

# KIC 008127448

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008127448-01	OBS	No	0.734835	131.596699	115.8	1.774	8.7	8.6	1.65	7459	2.04	22028.44
008127448-02	OBS	No	1.331138	132.675423	219.4	10.088	9.3	11.5	1.65	7459	2.61	9975.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008127448-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008127448-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV

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

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

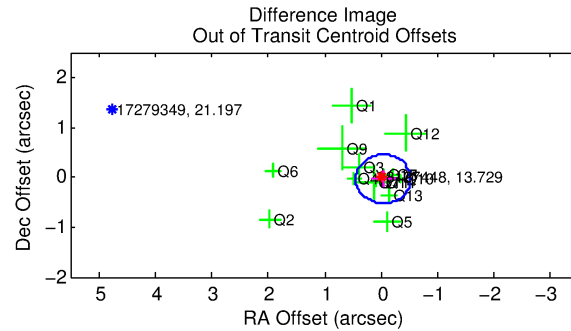
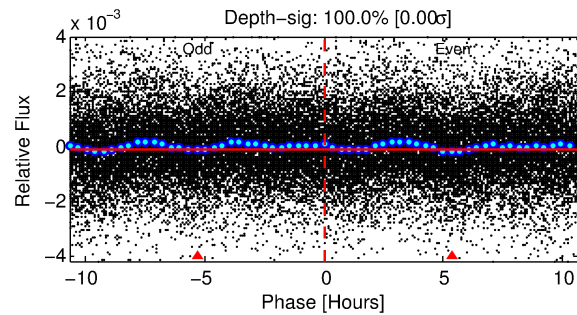
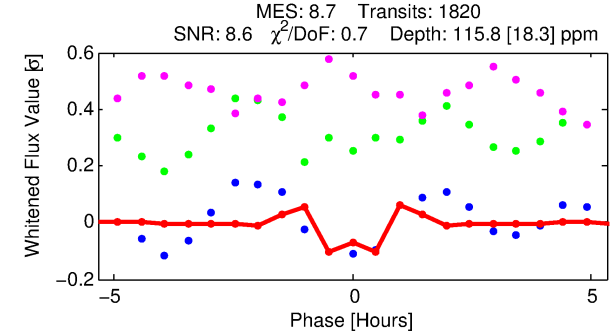
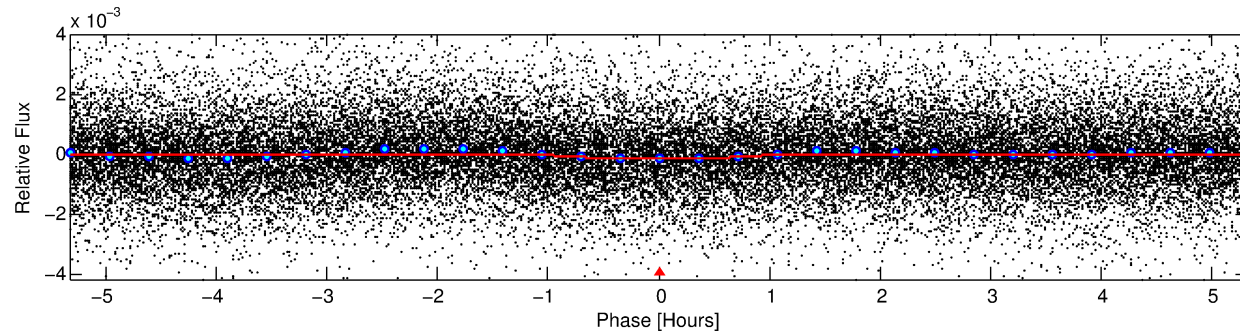
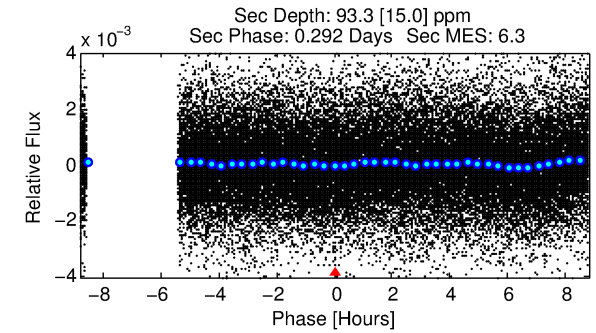
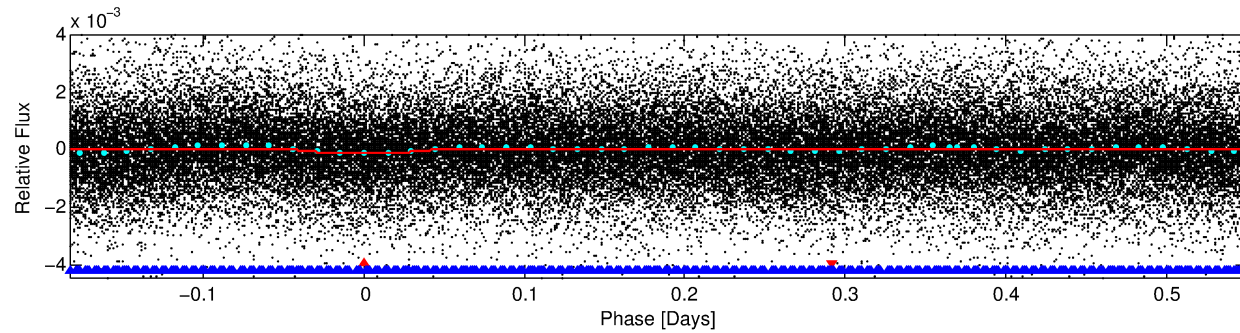
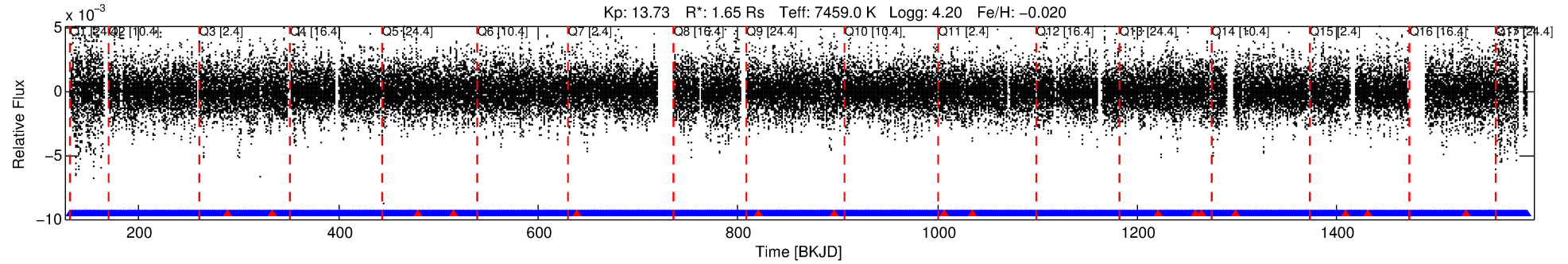
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008127448-01

No Significant Match Found

# DV One-Page Summary

KIC: 8127448 Candidate: 1 of 2 Period: 0.735 d



## DV Fit Results:

Period = 0.73483 [0.00001] d  
Epoch = 131.5967 [0.0012] BKJD  
Rp/R\* = 0.0114 [0.0025]  
a/R\* = 1.77 [1.58]  
b = 0.89 [0.30]  
Seff = 22028.44 [9228.25]  
Teq = 3107 [325] K  
Rp = 2.04 [0.80] Re  
a = 0.0185 [0.0049] AU  
Ag = 4.20 [2.54] [1.26σ]  
Teffp = 6876 [868] K [4.07σ]

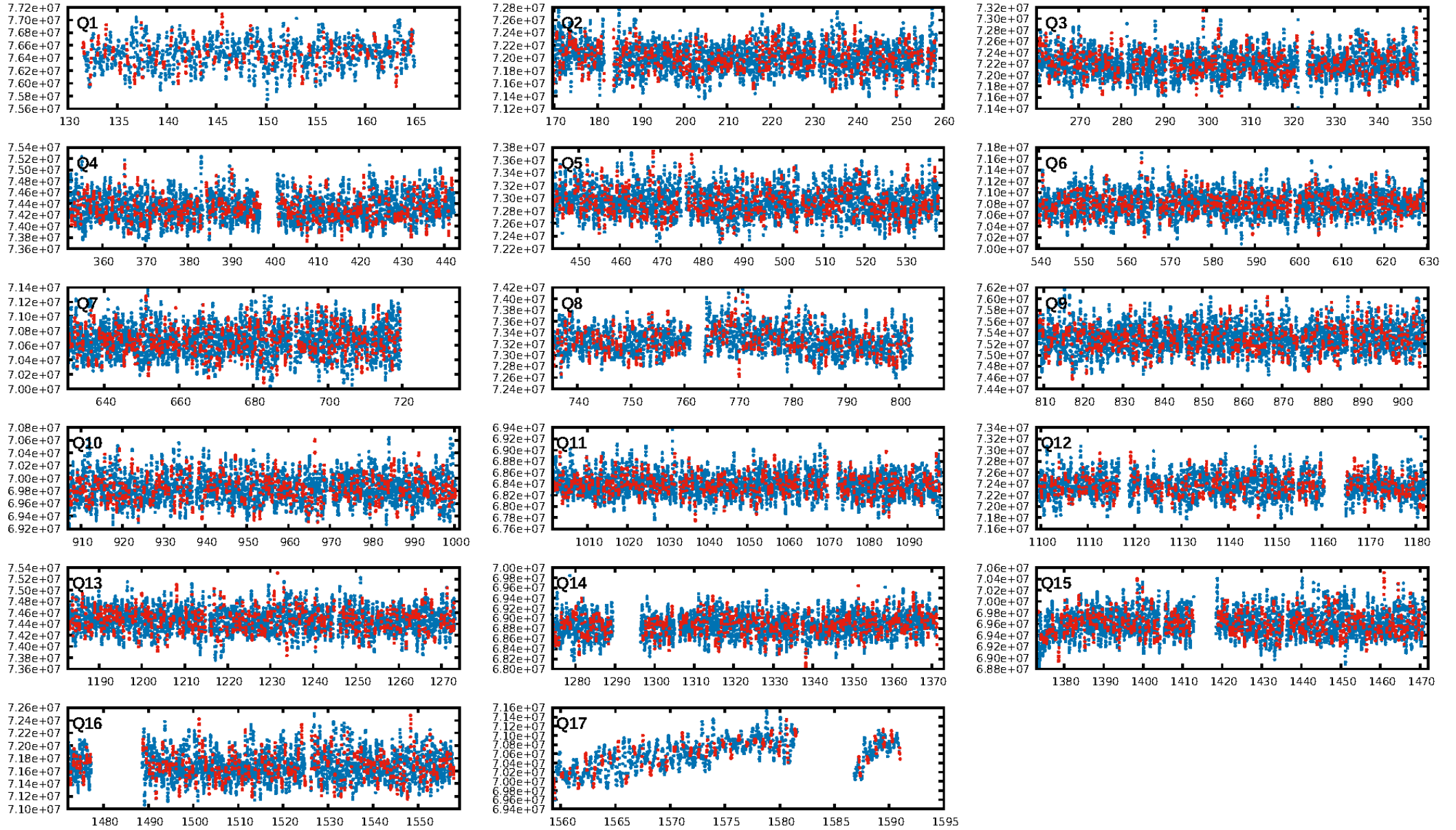
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 83.8% [1.40σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [1721/1737]  
**GhostDiagnostic-chr: 0.9405**  
Centroid-sig: N/A  
Centroid-so: 0.491 arcsec [0.98σ]  
OotOffset-rm: 0.050 arcsec [0.31σ]  
KicOffset-rm: 0.250 arcsec [1.72σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.56 [9/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:19:30 Z

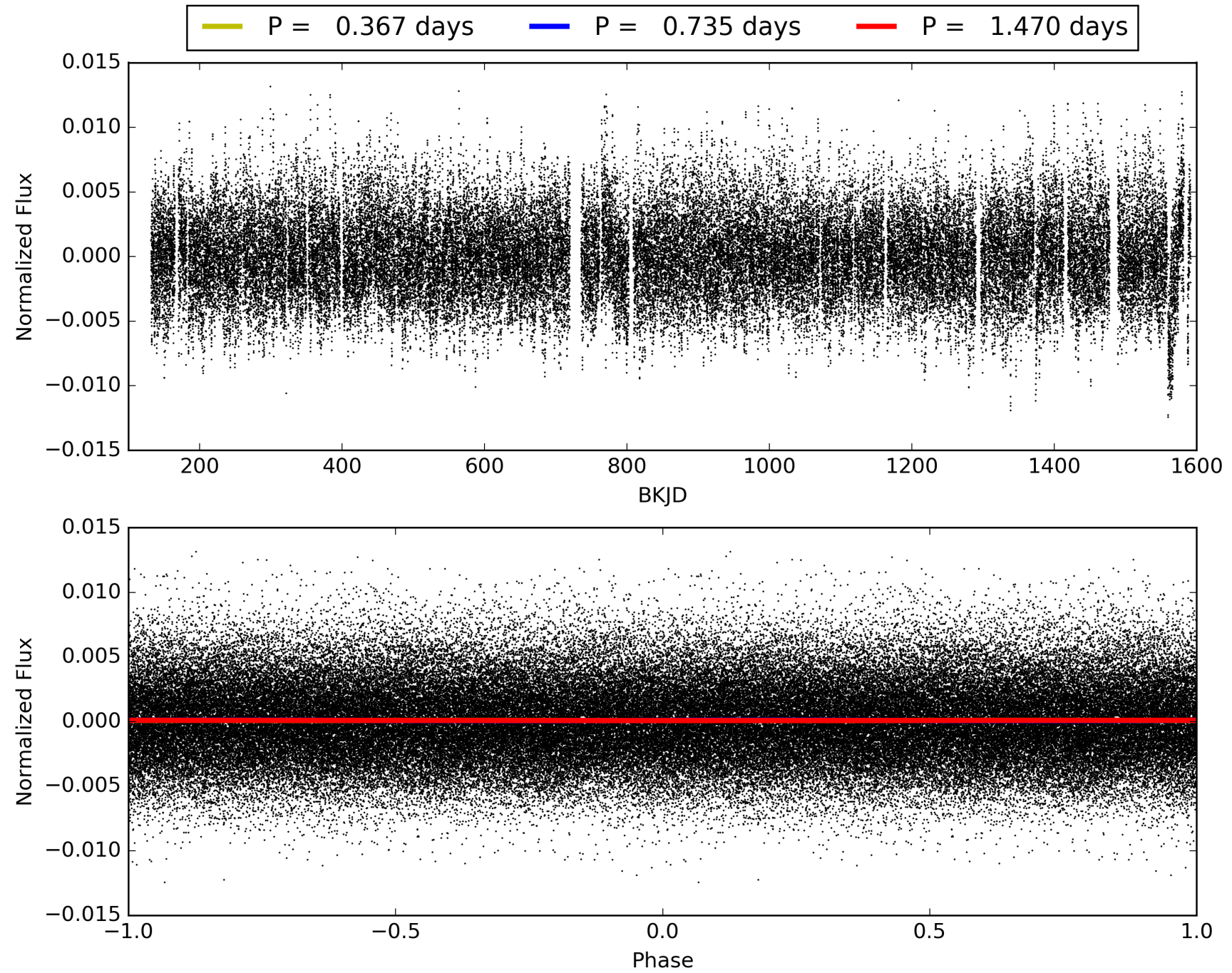
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008127448-01, PDC Light Curves



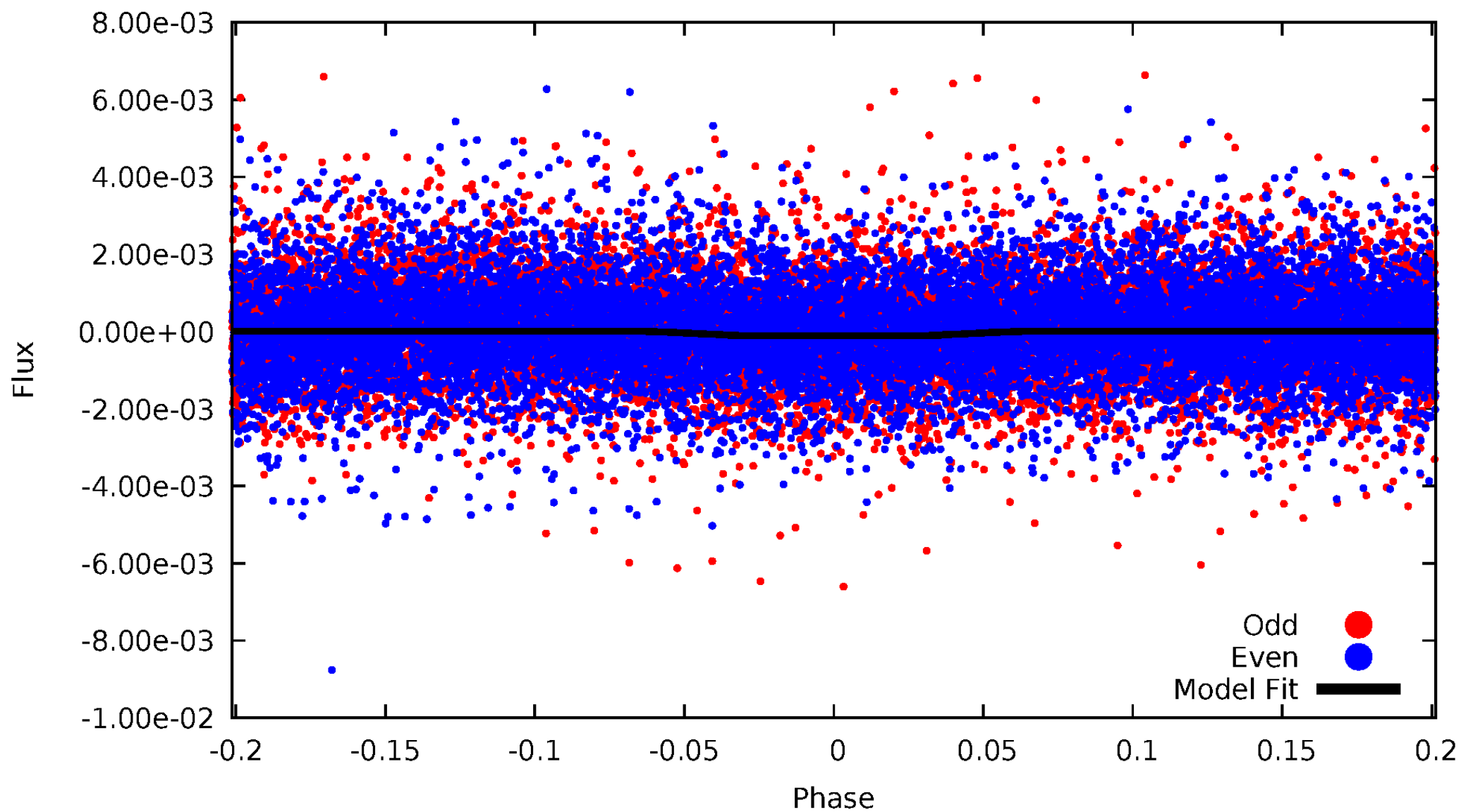


TCE 008127448-01



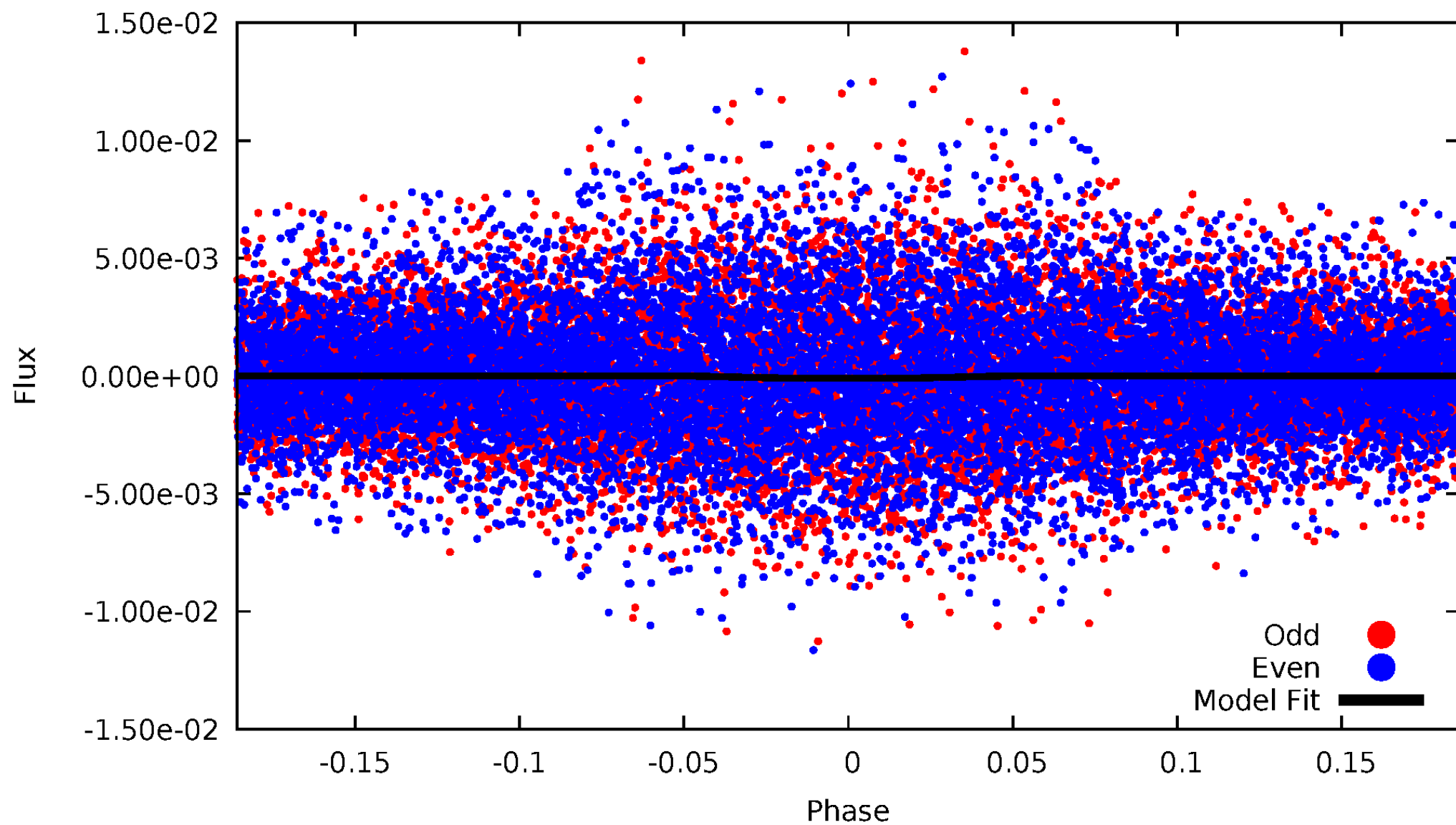
# DV Odd/Even

TCE 008127448-01

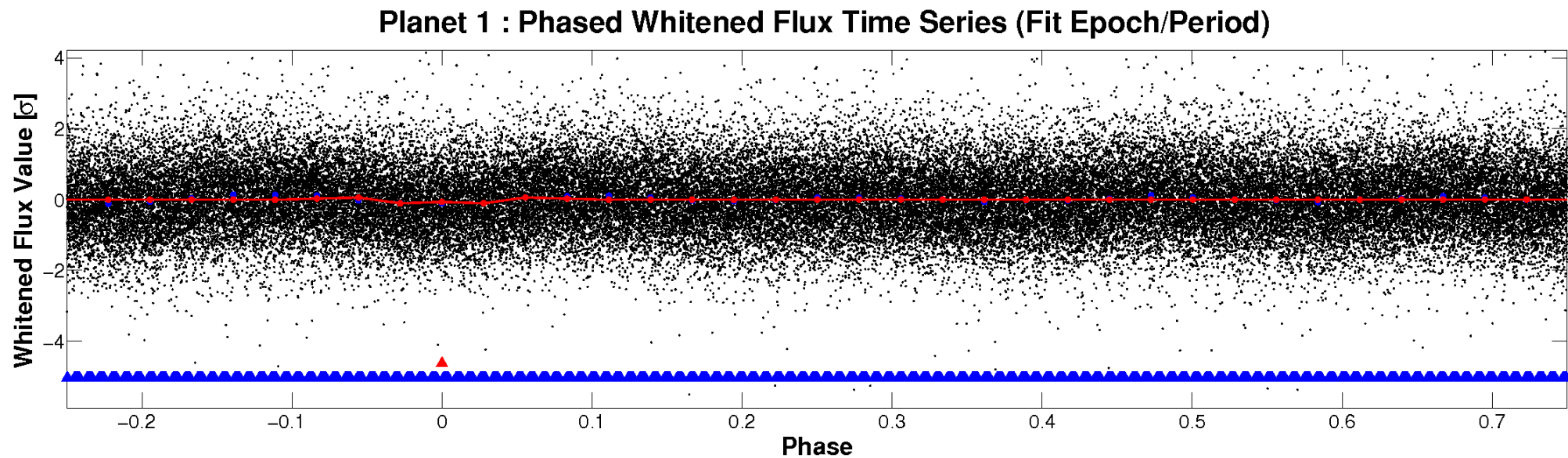
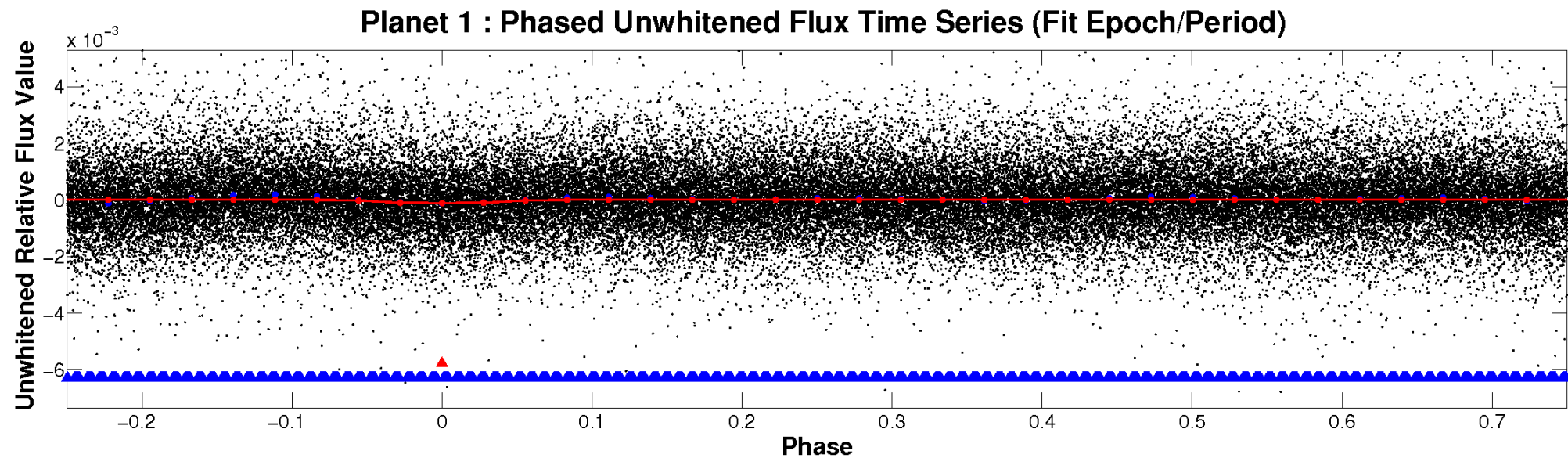


# ALT Odd/Even

TCE 008127448-01



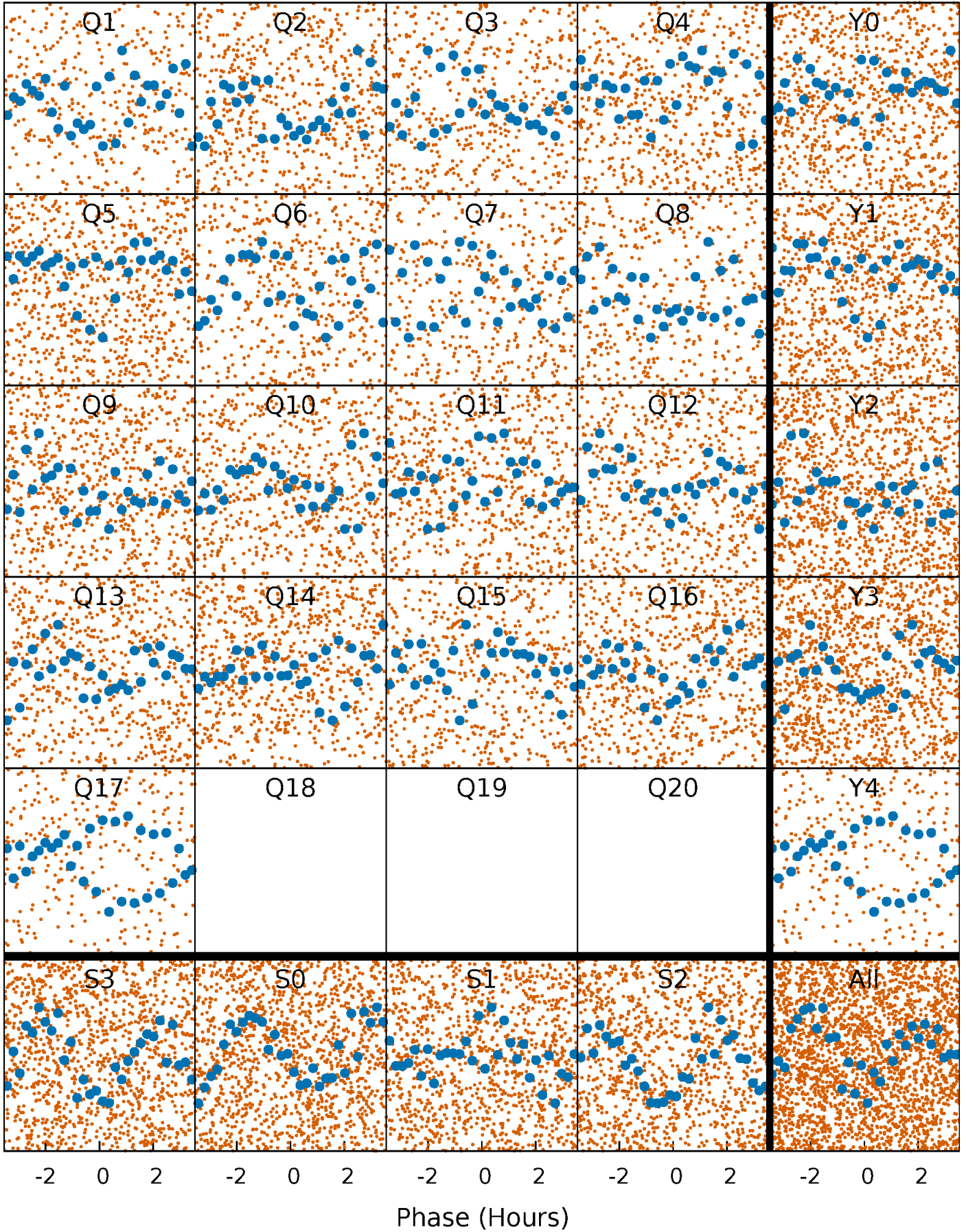
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

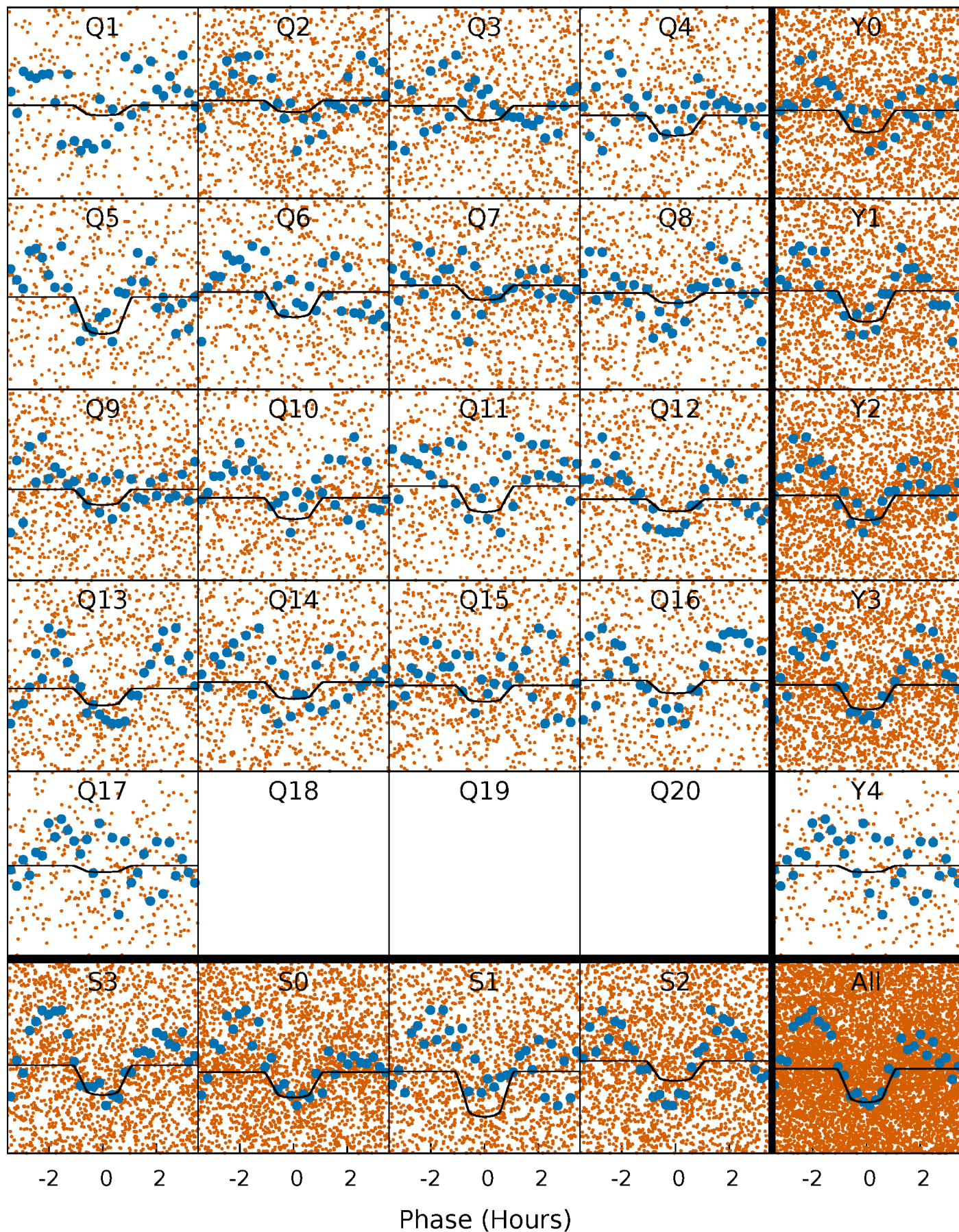
TCE 008127448-01   P= 0.734835 Days    $T_0=131.596699$  (BKJD)





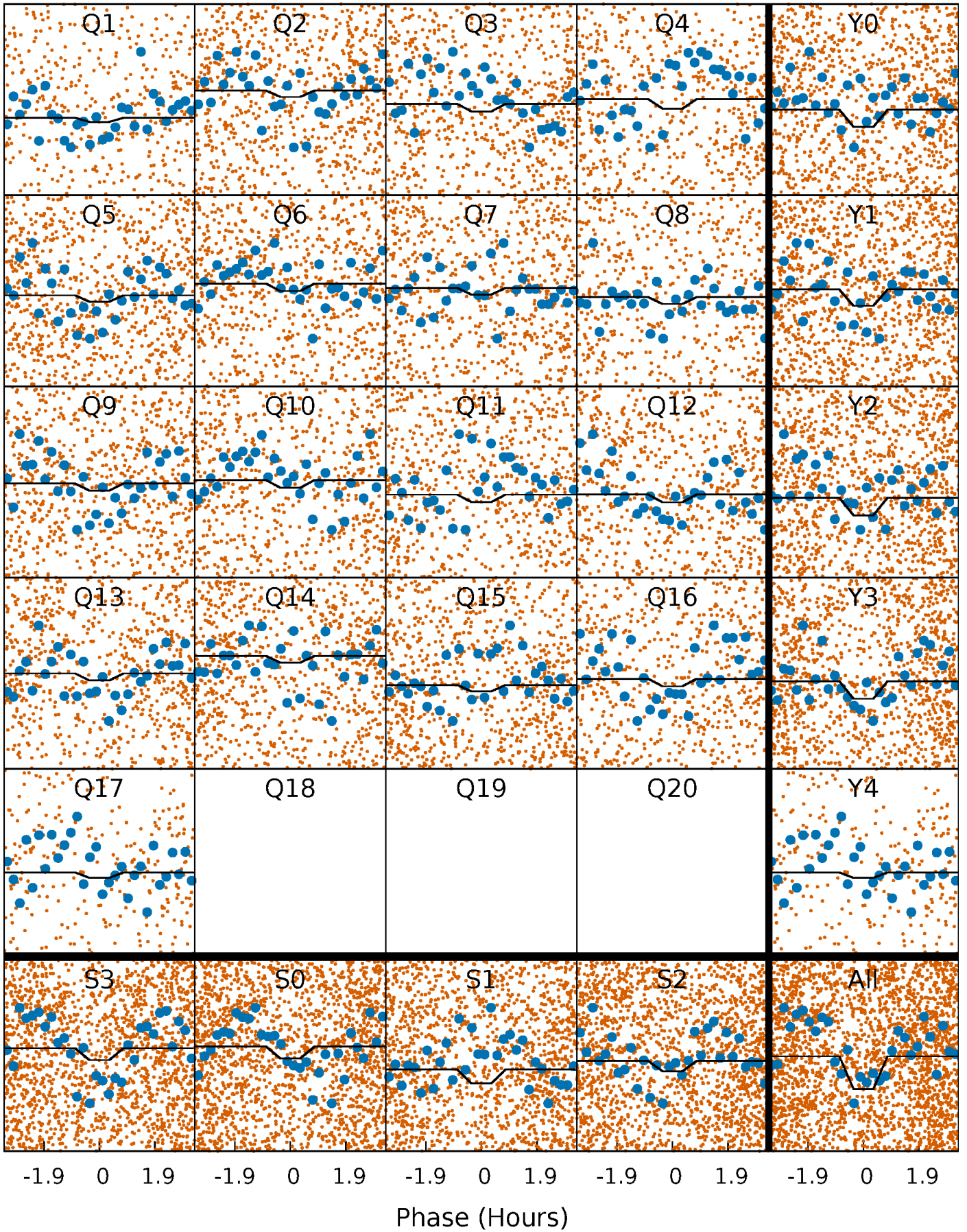
# DV Quarter-Phased Transit Curves

TCE 008127448-01 P= 0.734835 Days  $T_0=131.596699$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

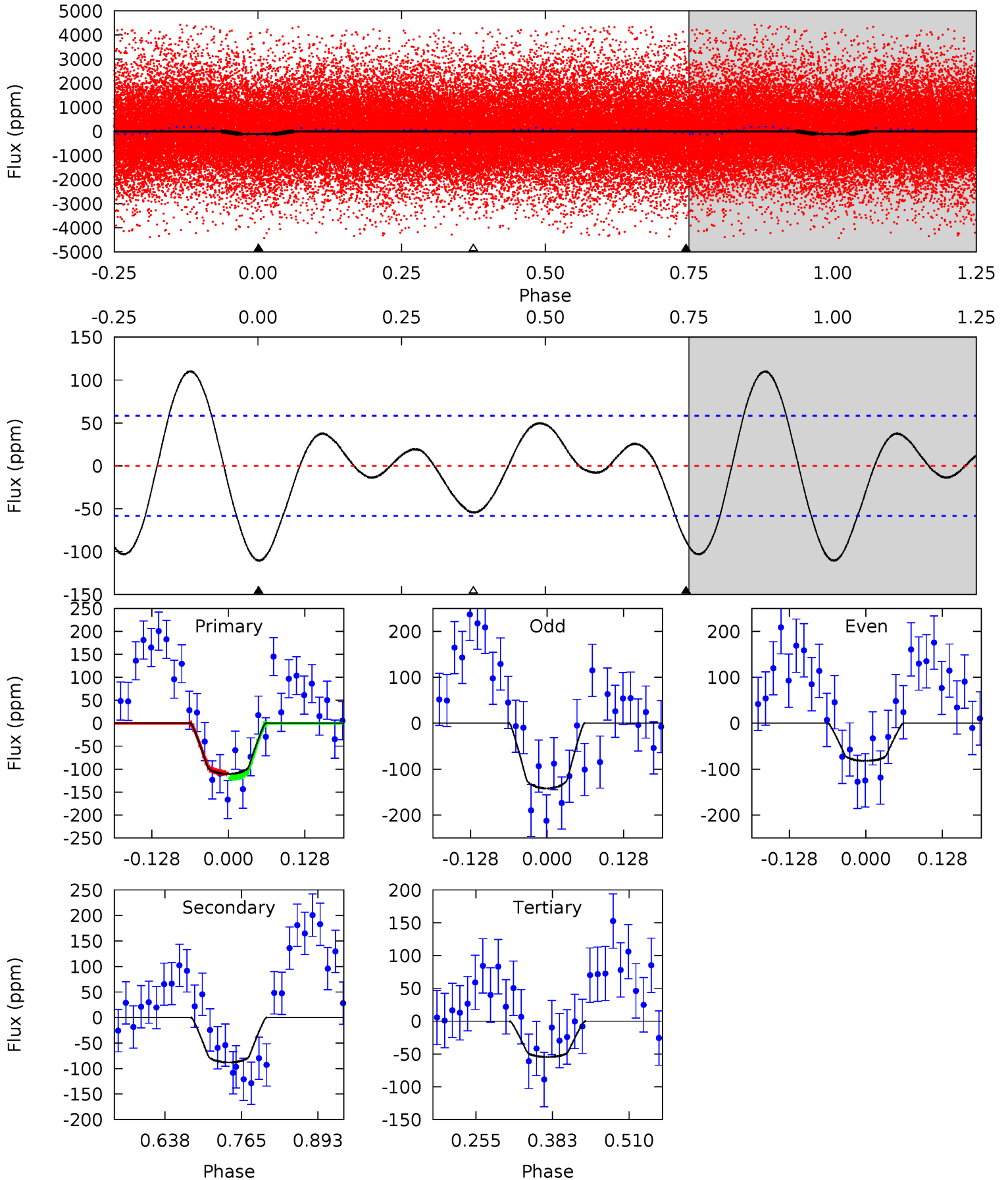
TCE 008127448-01 P= 0.734837 Days  $T_0=131.594427$  (BKJD)



# DV Model-Shift Uniqueness Test

008127448-01, P = 0.734835 Days, E = 130.861864 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
8.54	6.79	4.22	0	4.51	1.52	2.14	4.33	8.54	2.57	6.79	2.33	1.02	0.50	0.41

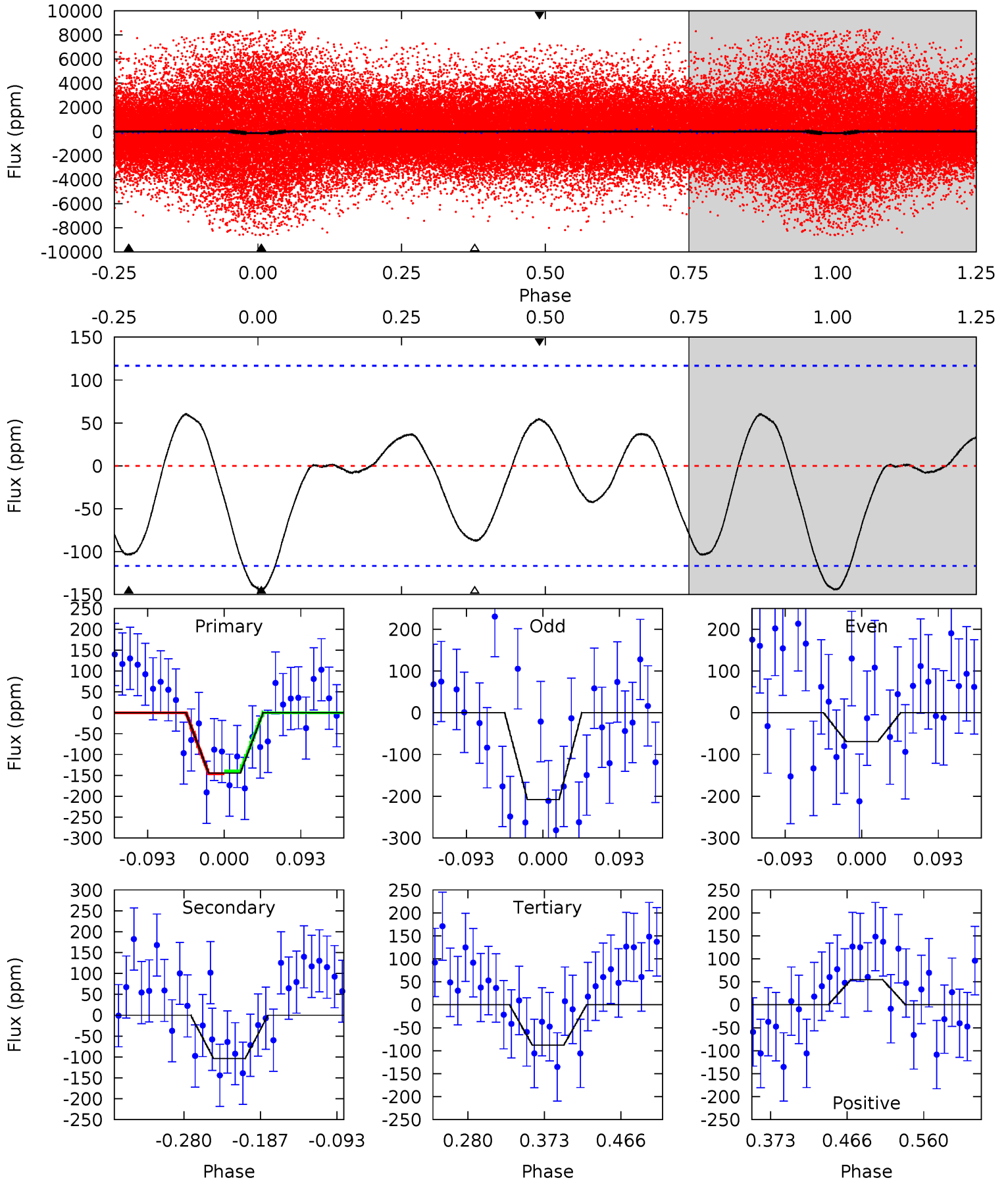




# Alt Model-Shift Uniqueness Test

008127448-01, P = 0.734837 Days, E = 130.859590 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
5.68	4.08	3.44	2.15	4.58	1.68	1.53	2.24	3.53	0.64	1.93	2.72	0.63	0.30	0.13





### Stellar Parameters For KIC 008127448

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7459^{+207}_{-337}$	$4.197^{+0.087}_{-0.203}$	$-0.020^{+0.200}_{-0.350}$	$1.646^{+0.528}_{-0.244}$	$1.553^{+0.222}_{-0.222}$	$0.490^{+0.237}_{-0.255}$
	+3%/-5%	+2%/-5%	+1000%/-1750%	+32%/-15%	+14%/-14%	+48%/-52%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008127448-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-88 \pm 13$	$2.10^{+0.59}_{-0.48}$	$4401^{+333}_{-263}$	$6491^{+1083}_{-767}$	$3.568^{+2.675}_{-1.395}$
Alt.	$-104 \pm 25$	$1.81^{+0.57}_{-0.48}$	$4408^{+327}_{-272}$	$7476^{+1734}_{-1110}$	$5.836^{+5.202}_{-2.499}$

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

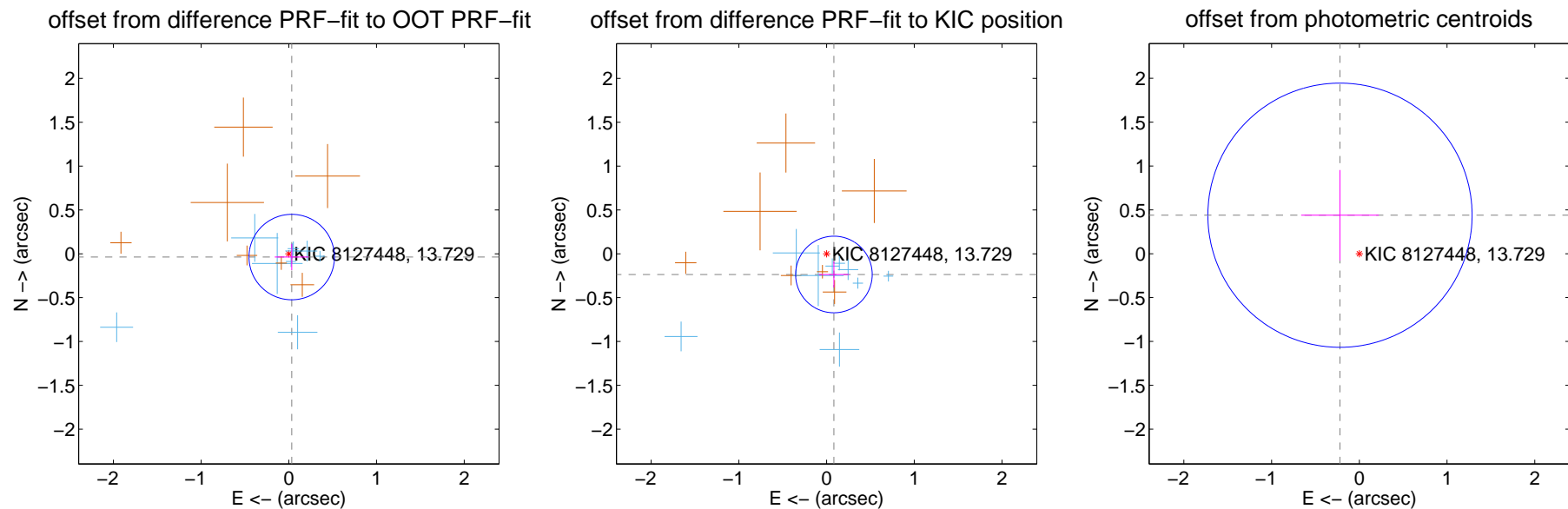
## DV Centroid Data

Supplemental centroid analysis for 008127448-01. Kepler magnitude: 13.73. Transit SNR 8.63

There are 9 quarters with good PRF difference image offsets

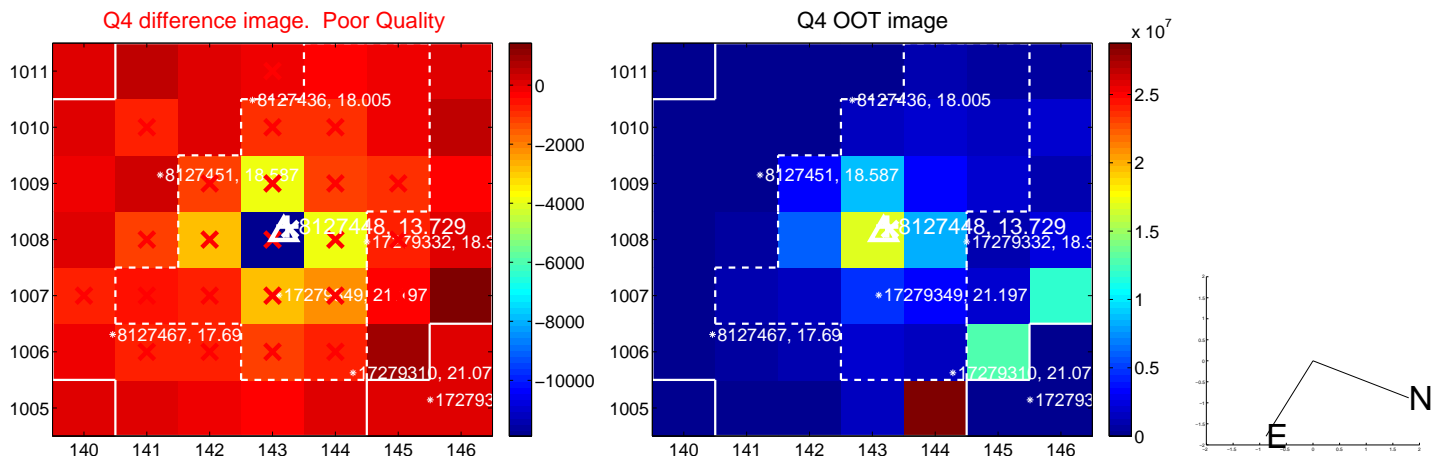
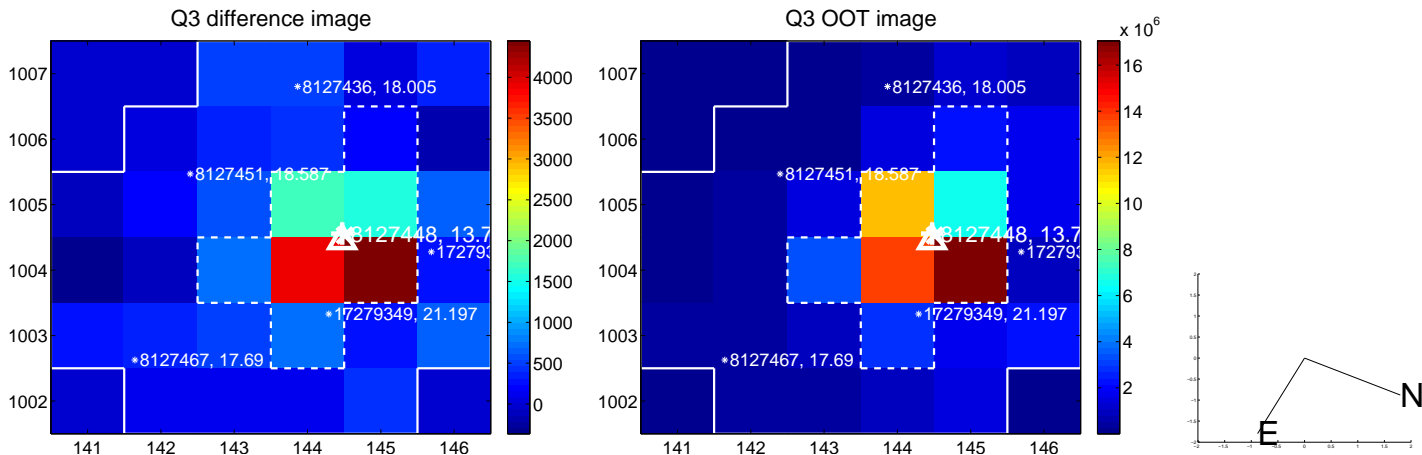
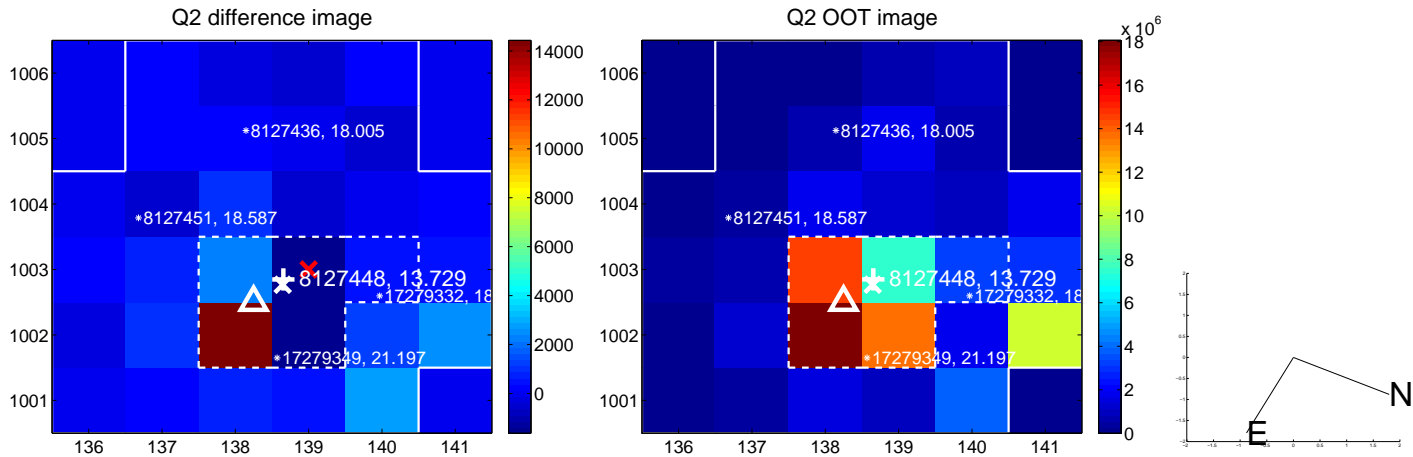
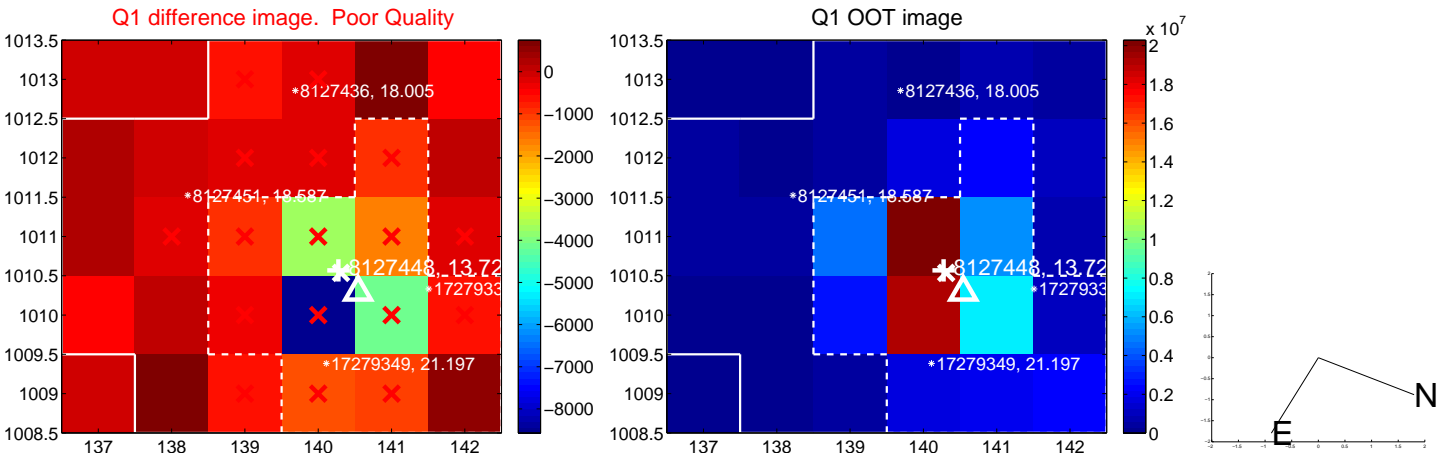
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.050 \pm 0.162$	0.31	$-0.033 \pm 0.193$	$-0.037 \pm 0.149$
PRF-fit source offset from KIC position	$0.250 \pm 0.146$	1.72	$-0.084 \pm 0.171$	$-0.236 \pm 0.149$
photometric centroid source offset	$0.49 \pm 0.50$	0.98	$0.22 \pm 0.44$	$0.44 \pm 0.52$

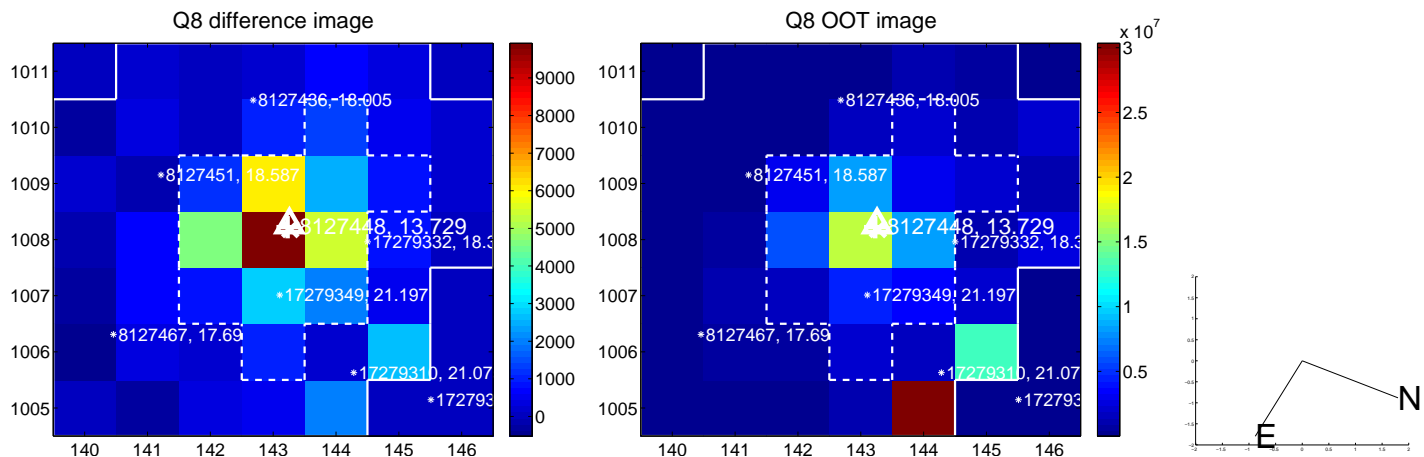
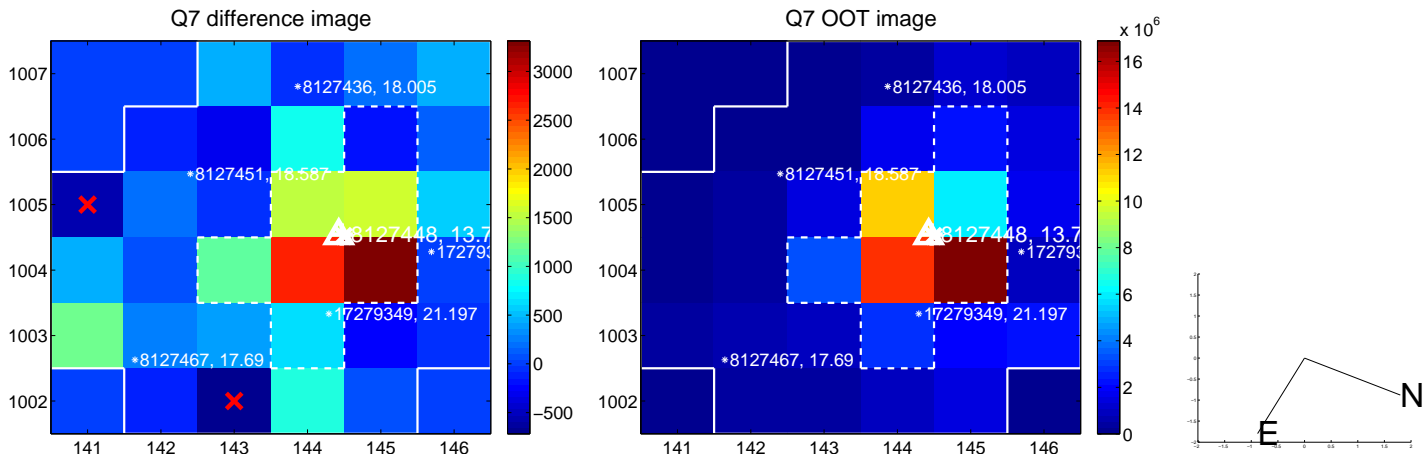
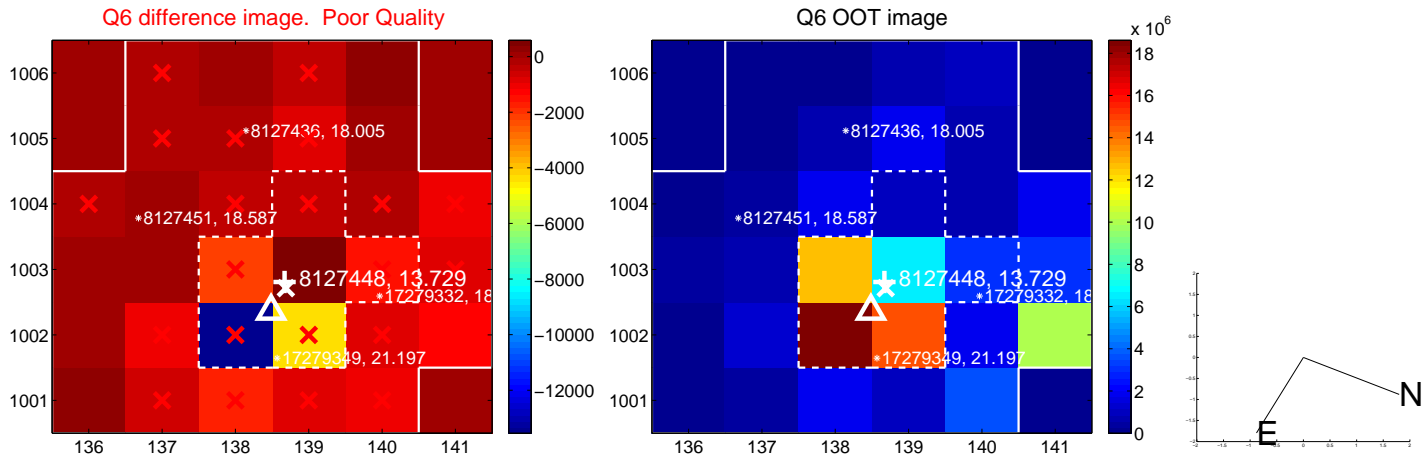
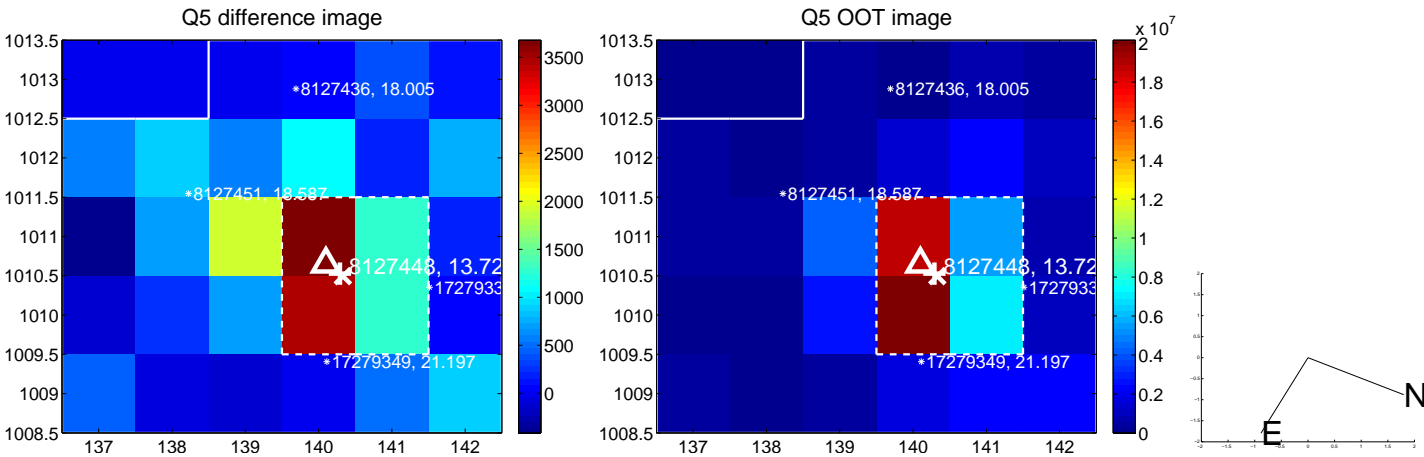


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

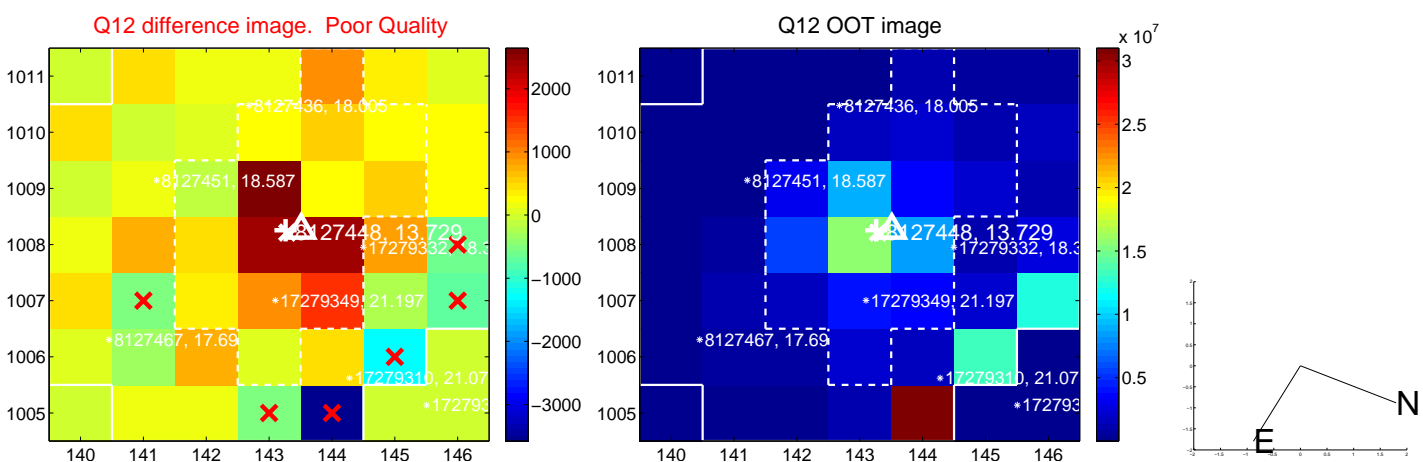
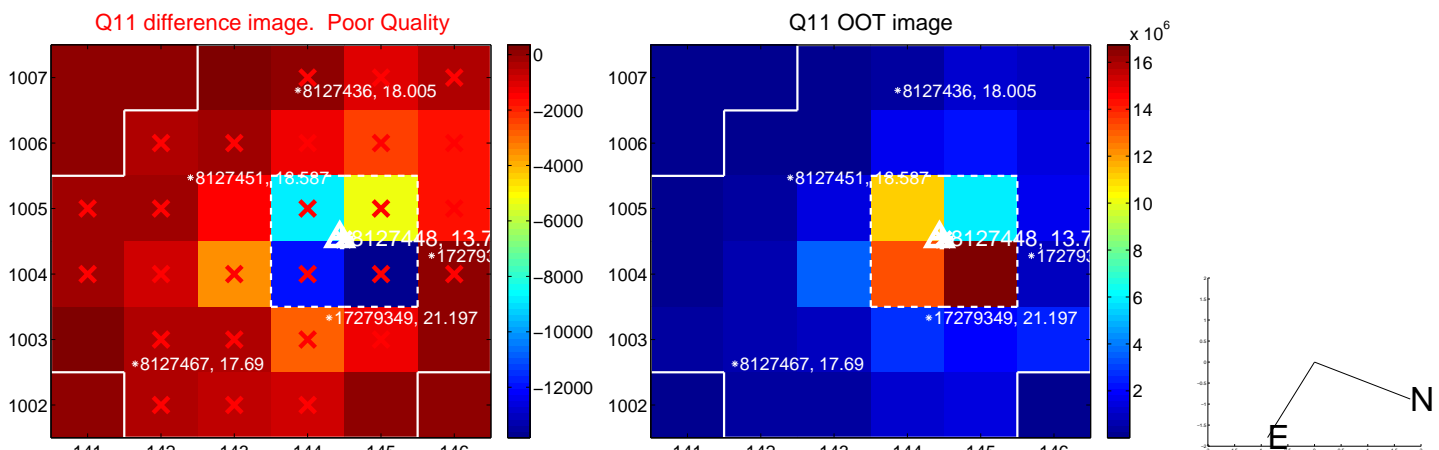
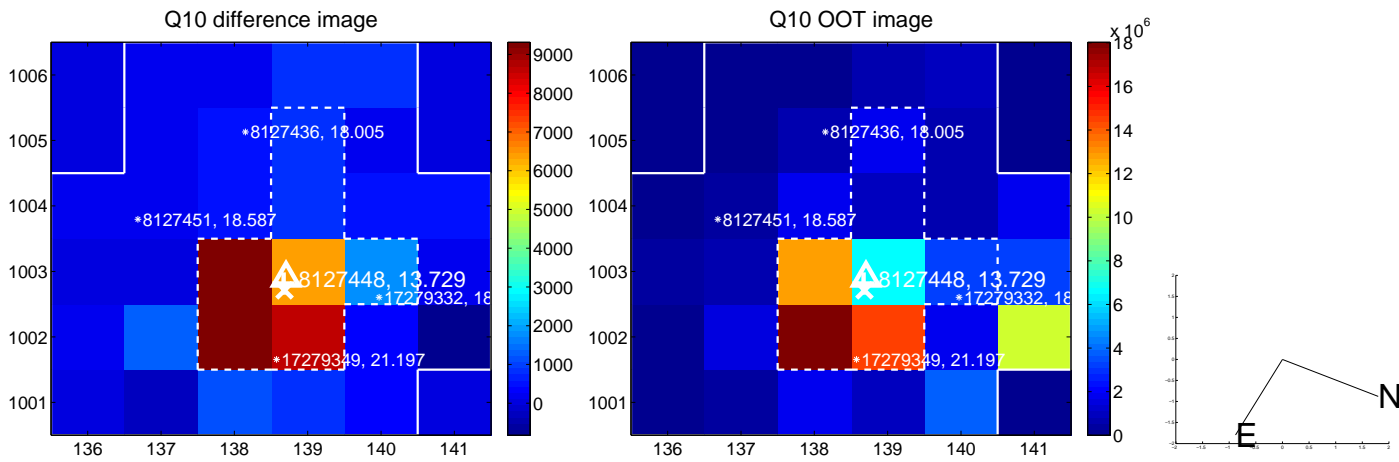
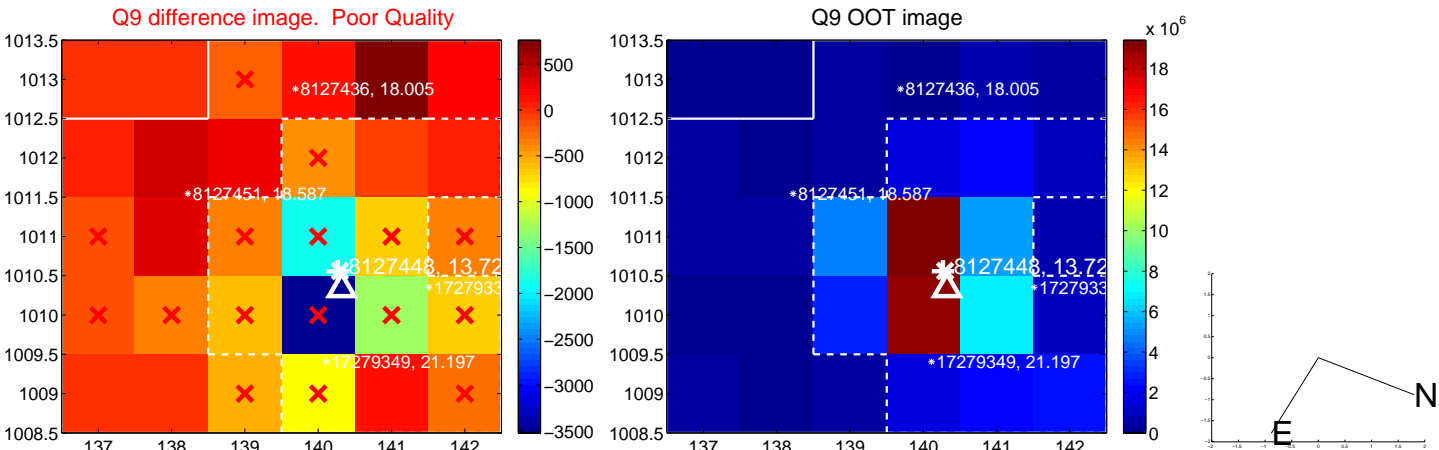


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

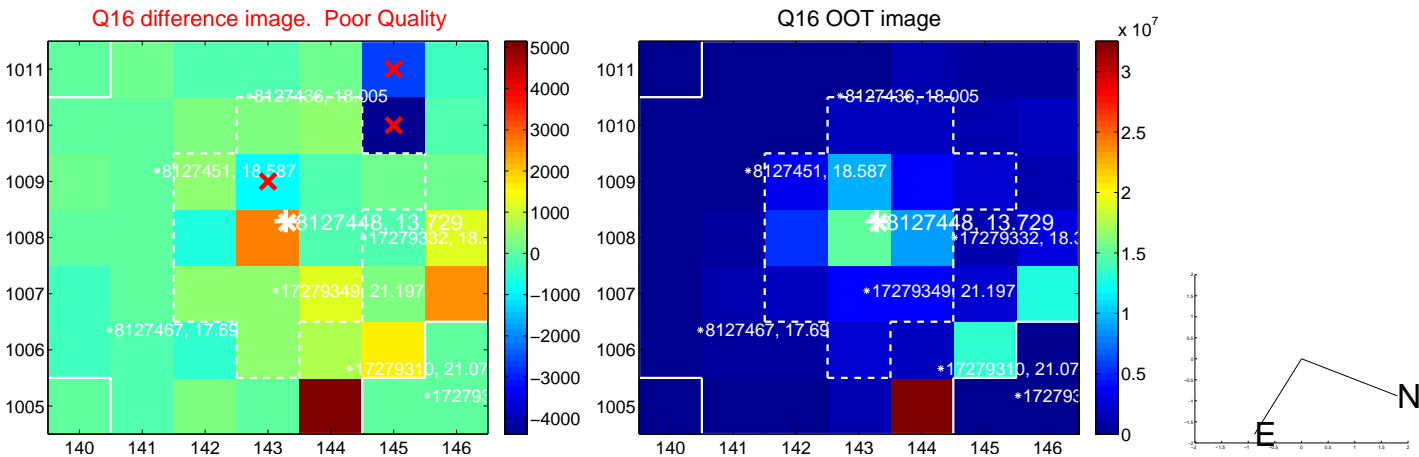
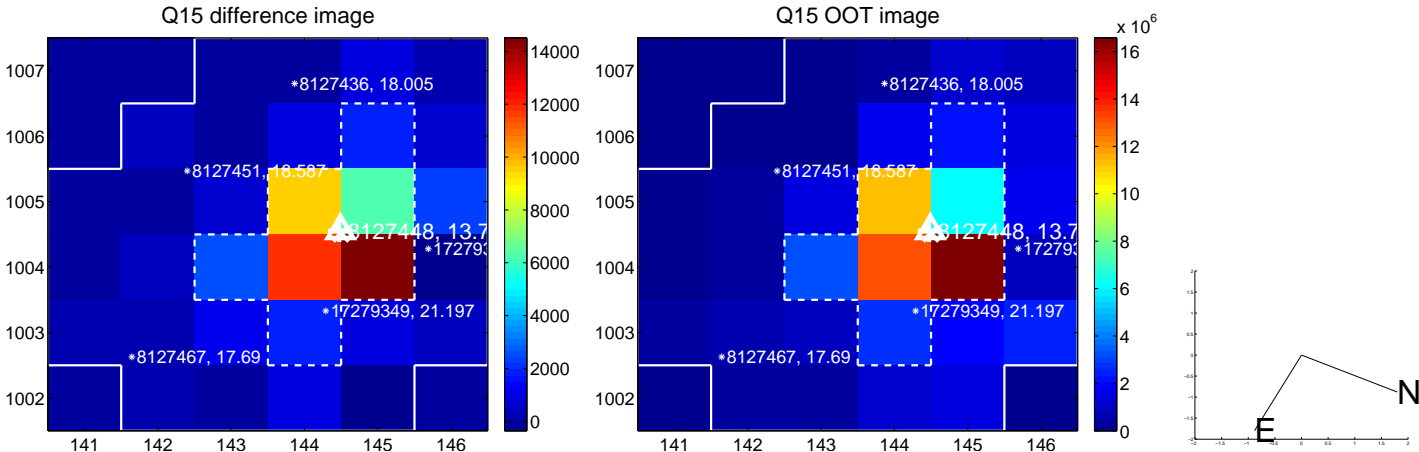
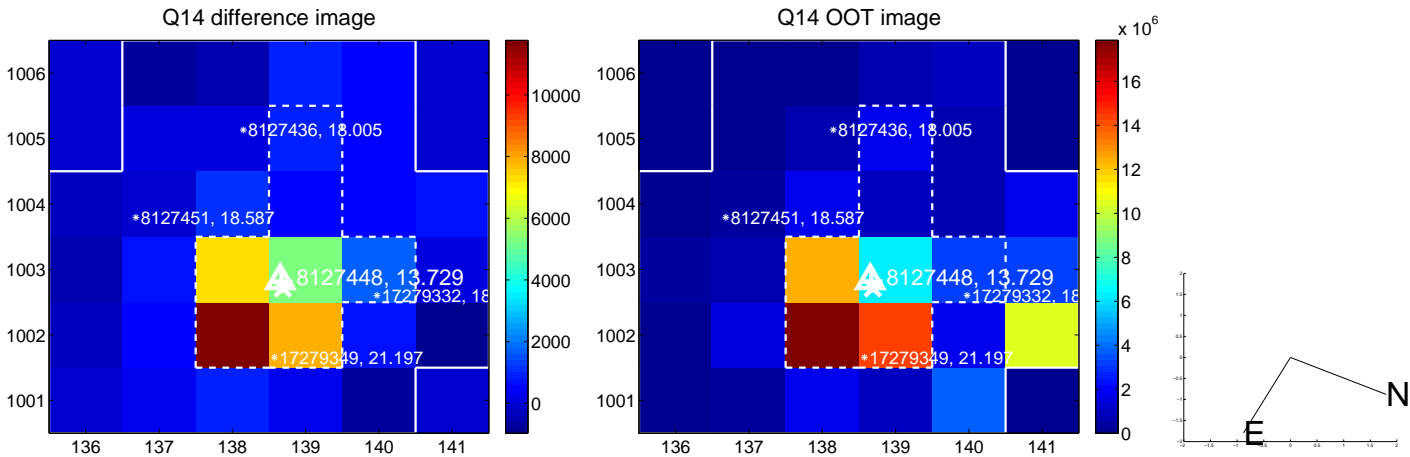
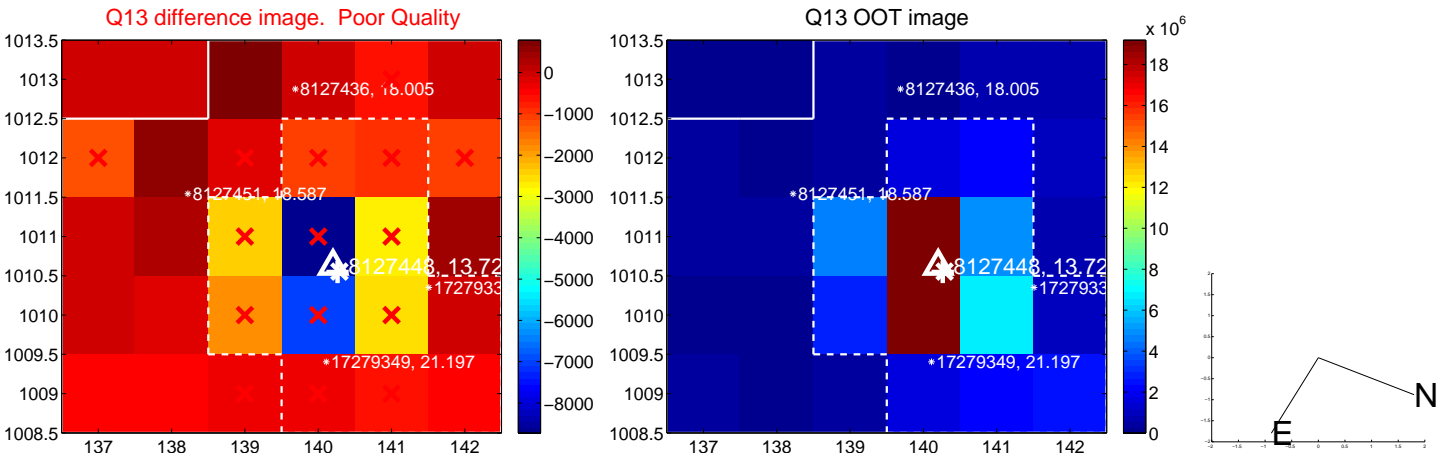




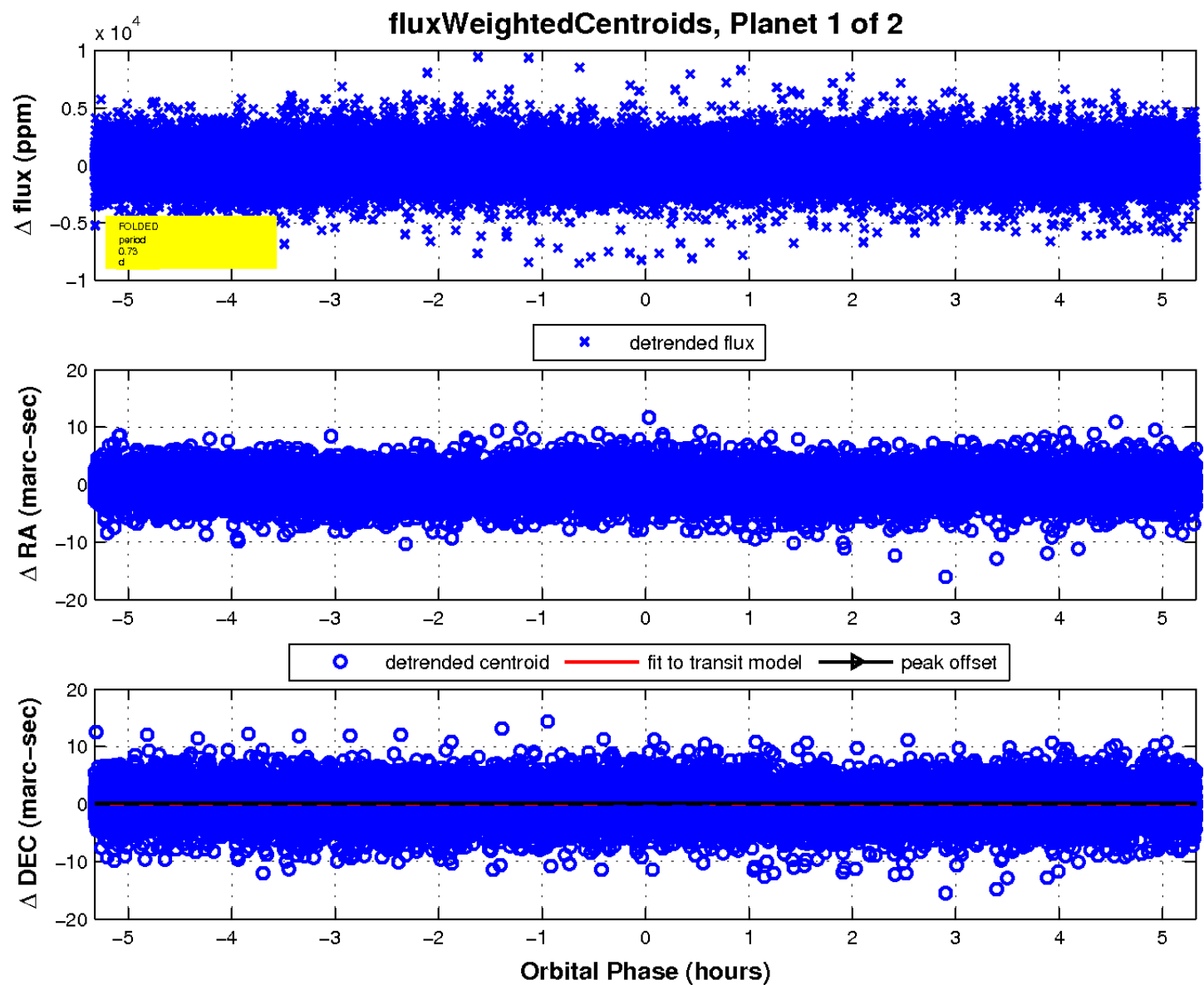
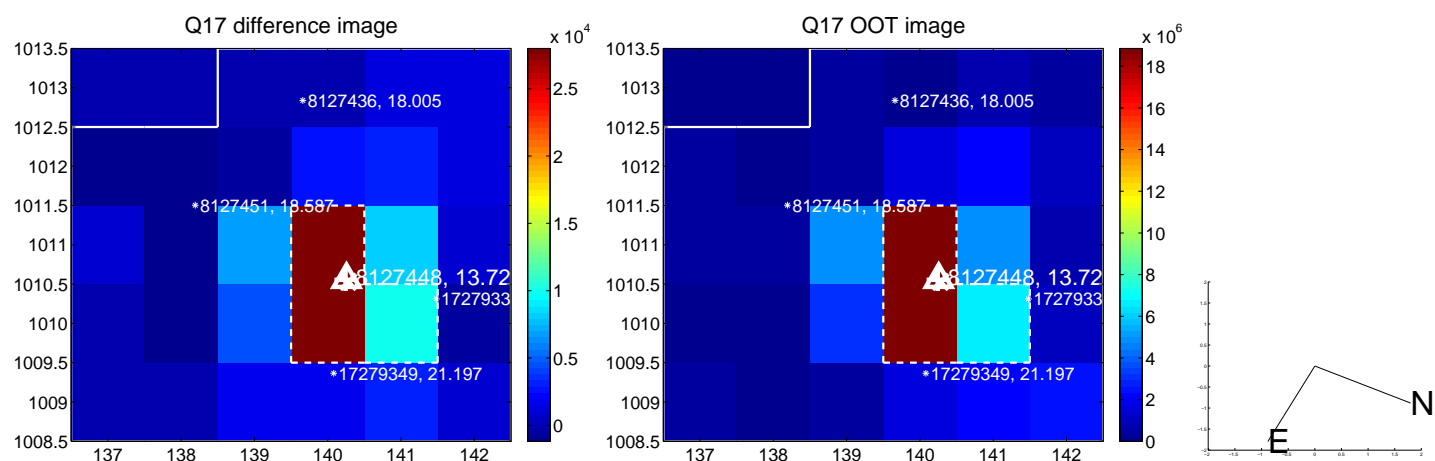
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

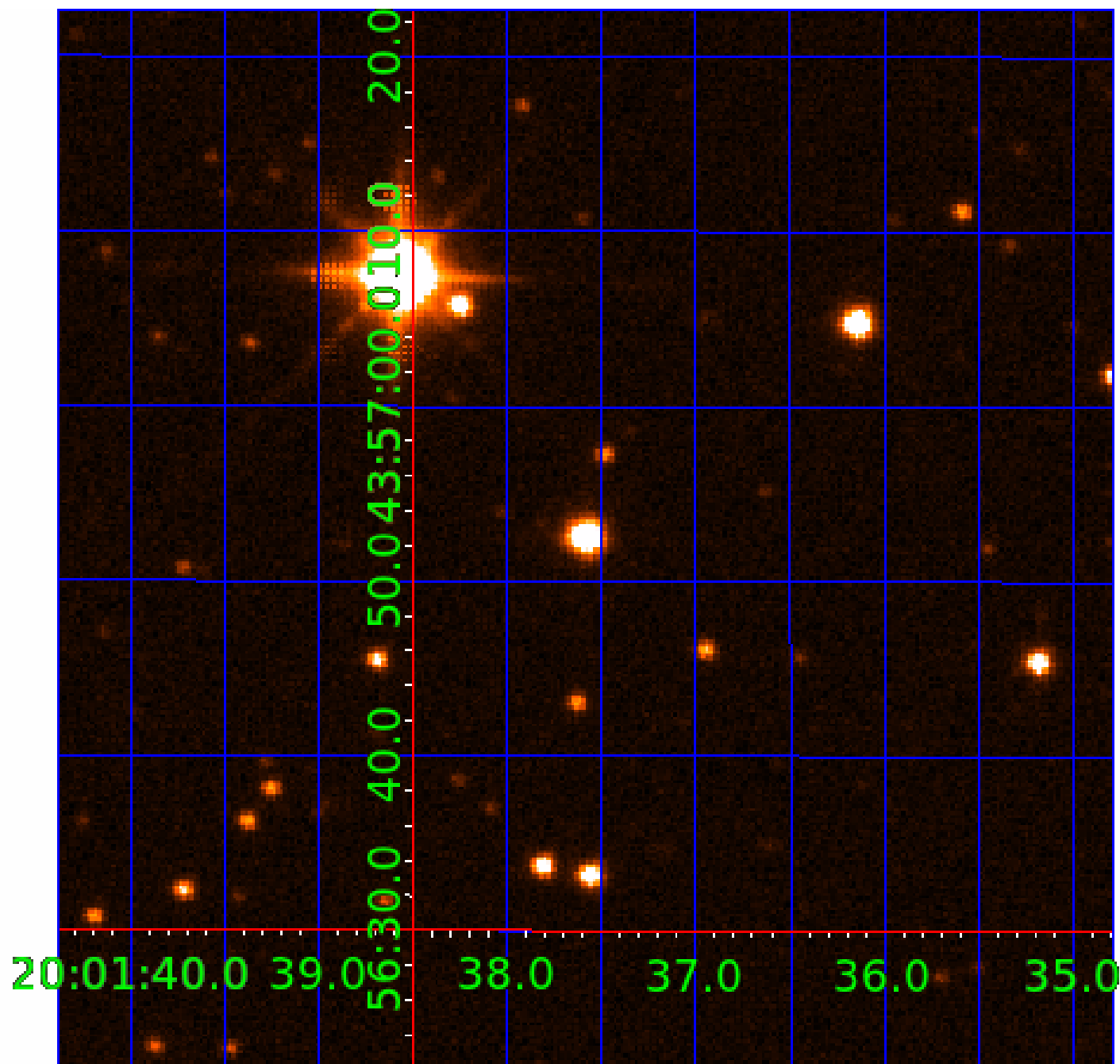


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008127448

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008127448-01	OBS	No	0.734835	131.596699	115.8	1.774	8.7	8.6	1.65	7459	2.04	22028.44
008127448-02	OBS	No	1.331138	132.675423	219.4	10.088	9.3	11.5	1.65	7459	2.61	9975.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008127448-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008127448-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV

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

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

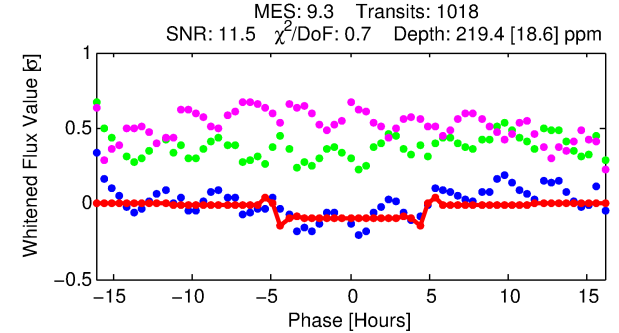
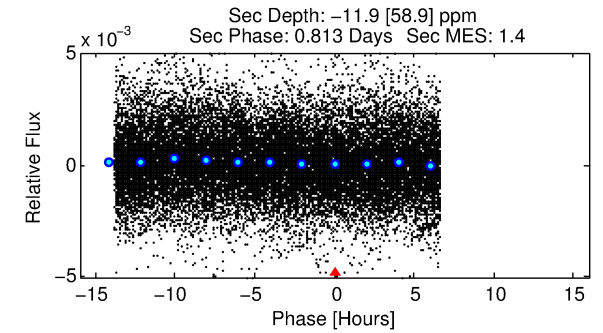
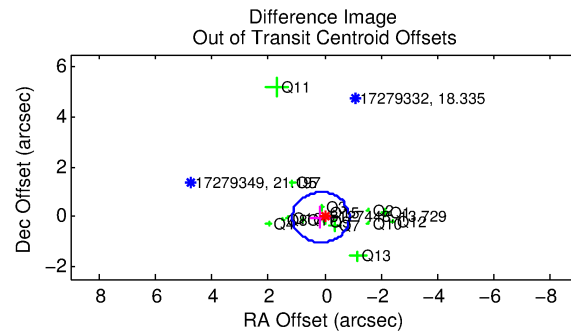
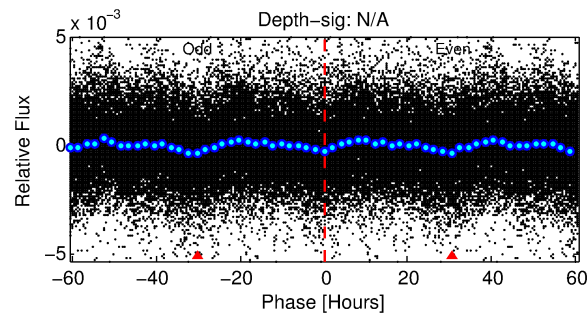
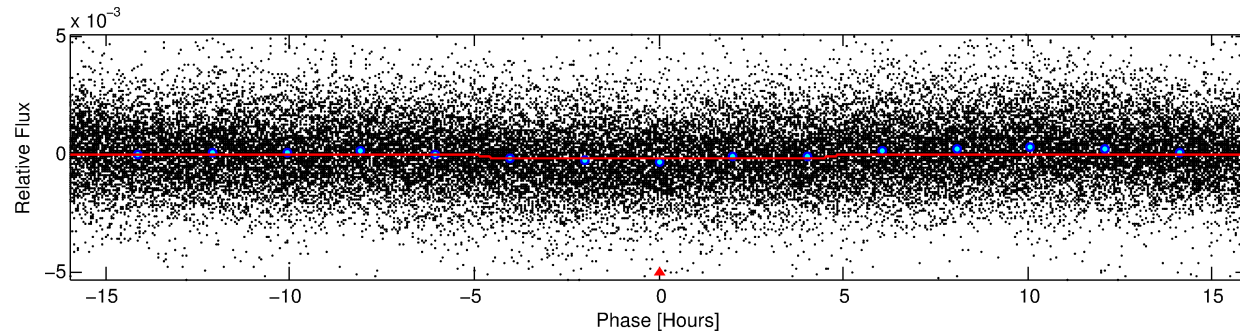
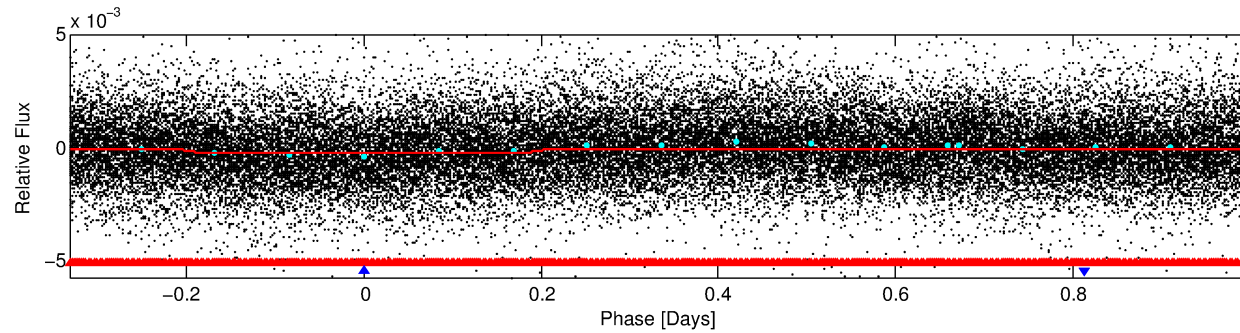
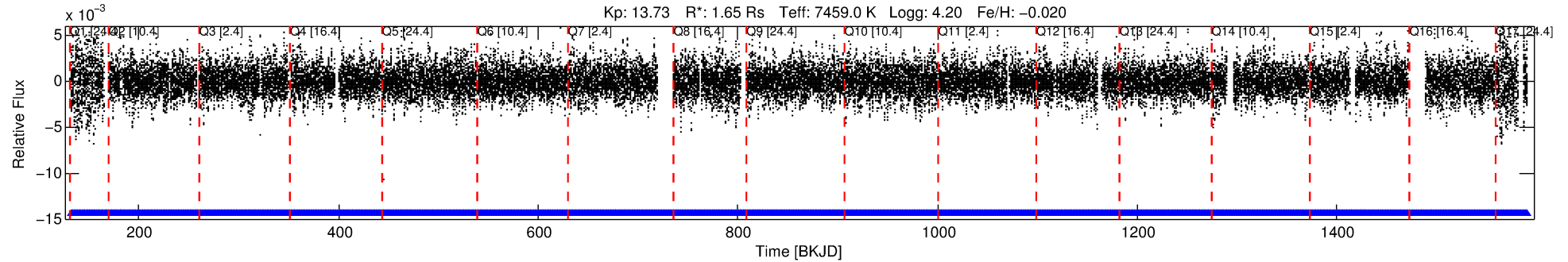
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008127448-02

No Significant Match Found

# DV One-Page Summary

KIC: 8127448 Candidate: 2 of 2 Period: 1.331 d



## DV Fit Results:

Period = 1.33114 [0.00001] d  
Epoch = 132.6754 [0.0021] BKJD  
Rp/R\* = 0.0145 [0.0013]  
a/R\* = 1.12 [0.11]  
b = 0.69 [0.36]  
Seff = 9975.61 [4179.03]  
Teff = 2548 [267] K  
Rp = 2.61 [0.87] Re  
a = 0.0274 [0.0073] AU  
Ag = N/A  
Teffp = N/A

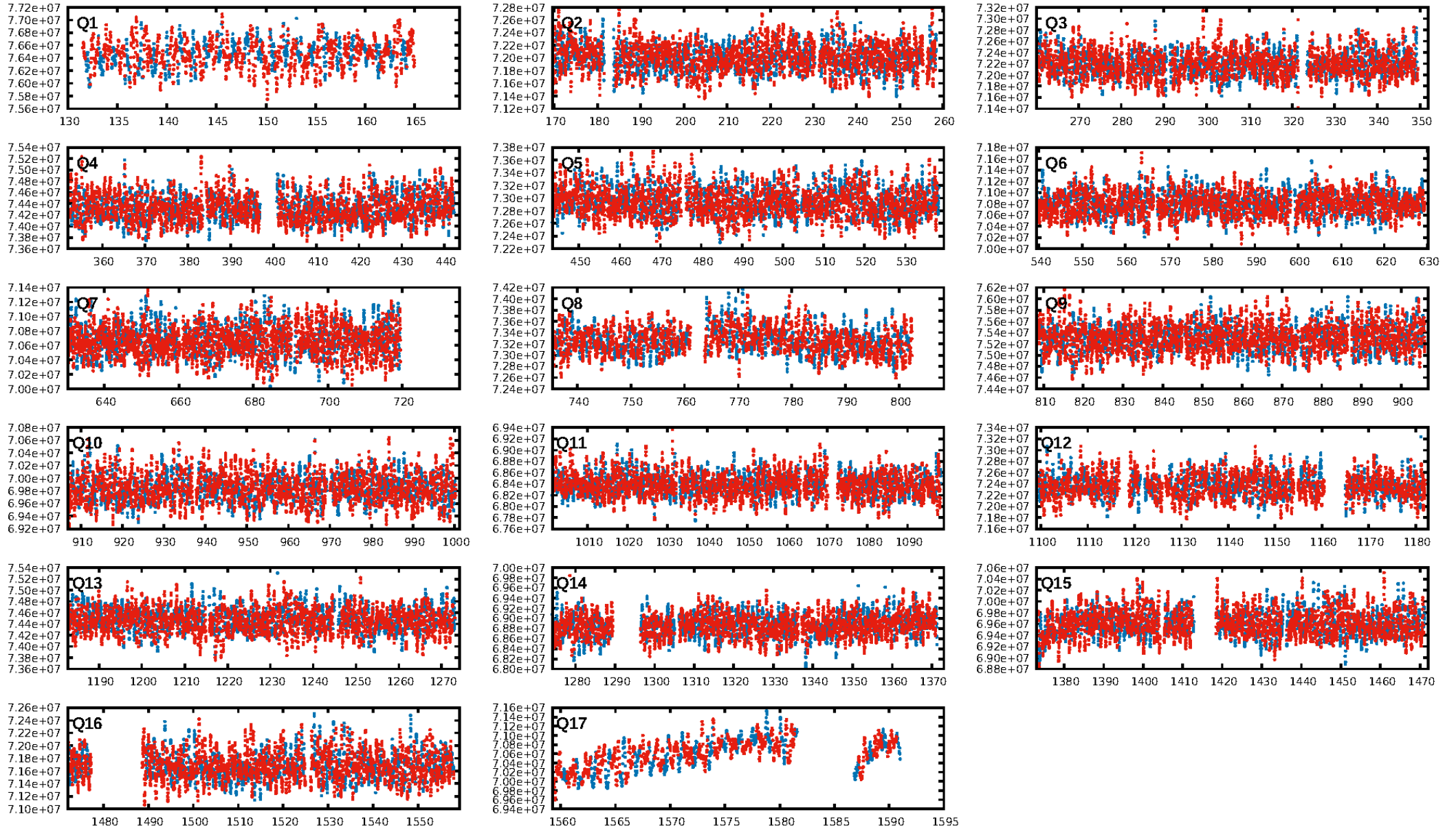
## DV Diagnostic Results:

ShortPeriod-sig: 83.8% [1.40σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [973/973]  
GhostDiagnostic-chr: 2.38  
Centroid-sig: N/A  
Centroid-so: 1.286 arcsec [8.17σ]  
OotOffset-rm: 0.141 arcsec [0.42σ]  
KicOffset-rm: 0.217 arcsec [0.68σ]  
OotOffset-st: 2/4/4/5 [15]  
KicOffset-st: 2/4/4/5 [15]  
DiffImageQuality-fgm: 0.80 [12/15]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:19:43 Z

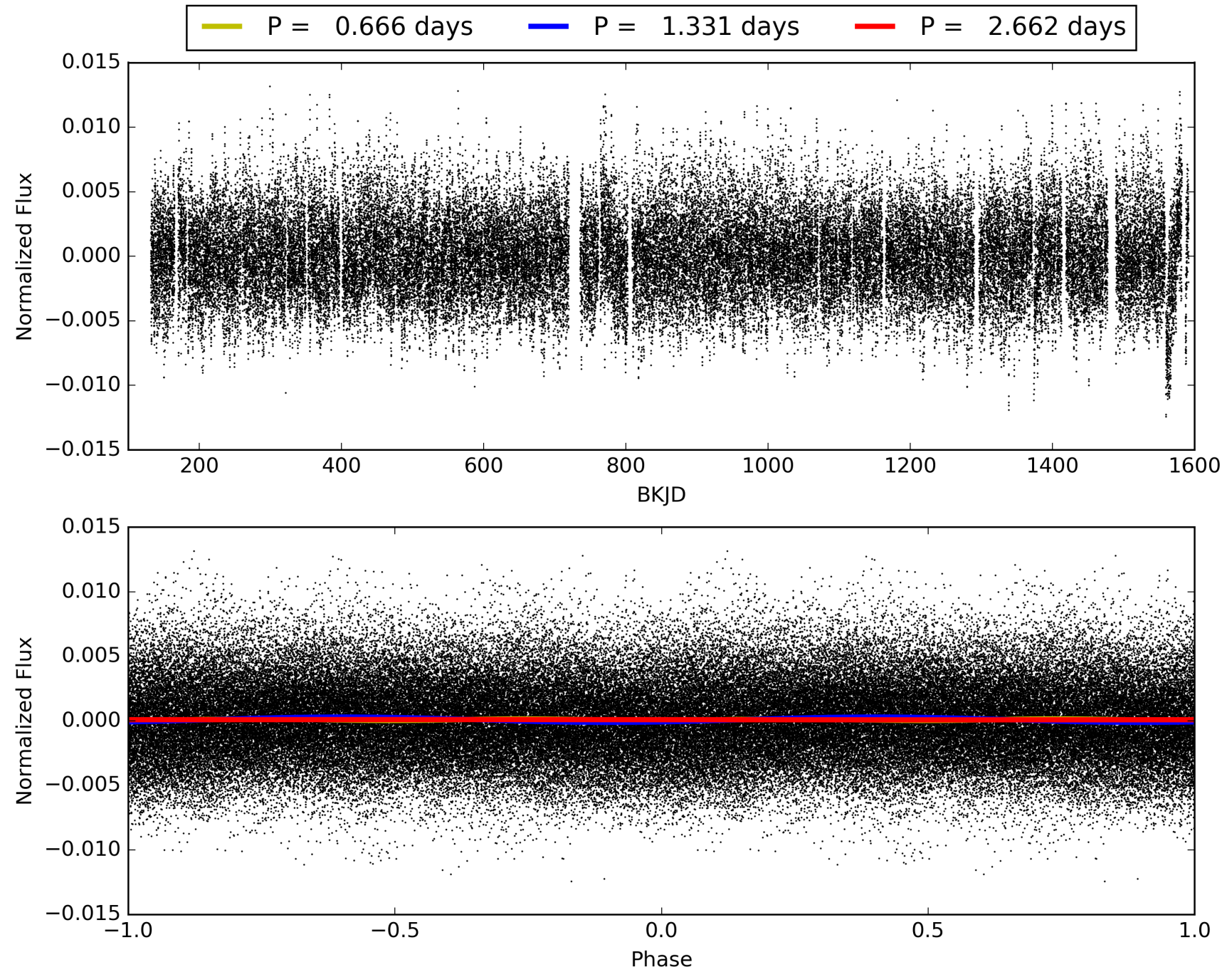
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008127448-02, PDC Light Curves





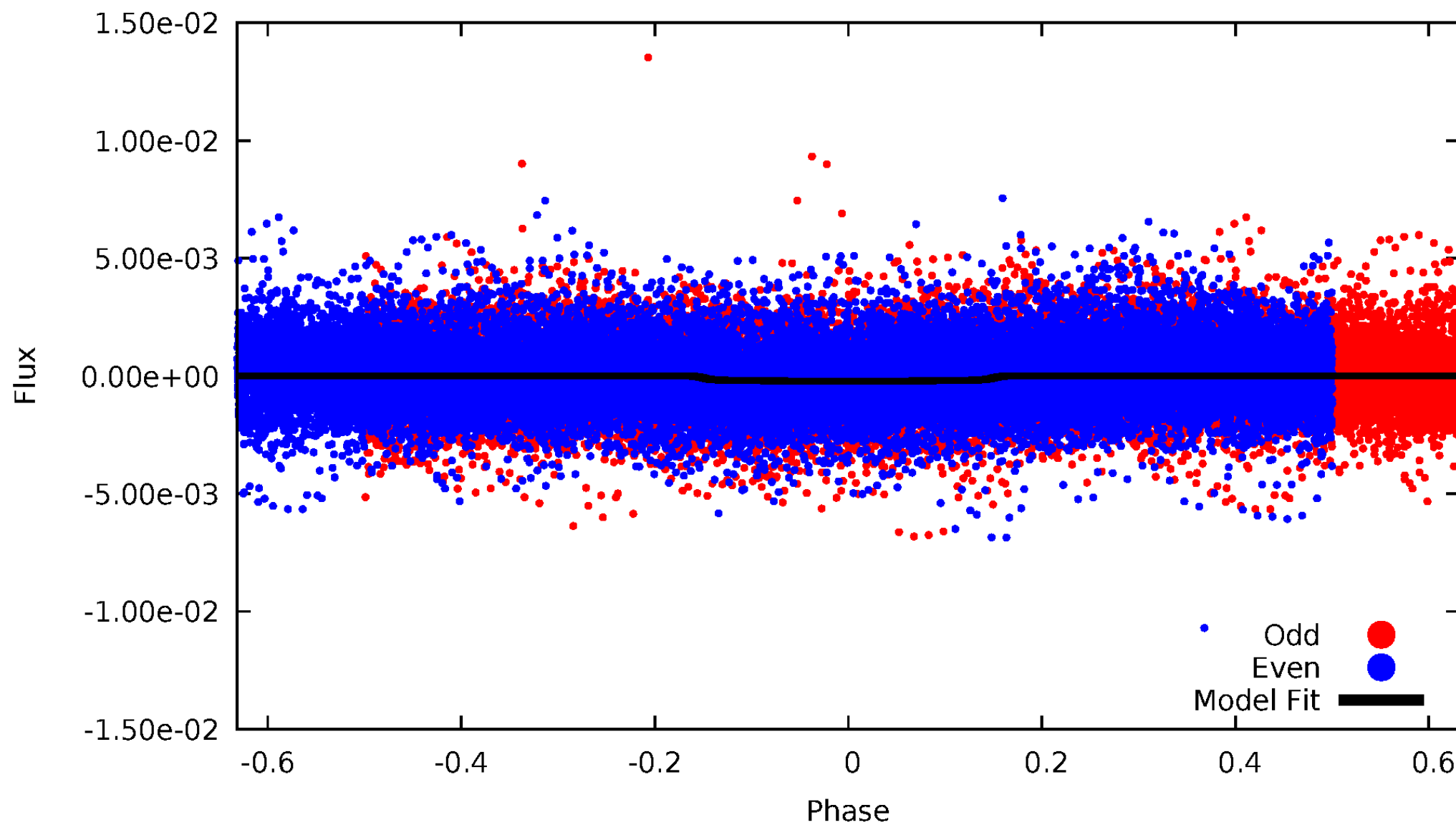
# TCE 008127448-02





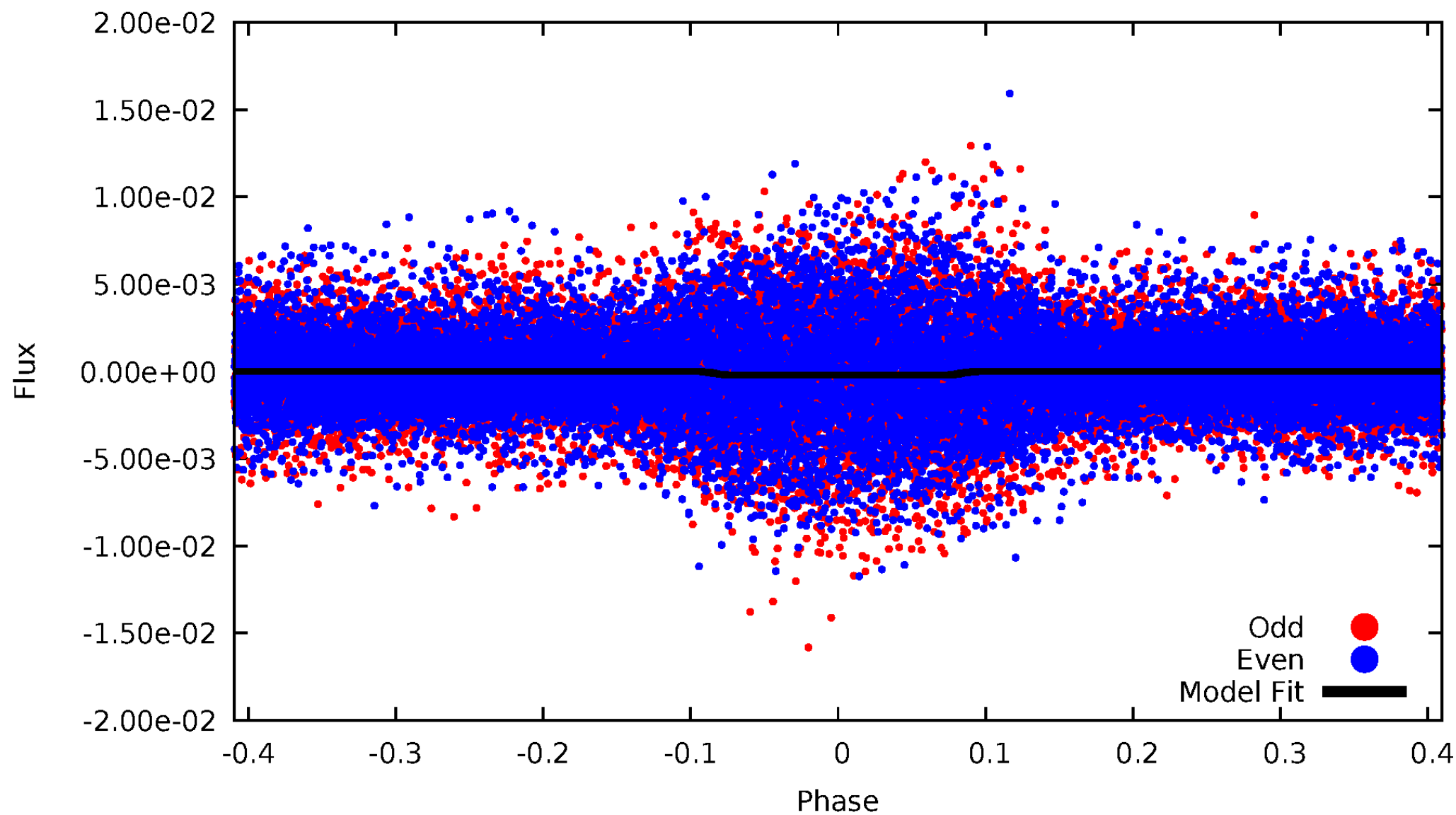
# DV Odd/Even

TCE 008127448-02



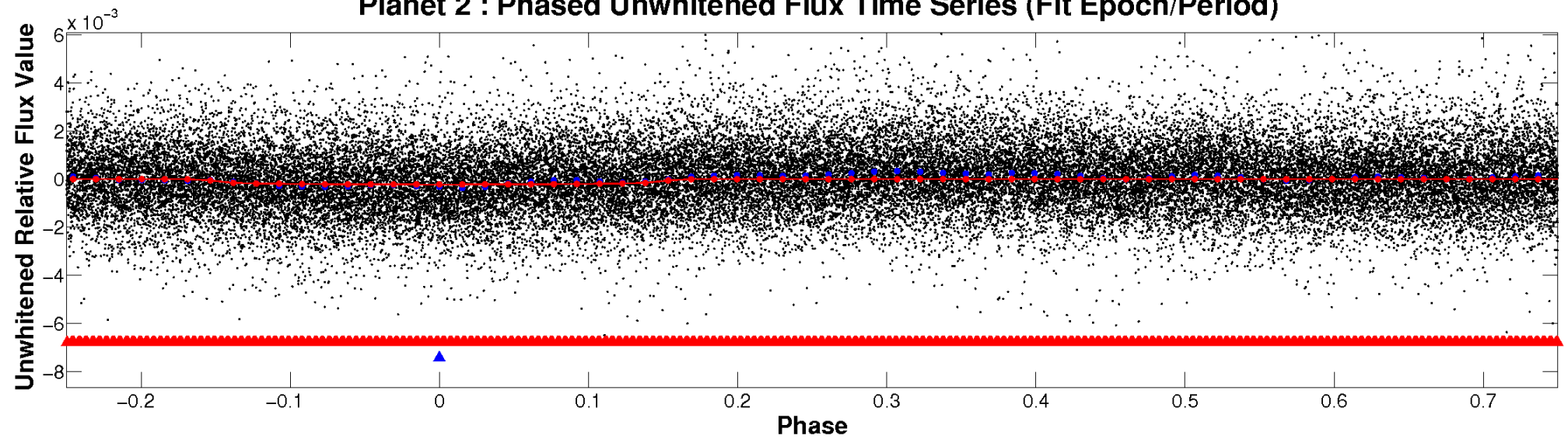
# ALT Odd/Even

TCE 008127448-02

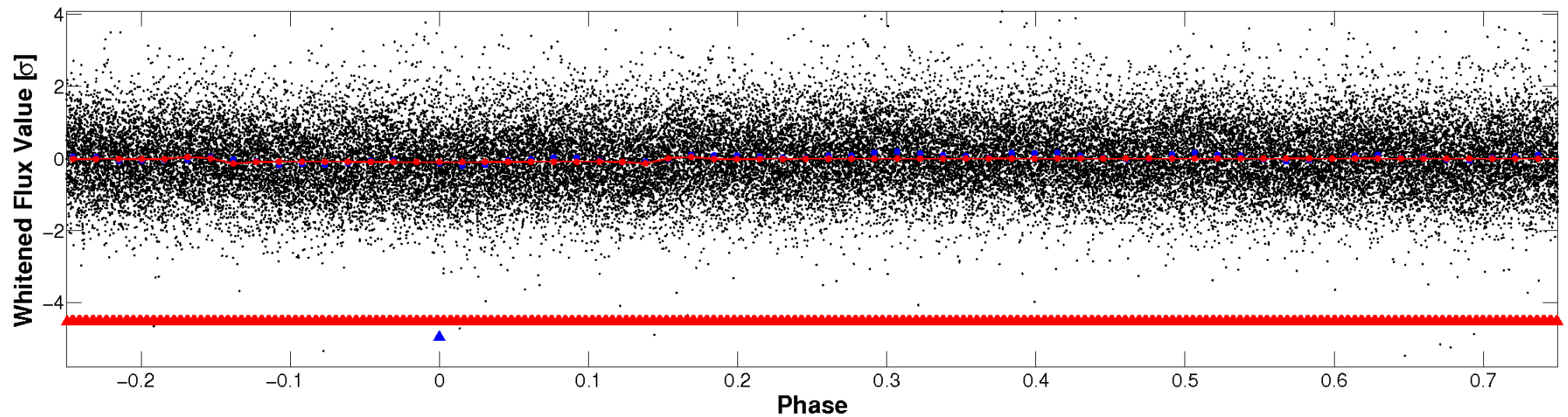


# Non-Whitened Vs. Whitened Light Curve

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

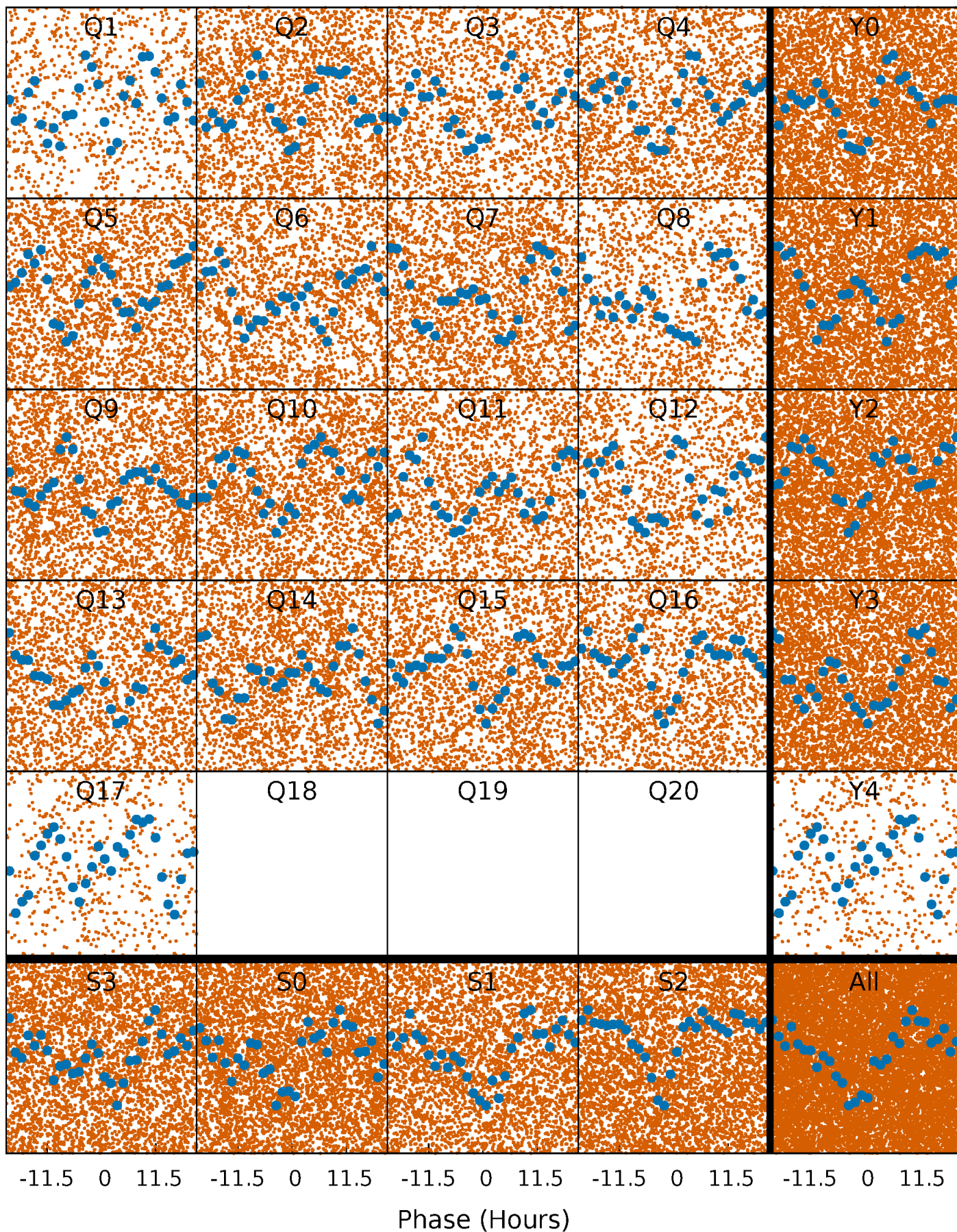


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

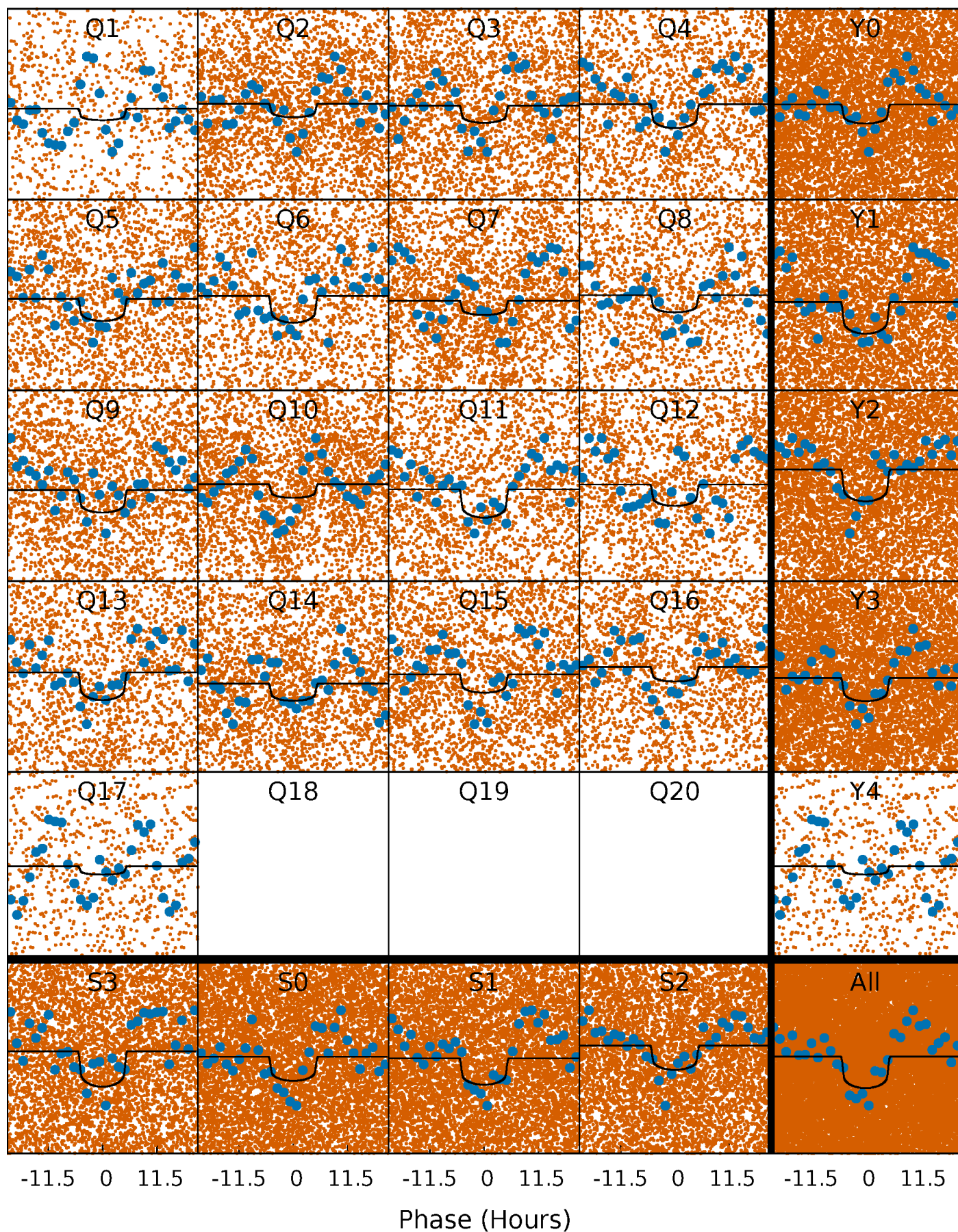
TCE 008127448-02 P= 1.331138 Days  $T_0=132.675423$  (BKJD)





# DV Quarter-Phased Transit Curves

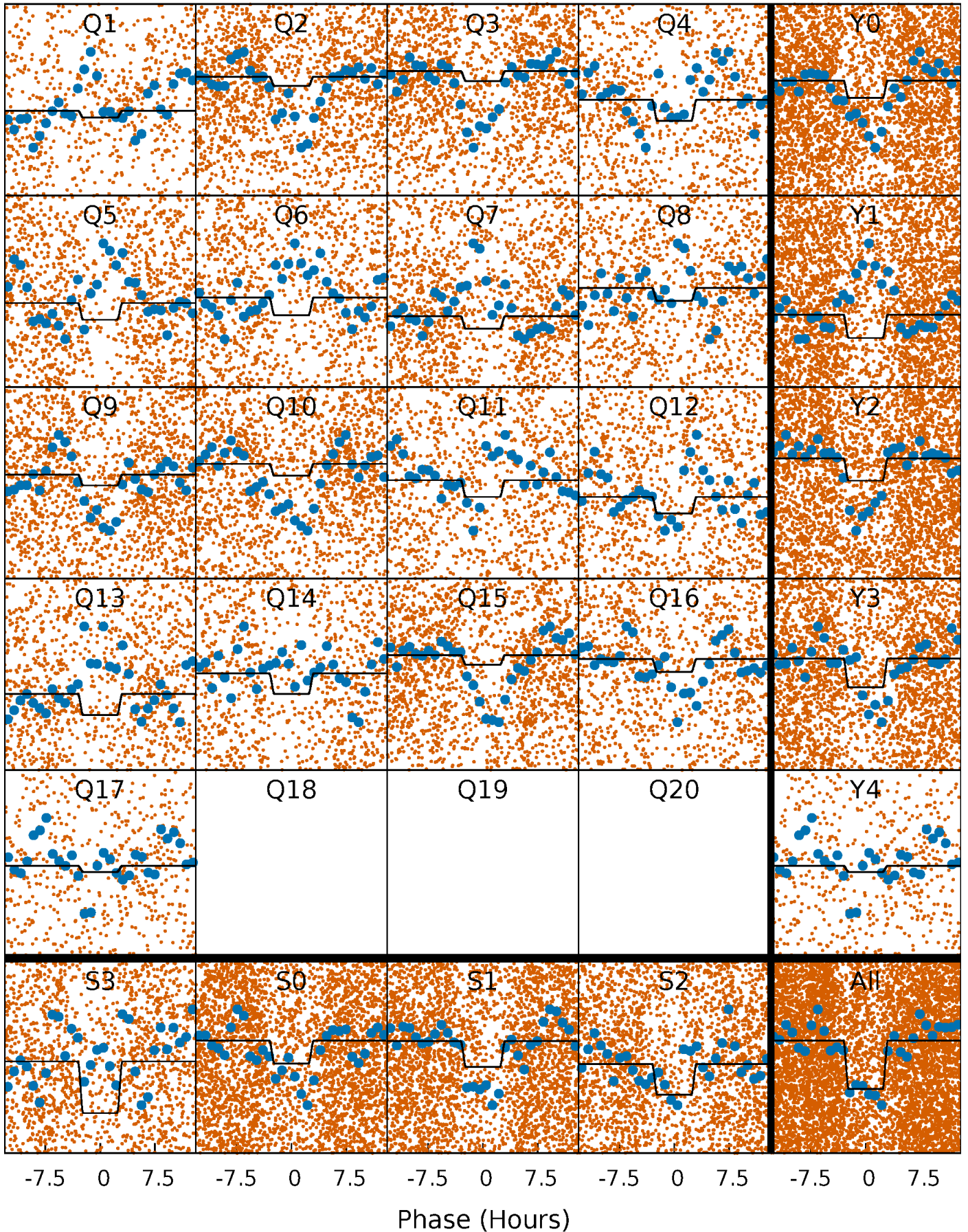
TCE 008127448-02 P= 1.331138 Days  $T_0=132.675423$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

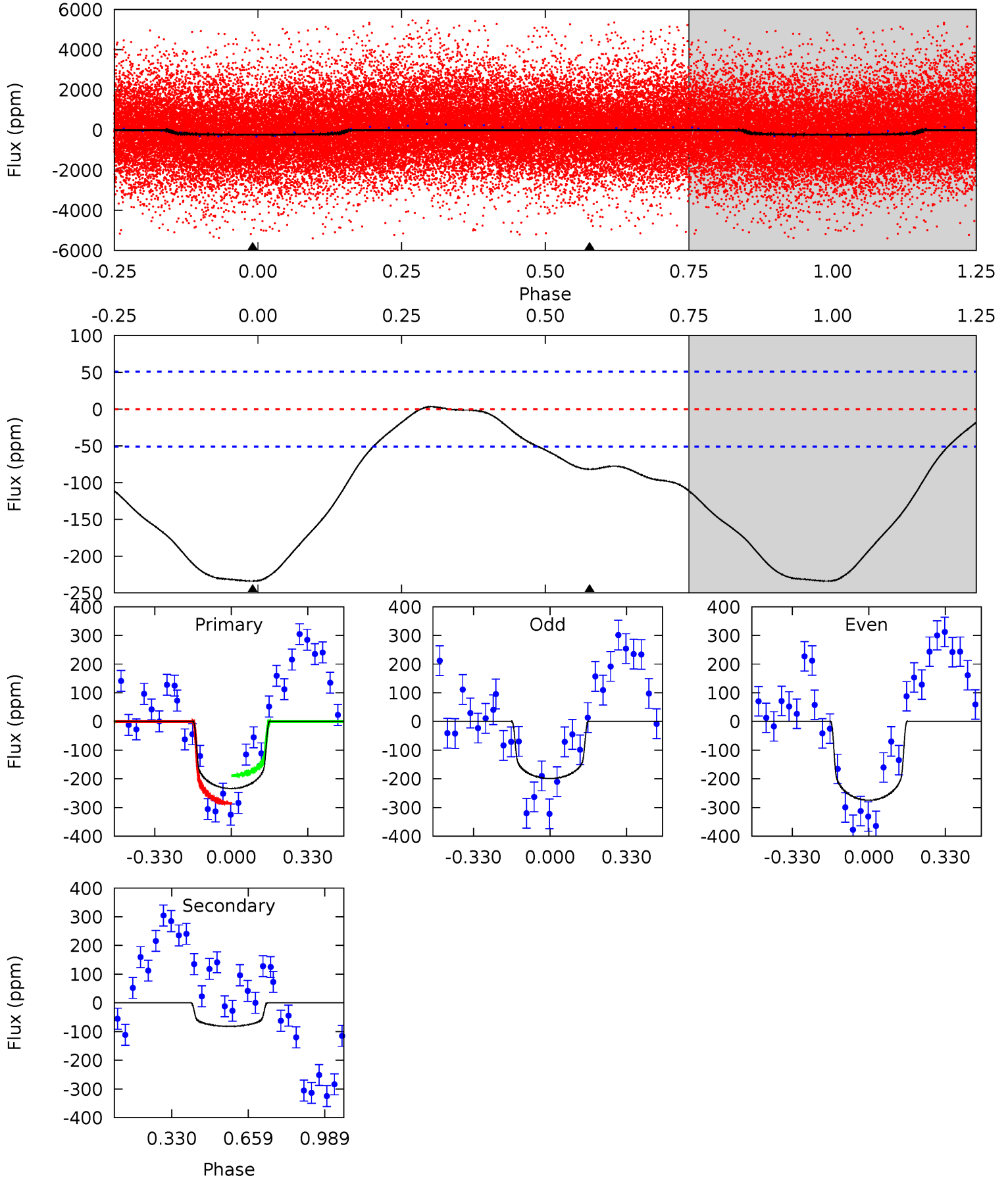
TCE 008127448-02 P= 1.331123 Days  $T_0=132.622904$  (BKJD)



# DV Model-Shift Uniqueness Test

008127448-02, P = 1.331138 Days, E = 131.344285 Days

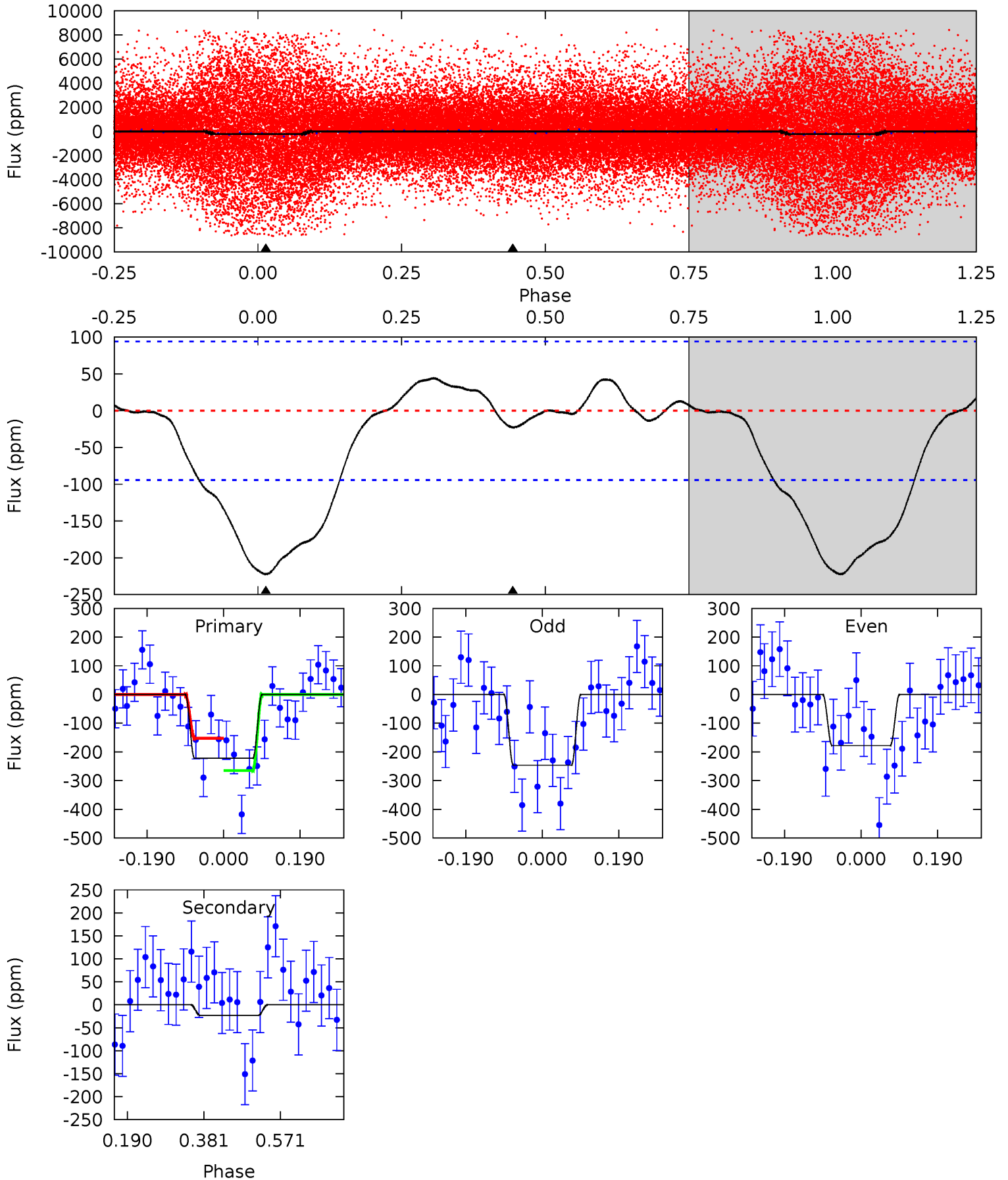
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	6.91	0	0	4.31	0.97	0.83	19.8	19.8	6.91	6.91	3.23	0.91	0.01	4.31



# Alt Model-Shift Uniqueness Test

008127448-02, P = 1.331123 Days, E = 131.291781 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	1.08	0	0	4.43	1.31	0.37	10.5	10.5	1.08	1.08	1.59	1.76	0.17	2.68



### Stellar Parameters For KIC 008127448

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7459^{+207}_{-337}$	$4.197^{+0.087}_{-0.203}$	$-0.020^{+0.200}_{-0.350}$	$1.646^{+0.528}_{-0.244}$	$1.553^{+0.222}_{-0.222}$	$0.490^{+0.237}_{-0.255}$
	+3%/-5%	+2%/-5%	+1000%/-1750%	+32%/-15%	+14%/-14%	+48%/-52%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008127448-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-82 \pm 12$	$2.71^{+0.44}_{-0.39}$	$3605^{+282}_{-211}$	$5668^{+425}_{-331}$	$4.479^{+1.752}_{-1.103}$
Alt.	$-23 \pm 21$	$2.69^{+0.48}_{-0.35}$	$3610^{+290}_{-232}$	$4194^{+725}_{-7322}$	$1.255^{+1.335}_{-1.114}$

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

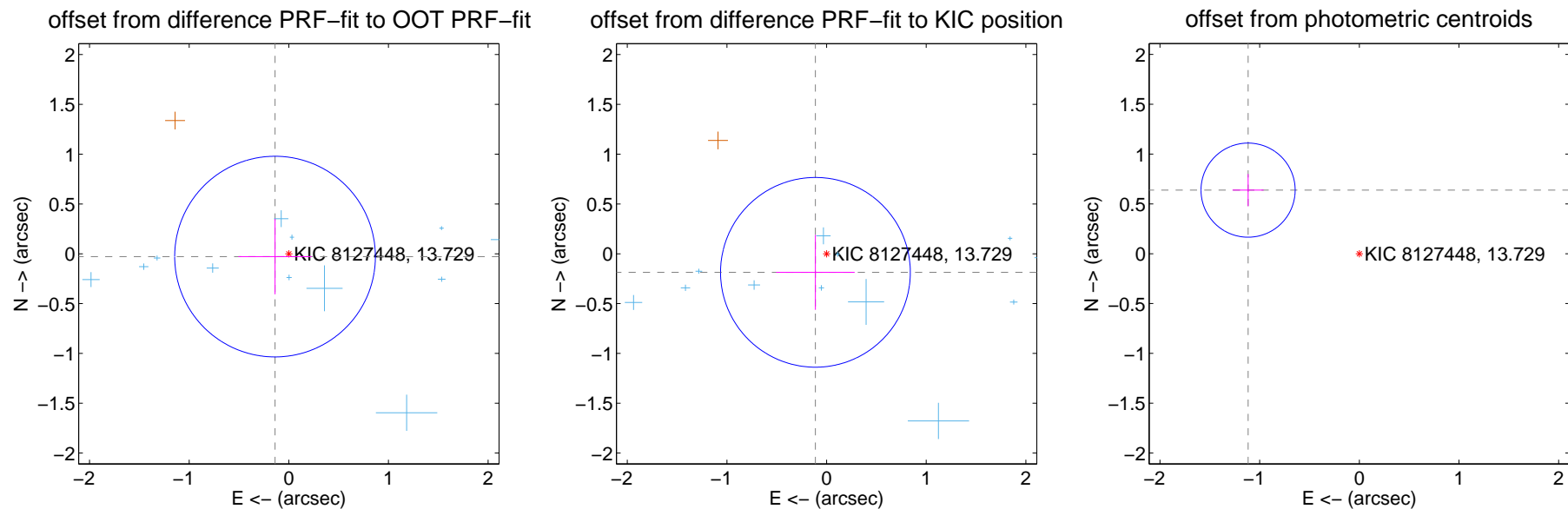
## DV Centroid Data

Supplemental centroid analysis for 008127448-02. Kepler magnitude: 13.73. Transit SNR 11.49

There are 12 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

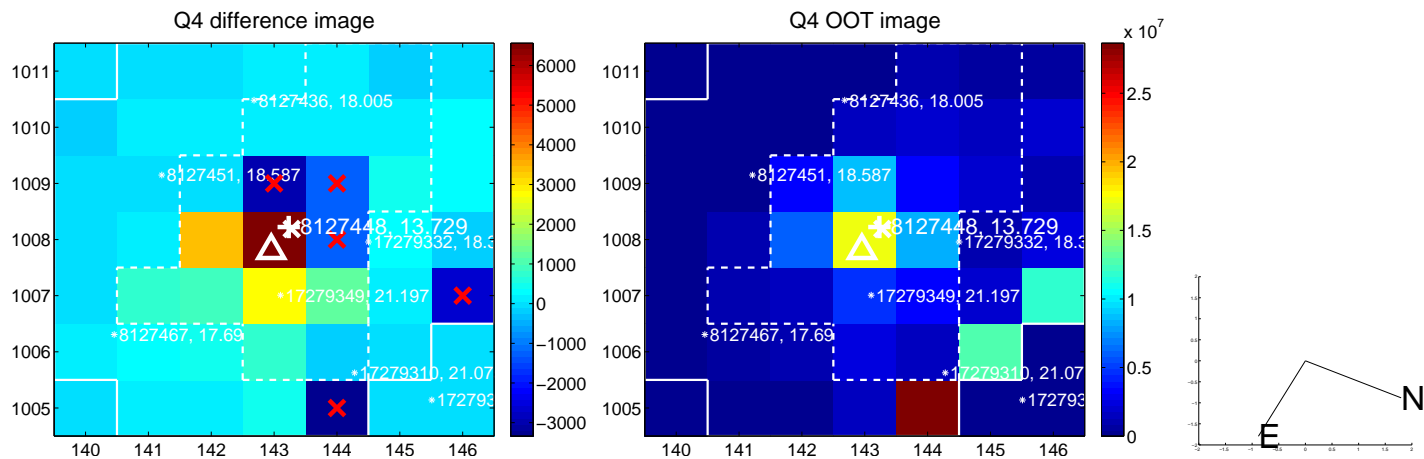
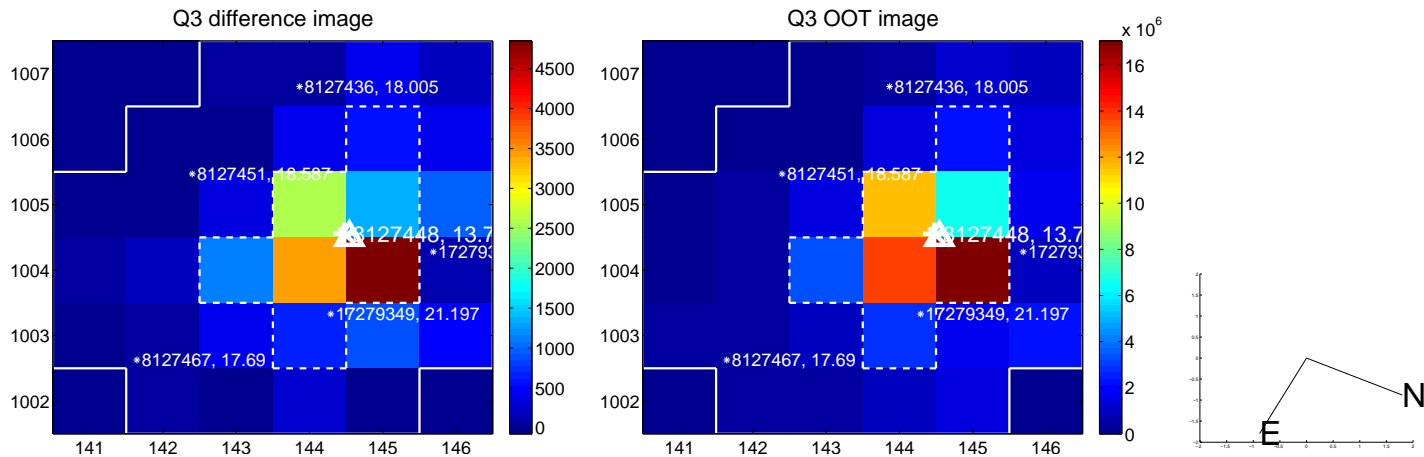
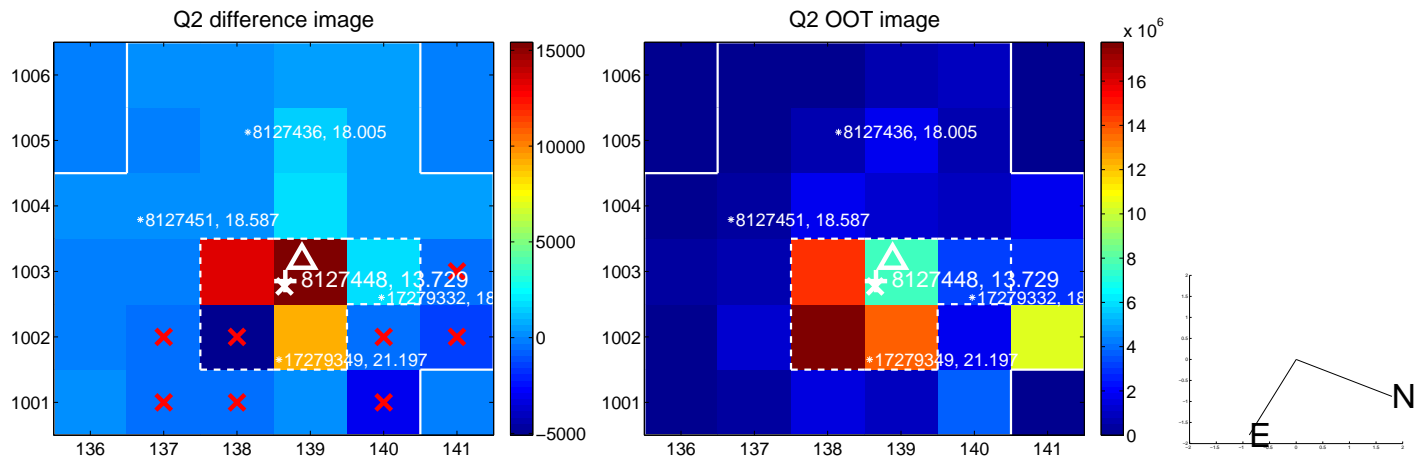
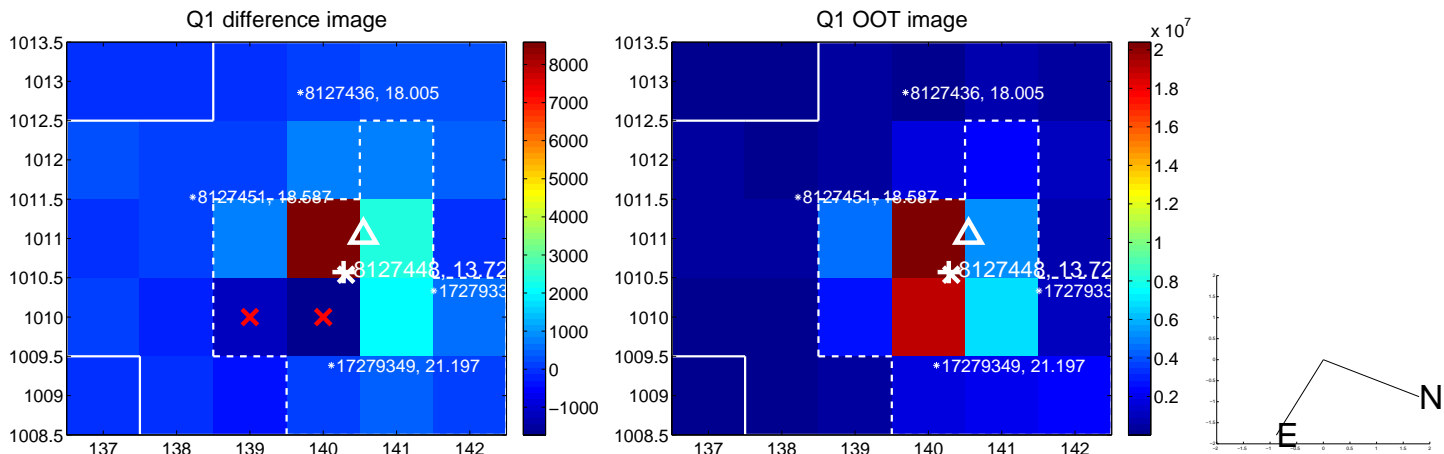
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.141 \pm 0.336$	0.42	$0.138 \pm 0.367$	$-0.028 \pm 0.379$
PRF-fit source offset from KIC position	$0.217 \pm 0.317$	0.68	$0.112 \pm 0.394$	$-0.186 \pm 0.376$
photometric centroid source offset	$1.29 \pm 0.16$	8.17	$1.12 \pm 0.16$	$0.64 \pm 0.16$



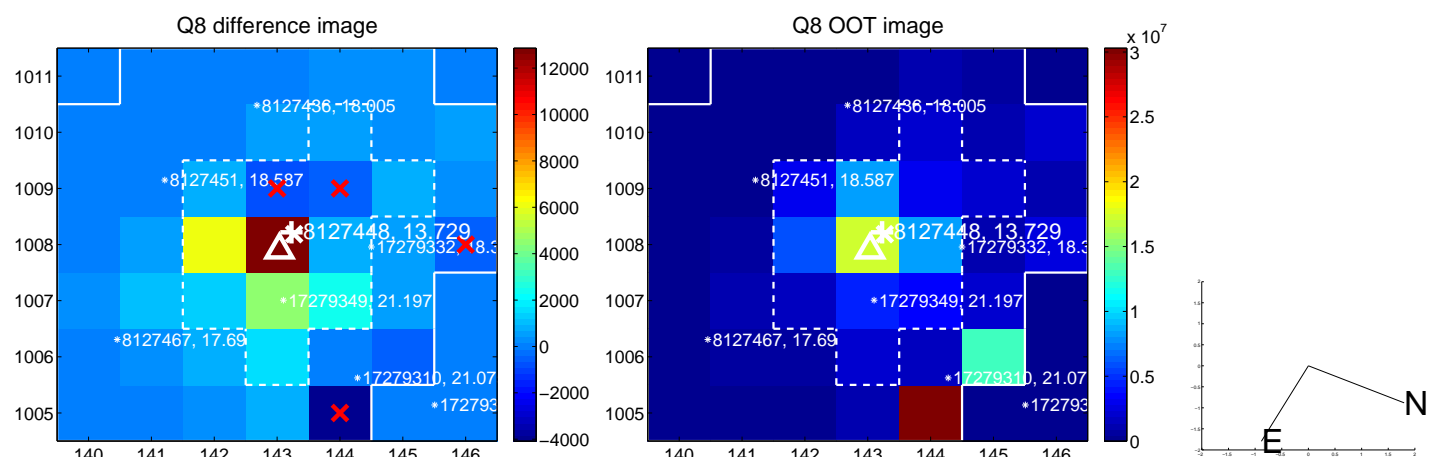
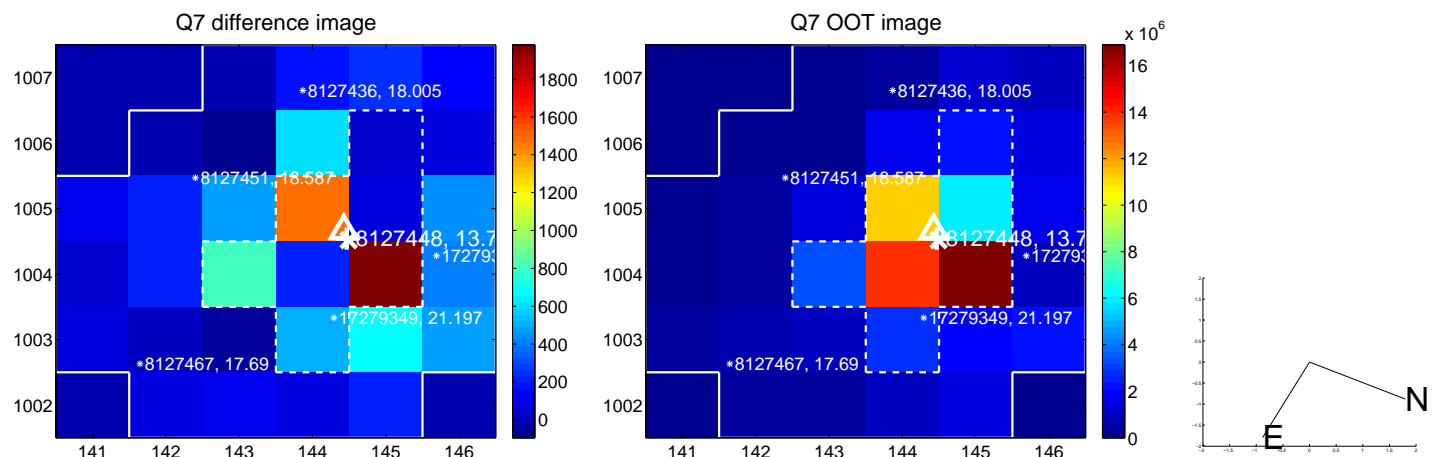
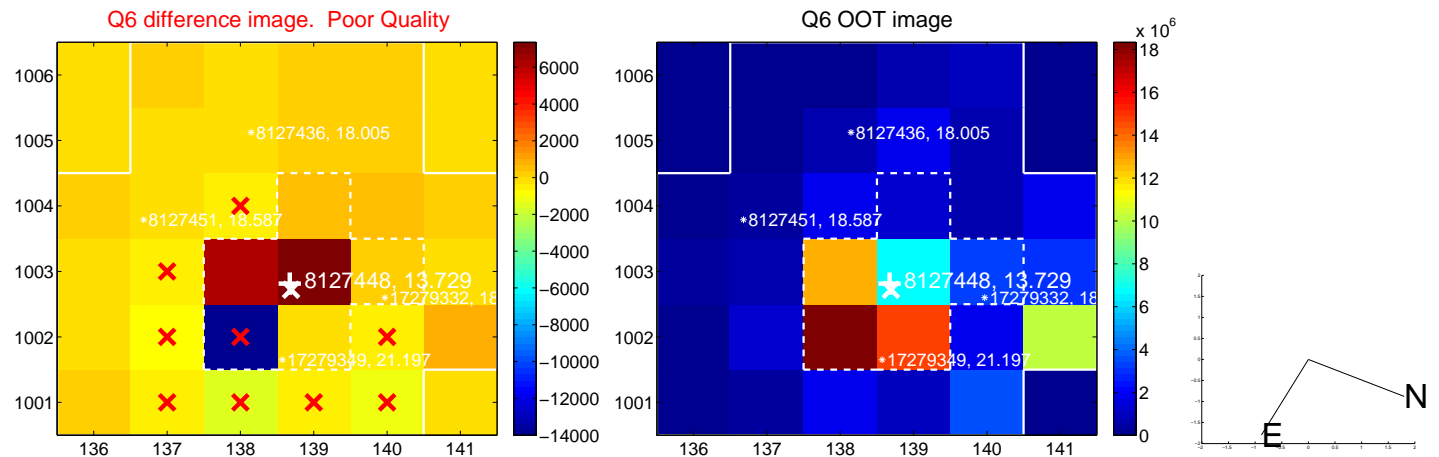
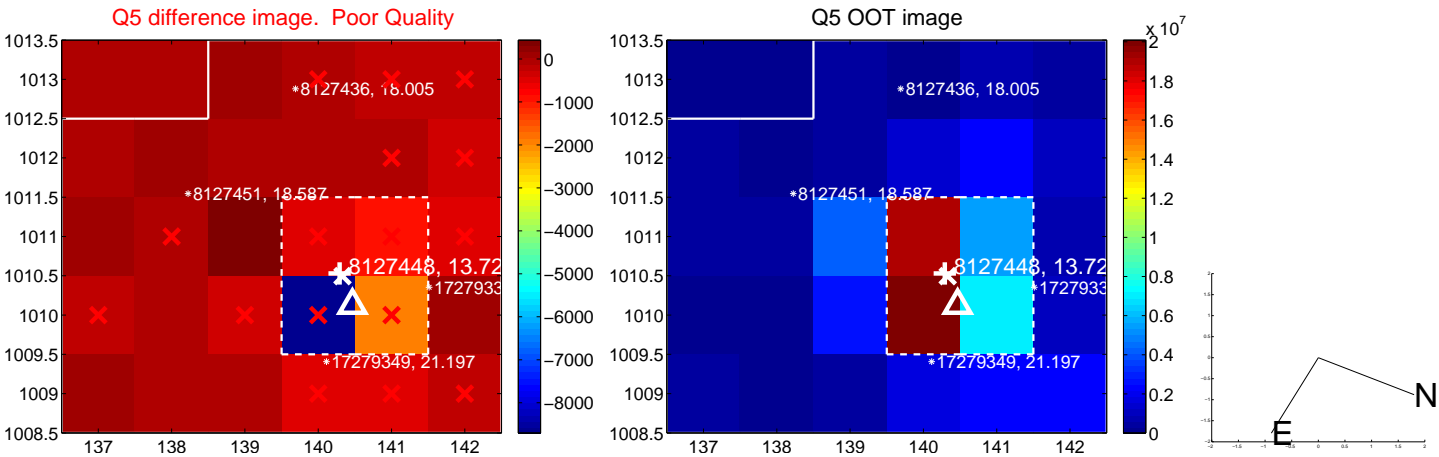
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



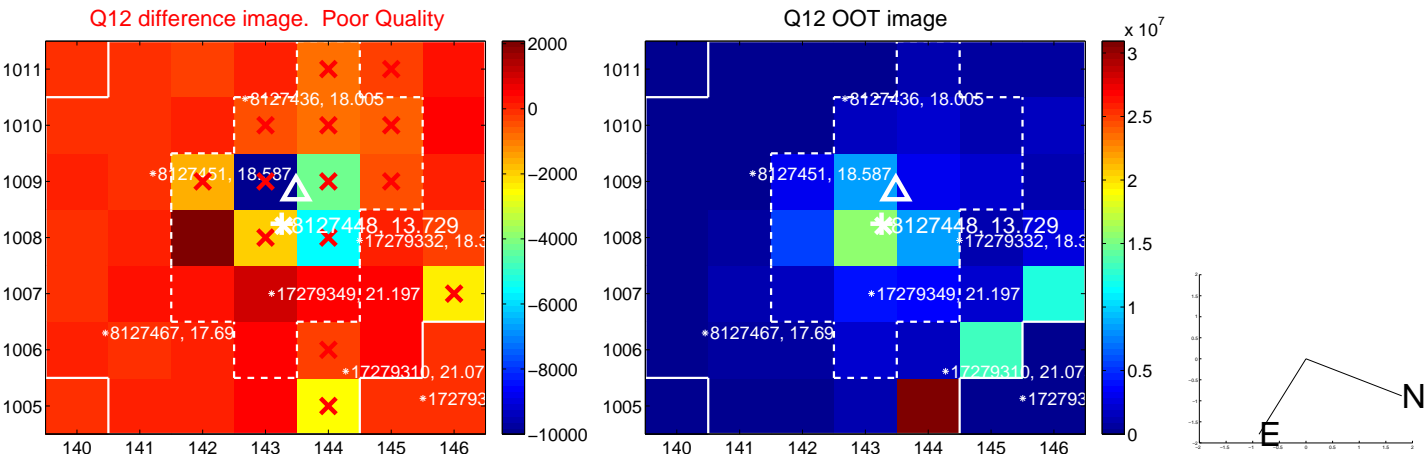
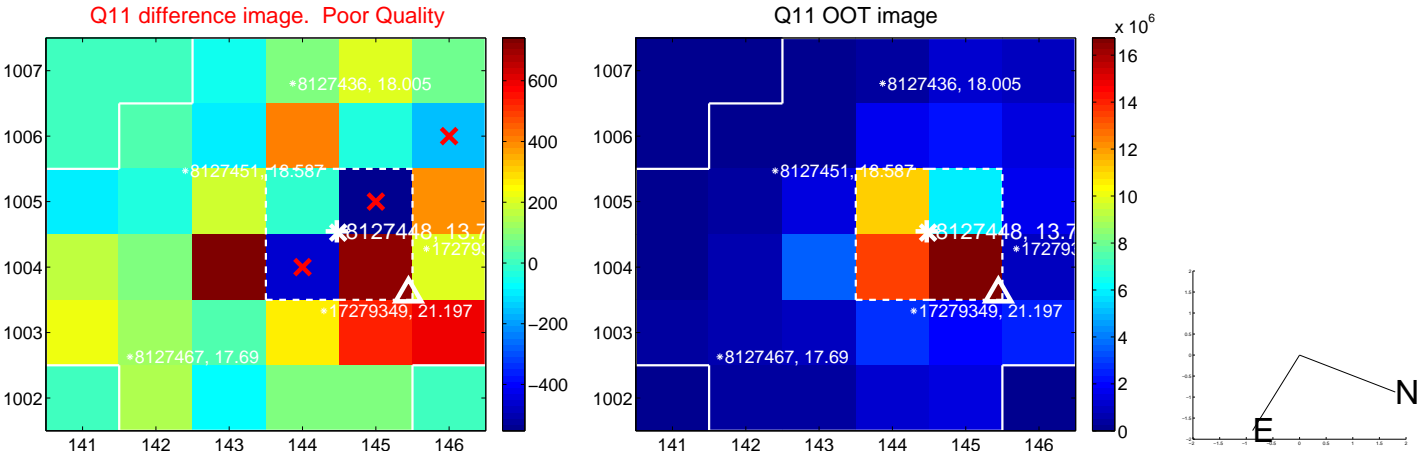
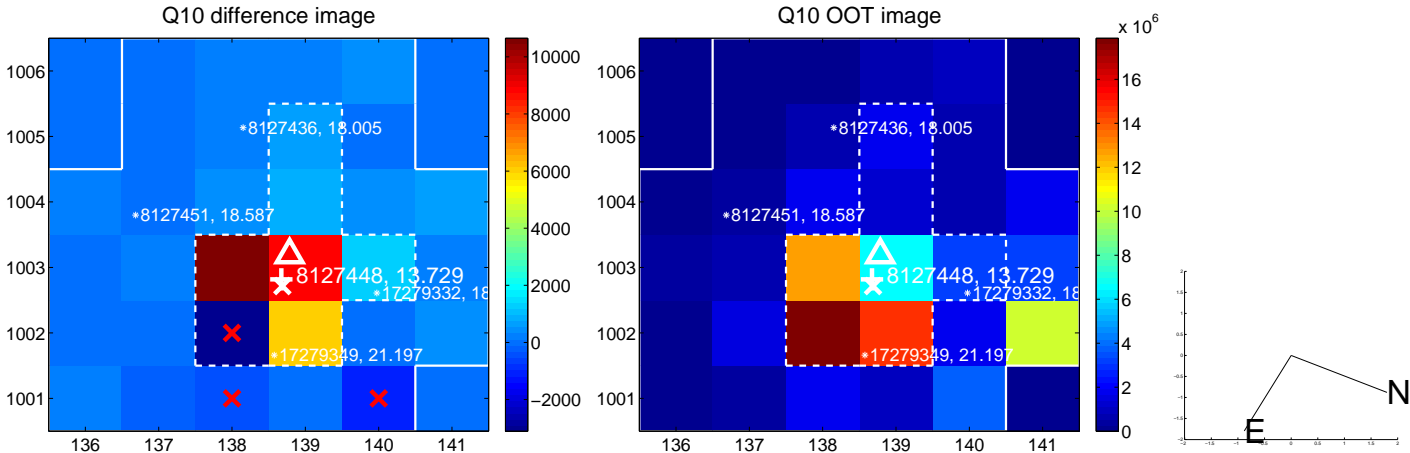
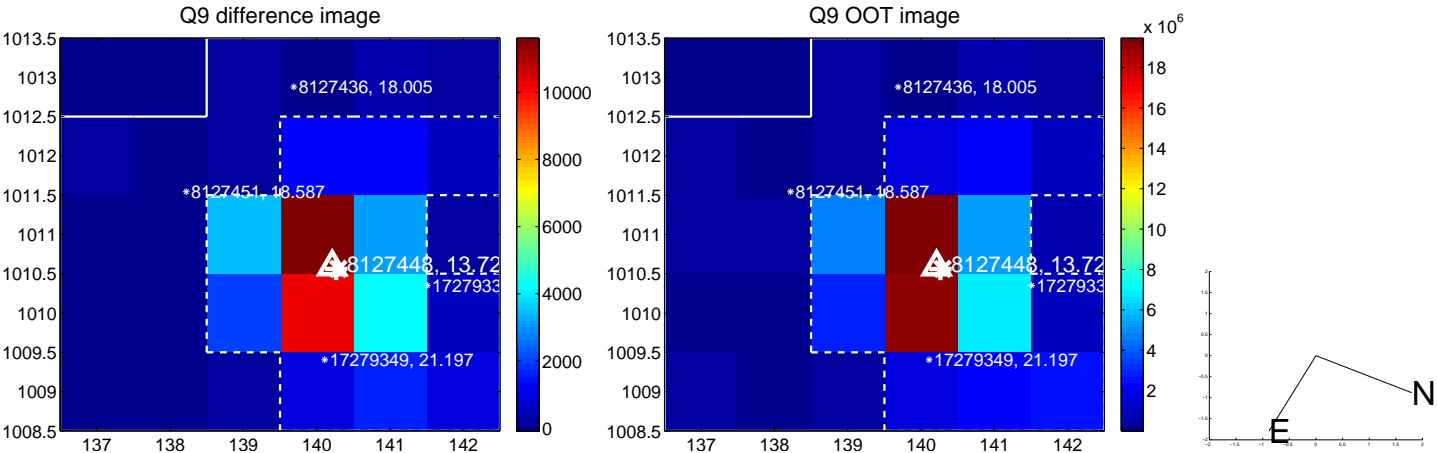
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



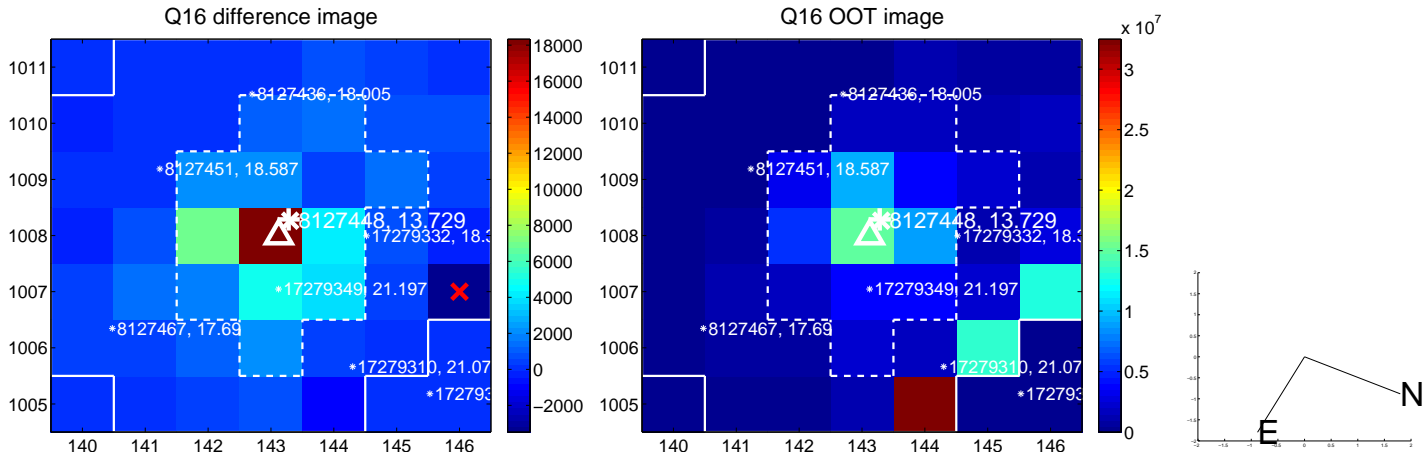
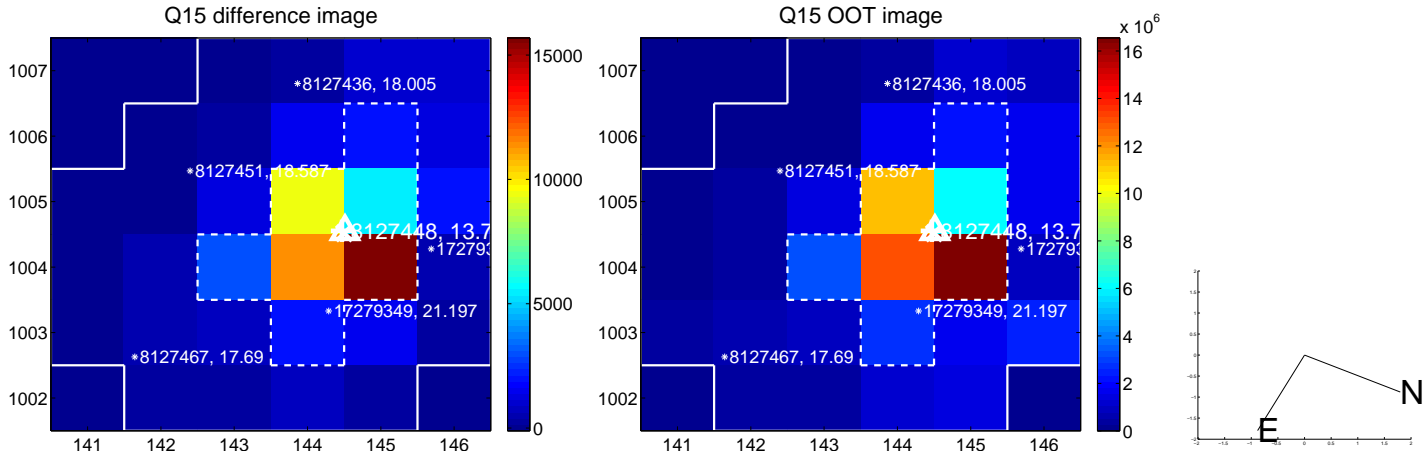
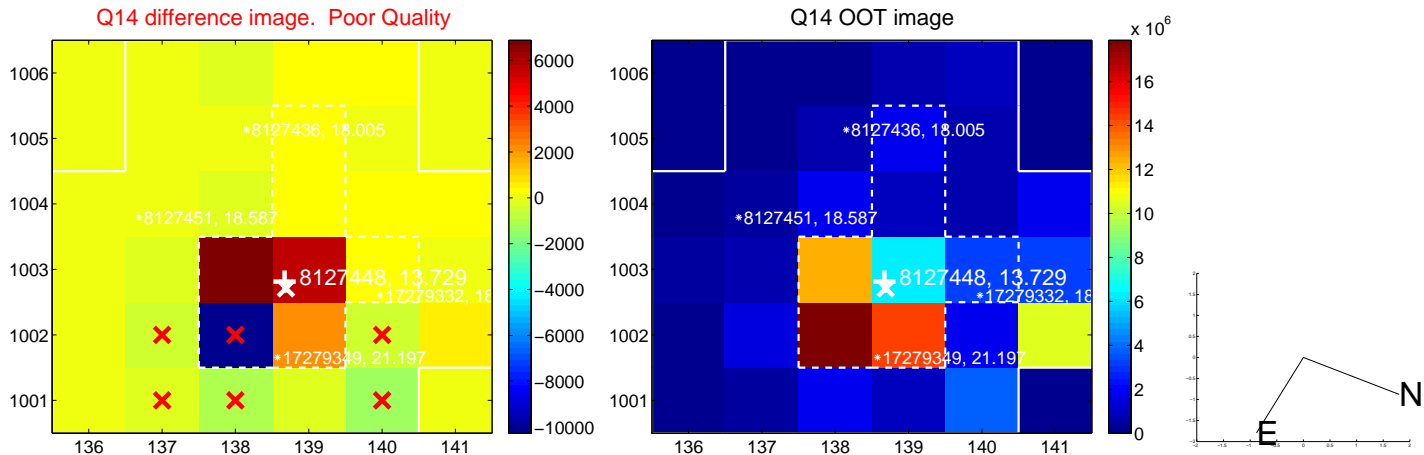
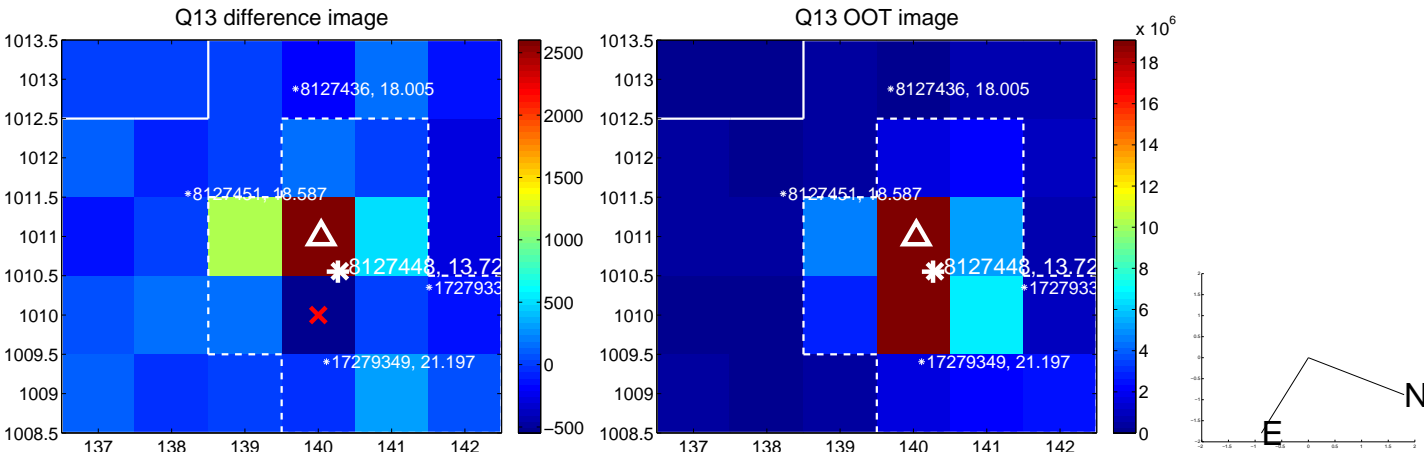
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



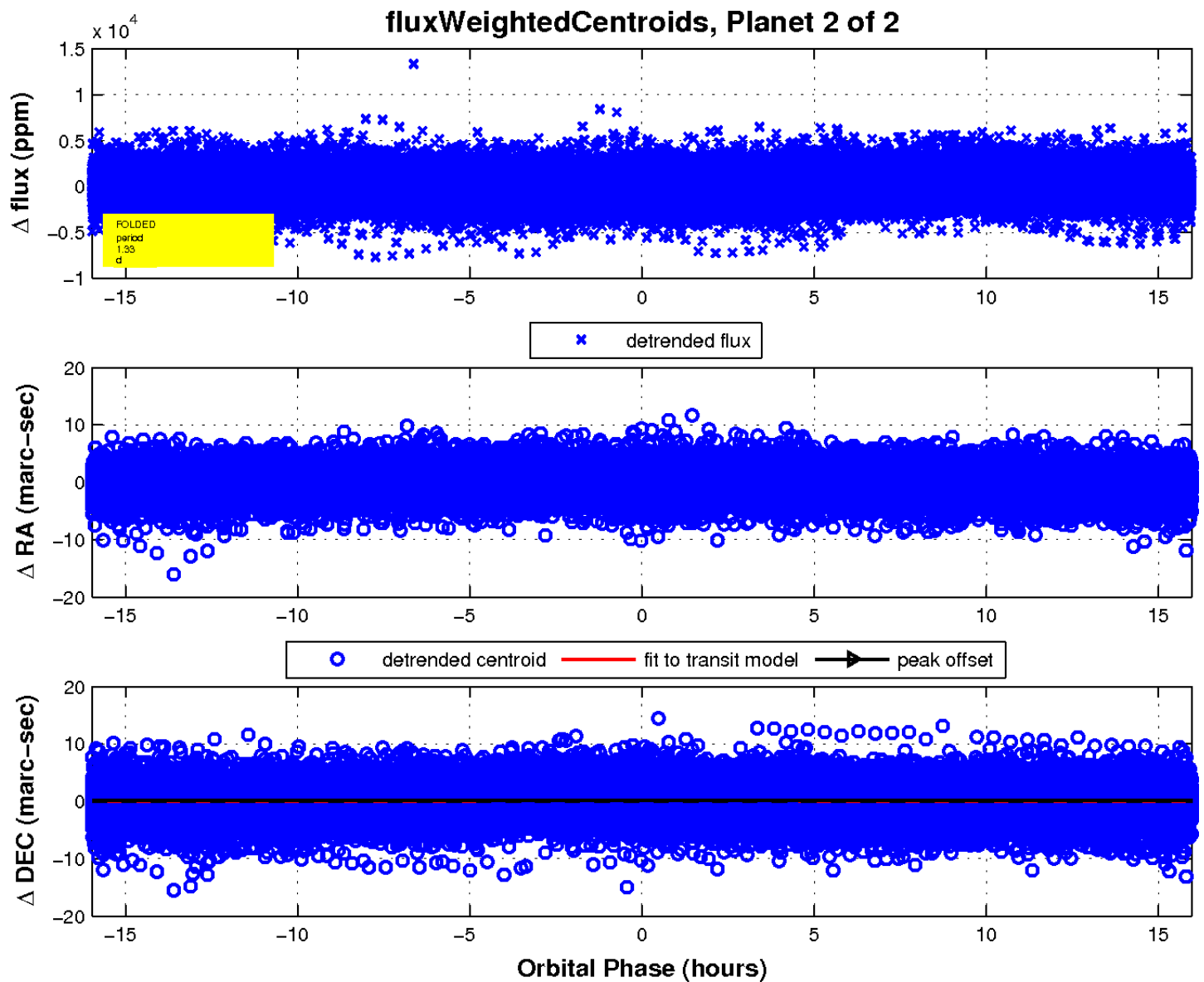
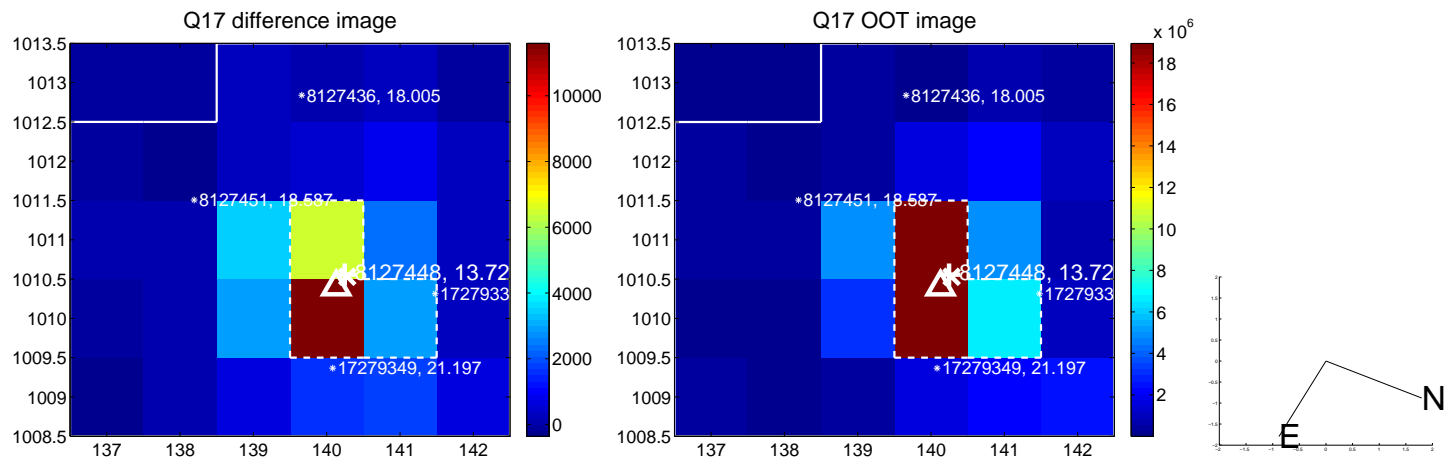
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

