

# KIC 003119256

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003119256-01	OBS	2784.01	4.142443	132.904487	63.7	2.303	17.5	19.0	2.12	6785	1.98	3129.83
003119256-02	OBS	No	1.750440	131.835768	26.9	6.901	10.9	12.1	2.12	6785	1.28	9870.38
003119256-03	OBS	No	1.750792	132.609903	19.1	5.505	10.0	10.4	2.12	6785	1.07	9867.73
003119256-06	OBS	No	9.328479	136.995480	70.4	6.585	8.2	4.7	2.12	6785	2.03	1060.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003119256-01	OBS	FP	0.00	0	0	1	0	CENT_SATURATED—HALO_GHOST
003119256-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003119256-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003119256-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_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 003119256-01

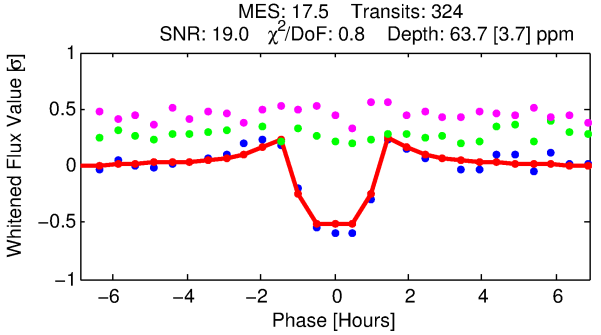
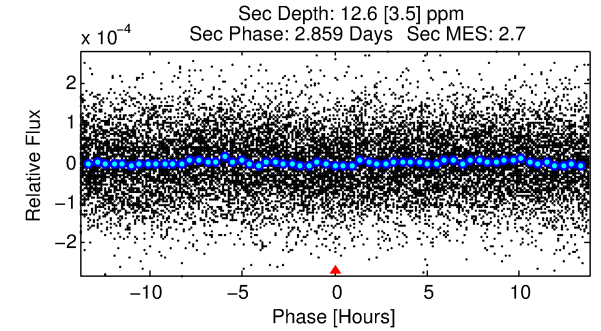
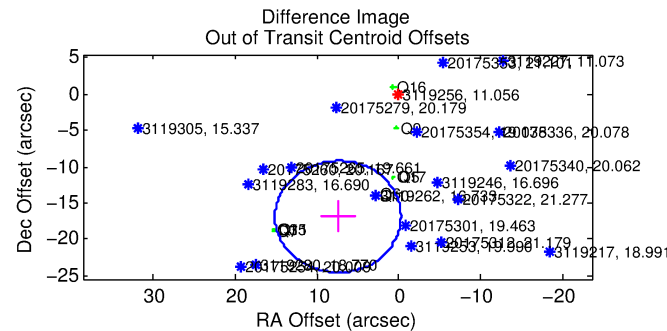
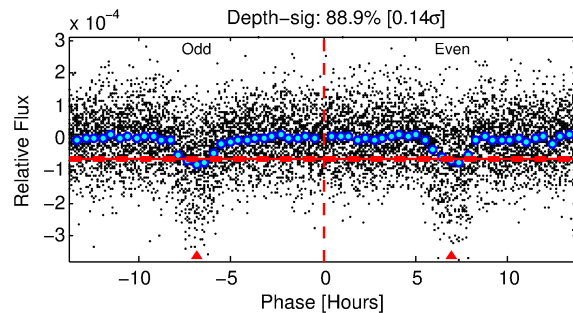
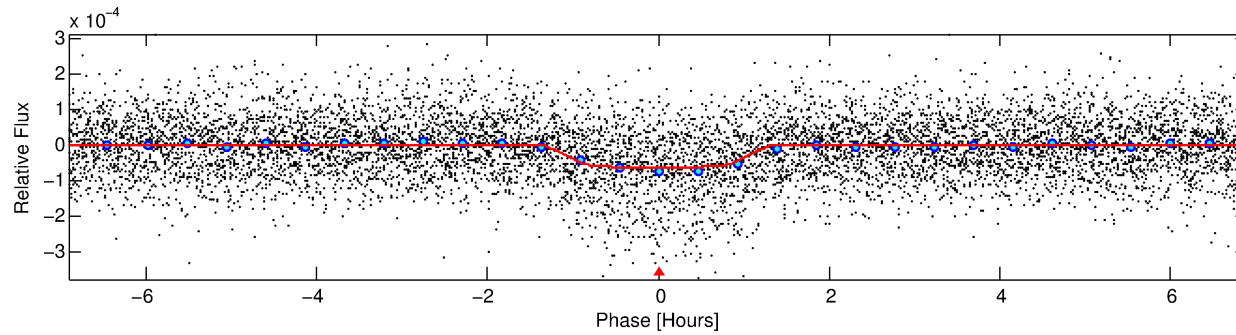
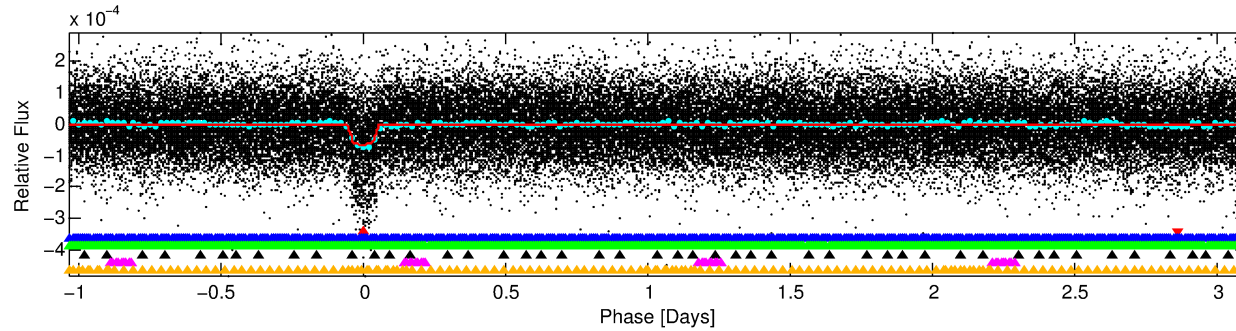
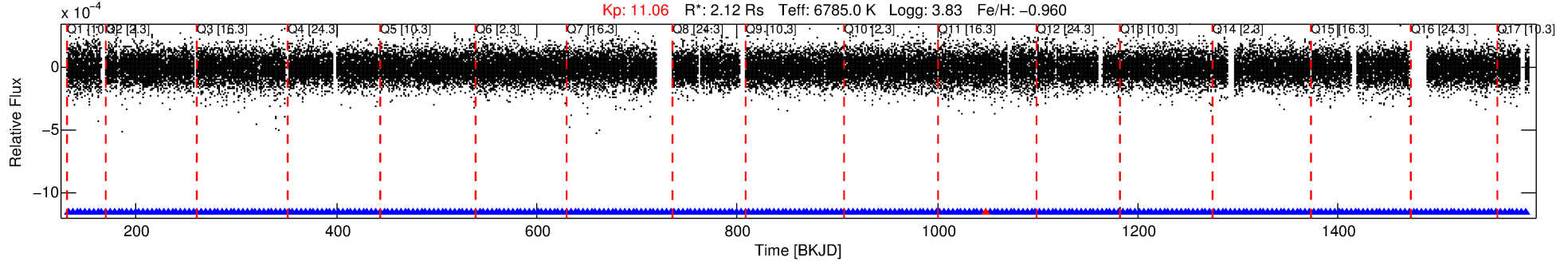
No Significant Match Found

# DV One-Page Summary

KIC: 3119256 Candidate: 1 of 6 Period: 4.142 d

KOI: K02784.01 Corr: 0.984

Kp: 11.06 R\*: 2.12 Rs Teff: 6785.0 K Logg: 3.83 Fe/H: -0.960



## DV Fit Results:

Period = 4.14244 [0.00001] d  
Epoch = 132.9045 [0.0014] BKJD  
Rp/R\* = 0.0085 [0.0015]  
a/R\* = 6.26 [6.56]  
b = 0.90 [0.22]  
Seff = 3129.83 [1842.16]  
Teq = 1907 [281] K  
Rp = 1.98 [0.81] Re  
a = 0.0523 [0.0187] AU  
Ag = 4.86 [3.55] [1.09σ]  
Teffp = 4379 [516] K [4.21σ]

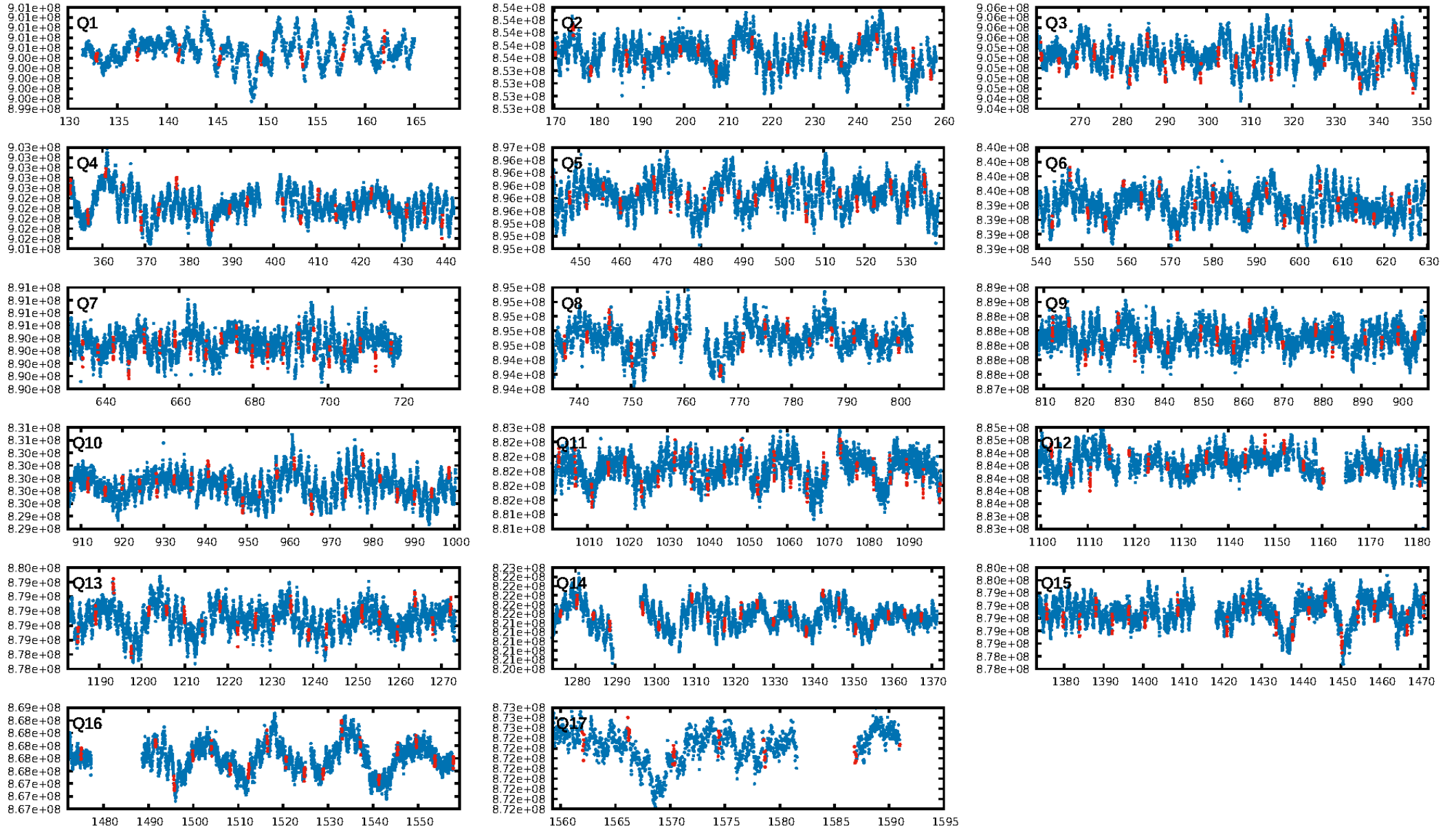
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [9.62σ]  
LongPeriod-sig: 100.0% [17.84σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.47e-39  
RollingBand-fgt: 1.00 [308/309]  
GhostDiagnostic-chr: 0.06858  
Centroid-sig: 0.0%  
Centroid-so: 8.836 arcsec [18.48σ]  
OotOffset-rm: 18.452 arcsec [7.20σ]  
KicOffset-rm: 14.386 arcsec [9.52σ]  
OotOffset-st: 2/4/1/3 [10]  
KicOffset-st: 2/4/1/3 [10]  
DiffImageQuality-fgm: 0.80 [8/10]  
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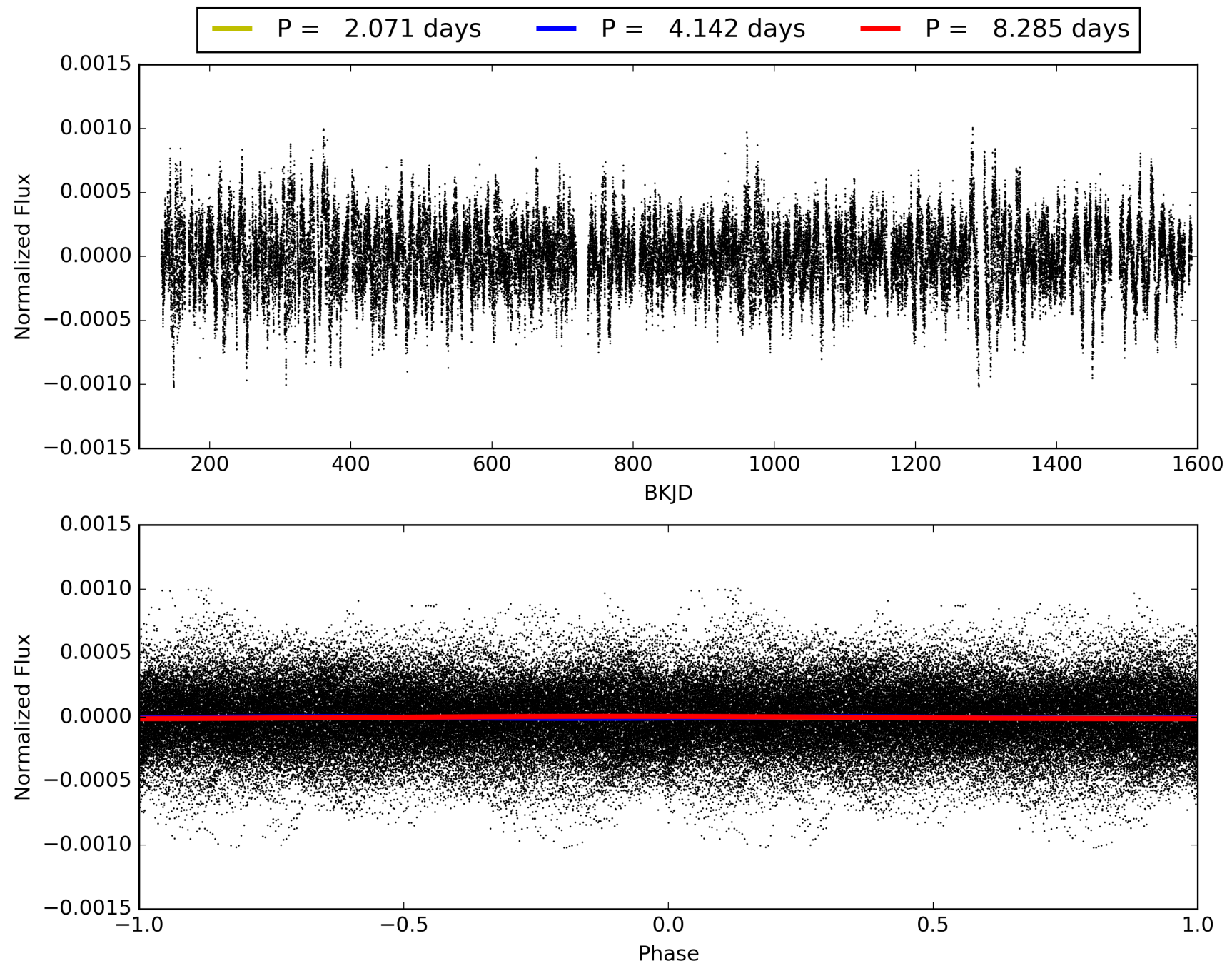
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003119256-01, PDC Light Curves



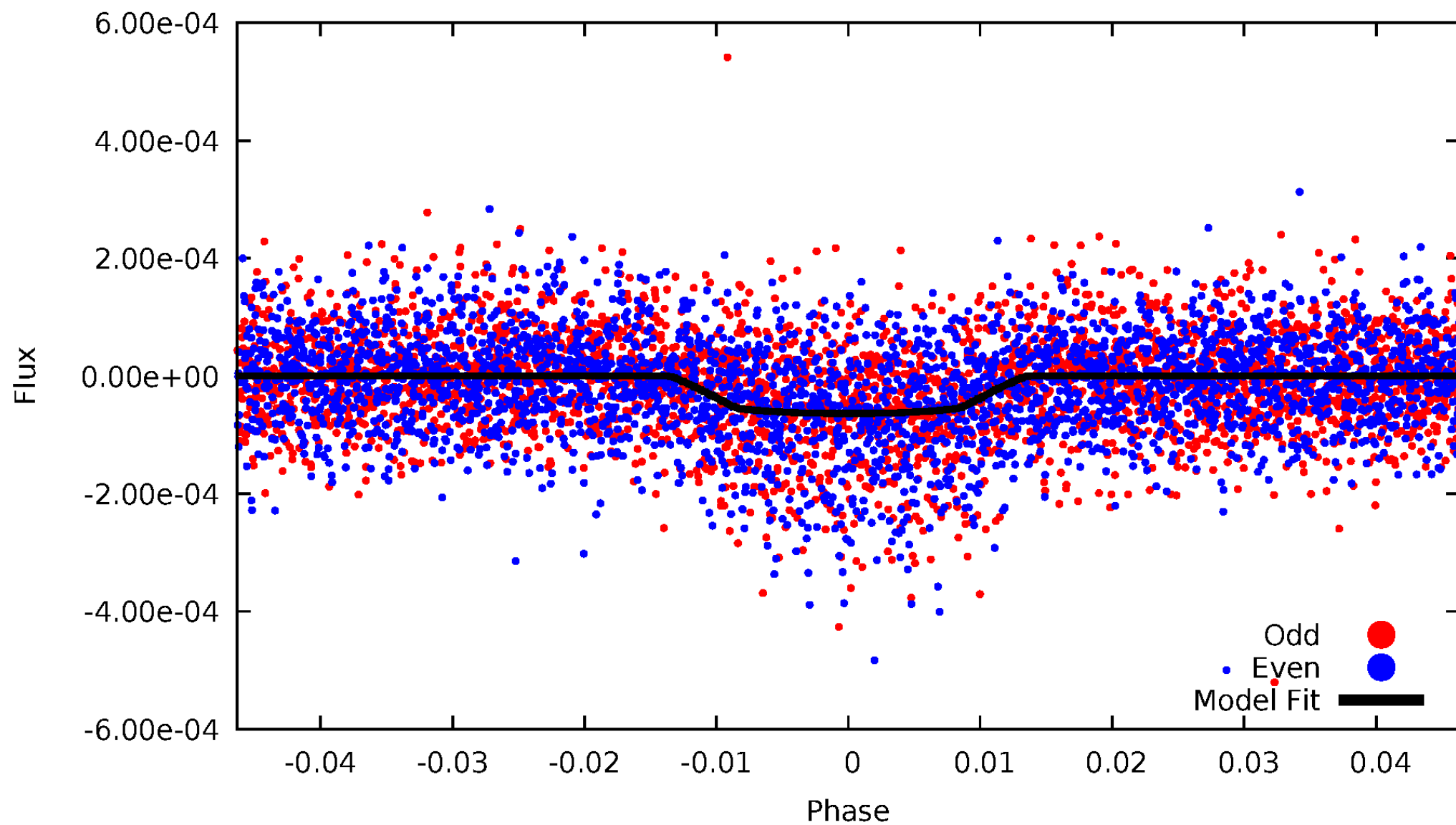
TCE 003119256-01





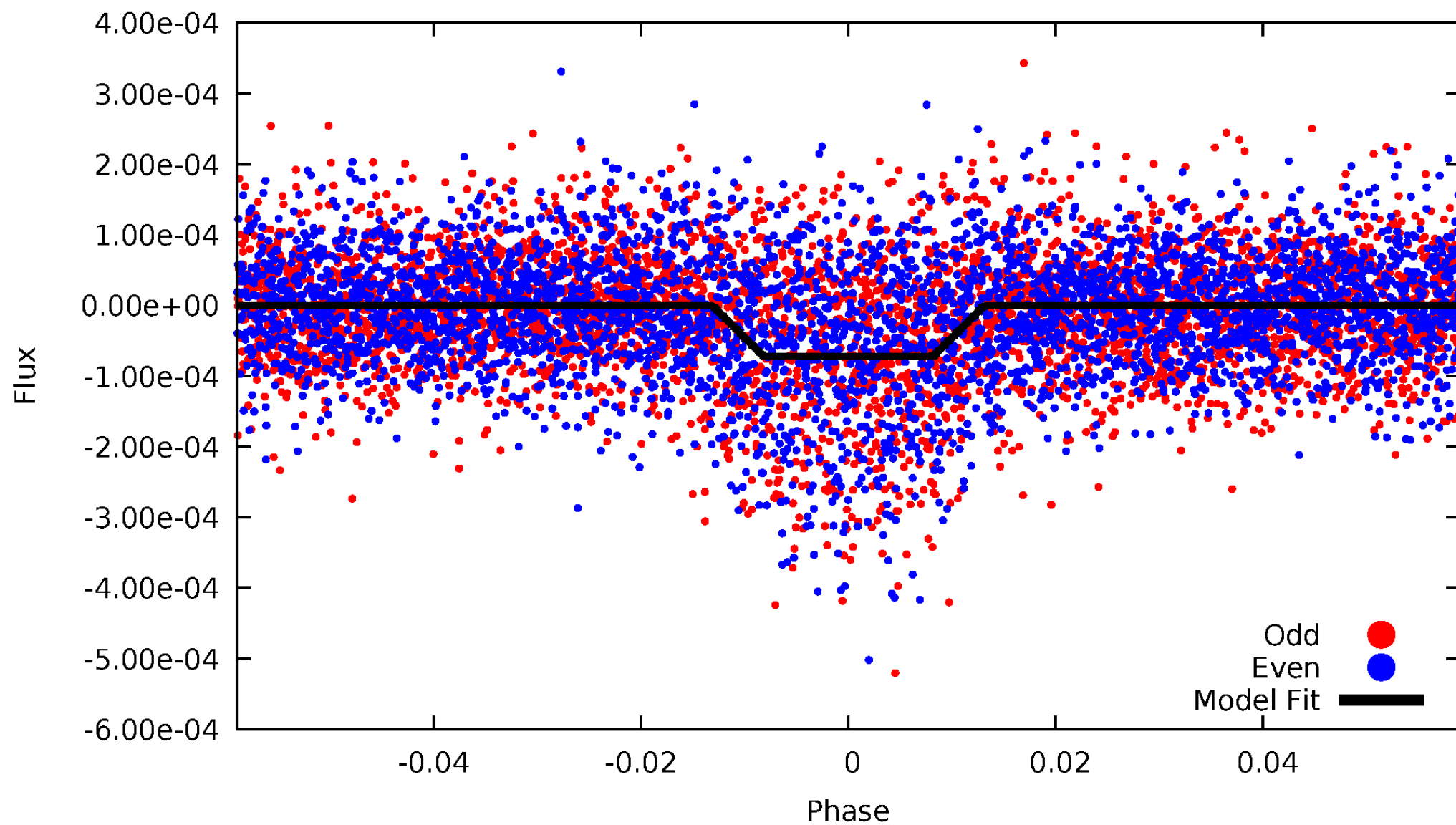
# DV Odd/Even

TCE 003119256-01



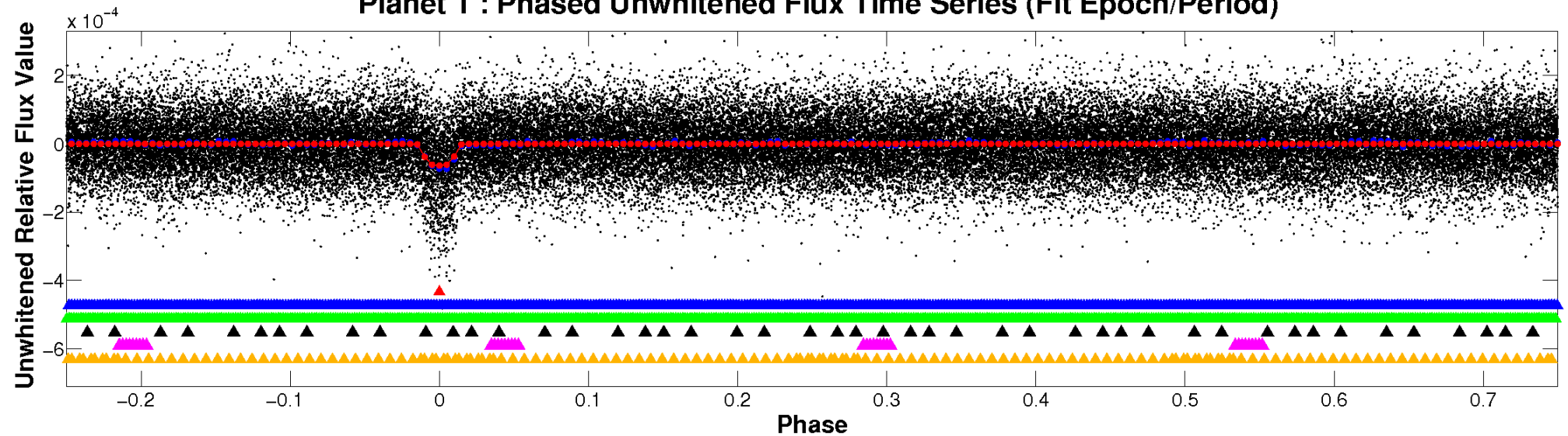
# ALT Odd/Even

TCE 003119256-01

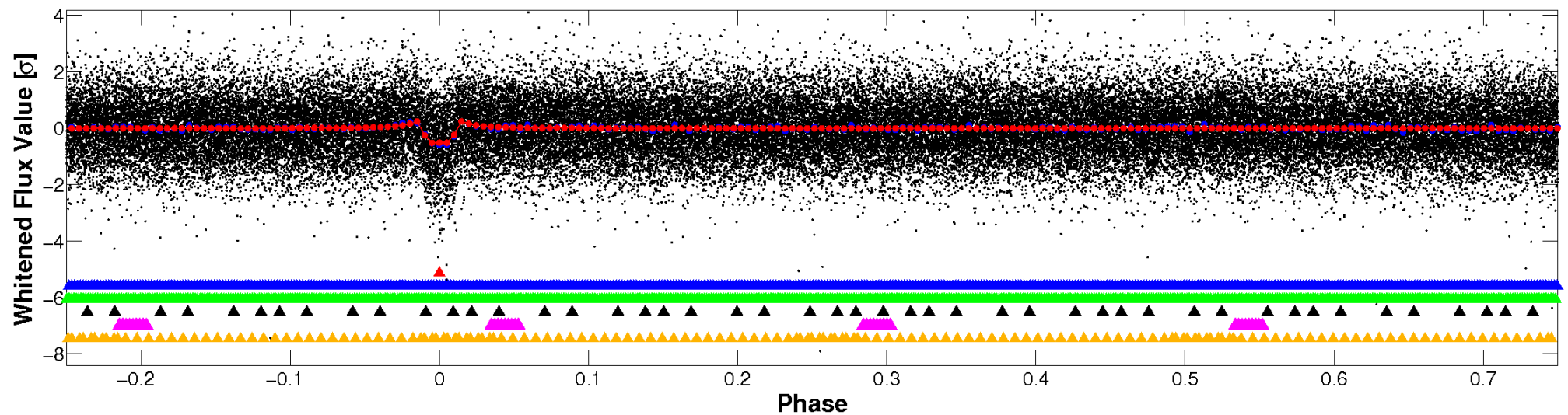


# Non-Whitened Vs. Whitened Light Curve

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

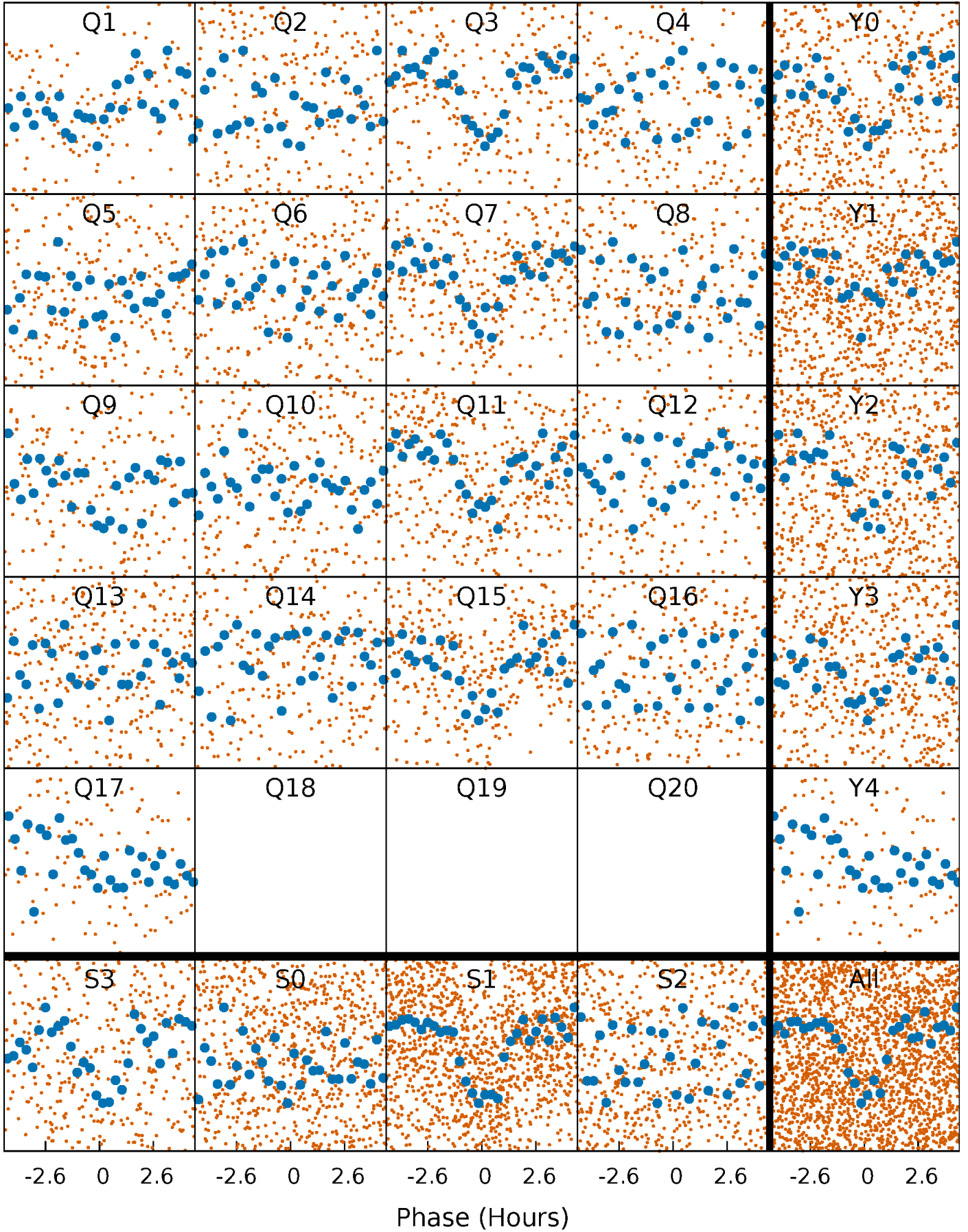


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

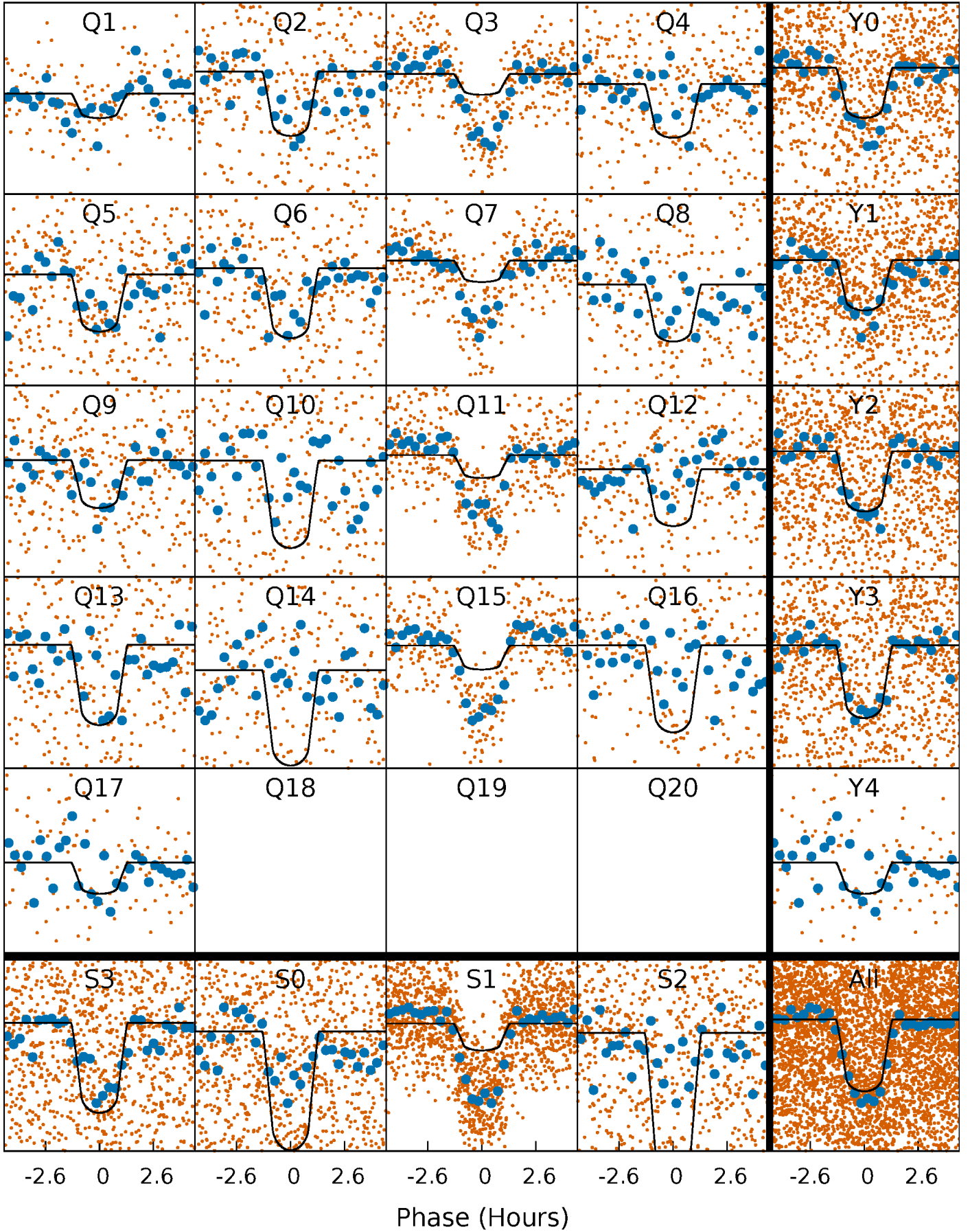
TCE 003119256-01   P= 4.142443 Days    $T_0=132.904487$  (BKJD)





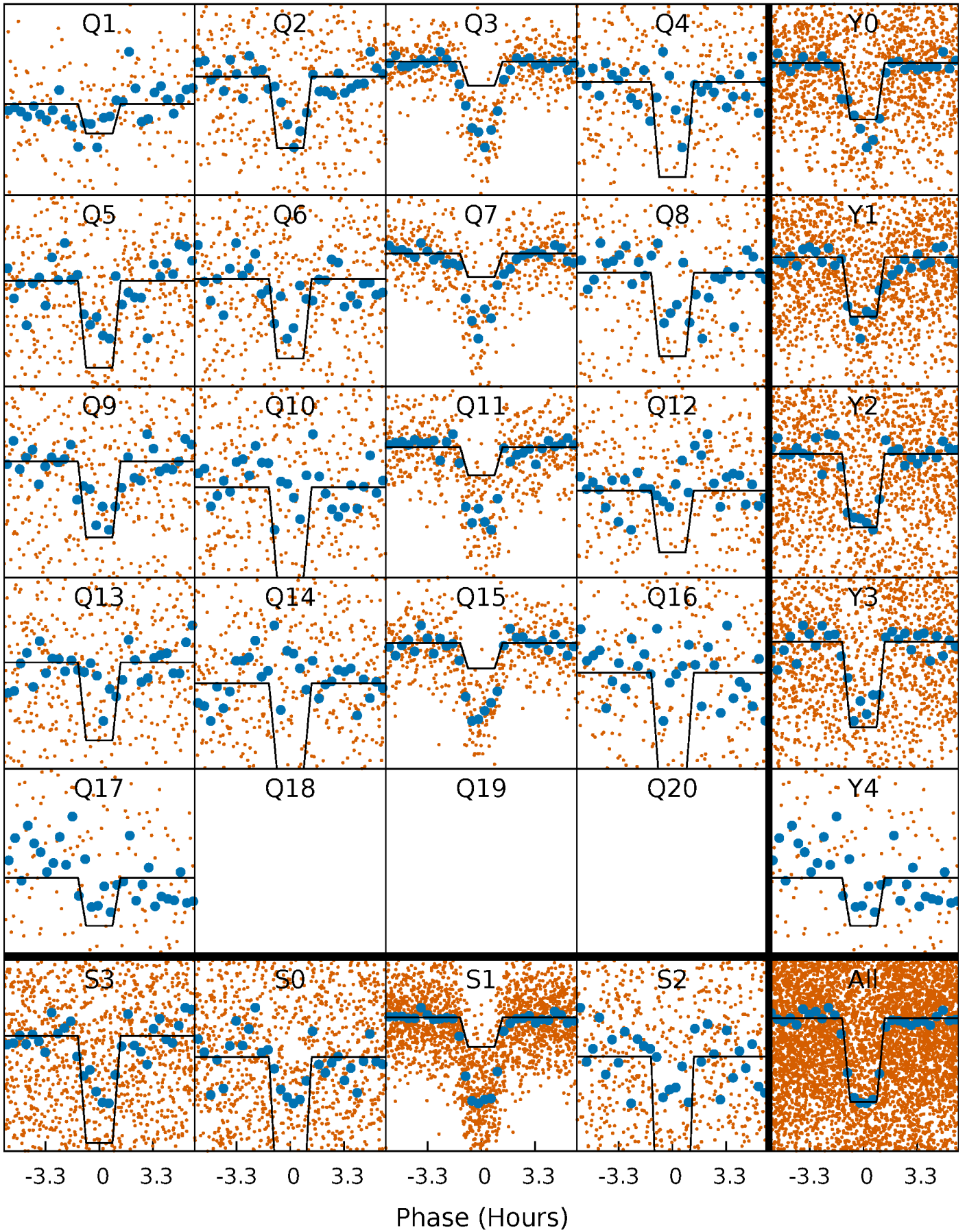
# DV Quarter-Phased Transit Curves

TCE 003119256-01 P= 4.142443 Days  $T_0=132.904487$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

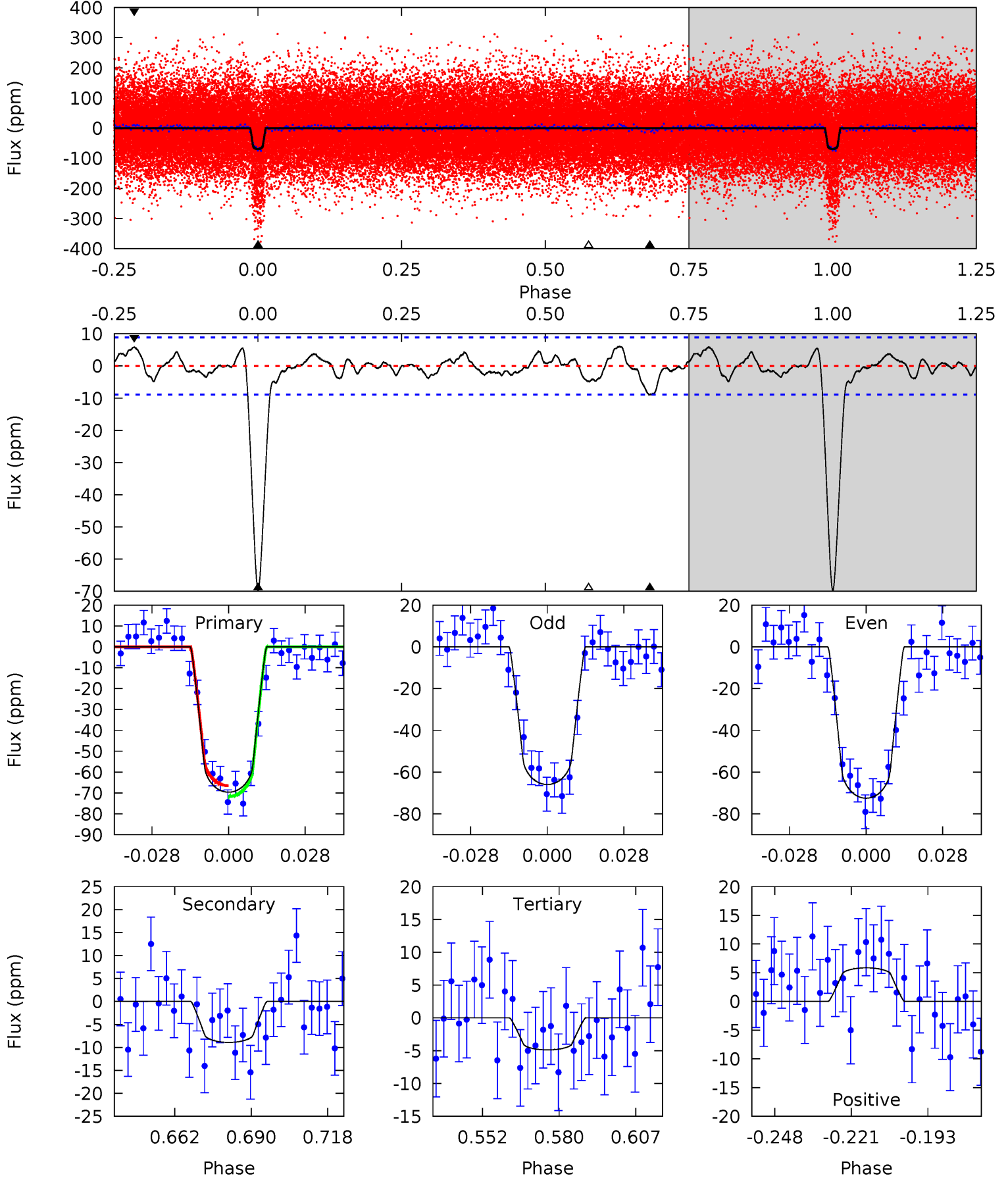
TCE 003119256-01 P= 4.142457 Days  $T_0=132.903804$  (BKJD)



# DV Model-Shift Uniqueness Test

003119256-01, P = 4.142443 Days, E = 128.762044 Days

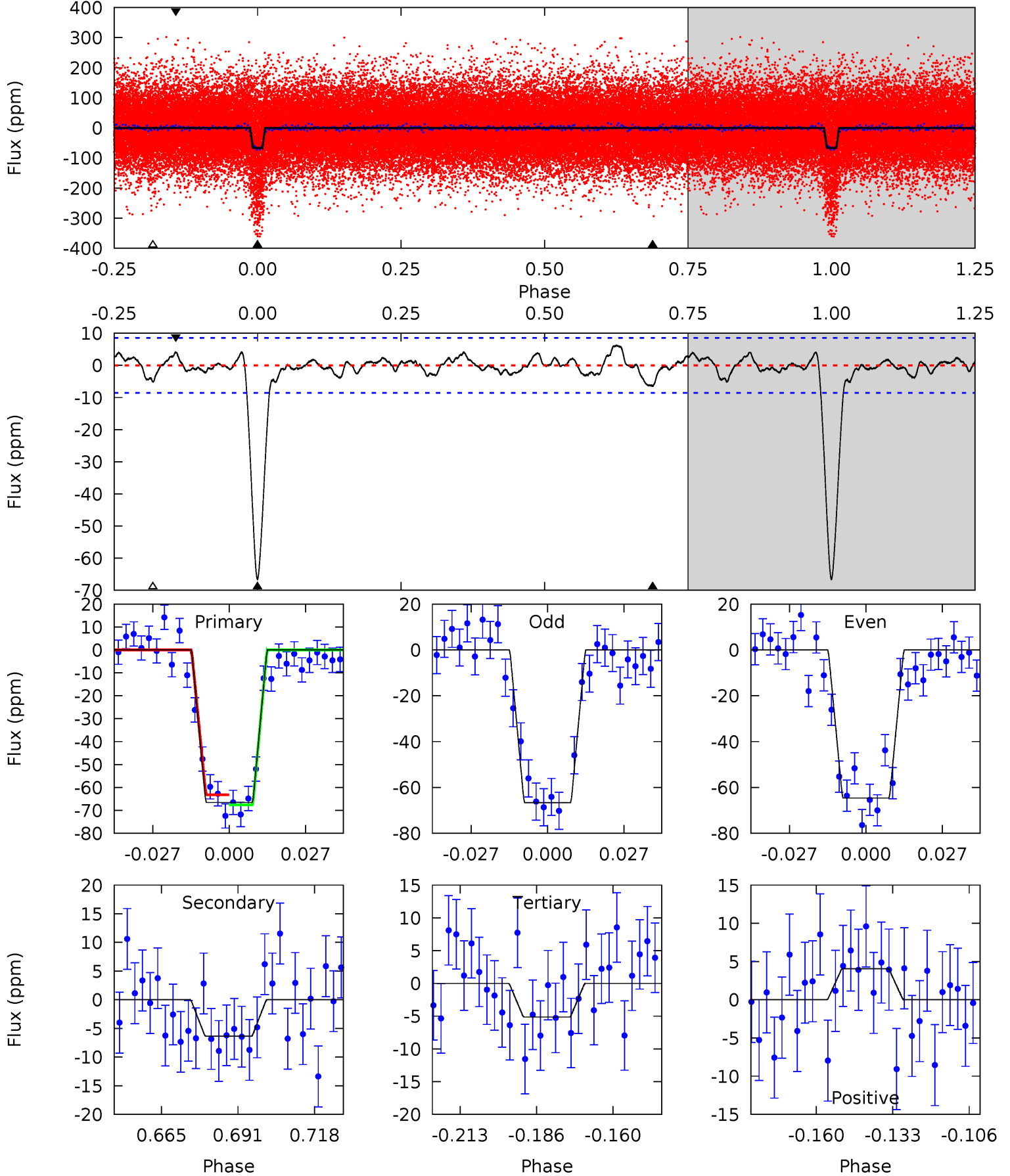
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.9	4.85	2.65	3.18	4.83	2.20	1.32	35.2	34.7	2.20	1.67	1.79	1.30	0.08	1.42



# Alt Model-Shift Uniqueness Test

003119256-01, P = 4.142457 Days, E = 128.761347 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
37.5	3.59	2.90	2.29	4.84	2.22	1.17	34.7	35.3	0.69	1.30	0.57	1.43	0.09	1.27





### Stellar Parameters For KIC 003119256

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6785^{+183}_{-224}$	$3.830^{+0.338}_{-0.113}$	$-0.960^{+0.350}_{-0.300}$	$2.124^{+0.359}_{-0.779}$	$1.113^{+0.162}_{-0.178}$	$0.164^{+0.396}_{-0.054}$
	+3%/-3%	+9%/-3%	+36%/-31%	+17%/-37%	+15%/-16%	+242%/-33%
Source	PHO1	FLK73	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 003119256-01 / KOI 2784.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-9 \pm 2$	$1.88^{+0.45}_{-0.45}$	$2622^{+172}_{-266}$	$4165^{+406}_{-315}$	$3.849^{+2.822}_{-1.559}$
Alt.	$-6 \pm 2$	$1.89^{+0.47}_{-0.43}$	$2612^{+171}_{-252}$	$3899^{+361}_{-346}$	$2.636^{+2.350}_{-1.050}$

$T_{max}$  = 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

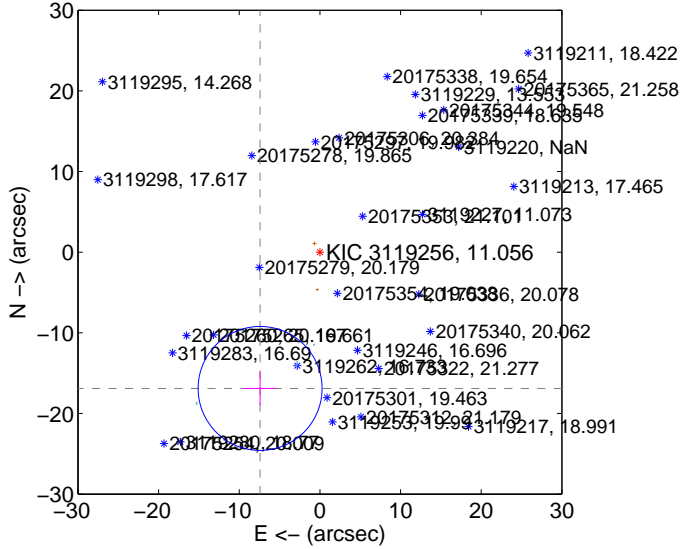
Supplemental centroid analysis for 003119256-01. **Kepler magnitude: 11.06**. Transit SNR 18.97

There are 8 quarters with good PRF difference image offsets

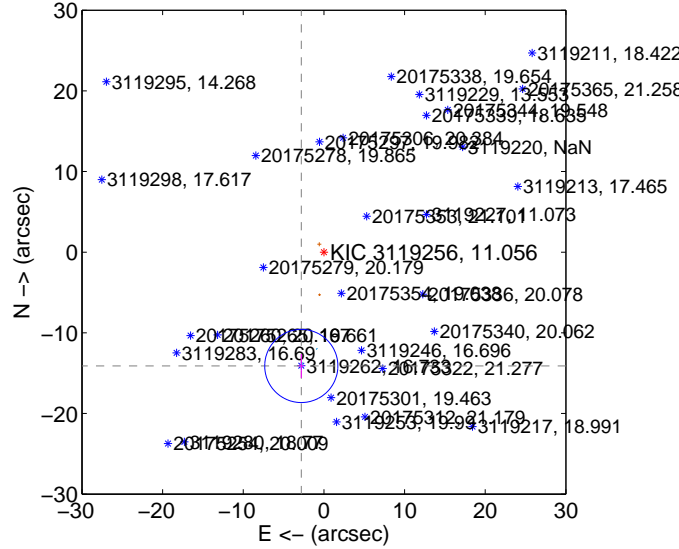
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>18.452 <math>\pm</math> 2.561</b>	<b>7.20</b>	7.415 $\pm$ 2.004	-16.896 $\pm$ 2.079
PRF-fit source offset from KIC position	<b>14.386 <math>\pm</math> 1.512</b>	<b>9.52</b>	2.804 $\pm$ 0.341	-14.110 $\pm$ 1.485
photometric centroid source offset	<b>8.84 <math>\pm</math> 0.48</b>	<b>18.48</b>	2.56 $\pm$ 0.76	-8.46 $\pm$ 0.44

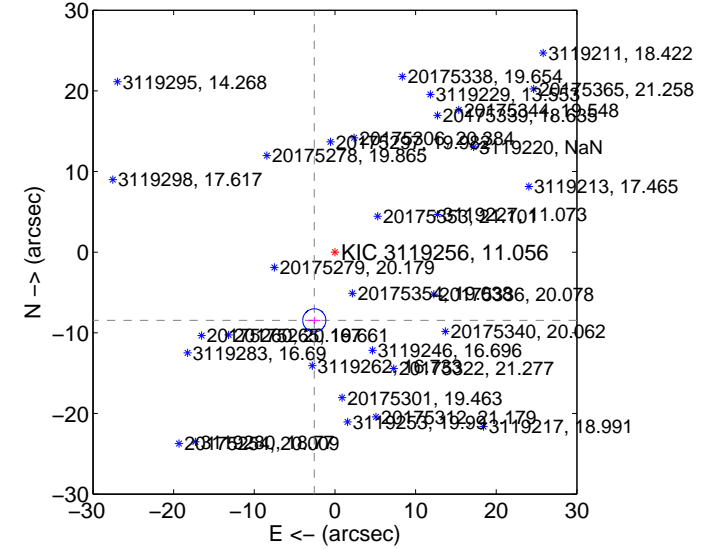
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

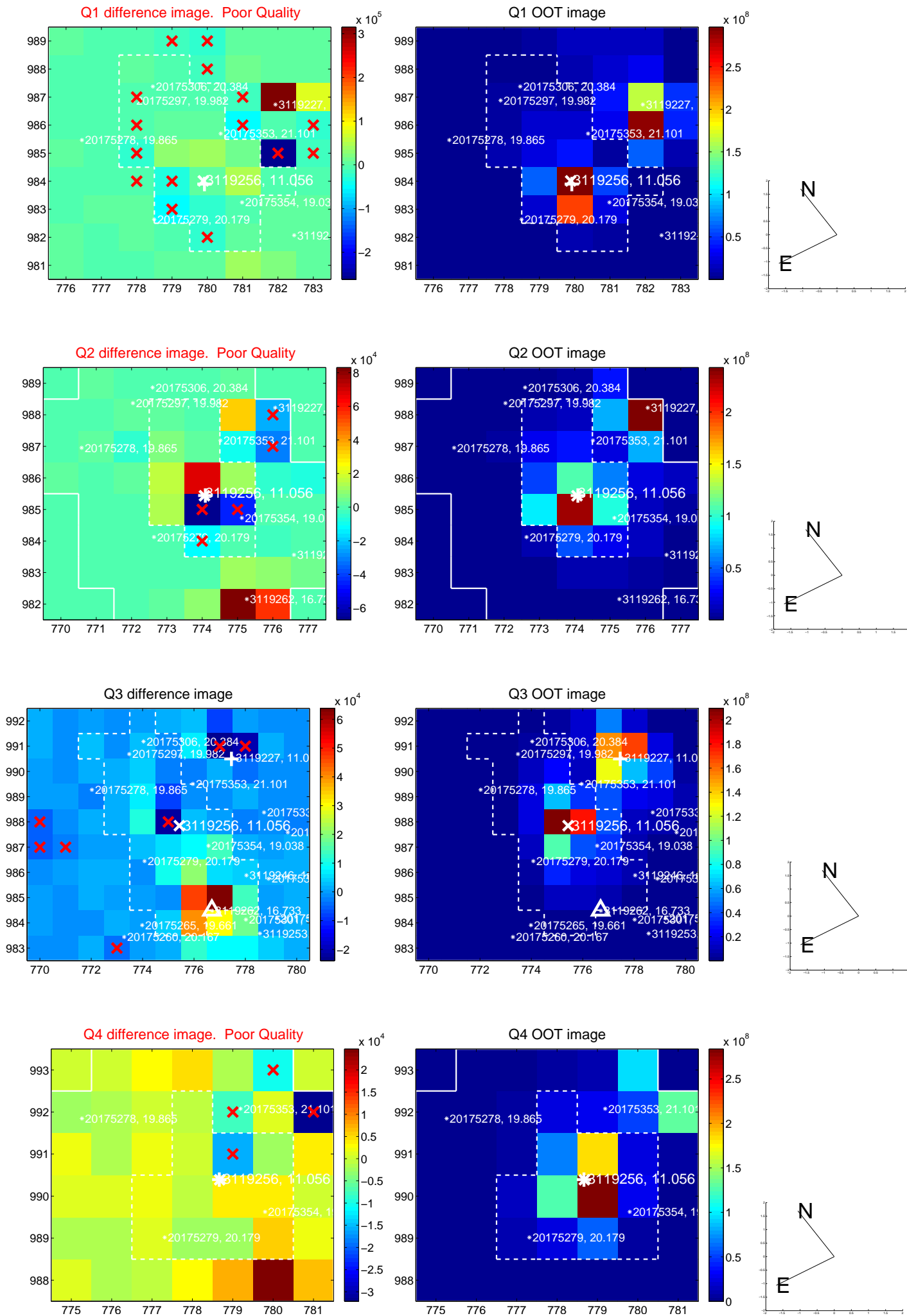


offset from photometric centroids

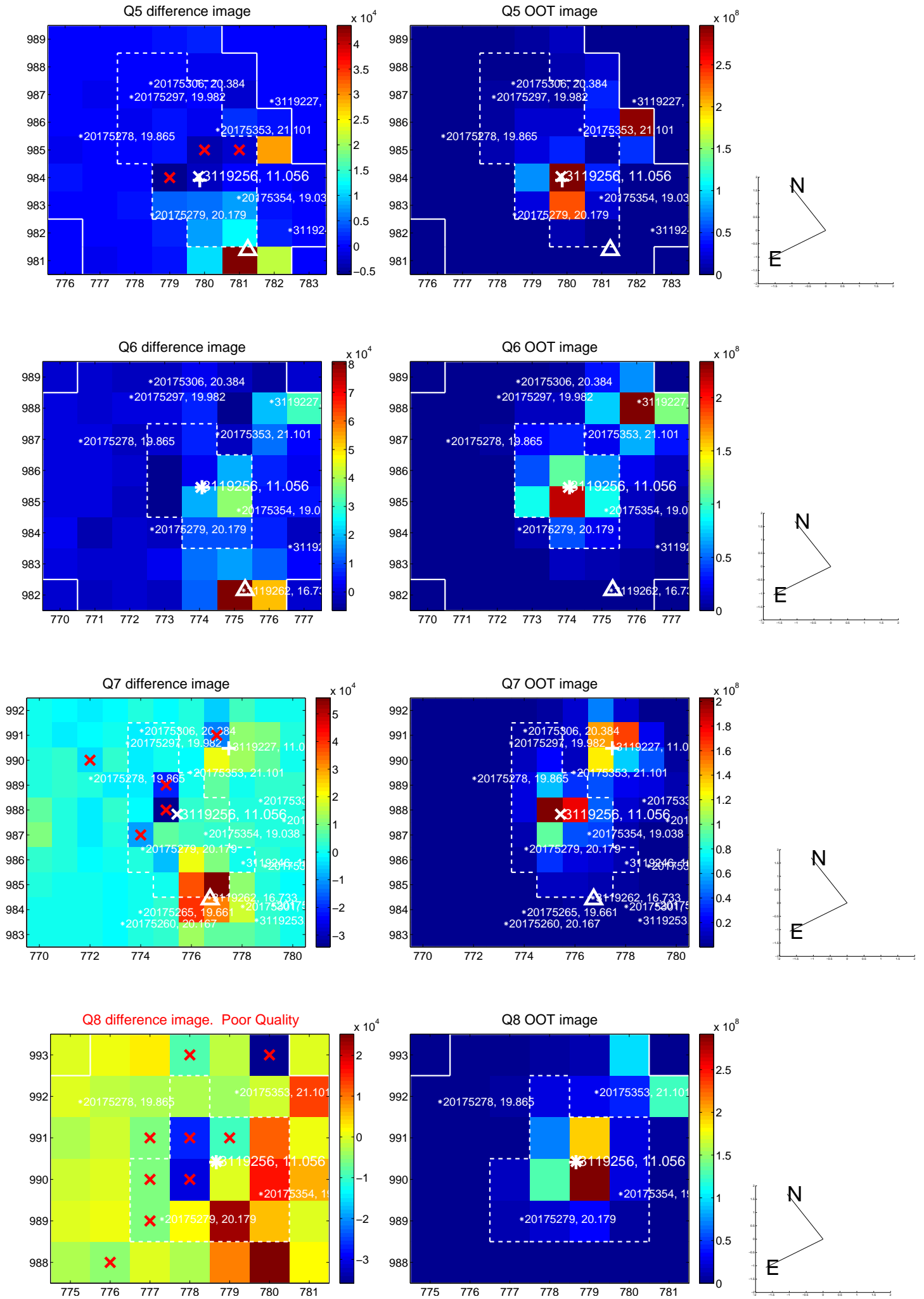


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

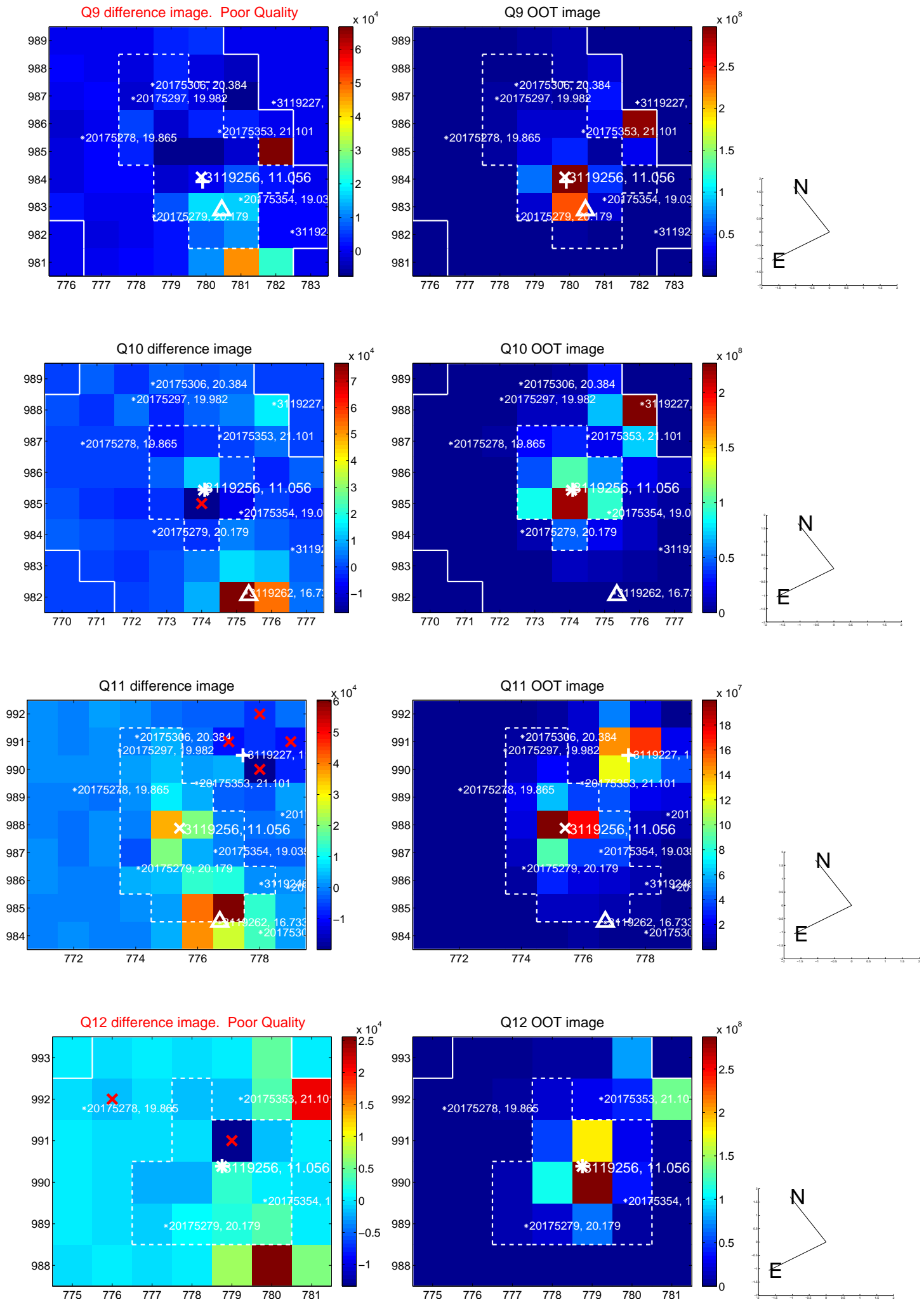


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

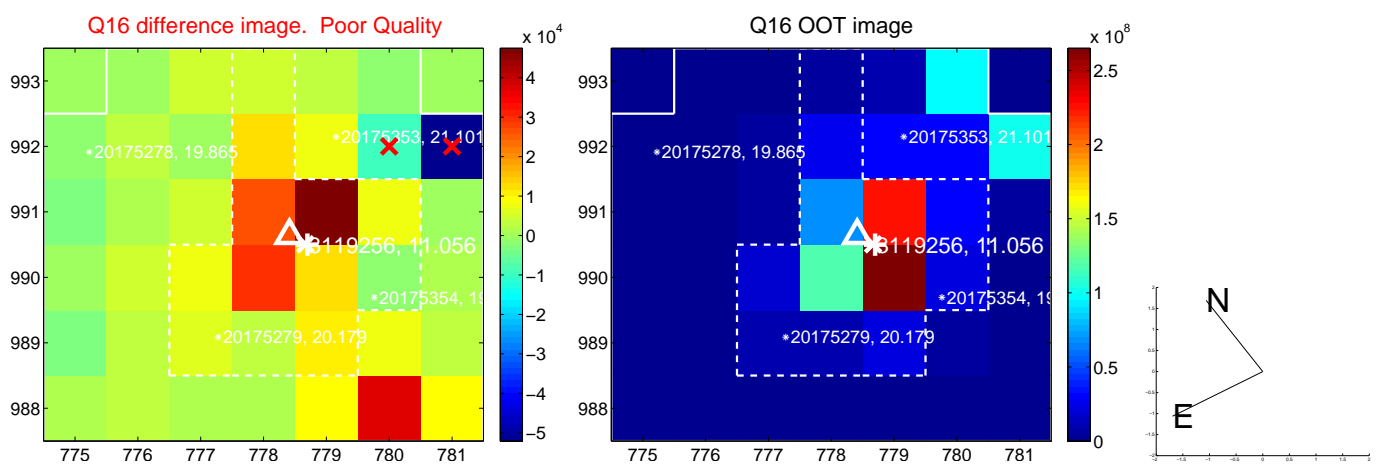
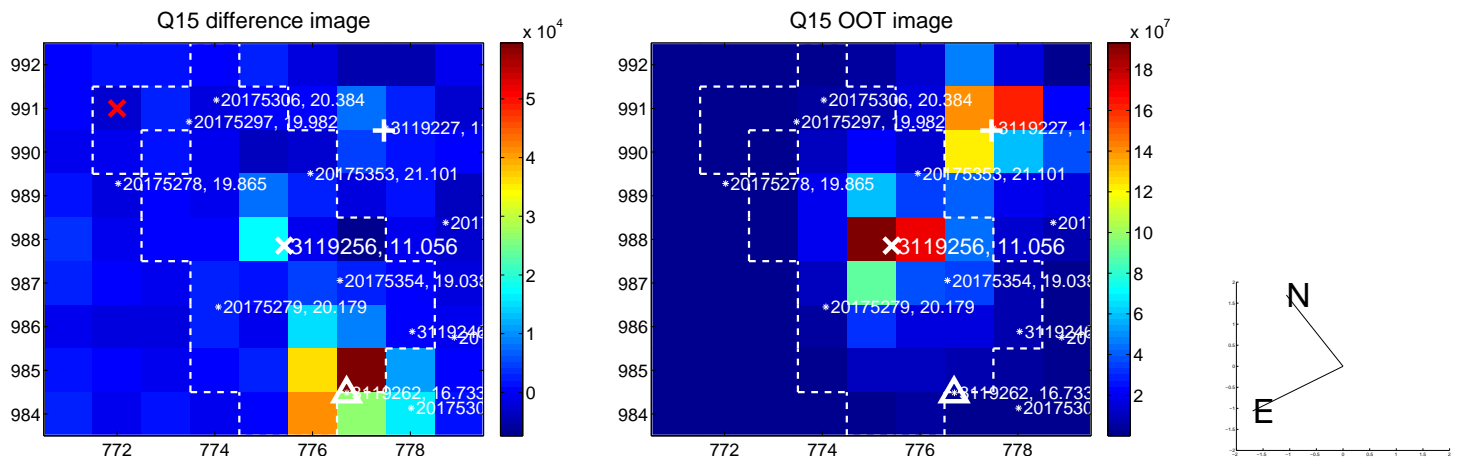
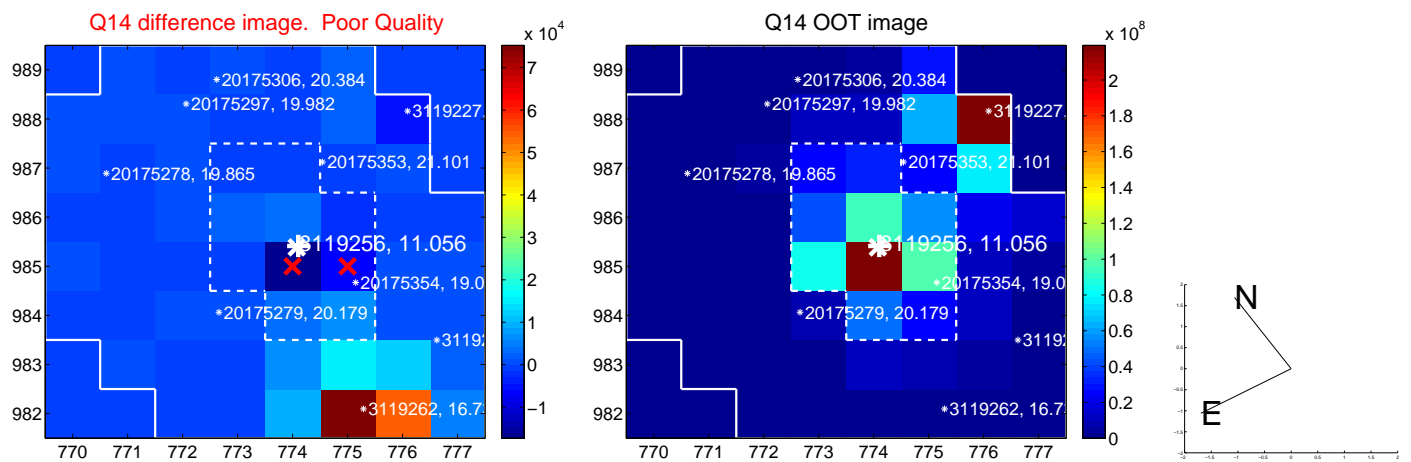
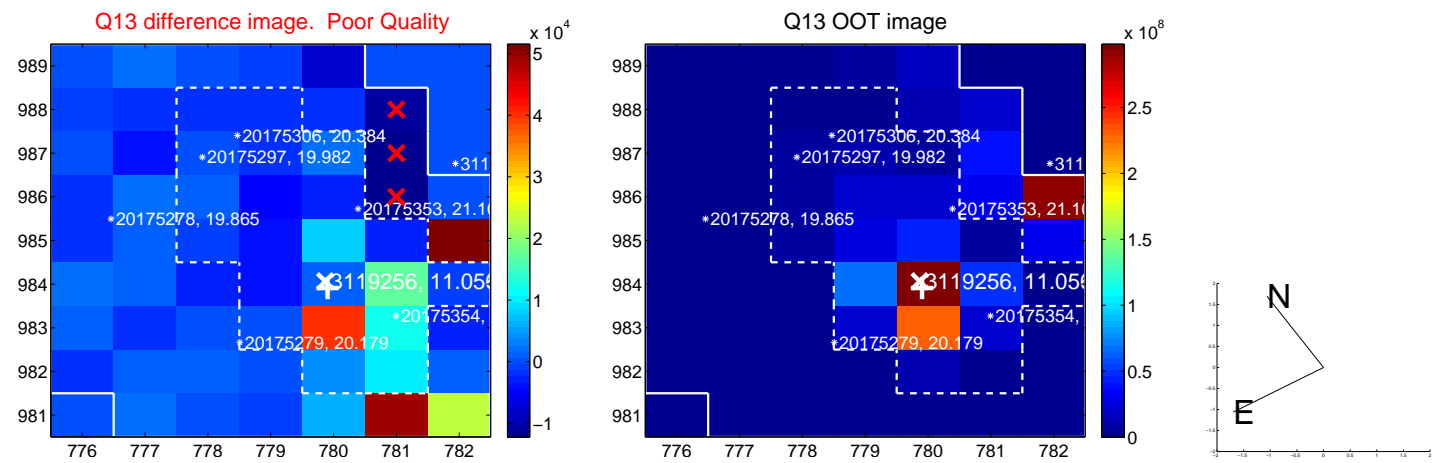




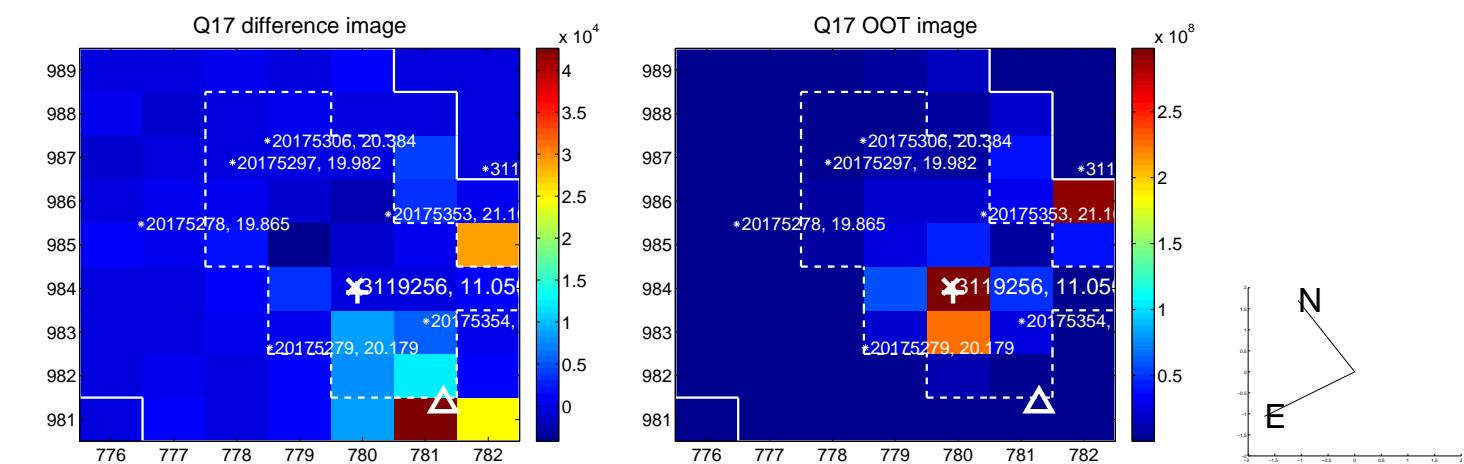
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



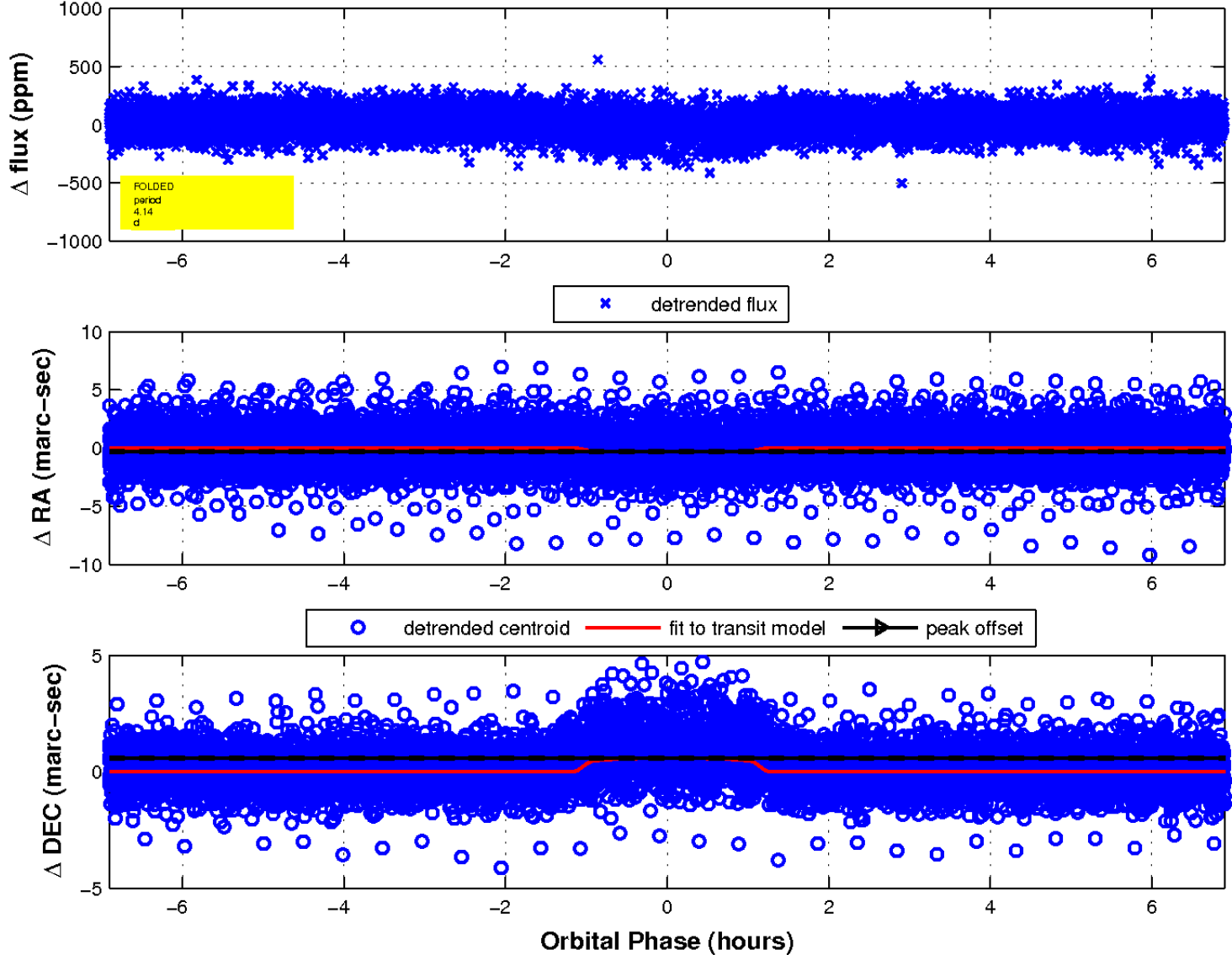
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



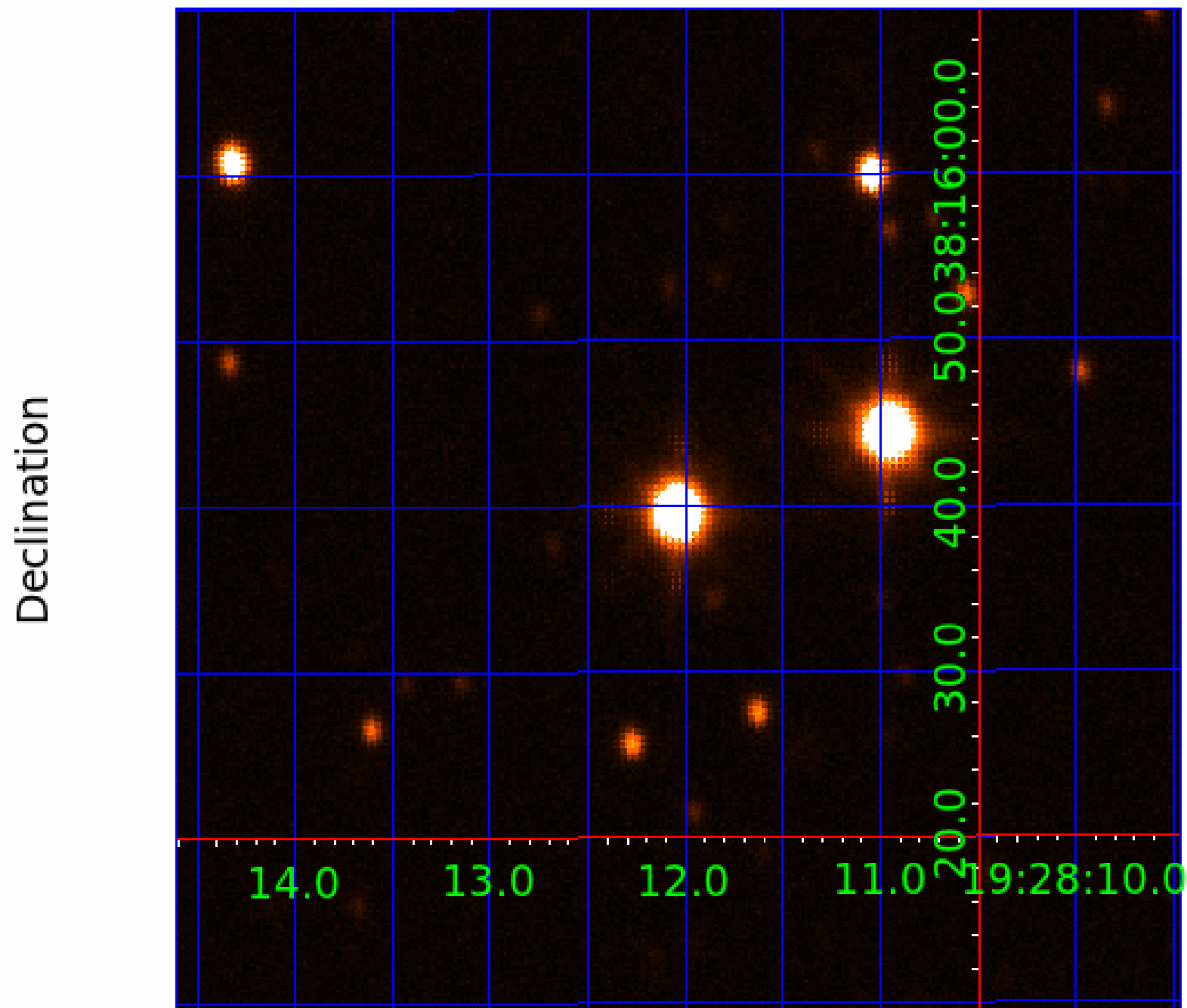
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 6



UKIRT Image





# KIC 003119256

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003119256-01	OBS	2784.01	4.142443	132.904487	63.7	2.303	17.5	19.0	2.12	6785	1.98	3129.83
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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003119256-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003119256-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003119256-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_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.

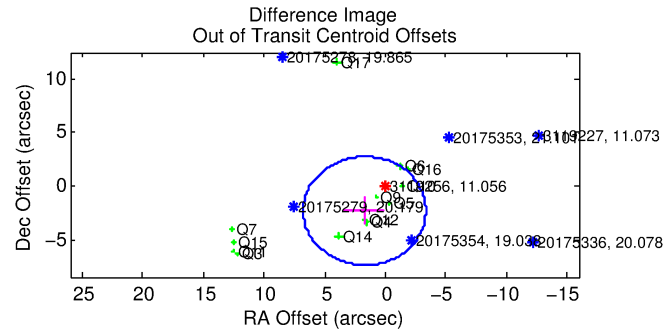
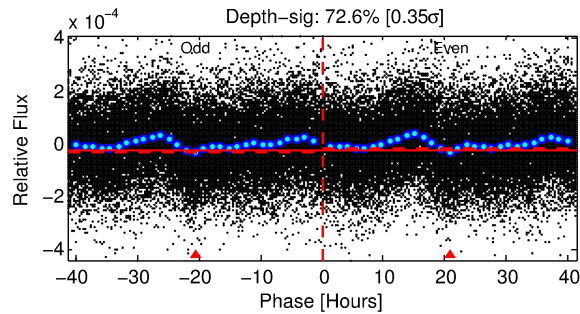
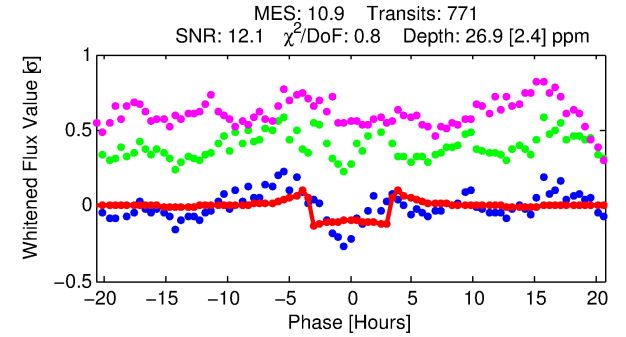
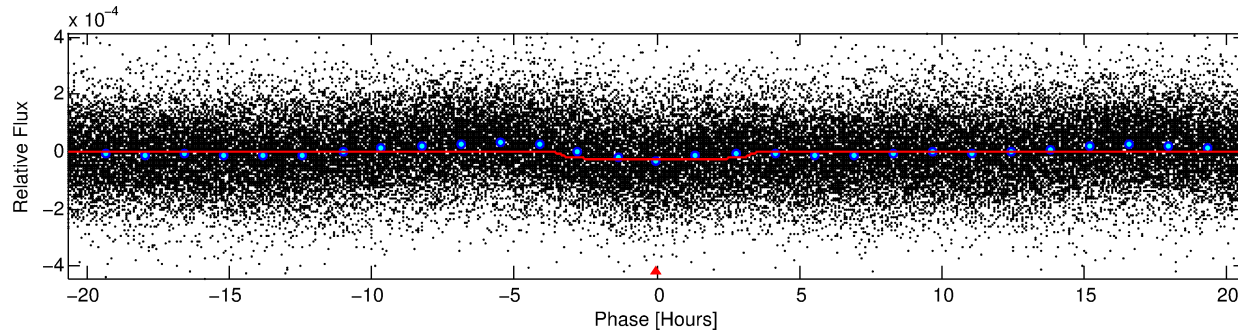
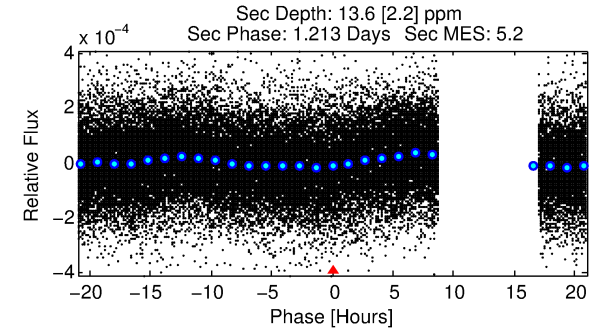
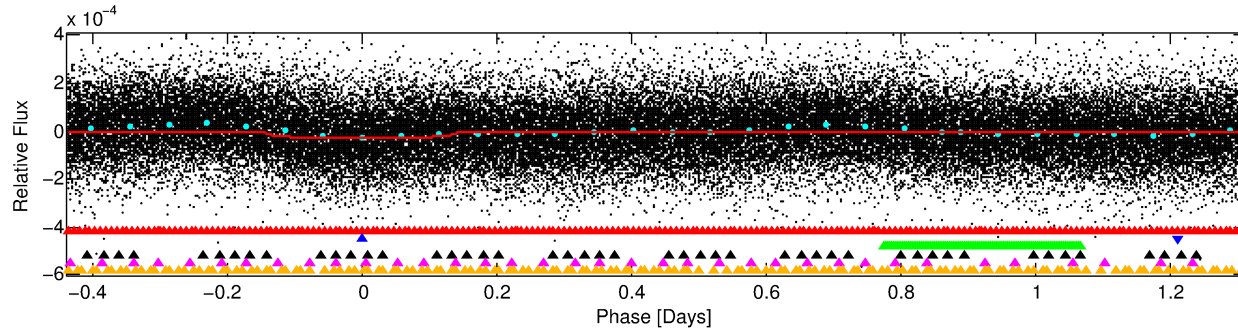
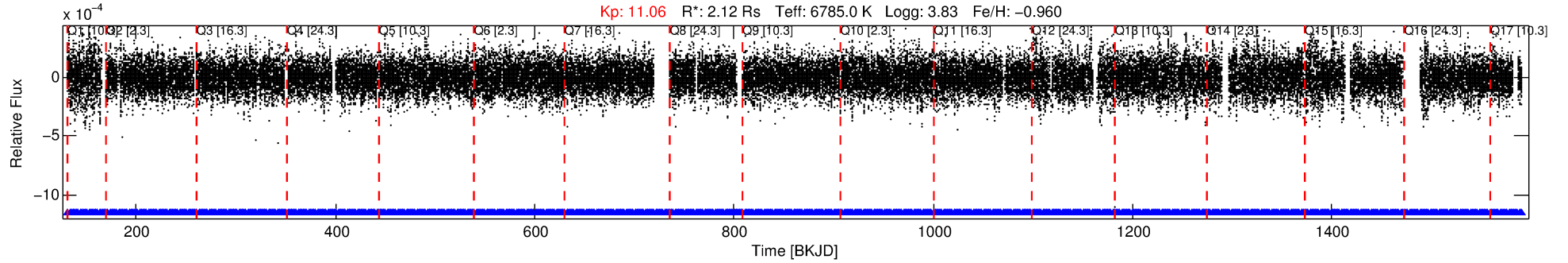
Ephemeris Match Information For 003119256-02

No Significant Match Found

# DV One-Page Summary

KIC: 3119256 Candidate: 2 of 6 Period: 1.750 d

KOI: K02784 Corr: No Ephemeris Match



## DV Fit Results:

Period = 1.75044 [0.00001] d  
Epoch = 131.8358 [0.0023] BKJD  
Rp/R\* = 0.0055 [0.0007]  
a/R\* = 1.28 [0.32]  
b = 0.90 [0.14]  
Seff = 9870.38 [5809.51]  
Teq = 2542 [374] K  
Rp = 1.28 [0.49] Re  
a = 0.0295 [0.0105] AU  
Ag = 3.97 [2.54] [1.17σ]  
Teffp = 5546 [437] K [5.22σ]

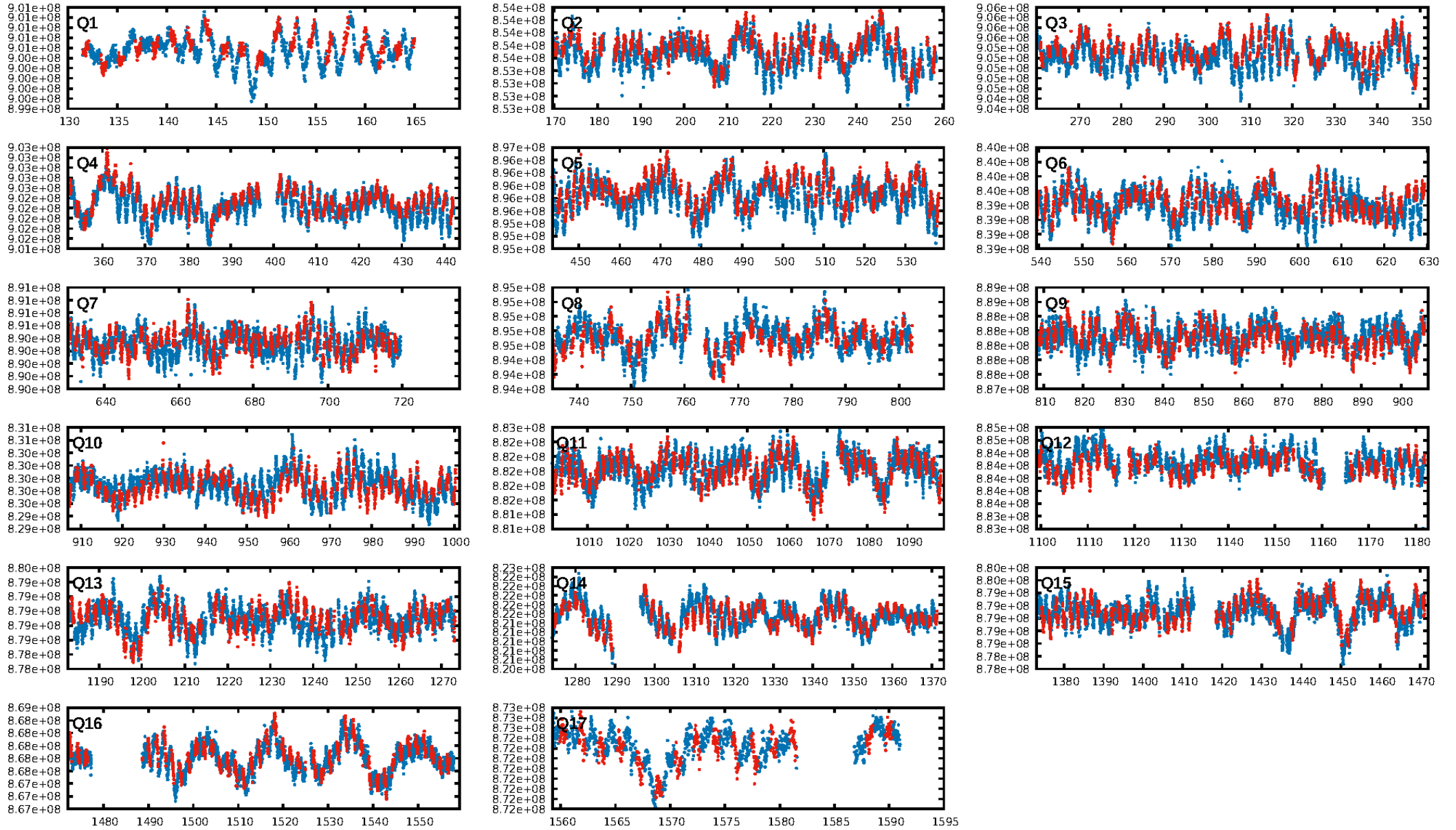
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.1% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.19e-16  
RollingBand-fgt: 1.00 [736/736]  
GhostDiagnostic-chr: 0.7281  
Centroid-sig: 0.0%  
Centroid-so: 0.686 arcsec [0.90σ]  
OotOffset-rm: 2.881 arcsec [1.71σ]  
KicOffset-rm: 1.412 arcsec [1.43σ]  
OotOffset-st: 3/4/3/3 [13]  
KicOffset-st: 3/4/3/3 [13]  
DiffImageQuality-fgm: 0.31 [4/13]  
DiffImageOverlap-fno: 1.00 [17/17]

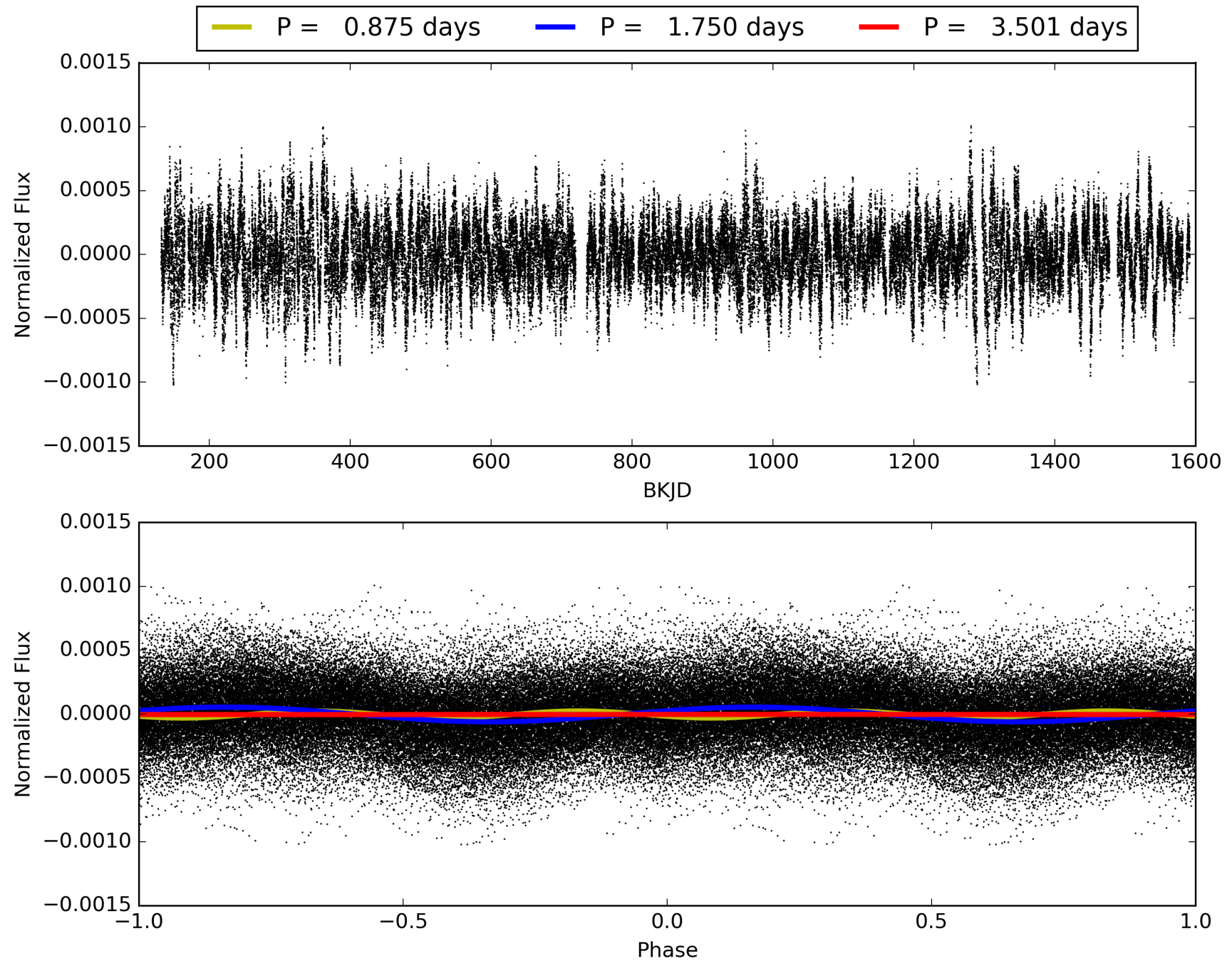
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003119256-02, PDC Light Curves

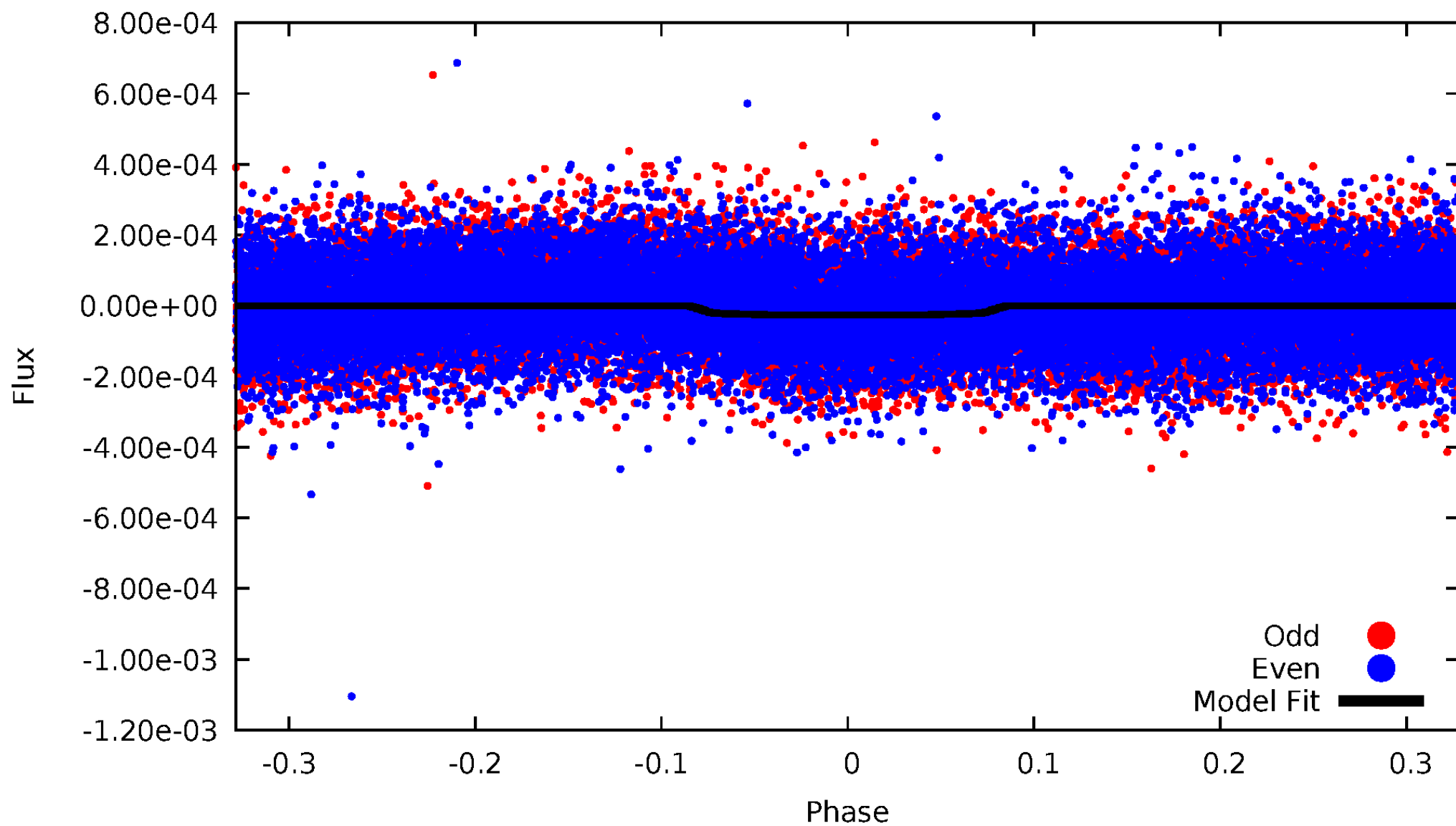


TCE 003119256-02



# DV Odd/Even

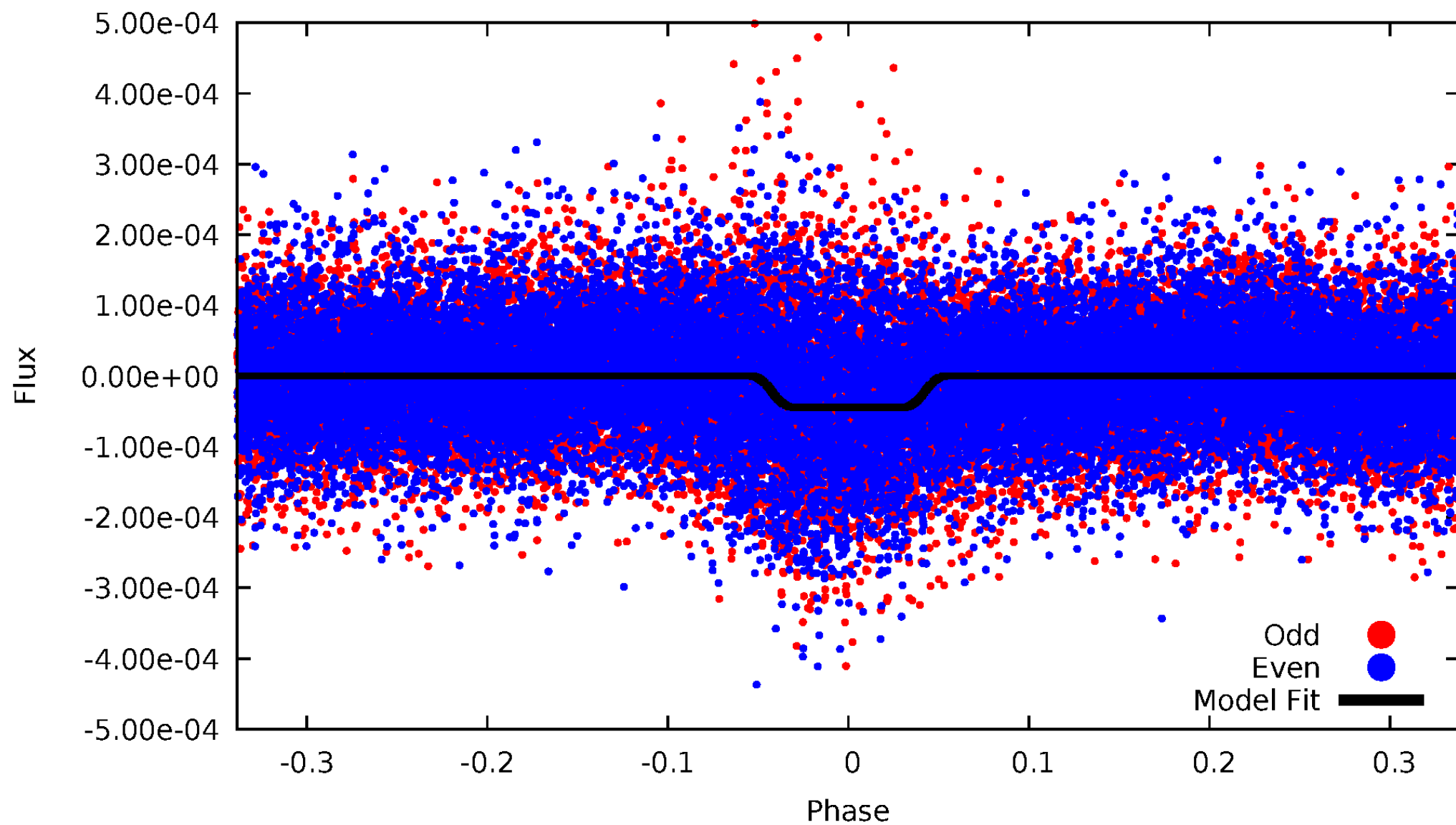
TCE 003119256-02





# ALT Odd/Even

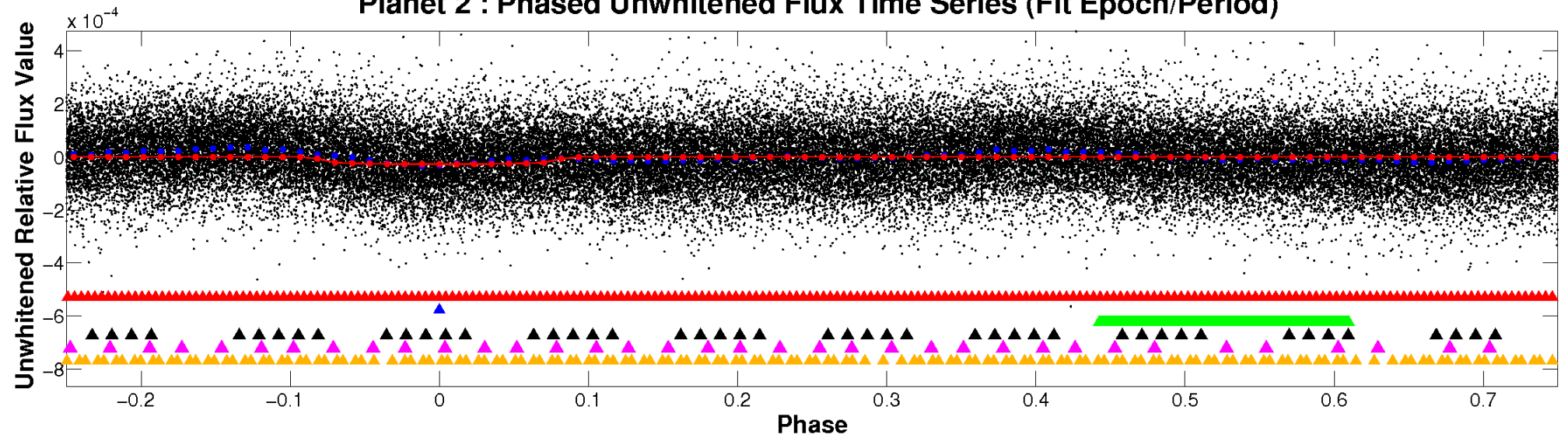
TCE 003119256-02



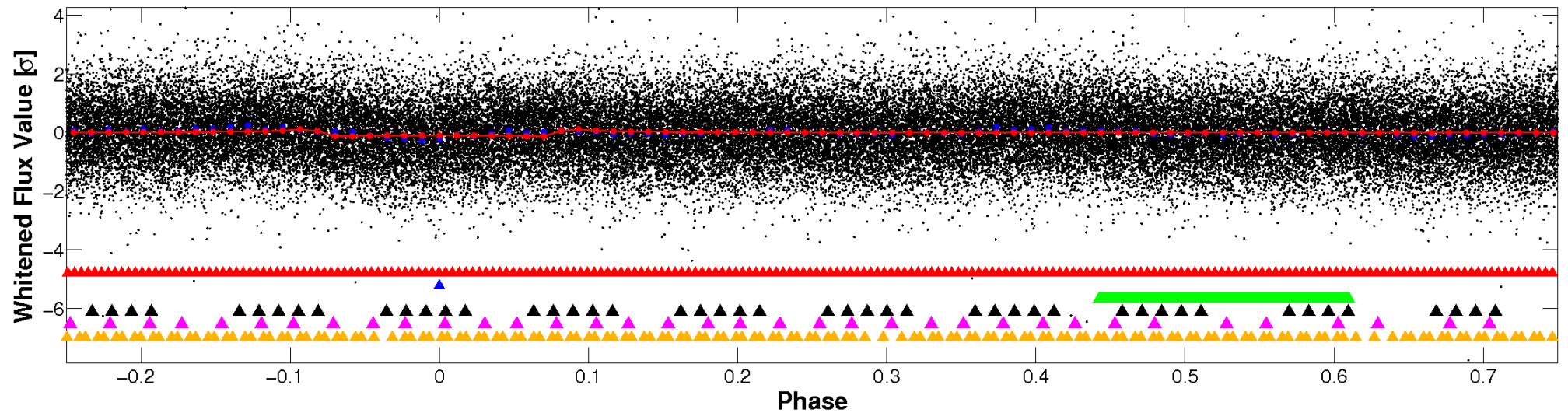


# Non-Whitened Vs. Whitened Light Curve

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

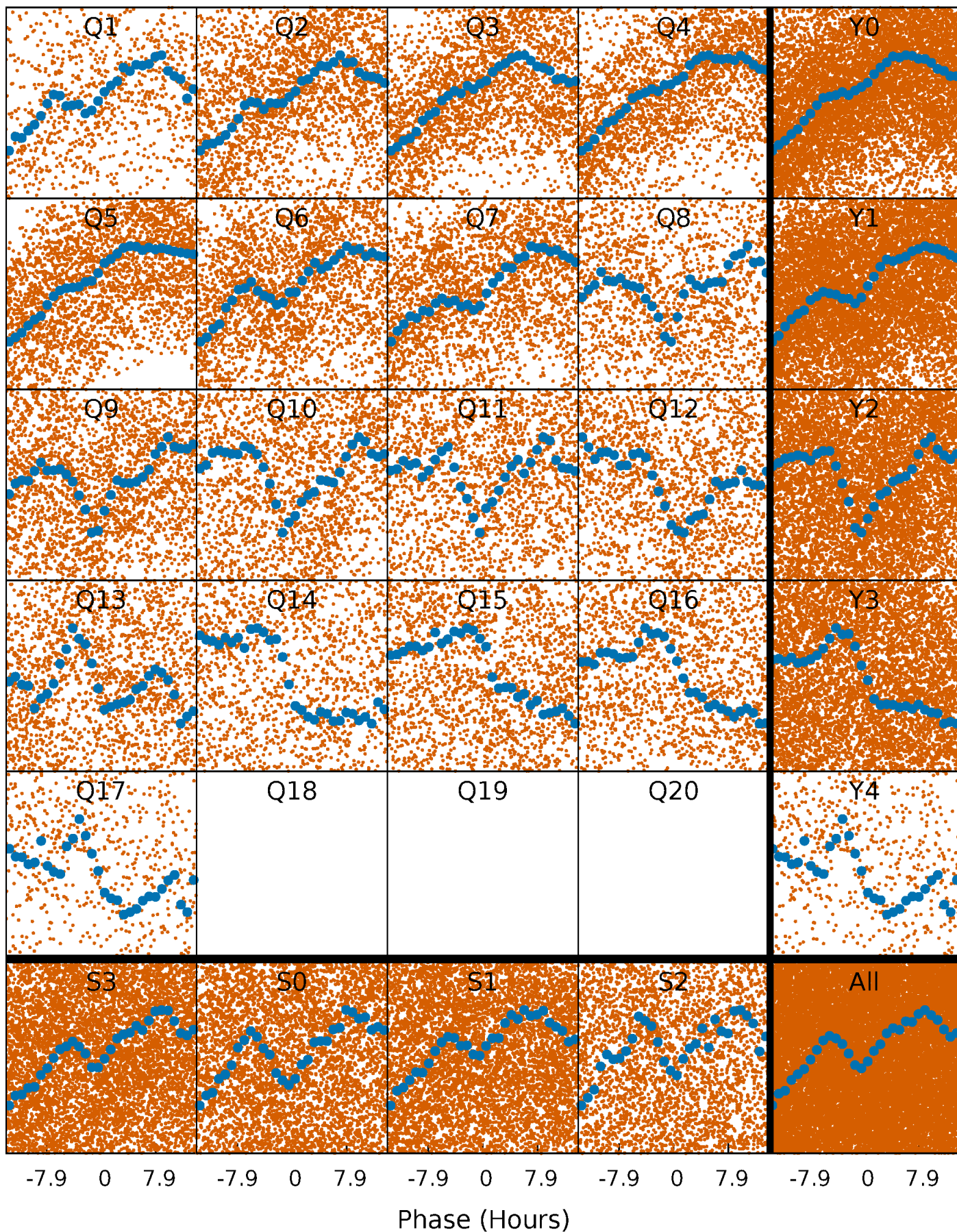


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

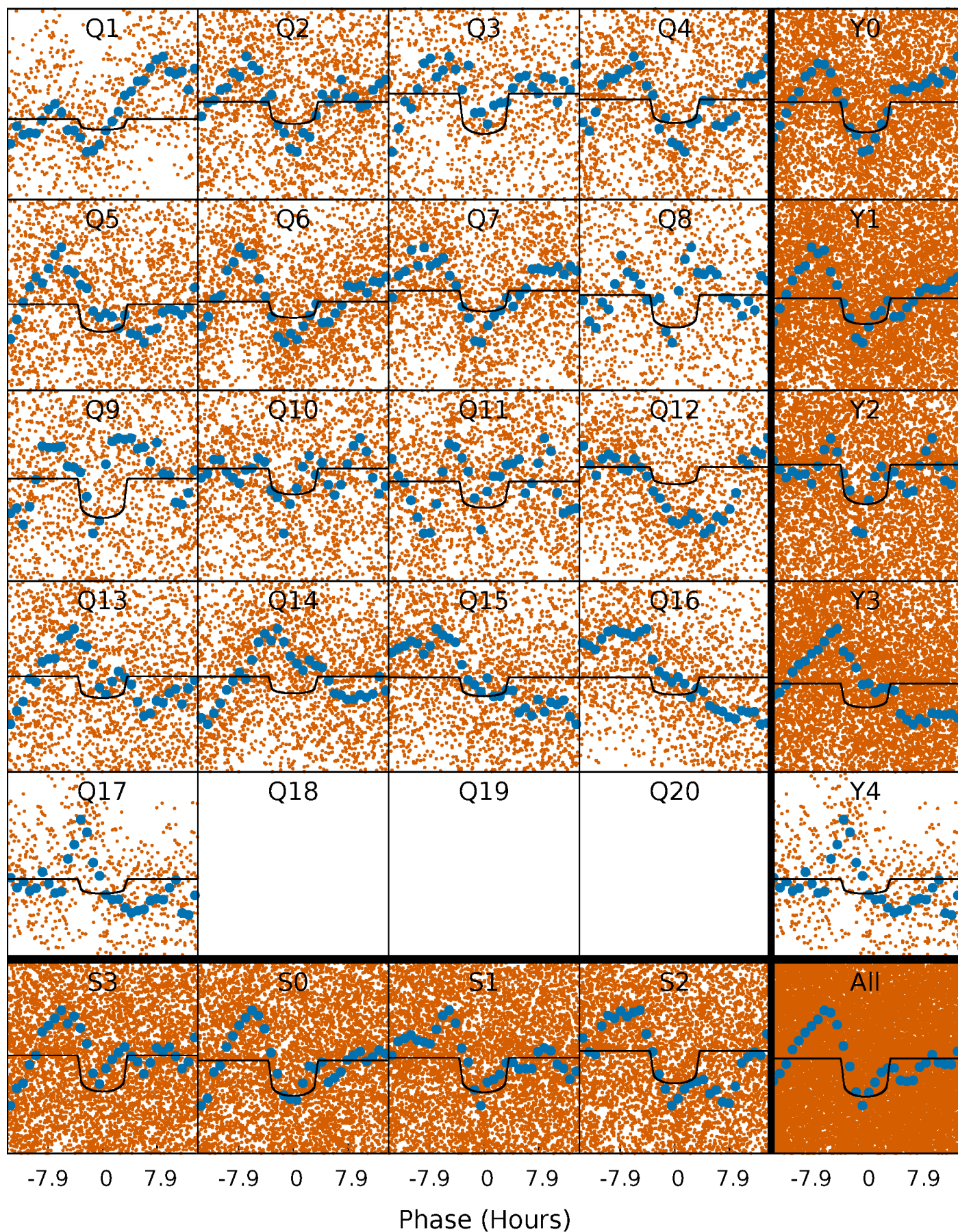
TCE 003119256-02 P= 1.750440 Days  $T_0=131.835768$  (BKJD)





# DV Quarter-Phased Transit Curves

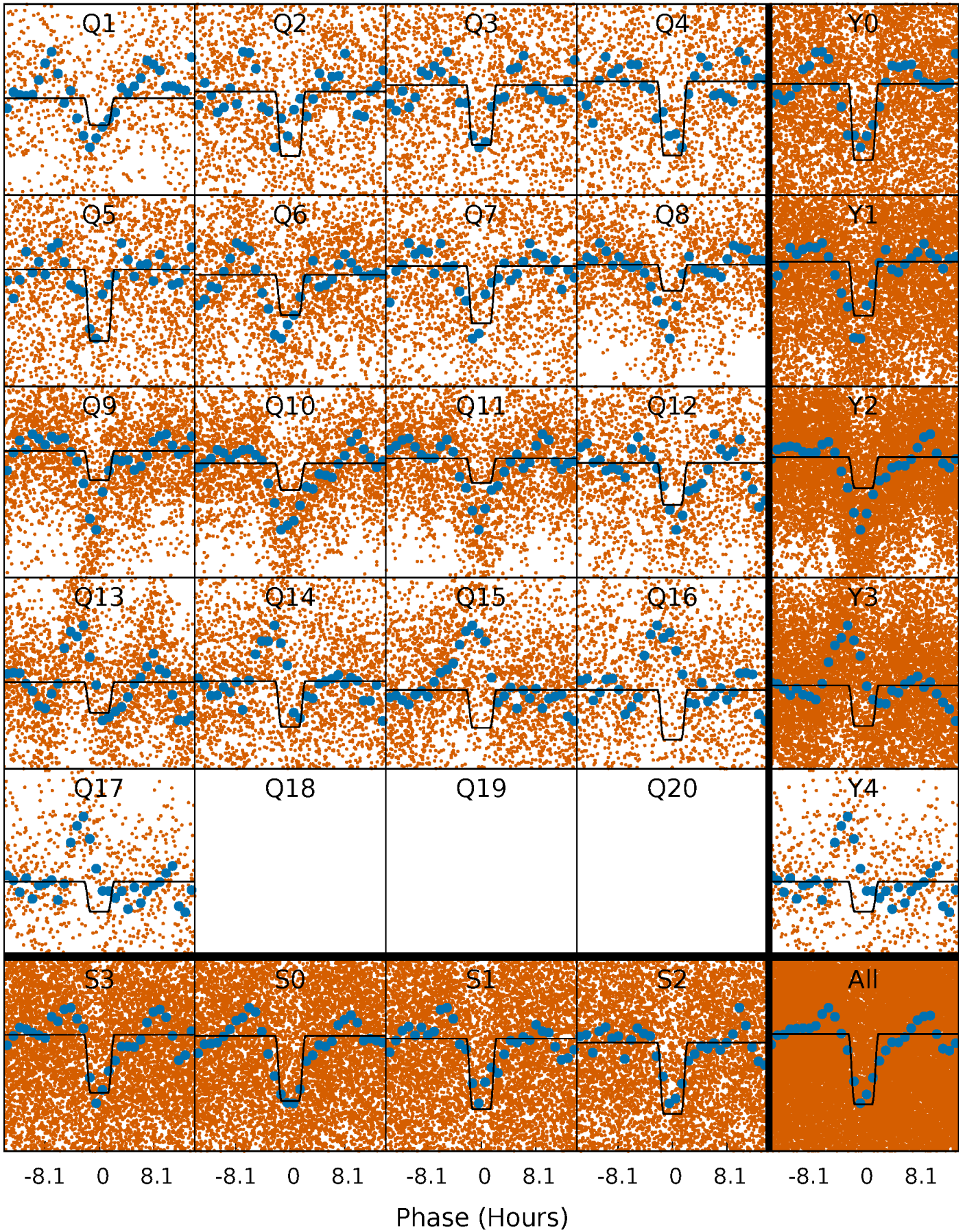
TCE 003119256-02 P= 1.750440 Days  $T_0=131.835768$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

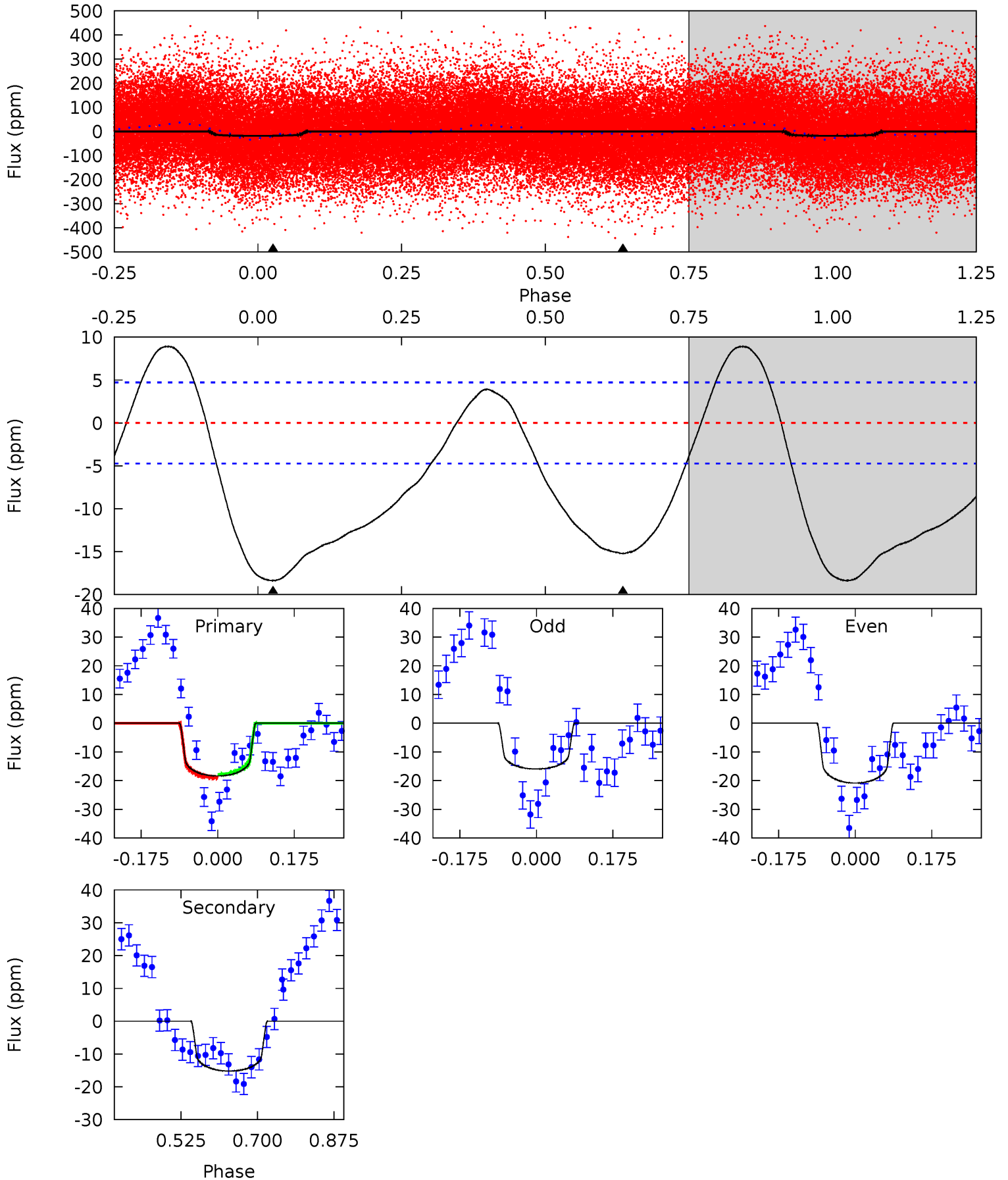
TCE 003119256-02 P= 1.750417 Days  $T_0=131.839651$  (BKJD)



# DV Model-Shift Uniqueness Test

003119256-02, P = 1.750440 Days, E = 130.085328 Days

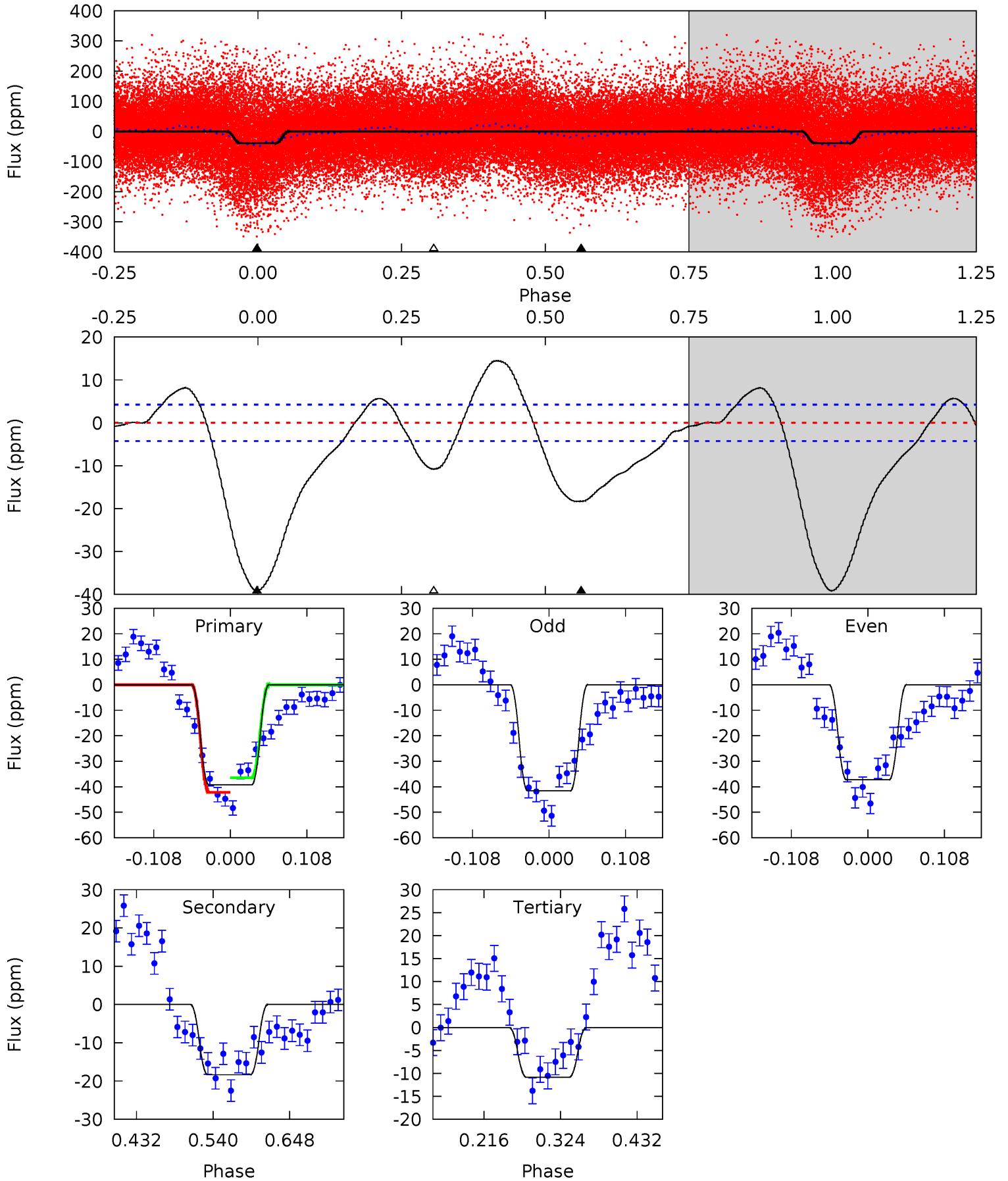
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	14.3	0	0	4.45	1.36	5.76	17.3	17.3	14.3	14.3	2.31	0.96	0.33	0.56



# Alt Model-Shift Uniqueness Test

003119256-02, P = 1.750417 Days, E = 130.089234 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
42.1	19.7	11.6	0	4.55	1.61	7.34	30.4	42.1	8.05	19.7	2.33	1.02	0.27	3.06





### Stellar Parameters For KIC 003119256

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6785^{+183}_{-224}$	$3.830^{+0.338}_{-0.113}$	$-0.960^{+0.350}_{-0.300}$	$2.124^{+0.359}_{-0.779}$	$1.113^{+0.162}_{-0.178}$	$0.164^{+0.396}_{-0.054}$
	+3%/-3%	+9%/-3%	+36%/-31%	+17%/-37%	+15%/-16%	+242%/-33%
Source	PHO1	FLK73	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 003119256-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-15 \pm 1$	$1.24^{+0.24}_{-0.27}$	$3493^{+221}_{-348}$	$5579^{+404}_{-356}$	$4.749^{+2.802}_{-1.410}$
Alt.	$-18 \pm 1$	$1.49^{+0.27}_{-0.30}$	$3507^{+227}_{-358}$	$5359^{+325}_{-294}$	$3.987^{+2.157}_{-1.094}$

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

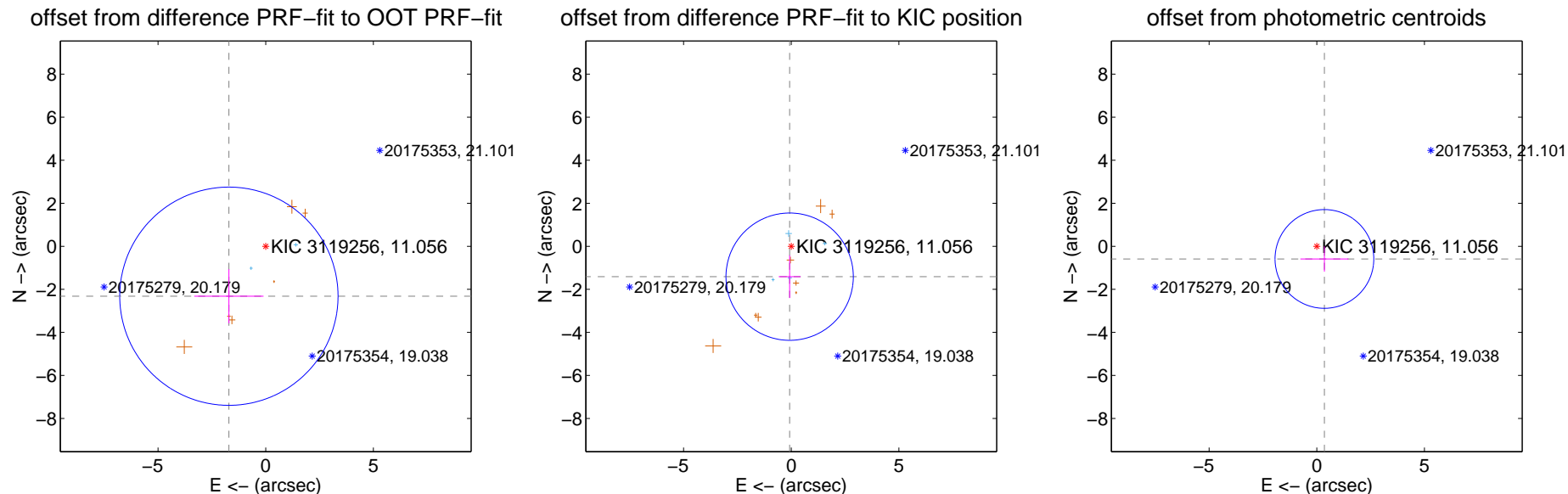
## DV Centroid Data

Supplemental centroid analysis for 003119256-02. **Kepler magnitude: 11.06.** Transit SNR 12.14

There are 4 quarters with good PRF difference image offsets

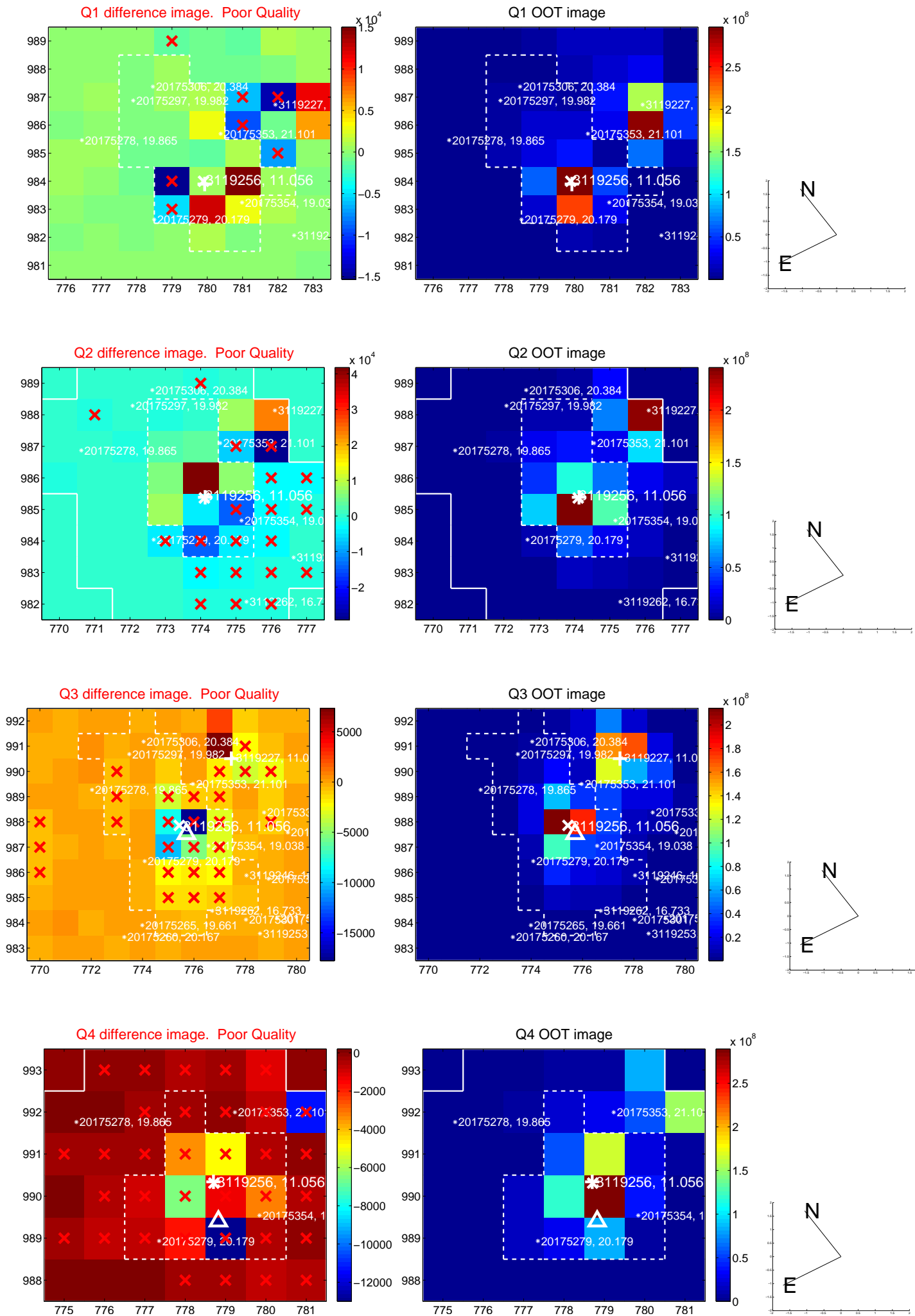
The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.881 \pm 1.690$	1.71	$1.710 \pm 1.609$	$-2.319 \pm 1.256$
PRF-fit source offset from KIC position	$1.412 \pm 0.986$	1.43	$0.074 \pm 0.508$	$-1.411 \pm 0.992$
photometric centroid source offset	$0.69 \pm 0.76$	0.90	$-0.35 \pm 1.11$	$-0.59 \pm 0.59$

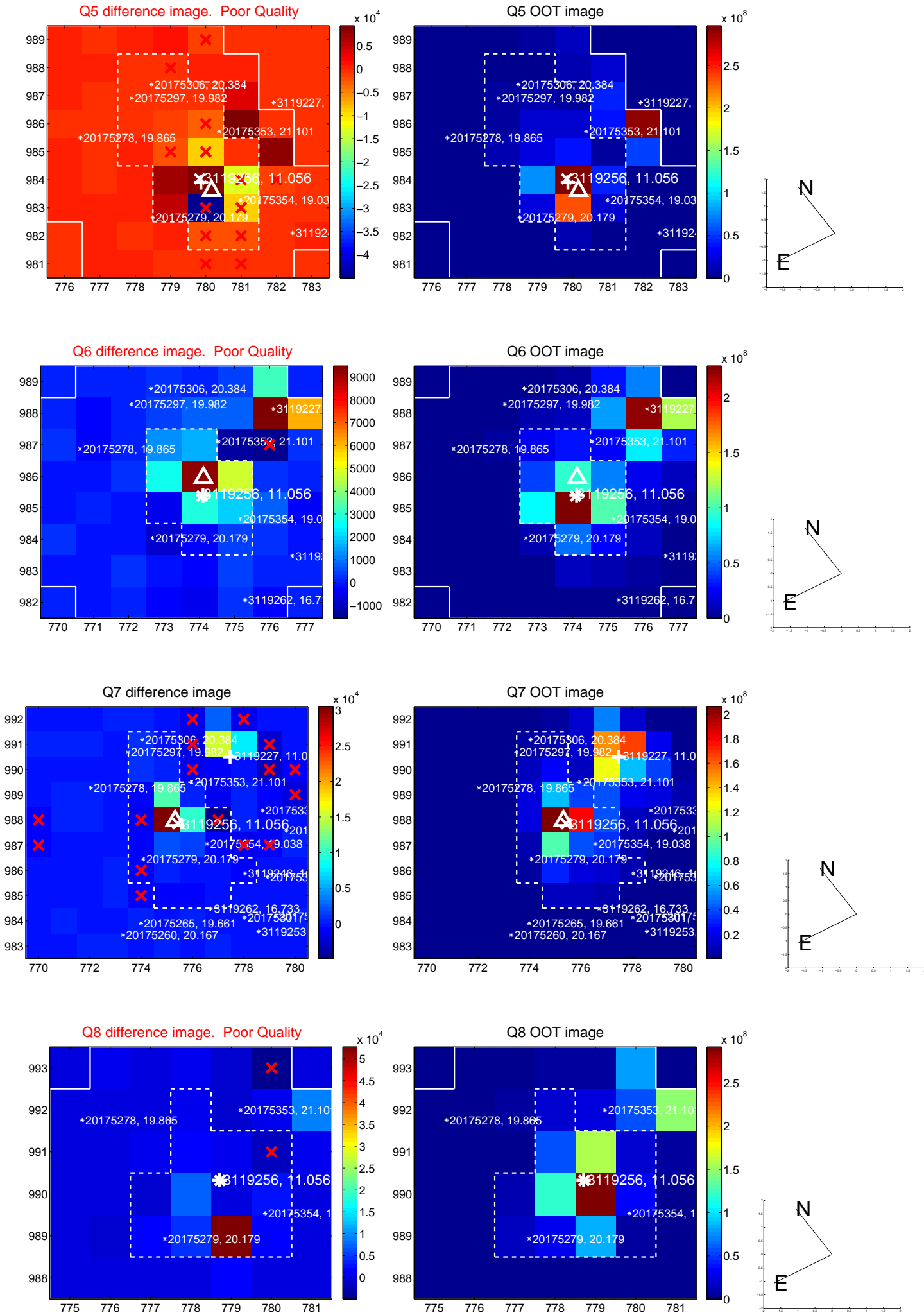


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

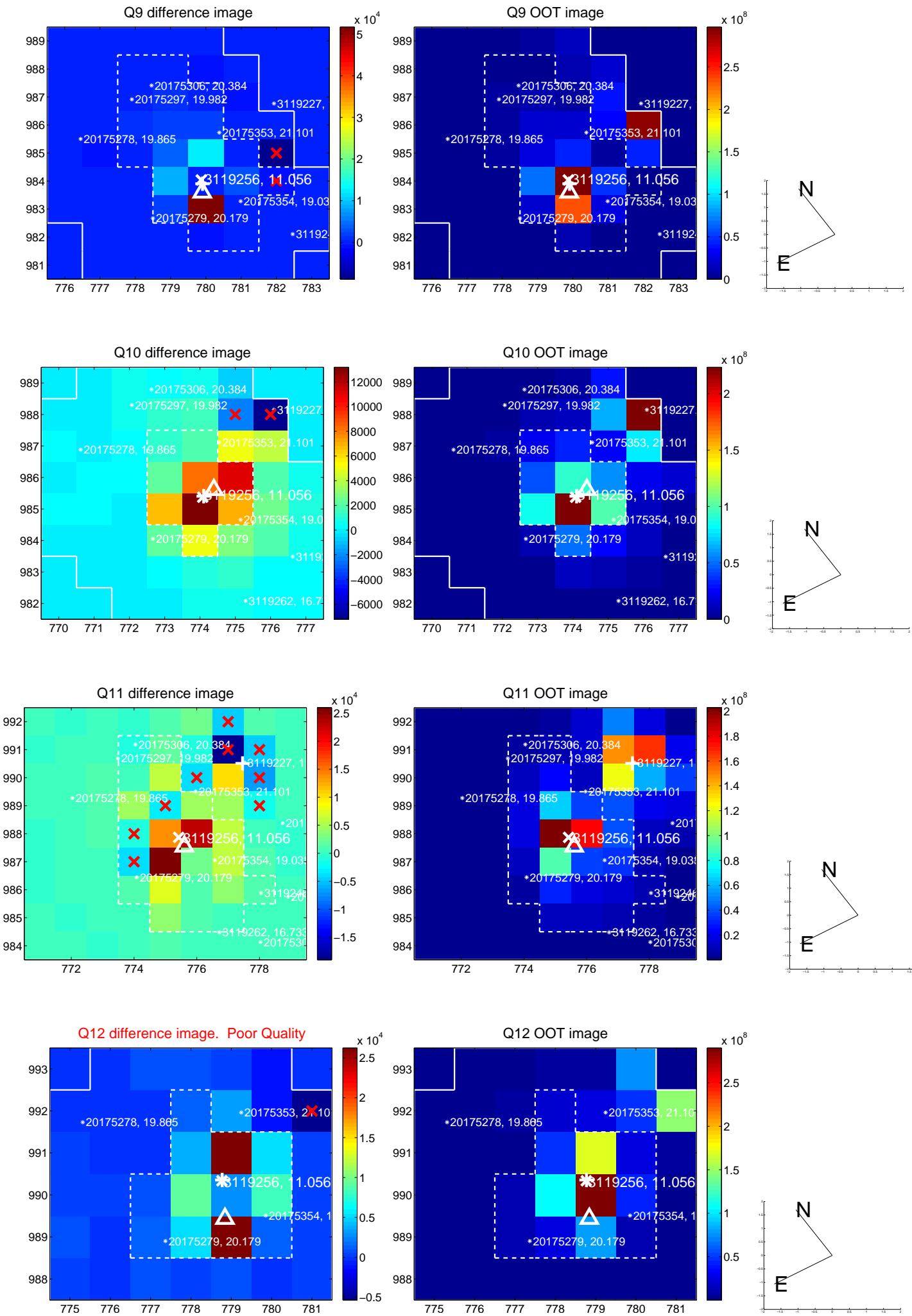
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



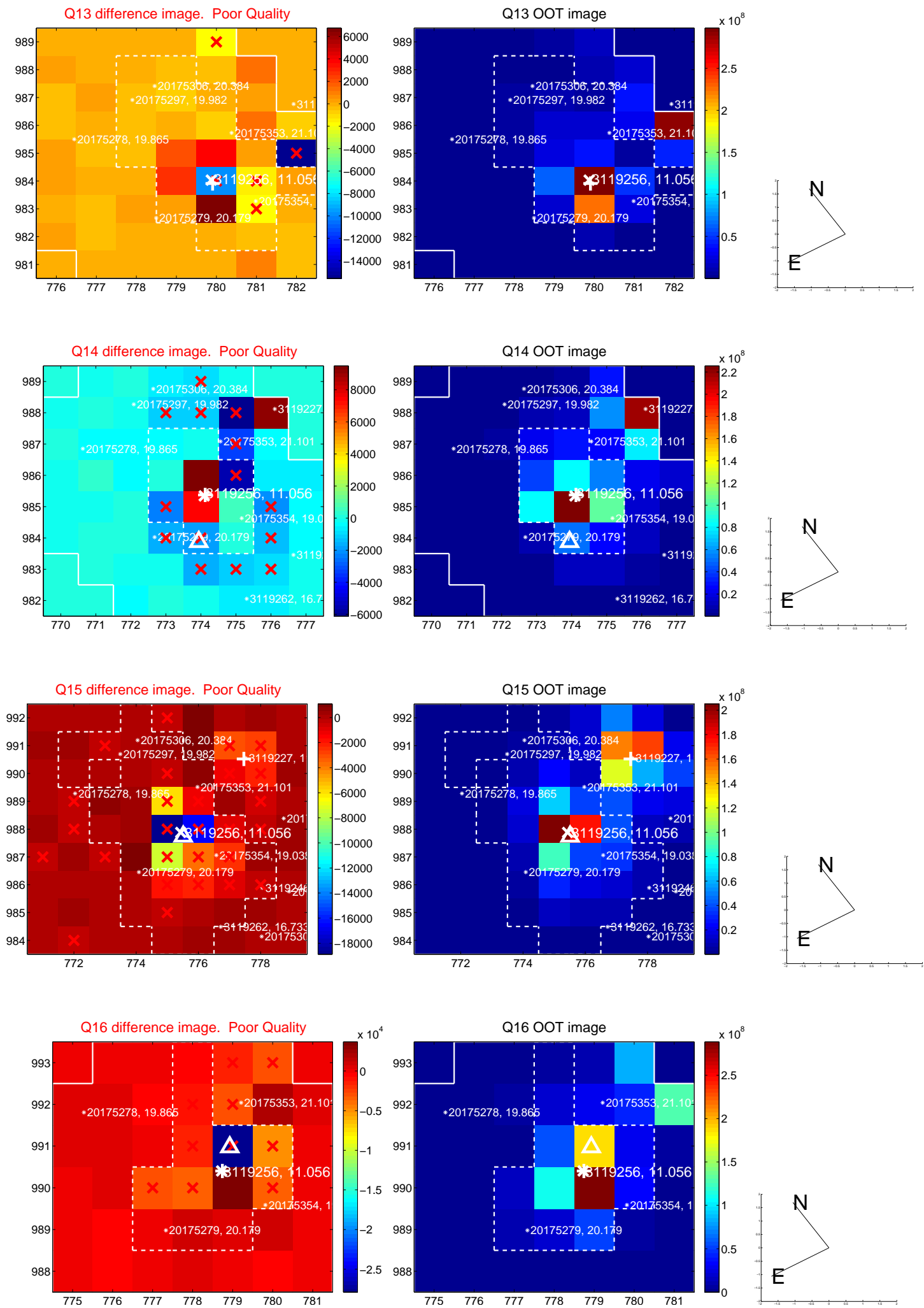
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

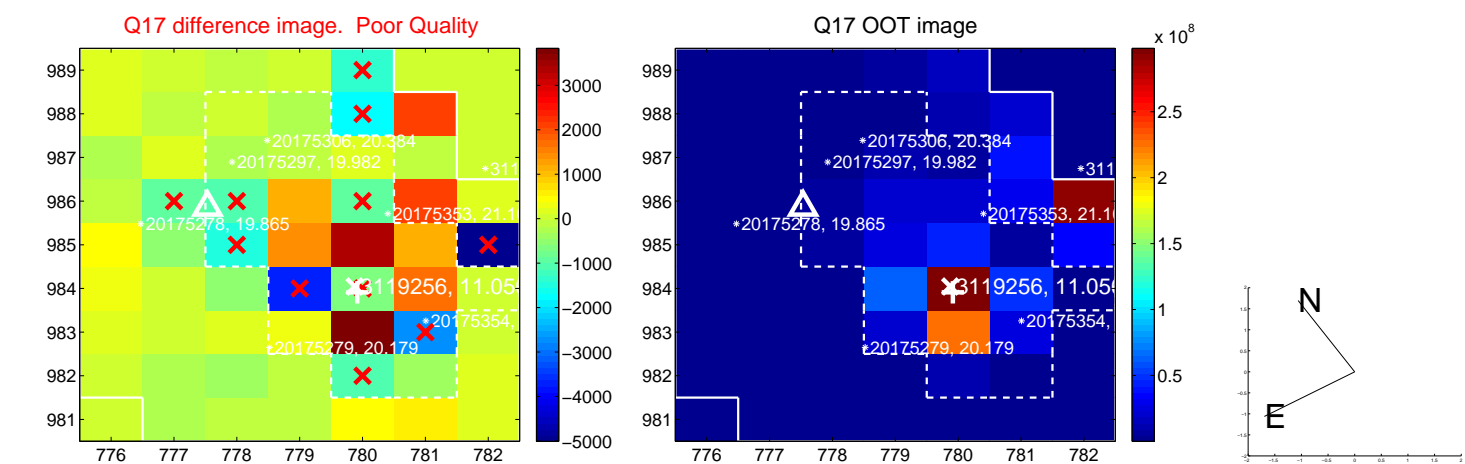


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

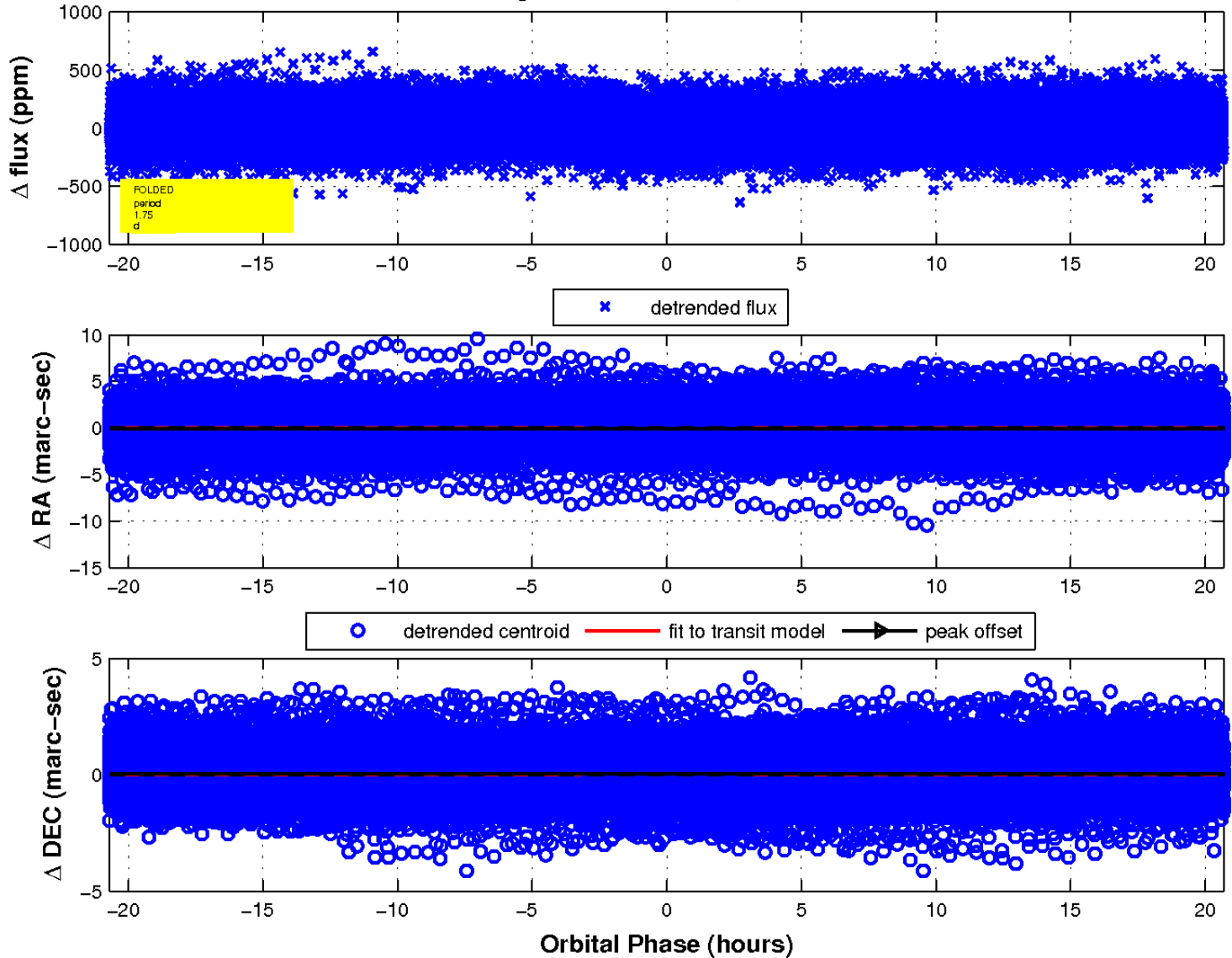




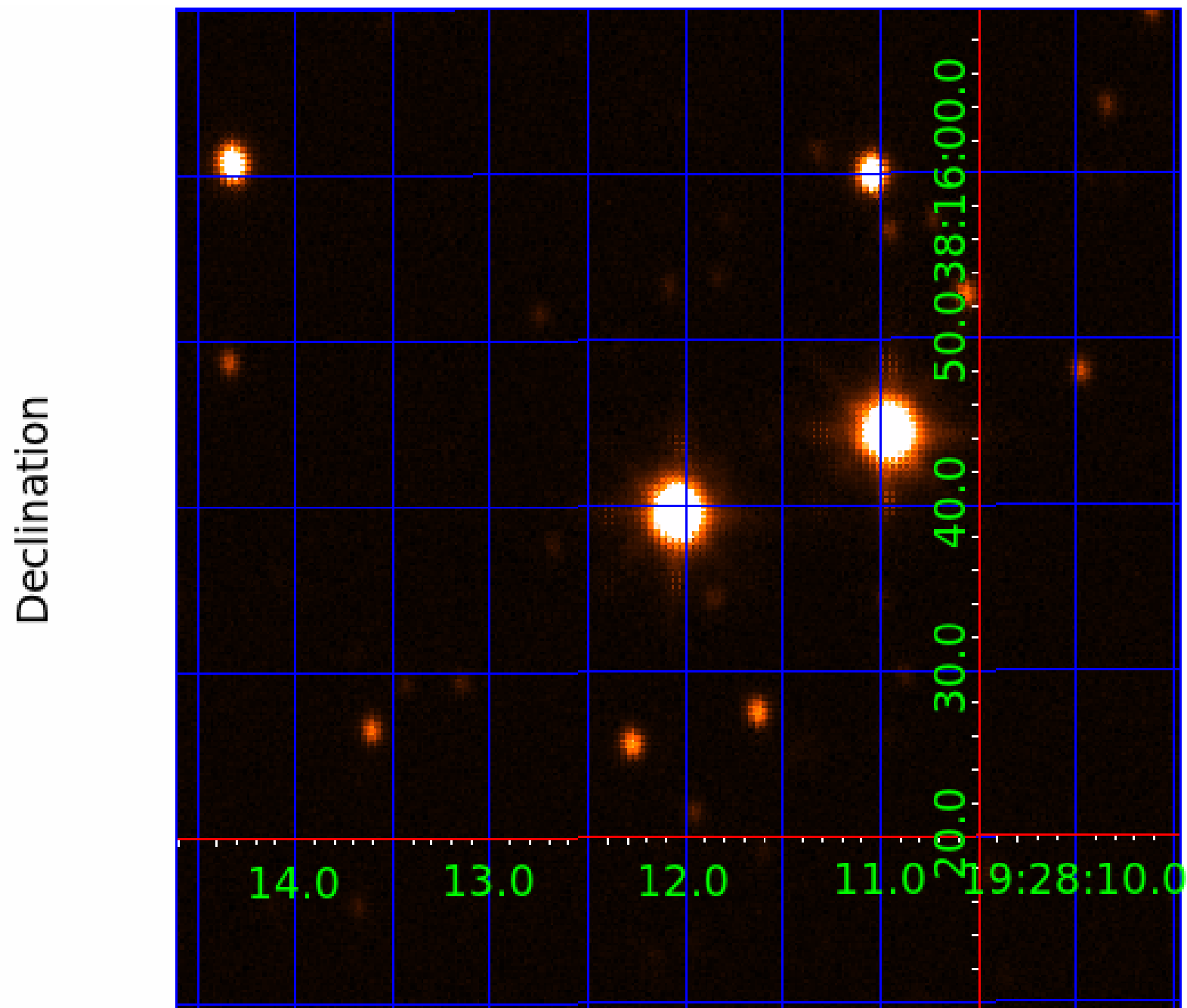
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 6



UKIRT Image



# KIC 003119256

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003119256-01	OBS	2784.01	4.142443	132.904487	63.7	2.303	17.5	19.0	2.12	6785	1.98	3129.83
003119256-02	OBS	No	1.750440	131.835768	26.9	6.901	10.9	12.1	2.12	6785	1.28	9870.38
003119256-03	OBS	No	1.750792	132.609903	19.1	5.505	10.0	10.4	2.12	6785	1.07	9867.73
003119256-06	OBS	No	9.328479	136.995480	70.4	6.585	8.2	4.7	2.12	6785	2.03	1060.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003119256-01	OBS	FP	0.00	0	0	1	0	CENT_SATURATED—HALO_GHOST
003119256-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003119256-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003119256-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_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 003119256-03

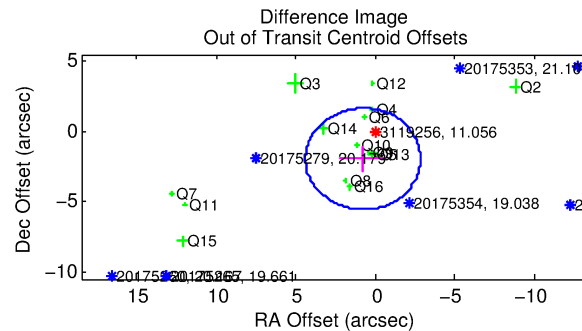
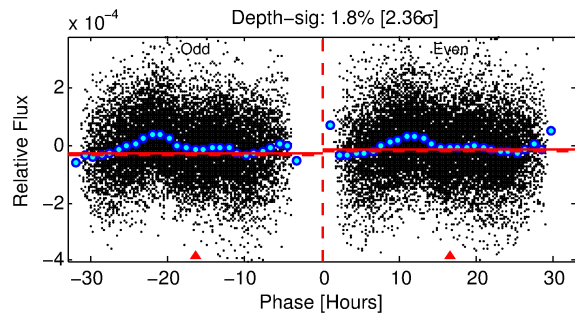
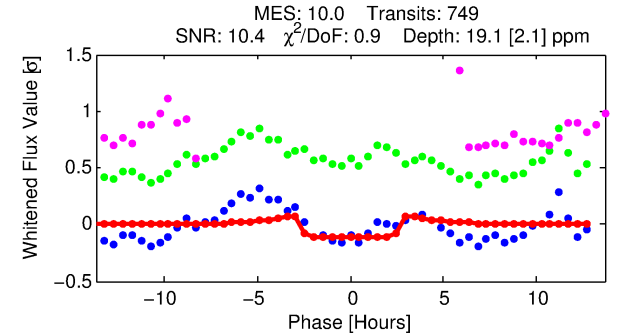
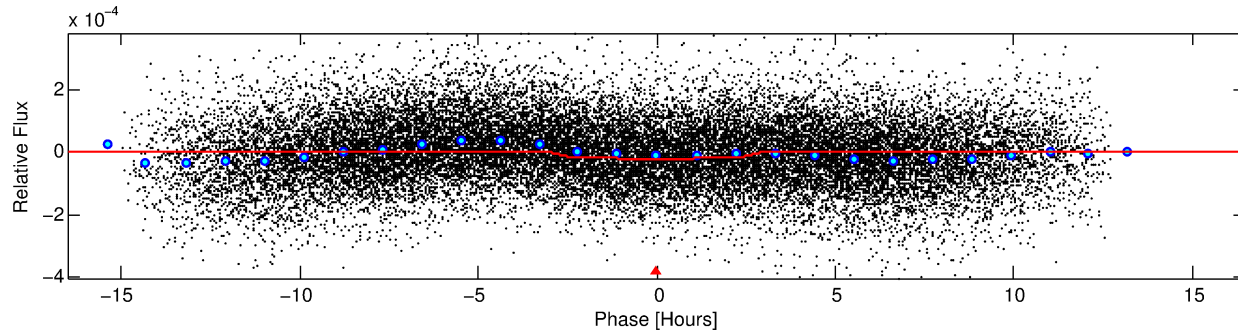
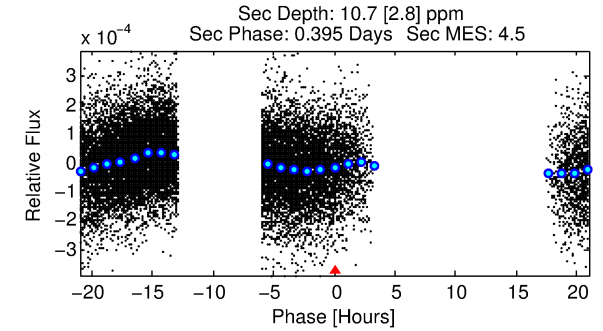
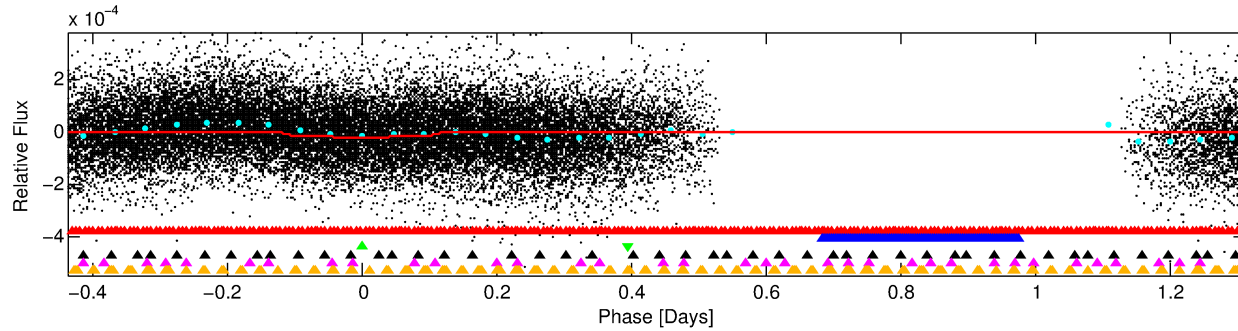
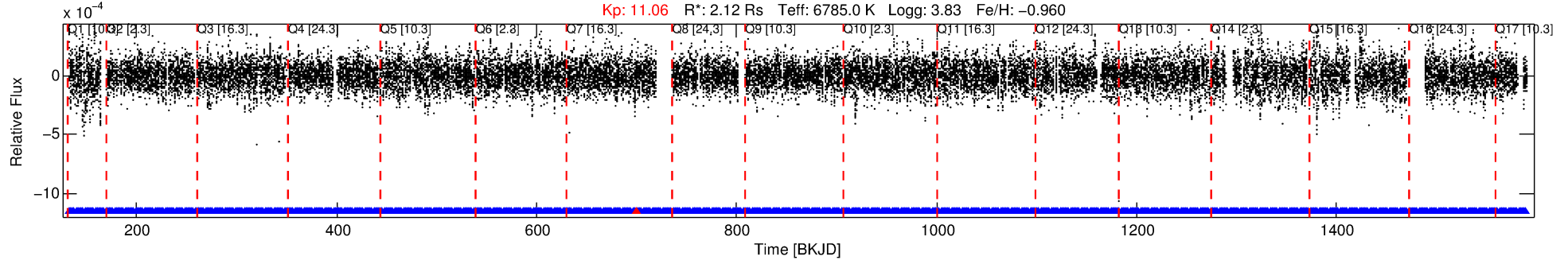
No Significant Match Found

# DV One-Page Summary

KIC: 3119256 Candidate: 3 of 6 Period: 1.751 d

KOI: K02784 Corr: No Ephemeris Match

Kp: 11.06 R\*: 2.12 Rs Teff: 6785.0 K Logg: 3.83 Fe/H: -0.960



## DV Fit Results:

Period = 1.75079 [0.00001] d  
Epoch = 132.6099 [0.0032] BKJD  
Rp/R\* = 0.0046 [0.0008]  
a/R\* = 1.48 [0.75]  
b = 0.89 [0.23]  
Seff = 9867.73 [5807.95]  
Teff = 2541 [374] K  
Rp = 1.07 [0.43] Re  
a = 0.0295 [0.0105] AU  
Ag = 4.48 [3.19] [1.09σ]  
Teffp = 5716 [633] K [4.32σ]

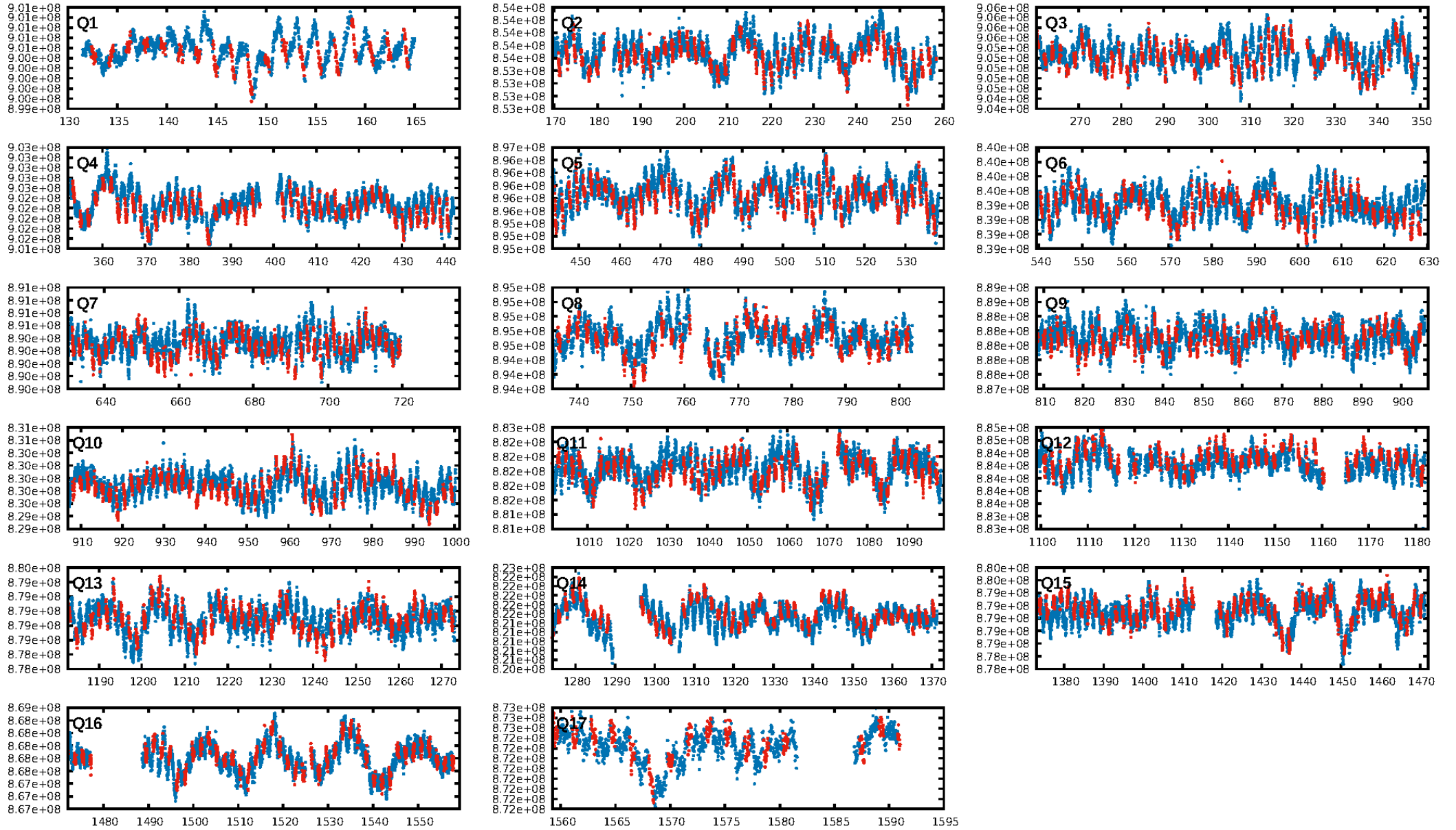
## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]  
LongPeriod-sig: 100.0% [9.62σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.29e-11  
RollingBand-fgt: 1.00 [715/716]  
GhostDiagnostic-chr: 35.34  
Centroid-sig: 0.0%  
Centroid-so: 1.621 arcsec [1.04σ]  
OotOffset-rm: 2.100 arcsec [1.74σ]  
KicOffset-rm: 1.051 arcsec [1.04σ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 0.67 [10/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:47:47 Z

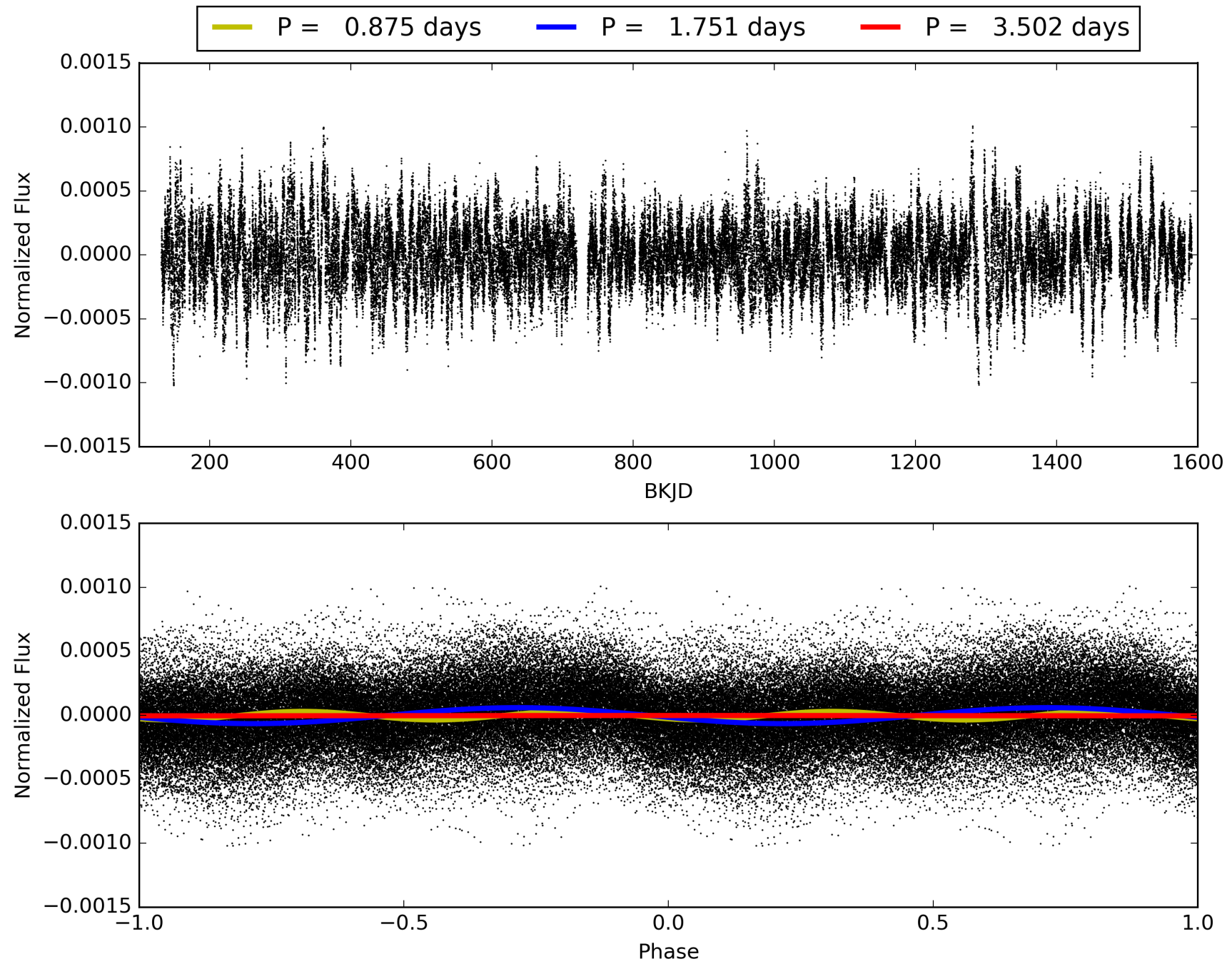
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003119256-03, PDC Light Curves





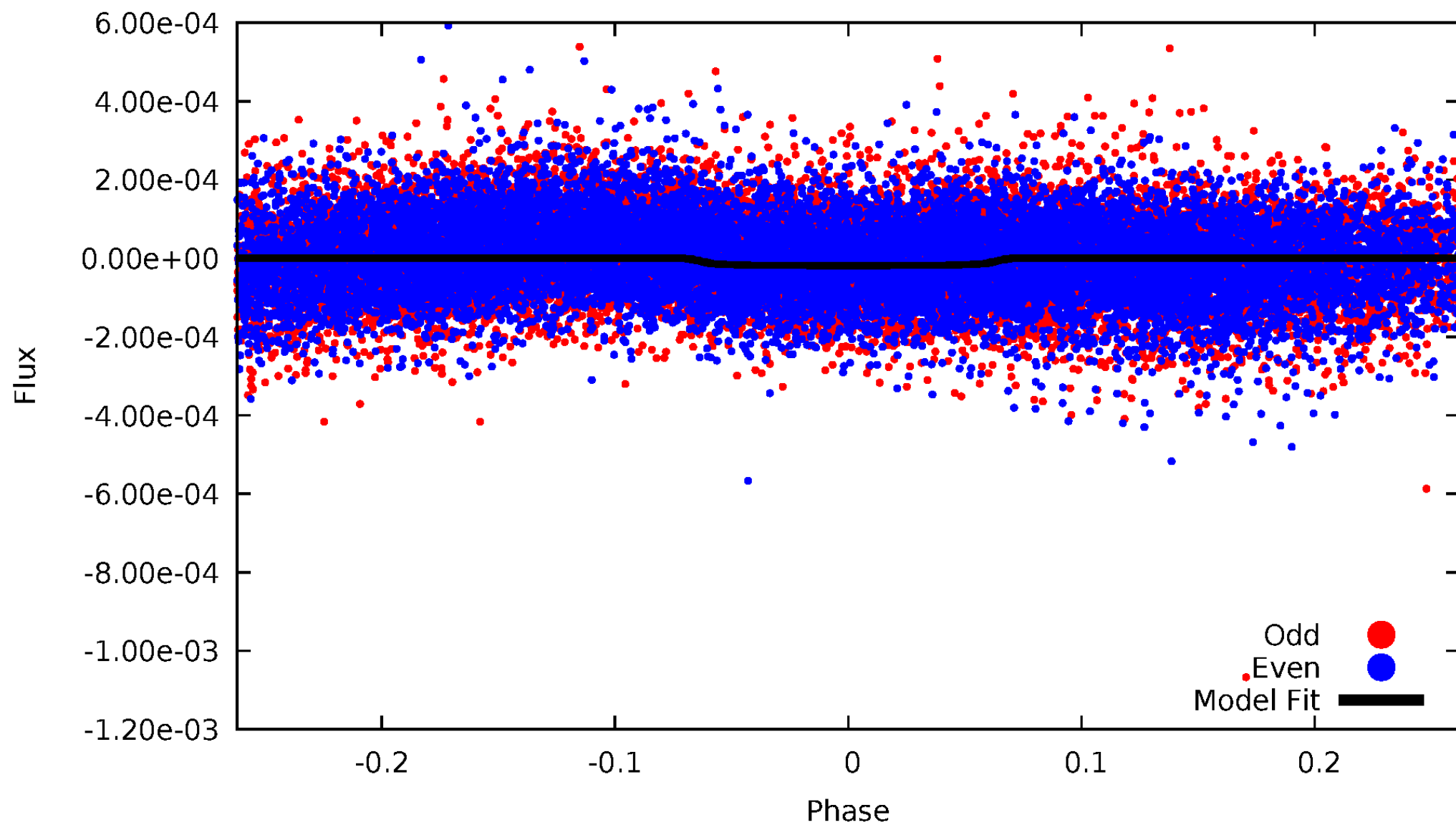
TCE 003119256-03





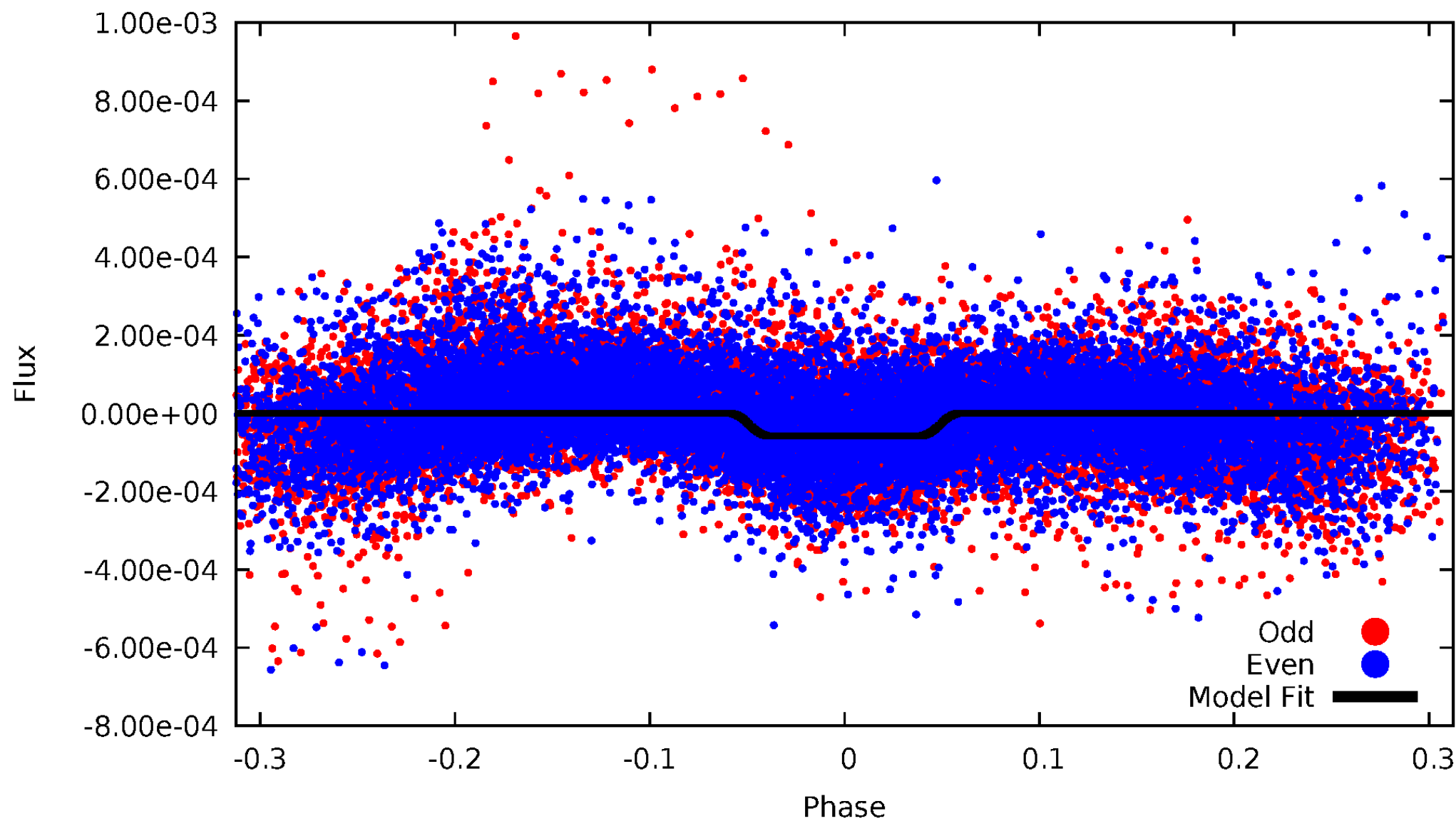
# DV Odd/Even

TCE 003119256-03



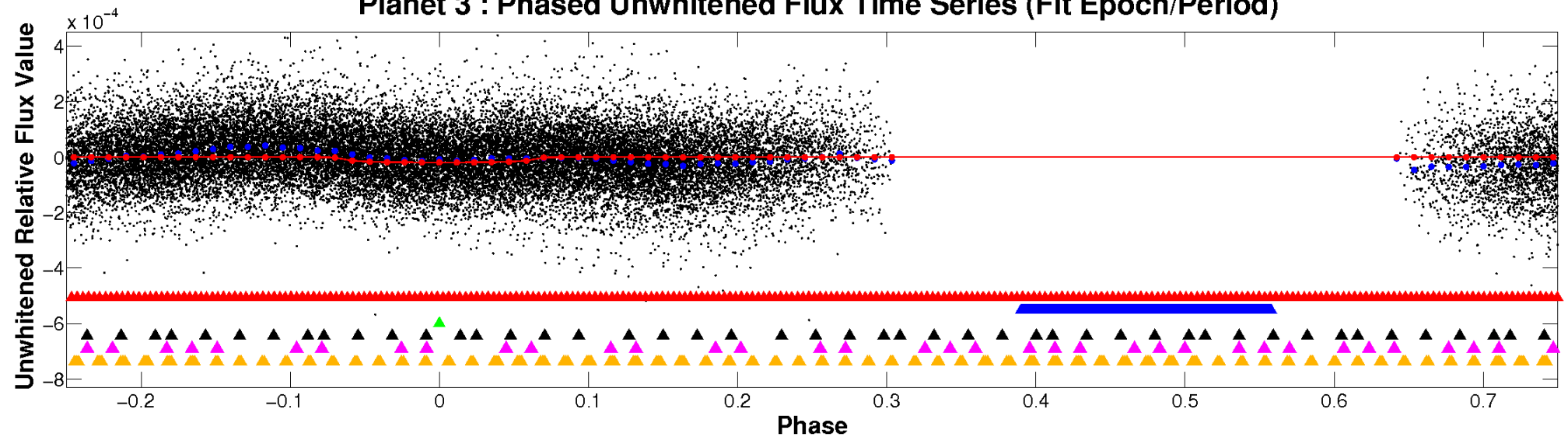
# ALT Odd/Even

TCE 003119256-03

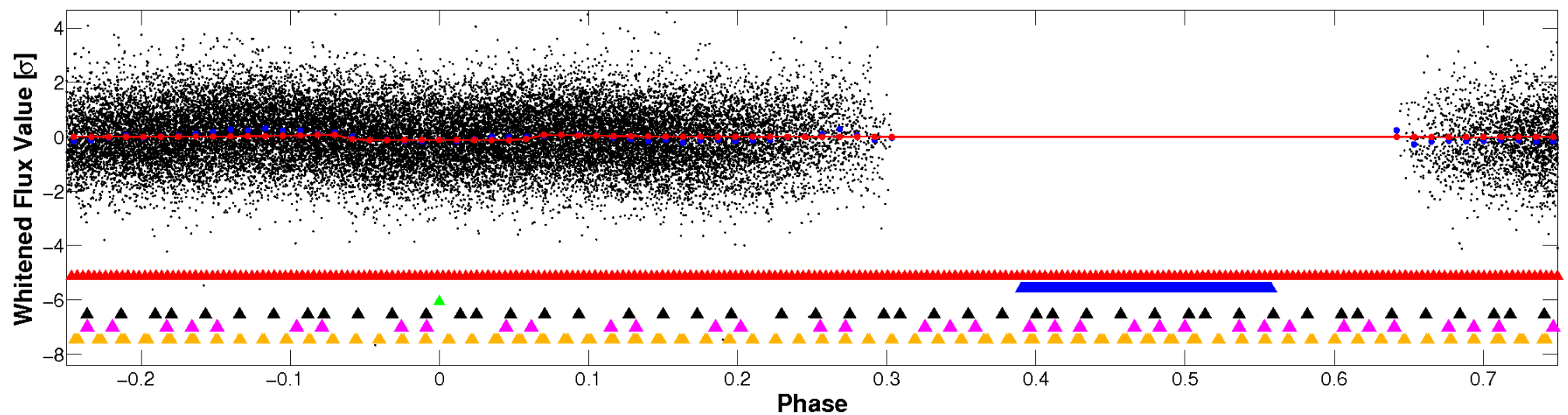


# Non-Whitened Vs. Whitened Light Curve

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

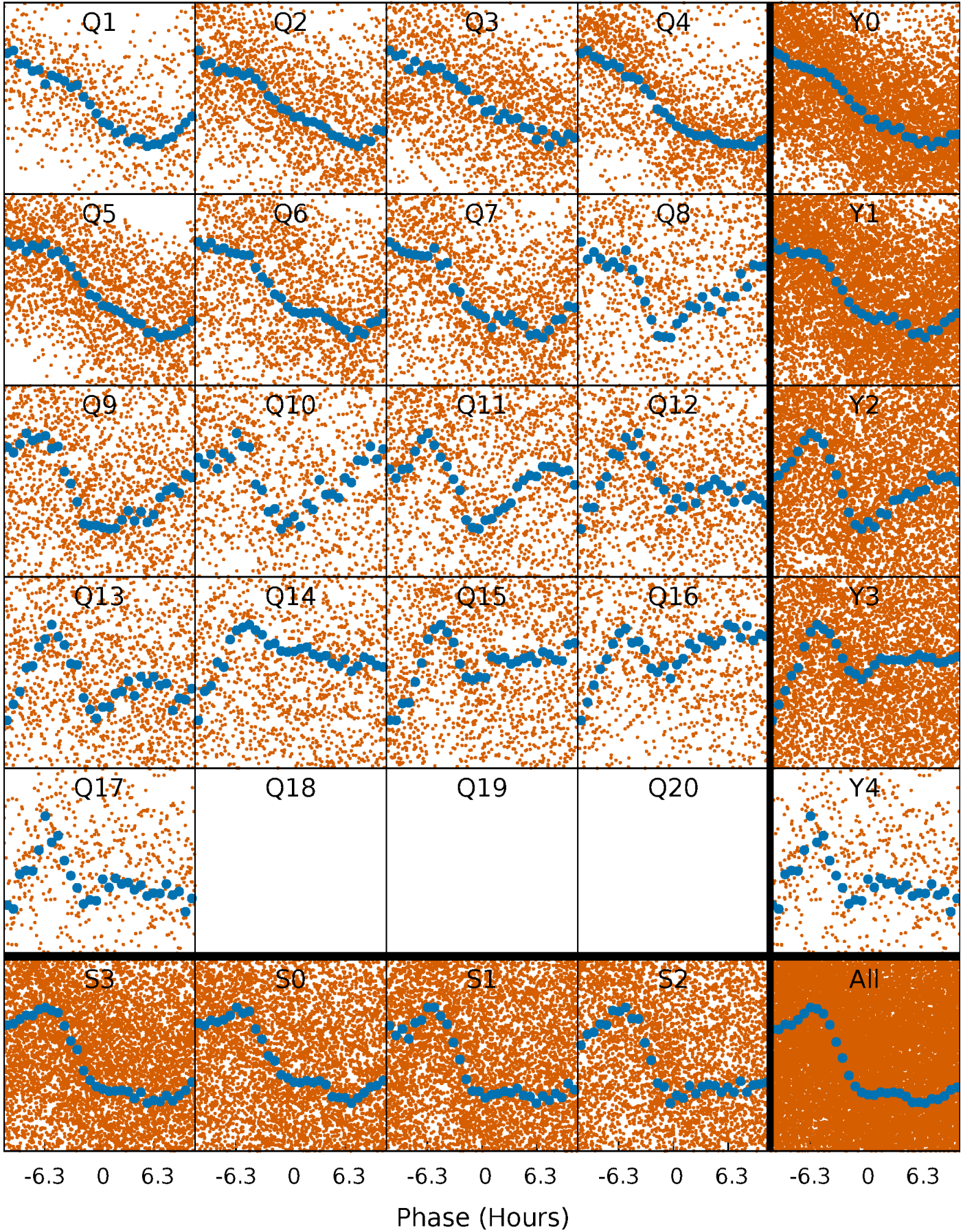


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

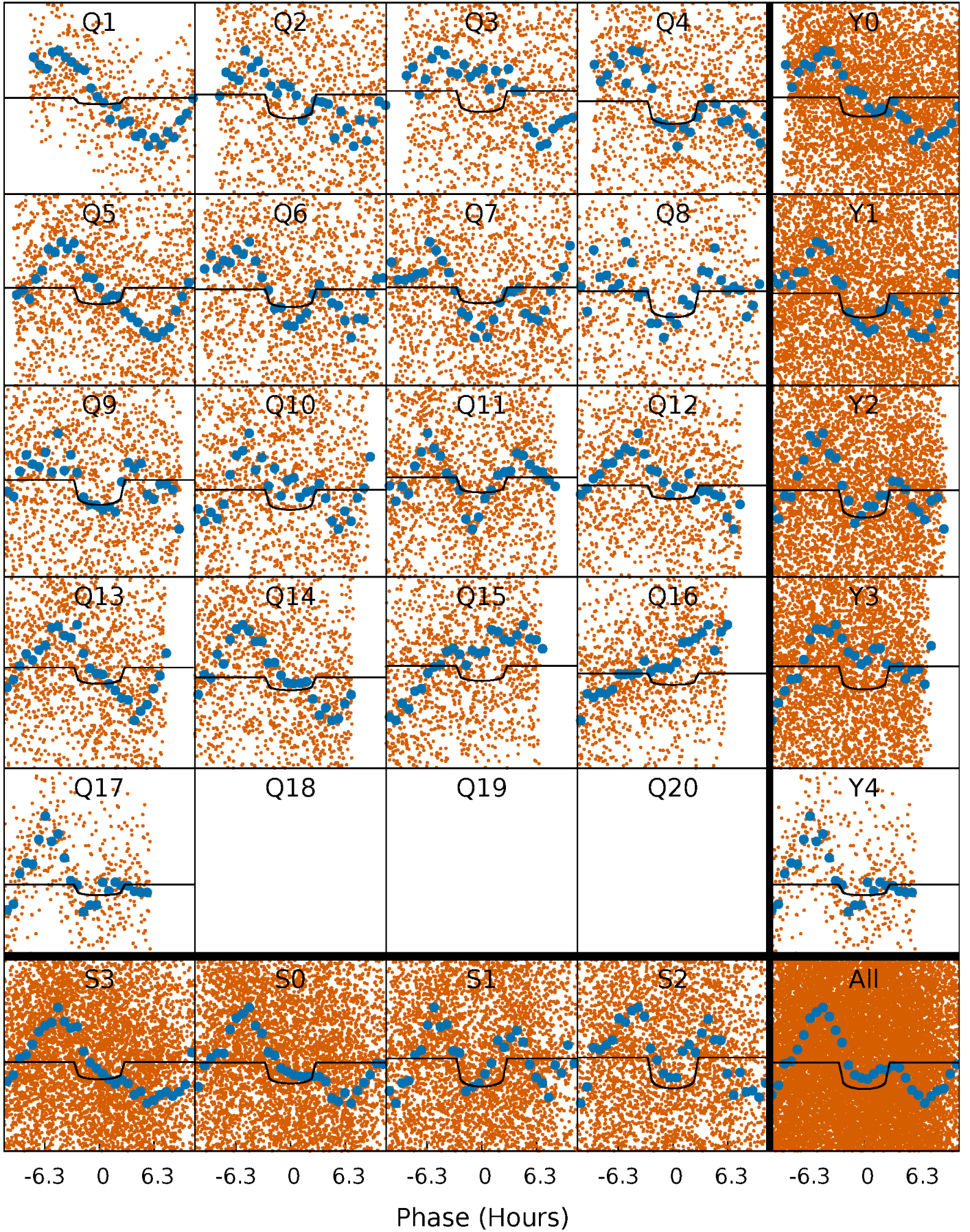
TCE 003119256-03 P= 1.750792 Days  $T_0=132.609903$  (BKJD)





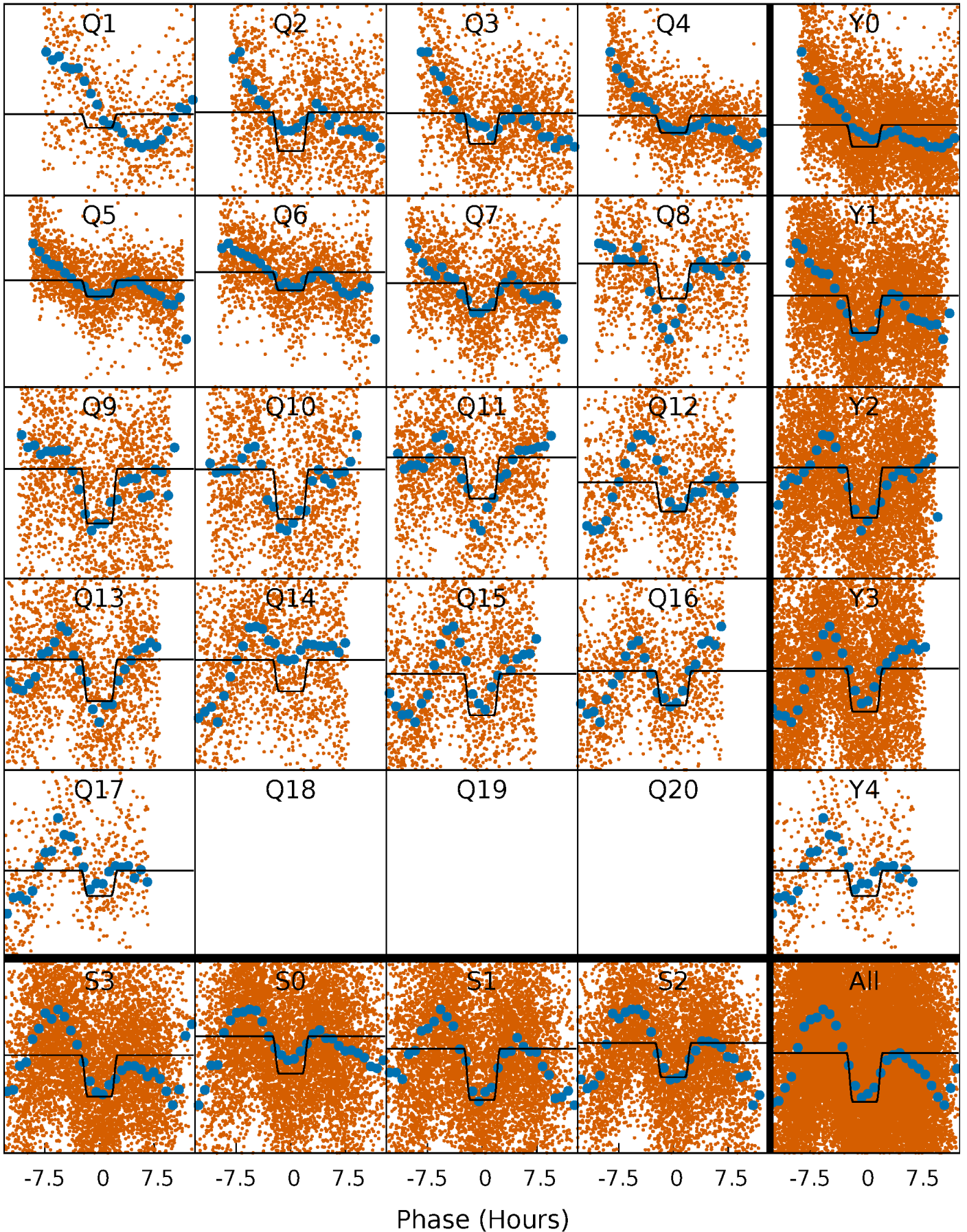
# DV Quarter-Phased Transit Curves

TCE 003119256-03   P= 1.750792 Days    $T_0=132.609903$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003119256-03 P= 1.750761 Days  $T_0=132.602150$  (BKJD)

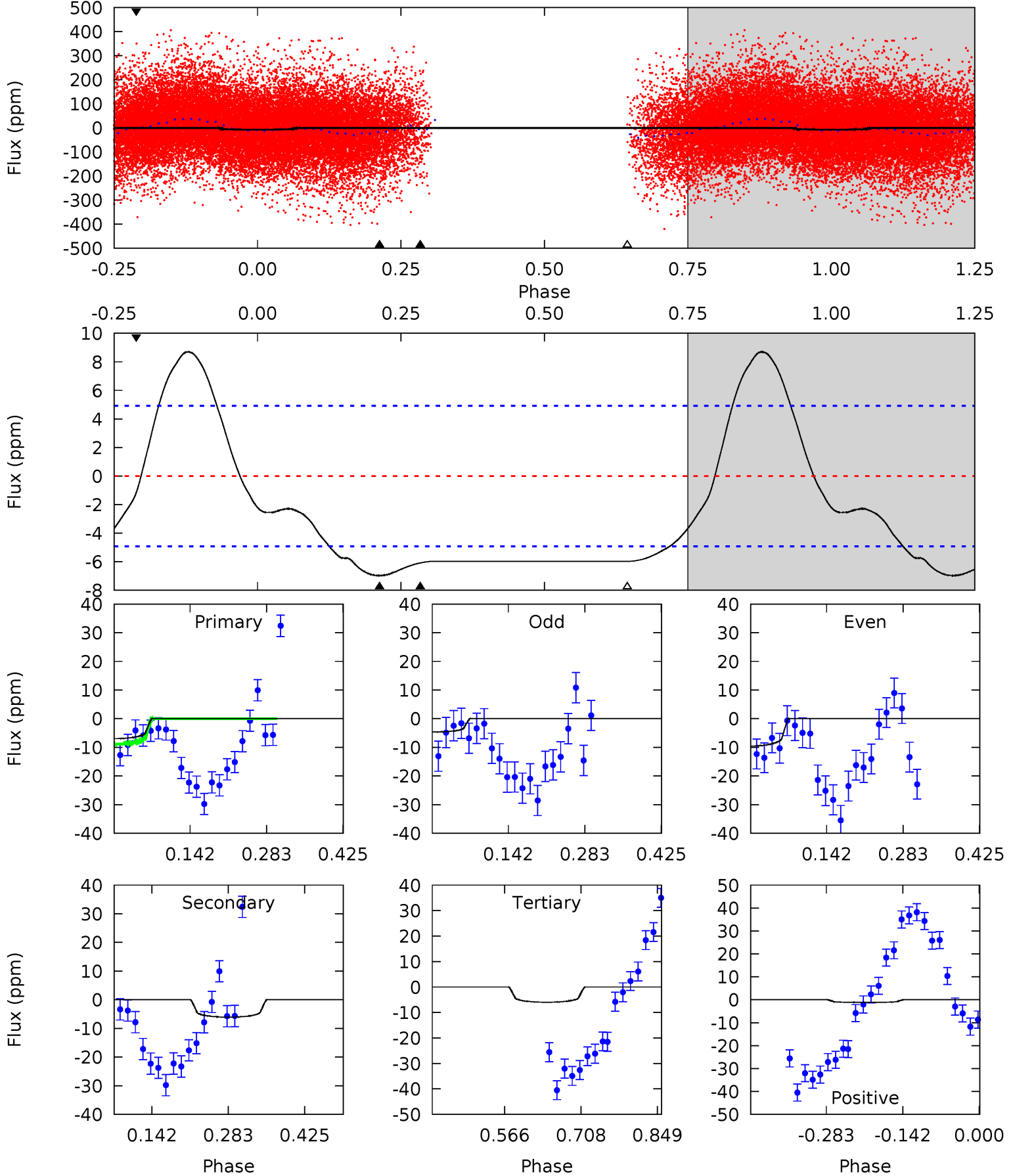




# DV Model-Shift Uniqueness Test

003119256-03, P = 1.750792 Days, E = 130.859111 Days

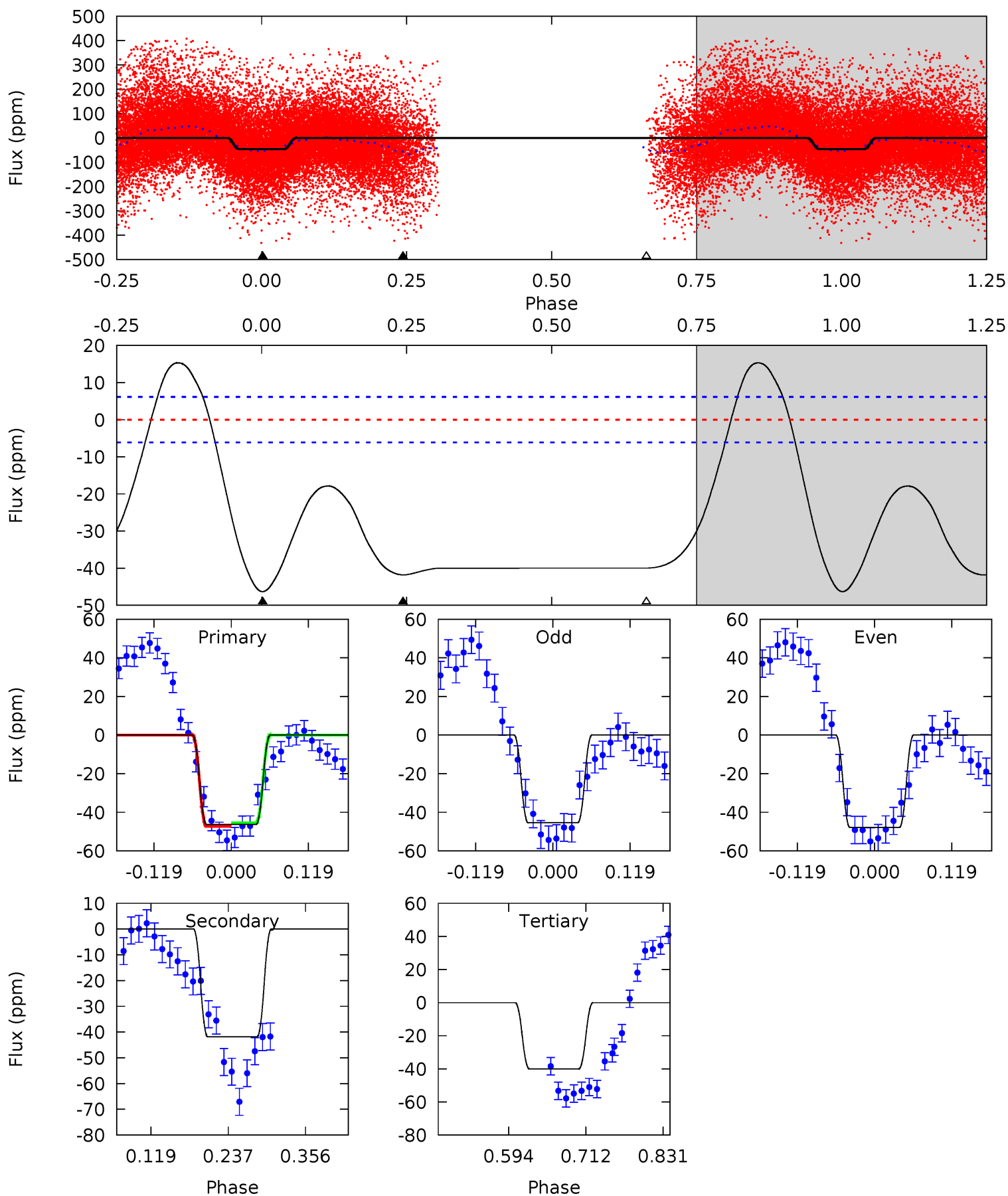
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.35	5.55	5.45	-1.05	4.49	1.47	4.12	0.91	7.41	0.10	6.60	2.24	0.75	0.56	1.84



# Alt Model-Shift Uniqueness Test

003119256-03, P = 1.750761 Days, E = 130.851389 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
34.3	30.9	29.6	0	4.53	1.56	14.1	4.69	34.3	1.35	30.9	0.89	0.92	0.25	0.77



### Stellar Parameters For KIC 003119256

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6785^{+183}_{-224}$	$3.830^{+0.338}_{-0.113}$	$-0.960^{+0.350}_{-0.300}$	$2.124^{+0.359}_{-0.779}$	$1.113^{+0.162}_{-0.178}$	$0.164^{+0.396}_{-0.054}$
	+3%/-3%	+9%/-3%	+36%/-31%	+17%/-37%	+15%/-16%	+242%/-33%
Source	PHO1	FLK73	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 003119256-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-6 \pm 1$	$1.01^{+0.25}_{-0.22}$	$3480^{+228}_{-312}$	$4878^{+526}_{-389}$	$2.883^{+1.890}_{-1.121}$
Alt.	$-42 \pm 1$	$1.71^{+0.31}_{-0.33}$	$3500^{+219}_{-321}$	$6150^{+349}_{-352}$	$6.884^{+3.369}_{-1.761}$

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

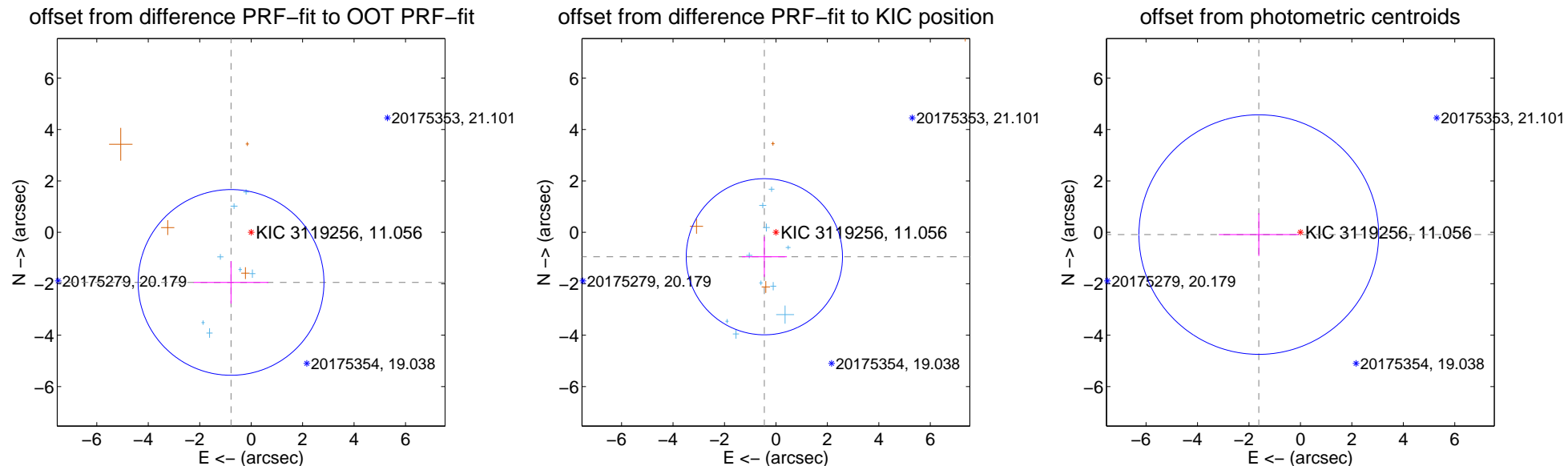
## DV Centroid Data

Supplemental centroid analysis for 003119256-03. **Kepler magnitude: 11.06.** Transit SNR 10.44

There are 10 quarters with good PRF difference image offsets

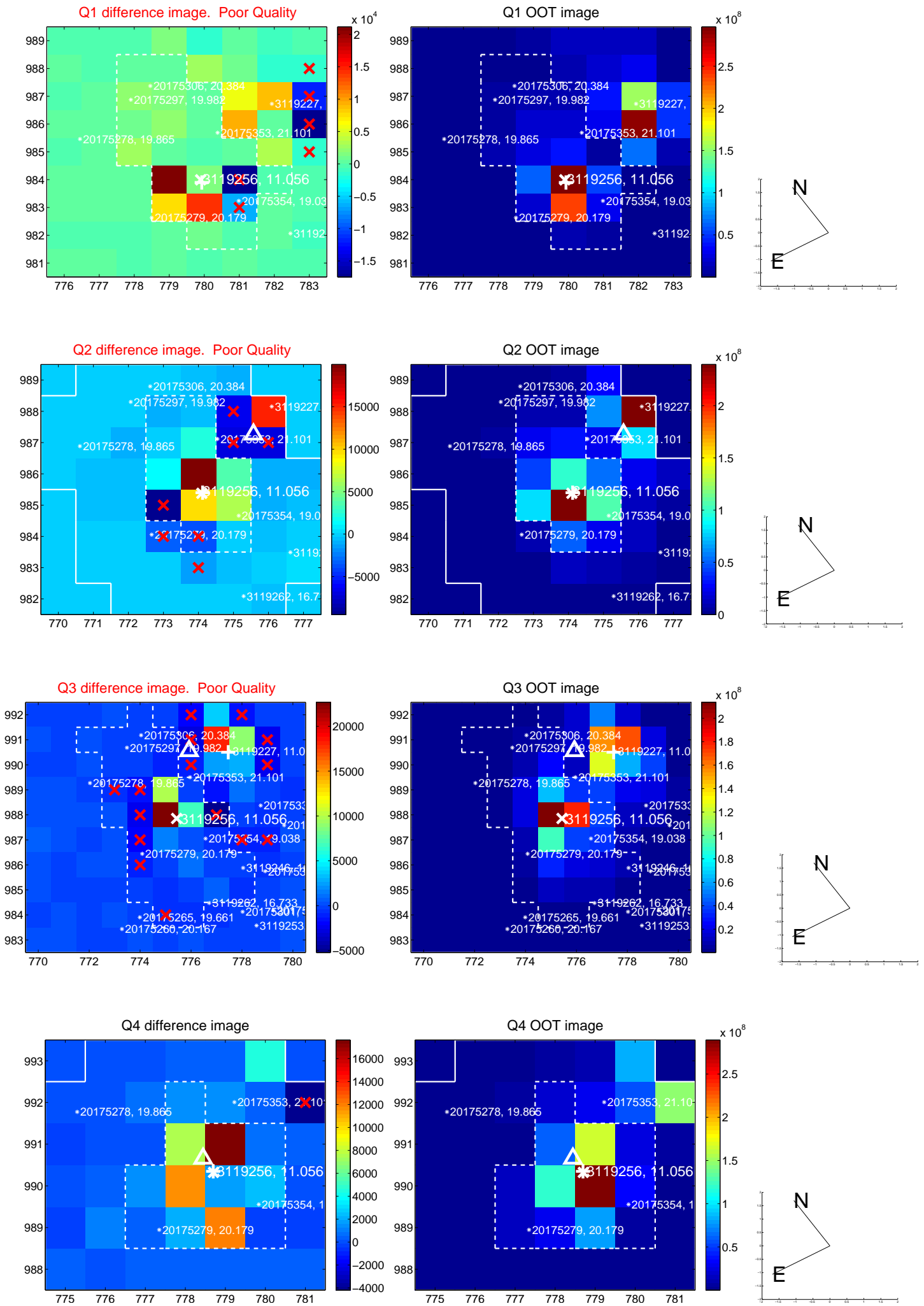
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.100 \pm 1.204$	1.74	$0.783 \pm 1.455$	$-1.948 \pm 0.825$
PRF-fit source offset from KIC position	$1.051 \pm 1.012$	1.04	$0.451 \pm 0.876$	$-0.950 \pm 0.784$
photometric centroid source offset	$1.62 \pm 1.55$	1.04	$1.62 \pm 1.55$	$-0.09 \pm 0.84$

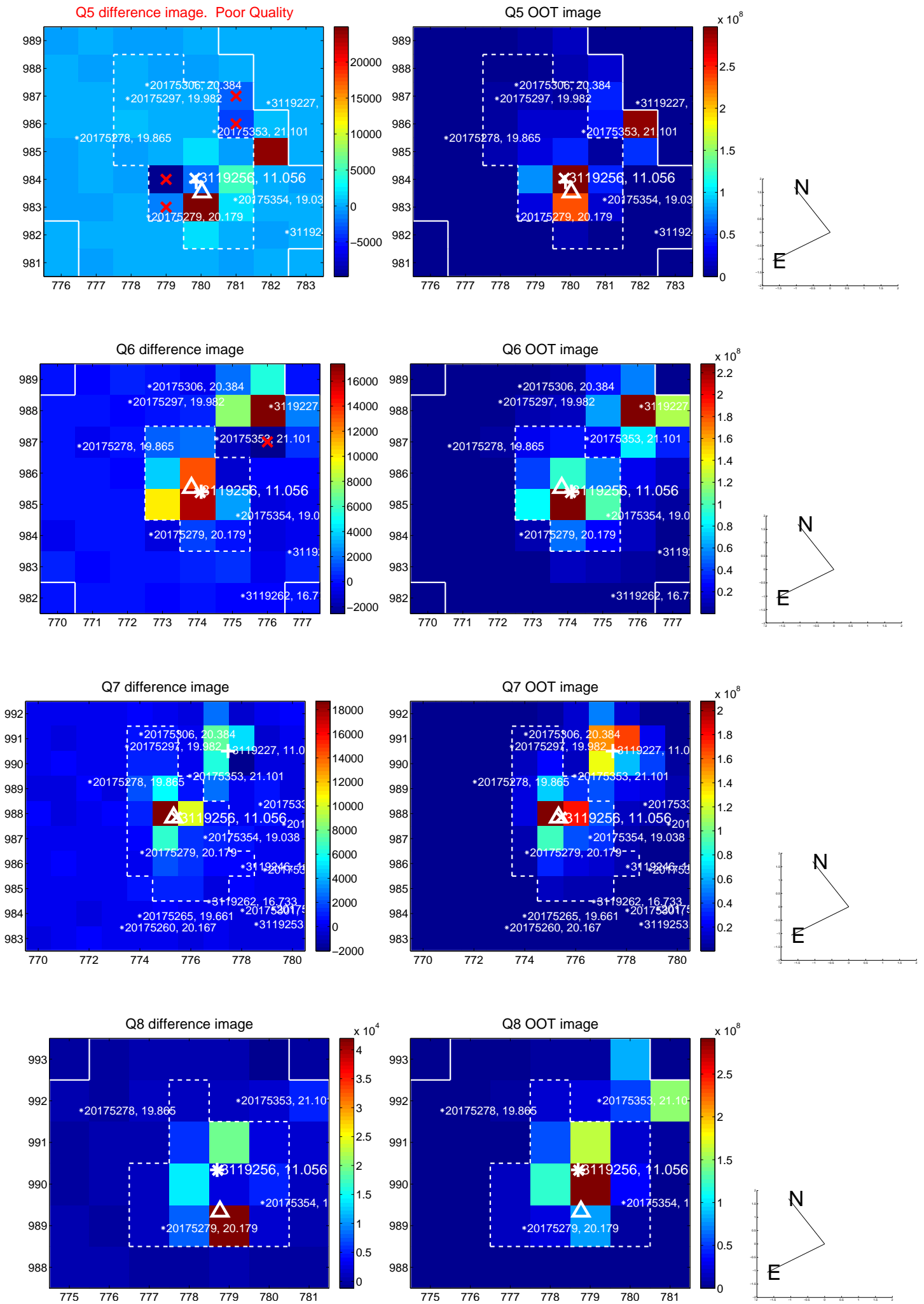


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

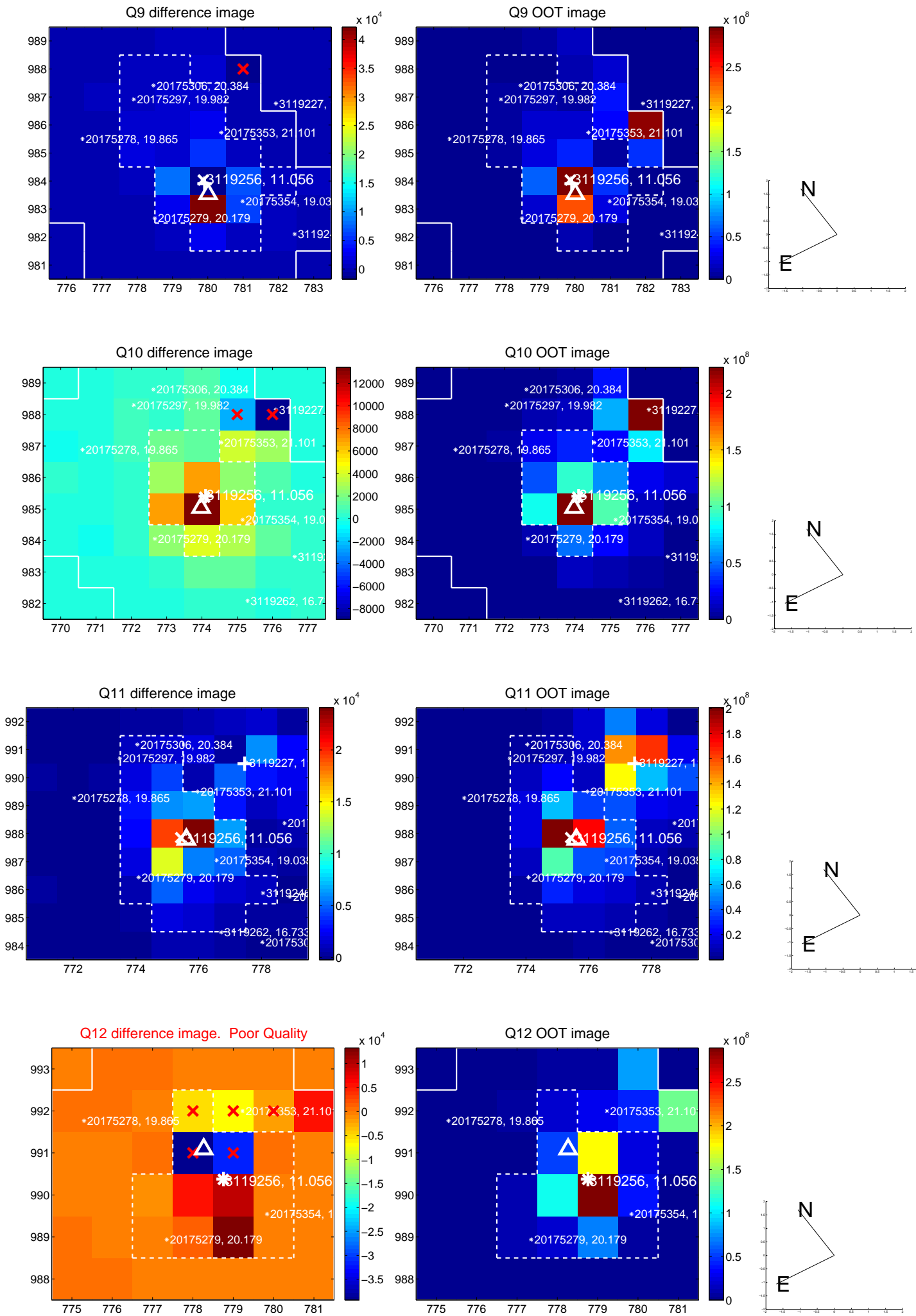


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

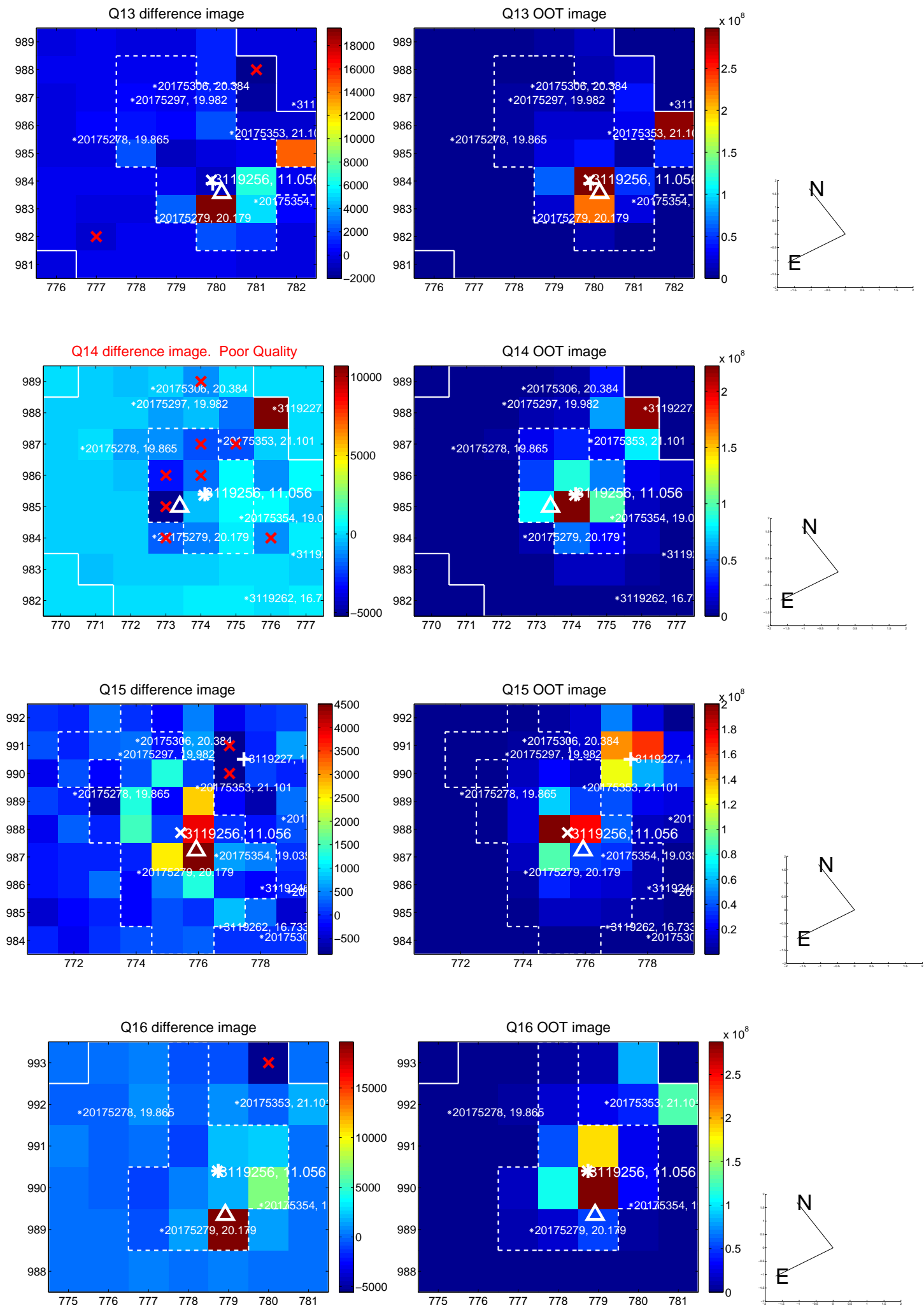




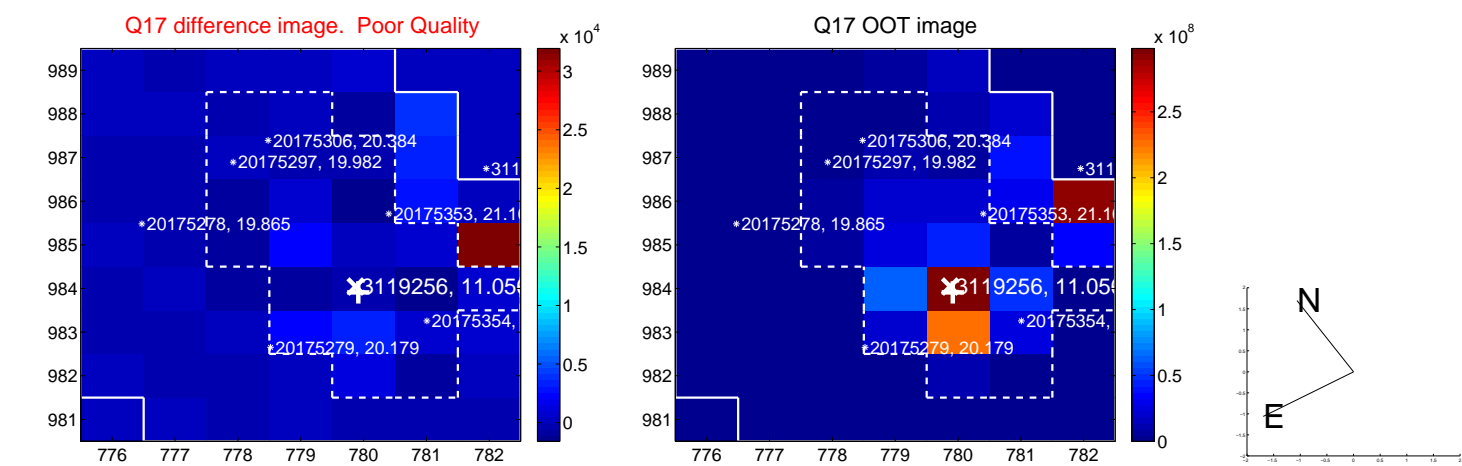
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



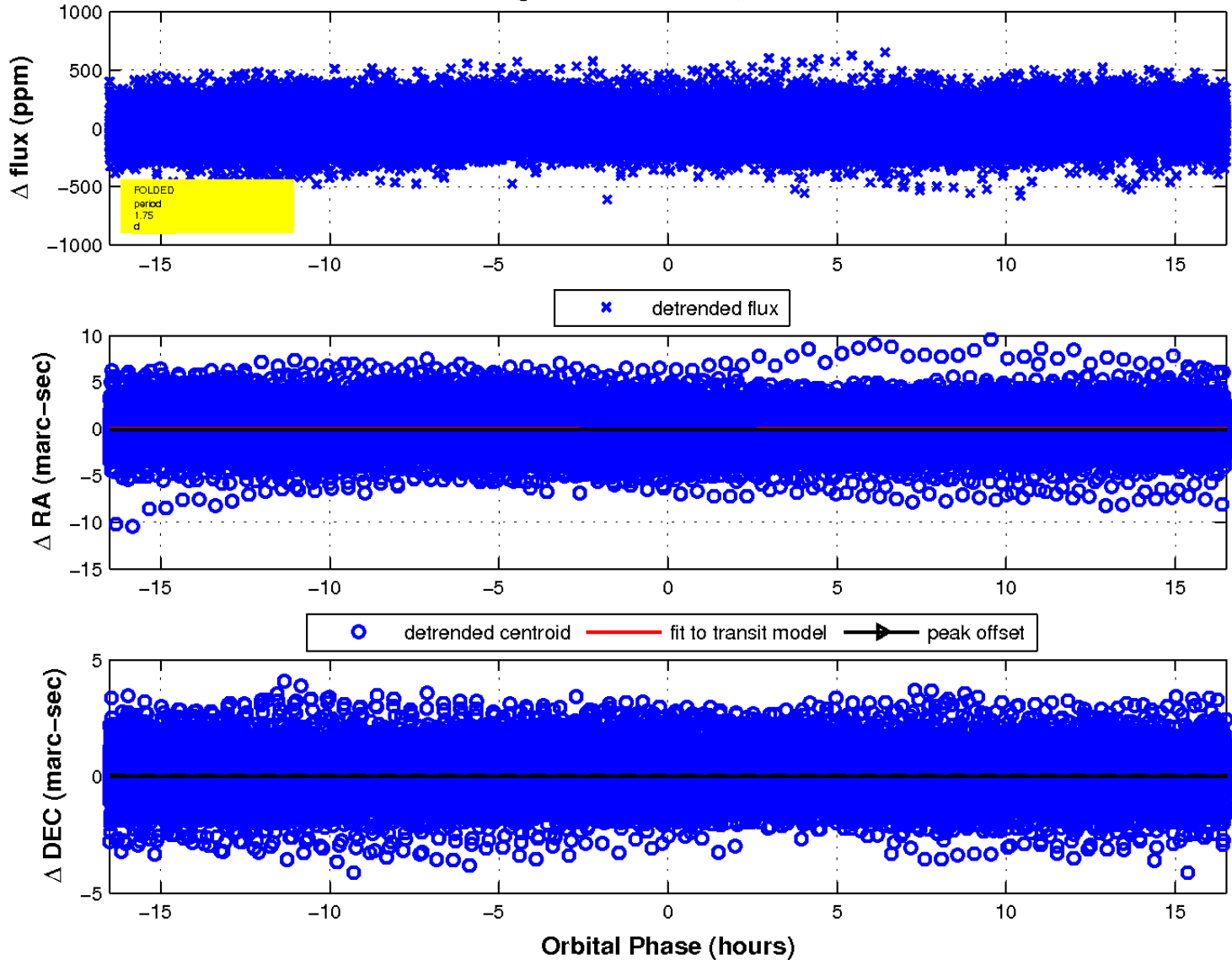
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

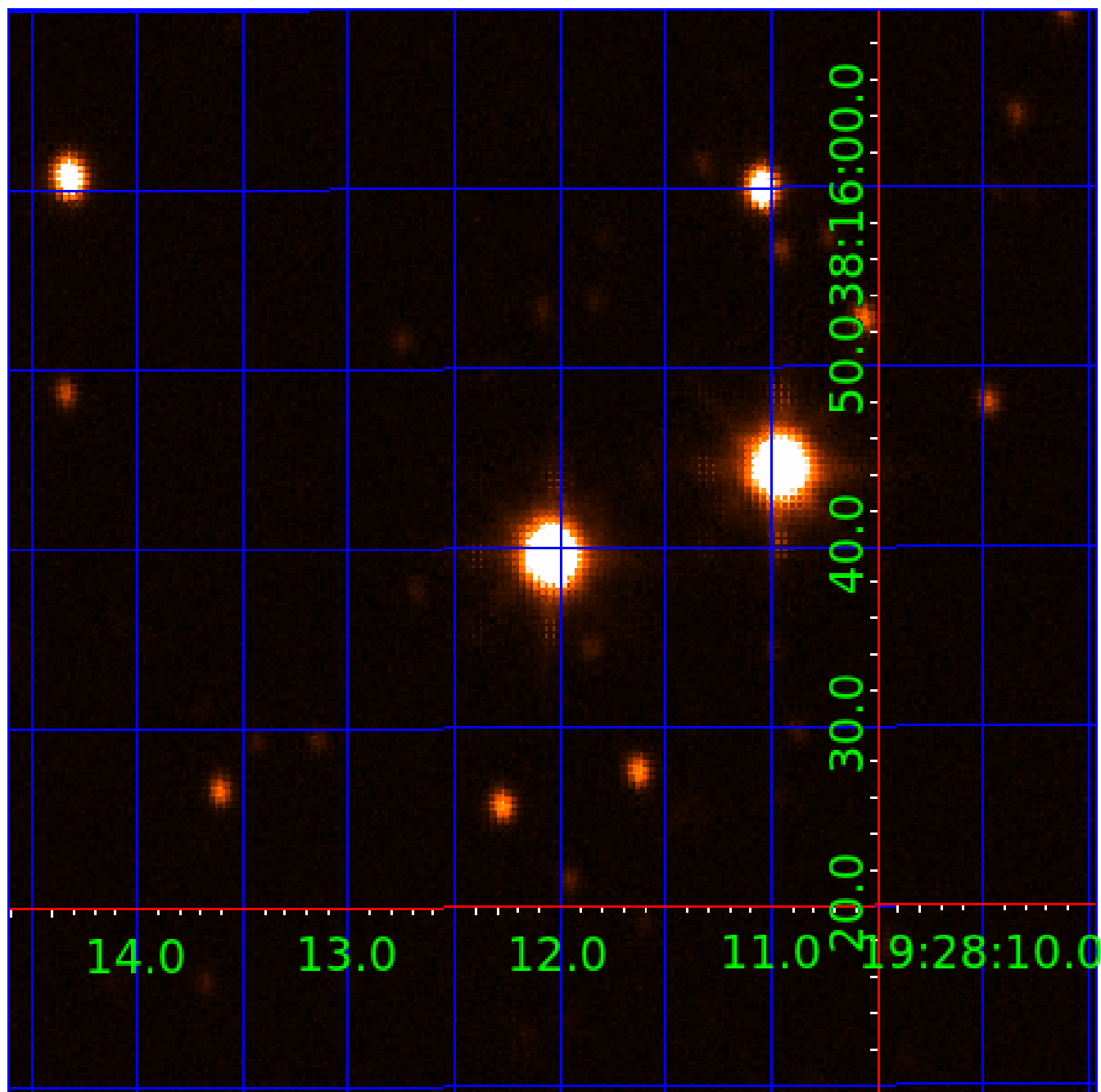


fluxWeightedCentroids, Planet 3 of 6



UKIRT Image

Declination



# KIC 003119256

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003119256-01	OBS	2784.01	4.142443	132.904487	63.7	2.303	17.5	19.0	2.12	6785	1.98	3129.83
003119256-02	OBS	No	1.750440	131.835768	26.9	6.901	10.9	12.1	2.12	6785	1.28	9870.38
003119256-03	OBS	No	1.750792	132.609903	19.1	5.505	10.0	10.4	2.12	6785	1.07	9867.73
003119256-06	OBS	No	9.328479	136.995480	70.4	6.585	8.2	4.7	2.12	6785	2.03	1060.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003119256-01	OBS	FP	0.00	0	0	1	0	CENT_SATURATED—HALO_GHOST
003119256-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
003119256-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
003119256-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_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 003119256-06

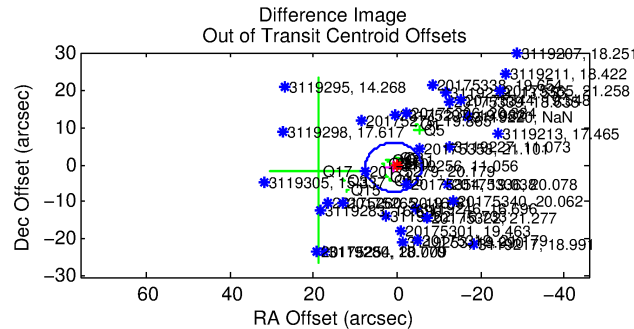
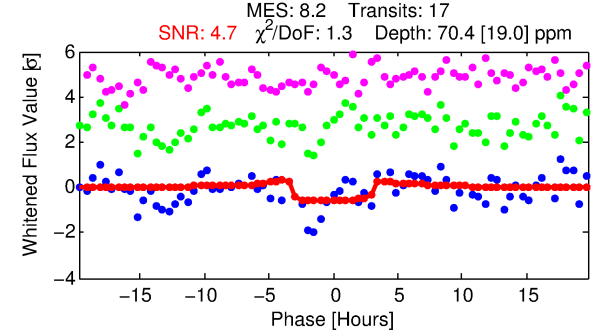
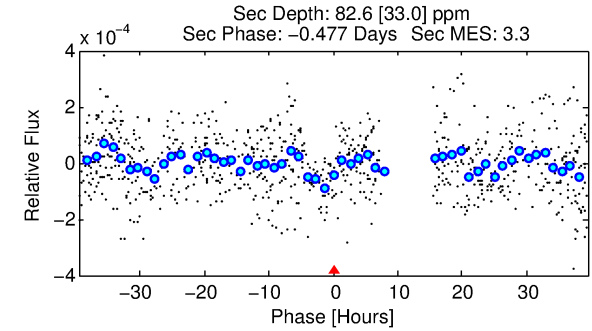
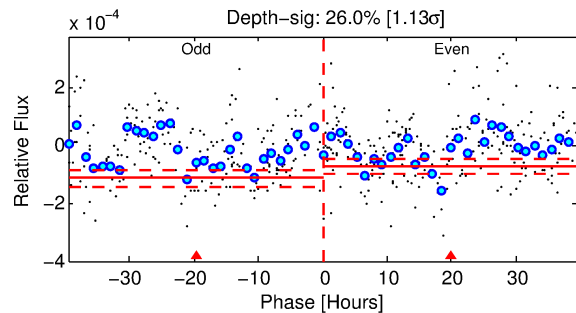
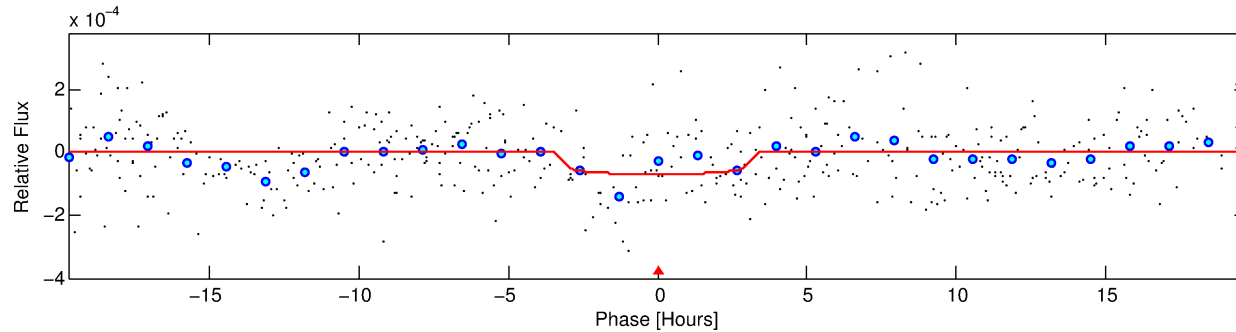
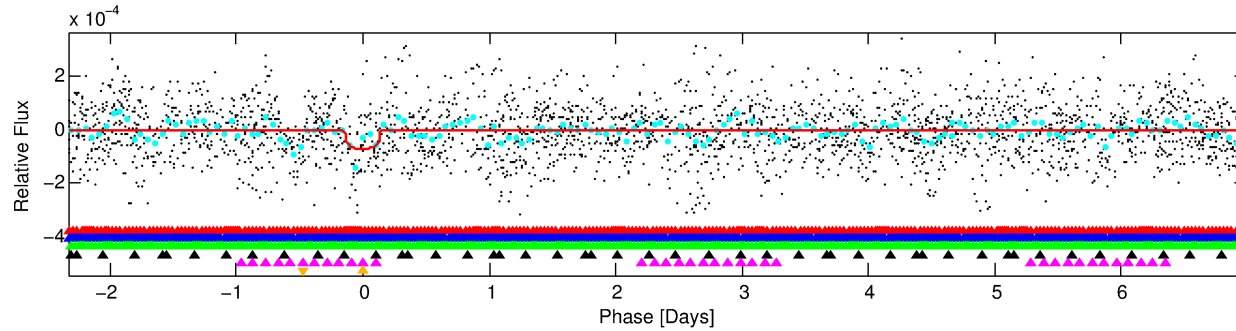
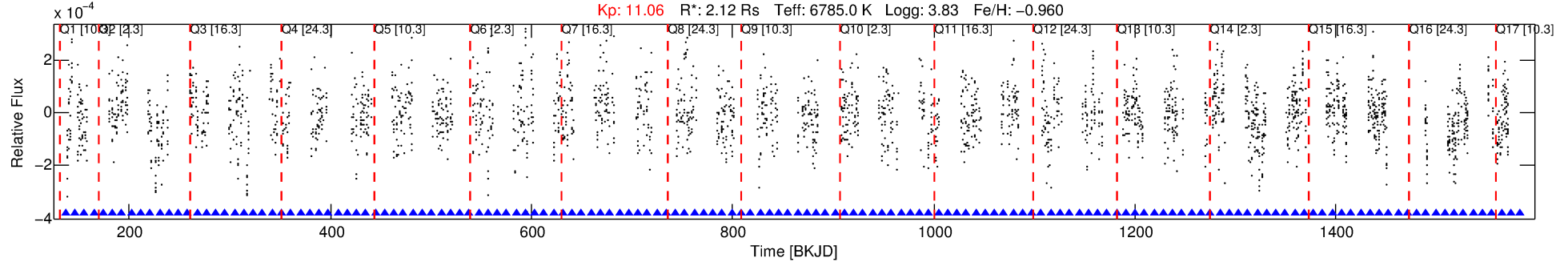
No Significant Match Found



# DV One-Page Summary

KIC: 3119256 Candidate: 6 of 6 Period: 9.328 d  
KOI: K02784 Corr: No Ephemeris Match

Kp: 11.06 R\*: 2.12 Rs Teff: 6785.0 K Logg: 3.83 Fe/H: -0.960



## DV Fit Results:

Period = 9.32848 [0.00022] d  
Epoch = 136.9955 [0.0198] BKJD  
Rp/R\* = 0.0088 [0.0075]  
a/R\* = 5.59 [27.53]  
b = 0.87 [1.42]  
Seff = 1060.35 [624.10]  
Teff = 1455 [214] K  
Rp = 2.03 [1.89] Re  
a = 0.0899 [0.0320] AU  
Ag = 88.85 [164.50] [0.53] $\sigma$   
Teffp = 6907 [3048] K [1.78] $\sigma$

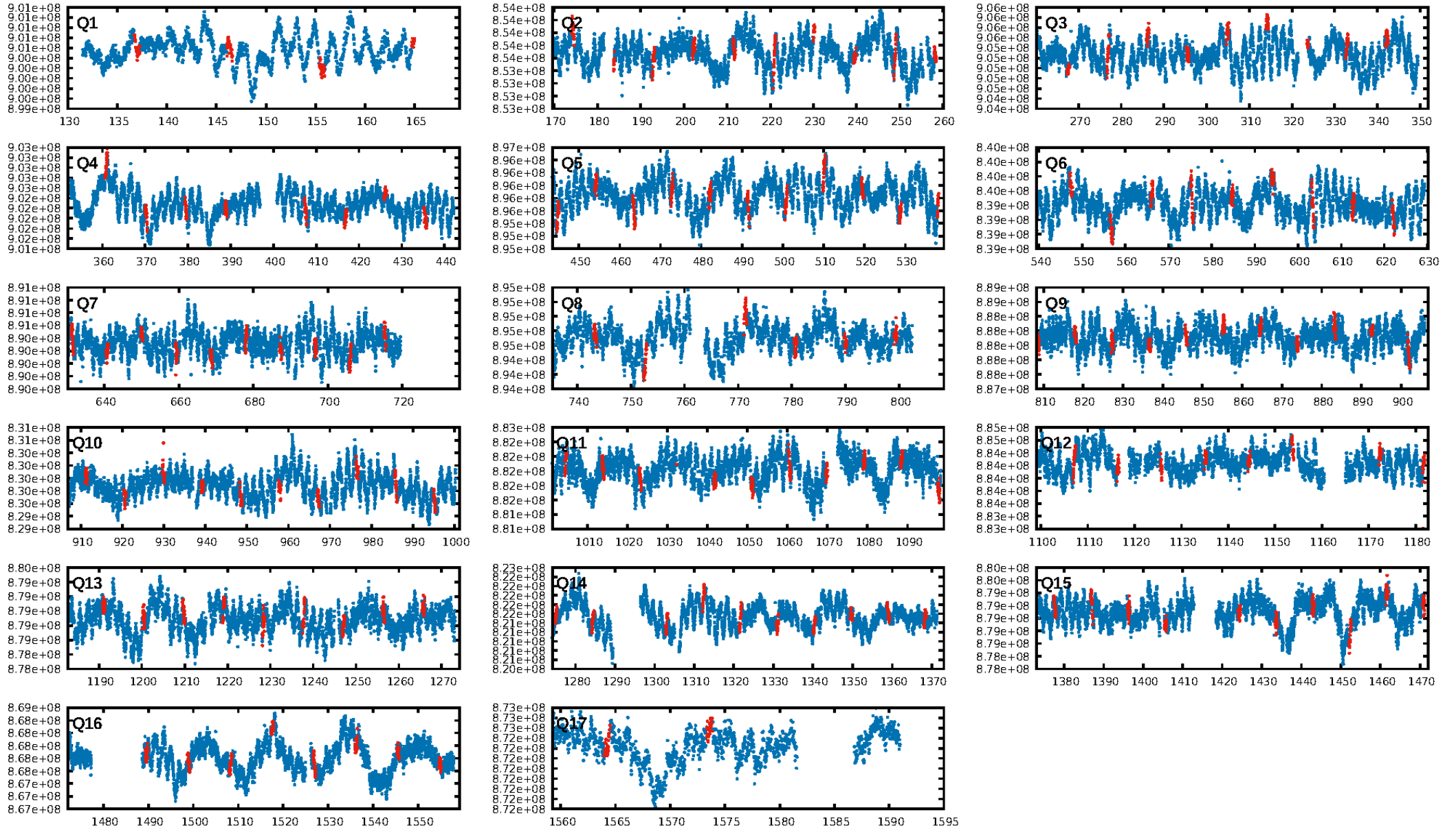
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.84] $\sigma$   
LongPeriod-sig: 100.0% [28.04] $\sigma$   
ModelChiSquare2-sig: 0.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.77e-09  
RollingBand-fgt: 1.00 [15/15]  
GhostDiagnostic-chr: -2.988  
Centroid-sig: 35.9%  
Centroid-so: 2.995 arcsec [3.02] $\sigma$   
OotOffset-rm: 1.136 arcsec [0.51] $\sigma$   
KicOffset-rm: 0.888 arcsec [0.51] $\sigma$   
OotOffset-st: 2/4/4/4 [14]  
KicOffset-st: 2/4/4/4 [14]  
DiffImageQuality-fgm: 0.07 [1/14]  
DiffImageOverlap-fno: 0.00 [0/17]

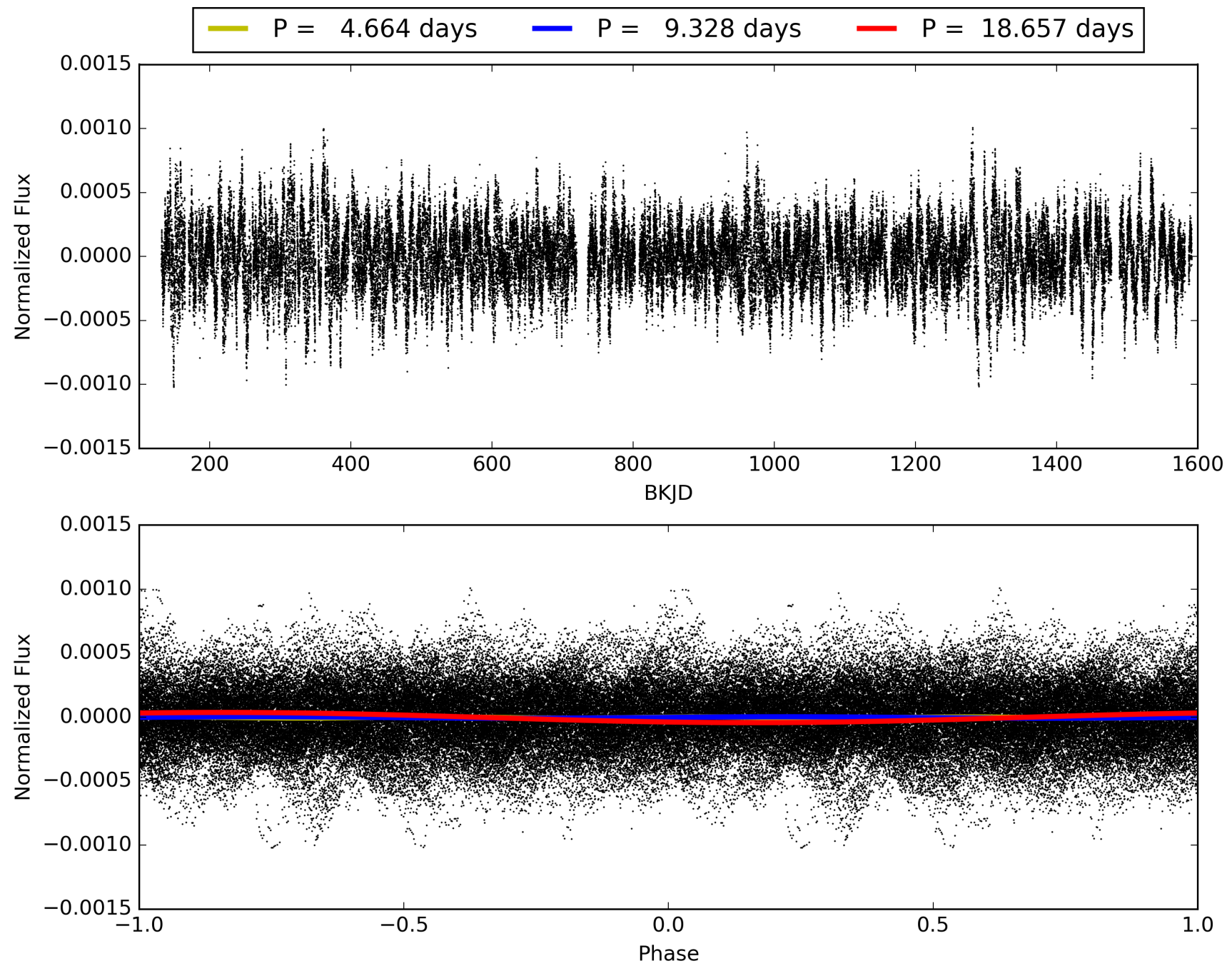
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:48:09 Z

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

# TCE 003119256-06, PDC Light Curves

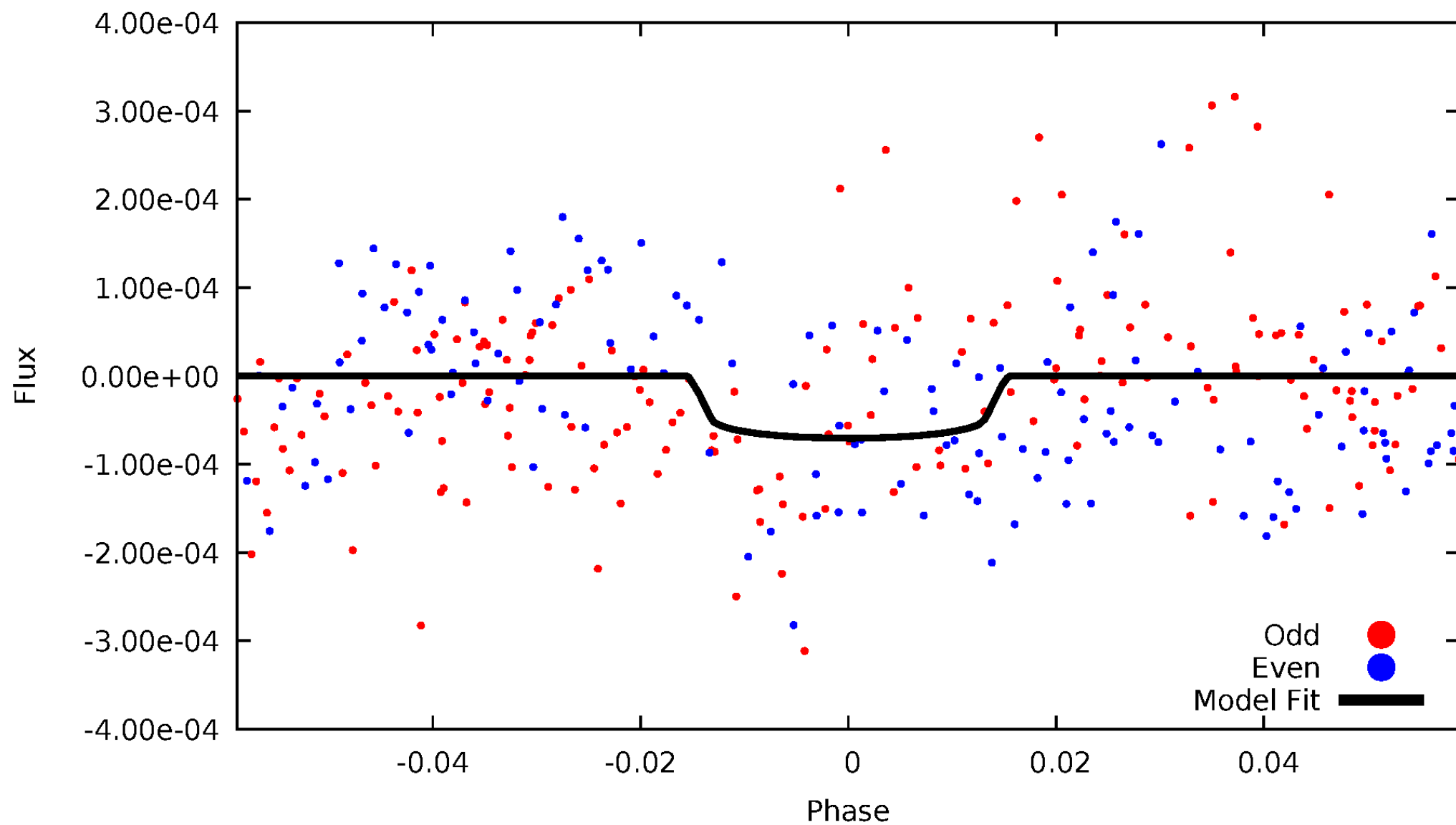


TCE 003119256-06



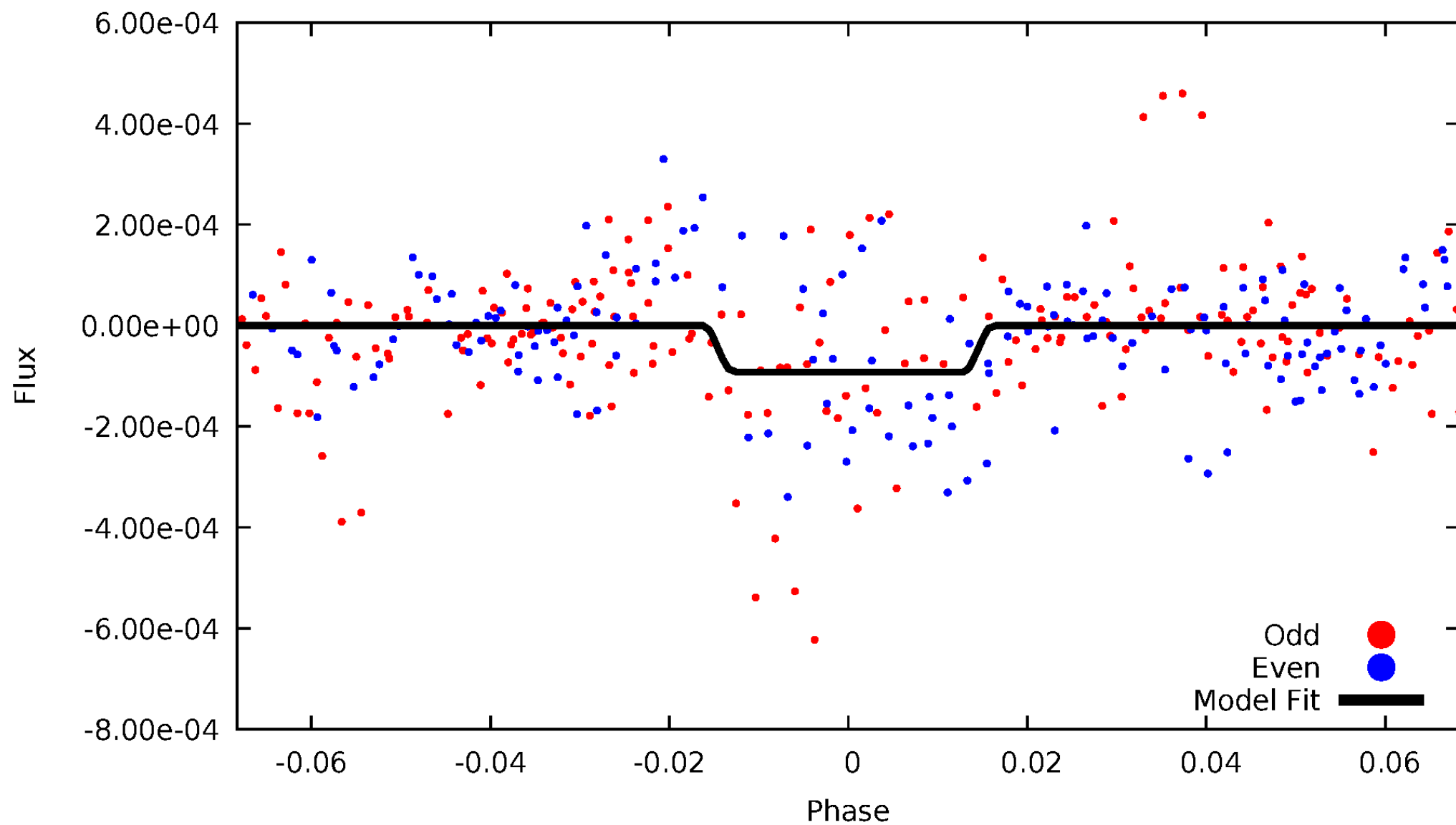
# DV Odd/Even

TCE 003119256-06



# ALT Odd/Even

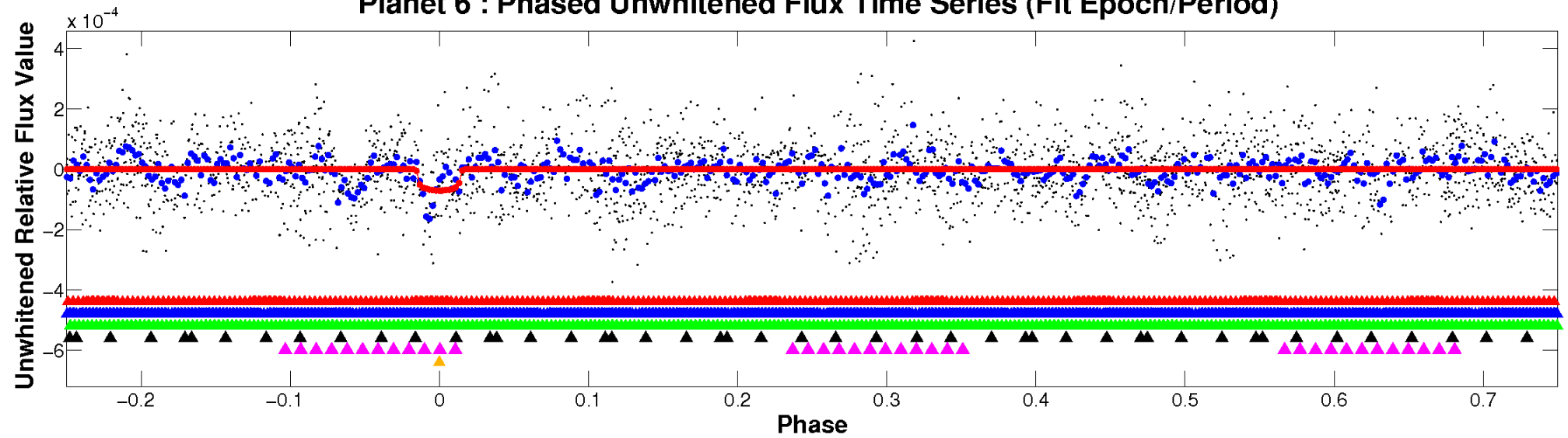
TCE 003119256-06



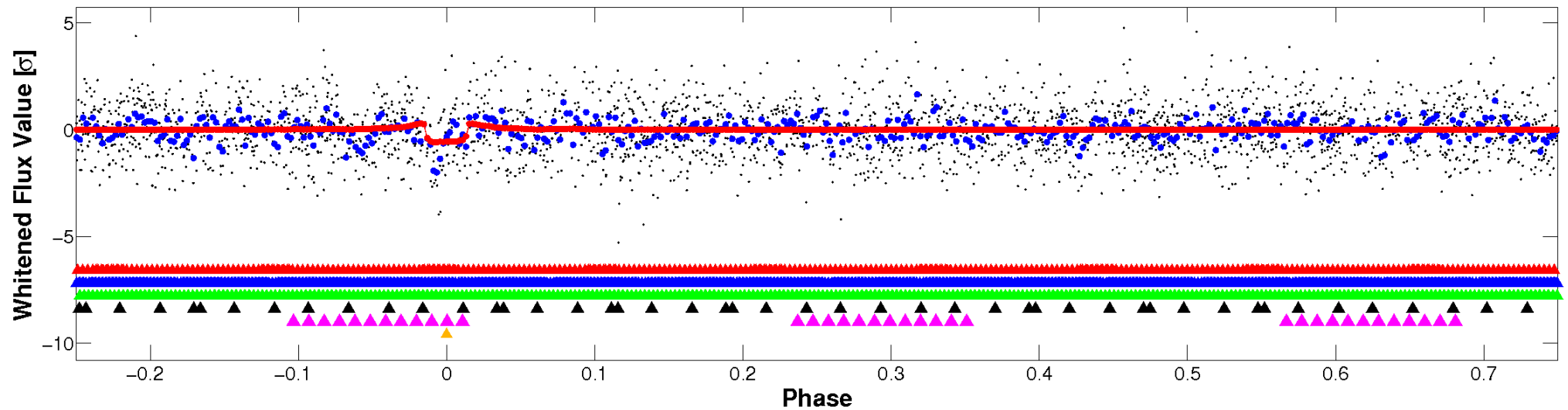


# Non-Whitened Vs. Whitened Light Curve

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

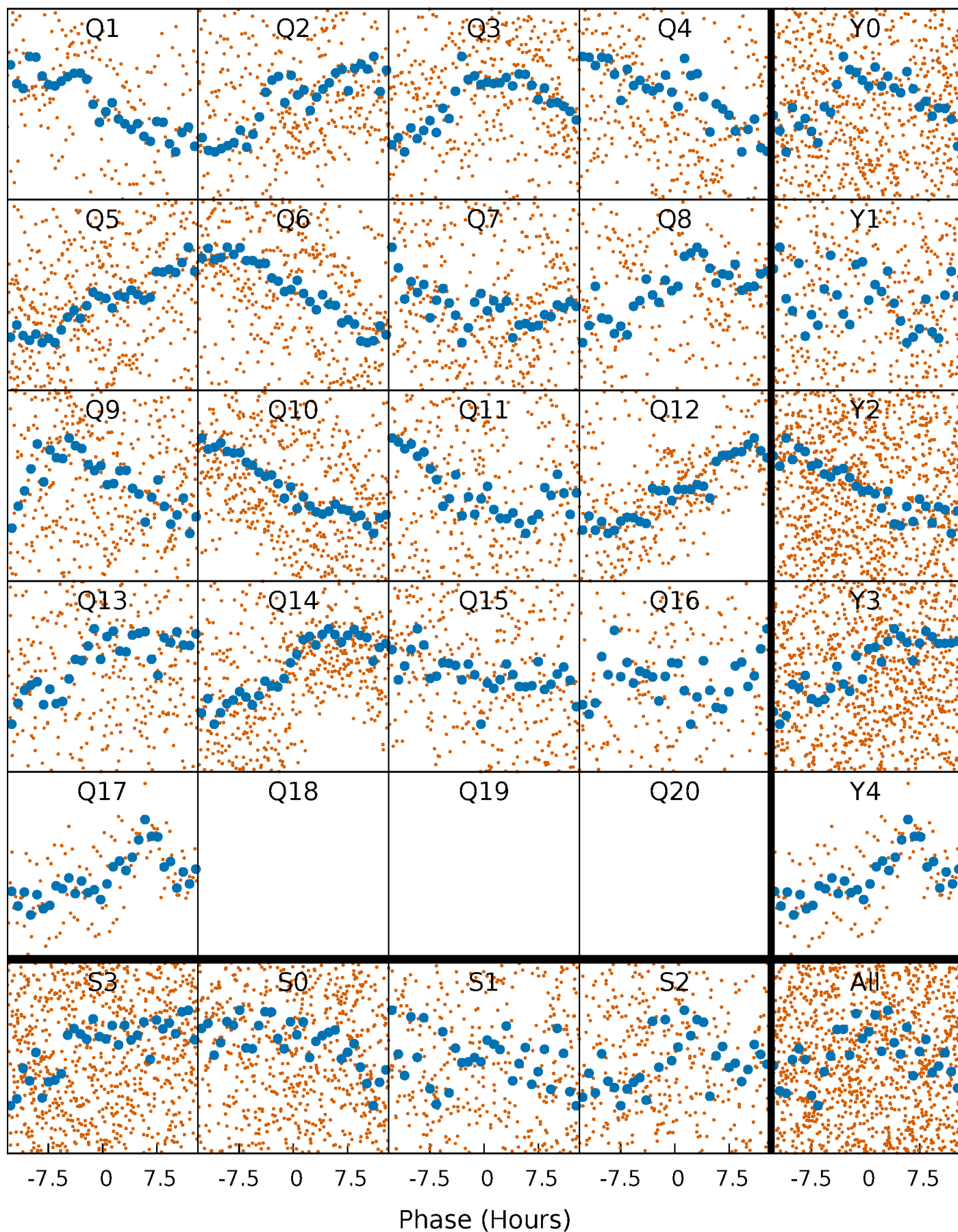


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



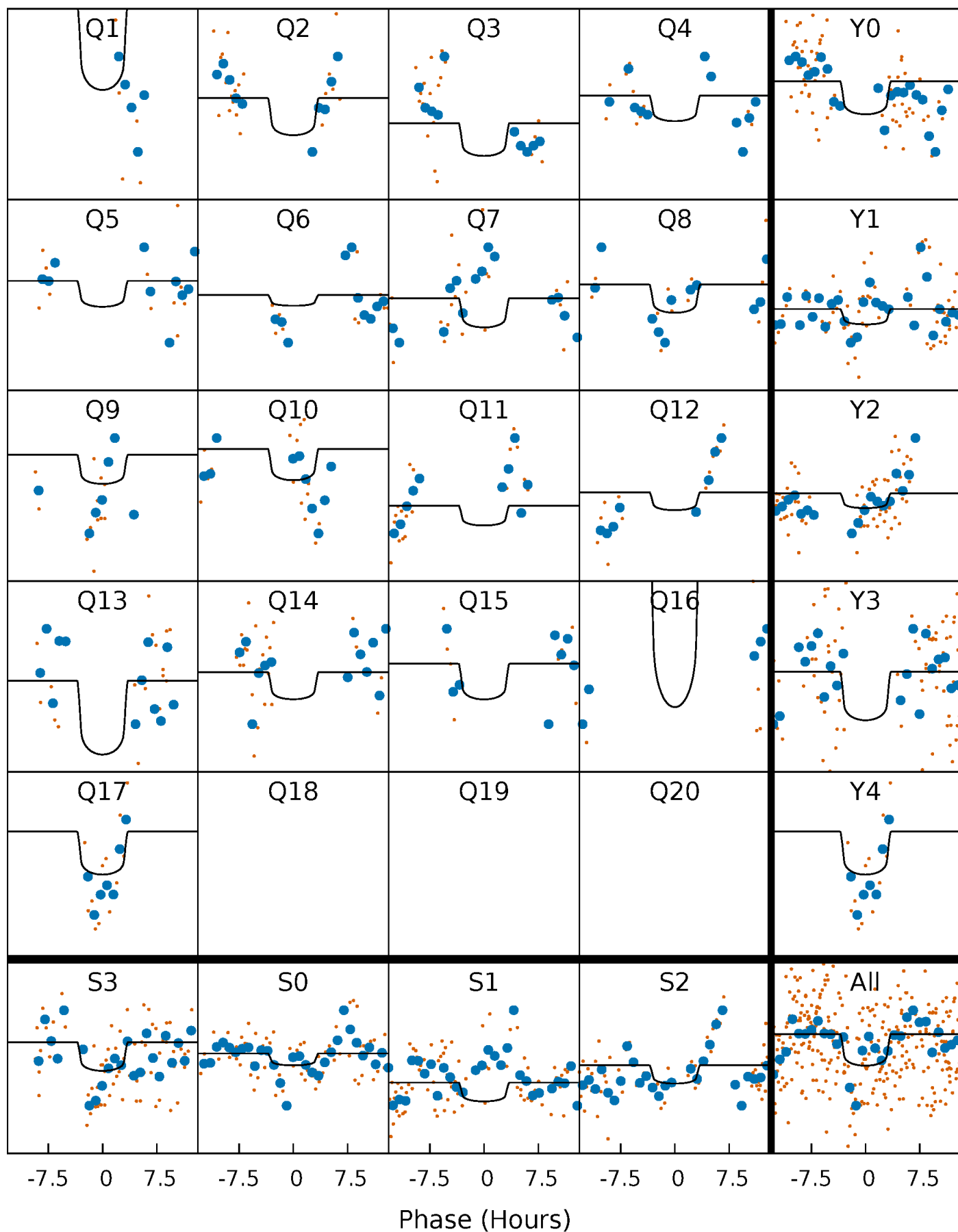
# PDC Quarter-Phased Transit Curves

TCE 003119256-06 P= 9.328479 Days  $T_0=136.995480$  (BKJD)



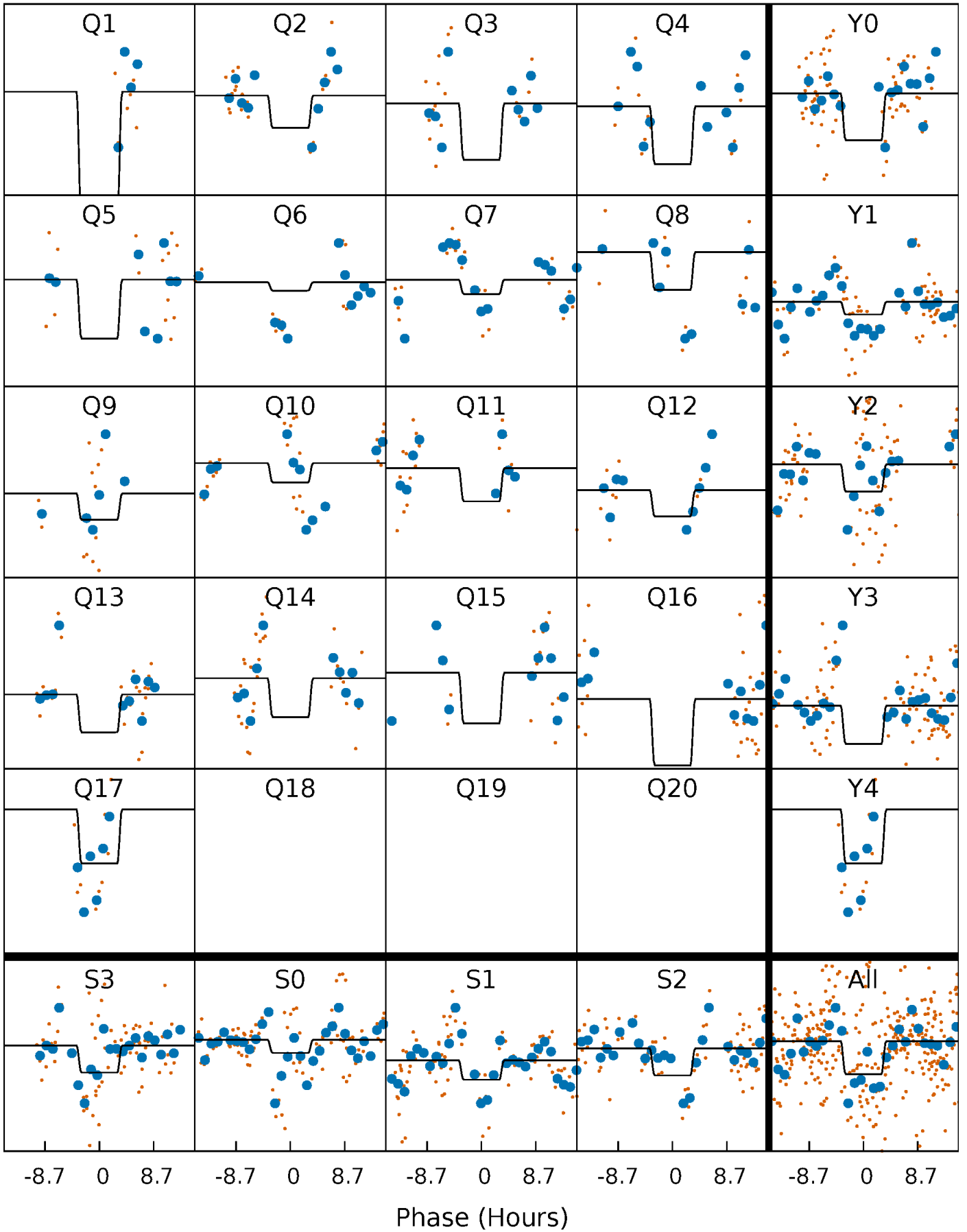
# DV Quarter-Phased Transit Curves

TCE 003119256-06 P= 9.328479 Days  $T_0=136.995480$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

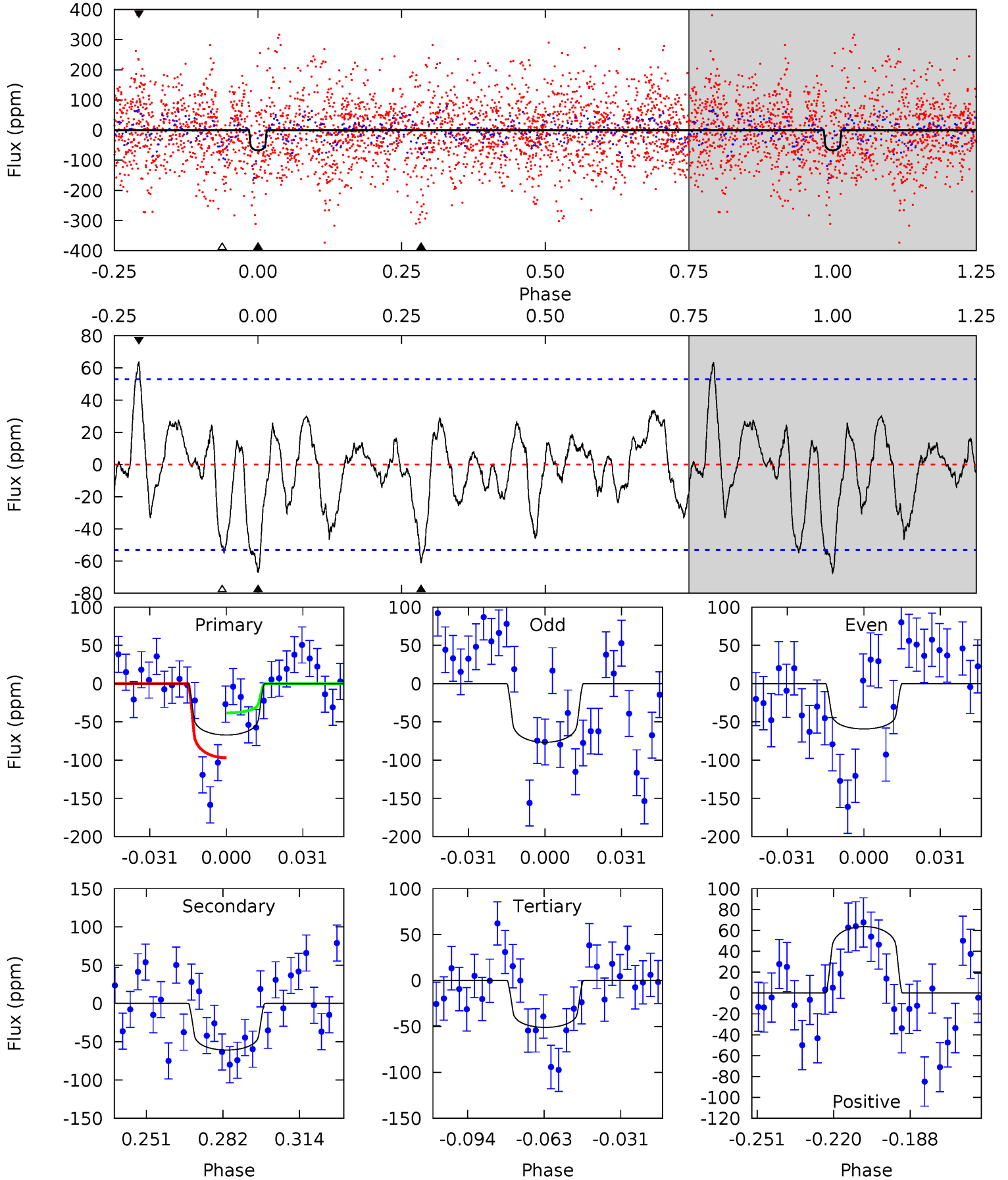
TCE 003119256-06 P= 9.329104 Days  $T_0=136.963420$  (BKJD)



# DV Model-Shift Uniqueness Test

003119256-06, P = 9.328479 Days, E = 136.995480 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.08	5.51	4.62	5.76	4.80	2.15	1.77	1.46	0.32	0.89	-0.25	0.79	0.64	0.49	2.68

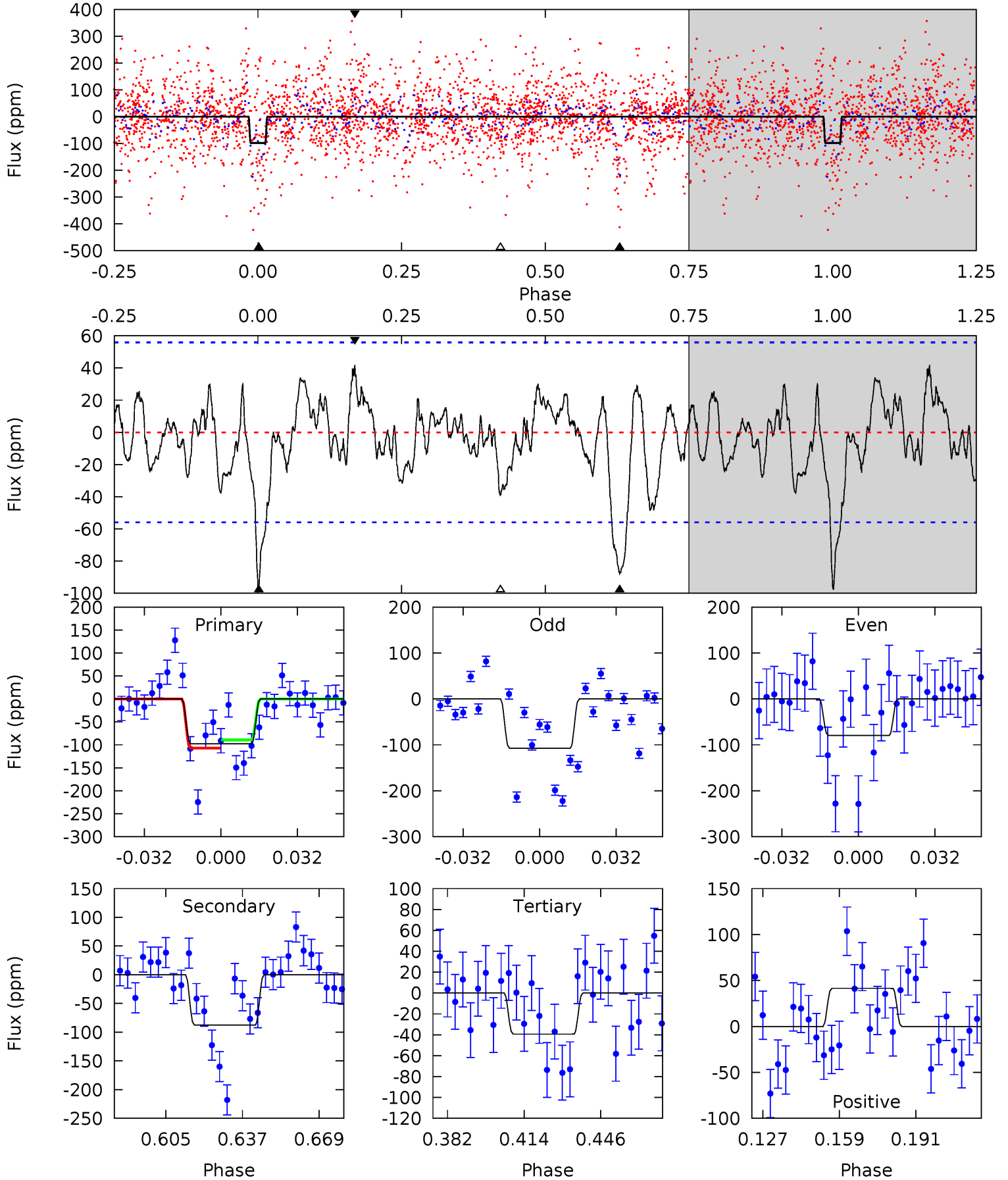




# Alt Model-Shift Uniqueness Test

003119256-06, P = 9.329104 Days, E = 136.963420 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
8.39	7.53	3.38	3.56	4.80	2.15	1.42	5.01	4.83	4.15	3.97	1.17	0.98	0.30	0.79



### Stellar Parameters For KIC 003119256

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6785^{+183}_{-224}$	$3.830^{+0.338}_{-0.113}$	$-0.960^{+0.350}_{-0.300}$	$2.124^{+0.359}_{-0.779}$	$1.113^{+0.162}_{-0.178}$	$0.164^{+0.396}_{-0.054}$
	+3%/-3%	+9%/-3%	+36%/-31%	+17%/-37%	+15%/-16%	+242%/-33%
Source	PHO1	FLK73	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 003119256-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-61 \pm 11$	$2.17^{+1.71}_{-1.32}$	$2006^{+125}_{-166}$	$5958^{+4332}_{-1288}$	$55^{+314}_{-37}$
Alt.	$-88 \pm 12$	$2.34^{+1.68}_{-1.39}$	$2015^{+121}_{-176}$	$6266^{+5201}_{-1276}$	$70^{+371}_{-45}$

$T_{\text{max}}$  = 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

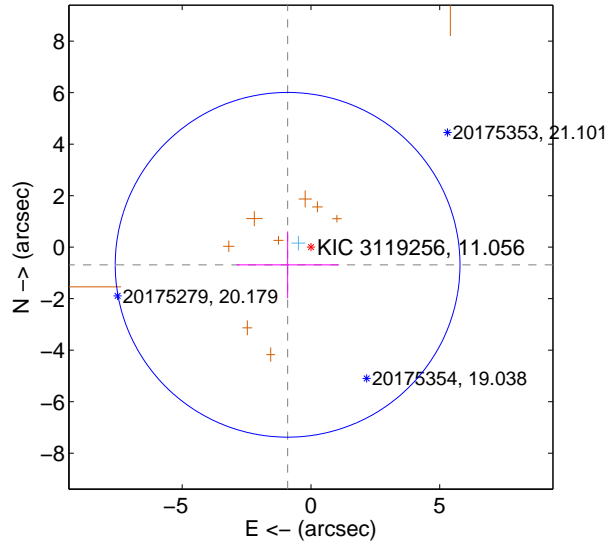
Supplemental centroid analysis for 003119256-06. **Kepler magnitude: 11.06.** Transit SNR 4.68

**There are 1 quarters with good PRF difference image offsets**

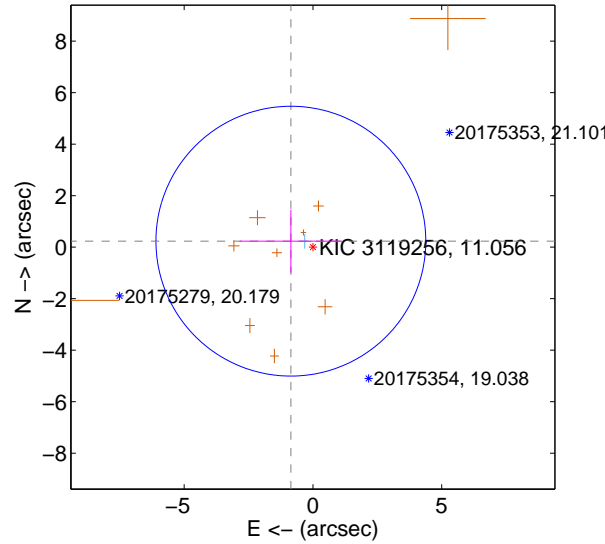
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.136 \pm 2.231$	0.51	$0.906 \pm 1.986$	$-0.685 \pm 1.298$
PRF-fit source offset from KIC position	$0.888 \pm 1.746$	0.51	$0.857 \pm 1.989$	$0.233 \pm 1.224$
photometric centroid source offset	<b><math>3.00 \pm 0.99</math></b>	<b>3.02</b>	$-2.99 \pm 0.99$	$0.23 \pm 0.53$

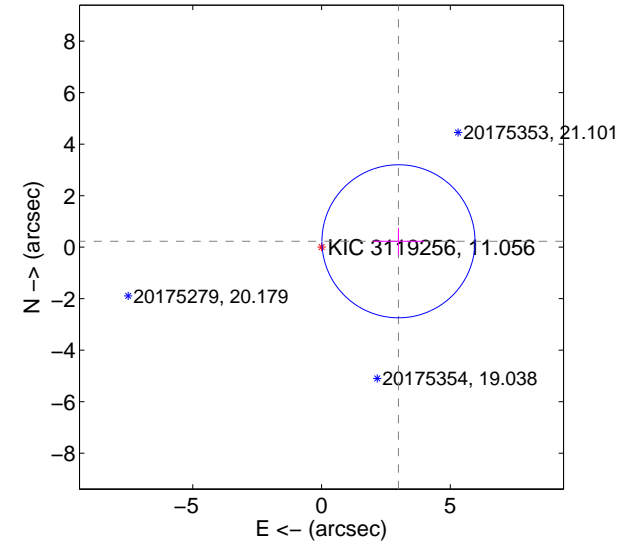
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

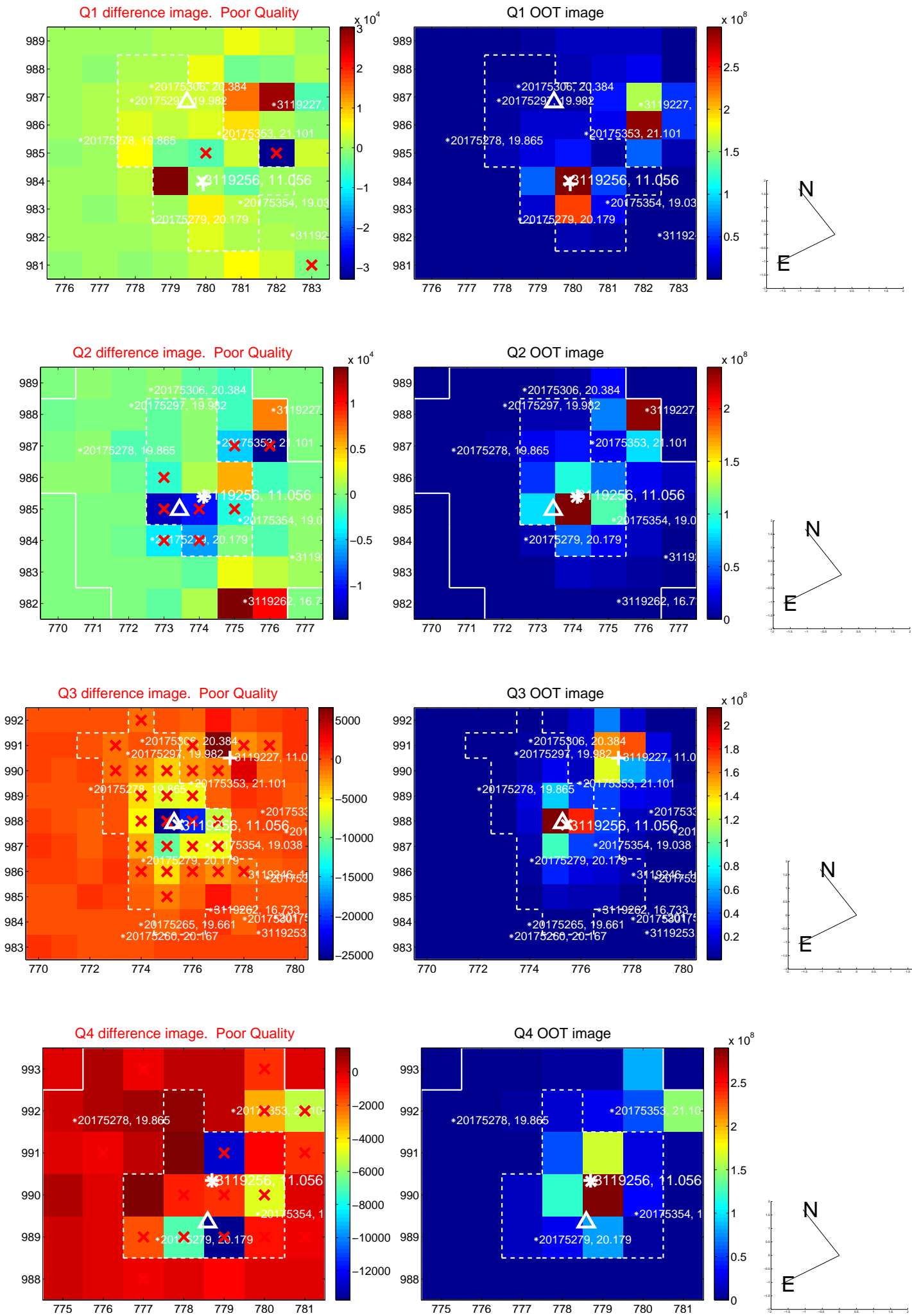


offset from photometric centroids

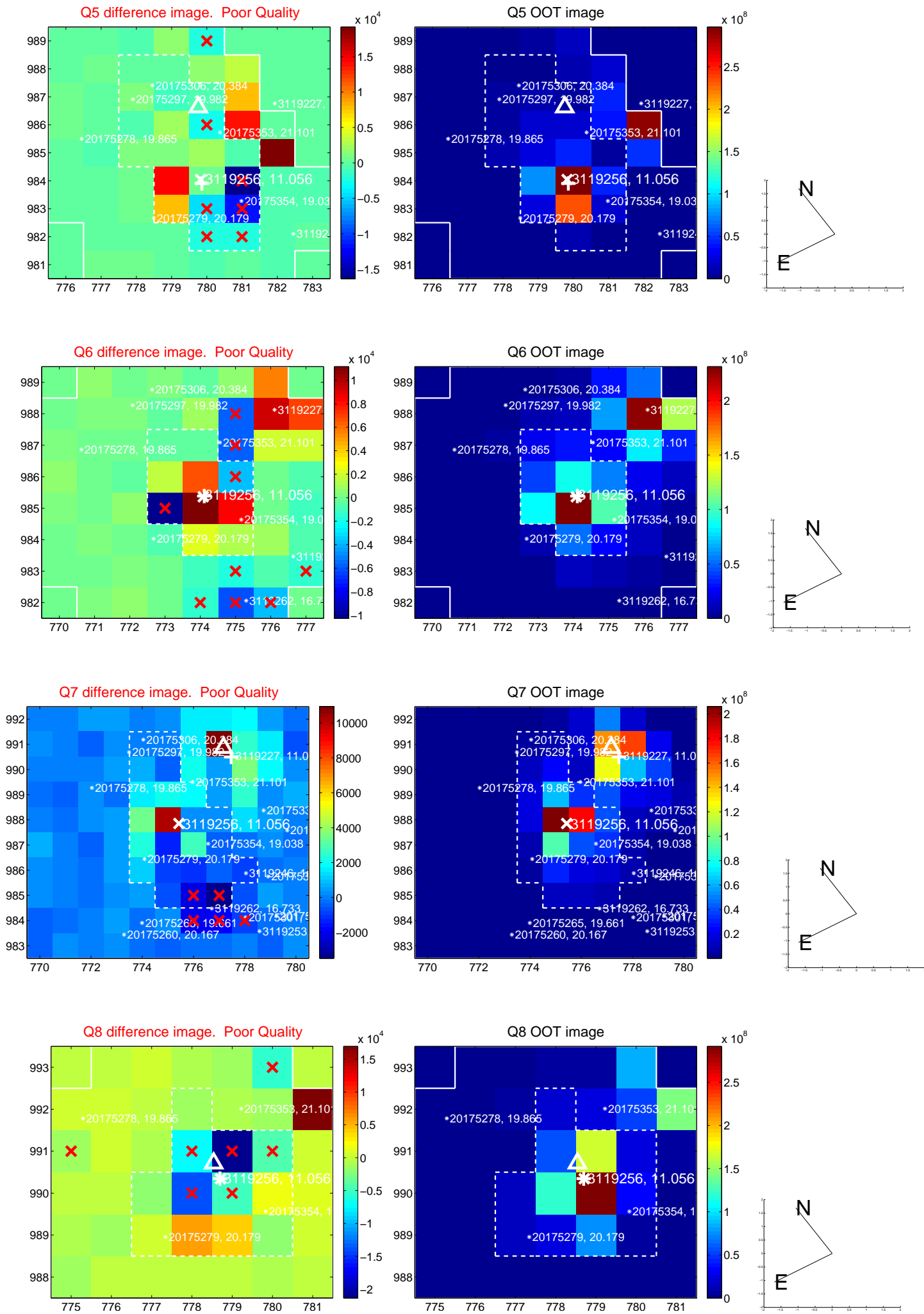


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

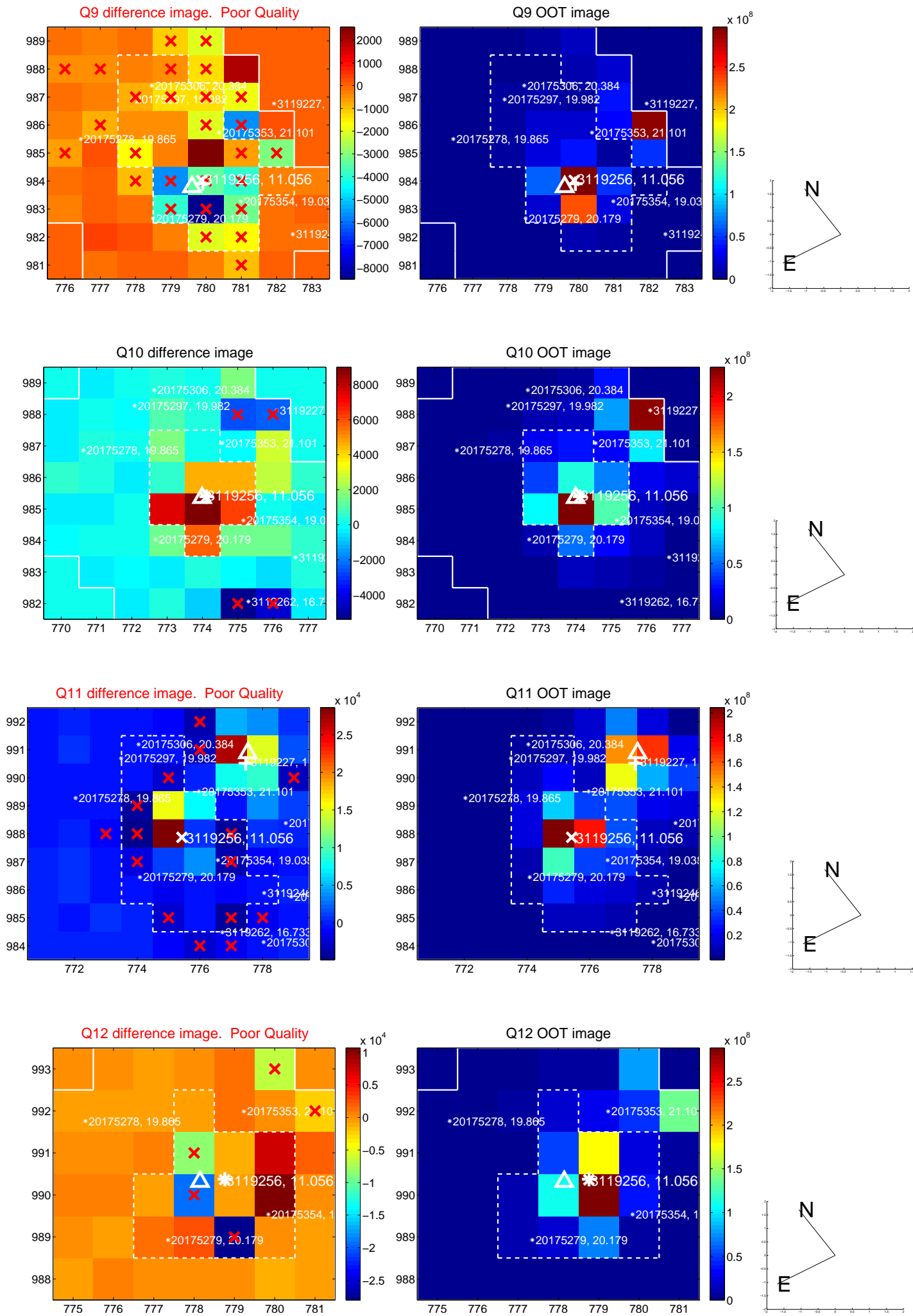


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

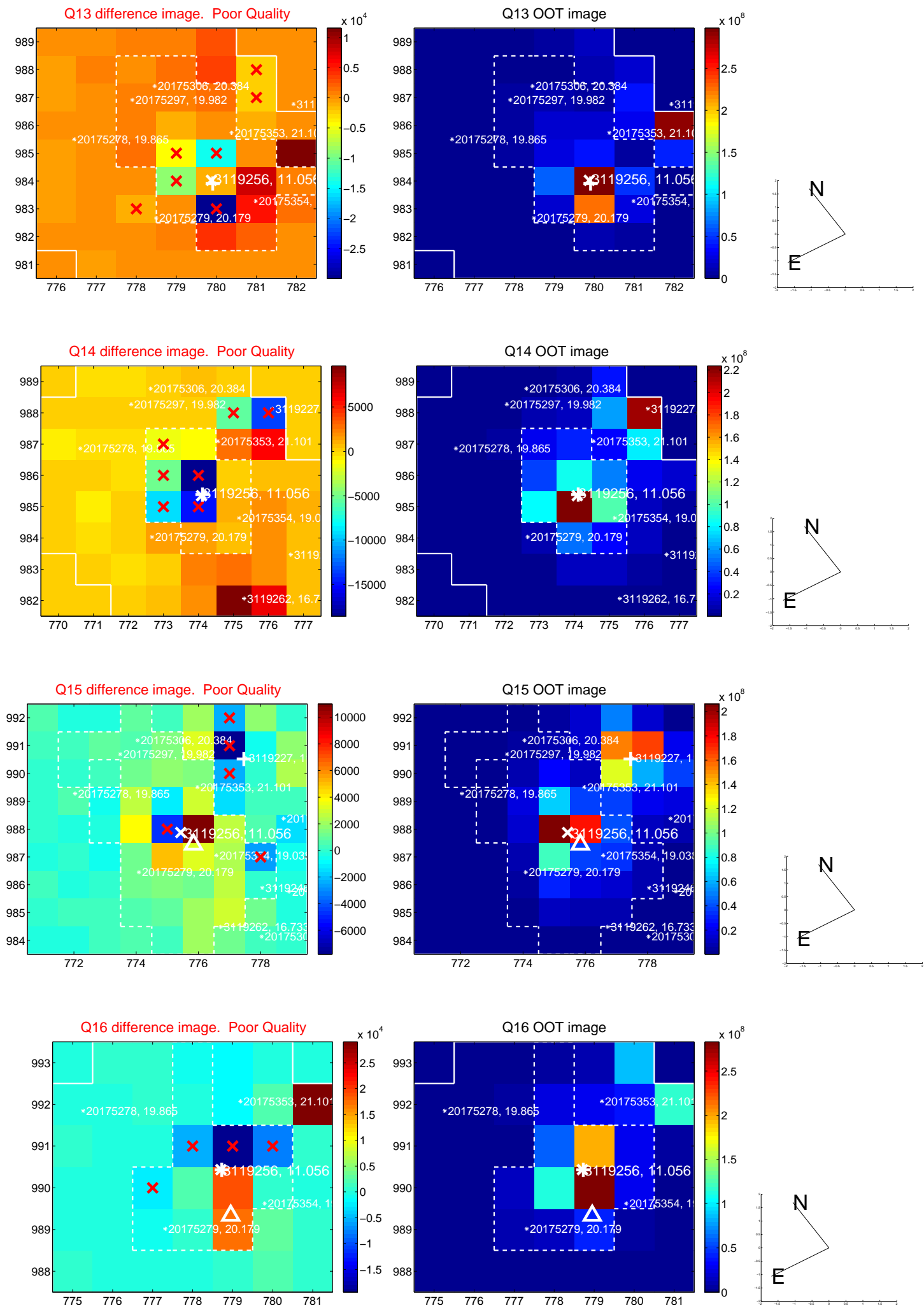




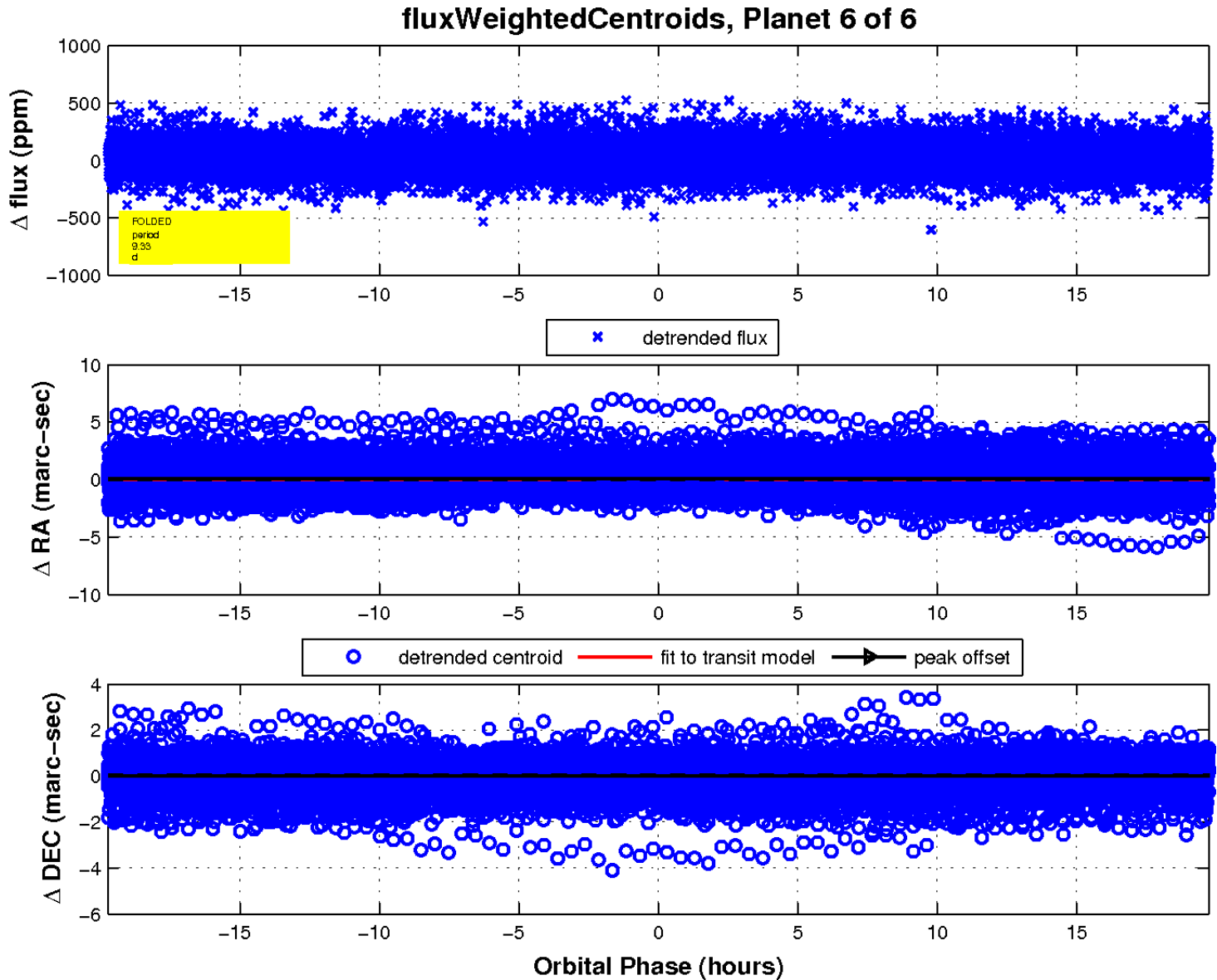
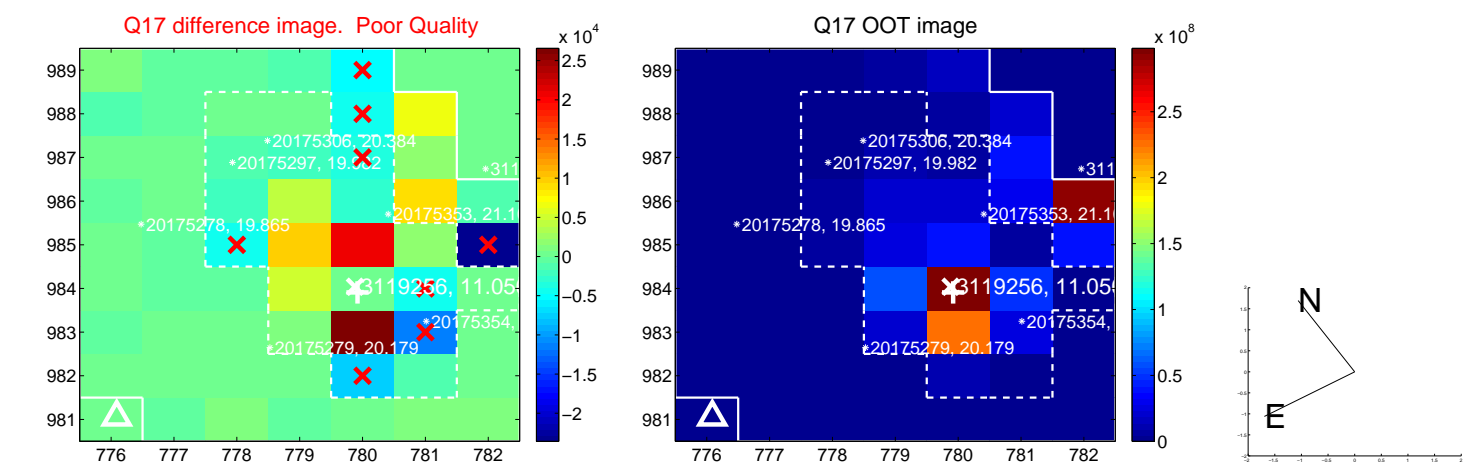
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

