

# KIC 007621759

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007621759-01	OBS	No	0.908064	132.410076	138.7	1.868	9.5	7.7	1.99	7316	2.72	22766.65
007621759-02	OBS	No	1.401676	131.852565	193.0	10.007	9.7	12.3	1.99	7316	3.00	12762.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007621759-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007621759-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV

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

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

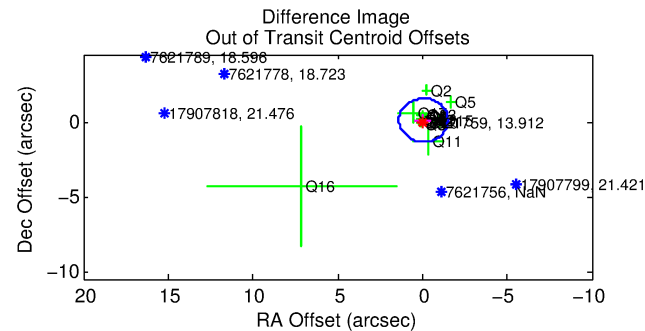
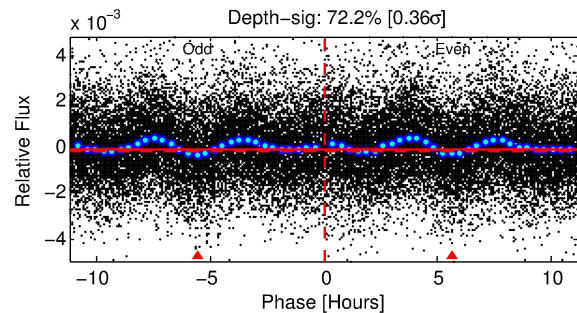
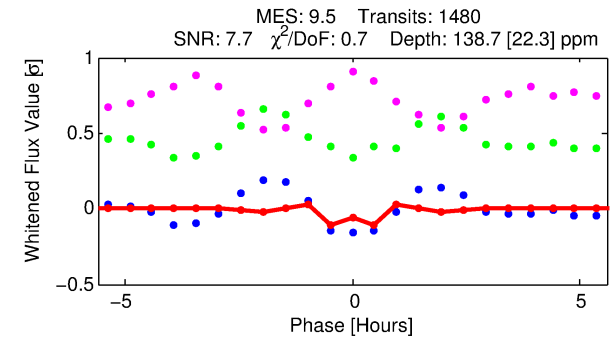
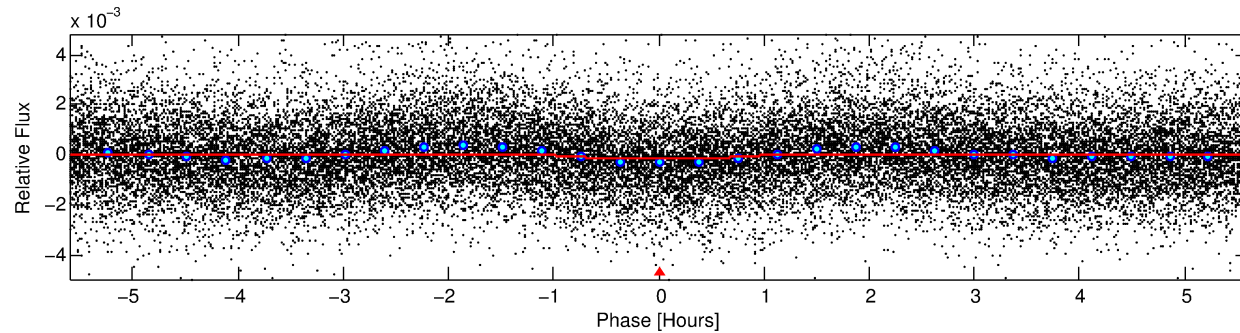
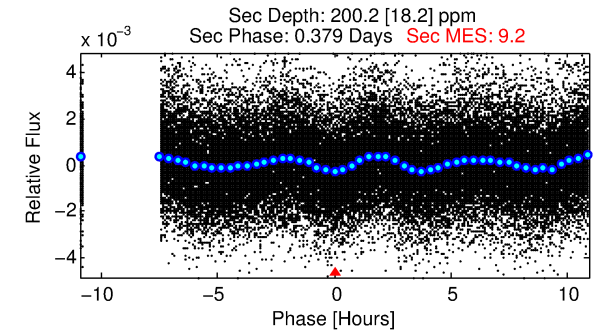
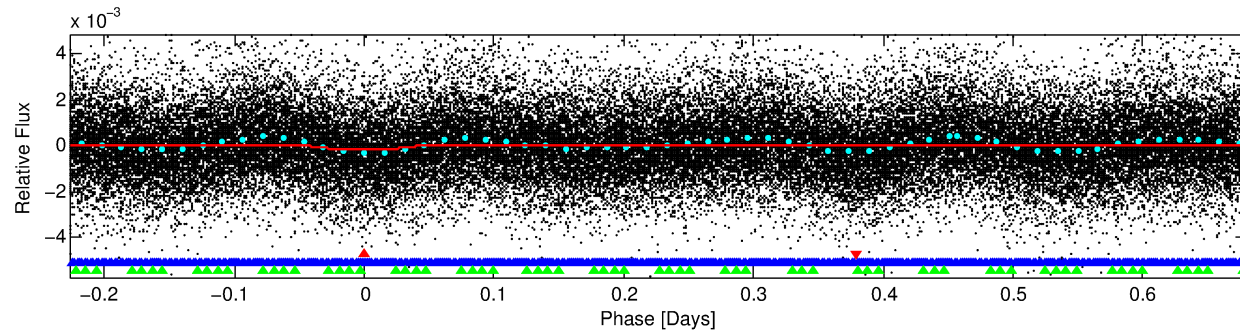
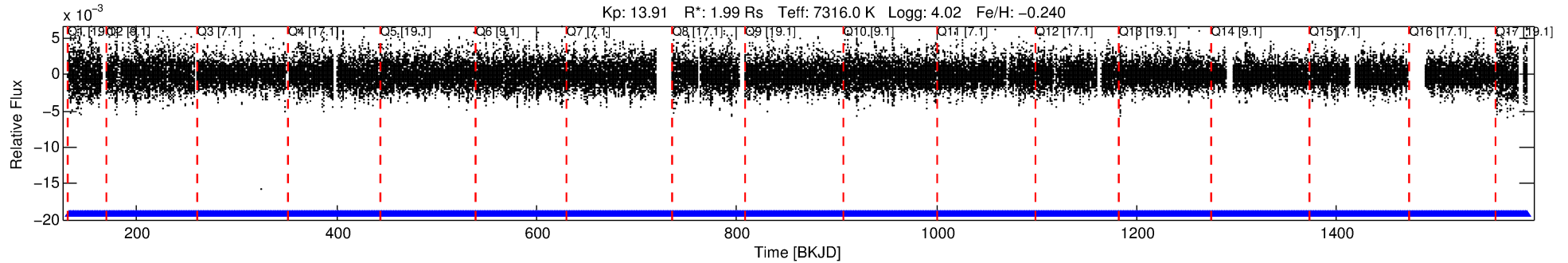
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007621759-01

No Significant Match Found

# DV One-Page Summary

KIC: 7621759 Candidate: 1 of 3 Period: 0.908 d



## DV Fit Results:

Period = 0.90806 [0.00001] d  
Epoch = 132.4101 [0.0013] BKJD  
Rp/R\* = 0.0125 [0.0031]  
a/R\* = 1.97 [2.02]  
b = 0.90 [0.30]  
Seff = 22766.65 [10772.57]  
Teq = 3132 [371] K  
Rp = 2.72 [1.10] Re  
a = 0.0211 [0.0060] AU  
Ag = 6.63 [4.37] [1.29σ]  
Teffp = 7769 [1055] K [4.15σ]

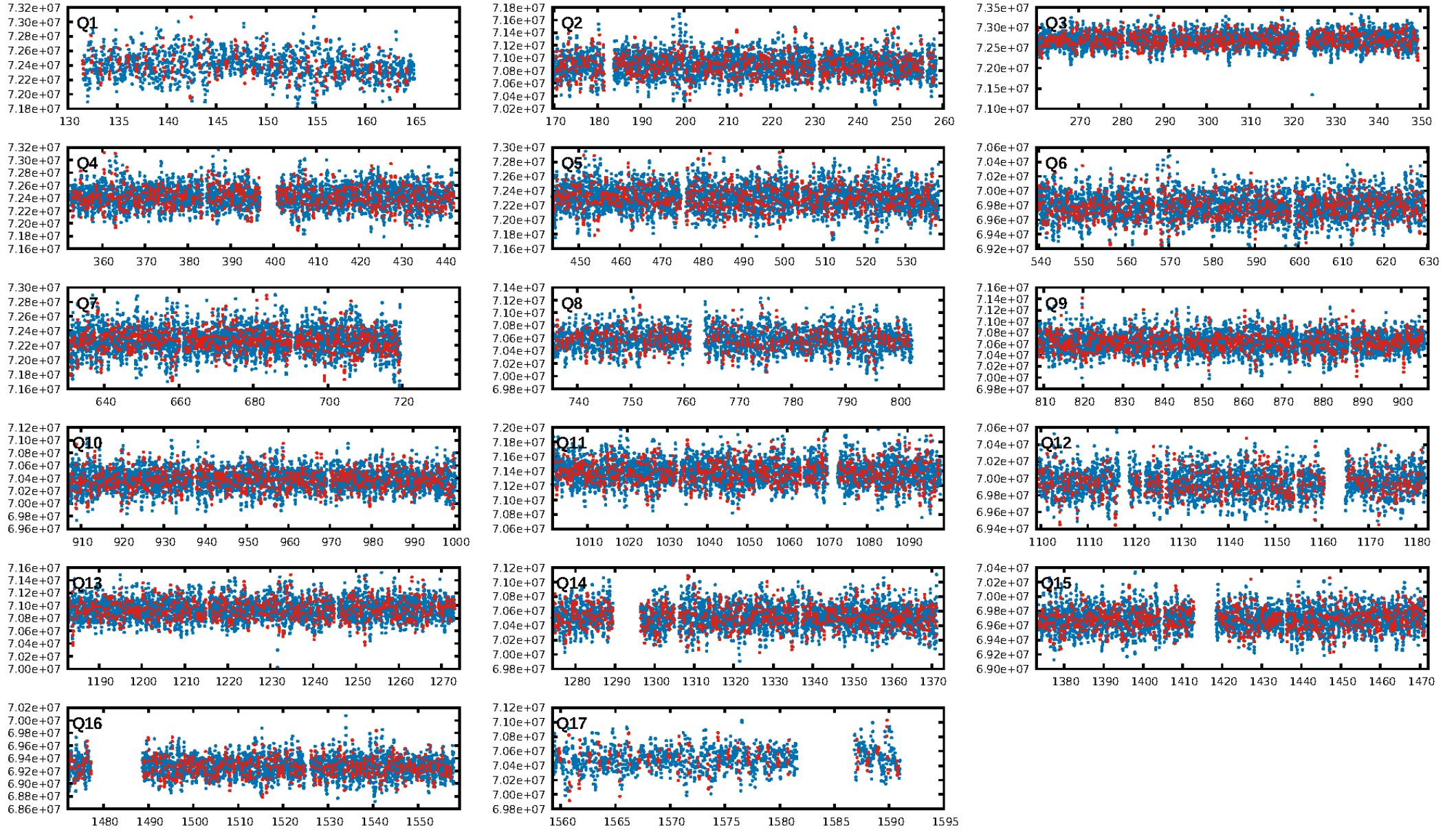
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 75.5% [1.16σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1414/1414]  
GhostDiagnostic-chr: 0.6482  
Centroid-sig: 0.0%  
Centroid-so: 0.380 arcsec [1.42σ]  
OotOffset-rm: 0.111 arcsec [0.23σ]  
KicOffset-rm: 0.101 arcsec [0.37σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.76 [13/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:21:11 Z

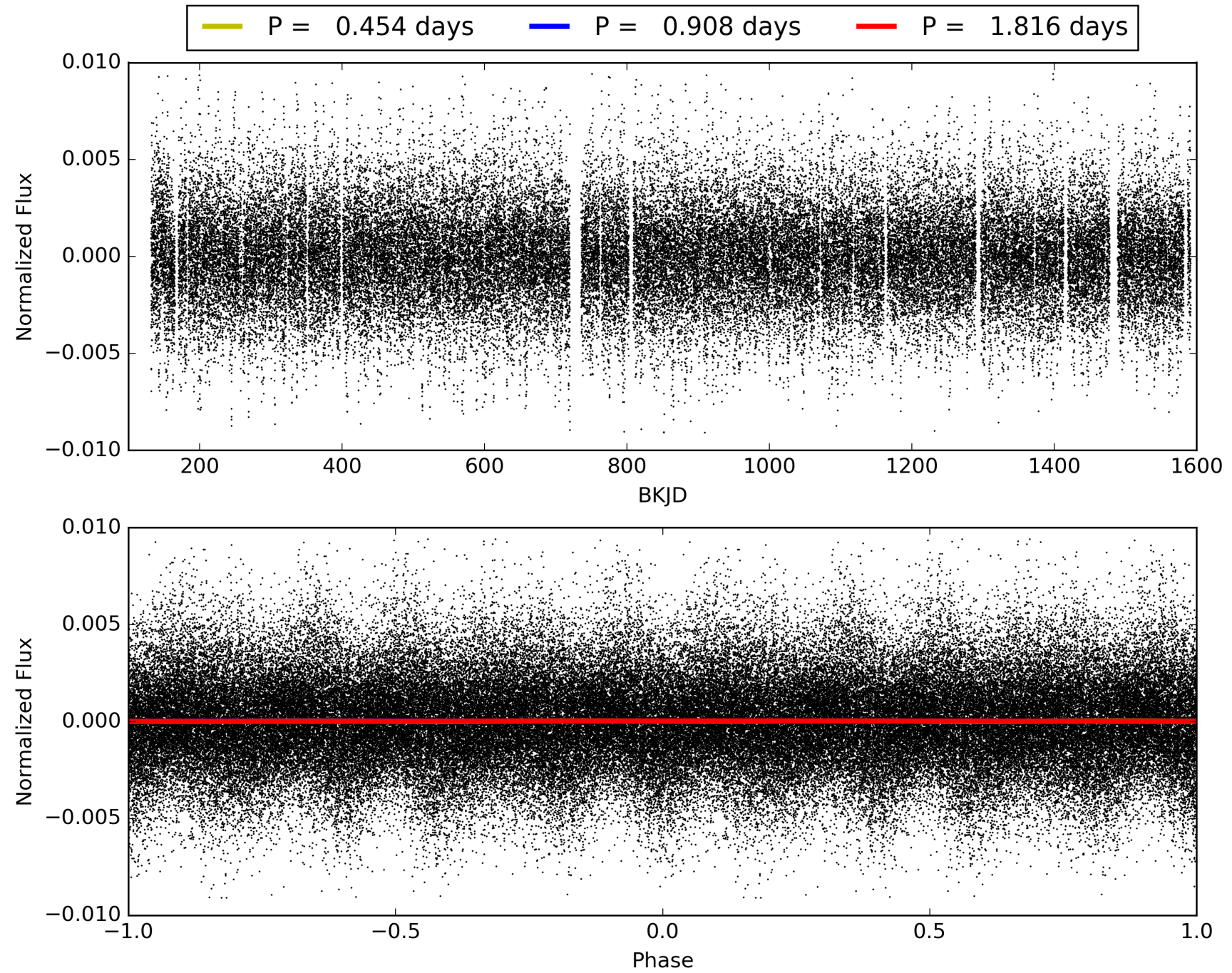
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007621759-01, PDC Light Curves



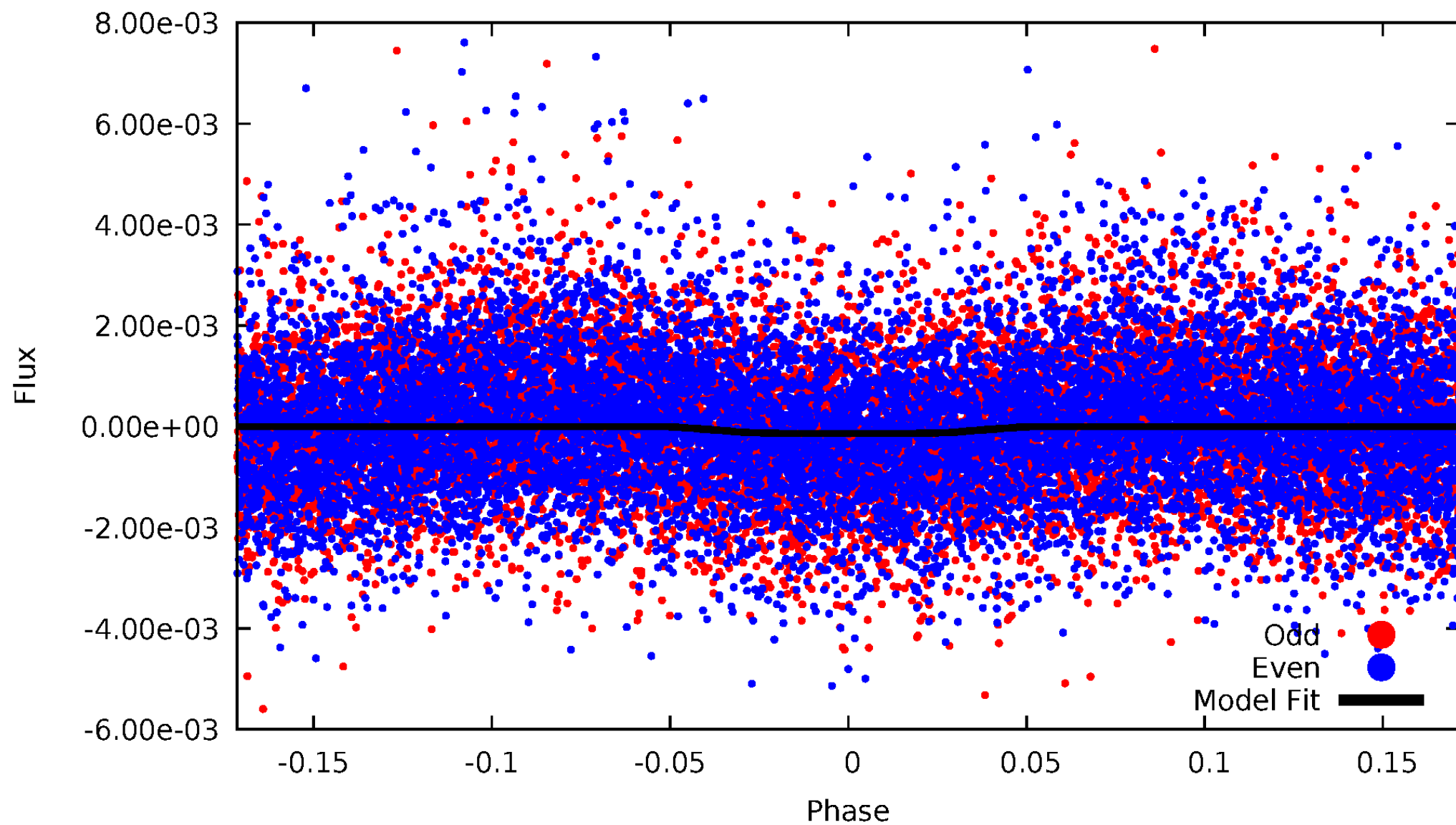


TCE 007621759-01



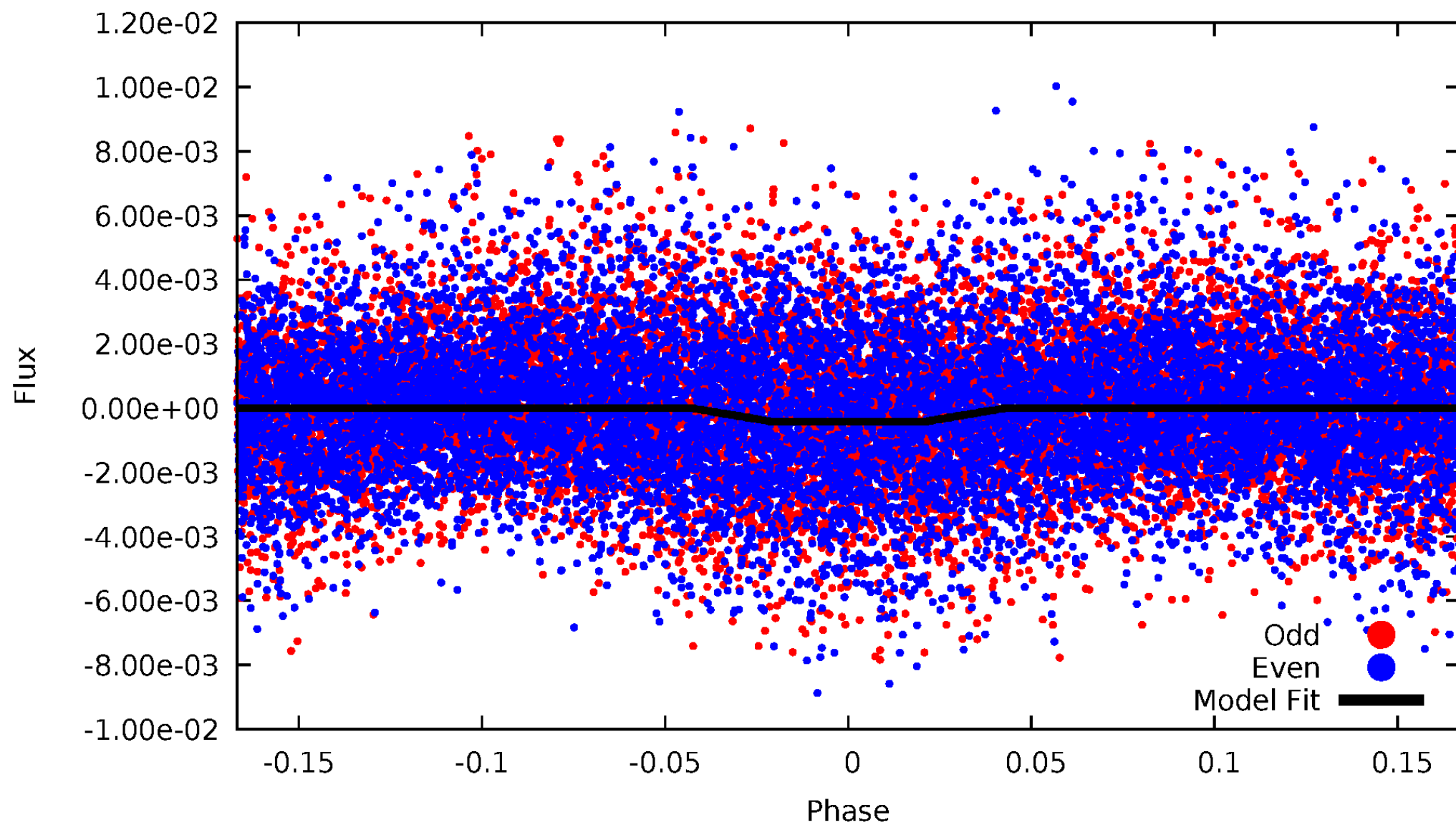
# DV Odd/Even

TCE 007621759-01



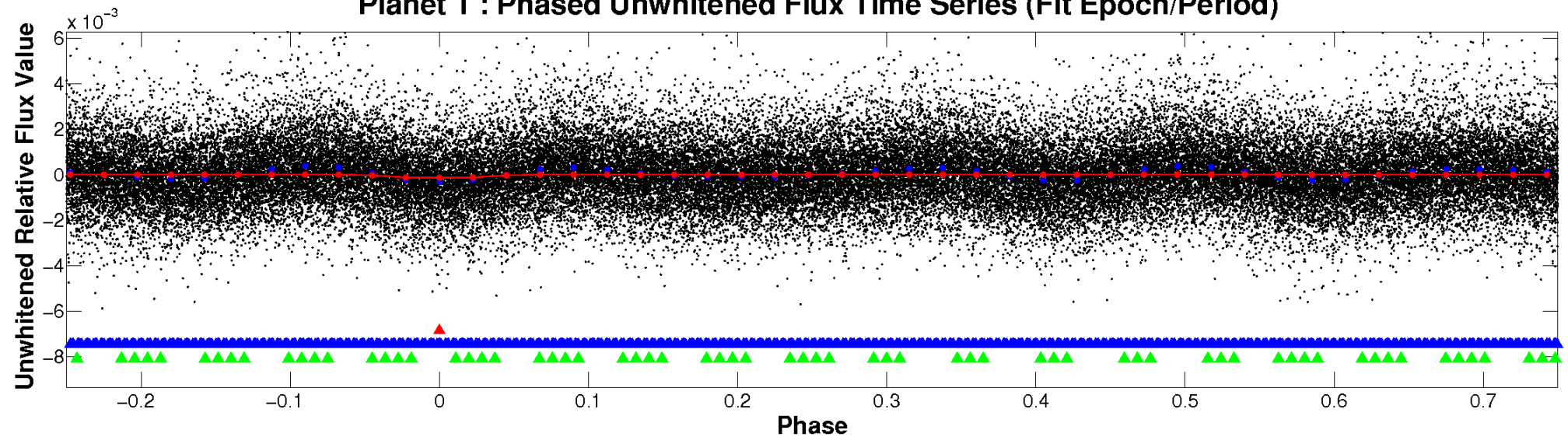
# ALT Odd/Even

TCE 007621759-01

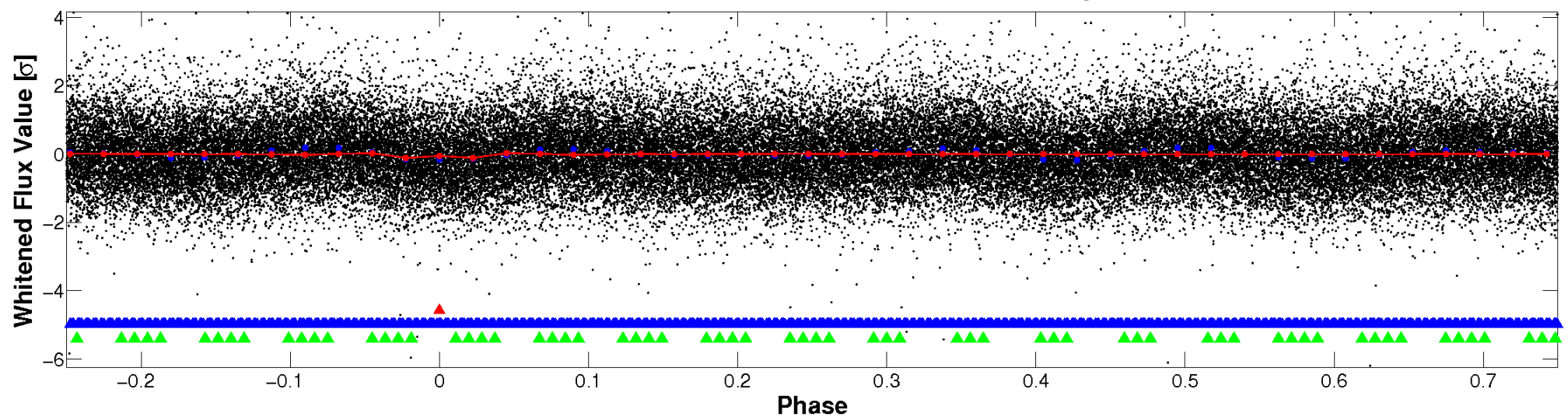


# Non-Whitened Vs. Whitened Light Curve

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



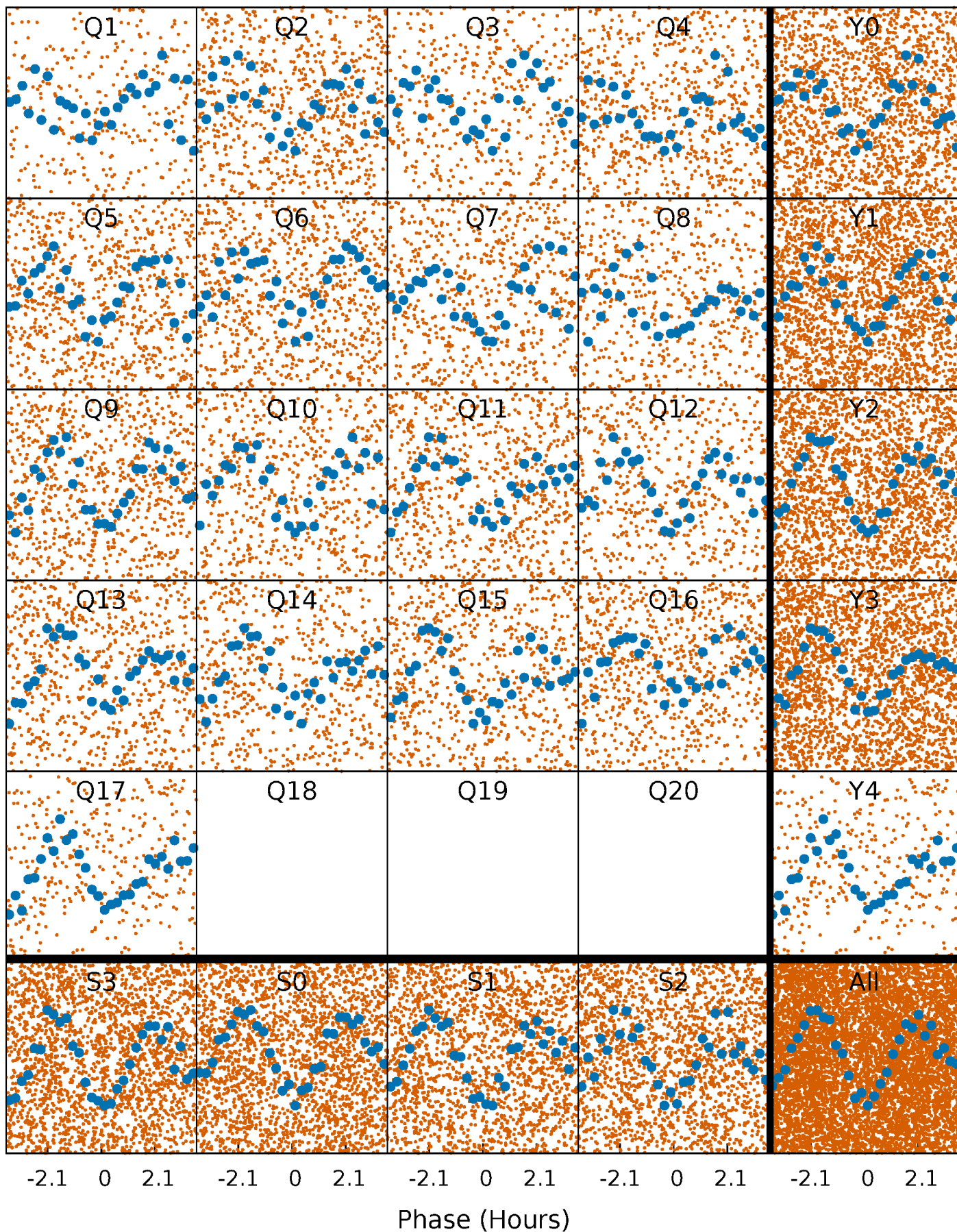
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

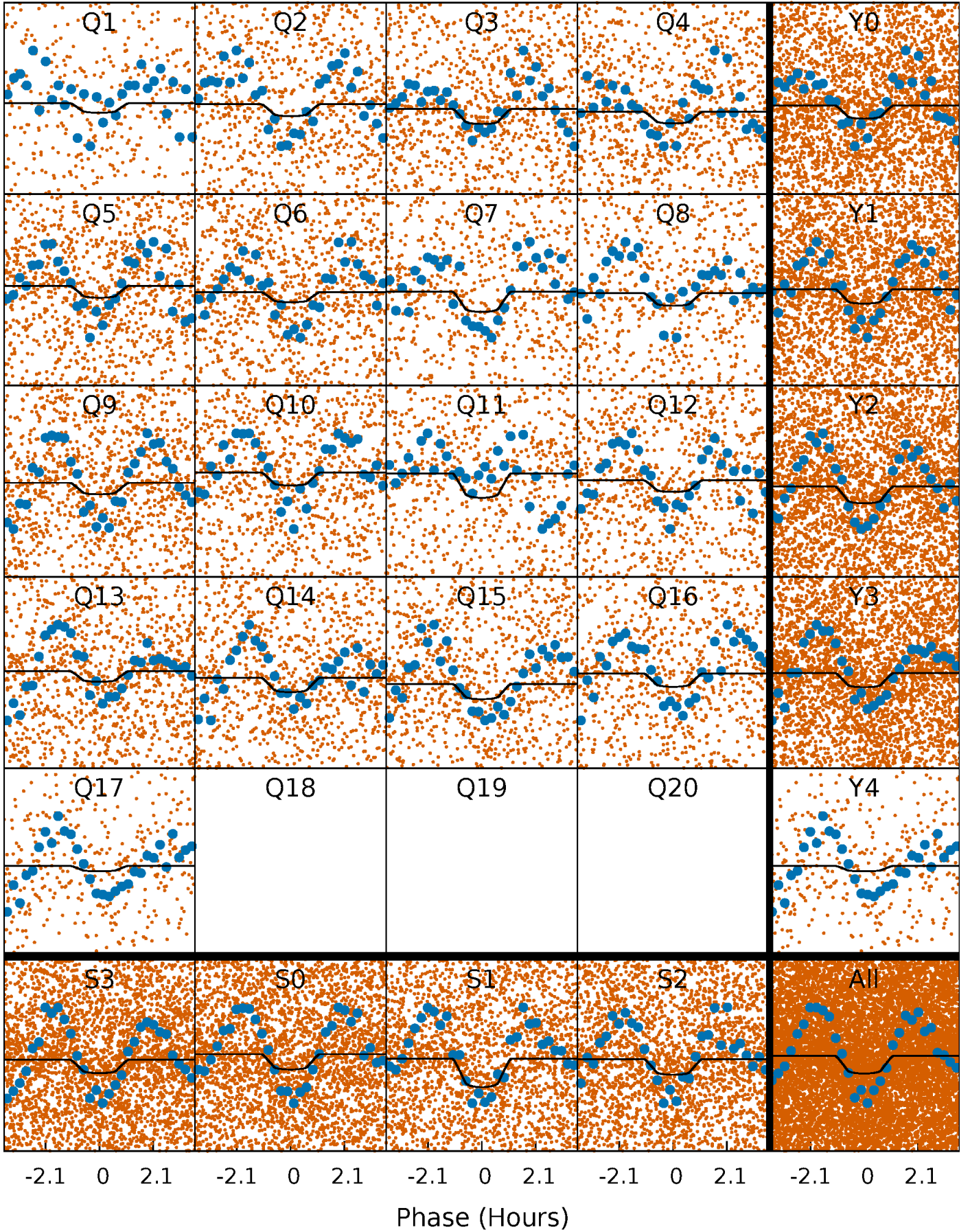
TCE 007621759-01 P= 0.908064 Days  $T_0=132.410076$  (BKJD)





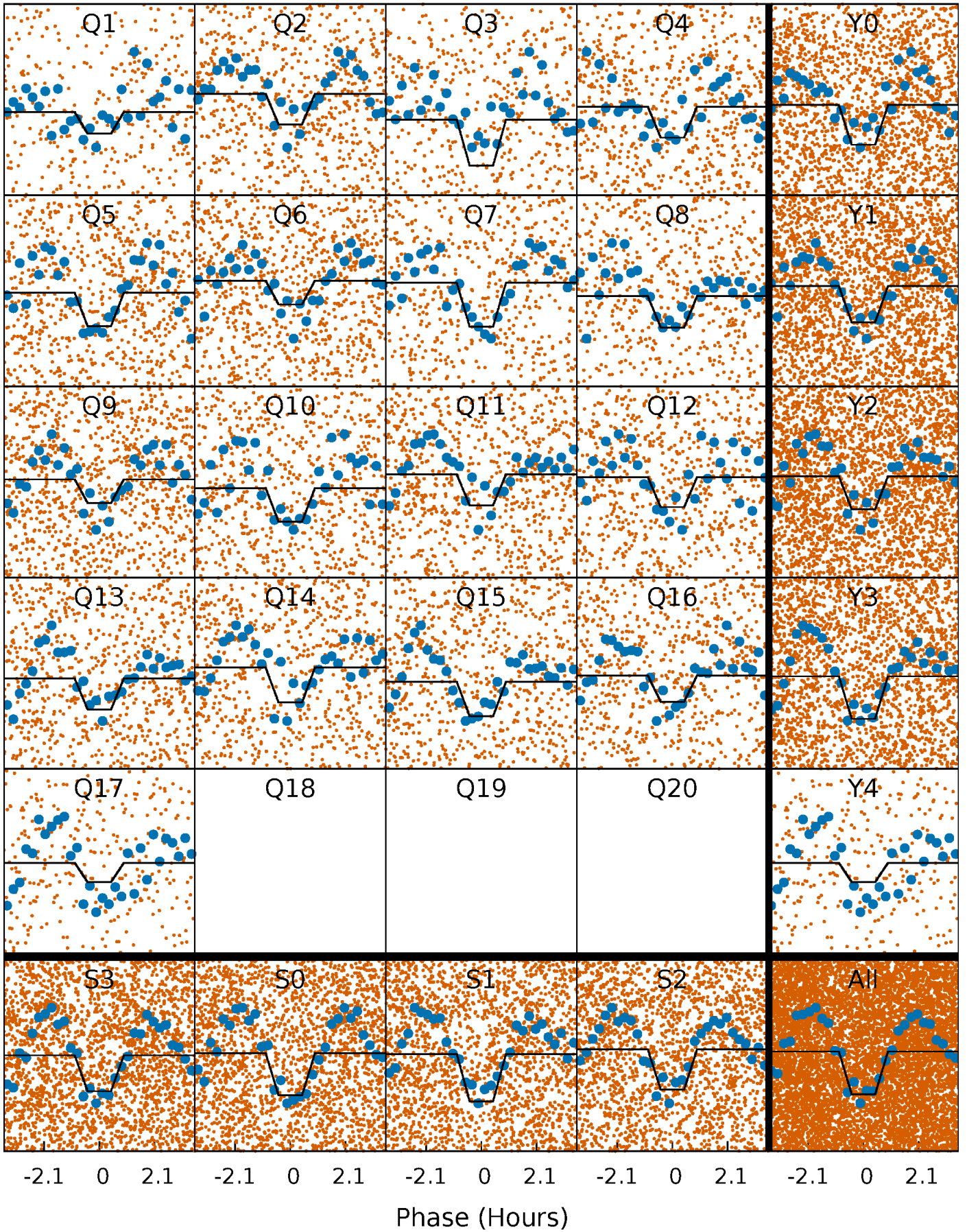
# DV Quarter-Phased Transit Curves

TCE 007621759-01 P= 0.908064 Days  $T_0=132.410076$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007621759-01 P= 0.908075 Days  $T_0=132.404200$  (BKJD)

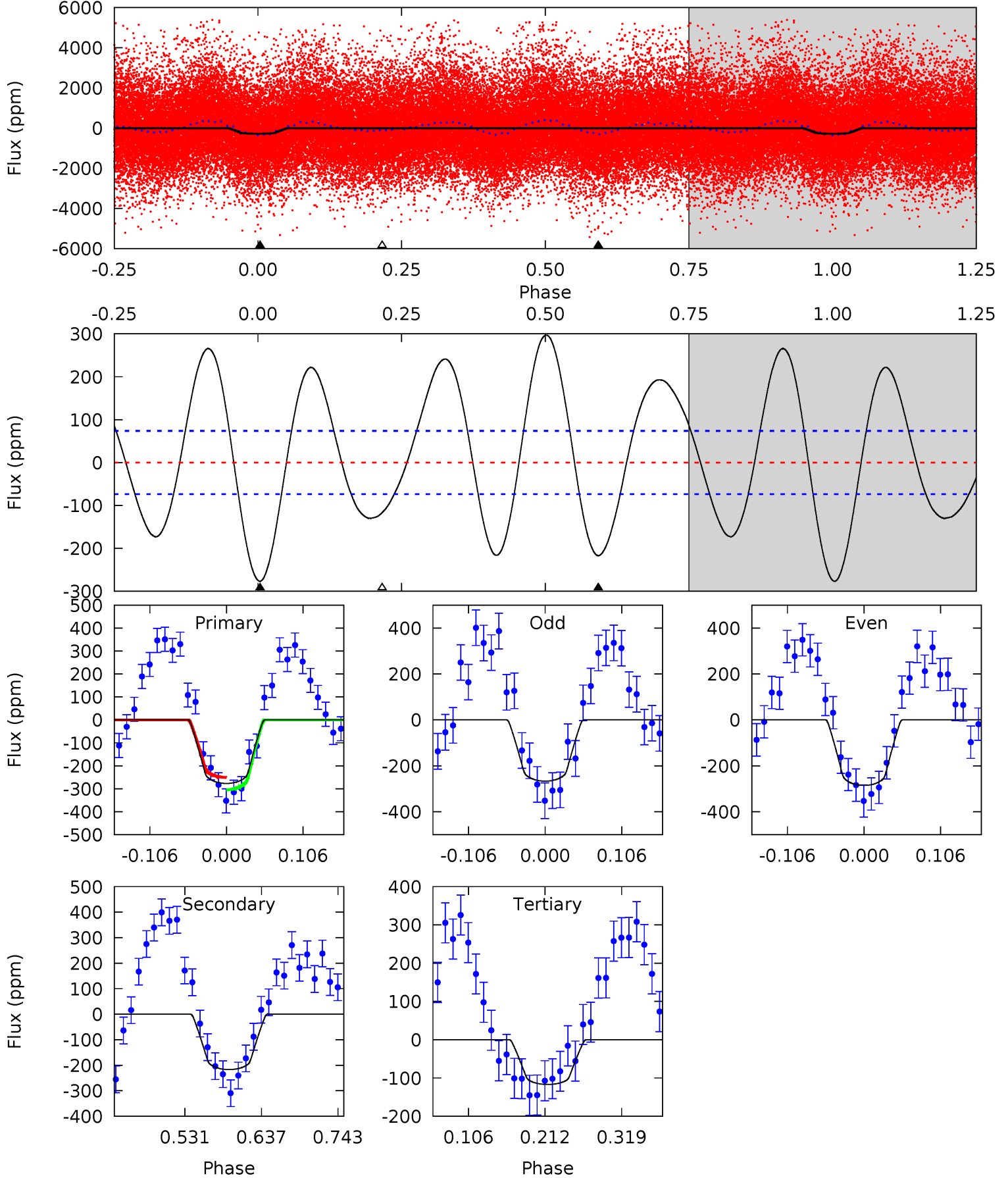




# DV Model-Shift Uniqueness Test

007621759-01, P = 0.908064 Days, E = 131.502012 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
17.1	13.4	7.21	0	4.55	1.62	8.38	9.87	17.1	6.18	13.4	0.58	1.11	0.52	1.66

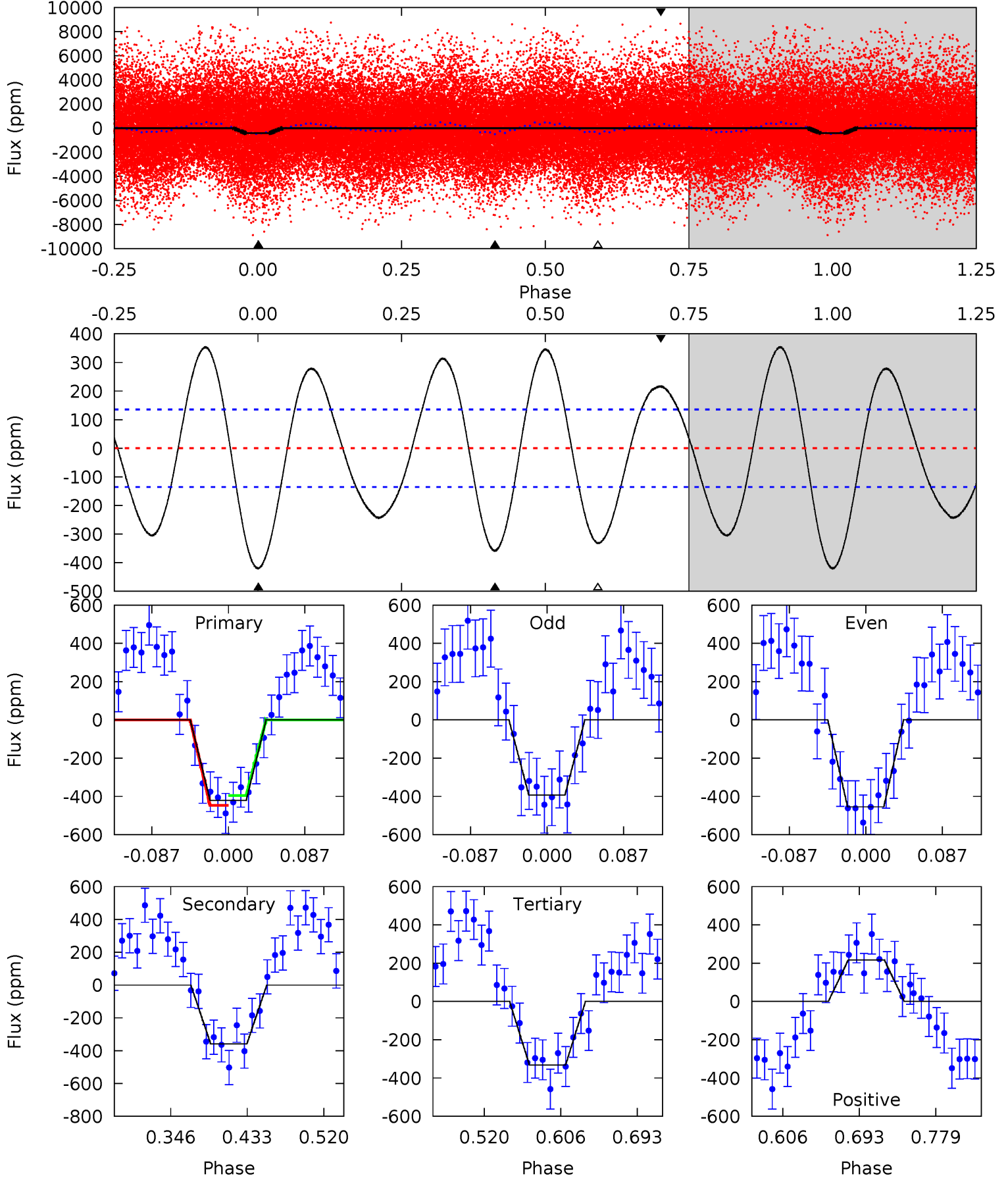




# Alt Model-Shift Uniqueness Test

007621759-01, P = 0.908075 Days, E = 131.496125 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
14.3	12.2	11.3	7.35	4.59	1.71	7.02	3.02	6.92	0.91	4.81	1.05	1.19	0.46	0.88



### Stellar Parameters For KIC 007621759

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7316^{+232}_{-377}$	$4.023^{+0.240}_{-0.160}$	$-0.240^{+0.250}_{-0.350}$	$1.987^{+0.521}_{-0.637}$	$1.517^{+0.216}_{-0.289}$	$0.272^{+0.398}_{-0.122}$
	+3%/-5%	+6%/-4%	+104%/-146%	+26%/-32%	+14%/-19%	+146%/-45%
Source	PHO1	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 007621759-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-217 \pm 16$	$2.67^{+0.76}_{-0.72}$	$4346^{+321}_{-368}$	$7959^{+1468}_{-1081}$	$7.471^{+6.436}_{-3.041}$
Alt.	$-358 \pm 29$	$4.49^{+0.95}_{-0.95}$	$4336^{+349}_{-358}$	$6740^{+749}_{-574}$	$4.353^{+2.632}_{-1.395}$

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

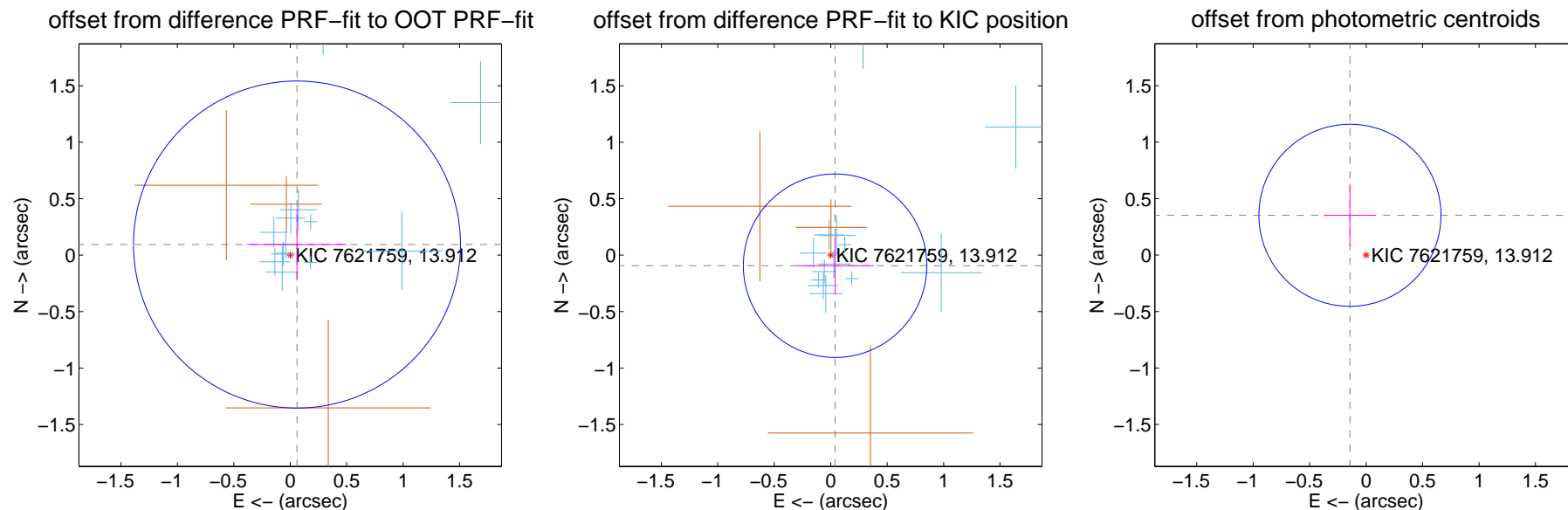
## DV Centroid Data

Supplemental centroid analysis for 007621759-01. Kepler magnitude: 13.91. Transit SNR 7.68

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

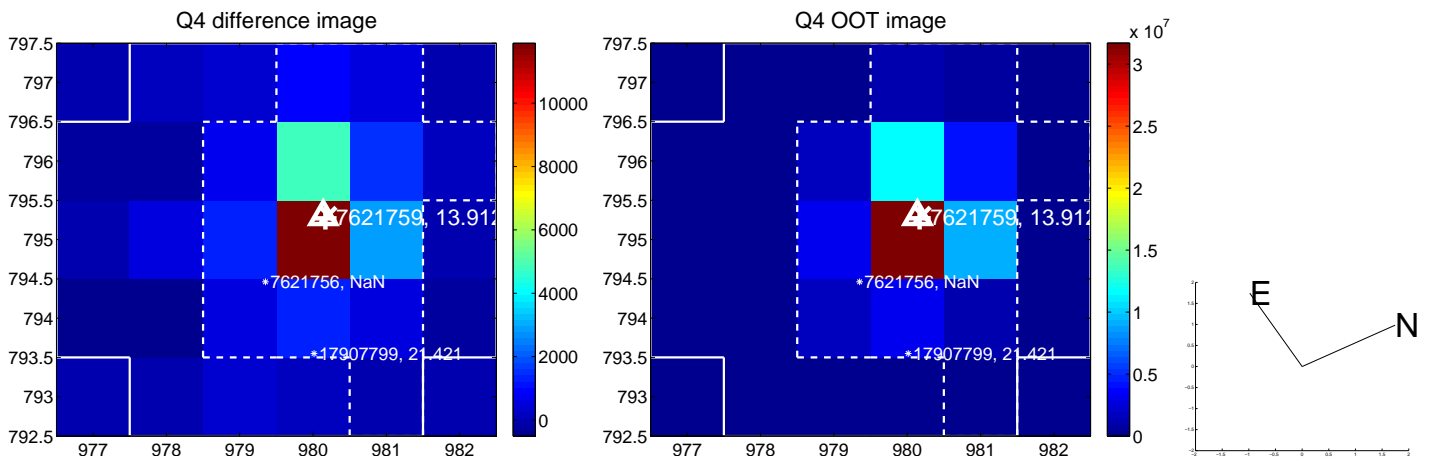
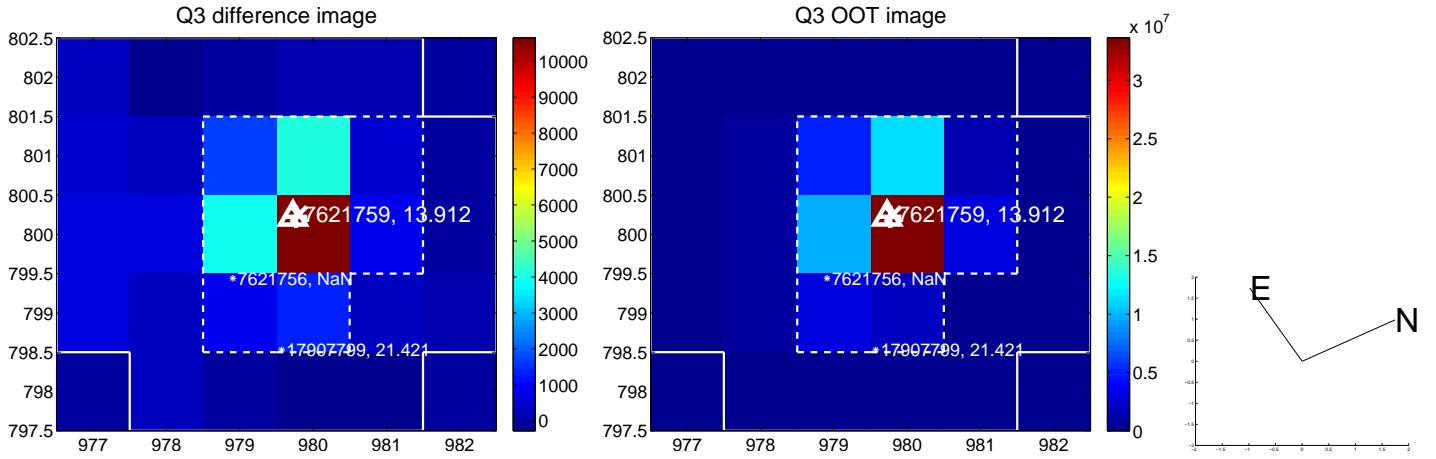
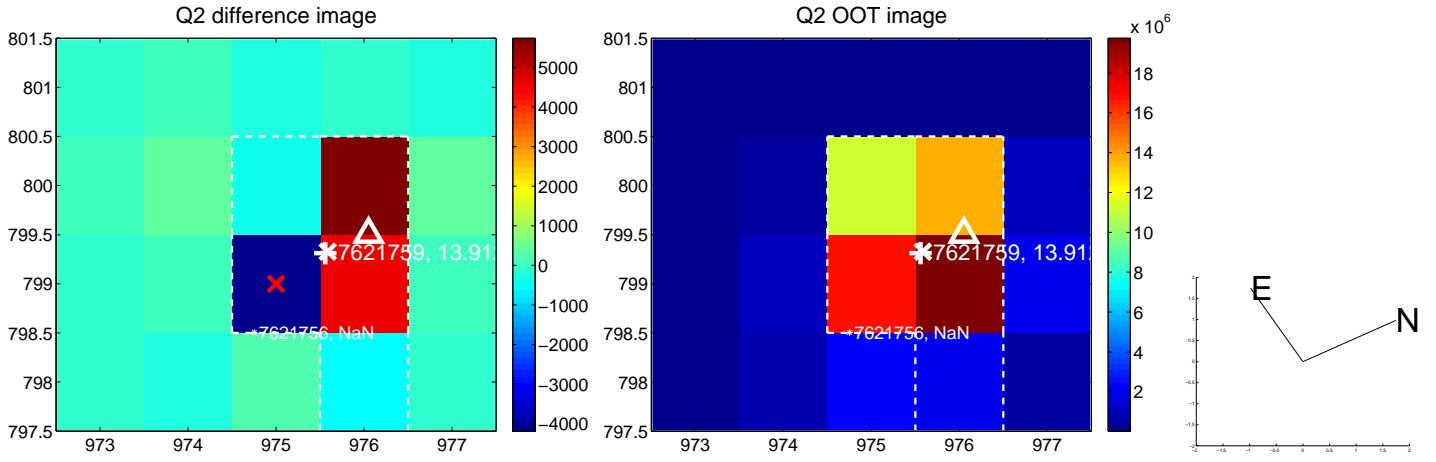
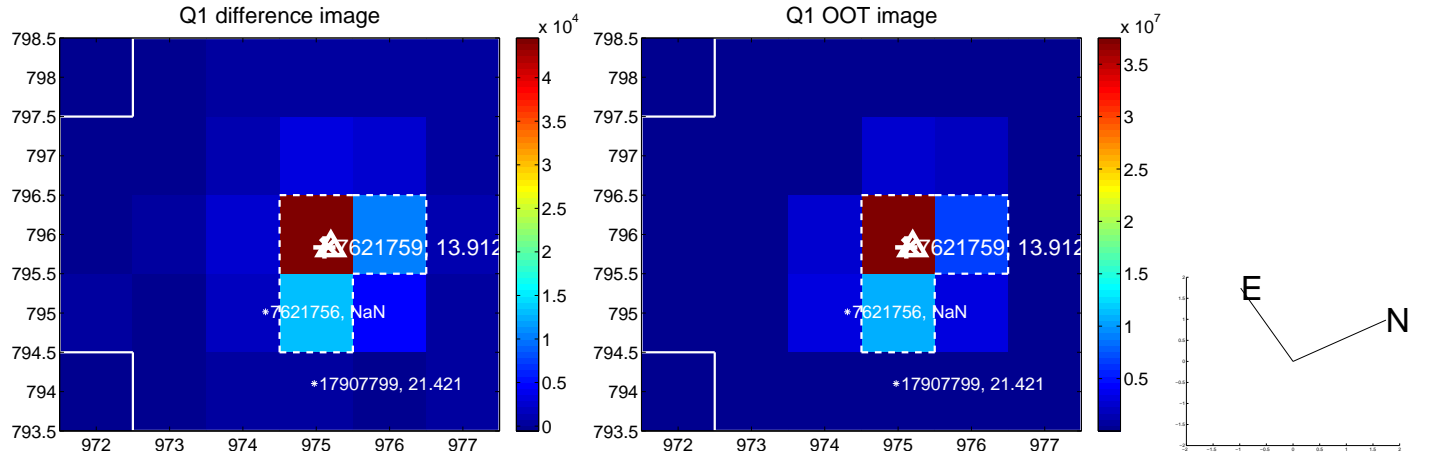
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.111 \pm 0.483$	0.23	$-0.059 \pm 0.442$	$0.094 \pm 0.319$
PRF-fit source offset from KIC position	$0.101 \pm 0.271$	0.37	$-0.039 \pm 0.342$	$-0.094 \pm 0.257$
photometric centroid source offset	$0.38 \pm 0.27$	1.42	$0.14 \pm 0.23$	$0.35 \pm 0.27$



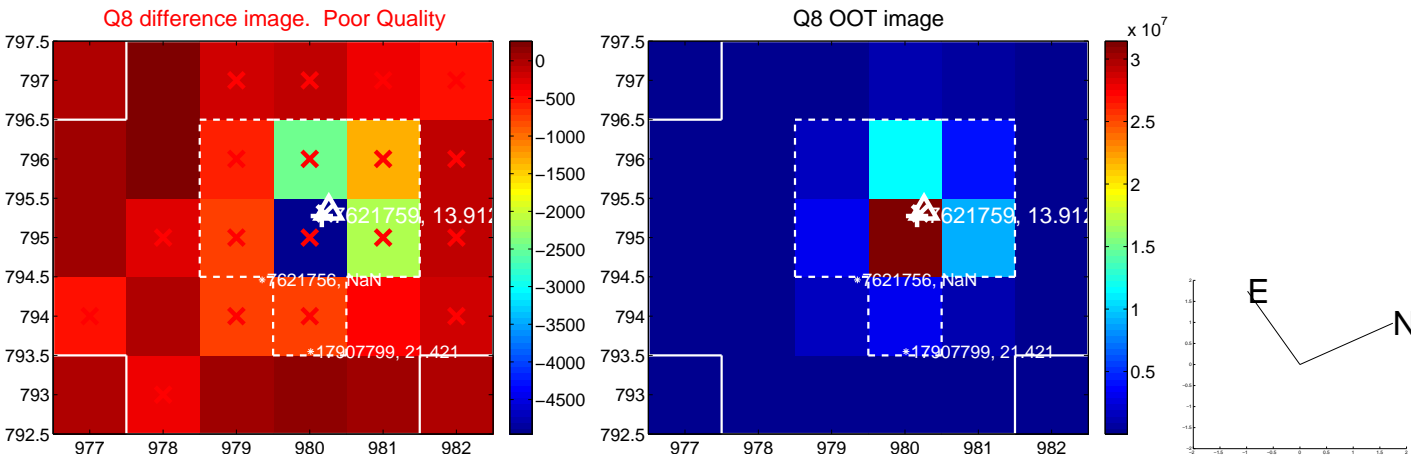
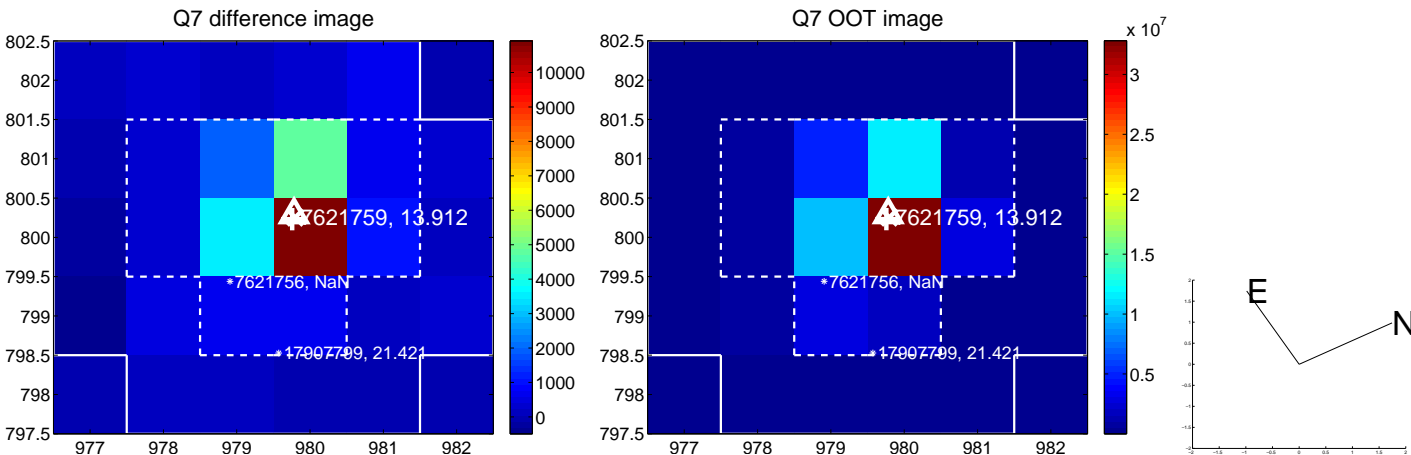
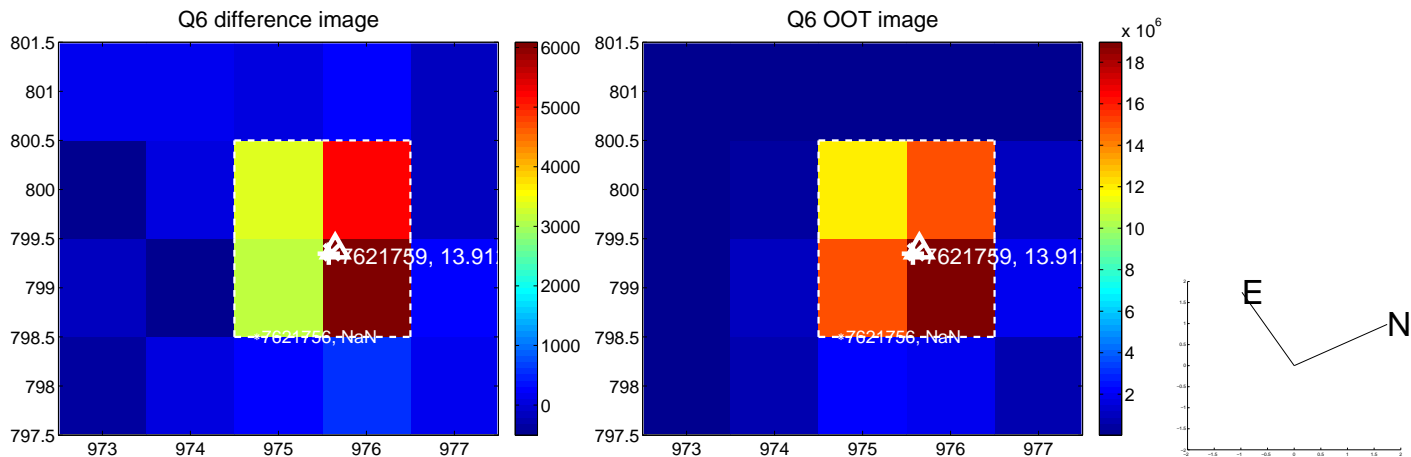
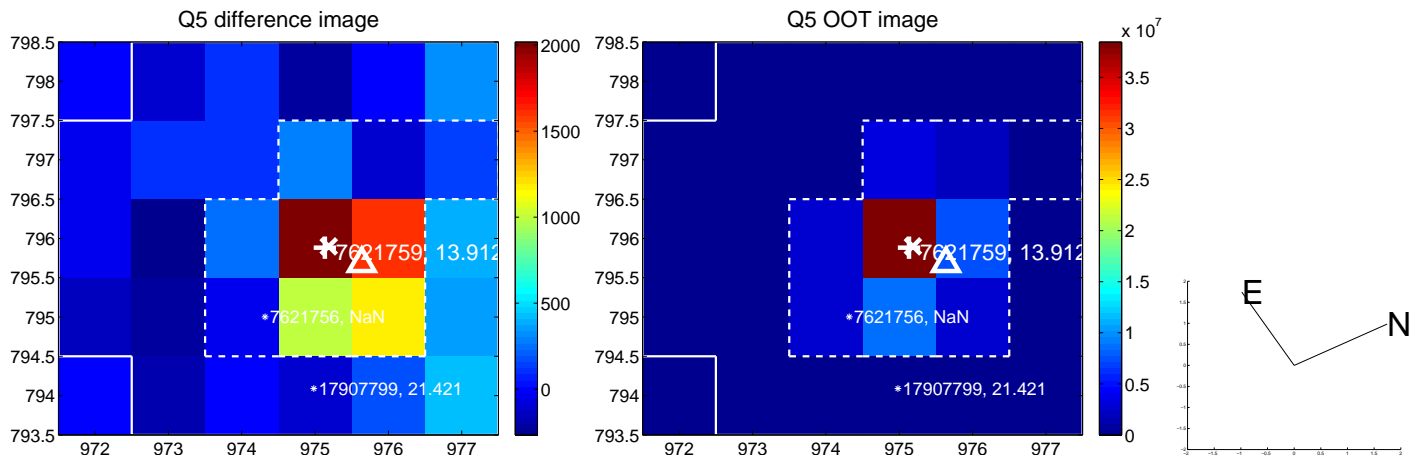
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



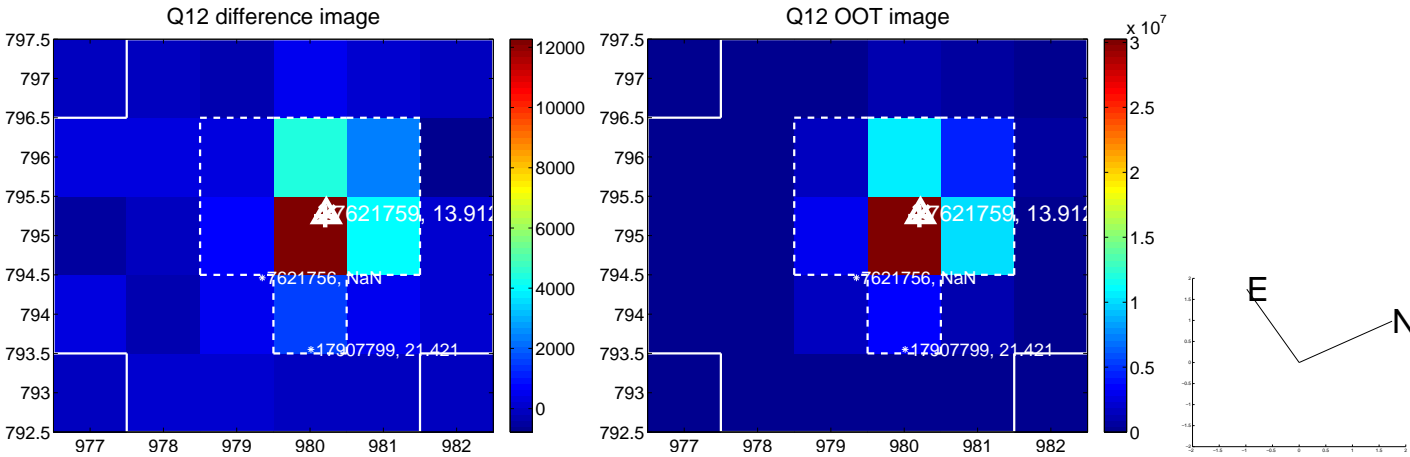
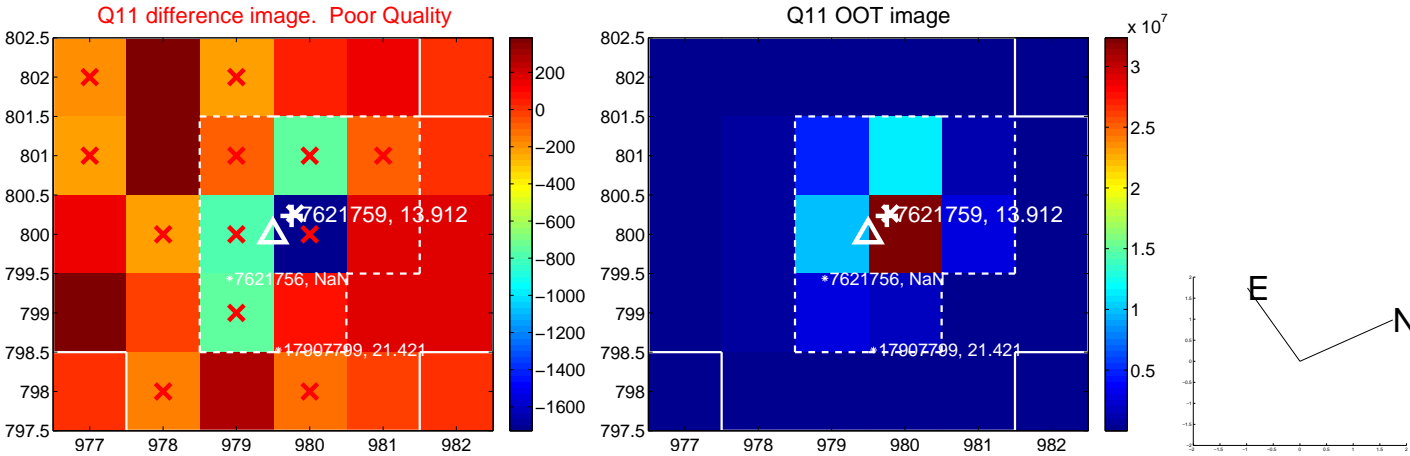
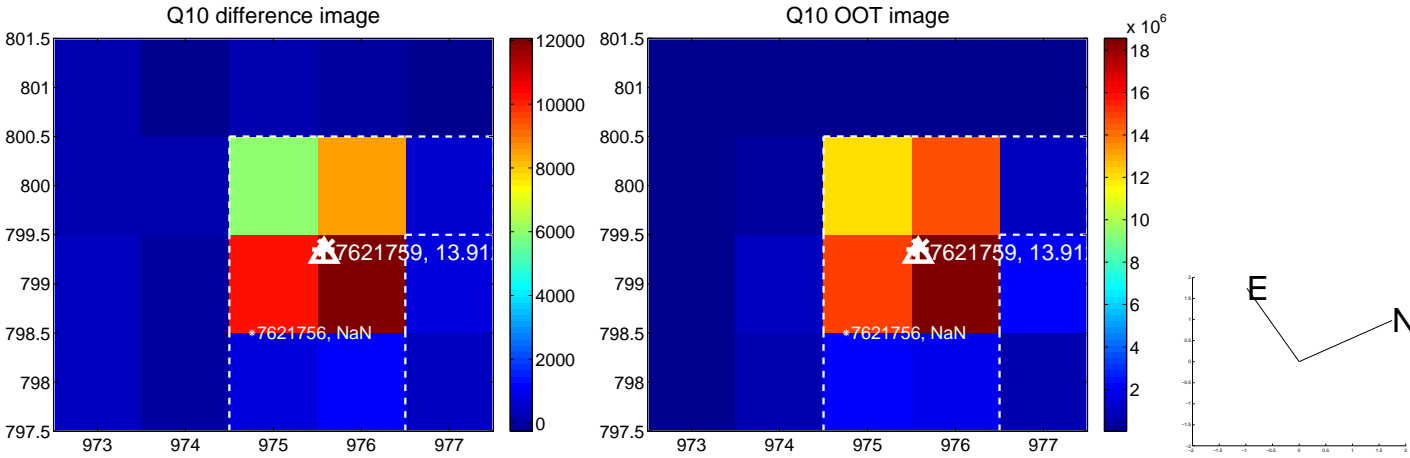
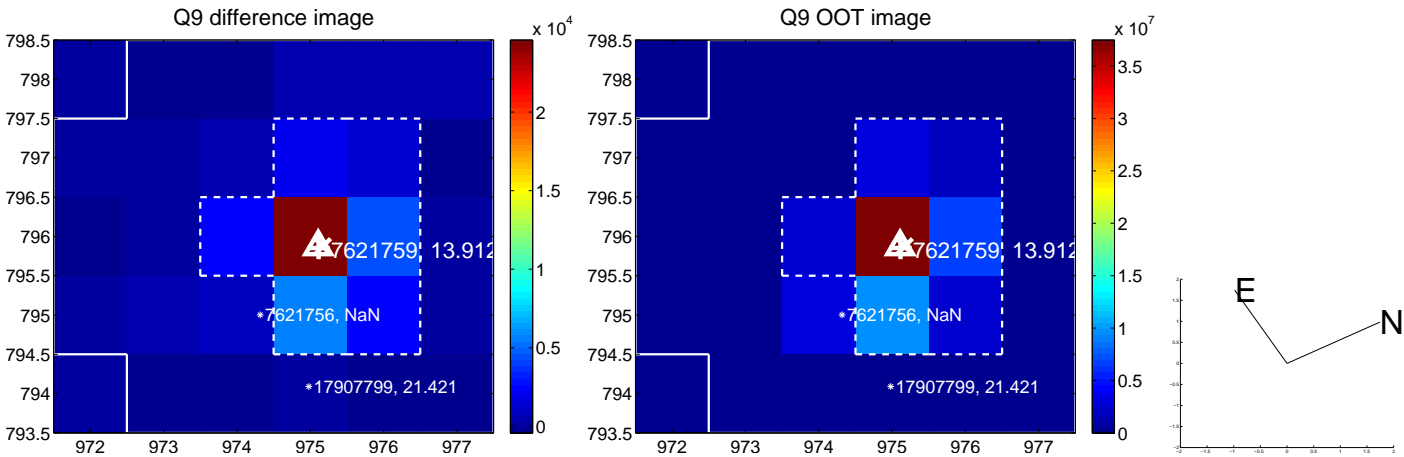
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

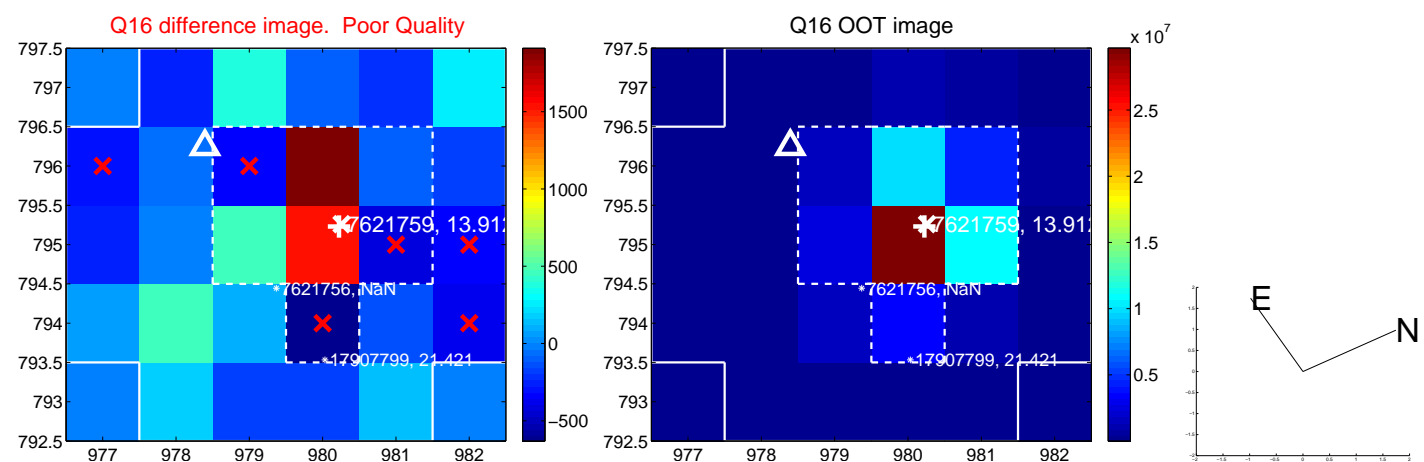
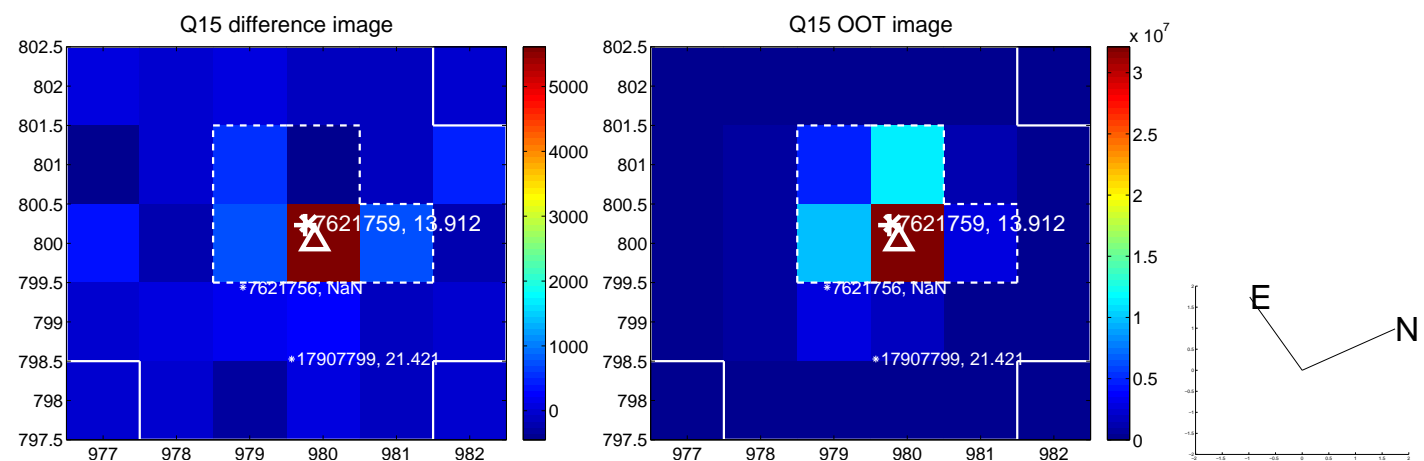
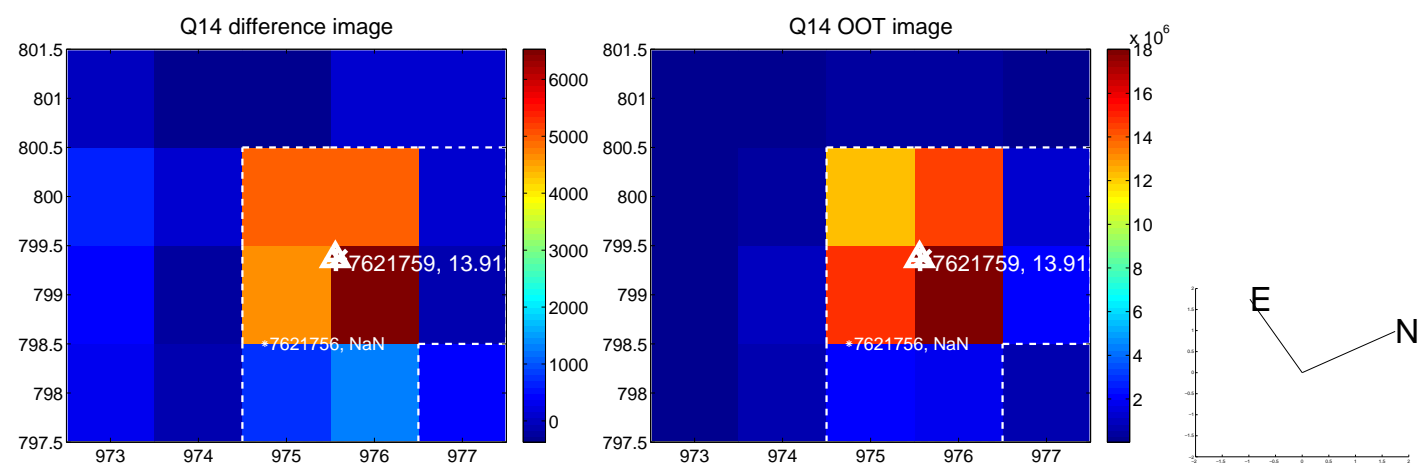
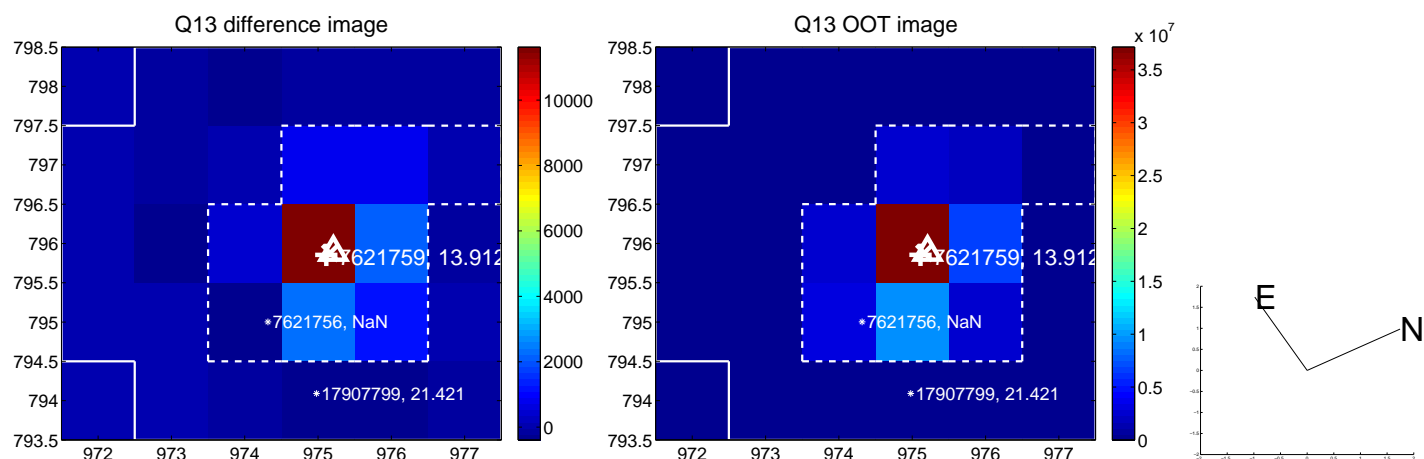


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

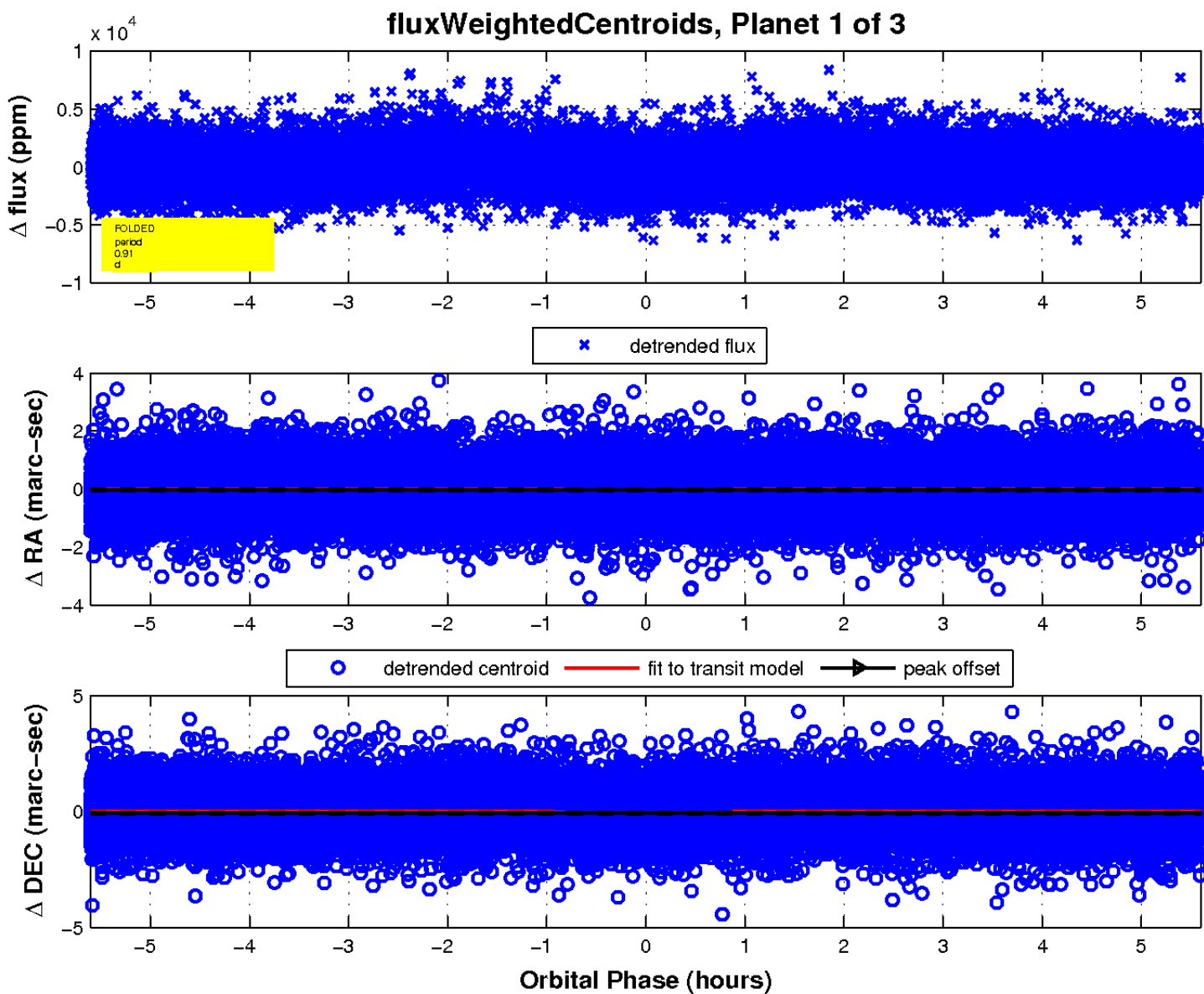
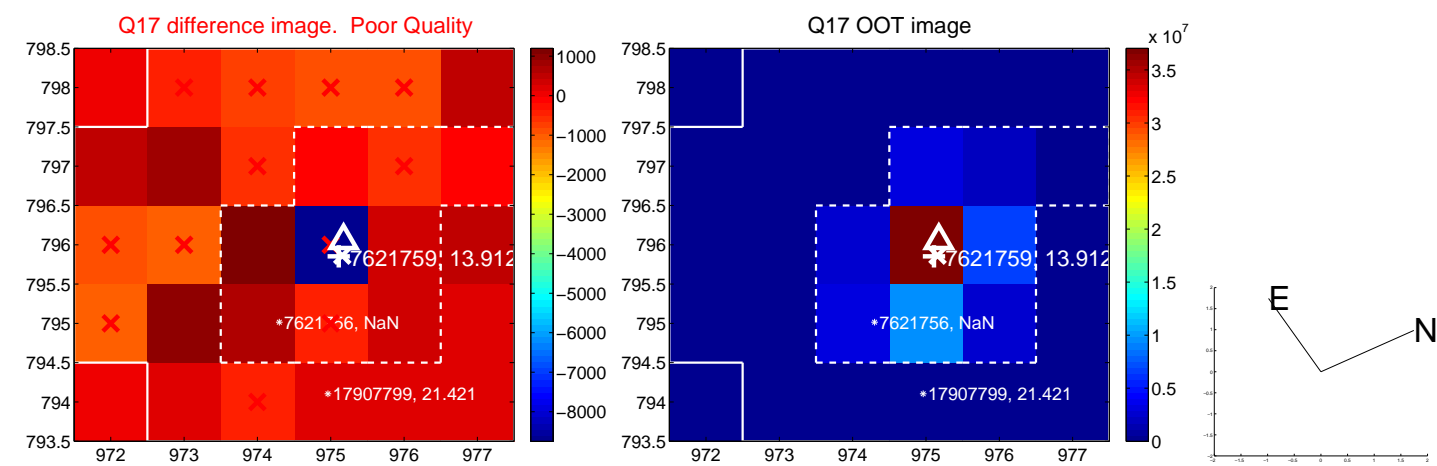




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

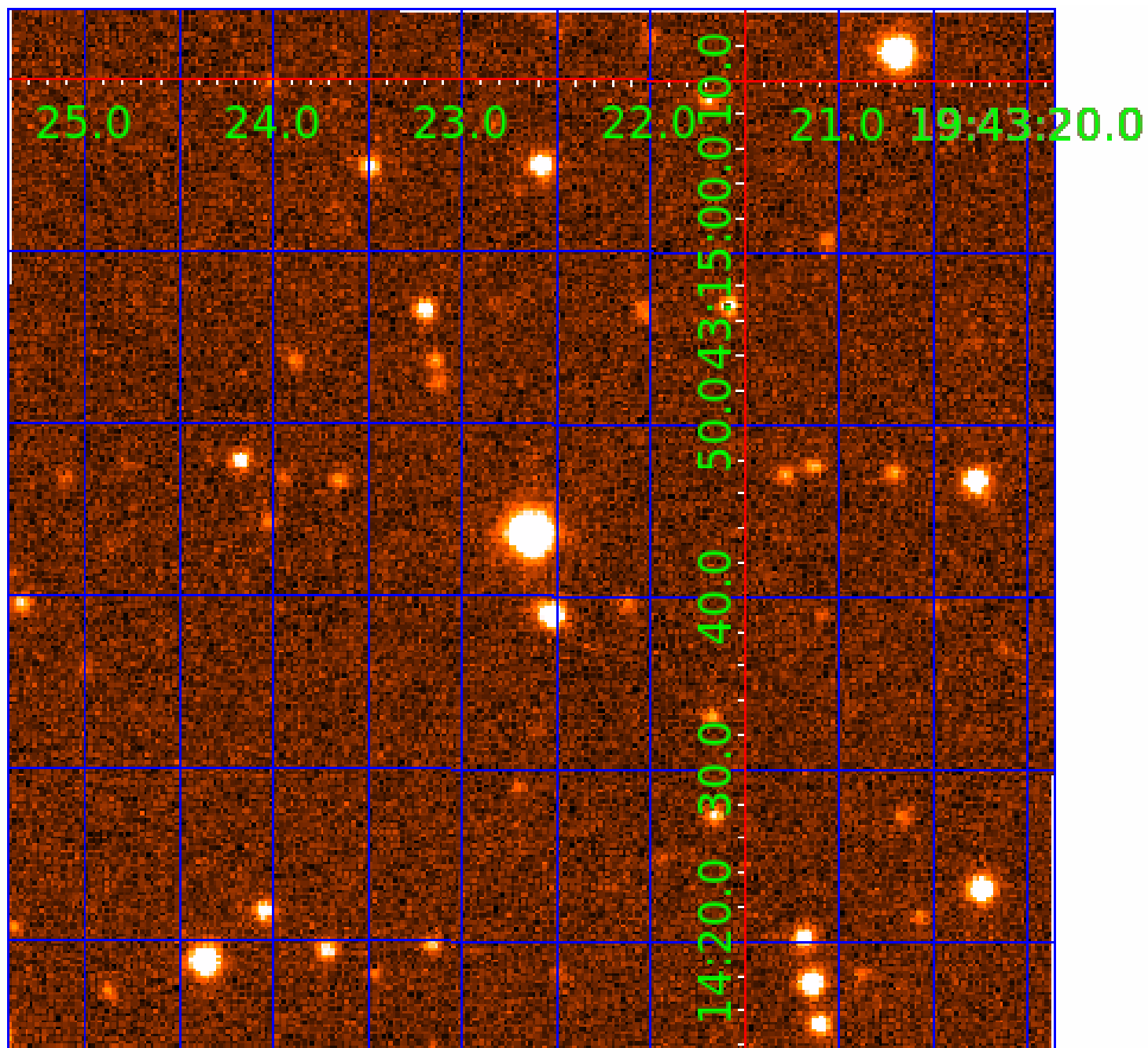


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007621759

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007621759-01	OBS	No	0.908064	132.410076	138.7	1.868	9.5	7.7	1.99	7316	2.72	22766.65
007621759-02	OBS	No	1.401676	131.852565	193.0	10.007	9.7	12.3	1.99	7316	3.00	12762.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007621759-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007621759-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV

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

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

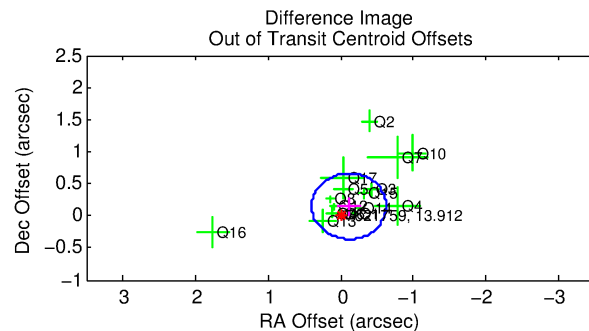
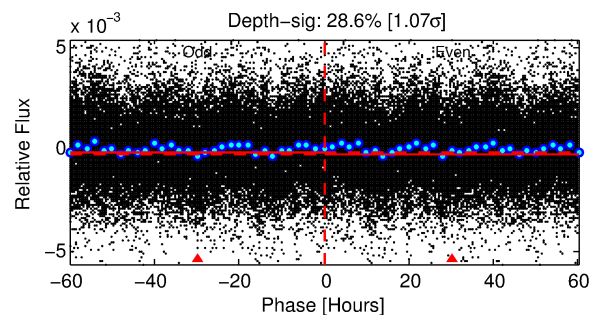
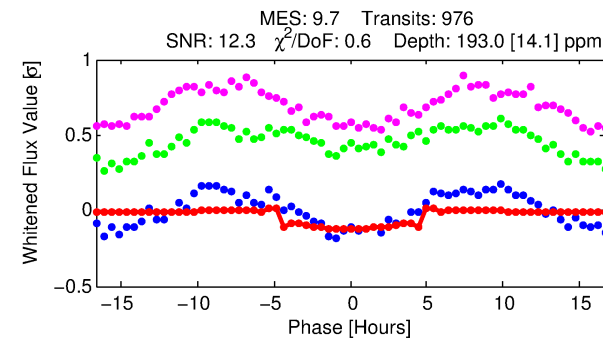
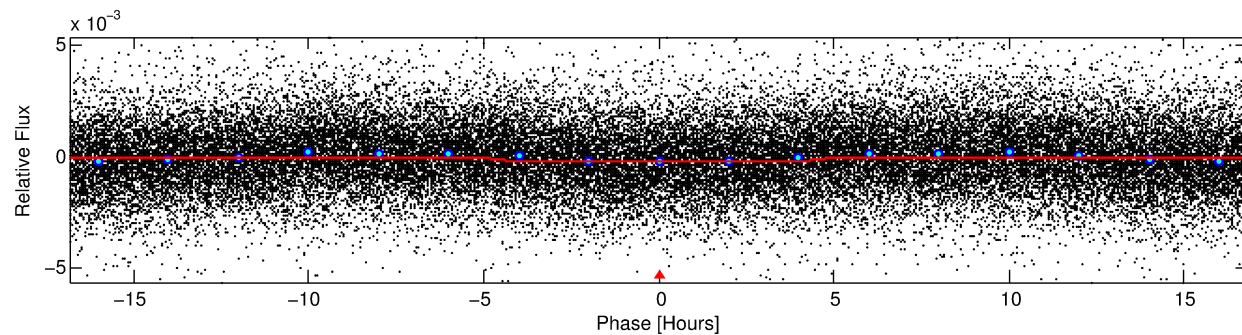
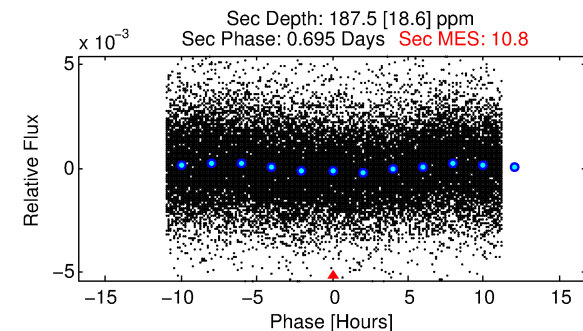
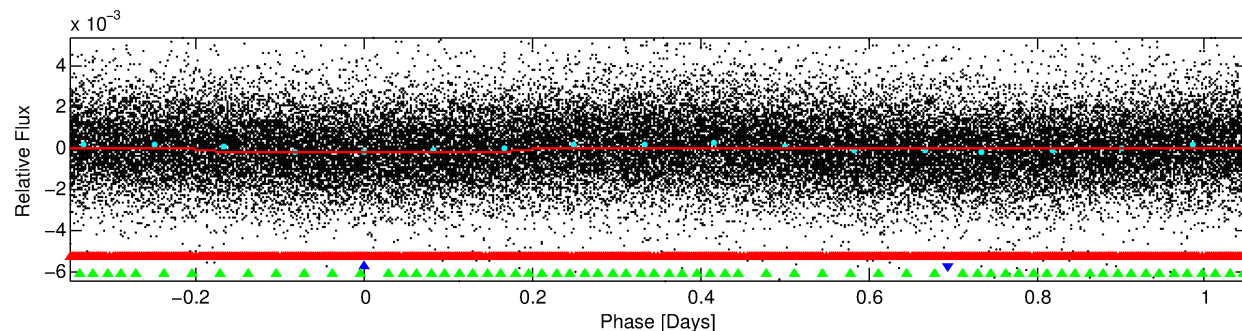
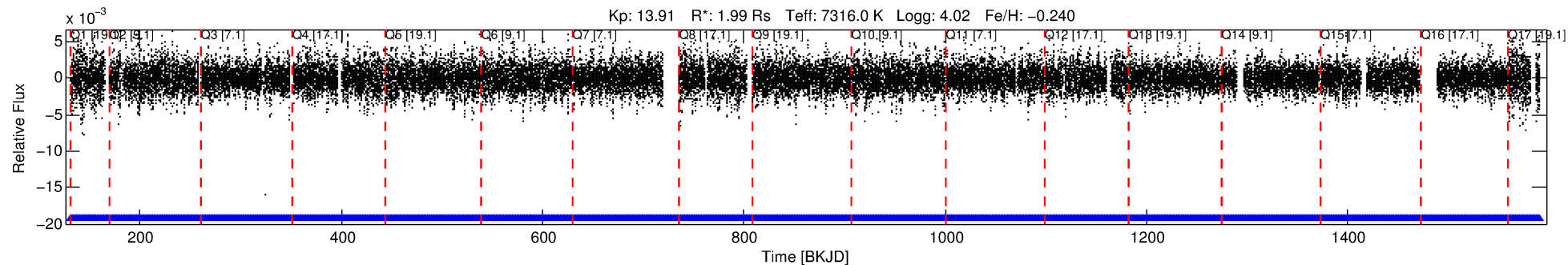
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007621759-02

No Significant Match Found

# DV One-Page Summary

KIC: 7621759 Candidate: 2 of 3 Period: 1.402 d



## DV Fit Results:

Period = 1.40168 [0.00001] d  
Epoch = 131.8526 [0.0027] BKJD  
Rp/R\* = 0.0138 [0.0013]  
a/R\* = 1.13 [0.12]  
b = 0.76 [0.28]  
Seff = 12762.17 [6038.71]  
Teq = 2710 [321] K  
Rp = 3.00 [1.00] Re  
a = 0.0282 [0.0080] AU  
Ag = 9.10 [4.32] [1.88σ]  
Teffp = 7278 [534] K [7.33σ]

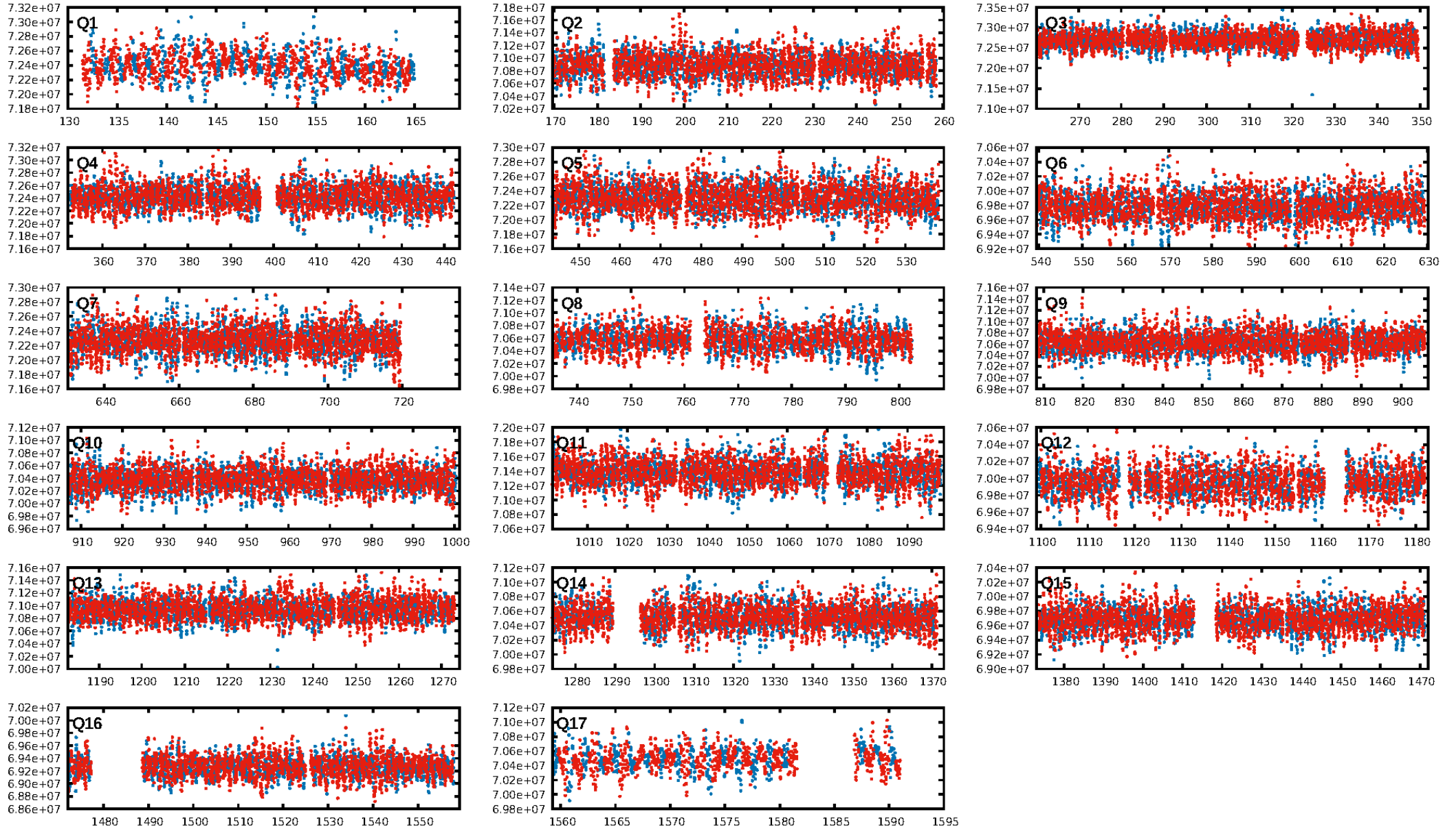
## DV Diagnostic Results:

ShortPeriod-sig: 75.5% [1.16σ]  
LongPeriod-sig: 100.0% [47.84σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [932/932]  
GhostDiagnostic-chr: 1.788  
Centroid-sig: 0.0%  
Centroid-so: 0.222 arcsec [2.47σ]  
OotOffset-rm: 0.187 arcsec [1.09σ]  
KicOffset-rm: 0.130 arcsec [0.90σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 03-Feb-2016 08:21:25 Z

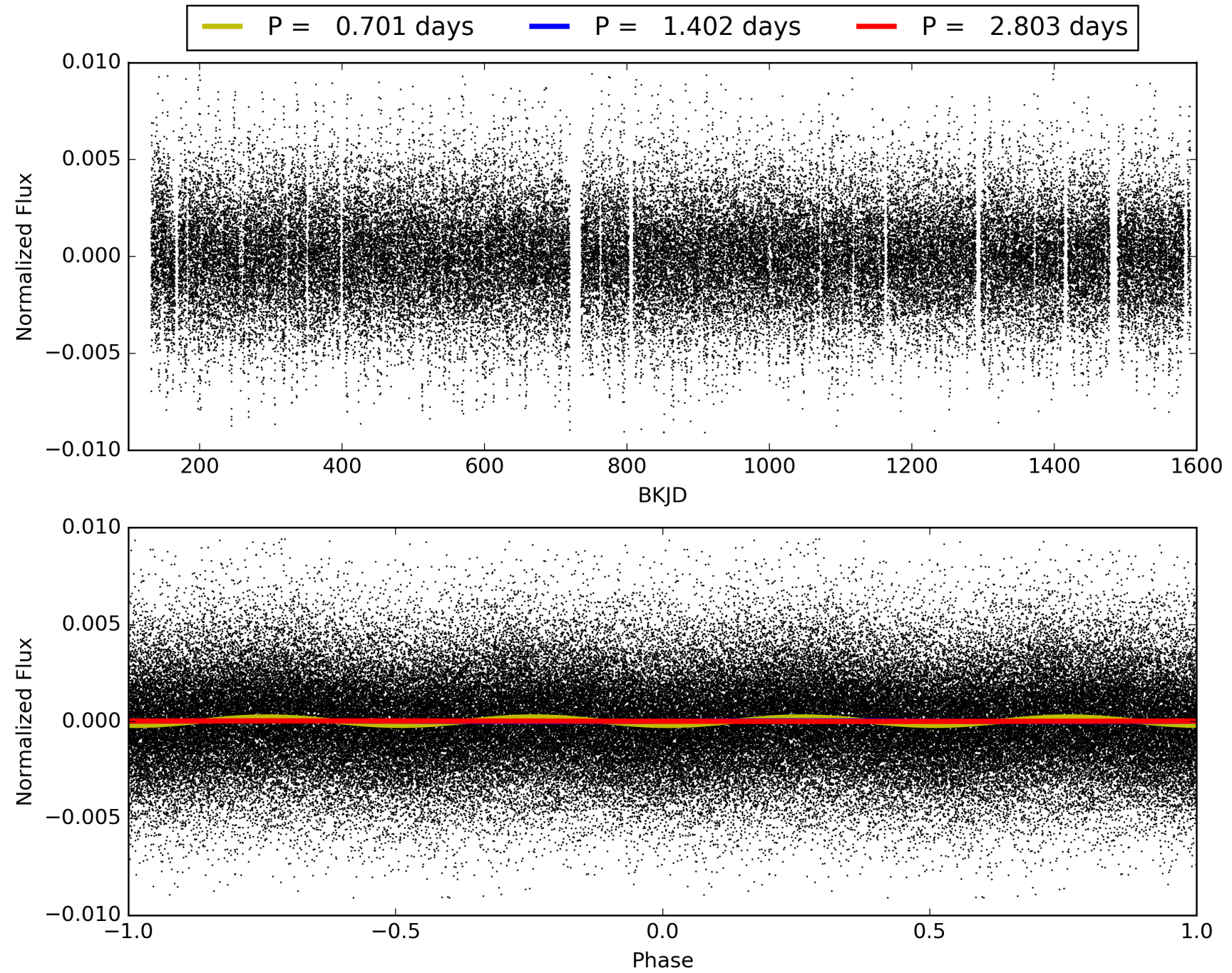
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007621759-02, PDC Light Curves



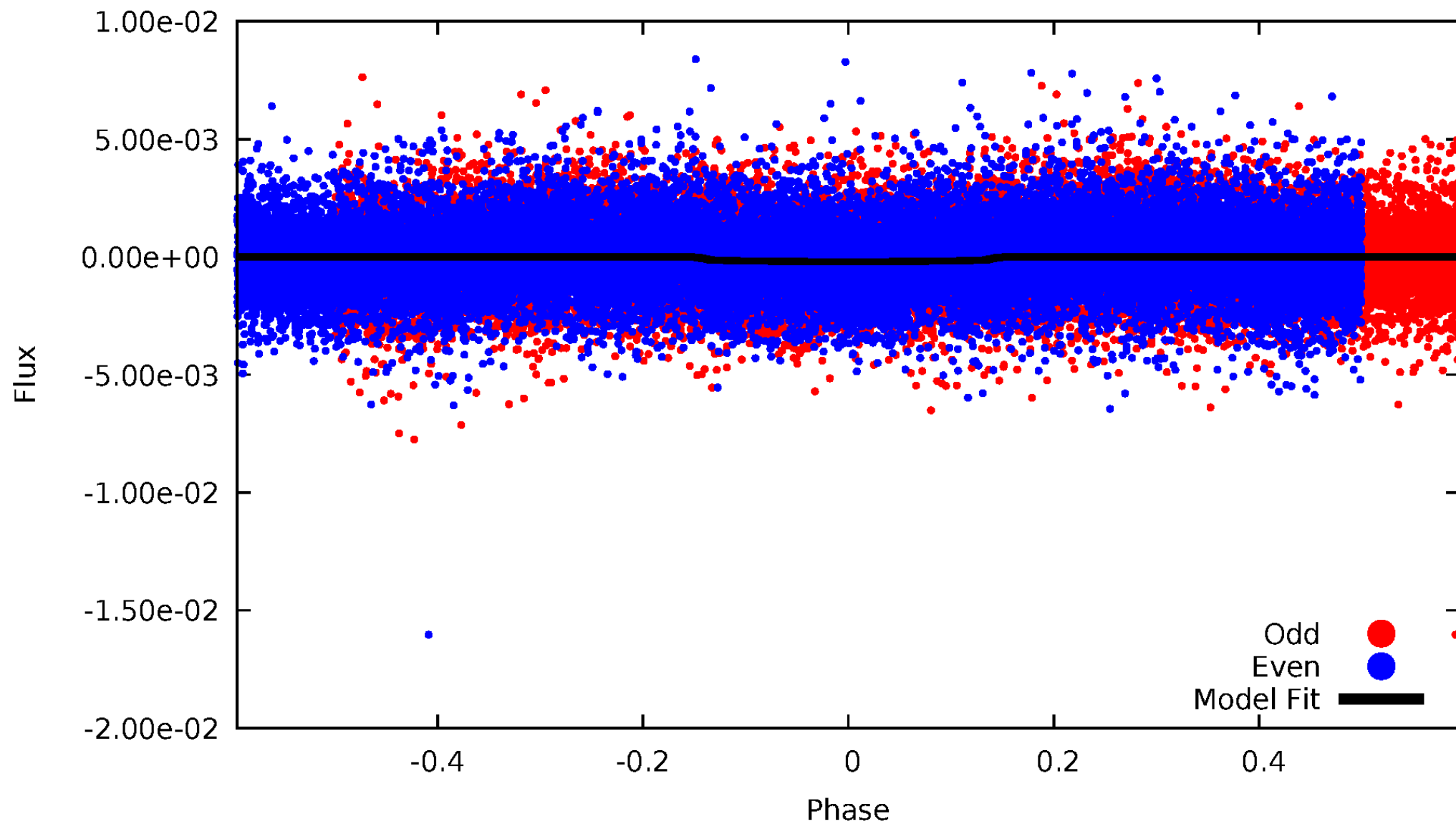


TCE 007621759-02



DV Odd/Even

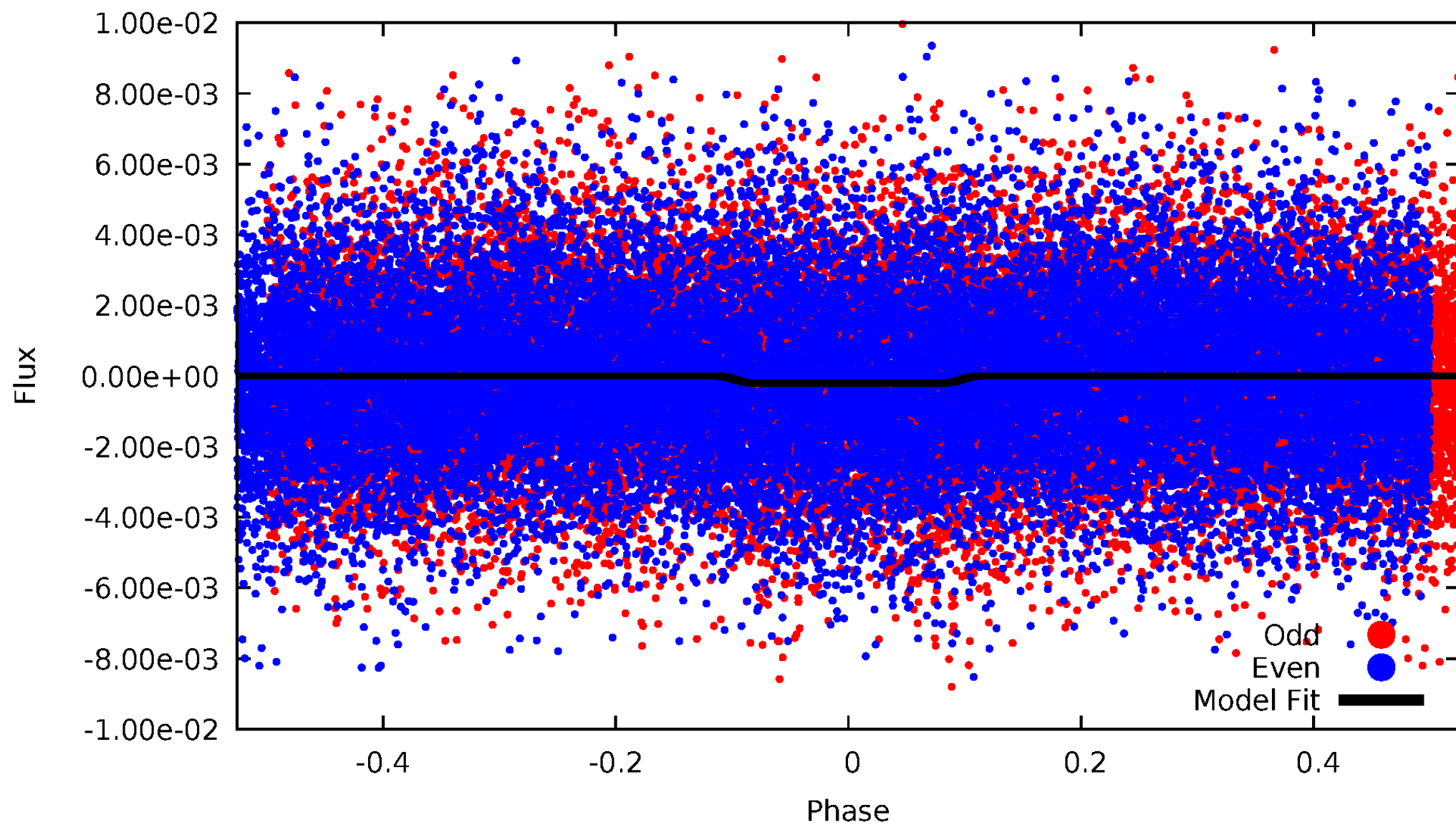
TCE 007621759-02





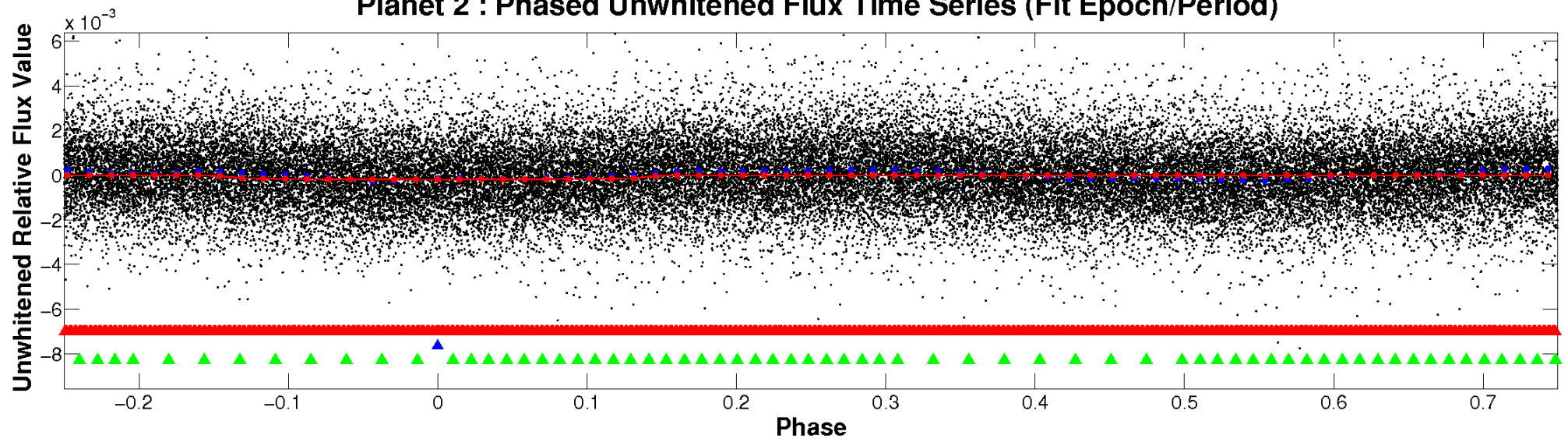
# ALT Odd/Even

TCE 007621759-02

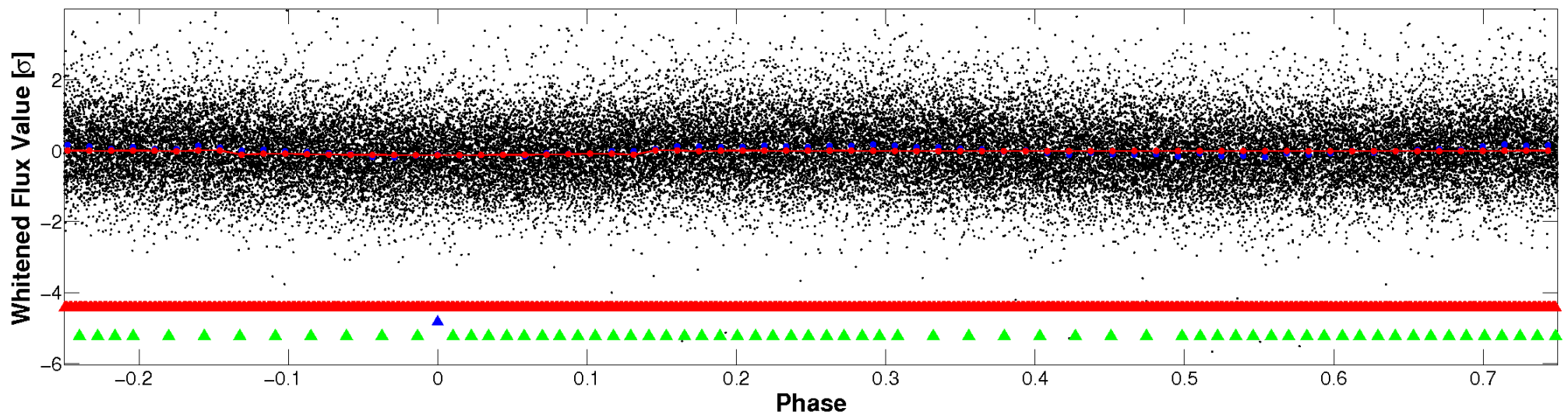


# Non-Whitened Vs. Whitened Light Curve

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

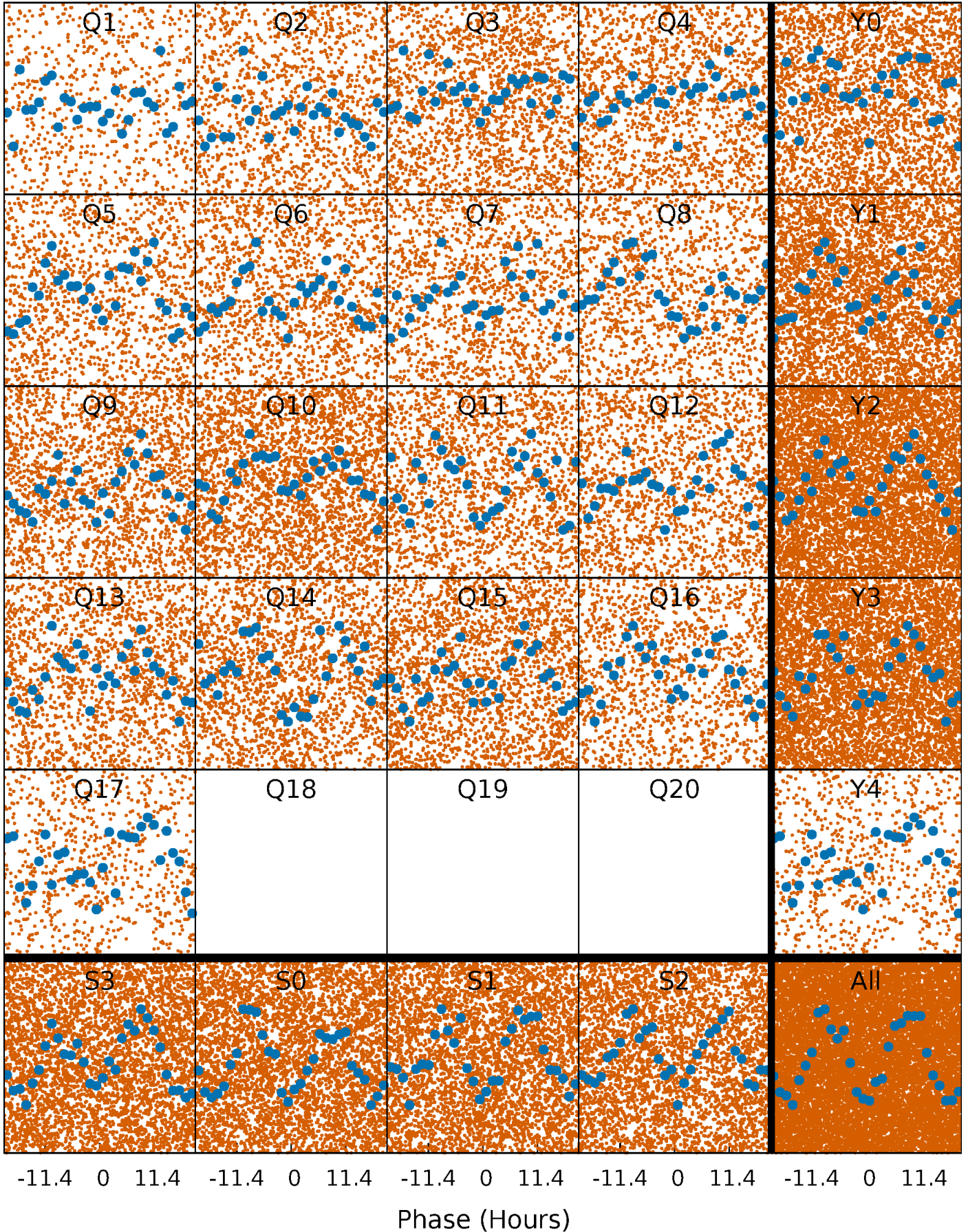


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

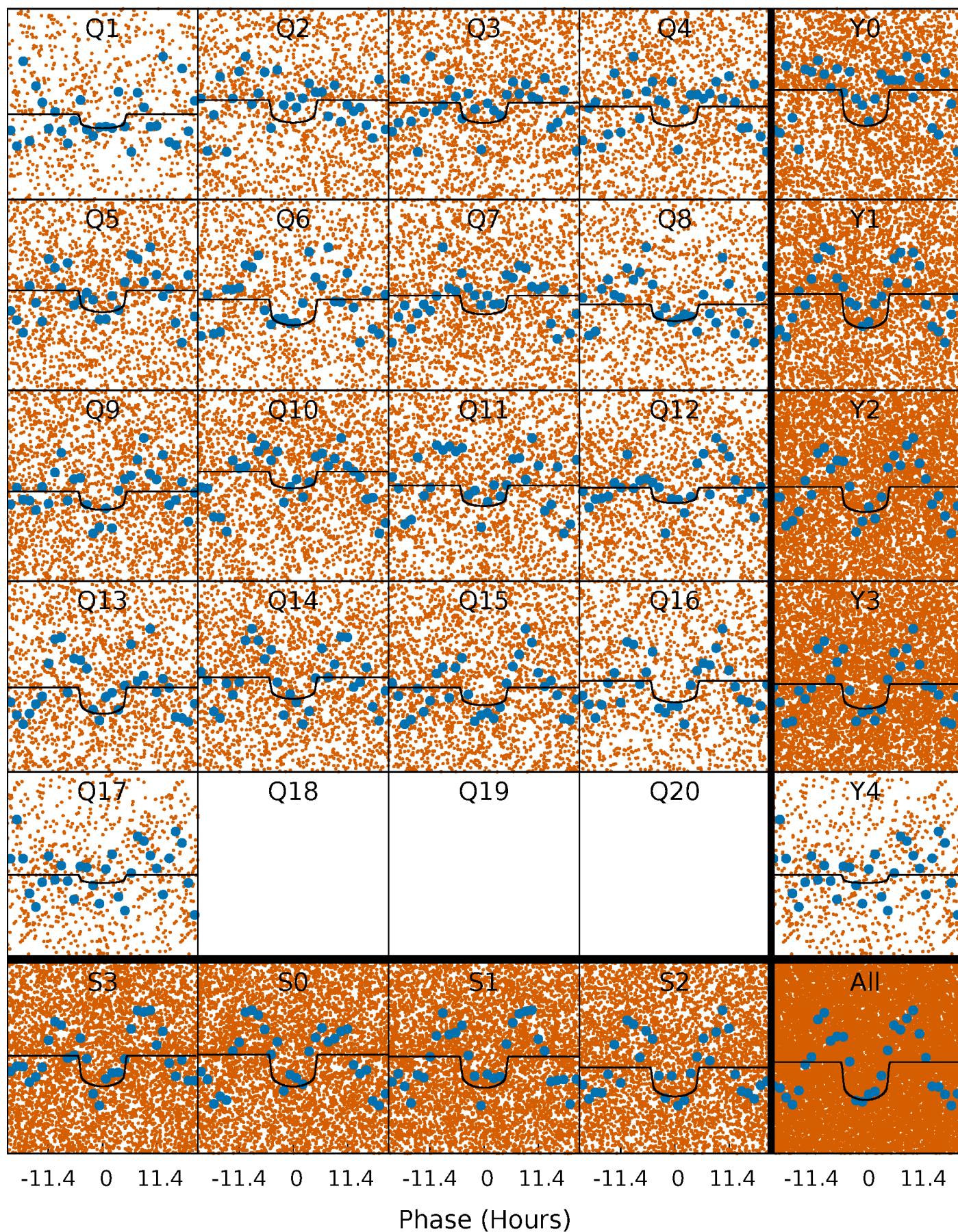
TCE 007621759-02   P= 1.401676 Days    $T_0=131.852565$  (BKJD)





# DV Quarter-Phased Transit Curves

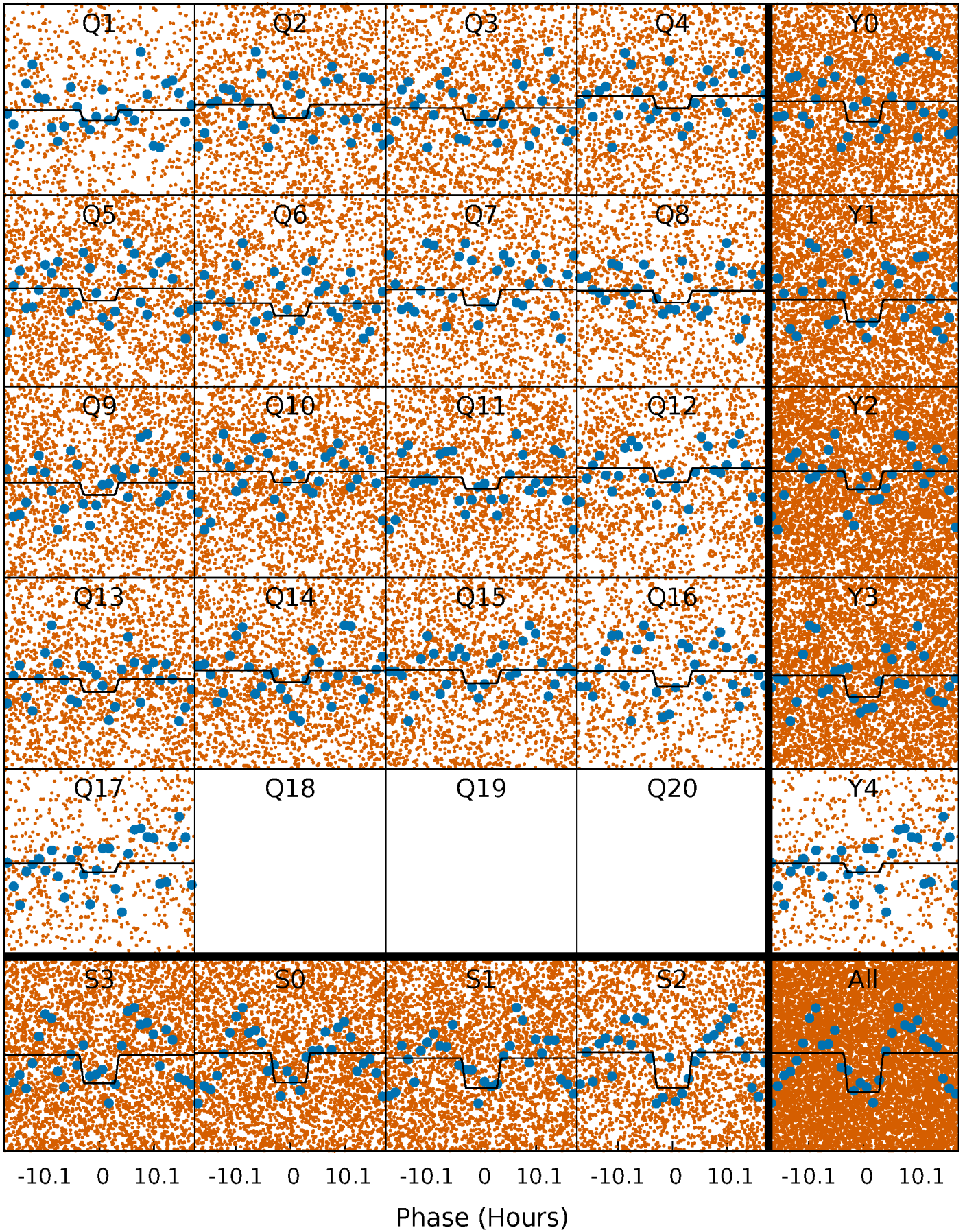
TCE 007621759-02 P= 1.401676 Days  $T_0=131.852565$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 007621759-02   P= 1.401719 Days    $T_0=131.836728$  (BKJD)

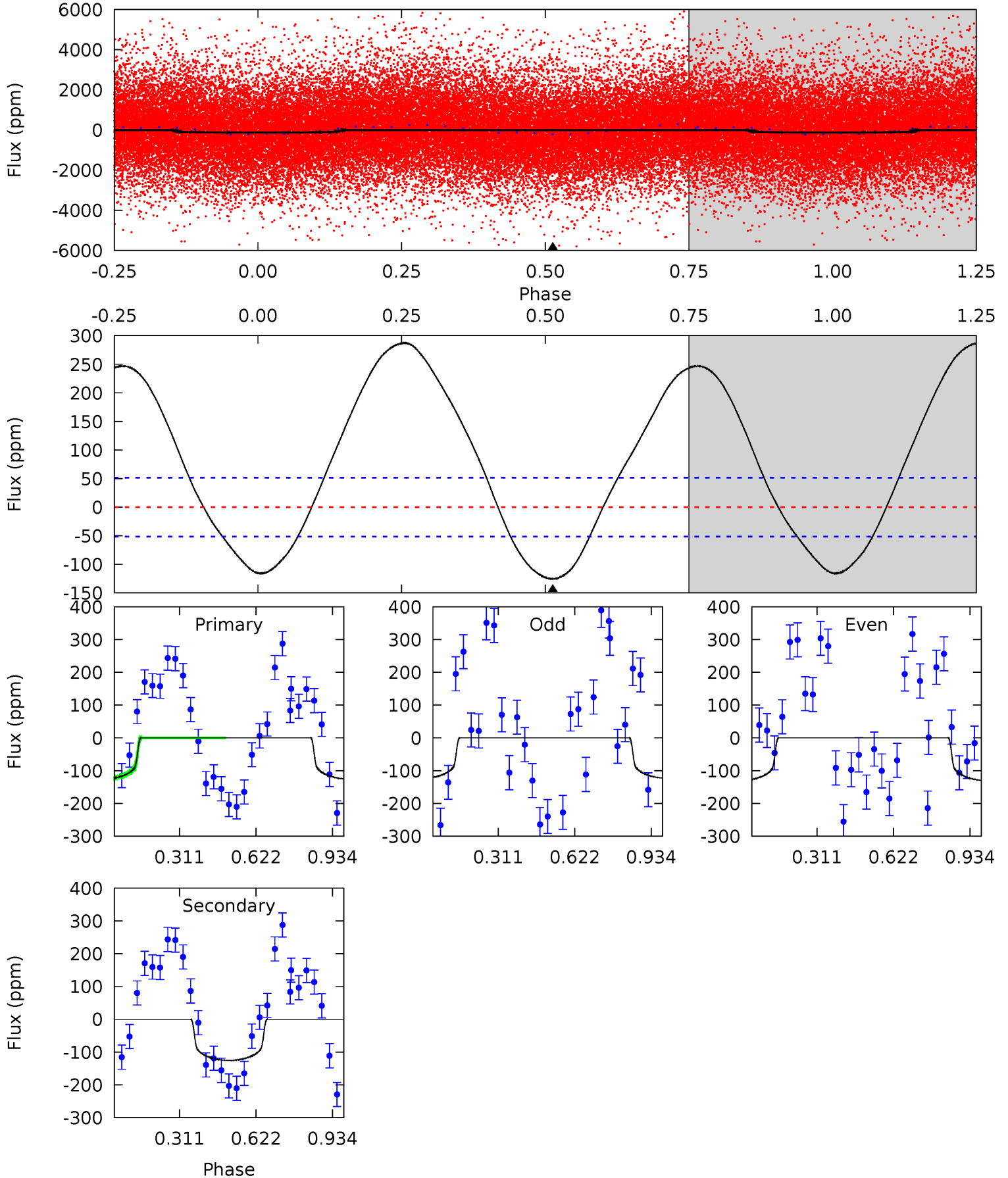




# DV Model-Shift Uniqueness Test

007621759-02, P = 1.401676 Days, E = 130.450889 Days

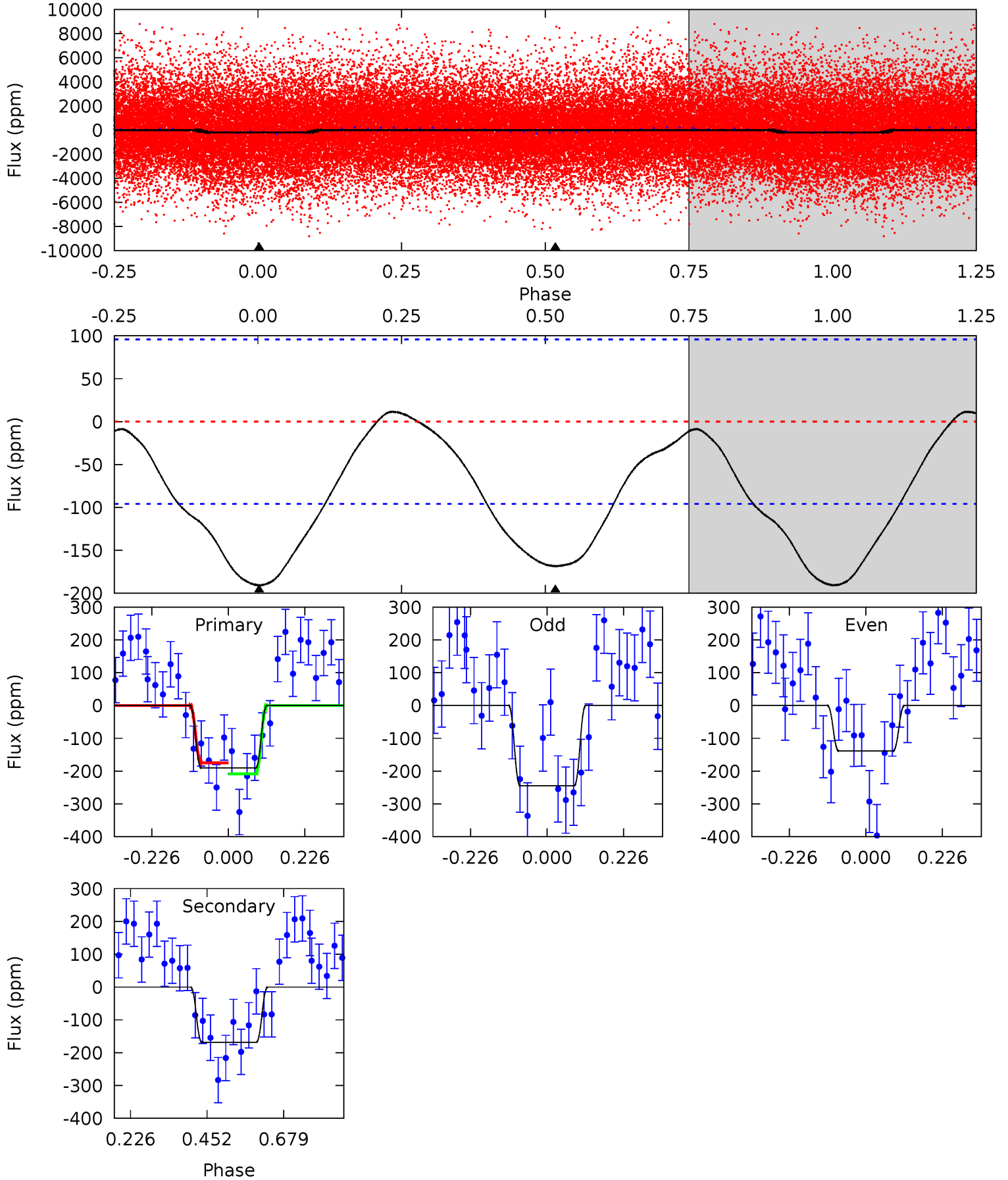
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	10.5	0	0	4.32	1.01	8.92	10.5	10.5	10.5	10.5	0.29	1.06	0.70	0.07



# Alt Model-Shift Uniqueness Test

007621759-02, P = 1.401719 Days, E = 130.435009 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
8.73	7.72	0	0	4.39	1.21	0.41	8.73	8.73	7.72	7.72	2.37	1.11	0.06	0.74



### Stellar Parameters For KIC 007621759

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7316^{+232}_{-377}$	$4.023^{+0.240}_{-0.160}$	$-0.240^{+0.250}_{-0.350}$	$1.987^{+0.521}_{-0.637}$	$1.517^{+0.216}_{-0.289}$	$0.272^{+0.398}_{-0.122}$
	+3%/-5%	+6%/-4%	+104%/-146%	+26%/-32%	+14%/-19%	+146%/-45%
Source	PHO1	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 007621759-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-125 \pm 12$	$2.97^{+0.58}_{-0.54}$	$3754^{+281}_{-284}$	$6400^{+447}_{-414}$	$6.159^{+2.807}_{-1.768}$
Alt.	$-168 \pm 22$	$3.07^{+0.60}_{-0.58}$	$3730^{+313}_{-325}$	$6789^{+550}_{-492}$	$7.708^{+3.957}_{-2.251}$

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

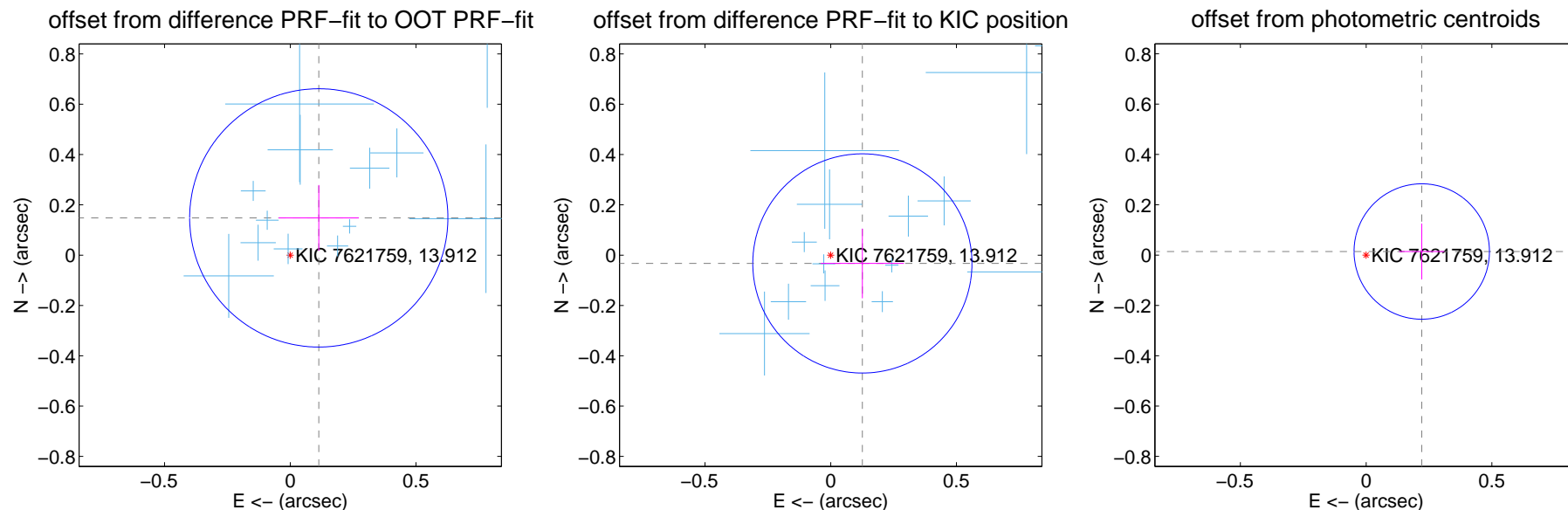
## DV Centroid Data

Supplemental centroid analysis for 007621759-02. Kepler magnitude: 13.91. Transit SNR 12.32

There are 16 quarters with good PRF difference image offsets

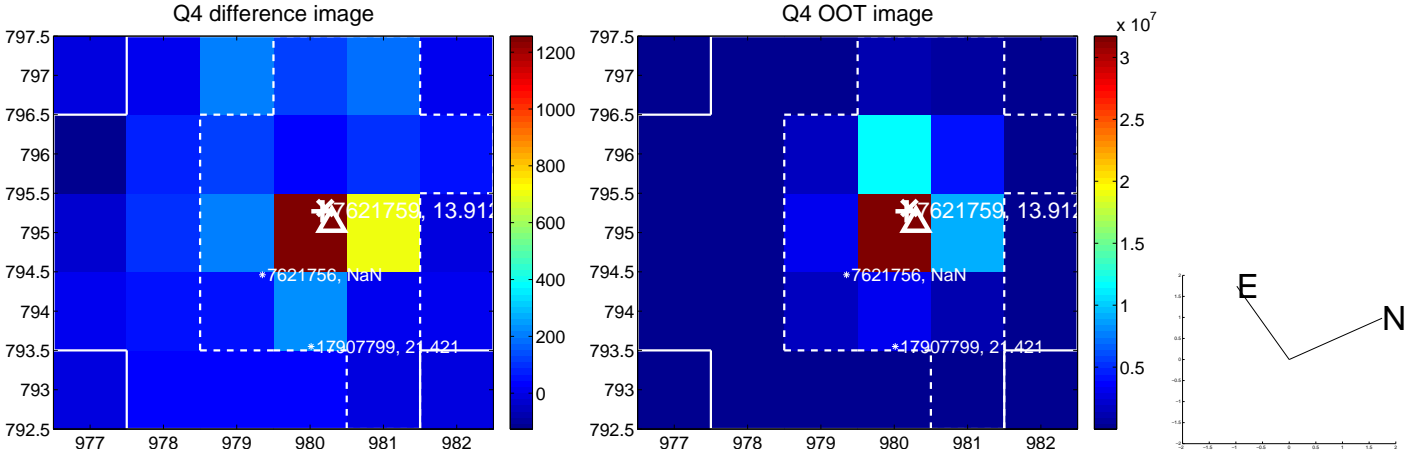
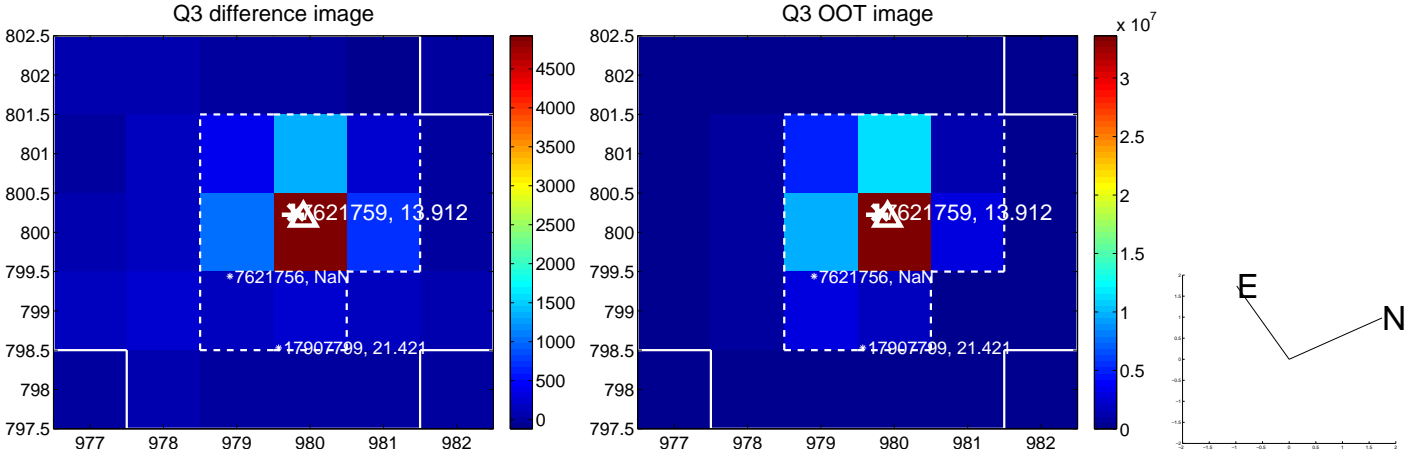
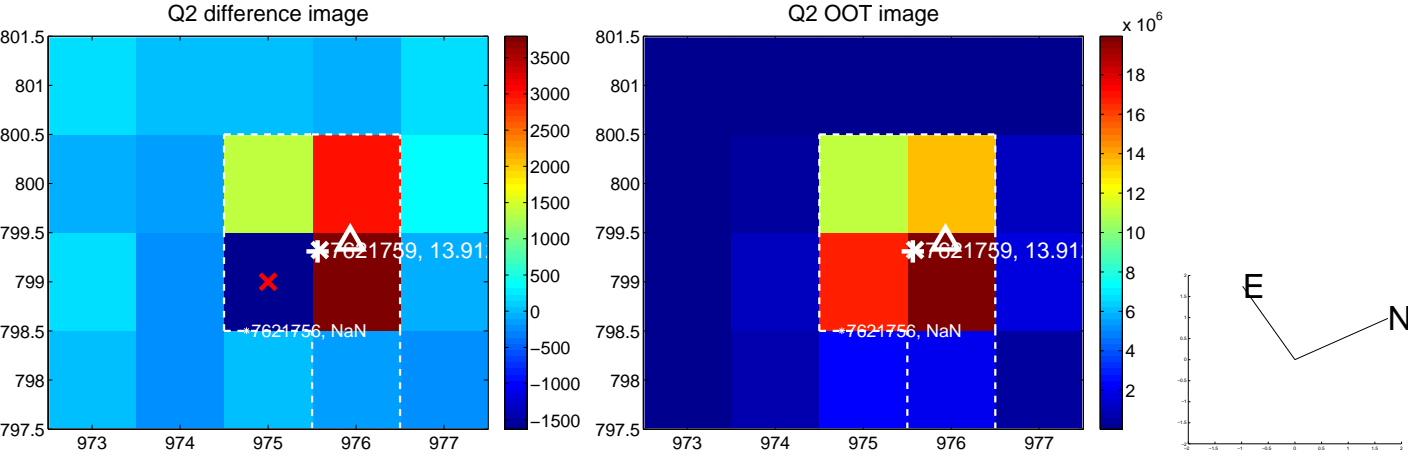
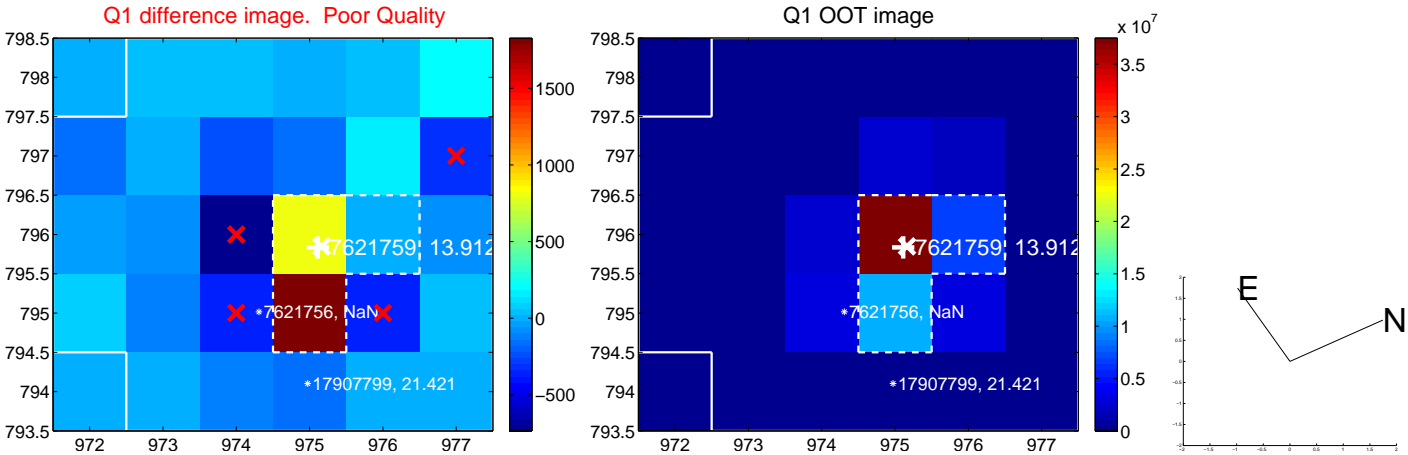
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.187 \pm 0.171$	1.09	$-0.113 \pm 0.160$	$0.148 \pm 0.131$
PRF-fit source offset from KIC position	$0.130 \pm 0.145$	0.90	$-0.126 \pm 0.165$	$-0.033 \pm 0.138$
photometric centroid source offset	$0.22 \pm 0.09$	2.47	$-0.22 \pm 0.09$	$0.01 \pm 0.11$



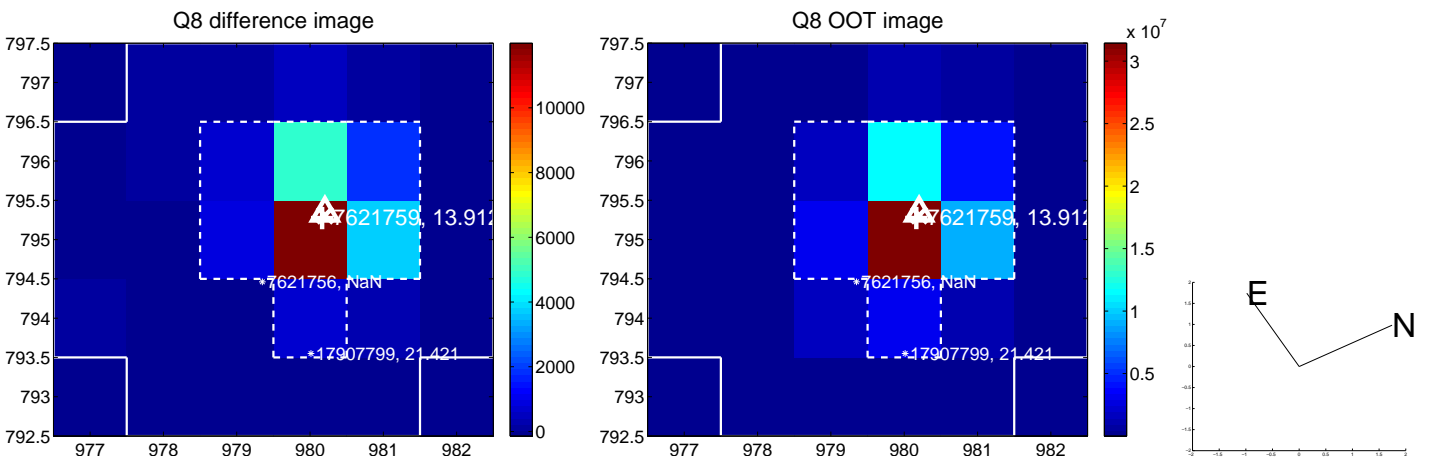
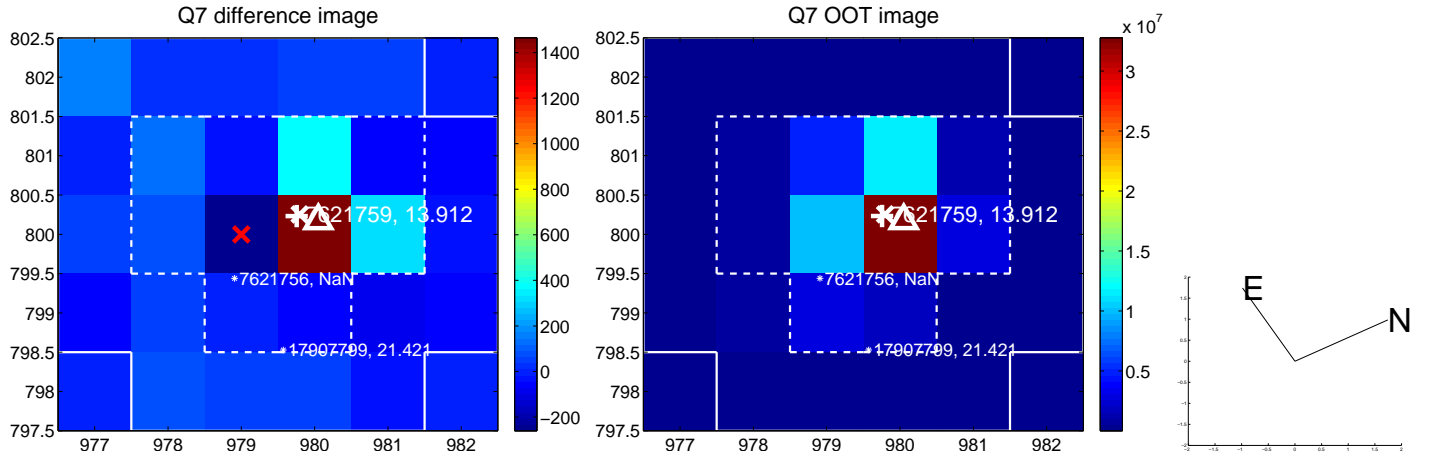
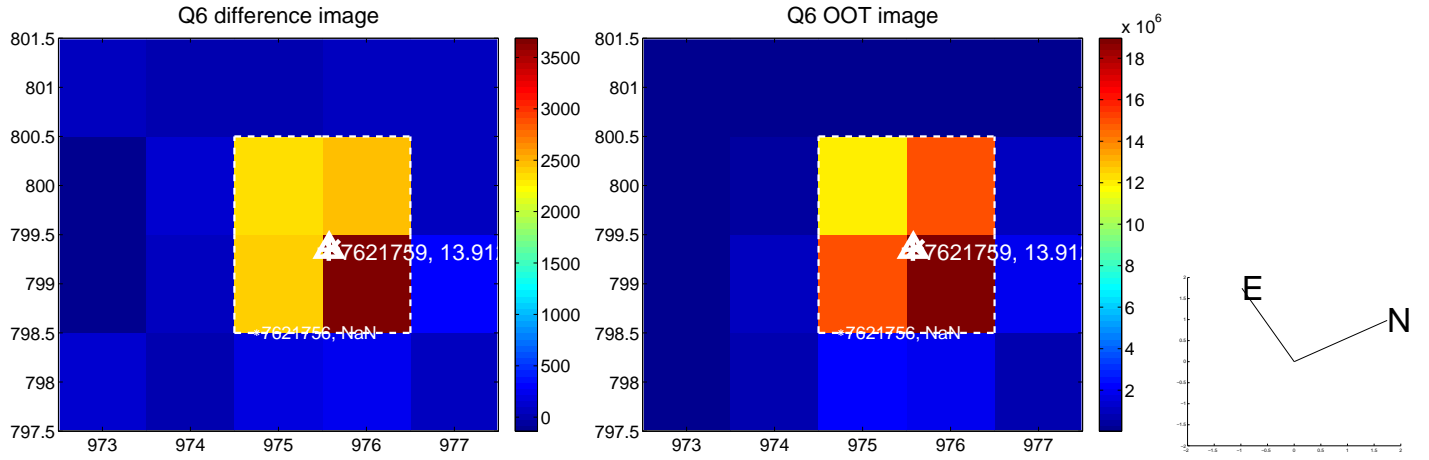
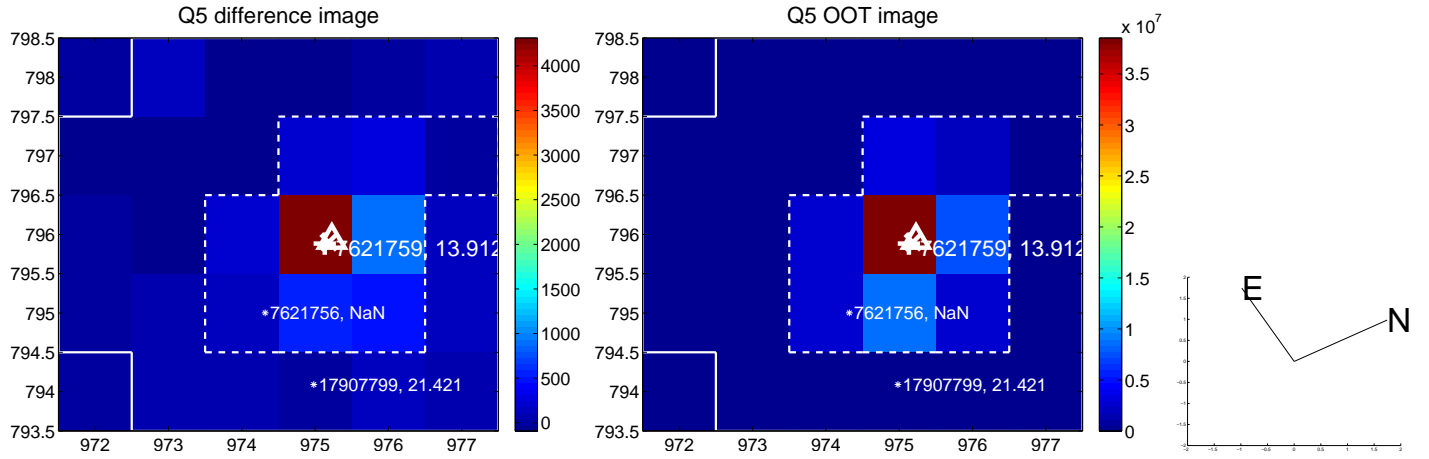
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

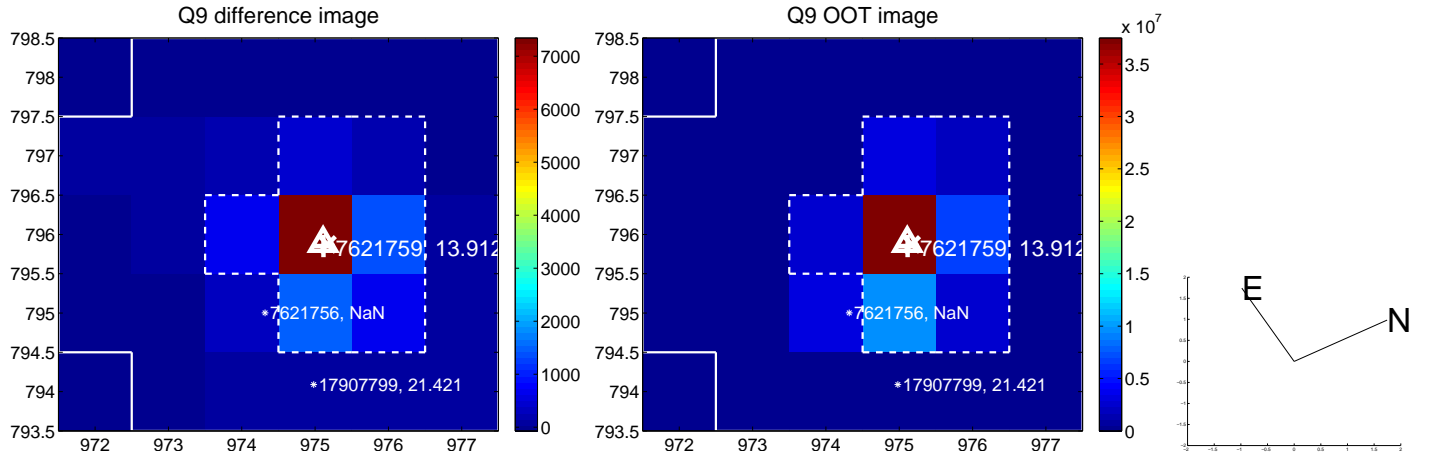




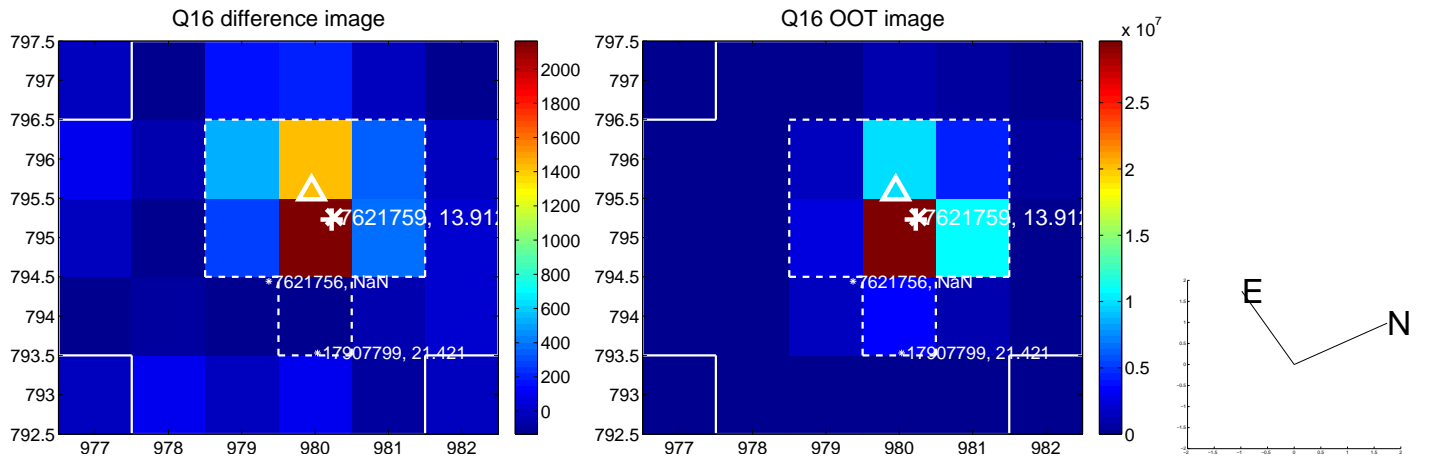
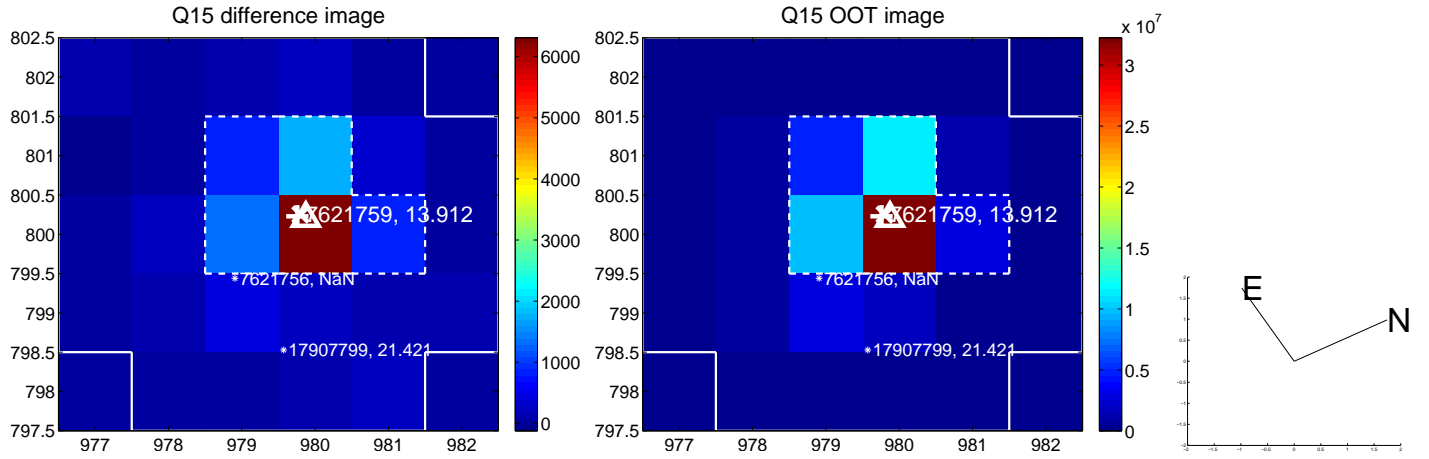
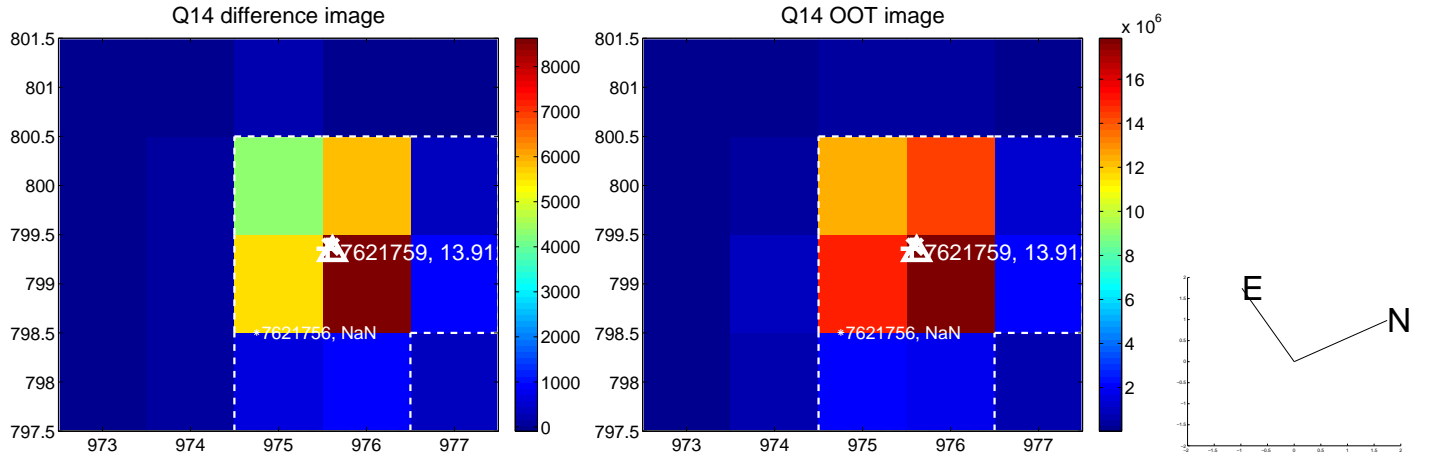
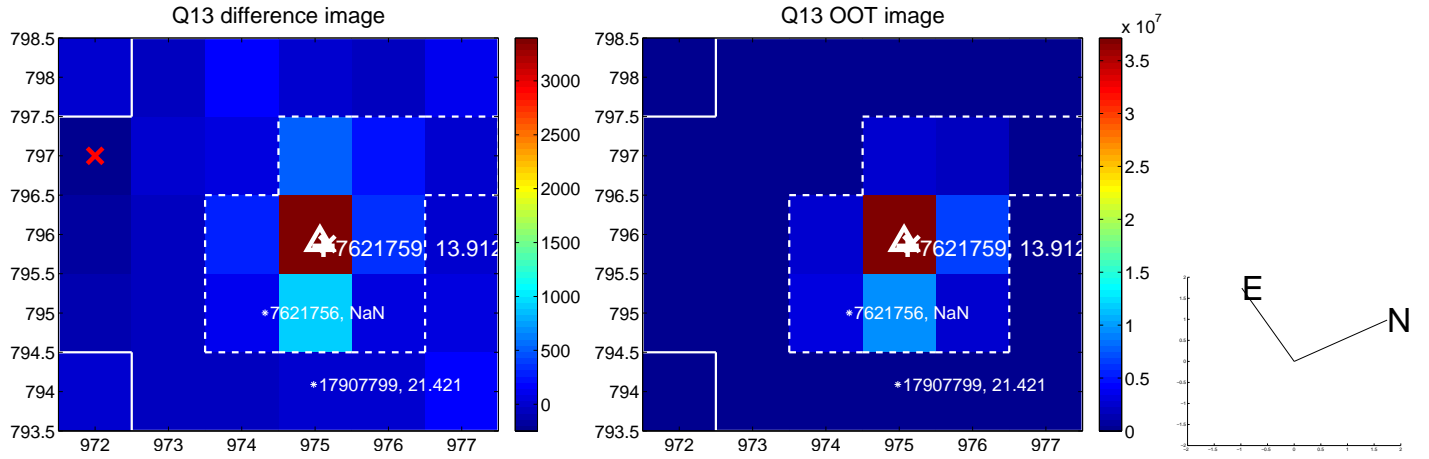
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



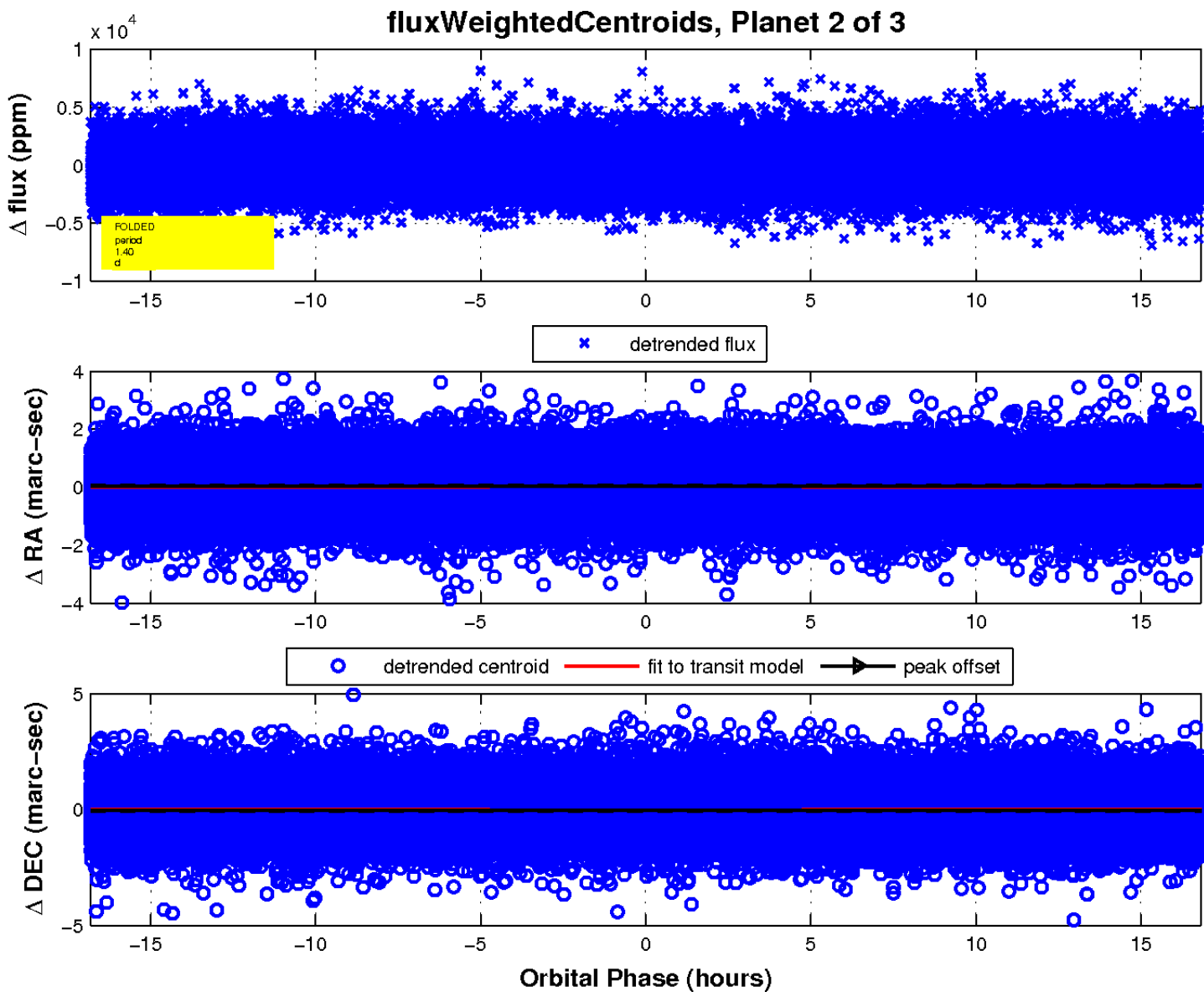
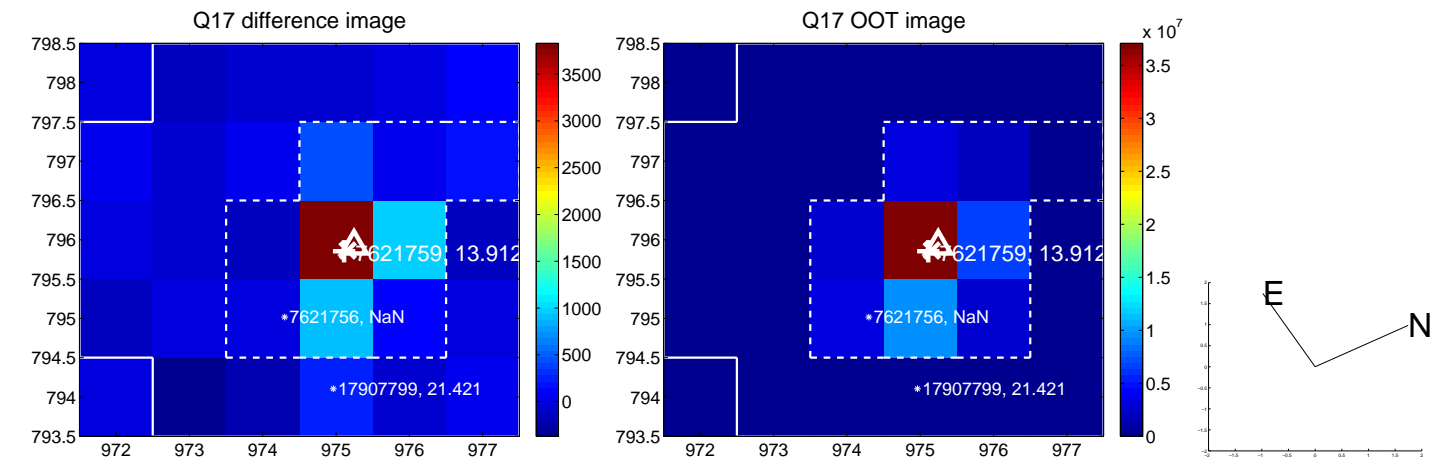
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

