

# KIC 005705575

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005705575-01	OBS	No	1.337961	132.013937	38.6	2.293	8.9	7.6	1.59	7509	1.15	9799.38
005705575-02	OBS	No	1.337951	132.426591	31.1	4.676	7.8	7.4	1.59	7509	1.03	9799.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005705575-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_KIC_POS
005705575-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_KIC_POS

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

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

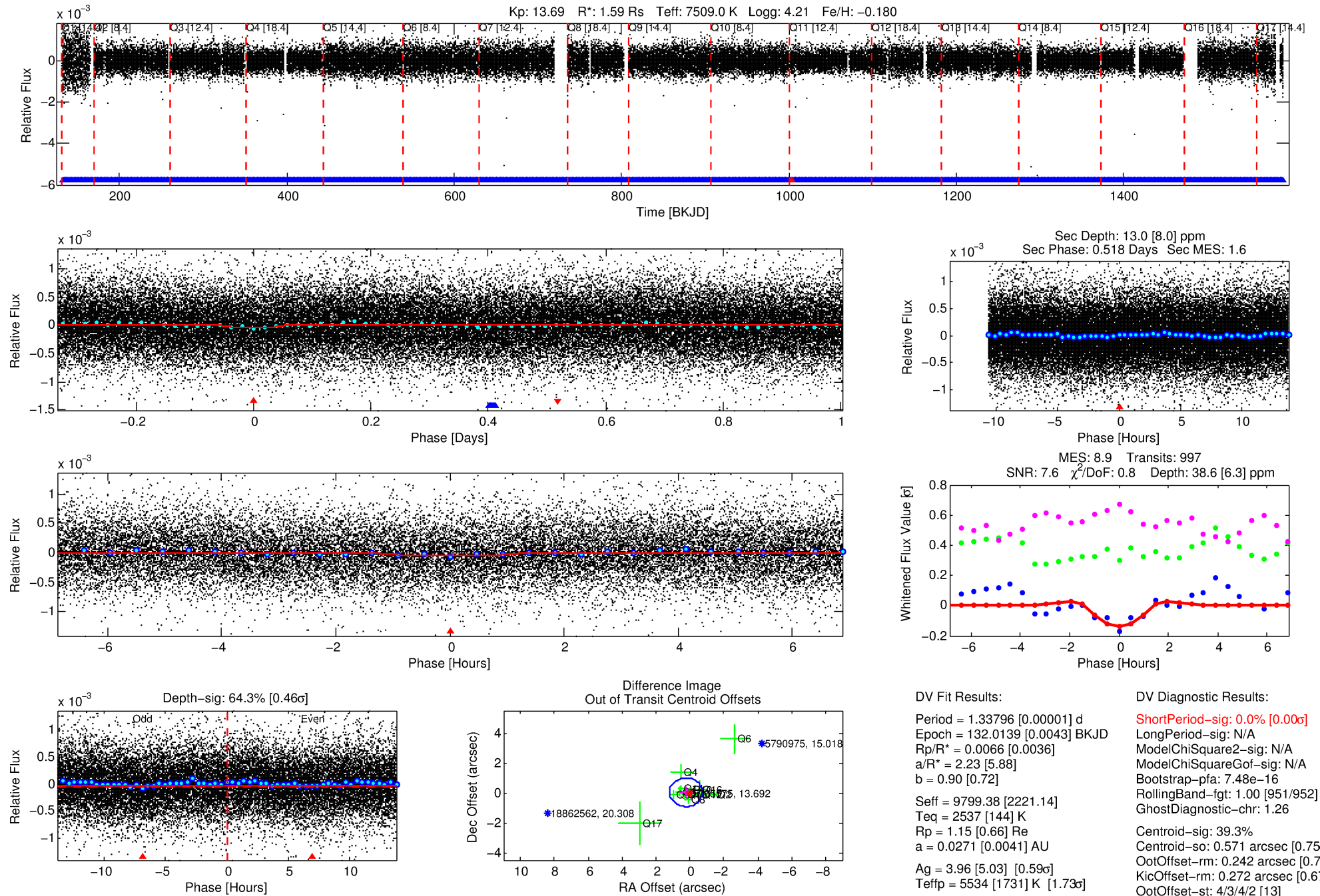
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005705575-01

No Significant Match Found

# DV One-Page Summary

KIC: 5705575 Candidate: 1 of 2 Period: 1.338 d



## DV Fit Results:

Period = 1.33796 [0.00001] d  
Epoch = 132.0139 [0.0043] BKJD  
Rp/R\* = 0.0066 [0.0036]  
a/R\* = 2.23 [5.88]  
b = 0.90 [0.72]  
Seff = 9799.38 [2221.14]  
Teff = 2537 [144] K  
Rp = 1.15 [0.66] Re  
a = 0.0271 [0.0041] AU  
Ag = 3.96 [5.03] [0.59 $\sigma$ ]  
Teffp = 5534 [1731] K [1.73 $\sigma$ ]

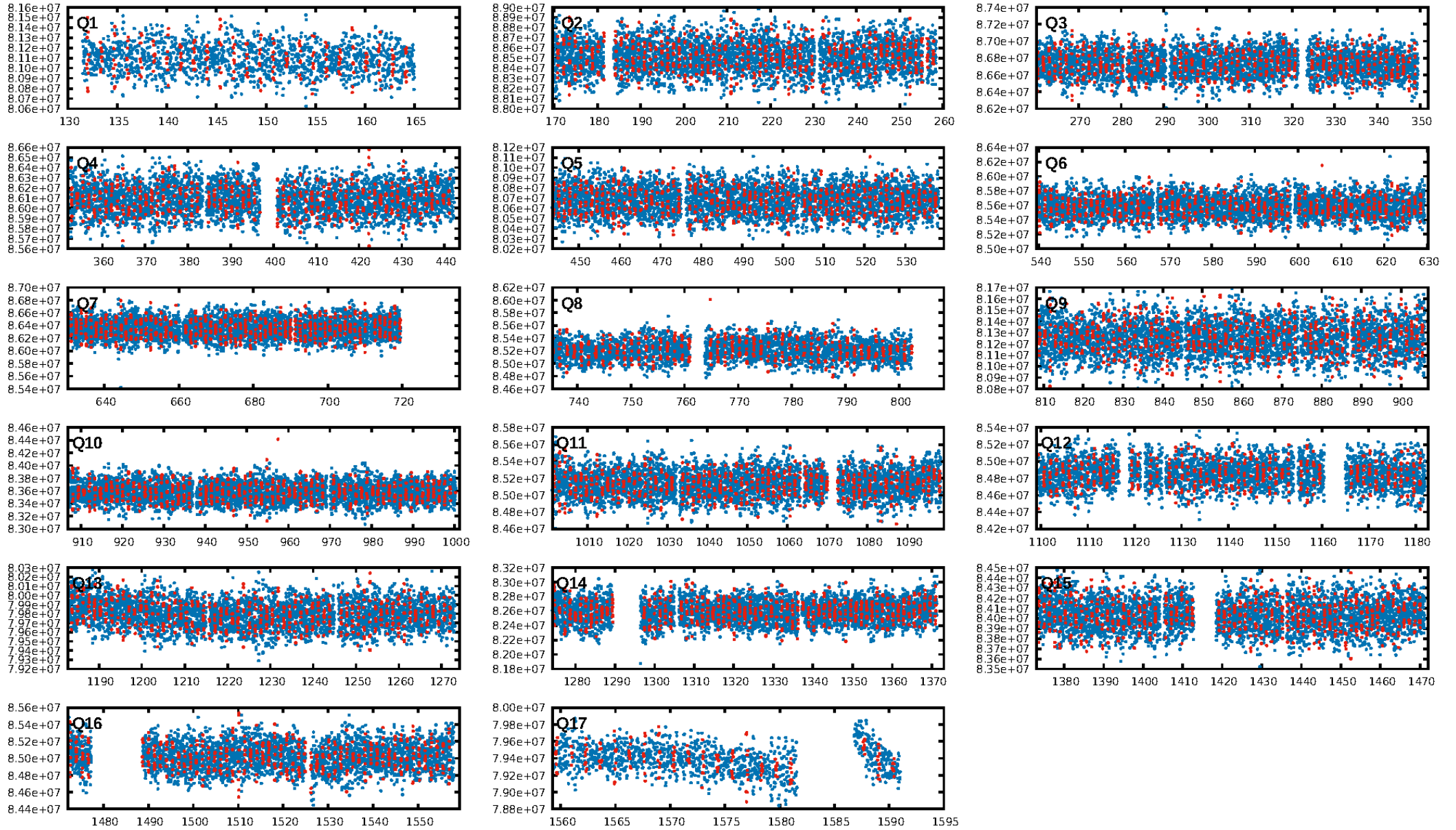
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.48e-16  
RollingBand-fgt: 1.00 [951/952]  
GhostDiagnostic-chr: 1.26  
Centroid-sig: 39.3%  
Centroid-so: 0.571 arcsec [0.75 $\sigma$ ]  
OotOffset-rm: 0.242 arcsec [0.75 $\sigma$ ]  
KicOffset-rm: 0.272 arcsec [0.67 $\sigma$ ]  
OotOffset-st: 4/3/4/2 [13]  
KicOffset-st: 4/3/4/2 [13]  
DiffImageQuality-fgm: 0.62 [8/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:45:37 Z

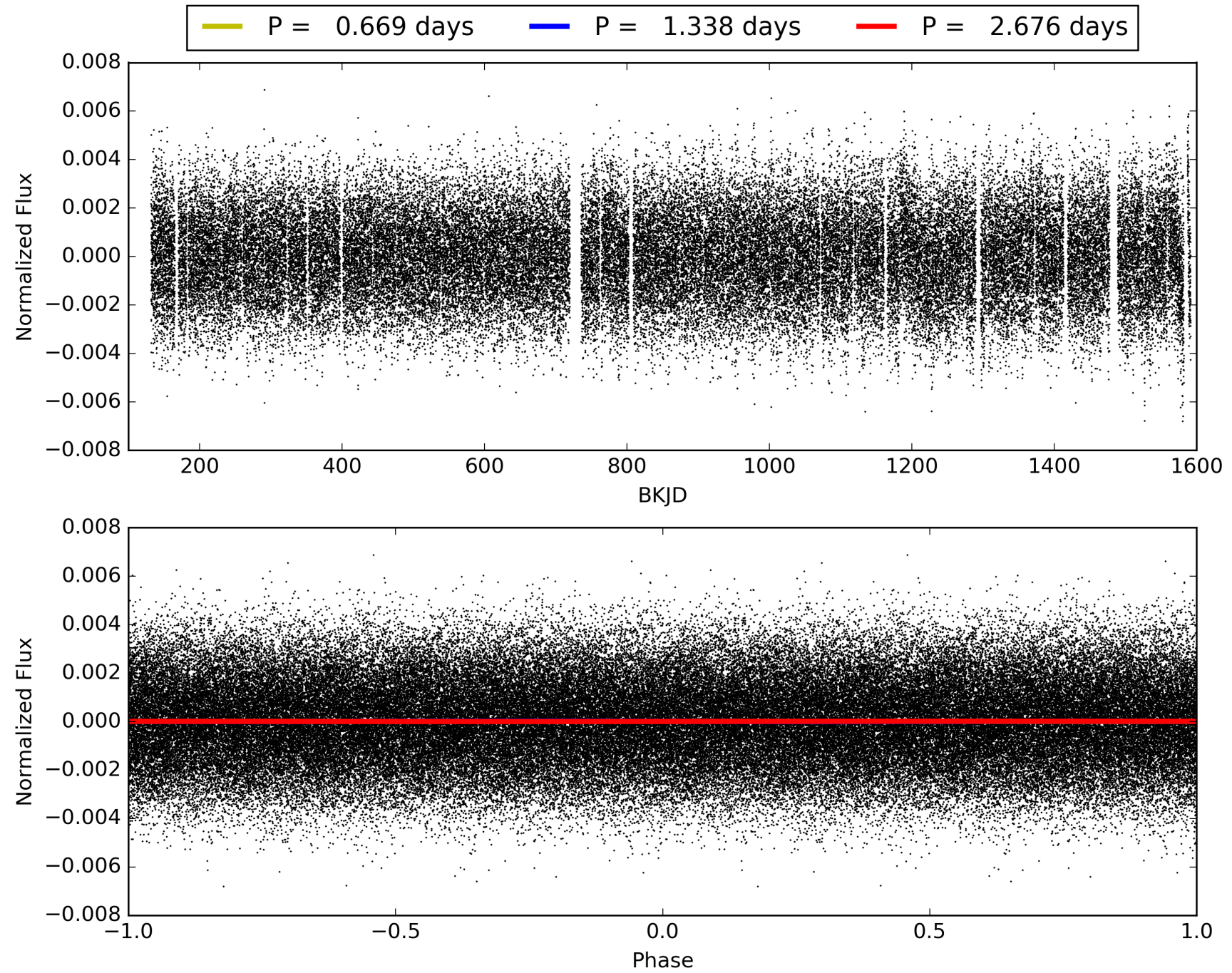
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005705575-01, PDC Light Curves



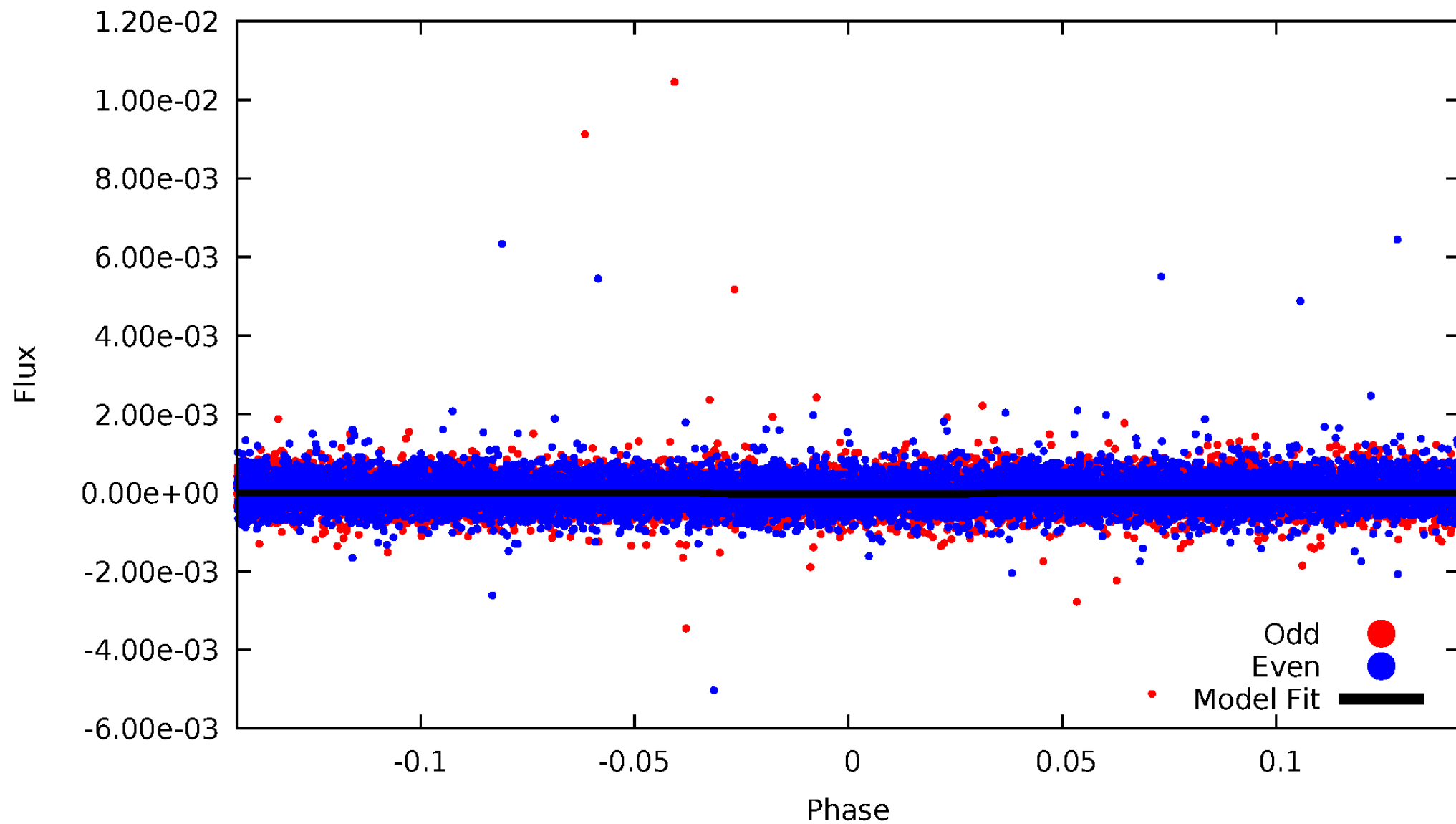


TCE 005705575-01



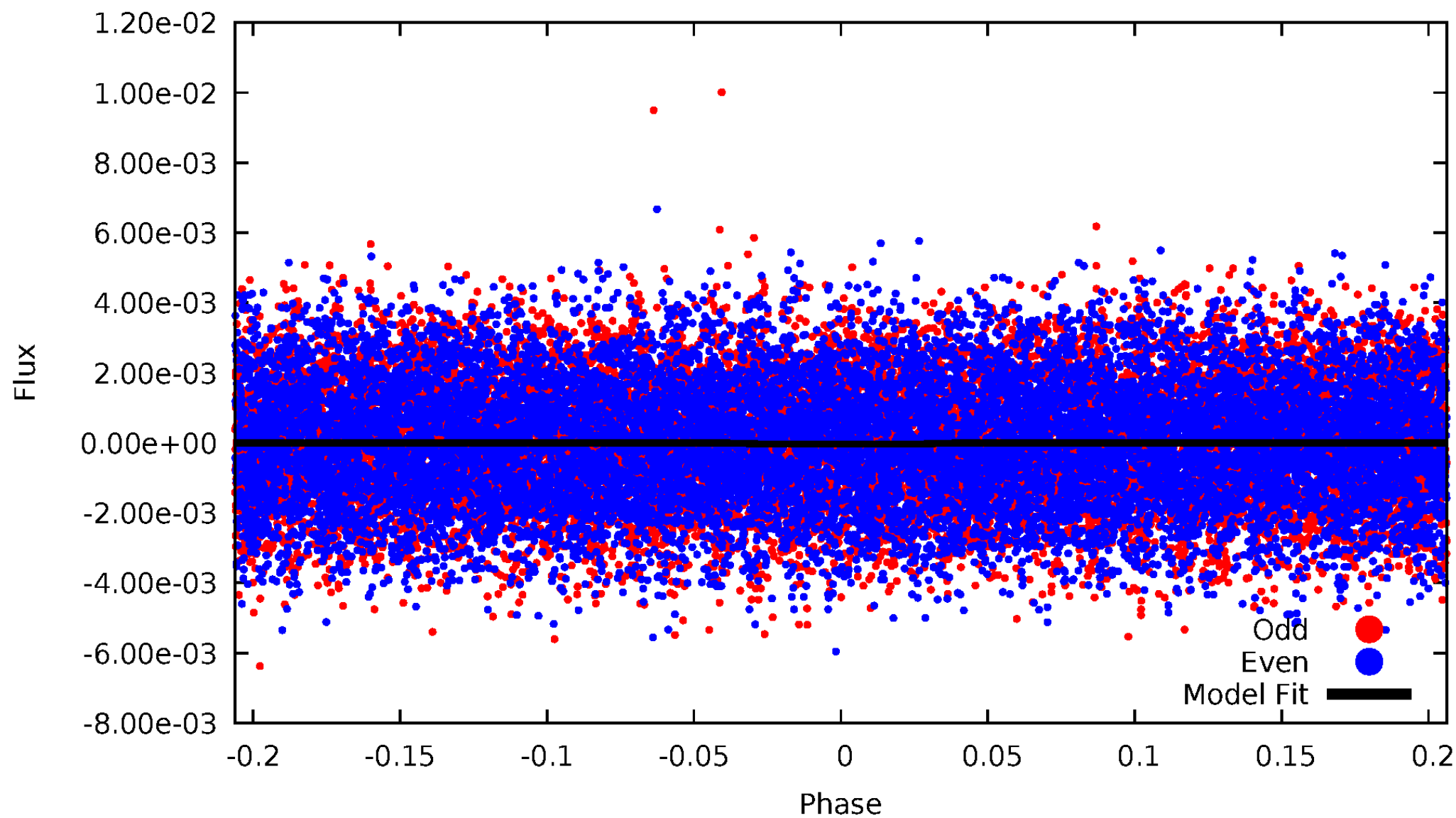
# DV Odd/Even

TCE 005705575-01



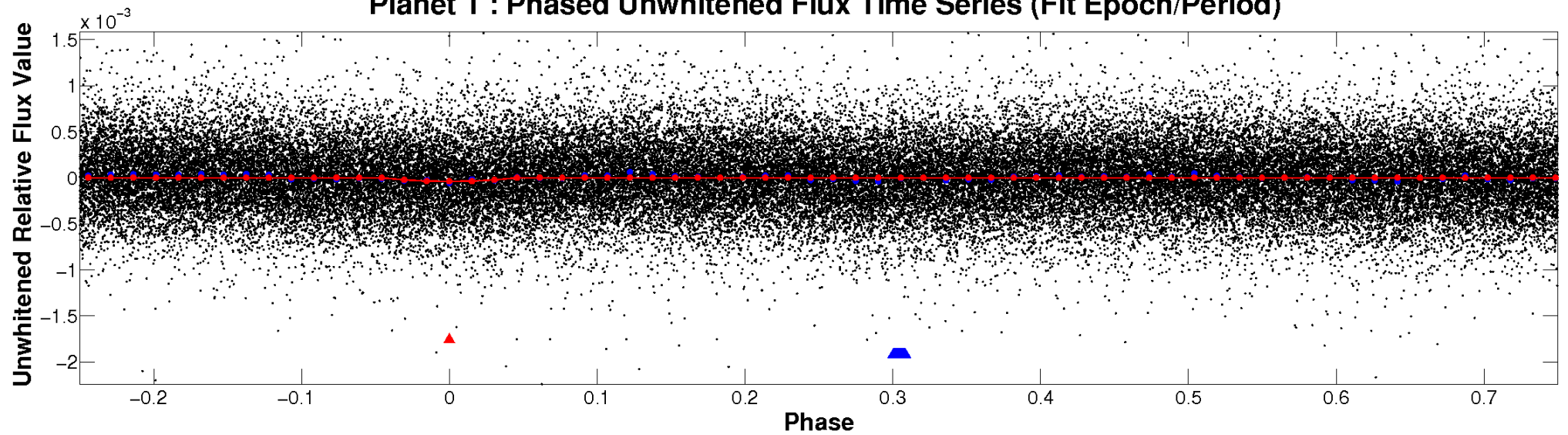
# ALT Odd/Even

TCE 005705575-01

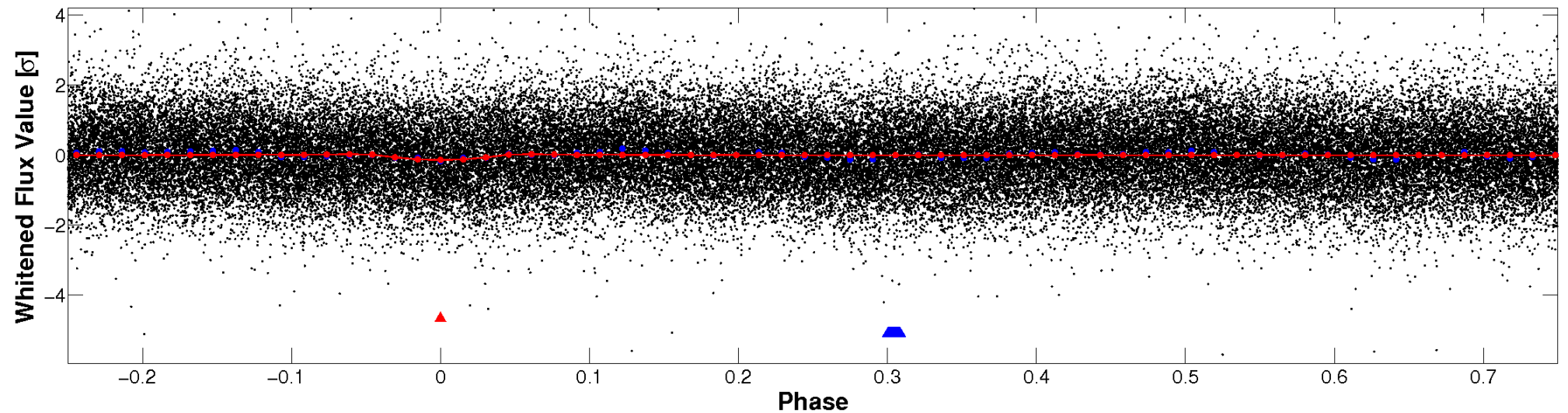


# Non-Whitened Vs. Whitened Light Curve

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



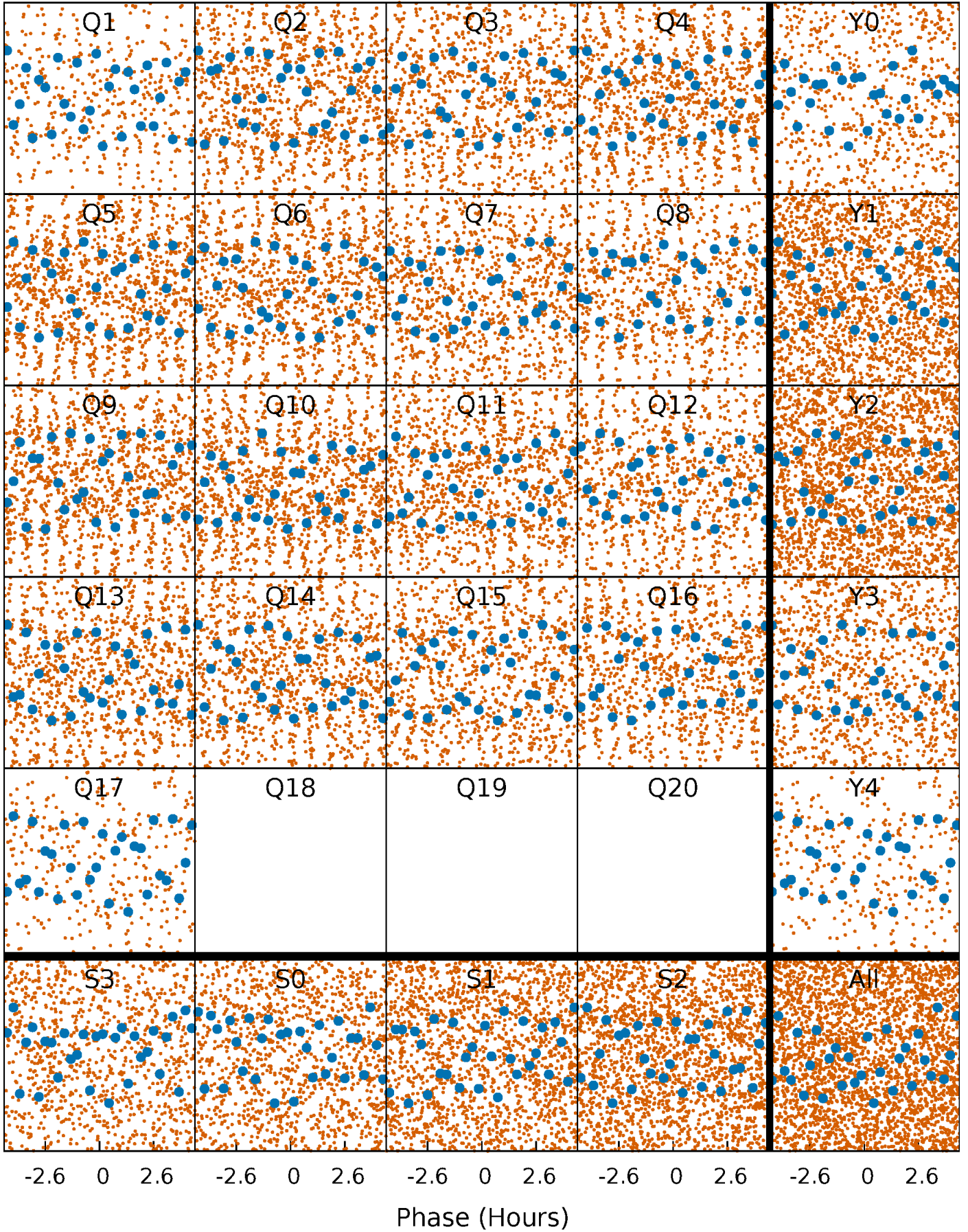
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

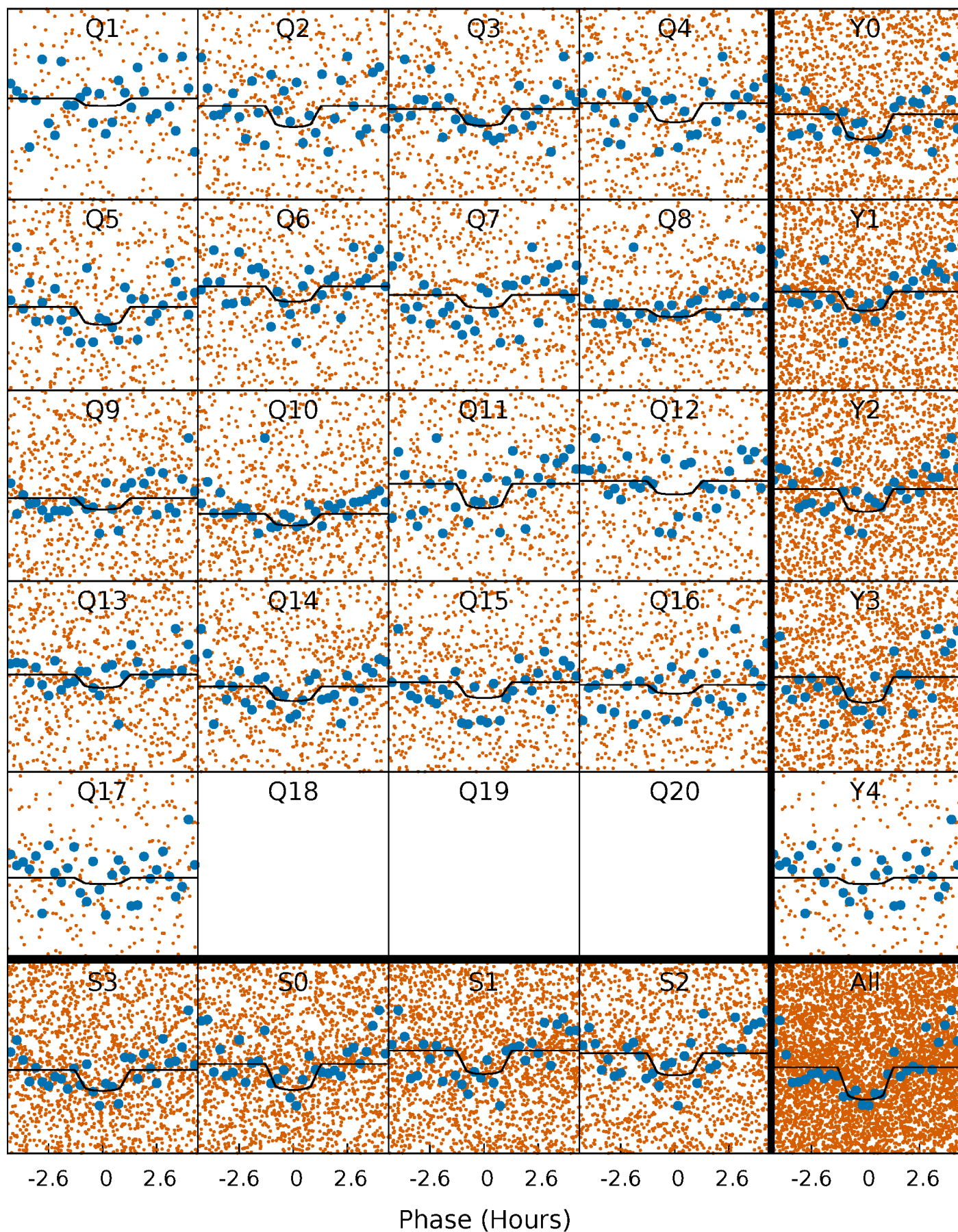
TCE 005705575-01   P= 1.337961 Days    $T_0=132.013937$  (BKJD)





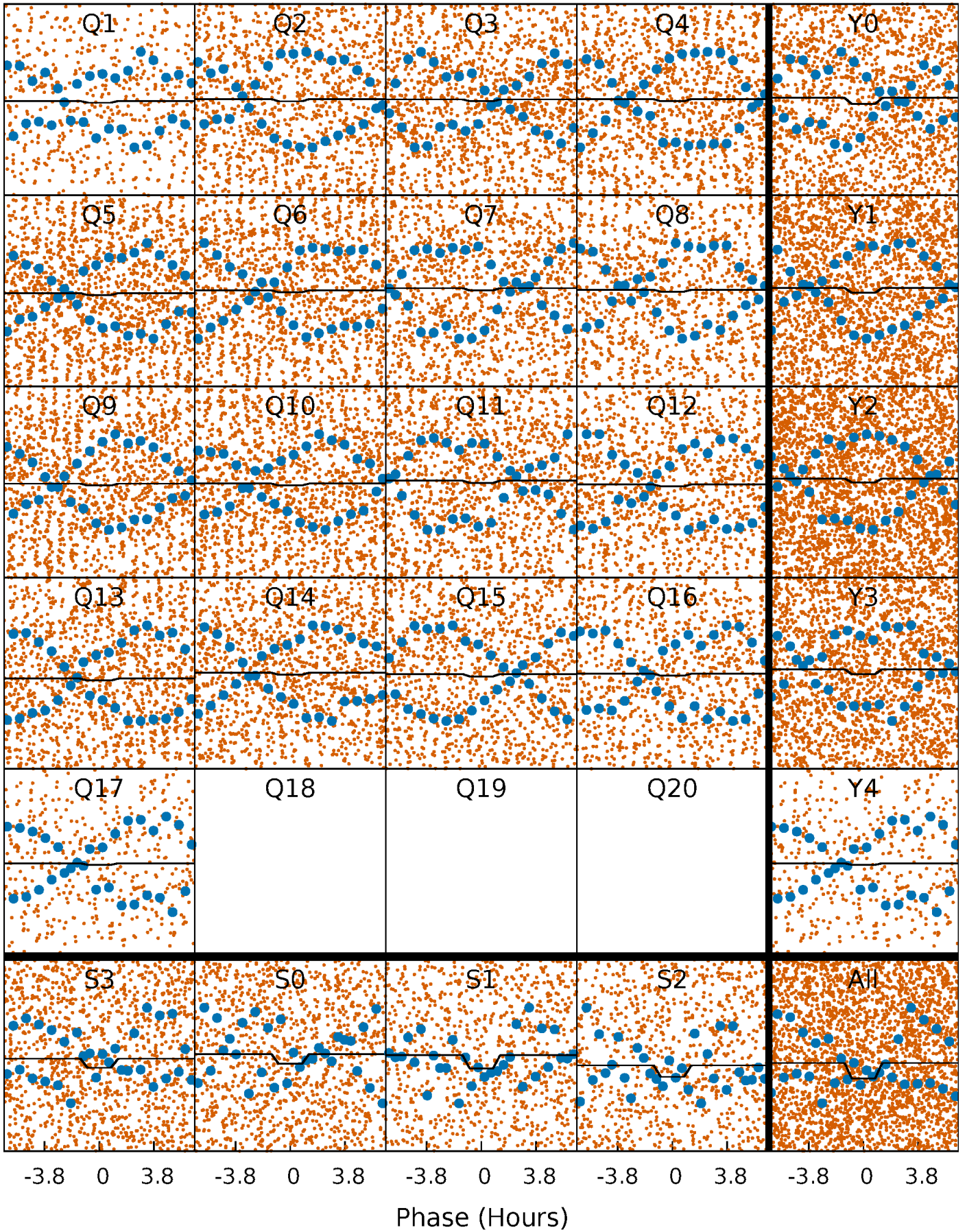
# DV Quarter-Phased Transit Curves

TCE 005705575-01 P= 1.337961 Days  $T_0=132.013937$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005705575-01 P= 1.337940 Days  $T_0=132.026898$  (BKJD)

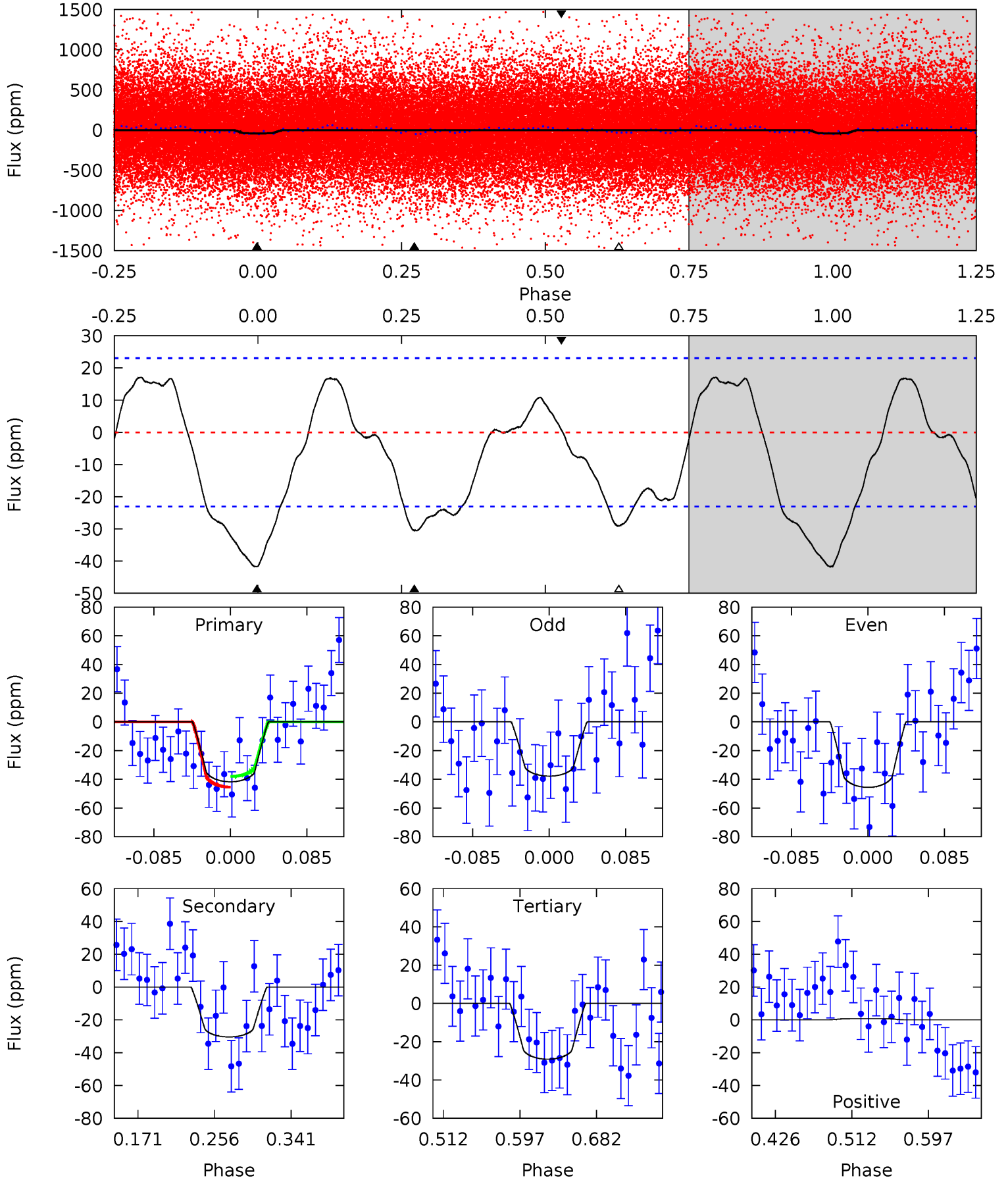




# DV Model-Shift Uniqueness Test

005705575-01, P = 1.337961 Days, E = 130.675976 Days

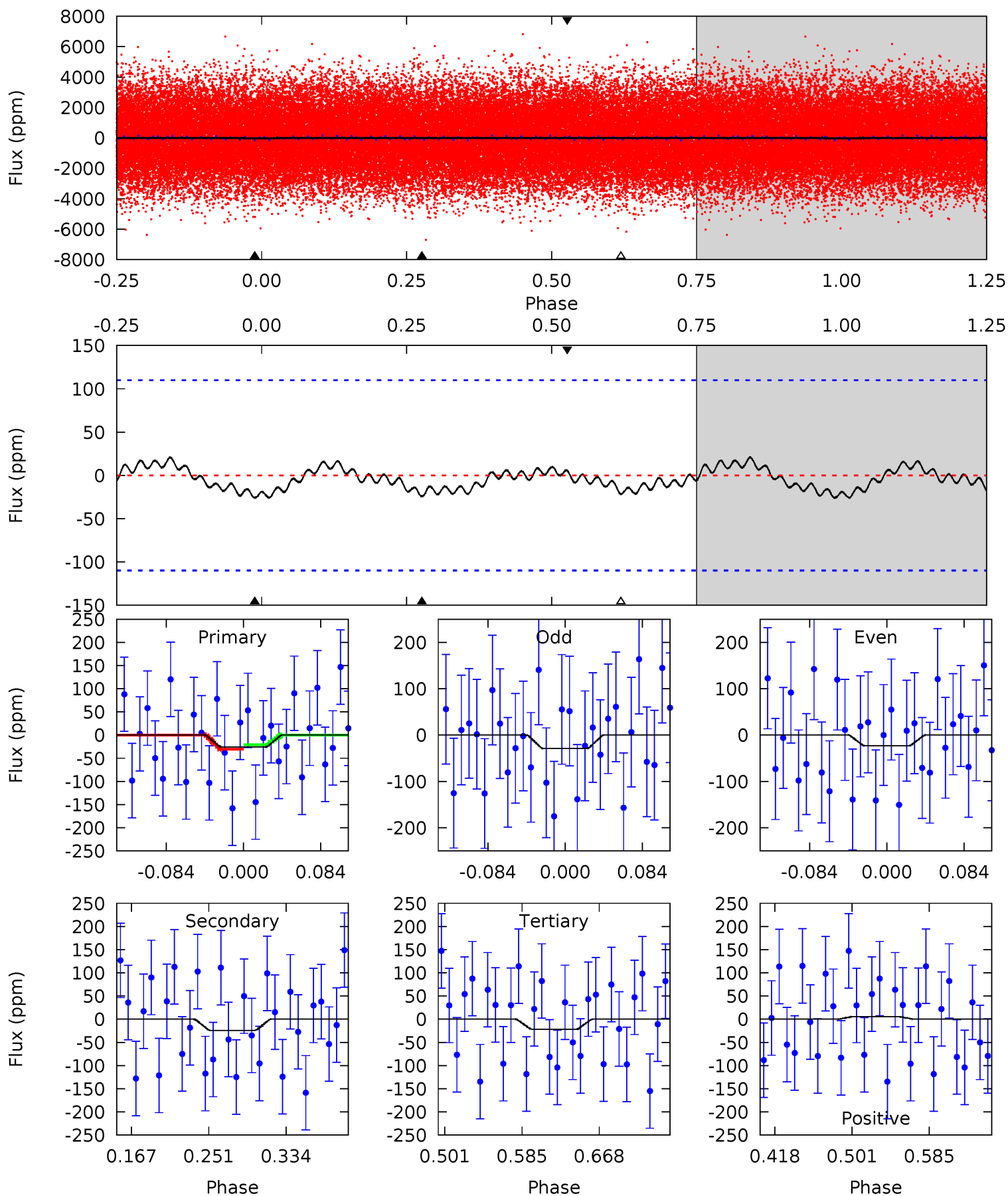
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.32	6.07	5.81	0.15	4.60	1.72	2.76	2.51	8.17	0.26	5.92	0.78	0.81	0.29	0.75



# Alt Model-Shift Uniqueness Test

005705575-01, P = 1.337940 Days, E = 130.688958 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
1.08	1.02	0.91	0.23	4.60	1.73	0.40	0.18	0.85	0.11	0.78	0.12	1.18	0.45	0.20





### Stellar Parameters For KIC 005705575

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7509^{+74}_{-82}$	$4.206^{+0.066}_{-0.123}$	$-0.180^{+0.150}_{-0.150}$	$1.588^{+0.280}_{-0.163}$	$1.476^{+0.113}_{-0.103}$	$0.519^{+0.163}_{-0.185}$
	+1%/-1%	+2%/-3%	+83%/-83%	+18%/-10%	+8%/-7%	+31%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005705575-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-30 \pm 5$	$1.24^{+0.61}_{-0.67}$	$3562^{+148}_{-104}$	$6436^{+4255}_{-1160}$	$7.964^{+29.471}_{-4.499}$
Alt.	$-24 \pm 24$	$1.08^{+0.63}_{-0.54}$	$3563^{+168}_{-109}$	$6323^{+4301}_{-9452}$	$7.342^{+29.333}_{-7.220}$

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

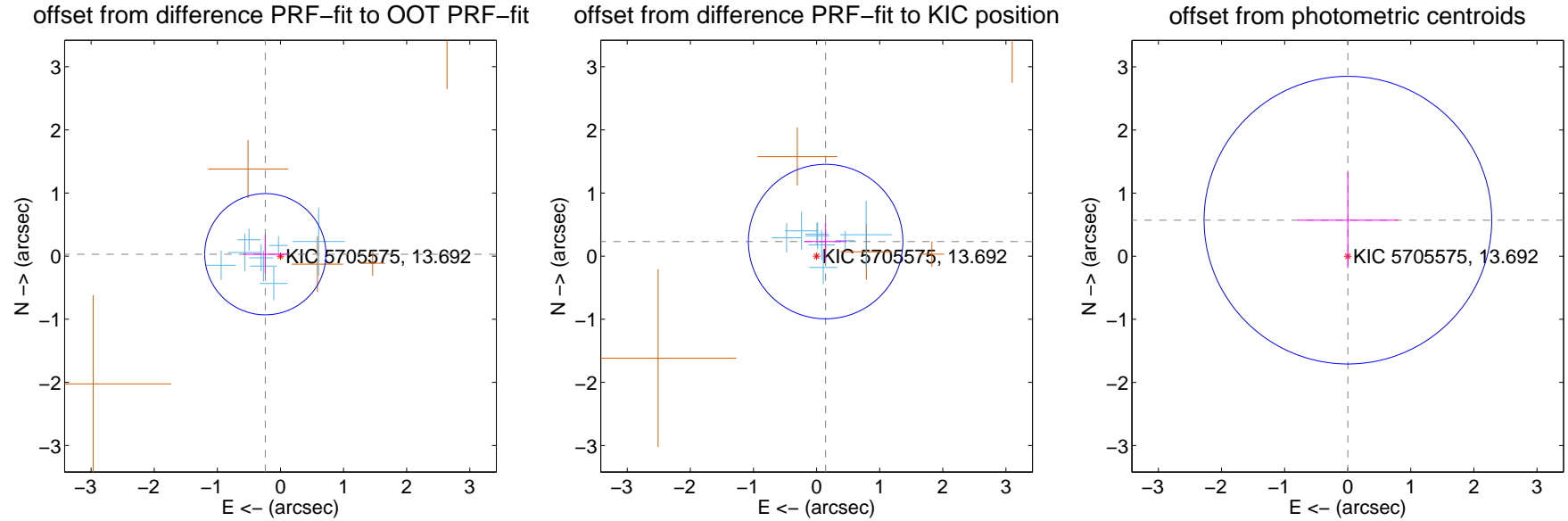
## DV Centroid Data

Supplemental centroid analysis for 005705575-01. Kepler magnitude: 13.69. Transit SNR 7.59

There are 8 quarters with good PRF difference image offsets

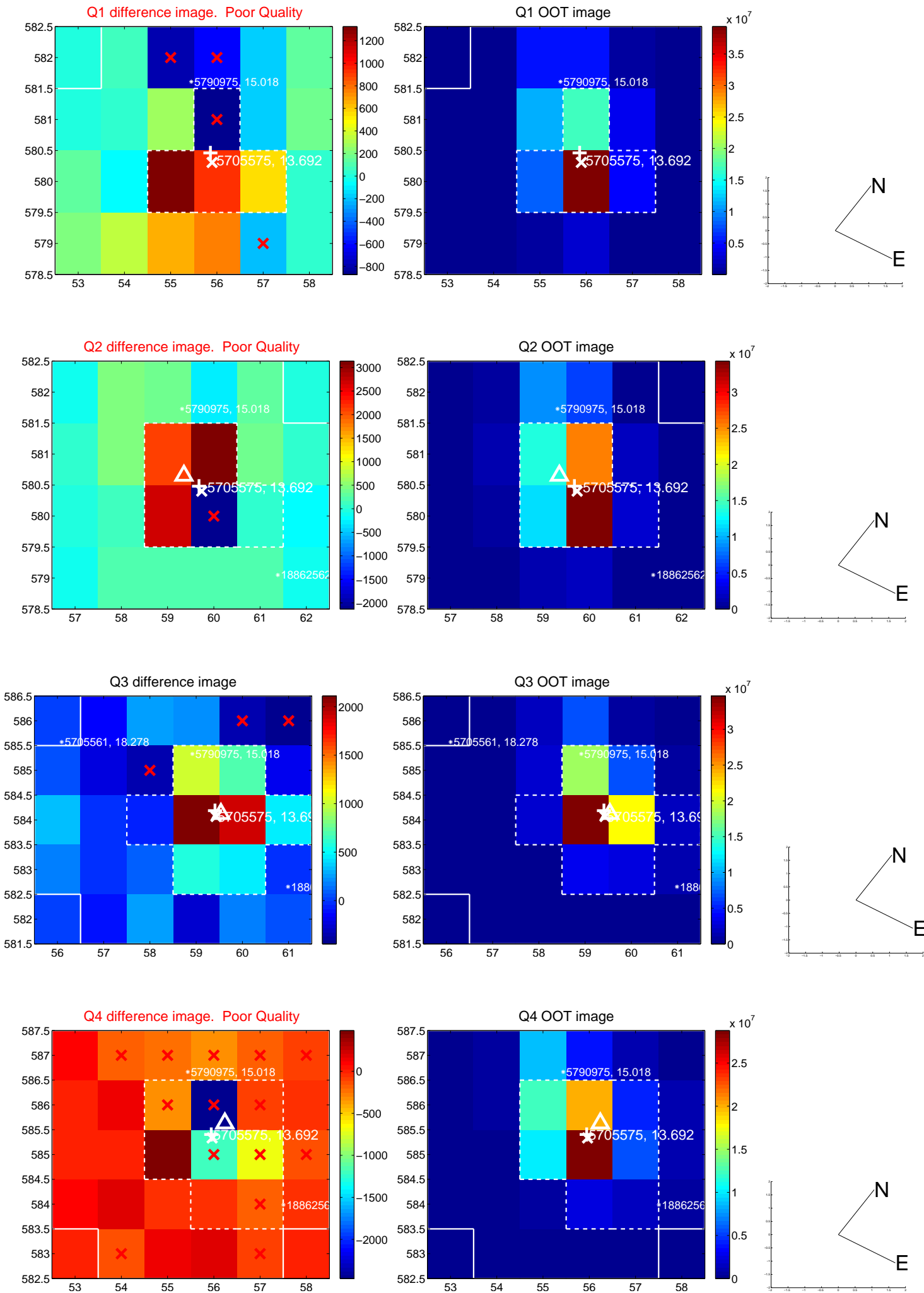
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.242 \pm 0.320$	0.75	$0.240 \pm 0.347$	$0.030 \pm 0.306$
PRF-fit source offset from KIC position	$0.272 \pm 0.408$	0.67	$-0.144 \pm 0.337$	$0.231 \pm 0.305$
photometric centroid source offset	$0.57 \pm 0.76$	0.75	$-0.00 \pm 0.79$	$0.57 \pm 0.76$

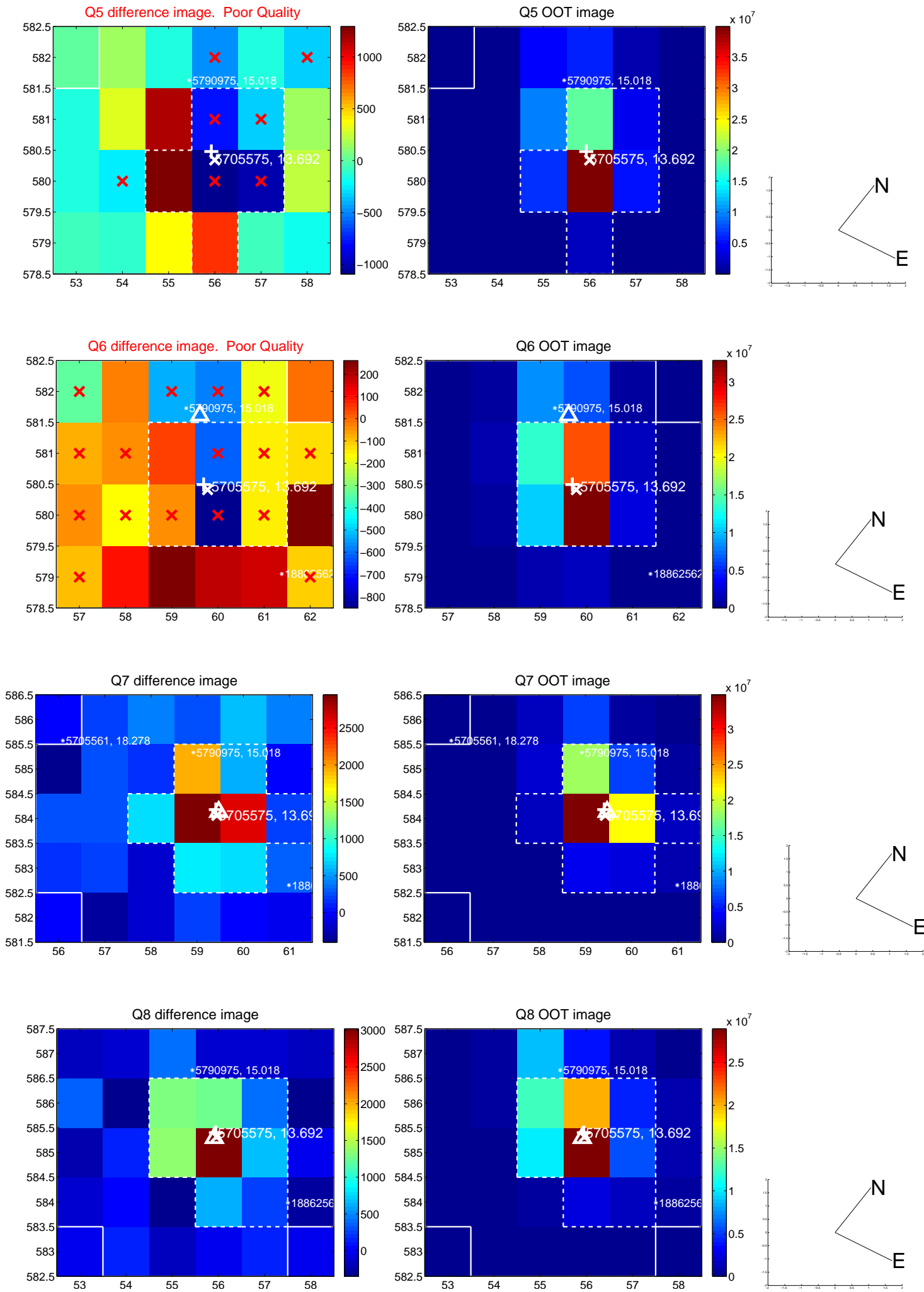


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

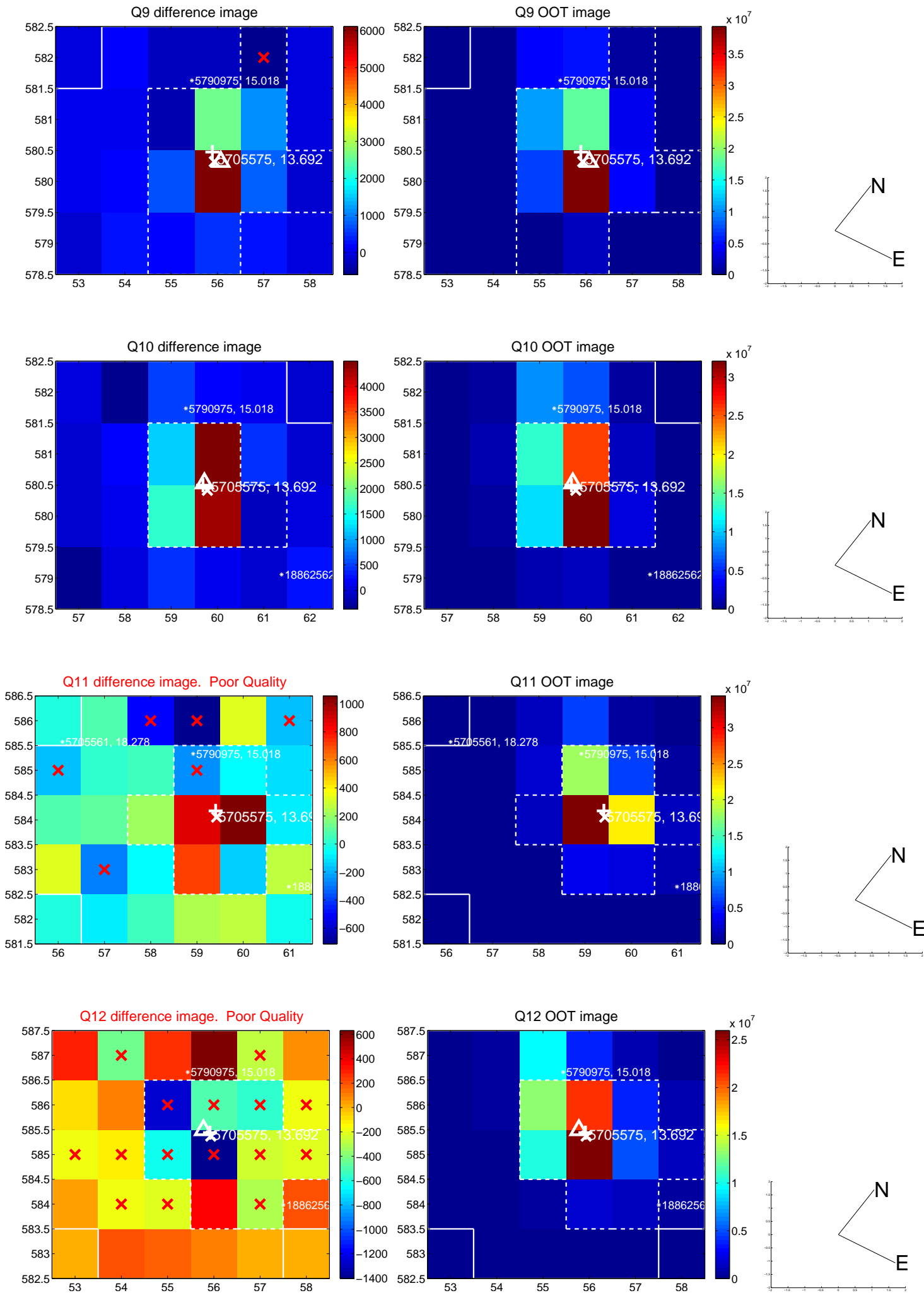


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

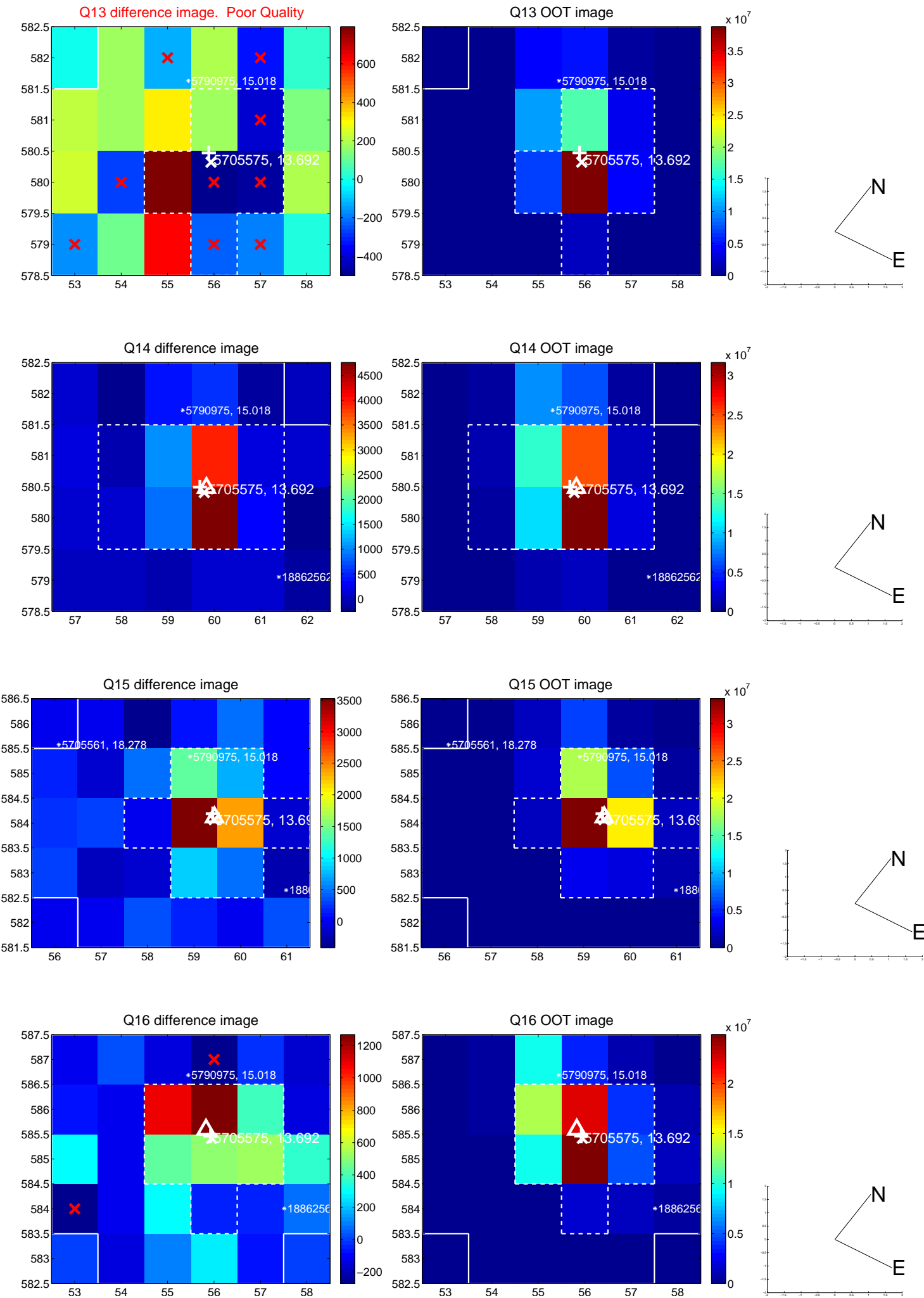




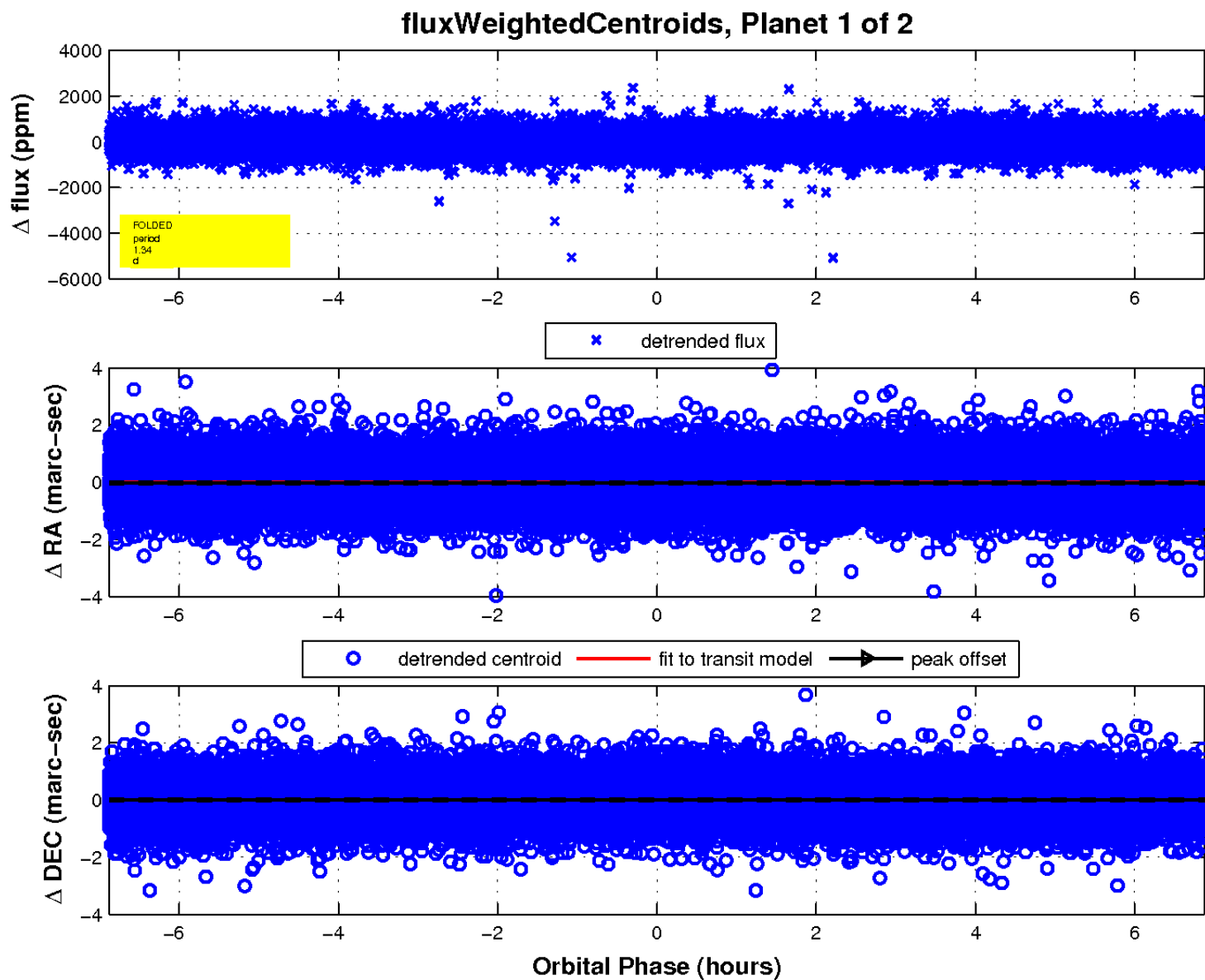
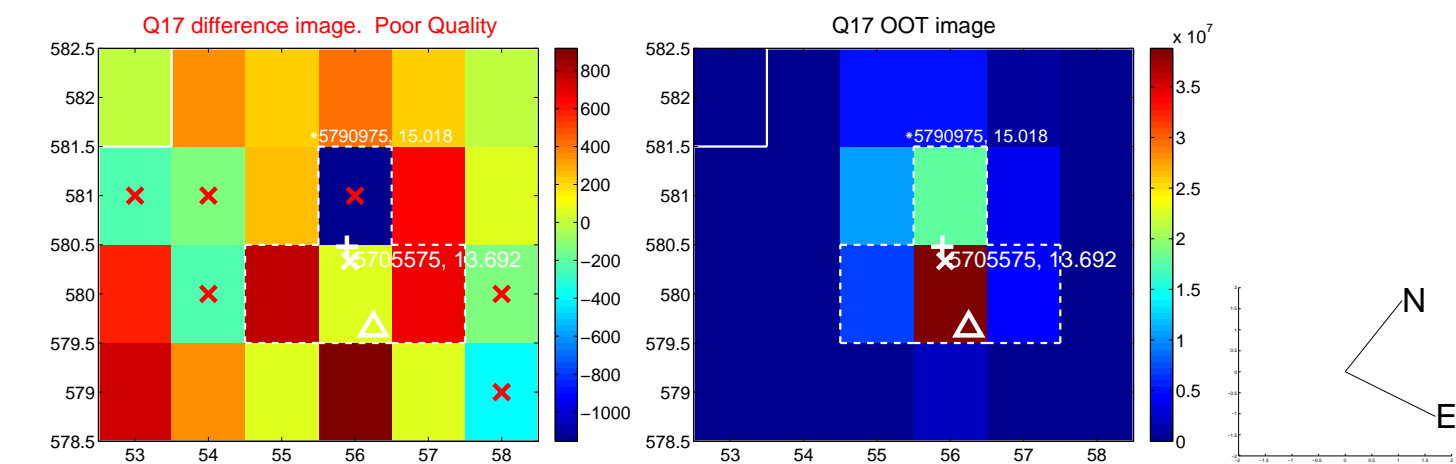
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

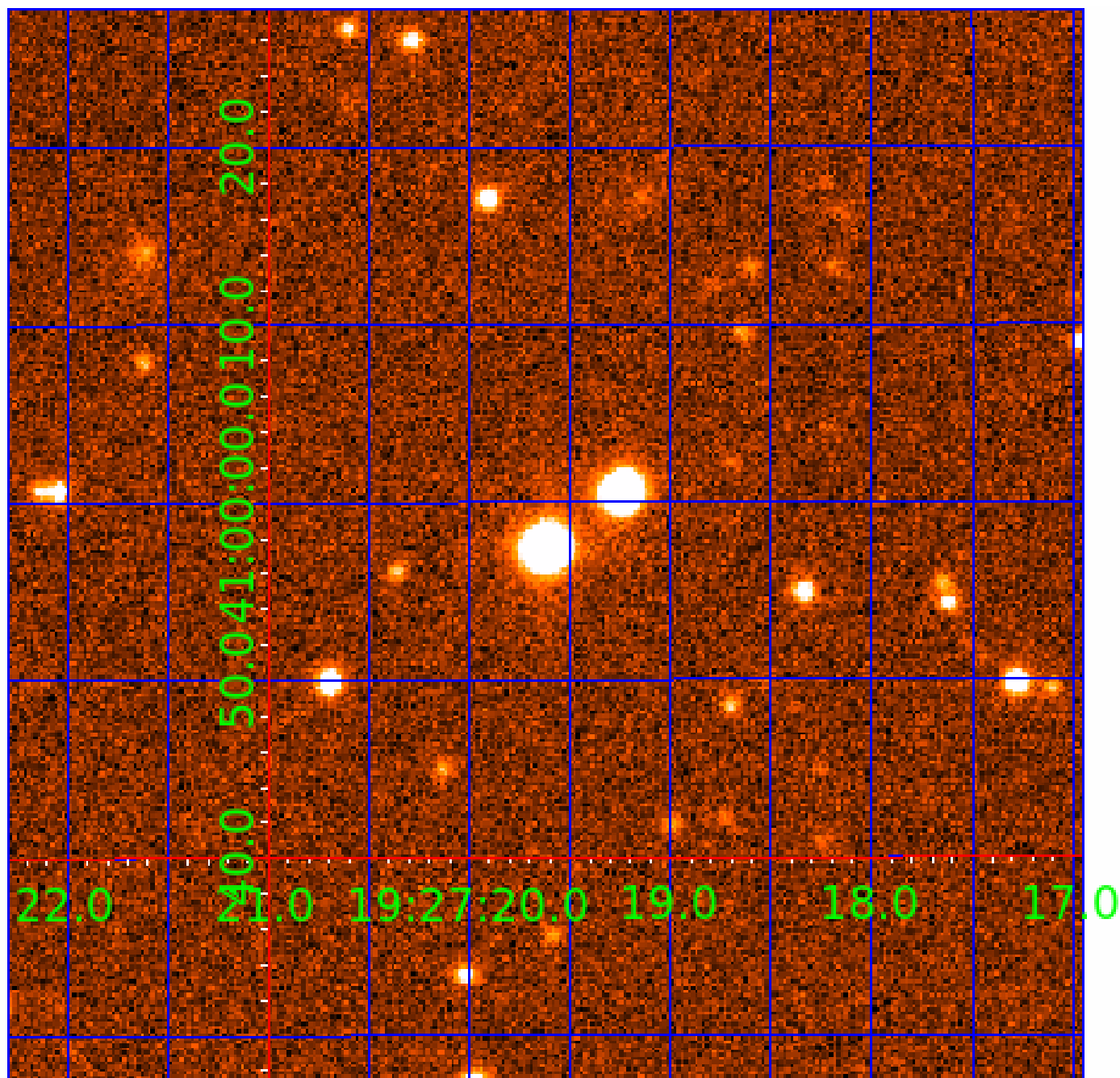


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005705575

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005705575-01	OBS	No	1.337961	132.013937	38.6	2.293	8.9	7.6	1.59	7509	1.15	9799.38
005705575-02	OBS	No	1.337951	132.426591	31.1	4.676	7.8	7.4	1.59	7509	1.03	9799.47

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005705575-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_KIC_POS
005705575-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_KIC_POS

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

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

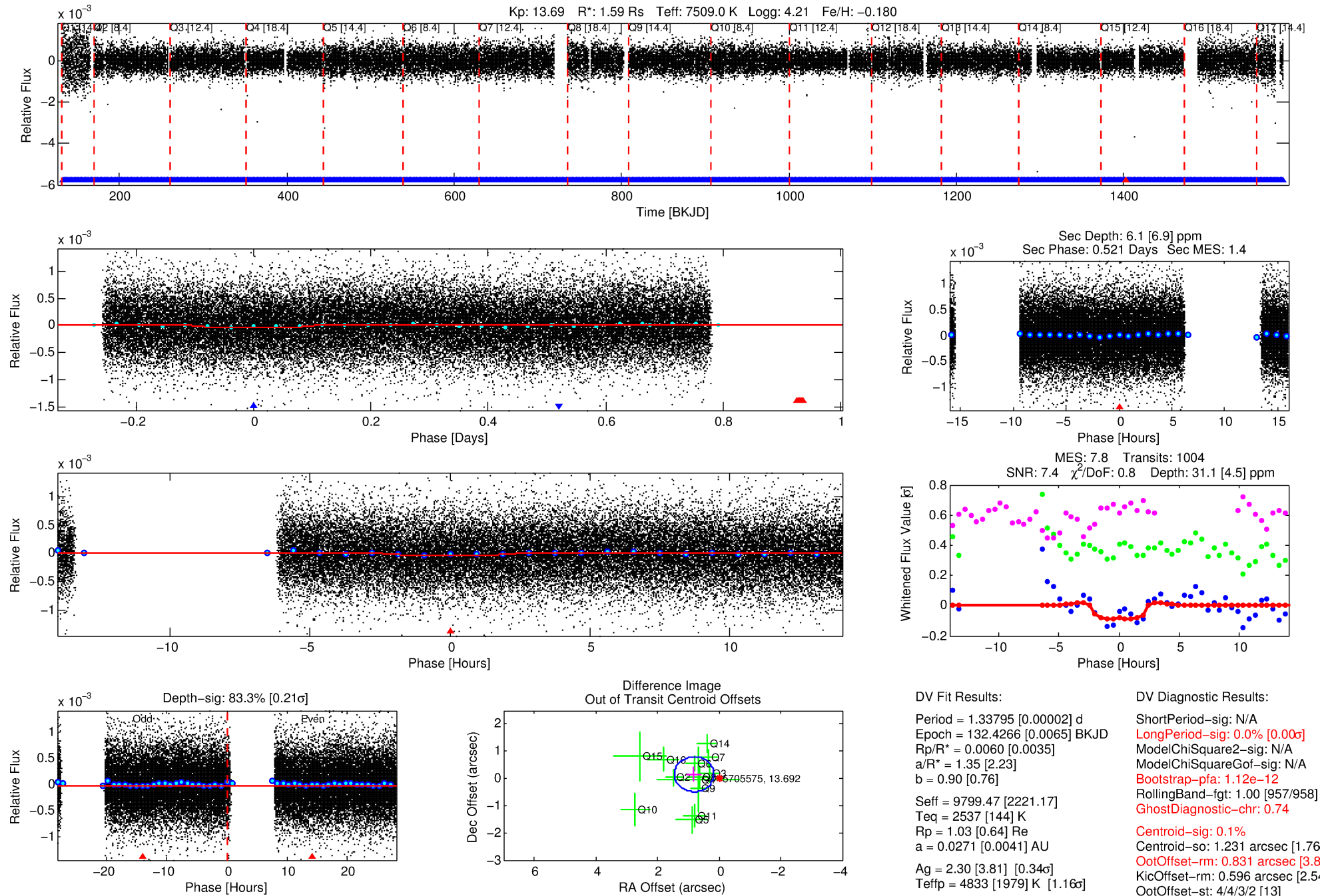
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005705575-02

No Significant Match Found

# DV One-Page Summary

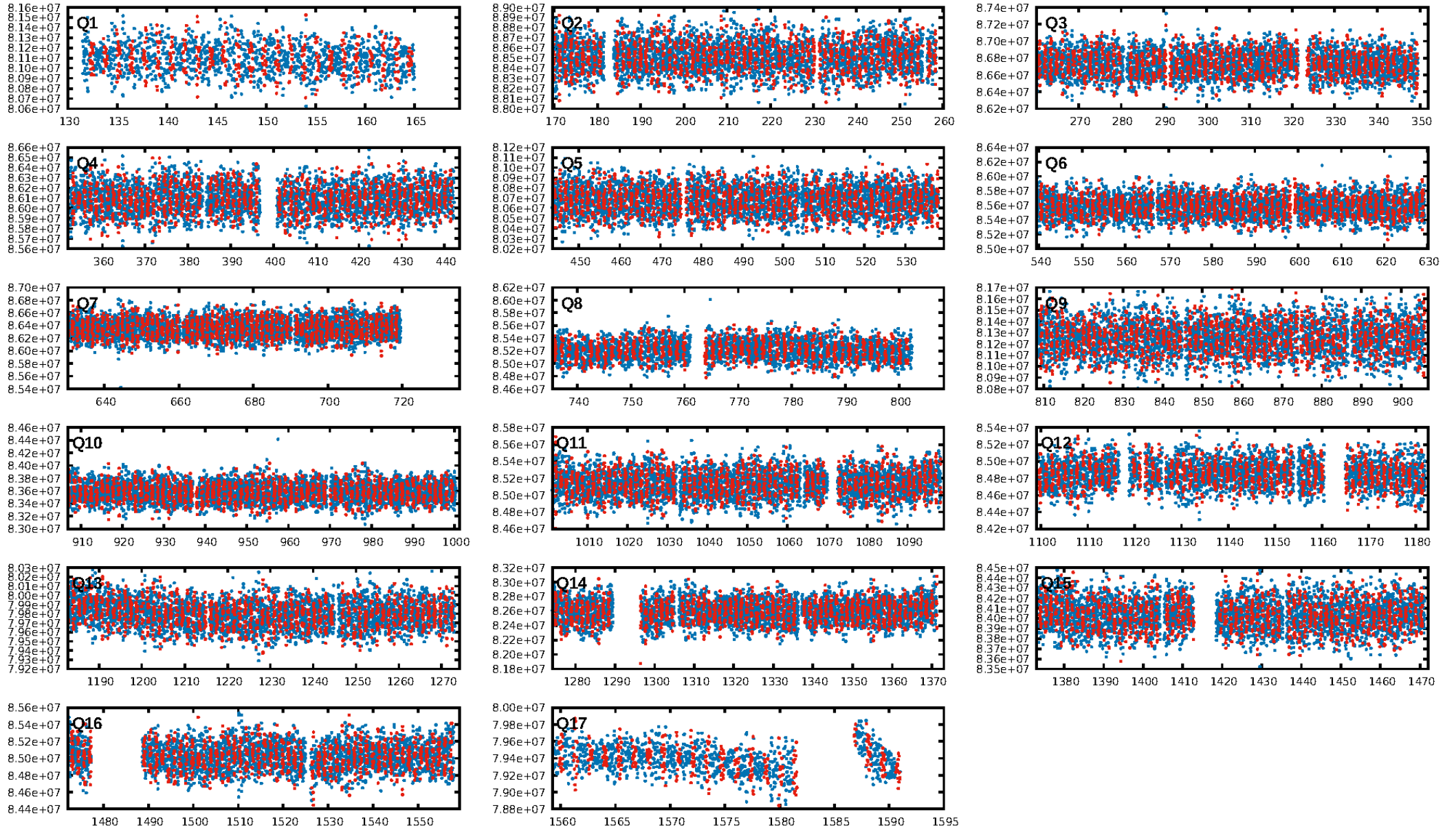
KIC: 5705575 Candidate: 2 of 2 Period: 1.338 d



Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 22:45:47 Z

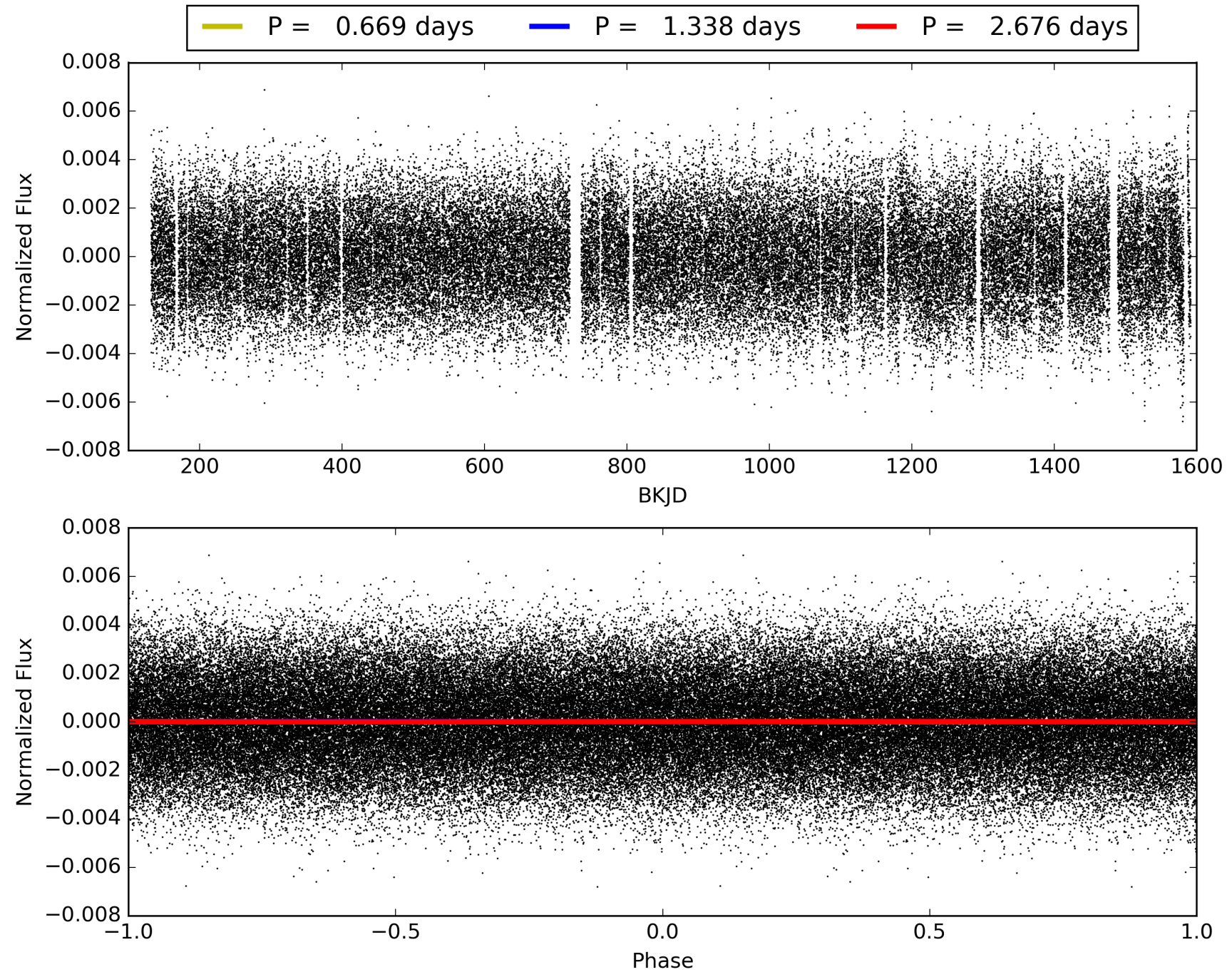
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005705575-02, PDC Light Curves





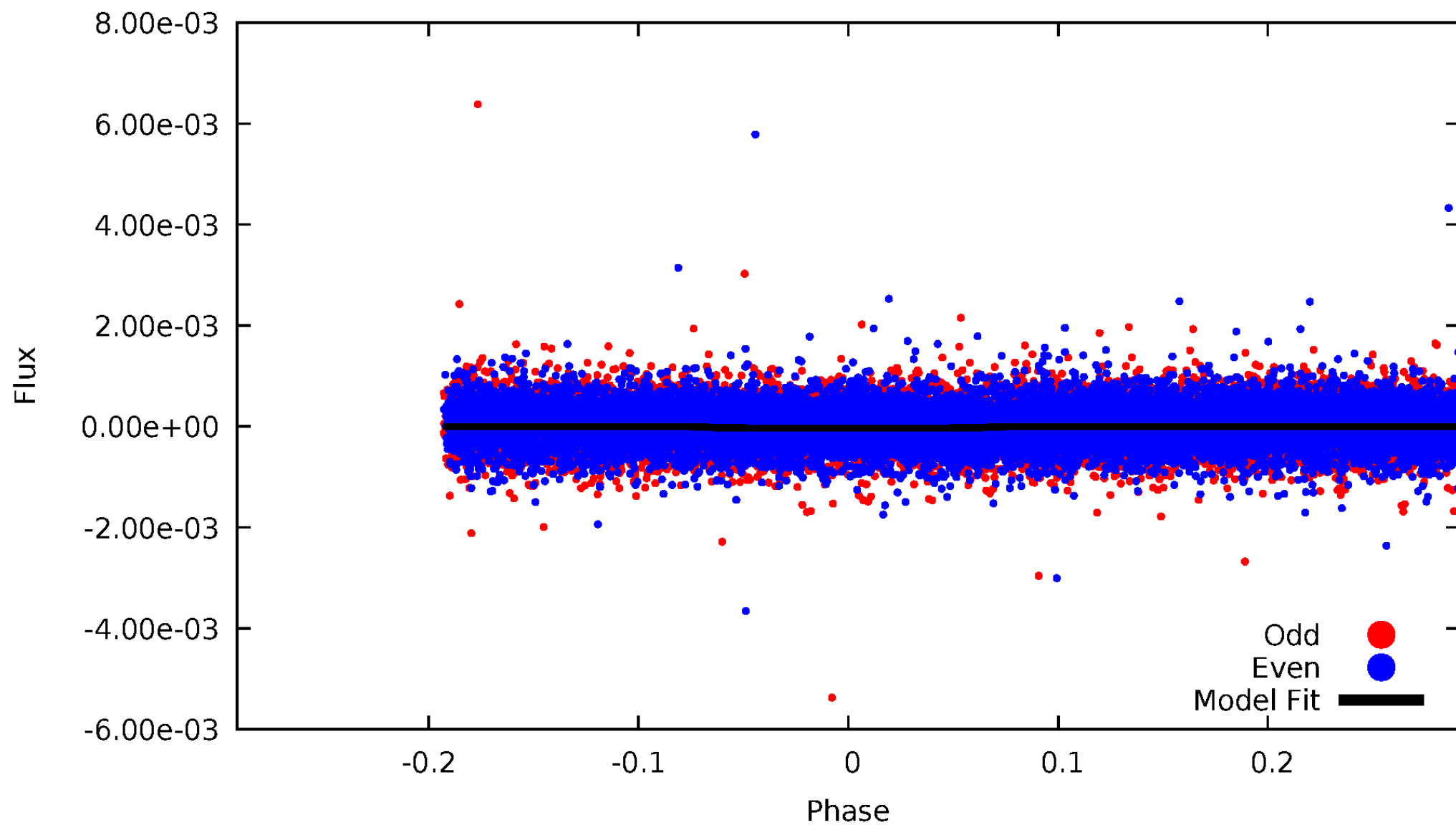
# TCE 005705575-02





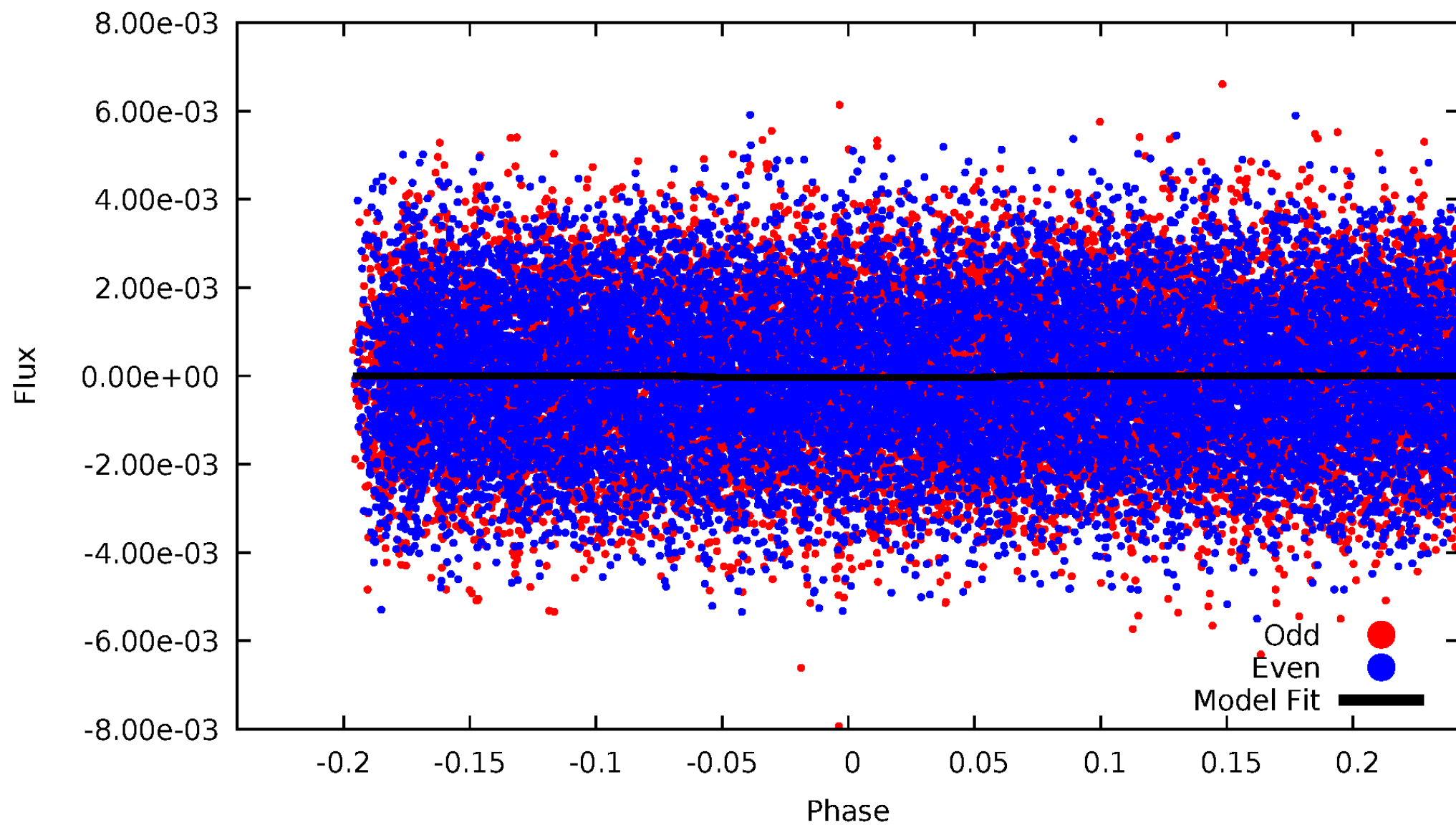
# DV Odd/Even

TCE 005705575-02



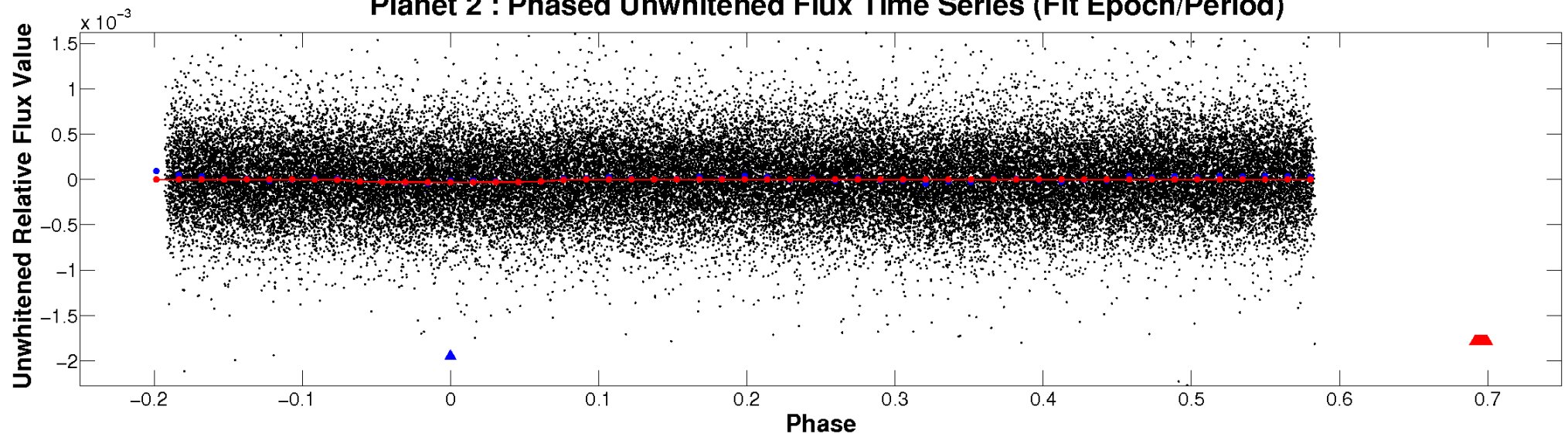
# ALT Odd/Even

TCE 005705575-02

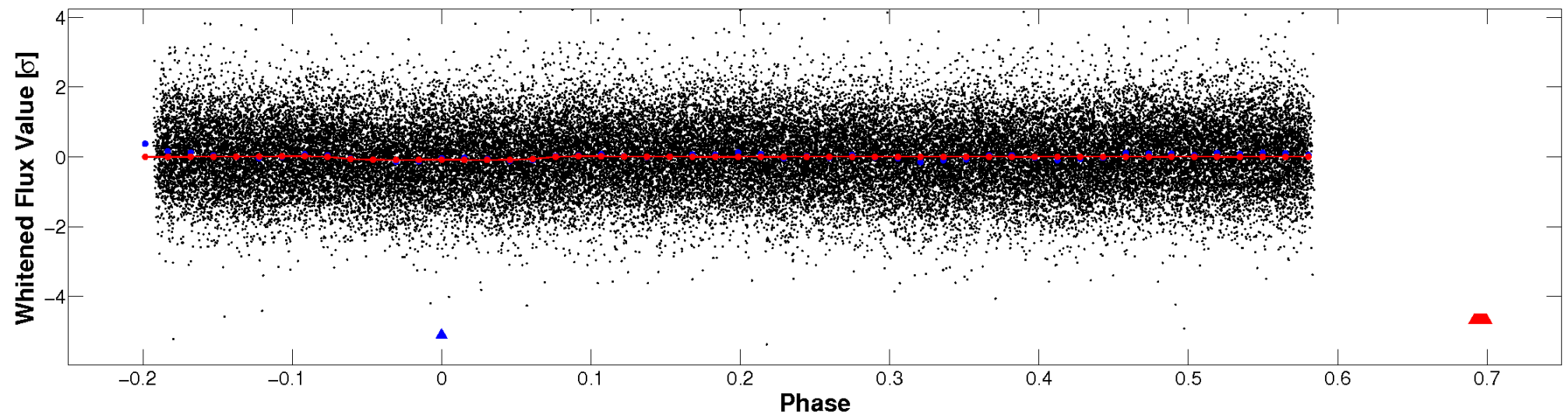


# Non-Whitened Vs. Whitened Light Curve

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

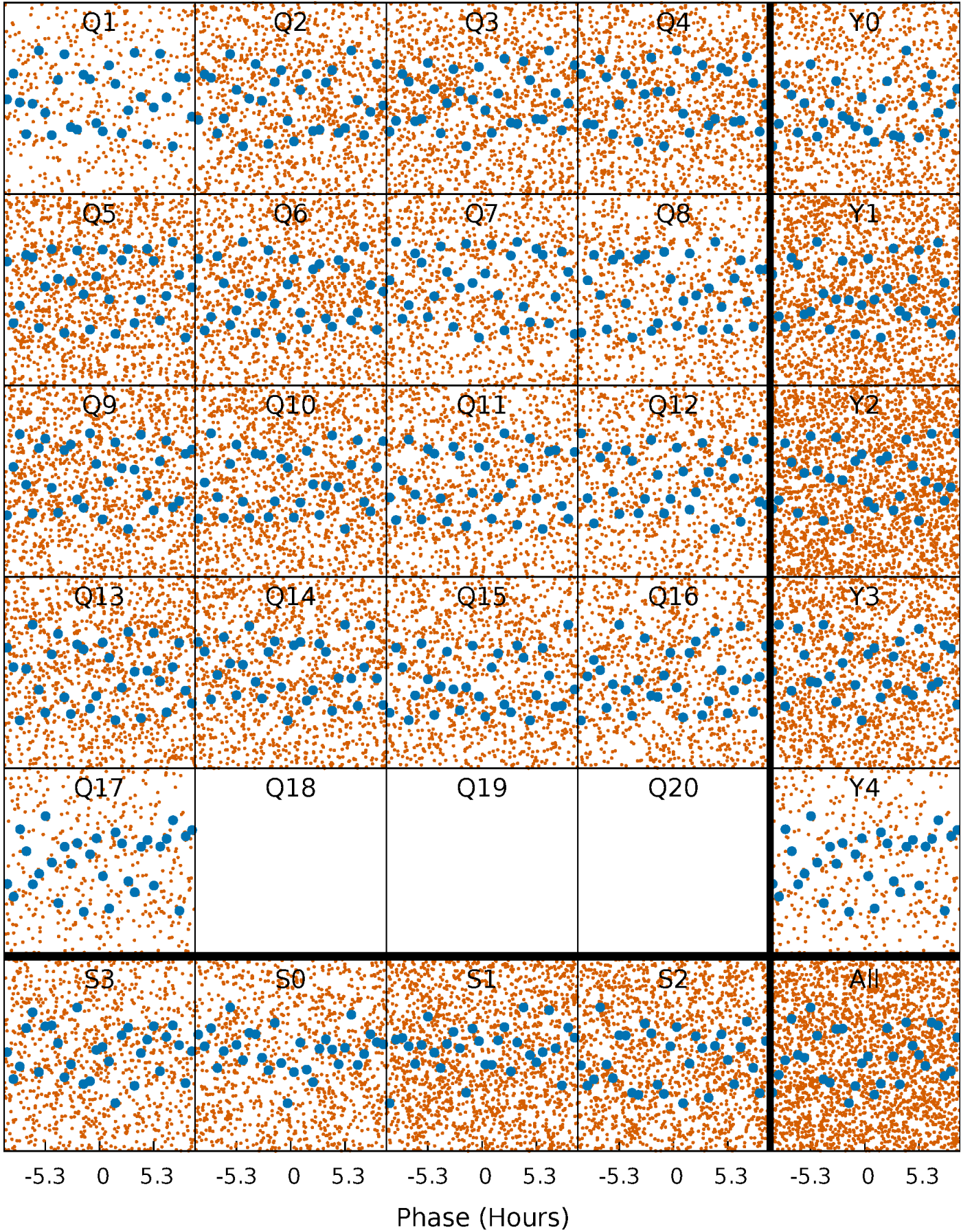


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

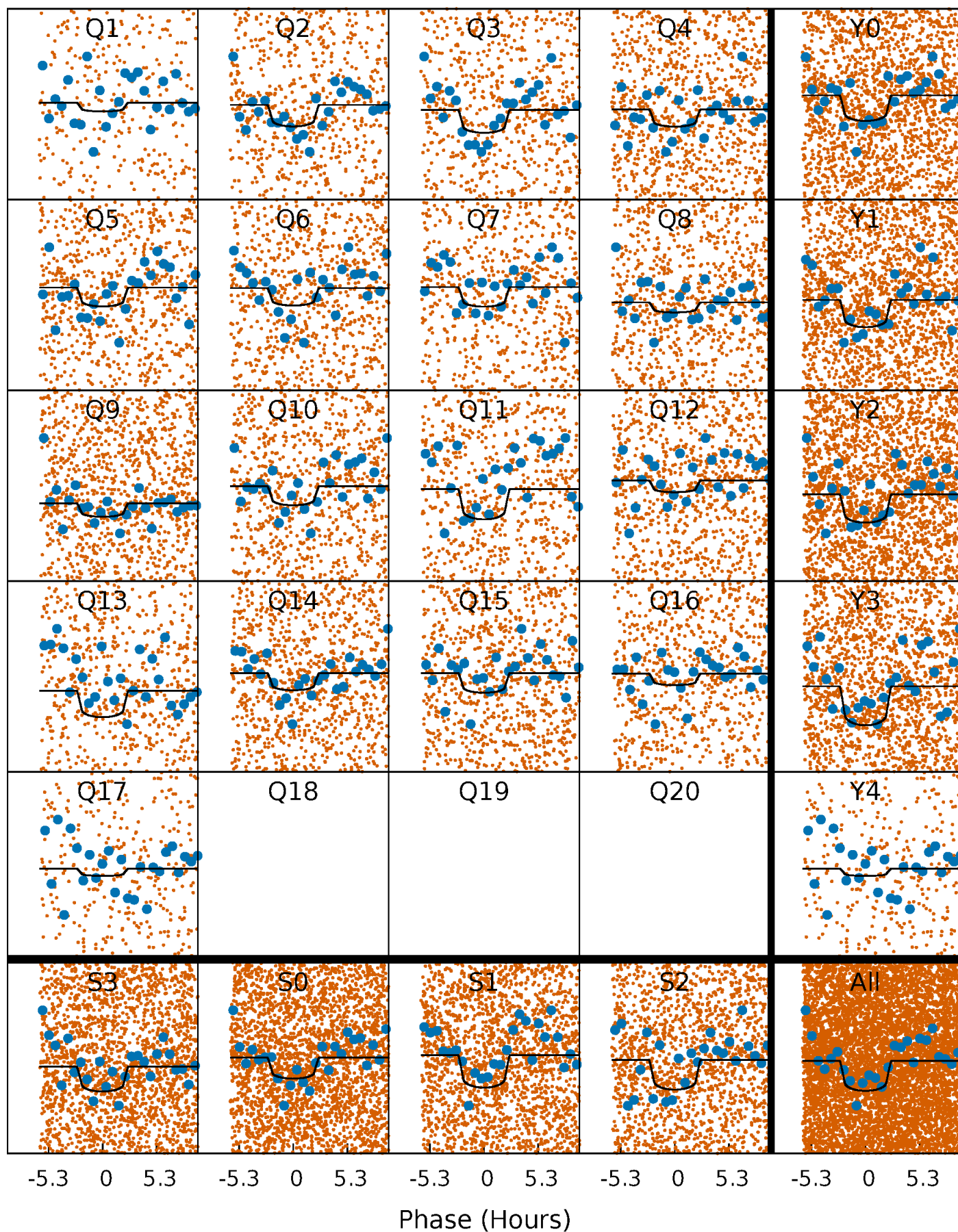
TCE 005705575-02   P= 1.337951 Days    $T_0=132.426591$  (BKJD)





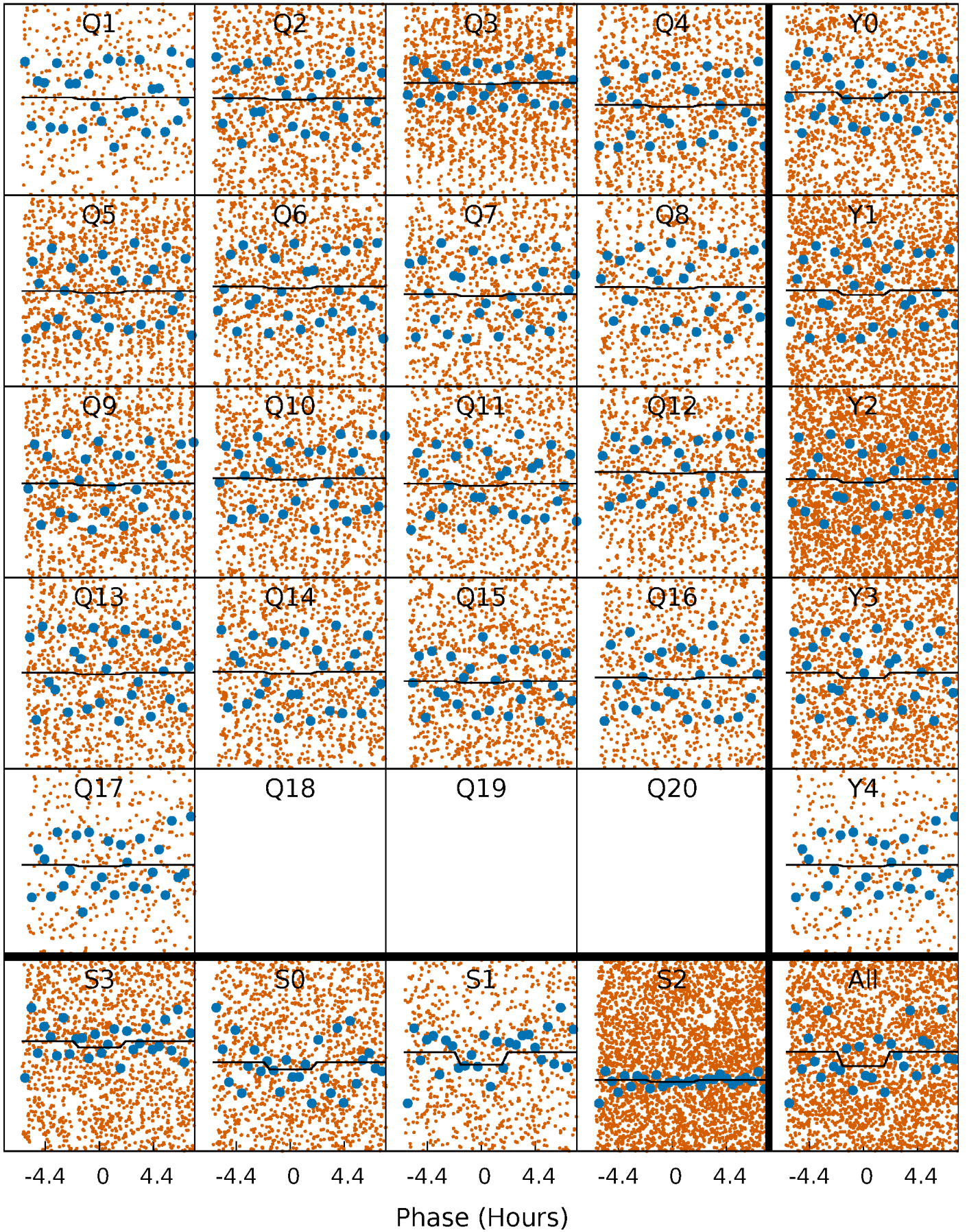
# DV Quarter-Phased Transit Curves

TCE 005705575-02   P= 1.337951 Days    $T_0=132.426591$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005705575-02   P= 1.337940 Days    $T_0=132.431063$  (BKJD)

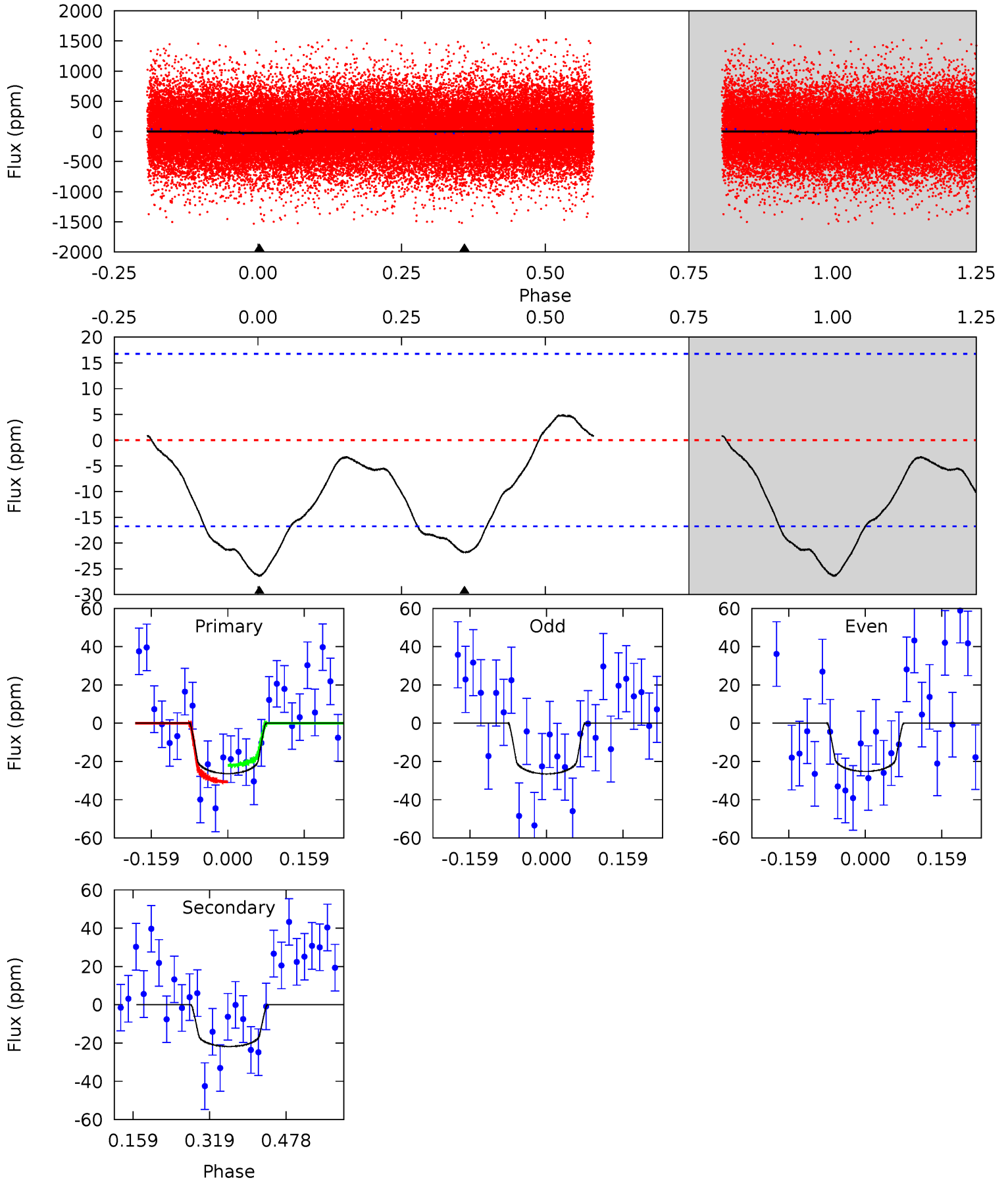




# DV Model-Shift Uniqueness Test

005705575-02, P = 1.337951 Days, E = 131.088640 Days

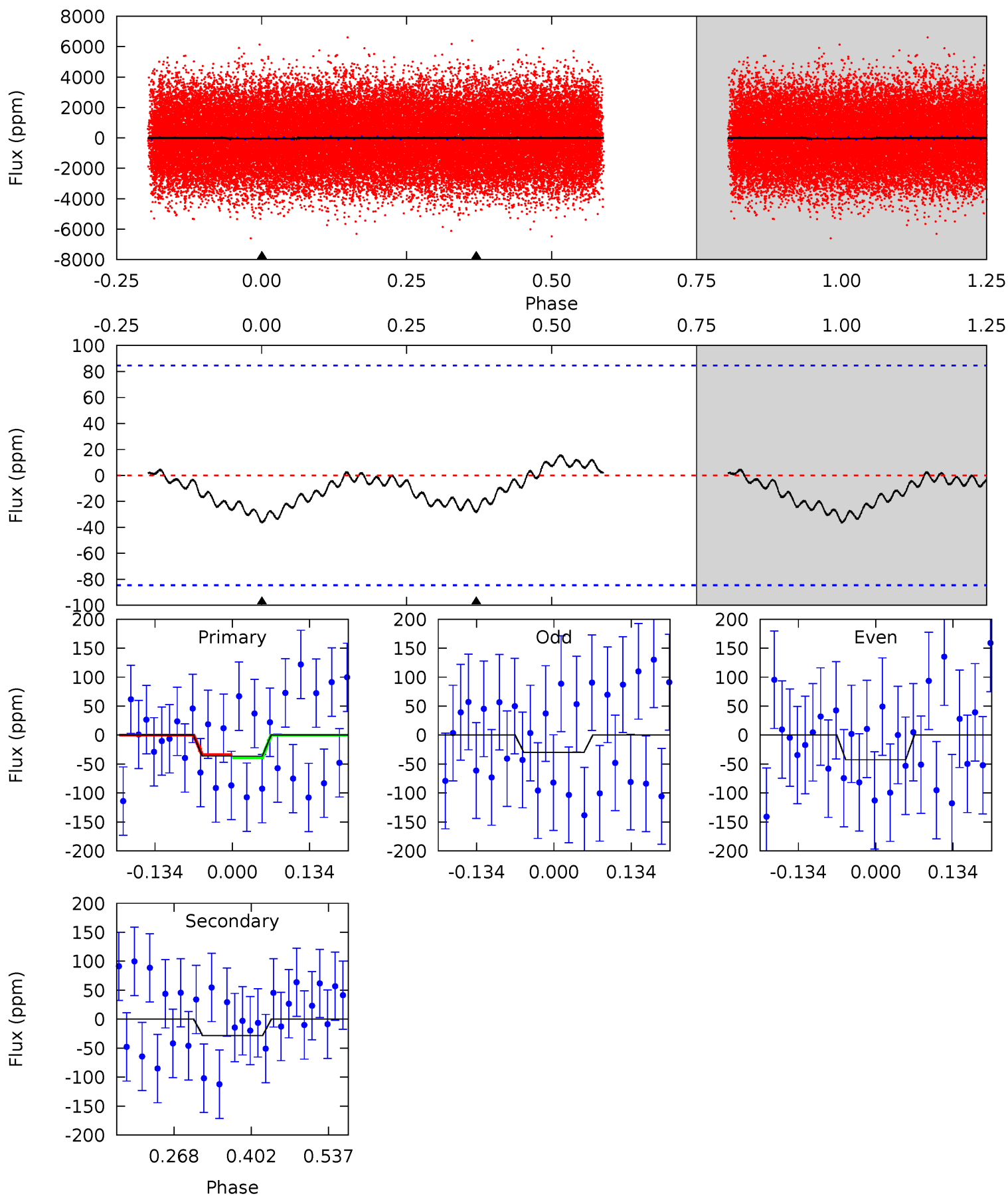
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.02	5.81	0	0	4.47	1.41	1.01	7.02	7.02	5.81	5.81	0.17	1.19	0.15	1.14



# Alt Model-Shift Uniqueness Test

005705575-02, P = 1.337940 Days, E = 131.093123 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
1.93	1.50	0	0	4.50	1.50	0.35	1.93	1.93	1.50	1.50	0.33	0.80	0.30	0.13



### Stellar Parameters For KIC 005705575

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7509^{+74}_{-82}$	$4.206^{+0.066}_{-0.123}$	$-0.180^{+0.150}_{-0.150}$	$1.588^{+0.280}_{-0.163}$	$1.476^{+0.113}_{-0.103}$	$0.519^{+0.163}_{-0.185}$
	+1%/-1%	+2%/-3%	+83%/-83%	+18%/-10%	+8%/-7%	+31%/-36%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005705575-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-22 \pm 4$	$1.06^{+0.63}_{-0.58}$	$3559^{+152}_{-111}$	$6411^{+4204}_{-1351}$	$7.789^{+29.561}_{-4.857}$
Alt.	$-28 \pm 19$	$1.02^{+0.60}_{-0.54}$	$3563^{+154}_{-110}$	$6816^{+5023}_{-2056}$	$9.542^{+38.130}_{-7.328}$

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

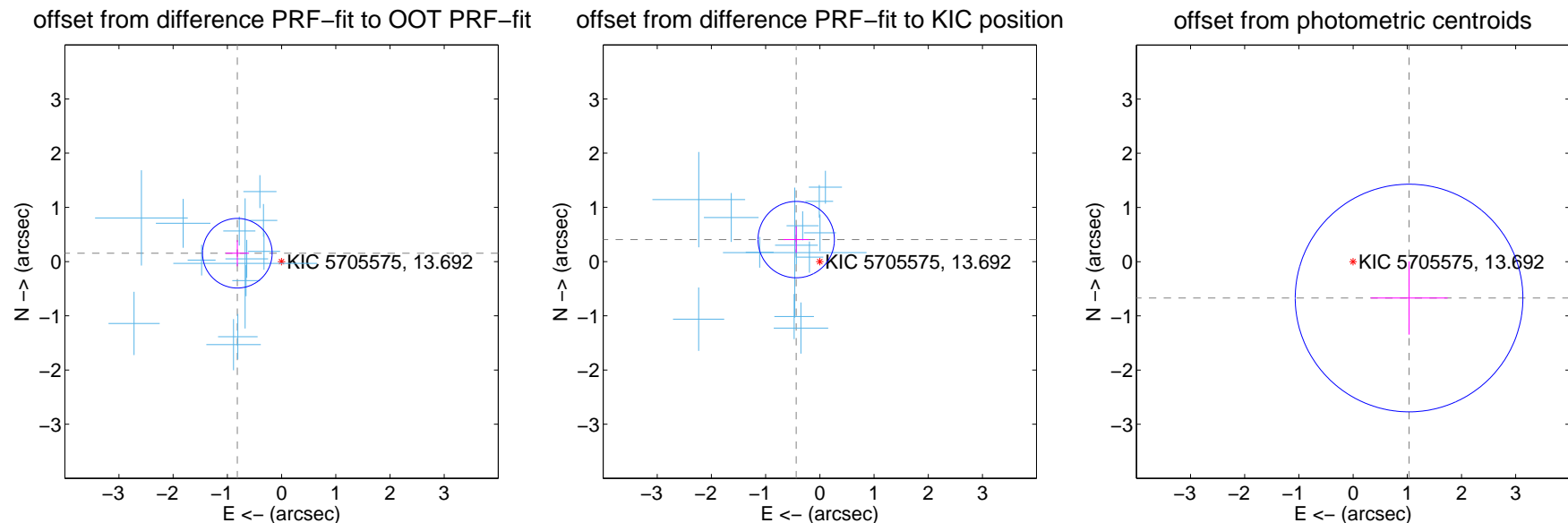
## DV Centroid Data

Supplemental centroid analysis for 005705575-02. Kepler magnitude: 13.69. Transit SNR 7.43

There are 13 quarters with good PRF difference image offsets

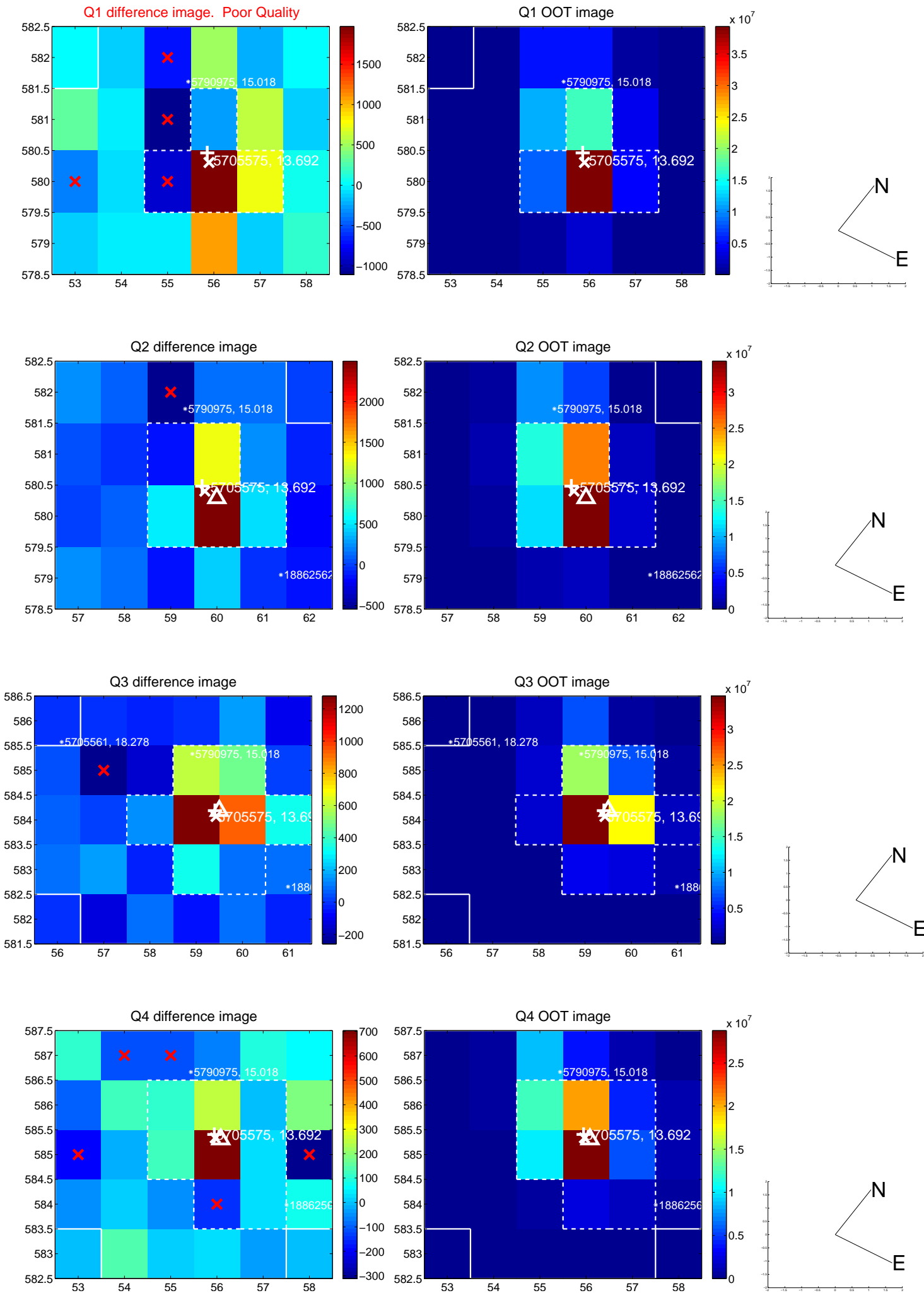
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>0.831 \pm 0.214</math></b>	<b>3.88</b>	$0.816 \pm 0.216$	$0.154 \pm 0.240$
PRF-fit source offset from KIC position	$0.596 \pm 0.235$	2.54	$0.436 \pm 0.235$	$0.406 \pm 0.244$
photometric centroid source offset	$1.23 \pm 0.70$	1.76	$-1.03 \pm 0.71$	$-0.67 \pm 0.68$

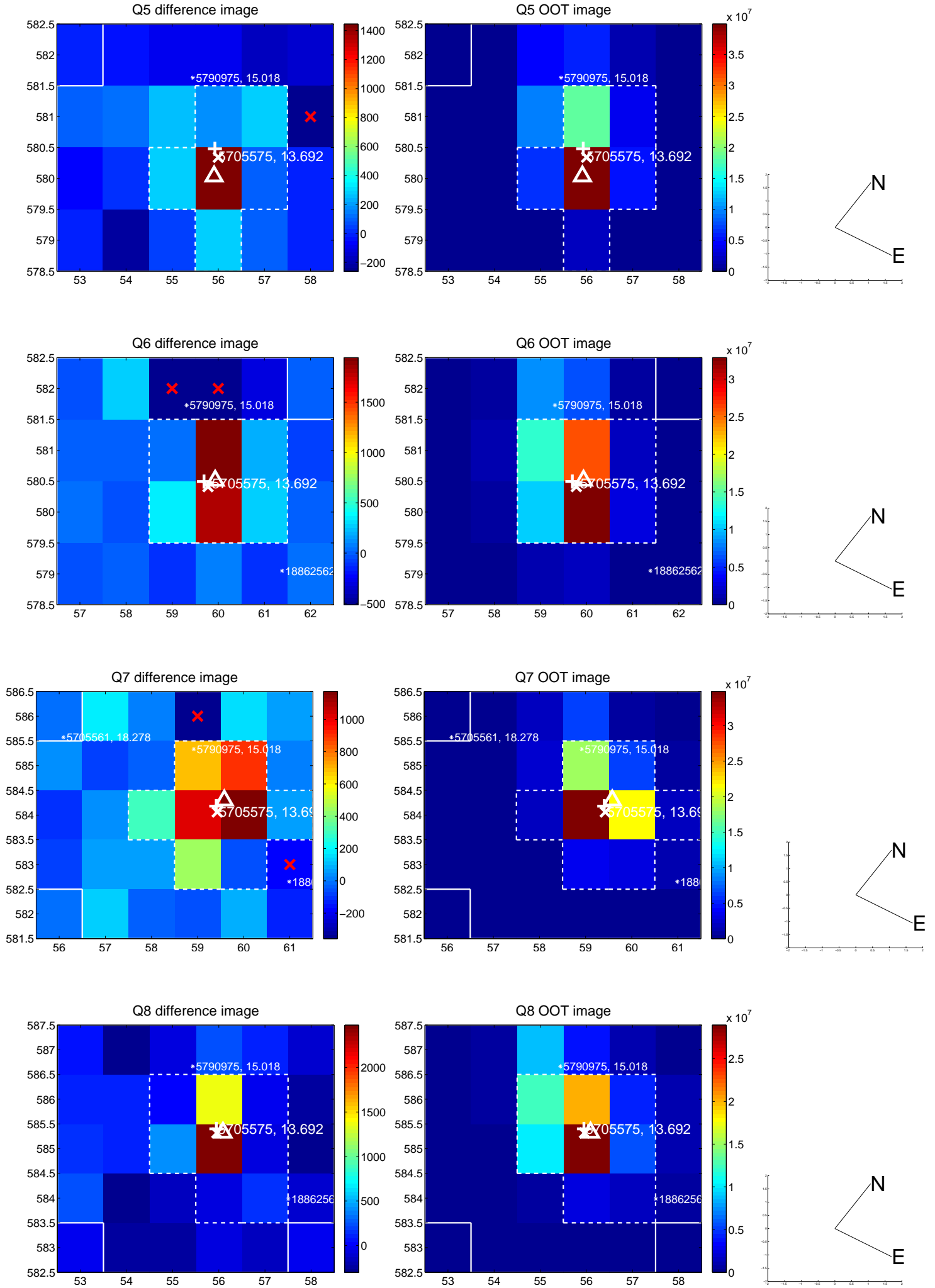


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

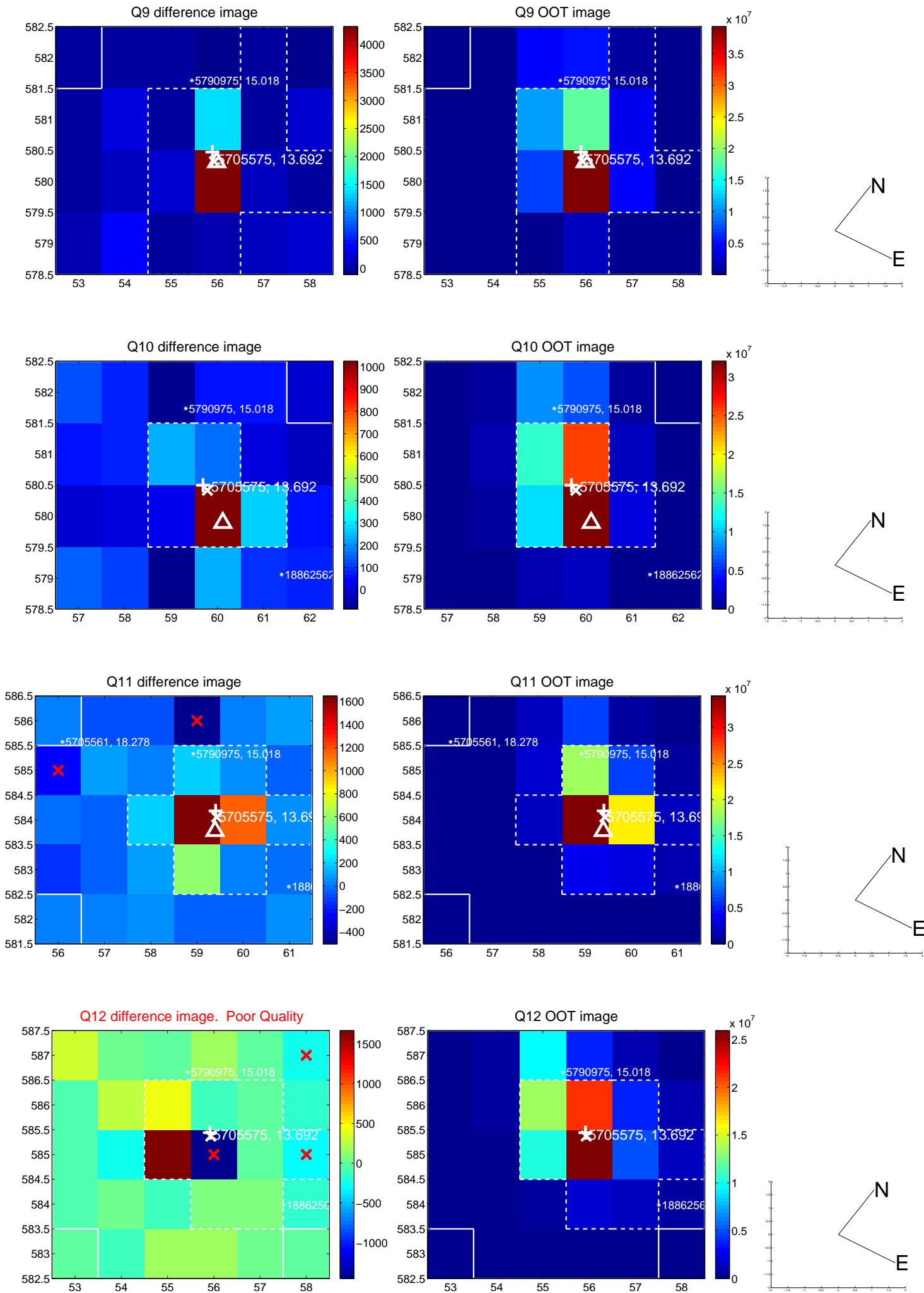


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

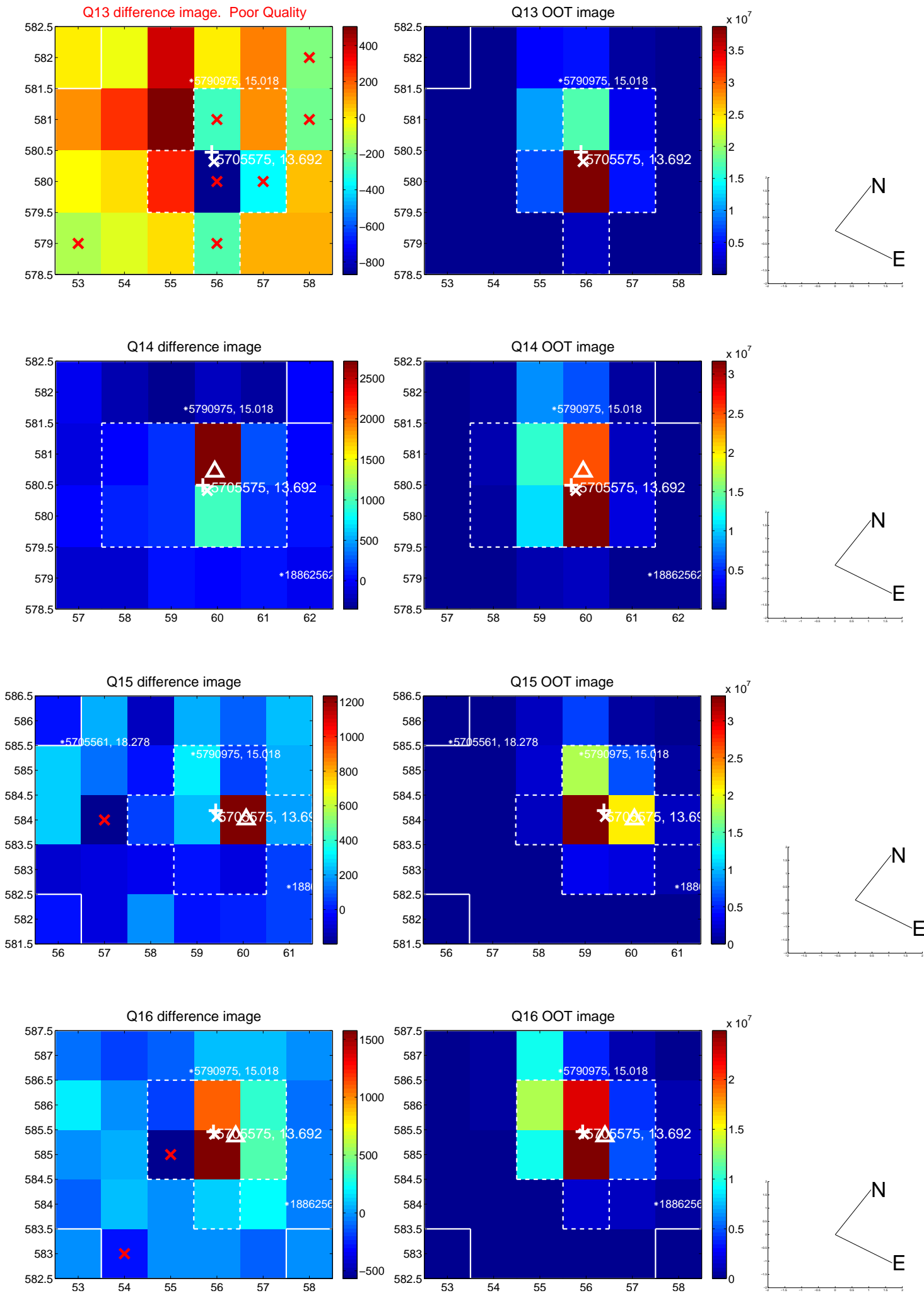




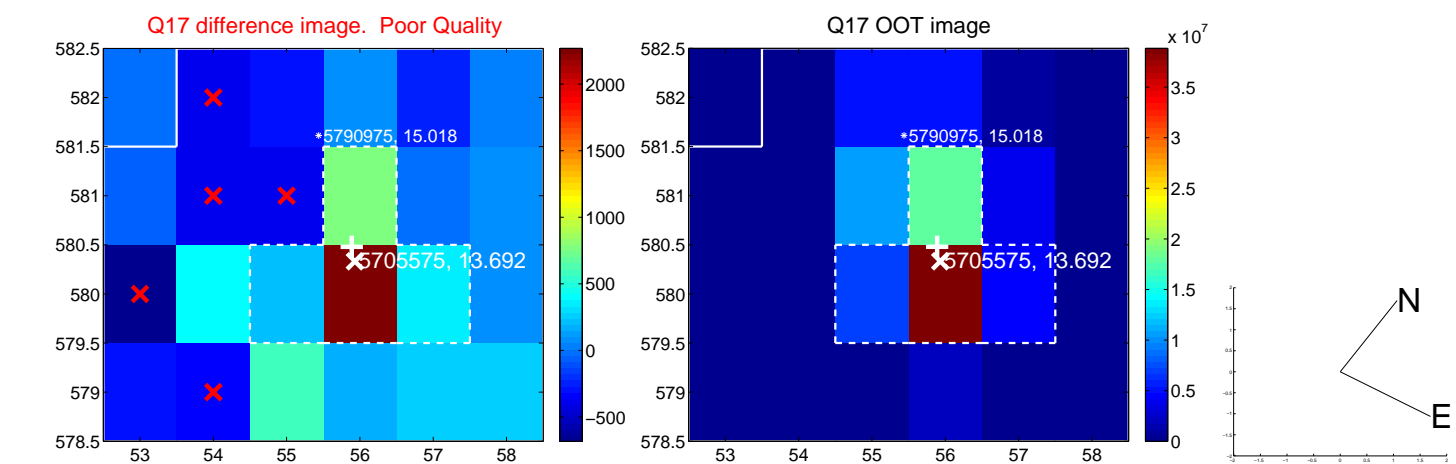
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



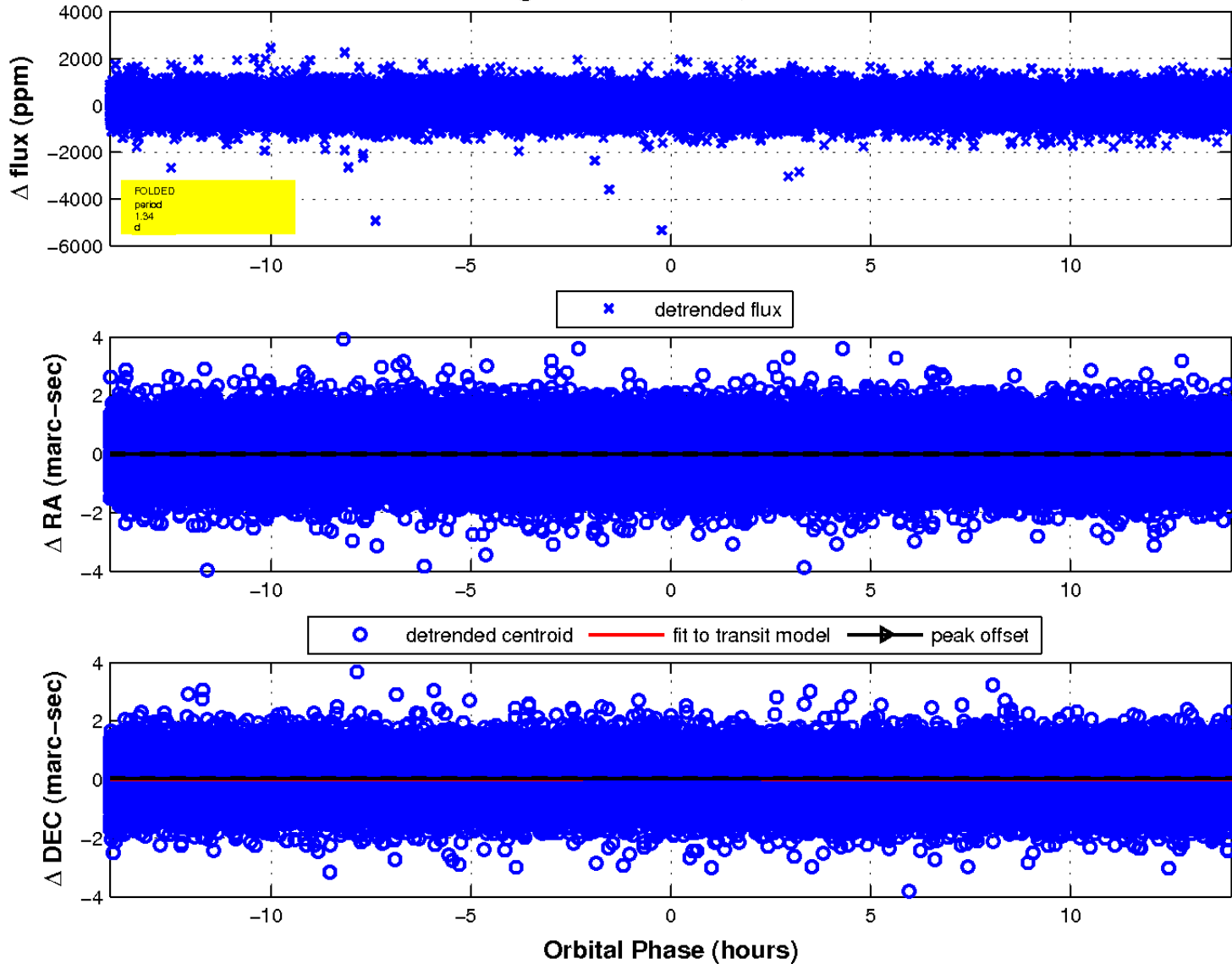
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

