

# KIC 010287242

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010287242-01	OBS	0735.01	22.342264	149.213609	2166.7	6.513	43.8	41.1	0.71	5237	4.49	18.17
010287242-02	OBS	No	523.772373	464.184812	2159.0	14.258	13.8	10.0	0.71	5237	3.23	0.27
010287242-03	OBS	No	442.665113	482.425319	1270.9	8.235	13.3	7.7	0.71	5237	2.55	0.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010287242-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010287242-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010287242-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

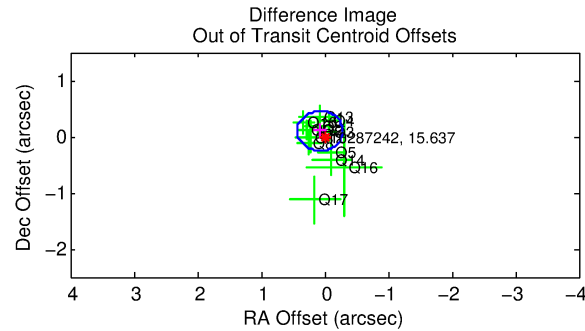
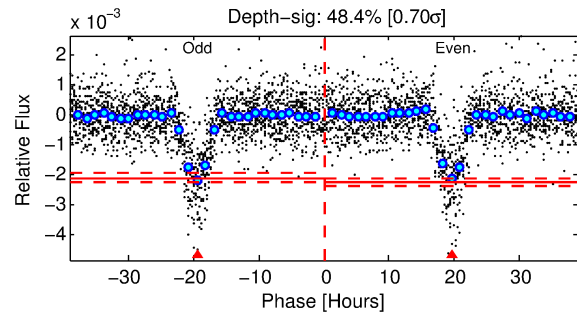
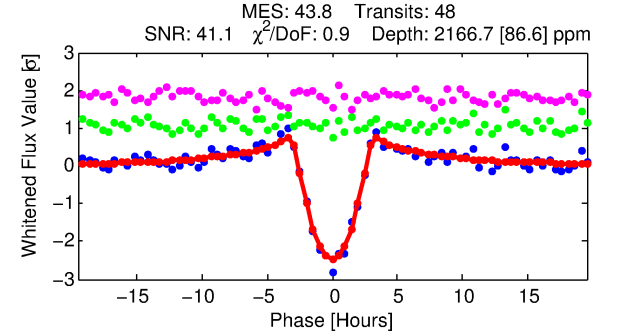
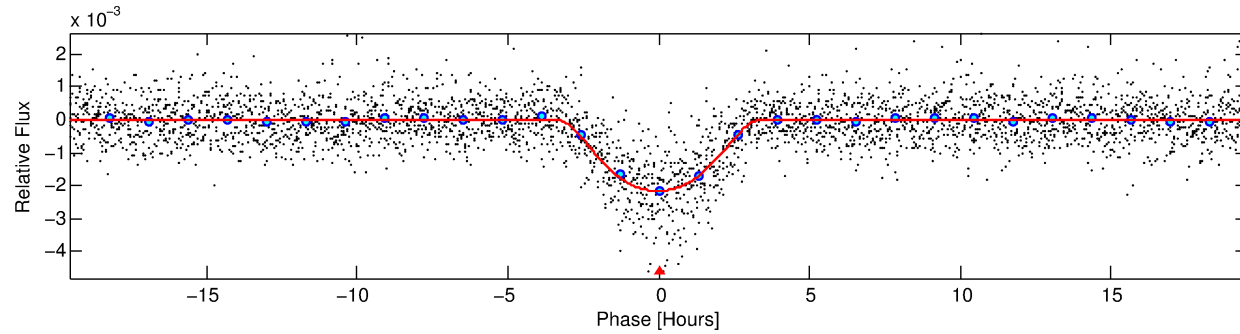
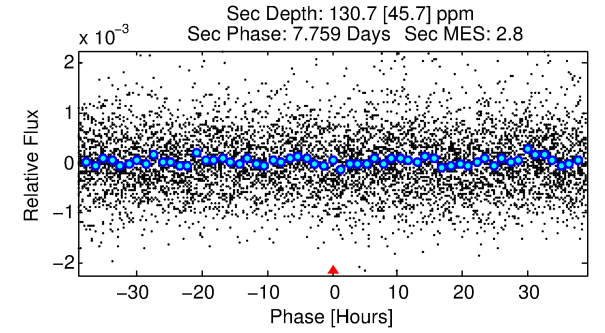
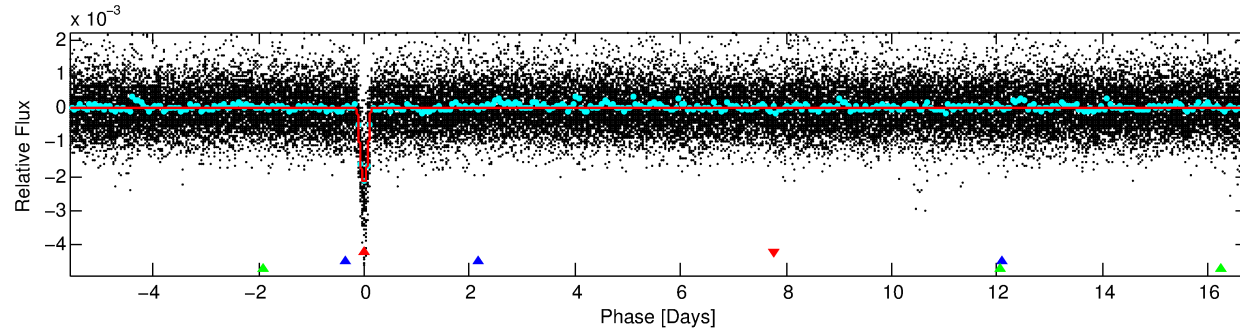
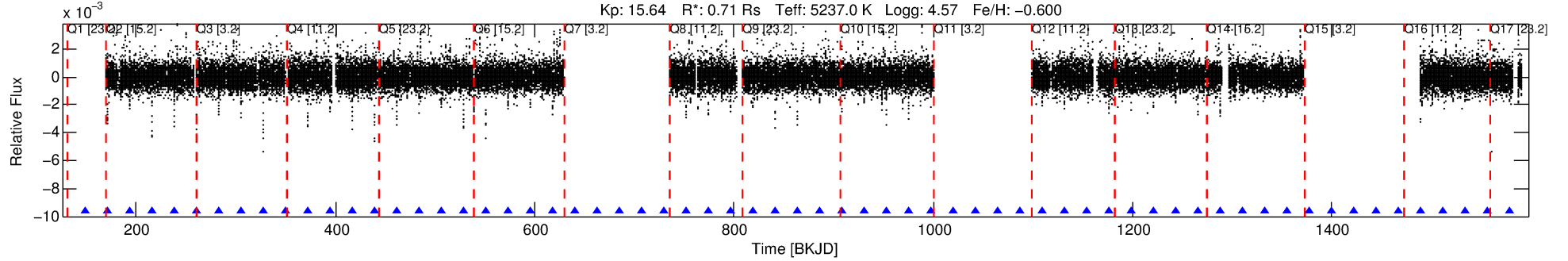
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010287242-01

No Significant Match Found

# DV One-Page Summary

KIC: 10287242 Candidate: 1 of 3 Period: 22.342 d  
KOI: K00735.01 Corr: 0.992



## DV Fit Results:

Period = 22.34226 [0.00008] d  
Epoch = 149.2136 [0.0029] BKJD  
Rp/R\* = 0.0582 [0.0066]  
a/R\* = 11.89 [0.76]  
b = 0.96 [0.02]  
Seff = 18.17 [3.44]  
Teff = 526 [25] K  
Rp = 4.49 [0.69] Re  
a = 0.1362 [0.0129] AU  
Ag = 66.00 [29.20] [2.23σ]  
Teffp = 2320 [252] K [7.09σ]

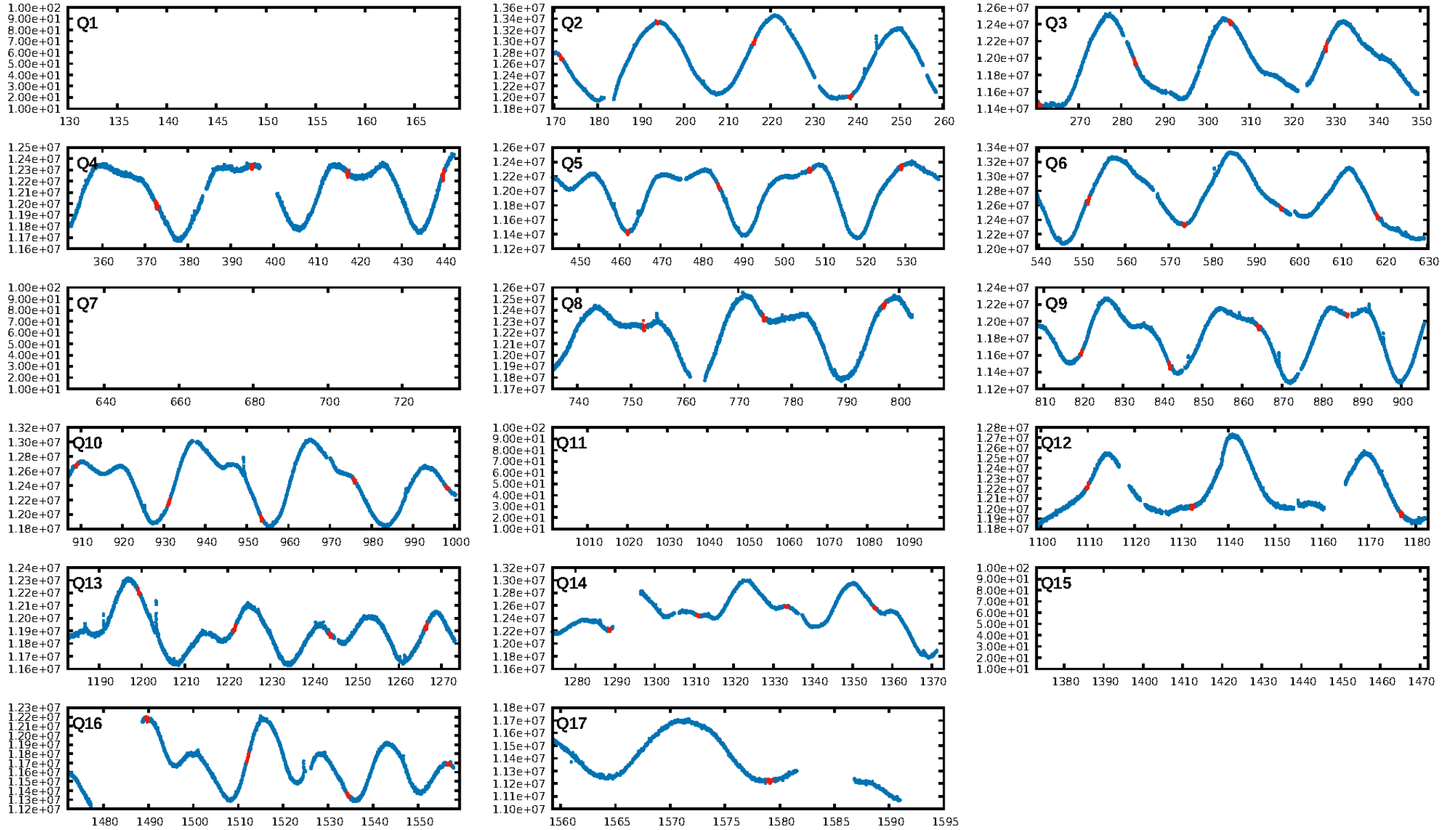
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [960.86σ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [47/47]  
GhostDiagnostic-chr: 1.588  
Centroid-sig: 28.4%  
Centroid-so: 0.402 arcsec [1.64σ]  
OotOffset-rm: 0.126 arcsec [1.06σ]  
KicOffset-rm: 0.300 arcsec [2.40σ]  
OotOffset-st: 4/1/4/4 [13]  
KicOffset-st: 4/1/4/4 [13]  
DiffImageQuality-fgm: 0.92 [12/13]  
DiffImageOverlap-fno: 1.00 [13/13]

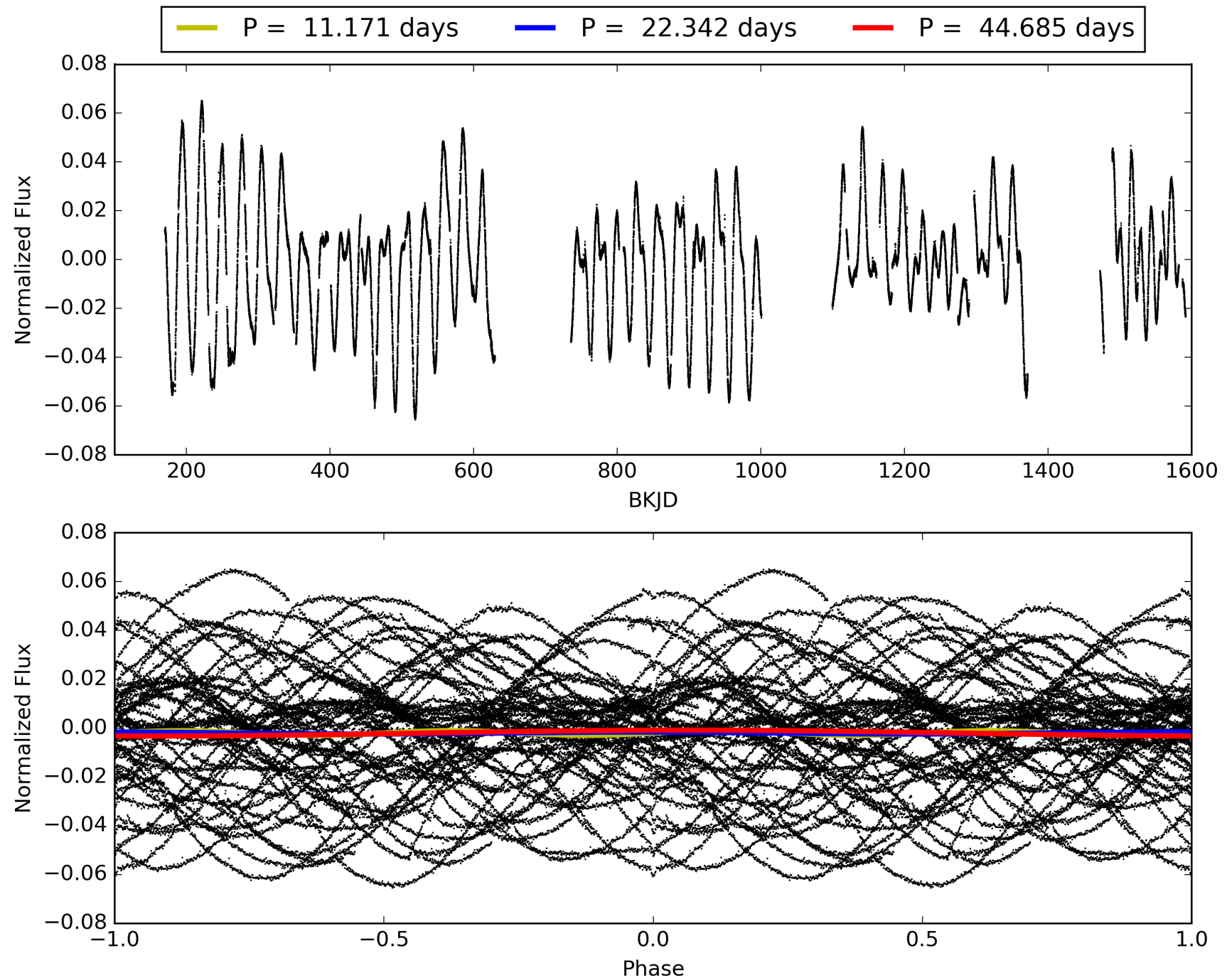
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:16:39 Z

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

# TCE 010287242-01, PDC Light Curves

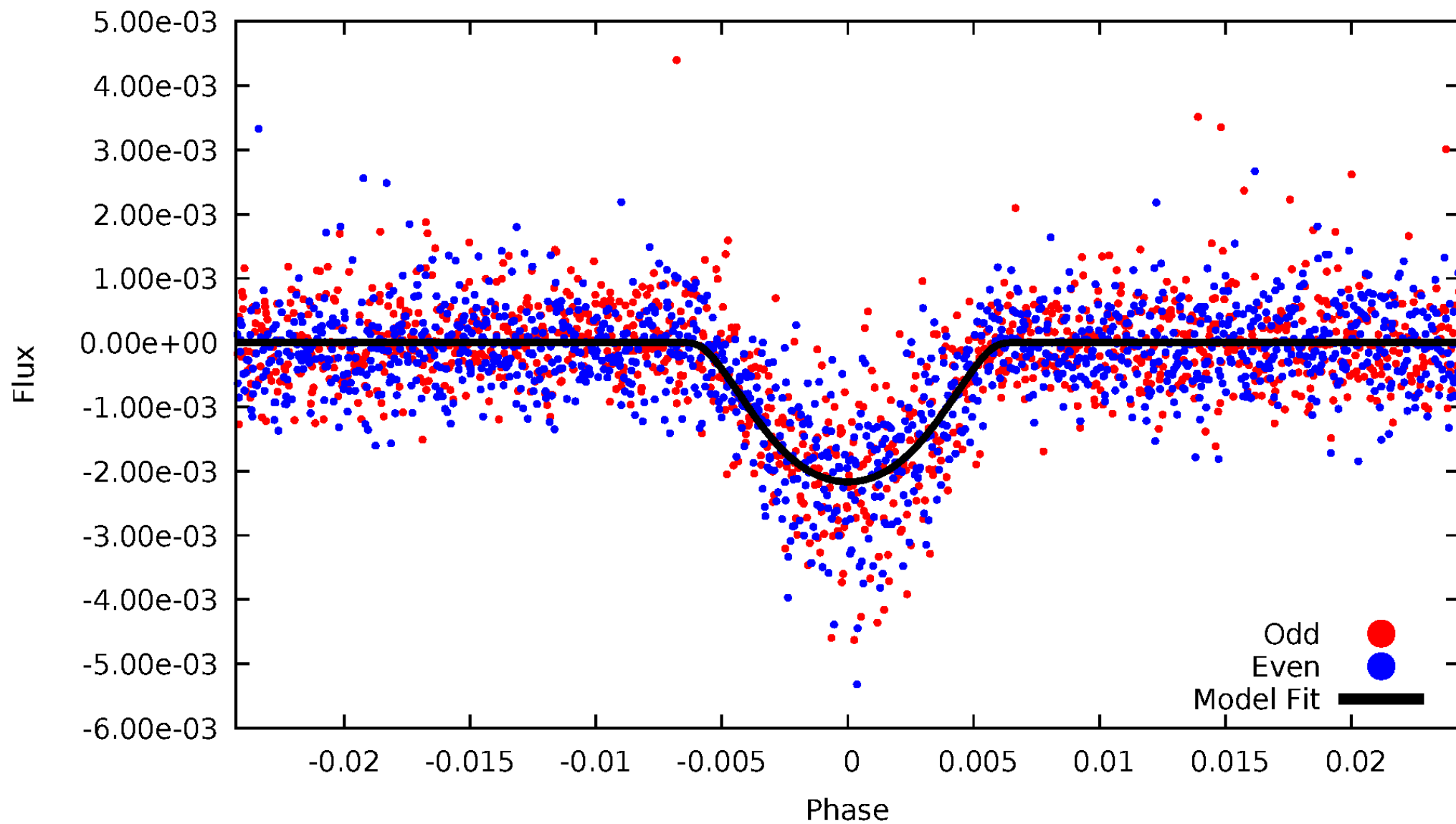


# TCE 010287242-01



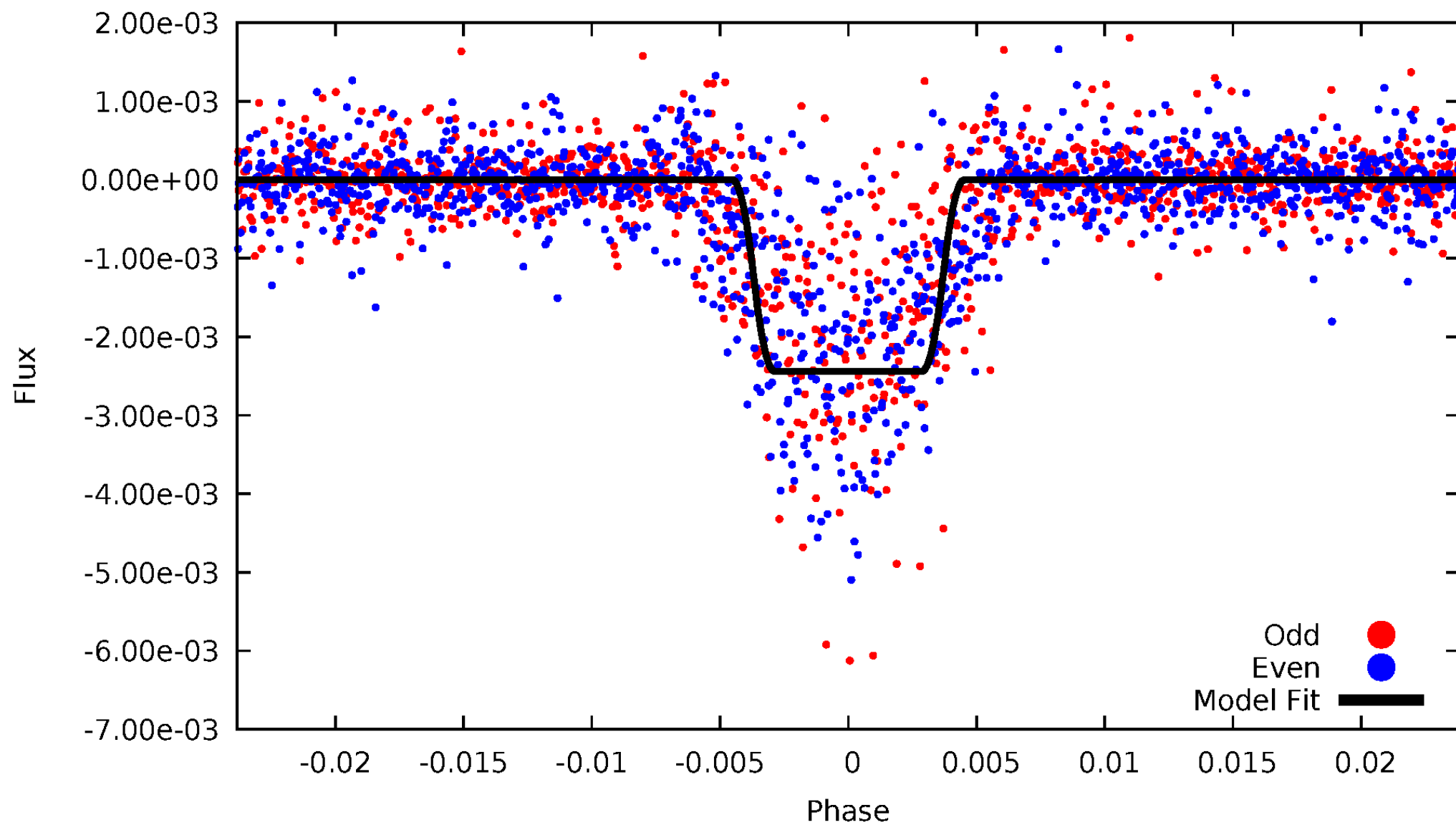
# DV Odd/Even

TCE 010287242-01



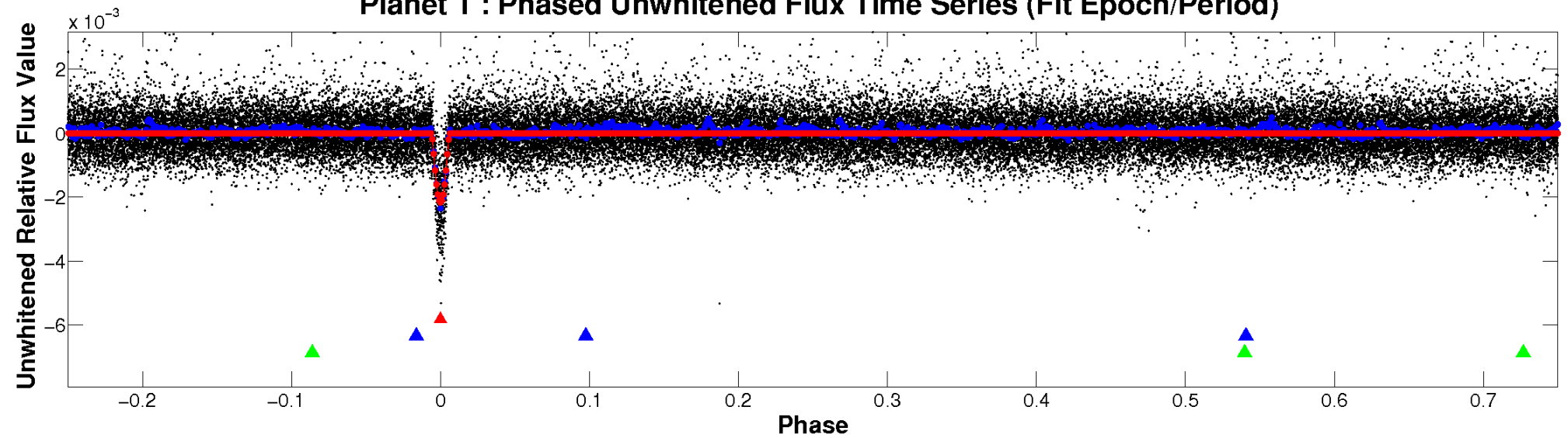
# ALT Odd/Even

TCE 010287242-01

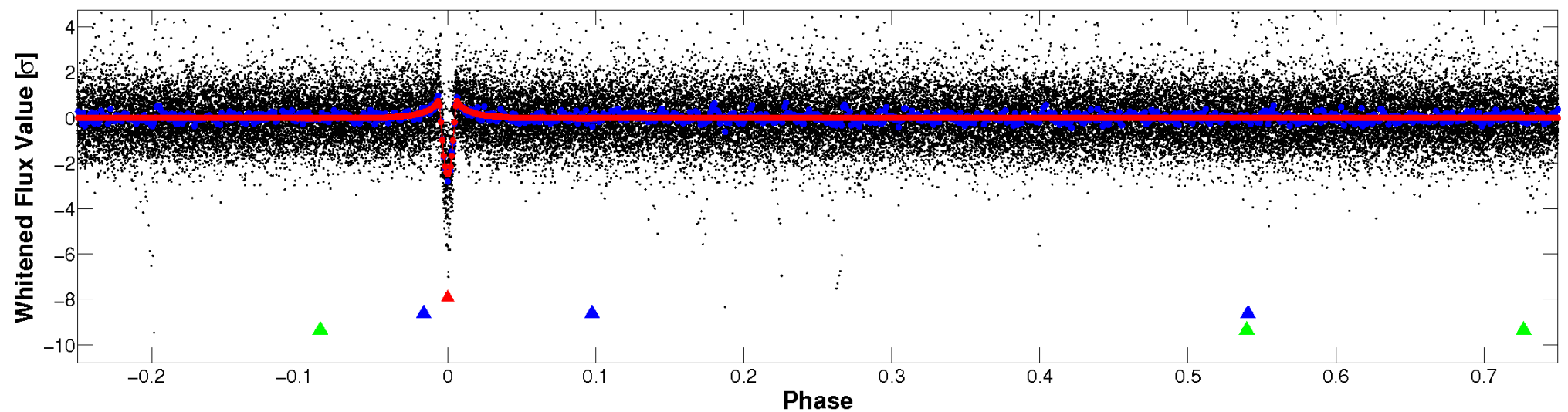


# Non-Whitened Vs. Whitened Light Curve

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



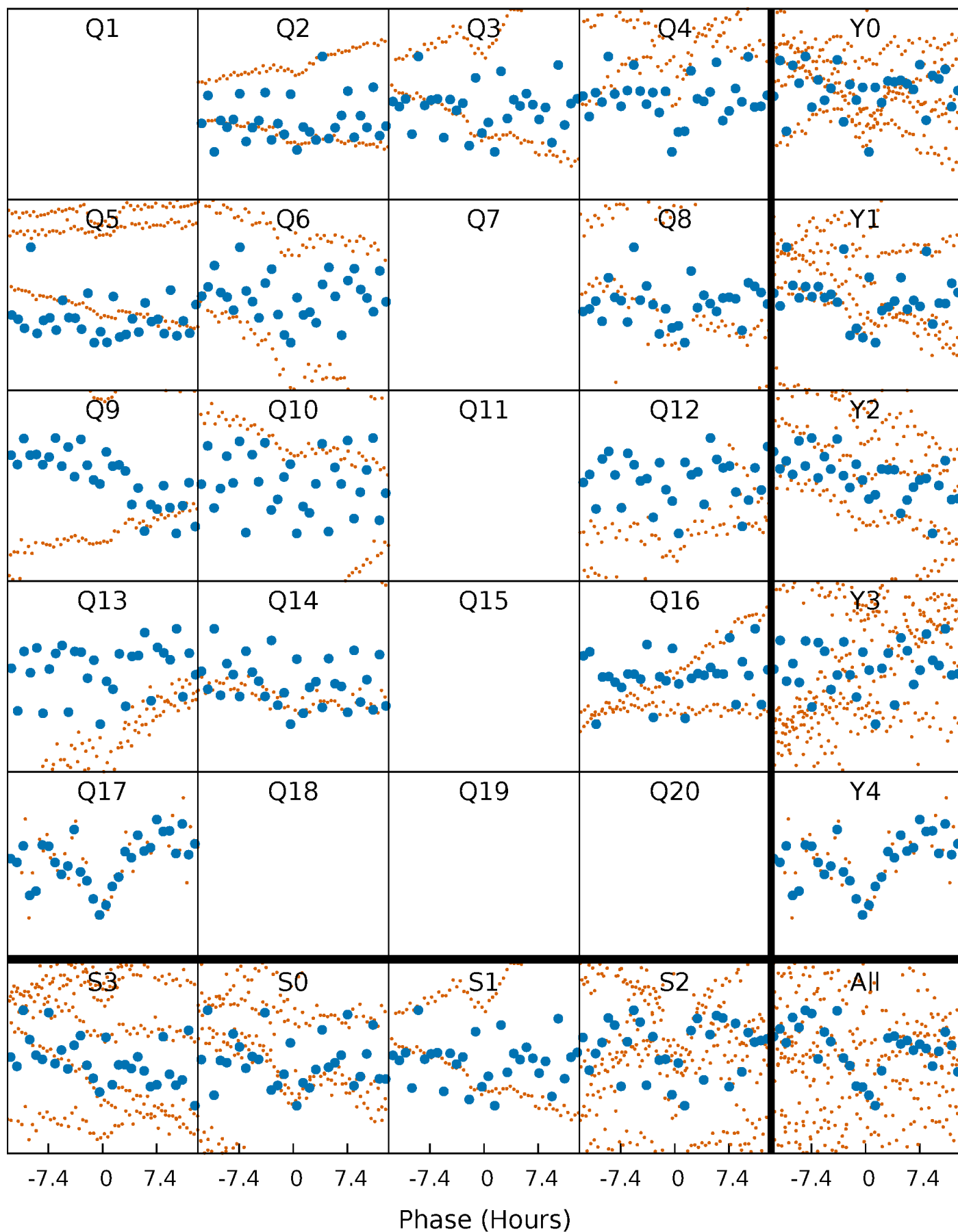
Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

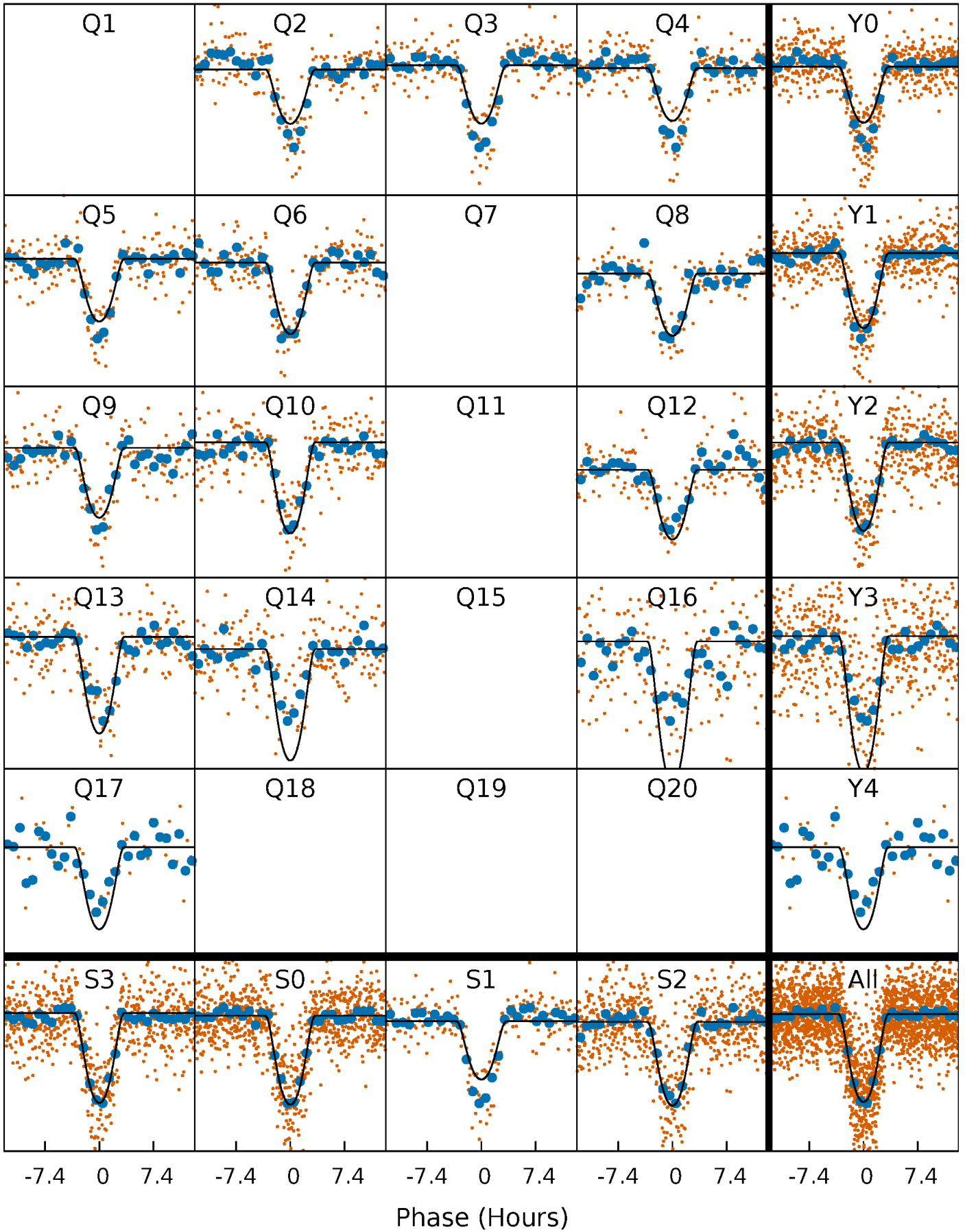
TCE 010287242-01 P= 22.342264 Days  $T_0=149.213609$  (BKJD)





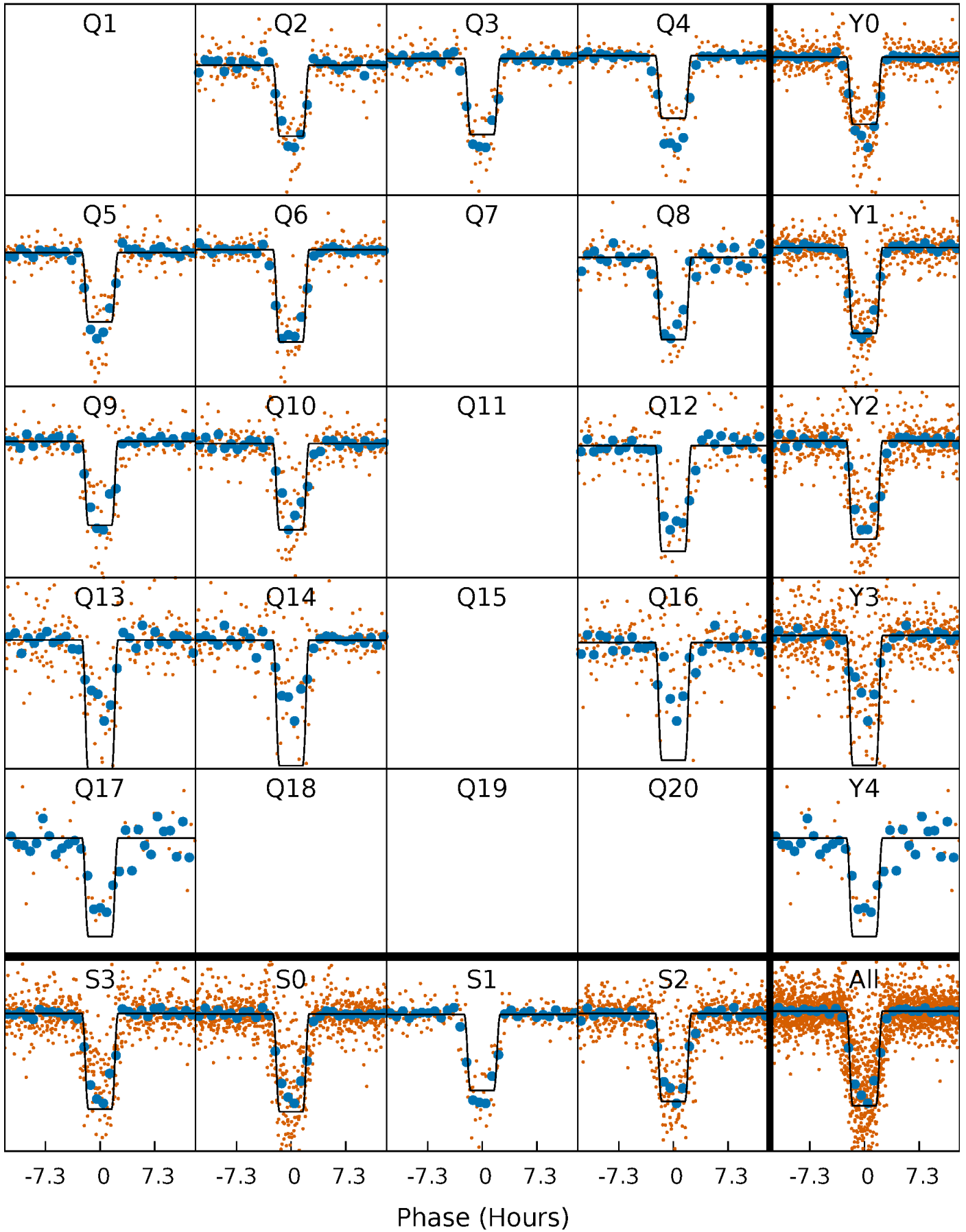
# DV Quarter-Phased Transit Curves

TCE 010287242-01 P= 22.342264 Days  $T_0=149.213609$  (BKJD)



## Alt. Detrend Quarter-Phased Transit Curves

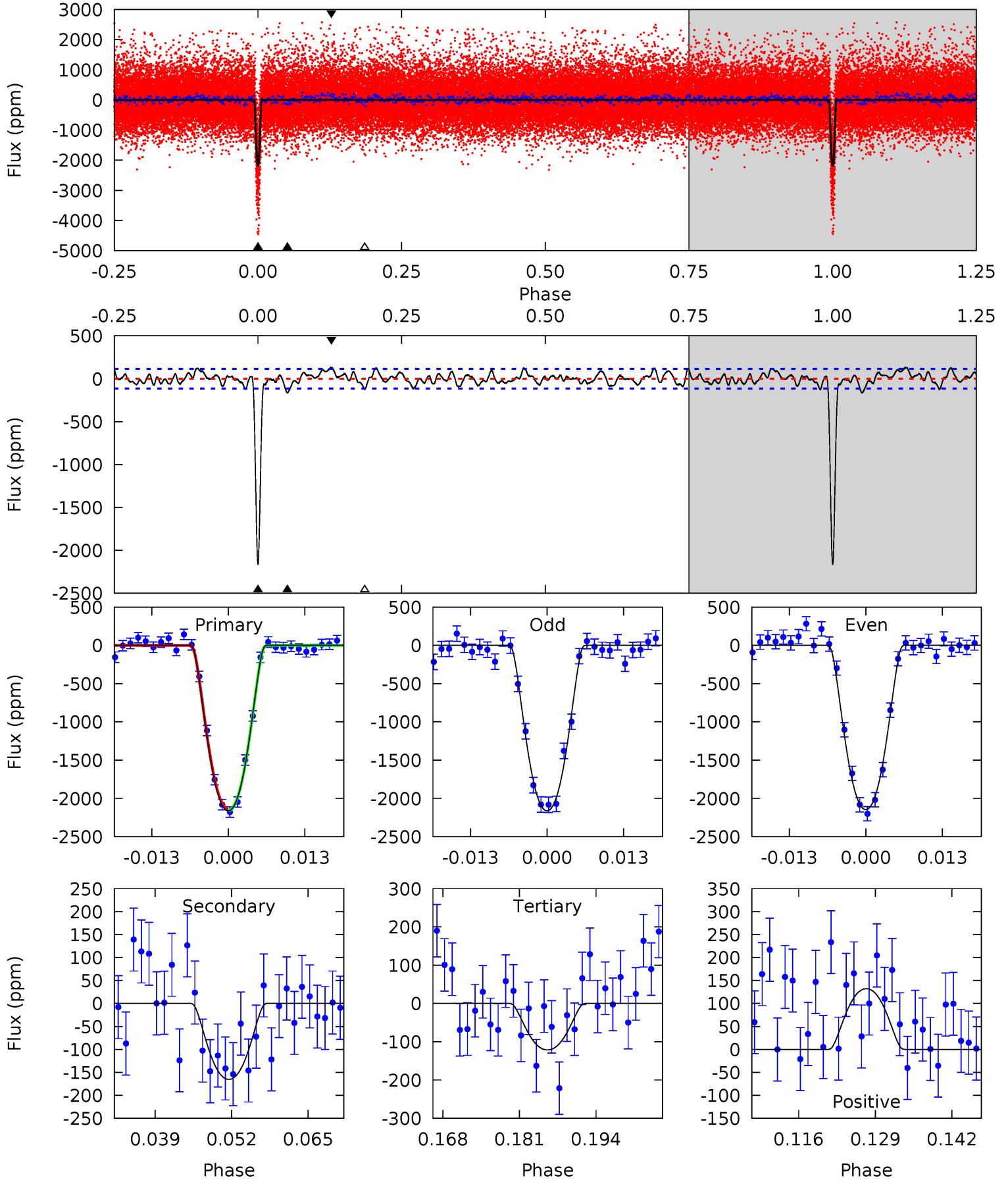
TCE 010287242-01   P= 22.342031 Days    $T_0=149.221228$  (BKJD)



# DV Model-Shift Uniqueness Test

010287242-01,  $P = 22.342264$  Days,  $E = 149.213609$  Days

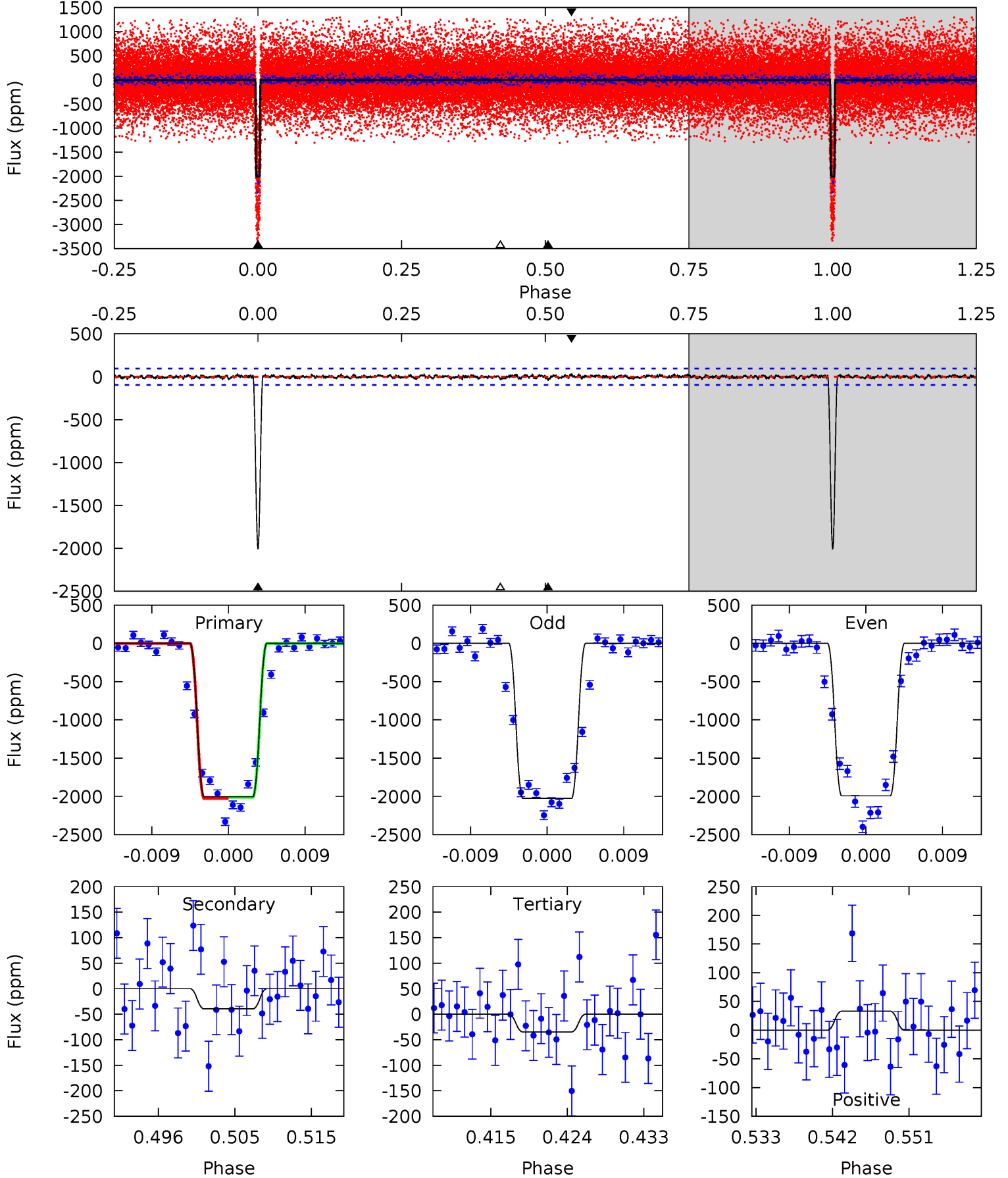
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
94.0	7.18	5.27	5.74	4.98	2.49	2.19	88.7	88.3	1.91	1.44	0.35	1.03	0.06	0.51



# Alt Model-Shift Uniqueness Test

010287242-01, P = 22.342031 Days, E = 149.221228 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
106.0	2.10	1.84	1.75	5.05	2.61	0.58	104.2	104.3	0.26	0.35	0.89	0.94	0.02	0



### Stellar Parameters For KIC 010287242

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5237^{+157}_{-157}$	$4.568^{+0.084}_{-0.056}$	$-0.600^{+0.350}_{-0.300}$	$0.707^{+0.074}_{-0.074}$	$0.674^{+0.084}_{-0.039}$	$2.688^{+0.948}_{-0.544}$
	+3%/-3%	+2%/-1%	+58%/-50%	+10%/-10%	+12%/-6%	+35%/-20%
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 010287242-01 / KOI 0735.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-165 \pm 23$	$4.51^{+0.60}_{-0.57}$	$734^{+28}_{-31}$	$3076^{+131}_{-121}$	$85^{+27}_{-21}$
Alt.	$-40 \pm 19$	$3.79^{+0.52}_{-0.54}$	$733^{+28}_{-29}$	$2644^{+178}_{-223}$	$28^{+18}_{-14}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

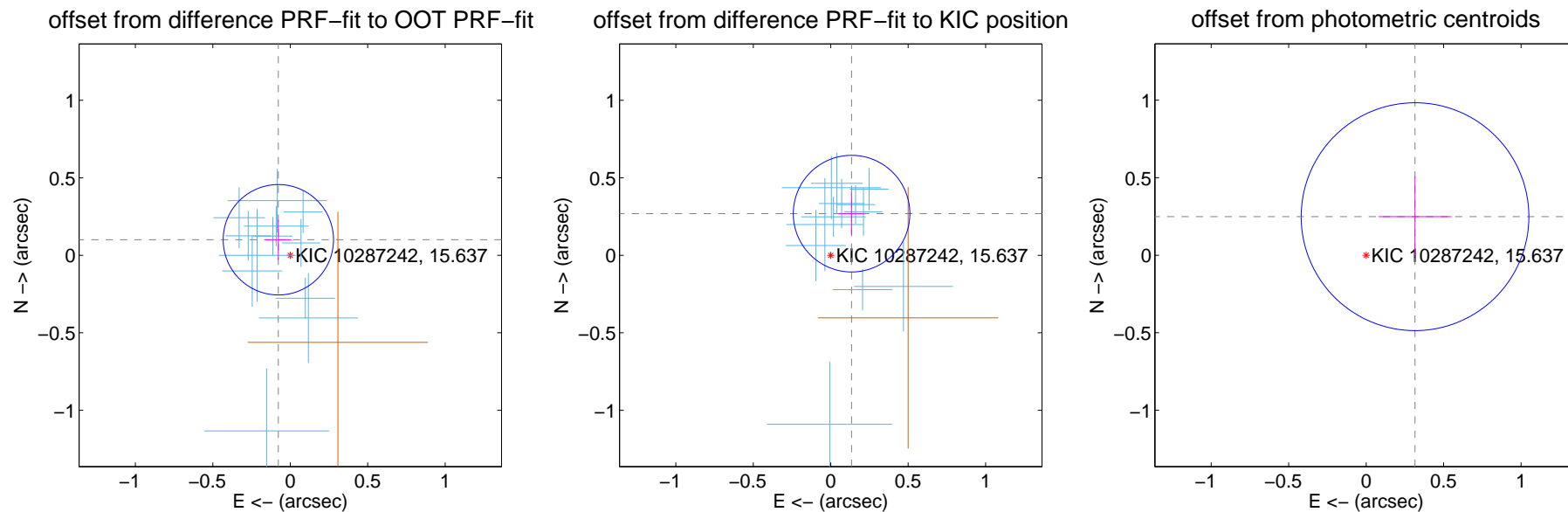
## DV Centroid Data

Supplemental centroid analysis for 010287242-01. Kepler magnitude: 15.64. Transit SNR 41.12

There are 12 quarters with good PRF difference image offsets

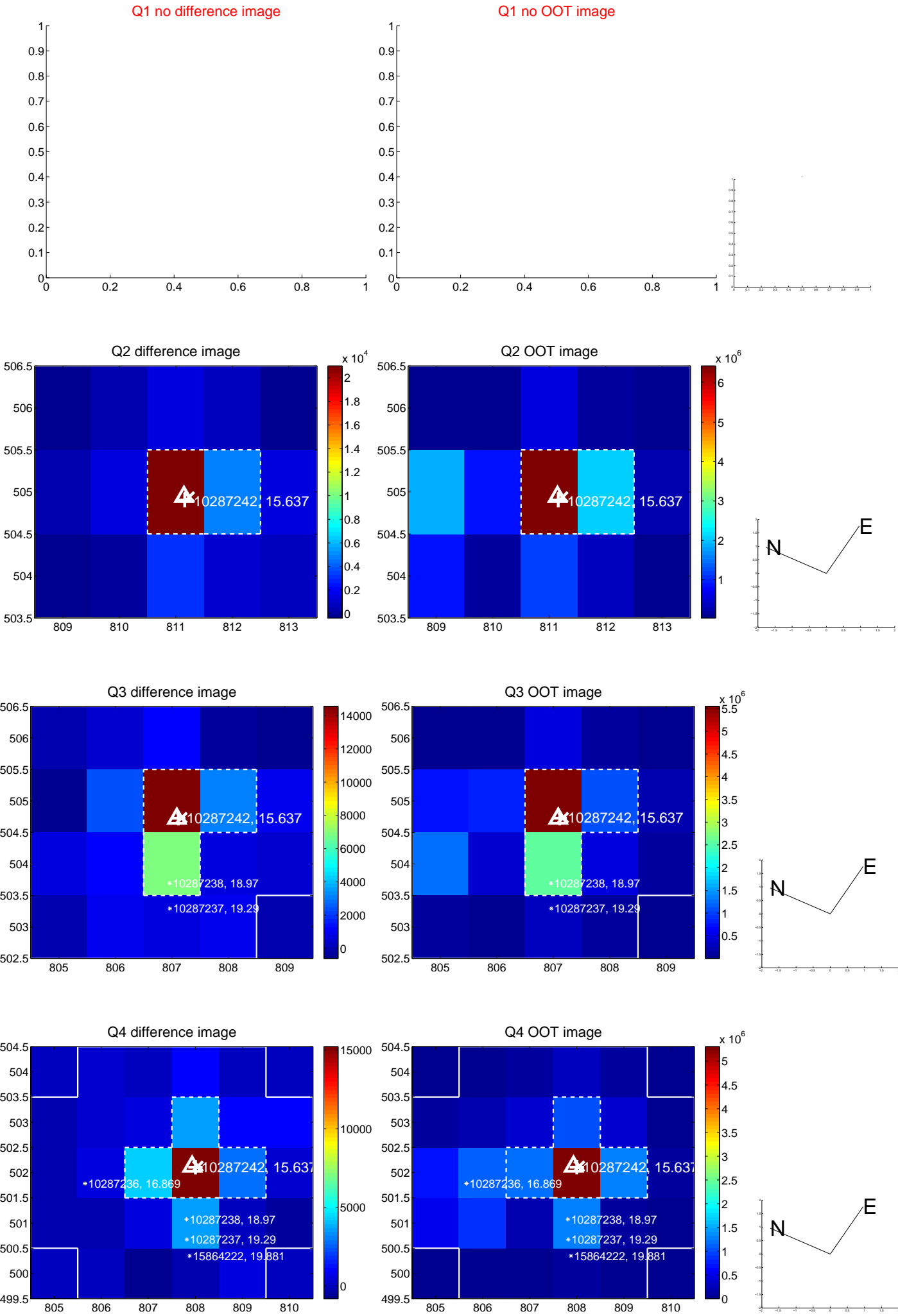
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.126 \pm 0.119$	1.06	$0.077 \pm 0.085$	$0.100 \pm 0.129$
PRF-fit source offset from KIC position	$0.300 \pm 0.125$	2.40	$-0.135 \pm 0.083$	$0.268 \pm 0.135$
photometric centroid source offset	$0.40 \pm 0.24$	1.64	$-0.32 \pm 0.24$	$0.25 \pm 0.26$



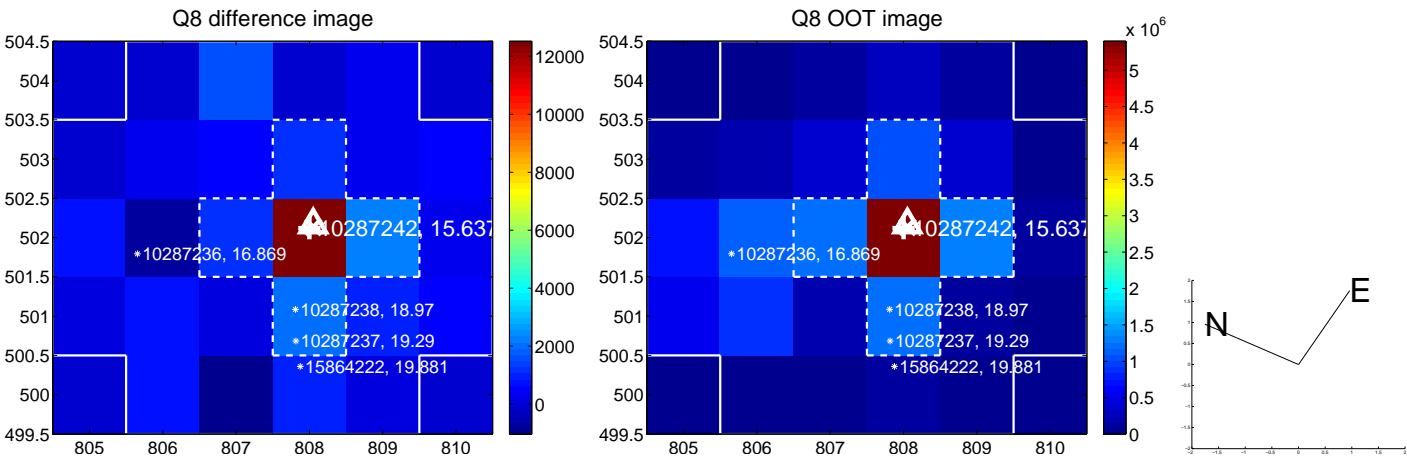
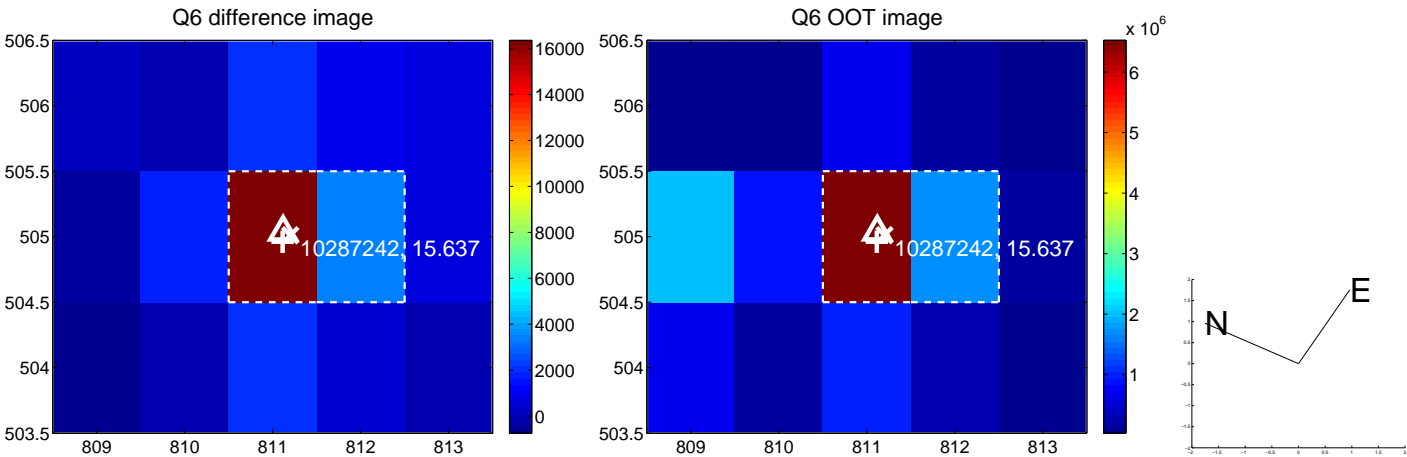
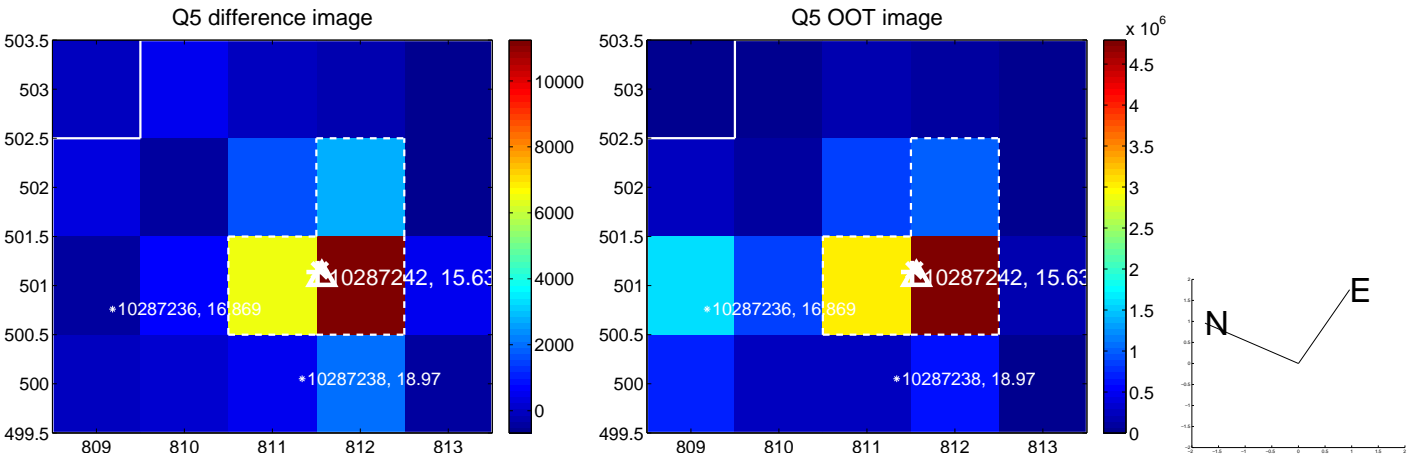
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

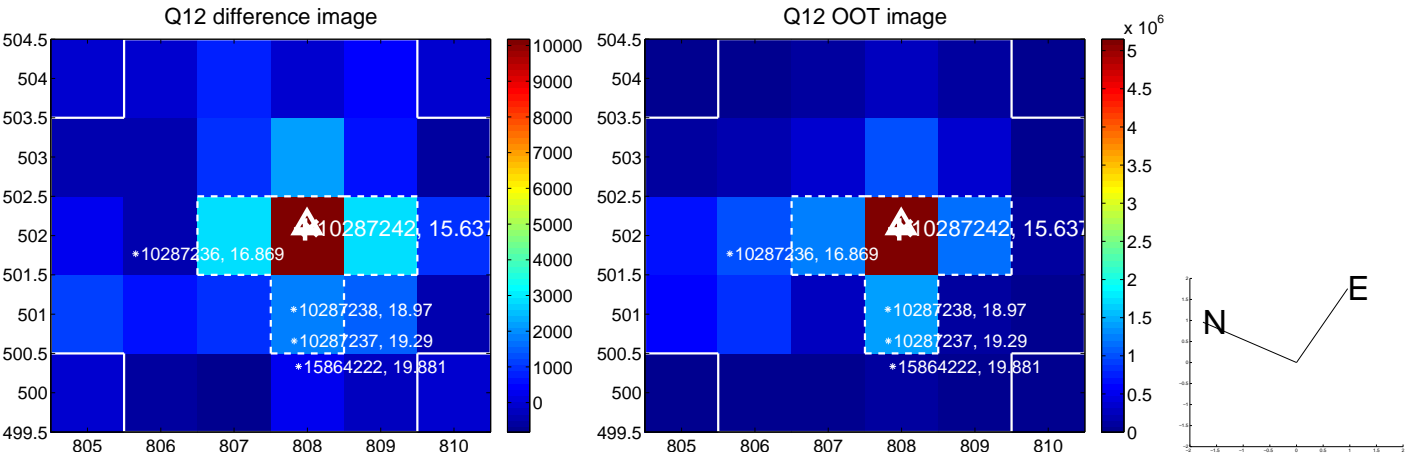
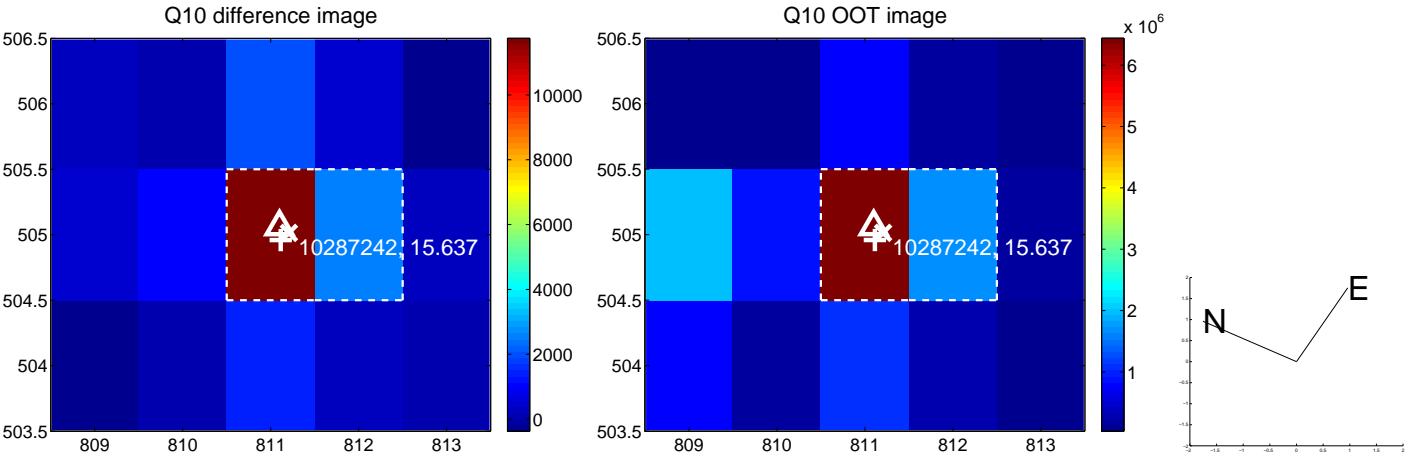
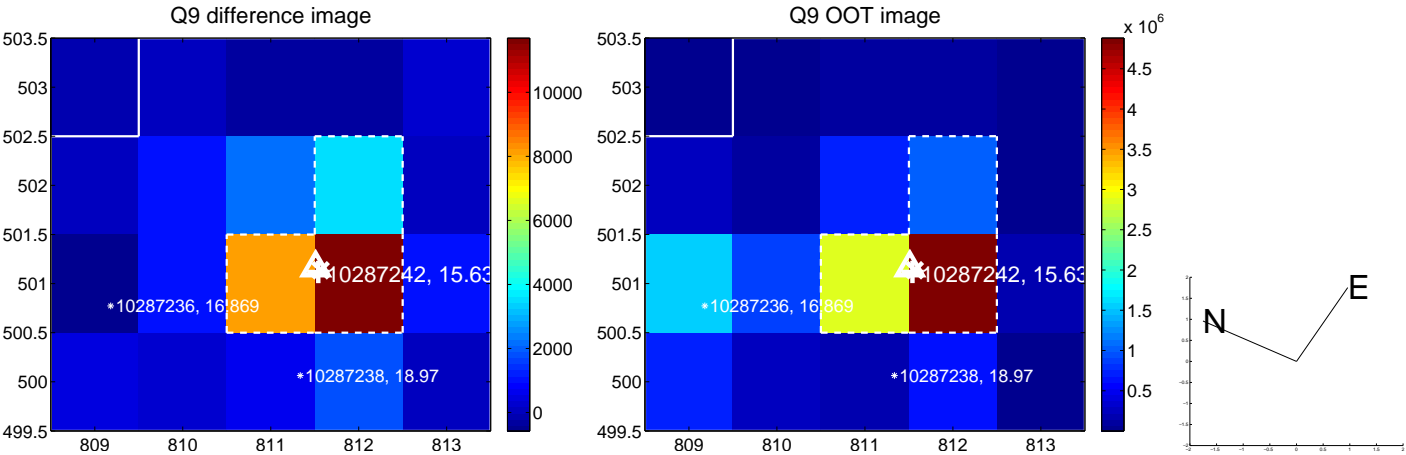




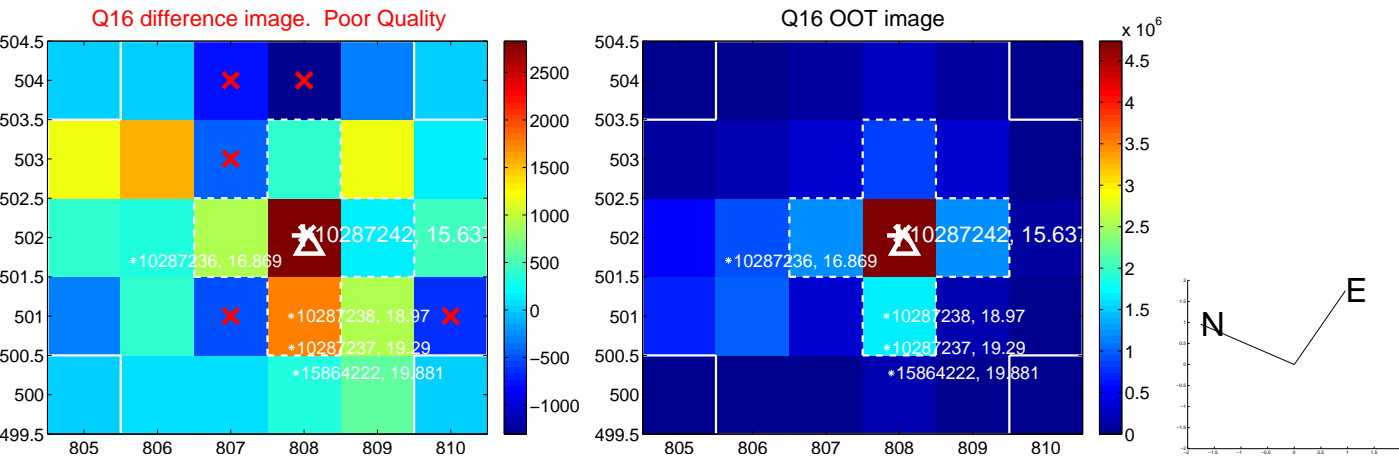
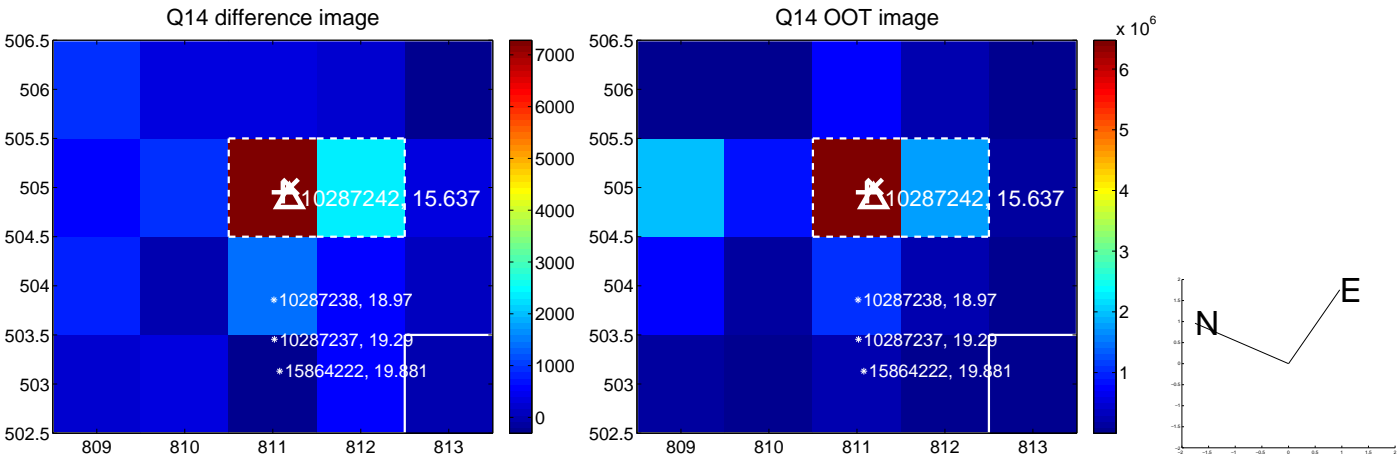
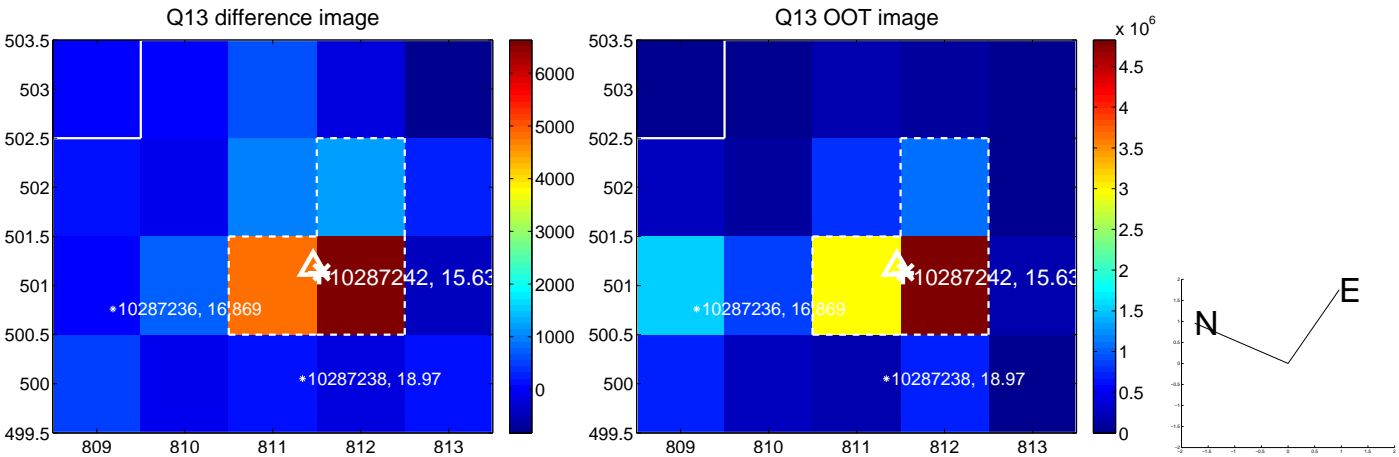
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



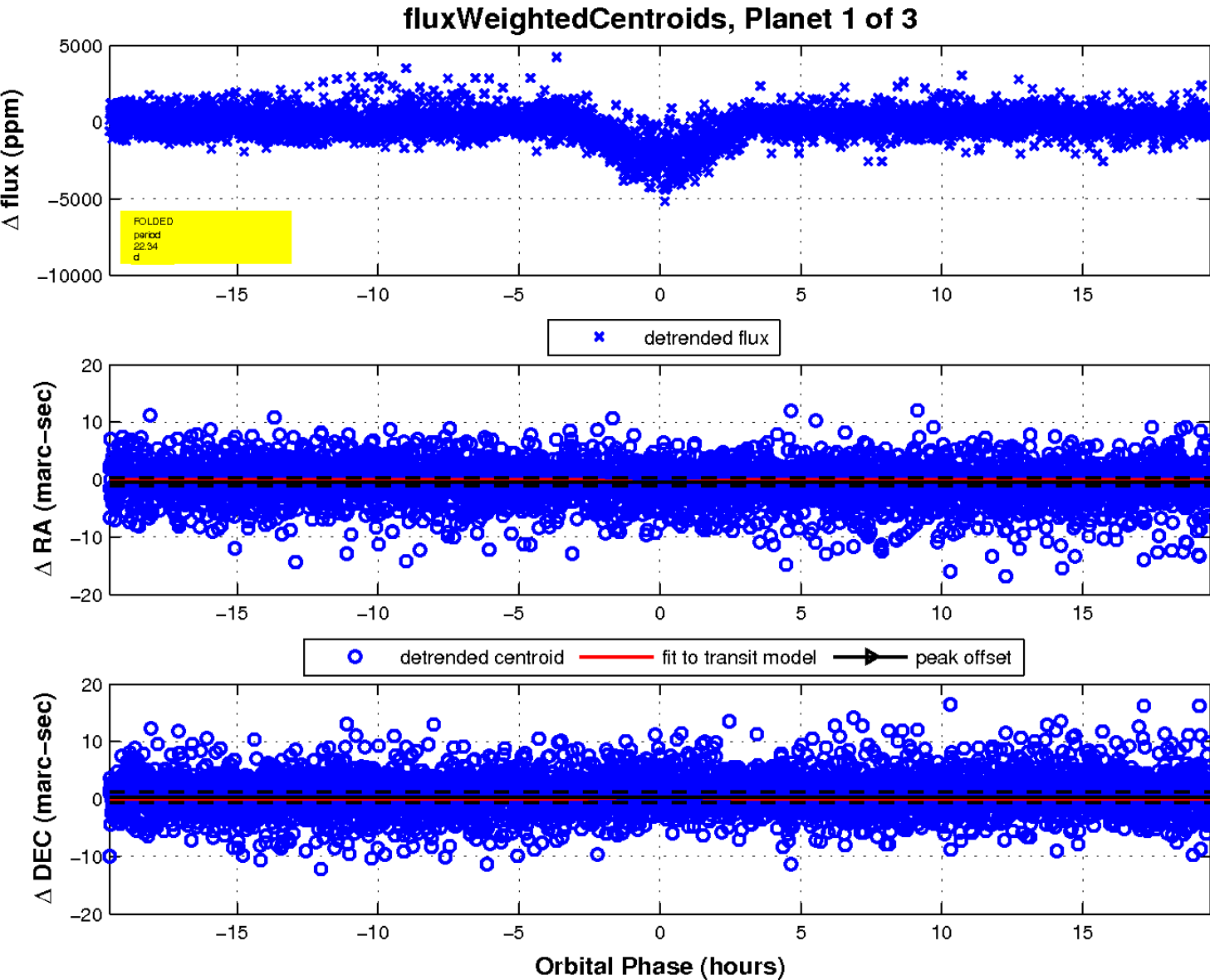
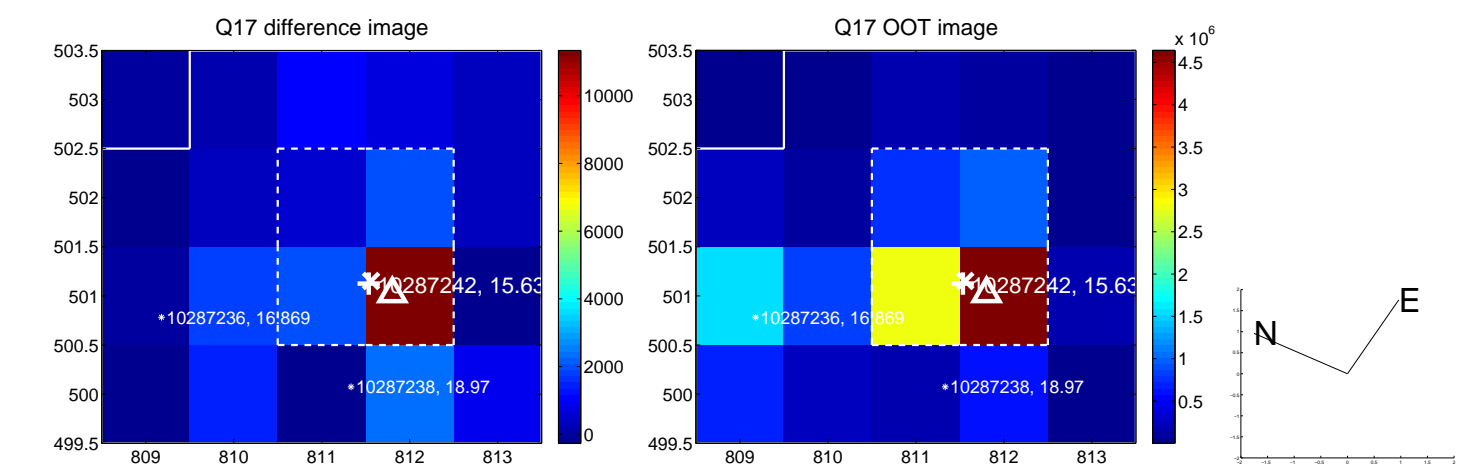
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

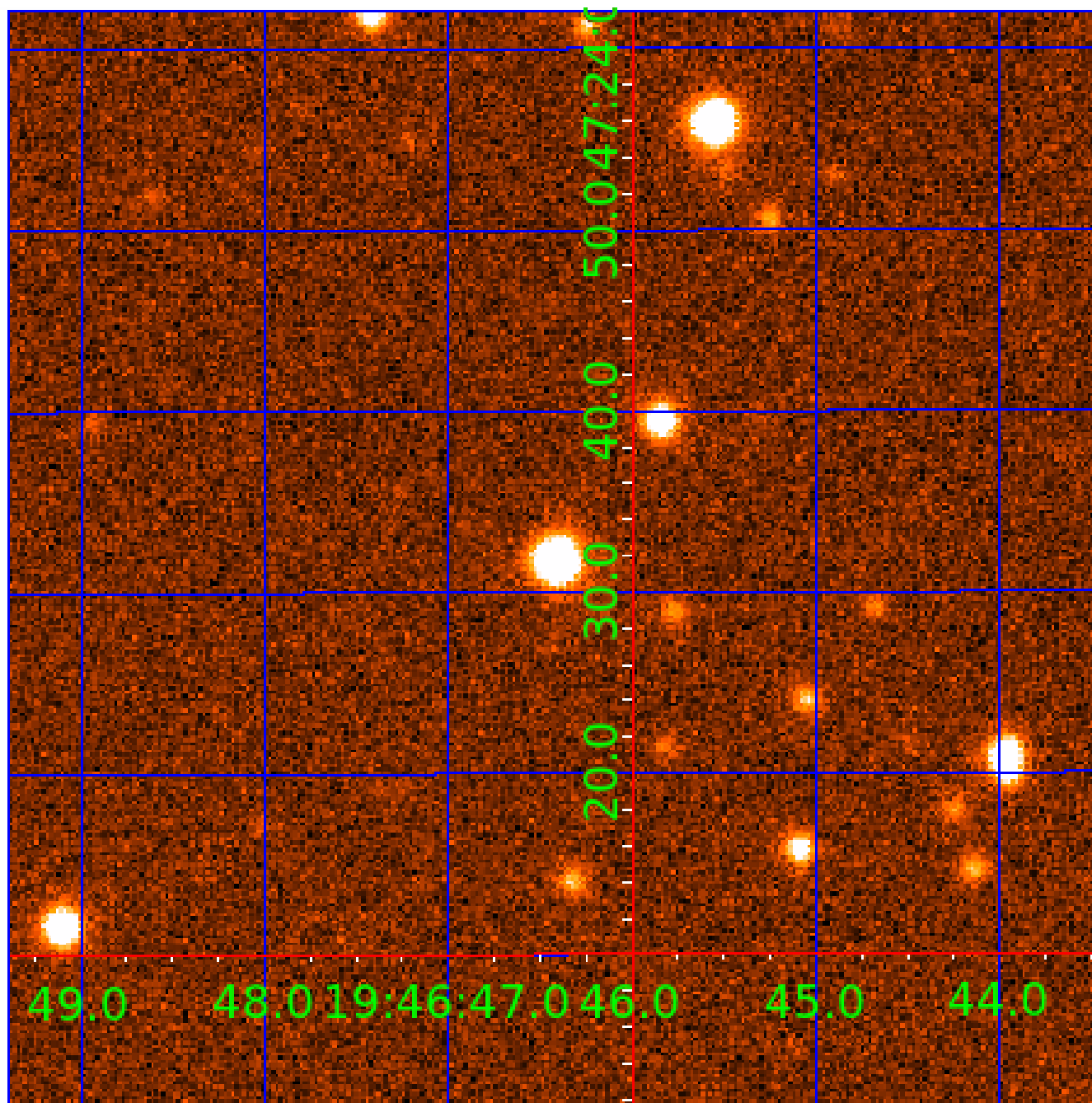


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010287242

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010287242-01	OBS	0735.01	22.342264	149.213609	2166.7	6.513	43.8	41.1	0.71	5237	4.49	18.17
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010287242-03	OBS	No	442.665113	482.425319	1270.9	8.235	13.3	7.7	0.71	5237	2.55	0.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010287242-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010287242-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010287242-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—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 010287242-02

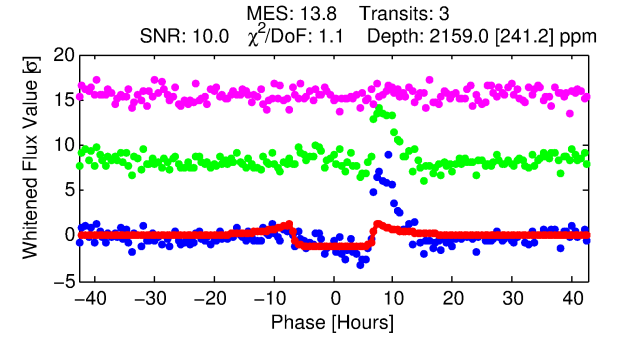
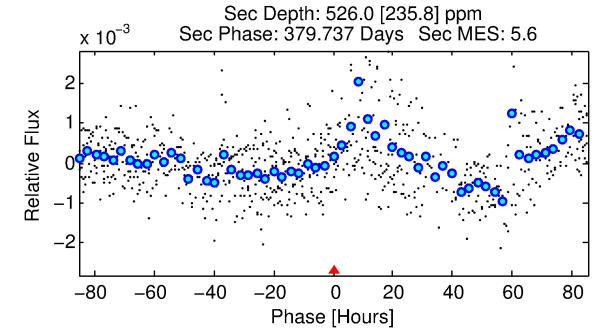
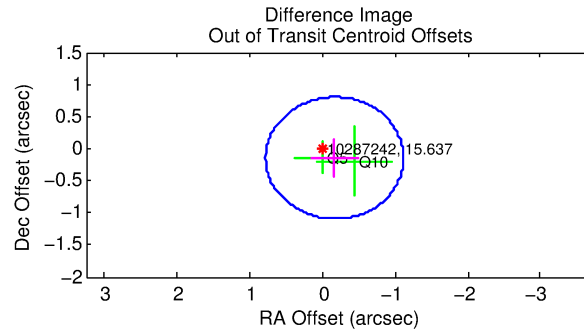
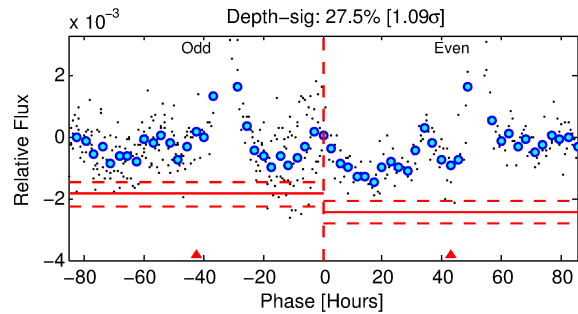
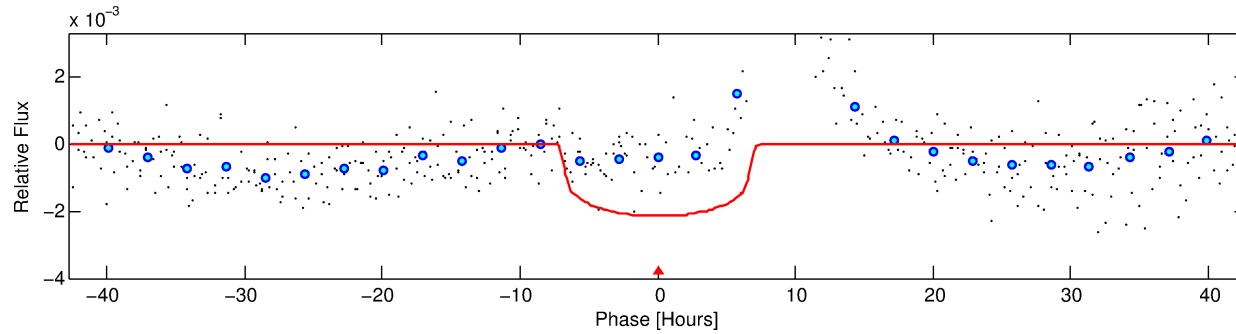
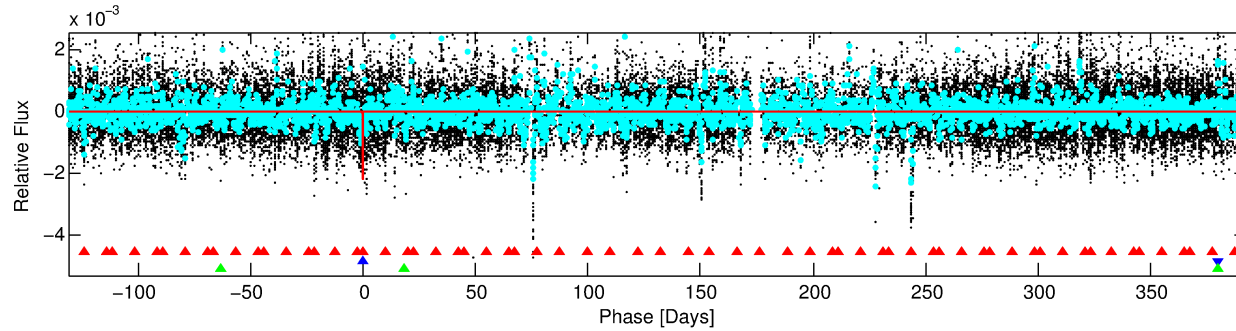
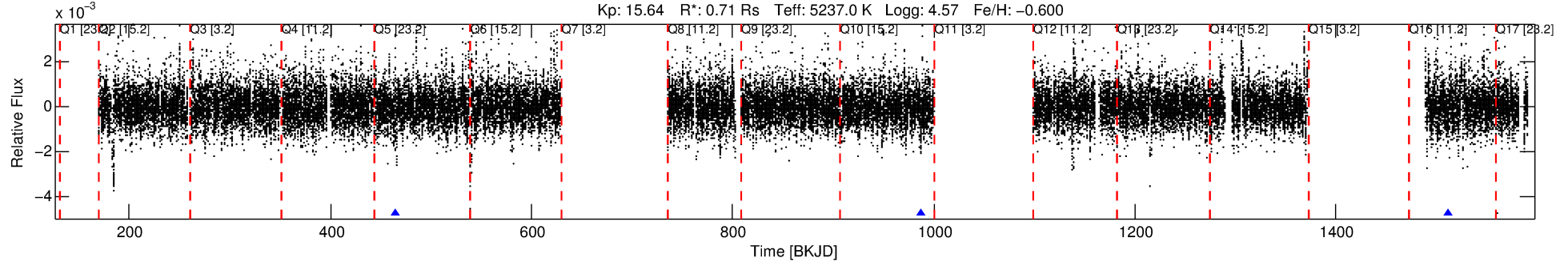
No Significant Match Found

# DV One-Page Summary

KIC: 10287242 Candidate: 2 of 3 Period: 523.772 d

KOI: K00735 Corr: No Ephemeris Match

Kp: 15.64 R\*: 0.71 Rs Teff: 5237.0 K Logg: 4.57 Fe/H: -0.600



## DV Fit Results:

Period = 523.77237 [0.00940] d  
Epoch = 464.1848 [0.0094] BKJD  
Rp/R\* = 0.0418 [0.0109]  
a/R\* = 292.36 [294.83]  
b = 0.01 [92.18]  
Seff = 0.27 [0.05]  
Teq = 184 [9] K  
Rp = 3.23 [0.91] Re  
a = 1.1153 [0.1060] AU  
Ag = 34548.11 [24328.59] [1.42σ]  
Teffp = 3877 [678] K [5.45σ]

## DV Diagnostic Results:

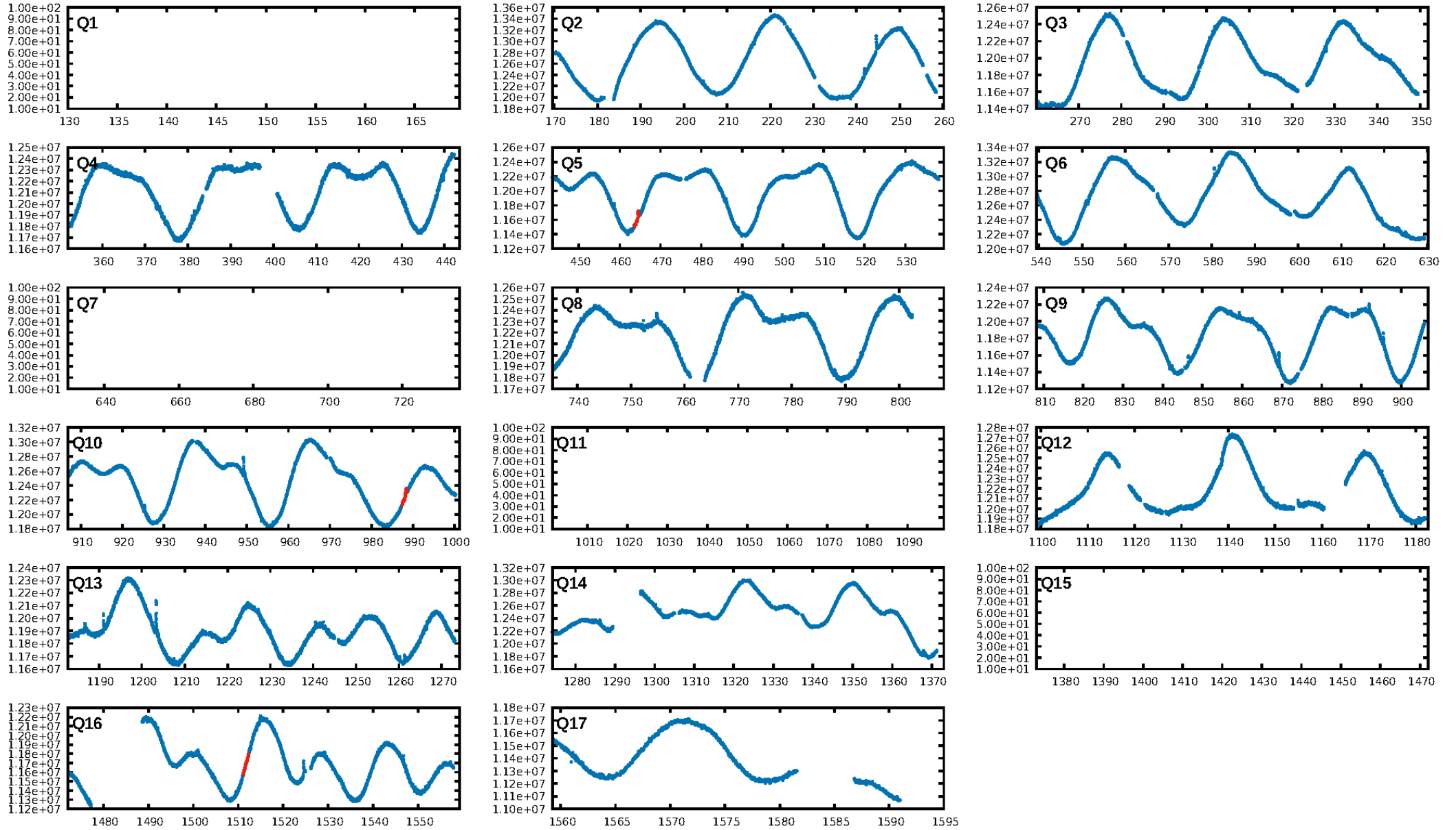
ShortPeriod-sig: 100.0% [118.22σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 14.9%  
ModelChiSquareGof-sig: 98.3%  
Bootstrap-pfa: 6.19e-15  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -1.703  
Centroid-sig: 16.1%  
Centroid-so: 1.762 arcsec [2.19σ]  
OotOffset-rm: 0.223 arcsec [0.71σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 0.392 arcsec [0.94σ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 0.67 [2/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 12:16:47 Z

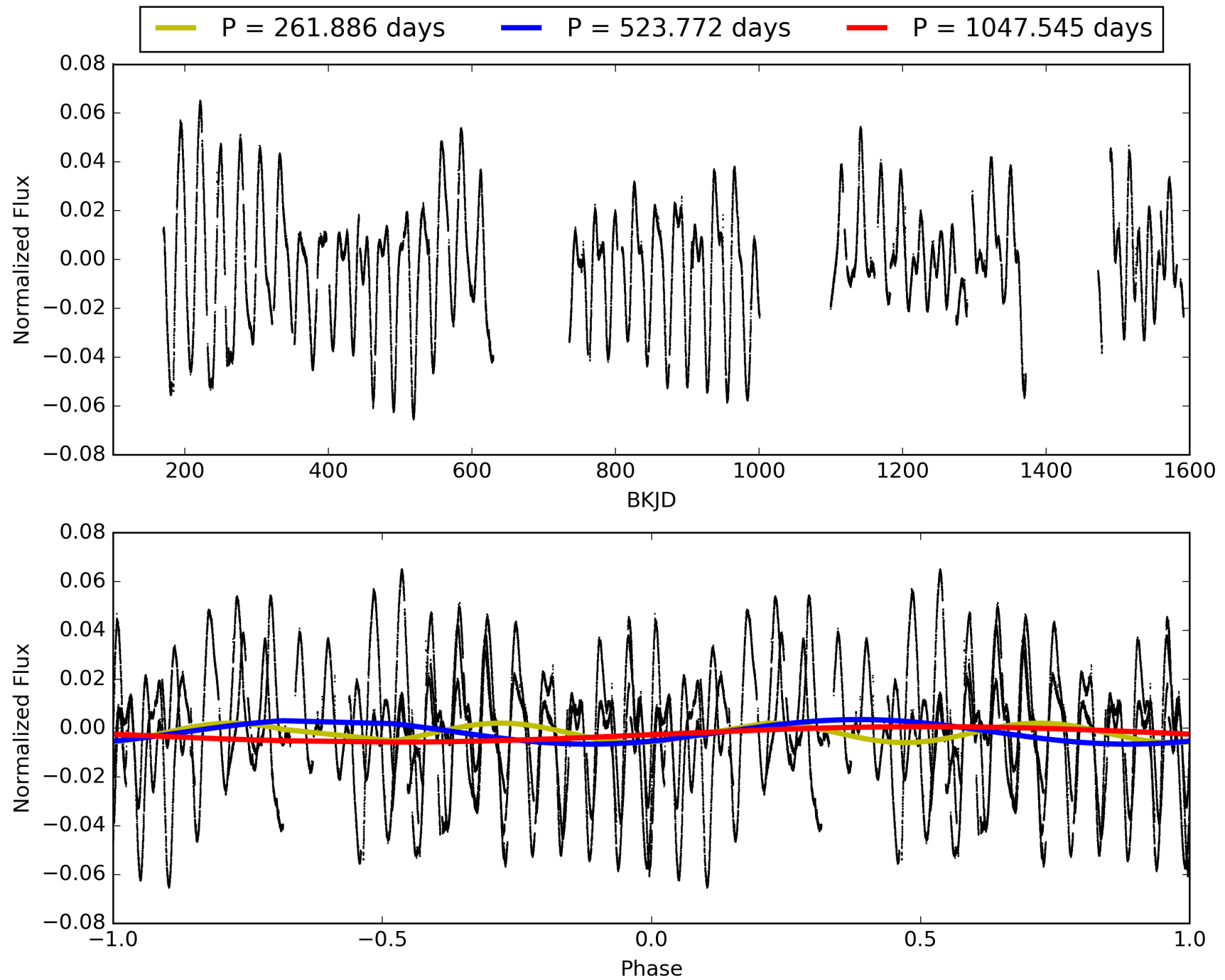
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 010287242-02, PDC Light Curves

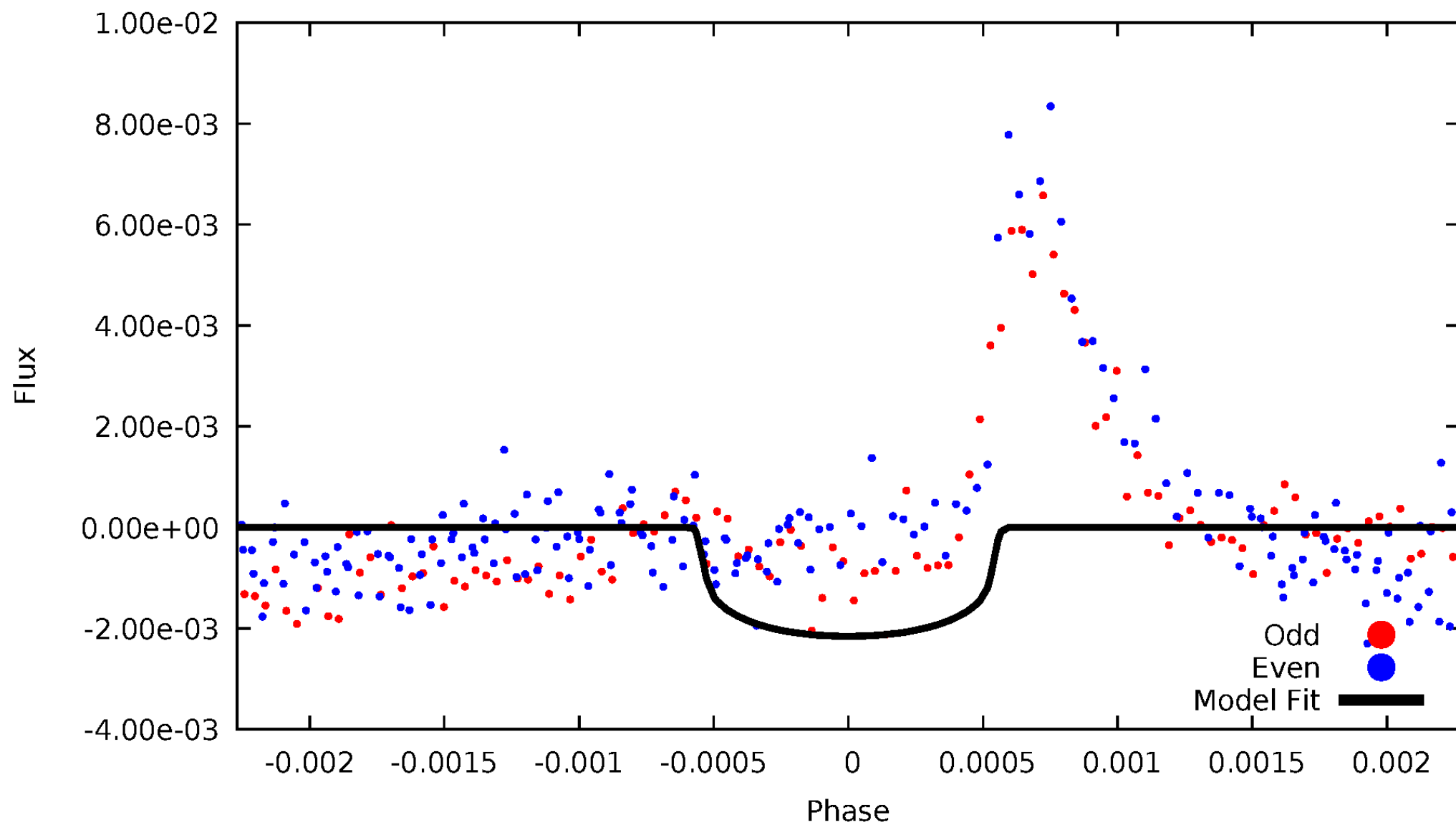


TCE 010287242-02



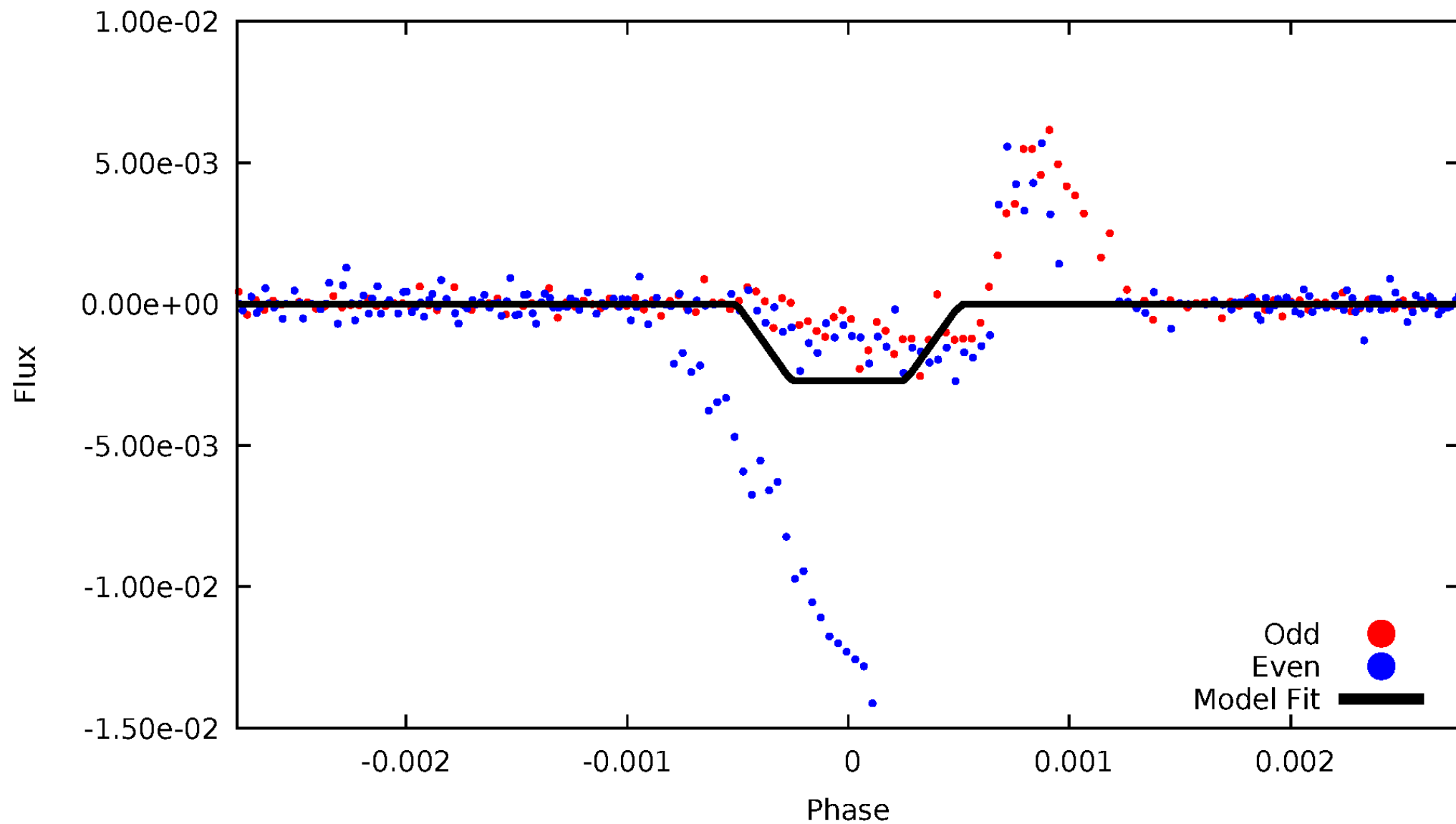
# DV Odd/Even

TCE 010287242-02



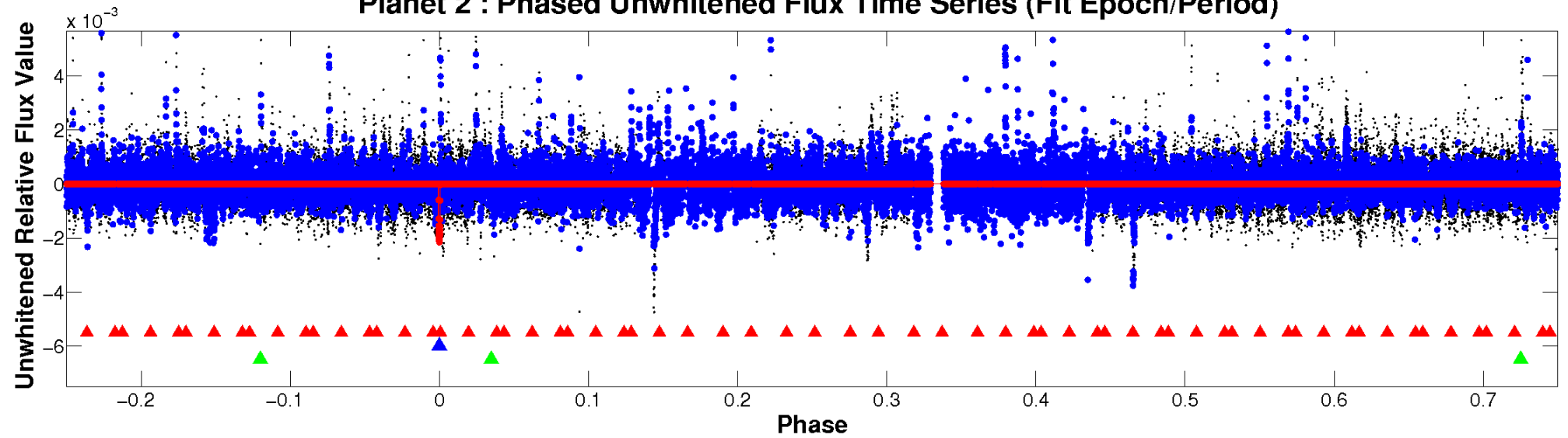
# ALT Odd/Even

TCE 010287242-02

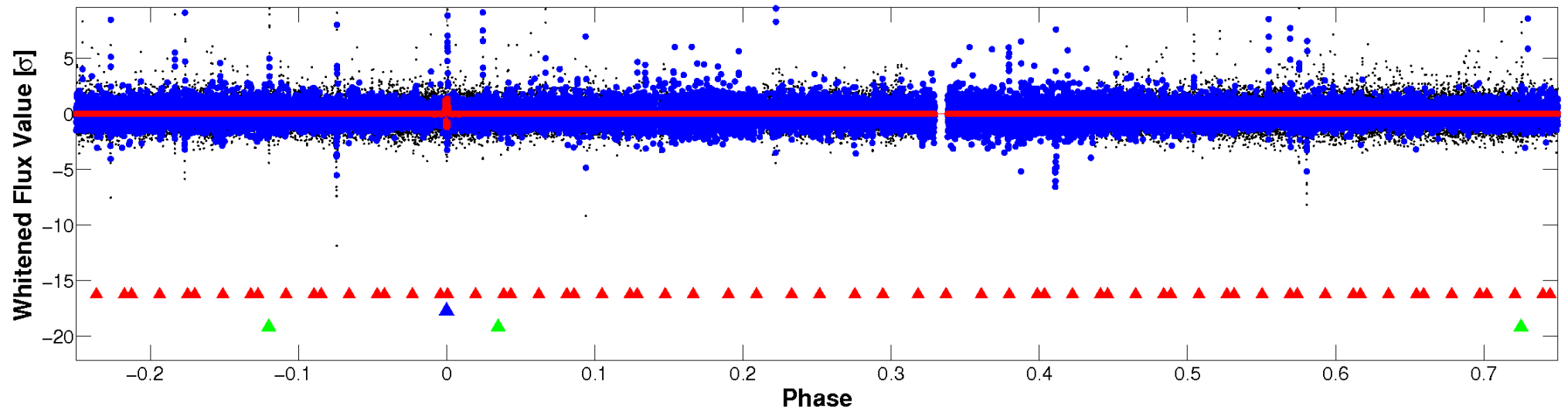


# Non-Whitened Vs. Whitened Light Curve

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

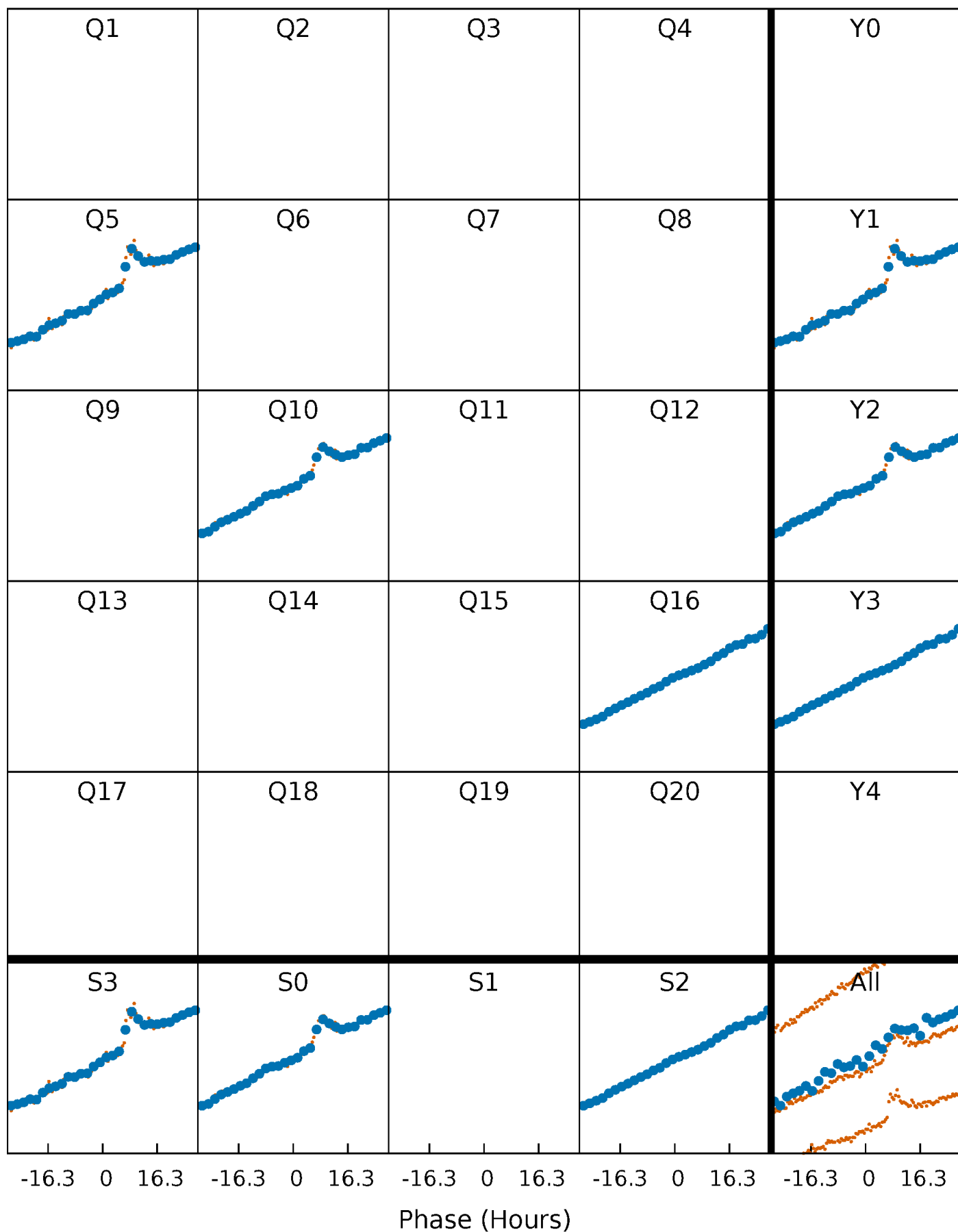


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



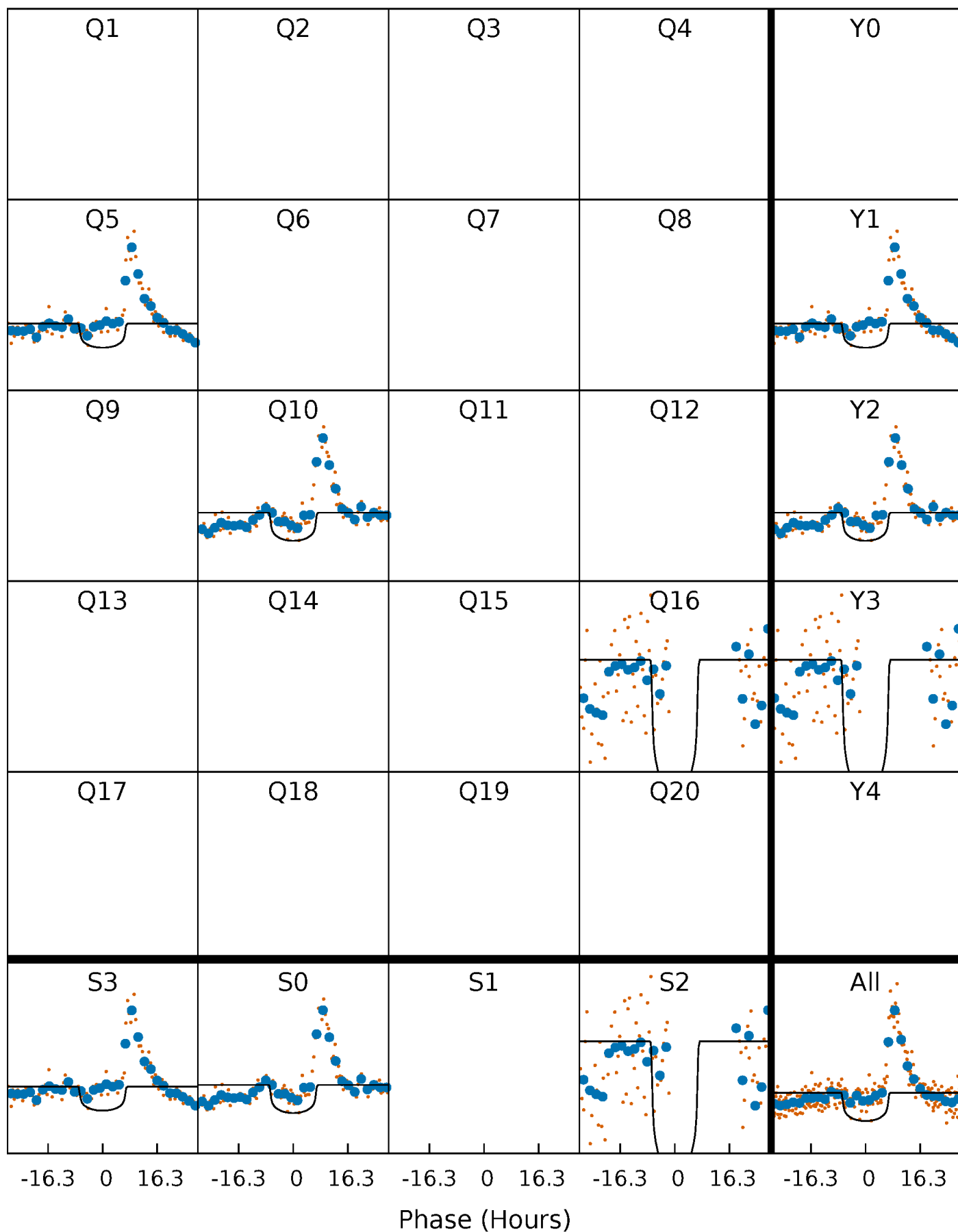
# PDC Quarter-Phased Transit Curves

TCE 010287242-02     $P=523.772373$  Days     $T_0=464.184812$  (BKJD)



# DV Quarter-Phased Transit Curves

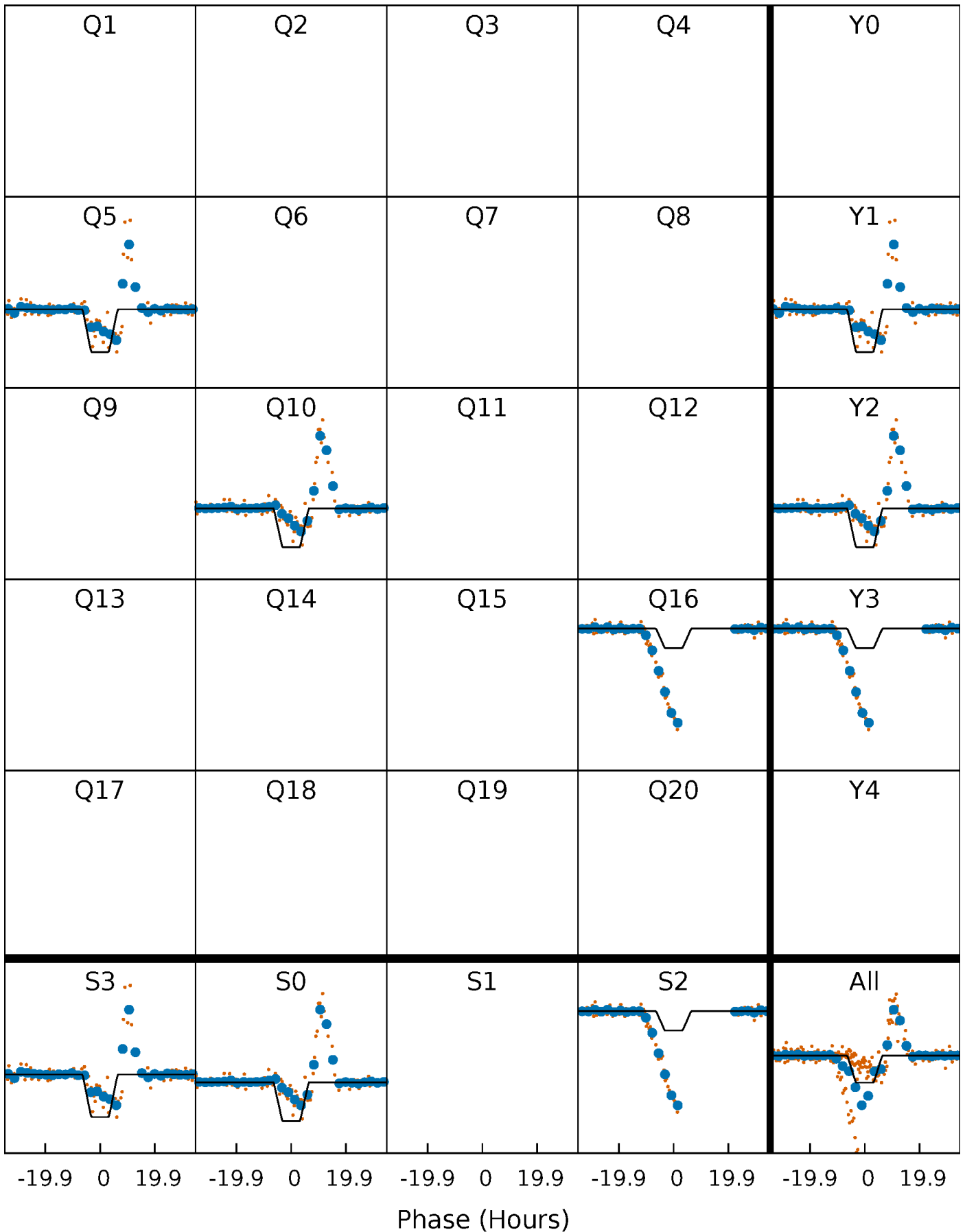
TCE 010287242-02     $P=523.772373$  Days     $T_0=464.184812$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

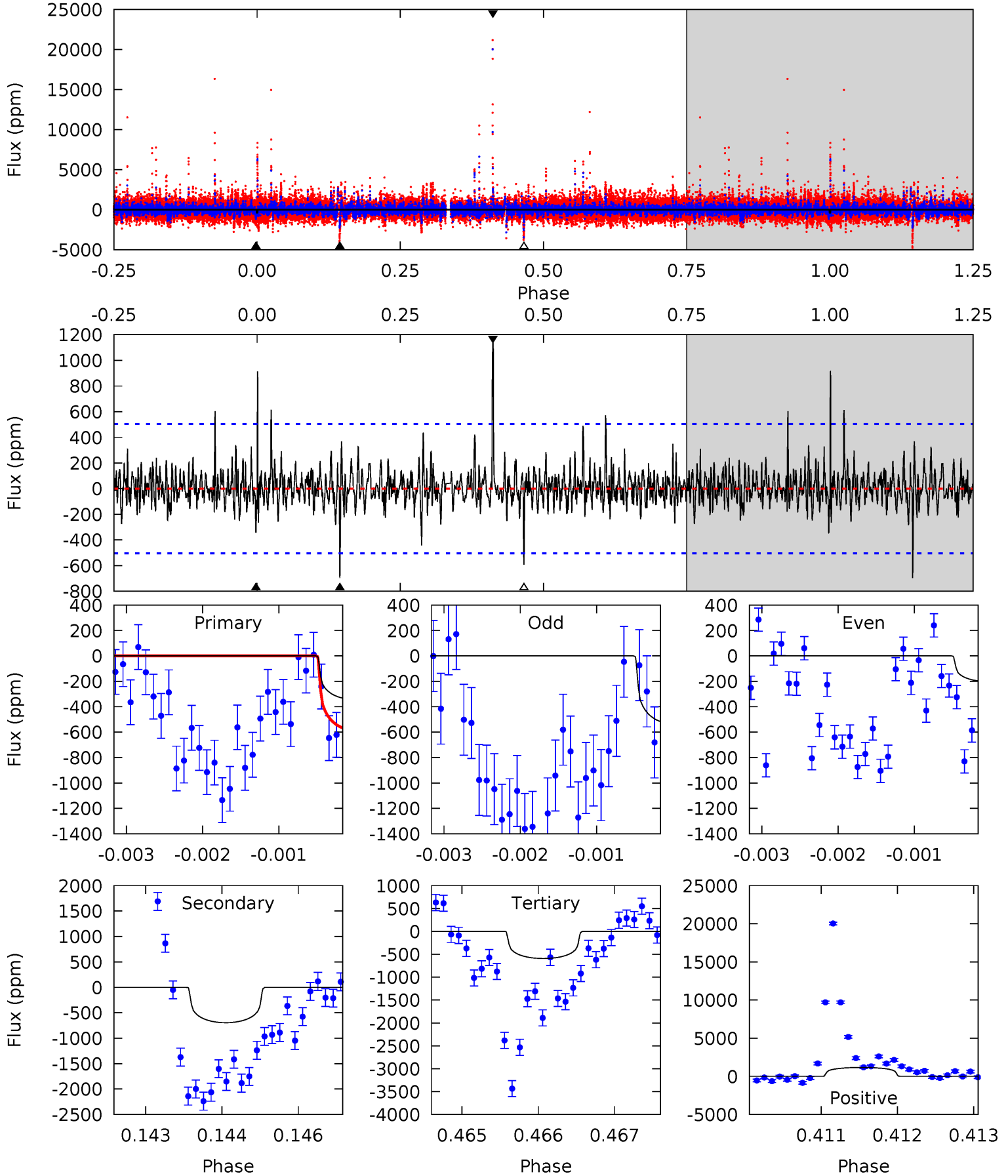
TCE 010287242-02     $P=523.739388$  Days     $T_0=464.119968$  (BKJD)



# DV Model-Shift Uniqueness Test

010287242-02, P = 523.772373 Days, E = 464.184812 Days

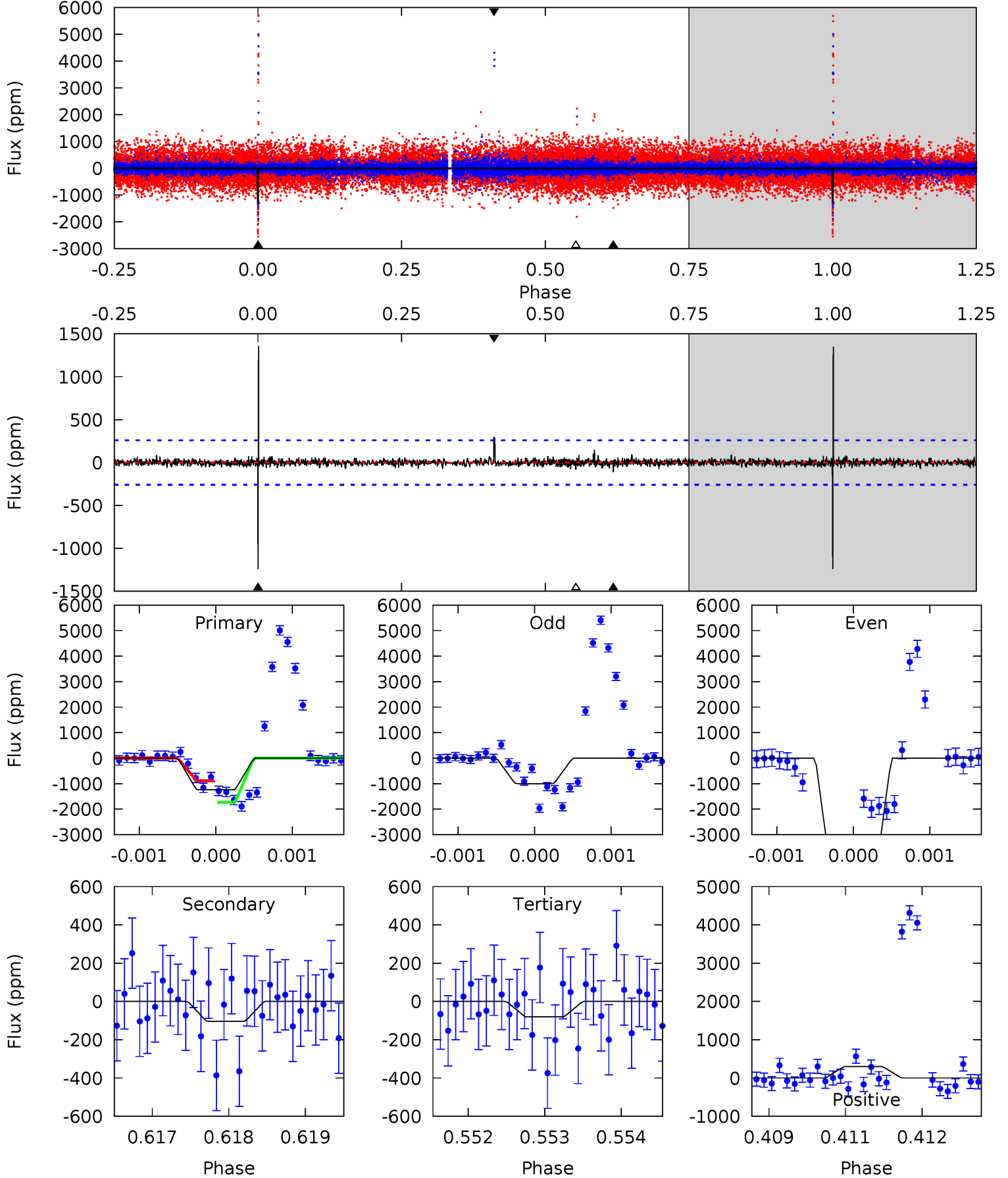
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.69	7.48	6.38	12.5	5.42	3.25	1.28	-2.69	-8.82	1.10	-5.03	1.65	0.86	0.63	2.97



# Alt Model-Shift Uniqueness Test

010287242-02, P = 523.739388 Days, E = 464.119968 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
26.1	2.19	1.70	6.32	5.45	3.29	0.64	24.4	19.7	0.49	-4.13	48.5	3.23	0.52	0



### Stellar Parameters For KIC 010287242

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5237^{+157}_{-157}$	$4.568^{+0.084}_{-0.056}$	$-0.600^{+0.350}_{-0.300}$	$0.707^{+0.074}_{-0.074}$	$0.674^{+0.084}_{-0.039}$	$2.688^{+0.948}_{-0.544}$
	+3%/-3%	+2%/-1%	+58%/-50%	+10%/-10%	+12%/-6%	+35%/-20%
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 010287242-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-695 \pm 93$	$3.26^{+0.84}_{-0.90}$	$256^{+10}_{-11}$	$4334^{+570}_{-384}$	$45803^{+41694}_{-17974}$
Alt.	$-104 \pm 48$	$4.02^{+0.85}_{-0.88}$	$256^{+10}_{-11}$	$2969^{+271}_{-273}$	$4478^{+3785}_{-2286}$

$T_{\text{max}}$  = 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  $A_{\text{obs}} \gg 1.0$

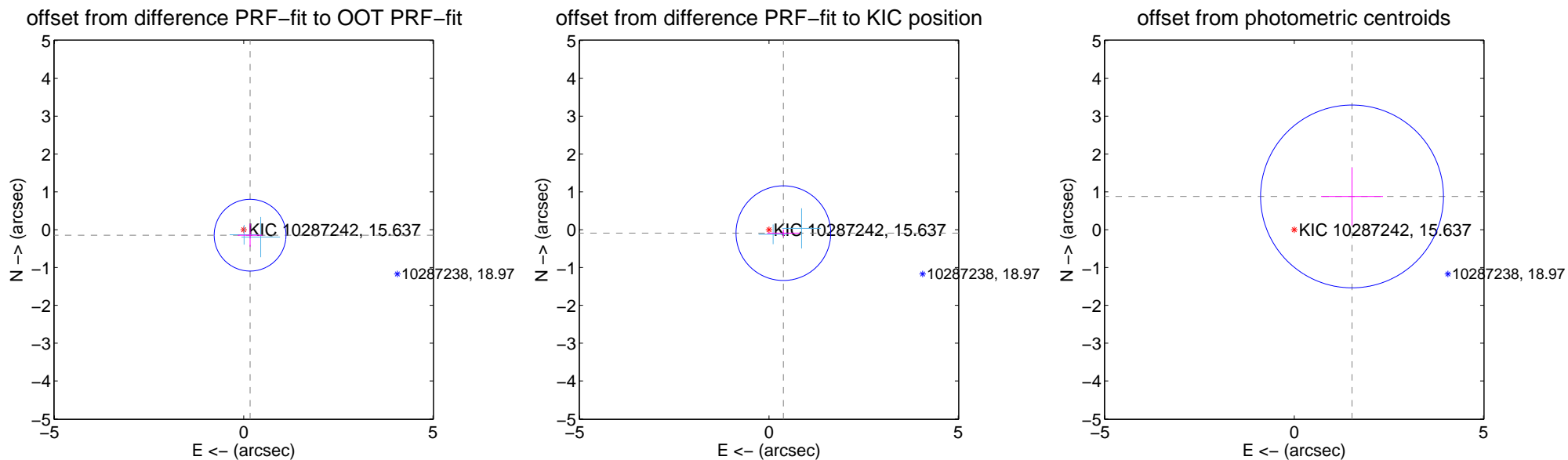
## DV Centroid Data

Supplemental centroid analysis for 010287242-02. Kepler magnitude: 15.64. Transit SNR 9.97

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.223 \pm 0.316$	0.71	$-0.169 \pm 0.325$	$-0.146 \pm 0.303$
PRF-fit source offset from KIC position	$0.392 \pm 0.417$	0.94	$-0.381 \pm 0.428$	$-0.091 \pm 0.098$
photometric centroid source offset	$1.76 \pm 0.81$	2.19	$-1.53 \pm 0.82$	$0.88 \pm 0.77$

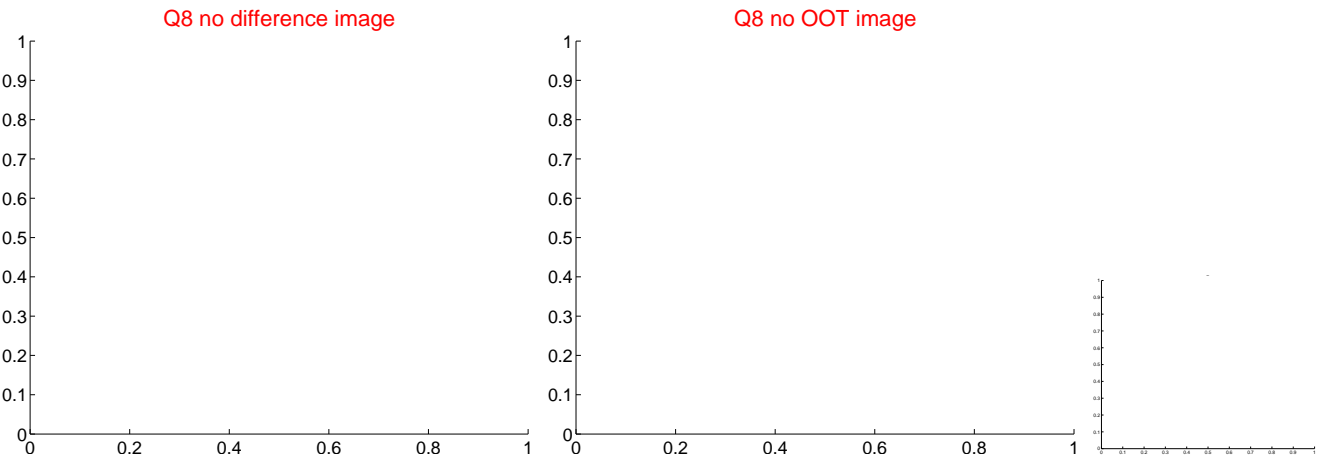
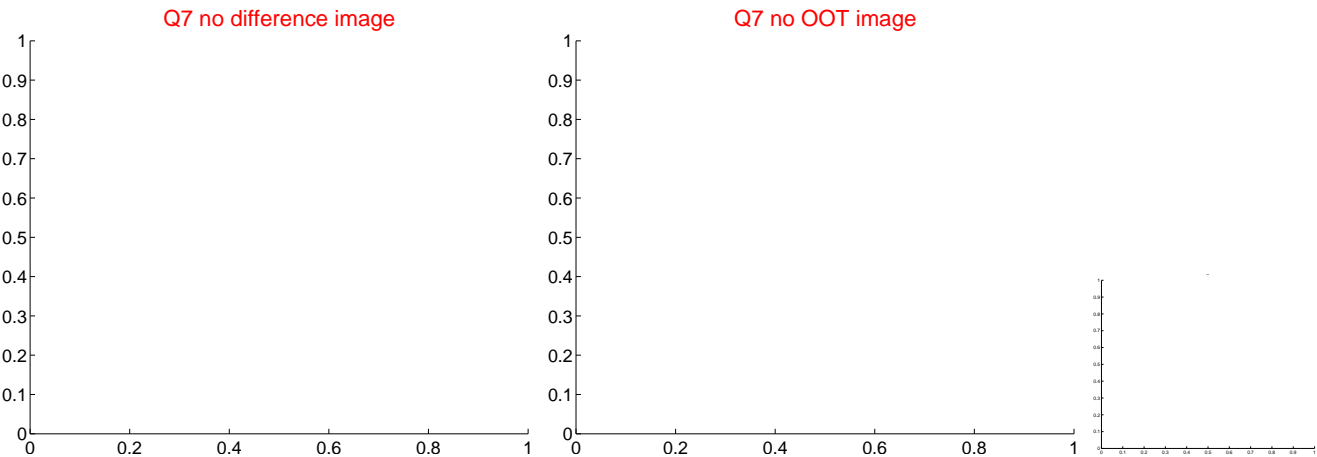
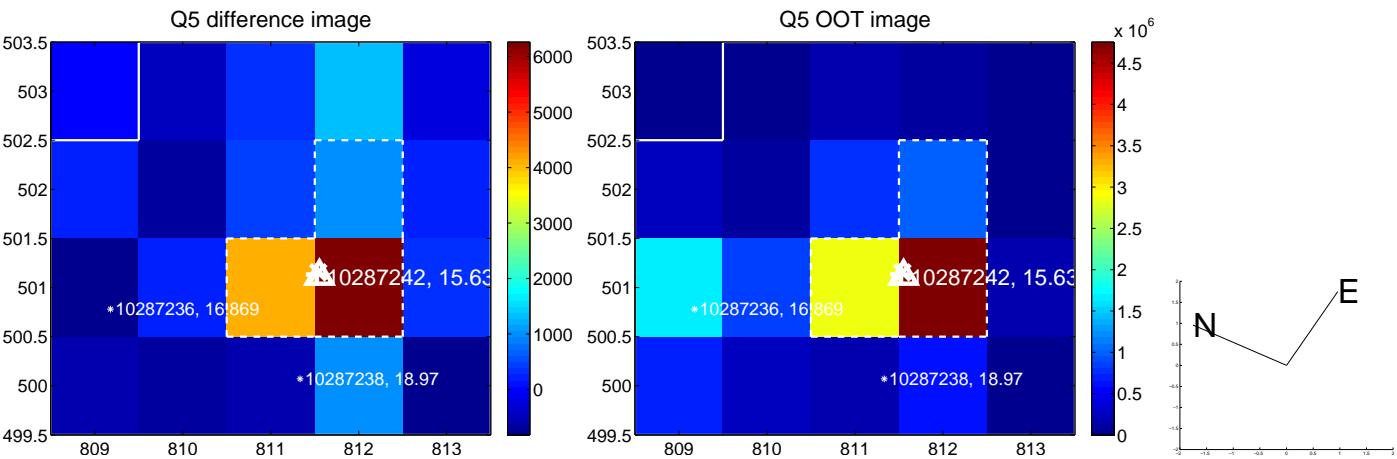


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

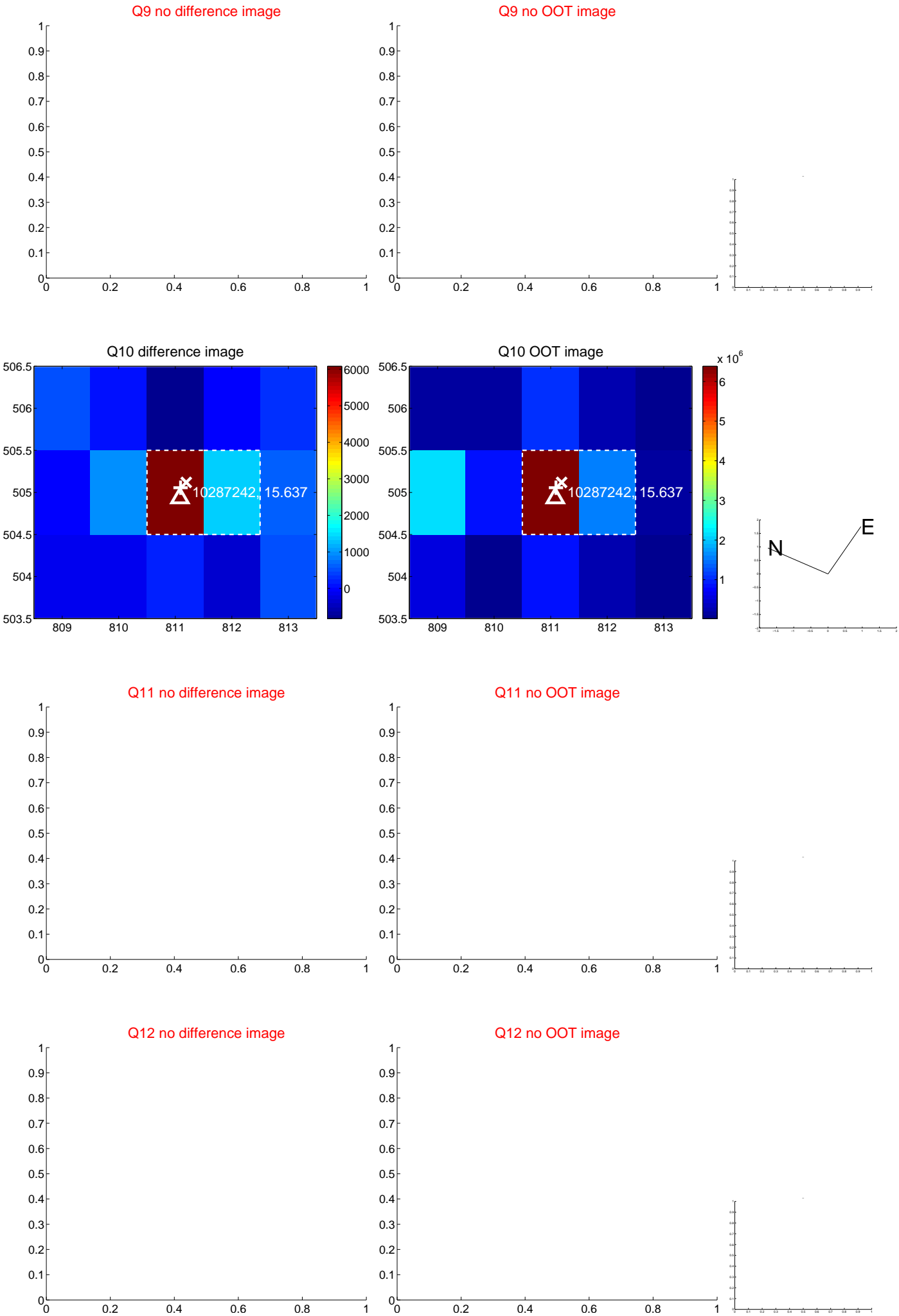


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

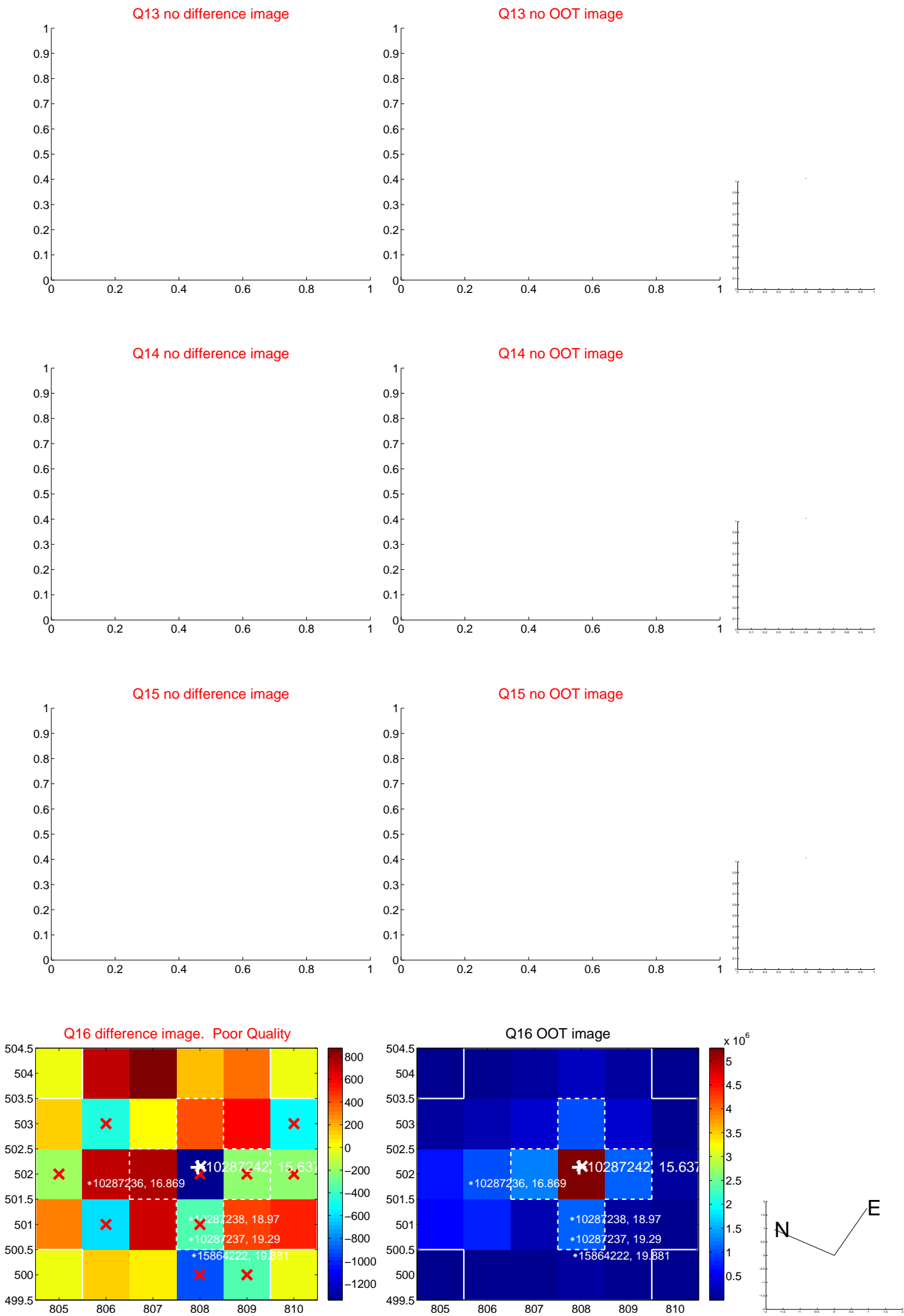




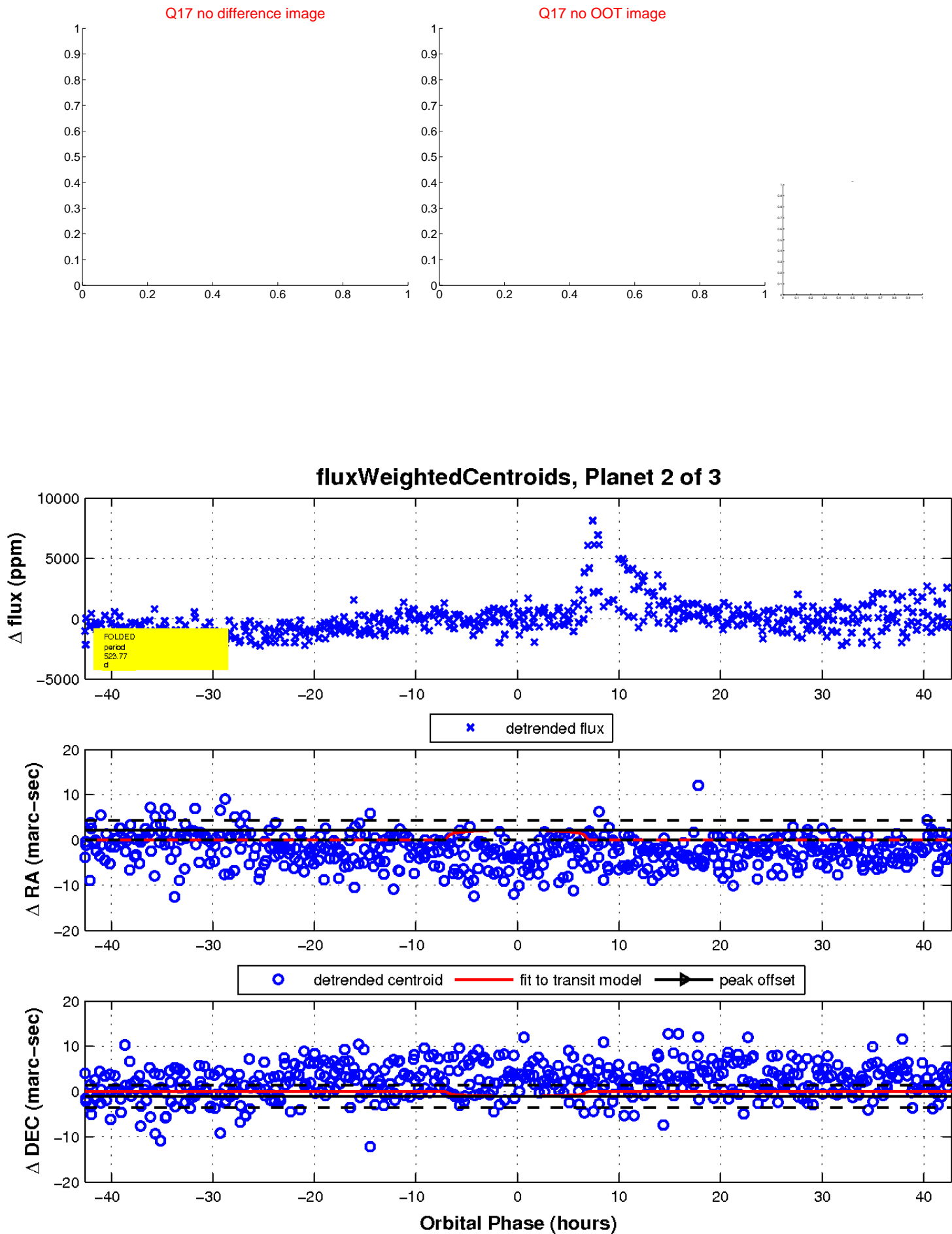
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

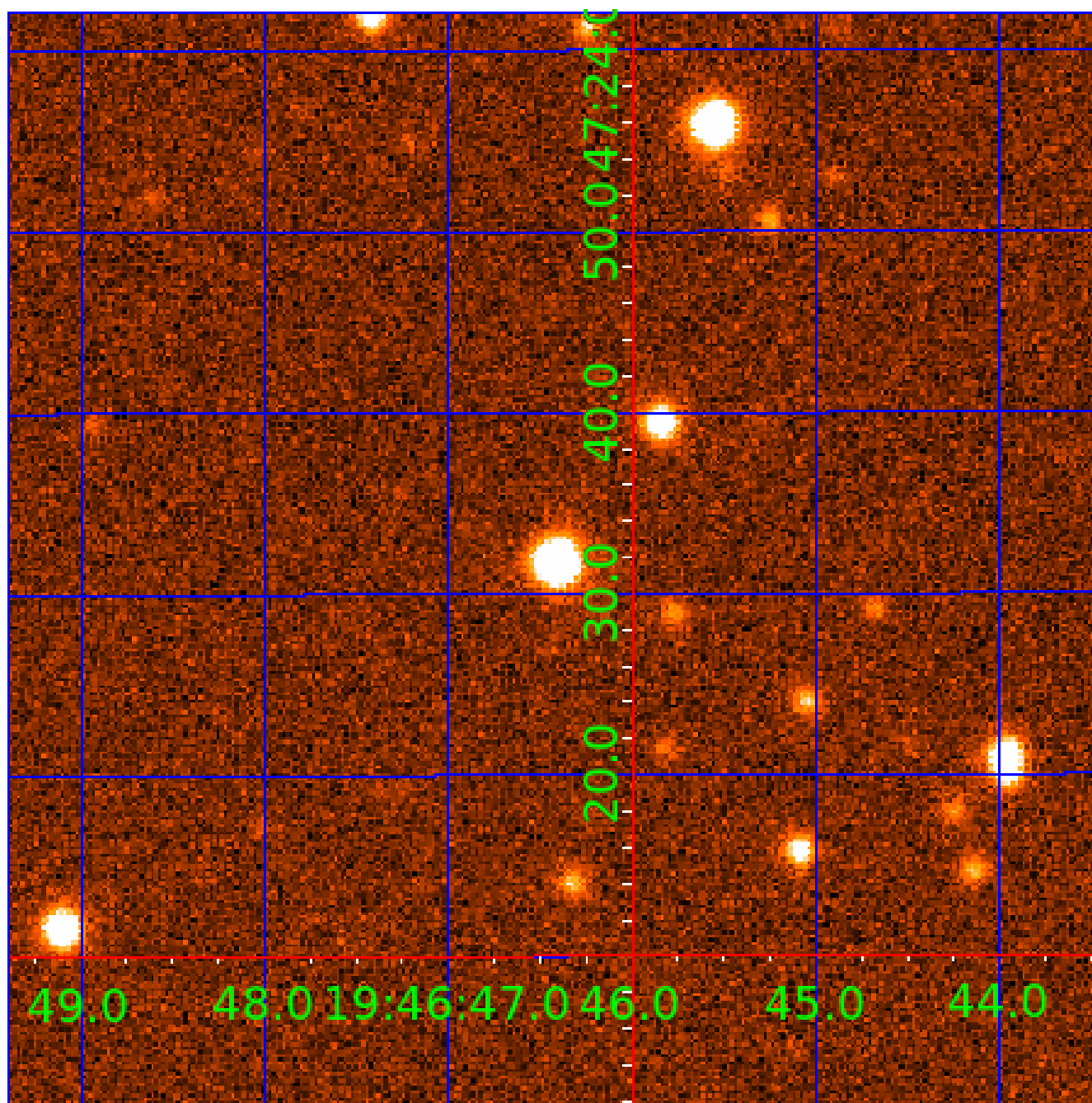


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010287242

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010287242-01	OBS	0735.01	22.342264	149.213609	2166.7	6.513	43.8	41.1	0.71	5237	4.49	18.17
010287242-02	OBS	No	523.772373	464.184812	2159.0	14.258	13.8	10.0	0.71	5237	3.23	0.27
010287242-03	OBS	No	442.665113	482.425319	1270.9	8.235	13.3	7.7	0.71	5237	2.55	0.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010287242-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010287242-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010287242-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—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.

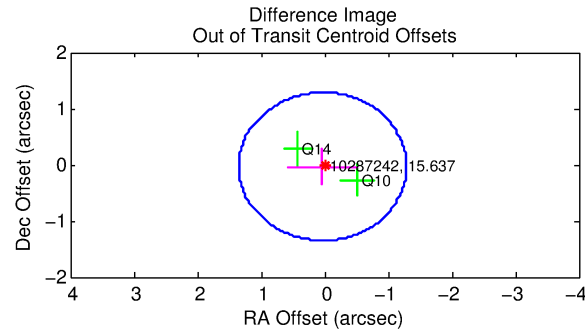
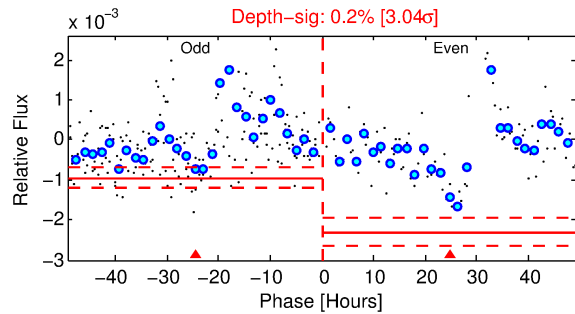
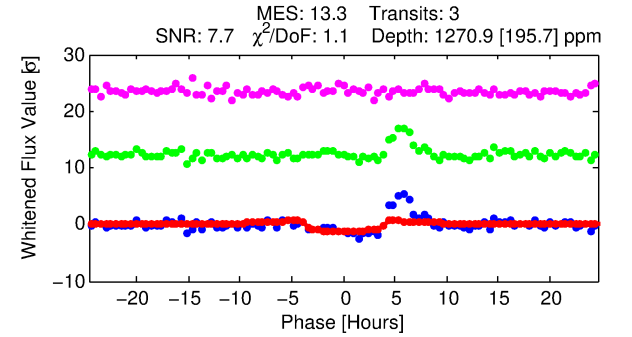
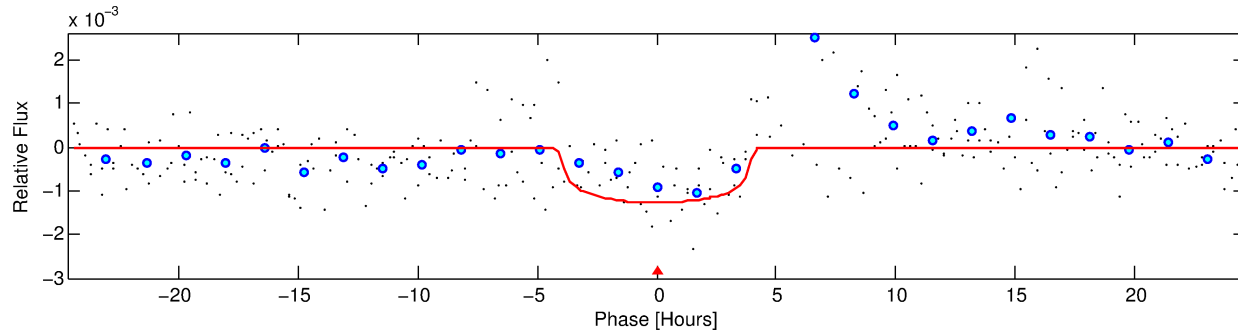
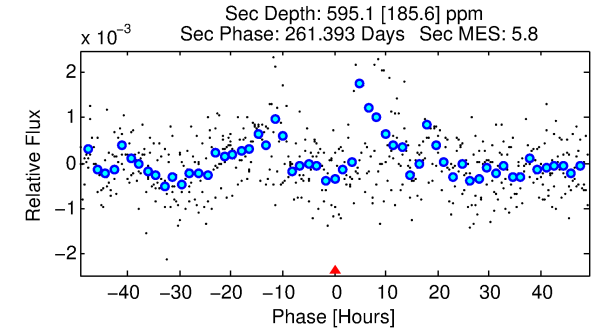
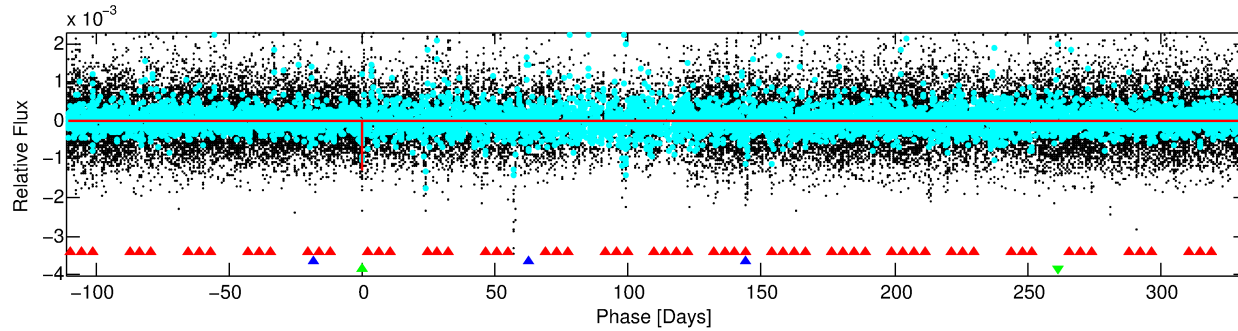
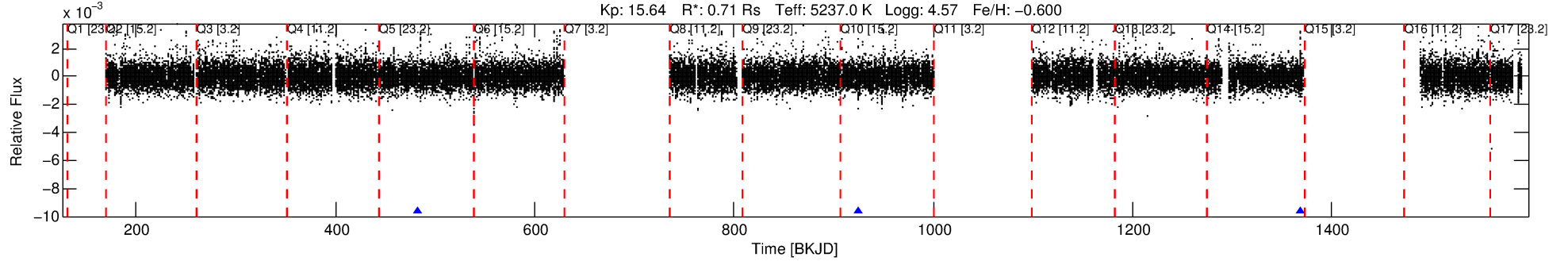
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010287242-03

No Significant Match Found

# DV One-Page Summary

KIC: 10287242 Candidate: 3 of 3 Period: 442.665 d  
KOI: K00735 Corr: No Ephemeris Match



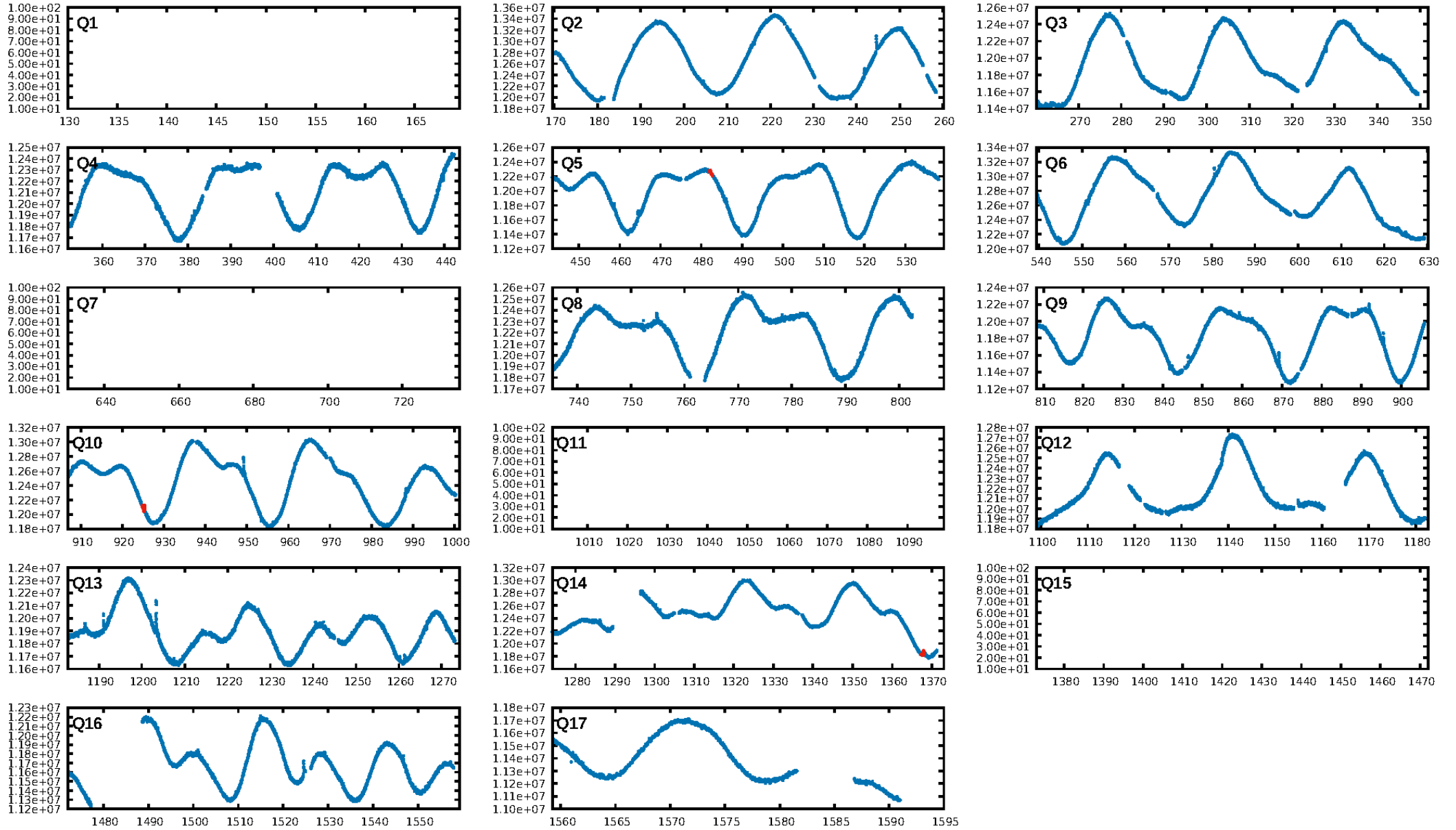
## DV Fit Results:

Period = 442.66511 [0.01058] d  
Epoch = 482.4253 [0.0130] BKJD  
Rp/R\* = 0.0331 [0.0217]  
a/R\* = 379.12 [982.87]  
b = 0.46 [4.43]  
Seff = 0.34 [0.06]  
Teq = 195 [9] K  
Rp = 2.55 [1.69] Re  
a = 0.9970 [0.0947] AU  
Ag = 50038.27 [67901.26] [0.74 $\sigma$ ]  
Teffp = 4499 [1523] K [2.83 $\sigma$ ]

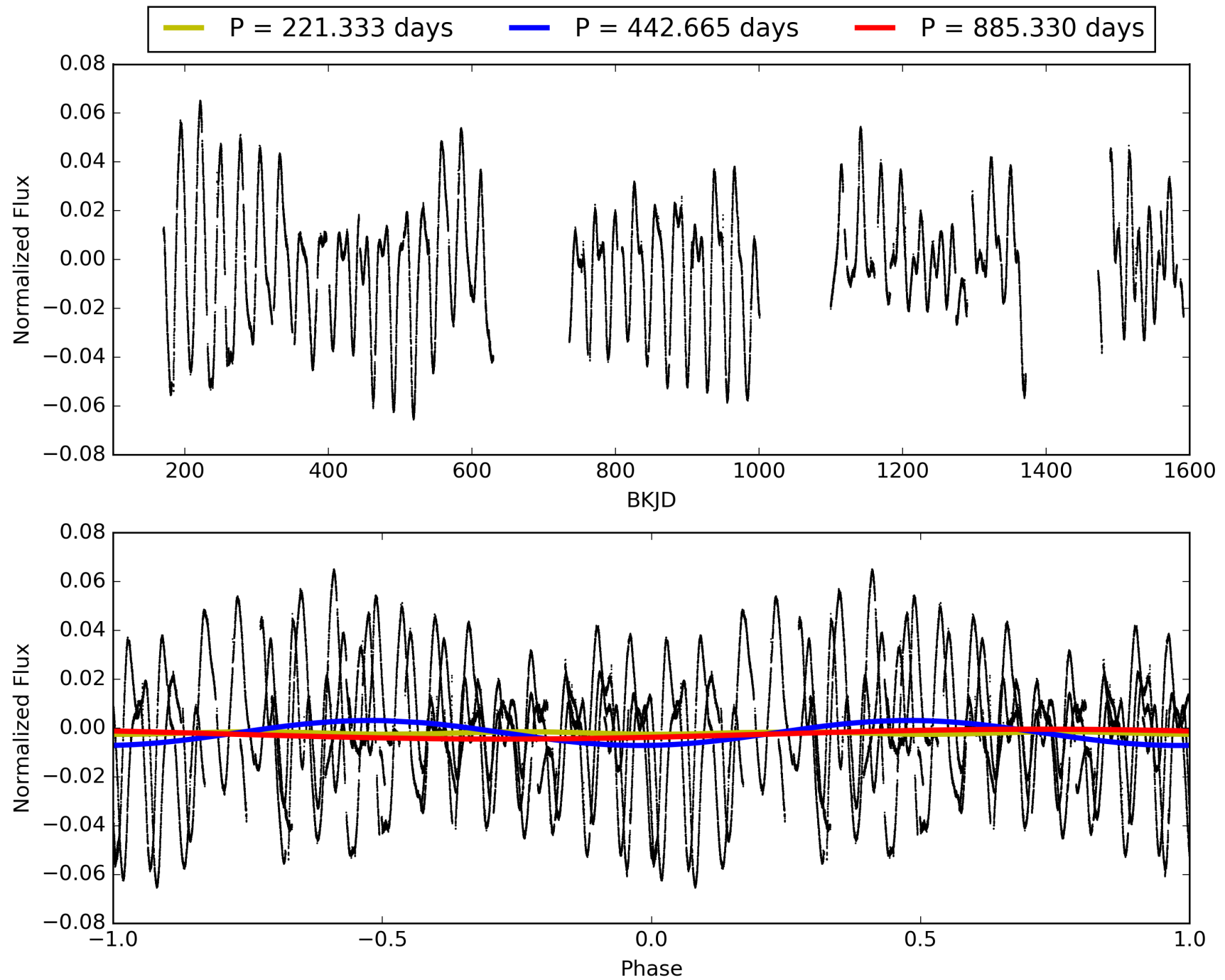
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [960.86 $\sigma$ ]  
LongPeriod-sig: 100.0% [118.22 $\sigma$ ]  
**ModelChiSquare2-sig: 0.1%**  
ModelChiSquareGof-sig: 93.2%  
Bootstrap-pfa: 3.95e-14  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.4527  
Centroid-sig: 78.8%  
Centroid-so: 1.077 arcsec [0.96 $\sigma$ ]  
OotOffset-rm: 0.046 arcsec [0.10 $\sigma$ ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-rm: 0.384 arcsec [0.87 $\sigma$ ]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 010287242-03, PDC Light Curves



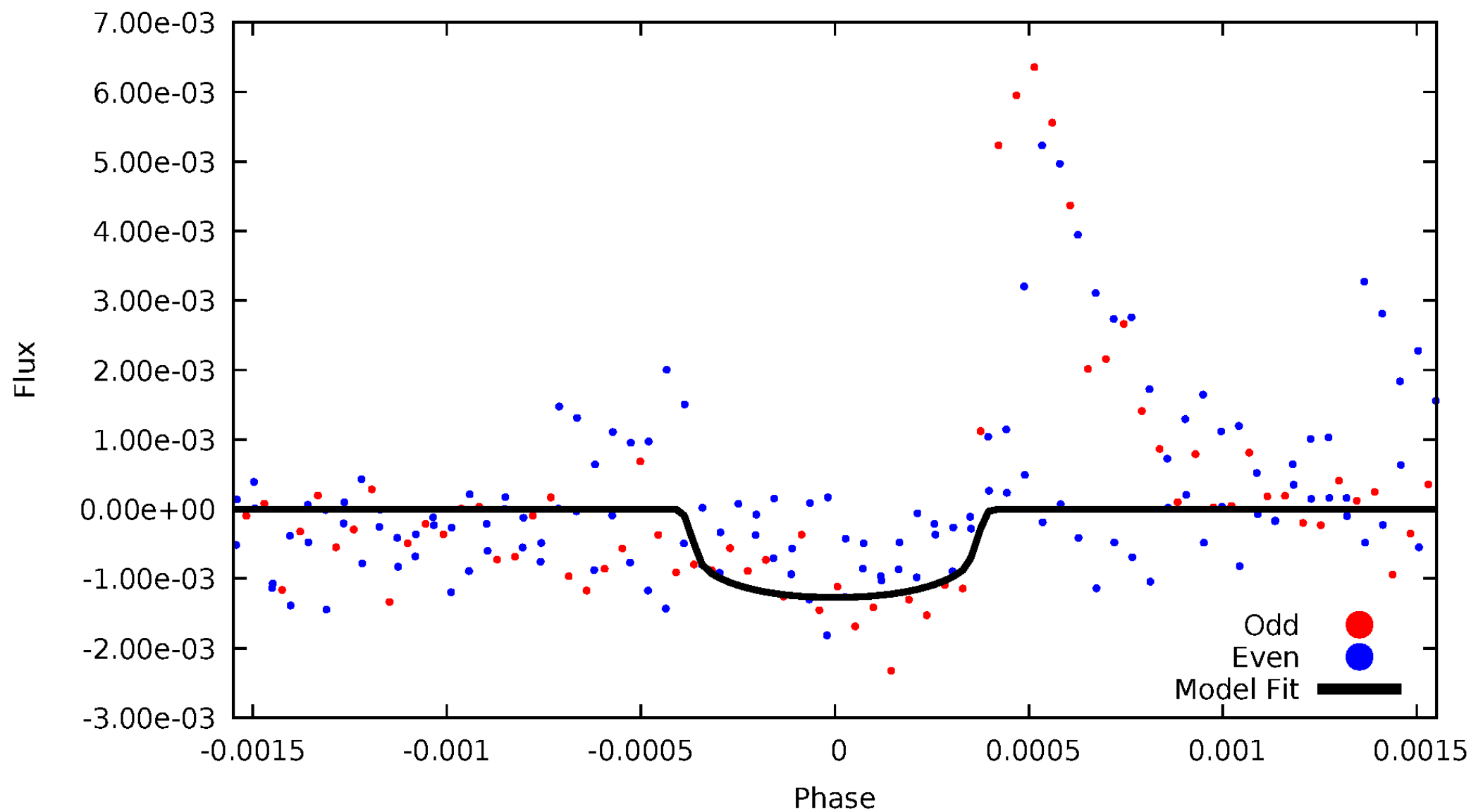
# TCE 010287242-03





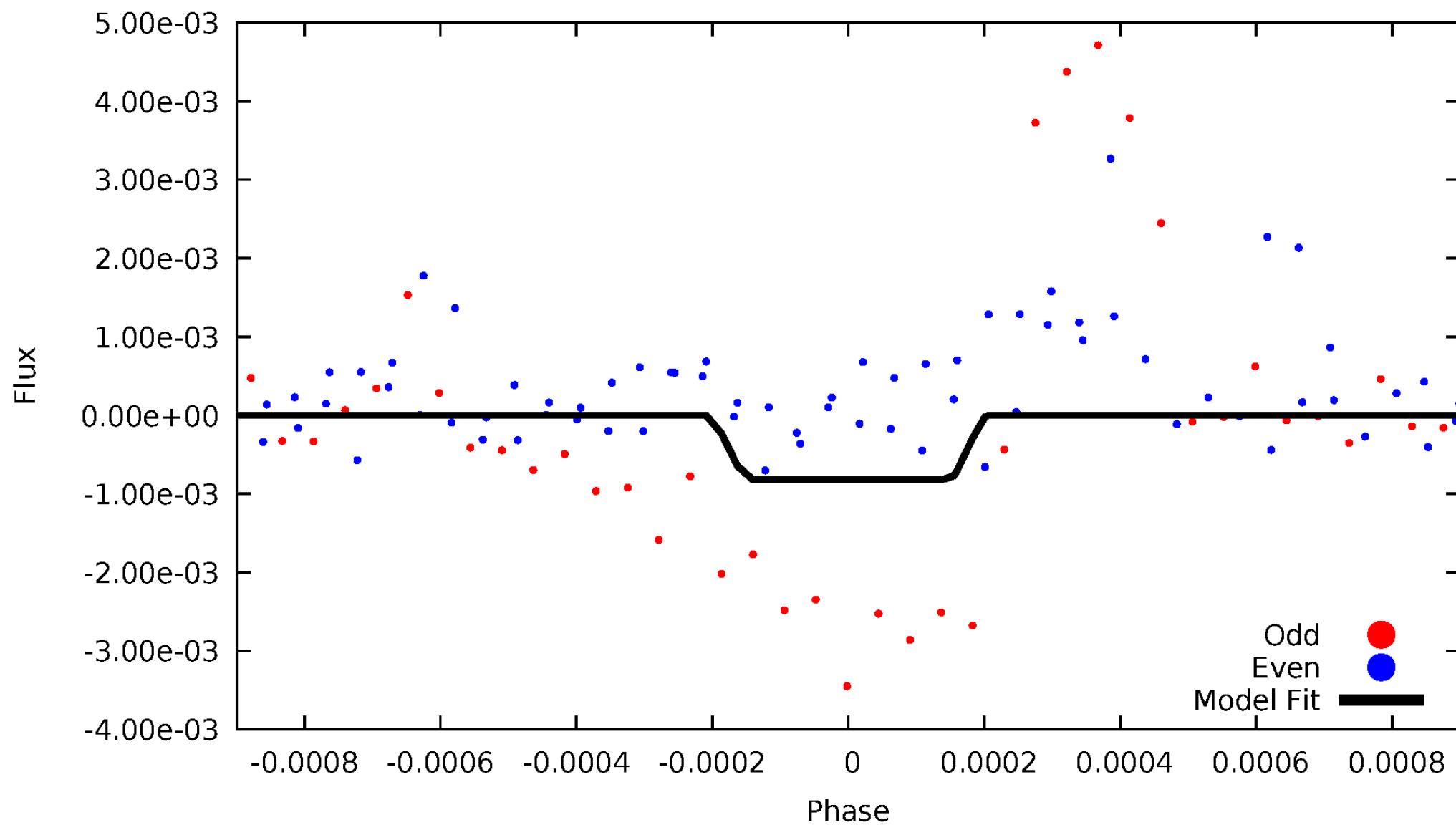
# DV Odd/Even

TCE 010287242-03



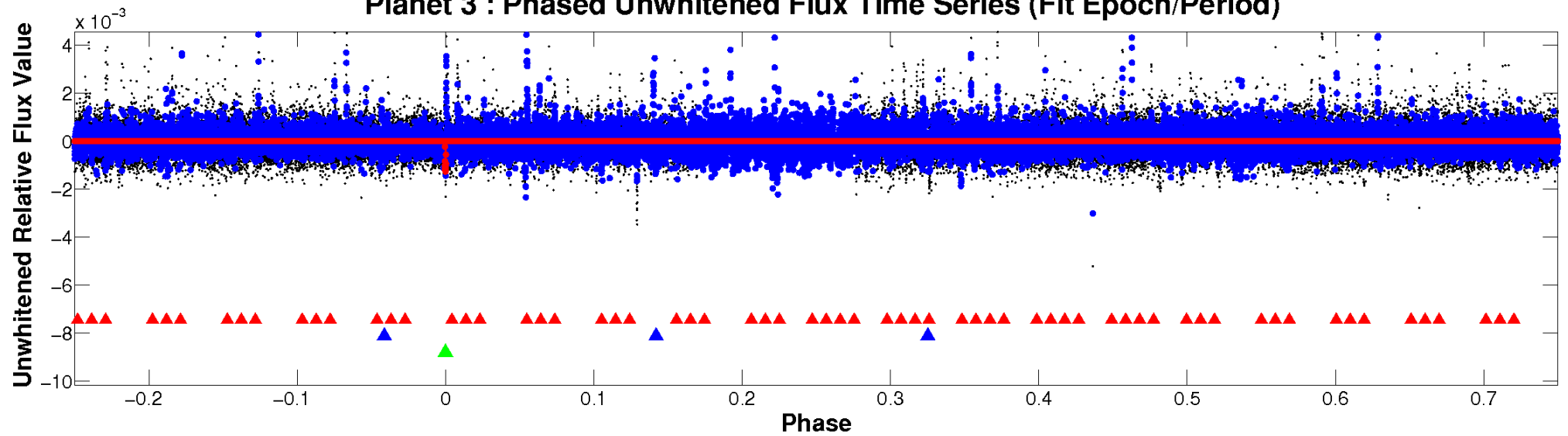
# ALT Odd/Even

TCE 010287242-03

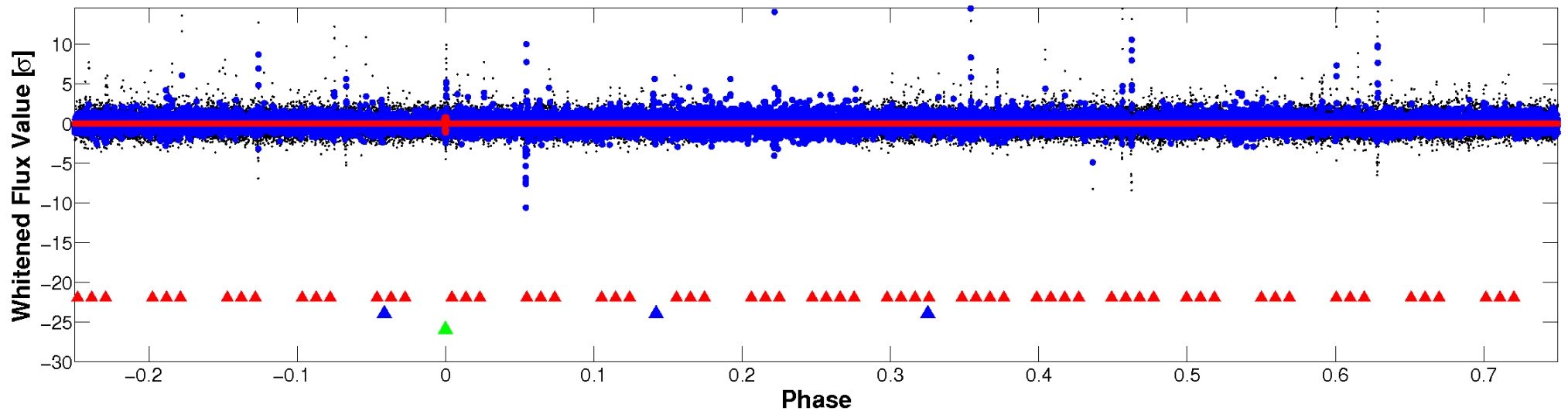


# Non-Whitened Vs. Whitened Light Curve

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

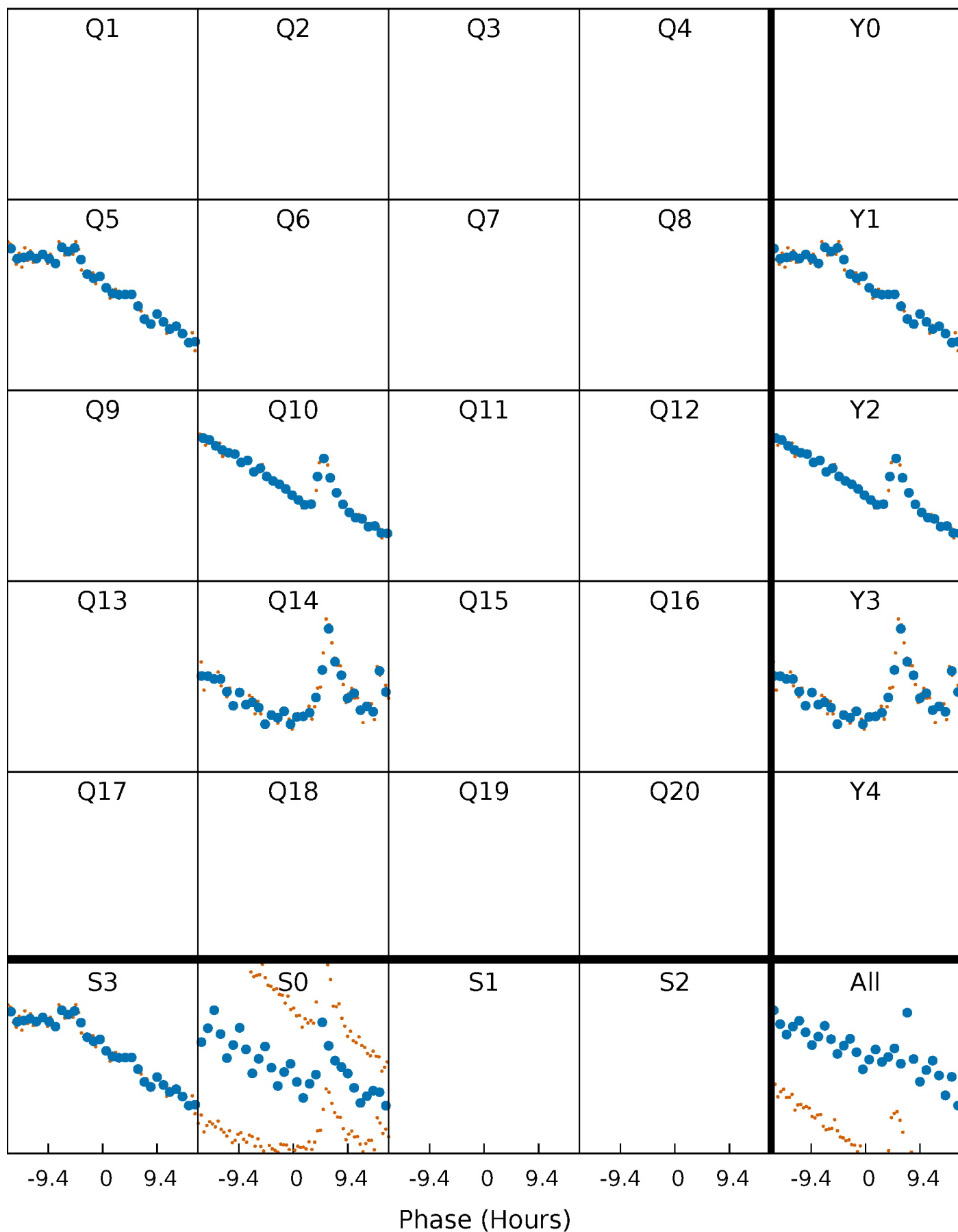


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



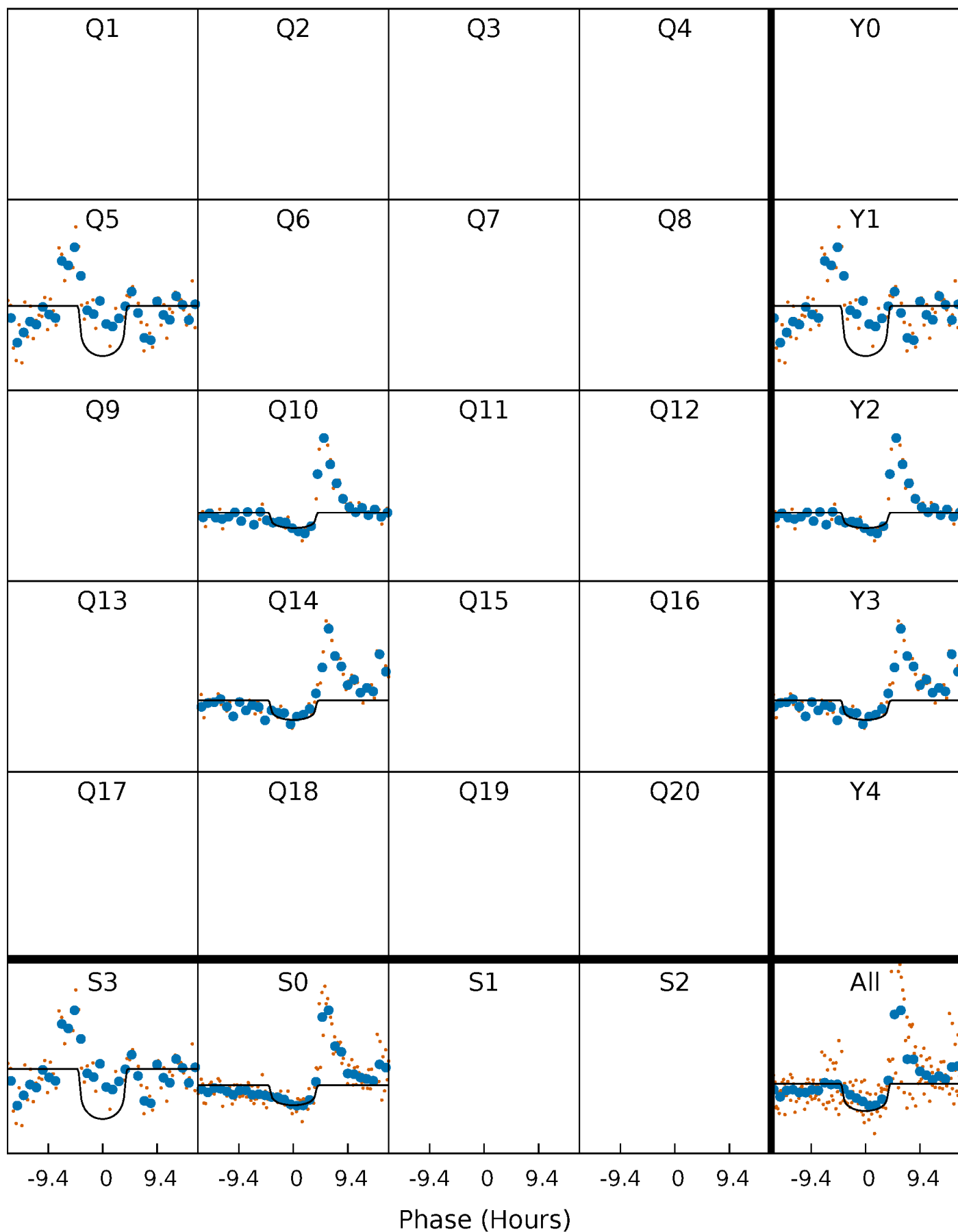
# PDC Quarter-Phased Transit Curves

TCE 010287242-03     $P=442.665113$  Days     $T_0=482.425319$  (BKJD)



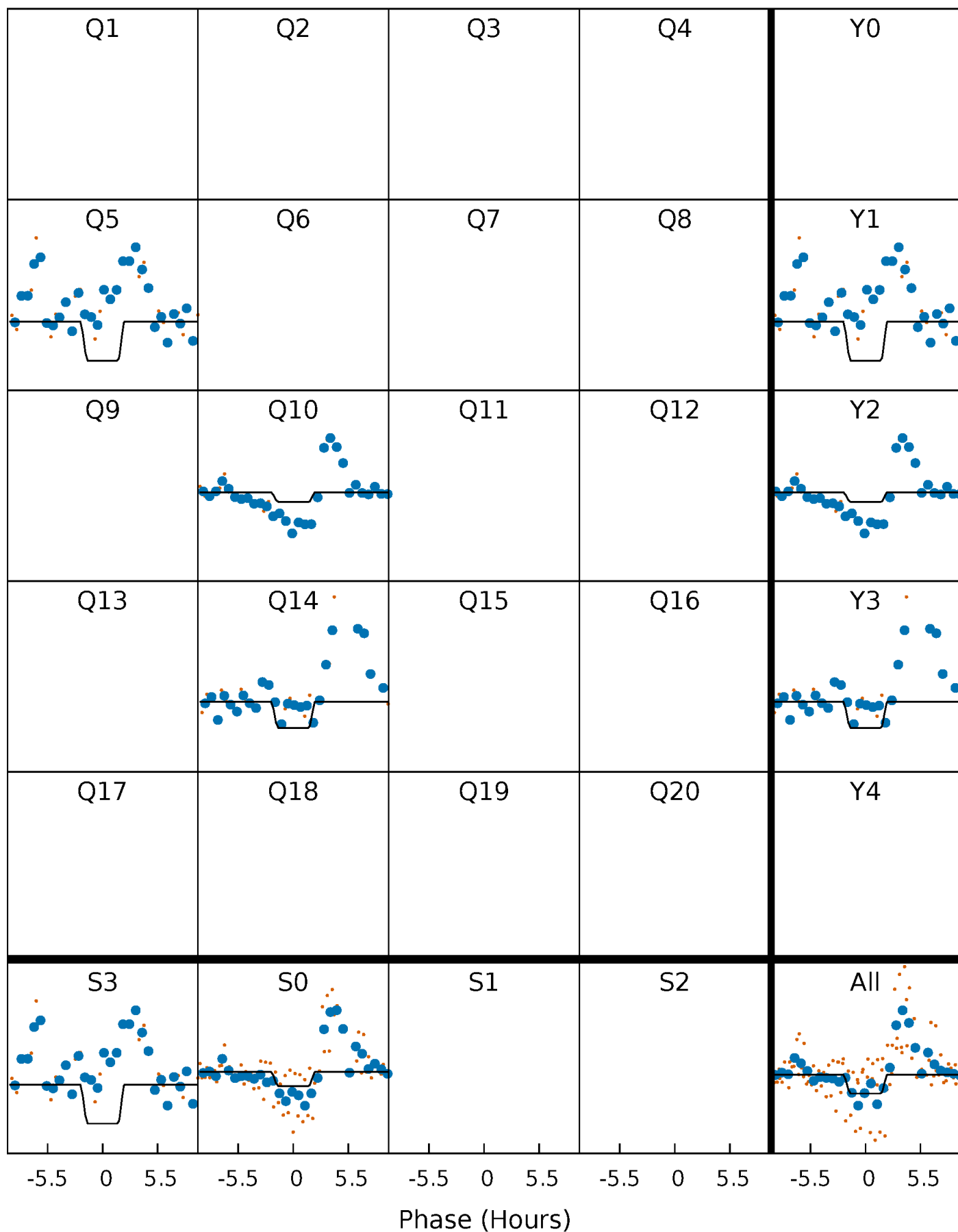
# DV Quarter-Phased Transit Curves

TCE 010287242-03     $P=442.665113$  Days     $T_0=482.425319$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

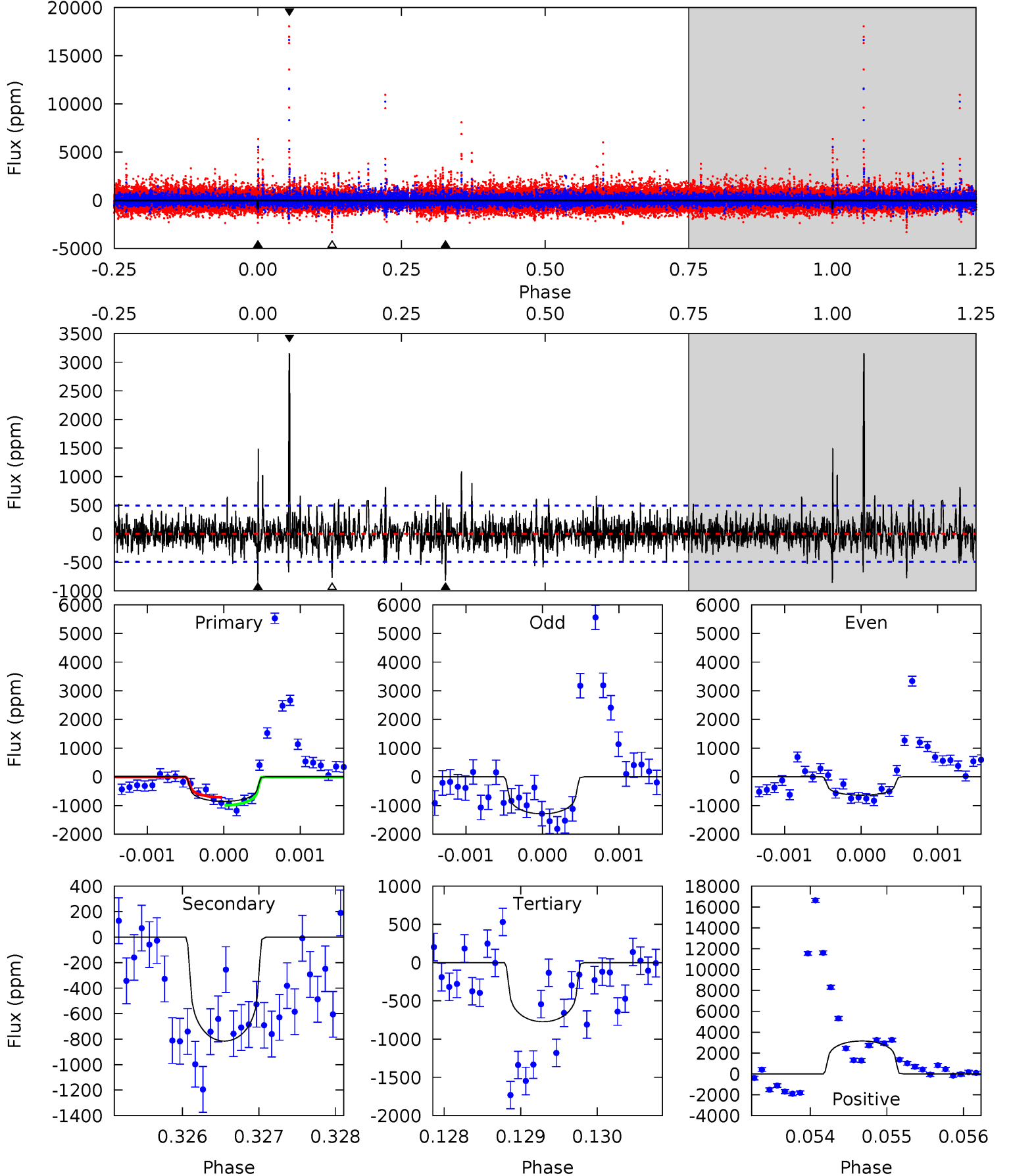
TCE 010287242-03     $P=442.645399$  Days     $T_0=482.509870$  (BKJD)



# DV Model-Shift Uniqueness Test

010287242-03, P = 442.665113 Days, E = 39.760206 Days

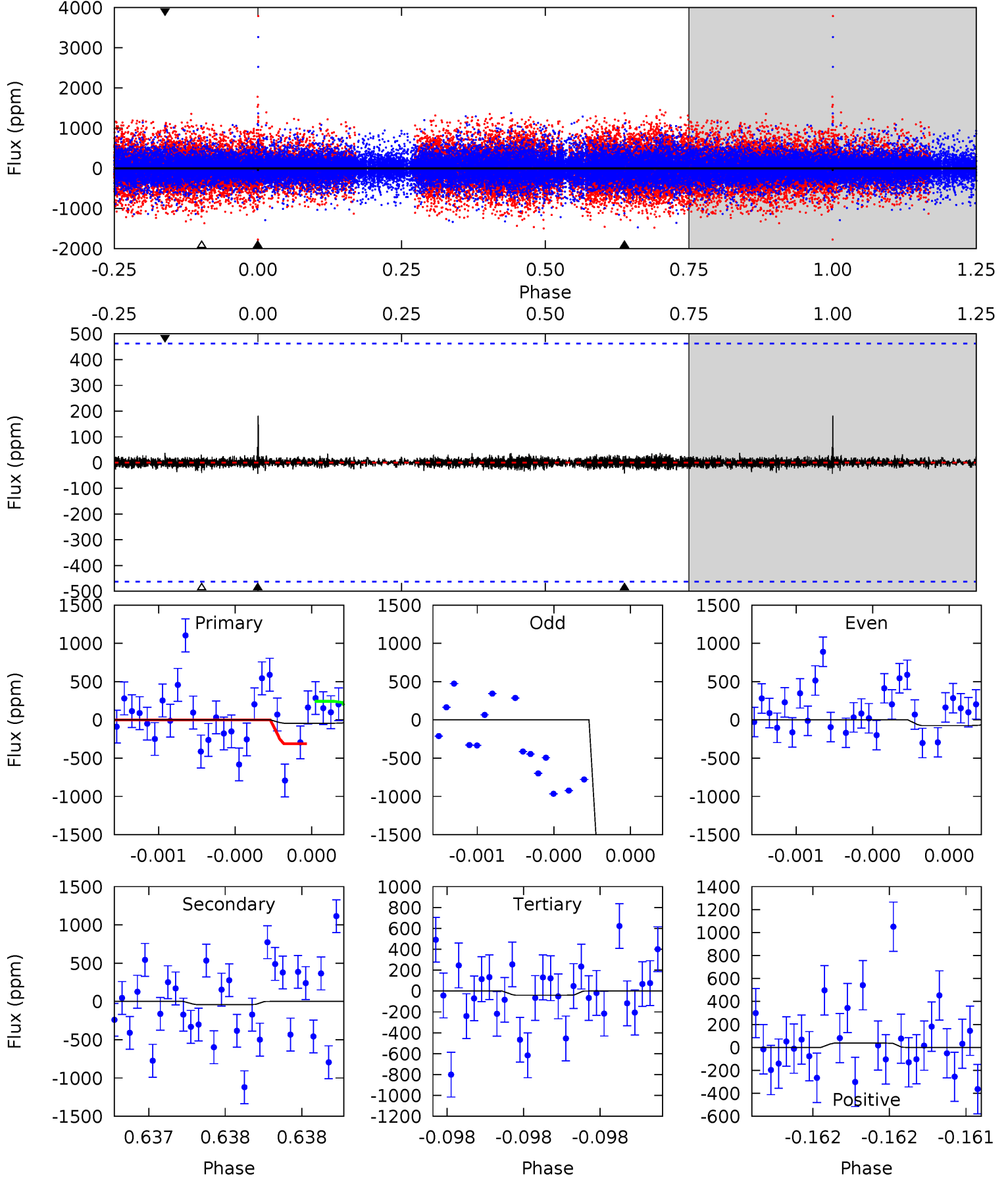
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.54	9.09	8.61	35.2	5.49	3.35	2.18	0.92	-25.7	0.48	-26.1	3.08	0.85	0.79	1.57



# Alt Model-Shift Uniqueness Test

010287242-03, P = 442.645399 Days, E = 39.864471 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
0.53	0.51	0.49	0.46	5.62	3.55	0.11	0.04	0.07	0.02	0.05	16.1	4.48	0.81	0





### Stellar Parameters For KIC 010287242

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5237^{+157}_{-157}$	$4.568^{+0.084}_{-0.056}$	$-0.600^{+0.350}_{-0.300}$	$0.707^{+0.074}_{-0.074}$	$0.674^{+0.084}_{-0.039}$	$2.688^{+0.948}_{-0.544}$
	+3%/-3%	+2%/-1%	+58%/-50%	+10%/-10%	+12%/-6%	+35%/-20%
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 010287242-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-815 \pm 90$	$2.71^{+1.52}_{-1.52}$	$271^{+11}_{-11}$	$4820^{+2193}_{-795}$	$63283^{+263875}_{-38098}$
Alt.	$-42 \pm 82$	$2.33^{+1.59}_{-1.44}$	$271^{+11}_{-11}$	$2935^{+1179}_{-5917}$	$3325^{+25244}_{-6793}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

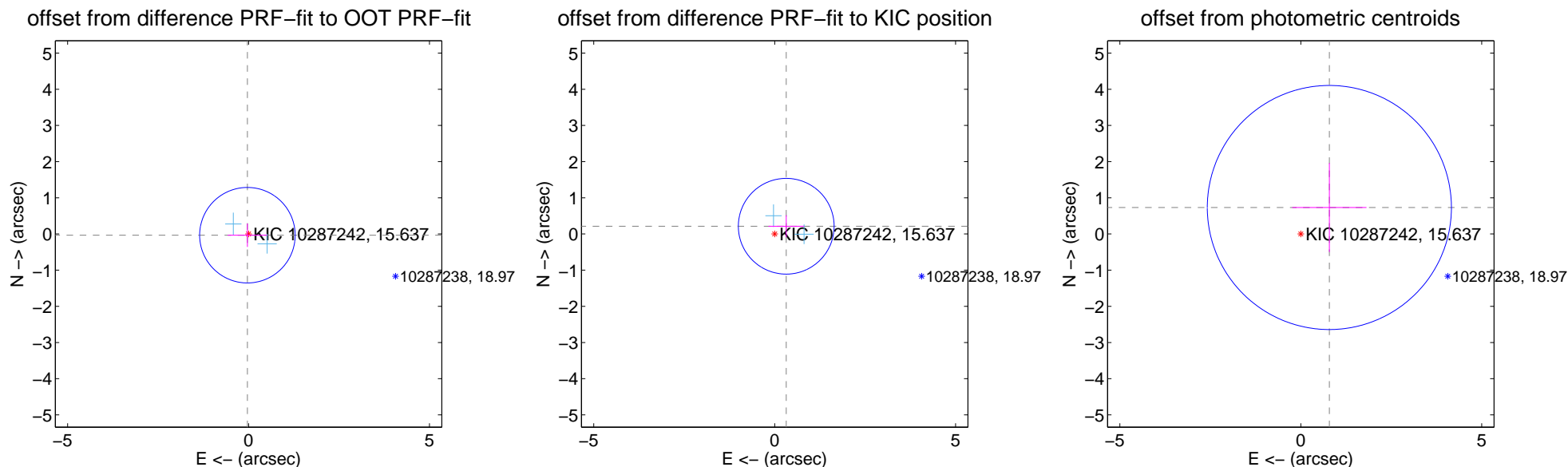
## DV Centroid Data

Supplemental centroid analysis for 010287242-03. Kepler magnitude: 15.64. Transit SNR 7.73

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.046 \pm 0.440$	0.10	$0.032 \pm 0.543$	$-0.034 \pm 0.324$
PRF-fit source offset from KIC position	$0.384 \pm 0.441$	0.87	$-0.320 \pm 0.490$	$0.214 \pm 0.304$
photometric centroid source offset	$1.08 \pm 1.12$	0.96	$-0.79 \pm 1.03$	$0.73 \pm 1.23$

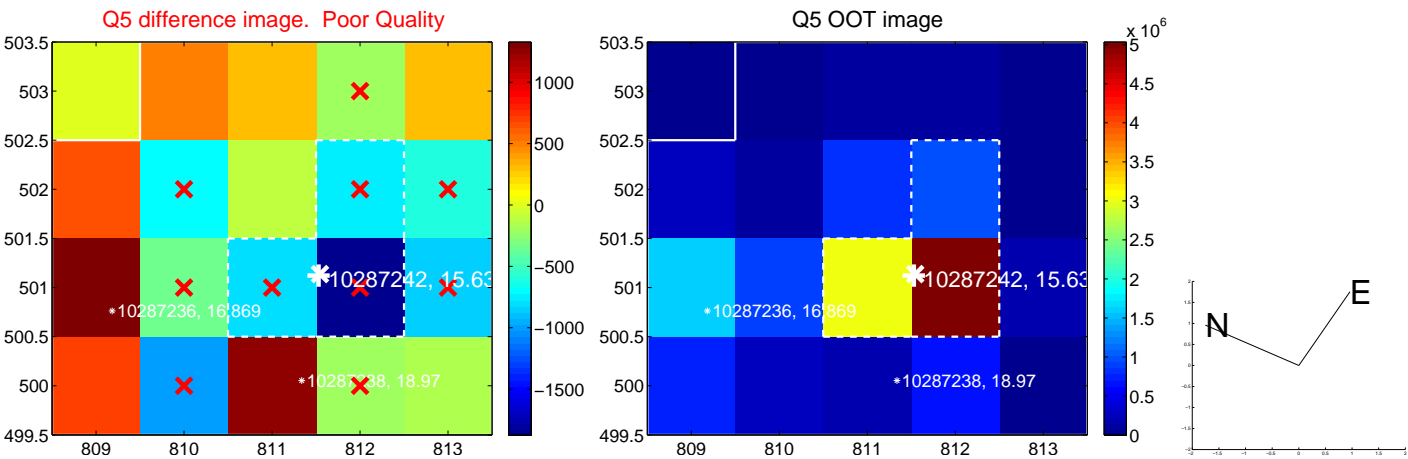


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

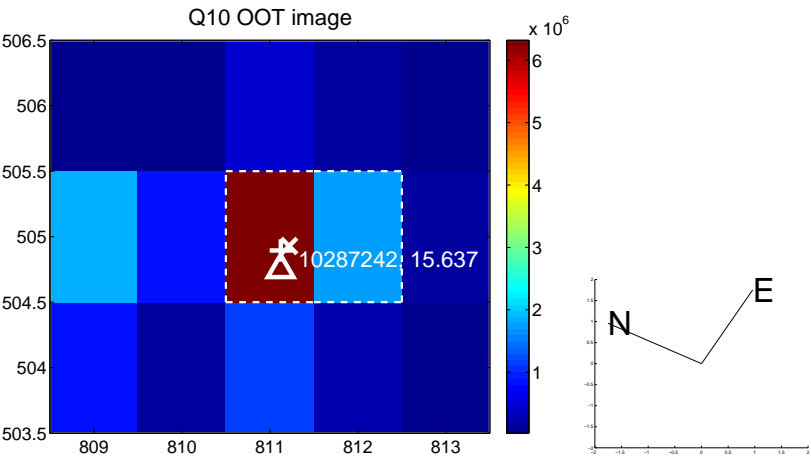
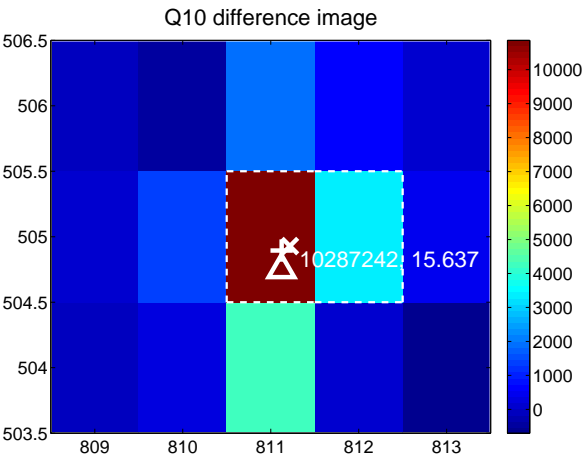


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

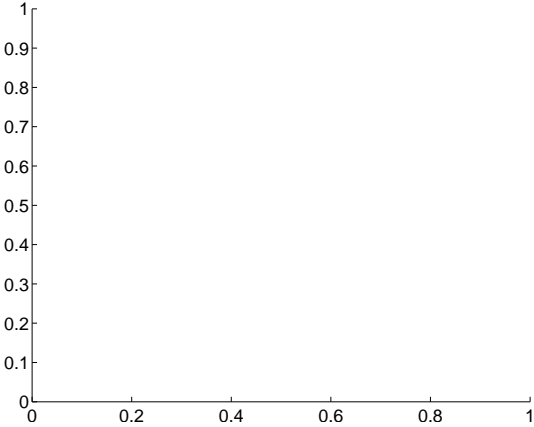
Q9 no difference image



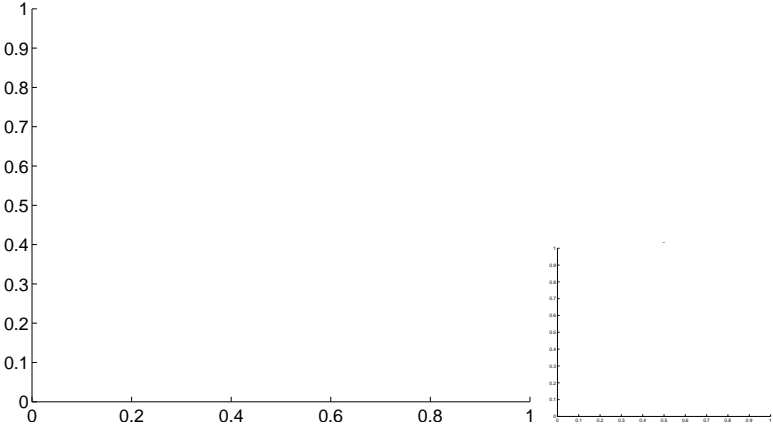
Q9 no OOT image



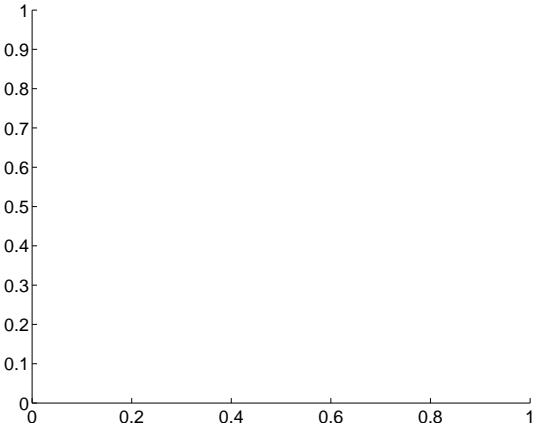
Q11 no difference image



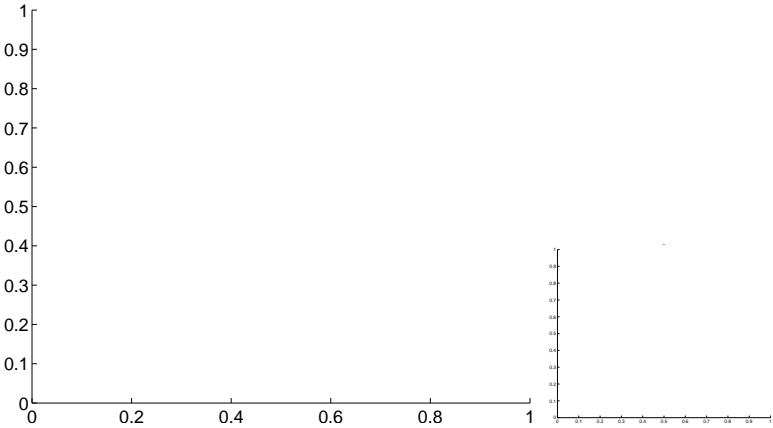
Q11 no OOT image



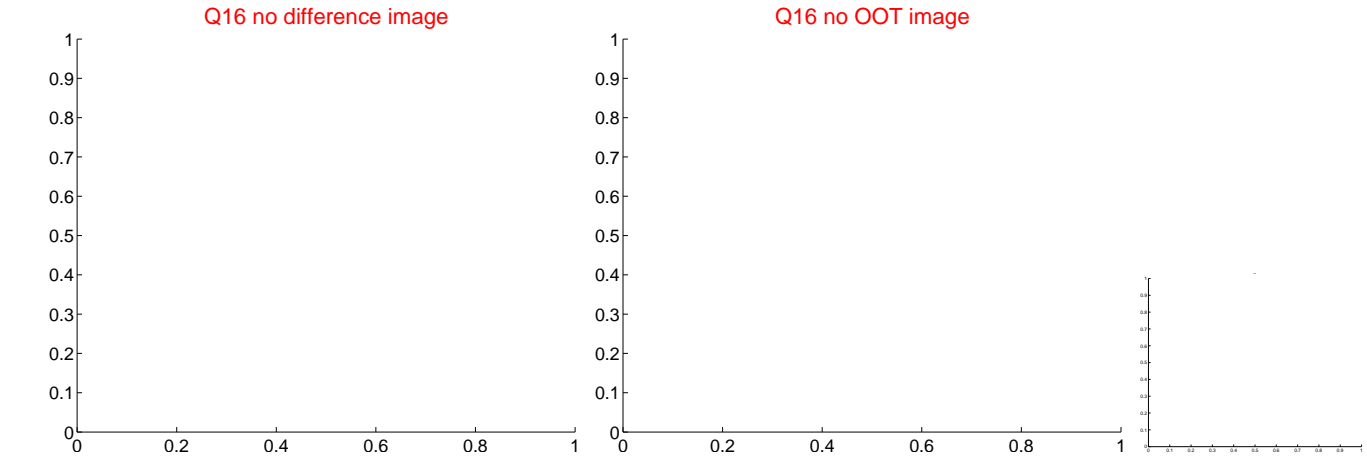
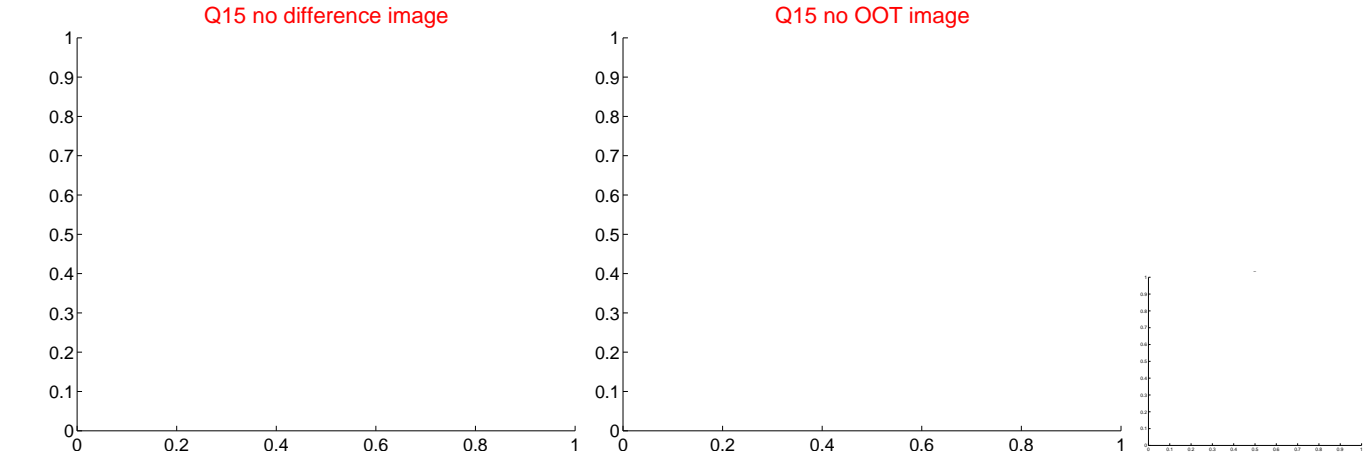
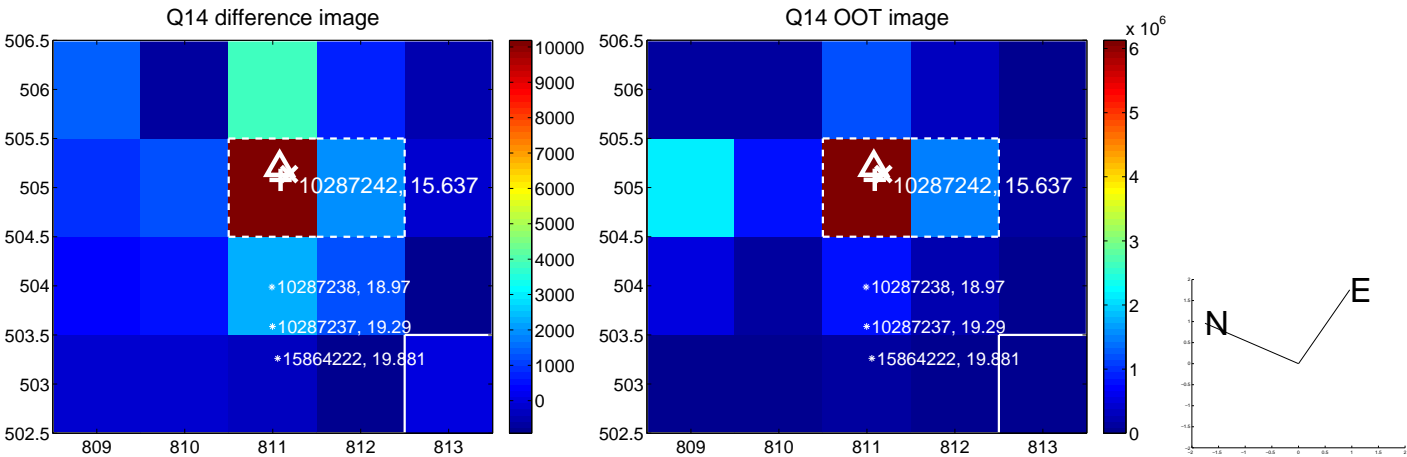
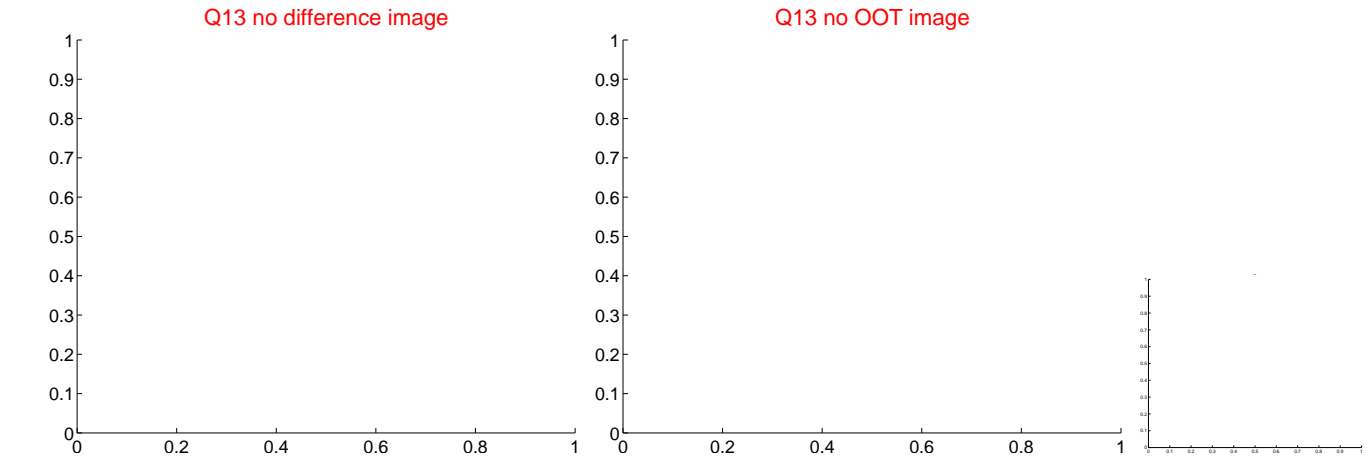
Q12 no difference image



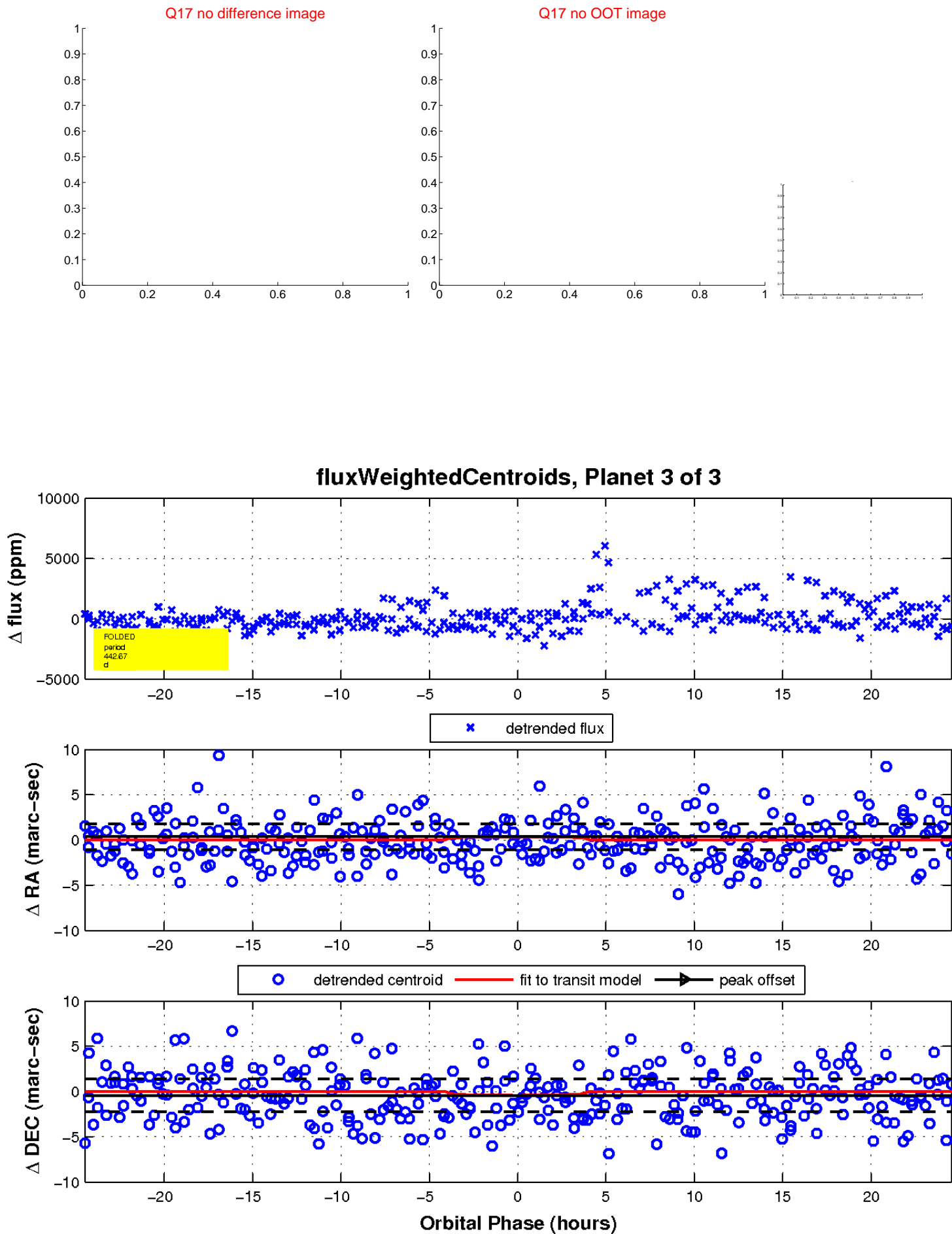
Q12 no OOT image



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

