

KIC 009513921

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})
009513921-01	OBS	No	6.453998	135.403856	24.3	24.883	7.7	6.3	1.37	6476	0.79	560.51

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009513921-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED

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

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

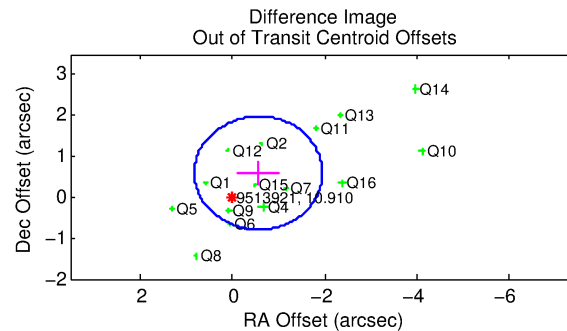
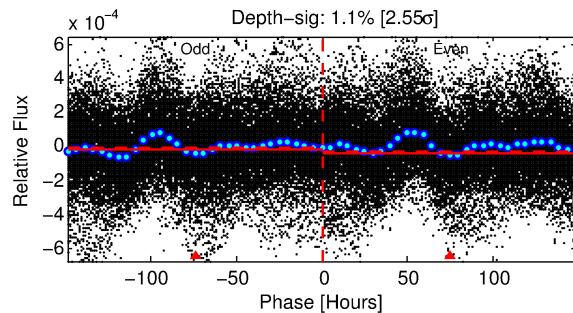
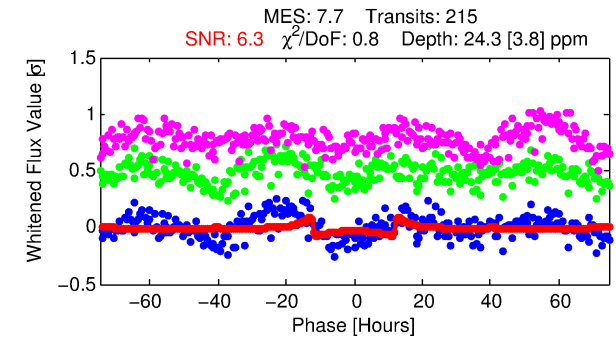
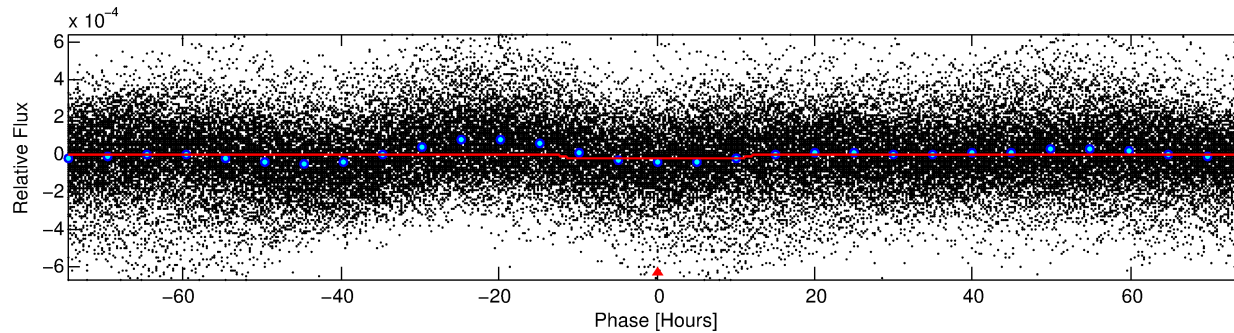
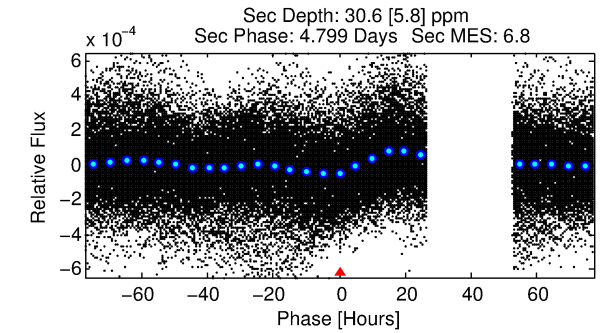
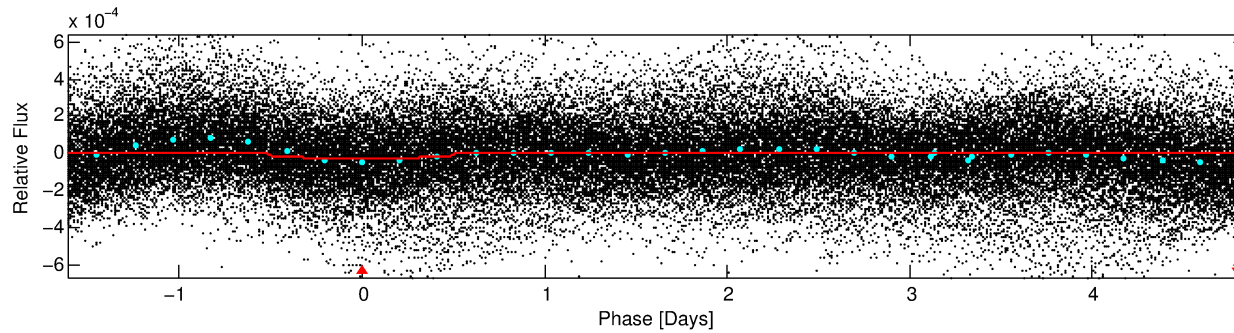
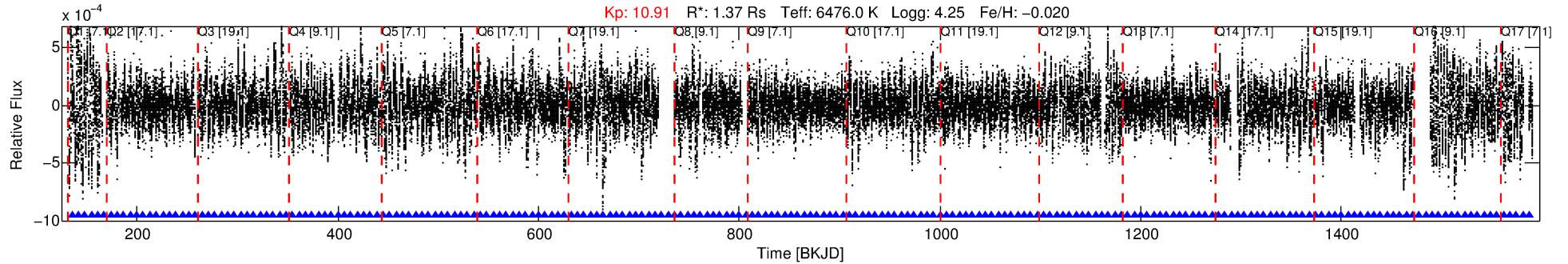
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009513921-01

No Significant Match Found

DV One-Page Summary

KIC: 9513921 Candidate: 1 of 1 Period: 6.454 d



DV Fit Results:

Period = 6.45400 [0.00011] d
Epoch = 135.4039 [0.0129] BKJD
Rp/R* = 0.0053 [0.0005]
a/R* = 1.29 [0.17]
b = 0.90 [0.07]
Seff = 560.51 [223.67]
Teq = 1241 [124] K
Rp = 0.79 [0.28] Re
a = 0.0727 [0.0194] AU
Ag = 142.54 [66.00] [2.14σ]
Teffp = 6628 [528] K [9.93σ]

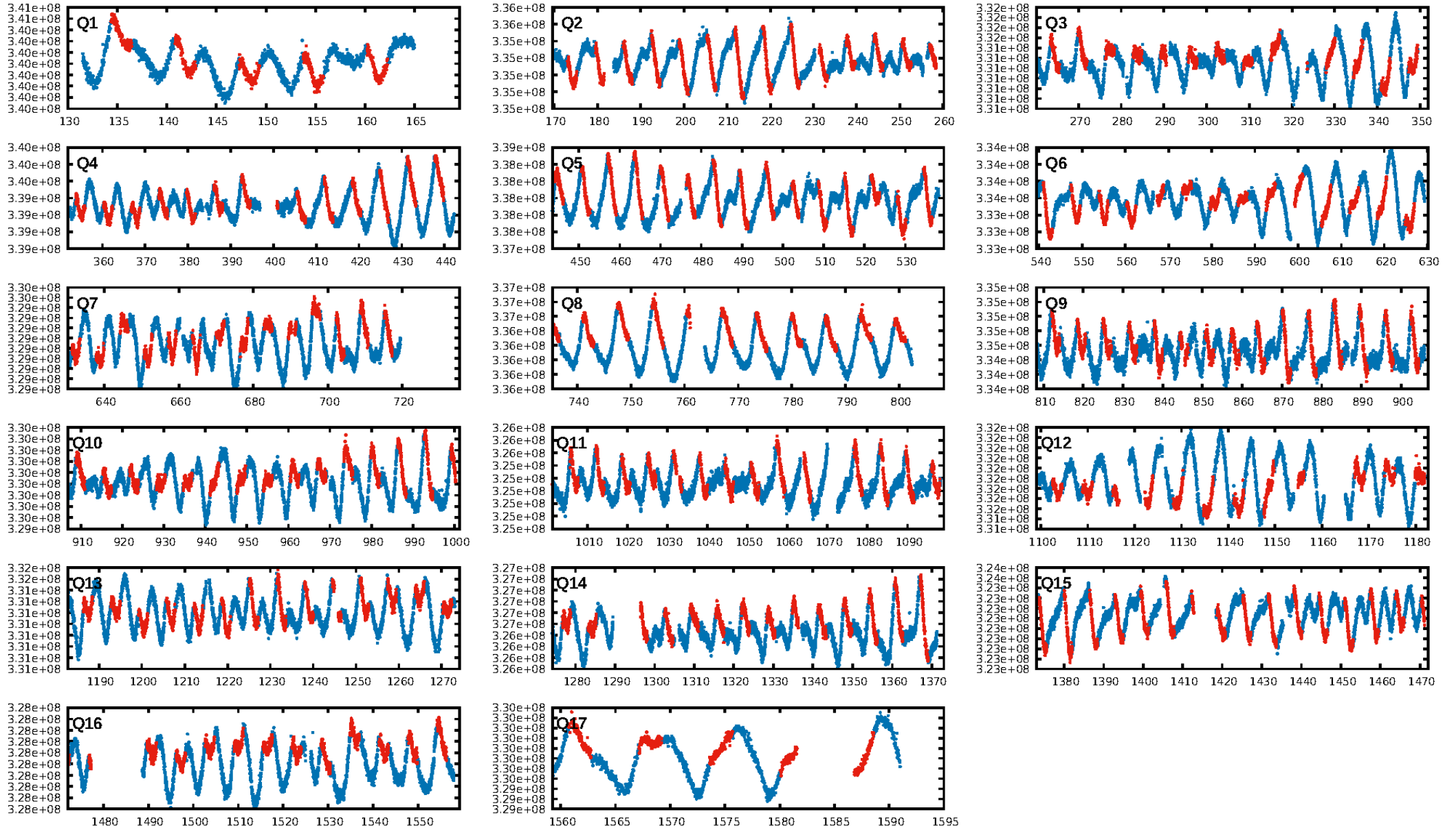
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.39e-16
RollingBand-fgt: 1.00 [205/205]
GhostDiagnostic-chr: 1.554
Centroid-sig: 3.0%
Centroid-so: 0.840 arcsec [1.44σ]
OotOffset-rm: 0.822 arcsec [1.78σ]
KicOffset-rm: 0.795 arcsec [1.80σ]
OotOffset-st: 4/3/4/4 [15]
KicOffset-st: 4/3/4/4 [15]
DiffImageQuality-fgm: 0.73 [11/15]
DiffImageOverlap-fno: 1.00 [17/17]

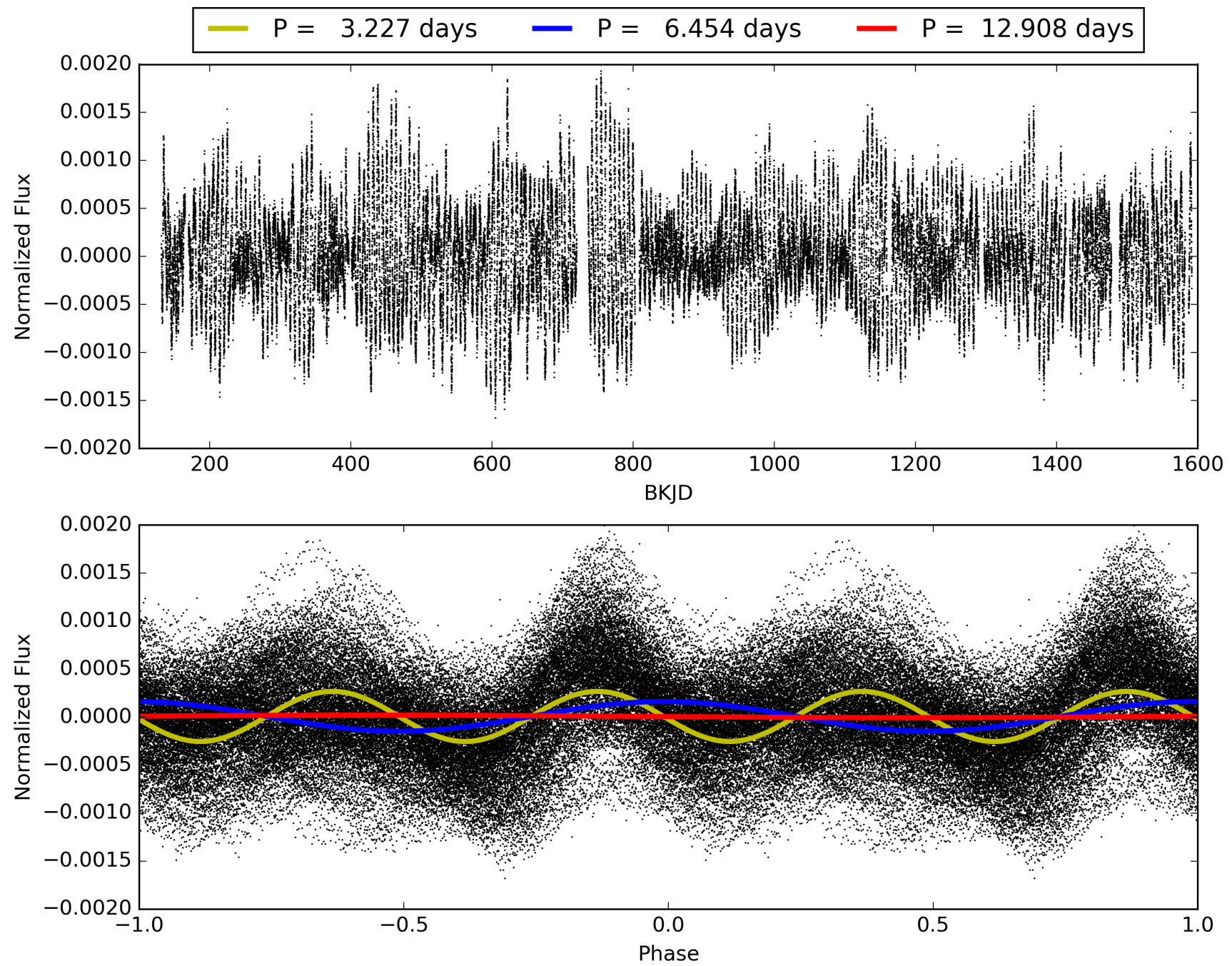
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:32:20 Z

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

TCE 009513921-01, PDC Light Curves

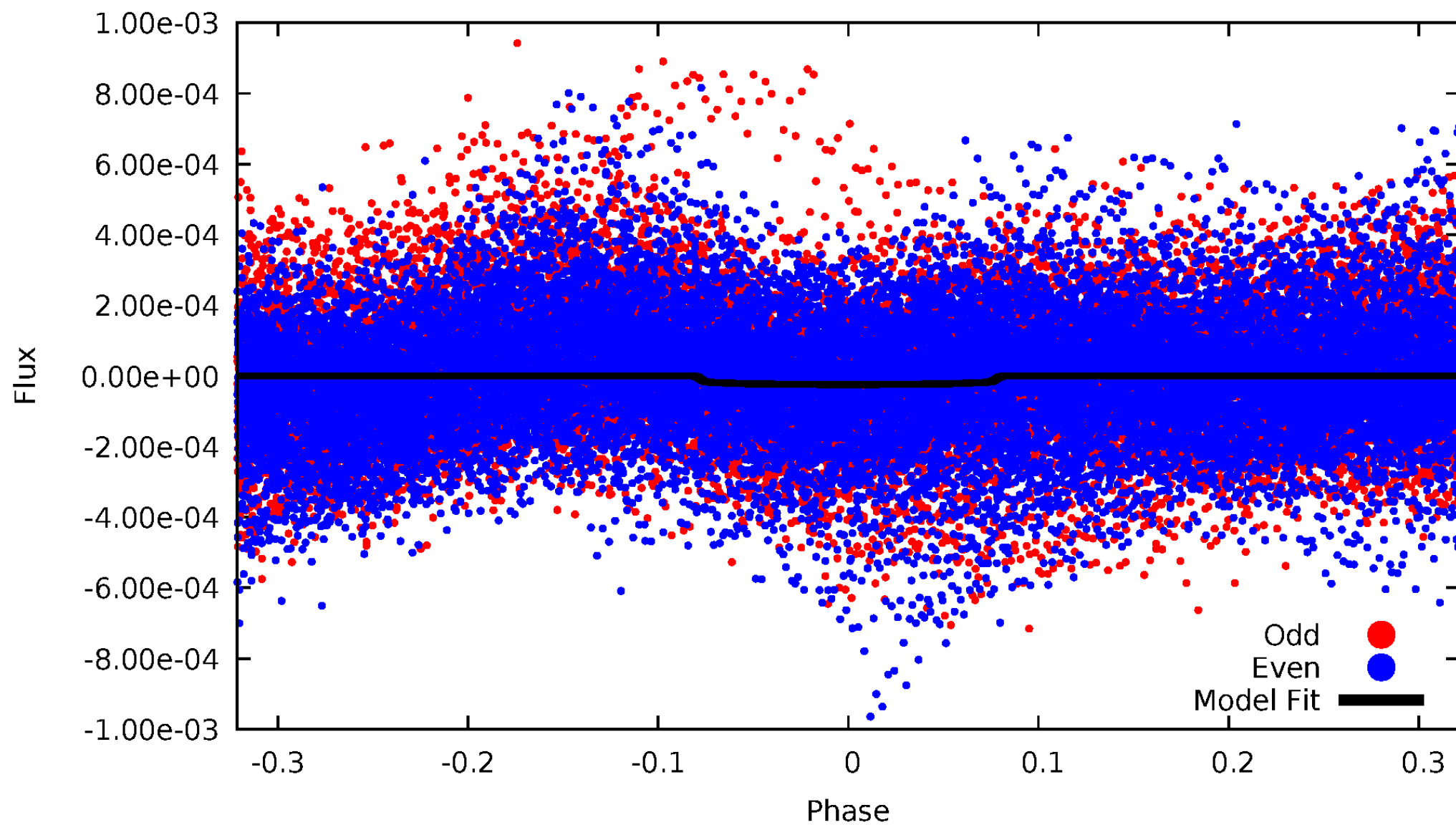


TCE 009513921-01



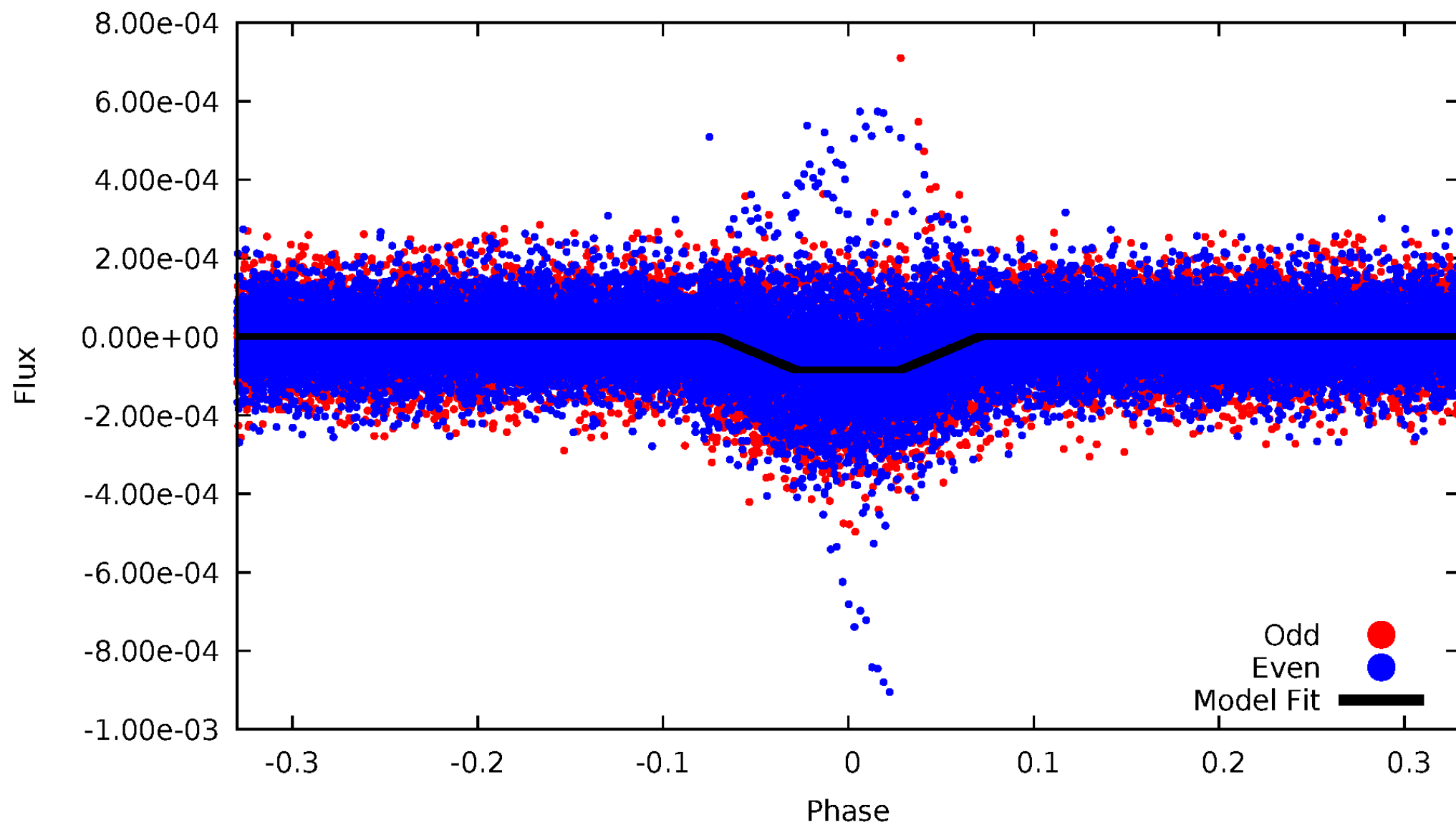
DV Odd/Even

TCE 009513921-01

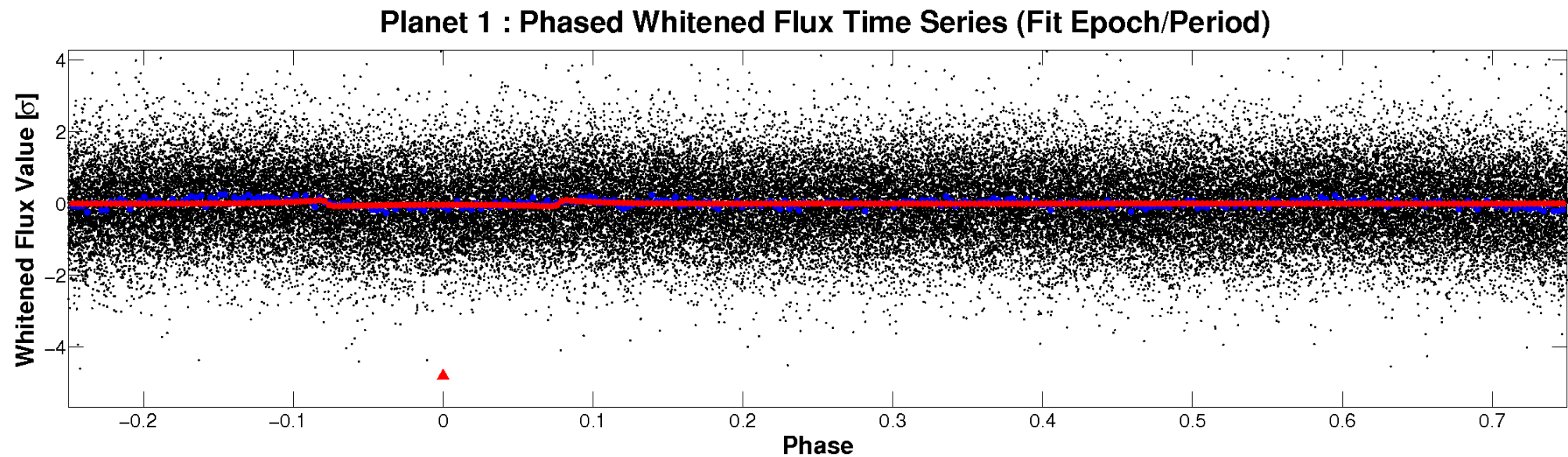
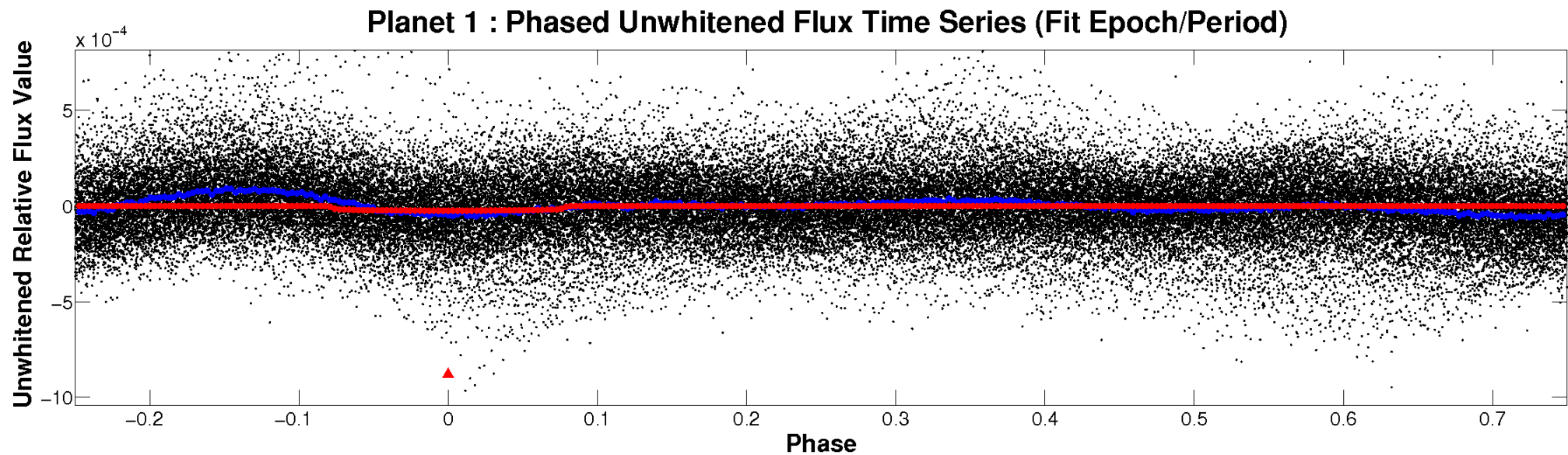


ALT Odd/Even

TCE 009513921-01

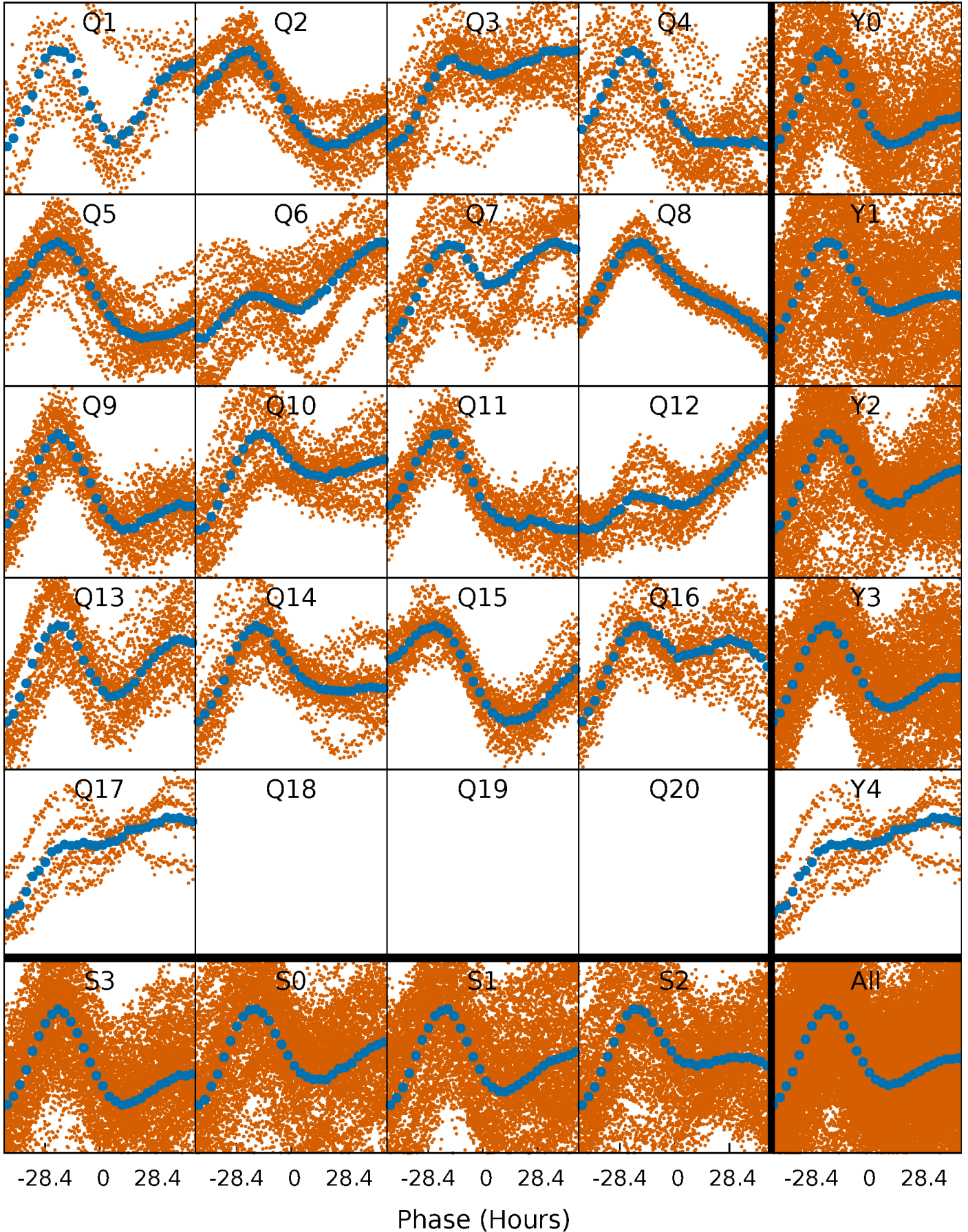


Non-Whitened Vs. Whitened Light Curve



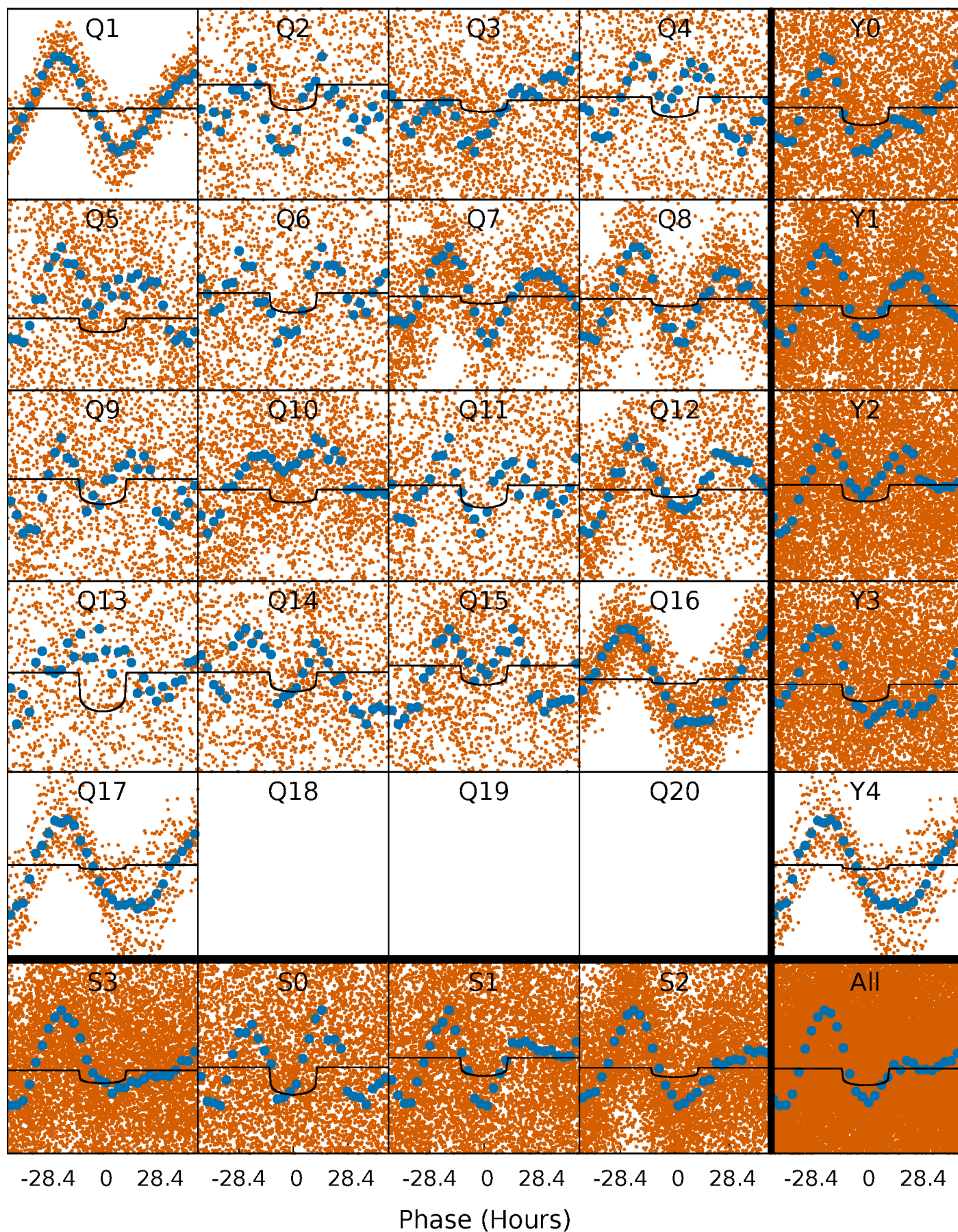
PDC Quarter-Phased Transit Curves

TCE 009513921-01 P= 6.453998 Days $T_0=135.403856$ (BKJD)



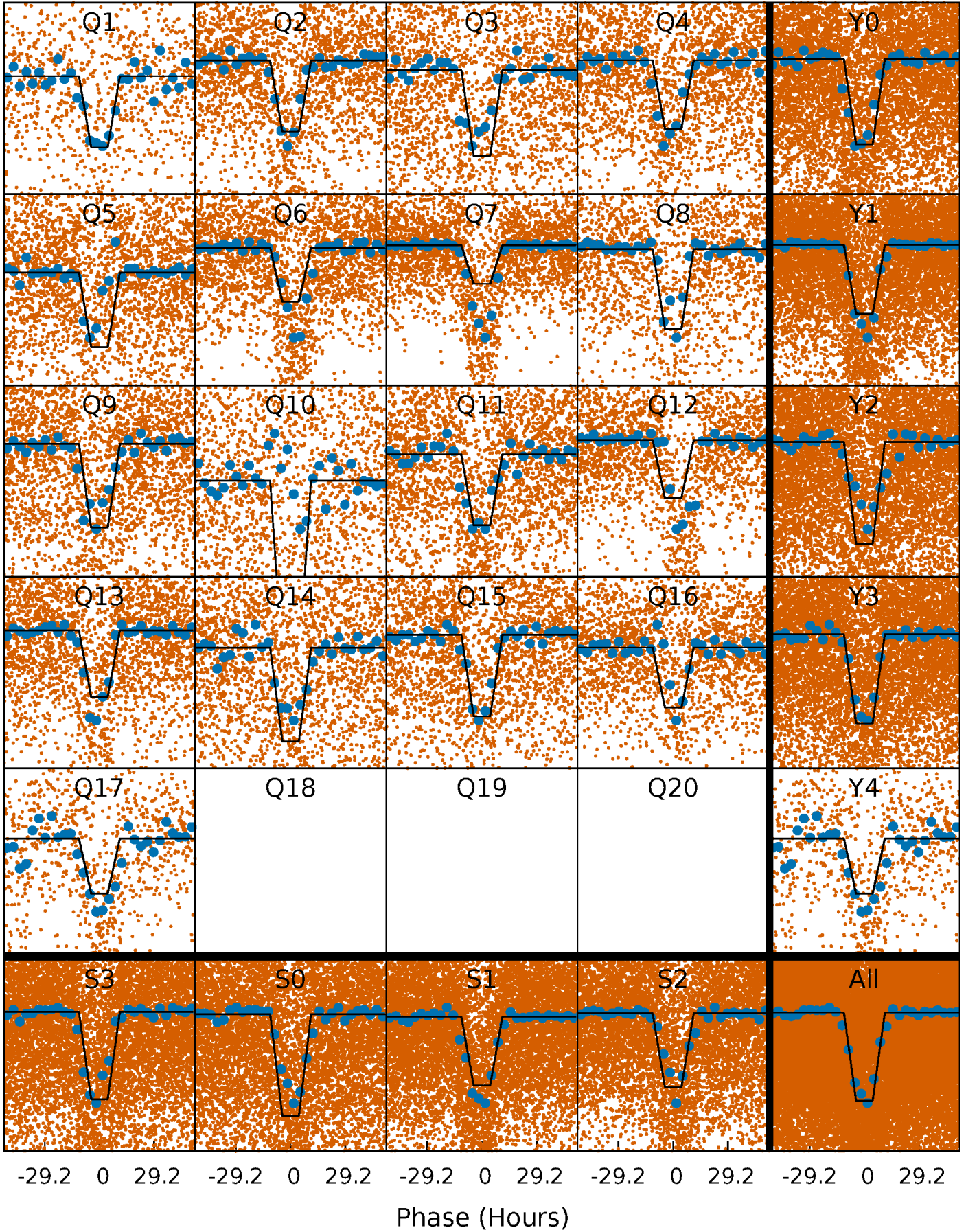
DV Quarter-Phased Transit Curves

TCE 009513921-01 P= 6.453998 Days $T_0=135.403856$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

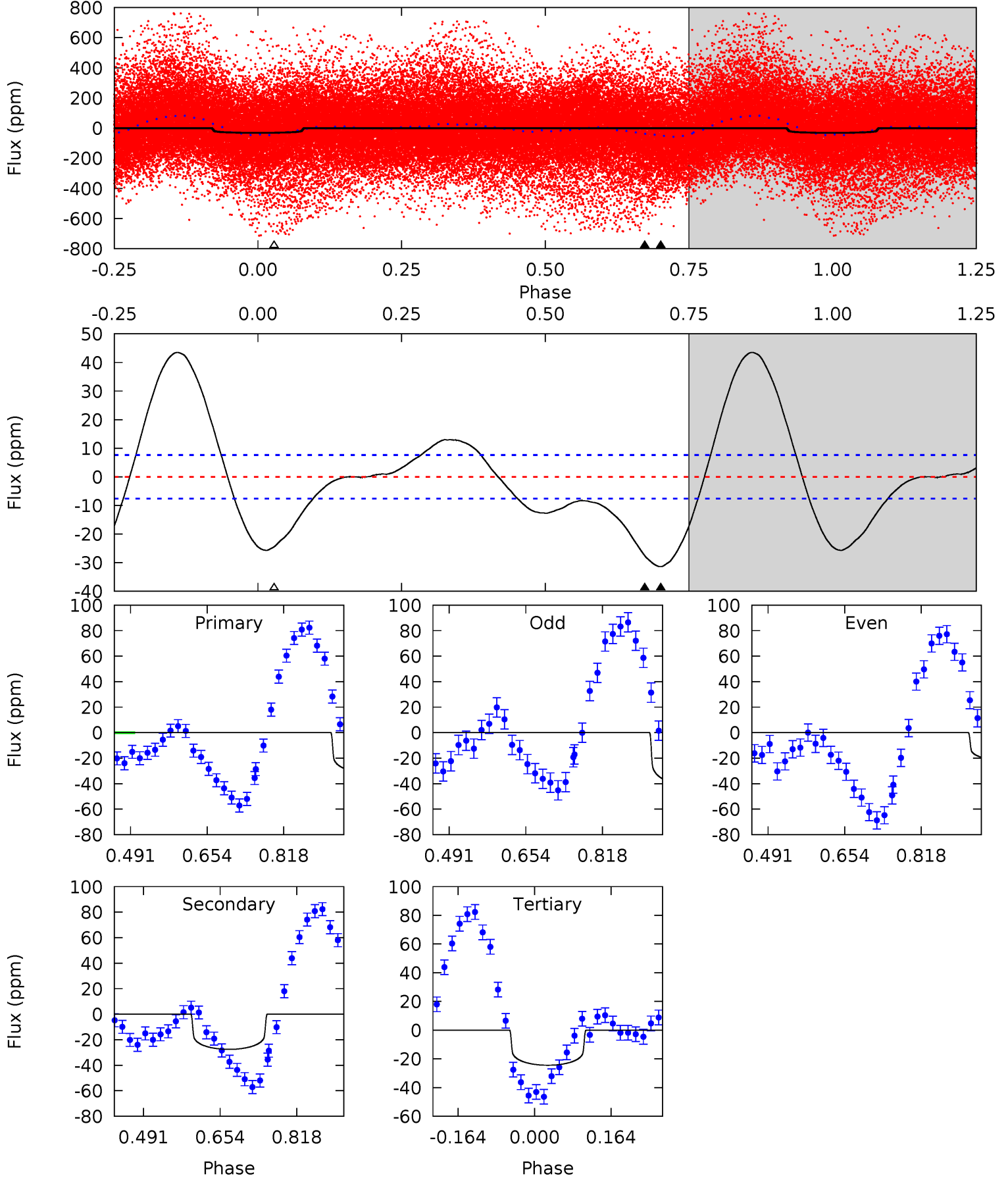
TCE 009513921-01 P= 6.453856 Days $T_0=135.401841$ (BKJD)



DV Model-Shift Uniqueness Test

009513921-01, P = 6.453998 Days, E = 128.949858 Days

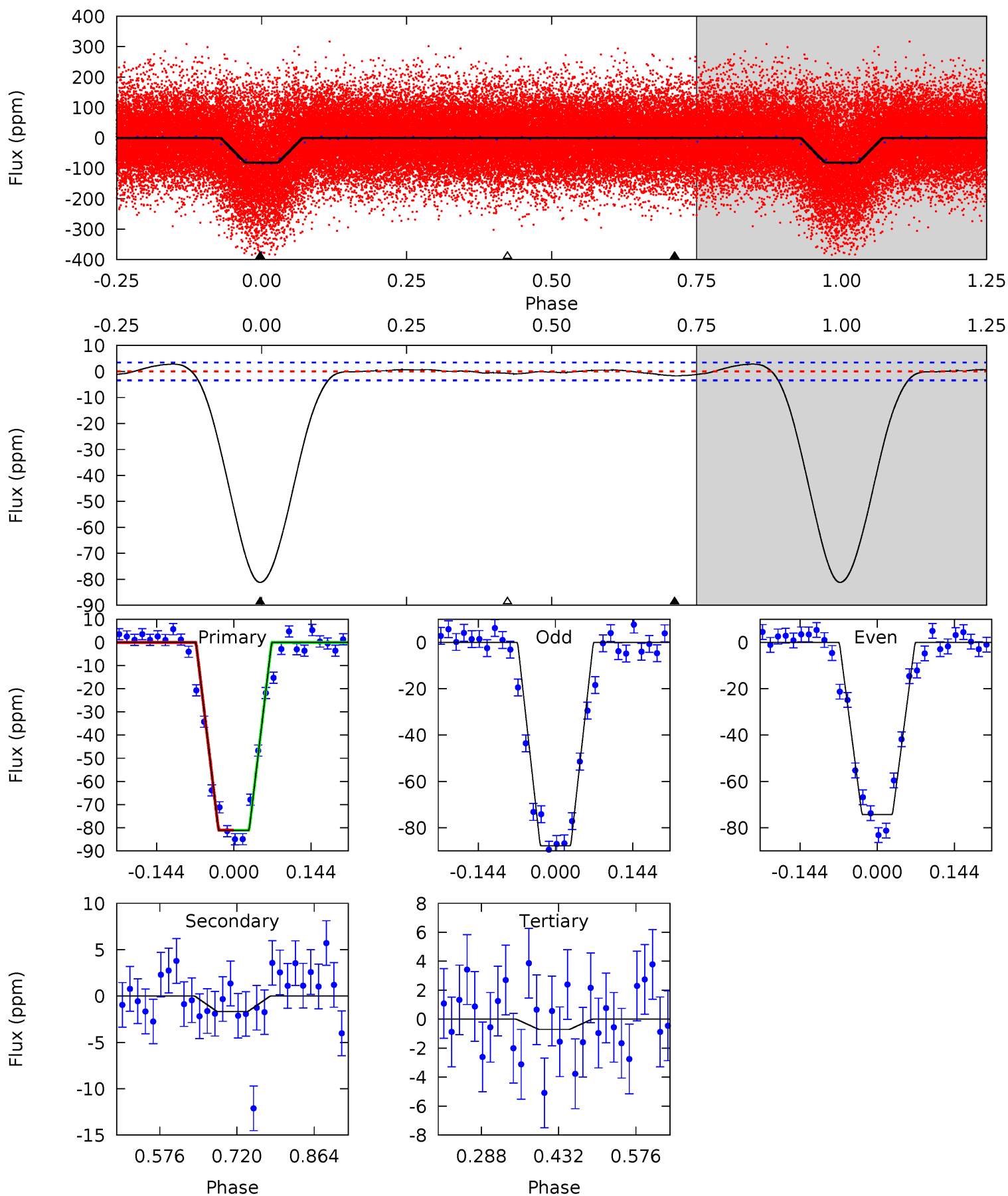
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	16.1	14.3	0	4.46	1.39	8.80	4.06	18.3	1.81	16.1	5.57	0.97	0.58	2.73



Alt Model-Shift Uniqueness Test

009513921-01, P = 6.453856 Days, E = 128.947985 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
105.6	2.19	0.93	0	4.49	1.46	0.58	104.7	105.6	1.26	2.19	8.72	0.96	0.03	0.01



Stellar Parameters For KIC 009513921

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6476^{+179}_{-247}	$4.254^{+0.128}_{-0.192}$	$-0.020^{+0.250}_{-0.300}$	$1.372^{+0.456}_{-0.245}$	$1.234^{+0.192}_{-0.173}$	$0.672^{+0.423}_{-0.349}$
	+3%/-4%	+3%/-5%	+1250%/-1500%	+33%/-18%	+16%/-14%	+63%/-52%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 009513921-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-28 ± 2	$0.80^{+0.15}_{-0.12}$	1746^{+138}_{-118}	6402^{+440}_{-408}	122^{+47}_{-35}
Alt.	-2 ± 1	$1.41^{+0.26}_{-0.19}$	1751^{+139}_{-110}	3013^{+208}_{-298}	$2.381^{+1.410}_{-1.150}$

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

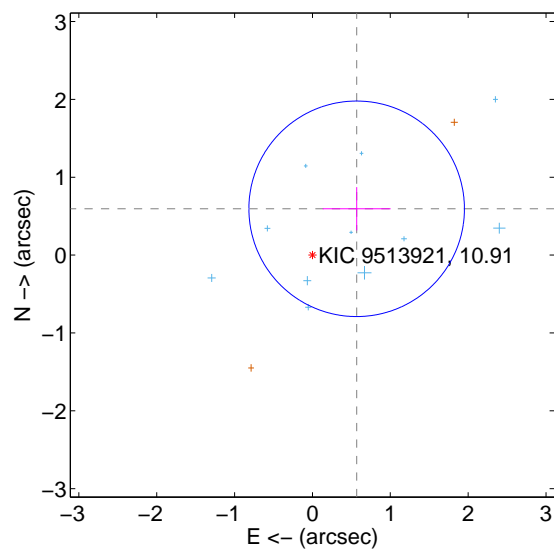
Supplemental centroid analysis for 009513921-01. **Kepler magnitude: 10.91.** Transit SNR 6.31

There are 11 quarters with good PRF difference image offsets

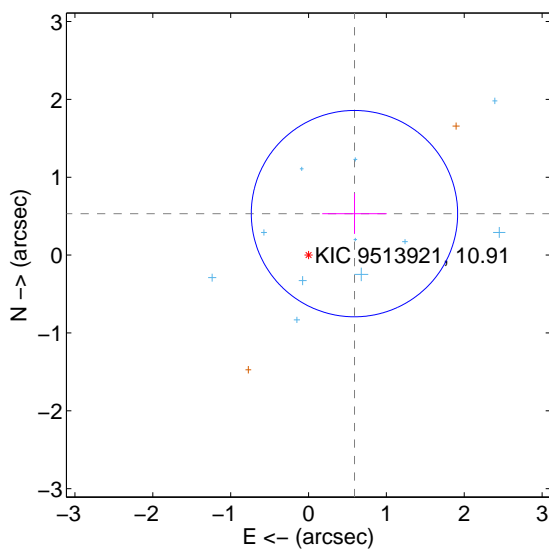
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.822 ± 0.461	1.78	-0.568 ± 0.436	0.595 ± 0.278
PRF-fit source offset from KIC position	0.795 ± 0.442	1.80	-0.590 ± 0.414	0.532 ± 0.259
photometric centroid source offset	0.84 ± 0.58	1.44	-0.41 ± 0.55	0.74 ± 0.59

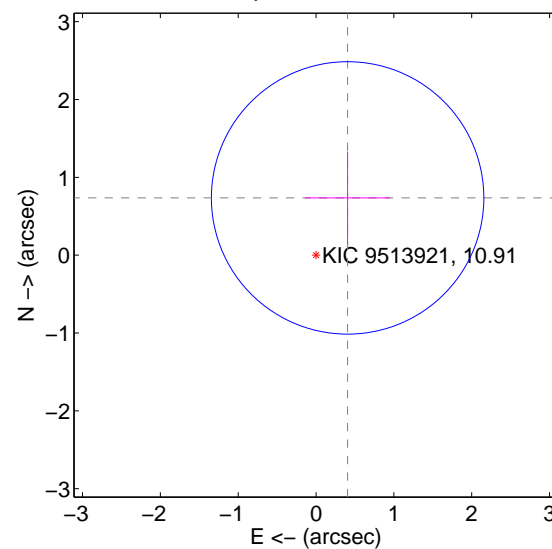
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

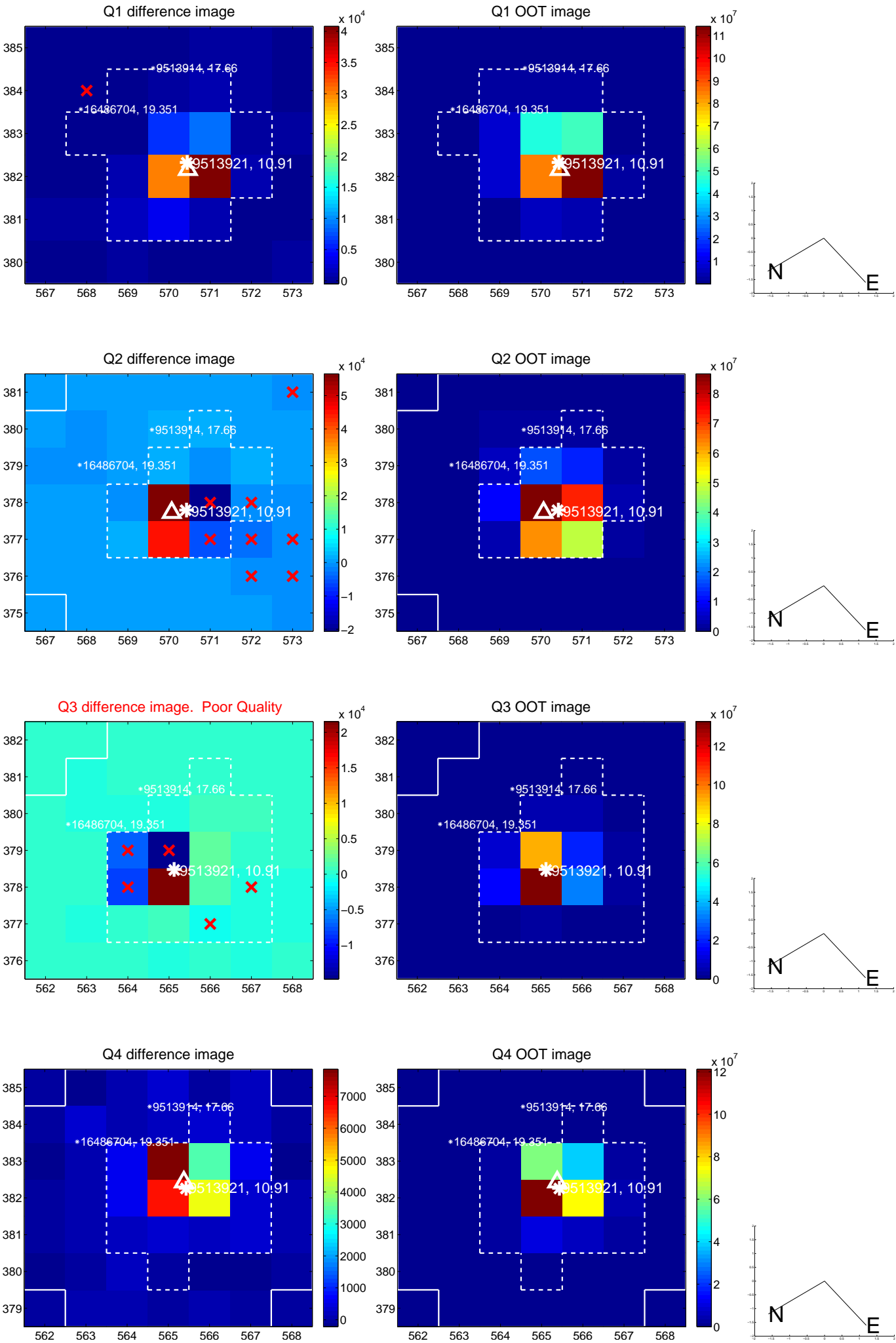


offset from photometric centroids

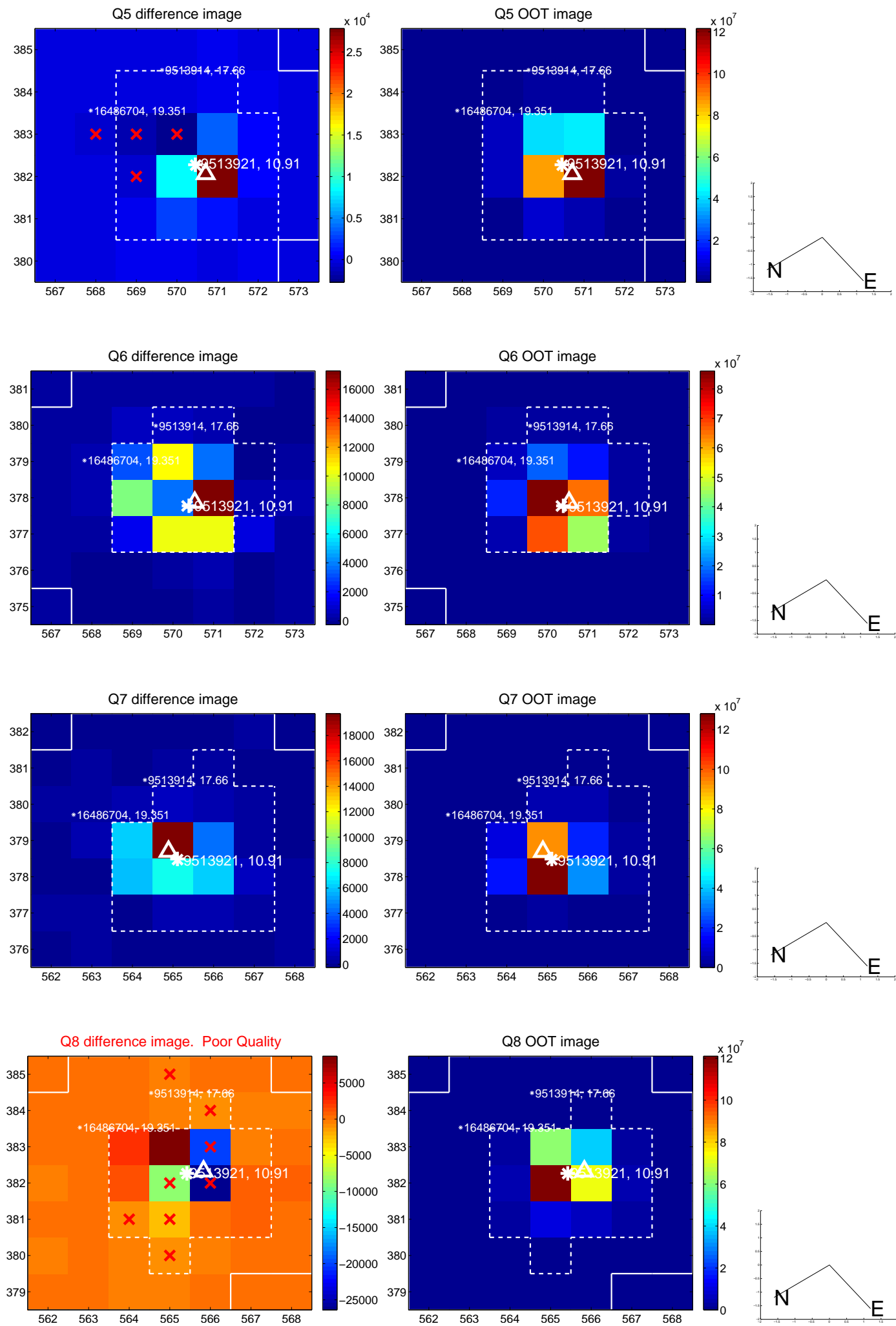


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

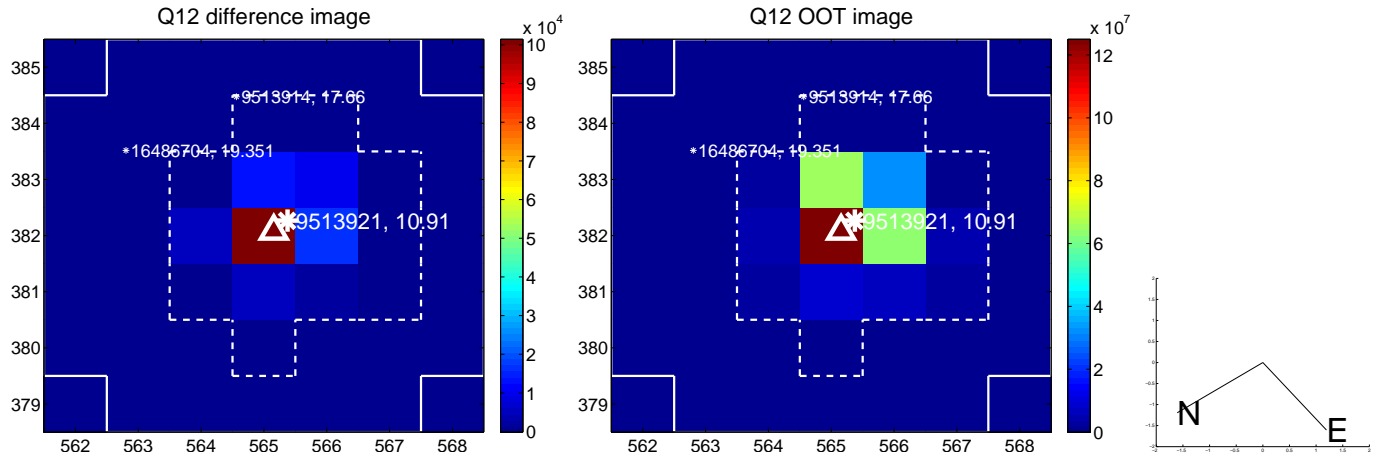
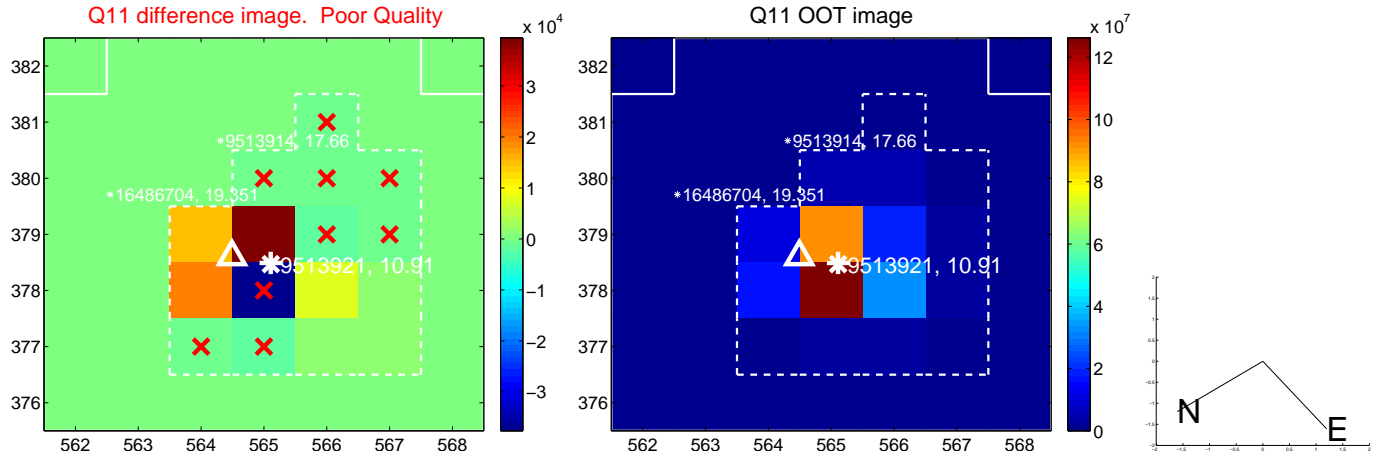
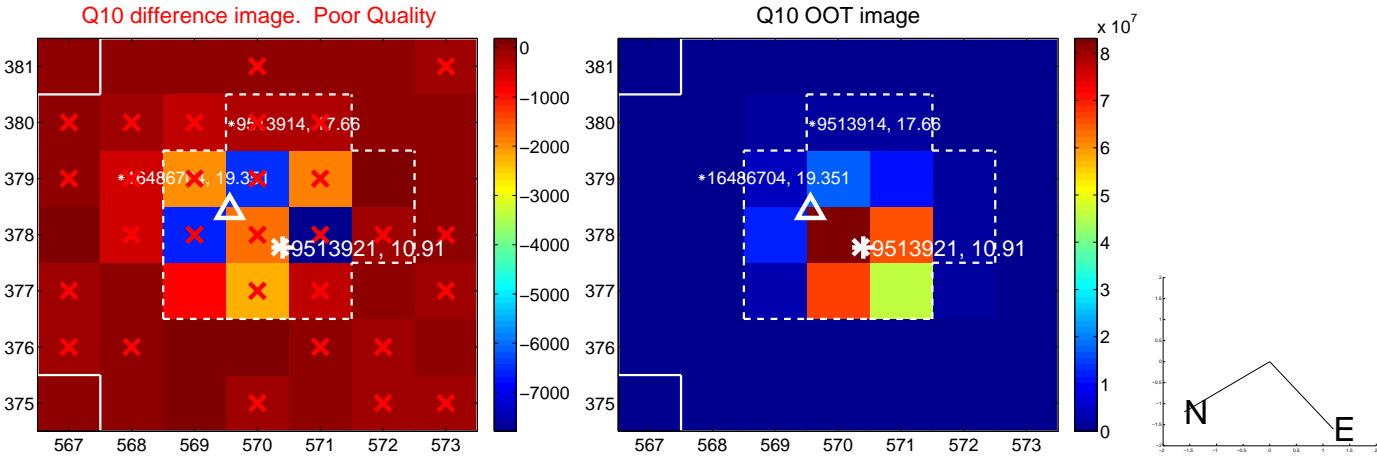
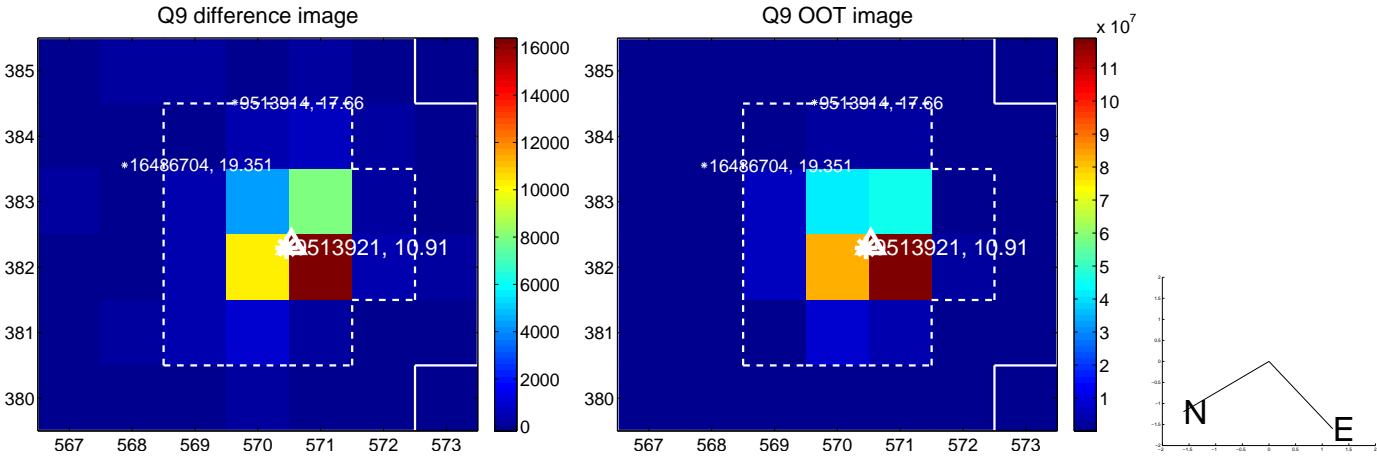
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



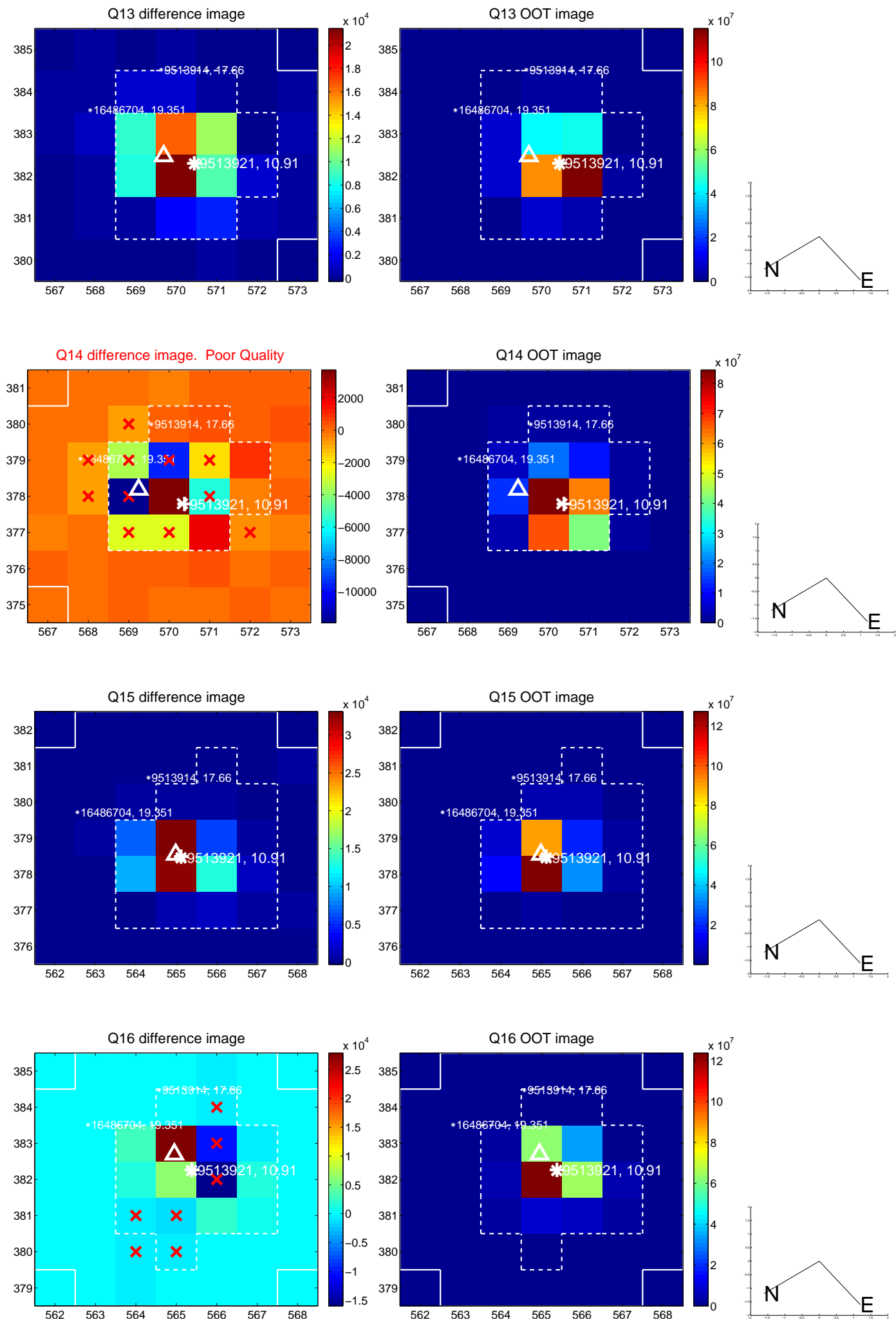
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



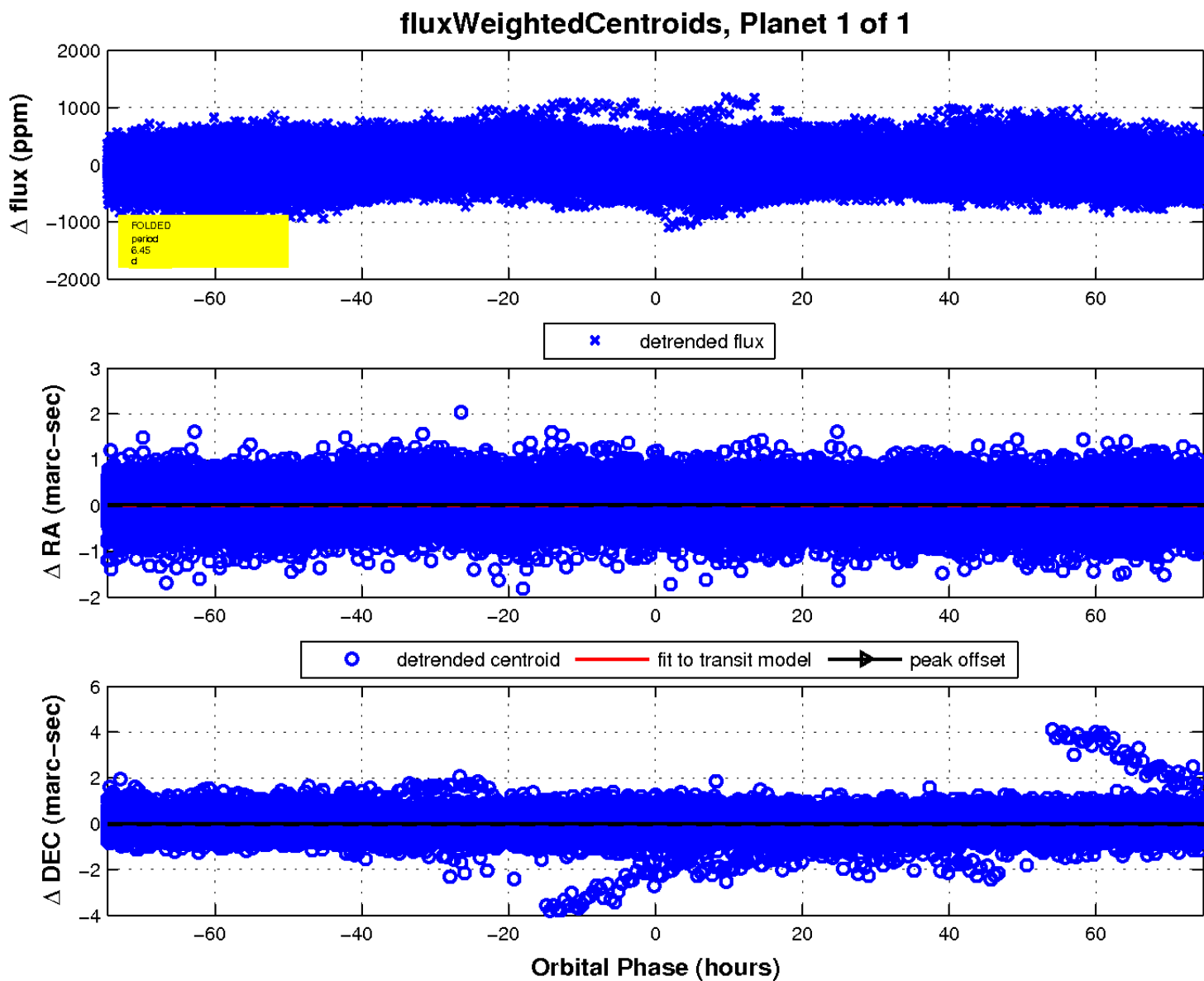
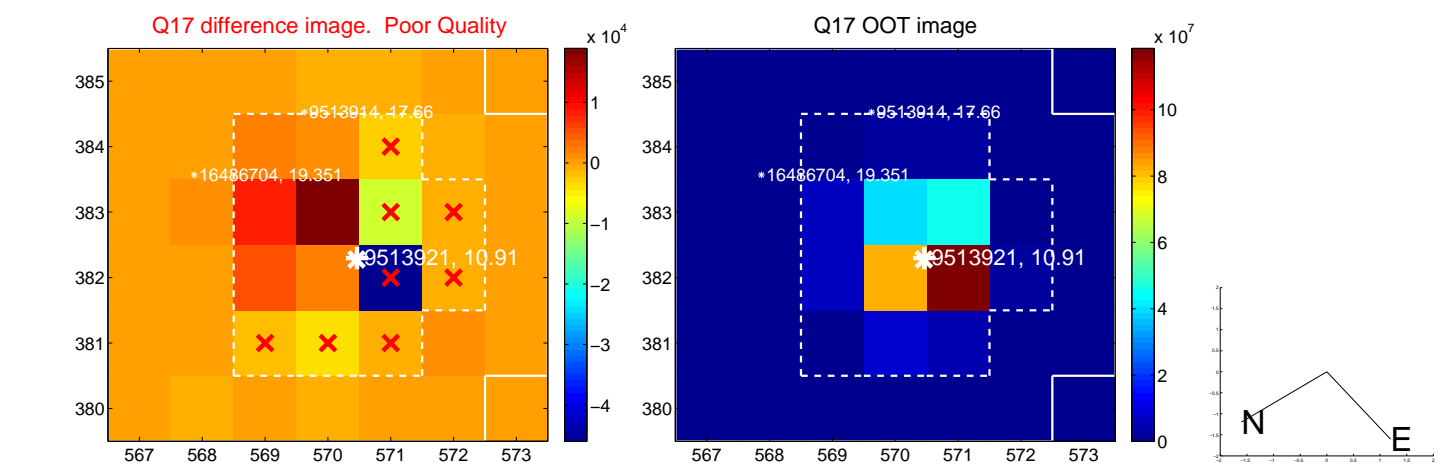
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

