.93 ± 0.83	1.12	0.92 ± 0.83	-0.16 ± 1.00

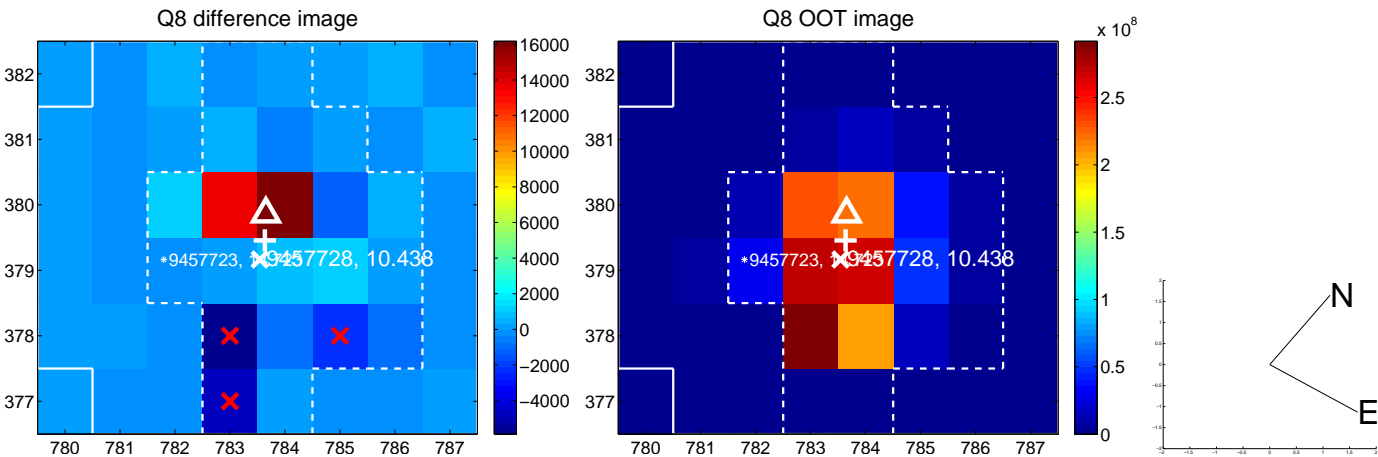
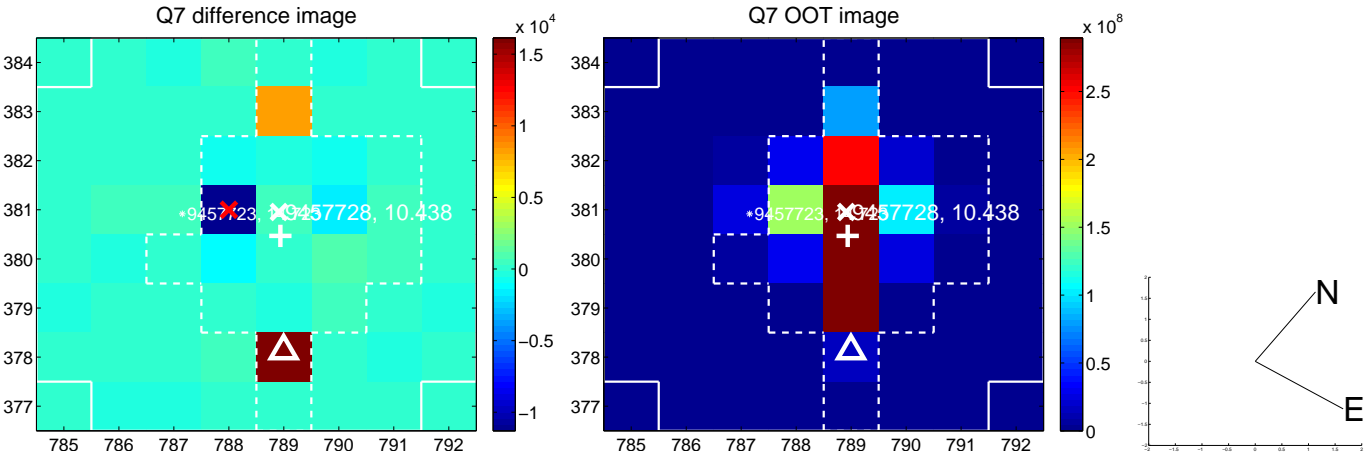
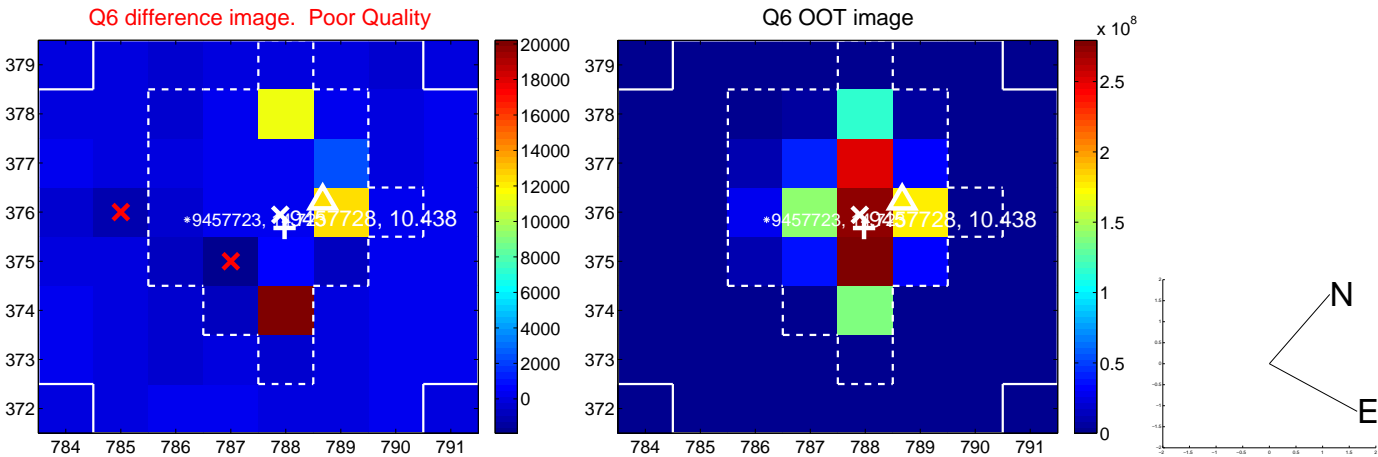
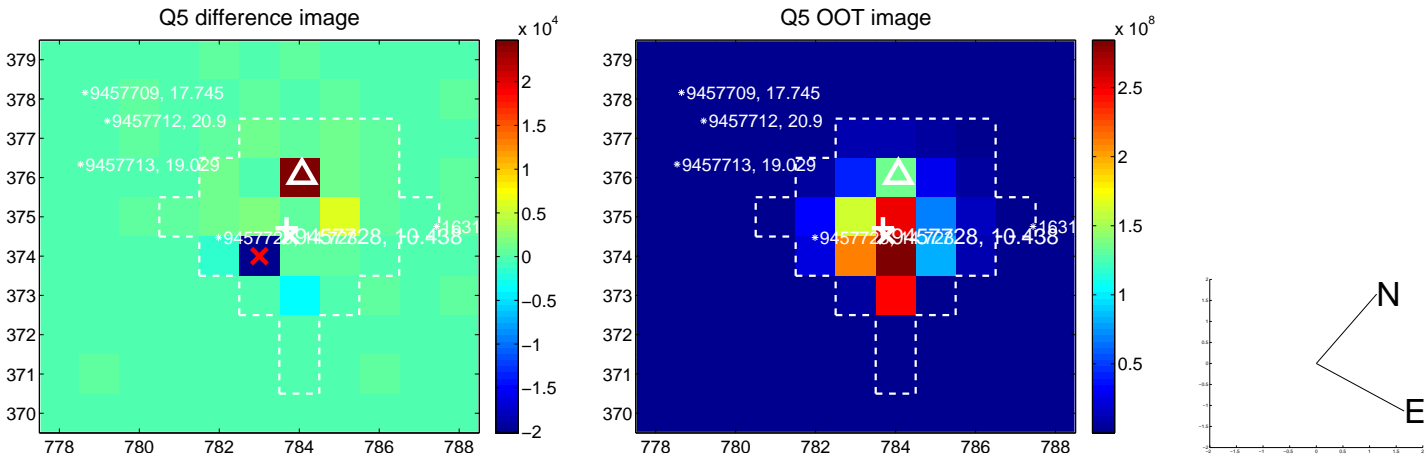


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

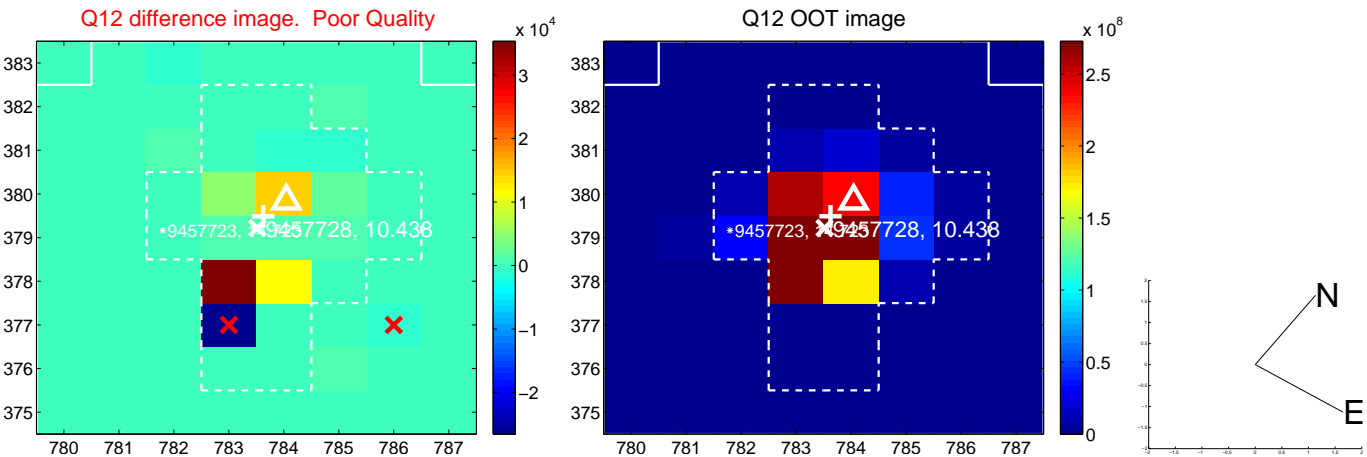
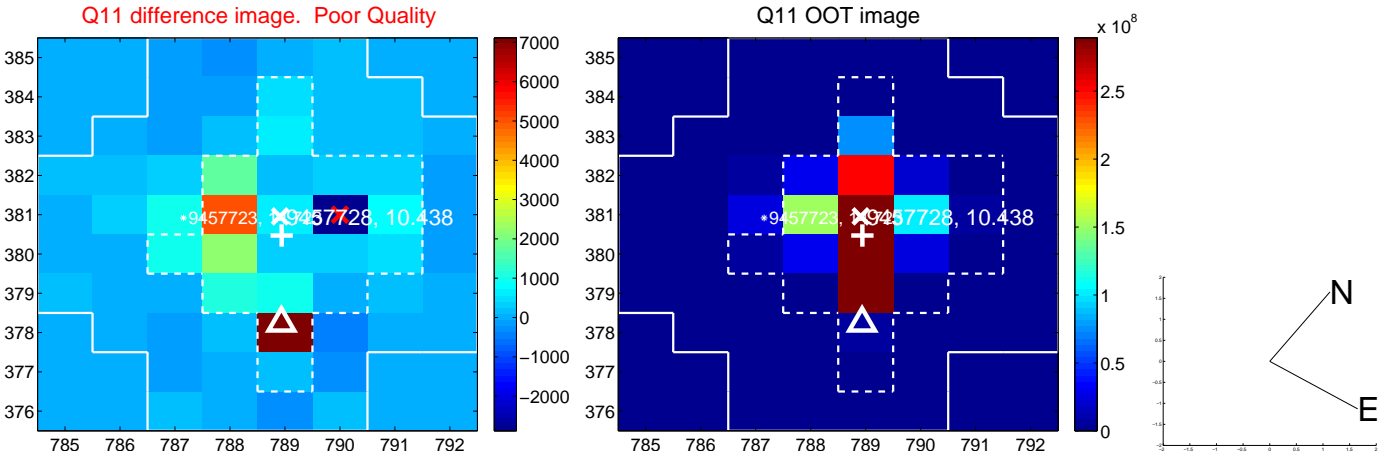
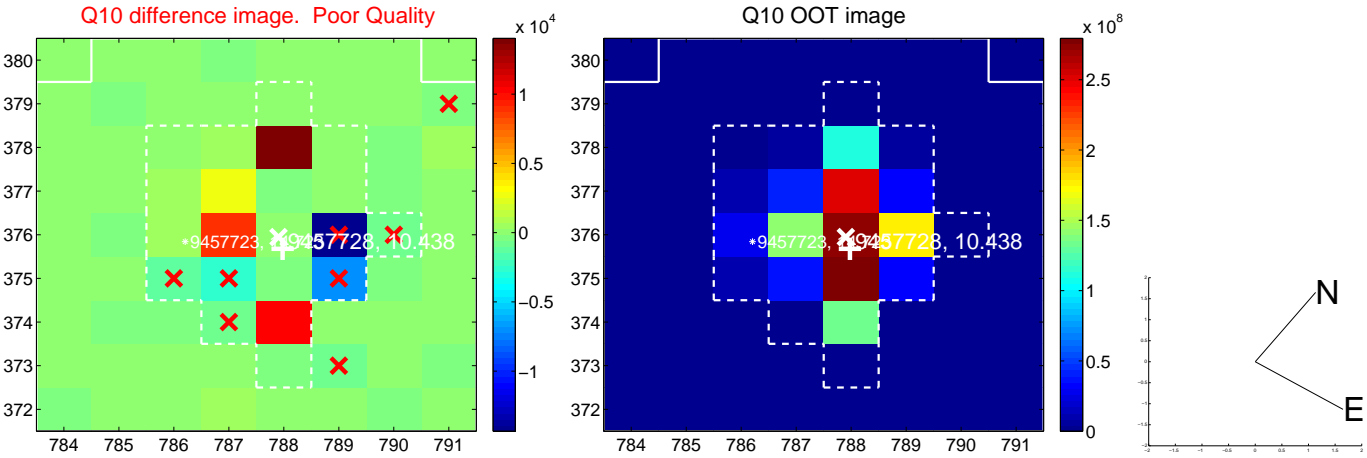
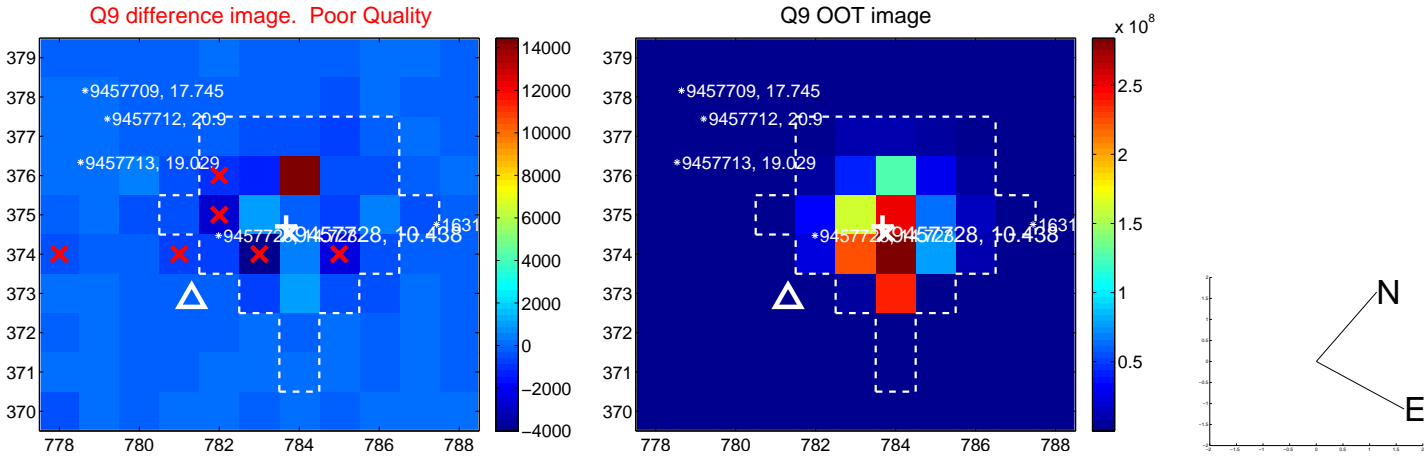
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



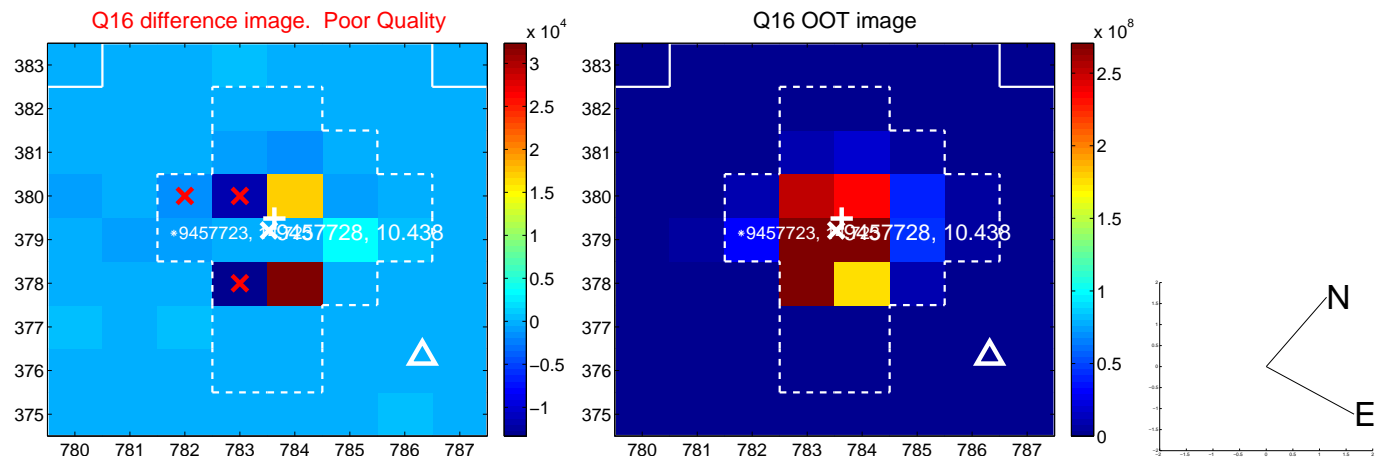
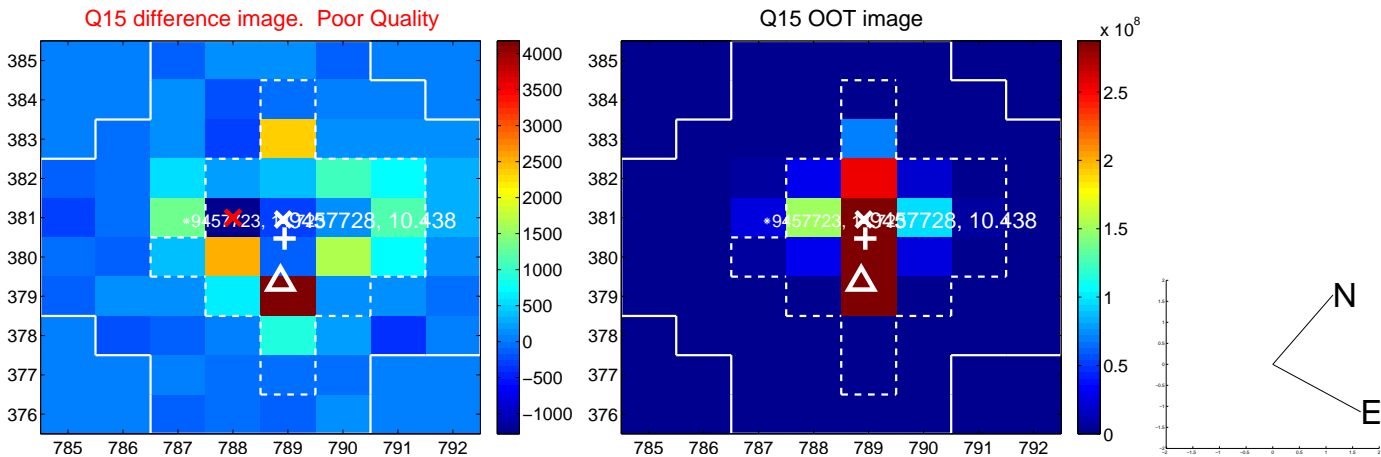
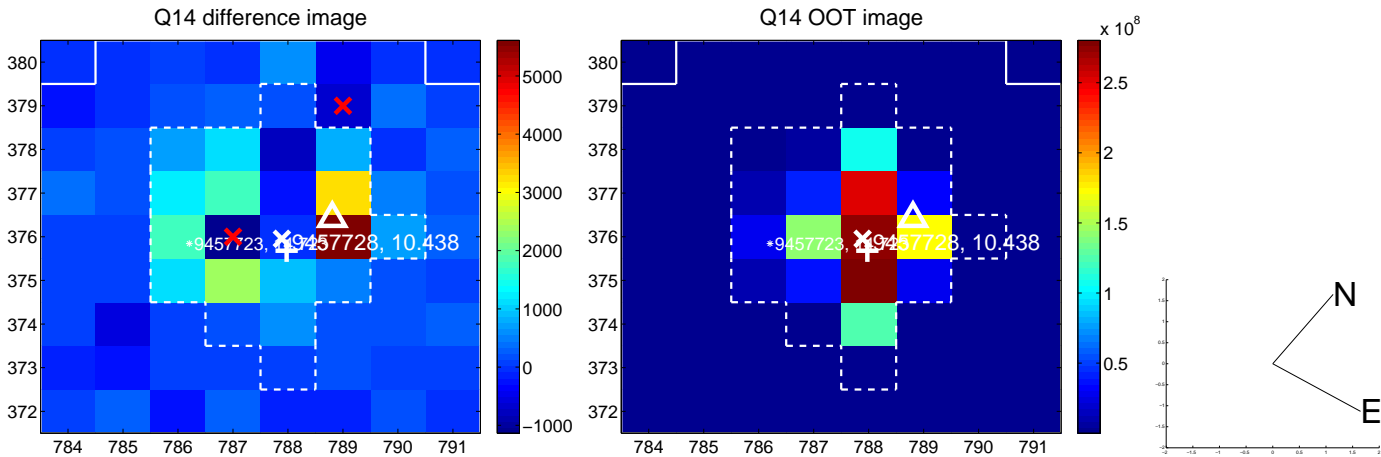
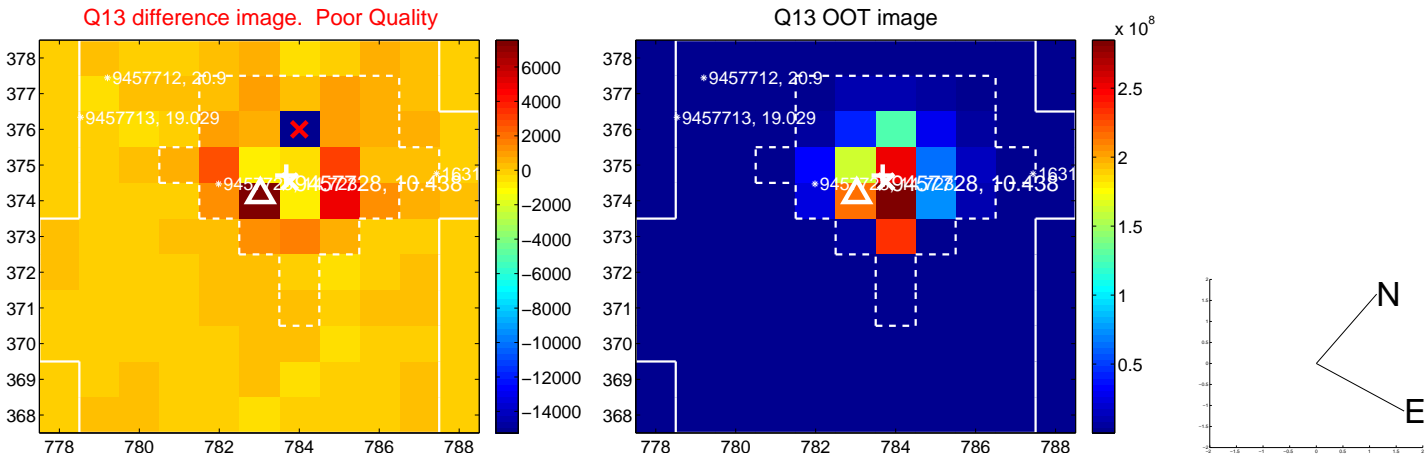
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

