

KIC 009001558

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})
009001558-01	OBS	No	0.736486	132.130452	3781.7	2.828	545.7	206.6	0.80	5289	5.95	2075.30
009001558-02	OBS	No	0.736500	131.750777	9019.2	2.000	293.1	-1.0	0.80	5289	7.42	2075.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009001558-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009001558-02	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_NOFITS—HALO_GHOST

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

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

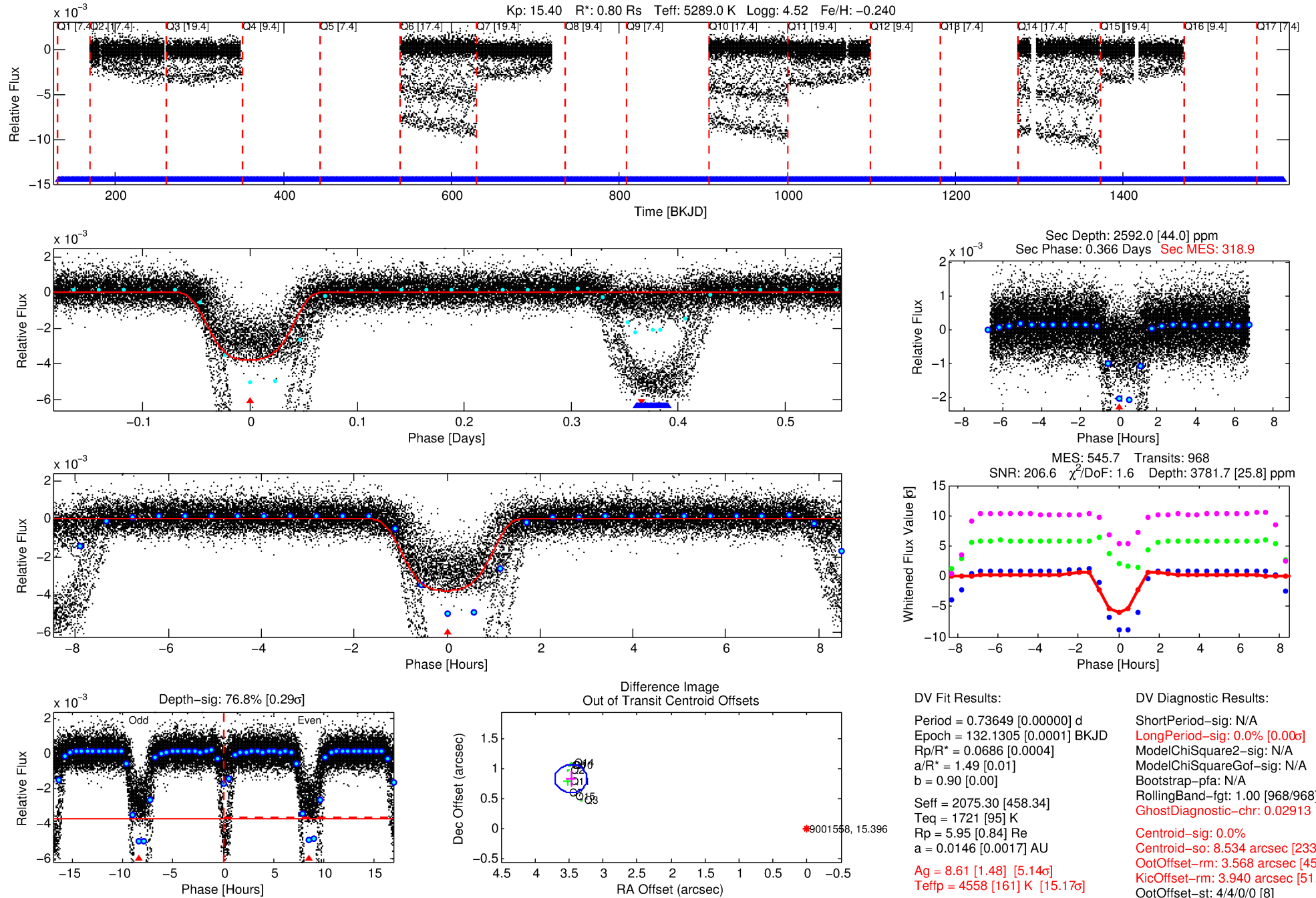
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009001558-01

No Significant Match Found

DV One-Page Summary

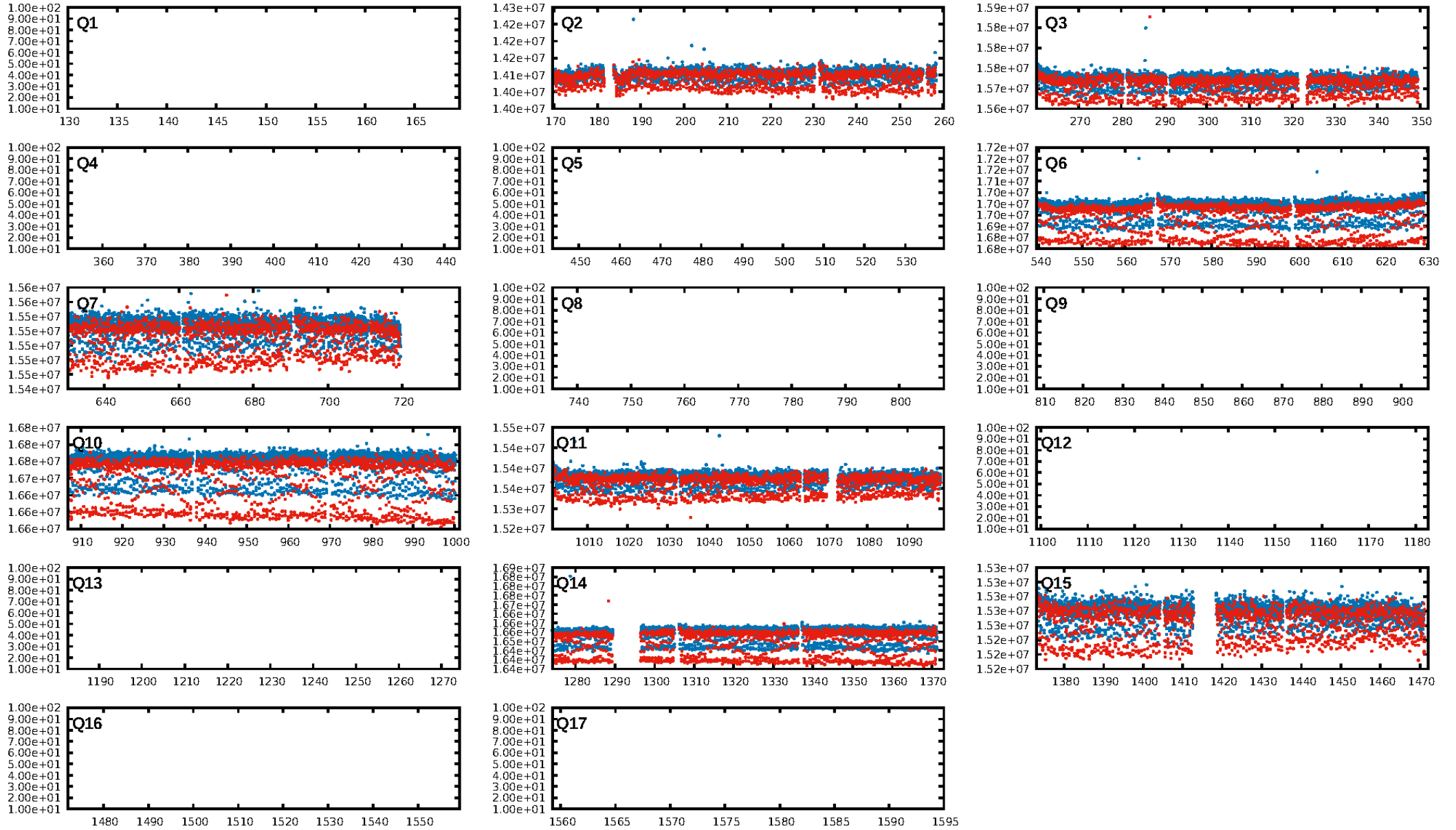
KIC: 9001558 Candidate: 1 of 2 Period: 0.736 d



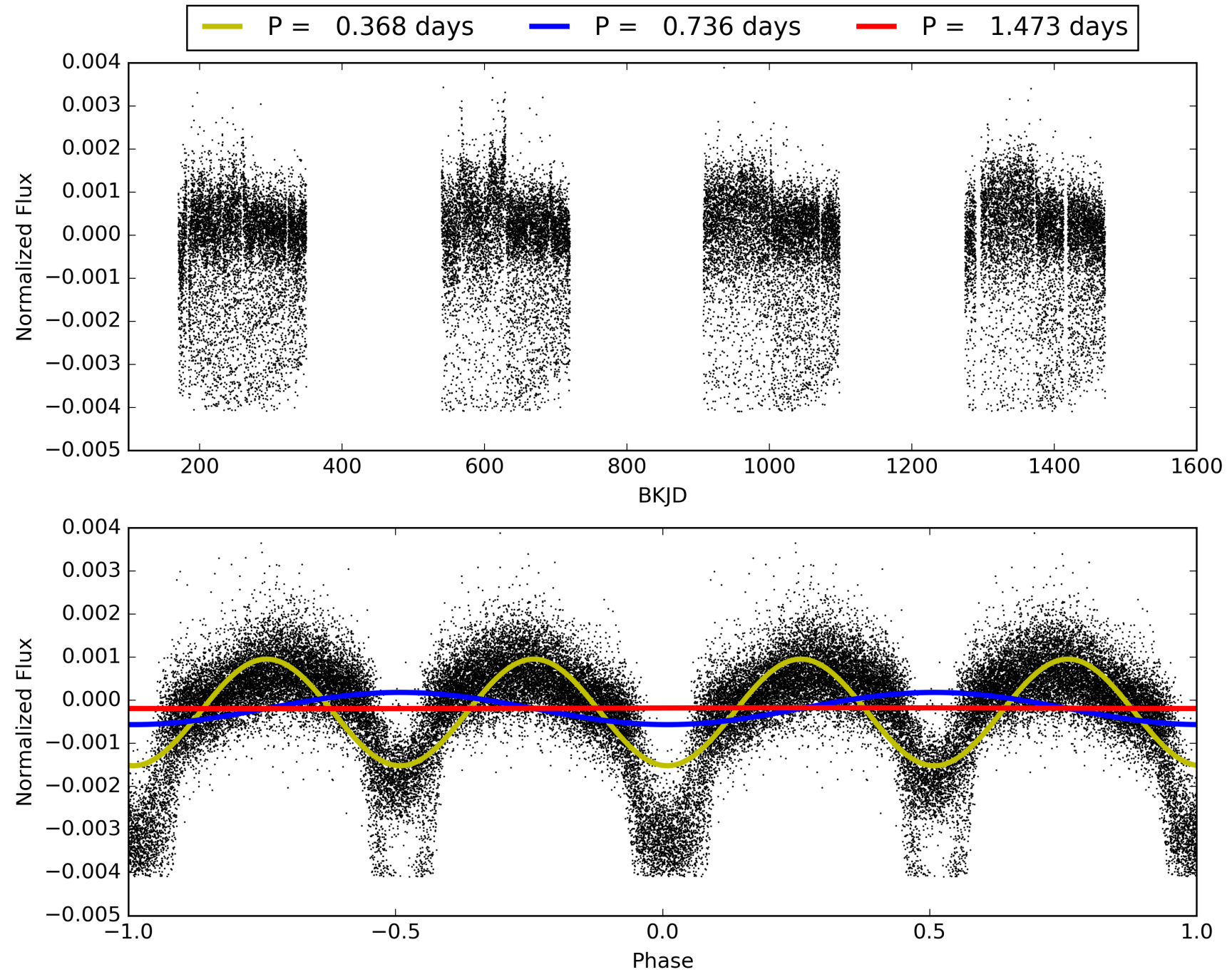
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:06:06 Z

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

TCE 009001558-01, PDC Light Curves

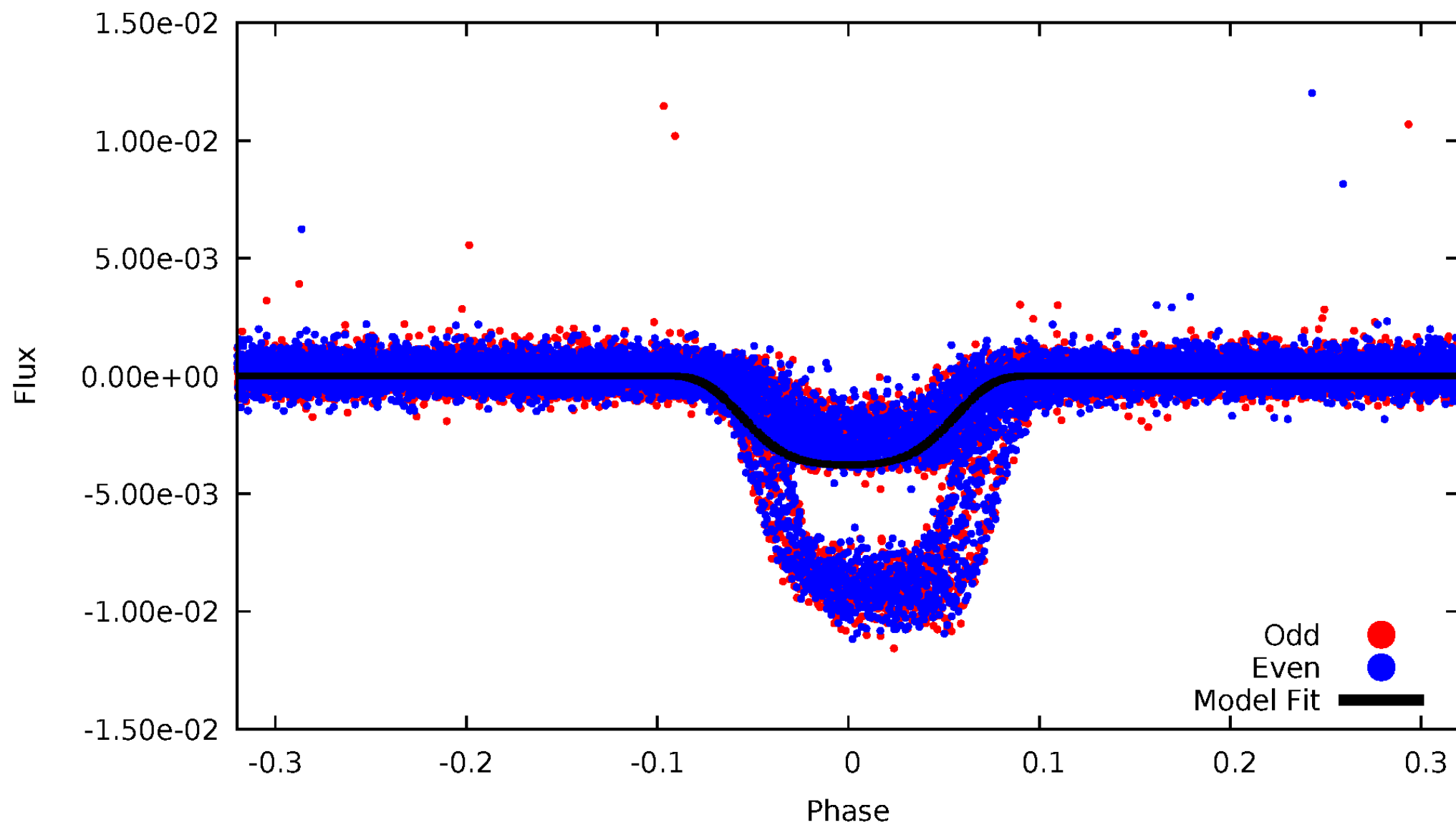


TCE 009001558-01



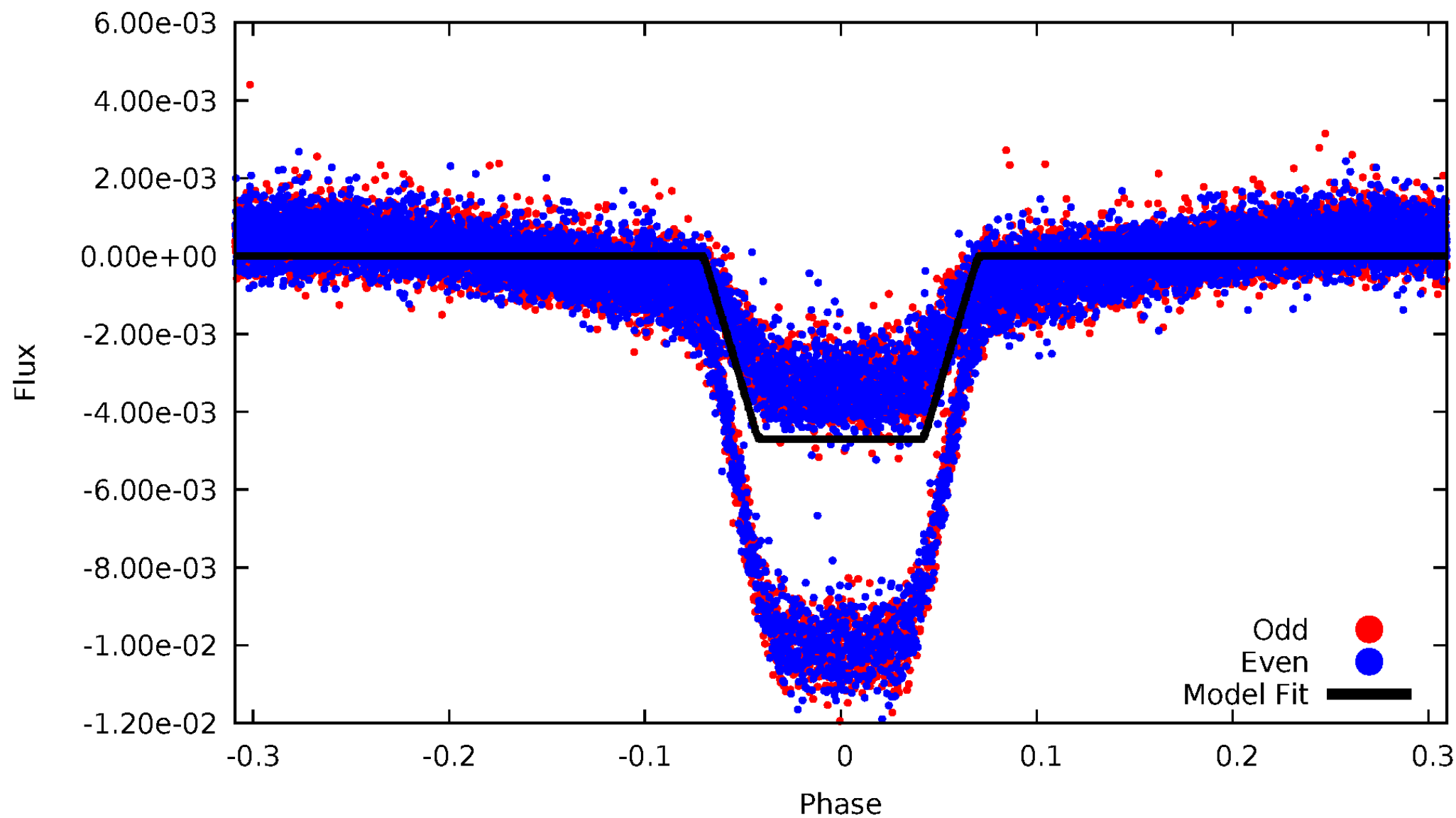
DV Odd/Even

TCE 009001558-01



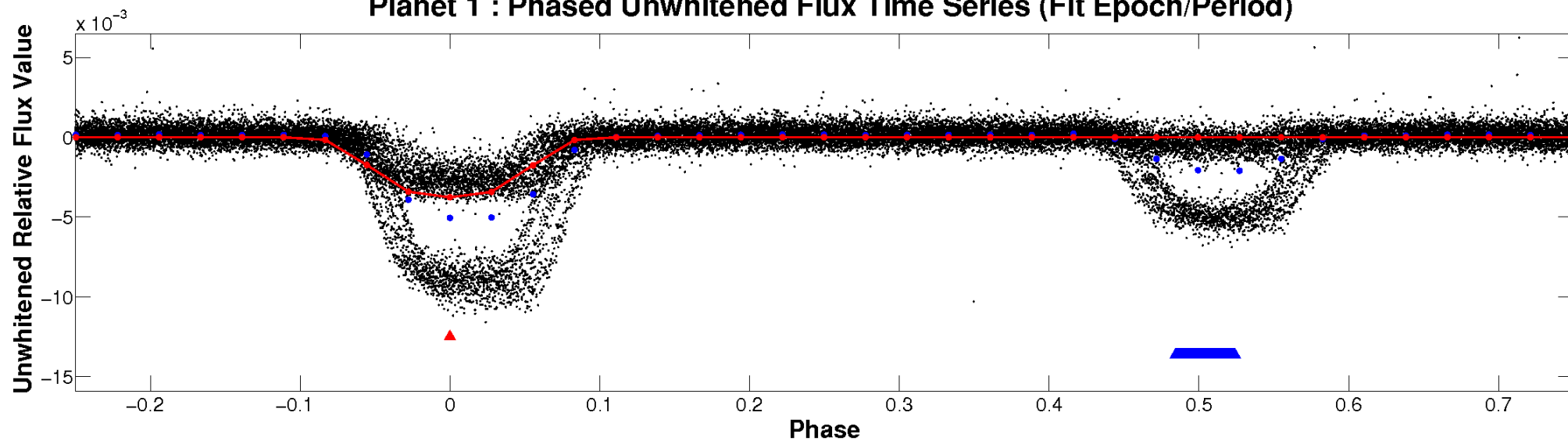
ALT Odd/Even

TCE 009001558-01

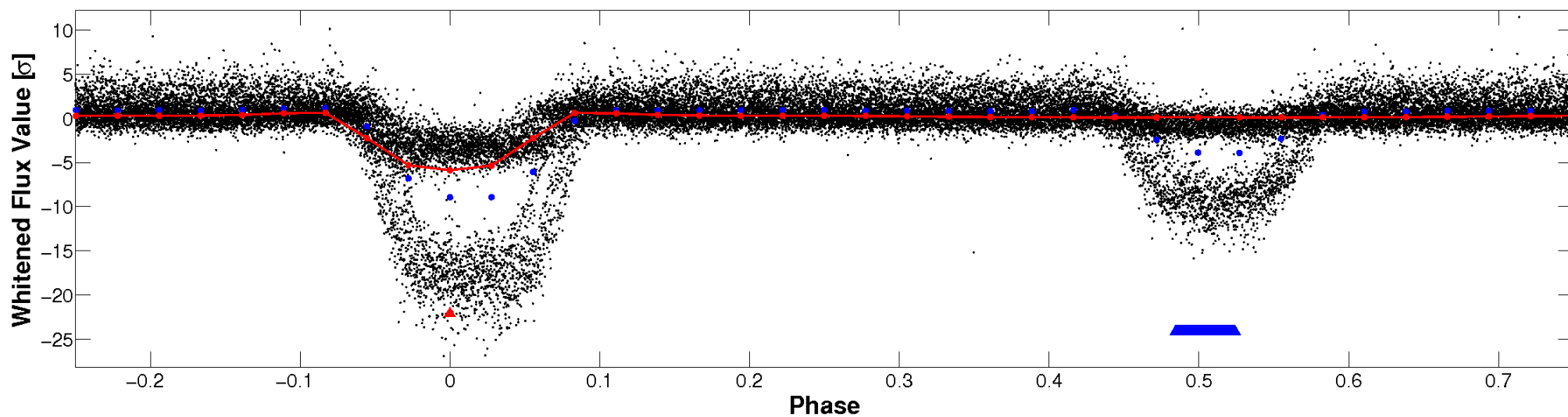


Non-Whitened Vs. Whitened Light Curve

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

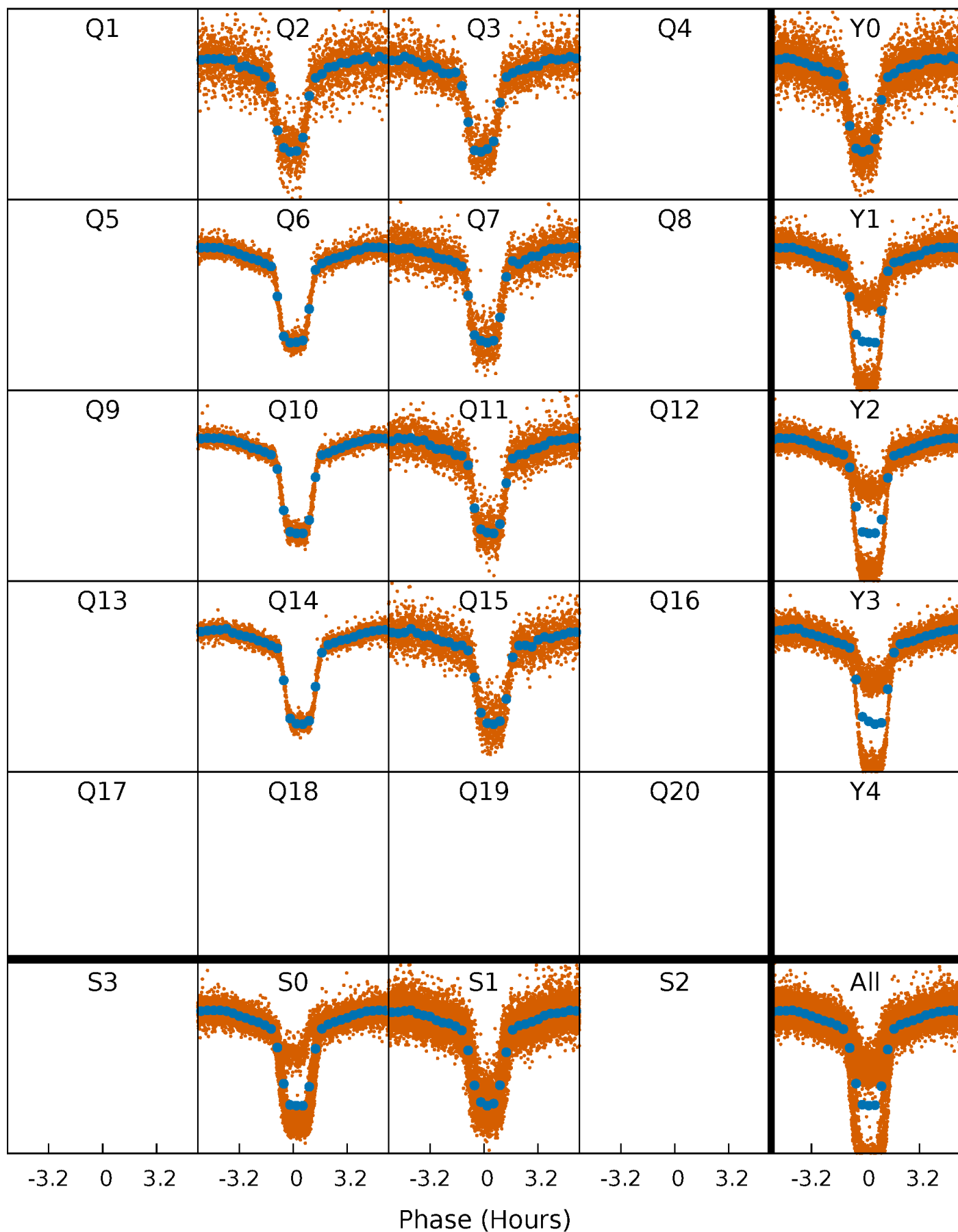


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



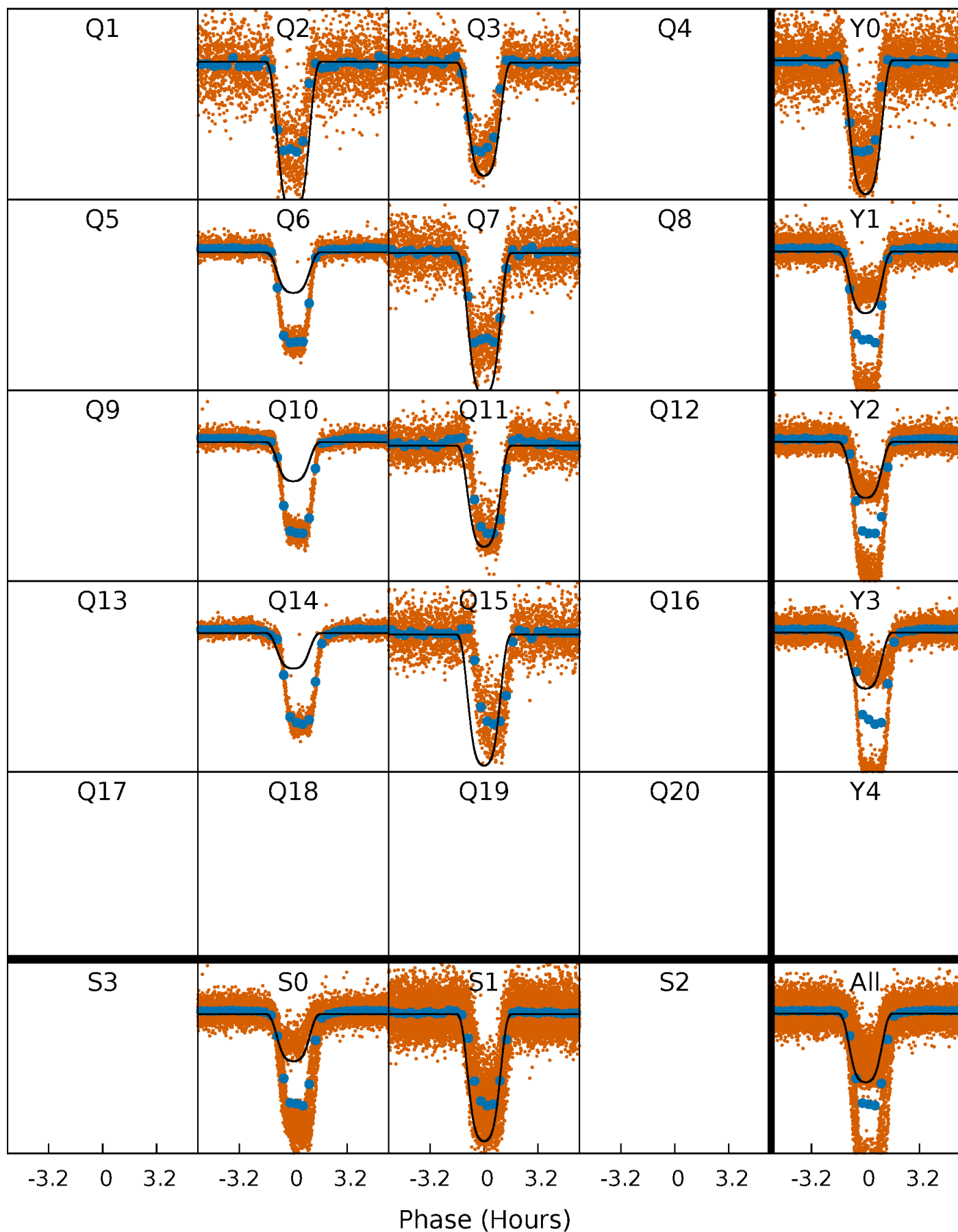
PDC Quarter-Phased Transit Curves

TCE 009001558-01 P= 0.736486 Days $T_0=132.130452$ (BKJD)



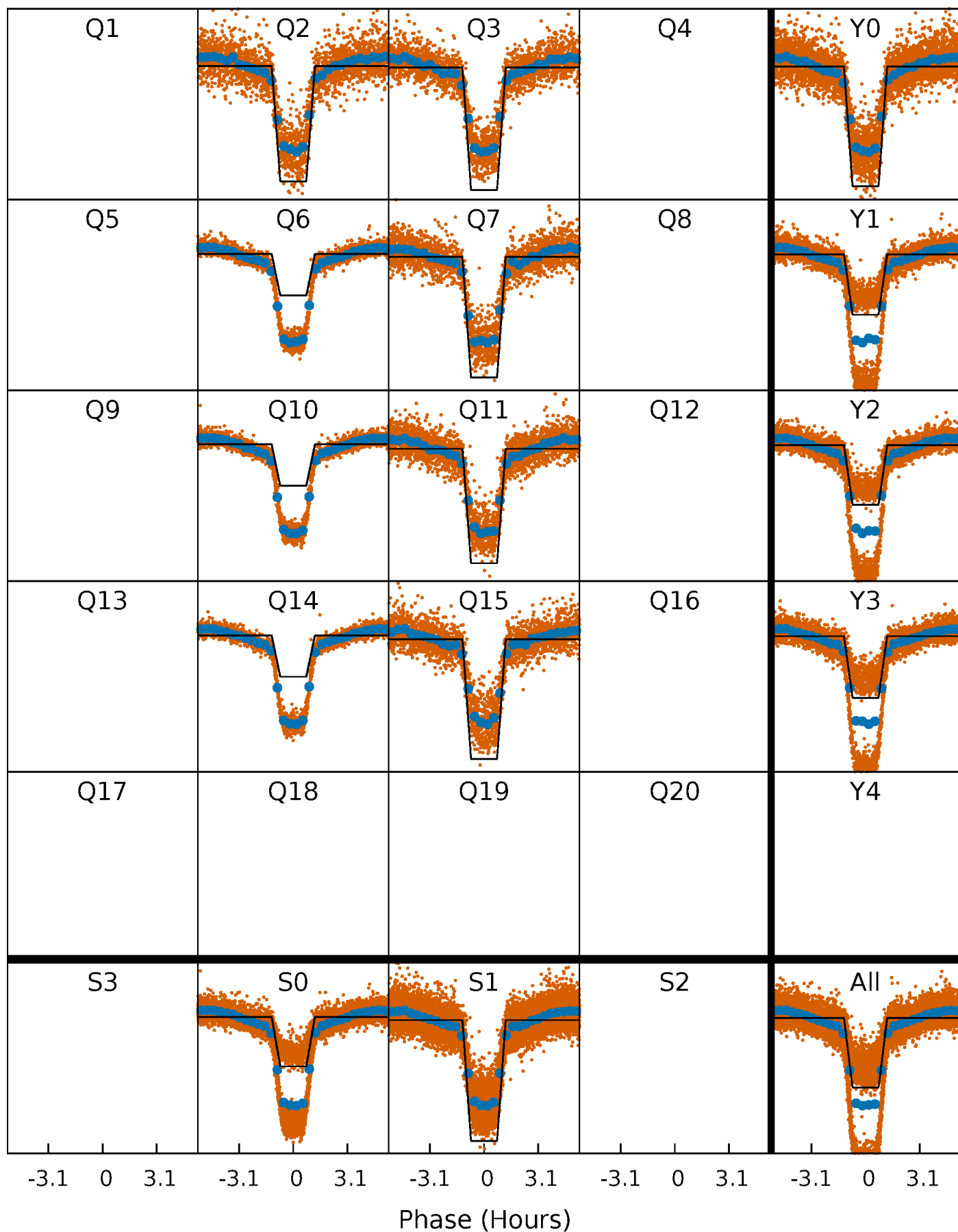
DV Quarter-Phased Transit Curves

TCE 009001558-01 P= 0.736486 Days $T_0=132.130452$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

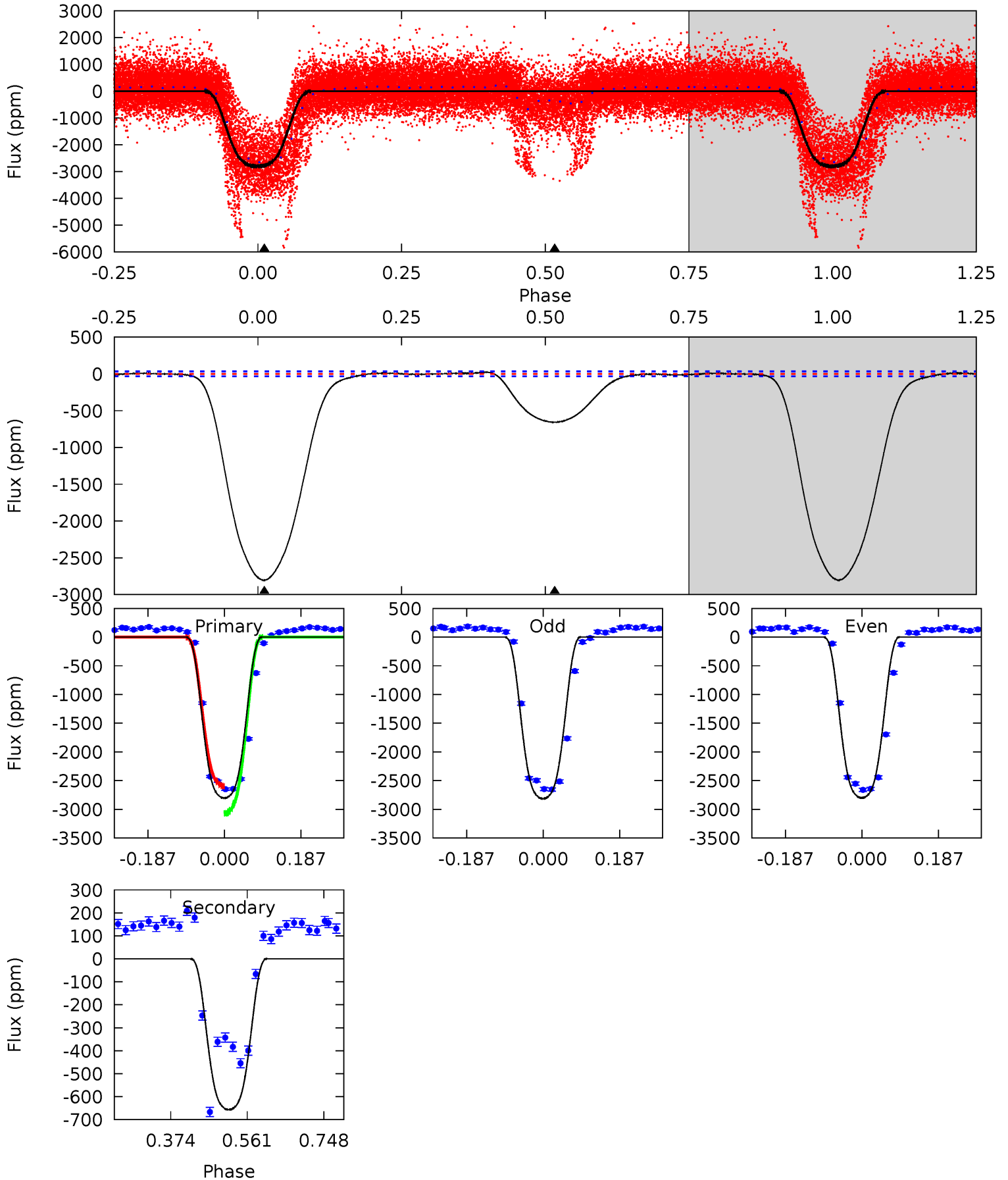
TCE 009001558-01 P= 0.736500 Days $T_0=132.123752$ (BKJD)



DV Model-Shift Uniqueness Test

009001558-01, P = 0.736486 Days, E = 132.130452 Days

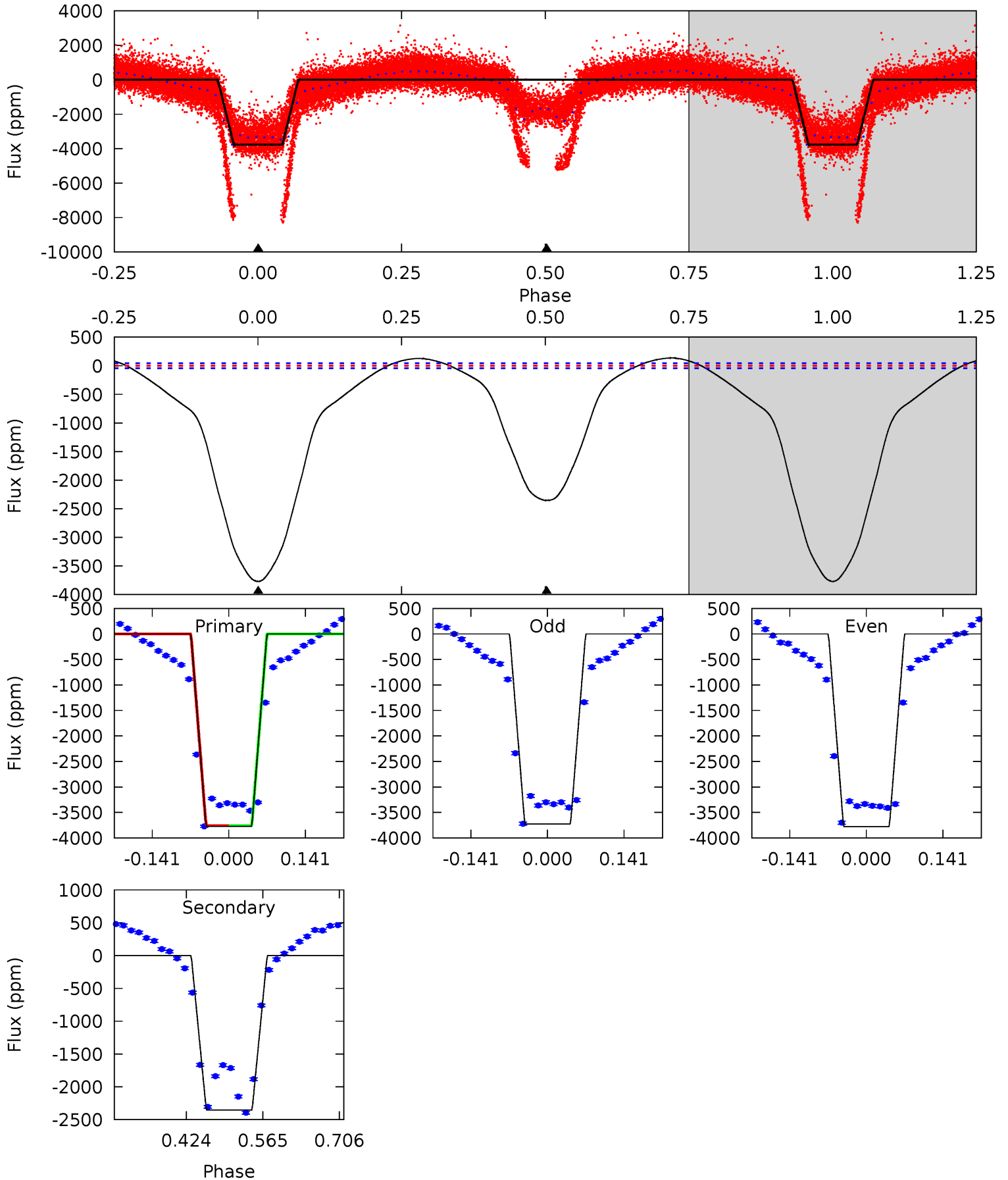
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
376.4	88.2	0	0	4.43	1.32	0.94	376.4	376.4	88.2	88.2	0.94	1.56	0.01	31.7



Alt Model-Shift Uniqueness Test

009001558-01, P = 0.736500 Days, E = 132.123752 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
380.9	238.0	0	0	4.49	1.47	20.7	380.9	380.9	238.0	238.0	2.58	1.54	0.03	0



Stellar Parameters For KIC 009001558

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5289^{+185}_{-185}	$4.522^{+0.076}_{-0.093}$	$-0.240^{+0.300}_{-0.300}$	$0.795^{+0.112}_{-0.092}$	$0.767^{+0.110}_{-0.063}$	$2.151^{+0.732}_{-0.599}$
	+3%/-3%	+2%/-2%	+125%/-125%	+14%/-12%	+14%/-8%	+34%/-28%
Source	KIC0	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 009001558-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-657 ± 7	$6.04^{+0.51}_{-0.43}$	2414^{+114}_{-106}	3545^{+100}_{-94}	$2.140^{+0.271}_{-0.268}$
Alt.	-2355 ± 10	$6.02^{+0.52}_{-0.39}$	2412^{+107}_{-99}	4537^{+139}_{-141}	$7.696^{+0.908}_{-0.904}$

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 $A_{obs} \gg 1.0$

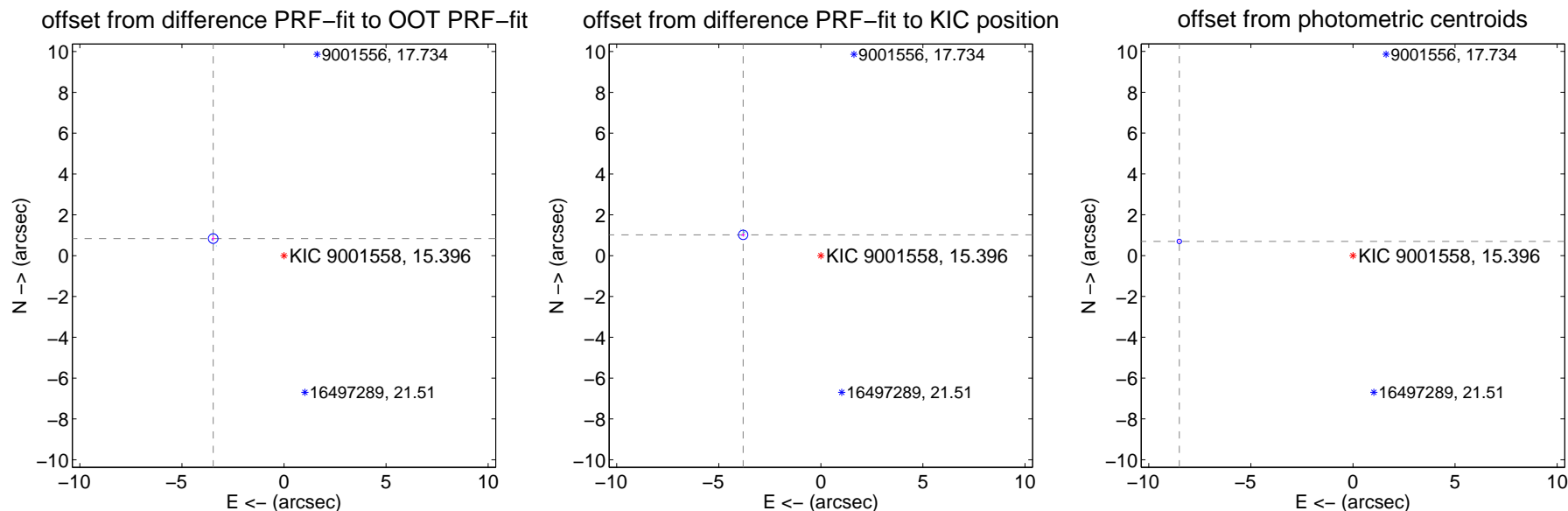
DV Centroid Data

Supplemental centroid analysis for 009001558-01. Kepler magnitude: 15.40. Transit SNR 206.58

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.65 arcsec

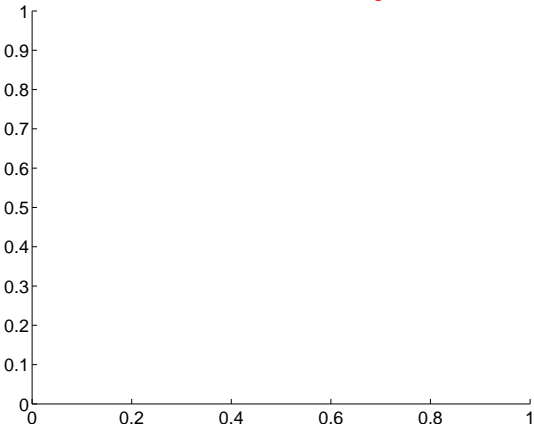
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.568 ± 0.079	45.41	3.469 ± 0.071	0.837 ± 0.124
PRF-fit source offset from KIC position	3.940 ± 0.077	51.43	3.806 ± 0.077	1.019 ± 0.070
photometric centroid source offset	8.53 ± 0.04	233.92	8.51 ± 0.04	0.70 ± 0.03



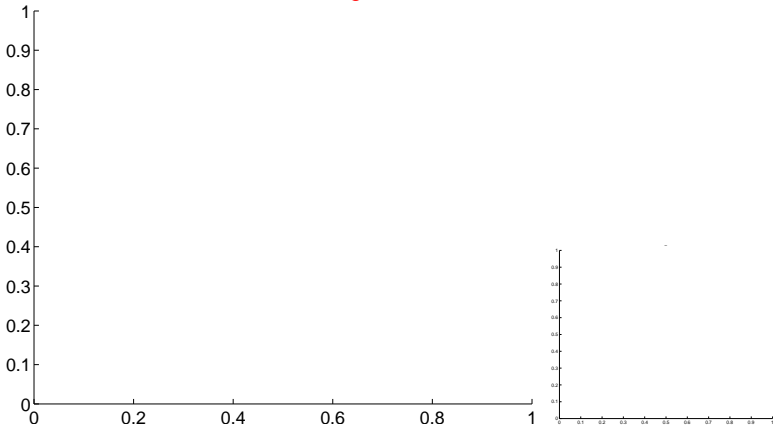
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

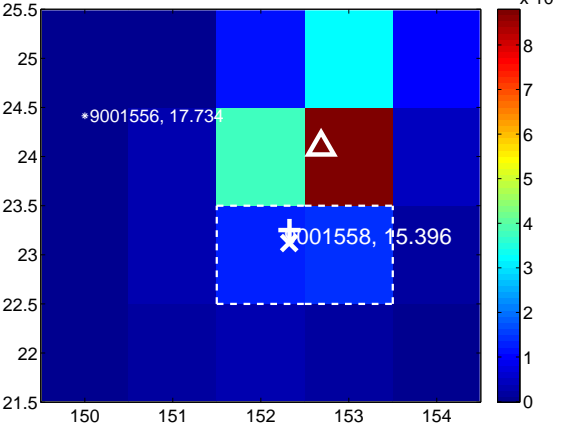
Q1 no difference image



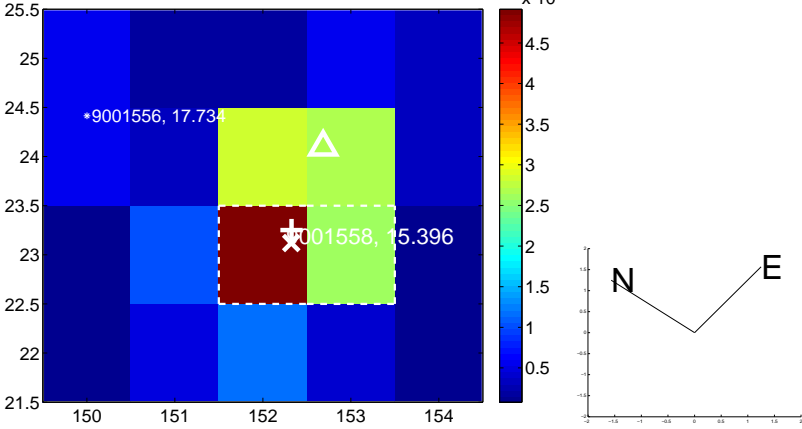
Q1 no OOT image



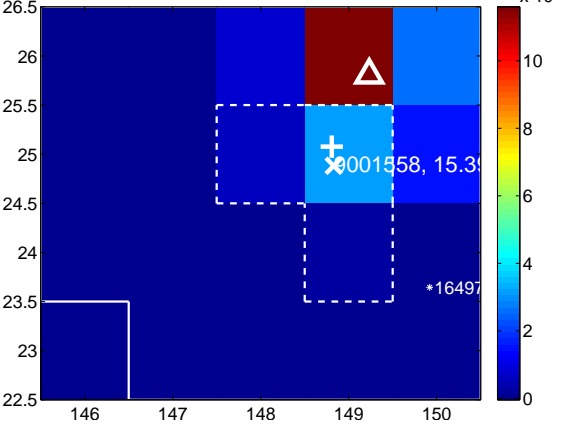
Q2 difference image



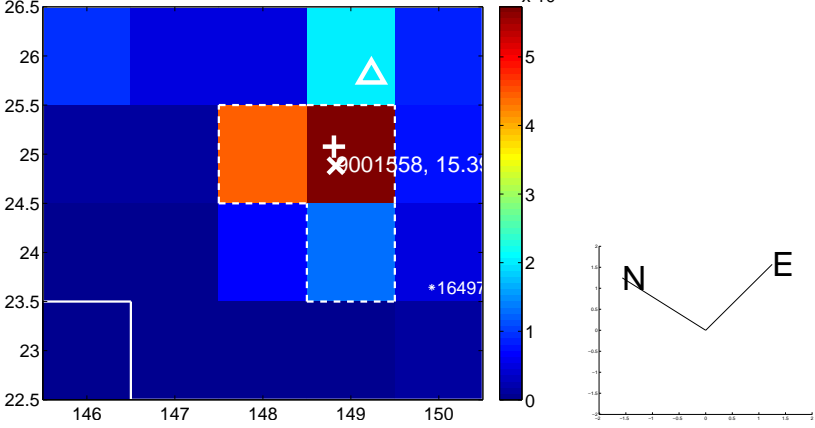
Q2 OOT image



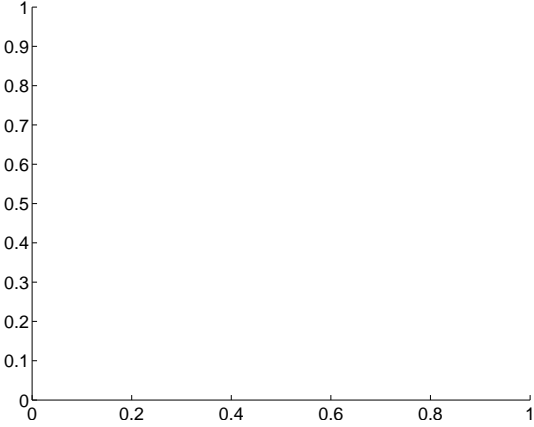
Q3 difference image



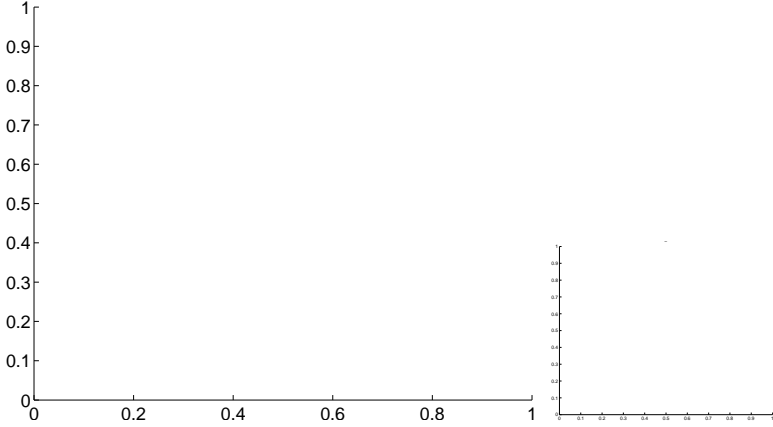
Q3 OOT image



Q4 no difference image



Q4 no OOT image

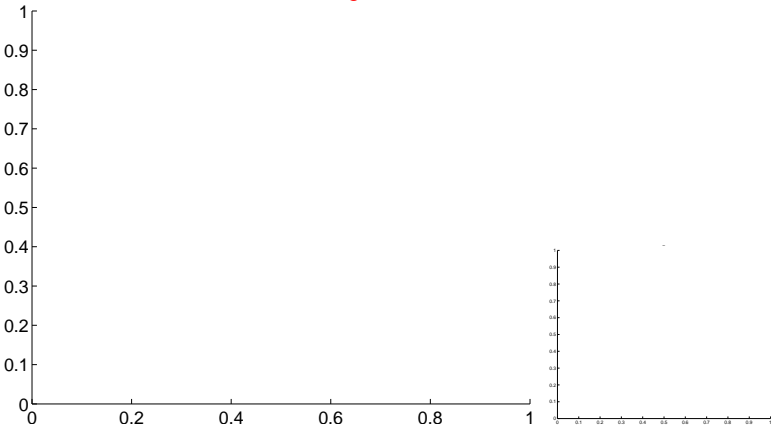


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

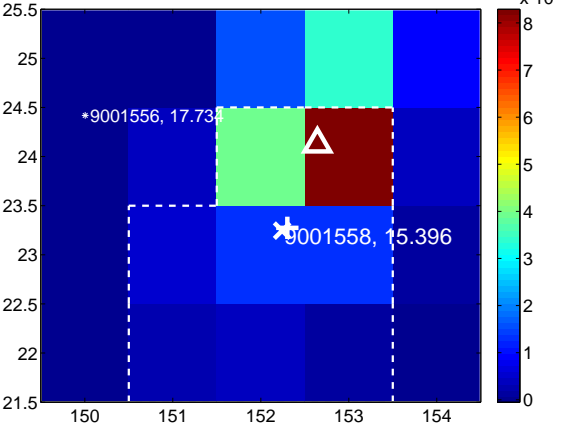
Q5 no difference image



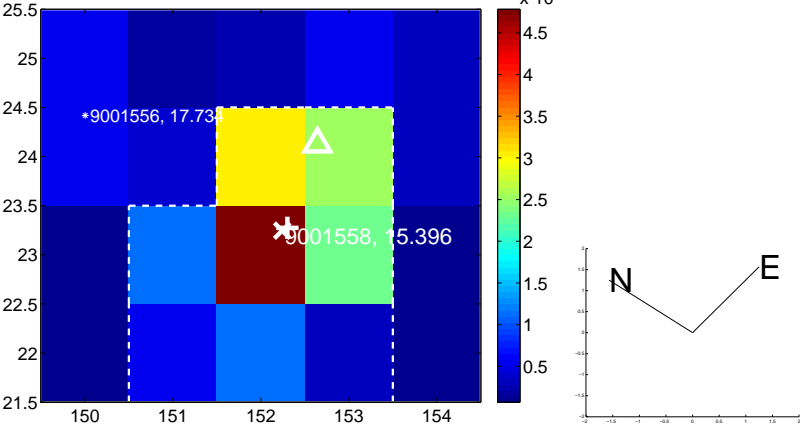
Q5 no OOT image



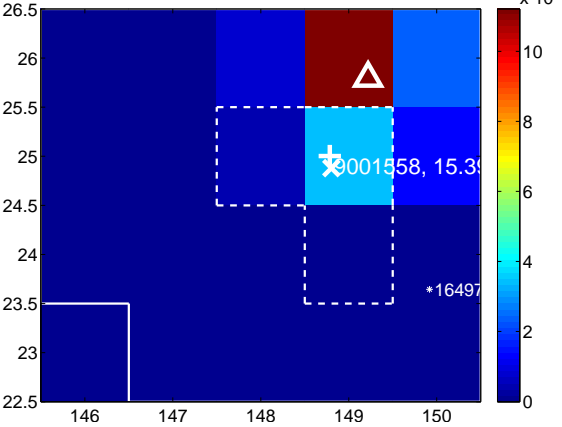
Q6 difference image



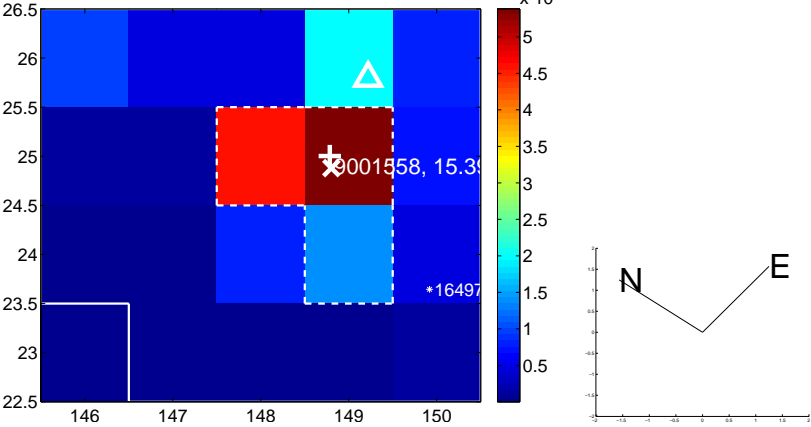
Q6 OOT image



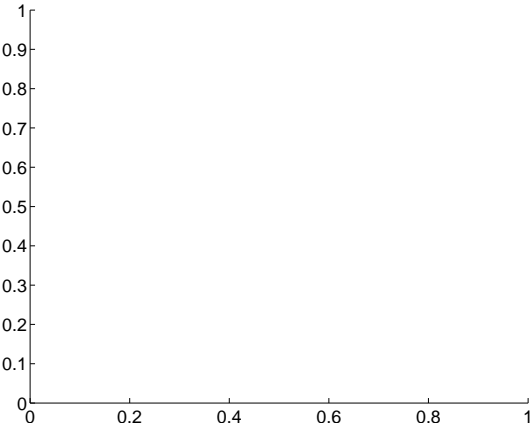
Q7 difference image



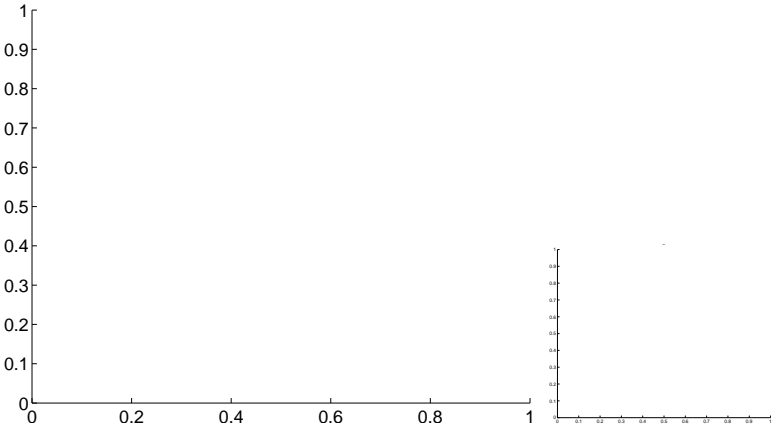
Q7 OOT image



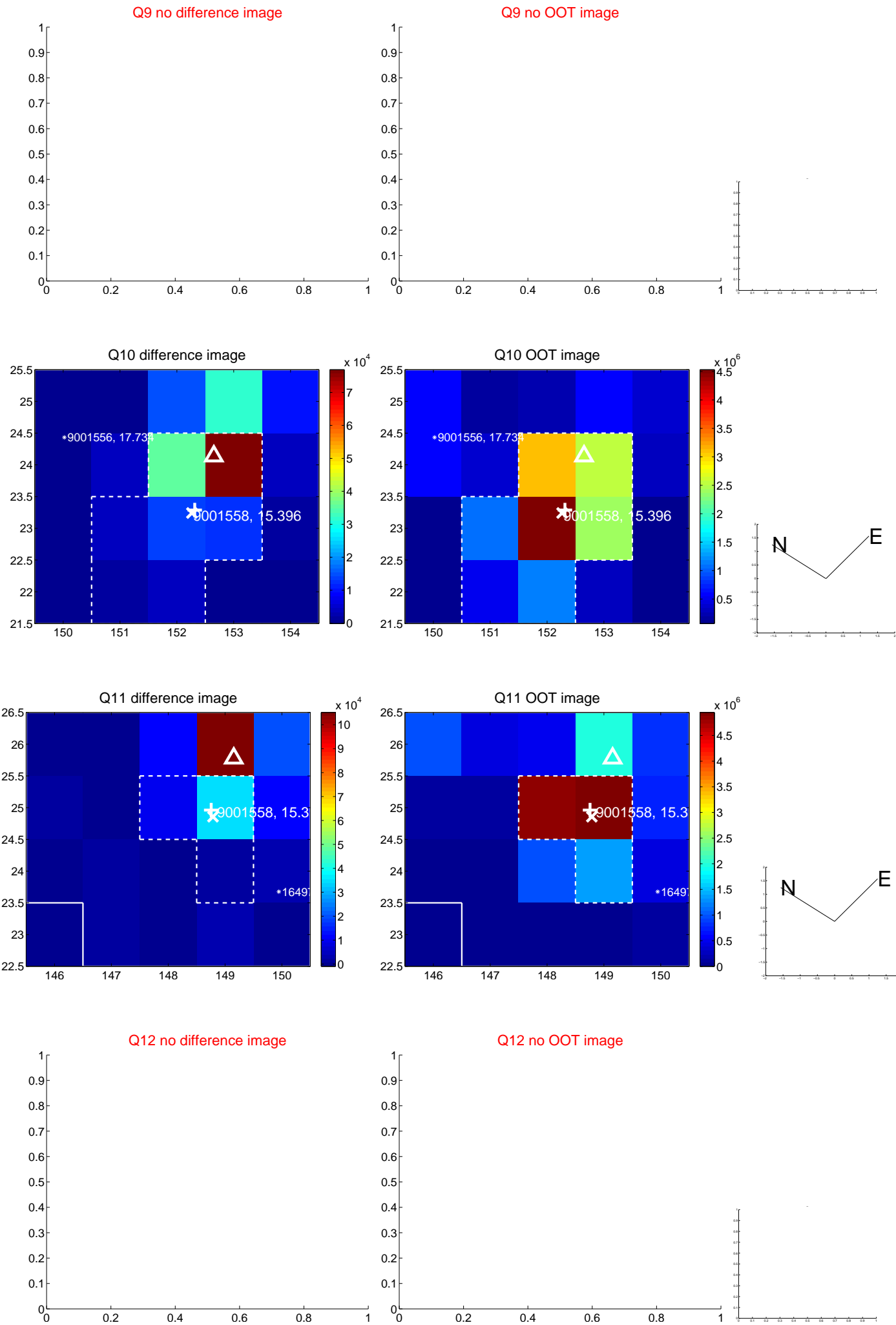
Q8 no difference image



Q8 no OOT image

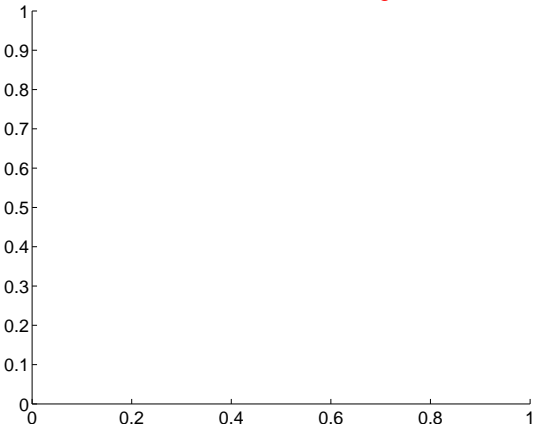


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

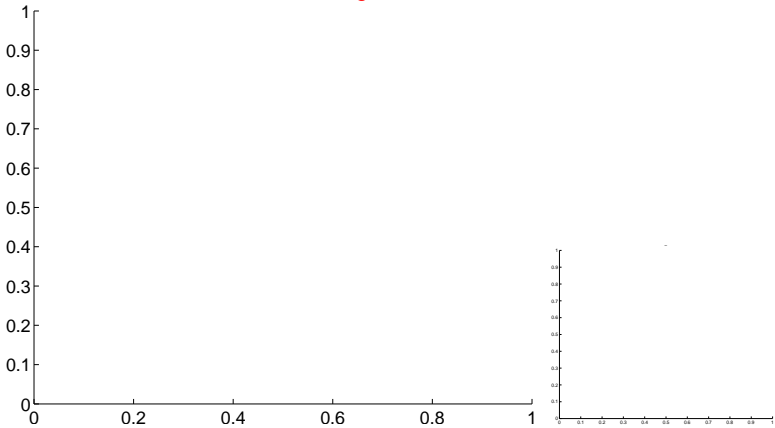


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

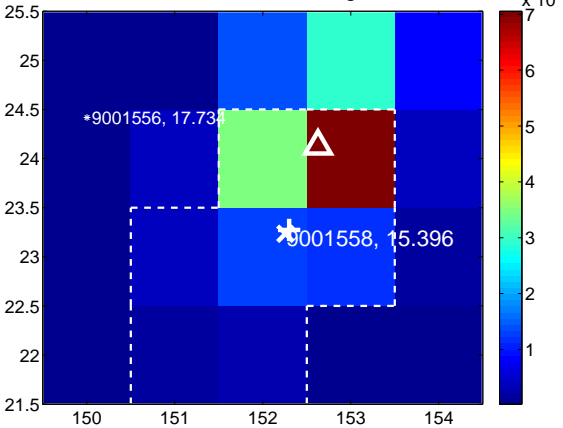
Q13 no difference image



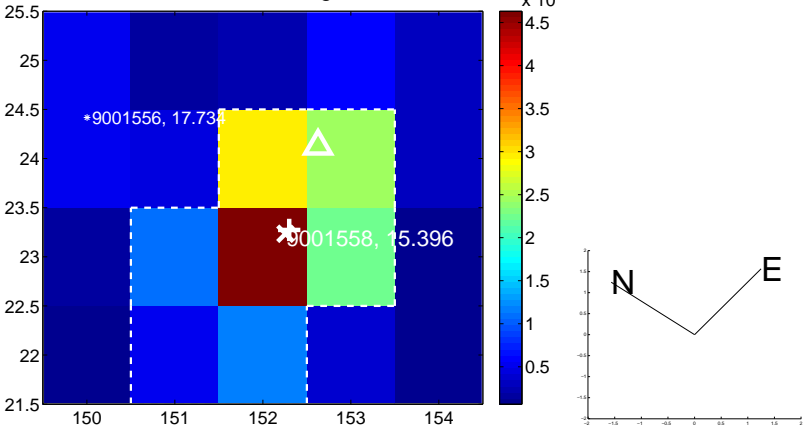
Q13 no OOT image



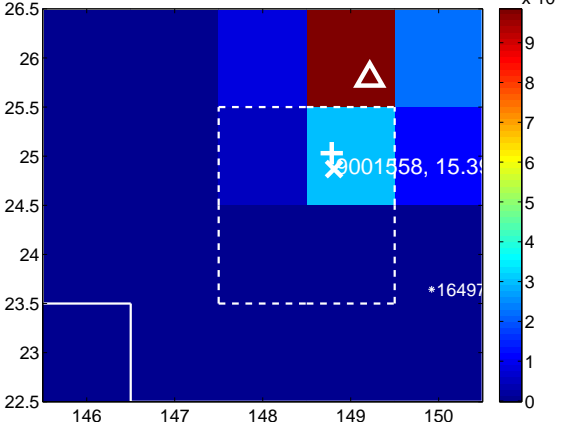
Q14 difference image



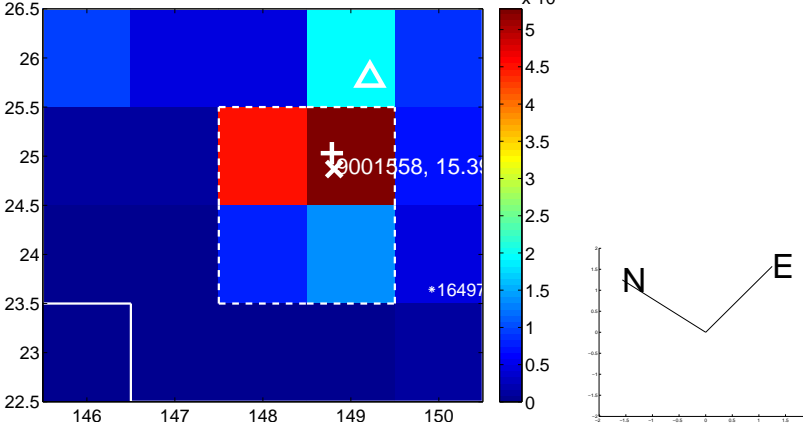
Q14 OOT image



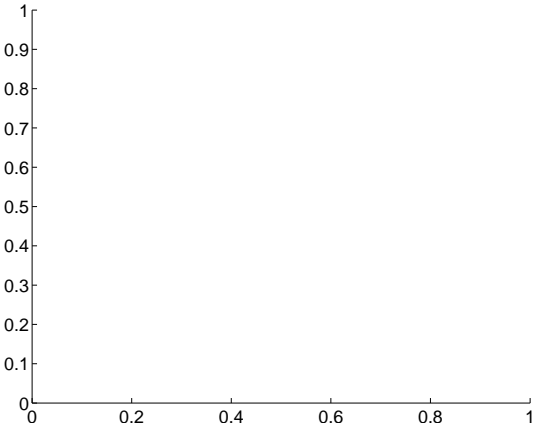
Q15 difference image



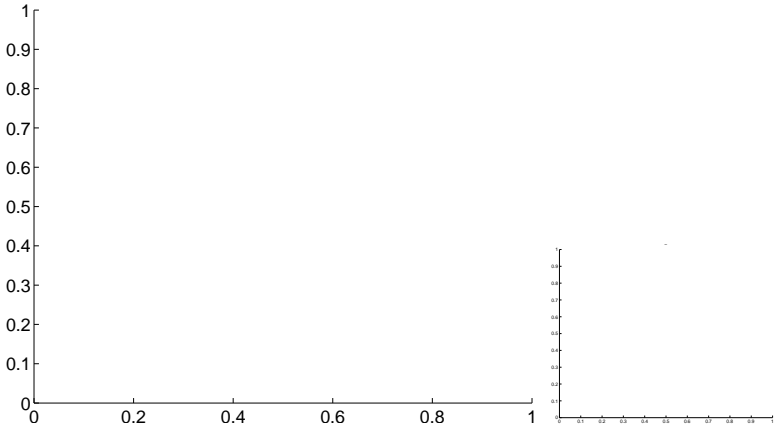
Q15 OOT image



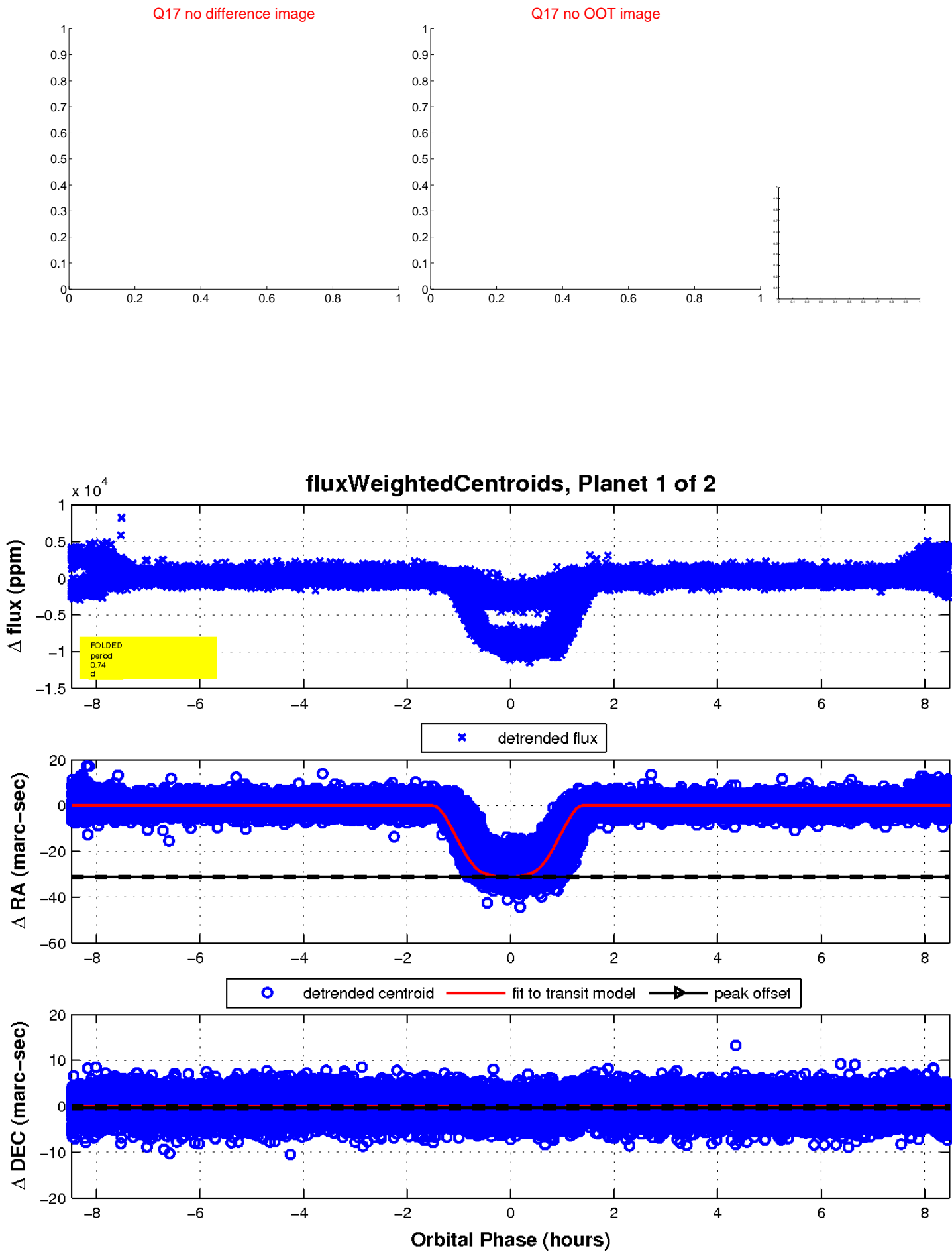
Q16 no difference image



Q16 no OOT image

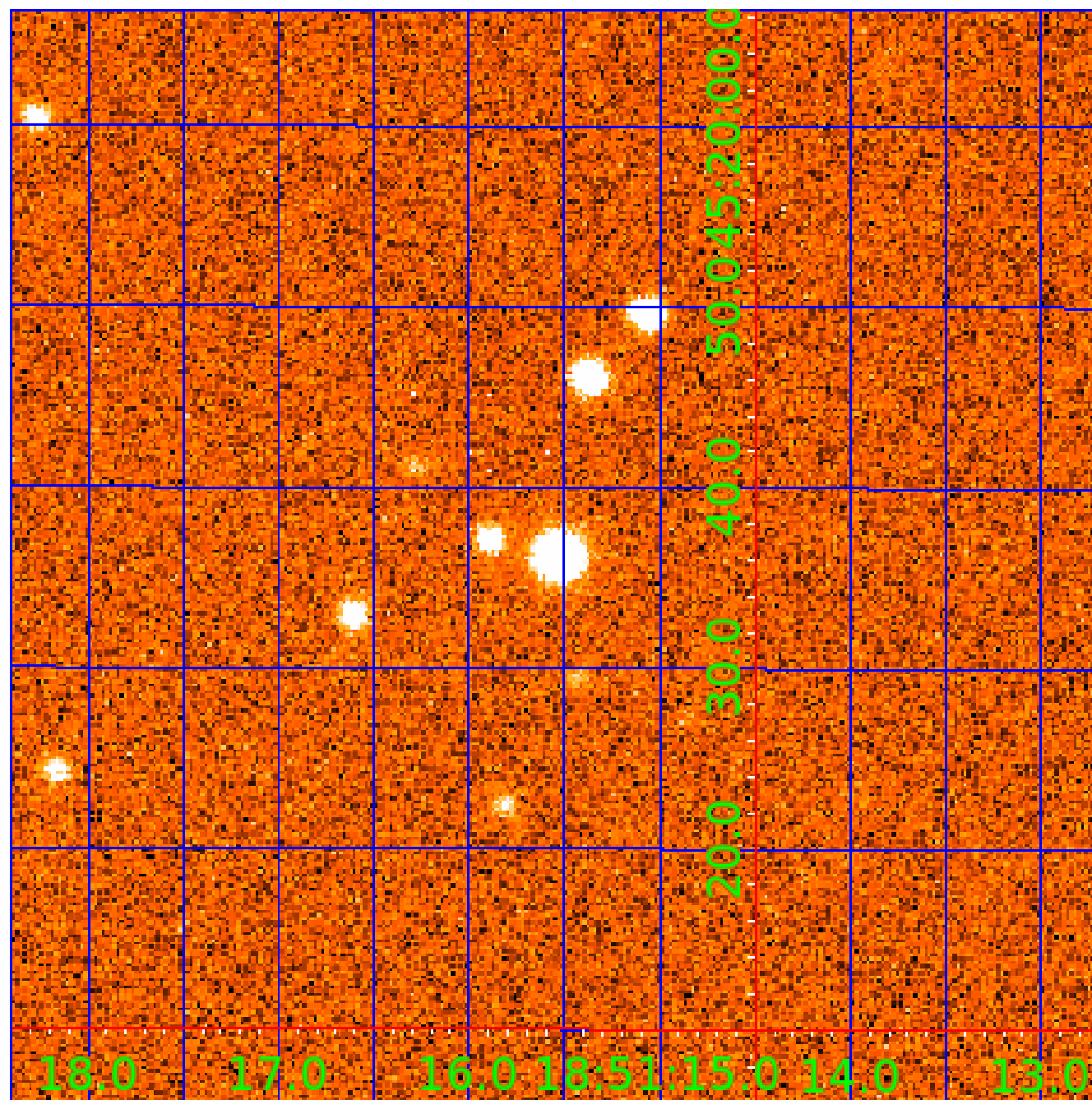


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009001558

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})
009001558-01	OBS	No	0.736486	132.130452	3781.7	2.828	545.7	206.6	0.80	5289	5.95	2075.30
009001558-02	OBS	No	0.736500	131.750777	9019.2	2.000	293.1	-1.0	0.80	5289	7.42	2075.25

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009001558-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST
009001558-02	OBS	FP	0.00	1	0	1	0	SAME_NTL_PERIOD—CENT_NOFITS—HALO_GHOST

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

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

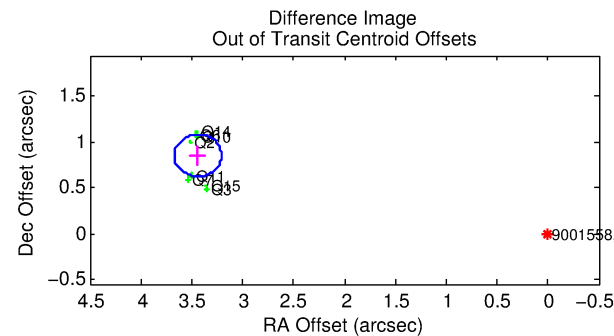
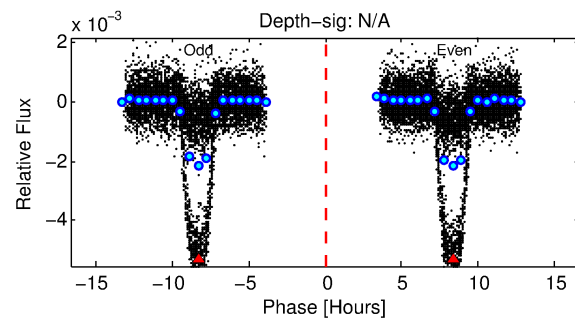
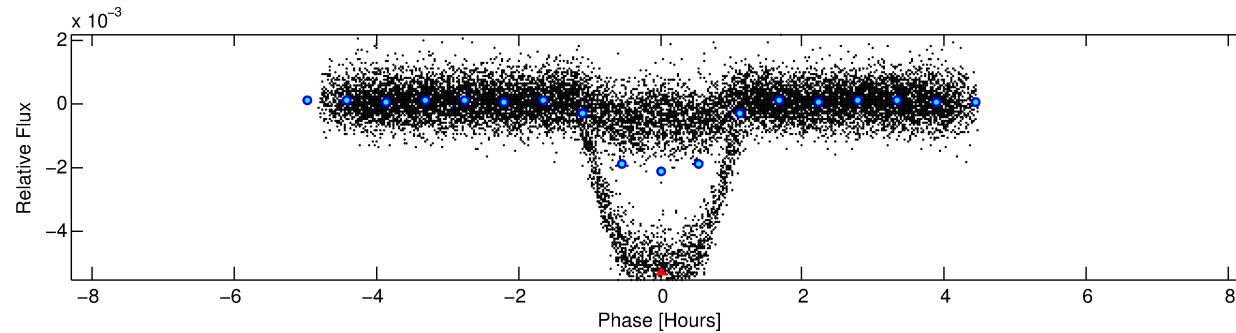
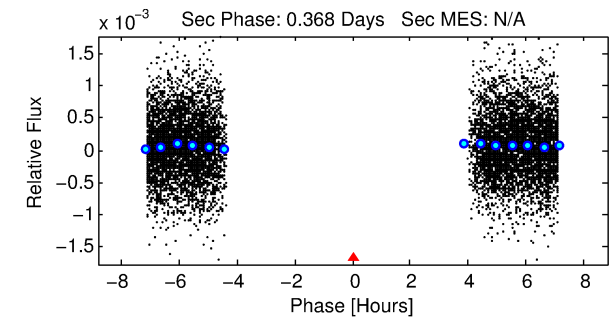
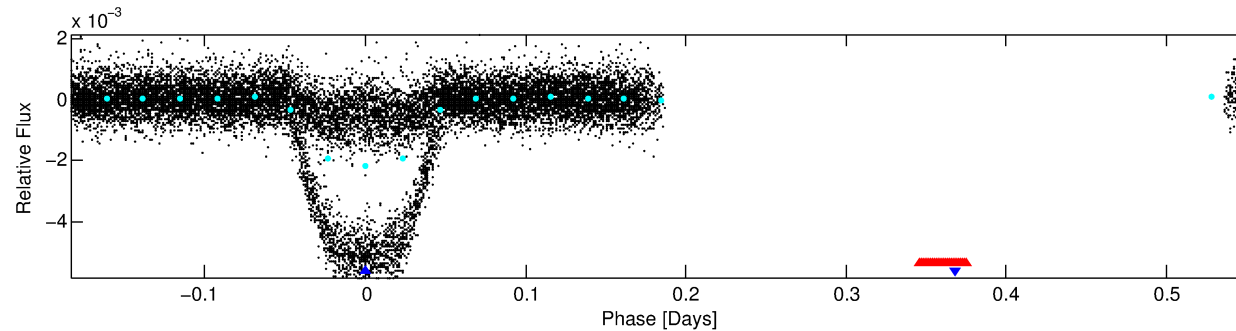
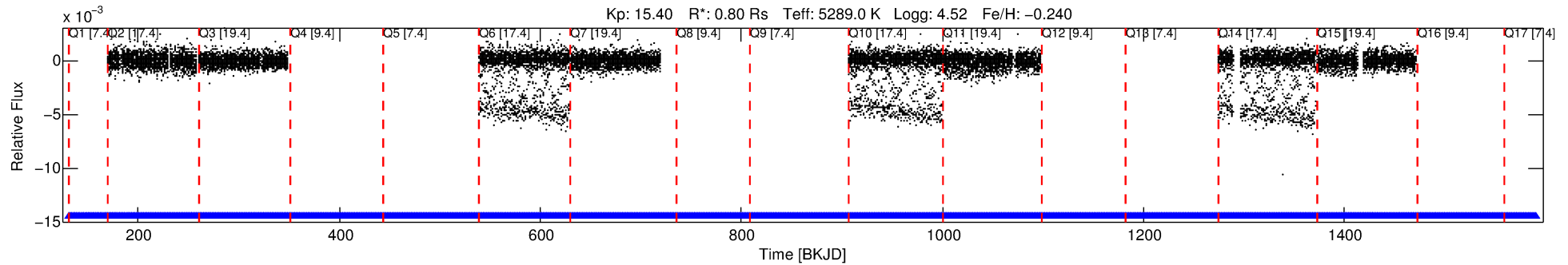
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009001558-02

No Significant Match Found

DV One-Page Summary

KIC: 9001558 Candidate: 2 of 2 Period: 0.737 d



TPS TCE Results:

Period = 0.73650 d
Epoch = 131.7508 BKJD

DV fit results are unavailable

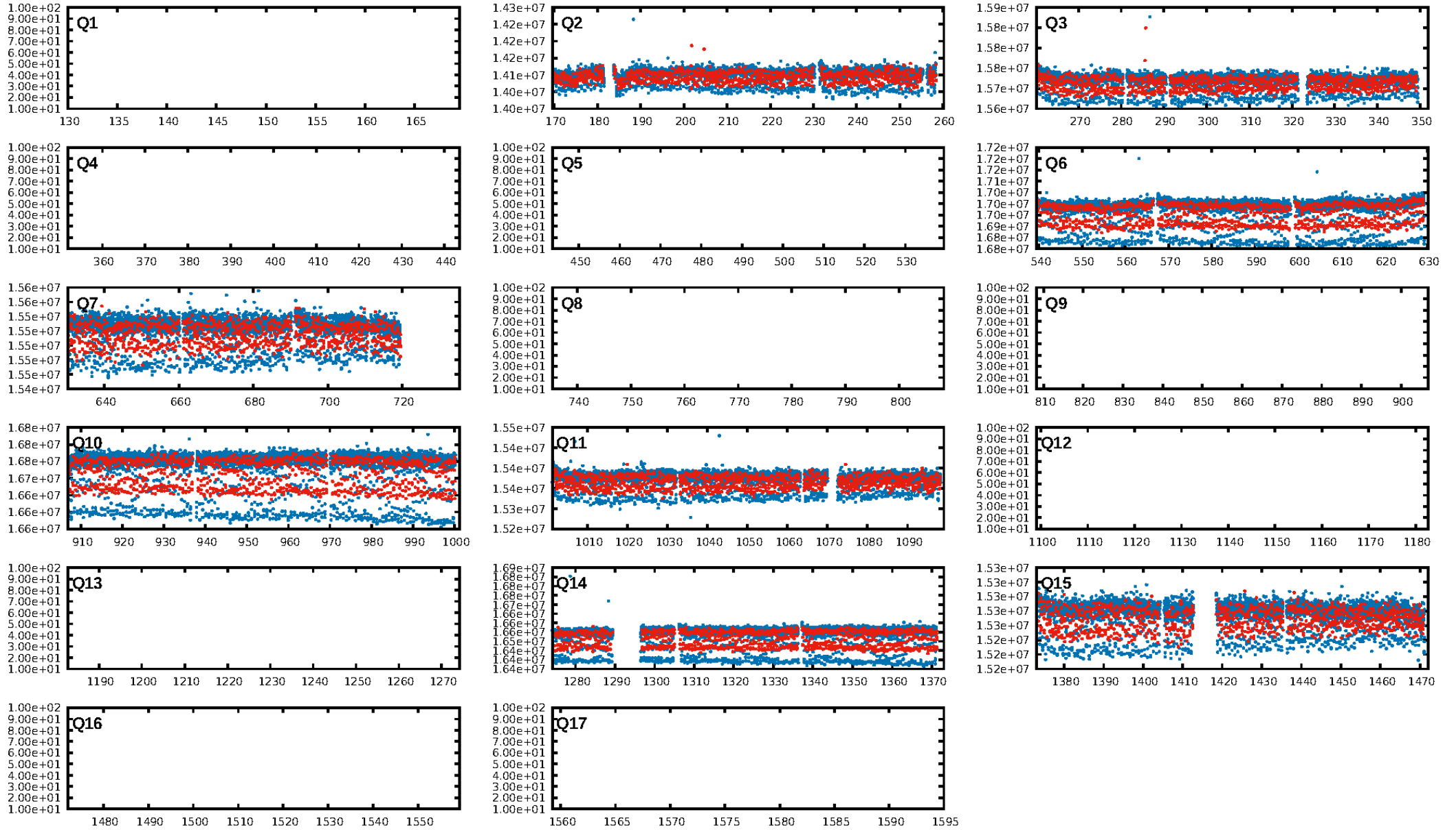
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [961/961]
GhostDiagnostic-chr: 0.1224
Centroid-sig: 0.0%
Centroid-so: 5.333 arcsec [141.54 σ]
OotOffset-rm: 3.546 arcsec [46.10 σ]
KicOffset-rm: 3.917 arcsec [49.93 σ]
OotOffset-st: 4/4/0/0 [8]
KicOffset-st: 4/4/0/0 [8]
DiffImageQuality-fgm: 1.00 [8/8]
DiffImageOverlap-fno: 0.75 [6/8]

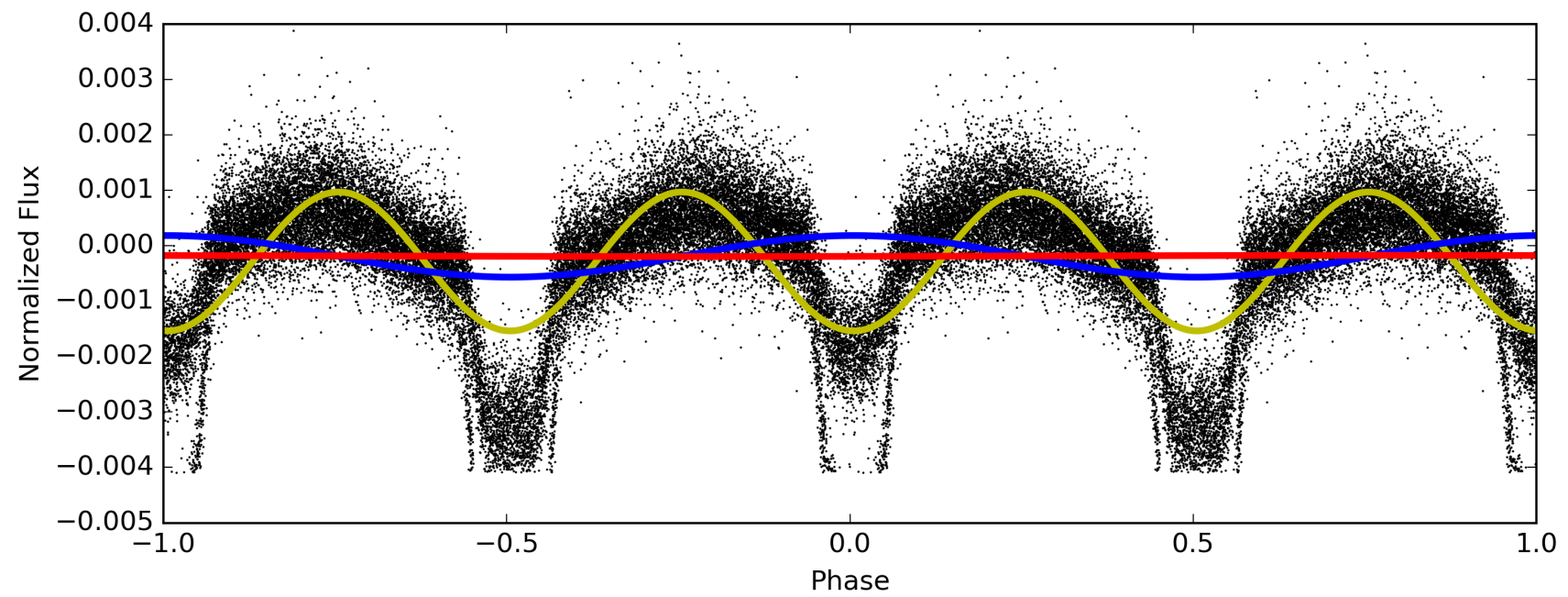
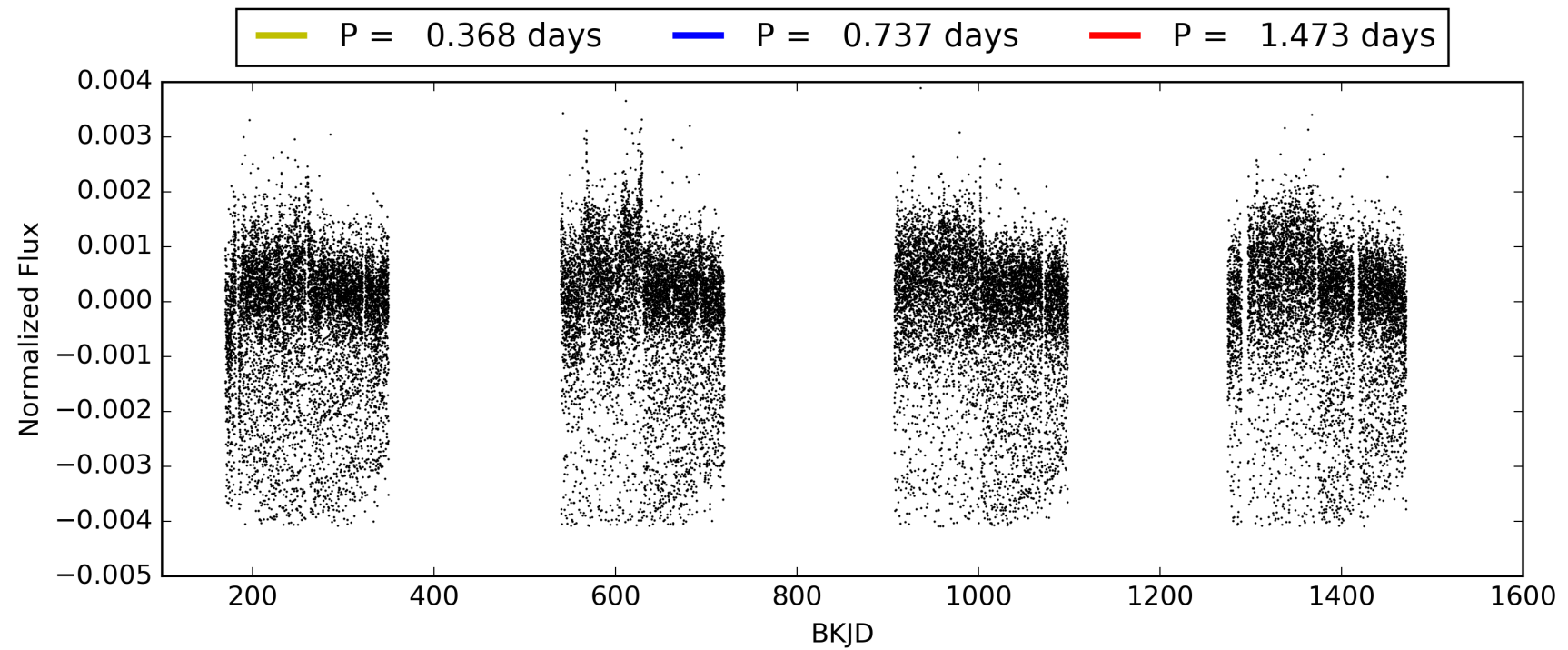
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 09:06:14 Z

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

TCE 009001558-02, PDC Light Curves

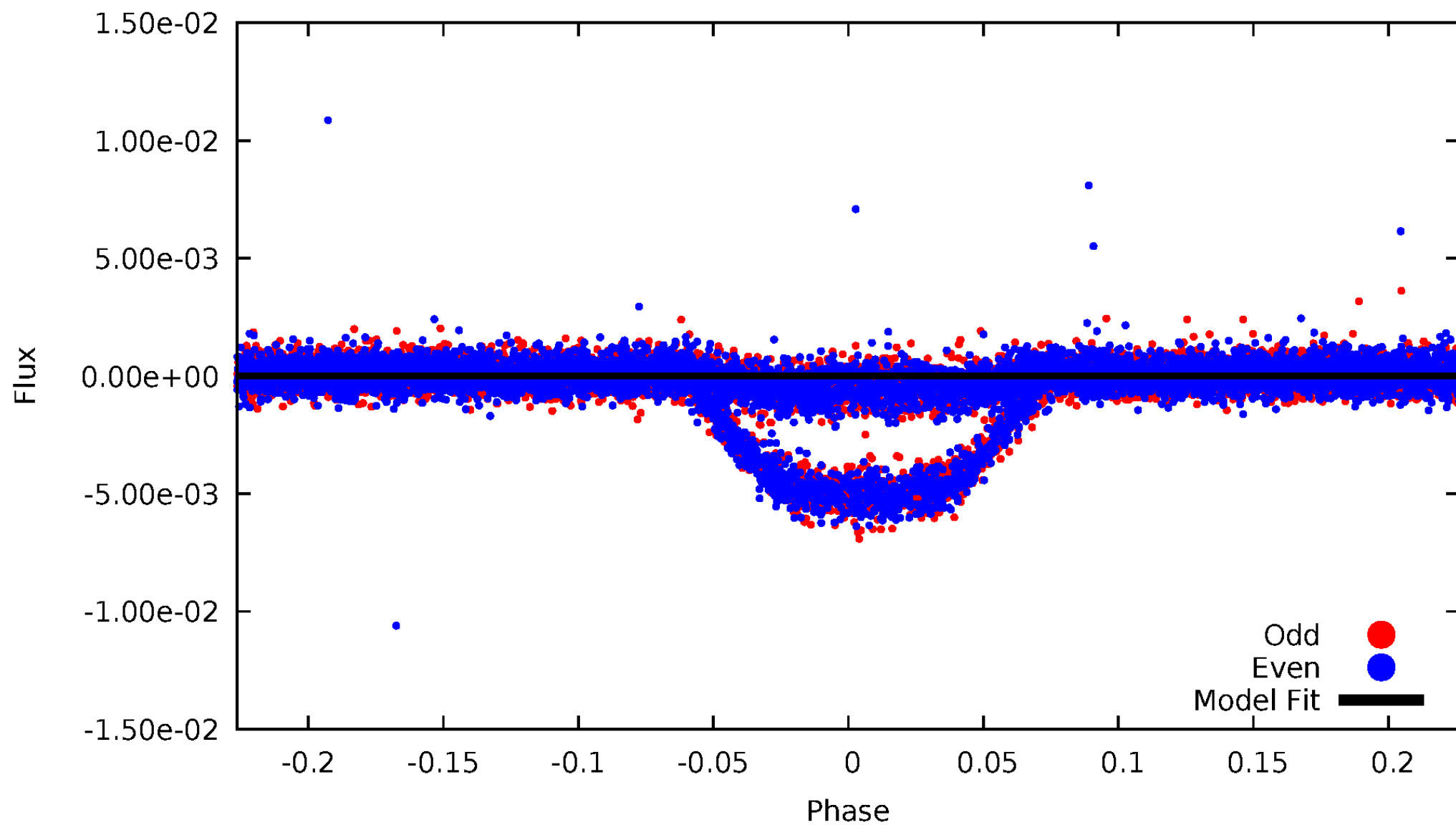


TCE 009001558-02



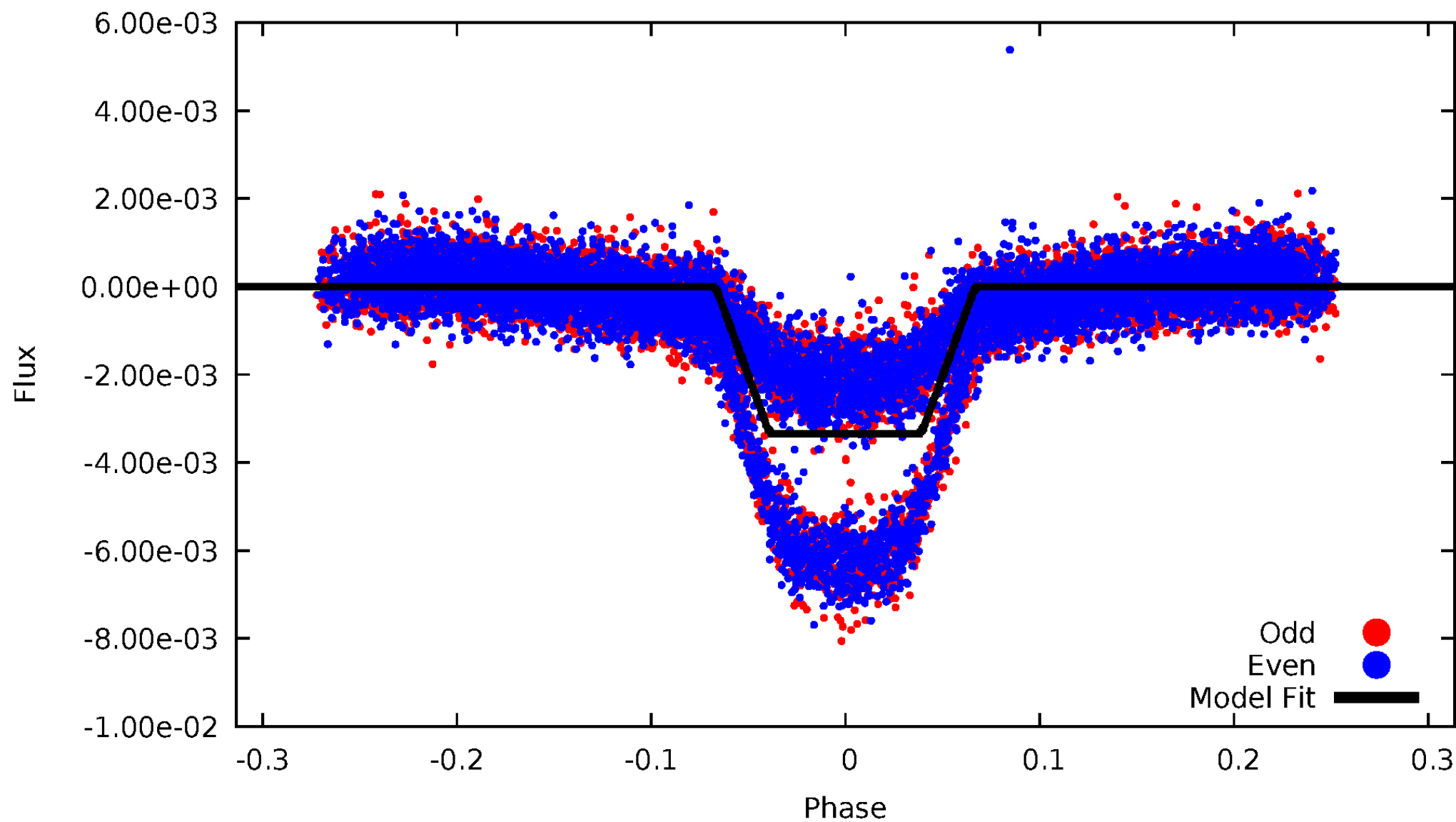
DV Odd/Even

TCE 009001558-02



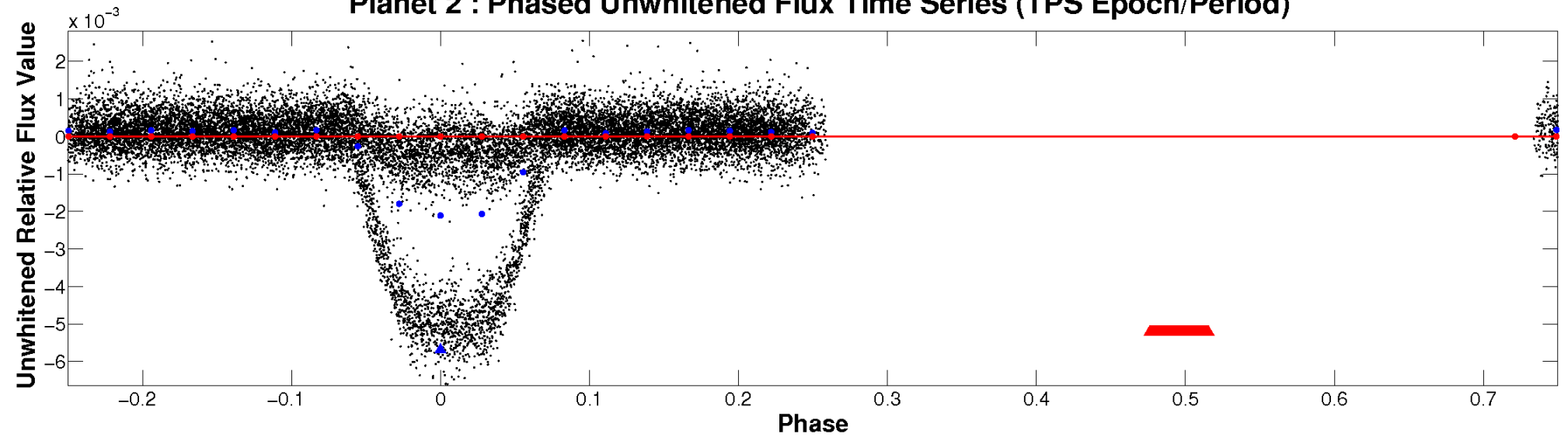
ALT Odd/Even

TCE 009001558-02

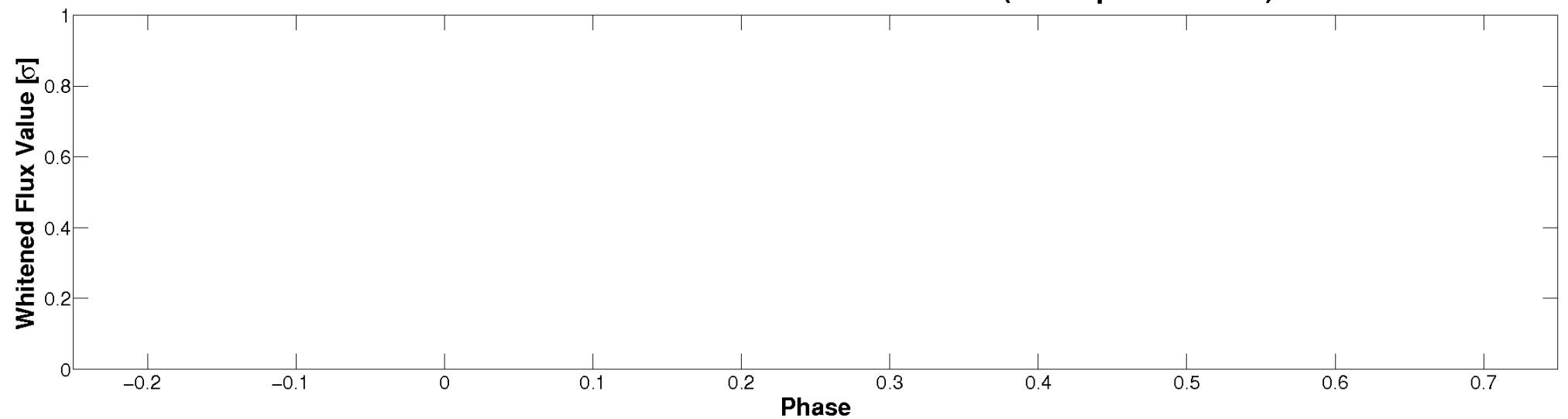


Non-Whitened Vs. Whitened Light Curve

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

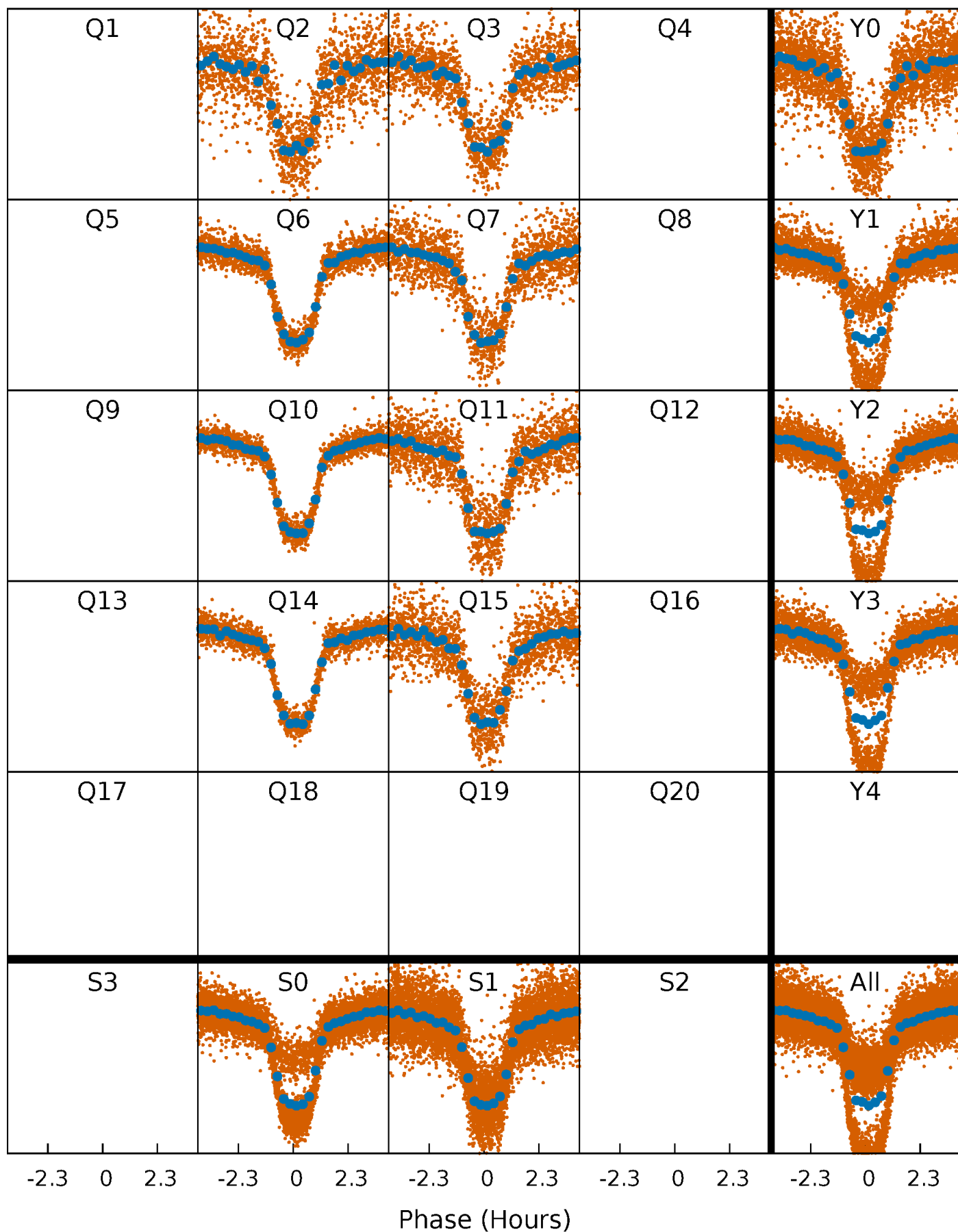


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



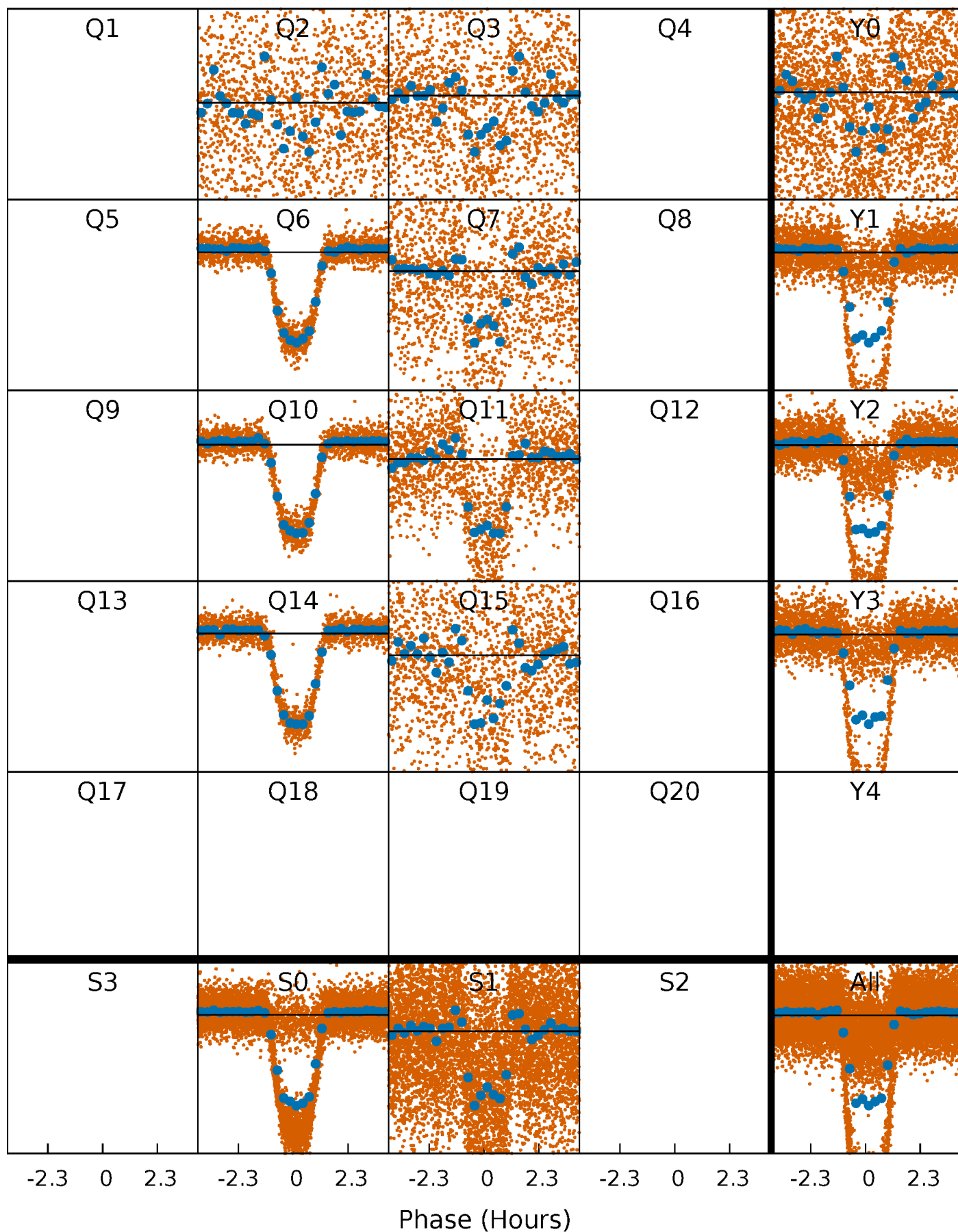
PDC Quarter-Phased Transit Curves

TCE 009001558-02 P= 0.736500 Days $T_0=131.750777$ (BKJD)



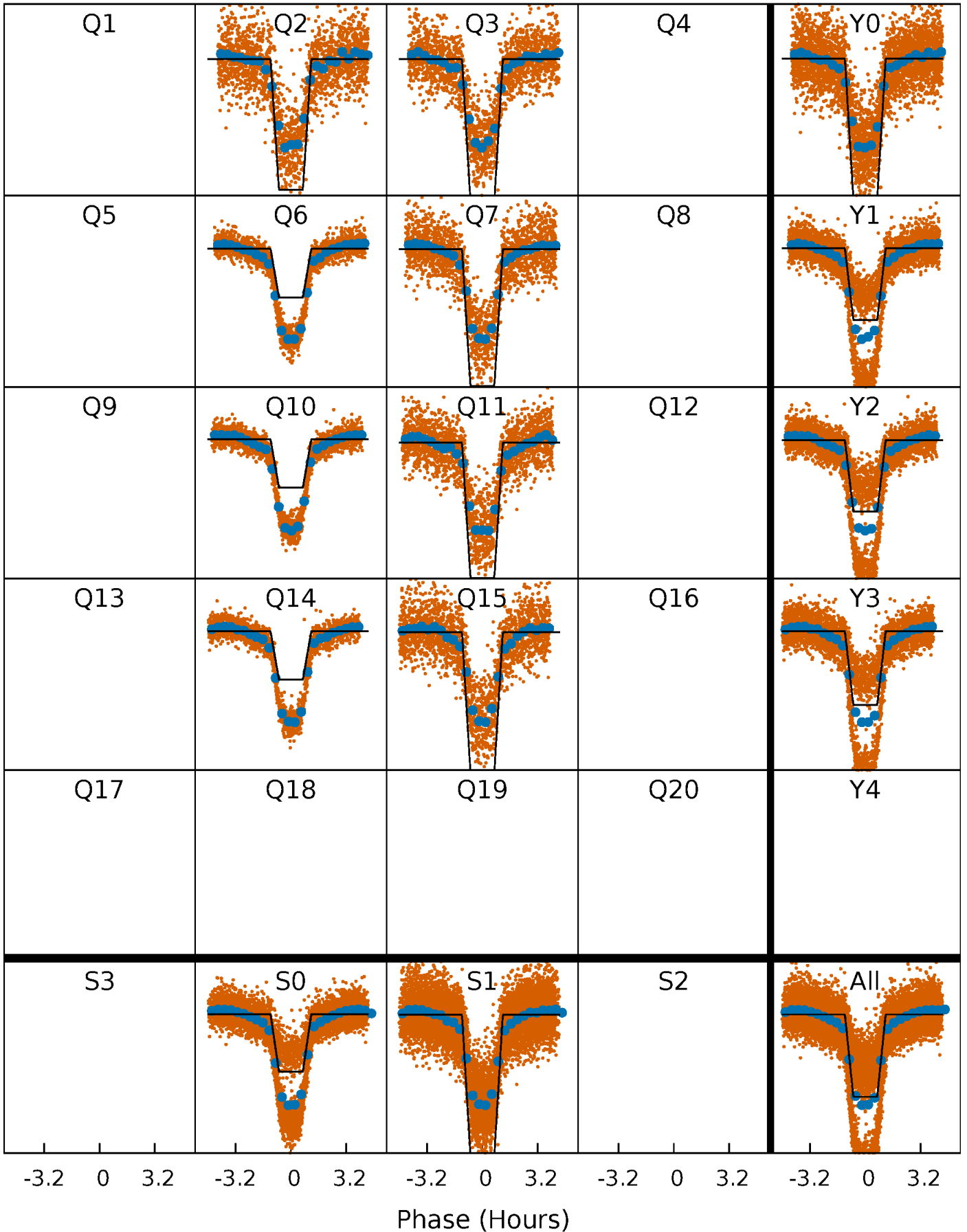
DV Quarter-Phased Transit Curves

TCE 009001558-02 P= 0.736500 Days $T_0=131.750777$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

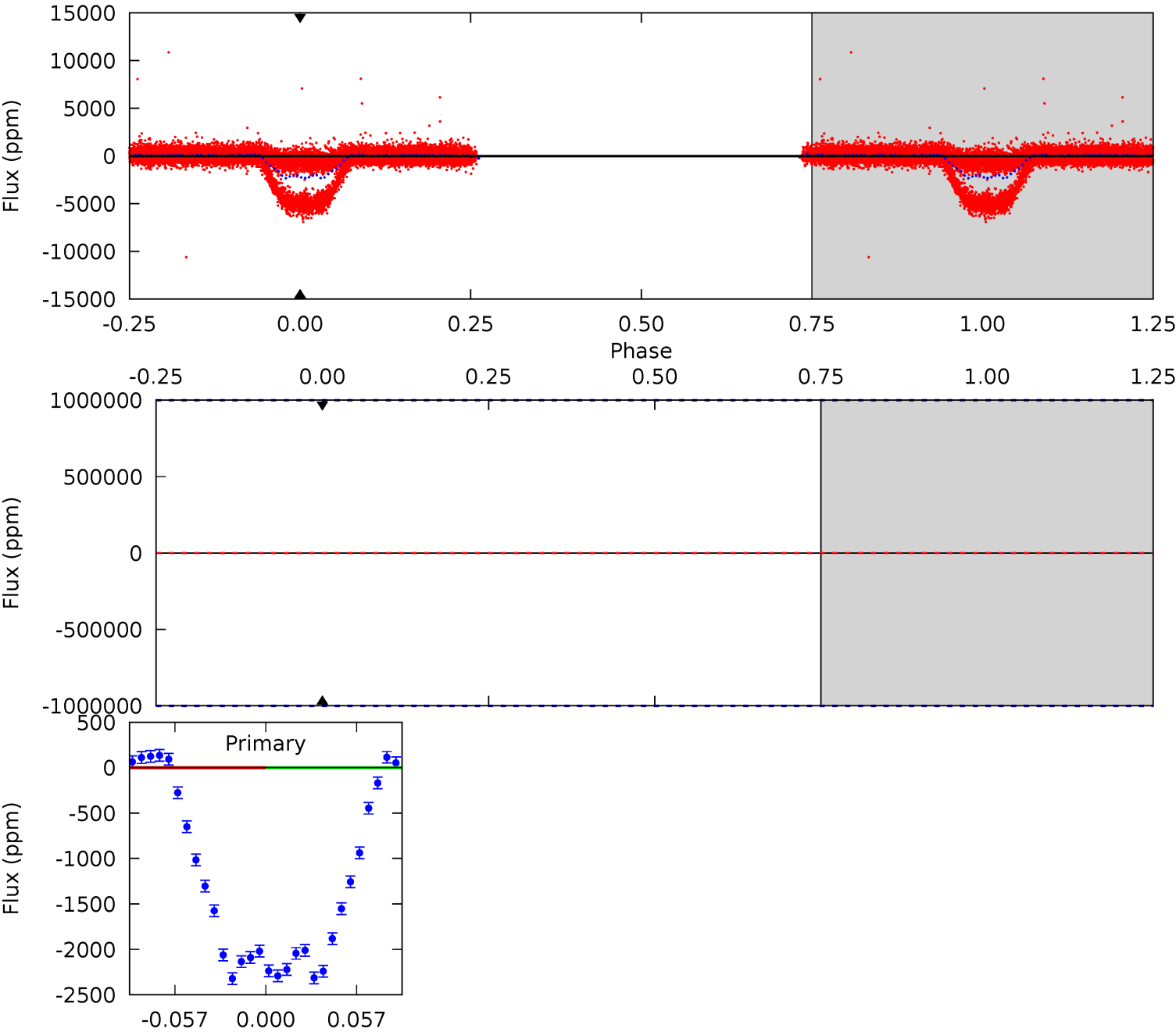
TCE 009001558-02 $P = 0.736500$ Days $T_0 = 131.755244$ (BKJD)



DV Model-Shift Uniqueness Test

009001558-02, P = 0.736500 Days, E = 131.750777 Days

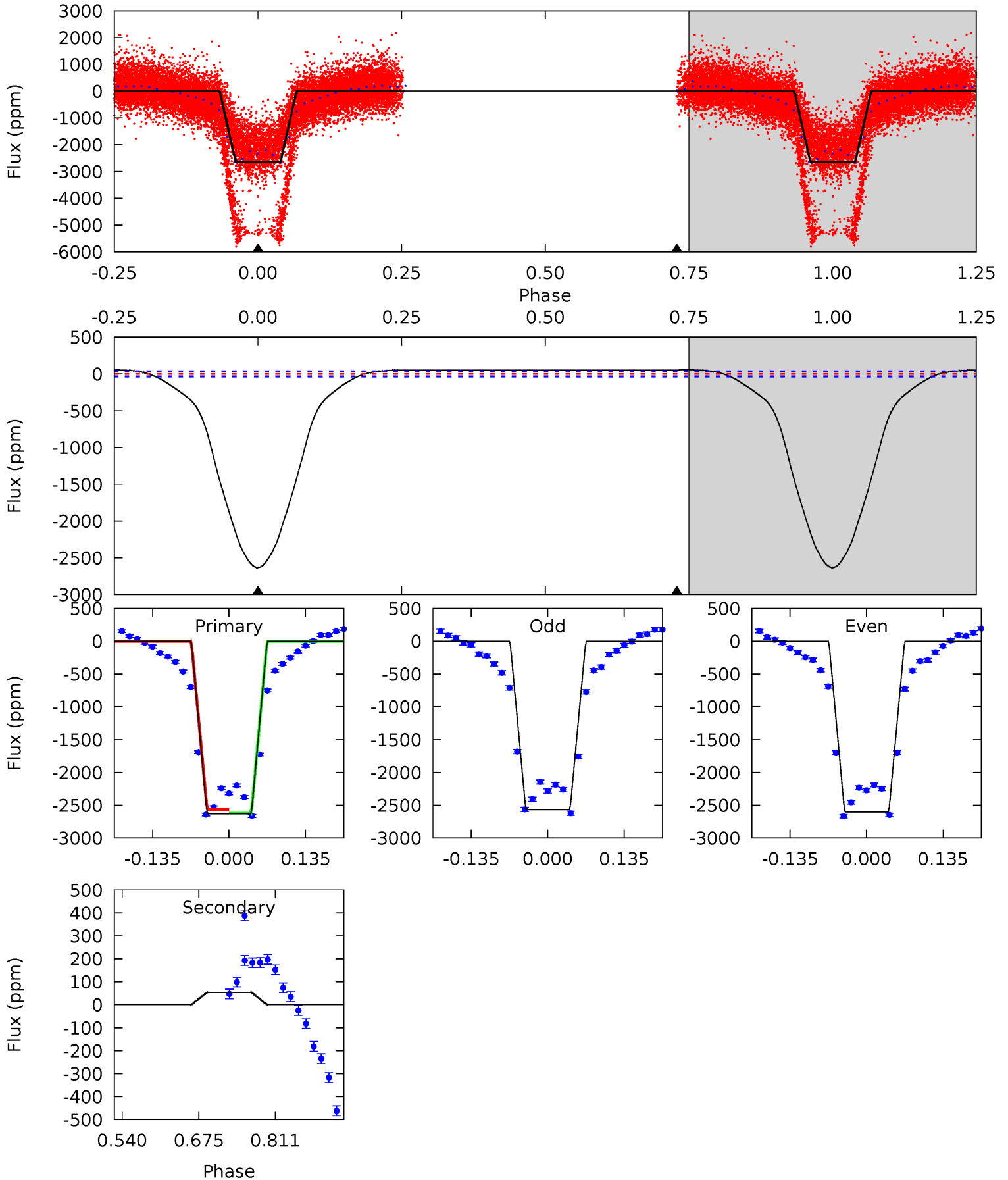
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

009001558-02, P = 0.736500 Days, E = 131.755244 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
335.6	-6.89	0	0	4.50	1.49	10.6	335.6	335.6	-6.89	-6.89	2.17	1.48	0.02	0



Stellar Parameters For KIC 009001558

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5289^{+185}_{-185}	$4.522^{+0.076}_{-0.093}$	$-0.240^{+0.300}_{-0.300}$	$0.795^{+0.112}_{-0.092}$	$0.767^{+0.110}_{-0.063}$	$2.151^{+0.732}_{-0.599}$
	+3%/-3%	+2%/-2%	+125%/-125%	+14%/-12%	+14%/-8%	+34%/-28%
Source	KIC0	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 009001558-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$9.71^{+7.80}_{-6.03}$	2412^{+124}_{-111}	4038^{+7011}_{-15158}	$4.179^{+189.555}_{-191.052}$
Alt.	54 ± 8	$7.92^{+8.01}_{-5.29}$	2416^{+112}_{-115}	-2857^{+119}_{-501}	$-0.103^{+0.079}_{-0.789}$

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

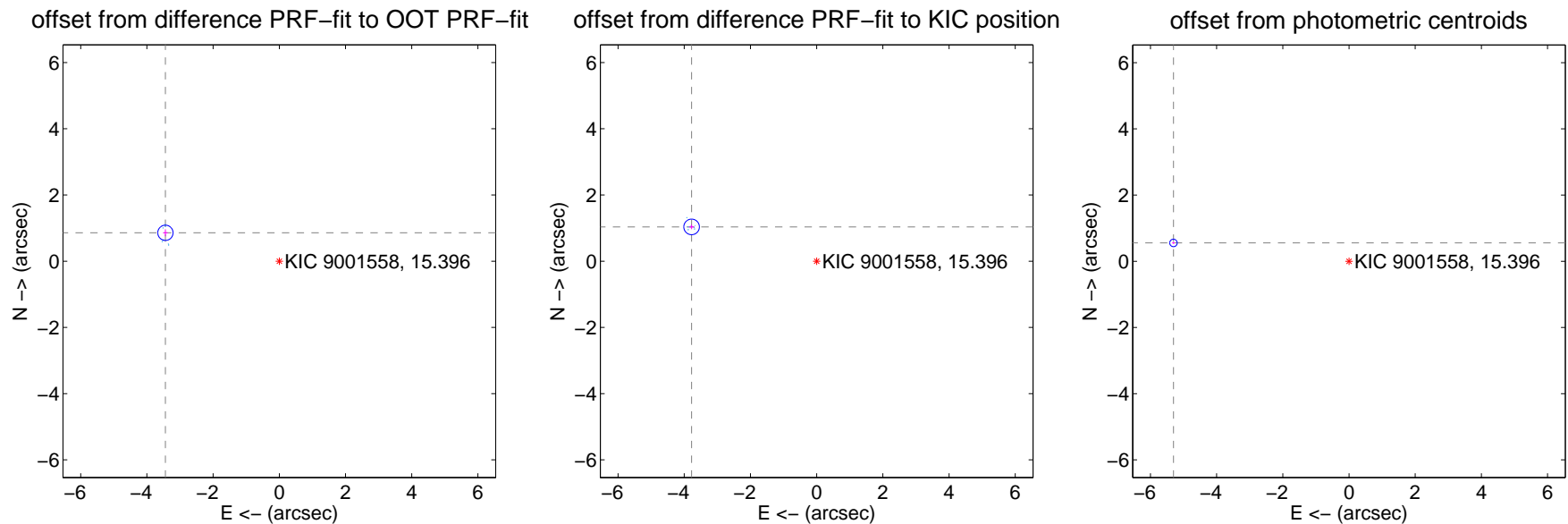
DV Centroid Data

Supplemental centroid analysis for 009001558-02. Kepler magnitude: 15.40. Transit SNR -1.00

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.72 arcsec

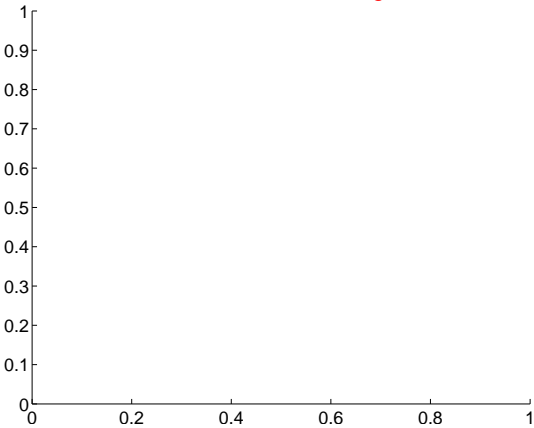
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.546 ± 0.077	46.10	3.440 ± 0.071	0.858 ± 0.106
PRF-fit source offset from KIC position	3.917 ± 0.078	49.93	3.777 ± 0.079	1.035 ± 0.070
photometric centroid source offset	5.33 ± 0.04	141.54	5.30 ± 0.04	0.55 ± 0.03



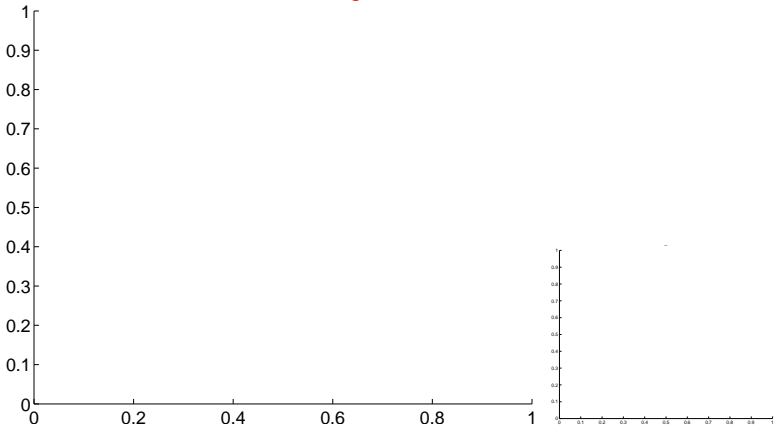
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

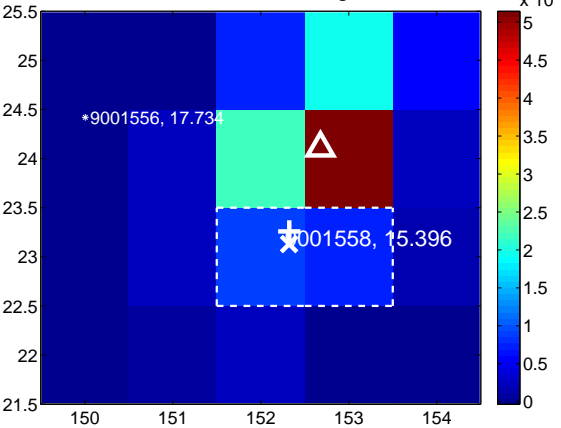
Q1 no difference image



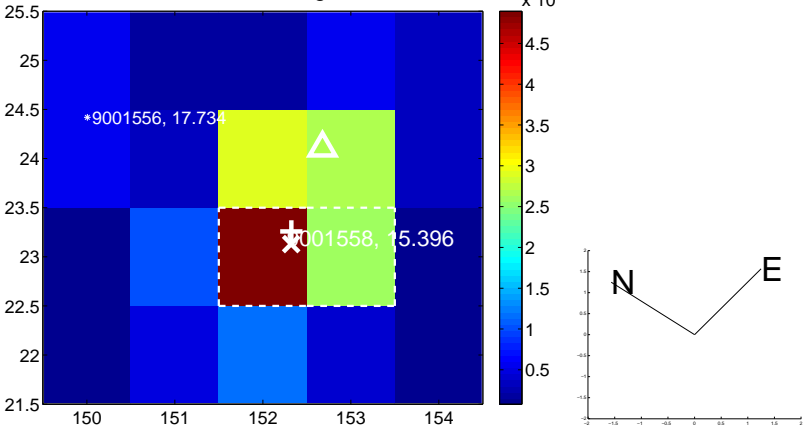
Q1 no OOT image



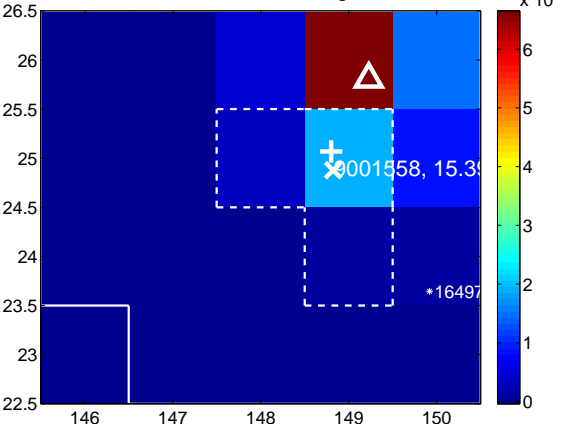
Q2 difference image



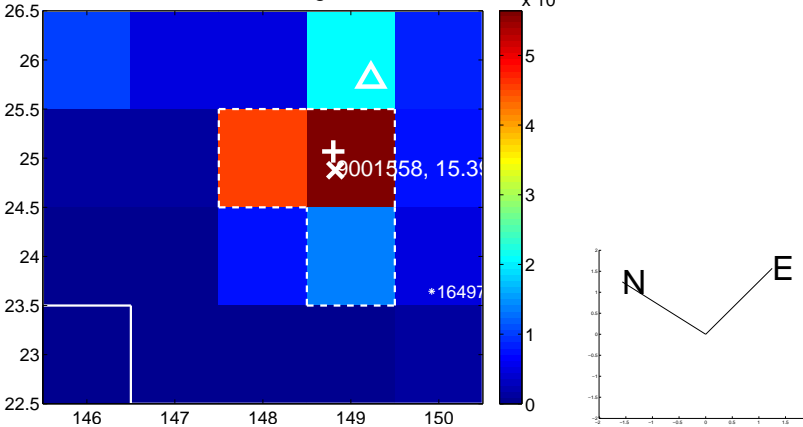
Q2 OOT image



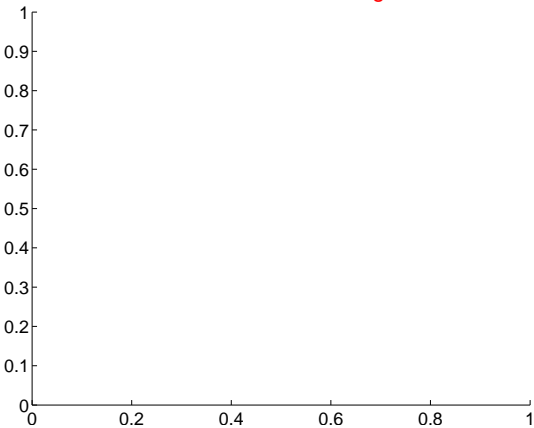
Q3 difference image



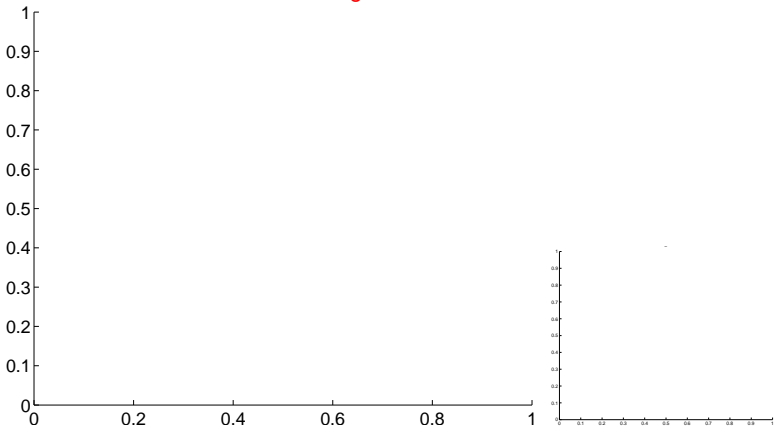
Q3 OOT image



Q4 no difference image

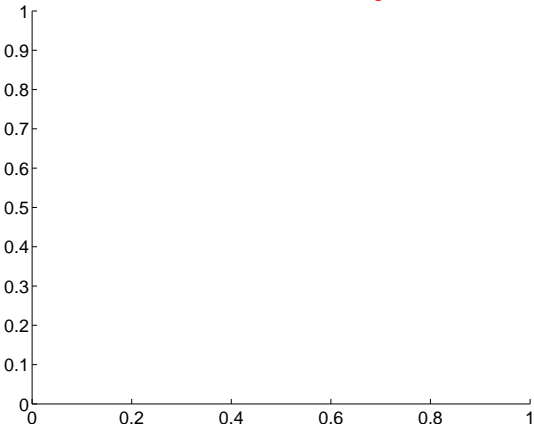


Q4 no OOT image

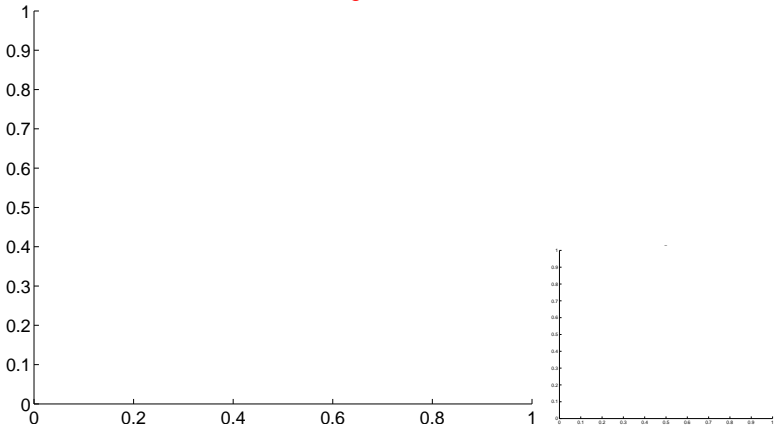


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

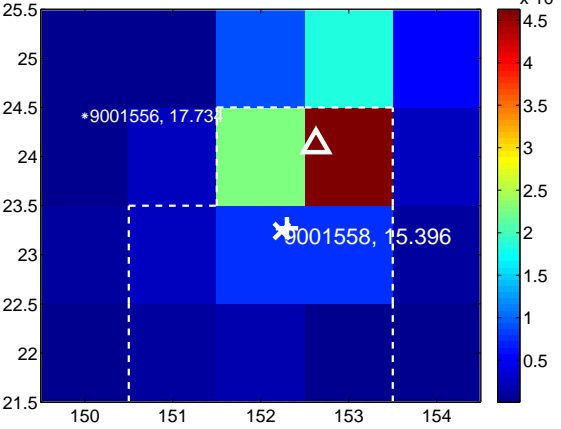
Q5 no difference image



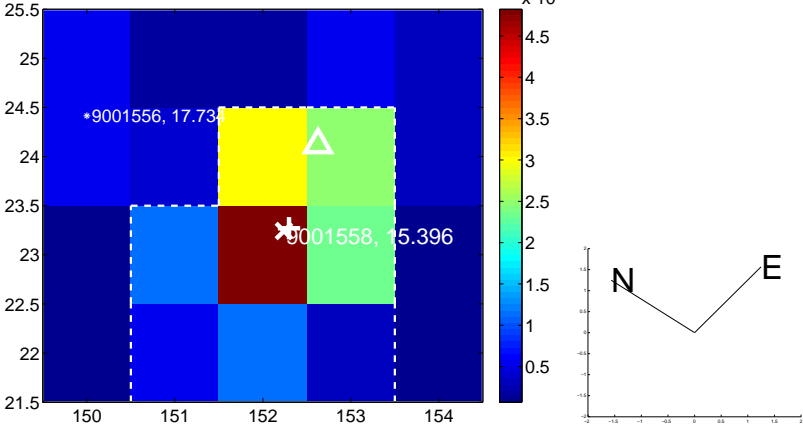
Q5 no OOT image



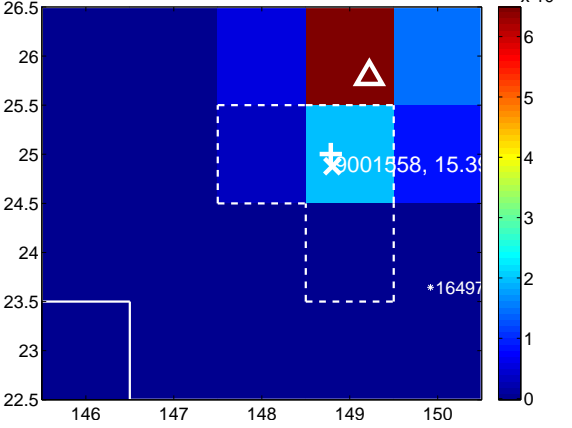
Q6 difference image



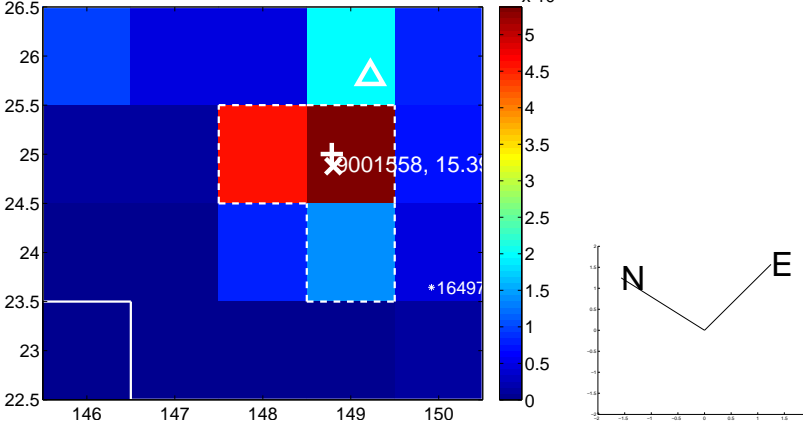
Q6 OOT image



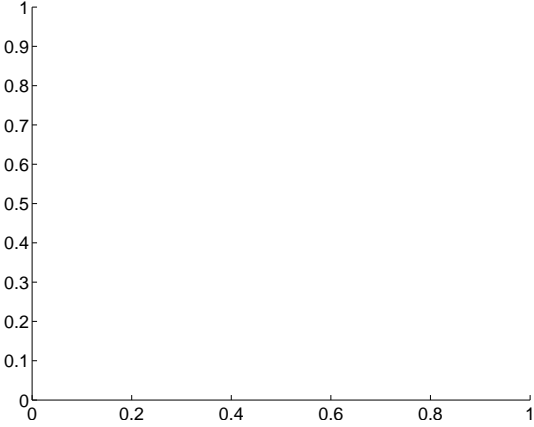
Q7 difference image



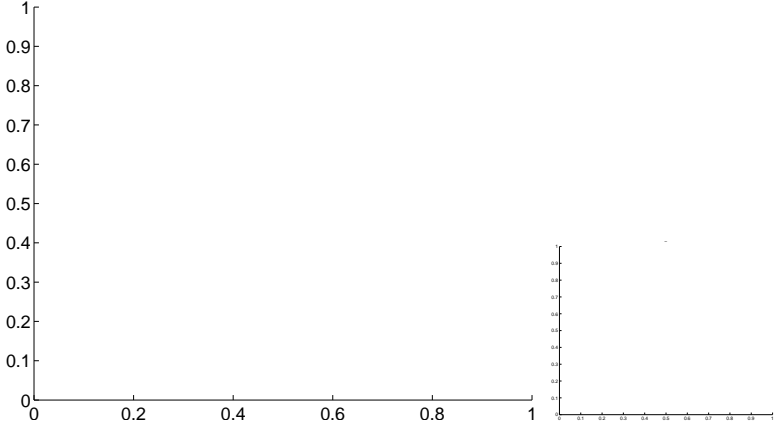
Q7 OOT image



Q8 no difference image

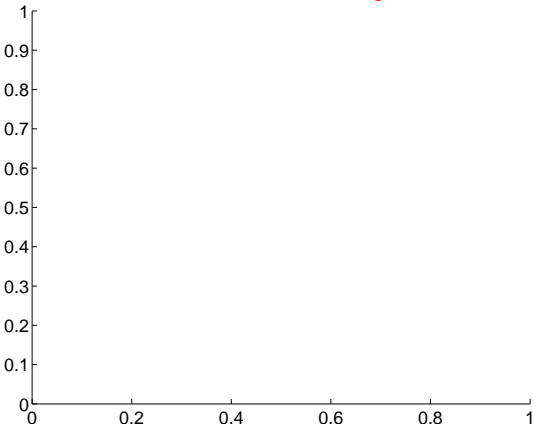


Q8 no OOT image

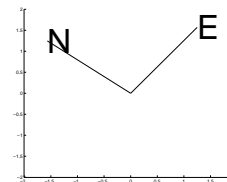
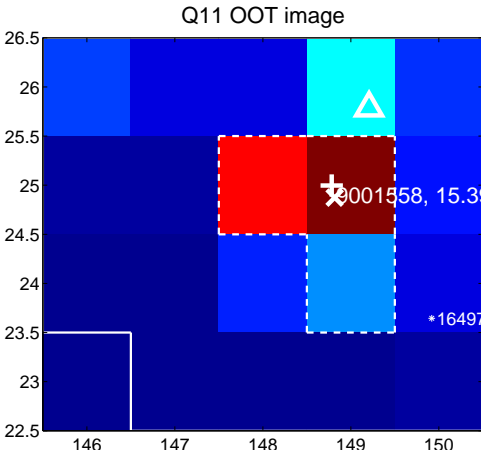
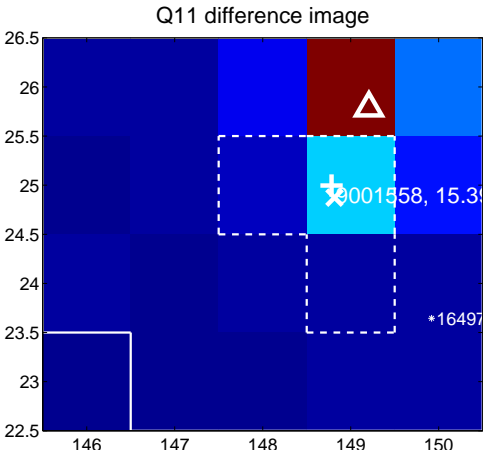
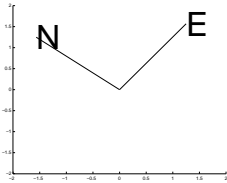
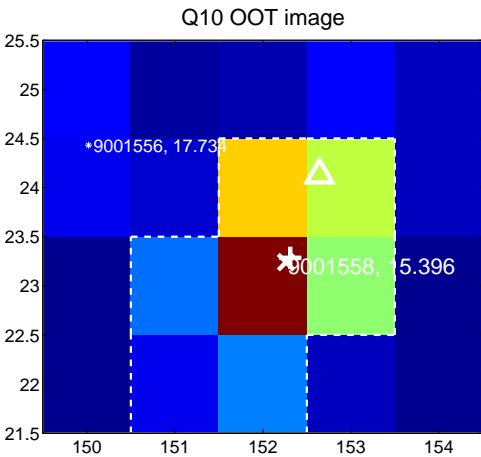
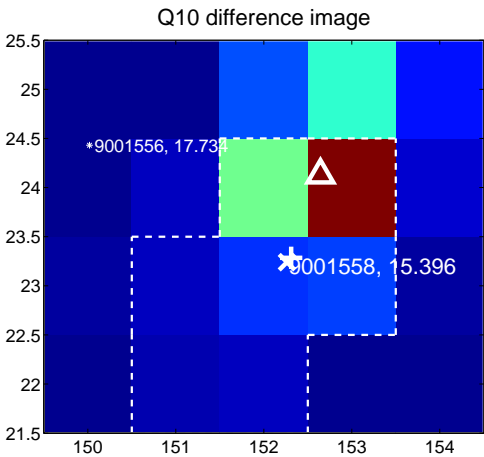
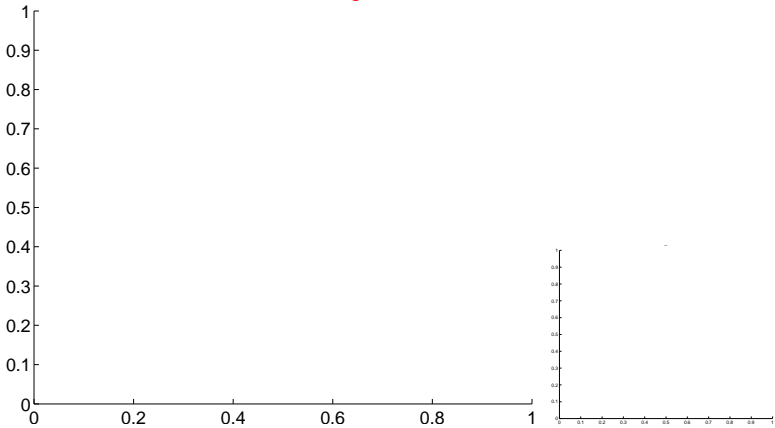


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

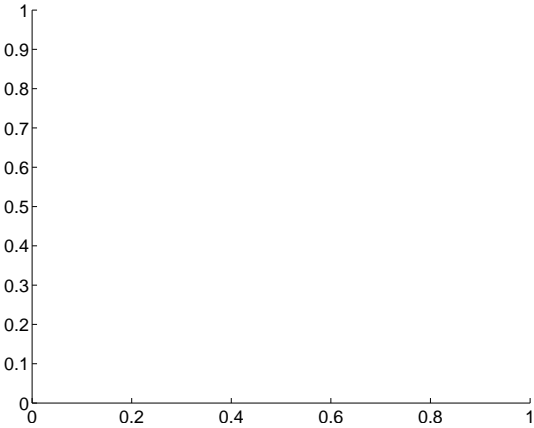
Q9 no difference image



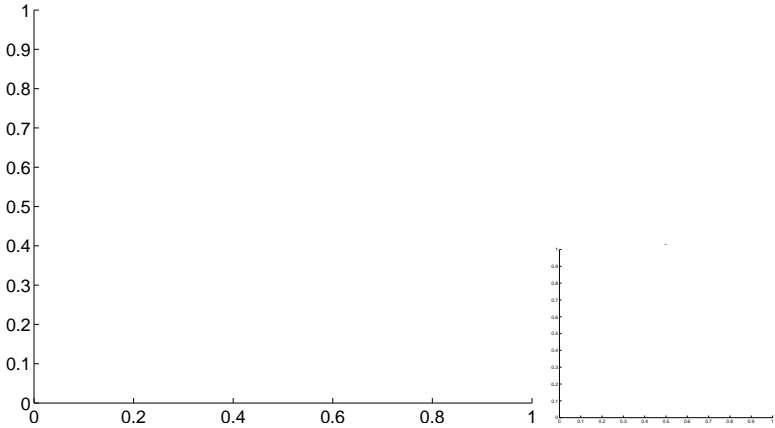
Q9 no OOT image



Q12 no difference image

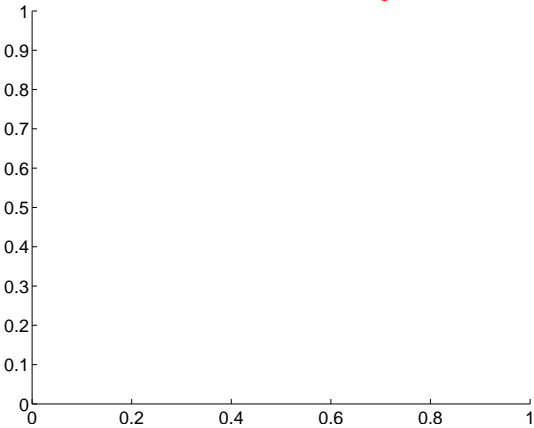


Q12 no OOT image

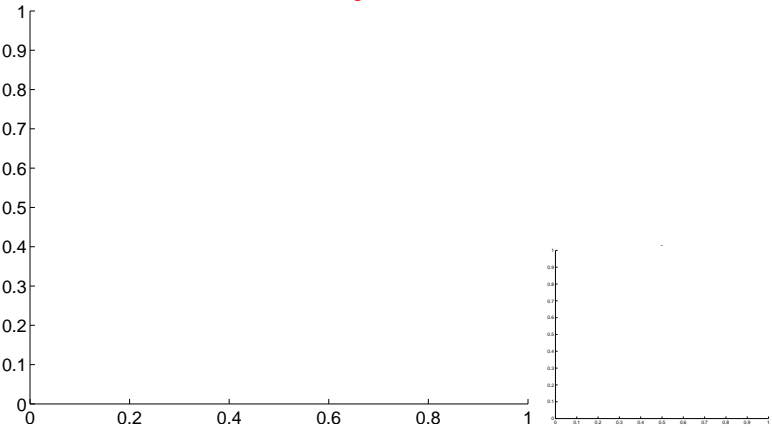


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

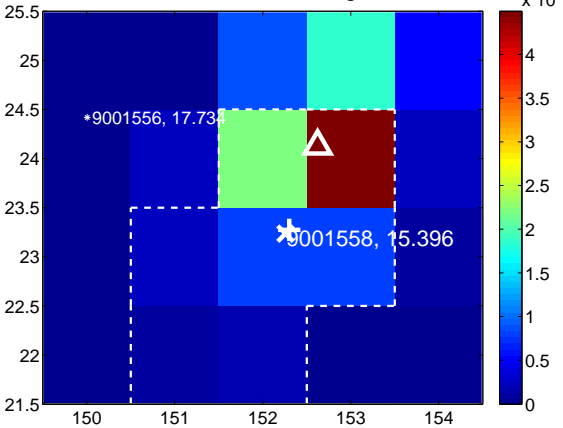
Q13 no difference image



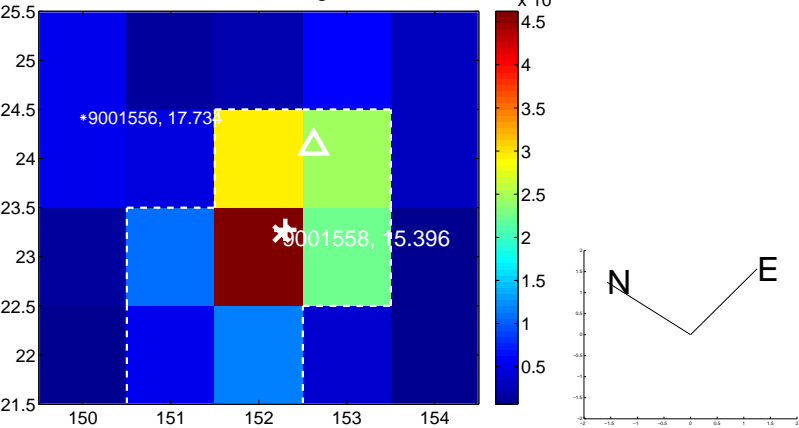
Q13 no OOT image



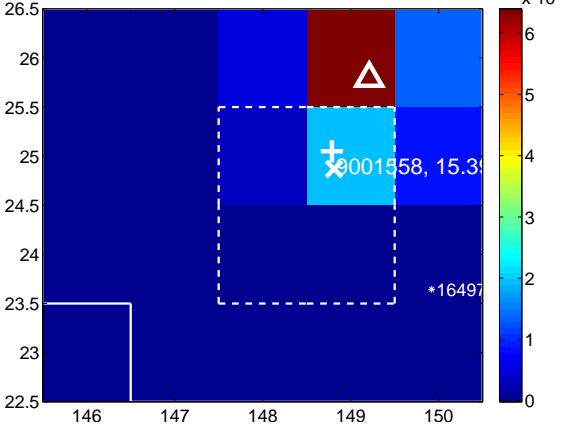
Q14 difference image



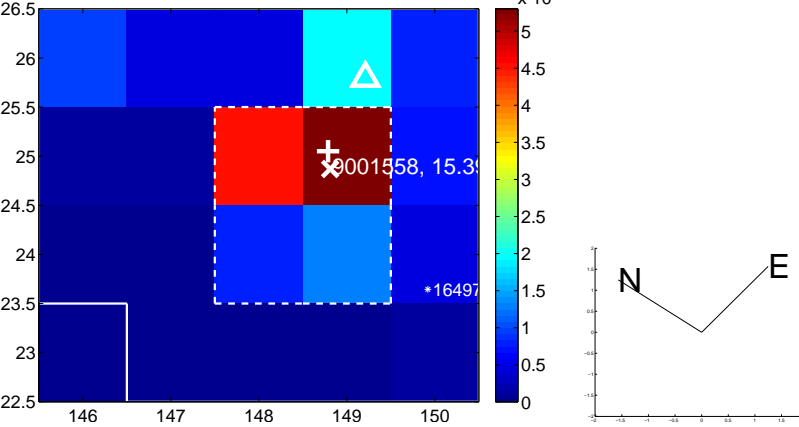
Q14 OOT image



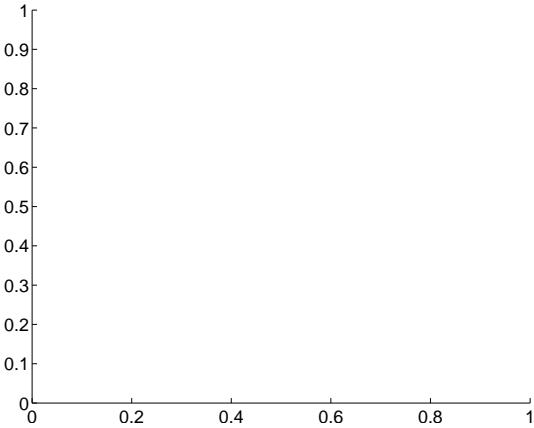
Q15 difference image



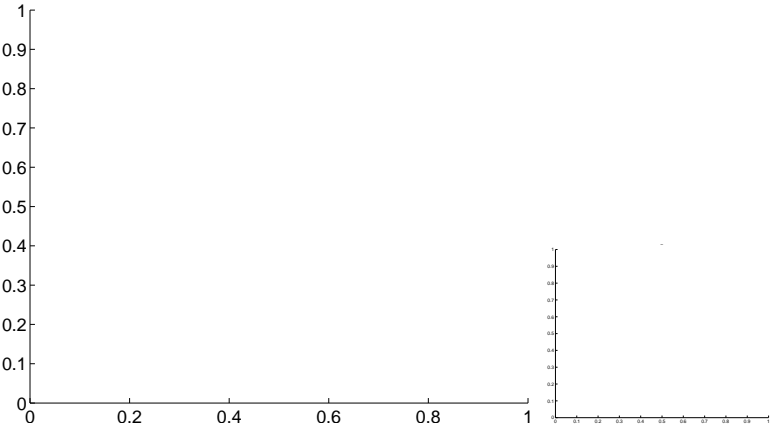
Q15 OOT image



Q16 no difference image



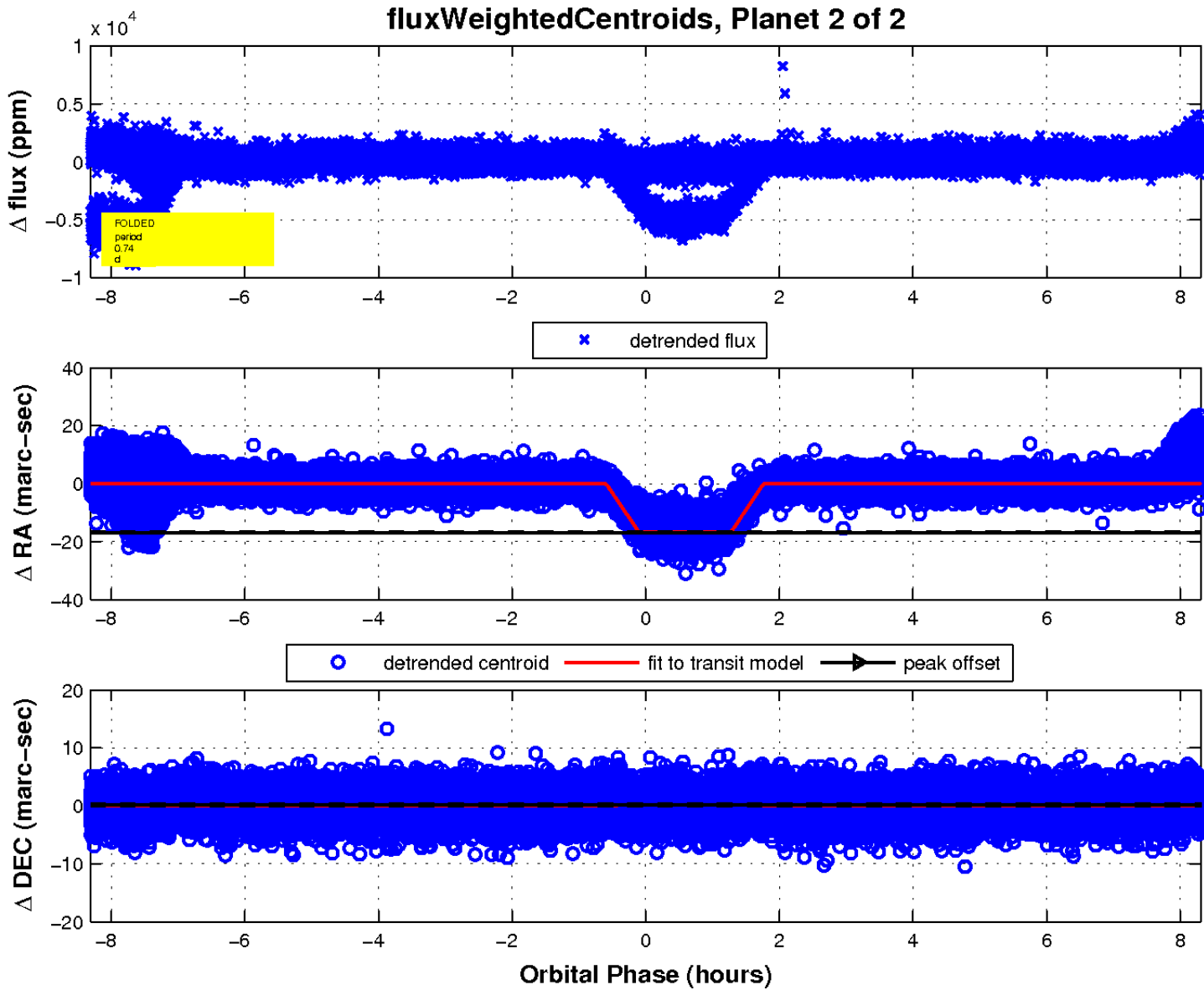
Q16 no OOT image



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

Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination

