

KIC 009572988

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})
009572988-02	OBS	No	153.101311	208.228035	680.7	2.370	12.9	6.7	0.77	5268	2.11	1.61
009572988-04	OBS	No	141.866489	190.215966	824.5	2.360	10.9	7.6	0.77	5268	2.56	1.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009572988-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009572988-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—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.

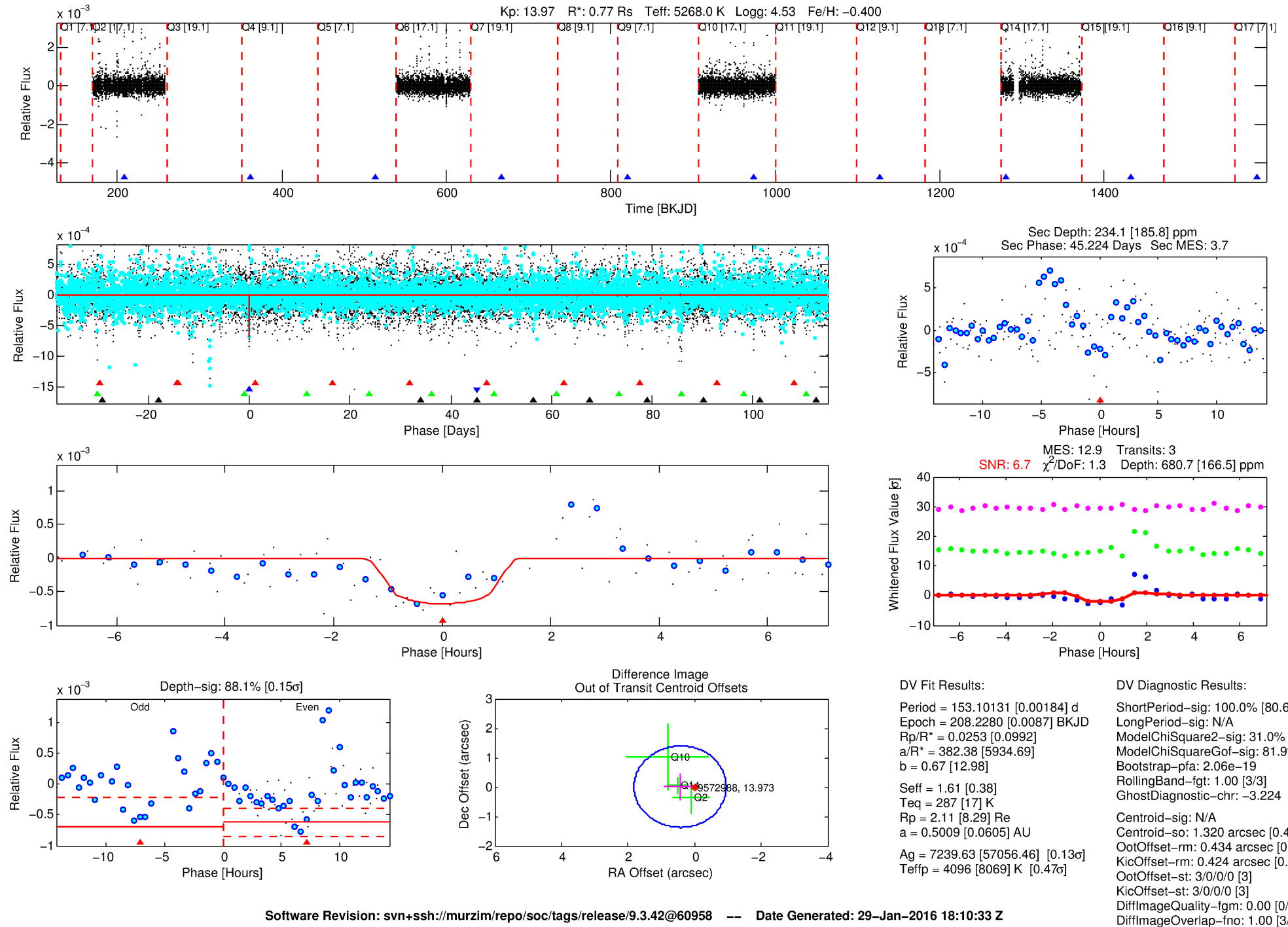
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009572988-02

No Significant Match Found

DV One-Page Summary

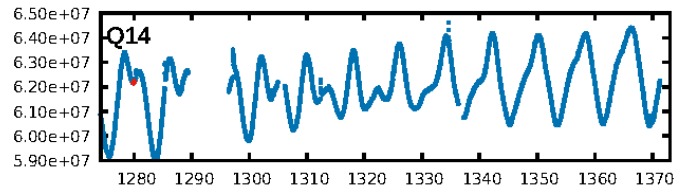
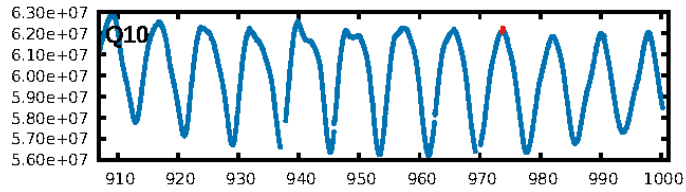
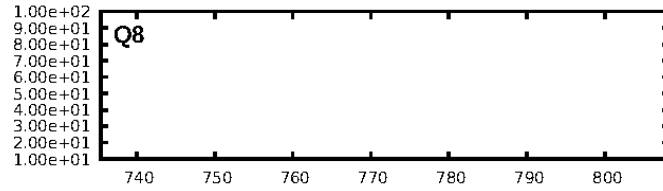
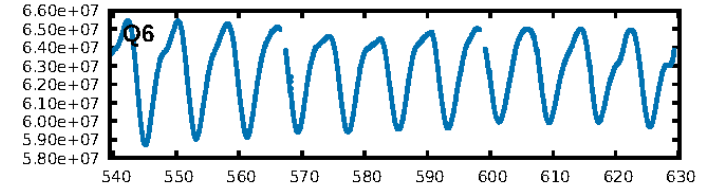
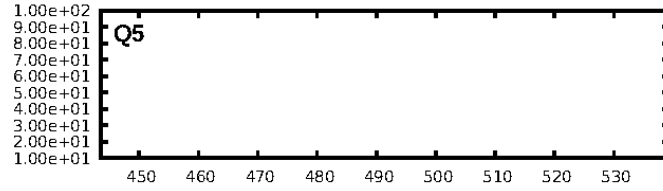
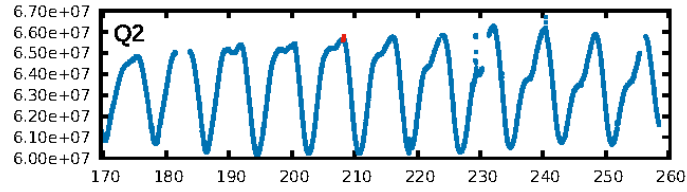
KIC: 9572988 Candidate: 2 of 4 Period: 153.101 d



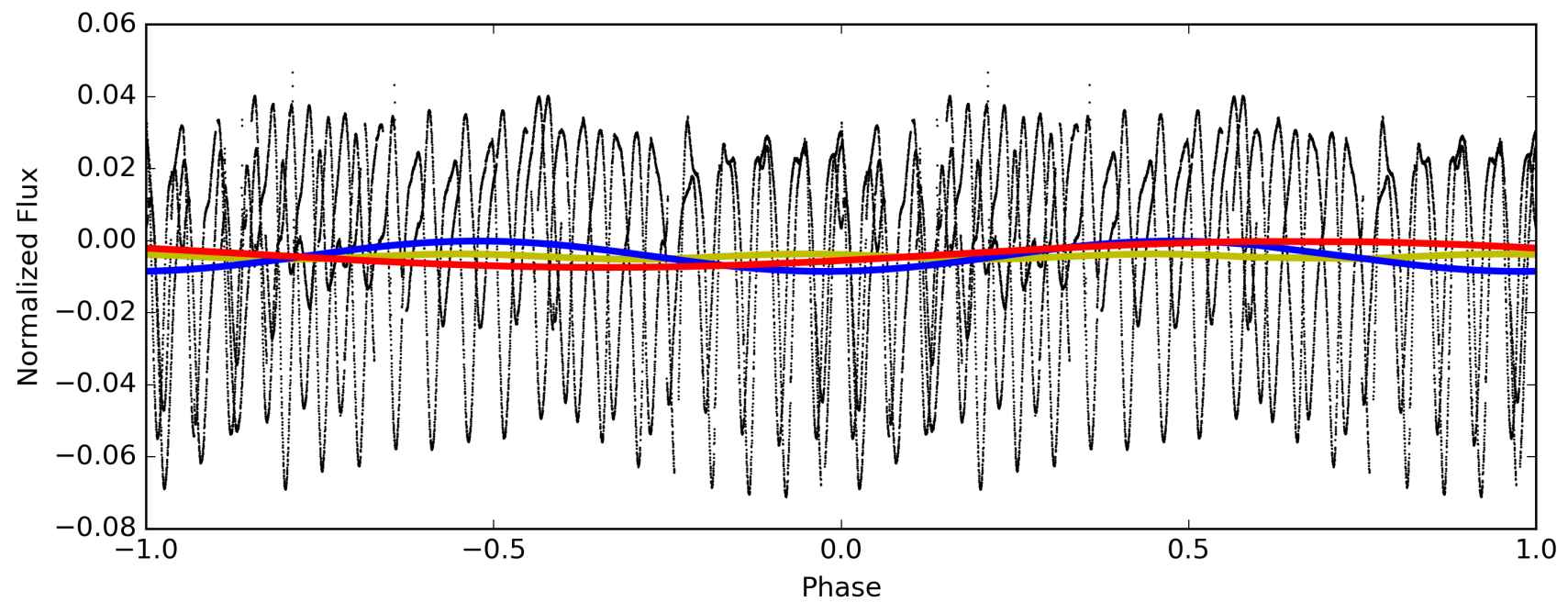
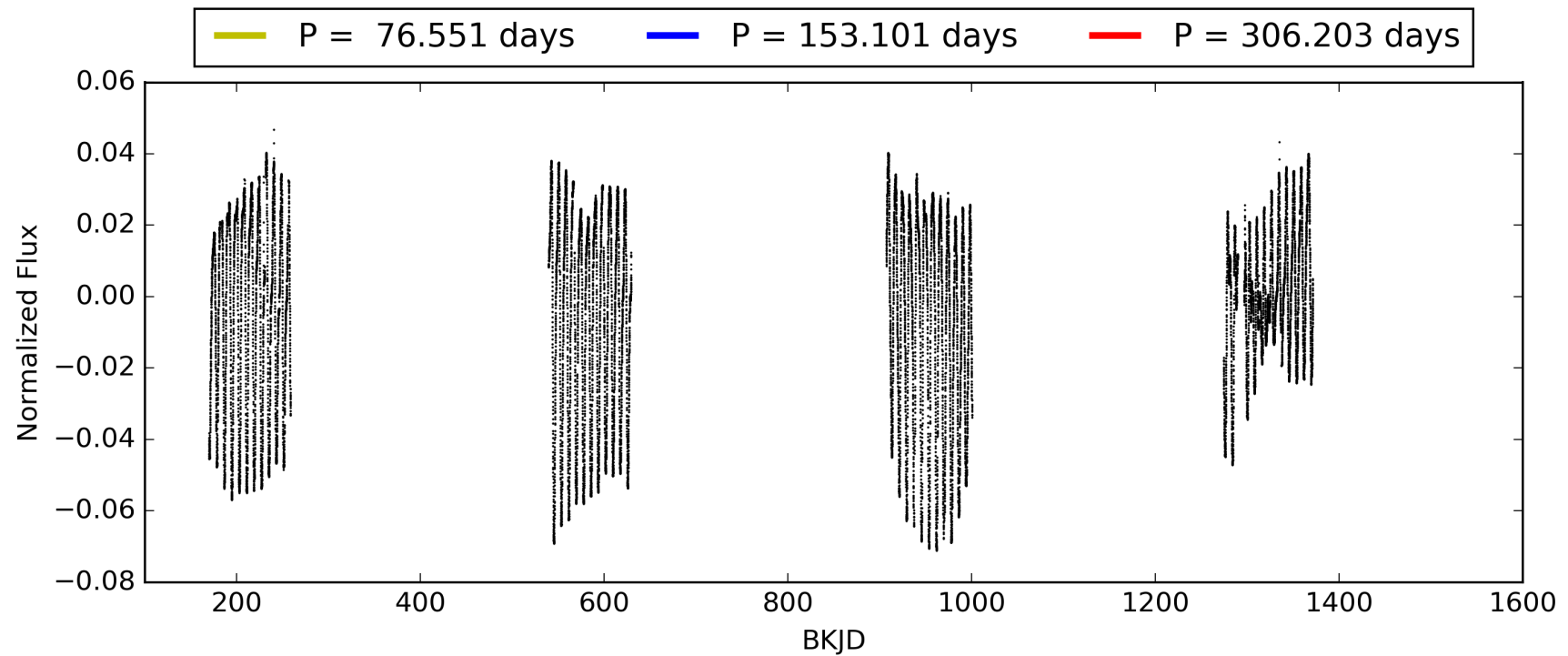
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:10:33 Z

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

TCE 009572988-02, PDC Light Curves

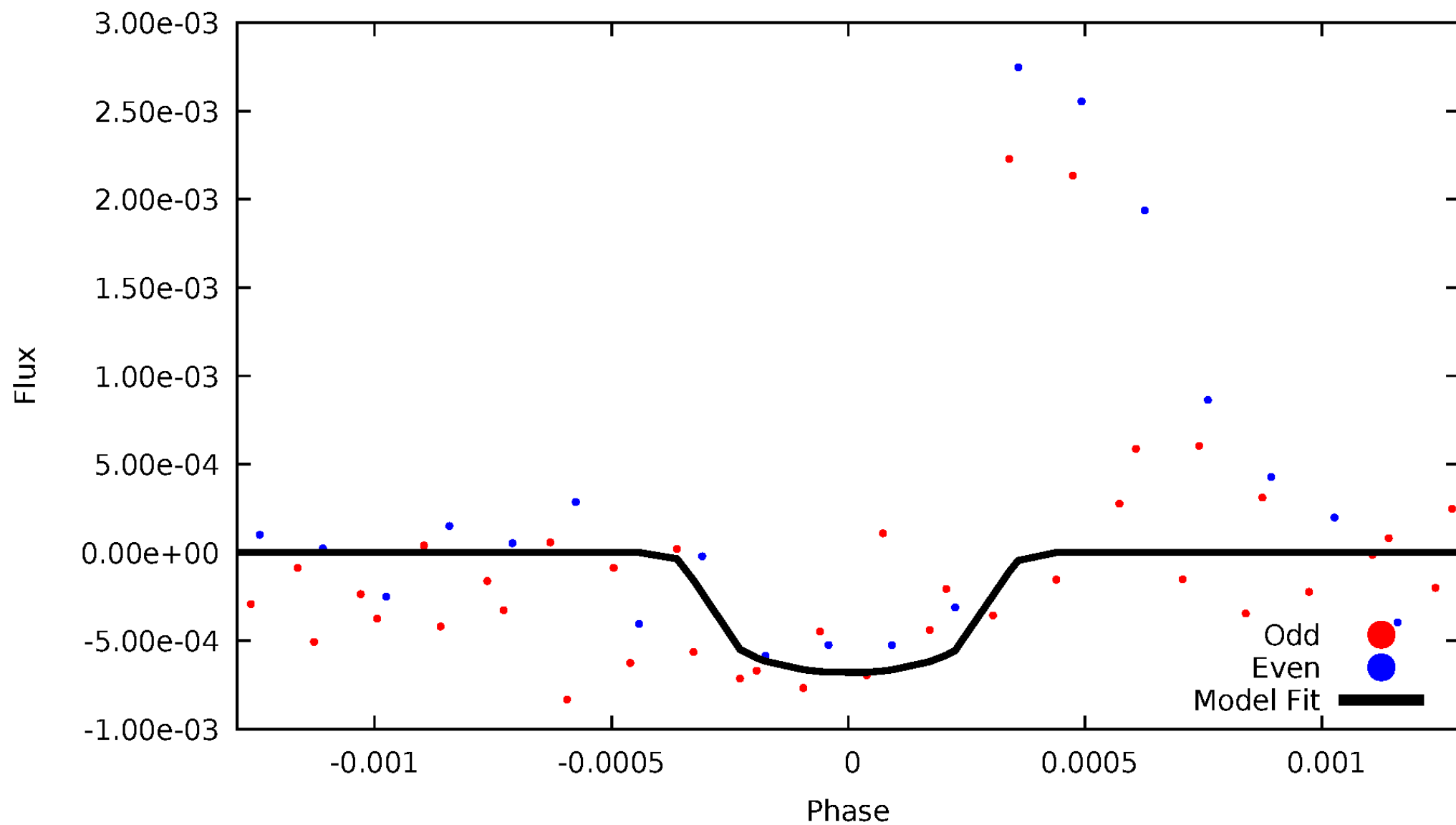


TCE 009572988-02



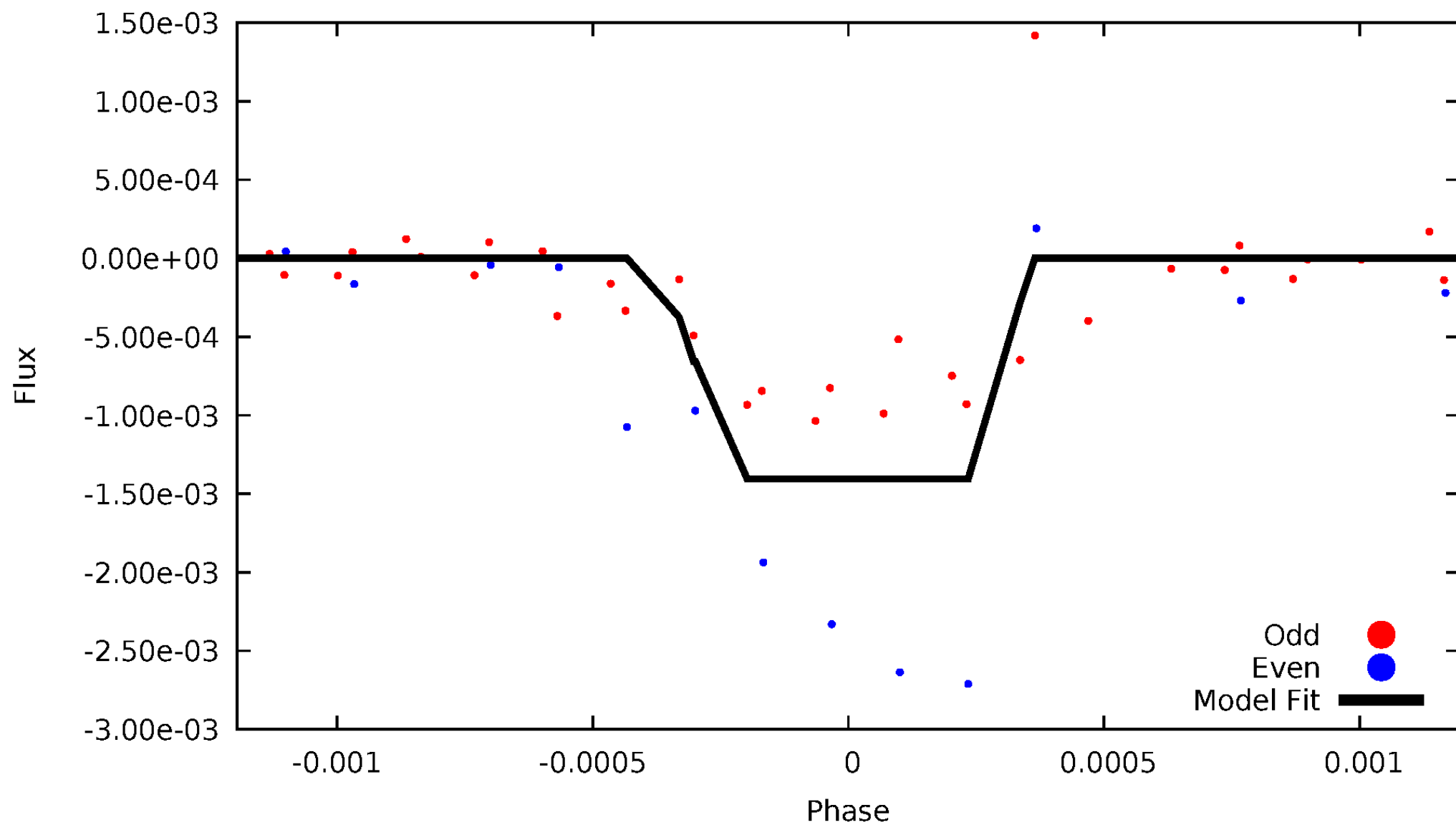
DV Odd/Even

TCE 009572988-02



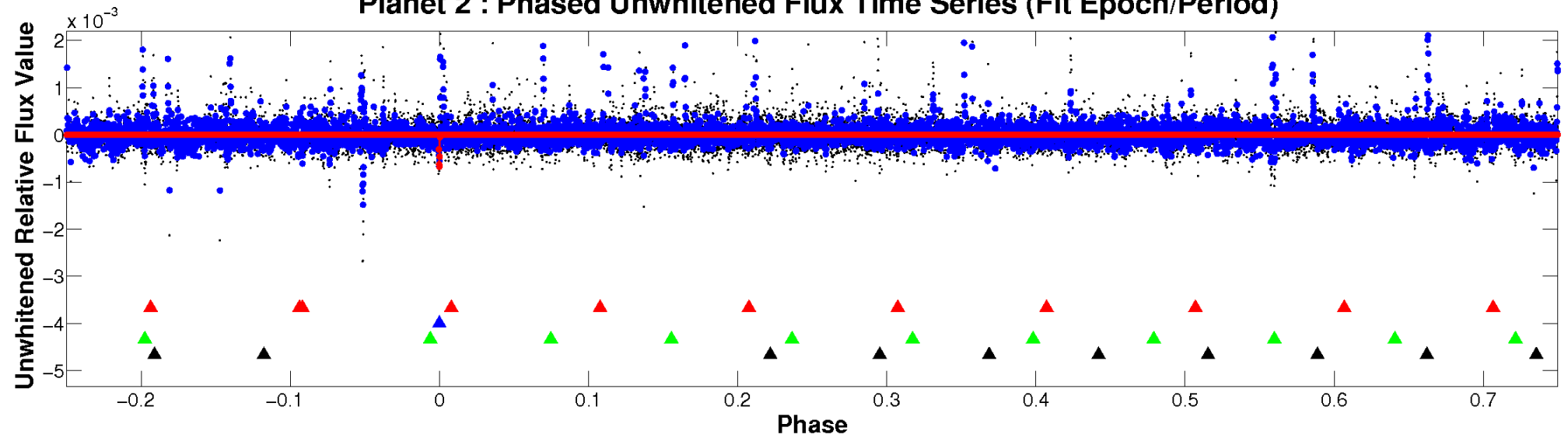
ALT Odd/Even

TCE 009572988-02

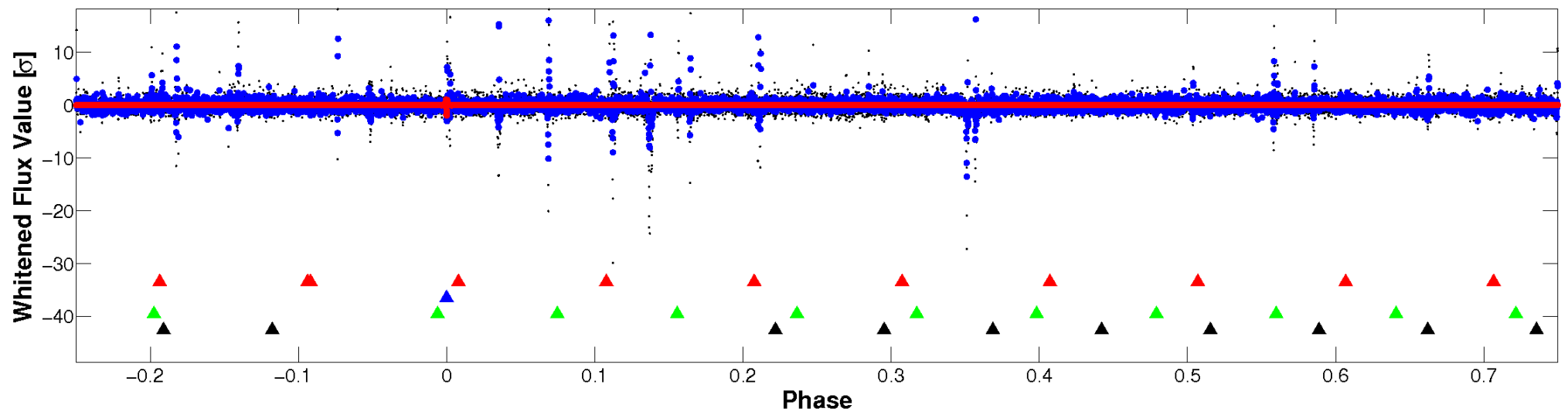


Non-Whitened Vs. Whitened Light Curve

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

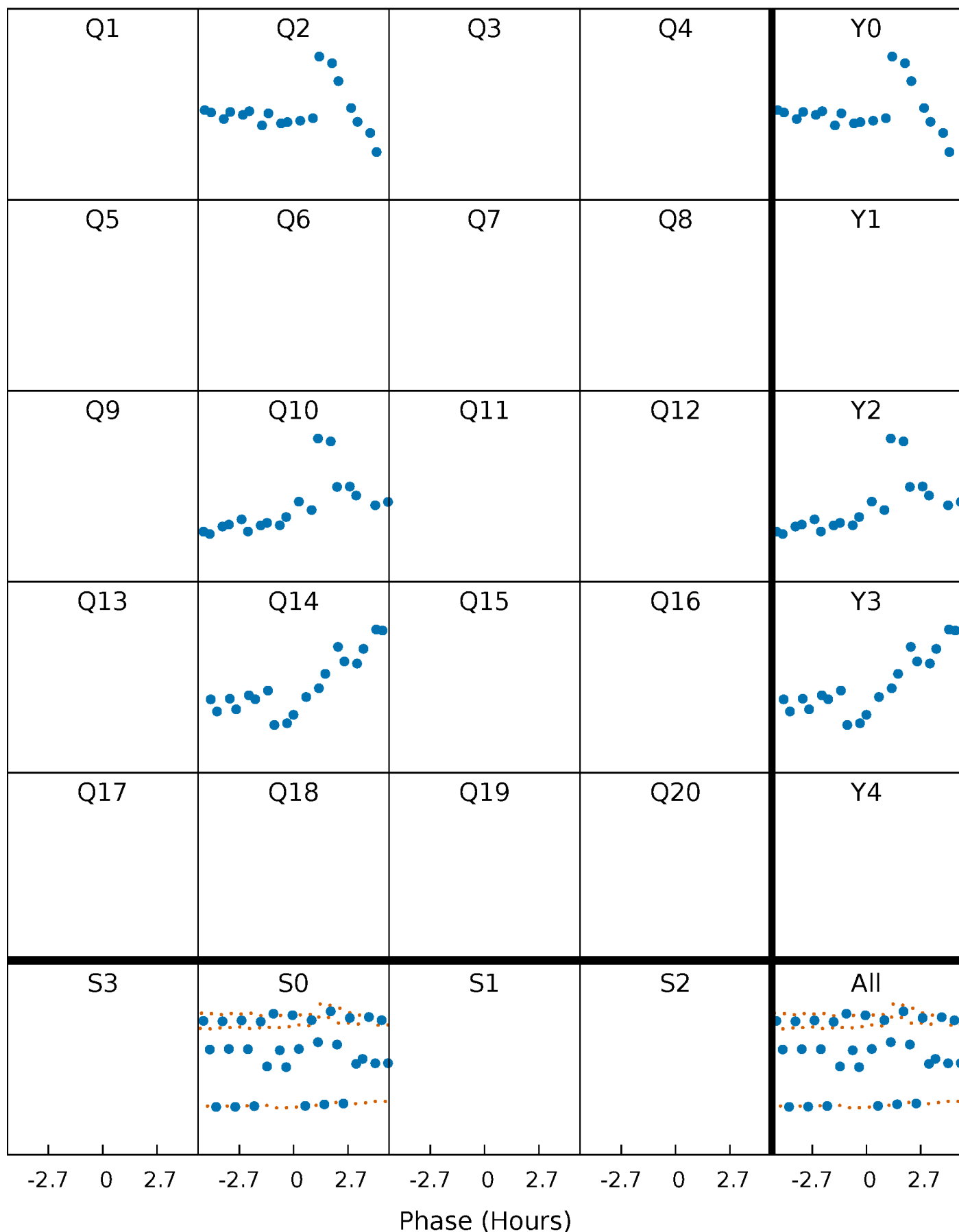


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



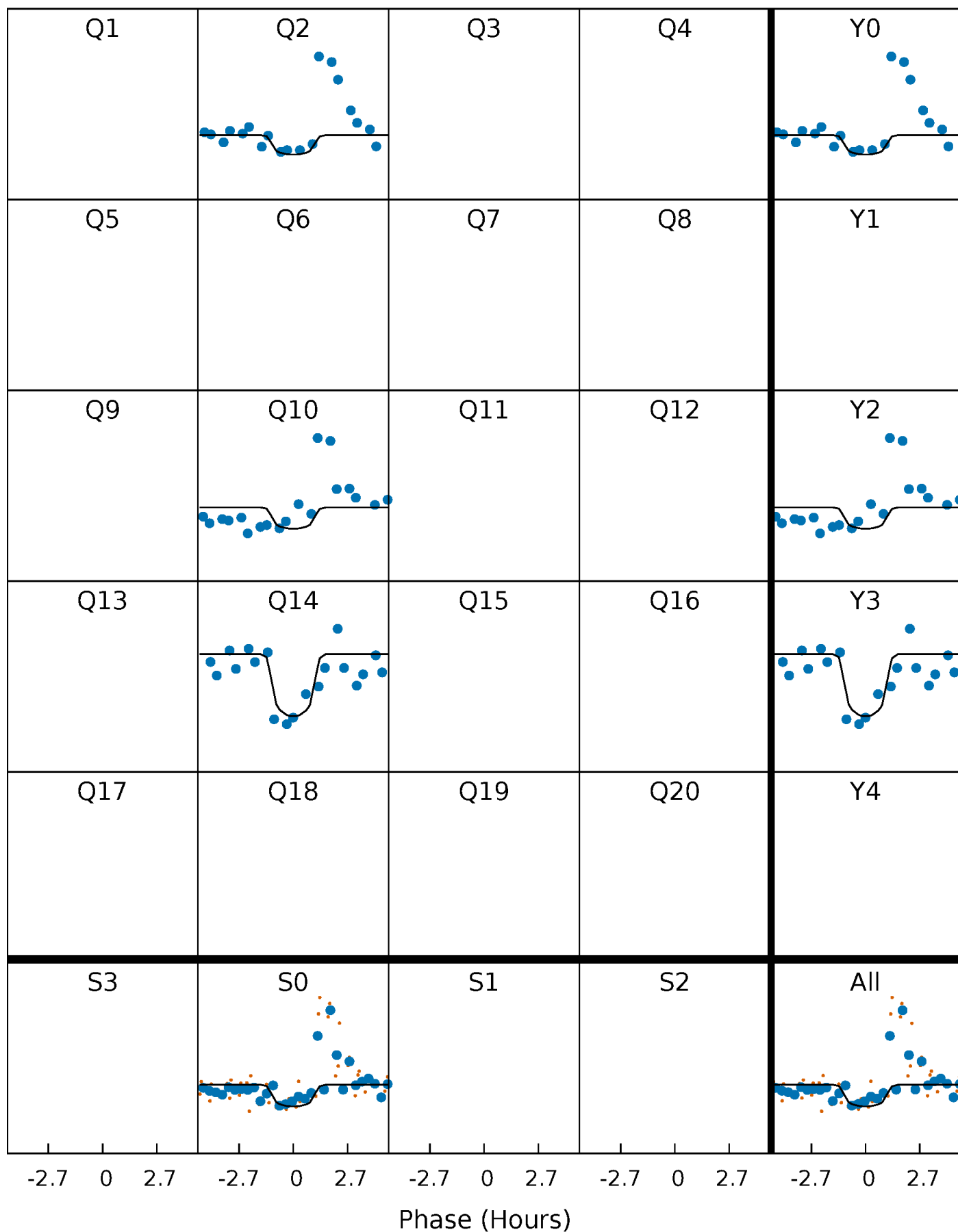
PDC Quarter-Phased Transit Curves

TCE 009572988-02 P=153.101311 Days $T_0=208.228035$ (BKJD)



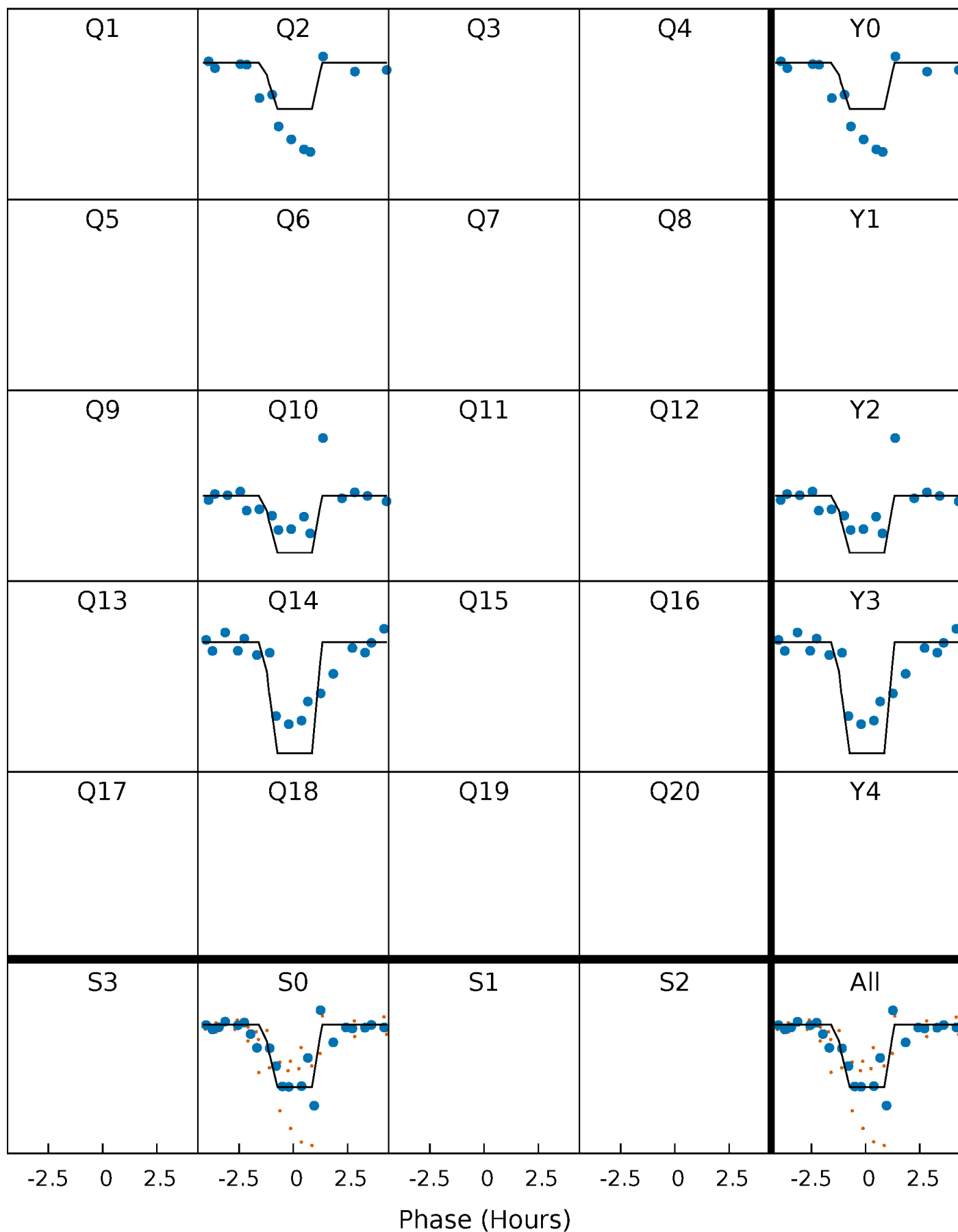
DV Quarter-Phased Transit Curves

TCE 009572988-02 P=153.101311 Days $T_0=208.228035$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

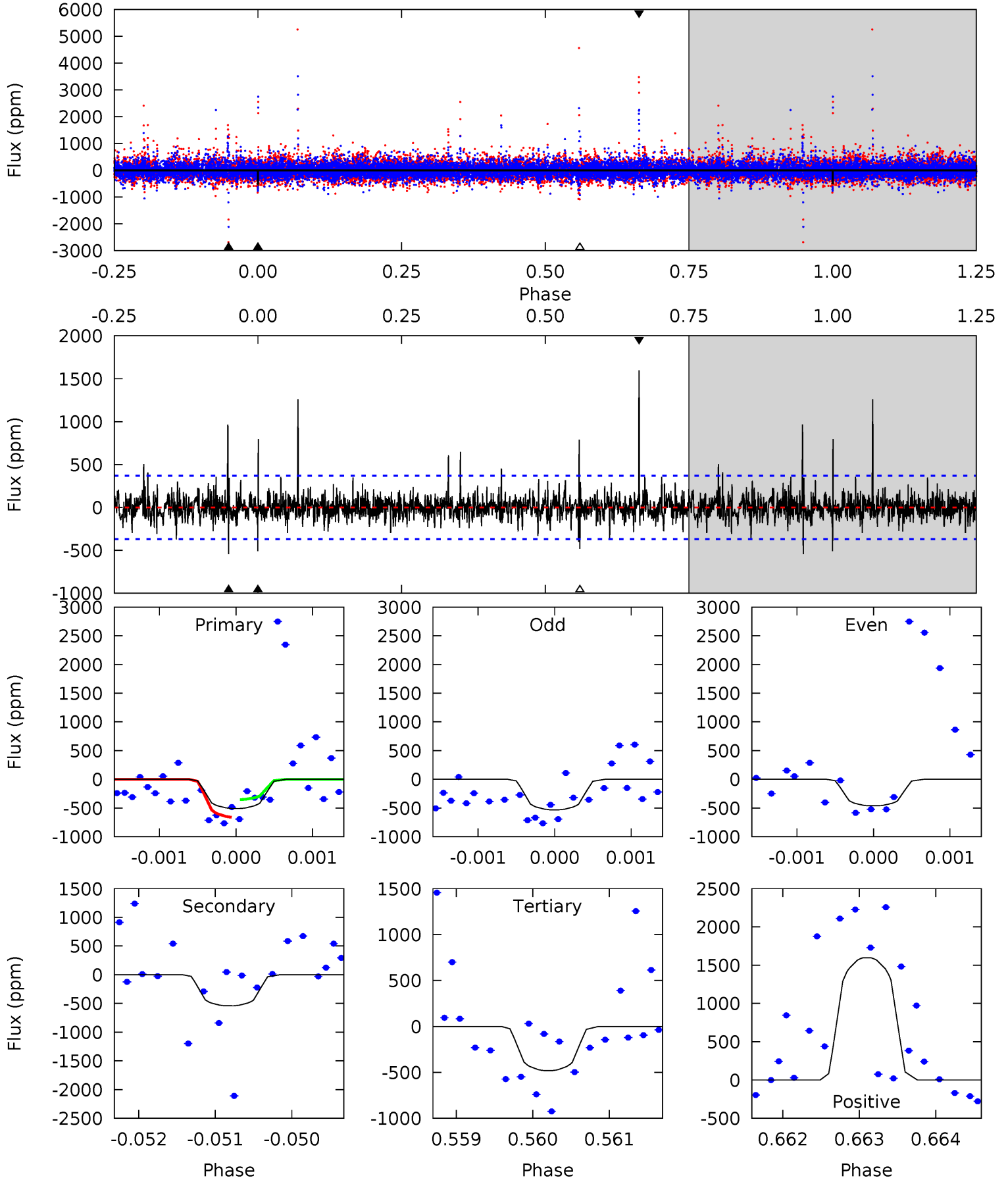
TCE 009572988-02 P=153.100834 Days $T_0=208.226669$ (BKJD)



DV Model-Shift Uniqueness Test

009572988-02, P = 153.101311 Days, E = 55.126724 Days

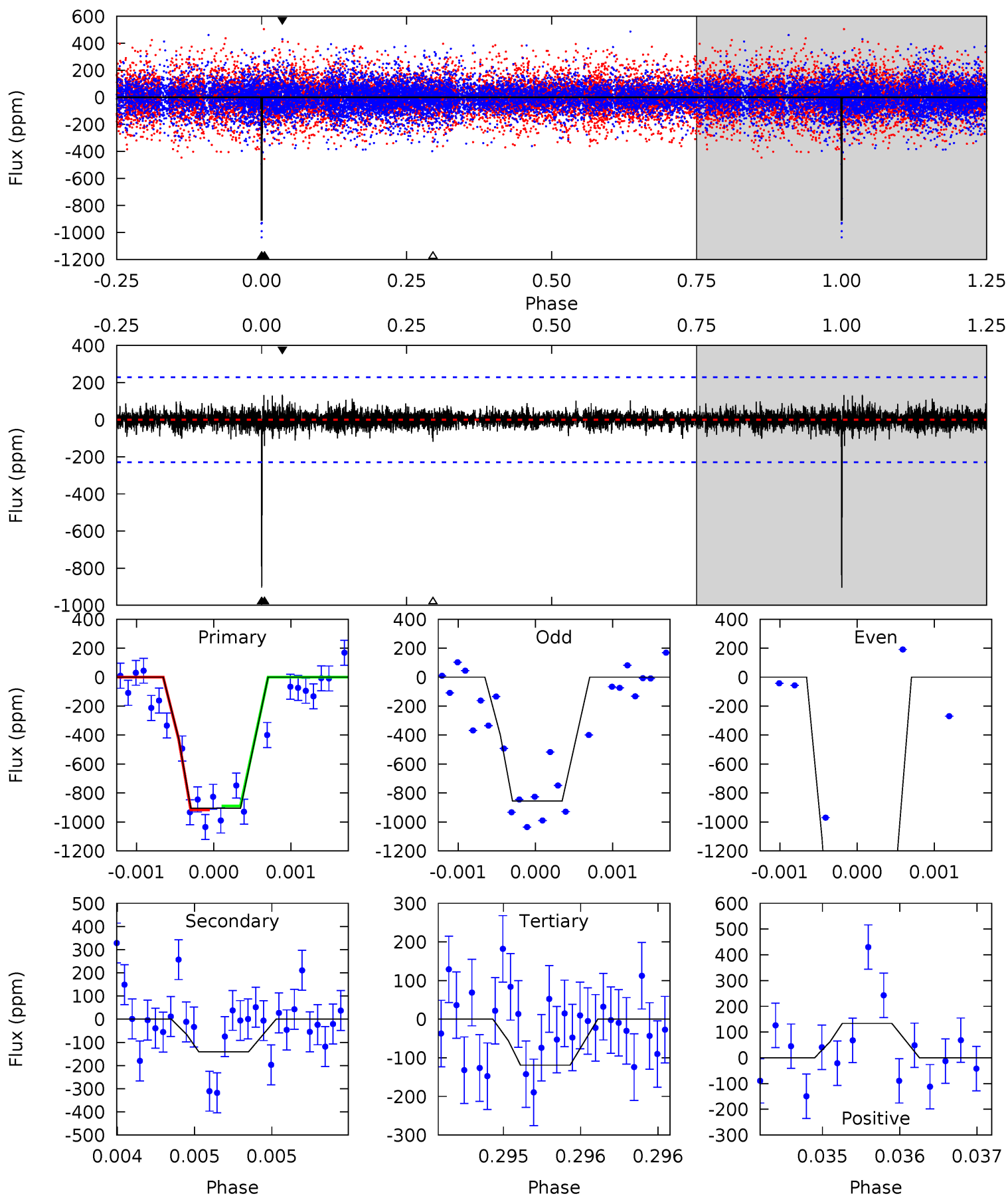
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.57	8.06	7.15	23.8	5.51	3.38	1.70	0.42	-16.2	0.90	-15.7	0.25	1.03	0.75	2.30



Alt Model-Shift Uniqueness Test

009572988-02, P = 153.100834 Days, E = 55.125835 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	3.40	2.87	3.22	5.52	3.40	0.64	19.0	18.6	0.53	0.18	21.9	1.46	0.13	0



Stellar Parameters For KIC 009572988

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5268^{+202}_{-184}	$4.525^{+0.104}_{-0.095}$	$-0.400^{+0.350}_{-0.300}$	$0.765^{+0.104}_{-0.095}$	$0.715^{+0.107}_{-0.046}$	$2.251^{+0.907}_{-0.594}$
	+4%/-3%	+2%/-2%	+87%/-75%	+14%/-12%	+15%/-6%	+40%/-26%
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 009572988-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-541 ± 67	$6.63^{+6.50}_{-4.79}$	402^{+20}_{-21}	3392^{+2061}_{-624}	1767^{+21046}_{-1314}
Alt.	-141 ± 41	$7.24^{+7.01}_{-5.00}$	401^{+20}_{-21}	2715^{+1157}_{-441}	380^{+3595}_{-287}

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 $A_{obs} \gg 1.0$

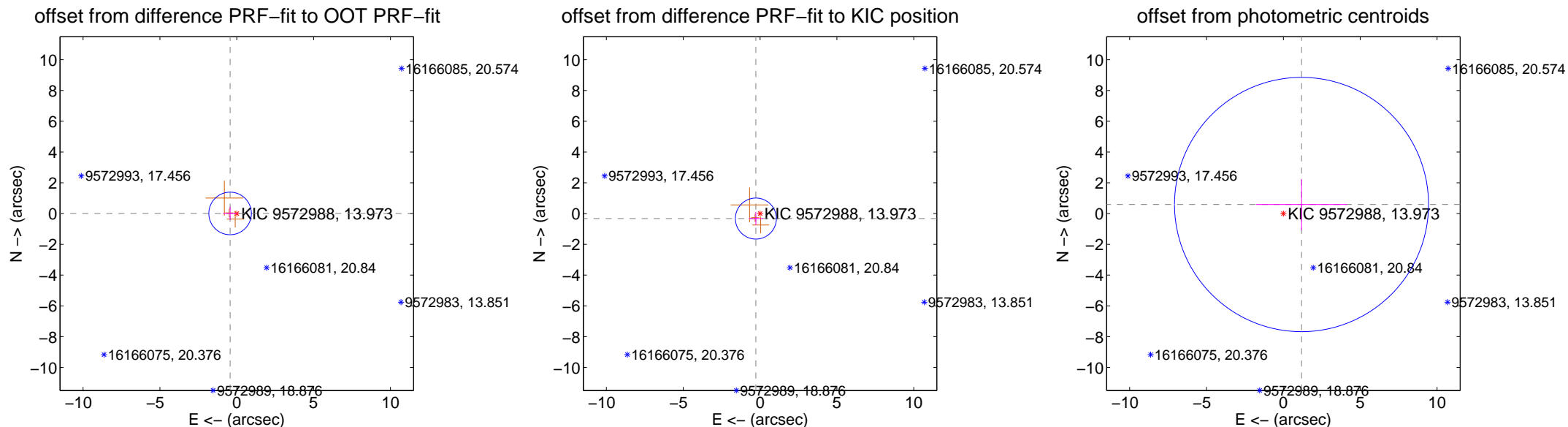
DV Centroid Data

Supplemental centroid analysis for 009572988-02. Kepler magnitude: 13.97. Transit SNR 6.75

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.434 ± 0.461	0.94	0.433 ± 0.461	0.008 ± 0.432
PRF-fit source offset from KIC position	0.424 ± 0.445	0.95	0.273 ± 0.461	-0.324 ± 0.432
photometric centroid source offset	1.32 ± 2.75	0.48	-1.18 ± 2.97	0.59 ± 1.65



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.

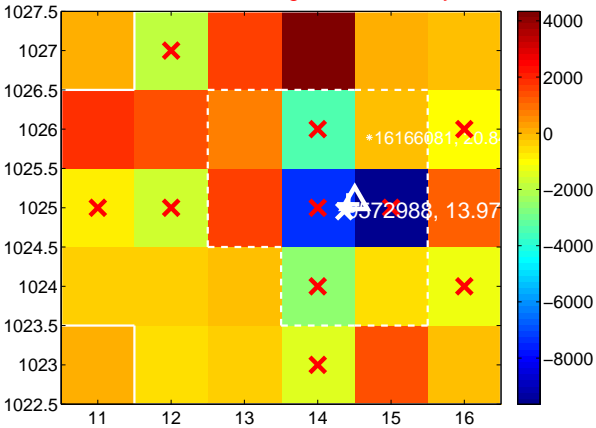
Q1 no difference image



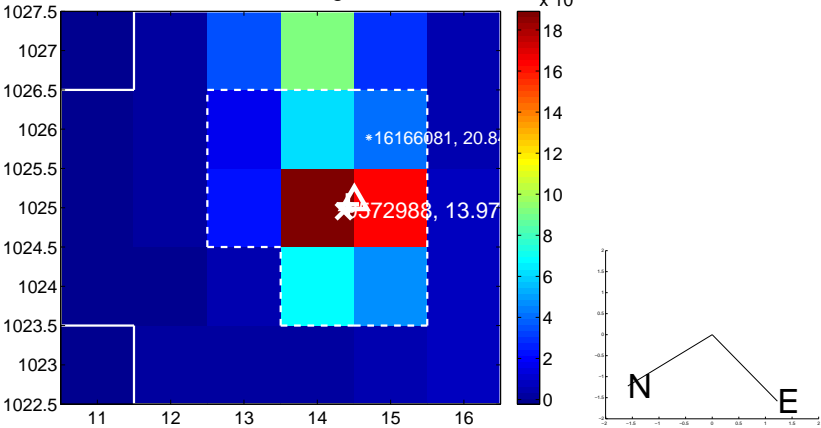
Q1 no OOT image



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

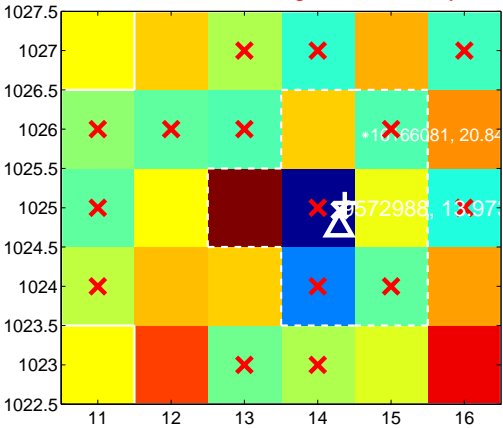
Q9 no difference image



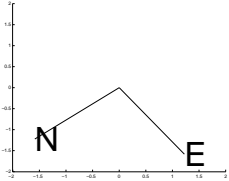
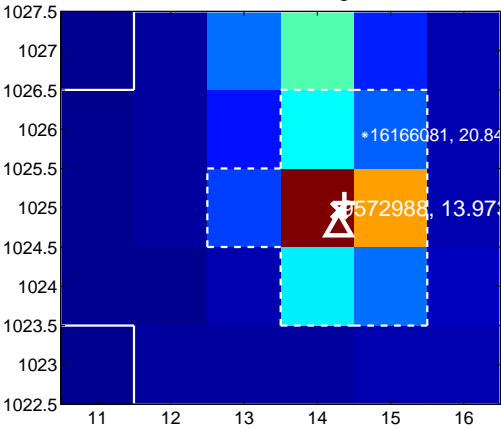
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



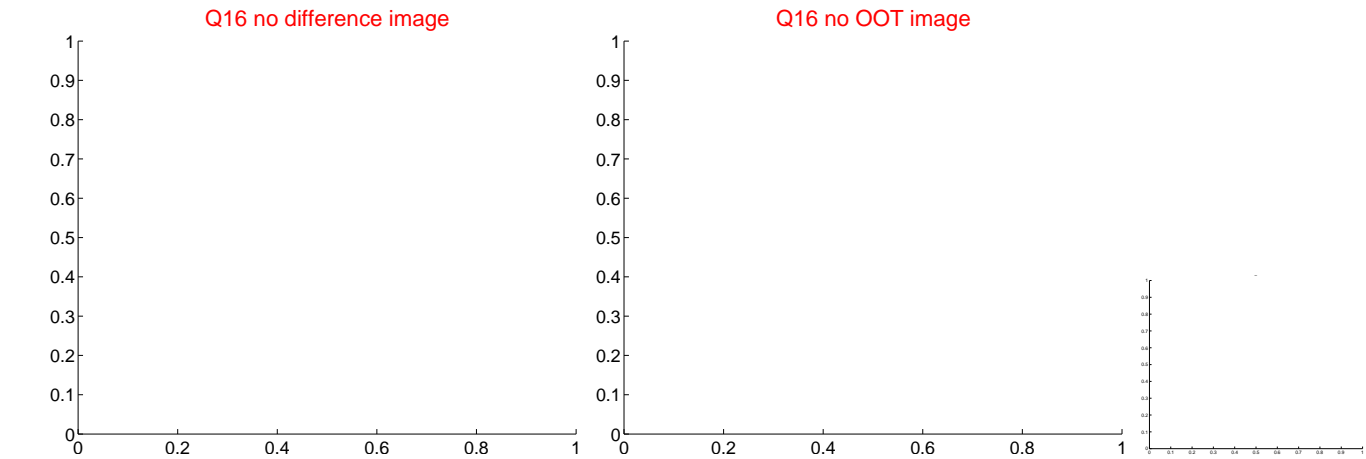
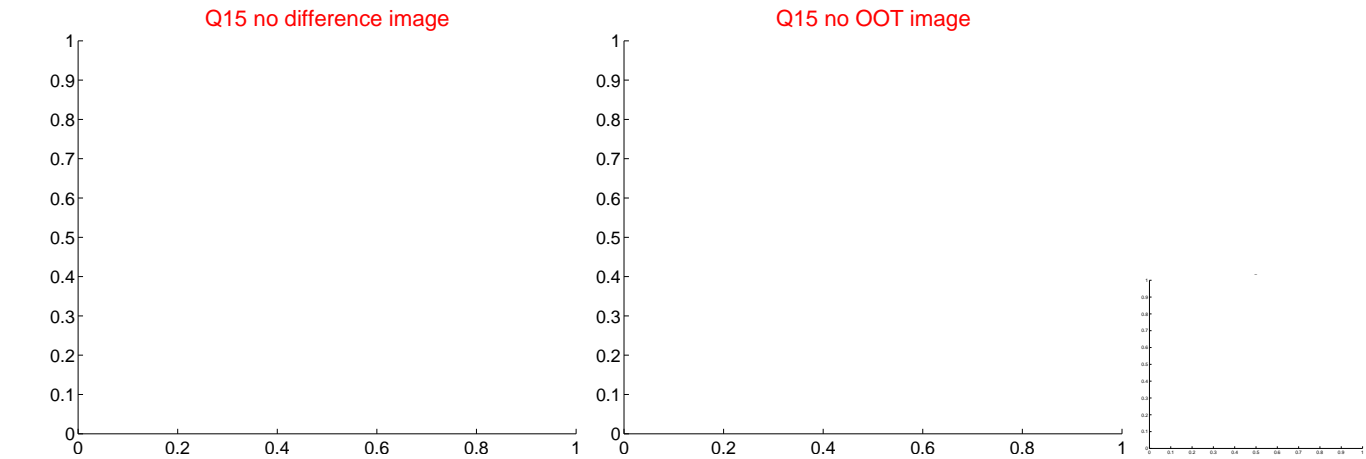
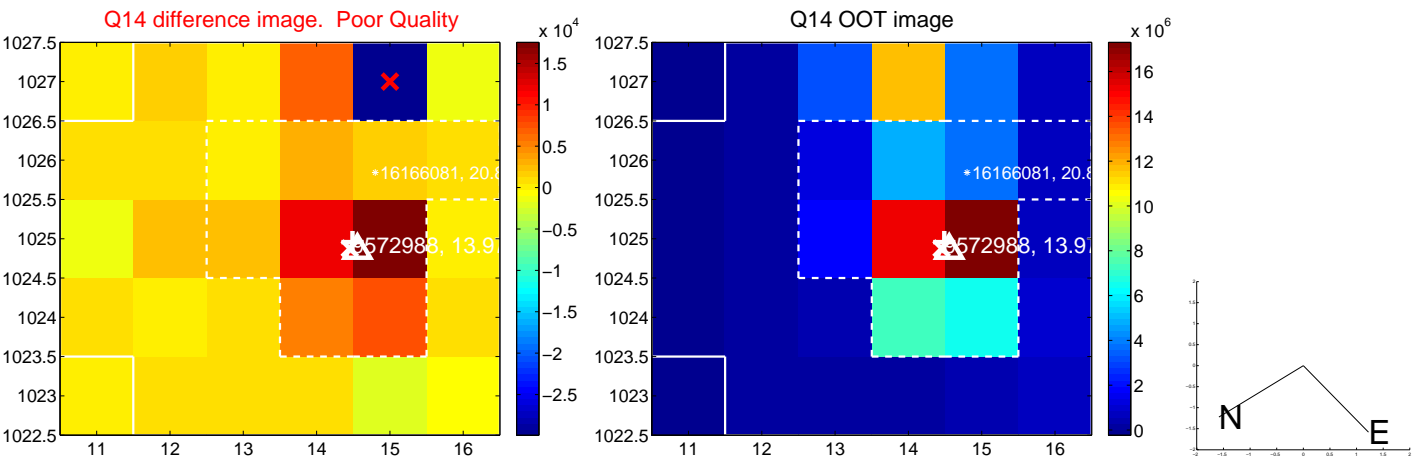
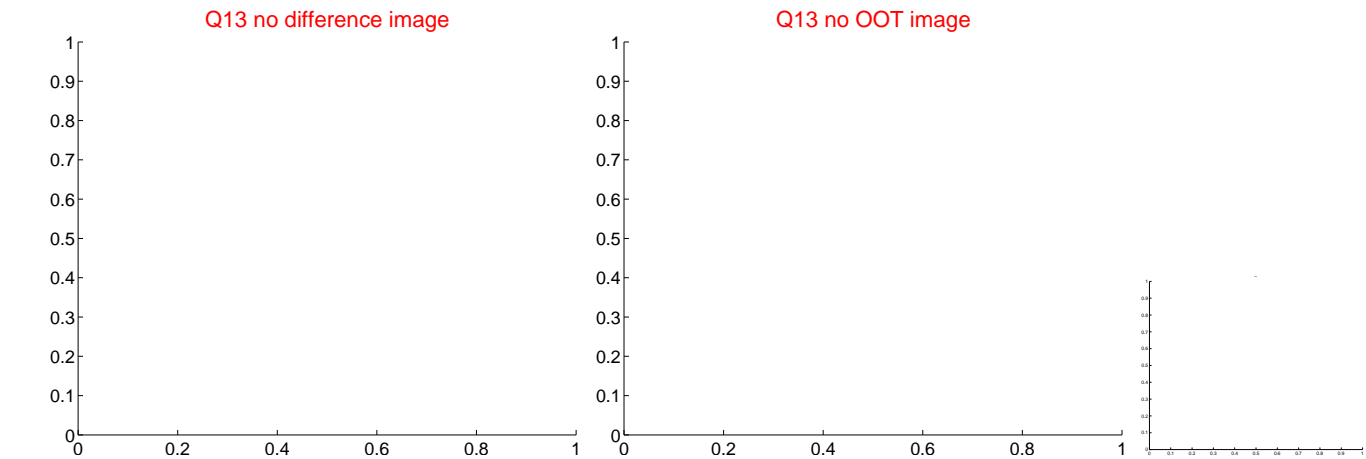
Q12 no difference image



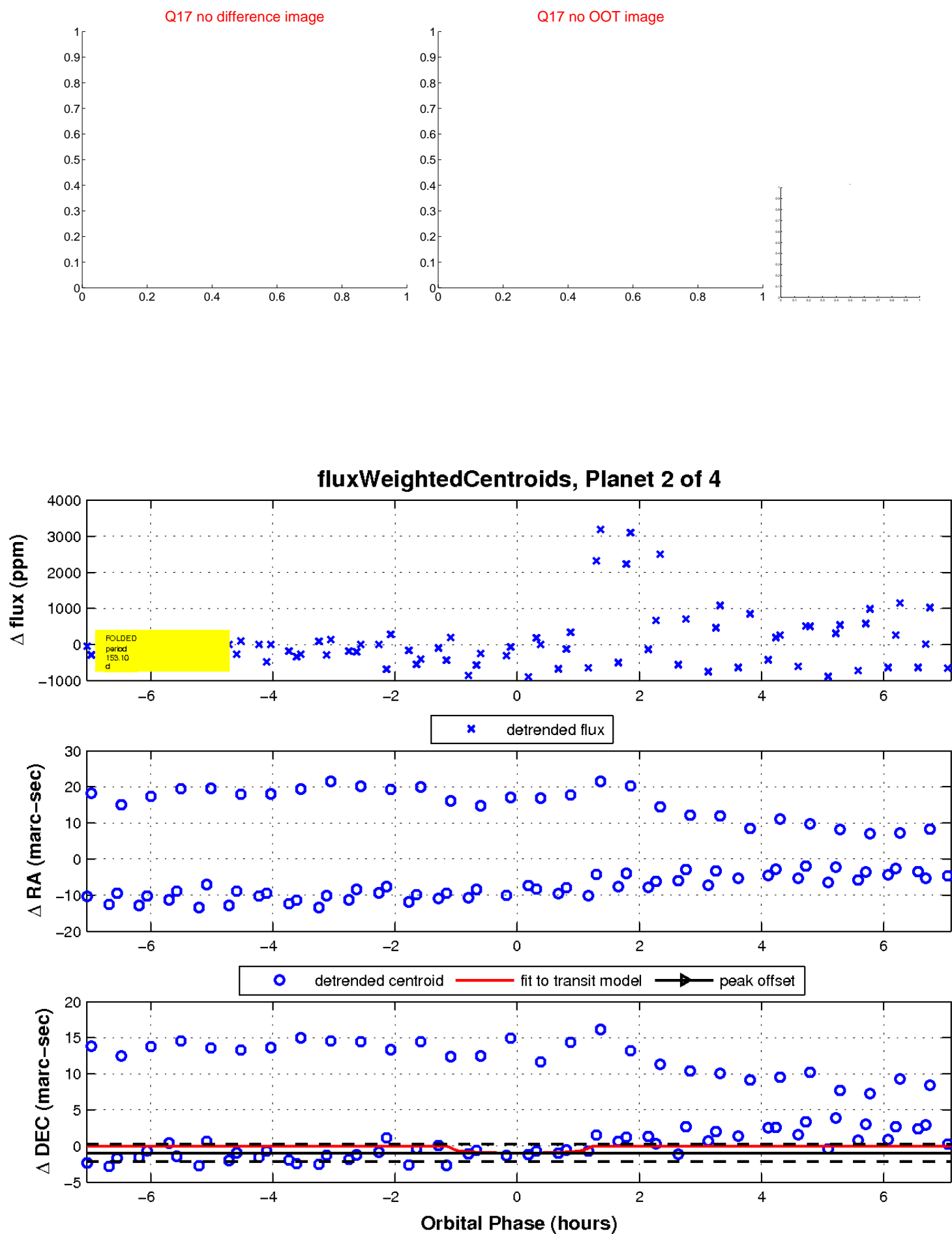
Q12 no OOT image



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

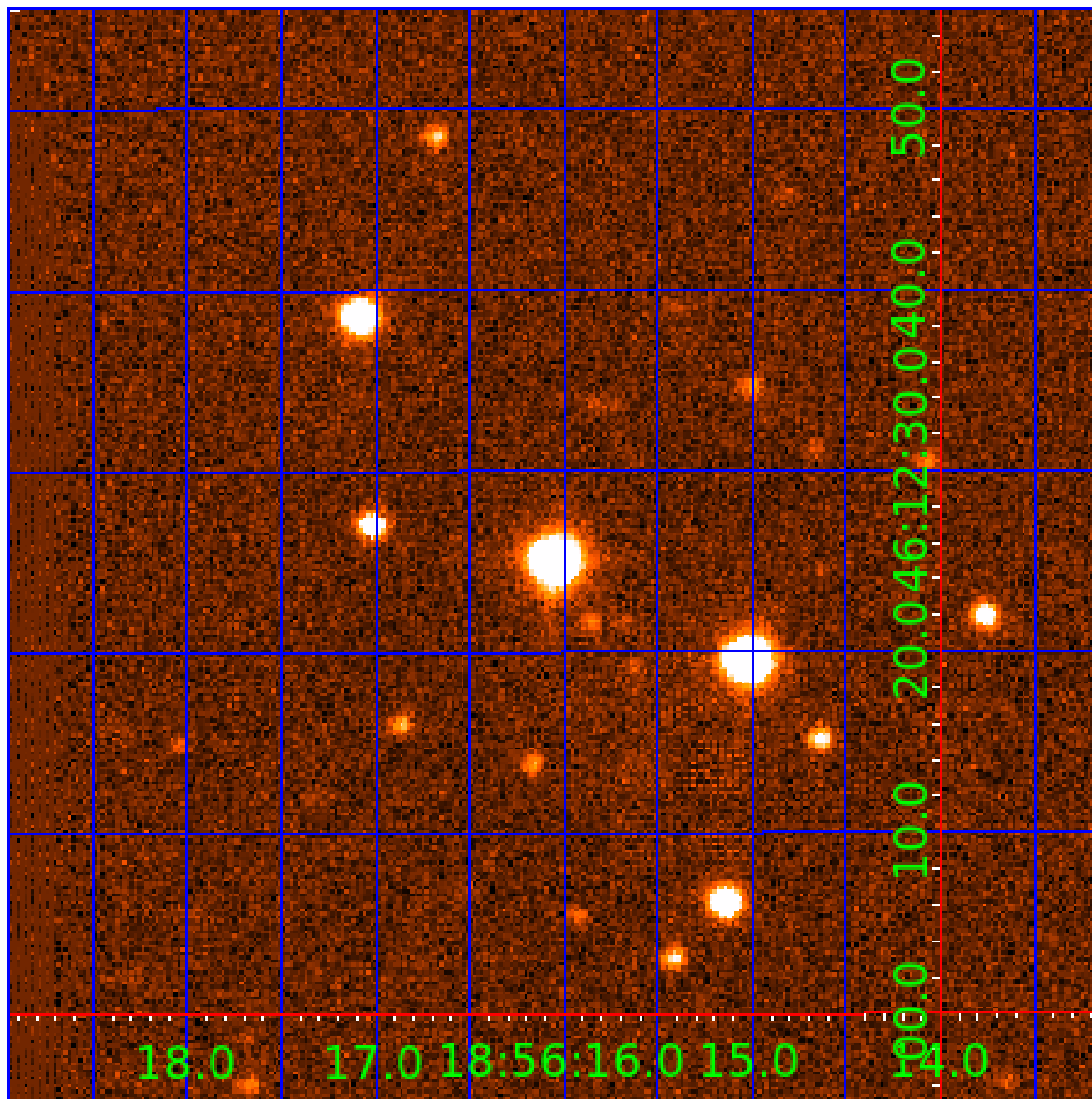


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009572988

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})
009572988-02	OBS	No	153.101311	208.228035	680.7	2.370	12.9	6.7	0.77	5268	2.11	1.61
009572988-04	OBS	No	141.866489	190.215966	824.5	2.360	10.9	7.6	0.77	5268	2.56	1.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009572988-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009572988-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—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.

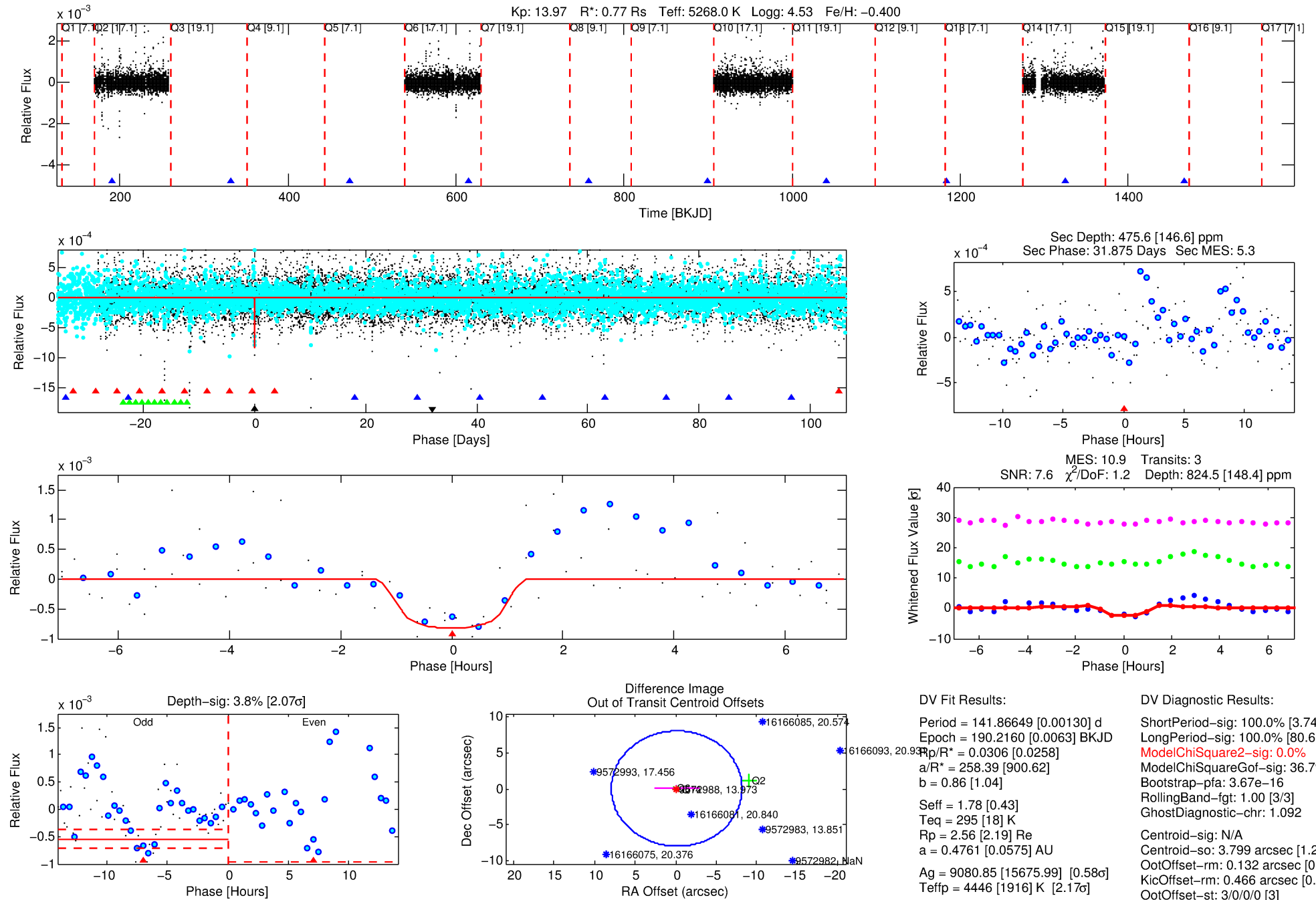
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009572988-04

No Significant Match Found

DV One-Page Summary

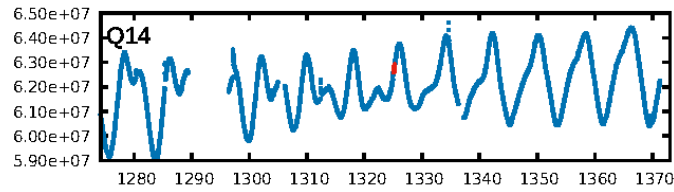
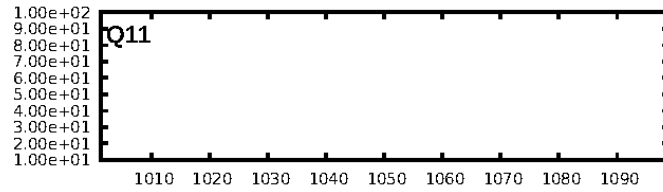
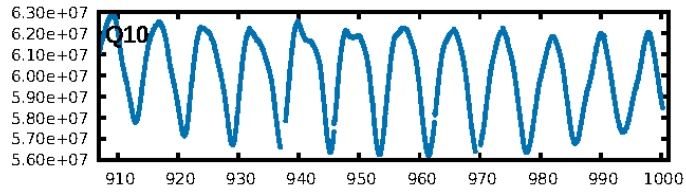
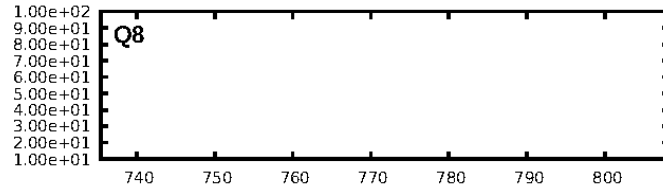
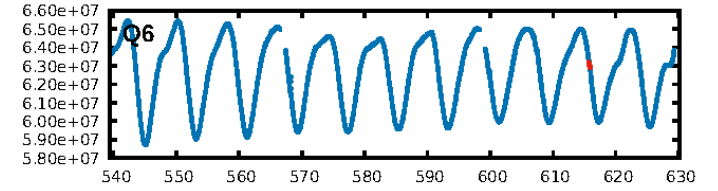
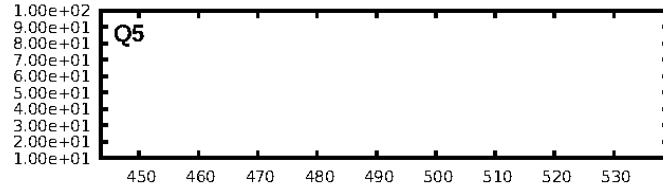
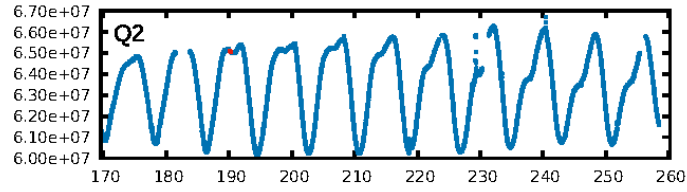
KIC: 9572988 Candidate: 4 of 4 Period: 141.866 d



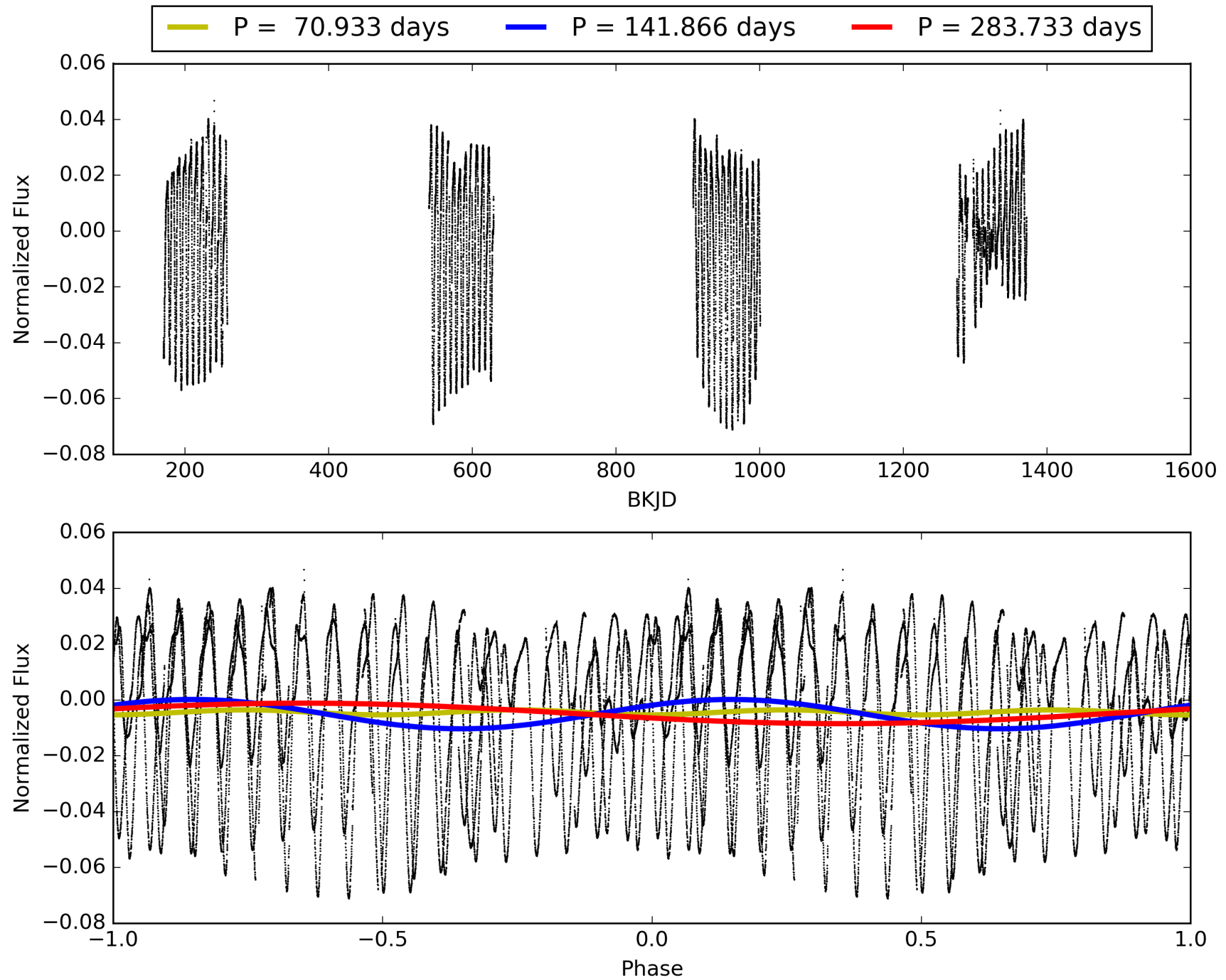
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:10:42 Z

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

TCE 009572988-04, PDC Light Curves

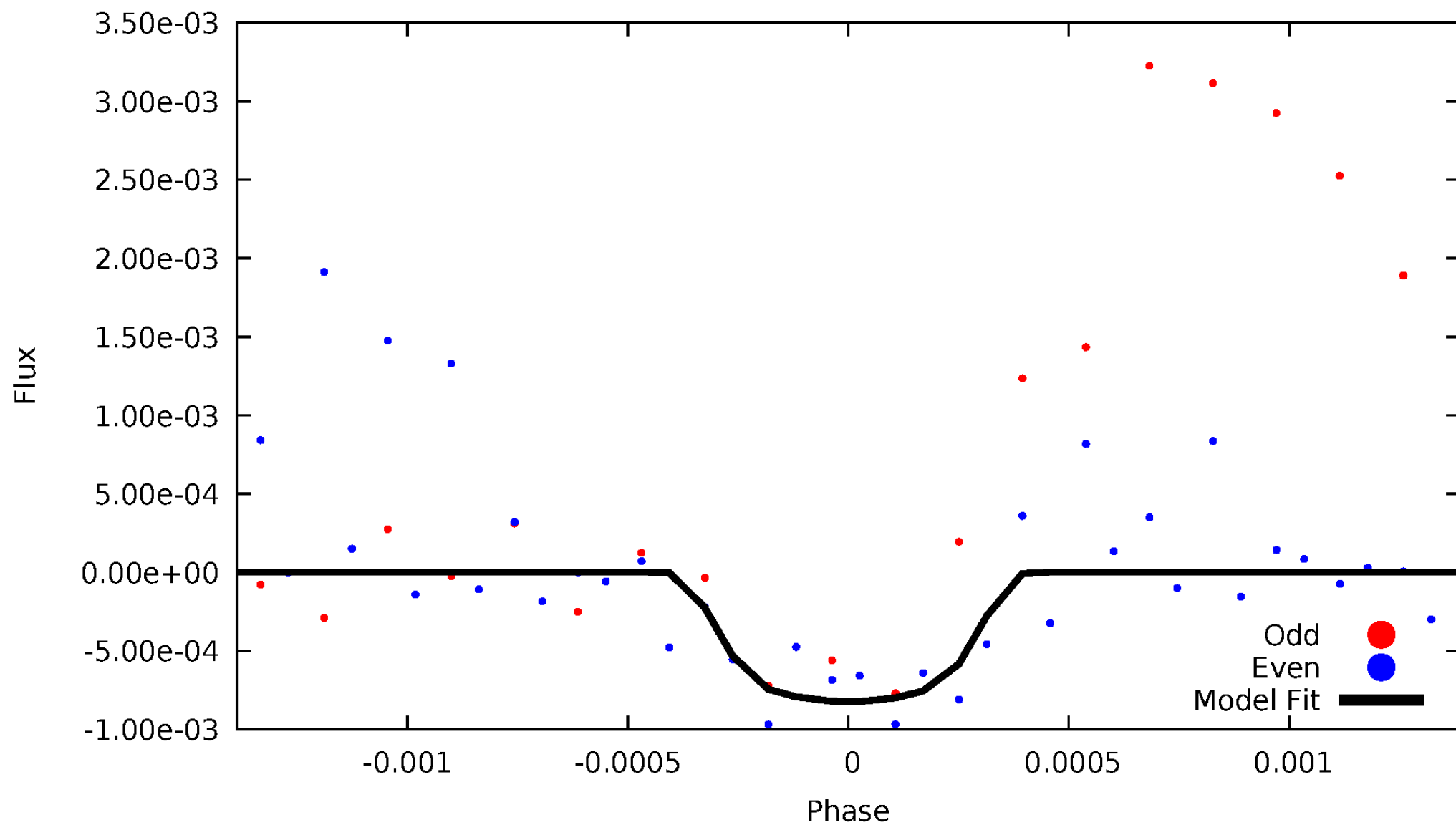


TCE 009572988-04



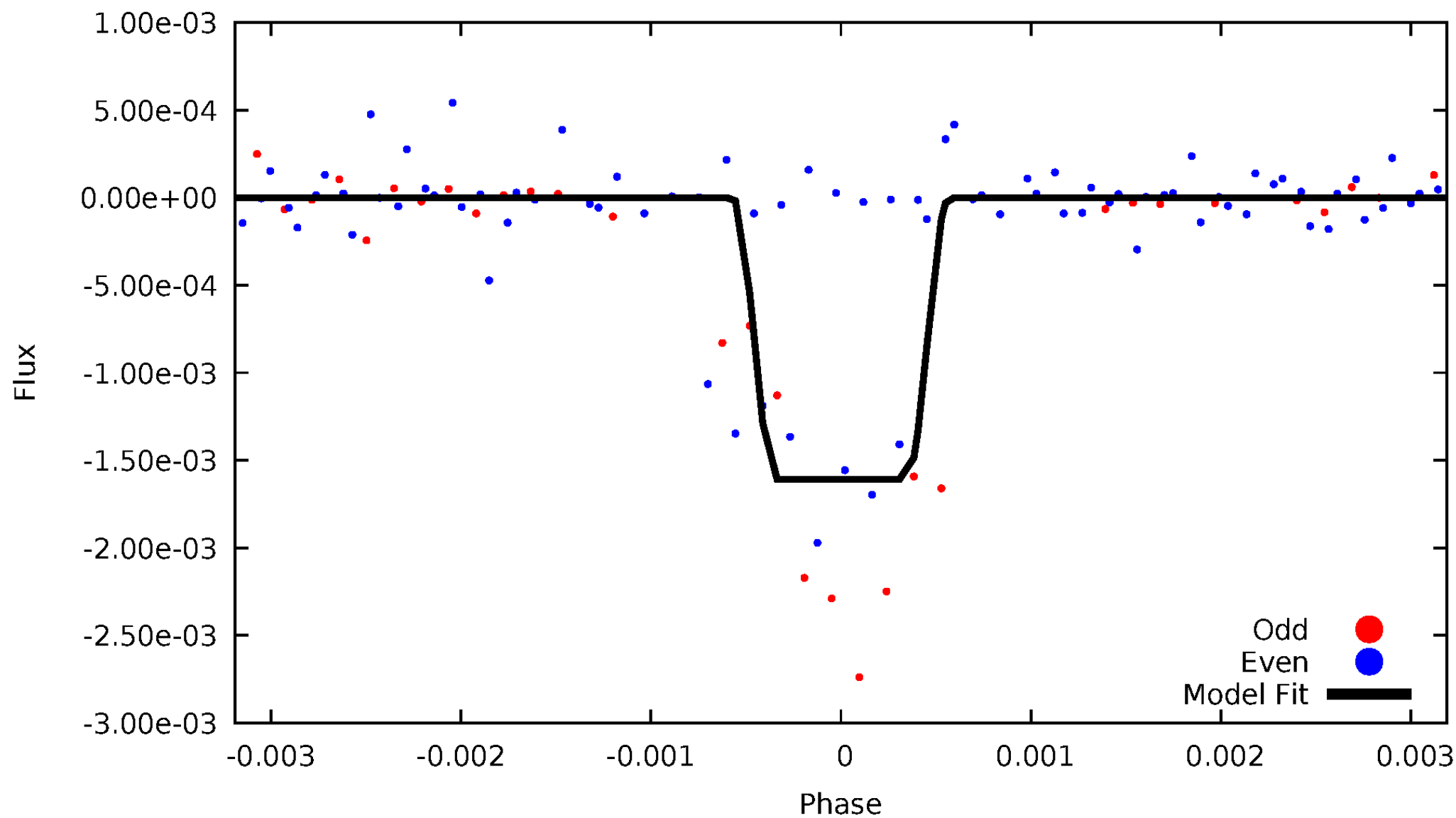
DV Odd/Even

TCE 009572988-04



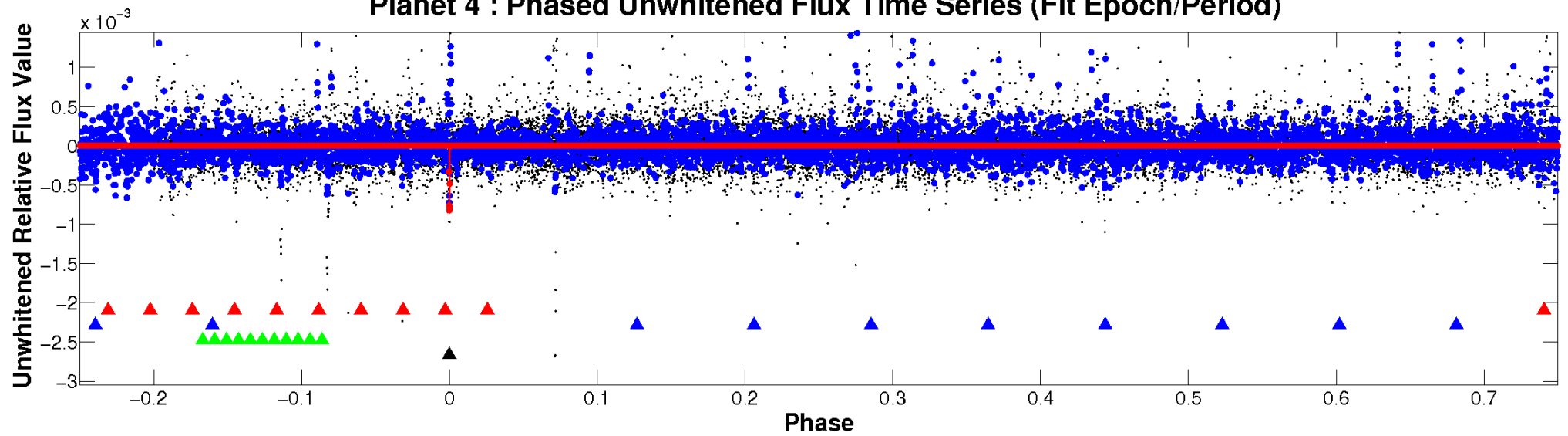
ALT Odd/Even

TCE 009572988-04

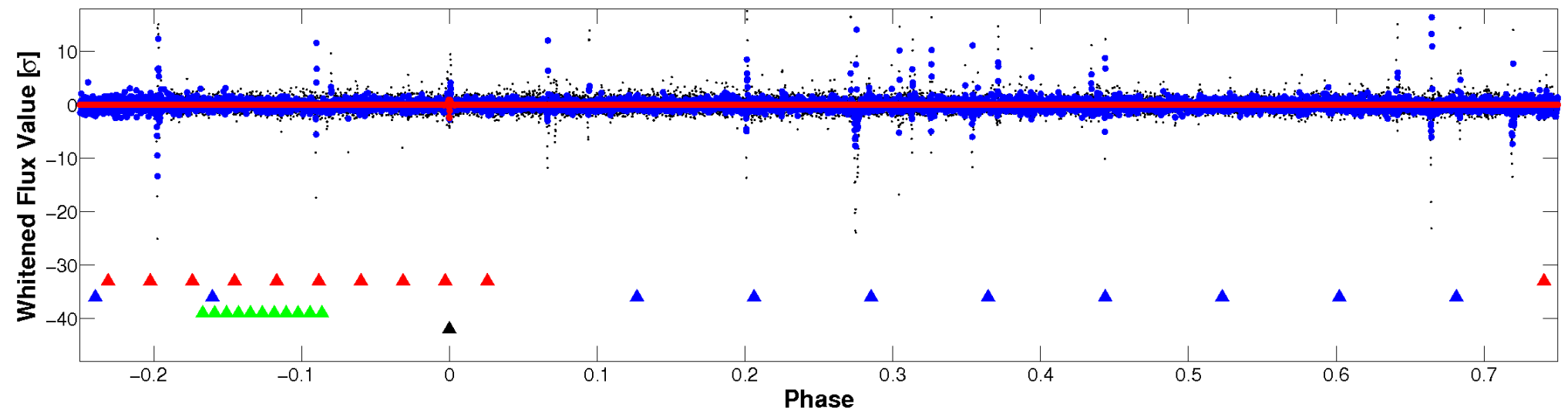


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

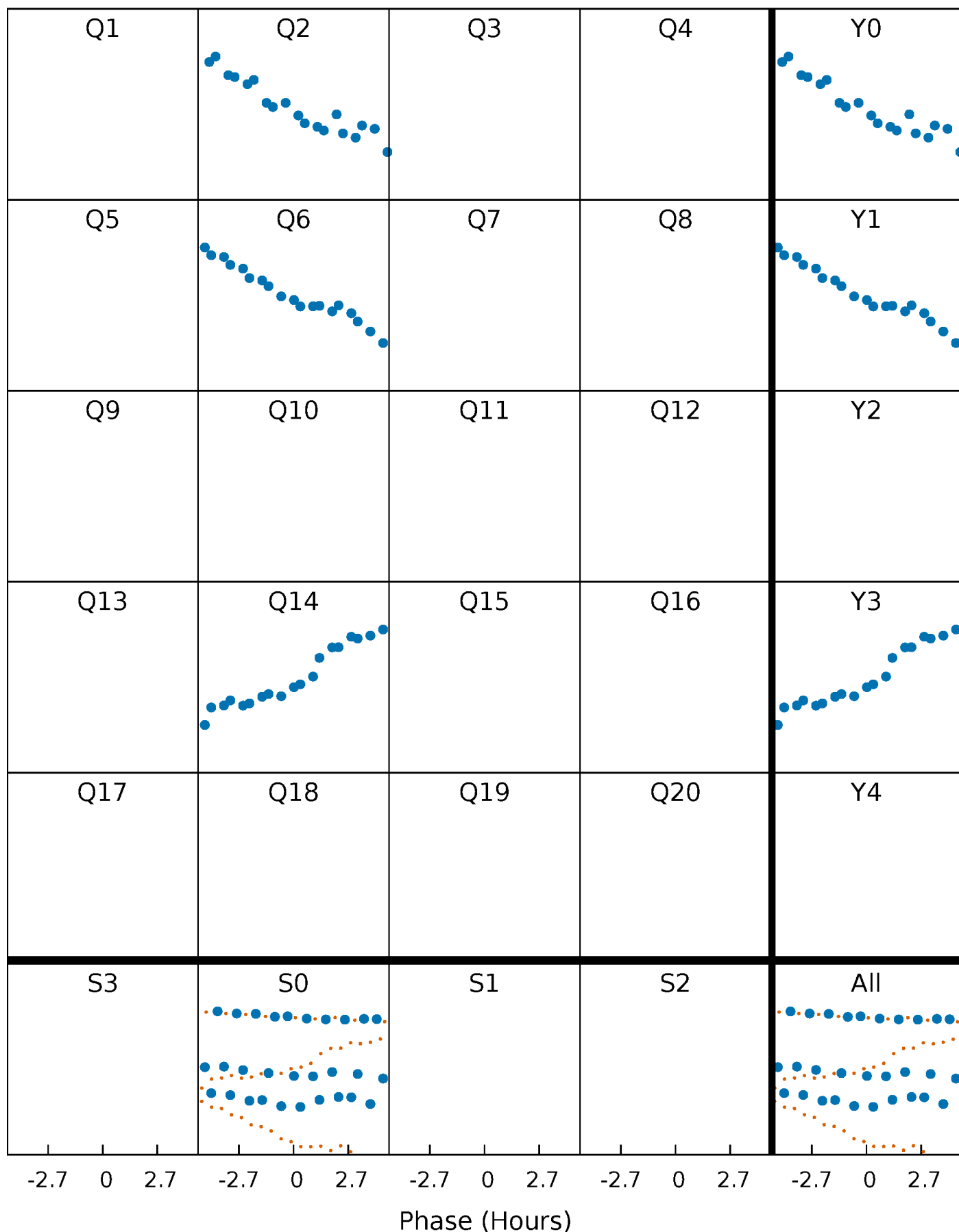


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



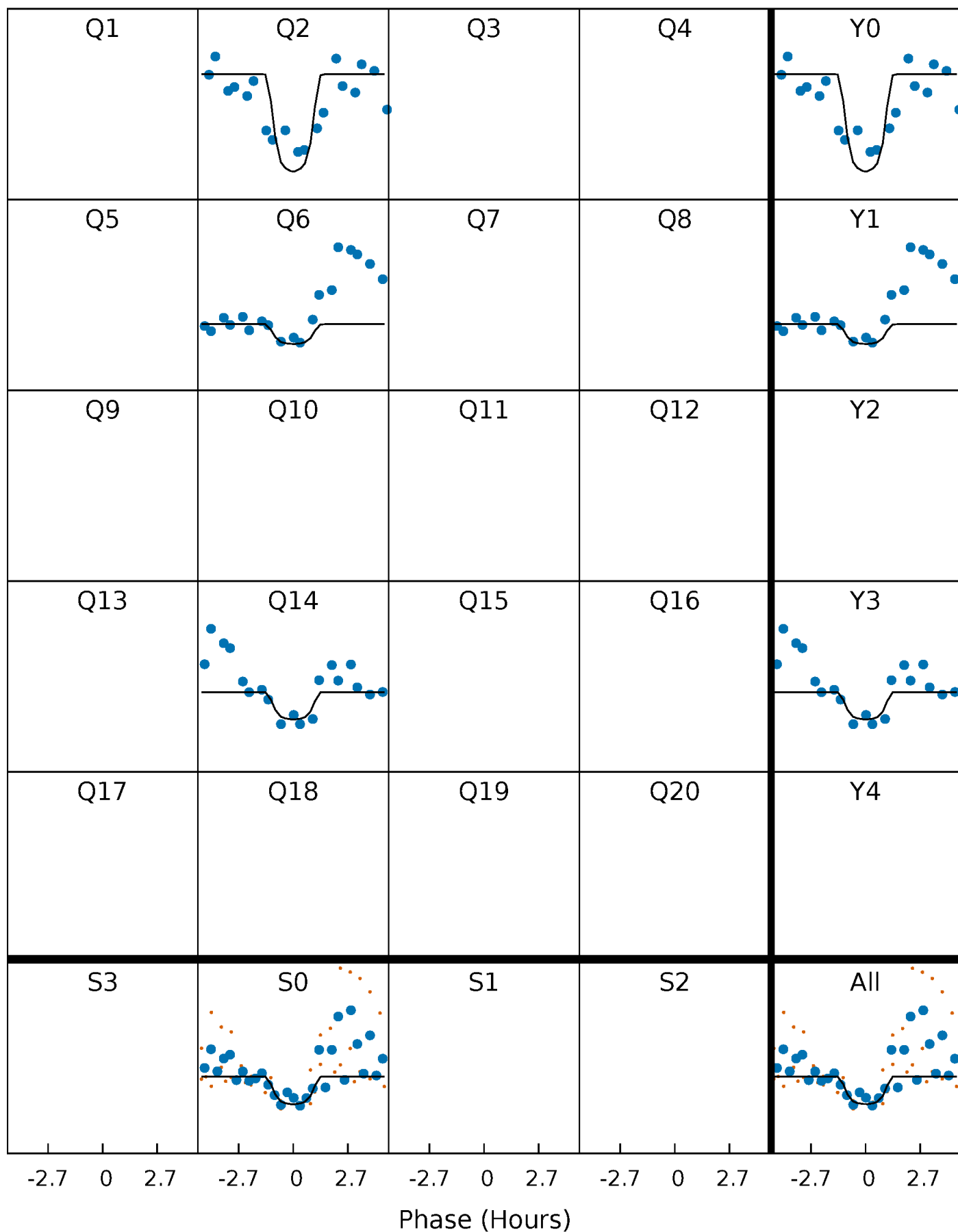
PDC Quarter-Phased Transit Curves

TCE 009572988-04 P=141.866489 Days $T_0=190.215966$ (BKJD)



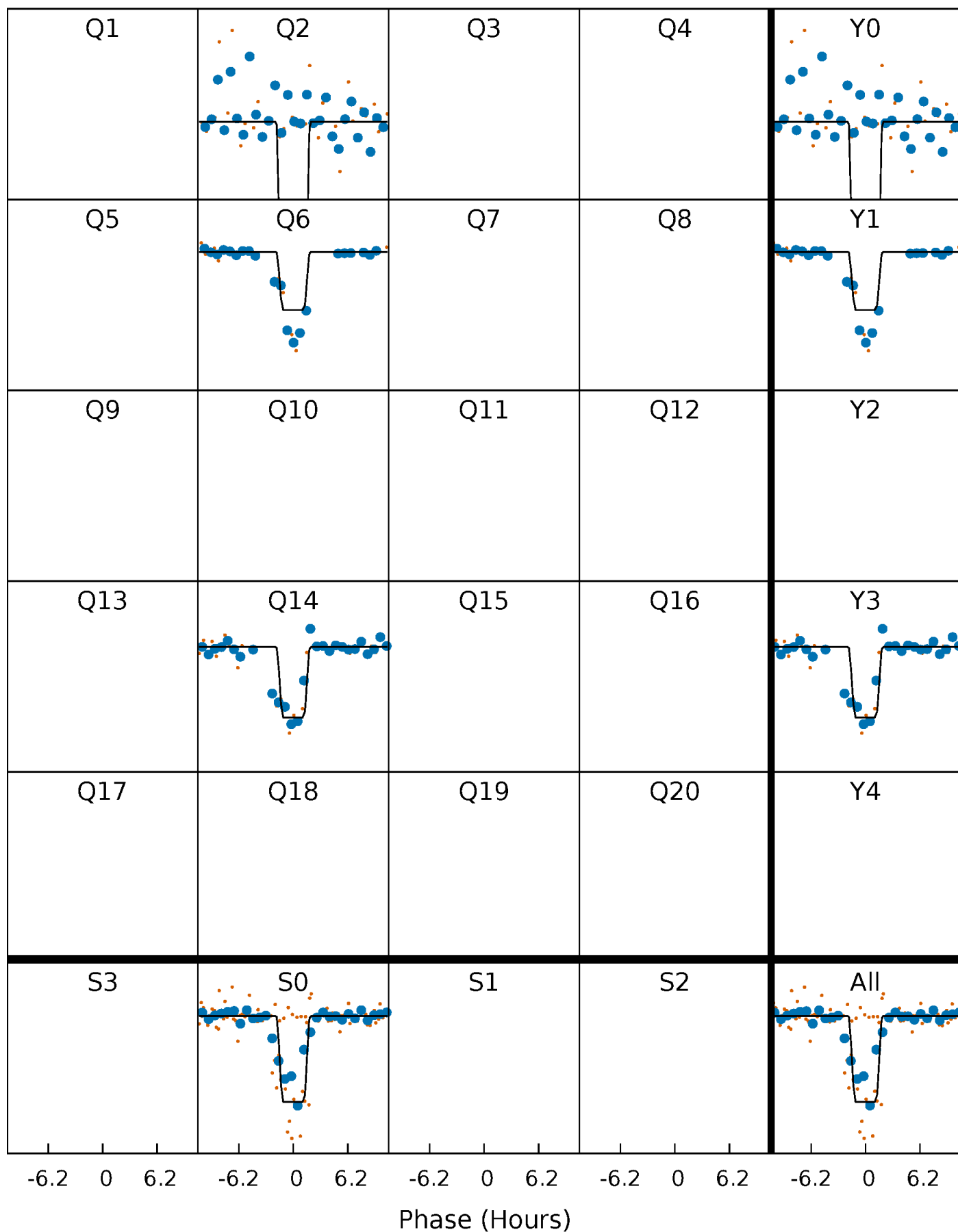
DV Quarter-Phased Transit Curves

TCE 009572988-04 P=141.866489 Days $T_0=190.215966$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

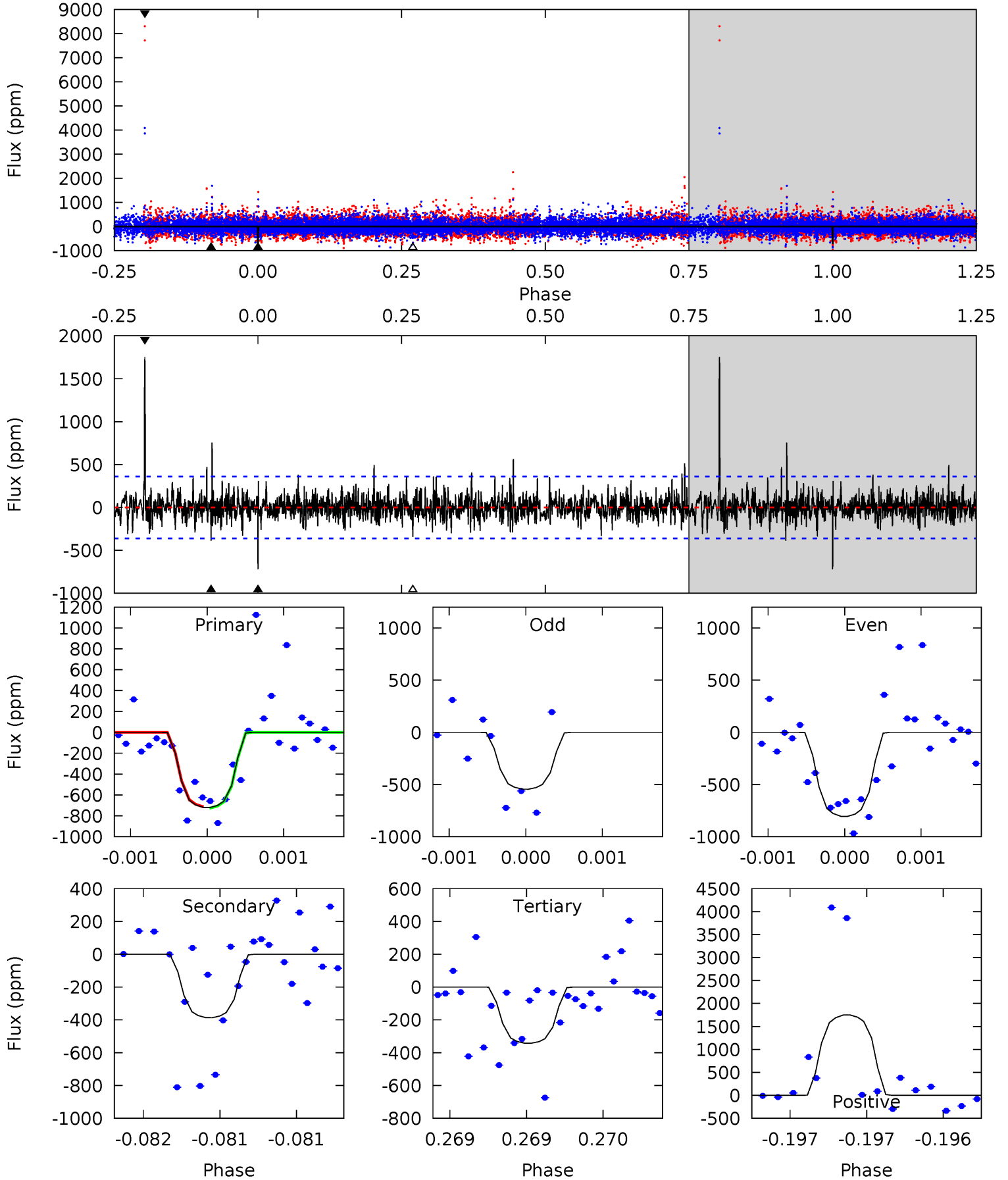
TCE 009572988-04 P=141.864548 Days $T_0=190.223307$ (BKJD)



DV Model-Shift Uniqueness Test

009572988-04, P = 141.866489 Days, E = 48.349477 Days

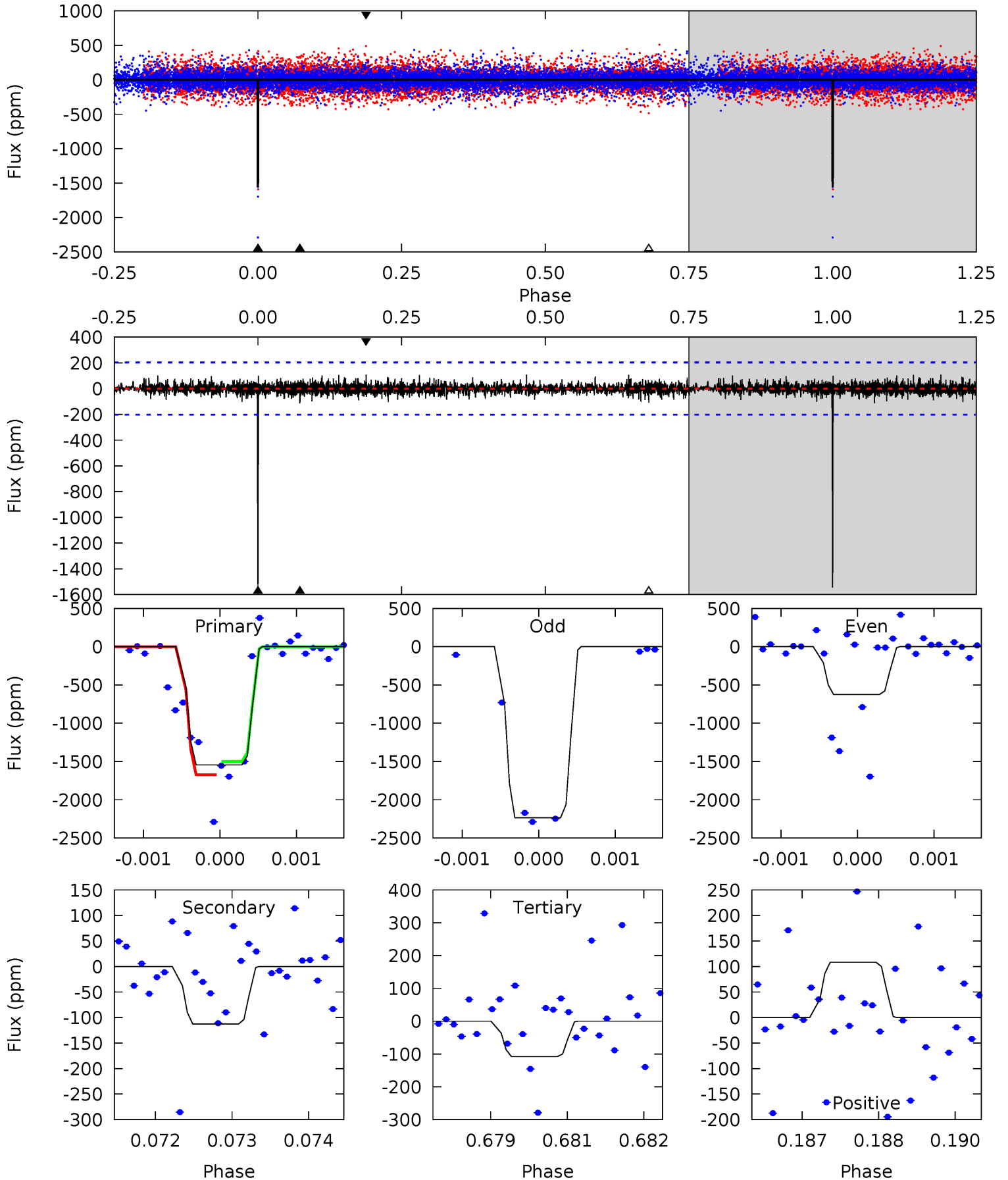
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	5.91	5.23	26.7	5.49	3.36	1.69	5.76	-15.7	0.67	-20.8	1.20	1.07	0.71	0.10



Alt Model-Shift Uniqueness Test

009572988-04, P = 141.864548 Days, E = 48.358759 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.4	3.02	2.90	2.90	5.44	3.27	0.69	38.5	38.5	0.12	0.12	20.4	0.78	0.07	0



Stellar Parameters For KIC 009572988

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5268^{+202}_{-184}	$4.525^{+0.104}_{-0.095}$	$-0.400^{+0.350}_{-0.300}$	$0.765^{+0.104}_{-0.095}$	$0.715^{+0.107}_{-0.046}$	$2.251^{+0.907}_{-0.594}$
	+4%/-3%	+2%/-2%	+87%/-75%	+14%/-12%	+15%/-6%	+40%/-26%
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 009572988-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-387 ± 66	$2.97^{+2.03}_{-1.69}$	411^{+22}_{-22}	4157^{+1843}_{-677}	5536^{+23929}_{-3579}
Alt.	-113 ± 37	$3.46^{+2.13}_{-1.92}$	410^{+21}_{-19}	3217^{+1006}_{-412}	1200^{+4505}_{-765}

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

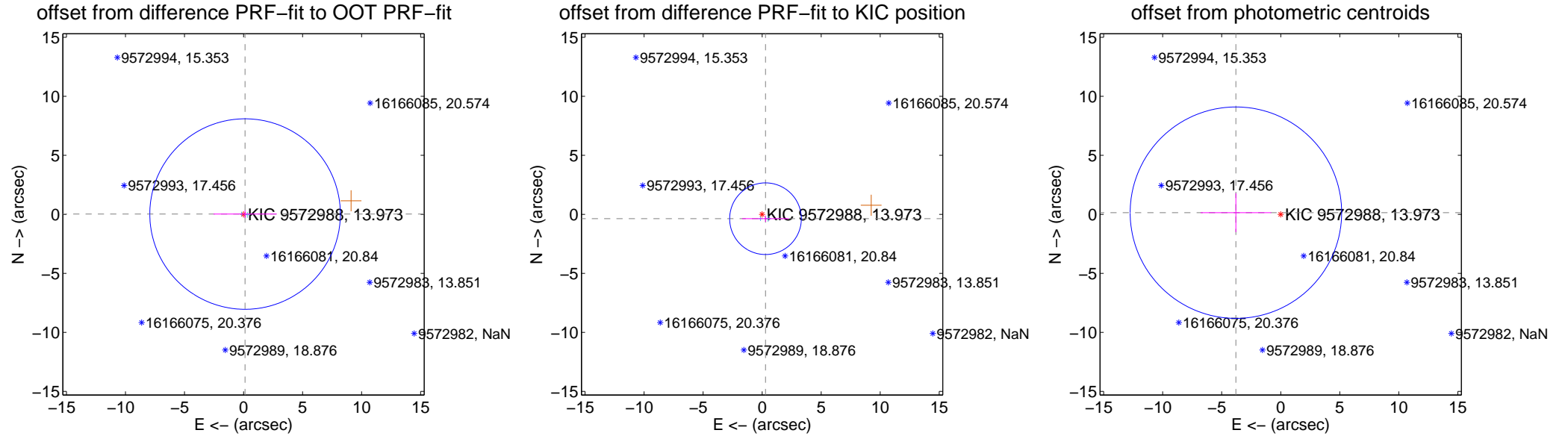
DV Centroid Data

Supplemental centroid analysis for 009572988-04. Kepler magnitude: 13.97. Transit SNR 7.61

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.132 ± 2.689	0.05	-0.130 ± 2.676	0.025 ± 0.328
PRF-fit source offset from KIC position	0.466 ± 1.012	0.46	-0.284 ± 1.982	-0.369 ± 0.262
photometric centroid source offset	3.80 ± 2.98	1.27	3.80 ± 2.99	0.14 ± 1.64



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.

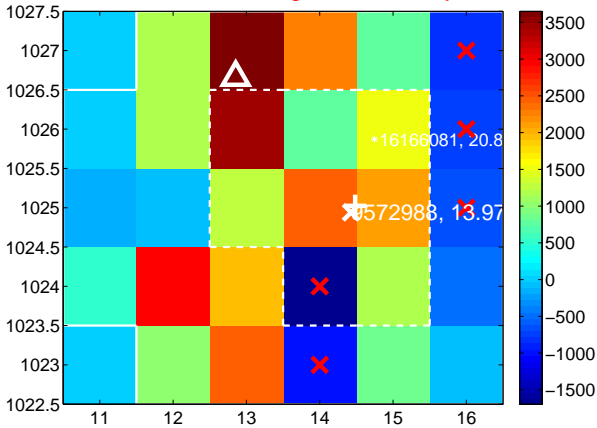
Q1 no difference image



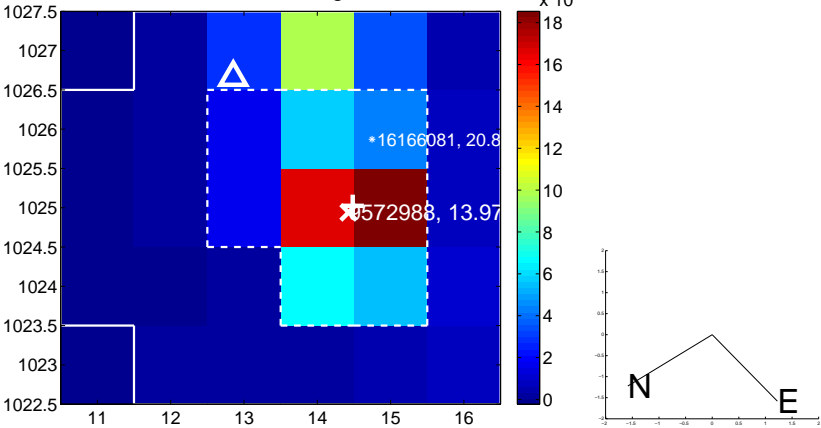
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



Q3 no difference image



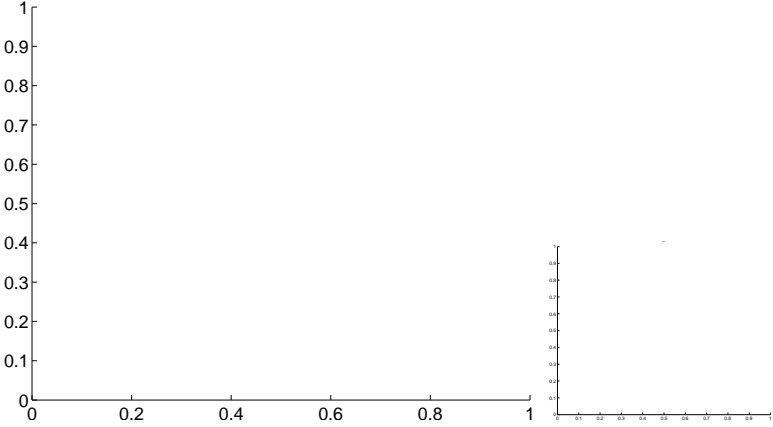
Q3 no OOT image



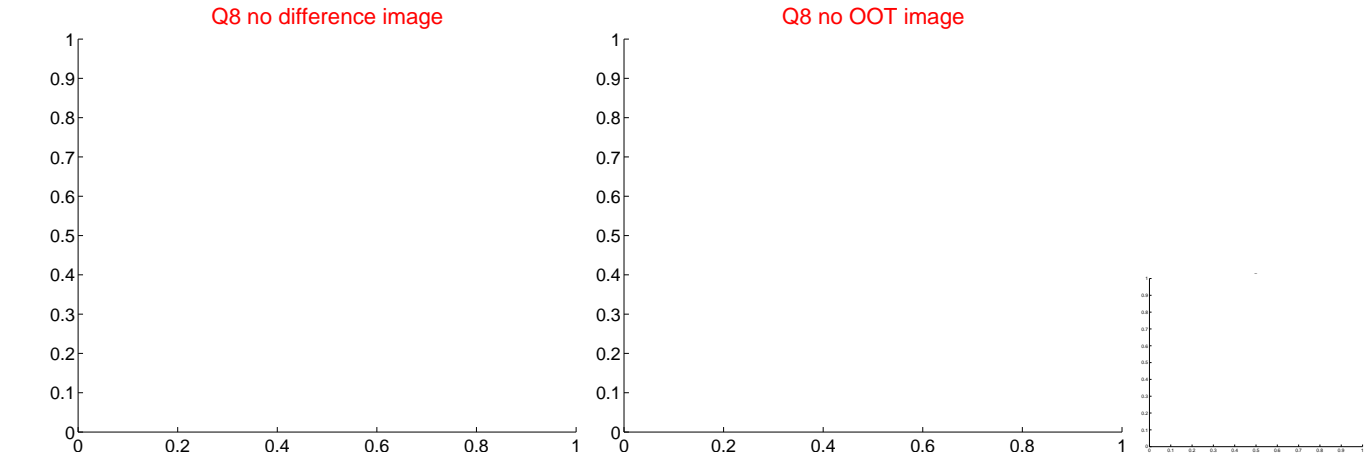
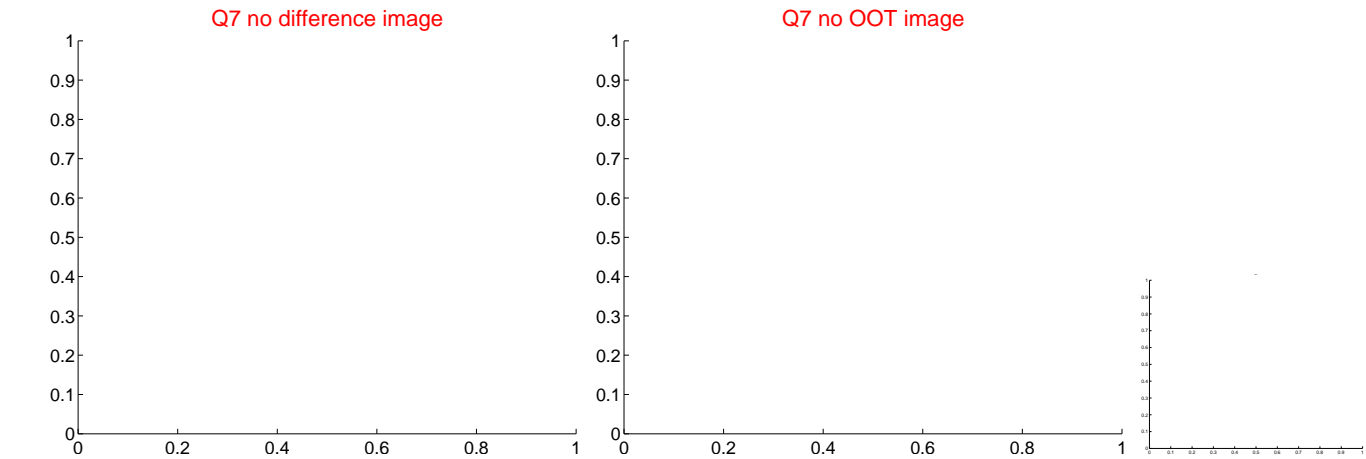
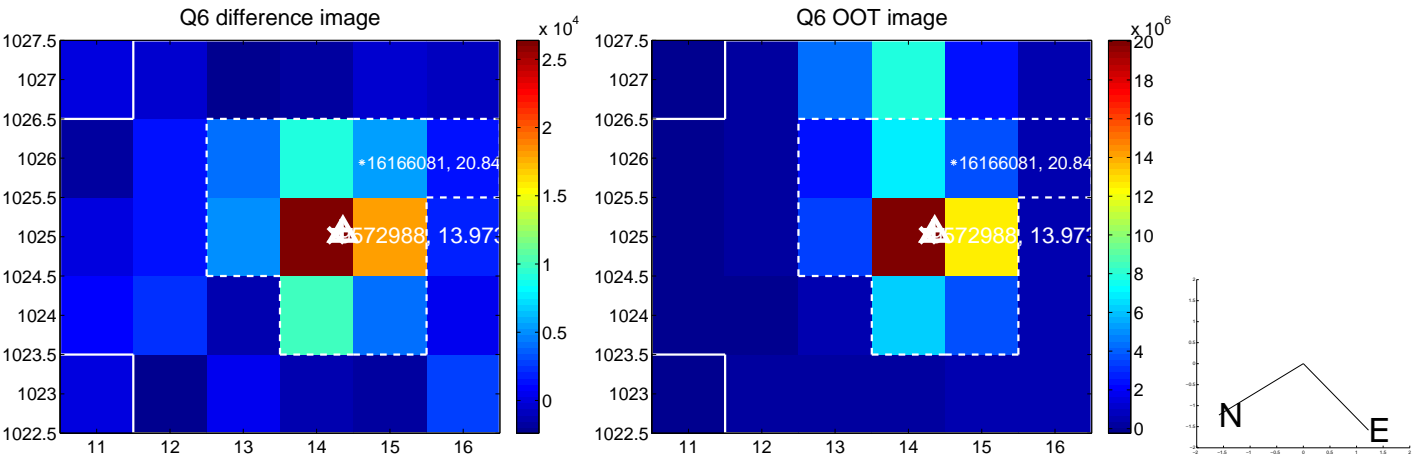
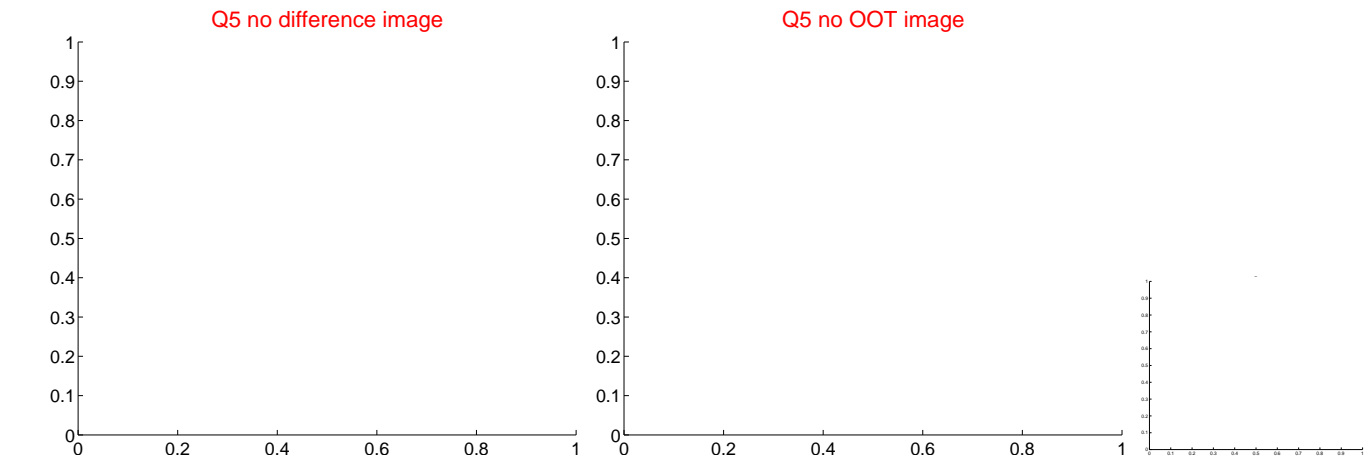
Q4 no difference image



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.

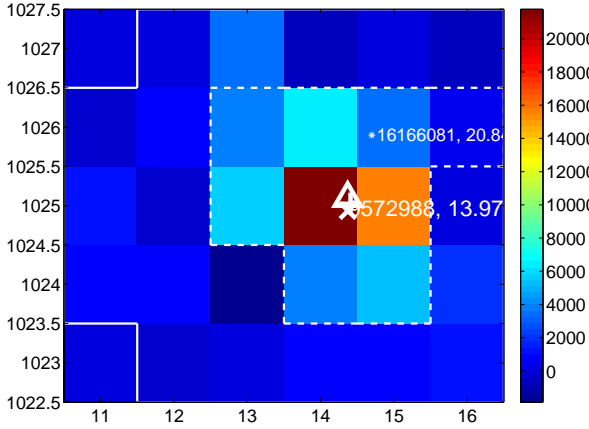
Q13 no difference image



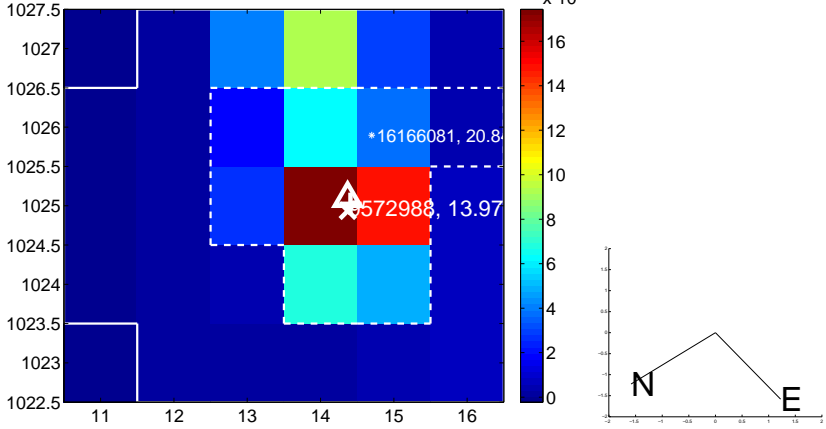
Q13 no OOT image



Q14 difference image



Q14 OOT image



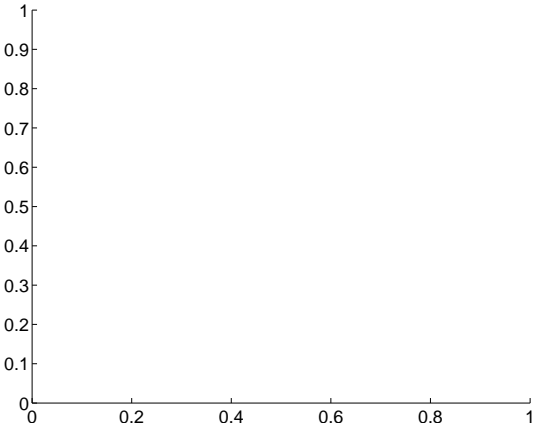
Q15 no difference image



Q15 no OOT image



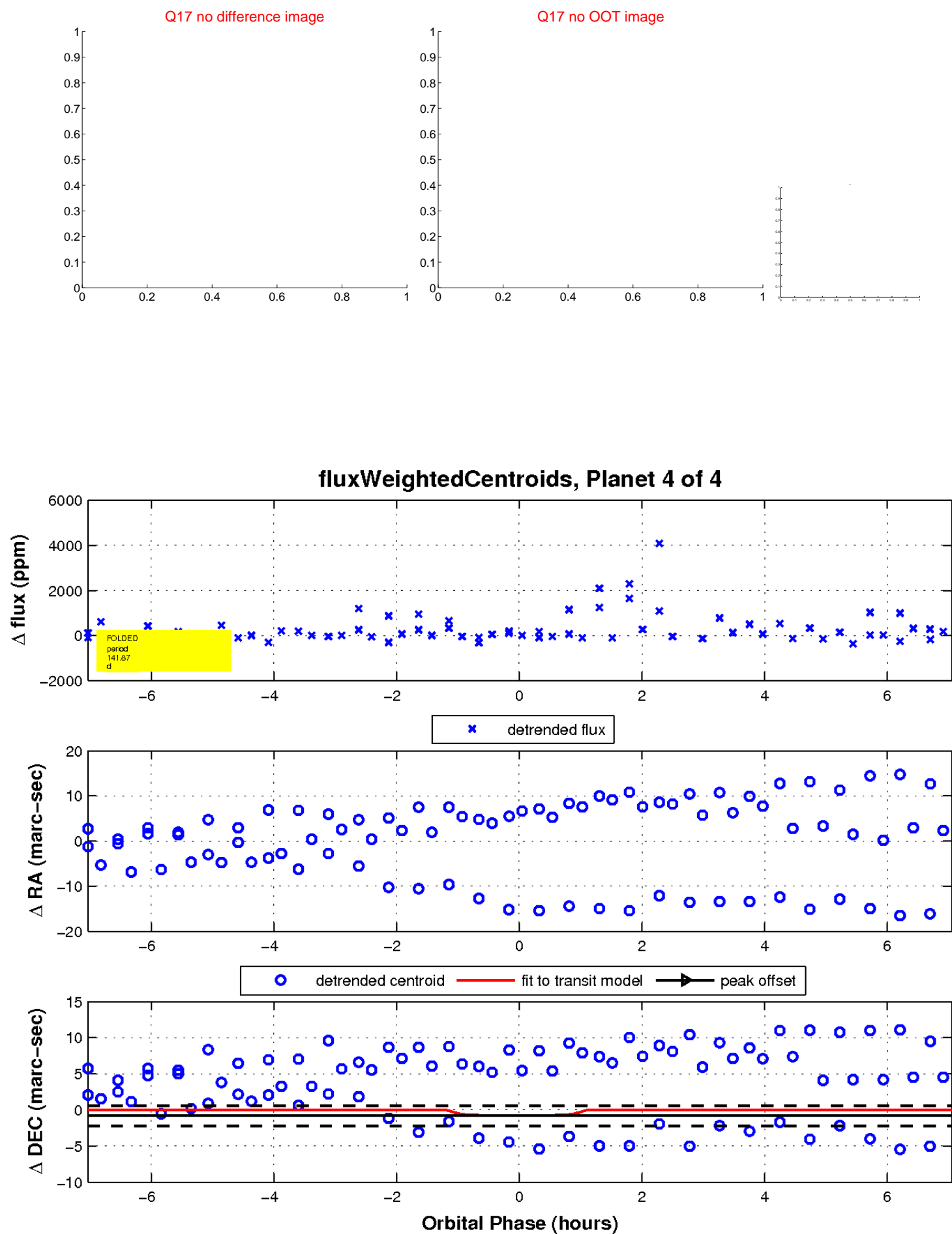
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

