

KIC 009851021

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})
009851021-01	OBS	No	8.480474	135.840095	56.4	6.345	15.4	13.8	56.13	3959	53.18	0.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009851021-01	OBS	FP	0.00	1	0	0	1	LPP_DV—CENT_SATURATED—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.

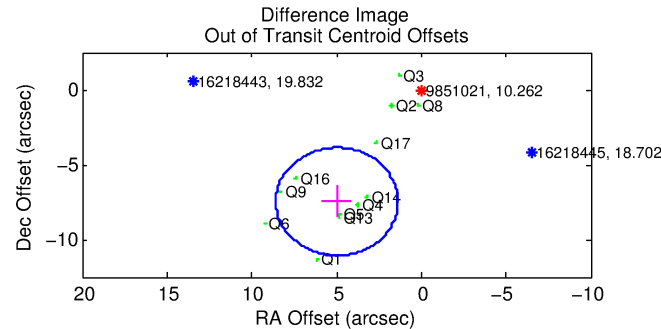
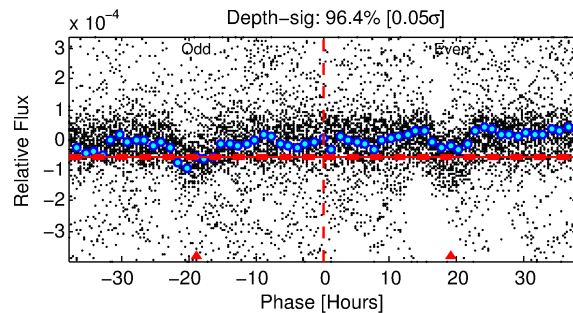
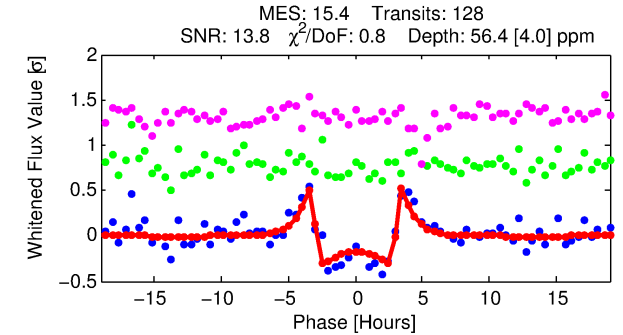
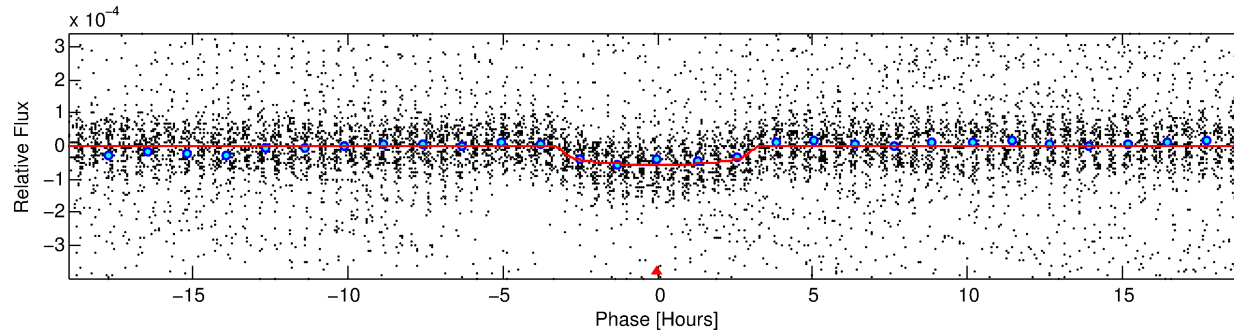
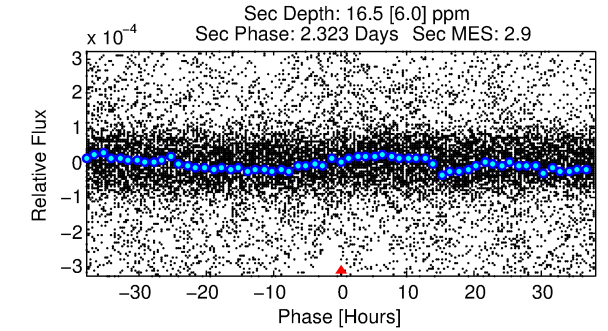
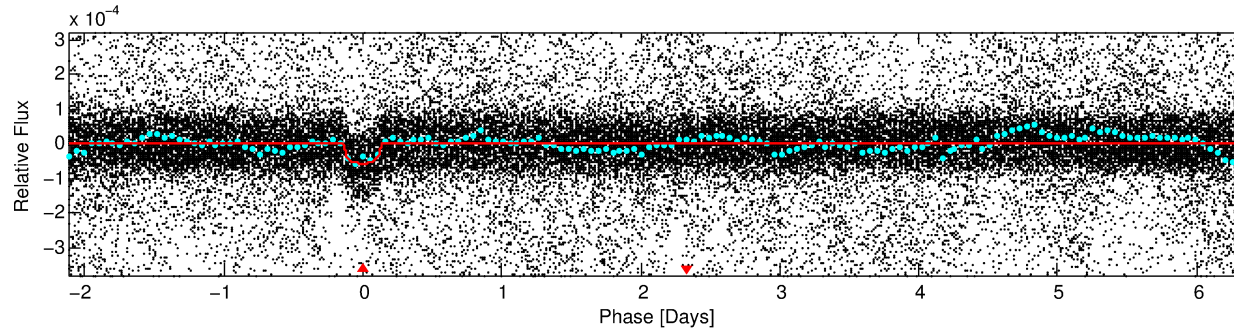
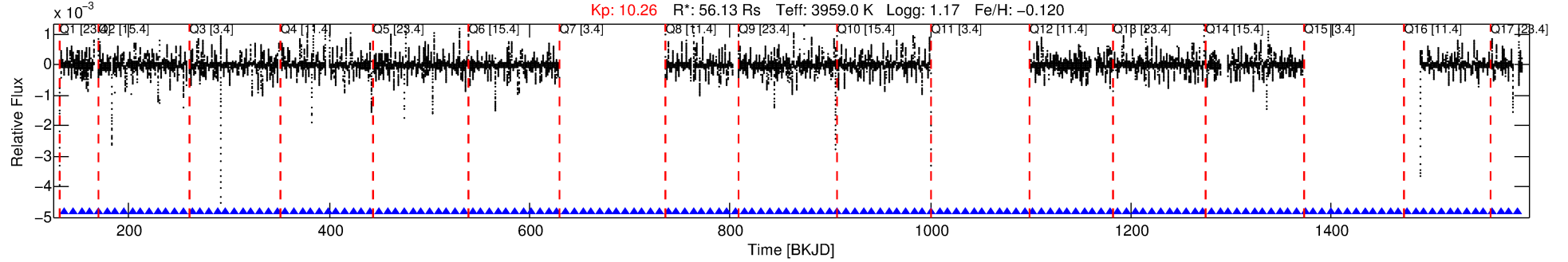
Ephemeris Match Information For 009851021-01

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
009851021-01	9851021	009851142-pri	9851142	1:1	113.1	10	27	7.63	10.26	1626.80	Direct-PRF	0	0.85	0.51

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: 9851021 Candidate: 1 of 1 Period: 8.480 d



DV Fit Results:

Period = 8.48047 [0.00003] d
Epoch = 135.8401 [0.0022] BKJD
Rp/R* = 0.0087 [0.0010]
a/R* = 4.74 [1.79]
b = 0.90 [0.08]
Seff = N/A
Teq = N/A
Rp = 53.18 [12.20] Re
a = N/A
Ag = N/A
Teffp = N/A

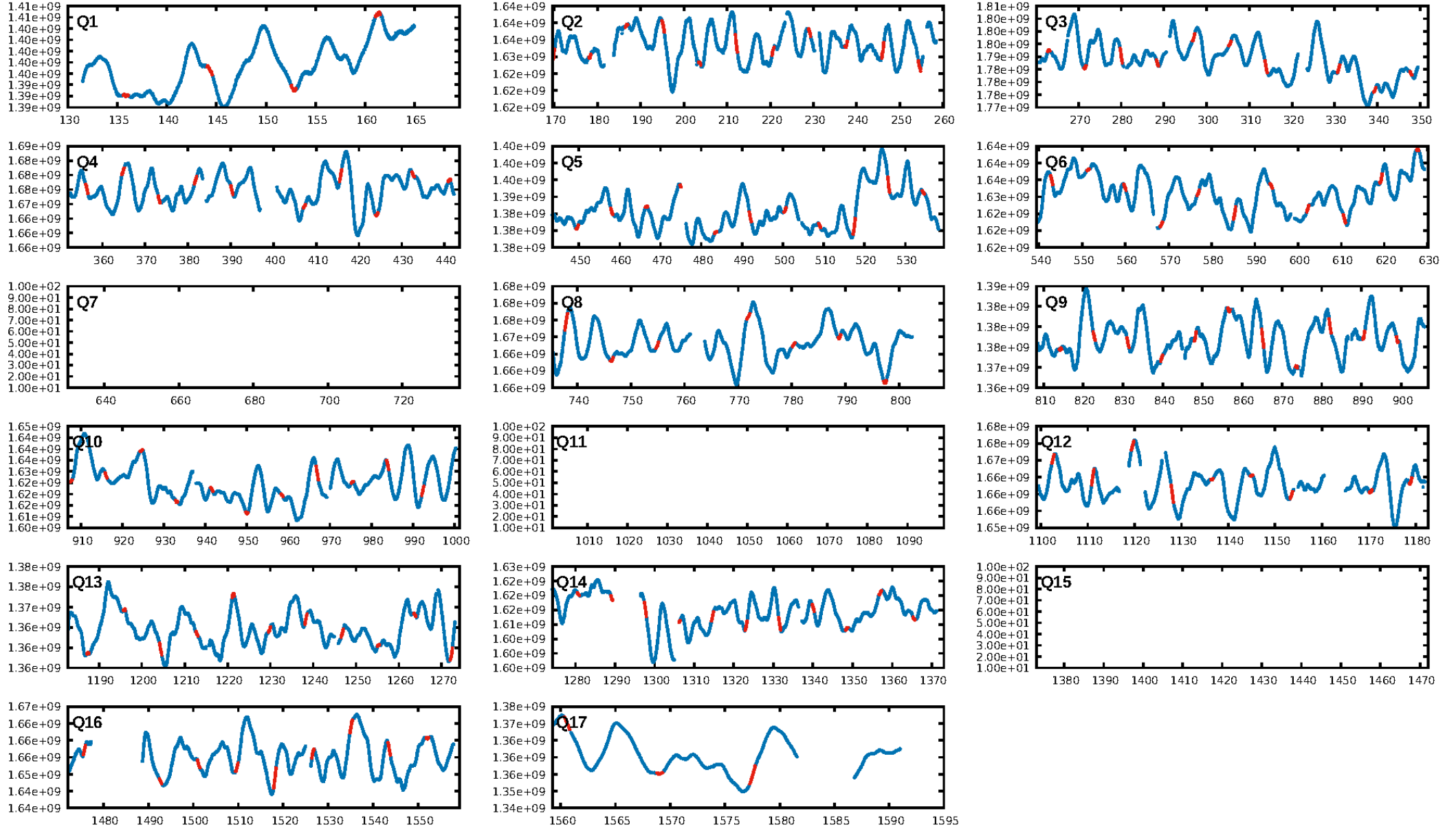
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 99.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.74e-41
RollingBand-fgt: 1.00 [121/121]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 8.013 arcsec [10.50σ]
OotOffset-rm: 8.977 arcsec [7.47σ]
KicOffset-rm: 9.238 arcsec [7.63σ]
OotOffset-st: 3/1/3/5 [12]
KicOffset-st: 3/1/3/5 [12]
DiffImageQuality-fgm: 0.08 [1/12]
DiffImageOverlap-fno: 1.00 [14/14]

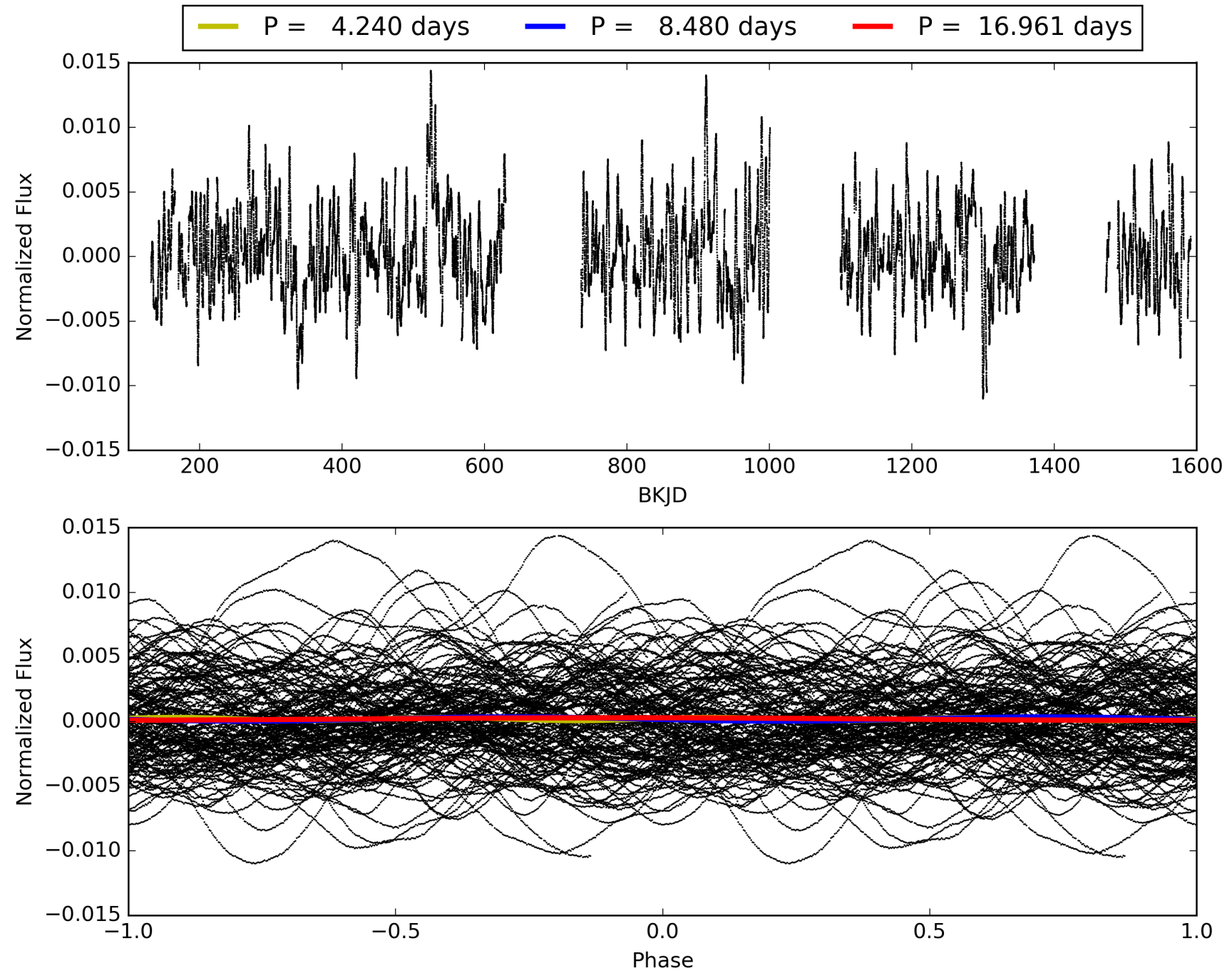
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:48:51 Z

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

TCE 009851021-01, PDC Light Curves

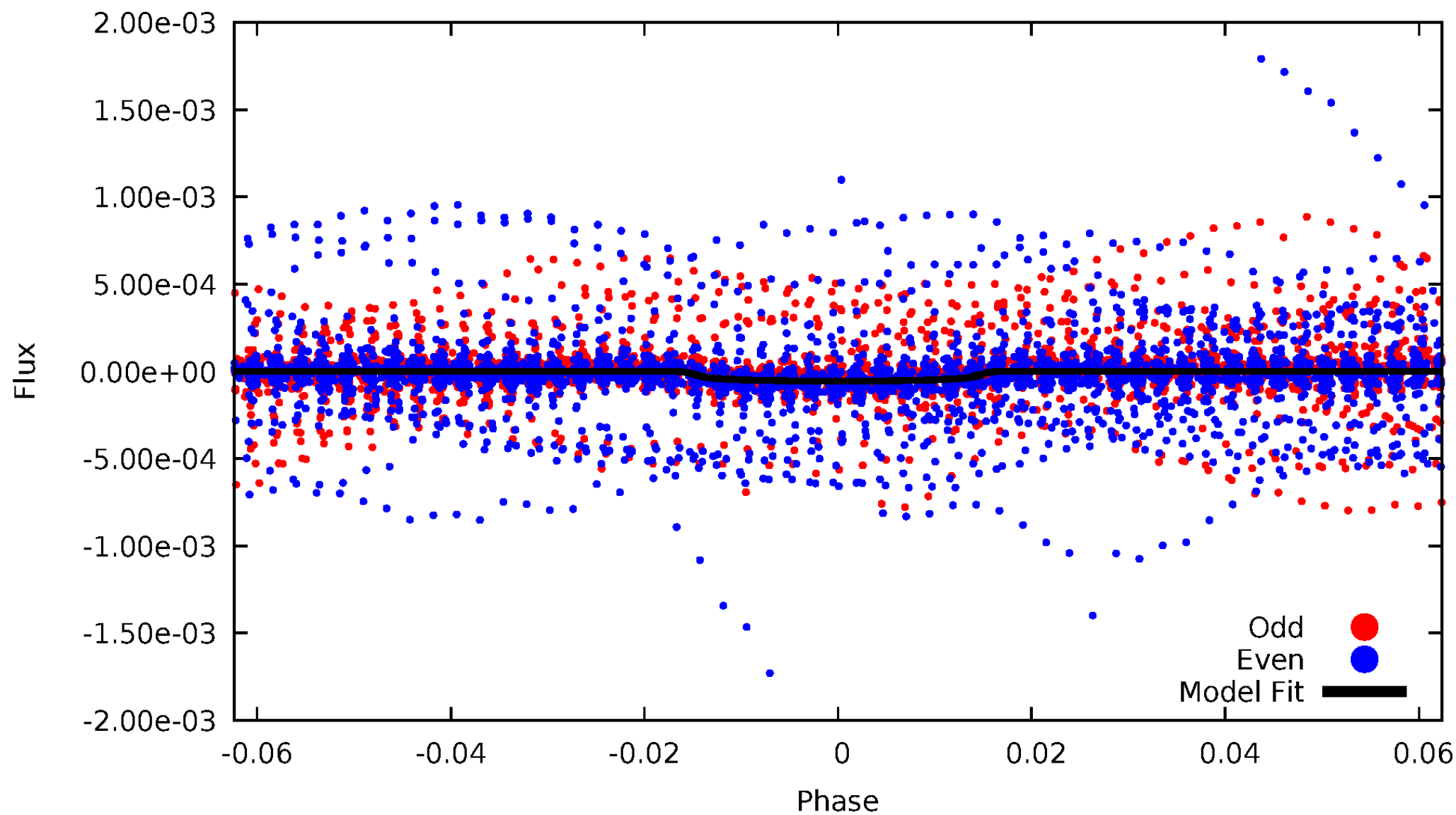


TCE 009851021-01



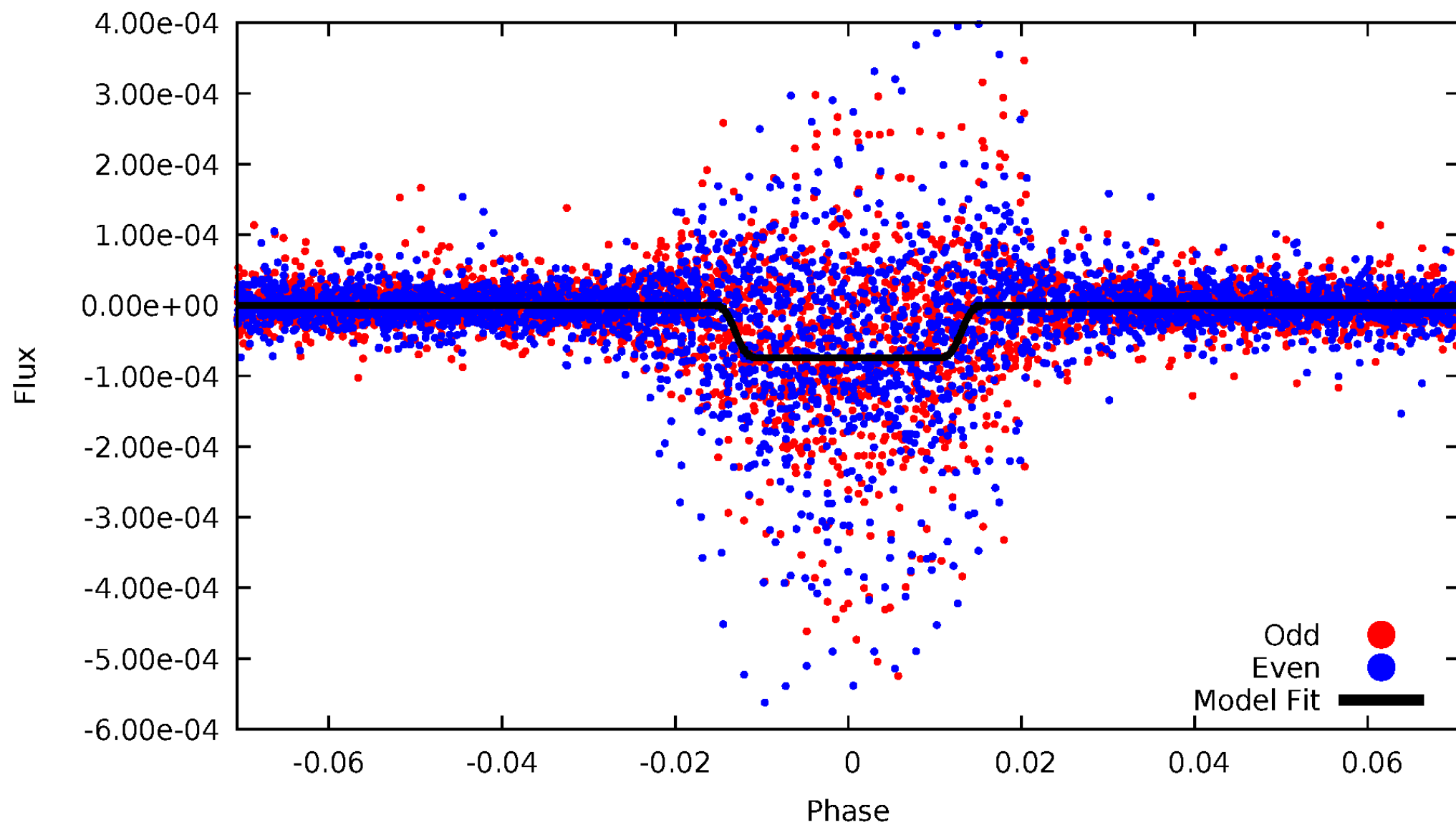
DV Odd/Even

TCE 009851021-01

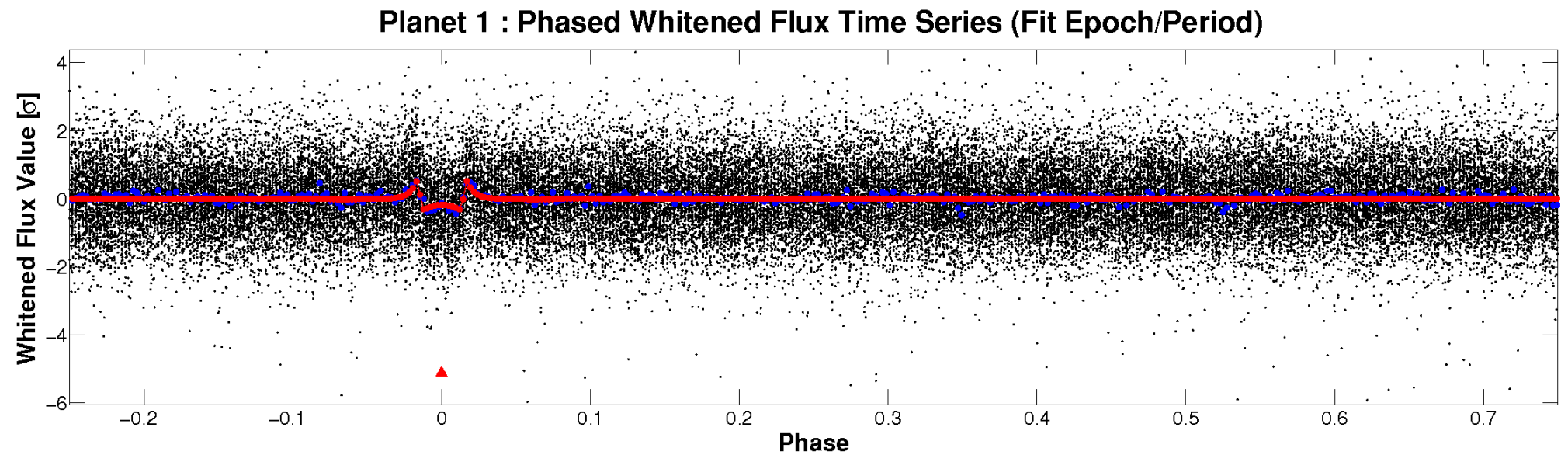
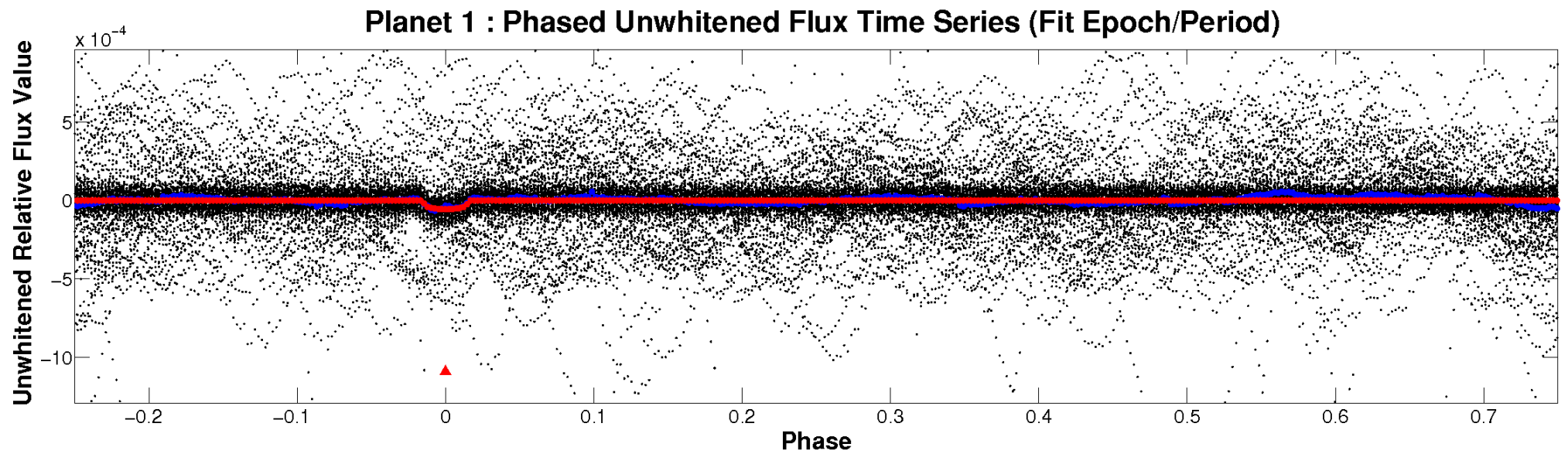


ALT Odd/Even

TCE 009851021-01

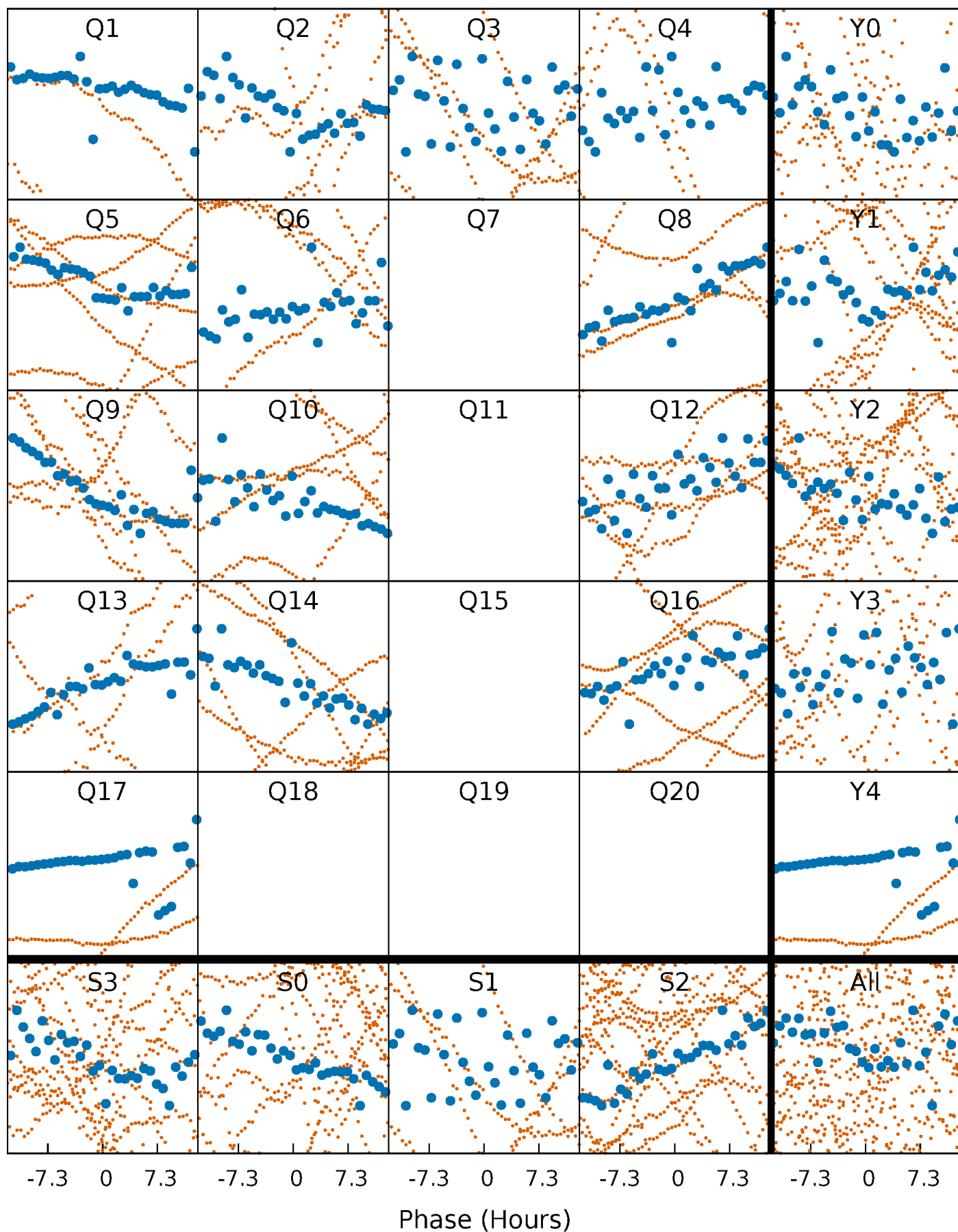


Non-Whitened Vs. Whitened Light Curve



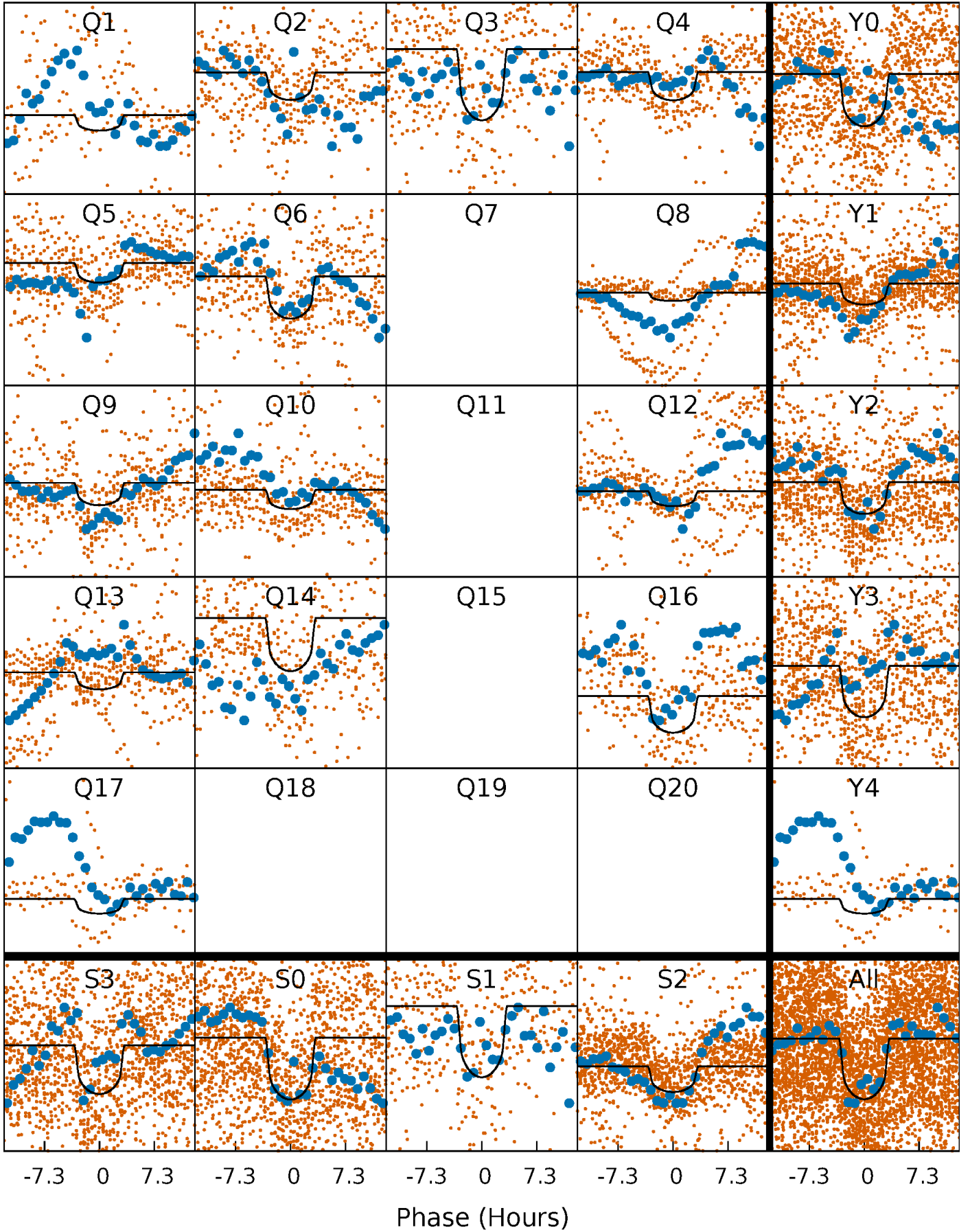
PDC Quarter-Phased Transit Curves

TCE 009851021-01 P= 8.480474 Days $T_0=135.840095$ (BKJD)



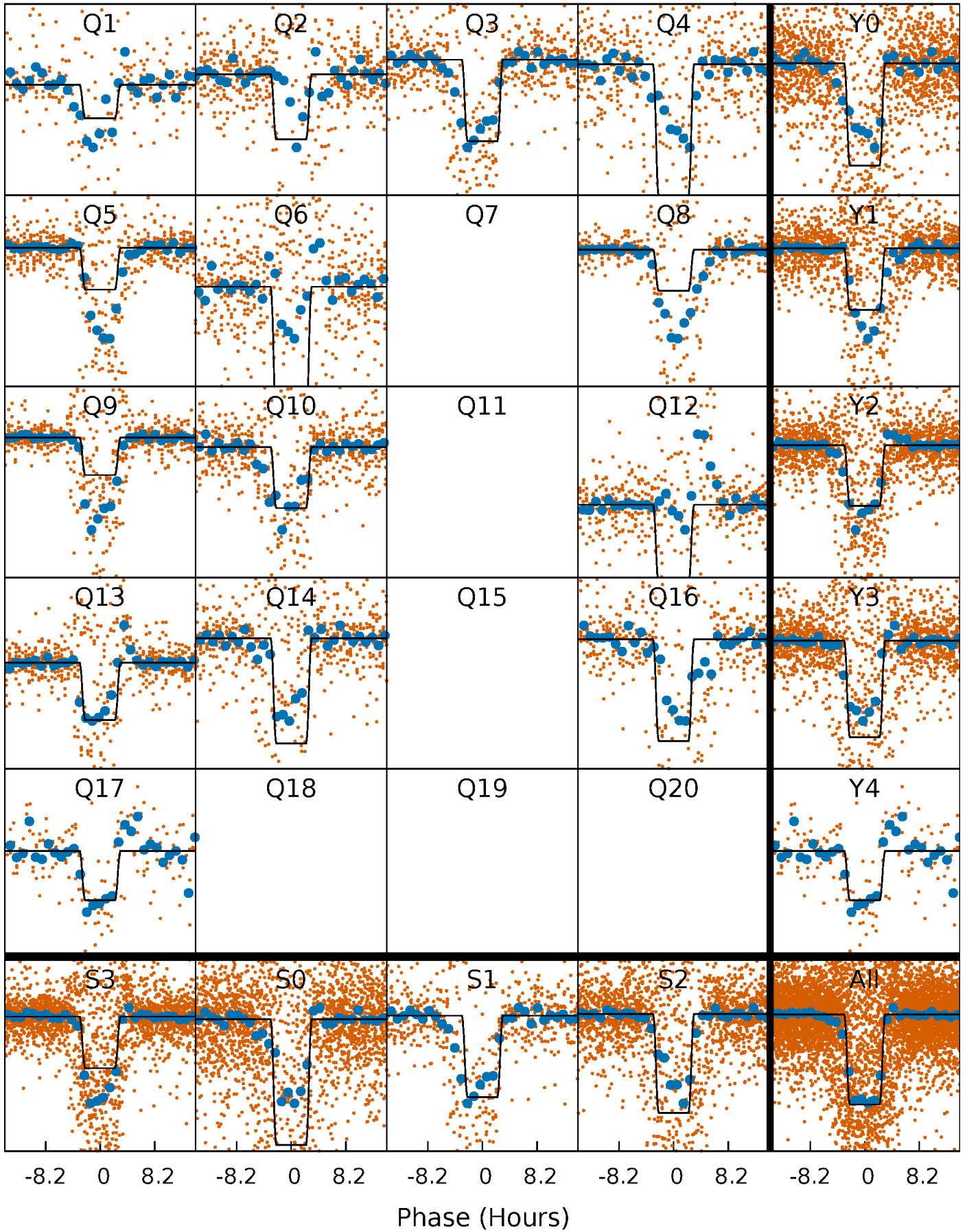
DV Quarter-Phased Transit Curves

TCE 009851021-01 P= 8.480474 Days $T_0=135.840095$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

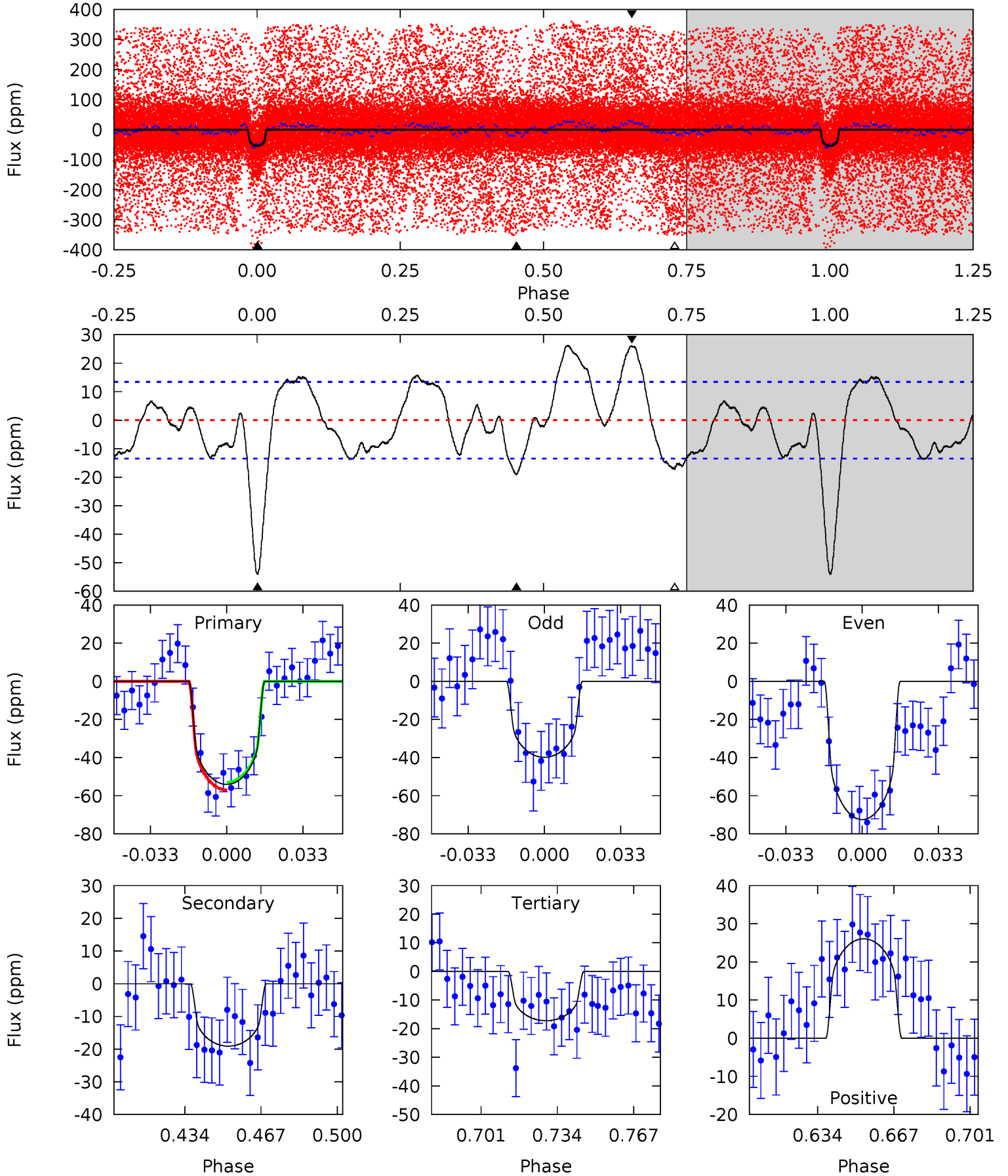
TCE 009851021-01 P= 8.480296 Days $T_0=135.853860$ (BKJD)



DV Model-Shift Uniqueness Test

009851021-01, P = 8.480474 Days, E = 127.359621 Days

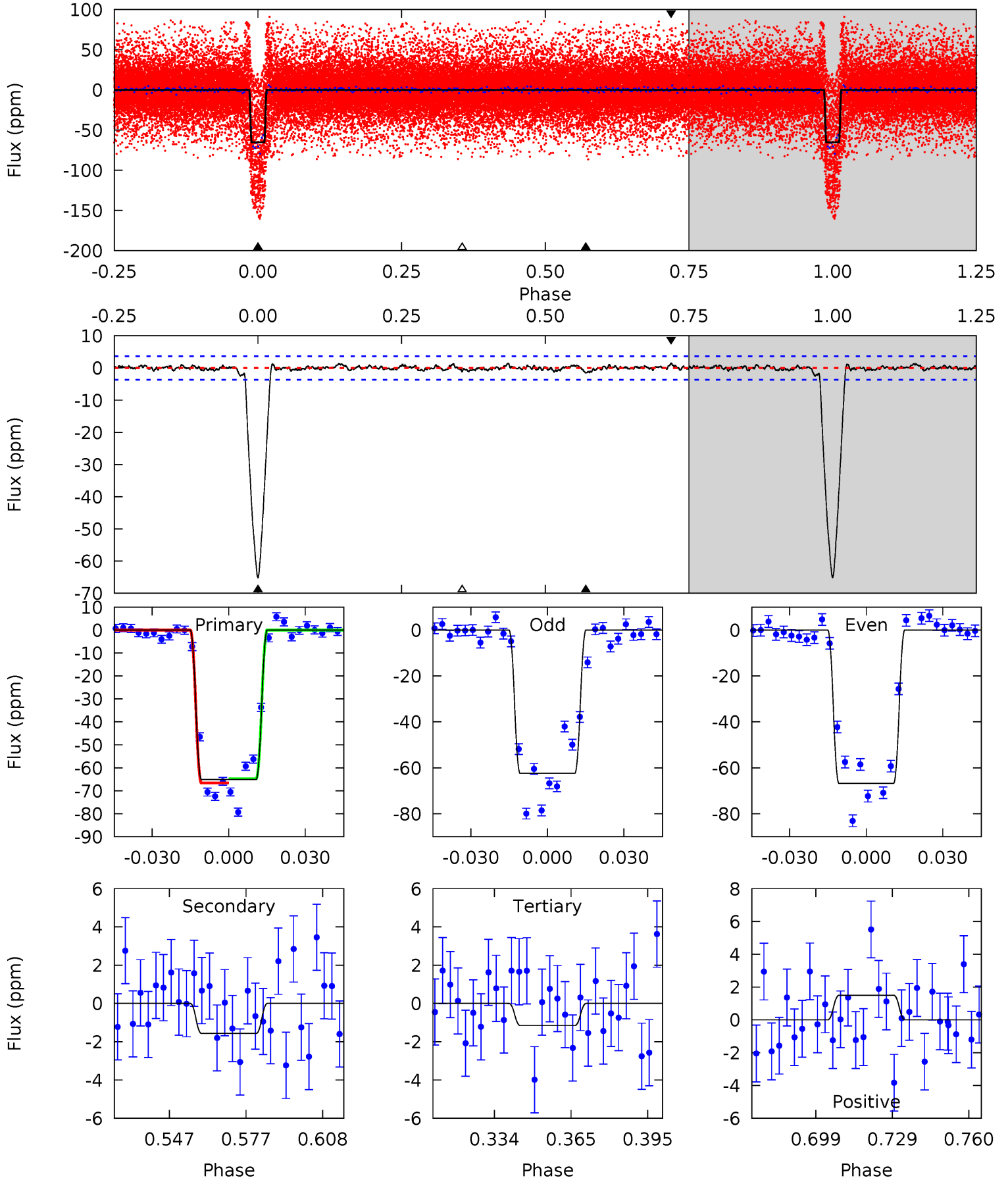
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	6.80	6.13	9.27	4.79	2.13	3.98	13.1	9.97	0.67	-2.48	5.97	1.09	0.33	0.72



Alt Model-Shift Uniqueness Test

009851021-01, P = 8.480296 Days, E = 127.373564 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
85.5	2.06	1.51	1.97	4.81	2.17	0.63	84.0	83.5	0.55	0.09	2.83	0.92	0.02	1.17



Stellar Parameters For KIC 009851021

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3959^{+89}_{-1}	$1.174^{+0.030}_{-0.030}$	$-0.120^{+0.200}_{-0.250}$	$56.131^{+2.749}_{-10.997}$	$1.715^{+0.102}_{-0.615}$	$0.000^{+0.000}_{-0.000}$
	+2%/-0%	+3%/-3%	+167%/-208%	+5%/-20%	+6%/-36%	+27%/-8%
Source	PHO54	AST54	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 009851021-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-19 ± 3	$52.87^{+7.29}_{-7.09}$	5826^{+194}_{-284}	-4424^{+252}_{-159}	$0.035^{+0.011}_{-0.009}$
Alt.	-2 ± 1	$52.62^{+7.14}_{-7.38}$	5851^{+175}_{-291}	-4553^{+246}_{-138}	$0.003^{+0.002}_{-0.001}$

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 $A_{obs} \gg 1.0$

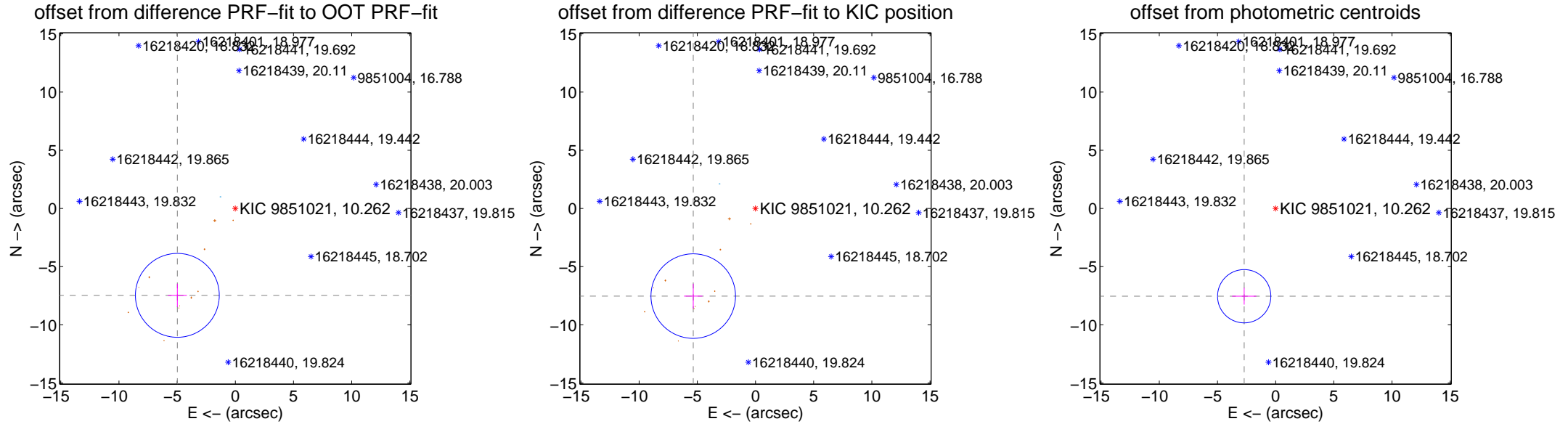
DV Centroid Data

Supplemental centroid analysis for 009851021-01. **Kepler magnitude: 10.26.** Transit SNR 13.84

There are 1 quarters with good PRF difference image offsets

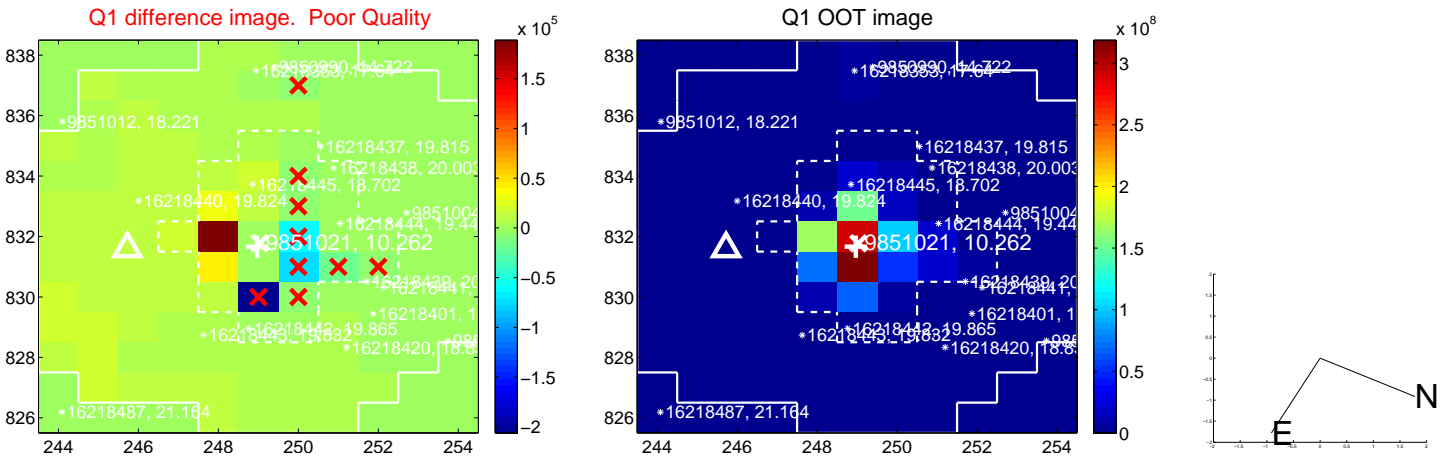
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.977 ± 1.201	7.47	4.983 ± 0.814	-7.468 ± 0.995
PRF-fit source offset from KIC position	9.238 ± 1.211	7.63	5.350 ± 0.788	-7.531 ± 1.062
photometric centroid source offset	8.01 ± 0.76	10.50	2.70 ± 1.04	-7.54 ± 0.72

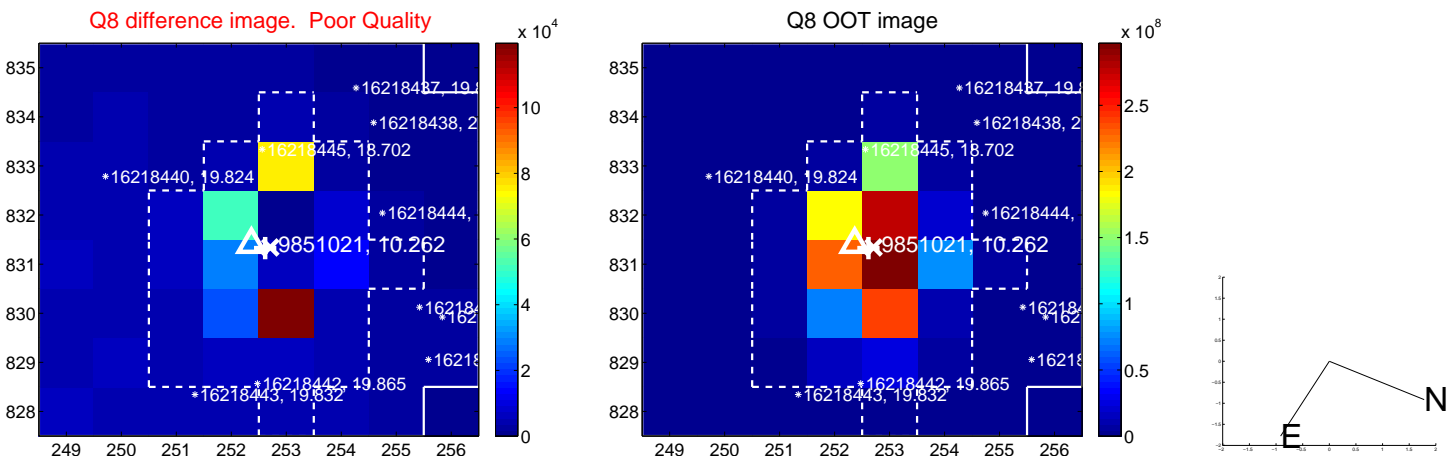
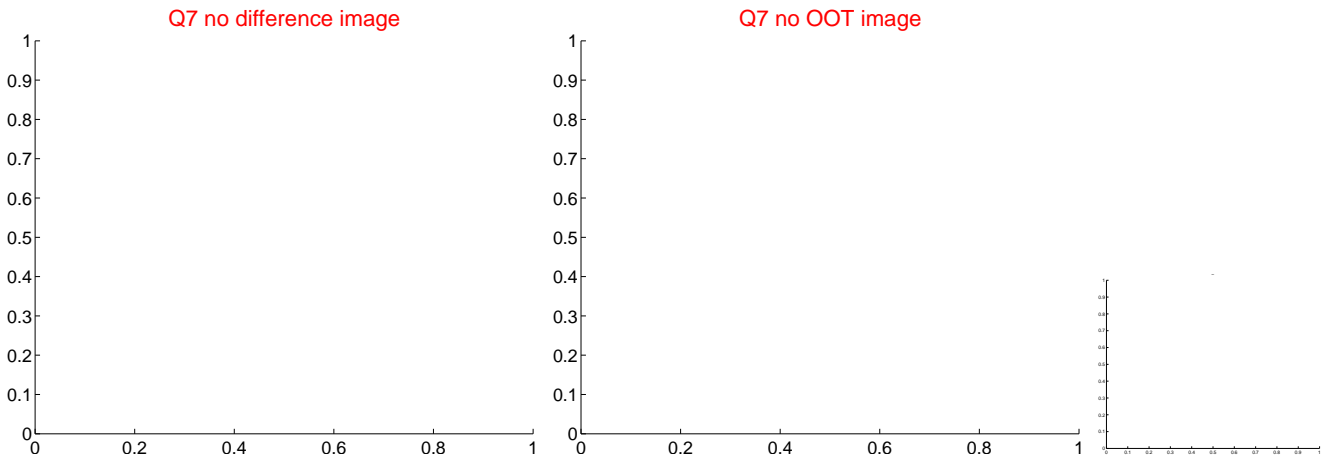
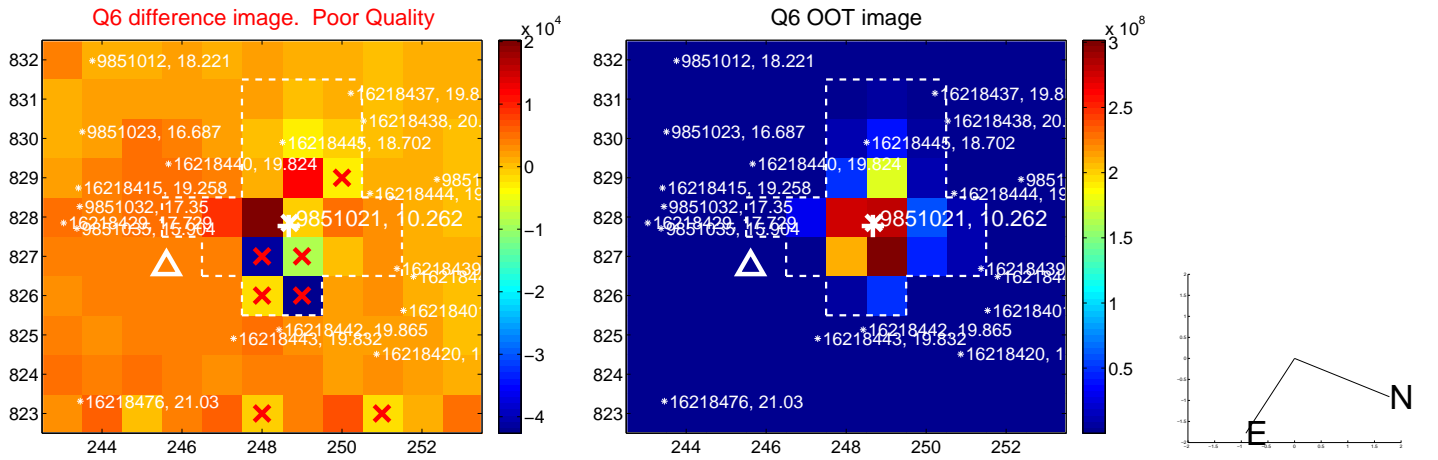
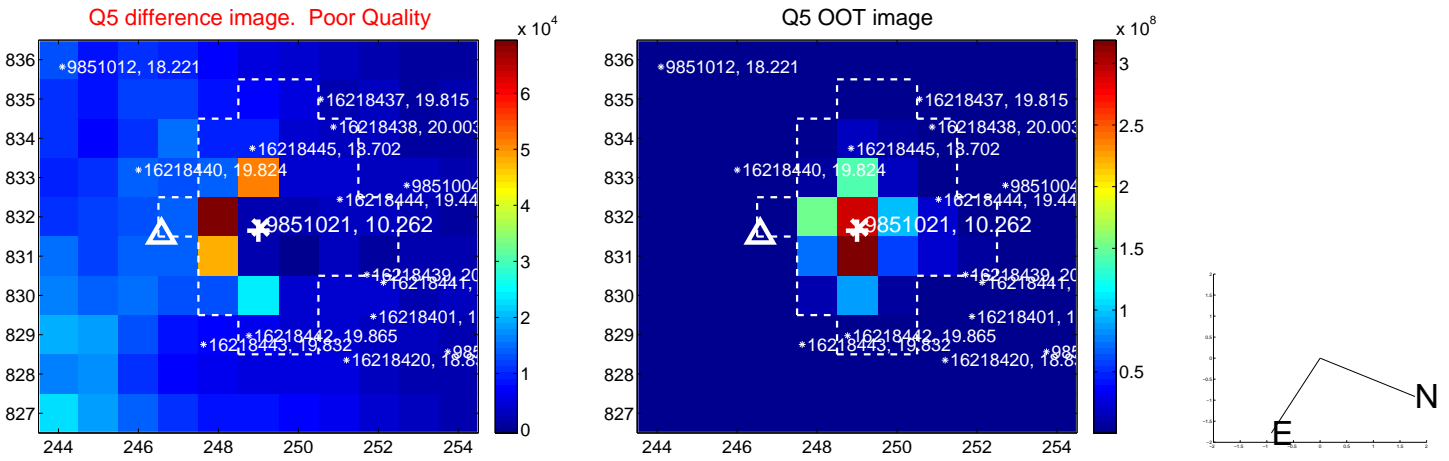


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

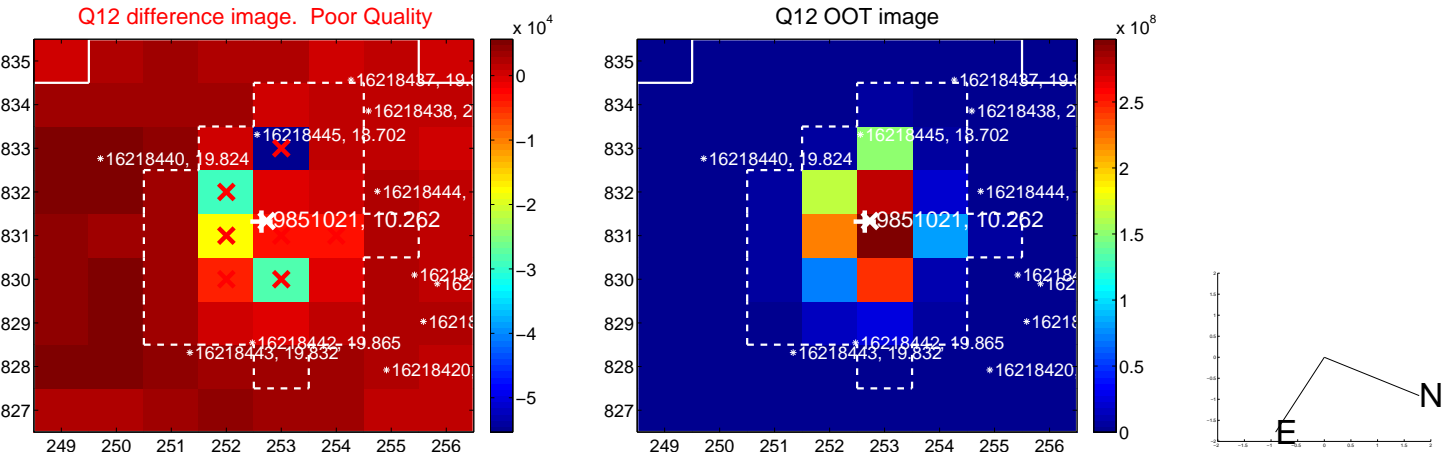
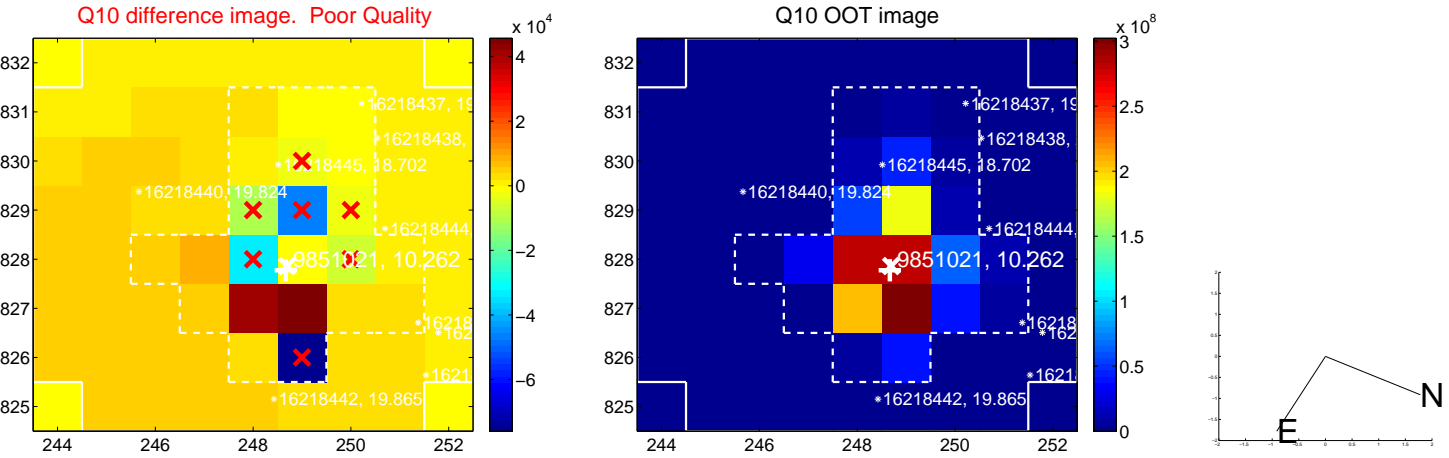
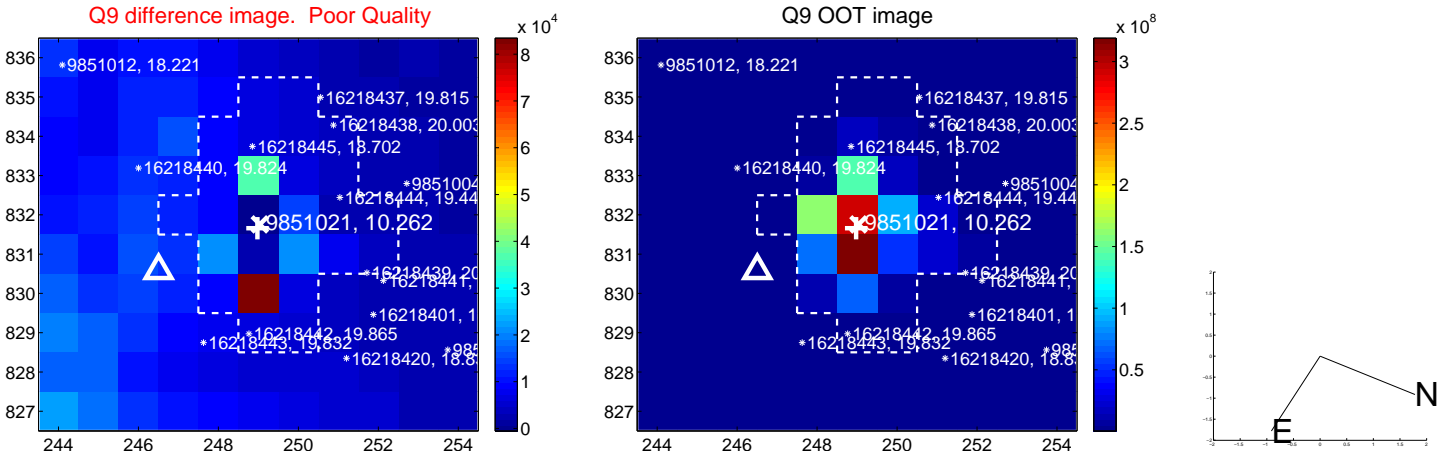
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



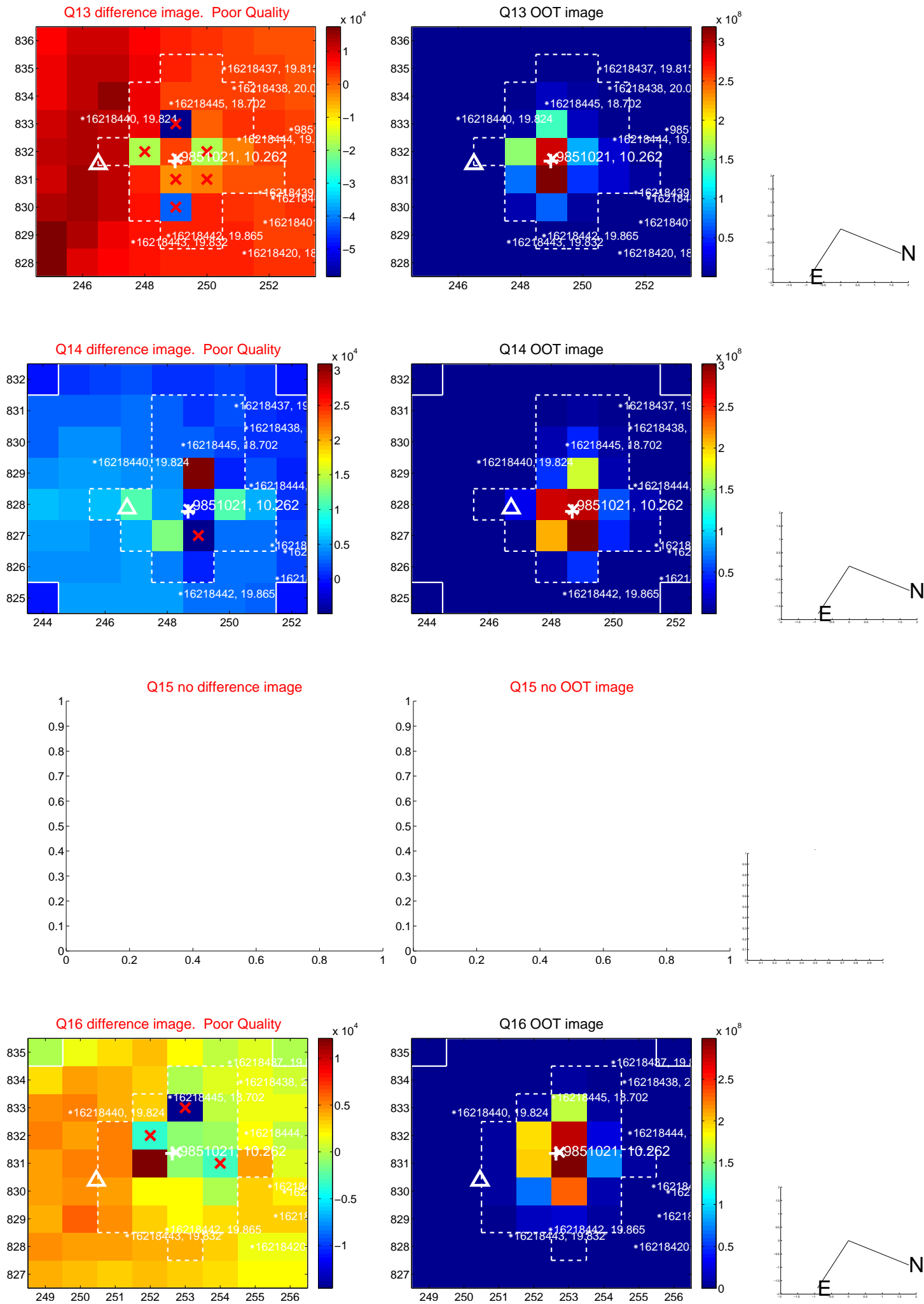
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



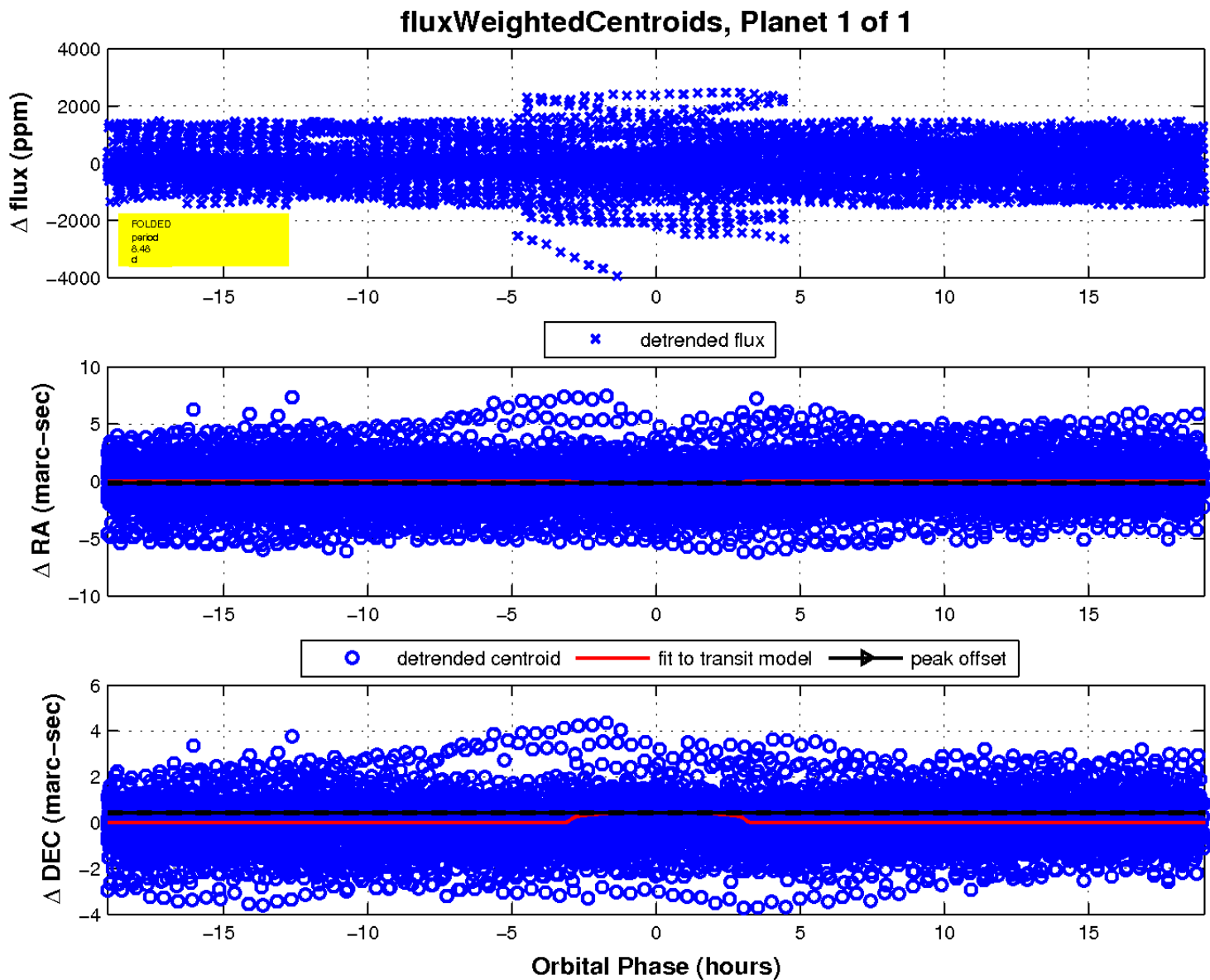
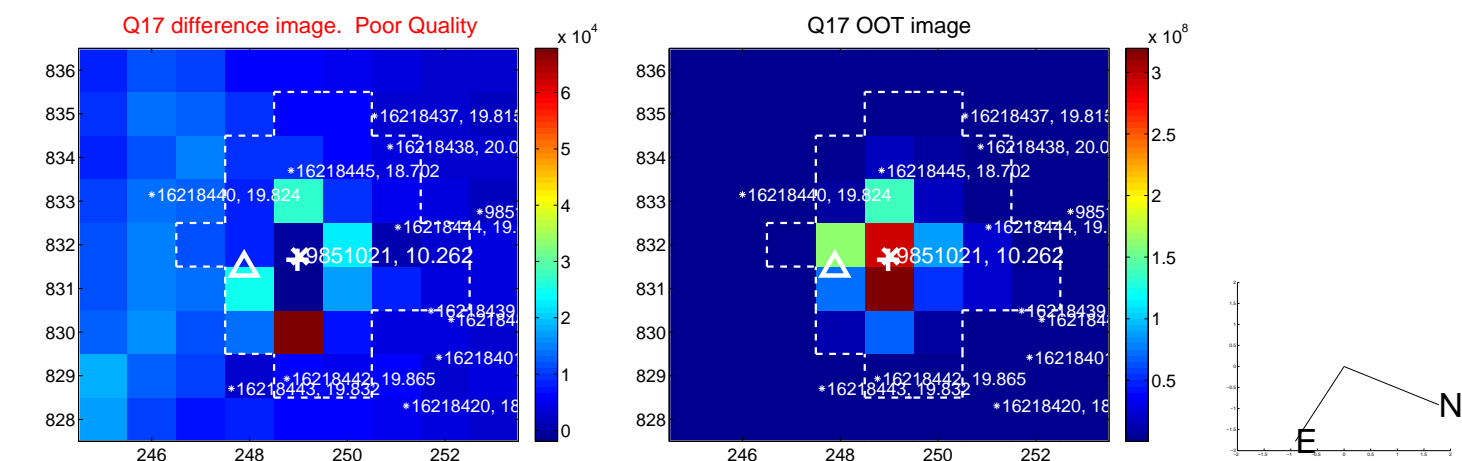
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UKIRT Image

