

# KIC 006766748

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006766748-01	OBS	6764.01	3.501409	132.512238	260630.3	3.500	20670.8	-1.0	1.22	6818	61.27	1225.99
006766748-02	OBS	No	9.337204	140.440460	15529.3	15.000	933.9	-1.0	1.22	6818	15.30	331.53
006766748-03	OBS	No	9.337204	135.767985	15893.3	15.000	868.4	-1.0	1.22	6818	15.48	331.53
006766748-04	OBS	No	4.668692	133.418126	16171.6	15.000	857.4	-1.0	1.22	6818	15.62	835.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006766748-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—CENT_NOFITS
006766748-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
006766748-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
006766748-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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.

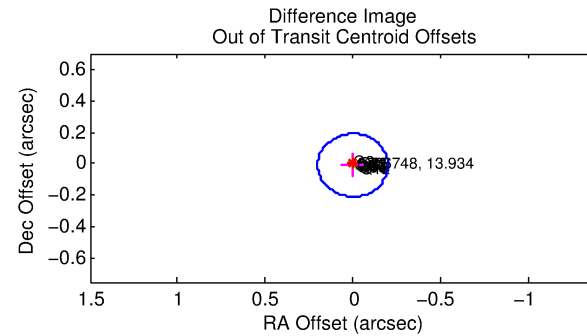
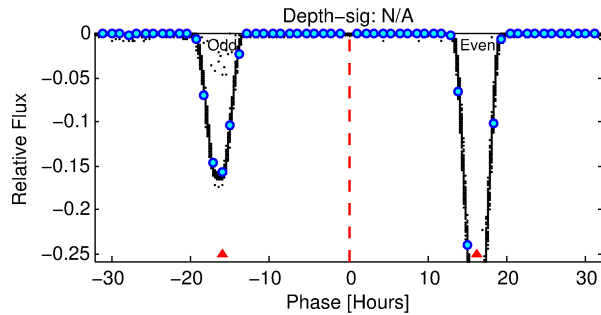
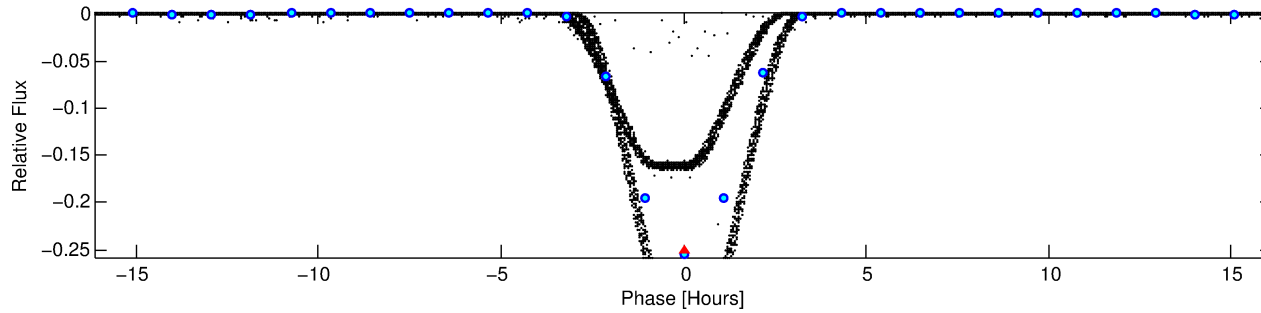
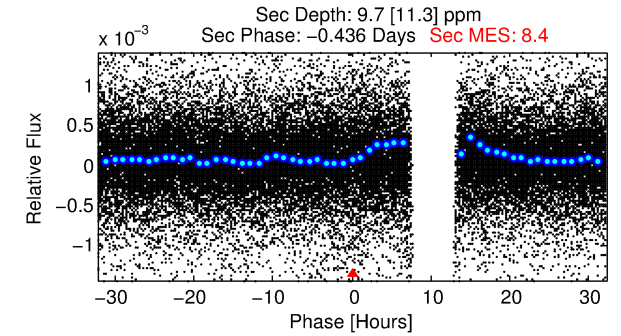
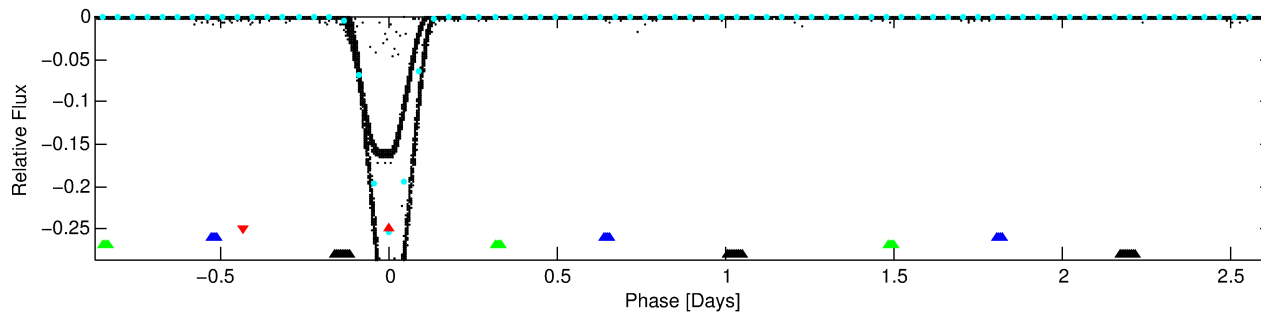
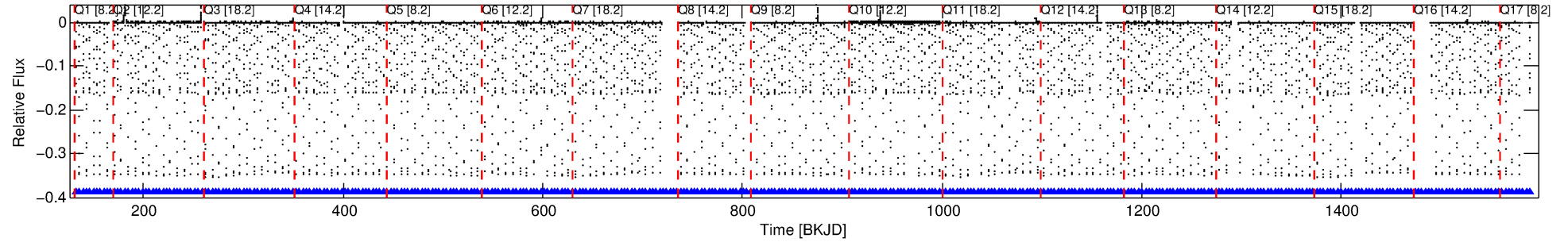
Ephemeris Match Information For 006766748-01

No Significant Match Found

# DV One-Page Summary

KIC: 6766748 Candidate: 1 of 4 Period: 3.501 d  
KOI: K06764 Corr: No Ephemeris Match

Kp: 13.93 R\*: 1.22 Rs Teff: 6818.0 K Logg: 4.36 Fe/H: -0.200



## TPS TCE Results:

Period = 3.50141 d  
Epoch = 132.5122 BKJD

DV fit results are unavailable

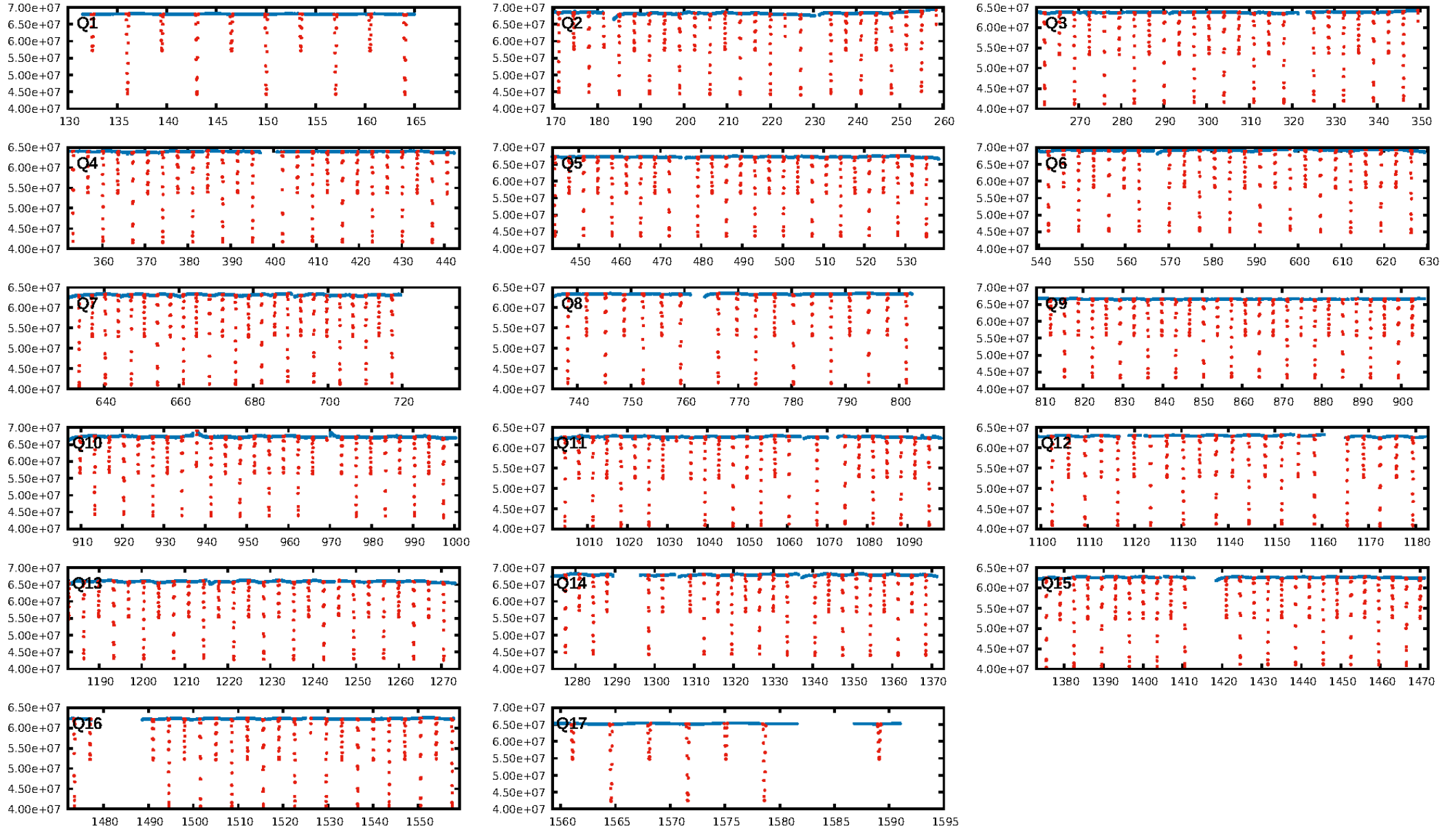
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 93.1% [1.82 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [363/363]  
GhostDiagnostic-chr: 1.992  
Centroid-sig: 0.0%  
Centroid-so: 0.066 arcsec [189.03 $\sigma$ ]  
OotOffset-rm: 0.009 arcsec [0.13 $\sigma$ ]  
KicOffset-rm: 0.071 arcsec [1.04 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

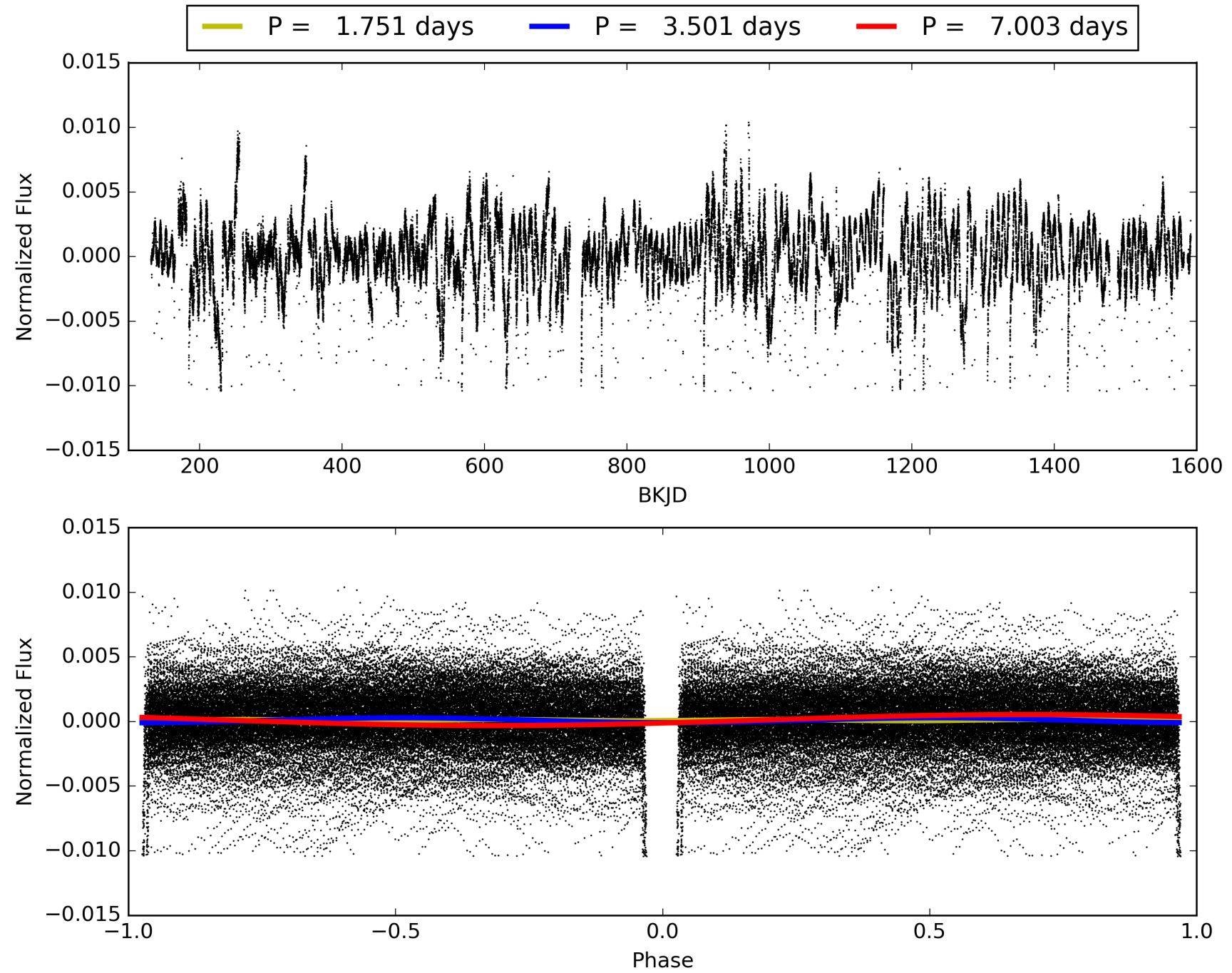
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:24:37 Z

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

# TCE 006766748-01, PDC Light Curves



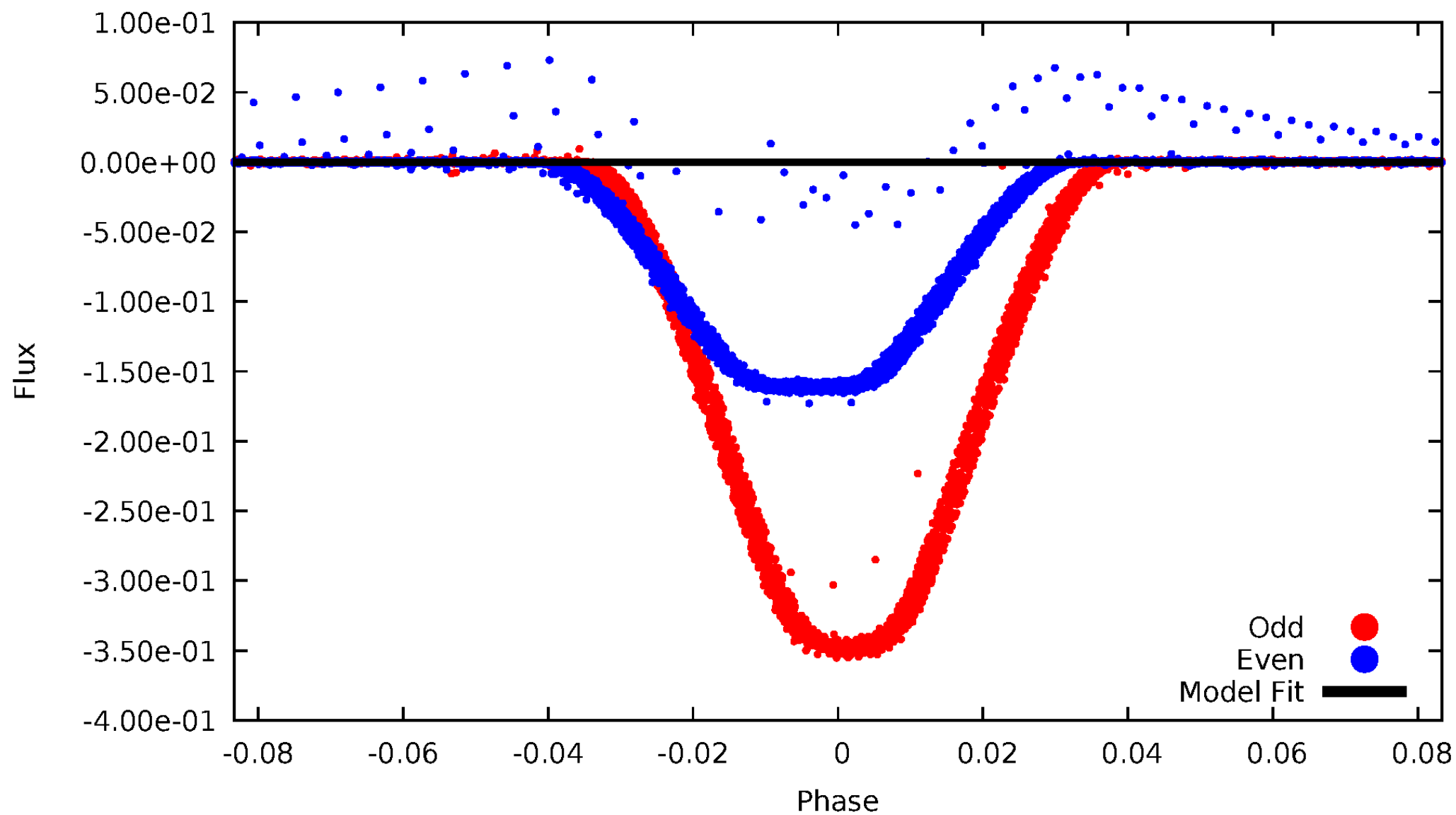
TCE 006766748-01





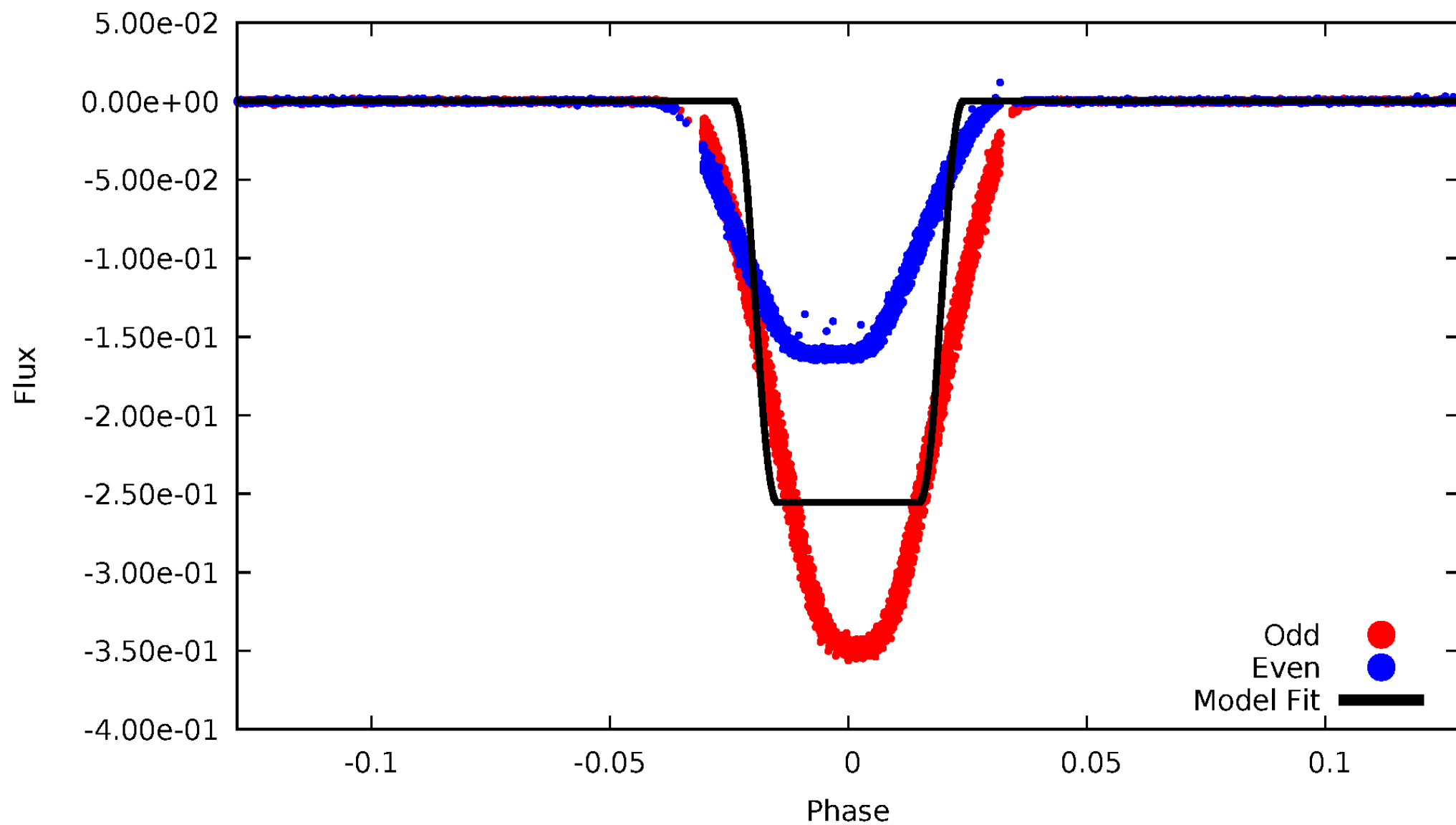
# DV Odd/Even

TCE 006766748-01

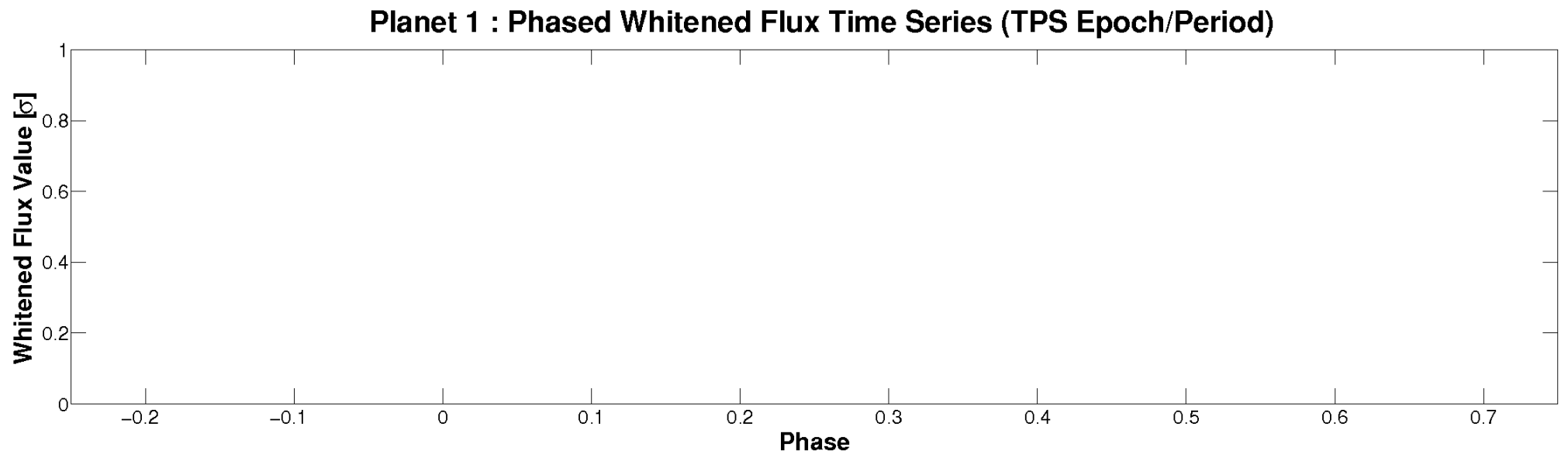
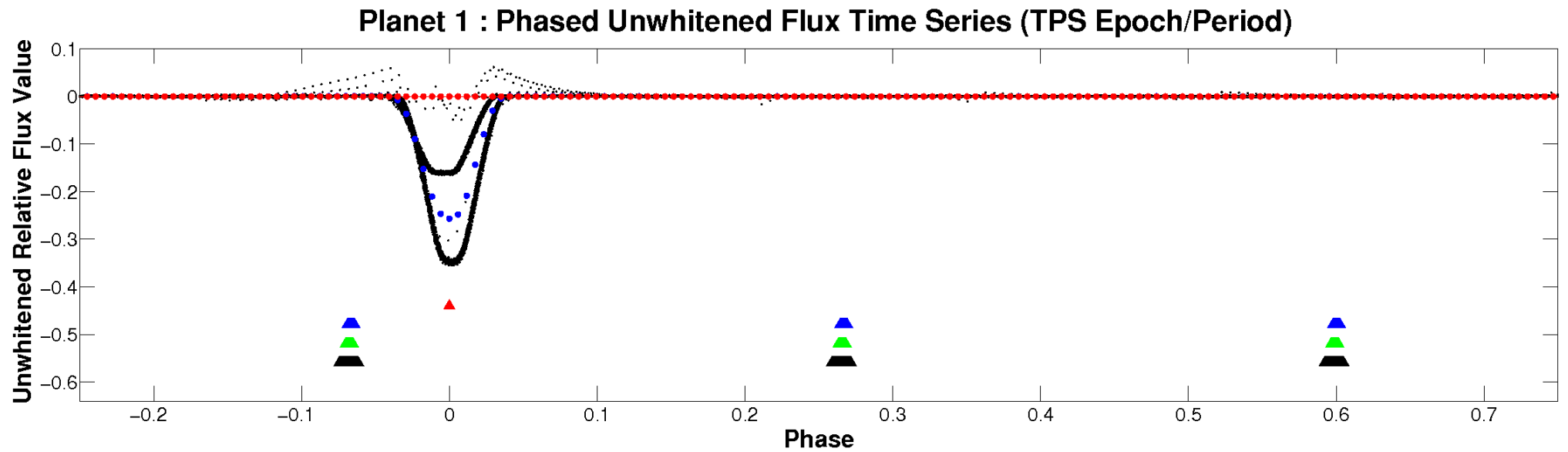


# ALT Odd/Even

TCE 006766748-01

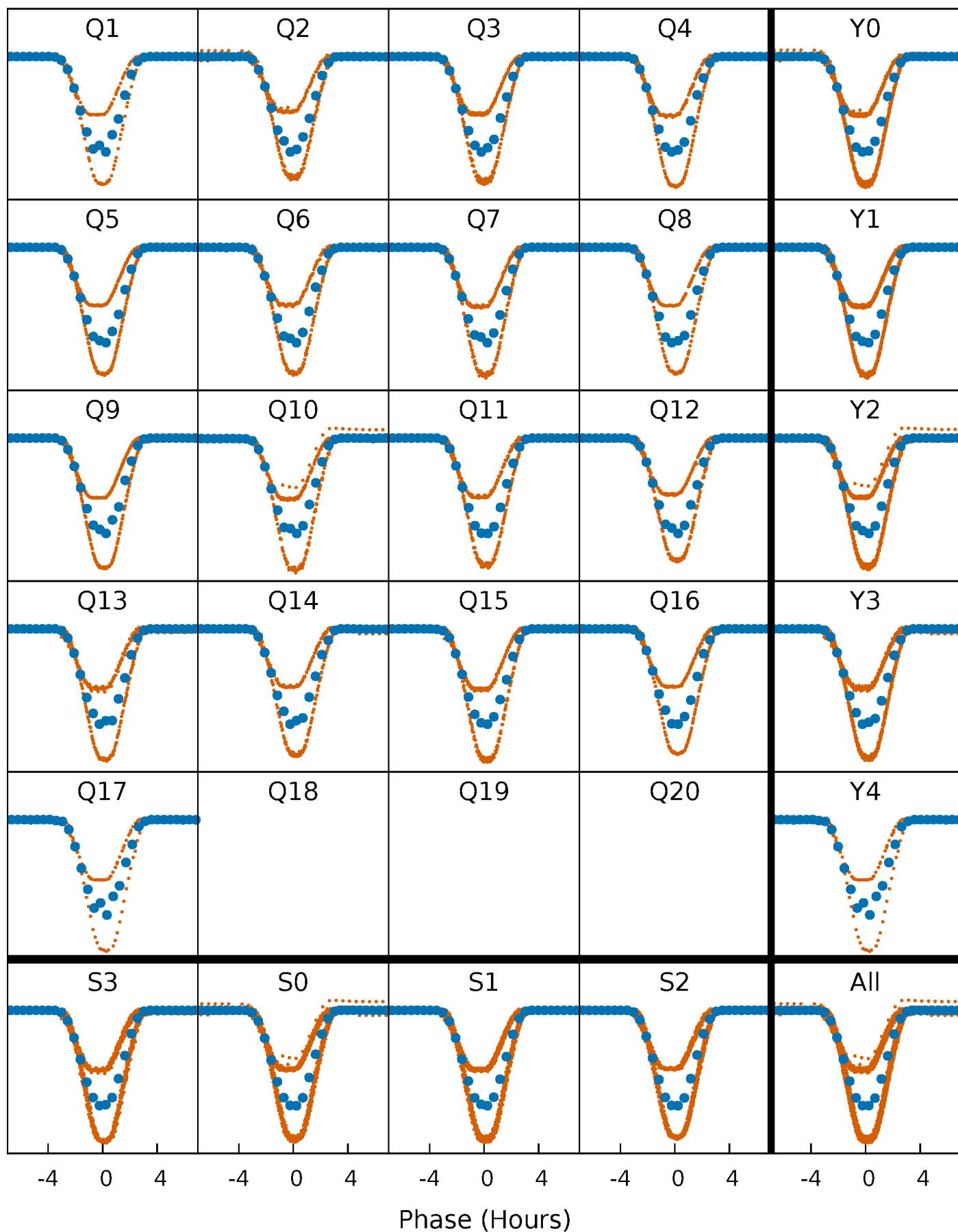


# Non-Whitened Vs. Whitened Light Curve



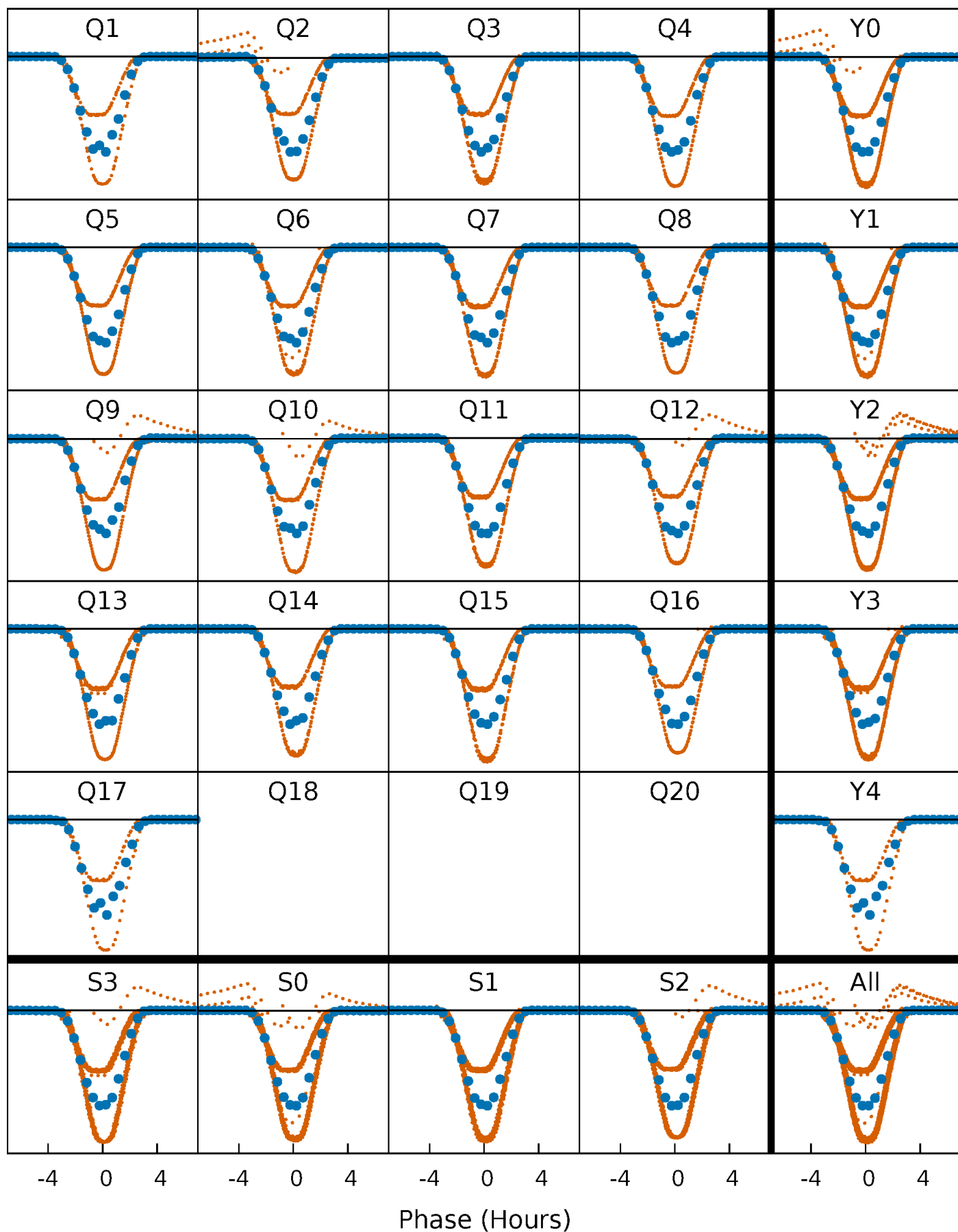
# PDC Quarter-Phased Transit Curves

TCE 006766748-01 P= 3.501409 Days  $T_0=132.512238$  (BKJD)



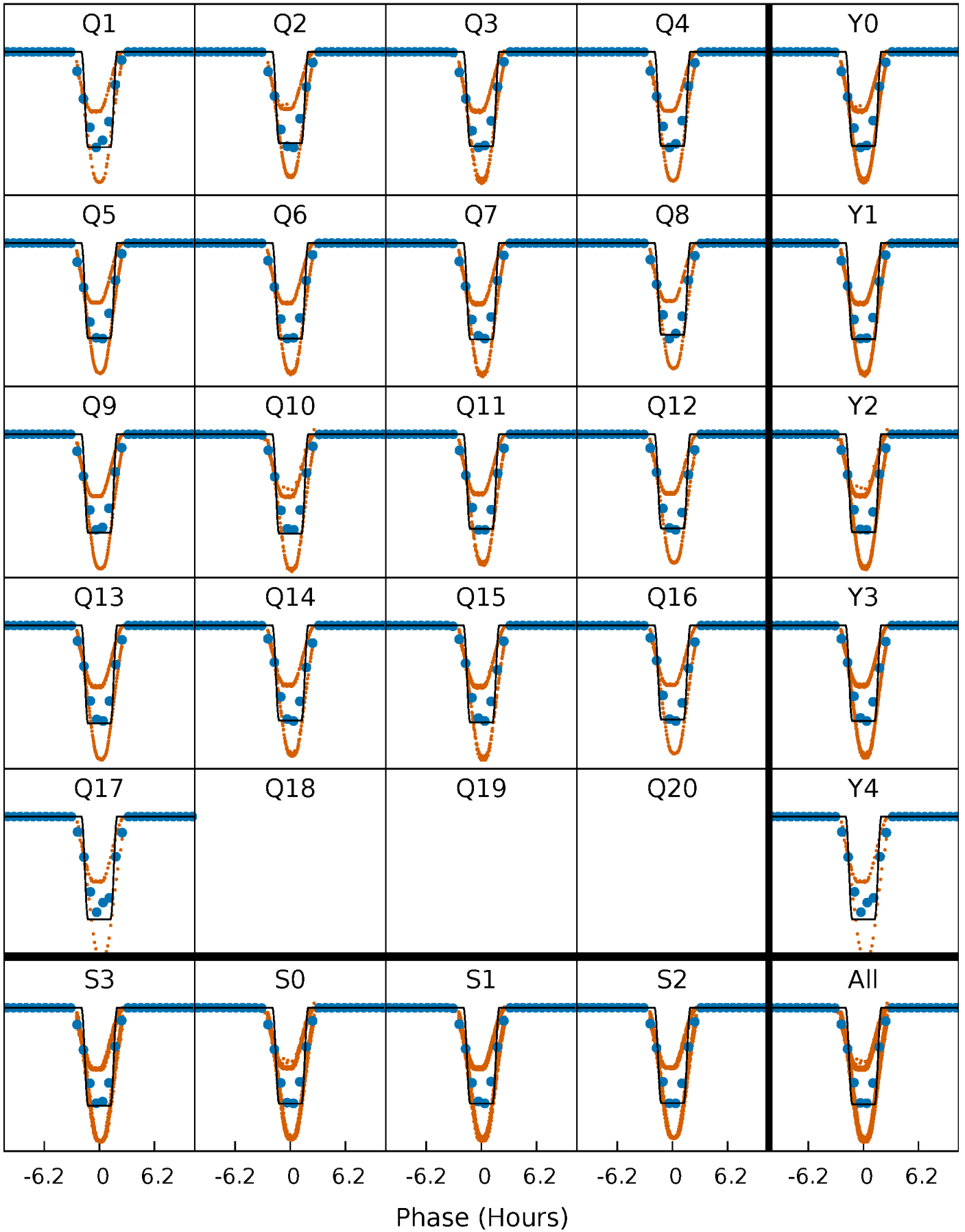
# DV Quarter-Phased Transit Curves

TCE 006766748-01 P= 3.501409 Days  $T_0=132.512238$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006766748-01 P= 3.501409 Days  $T_0=132.511481$  (BKJD)

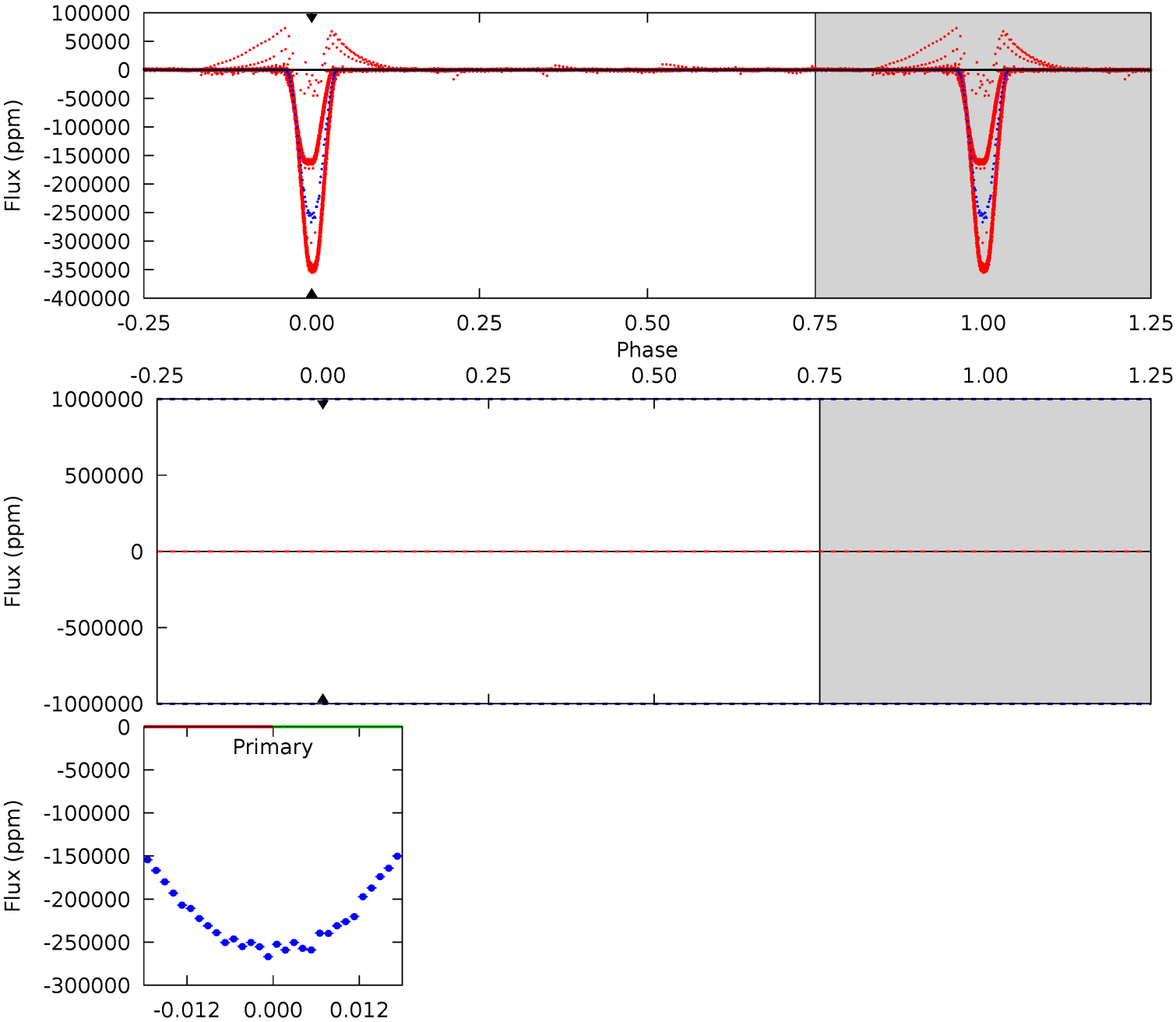




DV Model-Shift Uniqueness Test

006766748-01, P = 3.501409 Days, E = 129.010829 Days

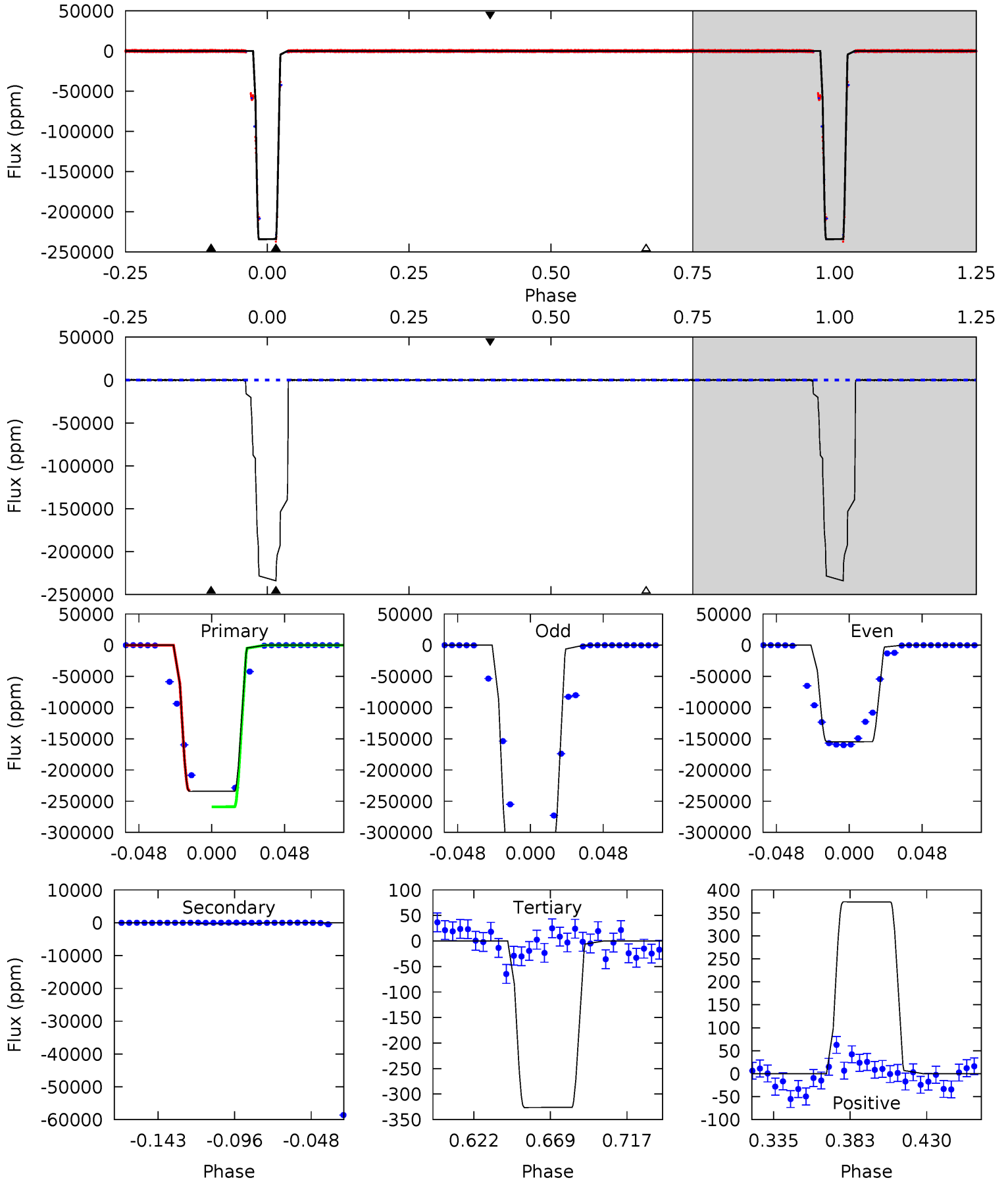
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006766748-01, P = 3.501409 Days, E = 129.010072 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
3711	5.22	5.17	5.93	4.72	1.98	2.14	3706	3705	0.05	-0.70	5625	0.77	0.00	0



### Stellar Parameters For KIC 006766748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6818^{+167}_{-262}$	$4.357^{+0.056}_{-0.224}$	$-0.200^{+0.250}_{-0.350}$	$1.216^{+0.445}_{-0.119}$	$1.240^{+0.203}_{-0.166}$	$0.971^{+0.237}_{-0.569}$
	+2%/-4%	+1%/-5%	+125%/-175%	+37%/-10%	+16%/-13%	+24%/-59%
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 006766748-01 / KOI 6764.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$65.03^{+17.23}_{-15.37}$	$2149^{+187}_{-110}$	$-2351^{+8105}_{-3213}$	$0.178^{+33.176}_{-29.300}$
Alt.	$-329 \pm 63$	$70.58^{+18.83}_{-15.96}$	$2148^{+184}_{-109}$	$-2473^{+127}_{-126}$	$0.083^{+0.057}_{-0.033}$

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

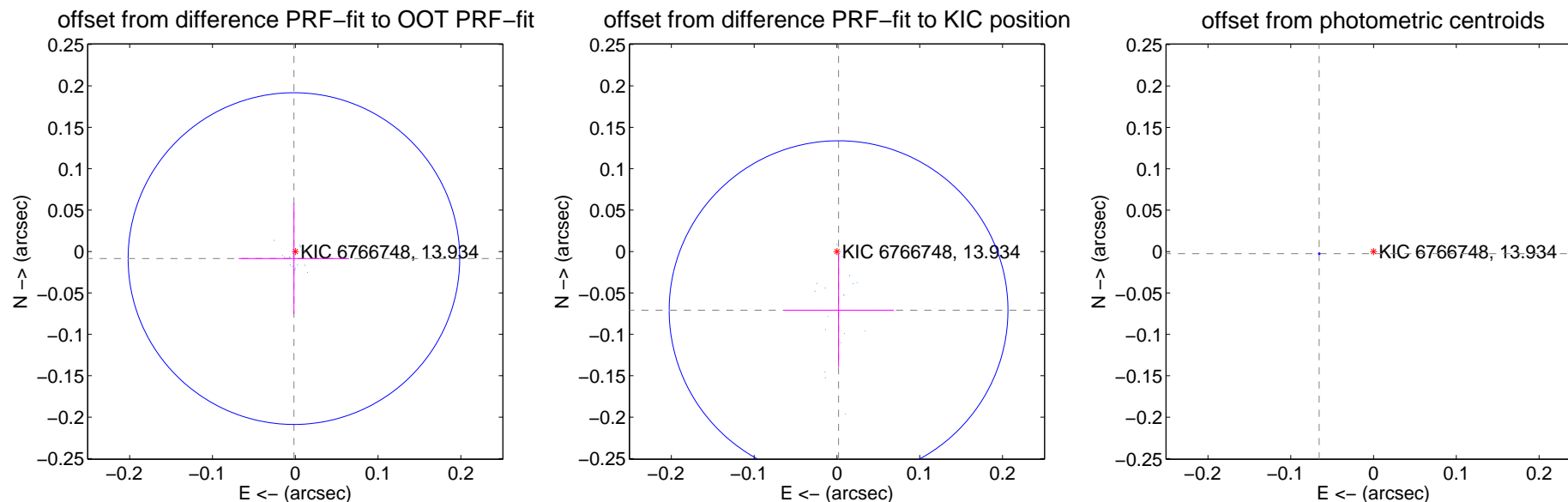
## DV Centroid Data

Supplemental centroid analysis for 006766748-01. Kepler magnitude: 13.93. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

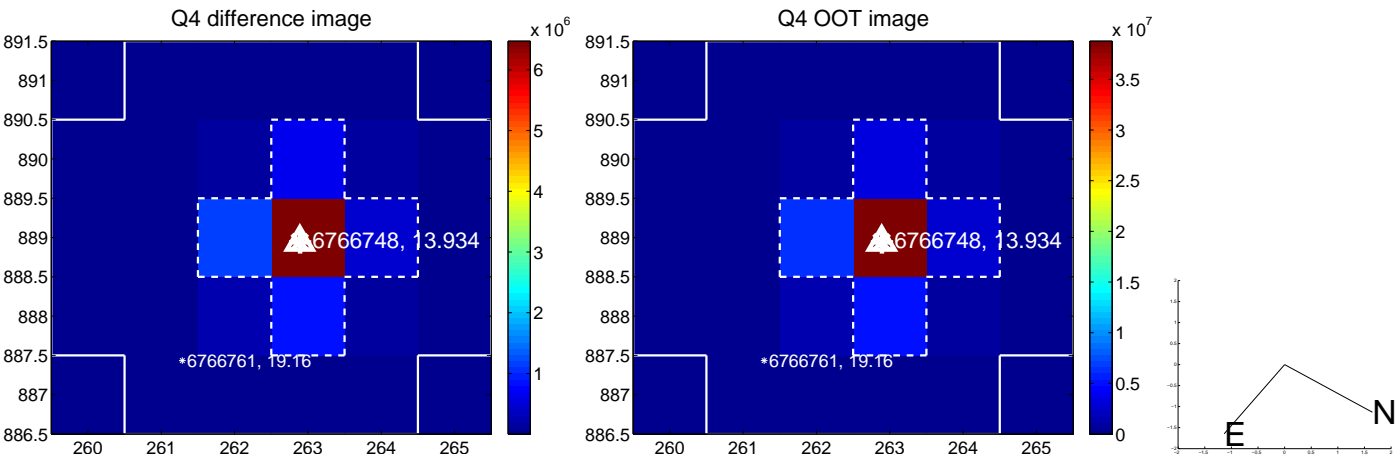
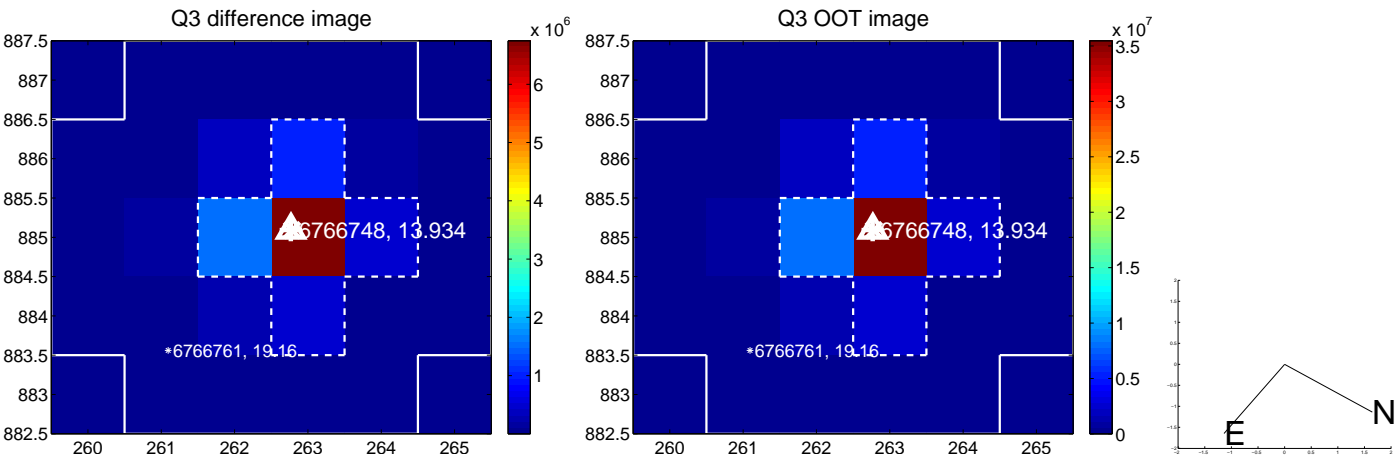
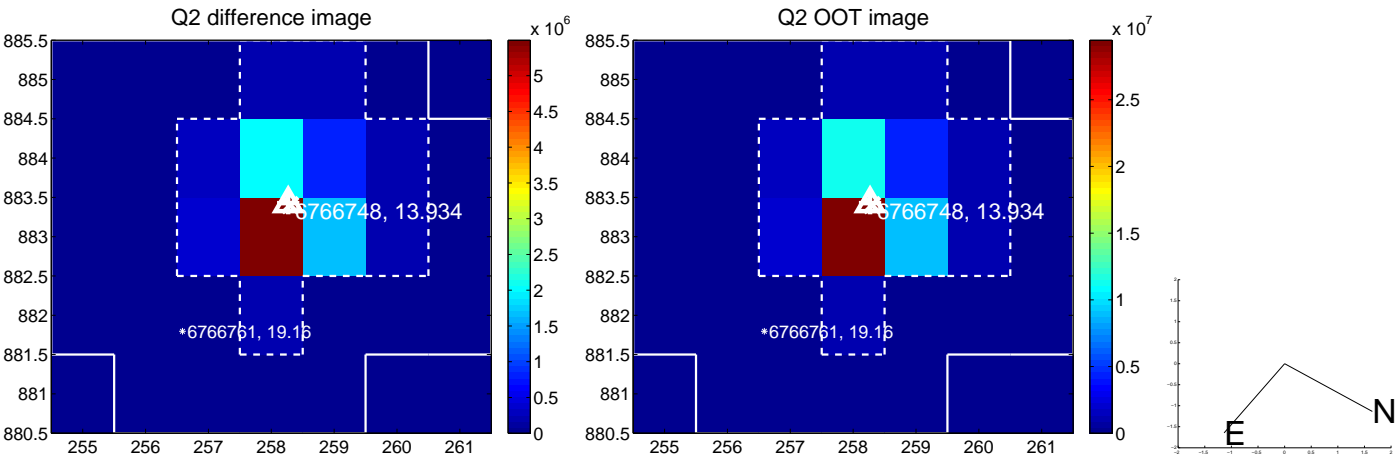
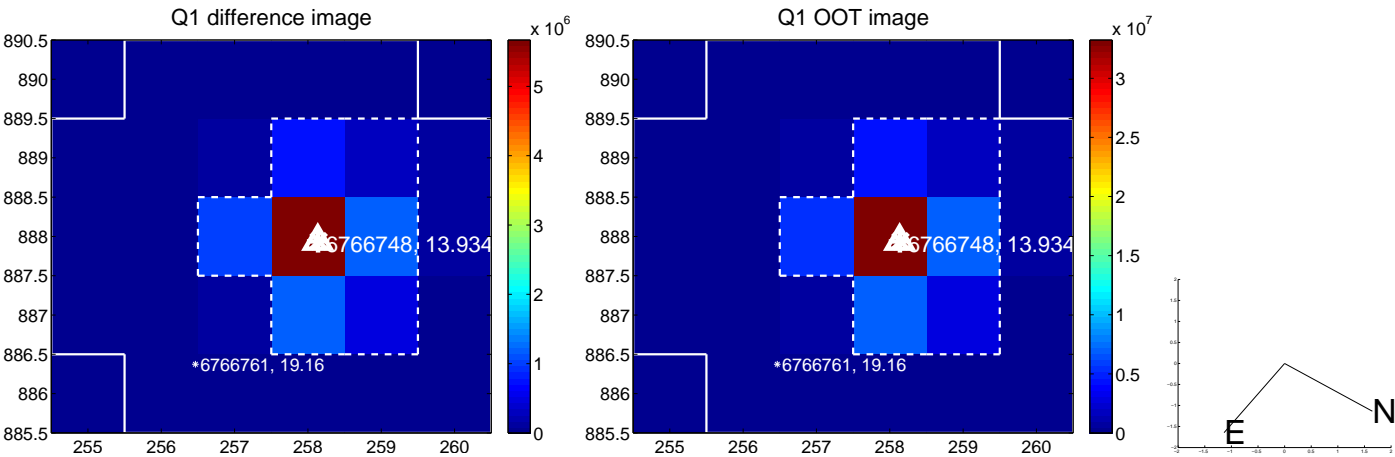
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.009 \pm 0.067$	0.13	$0.002 \pm 0.067$	$-0.009 \pm 0.067$
PRF-fit source offset from KIC position	$0.071 \pm 0.068$	1.04	$-0.002 \pm 0.067$	$-0.071 \pm 0.068$
photometric centroid source offset	$0.07 \pm 0.00$	189.03	$0.07 \pm 0.00$	$-0.00 \pm 0.00$

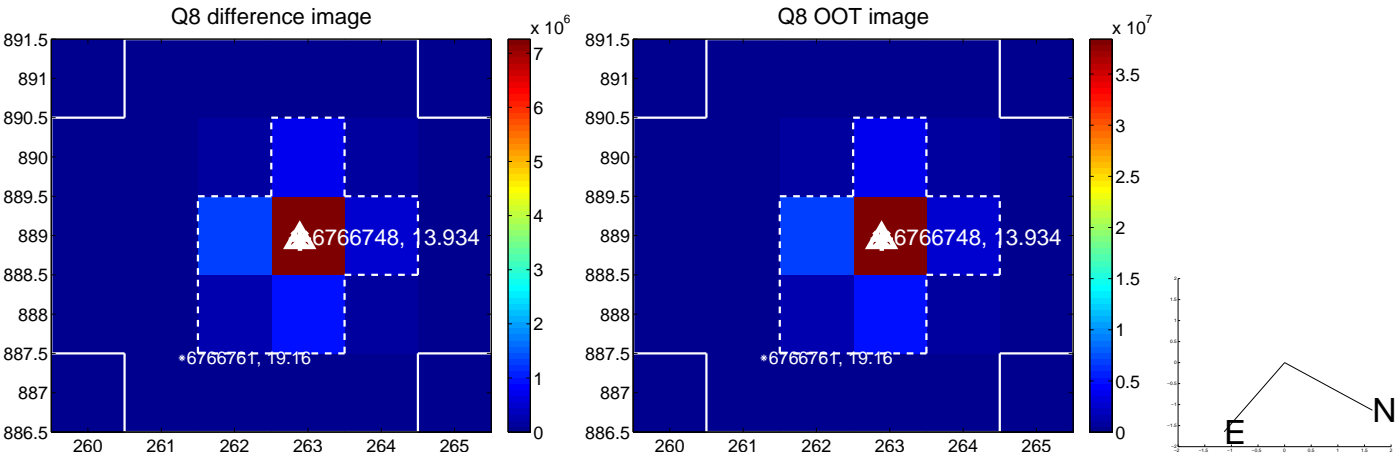
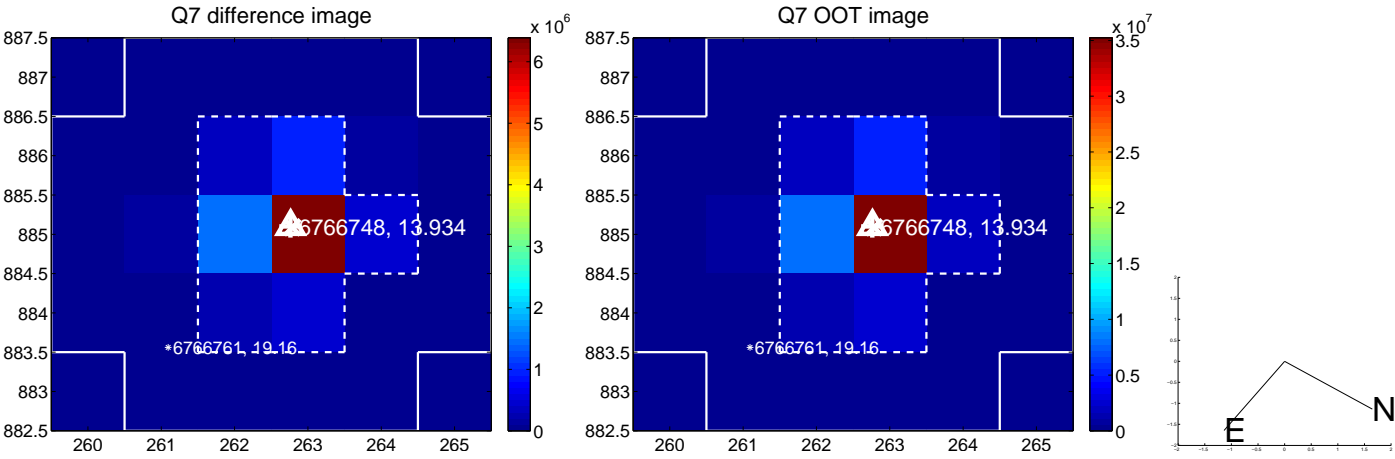
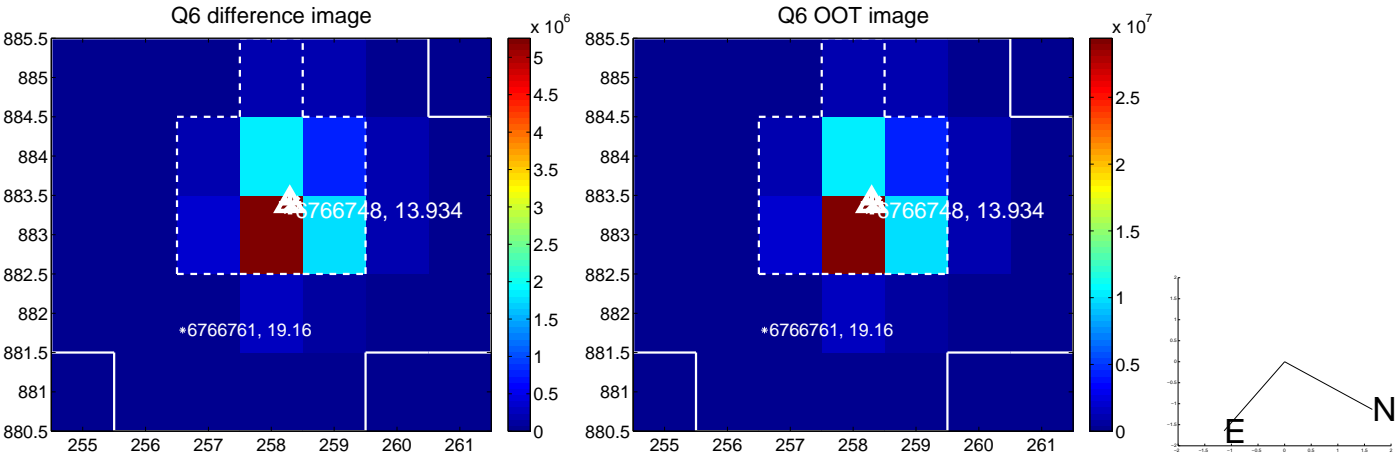
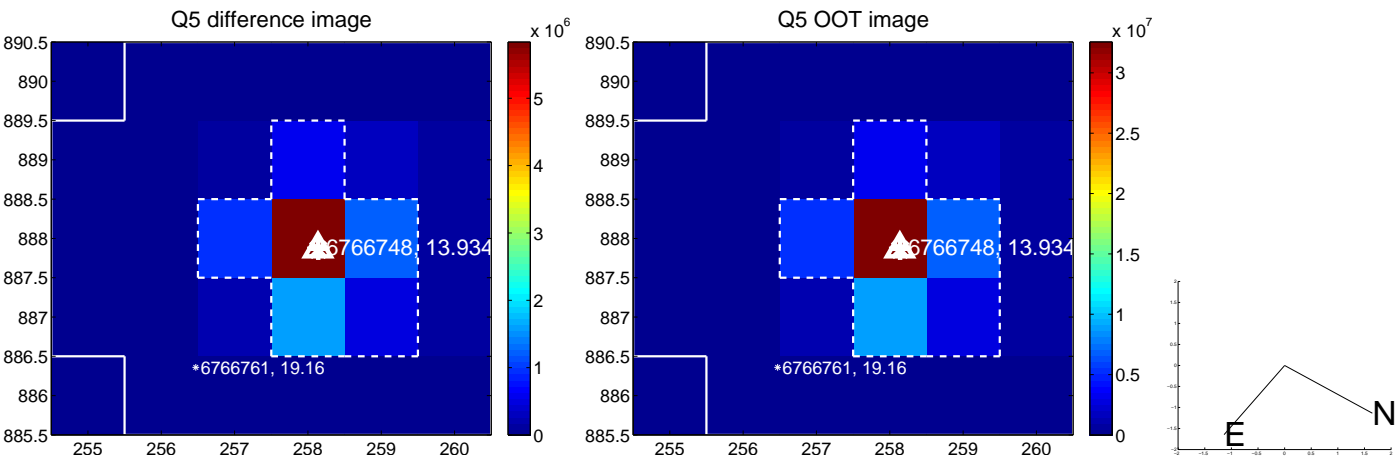


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

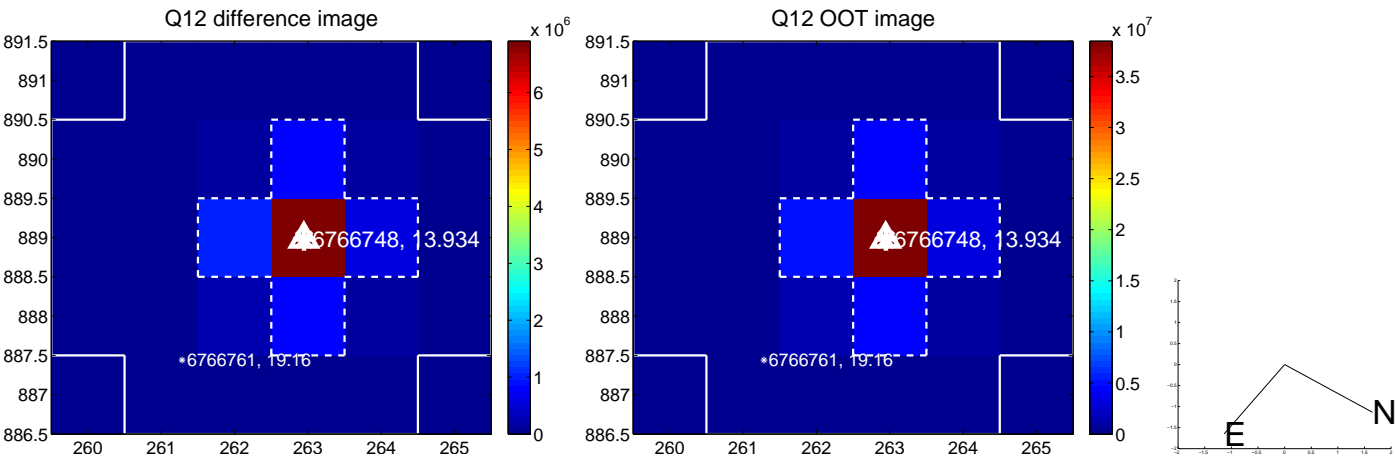
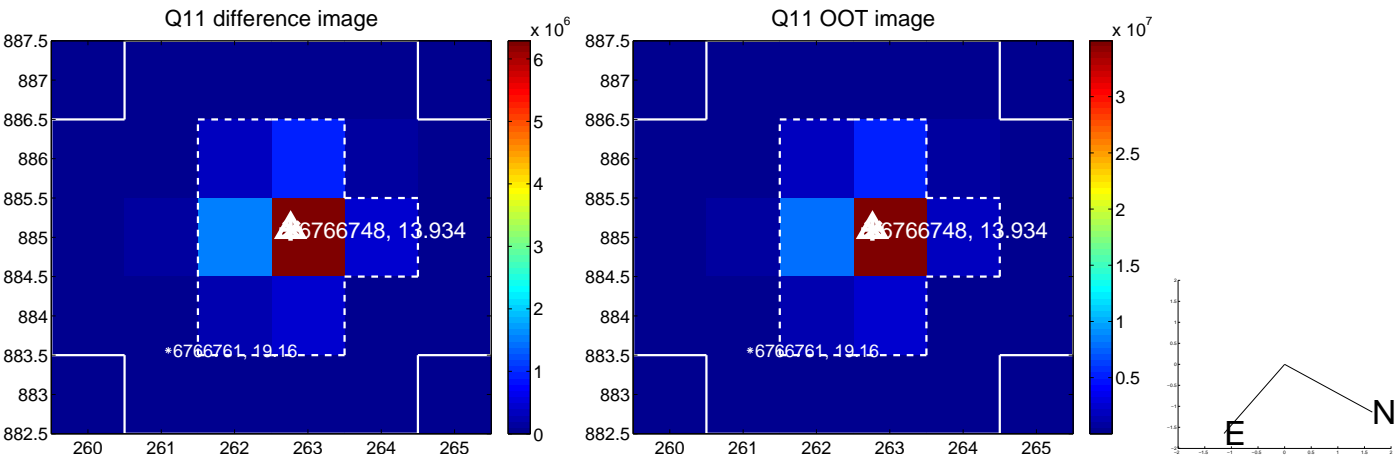
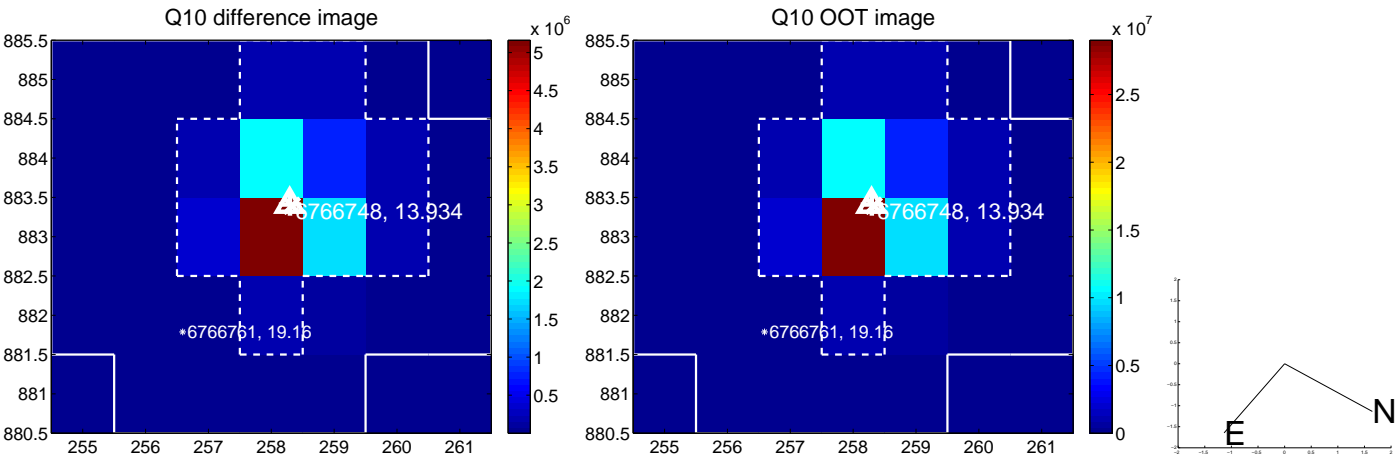
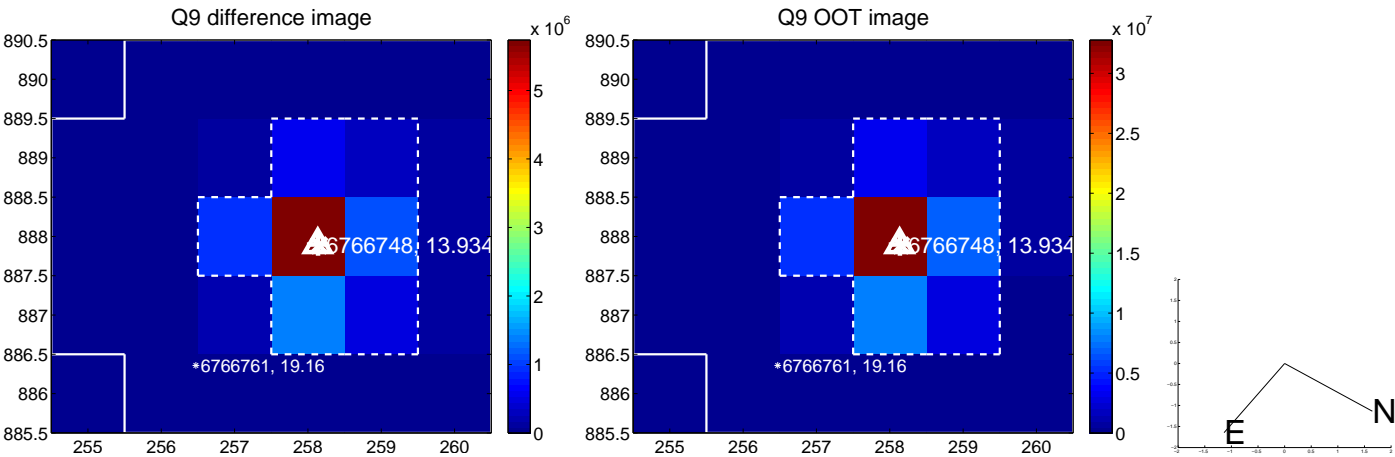


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

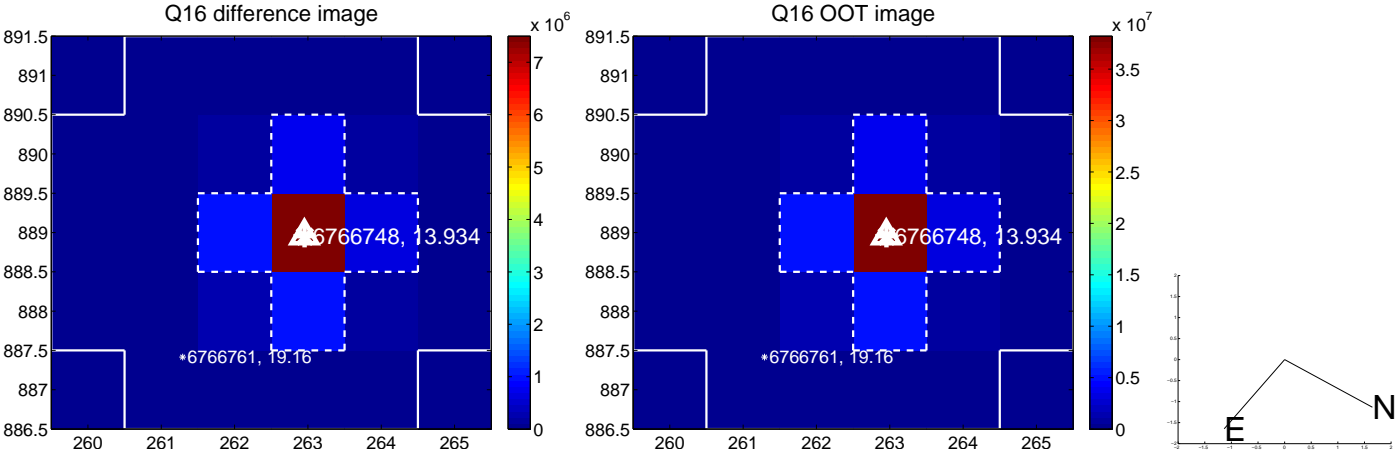
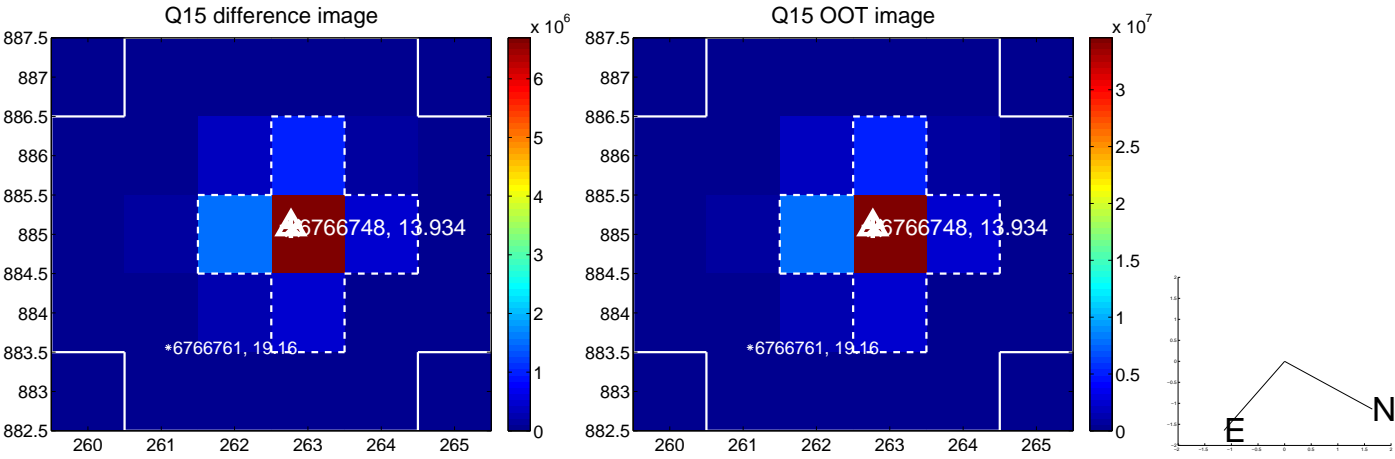
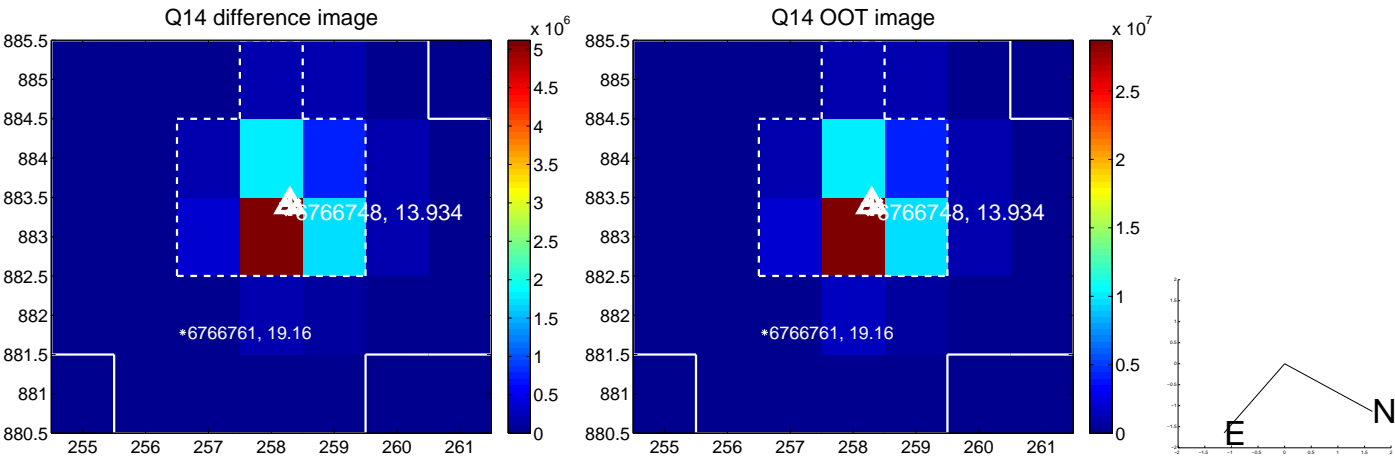
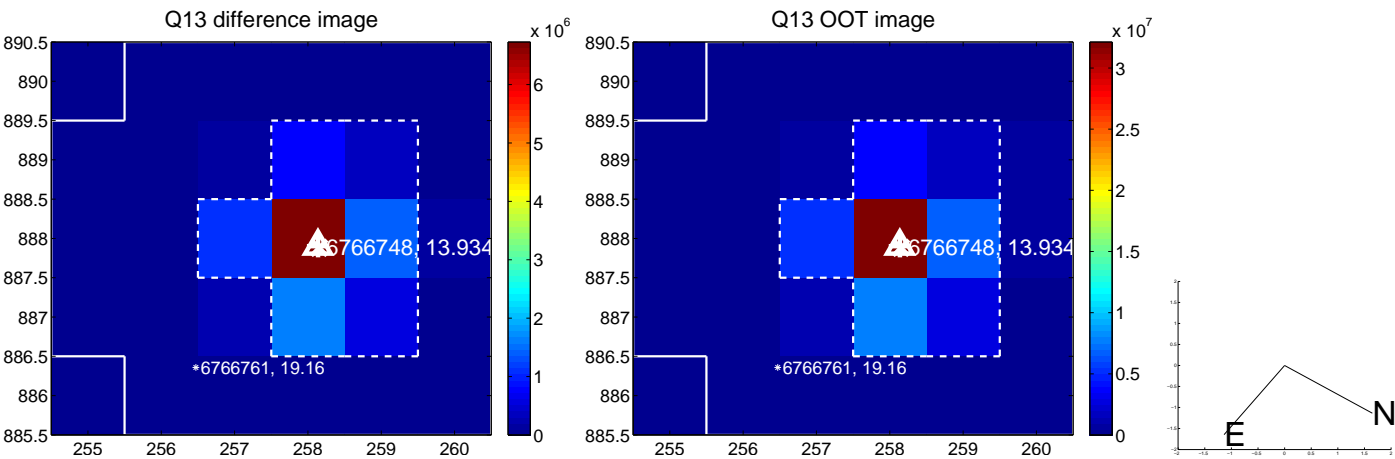




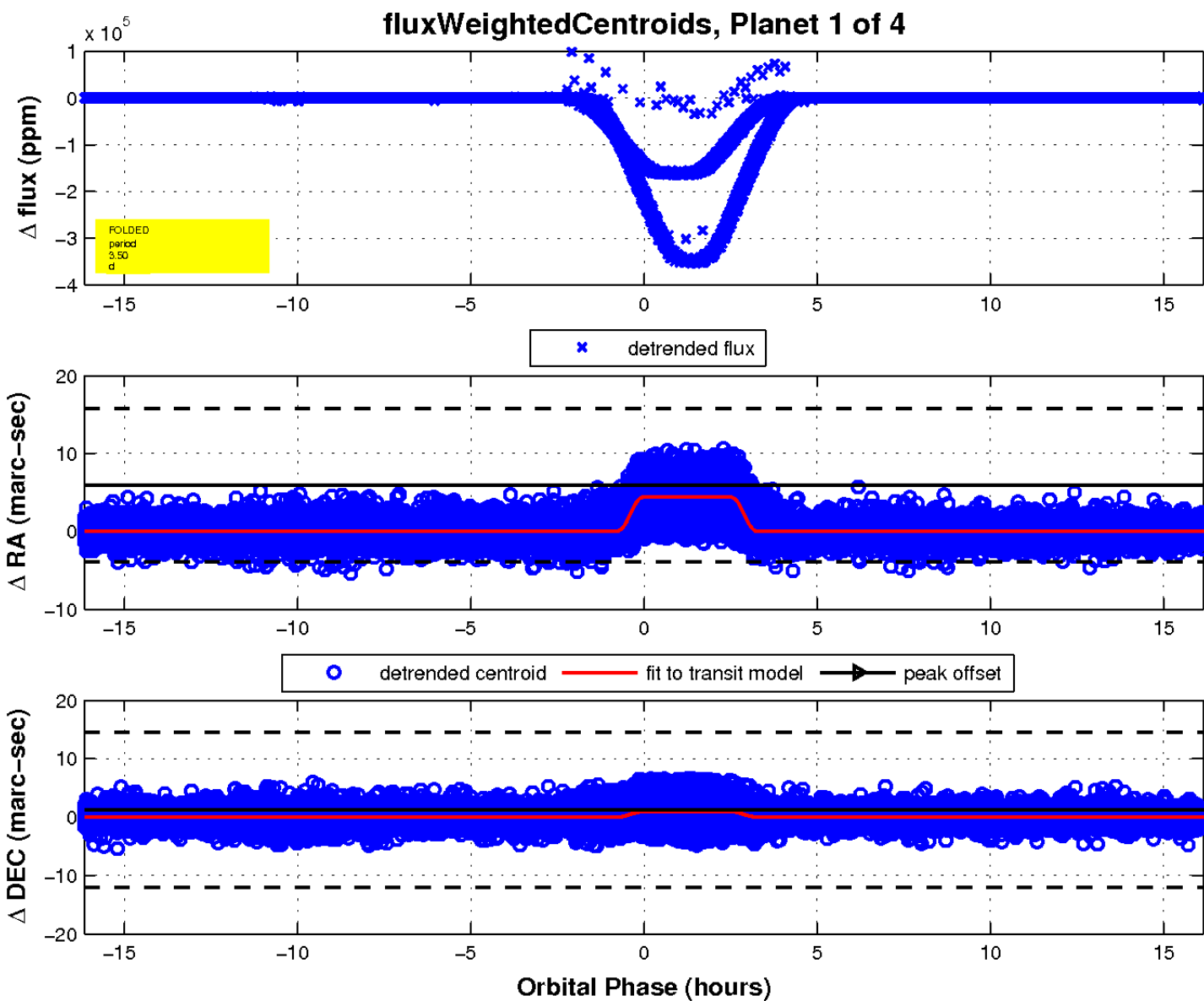
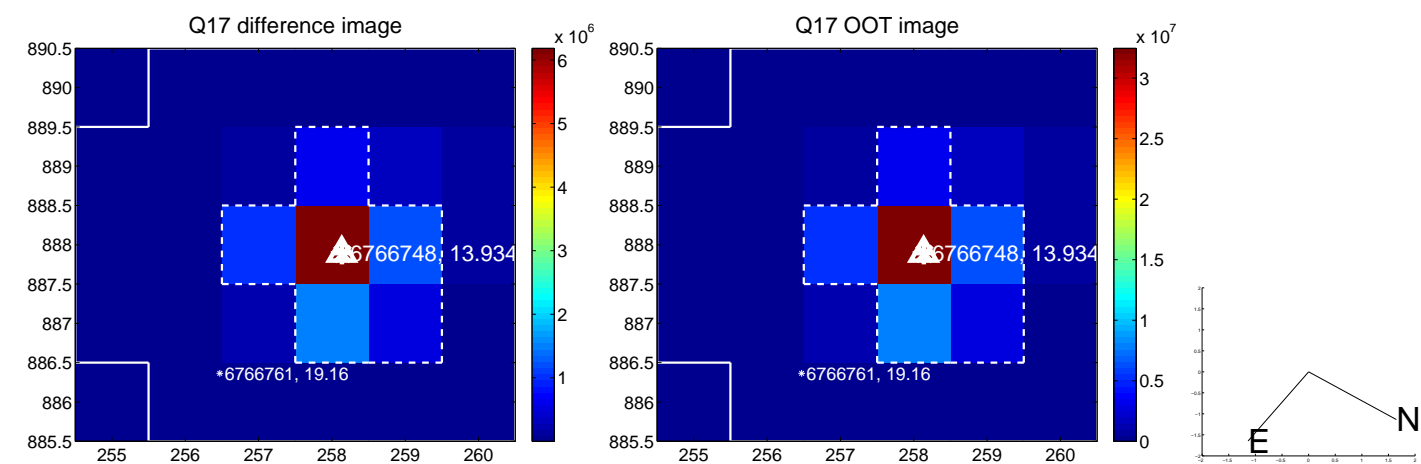
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

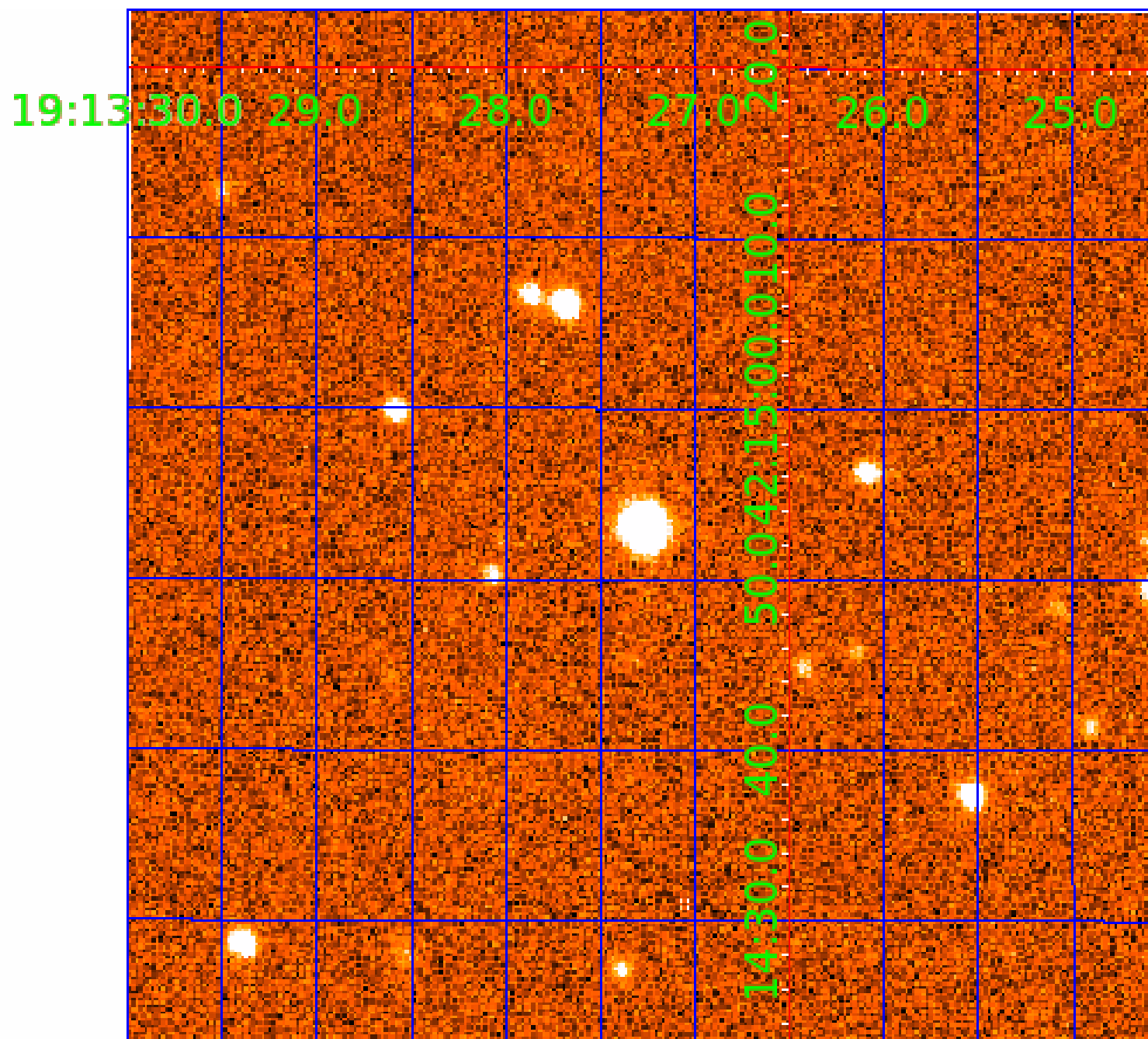


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 006766748

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006766748-01	OBS	6764.01	3.501409	132.512238	260630.3	3.500	20670.8	-1.0	1.22	6818	61.27	1225.99
006766748-02	OBS	No	9.337204	140.440460	15529.3	15.000	933.9	-1.0	1.22	6818	15.30	331.53
006766748-03	OBS	No	9.337204	135.767985	15893.3	15.000	868.4	-1.0	1.22	6818	15.48	331.53
006766748-04	OBS	No	4.668692	133.418126	16171.6	15.000	857.4	-1.0	1.22	6818	15.62	835.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006766748-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—CENT_NOFITS
006766748-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
006766748-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
006766748-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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.

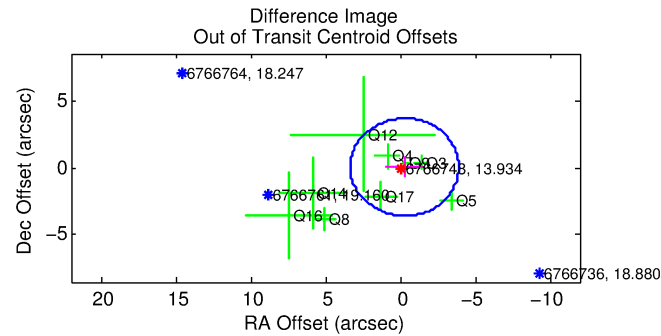
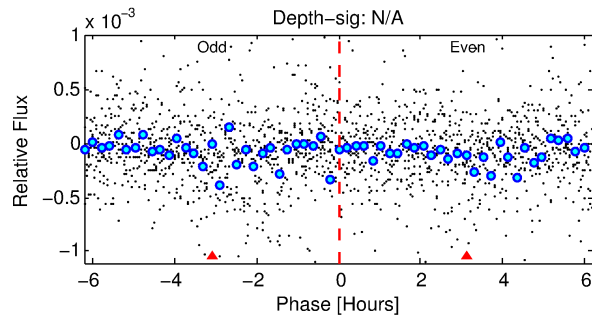
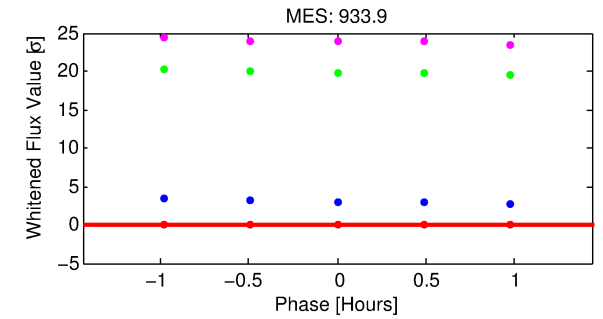
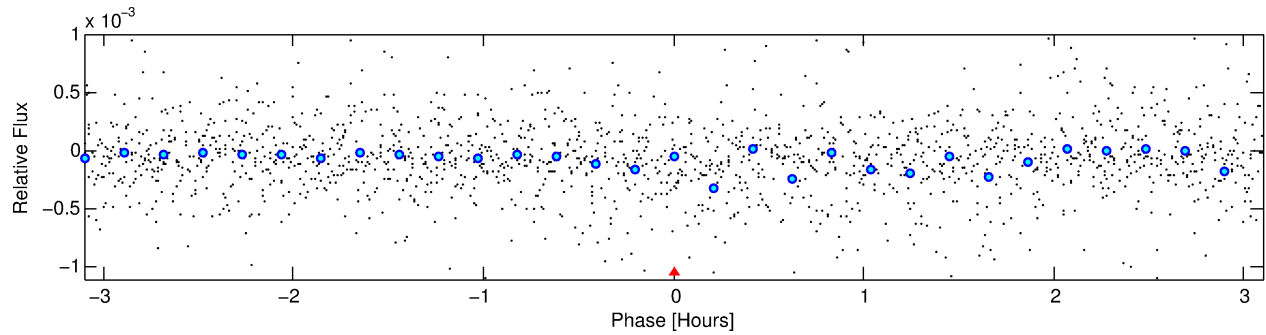
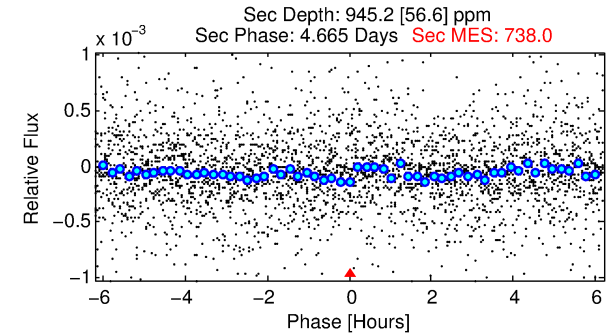
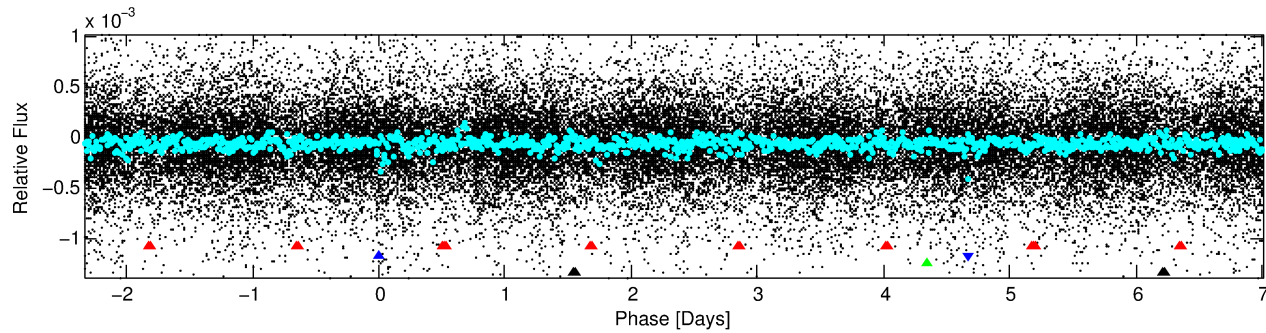
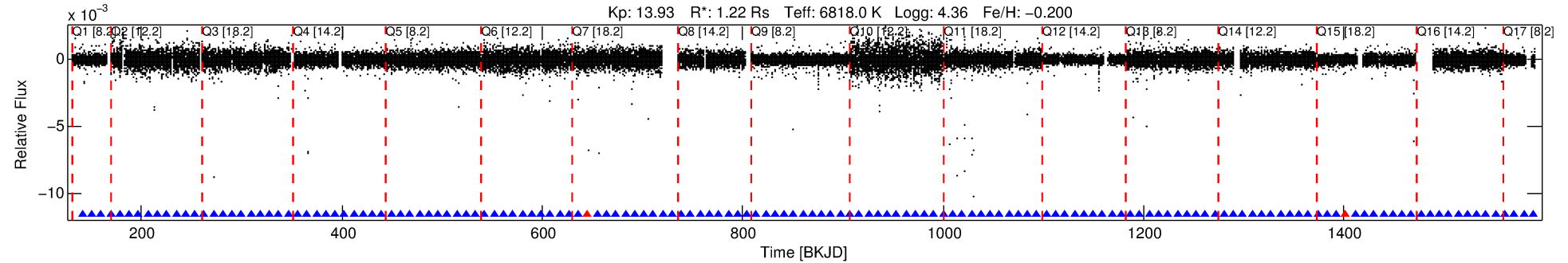
Ephemeris Match Information For 006766748-02

No Significant Match Found

# DV One-Page Summary

KIC: 6766748 Candidate: 2 of 4 Period: 9.337 d

KOI: K06764 Corr: No Ephemeris Match



TPS TCE Results:

Period = 9.33720 d  
Epoch = 140.4405 BKJD

**DV fit results are unavailable**

DV Diagnostic Results:

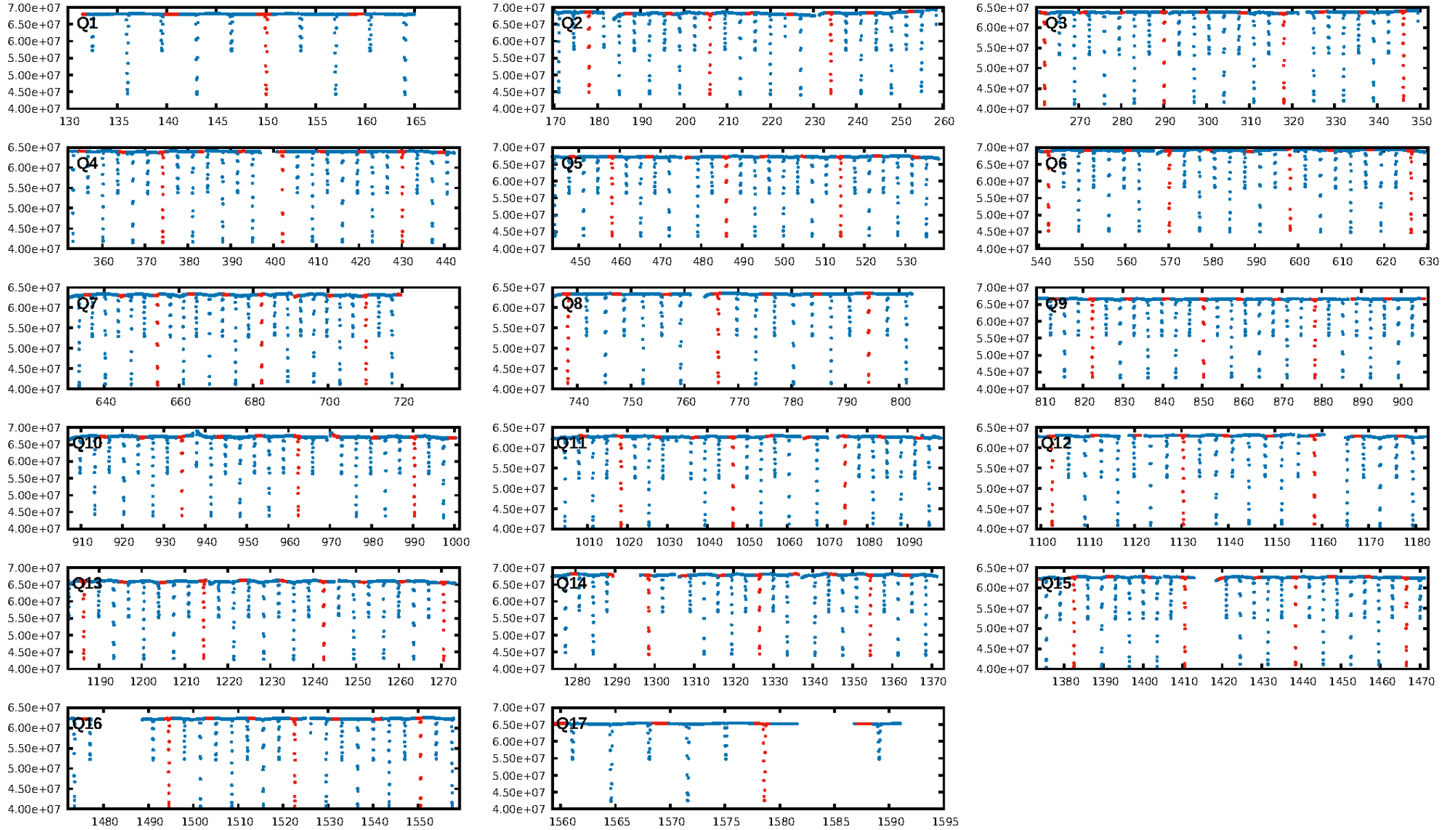
ShortPeriod-sig: 100.0% [5.28σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [133/135]  
GhostDiagnostic-chr: 4.886  
Centroid-sig: 15.7%  
Centroid-so: 3.487 arcsec [1.44σ]  
OotOffset-rm: 0.280 arcsec [0.23σ]  
KicOffset-rm: 0.247 arcsec [0.21σ]  
OotOffset-st: 1/1/4/3 [9]  
KicOffset-st: 1/1/4/3 [9]  
DiffImageQuality-fgm: 0.33 [3/9]  
DiffImageOverlap-fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:24:42 Z

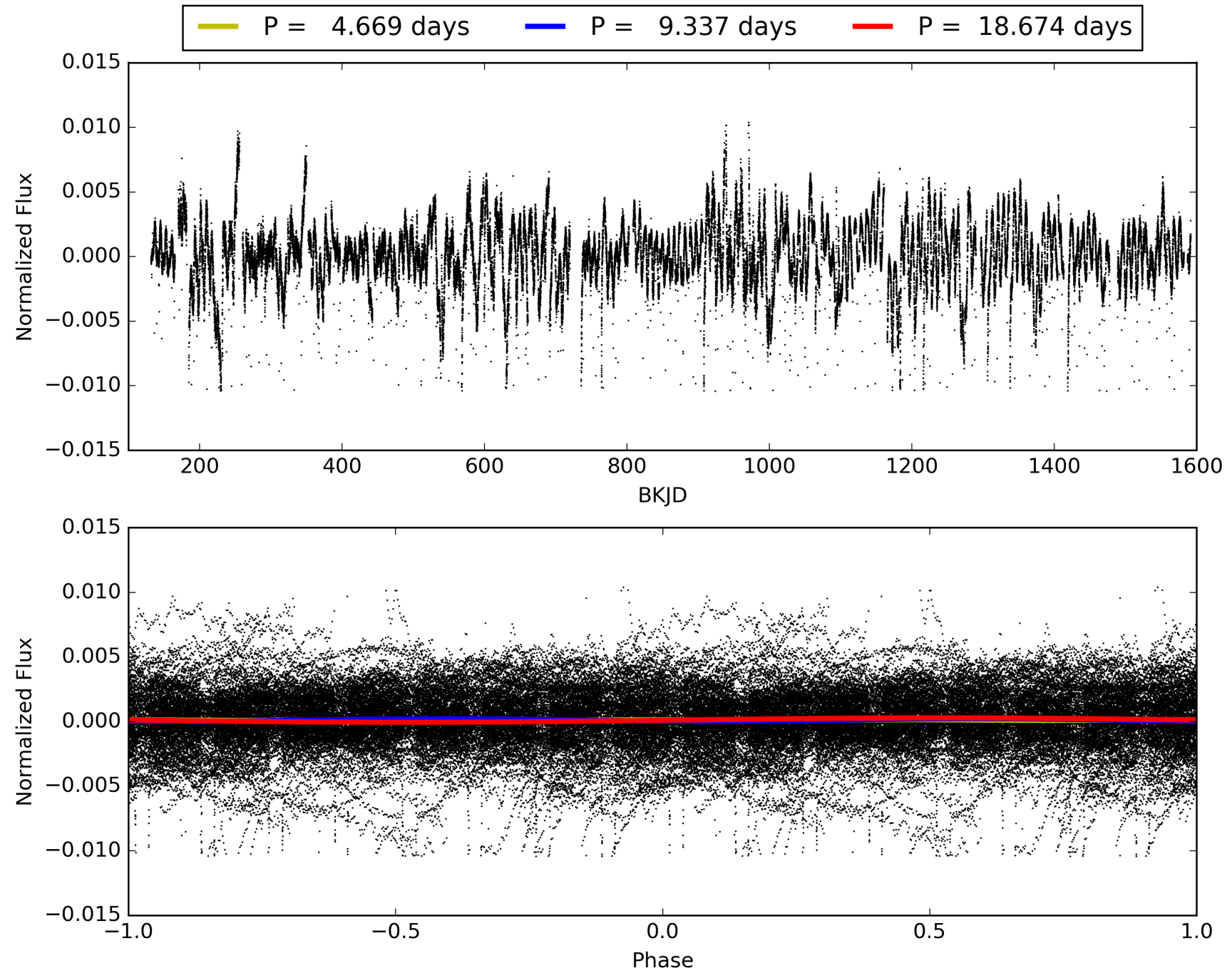
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 006766748-02, PDC Light Curves

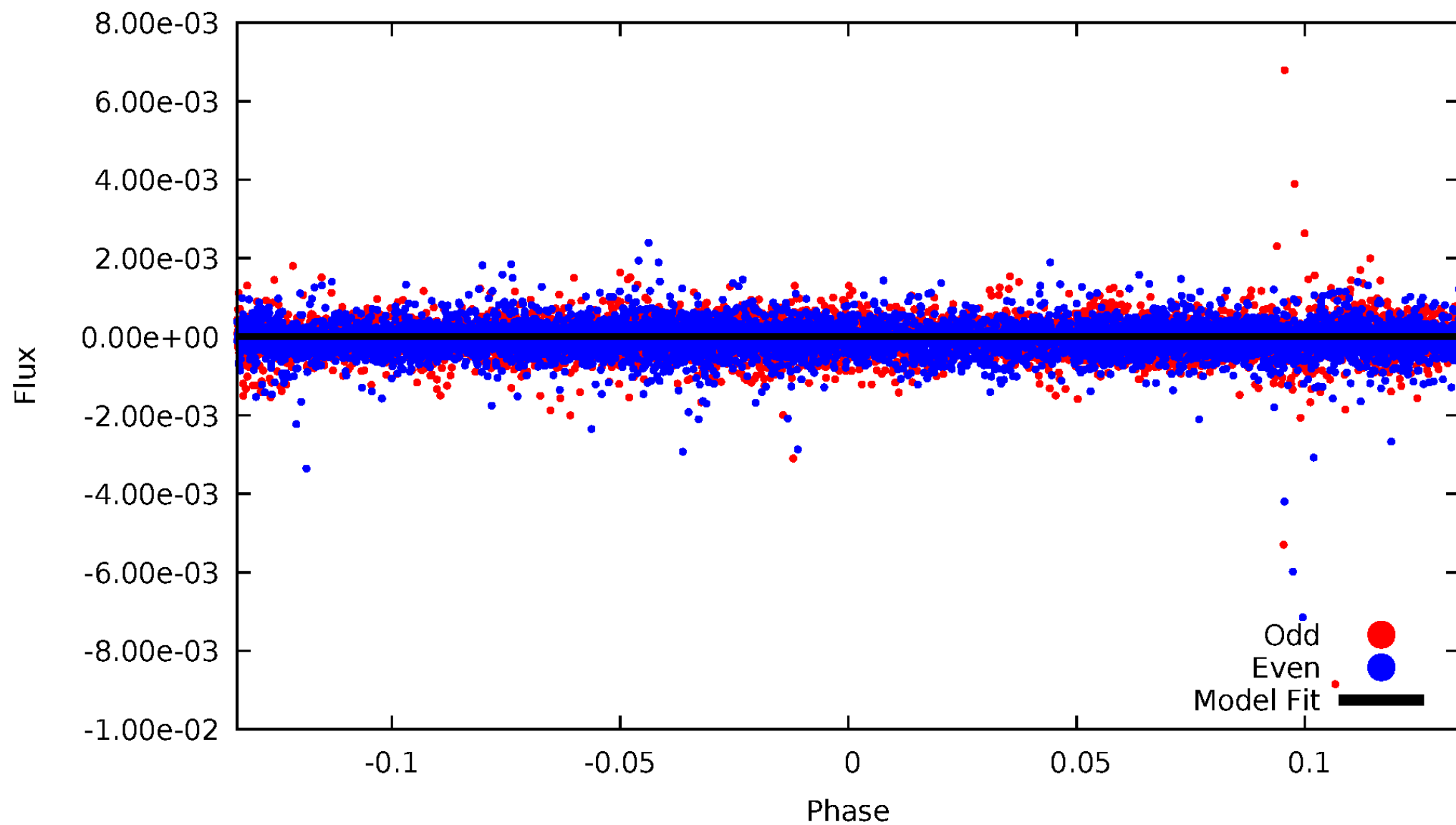


TCE 006766748-02



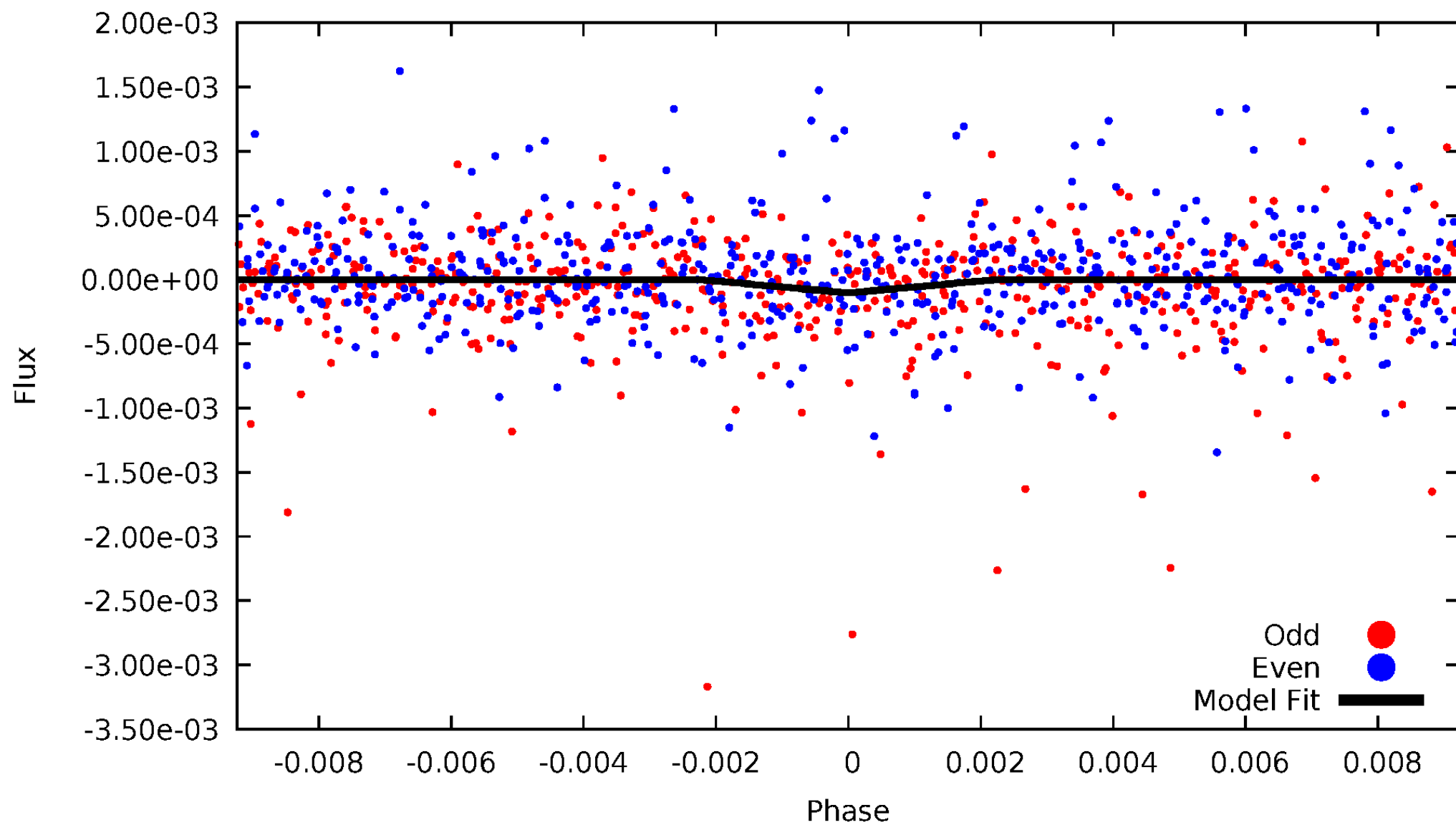
# DV Odd/Even

TCE 006766748-02



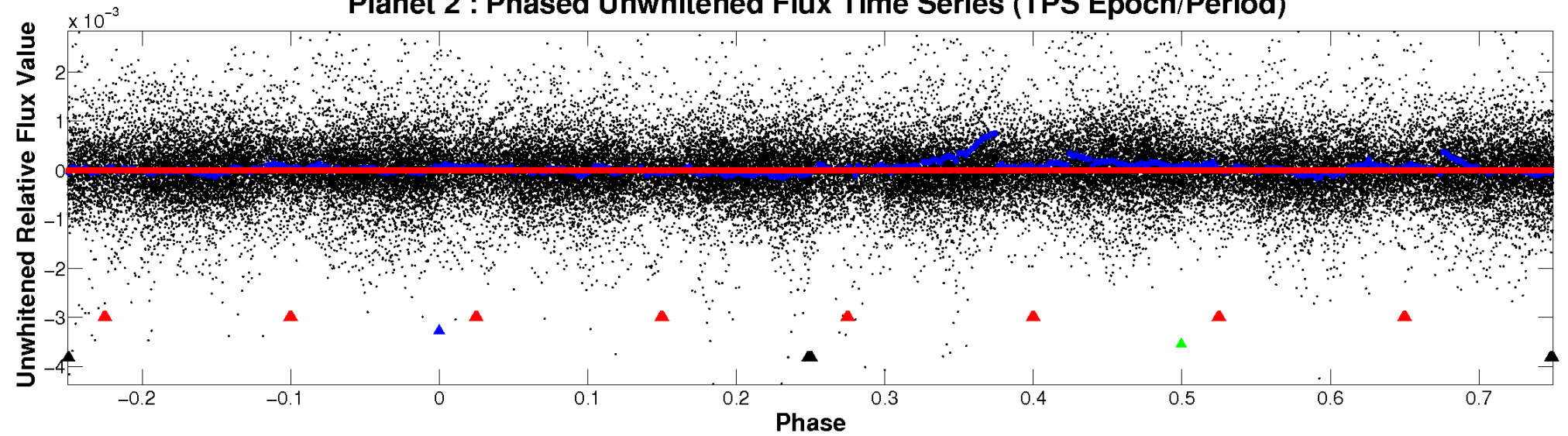
# ALT Odd/Even

TCE 006766748-02

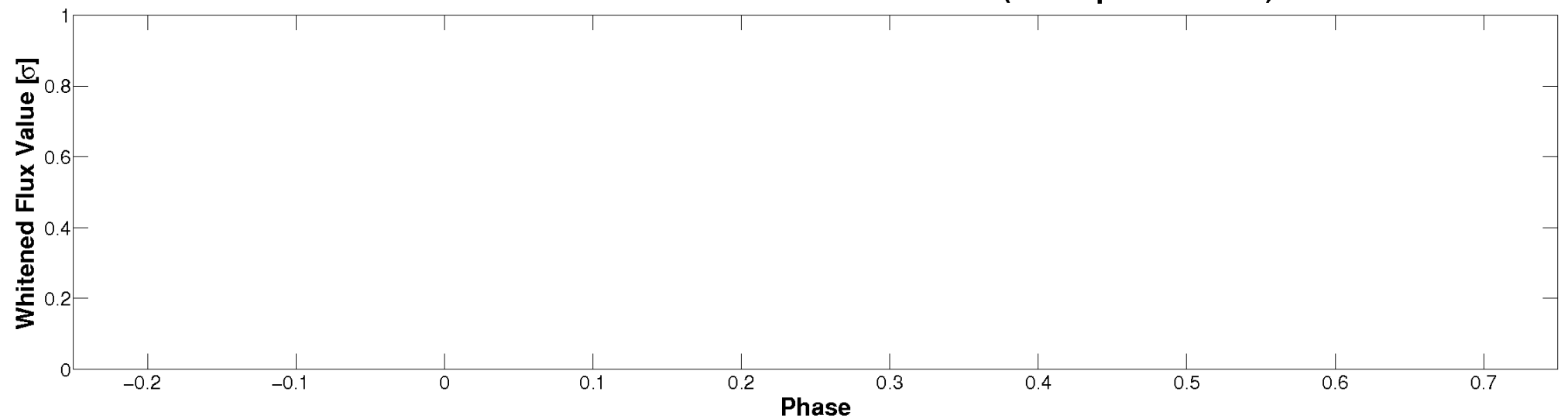


# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

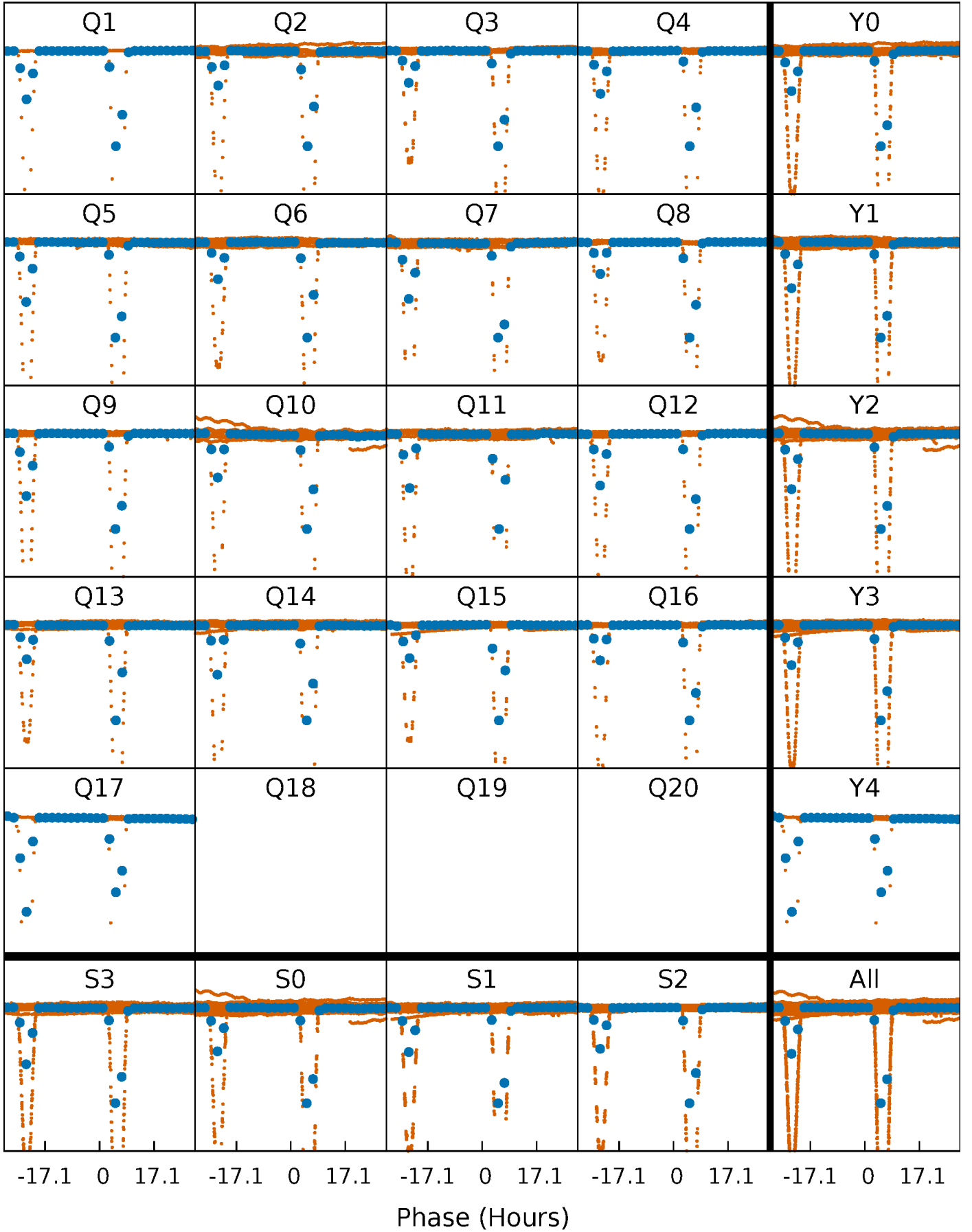


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

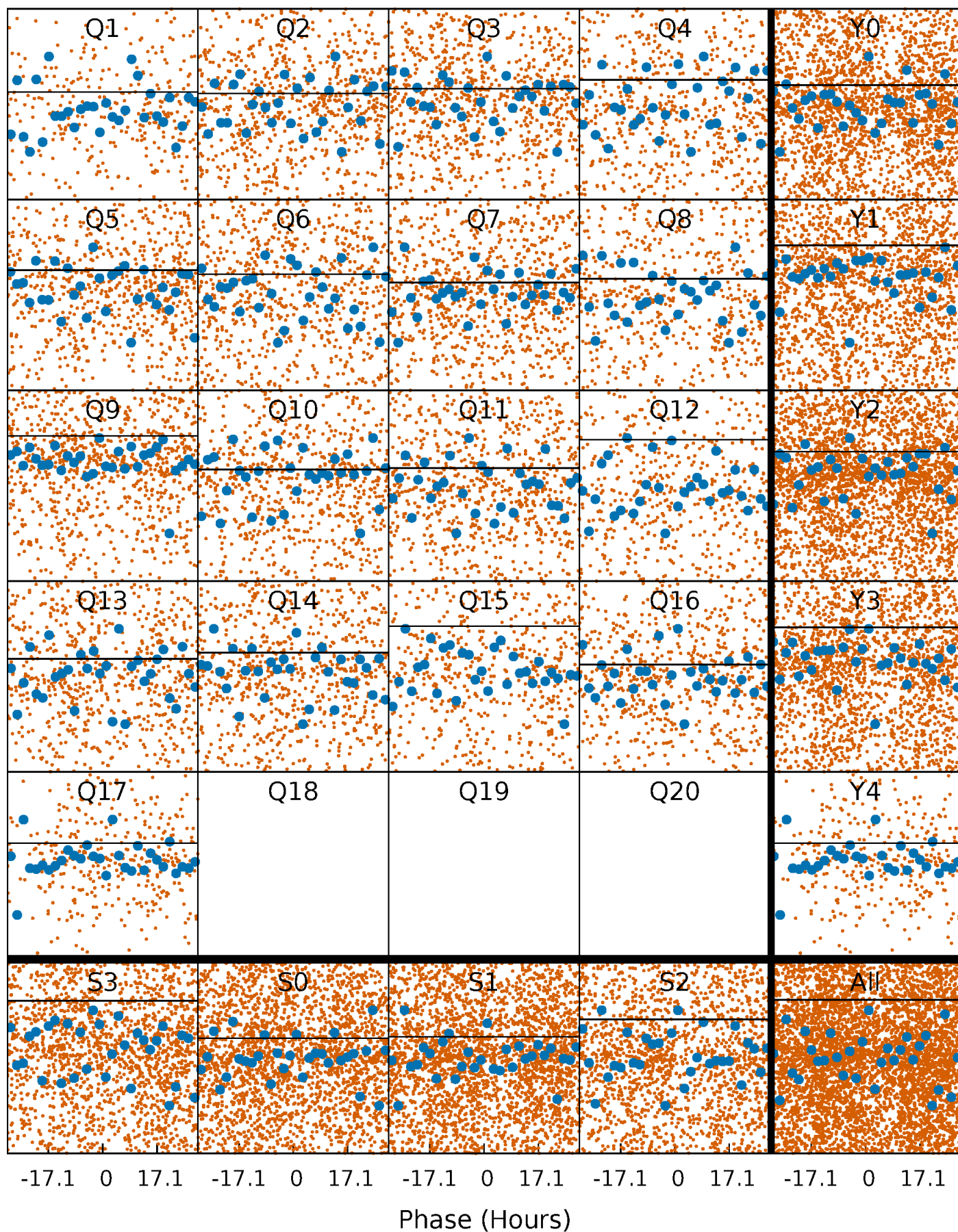
TCE 006766748-02   P= 9.337204 Days    $T_0=140.440460$  (BKJD)





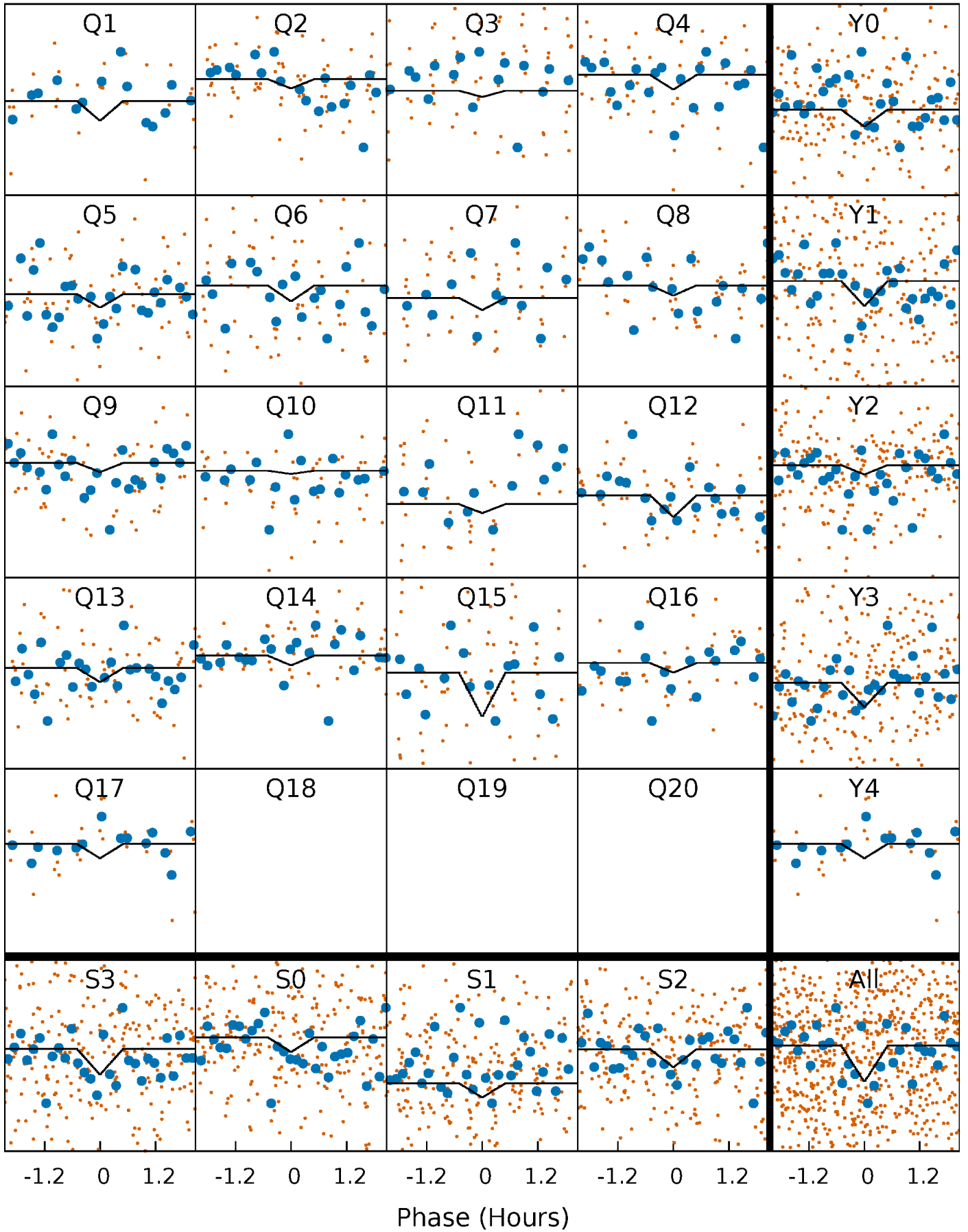
# DV Quarter-Phased Transit Curves

TCE 006766748-02 P= 9.337204 Days  $T_0=140.440460$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

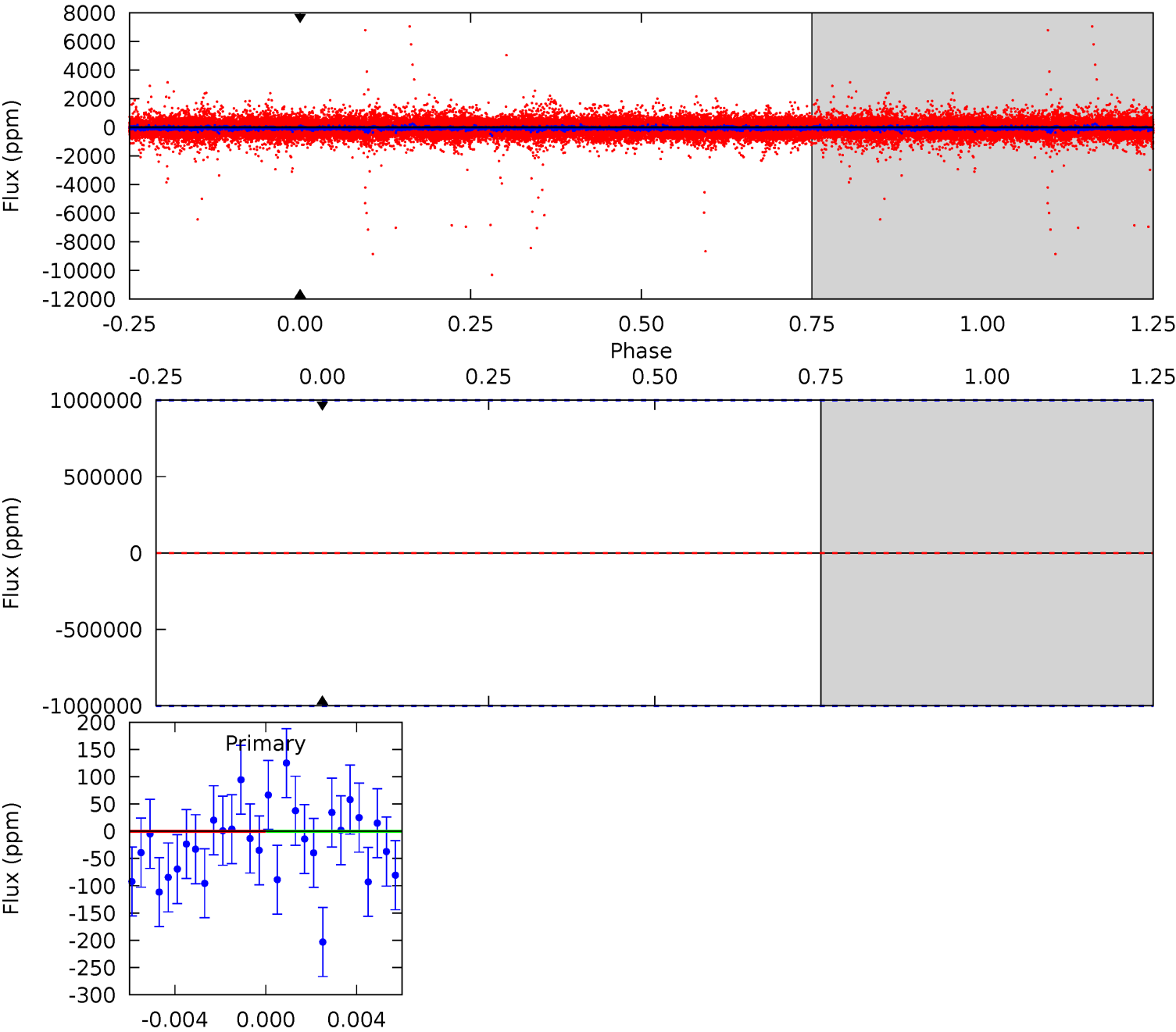
TCE 006766748-02   P= 9.337204 Days    $T_0=141.319817$  (BKJD)



DV Model-Shift Uniqueness Test

006766748-02, P = 9.337204 Days, E = 131.103256 Days

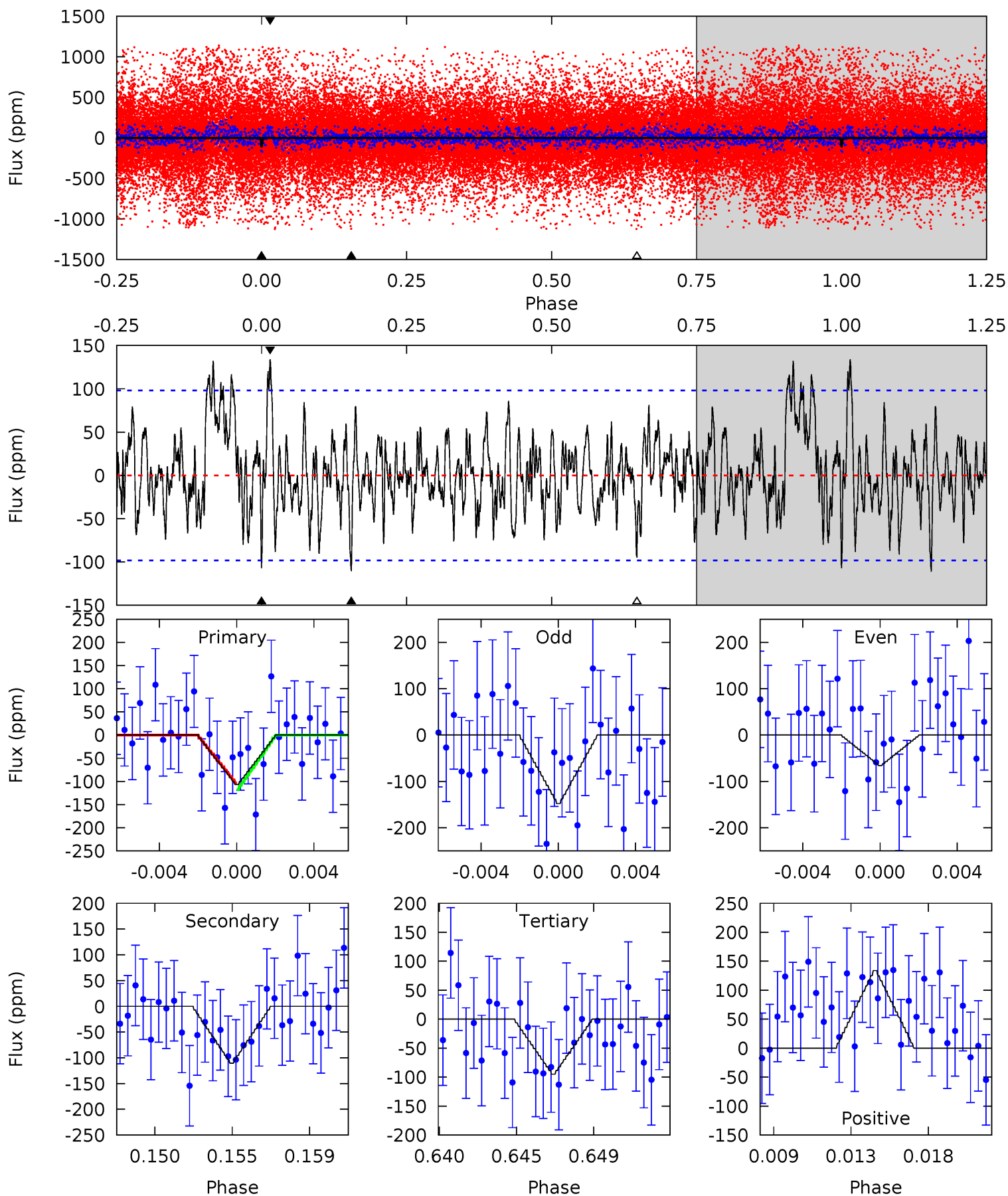
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006766748-02, P = 9.337204 Days, E = 122.645409 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
5.64	5.82	5.00	7.07	5.18	2.85	1.98	0.64	-1.42	0.82	-1.24	2.19	1.44	0.55	0.38



### Stellar Parameters For KIC 006766748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6818^{+167}_{-262}$	$4.357^{+0.056}_{-0.224}$	$-0.200^{+0.250}_{-0.350}$	$1.216^{+0.445}_{-0.119}$	$1.240^{+0.203}_{-0.166}$	$0.971^{+0.237}_{-0.569}$
	+2%/-4%	+1%/-5%	+125%/-175%	+37%/-10%	+16%/-13%	+24%/-59%
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 006766748-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$18.41^{+13.16}_{-10.99}$	$1554^{+114}_{-83}$	$4199^{+10418}_{-17144}$	$21^{+1805}_{-1656}$
Alt.	$-110 \pm 19$	$10.31^{+10.69}_{-7.46}$	$1554^{+127}_{-82}$	$3157^{+1767}_{-647}$	$4.924^{+54.657}_{-3.775}$

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

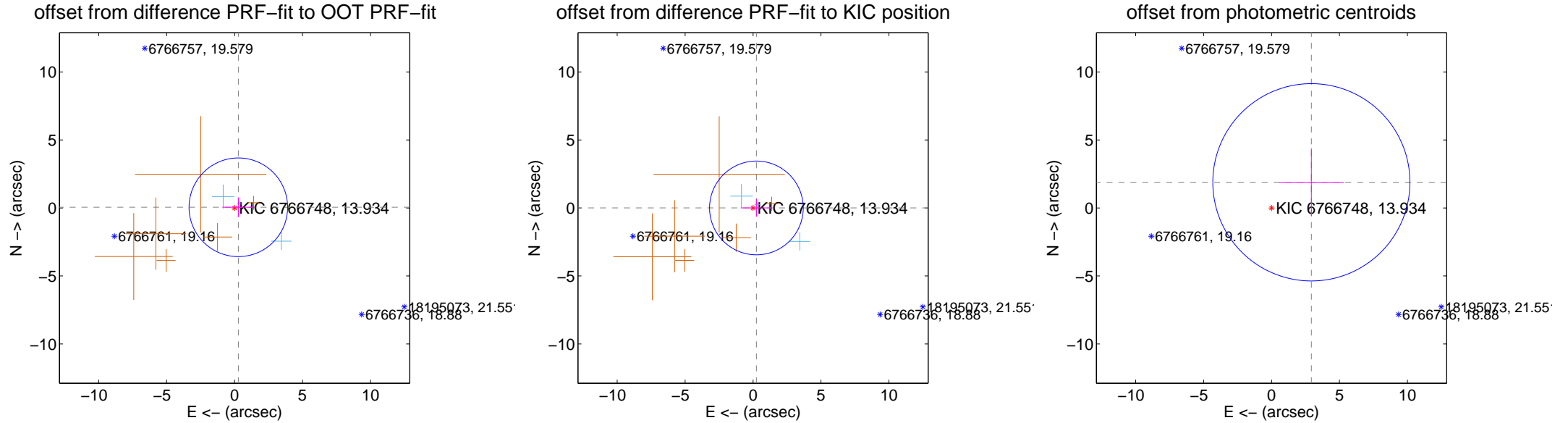
## DV Centroid Data

Supplemental centroid analysis for 006766748-02. Kepler magnitude: 13.93. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

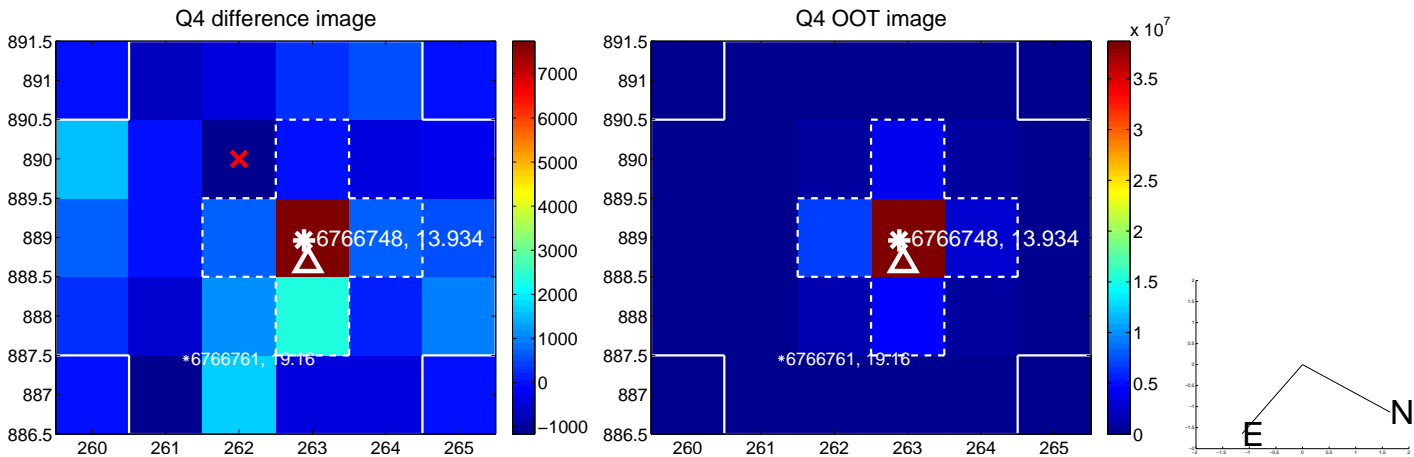
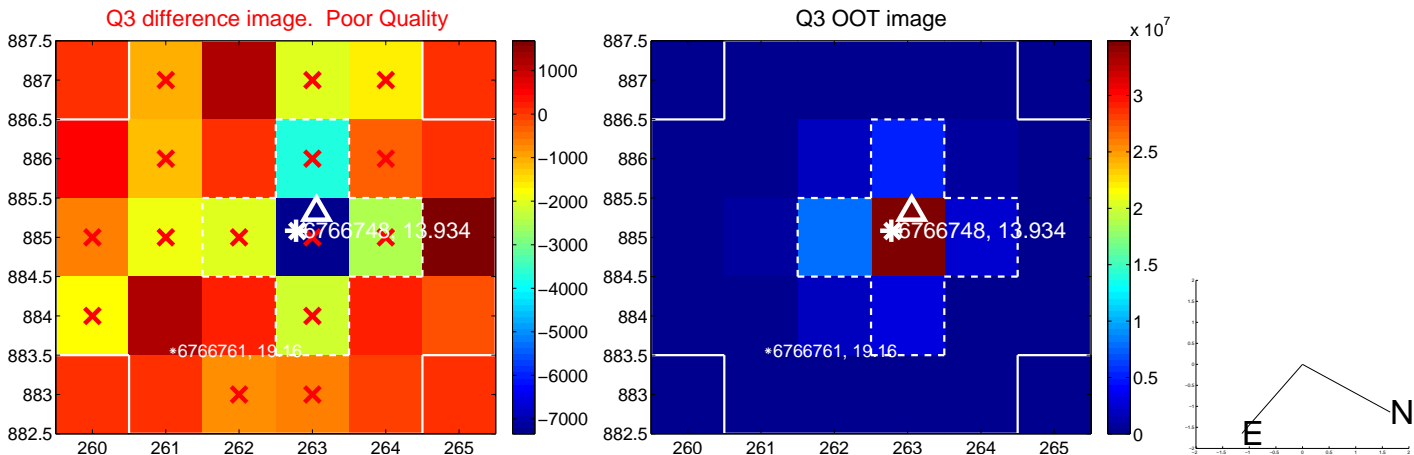
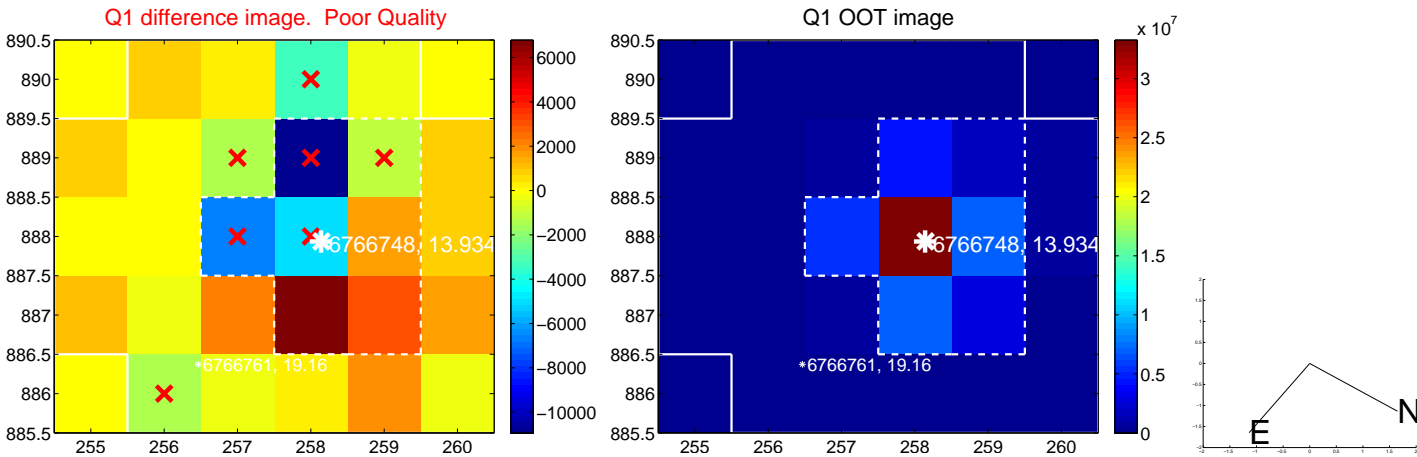
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.280 \pm 1.209$	0.23	$-0.276 \pm 1.176$	$0.049 \pm 0.729$
PRF-fit source offset from KIC position	$0.247 \pm 1.149$	0.21	$-0.247 \pm 1.148$	$0.001 \pm 0.651$
photometric centroid source offset	$3.49 \pm 2.42$	1.44	$-2.93 \pm 2.38$	$1.89 \pm 2.50$



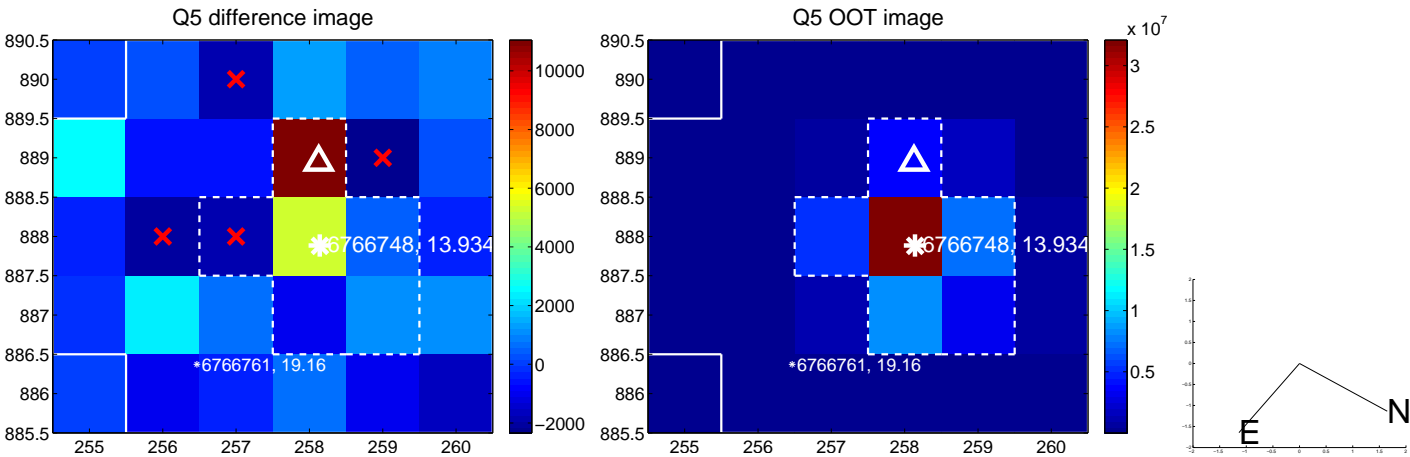
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



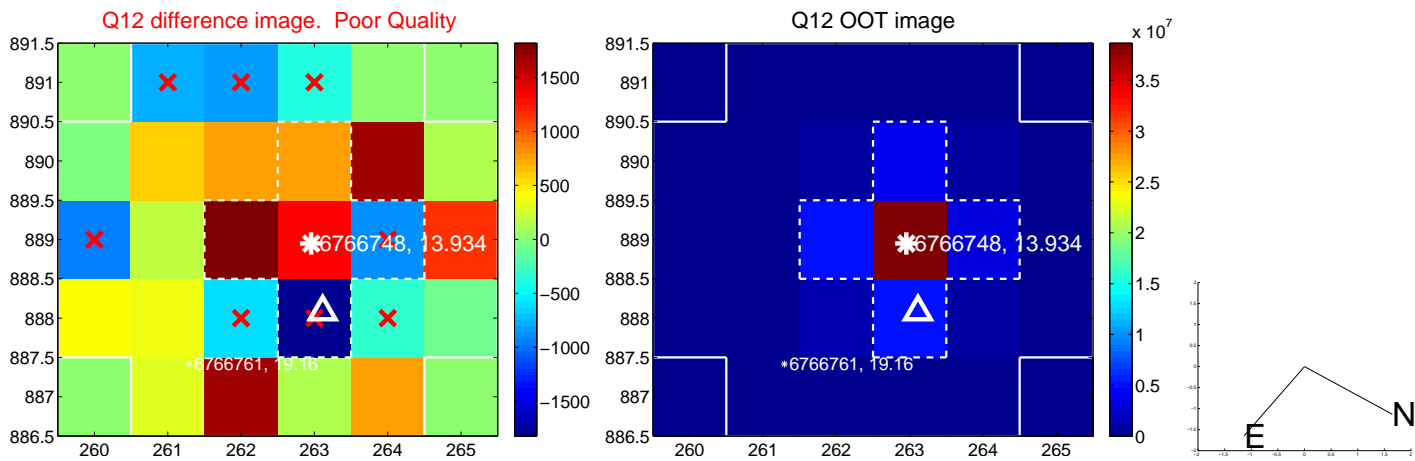
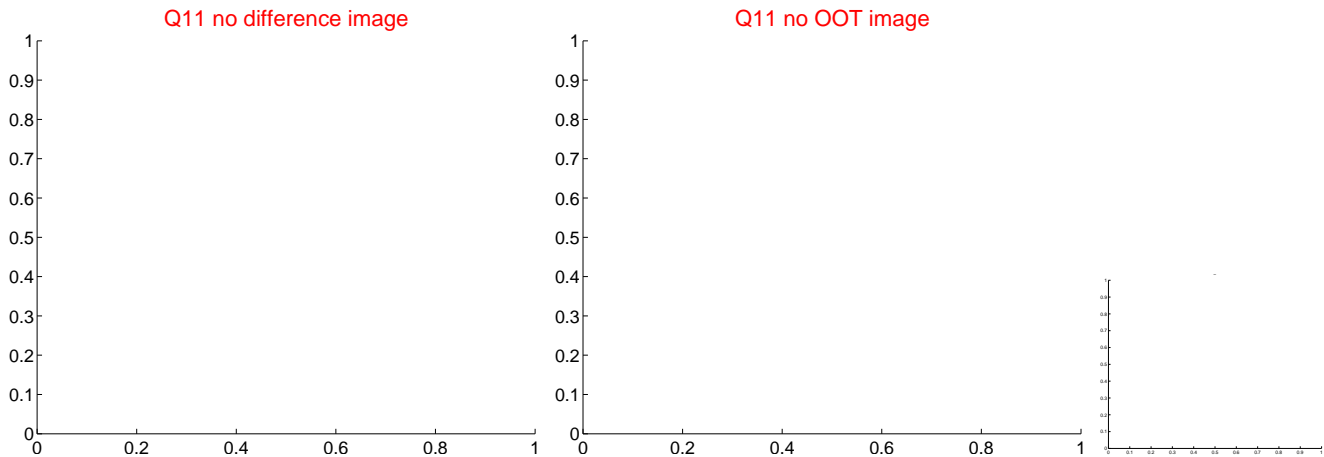
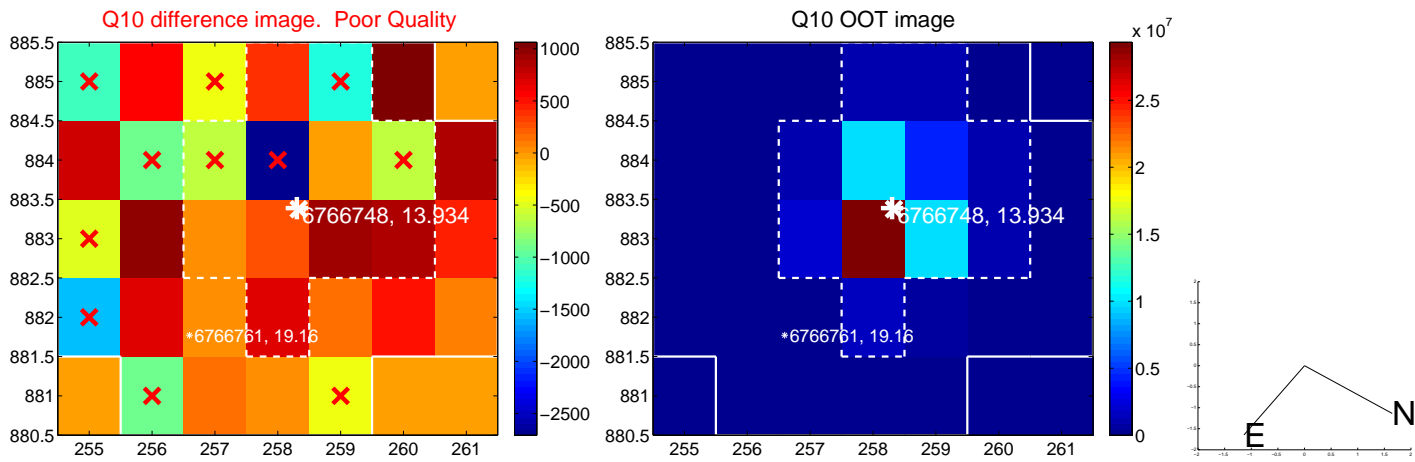
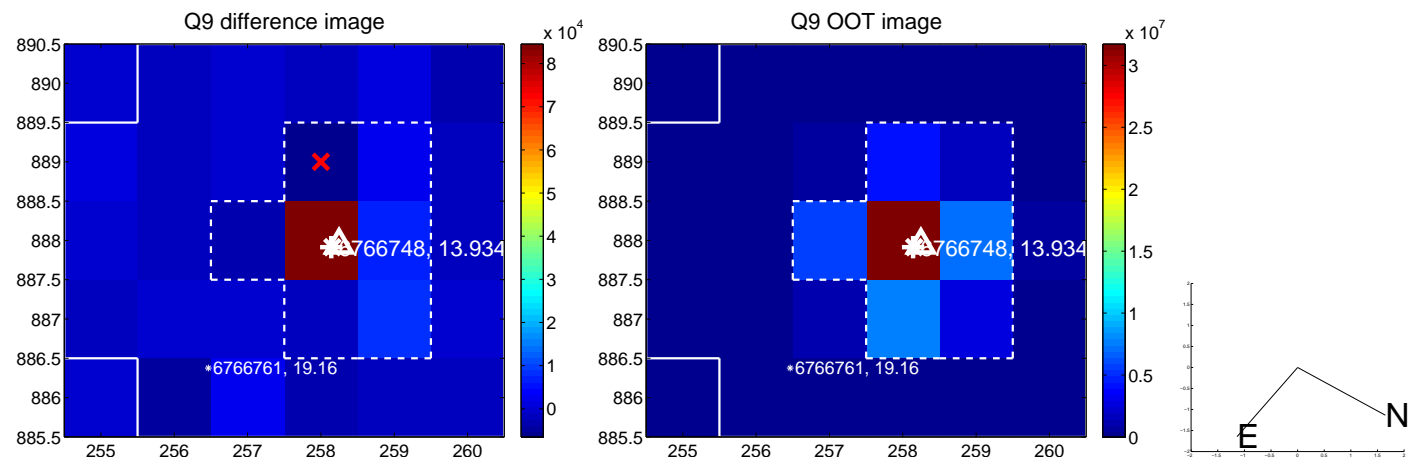


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

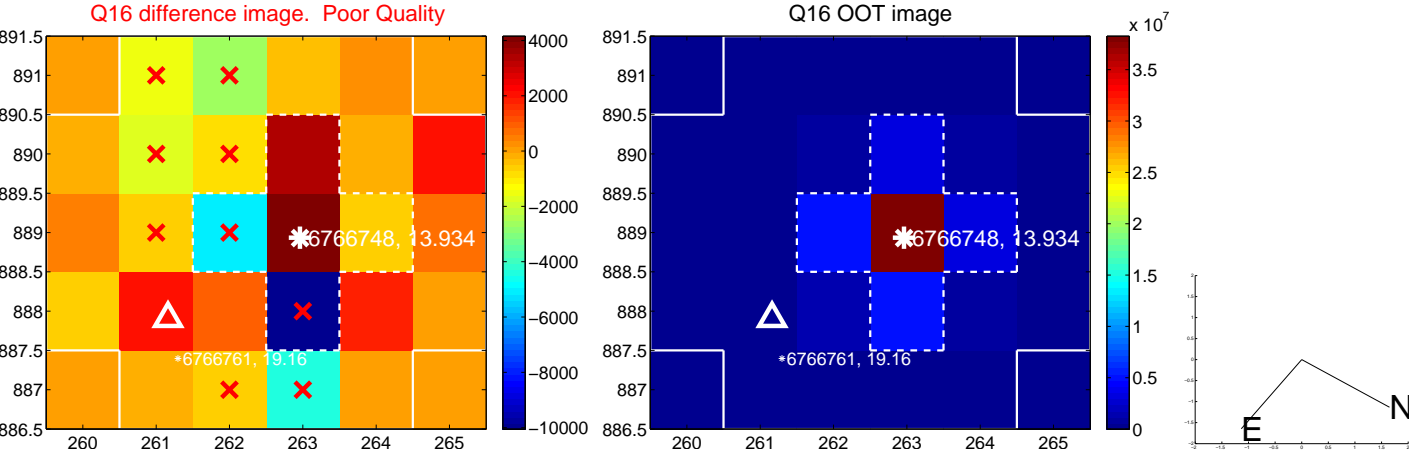
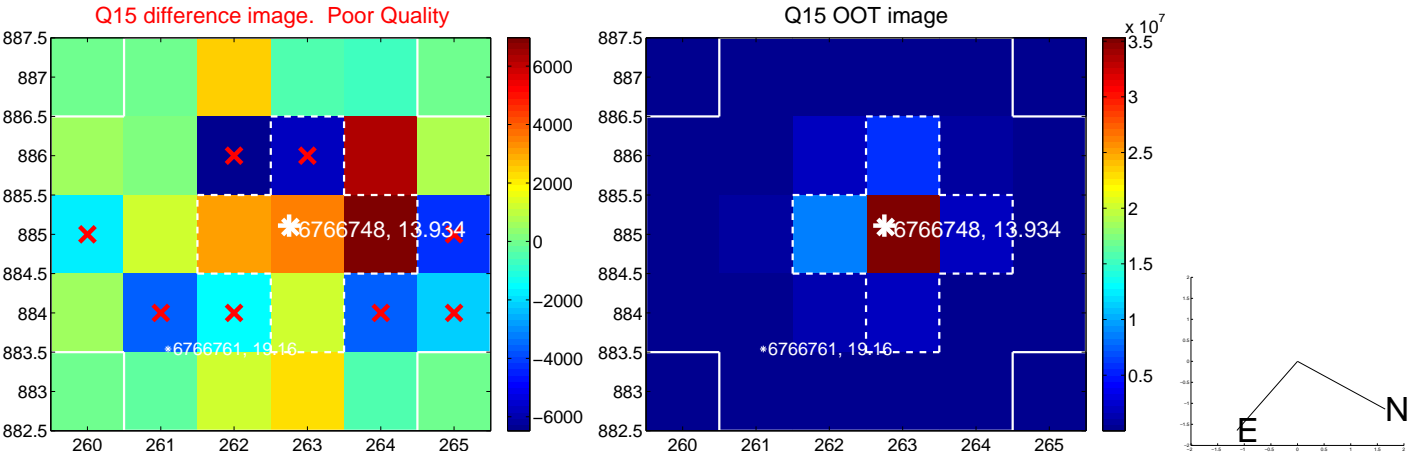
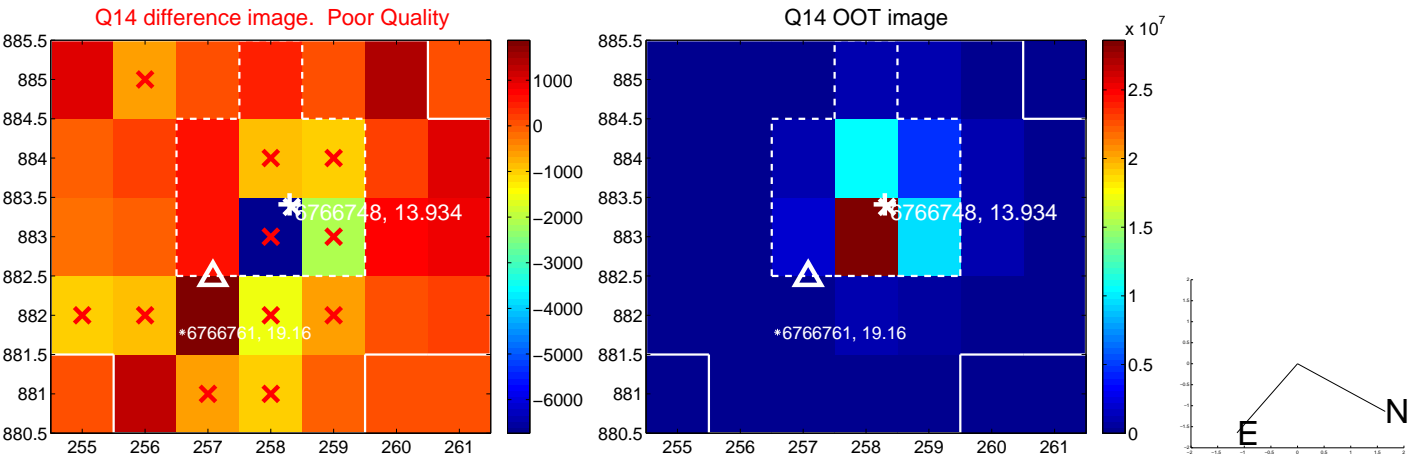
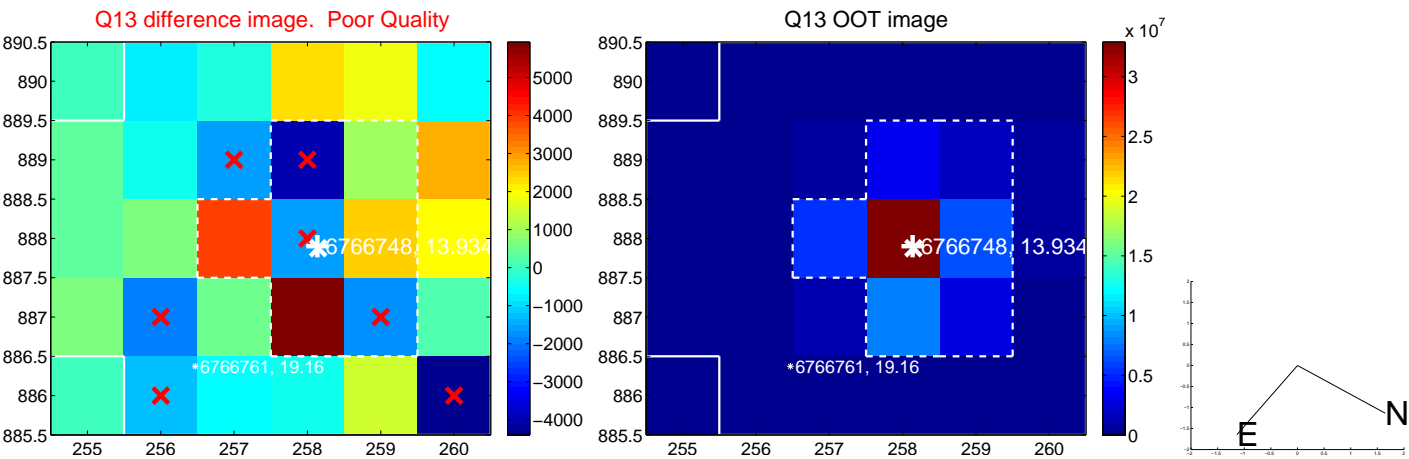




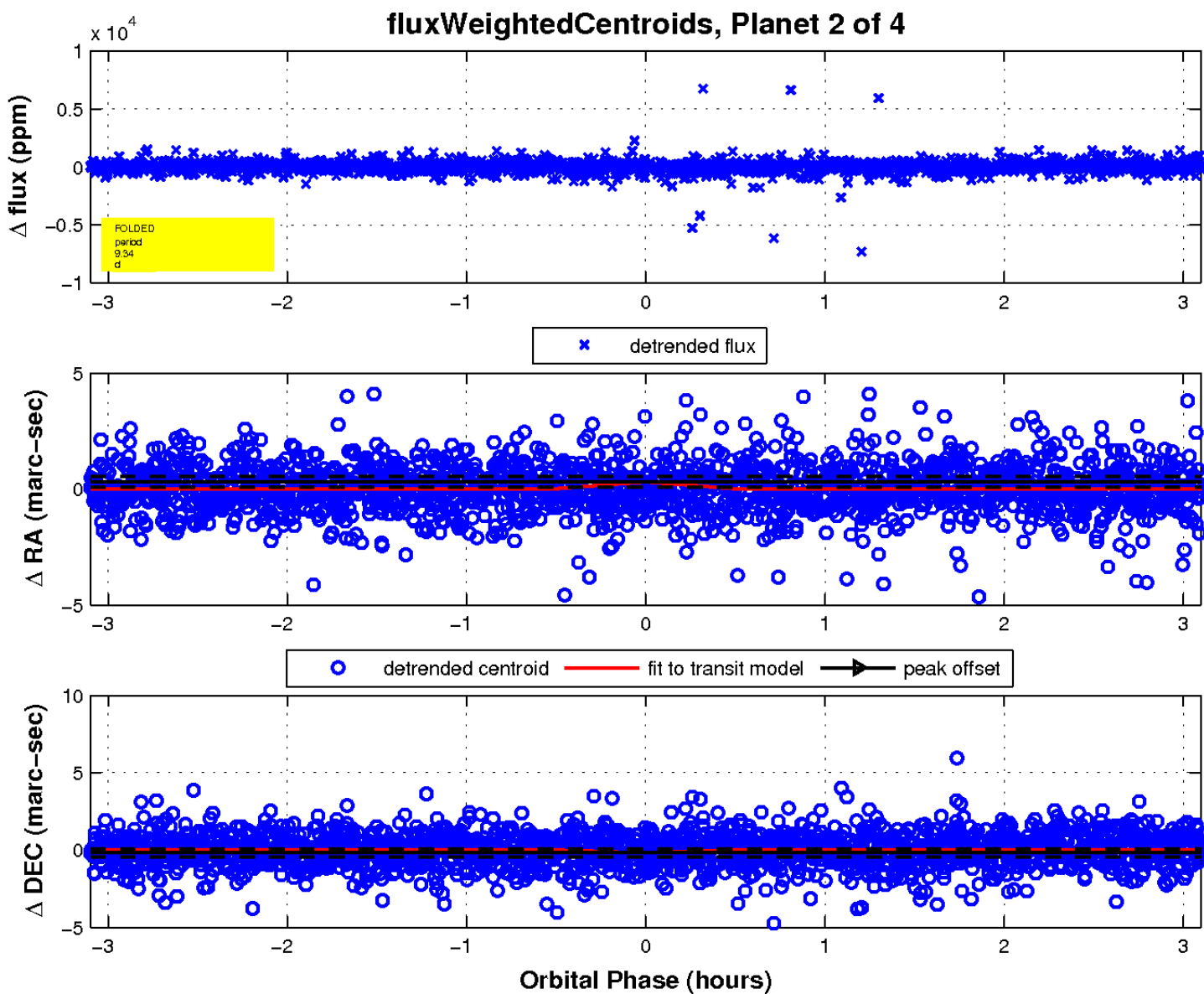
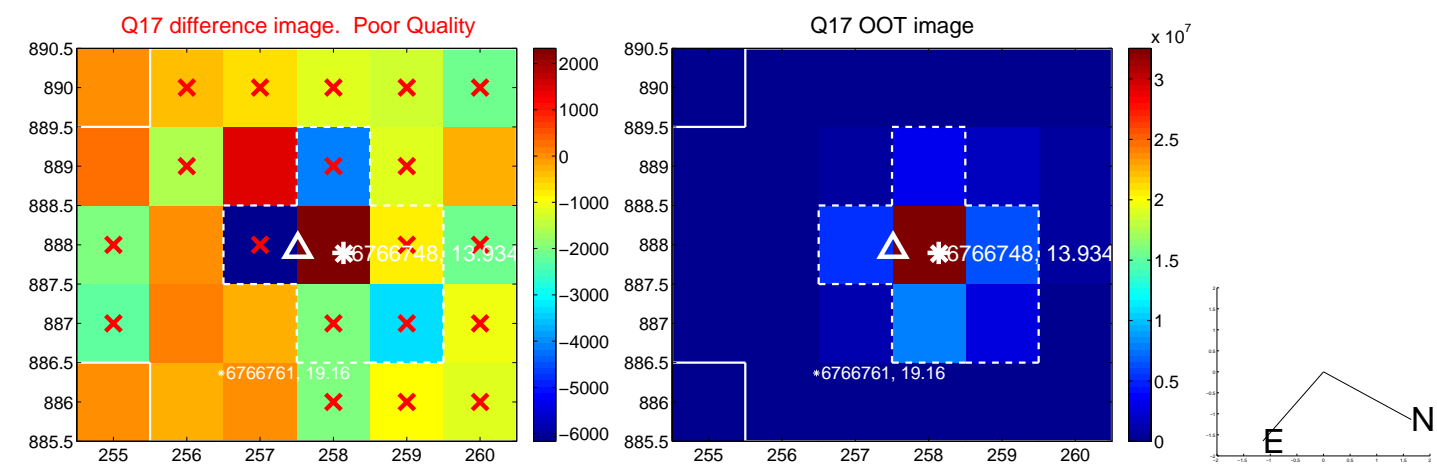
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

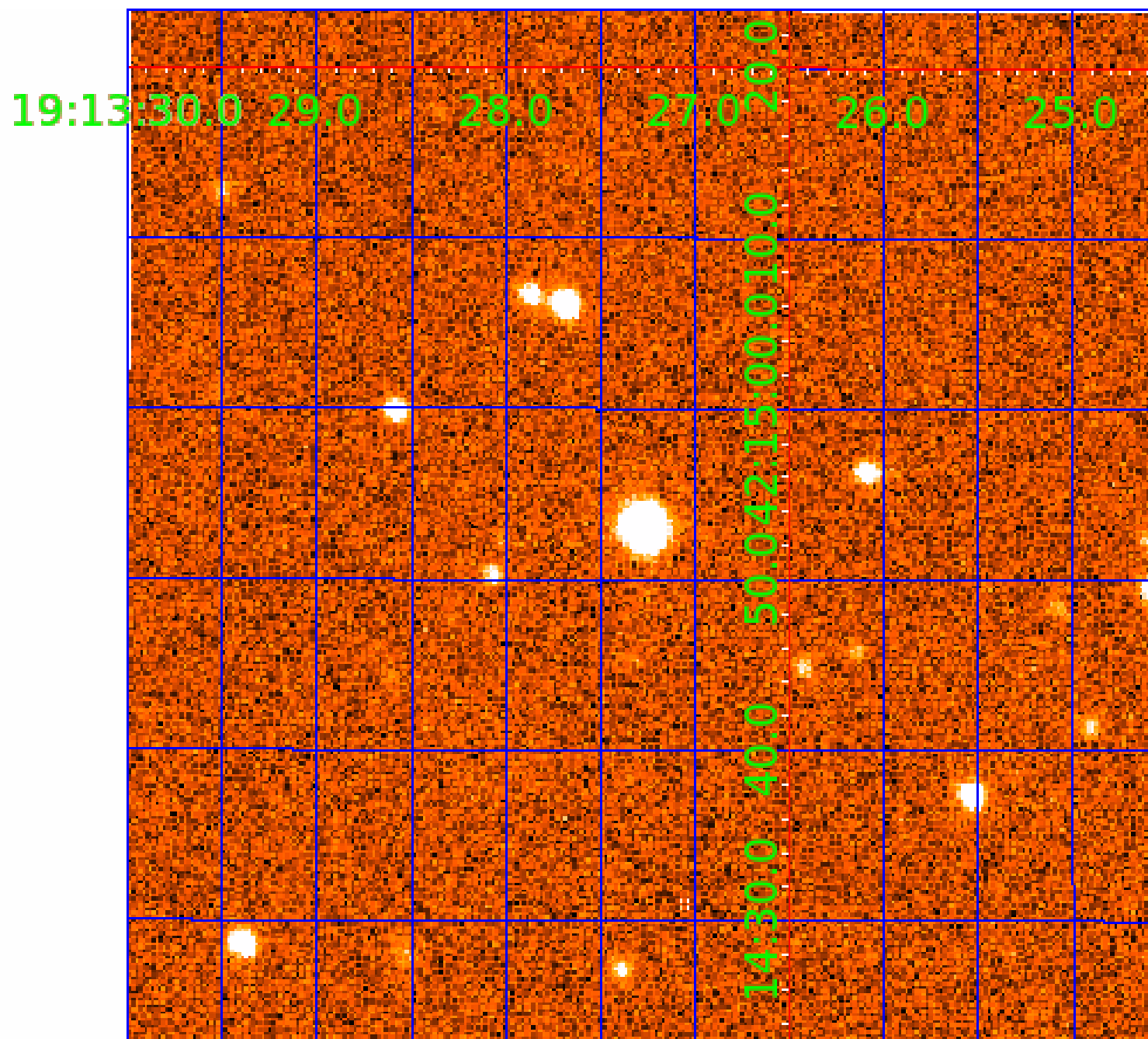


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 006766748

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006766748-01	OBS	6764.01	3.501409	132.512238	260630.3	3.500	20670.8	-1.0	1.22	6818	61.27	1225.99
006766748-02	OBS	No	9.337204	140.440460	15529.3	15.000	933.9	-1.0	1.22	6818	15.30	331.53
006766748-03	OBS	No	9.337204	135.767985	15893.3	15.000	868.4	-1.0	1.22	6818	15.48	331.53
006766748-04	OBS	No	4.668692	133.418126	16171.6	15.000	857.4	-1.0	1.22	6818	15.62	835.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006766748-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—CENT_NOFITS
006766748-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
006766748-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
006766748-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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 006766748-03

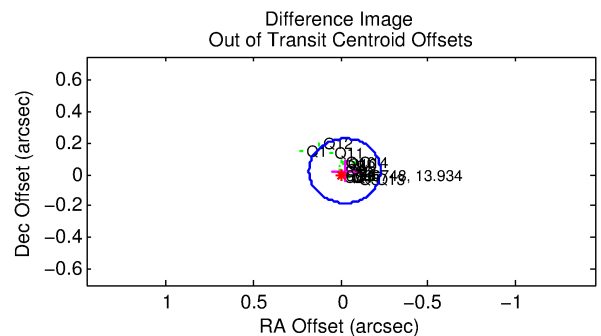
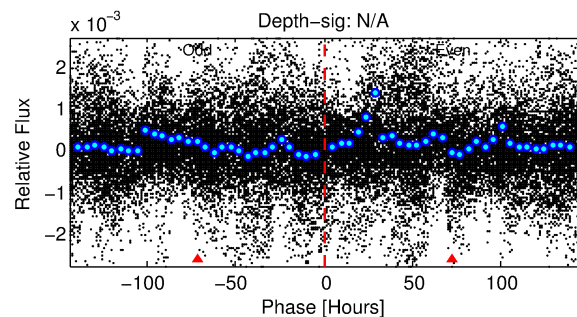
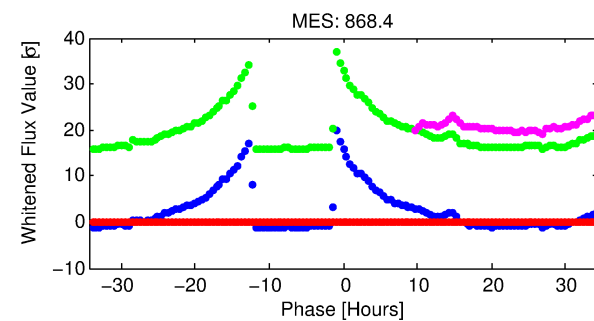
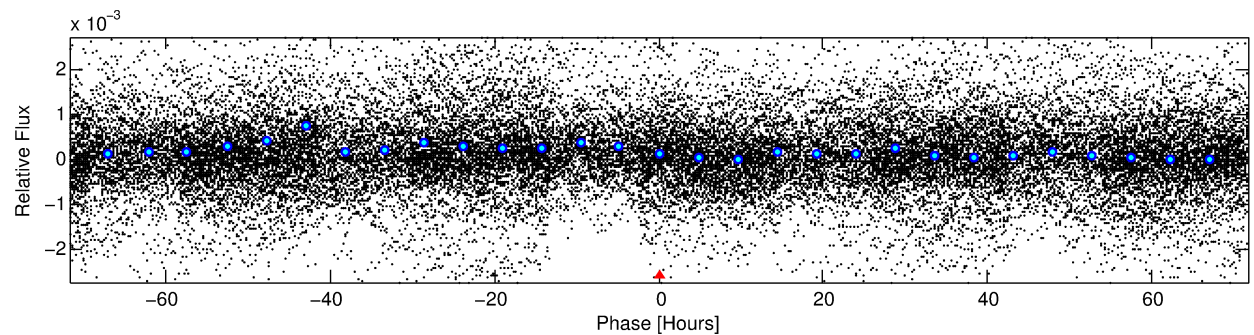
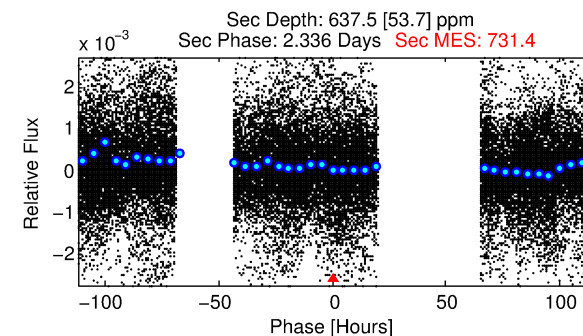
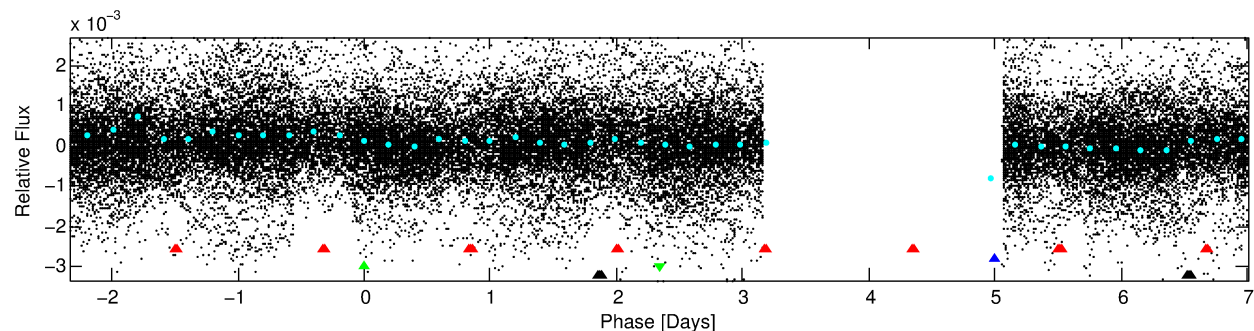
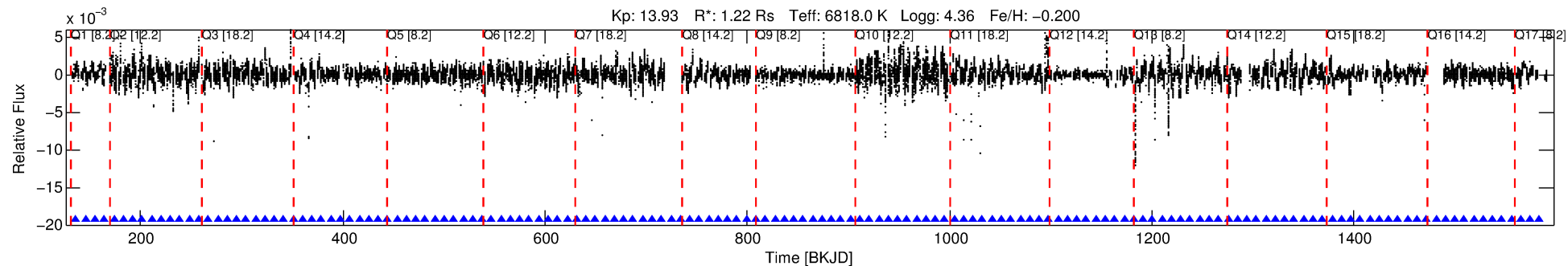
No Significant Match Found

# DV One-Page Summary

KIC: 6766748 Candidate: 3 of 4 Period: 9.337 d

KOI: K06764 Corr: No Ephemeris Match

Kp: 13.93 R\*: 1.22 Rs Teff: 6818.0 K Logg: 4.36 Fe/H: -0.200



TPS TCE Results:

Period = 9.33720 d  
Epoch = 135.7680 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]

LongPeriod-sig: N/A

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: N/A

RollingBand-fgt: 1.00 [139/139]

GhostDiagnostic-chr: N/A

Centroid-sig: N/A

Centroid-so: N/A

OotOffset-rm: 0.033 arcsec [0.49σ]

KicOffset-rm: 0.056 arcsec [0.77σ]

OotOffset-st: 4/4/4/5 [17]

KicOffset-st: 4/4/4/5 [17]

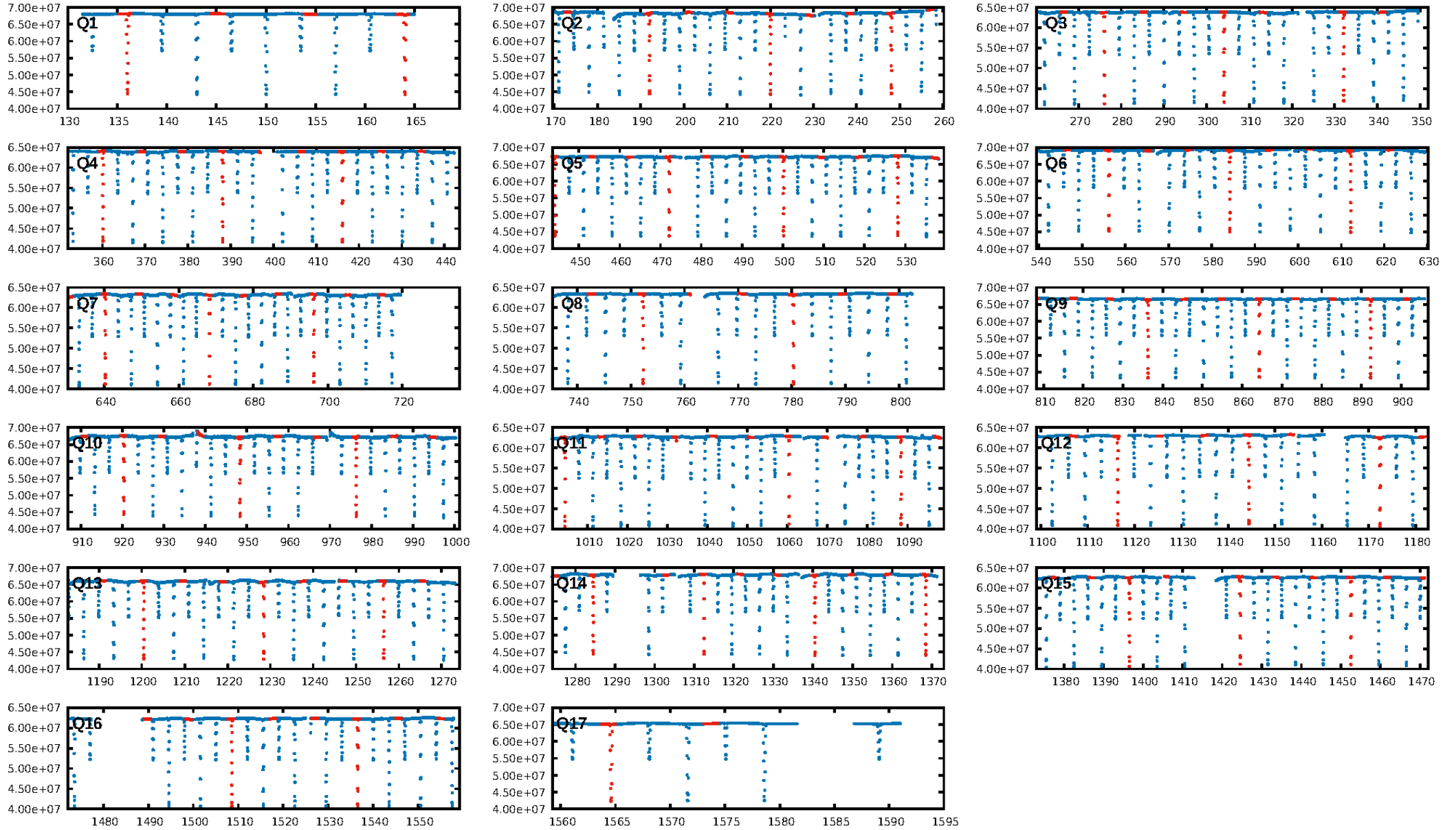
DiffImageQuality-fgm: 1.00 [17/17]

DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:24:50 Z

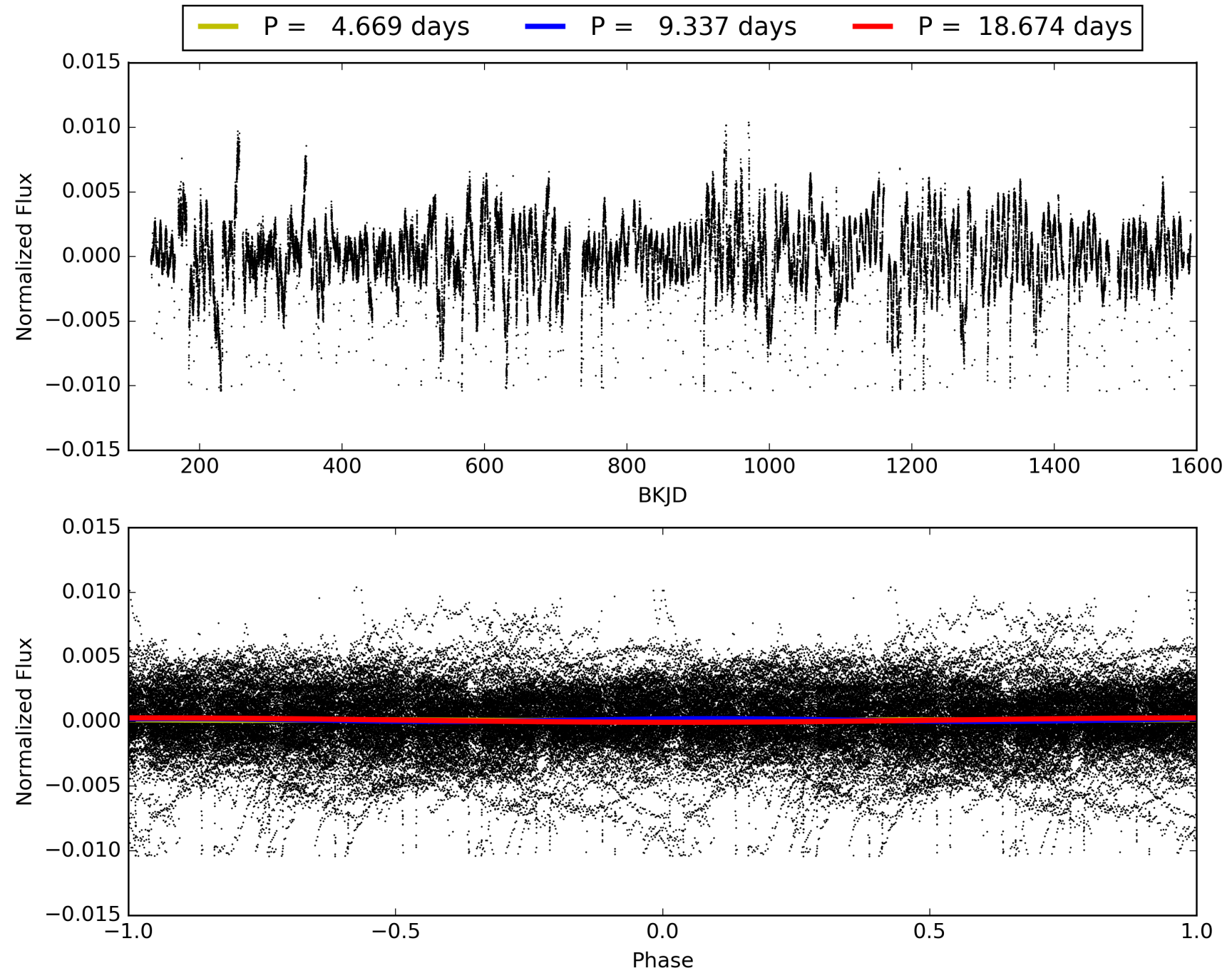
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006766748-03, PDC Light Curves





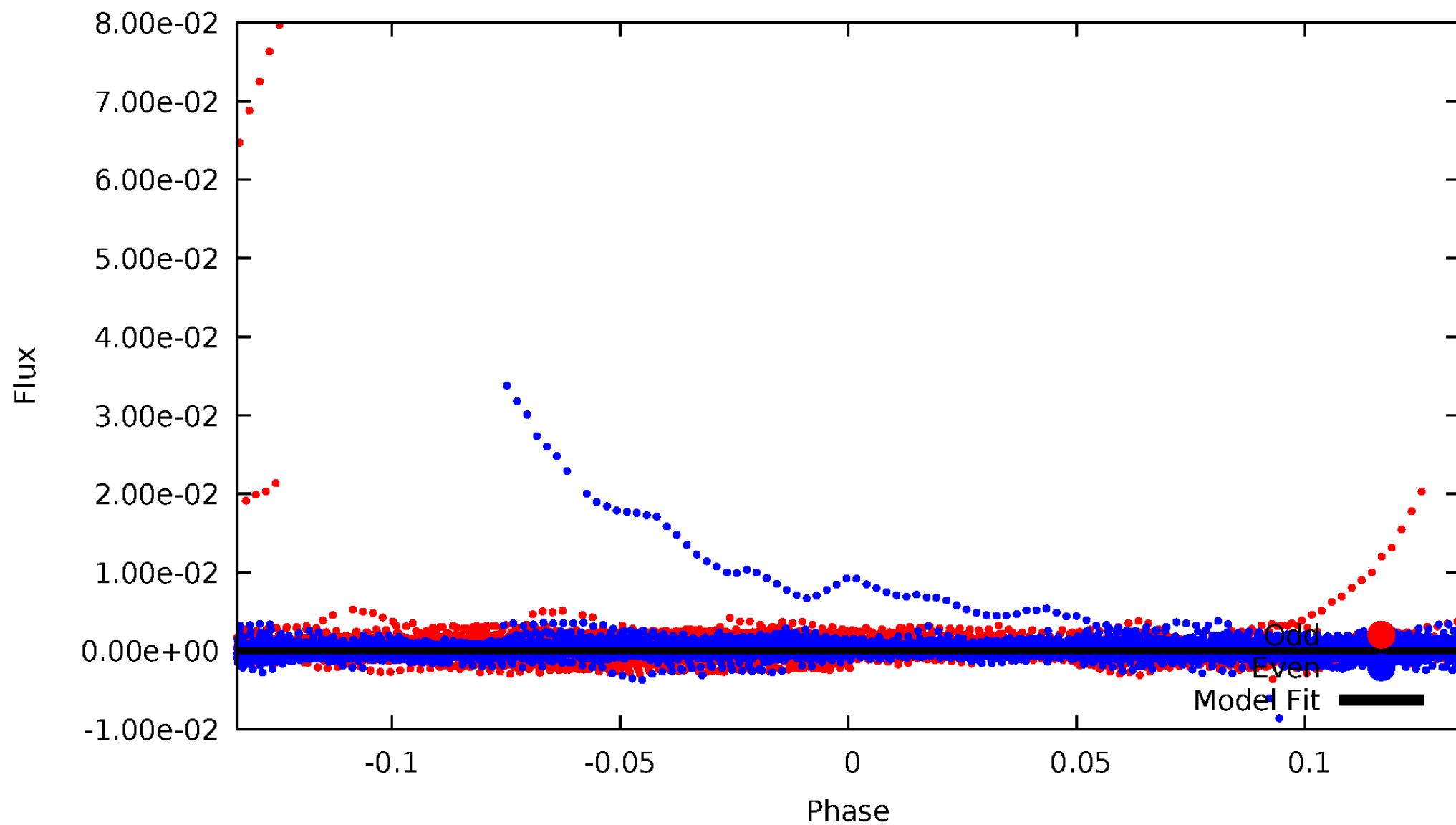
# TCE 006766748-03





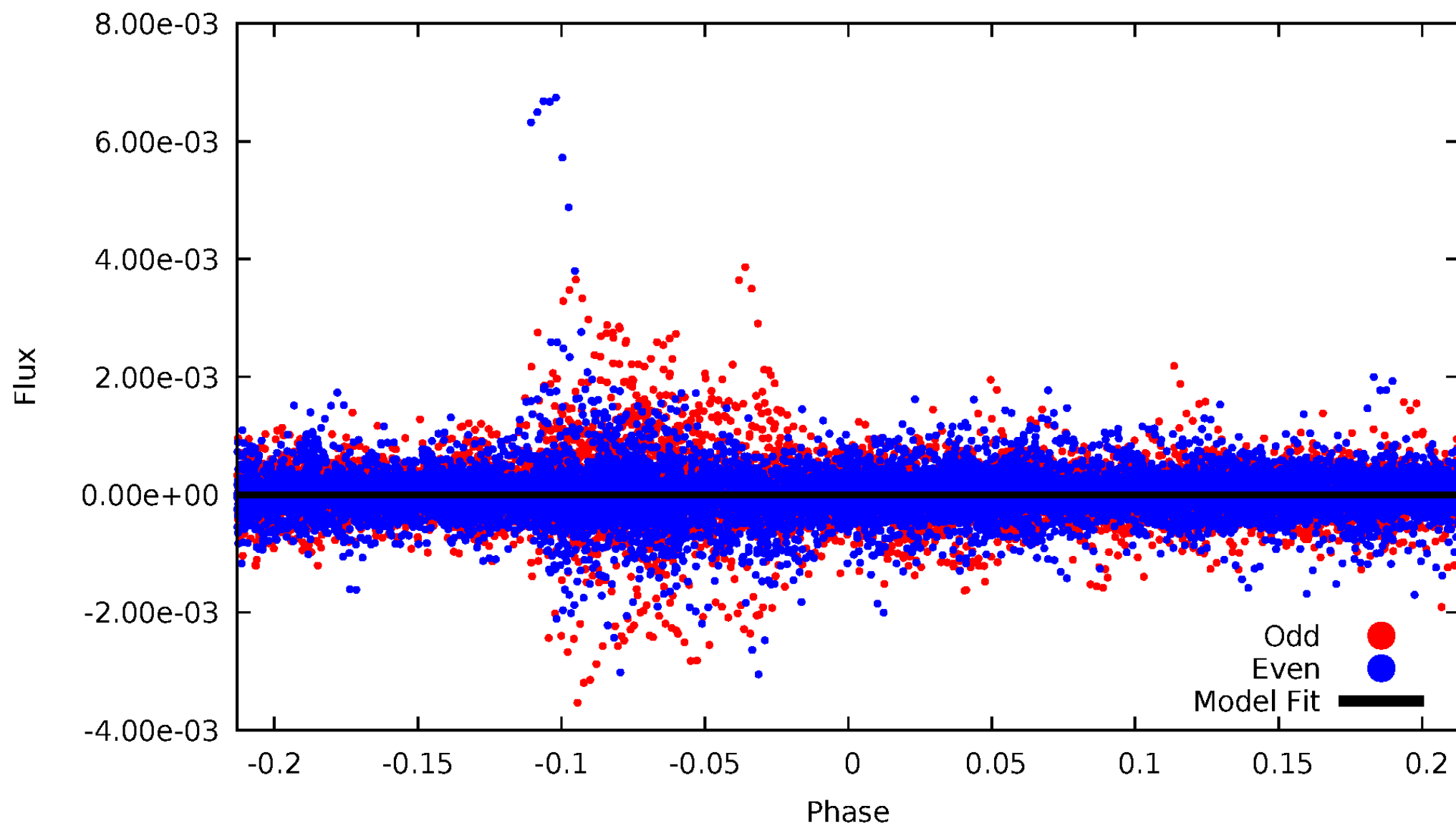
# DV Odd/Even

TCE 006766748-03



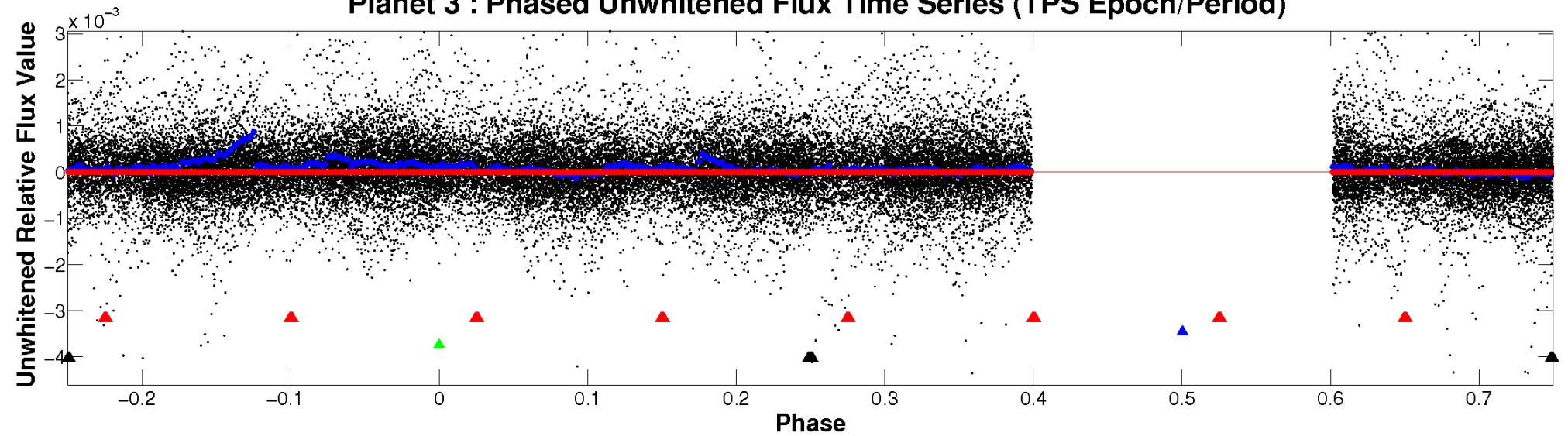
# ALT Odd/Even

TCE 006766748-03

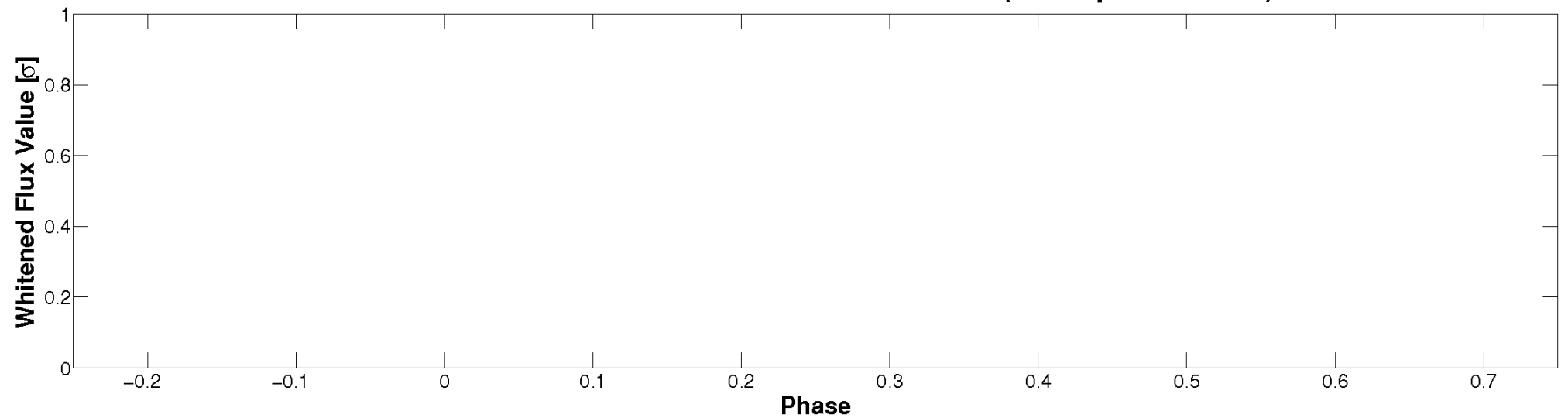


# Non-Whitened Vs. Whitened Light Curve

**Planet 3 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

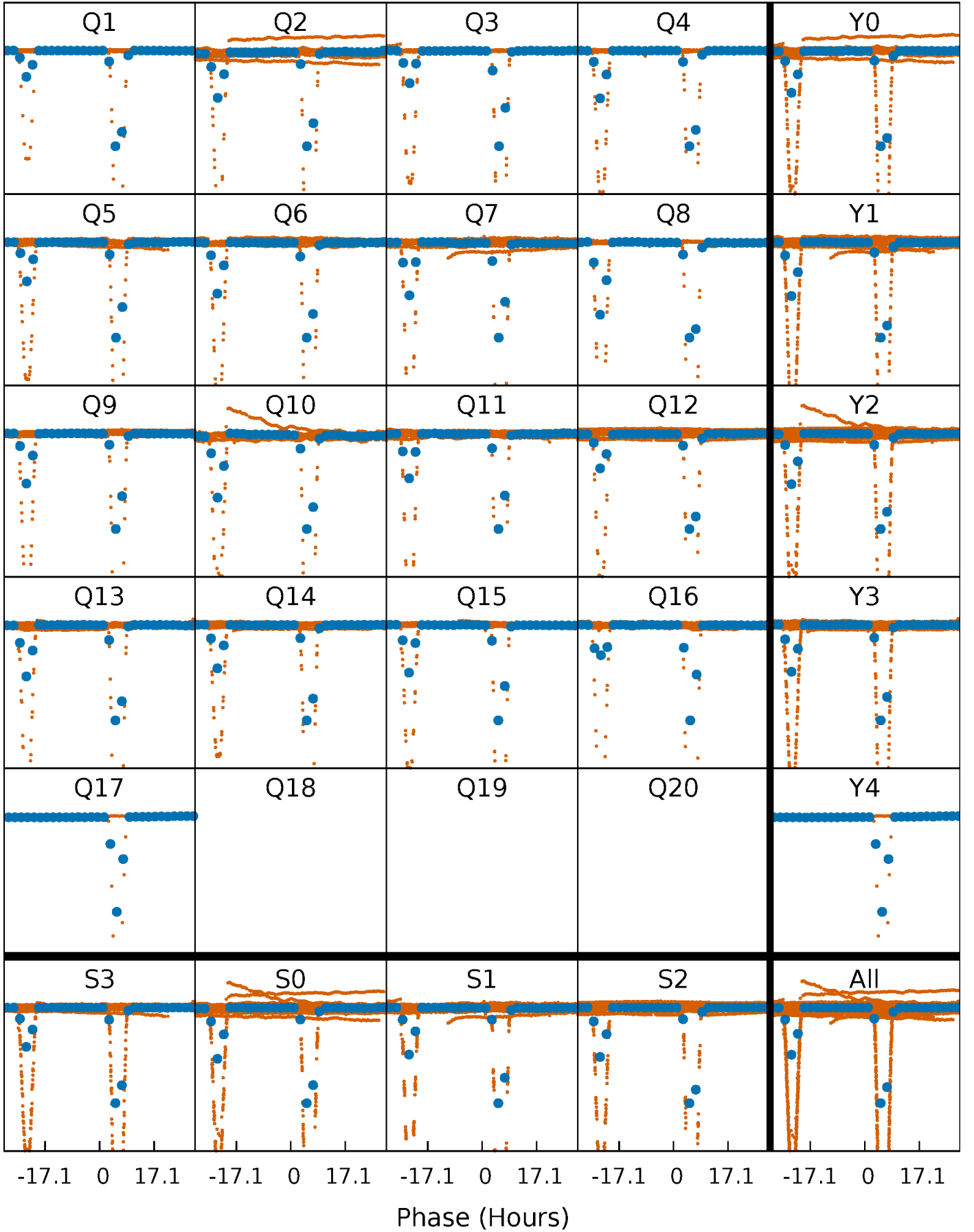


**Planet 3 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



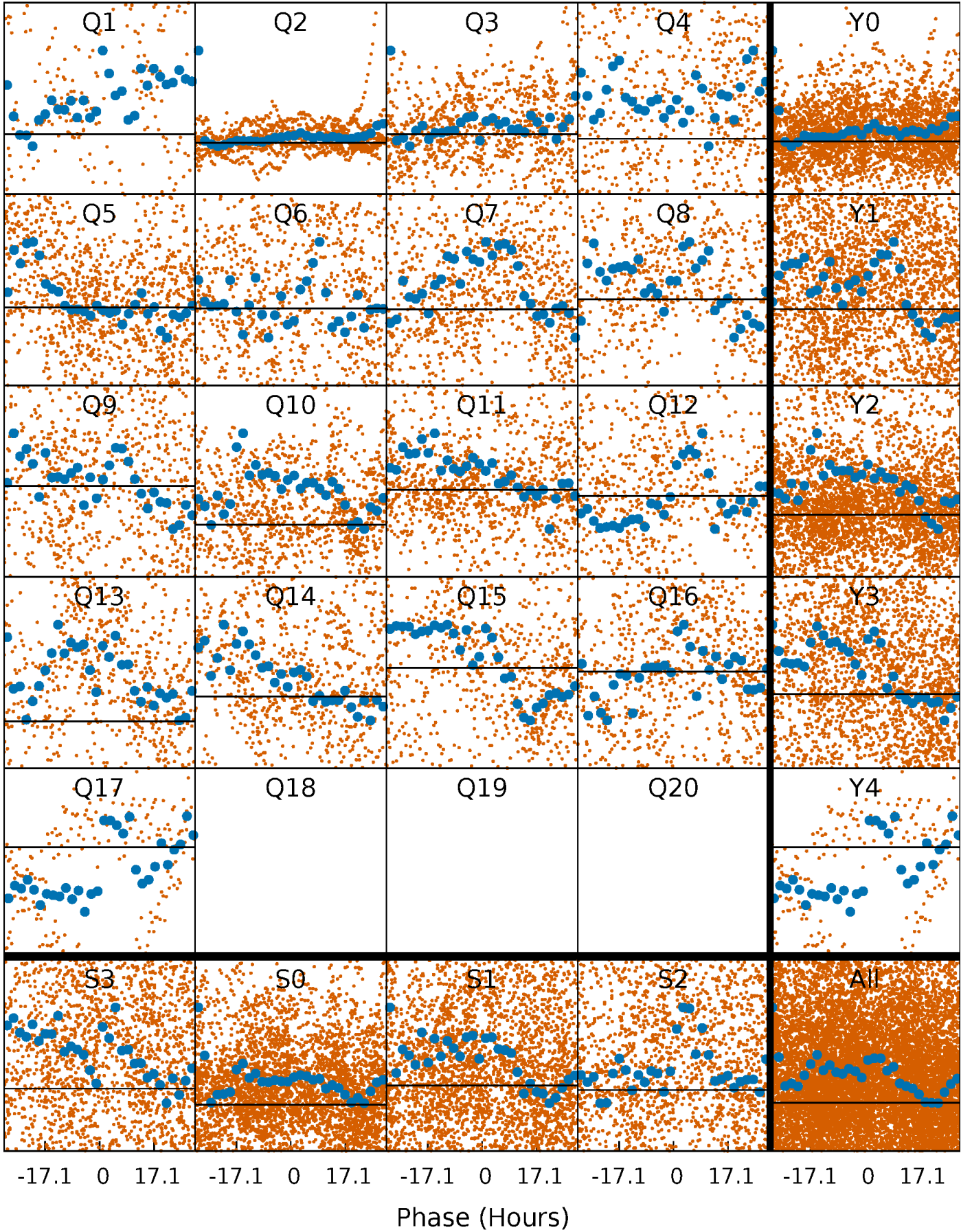
# PDC Quarter-Phased Transit Curves

TCE 006766748-03 P= 9.337204 Days  $T_0=135.767986$  (BKJD)



# DV Quarter-Phased Transit Curves

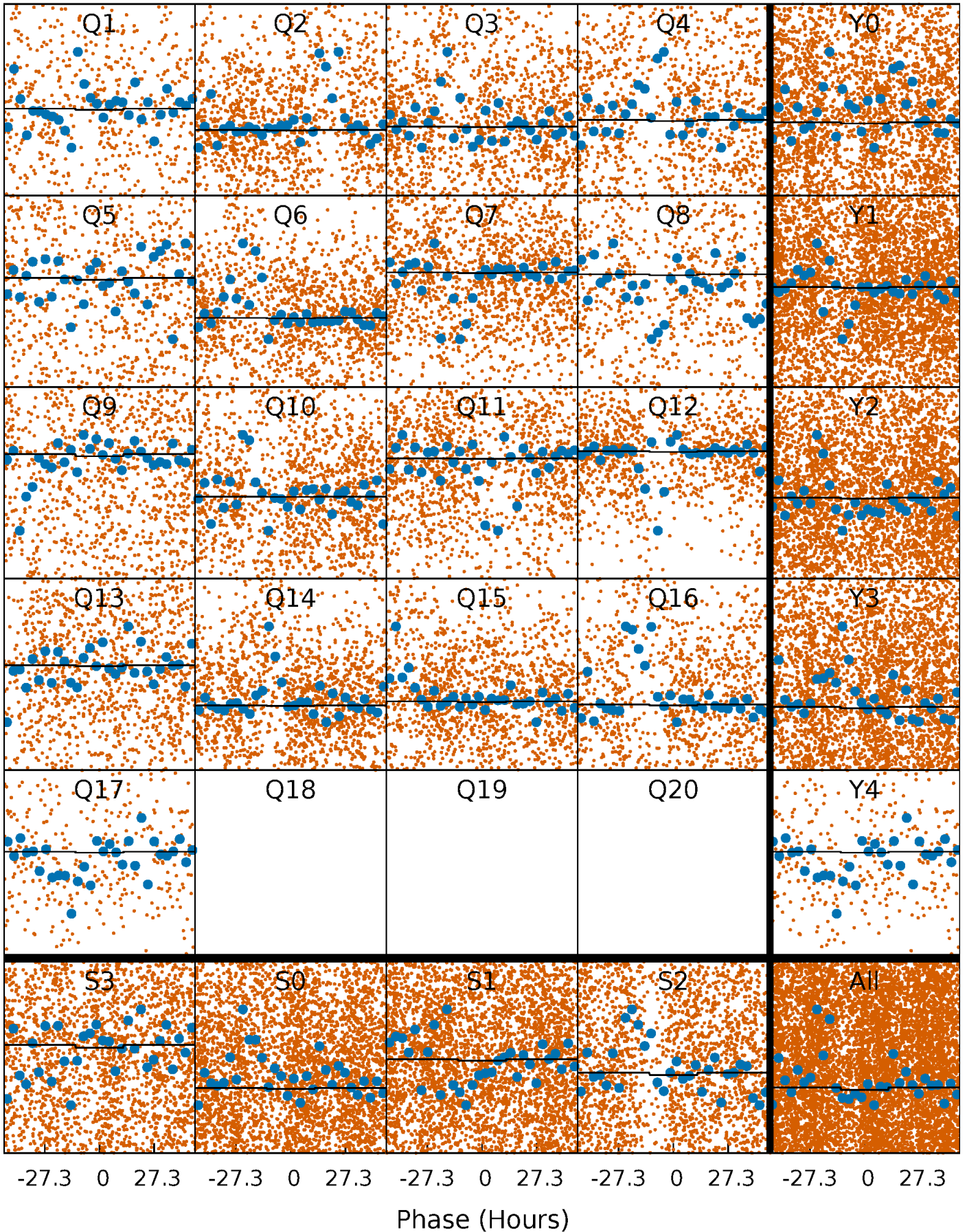
TCE 006766748-03   P= 9.337204 Days    $T_0=135.767986$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

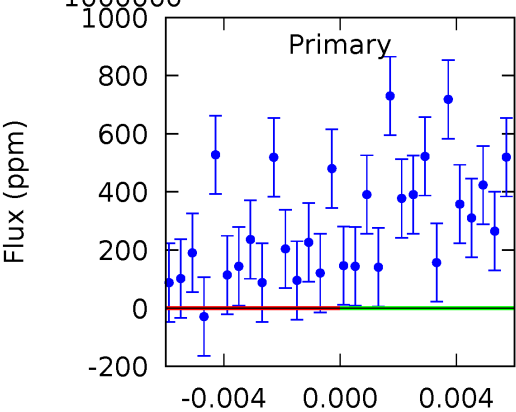
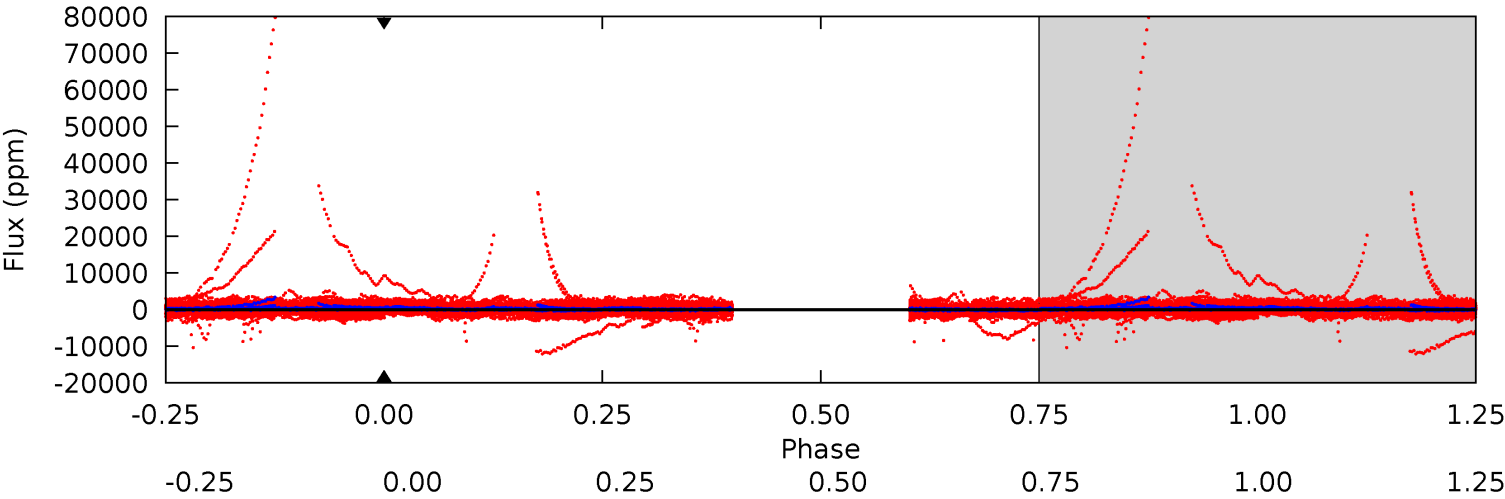
TCE 006766748-03 P= 9.337204 Days  $T_0=136.327491$  (BKJD)



DV Model-Shift Uniqueness Test

006766748-03, P = 9.337204 Days, E = 126.430782 Days

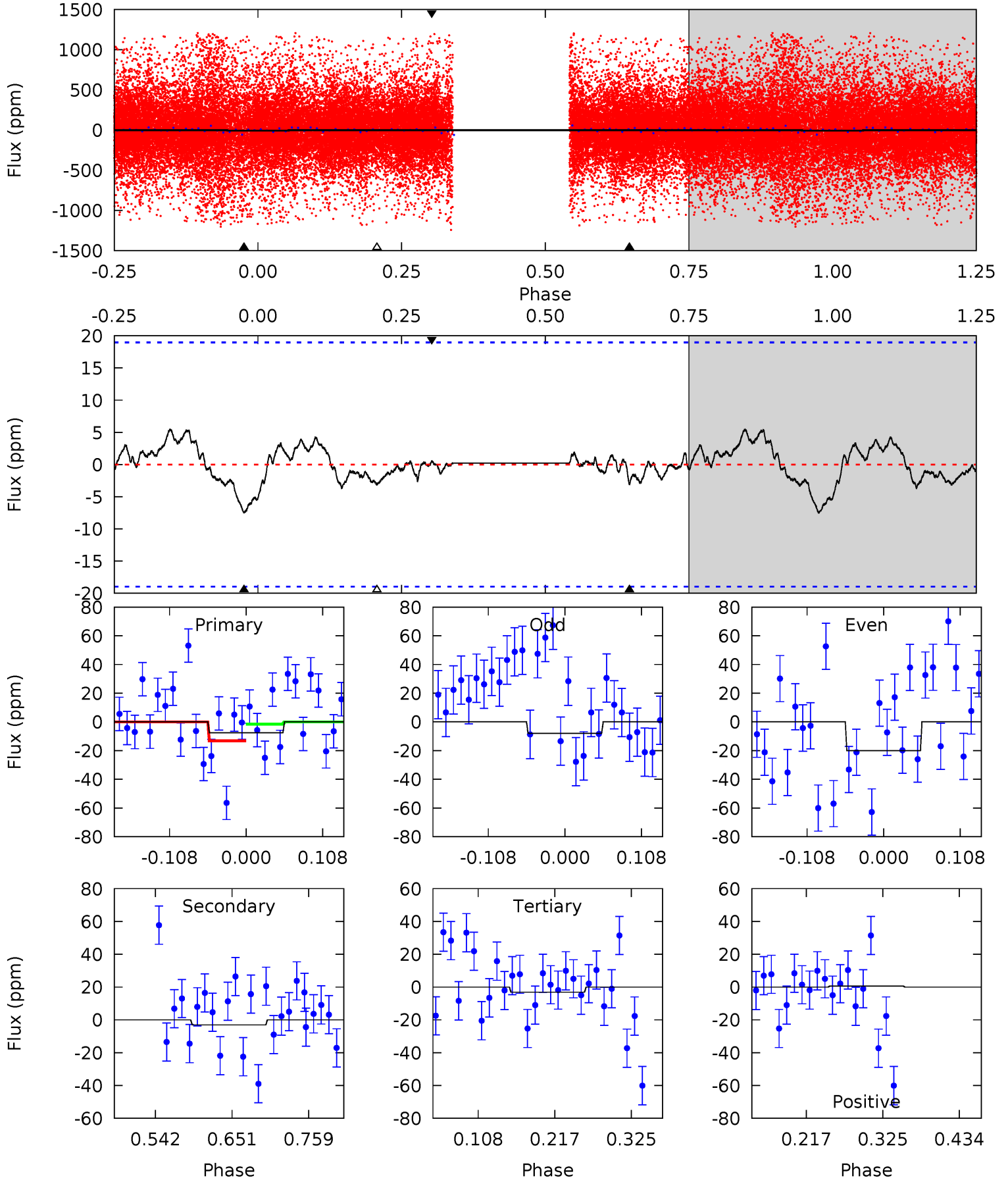
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006766748-03, P = 9.337204 Days, E = 126.990287 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
1.80	0.75	0.75	0.13	4.55	1.61	0.48	1.05	1.67	-0.01	0.61	1.45	0.72	0.42	1.35





### Stellar Parameters For KIC 006766748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6818^{+167}_{-262}$	$4.357^{+0.056}_{-0.224}$	$-0.200^{+0.250}_{-0.350}$	$1.216^{+0.445}_{-0.119}$	$1.240^{+0.203}_{-0.166}$	$0.971^{+0.237}_{-0.569}$
	+2%/-4%	+1%/-5%	+125%/-175%	+37%/-10%	+16%/-13%	+24%/-59%
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 006766748-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$19.11^{+13.19}_{-11.30}$	$1551^{+125}_{-88}$	$3724^{+11669}_{-16545}$	$14^{+2247}_{-1532}$
Alt.	$-3 \pm 4$	$10.18^{+9.99}_{-7.29}$	$1544^{+124}_{-72}$	$-2115^{+4671}_{-182}$	$0.094^{+1.287}_{-0.134}$

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

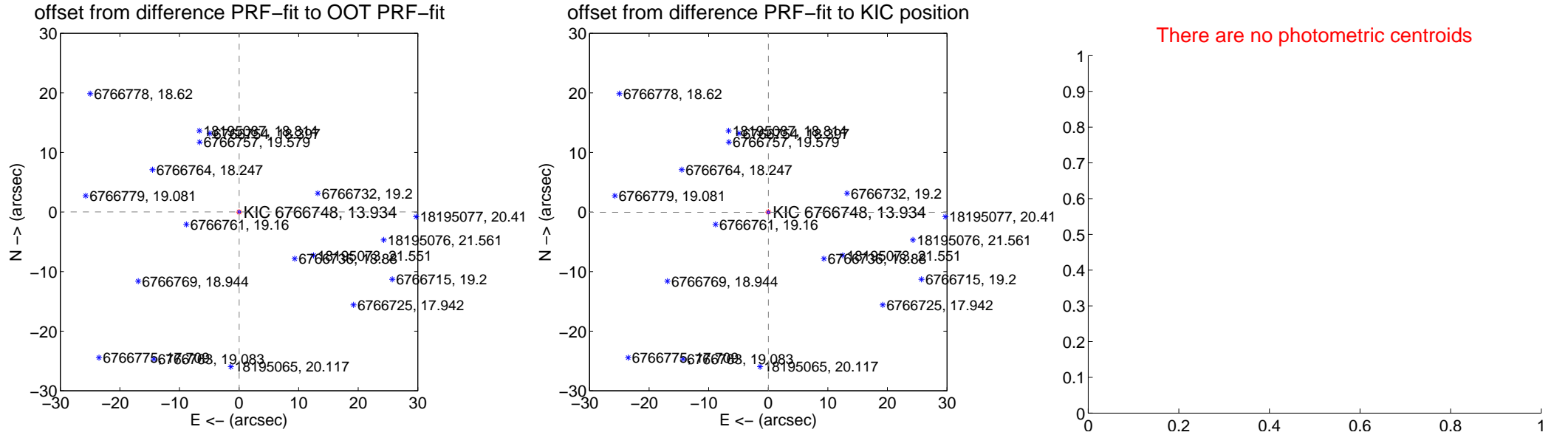
## DV Centroid Data

Supplemental centroid analysis for 006766748-03. Kepler magnitude: 13.93. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

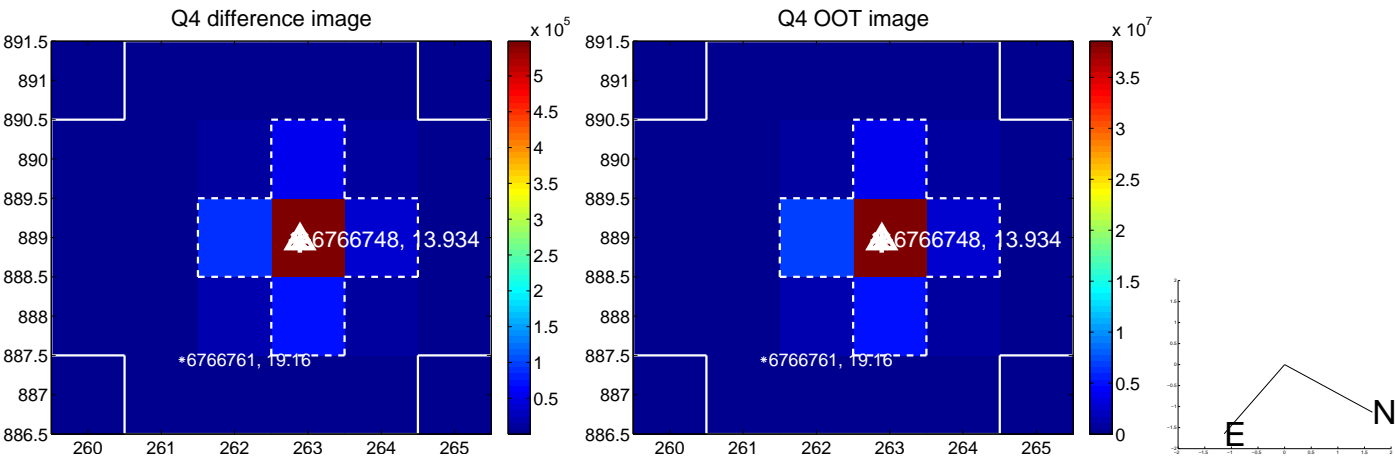
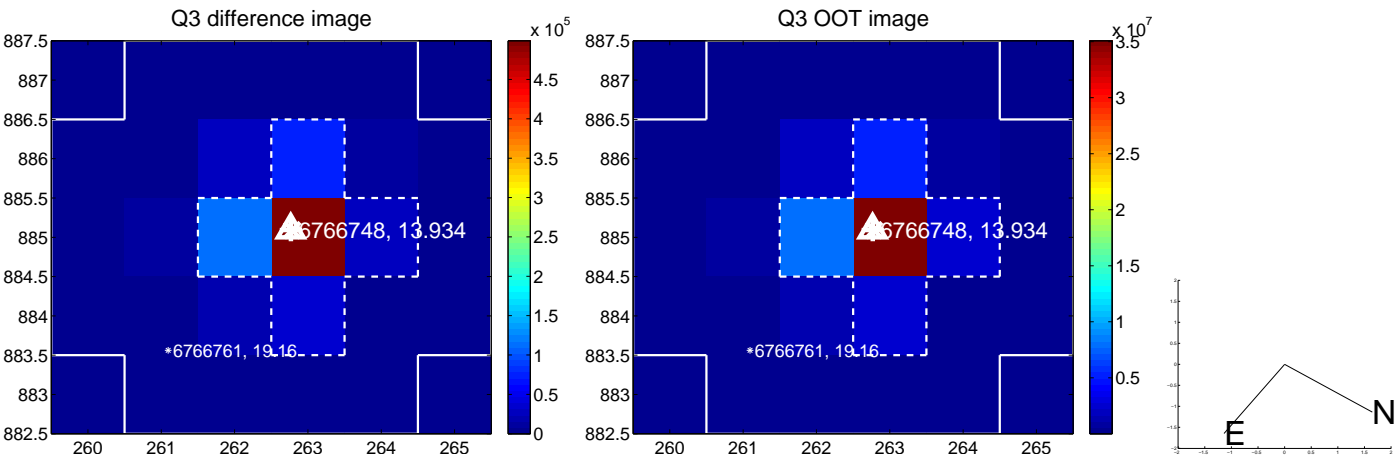
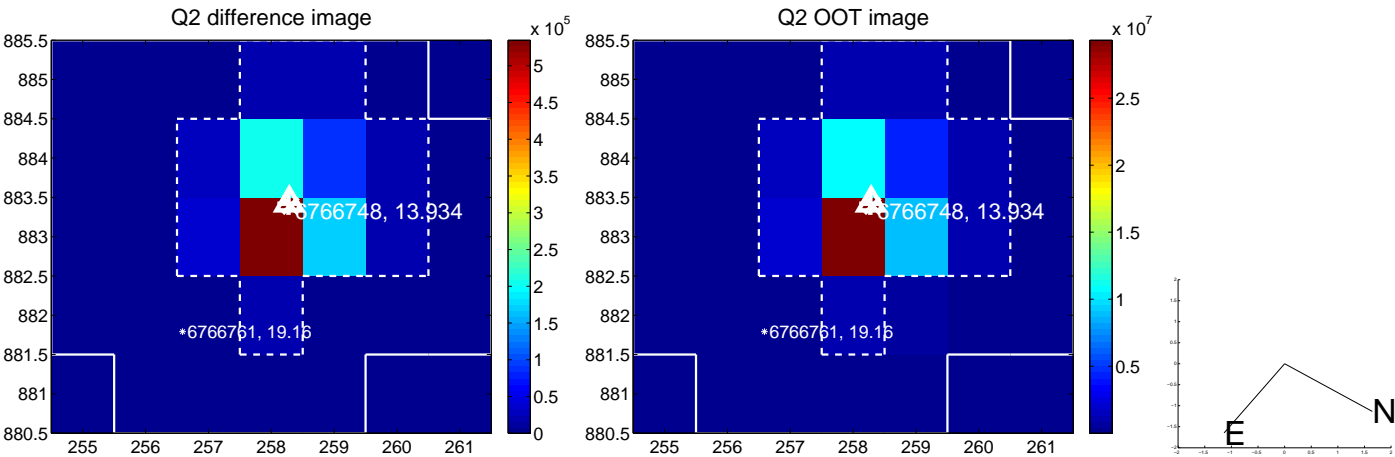
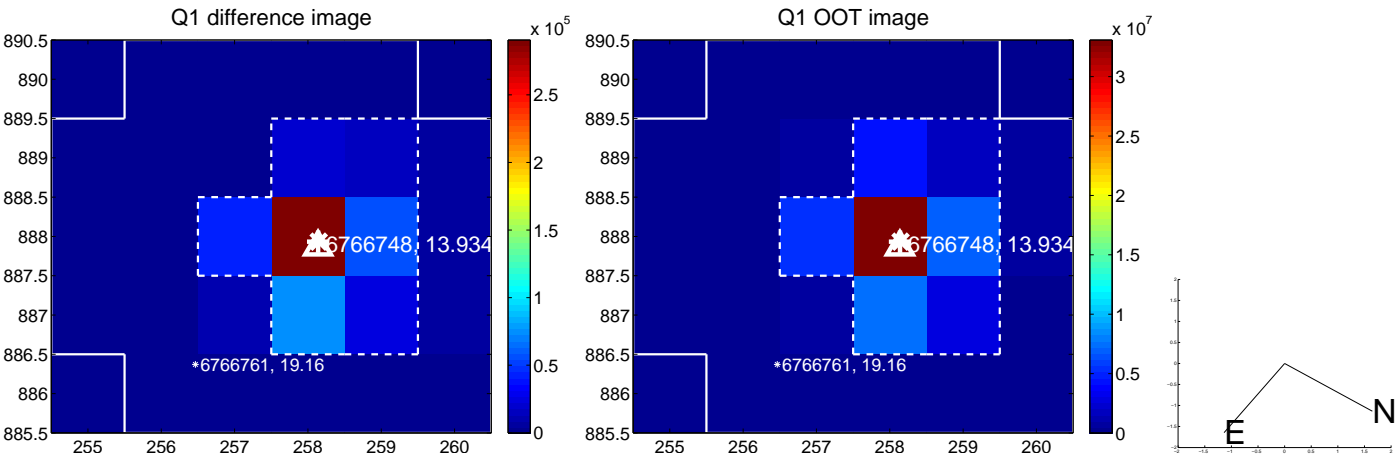
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.033 \pm 0.068$	0.49	$-0.023 \pm 0.068$	$0.025 \pm 0.068$
PRF-fit source offset from KIC position	$0.056 \pm 0.072$	0.77	$-0.020 \pm 0.071$	$-0.052 \pm 0.070$
photometric centroid source offset	—	—	—	—

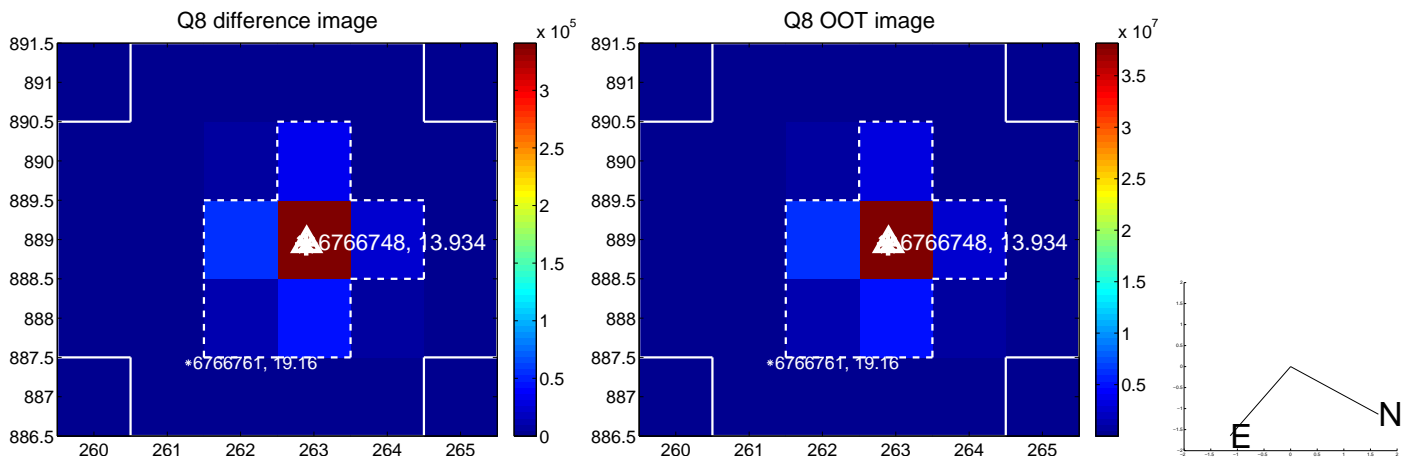
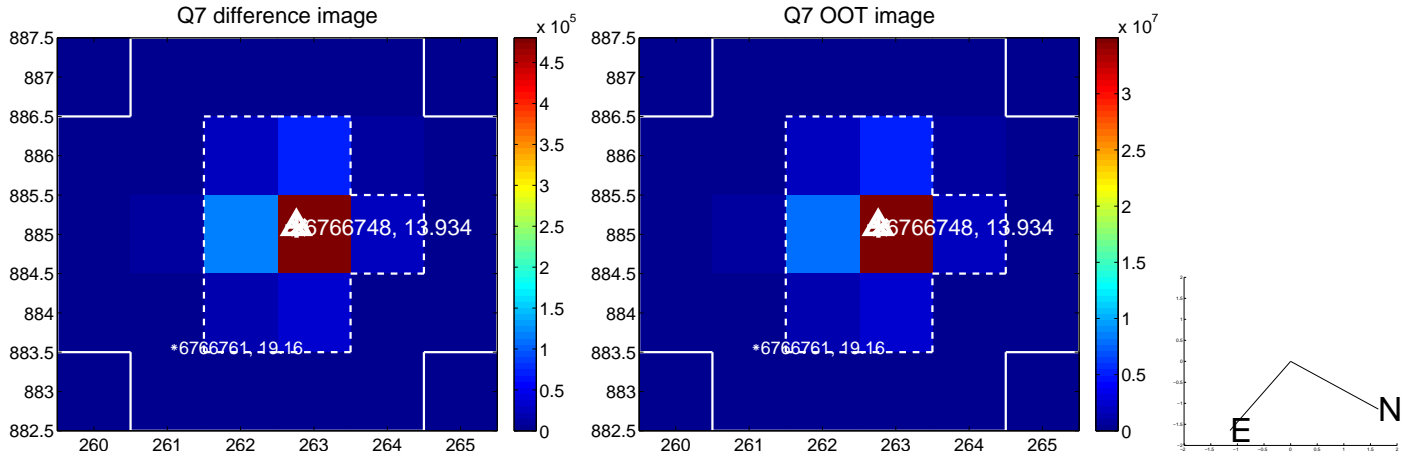
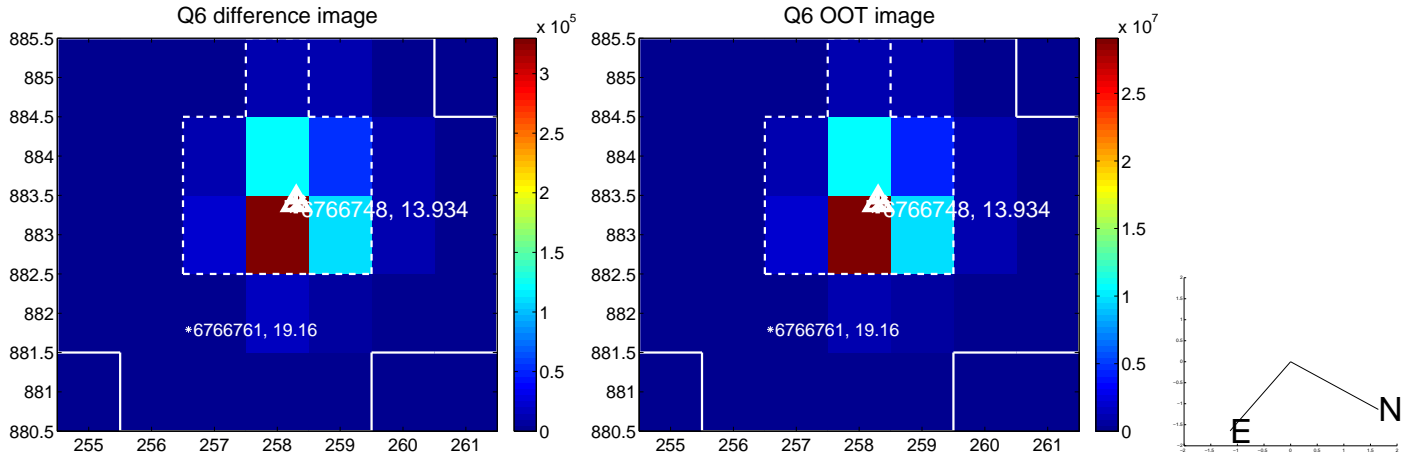
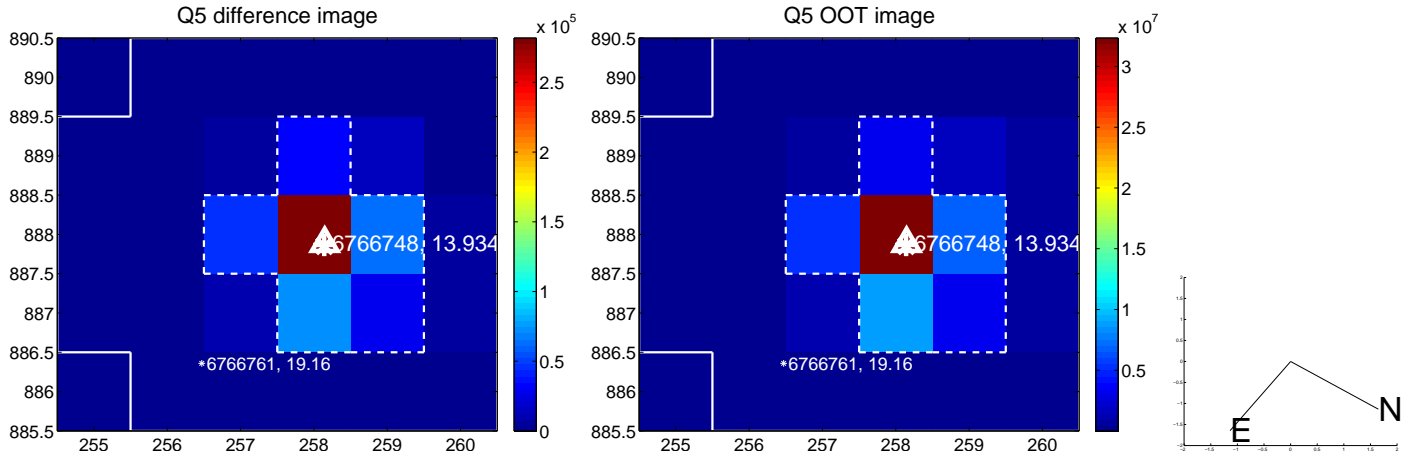


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

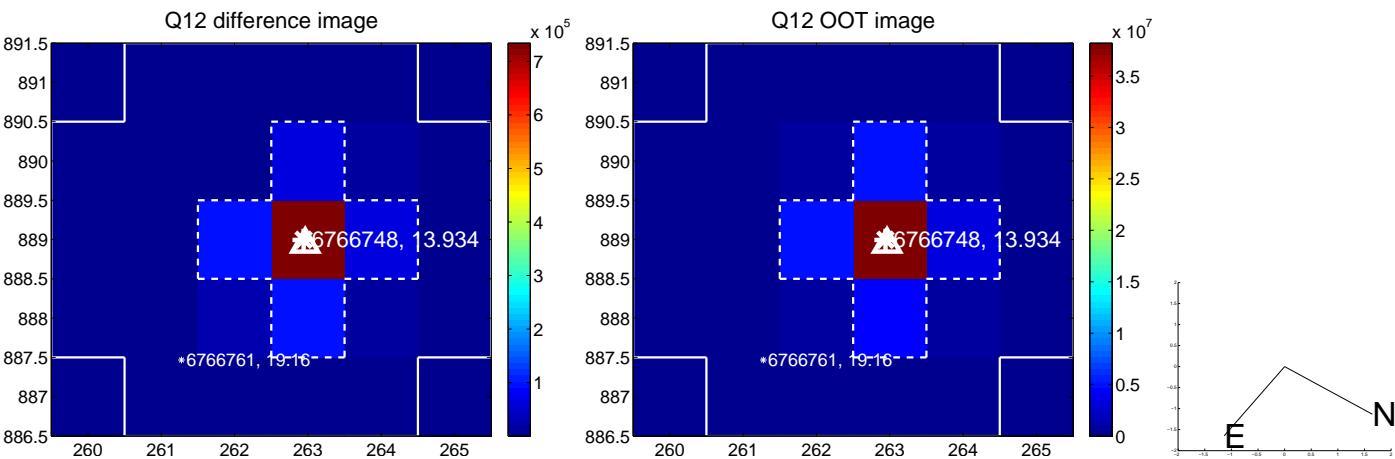
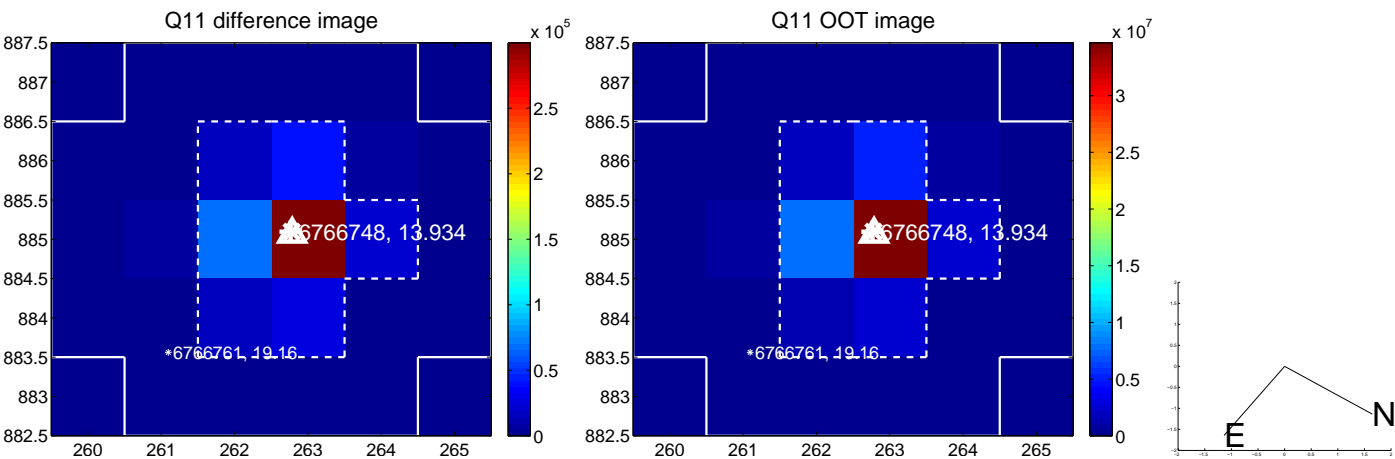
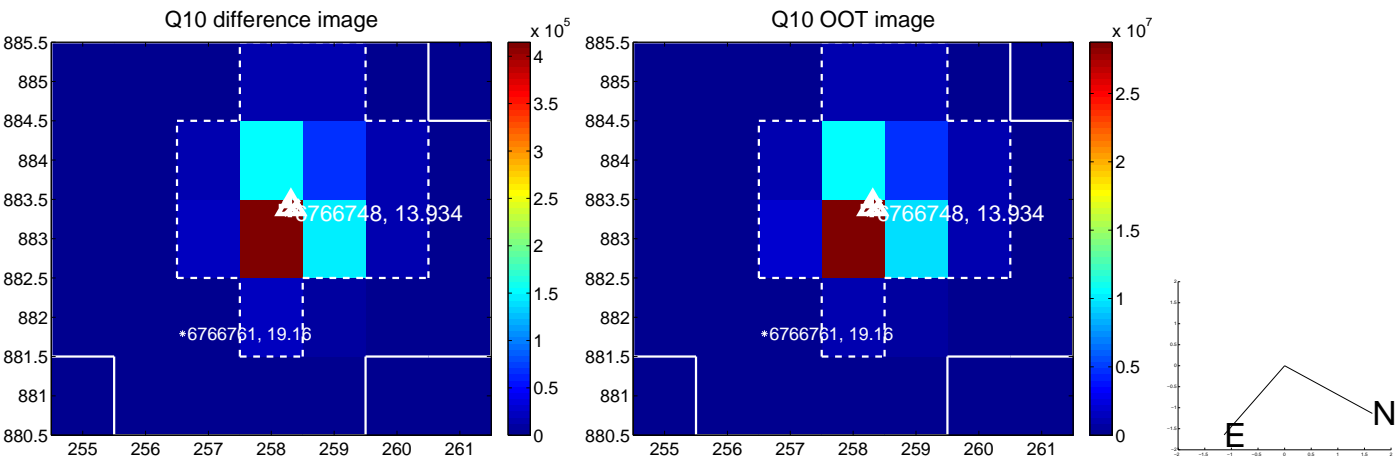
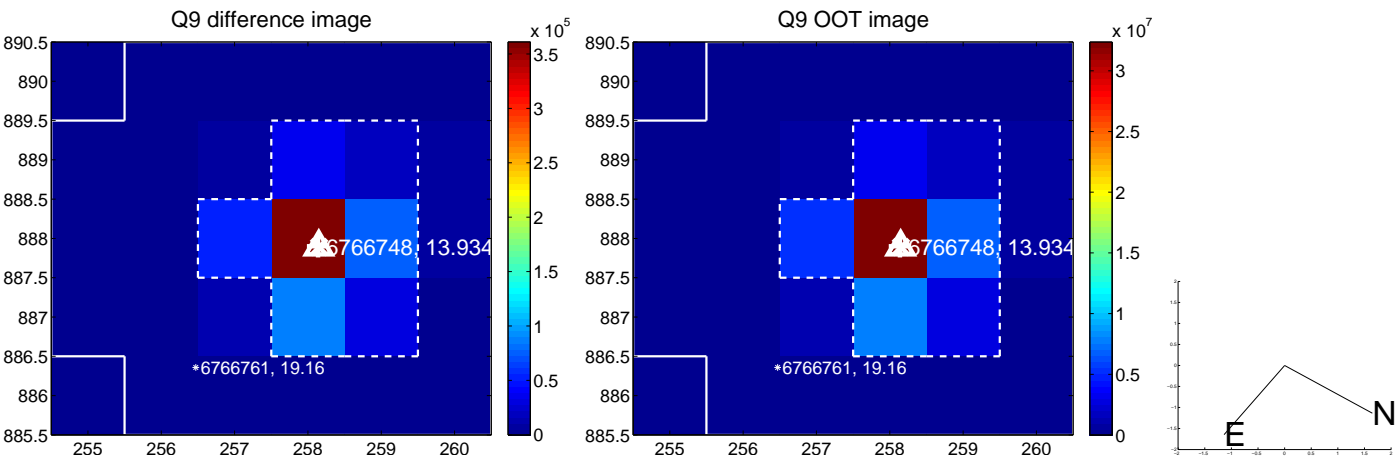
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



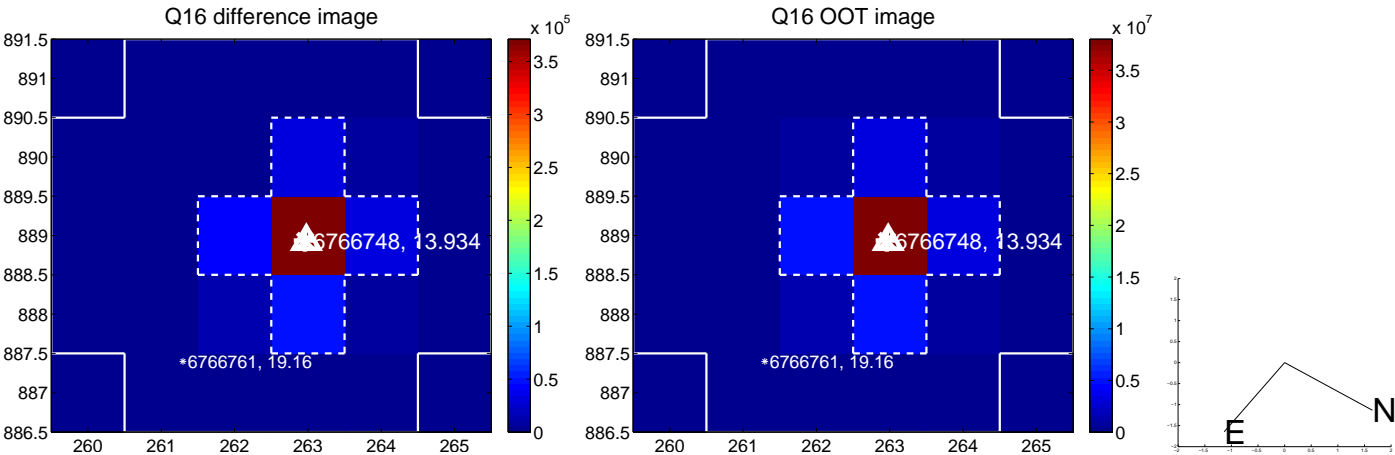
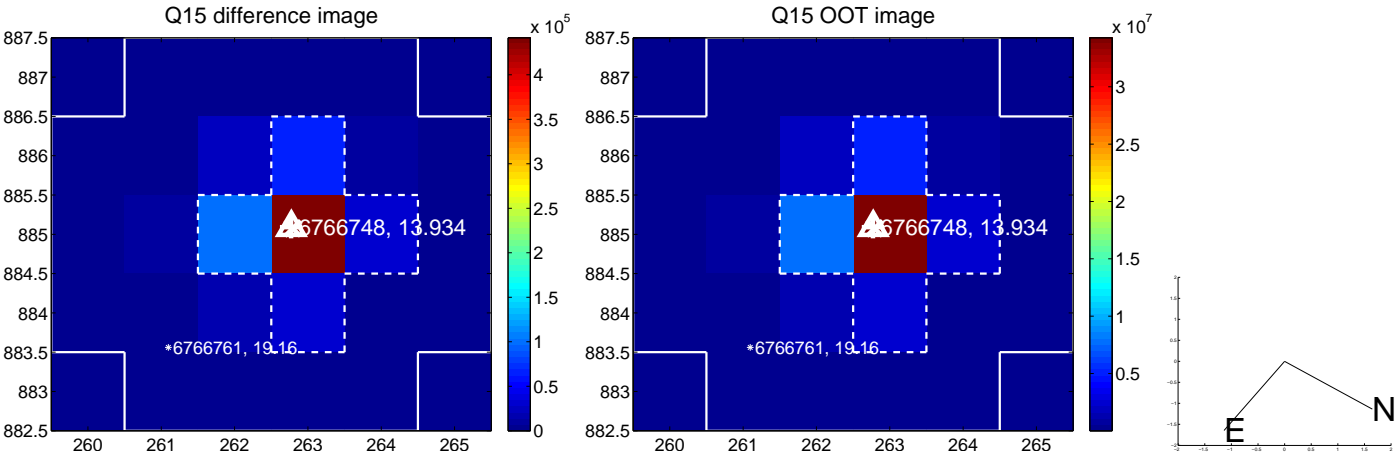
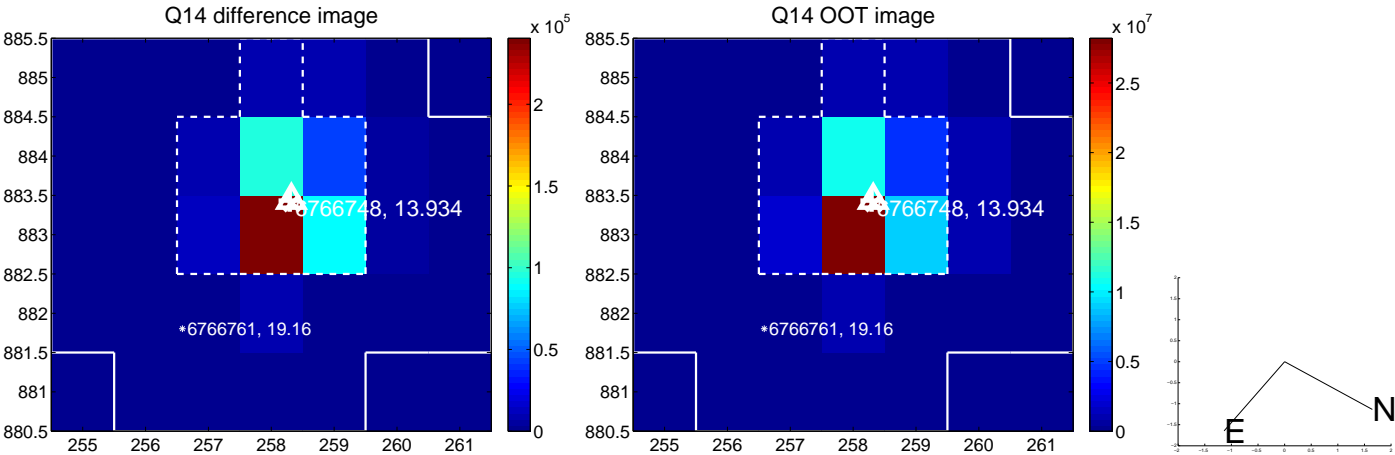
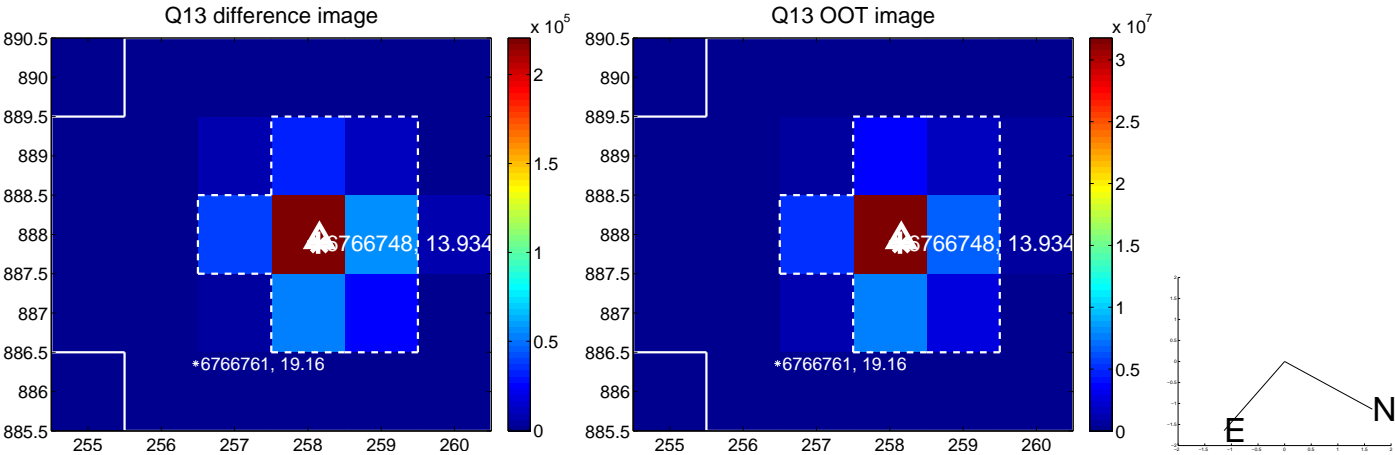
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



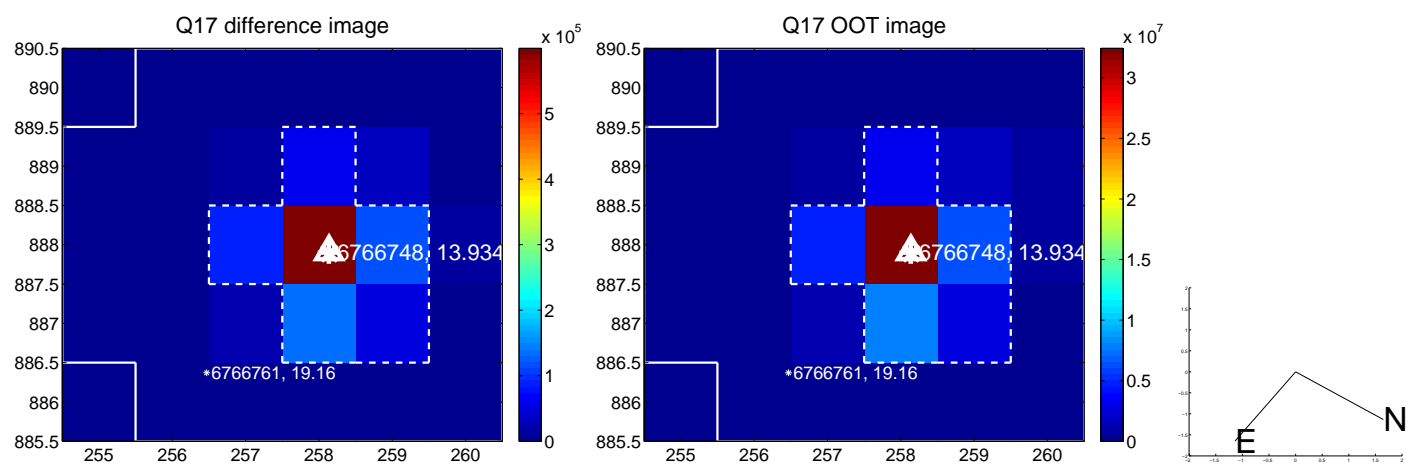
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

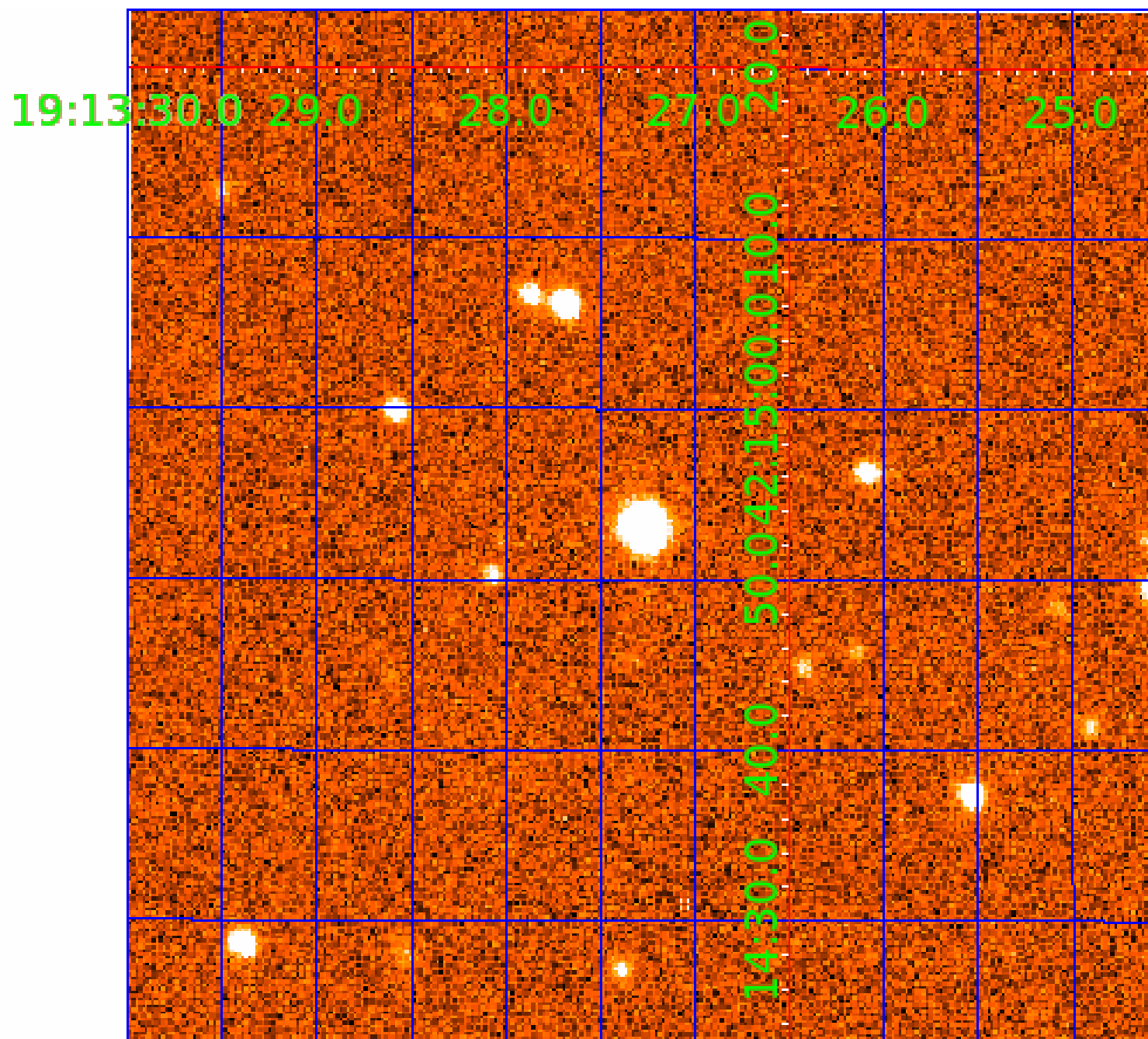


folded centroid time series figure for this object.



# UKIRT Image

Declination





# KIC 006766748

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006766748-01	OBS	6764.01	3.501409	132.512238	260630.3	3.500	20670.8	-1.0	1.22	6818	61.27	1225.99
006766748-02	OBS	No	9.337204	140.440460	15529.3	15.000	933.9	-1.0	1.22	6818	15.30	331.53
006766748-03	OBS	No	9.337204	135.767985	15893.3	15.000	868.4	-1.0	1.22	6818	15.48	331.53
006766748-04	OBS	No	4.668692	133.418126	16171.6	15.000	857.4	-1.0	1.22	6818	15.62	835.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006766748-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—CENT_NOFITS
006766748-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
006766748-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS
006766748-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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 006766748-04

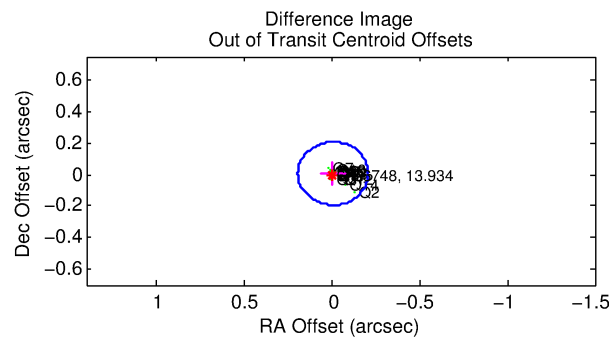
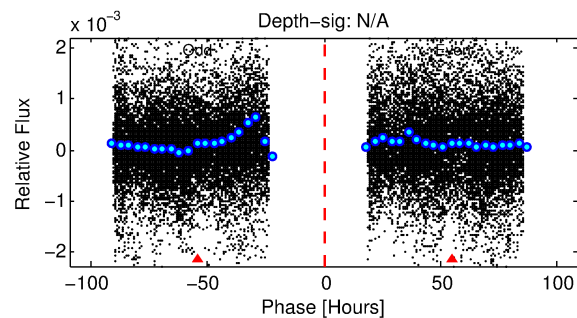
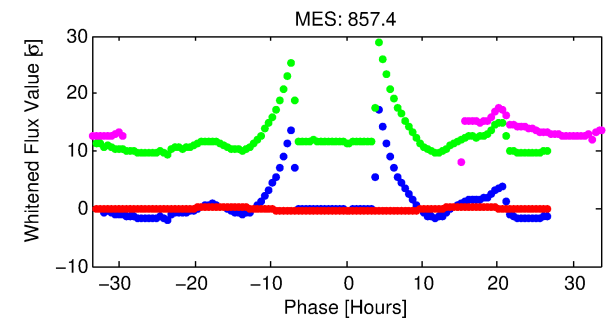
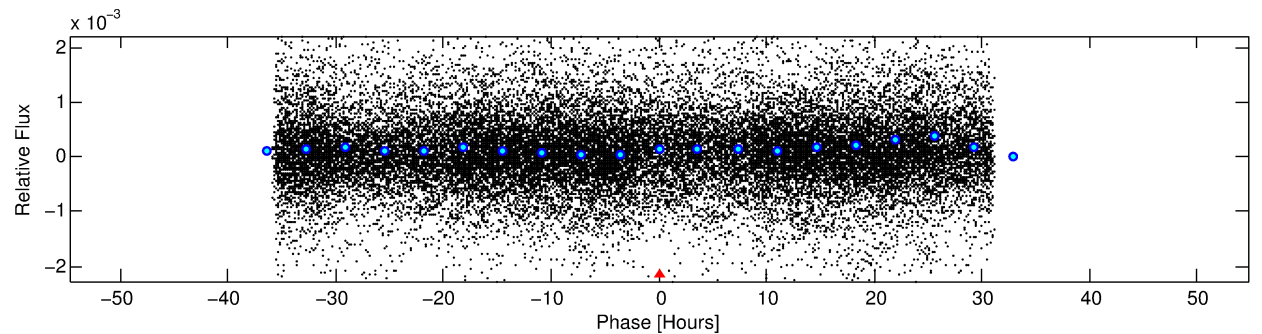
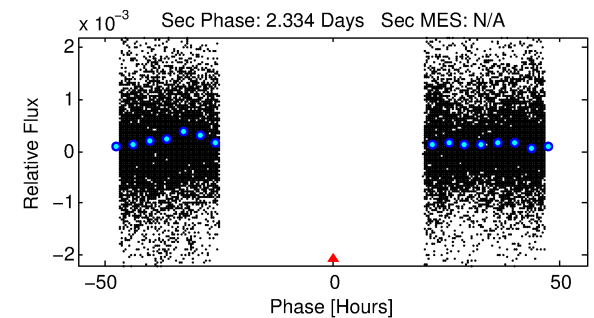
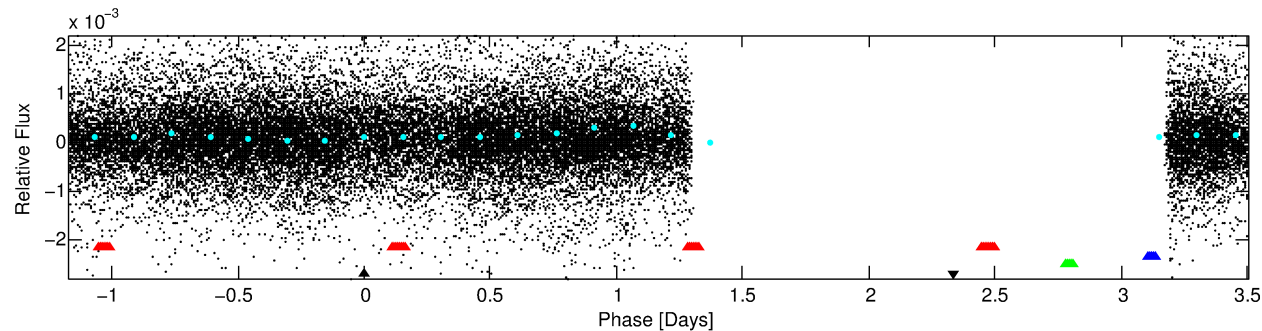
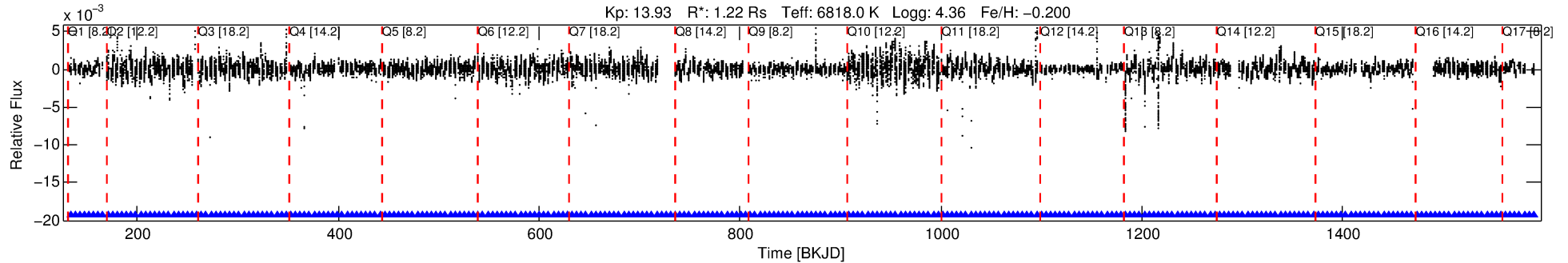
No Significant Match Found

# DV One-Page Summary

KIC: 6766748 Candidate: 4 of 4 Period: 4.669 d

KOI: K06764 Corr: No Ephemeris Match

Kp: 13.93 R\*: 1.22 Rs Teff: 6818.0 K Logg: 4.36 Fe/H: -0.200



## TPS TCE Results:

Period = 4.66869 d  
Epoch = 133.4181 BKJD

DV fit results are unavailable

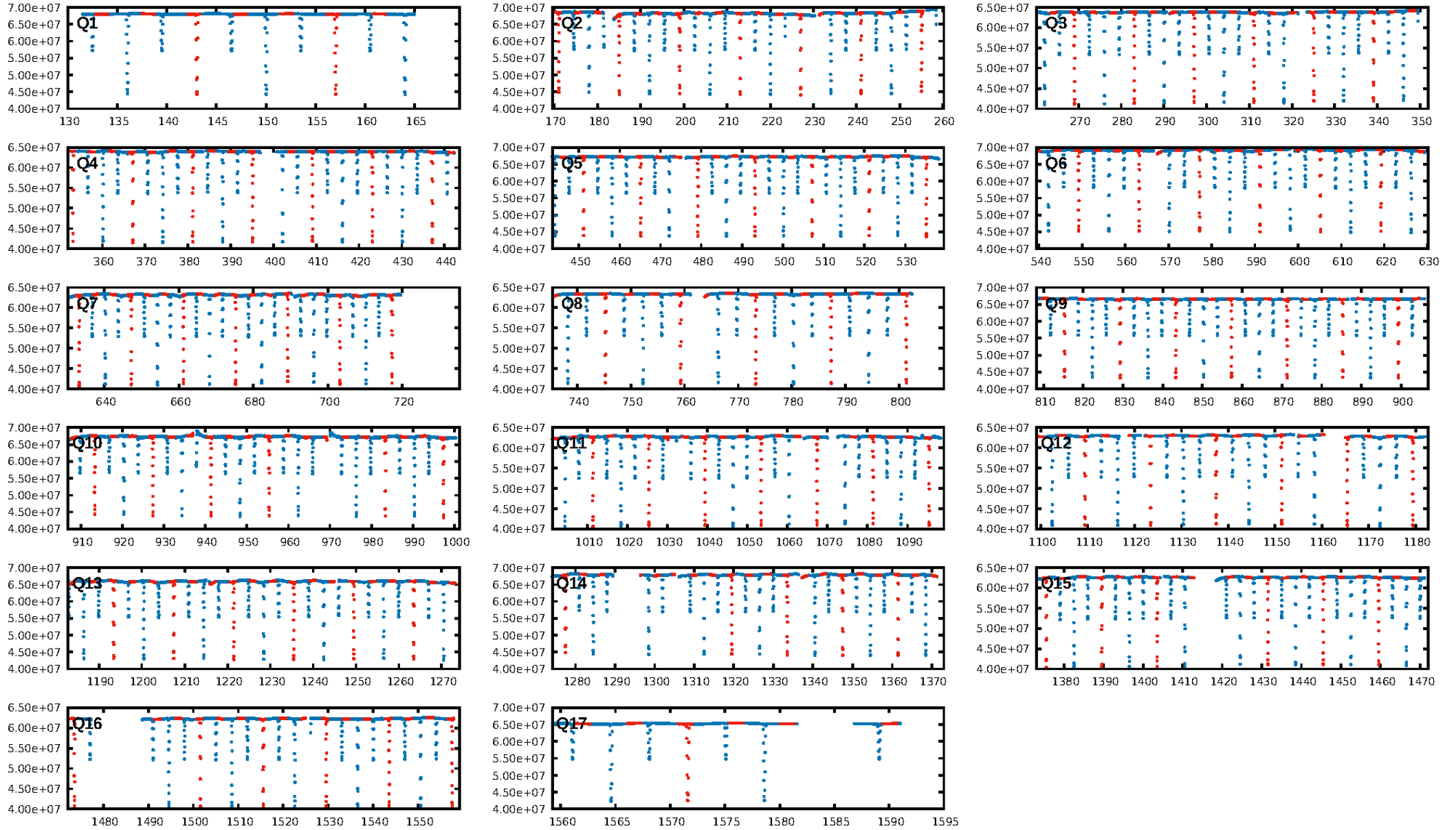
## DV Diagnostic Results:

ShortPeriod-sig: 93.1% [1.82σ]  
LongPeriod-sig: 100.0% [5.28σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [283/283]  
GhostDiagnostic-chr: 1.137  
Centroid-sig: 68.2%  
Centroid-so: 0.490 arcsec [0.90σ]  
OotOffset-rm: 0.009 arcsec [0.14σ]  
KicOffset-rm: 0.055 arcsec [0.78σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

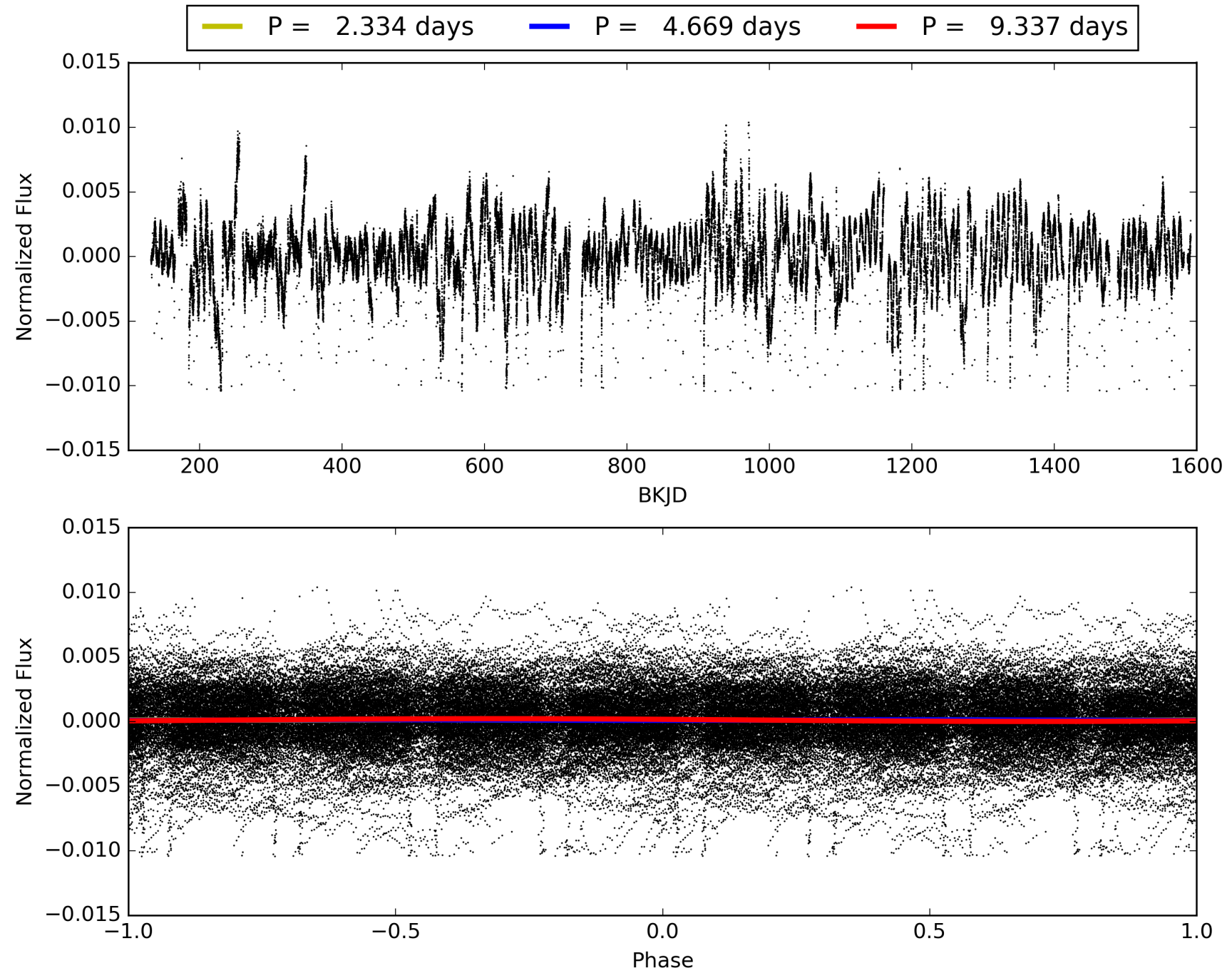
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:25:00 Z

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

# TCE 006766748-04, PDC Light Curves

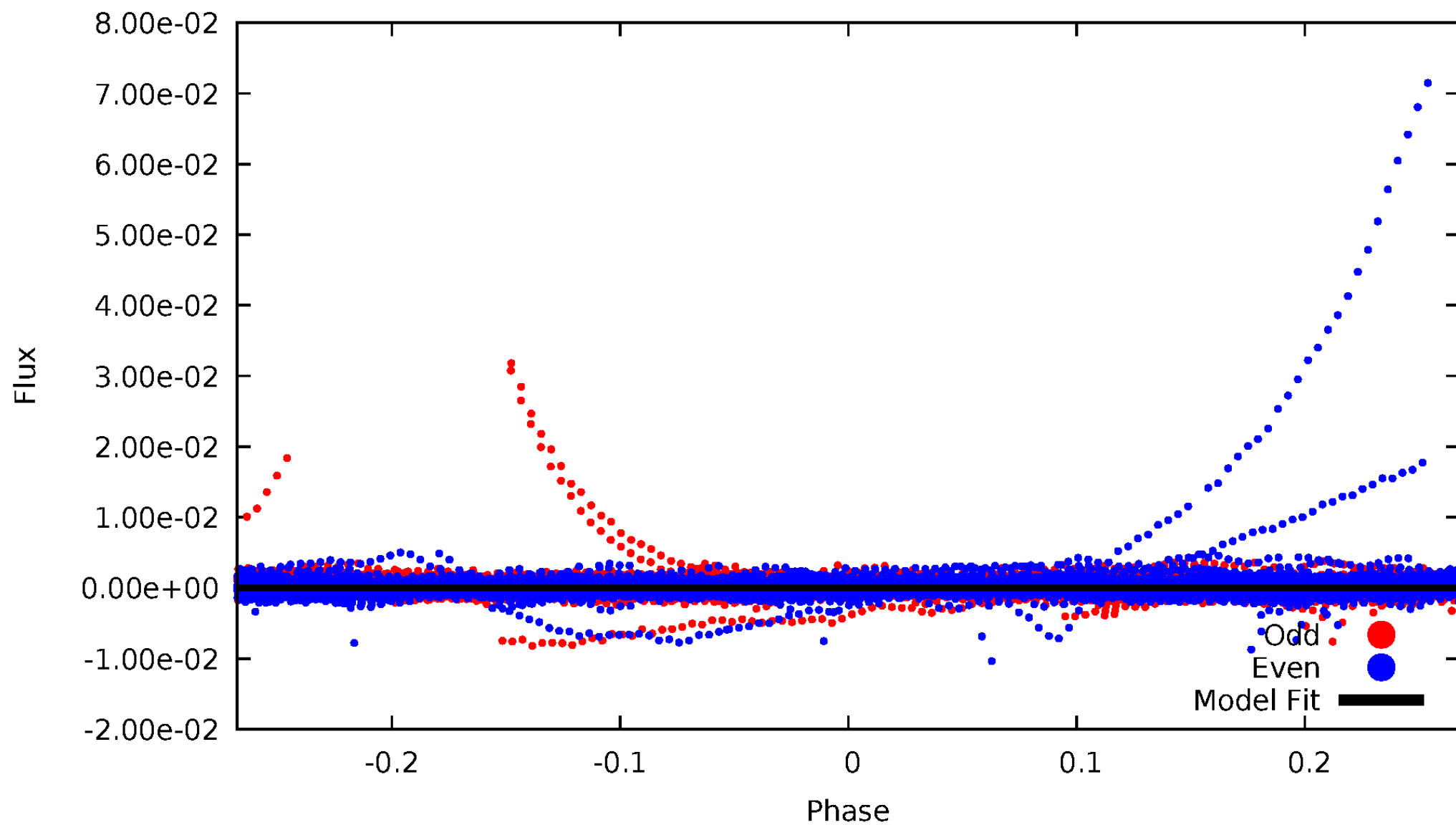


TCE 006766748-04



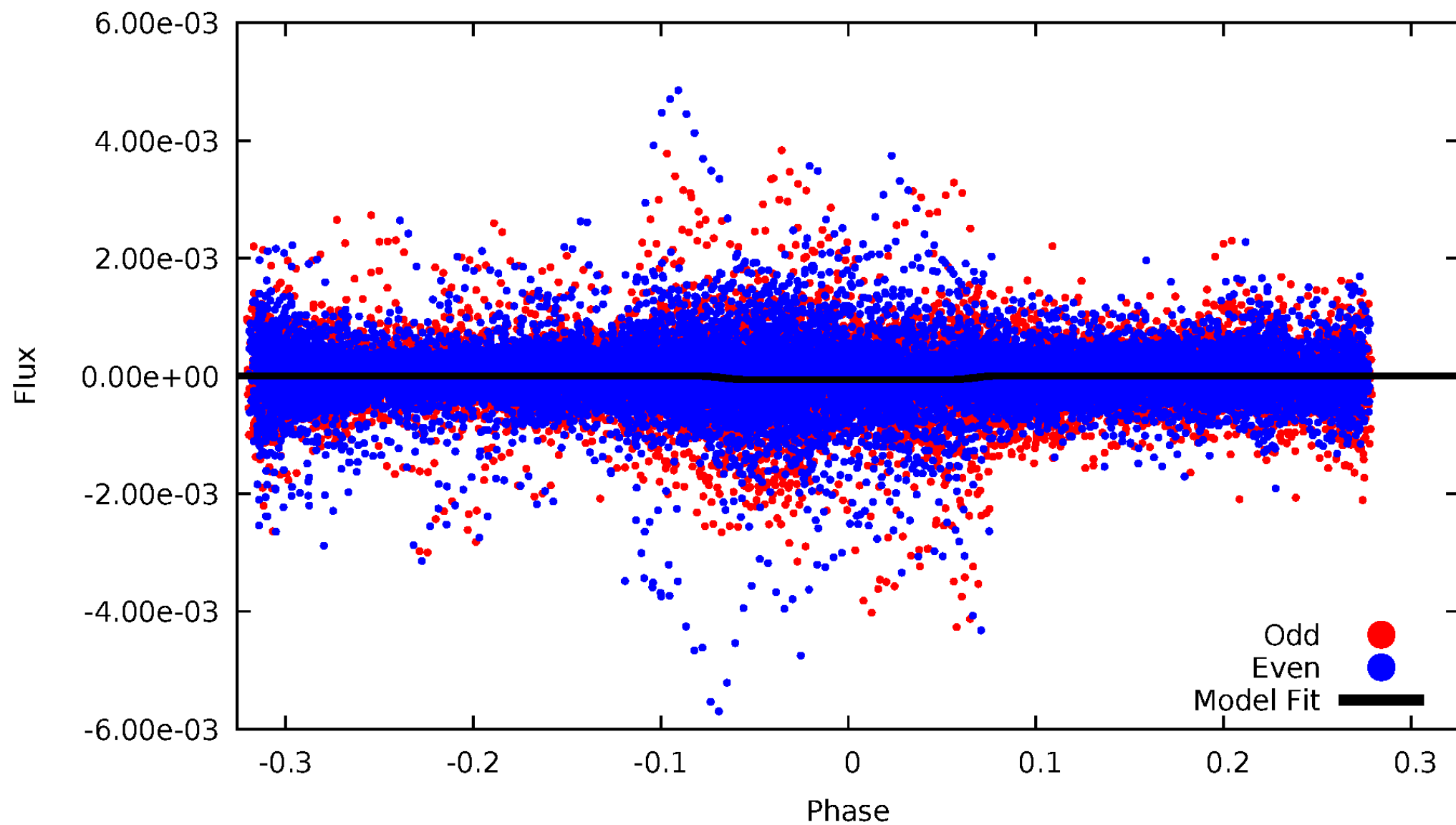
# DV Odd/Even

TCE 006766748-04



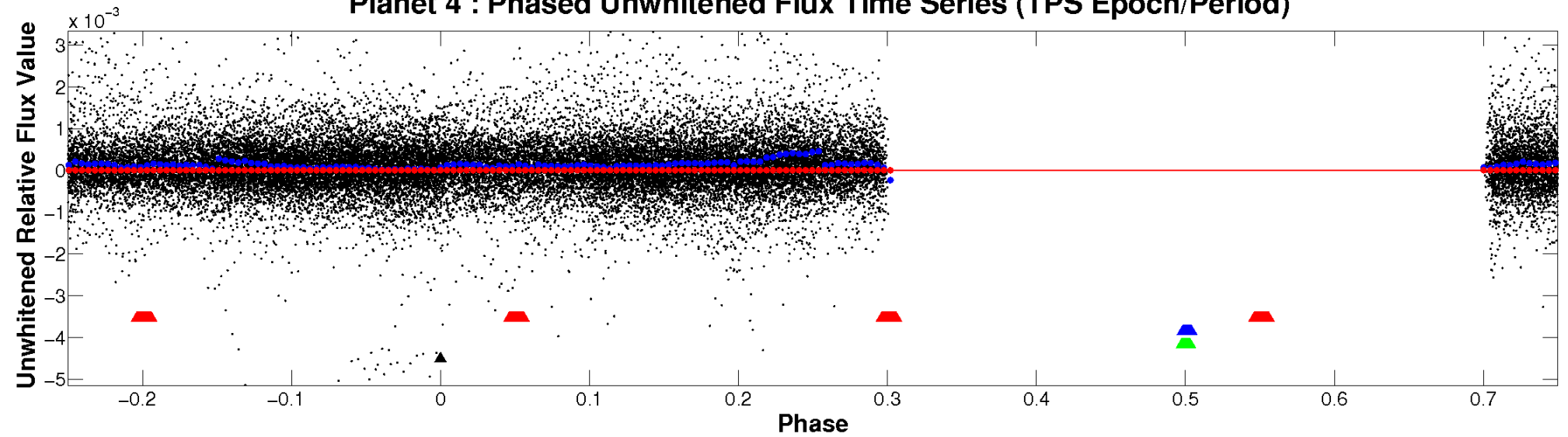
# ALT Odd/Even

TCE 006766748-04



# Non-Whitened Vs. Whitened Light Curve

**Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**



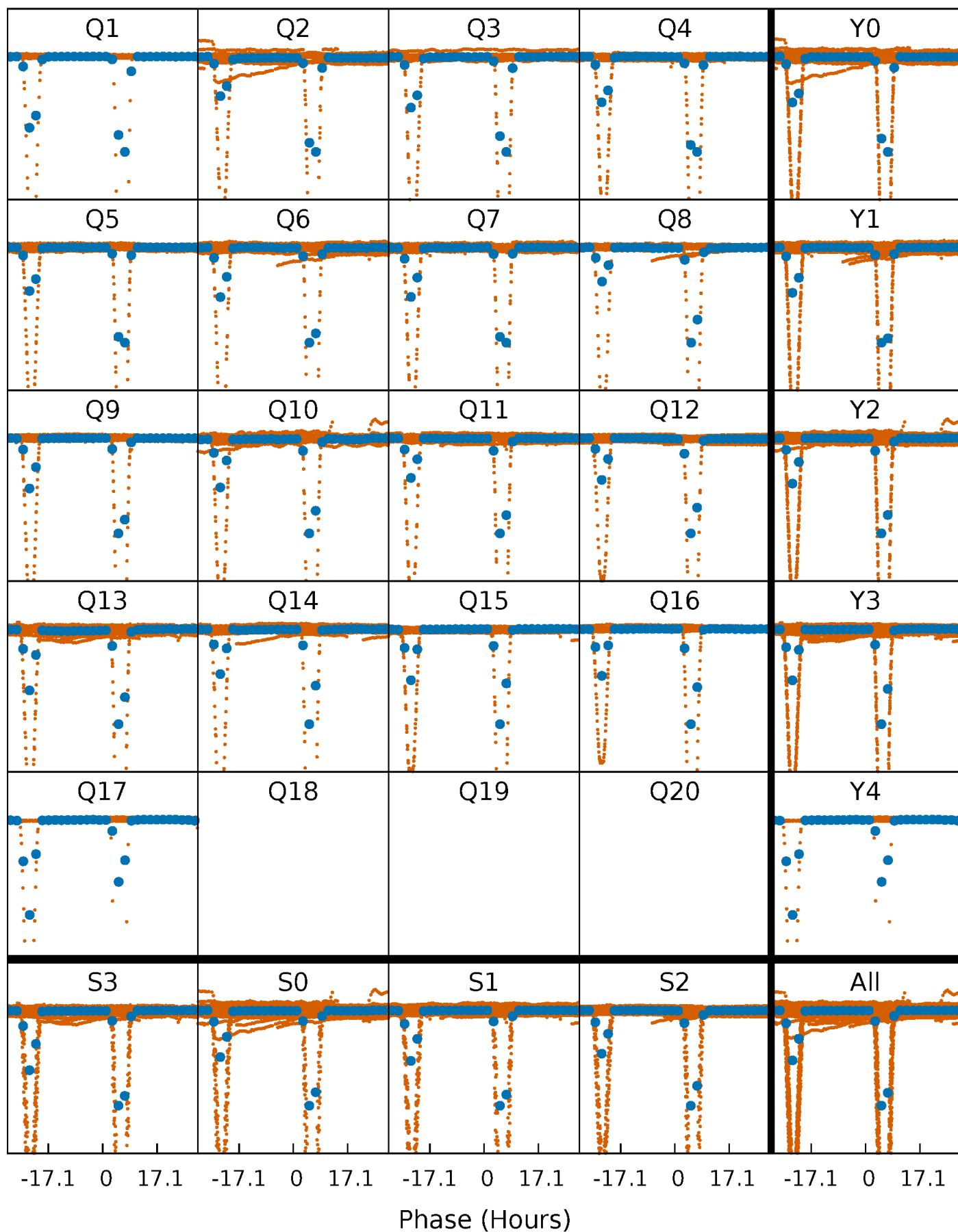
**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





# PDC Quarter-Phased Transit Curves

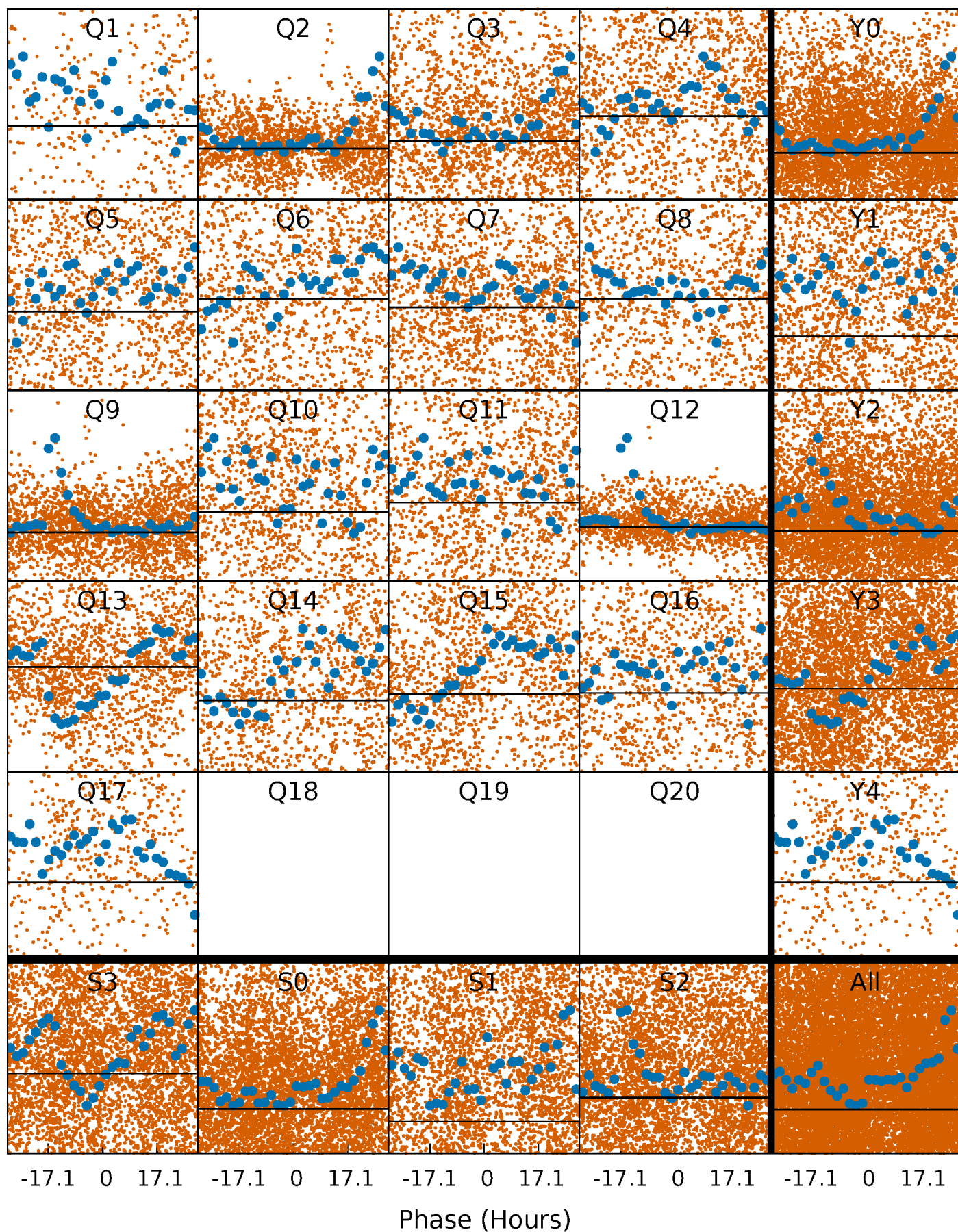
TCE 006766748-04 P= 4.668692 Days  $T_0=133.418126$  (BKJD)





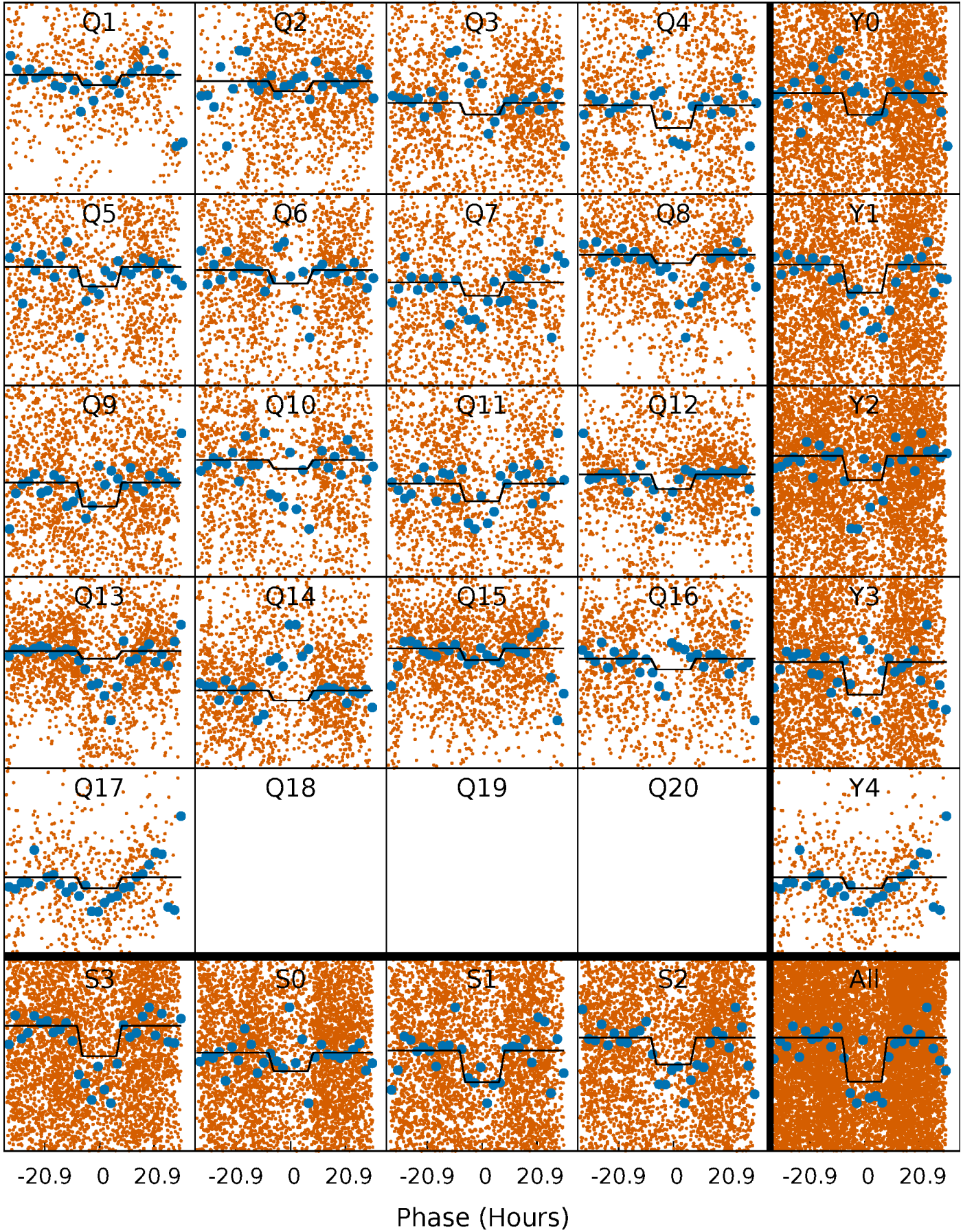
# DV Quarter-Phased Transit Curves

TCE 006766748-04 P= 4.668692 Days  $T_0=133.418126$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

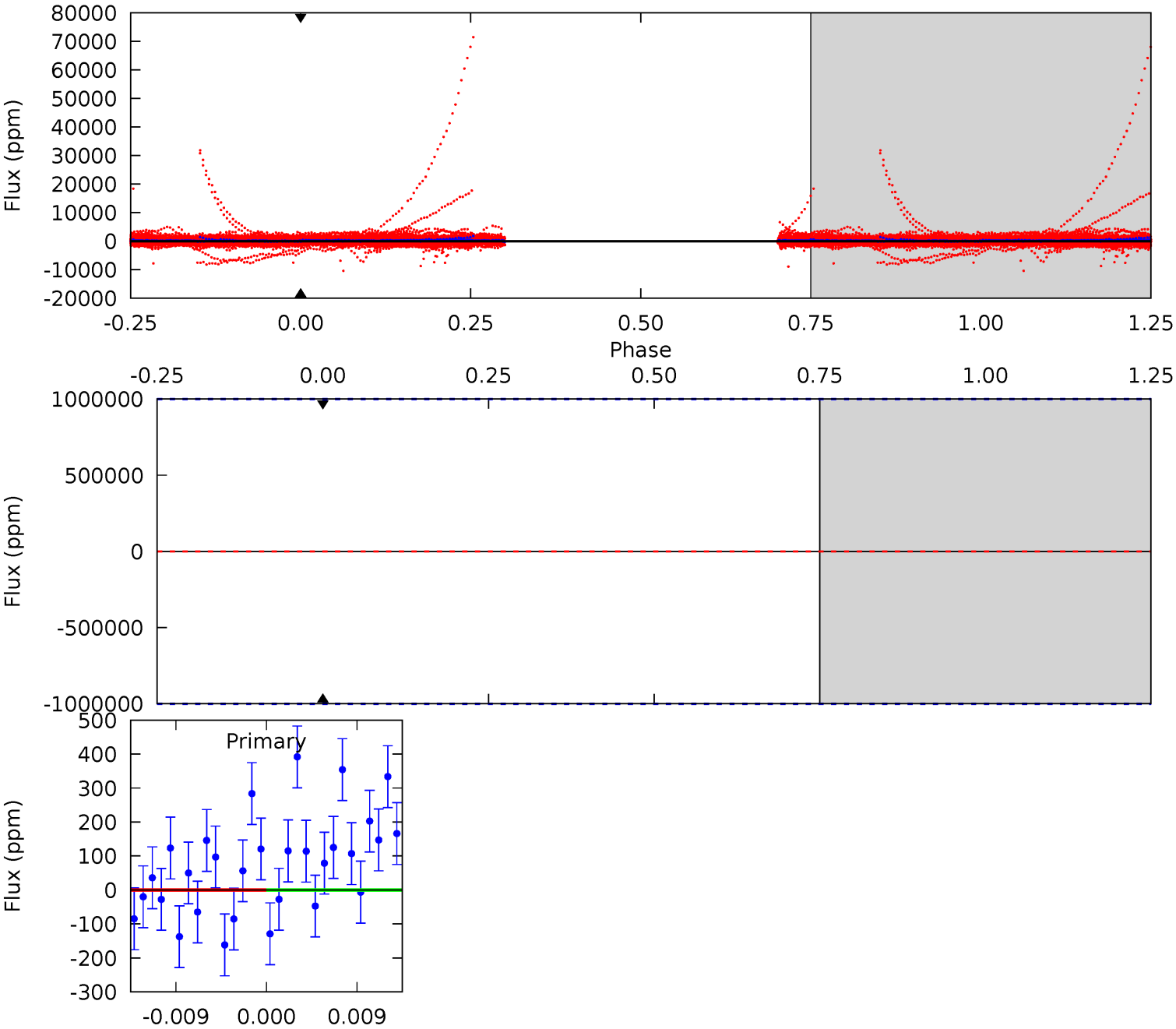
TCE 006766748-04   P= 4.668692 Days    $T_0=133.518280$  (BKJD)



# DV Model-Shift Uniqueness Test

006766748-04, P = 4.668692 Days, E = 128.749434 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
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0

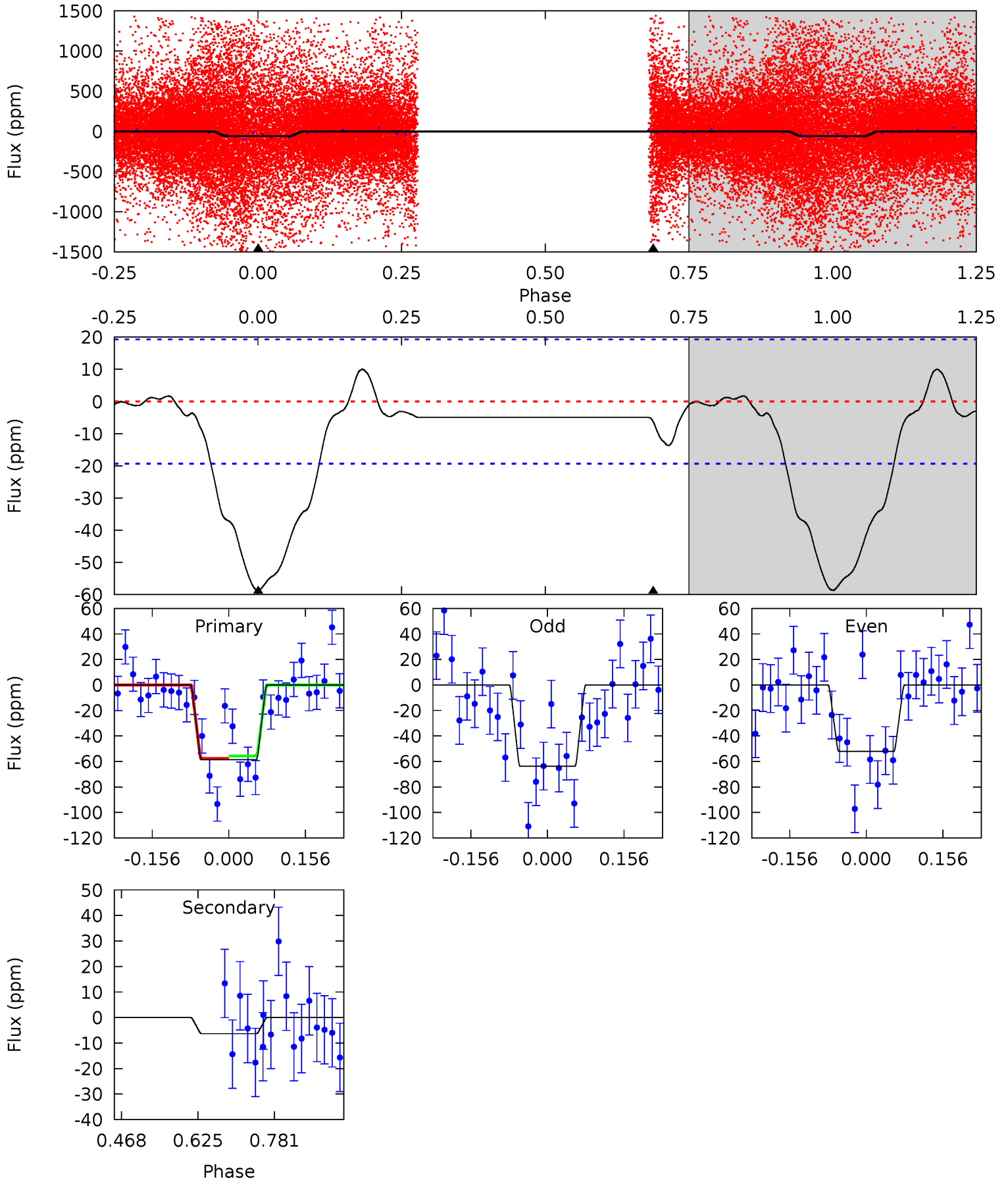




# Alt Model-Shift Uniqueness Test

006766748-04, P = 4.668692 Days, E = 128.849588 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
13.6	1.46	0	0	4.47	1.42	1.25	13.6	13.6	1.46	1.46	1.33	1.51	0.15	0.20



### Stellar Parameters For KIC 006766748

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6818^{+167}_{-262}$	$4.357^{+0.056}_{-0.224}$	$-0.200^{+0.250}_{-0.350}$	$1.216^{+0.445}_{-0.119}$	$1.240^{+0.203}_{-0.166}$	$0.971^{+0.237}_{-0.569}$
	+2%/-4%	+1%/-5%	+125%/-175%	+37%/-10%	+16%/-13%	+24%/-59%
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 006766748-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$18.36^{+13.39}_{-11.71}$	$1956^{+160}_{-106}$	$-3600^{+19546}_{-11065}$	$-4.214^{+996.122}_{-843.013}$
Alt.	$-6 \pm 4$	$9.28^{+9.55}_{-6.90}$	$1946^{+142}_{-93}$	$-2314^{+5271}_{-166}$	$0.109^{+1.320}_{-0.094}$

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

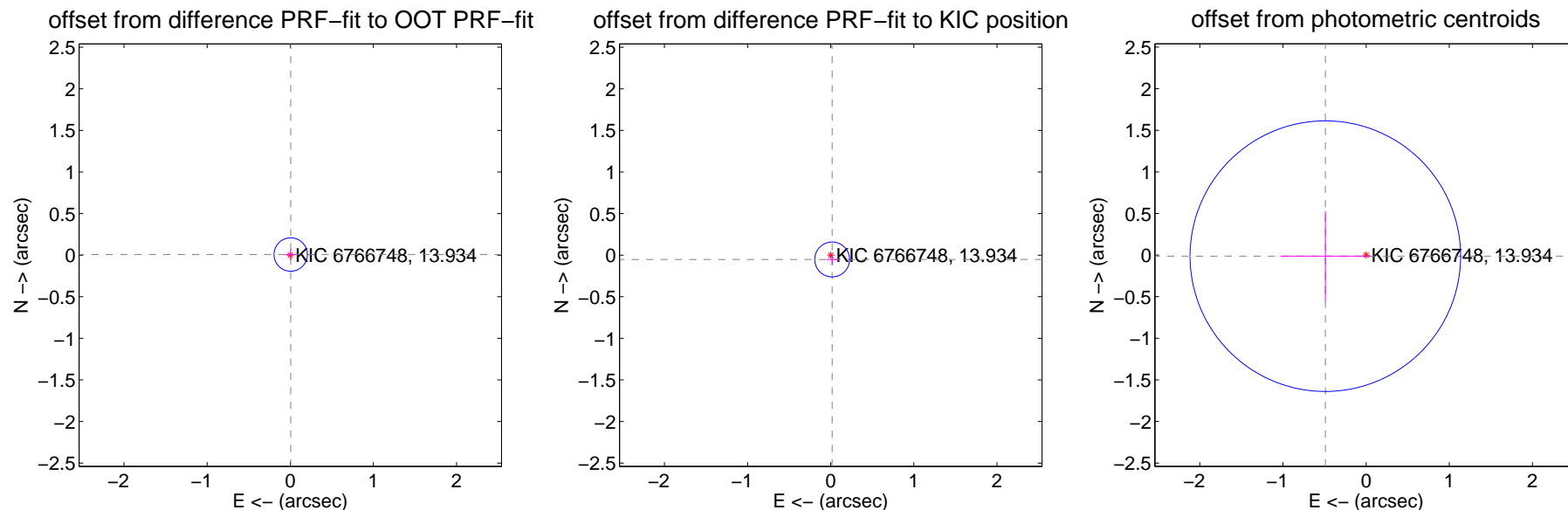
## DV Centroid Data

Supplemental centroid analysis for 006766748-04. Kepler magnitude: 13.93. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

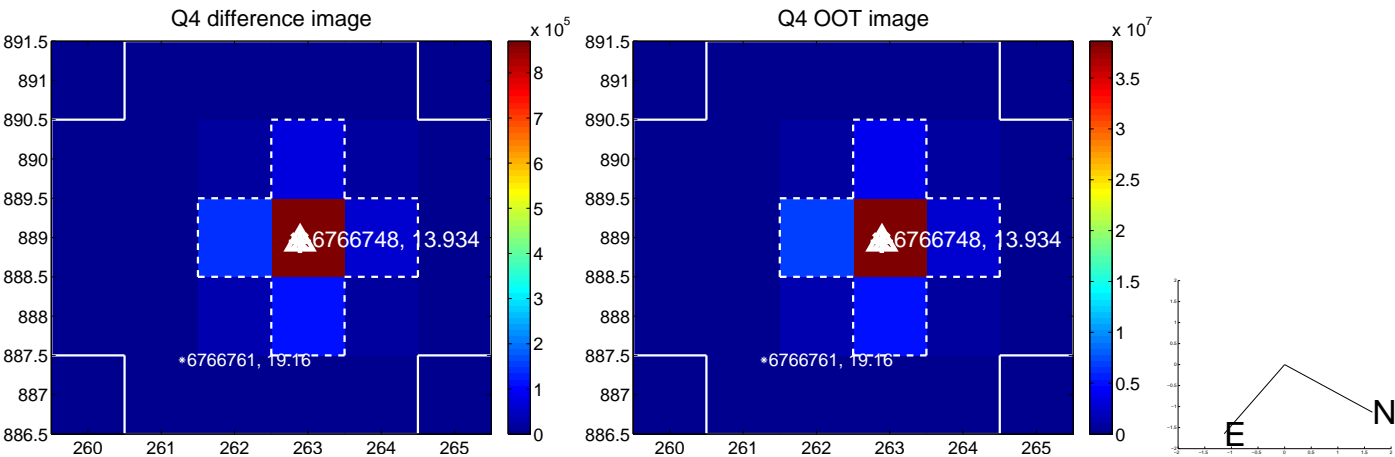
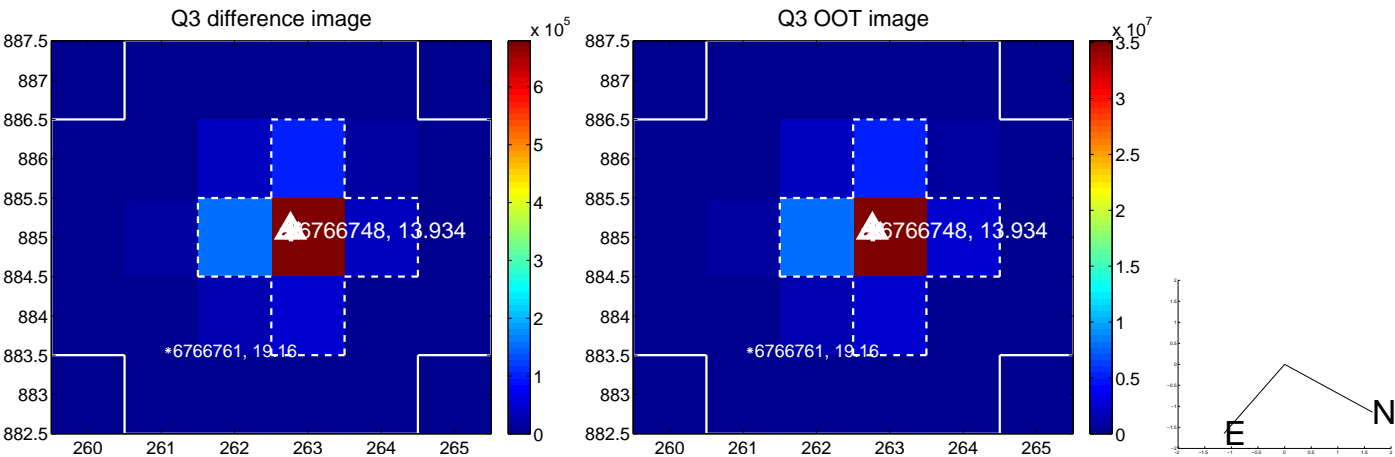
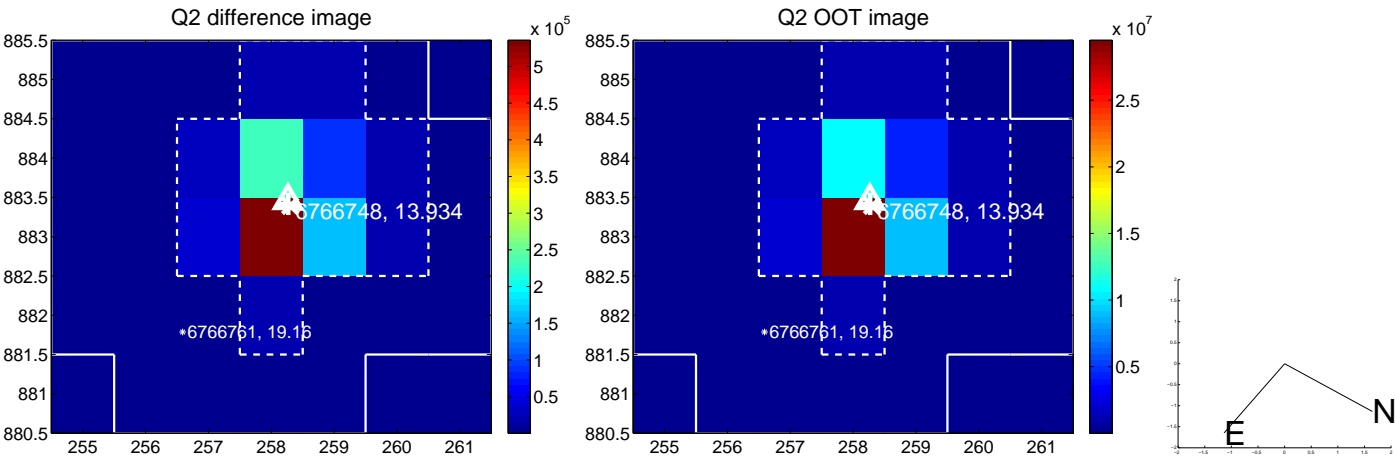
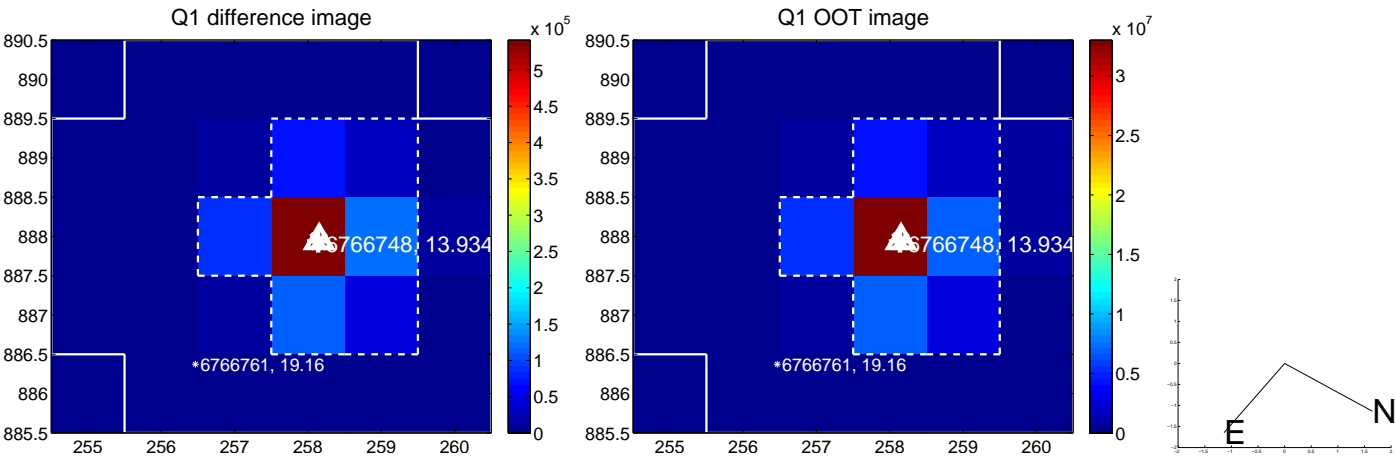
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.009 \pm 0.067$	0.14	$-0.005 \pm 0.067$	$0.008 \pm 0.067$
PRF-fit source offset from KIC position	$0.055 \pm 0.070$	0.78	$-0.017 \pm 0.068$	$-0.052 \pm 0.069$
photometric centroid source offset	$0.49 \pm 0.54$	0.90	$0.49 \pm 0.54$	$-0.01 \pm 0.54$

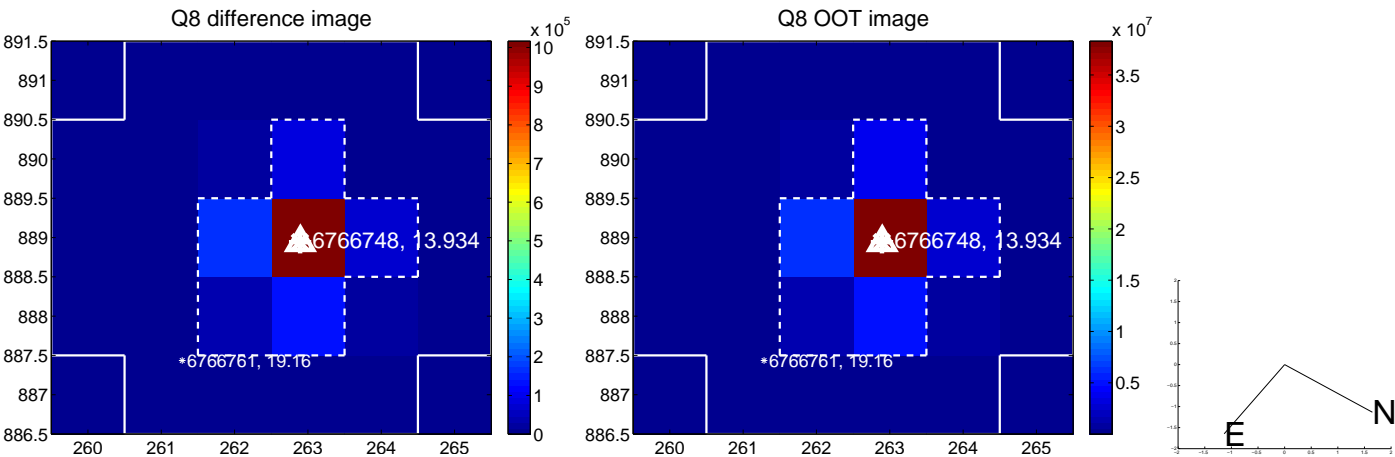
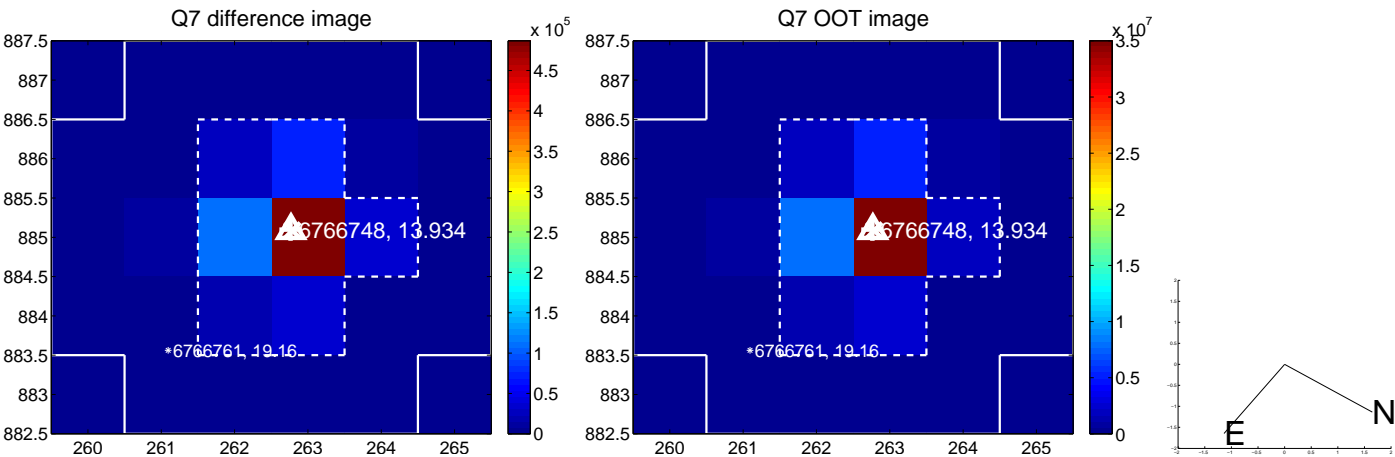
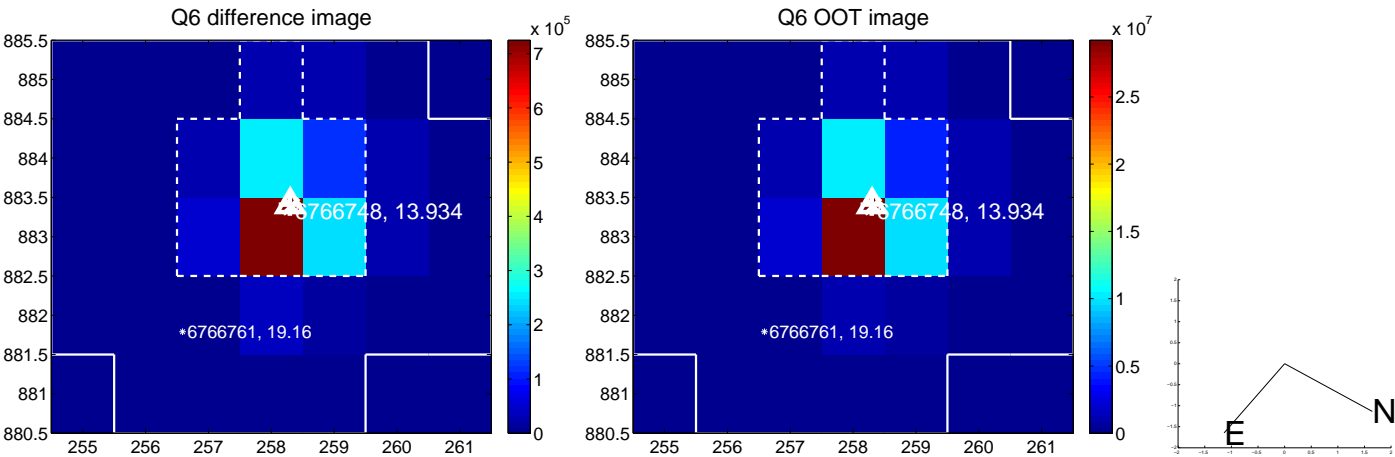
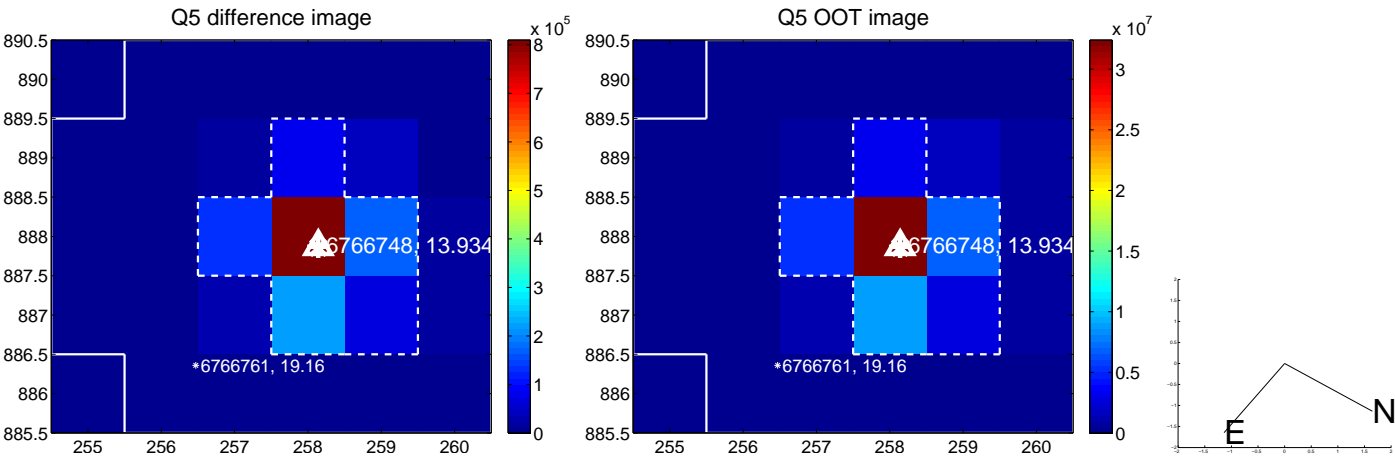


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

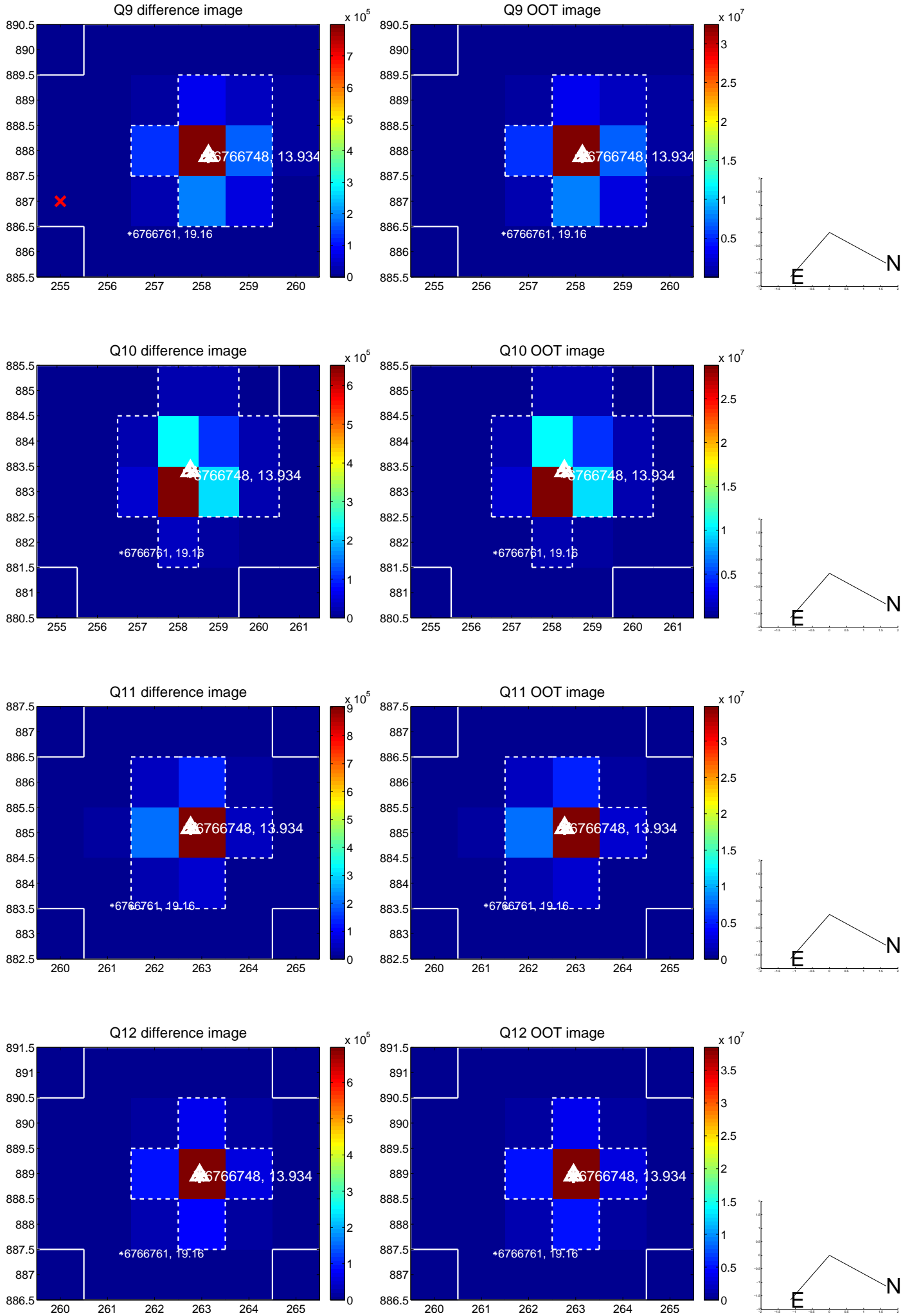


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

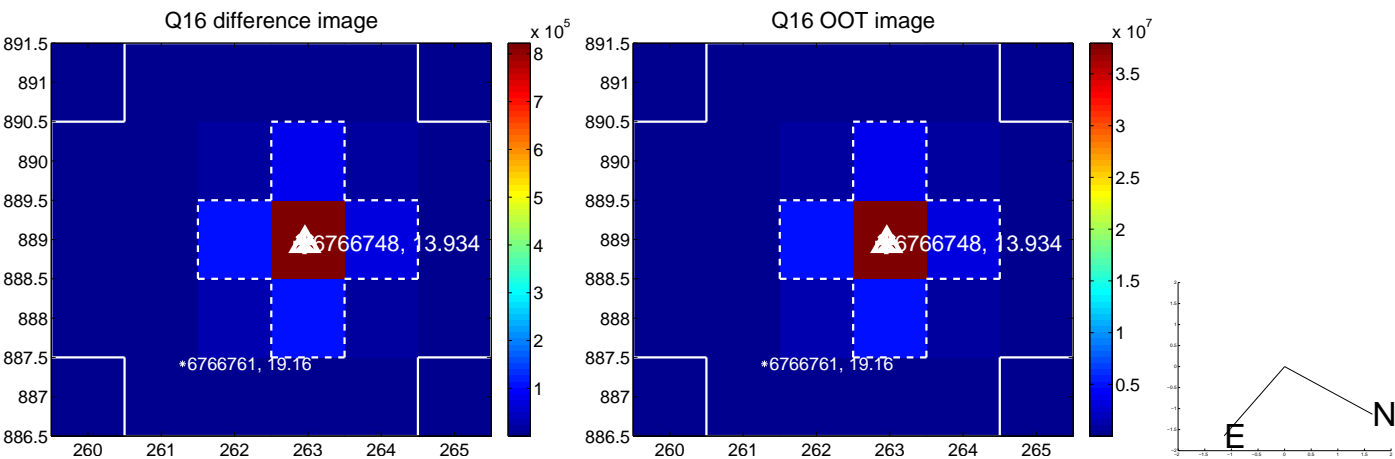
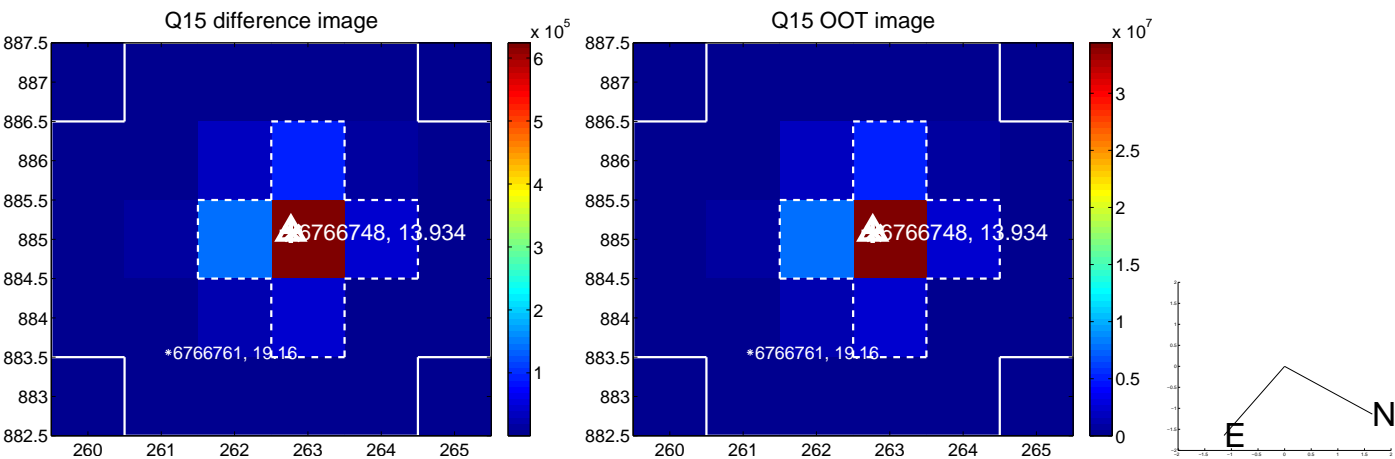
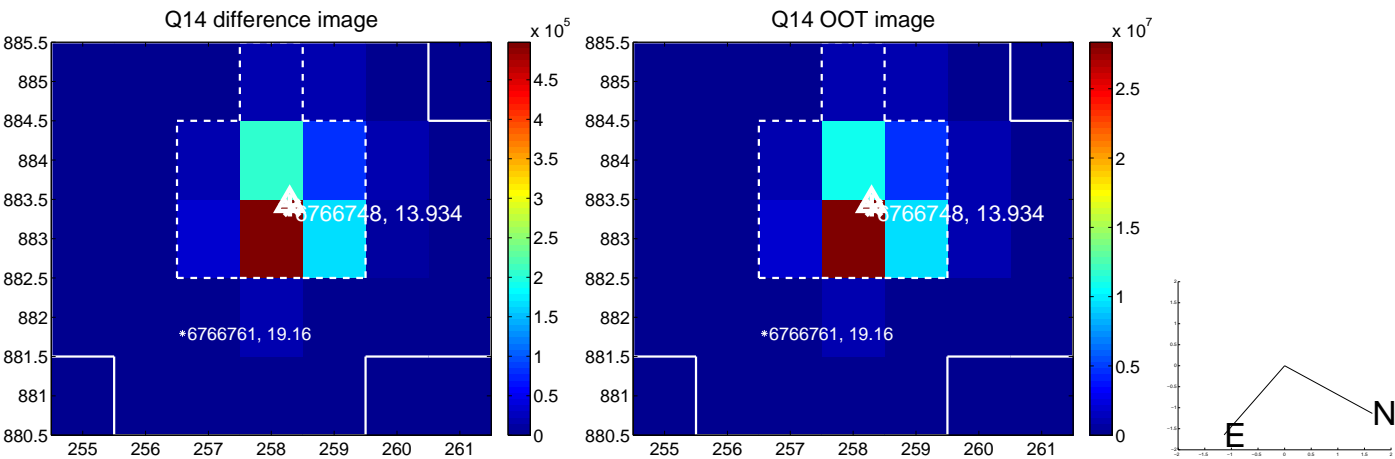
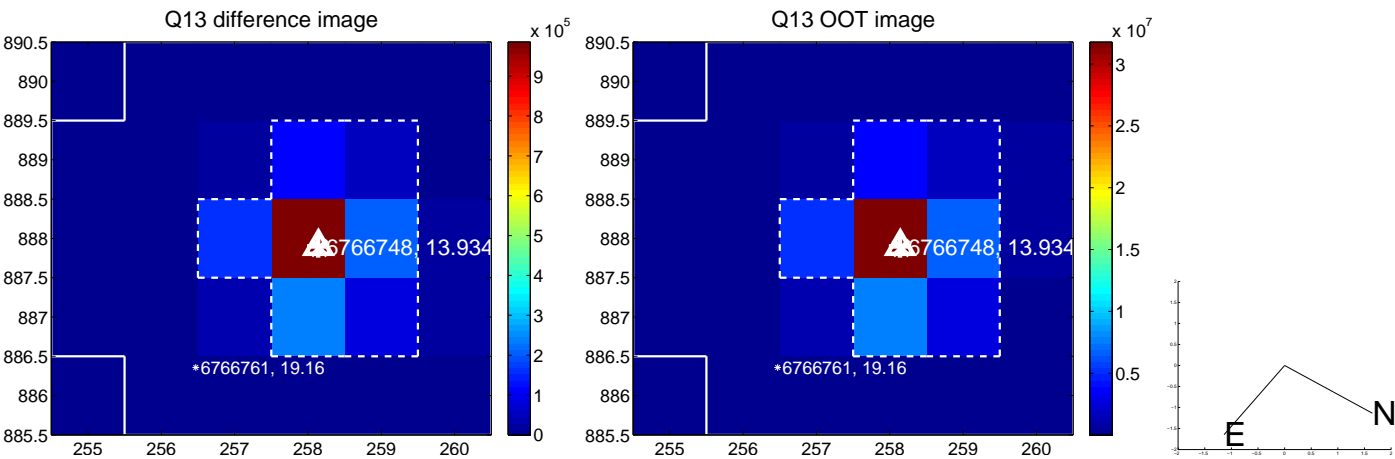




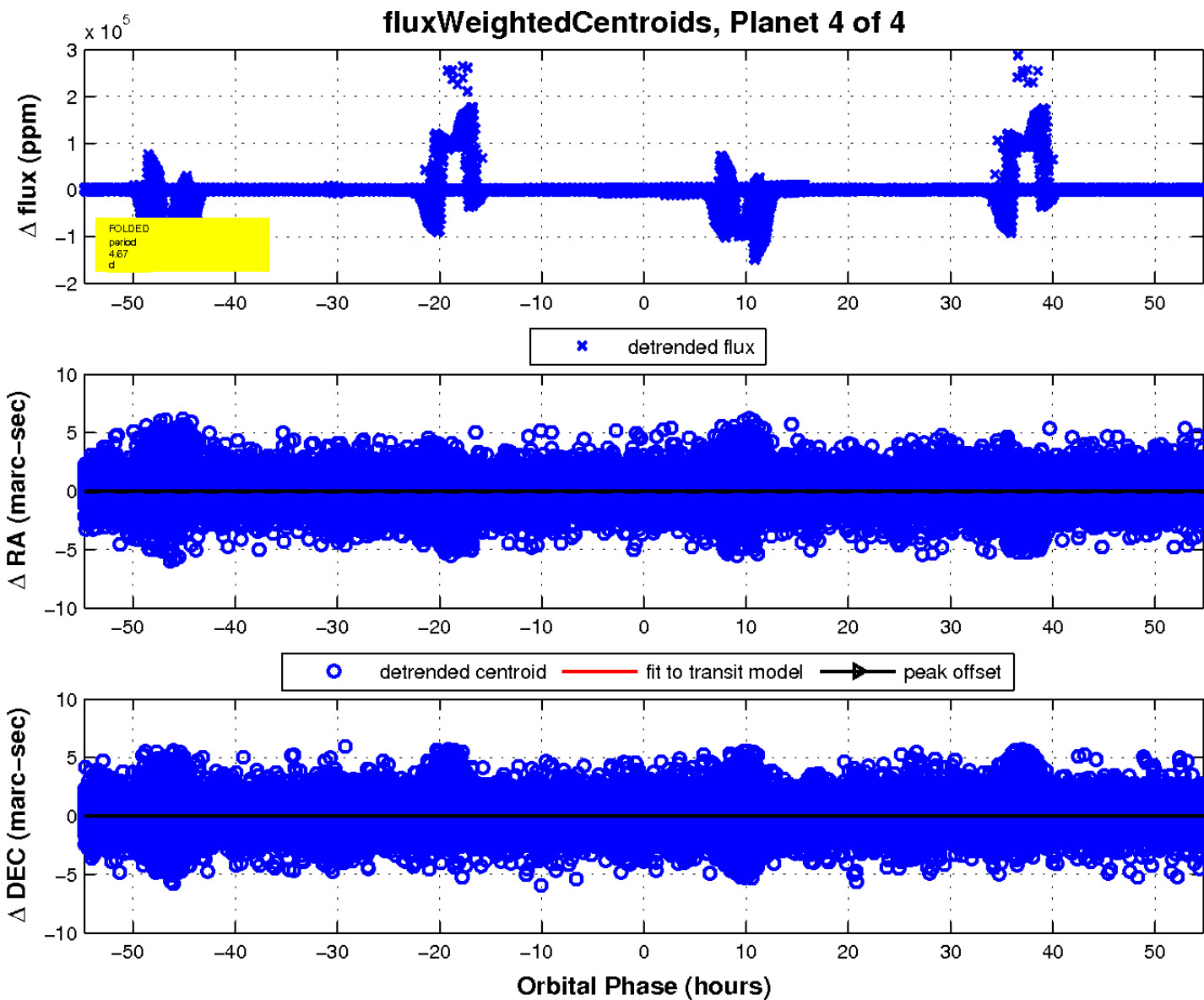
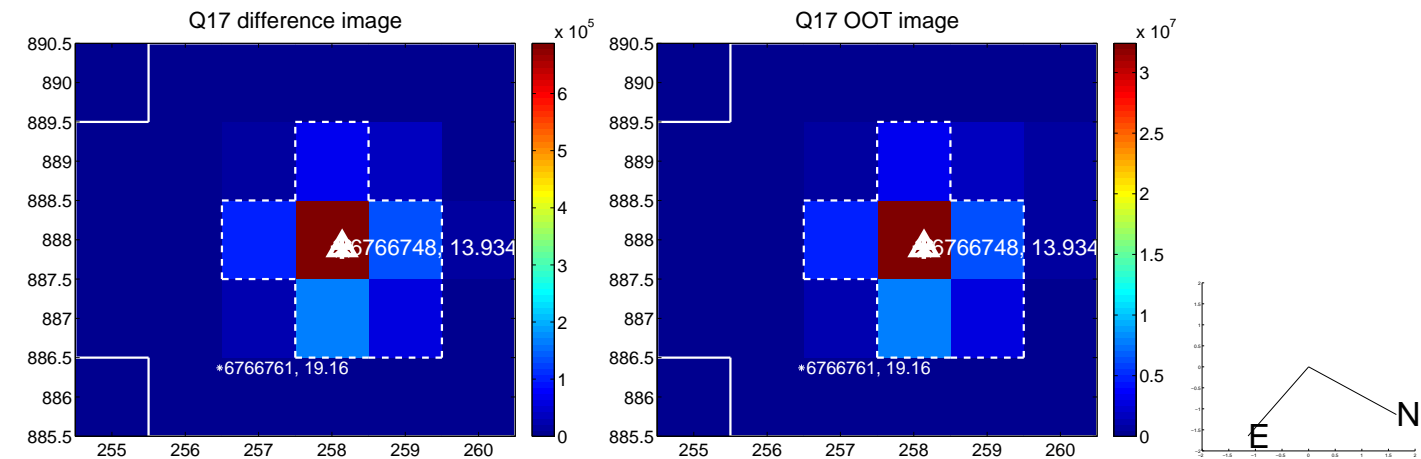
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

