

KIC 008546551

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})
008546551-01	OBS	No	369.778006	231.919366	1852.1	16.762	10.0	11.6	0.82	5520	5.01	0.58
008546551-02	OBS	No	371.494922	224.232118	1217.9	10.019	8.2	8.4	0.82	5520	3.10	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008546551-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008546551-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—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.

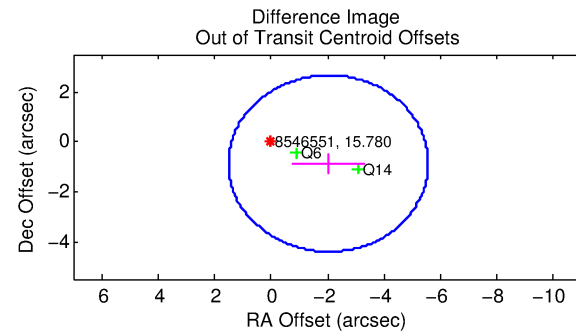
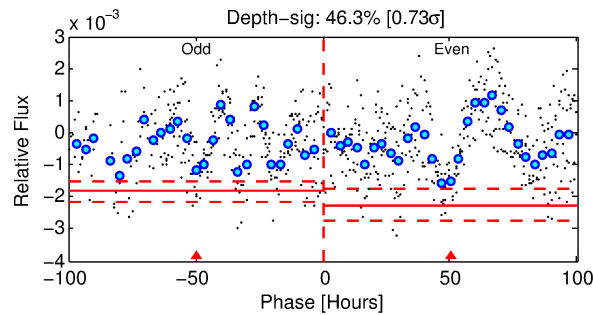
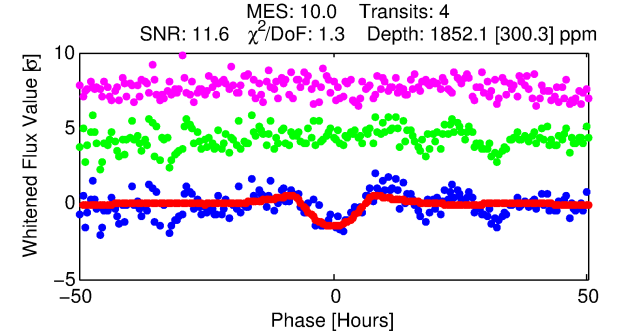
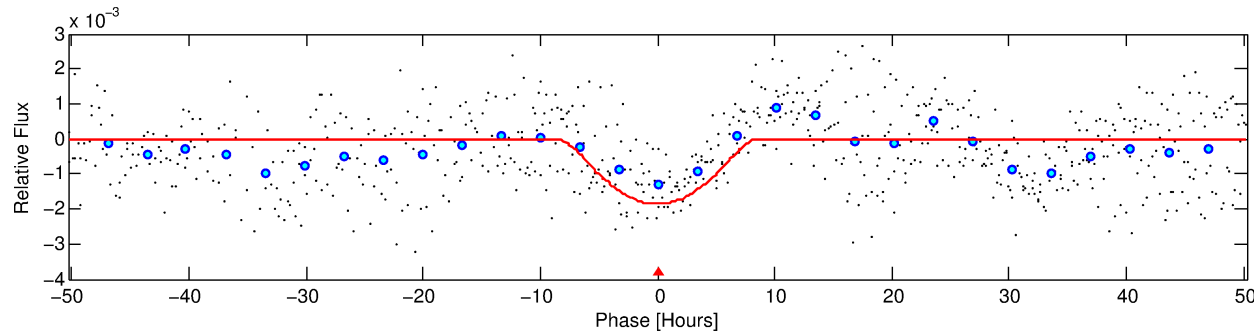
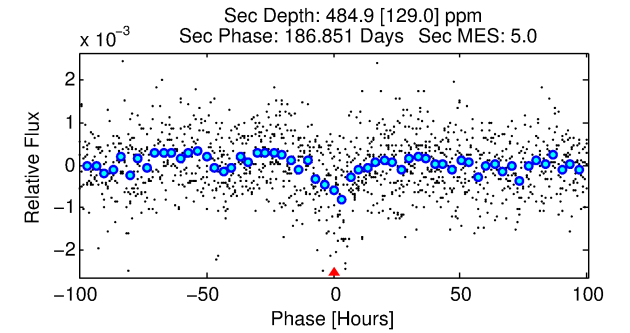
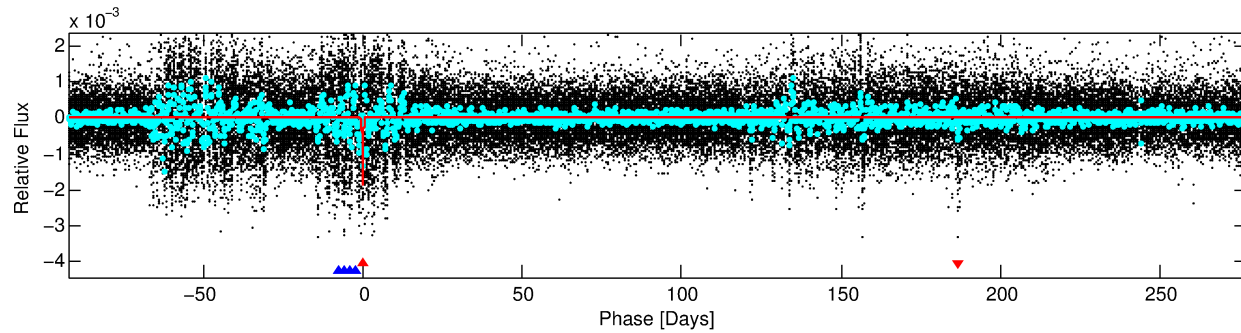
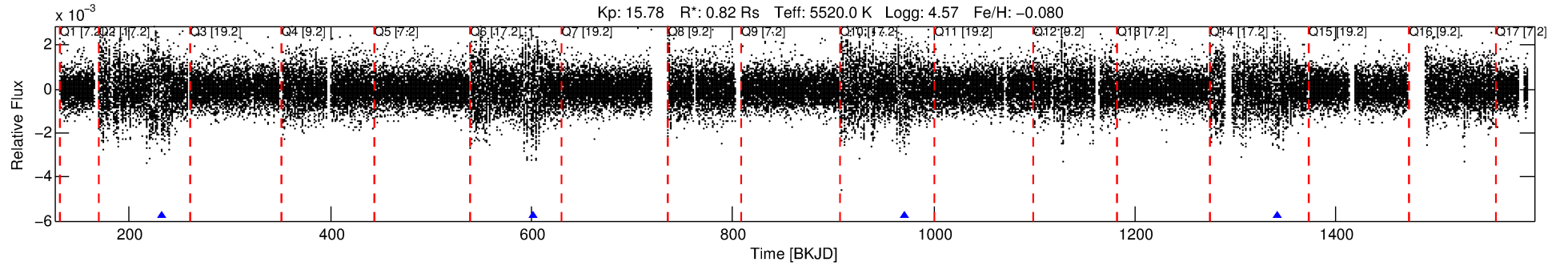
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008546551-01

No Significant Match Found

DV One-Page Summary

KIC: 8546551 Candidate: 1 of 2 Period: 369.778 d



DV Fit Results:

Period = 369.77801 [0.01452] d
Epoch = 231.9194 [0.0269] BKJD
Rp/R* = 0.0561 [0.0360]
a/R* = 72.25 [21.42]
b = 0.97 [0.08]
Seff = 0.58 [0.16]
Teq = 223 [15] K
Rp = 5.01 [3.37] Re
a = 0.9776 [0.1658] AU
Ag = 10163.09 [13550.43] [0.75σ]
Teffp = 3458 [1137] K [2.84σ]

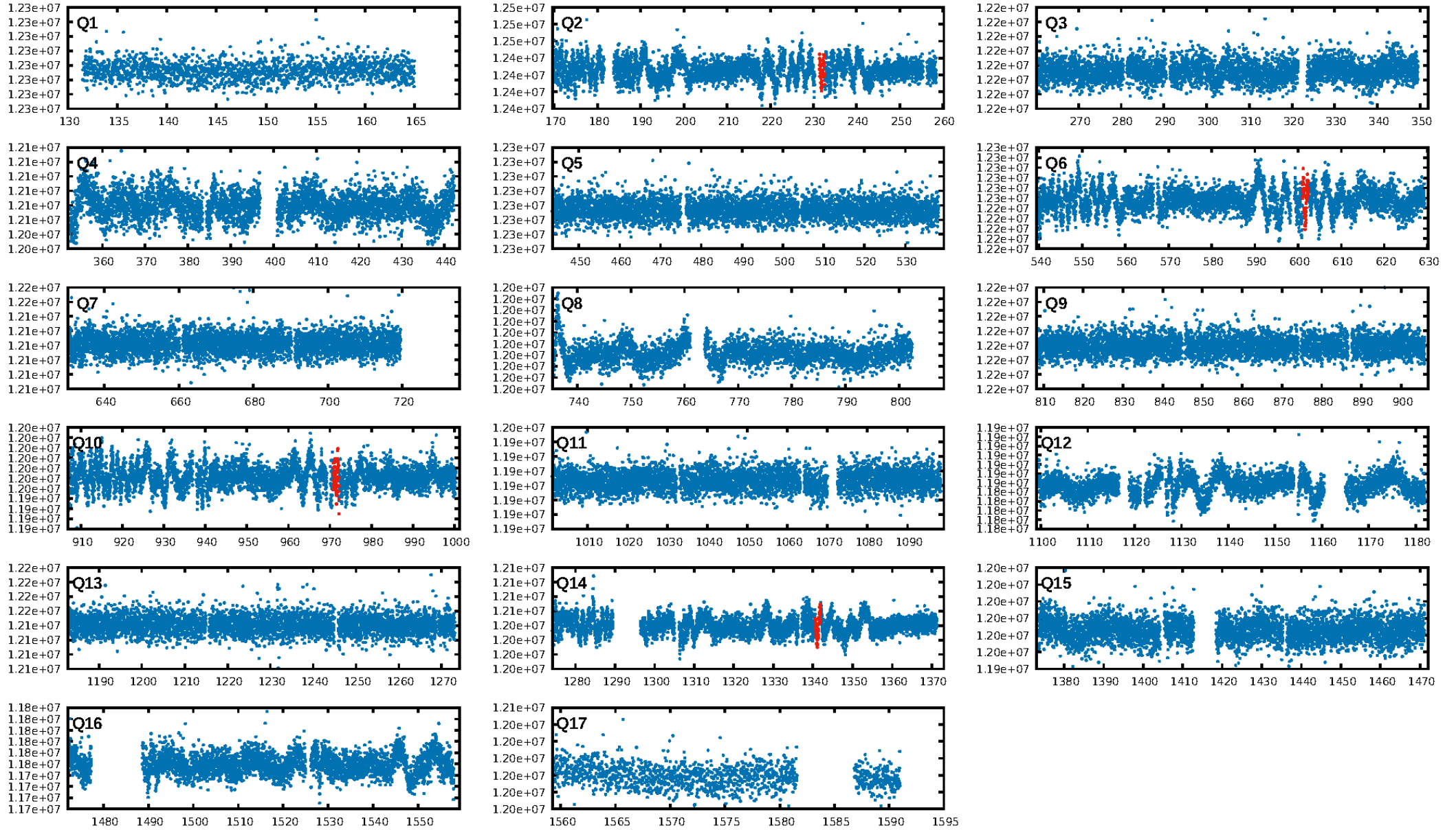
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 96.5% [2.11σ]
ModelChiSquare2-sig: 26.2%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 2.25e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 19
Centroid-sig: 15.9%
Centroid-so: 1.968 arcsec [1.16σ]
OotOffset-rm: 2.209 arcsec [1.87σ]
KicOffset-rm: 2.285 arcsec [1.86σ]
OotOffset-st: 2/0/0/0 [2]
KicOffset-st: 2/0/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

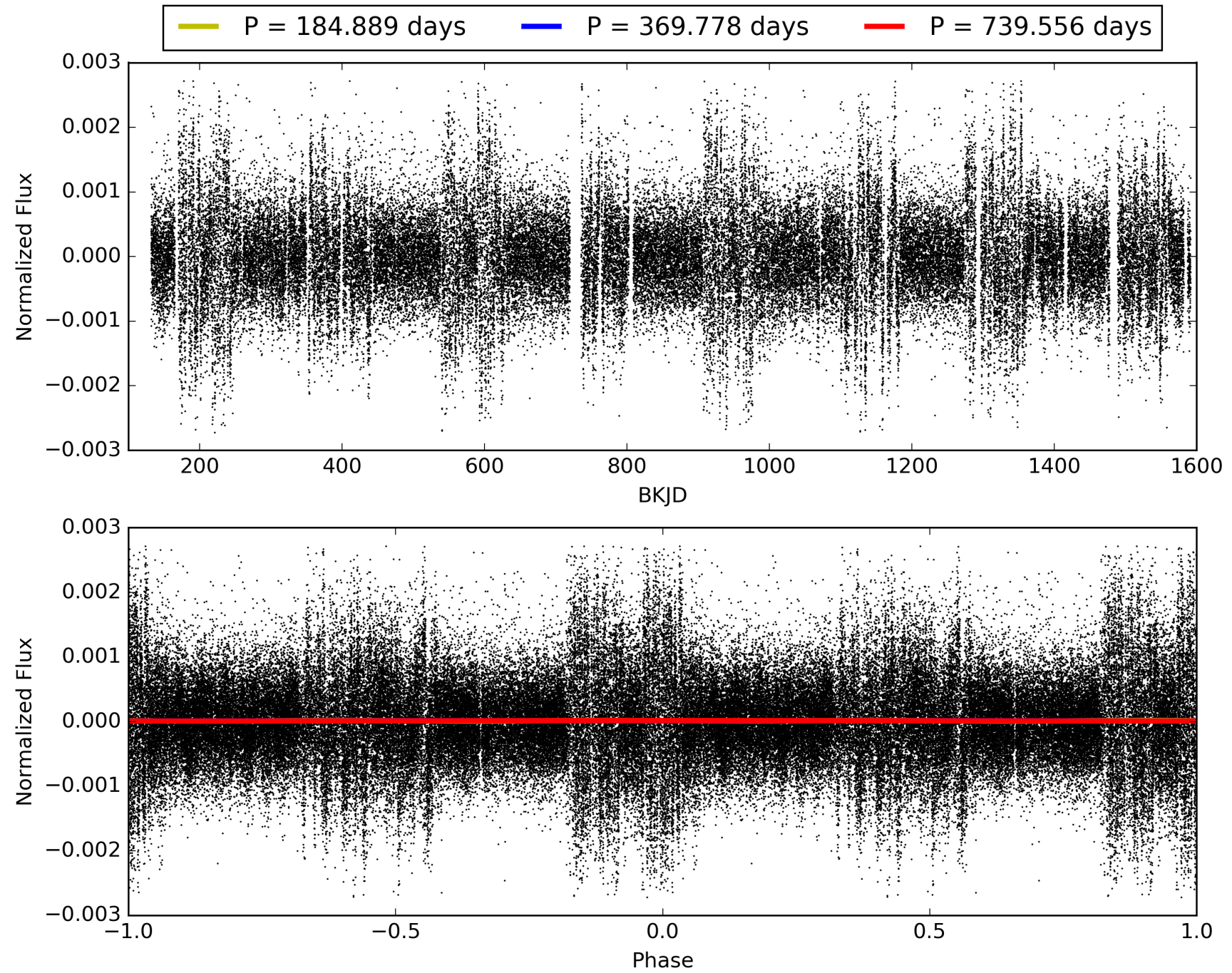
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:04:41 Z

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

TCE 008546551-01, PDC Light Curves

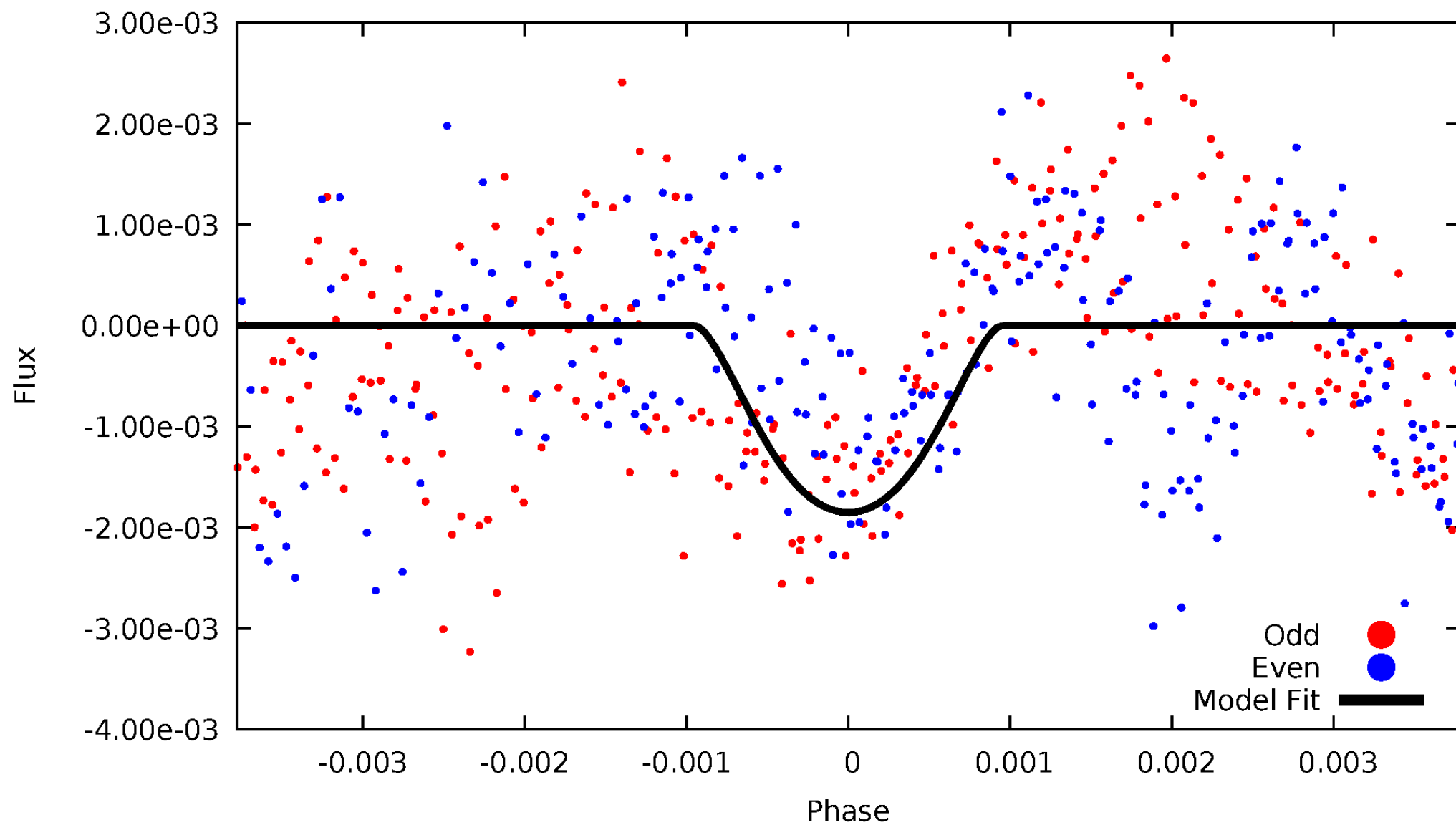


TCE 008546551-01



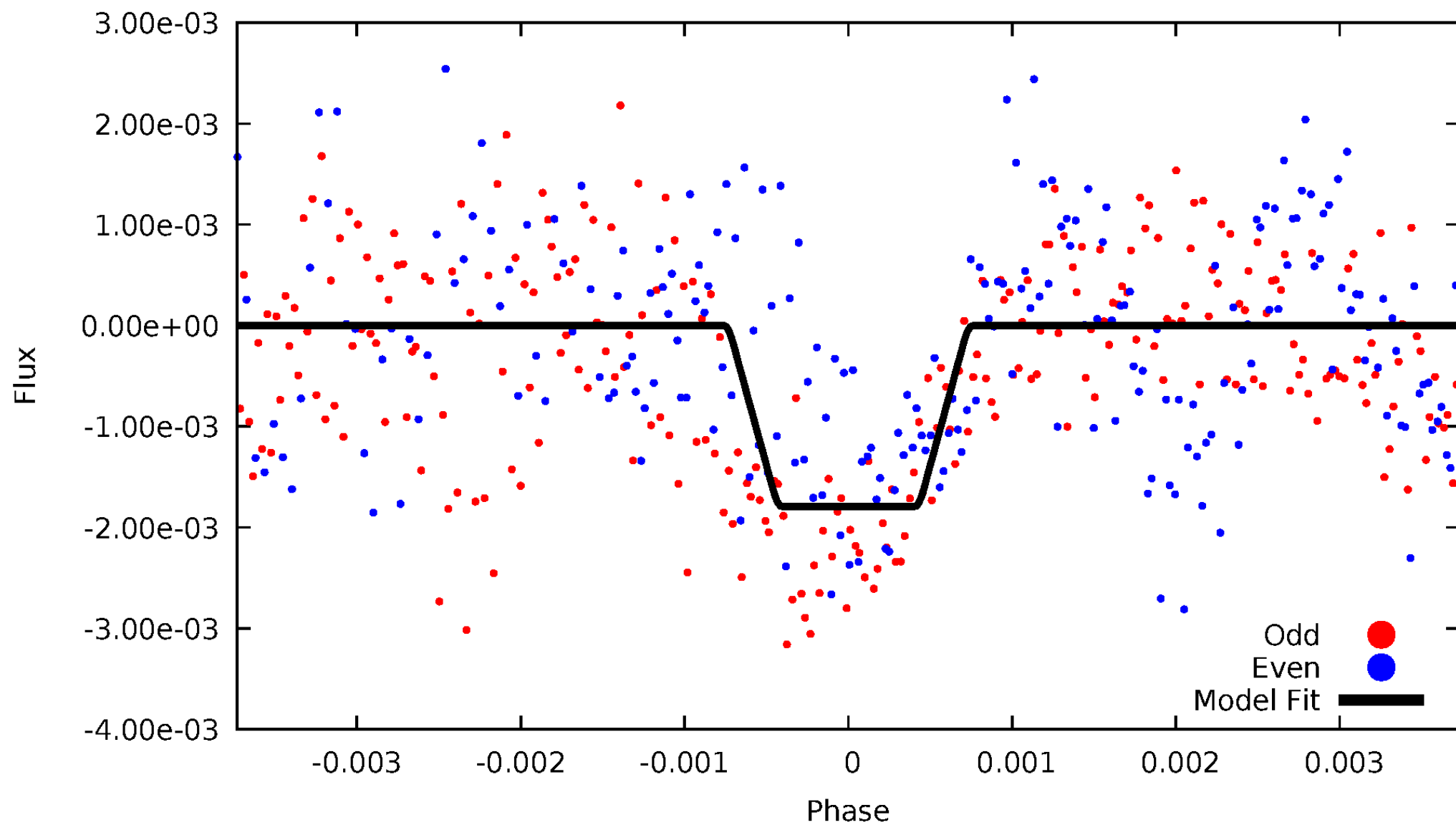
DV Odd/Even

TCE 008546551-01



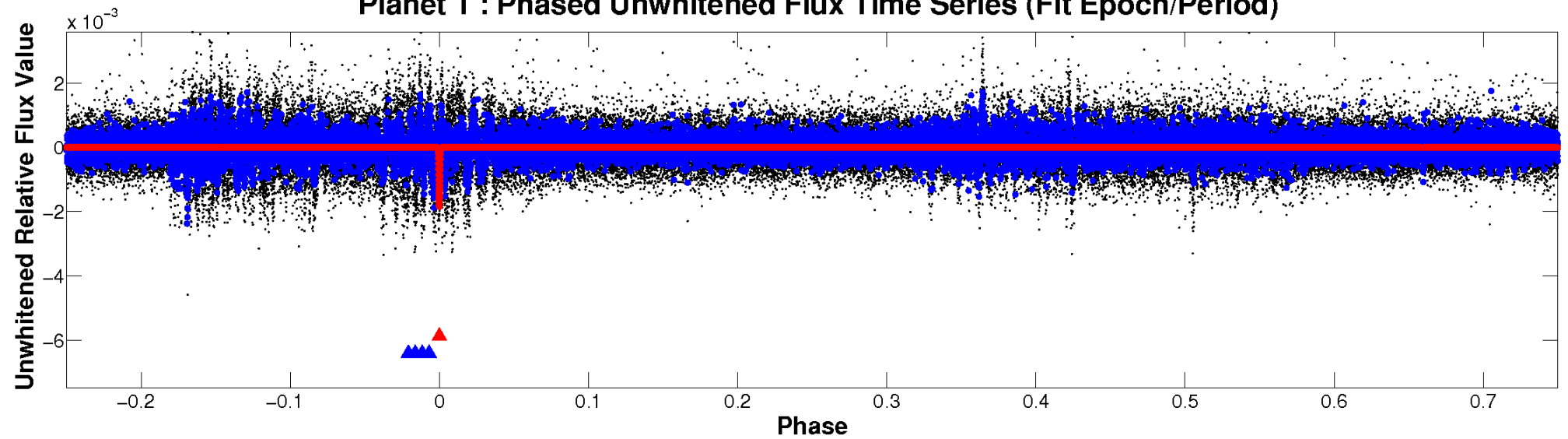
ALT Odd/Even

TCE 008546551-01

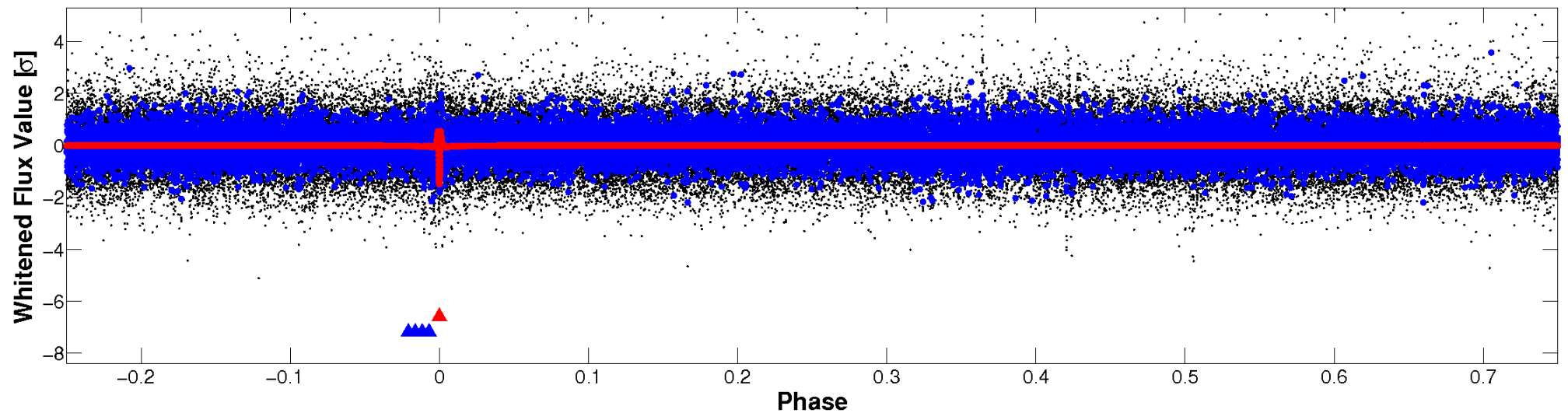


Non-Whitened Vs. Whitened Light Curve

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

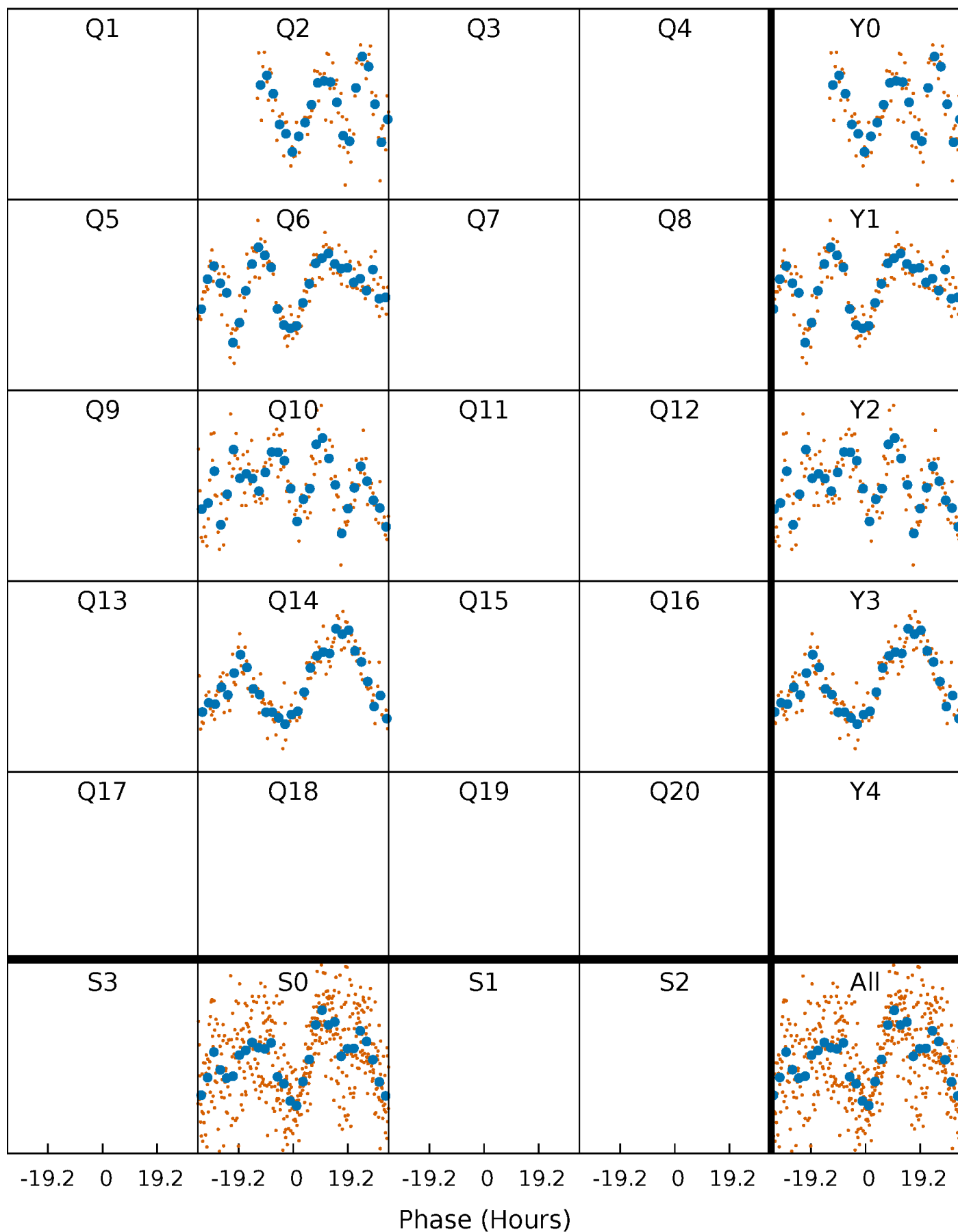


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



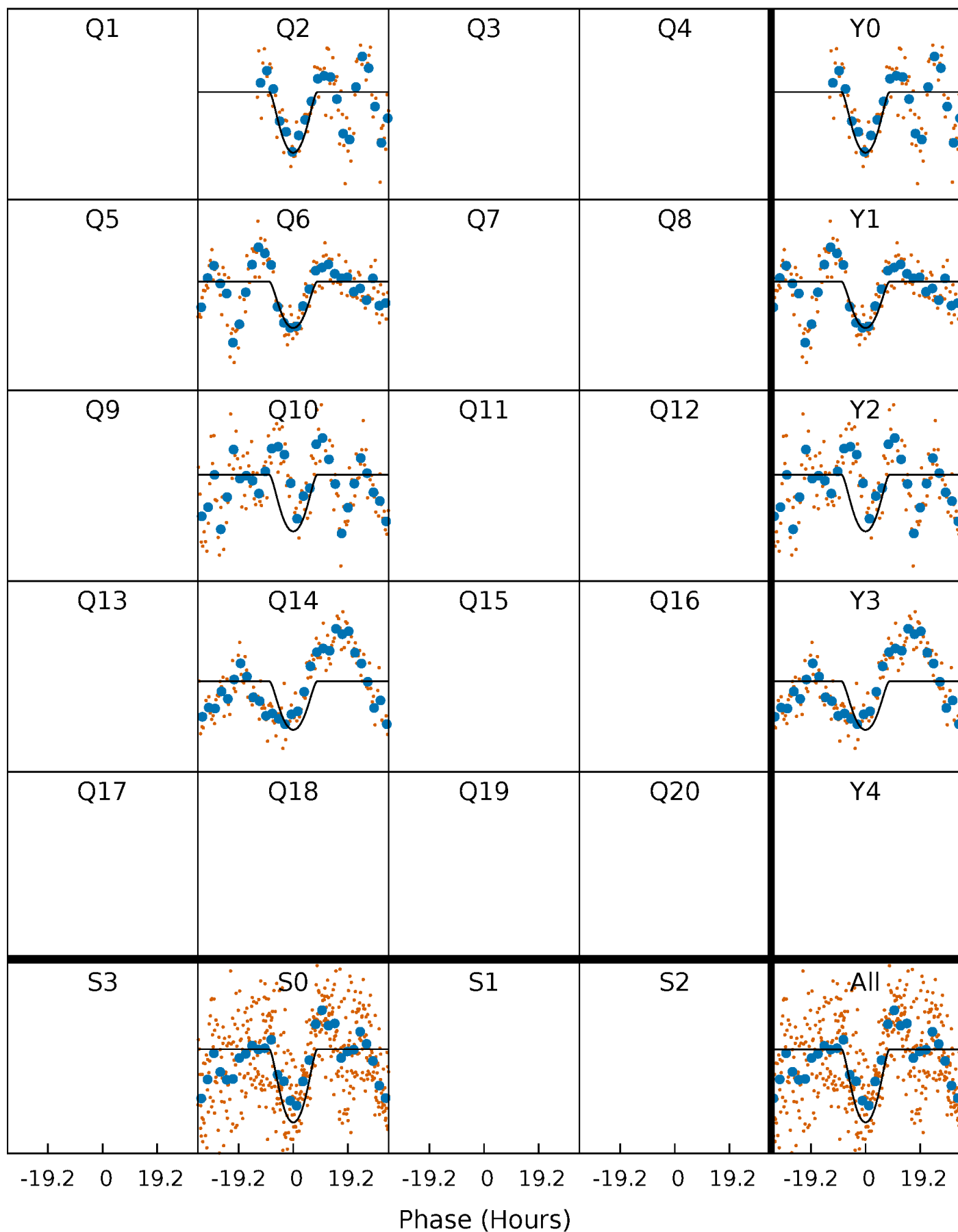
PDC Quarter-Phased Transit Curves

TCE 008546551-01 P=369.778006 Days $T_0=231.919366$ (BKJD)



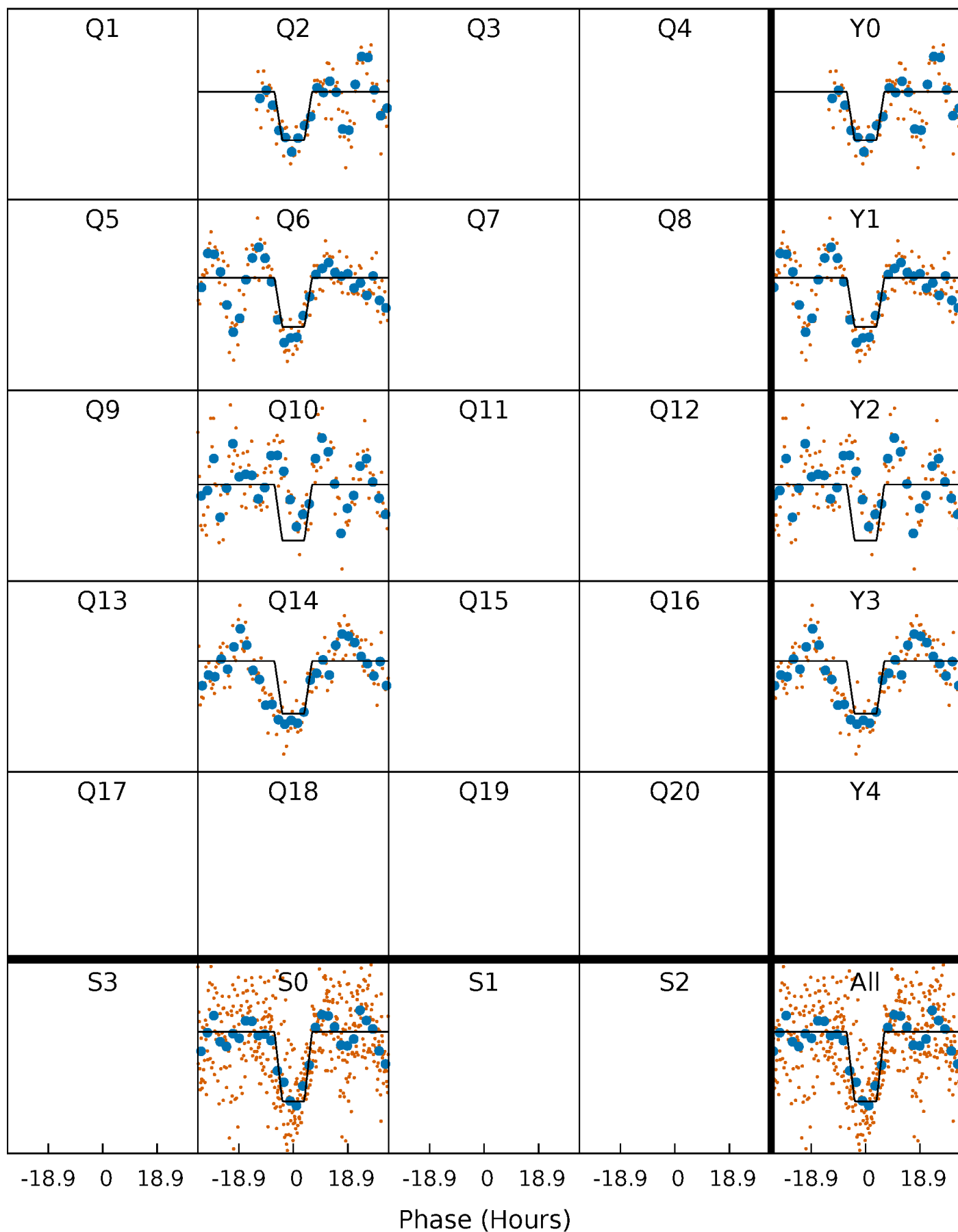
DV Quarter-Phased Transit Curves

TCE 008546551-01 P=369.778006 Days $T_0=231.919366$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

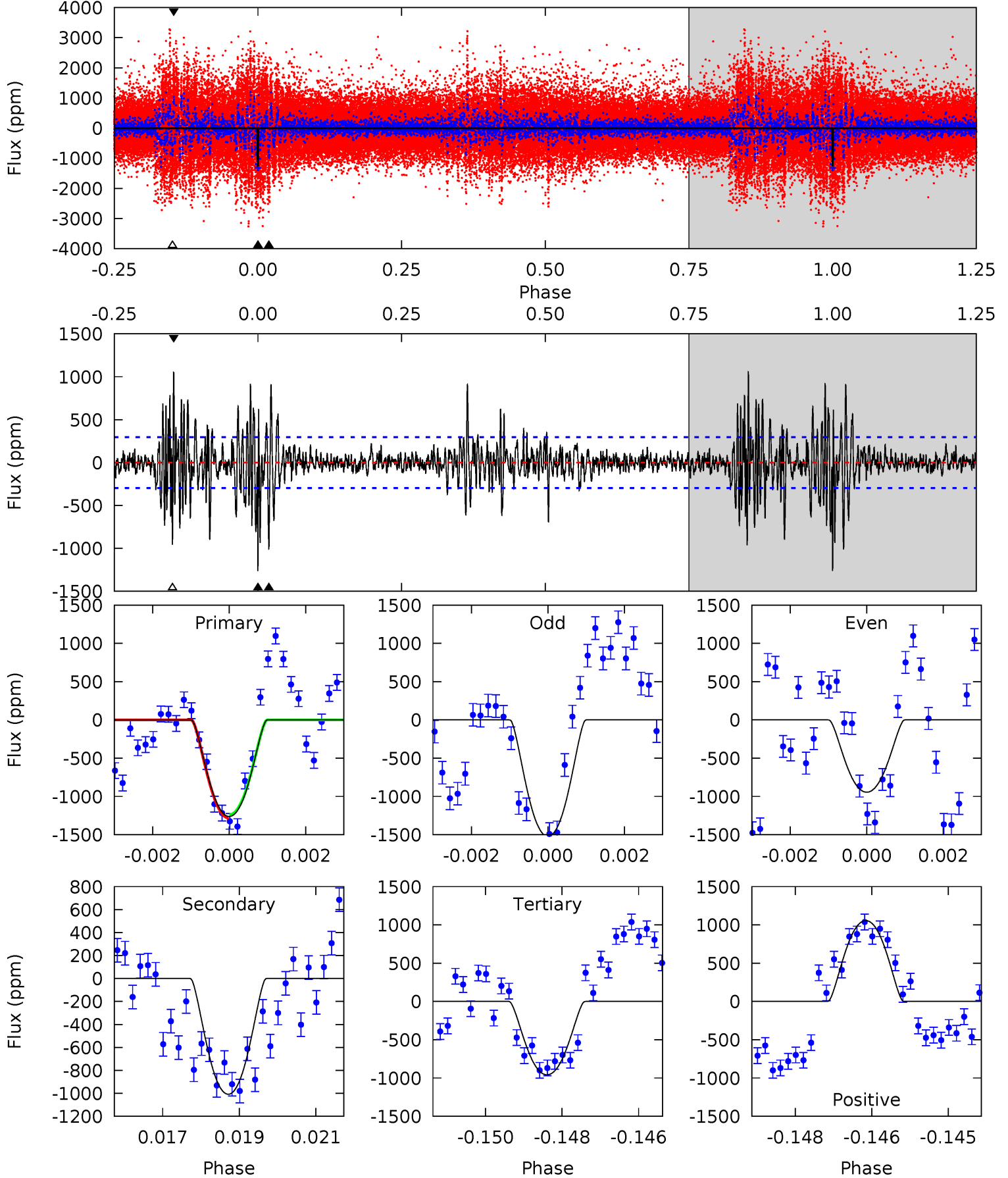
TCE 008546551-01 P=369.772513 Days $T_0=231.922336$ (BKJD)



DV Model-Shift Uniqueness Test

008546551-01, P = 369.778006 Days, E = 231.919366 Days

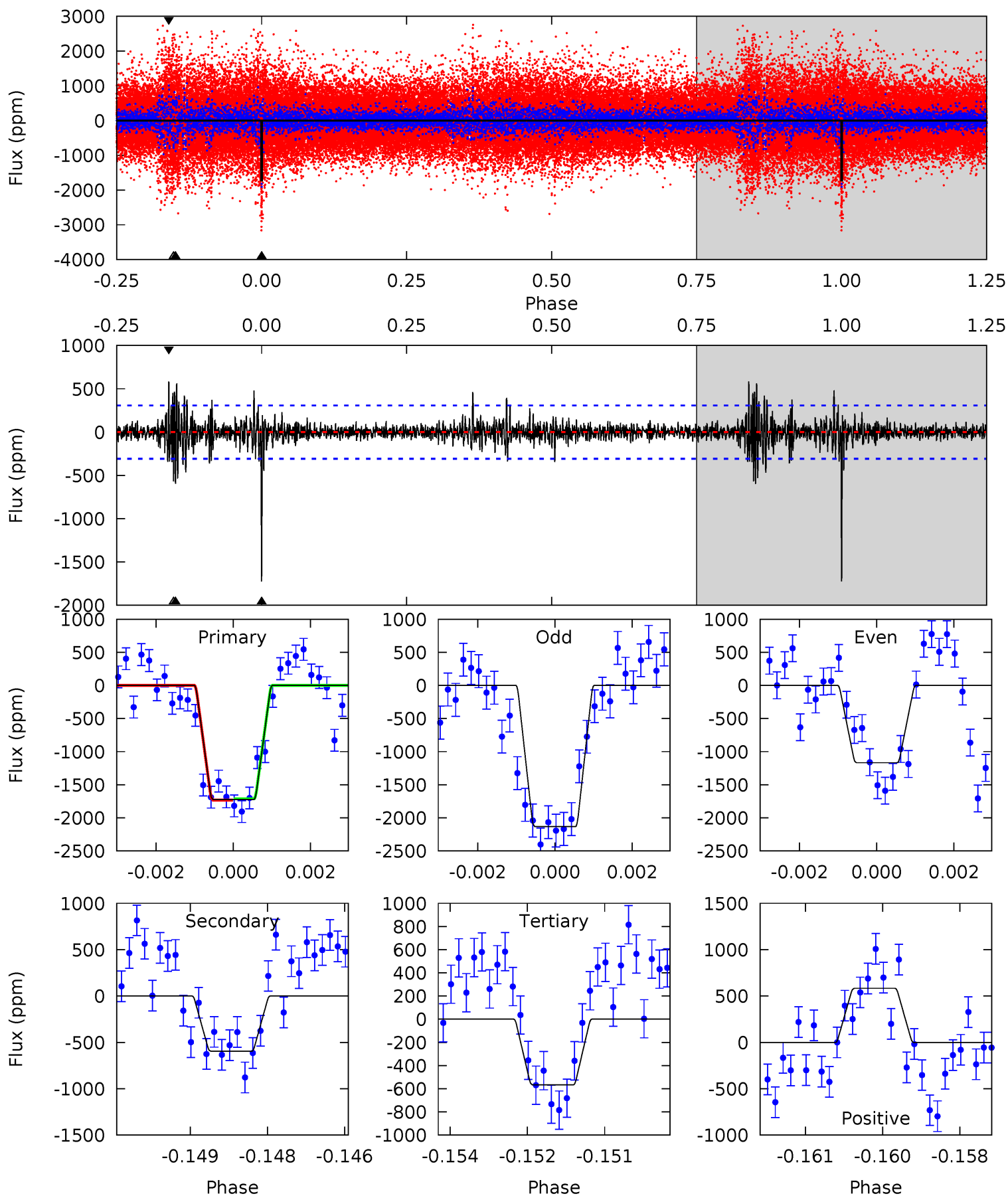
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	18.1	17.2	19.0	5.33	3.10	3.52	5.46	3.70	0.90	-0.86	5.19	0.88	0.46	0.40



Alt Model-Shift Uniqueness Test

008546551-01, P = 369.772513 Days, E = 231.922336 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.1	10.4	9.91	10.2	5.38	3.17	1.53	20.2	19.9	0.51	0.23	8.59	0.84	0.25	0.17



Stellar Parameters For KIC 008546551

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5520^{+149}_{-166}	$4.572^{+0.034}_{-0.136}$	$-0.080^{+0.300}_{-0.300}$	$0.818^{+0.164}_{-0.070}$	$0.917^{+0.083}_{-0.102}$	$2.358^{+0.422}_{-0.915}$
	+3%/-3%	+1%/-3%	+375%/-375%	+20%/-9%	+9%/-11%	+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 008546551-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1008 ± 56	$5.40^{+3.33}_{-2.82}$	316^{+17}_{-13}	4276^{+1587}_{-630}	17897^{+60915}_{-10978}
Alt.	-596 ± 57	$4.25^{+3.33}_{-2.51}$	316^{+16}_{-12}	4274^{+1962}_{-800}	16676^{+85355}_{-11298}

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

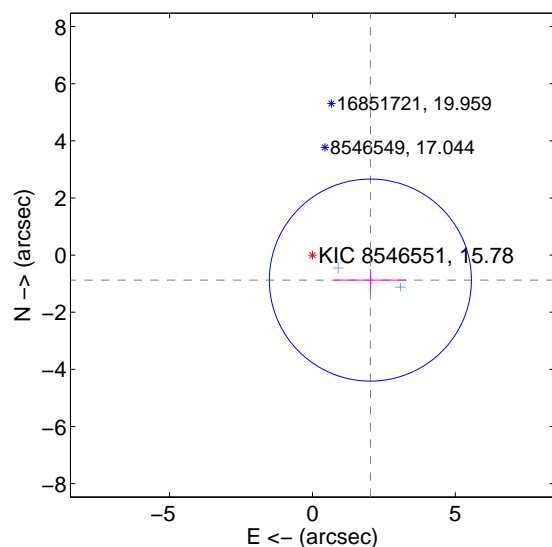
Supplemental centroid analysis for 008546551-01. Kepler magnitude: 15.78. Transit SNR 11.60

There are 2 quarters with good PRF difference image offsets

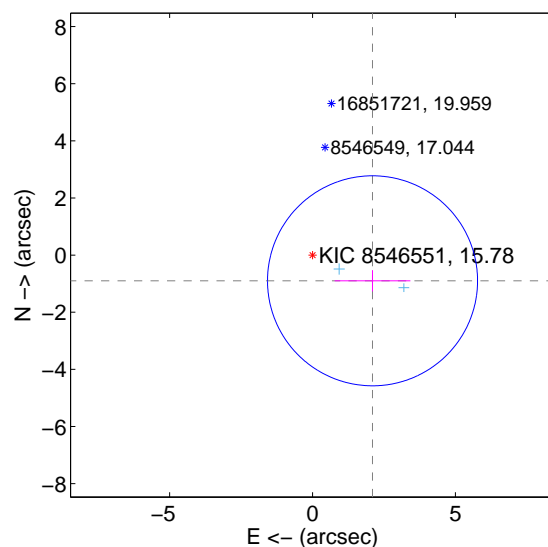
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.209 ± 1.179	1.87	-2.029 ± 1.273	-0.875 ± 0.384
PRF-fit source offset from KIC position	2.285 ± 1.225	1.86	-2.100 ± 1.323	-0.900 ± 0.374
photometric centroid source offset	1.97 ± 1.70	1.16	-1.35 ± 1.55	-1.43 ± 1.81

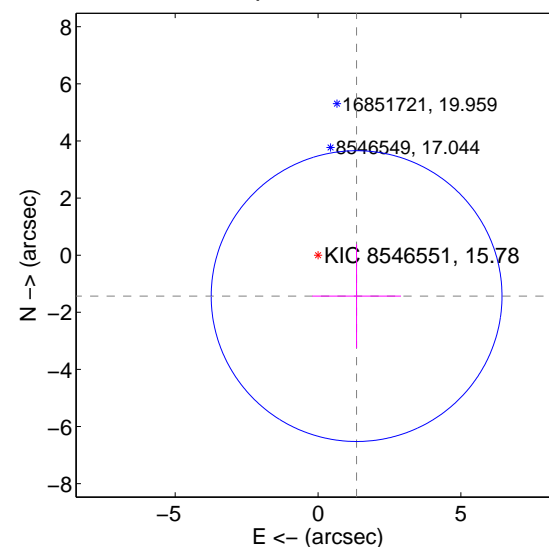
offset from difference PRF-fit to OOT PRF-fit



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

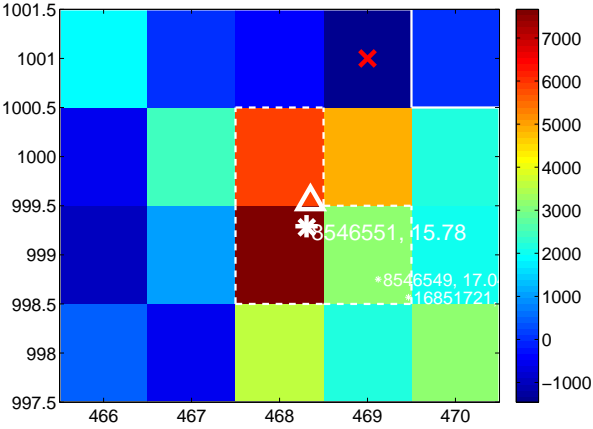
Q5 no difference image



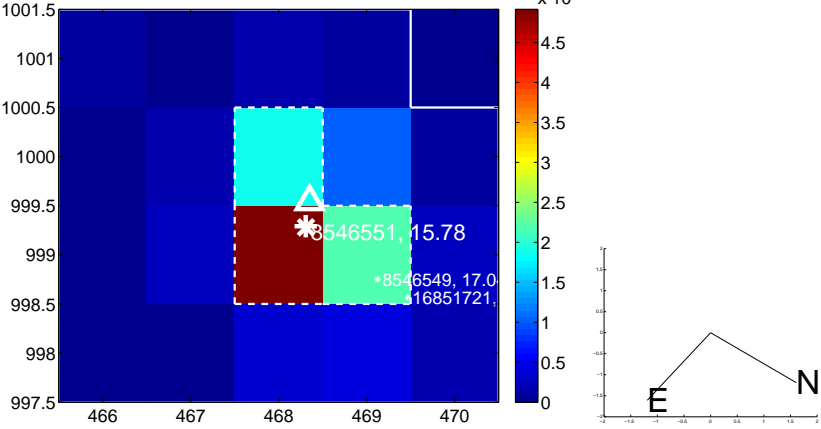
Q5 no OOT image



Q6 difference image



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image



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

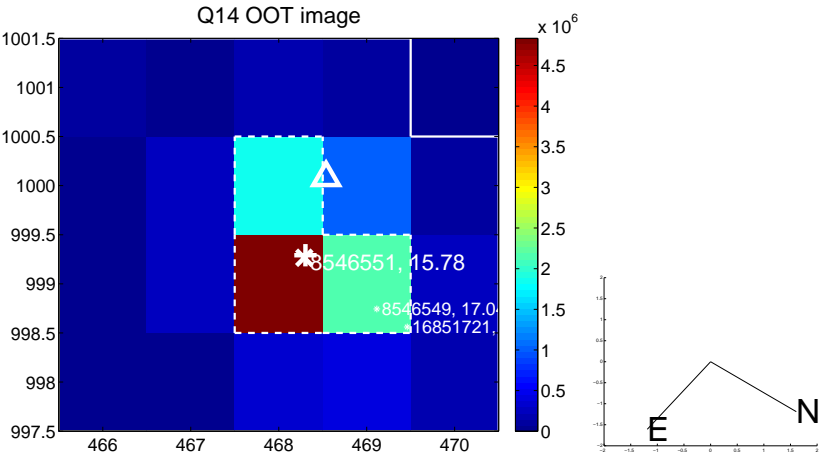
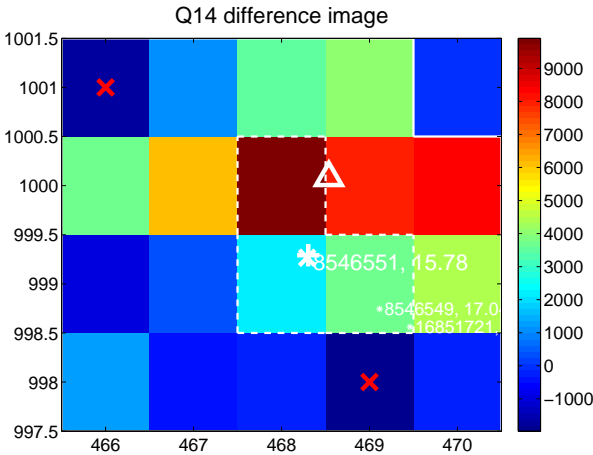


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

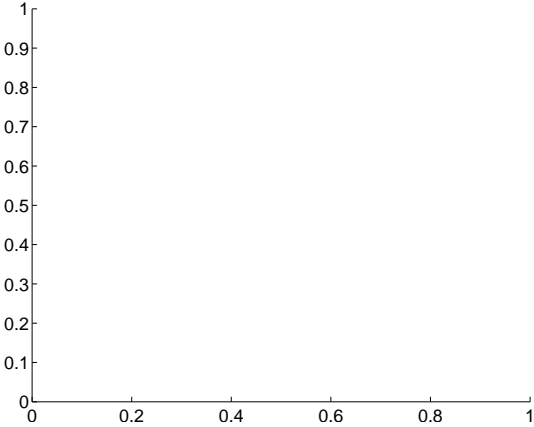
Q13 no difference image



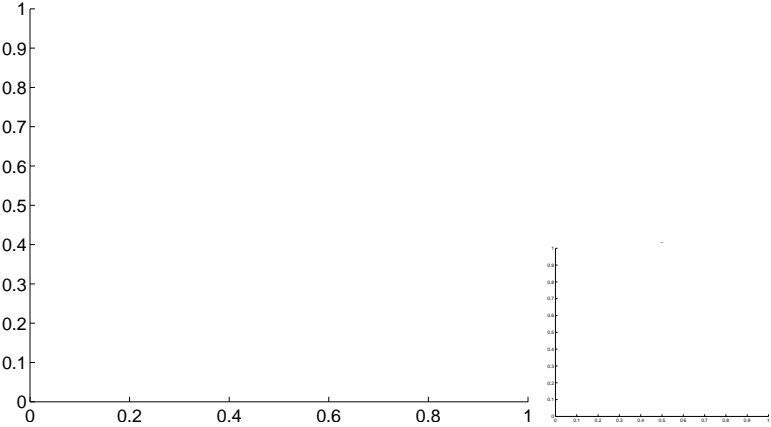
Q13 no OOT image



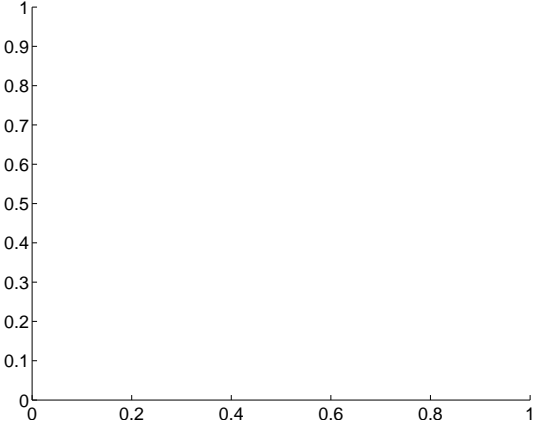
Q15 no difference image



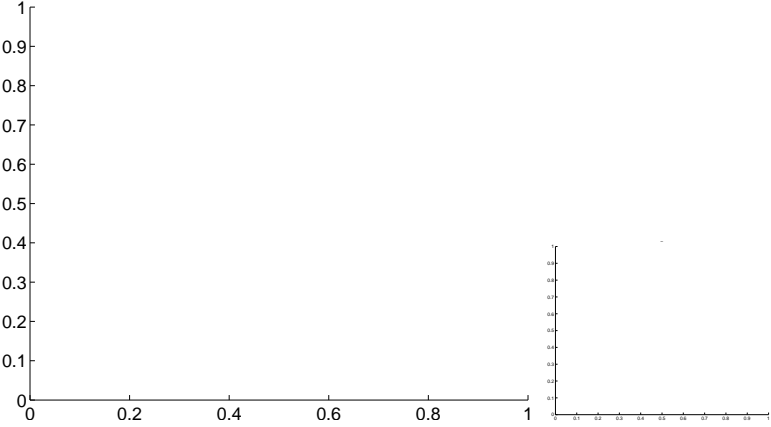
Q15 no OOT image



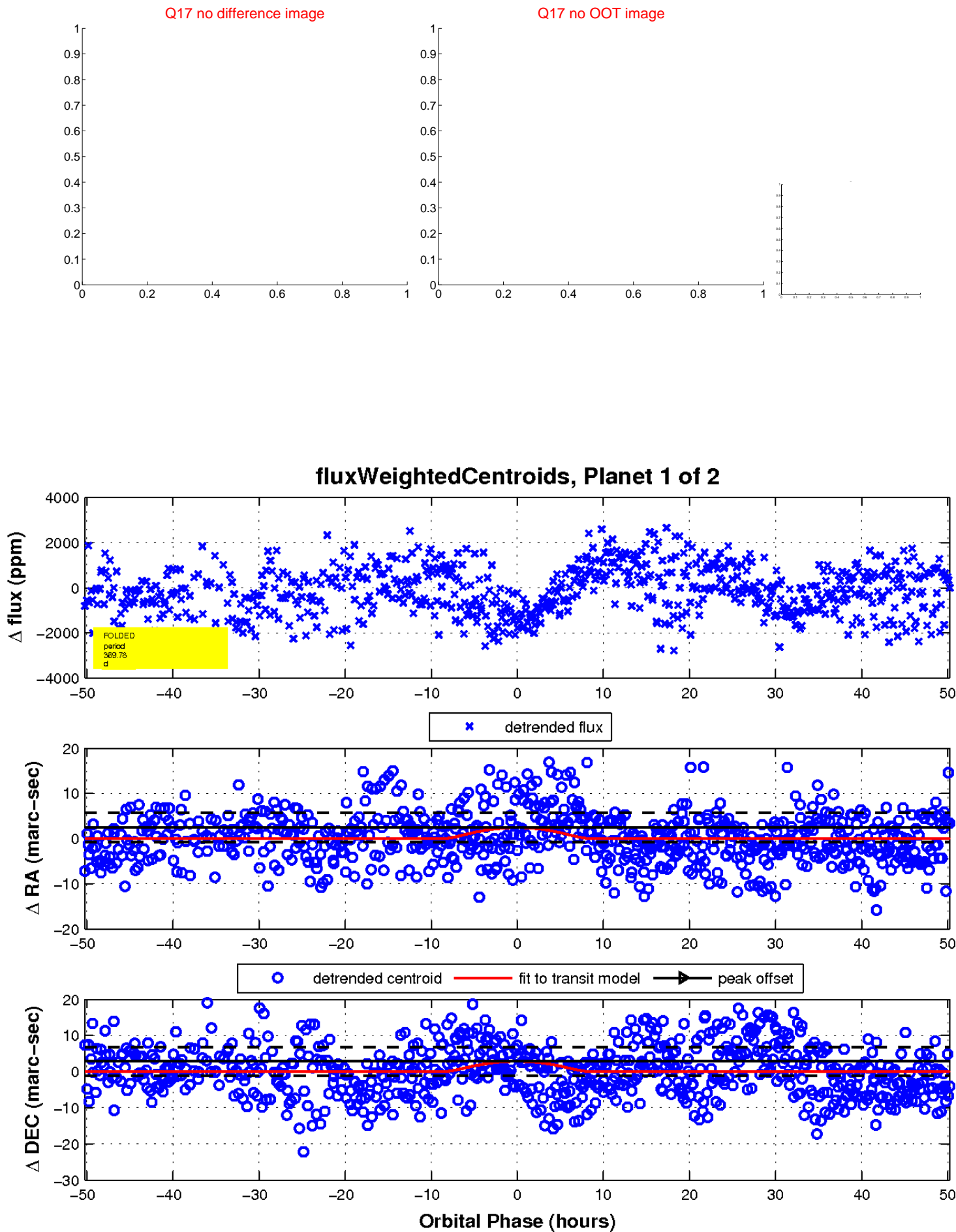
Q16 no difference image



Q16 no OOT image

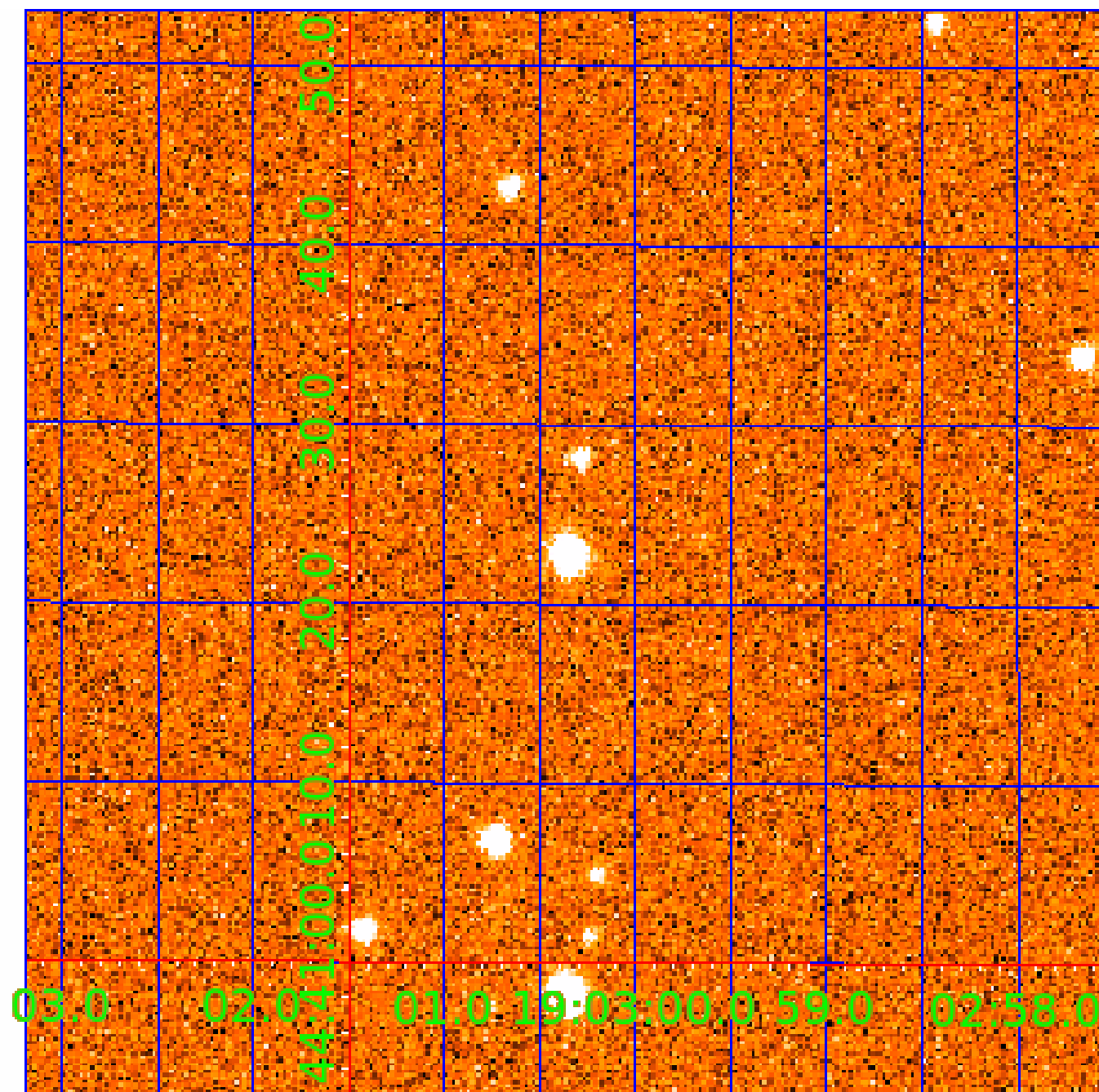


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008546551

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})
008546551-01	OBS	No	369.778006	231.919366	1852.1	16.762	10.0	11.6	0.82	5520	5.01	0.58
008546551-02	OBS	No	371.494922	224.232118	1217.9	10.019	8.2	8.4	0.82	5520	3.10	0.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008546551-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008546551-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—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.

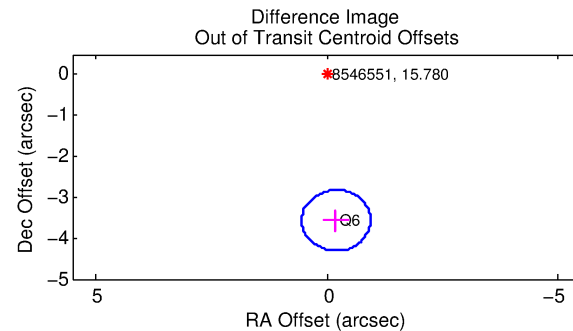
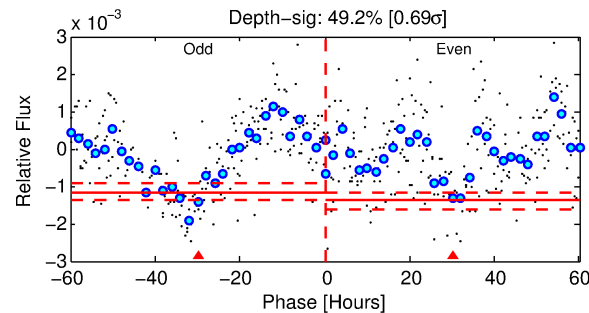
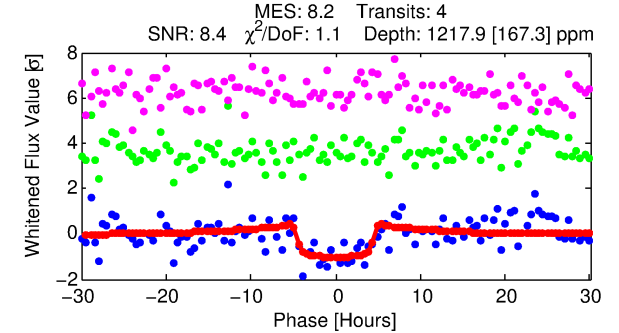
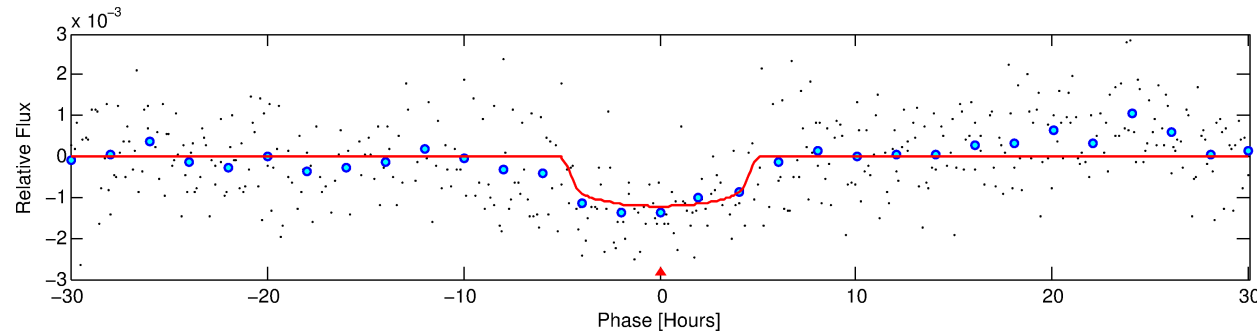
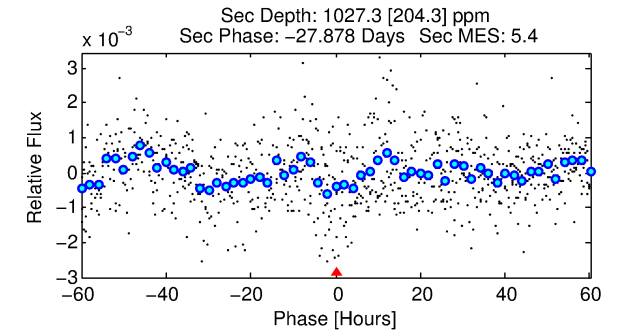
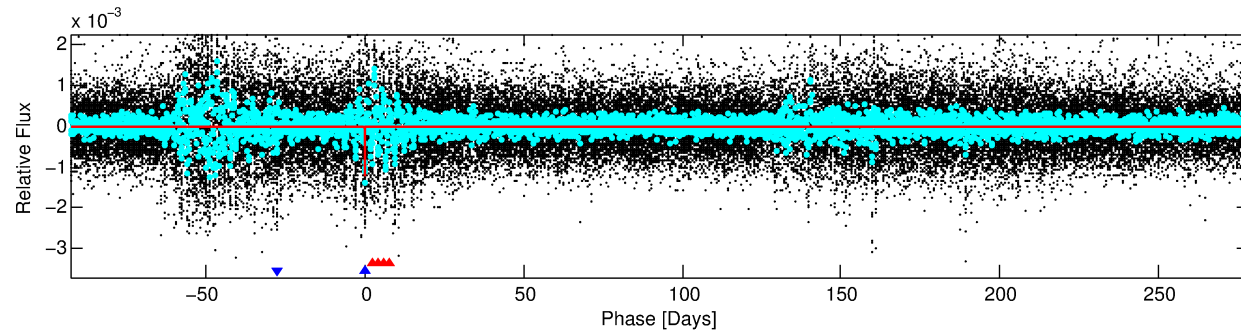
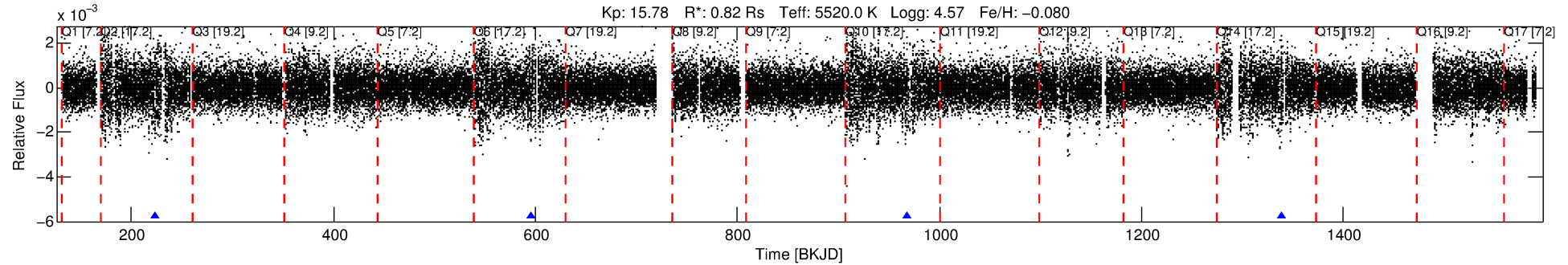
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008546551-02

No Significant Match Found

DV One-Page Summary

KIC: 8546551 Candidate: 2 of 2 Period: 371.495 d



DV Fit Results:

Period = 371.49492 [0.00821] d
Epoch = 224.2321 [0.0156] BKJD
Rp/R* = 0.0348 [0.0095]
a/R* = 202.11 [213.37]
b = 0.75 [0.63]
Seff = 0.58 [0.16]
Teq = 222 [15] K
Rp = 3.10 [1.05] Re
a = 0.9806 [0.1663] AU
Ag = 56481.52 [35618.24] [1.59σ]
Teff = 5301 [785] K [6.47σ]

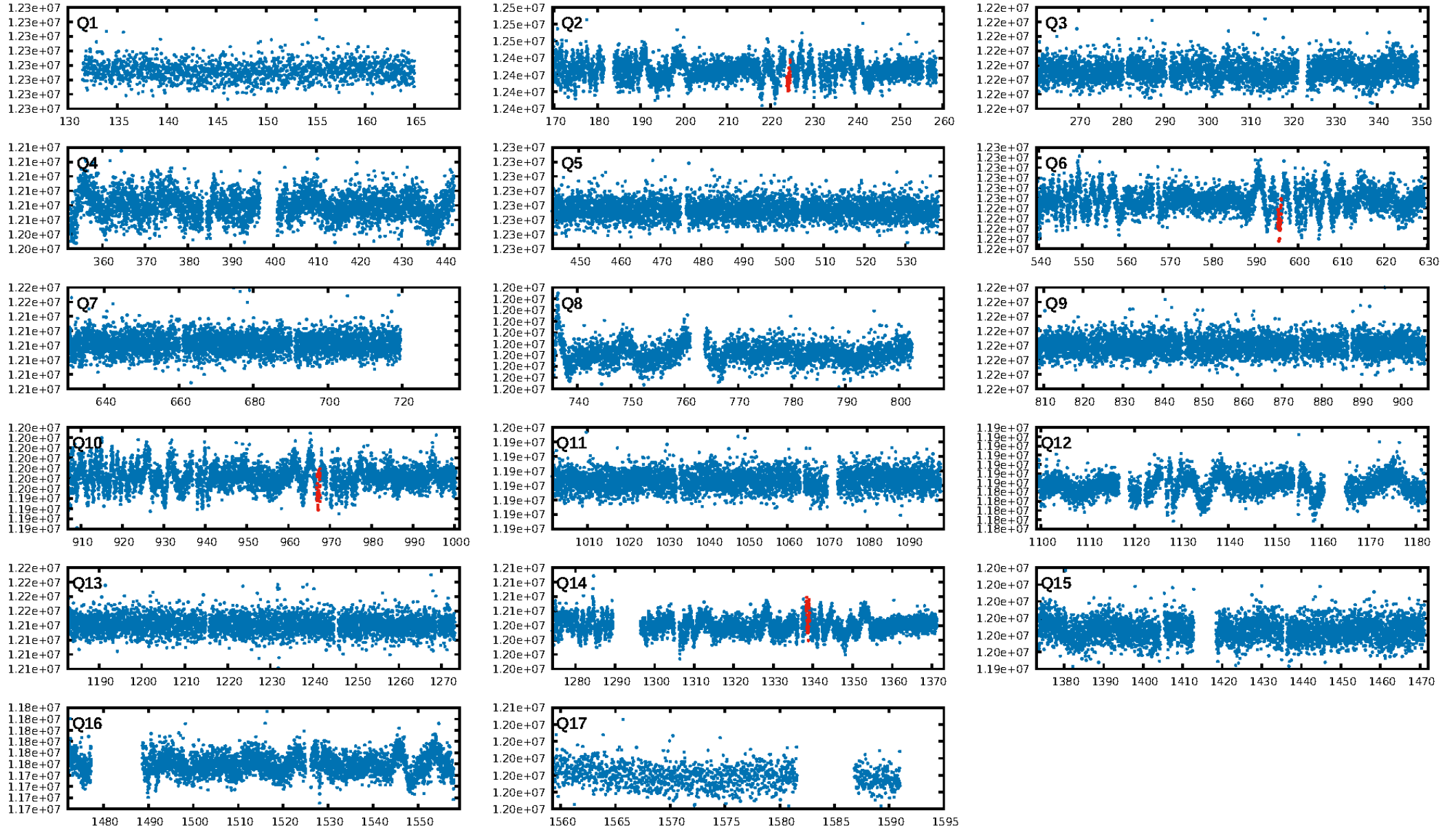
DV Diagnostic Results:

ShortPeriod-sig: 96.5% [2.11σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 84.2%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.28e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 8.803
Centroid-sig: 5.7%
Centroid-so: 3.090 arcsec [1.27σ]
OotOffset-rm: 3.571 arcsec [14.40σ]
KicOffset-rm: 3.604 arcsec [14.53σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [1/1]

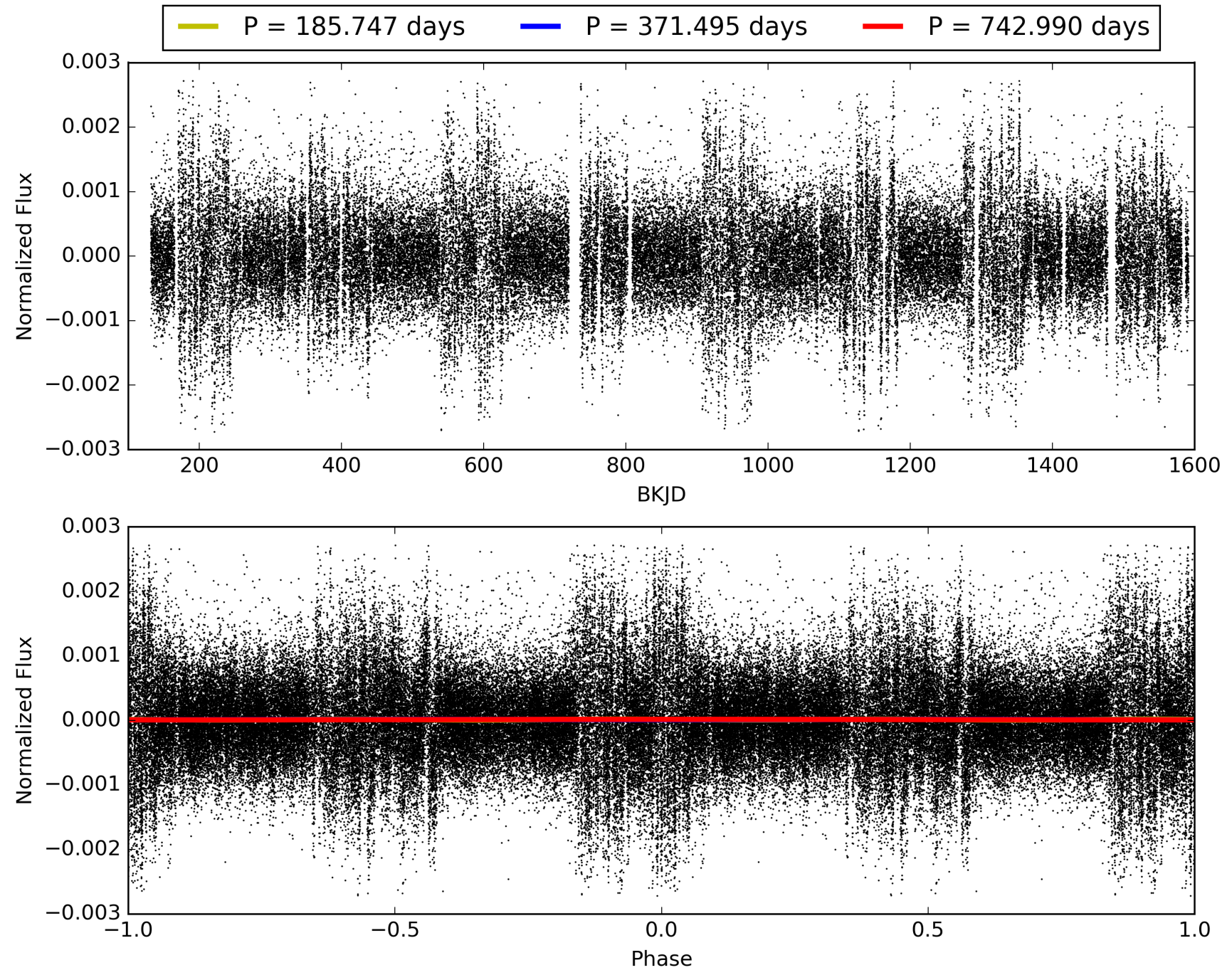
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 02:04:50 Z

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

TCE 008546551-02, PDC Light Curves

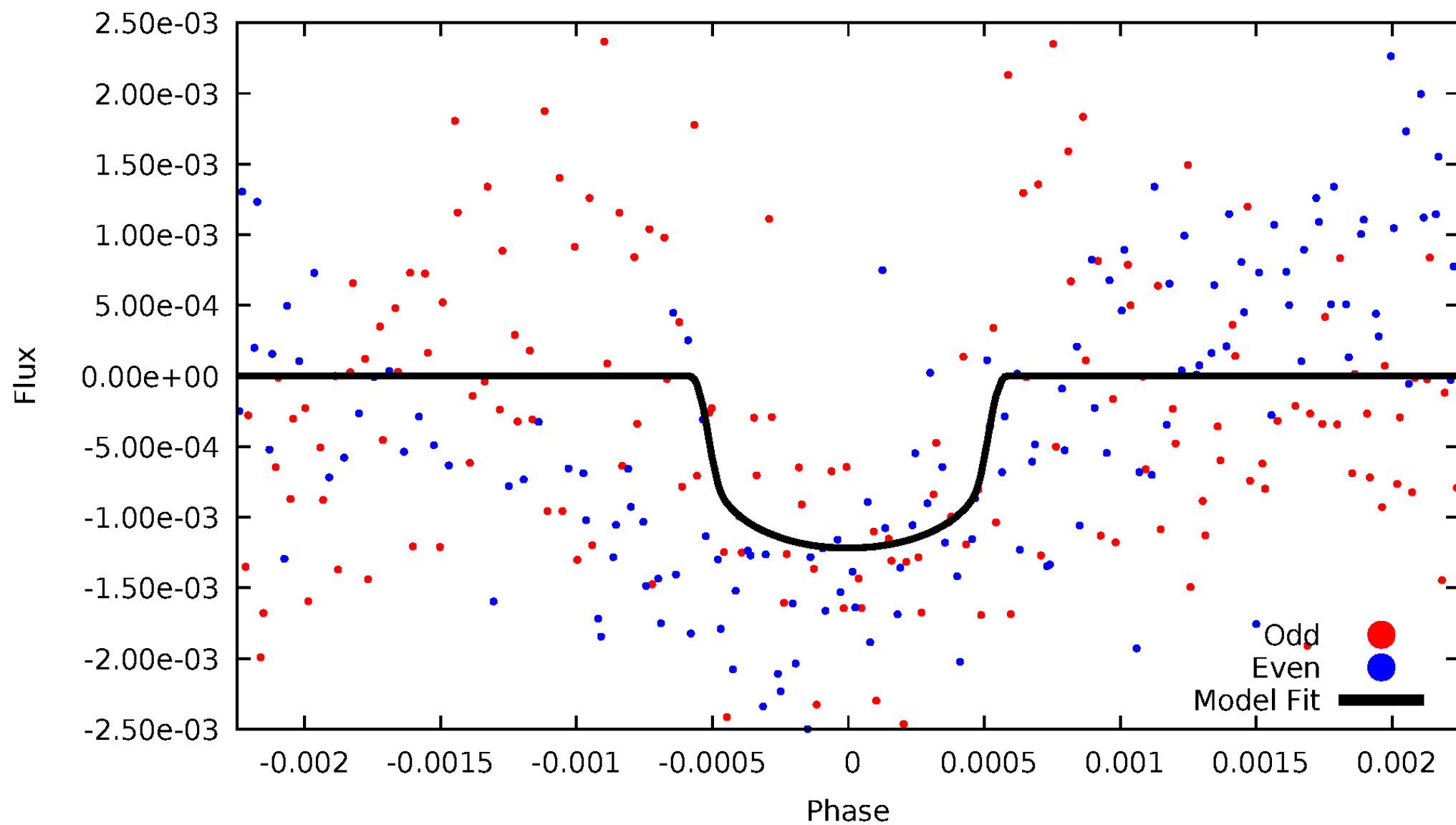


TCE 008546551-02



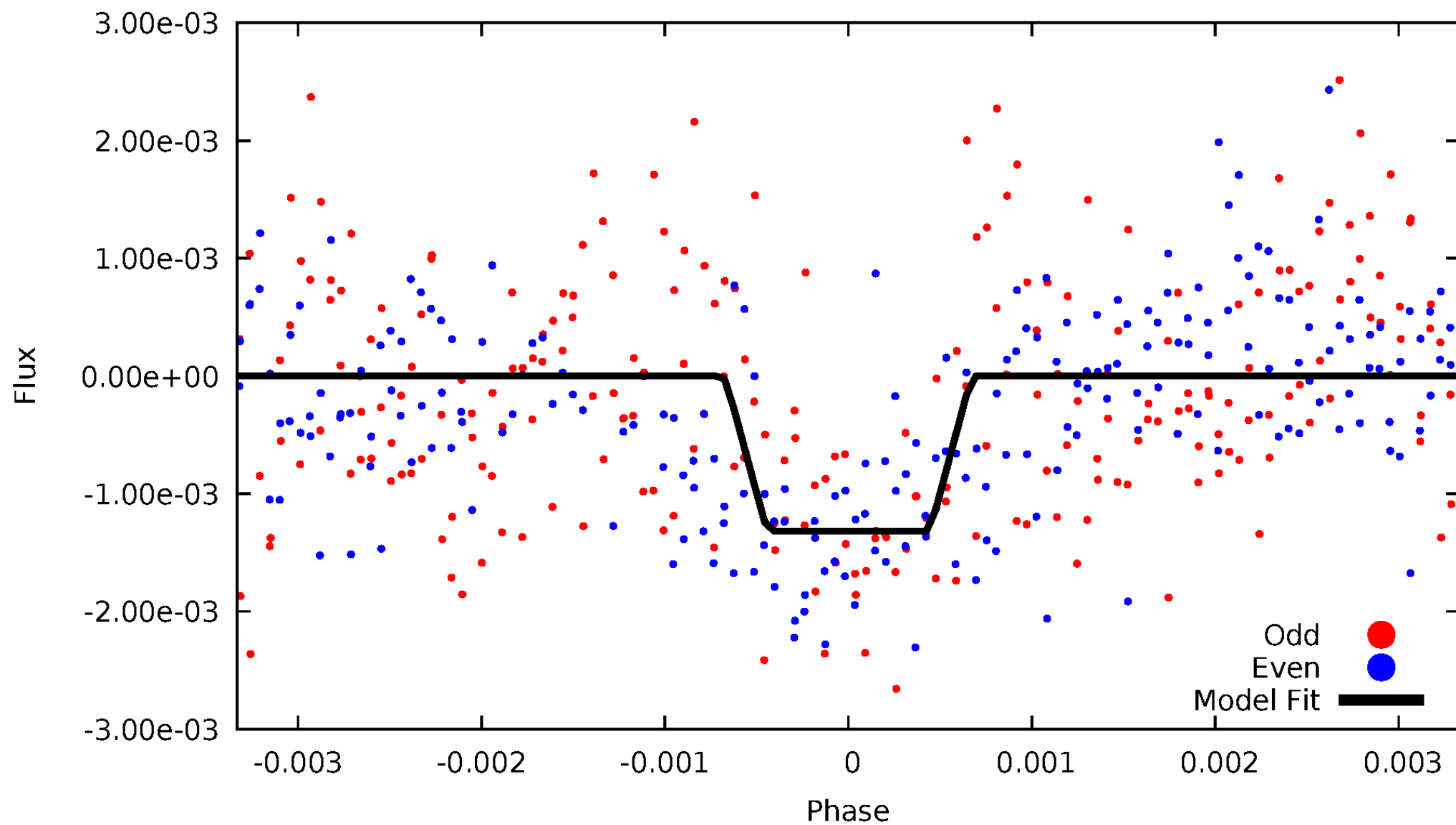
DV Odd/Even

TCE 008546551-02



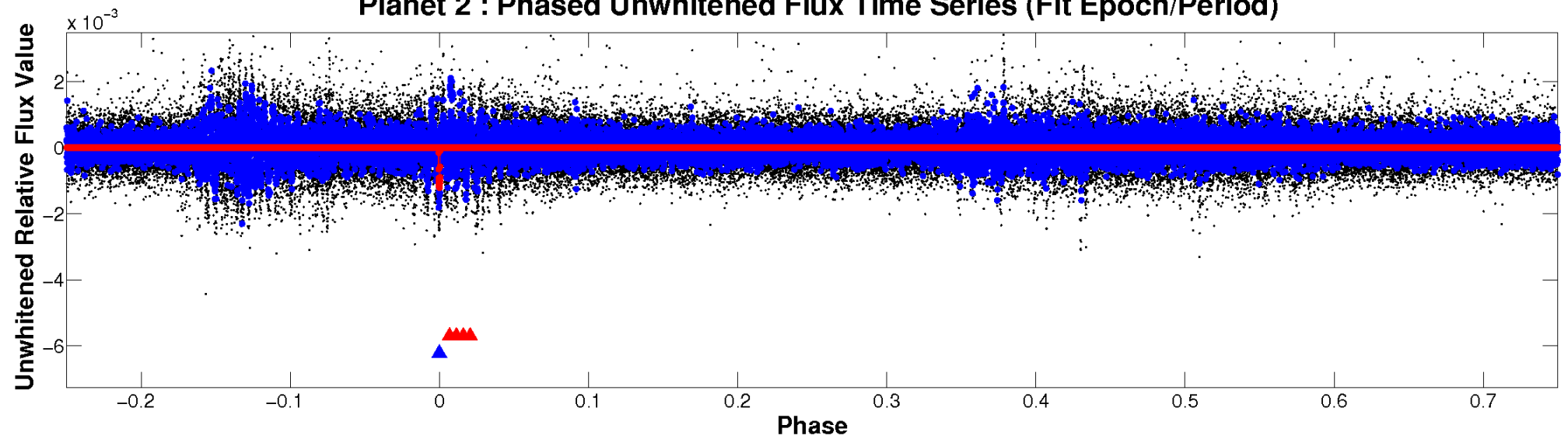
ALT Odd/Even

TCE 008546551-02

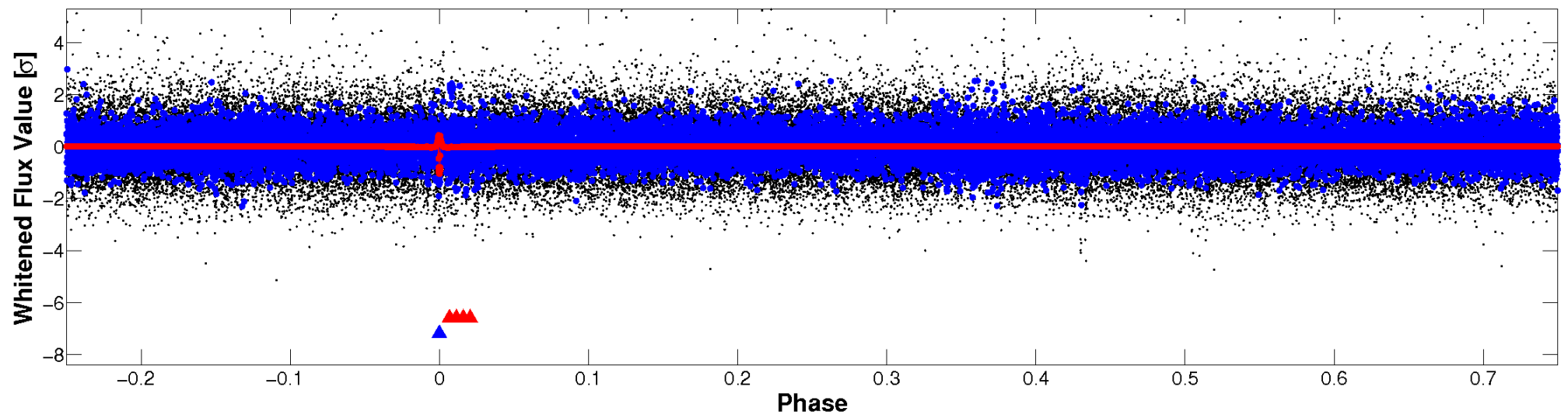


Non-Whitened Vs. Whitened Light Curve

Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

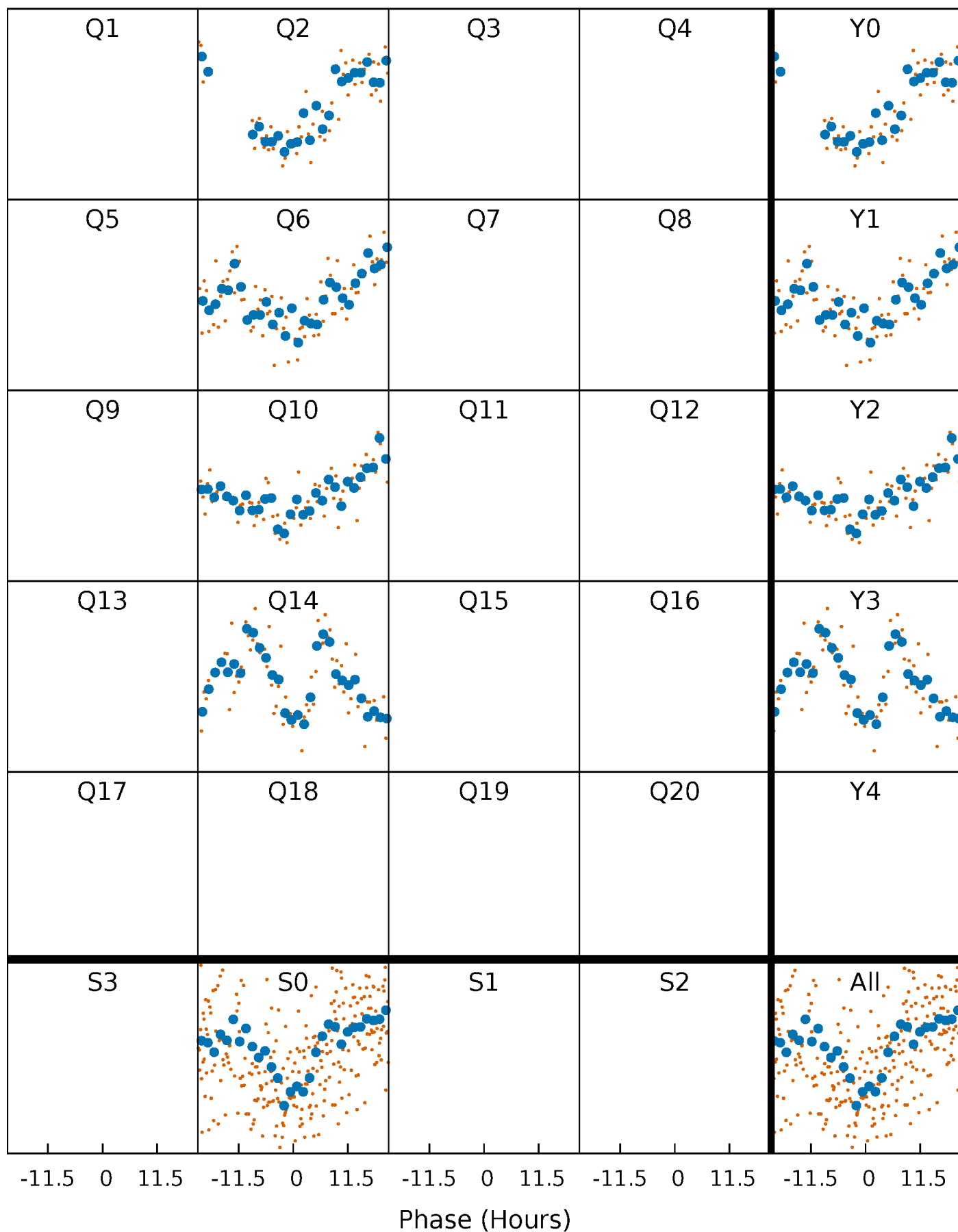


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



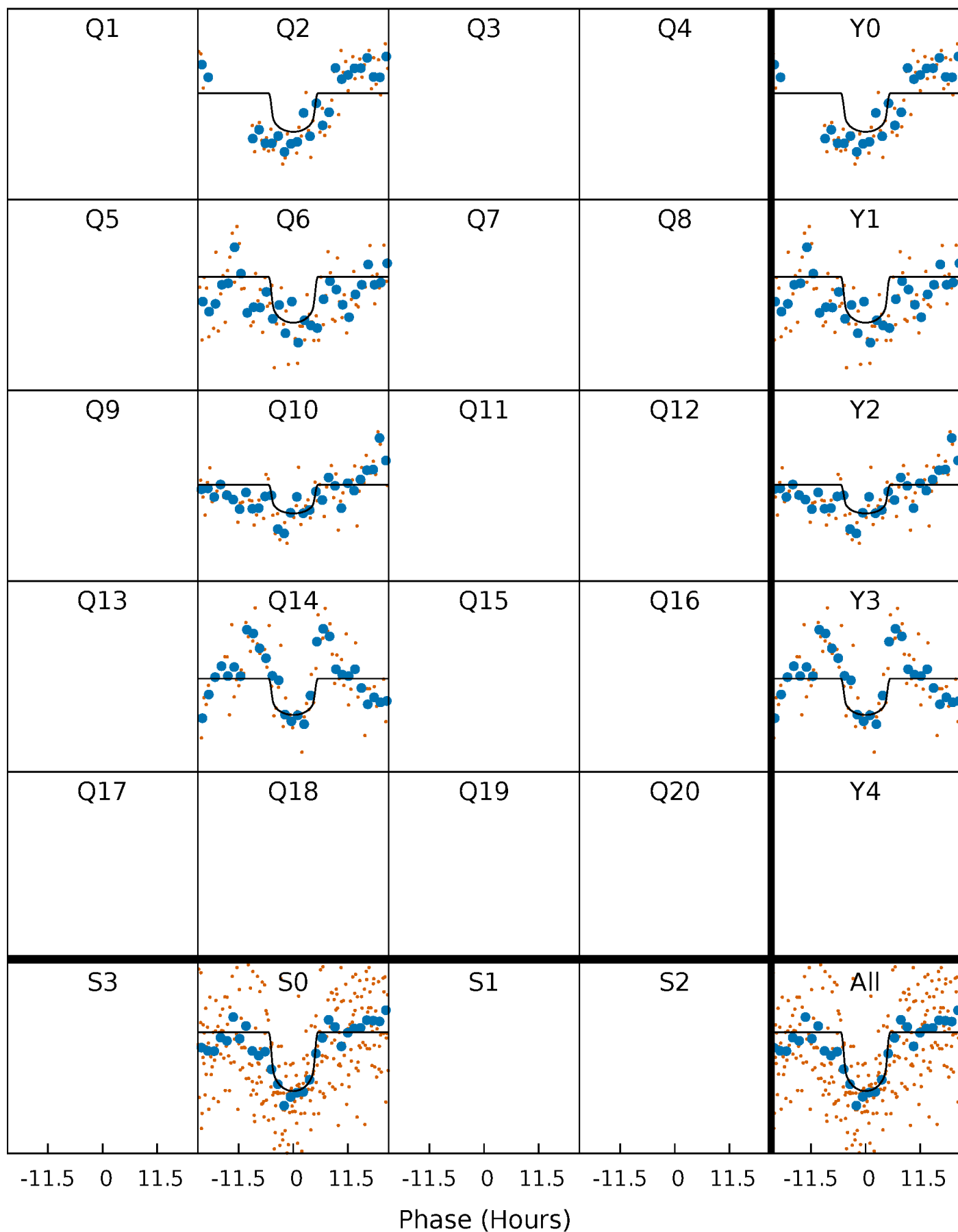
PDC Quarter-Phased Transit Curves

TCE 008546551-02 $P=371.494922$ Days $T_0=224.232119$ (BKJD)



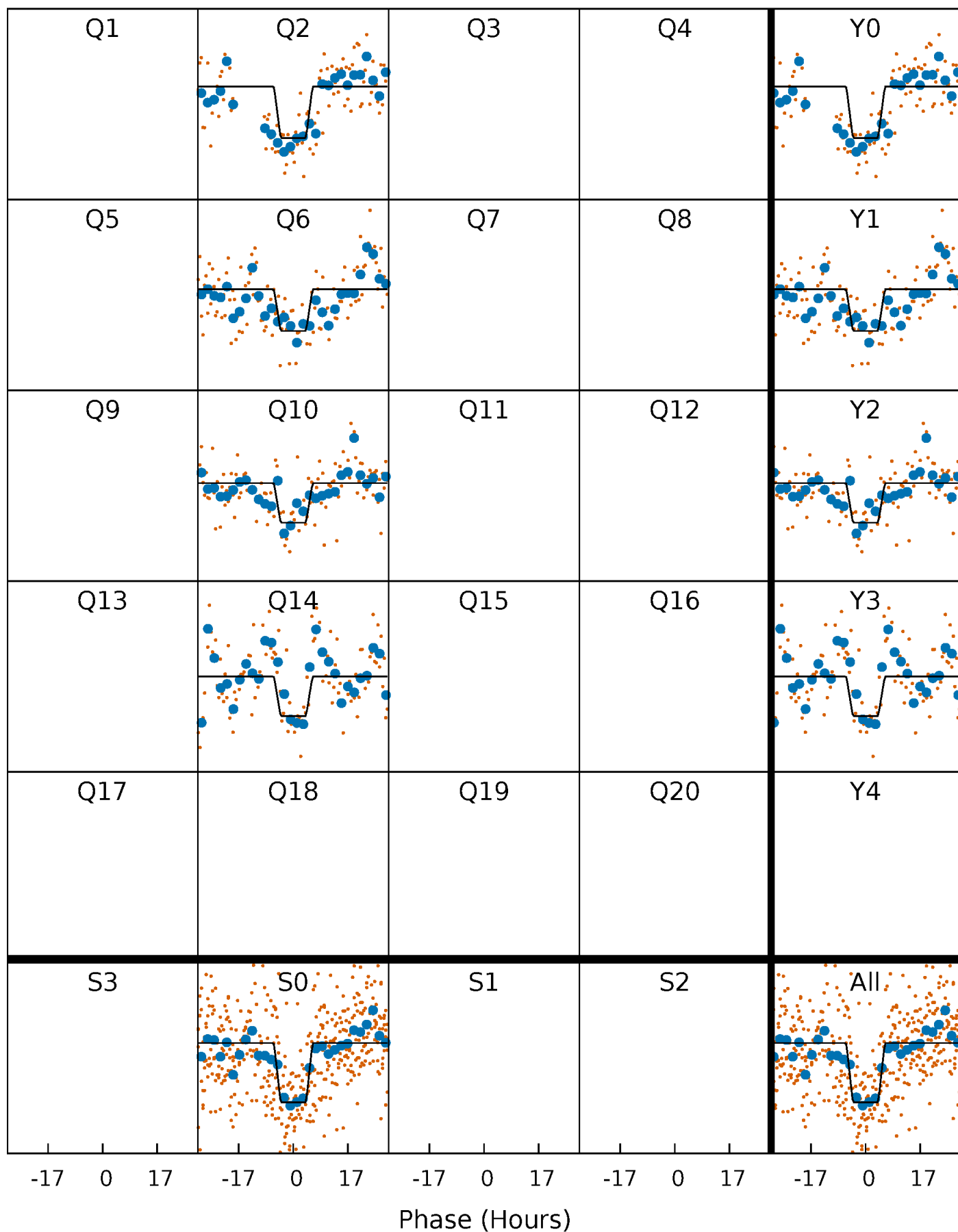
DV Quarter-Phased Transit Curves

TCE 008546551-02 $P=371.494922$ Days $T_0=224.232119$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

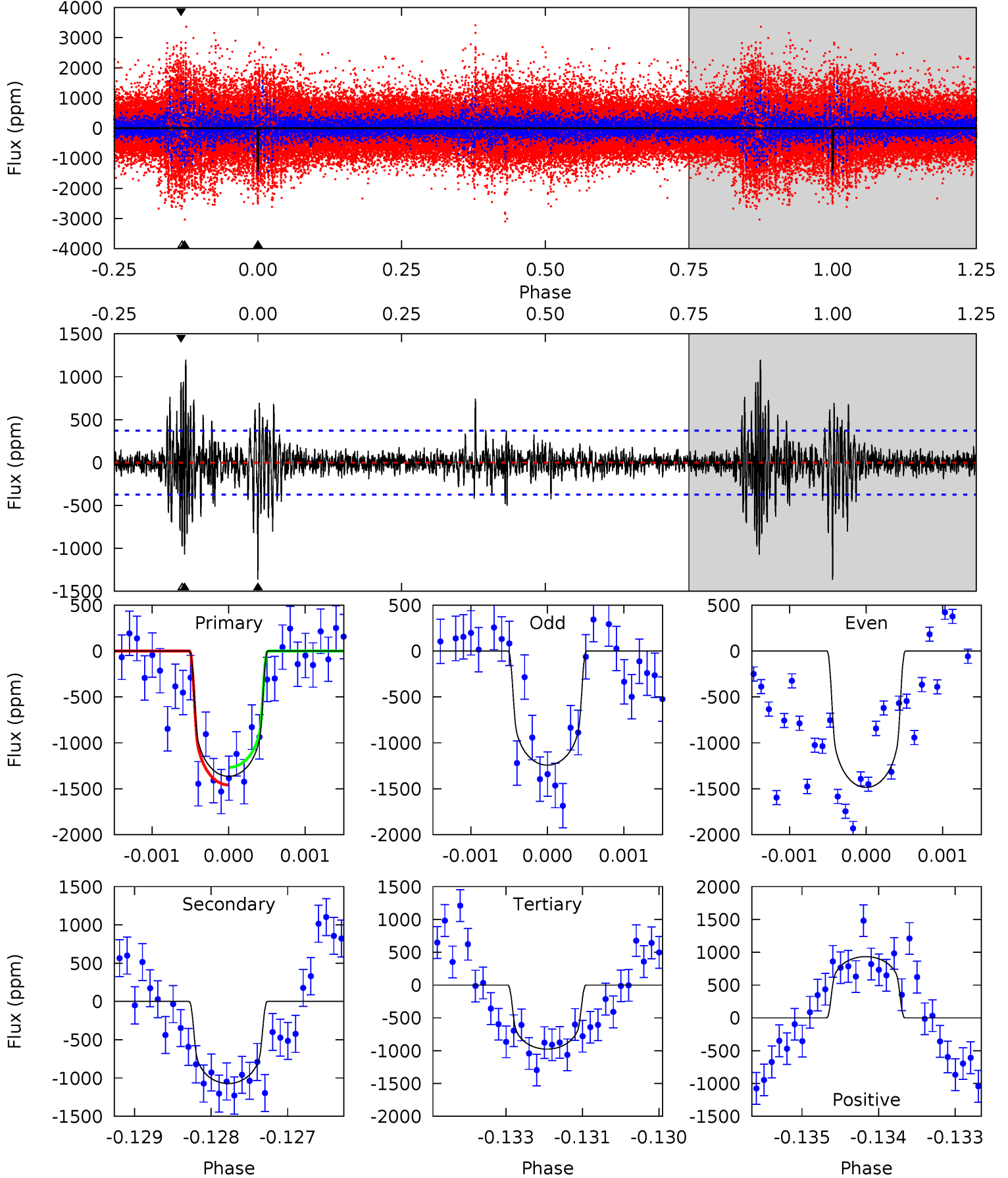
TCE 008546551-02 P=371.482121 Days $T_0=224.249051$ (BKJD)



DV Model-Shift Uniqueness Test

008546551-02, P = 371.494922 Days, E = 224.232119 Days

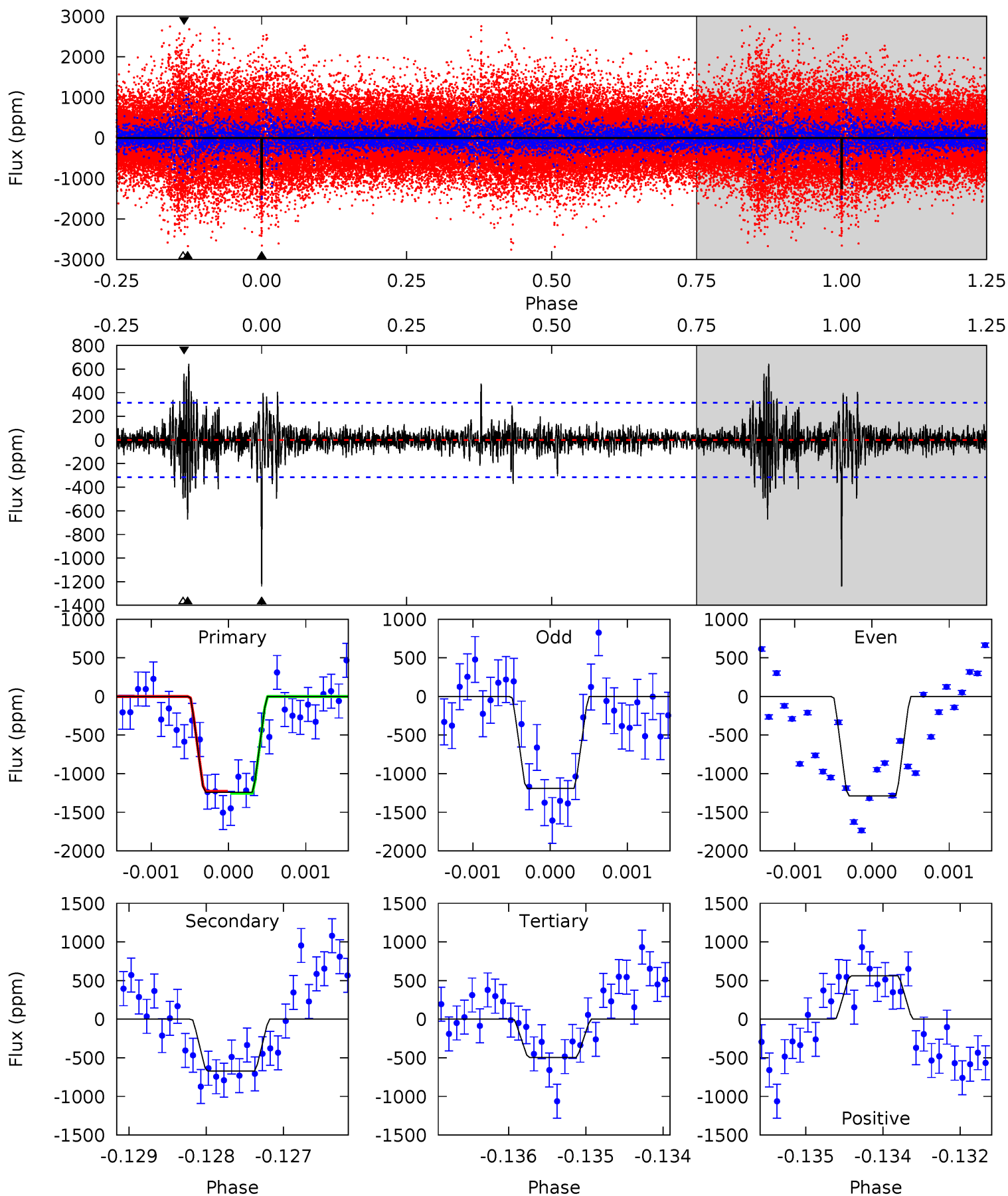
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.9	15.6	14.2	13.6	5.43	3.25	2.28	5.64	6.28	1.39	2.02	1.76	0.97	0.47	1.39



Alt Model-Shift Uniqueness Test

008546551-02, P = 371.482121 Days, E = 224.249051 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.2	11.5	8.47	9.59	5.39	3.20	1.53	12.7	11.6	3.03	1.90	0.84	1.03	0.34	0.23



Stellar Parameters For KIC 008546551

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5520^{+149}_{-166}	$4.572^{+0.034}_{-0.136}$	$-0.080^{+0.300}_{-0.300}$	$0.818^{+0.164}_{-0.070}$	$0.917^{+0.083}_{-0.102}$	$2.358^{+0.422}_{-0.915}$
	+3%/-3%	+1%/-3%	+375%/-375%	+20%/-9%	+9%/-11%	+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 008546551-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1072 ± 69	$3.24^{+0.97}_{-0.93}$	316^{+15}_{-13}	5333^{+934}_{-563}	52450^{+51992}_{-21157}
Alt.	-672 ± 58	$3.40^{+0.90}_{-0.95}$	316^{+17}_{-12}	4766^{+674}_{-429}	30843^{+27726}_{-11592}

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

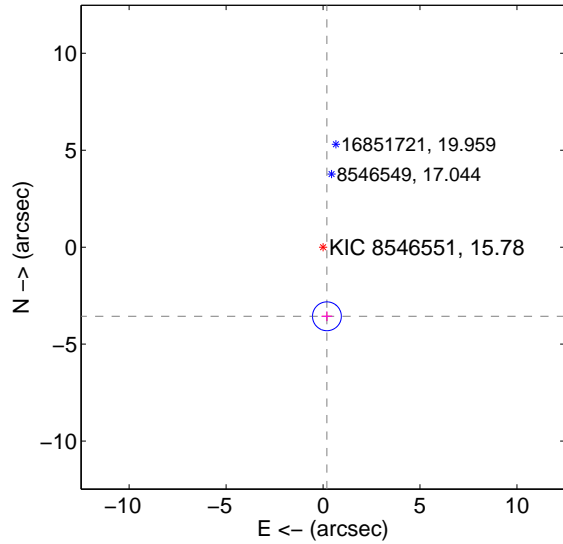
Supplemental centroid analysis for 008546551-02. Kepler magnitude: 15.78. Transit SNR 8.41

There are 0 quarters with good PRF difference image offsets

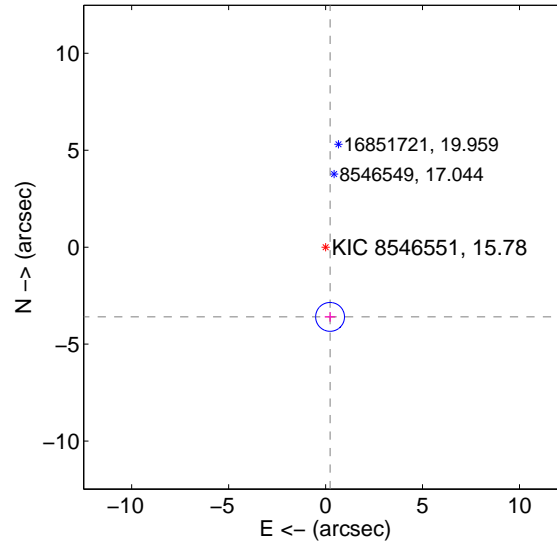
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.571 ± 0.248	14.40	-0.201 ± 0.274	-3.565 ± 0.248
PRF-fit source offset from KIC position	3.604 ± 0.248	14.53	-0.231 ± 0.274	-3.596 ± 0.248
photometric centroid source offset	3.09 ± 2.44	1.27	-0.01 ± 2.03	-3.09 ± 2.44

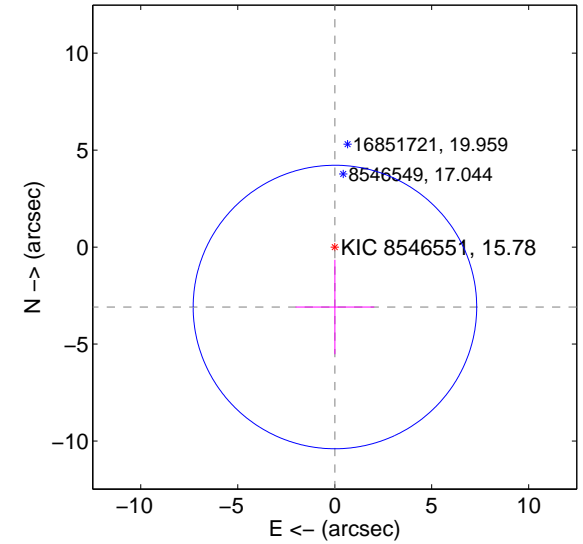
offset from difference PRF-fit to OOT PRF-fit



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.

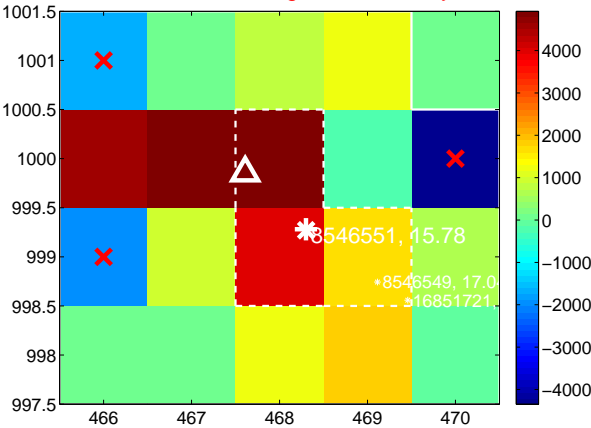
Q5 no difference image



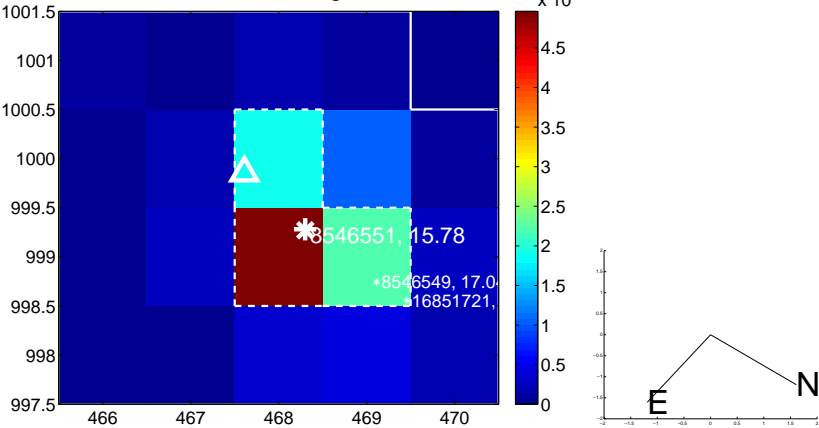
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image



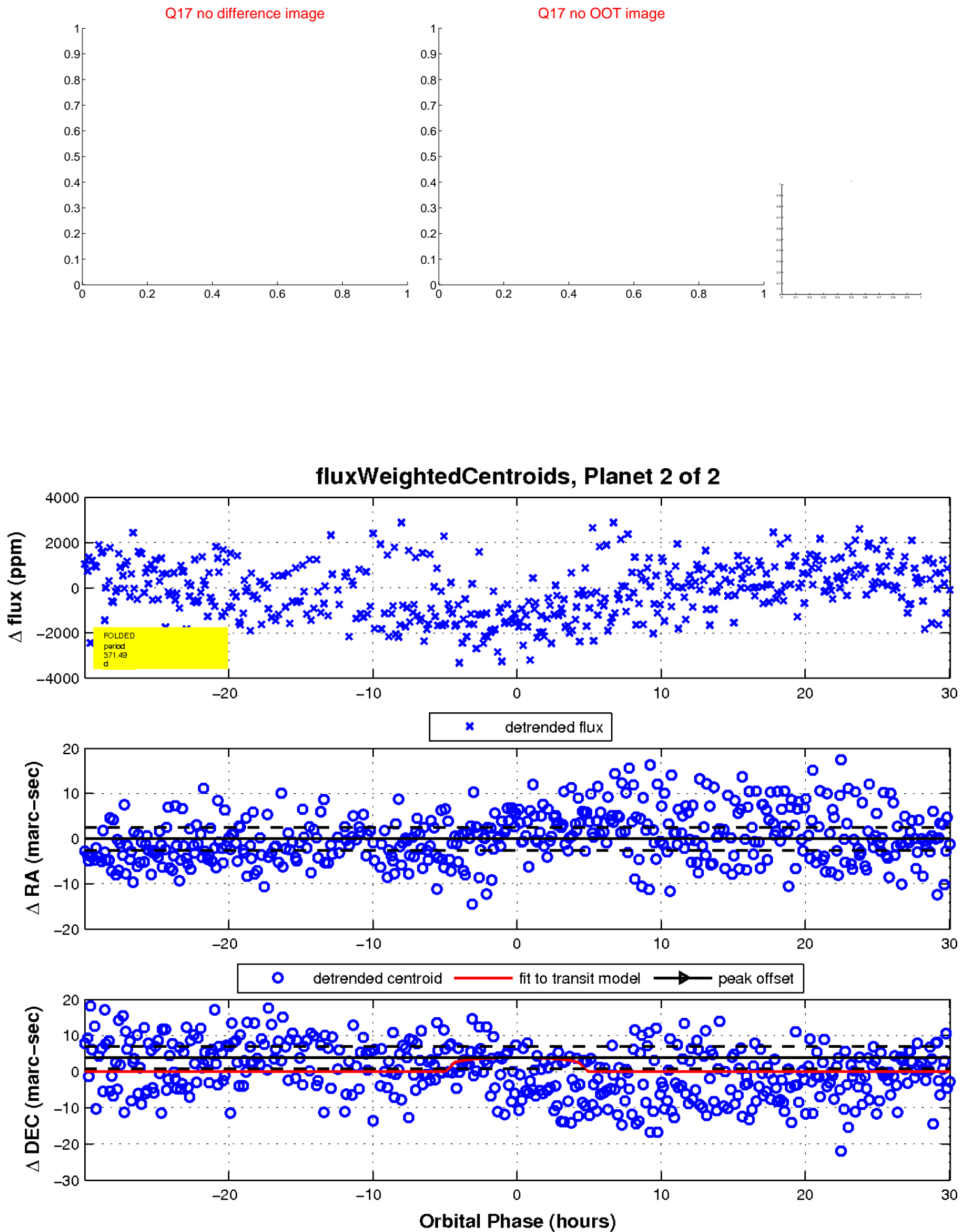
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

