KIC 005110407

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 $(S_\oplus)$
005110407-01	OBS	No	285.302528	399.731603	3025.4	4.992	10.4	6.8	2.07	5450	11.44	4.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005110407-01	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.
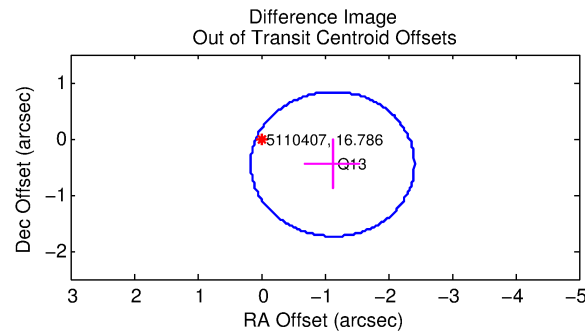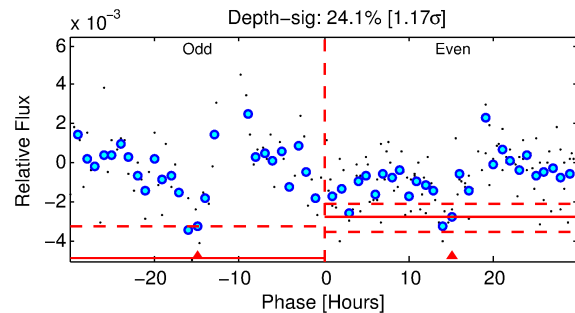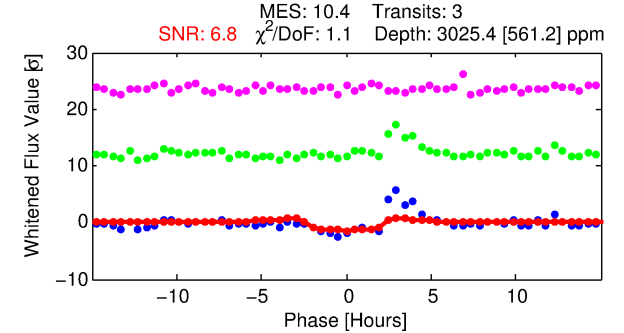N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.
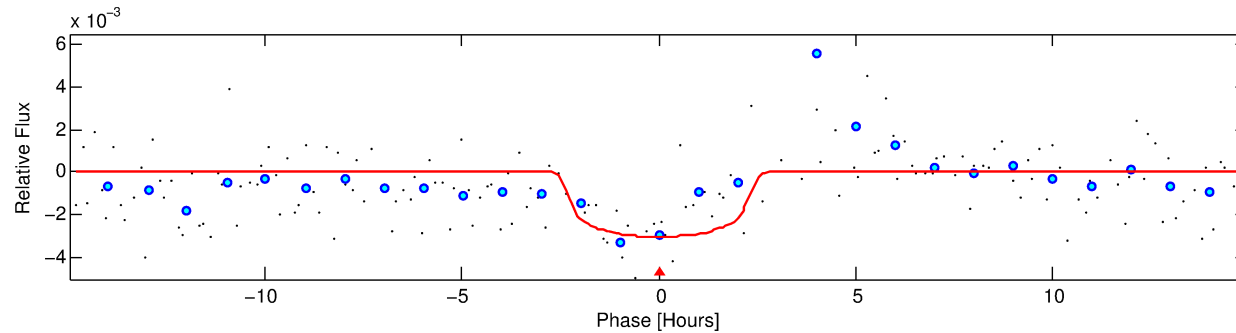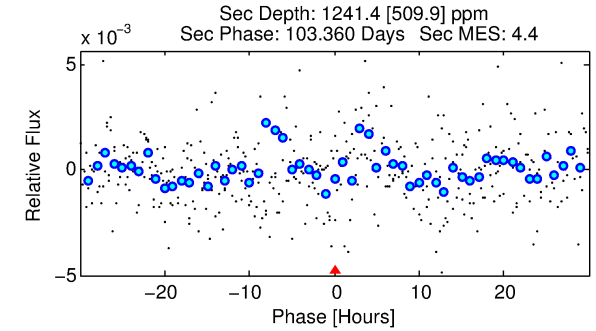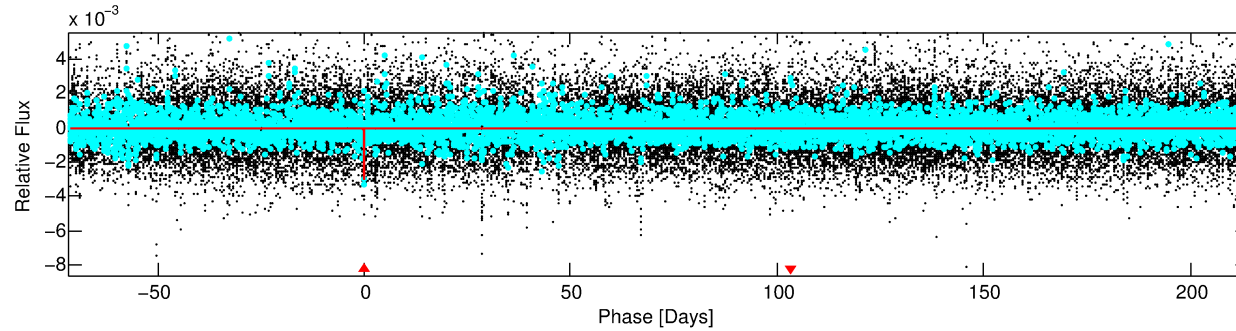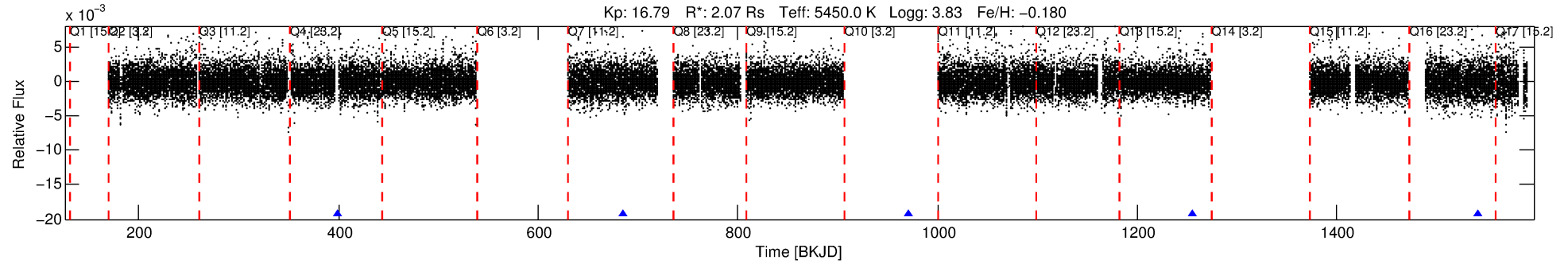See `http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col` for comment definitions.

Ephemeris Match Information For 005110407-01

No Significant Match Found

DV One-Page Summary

Kp: 16.79   R*: 2.07 Rs   Teff: 5450.0 K   Logg: 3.83   Fe/H: −0.180

Sec Depth: 1241.4 [509.9] ppm
Sec Phase: 103.360 Days   Sec MES: 4.4

MES: 10.4   Transits: 3
SNR: 6.8   χ²/DoF: 1.1   Depth: 3025.4 [561.2] ppm

Depth-sig: 24.1% [1.17σ]

Difference Image
Out of Transit Centroid Offsets

DV Fit Results:

Period = 285.30253 [0.00631] d
Epoch = 399.7316 [0.0183] BKJD
Rp/R* = 0.0506 [0.0546]
a/R* = 426.67 [1832.99]
b = 0.39 [9.58]

Seff = 4.52 [5.05]
Teq = 372 [104] K
Rp = 11.44 [13.99] Re
a = 0.8669 [0.5584] AU

Ag = 3923.50 [9653.93] [0.41σ]
Teffp = 4550 [2508] K [1.66σ]

DV Diagnostic Results:

ShortPeriod–sig: N/A
LongPeriod–sig: N/A
ModelChiSquare2–sig: 5.2%
ModelChiSquareGof–sig: 90.0%
Bootstrap–pfa: 4.27e-12
RollingBand–fgt: 1.00 [3/3]
GhostDiagnostic–chr: 0.1379

Centroid–sig: 0.7%
Centroid–so: 1.750 arcsec [1.28σ]
OotOffset–rm: 1.216 arcsec [2.84σ]
KicOffset–rm: 0.089 arcsec [0.23σ]
OotOffset–st: 0/0/0/1 [1]
KicOffset–st: 0/1/1/1 [3]
DiffImageQuality–fgm: 1.00 [3/3]
DiffImageOverlap–fno: 1.00 [3/3]

TCE 005110407-01, PDC Light Curves

TCE 005110407-01

P = 142.651 days   P = 285.303 days   P = 570.605 days
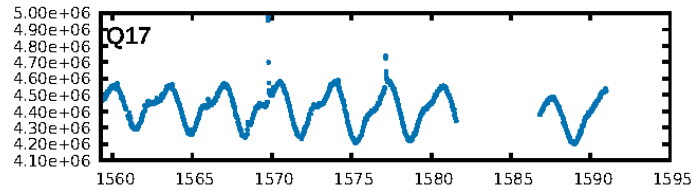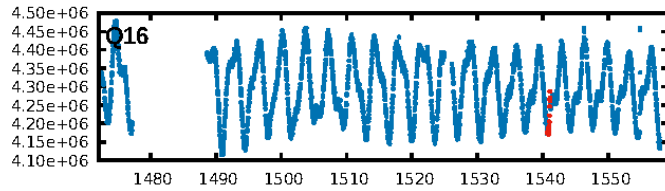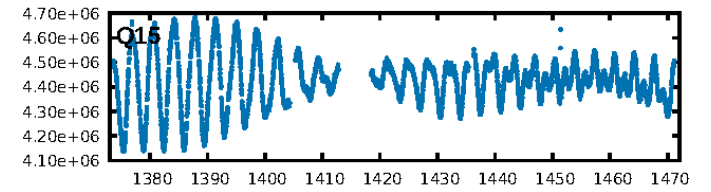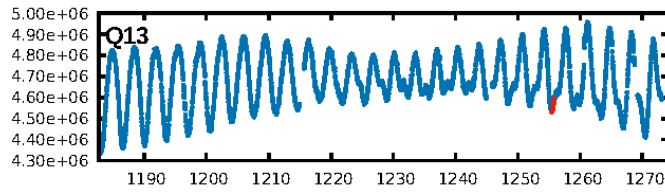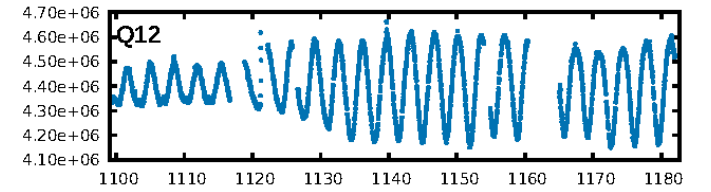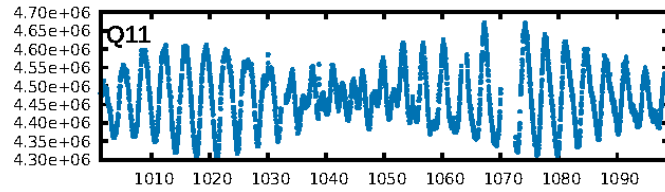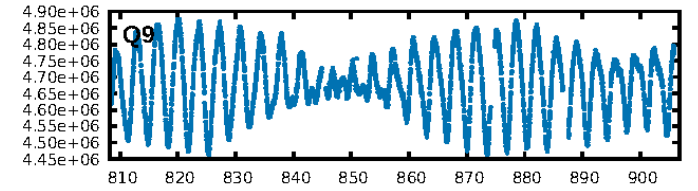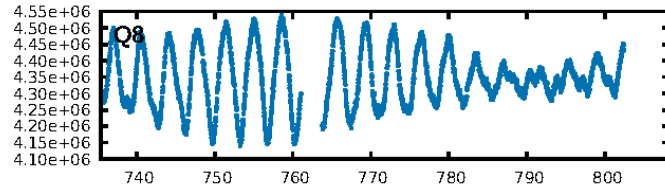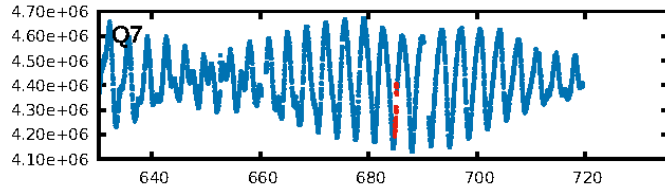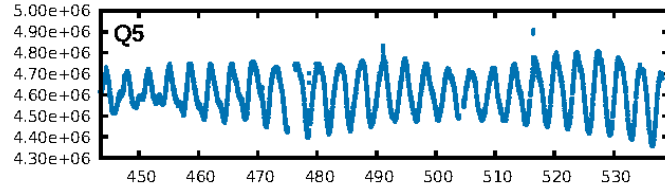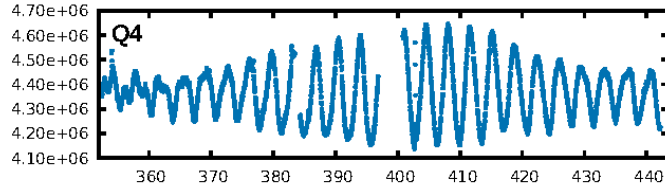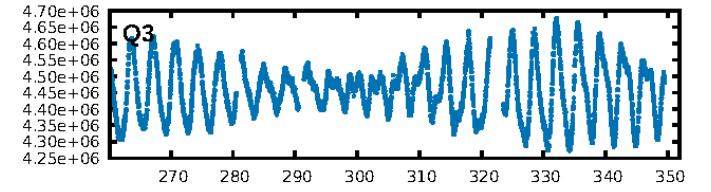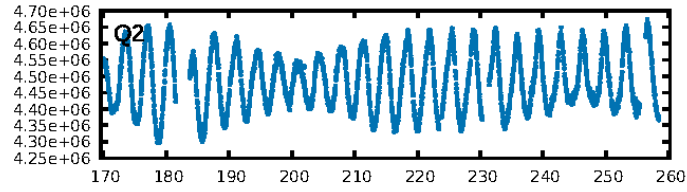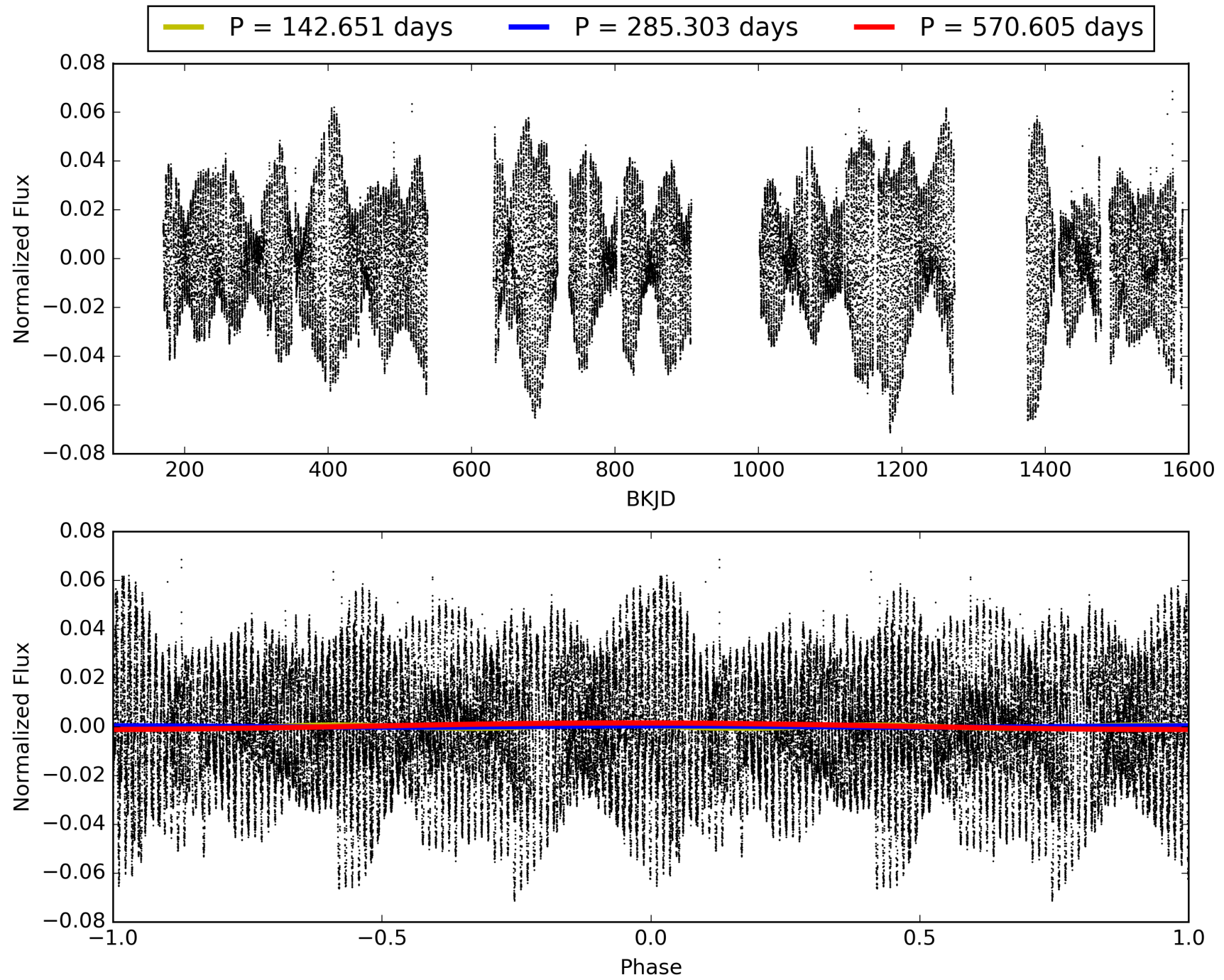
DV Odd/Even
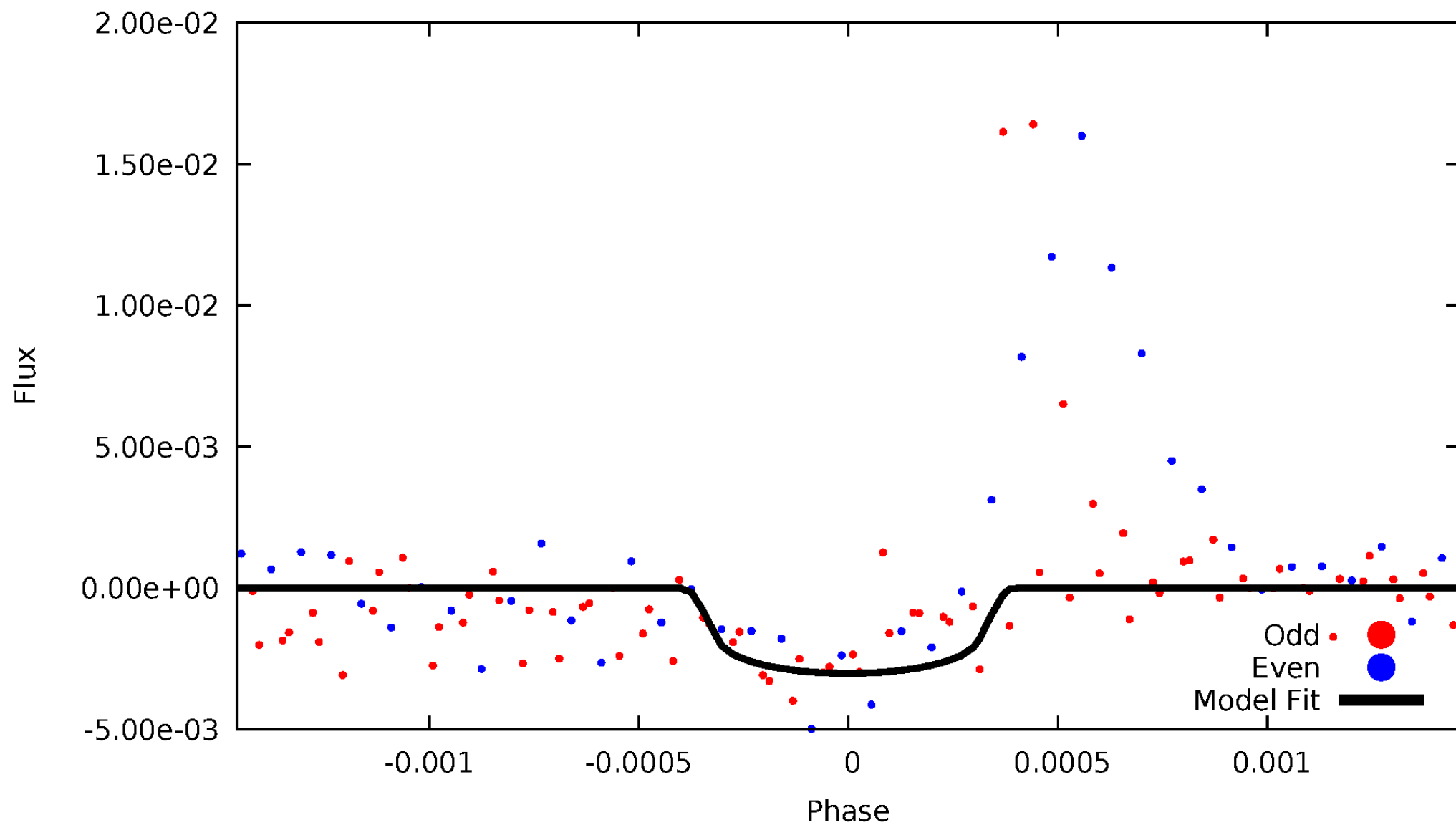
TCE 005110407-01

ALT Odd/Even

TCE 005110407-01
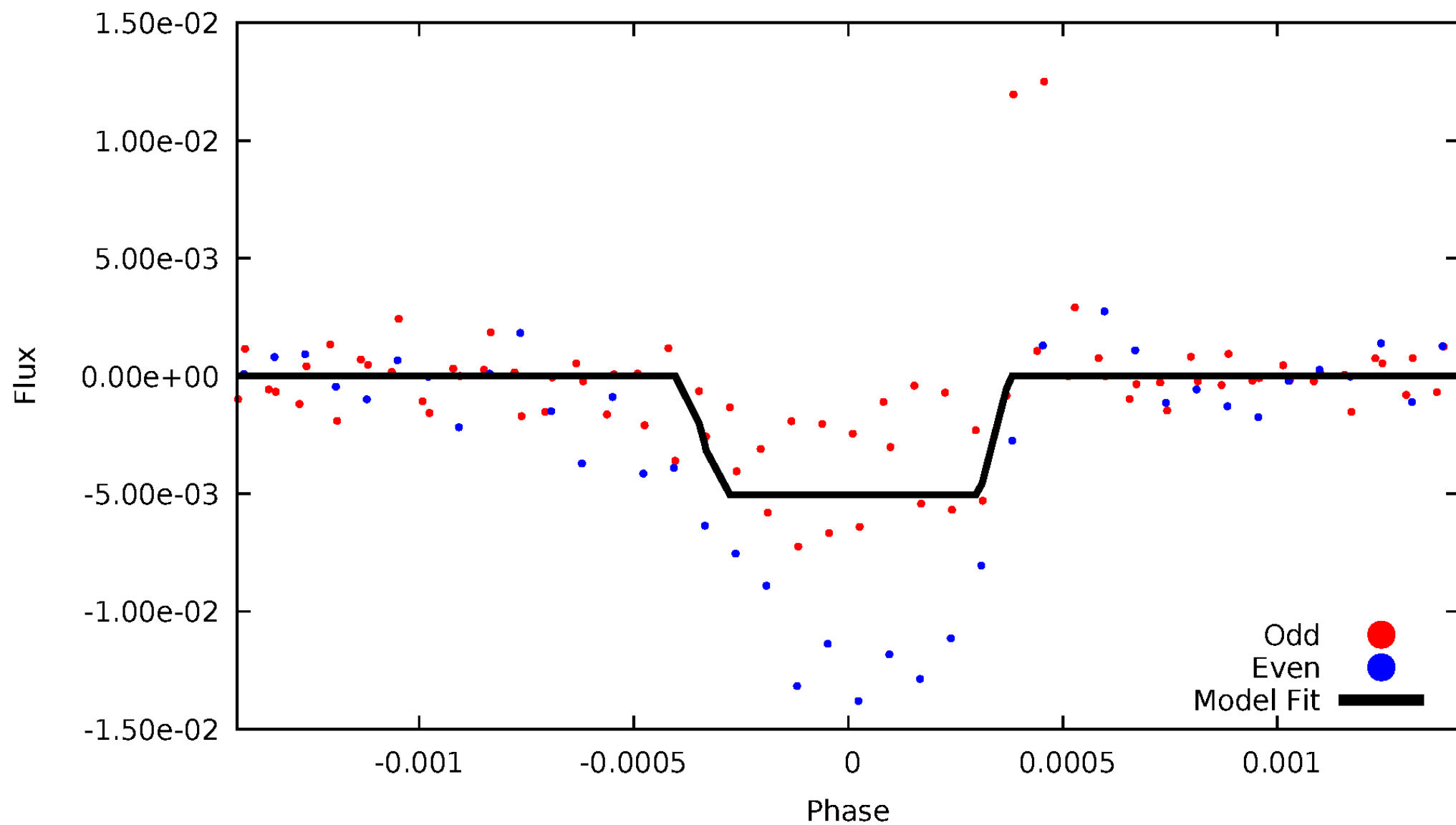
Non-Whitened Vs. Whitened Light Curve

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

Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)
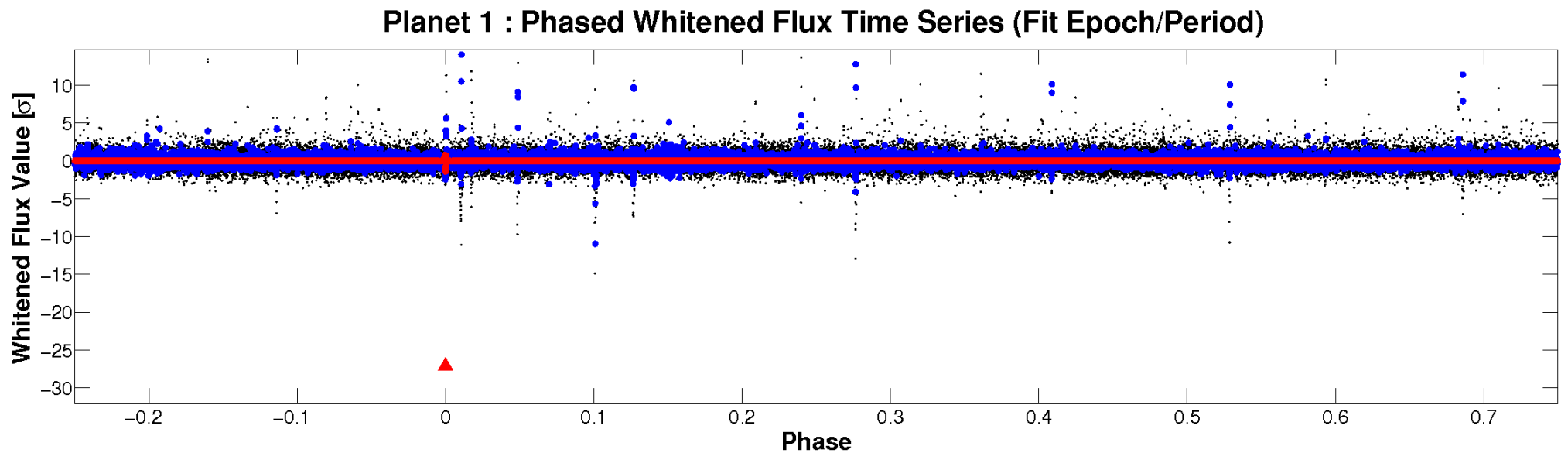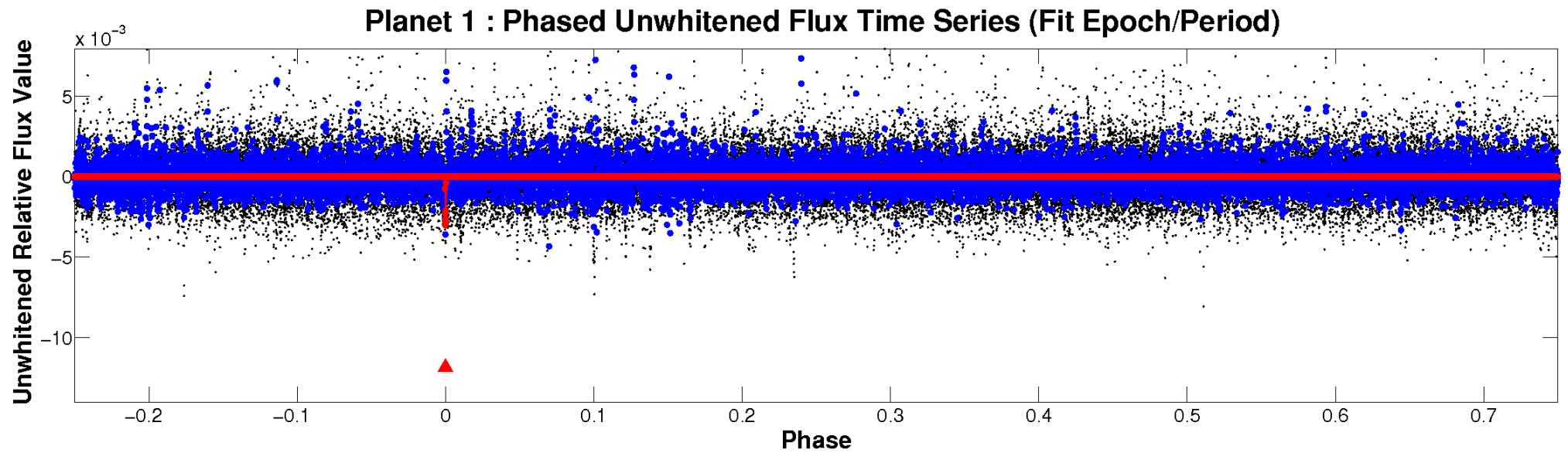
PDC Quarter-Phased Transit Curves

TCE 005110407-01   P=285.302528 Days T_0=399.731603 (BKJD)
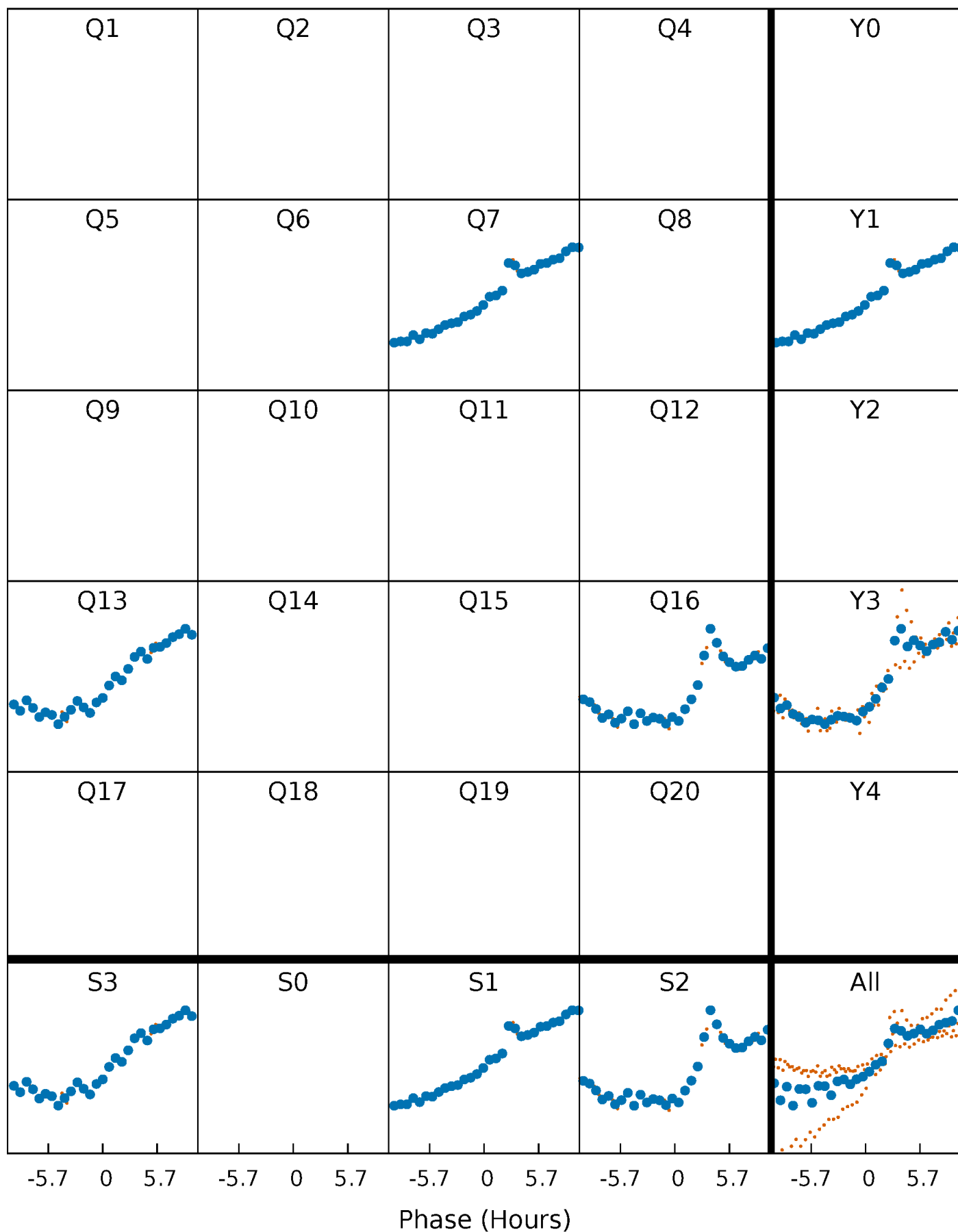
DV Quarter-Phased Transit Curves

TCE 005110407-01   P=285.302528 Days T_0=399.731603 (BKJD)
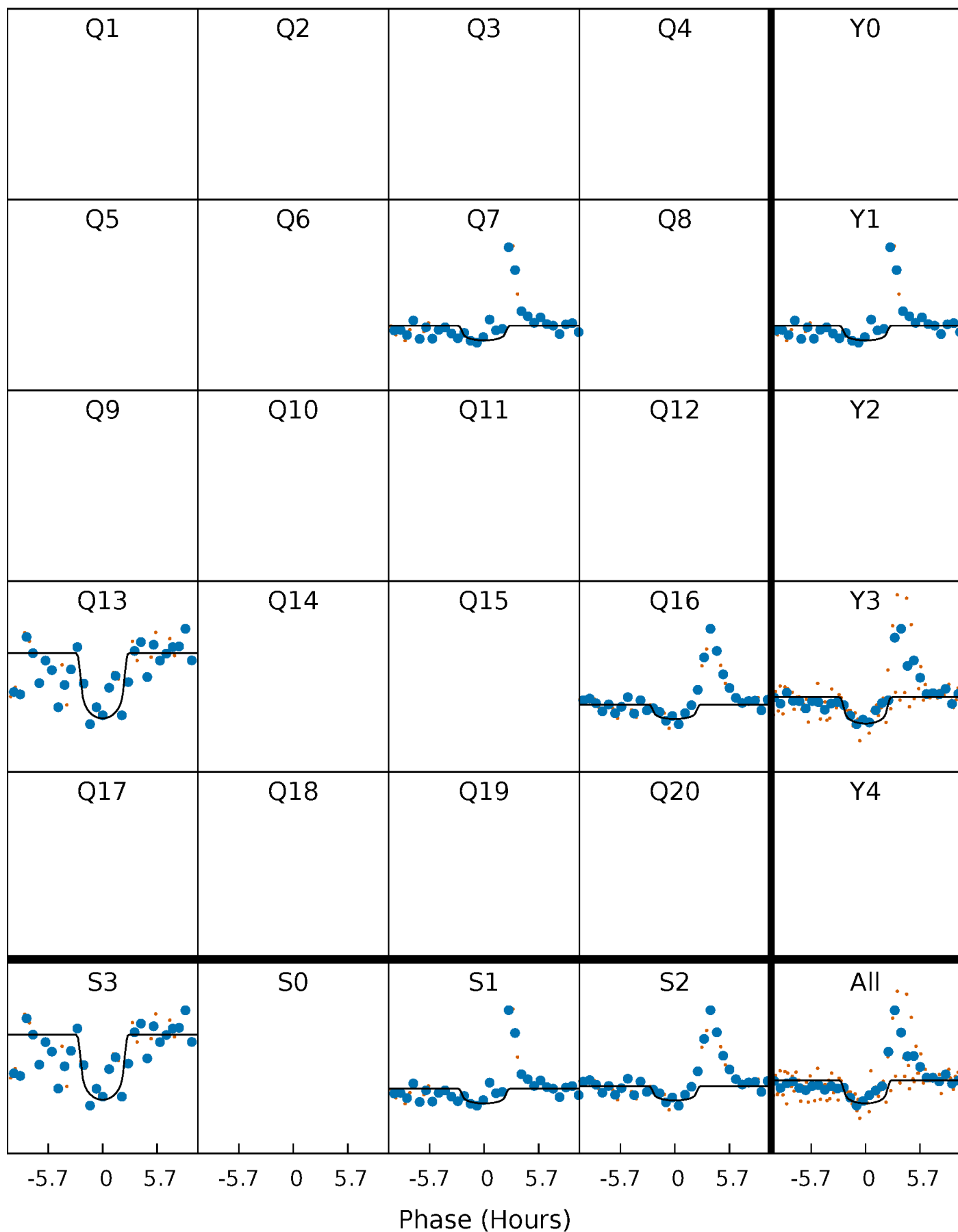
Alt. Detrend Quarter-Phased Transit Curves

TCE 005110407-01   P=285.306987 Days T$_0$=399.722792 (BKJD)
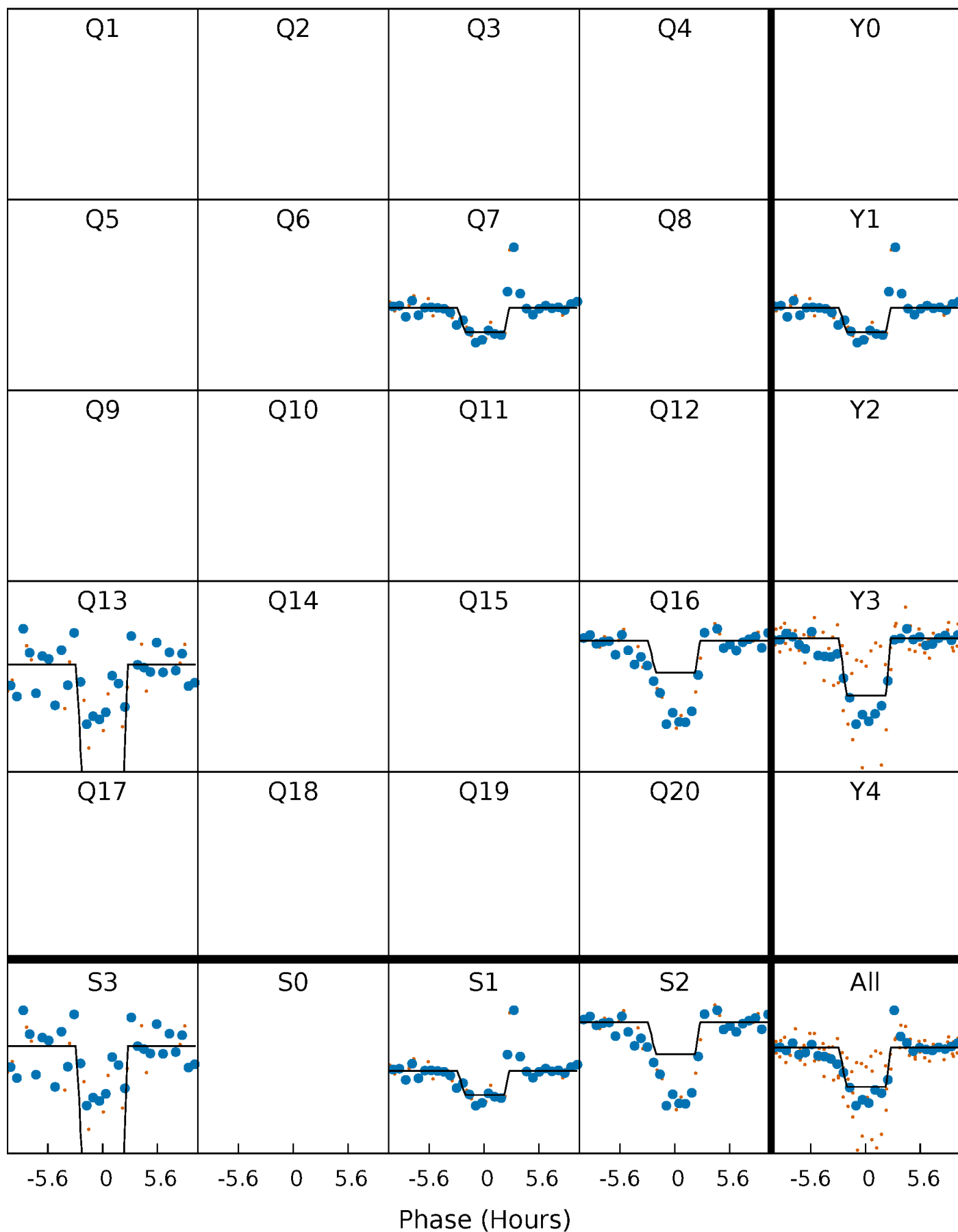
DV Model-Shift Uniqueness Test

005110407-01, P = 285.302528 Days, E = 114.429075 Days

Pri	Sec	Ter	Pos	FA$_1$	FA$_2$	F$_{Red}$	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.21	6.65	6.63	7.96	5.51	3.38	1.79	1.58	0.25	0.03	-1.31	0.33	0.92	0.49	2.52
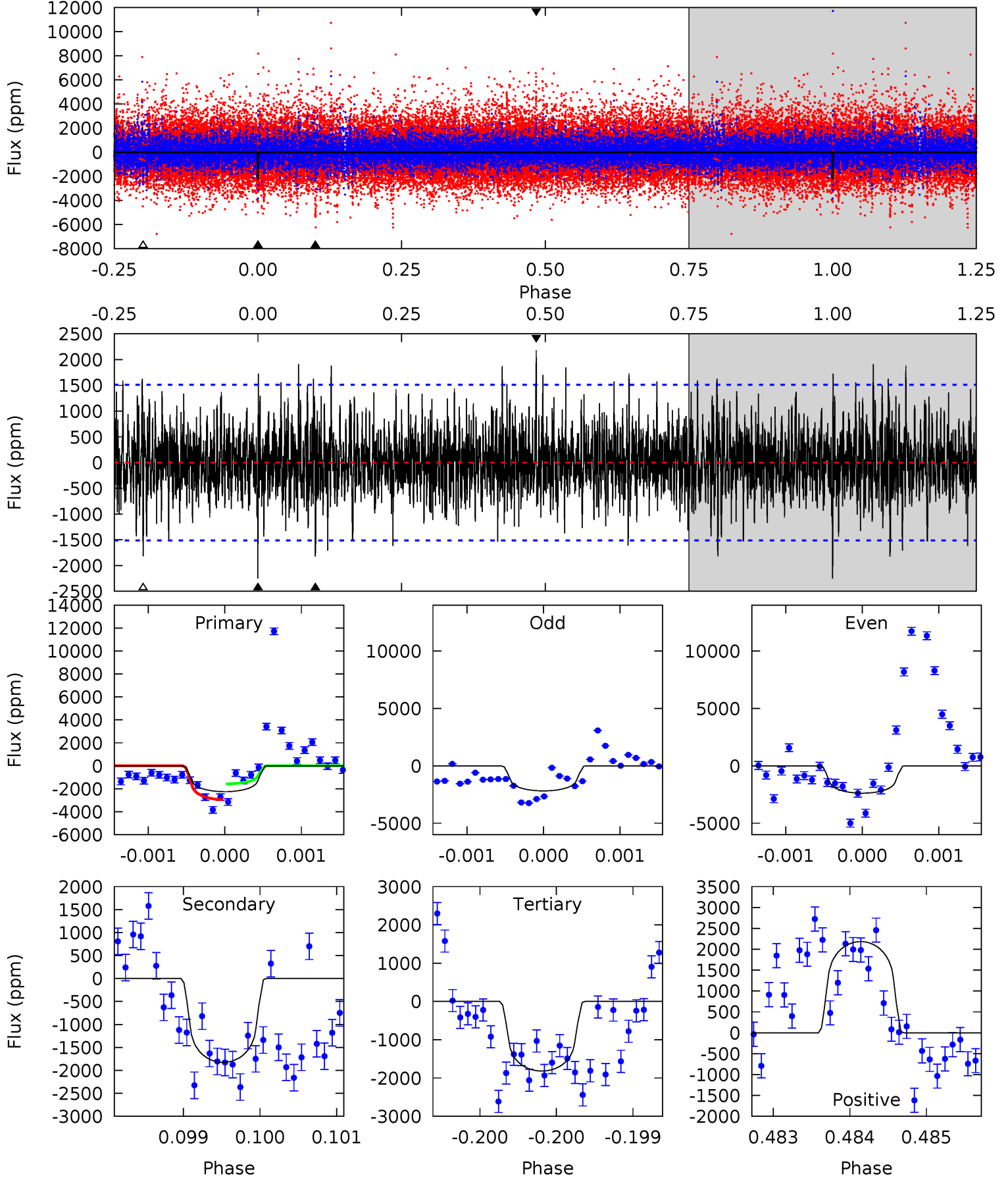
Alt Model-Shift Uniqueness Test

005110407-01, P = 285.306987 Days, E = 114.415805 Days

Pri	Sec	Ter	Pos	FA₁	FA₂	F_Red	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.1	2.73	2.61	3.92	5.51	3.38	0.62	18.4	17.1	0.11	-1.20	18.5	1.11	0.16	3.56
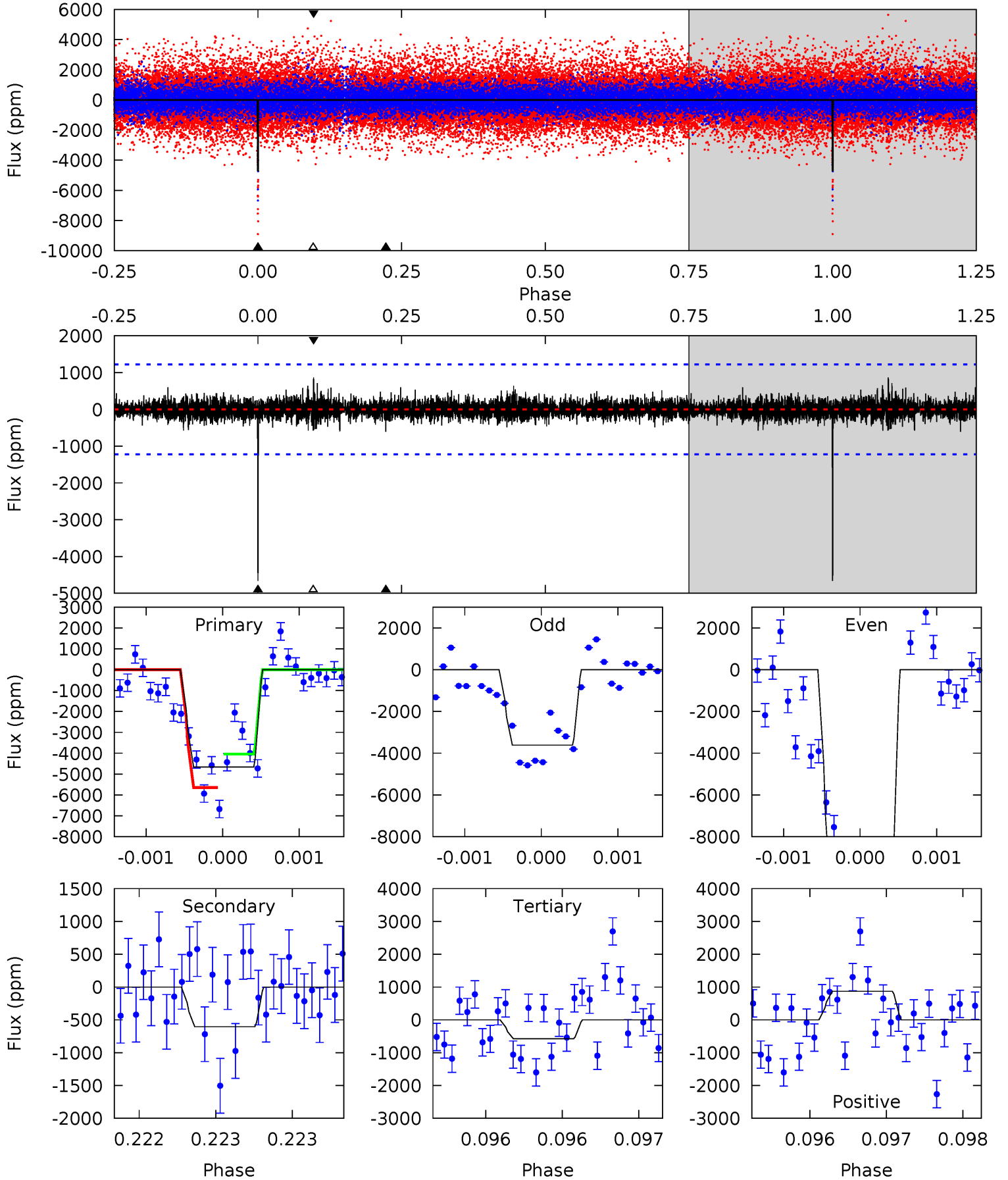
Stellar Parameters For KIC 005110407

	$T_{eff}(K)$	$\log(g)$	[Fe/H]	R ($R_{\odot}$)	M ($M_{\odot}$)	$p_{\star}$ (g·cm^{-3})
	5450^{+230}_{-191}	$3.833^{+0.675}_{-0.225}$	$-0.180^{+0.350}_{-0.250}$	$2.073^{+0.793}_{-1.190}$	$1.066^{+0.173}_{-0.231}$	$0.169^{+1.844}_{-0.098}$
	+4%/-4%	+18%/-6%	+194%/-139%	+38%/-57%	+16%/-22%	+1094%/-58%
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 005110407-01 / KOI

Detrend	Depth (ppm)	R_p ($R_{\oplus}$)	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1825±274	$12.52^{+11.41}_{-8.06}$	511^{+59}_{-78}	4608^{+3117}_{-893}	4773^{+32435}_{-3508}
Alt.	-604±222	$16.02^{+11.95}_{-9.60}$	507^{+61}_{-87}	3477^{+1287}_{-517}	956^{+4519}_{-682}

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 005110407-01. Kepler magnitude: 16.79. Transit SNR 6.82

There are 3 quarters with good PRF difference image offsets

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

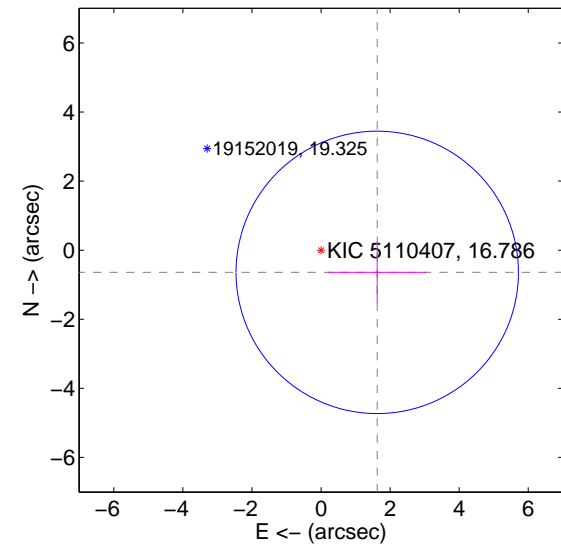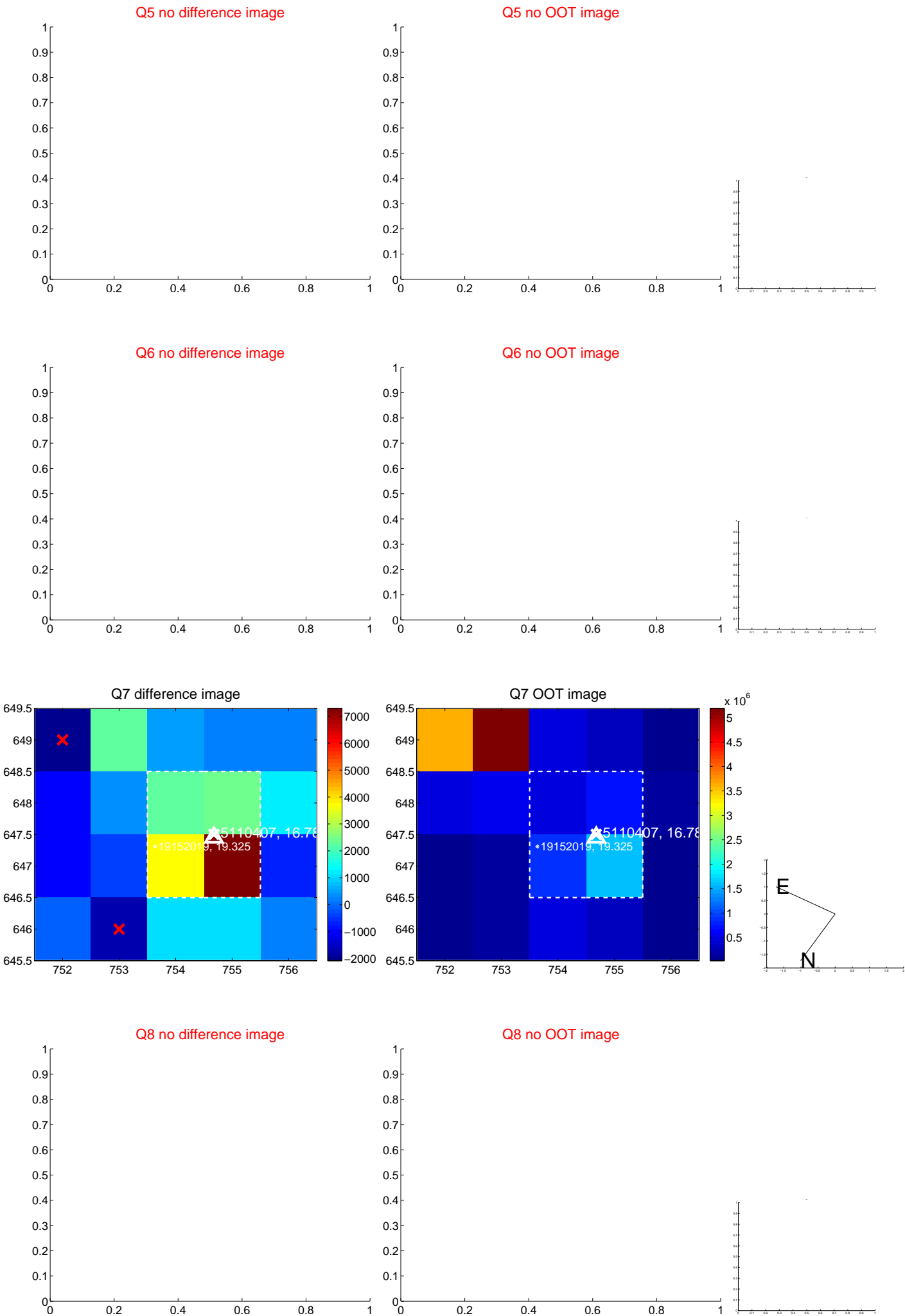|	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.216 ± 0.429	2.84	-1.128 ± 0.427	-0.455 ± 0.443
PRF-fit source offset from KIC position	0.089 ± 0.382	0.23	-0.082 ± 0.298	-0.035 ± 0.291
photometric centroid source offset	1.75 ± 1.36	1.28	-1.63 ± 1.42	-0.64 ± 0.90
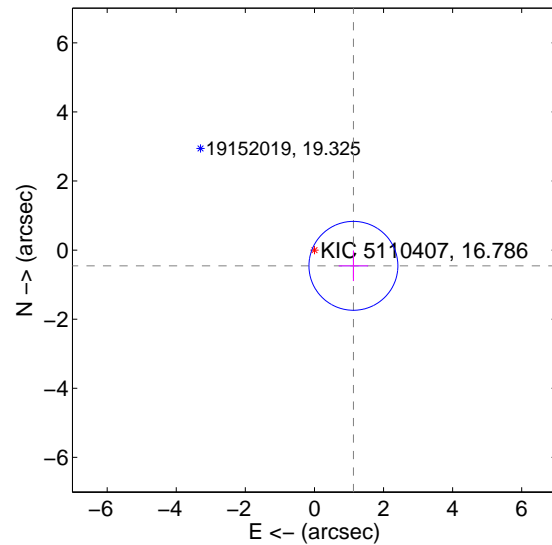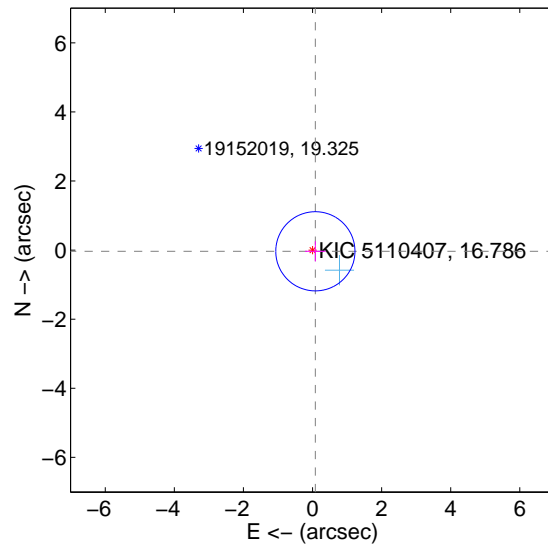
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one-σ uncertainty. Blue circle: three-σ. Red *: 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✗: large negative pixel value.

Q1 no difference image

Q1 no OOT image

Q2 no difference image

Q2 no OOT image

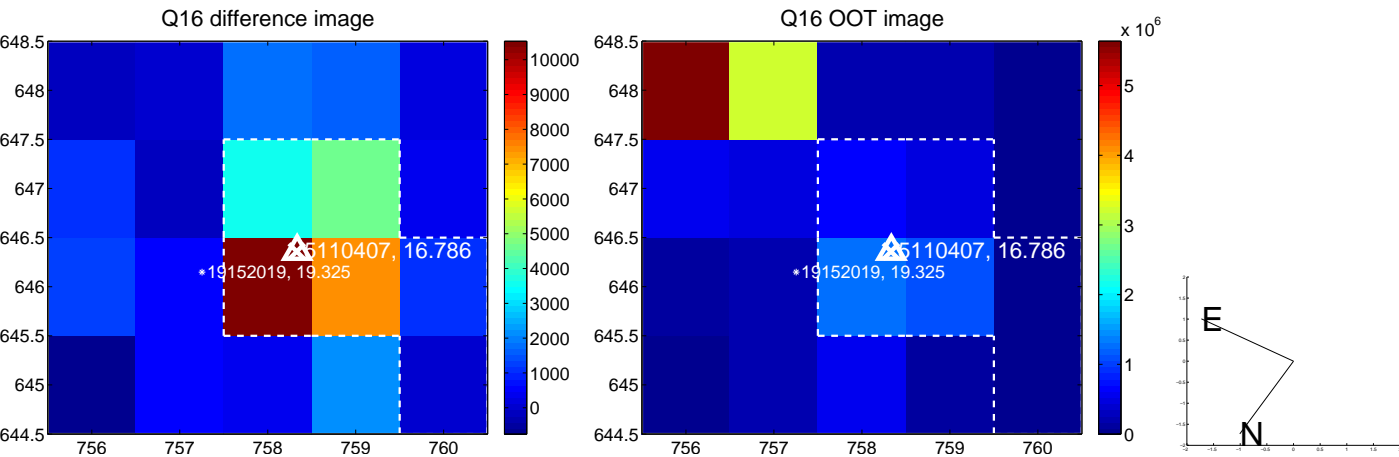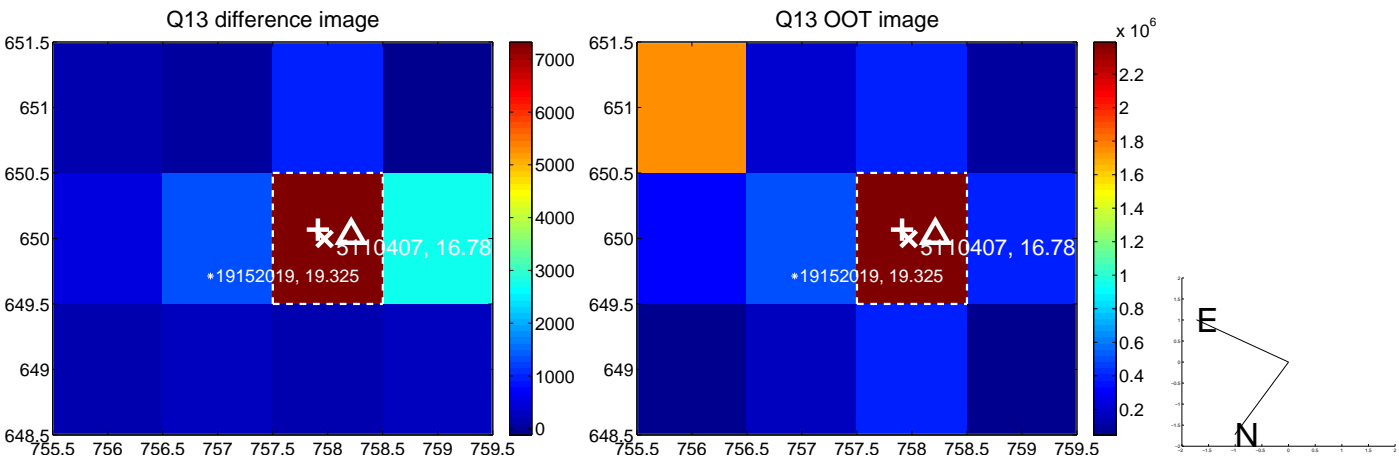### Q3 no difference image

Q3 no OOT image

Q4 no difference image

Q4 no OOT image

white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

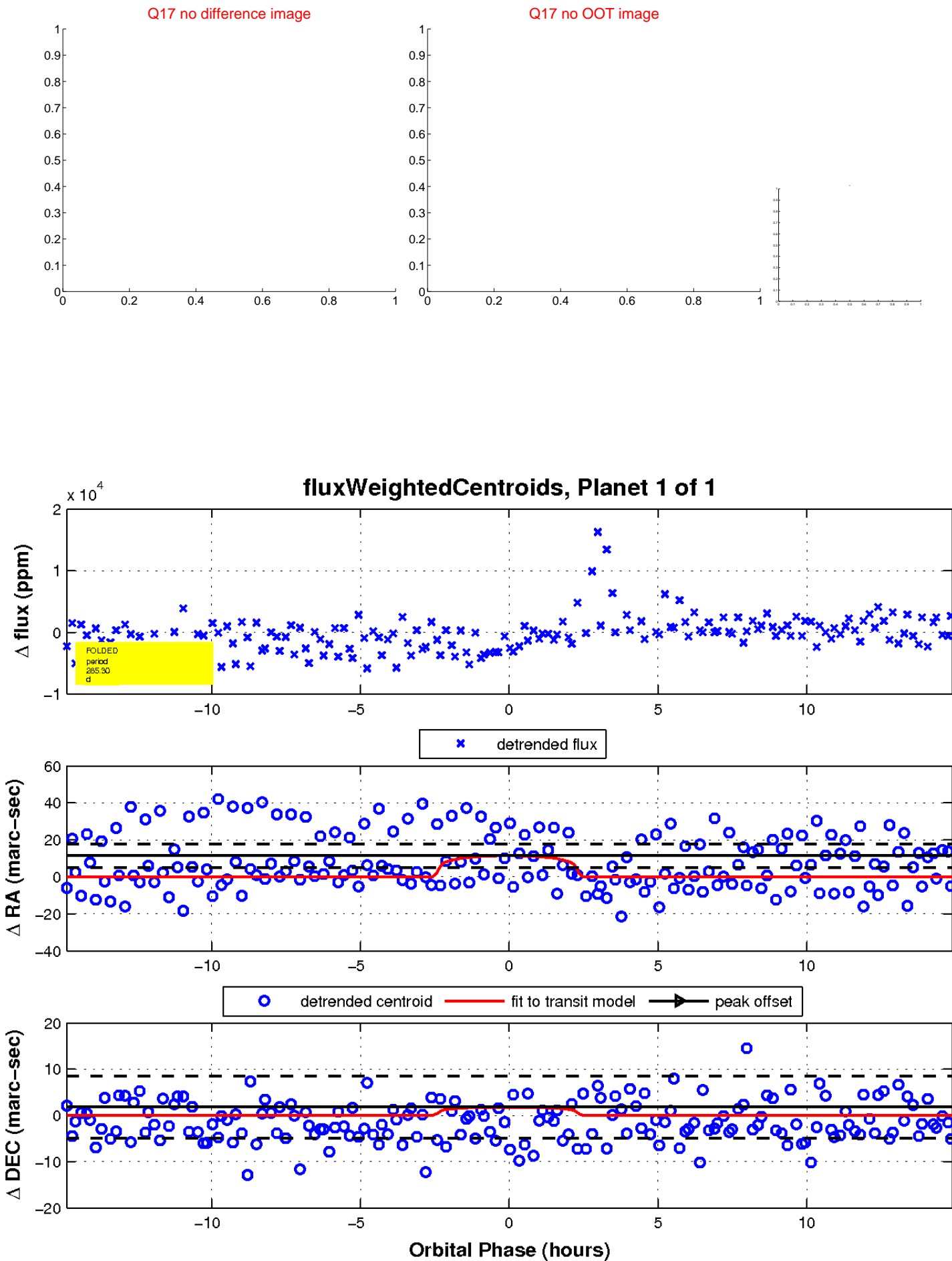white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

Q9 no difference image

Q9 no OOT image

Q10 no difference image

Q10 no OOT image

Q11 no difference image

Q11 no OOT image

Q12 no difference image

Q12 no OOT image

white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

Q17 no difference image

Q17 no OOT image

fluxWeightedCentroids, Planet 1 of 1

FOLDED
period
285.30
d

× detrended flux

○ detrended centroid ──── fit to transit model ▶── peak offset

Orbital Phase (hours)

UKIRT Image