

KIC 012356489

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})
012356489-01	OBS	No	357.937694	457.618810	979.3	13.932	9.3	5.8	0.40	3694	1.29	0.05

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012356489-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

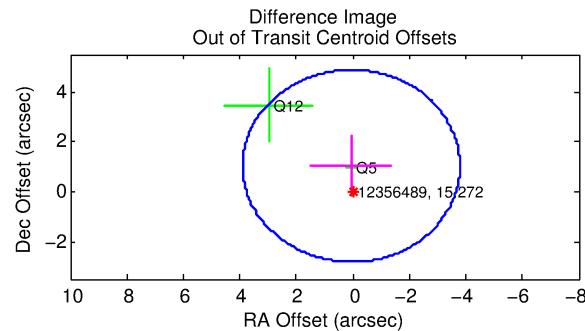
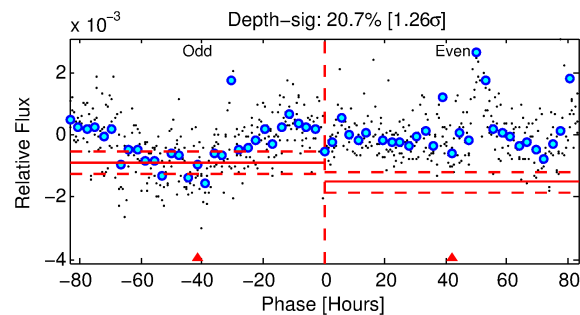
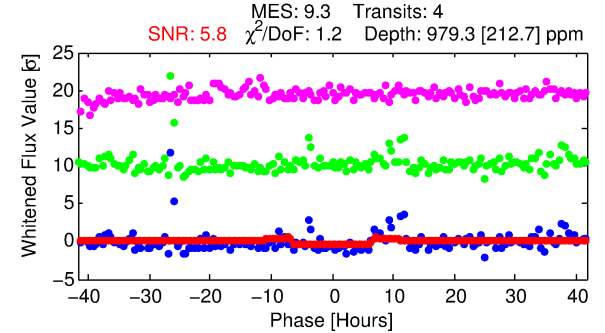
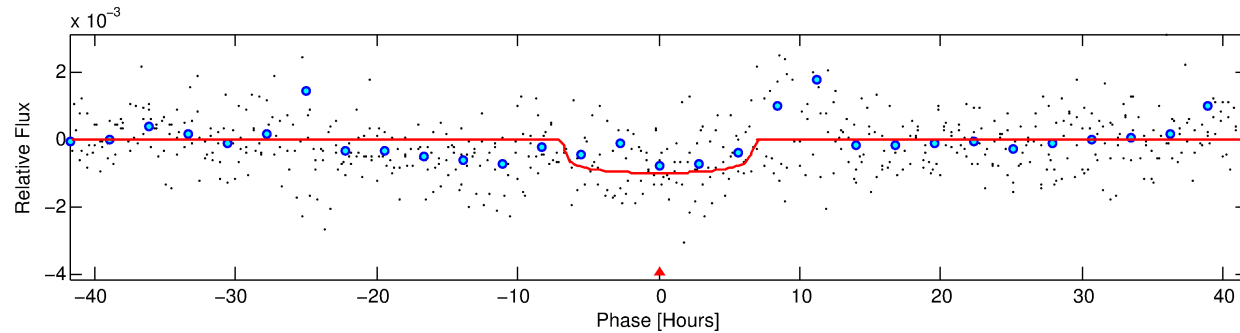
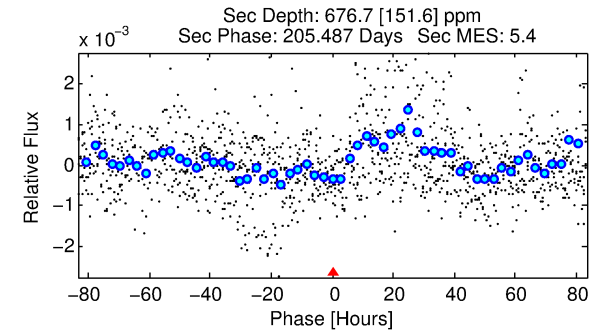
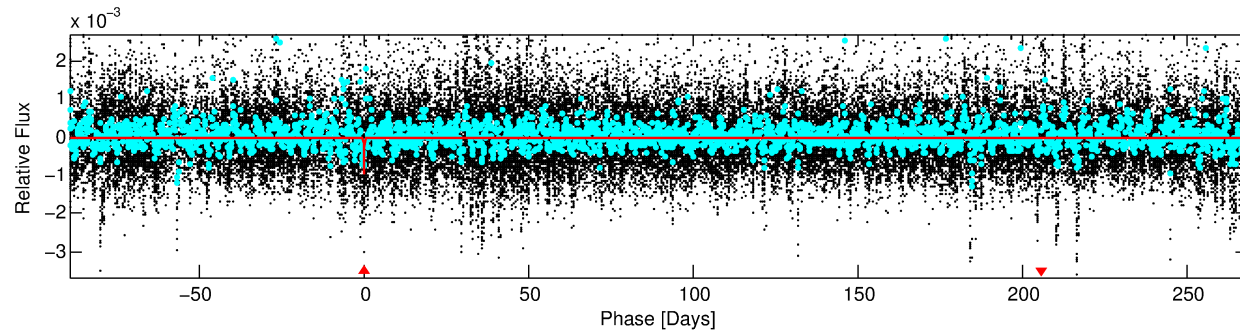
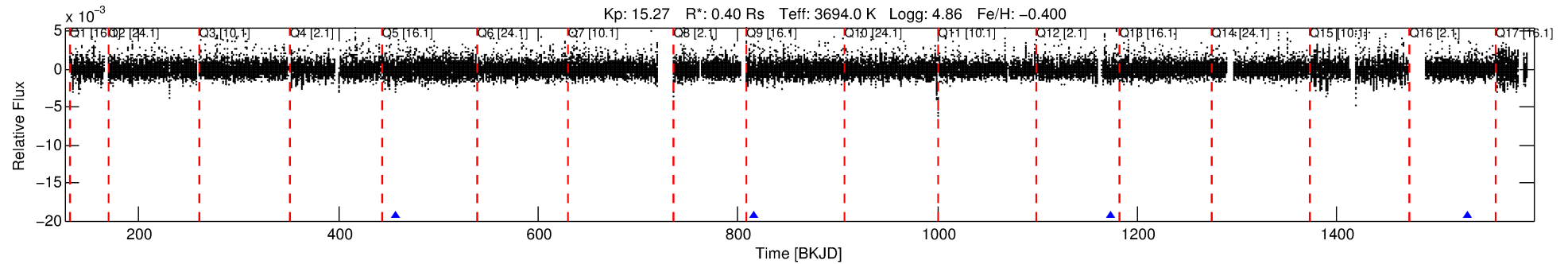
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012356489-01

No Significant Match Found

DV One-Page Summary

KIC: 12356489 Candidate: 1 of 1 Period: 357.938 d



DV Fit Results:

Period = 357.93769 [0.01106] d
Epoch = 457.6188 [0.0198] BKJD
Rp/R* = 0.0297 [0.0133]
a/R* = 170.14 [366.15]
b = 0.56 [2.67]
Seff = 0.05 [0.01]
Teq = 120 [5] K
Rp = 1.29 [0.61] Re
a = 0.7382 [0.0866] AU
Ag = 121758.27 [113670.94] [1.07σ]
Teffp = 3456 [801] K [4.17σ]

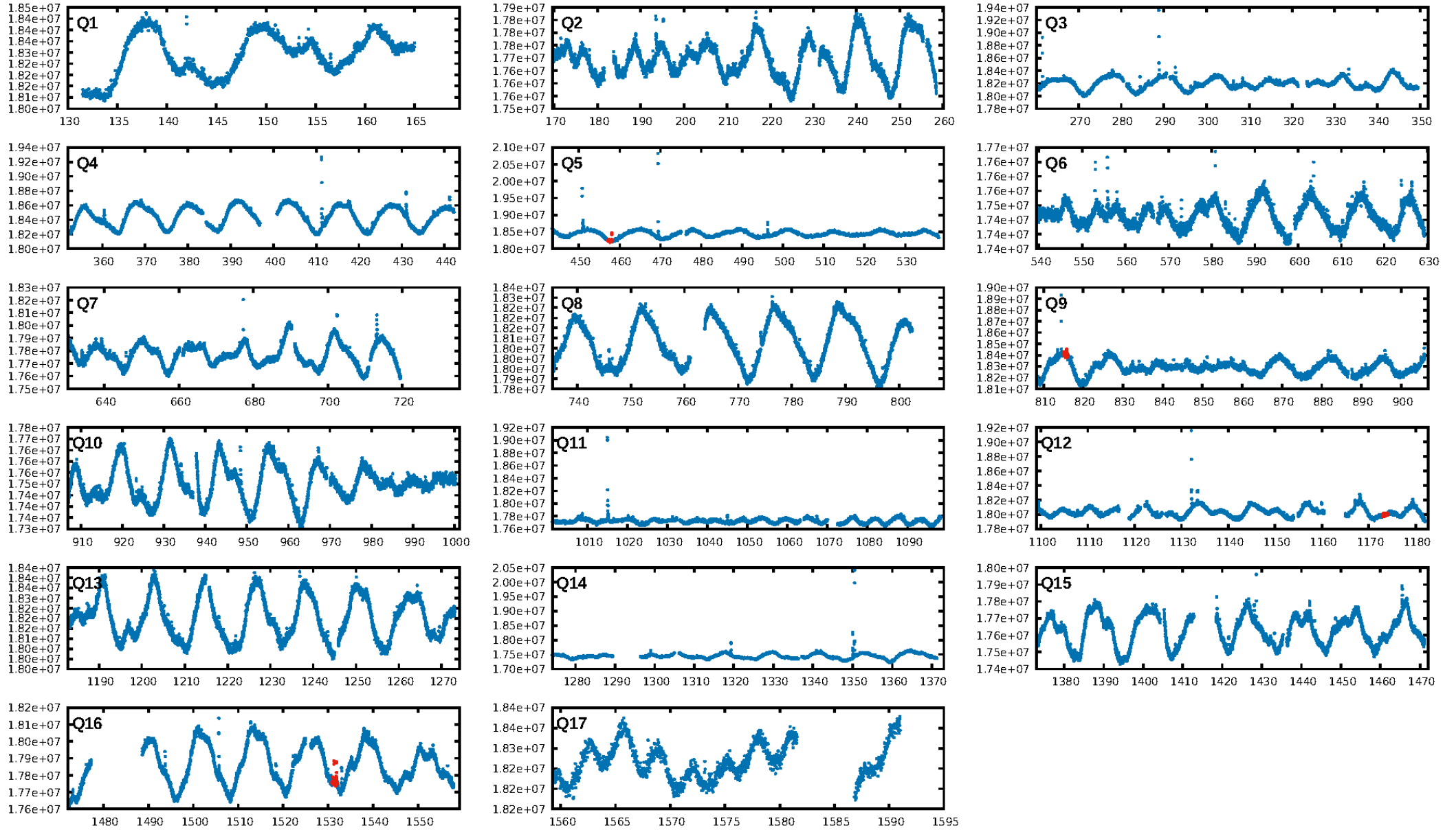
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 3.9%
ModelChiSquareGof-sig: 97.4%
Bootstrap-pfa: 6.58e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -50.64
Centroid-sig: 65.4%
Centroid-so: 0.872 arcsec [0.91σ]
OotOffset-rm: 1.028 arcsec [0.80σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 0.860 arcsec [1.14σ]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [4/4]

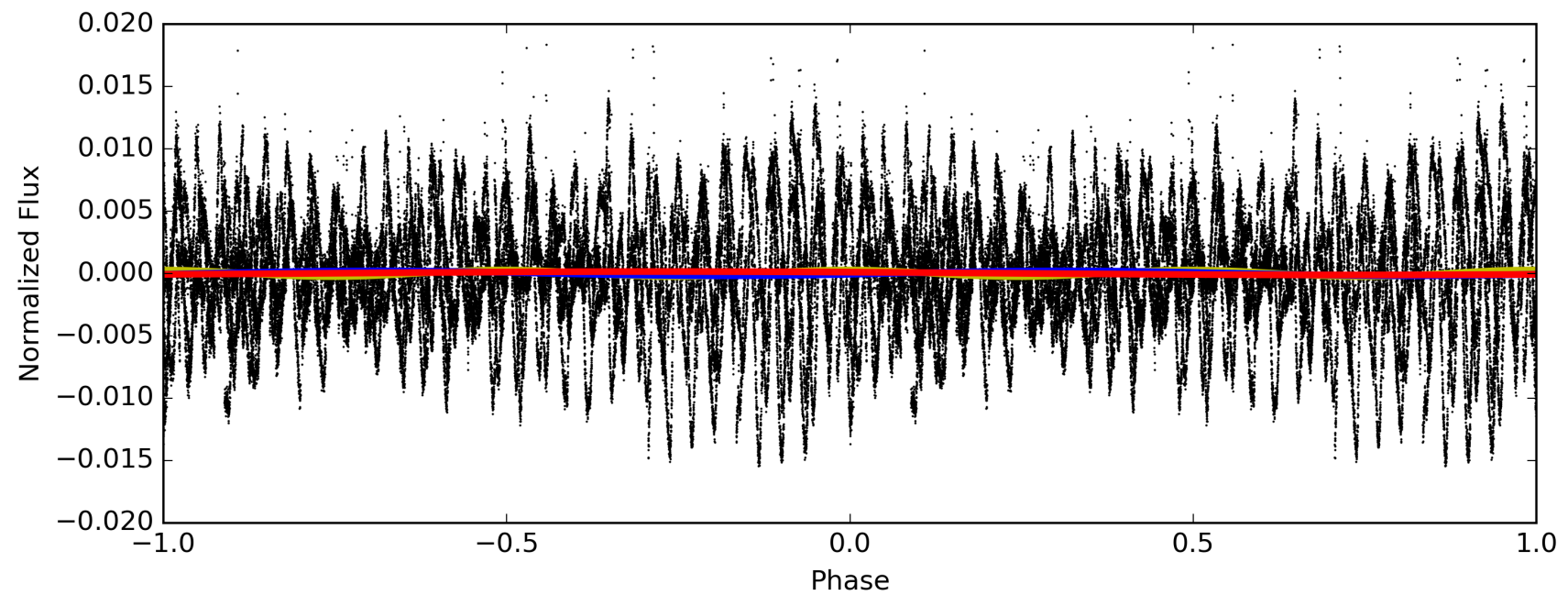
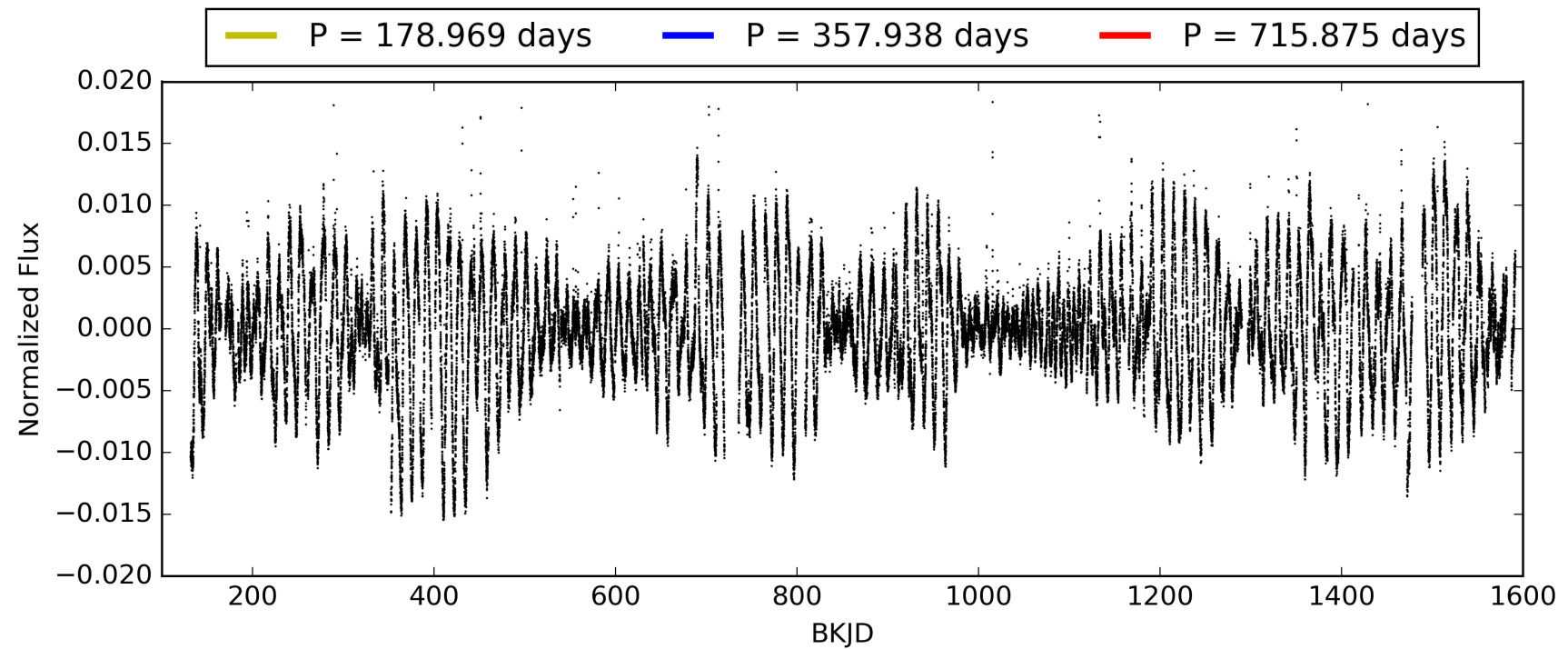
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:50:30 Z

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

TCE 012356489-01, PDC Light Curves

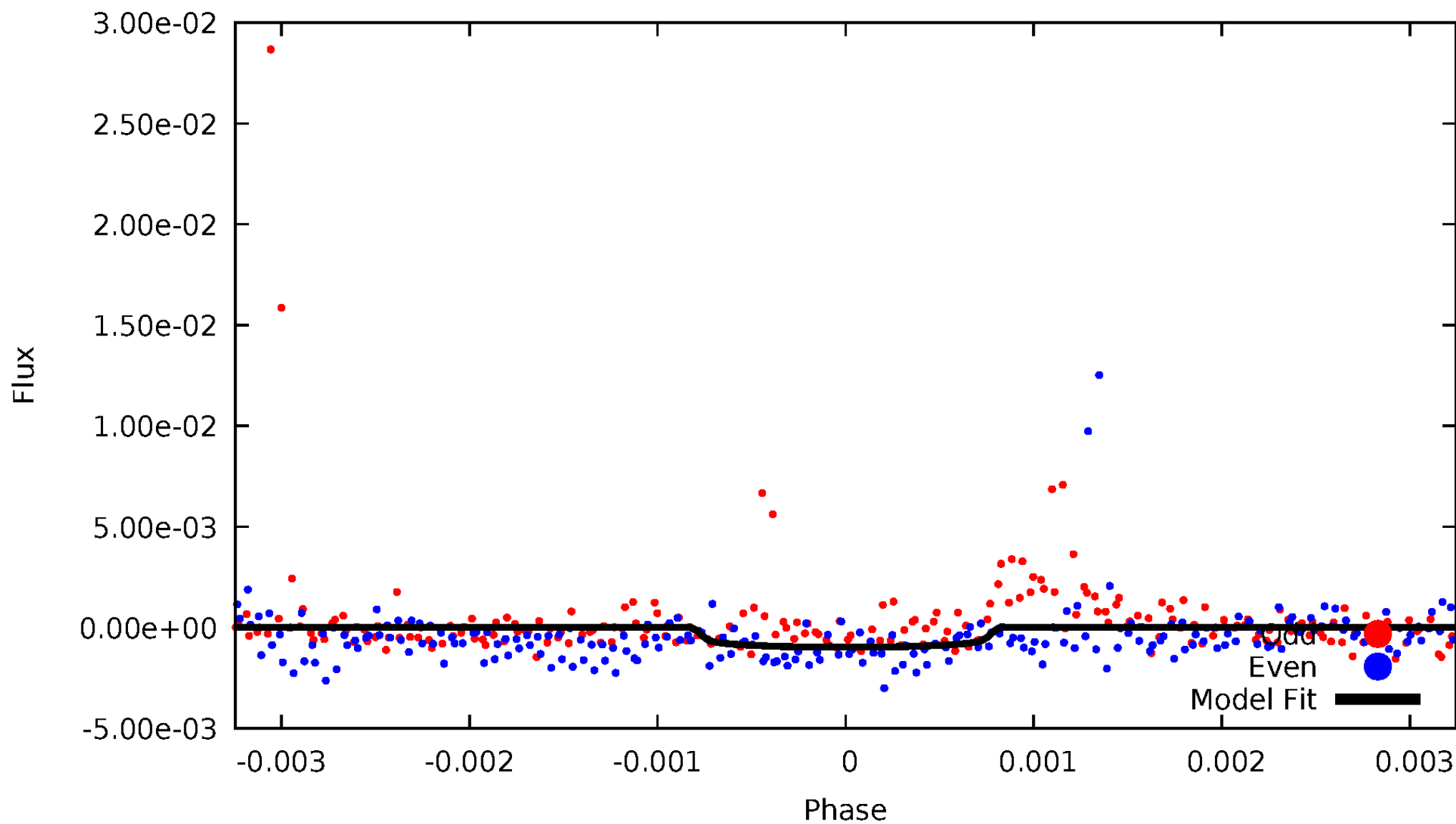


TCE 012356489-01



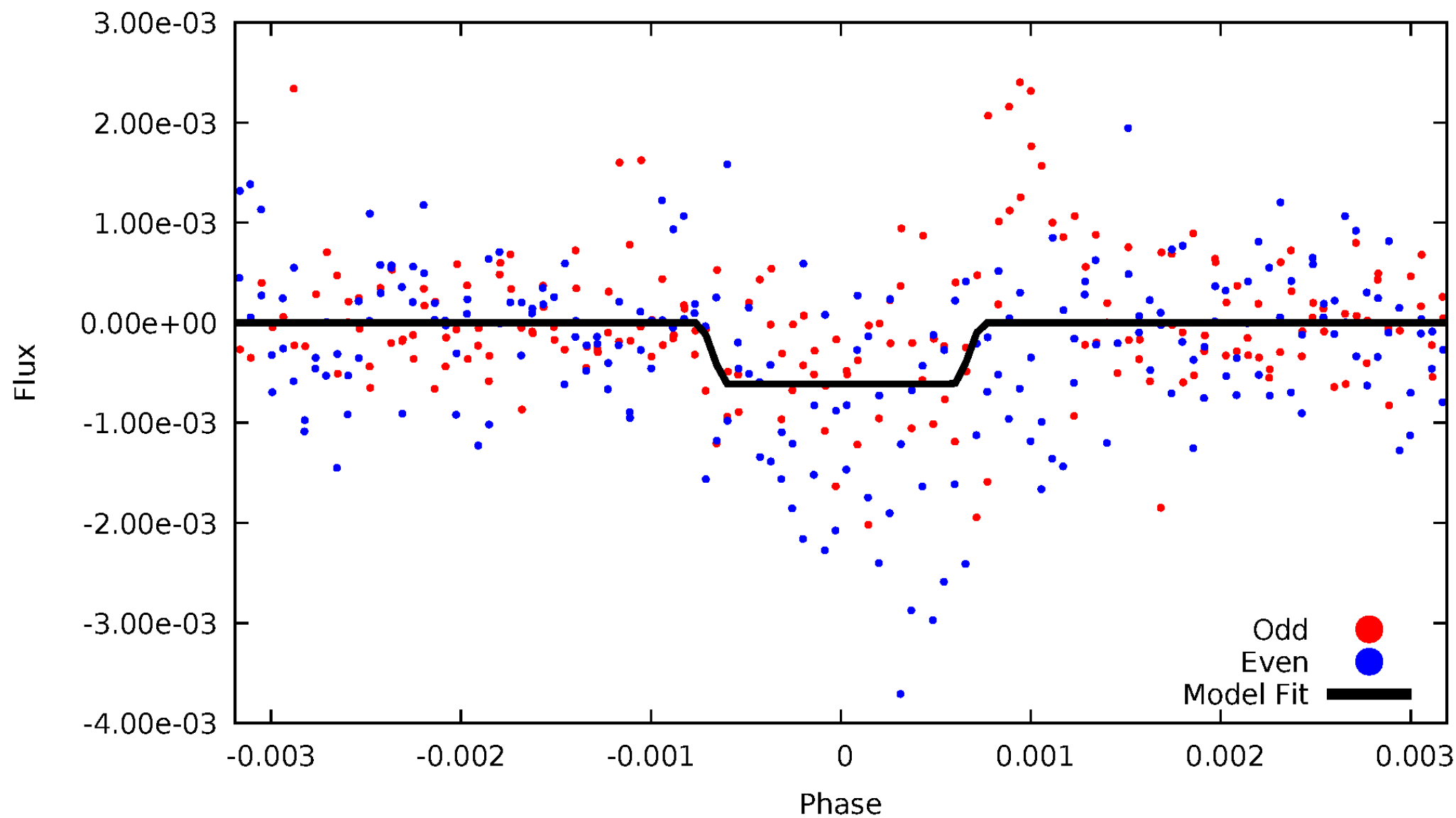
DV Odd/Even

TCE 012356489-01



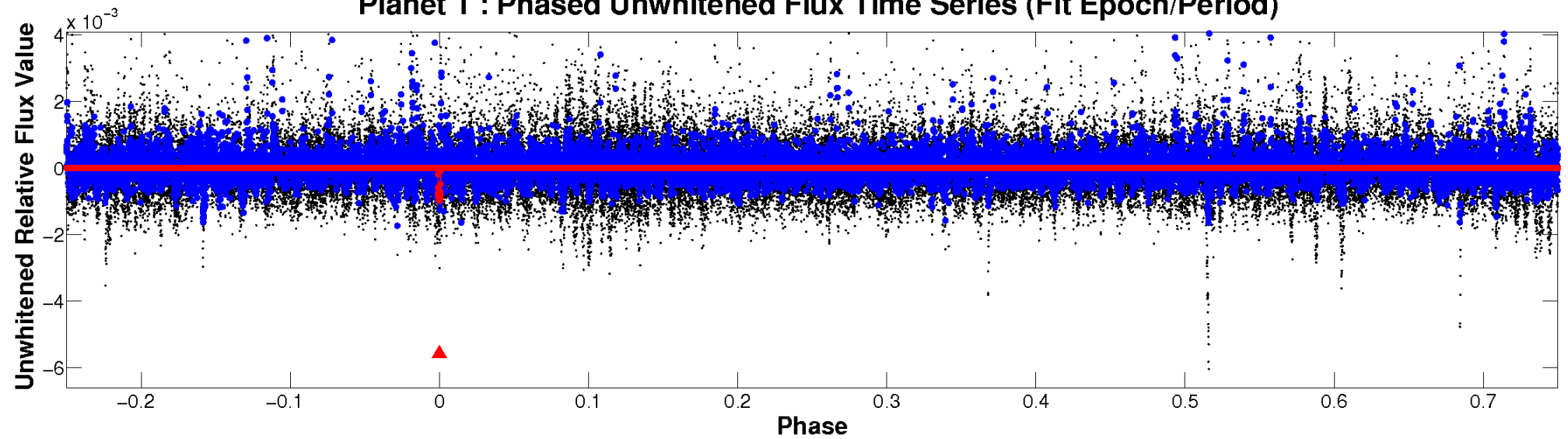
ALT Odd/Even

TCE 012356489-01

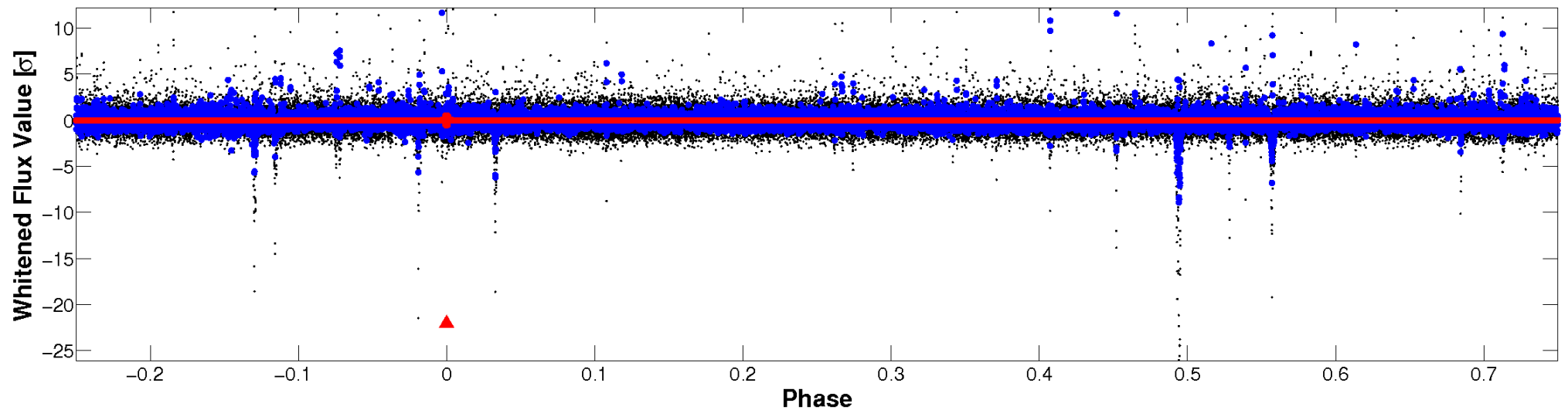


Non-Whitened Vs. Whitened Light Curve

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

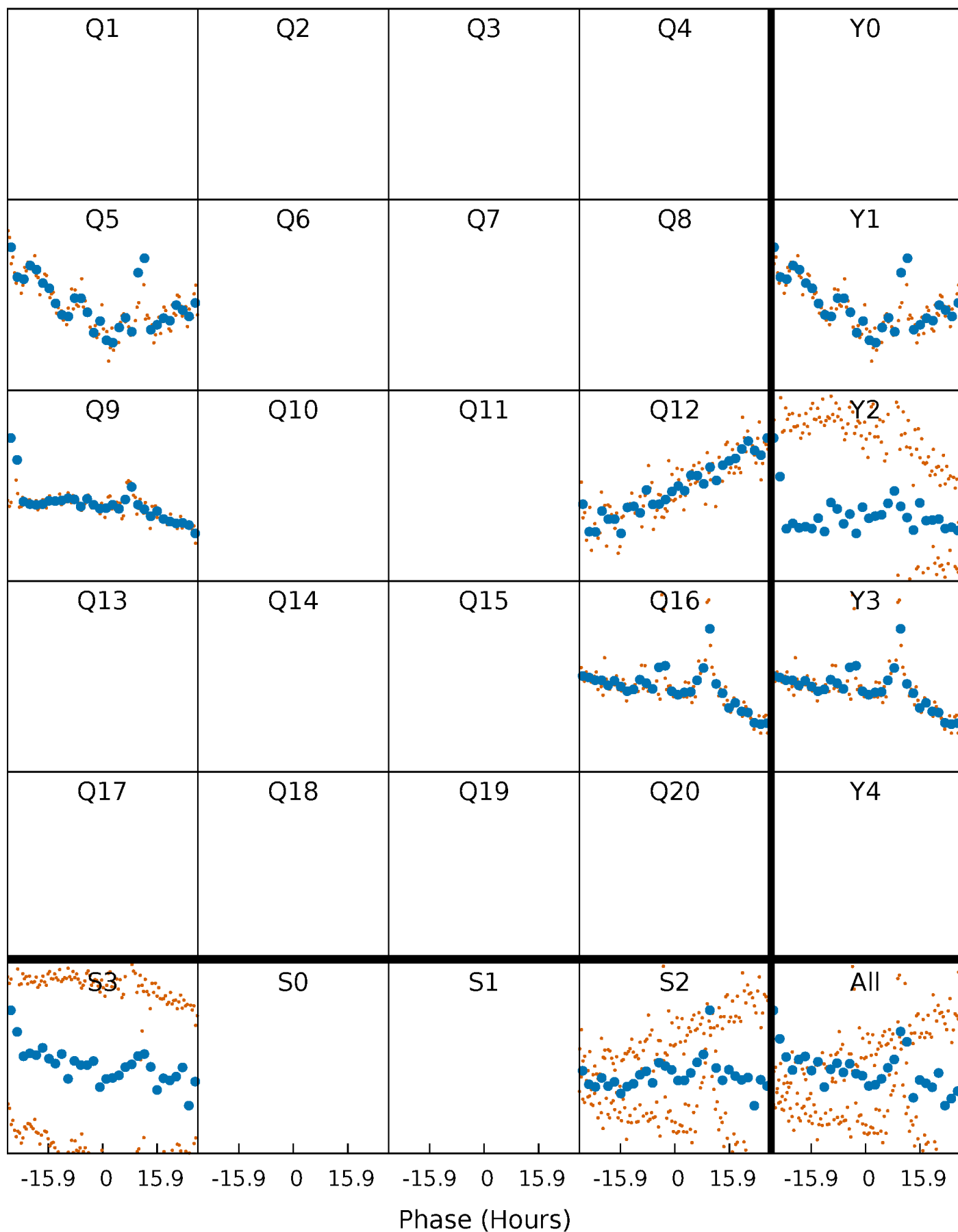


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



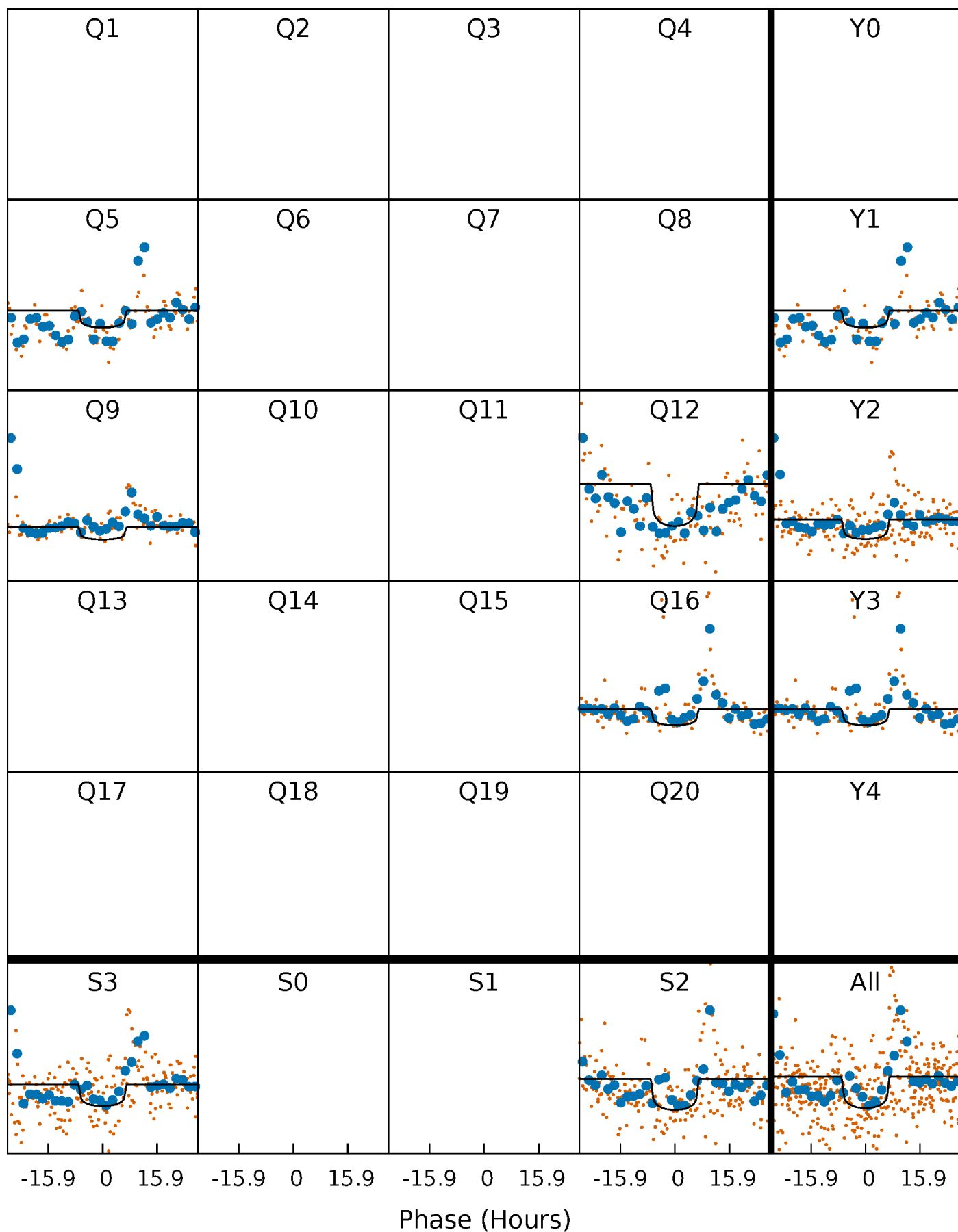
PDC Quarter-Phased Transit Curves

TCE 012356489-01 P=357.937694 Days $T_0=457.618810$ (BKJD)



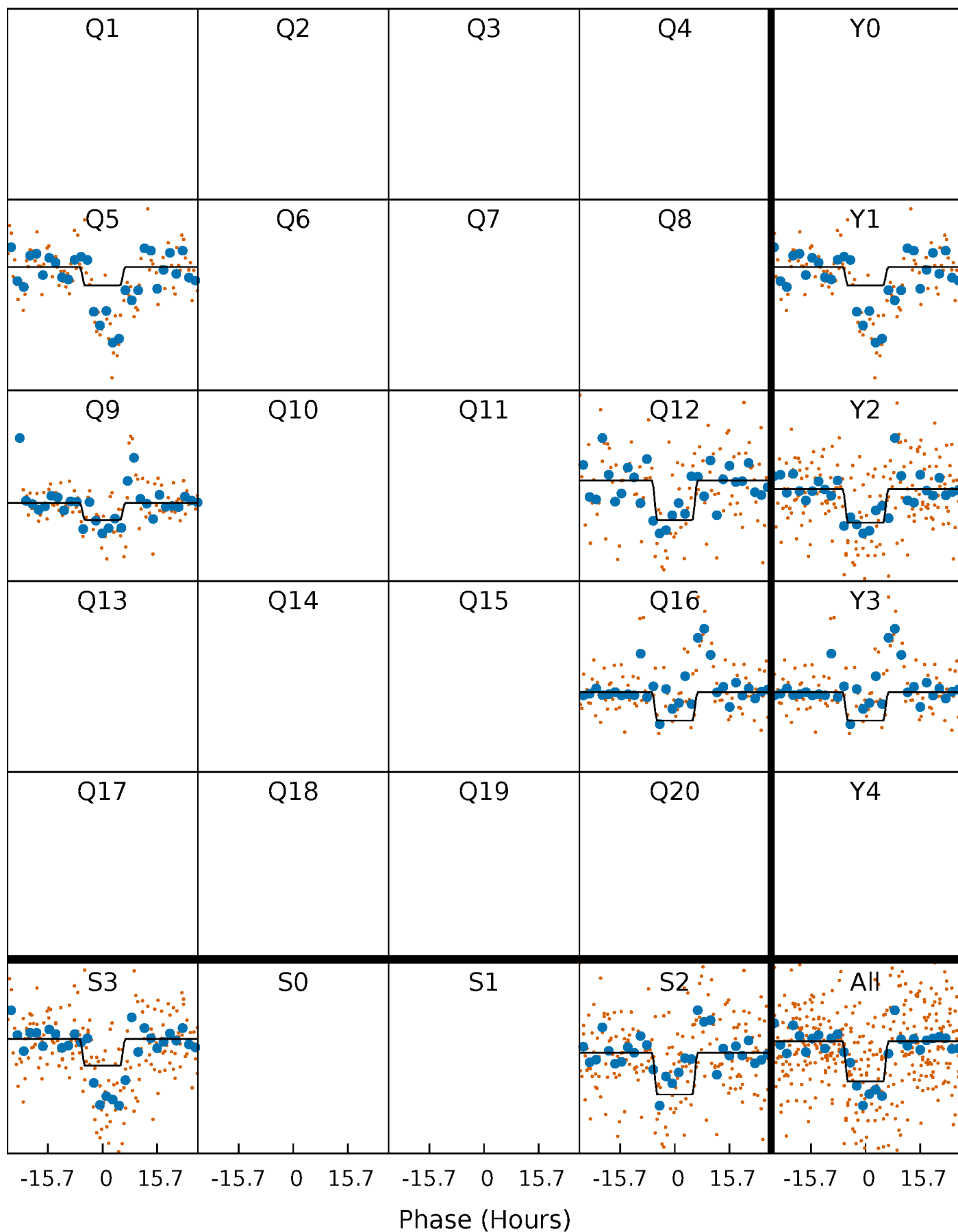
DV Quarter-Phased Transit Curves

TCE 012356489-01 $P=357.937694$ Days $T_0=457.618810$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

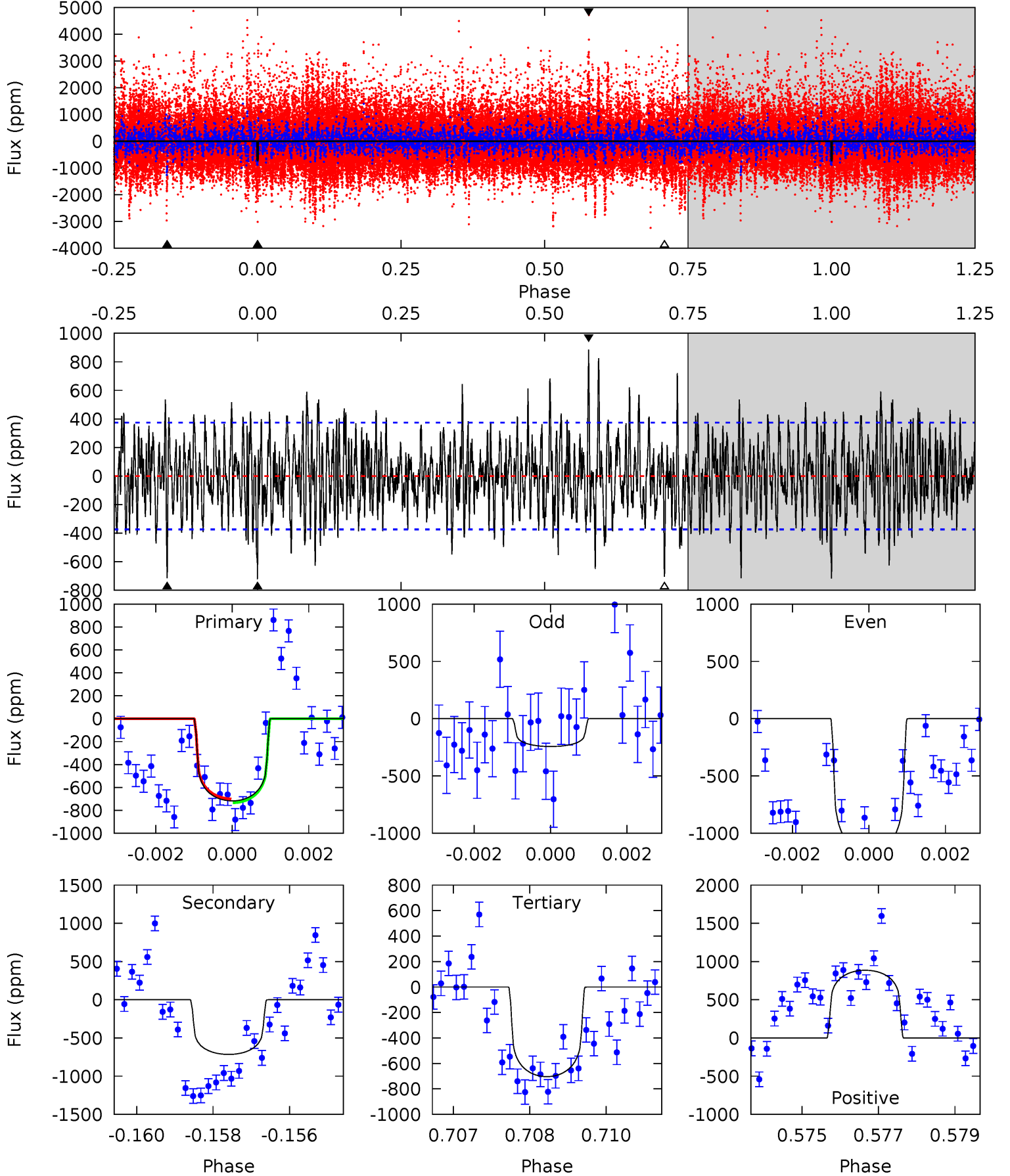
TCE 012356489-01 $P=357.955104$ Days $T_0=457.579661$ (BKJD)



DV Model-Shift Uniqueness Test

012356489-01, $P = 357.937694$ Days, $E = 99.681116$ Days

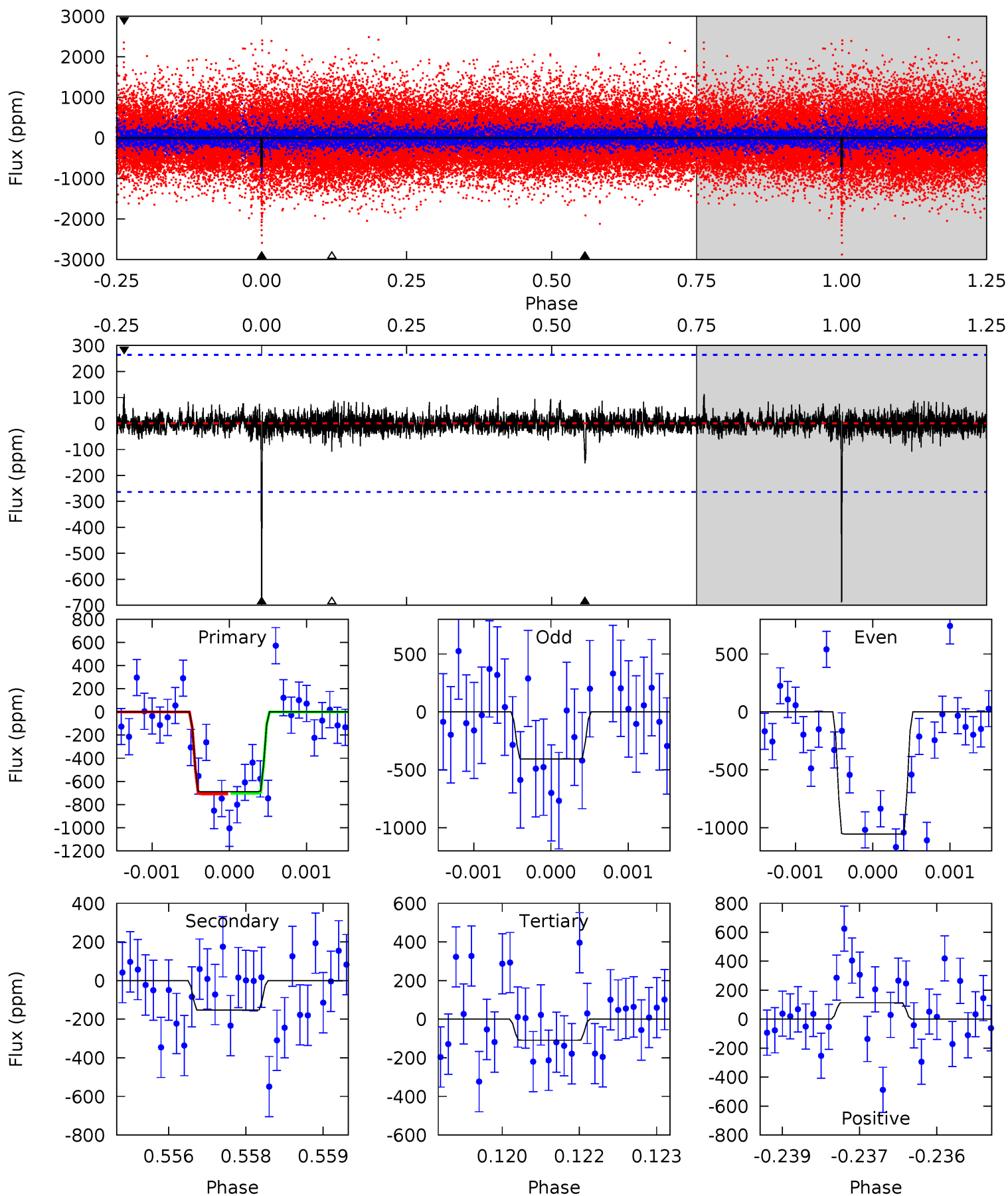
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	10.3	10.1	12.7	5.36	3.14	3.12	0.20	-2.42	0.17	-2.45	6.37	1.00	0.55	0.24



Alt Model-Shift Uniqueness Test

012356489-01, $P = 357.955104$ Days, $E = 99.624557$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	3.12	2.22	2.32	5.38	3.18	0.46	11.8	11.7	0.90	0.79	6.73	1.17	0.14	0.05



Stellar Parameters For KIC 012356489

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3694^{+83}_{-92}	$4.860^{+0.071}_{-0.058}$	$-0.400^{+0.200}_{-0.200}$	$0.398^{+0.051}_{-0.062}$	$0.419^{+0.048}_{-0.072}$	$9.382^{+3.672}_{-2.224}$
	+2%/-2%	+1%/-1%	+50%/-50%	+13%/-16%	+11%/-17%	+39%/-24%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 012356489-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-715 ± 70	$1.28^{+0.61}_{-0.60}$	166^{+6}_{-6}	3553^{+860}_{-392}	$129190^{+314016}_{-70079}$
Alt.	-153 ± 49	$1.12^{+0.55}_{-0.59}$	167^{+6}_{-6}	2955^{+719}_{-341}	$36842^{+123086}_{-21783}$

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

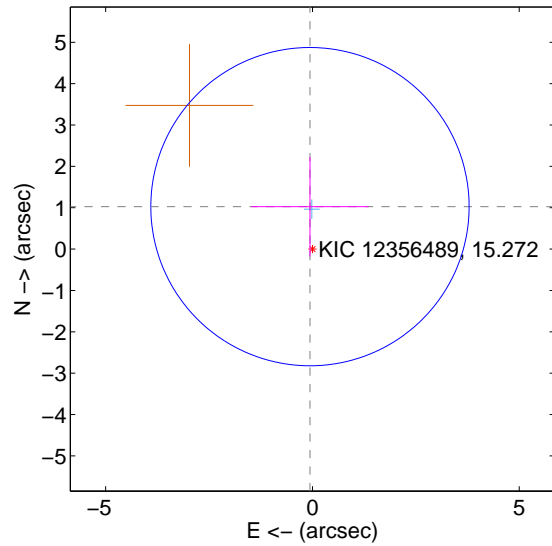
Supplemental centroid analysis for 012356489-01. Kepler magnitude: 15.27. Transit SNR 5.84

There are 1 quarters with good PRF difference image offsets

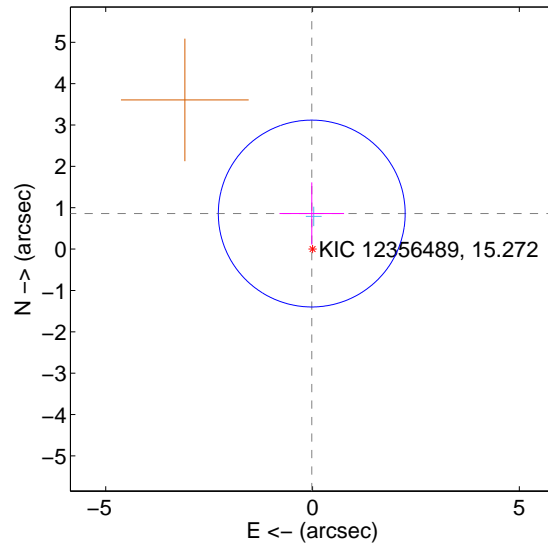
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.028 ± 1.283	0.80	0.060 ± 1.418	1.026 ± 1.202
PRF-fit source offset from KIC position	0.860 ± 0.753	1.14	0.019 ± 0.781	0.860 ± 0.753
photometric centroid source offset	0.87 ± 0.95	0.91	-0.46 ± 0.84	-0.74 ± 0.99

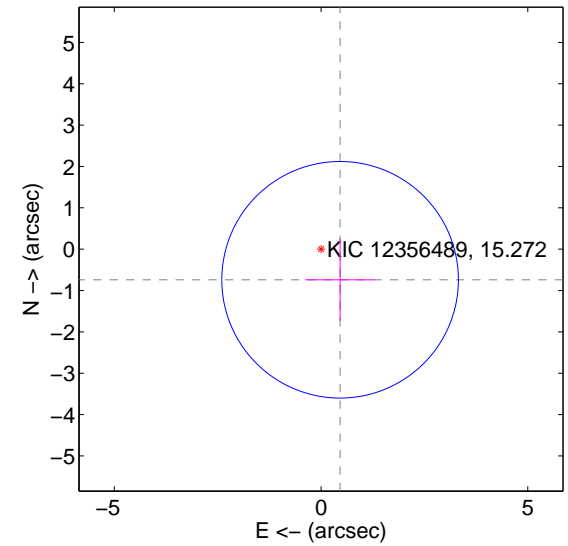
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

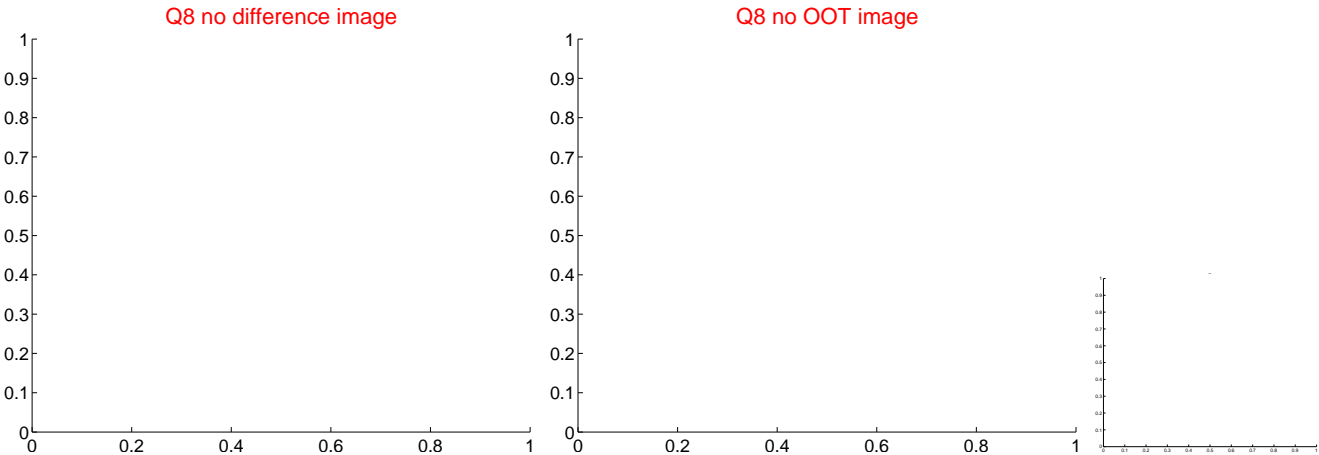
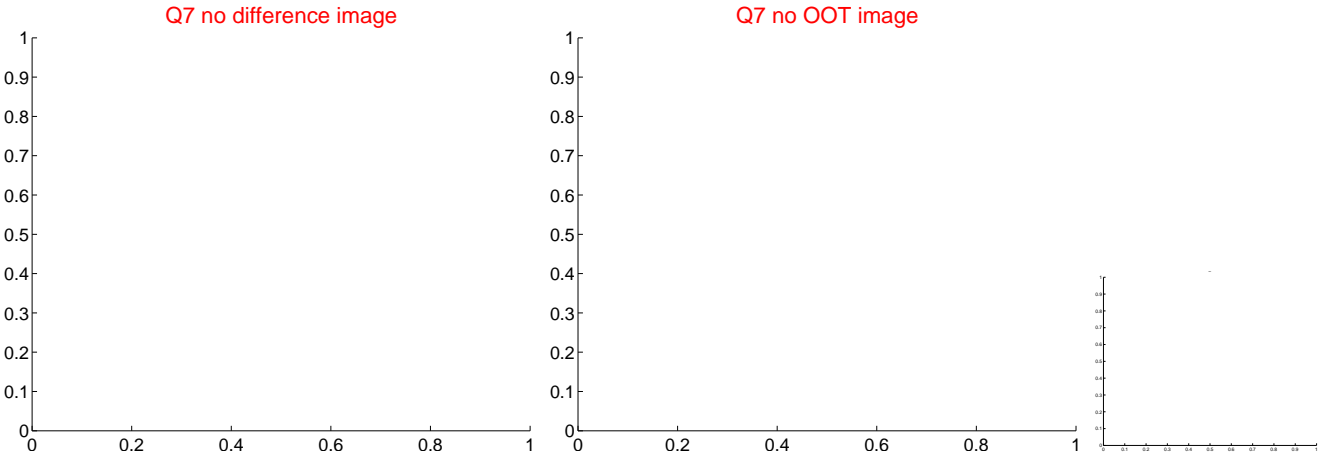
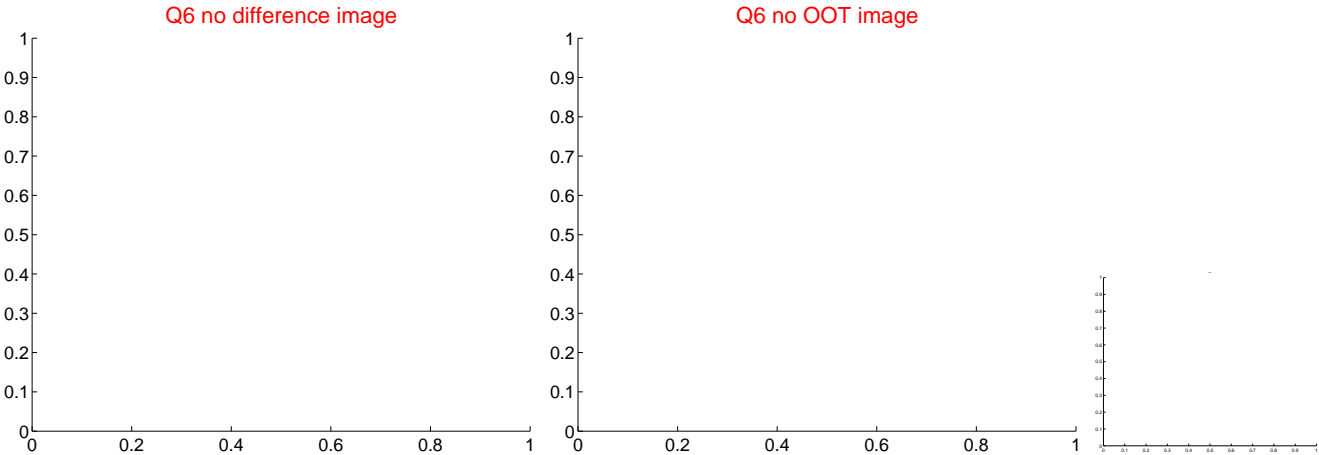
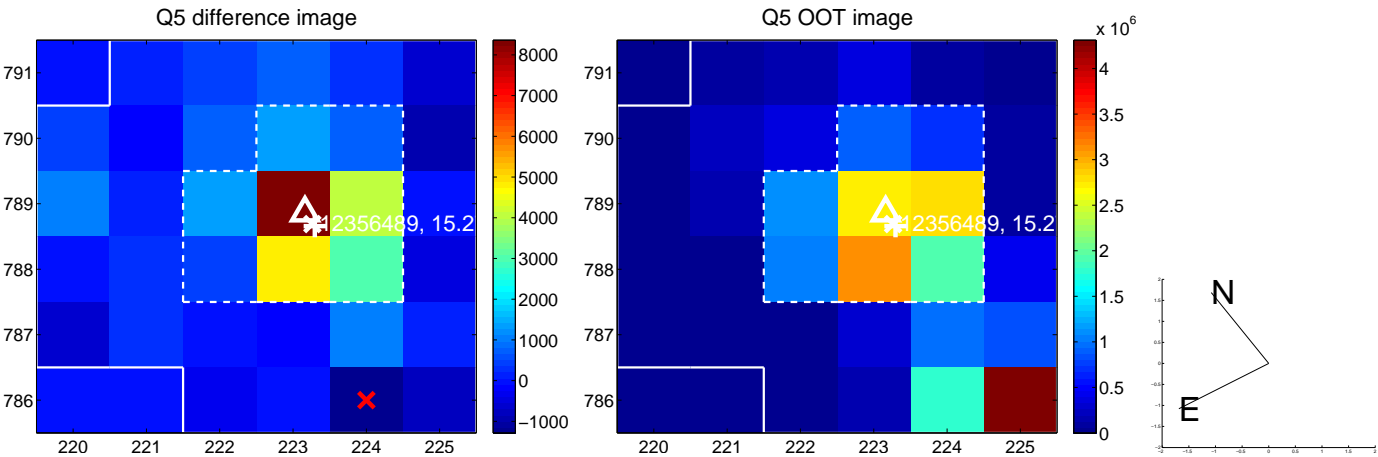


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

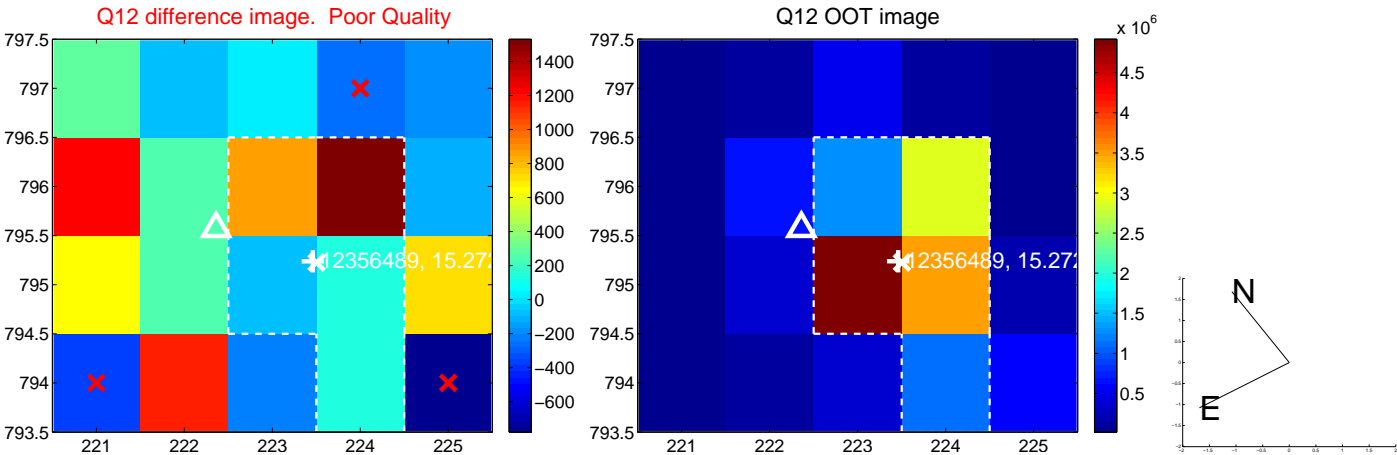
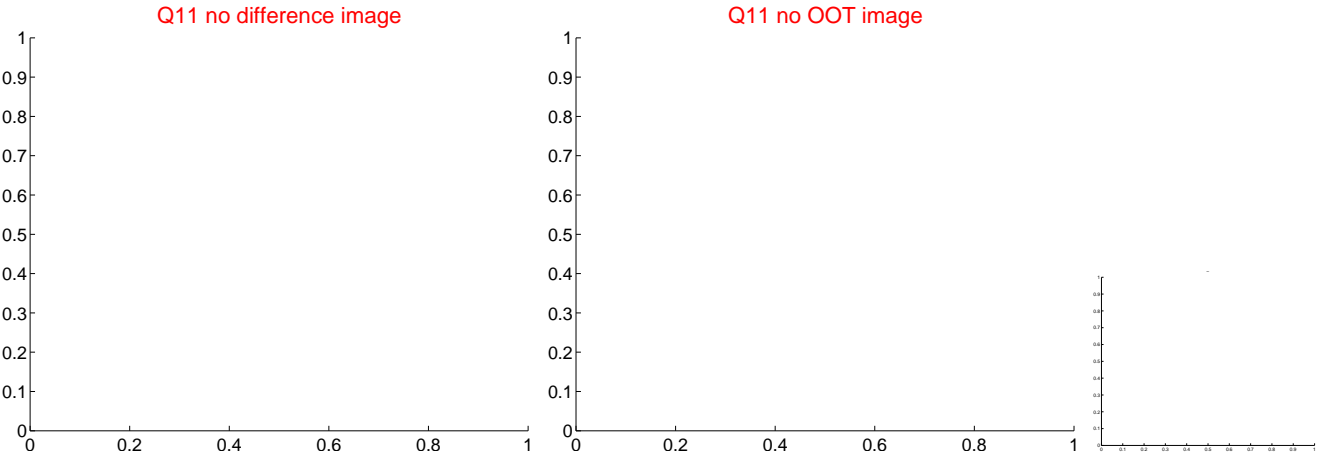
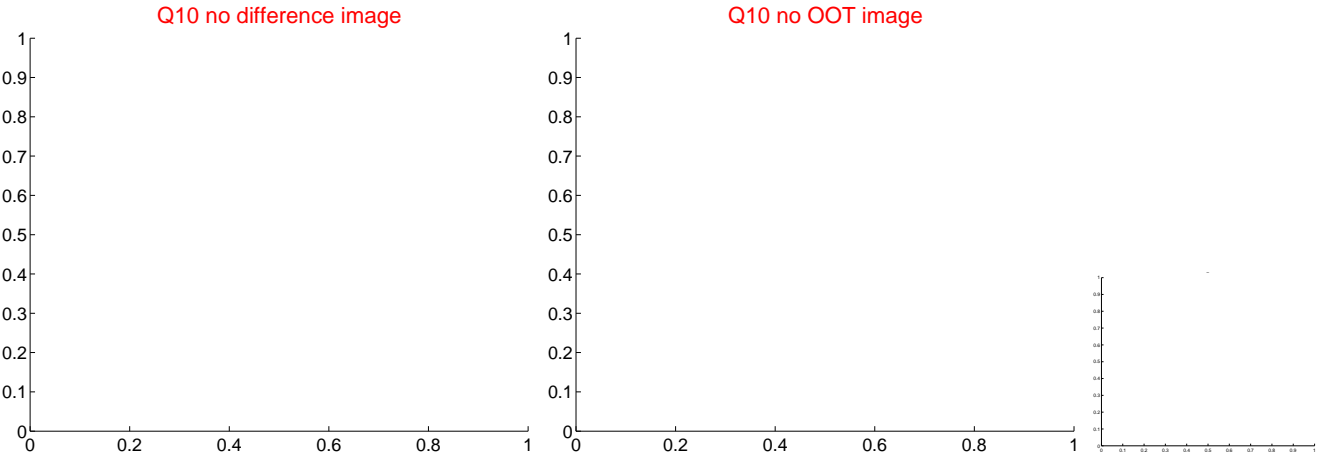
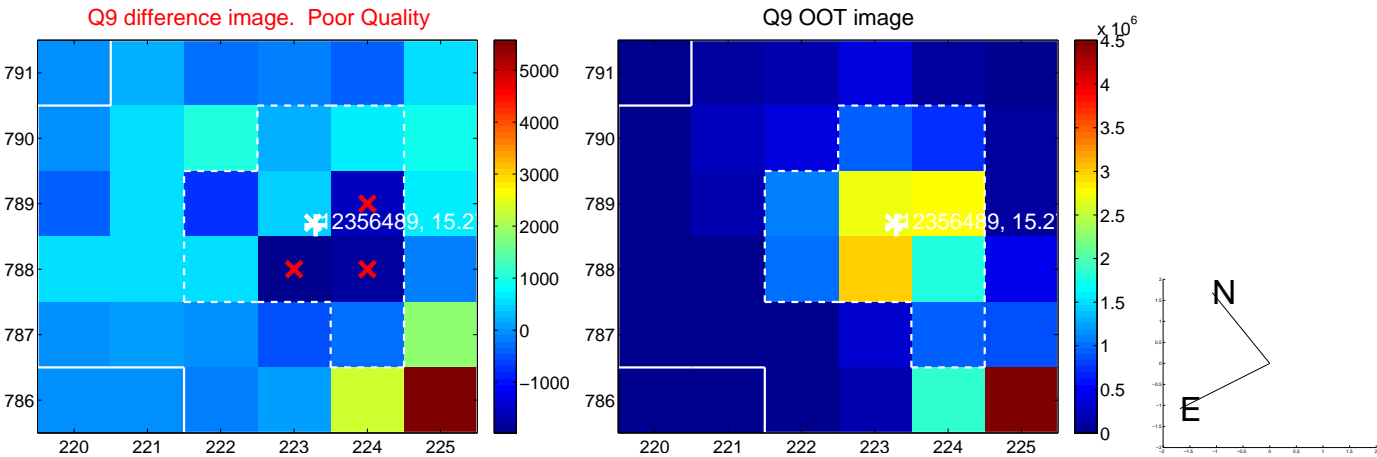
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



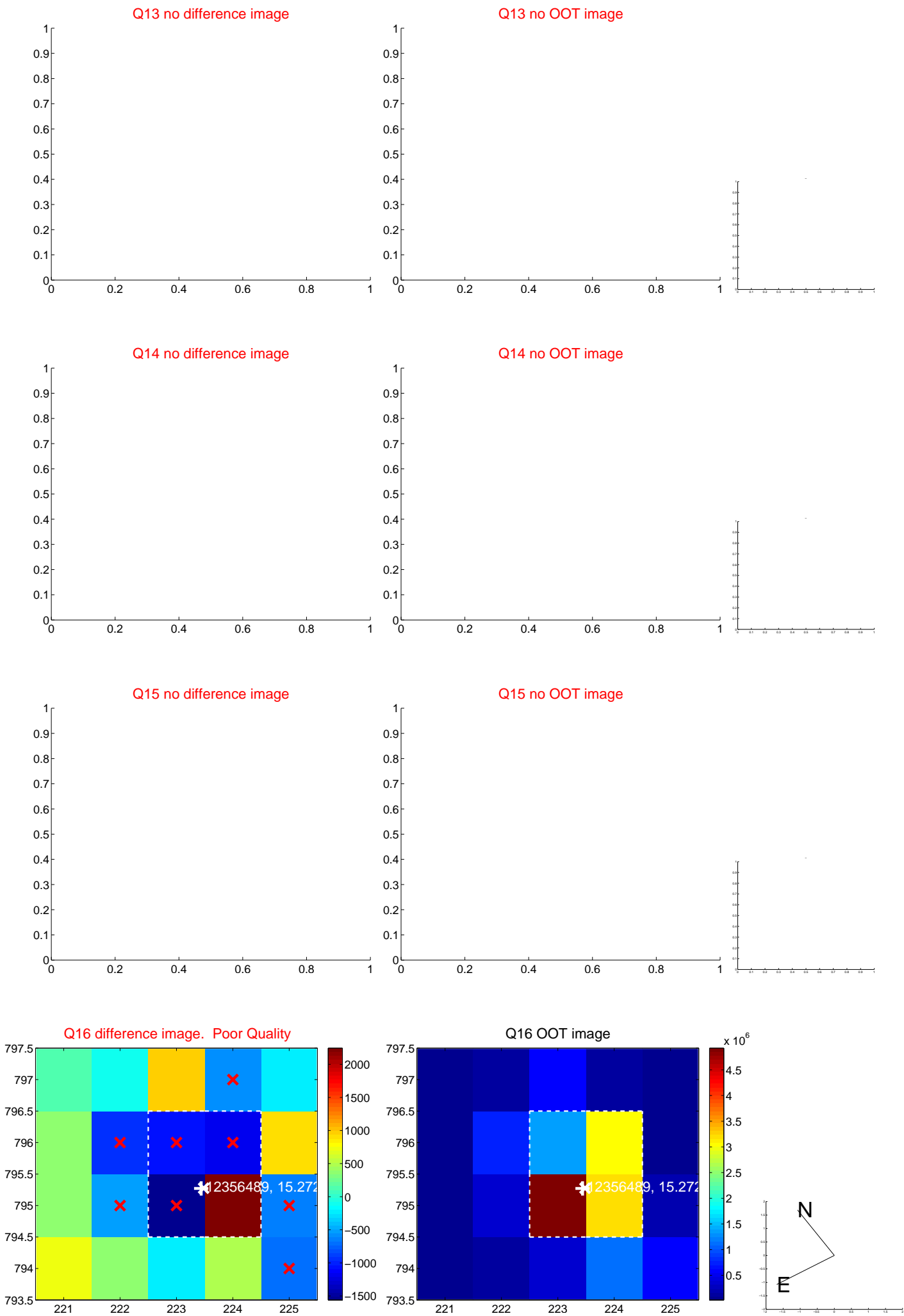
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



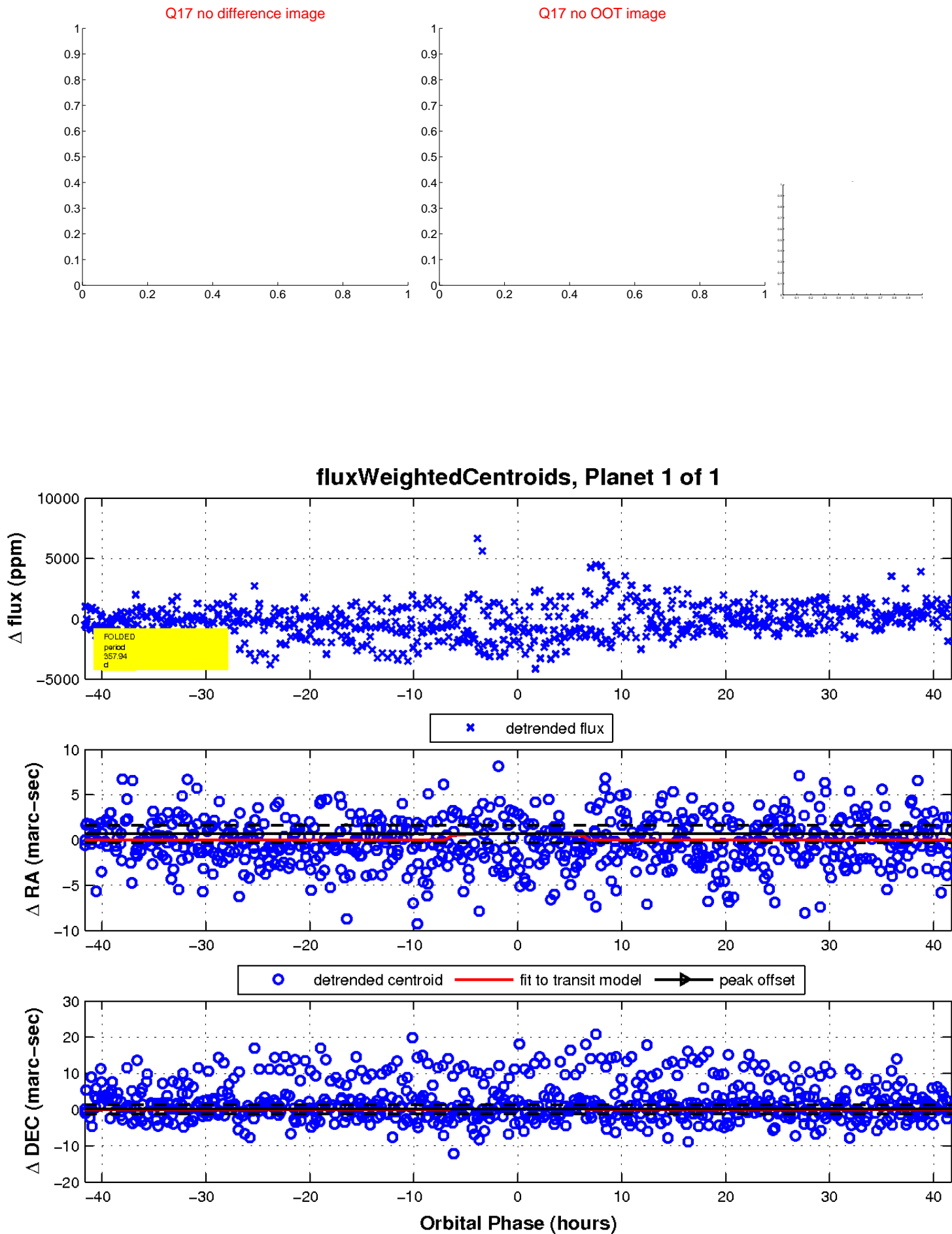
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

