

KIC 009883311

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})
009883311-01	OBS	1872.01	30.523151	146.851099	2199.7	2.648	32.7	39.4	0.79	5518	5.57	15.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009883311-01	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 009883311-01

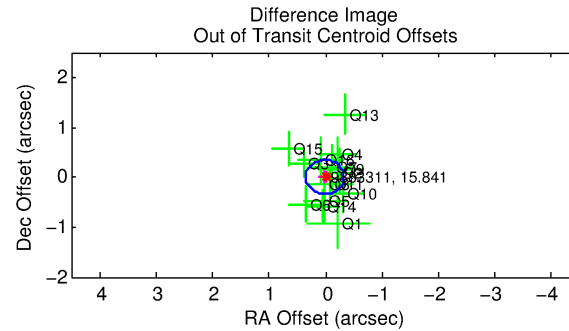
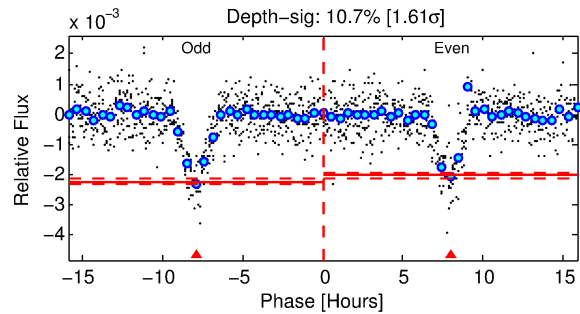
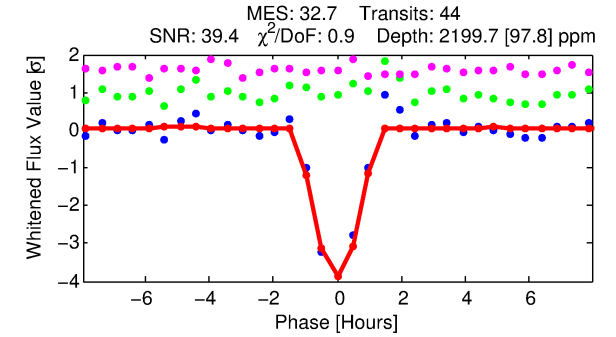
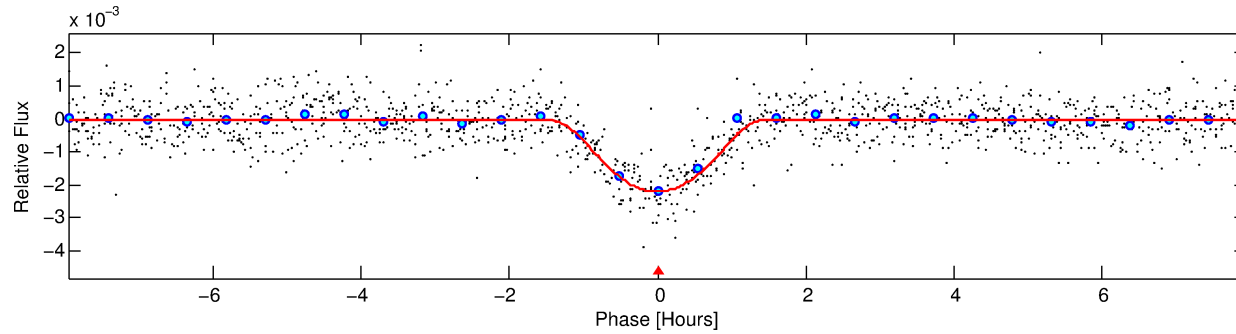
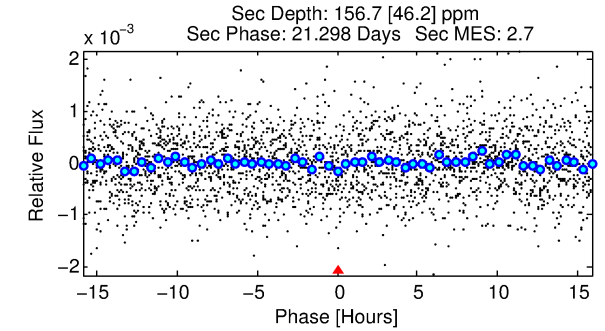
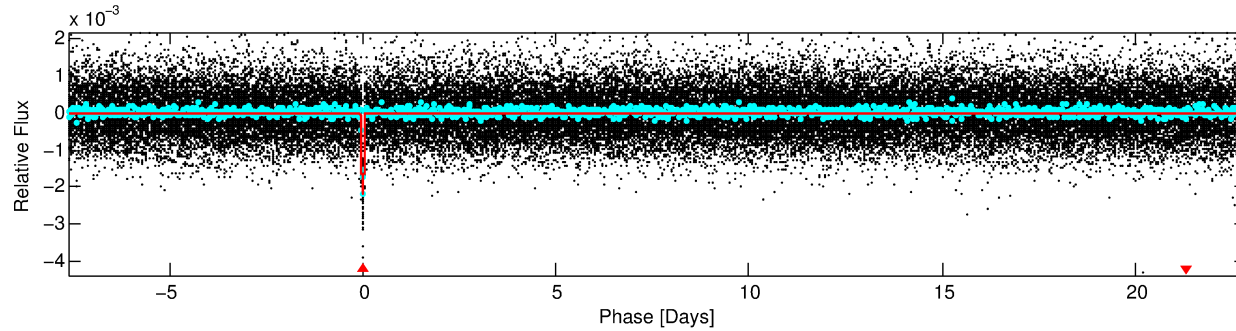
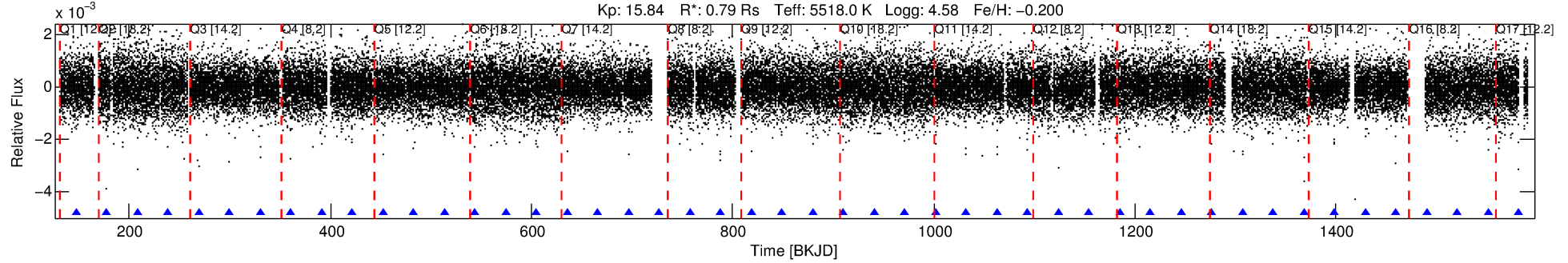
No Significant Match Found

DV One-Page Summary

KIC: 9883311 Candidate: 1 of 1 Period: 30.523 d

KOI: K01872.01 Corr: 0.969

Kp: 15.84 R*: 0.79 Rs Teff: 5518.0 K Logg: 4.58 Fe/H: -0.200



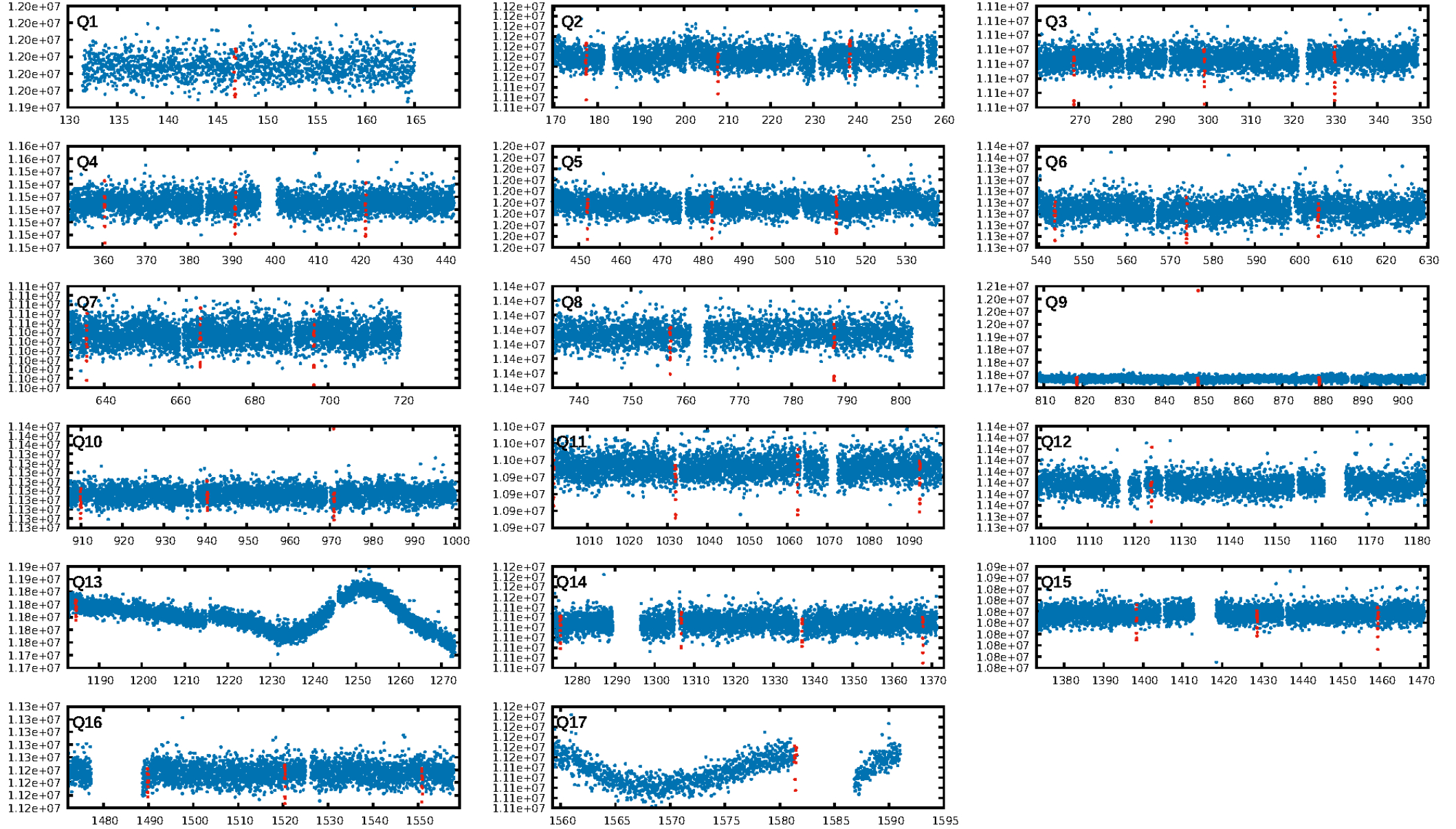
DV Fit Results:

Period = 30.52315 [0.00006] d
Epoch = 146.8511 [0.0017] BKJD
Rp/R* = 0.0646 [0.0315]
a/R* = 38.70 [7.10]
b = 0.97 [0.06]
Seff = 15.50 [4.31]
Teq = 506 [35] K
Rp = 5.57 [2.95] Re
a = 0.1829 [0.0317] AU
Ag = 92.98 [97.66] [0.94σ]
Teffp = 2429 [624] K [3.08σ]

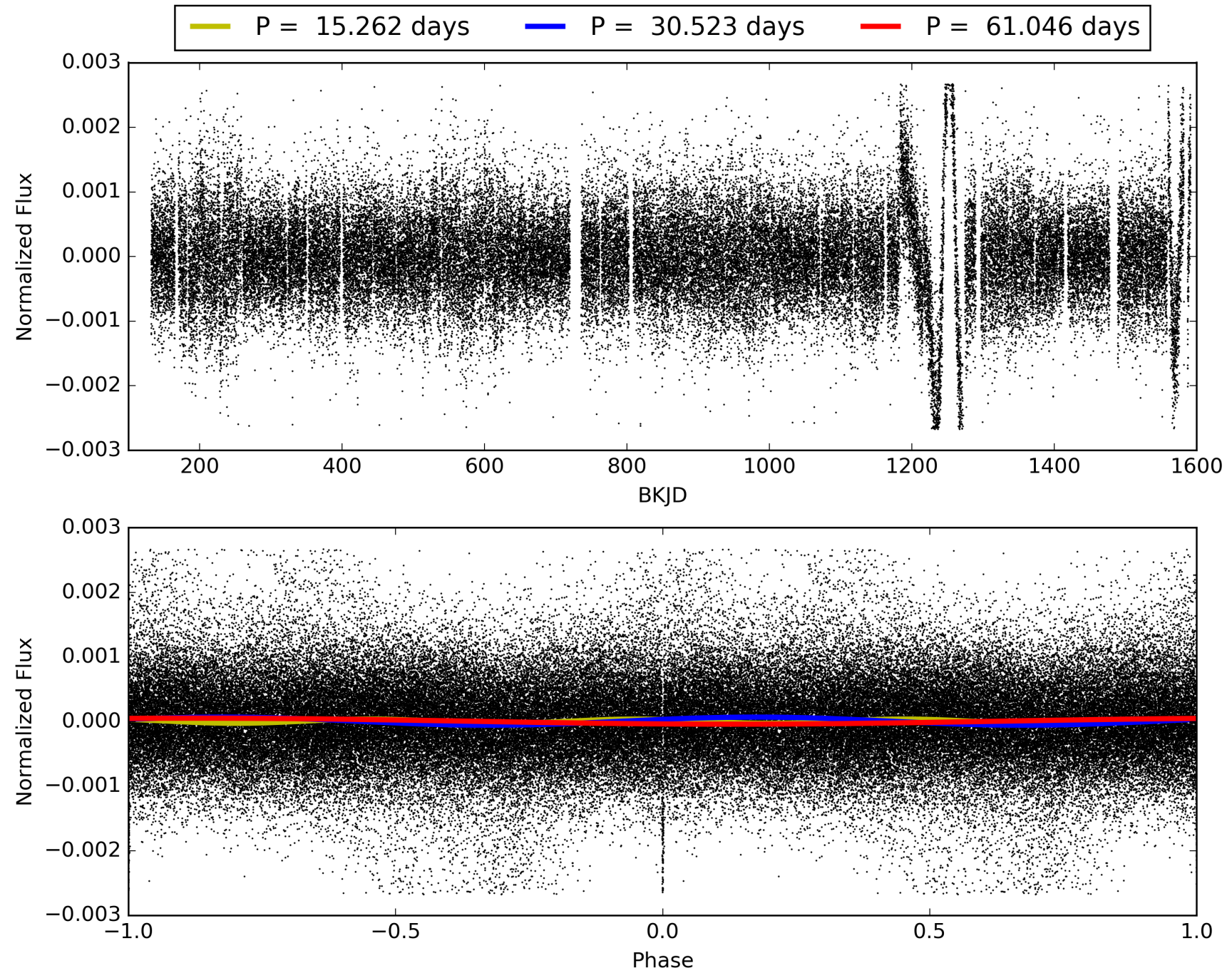
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 69.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.77e-225
RollingBand-fgt: 1.00 [42/42]
GhostDiagnostic-chr: 3.292
Centroid-sig: 57.7%
Centroid-so: 0.845 arcsec [2.30σ]
OotOffset-rm: 0.016 arcsec [0.15σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-rm: 0.187 arcsec [1.12σ]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 1.00 [15/15]
DiffImageOverlap-fno: 1.00 [15/15]

TCE 009883311-01, PDC Light Curves

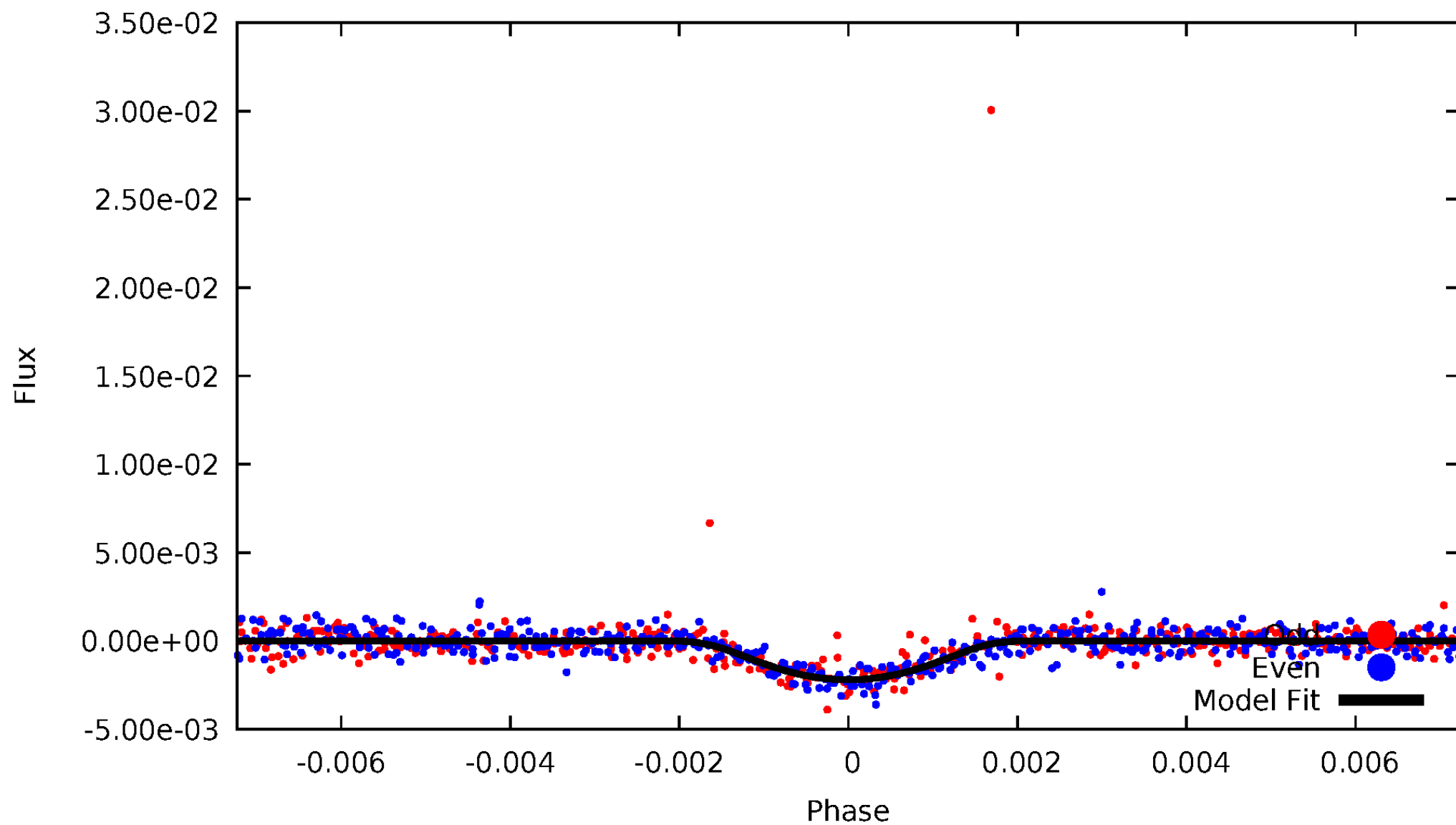


TCE 009883311-01



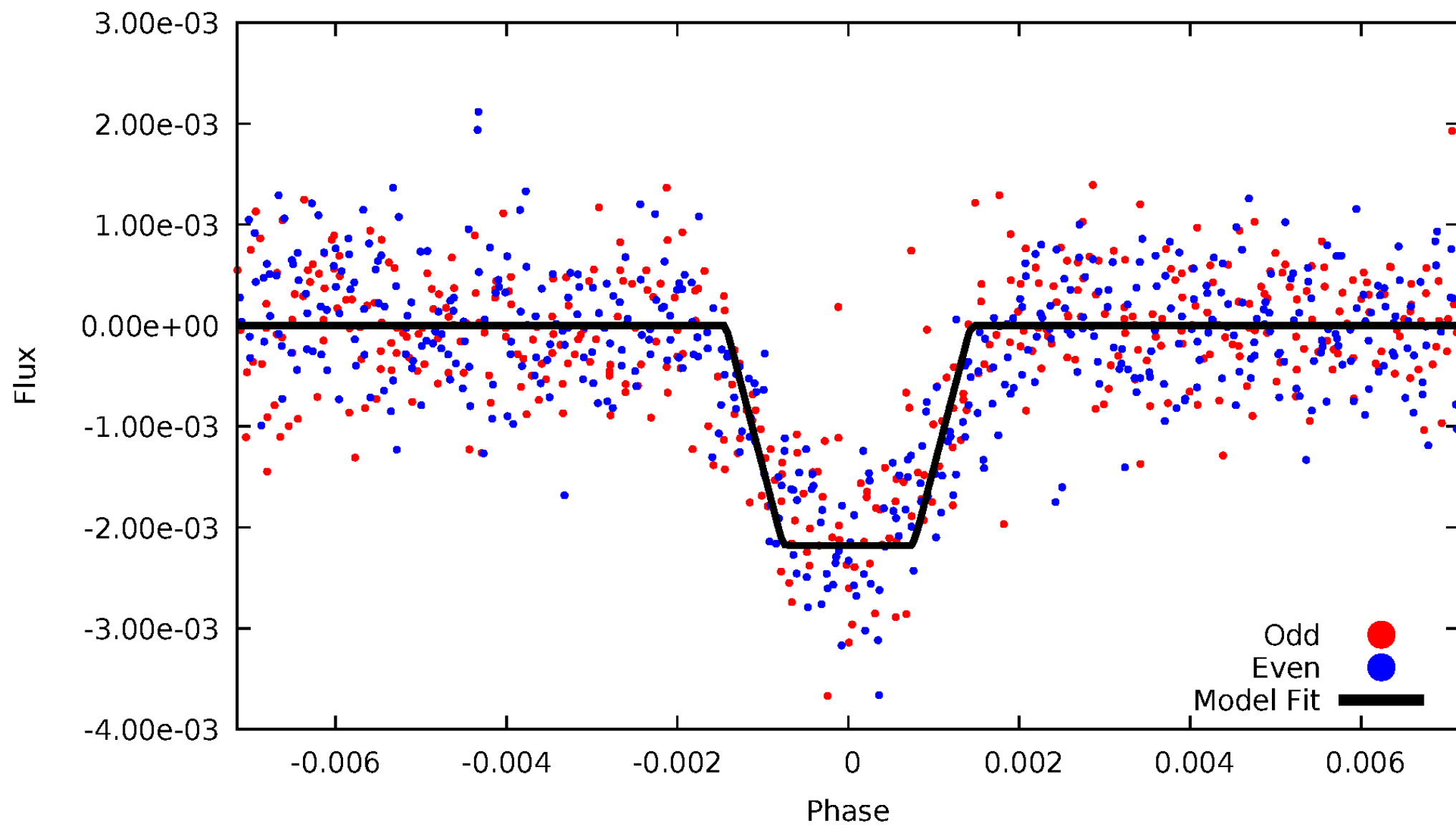
DV Odd/Even

TCE 009883311-01



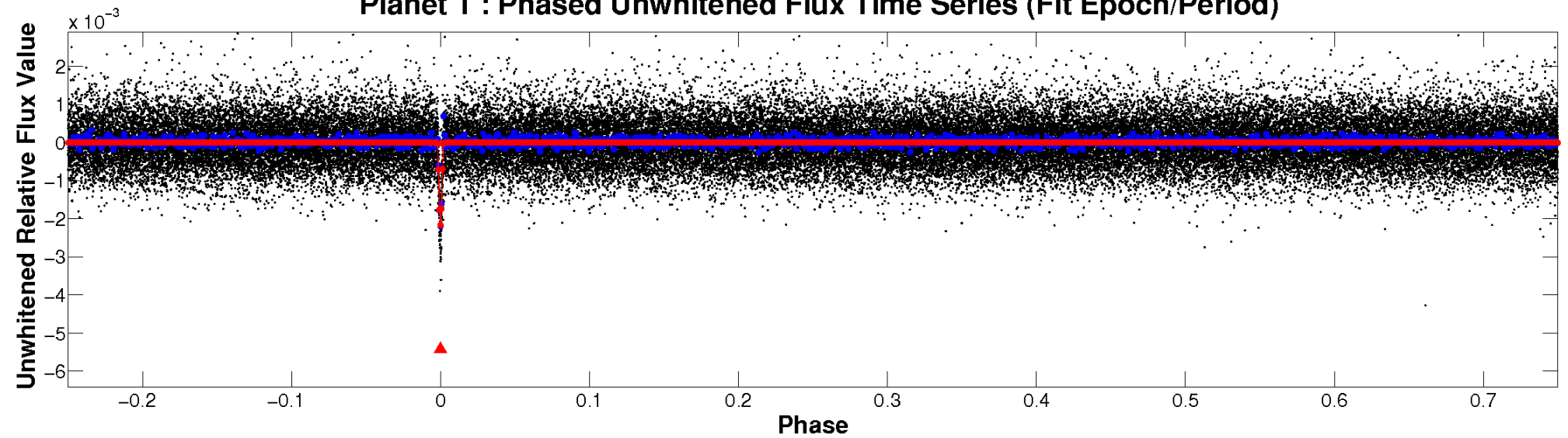
ALT Odd/Even

TCE 009883311-01

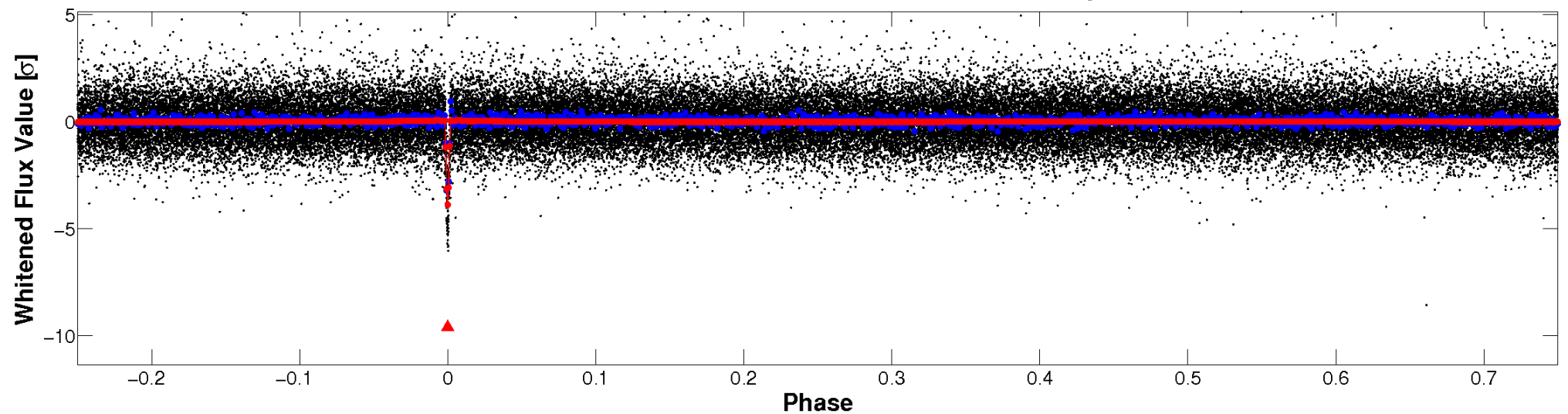


Non-Whitened Vs. Whitened Light Curve

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

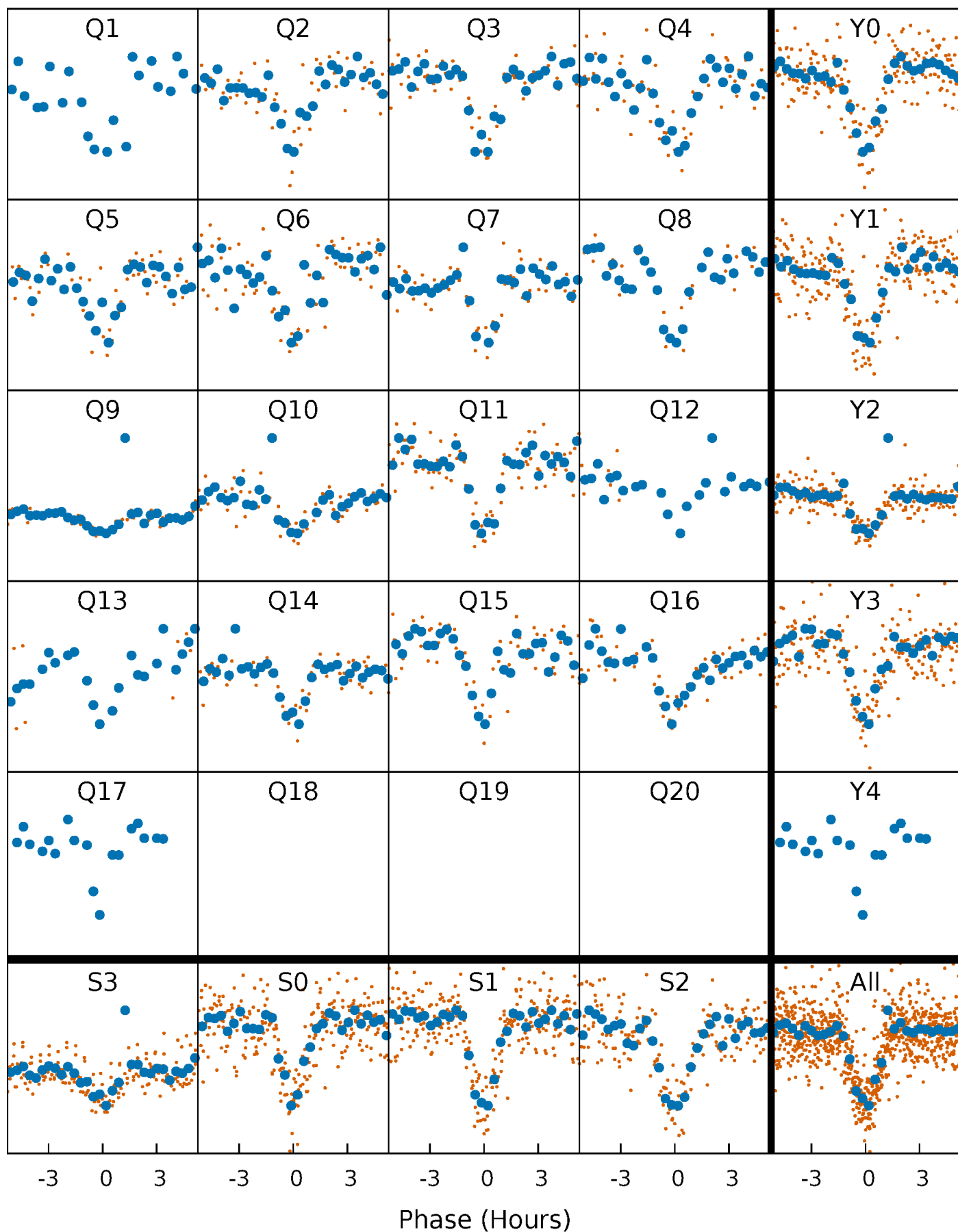


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



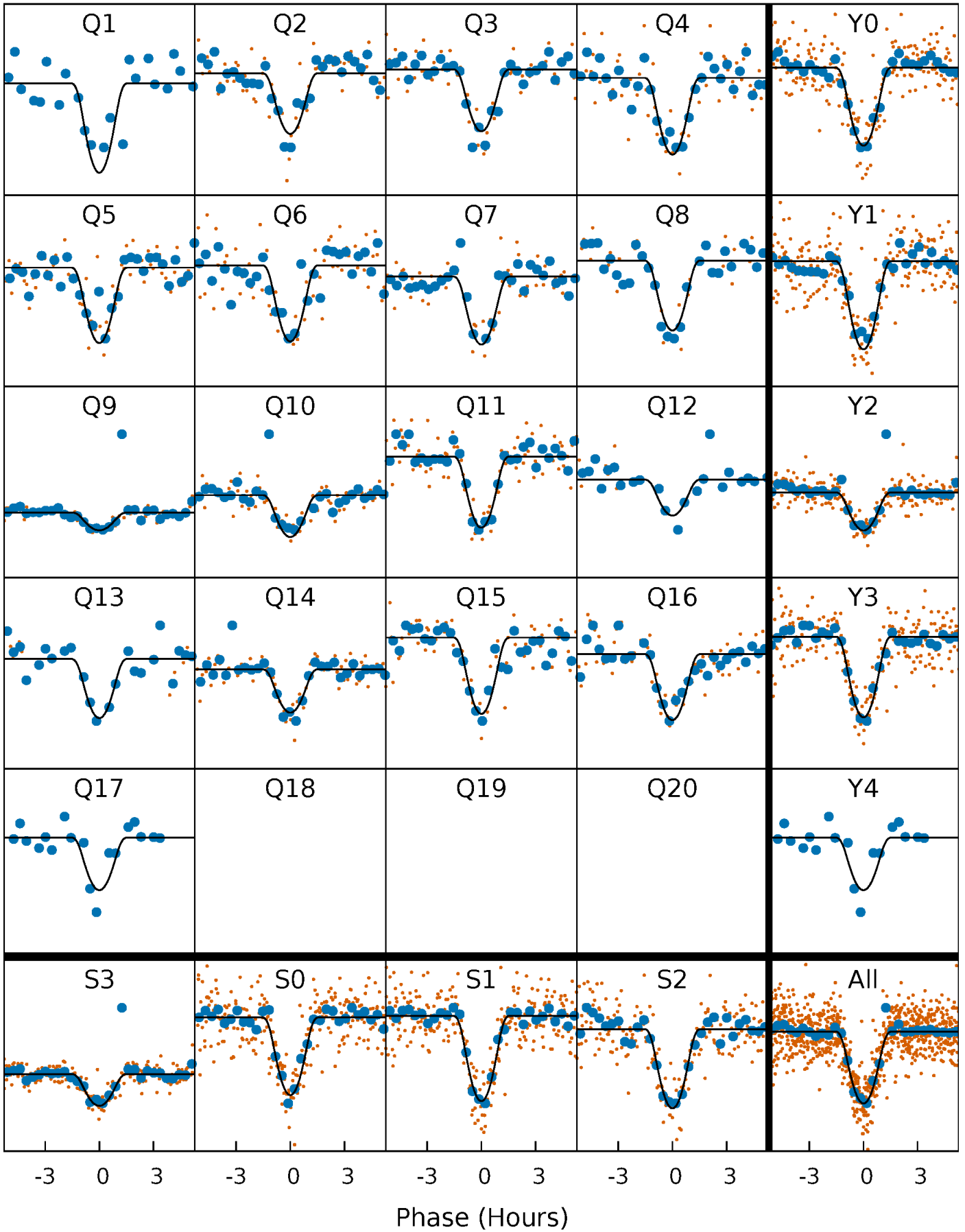
PDC Quarter-Phased Transit Curves

TCE 009883311-01 P= 30.523151 Days $T_0=146.851099$ (BKJD)



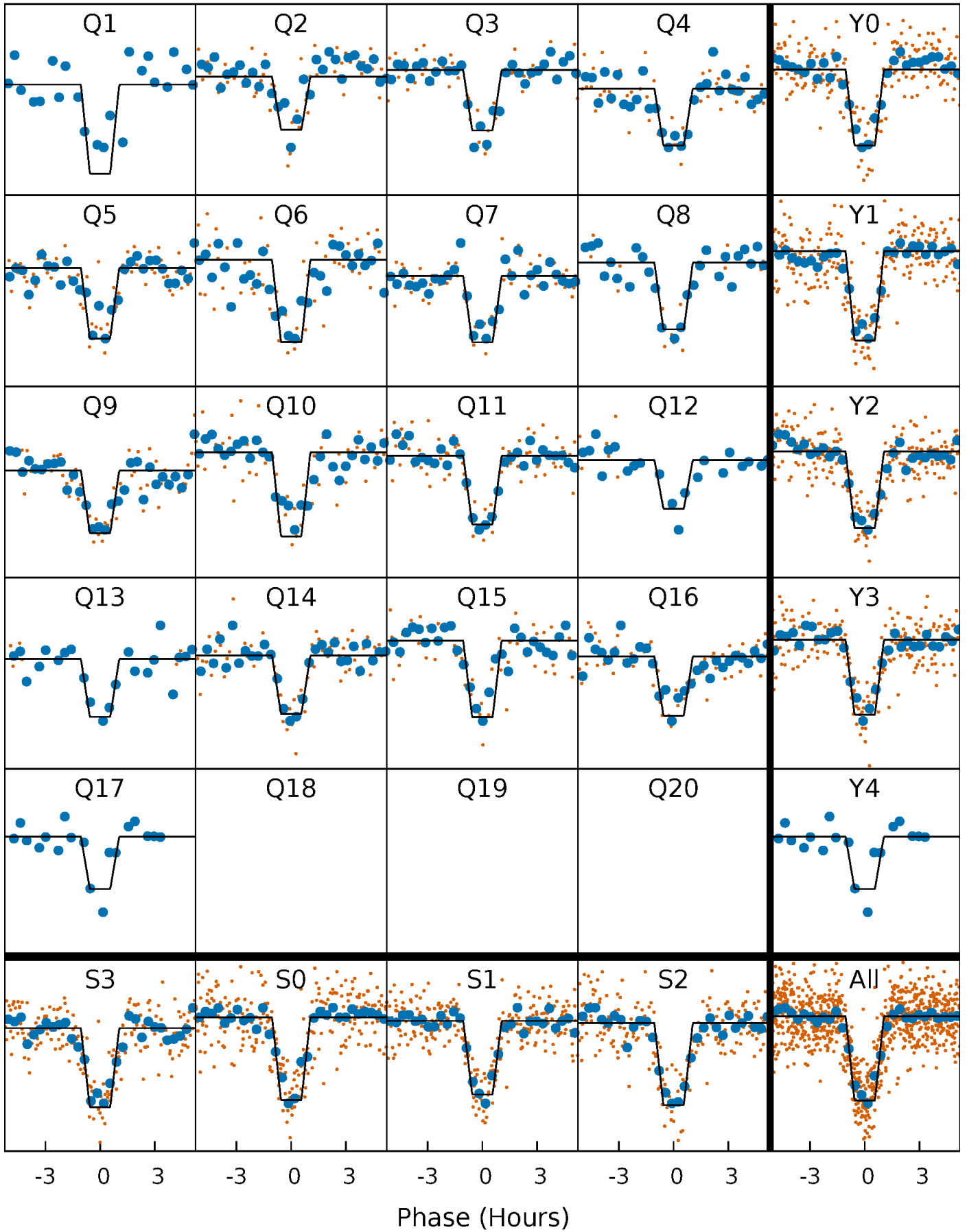
DV Quarter-Phased Transit Curves

TCE 009883311-01 P= 30.523151 Days $T_0=146.851099$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

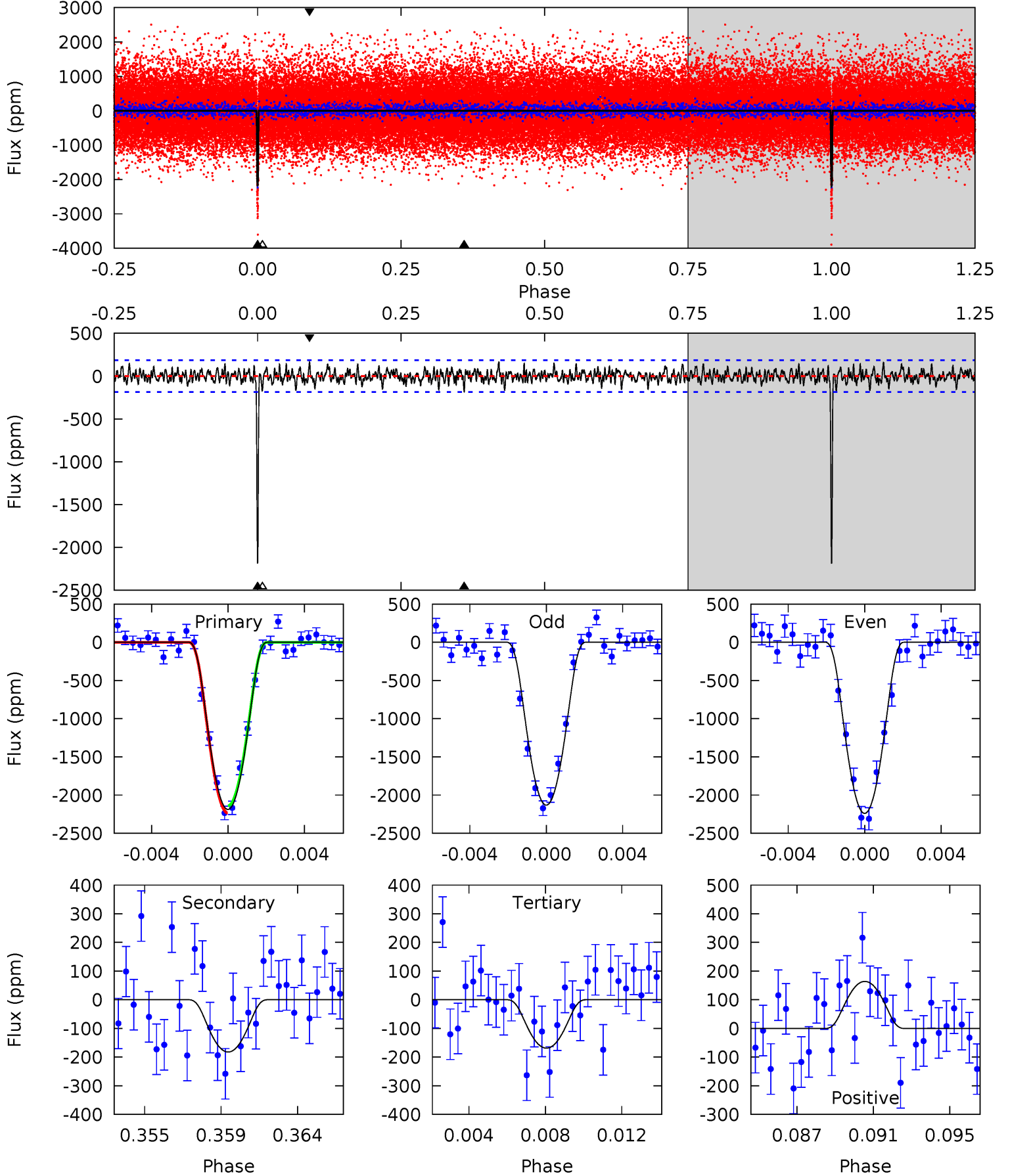
TCE 009883311-01 P= 30.523132 Days $T_0=146.850903$ (BKJD)



DV Model-Shift Uniqueness Test

009883311-01, P = 30.523151 Days, E = 116.327948 Days

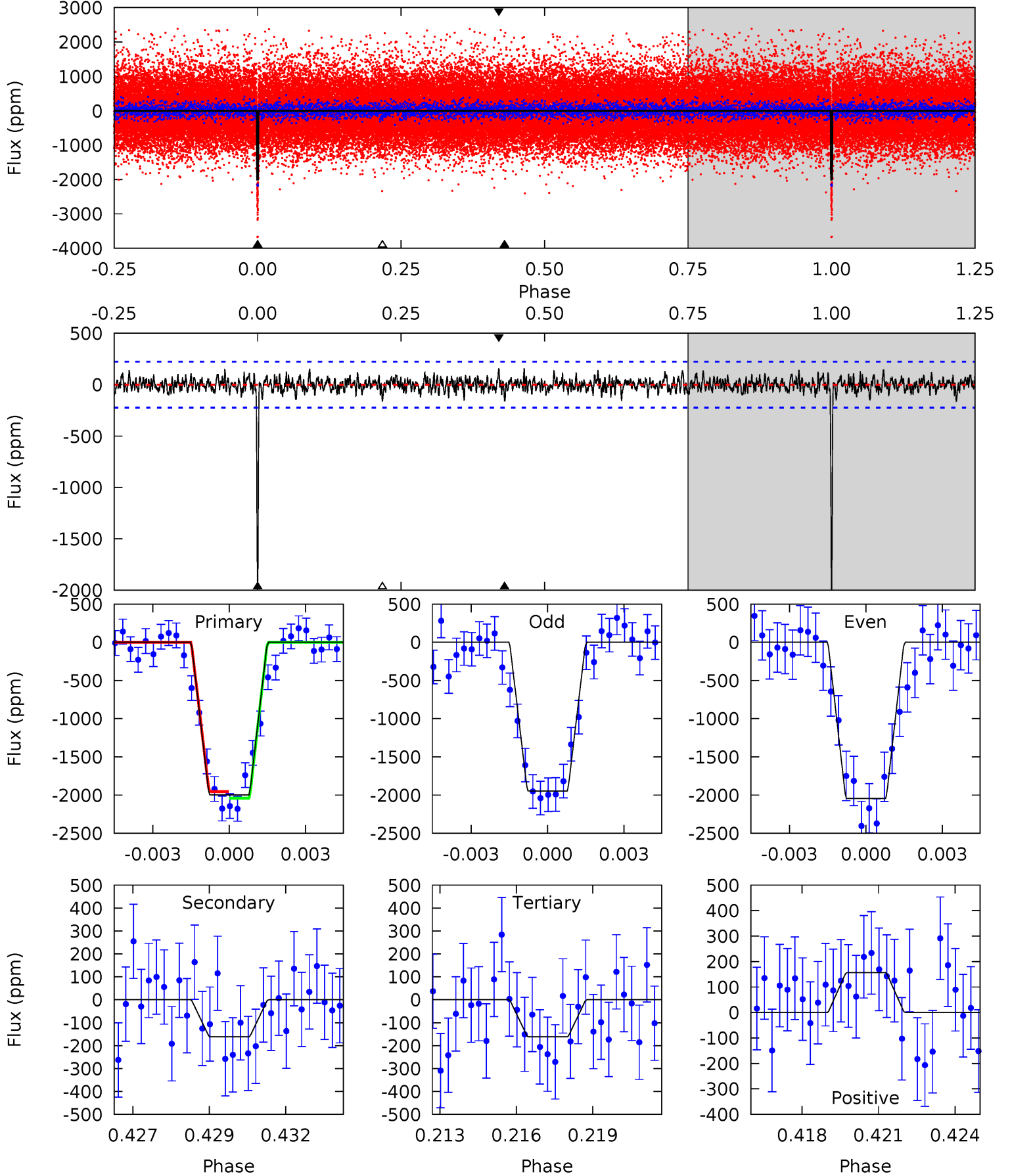
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
61.5	5.12	4.74	4.61	5.19	2.87	1.50	56.7	56.9	0.38	0.51	1.52	0.97	0.07	1.34



Alt Model-Shift Uniqueness Test

009883311-01, $P = 30.523132$ Days, $E = 116.327771$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.2	3.83	3.82	3.69	5.26	2.98	1.16	43.4	43.5	0.00	0.14	1.16	1.00	0.07	1.02



Stellar Parameters For KIC 009883311

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5518^{+166}_{-166}	$4.585^{+0.034}_{-0.136}$	$-0.200^{+0.300}_{-0.300}$	$0.790^{+0.164}_{-0.070}$	$0.885^{+0.083}_{-0.102}$	$2.529^{+0.456}_{-0.990}$
	+3%/-3%	+1%/-3%	+150%/-150%	+21%/-9%	+9%/-12%	+18%/-39%
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 009883311-01 / KOI 1872.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-182 ± 36	$5.99^{+2.93}_{-2.78}$	721^{+36}_{-31}	3107^{+640}_{-346}	94^{+243}_{-54}
Alt.	-162 ± 42	$4.41^{+2.73}_{-2.54}$	717^{+36}_{-28}	3328^{+1058}_{-479}	150^{+664}_{-98}

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

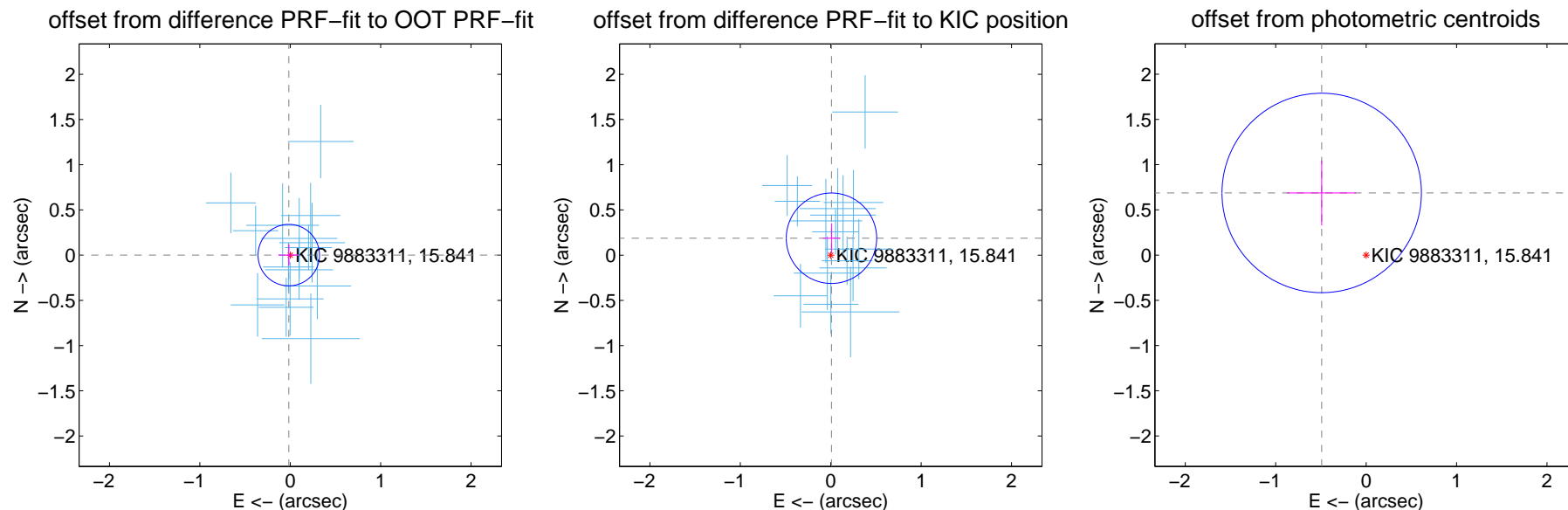
DV Centroid Data

Supplemental centroid analysis for 009883311-01. Kepler magnitude: 15.84. Transit SNR 39.36

There are 15 quarters with good PRF difference image offsets

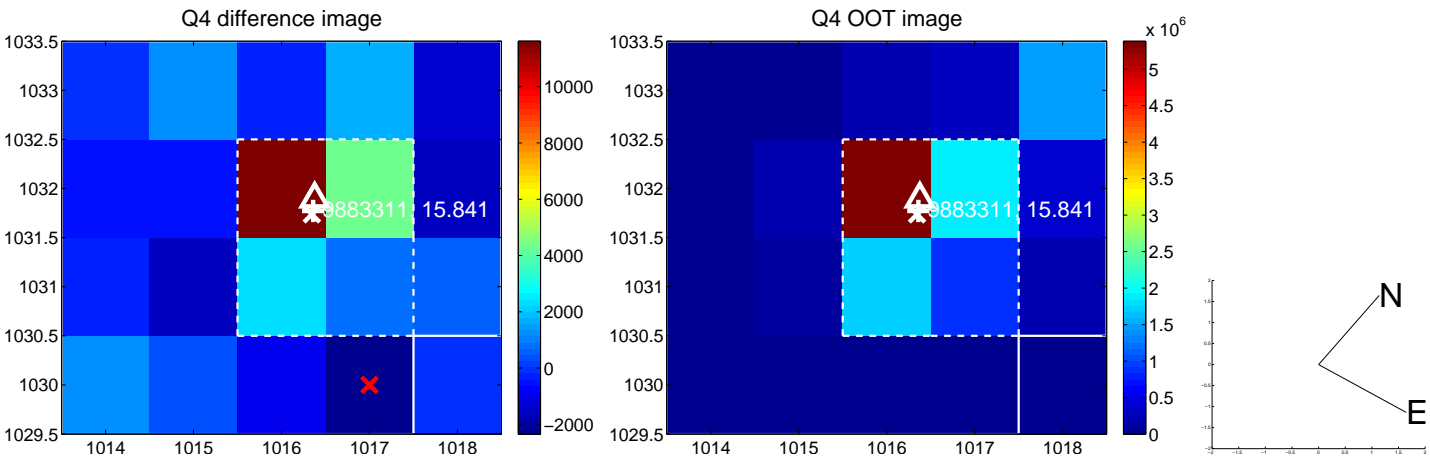
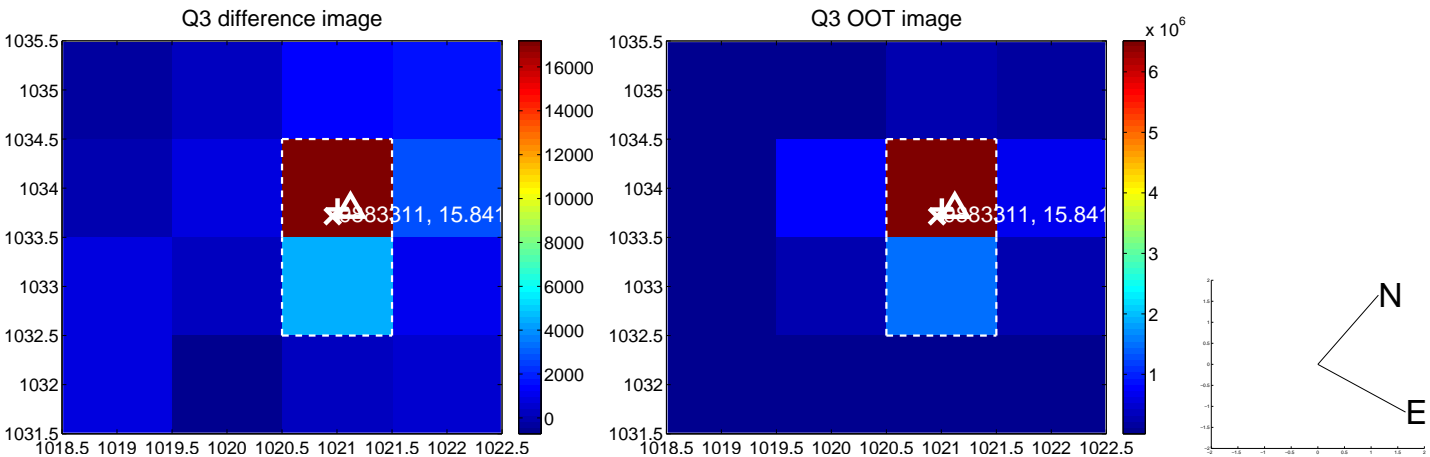
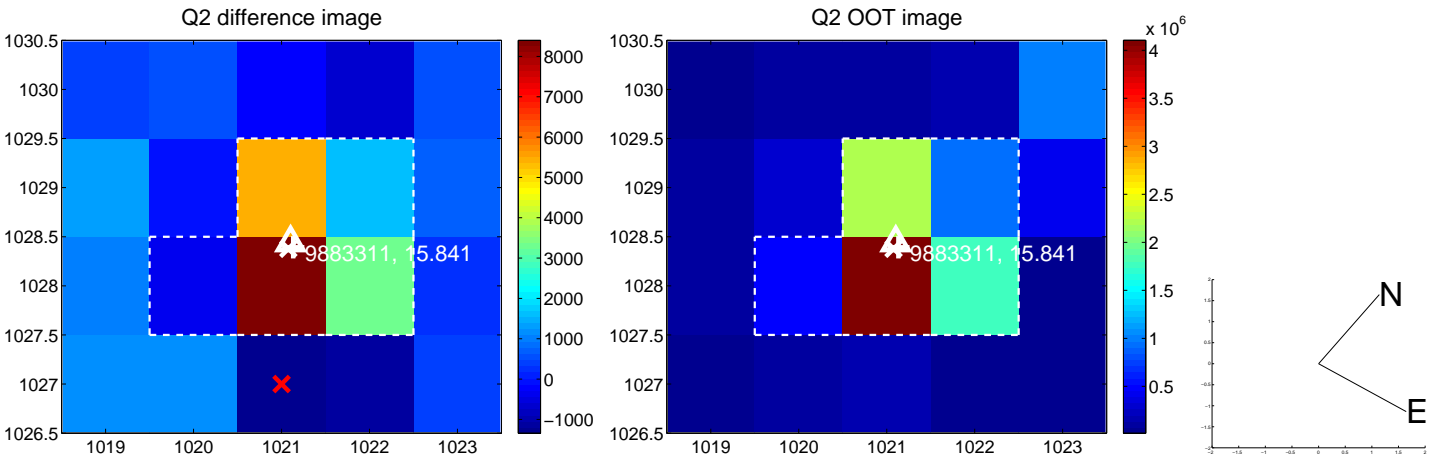
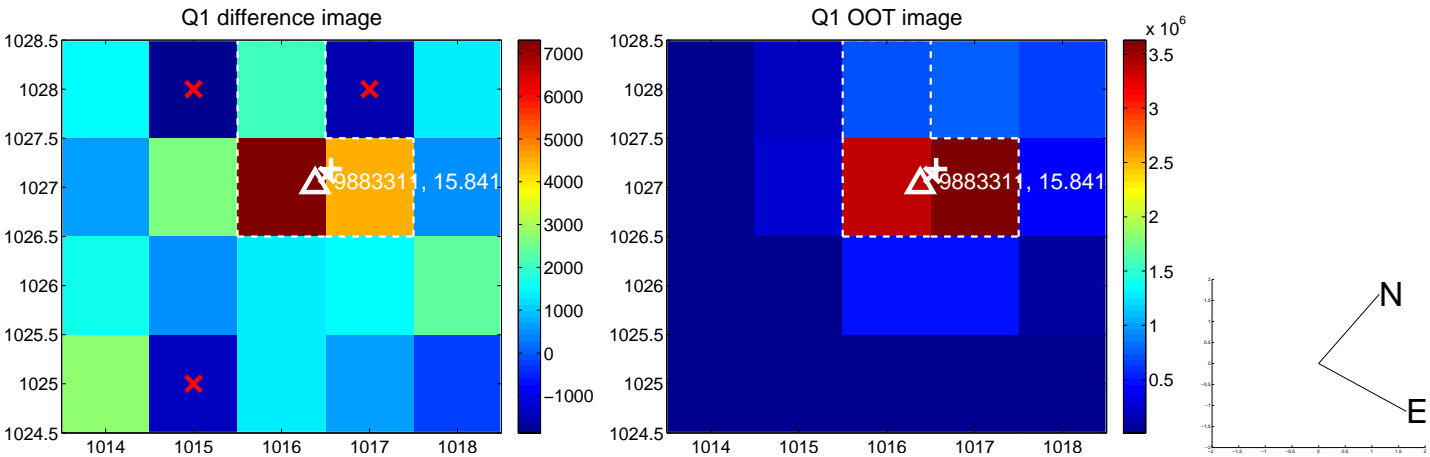
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.016 ± 0.113	0.15	0.016 ± 0.113	0.001 ± 0.118
PRF-fit source offset from KIC position	0.187 ± 0.167	1.12	-0.008 ± 0.095	0.187 ± 0.167
photometric centroid source offset	0.84 ± 0.37	2.30	0.49 ± 0.38	0.69 ± 0.36

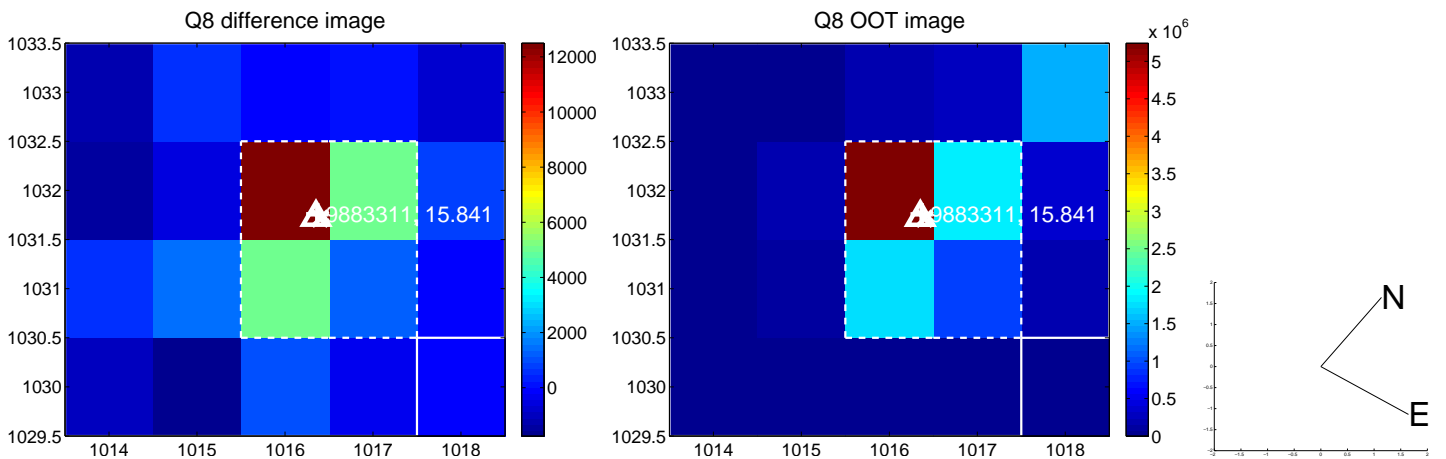
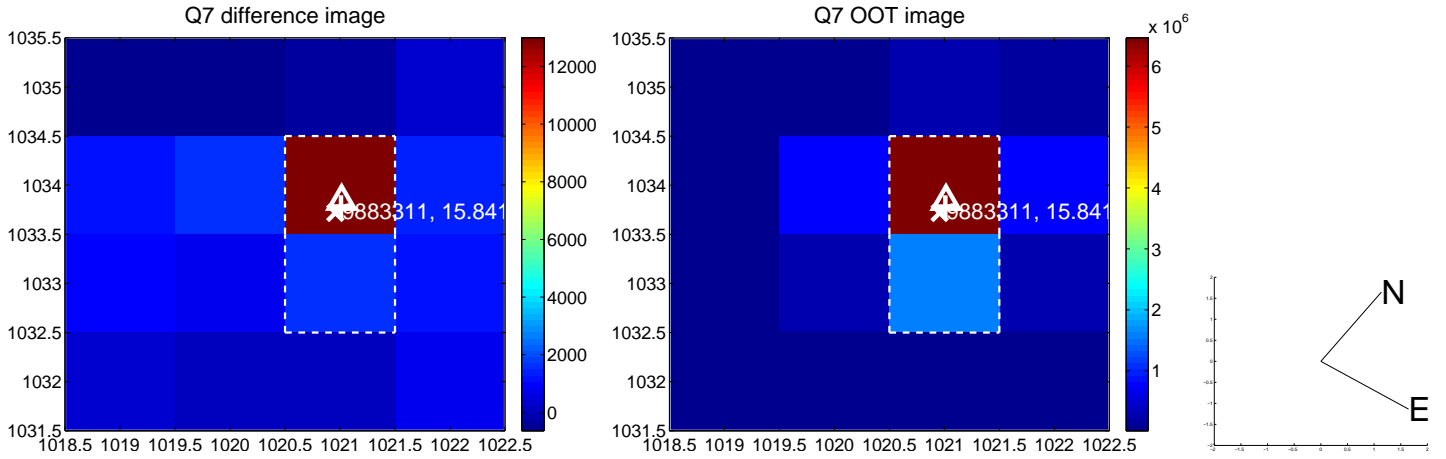
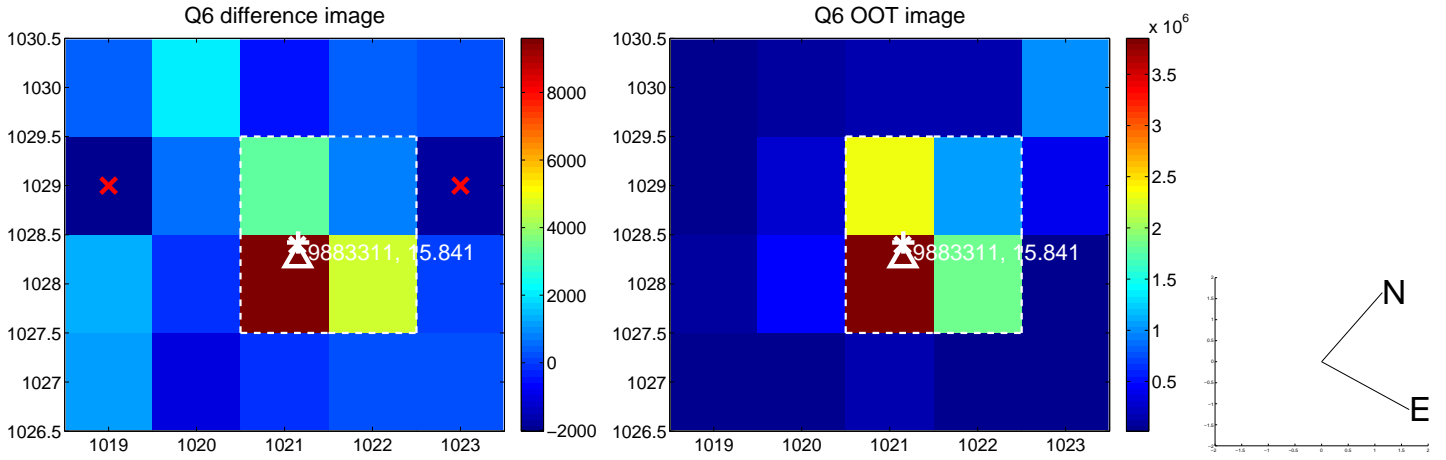
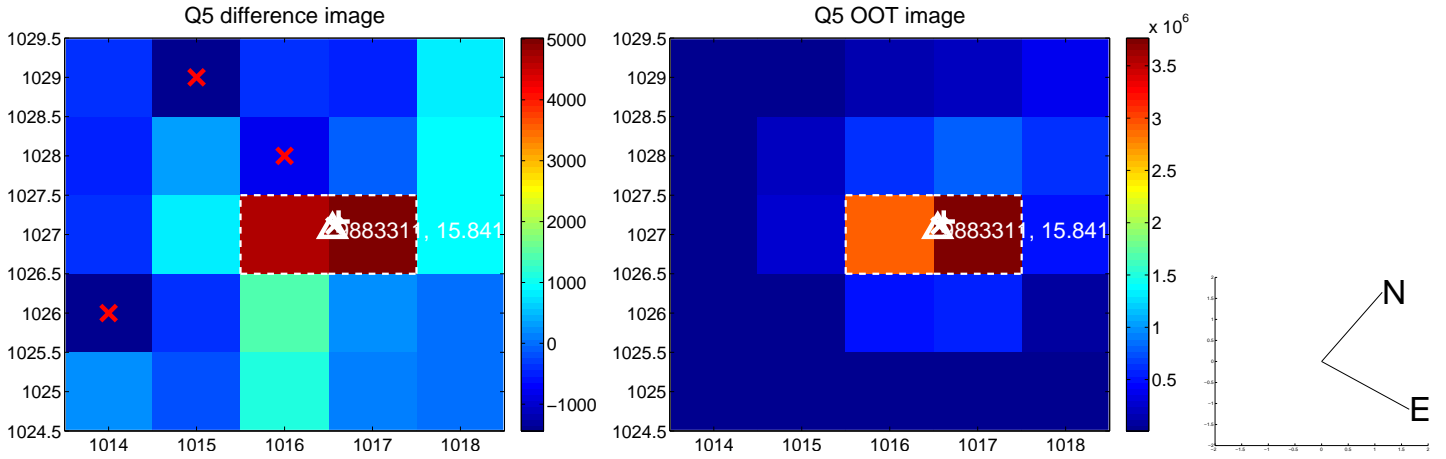


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

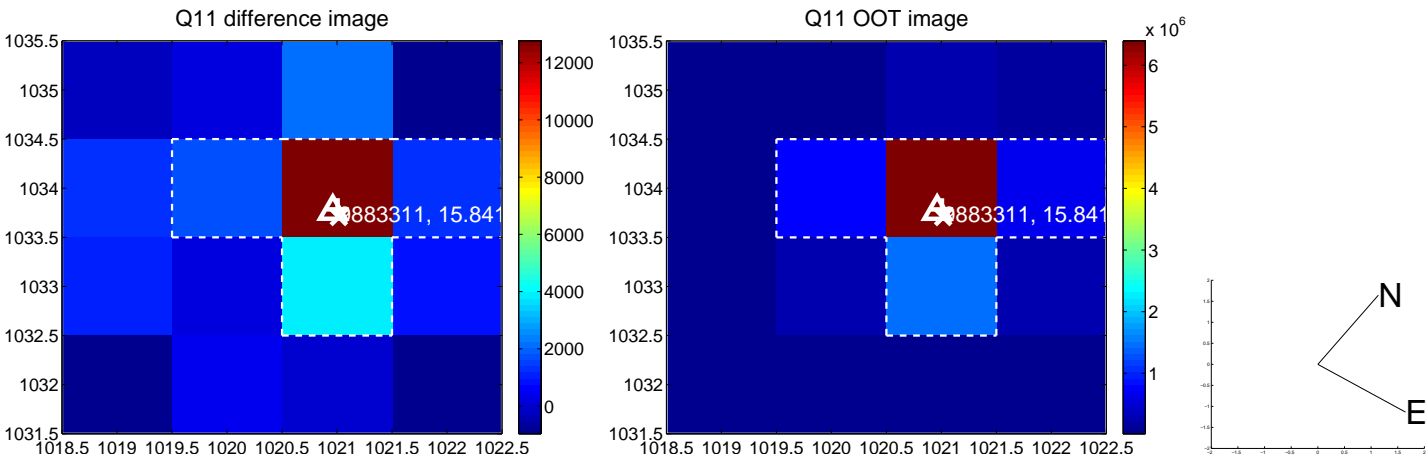
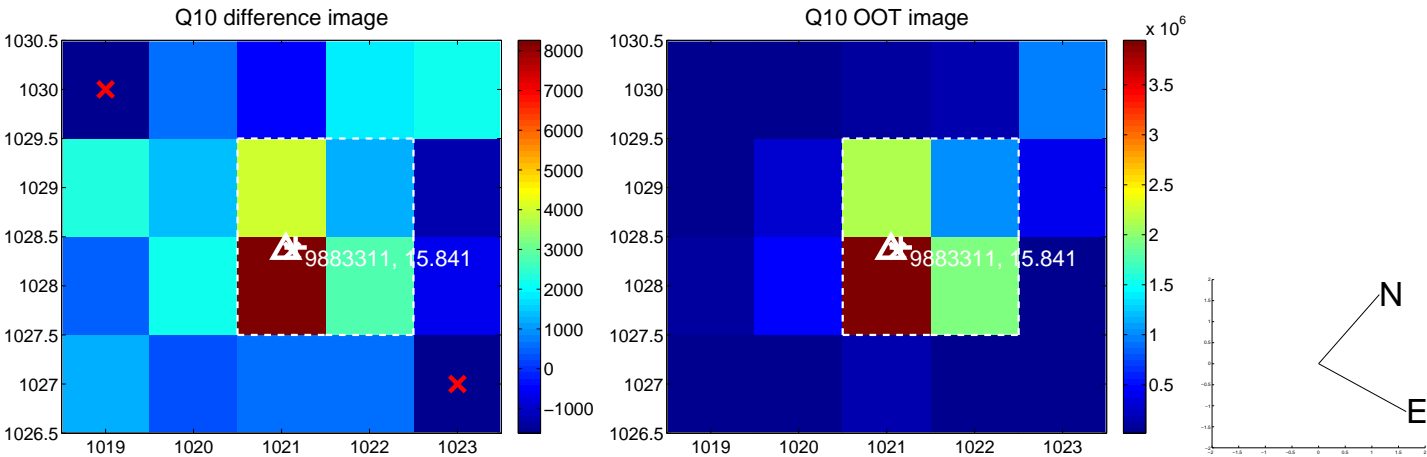
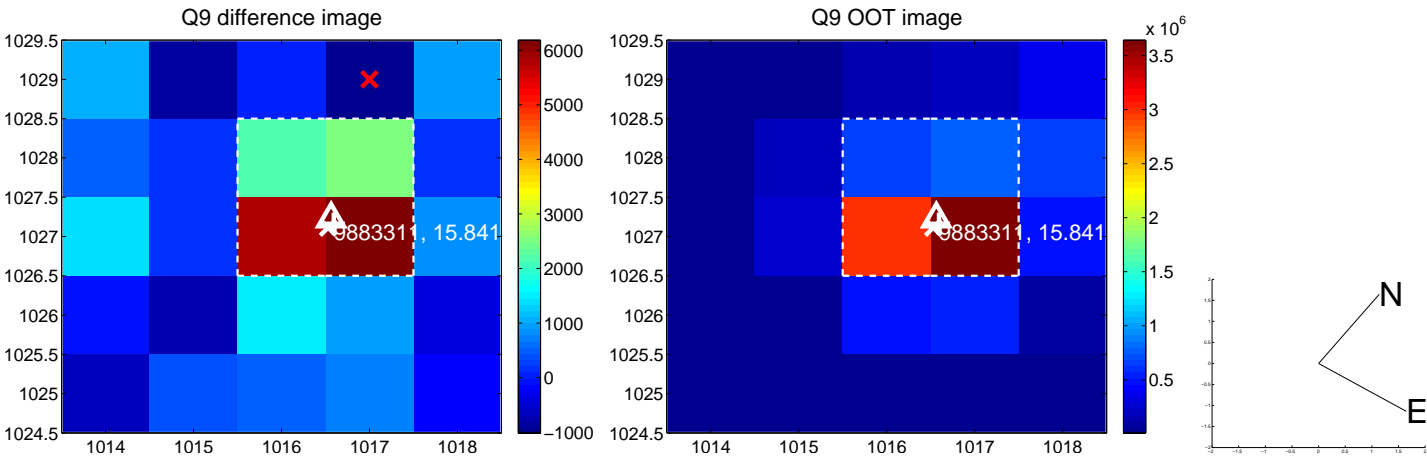
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



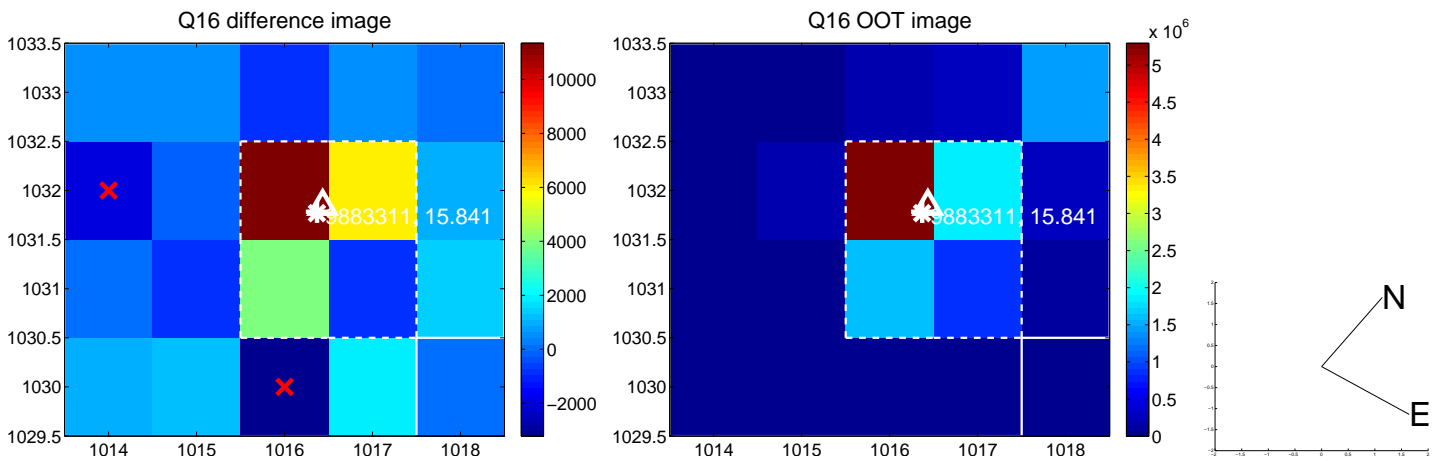
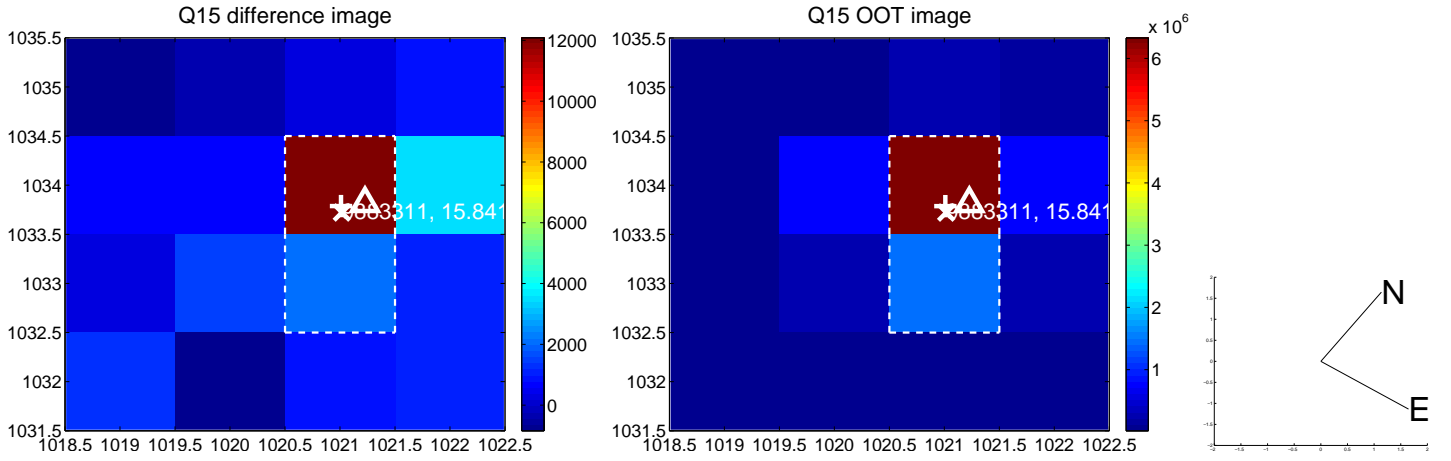
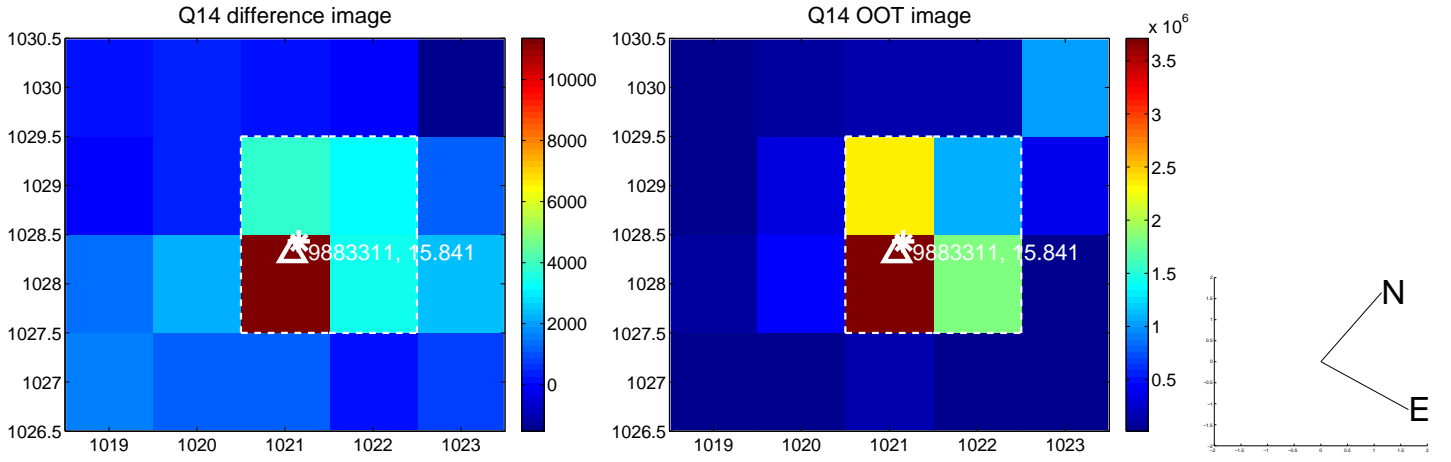
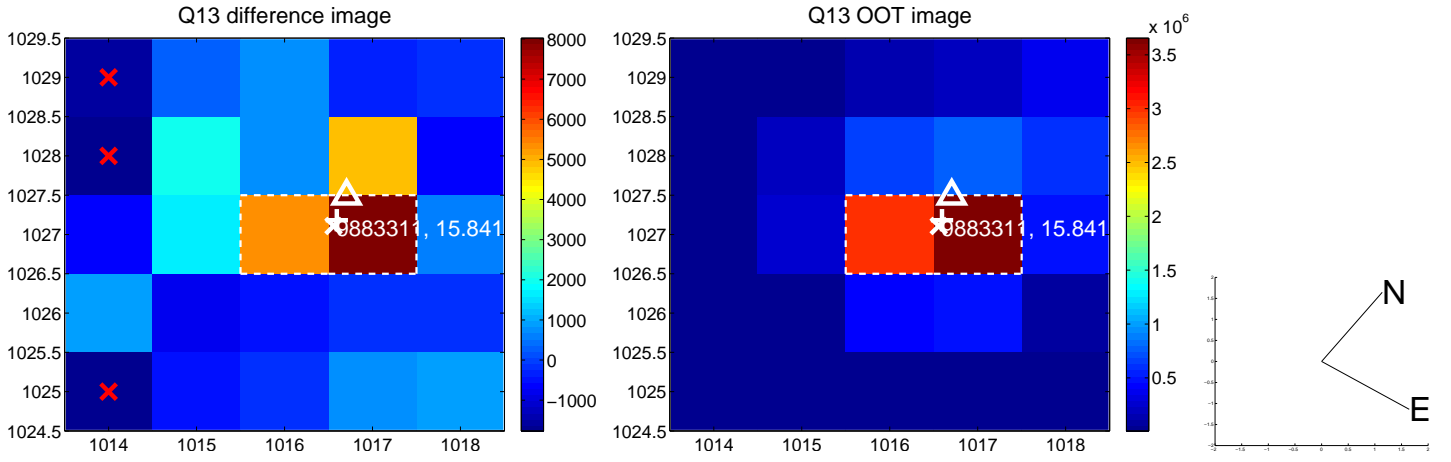
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



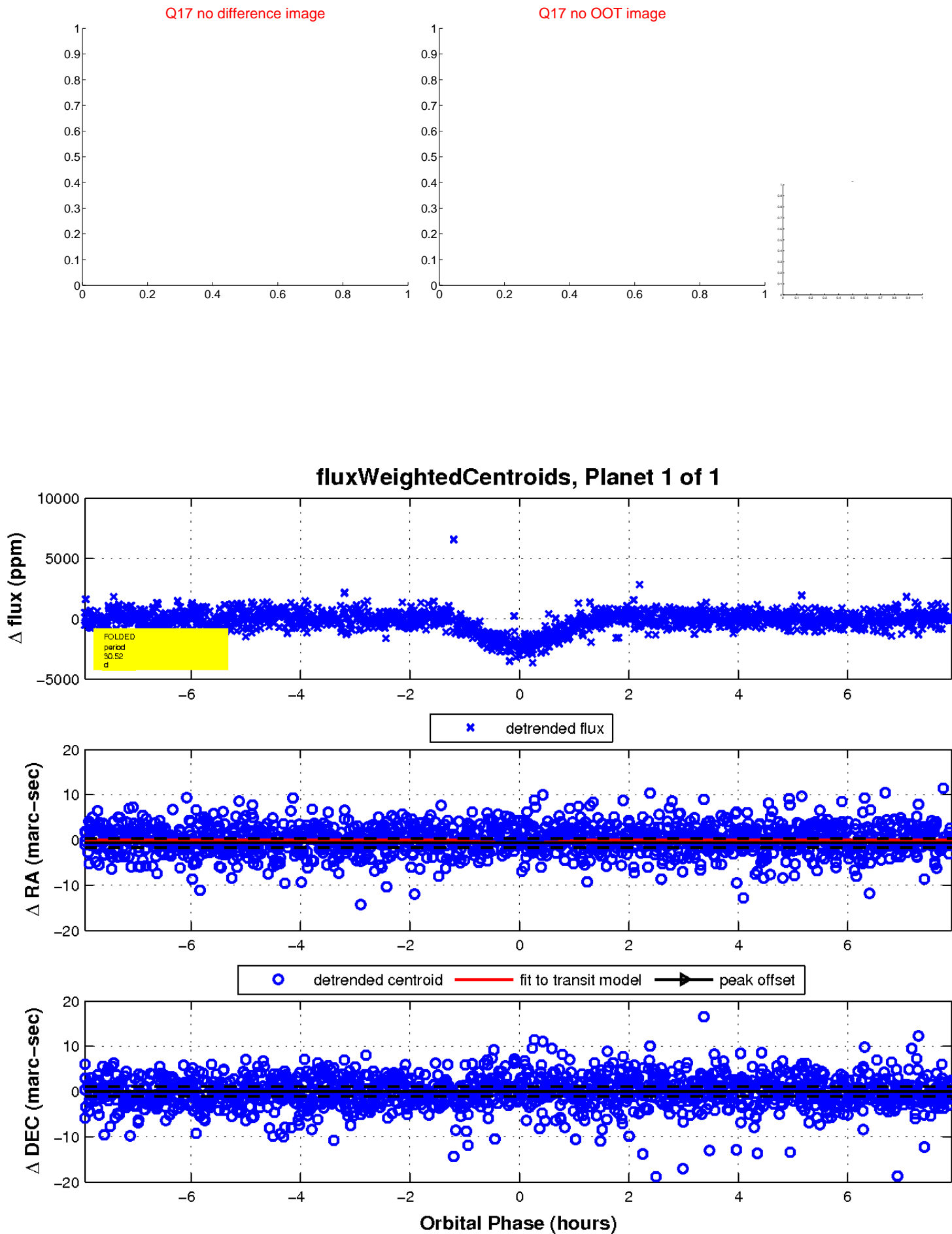
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UKIRT Image

Declination

