

KIC 004178606

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})
004178606-01	OBS	2728.01	42.351088	131.628322	578.3	7.887	25.3	26.8	2.63	6864	7.02	183.19

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004178606-01	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.

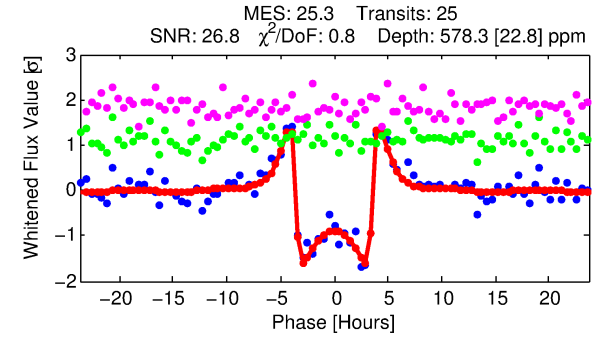
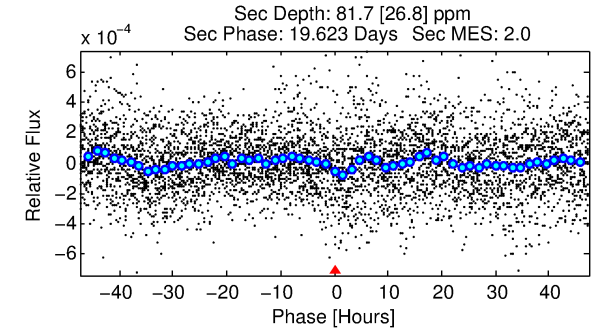
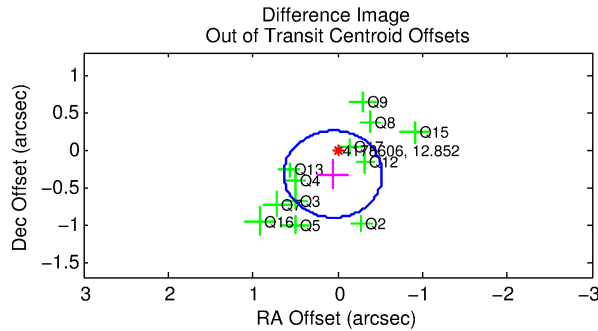
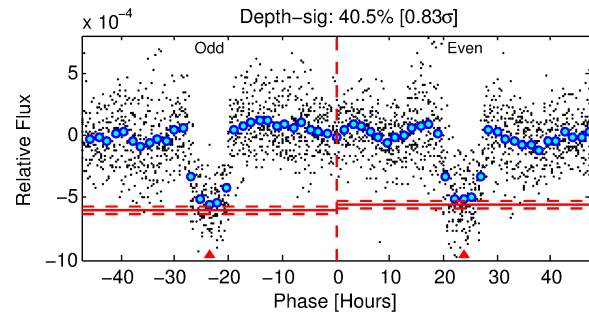
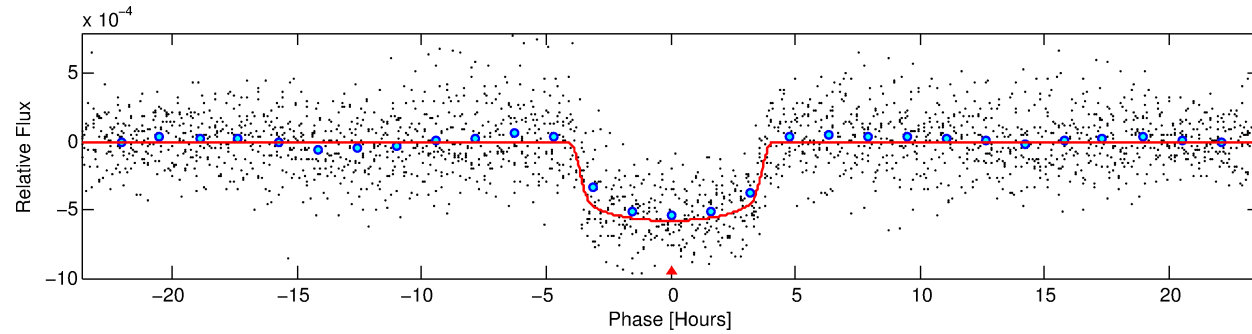
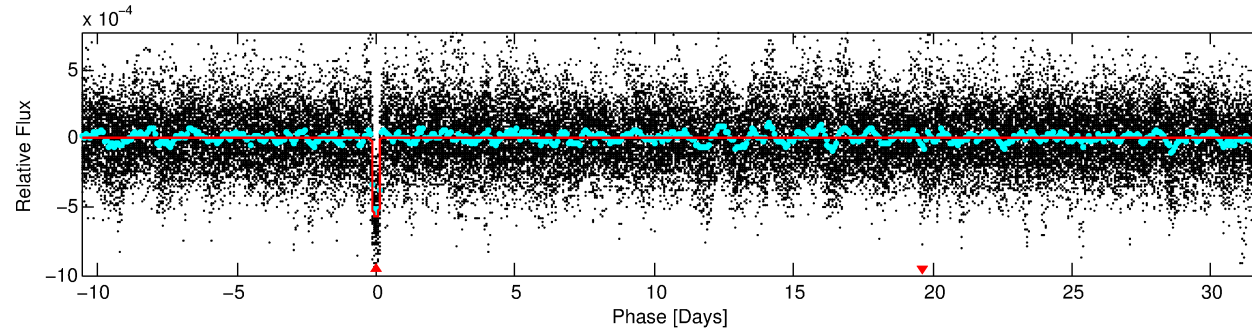
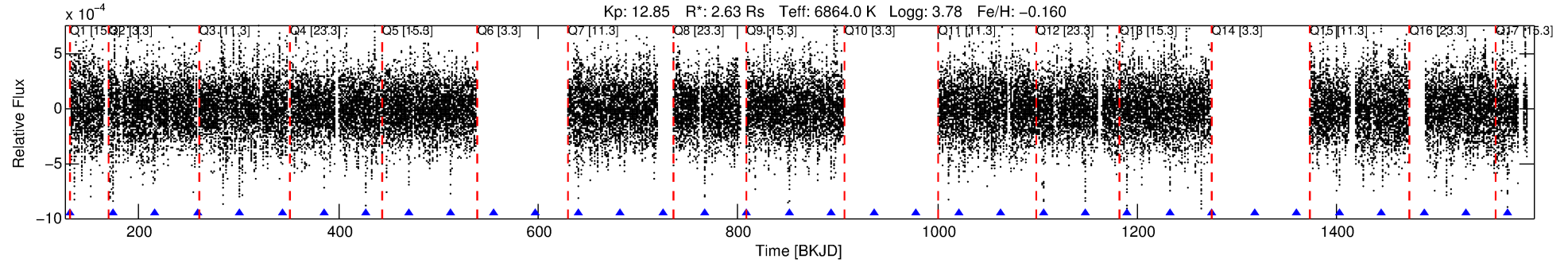
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004178606-01

No Significant Match Found

DV One-Page Summary

KIC: 4178606 Candidate: 1 of 1 Period: 42.351 d
KOI: K02728.01 Corr: 0.983



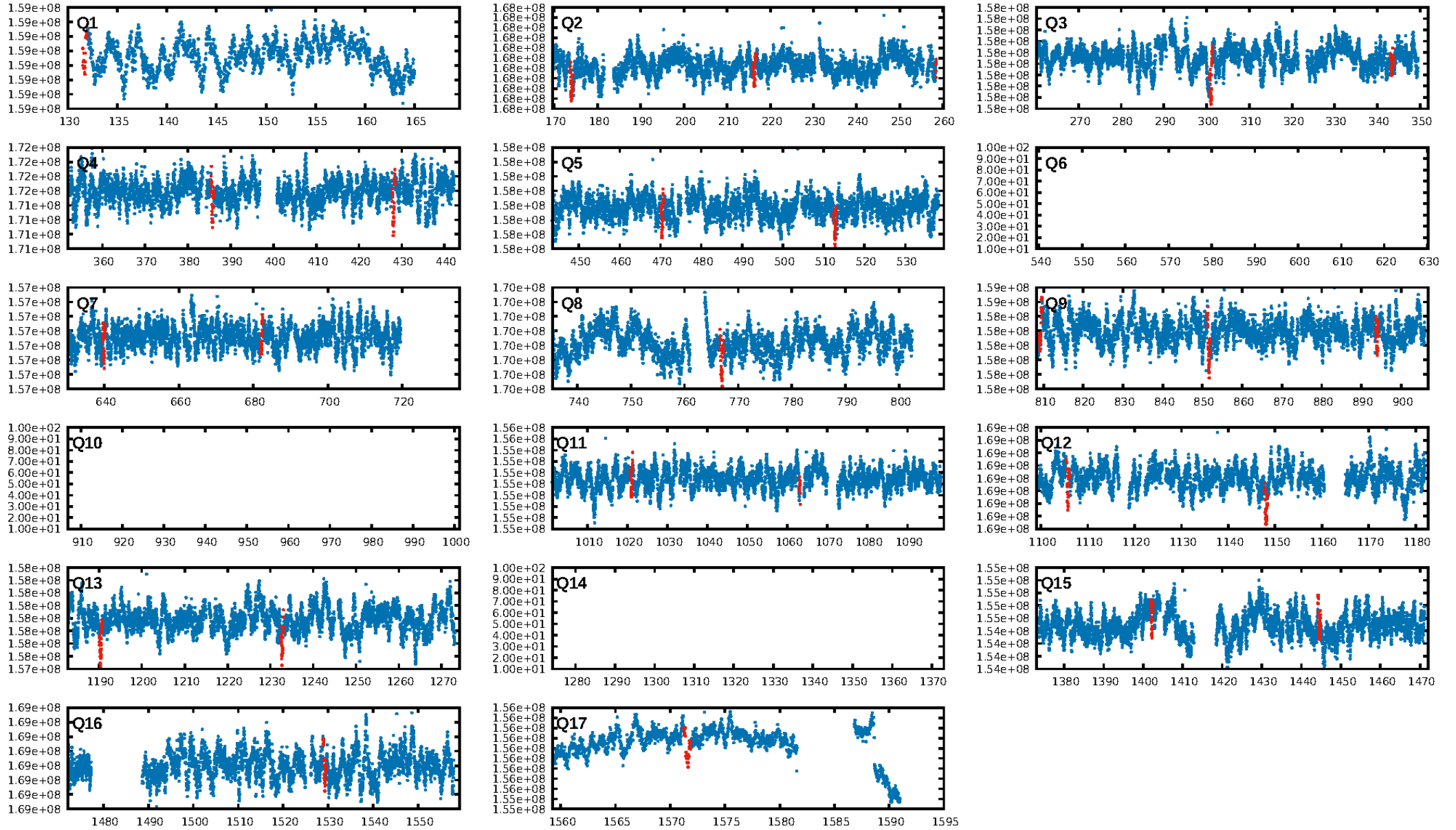
DV Fit Results:

Period = 42.35109 [0.00011] d
Epoch = 131.6283 [0.0021] BKJD
Rp/R* = 0.0244 [0.0009]
a/R* = 25.55 [3.82]
b = 0.81 [0.06]
Seff = 183.19 [93.00]
Teff = 938 [119] K
Rp = 7.02 [2.35] Re
a = 0.2742 [0.0854] AU
Ag = 68.61 [40.80] [1.66 σ]
Teffp = 4174 [377] K [8.19 σ]

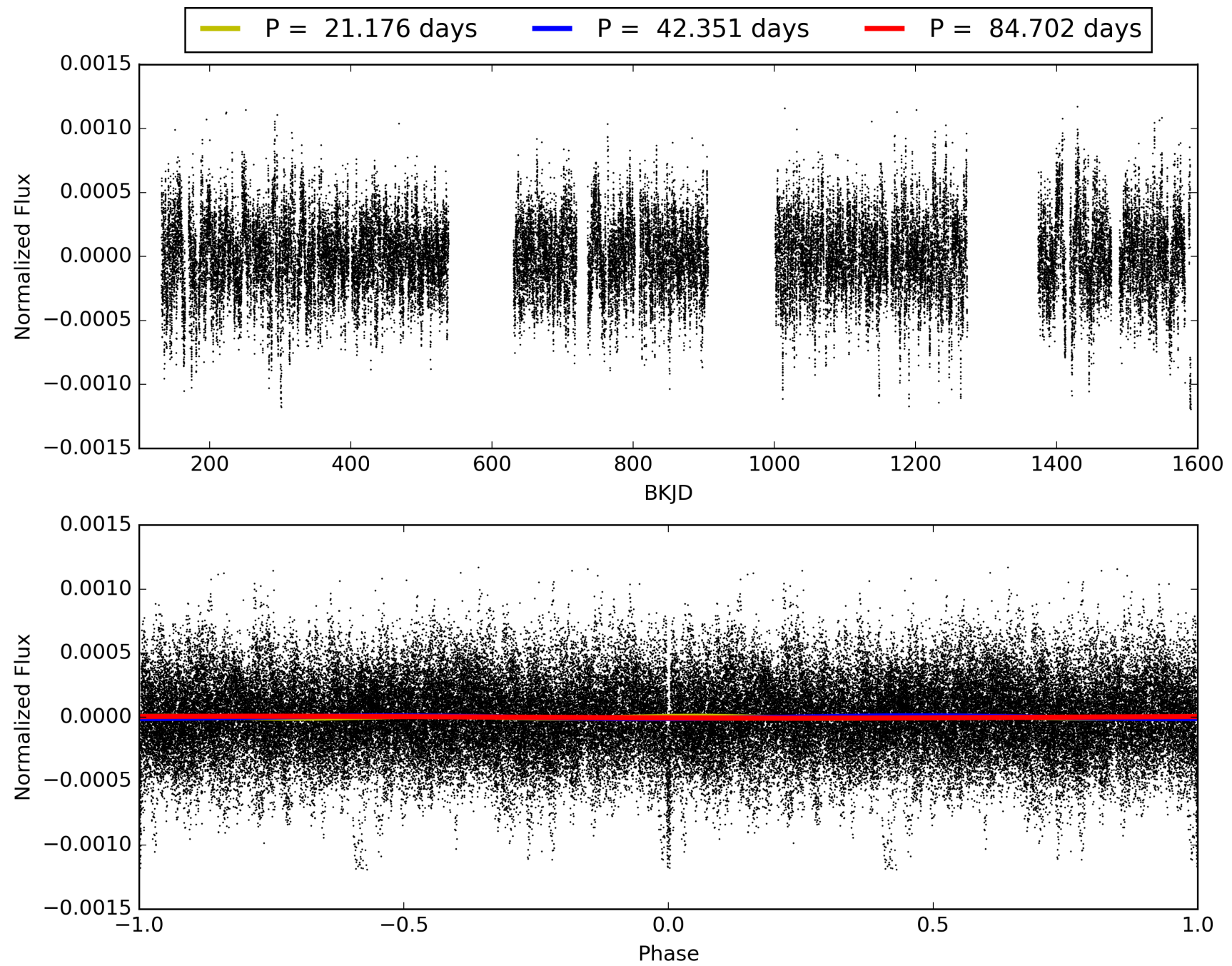
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 93.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.33e-122
RollingBand-fgt: 1.00 [23/23]
GhostDiagnostic-chr: 2.467
Centroid-sig: 28.5%
Centroid-so: 0.203 arcsec [1.17 σ]
OotOffset-rm: 0.331 arcsec [1.71 σ]
OotOffset-st: 1/3/4/4 [12]
KicOffset-rm: 0.281 arcsec [1.38 σ]
KicOffset-st: 1/3/4/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [12/12]

TCE 004178606-01, PDC Light Curves

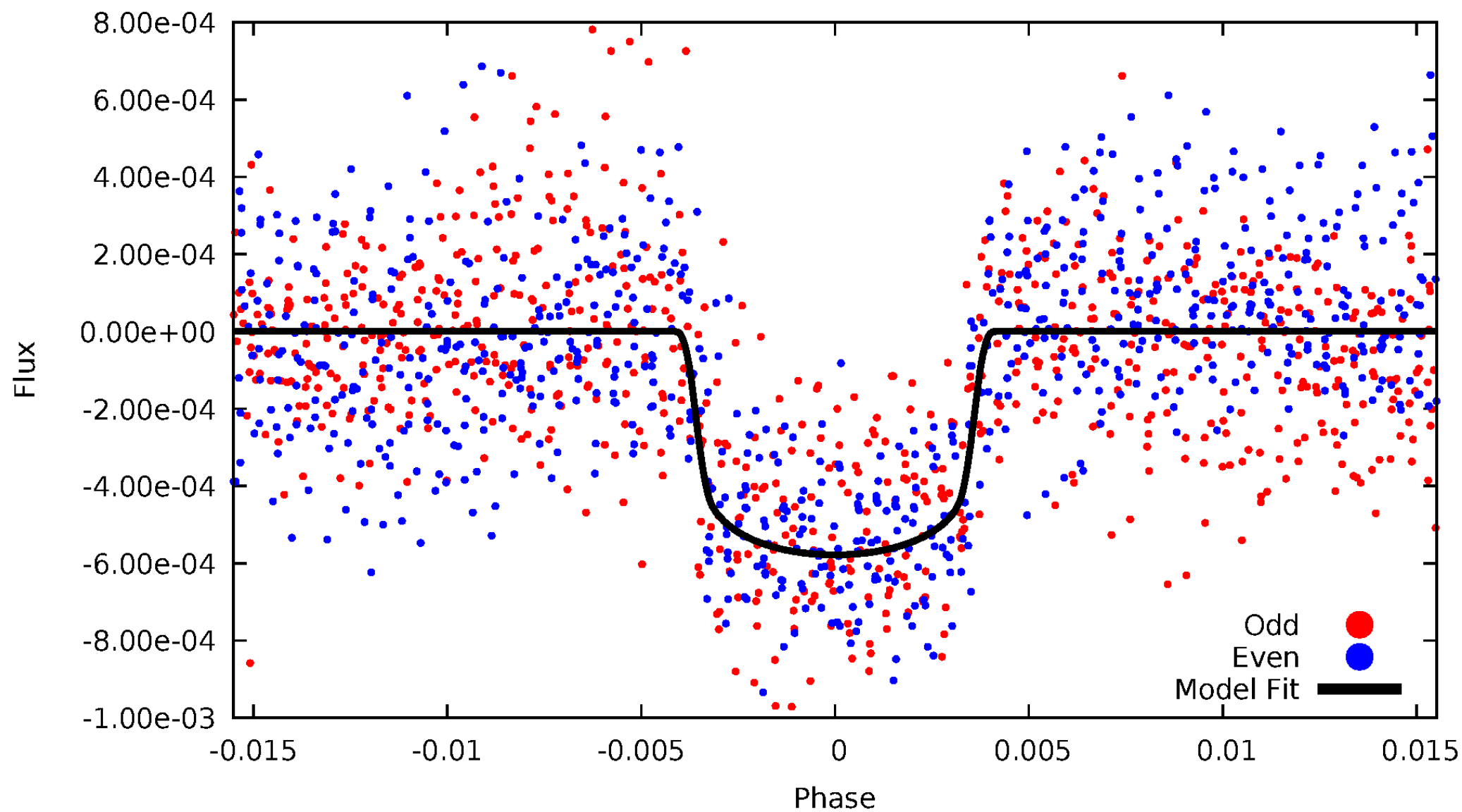


TCE 004178606-01



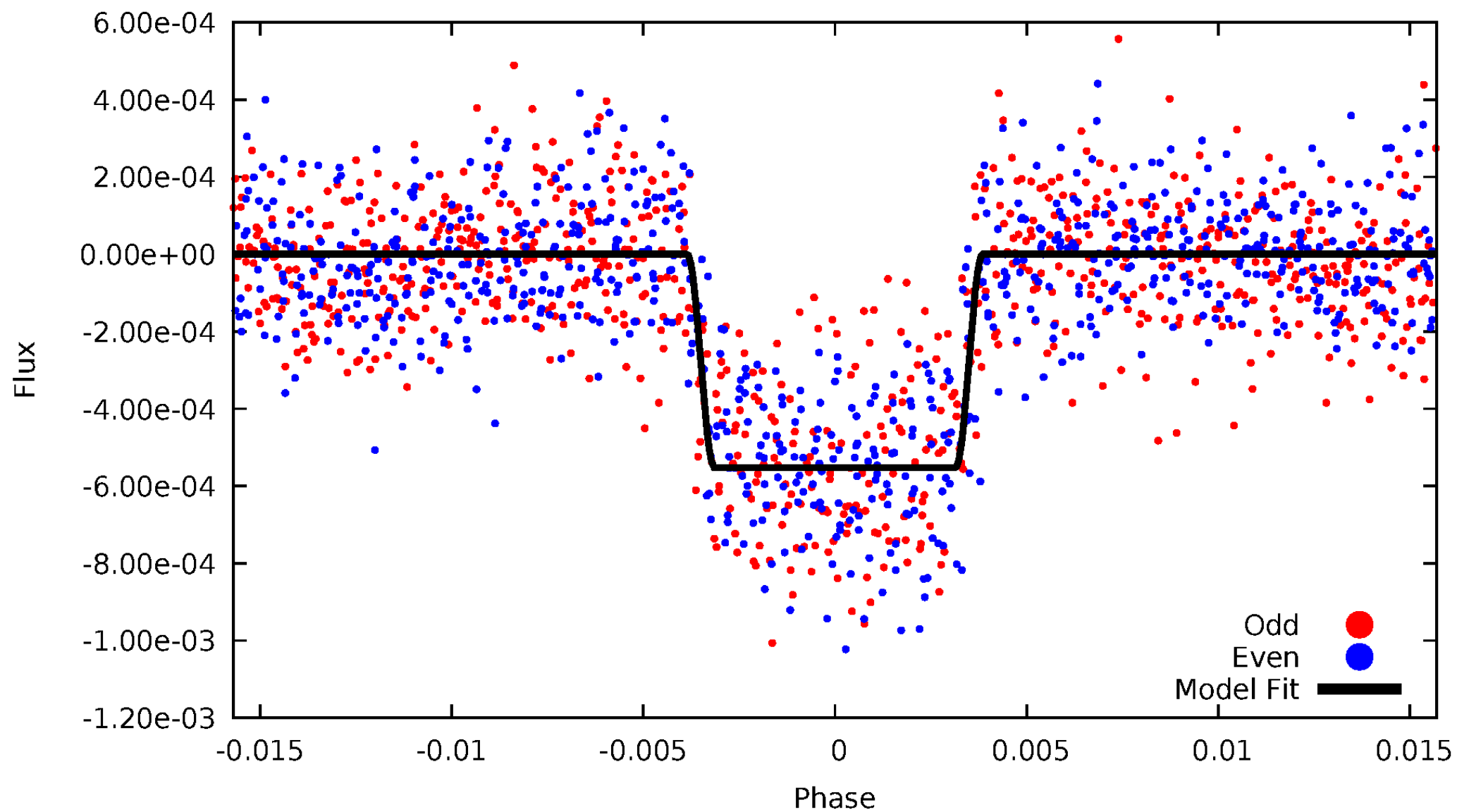
DV Odd/Even

TCE 004178606-01



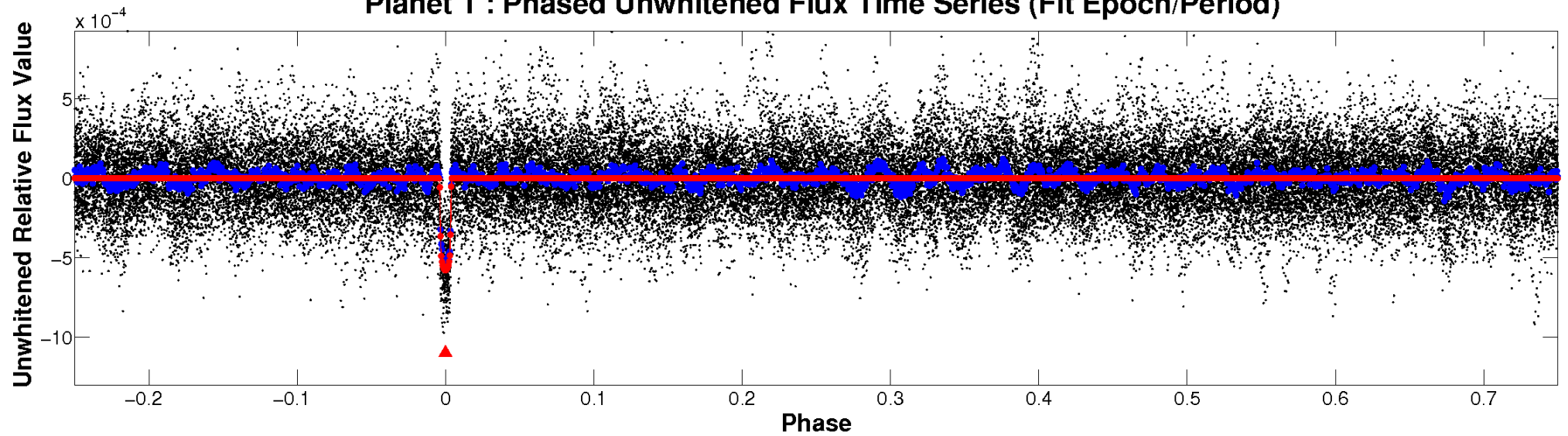
ALT Odd/Even

TCE 004178606-01

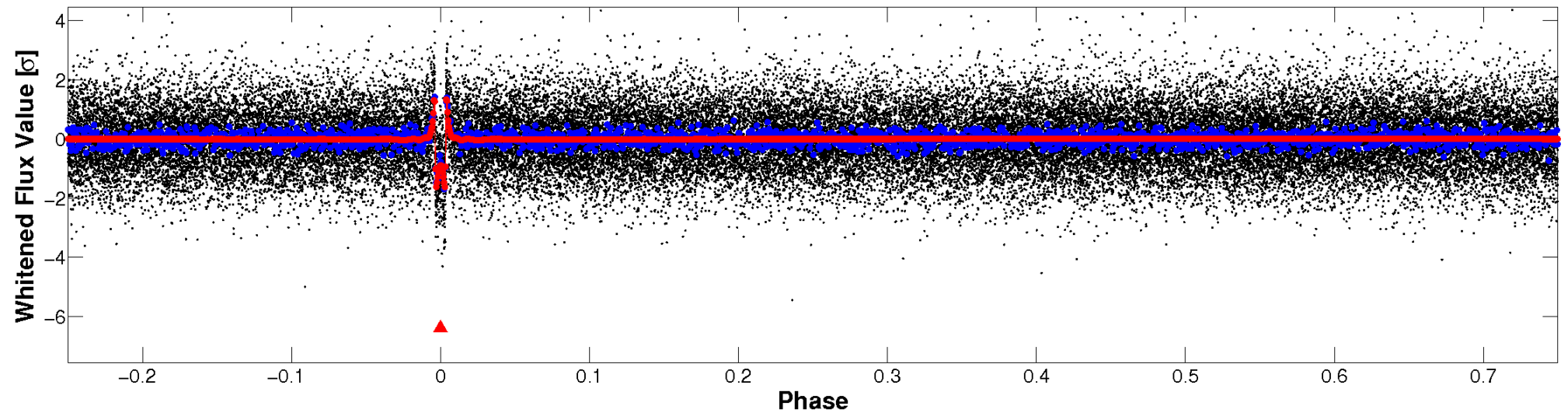


Non-Whitened Vs. Whitened Light Curve

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

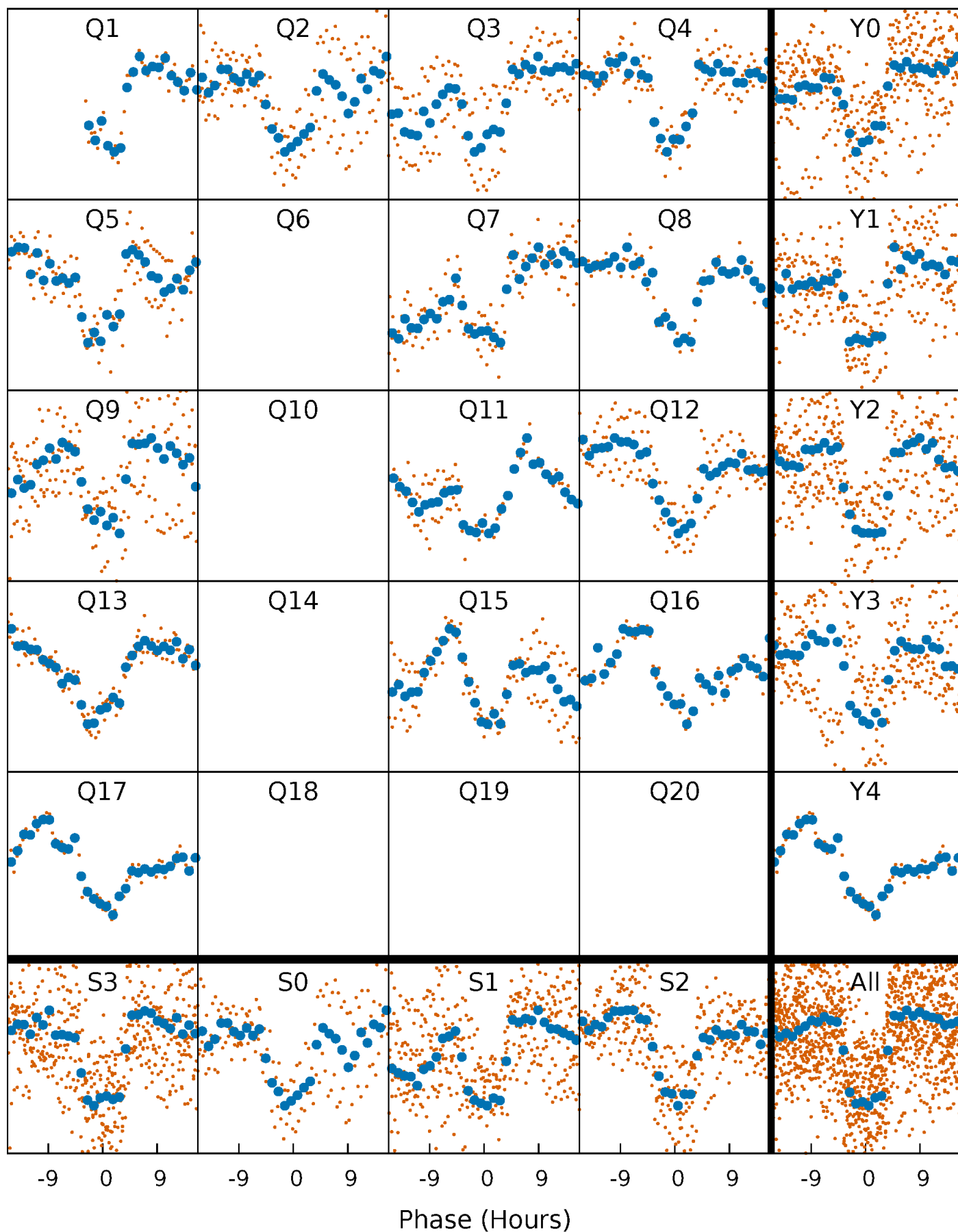


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



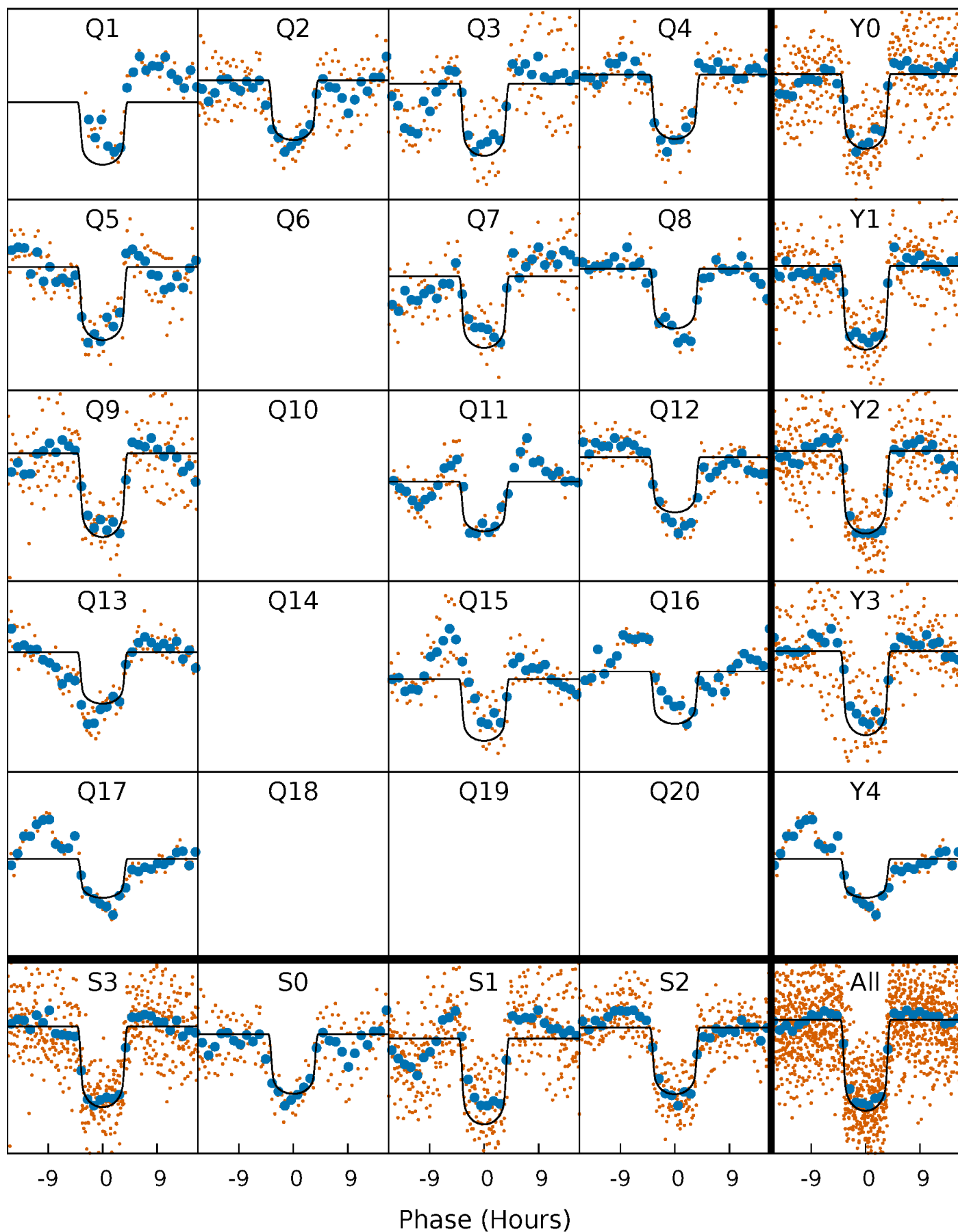
PDC Quarter-Phased Transit Curves

TCE 004178606-01 P= 42.351088 Days $T_0=131.628322$ (BKJD)



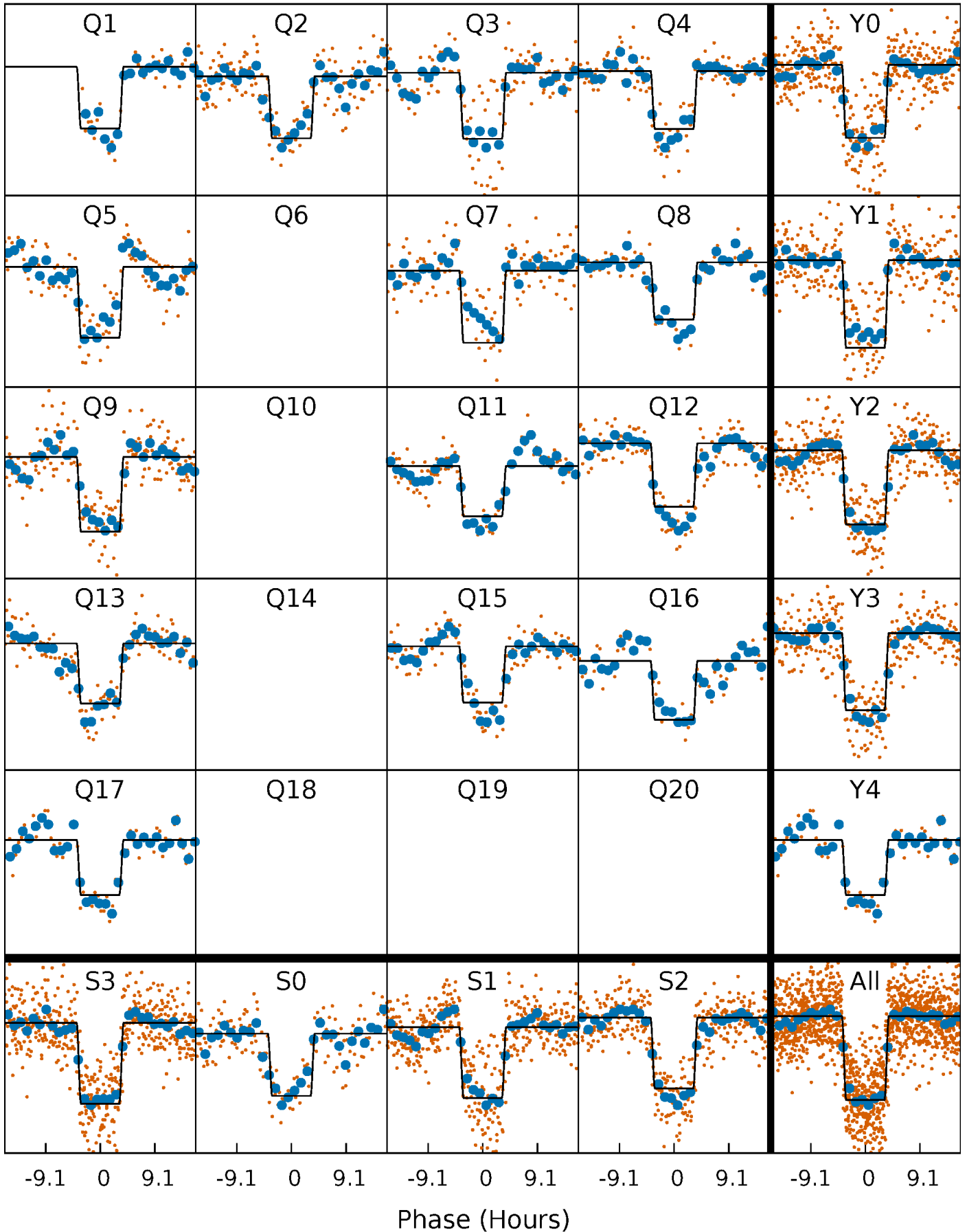
DV Quarter-Phased Transit Curves

TCE 004178606-01 P= 42.351088 Days $T_0=131.628322$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

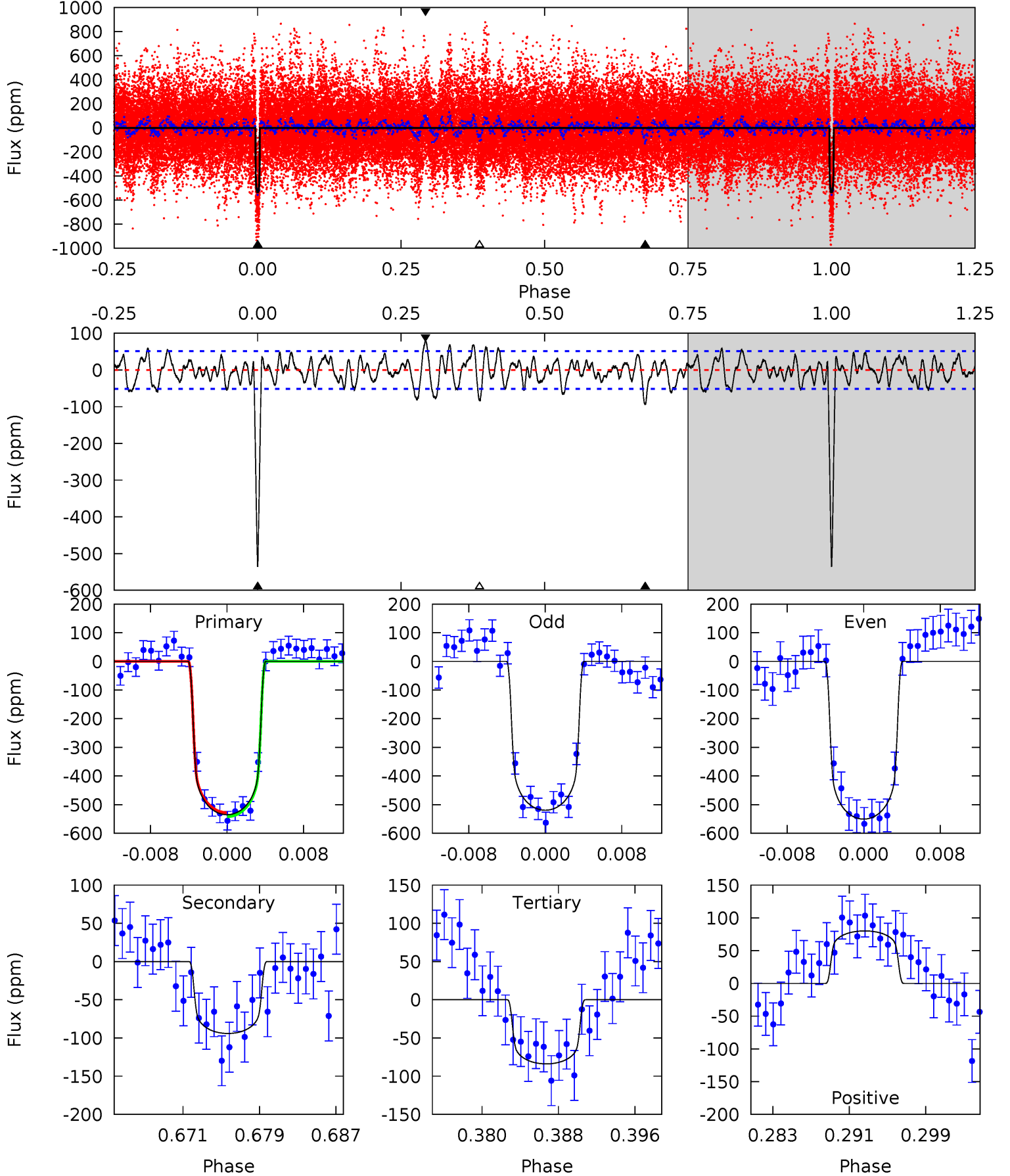
TCE 004178606-01 P= 42.350801 Days $T_0=131.634849$ (BKJD)



DV Model-Shift Uniqueness Test

004178606-01, P = 42.351088 Days, E = 89.277234 Days

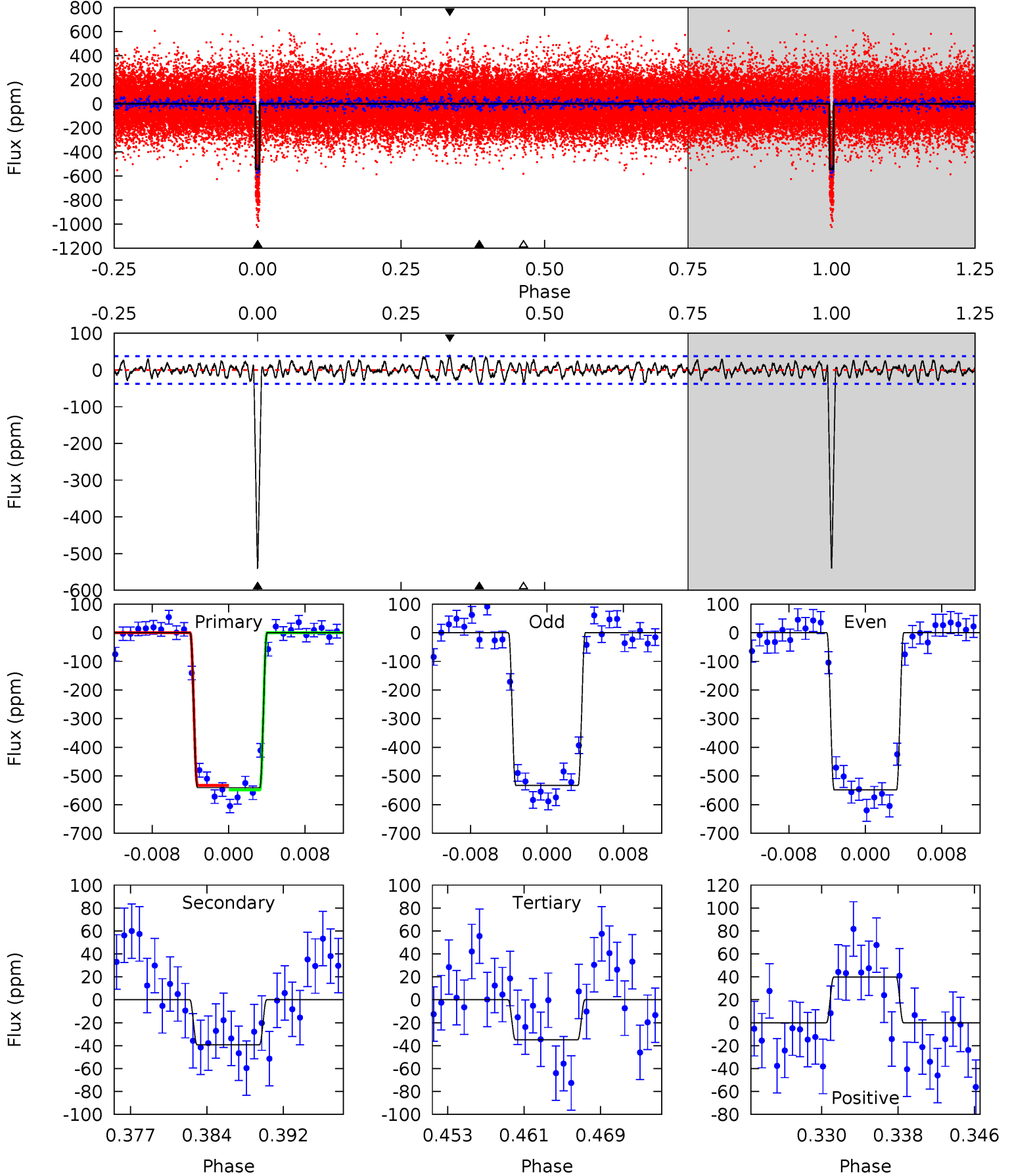
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.7	9.26	8.25	7.88	5.07	2.65	2.86	44.4	44.8	1.01	1.38	1.53	0.94	0.13	0.69



Alt Model-Shift Uniqueness Test

004178606-01, P = 42.350801 Days, E = 89.284048 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.1	5.31	4.72	5.39	5.08	2.67	1.75	68.4	67.7	0.59	-0.08	1.08	0.95	0.07	1.05



Stellar Parameters For KIC 004178606

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6864^{+184}_{-225}	$3.783^{+0.285}_{-0.095}$	$-0.160^{+0.300}_{-0.250}$	$2.632^{+0.471}_{-0.875}$	$1.535^{+0.219}_{-0.267}$	$0.119^{+0.216}_{-0.043}$
	+3%/-3%	+8%/-3%	+188%/-156%	+18%/-33%	+14%/-17%	+182%/-37%
Source	PHO1	FLK73	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 004178606-01 / KOI 2728.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-94 ± 10	$6.87^{+0.82}_{-1.09}$	1290^{+74}_{-103}	4474^{+159}_{-143}	83^{+32}_{-16}
Alt.	-39 ± 7	$6.61^{+0.82}_{-1.08}$	1284^{+81}_{-104}	3864^{+160}_{-169}	39^{+15}_{-10}

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

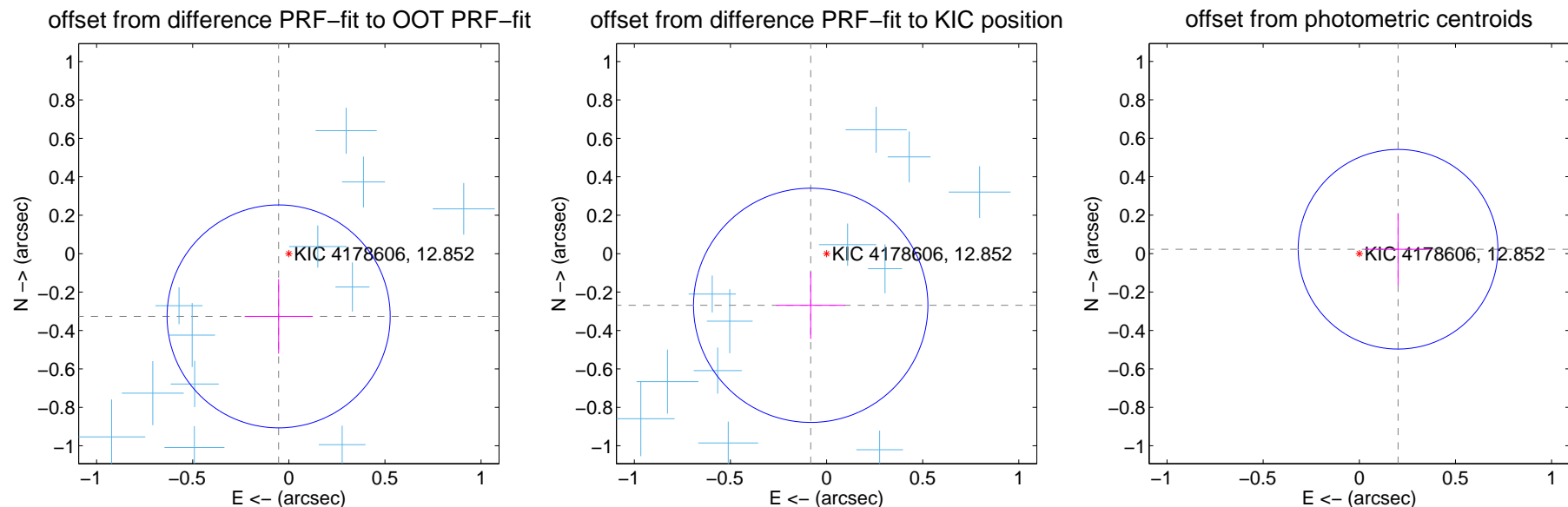
DV Centroid Data

Supplemental centroid analysis for 004178606-01. Kepler magnitude: 12.85. Transit SNR 26.81

There are 12 quarters with good PRF difference image offsets

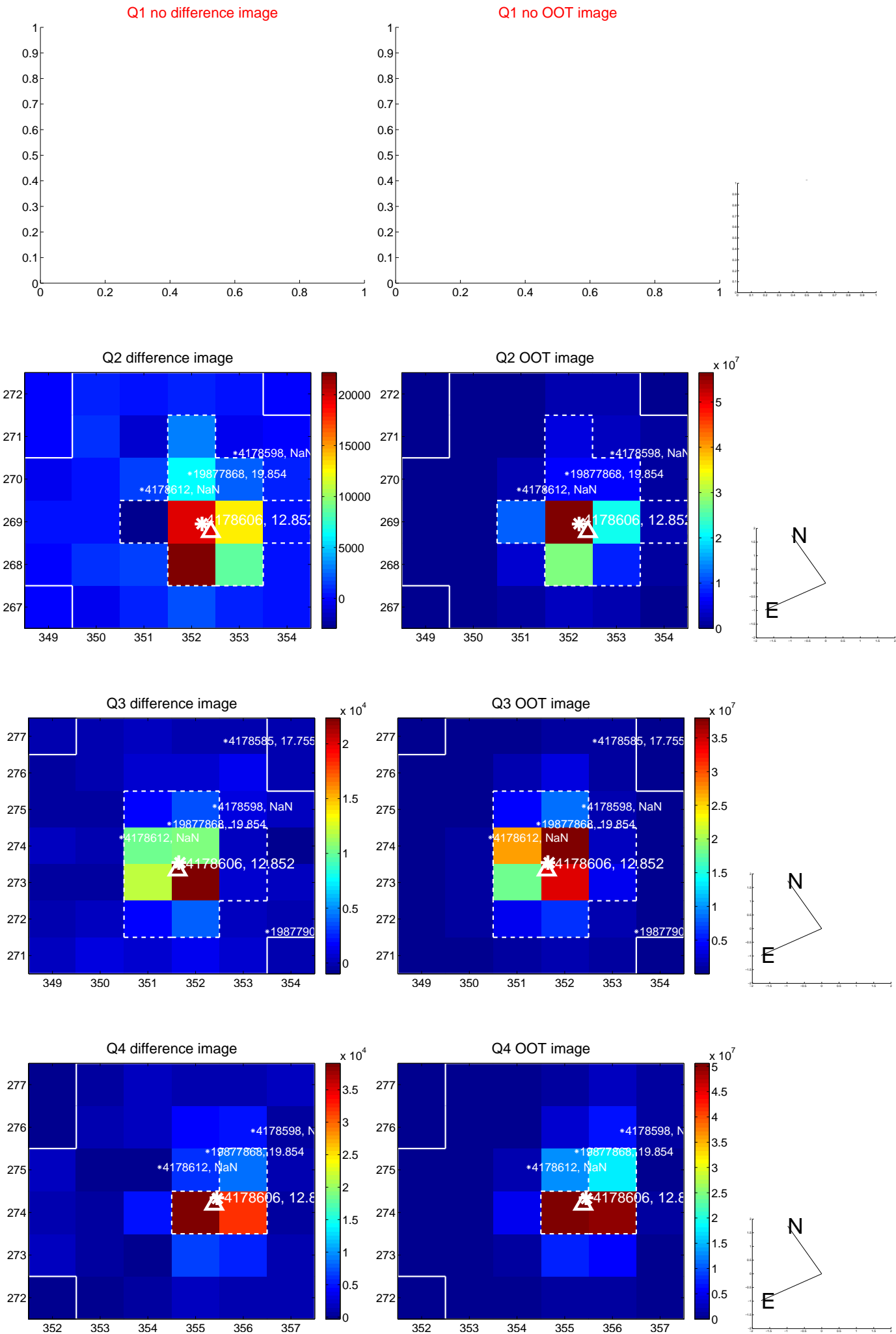
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.331 ± 0.193	1.71	0.053 ± 0.177	-0.327 ± 0.194
PRF-fit source offset from KIC position	0.281 ± 0.203	1.38	0.083 ± 0.179	-0.269 ± 0.175
photometric centroid source offset	0.20 ± 0.17	1.17	-0.20 ± 0.17	0.02 ± 0.19

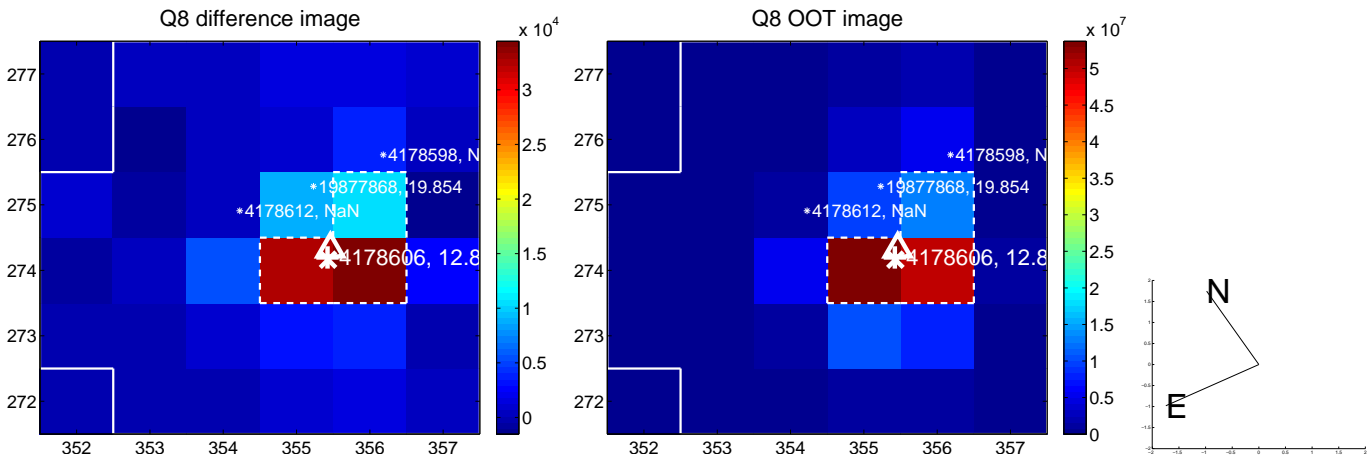
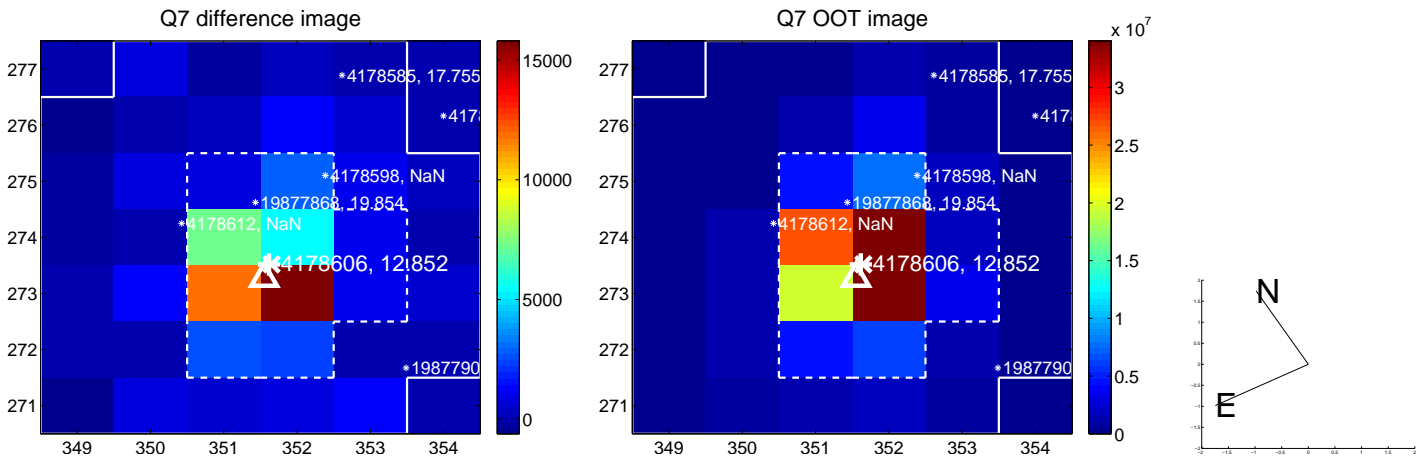
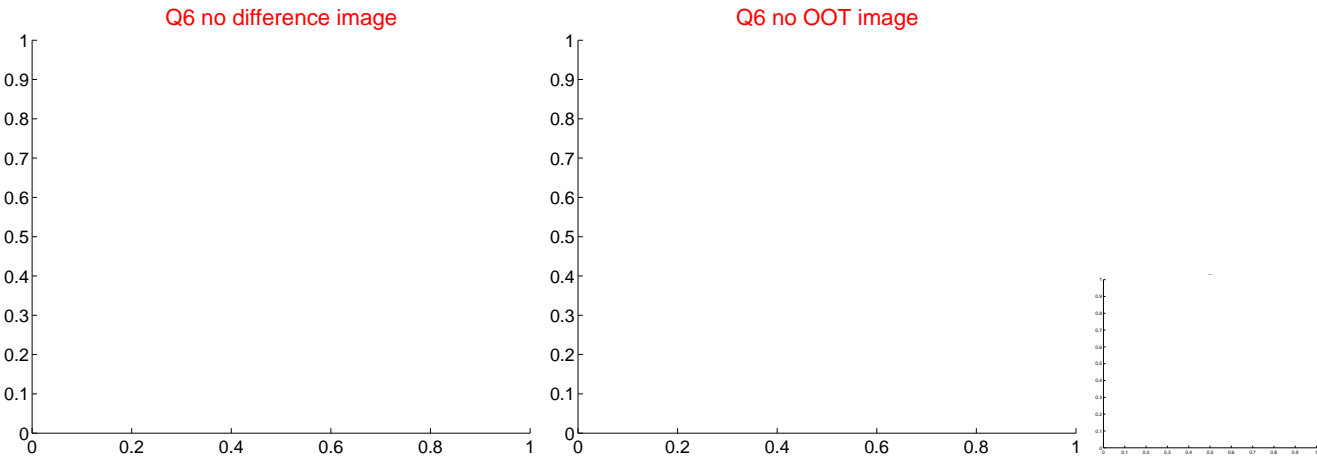
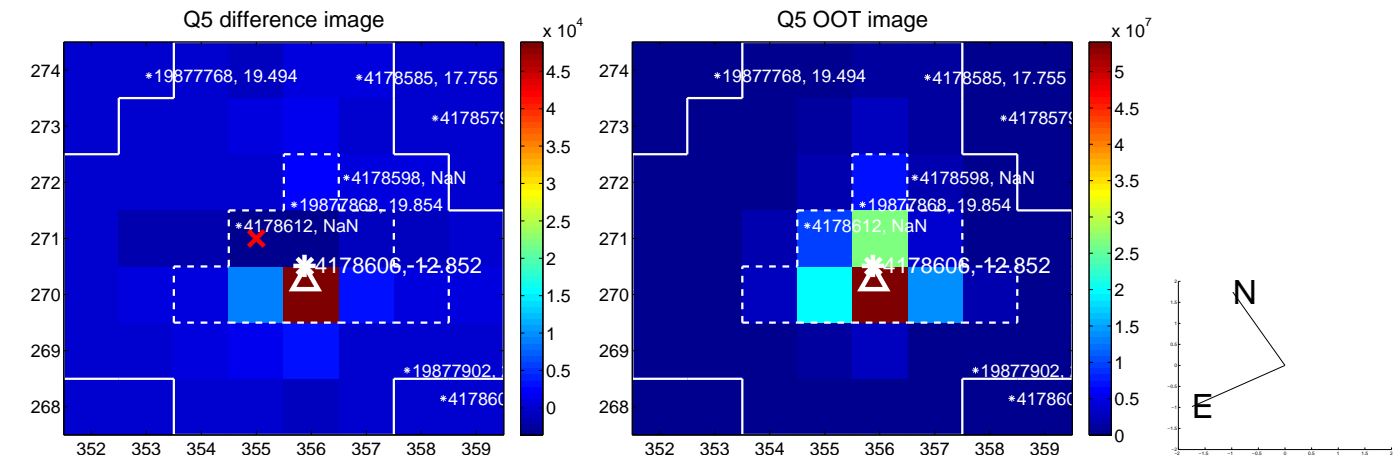


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

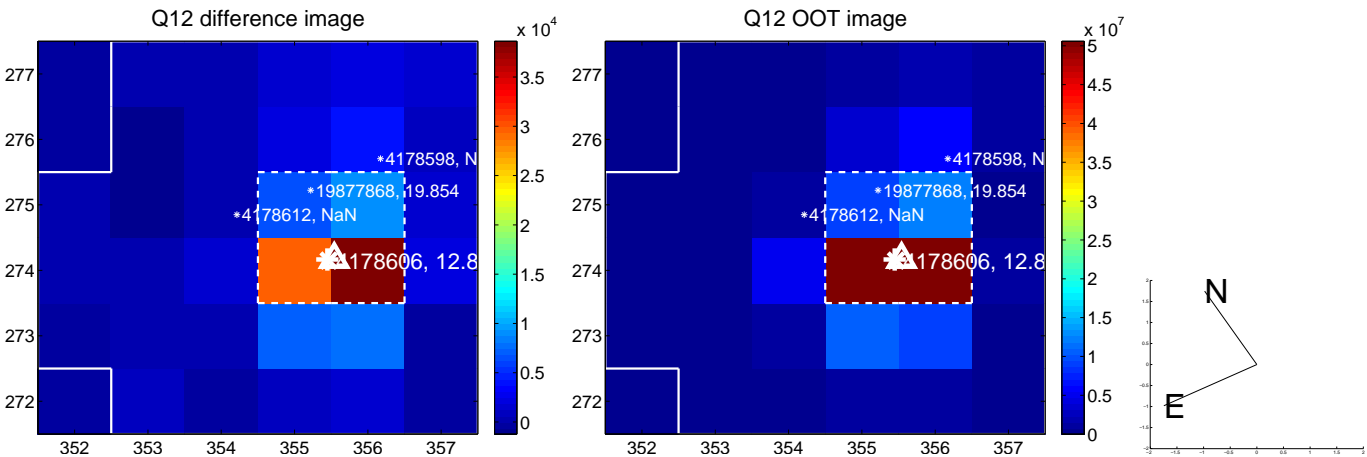
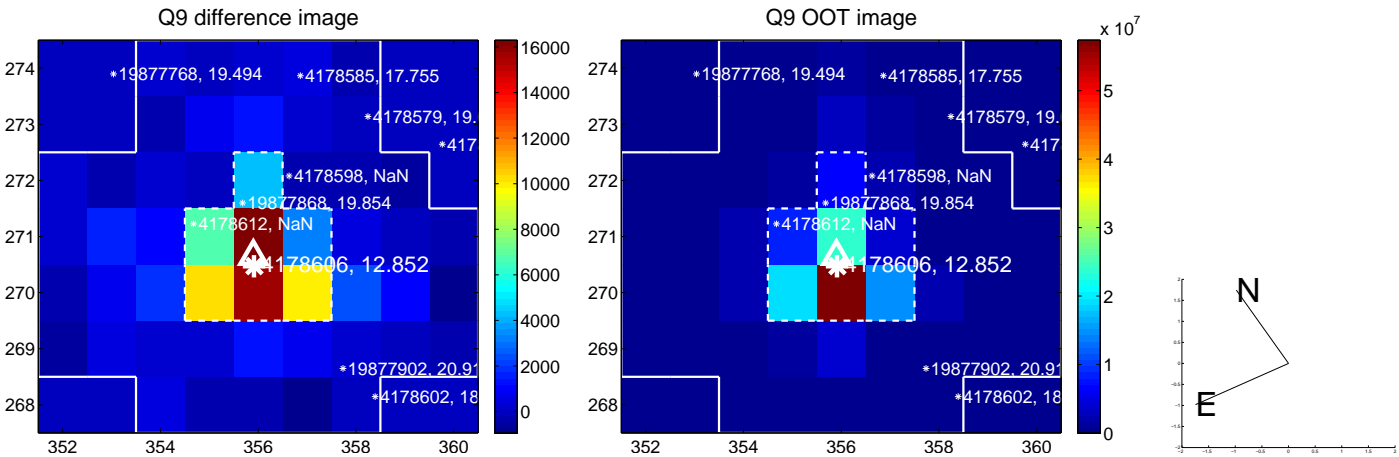
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



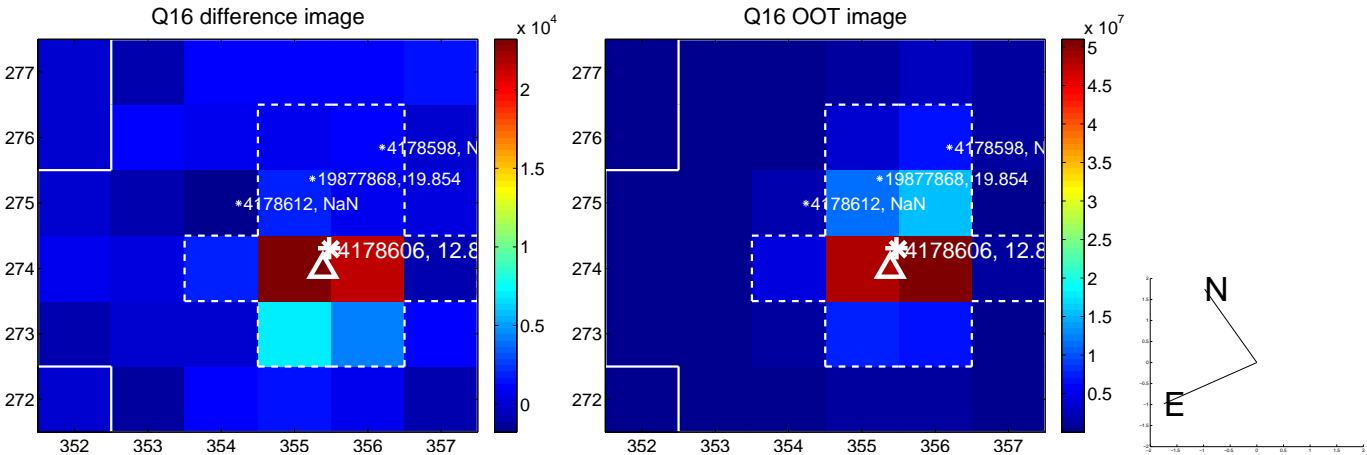
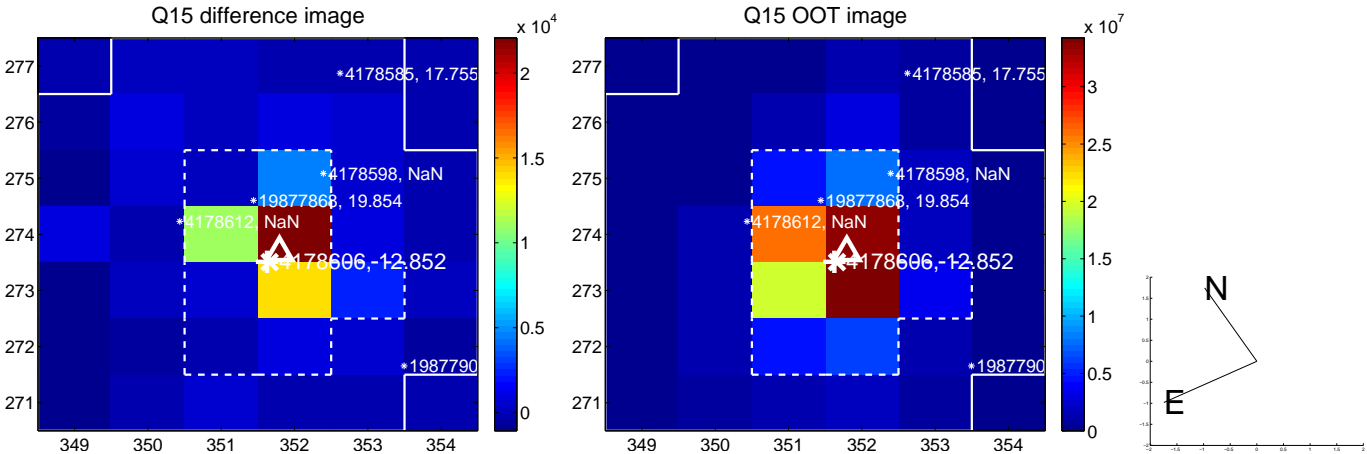
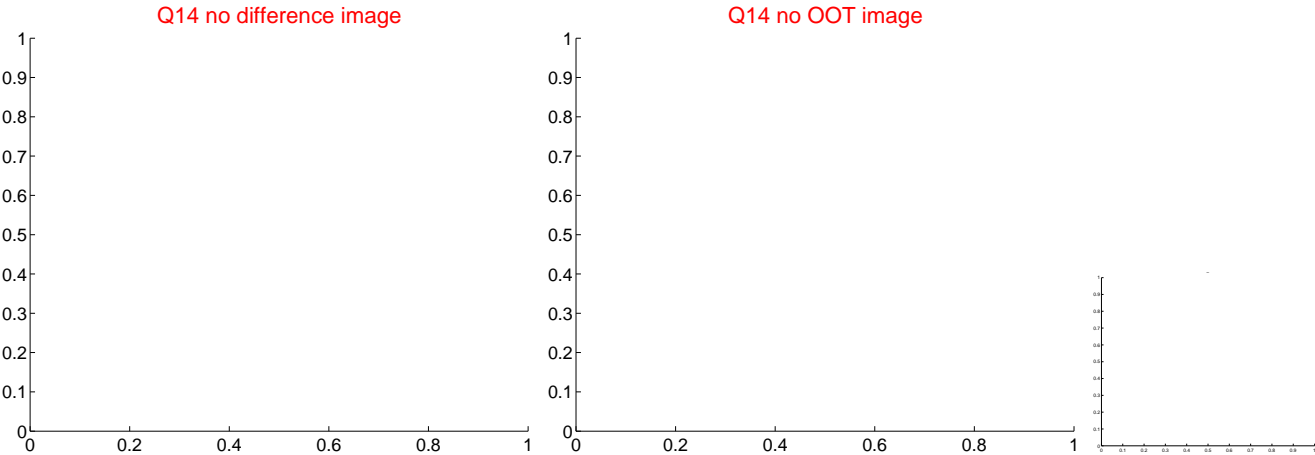
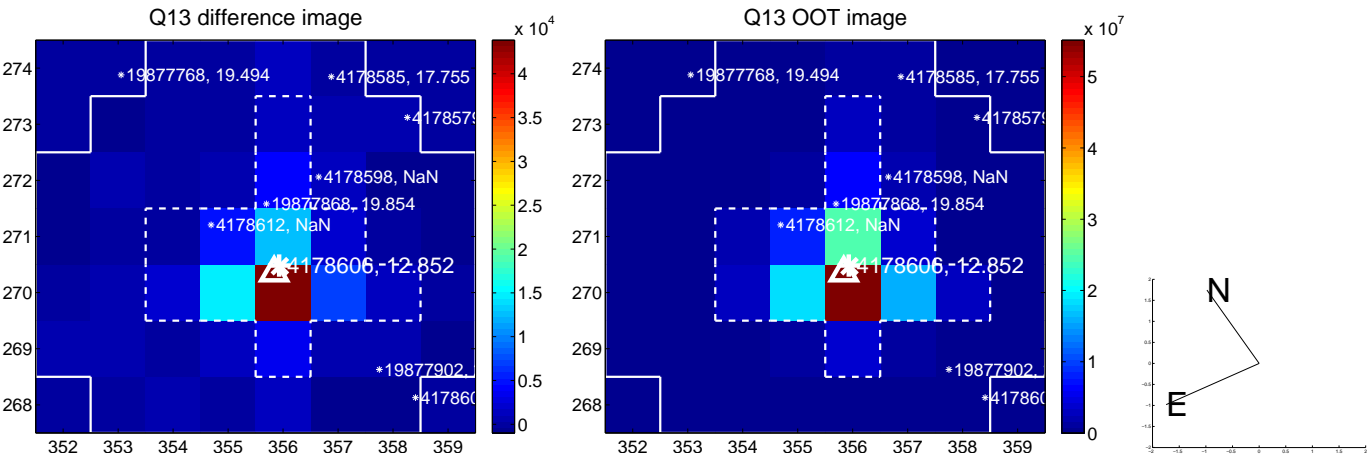
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



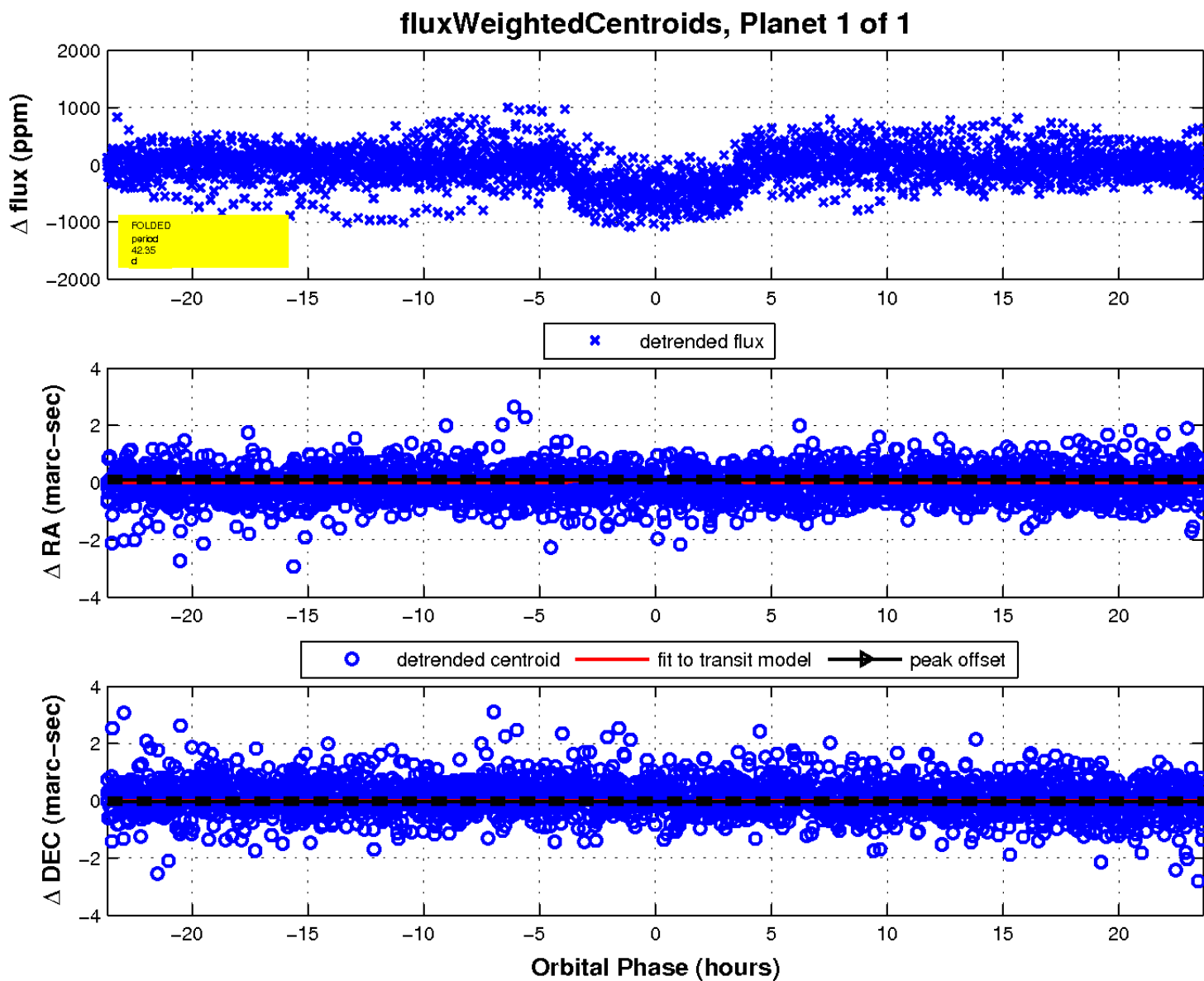
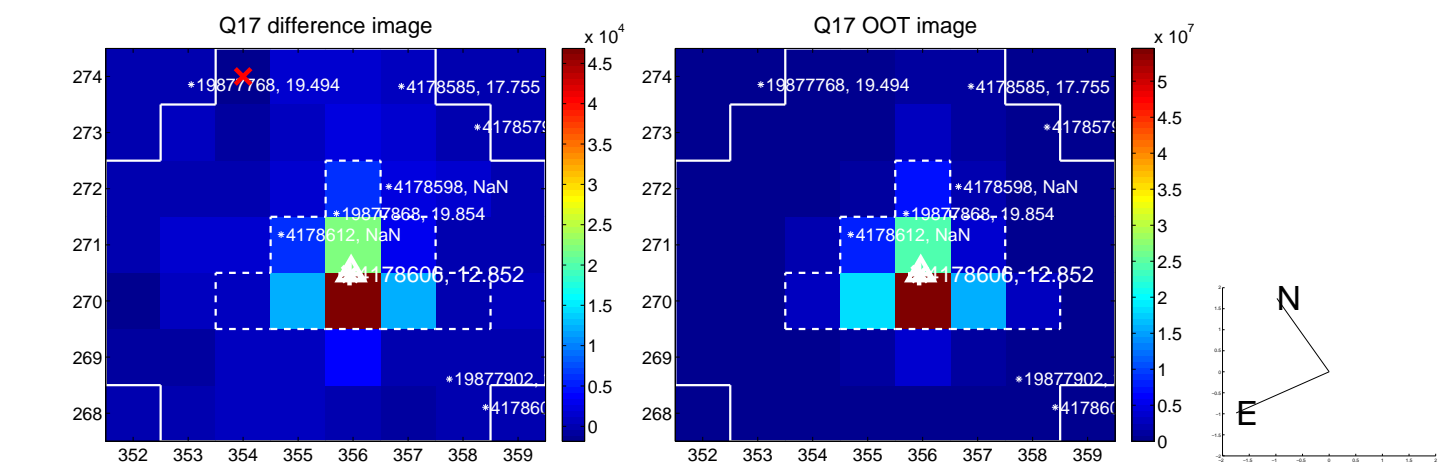
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UKIRT Image

Declination

