

KIC 012453581

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})
012453581-01	OBS	2424.01	11.940130	136.559812	637.4	3.036	14.8	16.2	0.75	5073	2.28	36.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012453581-01	OBS	PC	0.99	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.

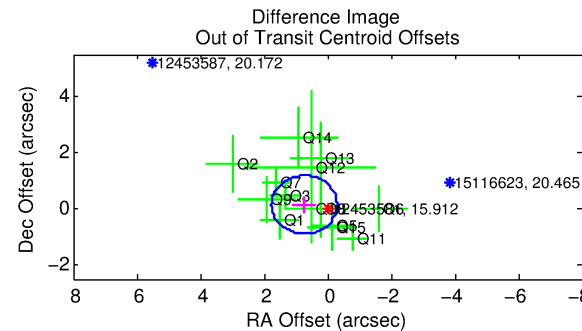
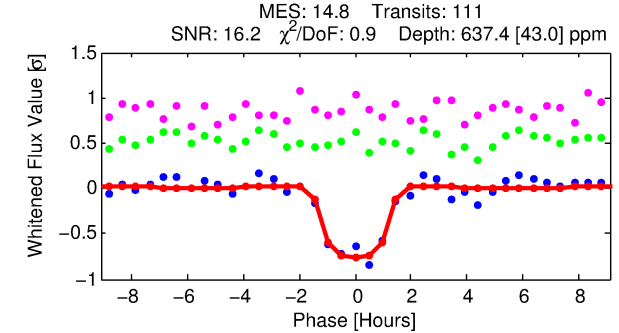
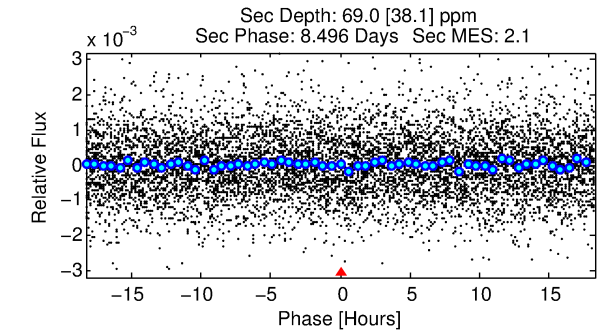
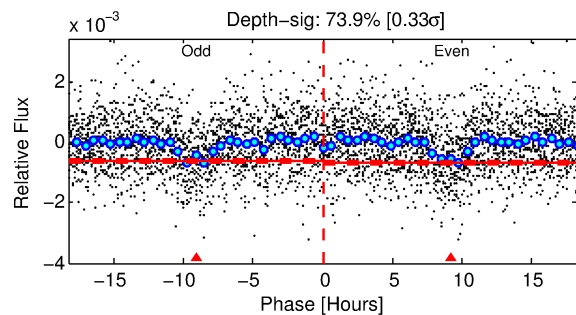
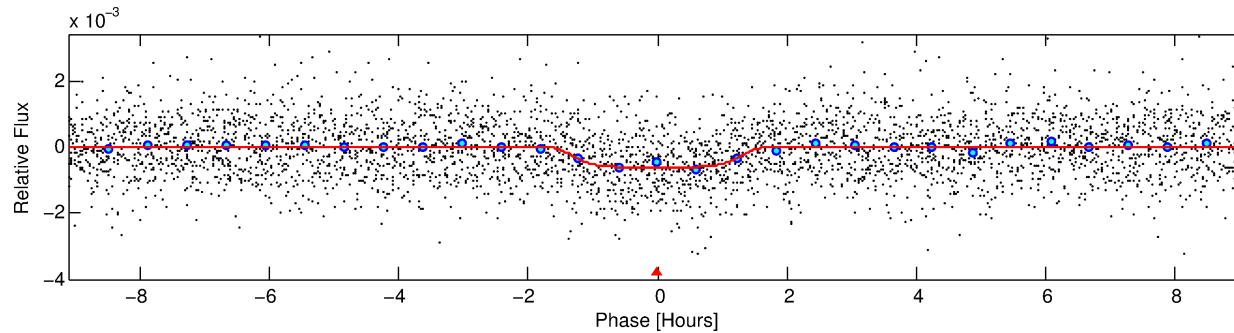
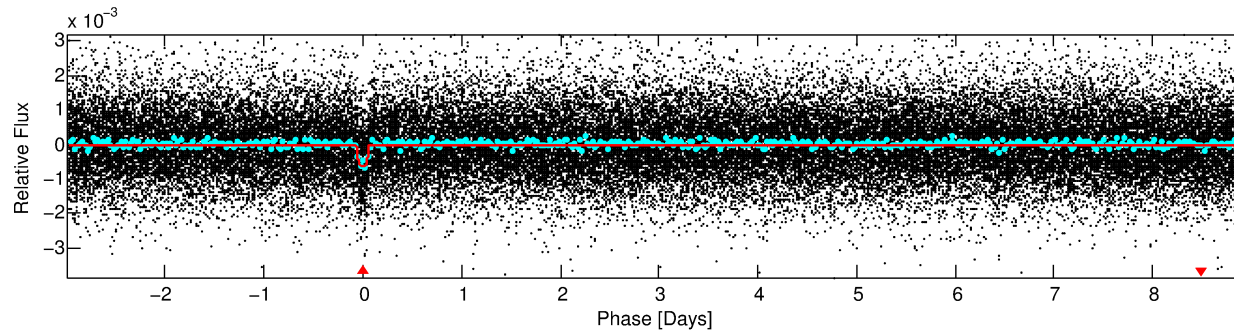
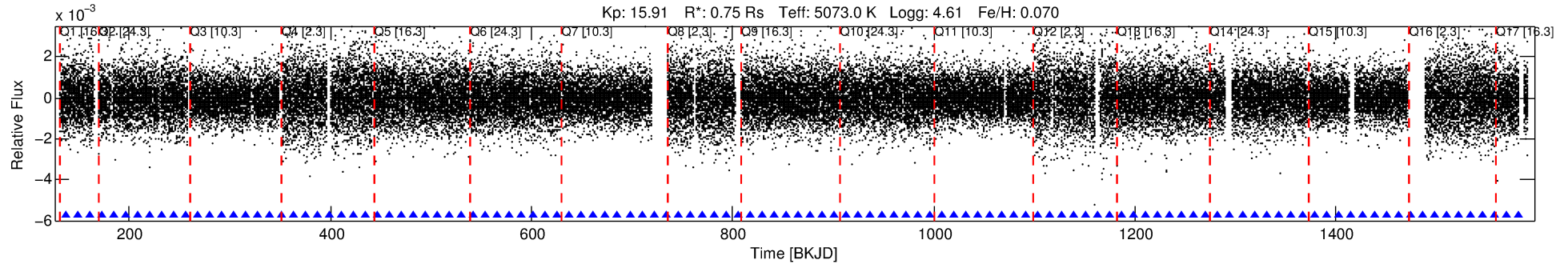
Ephemeris Match Information For 012453581-01

No Significant Match Found

DV One-Page Summary

KIC: 12453581 Candidate: 1 of 1 Period: 11.940 d

KOI: K02424.01 Corr: 0.935



DV Fit Results:

Period = 11.94013 [0.00007] d
Epoch = 136.5598 [0.0045] BKJD
Rp/R* = 0.0280 [0.0071]
a/R* = 15.27 [14.70]
b = 0.89 [0.22]
Seff = 36.08 [7.38]
Teq = 625 [32] K
Rp = 2.28 [0.65] Re
a = 0.0959 [0.0104] AU
Ag = 66.94 [51.18] [1.29 σ]
Teffp = 2764 [525] K [4.06 σ]

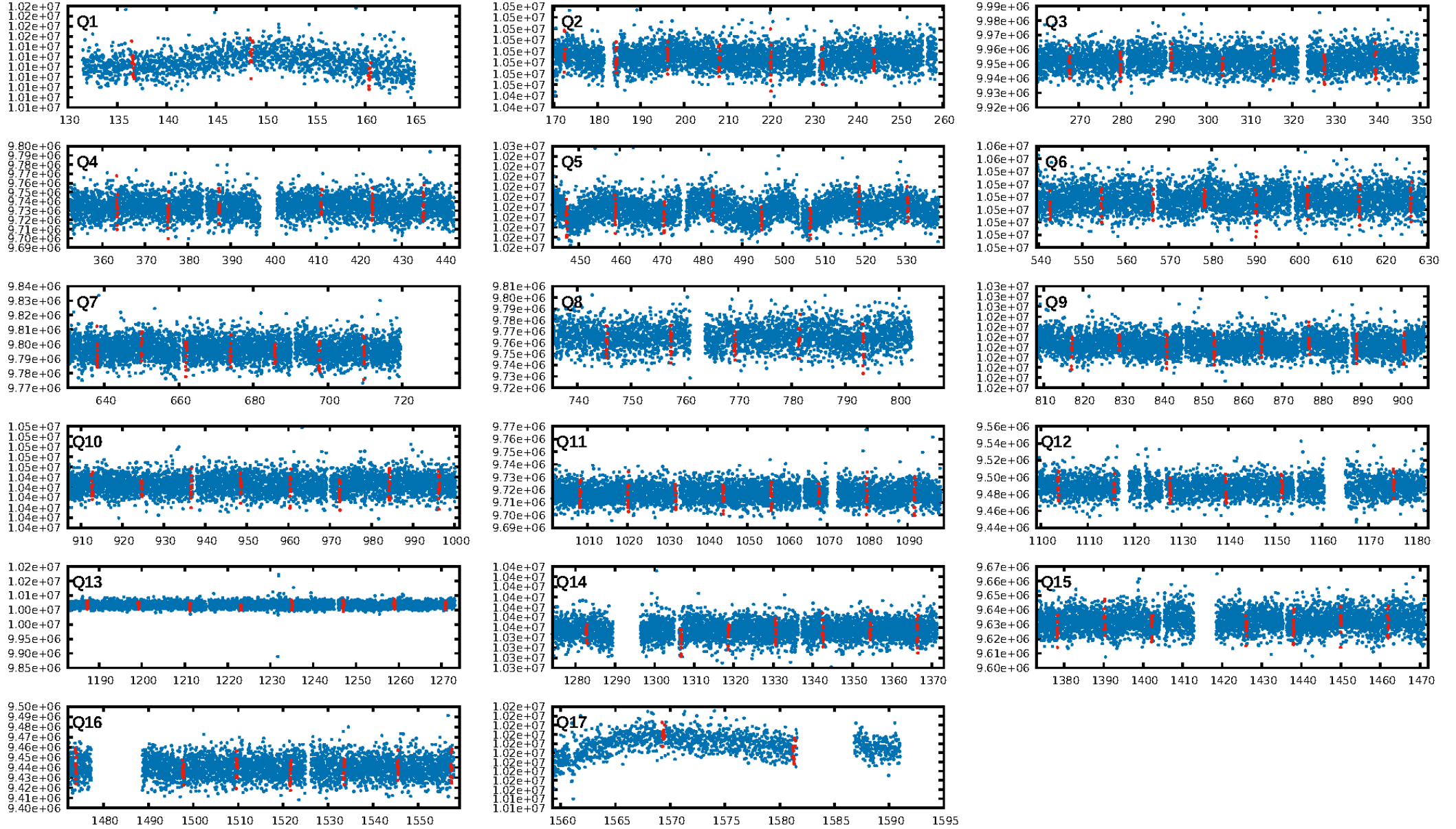
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 97.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.28e-50
RollingBand-fgt: 1.00 [106/106]
GhostDiagnostic-chr: 3.142
Centroid-sig: 1.5%
Centroid-so: 2.717 arcsec [2.69 σ]
OotOffset-rm: 0.749 arcsec [2.17 σ]
KicOffset-rm: 0.723 arcsec [1.96 σ]
OotOffset-st: 4/4/2/4 [14]
KicOffset-st: 4/4/2/4 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 1.00 [17/17]

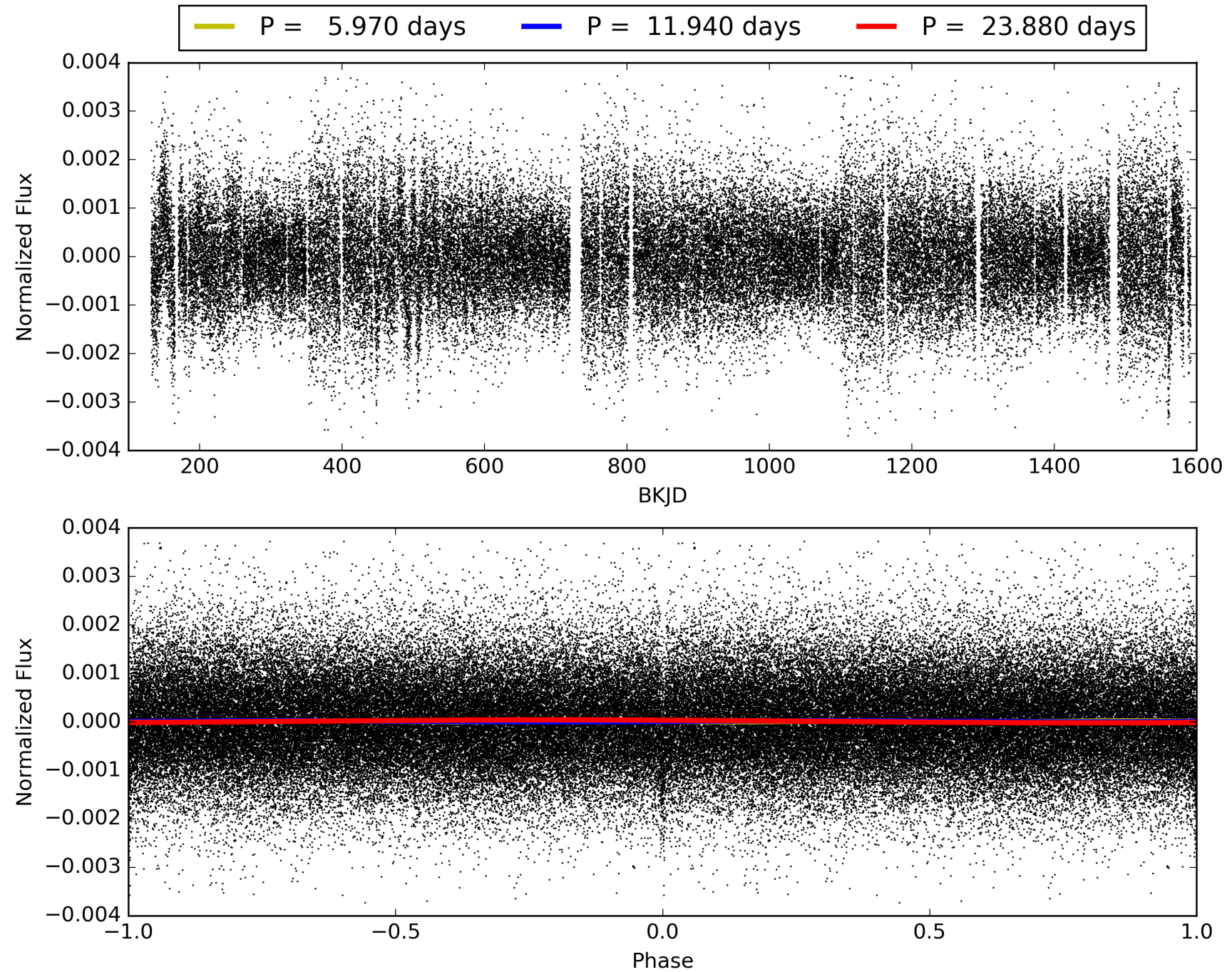
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 18:50:21 Z

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

TCE 012453581-01, PDC Light Curves

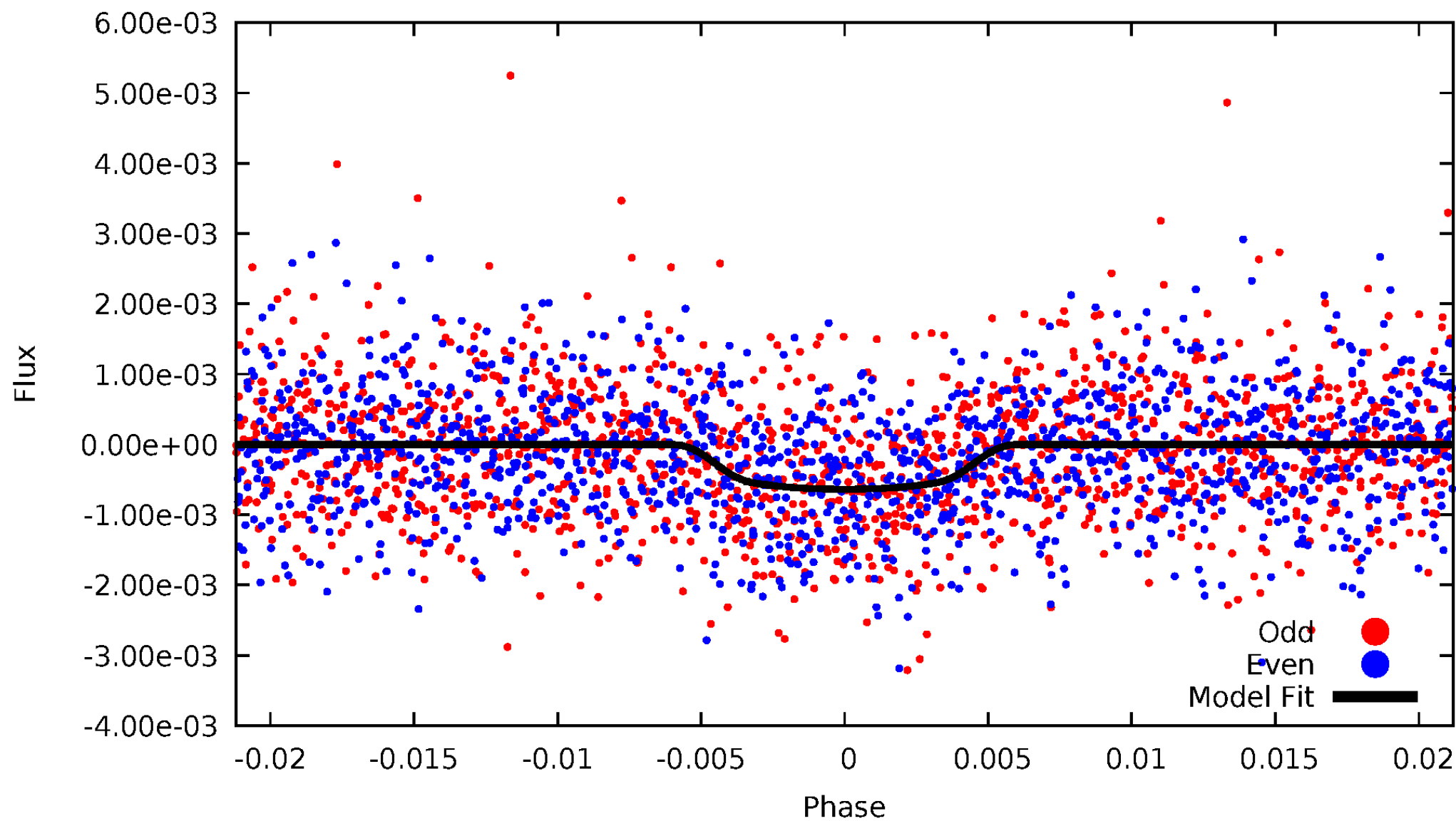


TCE 012453581-01



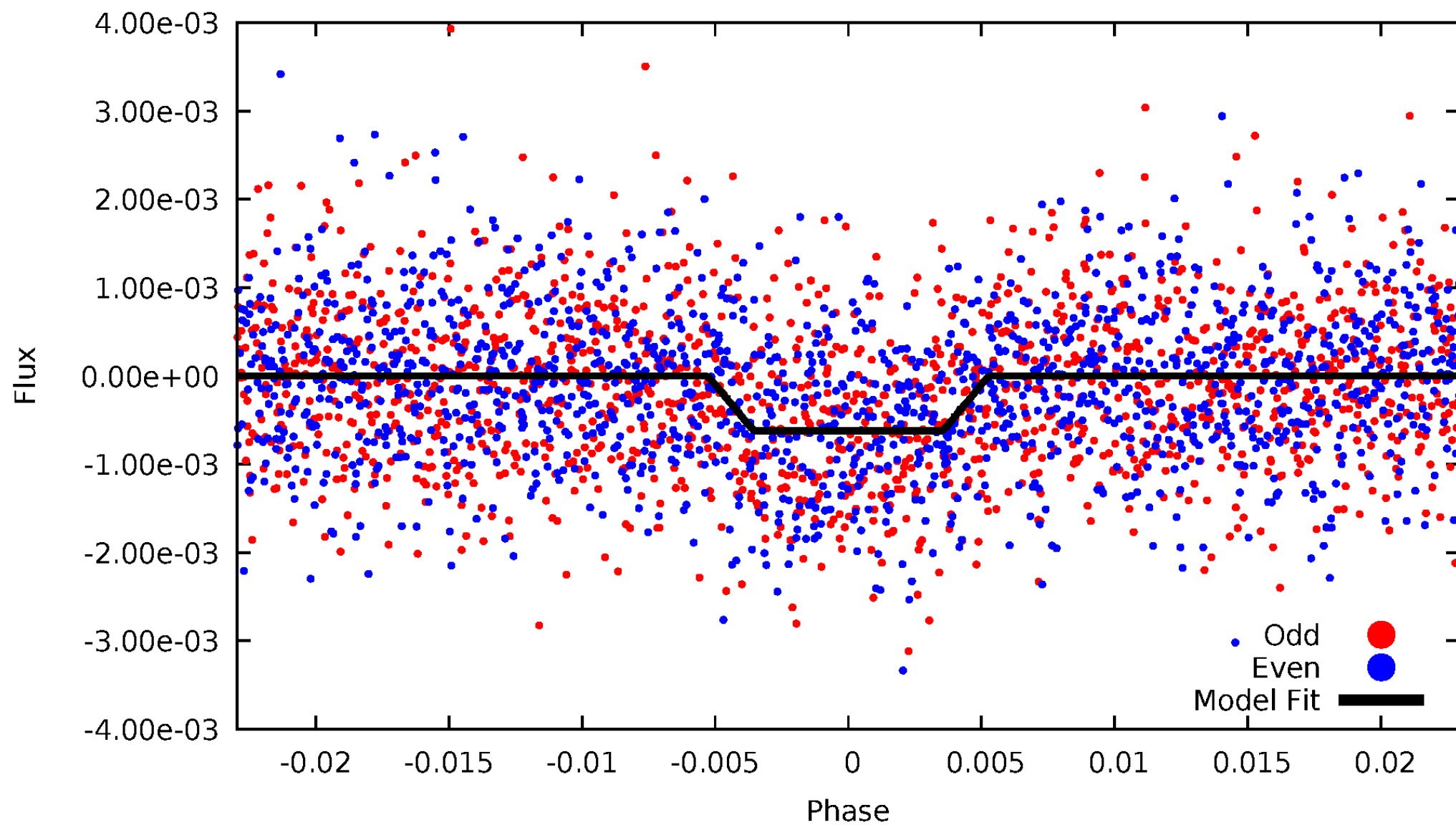
DV Odd/Even

TCE 012453581-01



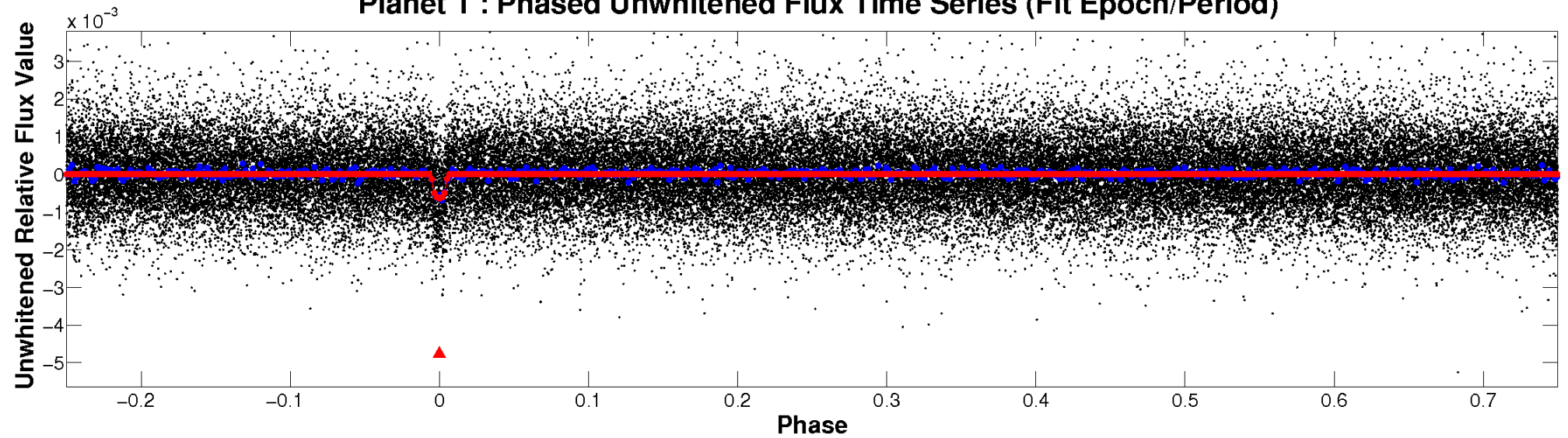
ALT Odd/Even

TCE 012453581-01

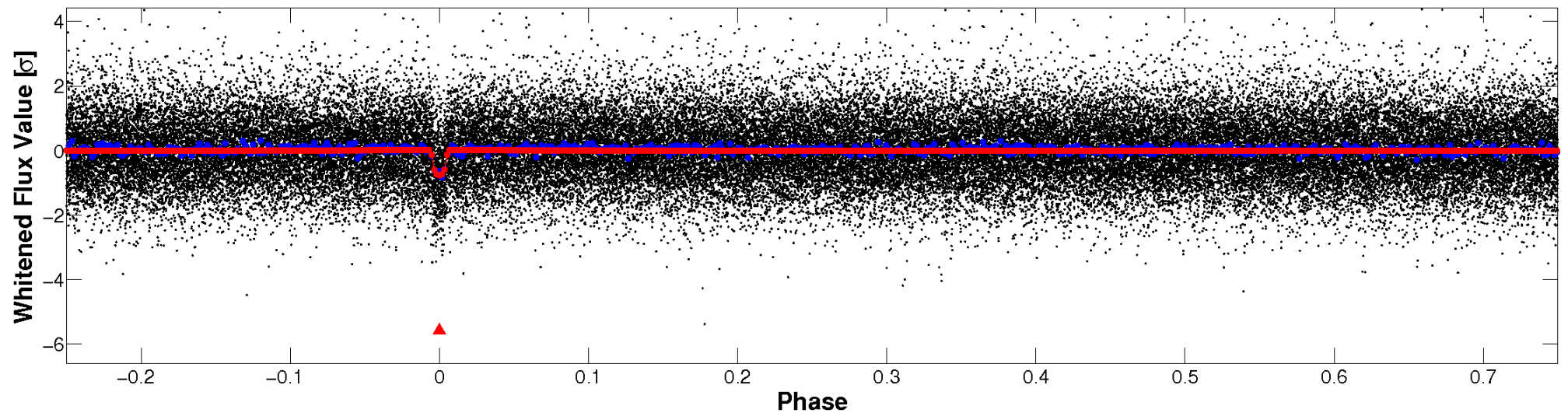


Non-Whitened Vs. Whitened Light Curve

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

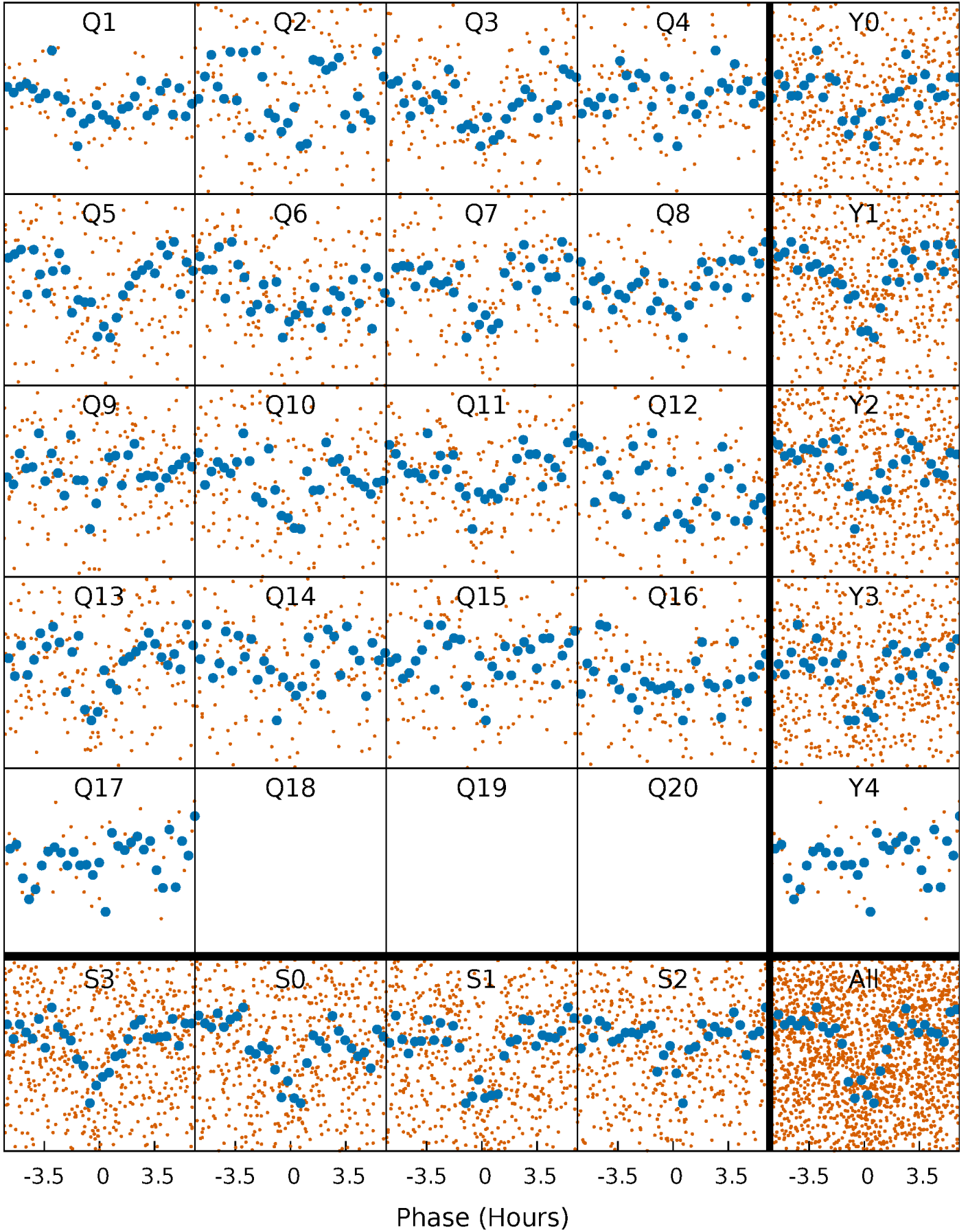


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



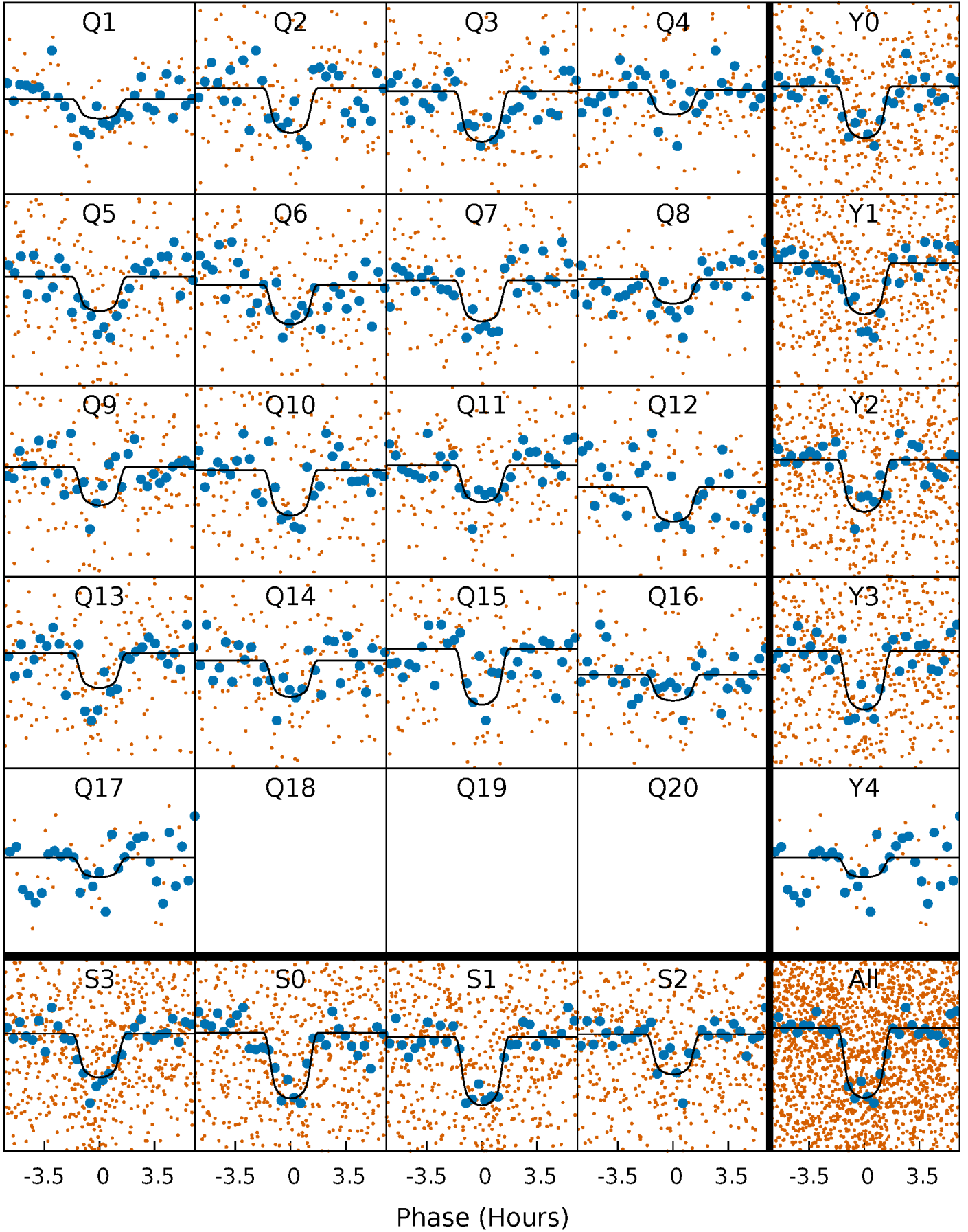
PDC Quarter-Phased Transit Curves

TCE 012453581-01 P= 11.940130 Days $T_0=136.559812$ (BKJD)



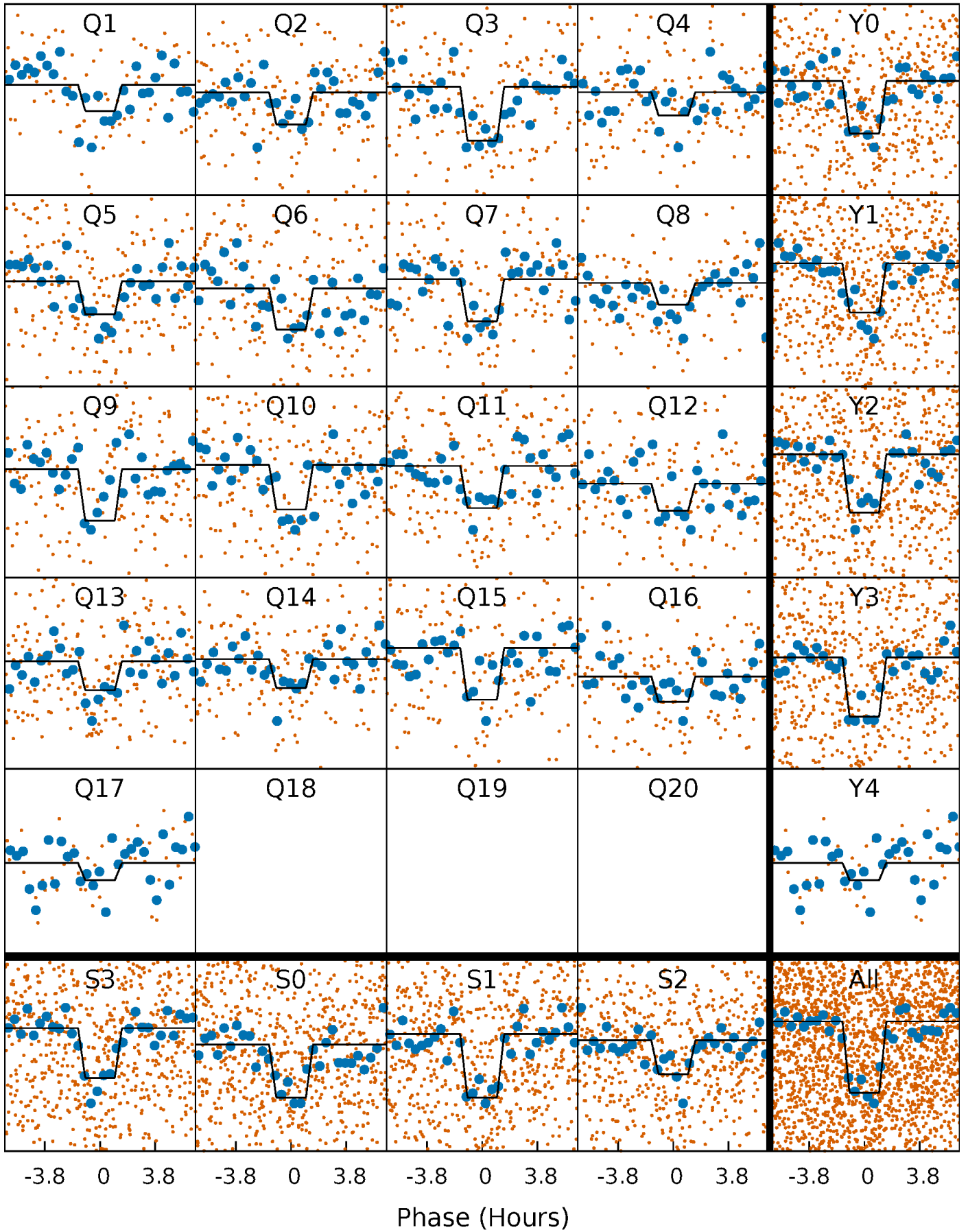
DV Quarter-Phased Transit Curves

TCE 012453581-01 P= 11.940130 Days $T_0=136.559812$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

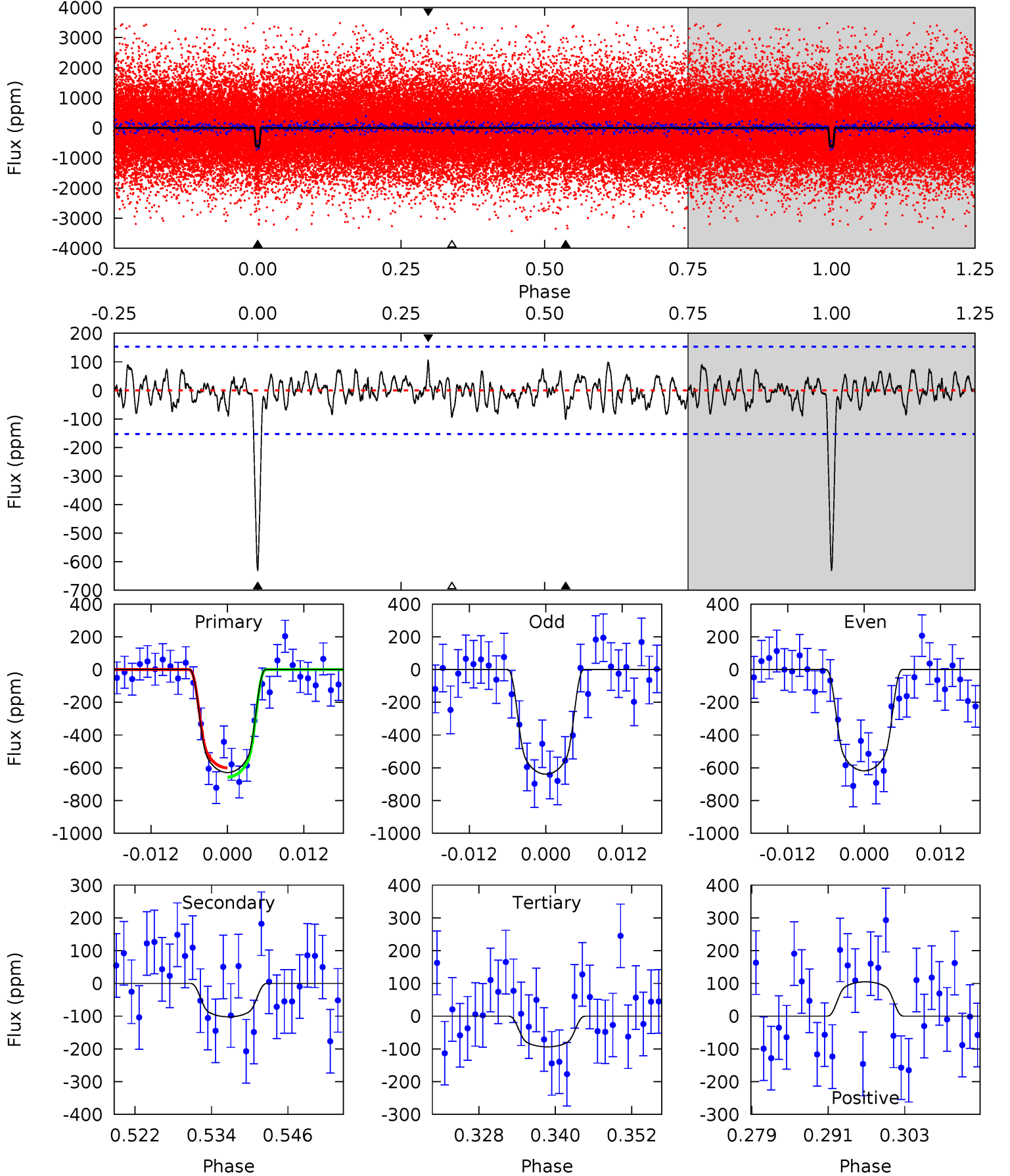
TCE 012453581-01 P= 11.940158 Days $T_0=136.557458$ (BKJD)



DV Model-Shift Uniqueness Test

012453581-01, $P = 11.940130$ Days, $E = 124.619682$ Days

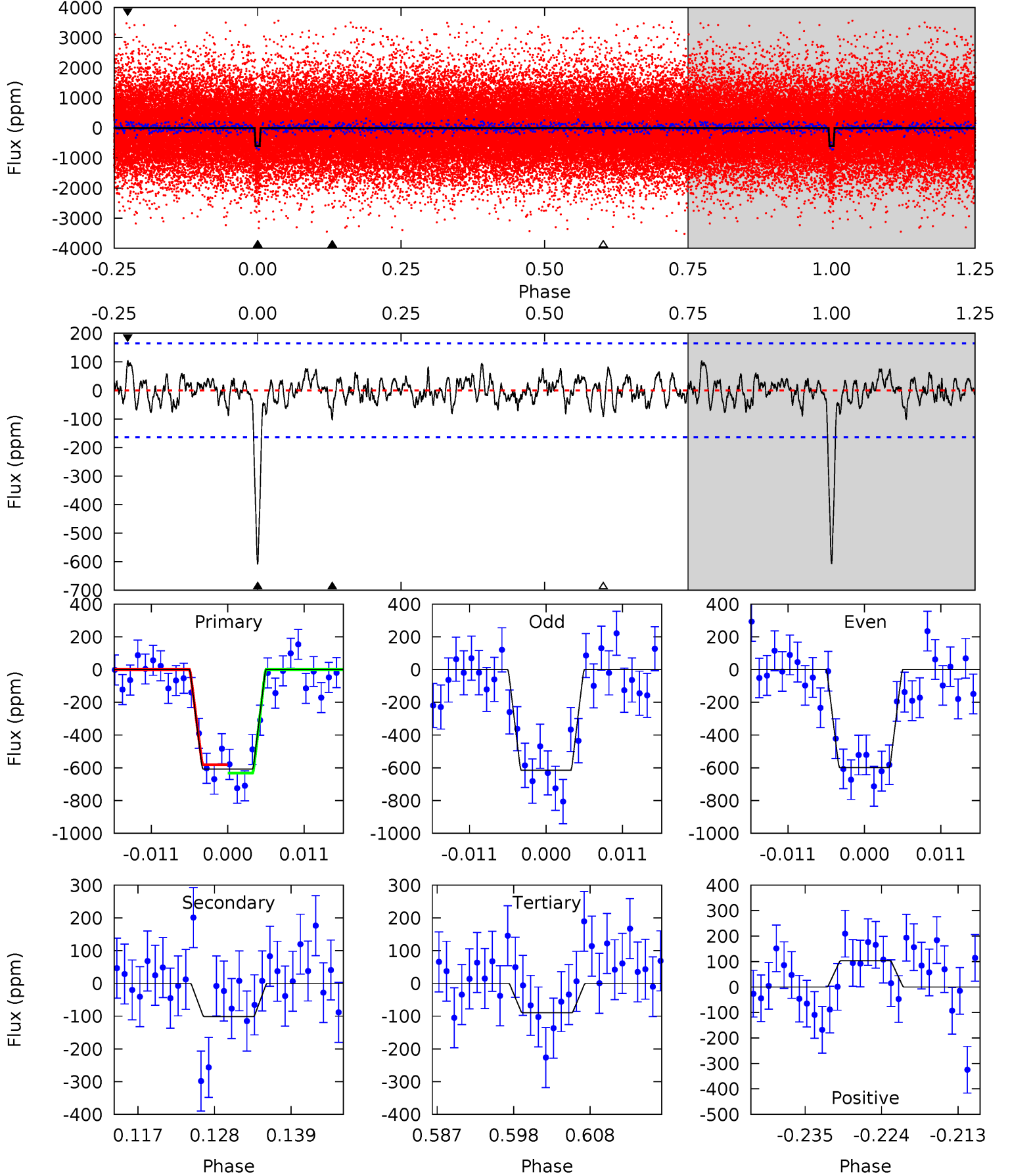
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.5	3.33	3.06	3.42	4.99	2.51	1.17	17.5	17.1	0.27	-0.09	0.34	0.93	0.14	0.92



Alt Model-Shift Uniqueness Test

012453581-01, P = 11.940158 Days, E = 124.617300 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.5	3.09	2.74	3.14	5.01	2.55	1.05	15.8	15.4	0.35	-0.06	0.25	0.88	0.15	0.77



Stellar Parameters For KIC 012453581

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5073^{+168}_{-152}	$4.607^{+0.024}_{-0.084}$	$0.070^{+0.250}_{-0.300}$	$0.748^{+0.098}_{-0.049}$	$0.856^{+0.048}_{-0.090}$	$2.878^{+0.352}_{-0.844}$
	+3%/-3%	+1%/-2%	+357%/-429%	+13%/-7%	+6%/-11%	+12%/-29%
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 012453581-01 / KOI 2424.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-102 ± 31	$2.33^{+0.61}_{-0.61}$	889^{+35}_{-32}	3515^{+405}_{-330}	93^{+93}_{-41}
Alt.	-101 ± 33	$2.09^{+0.61}_{-0.60}$	889^{+34}_{-32}	3619^{+506}_{-353}	116^{+130}_{-56}

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 $A_{obs} \gg 1.0$

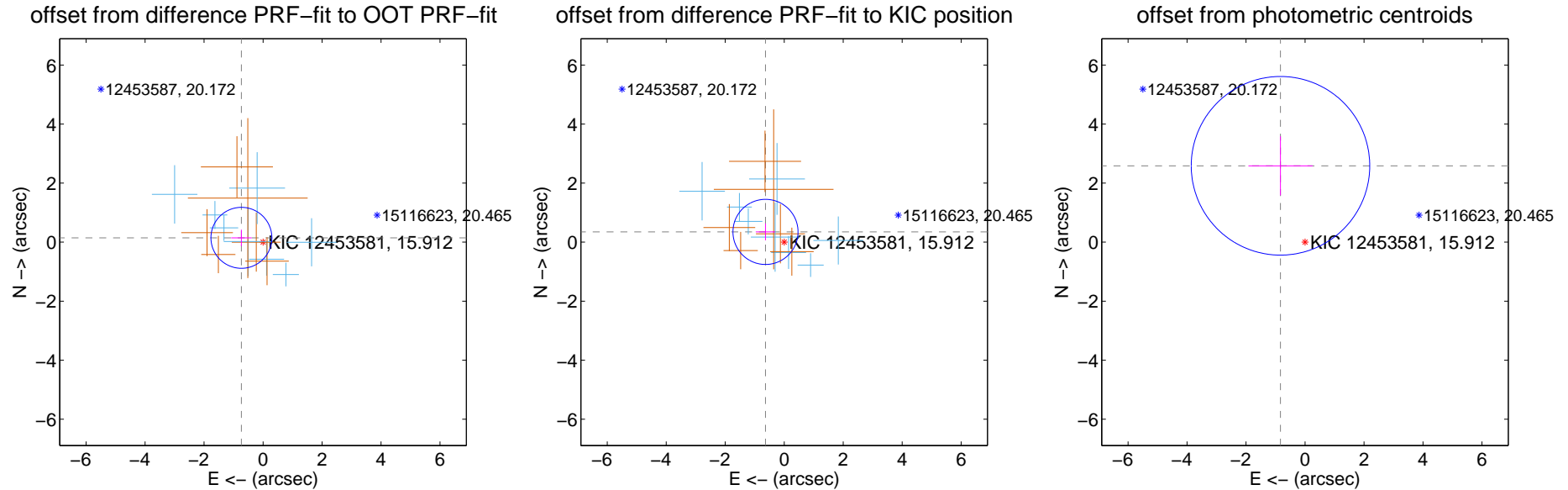
DV Centroid Data

Supplemental centroid analysis for 012453581-01. Kepler magnitude: 15.91. Transit SNR 16.19

There are 8 quarters with good PRF difference image offsets

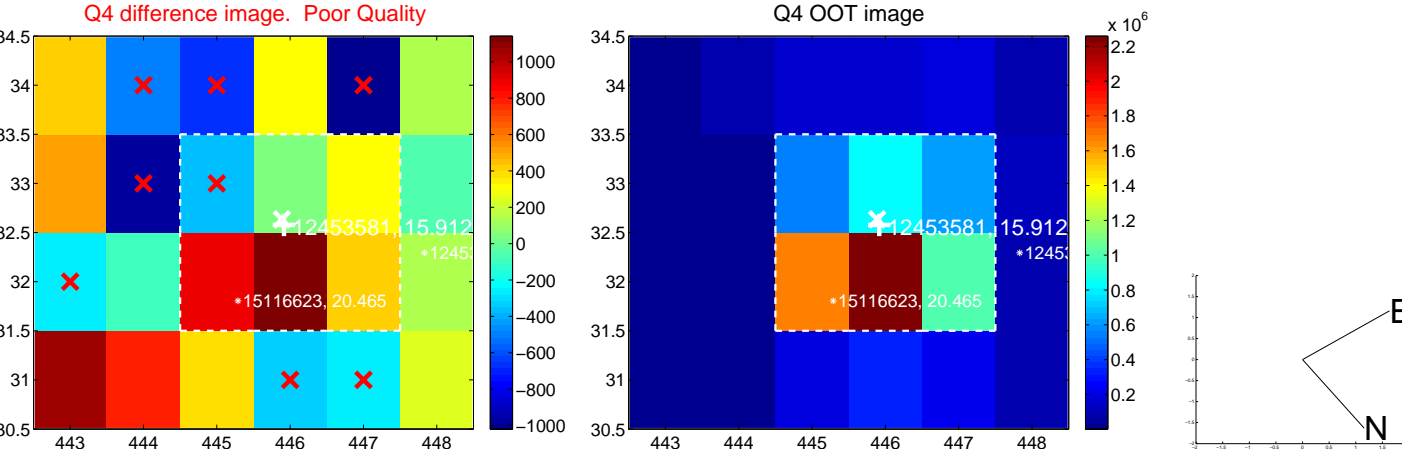
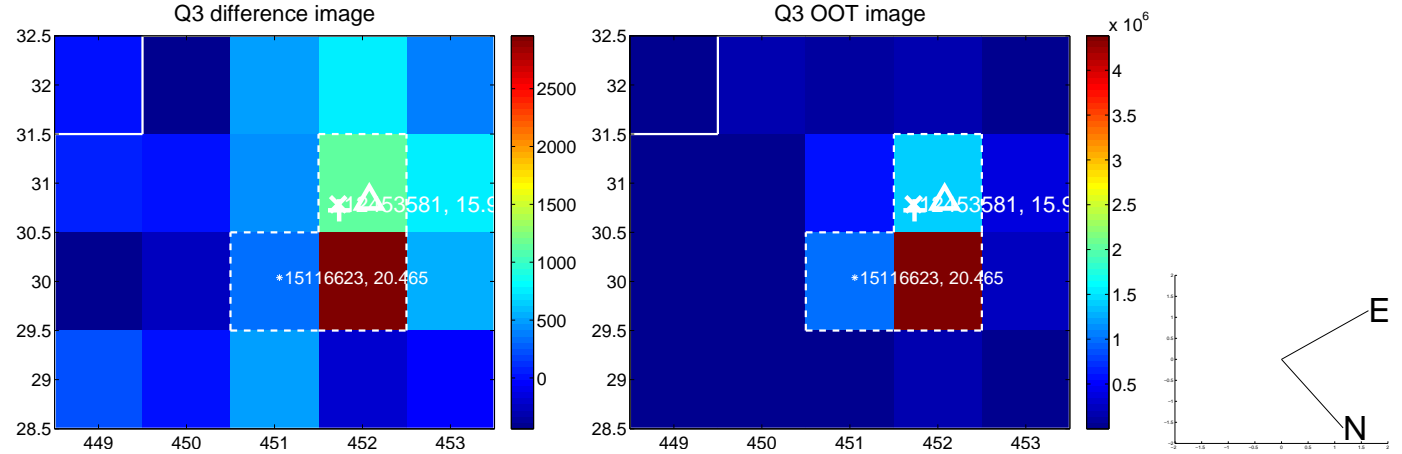
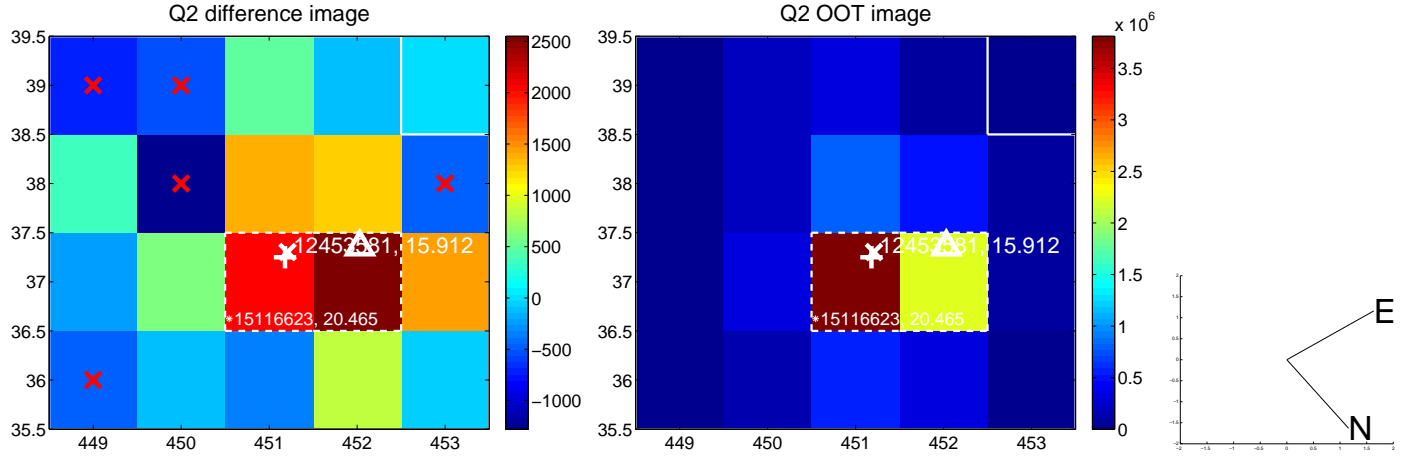
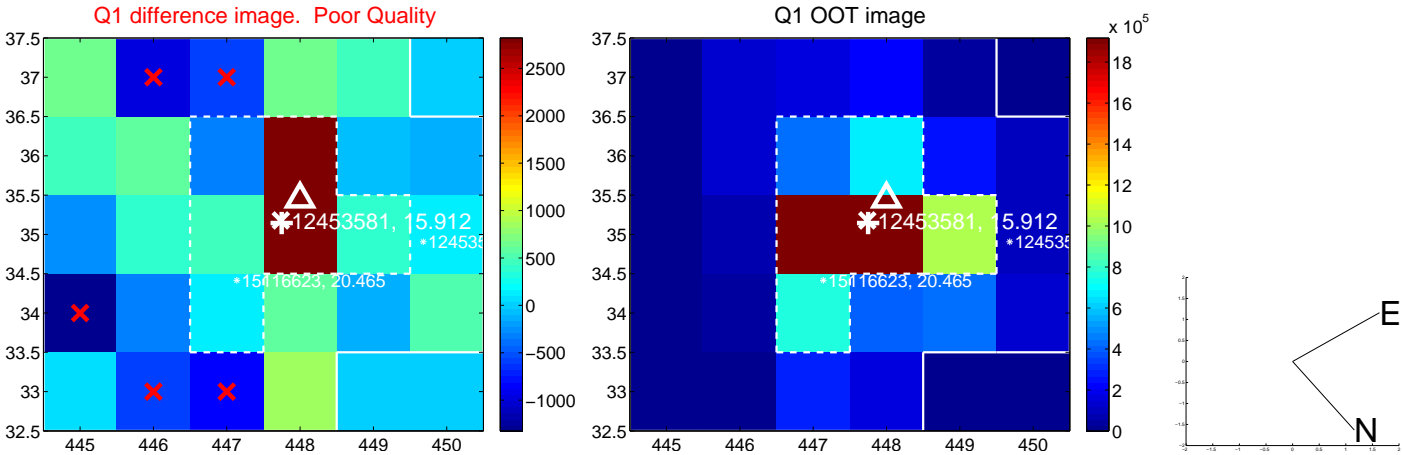
The direct PRF centroid is offset from the target star catalog position by about 0.35 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.749 ± 0.344	2.17	0.734 ± 0.347	0.146 ± 0.275
PRF-fit source offset from KIC position	0.723 ± 0.368	1.96	0.634 ± 0.328	0.347 ± 0.287
photometric centroid source offset	2.72 ± 1.01	2.69	0.83 ± 1.09	2.59 ± 1.00

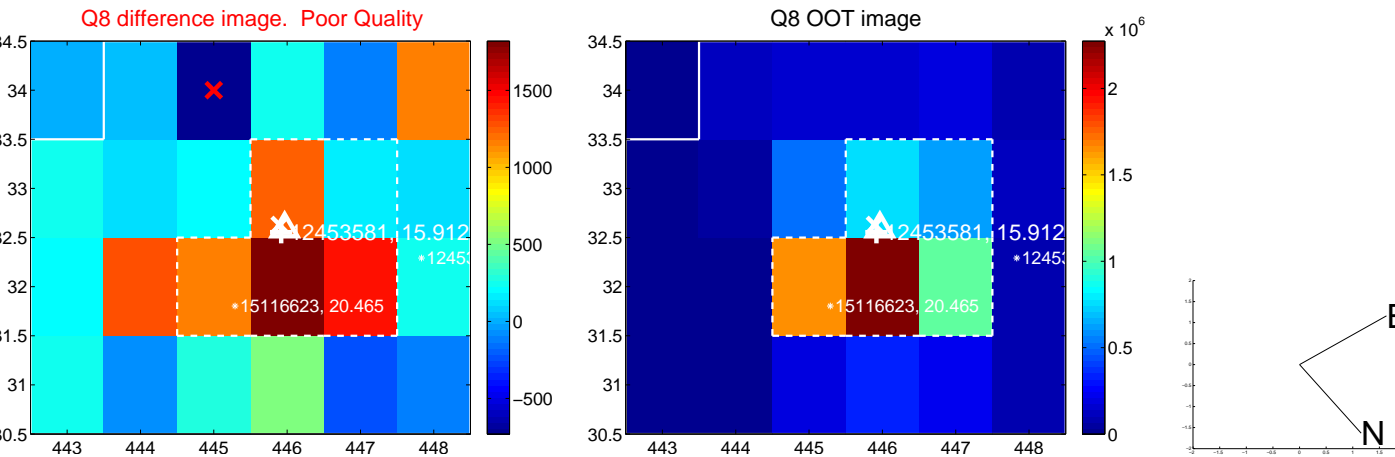
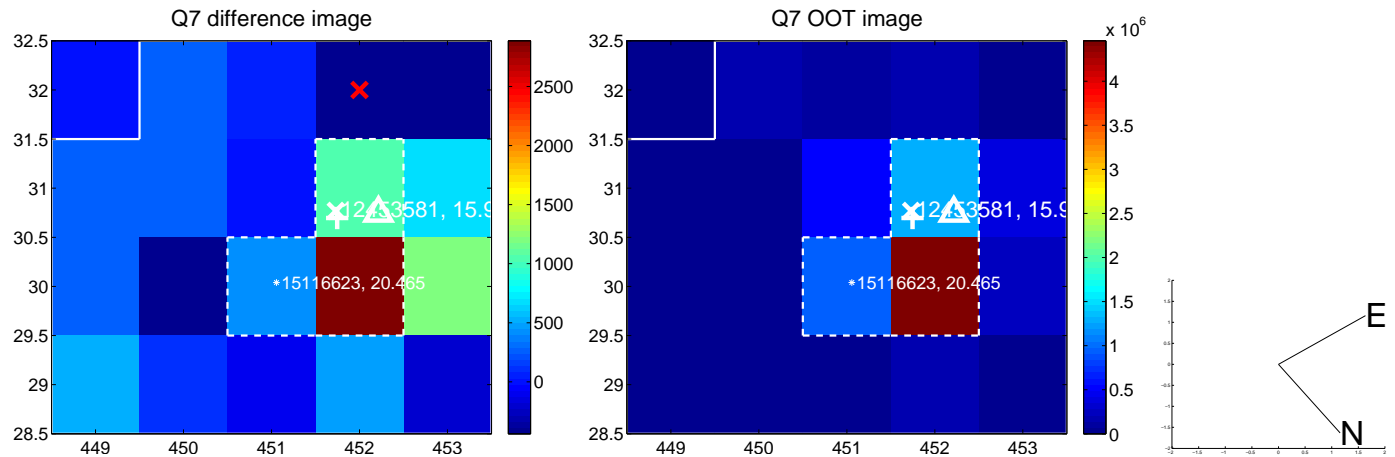
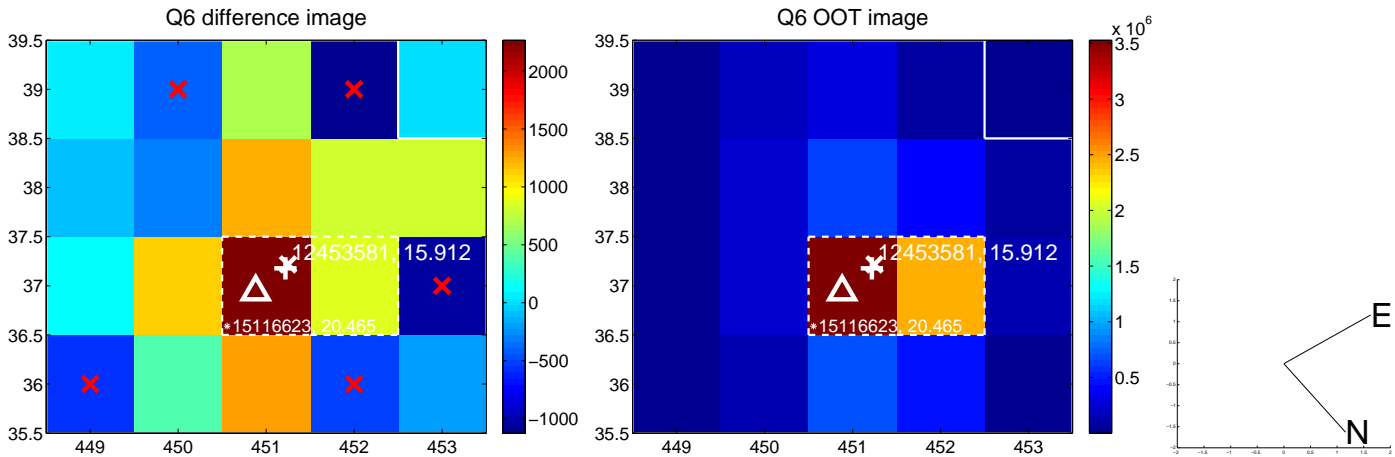
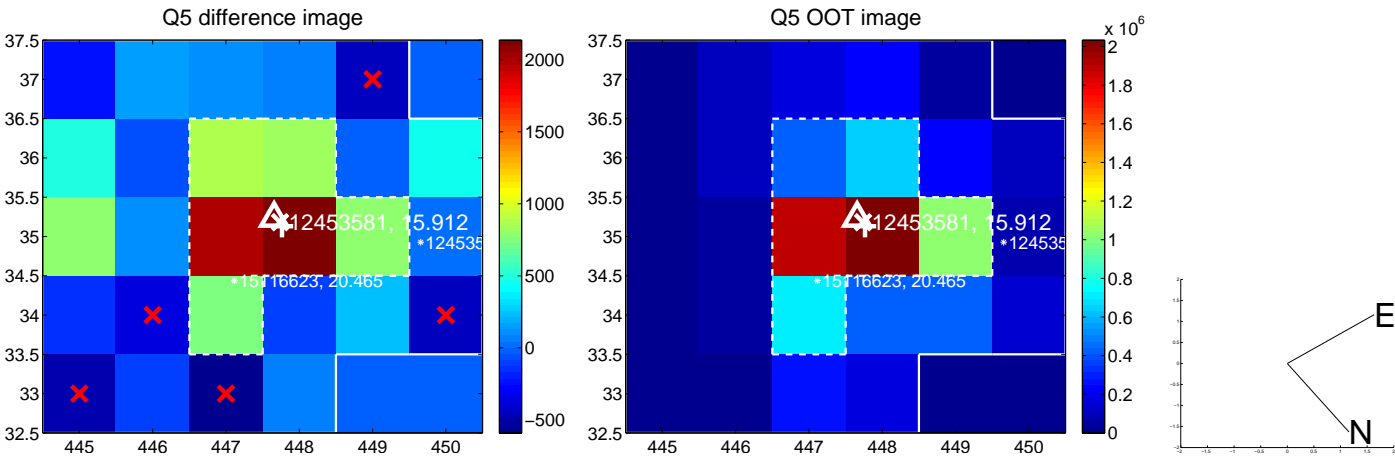


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

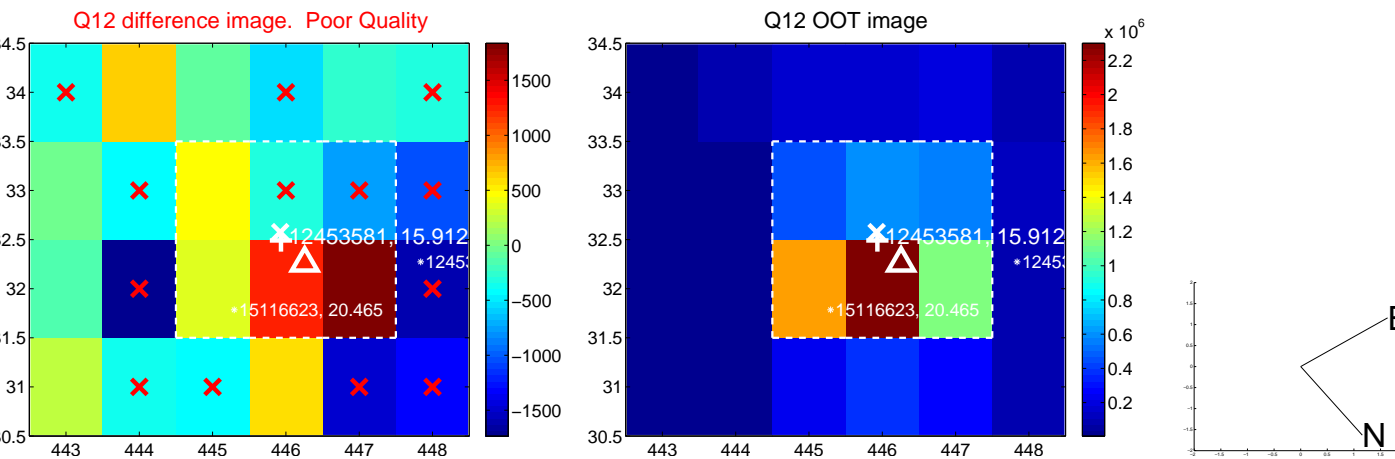
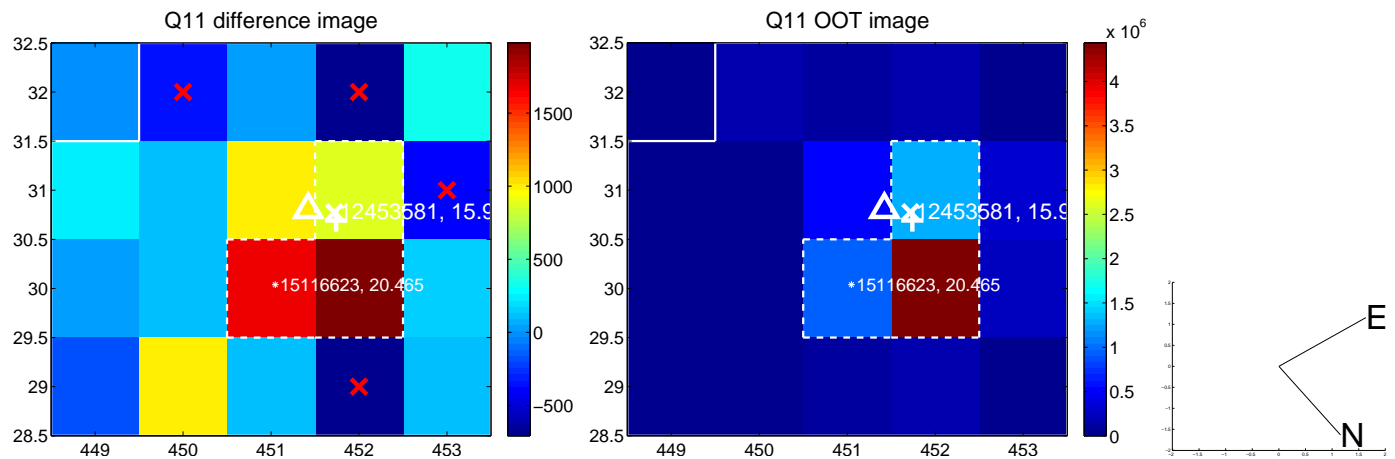
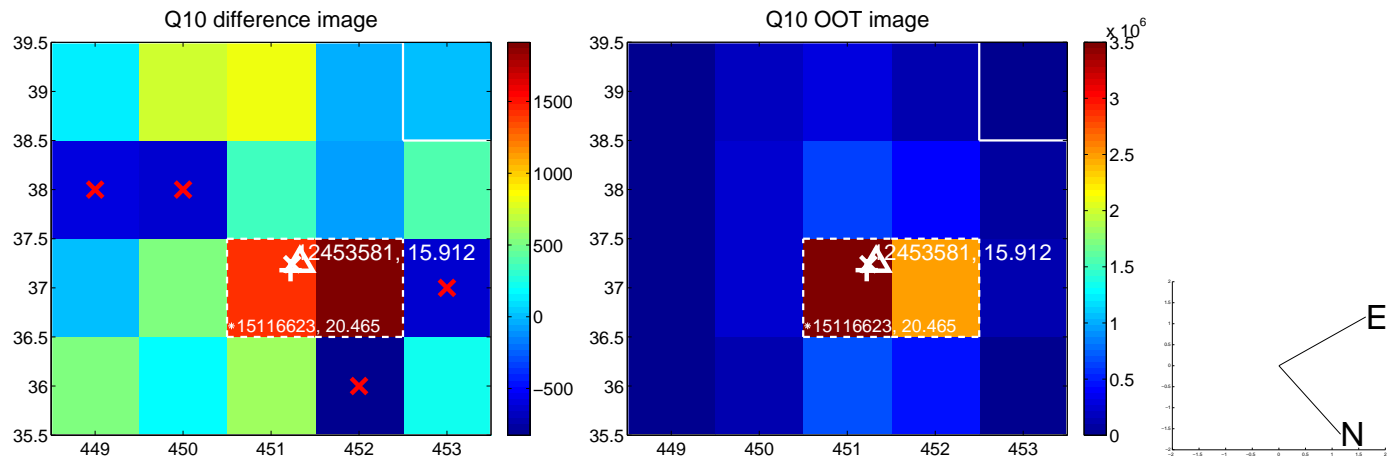
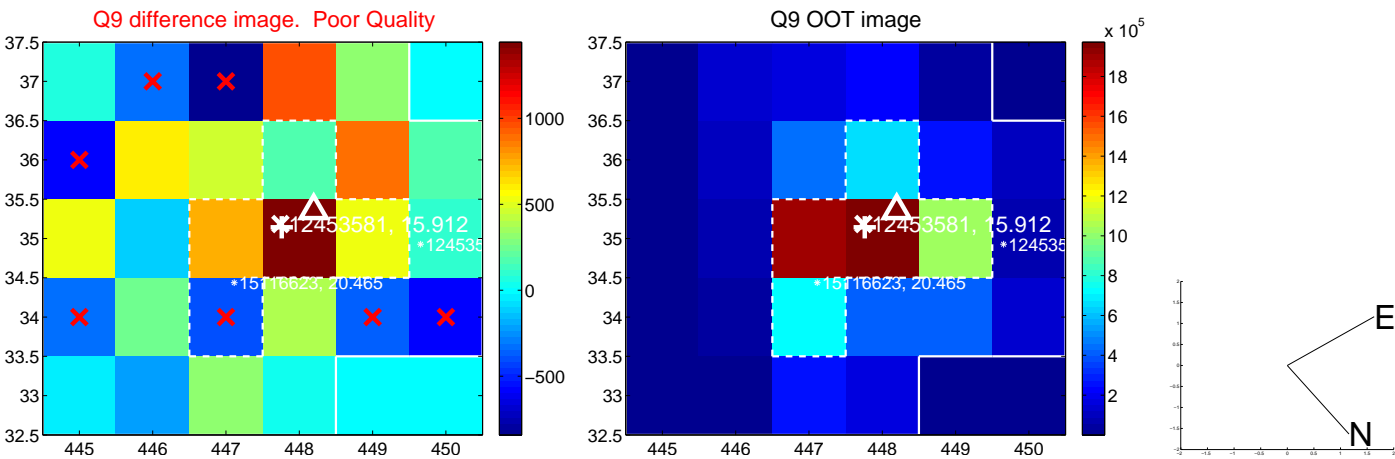
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



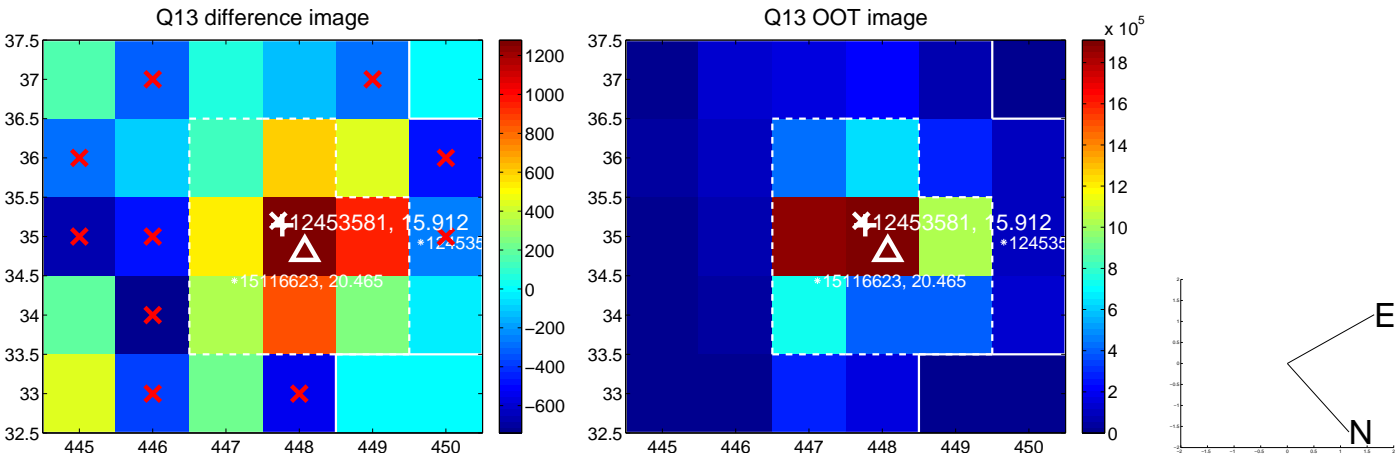
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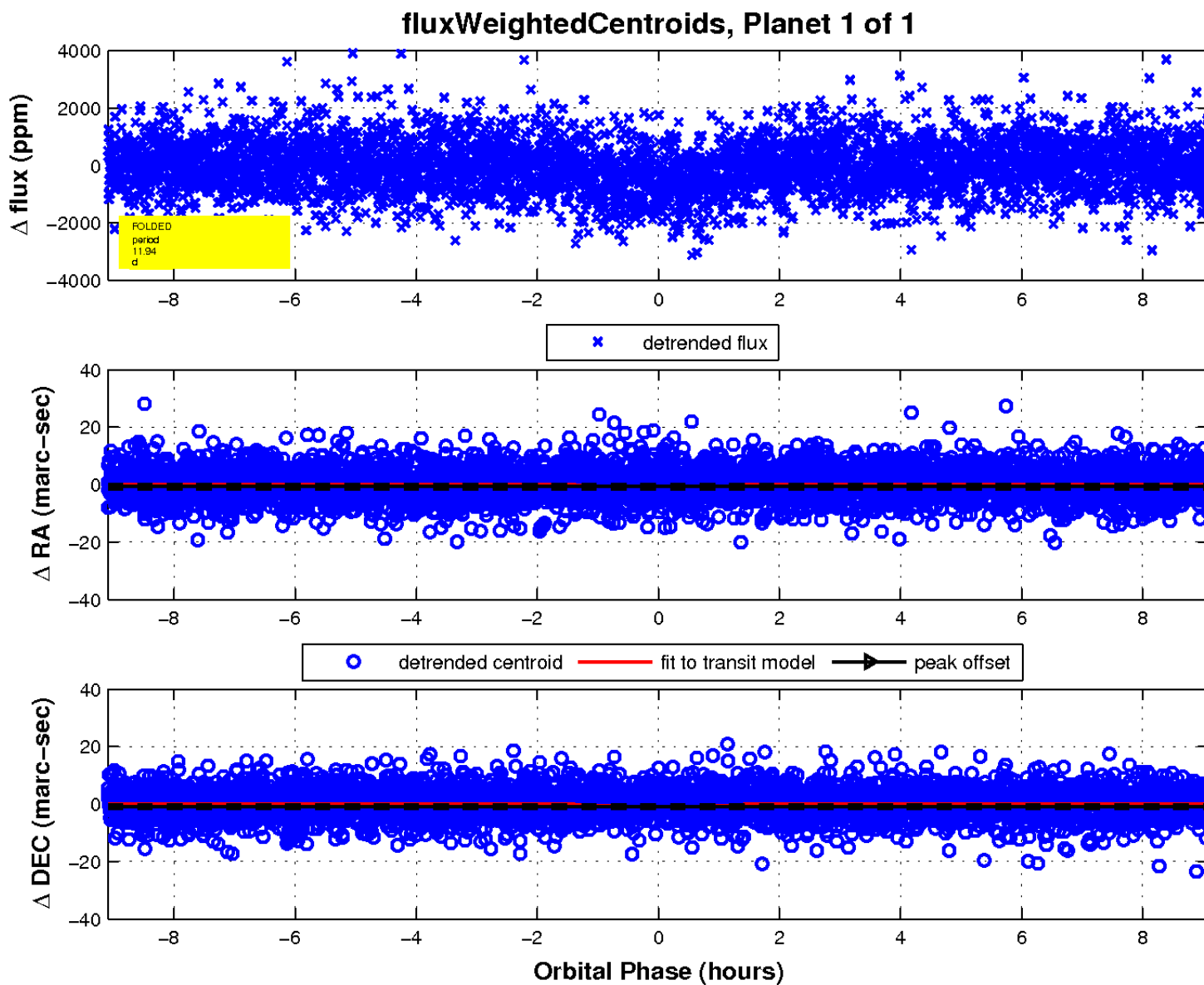
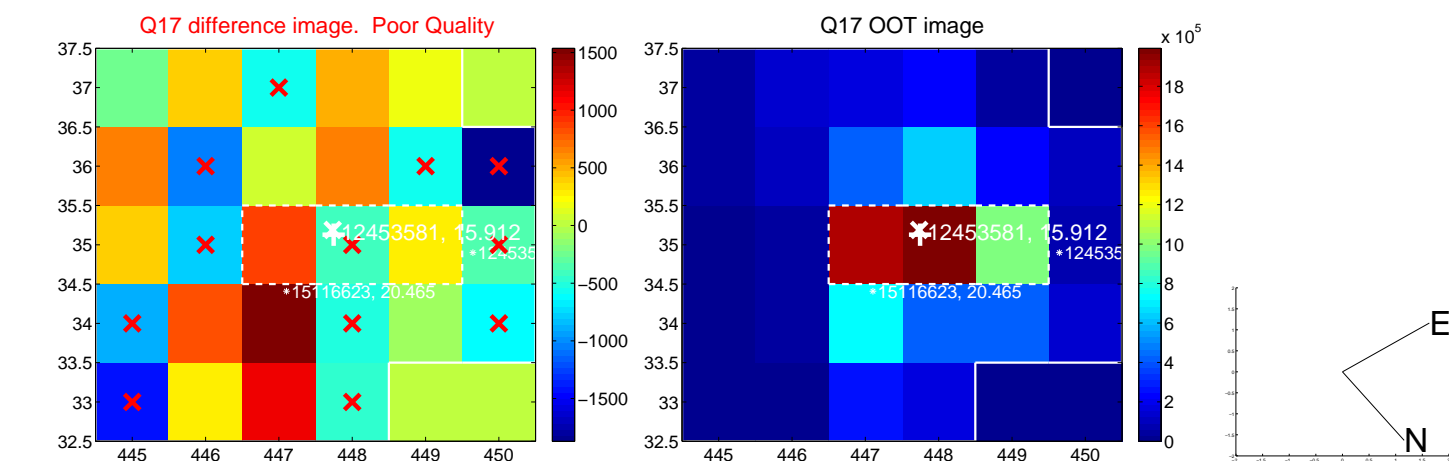
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

