

# KIC 001865567

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001865567-01	OBS	No	1.349405	132.598957	9.3	2.636	14.0	12.6	1.98	9888	0.69	33581.66
001865567-02	OBS	No	0.674675	131.644799	3.5	4.540	14.3	7.9	1.98	9888	0.43	84625.17
001865567-03	OBS	No	41.202499	162.734456	38.2	4.987	9.2	5.3	1.98	9888	1.31	351.88

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001865567-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
001865567-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
001865567-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

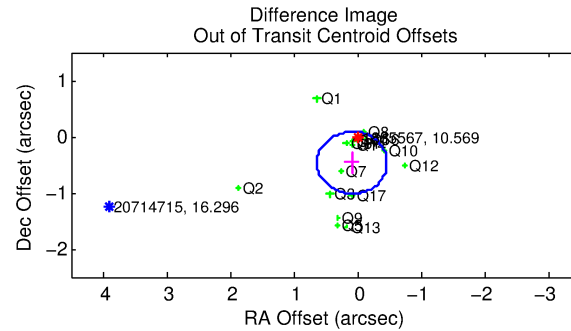
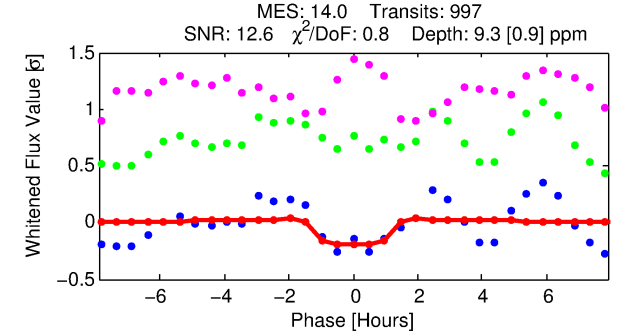
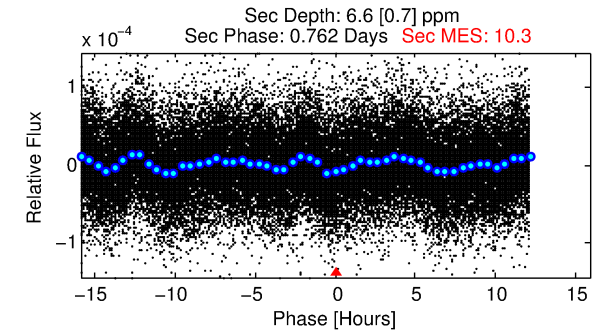
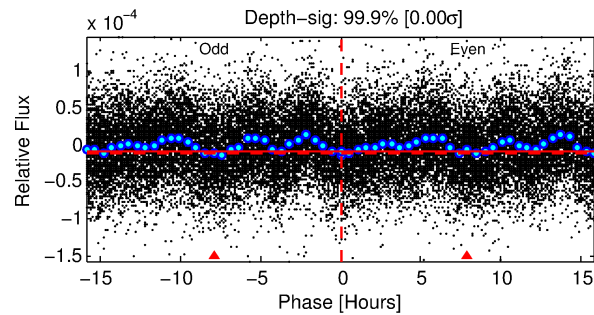
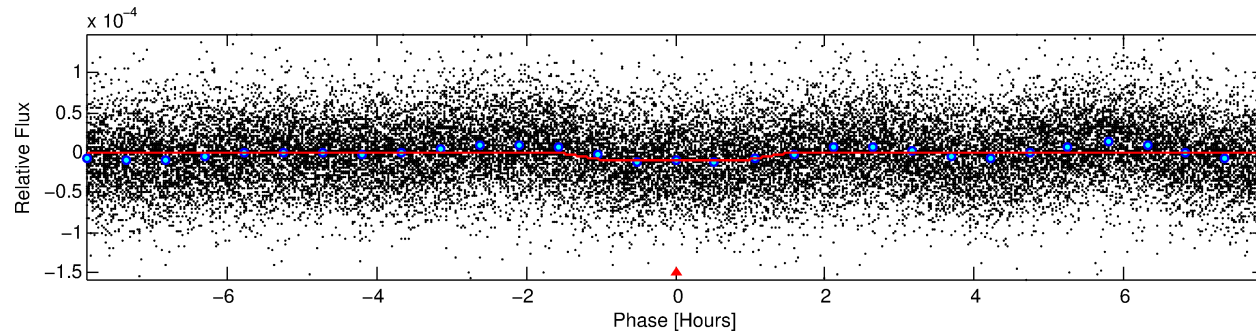
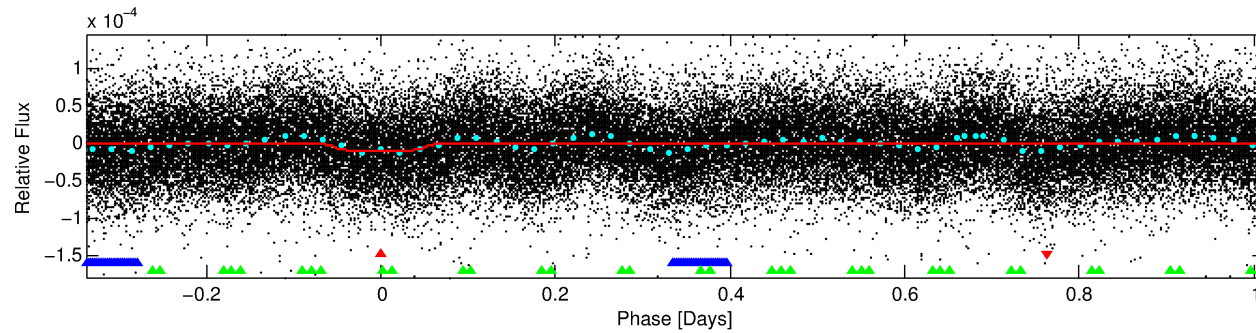
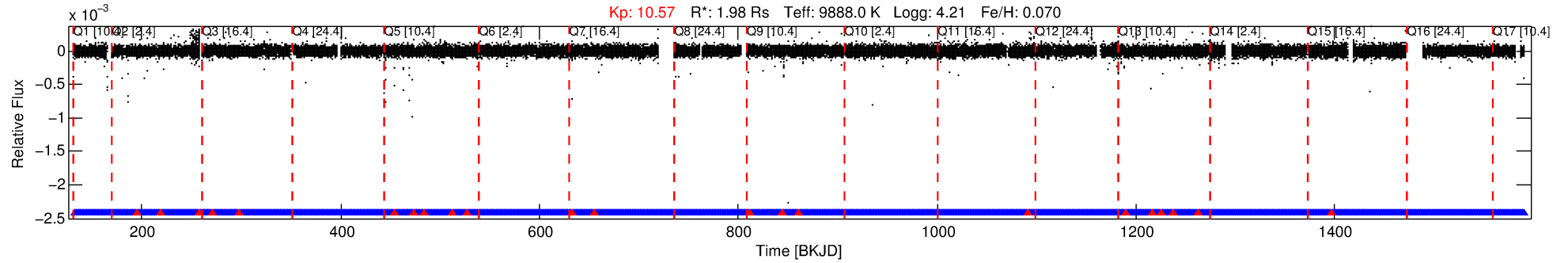
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 001865567-01

No Significant Match Found

# DV One-Page Summary

KIC: 1865567 Candidate: 1 of 3 Period: 1.349 d



## DV Fit Results:

Period = 1.34941 [0.00001] d  
Epoch = 132.5990 [0.0024] BKJD  
Rp/R\* = 0.0032 [0.0003]  
a/R\* = 1.97 [0.84]  
b = 0.90 [0.12]  
Seff = 33581.66 [17218.96]  
Teq = 3452 [442] K  
Rp = 0.69 [0.32] Re  
a = 0.0316 [0.0113] AU  
Ag = 7.51 [3.94] [1.65 $\sigma$ ]  
Teffp = 8834 [578] K [7.40 $\sigma$ ]

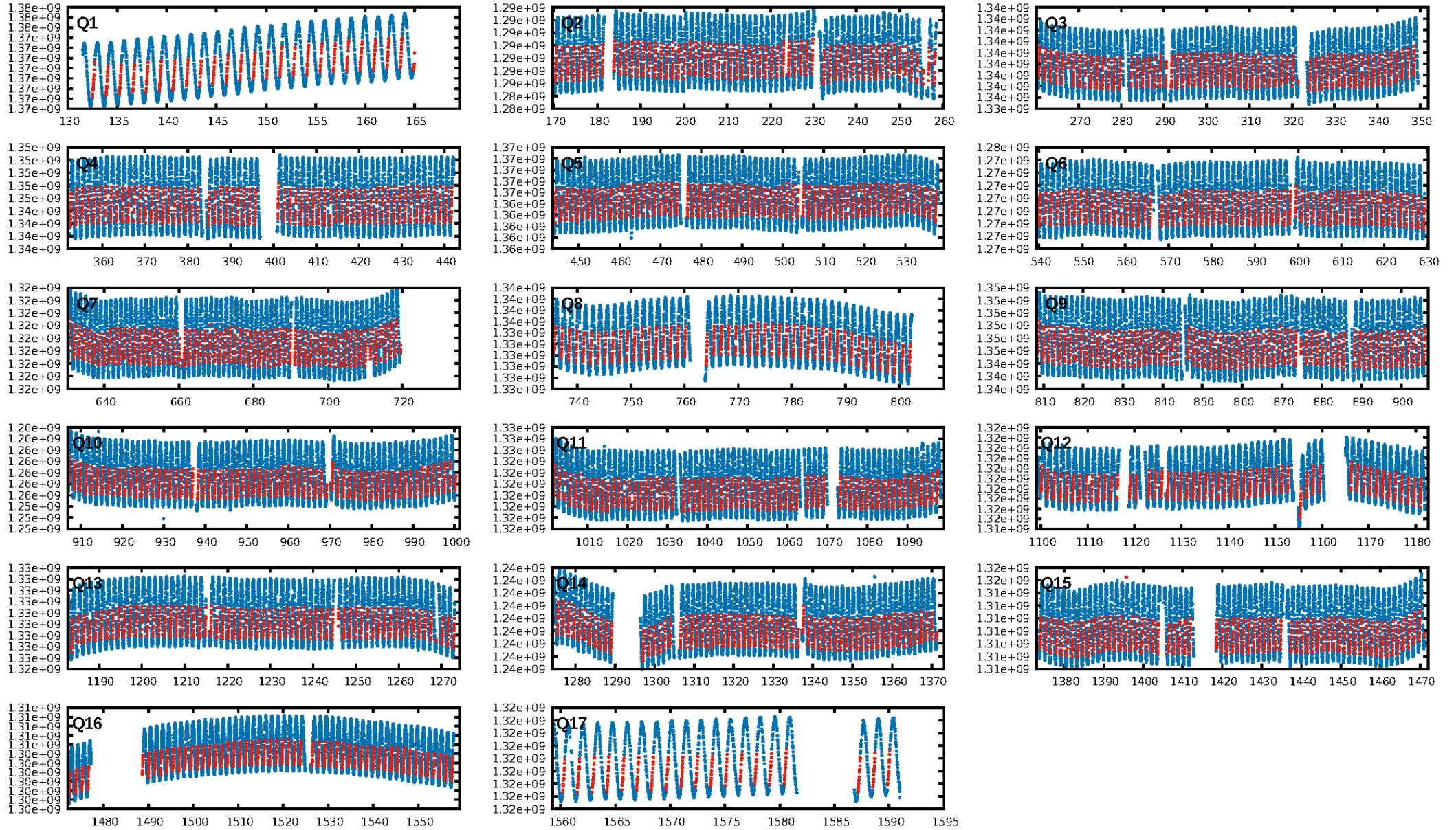
## DV Diagnostic Results:

ShortPeriod-sig: 99.8% [3.08 $\sigma$ ]  
LongPeriod-sig: 100.0% [169.56 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.78e-51  
RollingBand-fgt: 0.98 [931/953]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 48.0%  
Centroid-so: 1.256 arcsec [1.01 $\sigma$ ]  
OotOffset-rm: 0.472 arcsec [2.56 $\sigma$ ]  
KicOffset-rm: 0.465 arcsec [2.61 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:06:32 Z

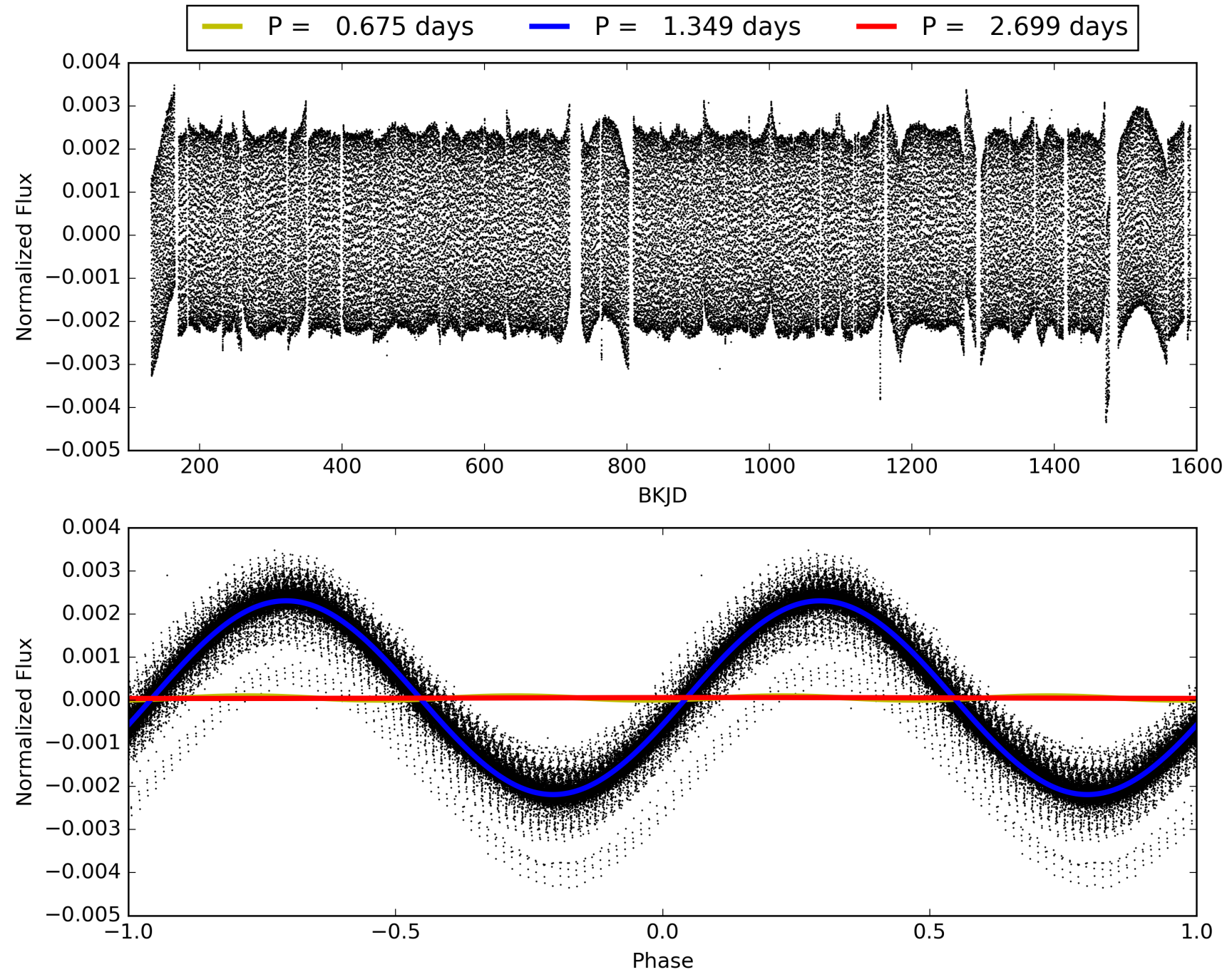
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 001865567-01, PDC Light Curves





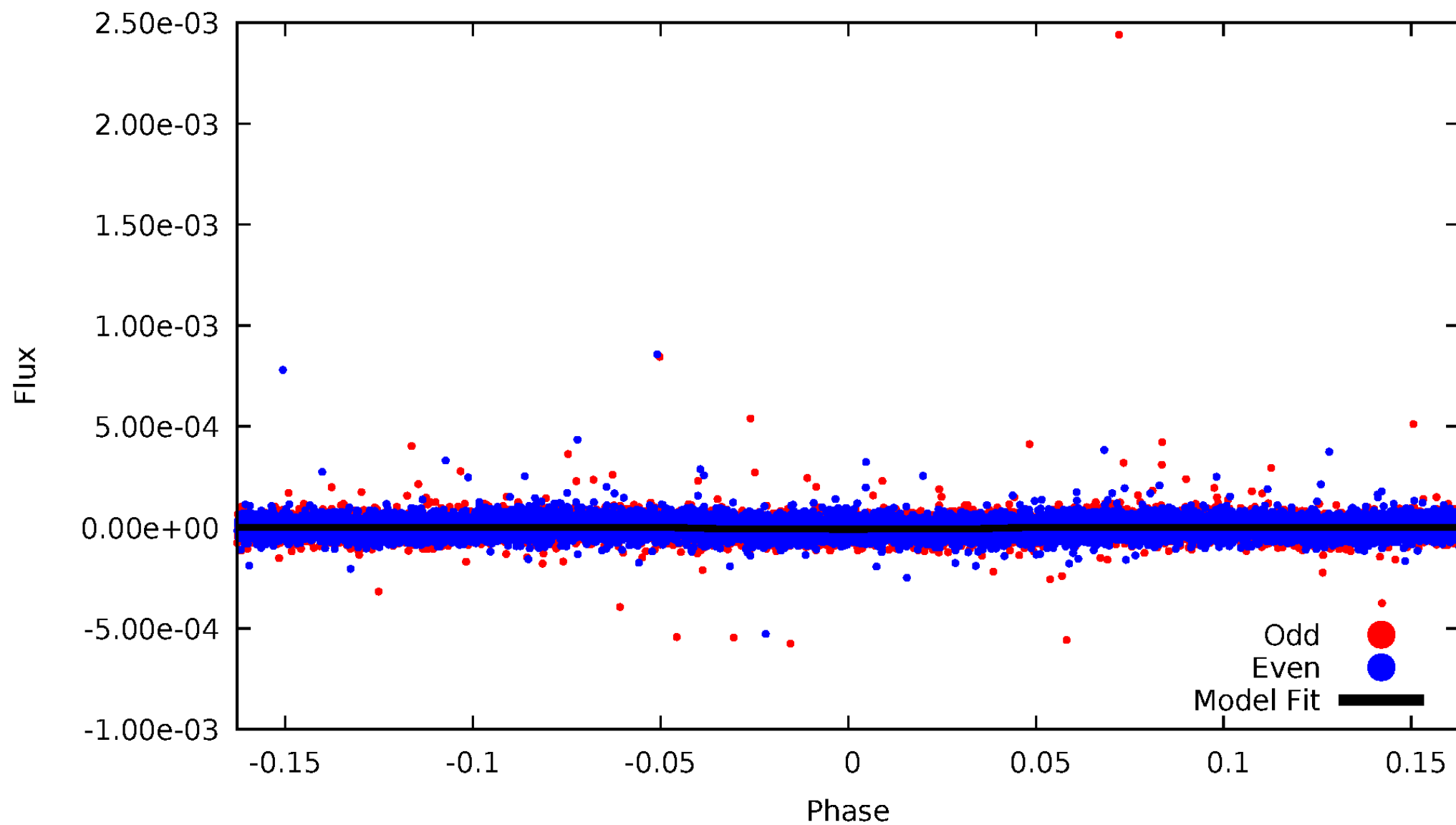
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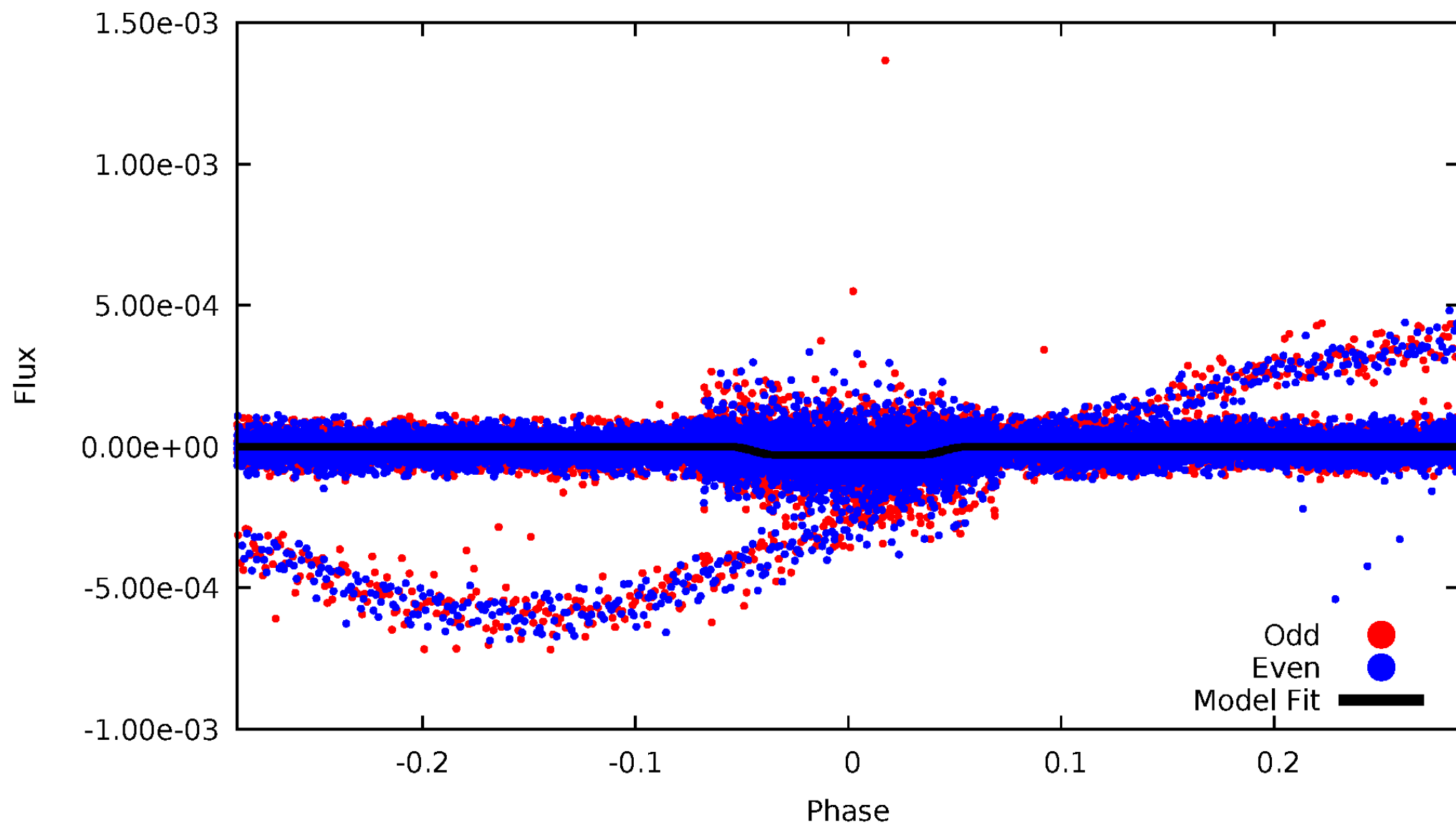
# DV Odd/Even

TCE 001865567-01

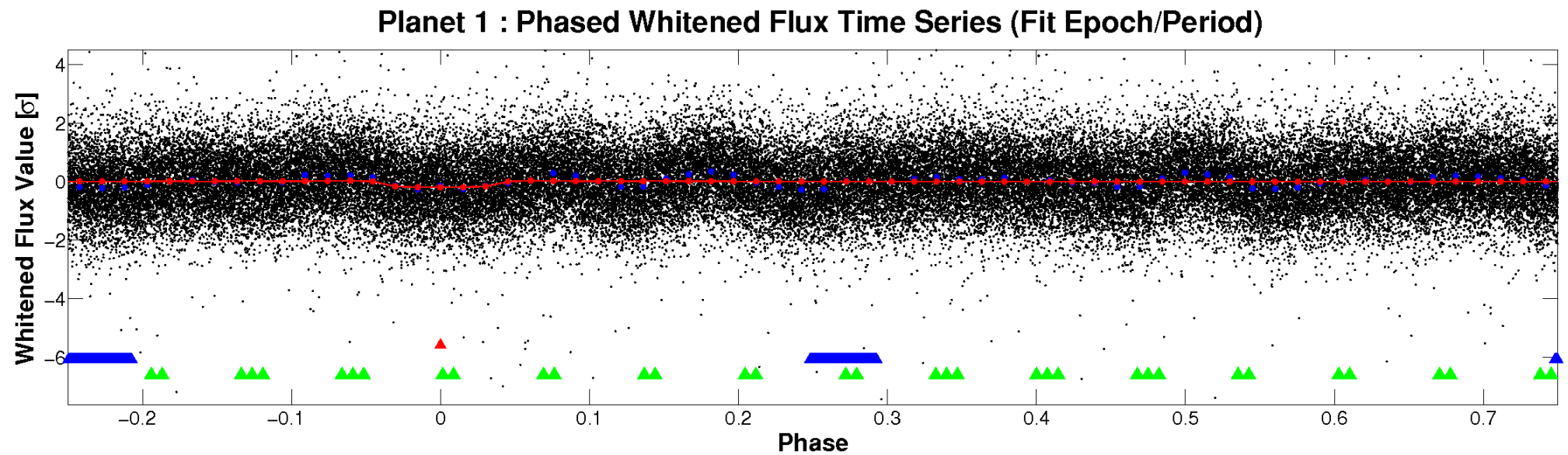
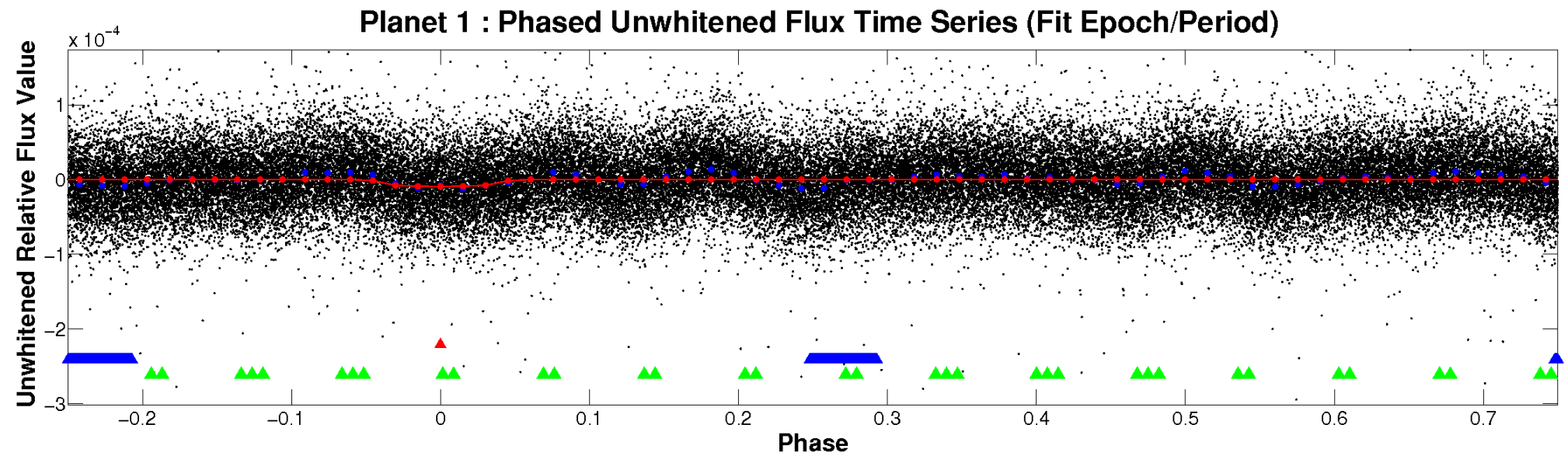


# ALT Odd/Even

TCE 001865567-01



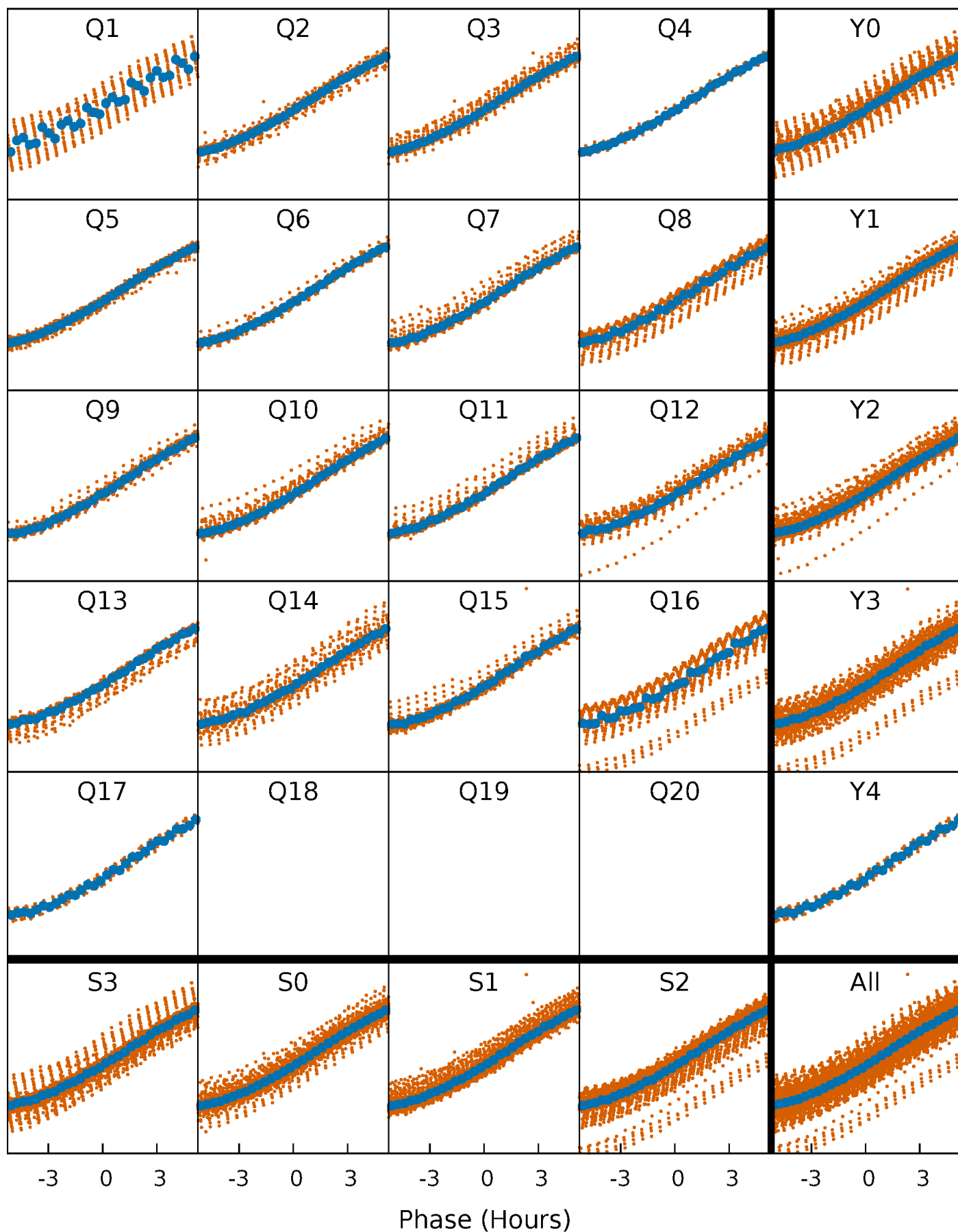
# Non-Whitened Vs. Whitened Light Curve





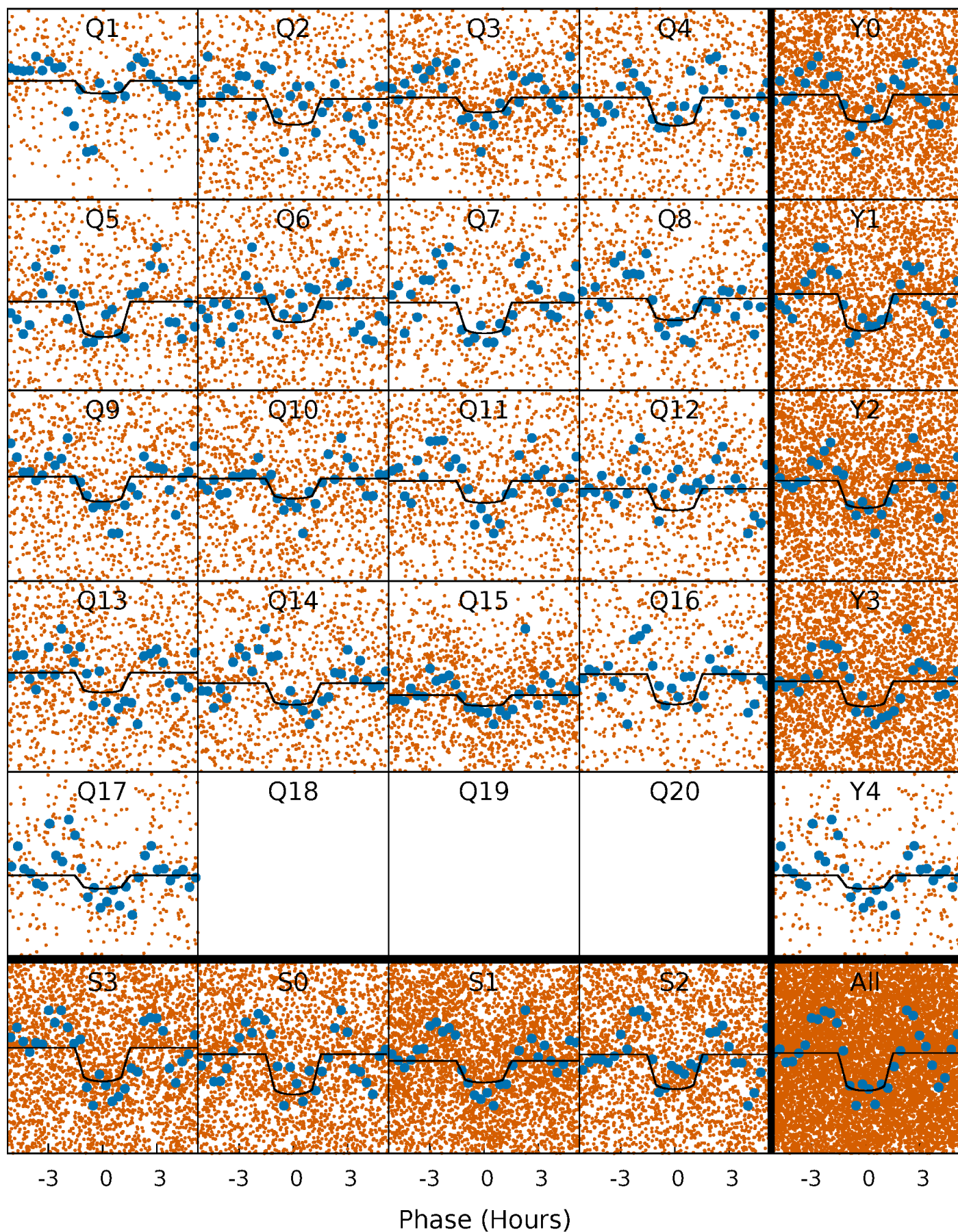
# PDC Quarter-Phased Transit Curves

TCE 001865567-01 P= 1.349405 Days  $T_0=132.598957$  (BKJD)



# DV Quarter-Phased Transit Curves

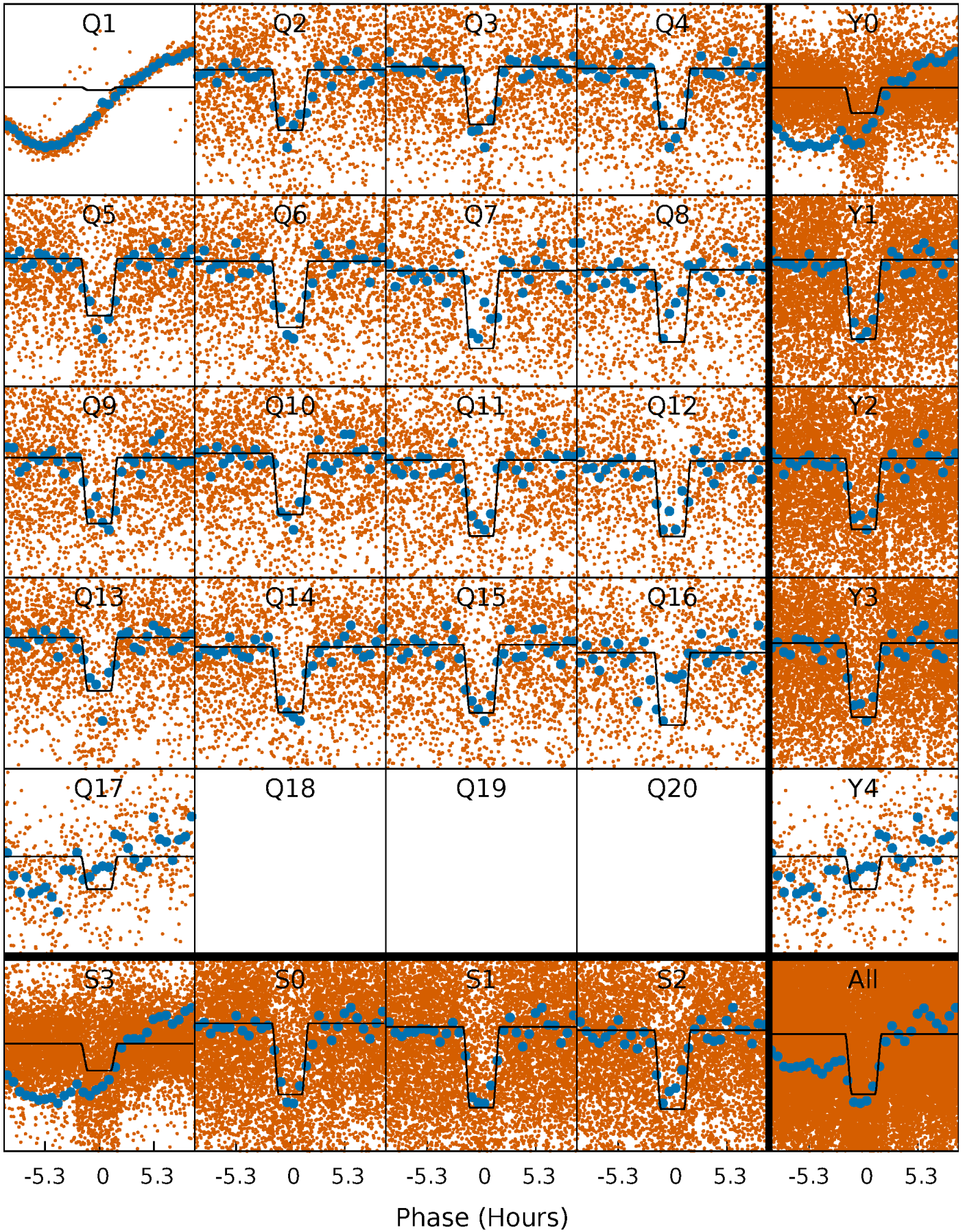
TCE 001865567-01 P= 1.349405 Days  $T_0=132.598957$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 001865567-01 P= 1.349454 Days  $T_0=132.573906$  (BKJD)

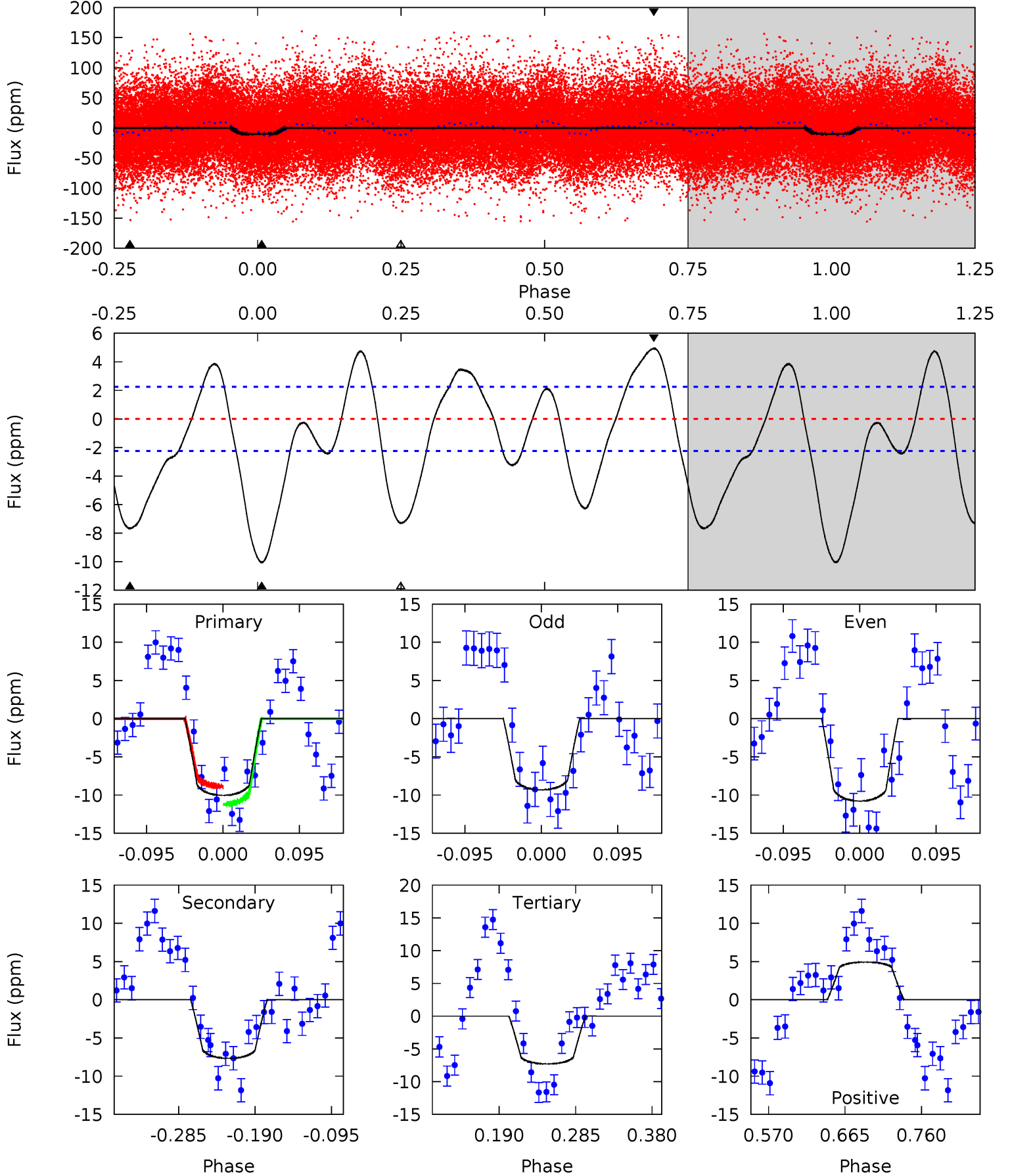




# DV Model-Shift Uniqueness Test

001865567-01, P = 1.349405 Days, E = 131.249552 Days

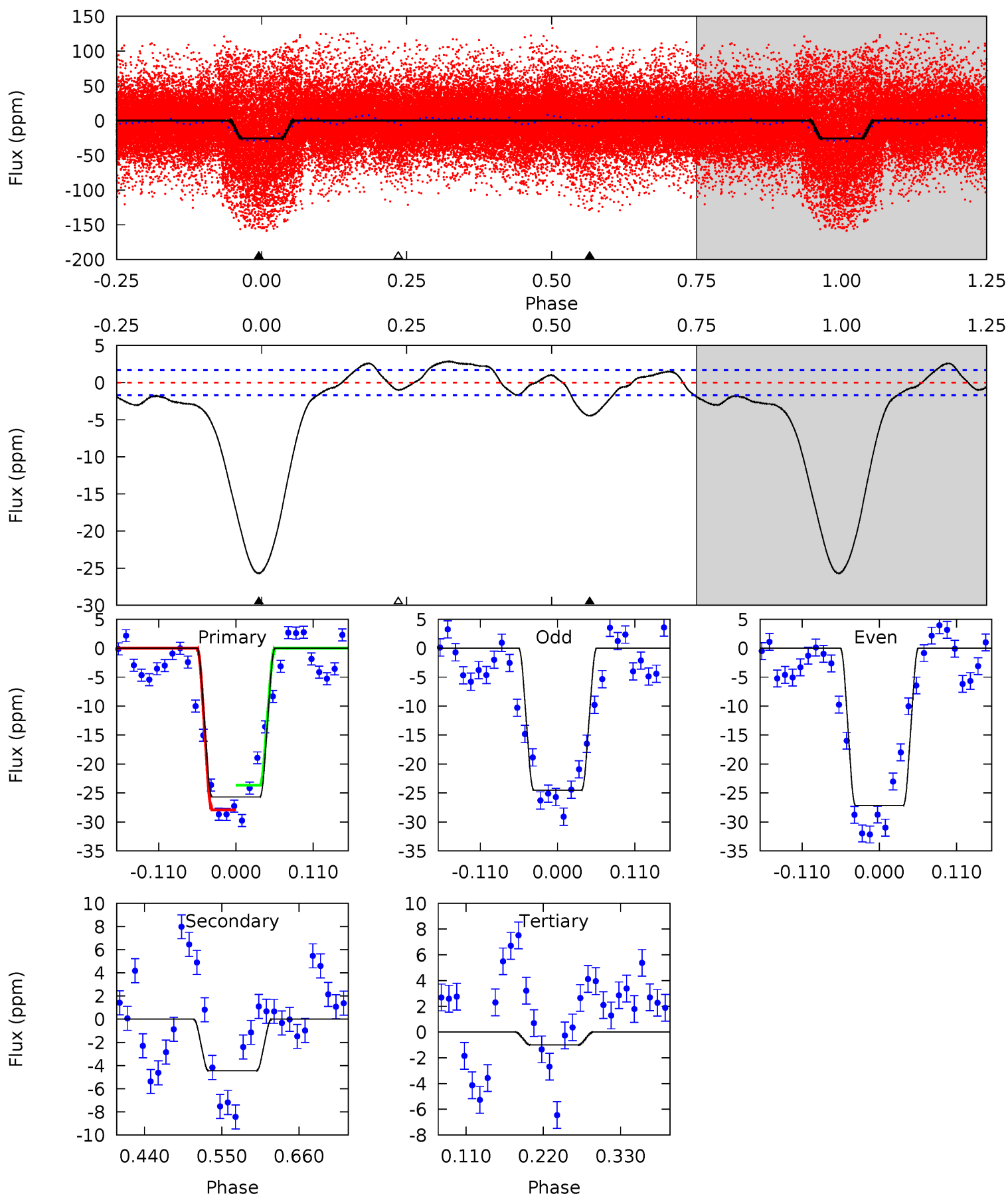
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	15.6	14.8	10.0	4.58	1.67	6.74	5.57	10.4	0.75	5.56	1.50	1.03	0.33	2.40



# Alt Model-Shift Uniqueness Test

001865567-01, P = 1.349454 Days, E = 131.224452 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
69.3	12.0	2.70	0	4.54	1.60	5.11	66.6	69.3	9.33	12.0	3.58	1.22	0.10	5.71



### Stellar Parameters For KIC 001865567

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9888^{+275}_{-412}$	$4.209^{+0.144}_{-0.246}$	$0.070^{+0.150}_{-0.550}$	$1.979^{+0.903}_{-0.486}$	$2.314^{+0.455}_{-0.500}$	$0.421^{+0.363}_{-0.251}$
	+3%/-4%	+3%/-6%	+214%/-786%	+46%/-25%	+20%/-22%	+86%/-60%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 001865567-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-8 \pm 0$	$0.71^{+0.16}_{-0.11}$	$4889^{+478}_{-349}$	$8744^{+641}_{-560}$	$8.211^{+3.002}_{-2.661}$
Alt.	$-4 \pm 0$	$1.21^{+0.29}_{-0.19}$	$4913^{+483}_{-385}$	$5409^{+241}_{-246}$	$1.630^{+0.603}_{-0.492}$

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



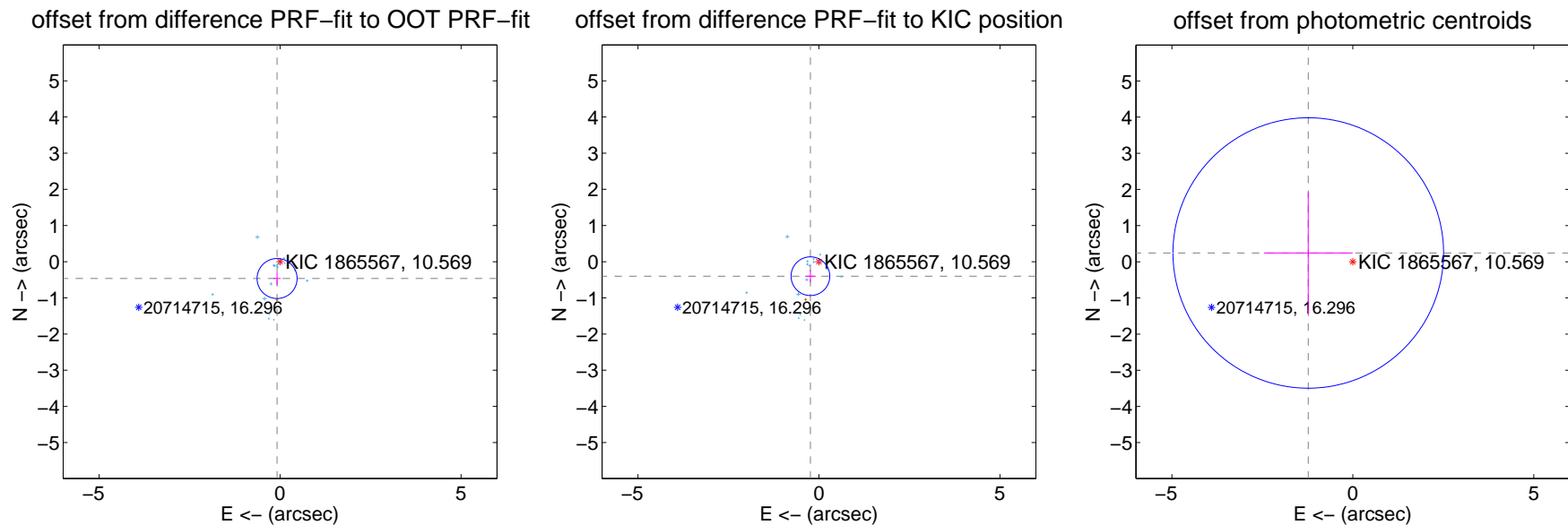
## DV Centroid Data

Supplemental centroid analysis for 001865567-01. **Kepler magnitude: 10.57.** Transit SNR 12.63

There are 16 quarters with good PRF difference image offsets

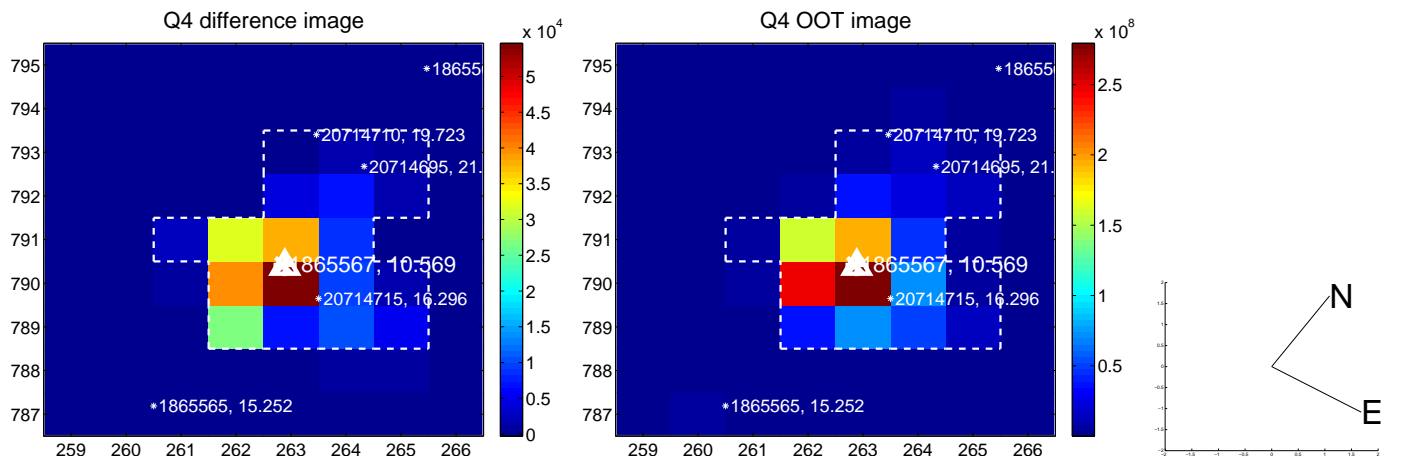
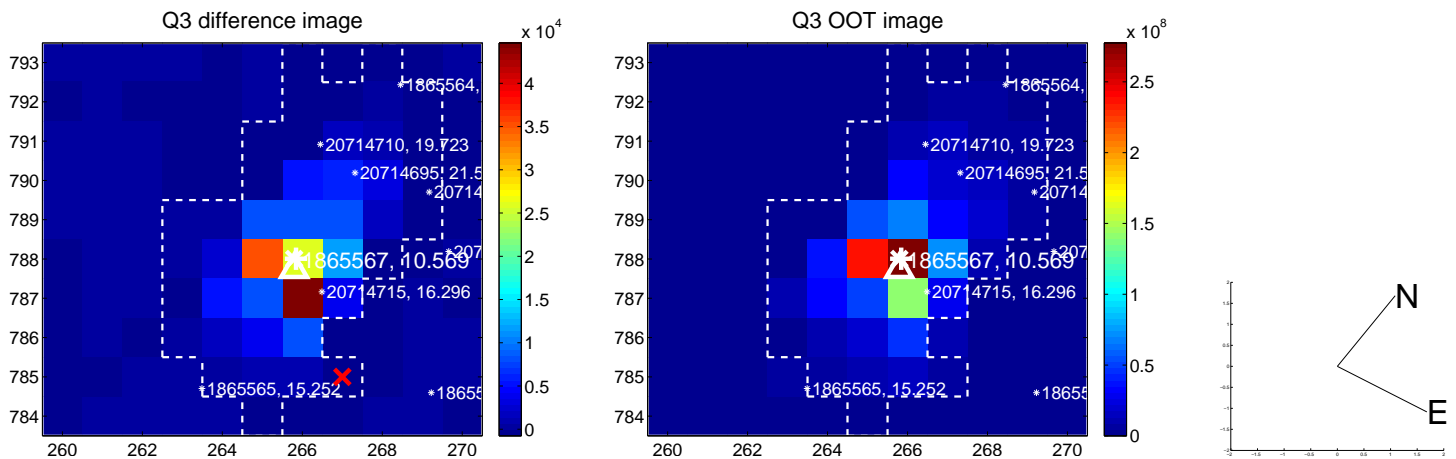
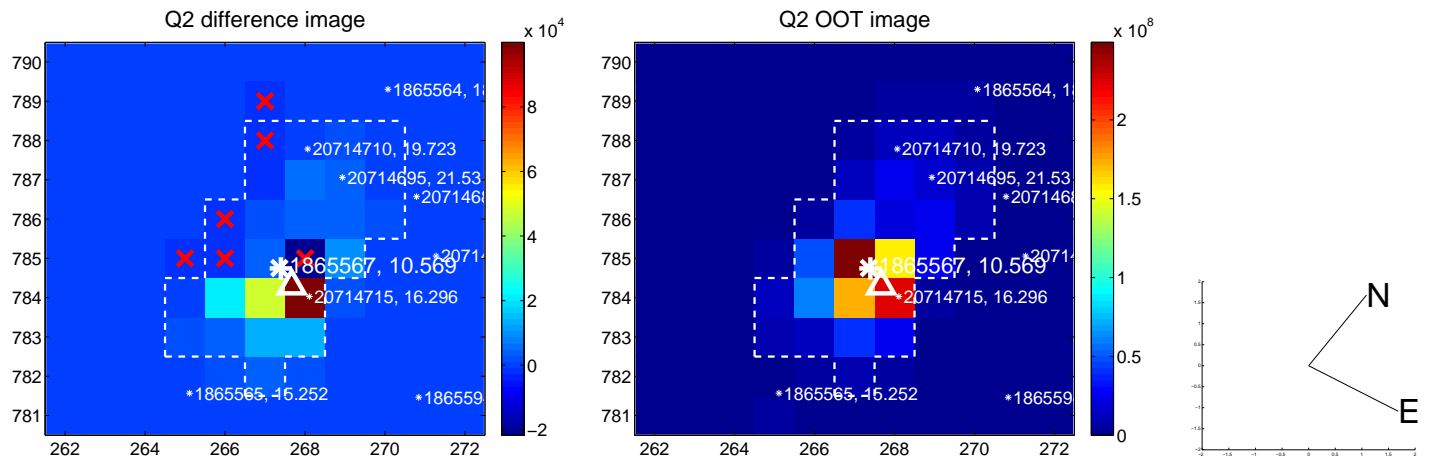
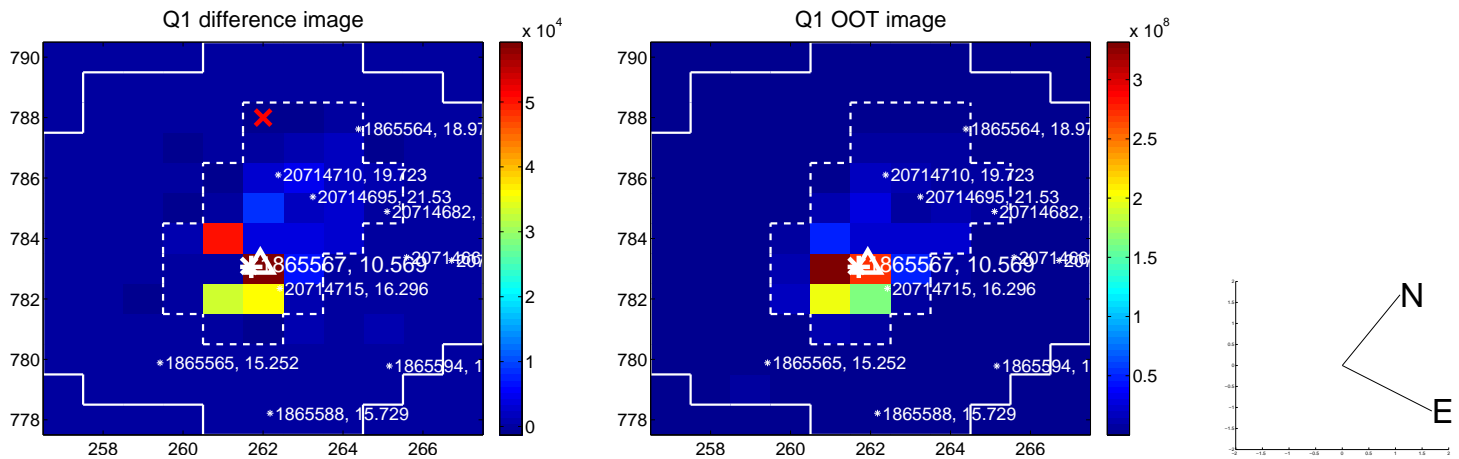
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.472 \pm 0.184$	2.56	$0.083 \pm 0.098$	$-0.465 \pm 0.186$
PRF-fit source offset from KIC position	$0.465 \pm 0.178$	2.61	$0.237 \pm 0.148$	$-0.401 \pm 0.171$
photometric centroid source offset	$1.26 \pm 1.25$	1.01	$1.23 \pm 1.23$	$0.24 \pm 1.68$

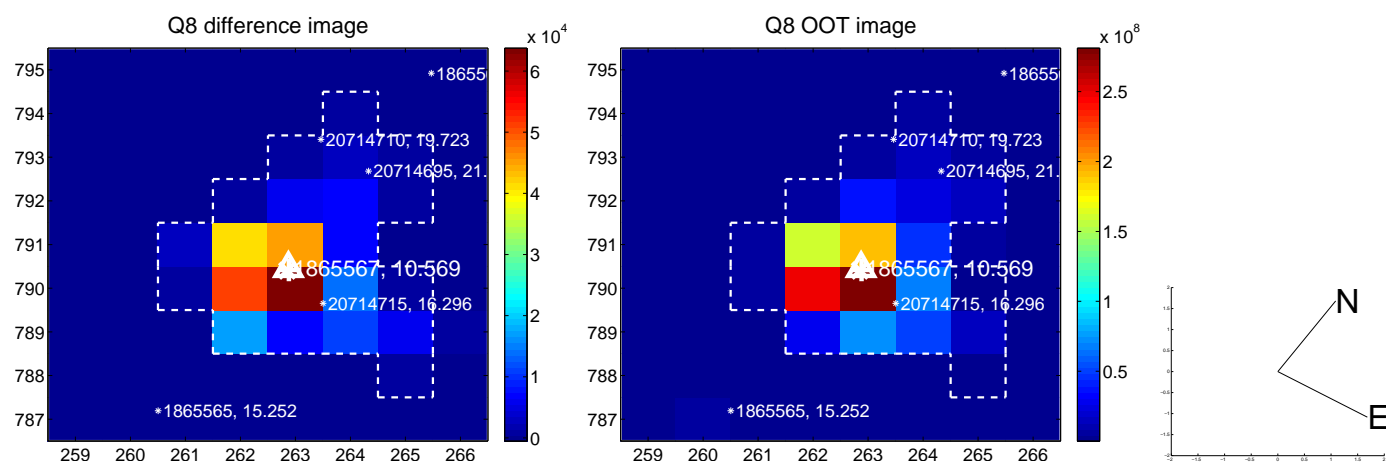
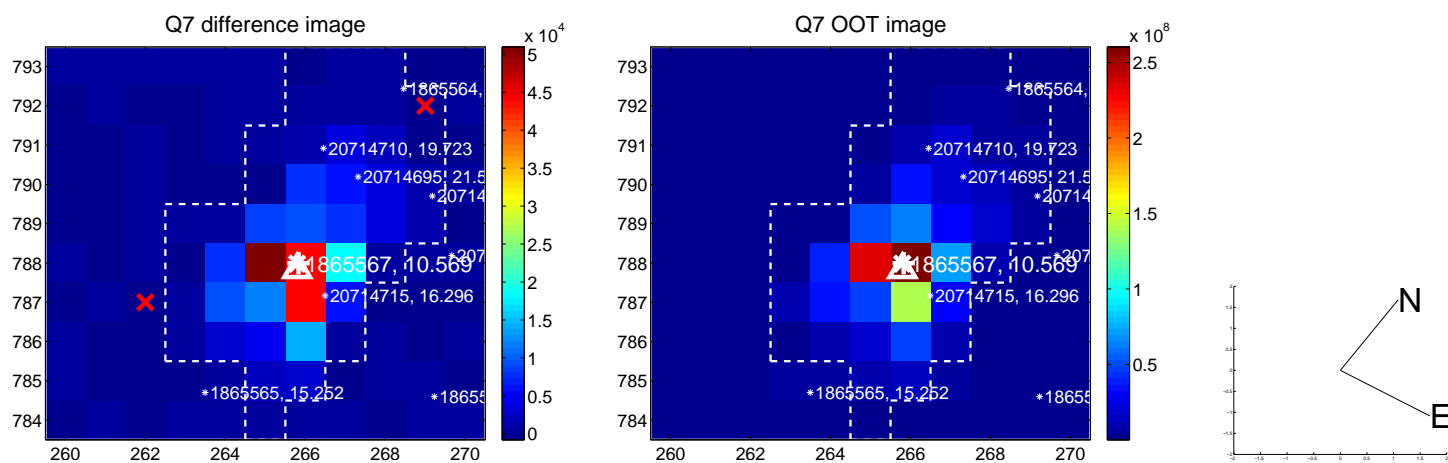
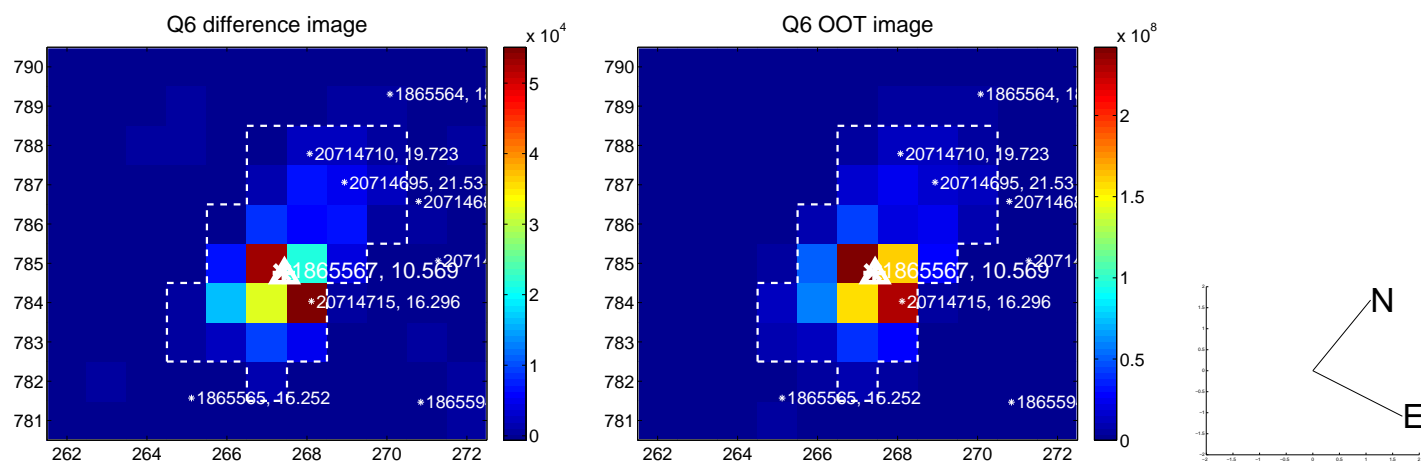
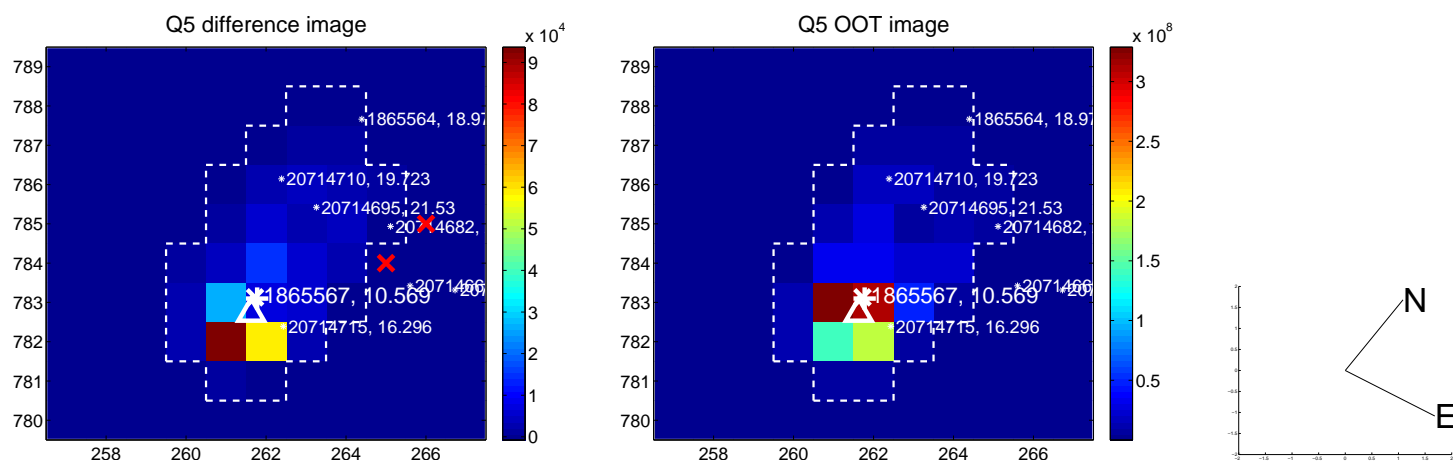


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

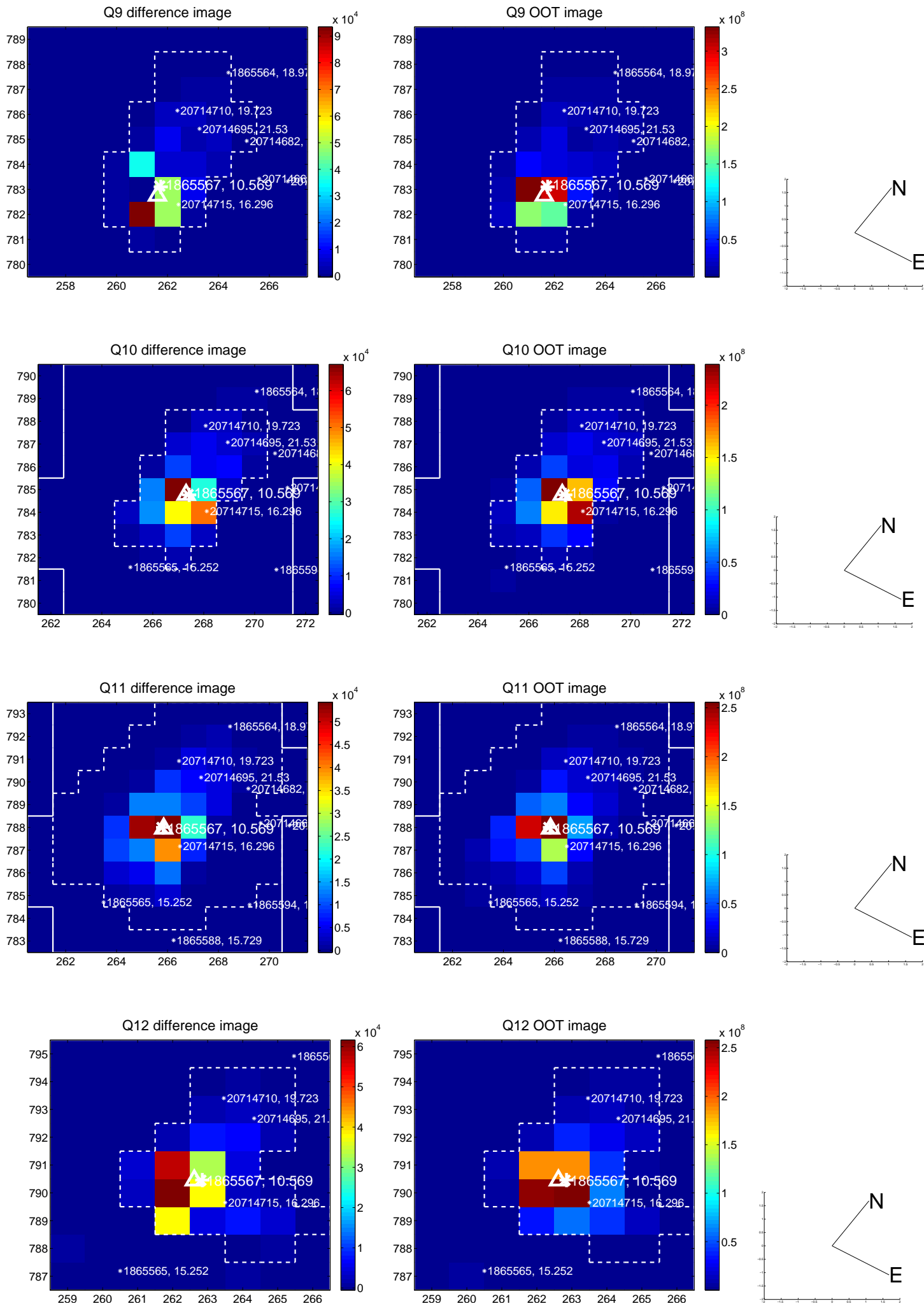


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

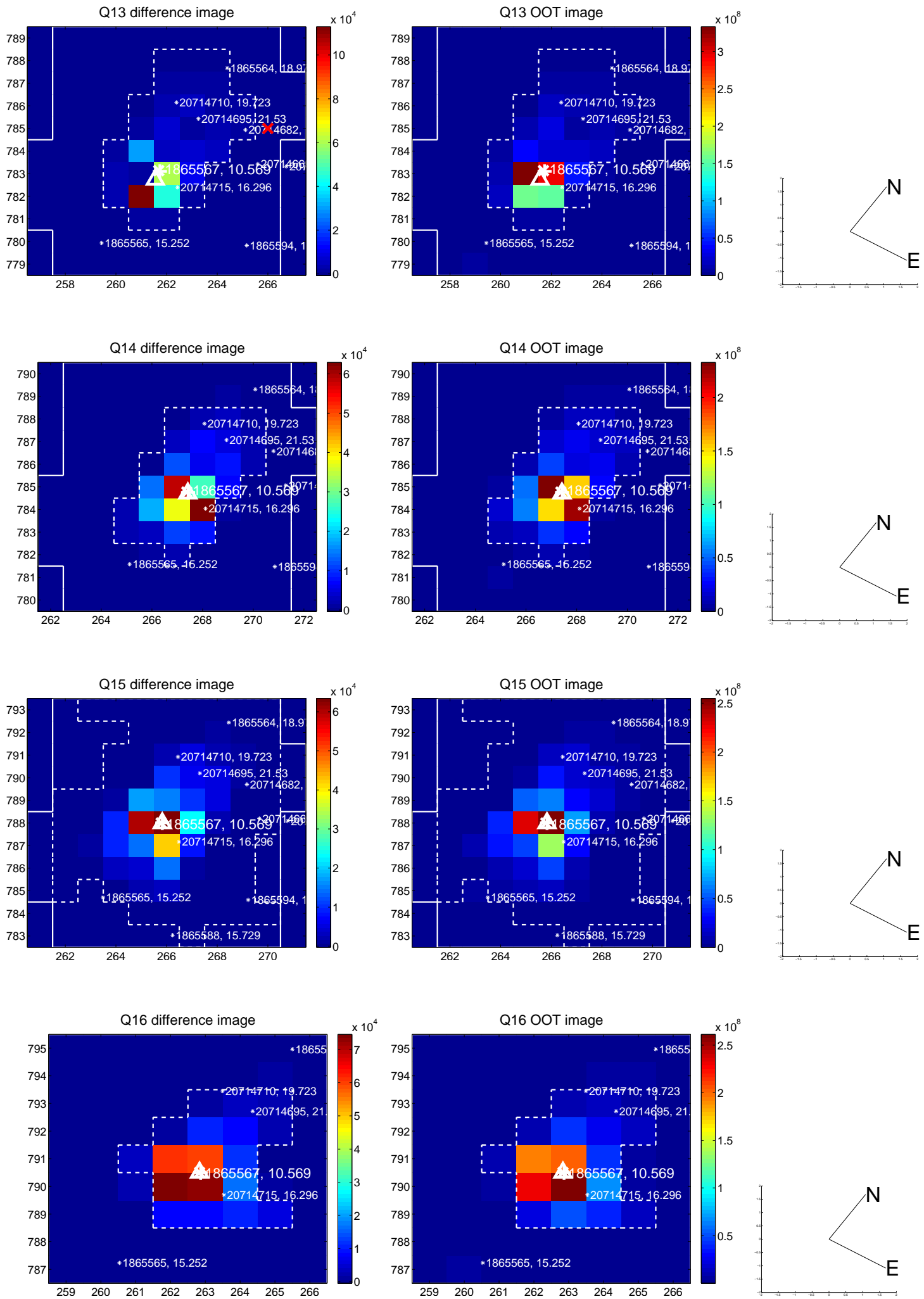




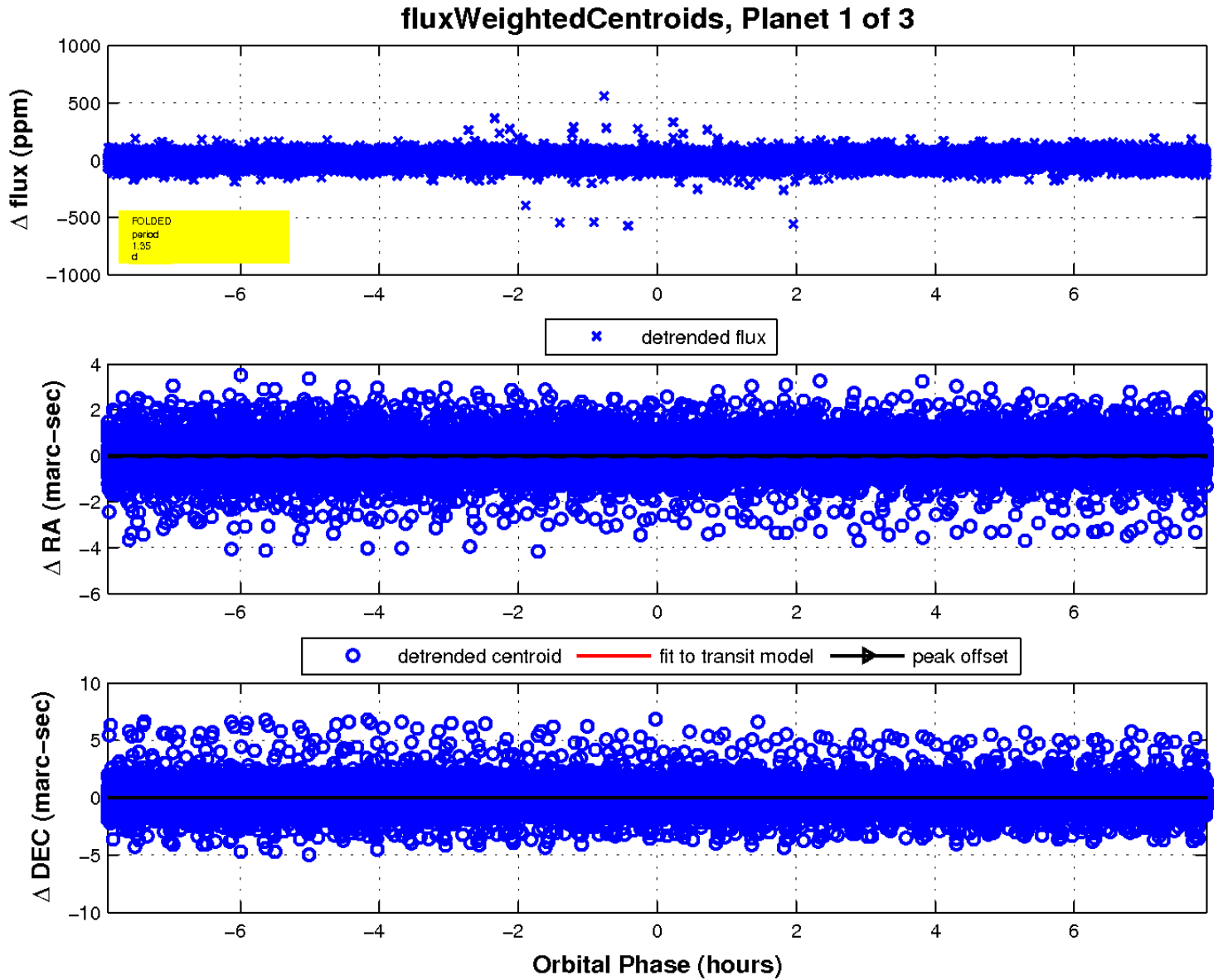
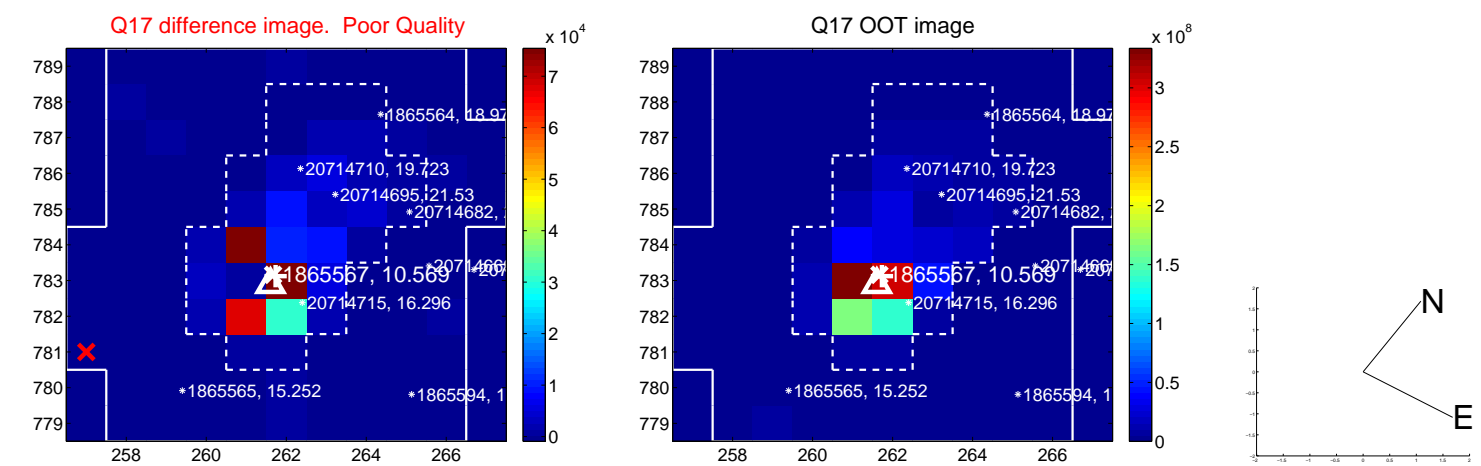
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



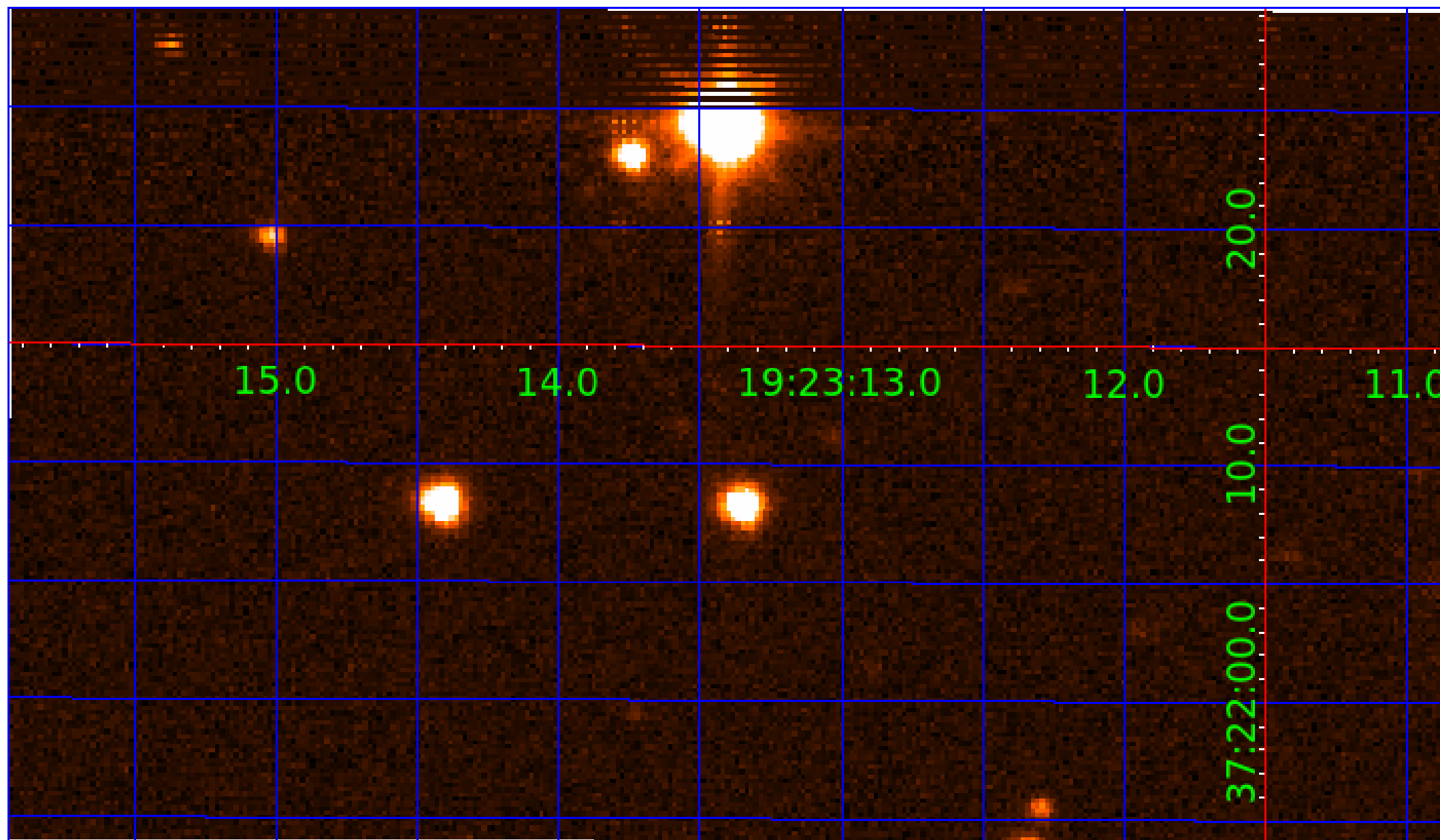
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 001865567

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001865567-01	OBS	No	1.349405	132.598957	9.3	2.636	14.0	12.6	1.98	9888	0.69	33581.66
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001865567-03	OBS	No	41.202499	162.734456	38.2	4.987	9.2	5.3	1.98	9888	1.31	351.88

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001865567-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
001865567-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
001865567-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

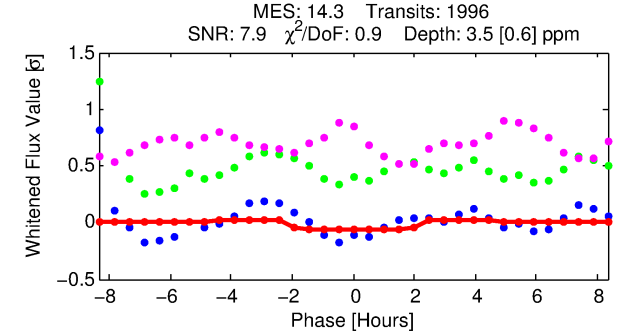
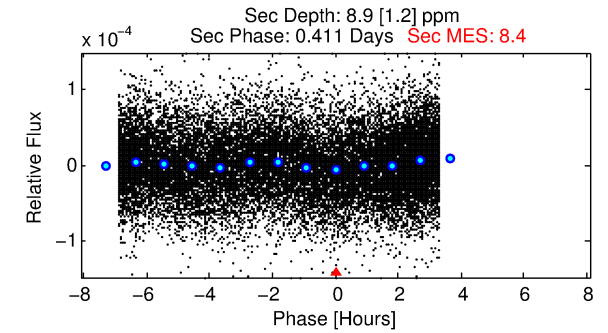
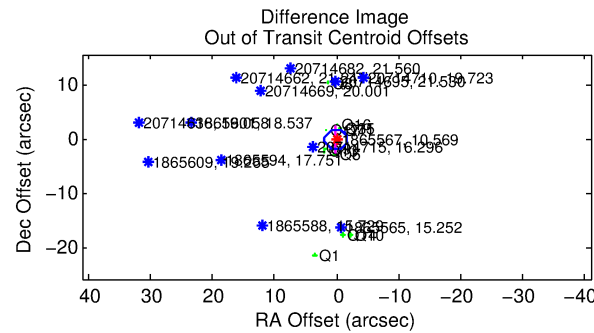
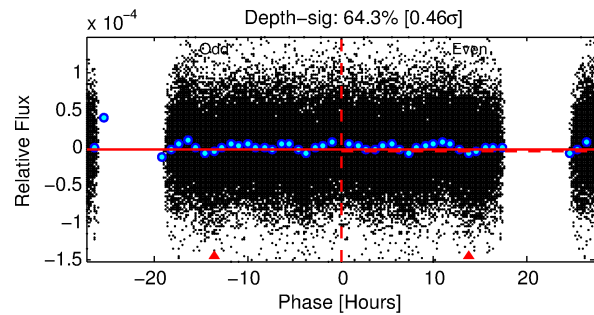
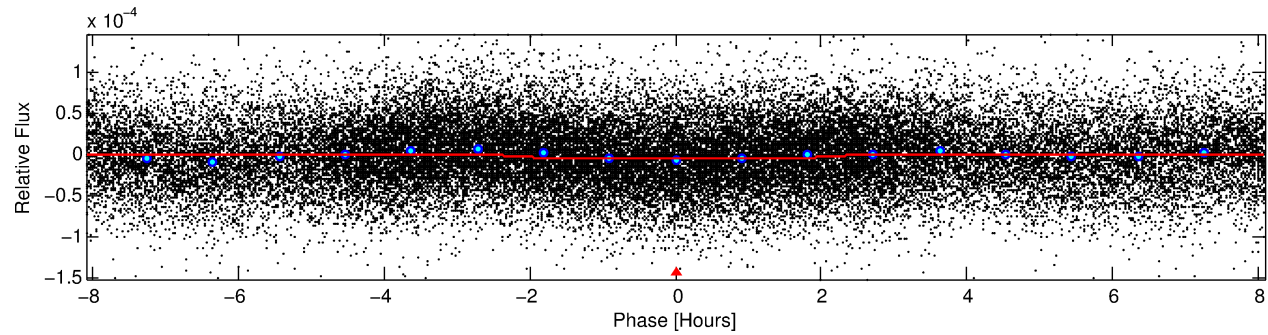
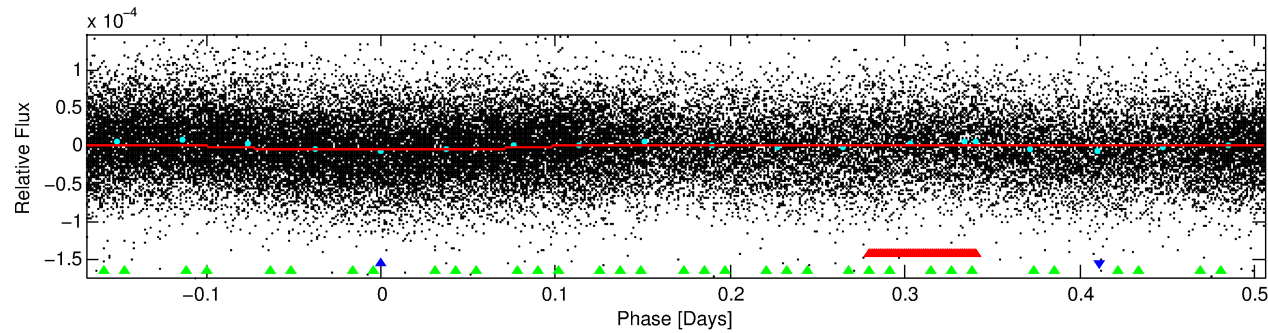
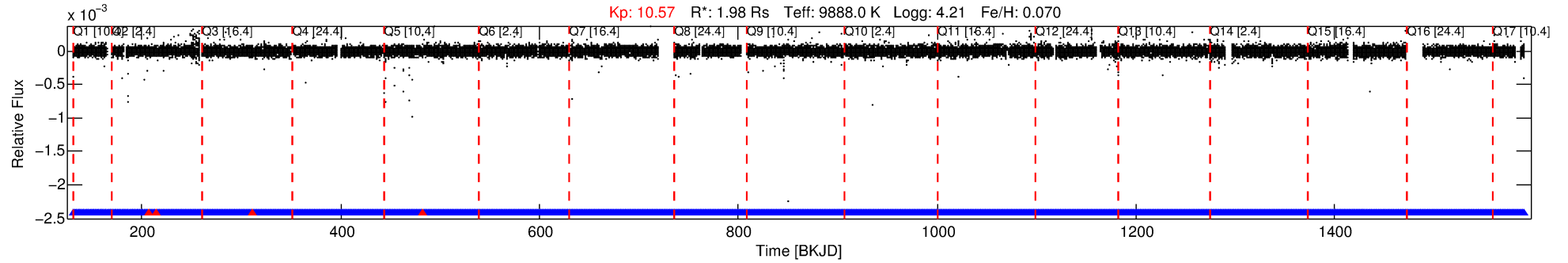
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 001865567-02

No Significant Match Found

# DV One-Page Summary

KIC: 1865567 Candidate: 2 of 3 Period: 0.675 d



## DV Fit Results:

Period = 0.67467 [0.00001] d  
Epoch = 131.6448 [0.0047] BKJD  
 $R_p/R^* = 0.0020$  [0.0005]  
 $a/R^* = 1.05$  [0.19]  
 $b = 0.92$  [0.30]  
 $S_{\text{eff}} = 84625.17$  [43391.48]  
 $T_{\text{eq}} = 4349$  [558] K  
 $R_p = 0.43$  [0.22]  $R_e$   
 $a = 0.0199$  [0.0071] AU  
 $A_g = 10.55$  [7.32] [1.30 $\sigma$ ]  
Teffp = 12117 [1588] K [4.62 $\sigma$ ]

## DV Diagnostic Results:

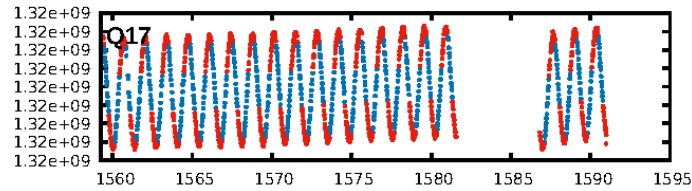
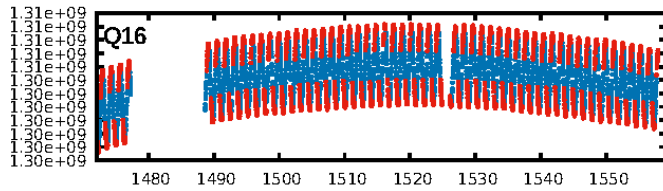
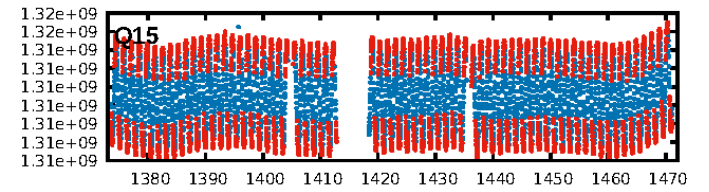
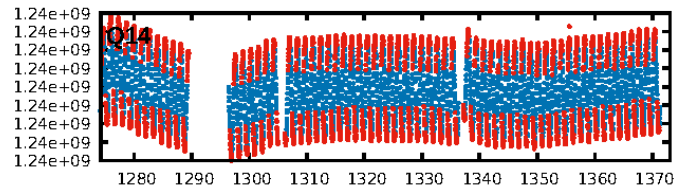
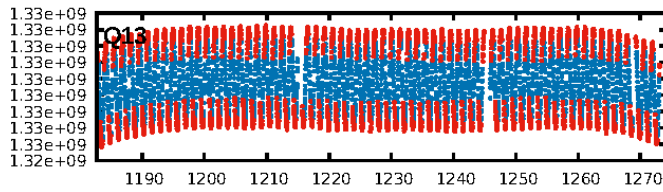
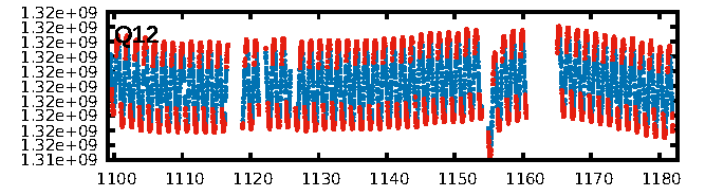
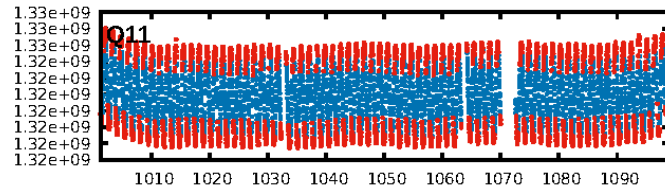
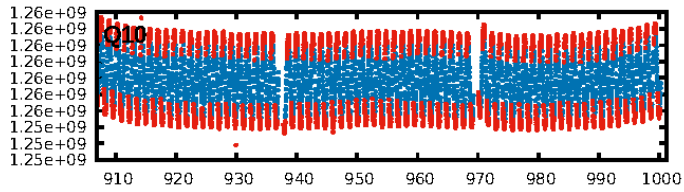
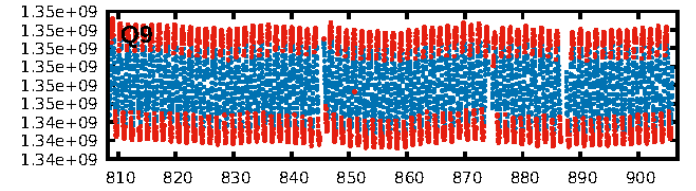
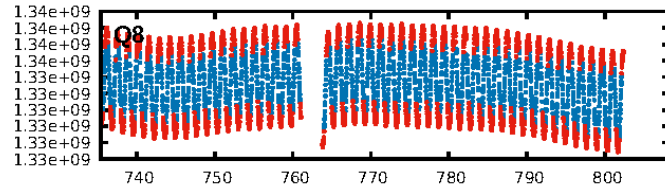
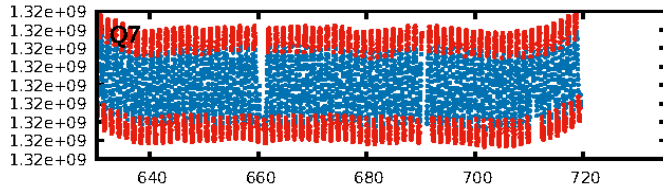
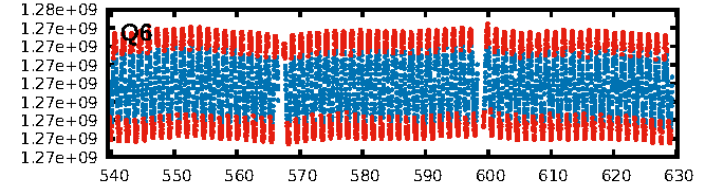
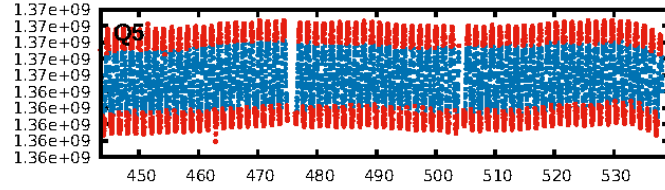
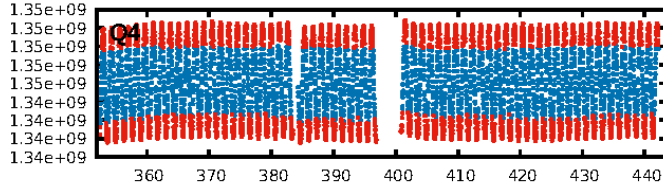
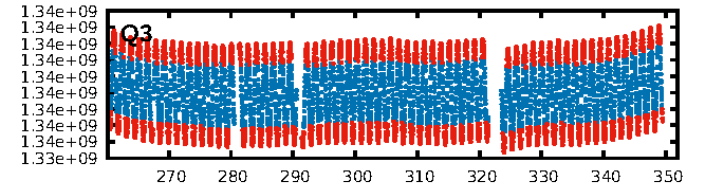
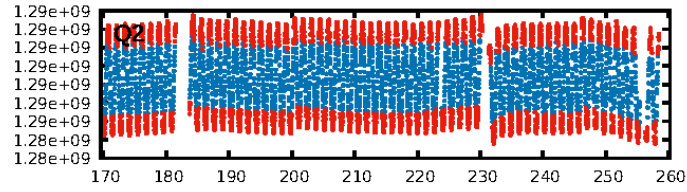
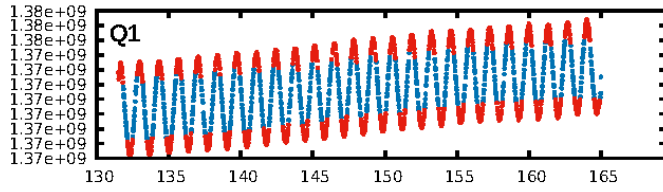
ShortPeriod-sig: N/A  
LongPeriod-sig: 99.8% [3.08 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 6.56e-46  
RollingBand-fgt: 1.00 [1901/1905]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.131 arcsec [0.22 $\sigma$ ]  
KicOffset-rm: 0.314 arcsec [0.68 $\sigma$ ]  
OotOffset-st: 3/4/2/5 [14]  
KicOffset-st: 3/4/2/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:06:45 Z

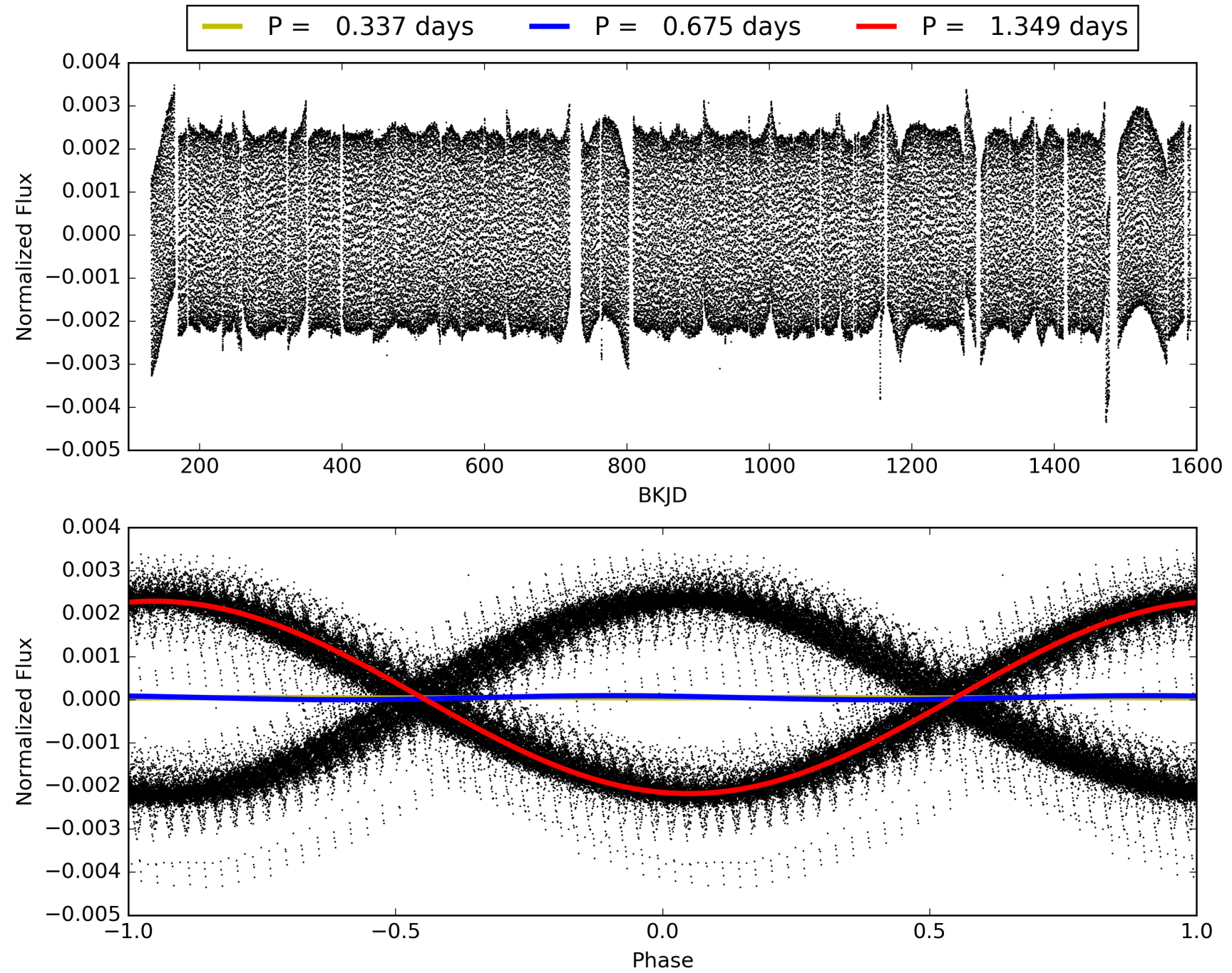
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 001865567-02, PDC Light Curves

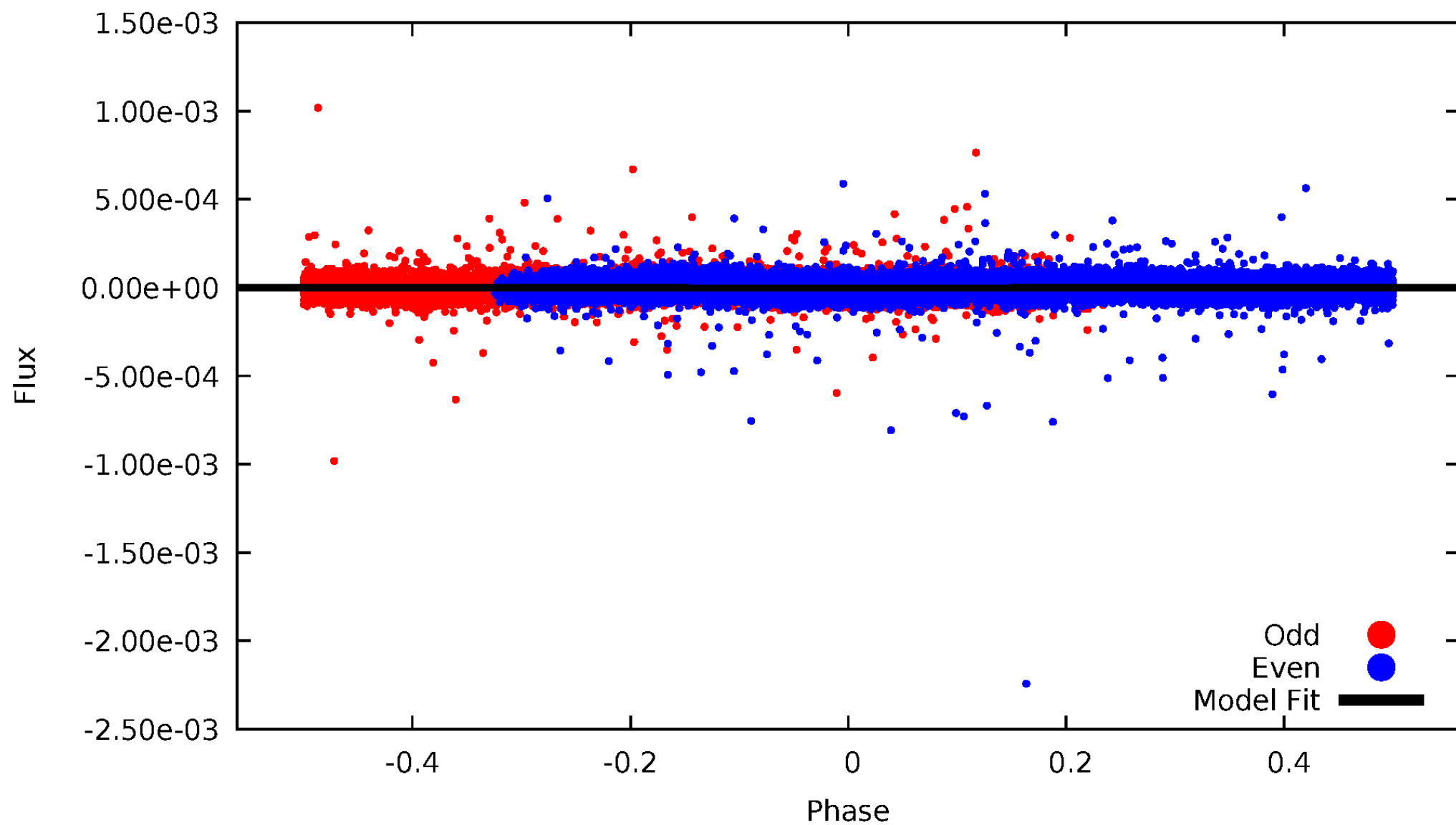


# TCE 001865567-02



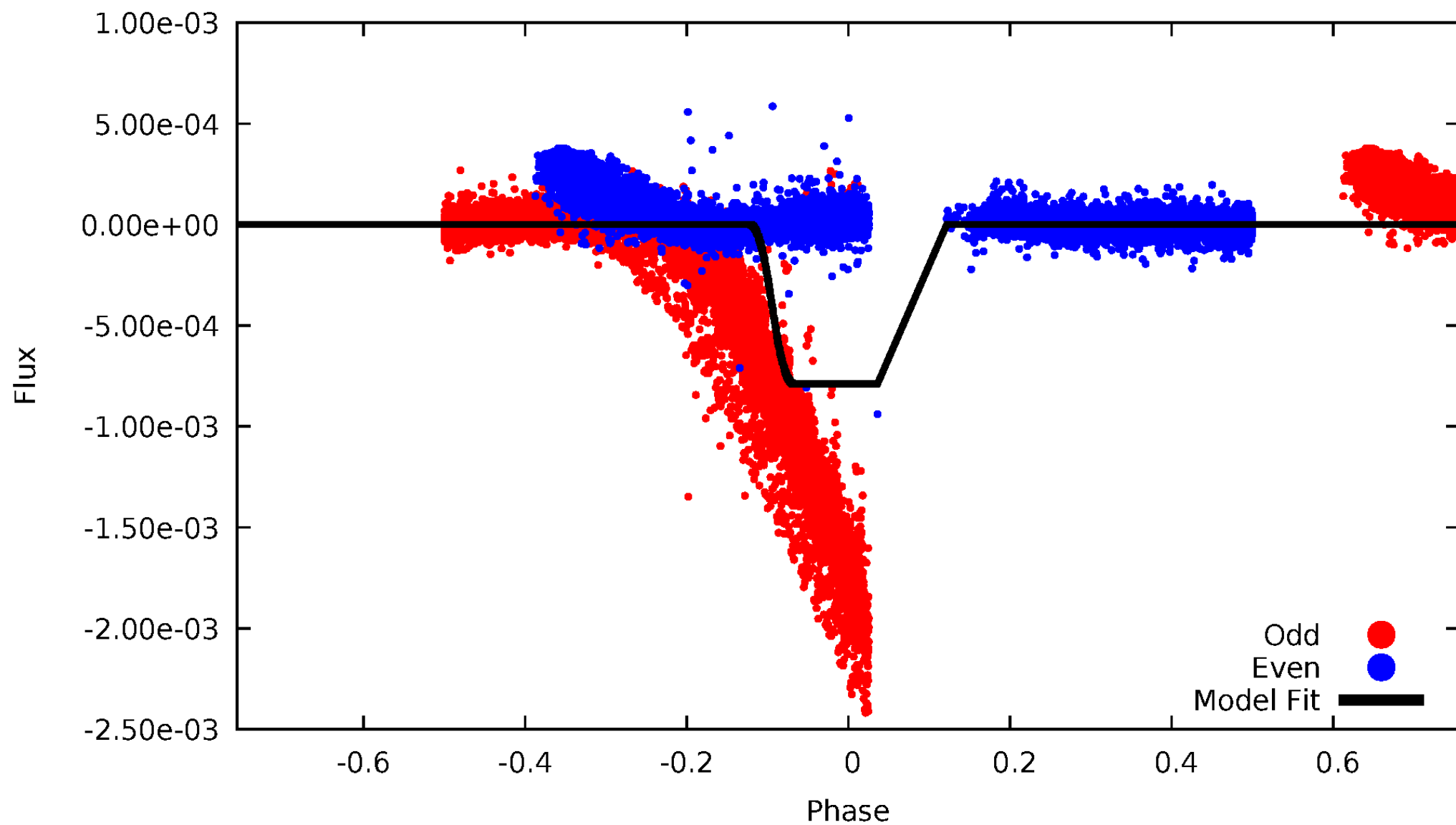
# DV Odd/Even

TCE 001865567-02



# ALT Odd/Even

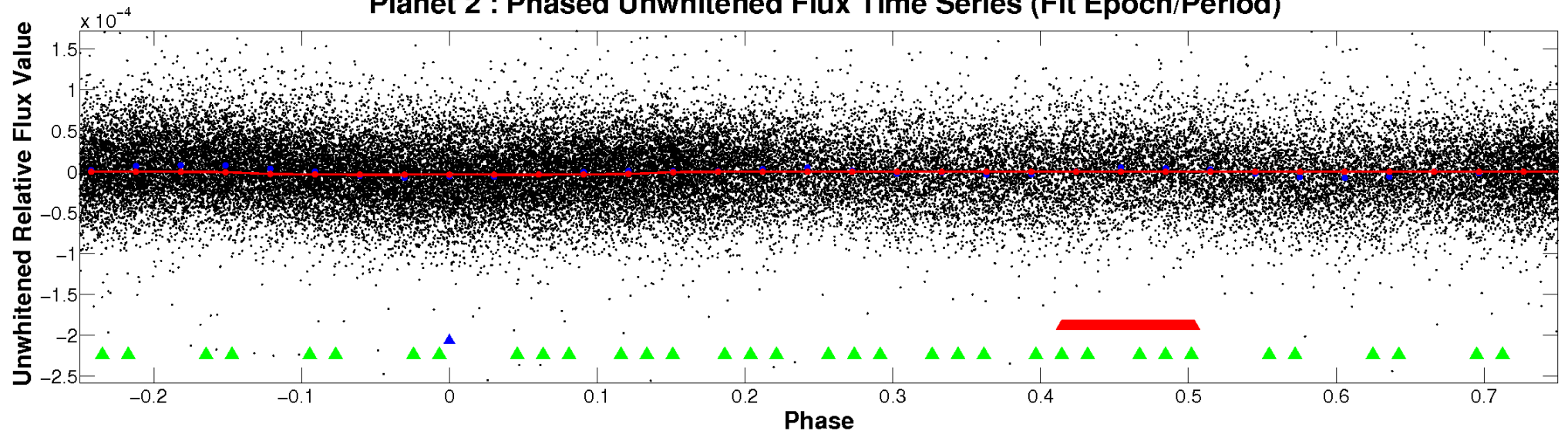
TCE 001865567-02



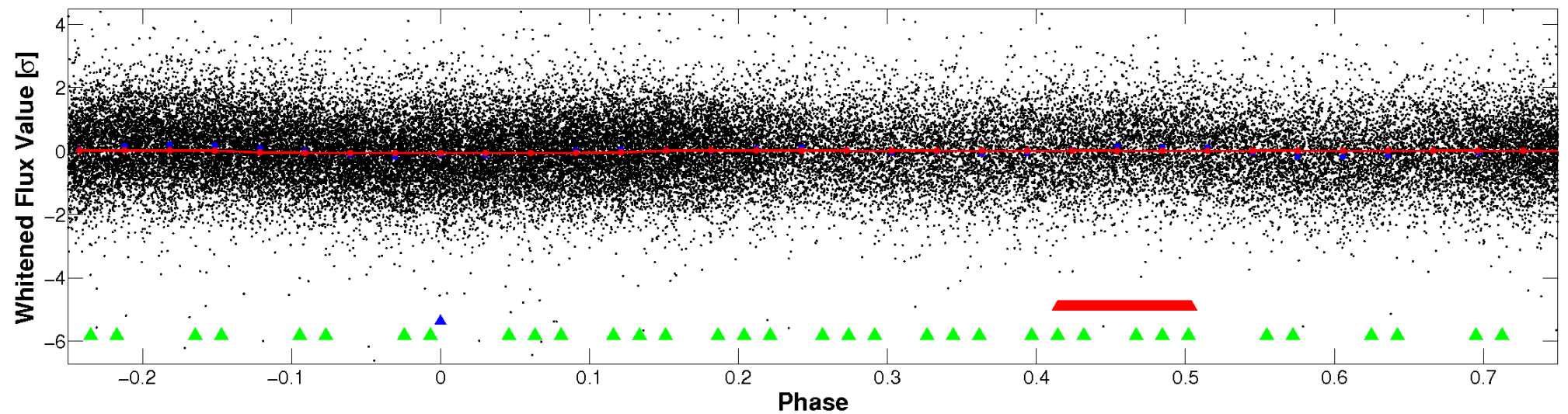


# Non-Whitened Vs. Whitened Light Curve

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



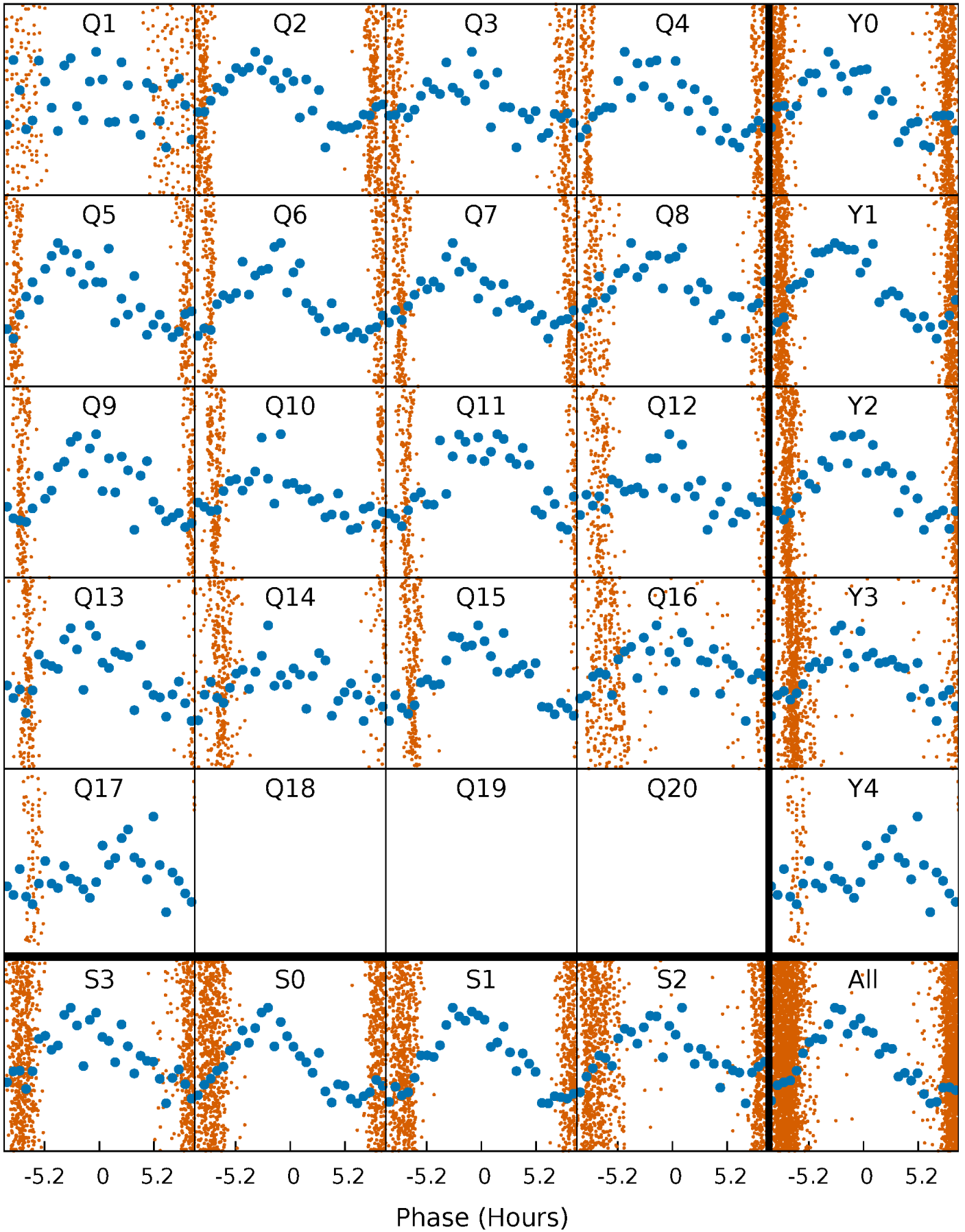
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





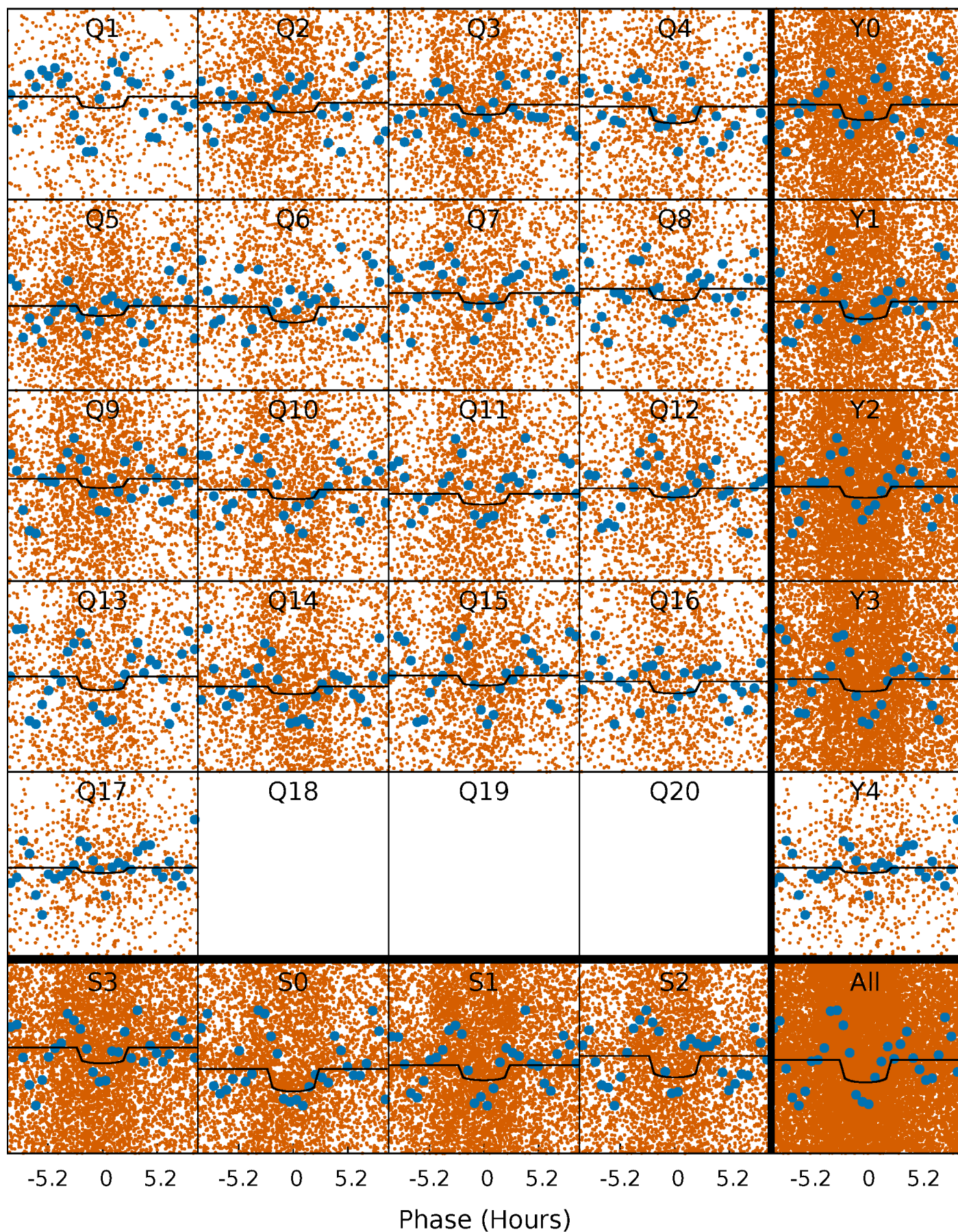
# PDC Quarter-Phased Transit Curves

TCE 001865567-02   P= 0.674675 Days    $T_0=131.644799$  (BKJD)



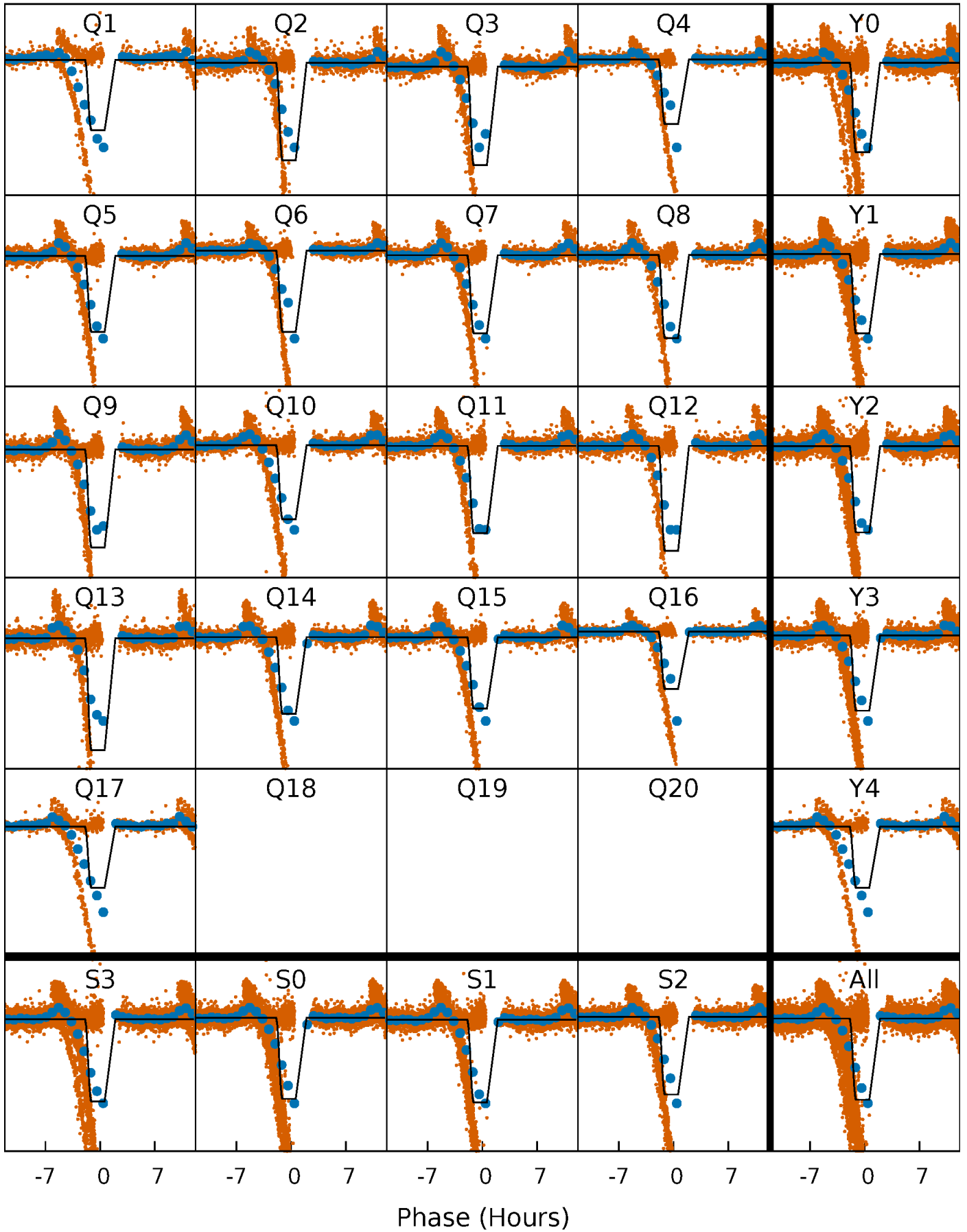
# DV Quarter-Phased Transit Curves

TCE 001865567-02   P= 0.674675 Days    $T_0=131.644799$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

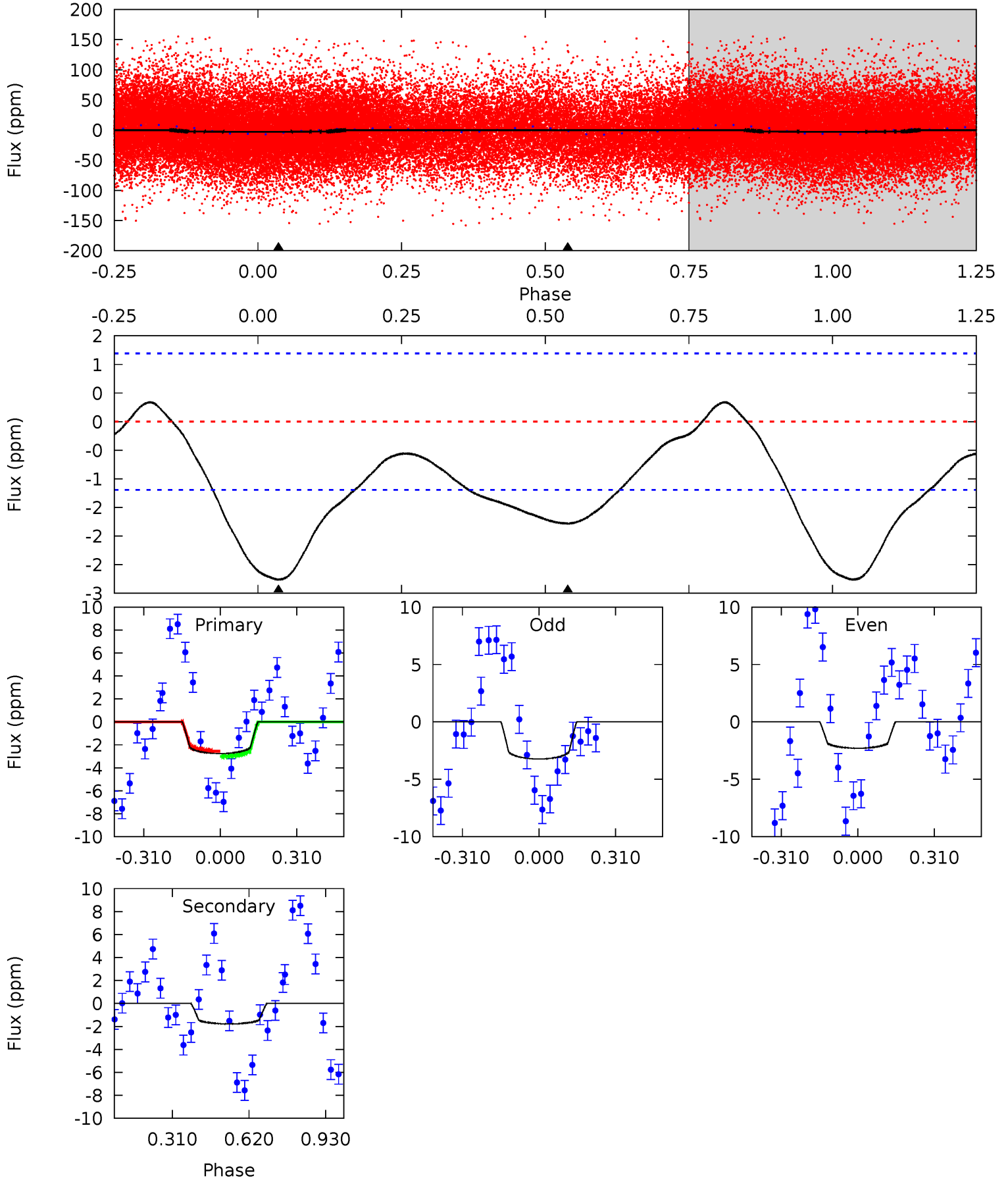
TCE 001865567-02   P= 0.674717 Days    $T_0=131.655451$  (BKJD)



# DV Model-Shift Uniqueness Test

001865567-02, P = 0.674675 Days, E = 130.970124 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
10.0	6.46	0	0	4.32	1.02	1.47	10.0	10.0	6.46	6.46	1.73	0.97	0.11	0.82

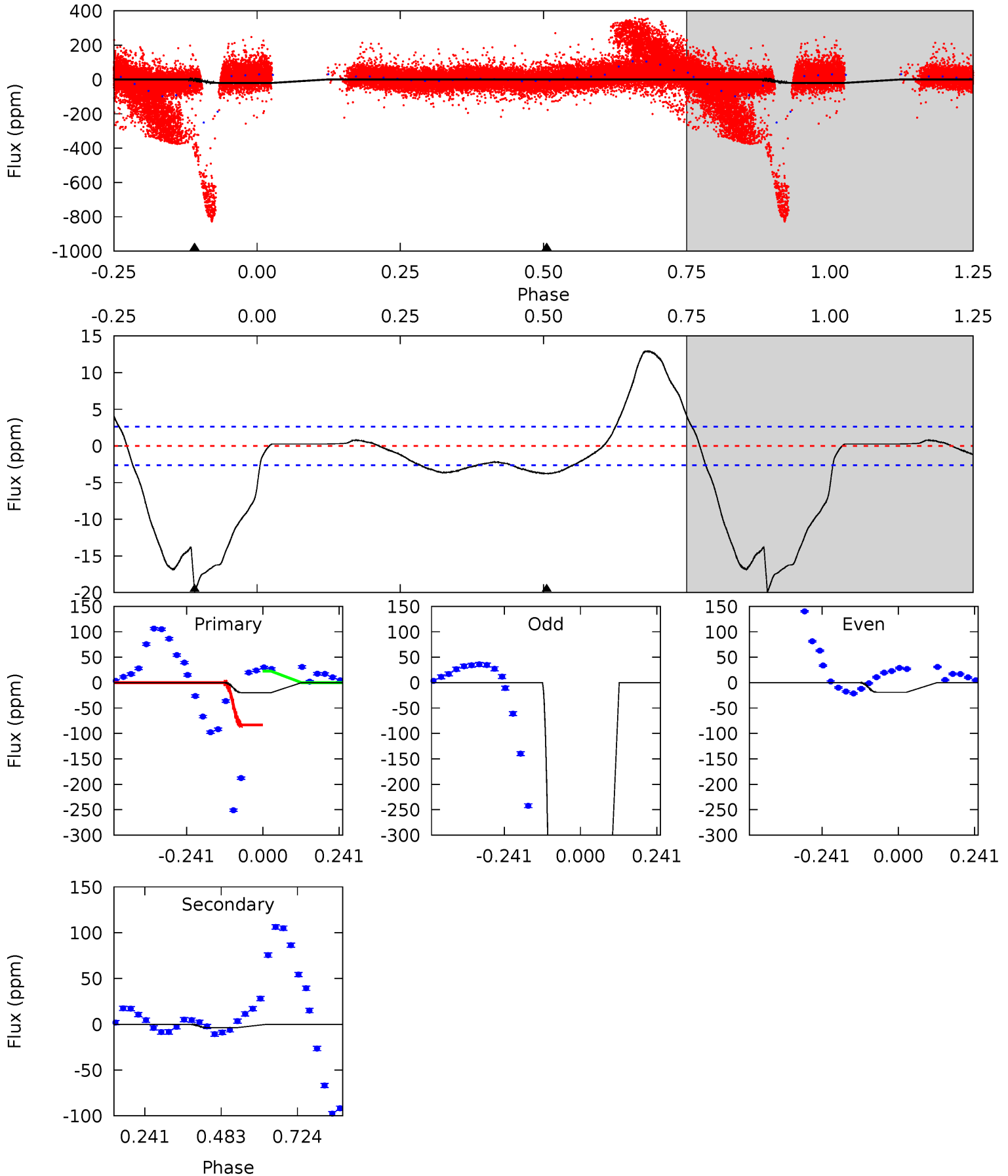




# Alt Model-Shift Uniqueness Test

001865567-02, P = 0.674717 Days, E = 130.980734 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
33.1	6.30	0	0	4.38	1.17	1.35	33.1	33.1	6.30	6.30	1065	15.5	0.39	28.8





### Stellar Parameters For KIC 001865567

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9888^{+275}_{-412}$	$4.209^{+0.144}_{-0.246}$	$0.070^{+0.150}_{-0.550}$	$1.979^{+0.903}_{-0.486}$	$2.314^{+0.455}_{-0.500}$	$0.421^{+0.363}_{-0.251}$
	+3%/-4%	+3%/-6%	+214%/-786%	+46%/-25%	+20%/-22%	+86%/-60%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 001865567-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2 \pm 0$	$0.44^{+0.13}_{-0.13}$	$6133^{+580}_{-446}$	$7178^{+1637}_{-1092}$	$1.952^{+1.759}_{-0.848}$
Alt.	$-4 \pm 1$	$6.06^{+1.46}_{-0.76}$	$6090^{+687}_{-428}$	$-4673^{+270}_{-434}$	$0.021^{+0.007}_{-0.007}$

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

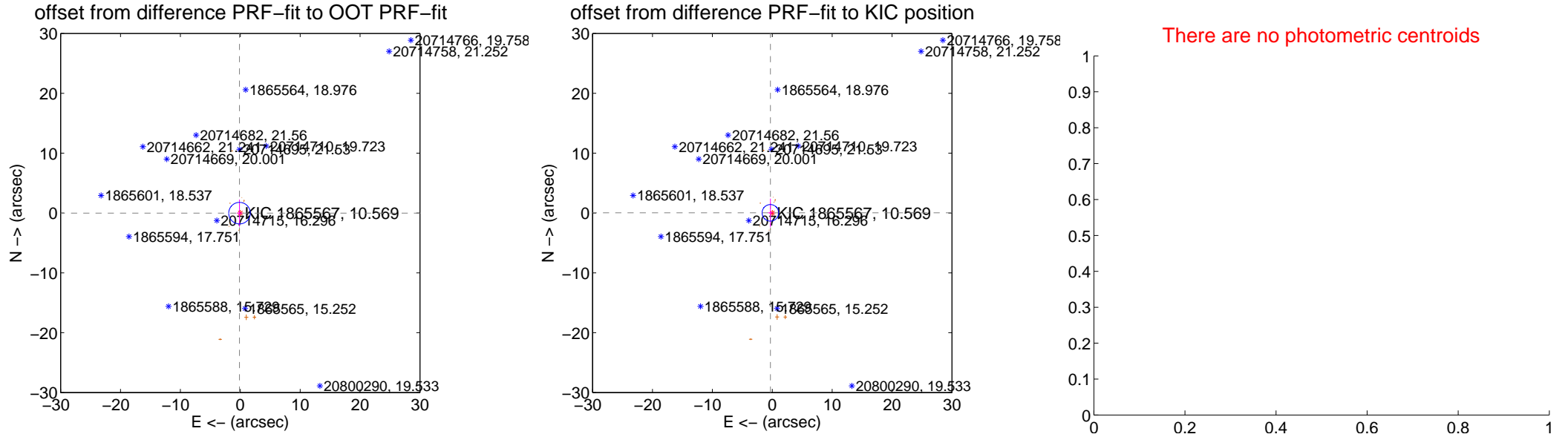
## DV Centroid Data

Supplemental centroid analysis for 001865567-02. **Kepler magnitude: 10.57.** Transit SNR 7.89

**There are 0 quarters with good PRF difference image offsets**

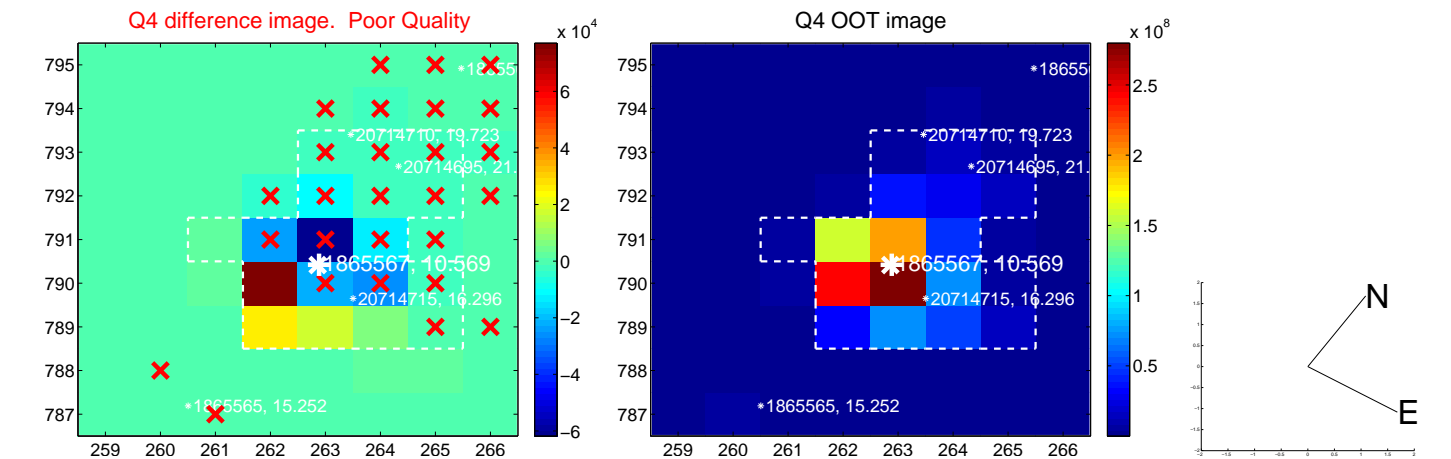
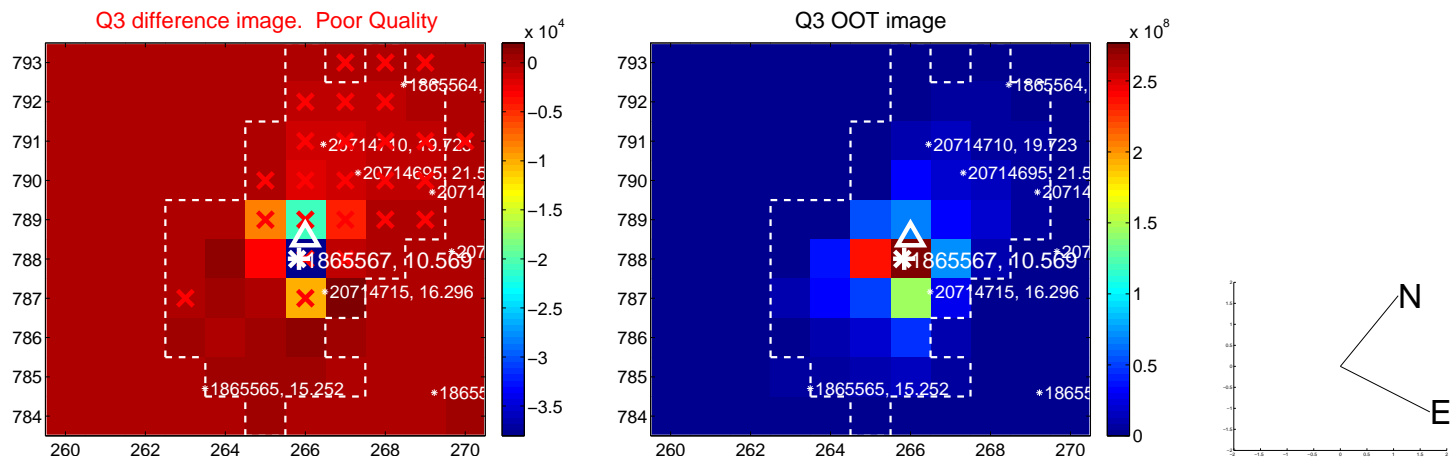
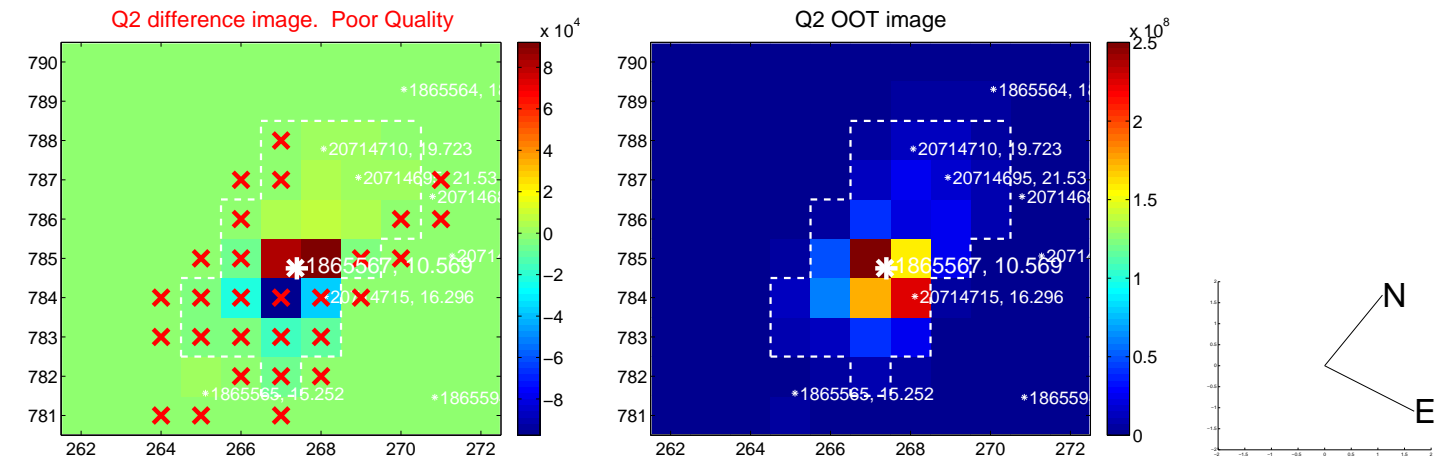
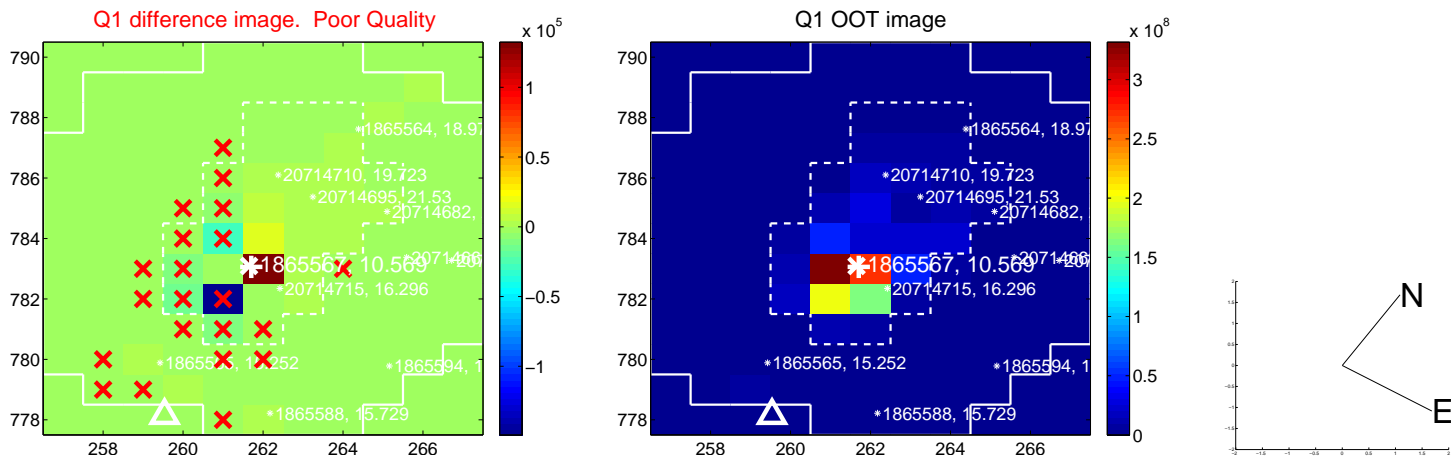
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.131 \pm 0.600$	0.22	$0.129 \pm 0.409$	$-0.024 \pm 2.270$
PRF-fit source offset from KIC position	$0.314 \pm 0.461$	0.68	$0.312 \pm 0.403$	$0.029 \pm 2.375$
photometric centroid source offset	—	—	—	—

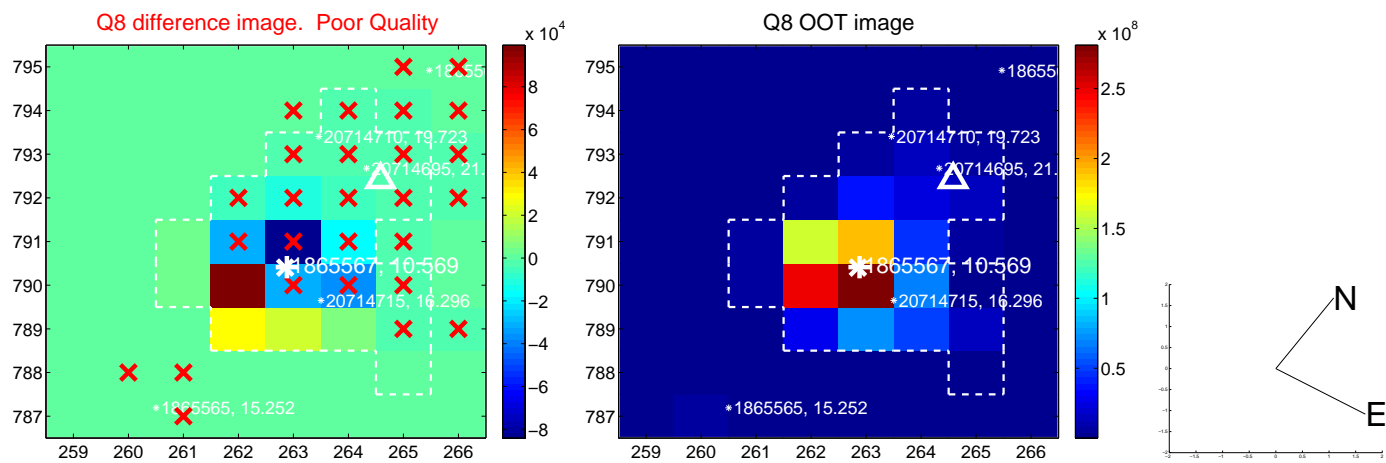
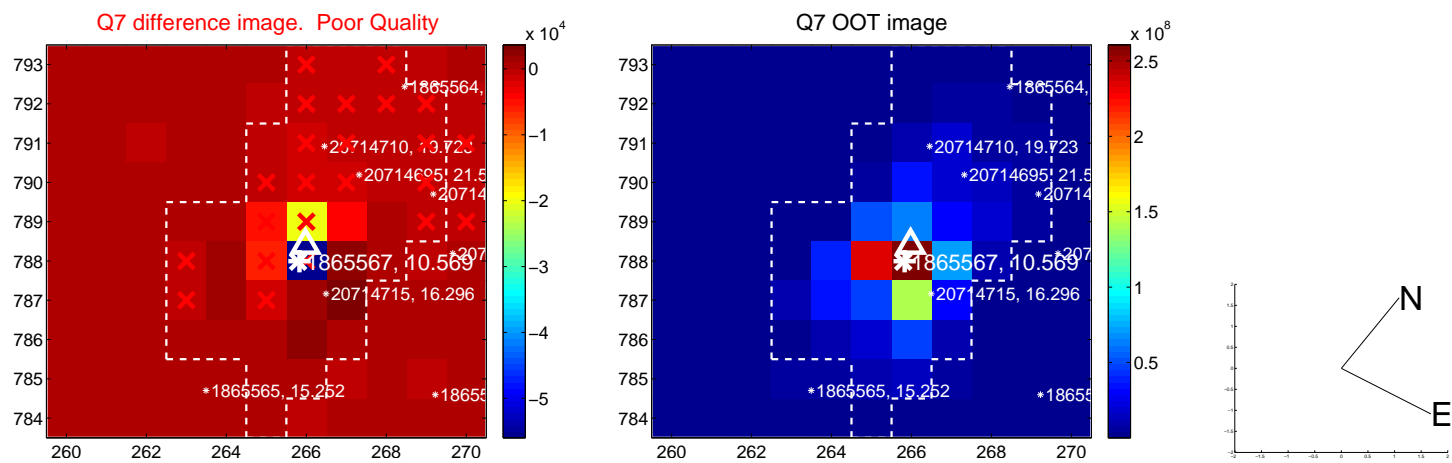
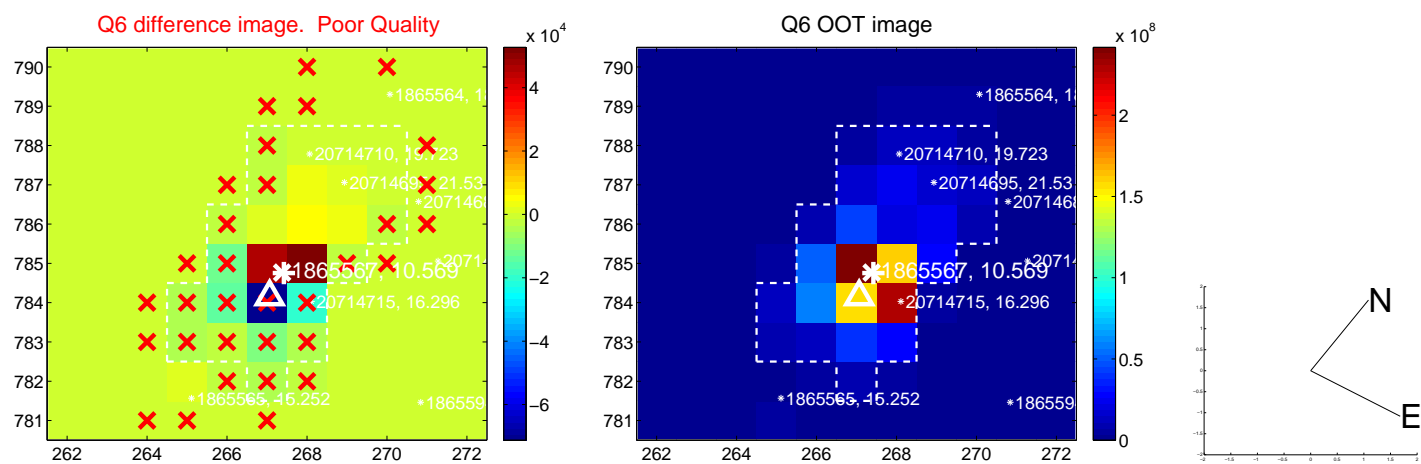
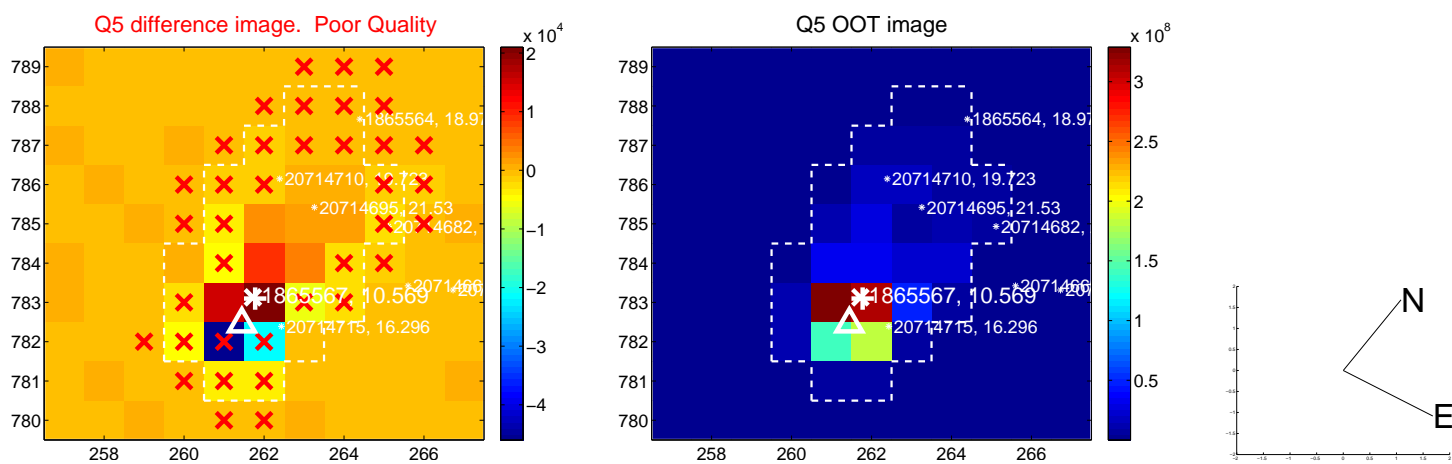


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

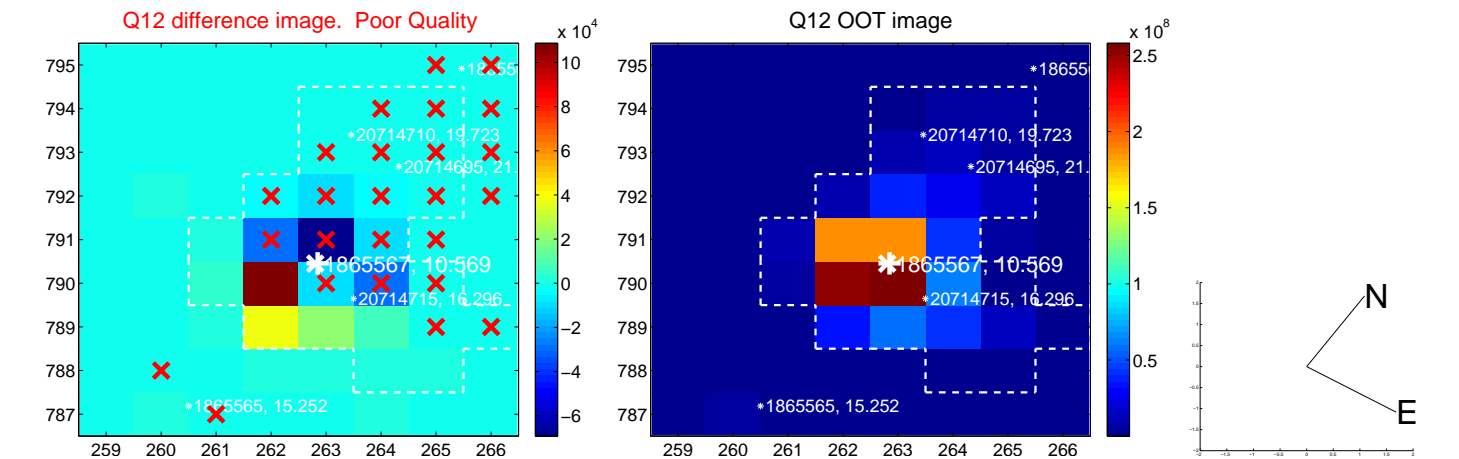
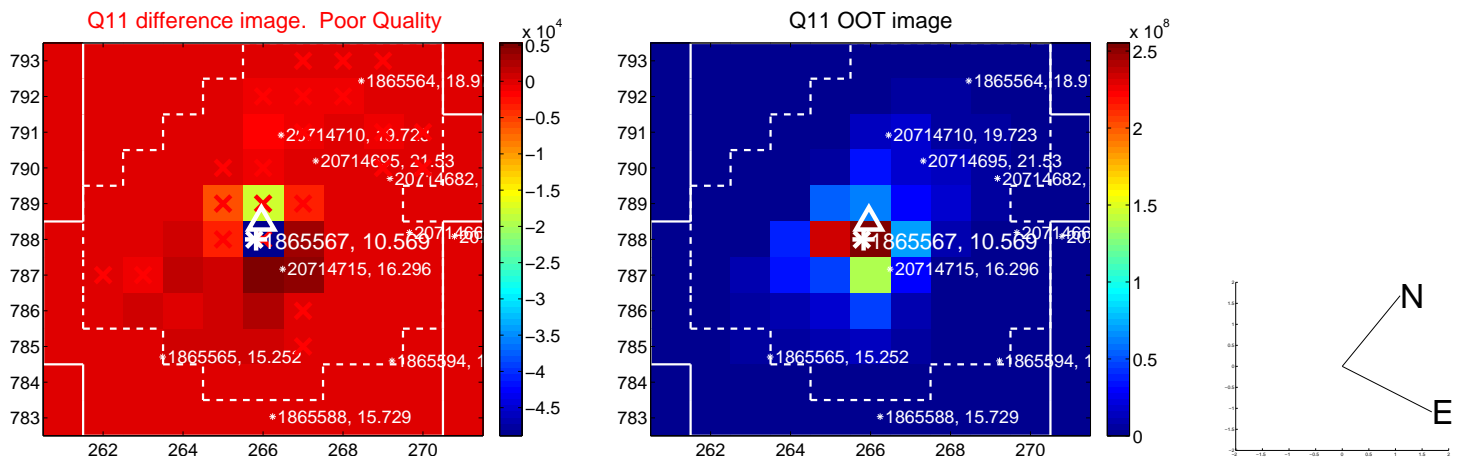
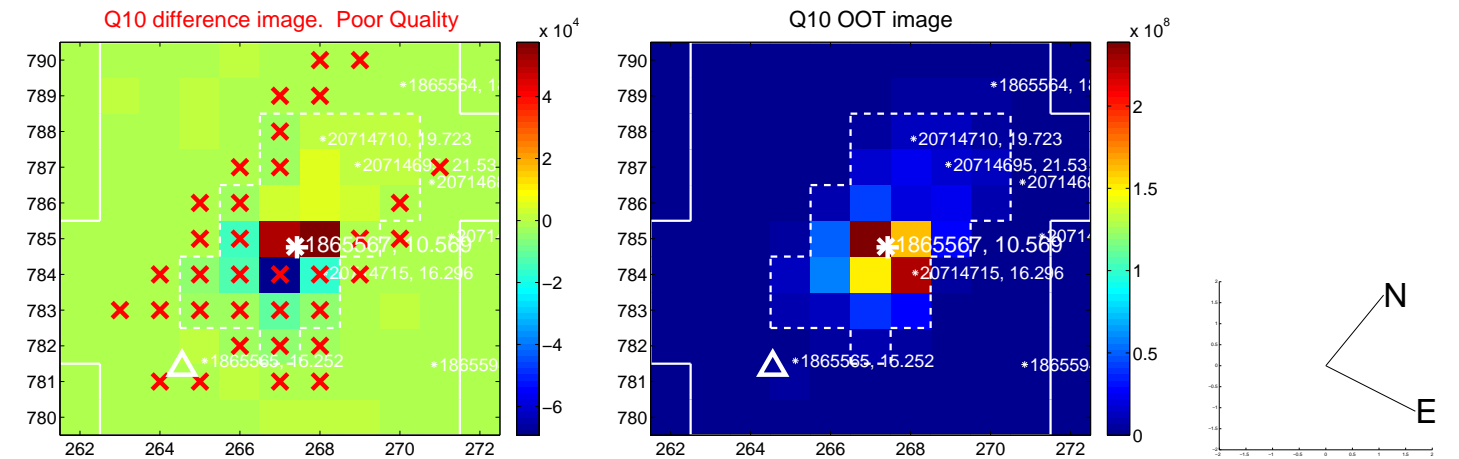
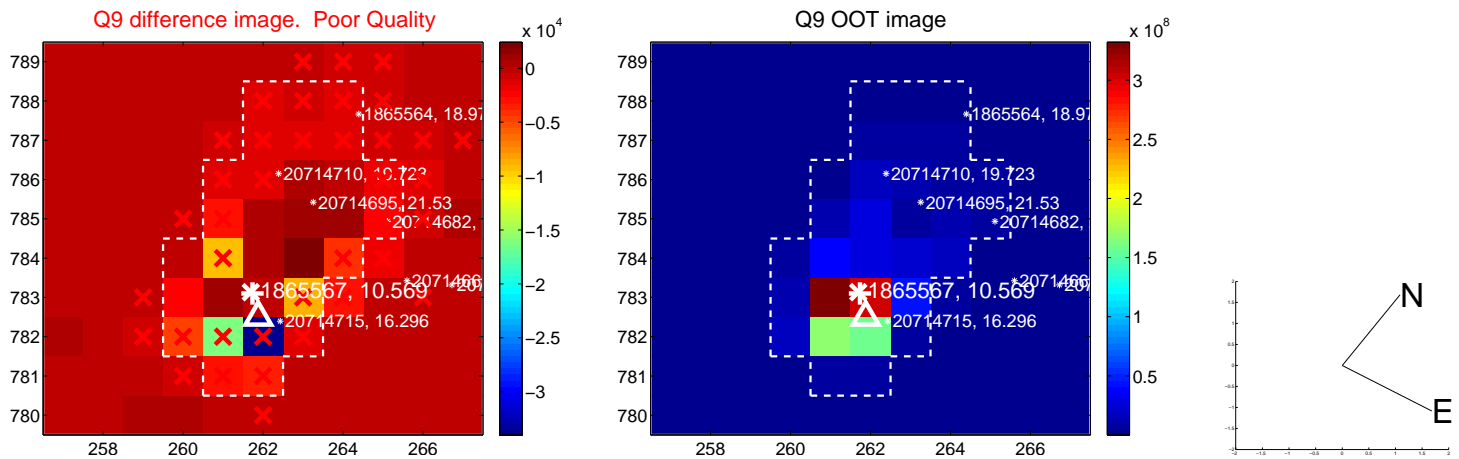
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

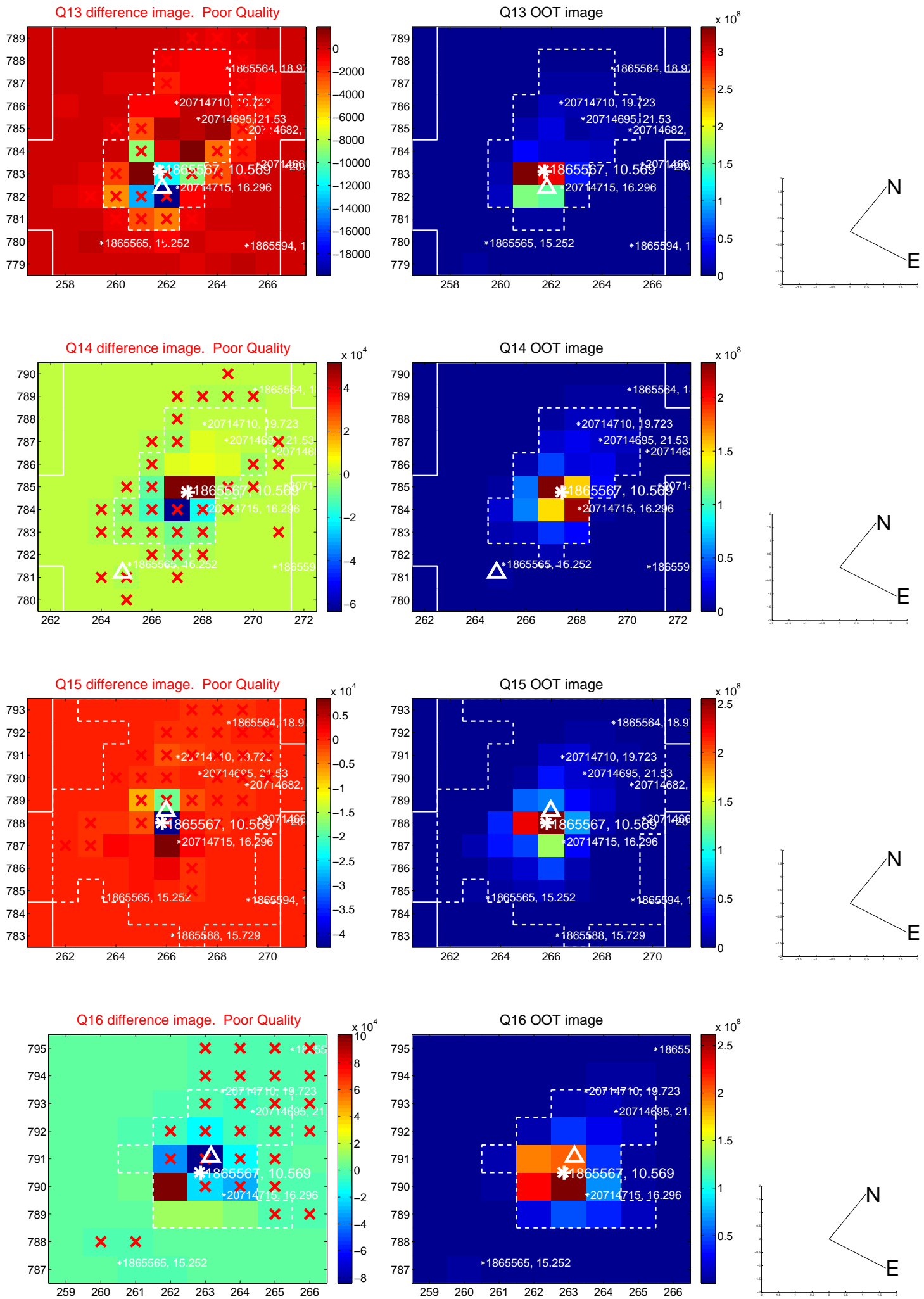


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

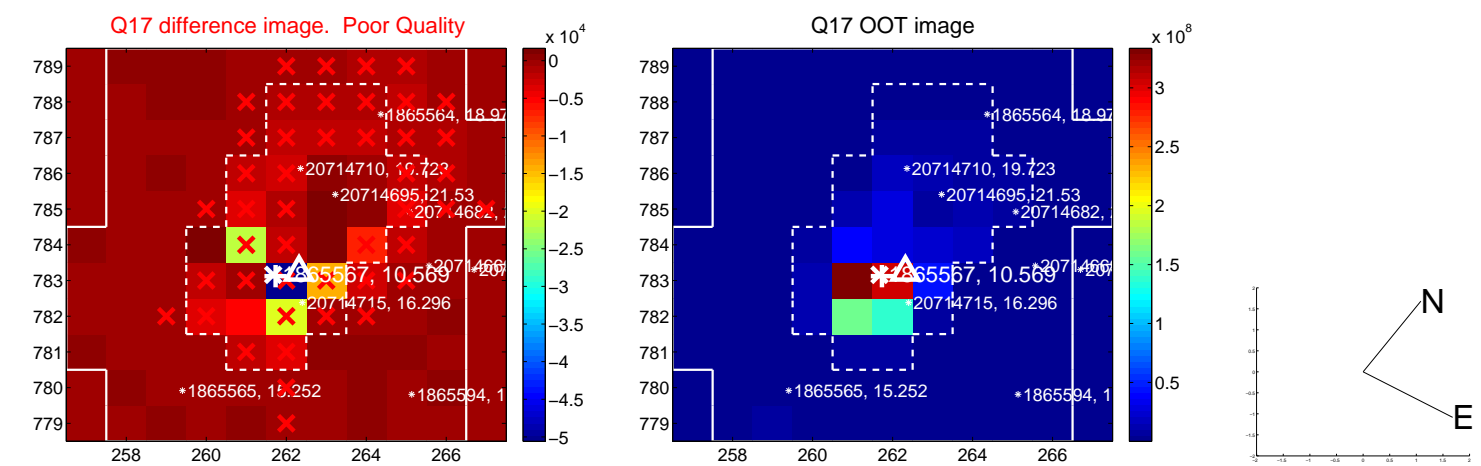




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

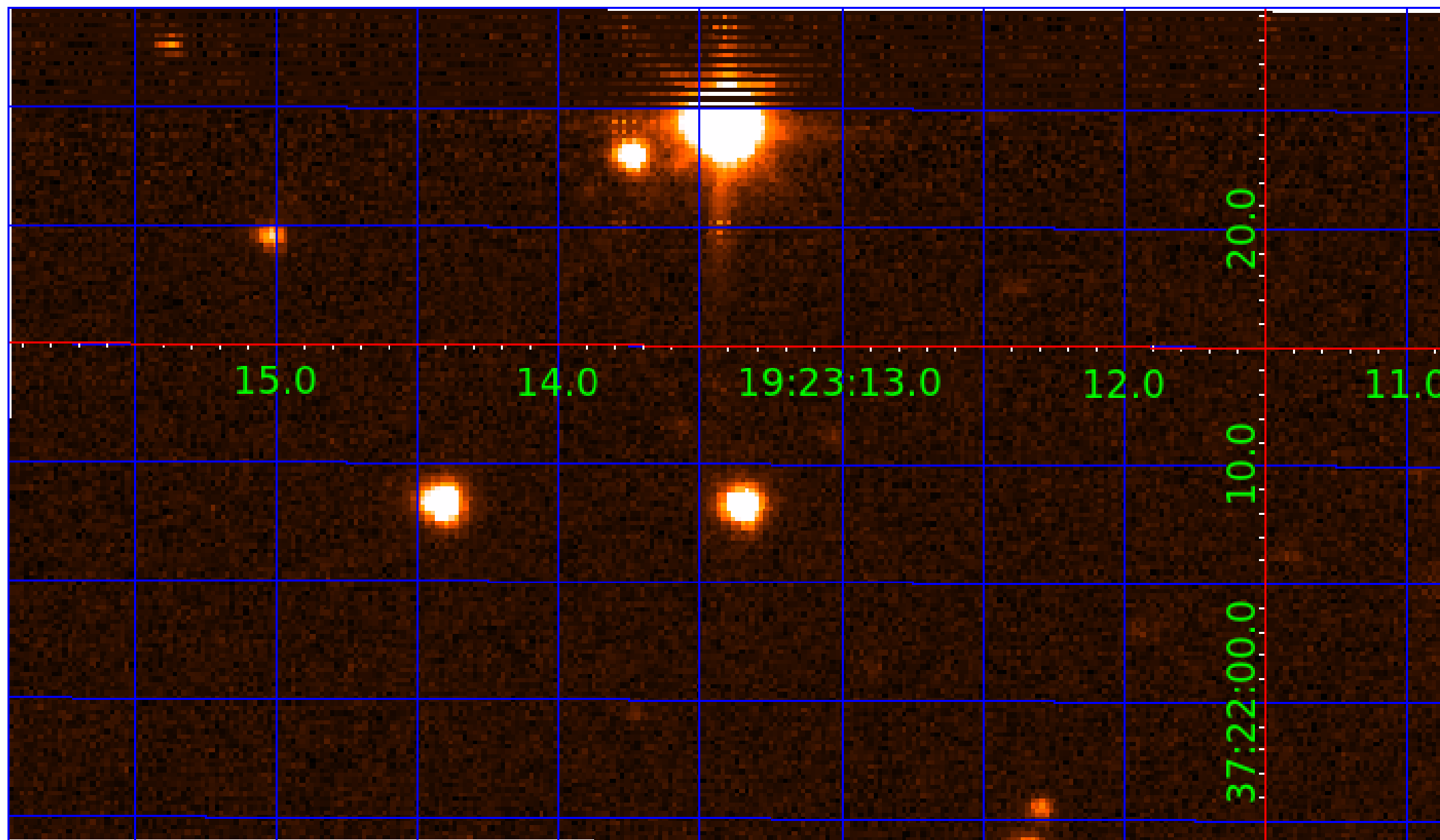


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image



# KIC 001865567

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
001865567-01	OBS	No	1.349405	132.598957	9.3	2.636	14.0	12.6	1.98	9888	0.69	33581.66
001865567-02	OBS	No	0.674675	131.644799	3.5	4.540	14.3	7.9	1.98	9888	0.43	84625.17
001865567-03	OBS	No	41.202499	162.734456	38.2	4.987	9.2	5.3	1.98	9888	1.31	351.88

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
001865567-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
001865567-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
001865567-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

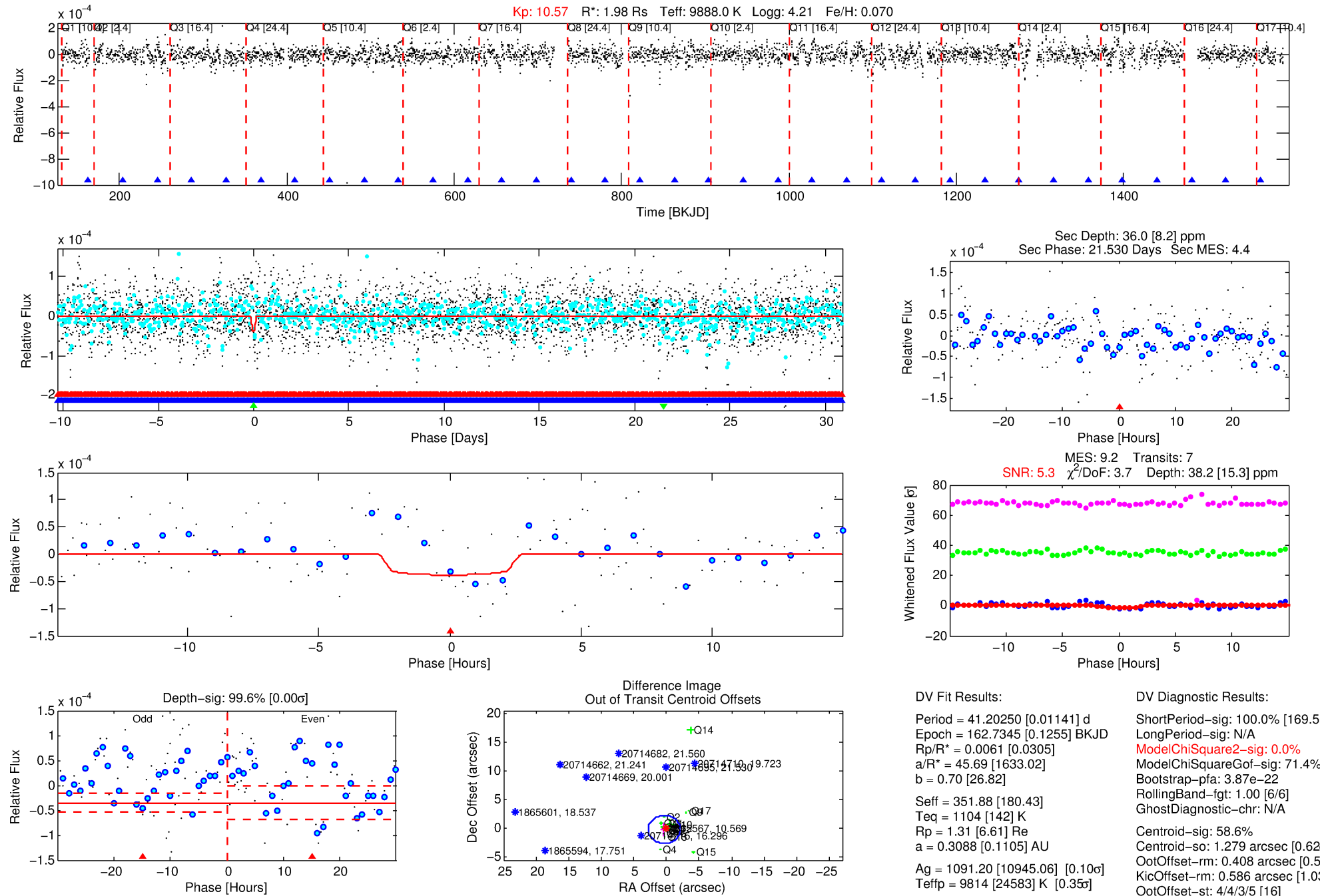
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 001865567-03

No Significant Match Found

# DV One-Page Summary

KIC: 1865567 Candidate: 3 of 3 Period: 41.202 d



## DV Fit Results:

Period = 41.20250 [0.01141] d  
Epoch = 162.7345 [0.1255] BKJD  
Rp/R\* = 0.0061 [0.0305]  
a/R\* = 45.69 [1633.02]  
b = 0.70 [26.82]  
Seff = 351.88 [180.43]  
Teq = 1104 [142] K  
Rp = 1.31 [6.61] Re  
a = 0.3088 [0.1105] AU  
Ag = 1091.20 [10945.06] [0.10 $\sigma$ ]  
Teff = 9814 [24583] K [0.35 $\sigma$ ]

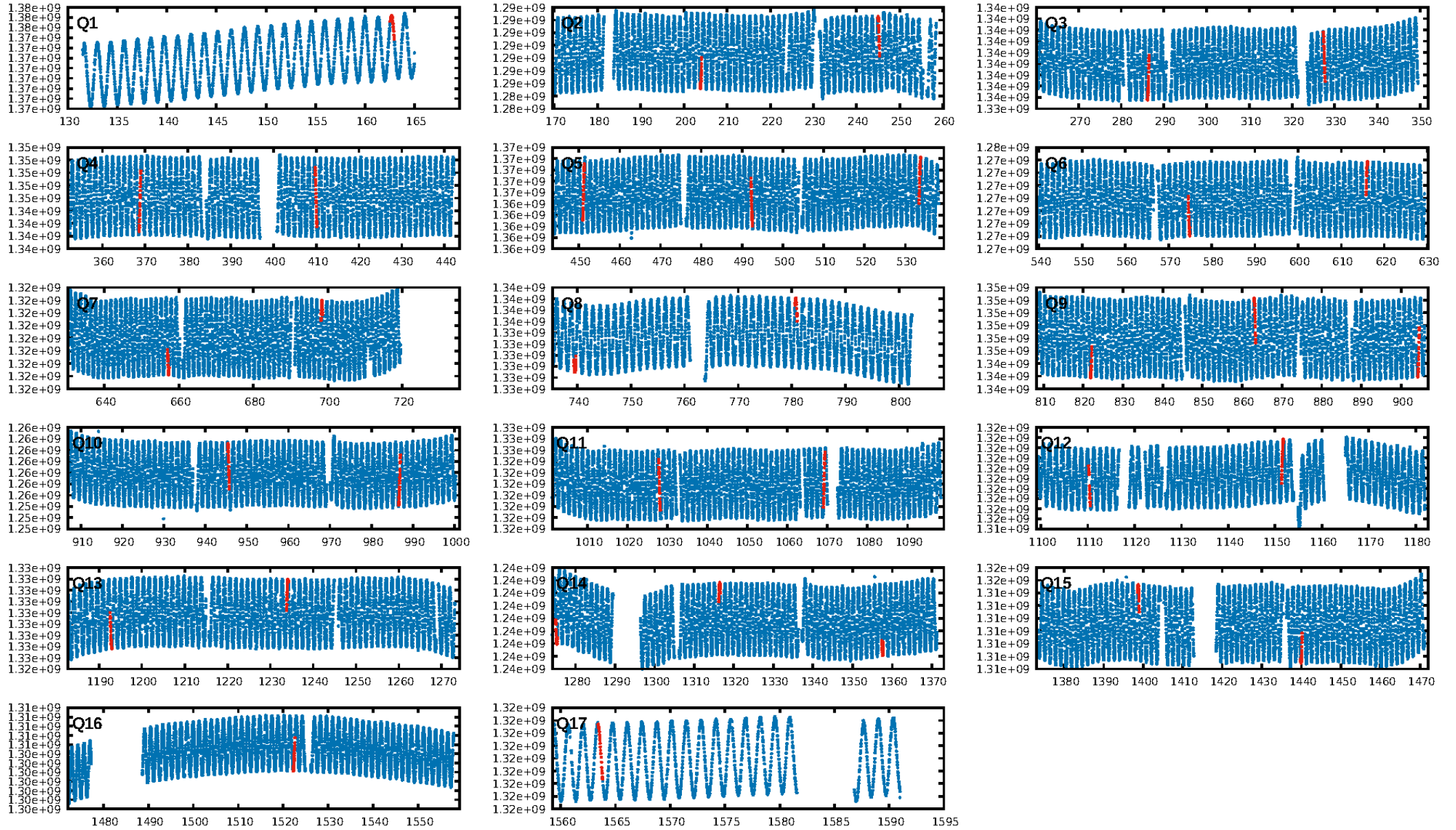
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [169.56 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 71.4%  
Bootstrap-pfa: 3.87e-22  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 58.6%  
Centroid-so: 1.279 arcsec [0.62 $\sigma$ ]  
OotOffset-rm: 0.408 arcsec [0.50 $\sigma$ ]  
KicOffset-rm: 0.586 arcsec [1.03 $\sigma$ ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.25 [4/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:06:54 Z

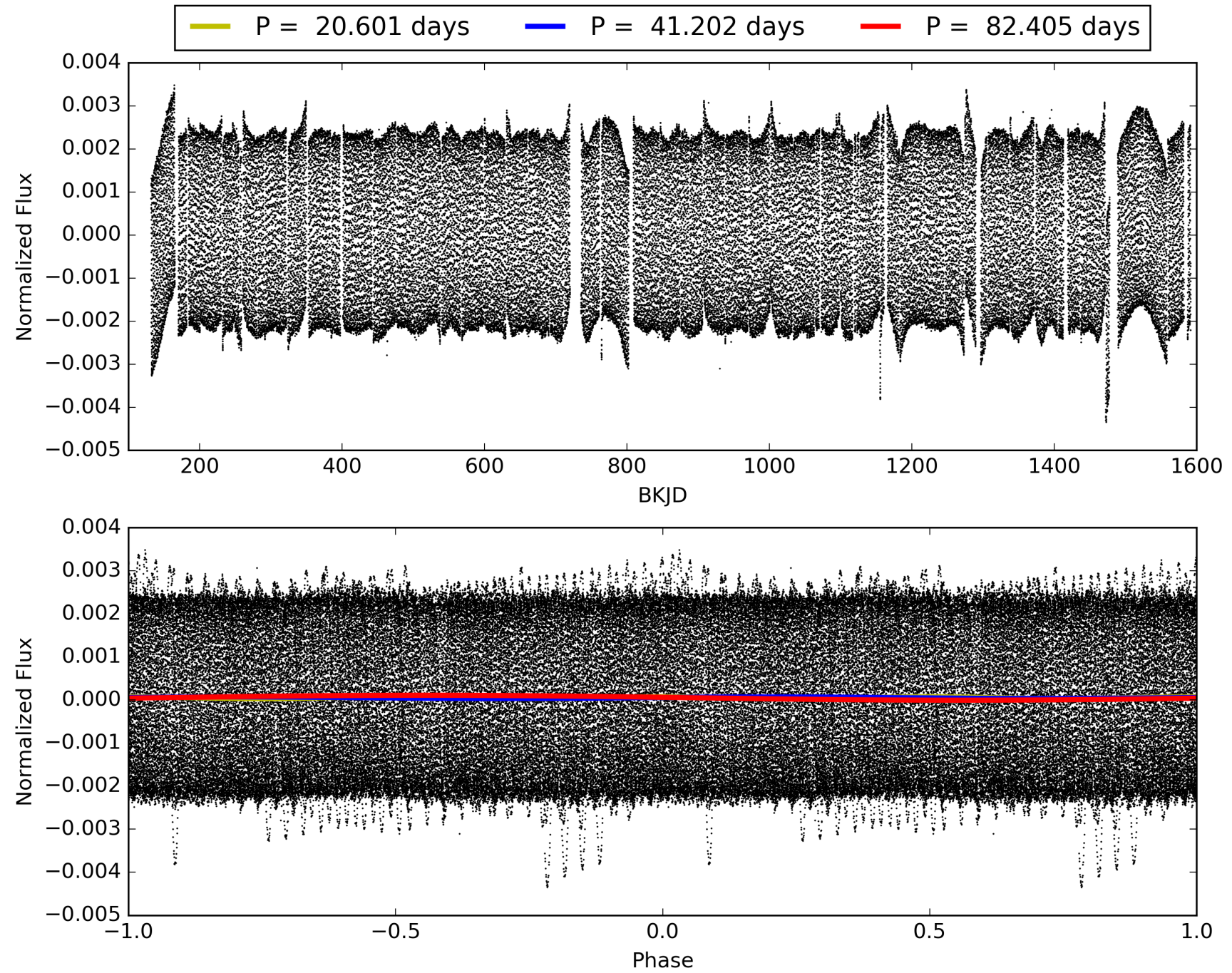
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 001865567-03, PDC Light Curves



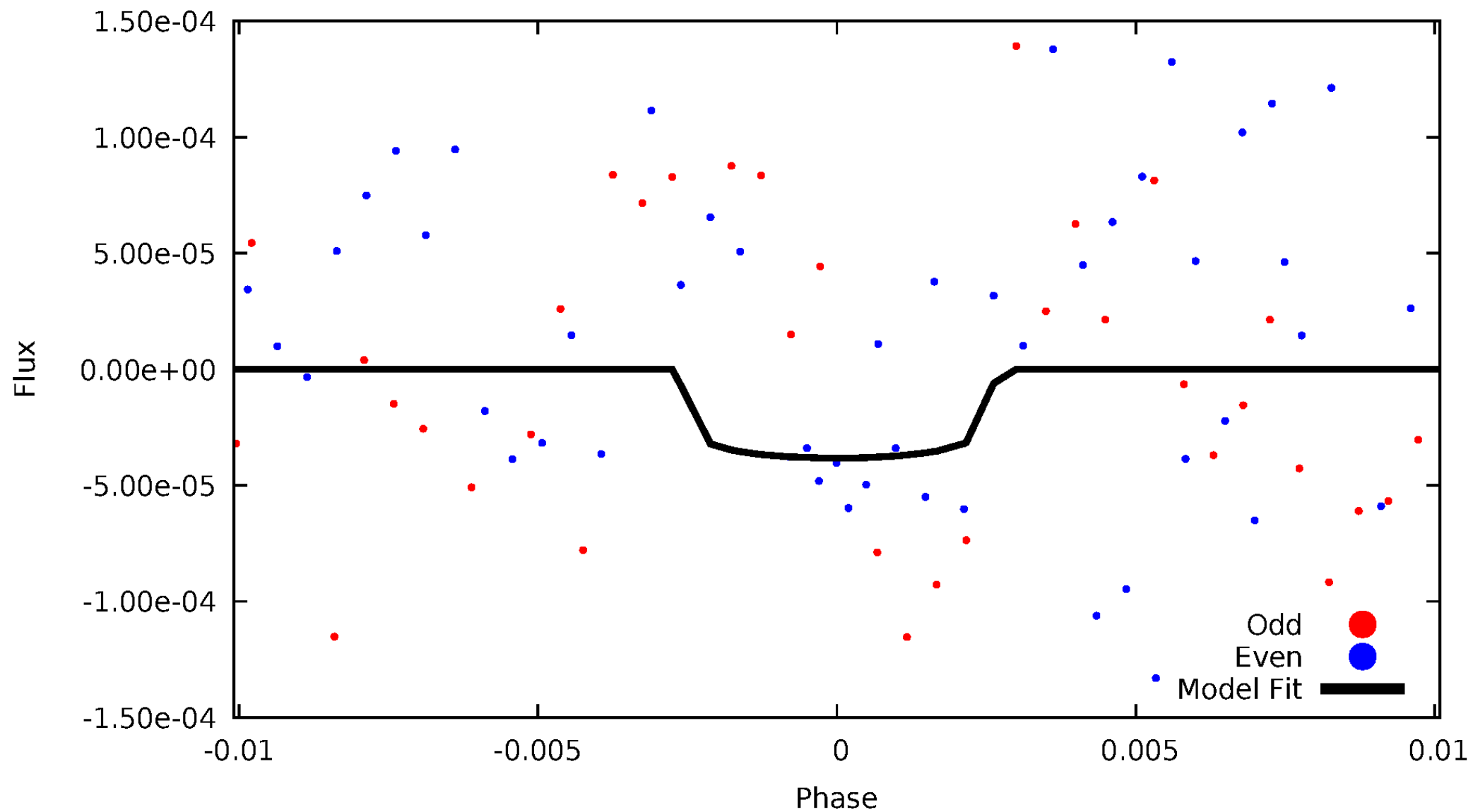


# TCE 001865567-03



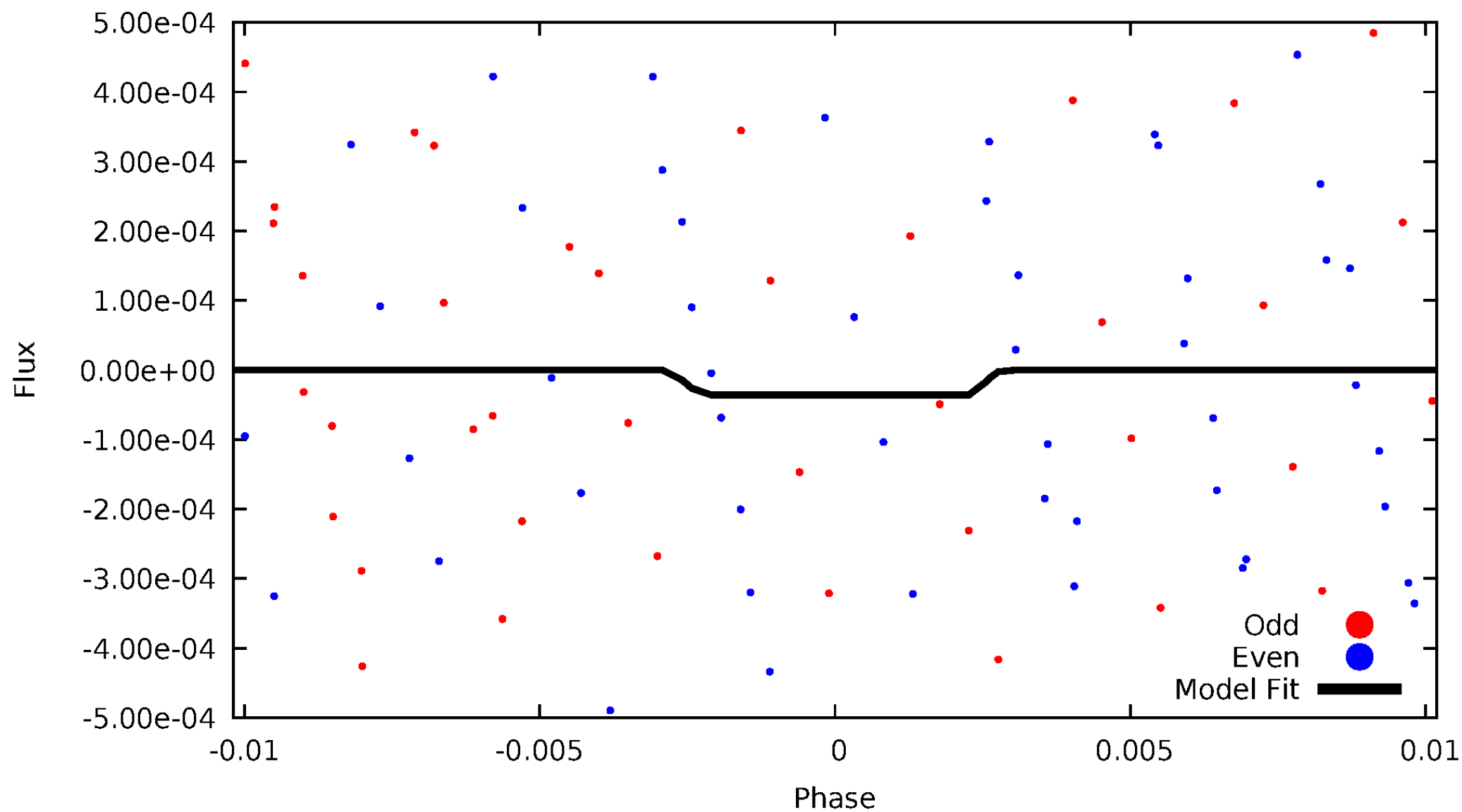
# DV Odd/Even

TCE 001865567-03



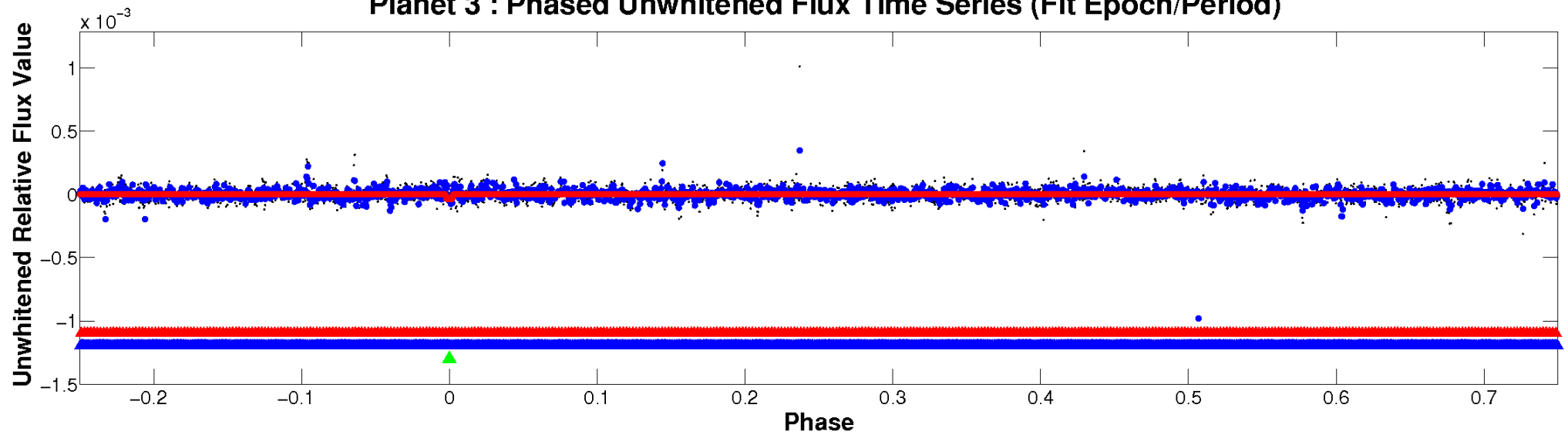
# ALT Odd/Even

TCE 001865567-03

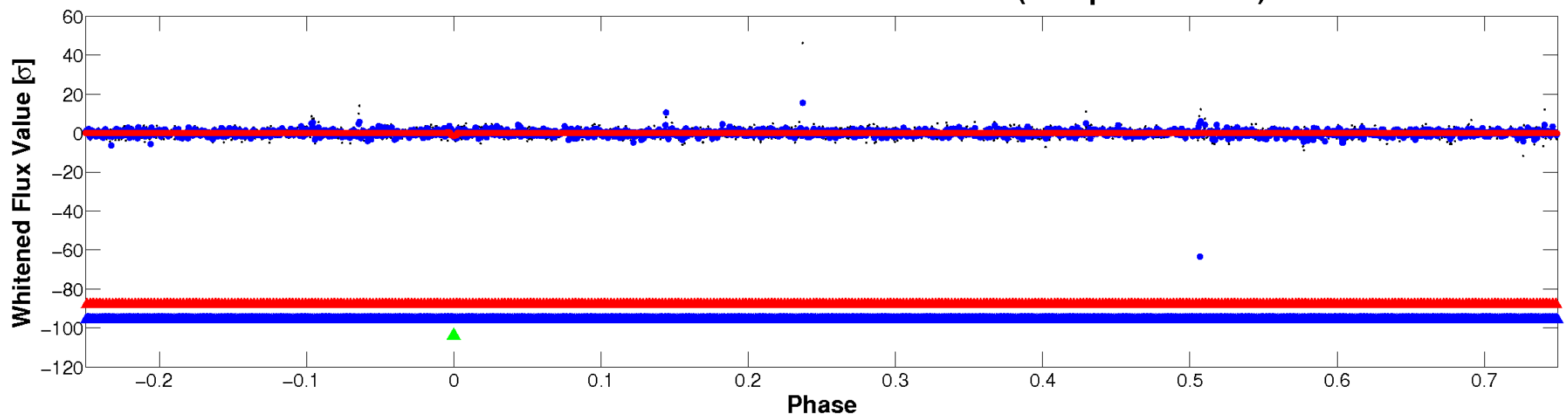


# Non-Whitened Vs. Whitened Light Curve

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

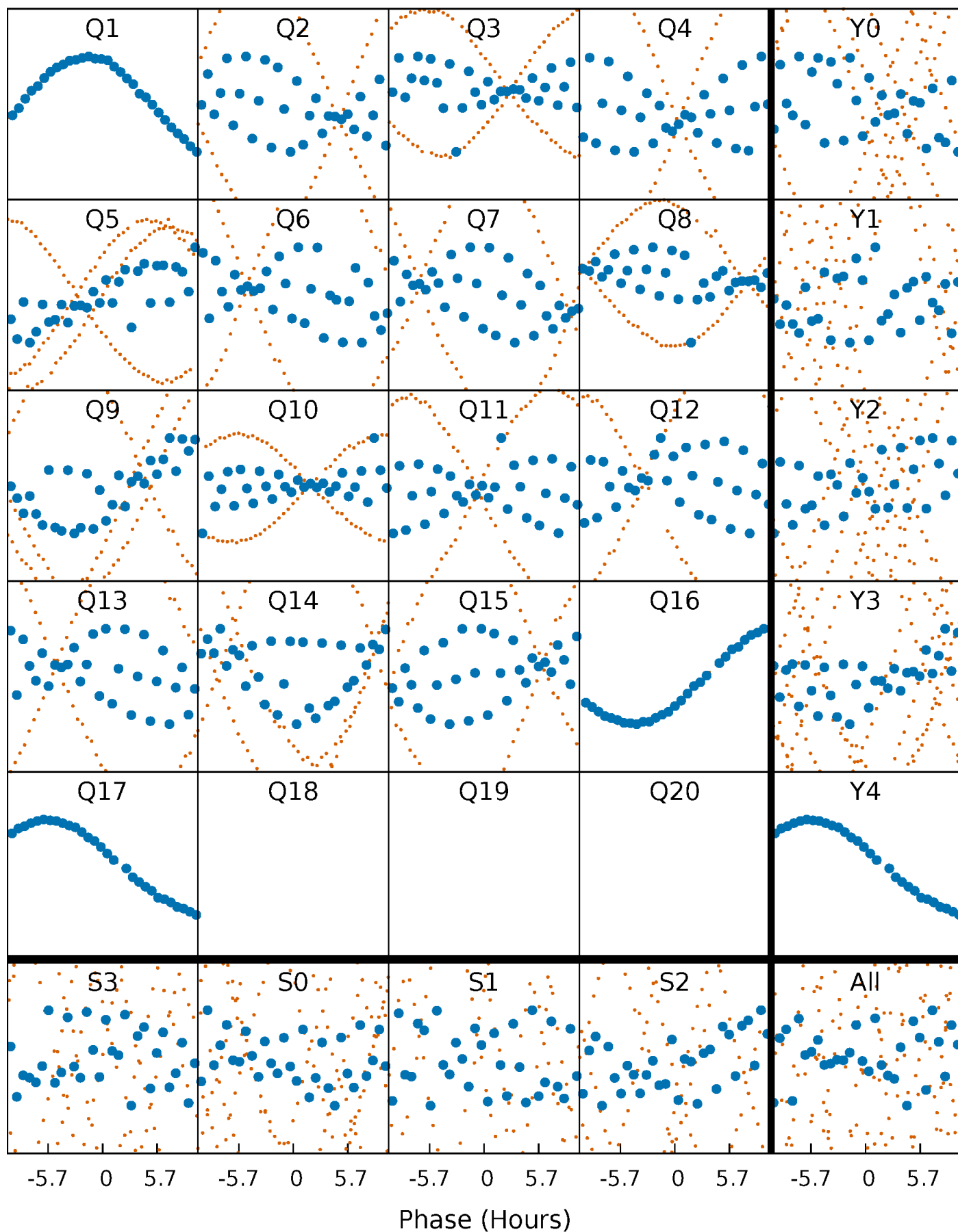


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



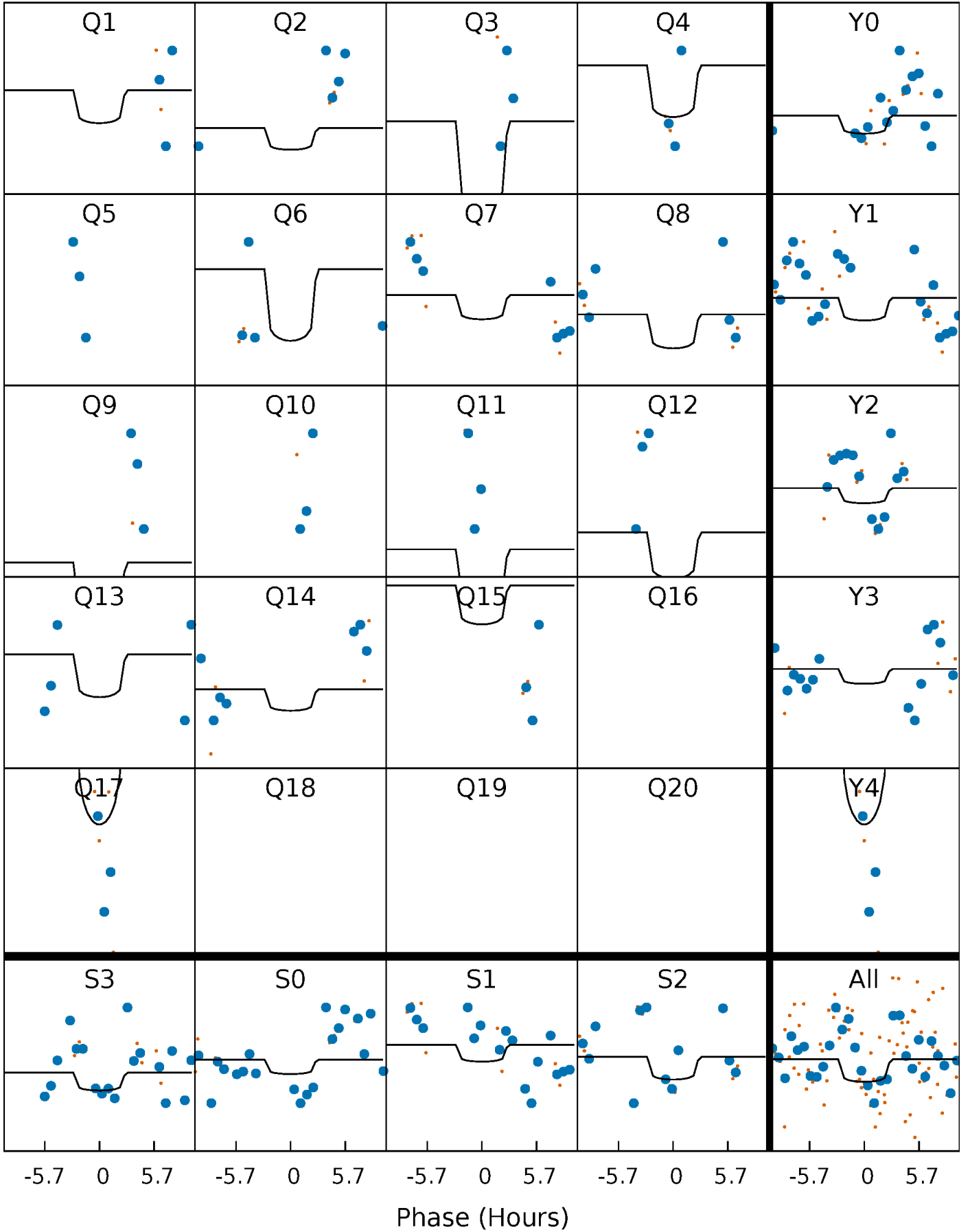
# PDC Quarter-Phased Transit Curves

TCE 001865567-03   P= 41.202499 Days    $T_0=162.734456$  (BKJD)



# DV Quarter-Phased Transit Curves

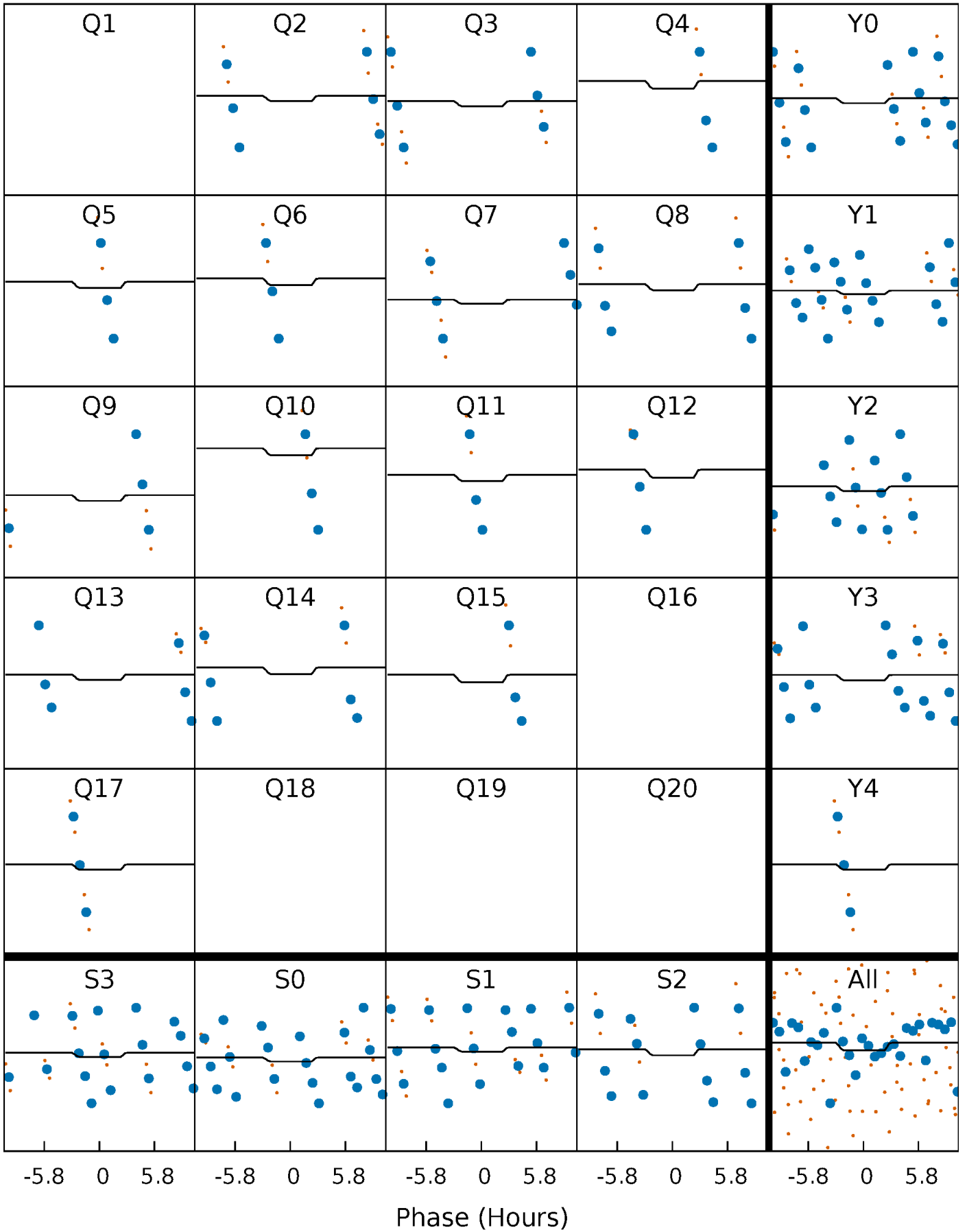
TCE 001865567-03    P= 41.202499 Days     $T_0=162.734456$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

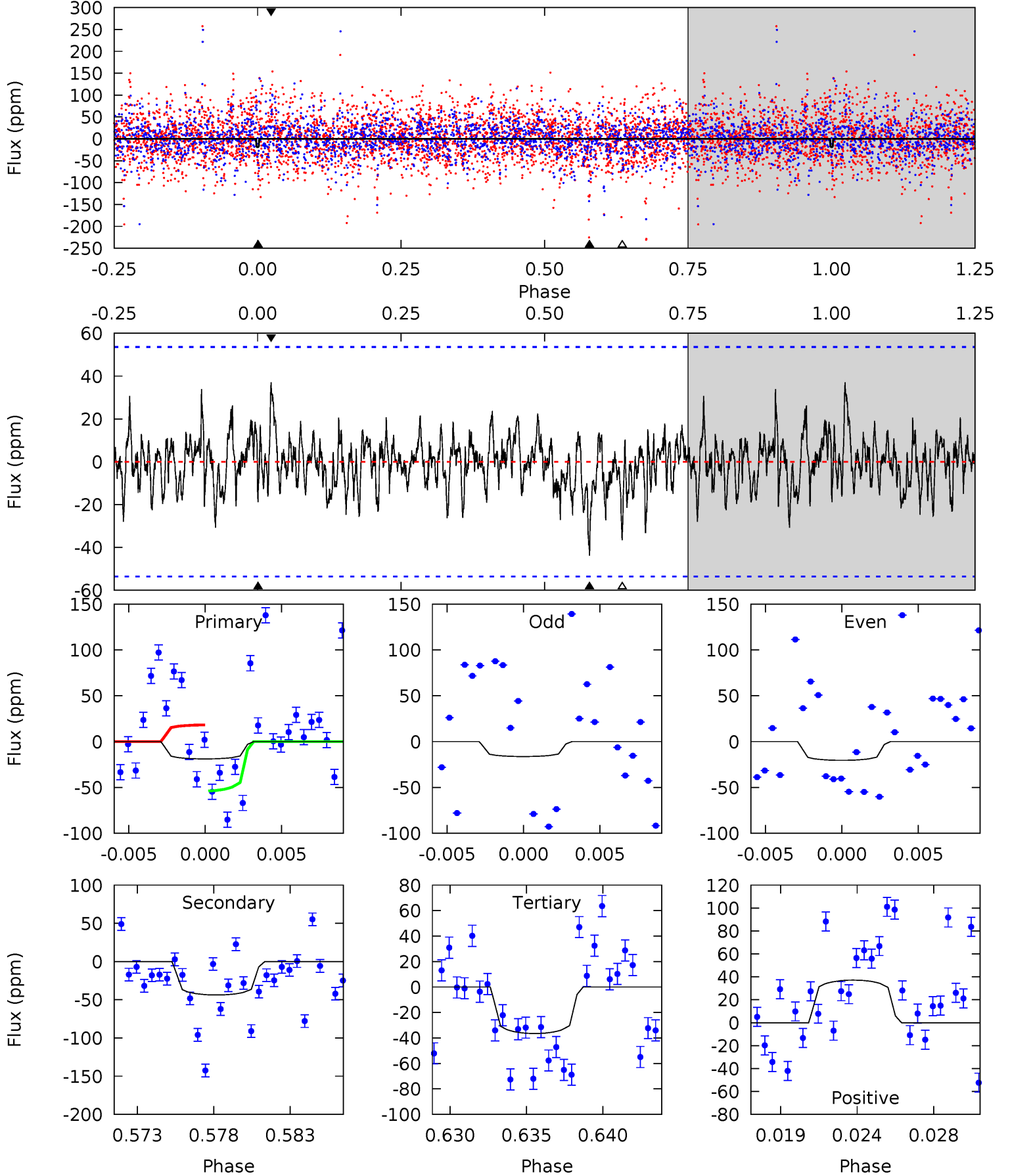
TCE 001865567-03   P= 41.211245 Days    $T_0=162.543624$  (BKJD)



# DV Model-Shift Uniqueness Test

001865567-03, P = 41.202499 Days, E = 121.531957 Days

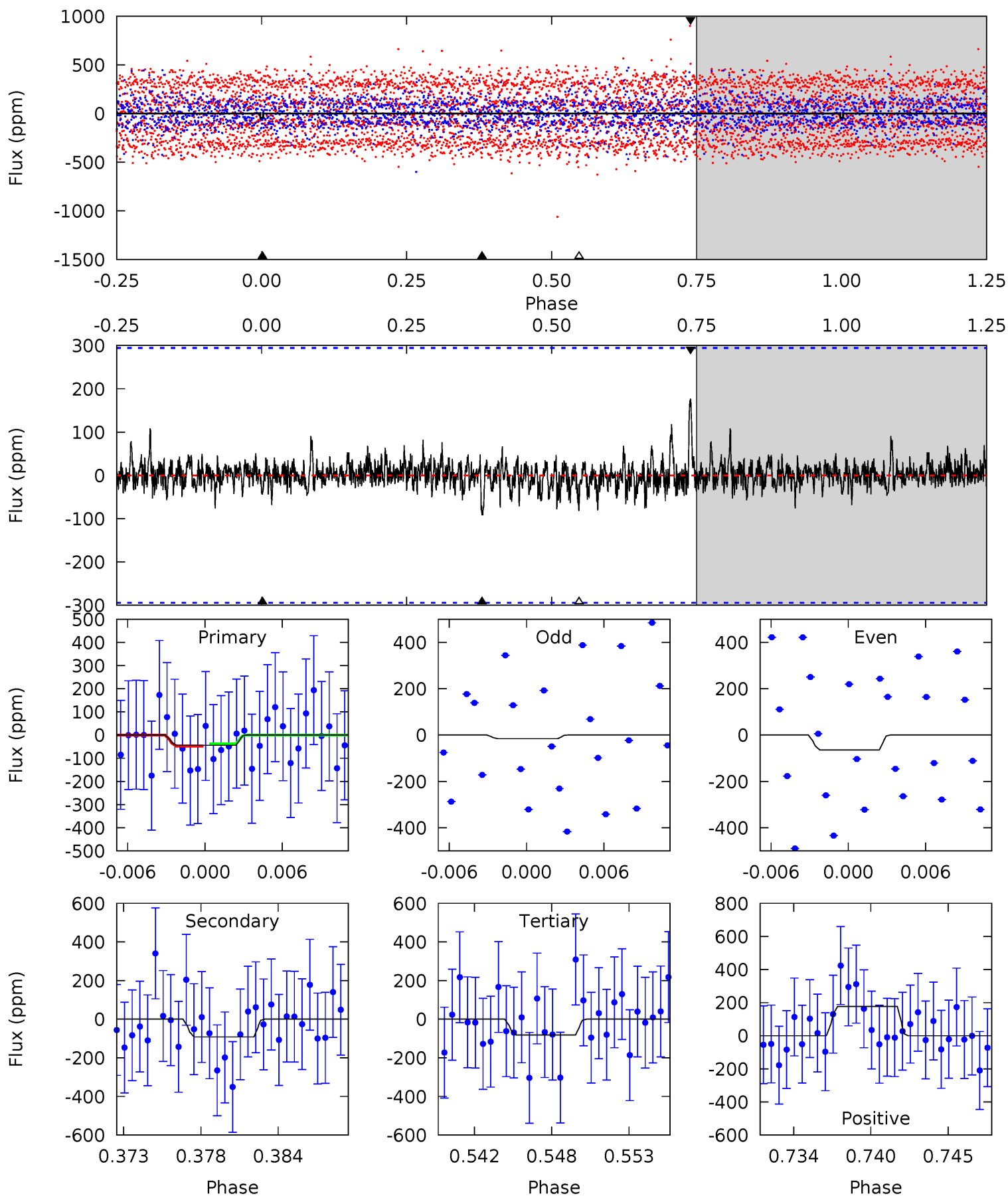
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.82	4.22	3.52	3.58	5.17	2.82	1.00	-1.70	-1.76	0.70	0.64	0.19	0.45	0.46	1.73



# Alt Model-Shift Uniqueness Test

001865567-03, P = 41.211245 Days, E = 121.332379 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
0.77	1.61	1.43	3.09	5.13	2.77	0.48	-0.66	-2.32	0.18	-1.48	0.42	1.75	0.66	0.08



### Stellar Parameters For KIC 001865567

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$9888^{+275}_{-412}$	$4.209^{+0.144}_{-0.246}$	$0.070^{+0.150}_{-0.550}$	$1.979^{+0.903}_{-0.486}$	$2.314^{+0.455}_{-0.500}$	$0.421^{+0.363}_{-0.251}$
	+3%/-4%	+3%/-6%	+214%/-786%	+46%/-25%	+20%/-22%	+86%/-60%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 001865567-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-44 \pm 10$	$4.99^{+5.11}_{-3.55}$	$1559^{+159}_{-114}$	$4919^{+4786}_{-1099}$	$86^{+1082}_{-66}$
Alt.	$-92 \pm 57$	$5.21^{+5.09}_{-3.65}$	$1555^{+135}_{-114}$	$5507^{+5962}_{-1659}$	$136^{+1354}_{-114}$

$T_{max}$  = 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

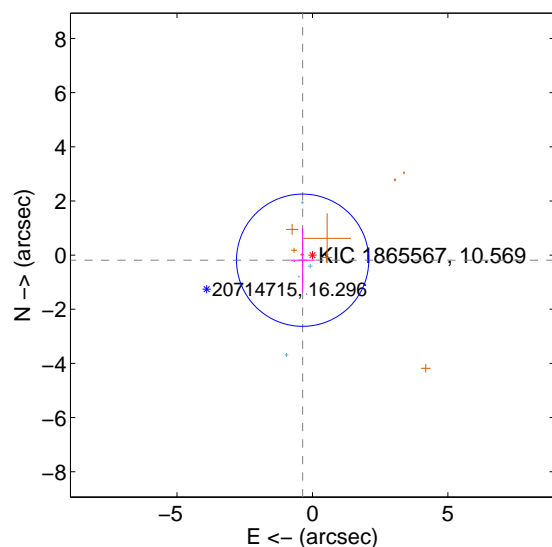
Supplemental centroid analysis for 001865567-03. **Kepler magnitude: 10.57.** Transit SNR 5.33

There are 4 quarters with good PRF difference image offsets

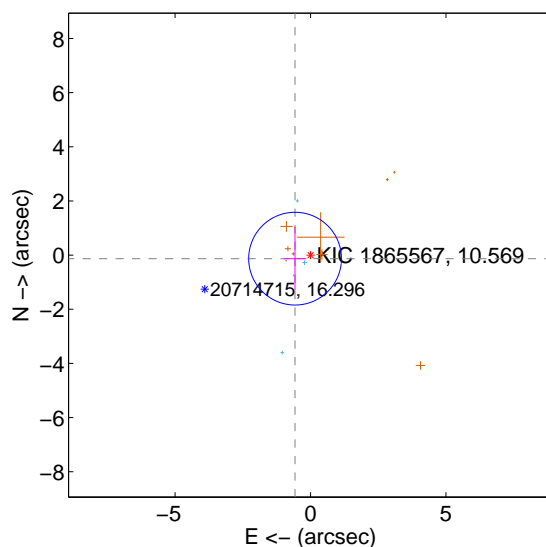
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.408 \pm 0.814$	0.50	$0.362 \pm 0.443$	$-0.189 \pm 1.177$
PRF-fit source offset from KIC position	$0.586 \pm 0.571$	1.03	$0.571 \pm 0.417$	$-0.132 \pm 1.178$
photometric centroid source offset	$1.28 \pm 2.06$	0.62	$0.01 \pm 1.46$	$1.28 \pm 2.06$

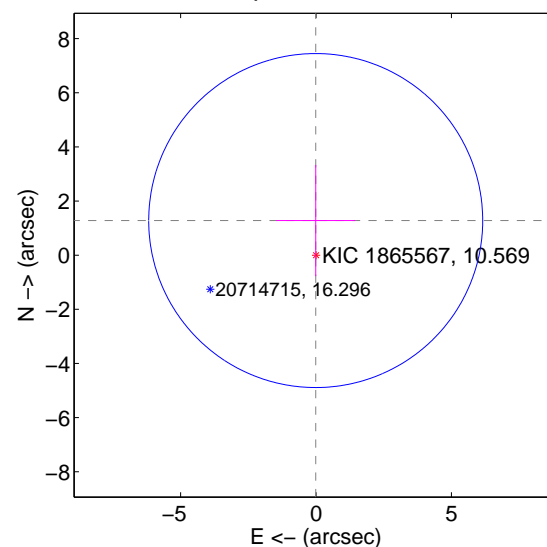
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



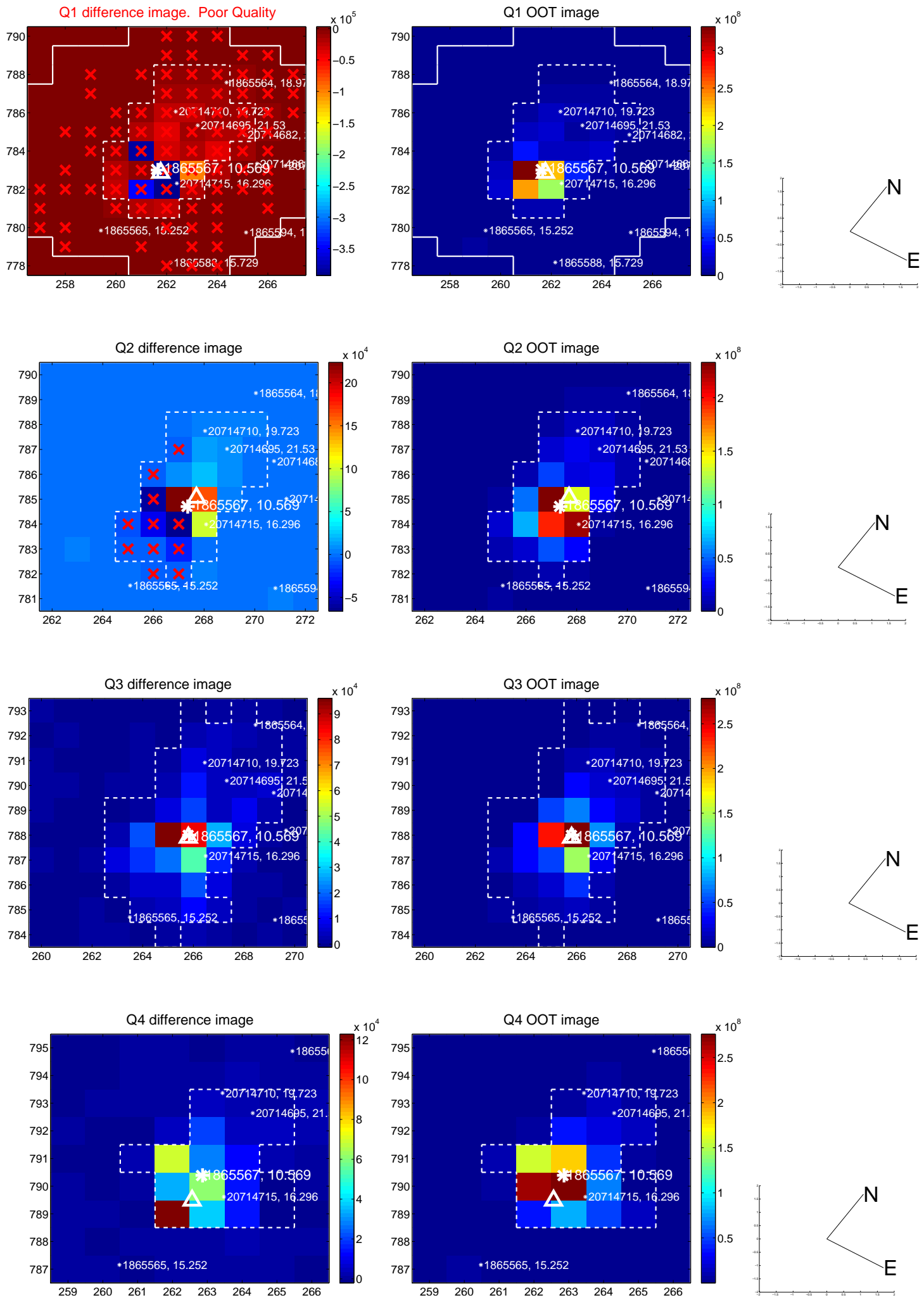
offset from photometric centroids



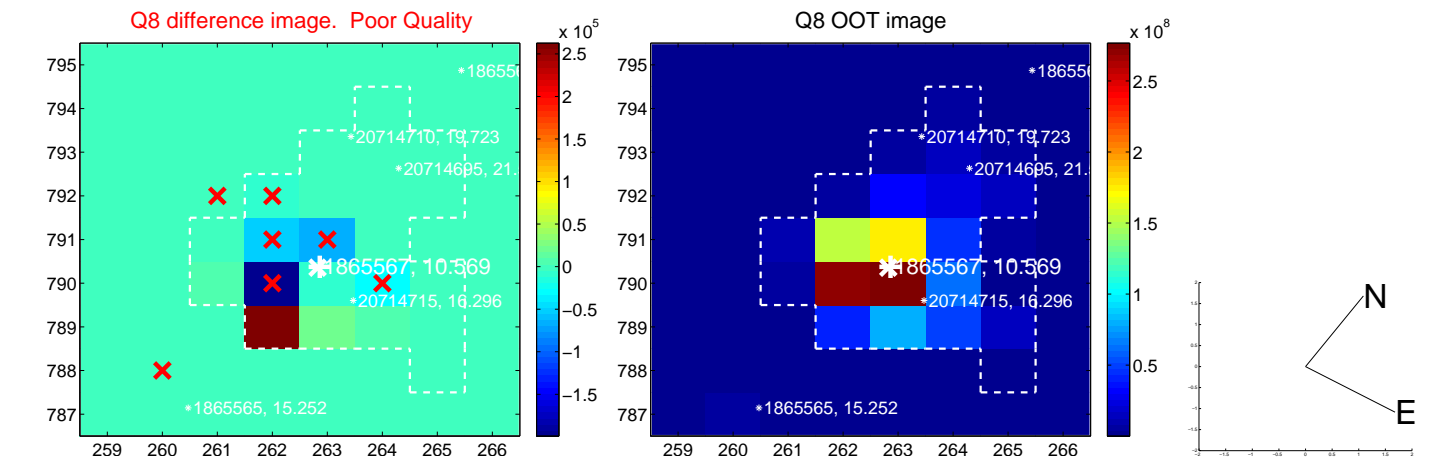
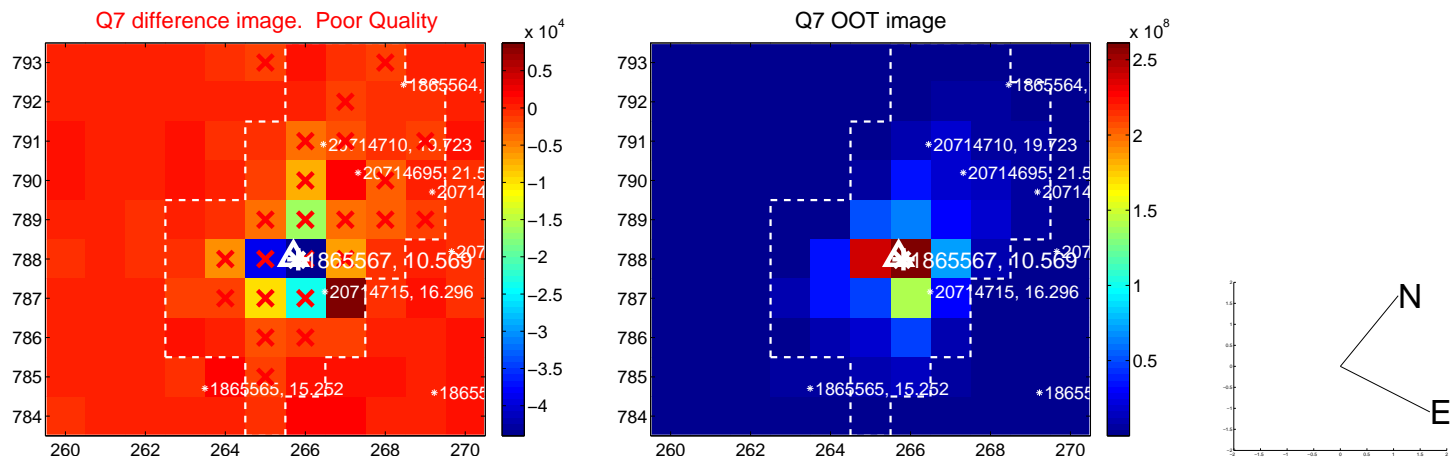
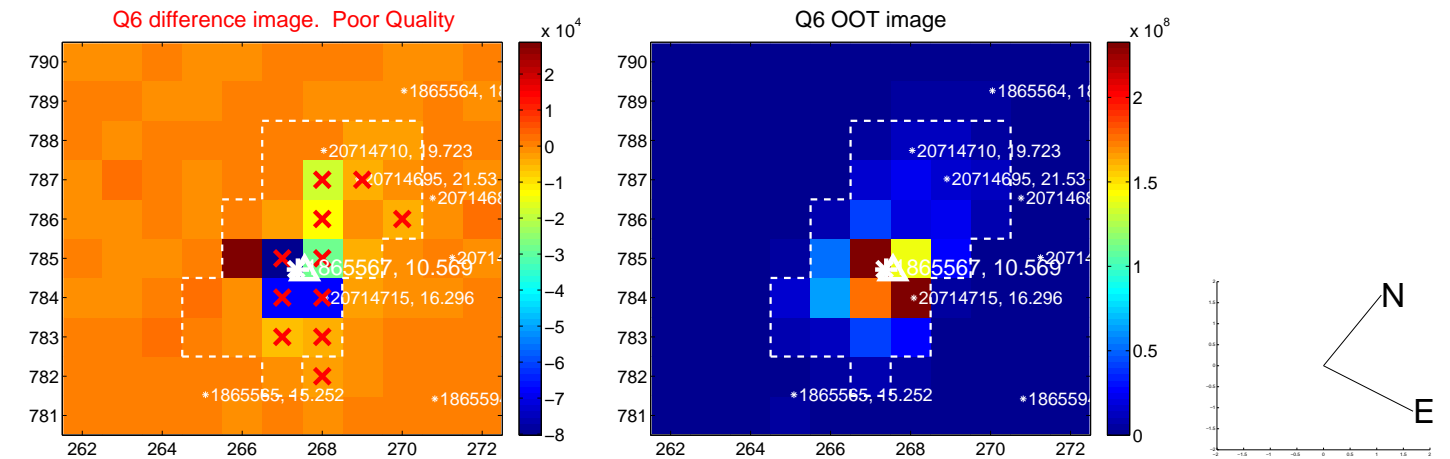
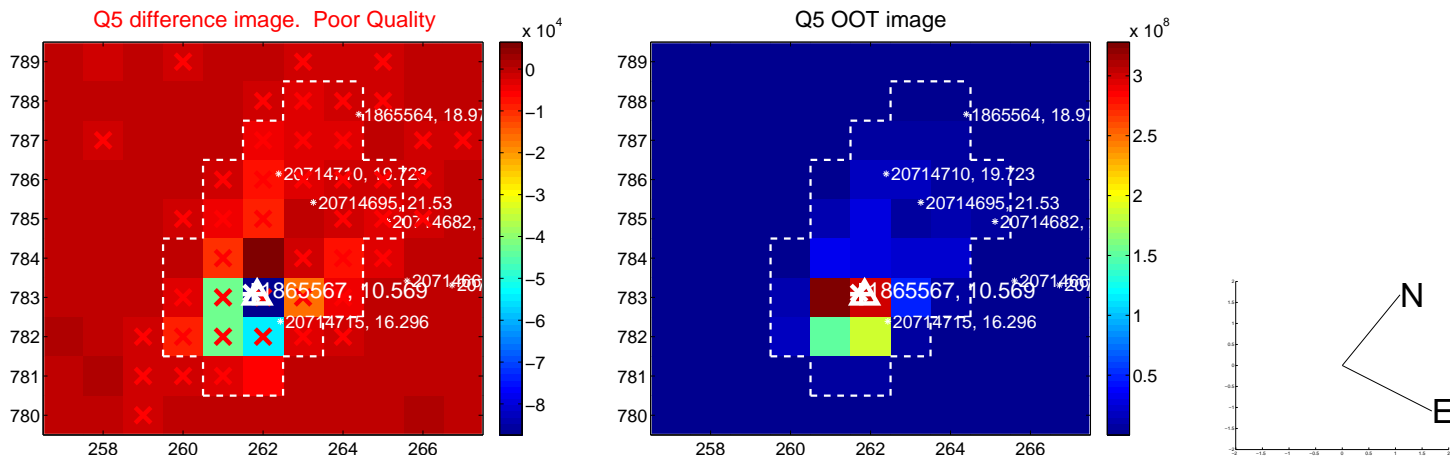
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



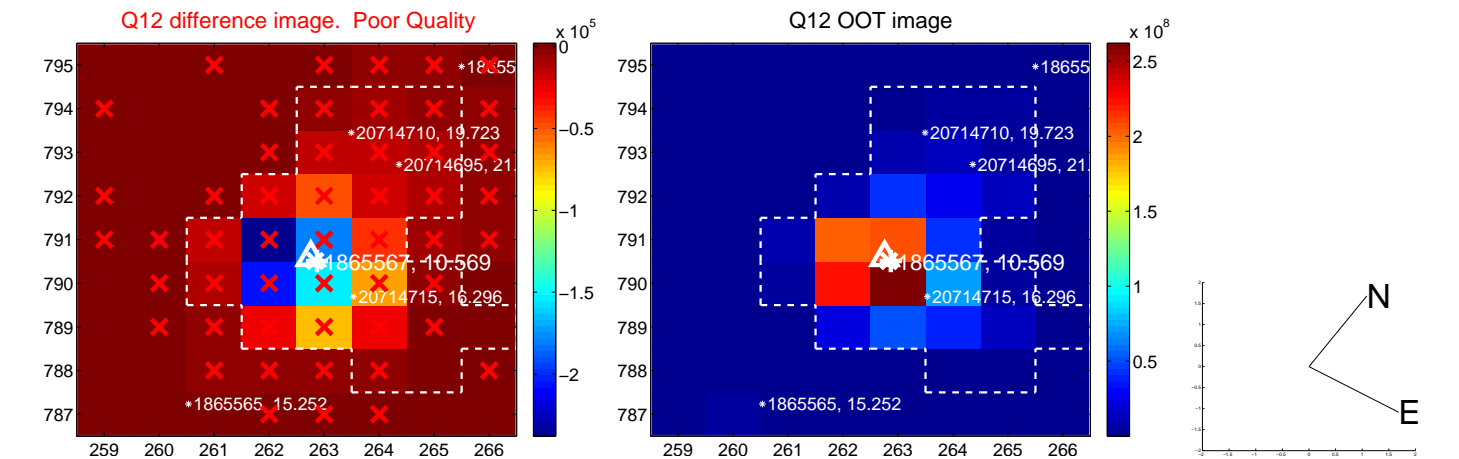
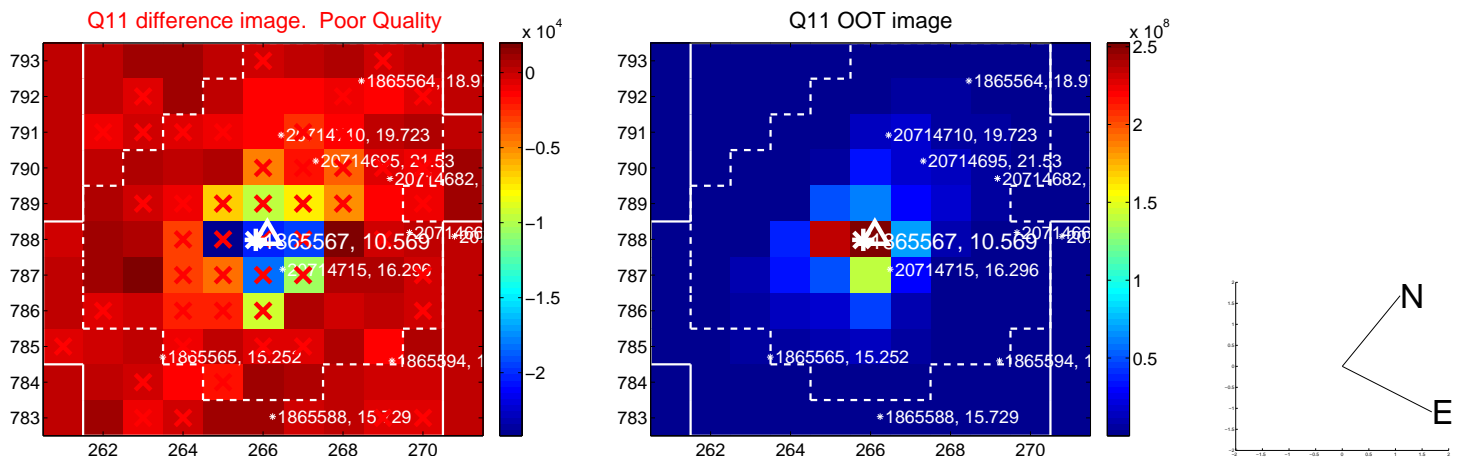
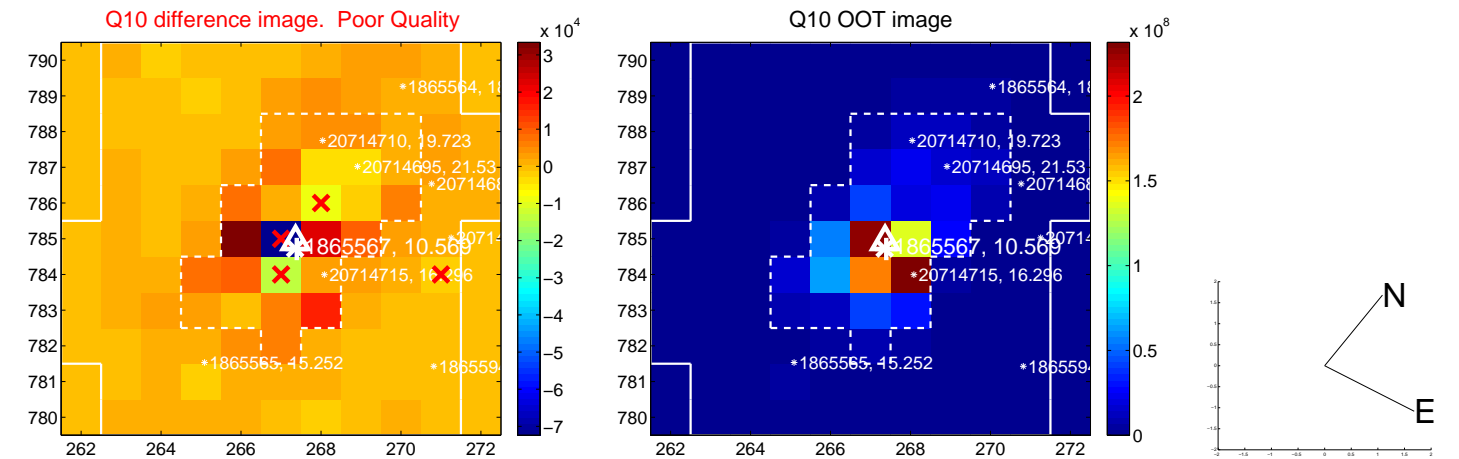
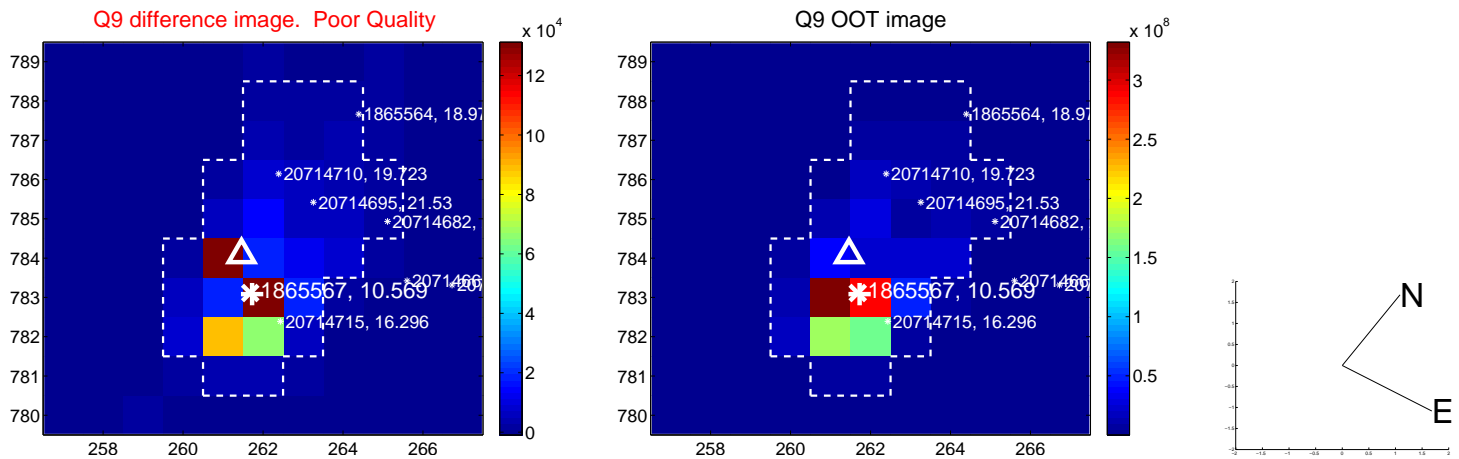
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



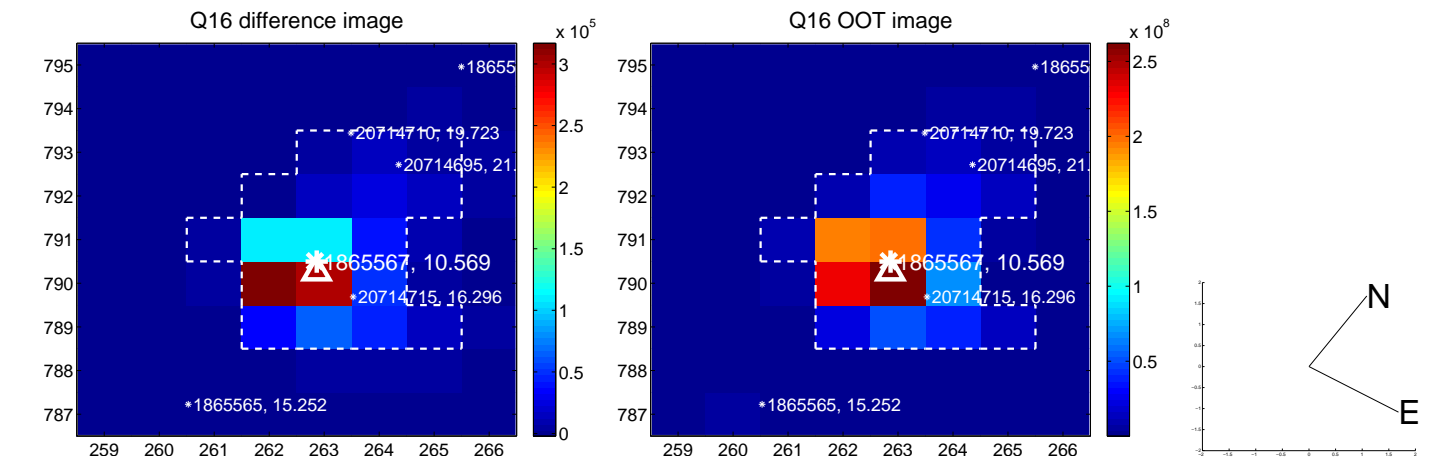
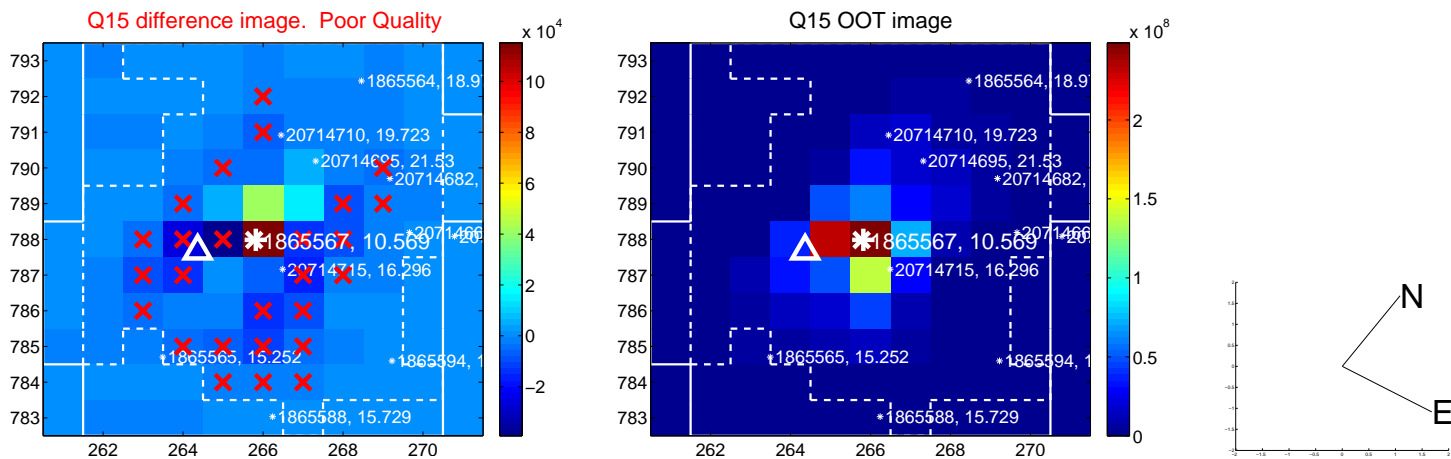
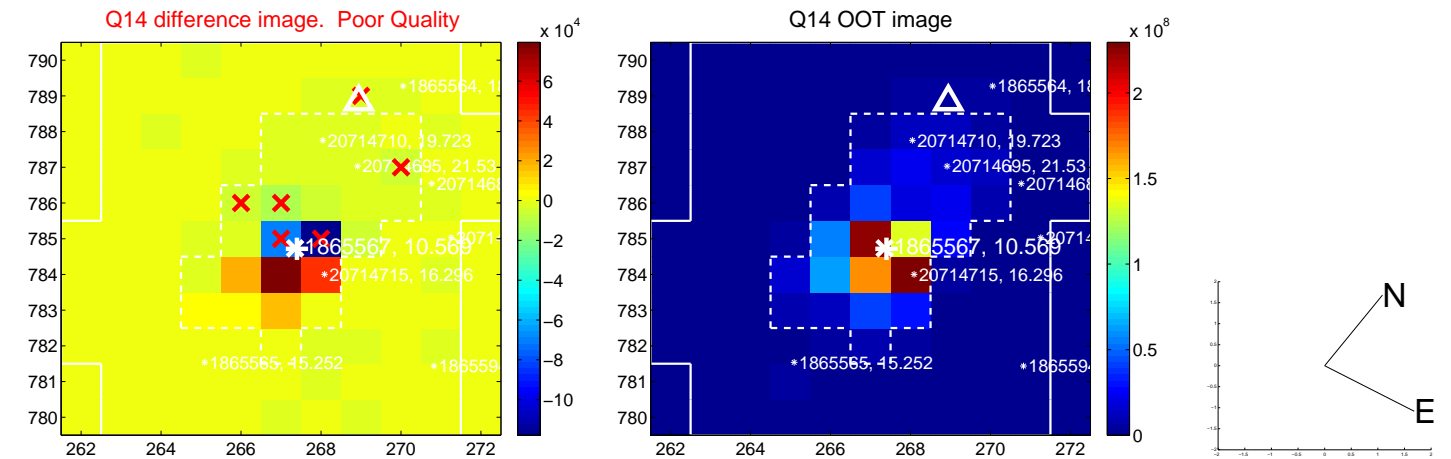
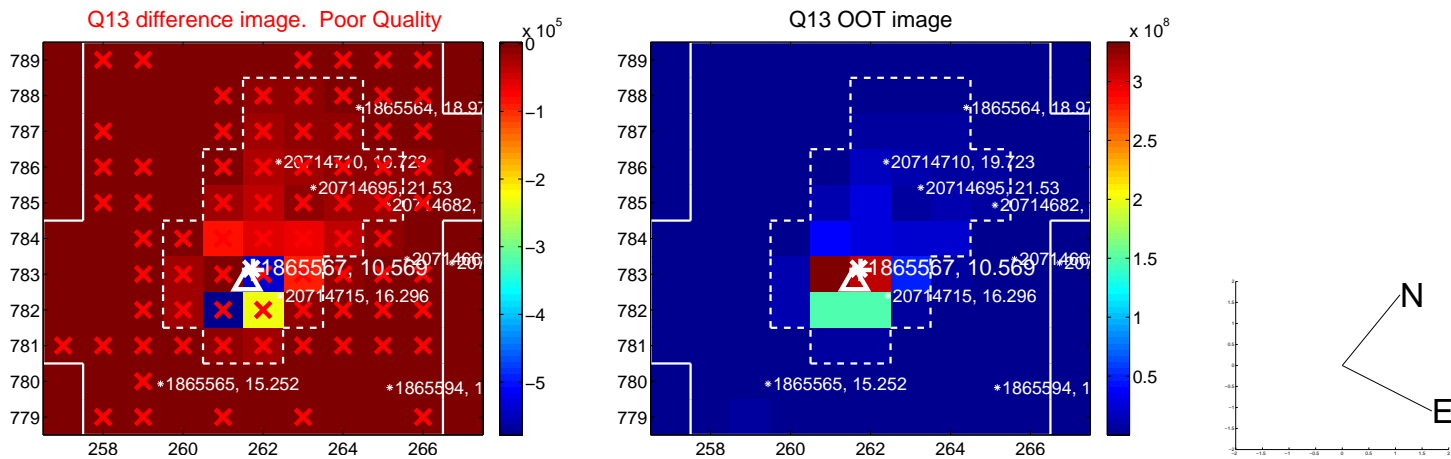
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



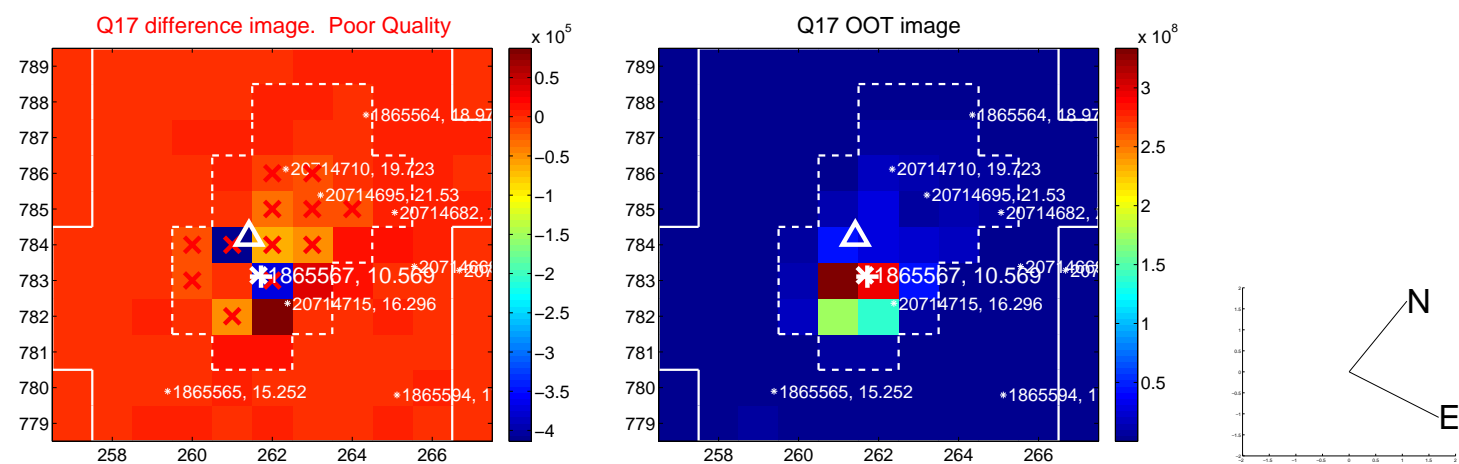
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



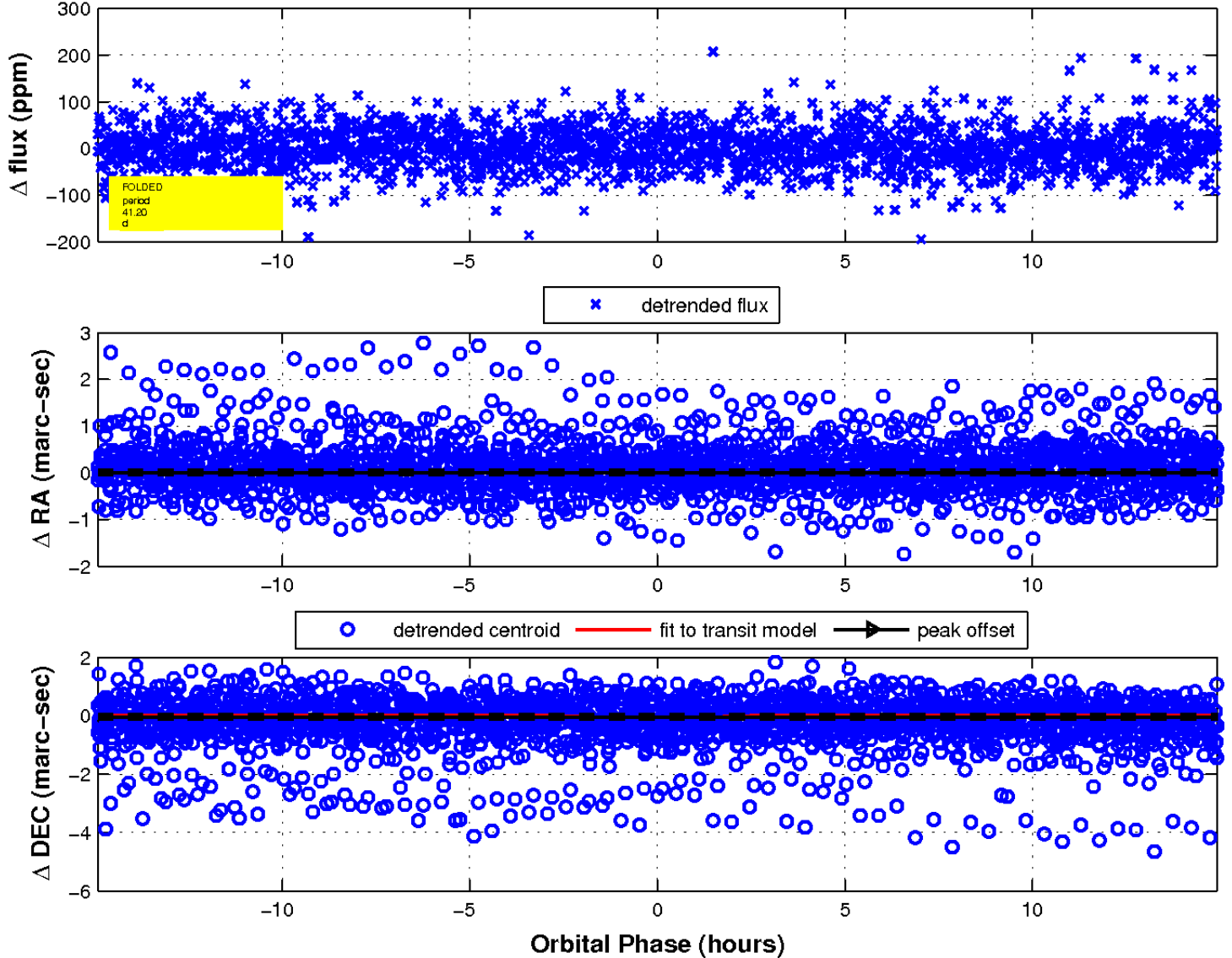
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3





UKIRT Image

