

KIC 012557553

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})
012557553-01	OBS	No	630.400035	207.518288	1274.8	5.271	8.9	6.5	0.75	4602	3.42	0.13

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012557553-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—ALL_TRANS_CHASES—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.

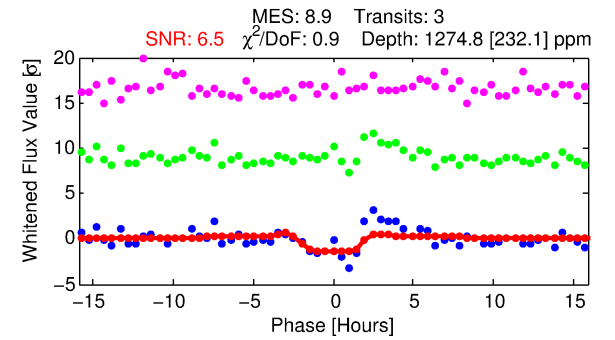
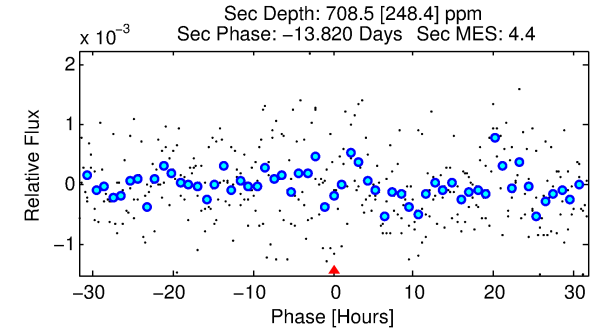
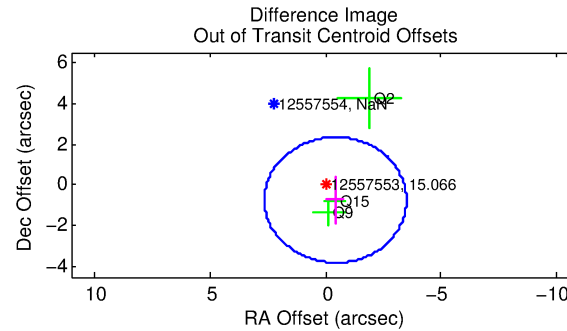
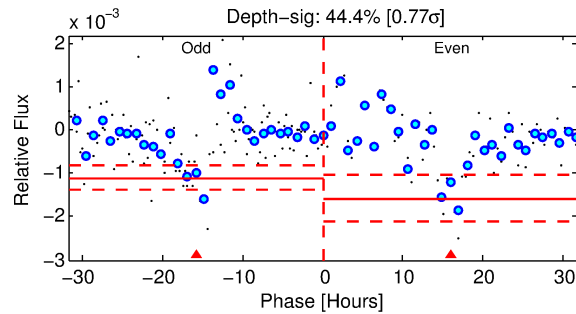
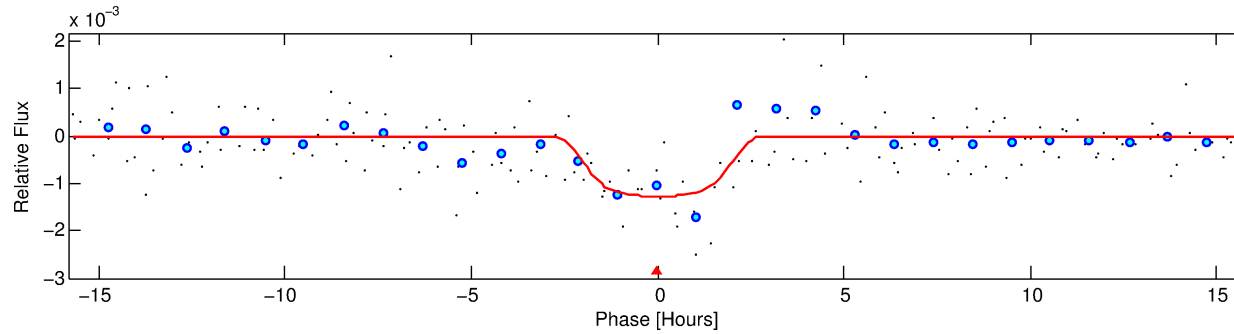
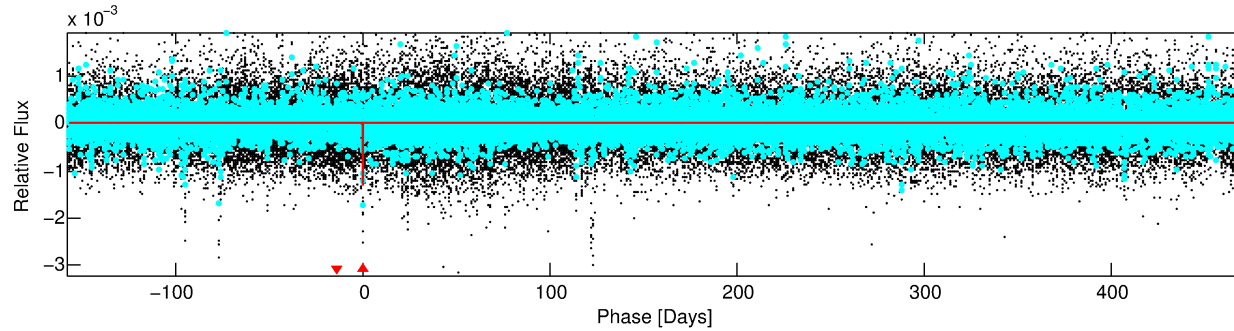
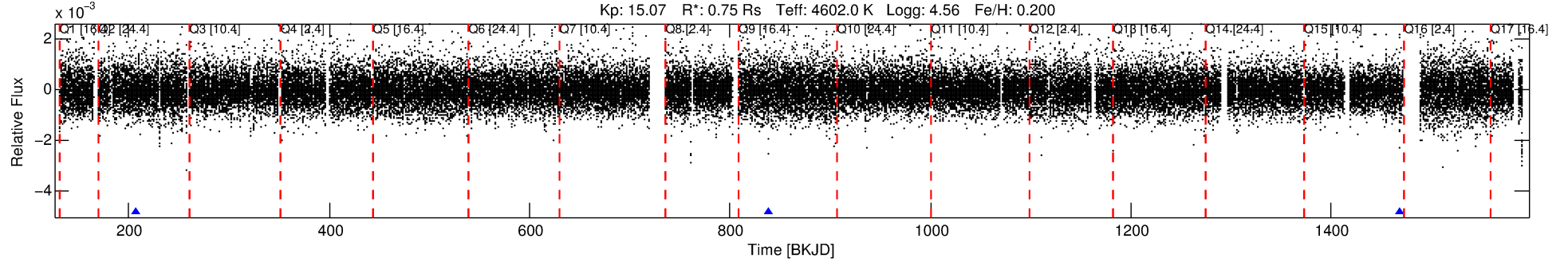
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012557553-01

No Significant Match Found

DV One-Page Summary

KIC: 12557553 Candidate: 1 of 1 Period: 630.400 d



DV Fit Results:

Period = 630.40003 [0.00824] d
Epoch = 207.5183 [0.0109] BKJD
Rp/R* = 0.0420 [0.0065]
a/R* = 436.10 [161.62]
b = 0.93 [0.06]
Seff = 0.13 [0.02]
Teq = 154 [6] K
Rp = 3.42 [0.60] Re
a = 1.2990 [0.0936] AU
Ag = 56144.76 [26960.93] [2.08 σ]
Teffp = 3662 [442] K [7.93 σ]

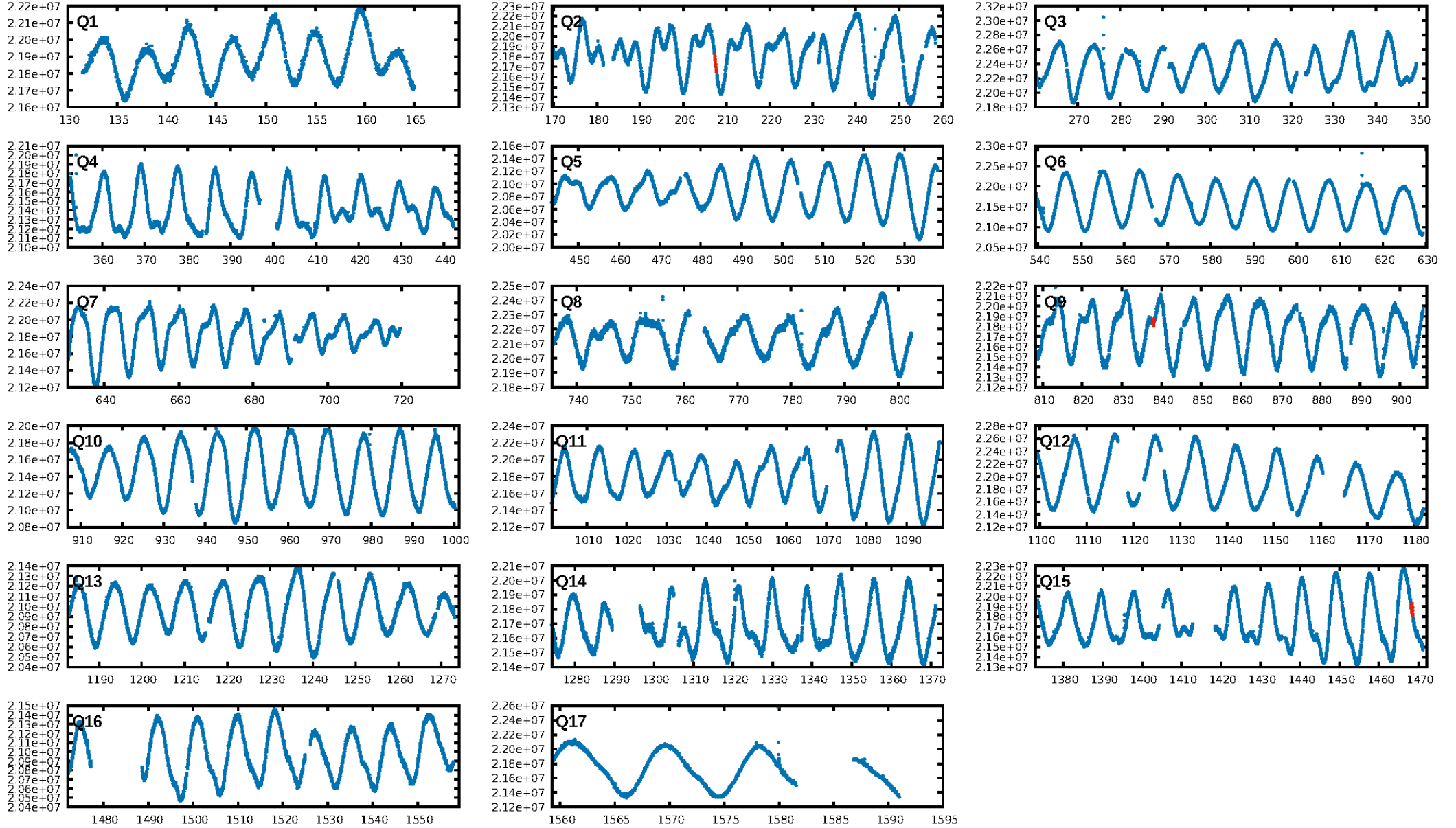
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: 31.9%
ModelChiSquareGof-sig: 98.7%
Bootstrap-pfa: 1.04e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.402
Centroid-sig: 21.5%
Centroid-so: 1.172 arcsec [0.79 σ]
OotOffset-rm: 0.848 arcsec [0.83 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-rm: 0.679 arcsec [0.70 σ]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

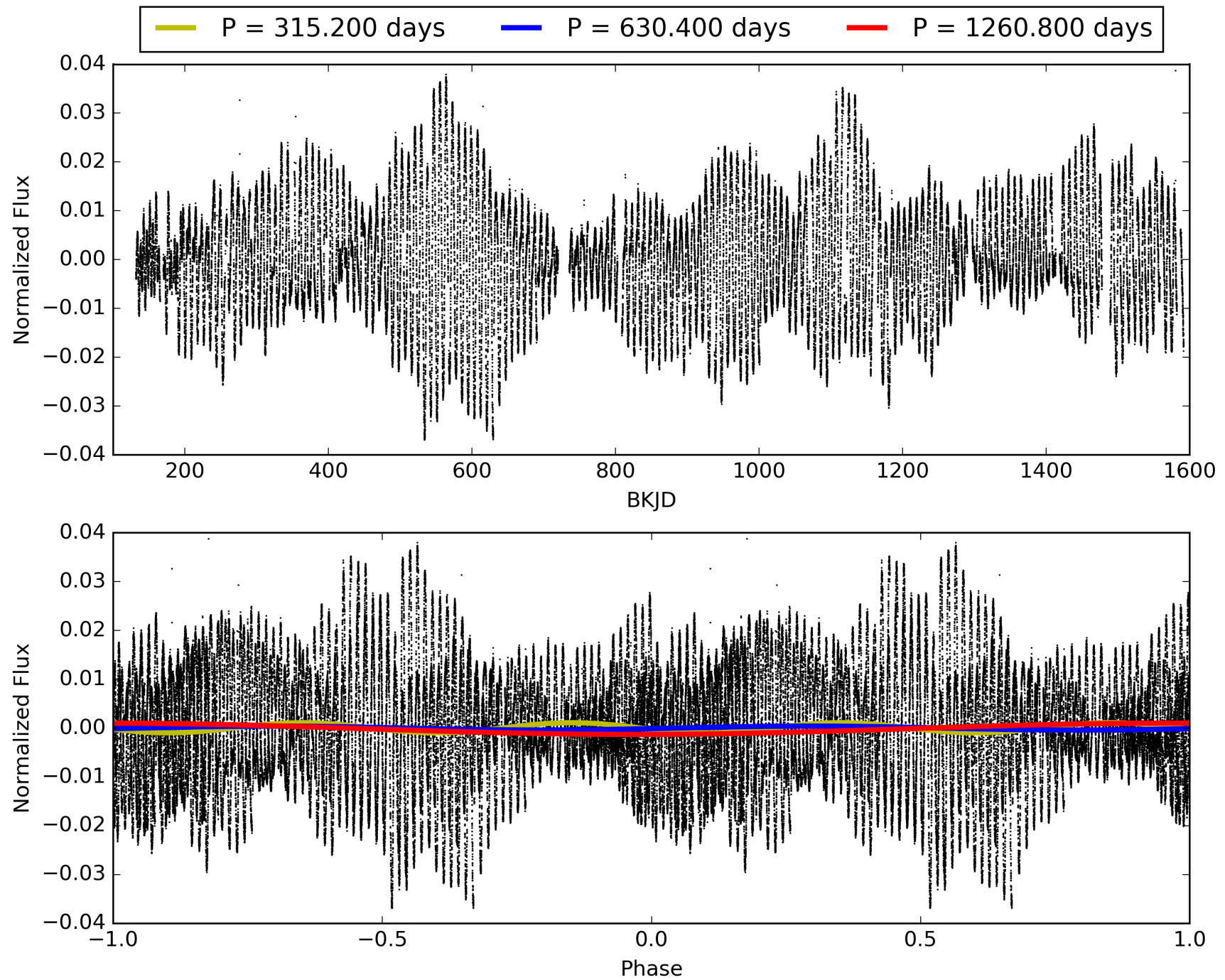
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:49:21 Z

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

TCE 012557553-01, PDC Light Curves

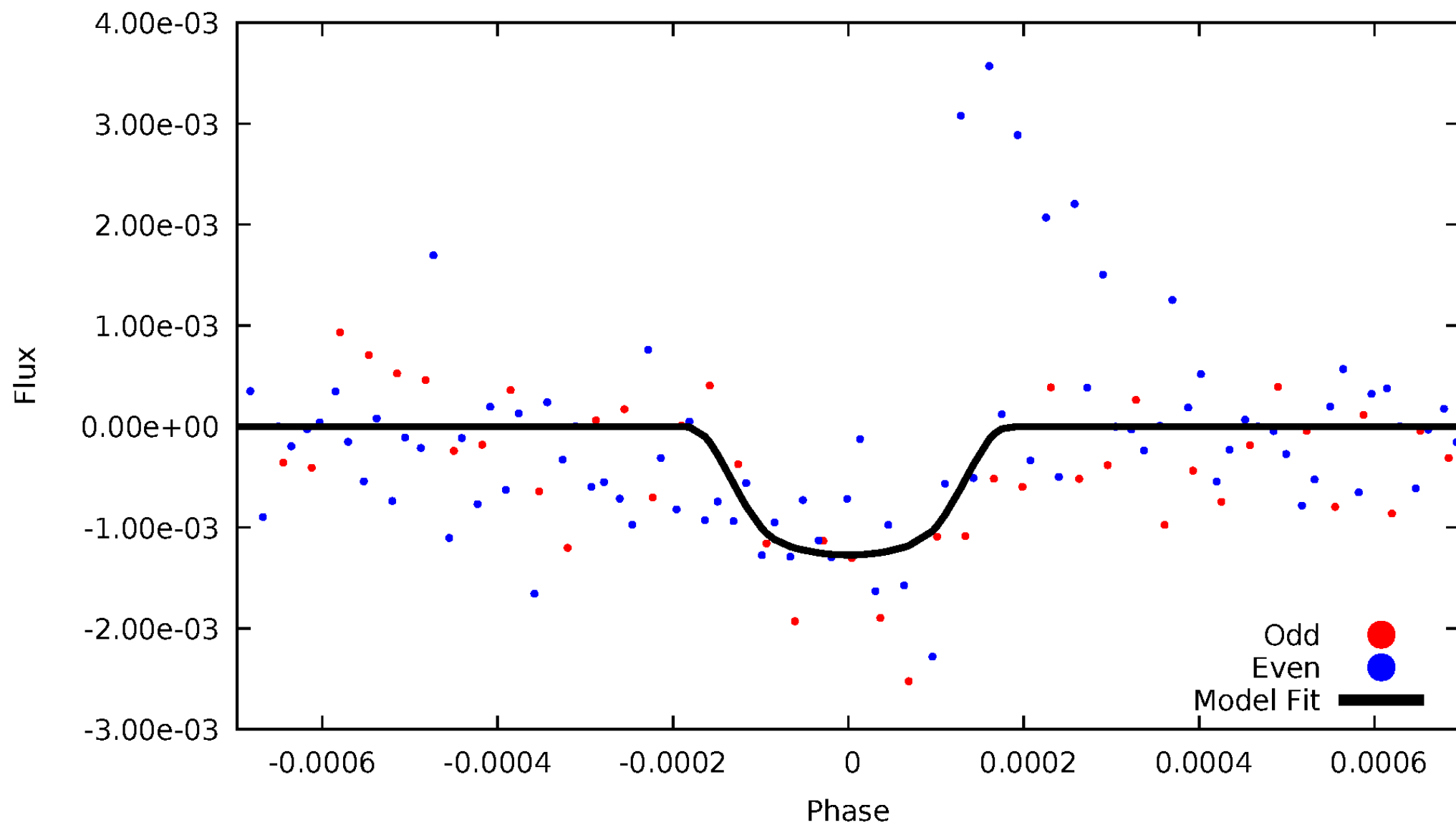


TCE 012557553-01



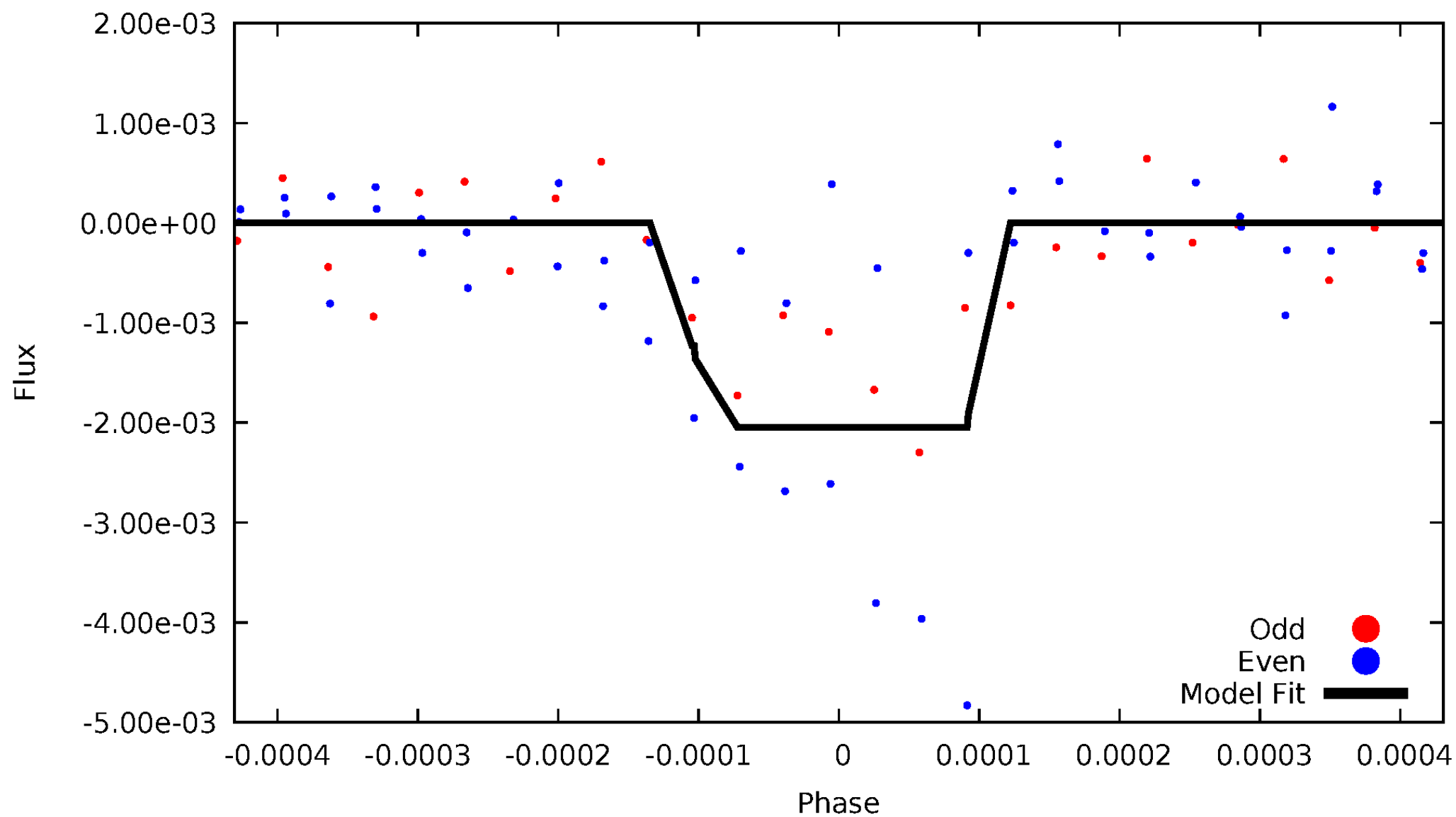
DV Odd/Even

TCE 012557553-01



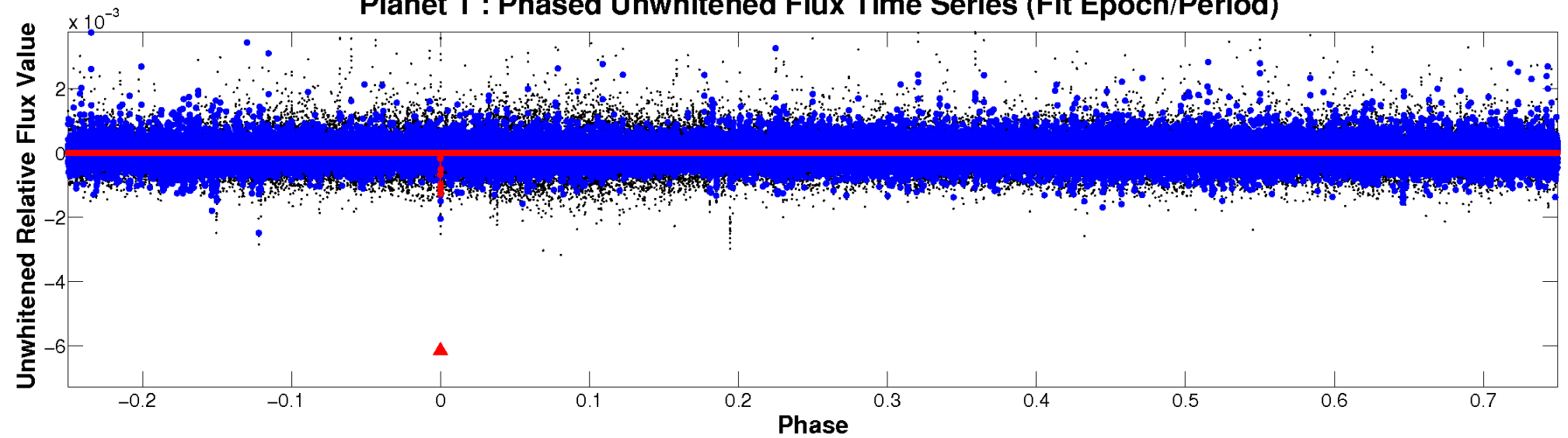
ALT Odd/Even

TCE 012557553-01

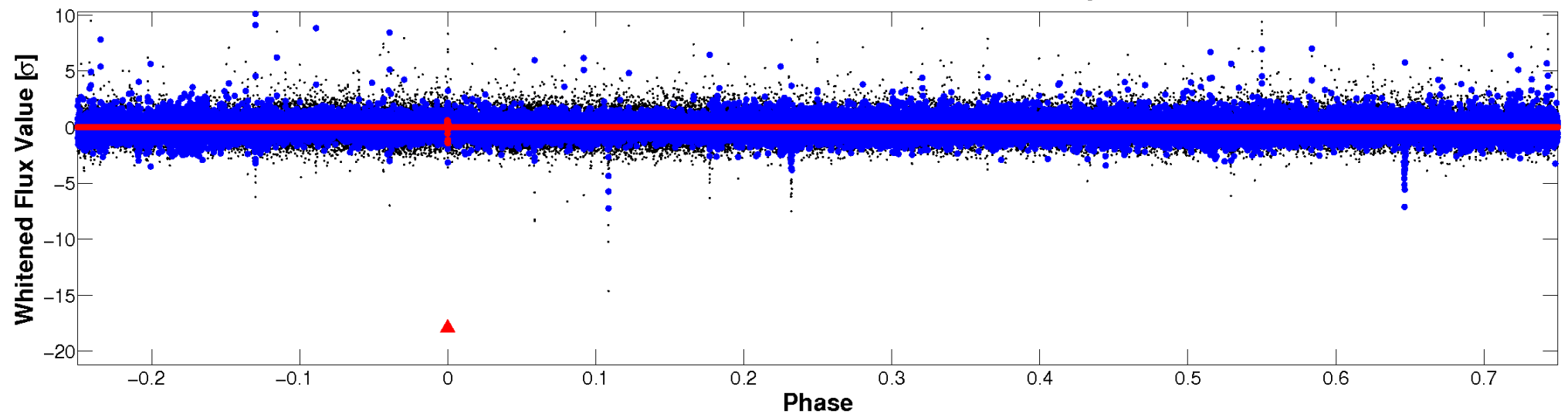


Non-Whitened Vs. Whitened Light Curve

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

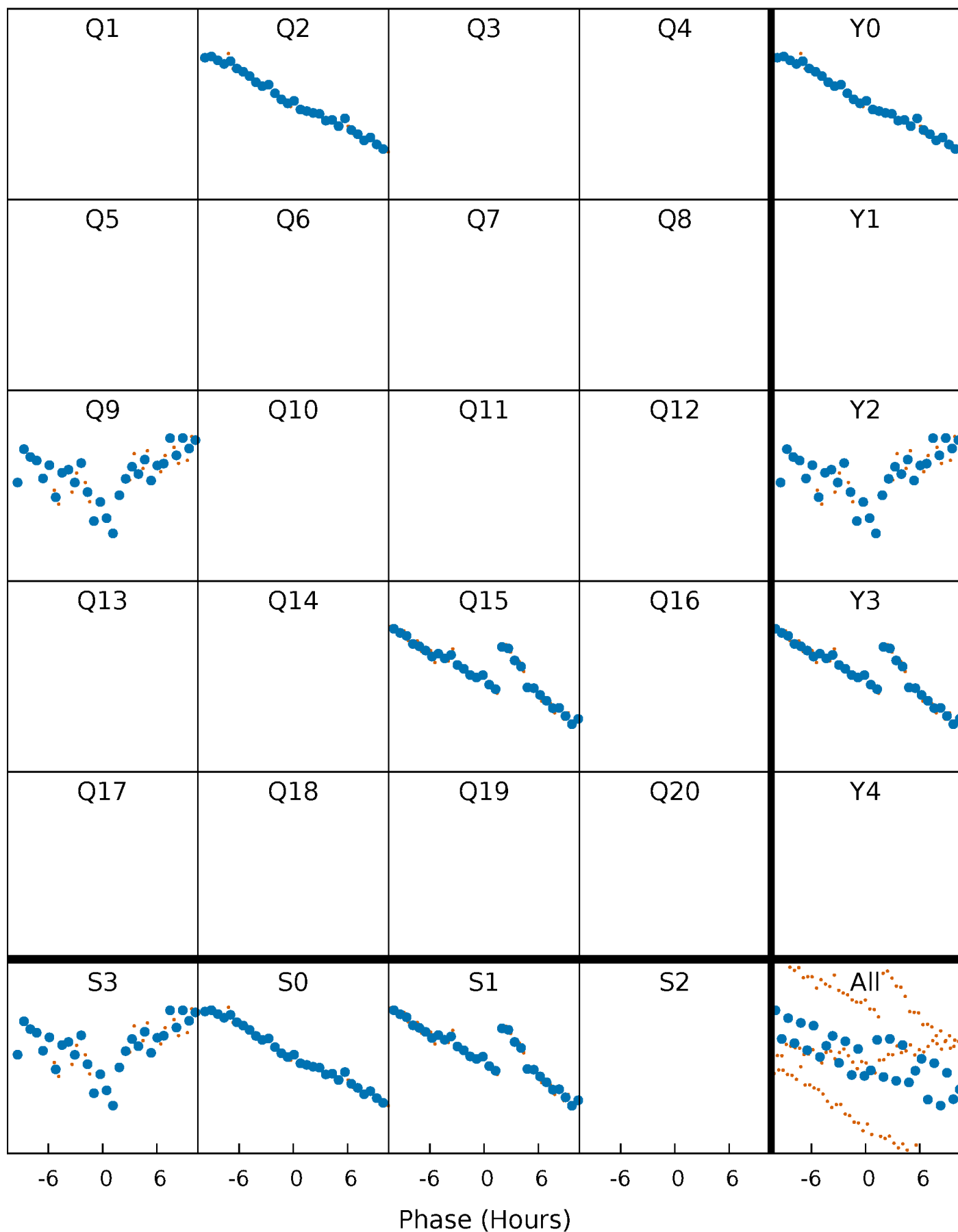


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



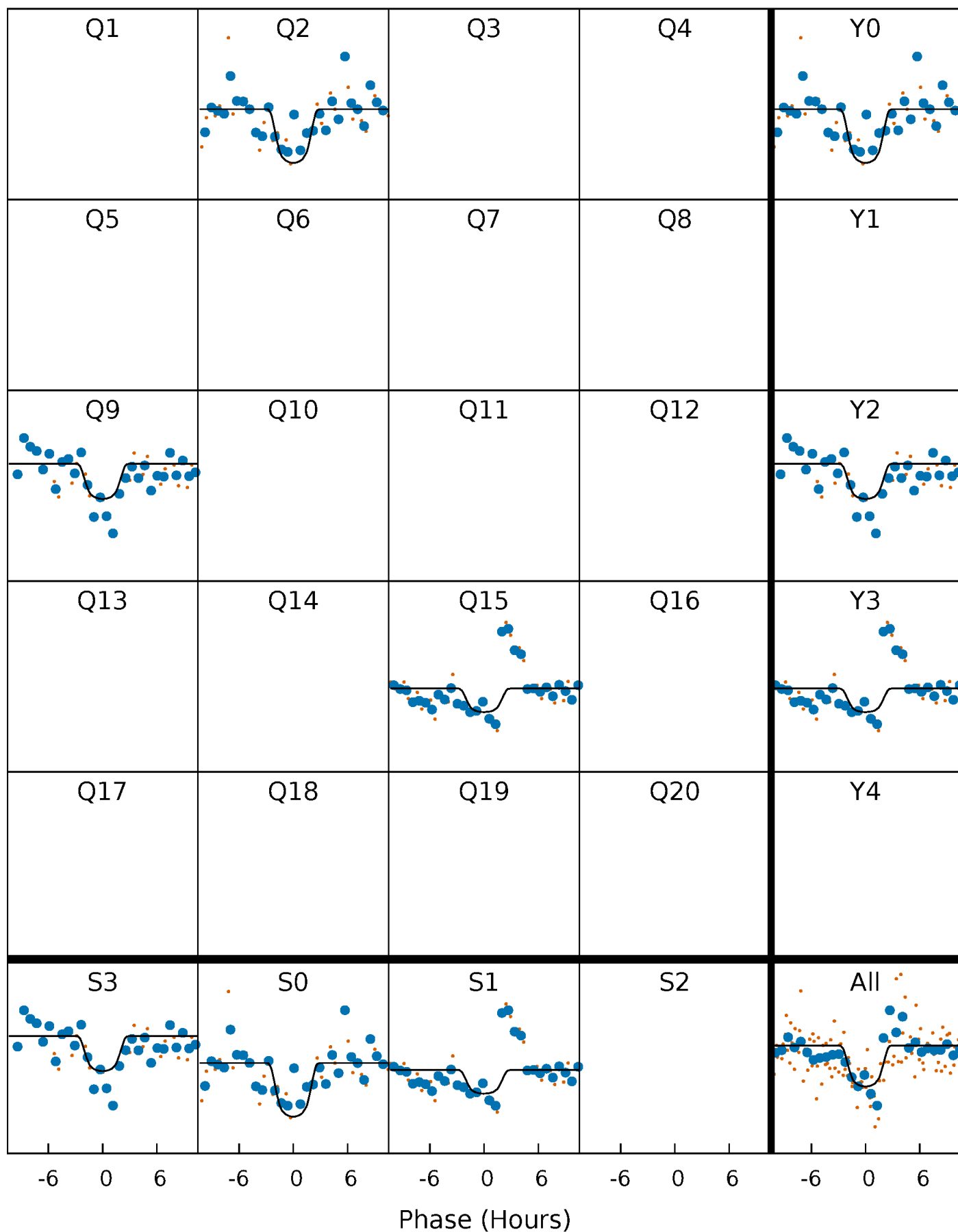
PDC Quarter-Phased Transit Curves

TCE 012557553-01 P=630.400035 Days $T_0=207.518289$ (BKJD)



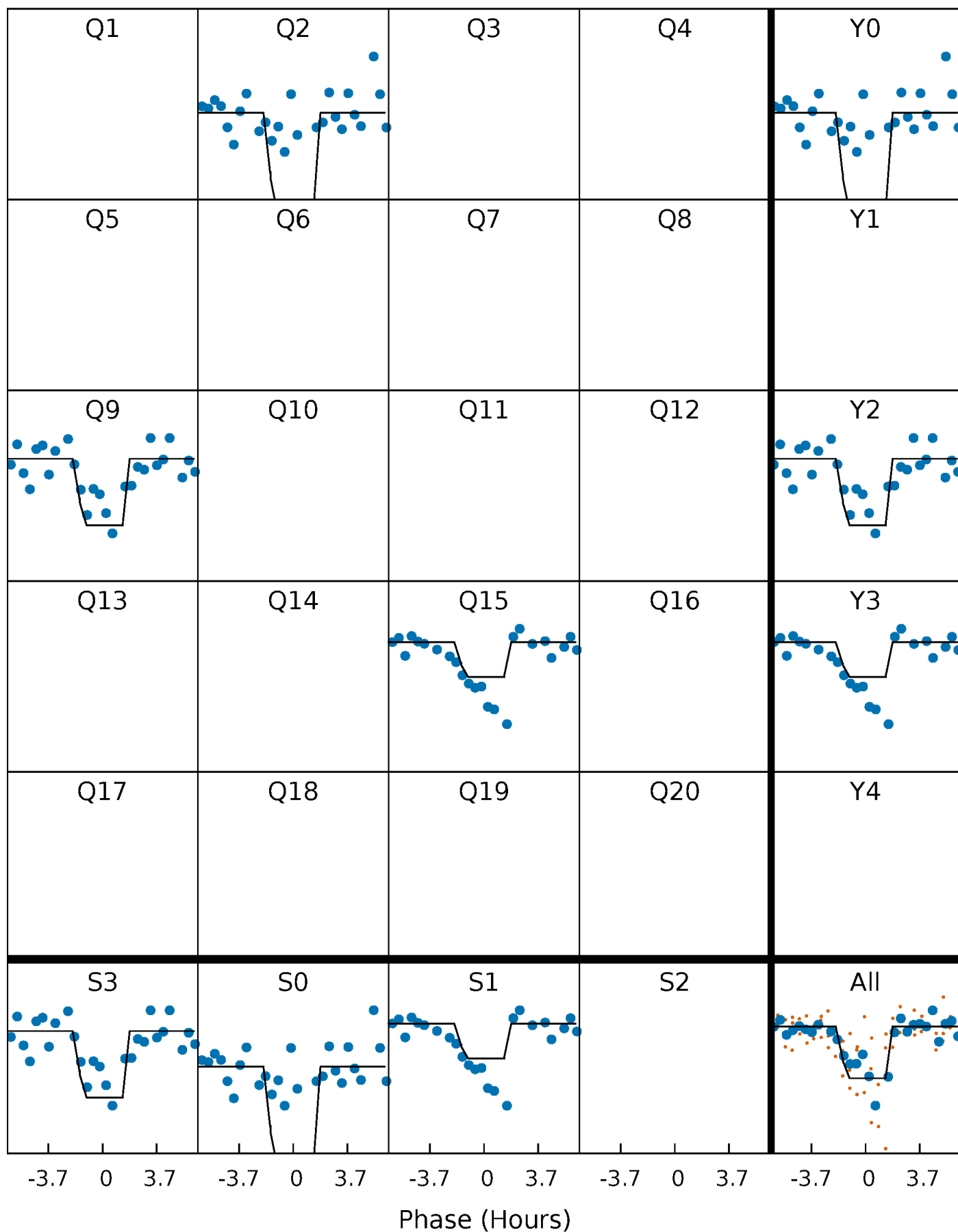
DV Quarter-Phased Transit Curves

TCE 012557553-01 P=630.400035 Days $T_0=207.518289$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

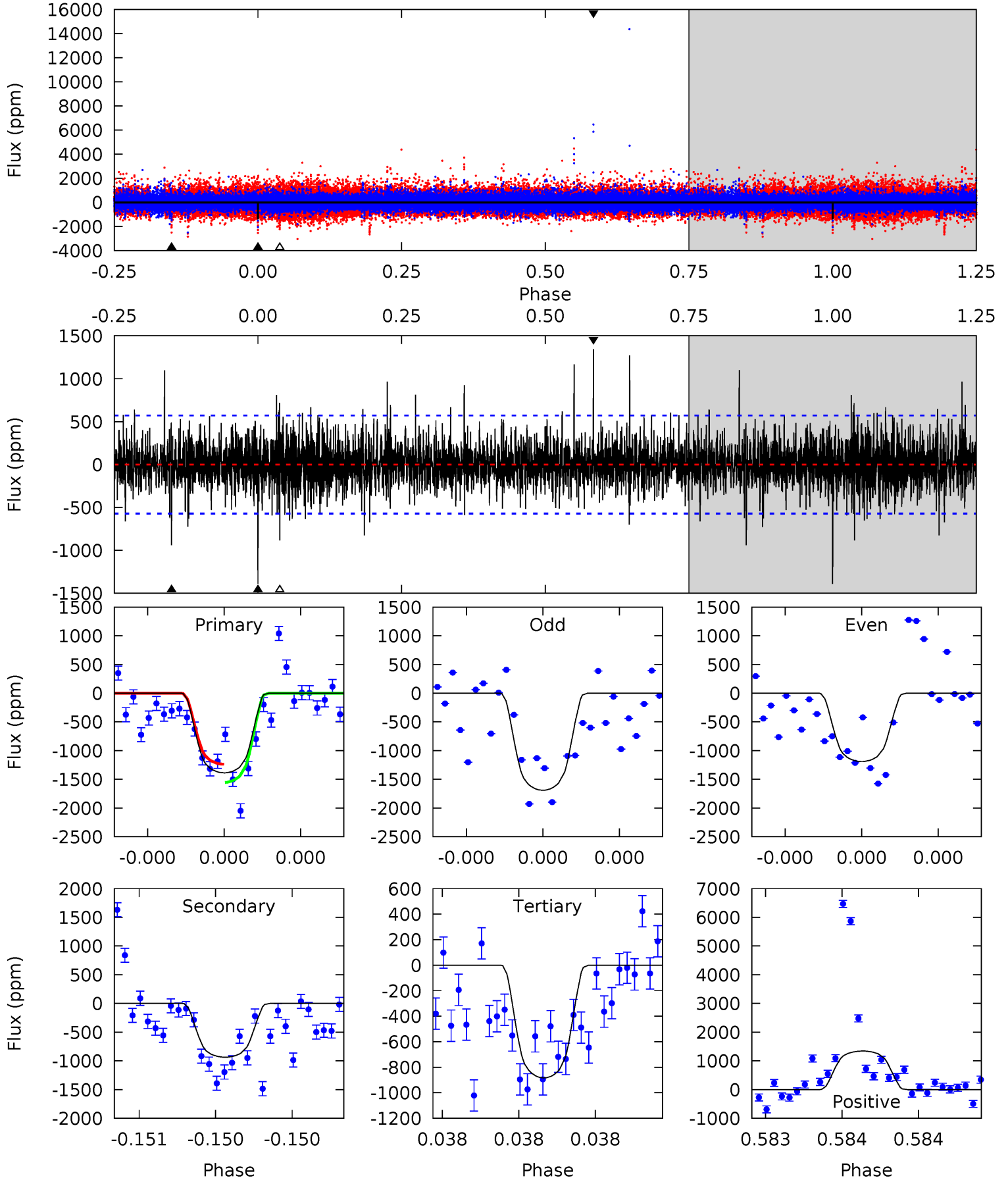
TCE 012557553-01 P=630.395760 Days $T_0=207.529676$ (BKJD)



DV Model-Shift Uniqueness Test

012557553-01, P = 630.400035 Days, E = 207.518289 Days

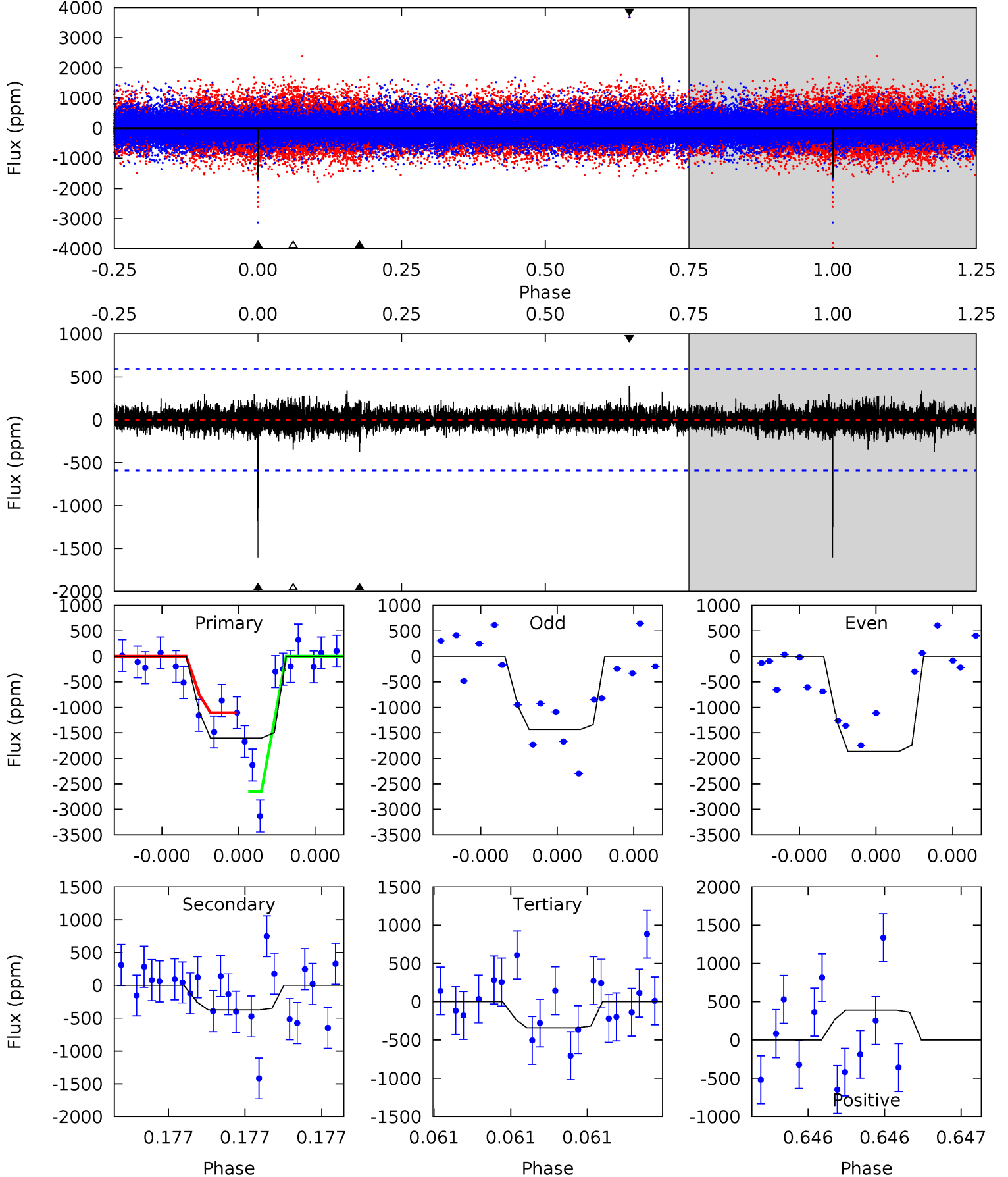
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.7	9.24	8.72	13.3	5.64	3.58	1.82	4.98	0.44	0.53	-4.01	2.23	1.05	0.49	1.56



Alt Model-Shift Uniqueness Test

012557553-01, P = 630.395760 Days, E = 207.529676 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	3.64	3.30	3.77	5.73	3.72	0.60	12.2	11.8	0.34	-0.13	2.12	1.20	0.20	5.80



Stellar Parameters For KIC 012557553

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4602^{+124}_{-138}	$4.559^{+0.060}_{-0.024}$	$0.200^{+0.200}_{-0.300}$	$0.746^{+0.031}_{-0.062}$	$0.734^{+0.053}_{-0.053}$	$2.494^{+0.628}_{-0.192}$
	+3%/-3%	+1%/-1%	+100%/-150%	+4%/-8%	+7%/-7%	+25%/-8%
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 012557553-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-937 ± 101	$3.38^{+0.51}_{-0.54}$	214^{+6}_{-7}	4091^{+300}_{-240}	77049^{+32647}_{-20188}
Alt.	-375 ± 103	$3.63^{+0.59}_{-0.55}$	213^{+7}_{-7}	3405^{+245}_{-232}	25453^{+14340}_{-8533}

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

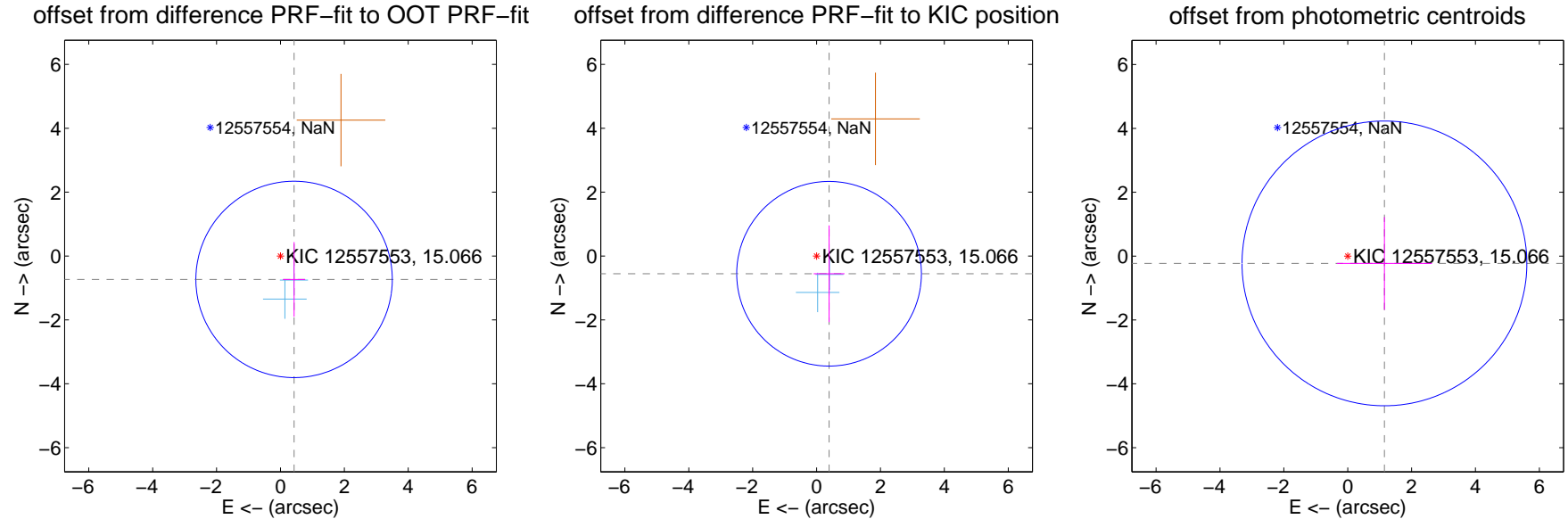
DV Centroid Data

Supplemental centroid analysis for 012557553-01. Kepler magnitude: 15.07. Transit SNR 6.49

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.848 ± 1.025	0.83	-0.426 ± 0.346	-0.733 ± 1.169
PRF-fit source offset from KIC position	0.679 ± 0.964	0.70	-0.391 ± 0.483	-0.555 ± 1.512
photometric centroid source offset	1.17 ± 1.49	0.79	-1.15 ± 1.49	-0.23 ± 1.45



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.

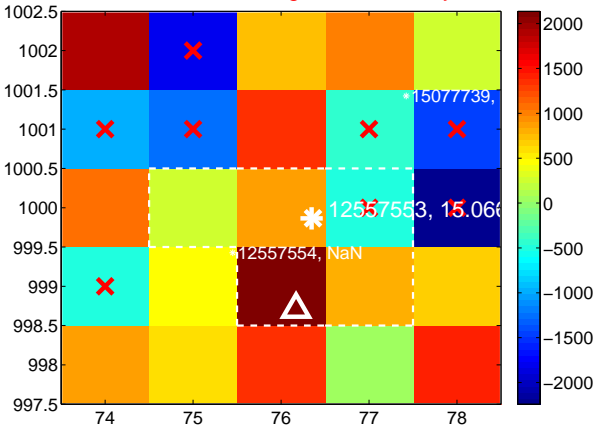
Q1 no difference image



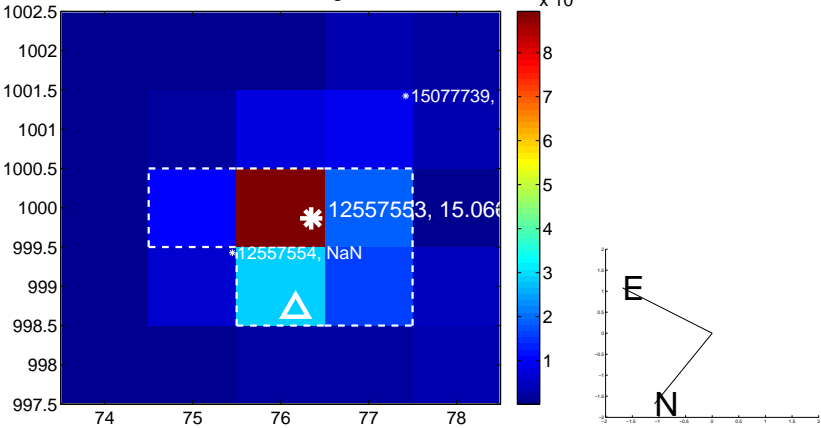
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



Q3 no OOT image



Q4 no difference image



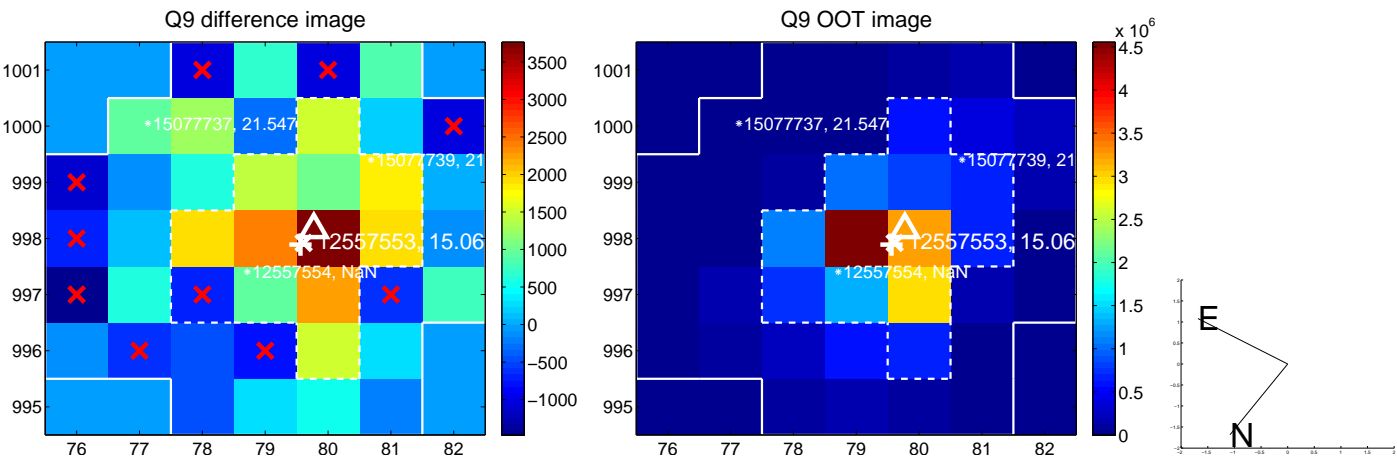
Q4 no OOT image



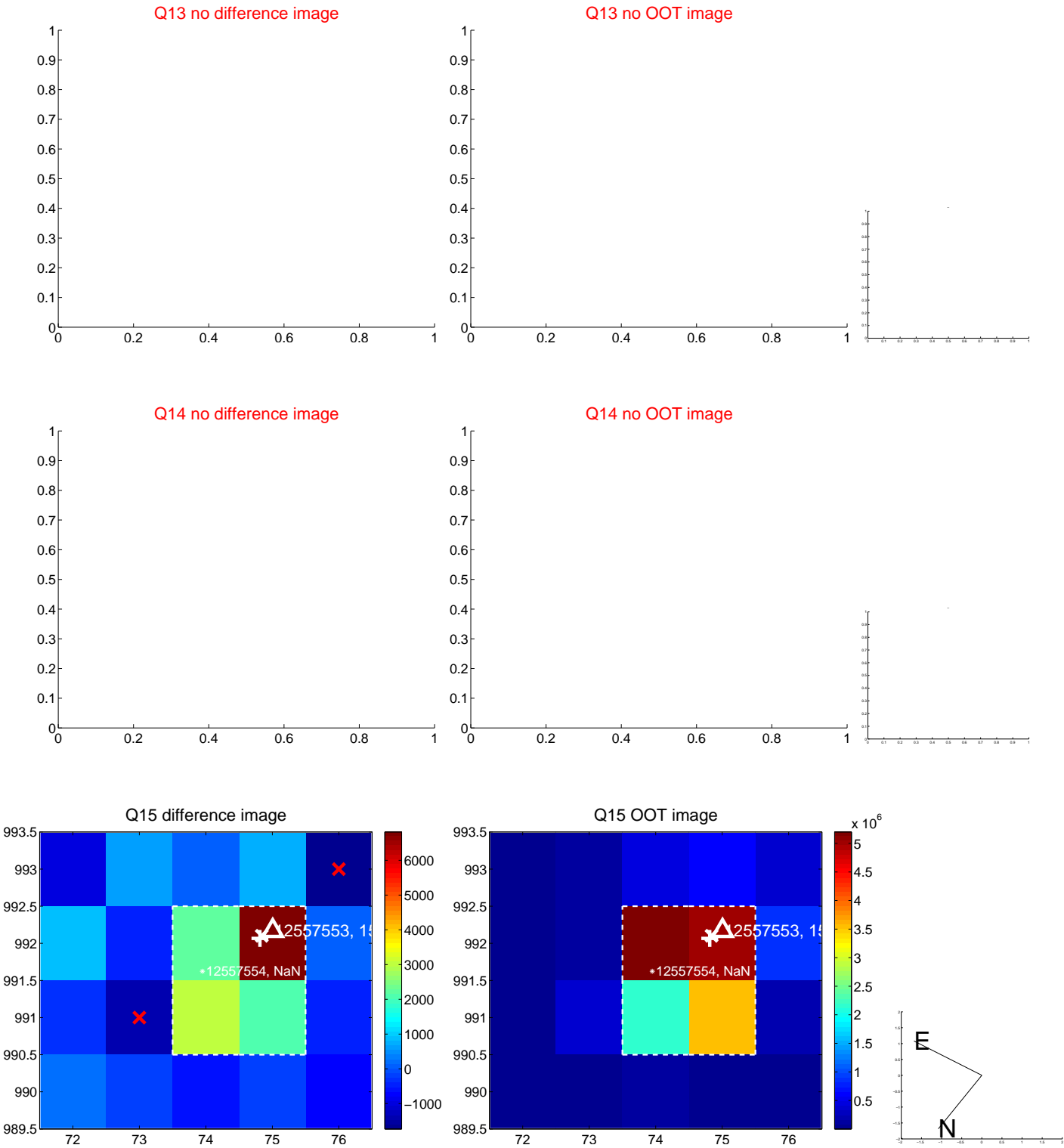
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



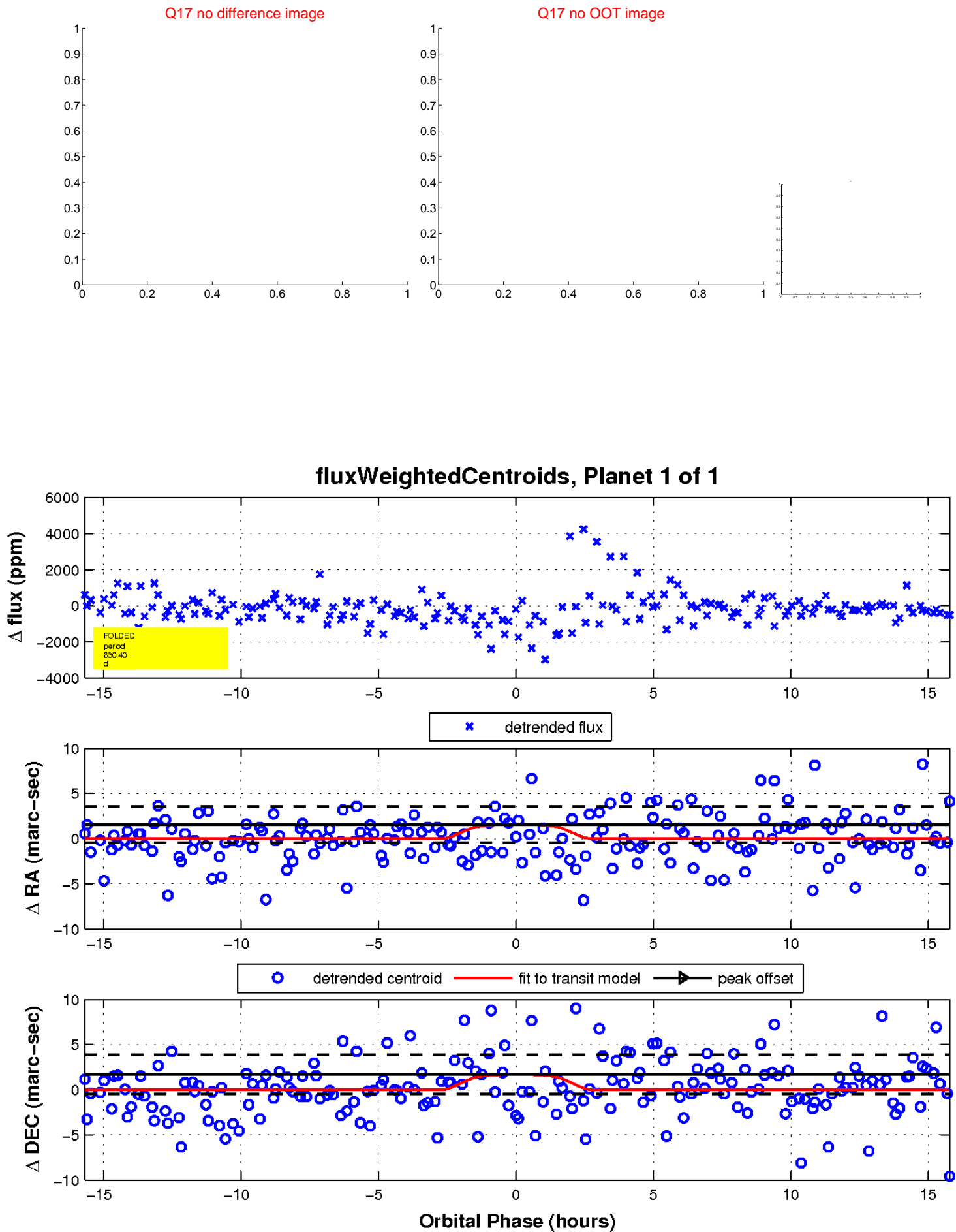
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

