

# KIC 007902035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007902035-01	OBS	No	0.681653	131.970359	81.1	1.511	8.5	10.9	3.29	8770	3.44	134882.98
007902035-02	OBS	No	0.681650	131.817065	102.3	1.115	10.4	12.1	3.29	8770	3.59	134883.82
007902035-03	OBS	No	0.661739	132.103251	51.8	4.011	8.1	7.7	3.29	8770	2.75	140322.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007902035-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
007902035-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007902035-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—CENT_SATURATED—HALO_GHOST

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

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

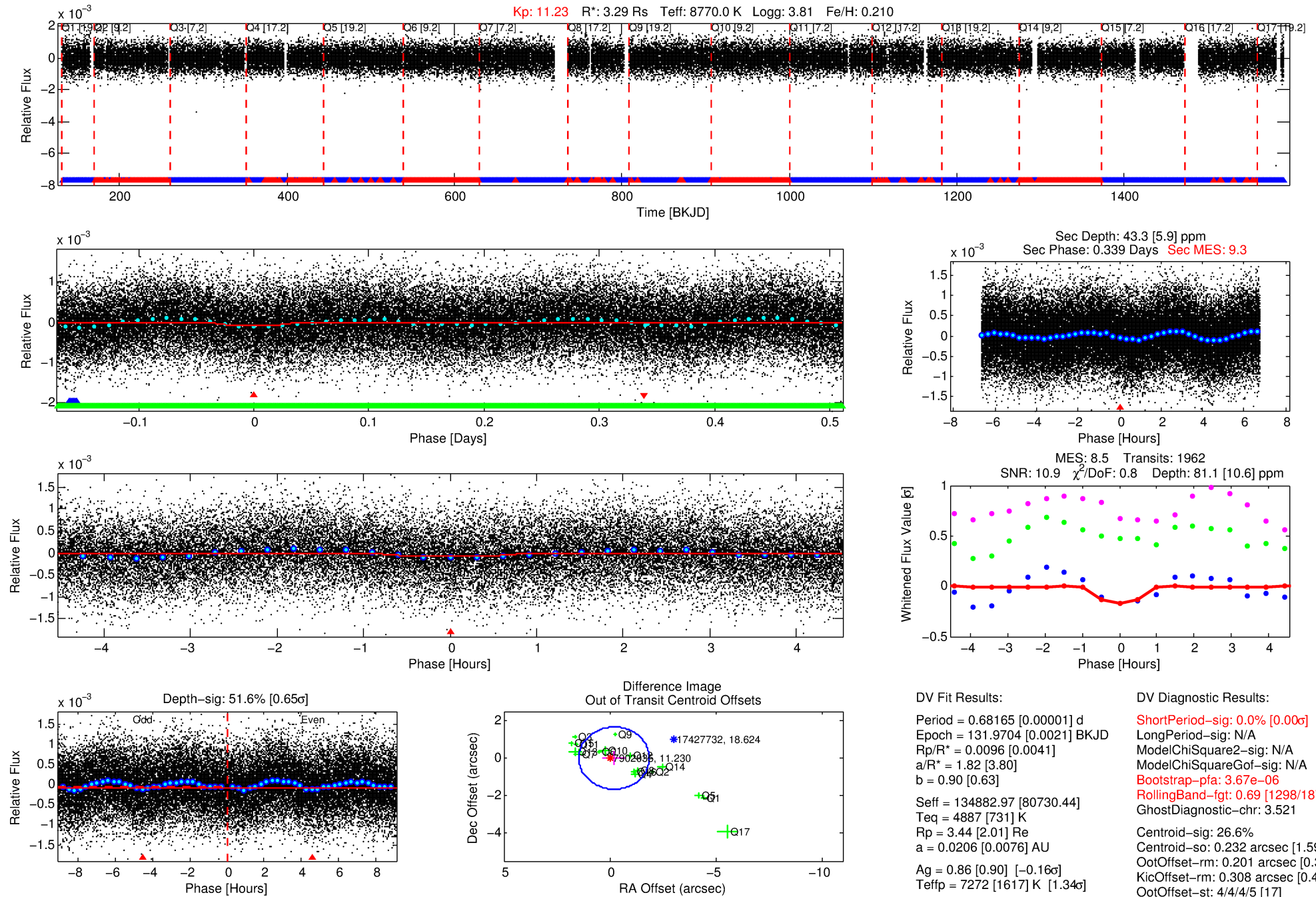
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007902035-01

No Significant Match Found

# DV One-Page Summary

KIC: 7902035 Candidate: 1 of 3 Period: 0.682 d



## DV Fit Results:

Period = 0.68165 [0.00001] d  
Epoch = 131.9704 [0.0021] BKJD  
Rp/R\* = 0.0096 [0.0041]  
a/R\* = 1.82 [3.80]  
b = 0.90 [0.63]  
Seff = 134882.97 [80730.44]  
Teq = 4887 [731] K  
Rp = 3.44 [2.01] Re  
a = 0.0206 [0.0076] AU  
Ag = 0.86 [0.90] [-0.16σ]  
Teffp = 7272 [1617] K [1.34σ]

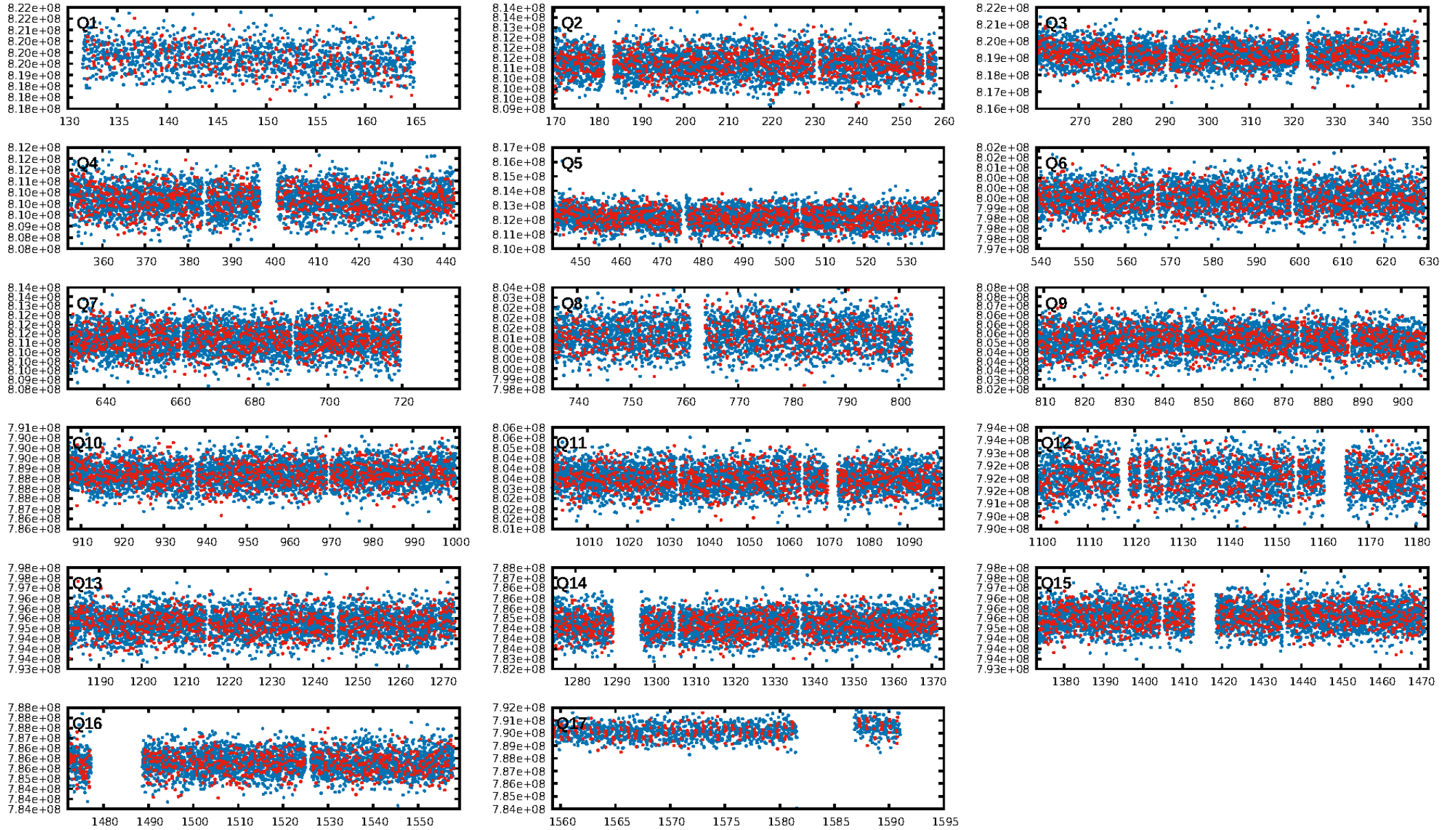
## DV Diagnostic Results:

**ShortPeriod-sig: 0.0% [0.00σ]**  
**LongPeriod-sig: N/A**  
**ModelChiSquare2-sig: N/A**  
**ModelChiSquareGof-sig: N/A**  
**Bootstrap-pfa: 3.67e-06**  
**RollingBand-fgt: 0.69 [1298/1874]**  
**GhostDiagnostic-chr: 3.521**  
Centroid-sig: 26.6%  
Centroid-so: 0.232 arcsec [1.59σ]  
OotOffset-rm: 0.201 arcsec [0.36σ]  
KicOffset-rm: 0.308 arcsec [0.46σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.76 [13/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:33:39 Z

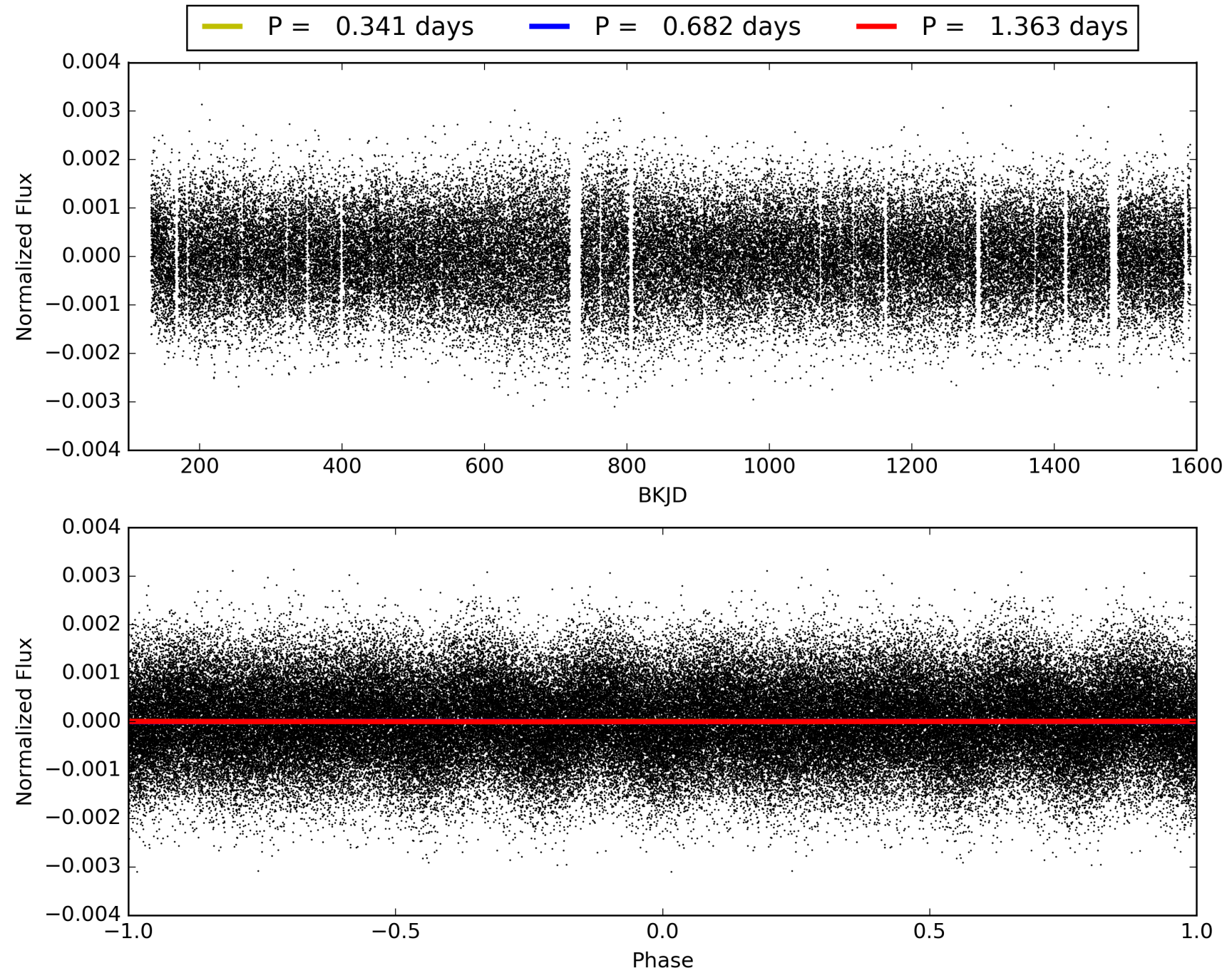
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007902035-01, PDC Light Curves





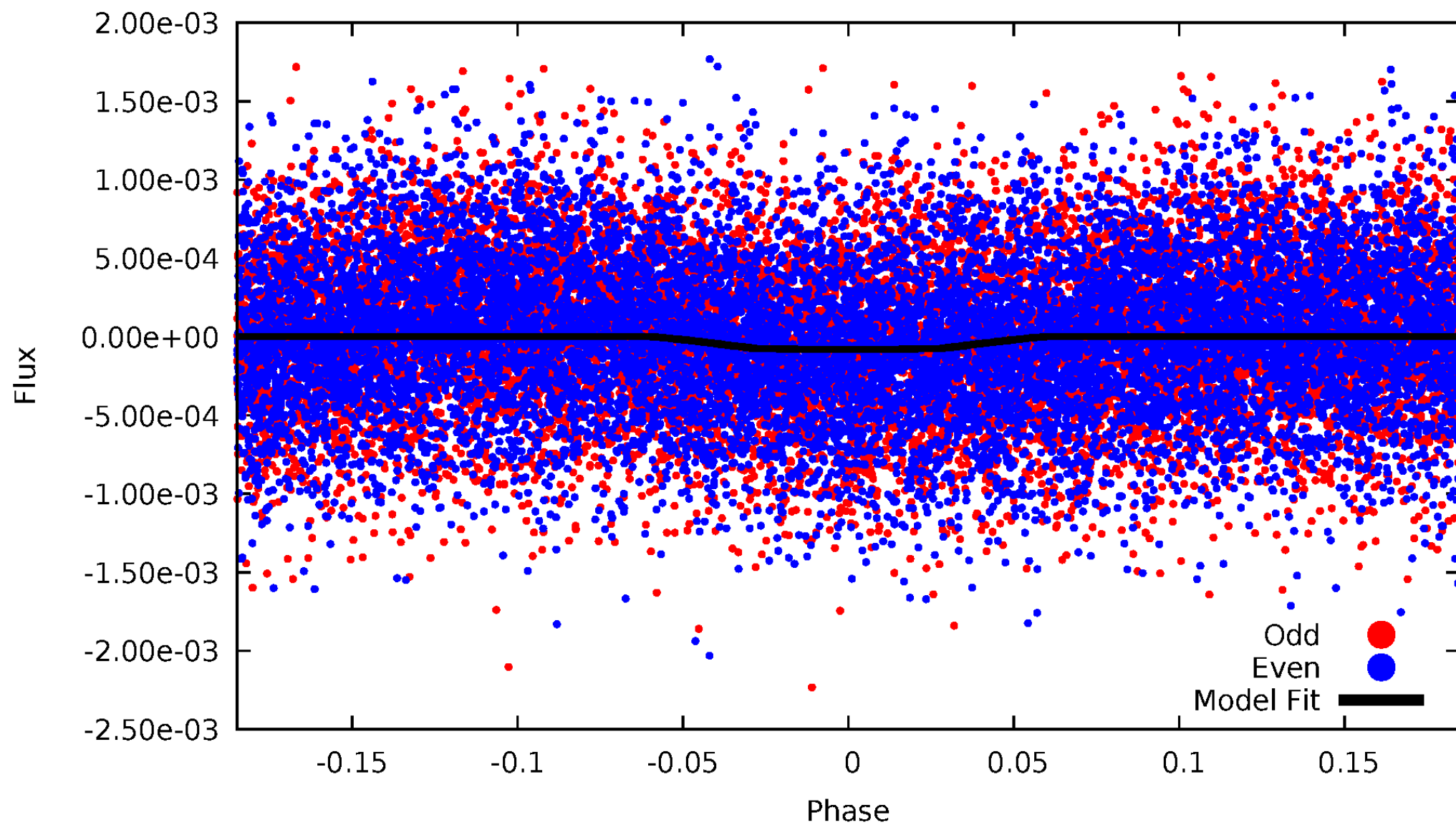
TCE 007902035-01





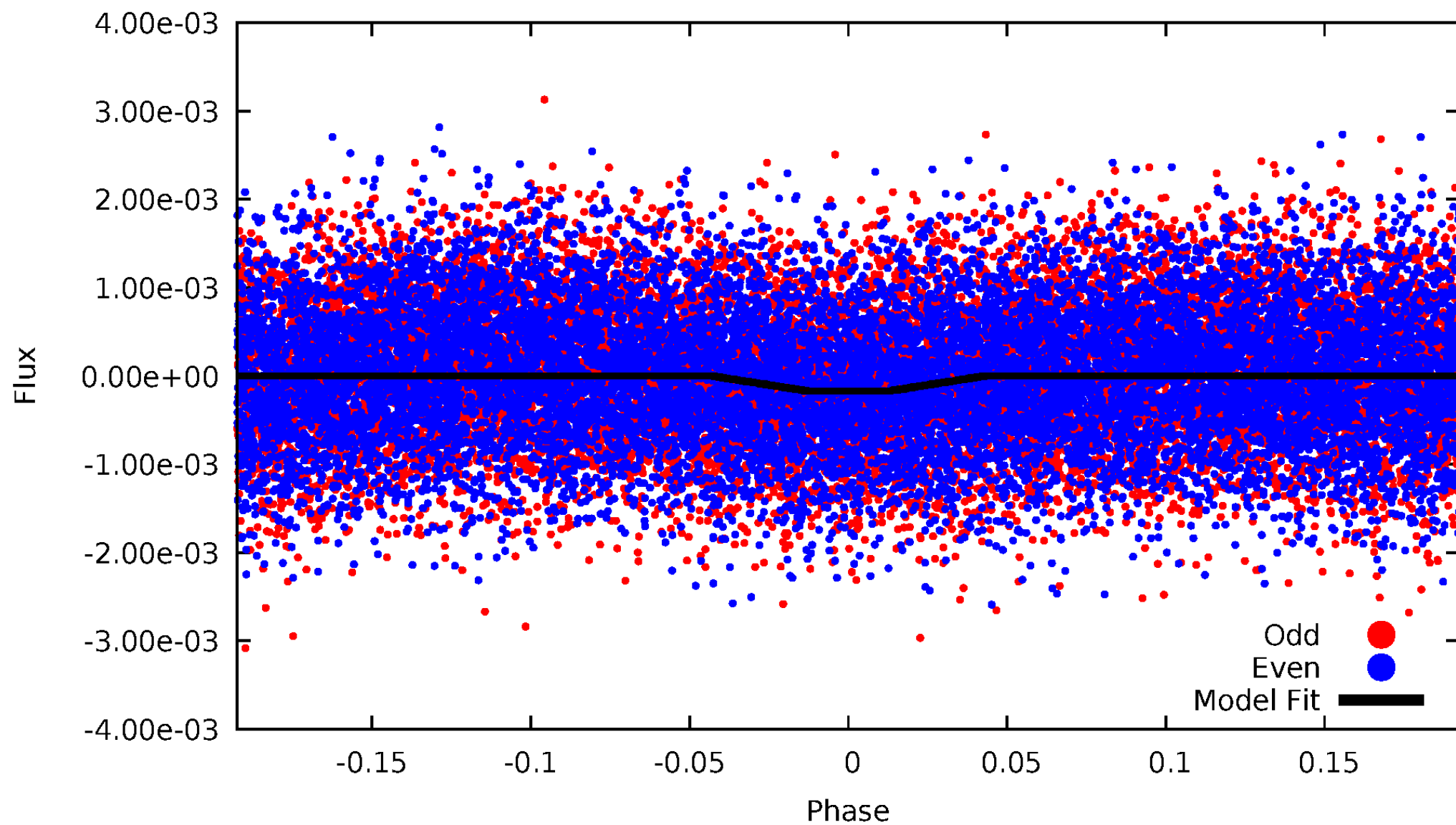
# DV Odd/Even

TCE 007902035-01



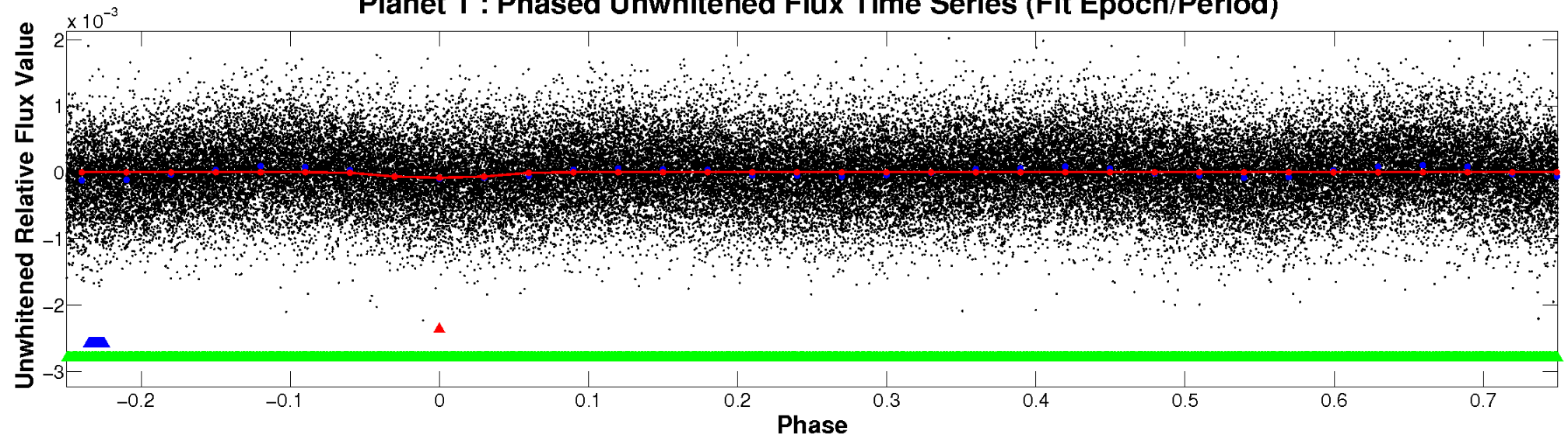
# ALT Odd/Even

TCE 007902035-01

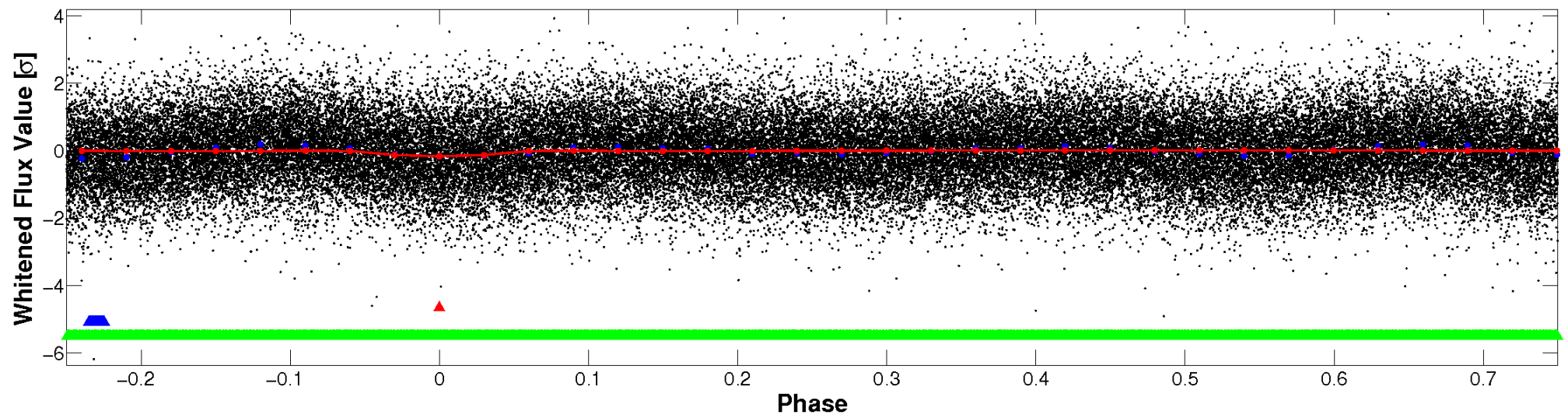


# Non-Whitened Vs. Whitened Light Curve

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



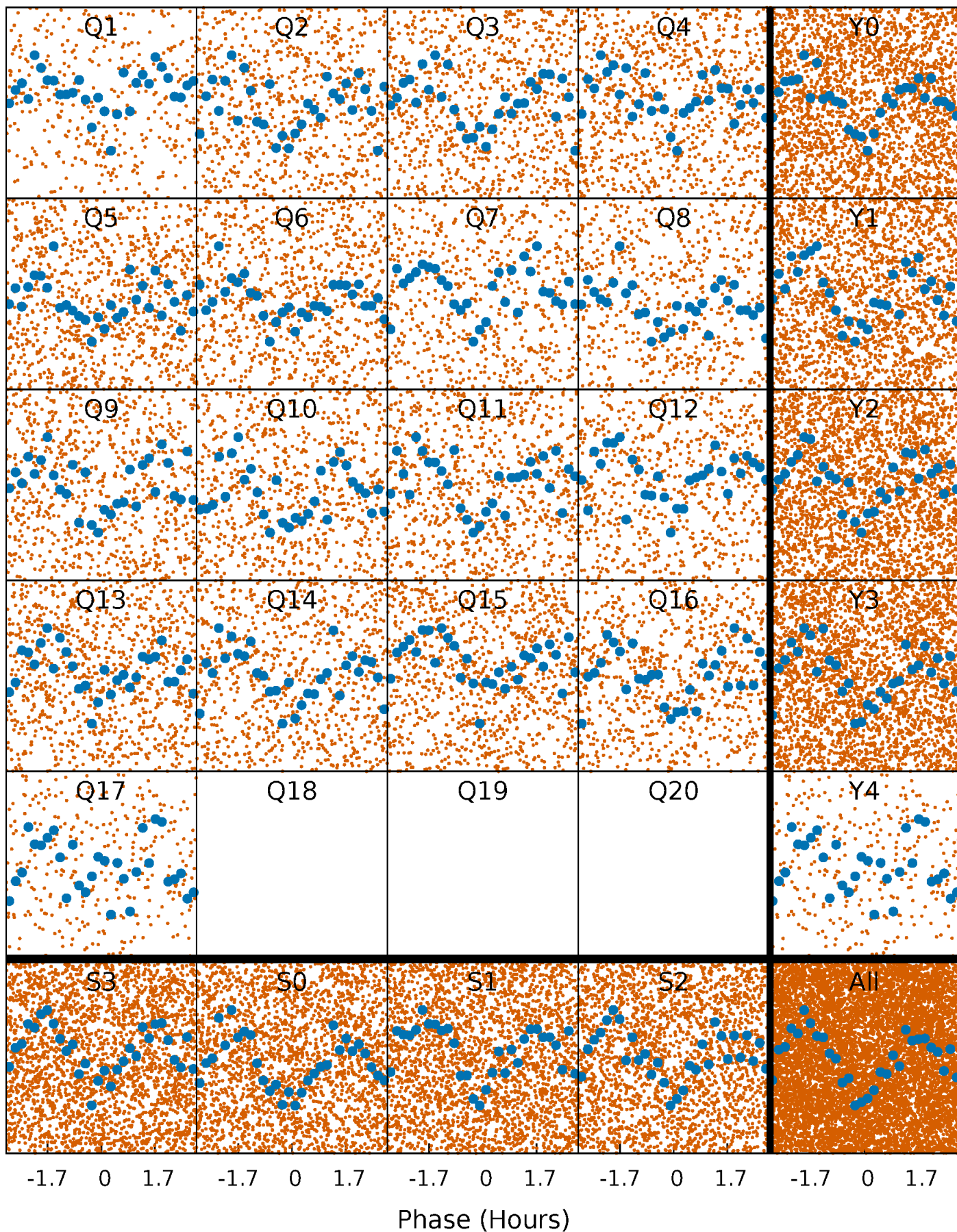
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





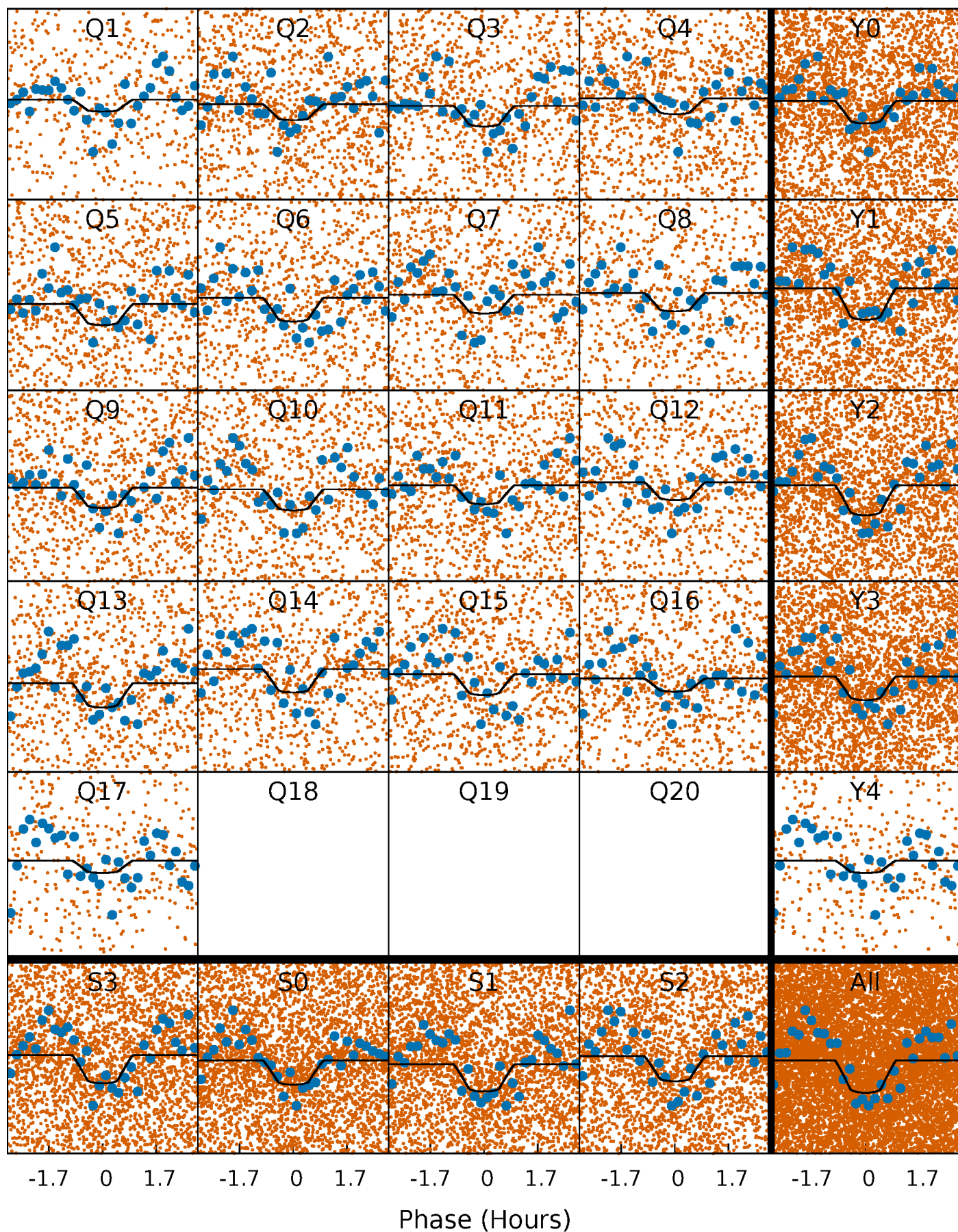
# PDC Quarter-Phased Transit Curves

TCE 007902035-01 P= 0.681653 Days  $T_0=131.970359$  (BKJD)



# DV Quarter-Phased Transit Curves

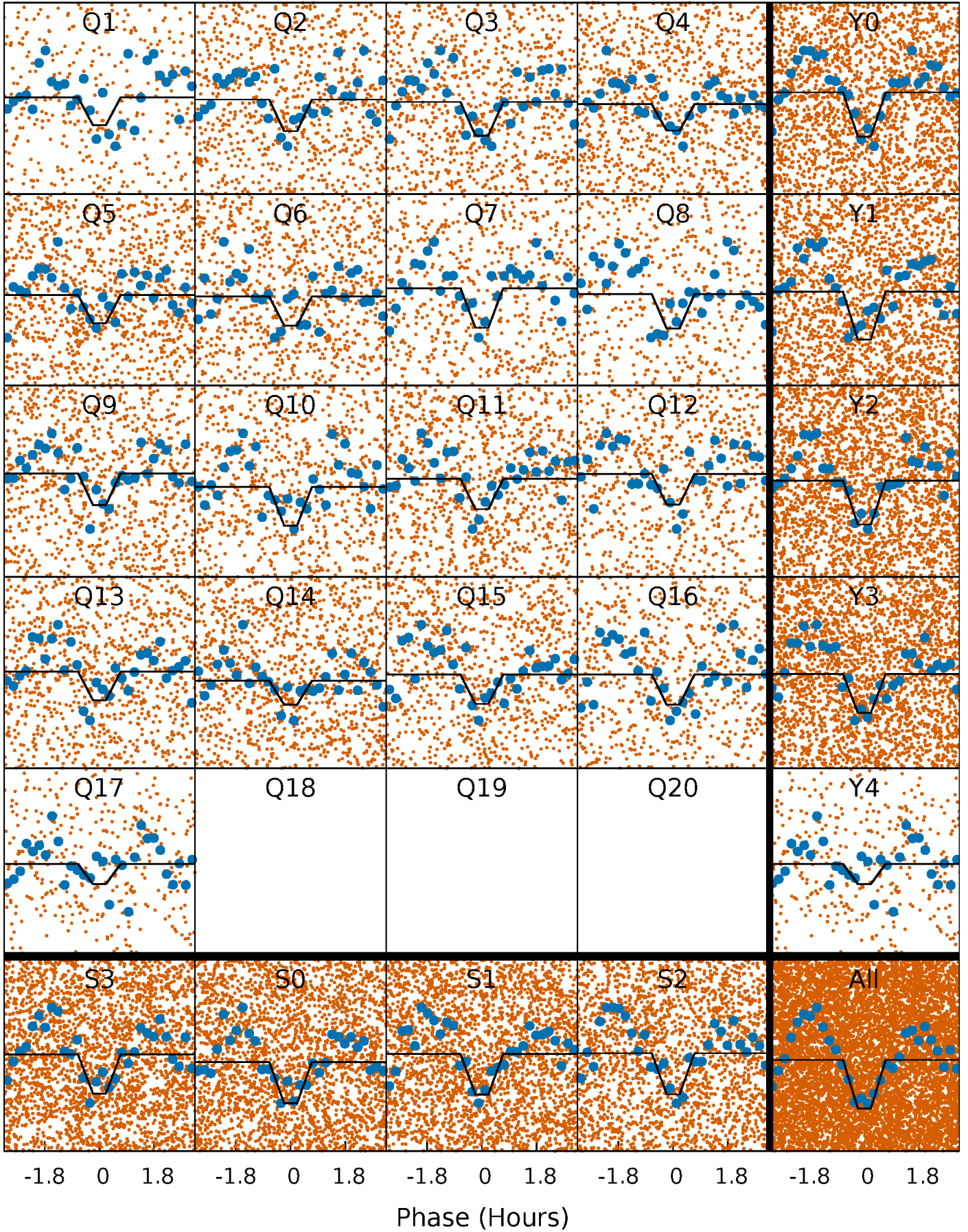
TCE 007902035-01 P= 0.681653 Days  $T_0=131.970359$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 007902035-01 P= 0.681656 Days  $T_0=131.962680$  (BKJD)

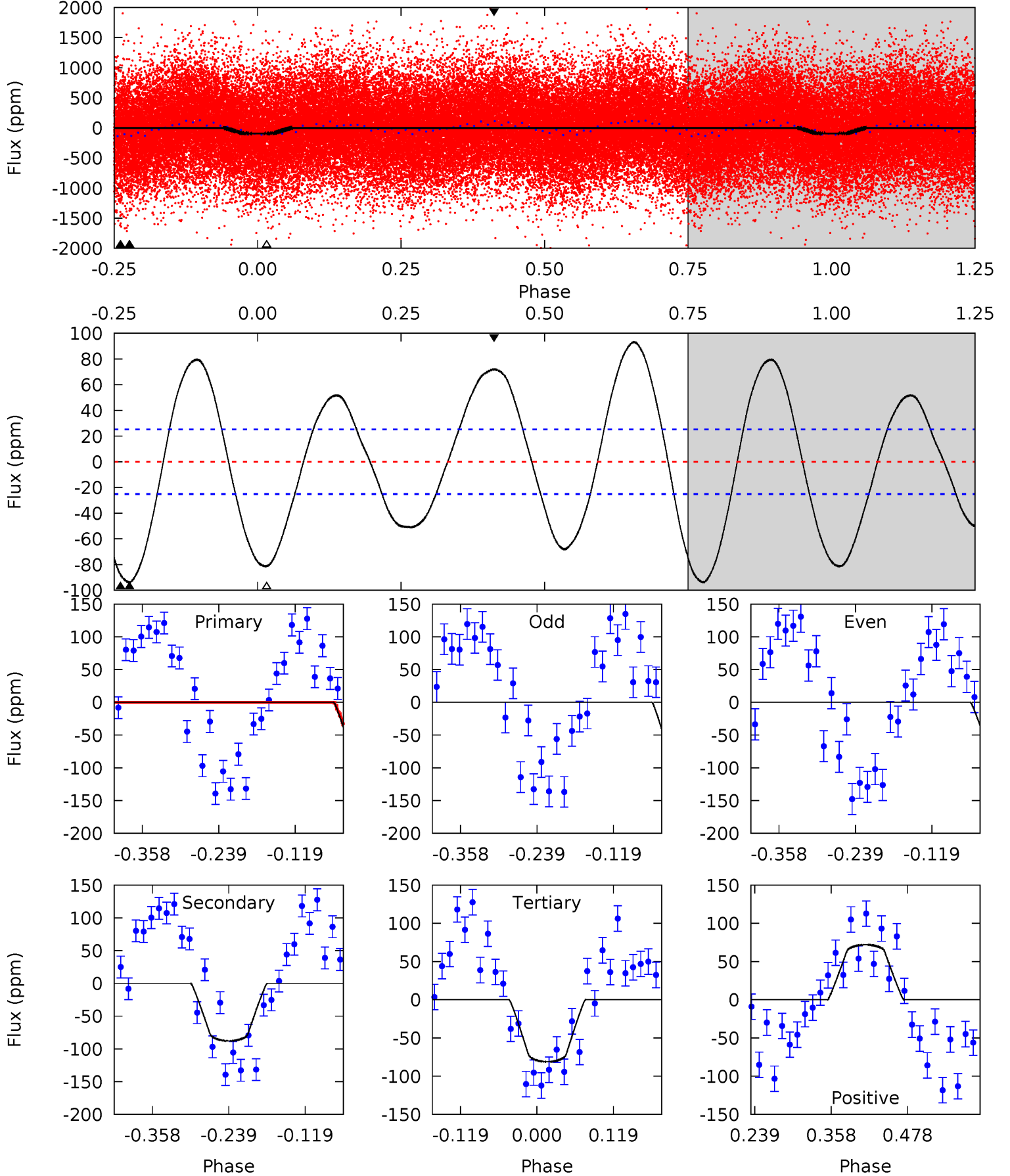




# DV Model-Shift Uniqueness Test

007902035-01, P = 0.681653 Days, E = 131.288706 Days

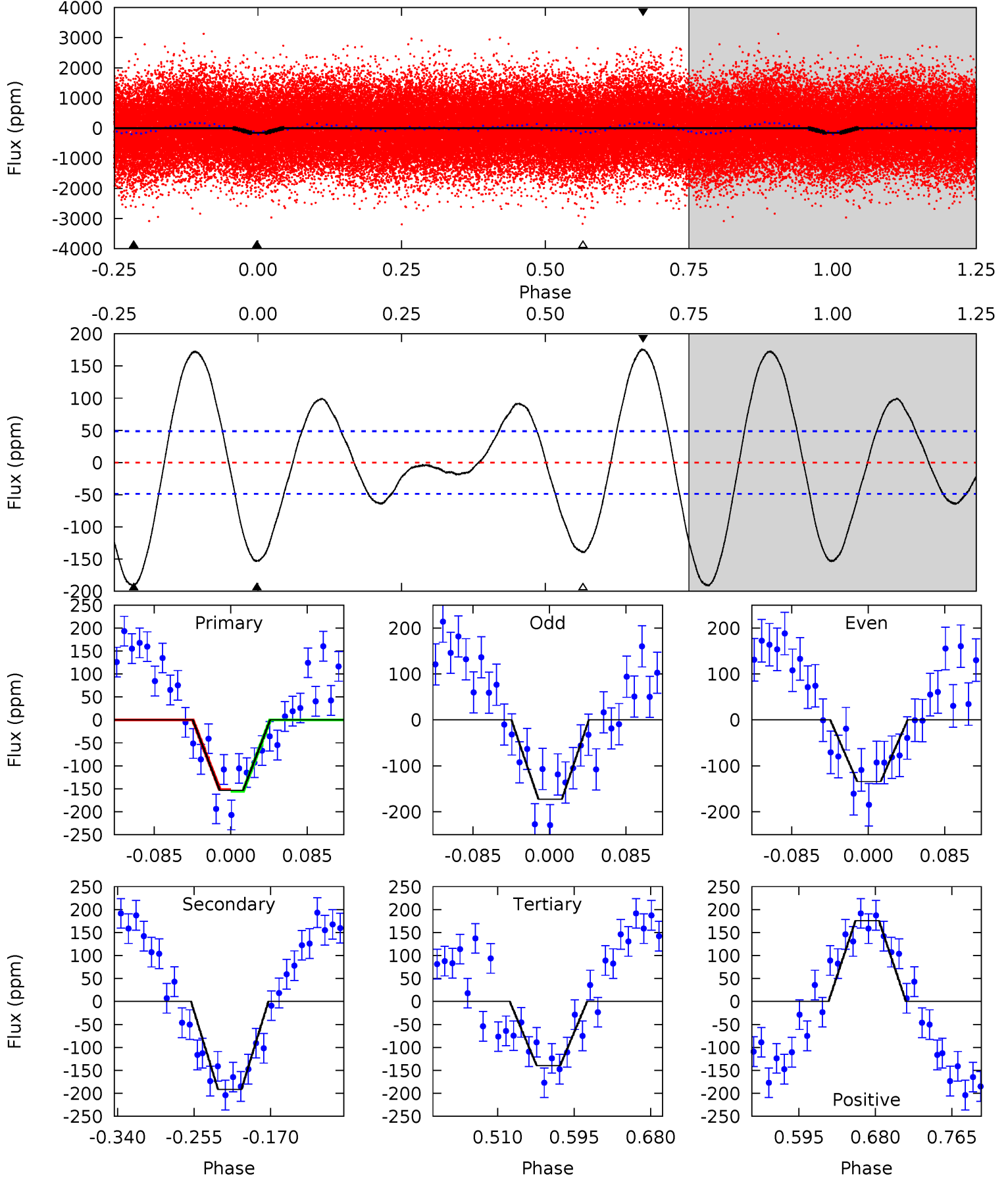
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	15.8	14.6	13.0	4.53	1.56	8.87	2.26	3.93	1.19	2.86	1.25	1.02	0.50	2.20



# Alt Model-Shift Uniqueness Test

007902035-01, P = 0.681656 Days, E = 131.281024 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
14.5	18.1	13.2	16.6	4.60	1.72	7.75	1.30	-2.13	4.88	1.45	1.81	0.97	0.48	0.18



### Stellar Parameters For KIC 007902035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8770^{+278}_{-383}$	$3.805^{+0.331}_{-0.178}$	$0.210^{+0.150}_{-0.550}$	$3.294^{+1.066}_{-1.303}$	$2.524^{+0.314}_{-0.680}$	$0.099^{+0.230}_{-0.051}$
	+3%/-4%	+9%/-5%	+71%/-262%	+32%/-40%	+12%/-27%	+231%/-51%
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 007902035-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-88 \pm 6$	$3.22^{+1.60}_{-1.41}$	$6677^{+621}_{-728}$	$8089^{+4369}_{-1839}$	$1.961^{+3.932}_{-1.118}$
Alt.	$-191 \pm 11$	$4.29^{+1.84}_{-1.48}$	$6746^{+589}_{-696}$	$8826^{+3101}_{-1797}$	$2.333^{+3.274}_{-1.145}$

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



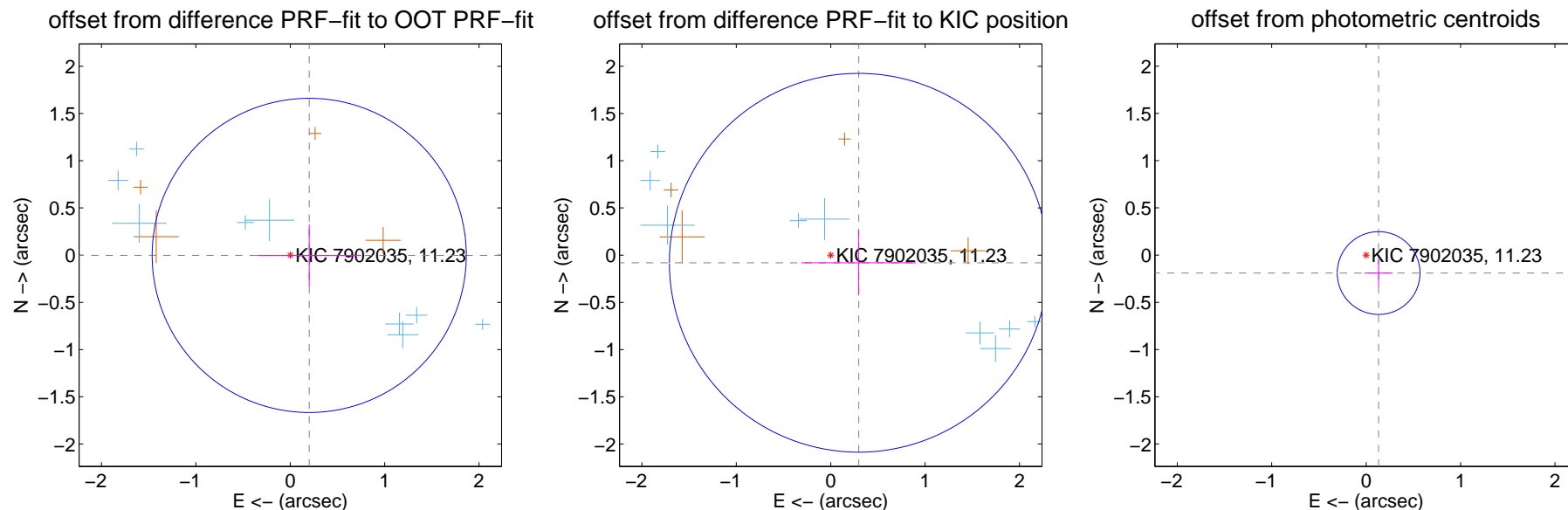
## DV Centroid Data

Supplemental centroid analysis for 007902035-01. **Kepler magnitude: 11.23.** Transit SNR 10.90

There are 13 quarters with good PRF difference image offsets

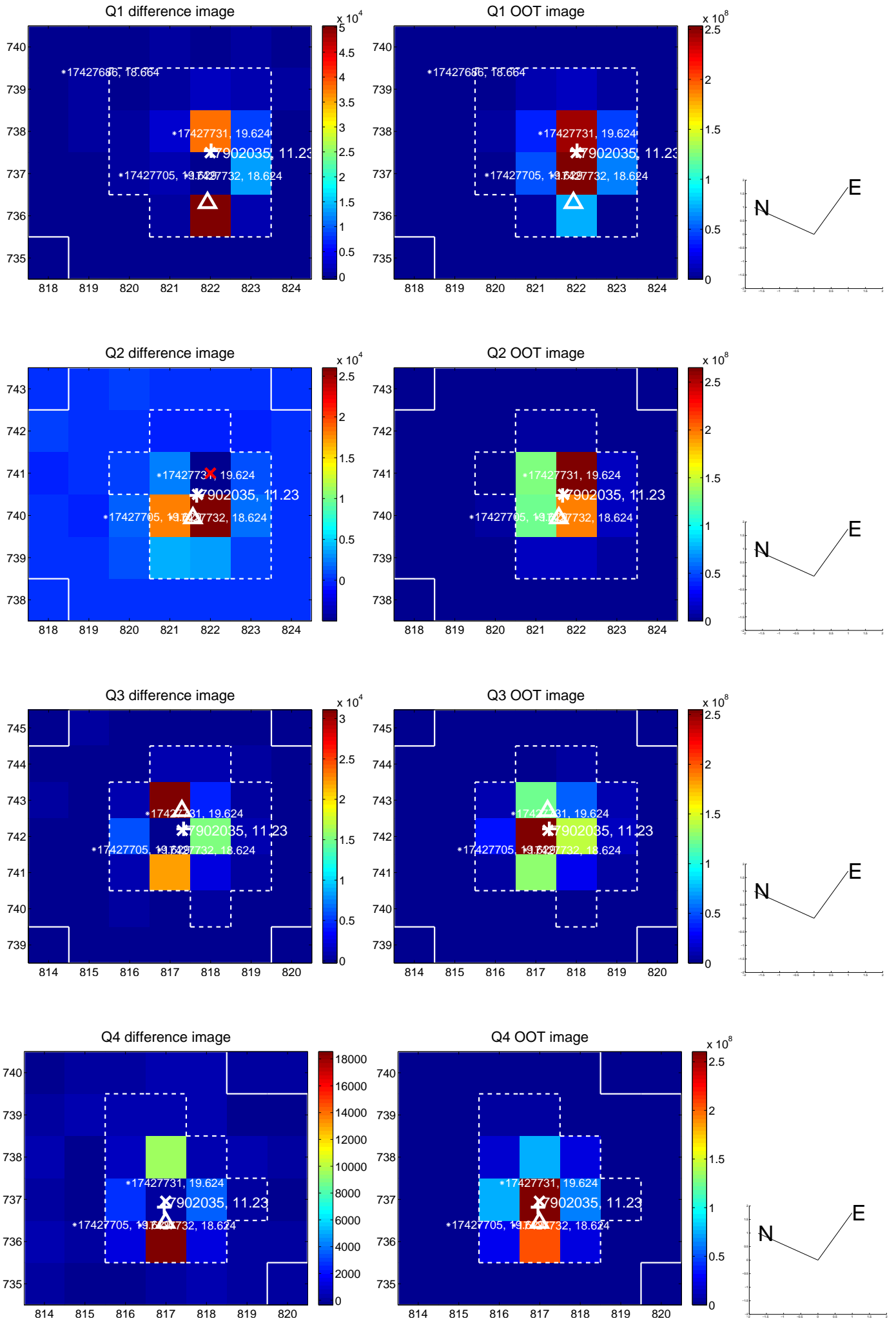
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.201 \pm 0.555$	0.36	$-0.201 \pm 0.551$	$-0.003 \pm 0.328$
PRF-fit source offset from KIC position	$0.308 \pm 0.669$	0.46	$-0.297 \pm 0.608$	$-0.081 \pm 0.347$
photometric centroid source offset	$0.23 \pm 0.15$	1.59	$-0.13 \pm 0.15$	$-0.19 \pm 0.14$

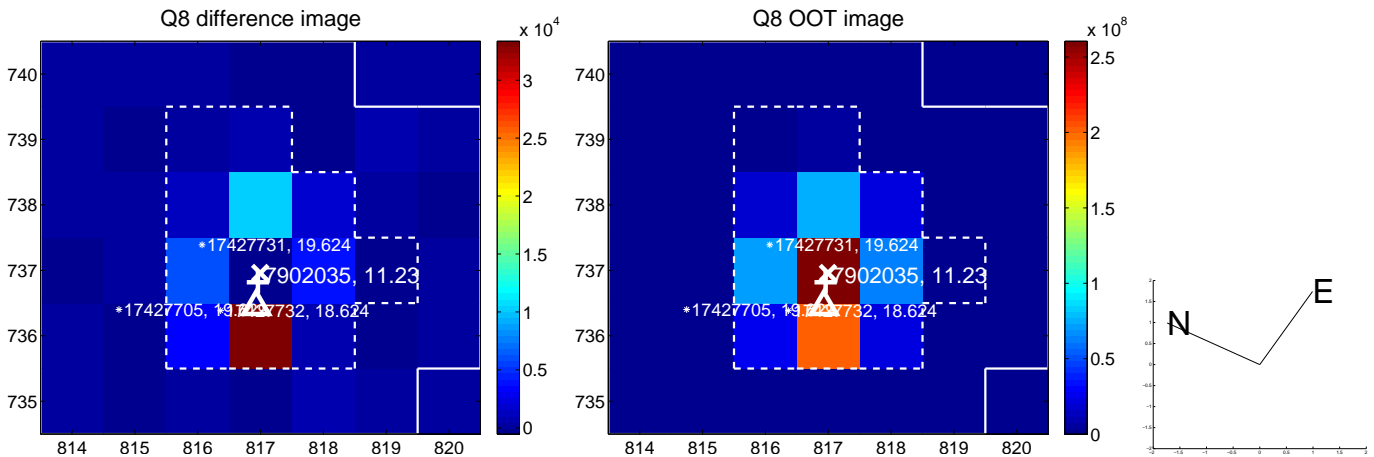
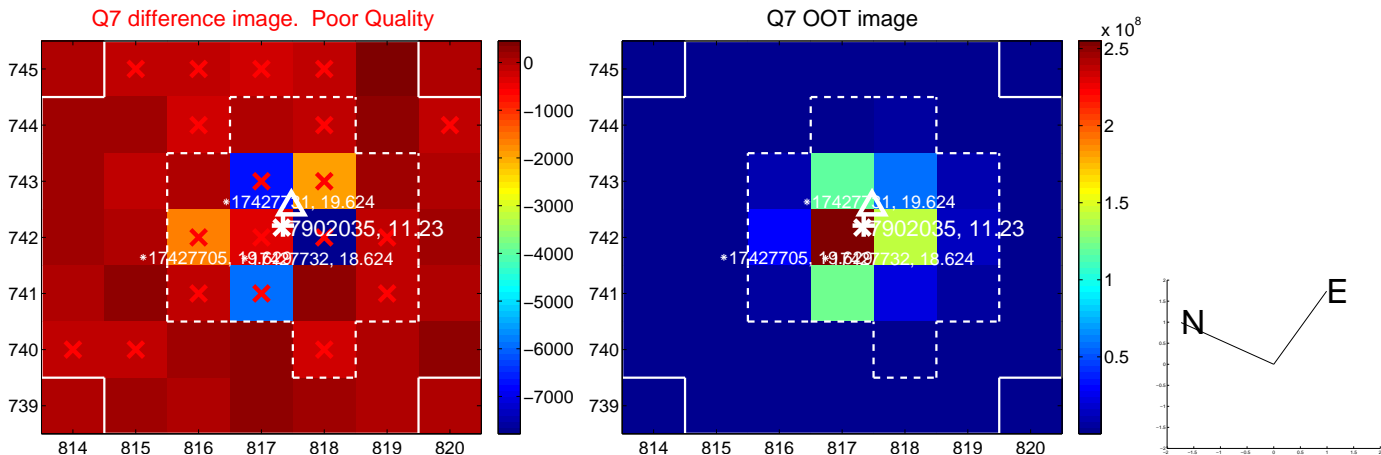
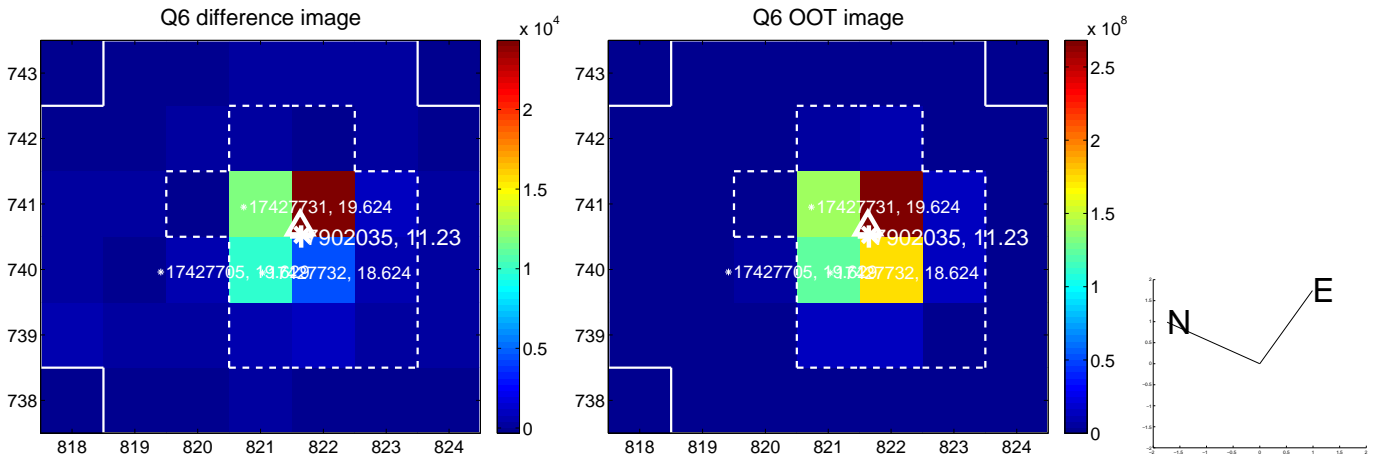
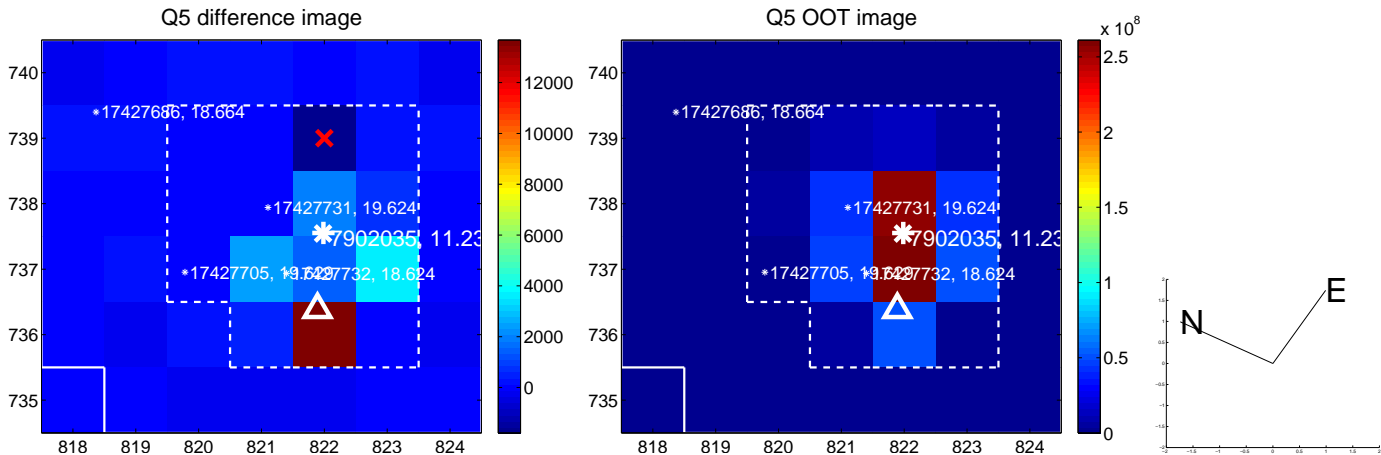


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

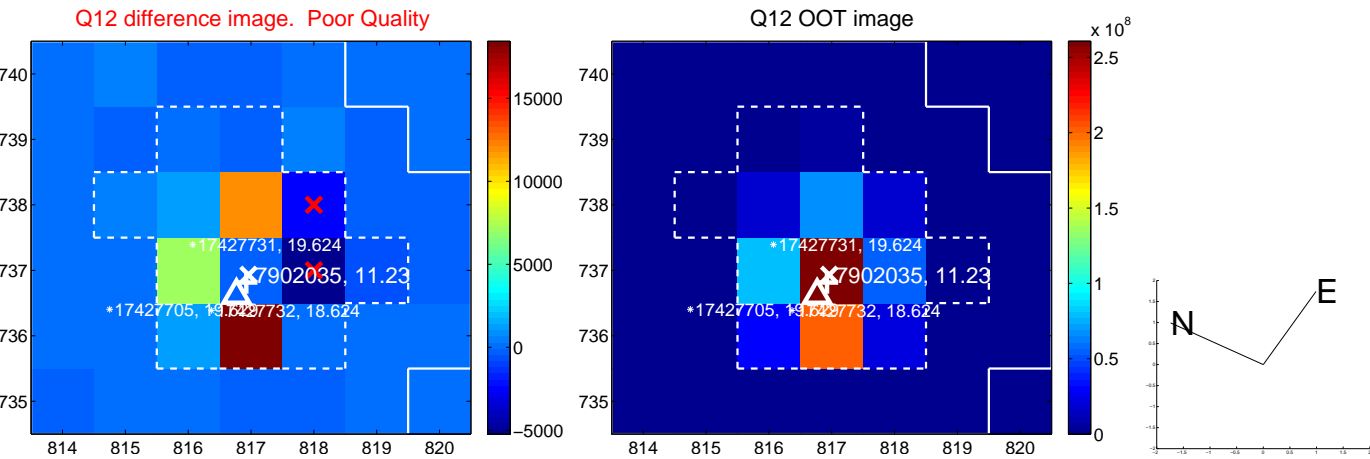
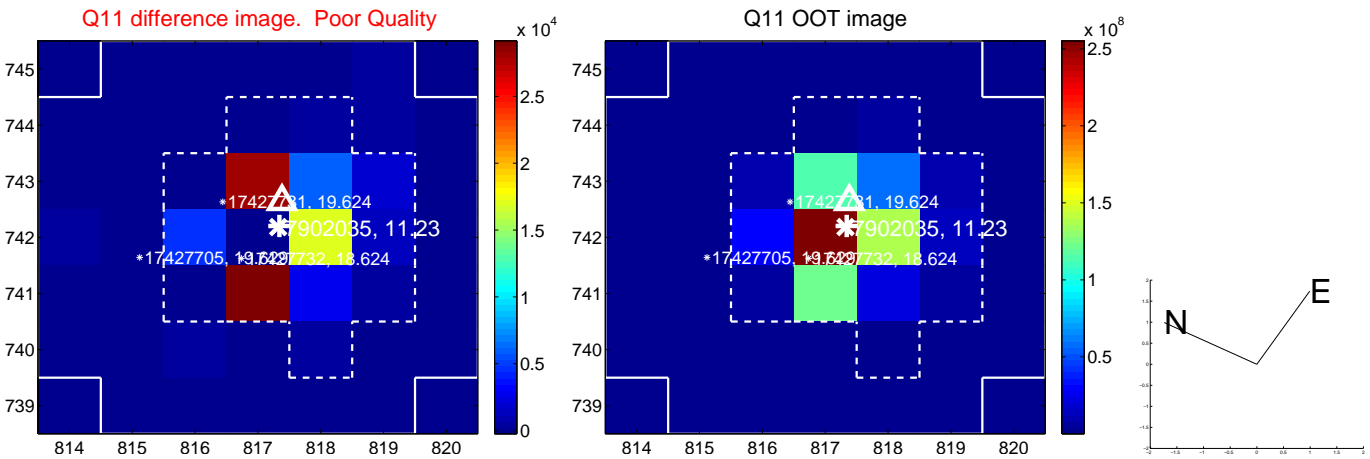
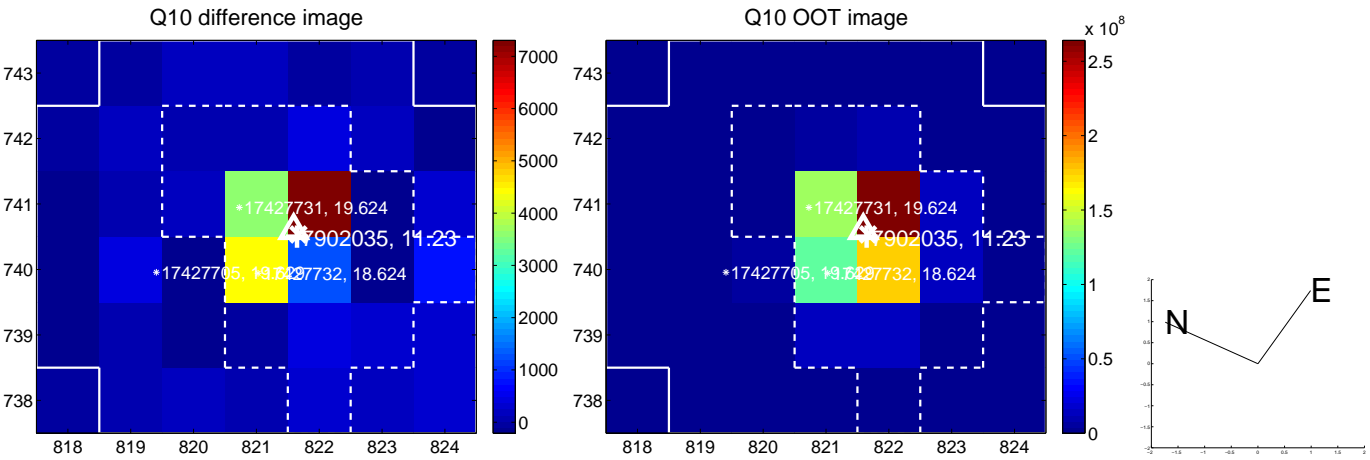
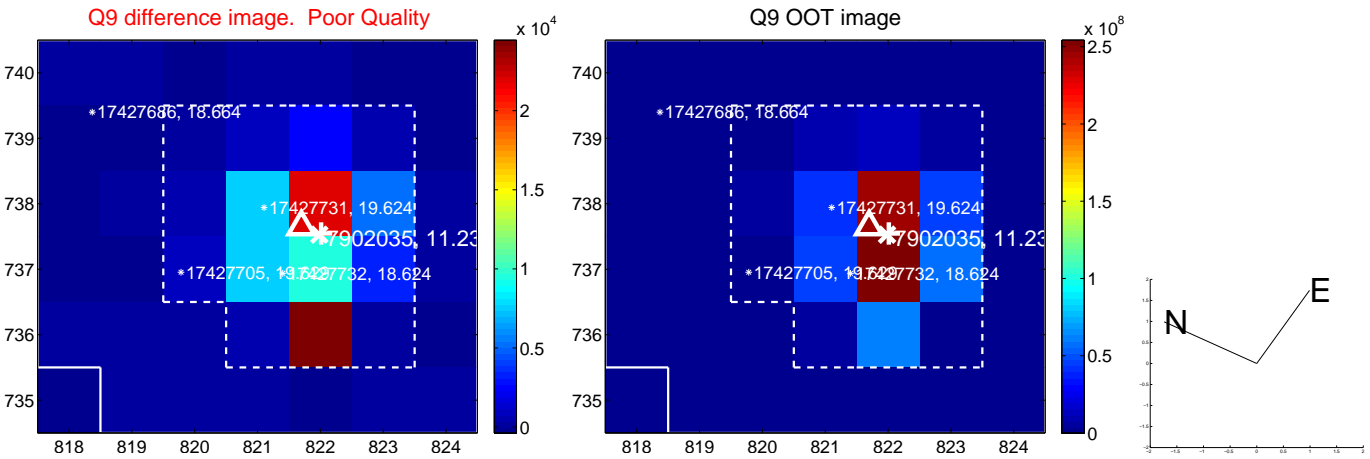


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

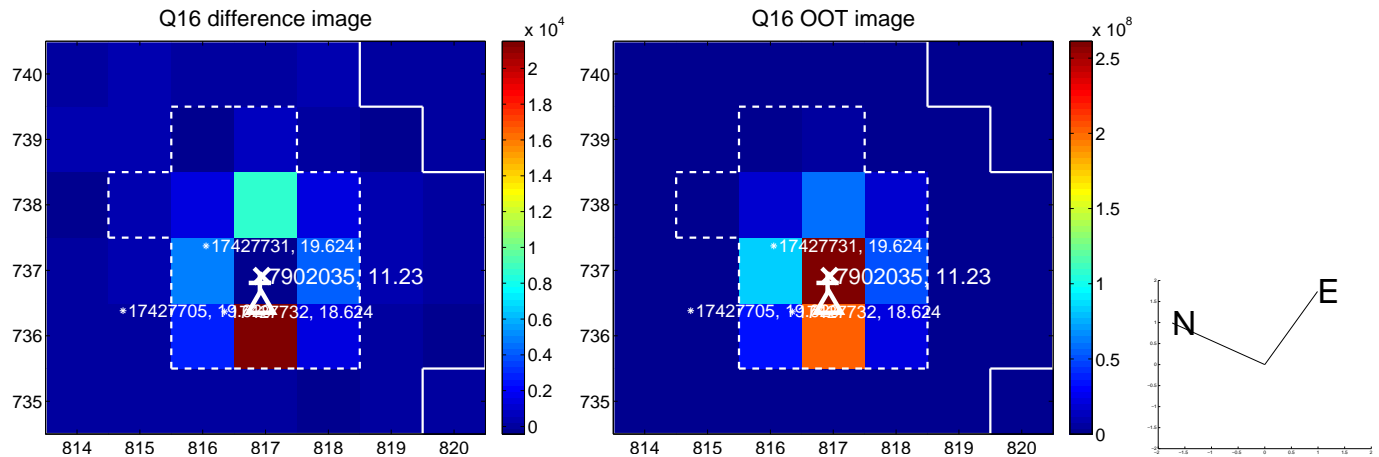
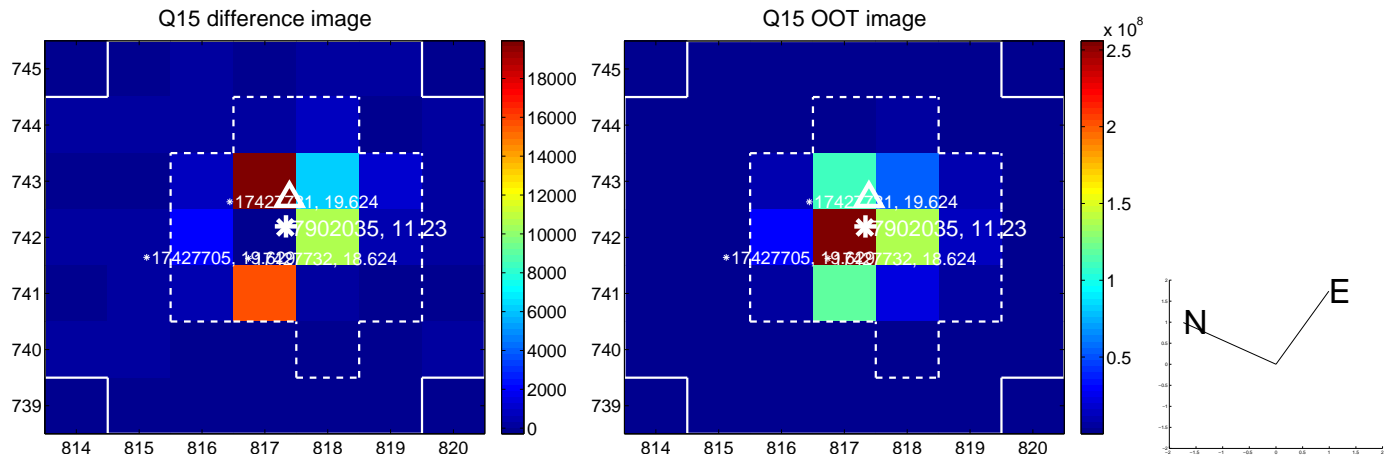
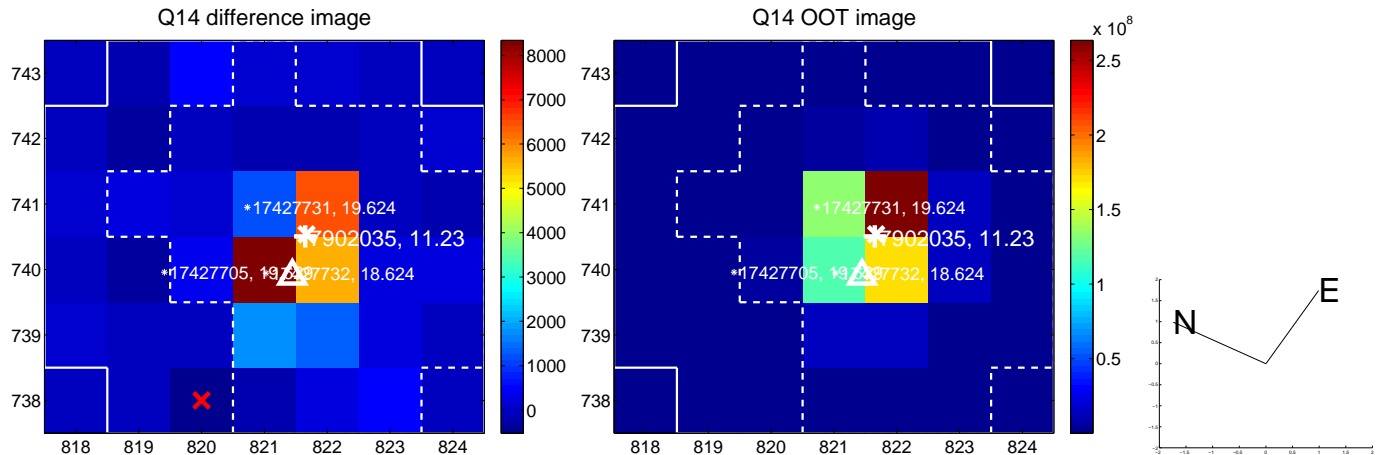
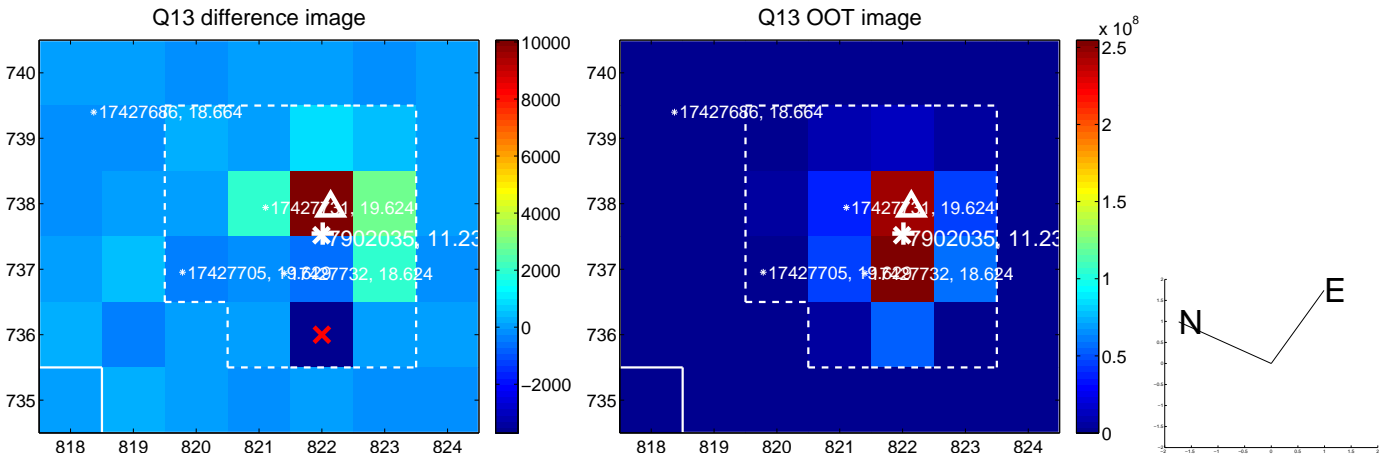




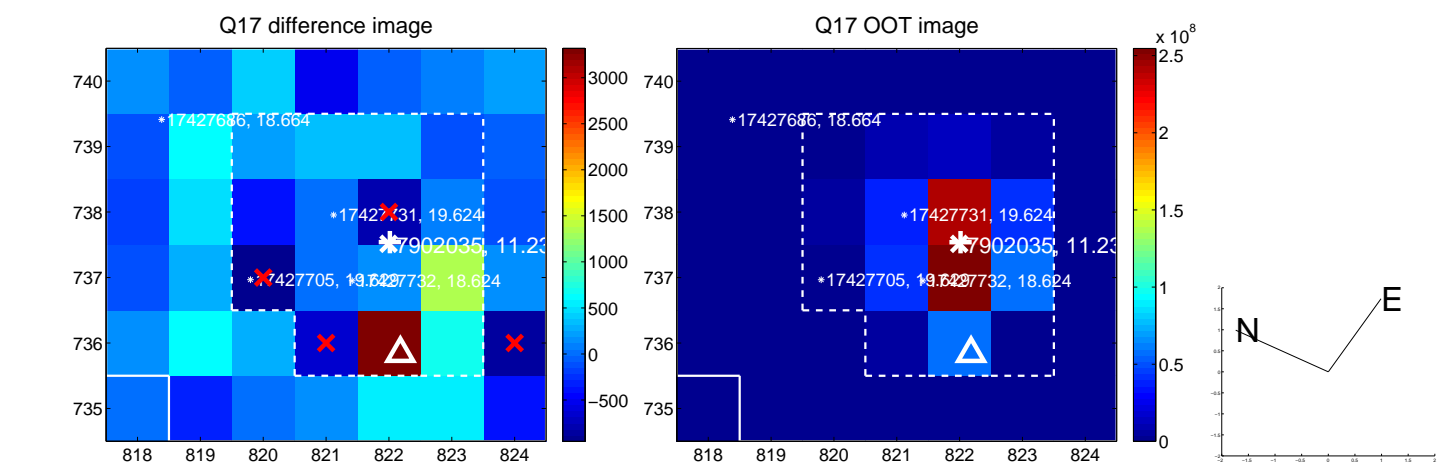
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



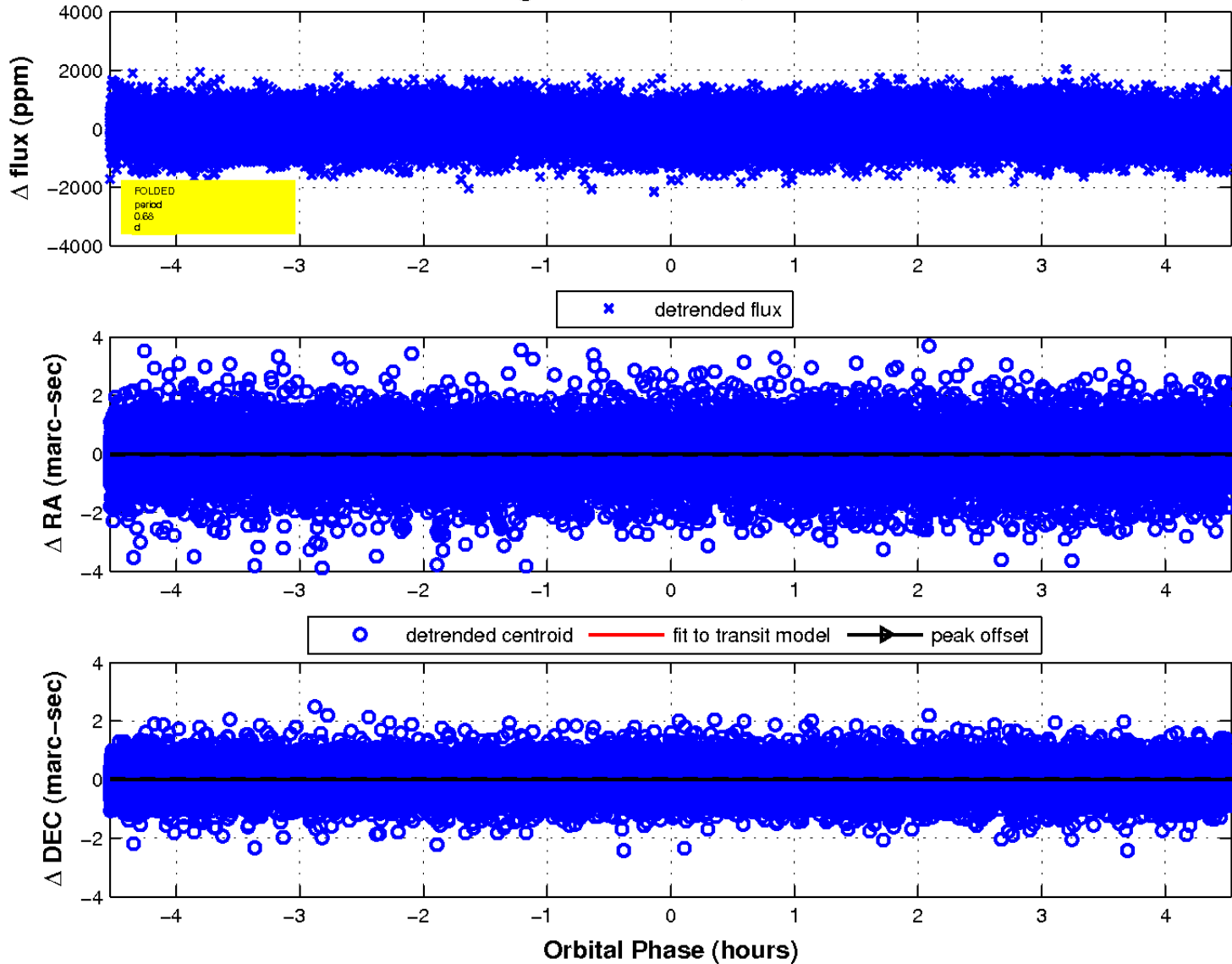
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



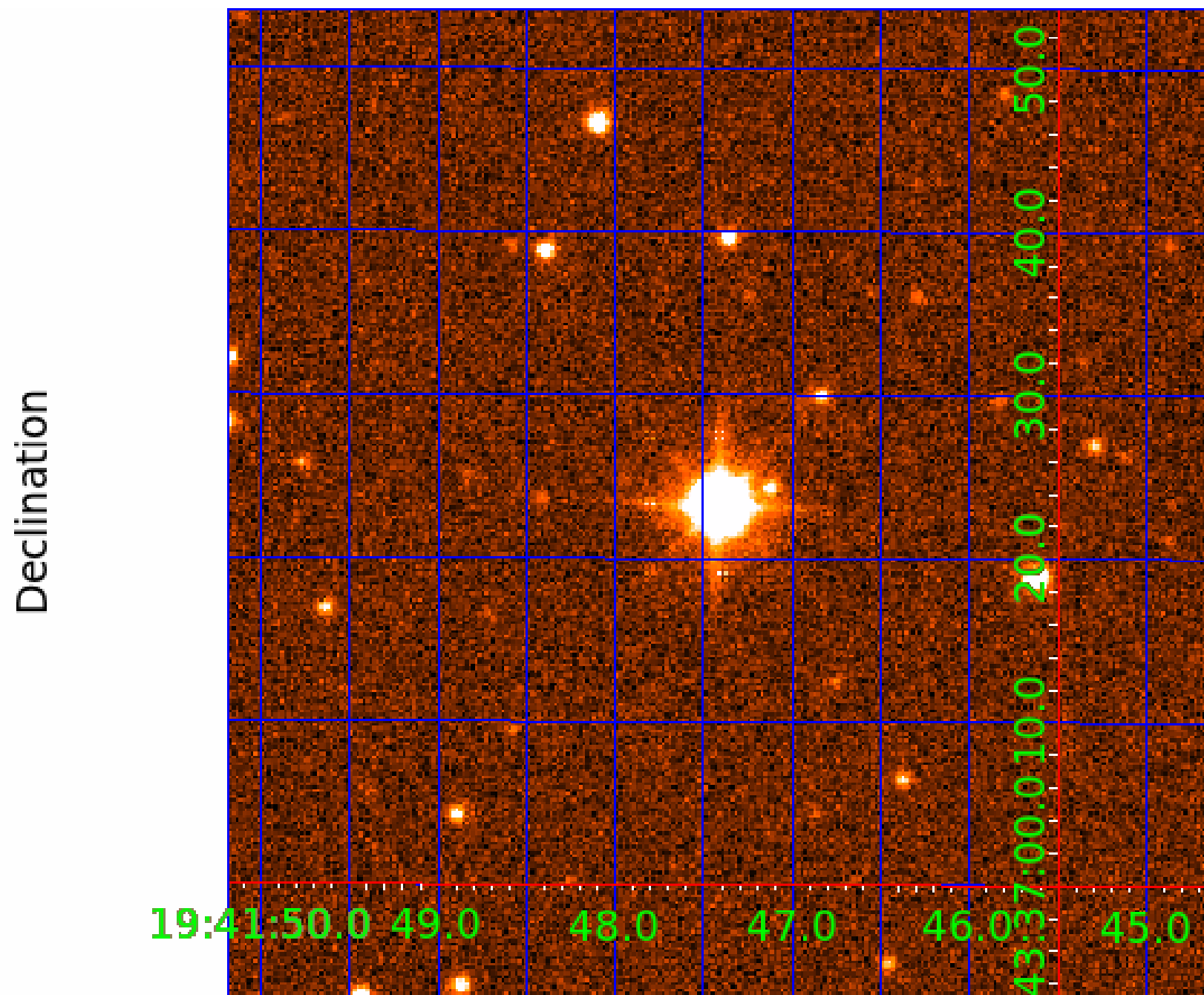
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 3



UKIRT Image





# KIC 007902035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007902035-01	OBS	No	0.681653	131.970359	81.1	1.511	8.5	10.9	3.29	8770	3.44	134882.98
007902035-02	OBS	No	0.681650	131.817065	102.3	1.115	10.4	12.1	3.29	8770	3.59	134883.82
007902035-03	OBS	No	0.661739	132.103251	51.8	4.011	8.1	7.7	3.29	8770	2.75	140322.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007902035-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
007902035-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007902035-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—CENT_SATURATED—HALO_GHOST

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

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

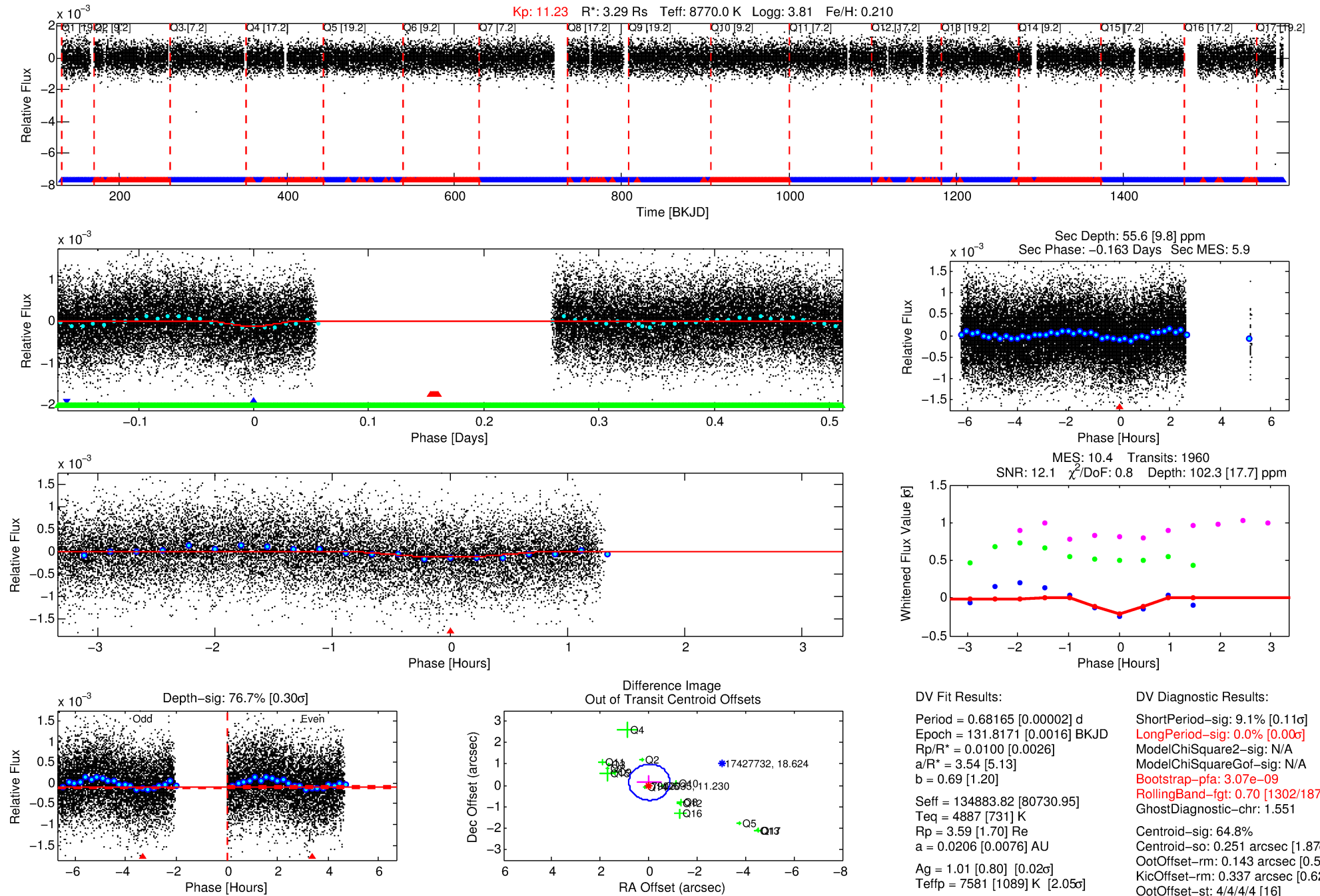
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007902035-02

No Significant Match Found

# DV One-Page Summary

KIC: 7902035 Candidate: 2 of 3 Period: 0.682 d



## DV Fit Results:

Period = 0.68165 [0.00002] d  
Epoch = 131.8171 [0.0016] BKJD  
Rp/R\* = 0.0100 [0.0026]  
a/R\* = 3.54 [5.13]  
b = 0.69 [1.20]  
Seff = 134883.82 [80730.95]  
Teq = 4887 [731] K  
Rp = 3.59 [1.70] Re  
a = 0.0206 [0.0076] AU  
Ag = 1.01 [0.80] [0.02σ]  
Teffp = 7581 [1089] K [2.05σ]

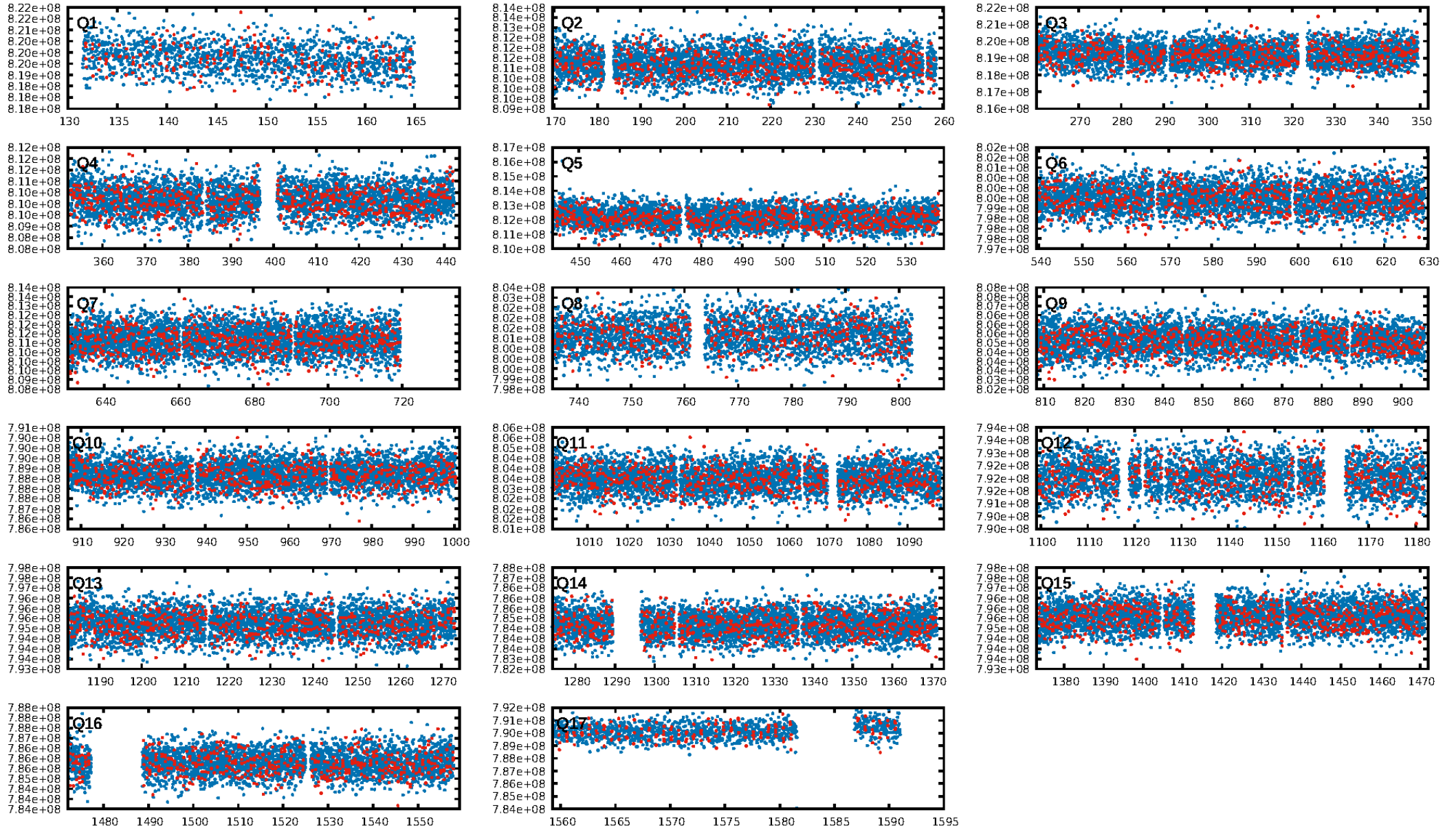
## DV Diagnostic Results:

ShortPeriod-sig: 9.1% [0.11σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.07e-09  
RollingBand-fgt: 0.70 [1302/1873]  
GhostDiagnostic-chr: 1.551  
Centroid-sig: 64.8%  
Centroid-so: 0.251 arcsec [1.87σ]  
OotOffset-rm: 0.143 arcsec [0.51σ]  
KicOffset-rm: 0.337 arcsec [0.62σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.88 [14/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 01:33:49 Z

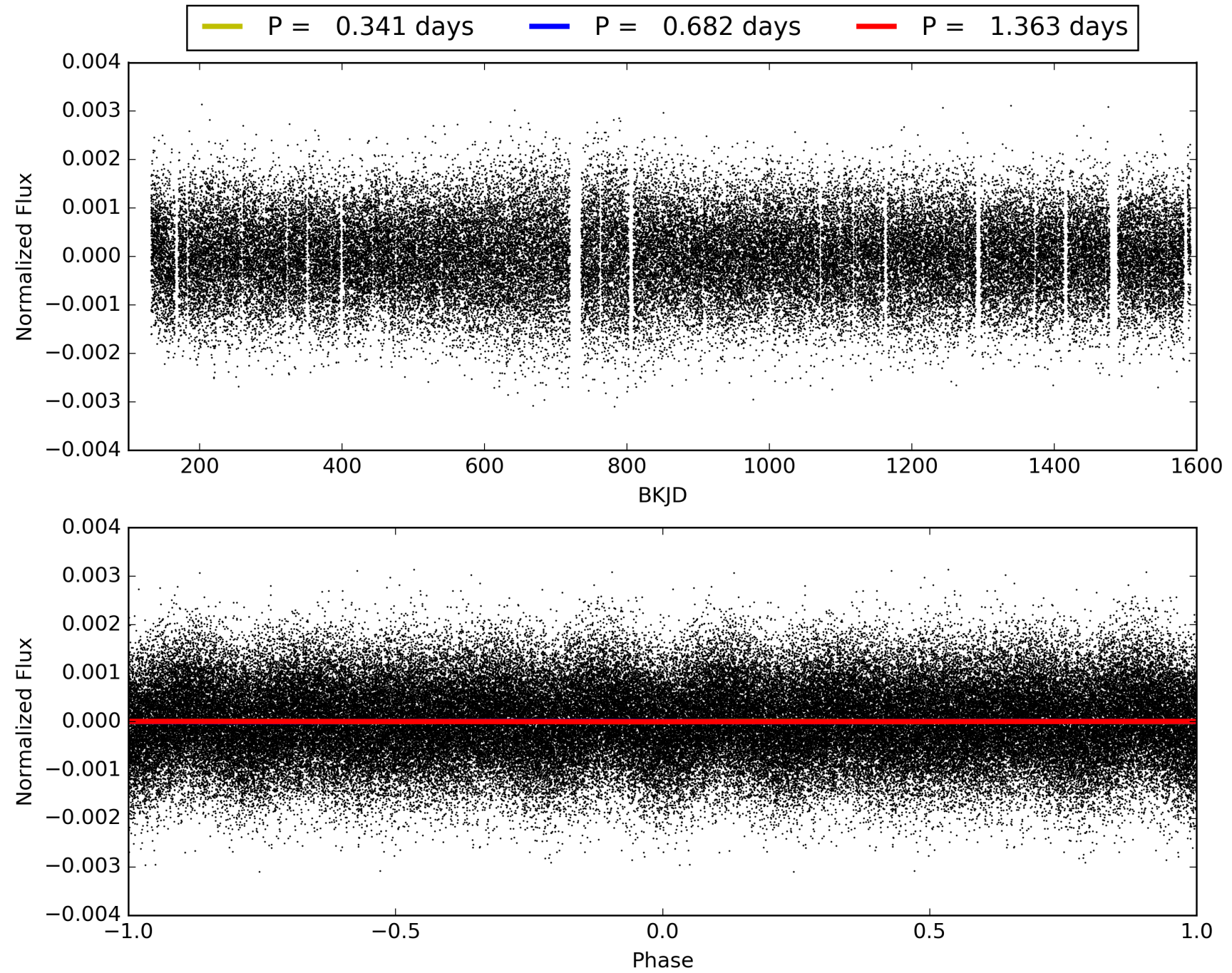
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007902035-02, PDC Light Curves





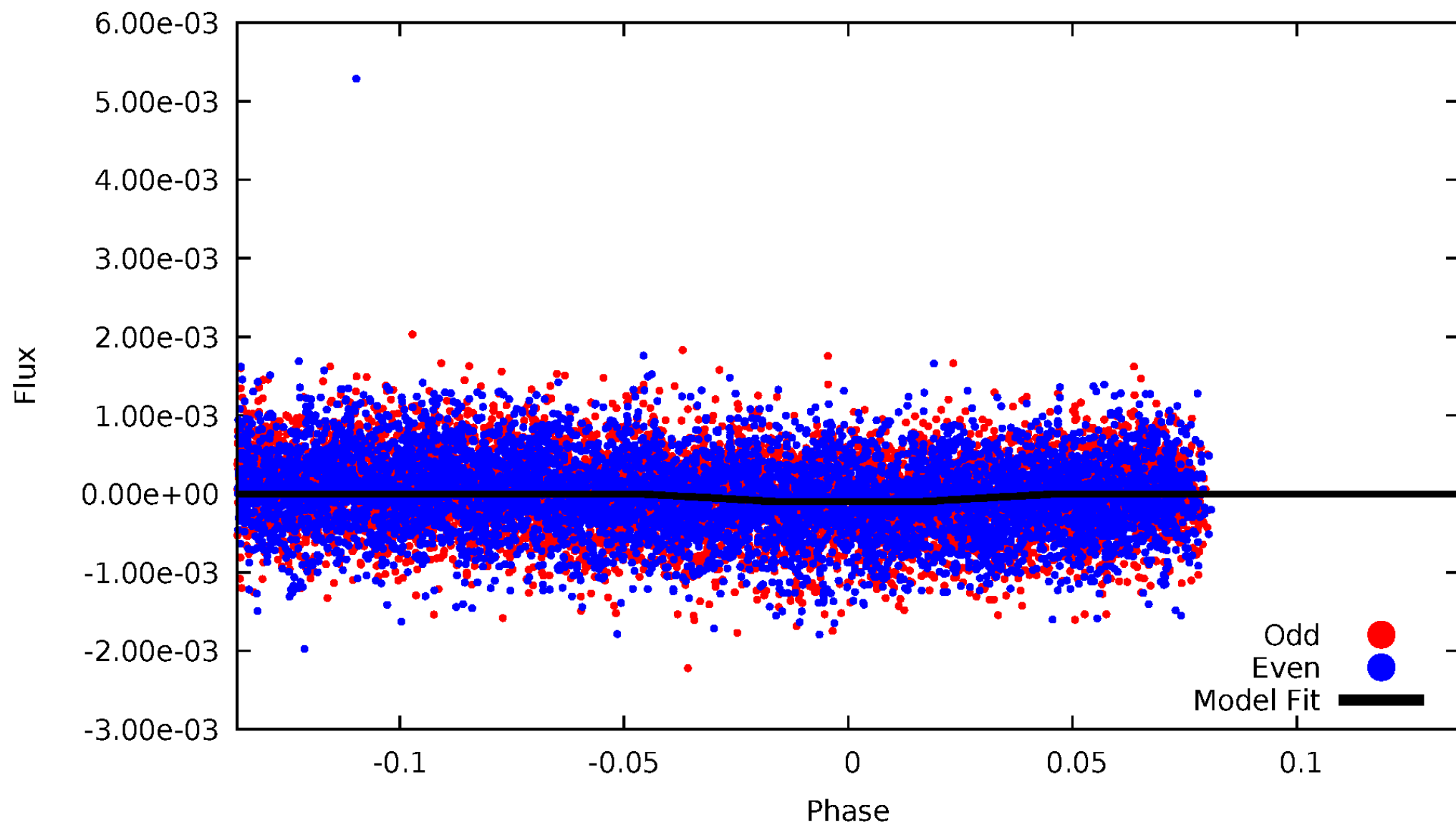
TCE 007902035-02





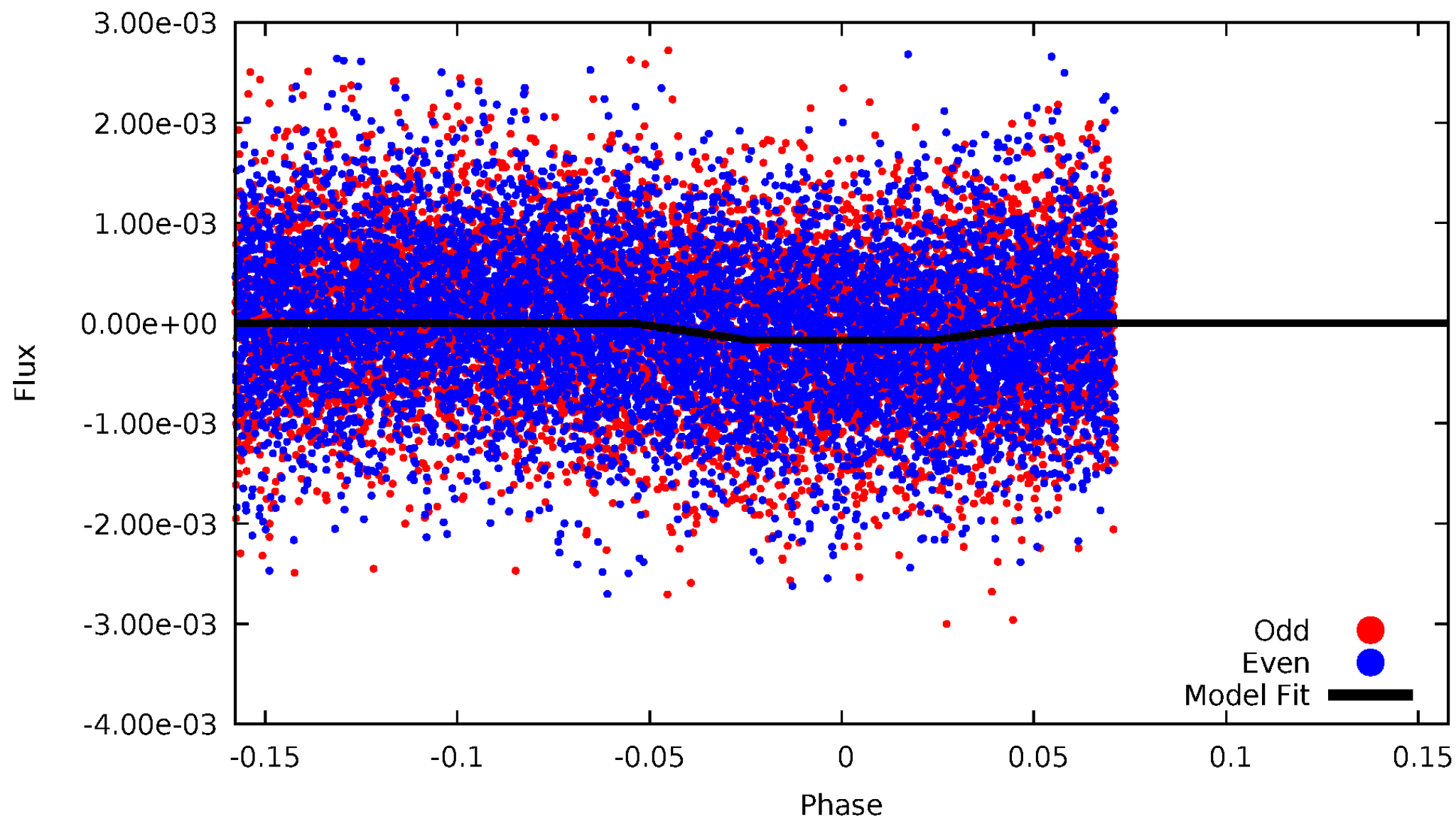
# DV Odd/Even

TCE 007902035-02



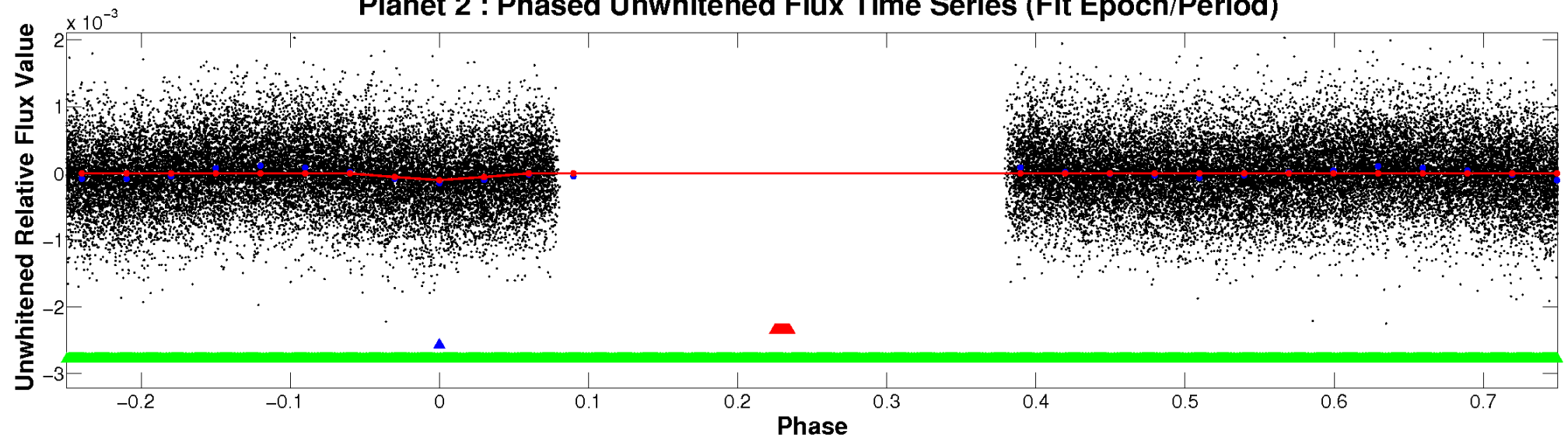
# ALT Odd/Even

TCE 007902035-02

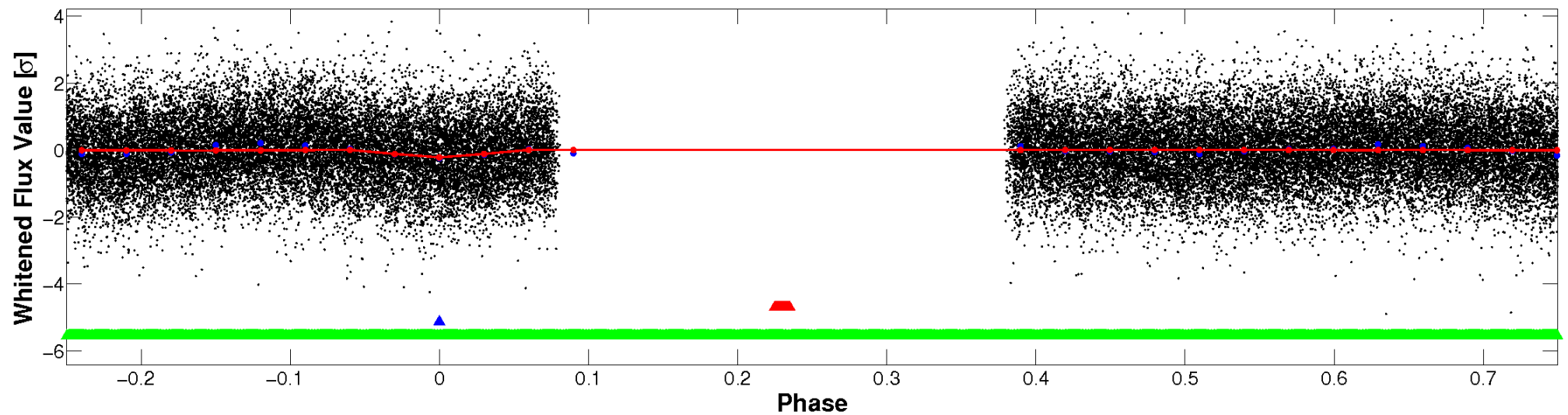


# Non-Whitened Vs. Whitened Light Curve

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

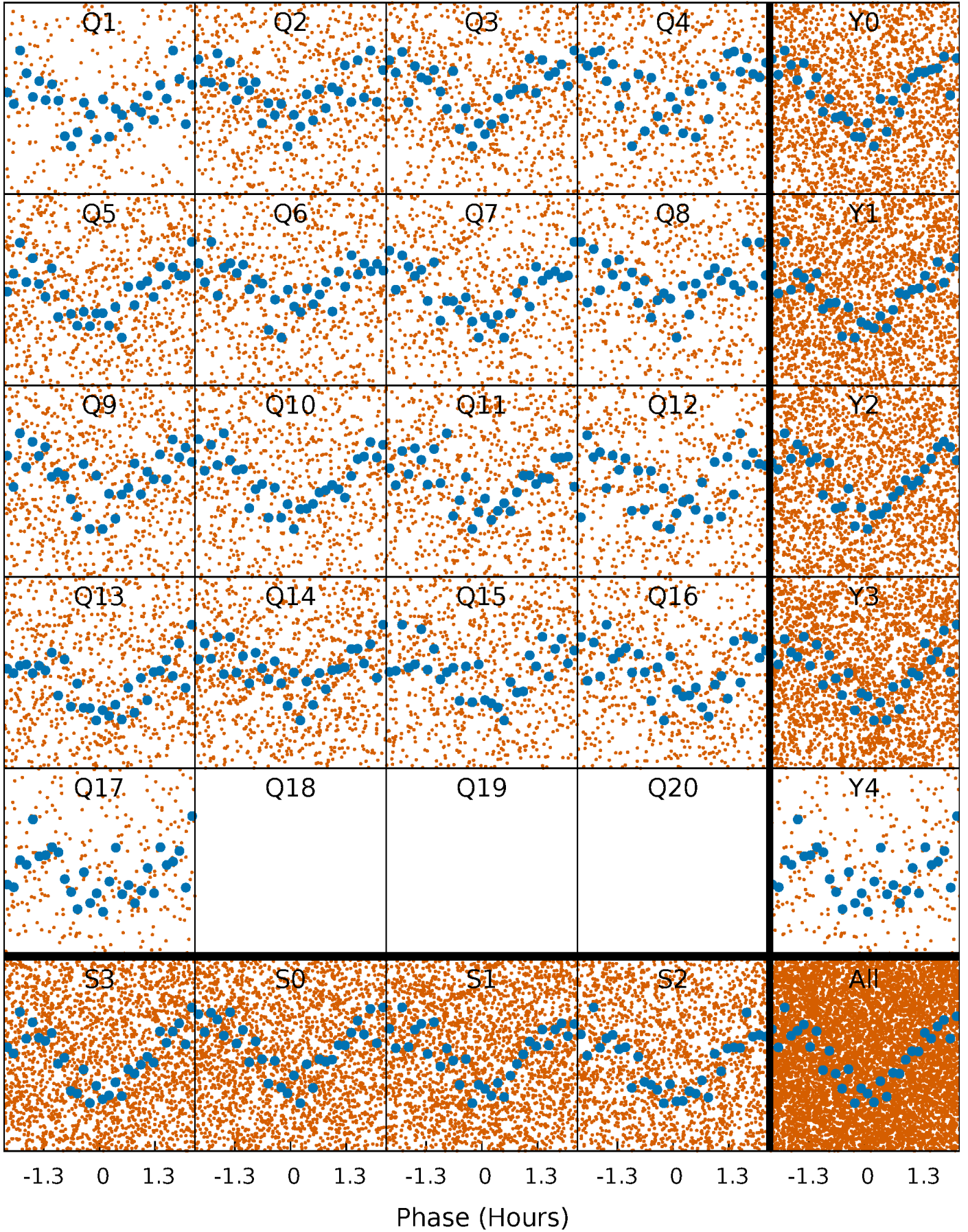


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

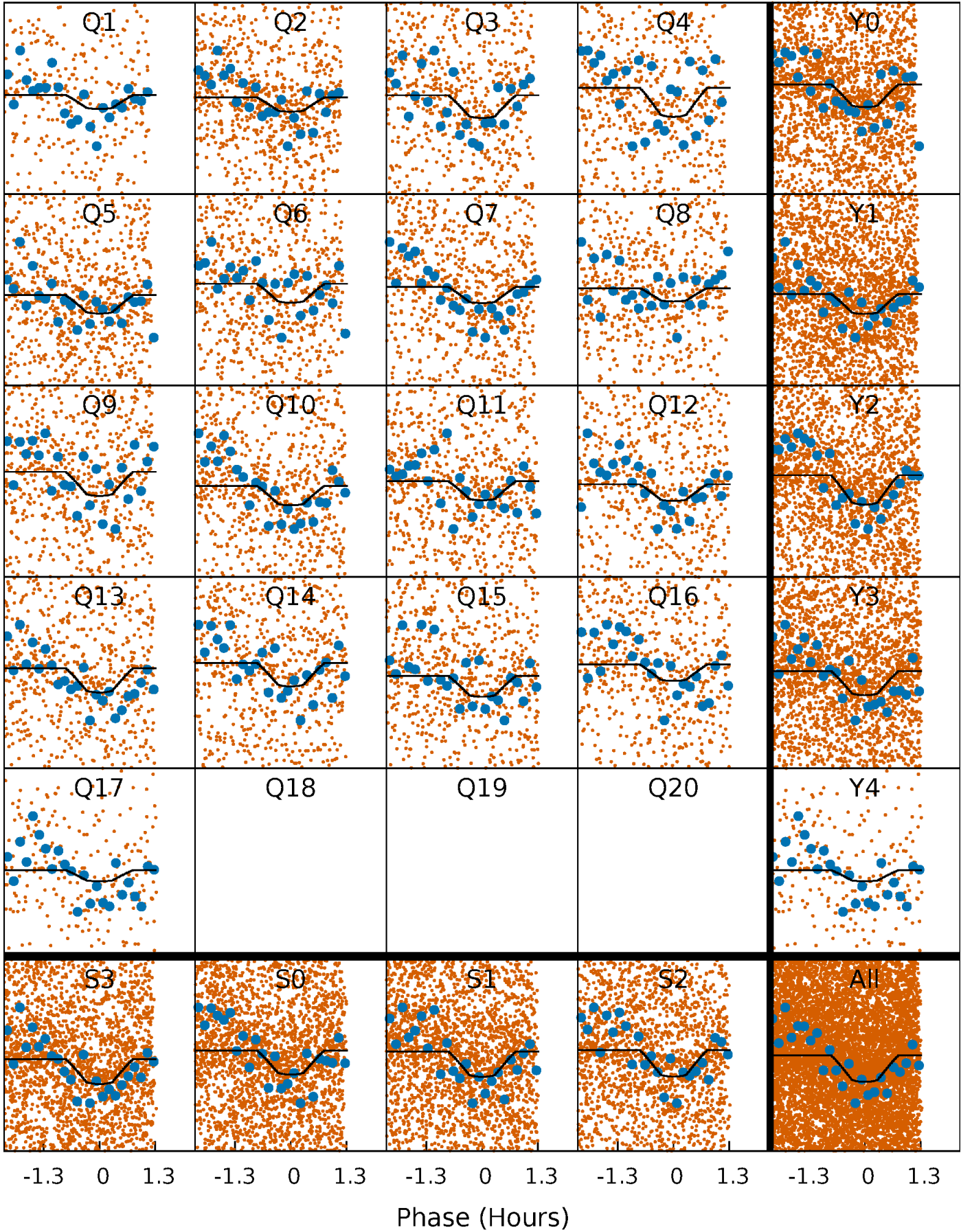
TCE 007902035-02   P= 0.681650 Days    $T_0=131.817065$  (BKJD)





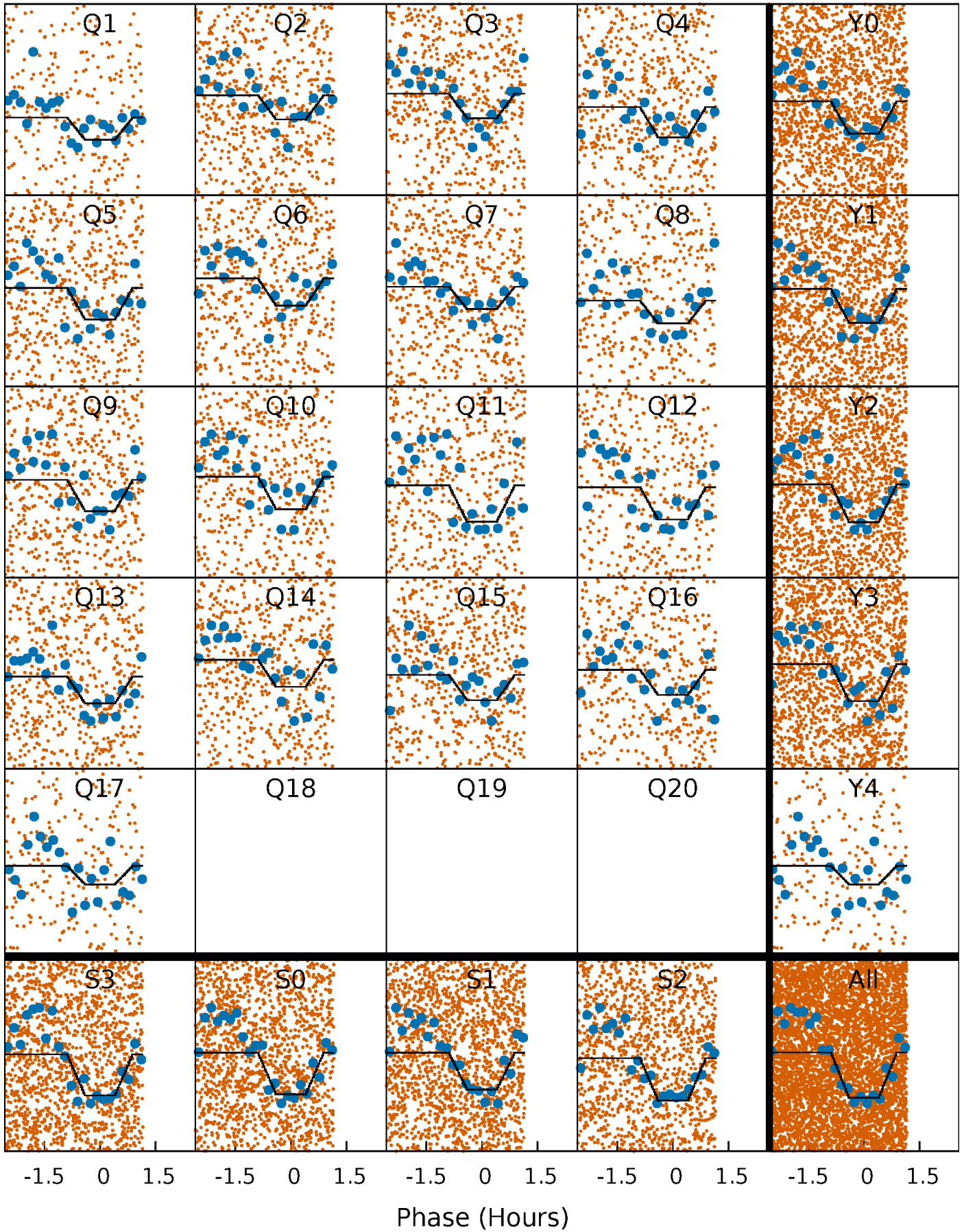
# DV Quarter-Phased Transit Curves

TCE 007902035-02   P= 0.681650 Days    $T_0=131.817065$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

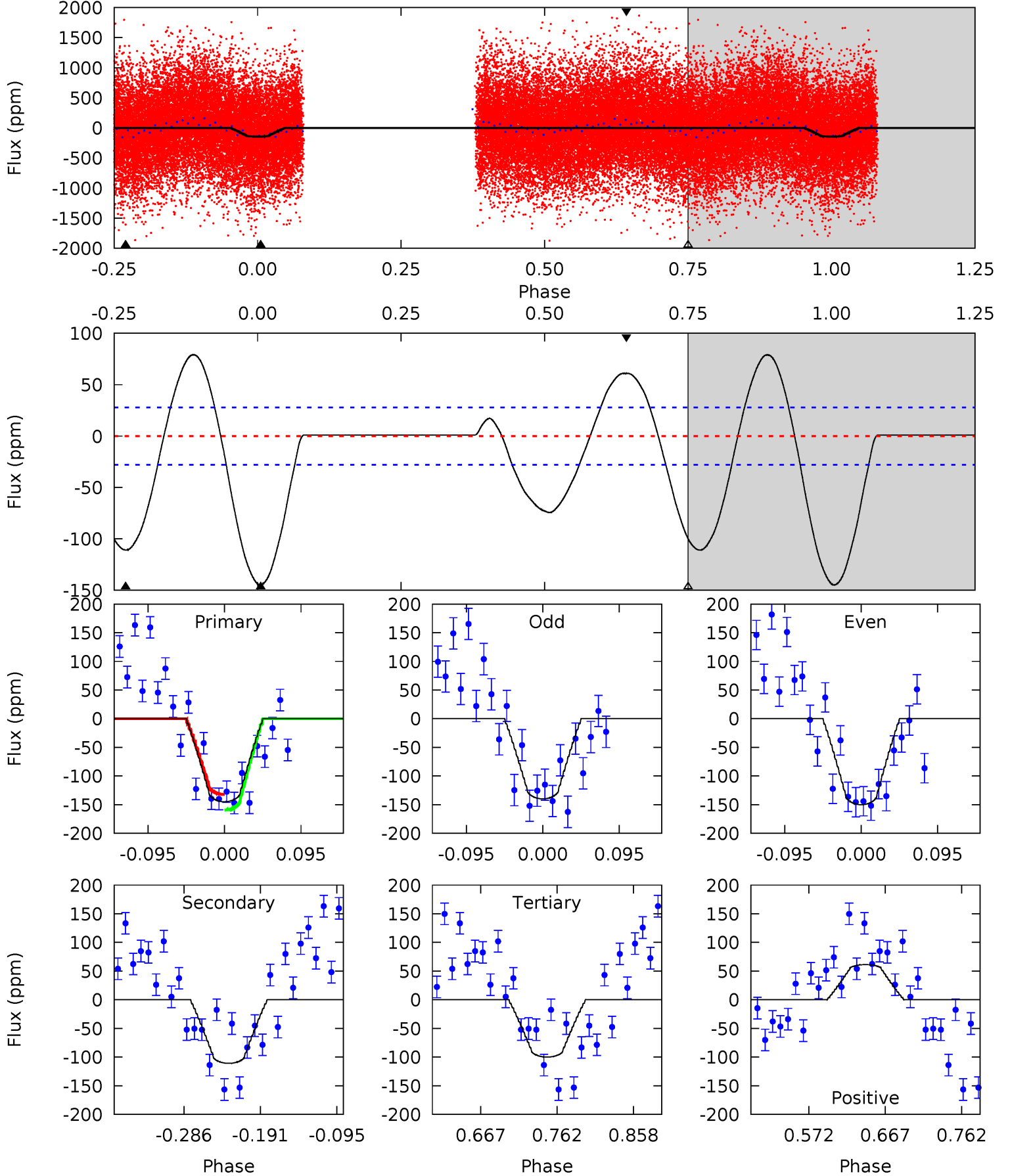
TCE 007902035-02 P= 0.681653 Days  $T_0=131.817486$  (BKJD)



# DV Model-Shift Uniqueness Test

007902035-02, P = 0.681650 Days, E = 131.135415 Days

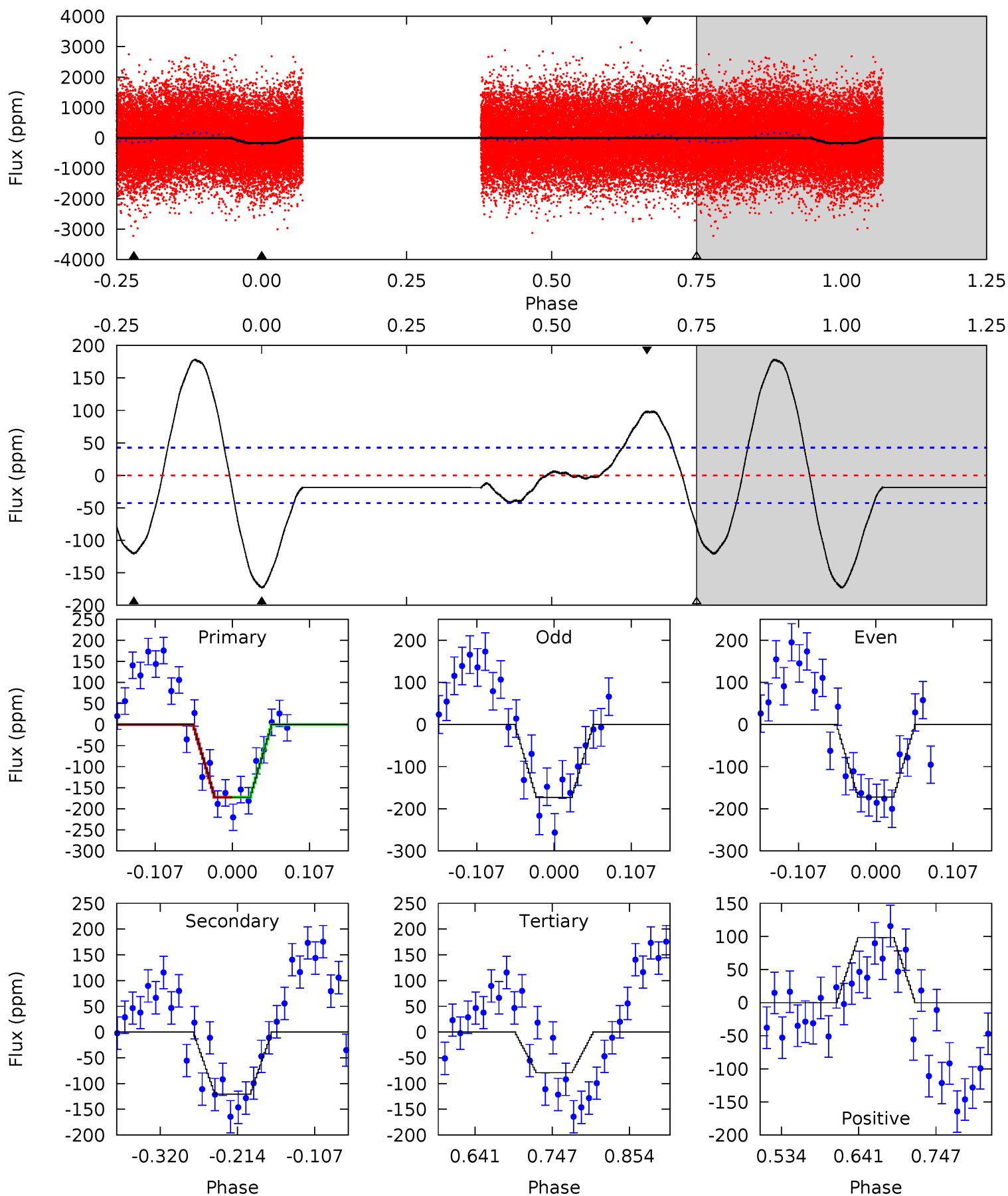
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.8	18.2	16.4	10.0	4.57	1.67	8.44	7.39	13.7	1.80	8.16	0.84	1.17	0.35	2.20



# Alt Model-Shift Uniqueness Test

007902035-02, P = 0.681653 Days, E = 131.135833 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
18.4	12.9	8.42	10.5	4.55	1.61	5.11	10.0	7.93	4.44	2.36	0.01	1.00	0.51	0.00





### Stellar Parameters For KIC 007902035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8770^{+278}_{-383}$	$3.805^{+0.331}_{-0.178}$	$0.210^{+0.150}_{-0.550}$	$3.294^{+1.066}_{-1.303}$	$2.524^{+0.314}_{-0.680}$	$0.099^{+0.230}_{-0.051}$
	+3%/-4%	+9%/-5%	+71%/-262%	+32%/-40%	+12%/-27%	+231%/-51%
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 007902035-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-111 \pm 6$	$3.46^{+1.24}_{-1.13}$	$6763^{+594}_{-765}$	$8472^{+2504}_{-1396}$	$2.093^{+2.523}_{-0.908}$
Alt.	$-120 \pm 9$	$4.32^{+1.45}_{-1.10}$	$6708^{+608}_{-726}$	$7344^{+1270}_{-1053}$	$1.469^{+1.097}_{-0.623}$

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

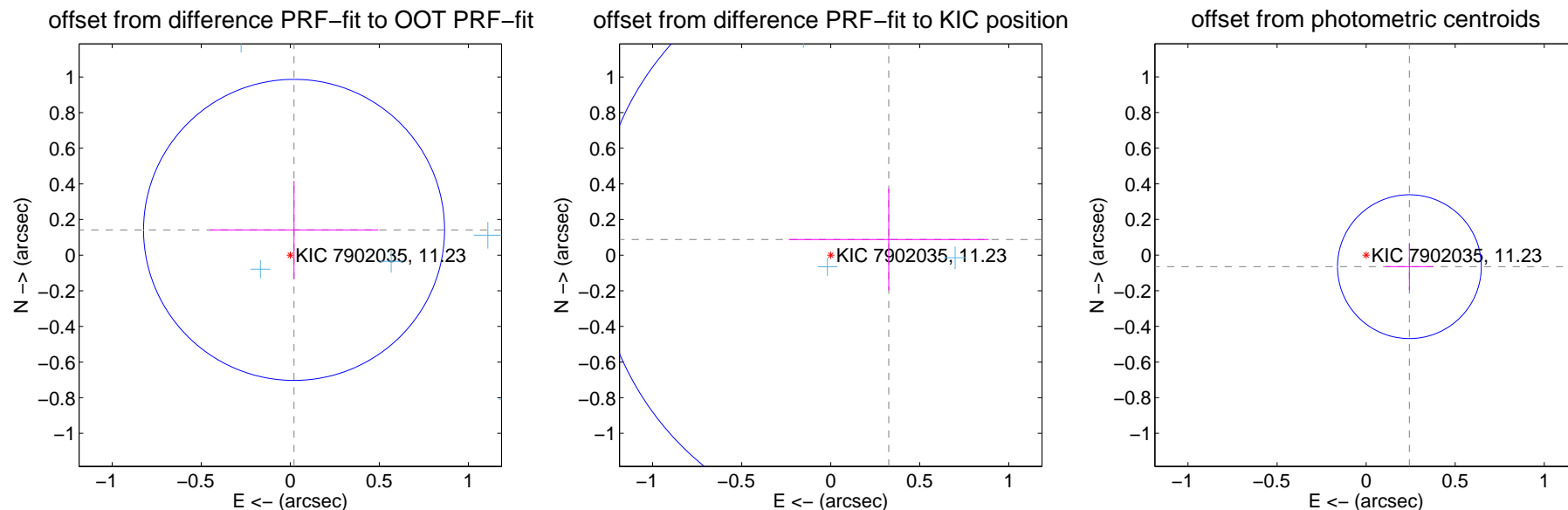
## DV Centroid Data

Supplemental centroid analysis for 007902035-02. **Kepler magnitude: 11.23.** Transit SNR 12.13

There are 14 quarters with good PRF difference image offsets

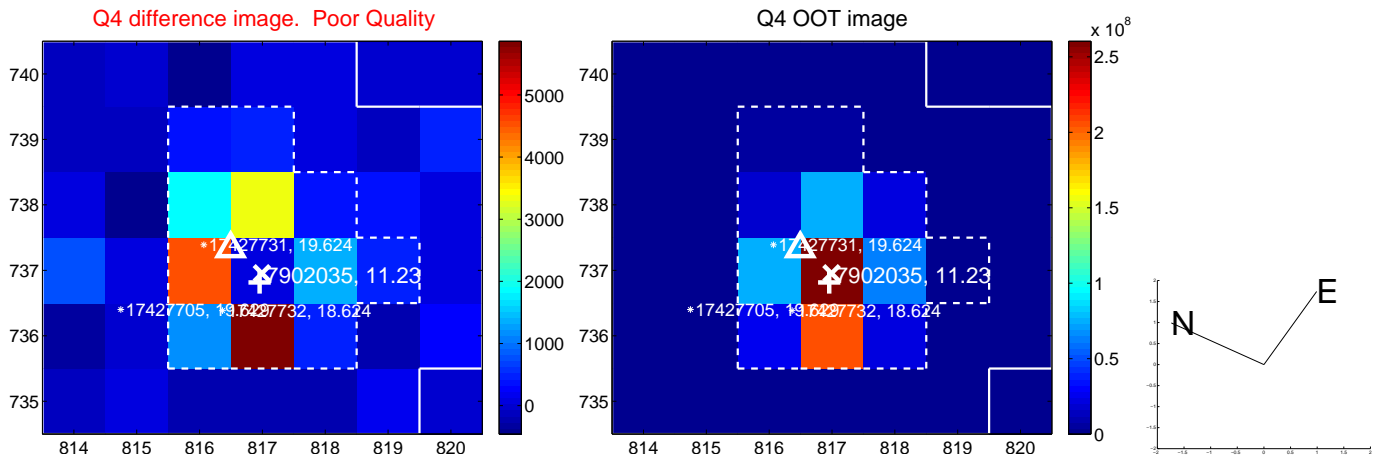
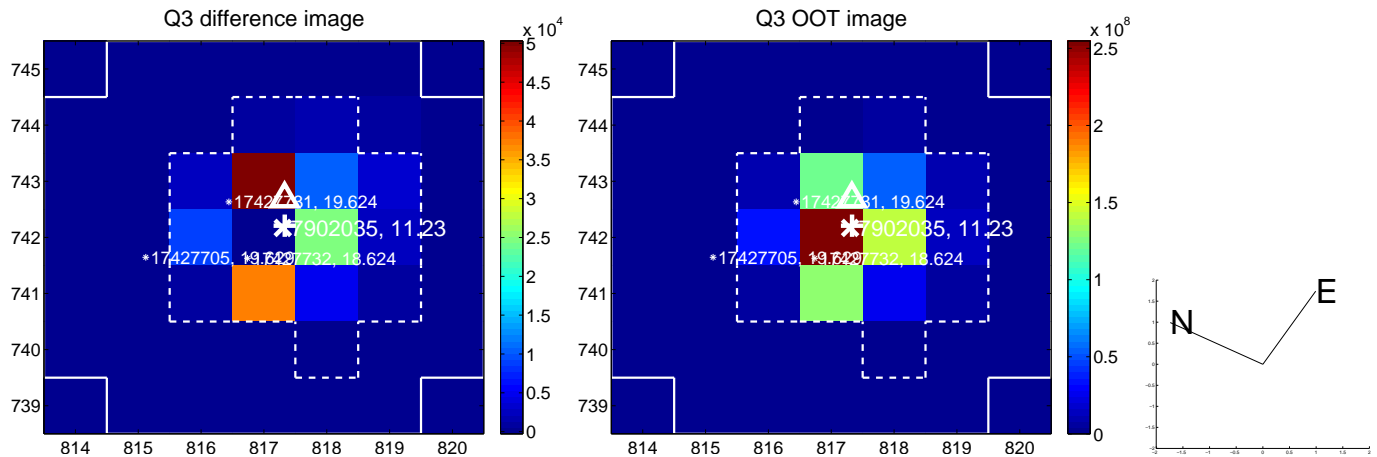
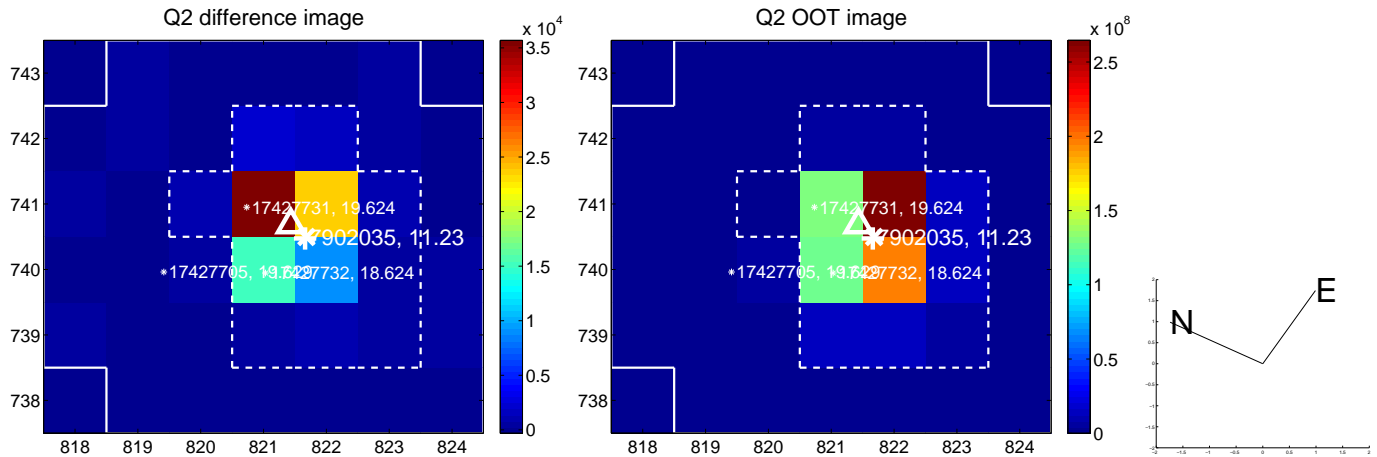
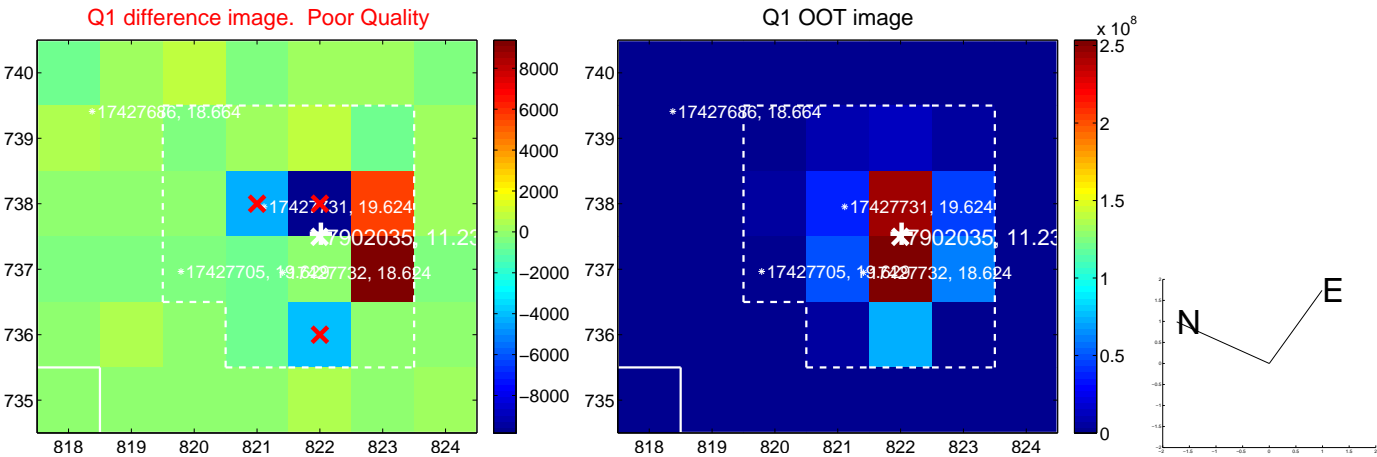
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.143 \pm 0.282$	0.51	$-0.021 \pm 0.474$	$0.142 \pm 0.276$
PRF-fit source offset from KIC position	$0.337 \pm 0.547$	0.62	$-0.326 \pm 0.561$	$0.088 \pm 0.286$
photometric centroid source offset	$0.25 \pm 0.13$	1.87	$-0.24 \pm 0.13$	$-0.06 \pm 0.13$

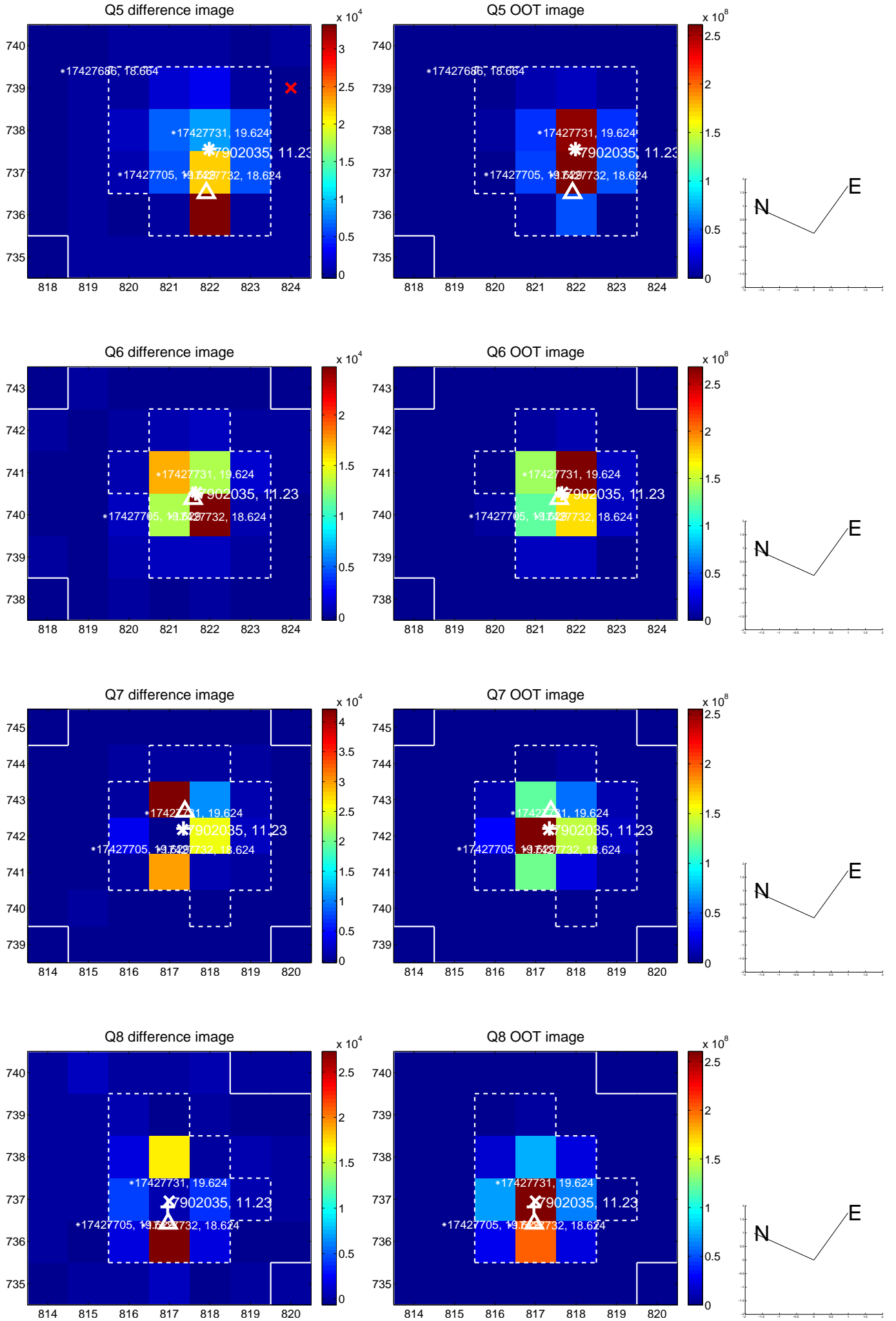


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

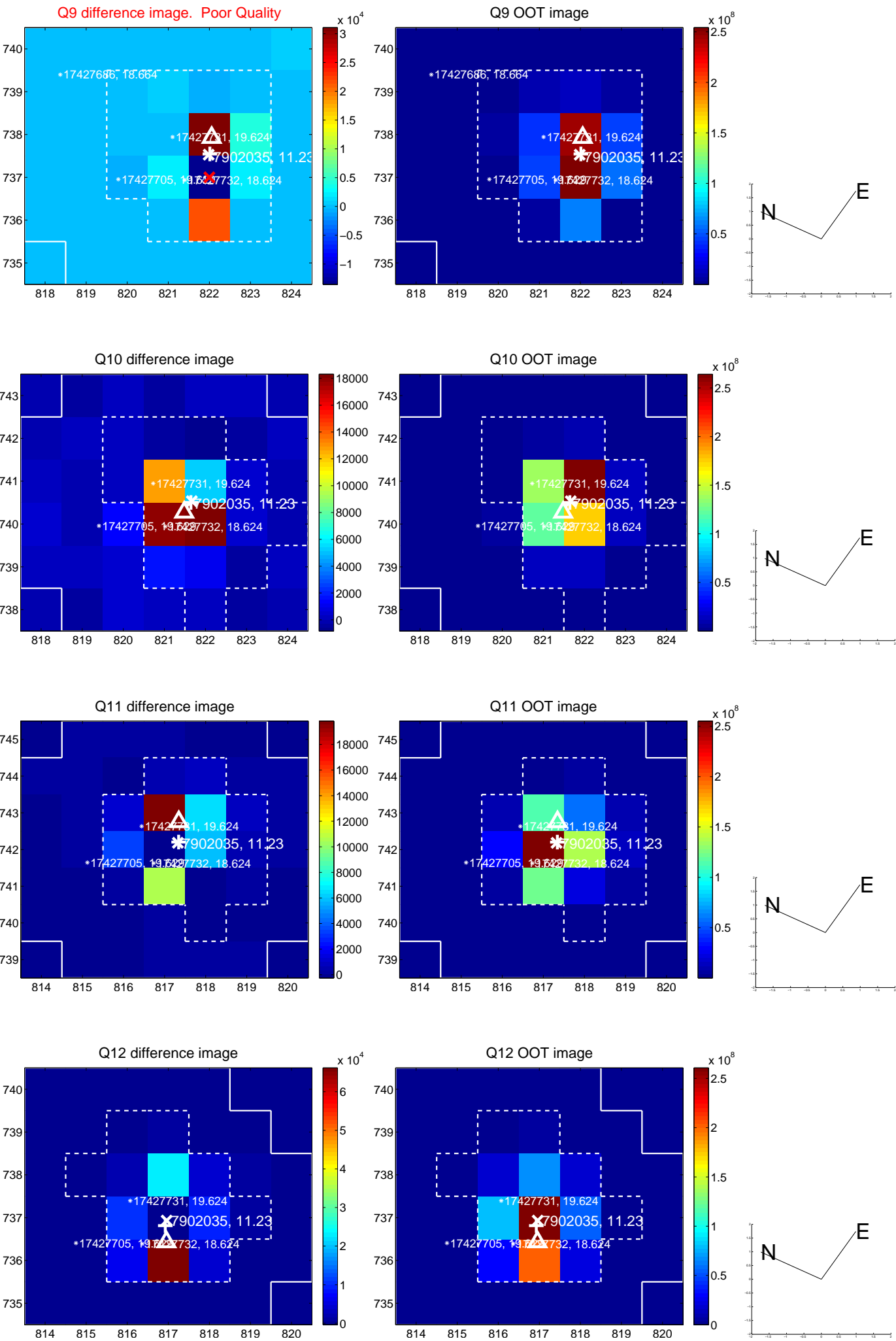
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

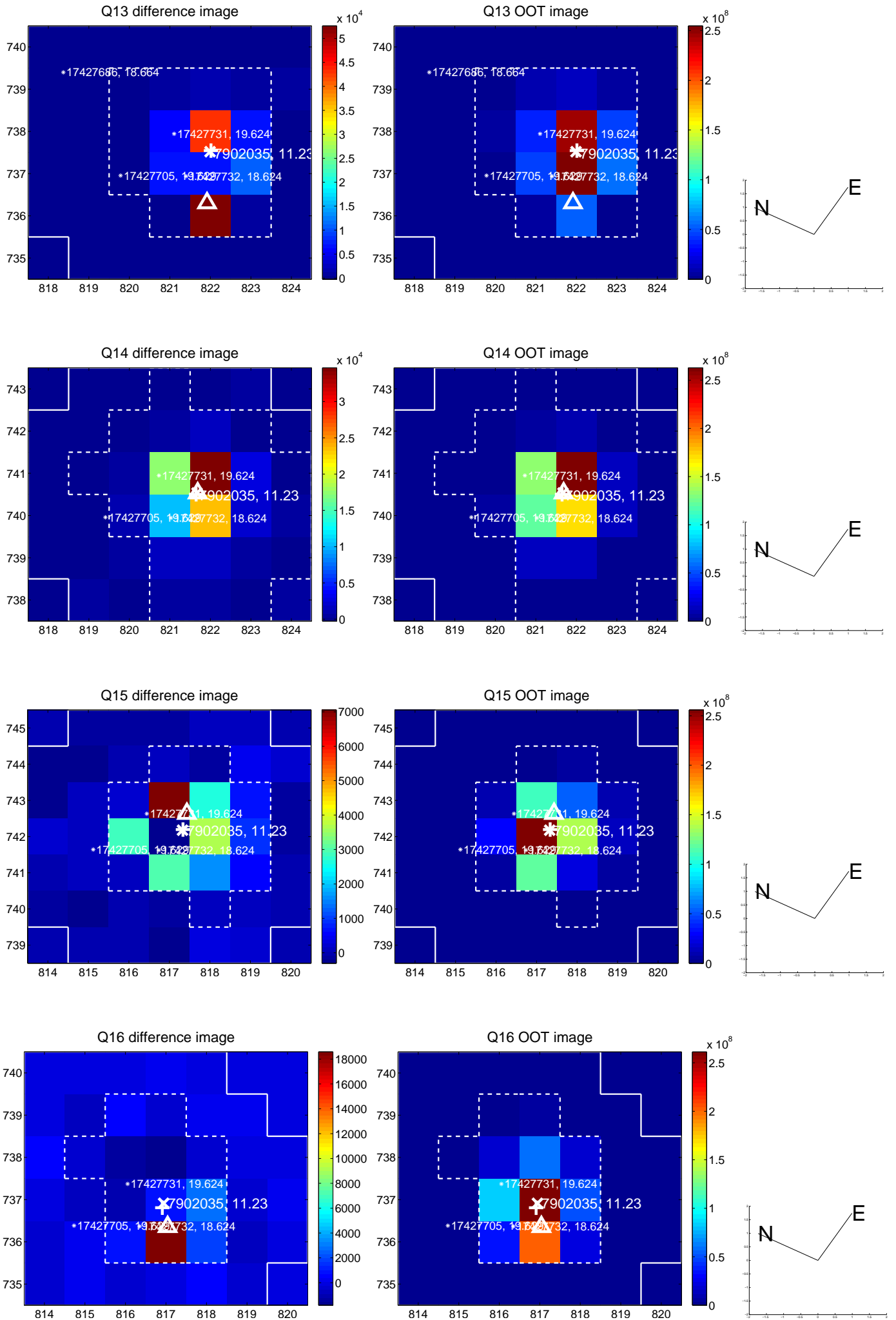


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

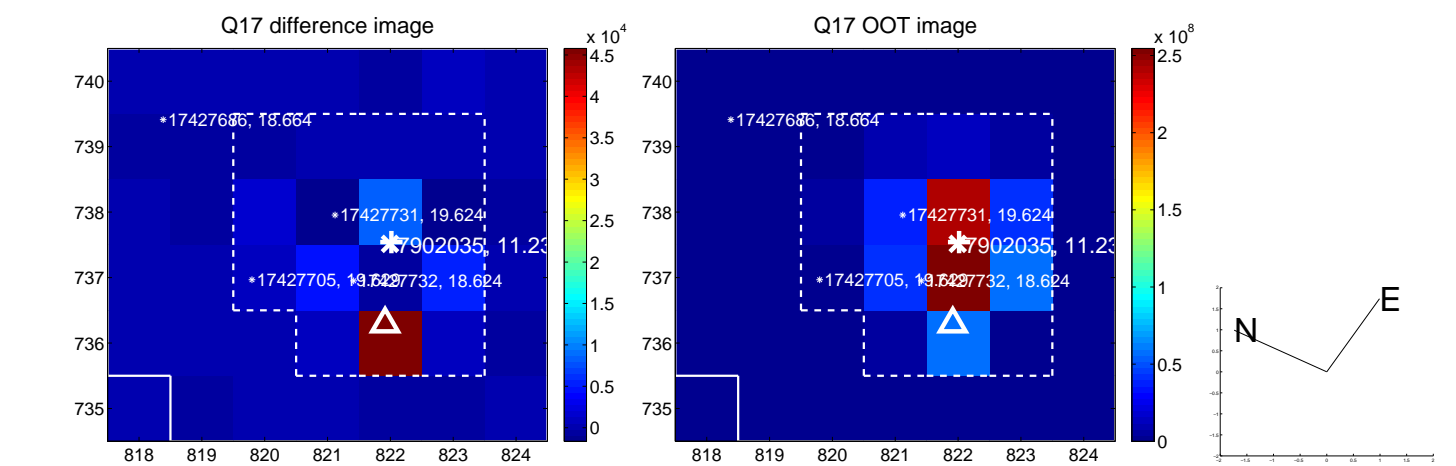




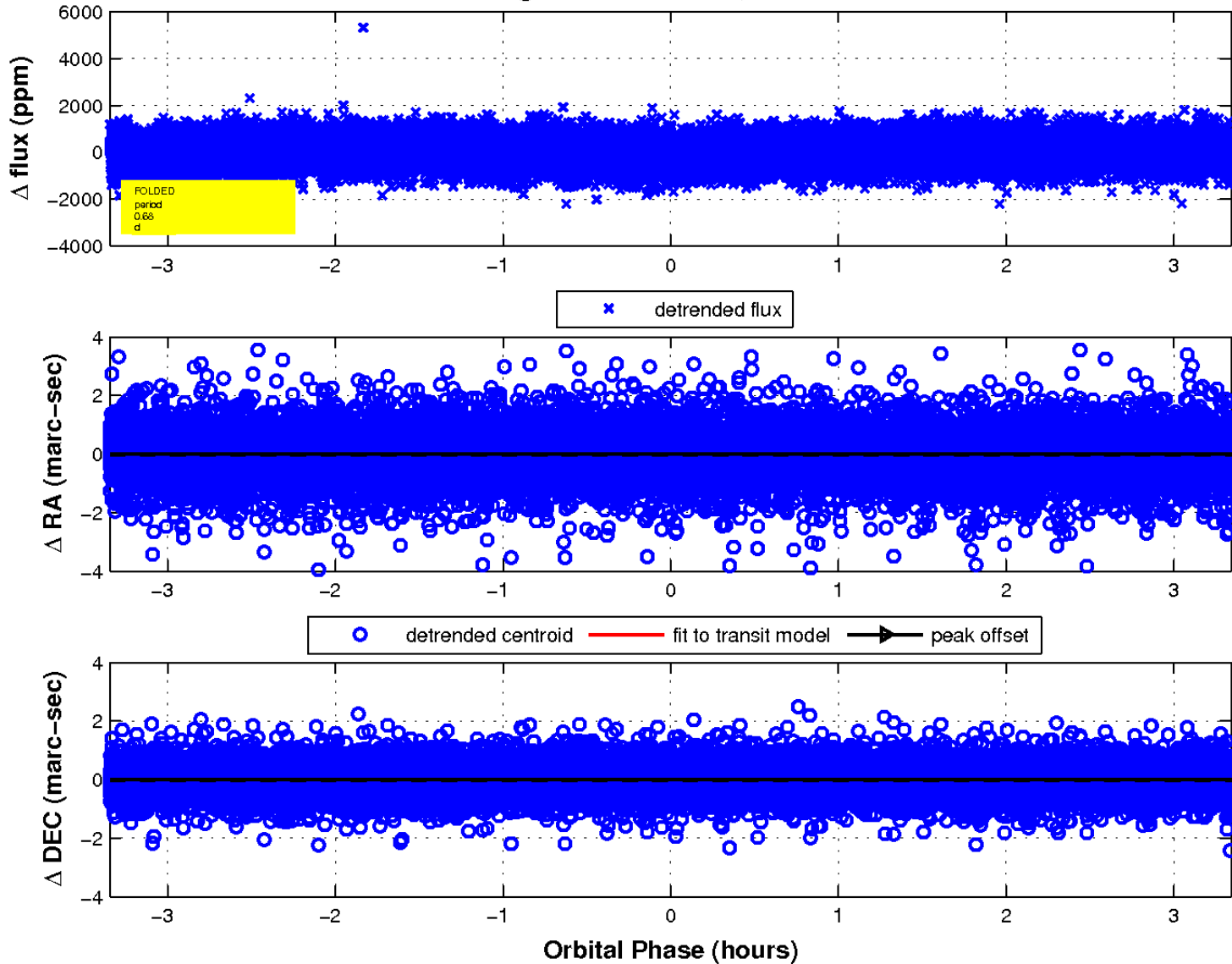
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



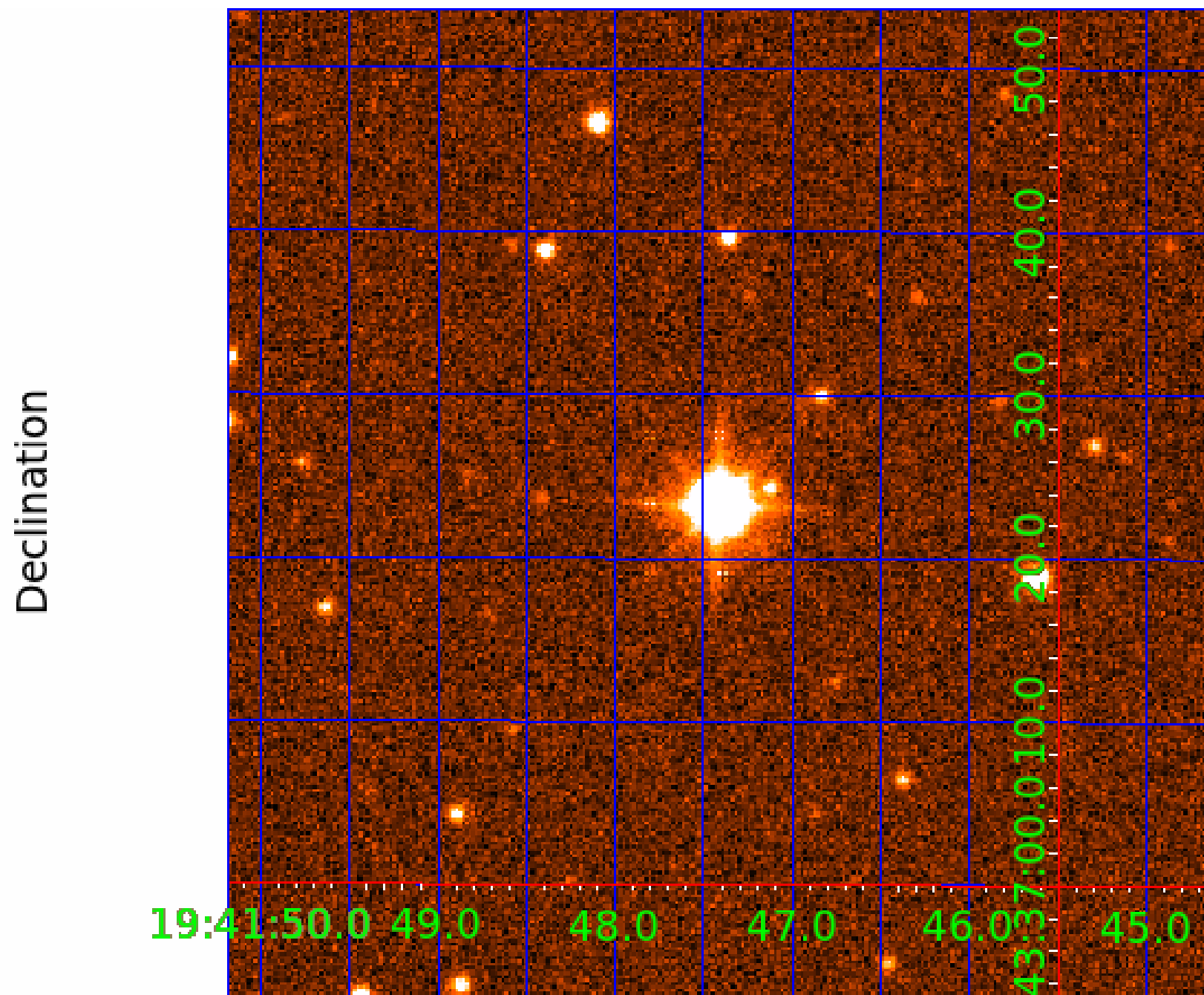
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 3



UKIRT Image



# KIC 007902035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007902035-01	OBS	No	0.681653	131.970359	81.1	1.511	8.5	10.9	3.29	8770	3.44	134882.98
007902035-02	OBS	No	0.681650	131.817065	102.3	1.115	10.4	12.1	3.29	8770	3.59	134883.82
007902035-03	OBS	No	0.661739	132.103251	51.8	4.011	8.1	7.7	3.29	8770	2.75	140322.21

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007902035-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
007902035-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007902035-03	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—CENT_SATURATED—HALO_GHOST

**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.

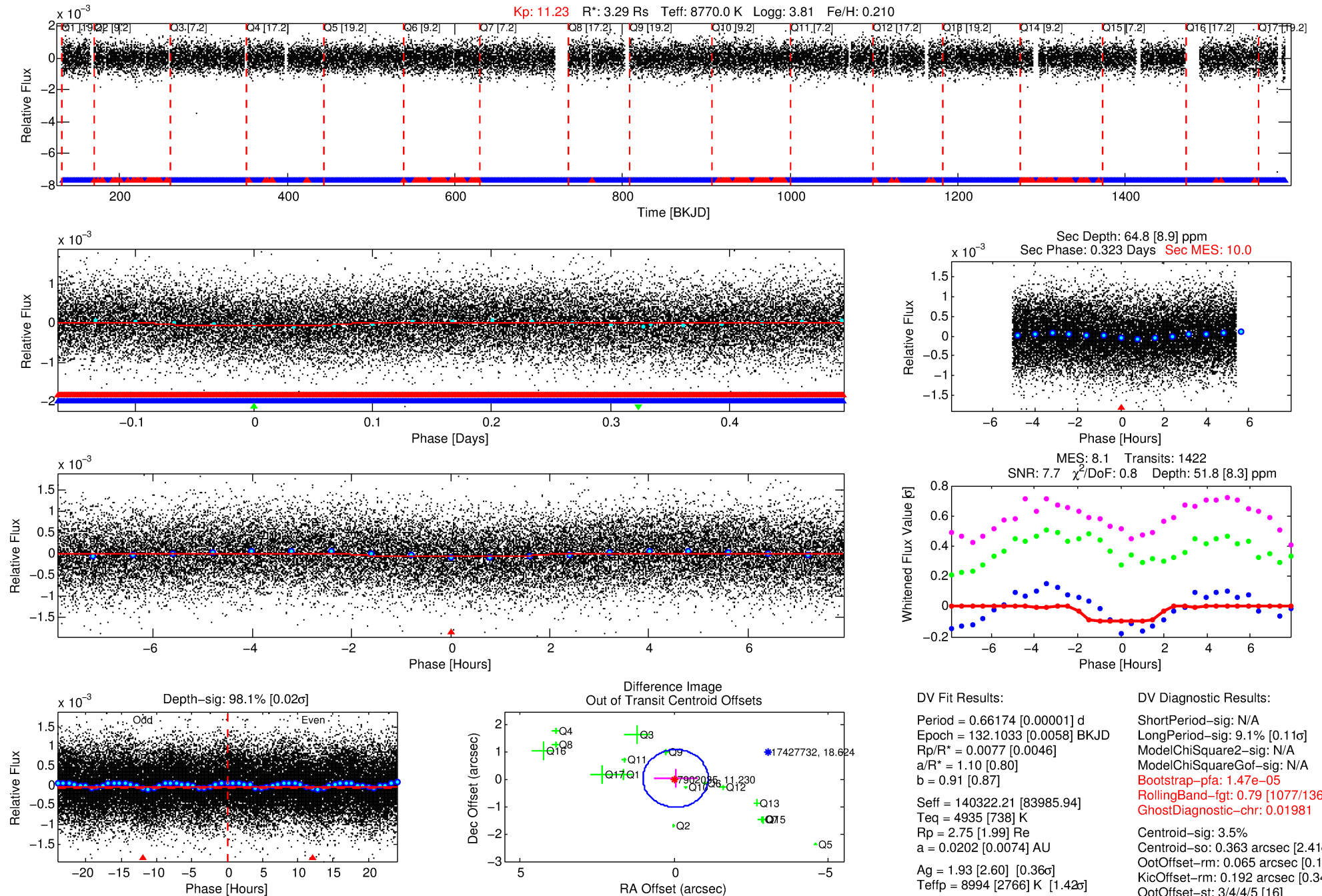
## Ephemeris Match Information For 007902035-03

No Significant Match Found



# DV One-Page Summary

KIC: 7902035 Candidate: 3 of 3 Period: 0.662 d



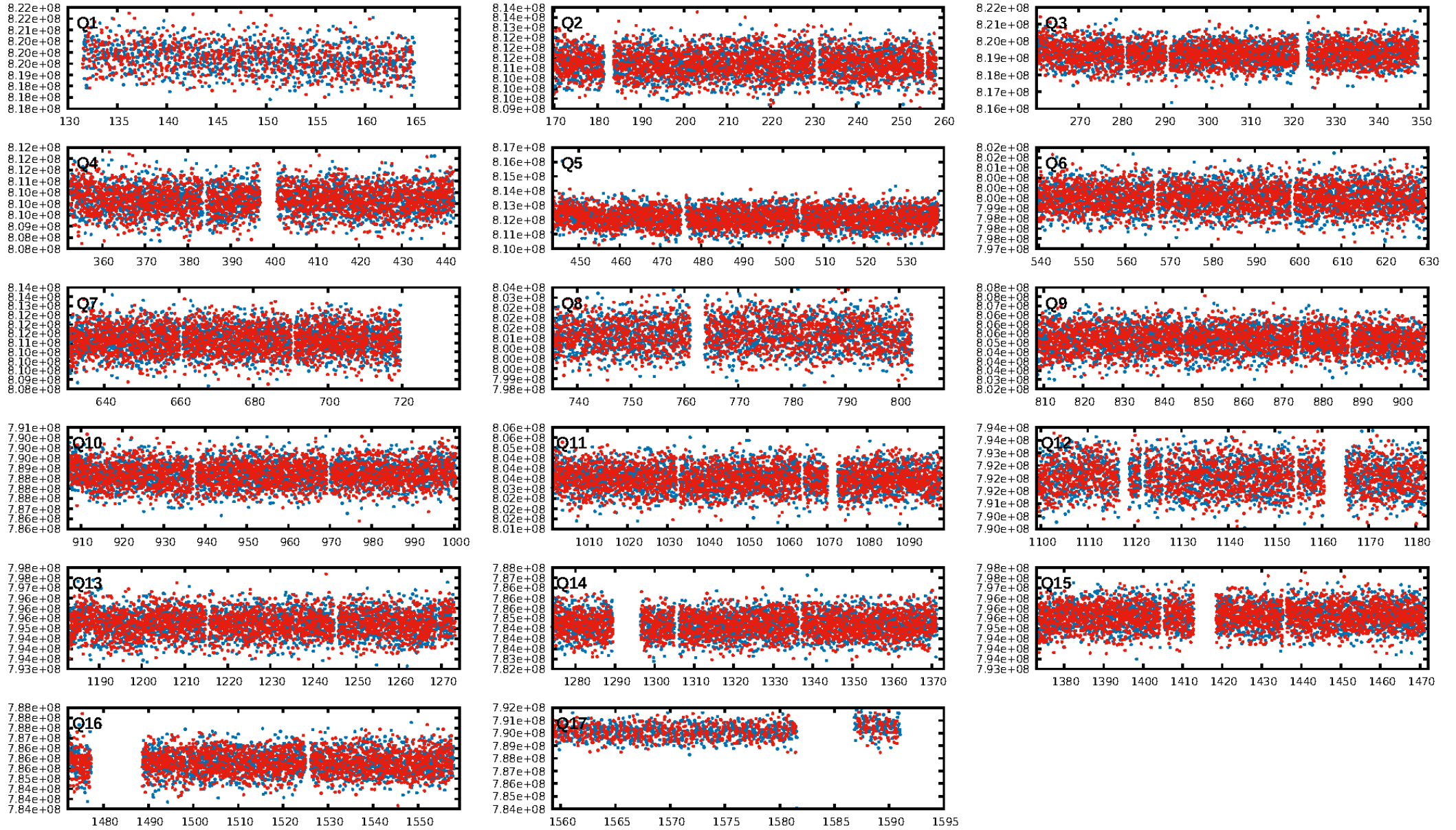
## DV Fit Results:

Period = 0.66174 [0.00001] d  
Epoch = 132.1033 [0.0058] BKJD  
Rp/R\* = 0.0077 [0.0046]  
a/R\* = 1.10 [0.80]  
b = 0.91 [0.87]  
Seff = 140322.21 [83985.94]  
Teq = 4935 [738] K  
Rp = 2.75 [1.99] Re  
a = 0.0202 [0.0074] AU  
Ag = 1.93 [2.60] [0.36 $\sigma$ ]  
Teff = 8994 [2766] K [1.42 $\sigma$ ]

## DV Diagnostic Results:

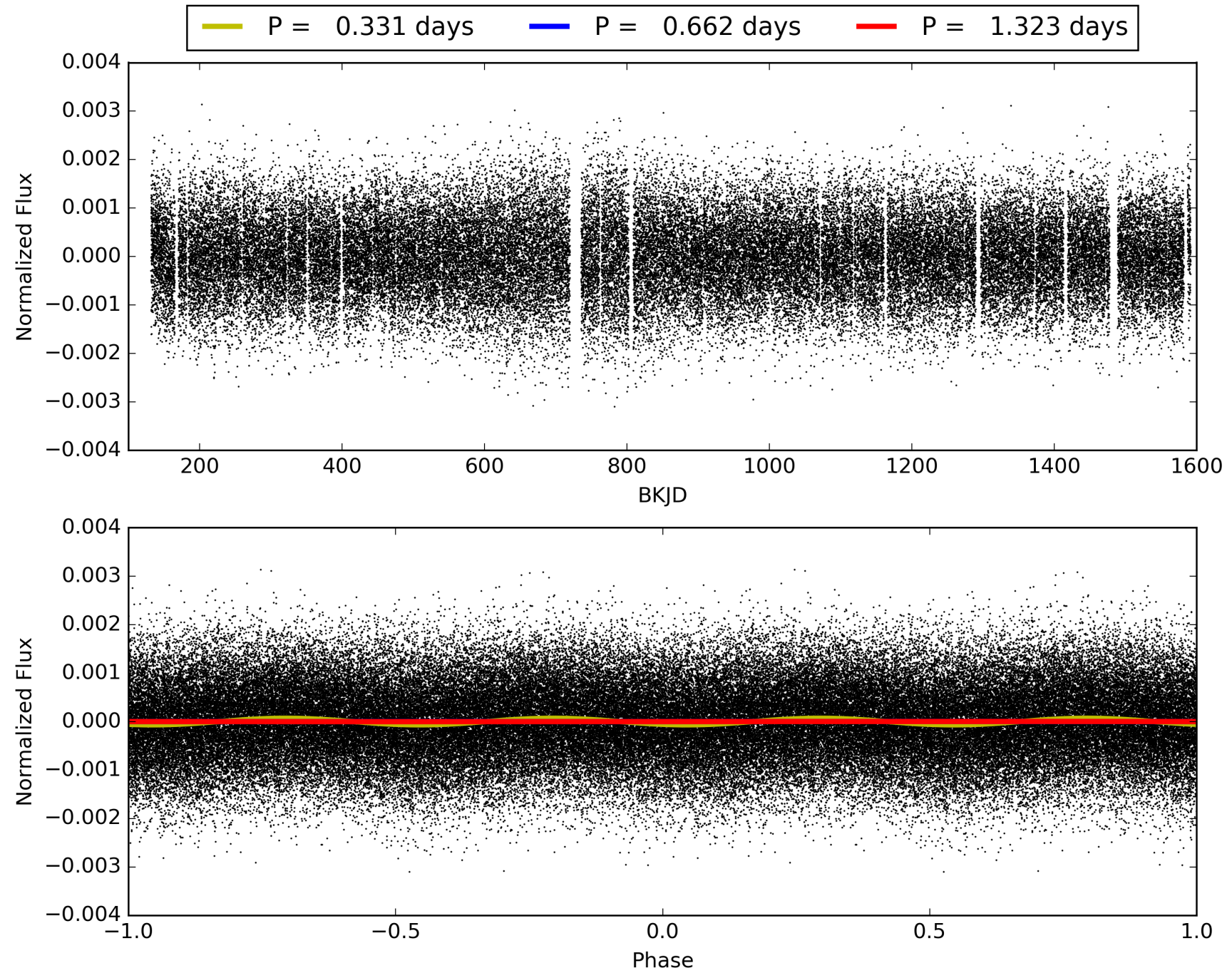
ShortPeriod-sig: N/A  
LongPeriod-sig: 9.1% [0.11 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.47e-05  
RollingBand-fgt: 0.79 [1077/1368]  
GhostDiagnostic-chr: 0.01981  
Centroid-sig: 3.5%  
Centroid-so: 0.363 arcsec [2.41 $\sigma$ ]  
OotOffset-rm: 0.065 arcsec [0.18 $\sigma$ ]  
KicOffset-rm: 0.192 arcsec [0.34 $\sigma$ ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.81 [13/16]  
DiffImageOverlap-fno: 0.00 [0/17]

# TCE 007902035-03, PDC Light Curves



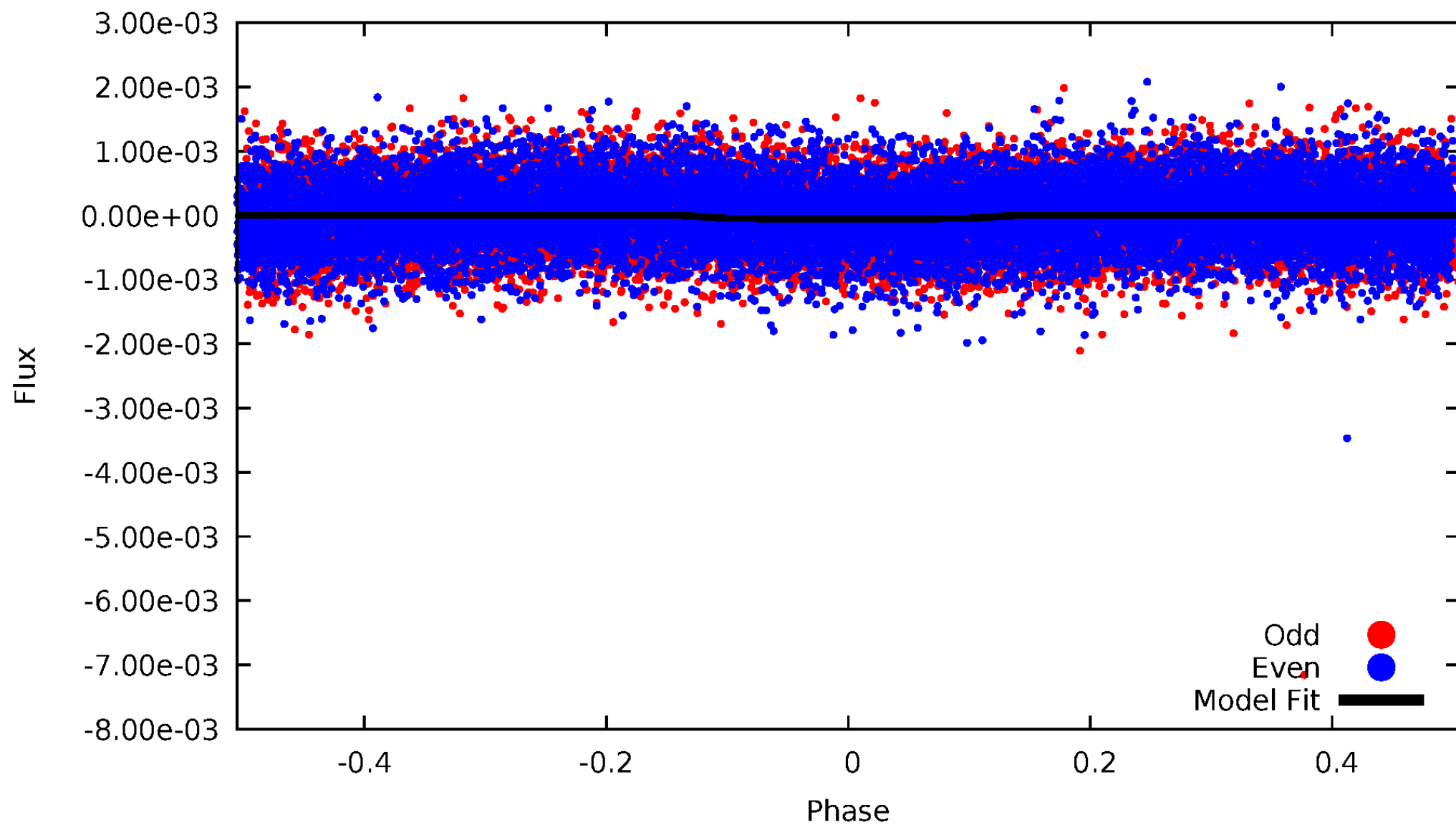


TCE 007902035-03



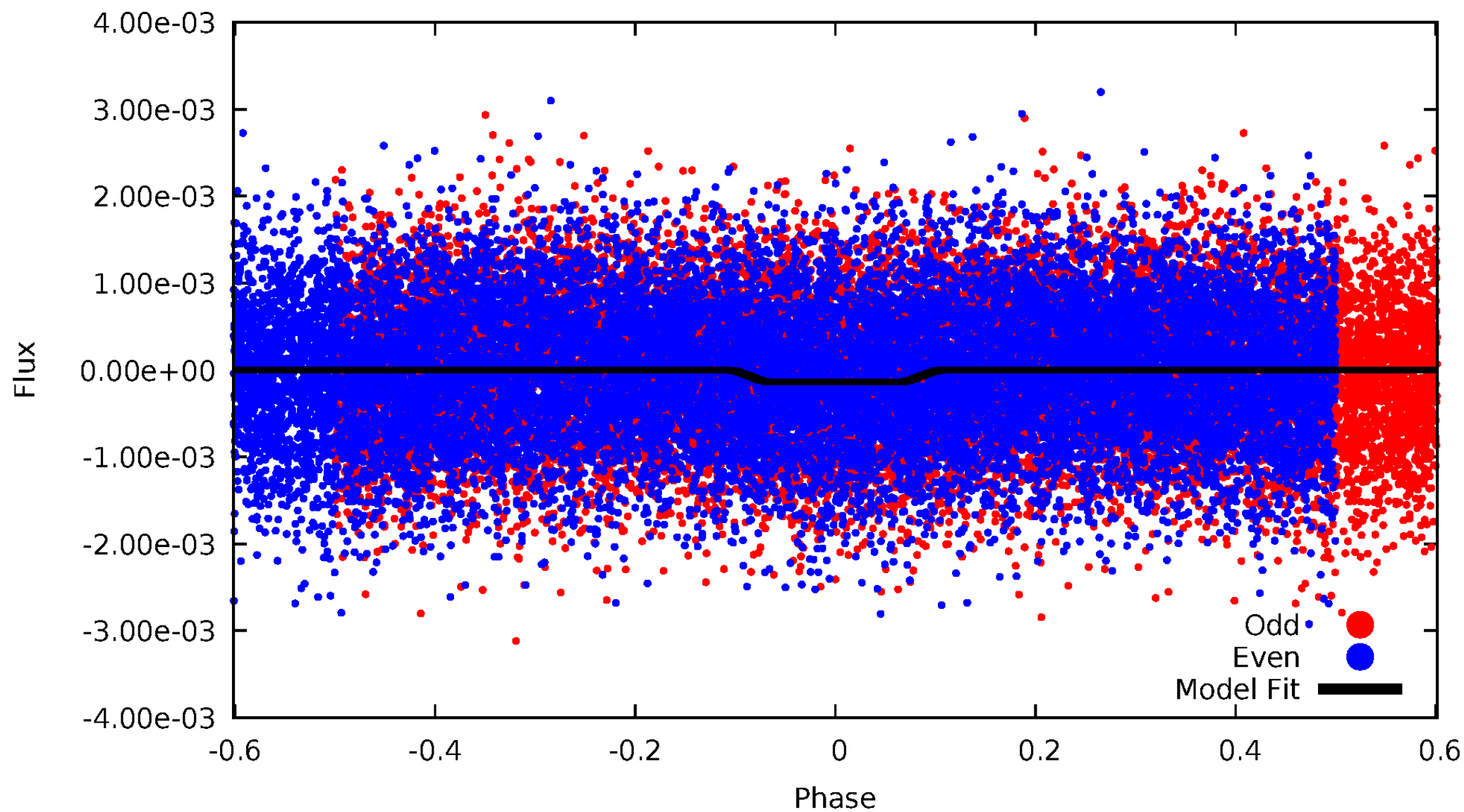
DV Odd/Even

TCE 007902035-03



# ALT Odd/Even

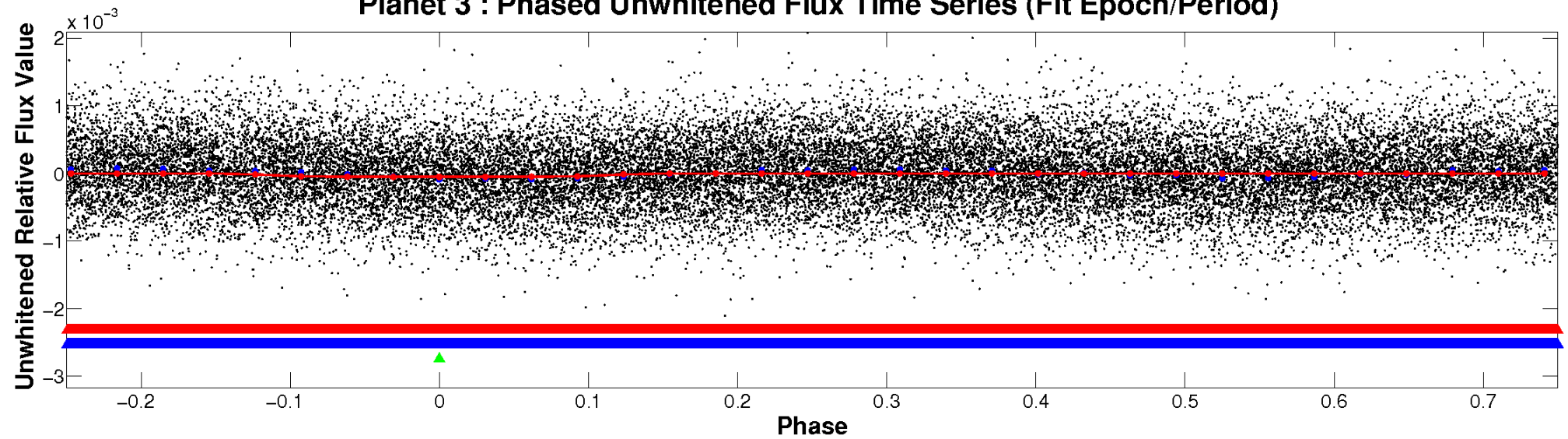
TCE 007902035-03



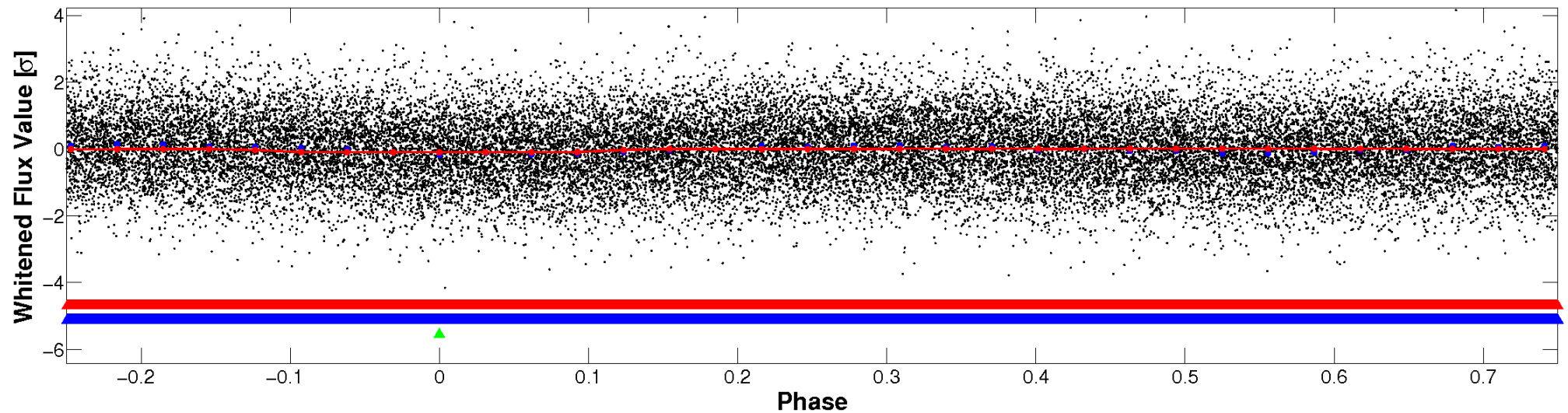


# Non-Whitened Vs. Whitened Light Curve

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

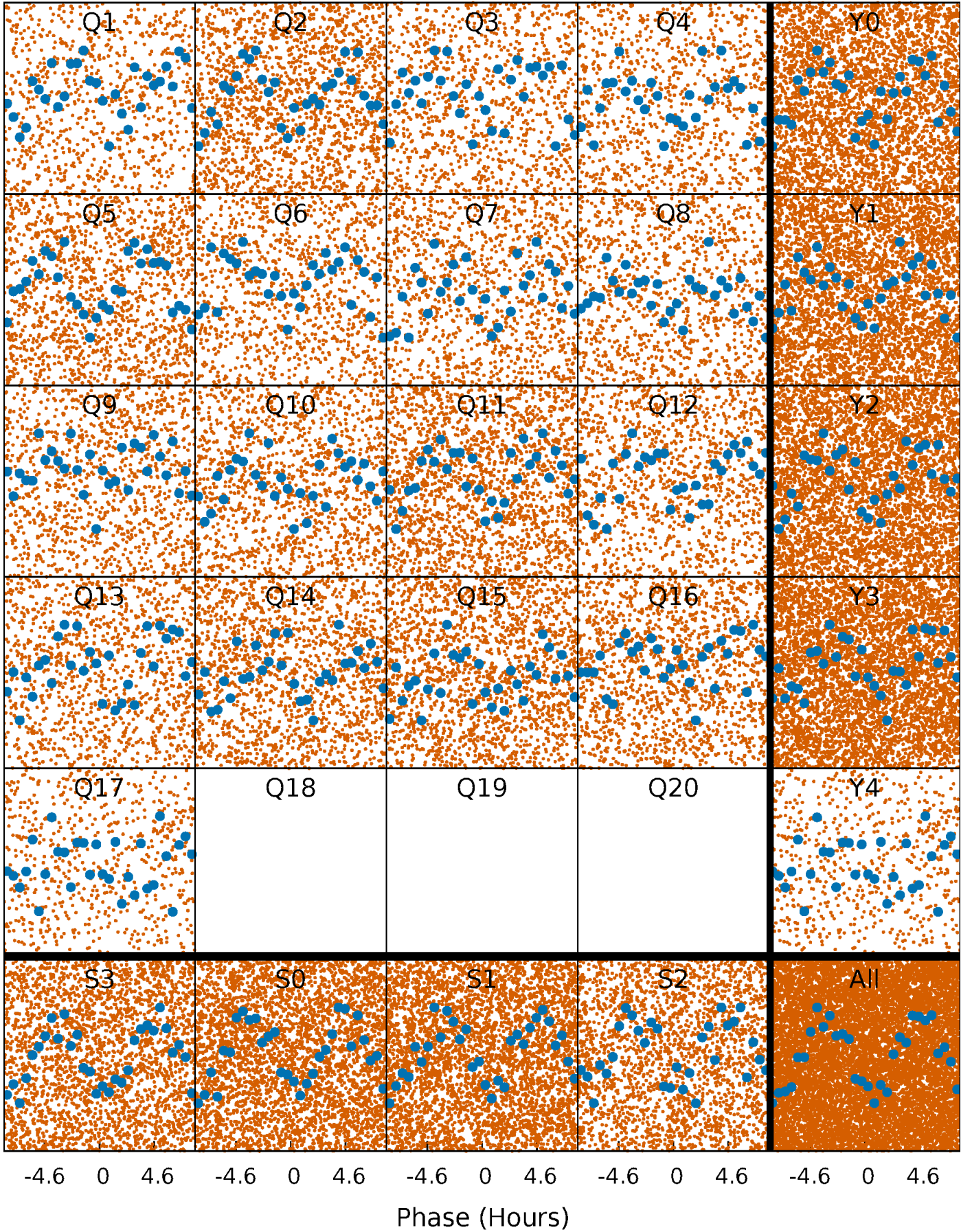


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

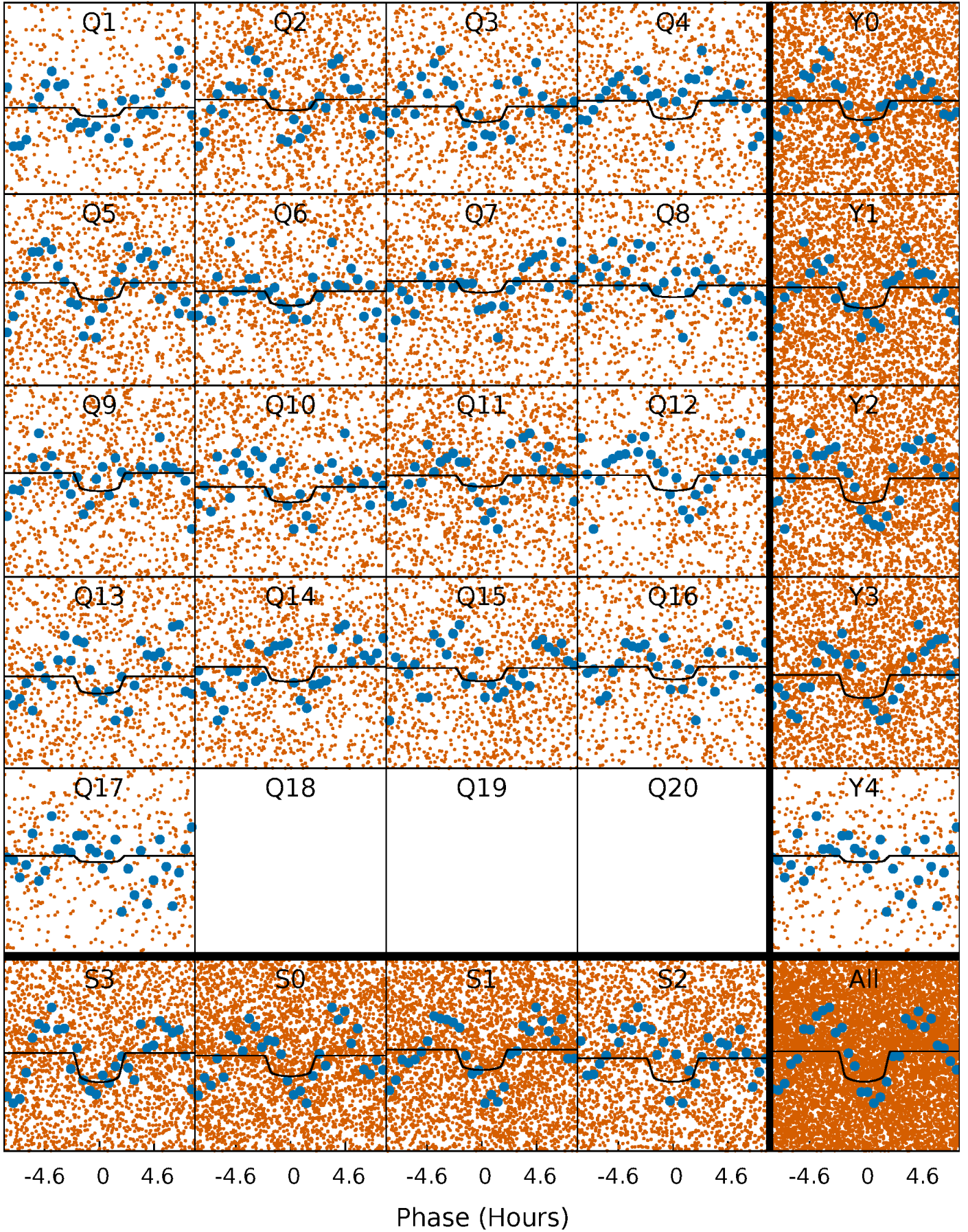
TCE 007902035-03 P= 0.661739 Days  $T_0=132.103251$  (BKJD)





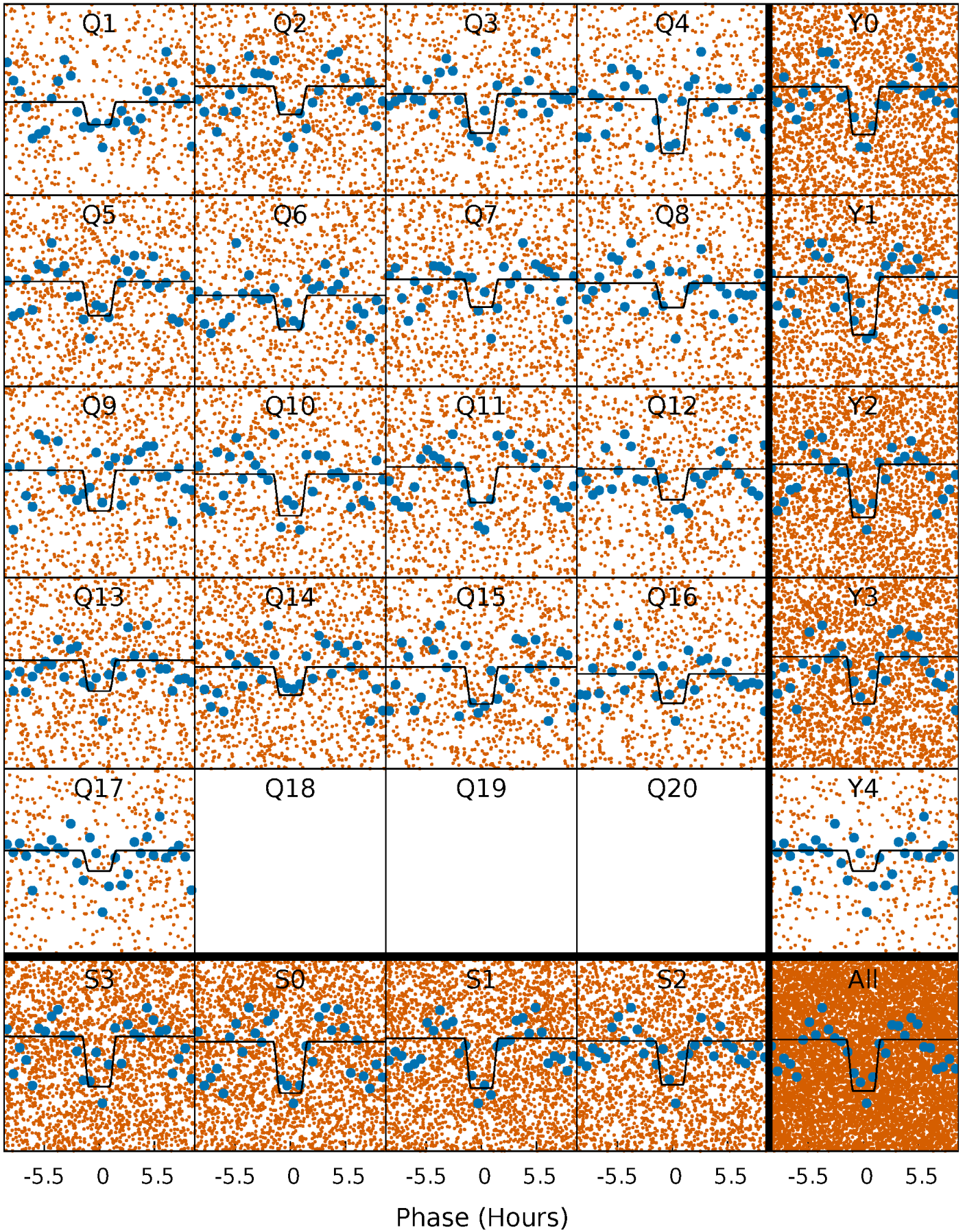
# DV Quarter-Phased Transit Curves

TCE 007902035-03 P= 0.661739 Days  $T_0=132.103251$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007902035-03 P= 0.661777 Days  $T_0=132.087047$  (BKJD)

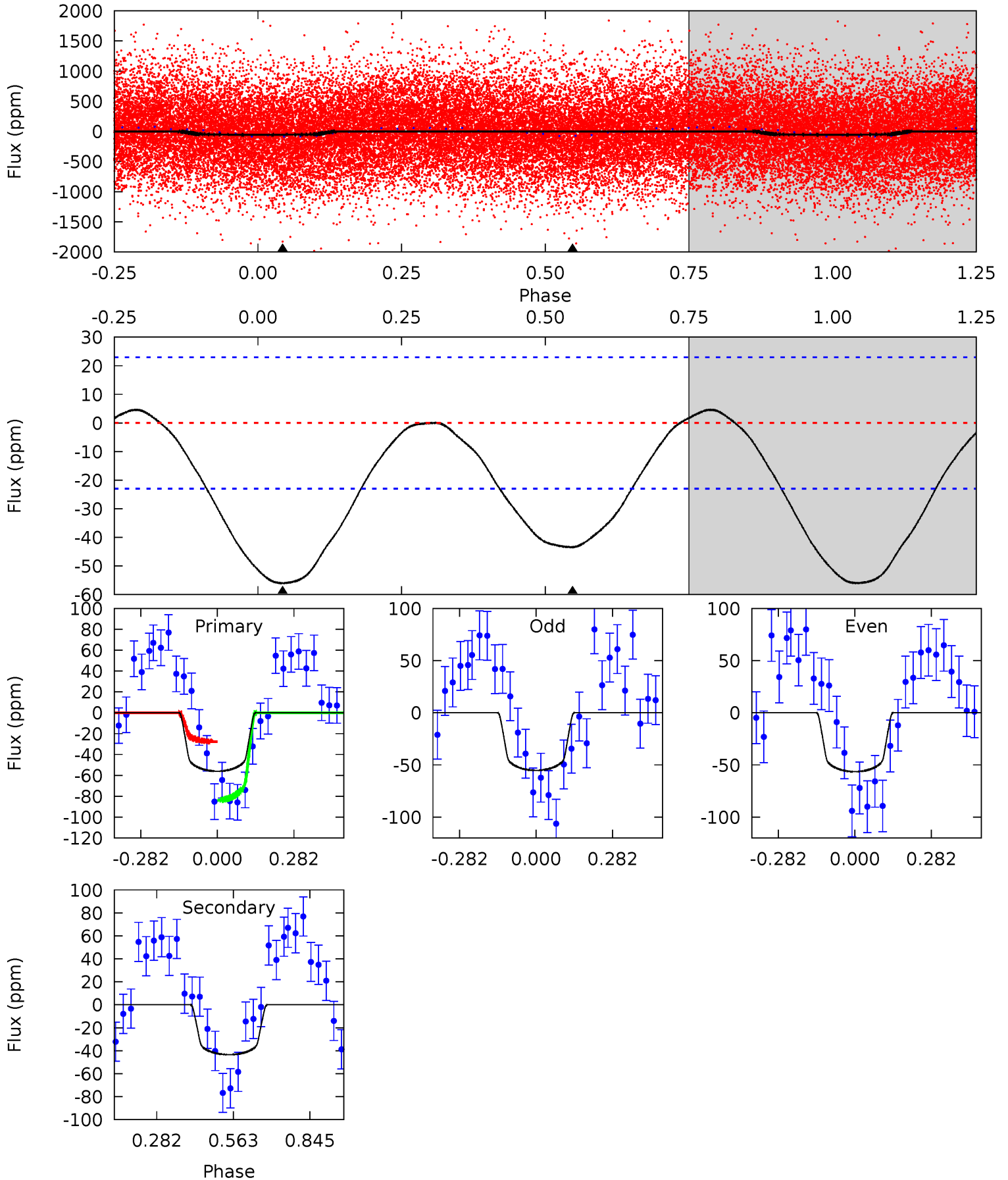




# DV Model-Shift Uniqueness Test

007902035-03, P = 0.661739 Days, E = 131.441512 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
10.6	8.21	0	0	4.34	1.08	0.40	10.6	10.6	8.21	8.21	0.12	0.98	0.08	5.34

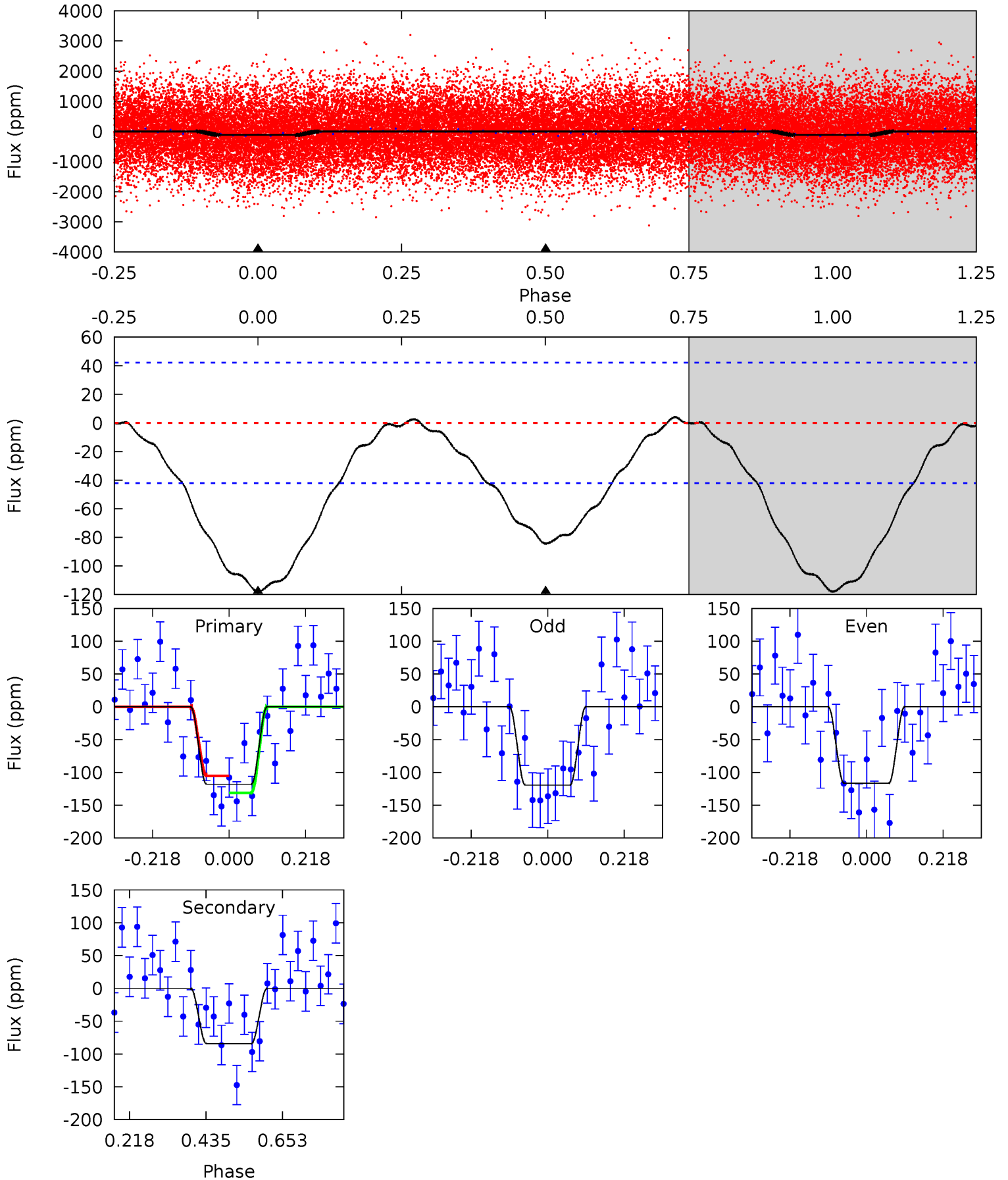




# Alt Model-Shift Uniqueness Test

007902035-03, P = 0.661777 Days, E = 131.425270 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
12.3	8.80	0	0	4.40	1.23	0.19	12.3	12.3	8.80	8.80	0.15	1.04	0.03	1.35



### Stellar Parameters For KIC 007902035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$8770^{+278}_{-383}$	$3.805^{+0.331}_{-0.178}$	$0.210^{+0.150}_{-0.550}$	$3.294^{+1.066}_{-1.303}$	$2.524^{+0.314}_{-0.680}$	$0.099^{+0.230}_{-0.051}$
	+3%/-4%	+9%/-5%	+71%/-262%	+32%/-40%	+12%/-27%	+231%/-51%
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 007902035-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-43 \pm 5$	$2.70^{+1.79}_{-1.51}$	$6784^{+611}_{-728}$	$7077^{+6403}_{-2226}$	$1.317^{+5.367}_{-0.834}$
Alt.	$-84 \pm 10$	$3.84^{+1.90}_{-1.54}$	$6762^{+654}_{-681}$	$6936^{+3346}_{-1626}$	$1.240^{+2.065}_{-0.676}$

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

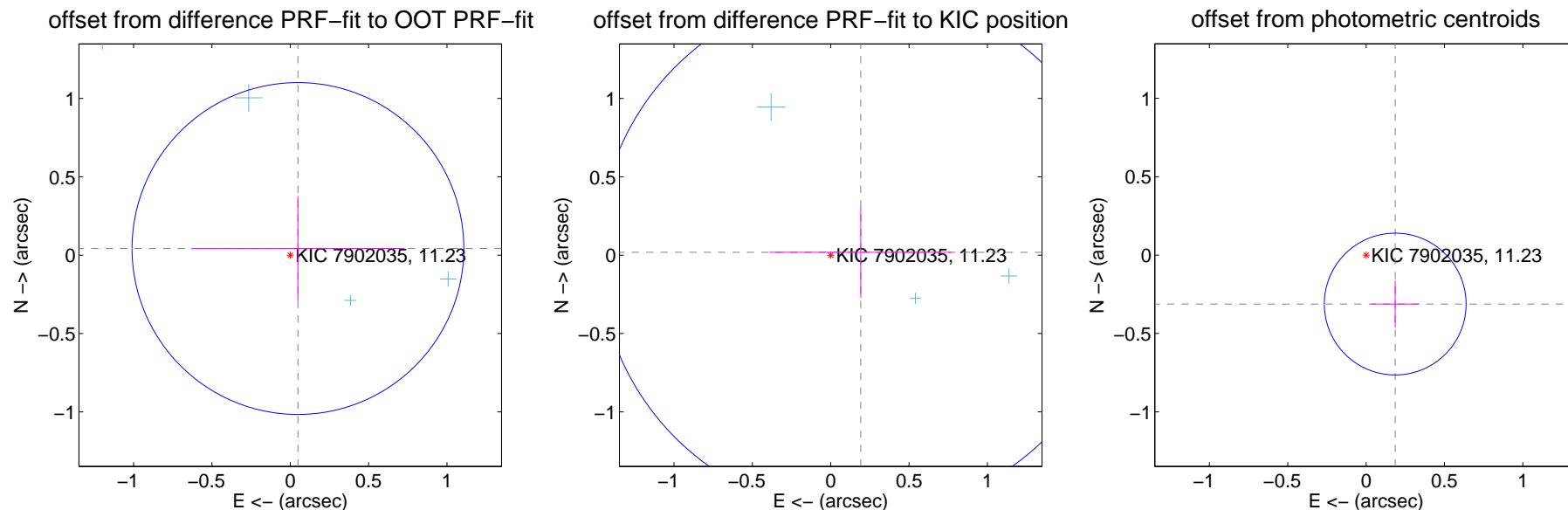
## DV Centroid Data

Supplemental centroid analysis for 007902035-03. **Kepler magnitude: 11.23.** Transit SNR 7.72

There are 13 quarters with good PRF difference image offsets

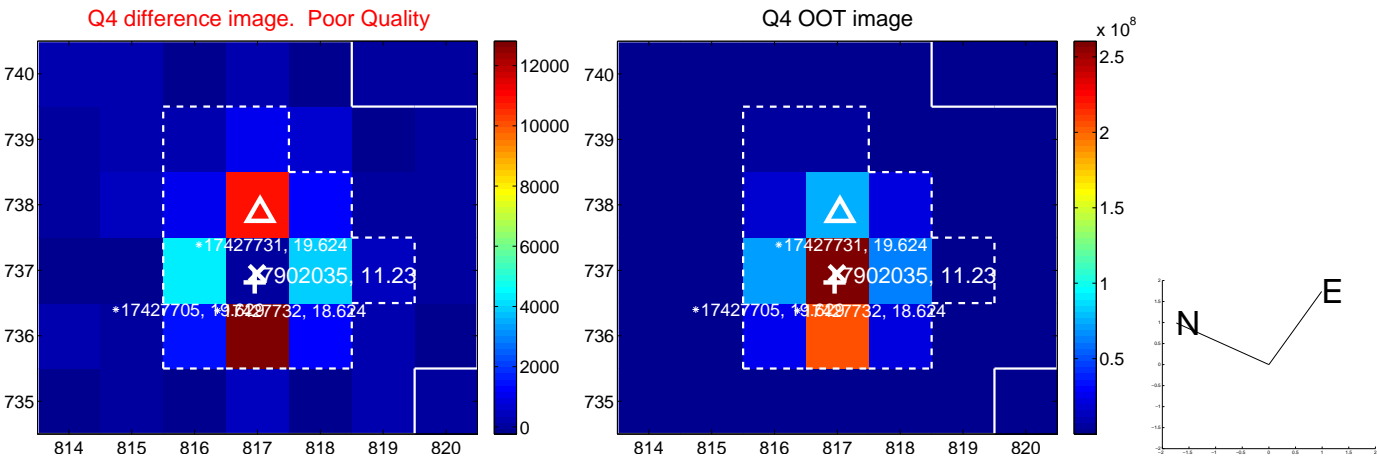
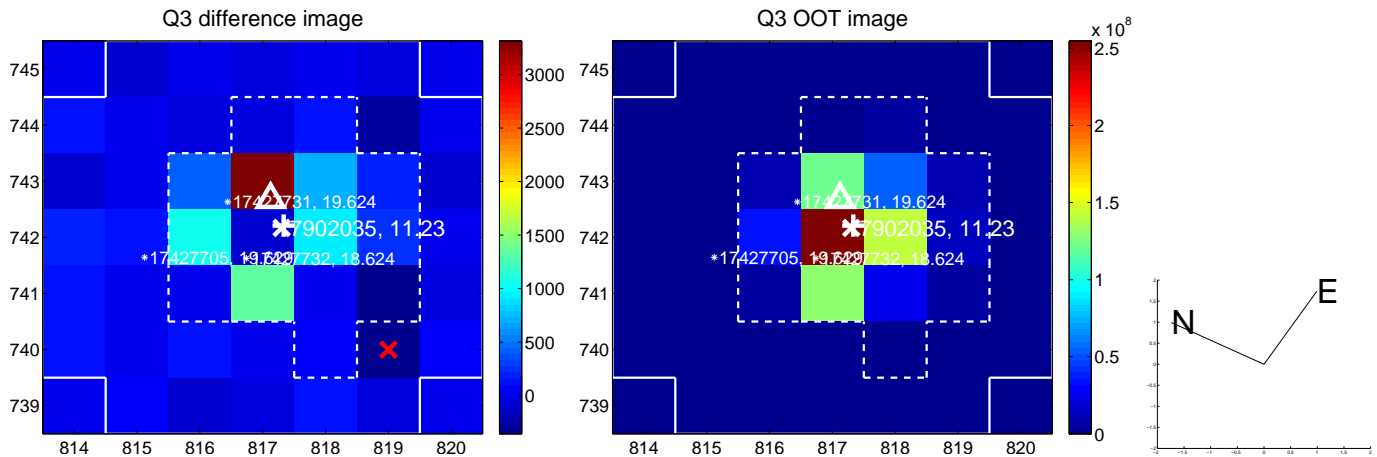
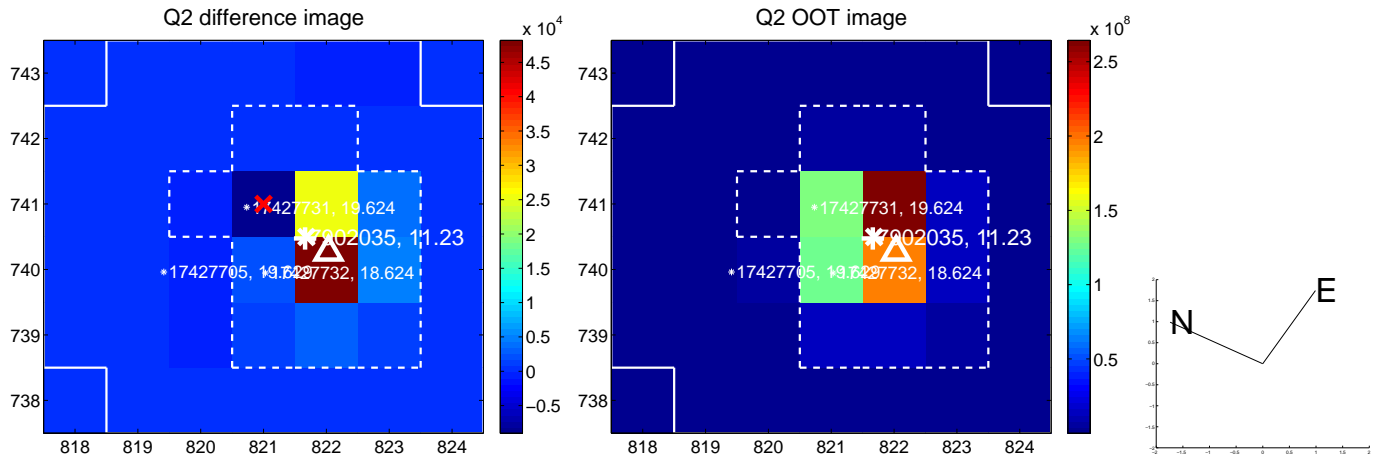
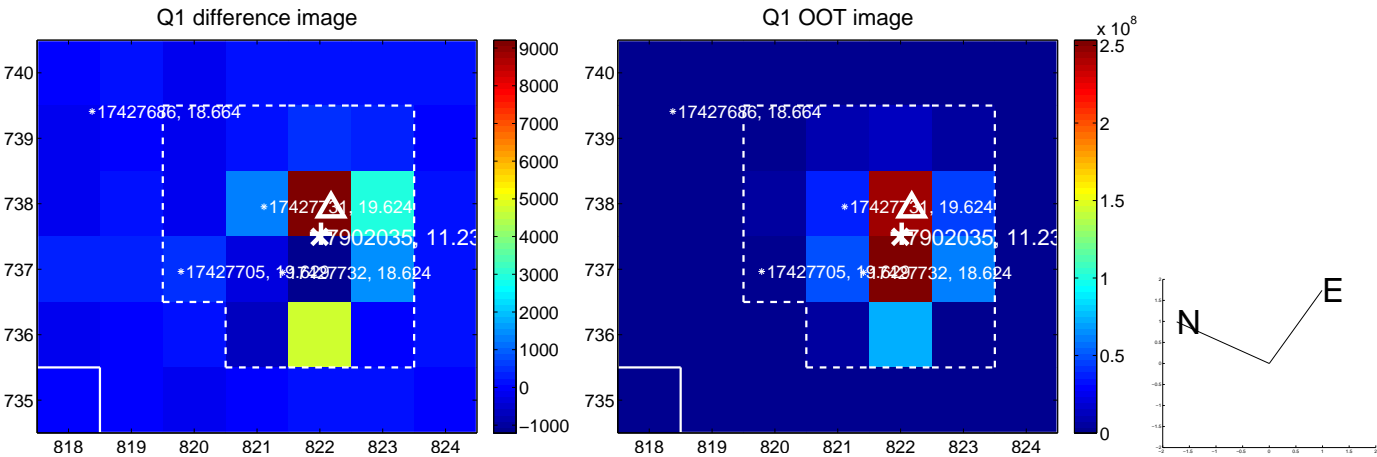
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.065 \pm 0.353$	0.18	$-0.049 \pm 0.679$	$0.042 \pm 0.334$
PRF-fit source offset from KIC position	$0.192 \pm 0.558$	0.34	$-0.191 \pm 0.582$	$0.018 \pm 0.290$
photometric centroid source offset	$0.36 \pm 0.15$	2.41	$-0.19 \pm 0.15$	$-0.31 \pm 0.15$

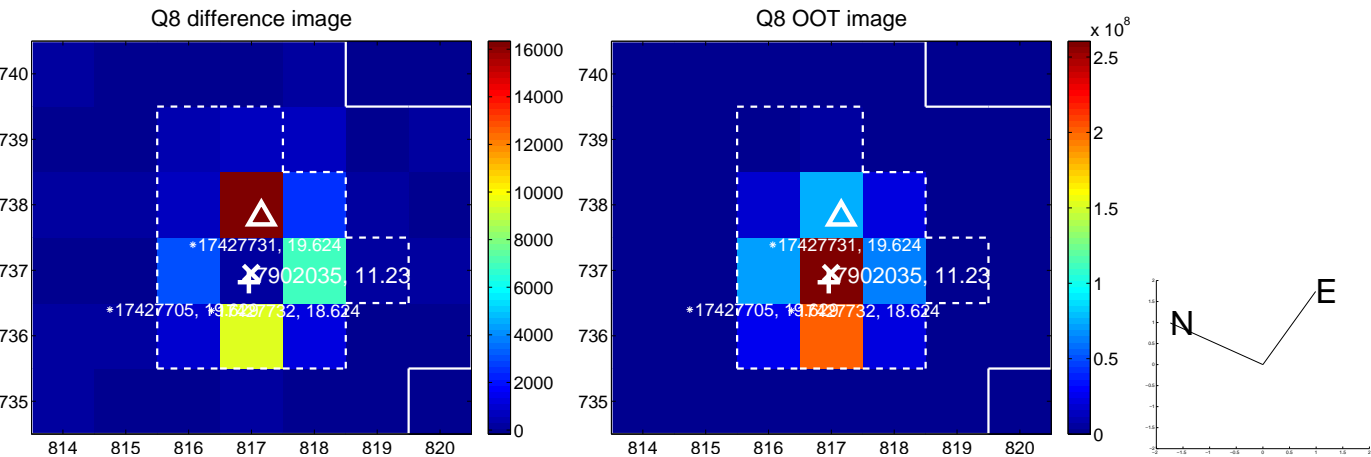
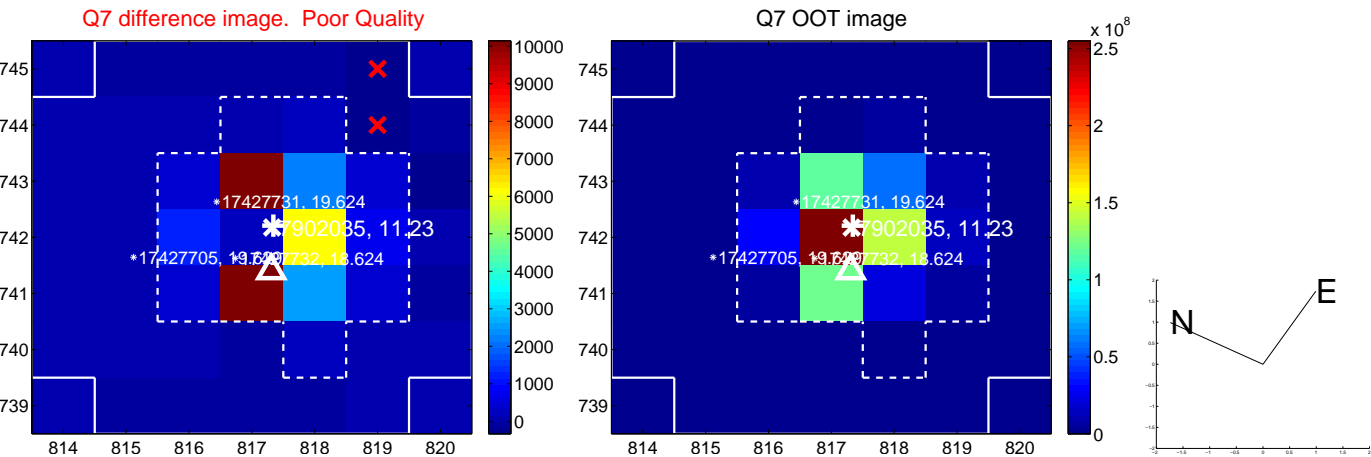
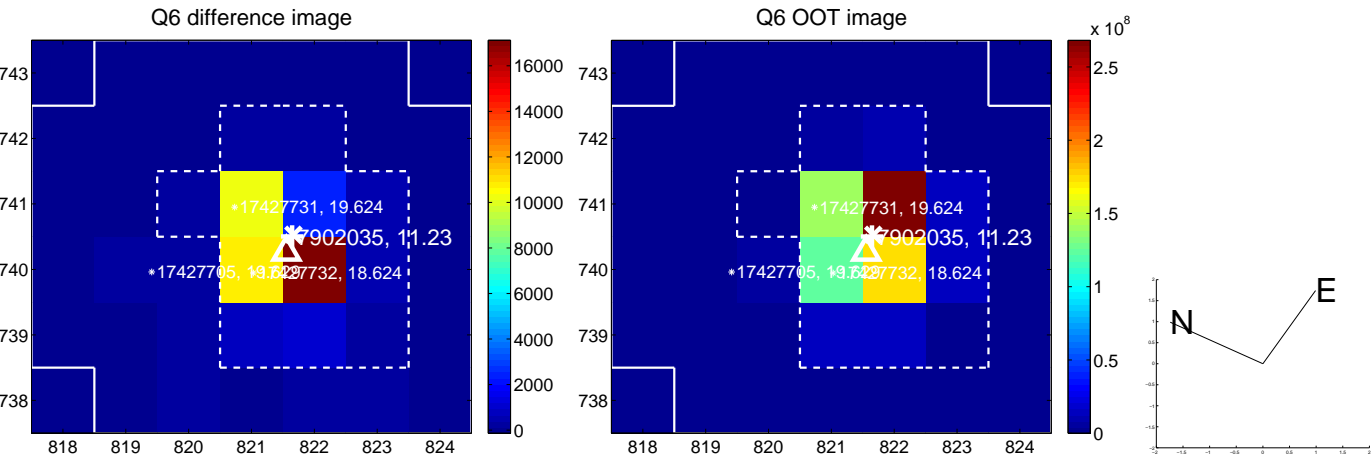
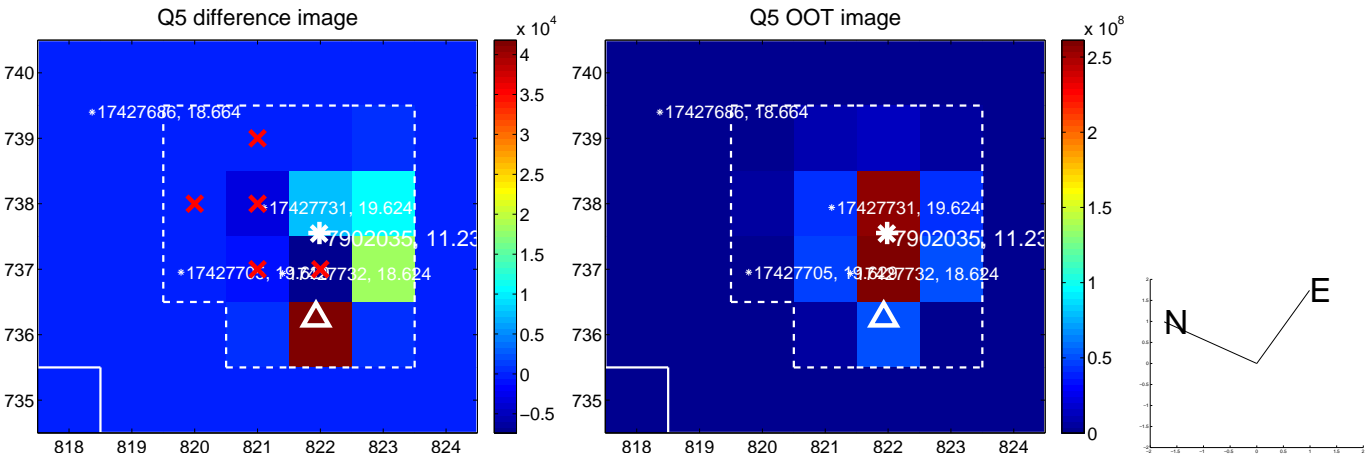


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

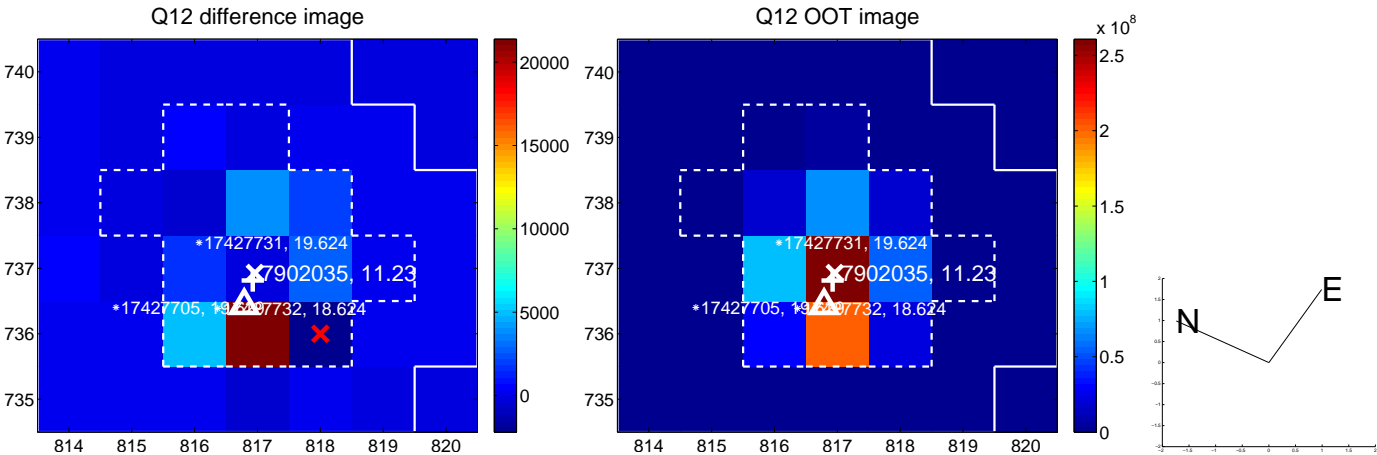
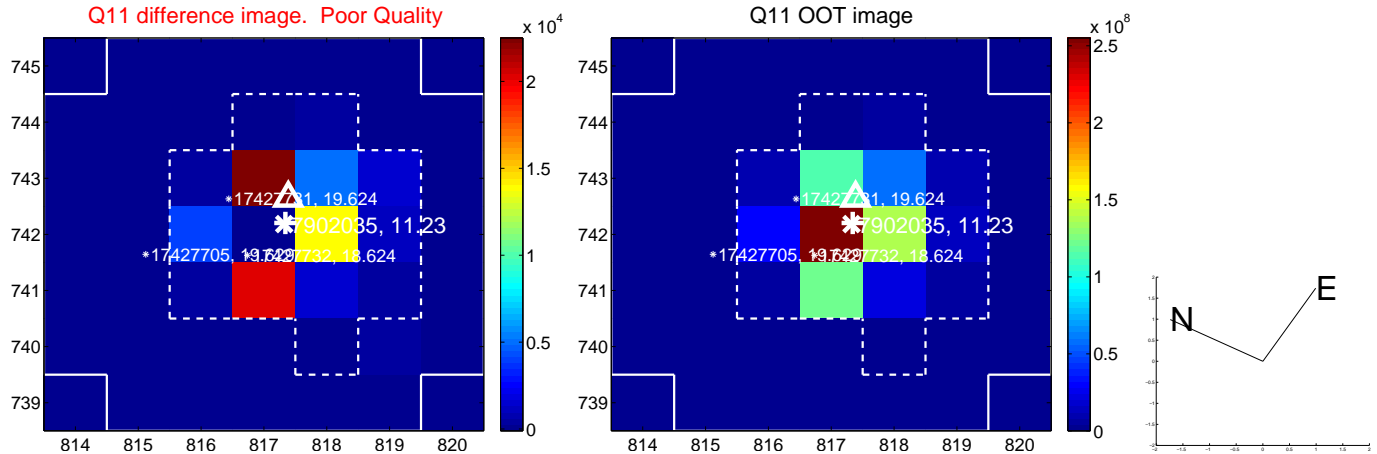
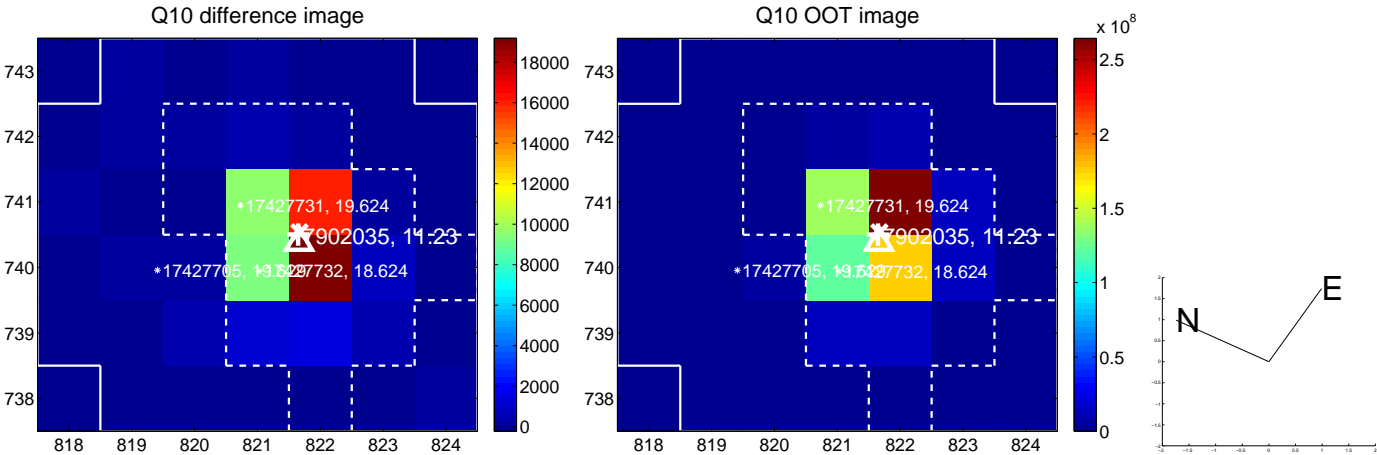
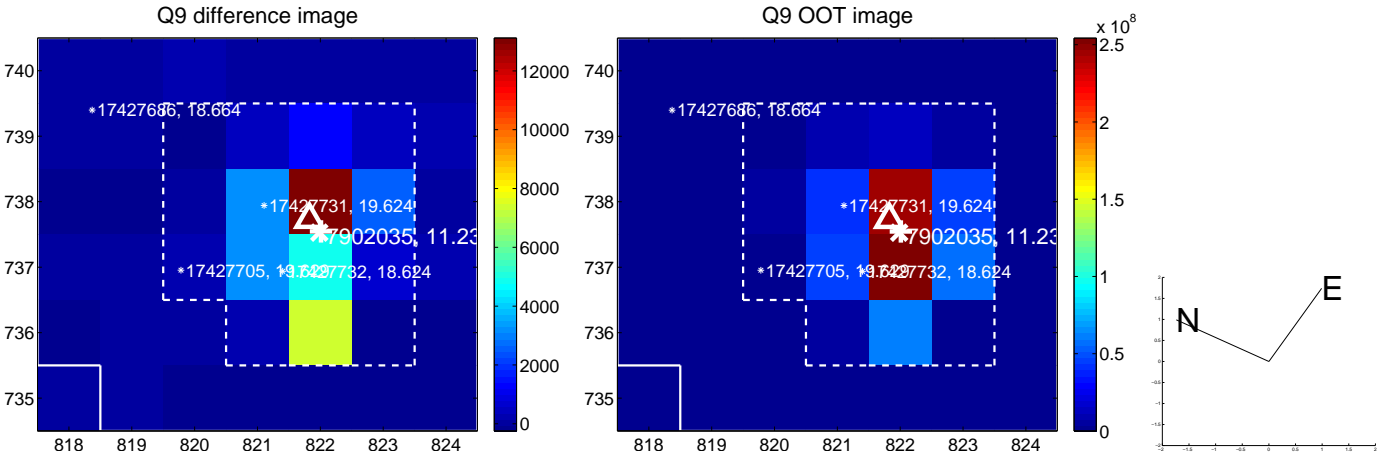


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

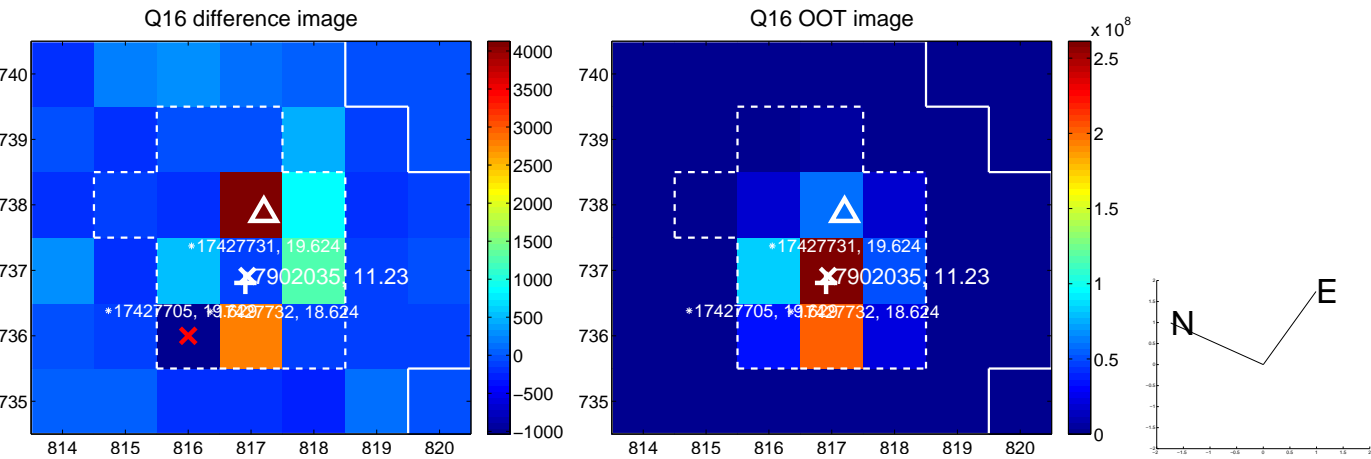
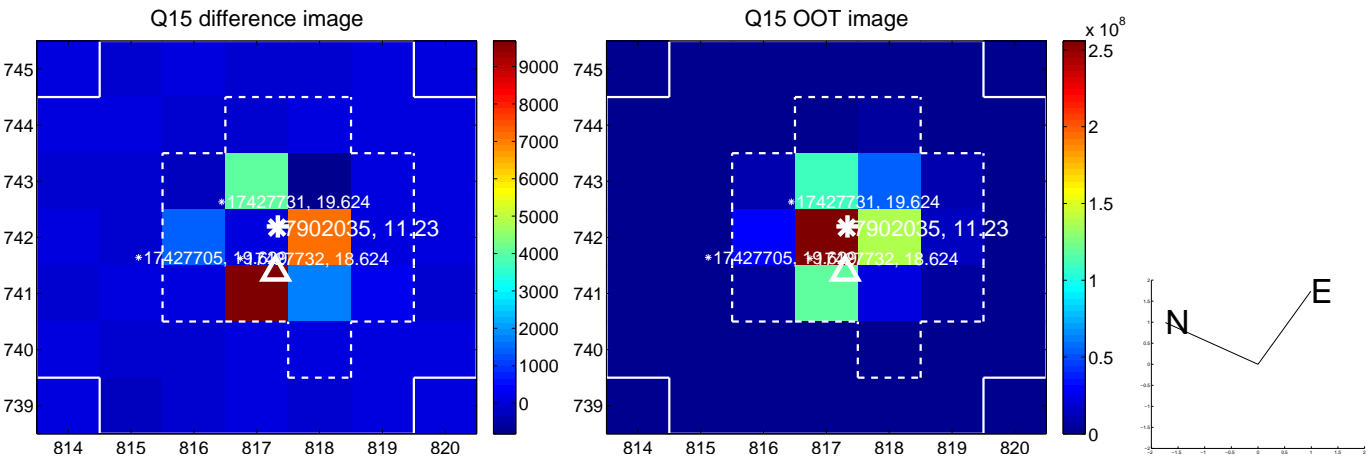
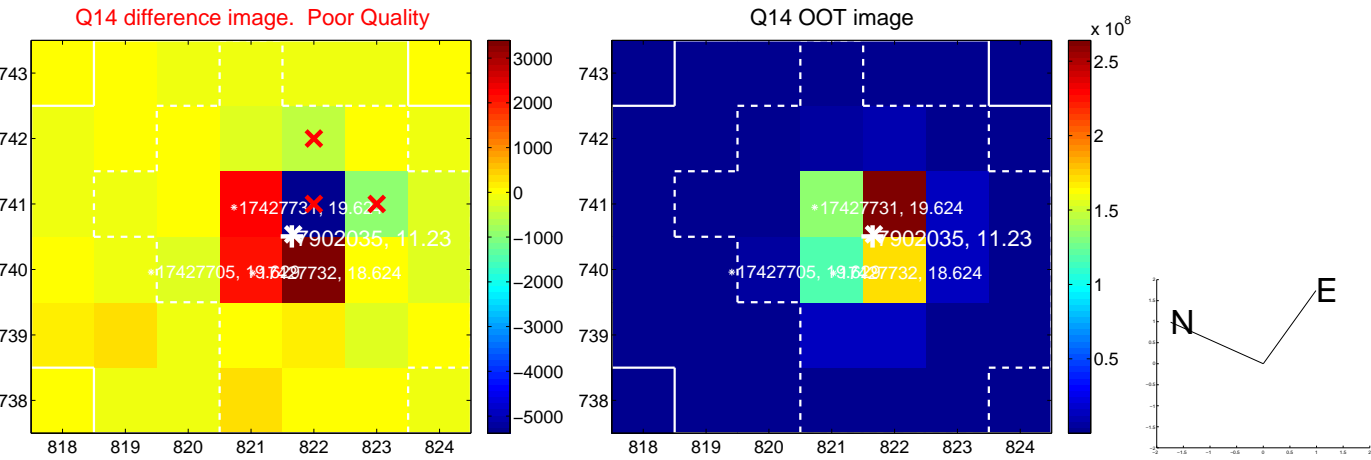
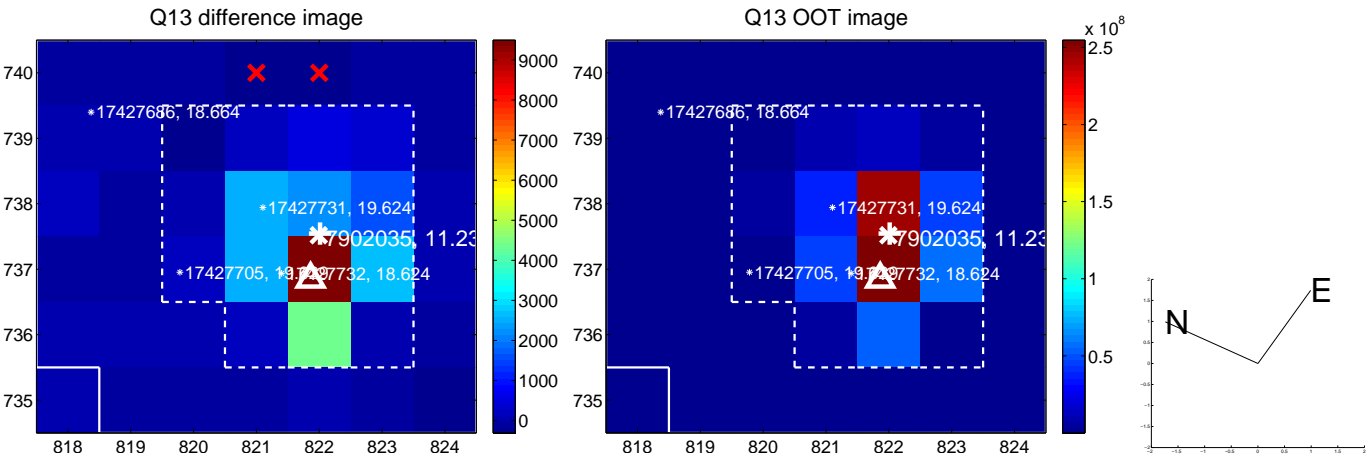




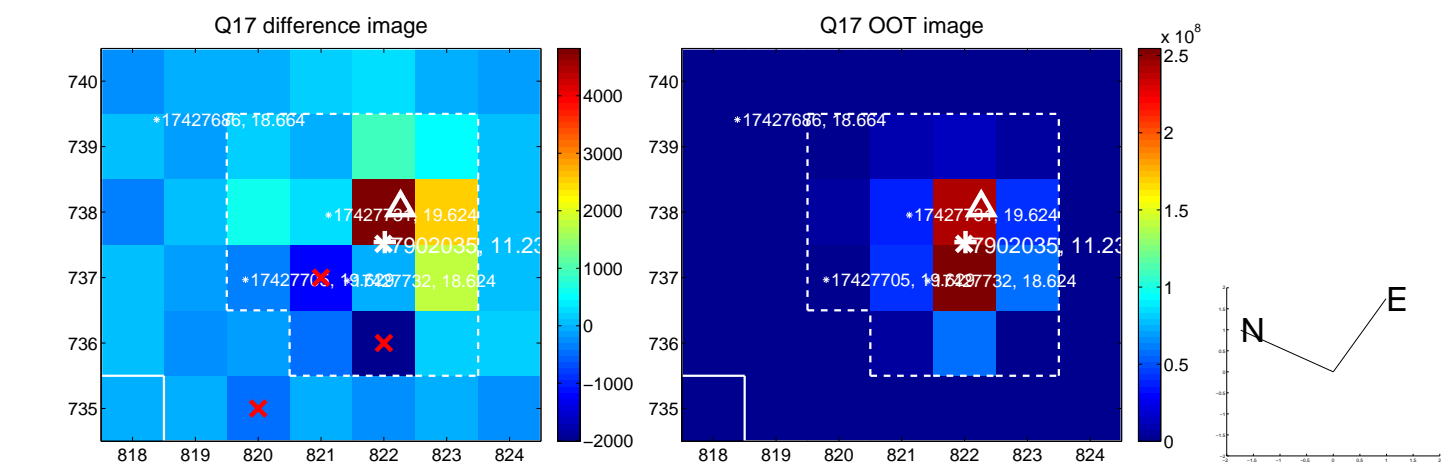
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



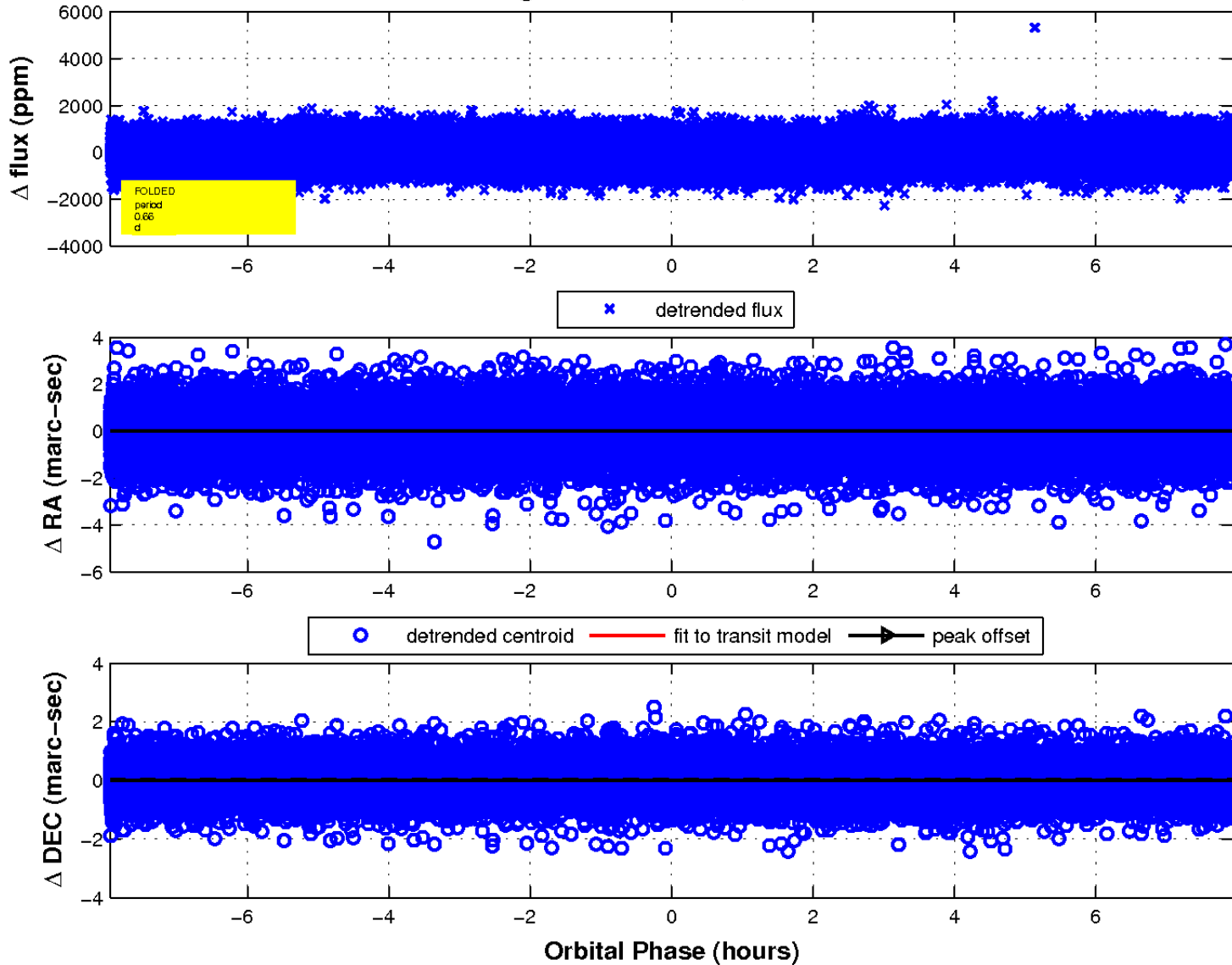
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



### fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

