

# KIC 003337061

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003337061-01	OBS	3172.01	6.558544	133.809863	85.2	1.946	12.9	14.4	1.61	6144	1.75	641.88
003337061-02	OBS	No	302.449354	277.407064	230.5	8.453	9.6	7.4	1.61	6144	2.68	3.88
003337061-03	OBS	No	486.213498	214.137378	249.0	7.342	7.7	7.4	1.61	6144	2.82	2.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003337061-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—CENT_SATURATED
003337061-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003337061-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

**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 003337061-01

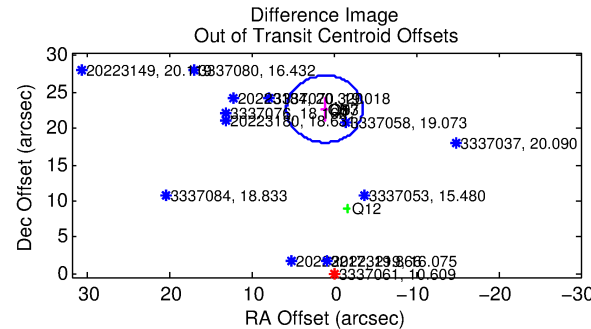
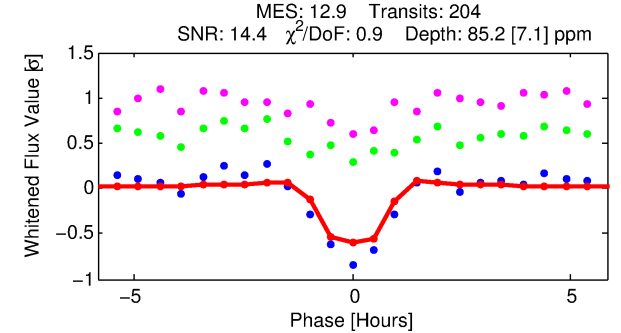
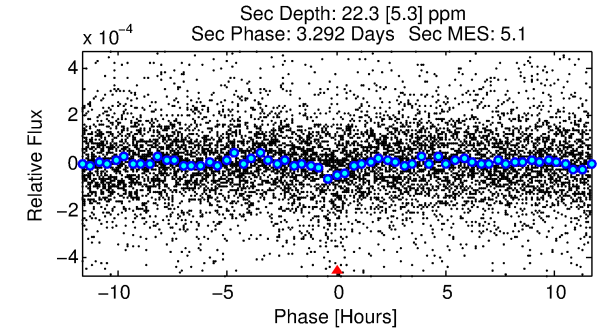
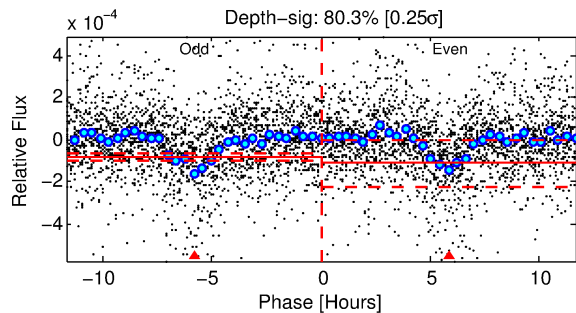
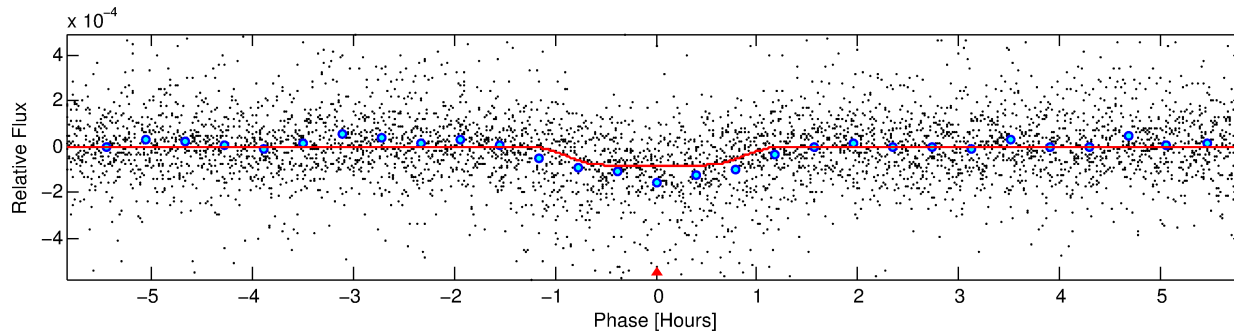
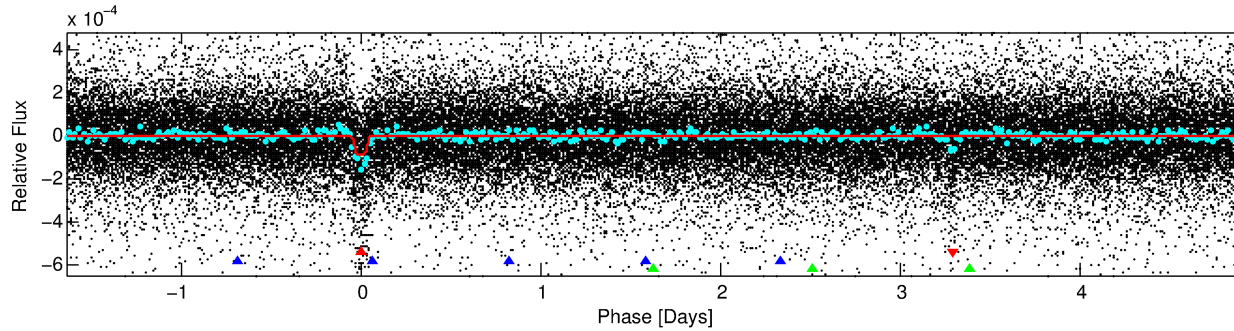
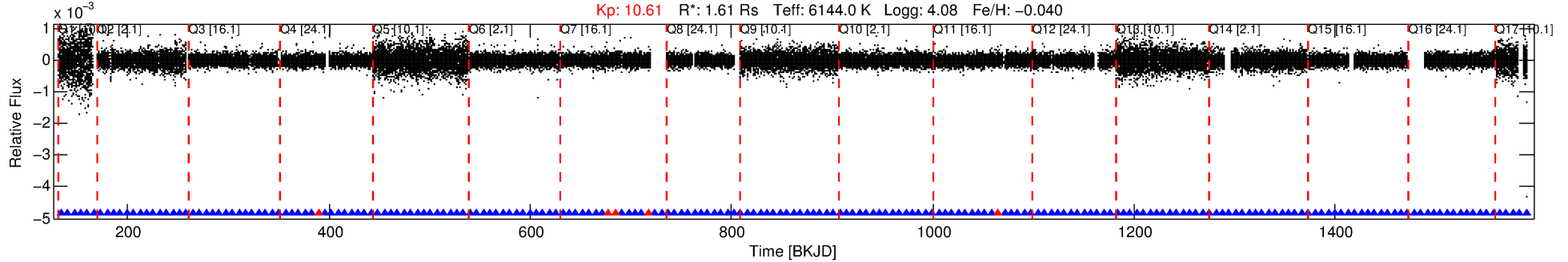
No Significant Match Found

# DV One-Page Summary

KIC: 3337061 Candidate: 1 of 3 Period: 6.559 d

KOI: K03172 Corr: No Ephemeris Match

Kp: 10.61 R\*: 1.61 Rs Teff: 6144.0 K Logg: 4.08 Fe/H: -0.040



## DV Fit Results:

Period = 6.55854 [0.00003] d  
Epoch = 133.8099 [0.0028] BKJD  
Rp/R\* = 0.0100 [0.0047]  
a/R\* = 11.65 [28.94]  
b = 0.90 [0.52]  
Seff = 641.88 [191.97]  
Teq = 1283 [96] K  
Rp = 1.75 [0.90] Re  
a = 0.0716 [0.0137] AU  
Ag = 20.47 [20.68] [0.94σ]  
Teff = 4221 [1022] K [2.86σ]

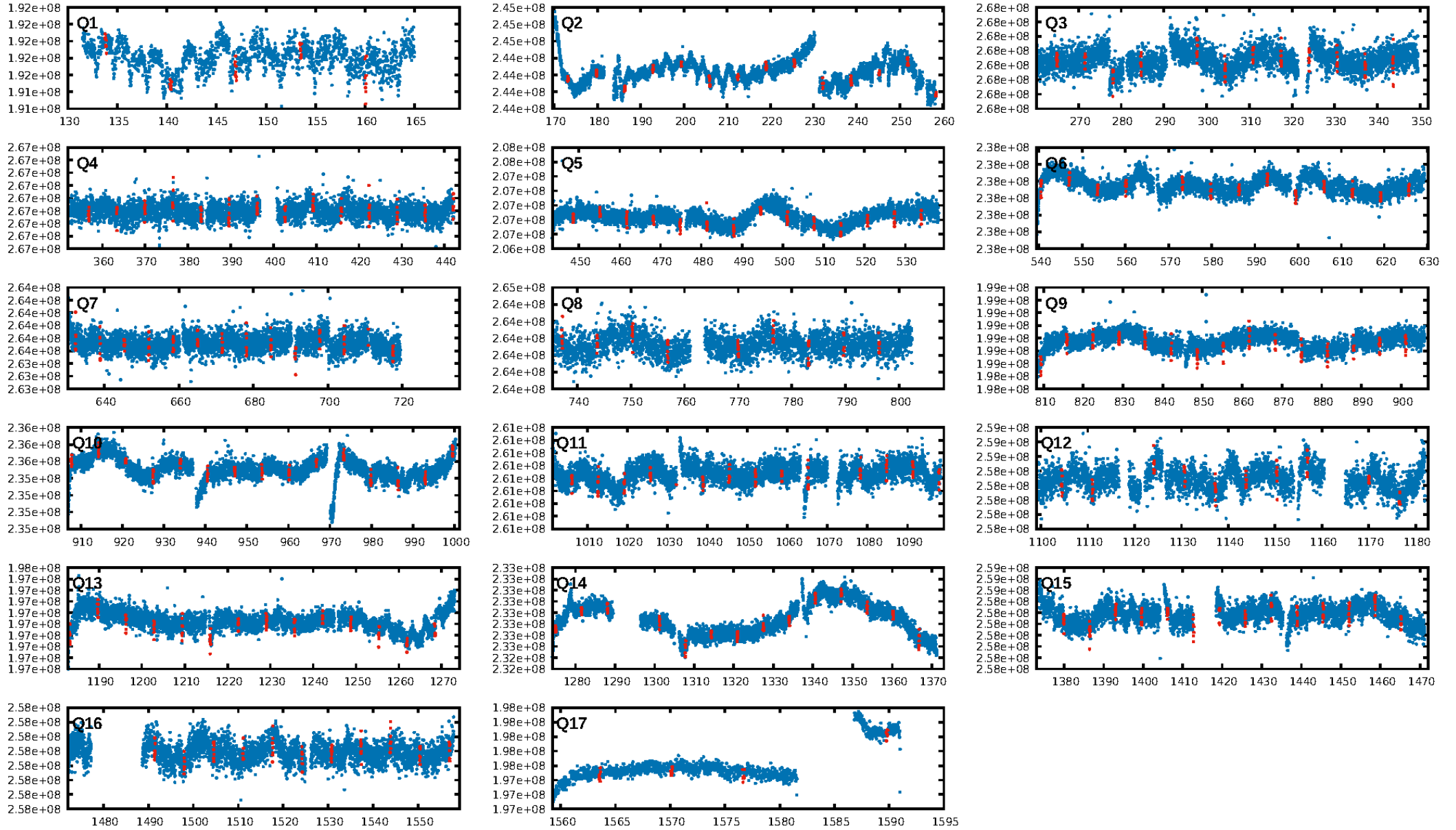
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [818.64σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.90e-36  
RollingBand-fgt: 0.97 [190/195]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.0%  
Centroid-so: 53.647 arcsec [67.57σ]  
OotOffset-rm: 22.704 arcsec [14.76σ]  
KicOffset-rm: 20.791 arcsec [15.25σ]  
OotOffset-st: 1/2/1/5 [9]  
KicOffset-st: 1/2/1/5 [9]  
DiffImageQuality-fgm: 0.89 [8/9]  
DiffImageOverlap-fno: 1.00 [17/17]

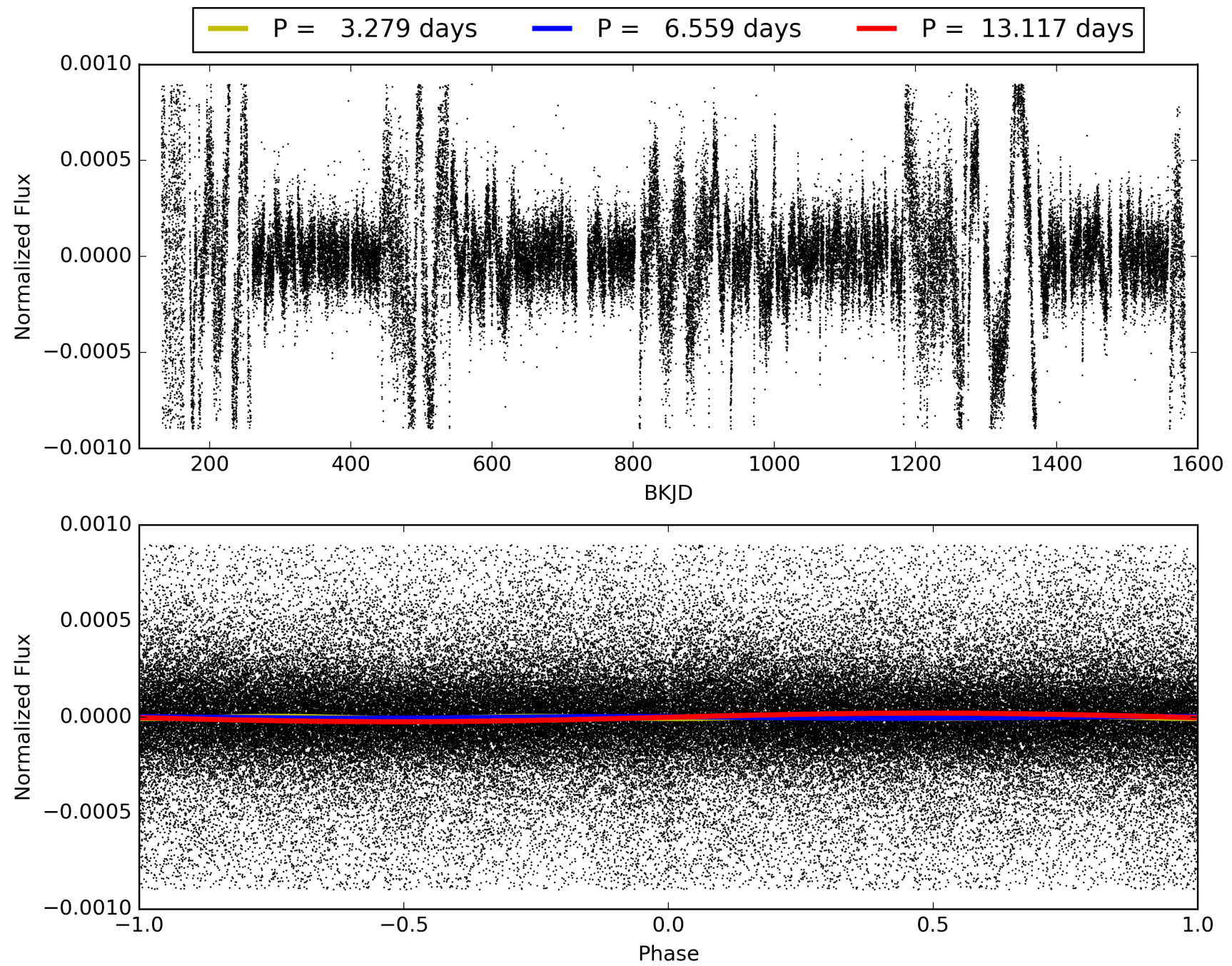
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:35:05 Z

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

# TCE 003337061-01, PDC Light Curves

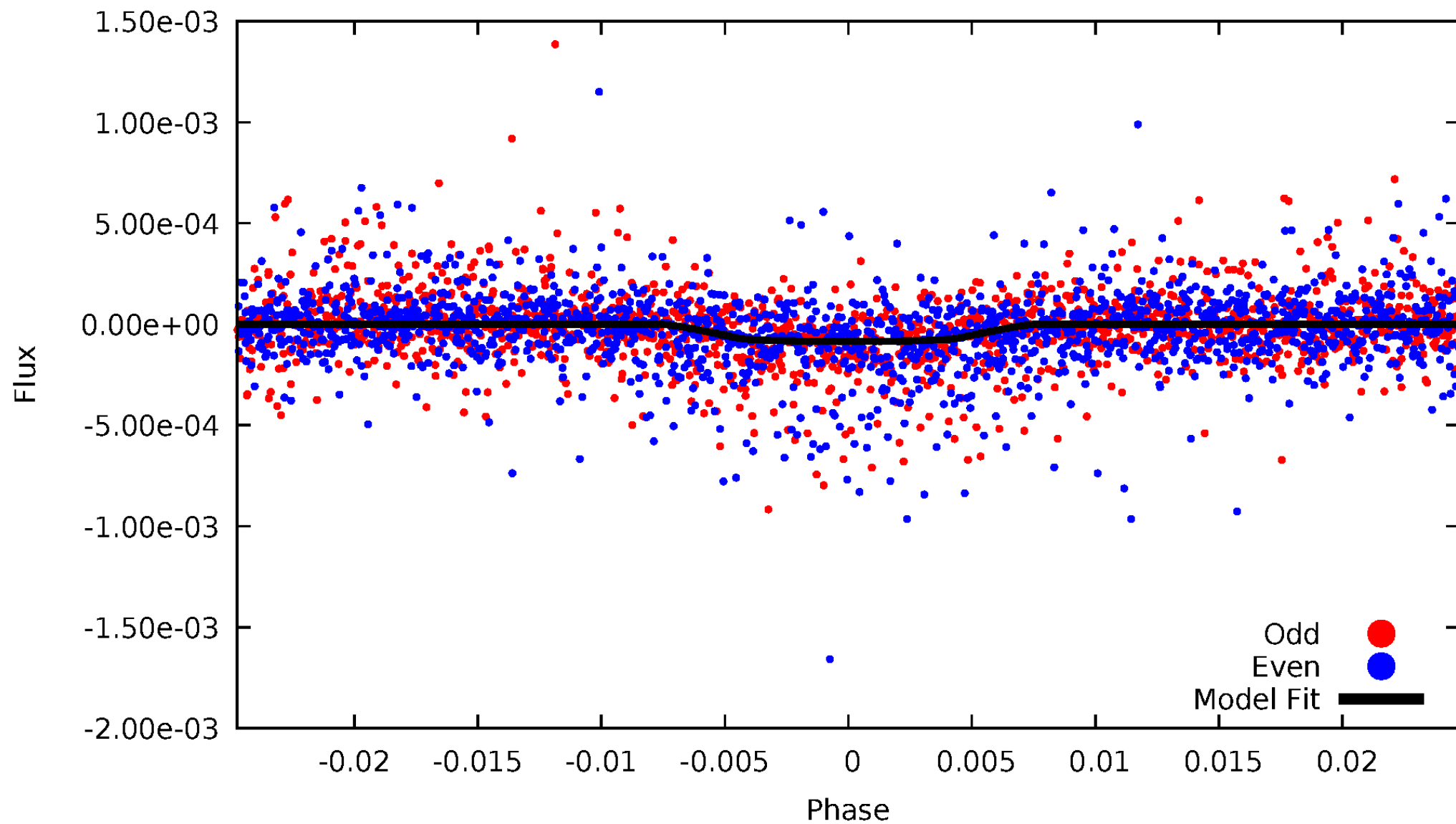


TCE 003337061-01



# DV Odd/Even

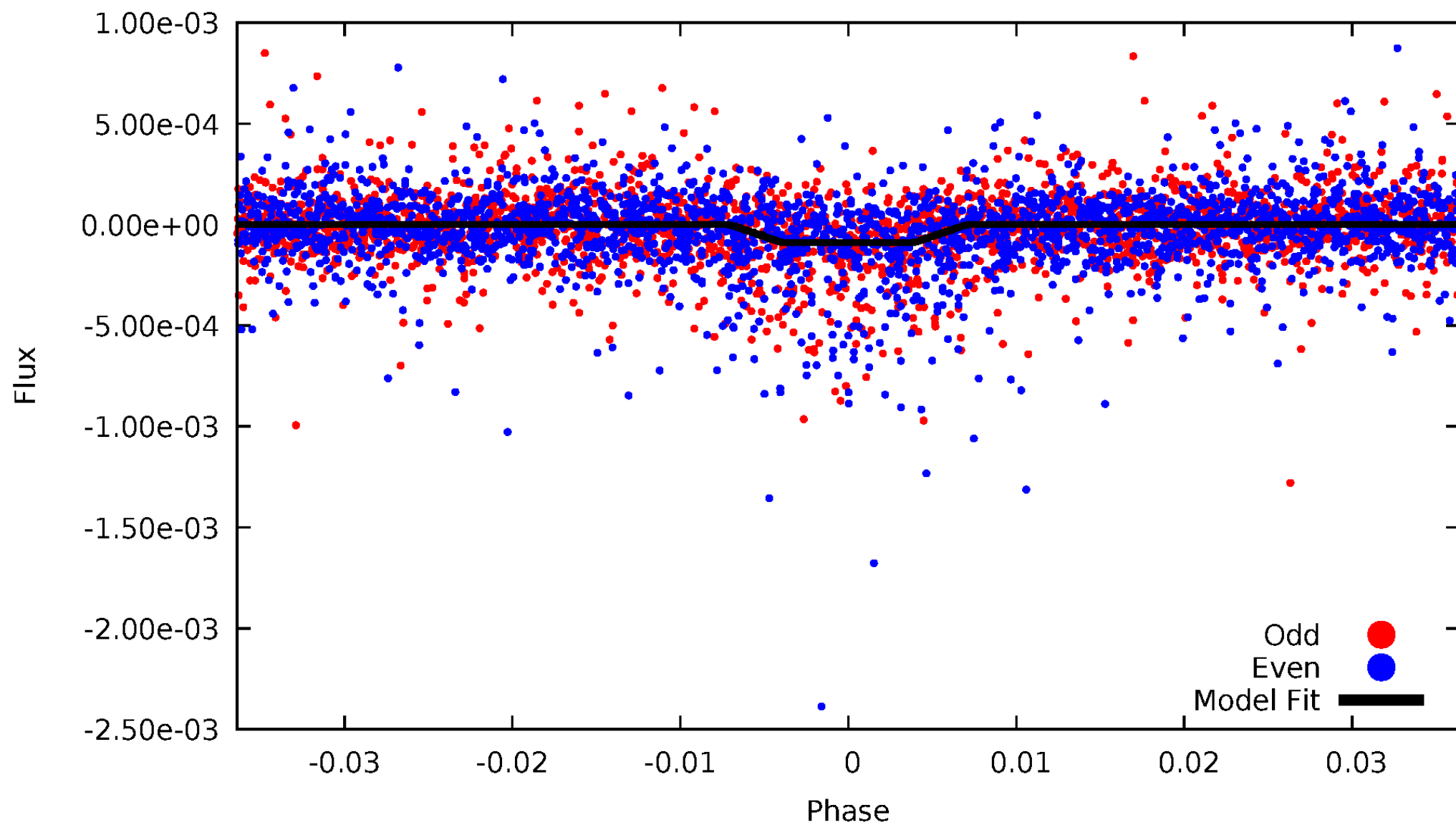
TCE 003337061-01



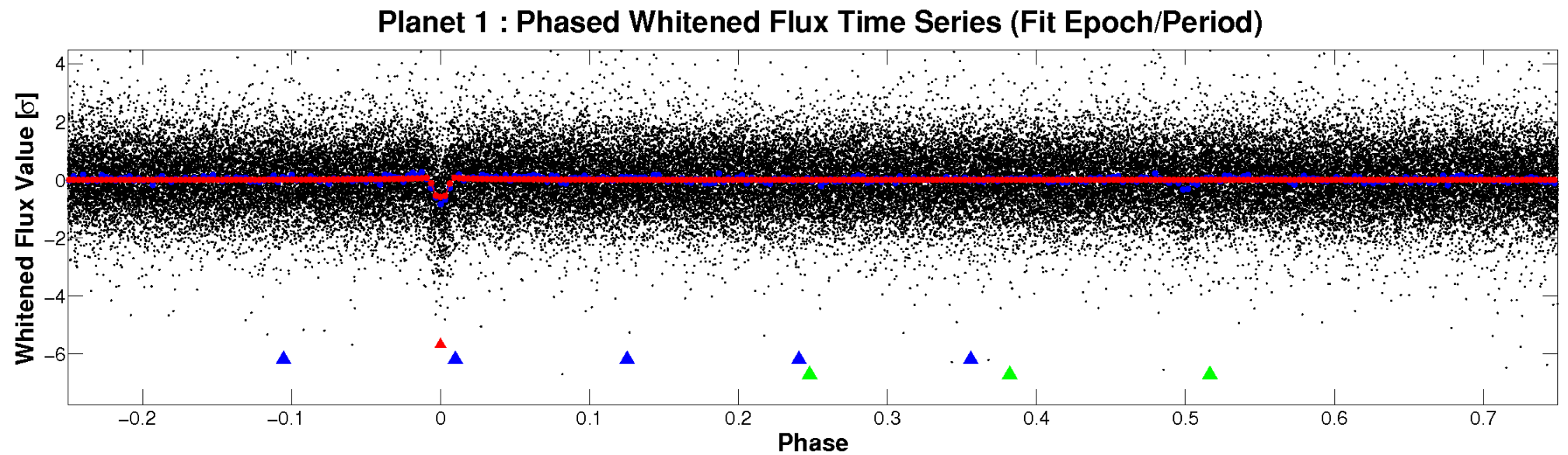
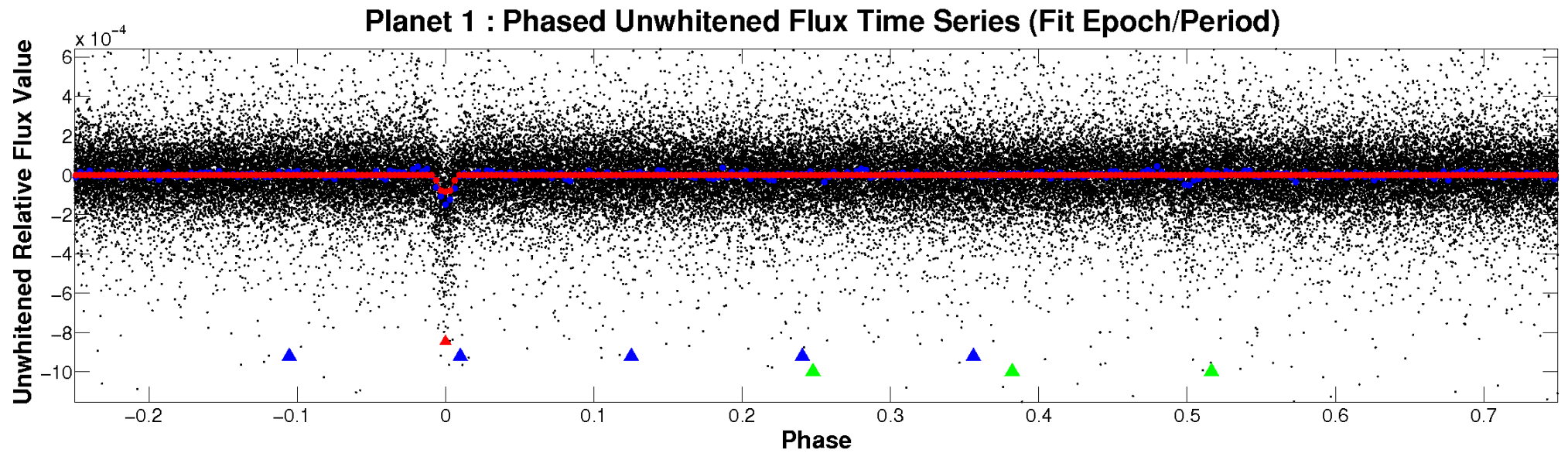


# ALT Odd/Even

TCE 003337061-01

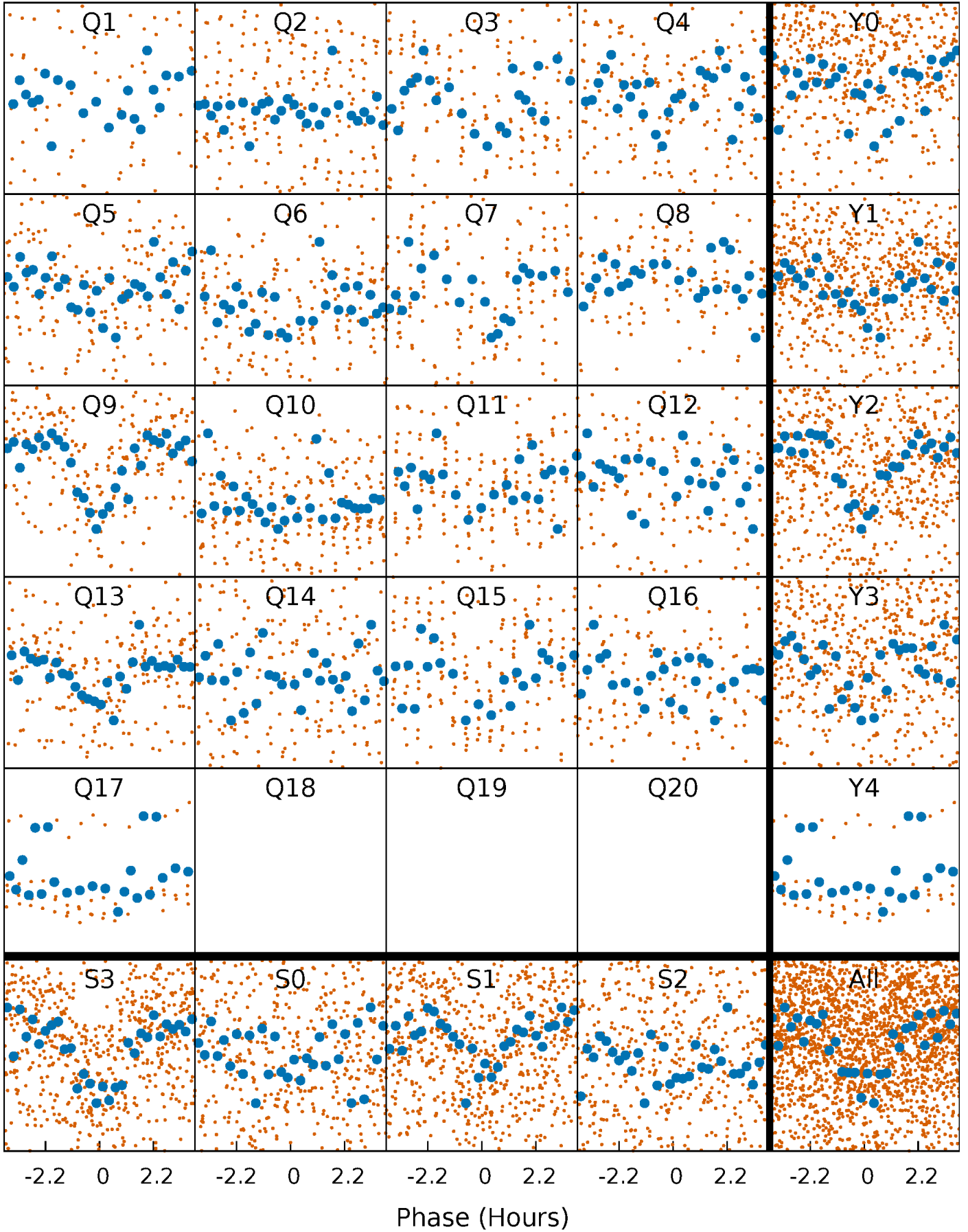


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

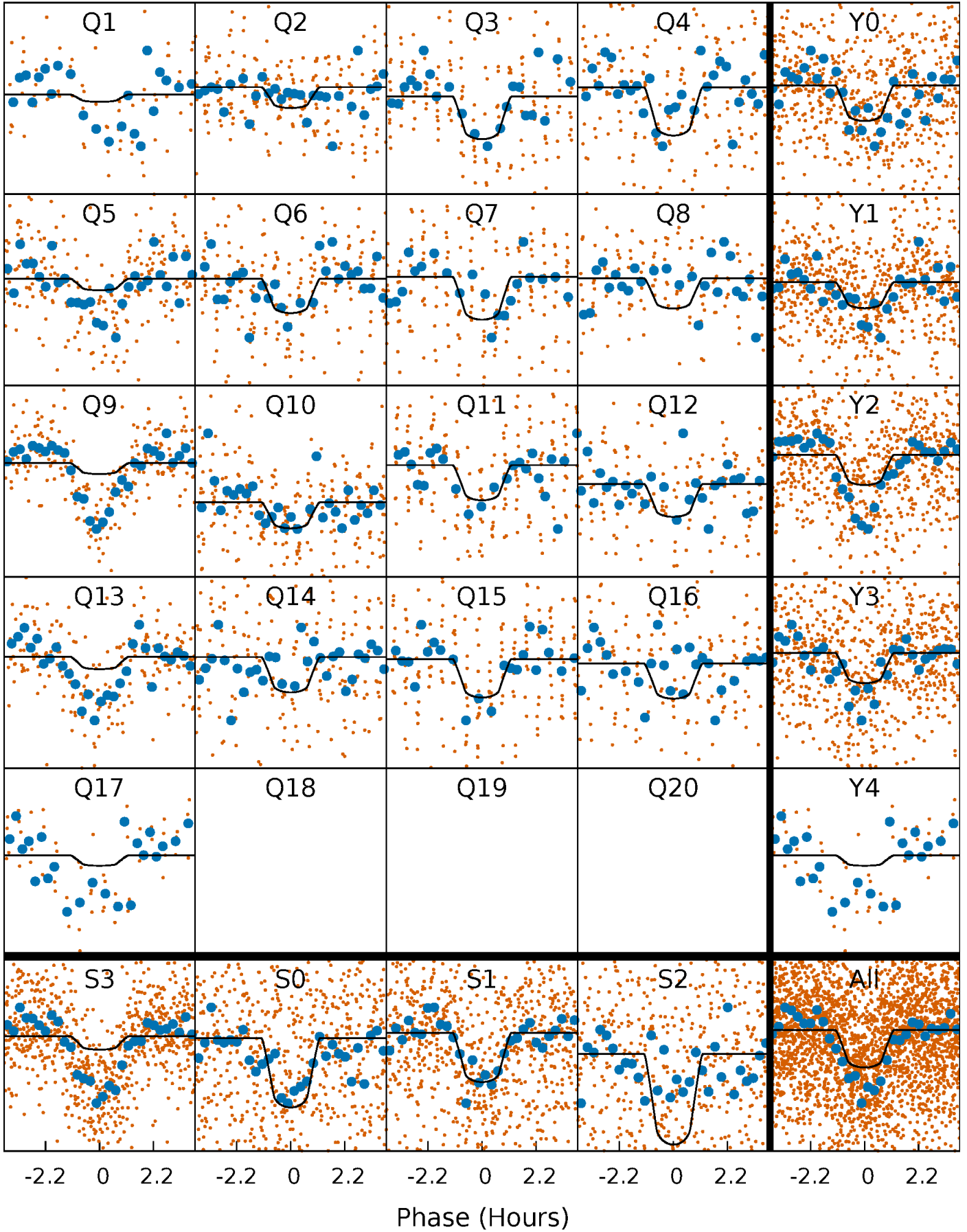
TCE 003337061-01 P= 6.558544 Days  $T_0=133.809863$  (BKJD)





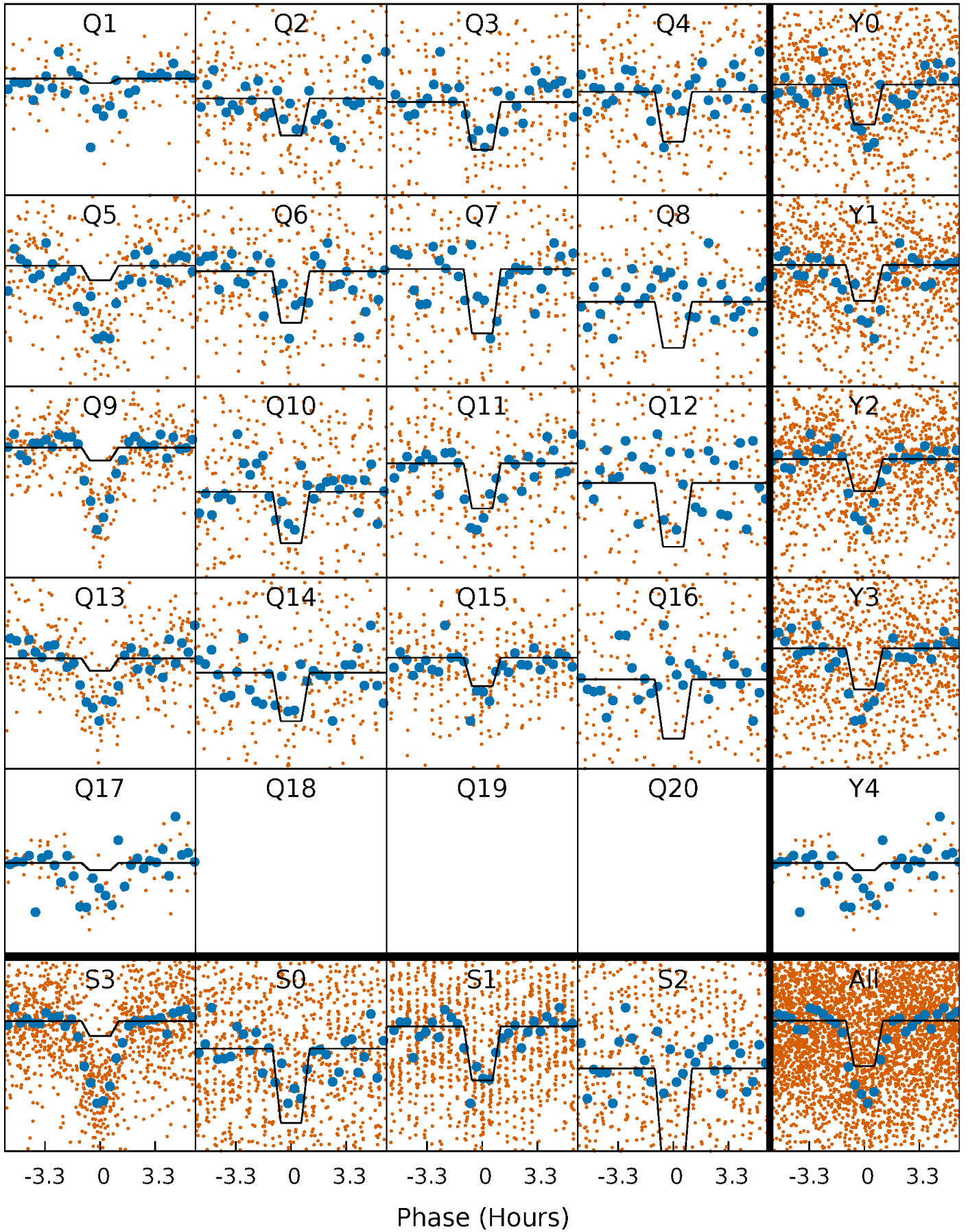
# DV Quarter-Phased Transit Curves

TCE 003337061-01 P= 6.558544 Days  $T_0=133.809863$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

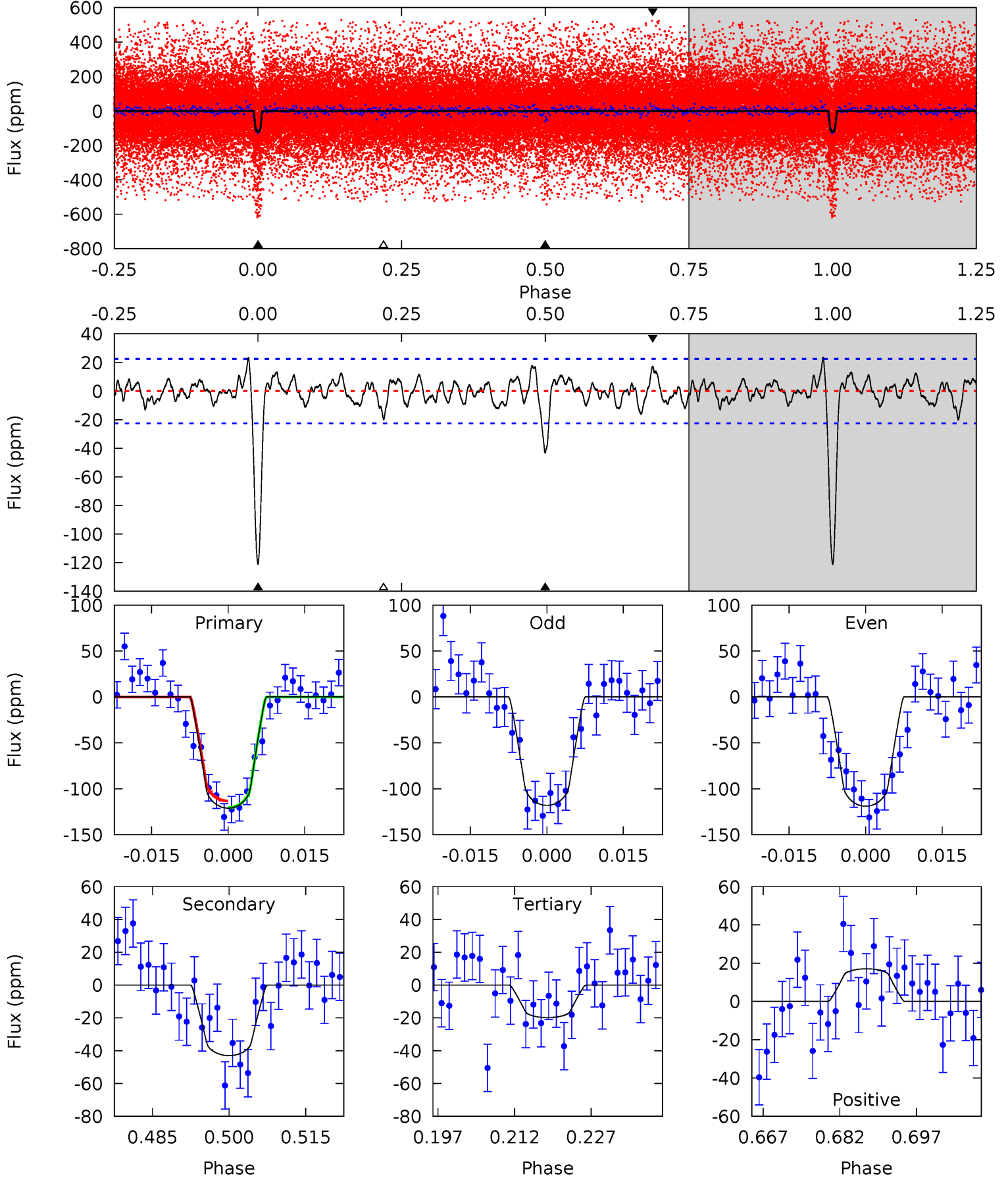
TCE 003337061-01 P= 6.558488 Days  $T_0=133.815640$  (BKJD)



# DV Model-Shift Uniqueness Test

003337061-01, P = 6.558544 Days, E = 127.251319 Days

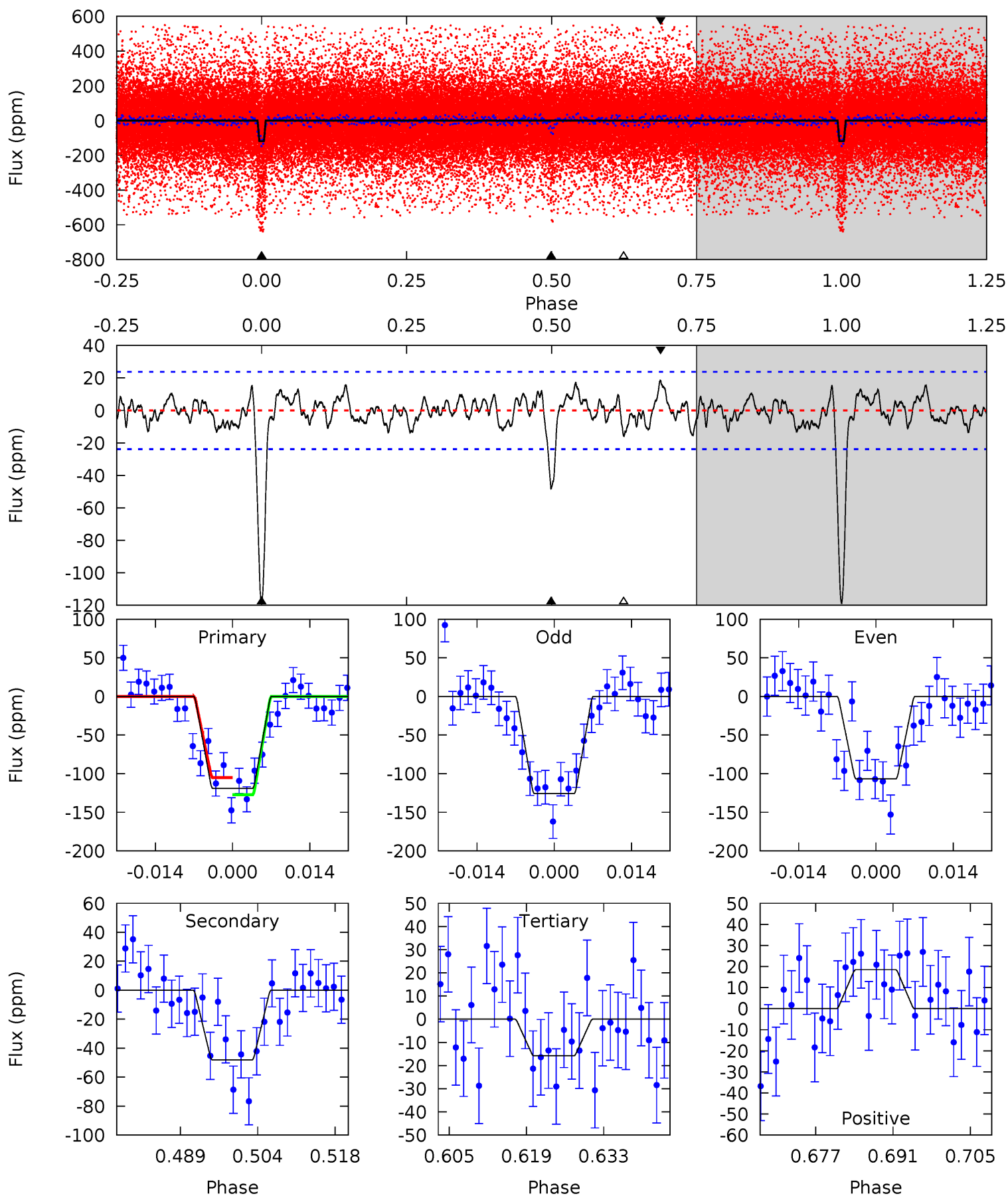
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.6	9.44	4.36	3.74	4.95	2.43	1.46	22.2	22.8	5.08	5.69	0.10	1.61	0.16	0.80



# Alt Model-Shift Uniqueness Test

003337061-01, P = 6.558488 Days, E = 127.257152 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
24.8	10.0	3.30	3.86	4.96	2.45	1.39	21.5	20.9	6.73	6.17	1.99	1.80	0.13	2.34



### Stellar Parameters For KIC 003337061

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6144^{+86}_{-74}$	$4.083^{+0.168}_{-0.098}$	$-0.040^{+0.150}_{-0.150}$	$1.606^{+0.277}_{-0.339}$	$1.140^{+0.138}_{-0.095}$	$0.387^{+0.340}_{-0.134}$
	+1%/-1%	+4%/-2%	+375%/-375%	+17%/-21%	+12%/-8%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003337061-01 / KOI 3172.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-43 \pm 5$	$1.66^{+0.89}_{-0.73}$	$1781^{+82}_{-100}$	$5095^{+1741}_{-776}$	$44^{+102}_{-25}$
Alt.	$-48 \pm 5$	$1.70^{+0.78}_{-0.82}$	$1784^{+84}_{-110}$	$5188^{+2022}_{-740}$	$47^{+132}_{-26}$

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



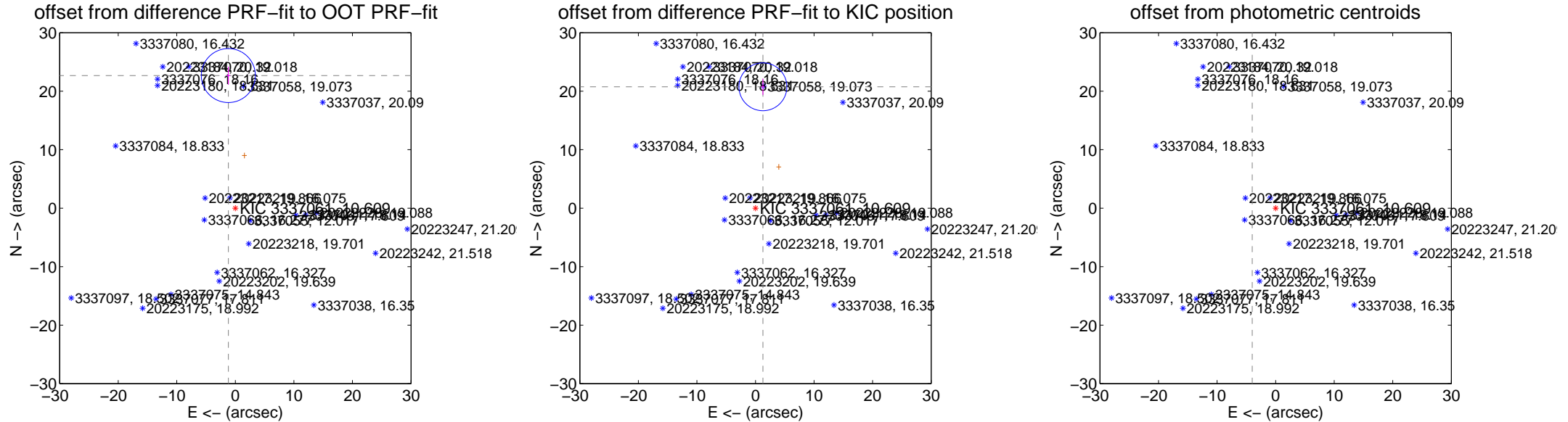
## DV Centroid Data

Supplemental centroid analysis for 003337061-01. **Kepler magnitude: 10.61.** Transit SNR 14.45

There are 8 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.09 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

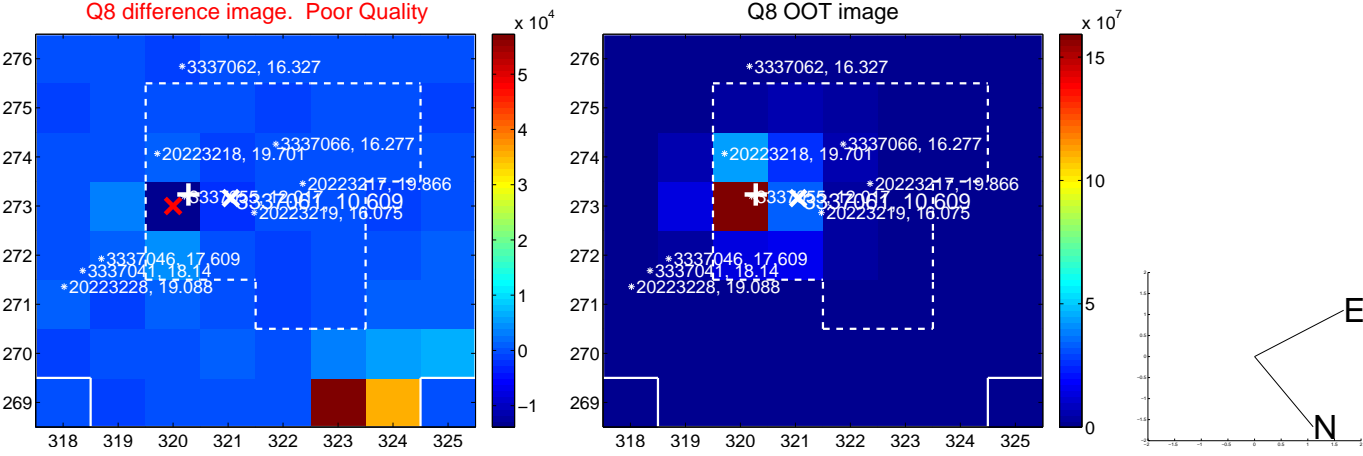
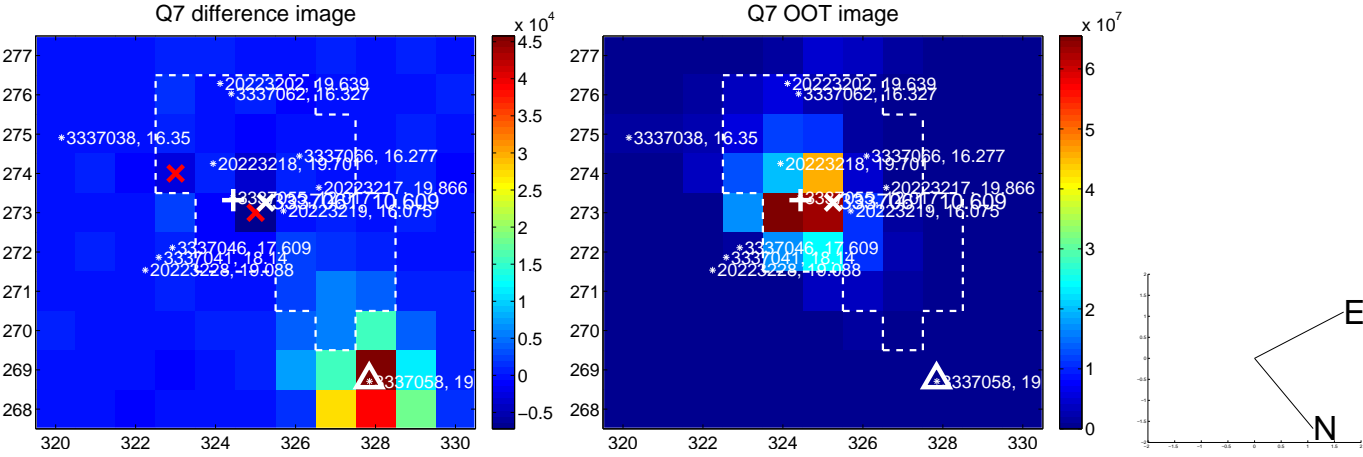
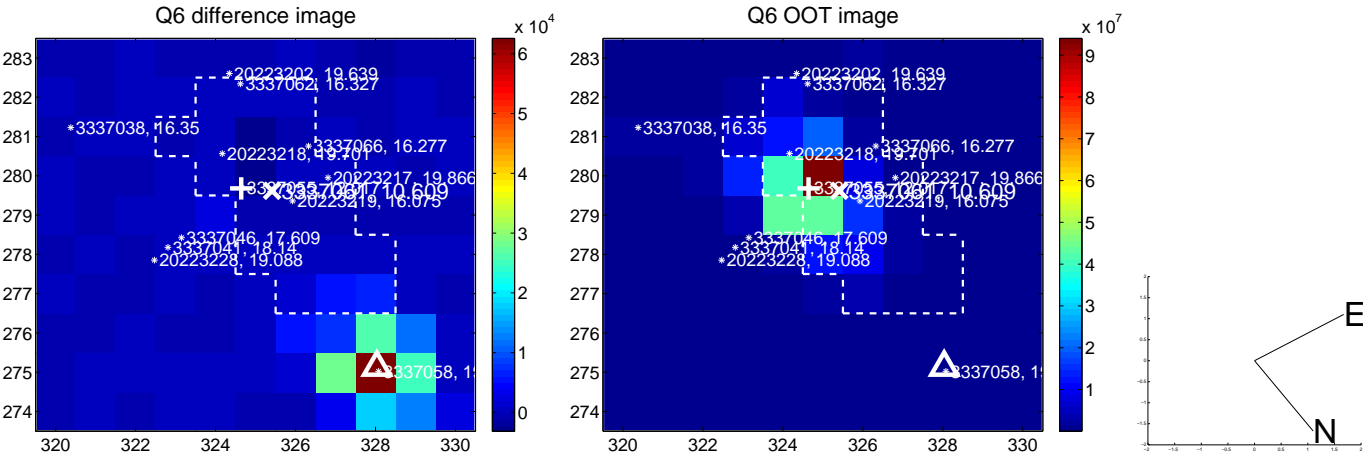
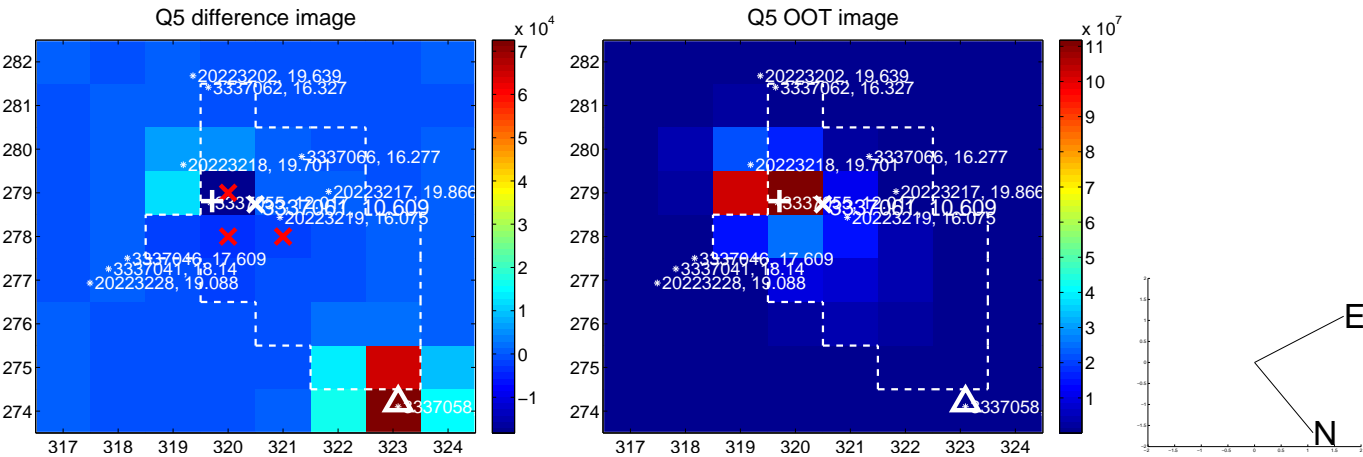
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>22.704 \pm 1.538</math></b>	<b>14.76</b>	$1.192 \pm 0.320$	$22.673 \pm 1.524$
PRF-fit source offset from KIC position	<b><math>20.791 \pm 1.363</math></b>	<b>15.25</b>	$-1.266 \pm 0.288$	$20.752 \pm 1.383$
photometric centroid source offset	<b><math>53.65 \pm 0.79</math></b>	<b>67.57</b>	$4.00 \pm 0.61$	$53.50 \pm 0.79$



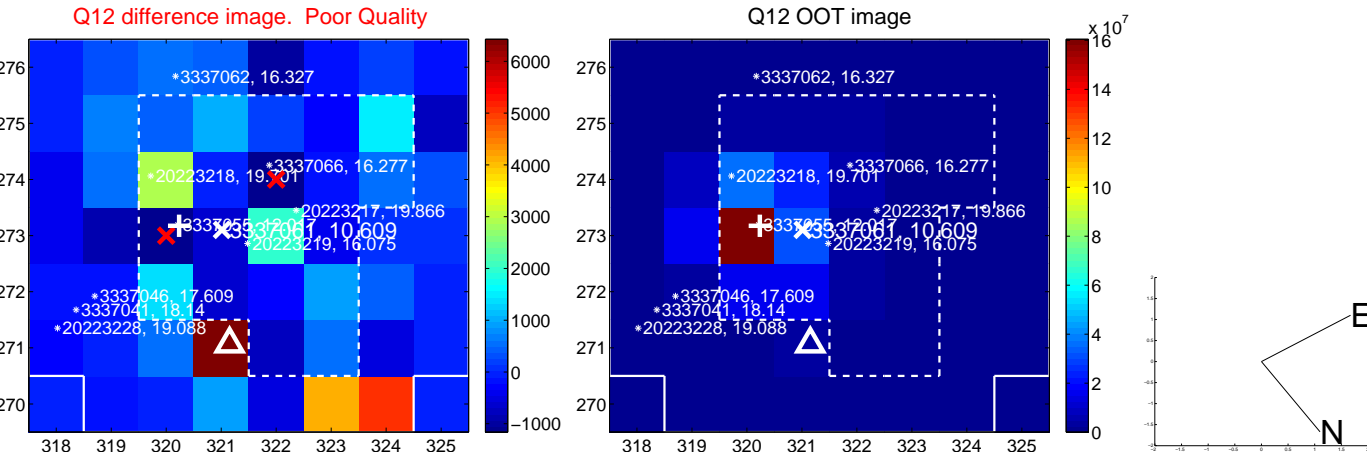
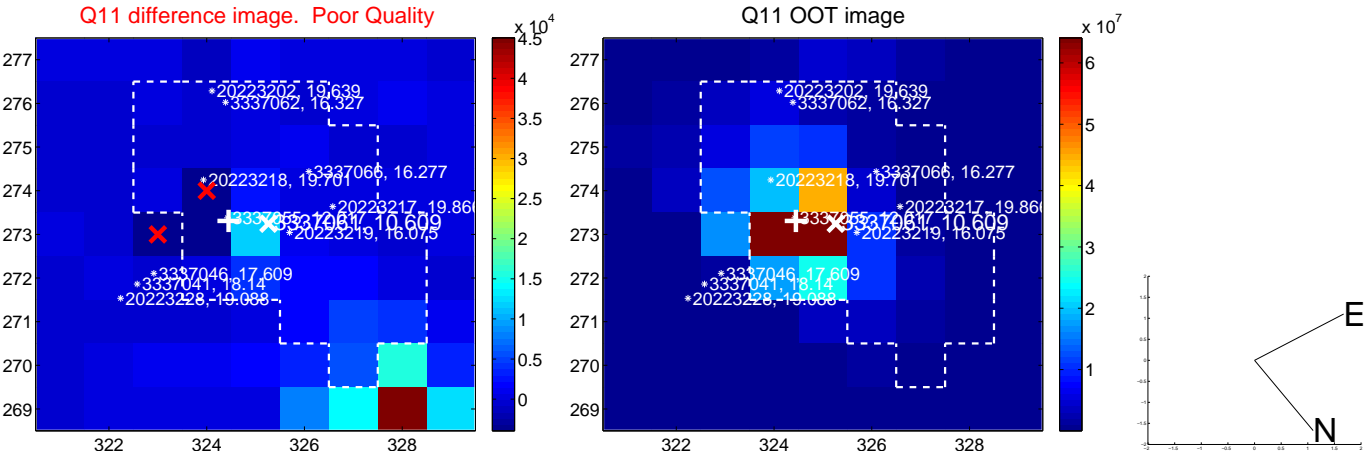
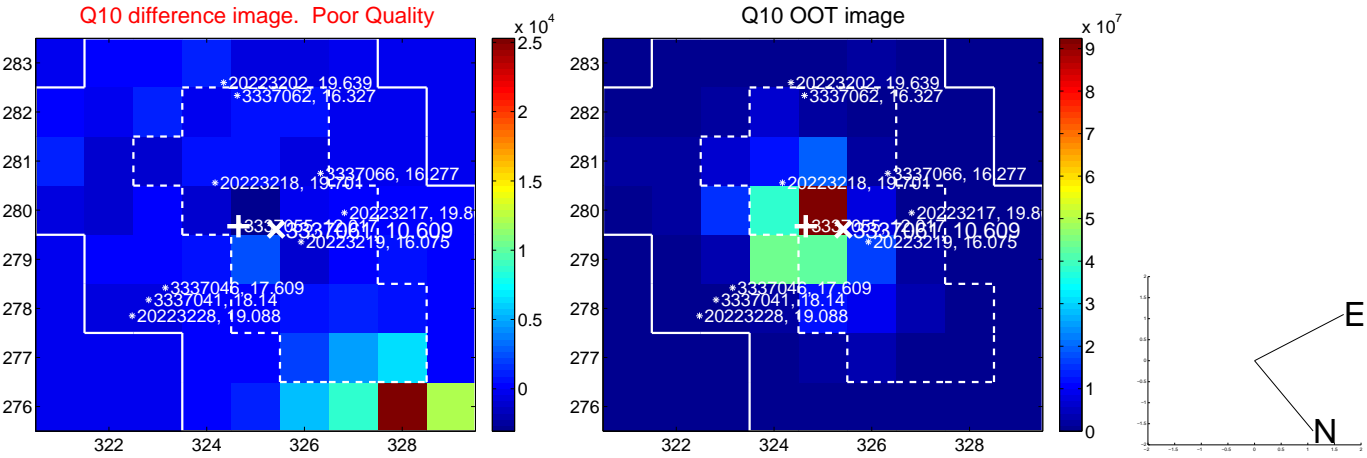
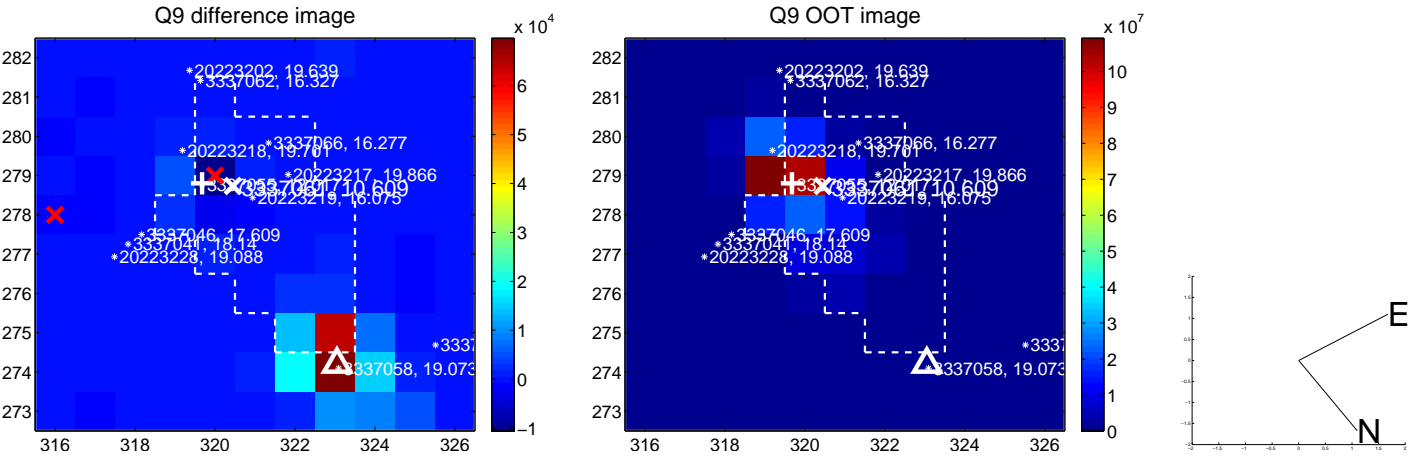
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



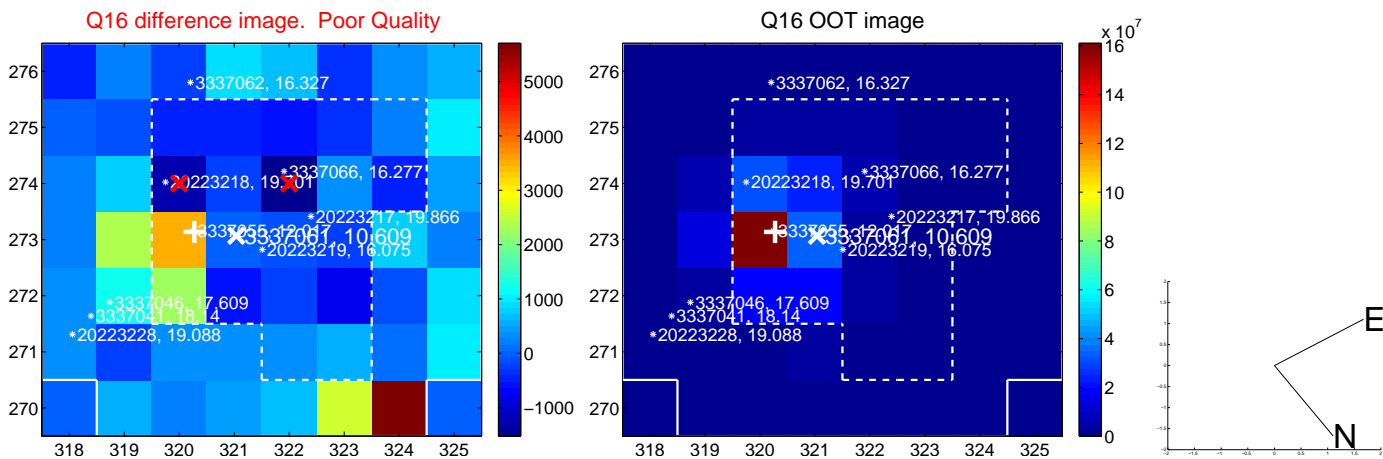
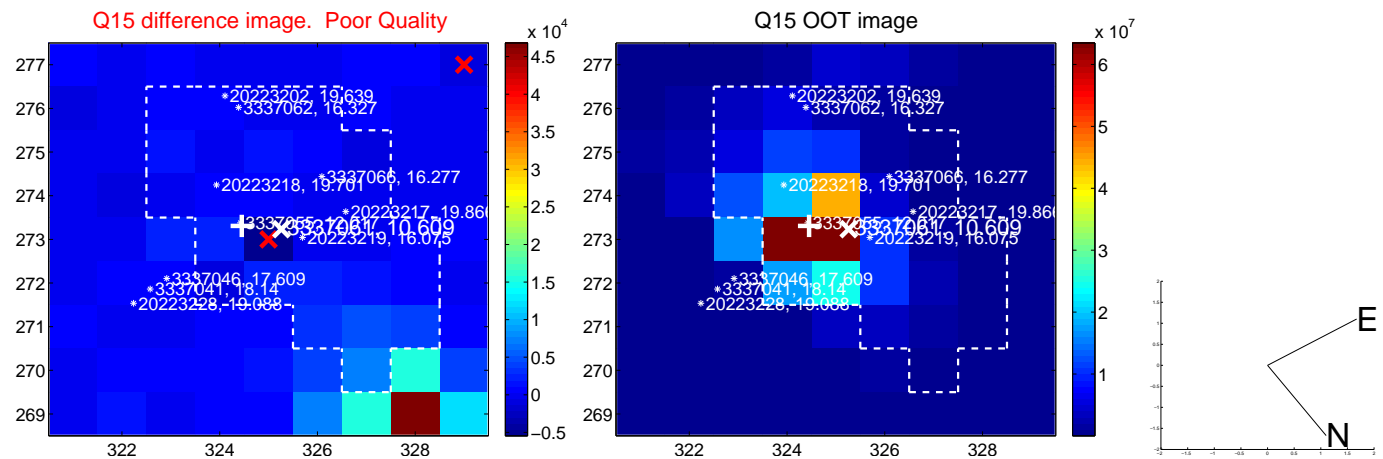
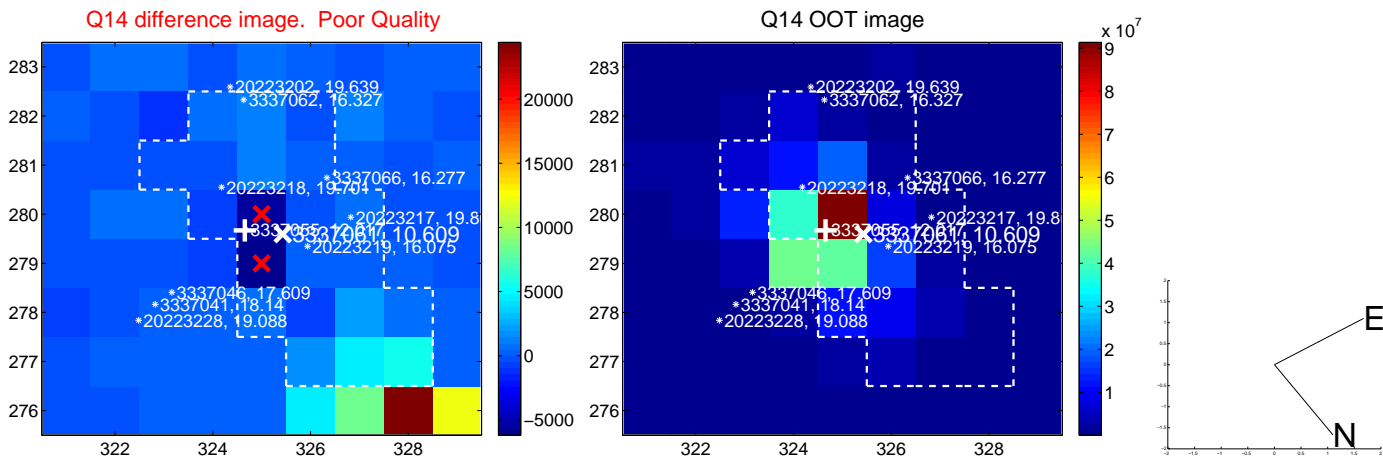
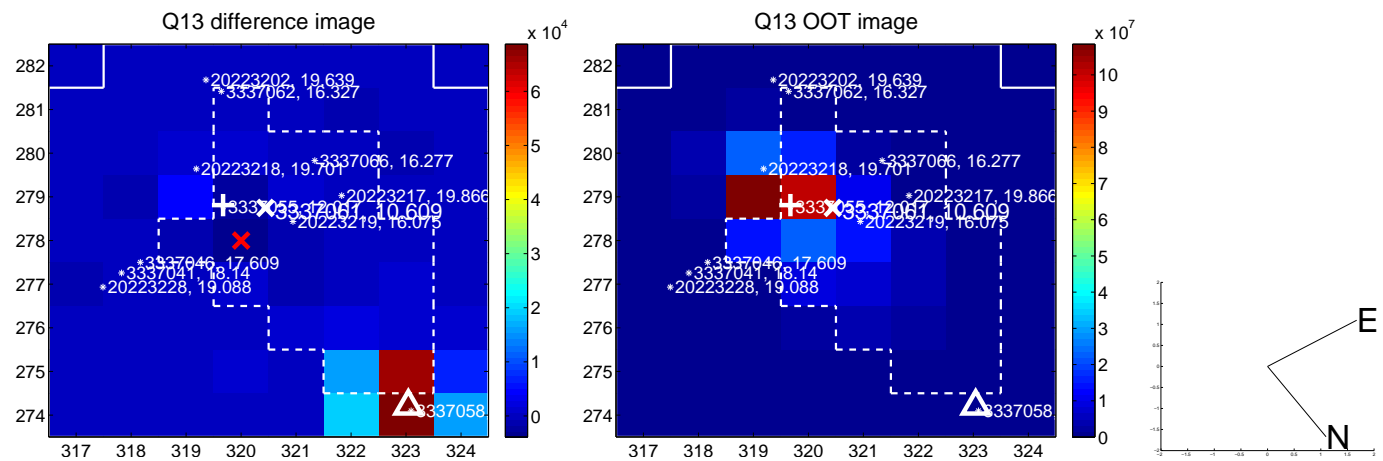
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

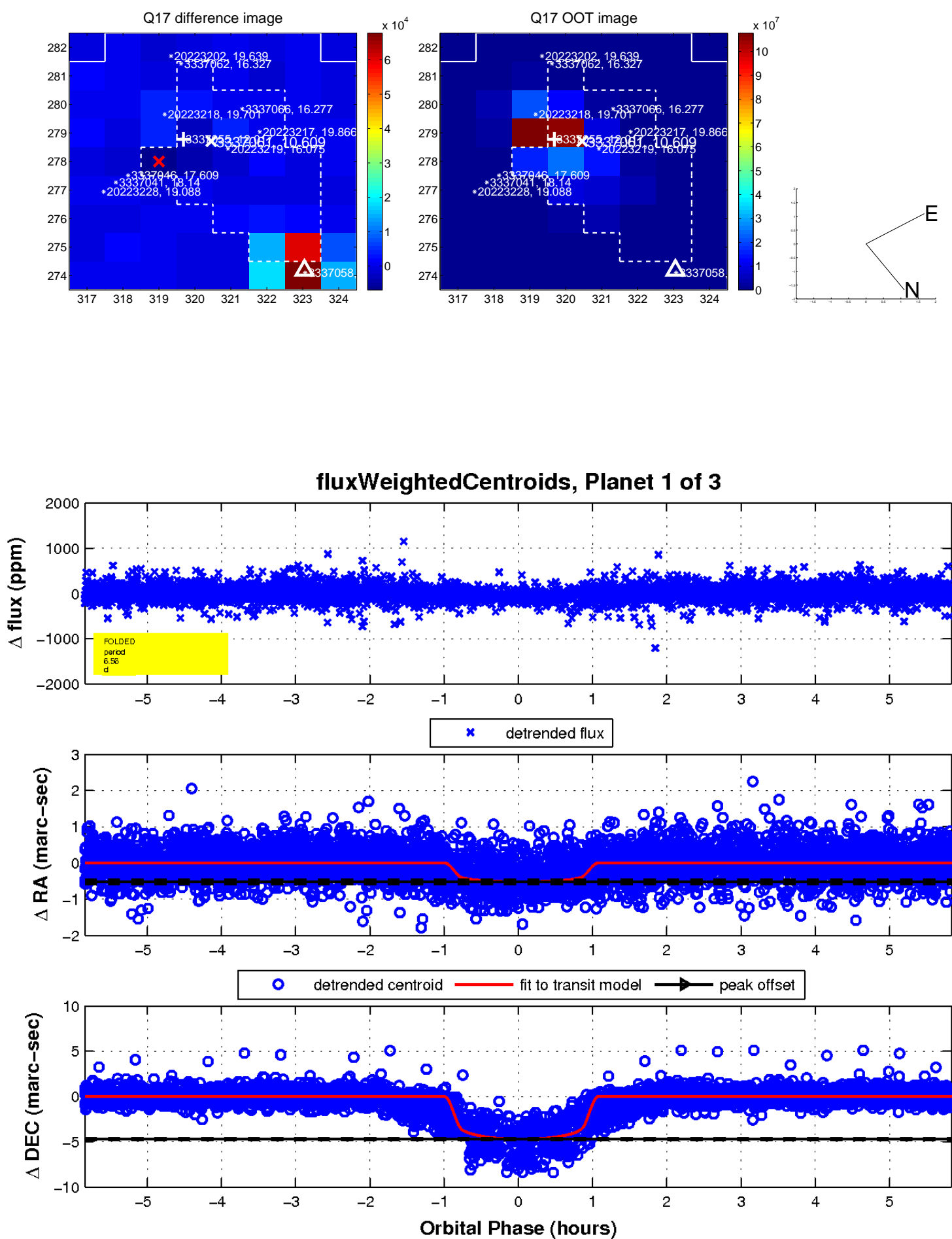


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



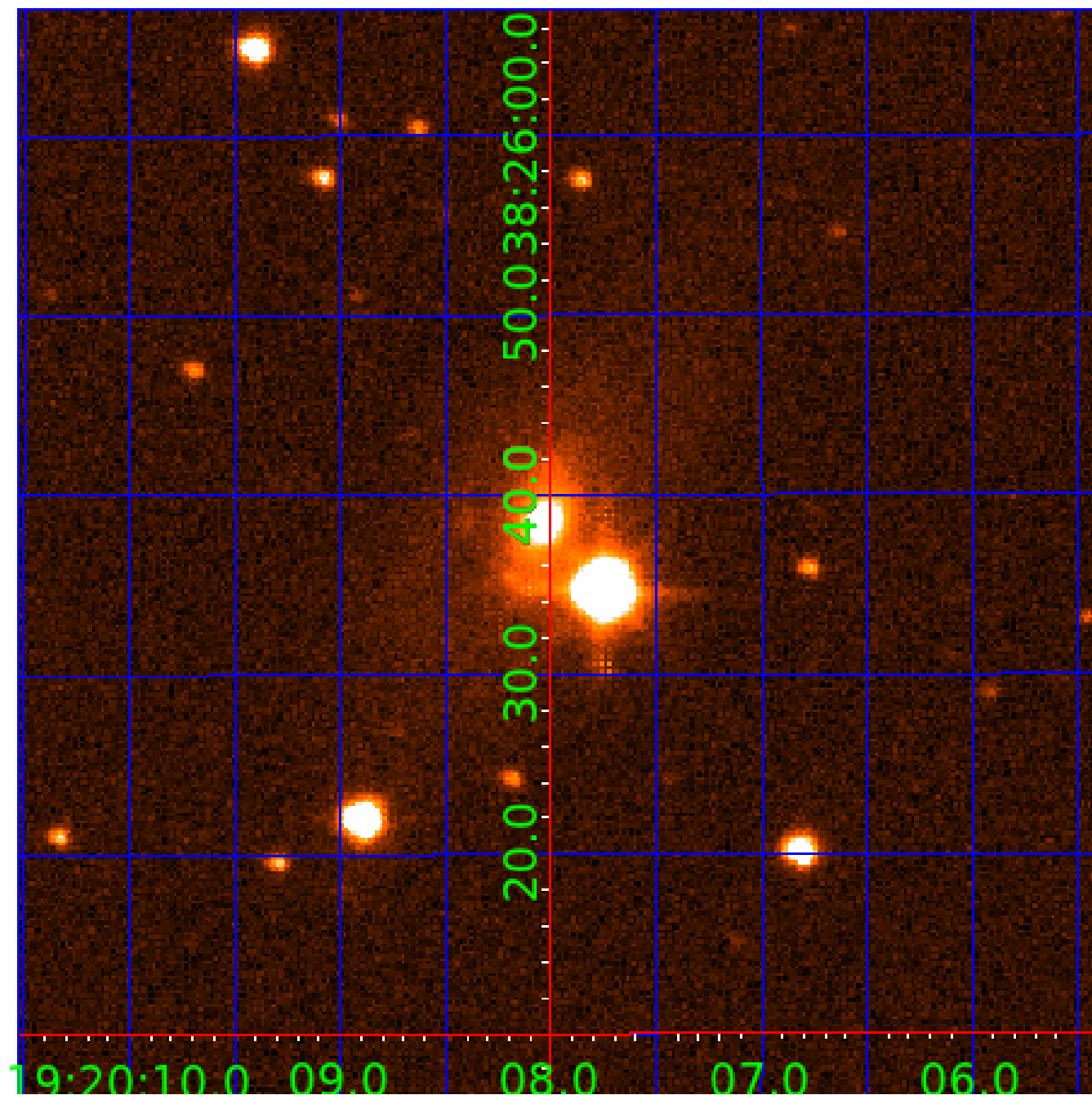


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003337061

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003337061-01	OBS	3172.01	6.558544	133.809863	85.2	1.946	12.9	14.4	1.61	6144	1.75	641.88
003337061-02	OBS	No	302.449354	277.407064	230.5	8.453	9.6	7.4	1.61	6144	2.68	3.88
003337061-03	OBS	No	486.213498	214.137378	249.0	7.342	7.7	7.4	1.61	6144	2.82	2.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003337061-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—CENT_SATURATED
003337061-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003337061-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

**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 003337061-02

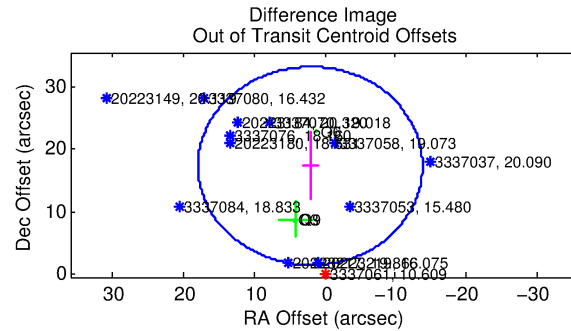
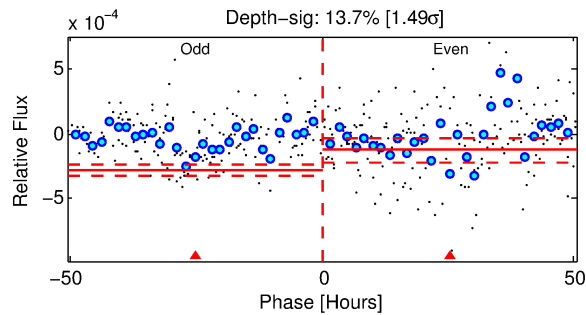
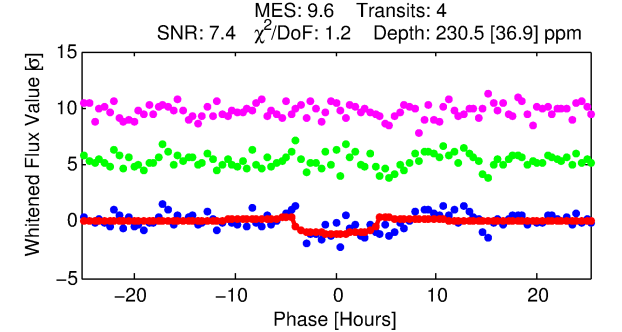
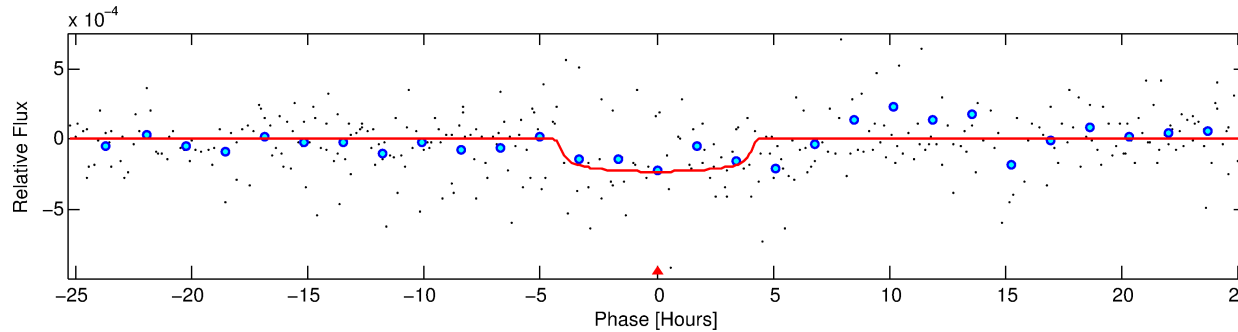
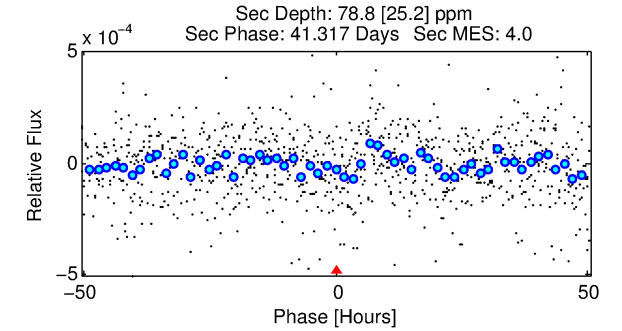
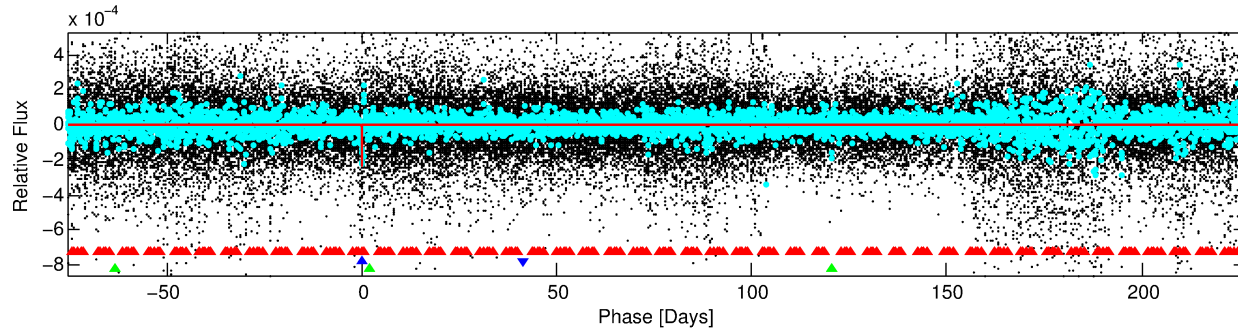
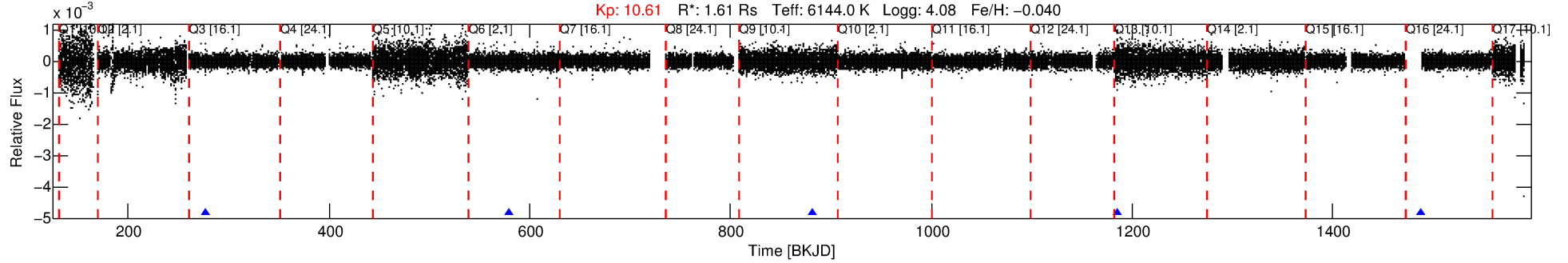
No Significant Match Found

# DV One-Page Summary

KIC: 3337061 Candidate: 2 of 3 Period: 302.449 d

KOI: K03172 Corr: No Ephemeris Match

Kp: 10.61 R\*: 1.61 Rs Teff: 6144.0 K Logg: 4.08 Fe/H: -0.040



## DV Fit Results:

Period = 302.44935 [0.00875] d  
Epoch = 277.4071 [0.0119] BKJD  
Rp/R\* = 0.0153 [0.0082]  
a/R\* = 177.50 [475.28]  
b = 0.78 [1.35]  
Seff = 3.88 [1.16]  
Teq = 358 [27] K  
Rp = 2.68 [1.54] Re  
a = 0.9211 [0.1758] AU  
Ag = 5135.91 [5948.78] [0.86 sigma]  
Teff = 4685 [1314] K [3.29 sigma]

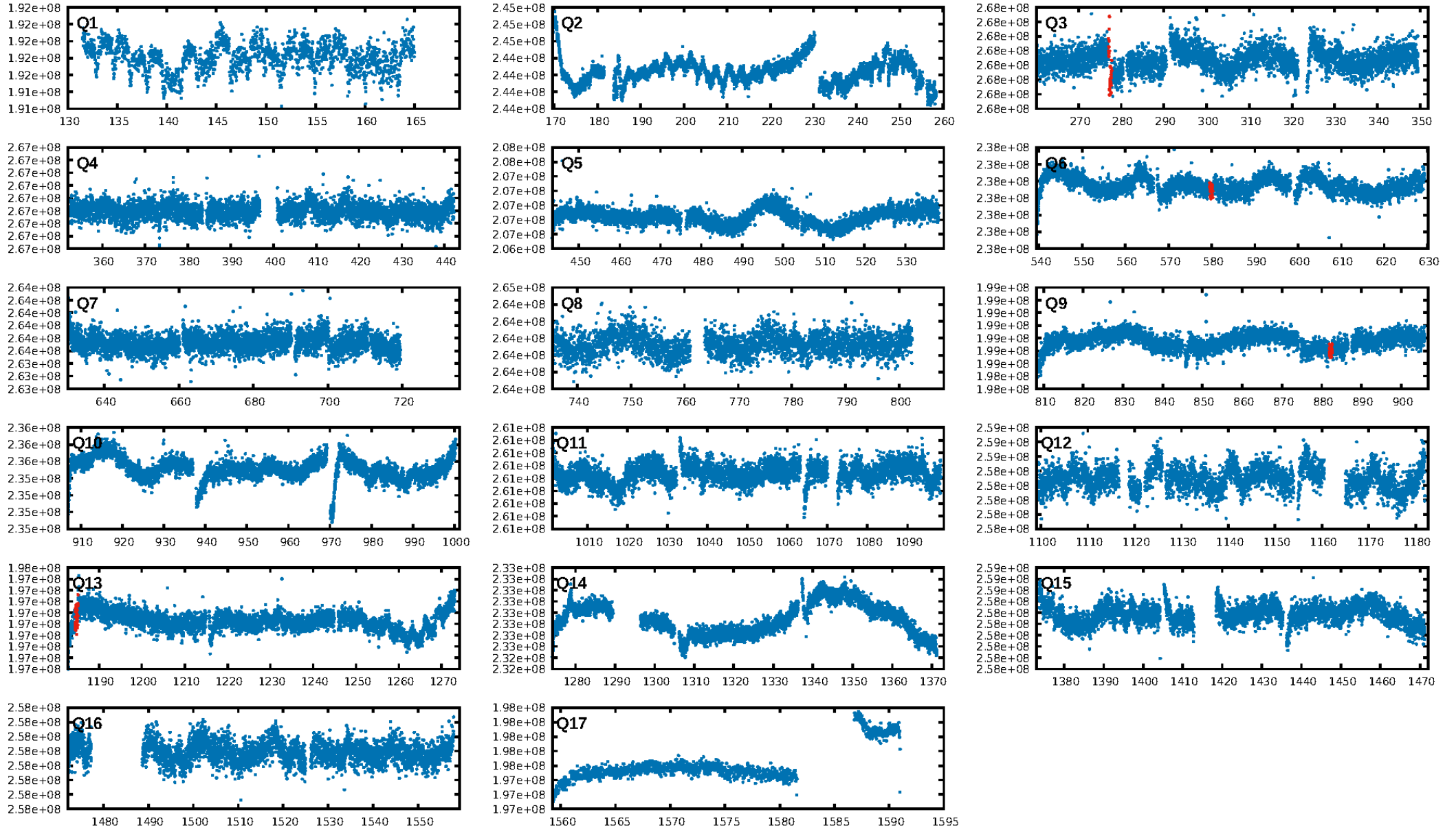
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [818.64 sigma]  
LongPeriod-sig: 100.0% [393.90 sigma]  
ModelChiSquare2-sig: 4.2%  
ModelChiSquareGof-sig: 94.6%  
**Bootstrap-pfa: 2.06e-11**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 54.2%  
Centroid-so: 2.627 arcsec [2.11 sigma]  
**OotOffset-rm: 17.417 arcsec [3.29 sigma]**  
KicOffset-rm: 15.356 arcsec [2.87 sigma]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.33 [1/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:35:15 Z

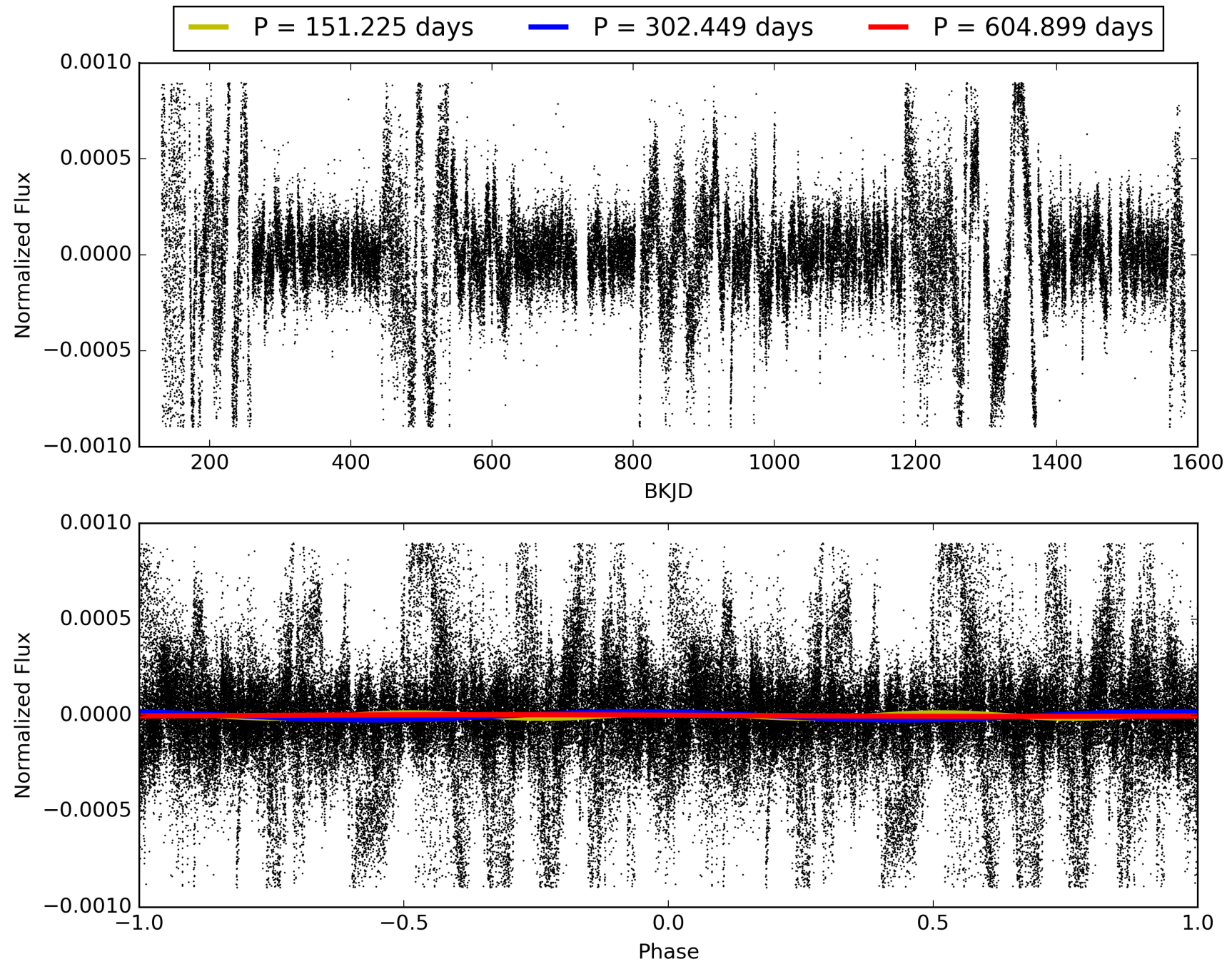
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003337061-02, PDC Light Curves



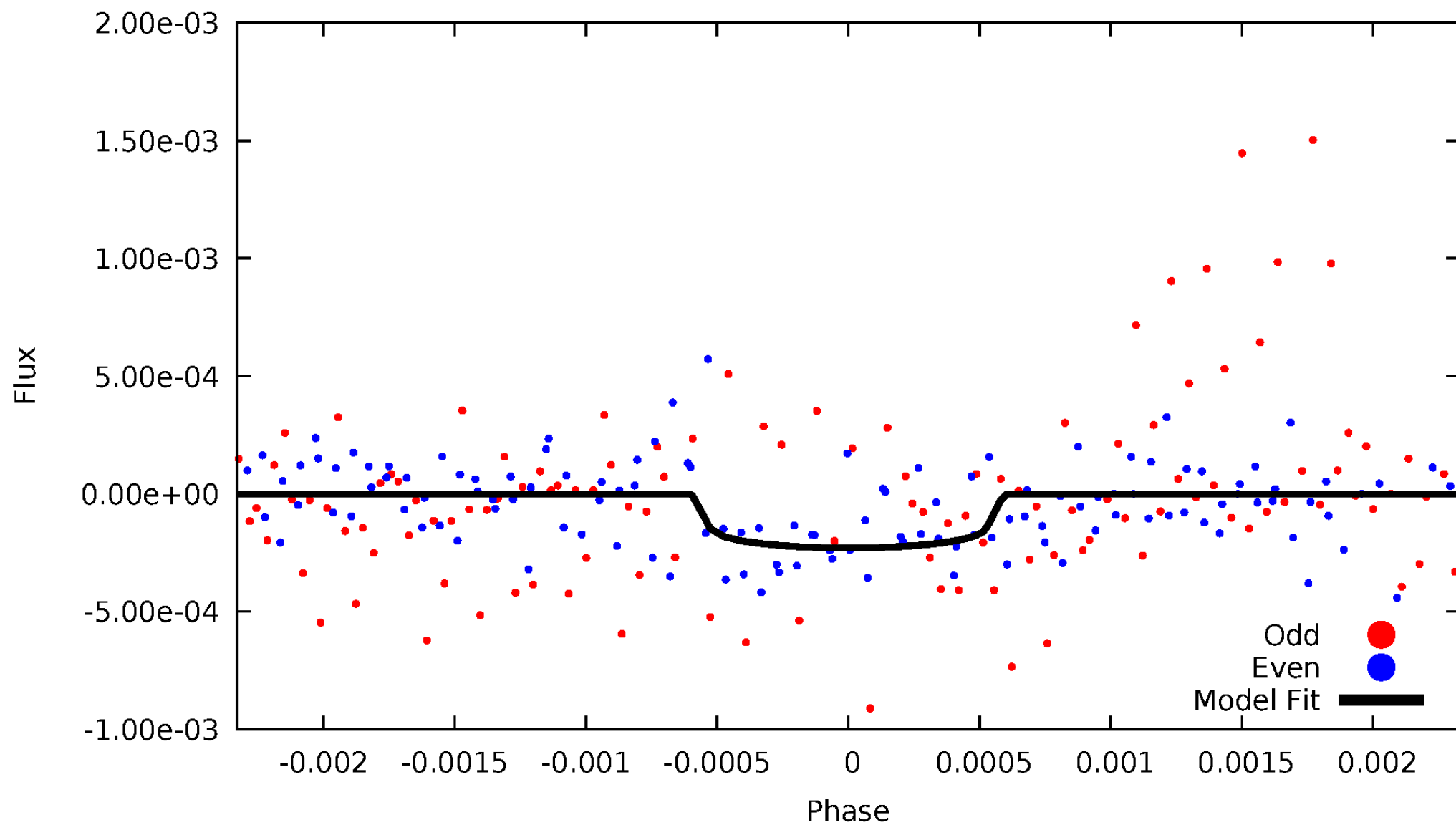


TCE 003337061-02



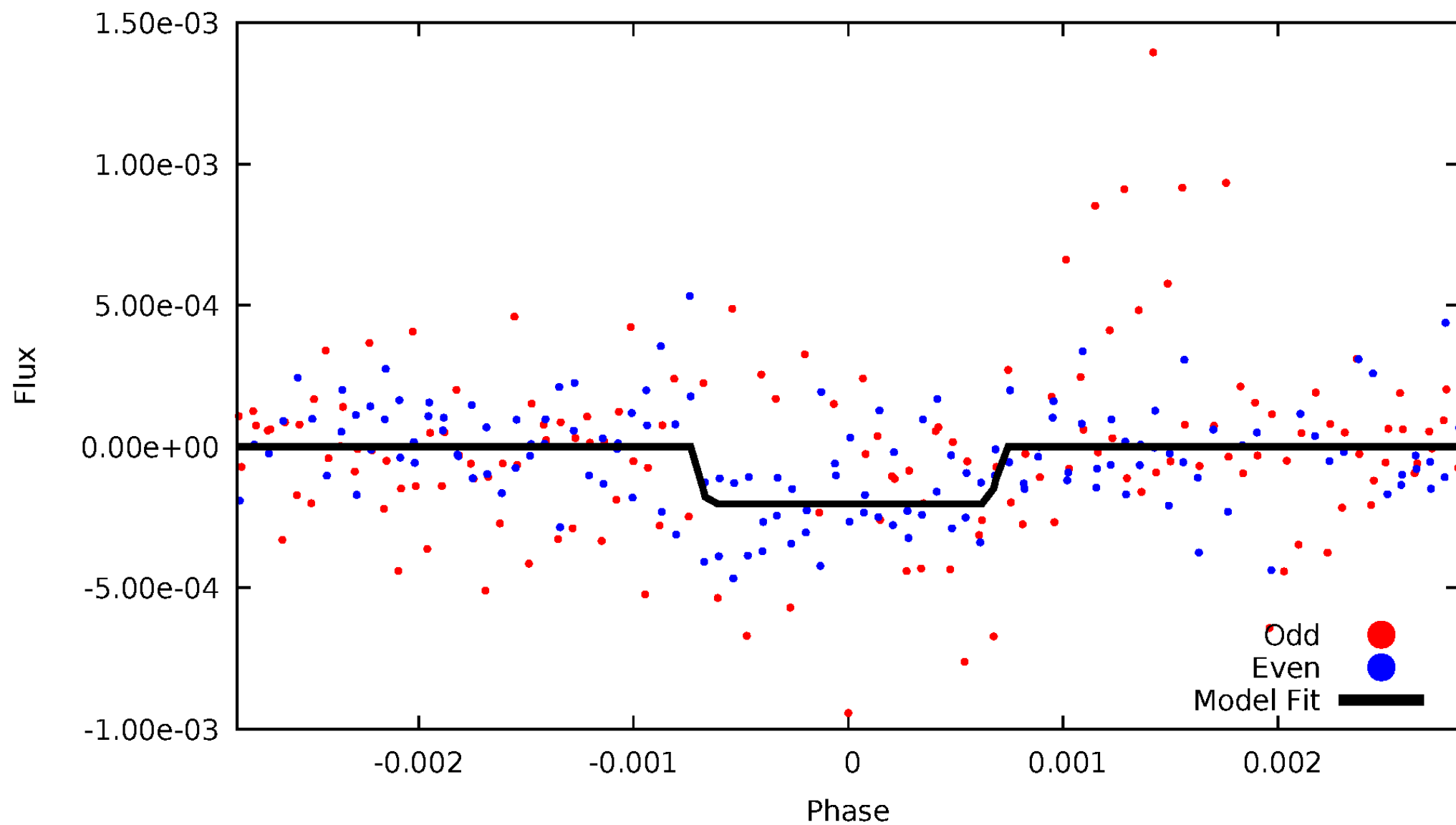
# DV Odd/Even

TCE 003337061-02



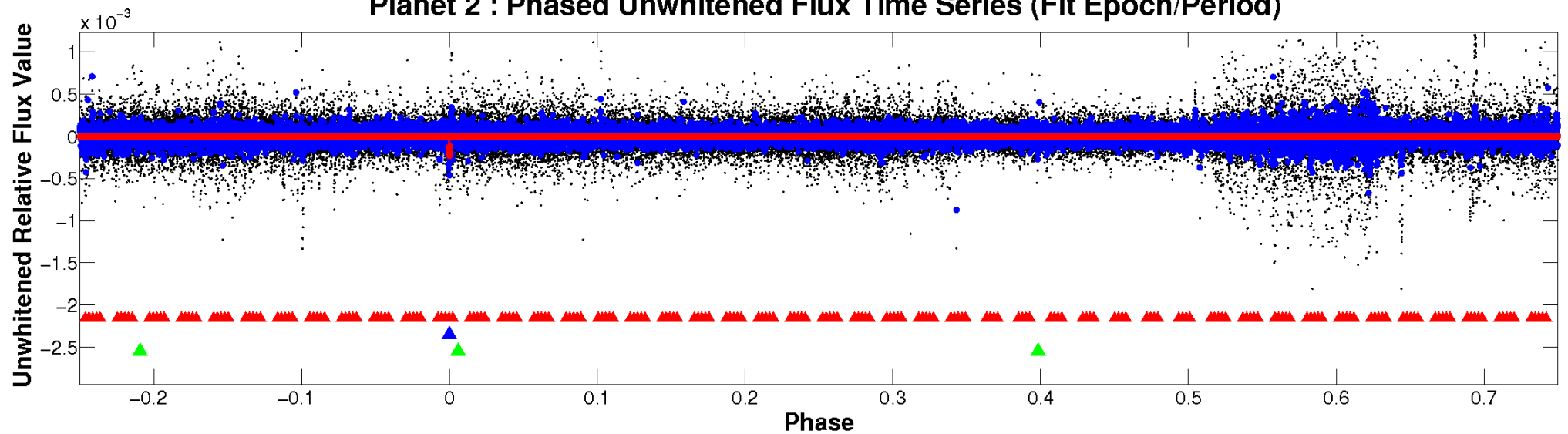
# ALT Odd/Even

TCE 003337061-02

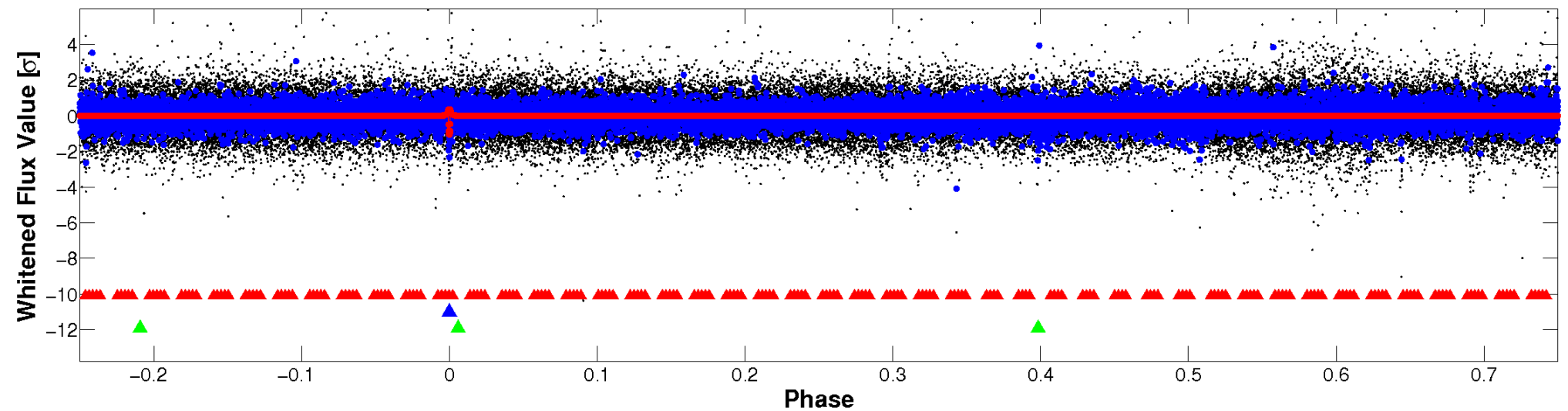


# Non-Whitened Vs. Whitened Light Curve

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

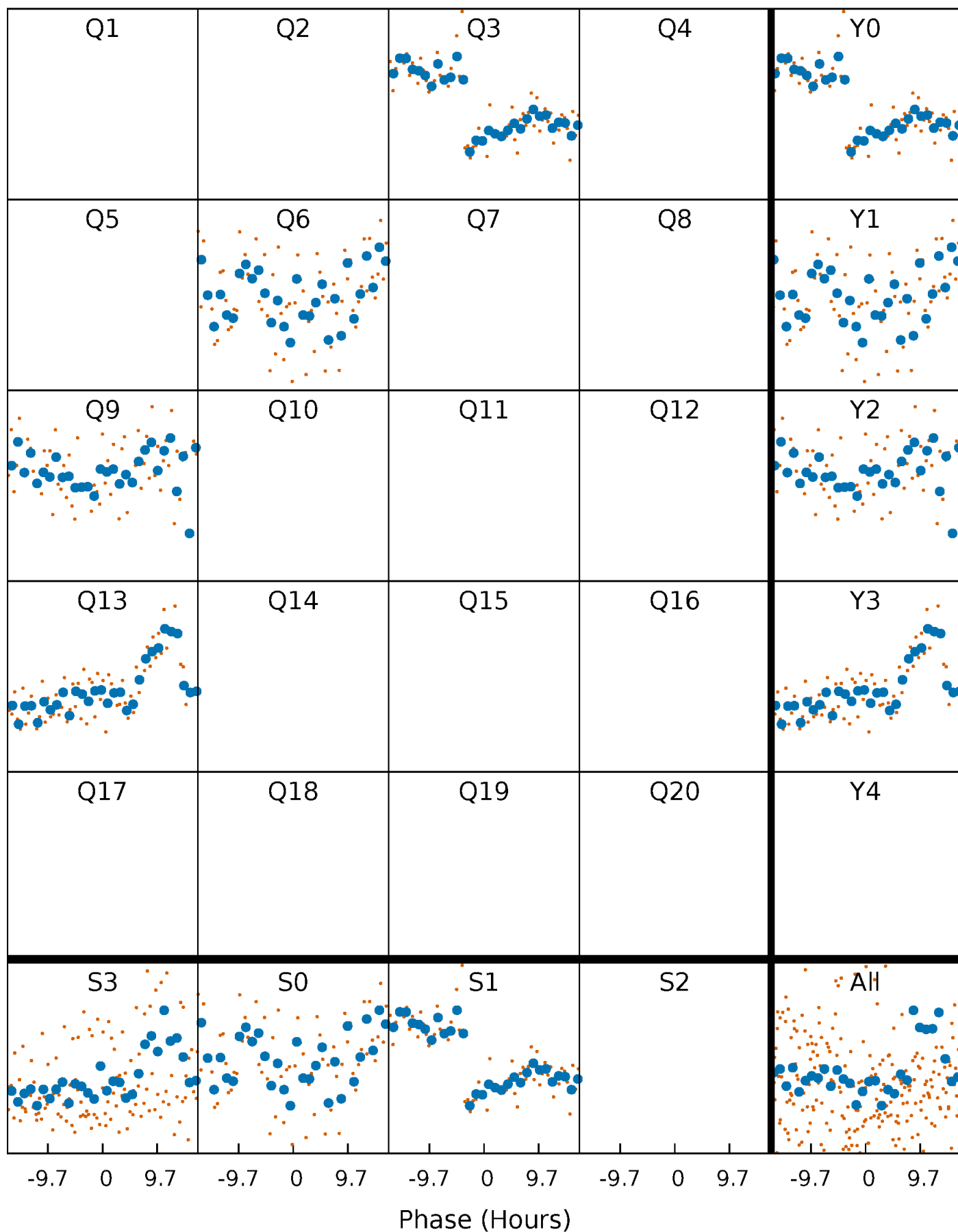


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

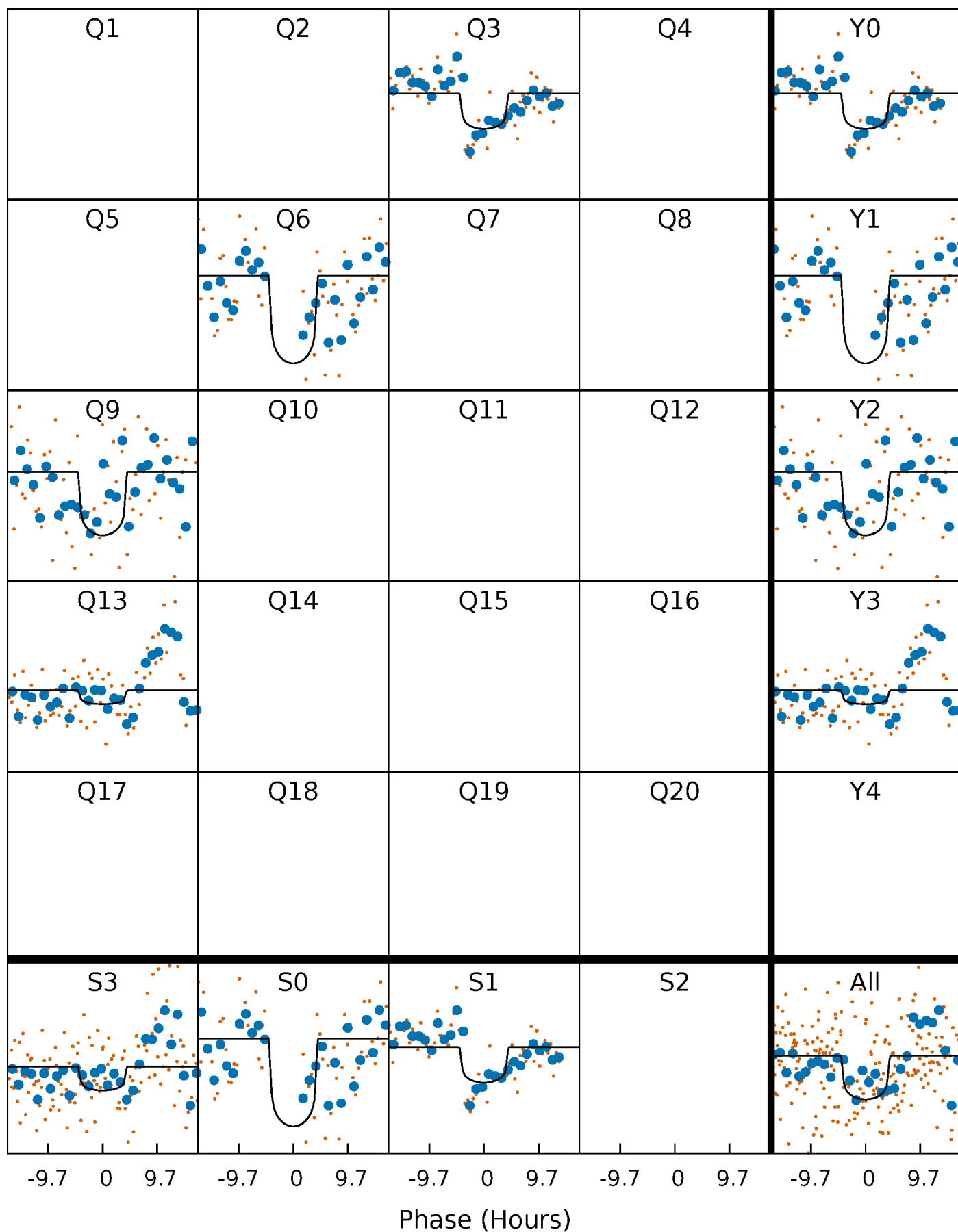
TCE 003337061-02     $P=302.449354$  Days     $T_0=277.407064$  (BKJD)





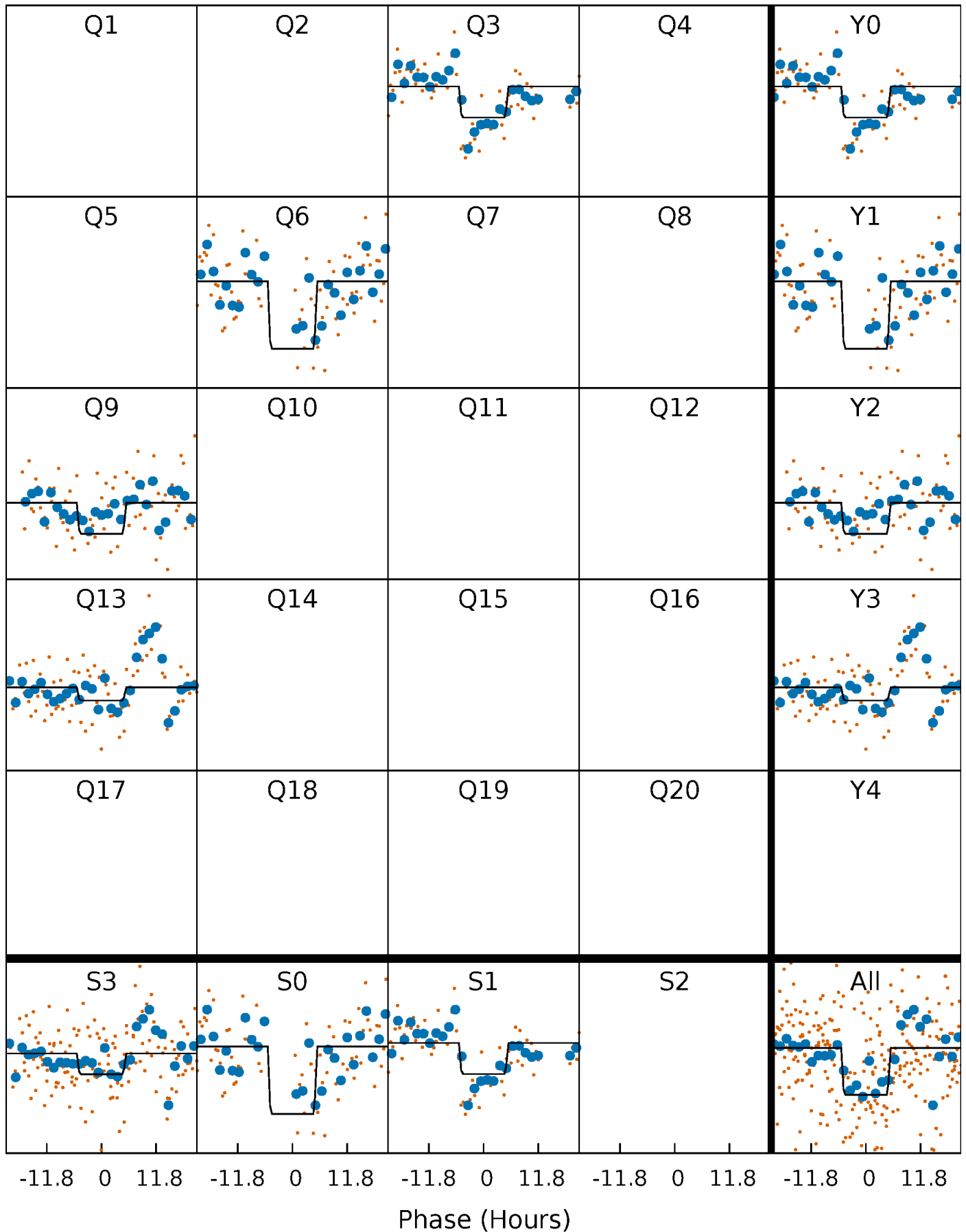
# DV Quarter-Phased Transit Curves

TCE 003337061-02     $P=302.449354$  Days     $T_0=277.407064$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

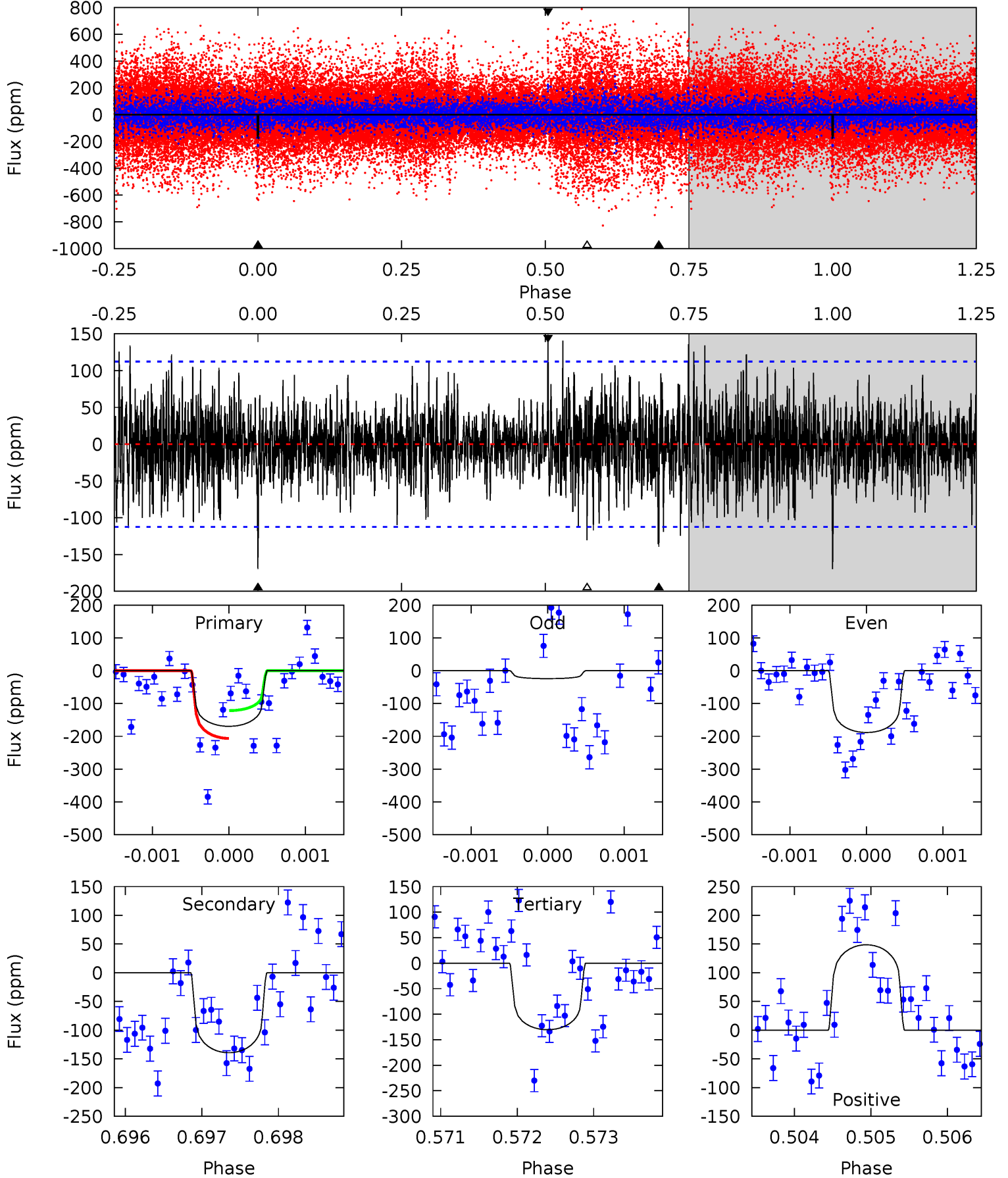
TCE 003337061-02     $P=302.437121$  Days     $T_0=277.468616$  (BKJD)



# DV Model-Shift Uniqueness Test

003337061-02, P = 302.449354 Days, E = 277.407064 Days

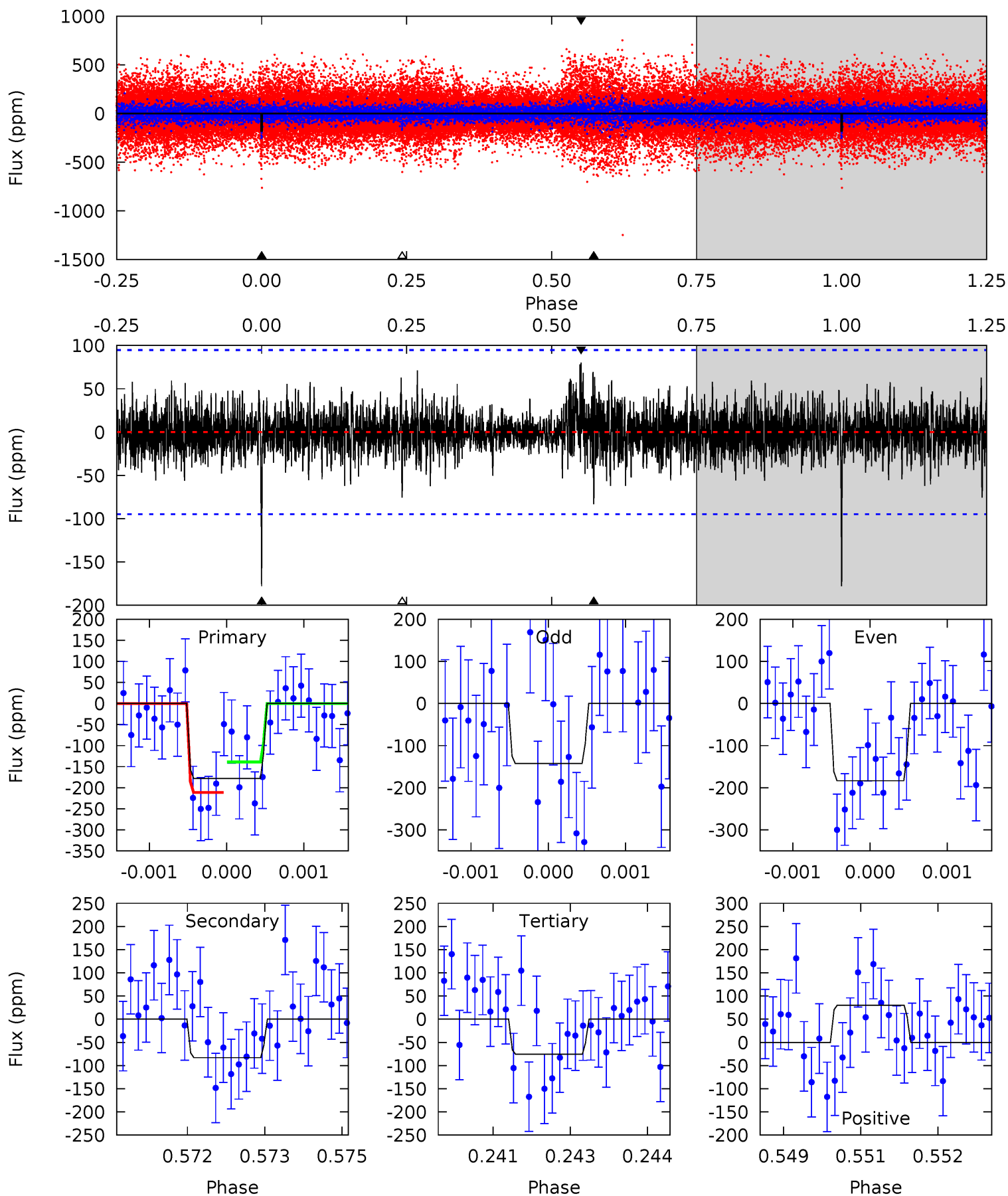
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.17	6.71	6.28	7.16	5.42	3.23	1.68	1.89	1.01	0.43	-0.45	3.60	1.11	0.47	2.02



# Alt Model-Shift Uniqueness Test

003337061-02, P = 302.437121 Days, E = 277.468616 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
10.1	4.72	4.29	4.56	5.39	3.19	1.05	5.82	5.55	0.43	0.16	1.06	1.11	0.31	1.99



### Stellar Parameters For KIC 003337061

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6144^{+86}_{-74}$	$4.083^{+0.168}_{-0.098}$	$-0.040^{+0.150}_{-0.150}$	$1.606^{+0.277}_{-0.339}$	$1.140^{+0.138}_{-0.095}$	$0.387^{+0.340}_{-0.134}$
	+1%/-1%	+4%/-2%	+375%/-375%	+17%/-21%	+12%/-8%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003337061-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	-139±21	$2.77^{+1.29}_{-1.38}$	$497^{+22}_{-26}$	$5350^{+2179}_{-825}$	$8835^{+24535}_{-4854}$
Alt.	-83±18	$2.53^{+1.43}_{-1.35}$	$498^{+24}_{-28}$	$4914^{+2219}_{-778}$	$5830^{+23231}_{-3438}$

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

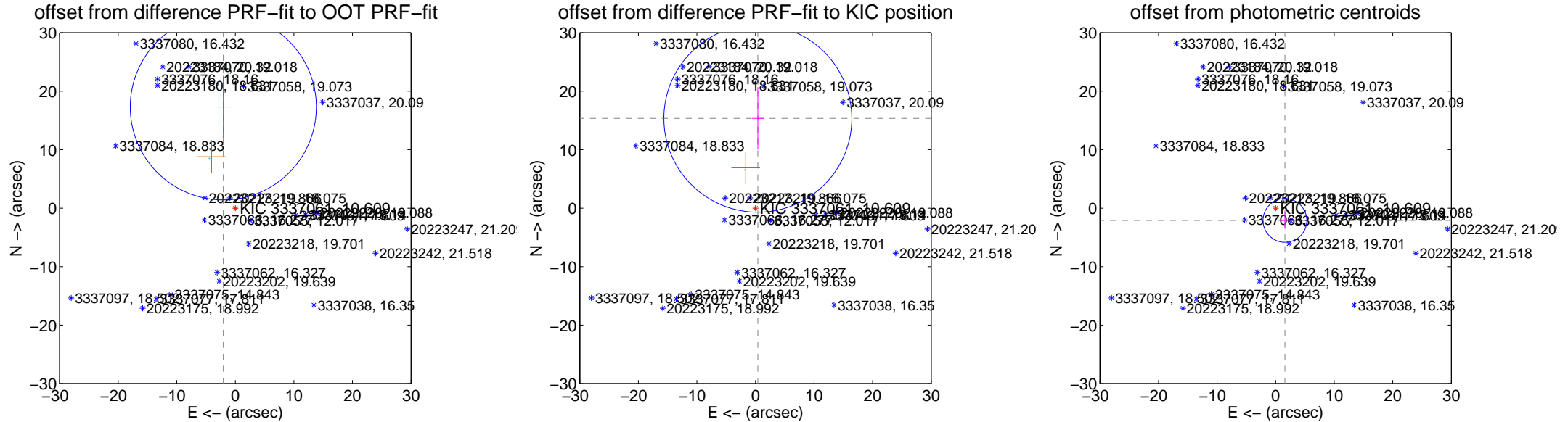
## DV Centroid Data

Supplemental centroid analysis for 003337061-02. **Kepler magnitude: 10.61.** Transit SNR 7.44

There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.06 arcsec so the offset from difference PRF-fit to OOT-PRF-fit may be invalid.

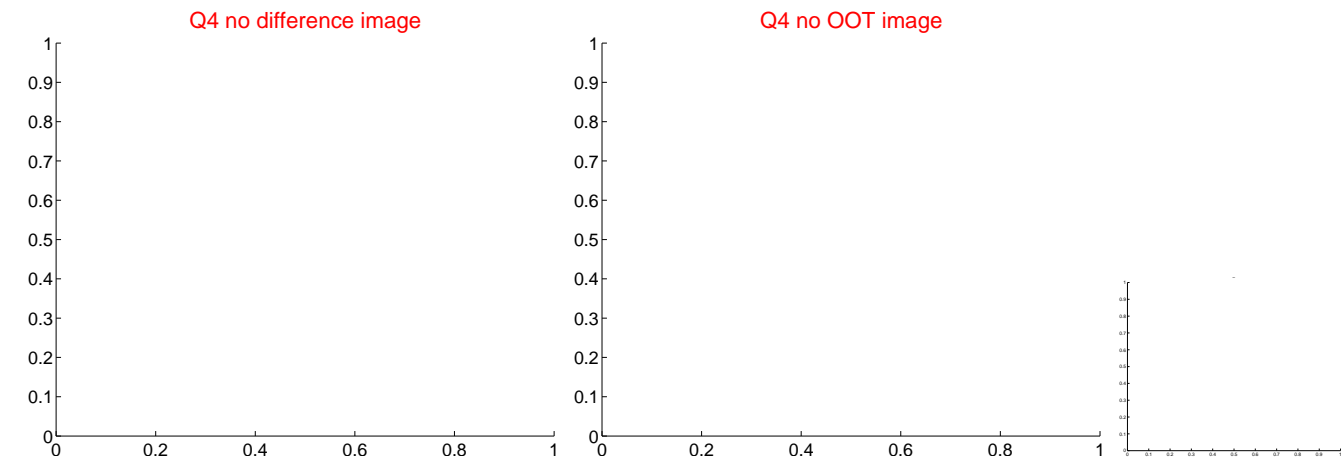
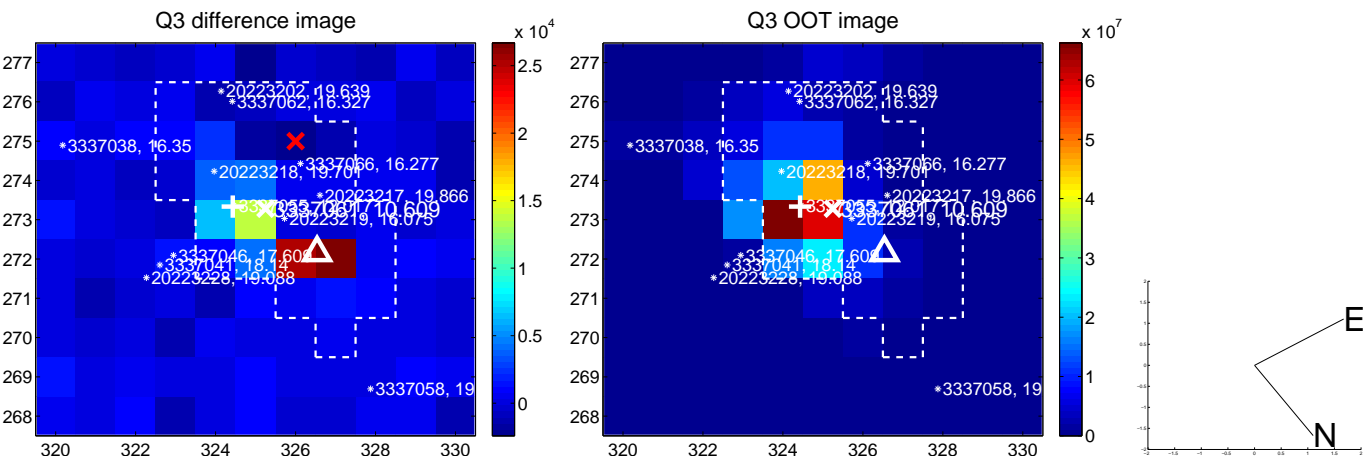
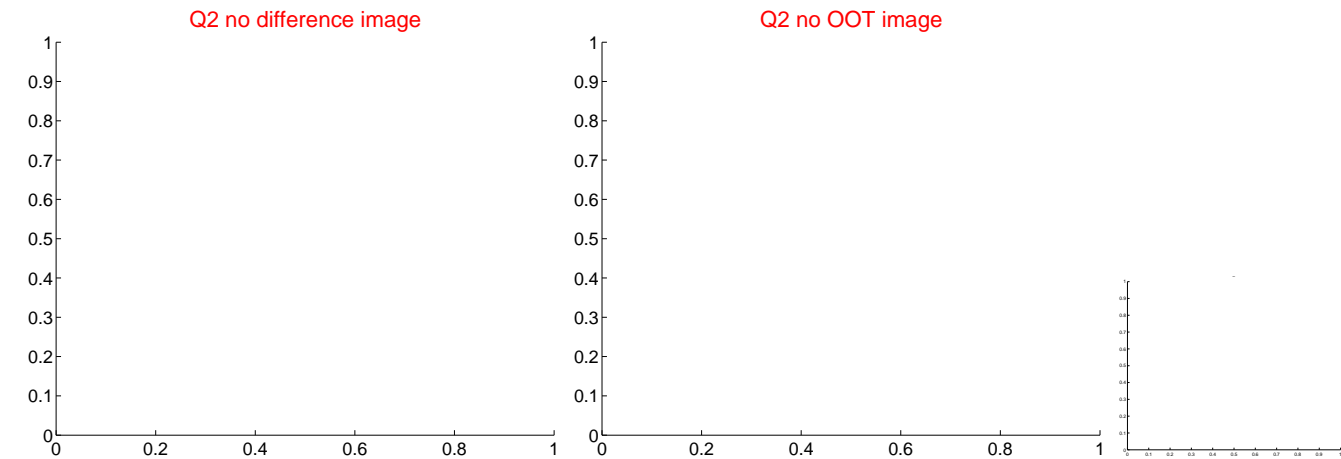
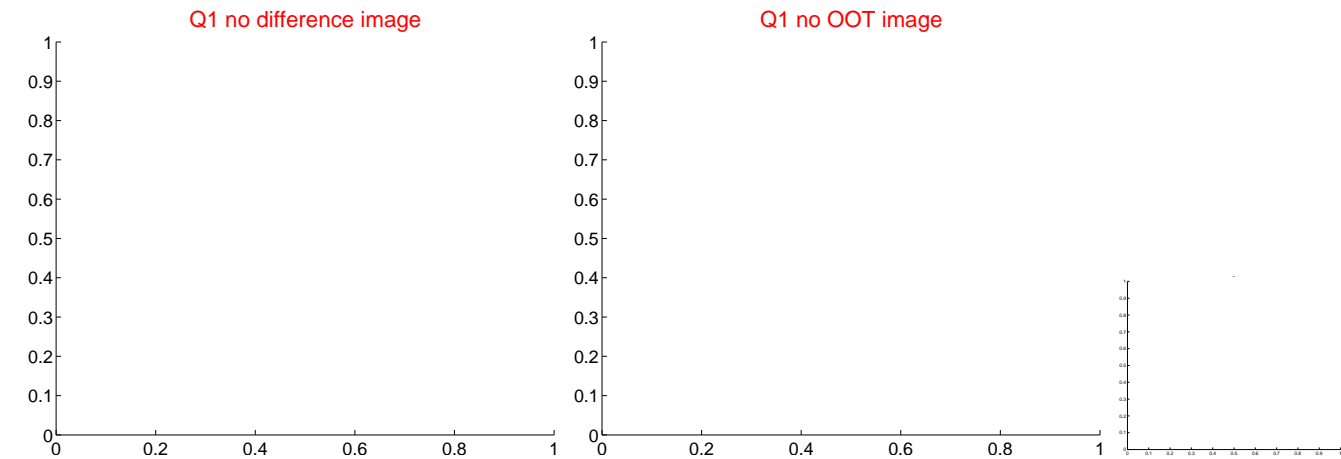
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>17.417 \pm 5.296</math></b>	<b>3.29</b>	$2.056 \pm 1.051$	$17.295 \pm 5.332$
PRF-fit source offset from KIC position	$15.356 \pm 5.347$	2.87	$-0.402 \pm 0.991$	$15.351 \pm 5.349$
photometric centroid source offset	$2.63 \pm 1.25$	2.11	$-1.58 \pm 0.81$	$-2.10 \pm 1.44$



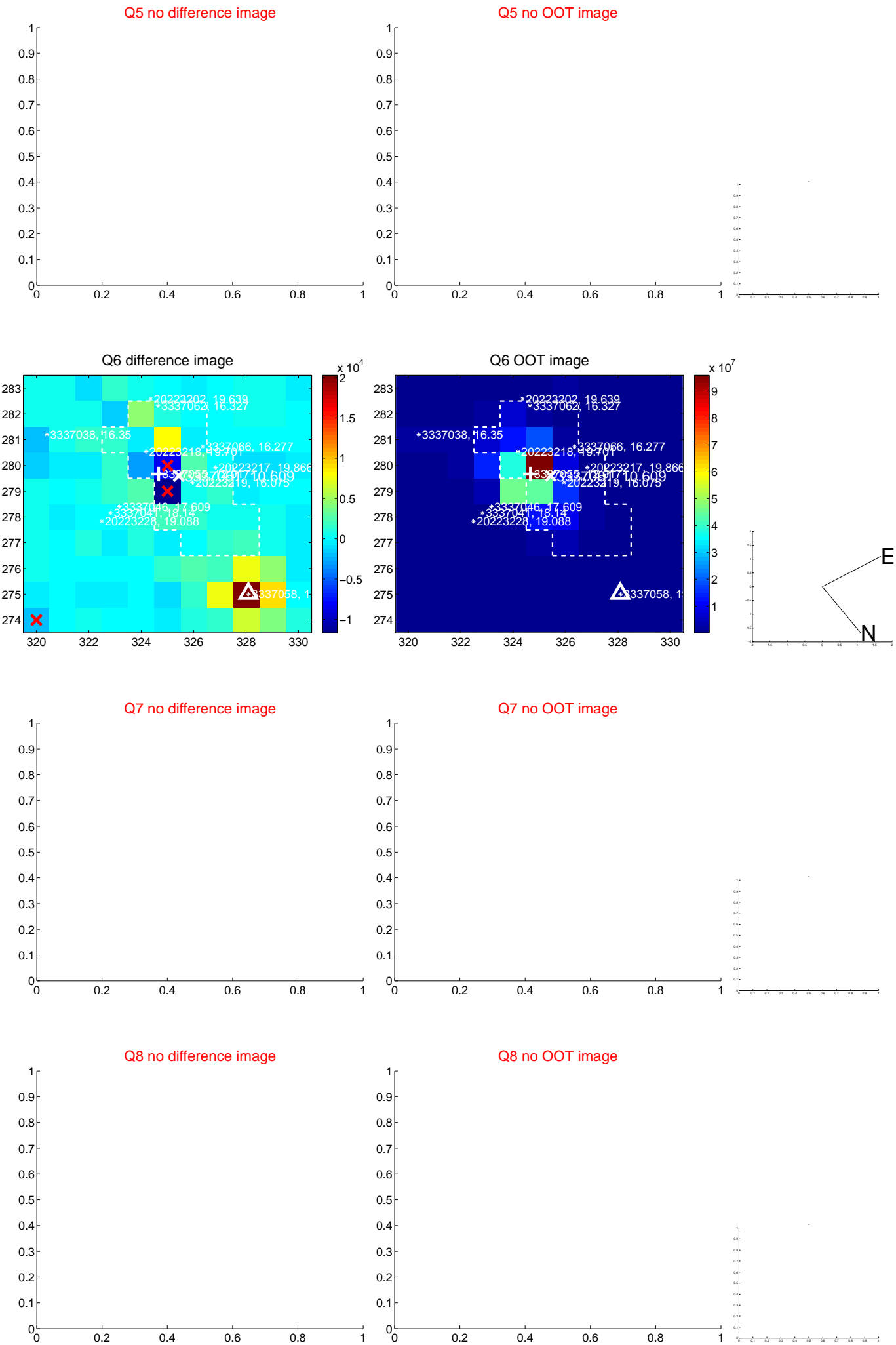
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



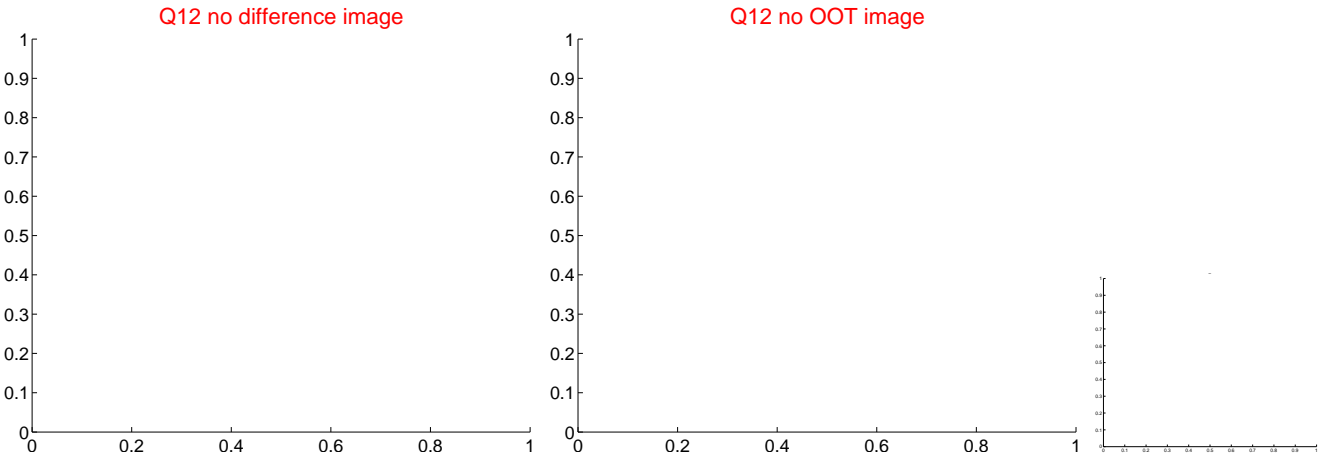
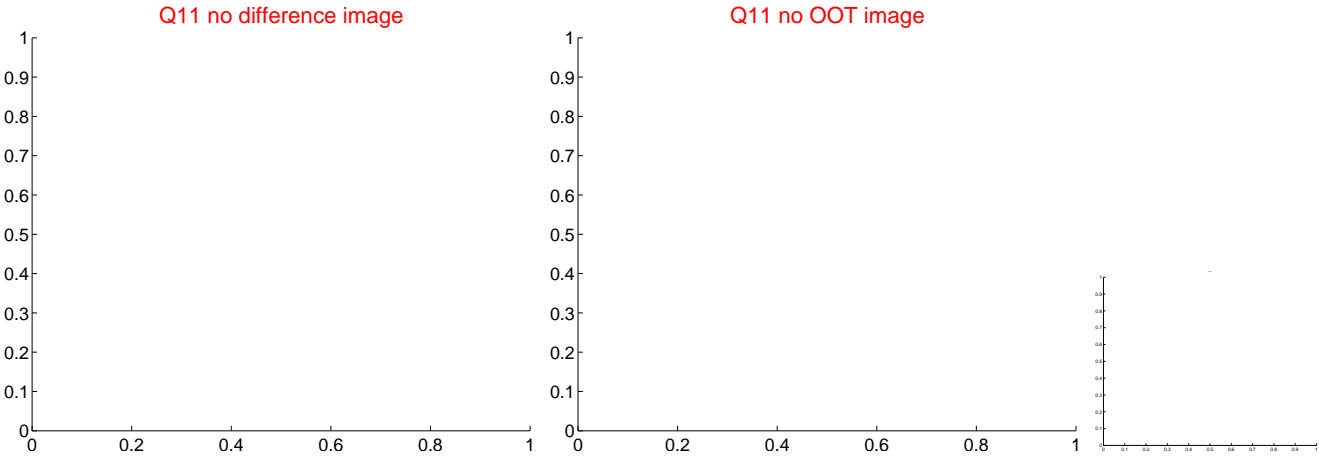
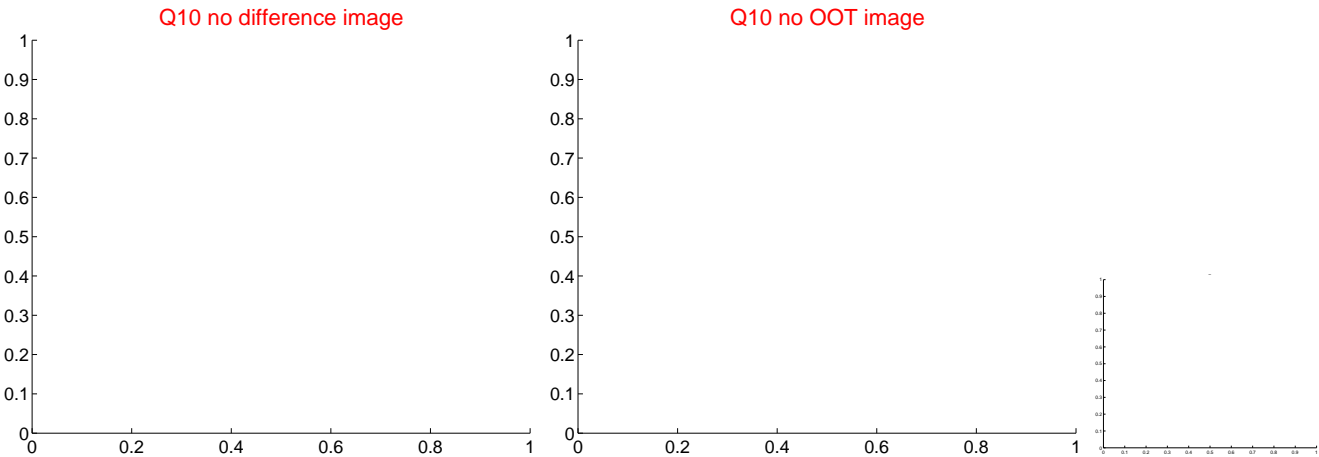
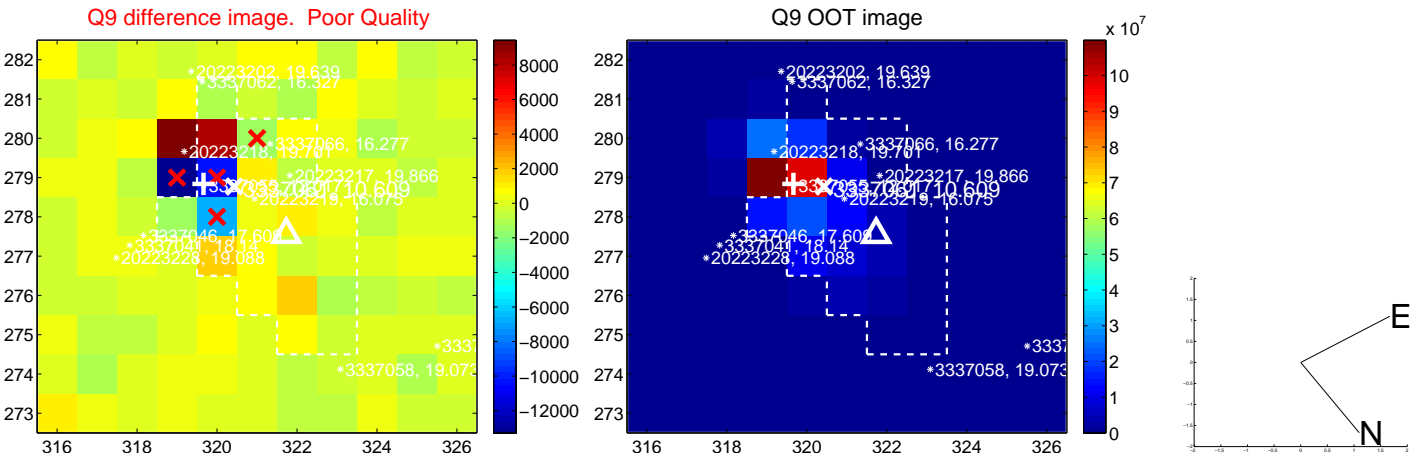
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



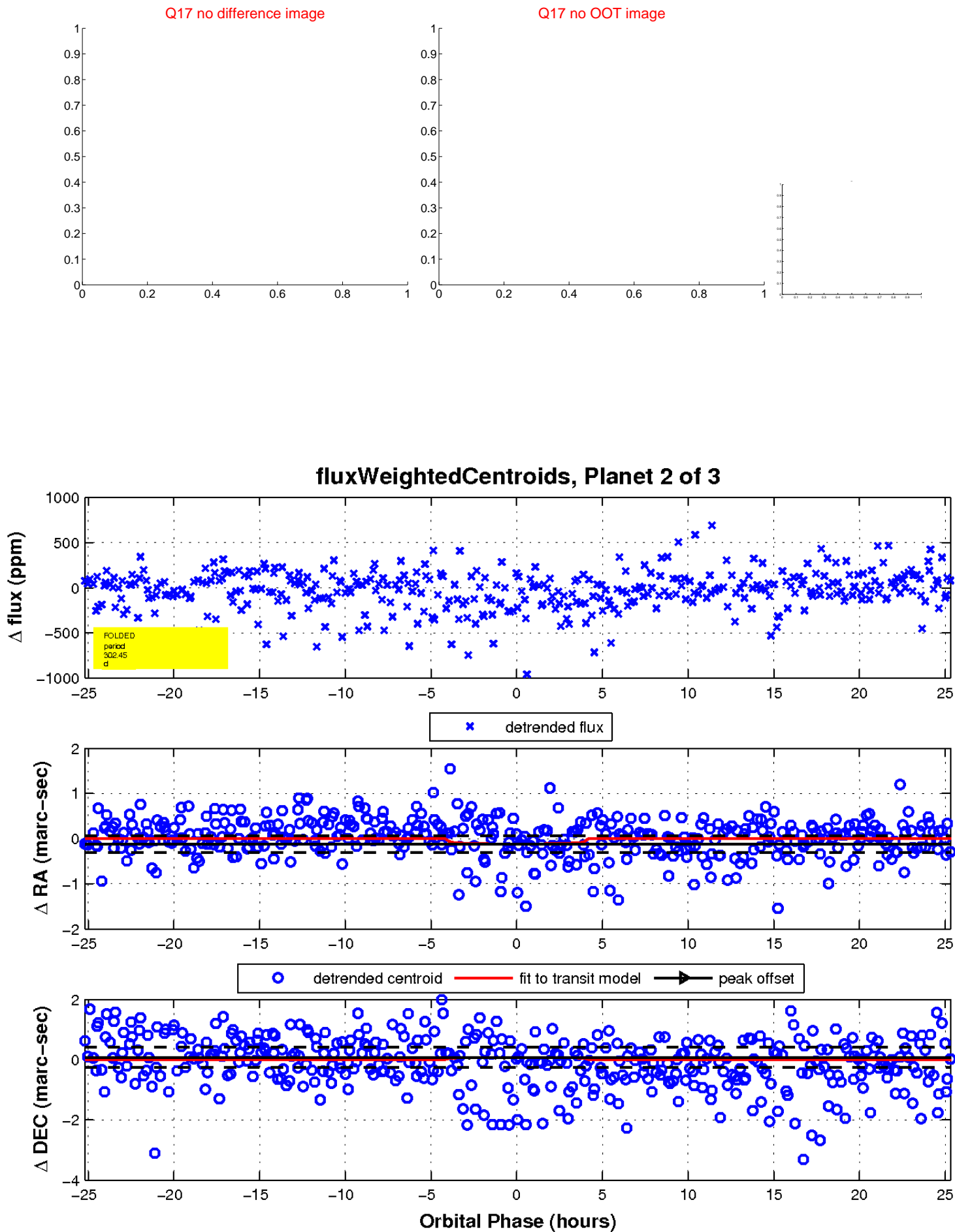
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

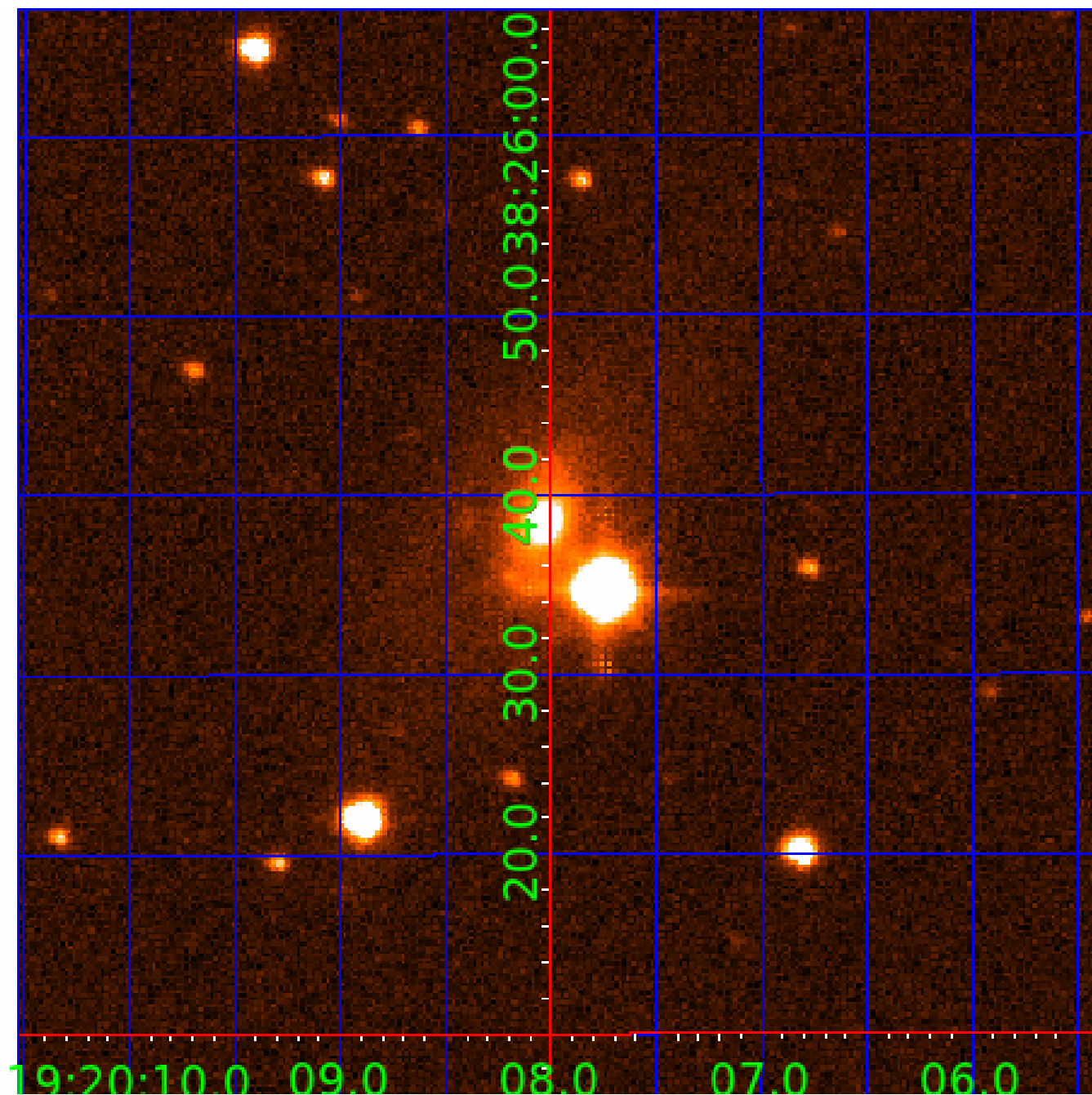


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003337061

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003337061-01	OBS	3172.01	6.558544	133.809863	85.2	1.946	12.9	14.4	1.61	6144	1.75	641.88
003337061-02	OBS	No	302.449354	277.407064	230.5	8.453	9.6	7.4	1.61	6144	2.68	3.88
003337061-03	OBS	No	486.213498	214.137378	249.0	7.342	7.7	7.4	1.61	6144	2.82	2.06

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003337061-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—CENT_SATURATED
003337061-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
003337061-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED

**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 003337061-03

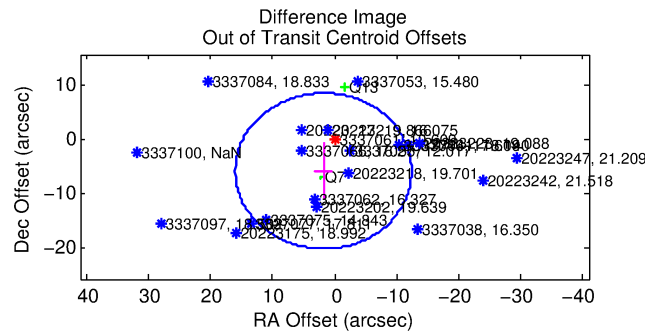
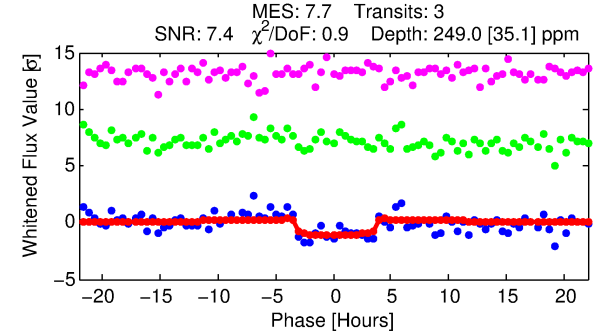
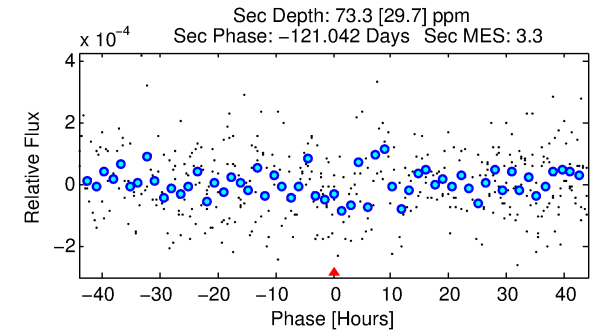
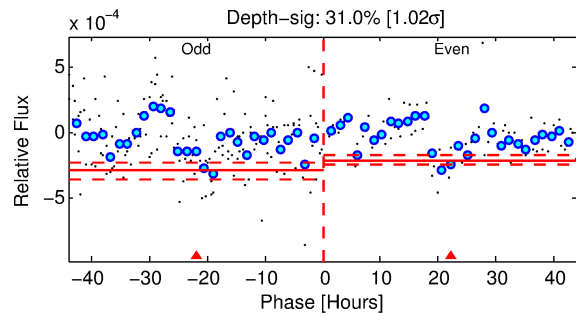
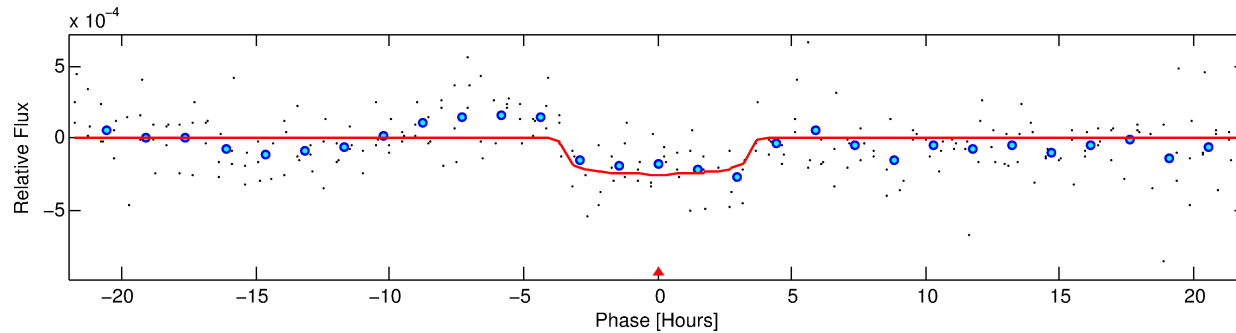
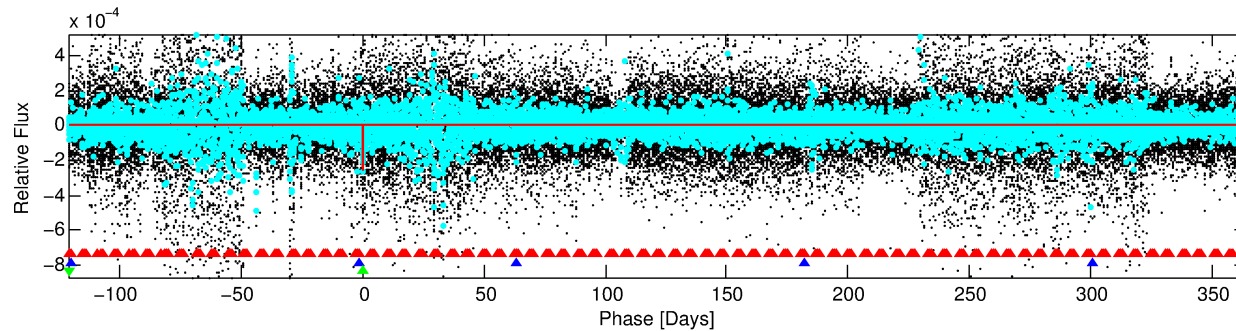
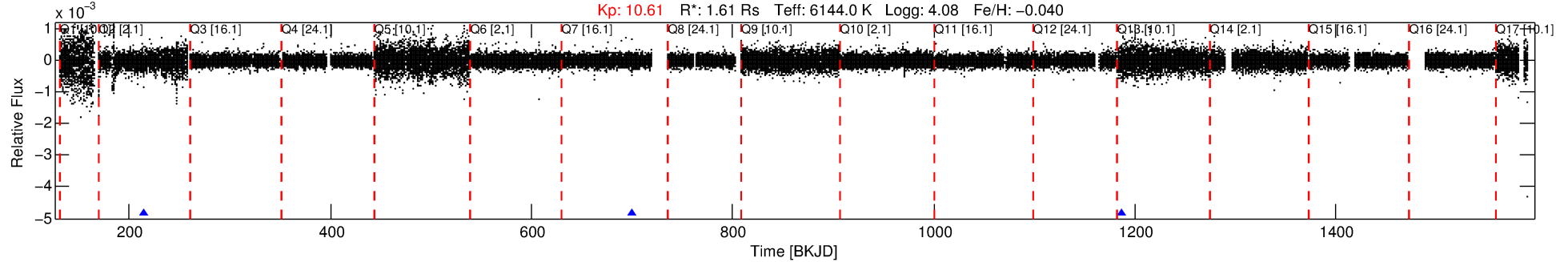
No Significant Match Found

# DV One-Page Summary

KIC: 3337061 Candidate: 3 of 3 Period: 486.213 d

KOI: K03172 Corr: No Ephemeris Match

Kp: 10.61 R\*: 1.61 Rs Teff: 6144.0 K Logg: 4.08 Fe/H: -0.040



## DV Fit Results:

Period = 486.21350 [0.01366] d  
Epoch = 214.1374 [0.0154] BKJD  
Rp/R\* = 0.0161 [0.0067]  
a/R\* = 309.52 [628.57]  
b = 0.81 [0.87]  
Seff = 2.06 [0.62]  
Teq = 306 [23] K  
Rp = 2.82 [1.32] Re  
a = 1.2640 [0.2413] AU  
Ag = 8102.82 [7898.42] [1.03σ]  
Teffp = 4482 [1043] K [4.00σ]

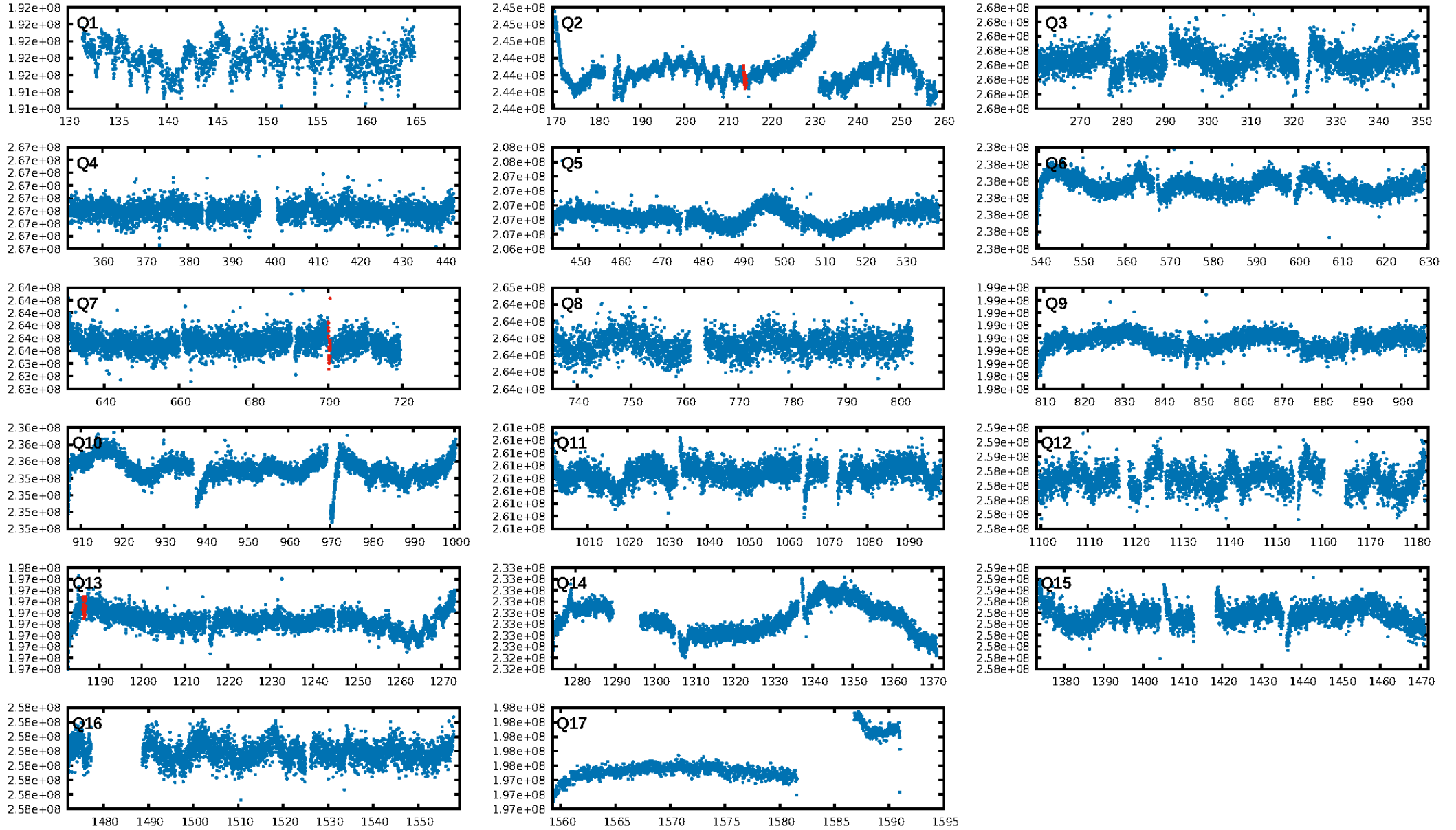
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [393.90σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 60.4%  
ModelChiSquareGof-sig: 98.9%  
**Bootstrap-pfa: 7.26e-08**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 1.1%  
Centroid-so: 2.856 arcsec [1.82σ]  
OotOffset-rm: 6.070 arcsec [1.28σ]  
KicOffset-rm: 7.803 arcsec [1.19σ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

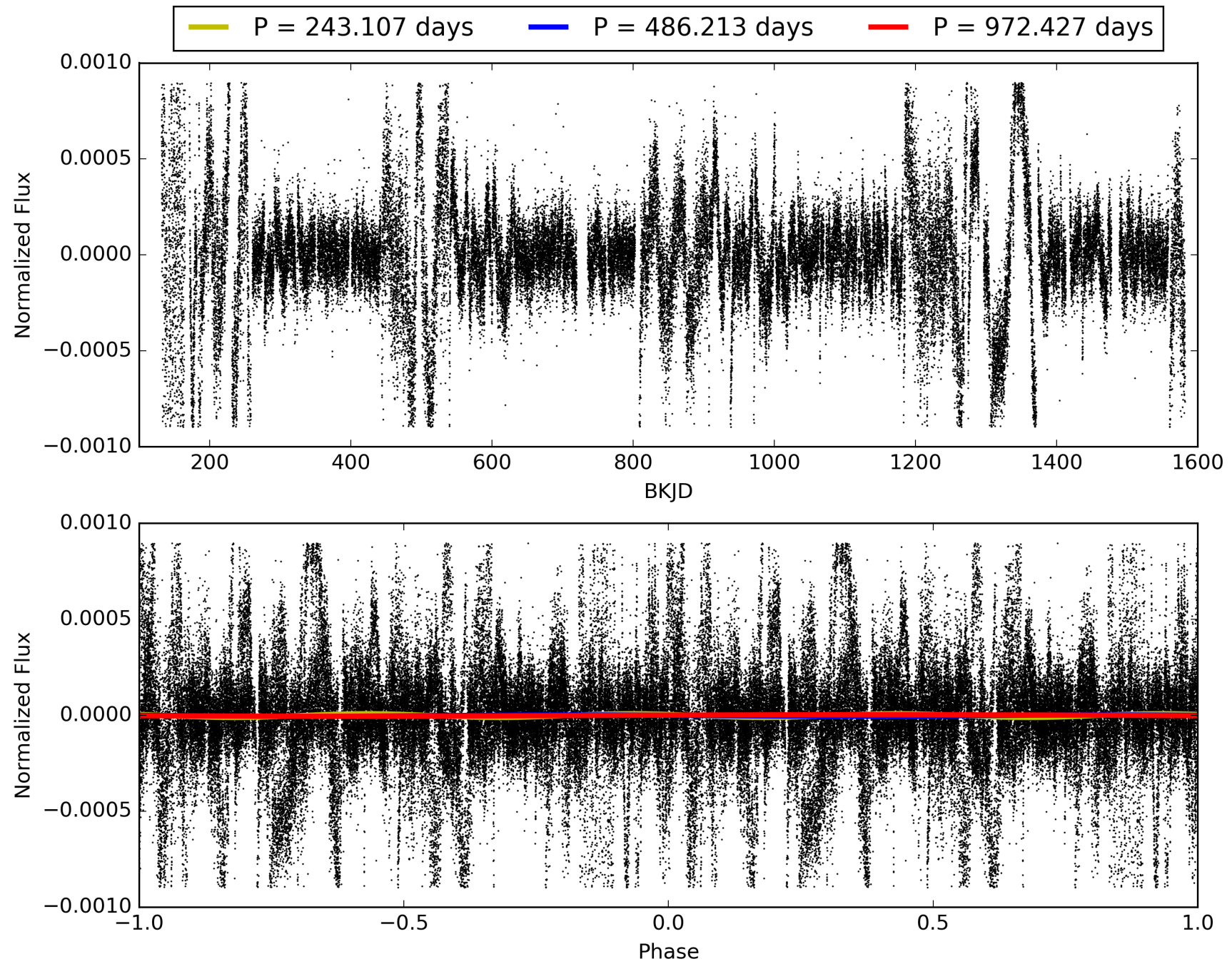
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 02:35:27 Z

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

# TCE 003337061-03, PDC Light Curves

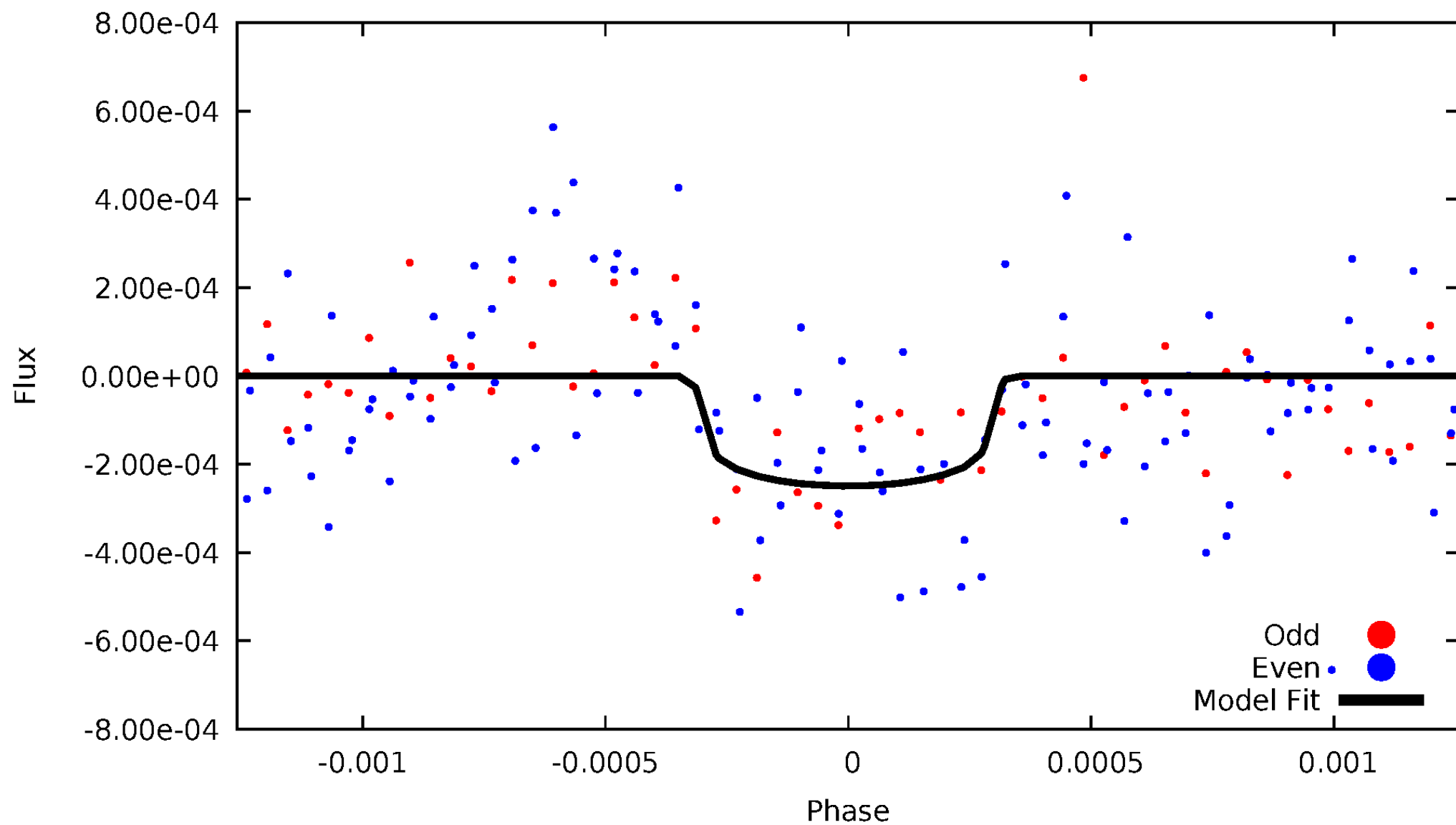


TCE 003337061-03



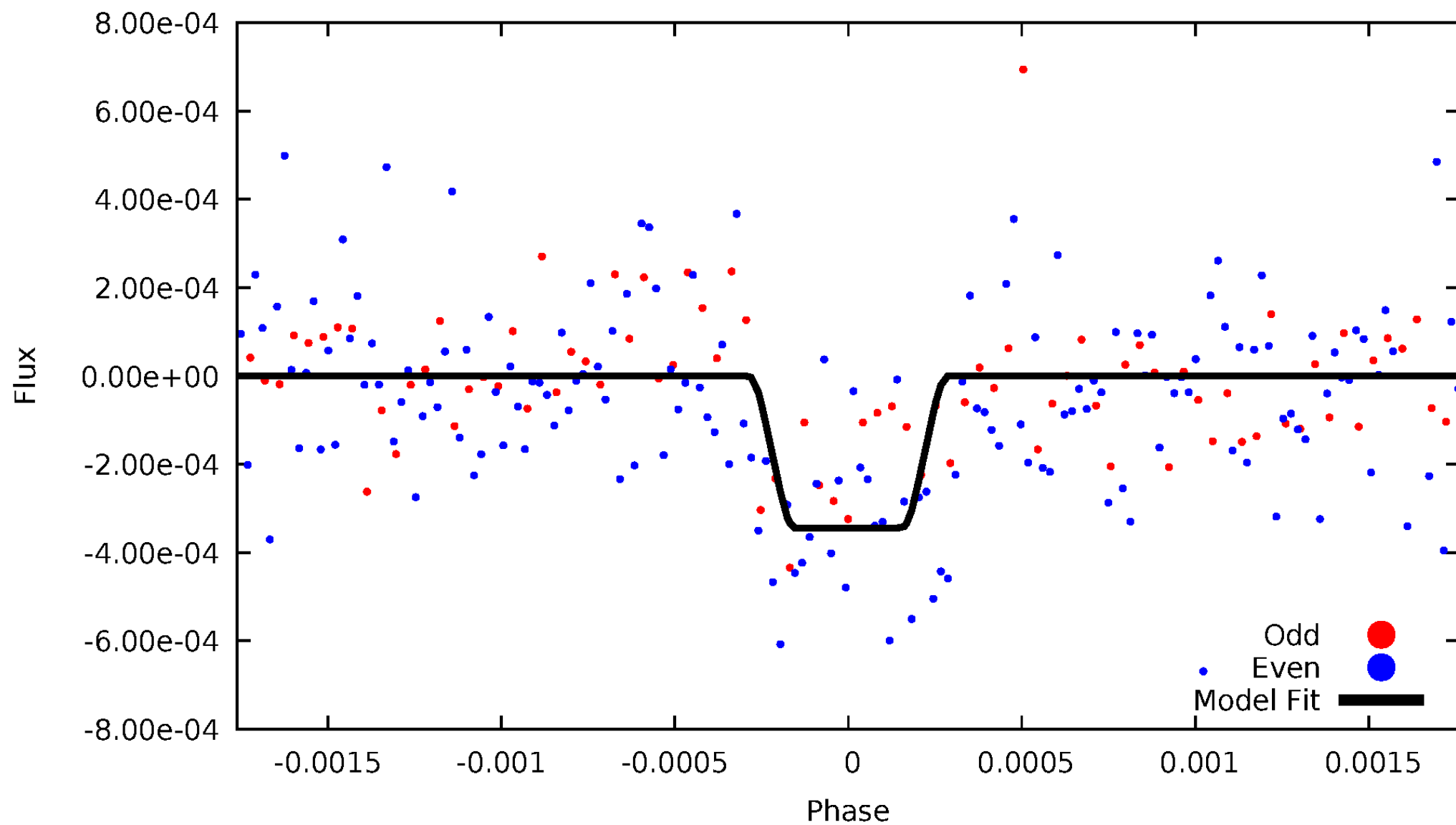
# DV Odd/Even

TCE 003337061-03



# ALT Odd/Even

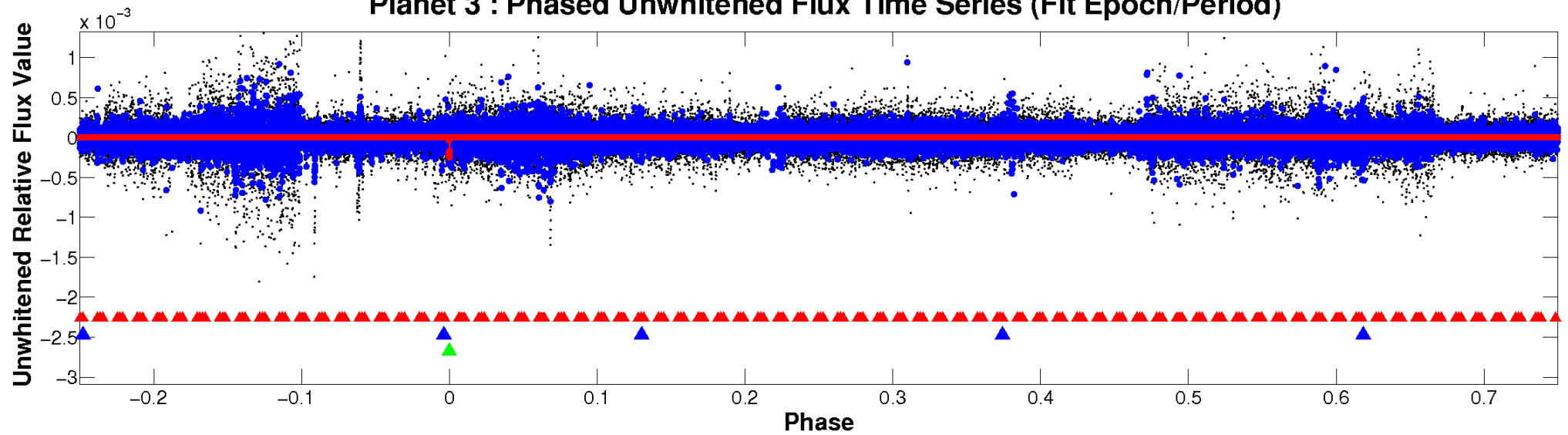
TCE 003337061-03



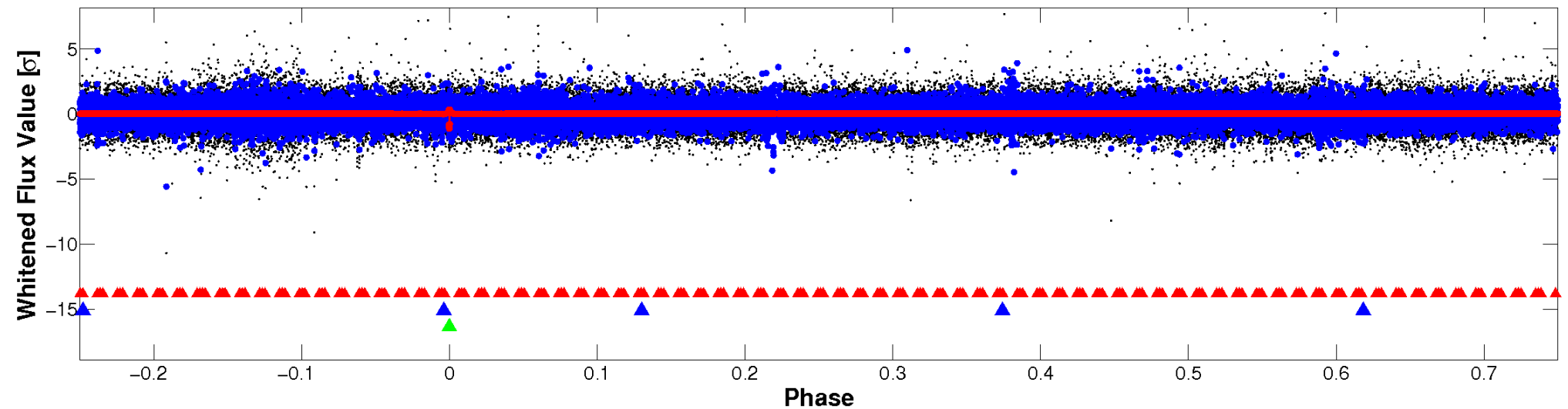


# Non-Whitened Vs. Whitened Light Curve

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

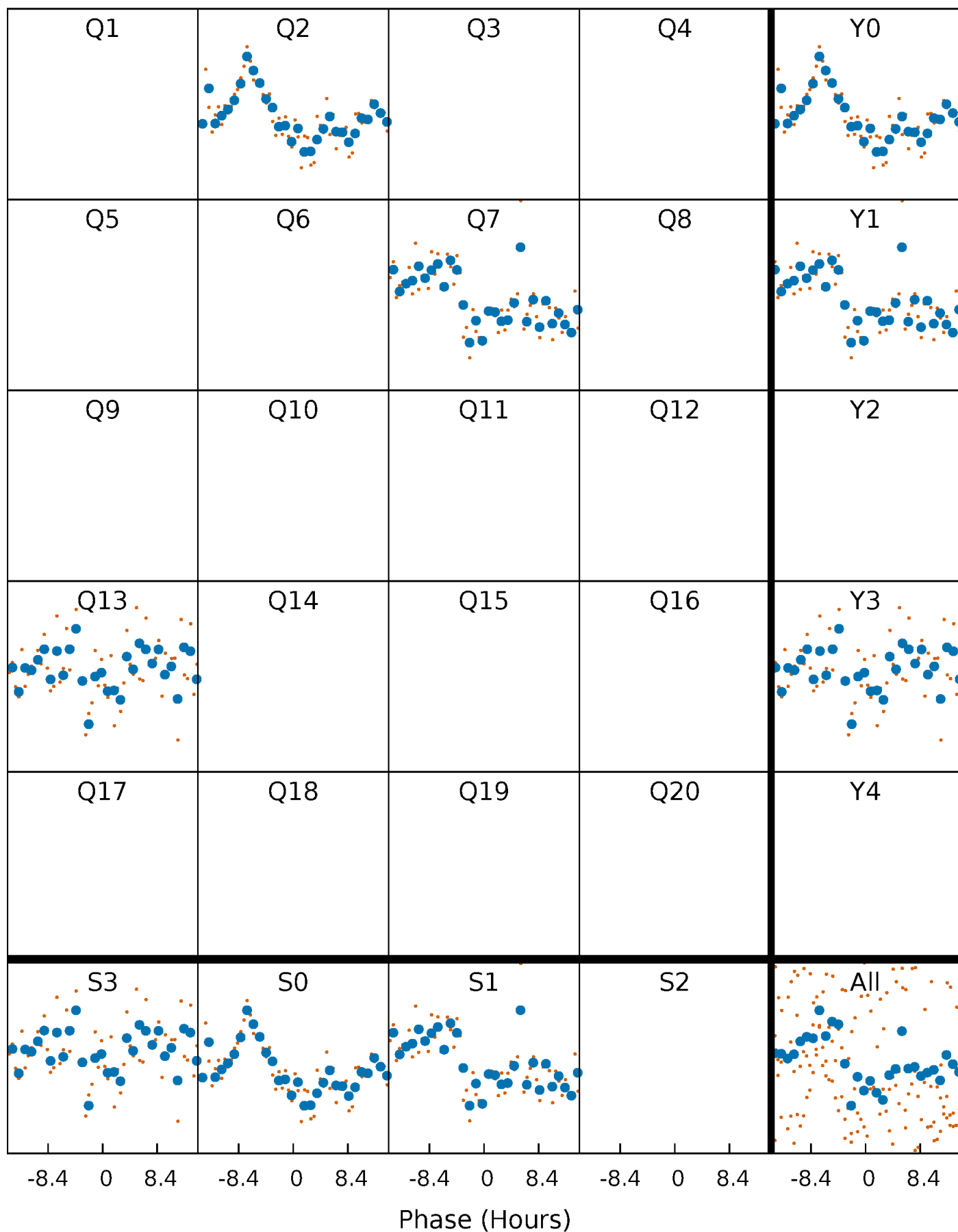


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



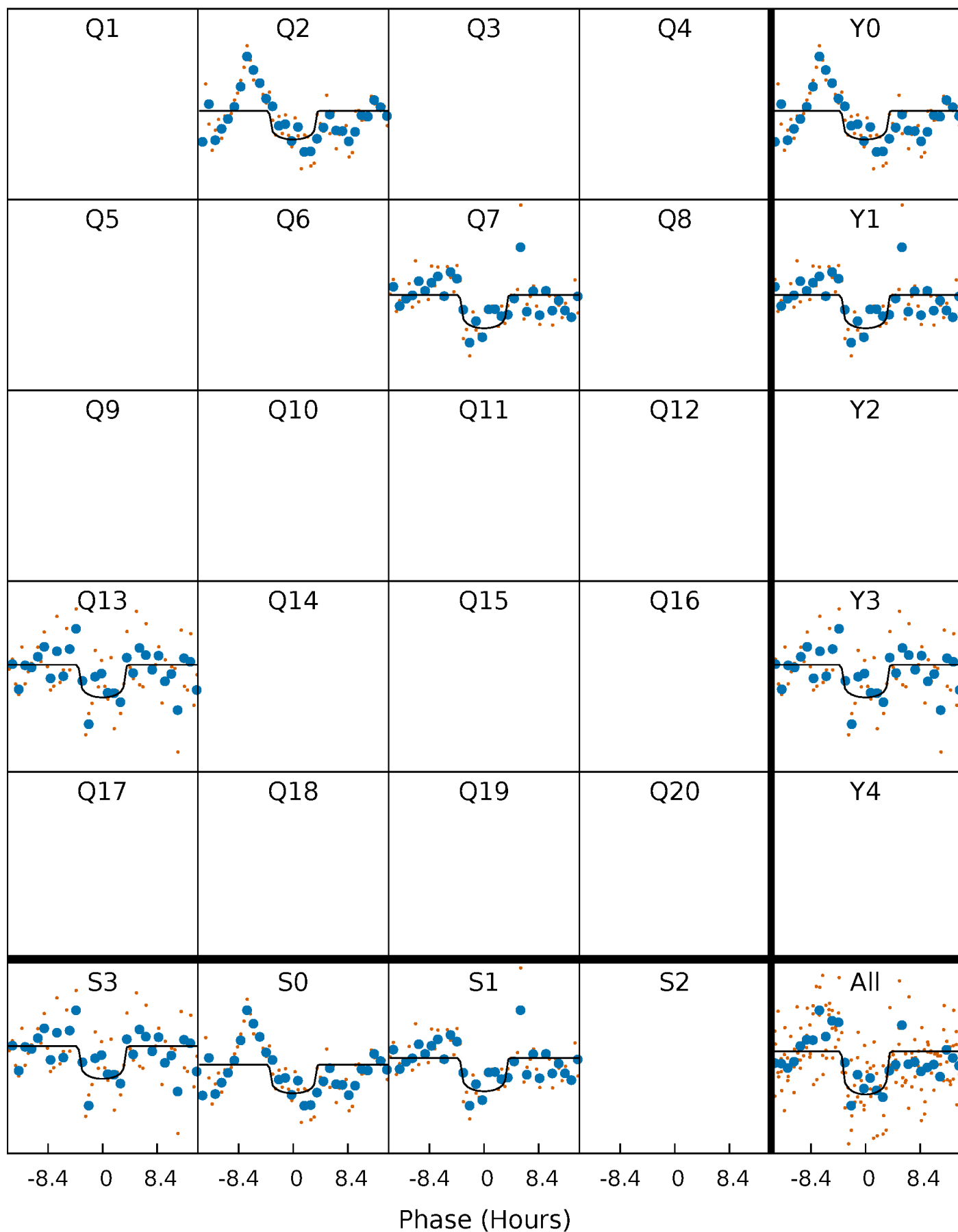
# PDC Quarter-Phased Transit Curves

TCE 003337061-03 P=486.213498 Days  $T_0=214.137378$  (BKJD)



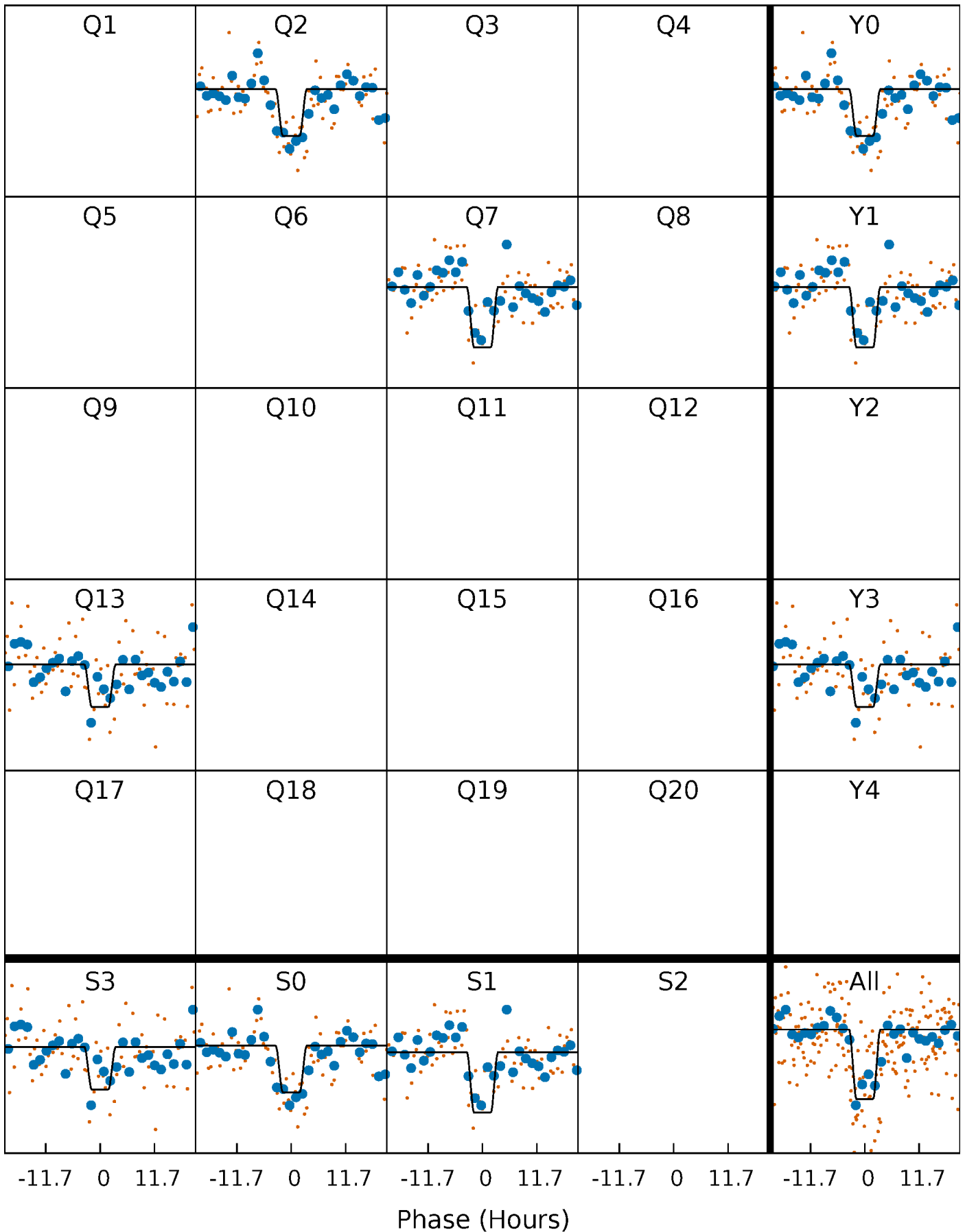
# DV Quarter-Phased Transit Curves

TCE 003337061-03     $P=486.213498$  Days     $T_0=214.137378$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

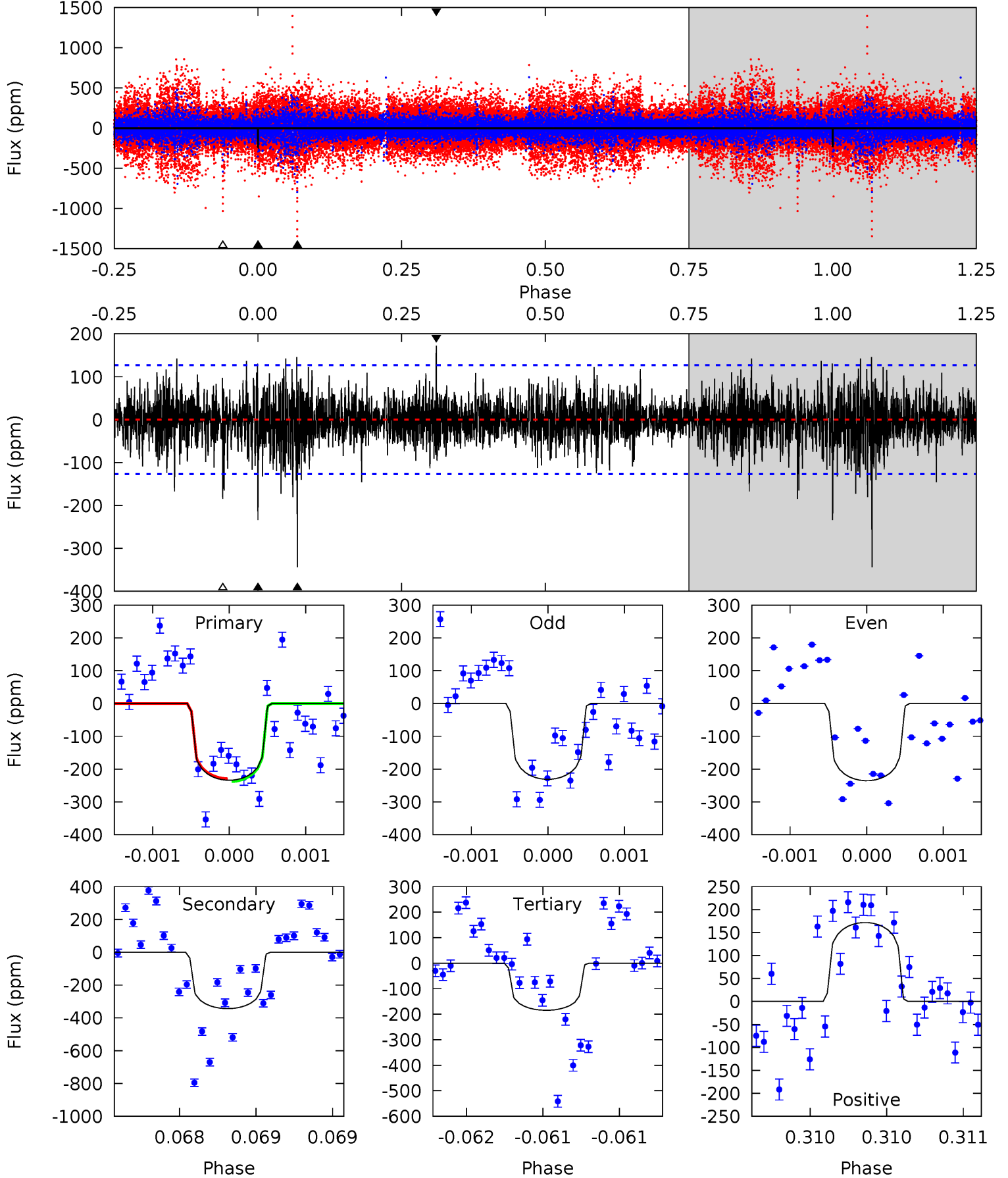
TCE 003337061-03 P=486.209749 Days  $T_0=214.131399$  (BKJD)



# DV Model-Shift Uniqueness Test

003337061-03, P = 486.213498 Days, E = 214.137378 Days

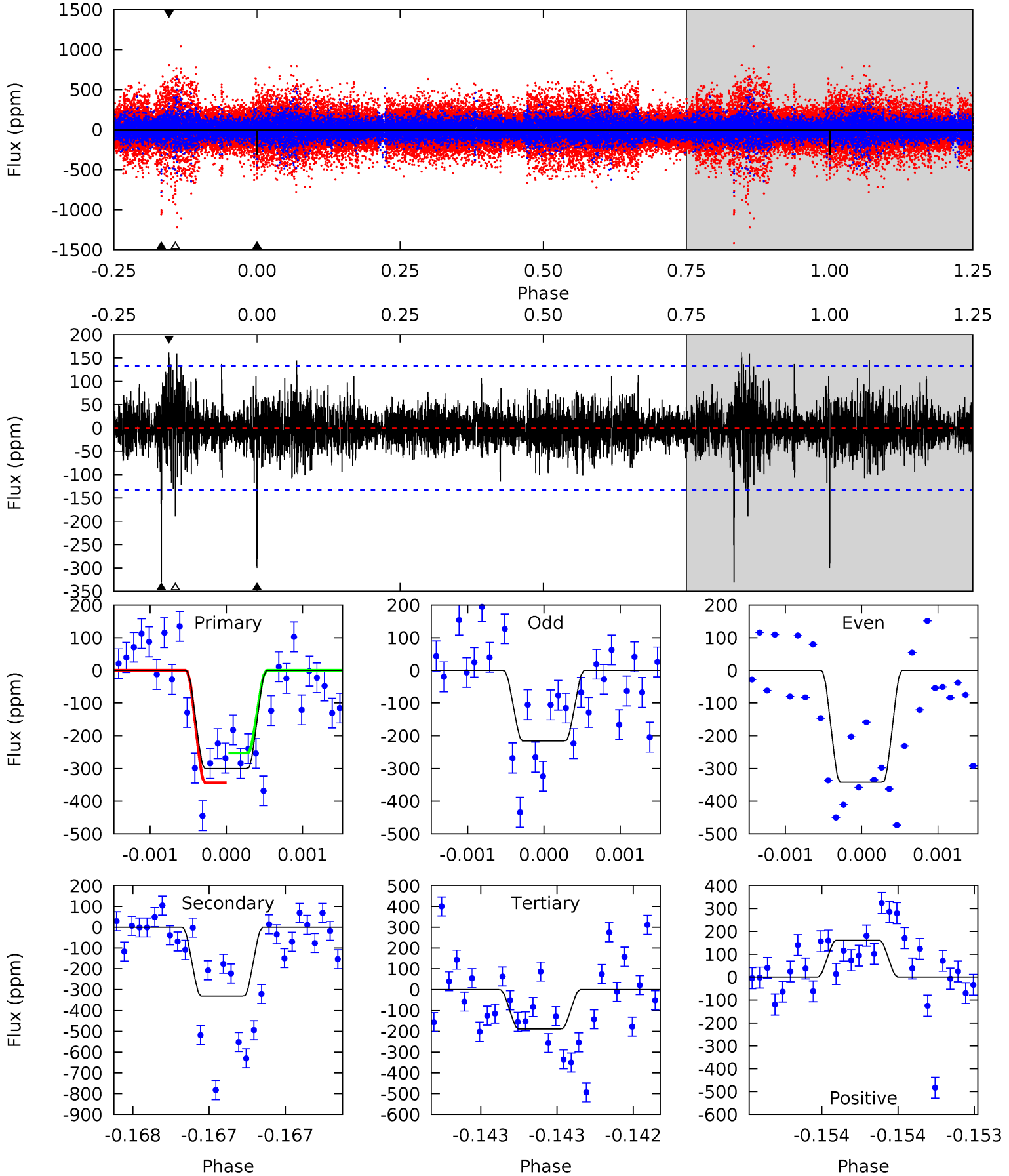
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	15.0	8.04	7.48	5.53	3.42	1.62	2.15	2.71	6.94	7.49	0.08	1.01	0.33	0.19



# Alt Model-Shift Uniqueness Test

003337061-03, P = 486.209749 Days, E = 214.131399 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
12.6	13.9	7.92	6.78	5.56	3.46	1.27	4.65	5.80	5.96	7.11	2.43	1.05	0.33	1.92





### Stellar Parameters For KIC 003337061

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6144^{+86}_{-74}$	$4.083^{+0.168}_{-0.098}$	$-0.040^{+0.150}_{-0.150}$	$1.606^{+0.277}_{-0.339}$	$1.140^{+0.138}_{-0.095}$	$0.387^{+0.340}_{-0.134}$
	+1%/-1%	+4%/-2%	+375%/-375%	+17%/-21%	+12%/-8%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 003337061-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-344 \pm 23$	$2.80^{+1.19}_{-1.21}$	$424^{+20}_{-21}$	$6644^{+2590}_{-1086}$	$39867^{+81596}_{-20936}$
Alt.	$-331 \pm 24$	$3.24^{+1.26}_{-1.26}$	$426^{+20}_{-23}$	$6087^{+1713}_{-846}$	$28409^{+44818}_{-13691}$

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

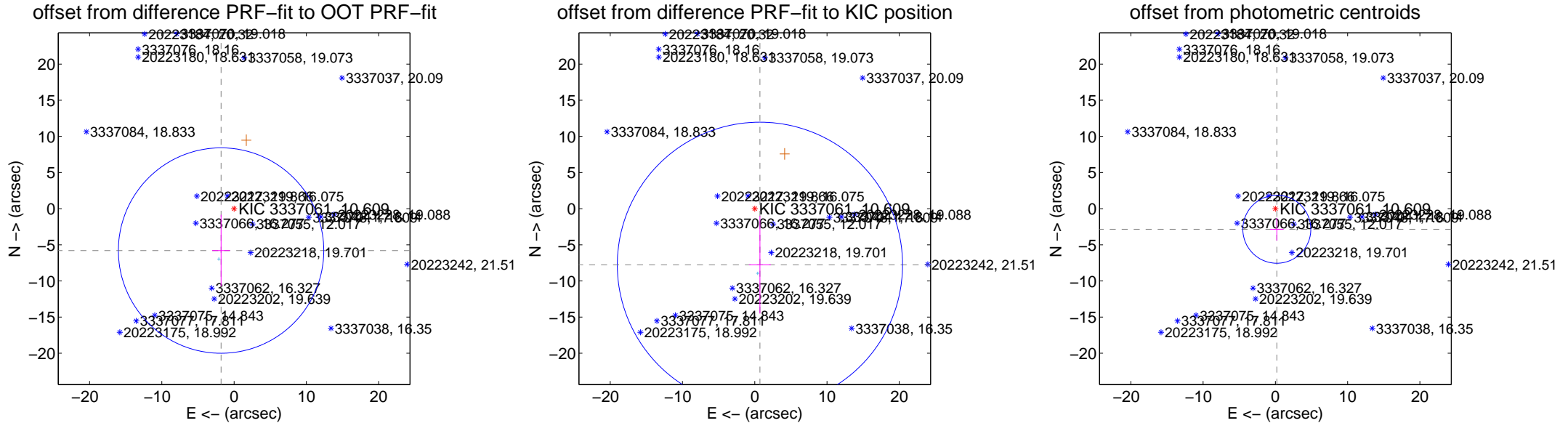
## DV Centroid Data

Supplemental centroid analysis for 003337061-03. **Kepler magnitude: 10.61.** Transit SNR 7.37

There are 1 quarters with good PRF difference image offsets

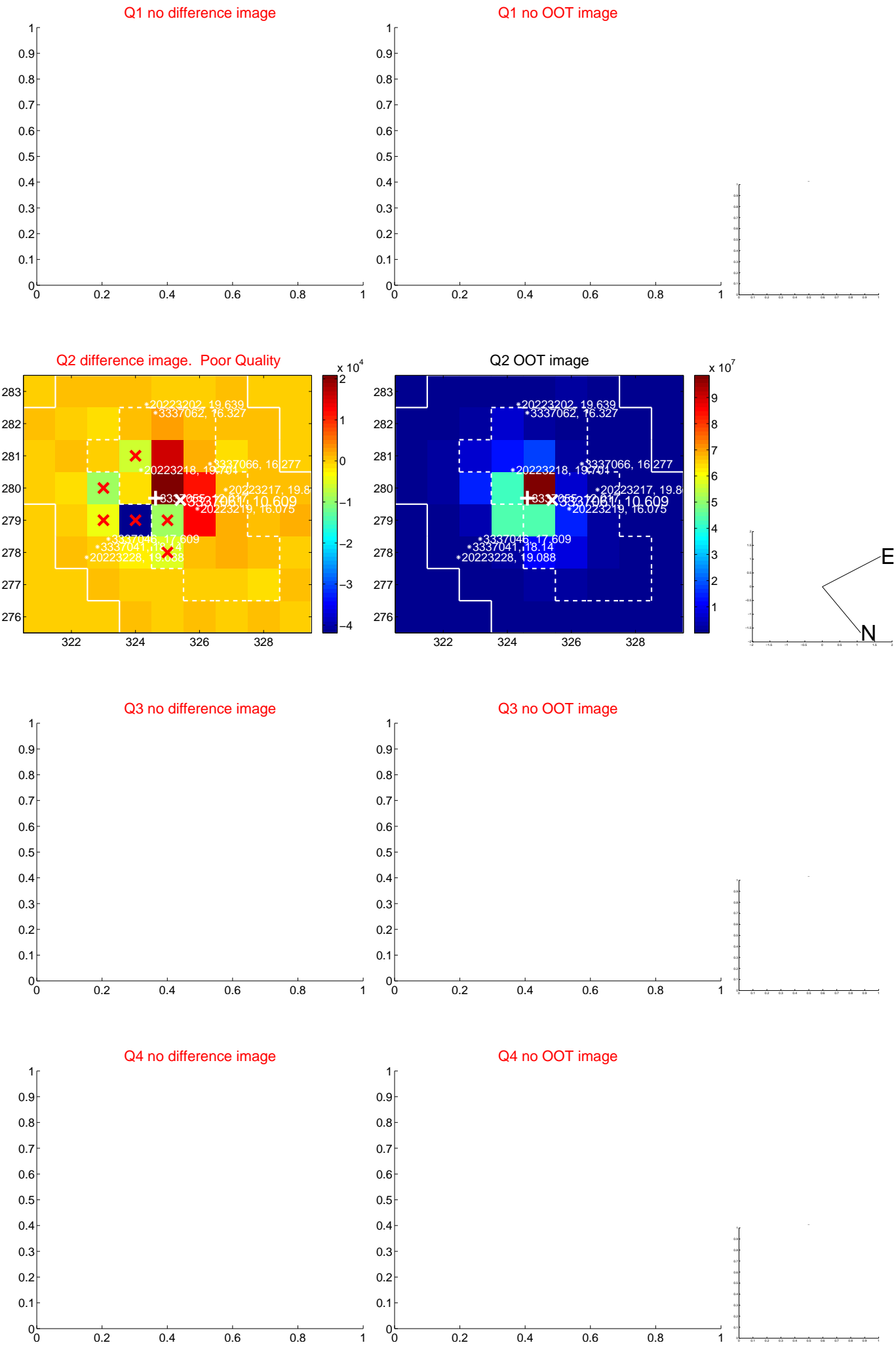
The OOT PRF centroid is offset from the target star catalog position by about 3.10 arcsec so the offset from difference PRF-fit to OOT PRF-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$6.070 \pm 4.737$	1.28	$1.804 \pm 1.228$	$-5.795 \pm 4.947$
PRF-fit source offset from KIC position	$7.803 \pm 6.579$	1.19	$-0.718 \pm 1.524$	$-7.770 \pm 6.748$
photometric centroid source offset	$2.86 \pm 1.57$	1.82	$-0.20 \pm 0.93$	$-2.85 \pm 1.57$

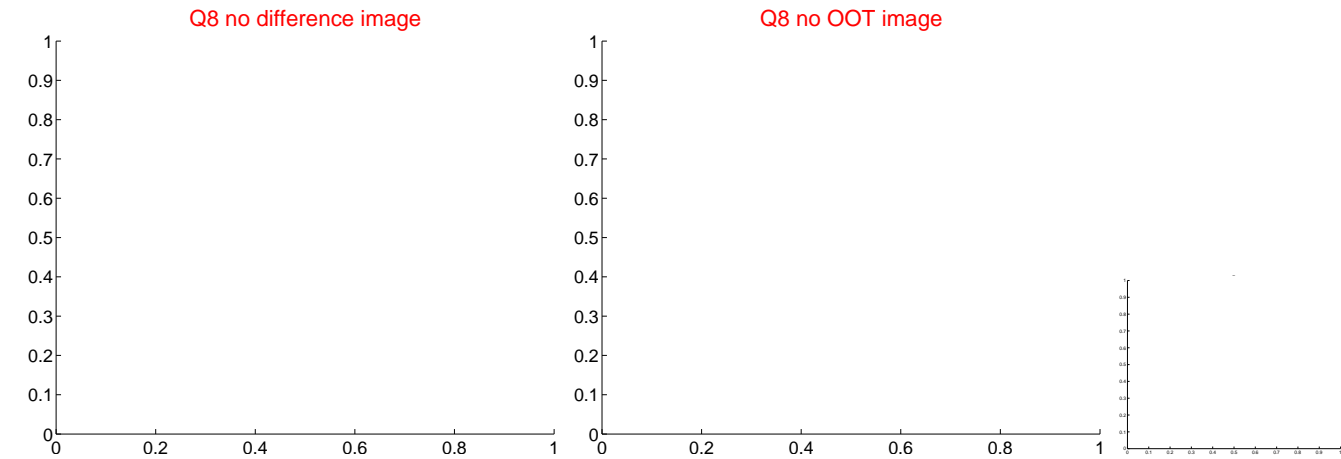
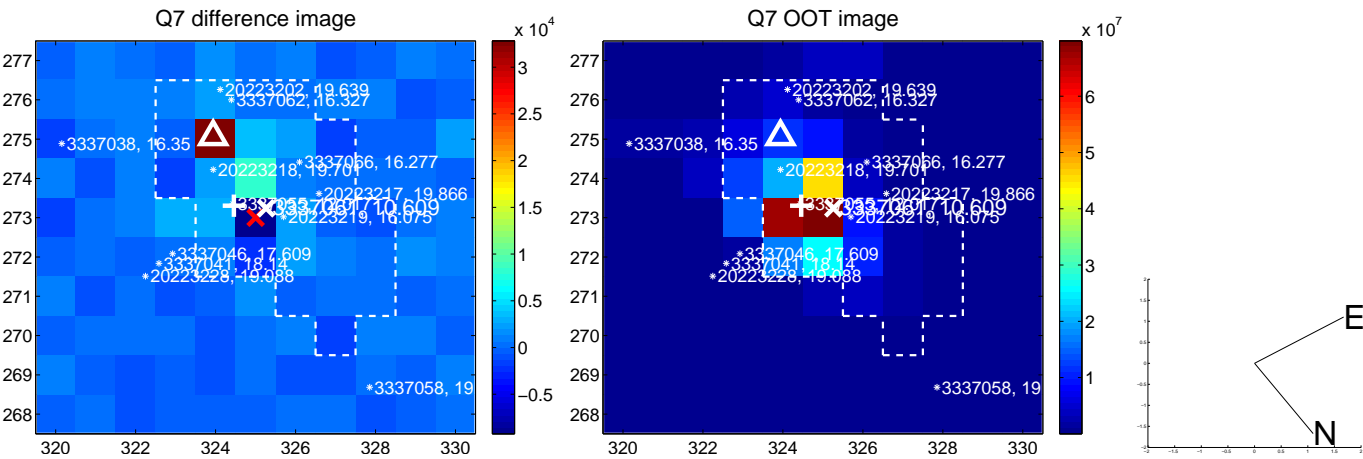
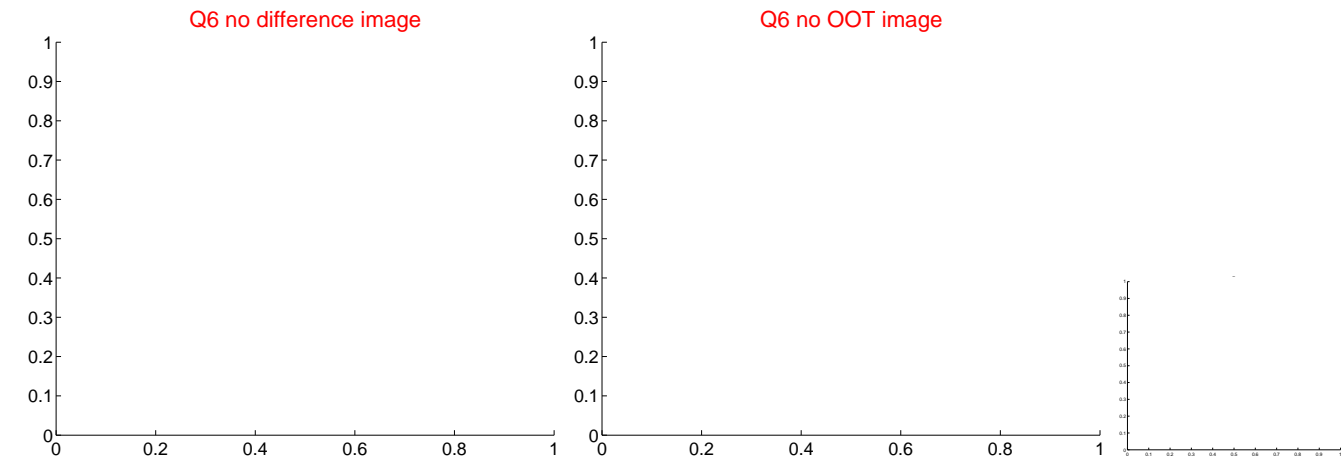
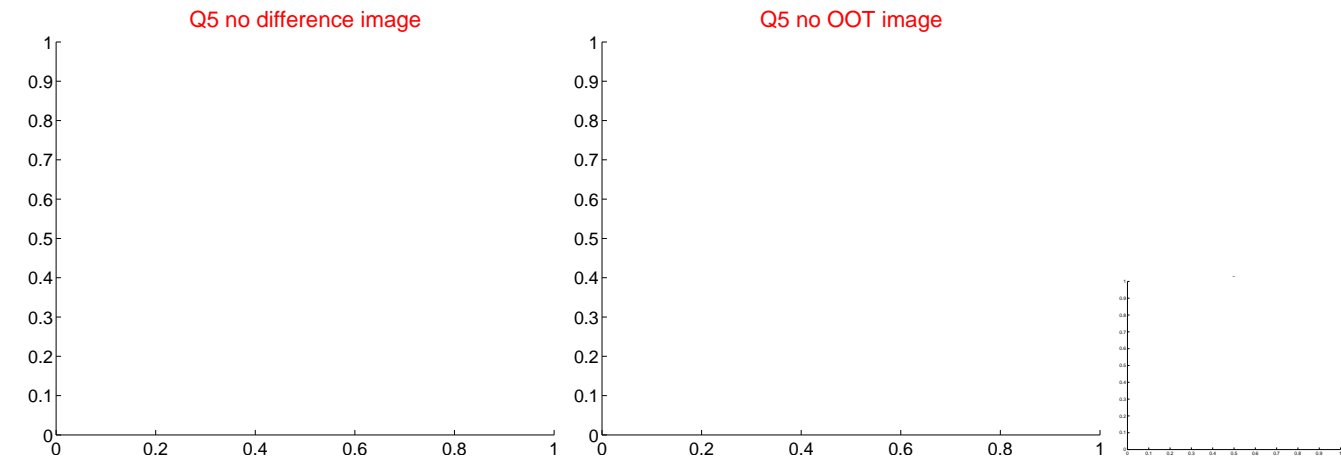


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



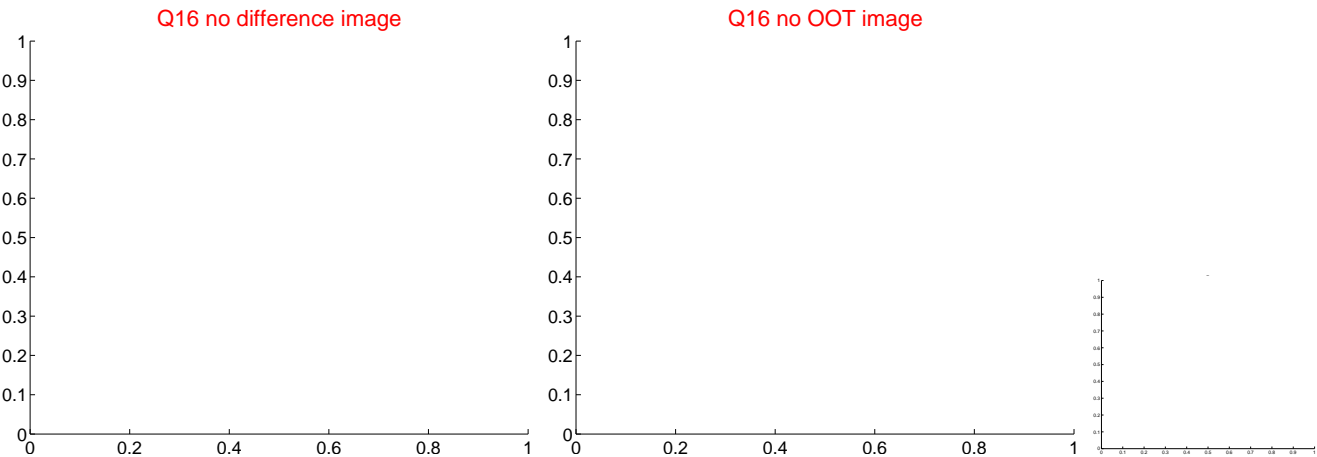
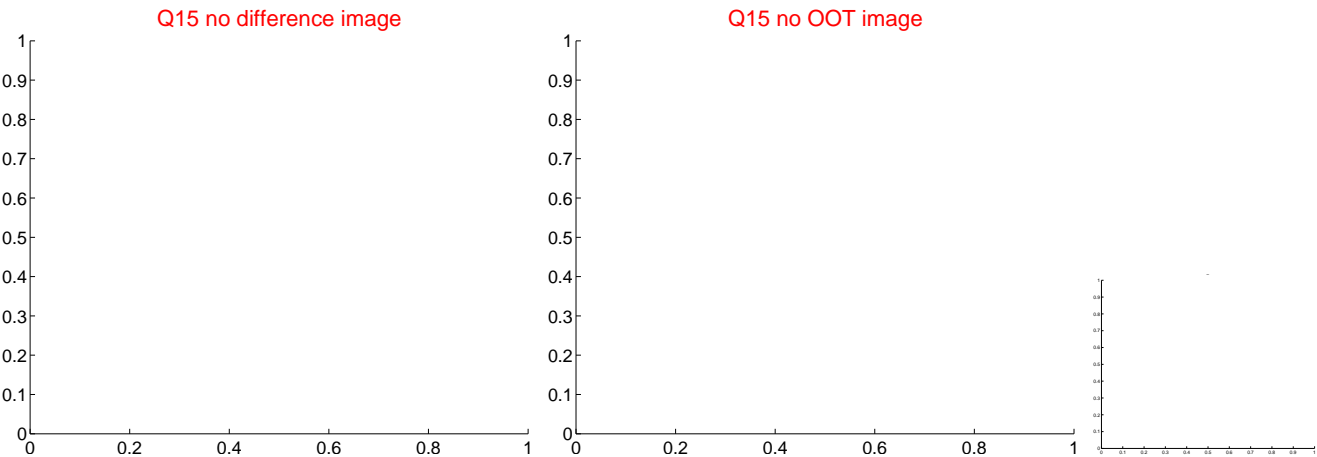
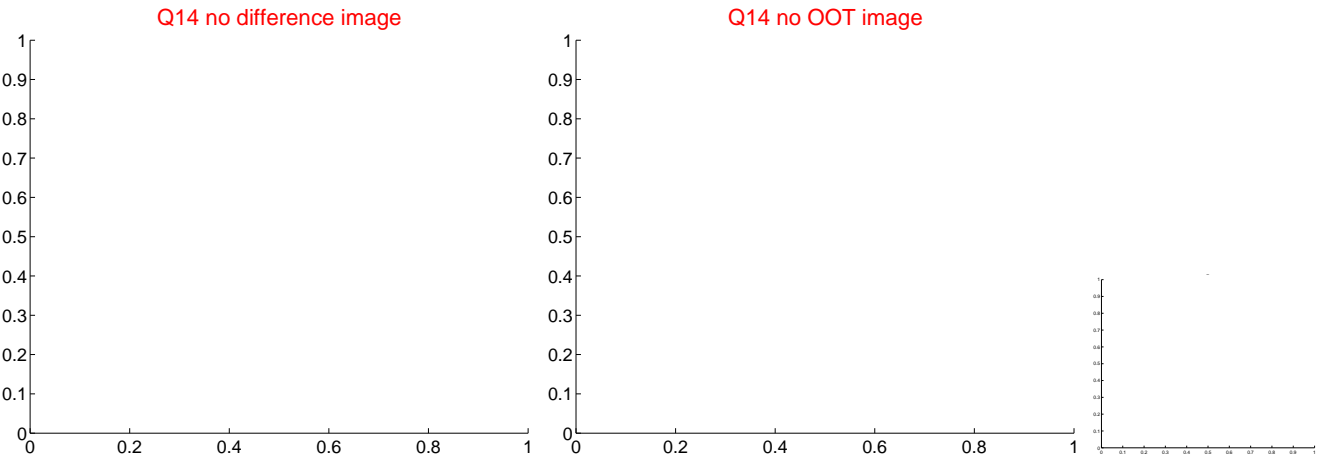
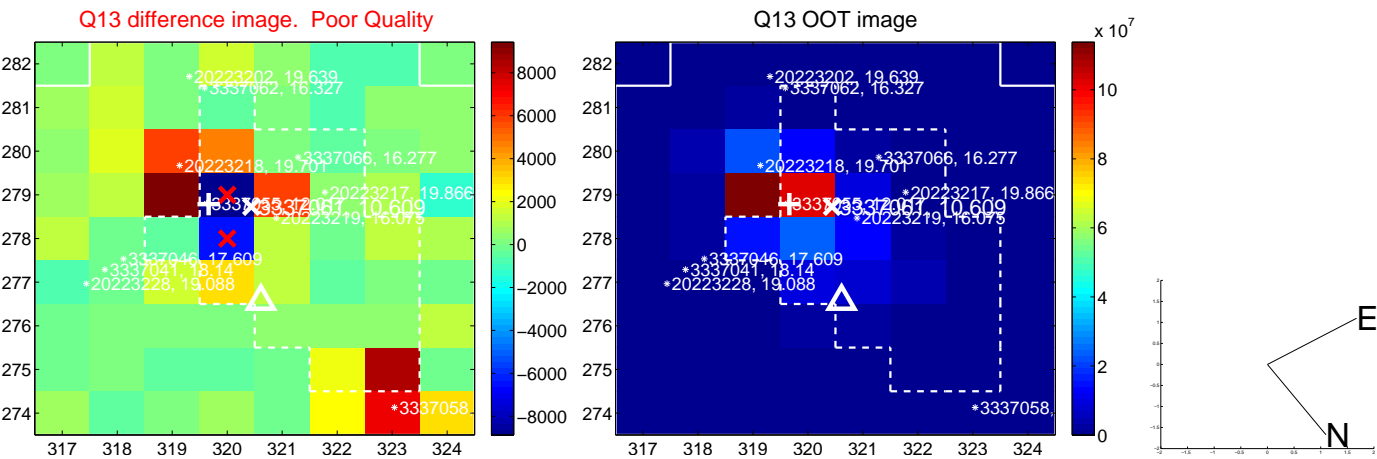
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



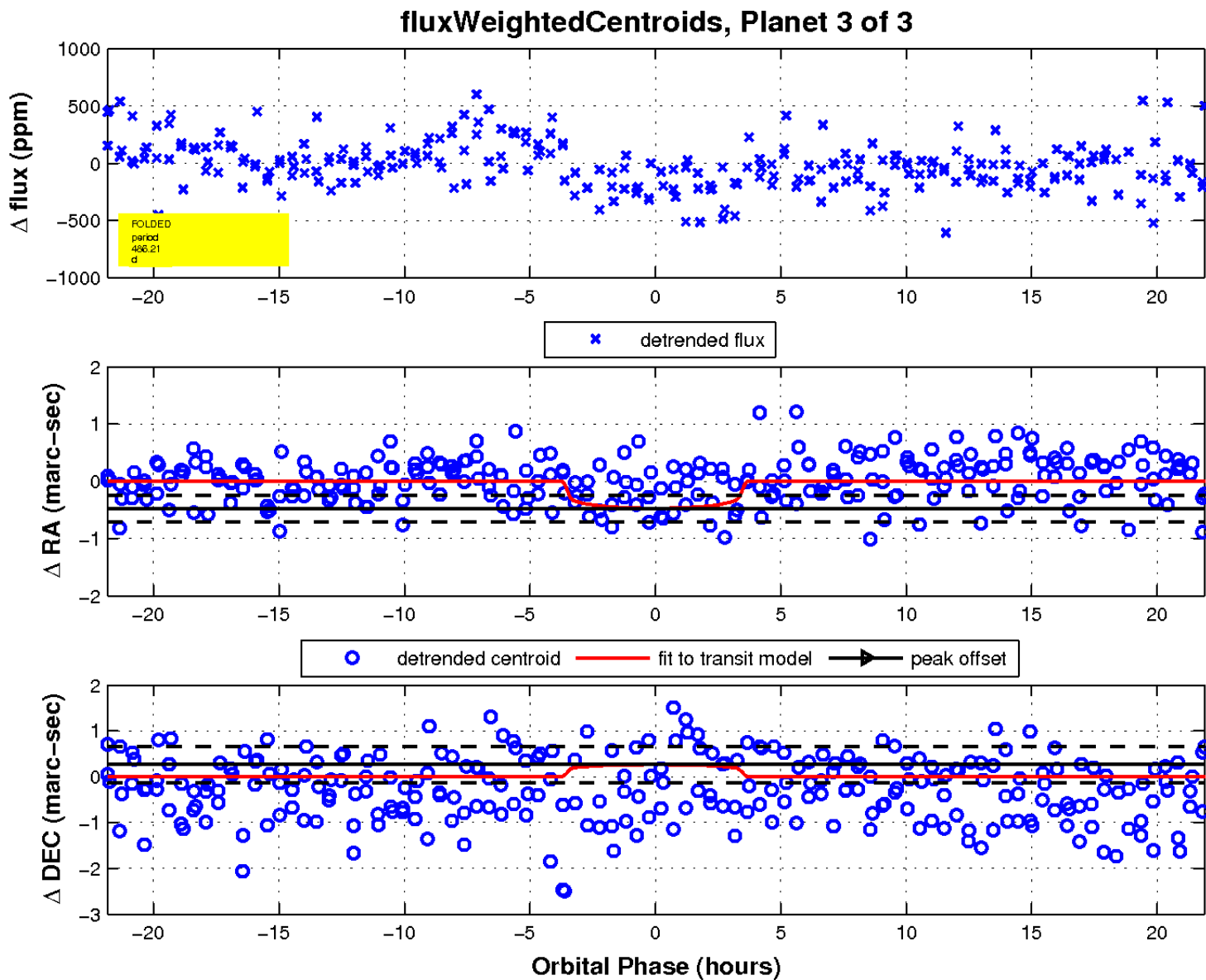
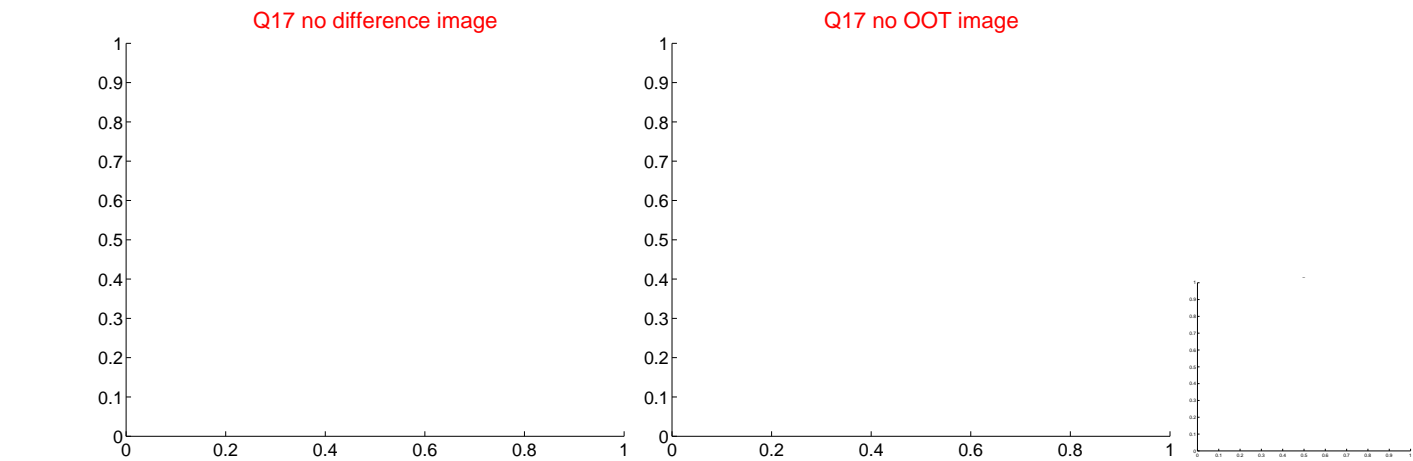
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

