

# KIC 004935249

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004935249-01	OBS	No	374.306579	450.739055	3168.2	8.245	14.0	7.4	15.42	4653	83.03	58.73
004935249-02	OBS	No	267.655297	196.336727	6522.4	17.395	16.3	11.6	15.42	4653	119.15	91.85
004935249-03	OBS	No	420.122460	329.462097	2623.6	2.498	12.3	6.2	15.42	4653	84.19	50.35
004935249-04	OBS	No	600.412953	302.722274	3839.4	3.376	14.7	7.6	15.42	4653	94.99	31.28
004935249-06	OBS	No	436.197991	315.013324	5059.3	9.618	14.1	9.0	15.42	4653	115.21	47.89

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004935249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-02	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
004935249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004935249-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—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.

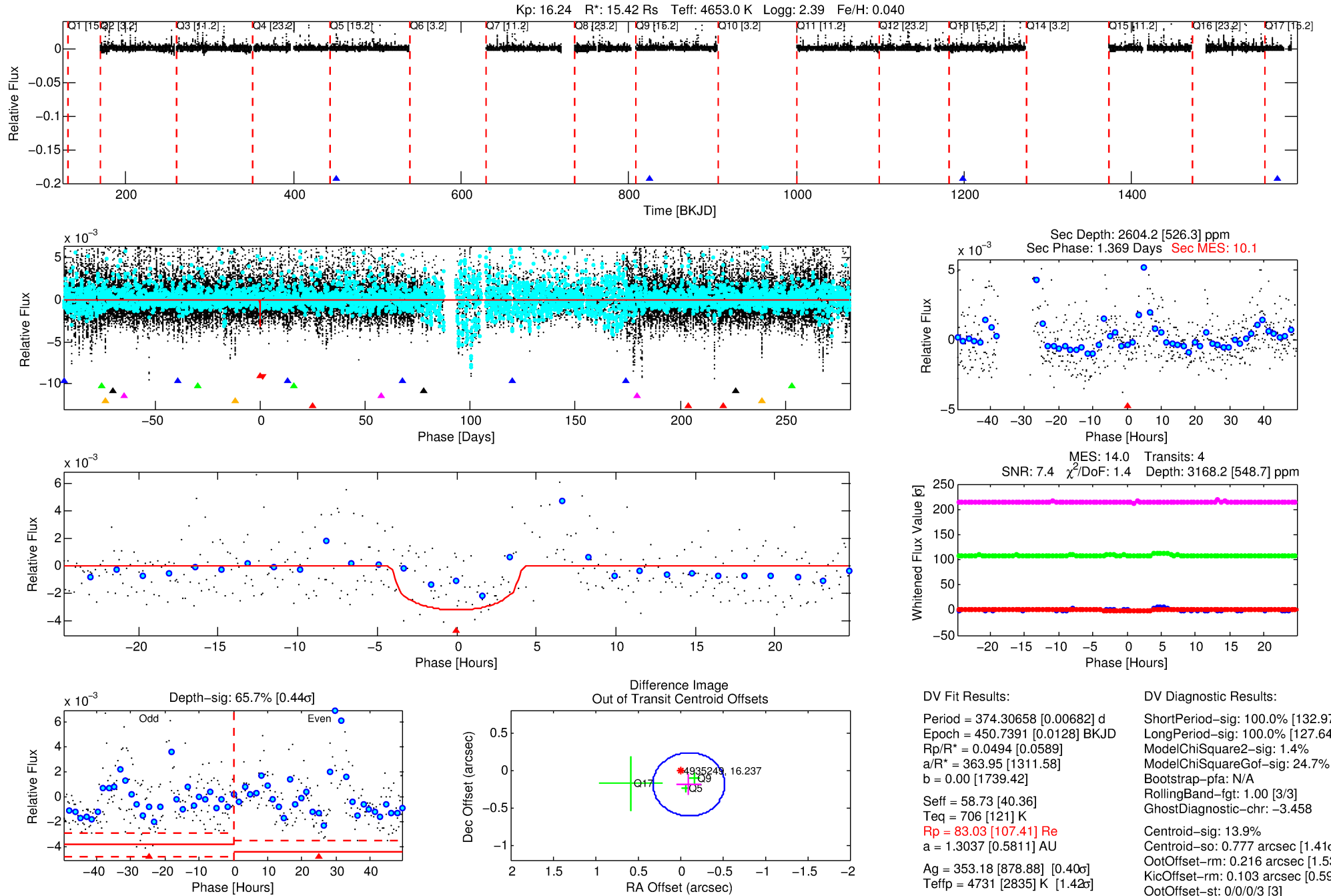
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004935249-01

No Significant Match Found

# DV One-Page Summary

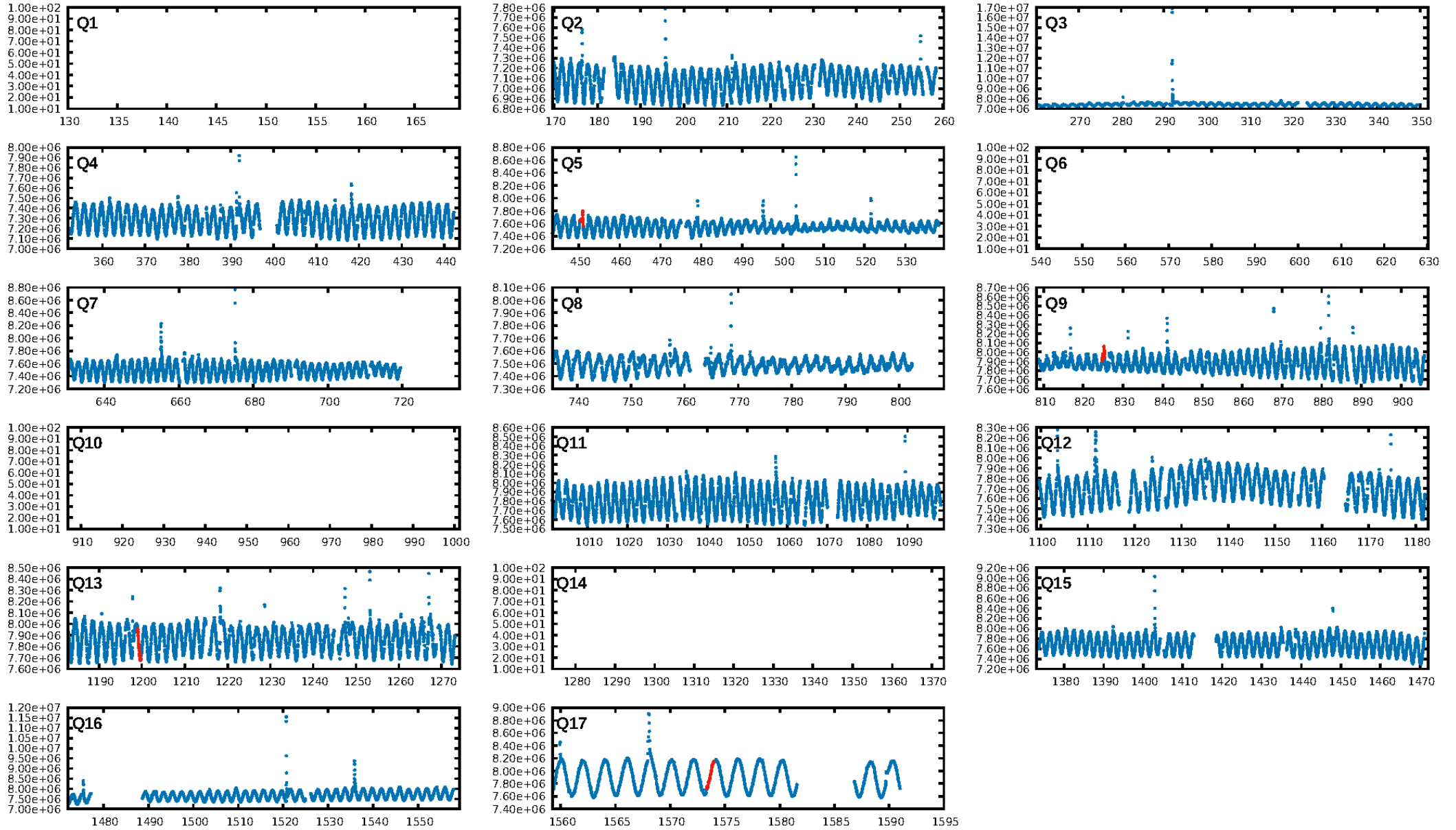
KIC: 4935249 Candidate: 1 of 7 Period: 374.307 d



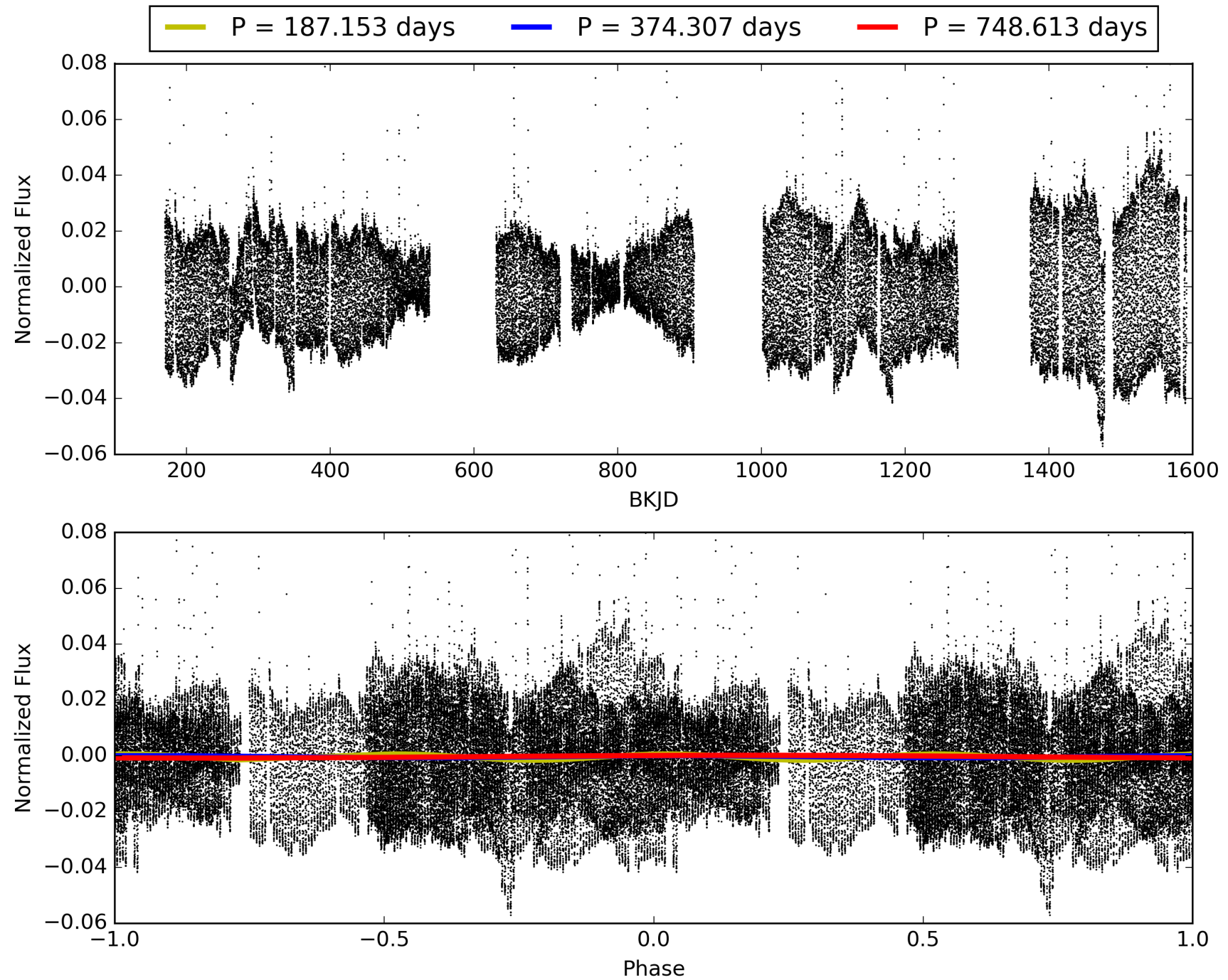
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:18:52 Z

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

# TCE 004935249-01, PDC Light Curves



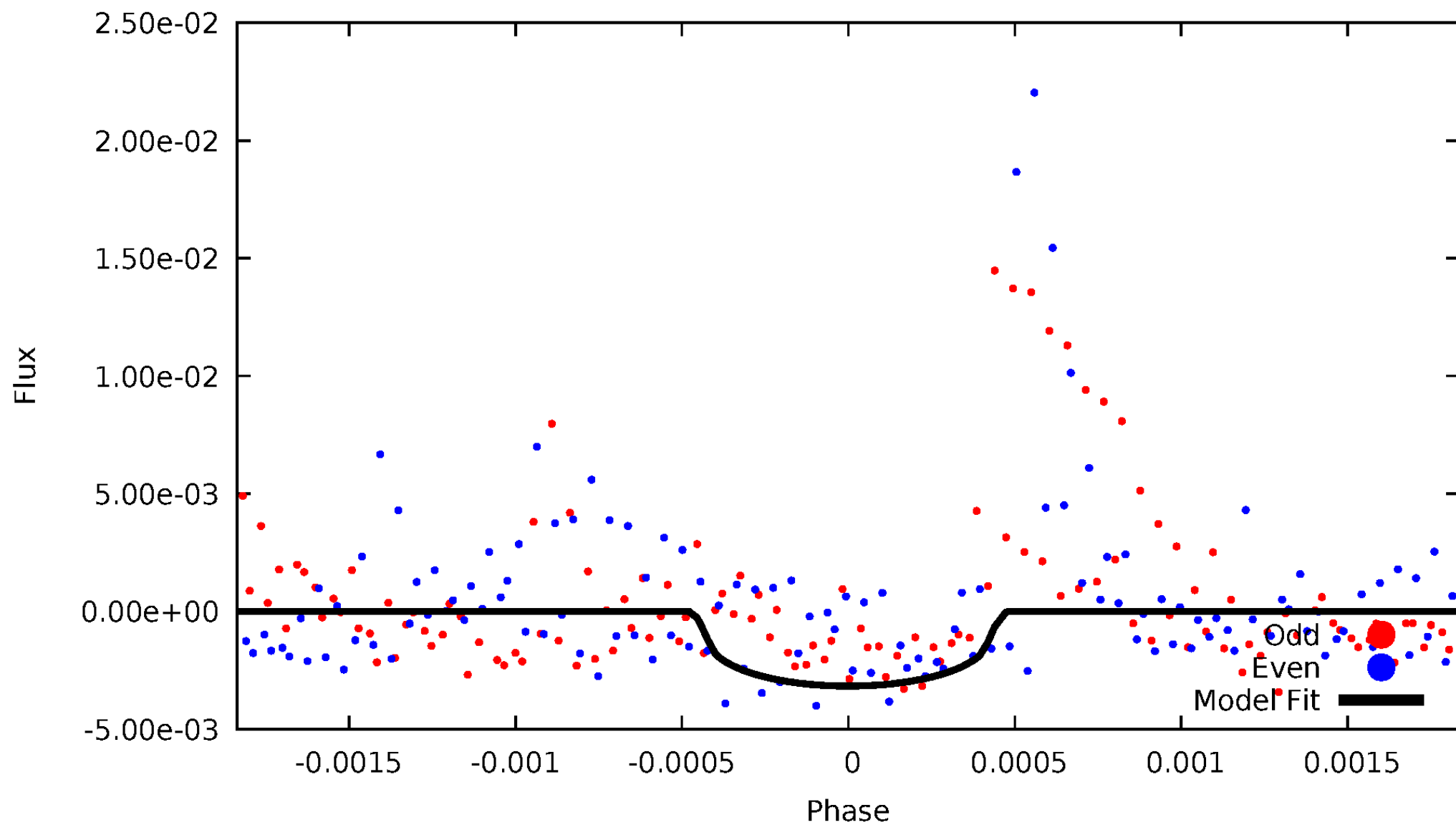
TCE 004935249-01





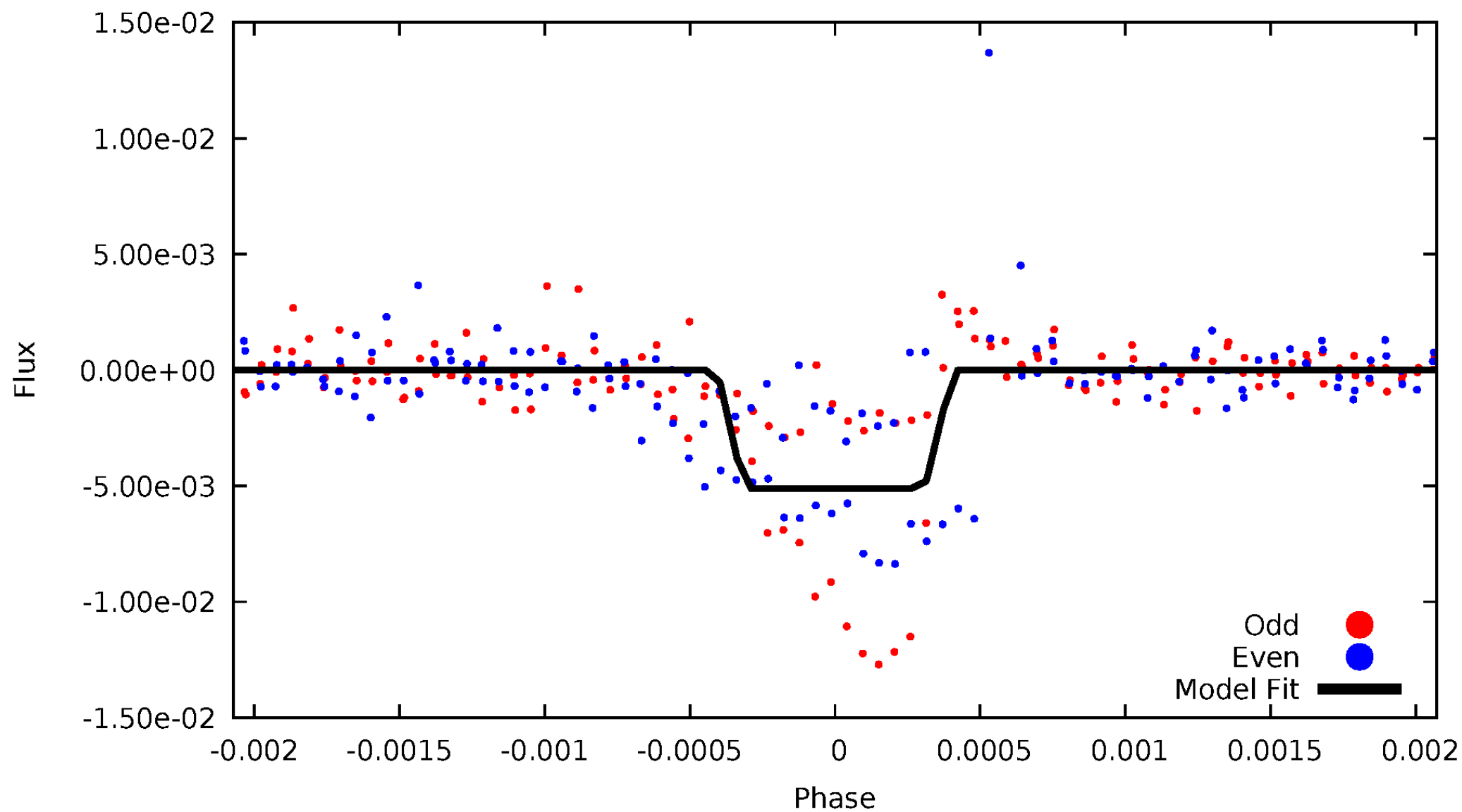
# DV Odd/Even

TCE 004935249-01



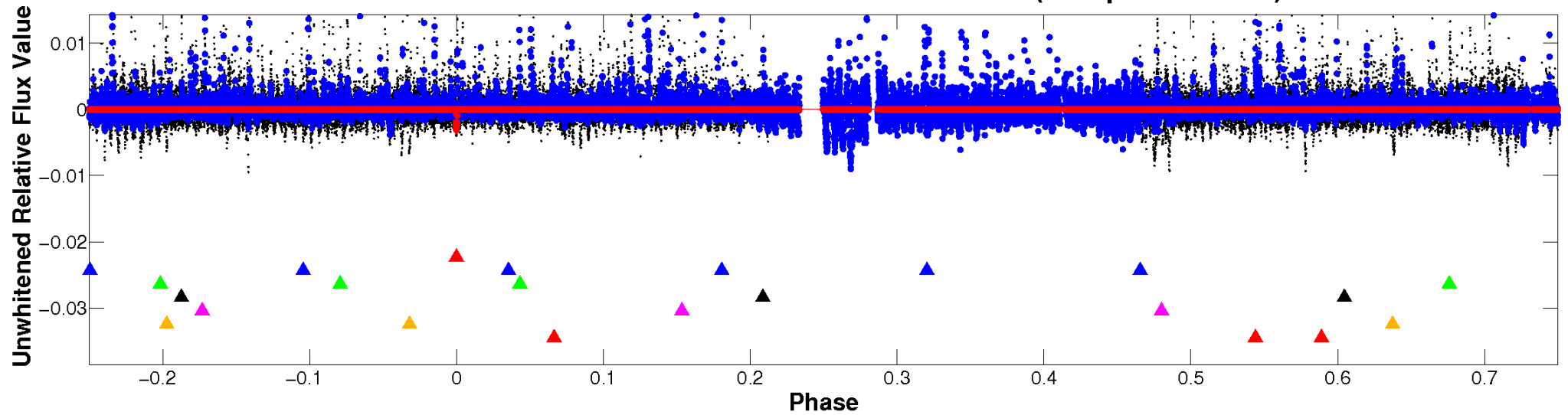
# ALT Odd/Even

TCE 004935249-01

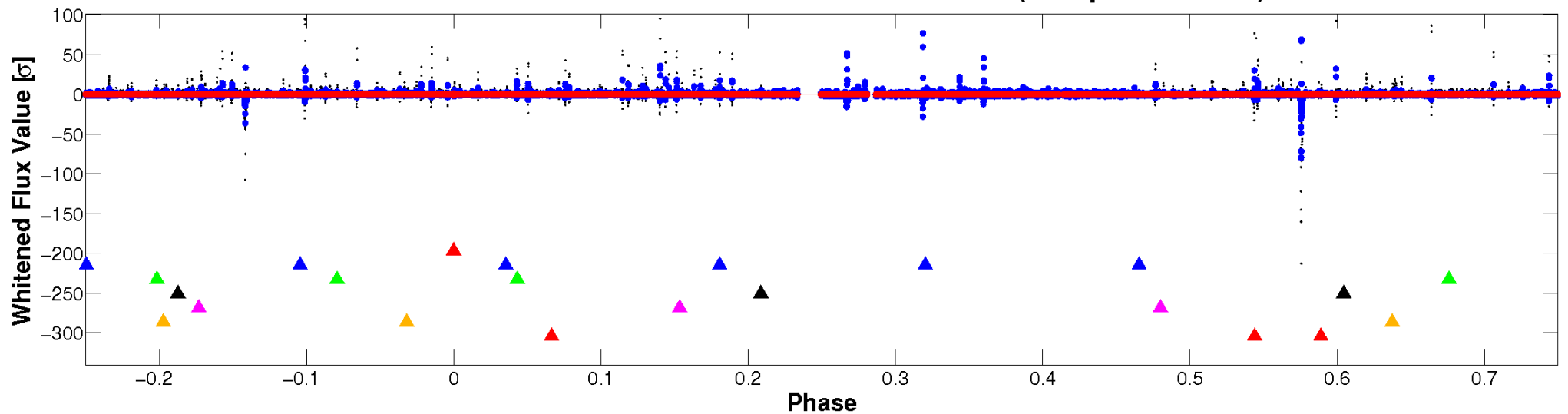


# Non-Whitened Vs. Whitened Light Curve

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

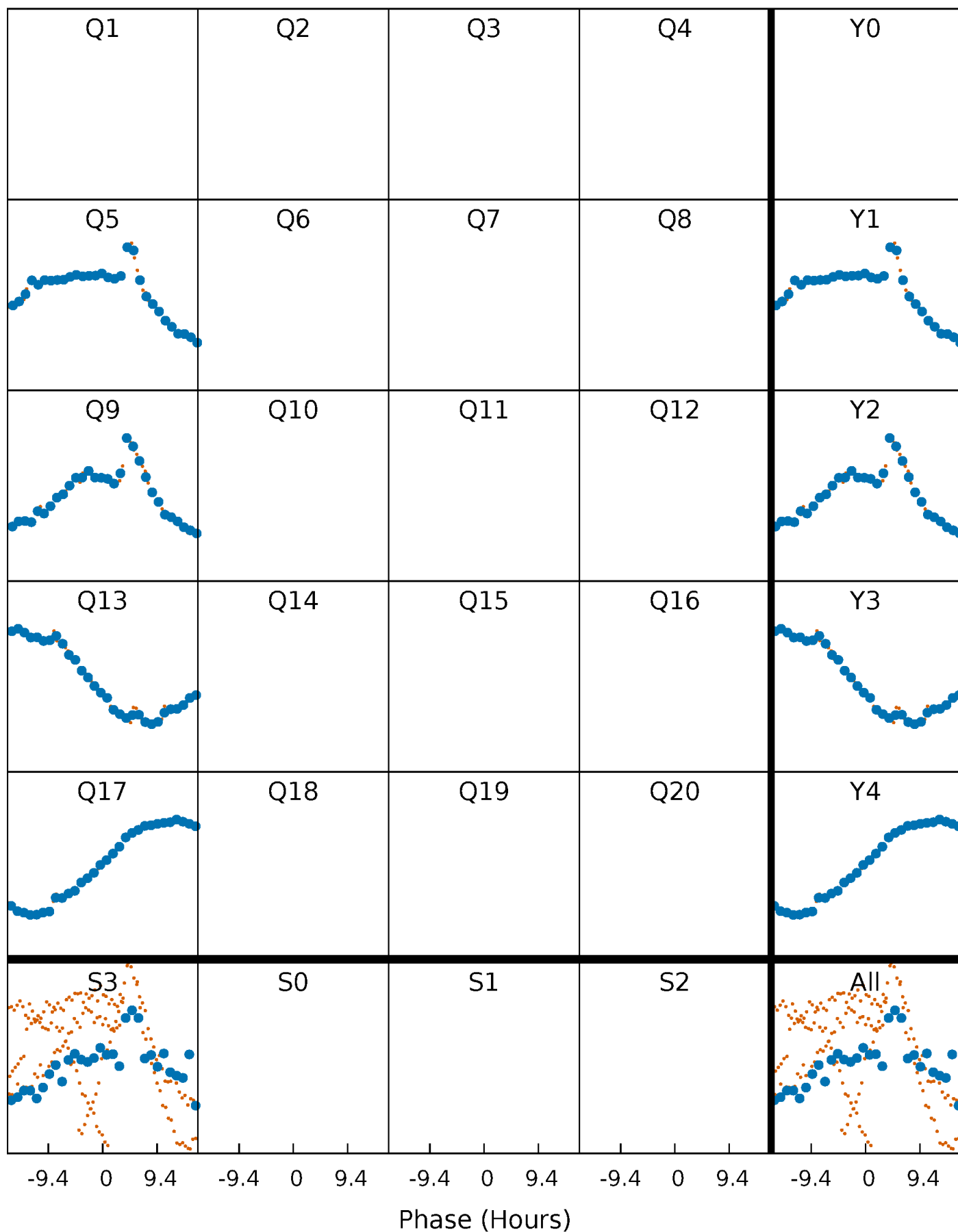


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



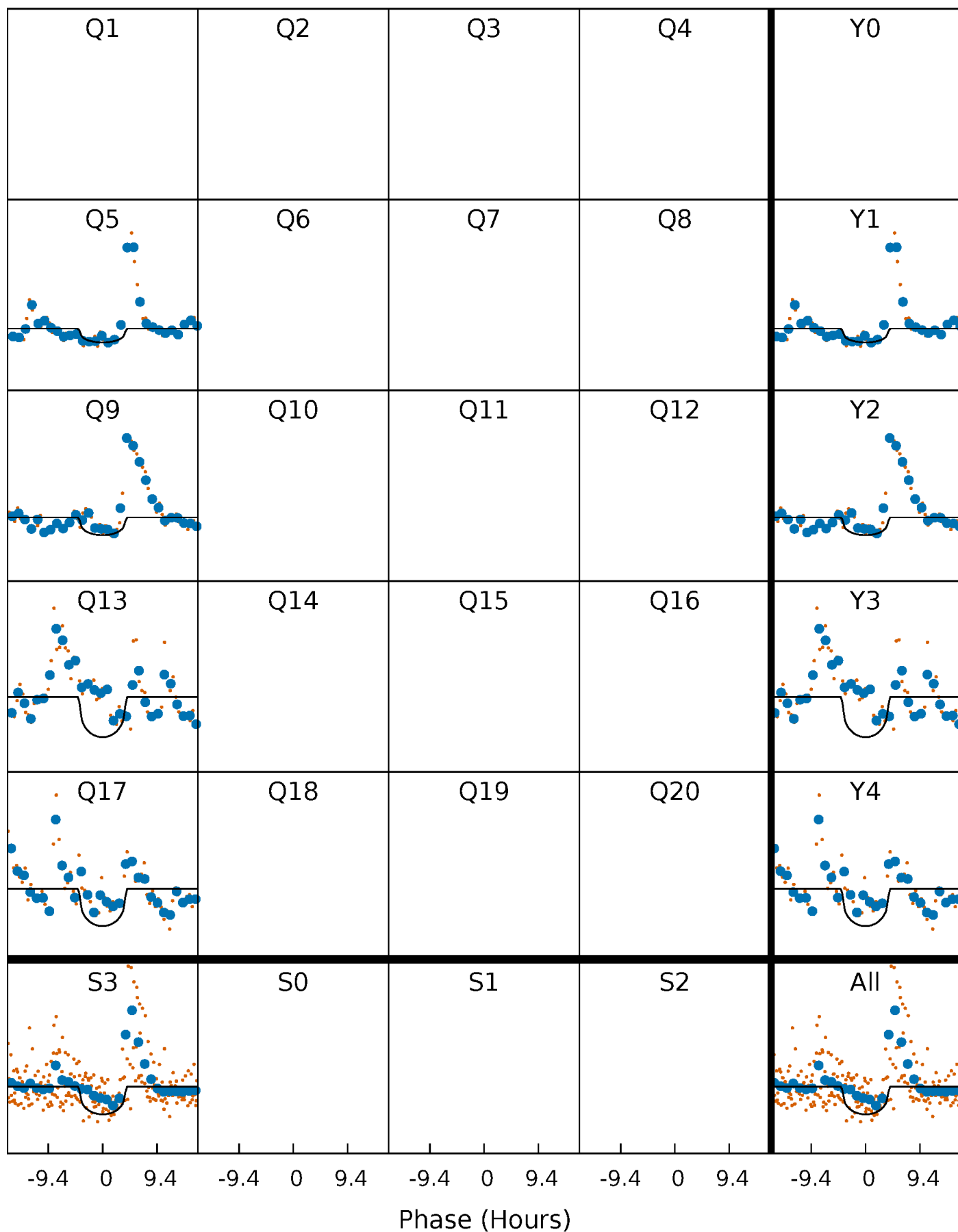
# PDC Quarter-Phased Transit Curves

TCE 004935249-01 P=374.306579 Days  $T_0=450.739055$  (BKJD)



# DV Quarter-Phased Transit Curves

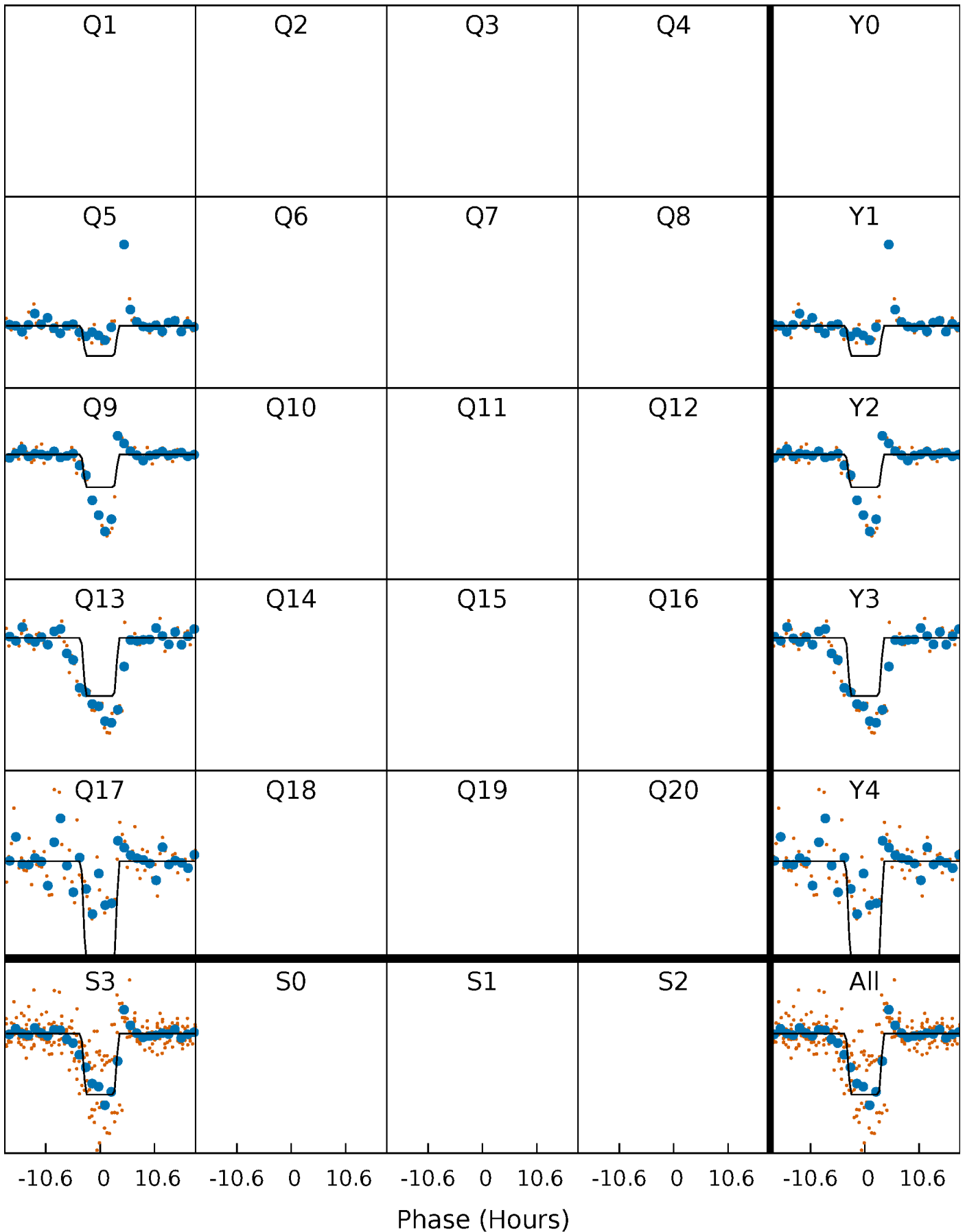
TCE 004935249-01     $P=374.306579$  Days     $T_0=450.739055$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

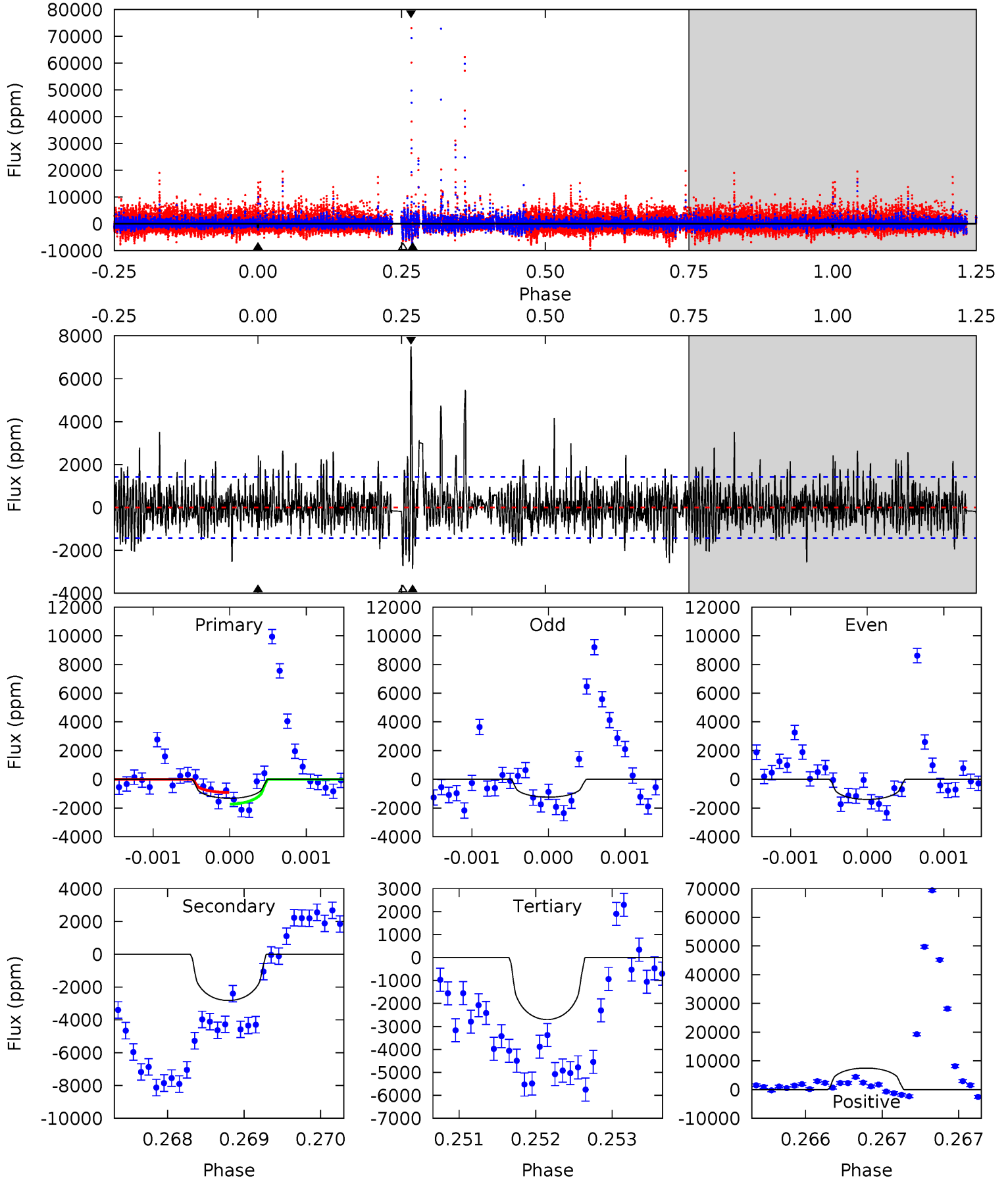
TCE 004935249-01 P=374.301952 Days  $T_0=450.770428$  (BKJD)



# DV Model-Shift Uniqueness Test

004935249-01, P = 374.306579 Days, E = 76.432476 Days

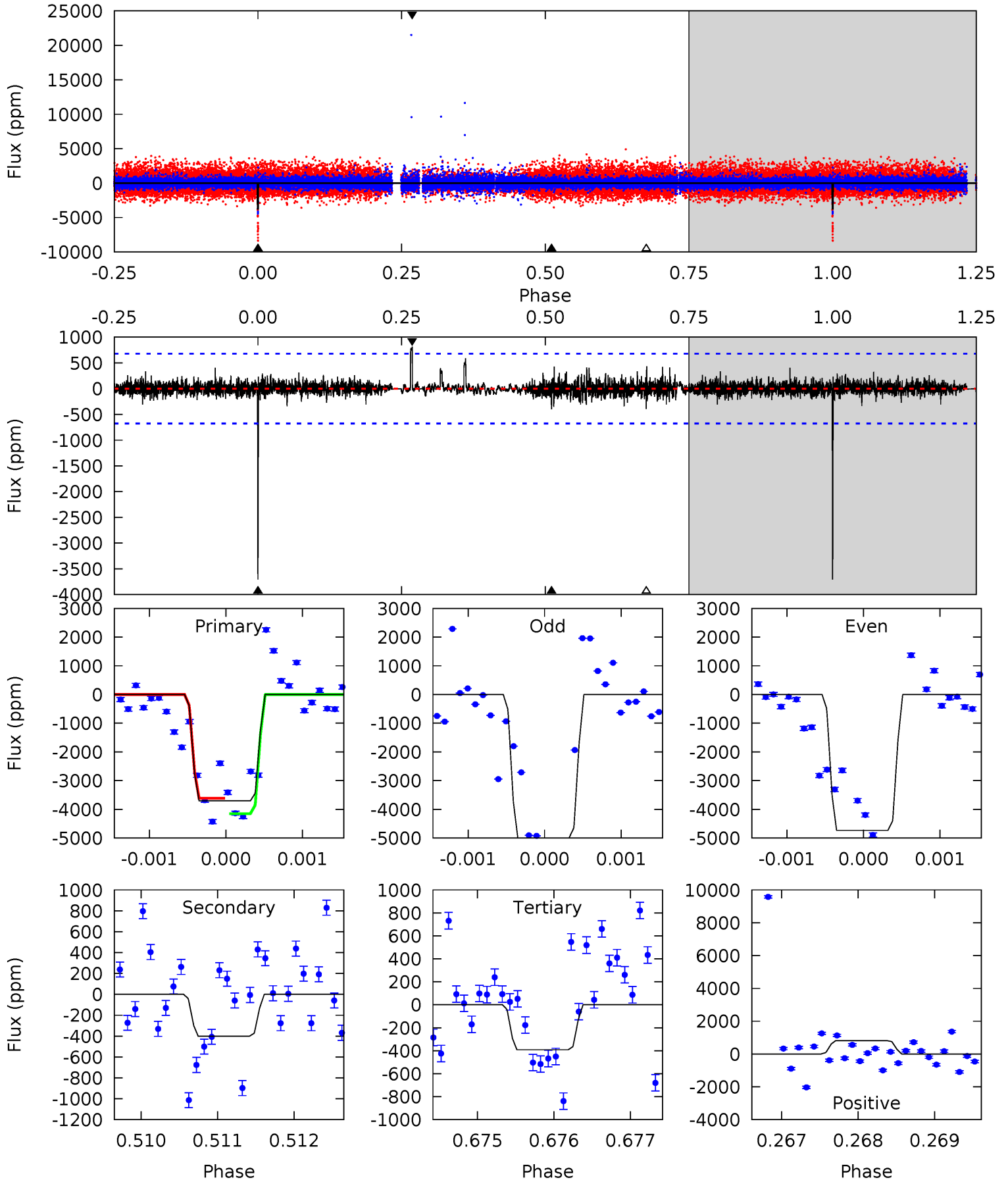
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.07	10.8	10.3	28.7	5.46	3.30	3.00	-5.27	-23.6	0.46	-17.9	0.25	1.13	0.73	1.59



# Alt Model-Shift Uniqueness Test

004935249-01, P = 374.301952 Days, E = 76.468476 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.0	3.24	3.17	6.59	5.49	3.34	0.70	26.8	23.4	0.07	-3.34	1.12	1.09	0.18	2.06



### Stellar Parameters For KIC 004935249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4653^{+111}_{-125}$	$2.386^{+0.385}_{-0.165}$	$0.040^{+0.200}_{-0.300}$	$15.417^{+3.307}_{-7.717}$	$2.108^{+0.986}_{-0.888}$	$0.001^{+0.003}_{-0.000}$
	+2%/-3%	+16%/-7%	+500%/-750%	+21%/-50%	+47%/-42%	+378%/-41%
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 004935249-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-2821 \pm 261$	$101.06^{+97.45}_{-68.98}$	$968^{+76}_{-100}$	$4316^{+2897}_{-814}$	$265^{+2213}_{-194}$
Alt.	$-401 \pm 124$	$128.61^{+107.42}_{-79.52}$	$965^{+80}_{-106}$	$2920^{+895}_{-403}$	$23^{+125}_{-16}$

$T_{max}$  = 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

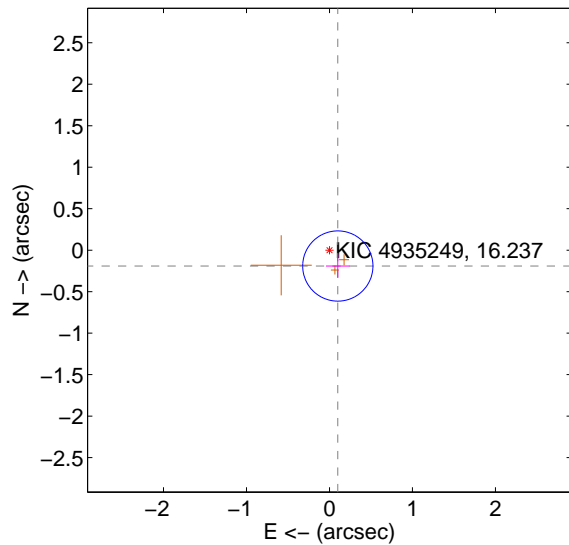
Supplemental centroid analysis for 004935249-01. Kepler magnitude: 16.24. Transit SNR 7.44

There are 0 quarters with good PRF difference image offsets

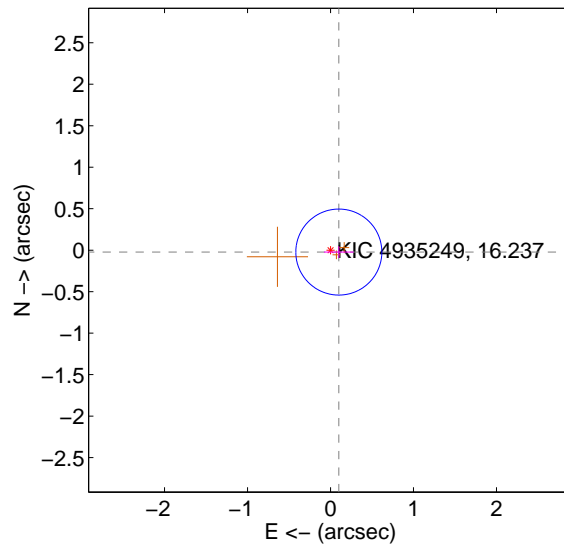
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.216 \pm 0.141$	1.53	$-0.101 \pm 0.142$	$-0.191 \pm 0.141$
PRF-fit source offset from KIC position	$0.103 \pm 0.173$	0.59	$-0.100 \pm 0.180$	$-0.023 \pm 0.071$
photometric centroid source offset	$0.78 \pm 0.55$	1.41	$0.60 \pm 0.52$	$-0.49 \pm 0.59$

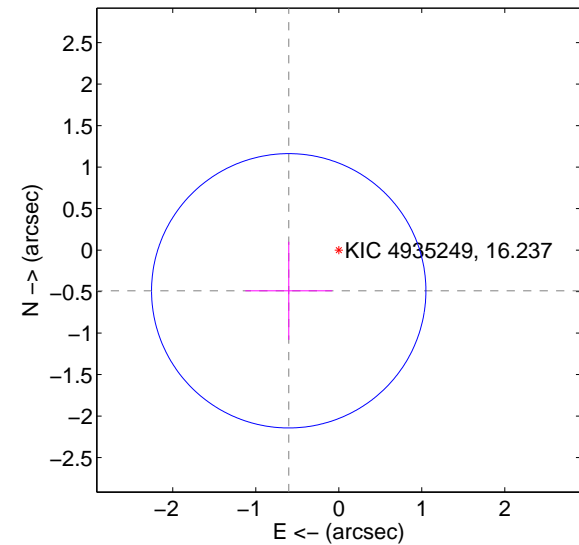
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



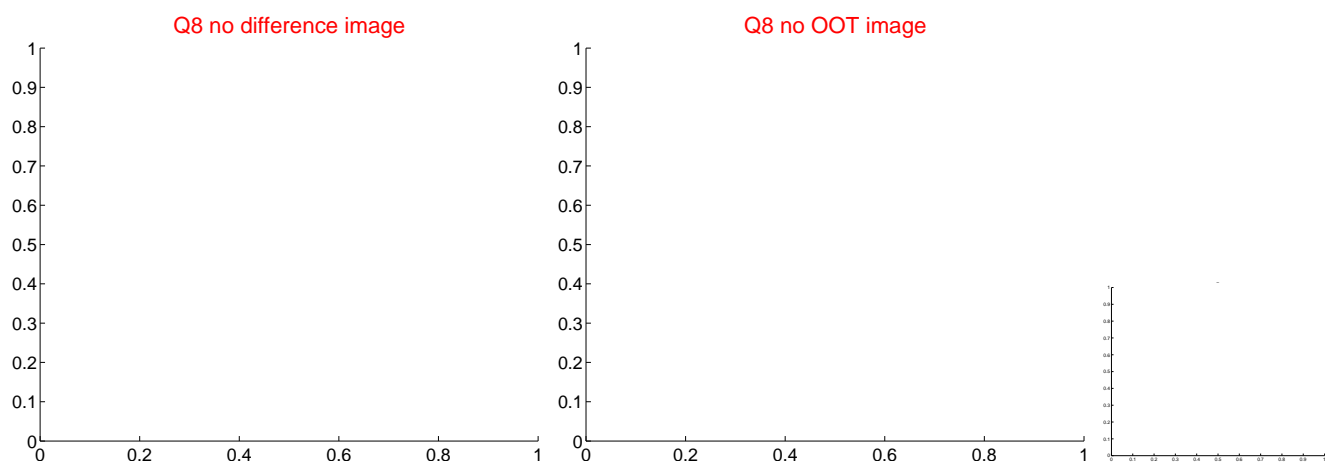
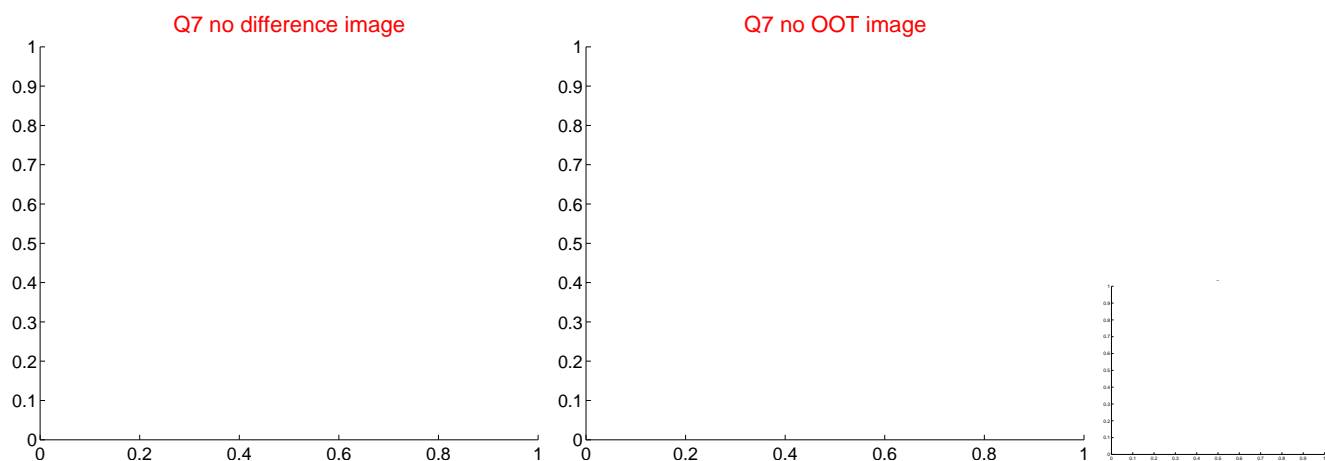
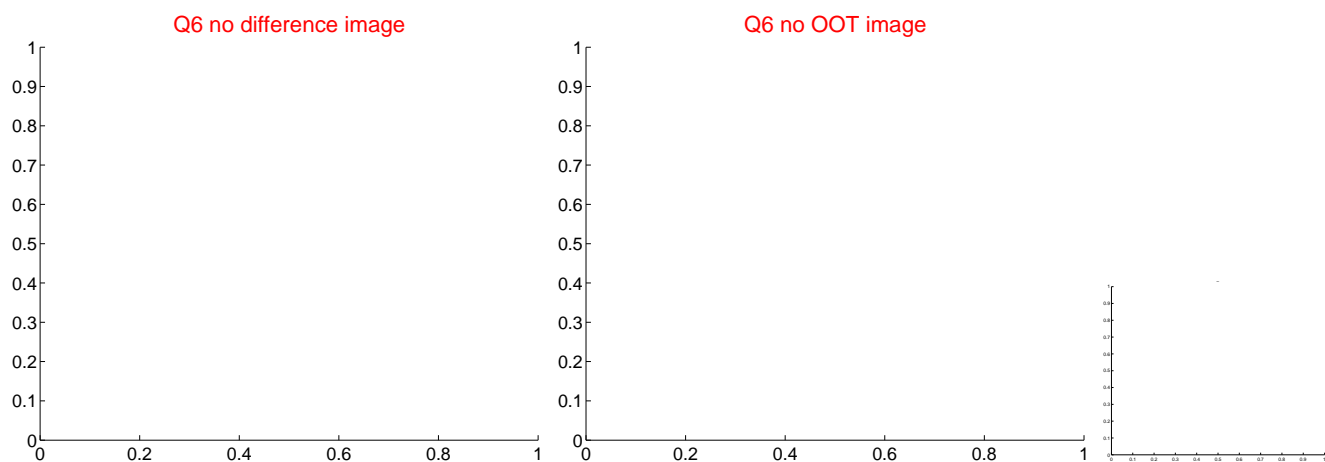
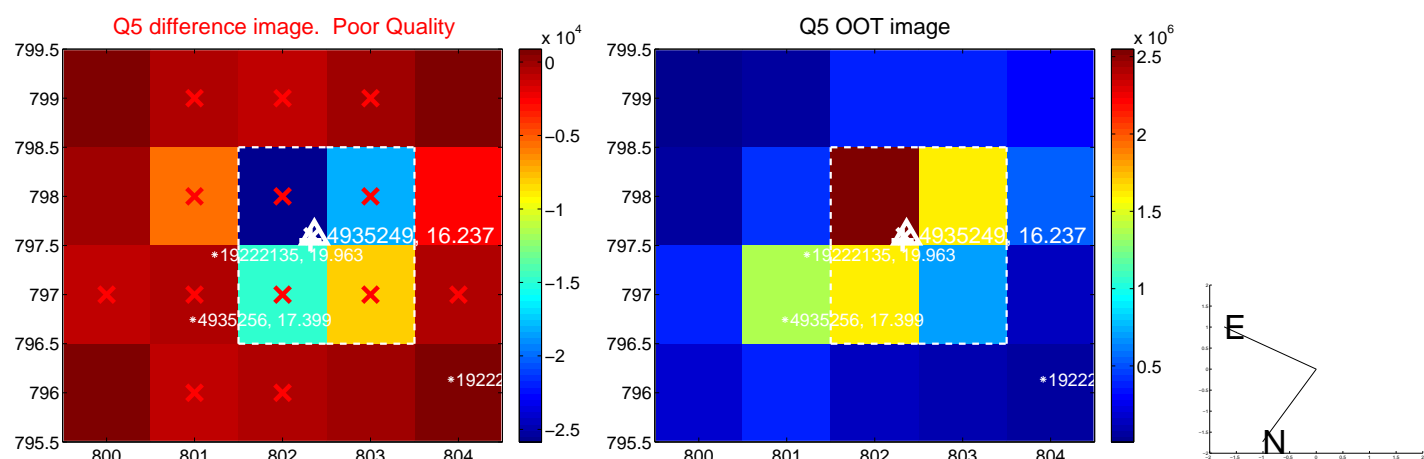
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



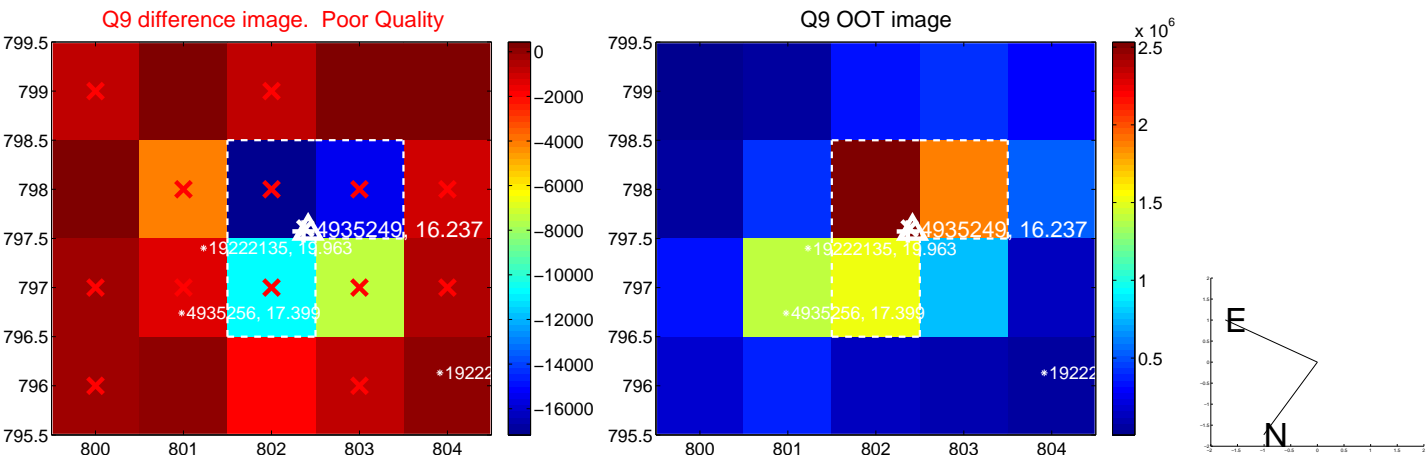
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



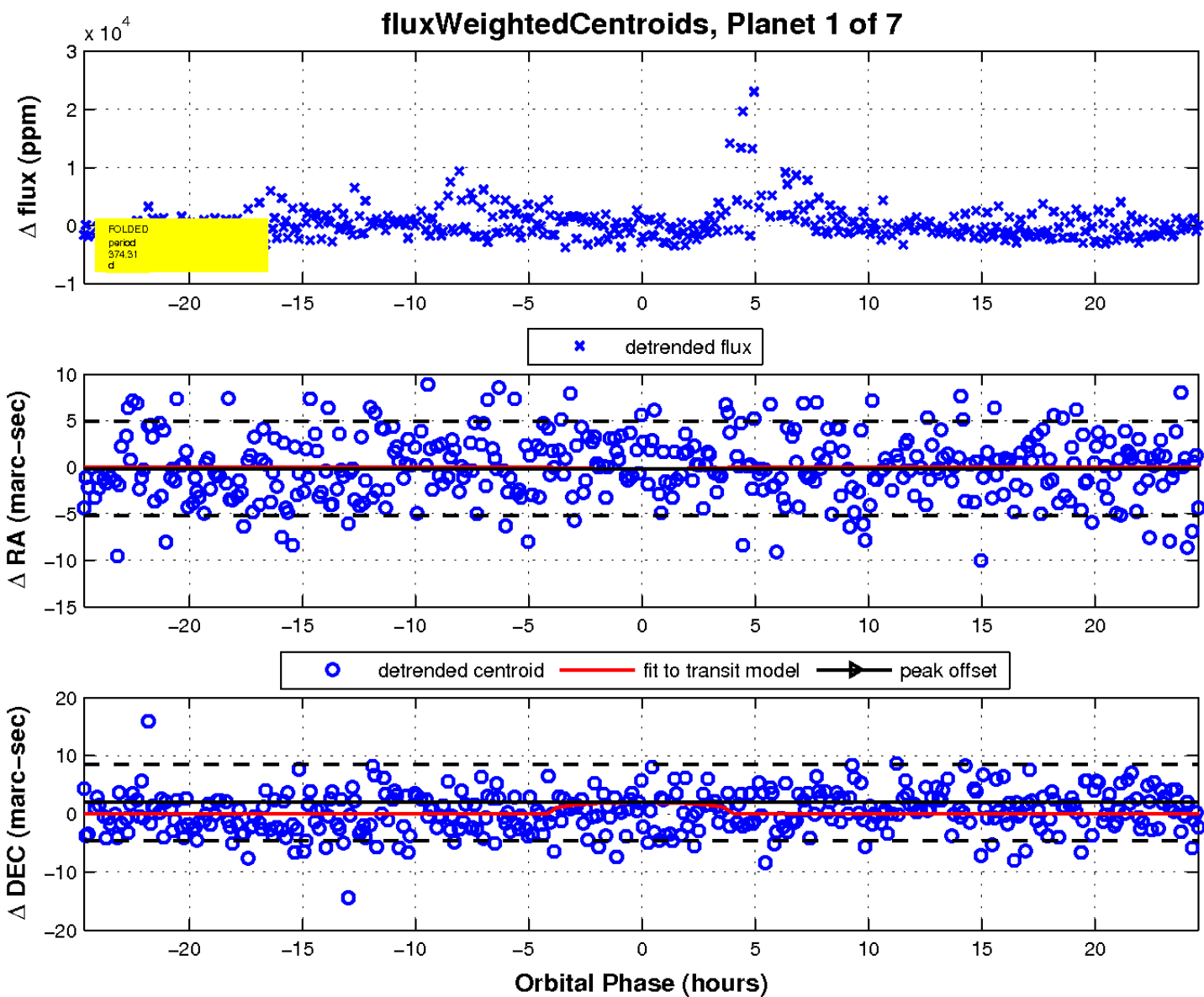
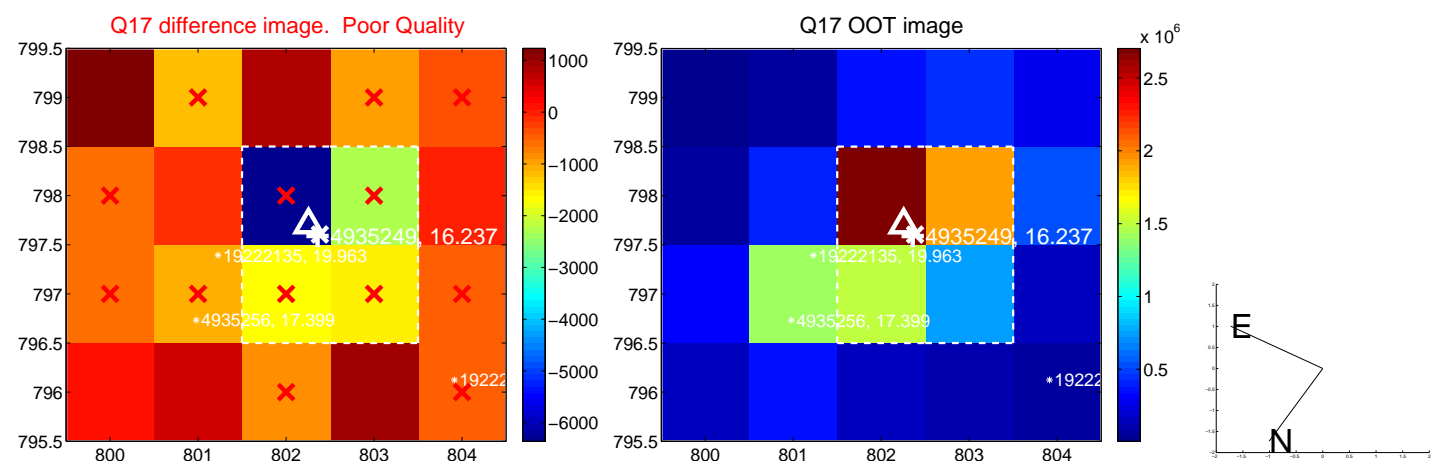
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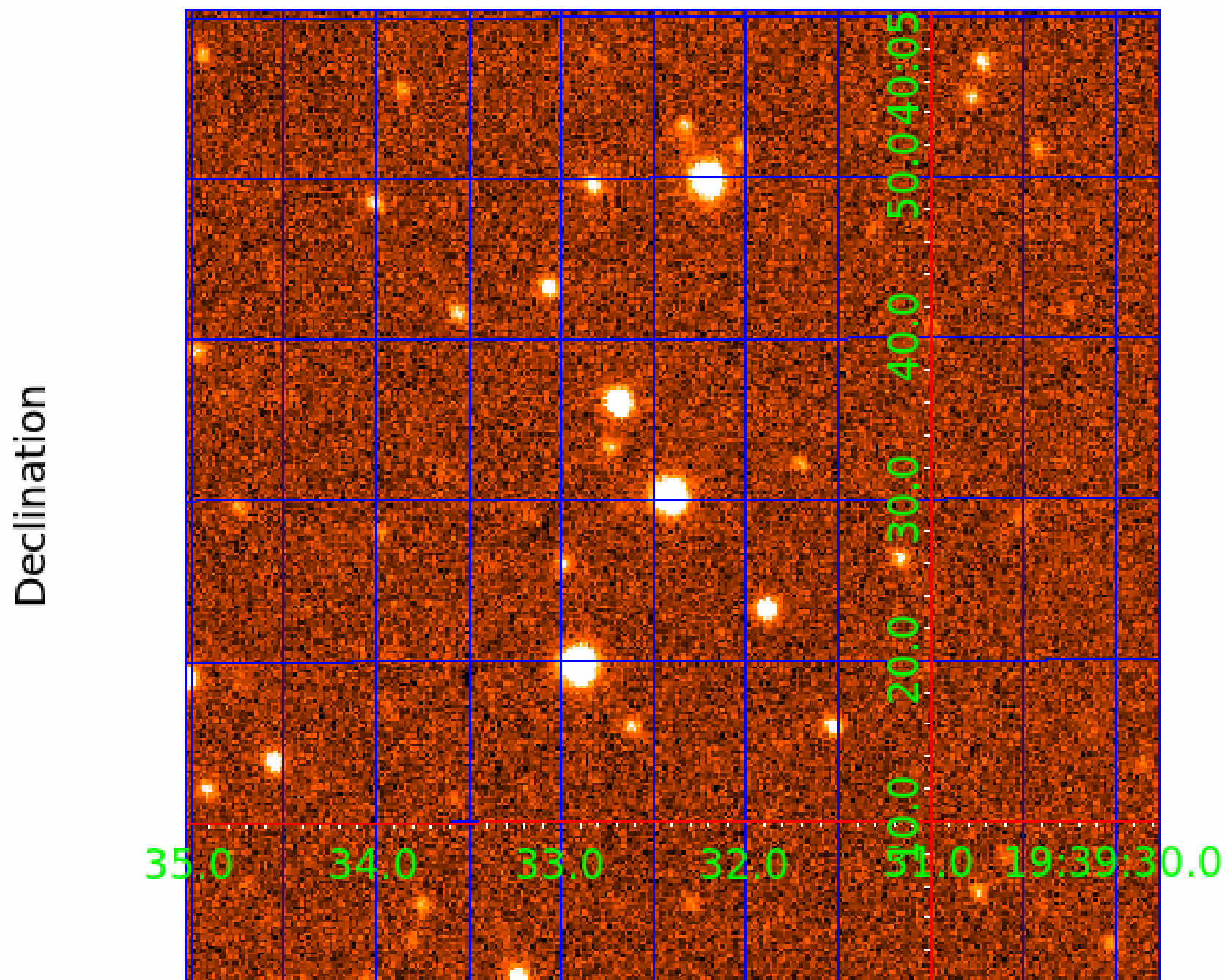


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 004935249

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004935249-01	OBS	No	374.306579	450.739055	3168.2	8.245	14.0	7.4	15.42	4653	83.03	58.73
004935249-02	OBS	No	267.655297	196.336727	6522.4	17.395	16.3	11.6	15.42	4653	119.15	91.85
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004935249-04	OBS	No	600.412953	302.722274	3839.4	3.376	14.7	7.6	15.42	4653	94.99	31.28
004935249-06	OBS	No	436.197991	315.013324	5059.3	9.618	14.1	9.0	15.42	4653	115.21	47.89

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004935249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-02	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
004935249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004935249-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—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.

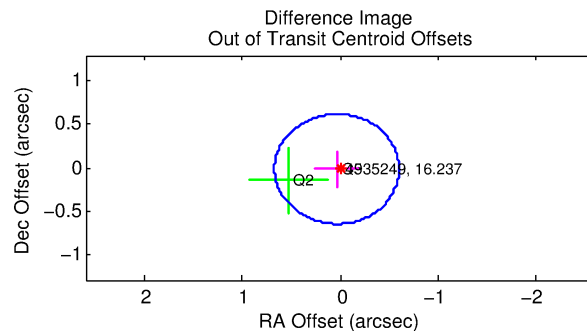
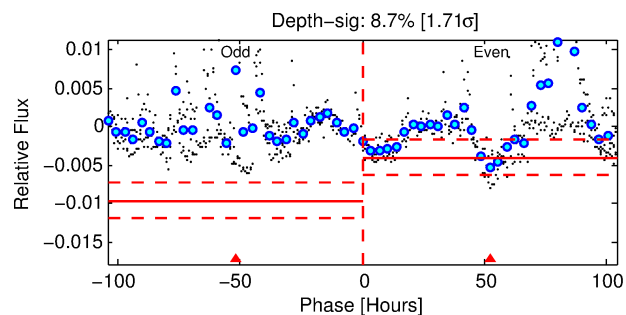
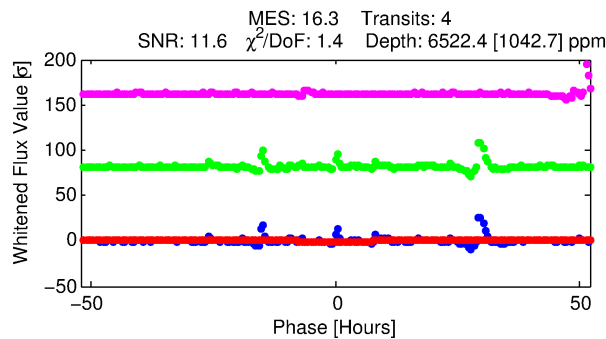
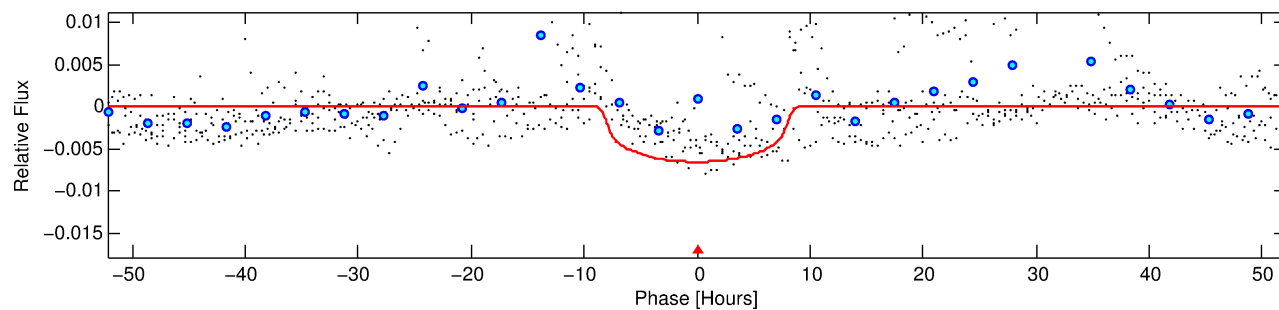
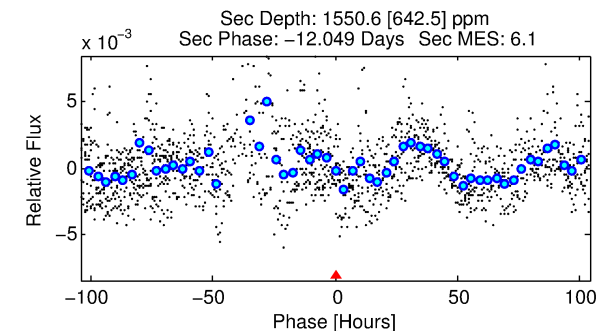
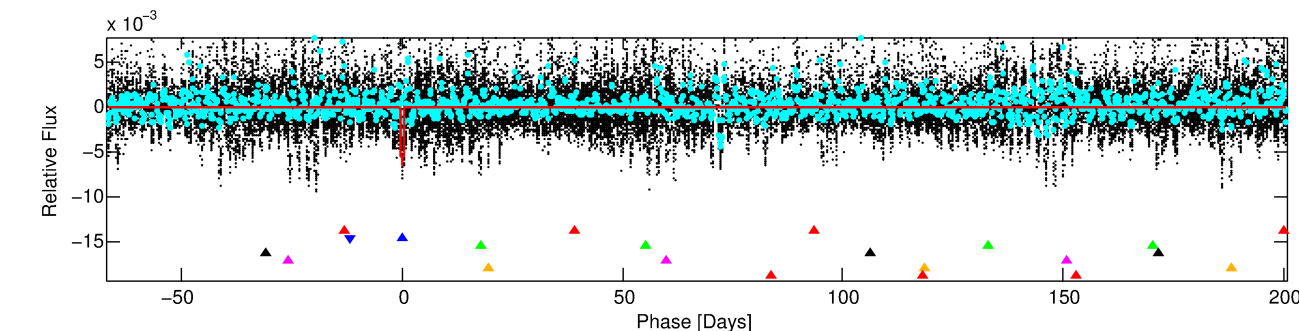
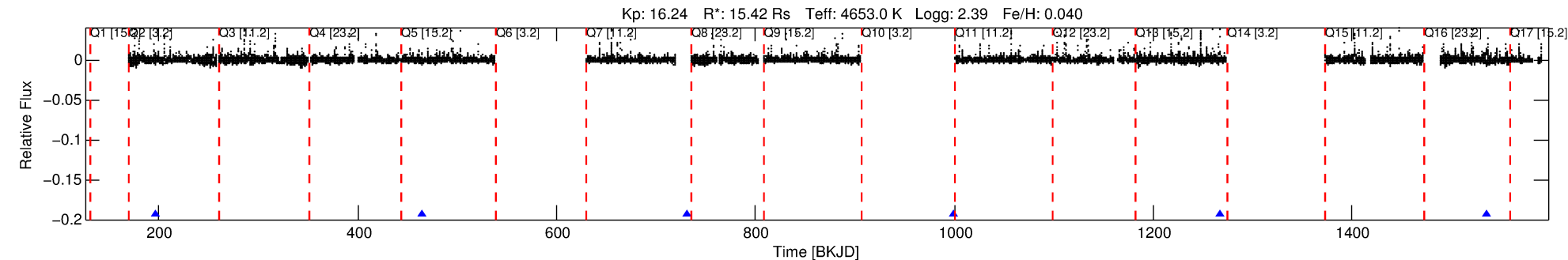
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004935249-02

No Significant Match Found

# DV One-Page Summary

KIC: 4935249 Candidate: 2 of 7 Period: 267.655 d



## DV Fit Results:

Period = 267.65530 [0.00404] d  
Epoch = 196.3367 [0.0122] BKJD  
Rp/R\* = 0.0708 [0.0125]  
a/R\* = 125.86 [54.56]  
b = 0.01 [30.64]  
Seff = 91.85 [63.11]  
Teff = 789 [136] K  
Rp = 119.15 [63.26] Re  
a = 1.0425 [0.4647] AU  
Ag = 65.30 [56.84] [1.13σ]  
Teffp = 3469 [482] K [5.36σ]

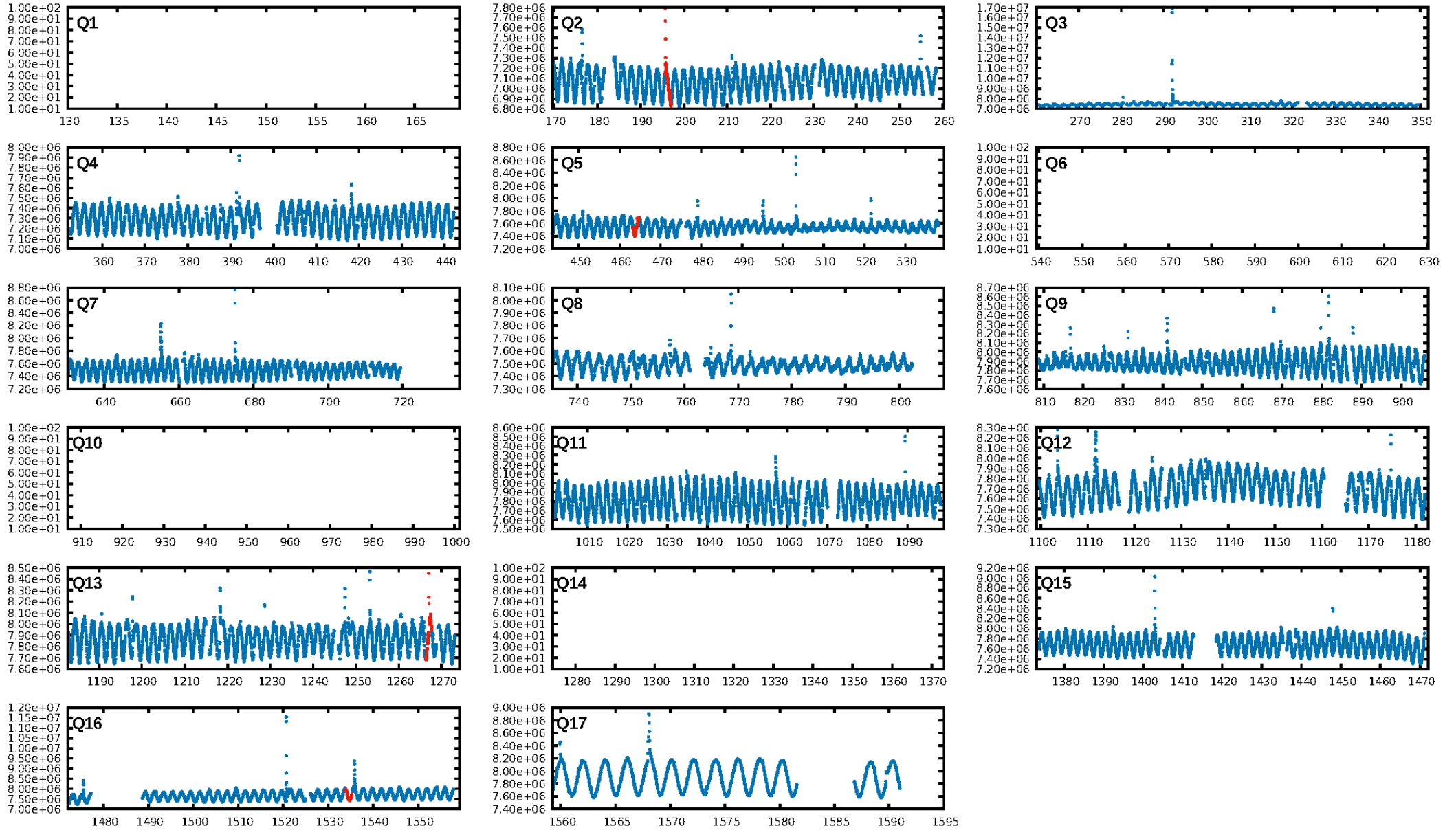
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [132.97σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 63.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -5.322  
Centroid-sig: 89.6%  
Centroid-so: 0.497 arcsec [2.25σ]  
OotOffset-rm: 0.039 arcsec [0.18σ]  
KicOffset-rm: 0.155 arcsec [0.77σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

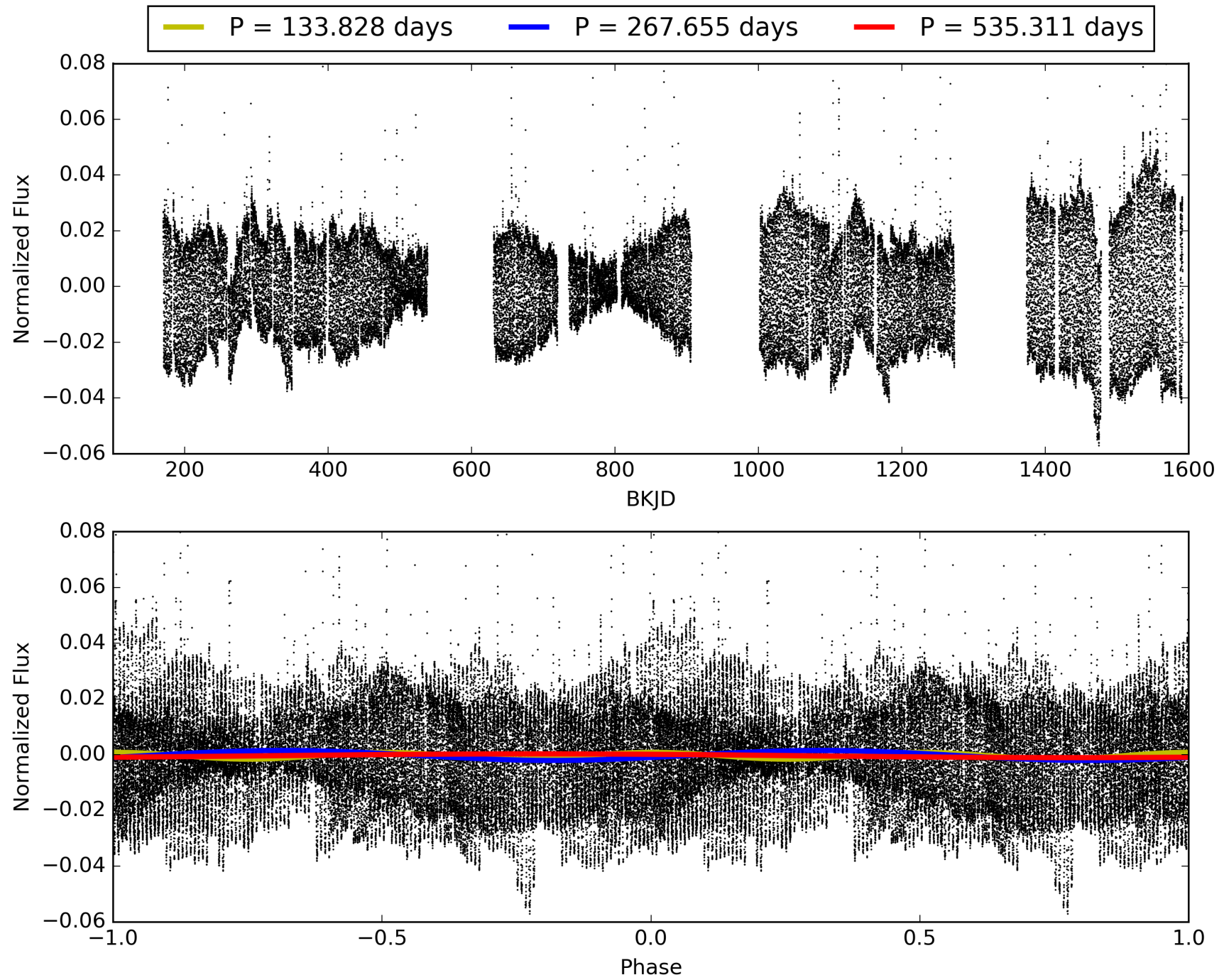
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:18:58 Z

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

# TCE 004935249-02, PDC Light Curves



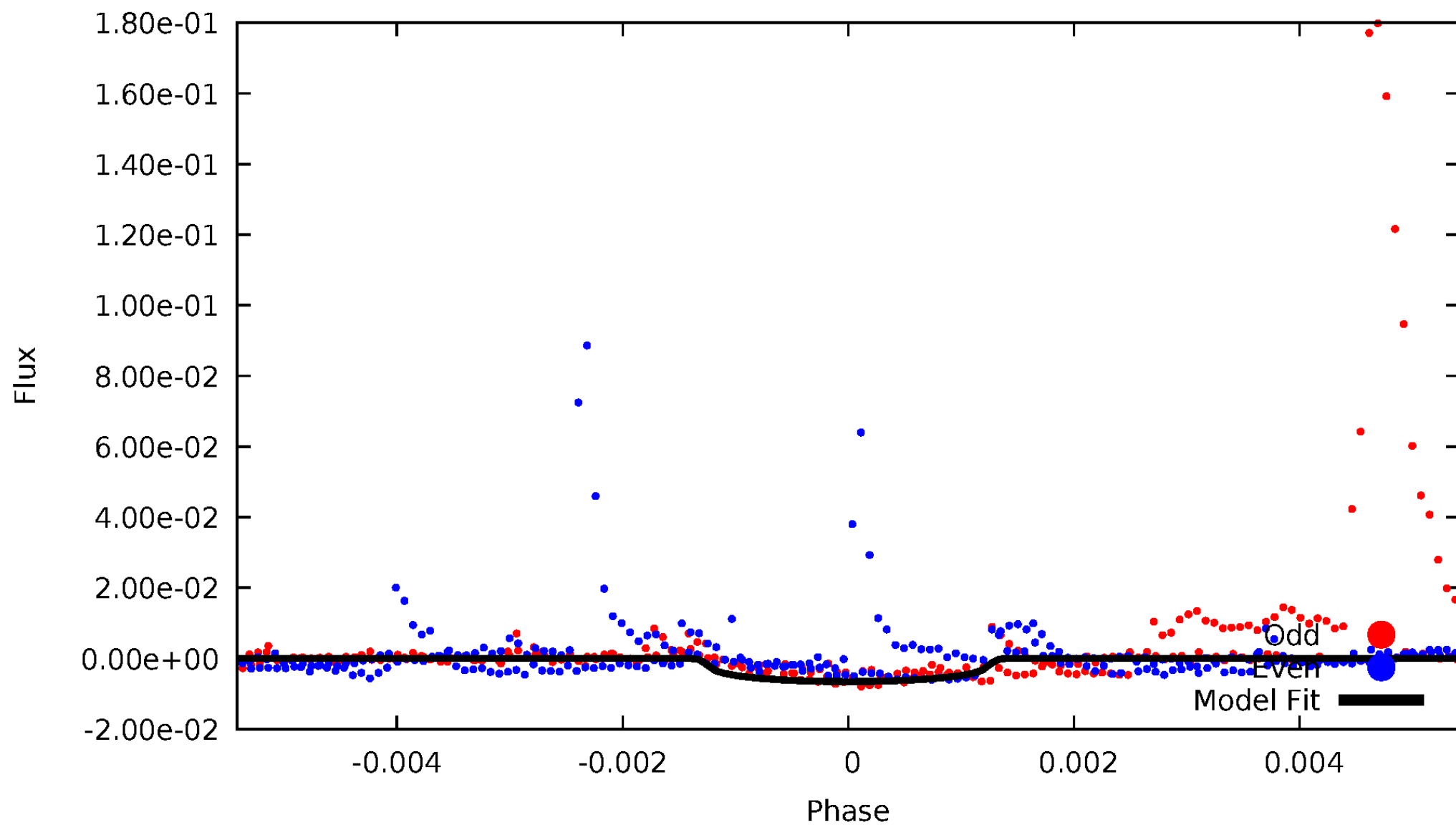
TCE 004935249-02





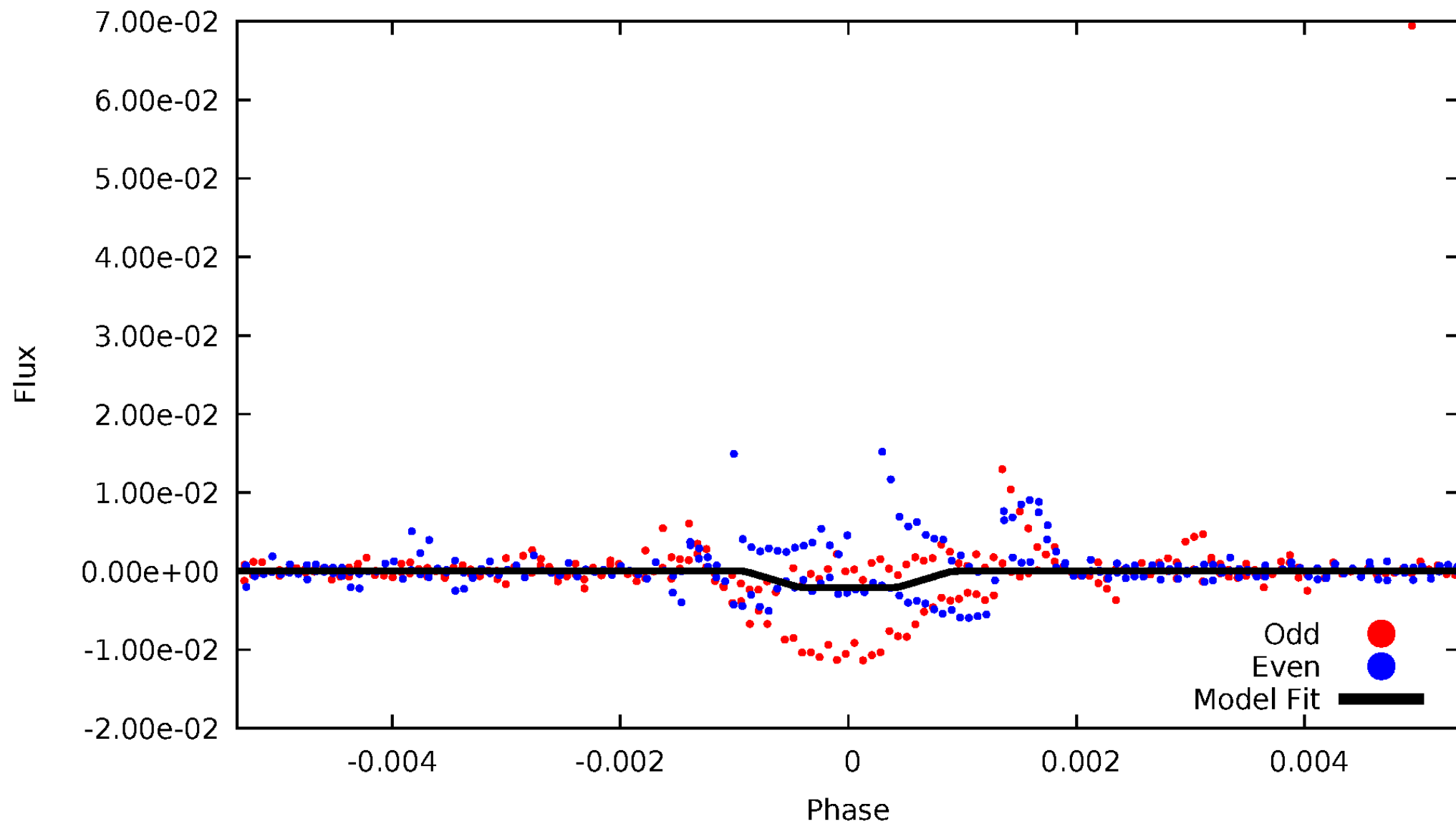
# DV Odd/Even

TCE 004935249-02



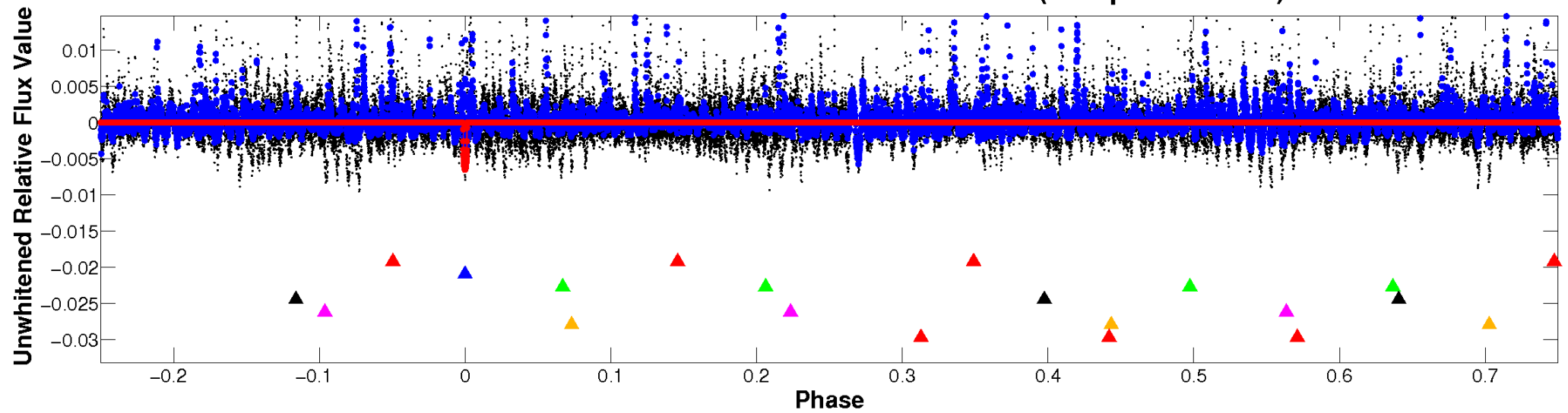
# ALT Odd/Even

TCE 004935249-02

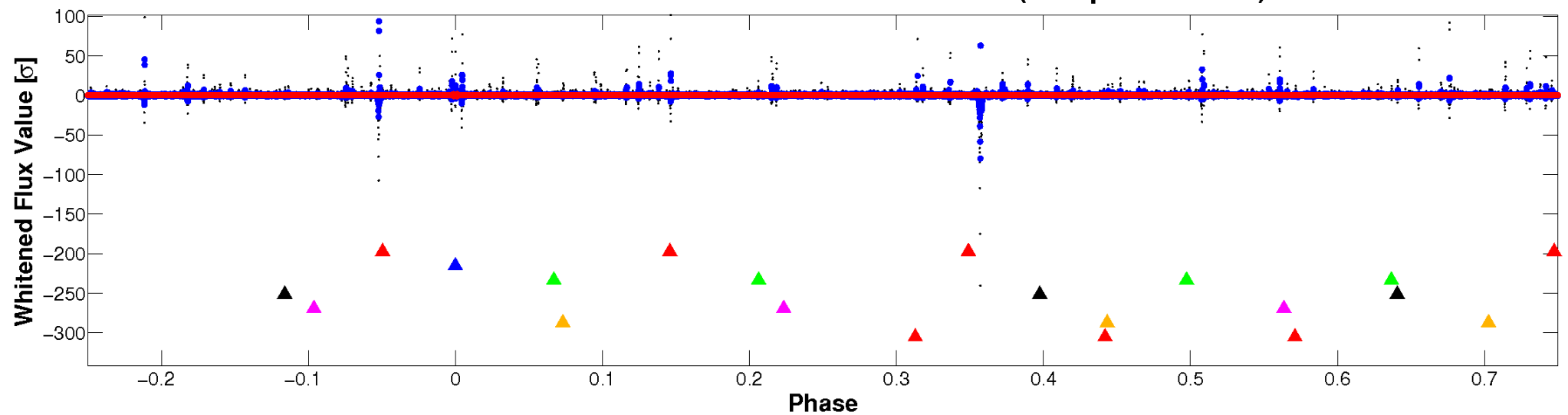


# Non-Whitened Vs. Whitened Light Curve

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

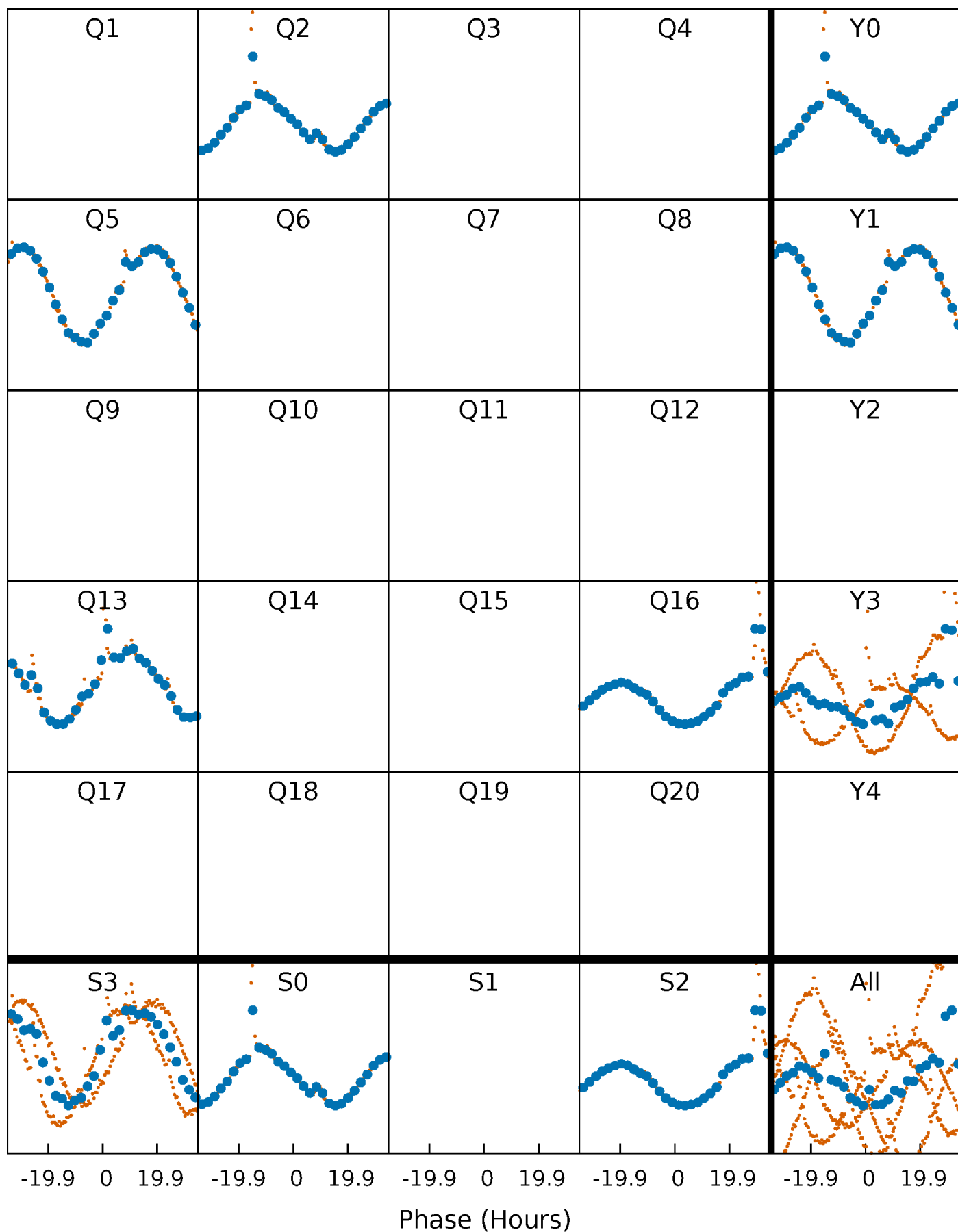


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



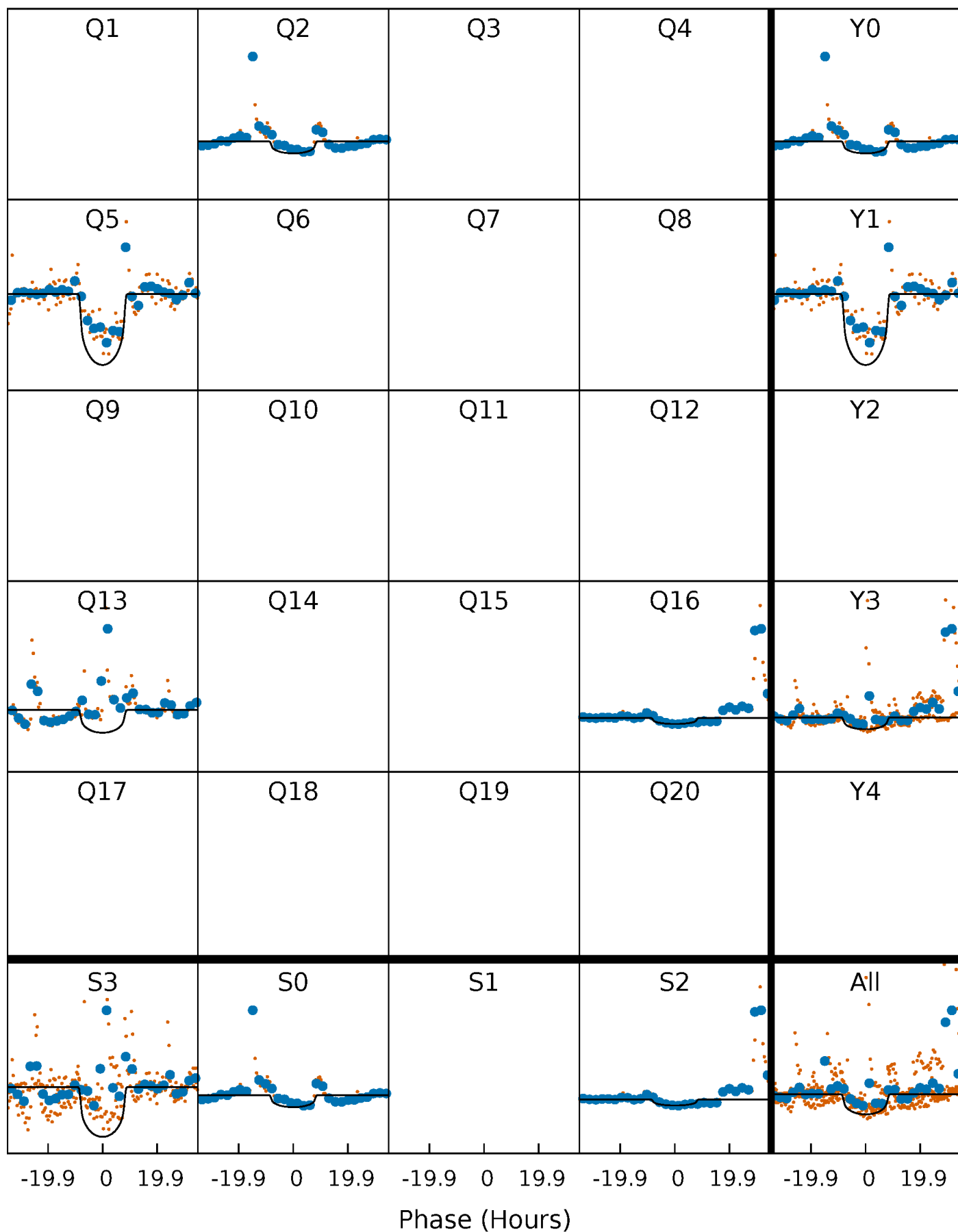
# PDC Quarter-Phased Transit Curves

TCE 004935249-02 P=267.655297 Days  $T_0=196.336727$  (BKJD)



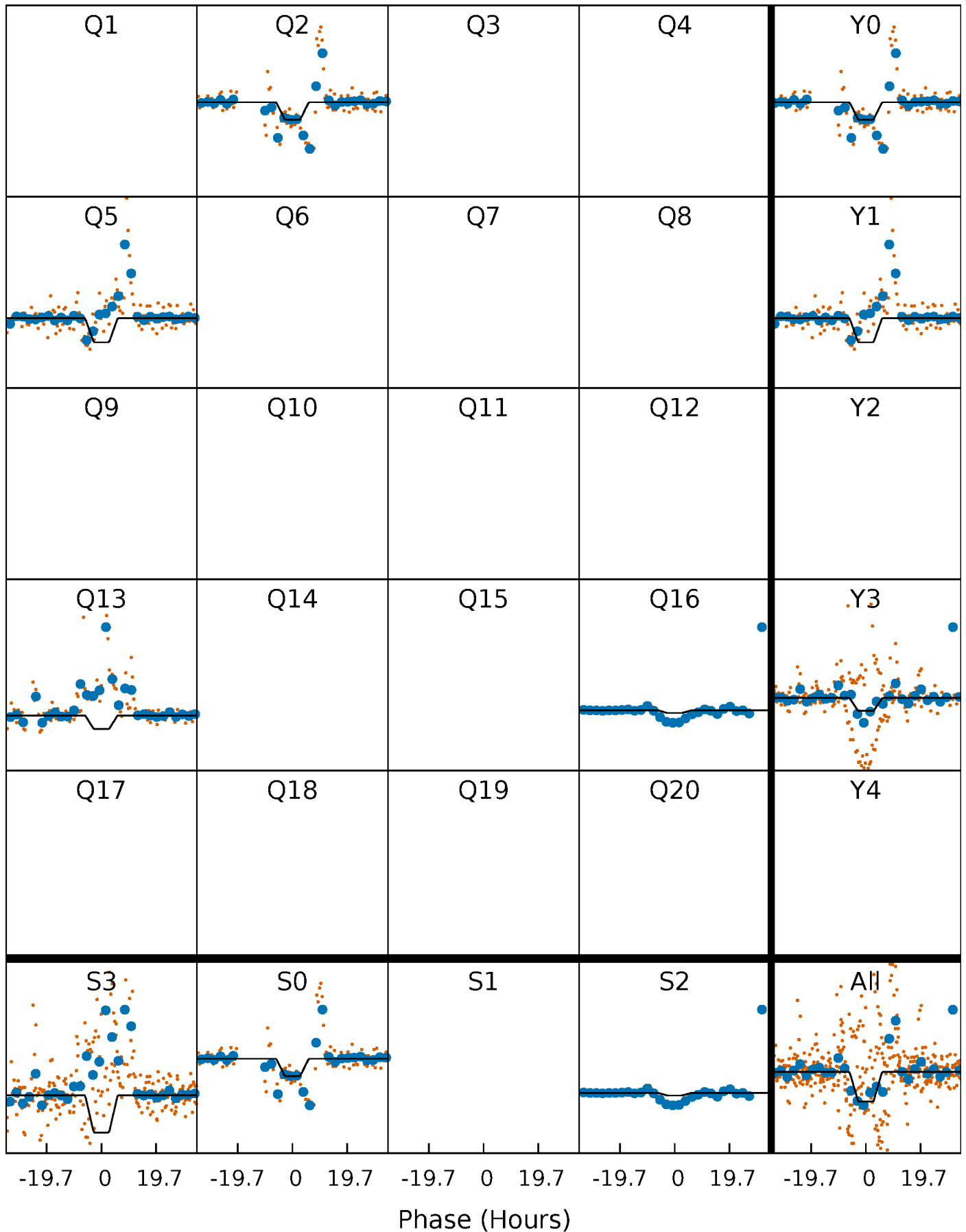
# DV Quarter-Phased Transit Curves

TCE 004935249-02     $P=267.655297$  Days     $T_0=196.336727$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

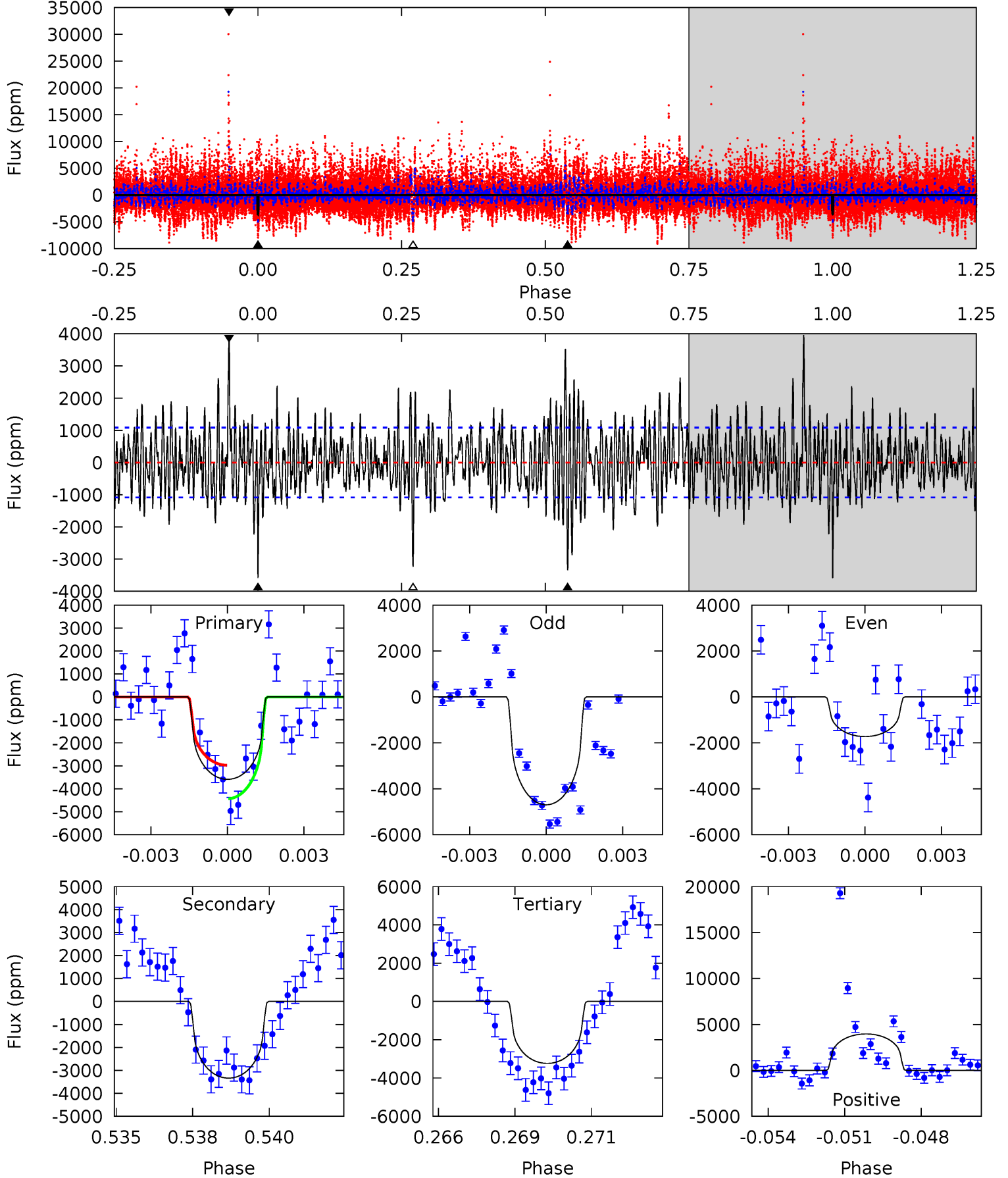
TCE 004935249-02 P=267.659202 Days  $T_0=196.312661$  (BKJD)



# DV Model-Shift Uniqueness Test

004935249-02, P = 267.655297 Days, E = 196.336727 Days

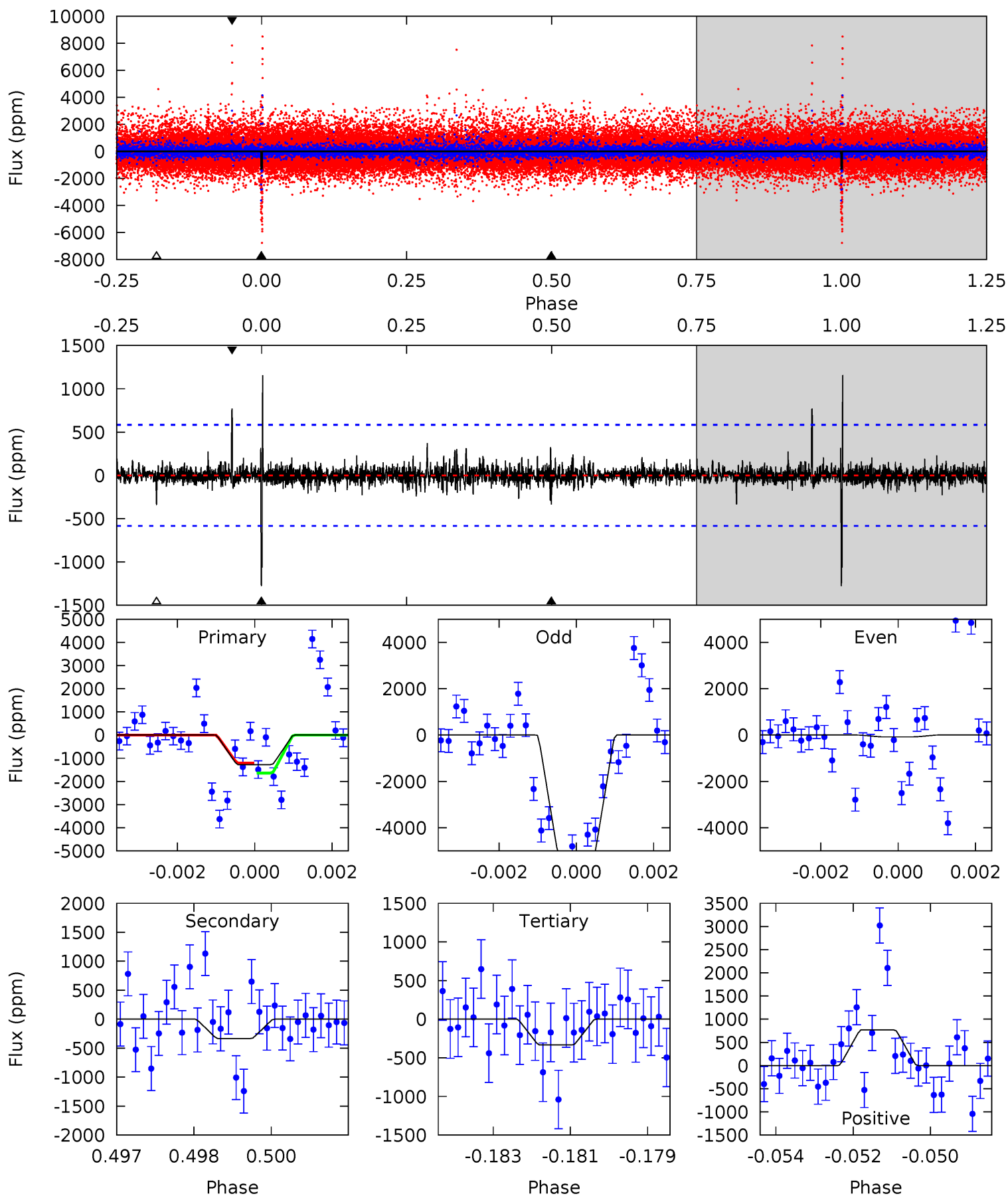
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	16.2	15.8	19.3	5.27	3.00	4.16	1.72	-1.82	0.50	-3.04	6.12	0.44	0.52	3.57



# Alt Model-Shift Uniqueness Test

004935249-02, P = 267.659202 Days, E = 196.312661 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	3.05	3.05	7.04	5.34	3.11	0.63	8.63	4.65	0.00	-3.98	28.6	1.26	0.48	0





### Stellar Parameters For KIC 004935249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4653^{+111}_{-125}$	$2.386^{+0.385}_{-0.165}$	$0.040^{+0.200}_{-0.300}$	$15.417^{+3.307}_{-7.717}$	$2.108^{+0.986}_{-0.888}$	$0.001^{+0.003}_{-0.000}$
	+2%/-3%	+16%/-7%	+500%/-750%	+21%/-50%	+47%/-42%	+378%/-41%
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 004935249-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-3338 \pm 205$	$117.56^{+33.21}_{-32.92}$	$1086^{+81}_{-106}$	$4298^{+354}_{-269}$	$153^{+128}_{-55}$
Alt.	$-334 \pm 109$	$72.02^{+31.13}_{-24.79}$	$1083^{+81}_{-114}$	$3375^{+446}_{-310}$	$38^{+52}_{-20}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = 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  $A_{\text{obs}} \gg 1.0$

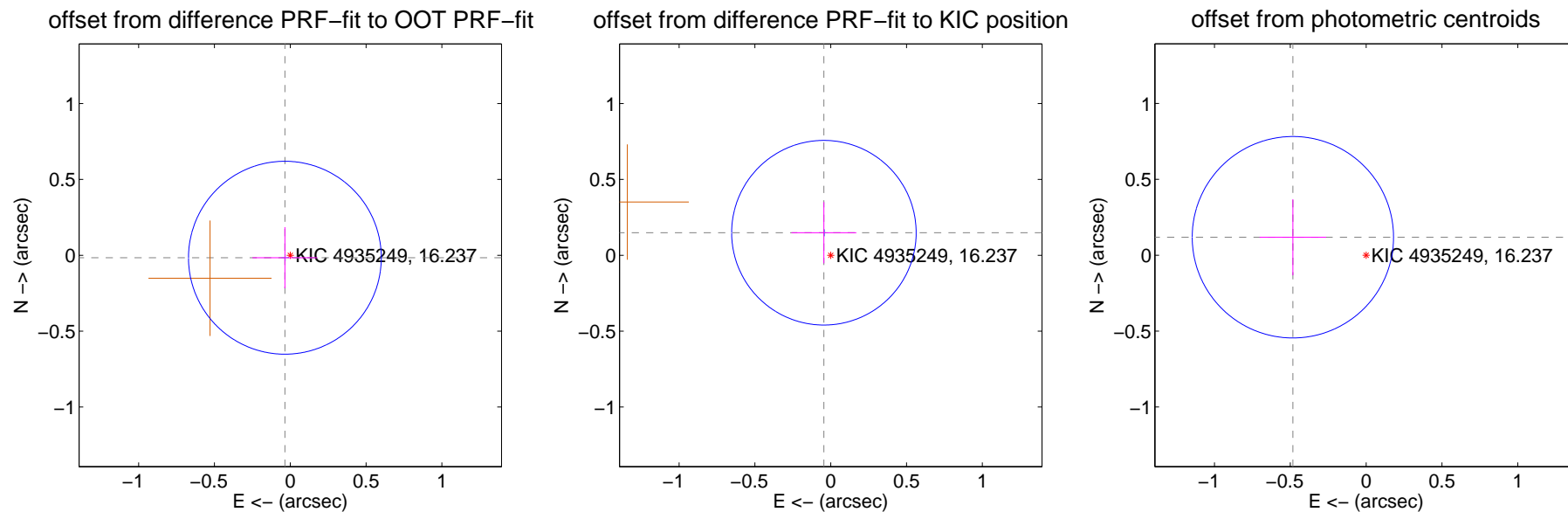
## DV Centroid Data

Supplemental centroid analysis for 004935249-02. Kepler magnitude: 16.24. Transit SNR 11.63

There are 1 quarters with good PRF difference image offsets

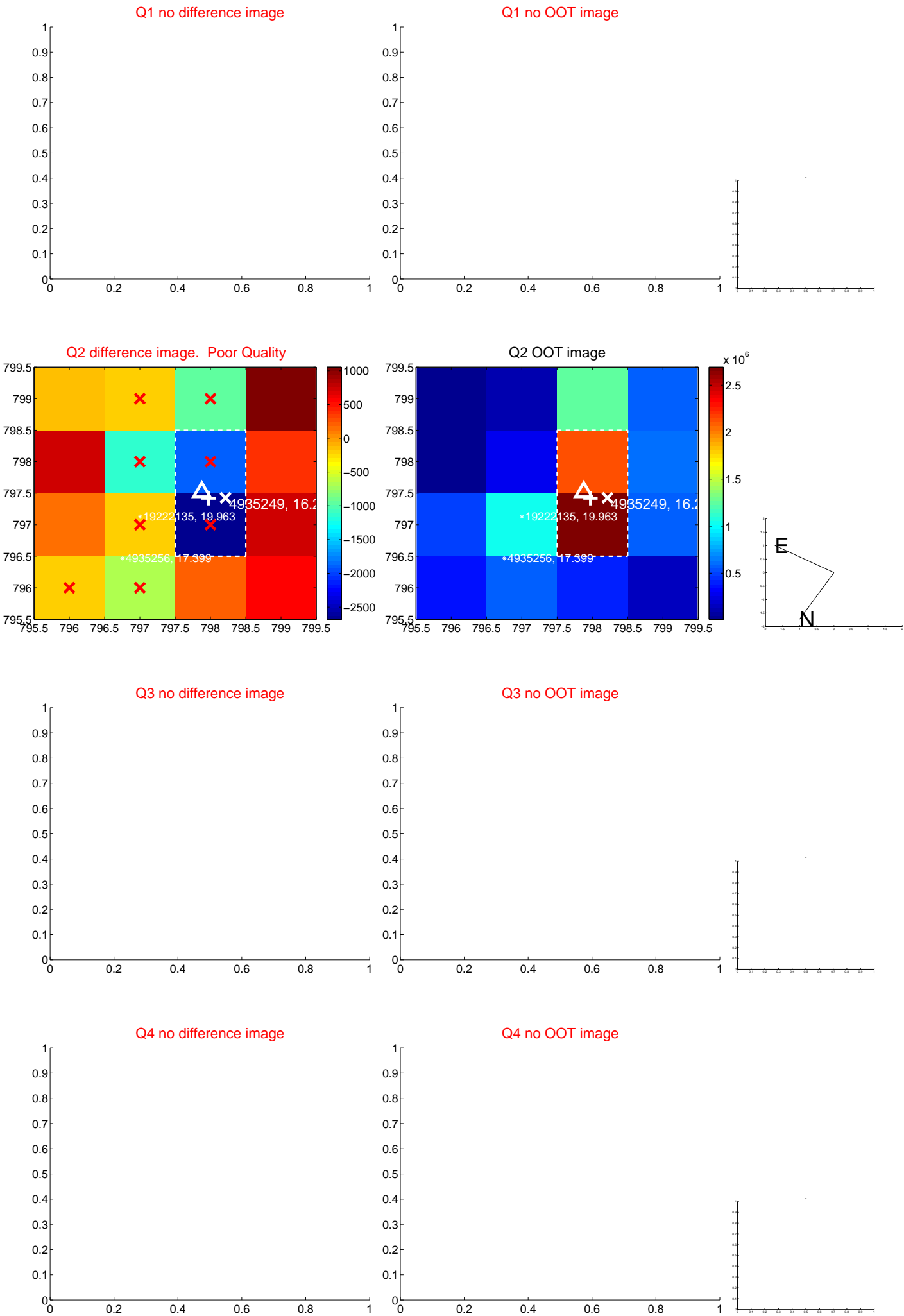
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.039 \pm 0.212$	0.18	$0.035 \pm 0.214$	$-0.016 \pm 0.202$
PRF-fit source offset from KIC position	$0.155 \pm 0.203$	0.77	$0.045 \pm 0.214$	$0.149 \pm 0.202$
photometric centroid source offset	$0.50 \pm 0.22$	2.25	$0.48 \pm 0.22$	$0.12 \pm 0.25$

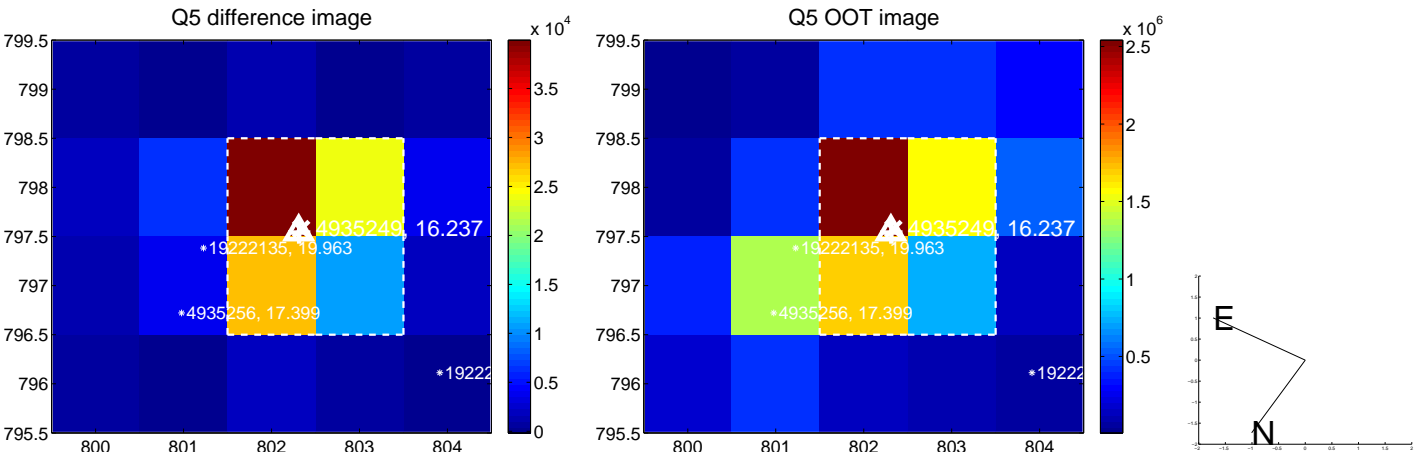


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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



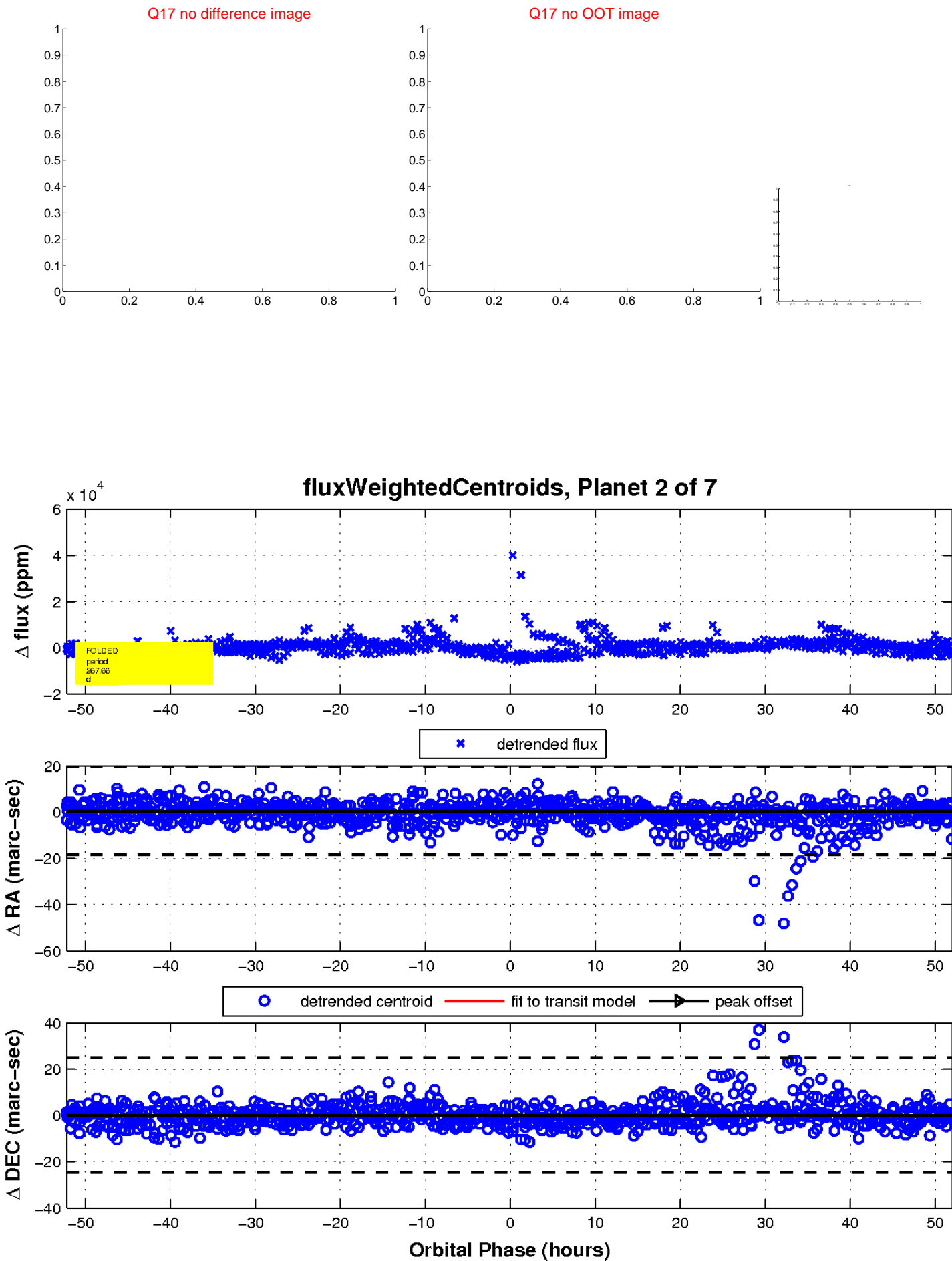
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



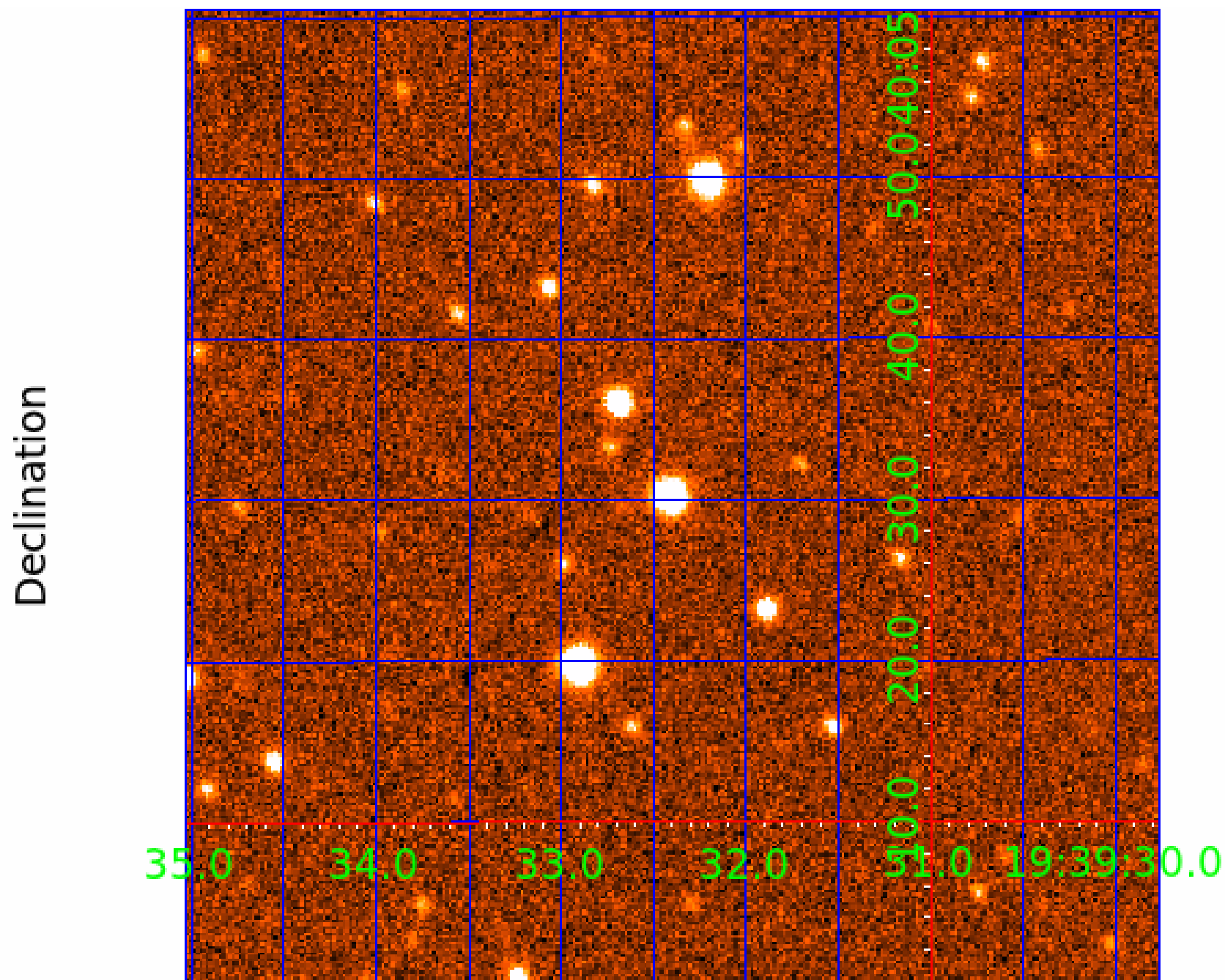
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 004935249

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004935249-01	OBS	No	374.306579	450.739055	3168.2	8.245	14.0	7.4	15.42	4653	83.03	58.73
004935249-02	OBS	No	267.655297	196.336727	6522.4	17.395	16.3	11.6	15.42	4653	119.15	91.85
004935249-03	OBS	No	420.122460	329.462097	2623.6	2.498	12.3	6.2	15.42	4653	84.19	50.35
004935249-04	OBS	No	600.412953	302.722274	3839.4	3.376	14.7	7.6	15.42	4653	94.99	31.28
004935249-06	OBS	No	436.197991	315.013324	5059.3	9.618	14.1	9.0	15.42	4653	115.21	47.89

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004935249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-02	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
004935249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004935249-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—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.

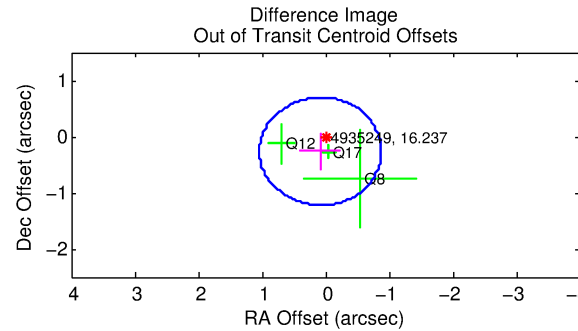
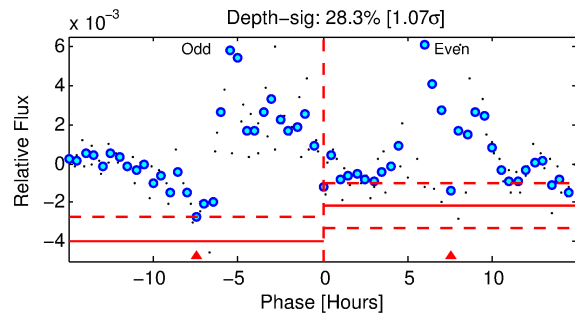
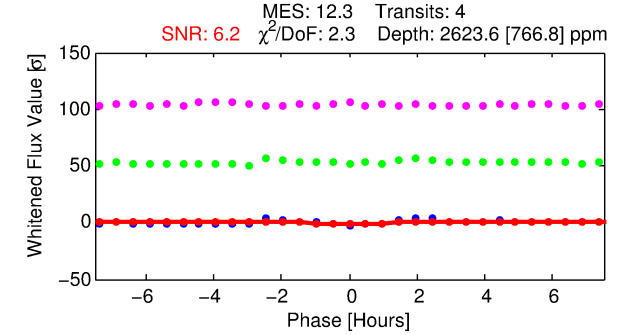
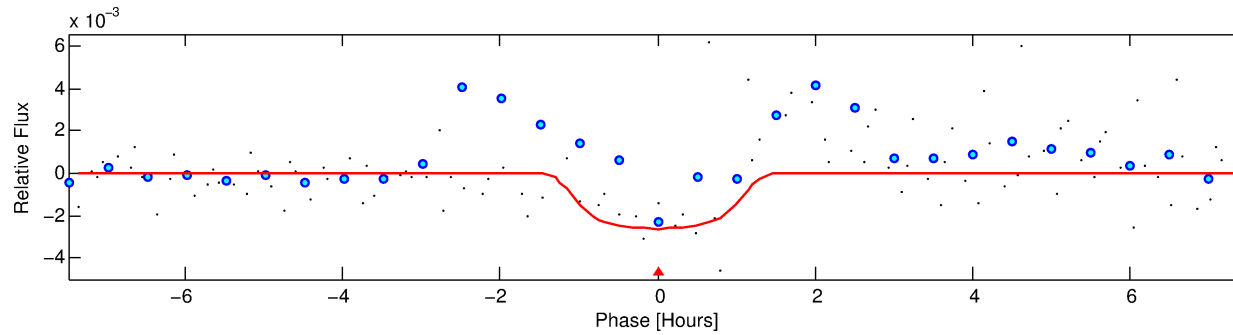
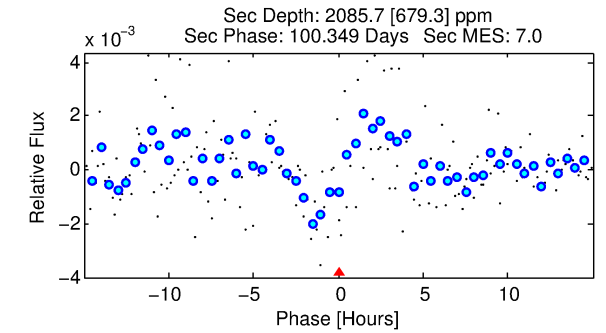
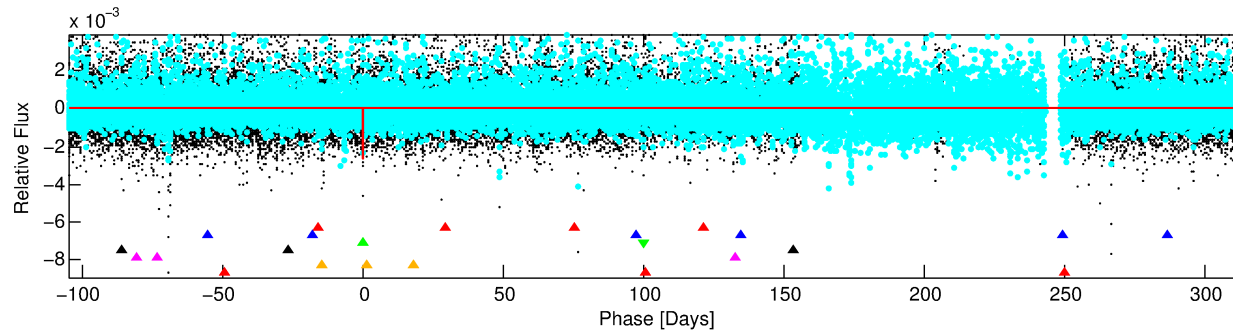
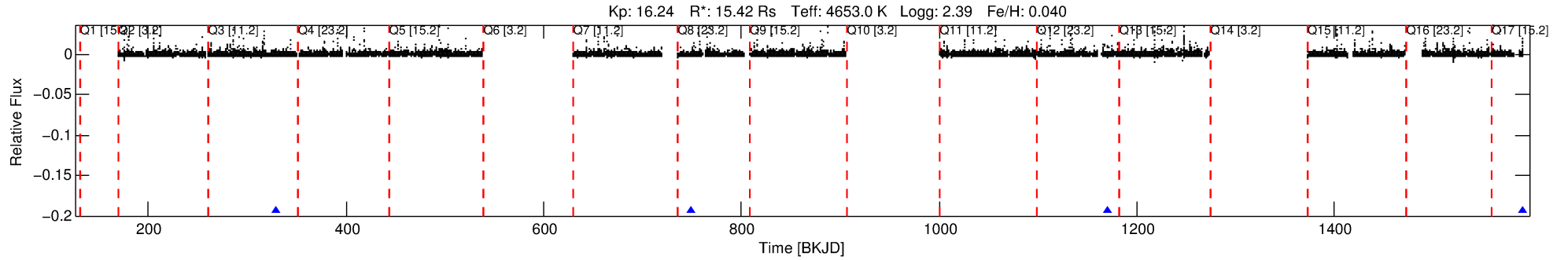
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004935249-03

No Significant Match Found

# DV One-Page Summary

KIC: 4935249 Candidate: 3 of 7 Period: 420.122 d



## DV Fit Results:

Period = 420.12246 [0.00576] d  
Epoch = 329.4621 [0.0116] BKJD  
Rp/R\* = 0.0500 [0.2122]  
a/R\* = 1012.41 [13352.05]  
b = 0.69 [10.21]  
Seff = 50.35 [34.60]  
Teq = 679 [117] K  
Rp = 84.19 [359.53] Re  
a = 1.4080 [0.6276] AU  
Ag = 320.96 [2733.11] [0.12σ]  
Teffp = 4445 [9434] K [0.40σ]

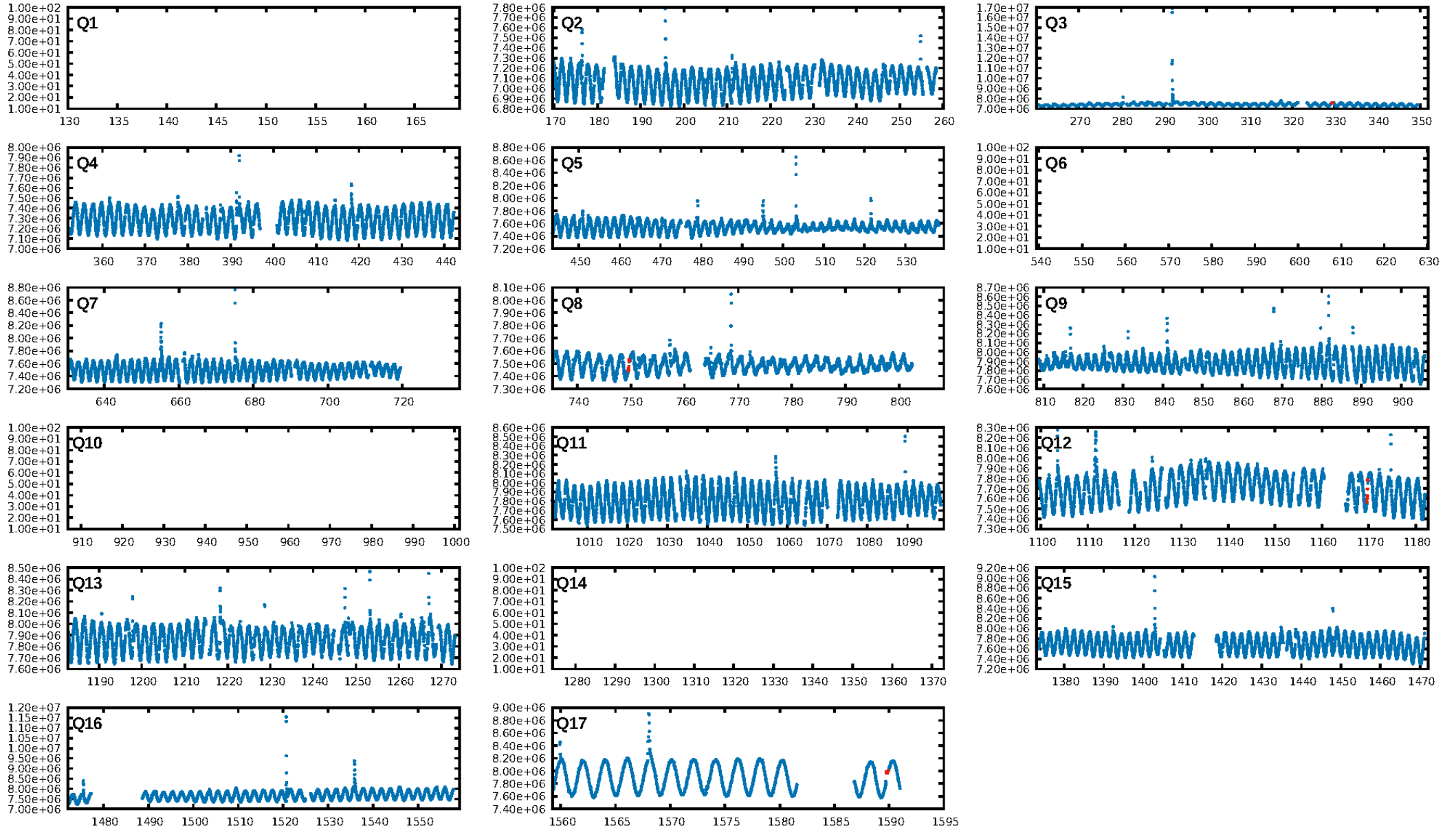
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [127.64σ]  
LongPeriod-sig: 100.0% [38.82σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 25.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.8279  
Centroid-sig: 93.2%  
Centroid-so: 0.308 arcsec [0.29σ]  
OotOffset-rm: 0.275 arcsec [0.86σ]  
KicOffset-rm: 0.263 arcsec [0.83σ]  
OotOffset-st: 0/0/2/1 [3]  
KicOffset-st: 0/0/2/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [4/4]

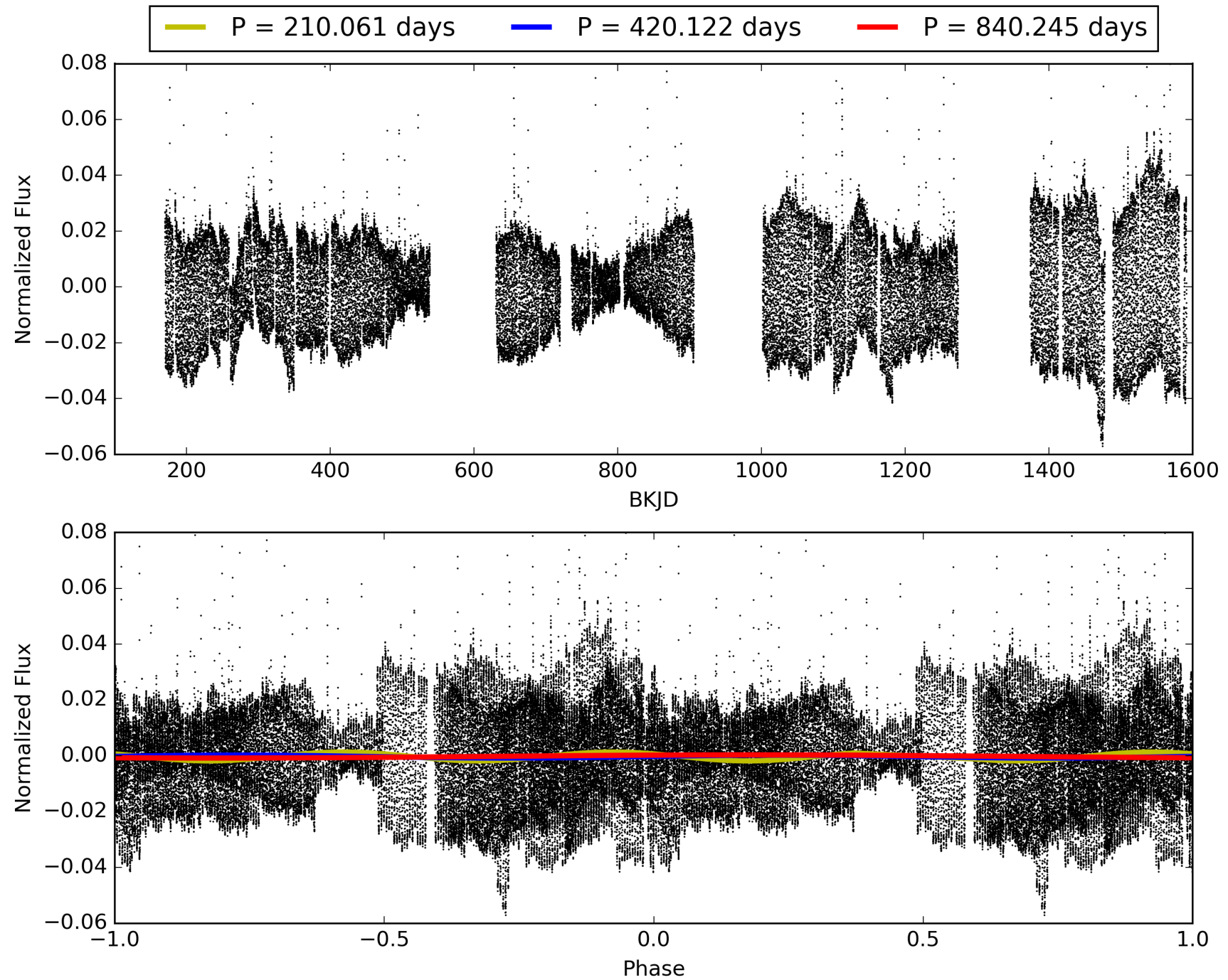
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:19:15 Z

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

# TCE 004935249-03, PDC Light Curves

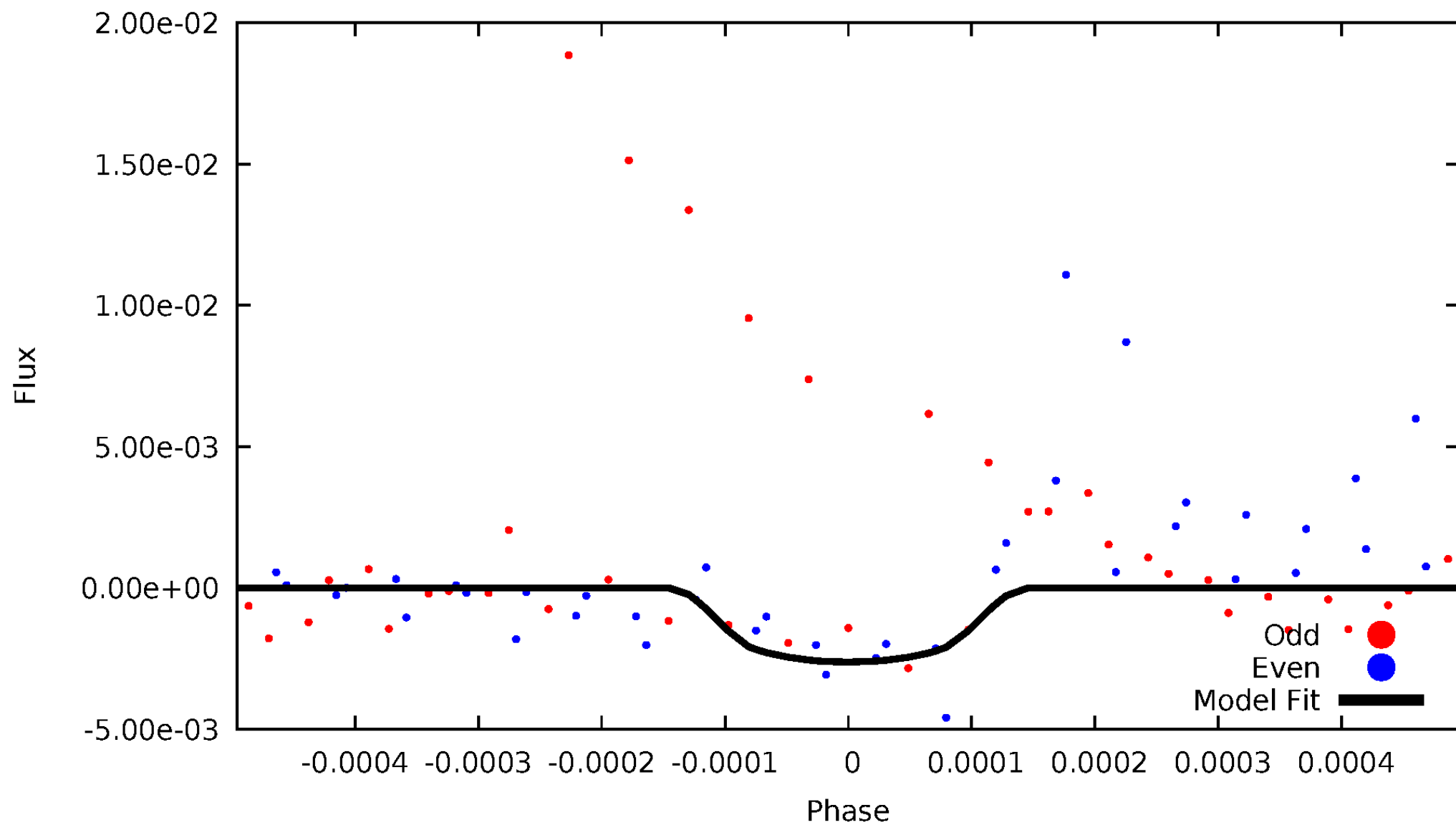


TCE 004935249-03



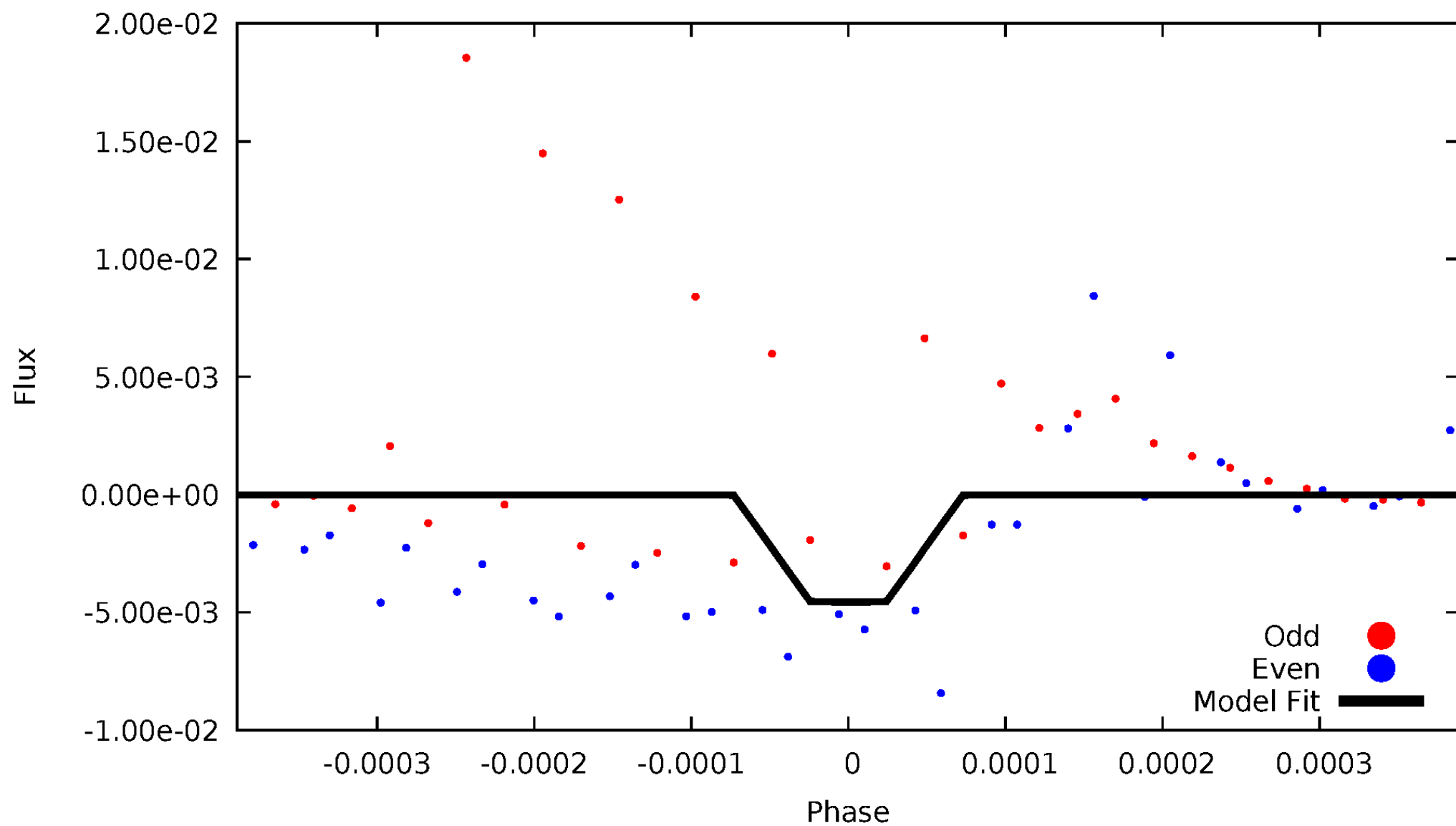
# DV Odd/Even

TCE 004935249-03



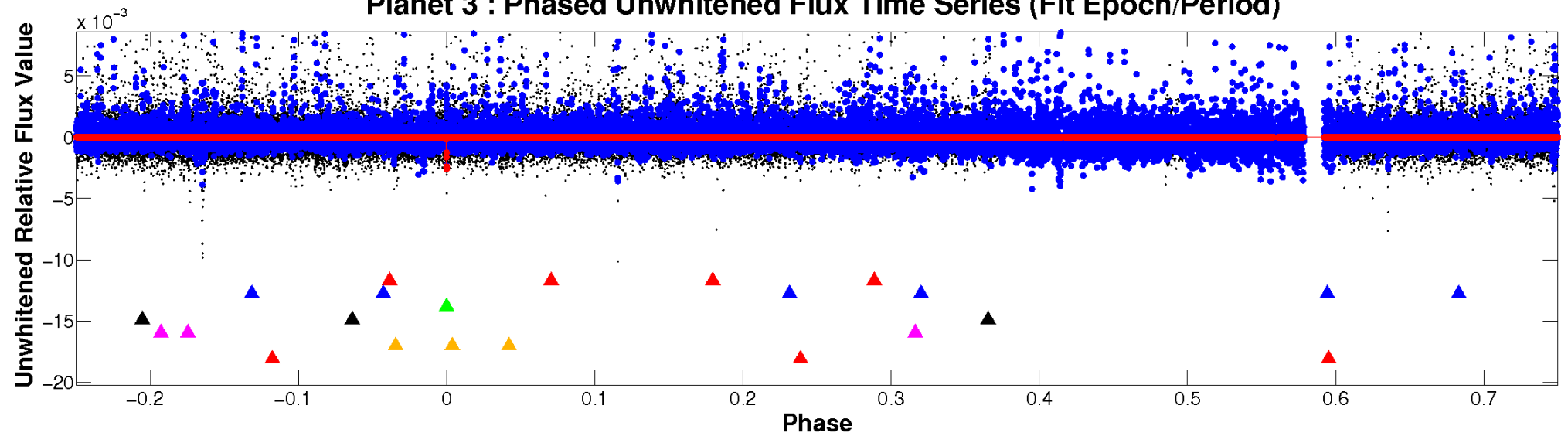
# ALT Odd/Even

TCE 004935249-03

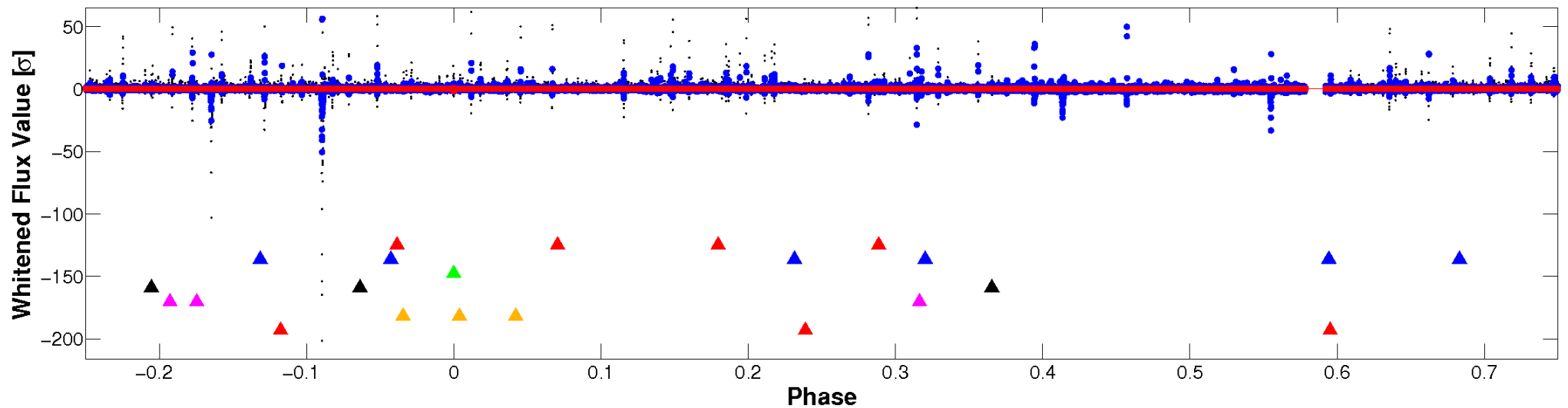


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

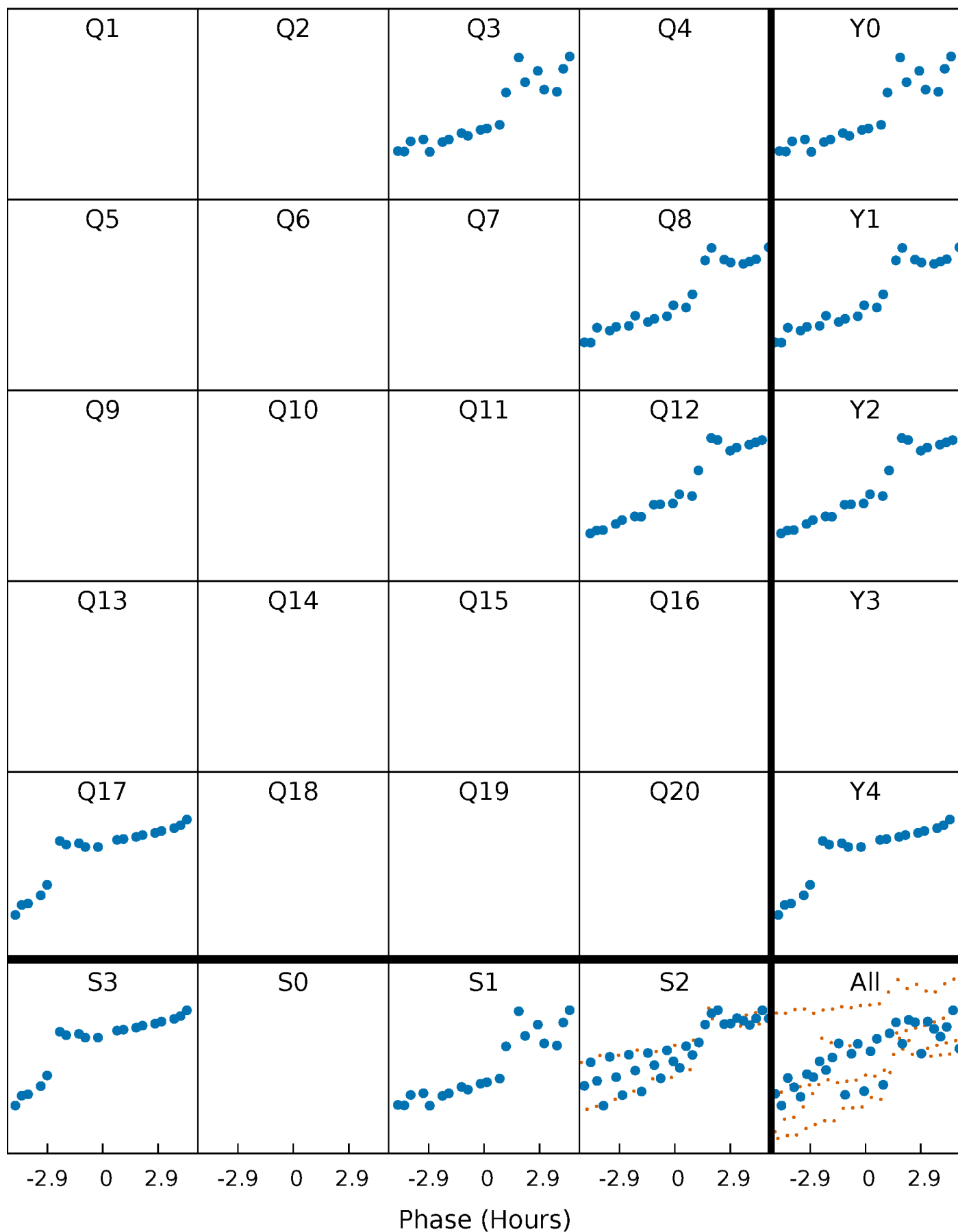


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

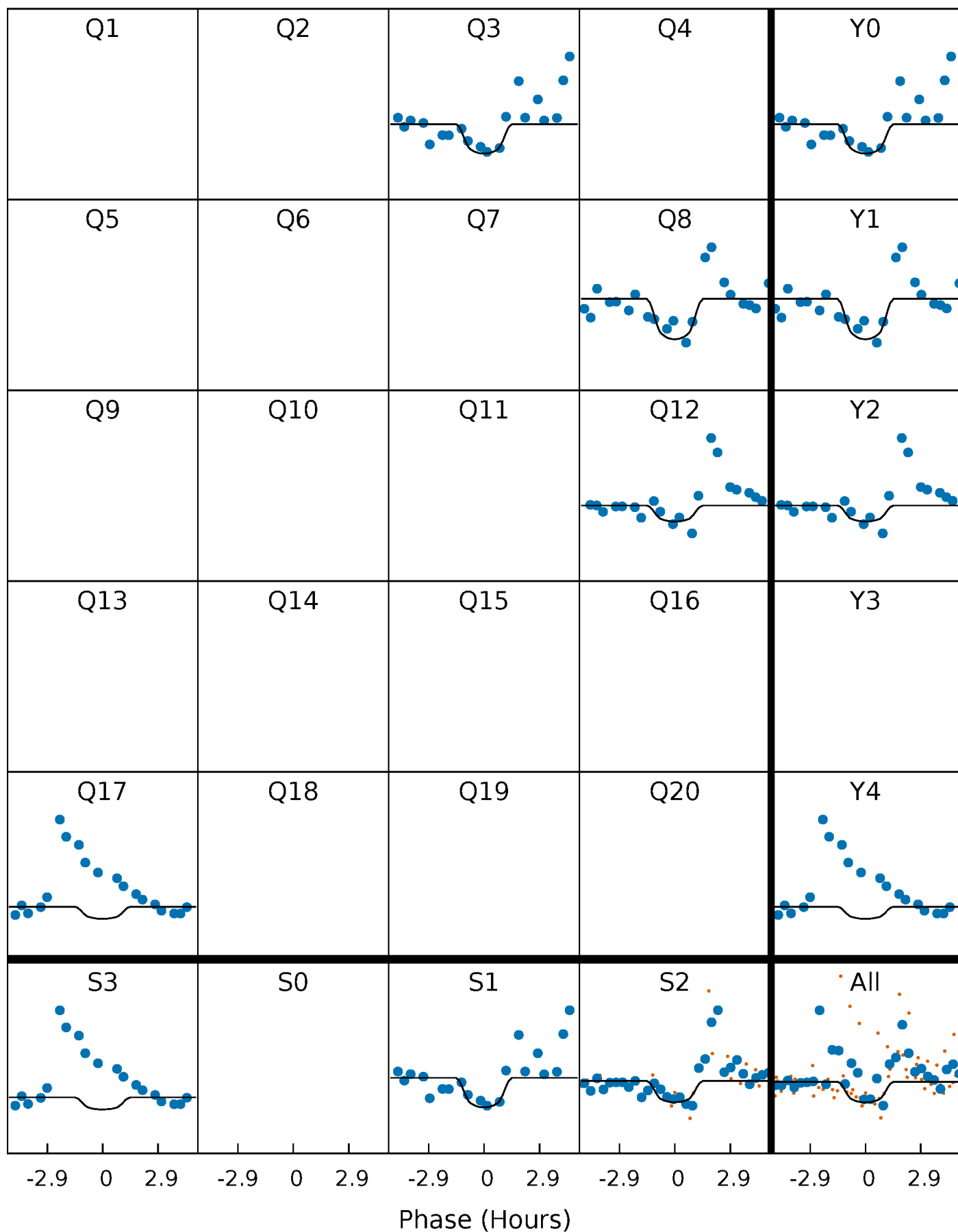
TCE 004935249-03     $P=420.122460$  Days     $T_0=329.462097$  (BKJD)





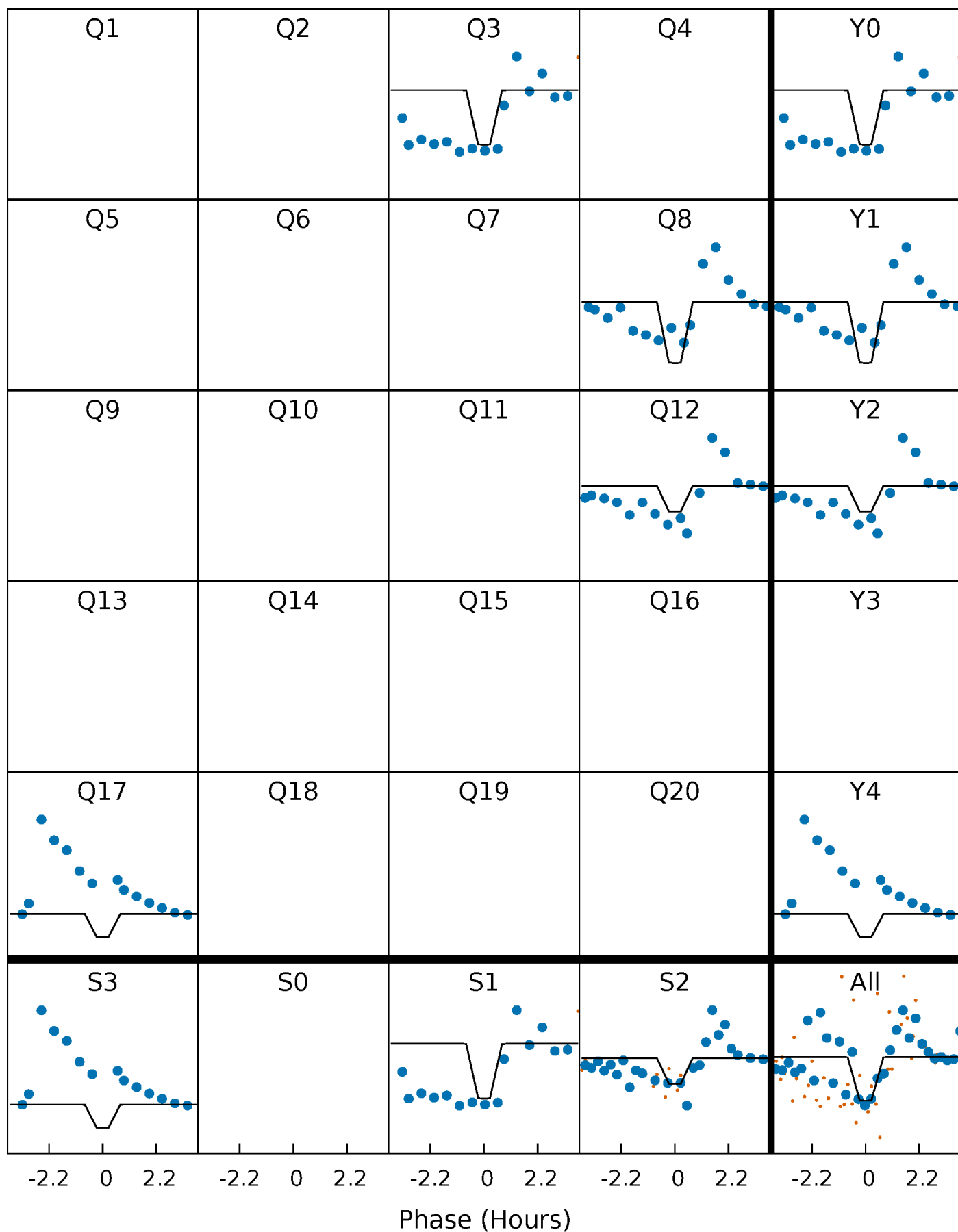
# DV Quarter-Phased Transit Curves

TCE 004935249-03     $P=420.122460$  Days     $T_0=329.462097$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

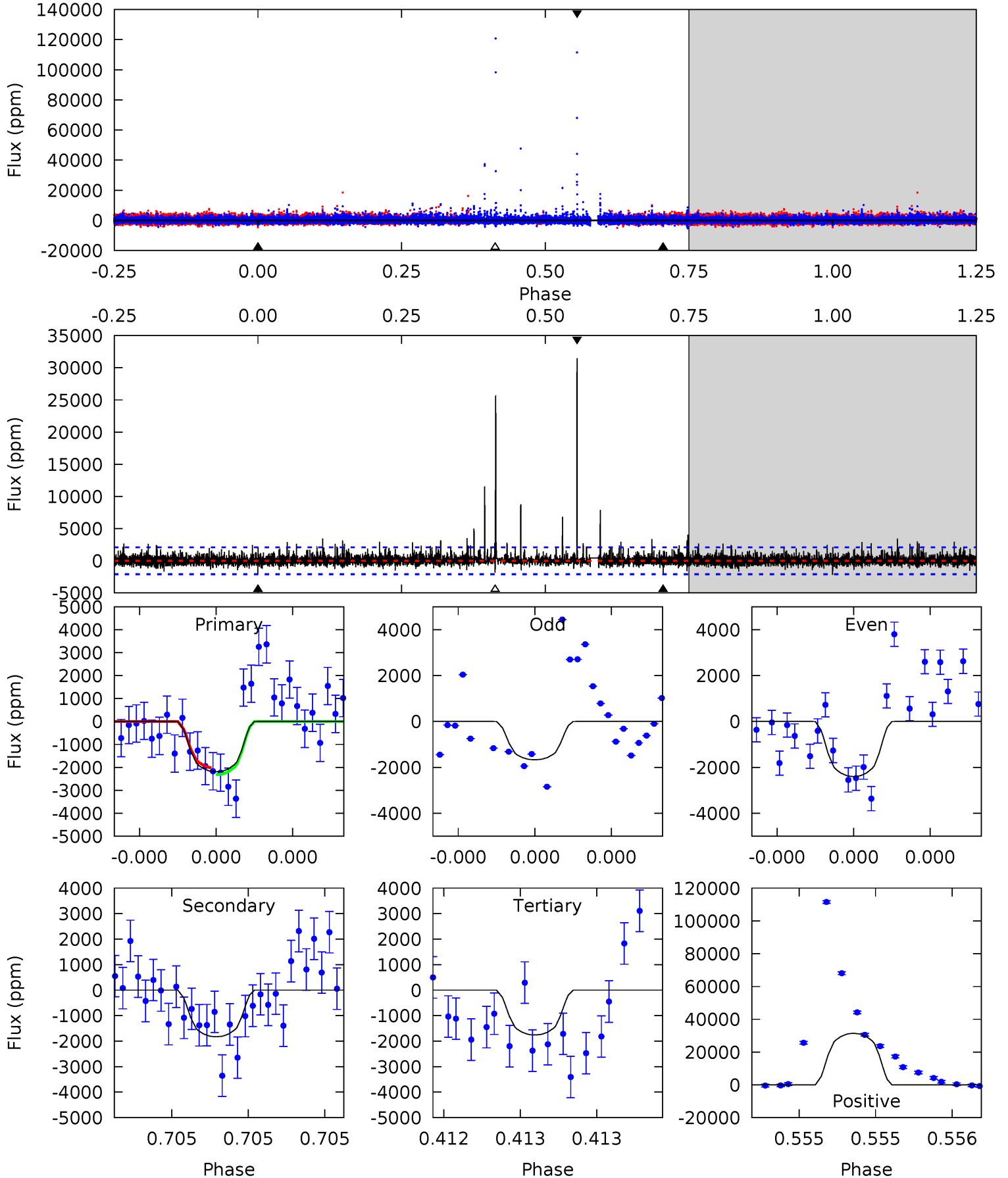
TCE 004935249-03 P=420.120805 Days  $T_0=329.473986$  (BKJD)



# DV Model-Shift Uniqueness Test

004935249-03, P = 420.122460 Days, E = 329.462097 Days

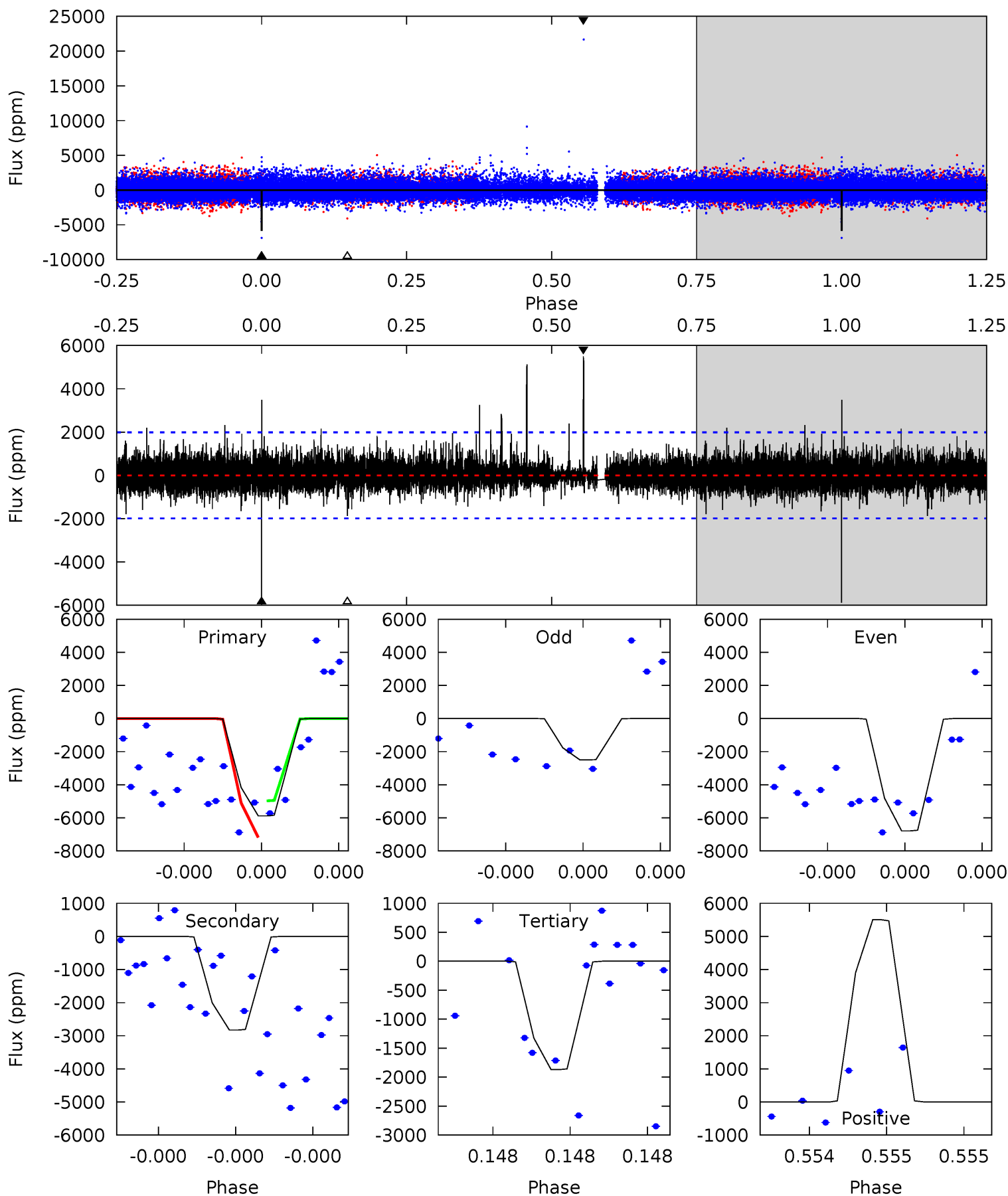
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.96	4.97	4.78	85.5	5.67	3.62	2.23	1.18	-79.5	0.19	-80.5	0.73	-0.26	0.93	0.41



# Alt Model-Shift Uniqueness Test

004935249-03, P = 420.120805 Days, E = 329.473986 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	8.23	5.44	16.0	5.78	3.80	1.16	11.7	1.10	2.78	-7.79	5.82	0.26	0.48	3.22



### Stellar Parameters For KIC 004935249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4653^{+111}_{-125}$	$2.386^{+0.385}_{-0.165}$	$0.040^{+0.200}_{-0.300}$	$15.417^{+3.307}_{-7.717}$	$2.108^{+0.986}_{-0.888}$	$0.001^{+0.003}_{-0.000}$
	+2%/-3%	+16%/-7%	+500%/-750%	+21%/-50%	+47%/-42%	+378%/-41%
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 004935249-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	-1831 $\pm$ 368	$241.48^{+272.40}_{-165.15}$	$930^{+70}_{-95}$	$3037^{+1235}_{-537}$	$35^{+294}_{-27}$
Alt.	-2826 $\pm$ 344	$286.38^{+319.14}_{-190.62}$	$937^{+66}_{-87}$	$3100^{+1297}_{-537}$	$40^{+303}_{-31}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming A=0.3)  
 $A_{\text{obs}}$  = 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

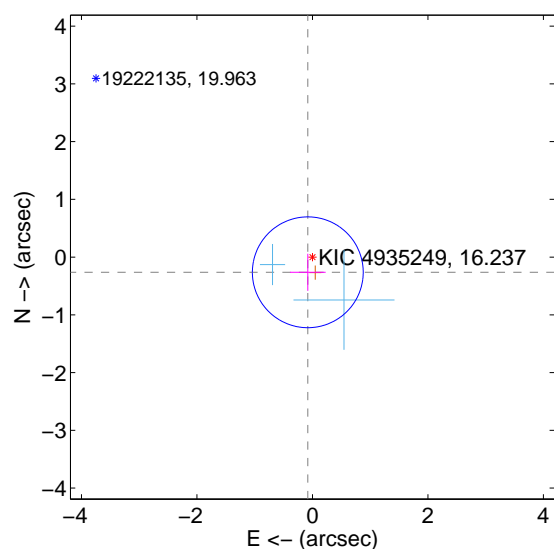
Supplemental centroid analysis for 004935249-03. Kepler magnitude: 16.24. Transit SNR 6.24

There are 2 quarters with good PRF difference image offsets

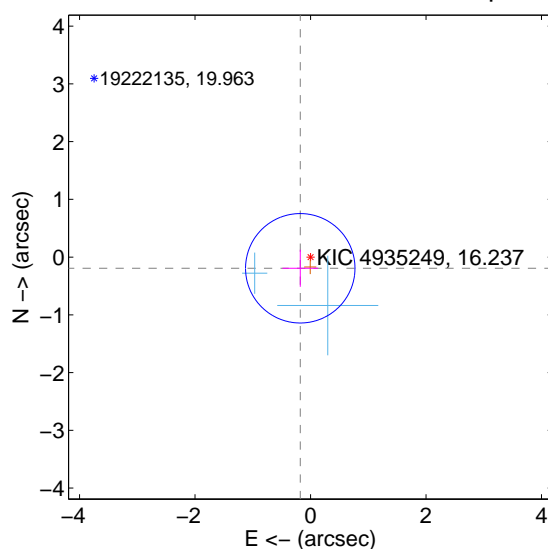
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.275 \pm 0.320$	0.86	$0.080 \pm 0.310$	$-0.263 \pm 0.321$
PRF-fit source offset from KIC position	$0.263 \pm 0.316$	0.83	$0.178 \pm 0.310$	$-0.194 \pm 0.321$
photometric centroid source offset	$0.31 \pm 1.06$	0.29	$0.30 \pm 1.05$	$0.08 \pm 1.18$

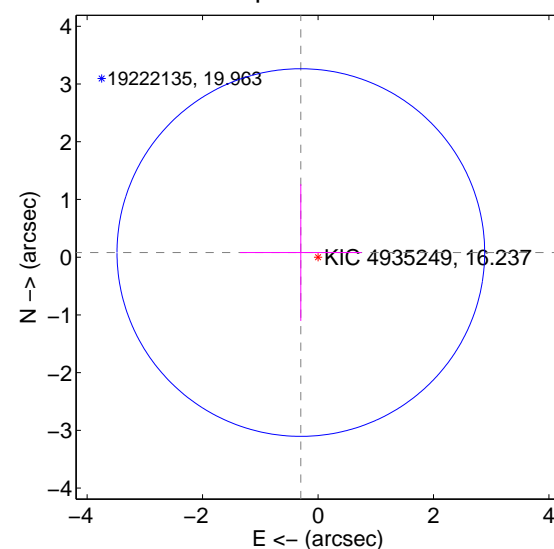
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

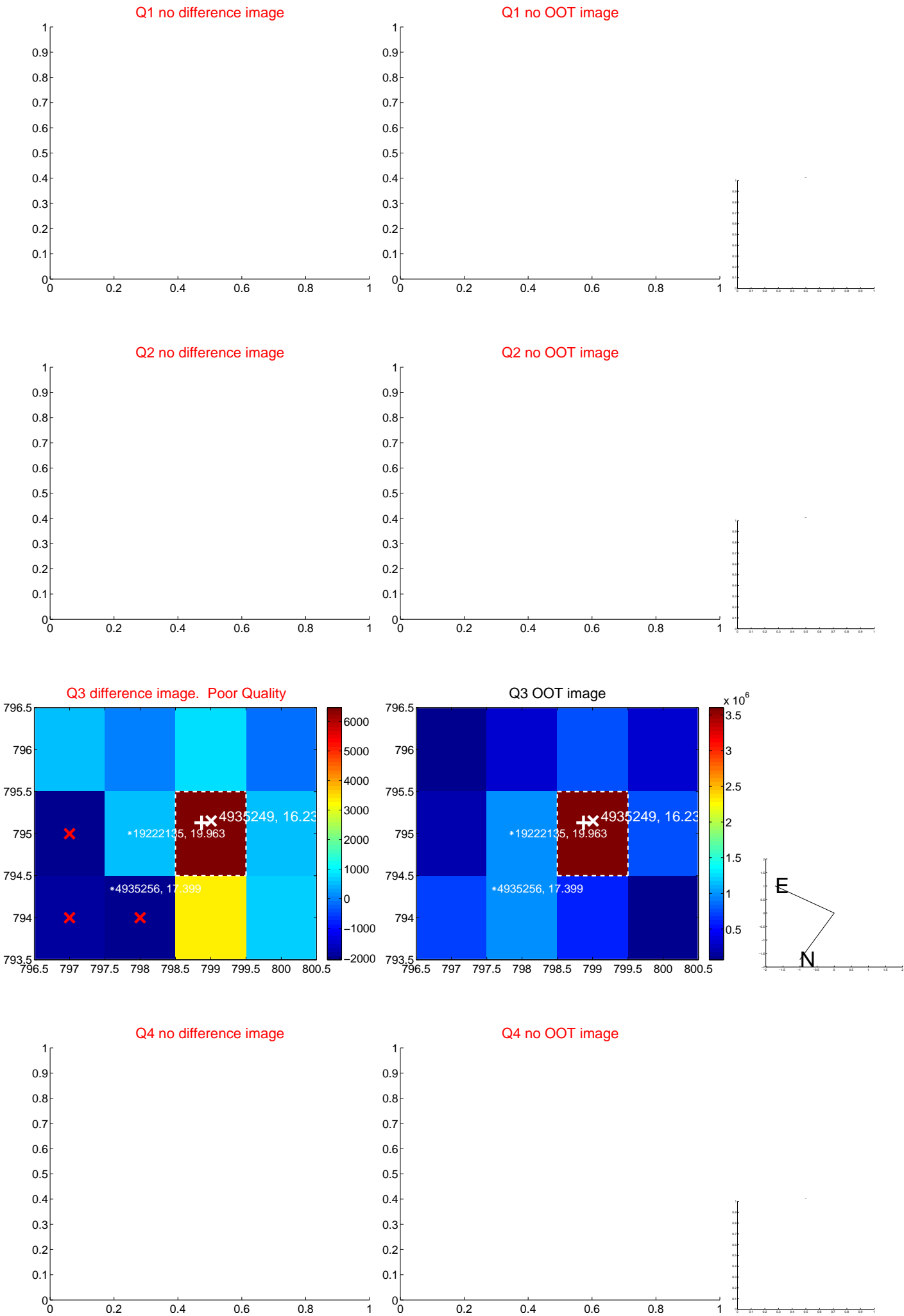


offset from photometric centroids

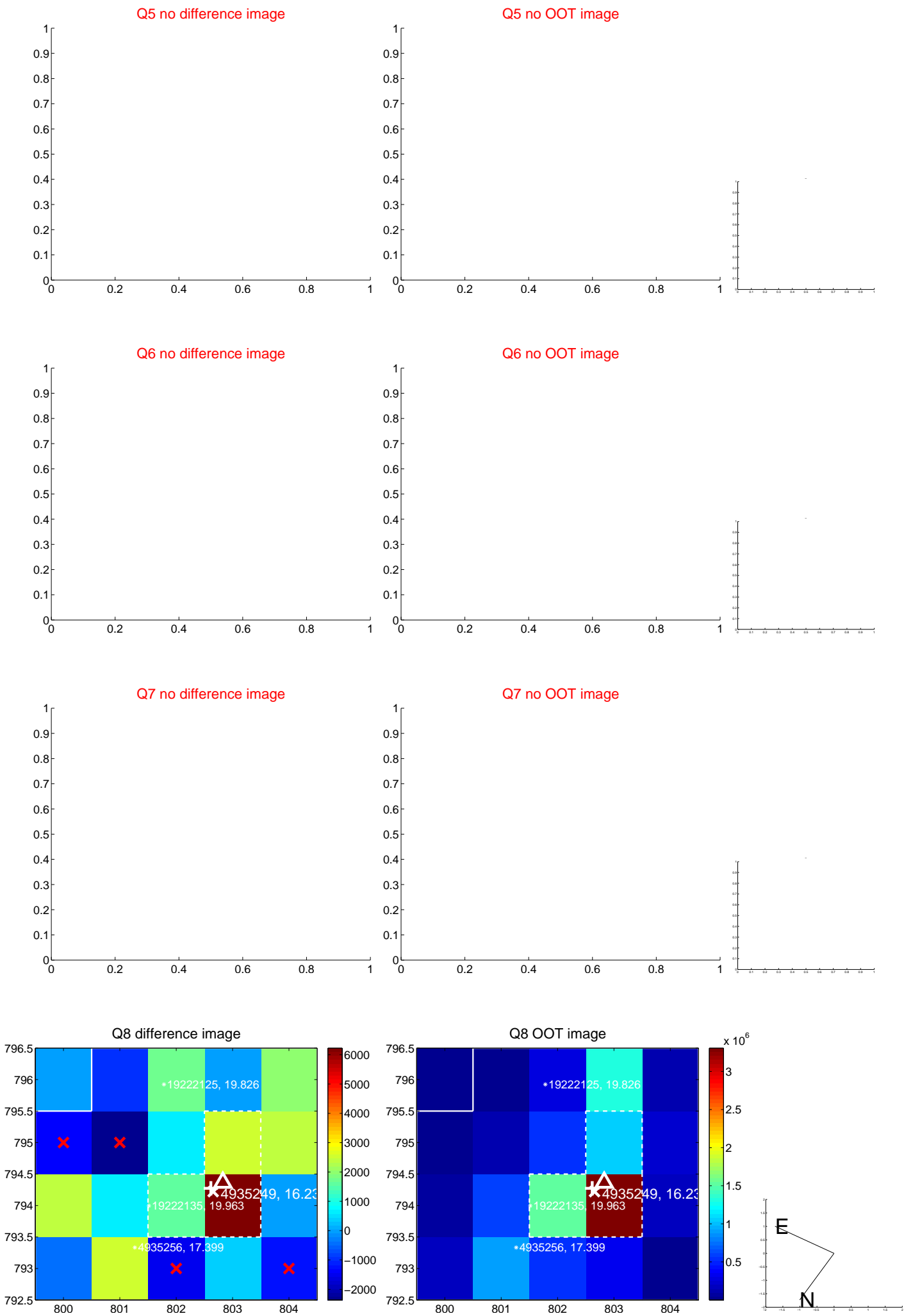


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs  $> 15,000,000$  are from the UKIRT catalog.

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

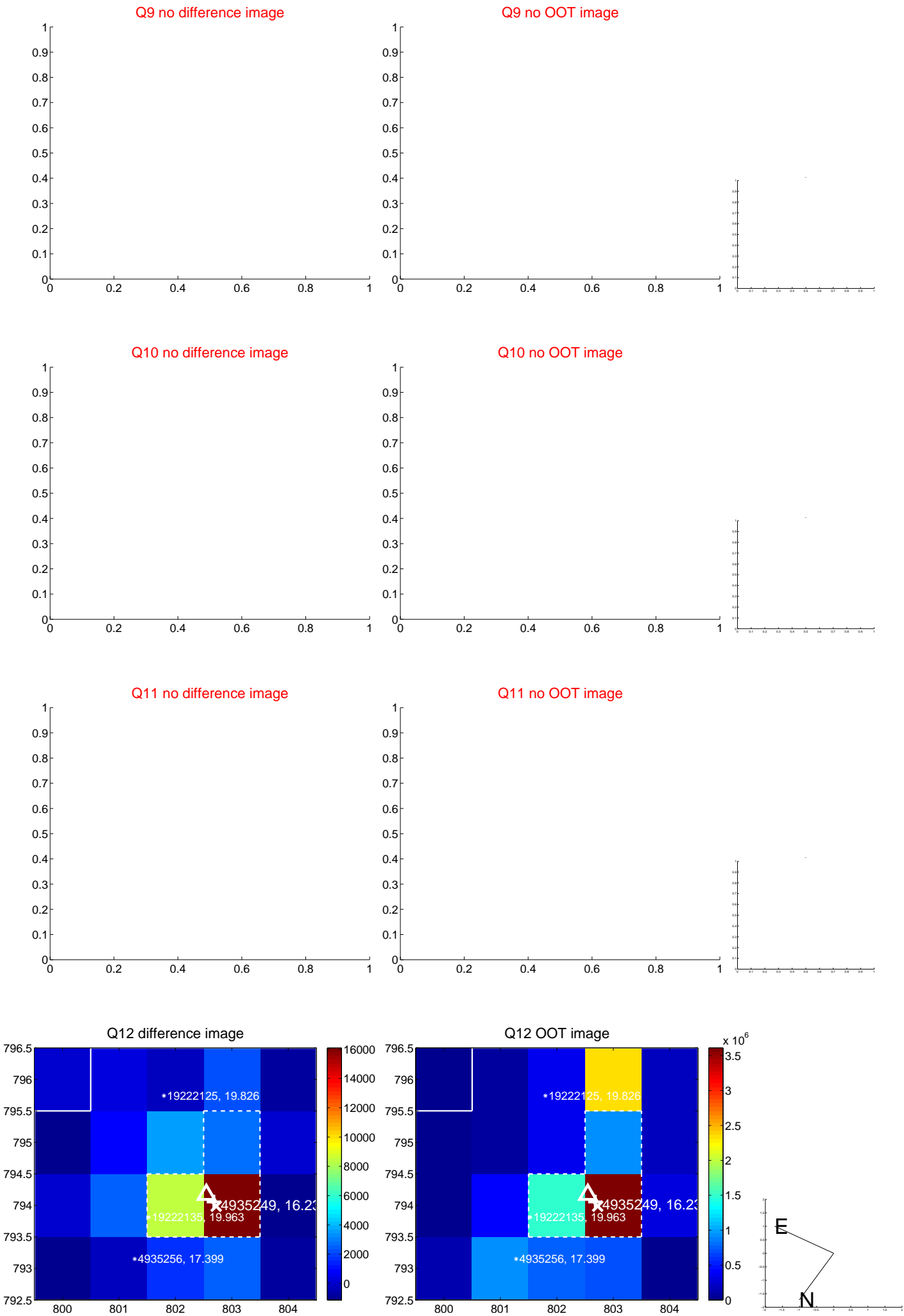


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





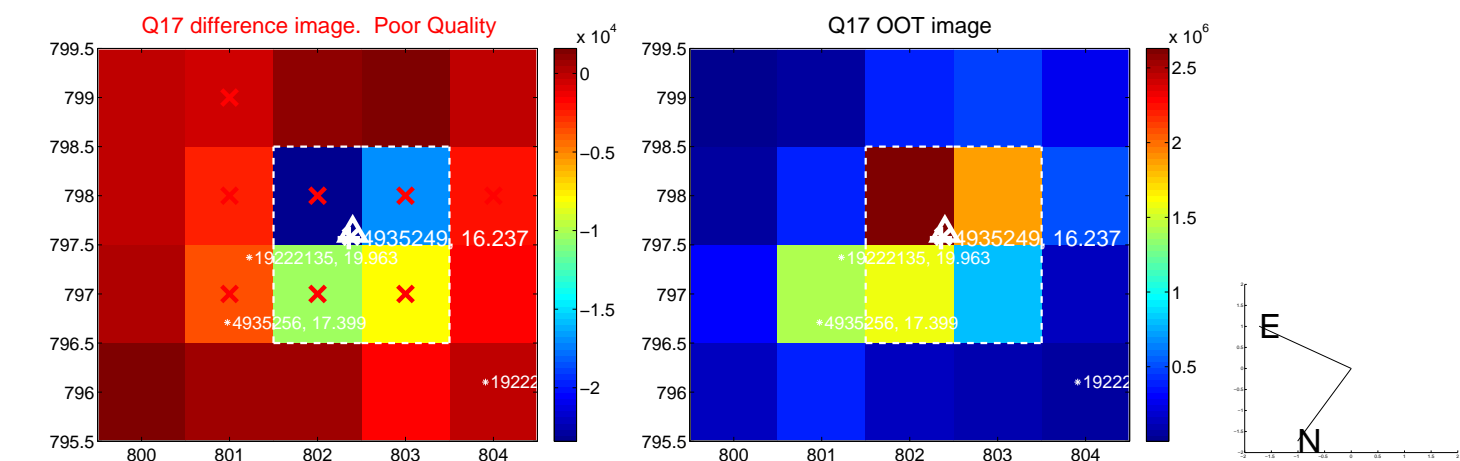
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



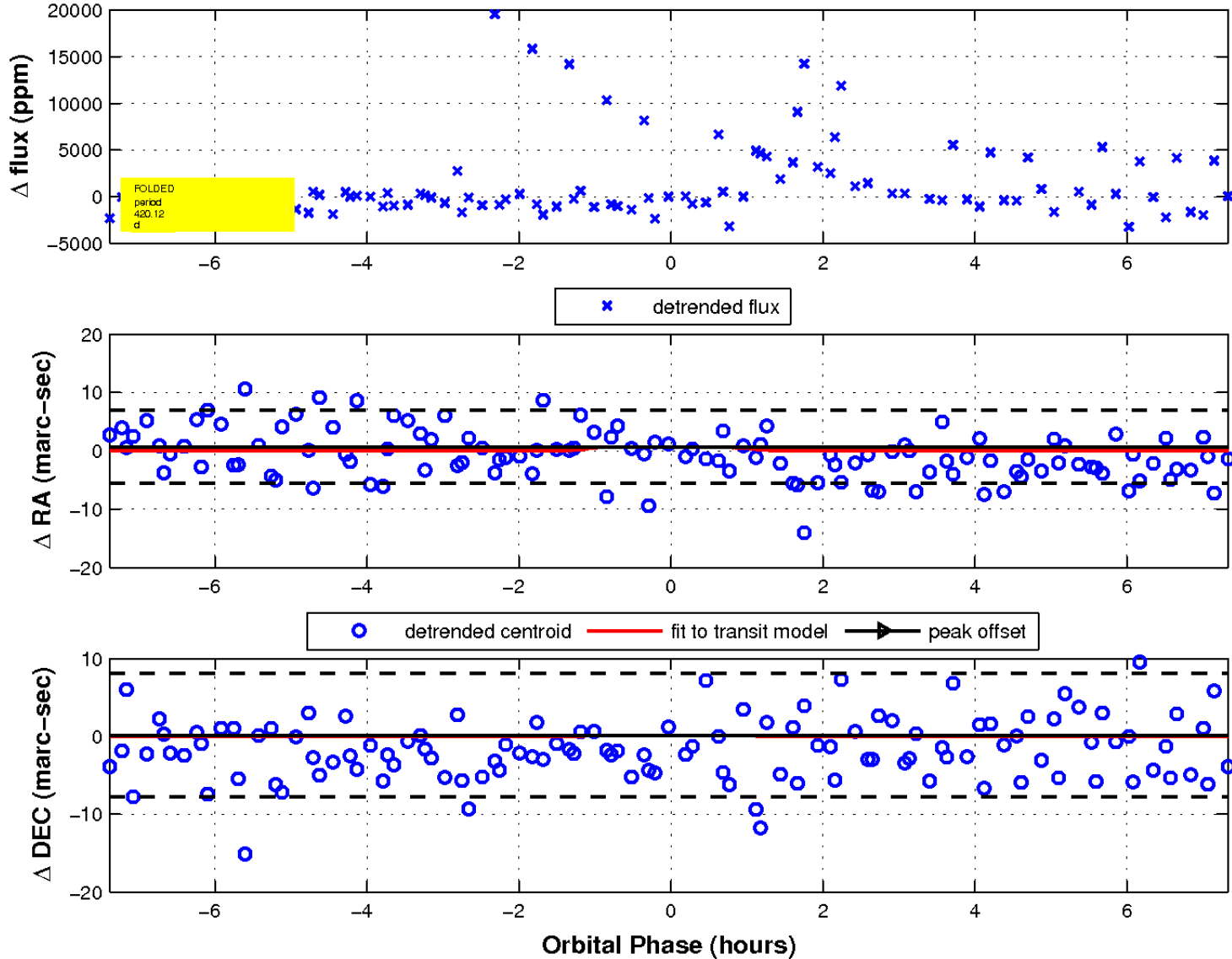
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



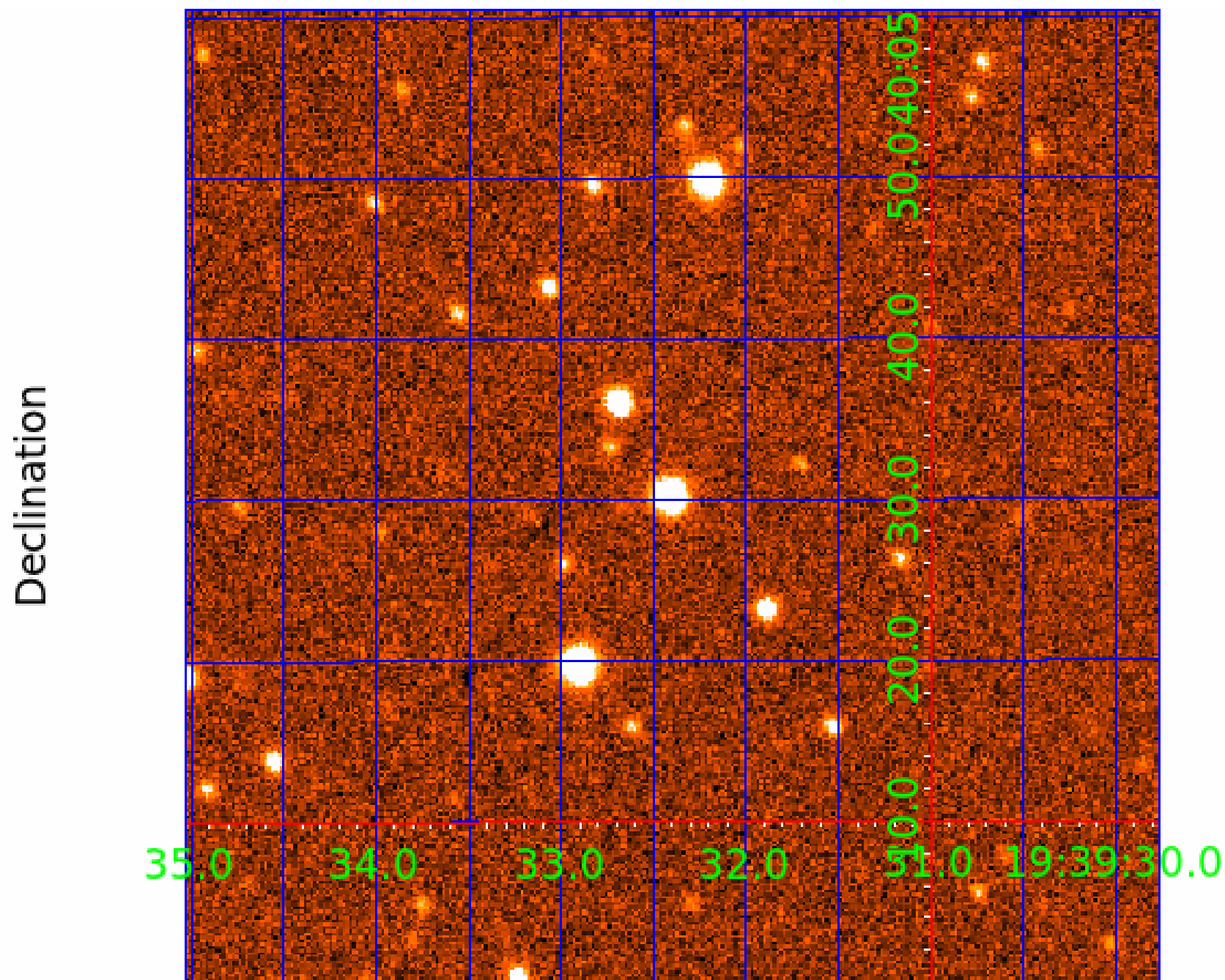
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 3 of 7



UKIRT Image



# KIC 004935249

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004935249-01	OBS	No	374.306579	450.739055	3168.2	8.245	14.0	7.4	15.42	4653	83.03	58.73
004935249-02	OBS	No	267.655297	196.336727	6522.4	17.395	16.3	11.6	15.42	4653	119.15	91.85
004935249-03	OBS	No	420.122460	329.462097	2623.6	2.498	12.3	6.2	15.42	4653	84.19	50.35
004935249-04	OBS	No	600.412953	302.722274	3839.4	3.376	14.7	7.6	15.42	4653	94.99	31.28
004935249-06	OBS	No	436.197991	315.013324	5059.3	9.618	14.1	9.0	15.42	4653	115.21	47.89

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004935249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-02	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
004935249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004935249-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—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.

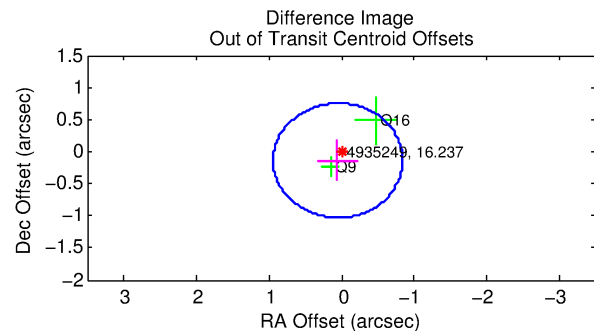
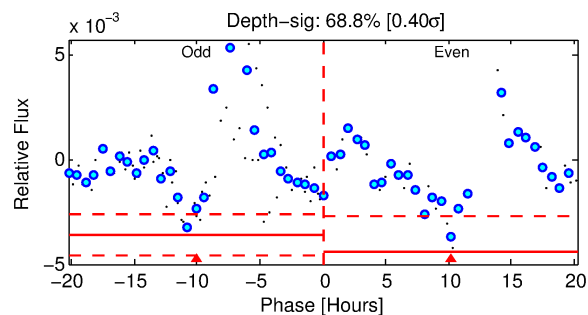
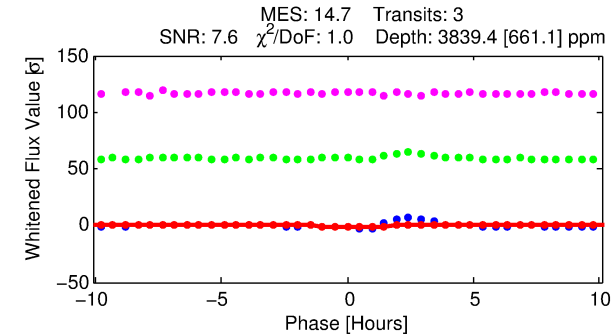
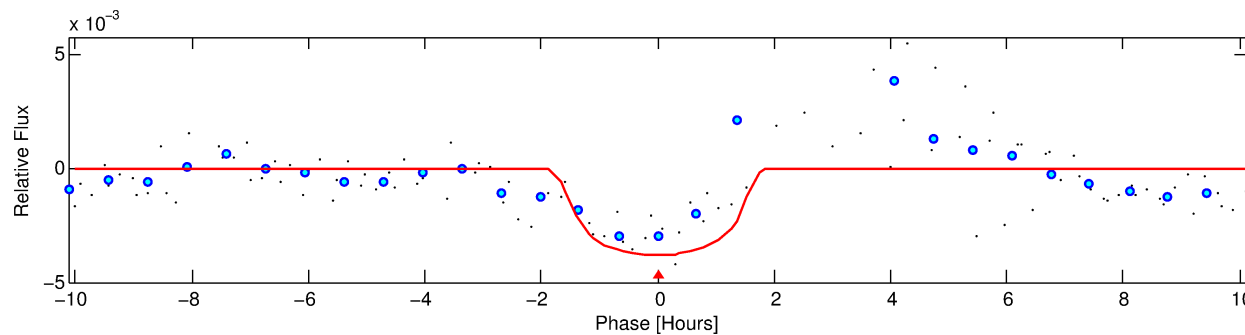
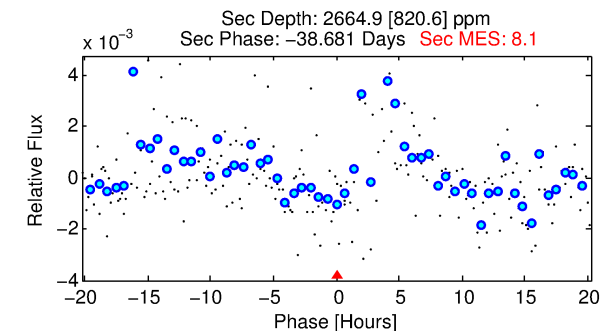
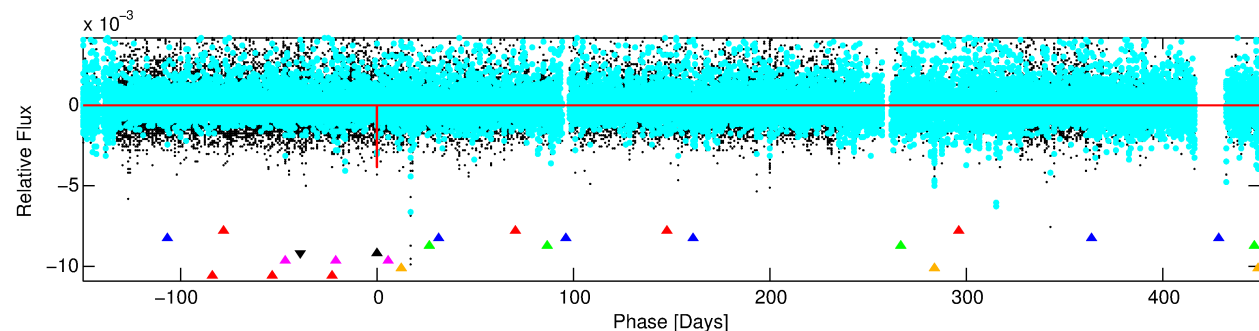
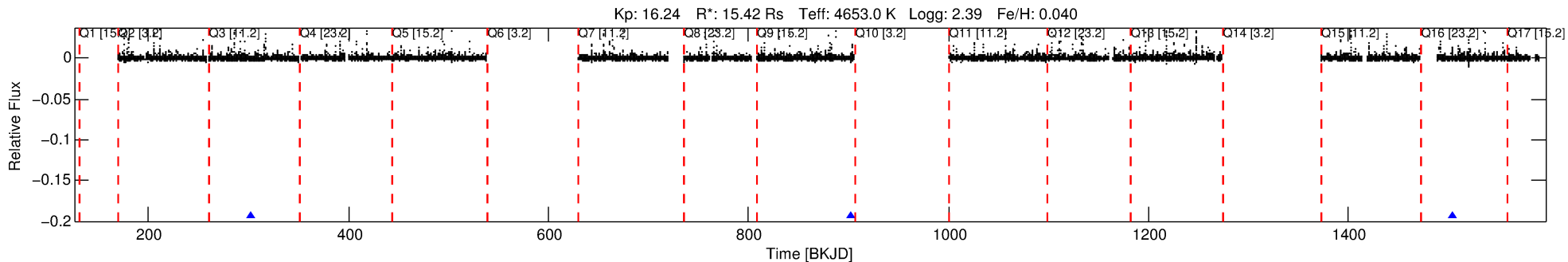
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004935249-04

No Significant Match Found

# DV One-Page Summary

KIC: 4935249 Candidate: 4 of 7 Period: 600.413 d



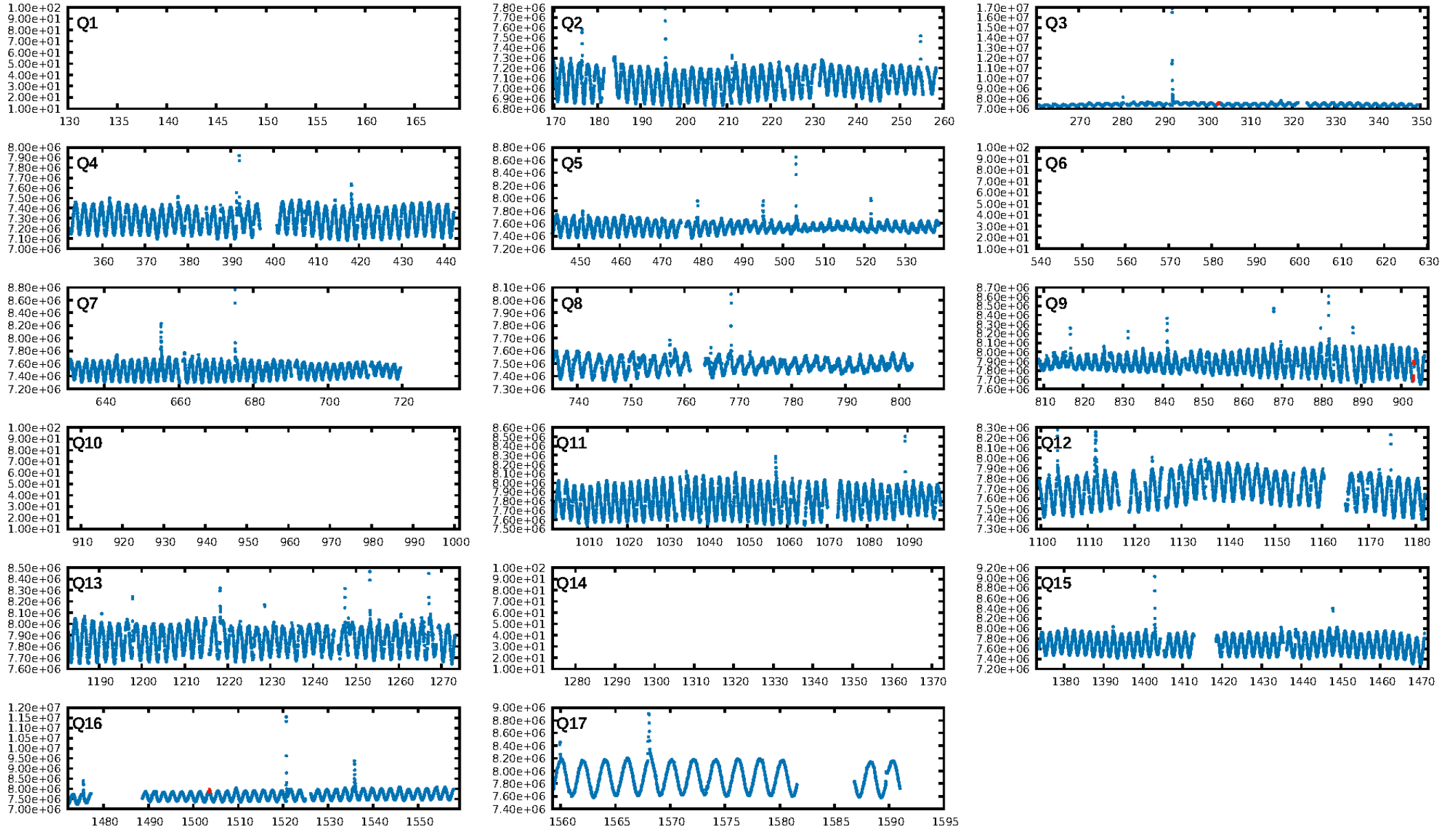
## DV Fit Results:

Period = 600.41295 [0.00540] d  
Epoch = 302.7223 [0.0071] BKJD  
Rp/R\* = 0.0565 [0.0856]  
a/R\* = 1298.91 [5896.16]  
b = 0.45 [8.24]  
Seff = 31.28 [21.49]  
Teq = 603 [104] K  
**Rp = 94.99 [151.67] Re**  
a = 1.7865 [0.7963] AU  
Ag = 518.54 [1619.24] [0.32σ]  
Teffp = 4449 [3392] K [1.13σ]

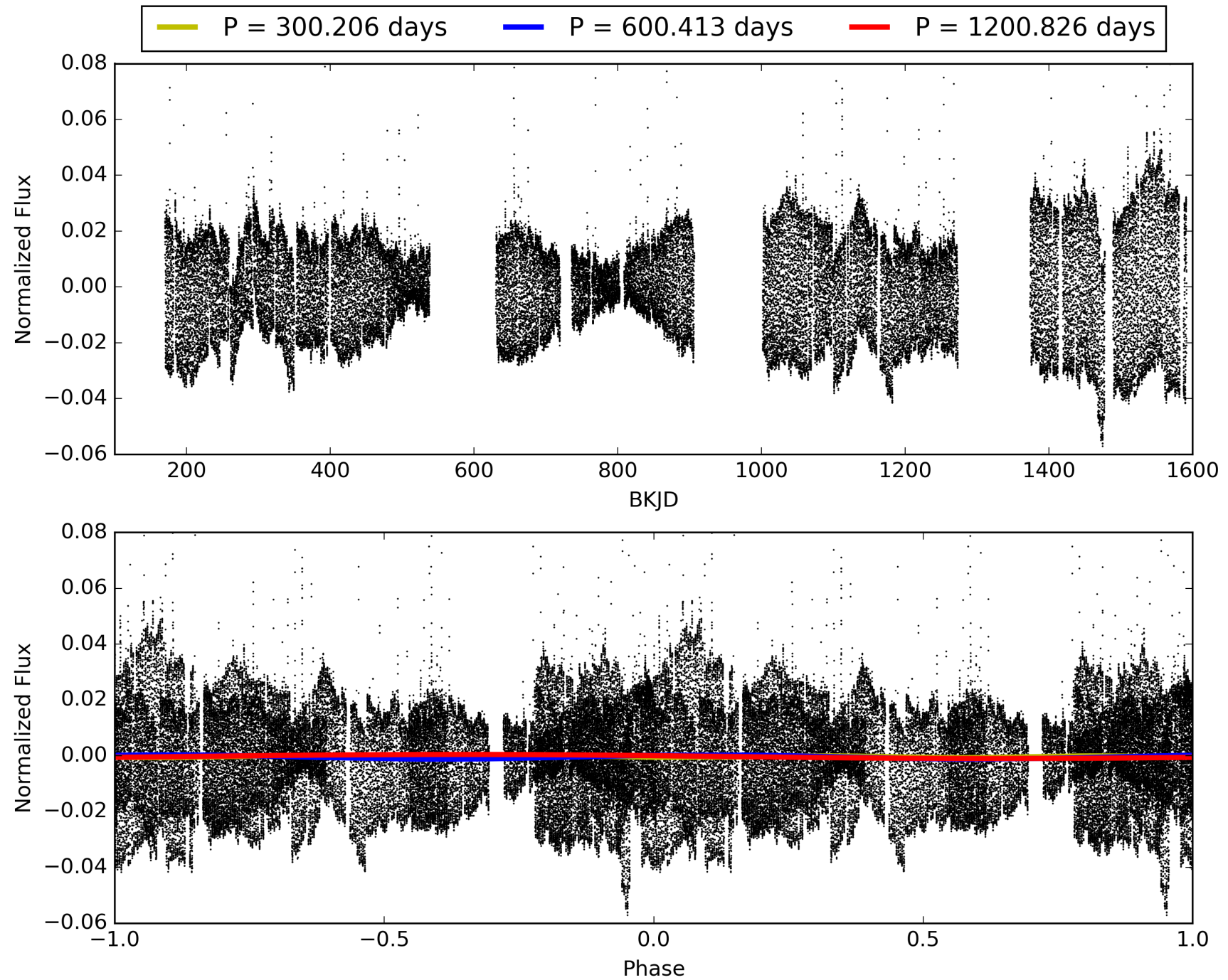
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [121.50σ]  
LongPeriod-sig: 100.0% [179.03σ]  
ModelChiSquare2-sig: 0.9%  
ModelChiSquareGof-sig: 89.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 7.104  
Centroid-sig: 65.6%  
Centroid-so: 0.988 arcsec [1.43σ]  
OotOffset-rm: 0.148 arcsec [0.50σ]  
KicOffset-rm: 0.263 arcsec [0.99σ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 004935249-04, PDC Light Curves



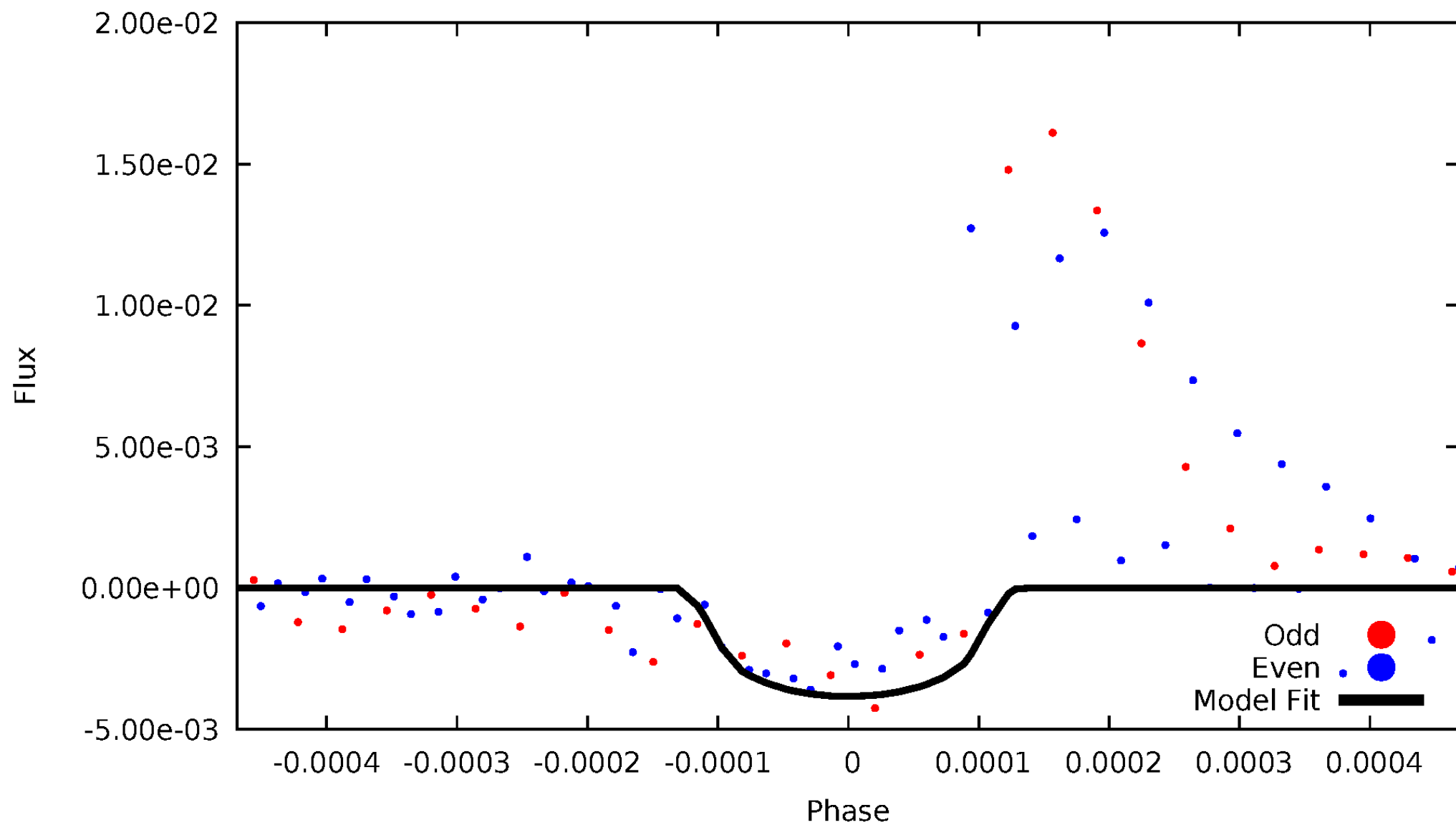
TCE 004935249-04





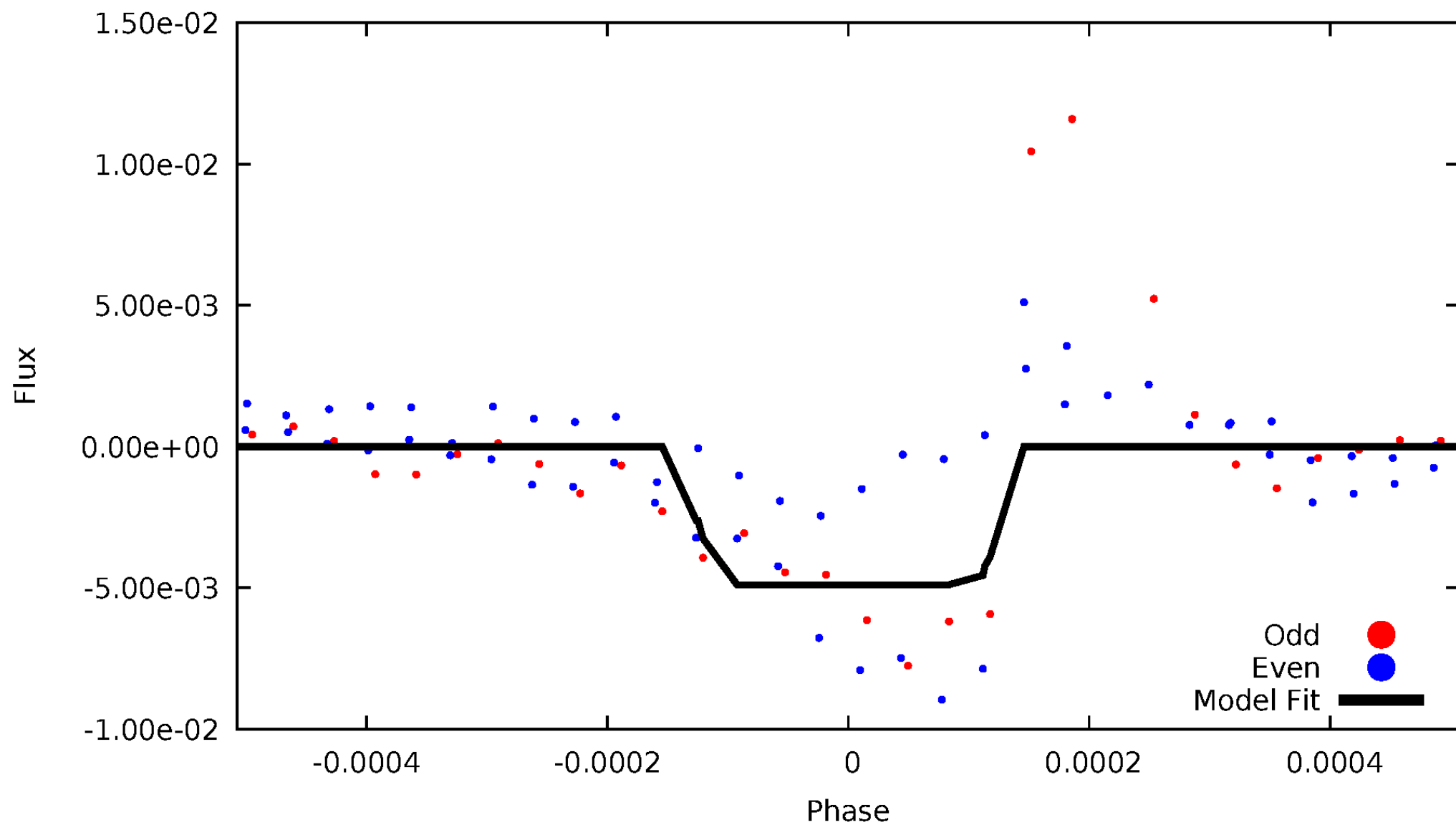
# DV Odd/Even

TCE 004935249-04



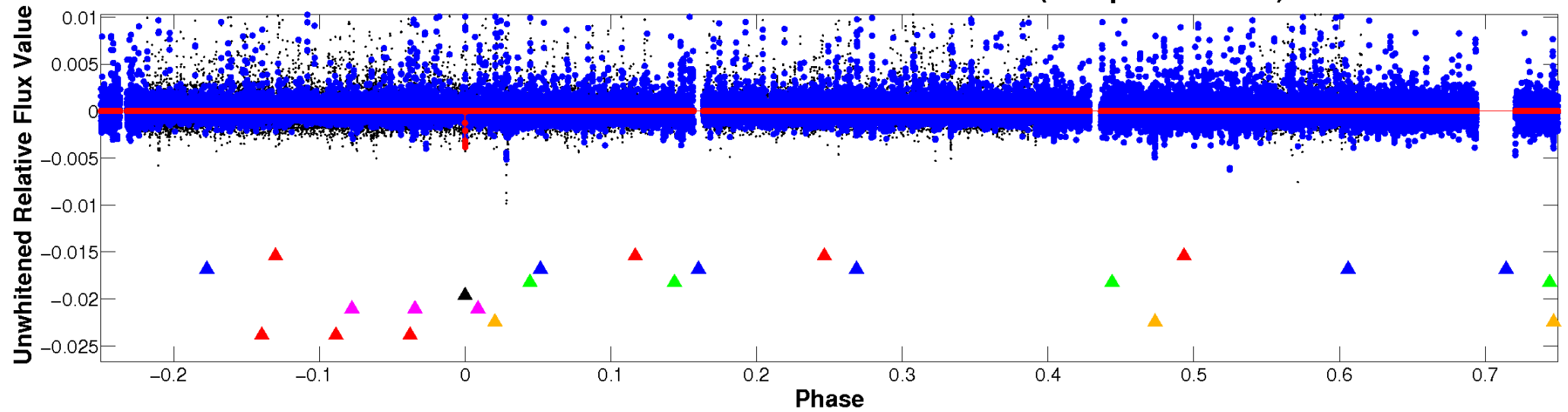
# ALT Odd/Even

TCE 004935249-04

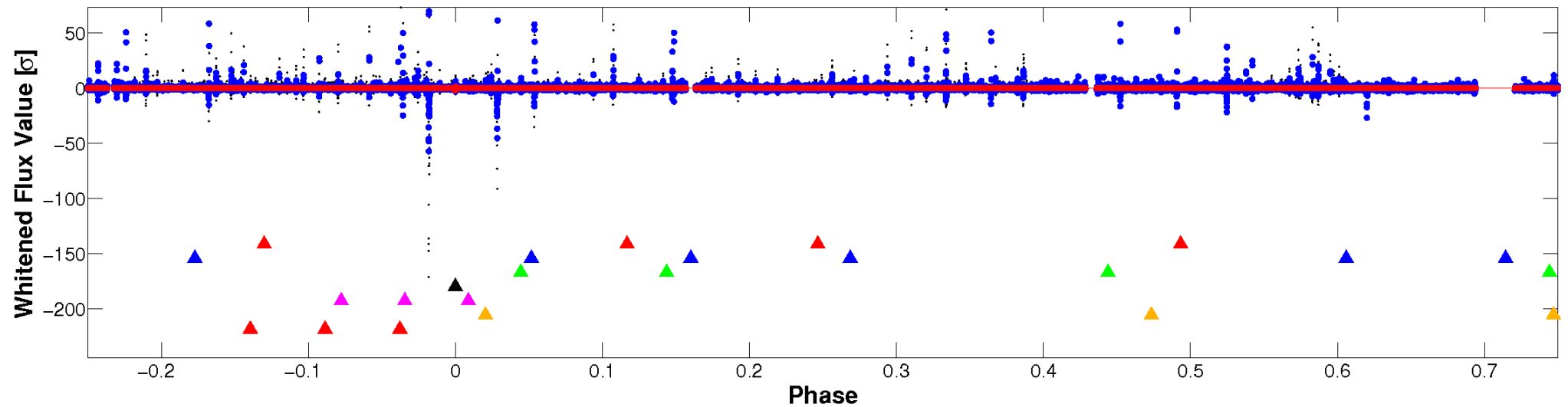


# Non-Whitened Vs. Whitened Light Curve

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

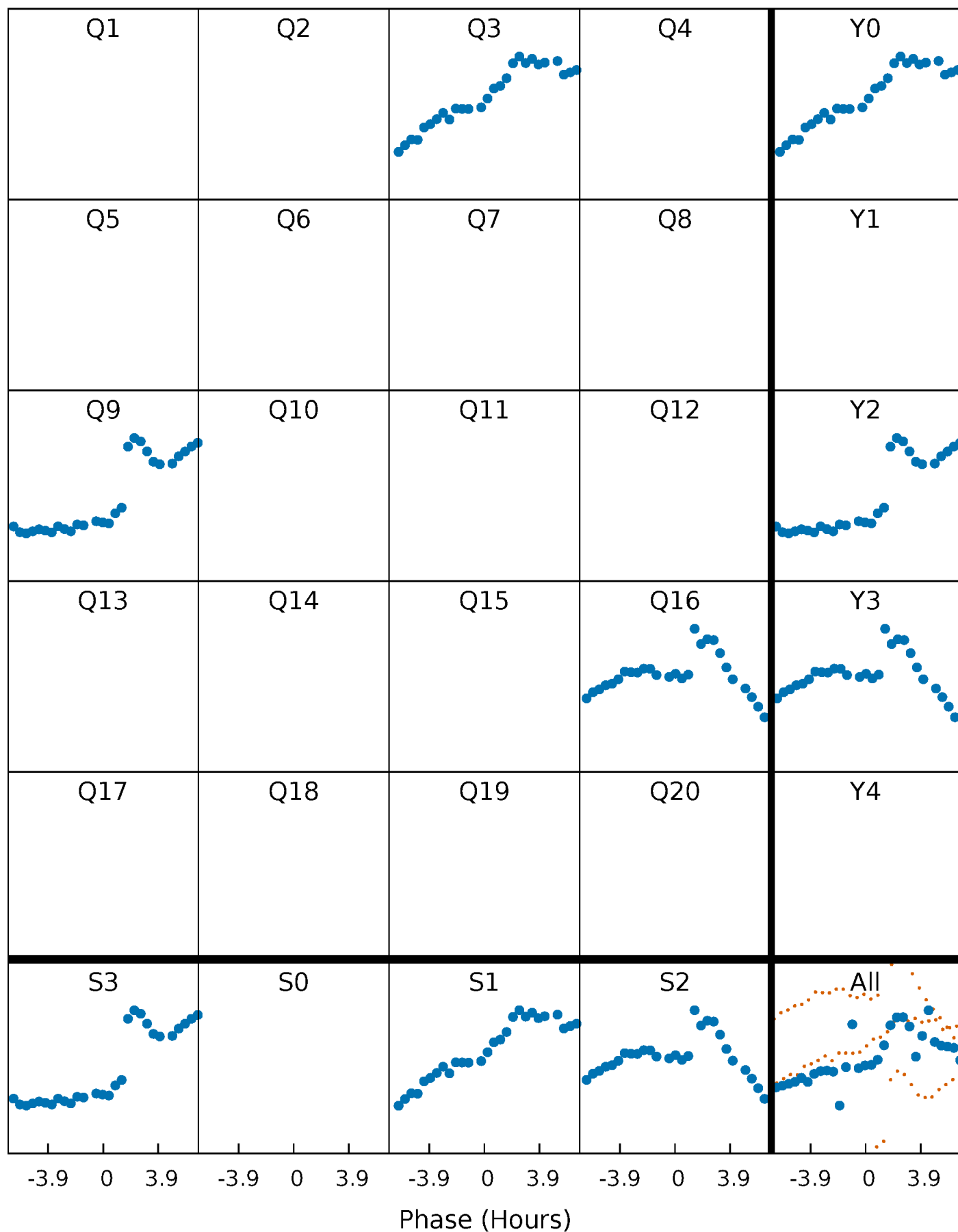


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



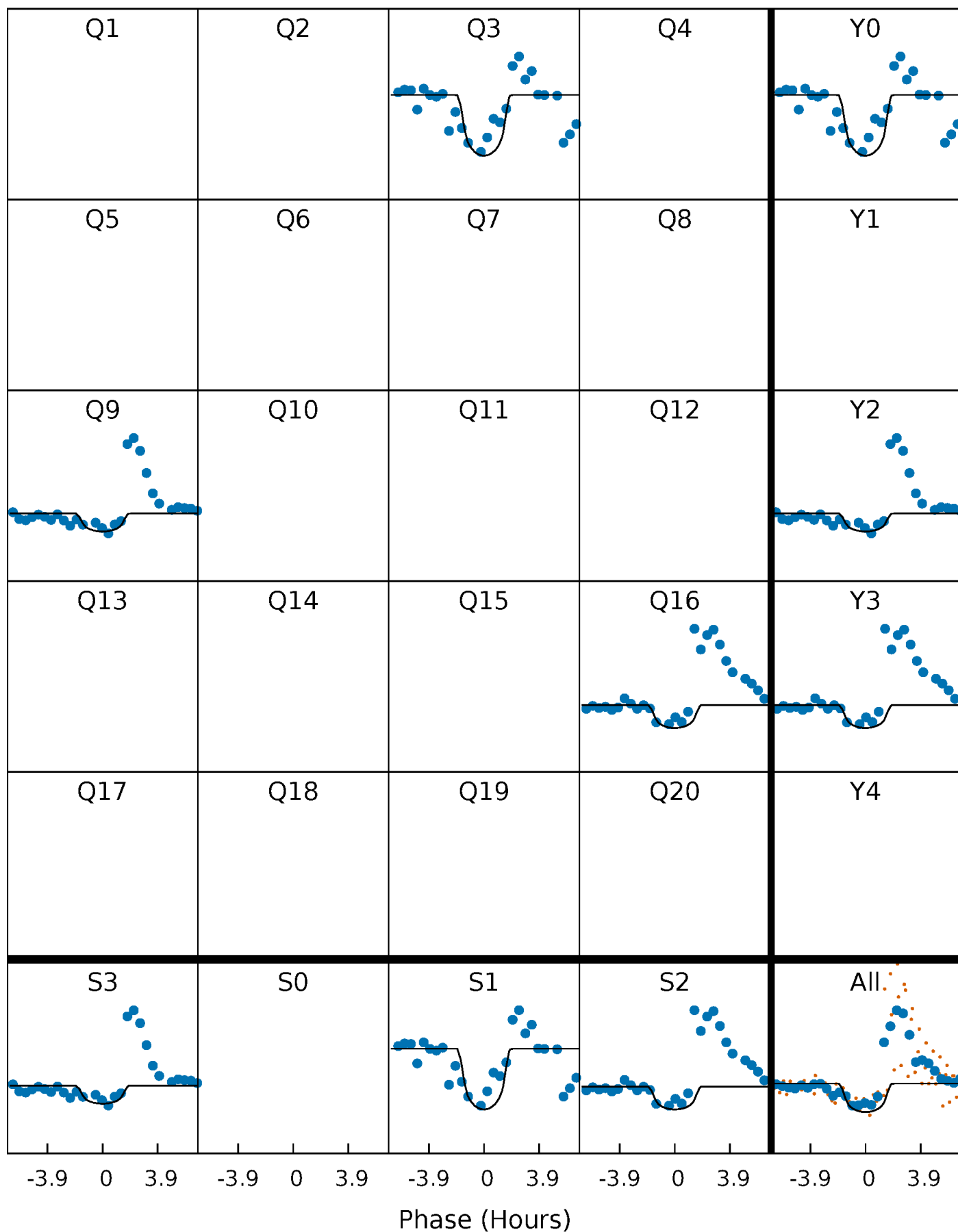
# PDC Quarter-Phased Transit Curves

TCE 004935249-04     $P=600.412953$  Days     $T_0=302.722274$  (BKJD)



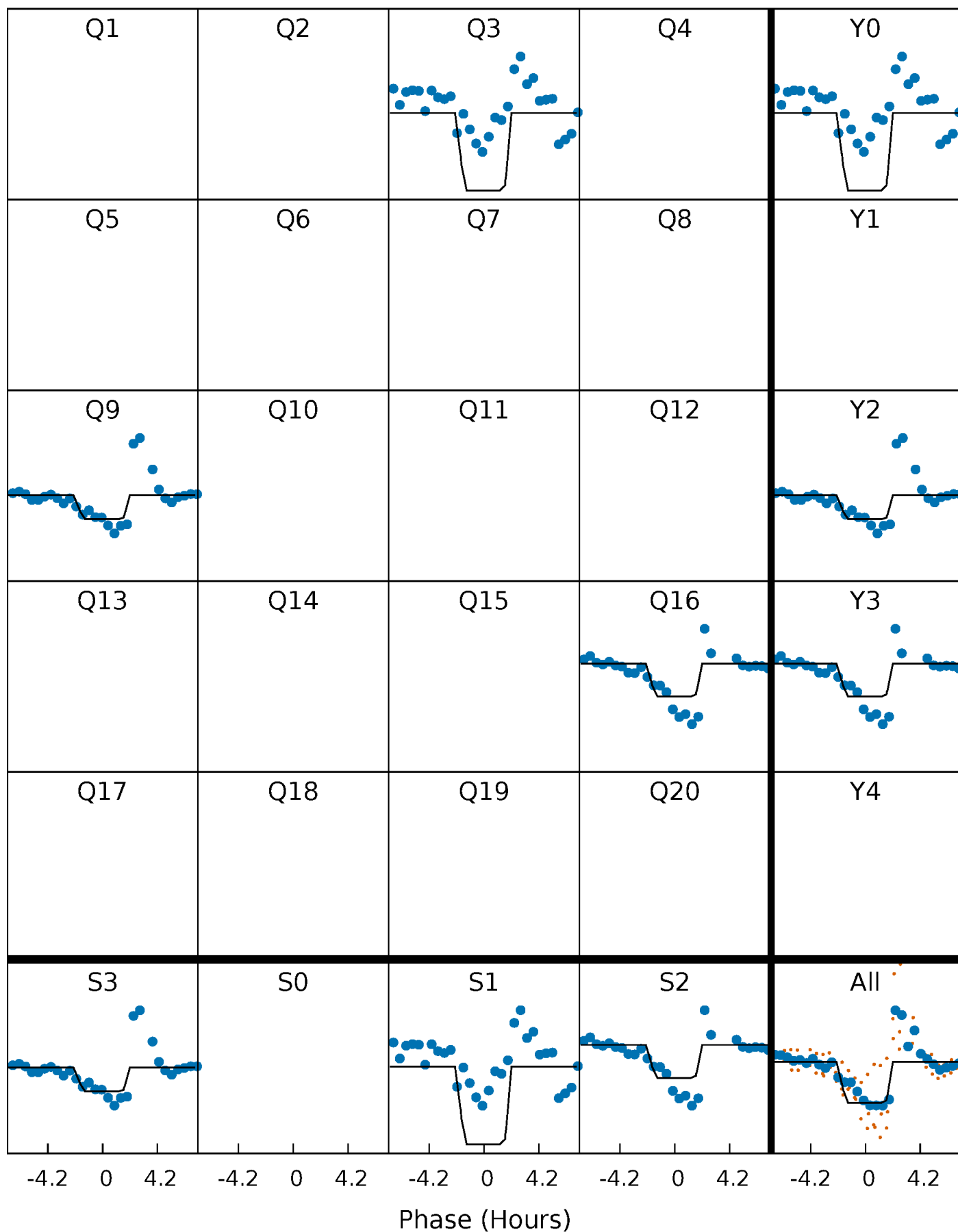
# DV Quarter-Phased Transit Curves

TCE 004935249-04     $P=600.412953$  Days     $T_0=302.722274$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

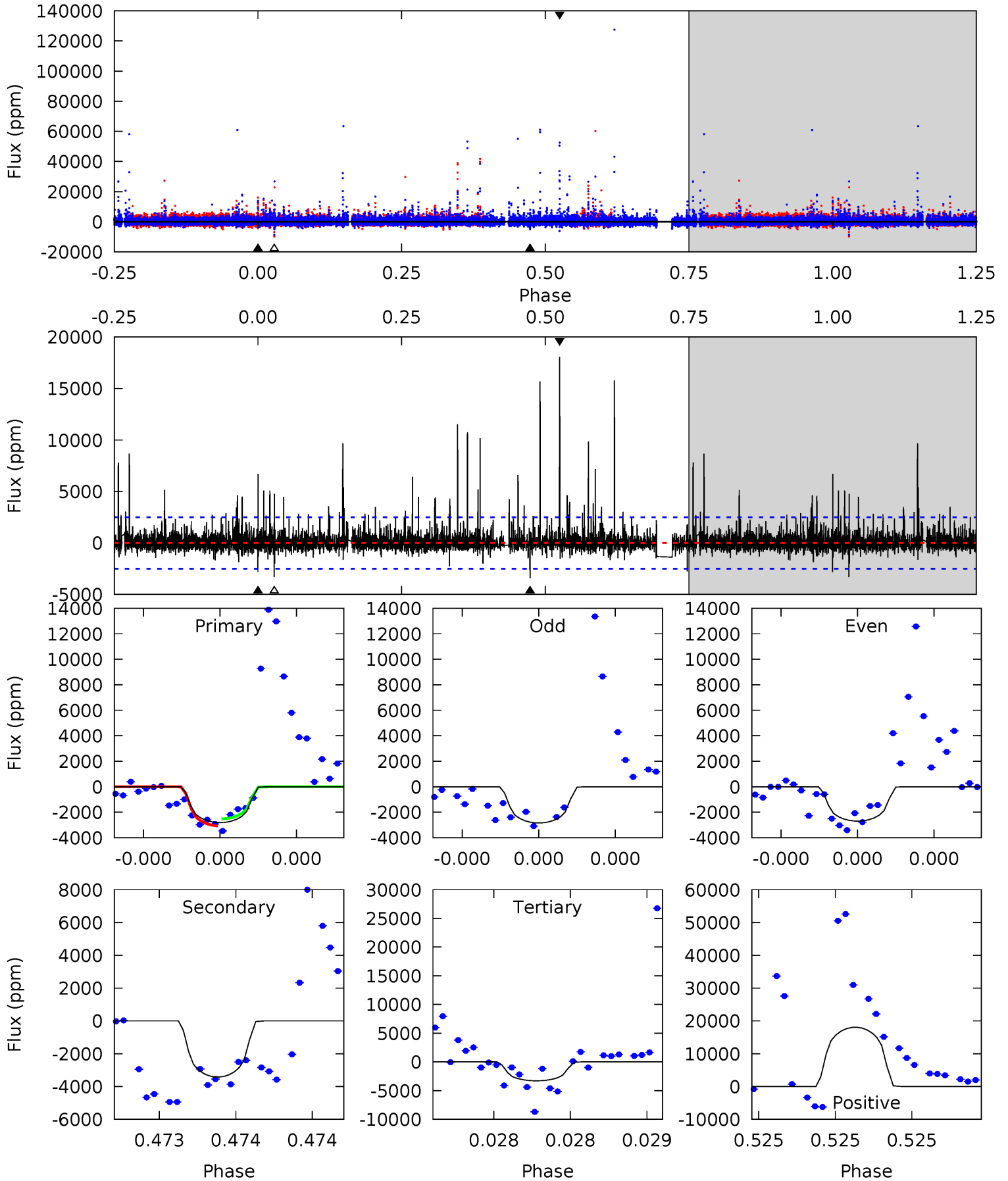
TCE 004935249-04 P=600.399293 Days  $T_0=302.718500$  (BKJD)



# DV Model-Shift Uniqueness Test

004935249-04, P = 600.412953 Days, E = 302.722274 Days

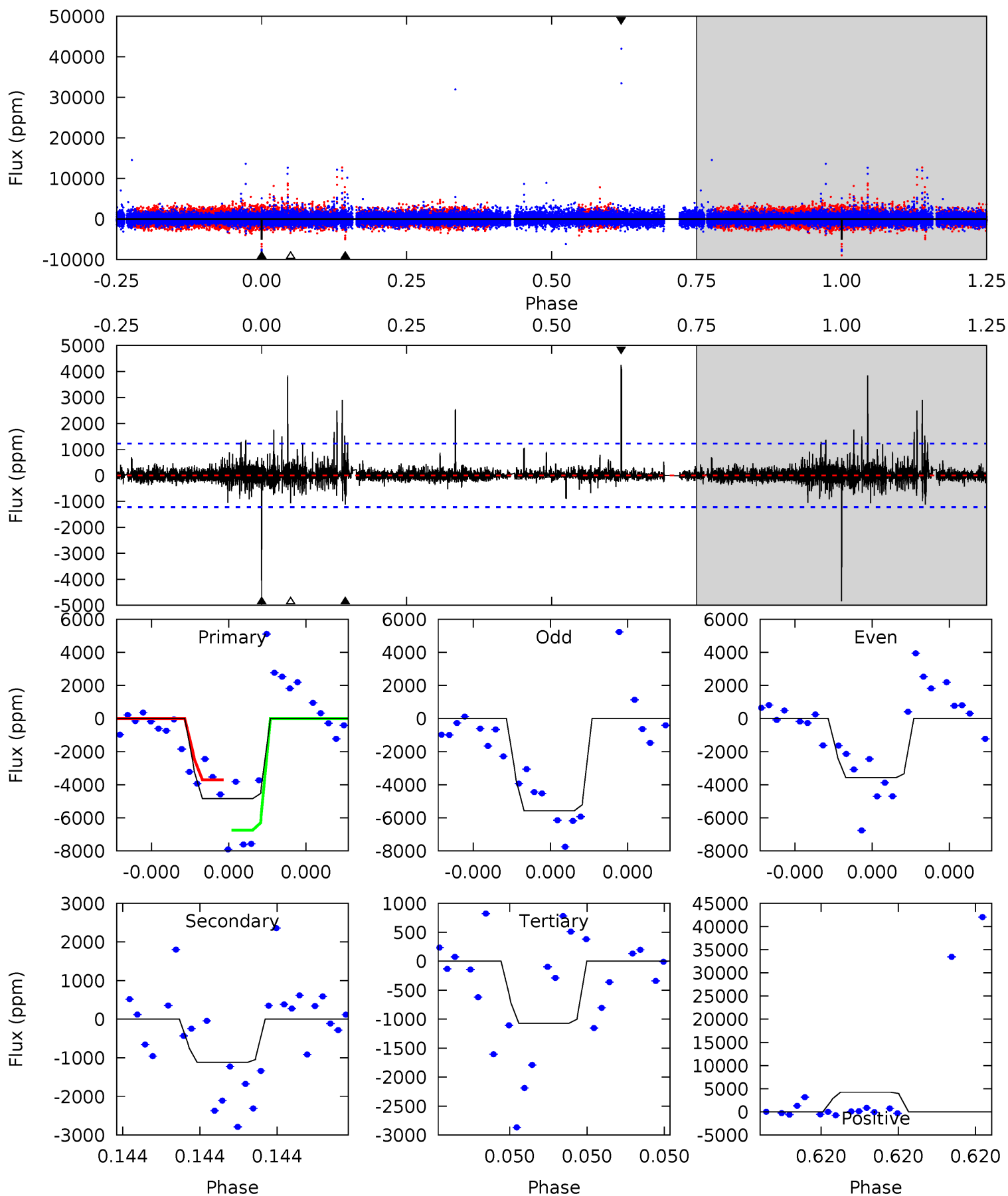
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	7.79	7.49	41.1	5.69	3.66	2.13	-1.11	-34.7	0.30	-33.3	0.13	0.76	0.84	0.63



# Alt Model-Shift Uniqueness Test

004935249-04, P = 600.399293 Days, E = 302.718500 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.5	5.20	4.97	19.7	5.68	3.64	1.02	17.5	2.79	0.23	-14.5	4.69	0.79	0.47	6.83





### Stellar Parameters For KIC 004935249

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4653^{+111}_{-125}$	$2.386^{+0.385}_{-0.165}$	$0.040^{+0.200}_{-0.300}$	$15.417^{+3.307}_{-7.717}$	$2.108^{+0.986}_{-0.888}$	$0.001^{+0.003}_{-0.000}$
	+2%/-3%	+16%/-7%	+500%/-750%	+21%/-50%	+47%/-42%	+378%/-41%
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 004935249-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-3424 \pm 440$	$132.64^{+140.95}_{-82.25}$	$832^{+60}_{-86}$	$4030^{+2019}_{-753}$	$360^{+1987}_{-273}$
Alt.	$-1120 \pm 215$	$157.35^{+136.07}_{-100.03}$	$830^{+65}_{-93}$	$3236^{+1233}_{-479}$	$85^{+539}_{-60}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = 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  $A_{\text{obs}} \gg 1.0$

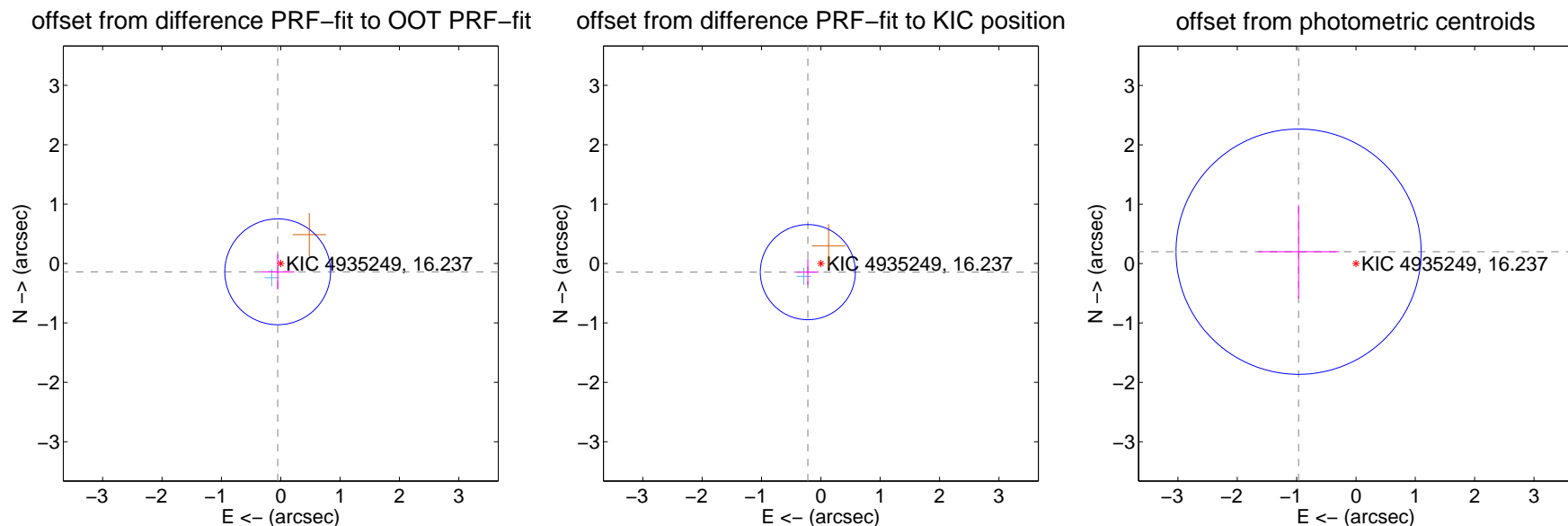
## DV Centroid Data

Supplemental centroid analysis for 004935249-04. Kepler magnitude: 16.24. Transit SNR 7.59

There are 1 quarters with good PRF difference image offsets

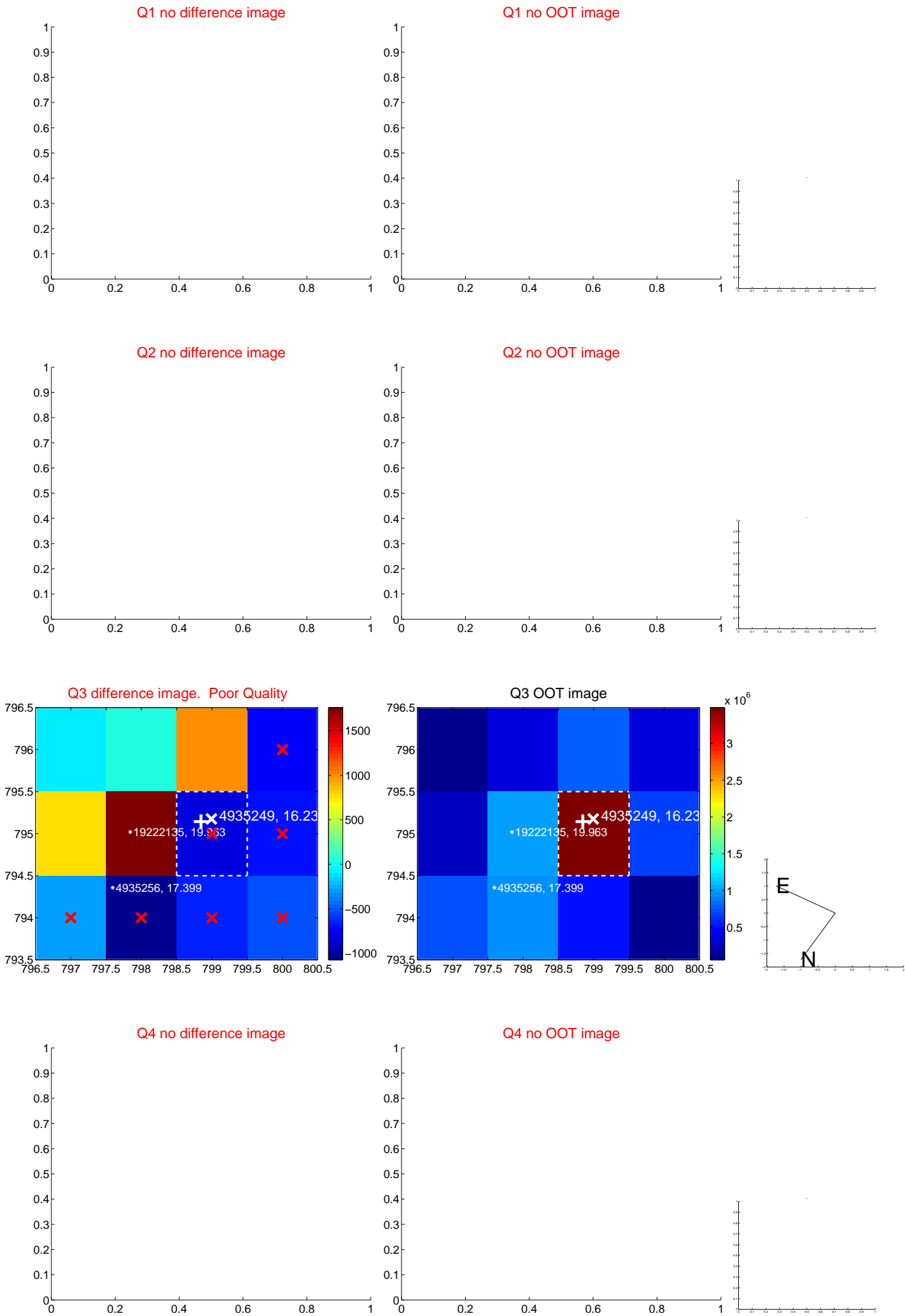
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.148 \pm 0.297$	0.50	$0.052 \pm 0.280$	$-0.139 \pm 0.299$
PRF-fit source offset from KIC position	$0.263 \pm 0.267$	0.99	$0.220 \pm 0.183$	$-0.145 \pm 0.221$
photometric centroid source offset	$0.99 \pm 0.69$	1.43	$0.97 \pm 0.68$	$0.20 \pm 0.79$



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- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

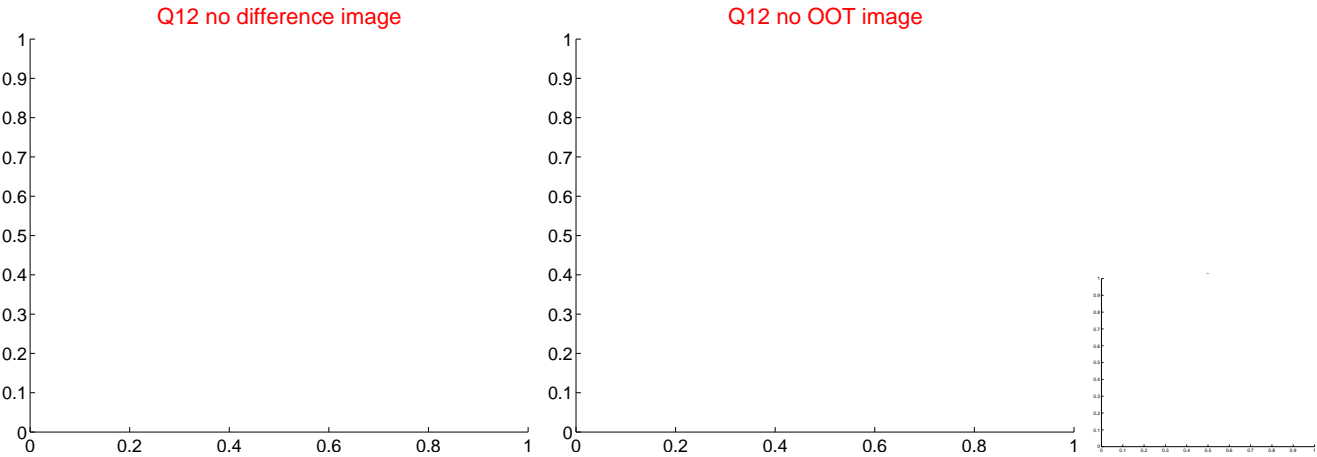
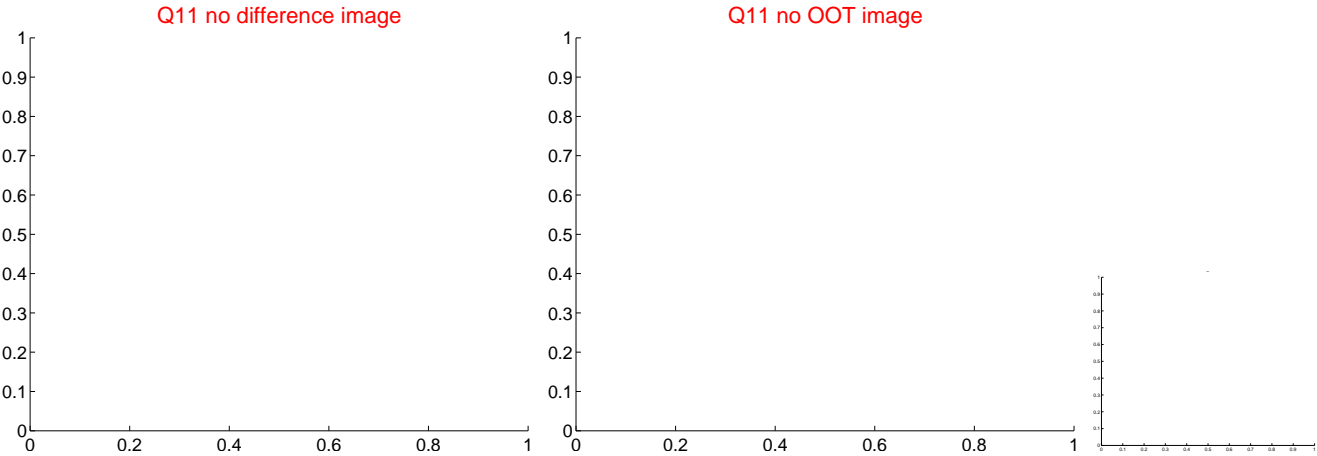
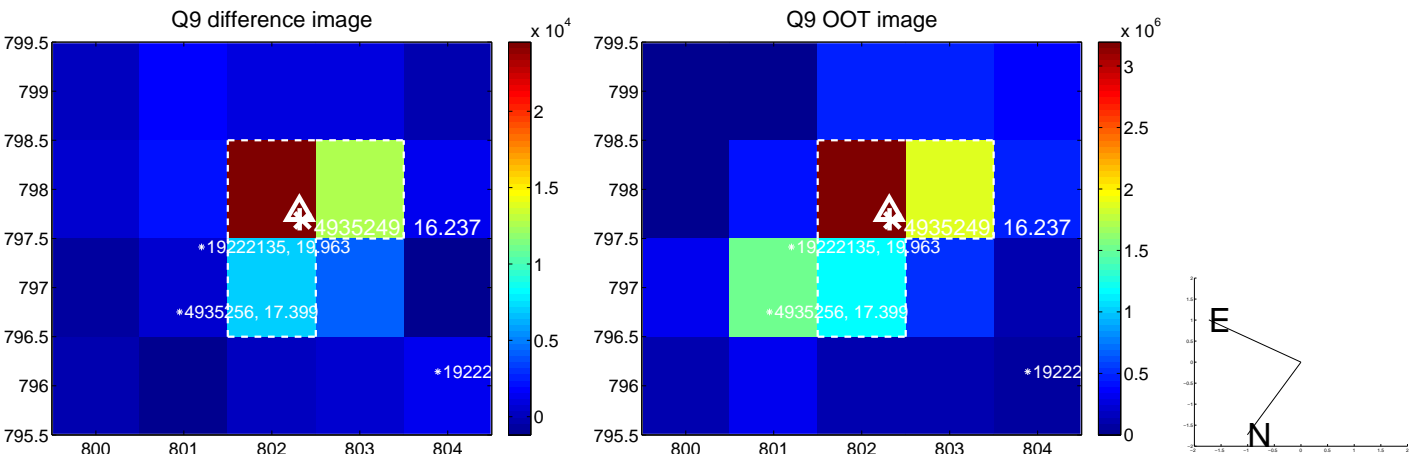
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



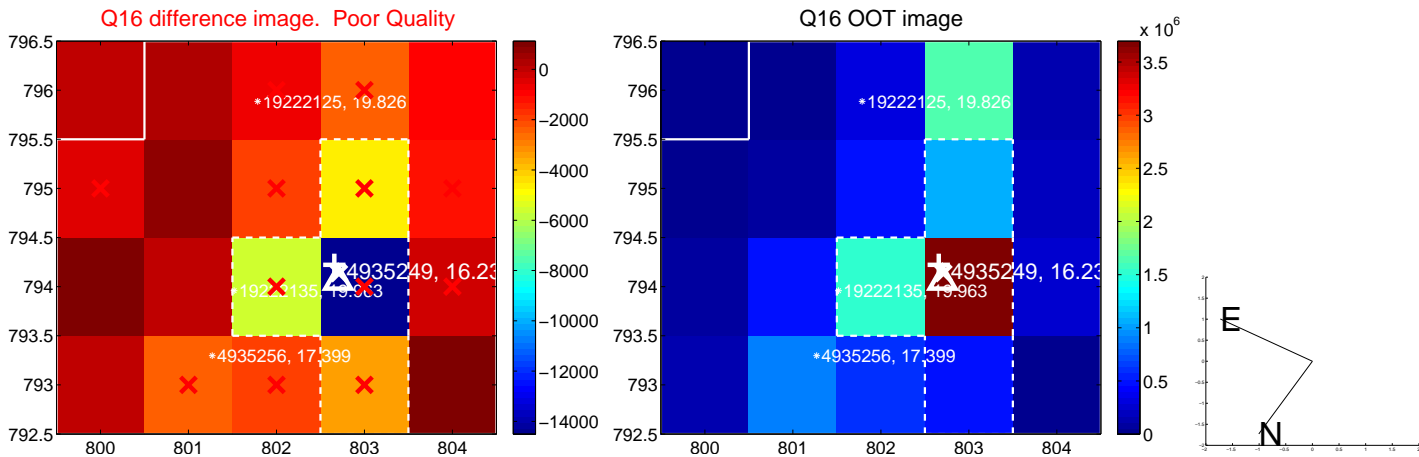
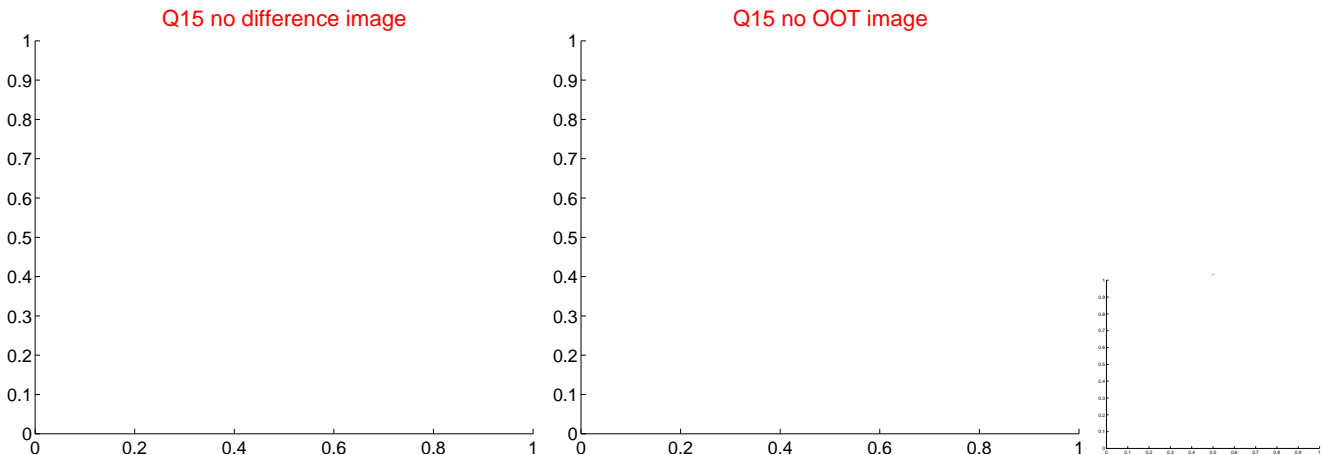
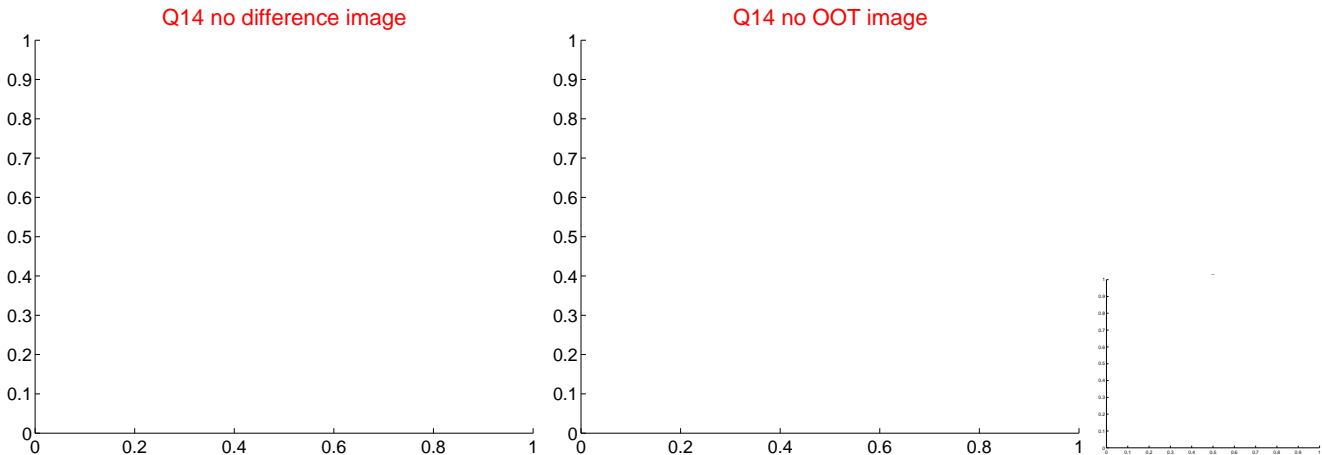
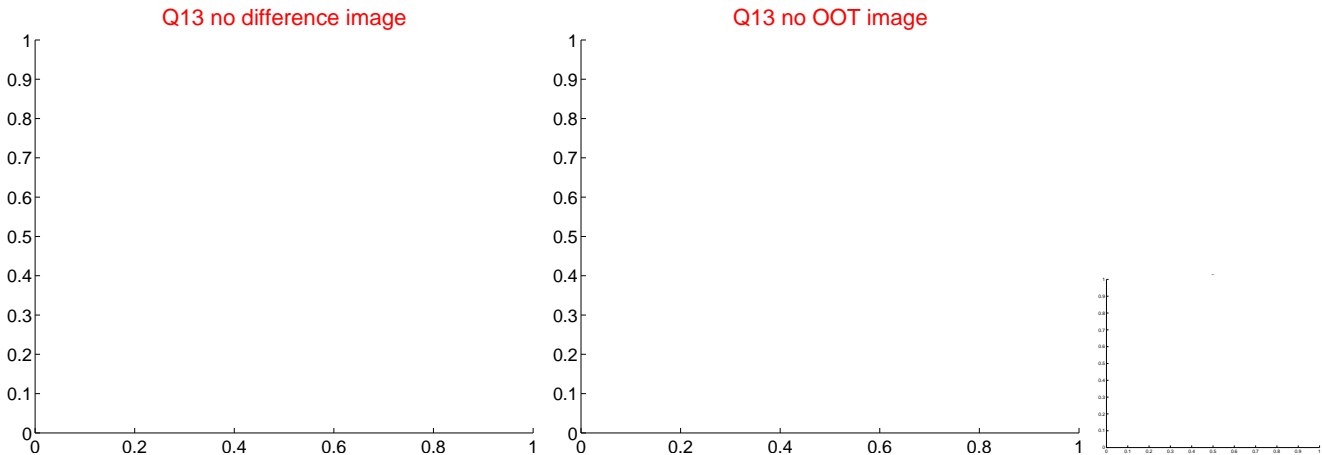
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



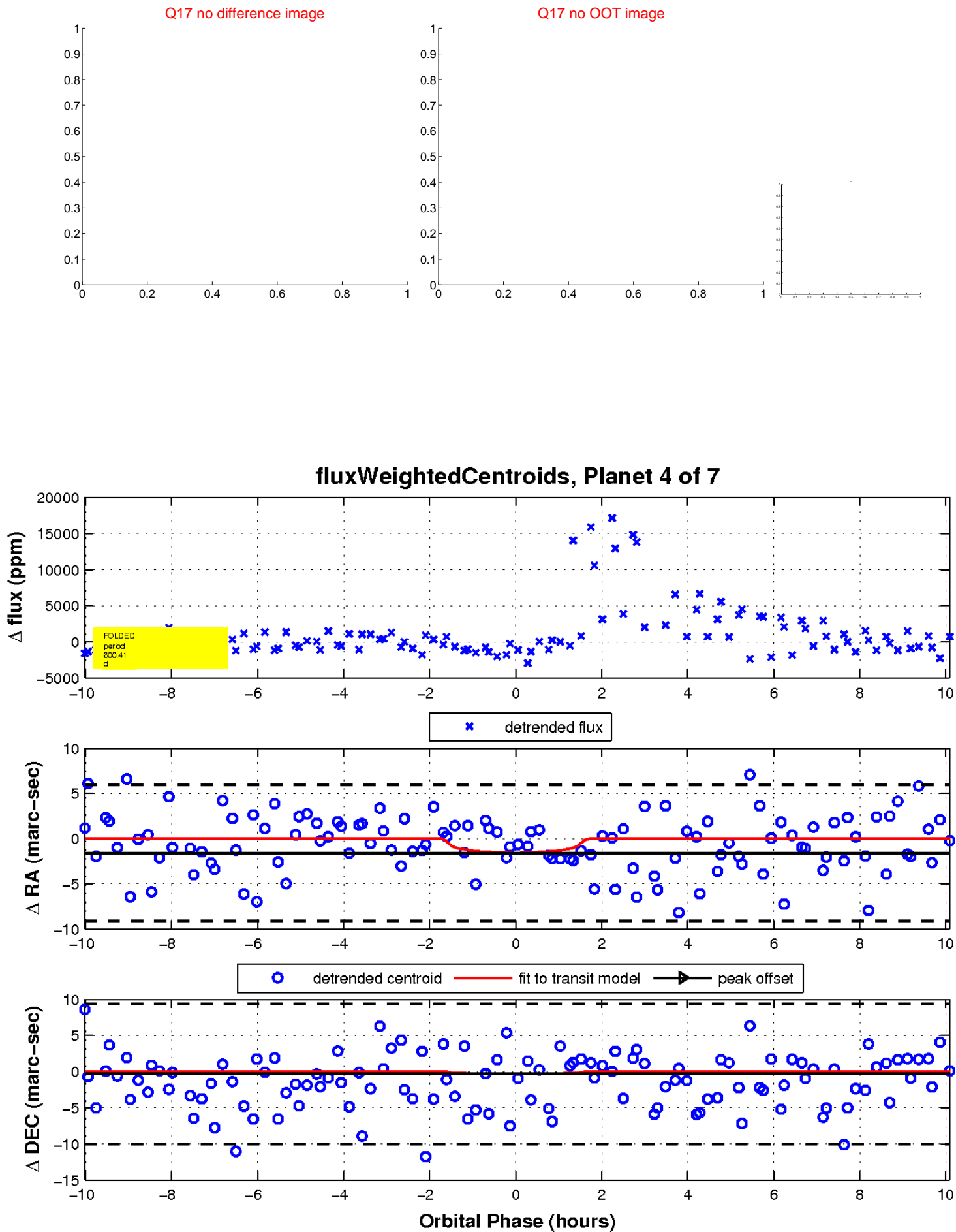
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



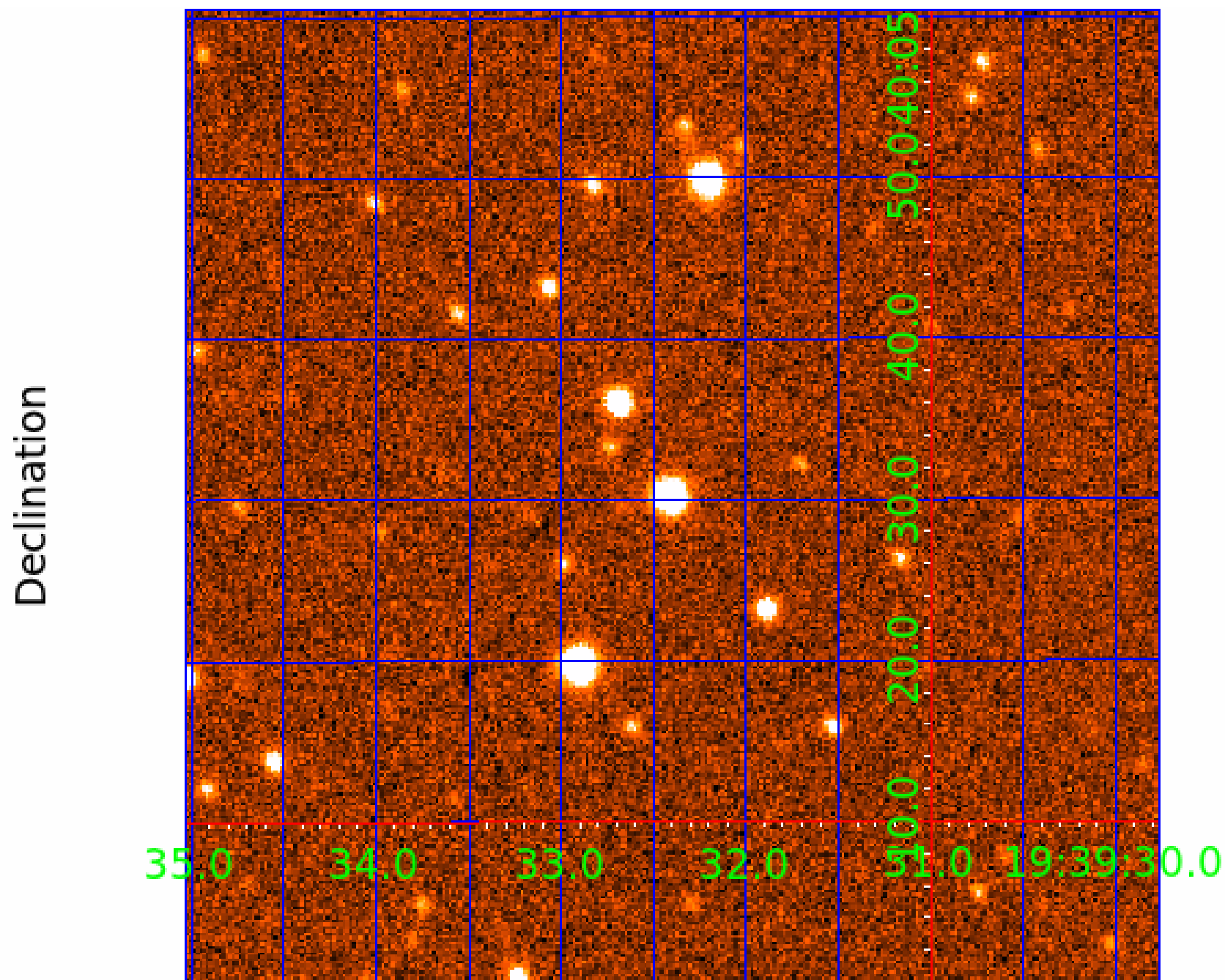
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



UKIRT Image





# KIC 004935249

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004935249-01	OBS	No	374.306579	450.739055	3168.2	8.245	14.0	7.4	15.42	4653	83.03	58.73
004935249-02	OBS	No	267.655297	196.336727	6522.4	17.395	16.3	11.6	15.42	4653	119.15	91.85
004935249-03	OBS	No	420.122460	329.462097	2623.6	2.498	12.3	6.2	15.42	4653	84.19	50.35
004935249-04	OBS	No	600.412953	302.722274	3839.4	3.376	14.7	7.6	15.42	4653	94.99	31.28
004935249-06	OBS	No	436.197991	315.013324	5059.3	9.618	14.1	9.0	15.42	4653	115.21	47.89

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004935249-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-02	OBS	FP	0.00	1	0	0	0	LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004935249-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
004935249-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
004935249-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—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.

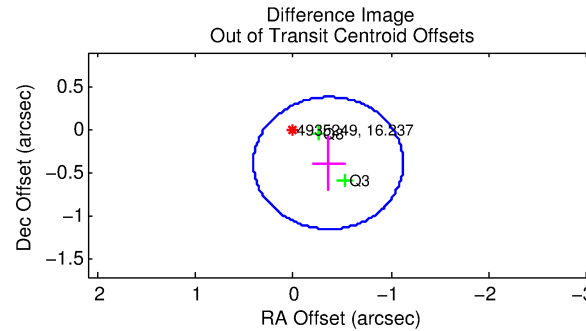
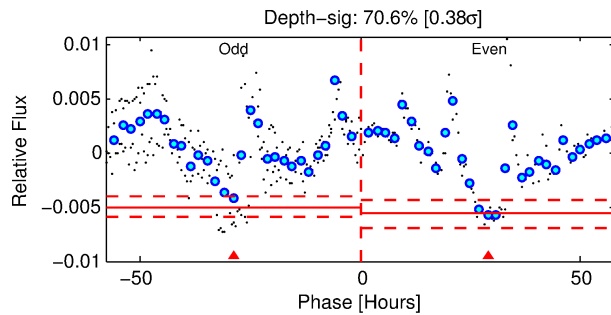
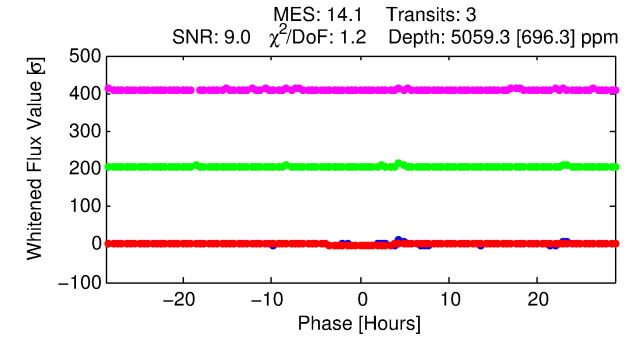
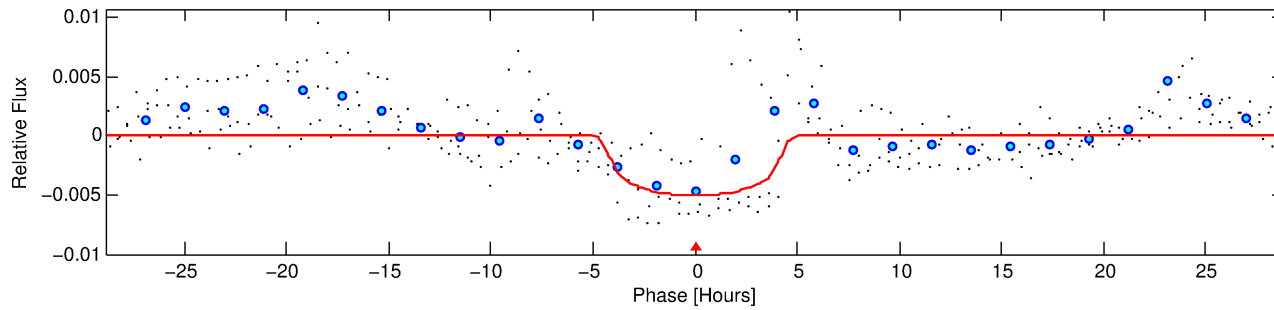
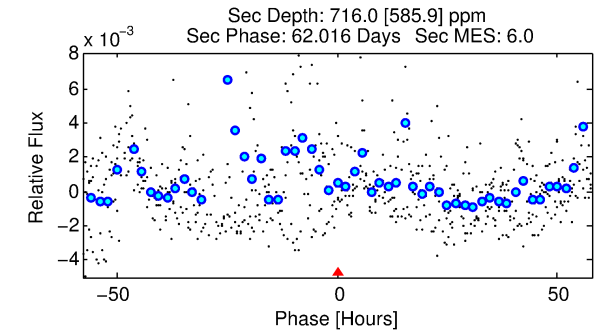
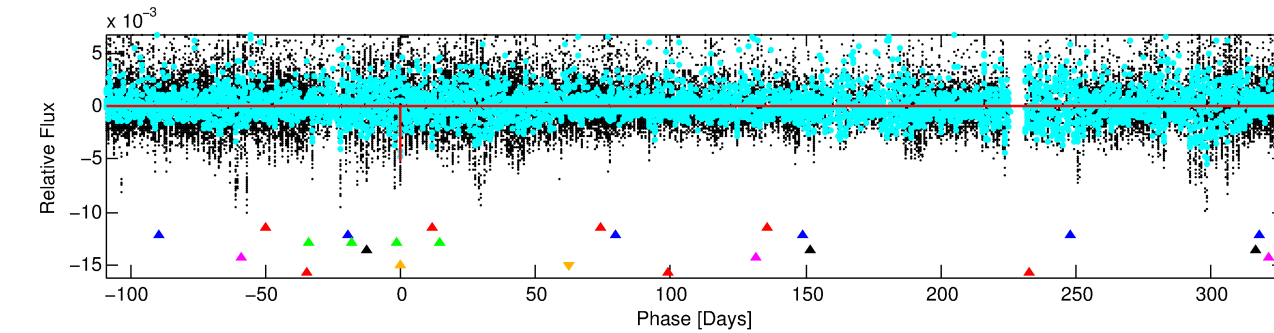
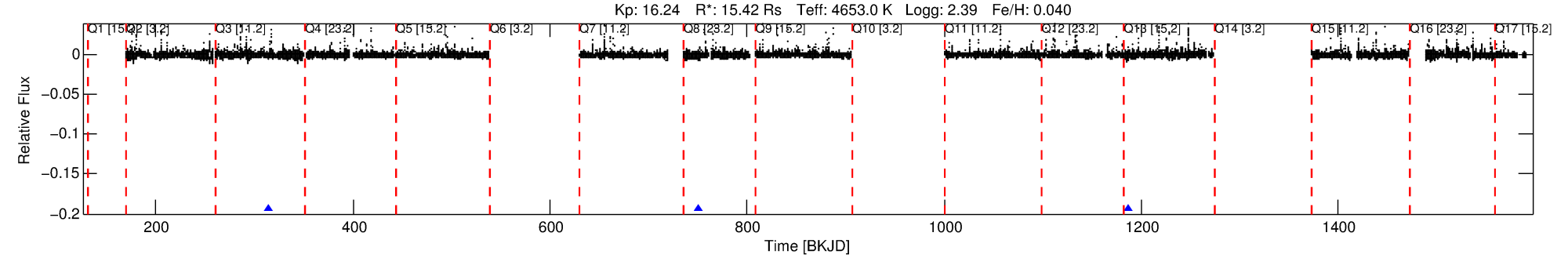
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 004935249-06

No Significant Match Found

# DV One-Page Summary

KIC: 4935249 Candidate: 6 of 7 Period: 436.198 d



## DV Fit Results:

Period = 436.19799 [0.00726] d  
Epoch = 315.0133 [0.0092] BKJD  
Rp/R\* = 0.0685 [0.0098]  
a/R\* = 290.89 [101.83]  
b = 0.66 [0.30]  
Seff = 47.89 [32.91]  
Teq = 671 [115] K  
Rp = 115.21 [59.99] Re  
a = 1.4437 [0.6435] AU  
Ag = 61.86 [68.11] [0.89σ]  
Teff = 2909 [635] K [3.47σ]

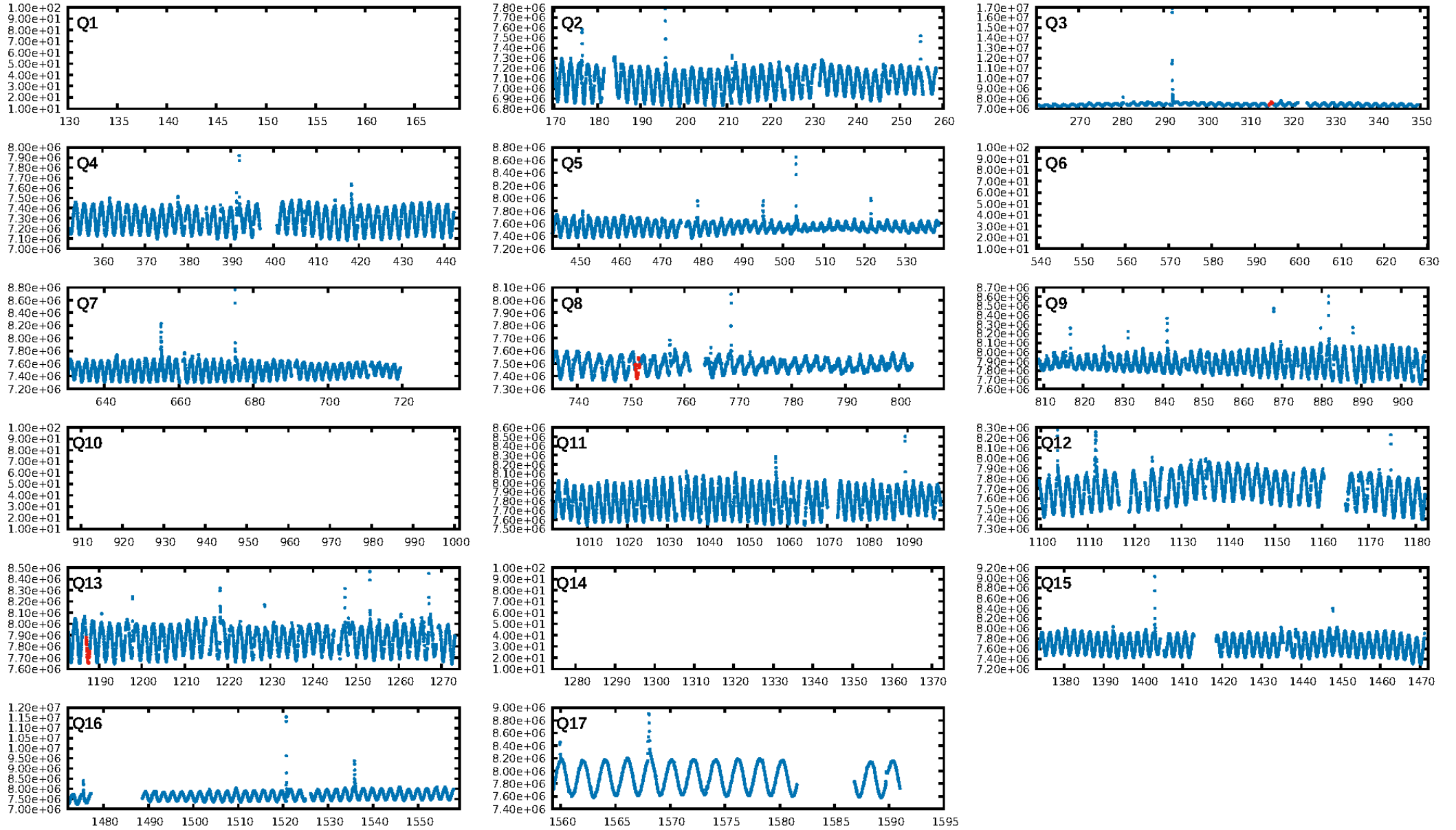
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.82σ]  
LongPeriod-sig: 100.0% [295.95σ]  
ModelChiSquare2-sig: 77.1%  
ModelChiSquareGof-sig: 99.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.082  
Centroid-sig: 16.6%  
Centroid-so: 0.713 arcsec [1.87σ]  
OotOffset-rm: 0.524 arcsec [2.05σ]  
KicOffset-rm: 0.180 arcsec [2.14σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [2/2]

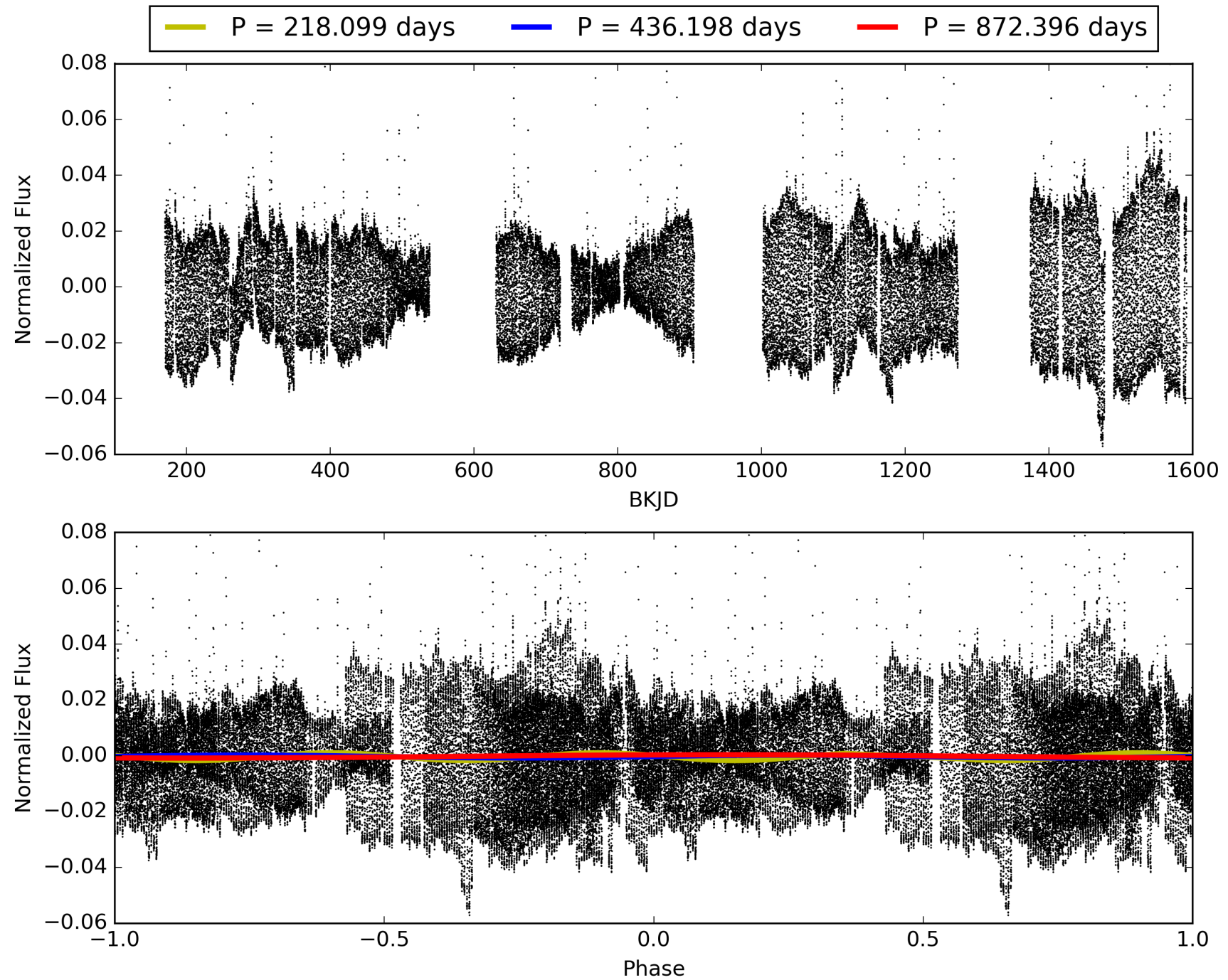
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:20:45 Z

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

# TCE 004935249-06, PDC Light Curves

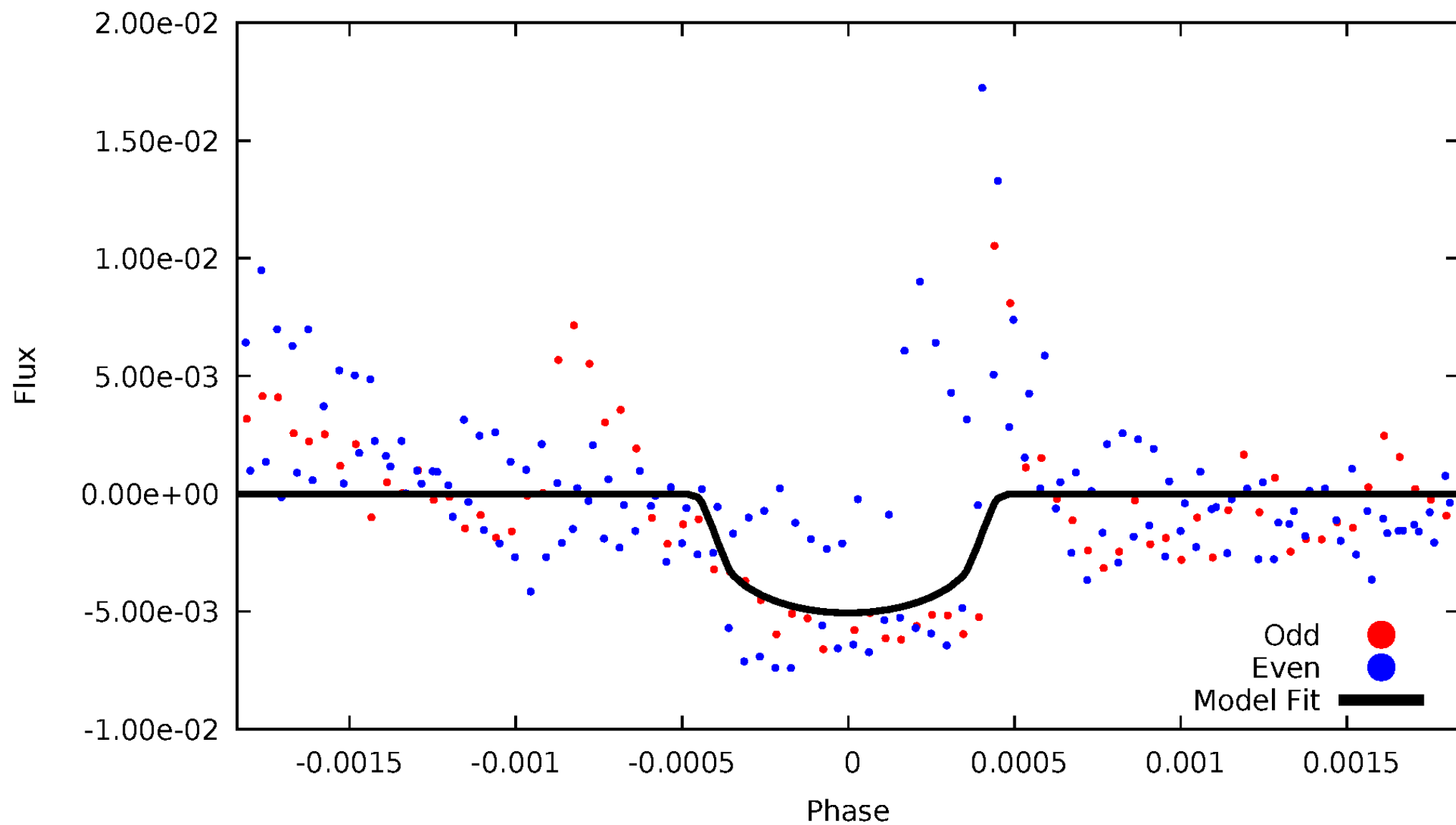


TCE 004935249-06



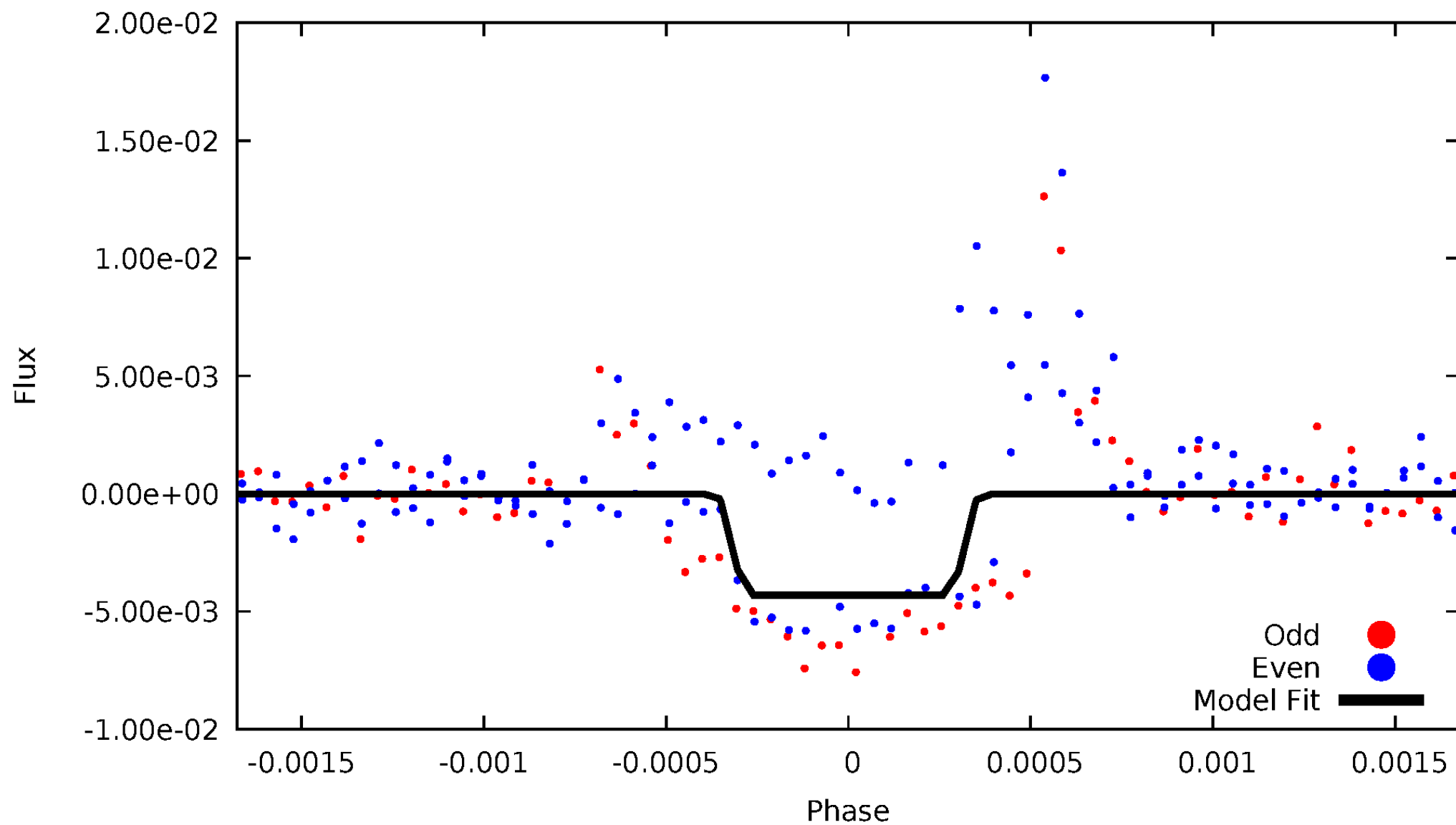
# DV Odd/Even

TCE 004935249-06



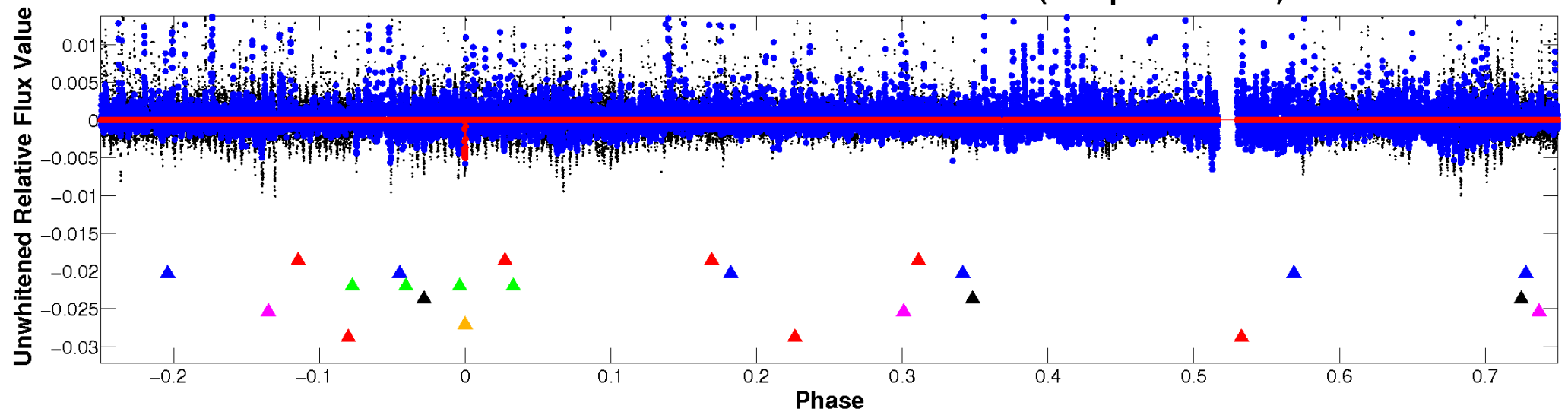
# ALT Odd/Even

TCE 004935249-06

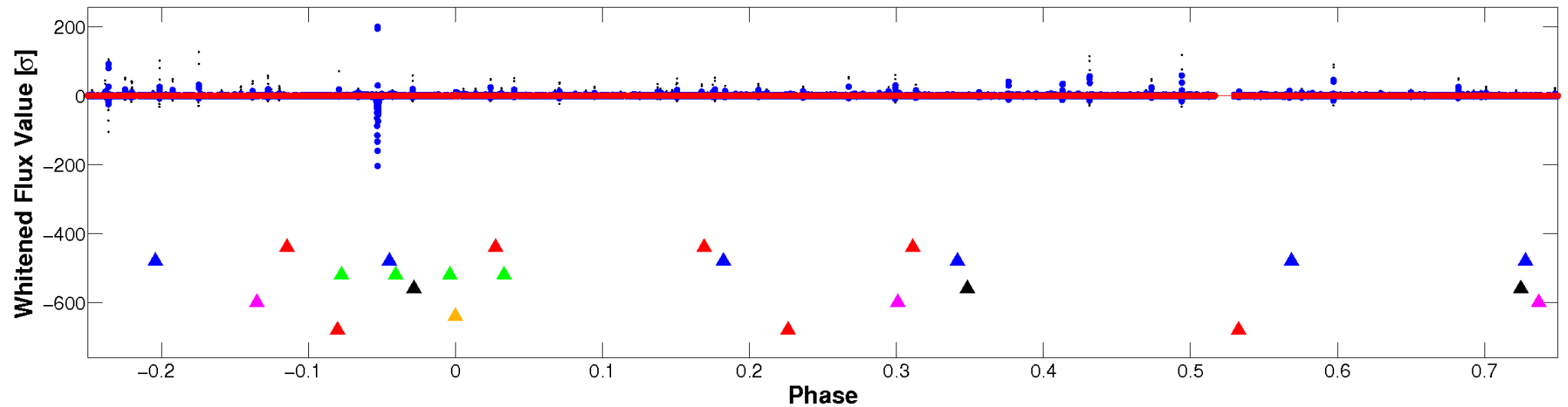


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

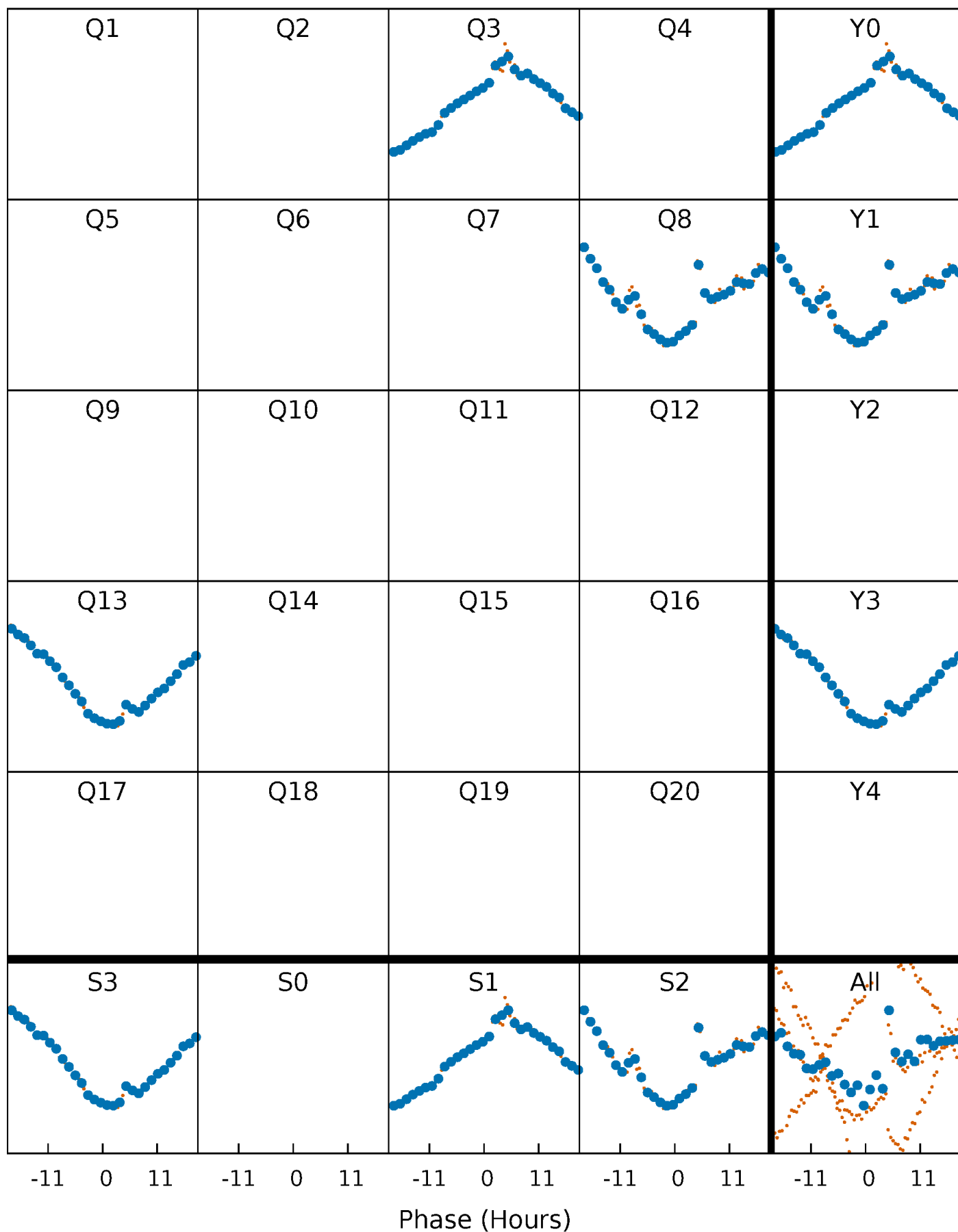


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

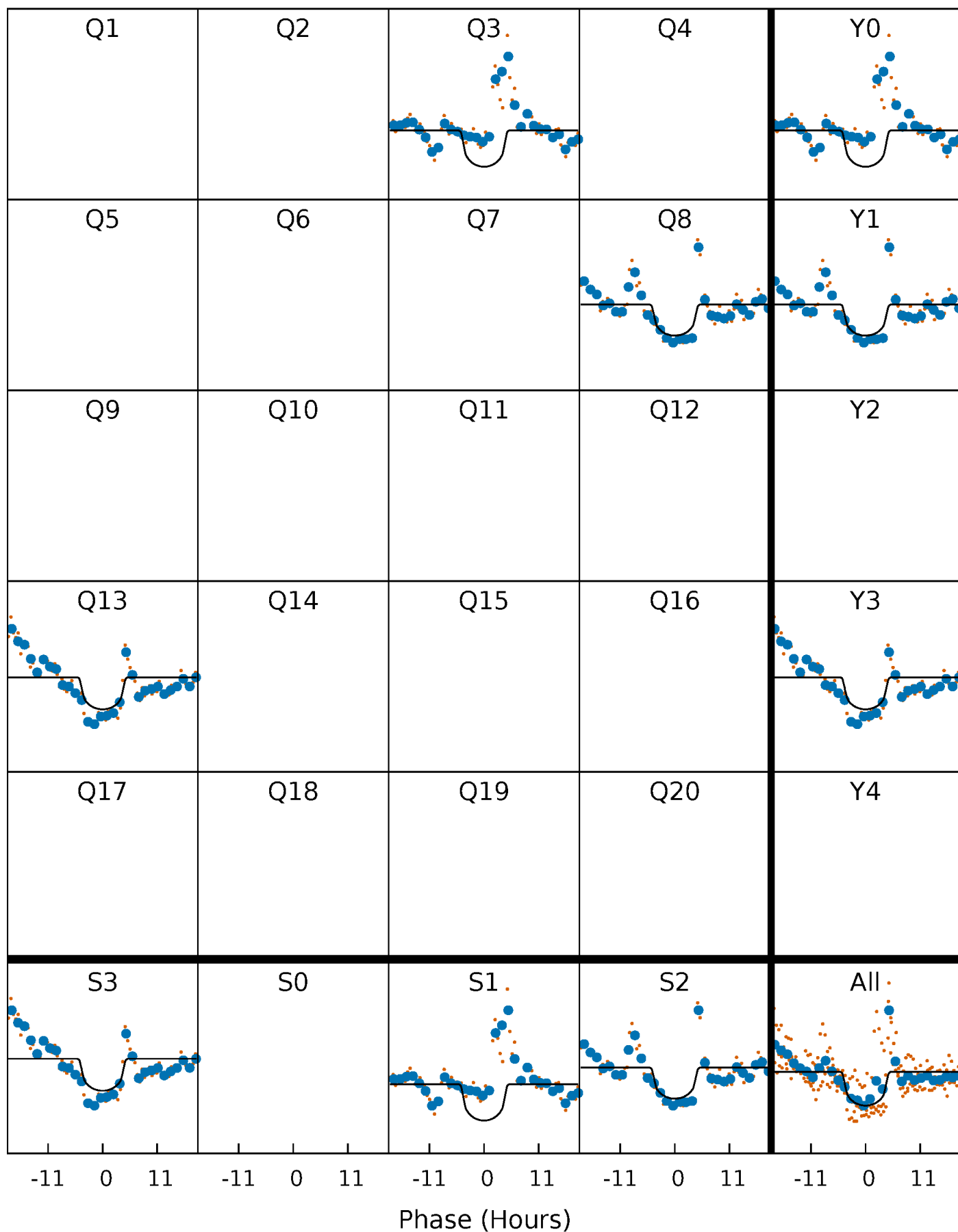
TCE 004935249-06     $P=436.197991$  Days     $T_0=315.013324$  (BKJD)





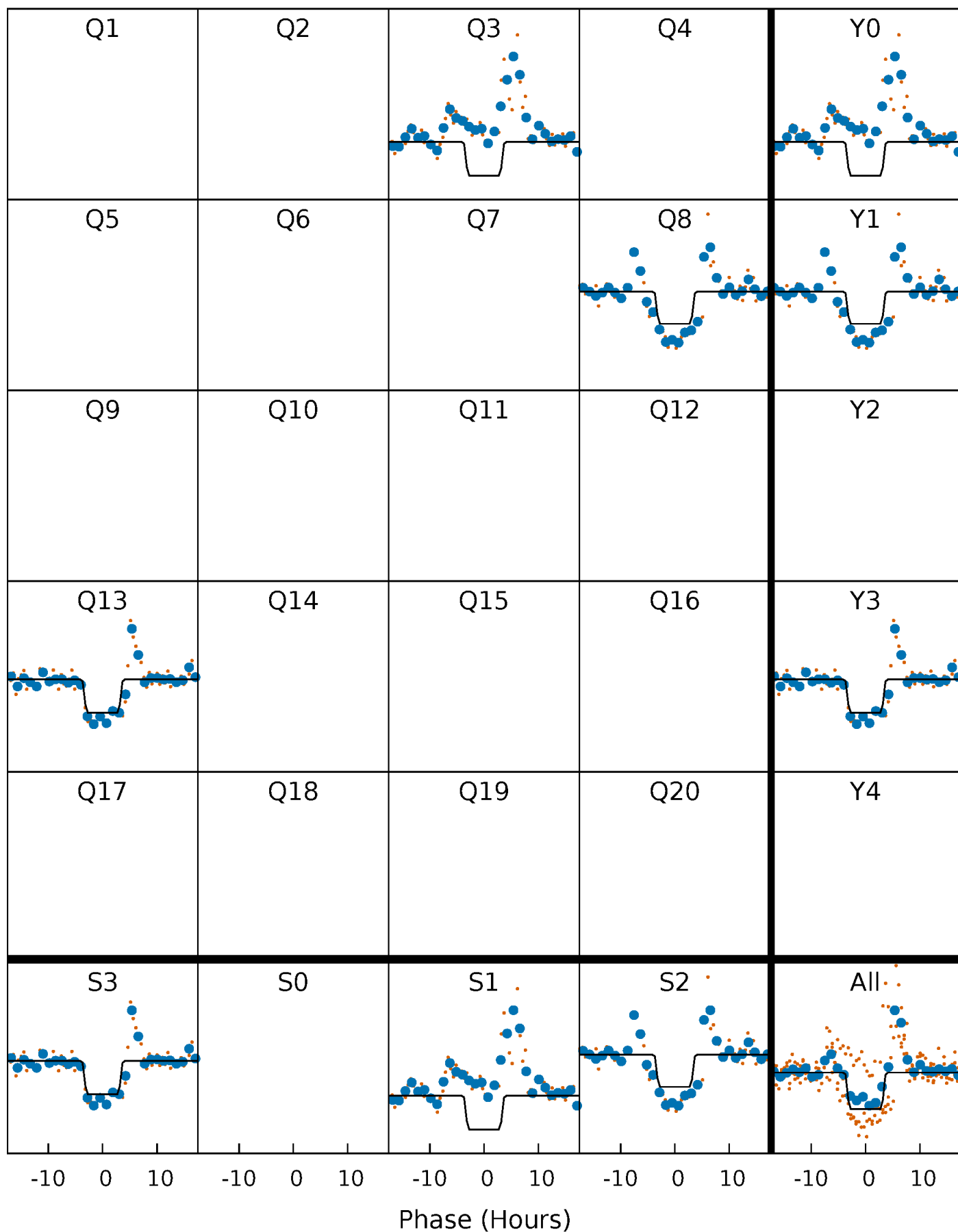
# DV Quarter-Phased Transit Curves

TCE 004935249-06 P=436.197991 Days  $T_0=315.013324$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

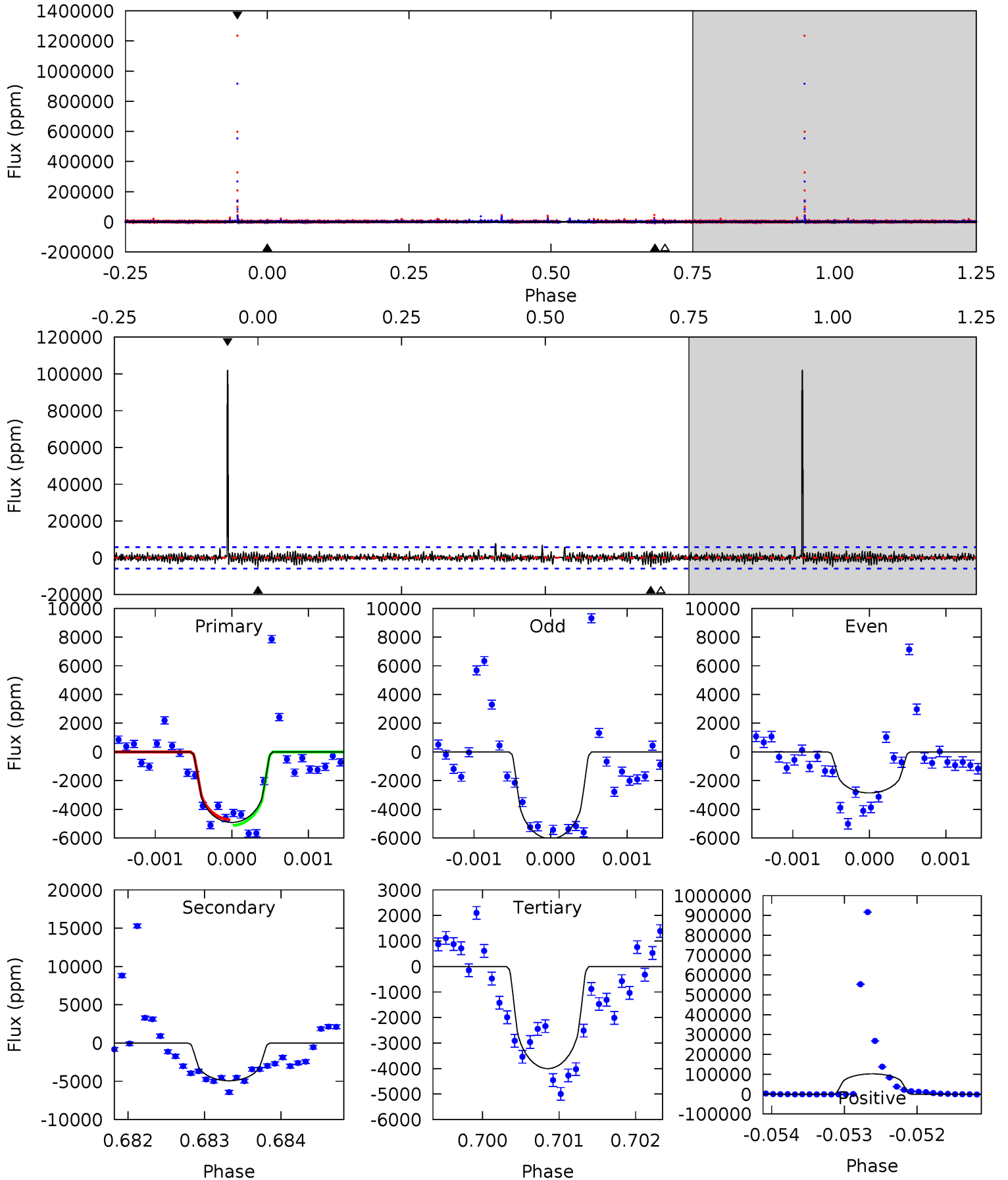
TCE 004935249-06     $P=436.215639$  Days     $T_0=314.953666$  (BKJD)



# DV Model-Shift Uniqueness Test

004935249-06, P = 436.197991 Days, E = 315.013324 Days

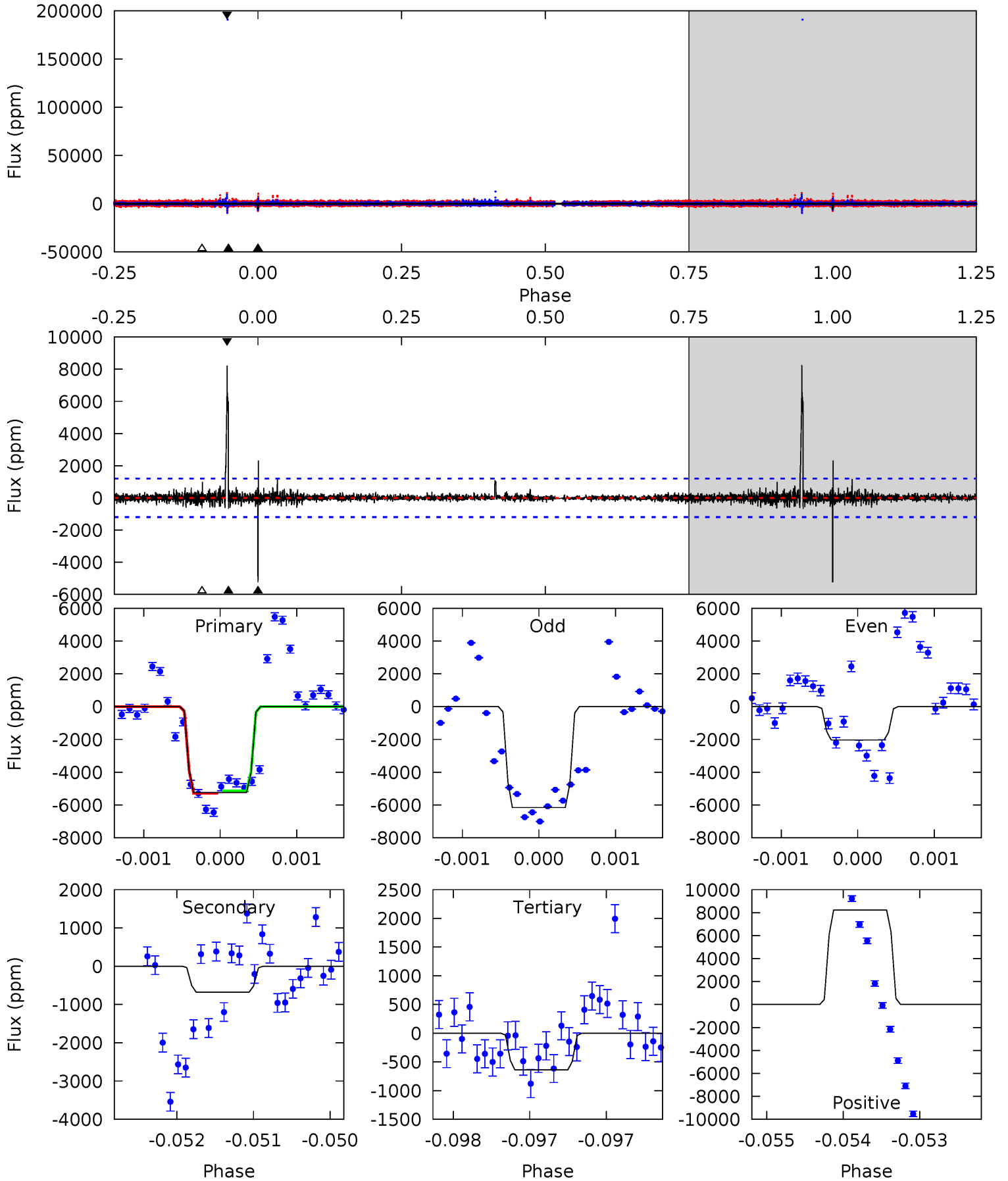
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.61	4.62	3.76	95.9	5.47	3.32	2.72	0.86	-91.3	0.87	-91.3	1.83	0.62	0.95	0.20



# Alt Model-Shift Uniqueness Test

004935249-06, P = 436.215639 Days, E = 314.953666 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.1	3.10	2.93	37.7	5.50	3.37	0.88	21.1	-13.7	0.17	-34.6	11.2	0.62	0.61	0.35



### Stellar Parameters For KIC 004935249

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4653^{+111}_{-125}$	$2.386^{+0.385}_{-0.165}$	$0.040^{+0.200}_{-0.300}$	$15.417^{+3.307}_{-7.717}$	$2.108^{+0.986}_{-0.888}$	$0.001^{+0.003}_{-0.000}$
	+2%/-3%	+16%/-7%	+500%/-750%	+21%/-50%	+47%/-42%	+378%/-41%
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 004935249-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	-4923 $\pm$ 1065	$114.96^{+28.38}_{-30.28}$	$922^{+70}_{-96}$	$4694^{+376}_{-343}$	$463^{+334}_{-176}$
Alt.	-676 $\pm$ 218	$108.63^{+29.69}_{-30.55}$	$921^{+69}_{-100}$	$3343^{+255}_{-219}$	$70^{+60}_{-31}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming A=0.3)  
 $A_{\text{obs}}$  = 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

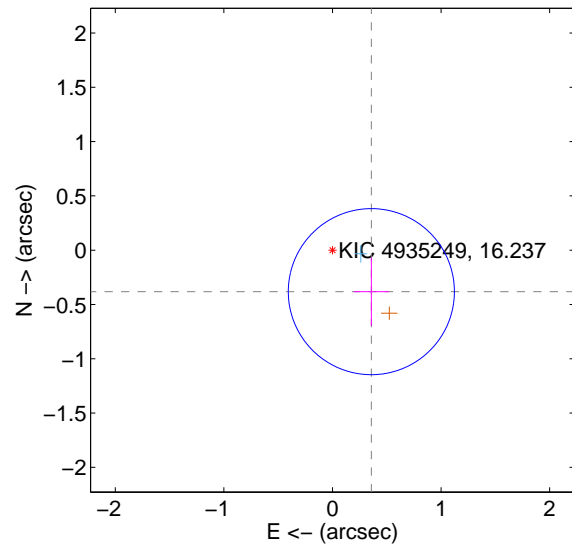
Supplemental centroid analysis for 004935249-06. Kepler magnitude: 16.24. Transit SNR 9.04

There are 1 quarters with good PRF difference image offsets

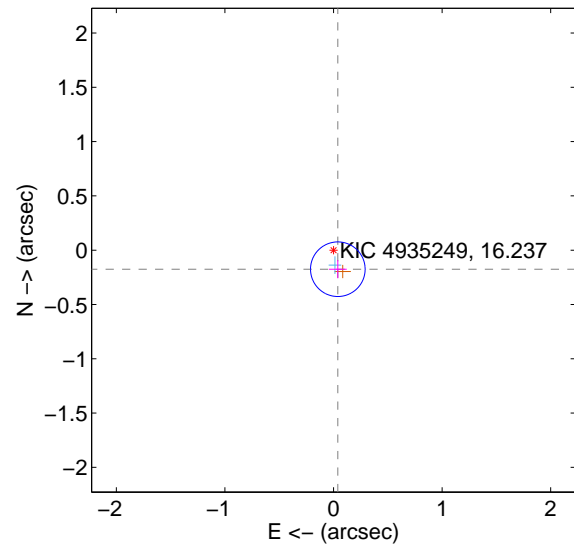
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.524 \pm 0.255$	2.05	$-0.358 \pm 0.162$	$-0.382 \pm 0.315$
PRF-fit source offset from KIC position	$0.180 \pm 0.084$	2.14	$-0.040 \pm 0.082$	$-0.175 \pm 0.084$
photometric centroid source offset	$0.71 \pm 0.38$	1.87	$0.66 \pm 0.37$	$-0.26 \pm 0.42$

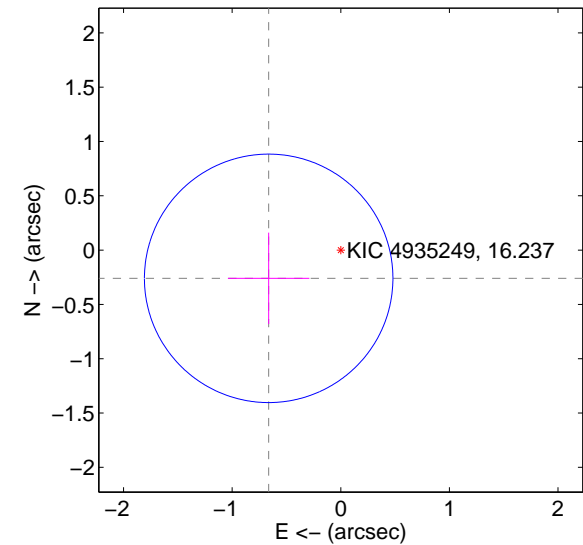
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

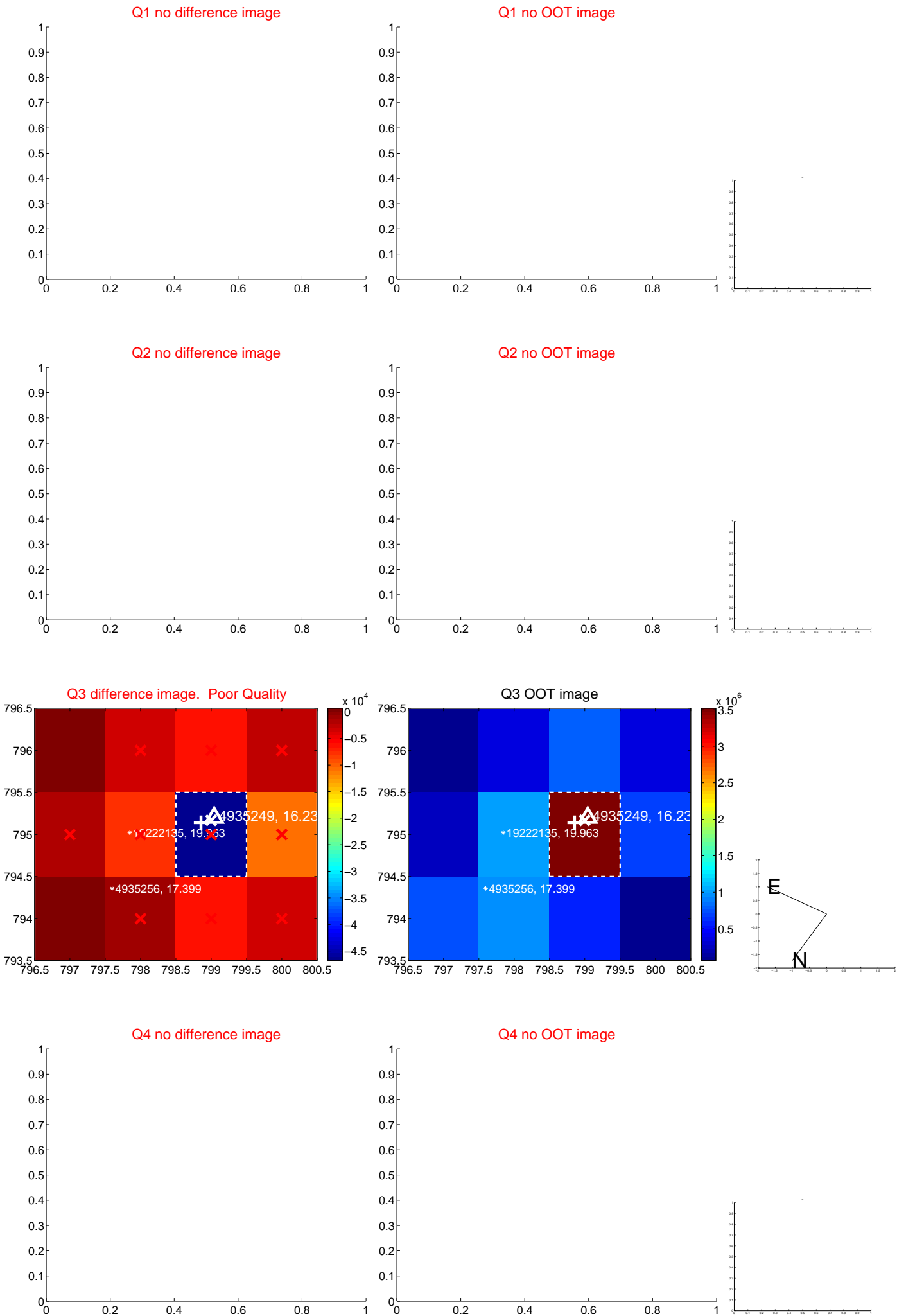


offset from photometric centroids

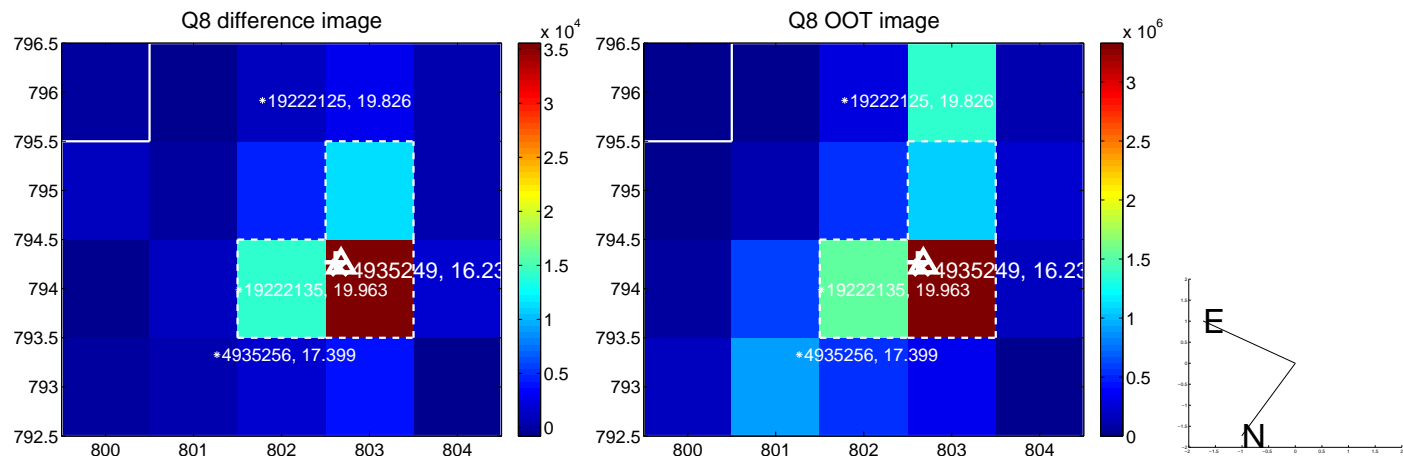
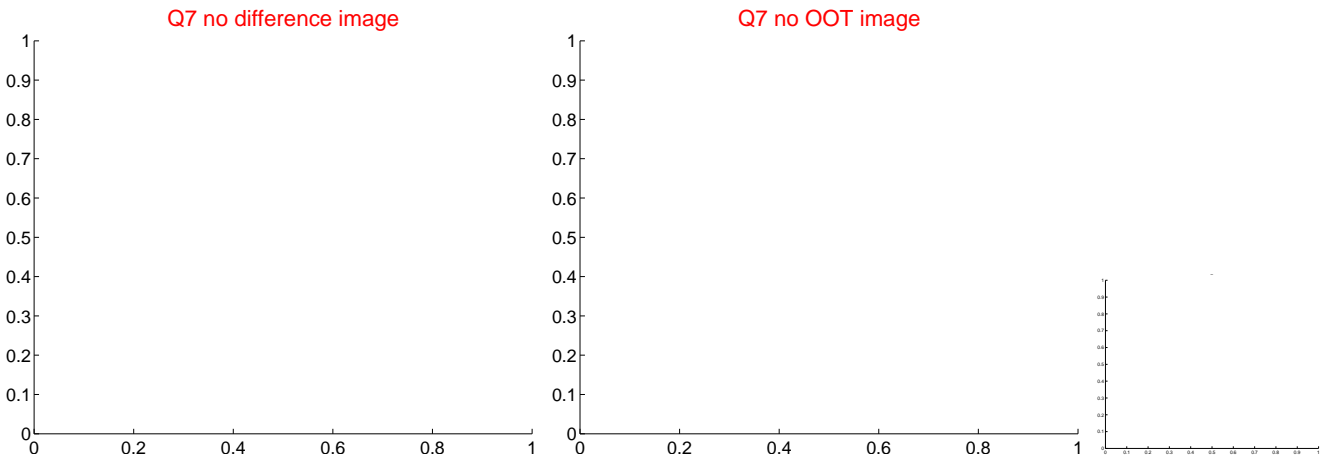
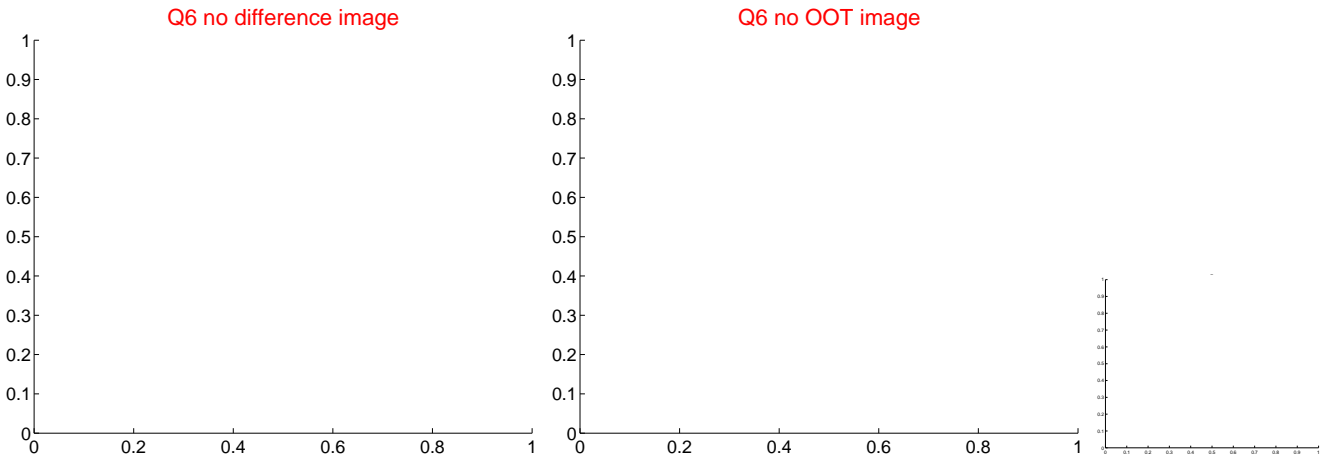
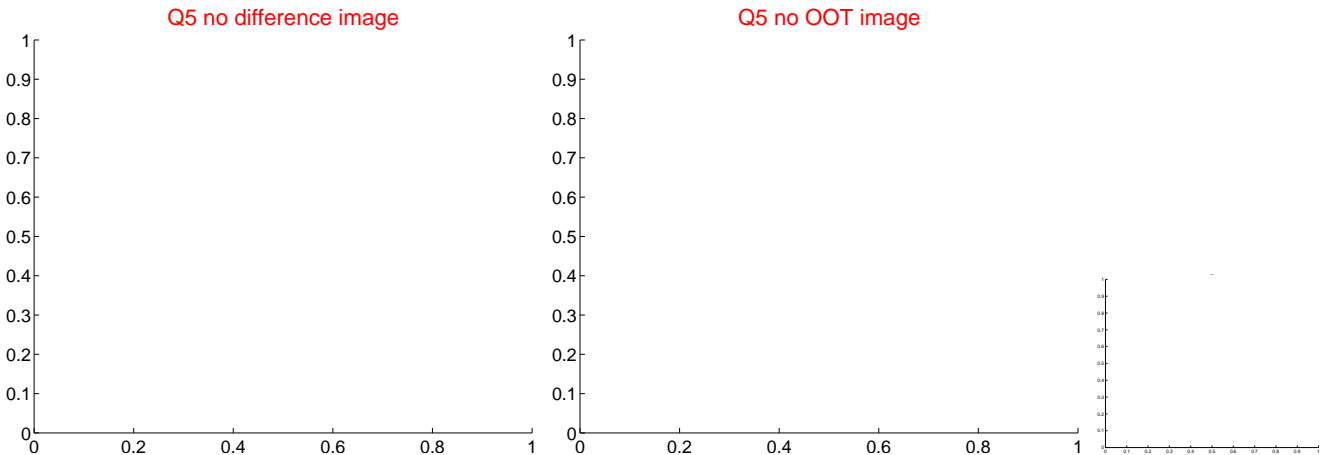


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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





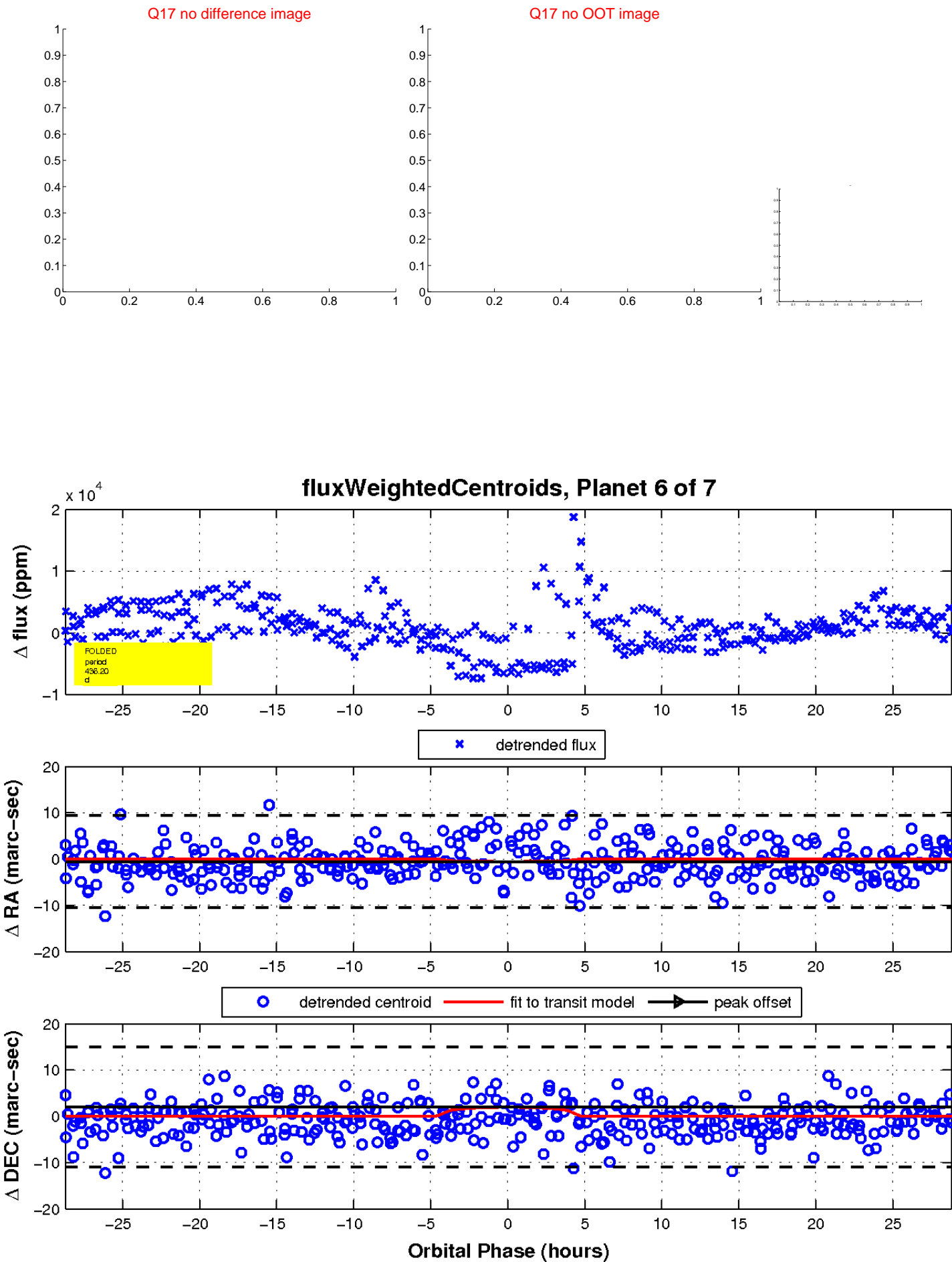
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

