

KIC 004278221

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})
004278221-01	OBS	1615.01	1.340605	132.242582	105.3	1.685	45.5	53.5	1.12	5992	1.38	2392.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004278221-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

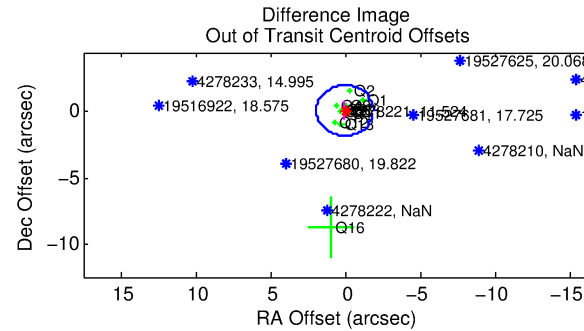
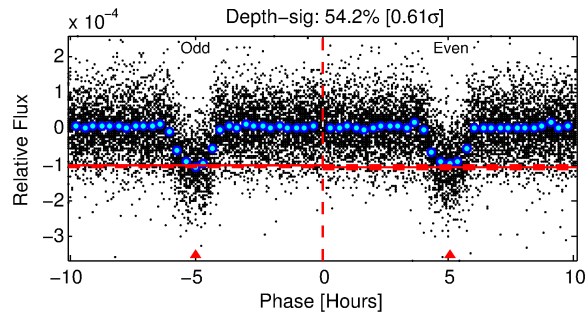
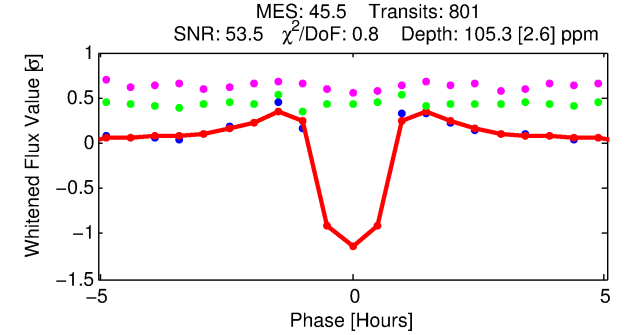
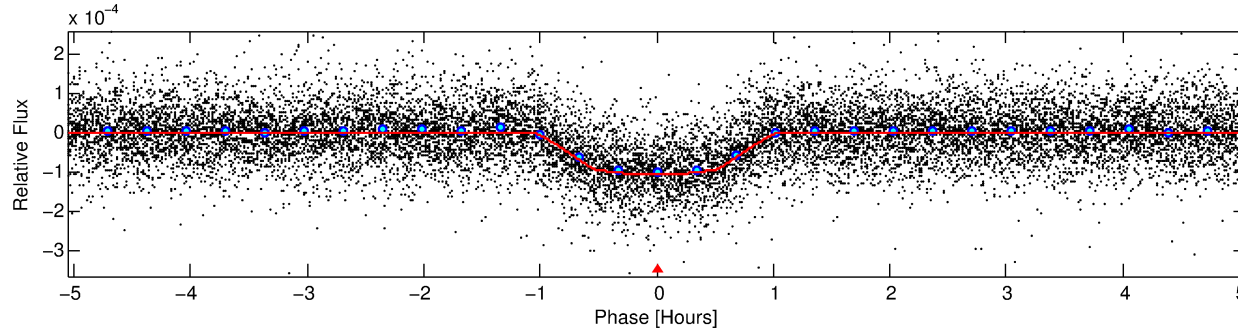
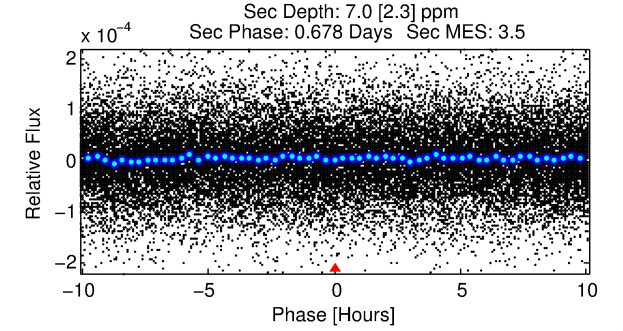
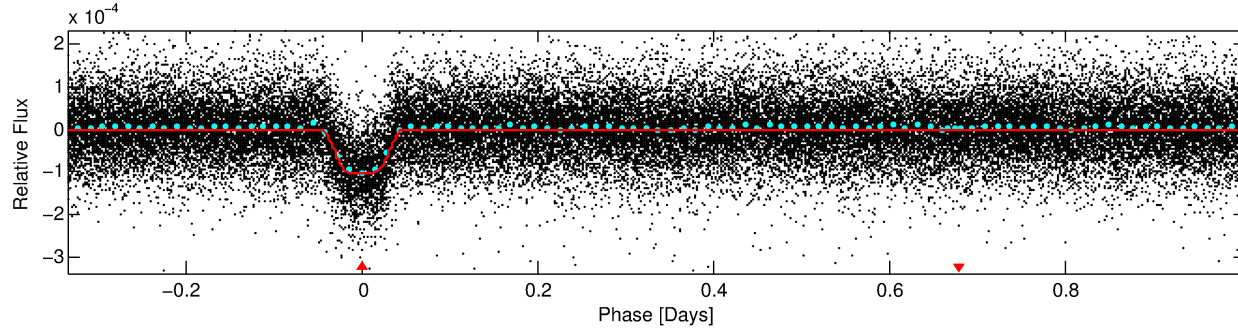
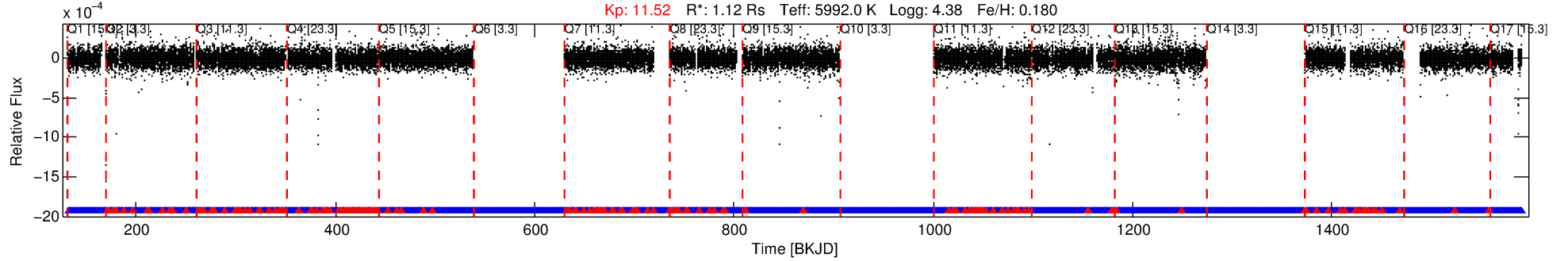
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004278221-01

No Significant Match Found

DV One-Page Summary

KIC: 4278221 Candidate: 1 of 1 Period: 1.341 d
KOI: K01615.01 Corr: 0.958



DV Fit Results:

Period = 1.34060 [0.00000] d
Epoch = 132.2426 [0.0003] BKJD
Rp/R* = 0.0112 [0.0012]
a/R* = 2.93 [1.35]
b = 0.90 [0.11]
Seff = 2392.67 [538.84]
Teq = 1783 [100] K
Rp = 1.37 [0.27] Re
a = 0.0247 [0.0035] AU
Ag = 1.24 [0.56] [0.43σ]
Teffp = 2908 [295] K [3.61σ]

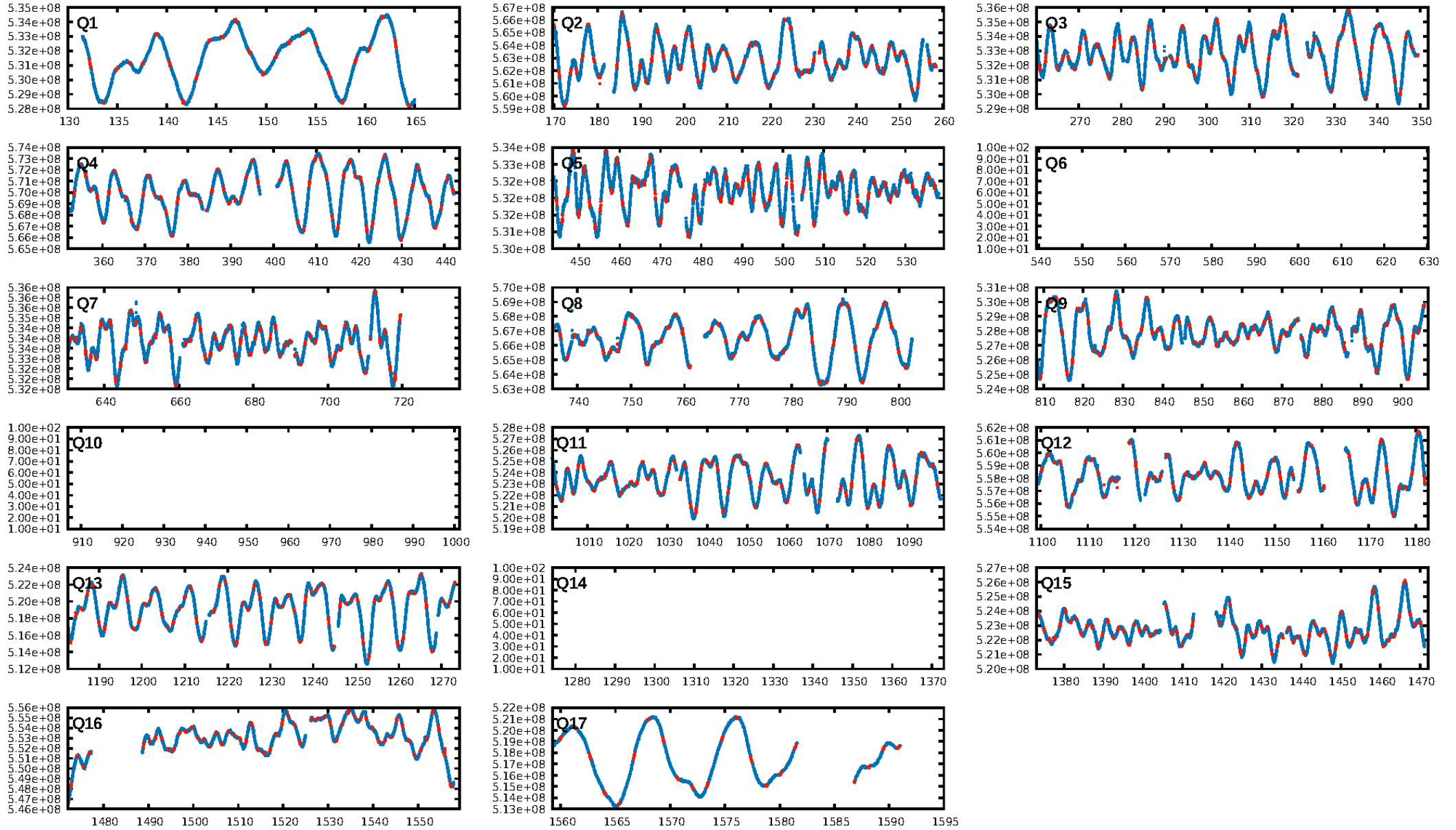
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.80 [602/755]
GhostDiagnostic-chr: 2.532
Centroid-sig: 17.6%
Centroid-so: 0.376 arcsec [1.72σ]
OotOffset-rm: 0.106 arcsec [0.17σ]
KicOffset-rm: 0.246 arcsec [0.61σ]
OotOffset-st: 1/3/4/4 [12]
KicOffset-st: 1/3/4/4 [12]
DiffImageQuality-fgm: 0.92 [11/12]
DiffImageOverlap-fno: 1.00 [14/14]

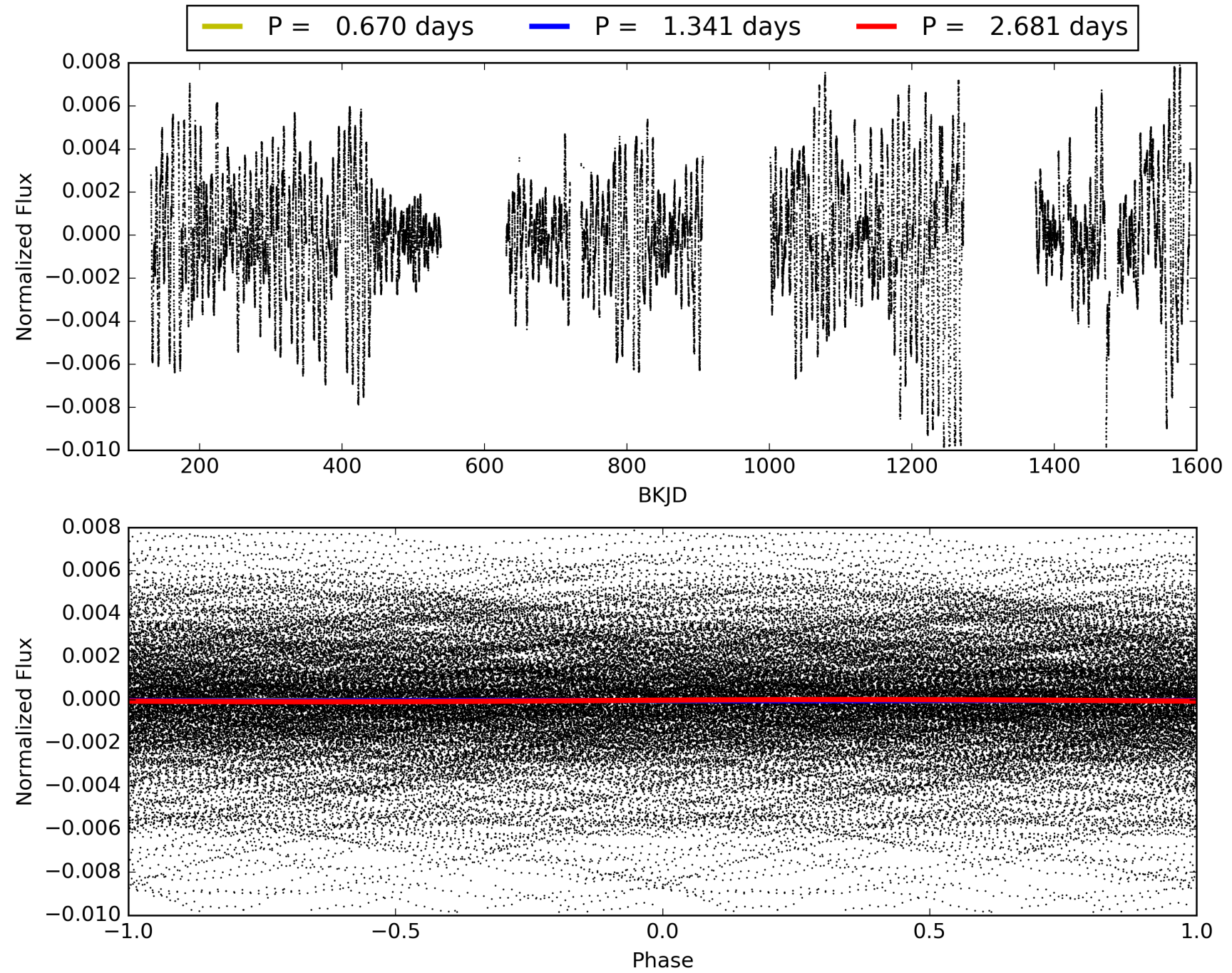
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:46:18 Z

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

TCE 004278221-01, PDC Light Curves

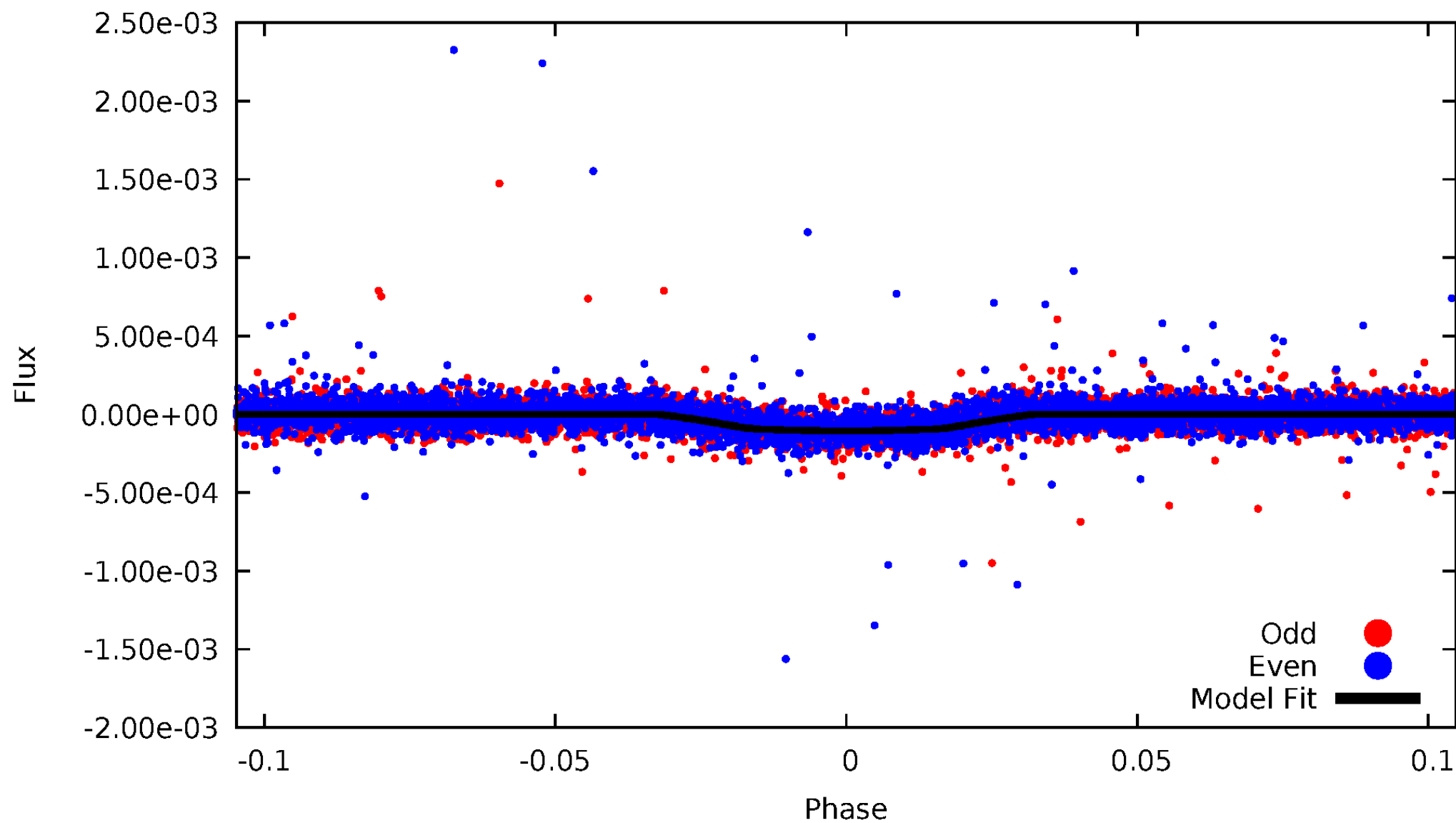


TCE 004278221-01



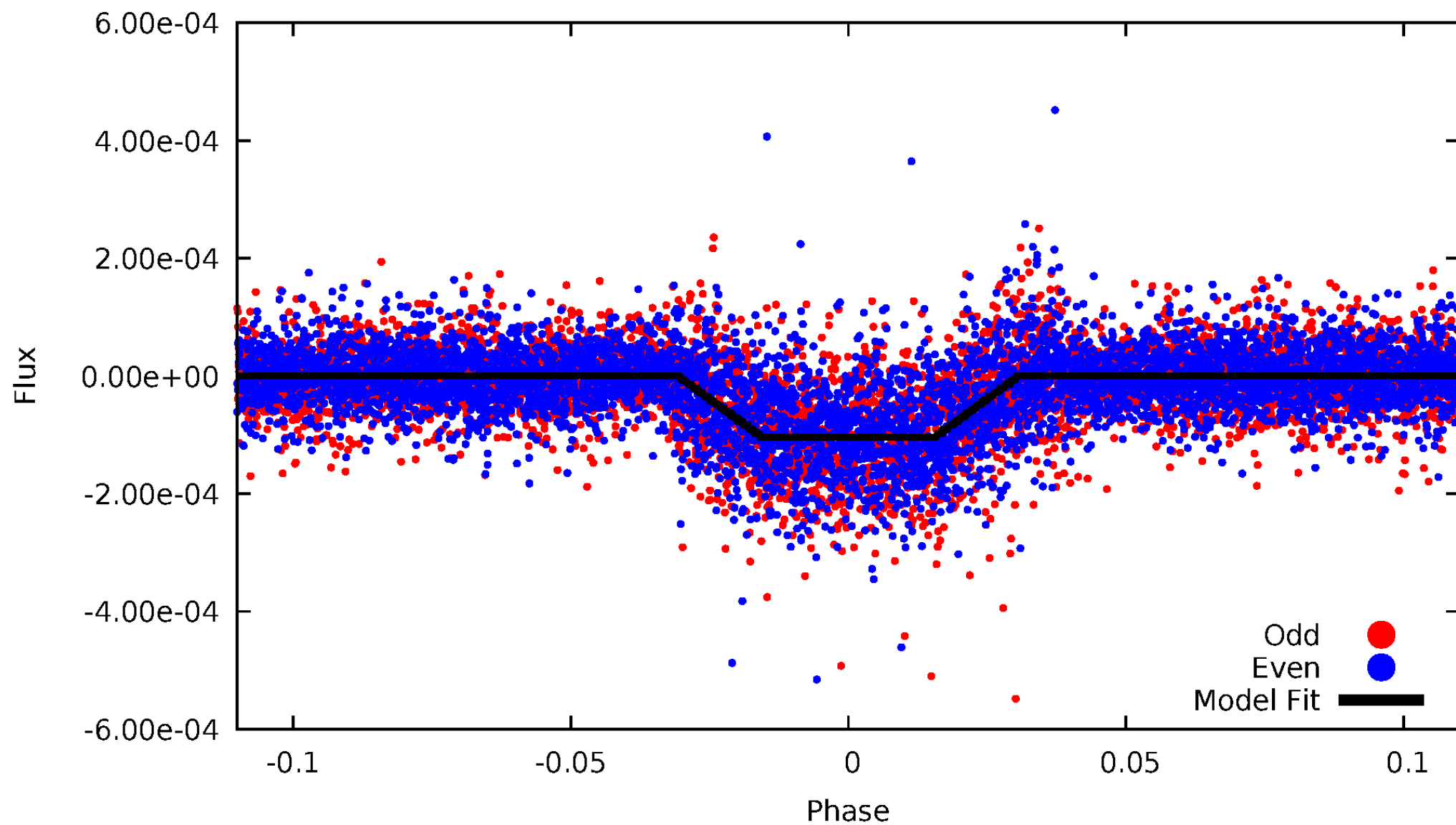
DV Odd/Even

TCE 004278221-01



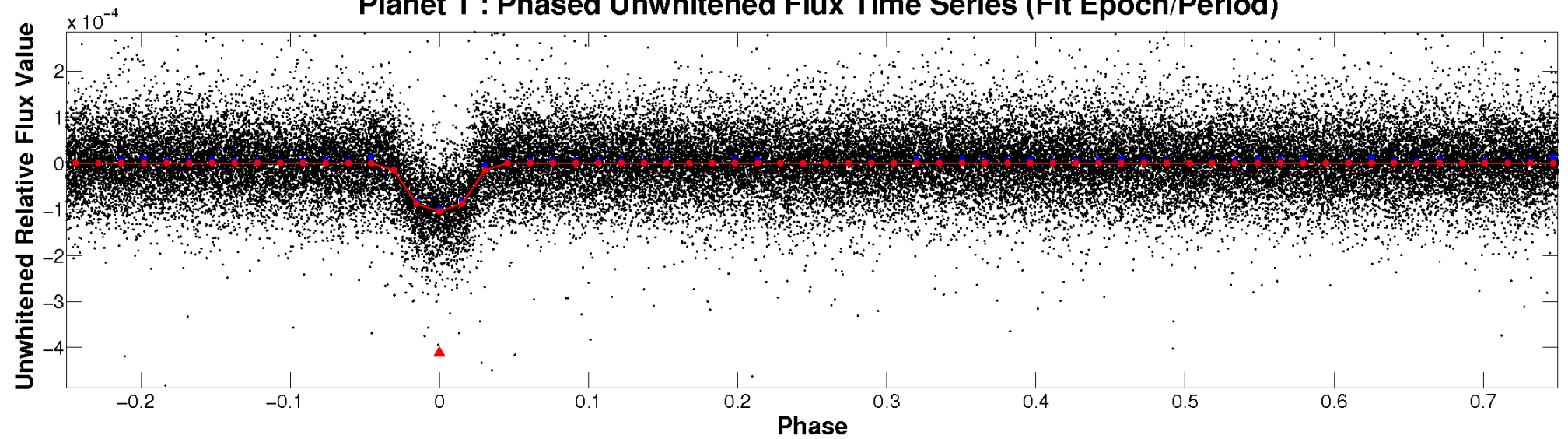
ALT Odd/Even

TCE 004278221-01

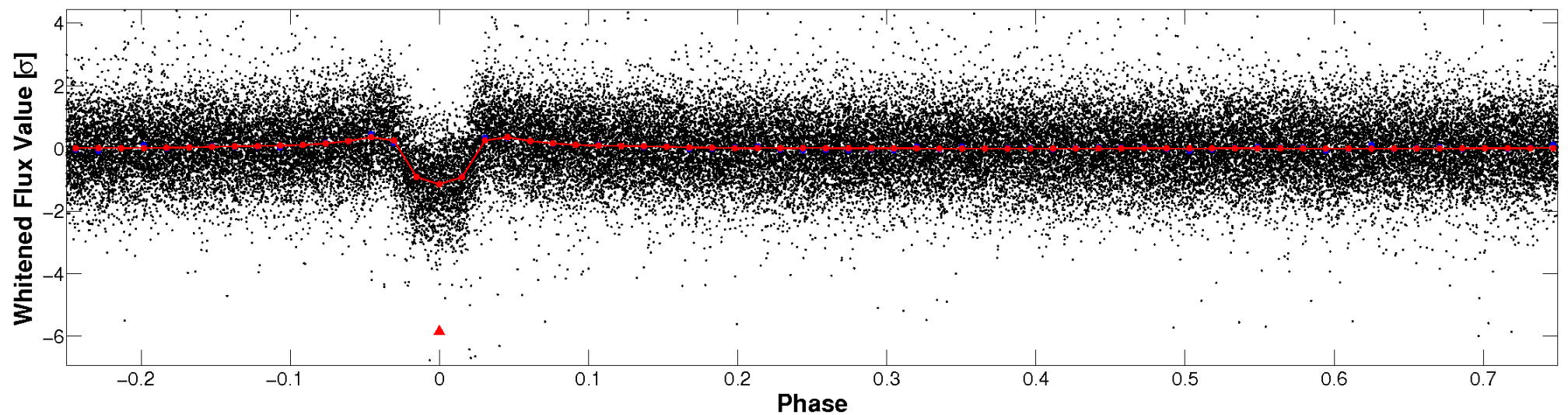


Non-Whitened Vs. Whitened Light Curve

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

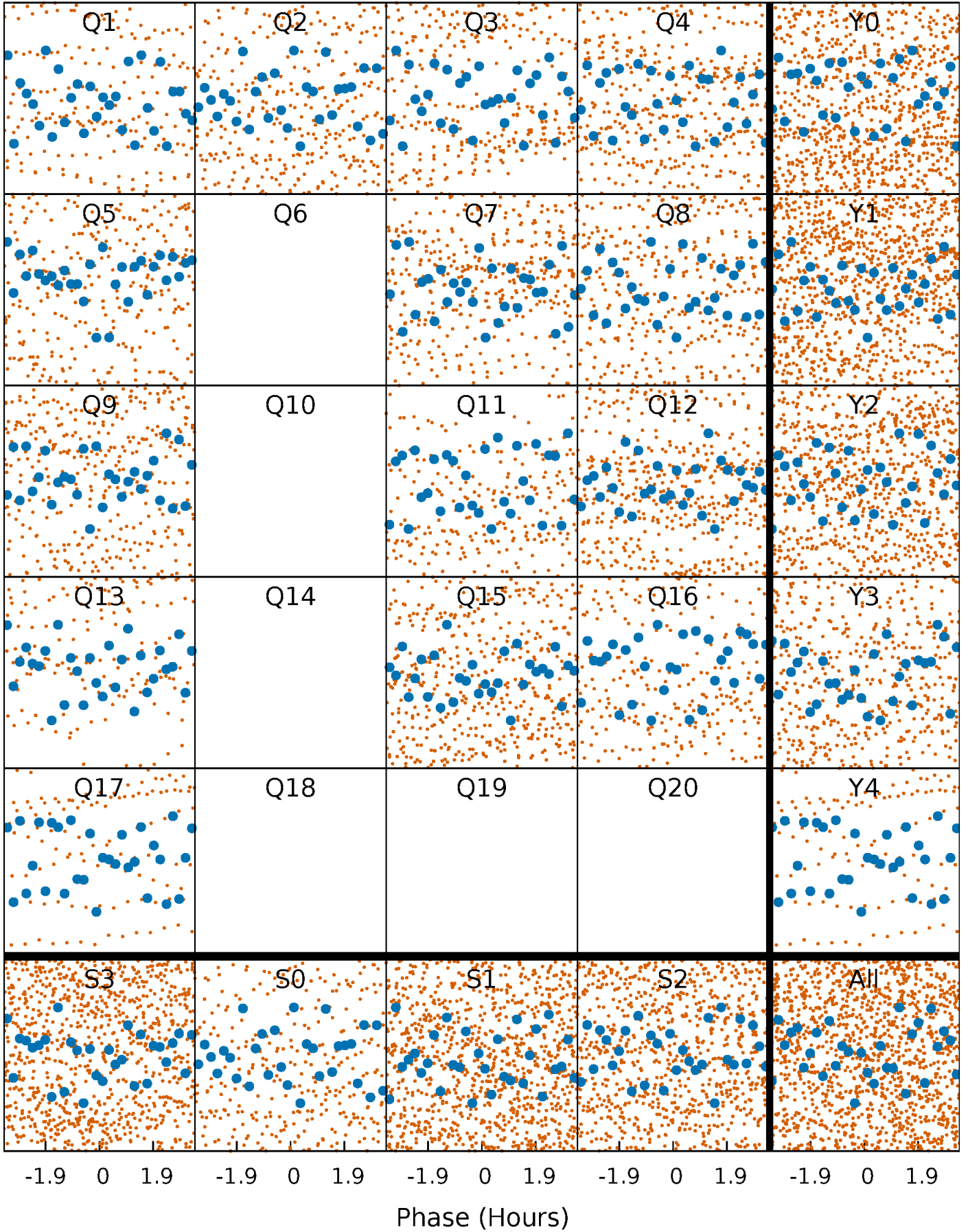


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



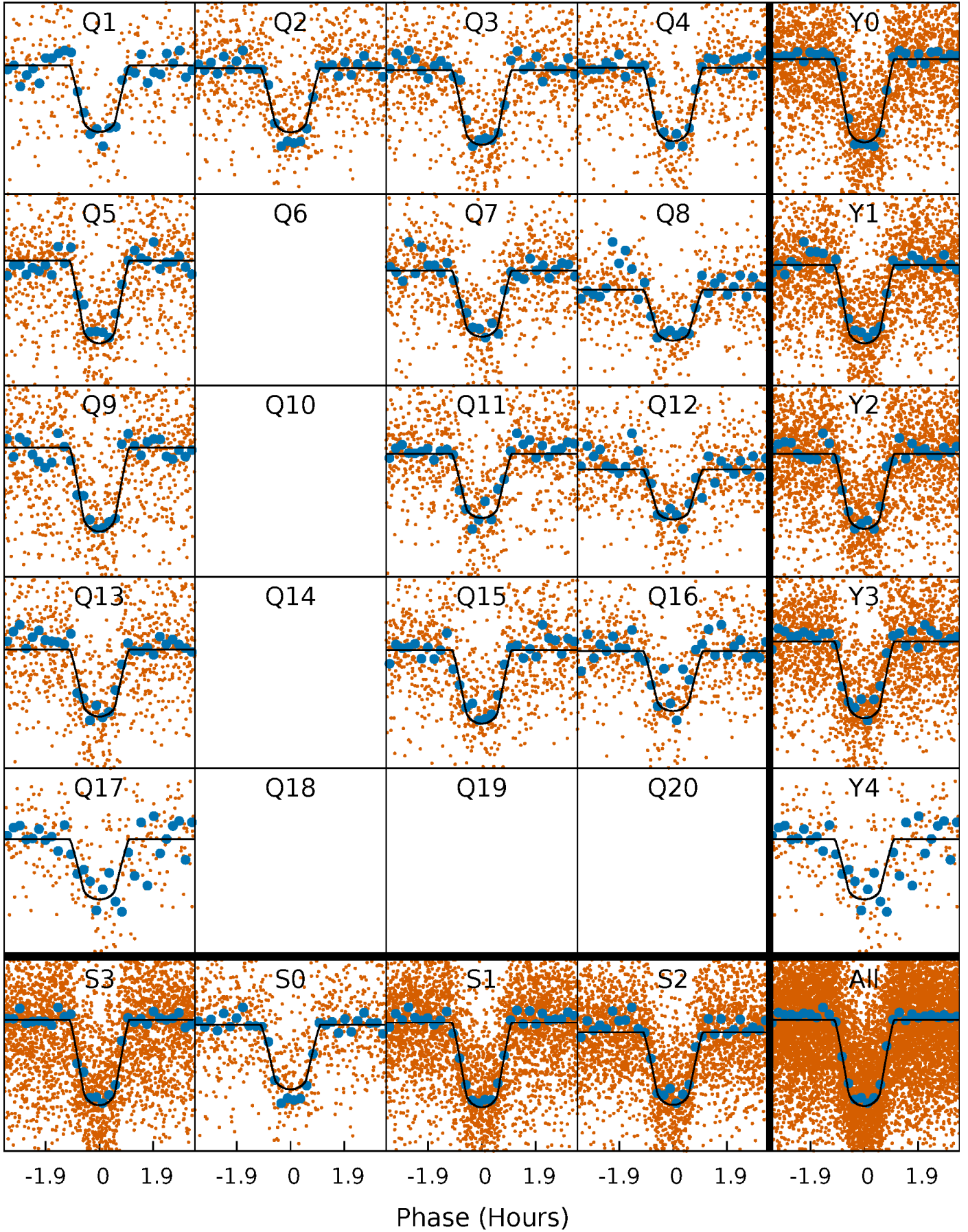
PDC Quarter-Phased Transit Curves

TCE 004278221-01 P= 1.340605 Days $T_0=132.242582$ (BKJD)



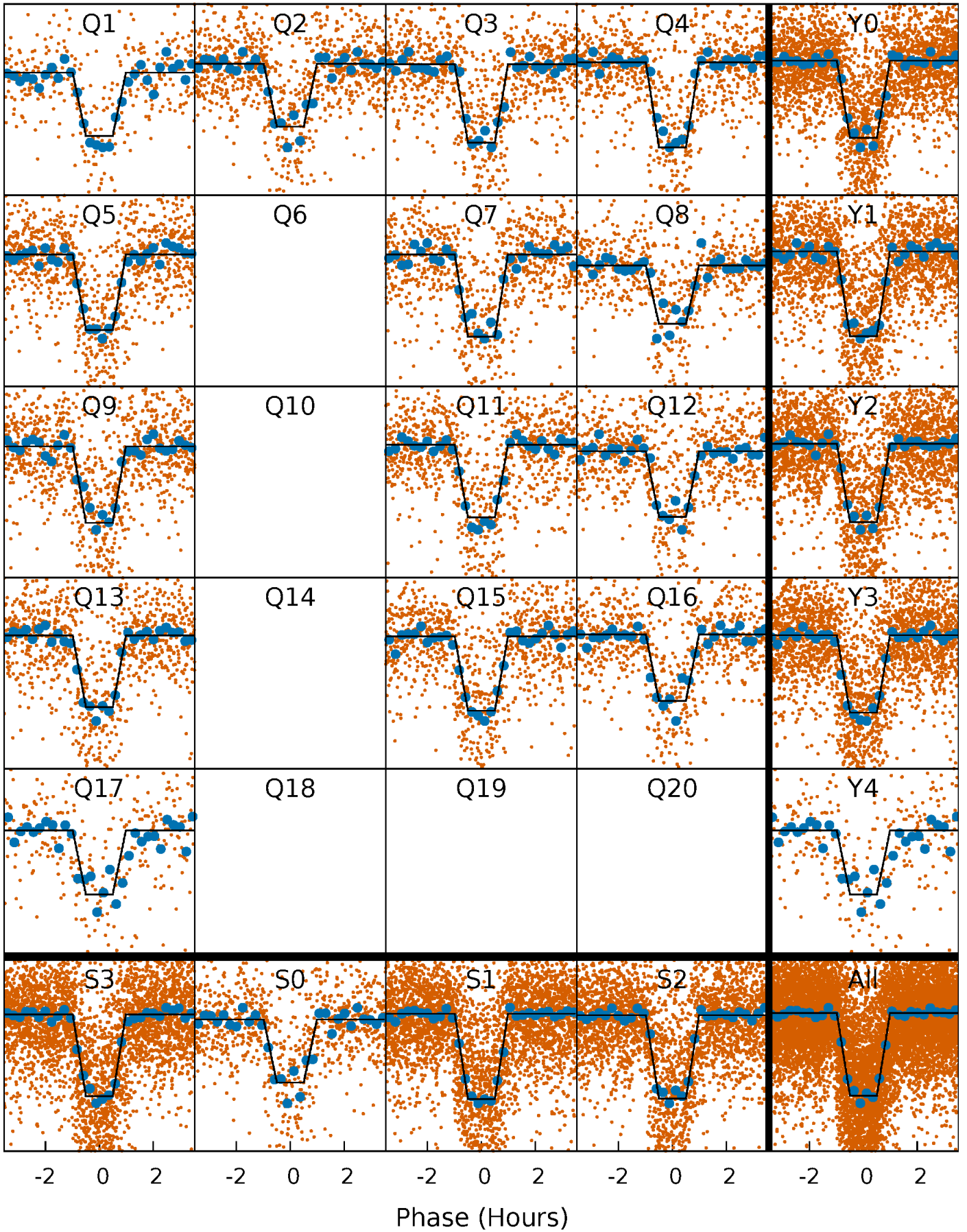
DV Quarter-Phased Transit Curves

TCE 004278221-01 P= 1.340605 Days $T_0=132.242582$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

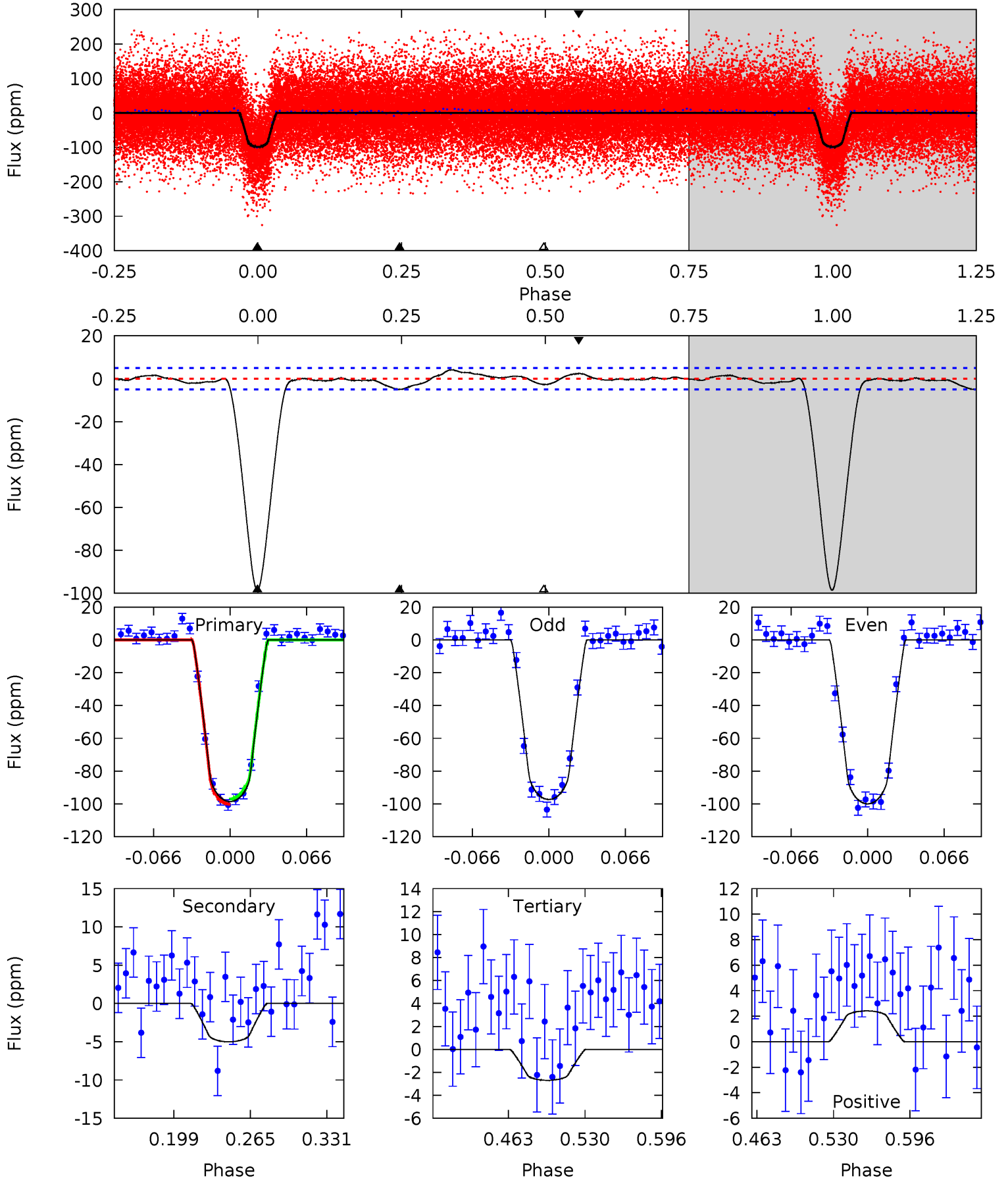
TCE 004278221-01 P= 1.340601 Days $T_0=132.243497$ (BKJD)



DV Model-Shift Uniqueness Test

004278221-01, P = 1.340605 Days, E = 130.901977 Days

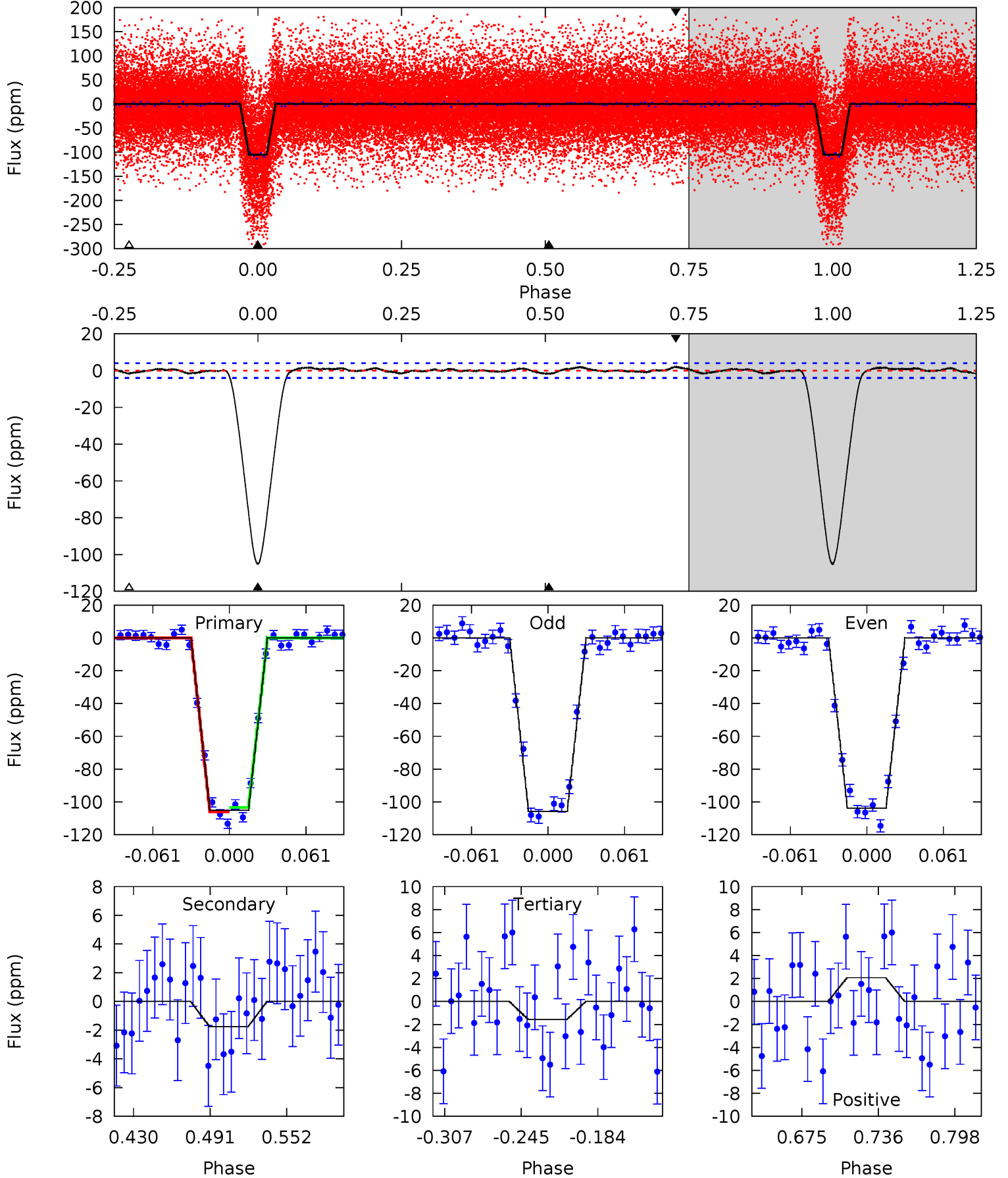
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
91.6	4.65	2.51	2.25	4.65	1.84	1.30	89.1	89.4	2.15	2.41	1.25	1.00	0.04	1.50



Alt Model-Shift Uniqueness Test

004278221-01, P = 1.340601 Days, E = 130.902896 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
122.0	2.03	1.83	2.40	4.67	1.87	0.86	120.1	119.6	0.20	-0.37	1.18	1.01	0.02	1.47



Stellar Parameters For KIC 004278221

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5992^{+119}_{-119}	$4.385^{+0.054}_{-0.117}$	$0.180^{+0.150}_{-0.150}$	$1.125^{+0.186}_{-0.093}$	$1.122^{+0.078}_{-0.078}$	$1.110^{+0.280}_{-0.378}$
	+2%/-2%	+1%/-3%	+83%/-83%	+17%/-8%	+7%/-7%	+25%/-34%
Source	SPE59	SPE59	SPE59	DSEP		

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

Secondary Eclipse Parameters for KIC 004278221-01 / KOI 1615.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-5 ± 1	$1.40^{+0.19}_{-0.16}$	2515^{+109}_{-86}	3069^{+190}_{-231}	$0.863^{+0.303}_{-0.247}$
Alt.	-2 ± 1	$1.26^{+0.20}_{-0.17}$	2510^{+110}_{-85}	2323^{+457}_{-4811}	$0.367^{+0.221}_{-0.179}$

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

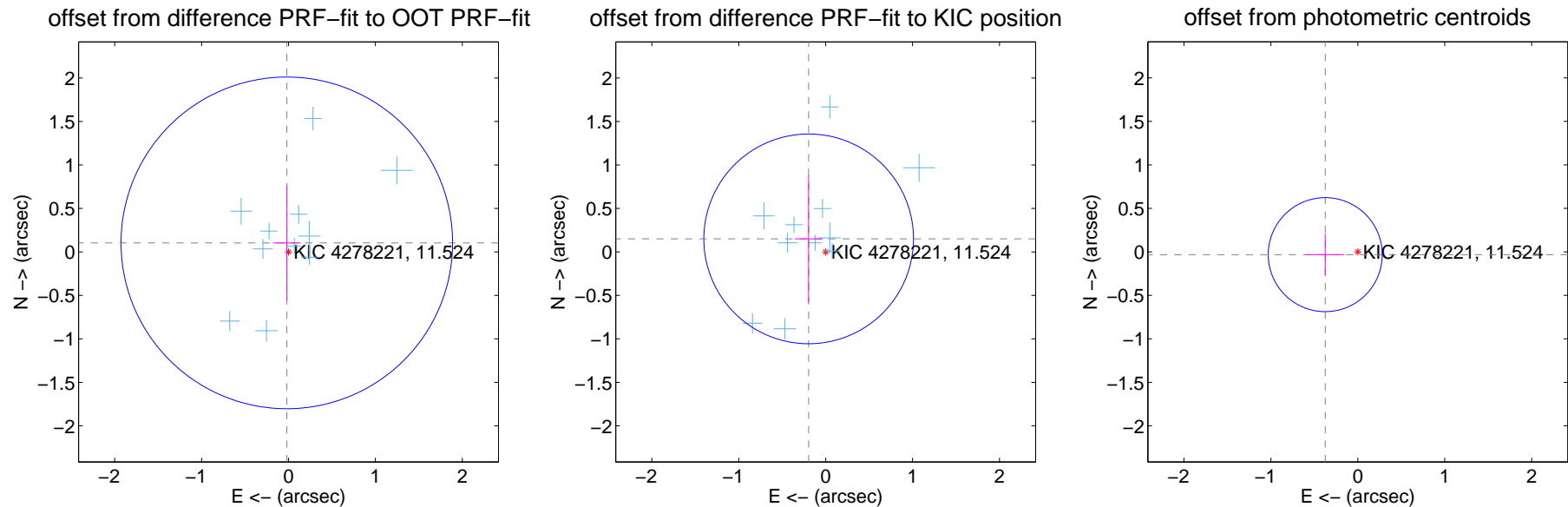
DV Centroid Data

Supplemental centroid analysis for 004278221-01. **Kepler magnitude: 11.52.** Transit SNR 53.49

There are 11 quarters with good PRF difference image offsets

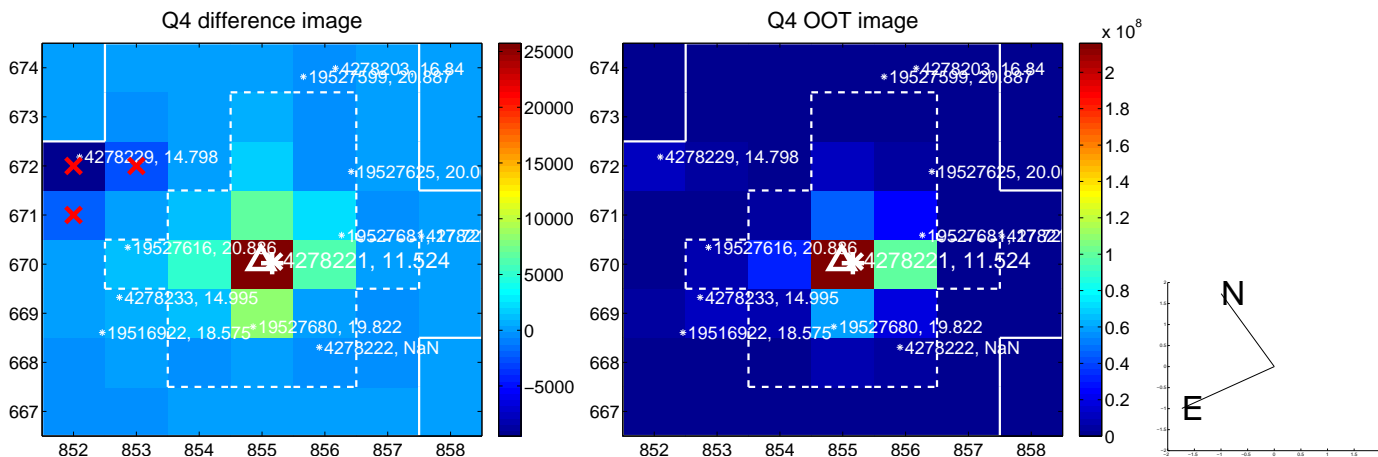
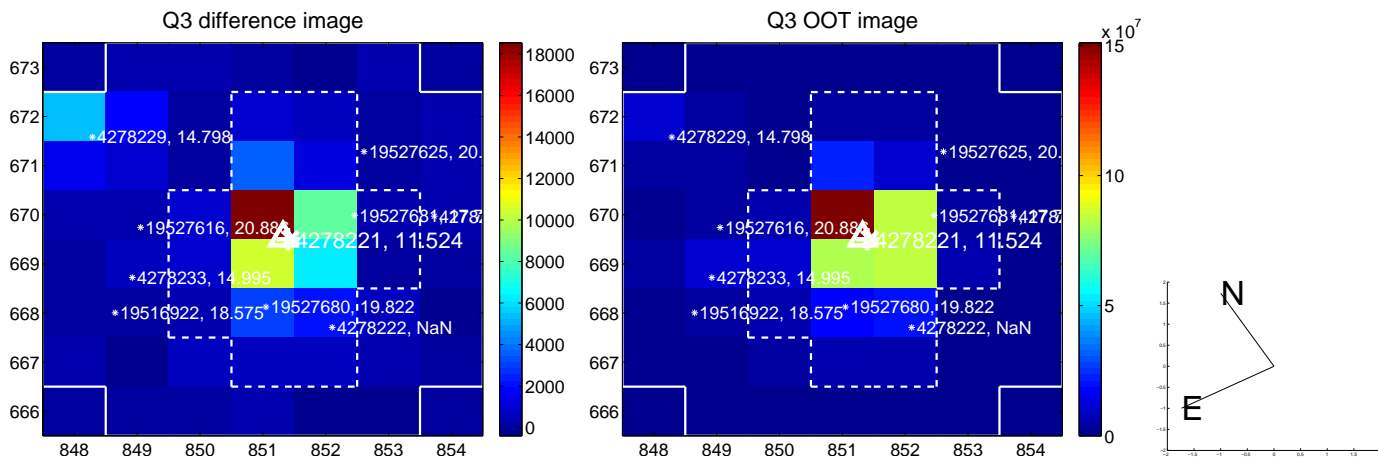
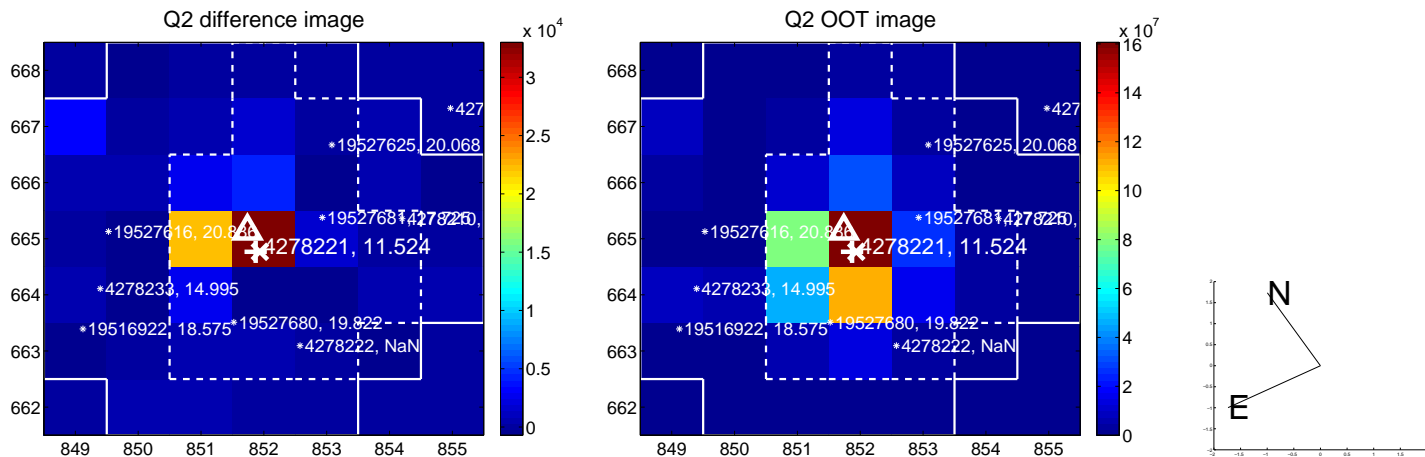
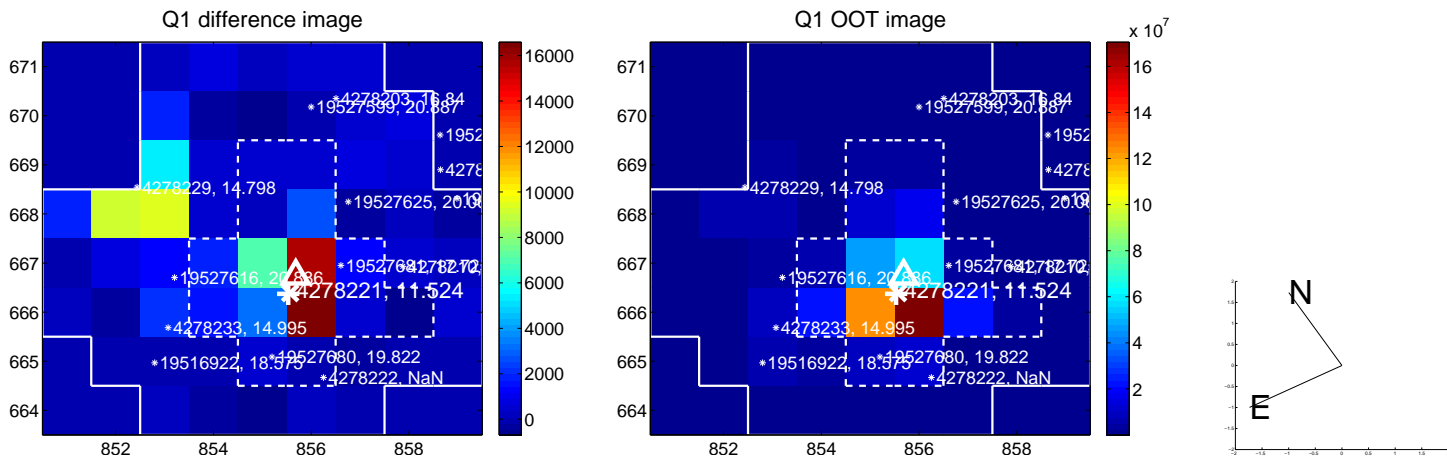
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.106 ± 0.636	0.17	0.019 ± 0.160	0.104 ± 0.662
PRF-fit source offset from KIC position	0.246 ± 0.402	0.61	0.196 ± 0.162	0.150 ± 0.731
photometric centroid source offset	0.38 ± 0.22	1.72	0.37 ± 0.22	-0.03 ± 0.24

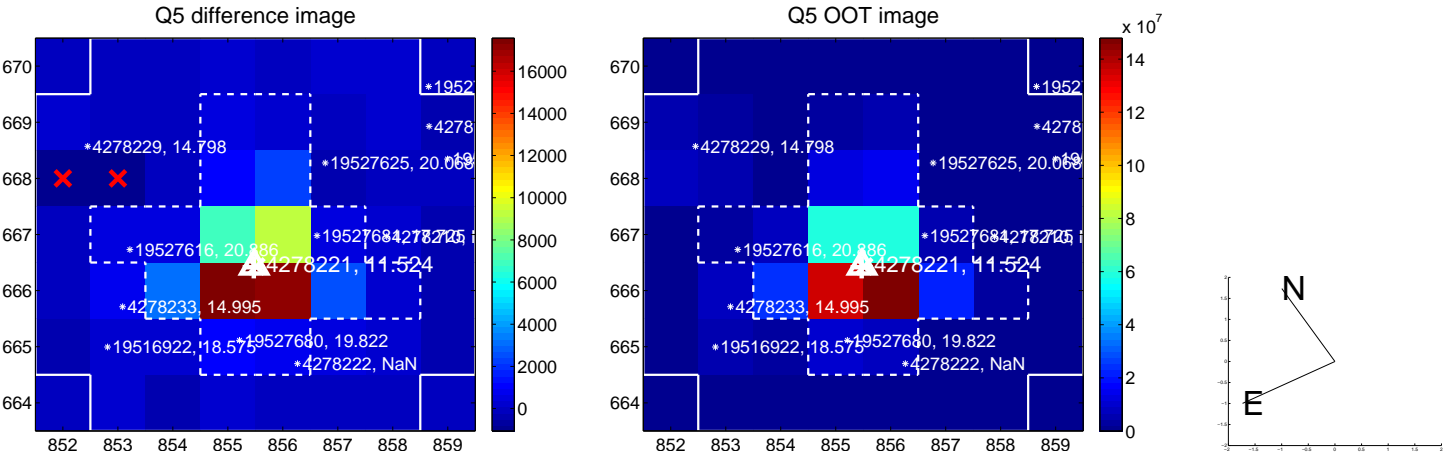


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

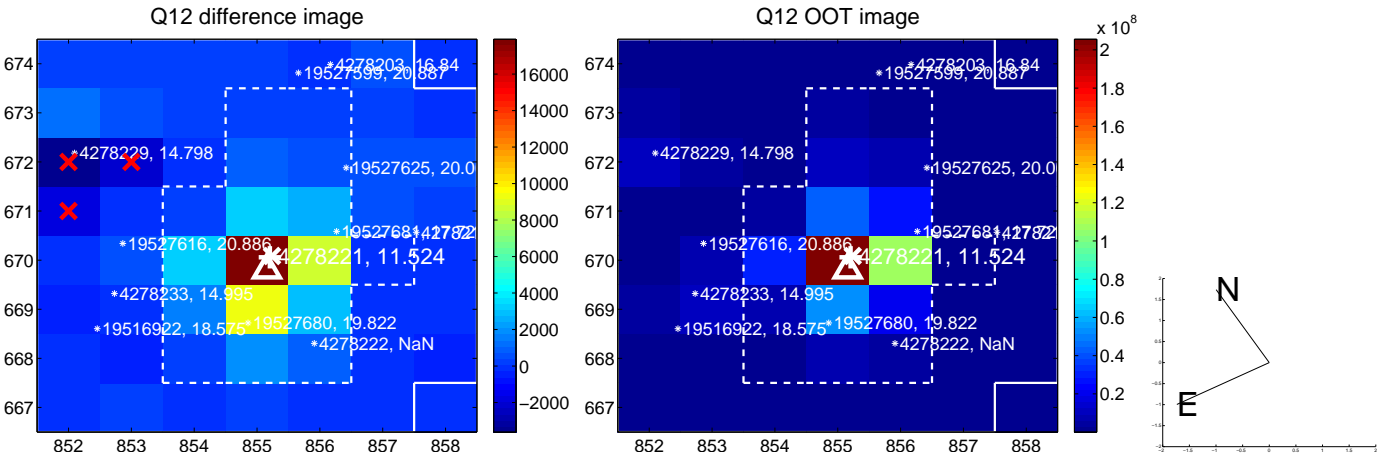
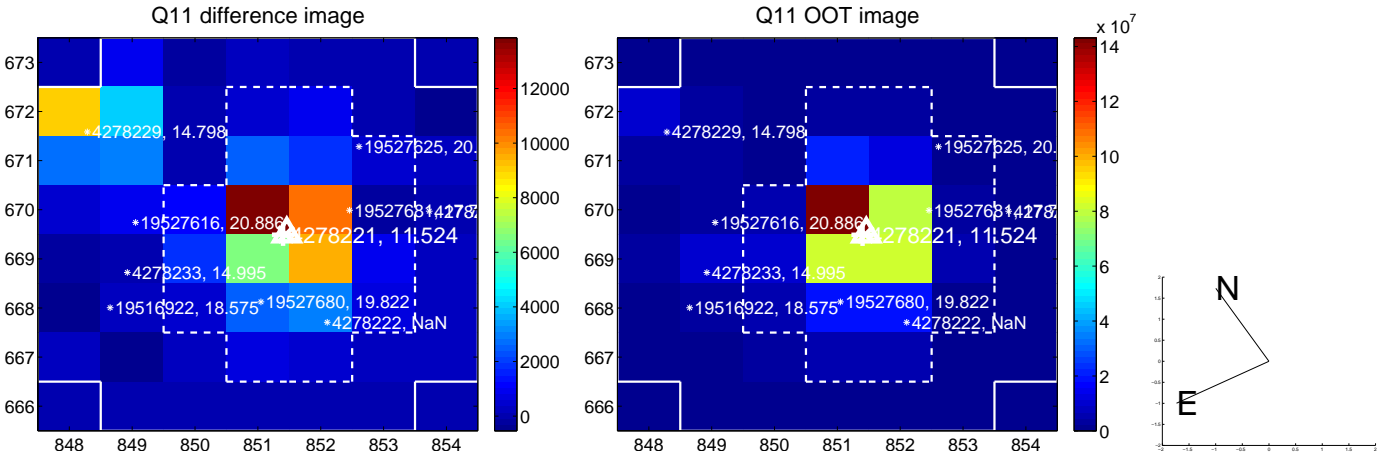
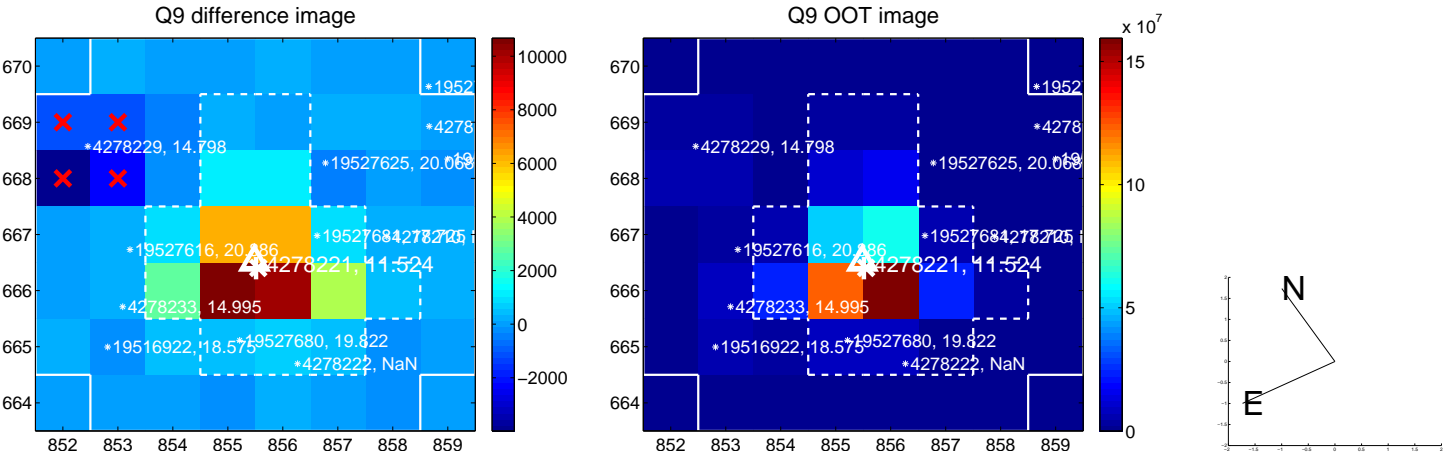
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



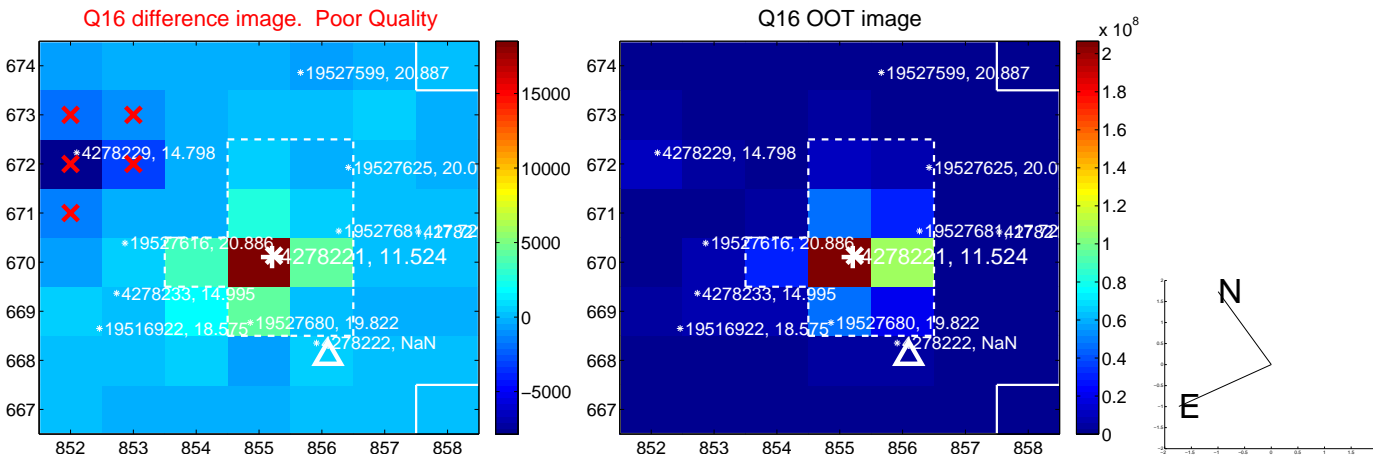
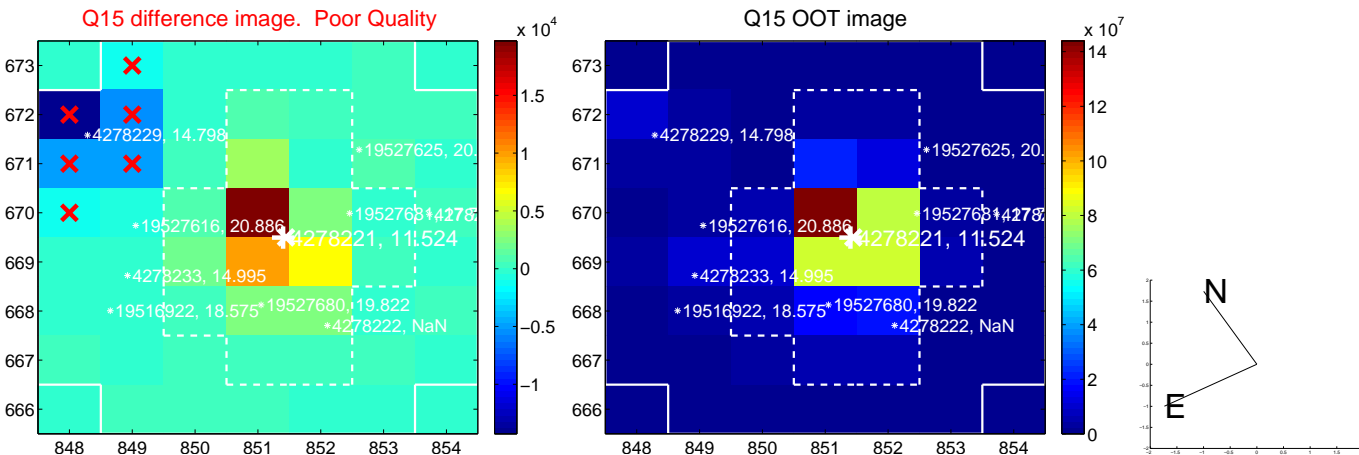
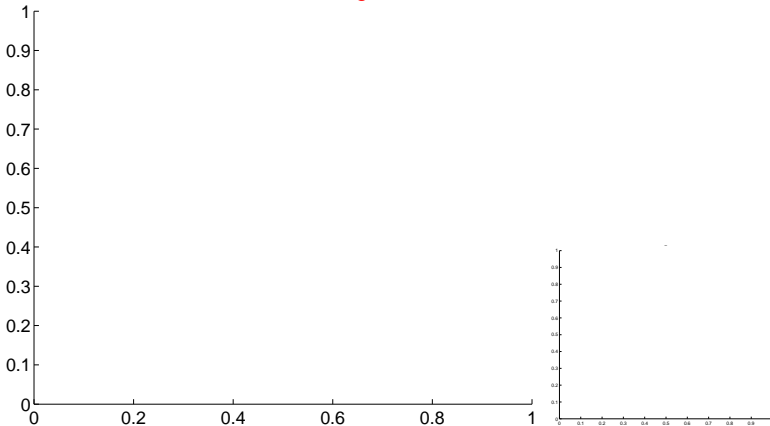
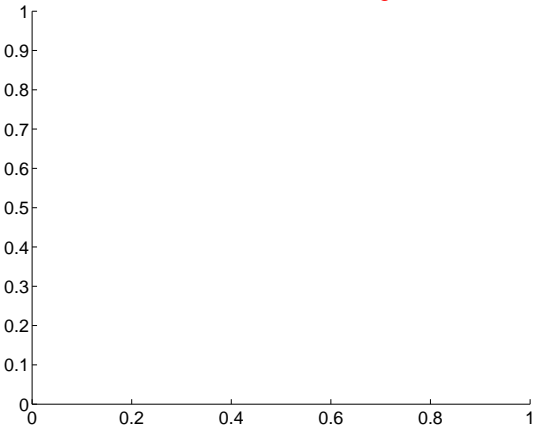
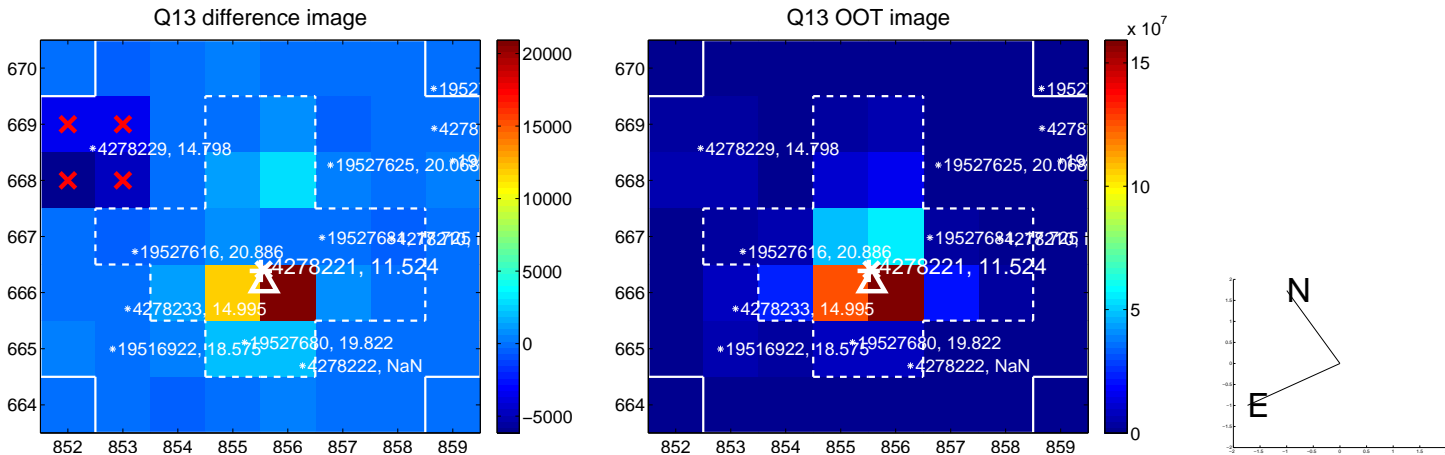
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



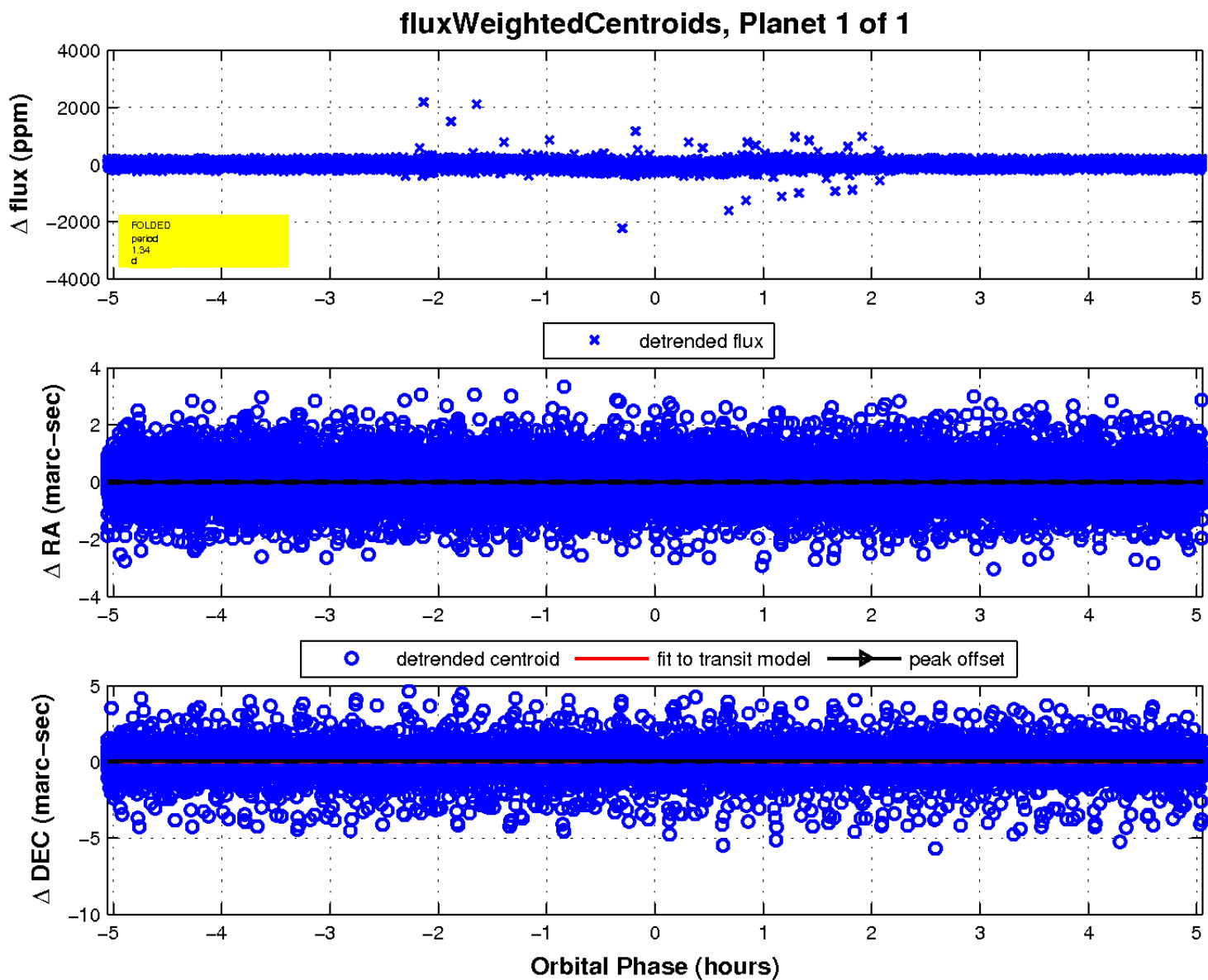
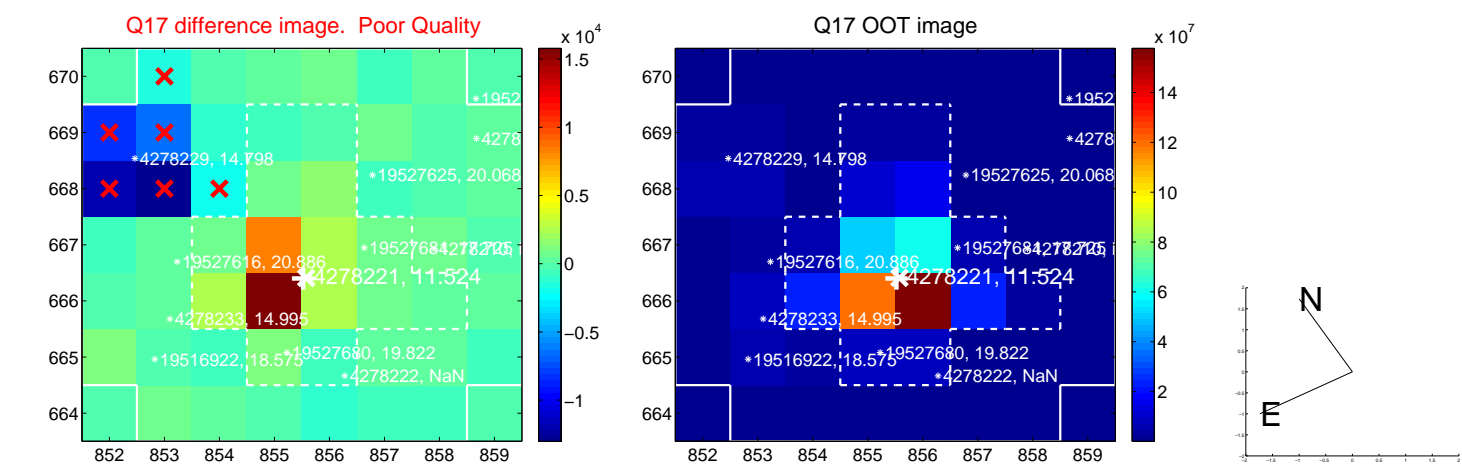
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UKIRT Image

