

# KIC 010749745

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010749745-01	OBS	No	0.890517	131.920858	25.2	6.630	7.7	10.3	0.80	5009	0.42	1314.44
010749745-02	OBS	No	20.468153	140.448923	293.8	1.936	8.4	10.4	0.80	5009	1.48	20.11
010749745-03	OBS	No	11.867840	134.201960	401.4	1.351	12.0	14.0	0.80	5009	1.72	41.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010749745-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010749745-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010749745-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

**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.

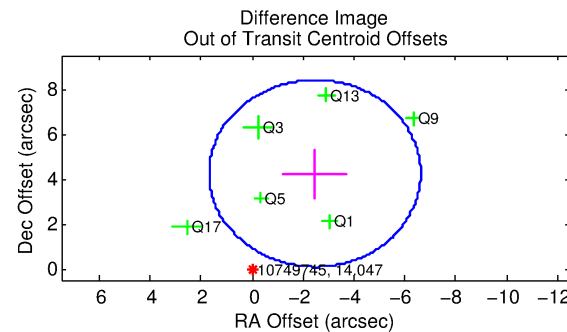
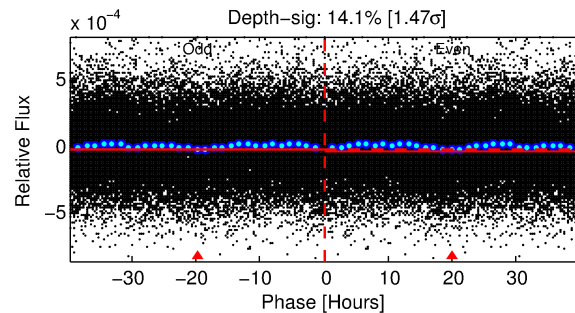
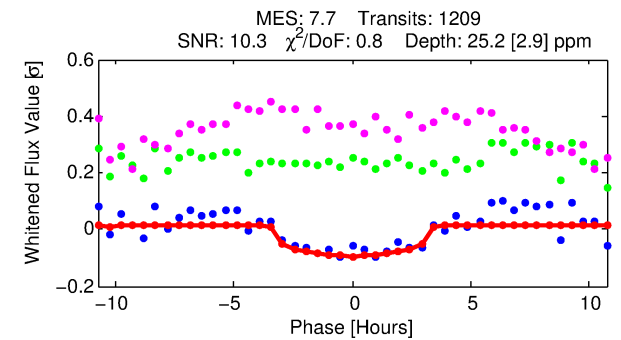
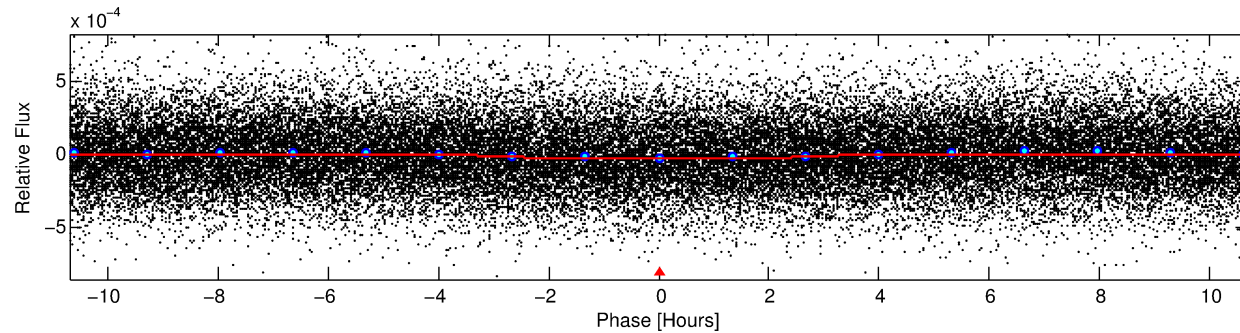
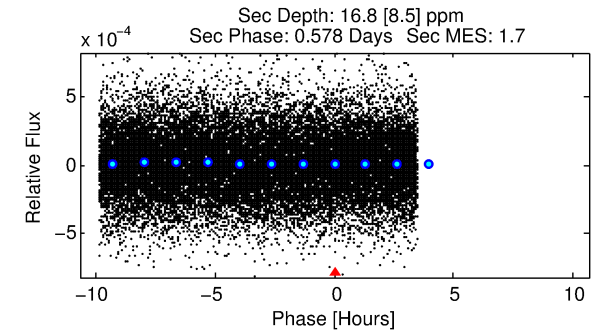
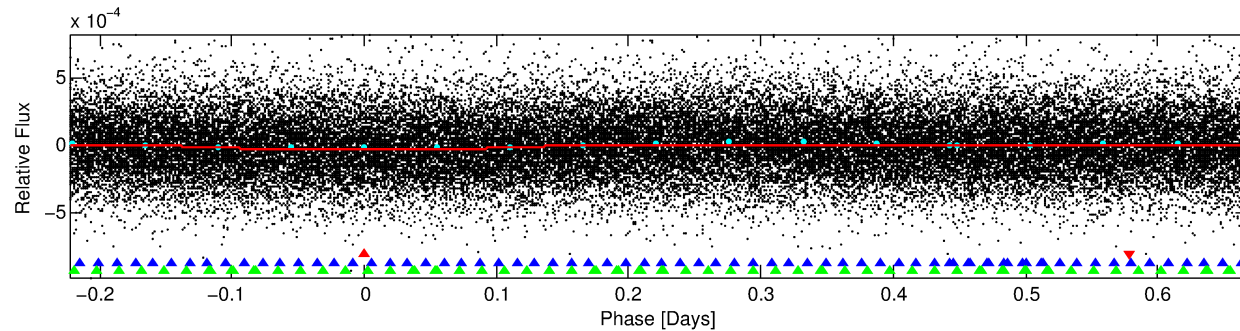
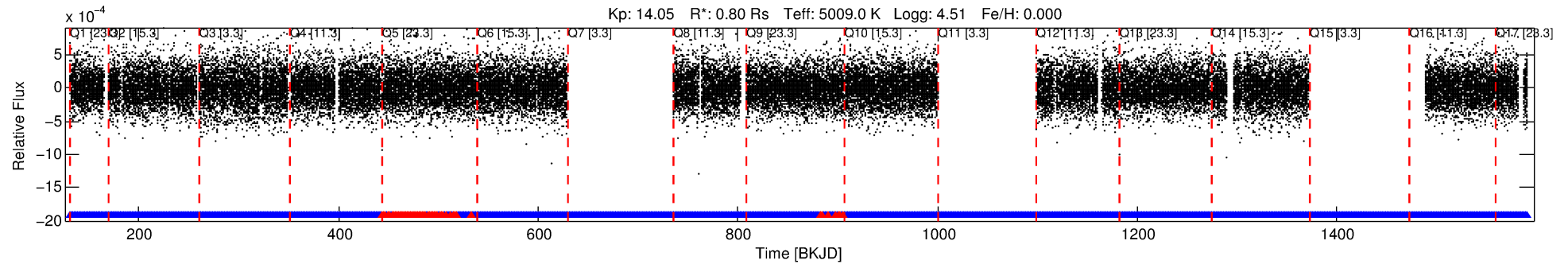
## Ephemeris Match Information For 010749745-01

TCE (1)	KIC	Parent (2)	Parent KIC	P <sub>1</sub> :P <sub>2</sub>	Dist (″)	$\Delta$ Row	$\Delta$ Col	m <sub>2</sub>	m <sub>1</sub>	D <sub>2</sub> /D <sub>1</sub>	Mechanism	Flag	$\sigma_P$	$\sigma_T$
010749745-01	10749745	010815379-pri	10815379	1:1	80.2	20	3	11.24	14.04	3208.00	Direct-PRF	0	0.39	0.44

**Notes:** P<sub>1</sub>:P<sub>2</sub> is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column. m<sub>2</sub> and m<sub>1</sub> are the magnitudes of the parent and child. D<sub>2</sub>/D<sub>1</sub> is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 10749745 Candidate: 1 of 3 Period: 0.891 d



## DV Fit Results:

Period = 0.89052 [0.00001] d  
Epoch = 131.9209 [0.0068] BKJD  
Rp/R\* = 0.0048 [0.0032]  
a/R\* = 1.14 [0.60]  
b = 0.63 [2.35]  
Seff = 1314.44 [267.47]  
Teff = 1535 [78] K  
Rp = 0.42 [0.28] Re  
a = 0.0166 [0.0017] AU  
Ag = 14.61 [21.19] [0.64σ]  
Teffp = 4641 [1678] K [1.85σ]

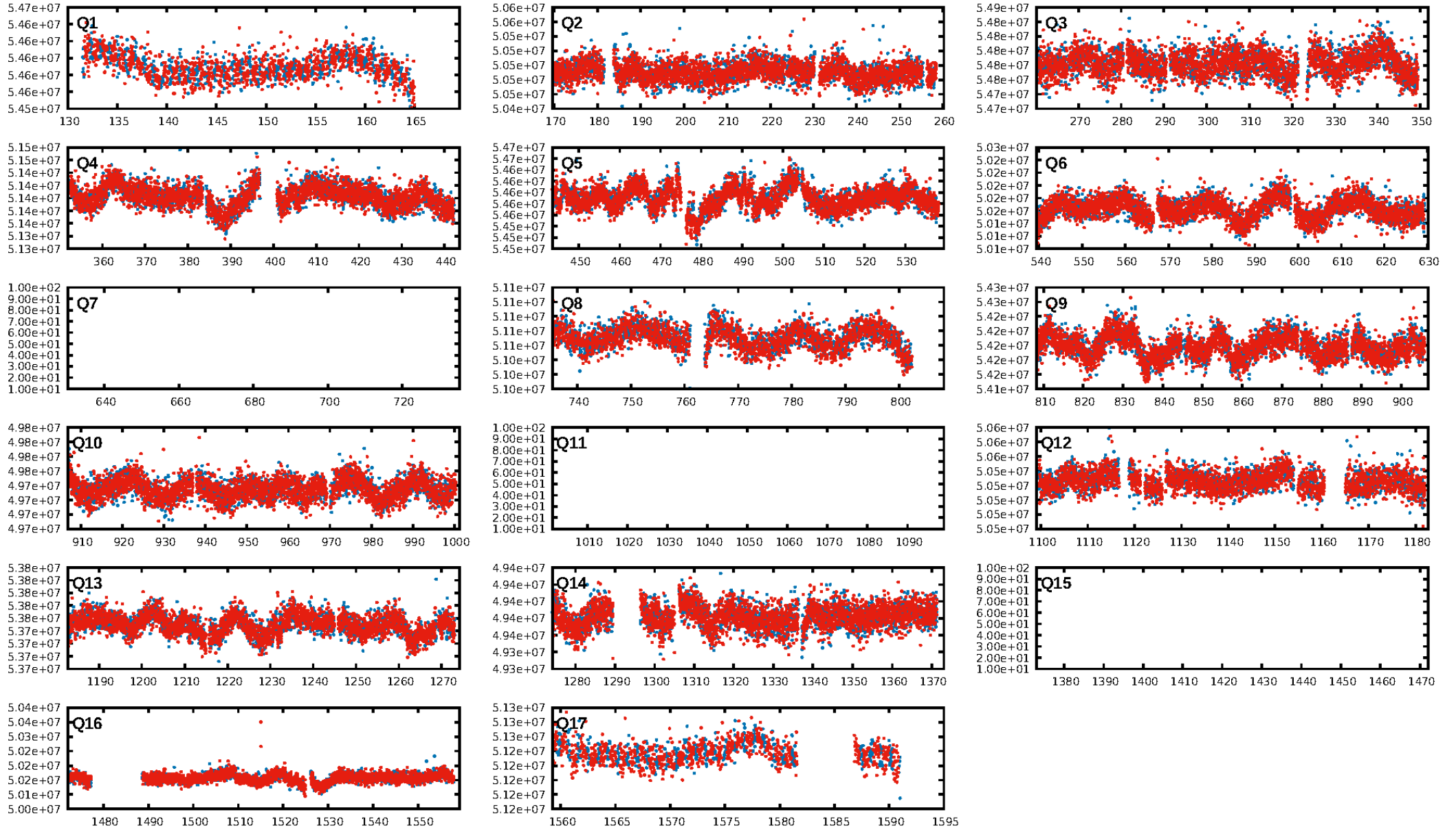
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [38.94σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 9.30e-10**  
RollingBand-fgt: 0.94 [1071/1140]  
**GhostDiagnostic-chr: 0.2066**  
Centroid-sig: 20.3%  
Centroid-so: 1.495 arcsec [1.18σ]  
**OotOffset-rm: 4.908 arcsec [3.54σ]**  
**KicOffset-rm: 5.235 arcsec [4.36σ]**  
OotOffset-st: 0/1/0/5 [6]  
KicOffset-st: 0/1/0/5 [6]  
DiffImageQuality-fgm: 0.17 [1/6]  
DiffImageOverlap-fno: 1.00 [14/14]

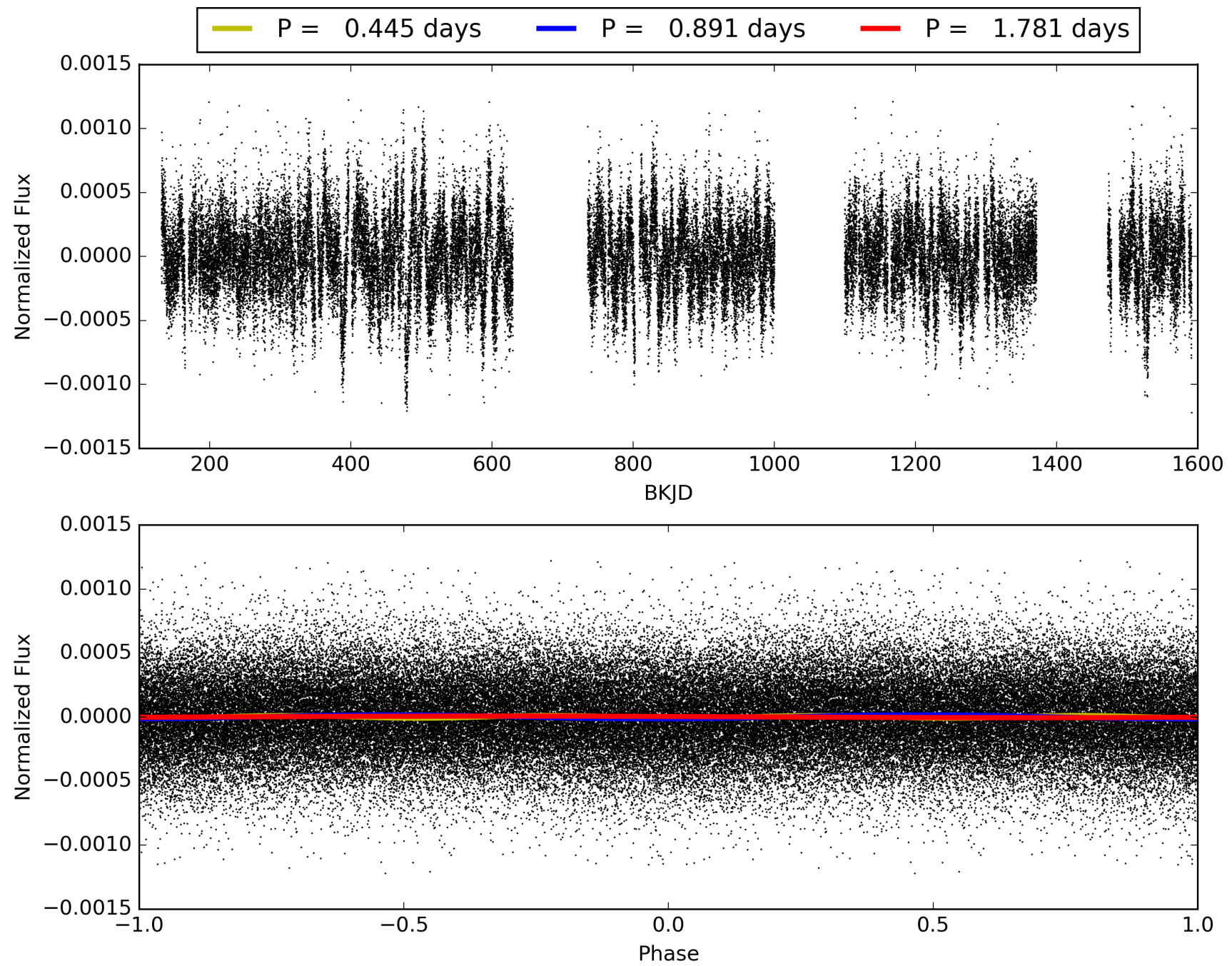
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:39:00 Z

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

# TCE 010749745-01, PDC Light Curves

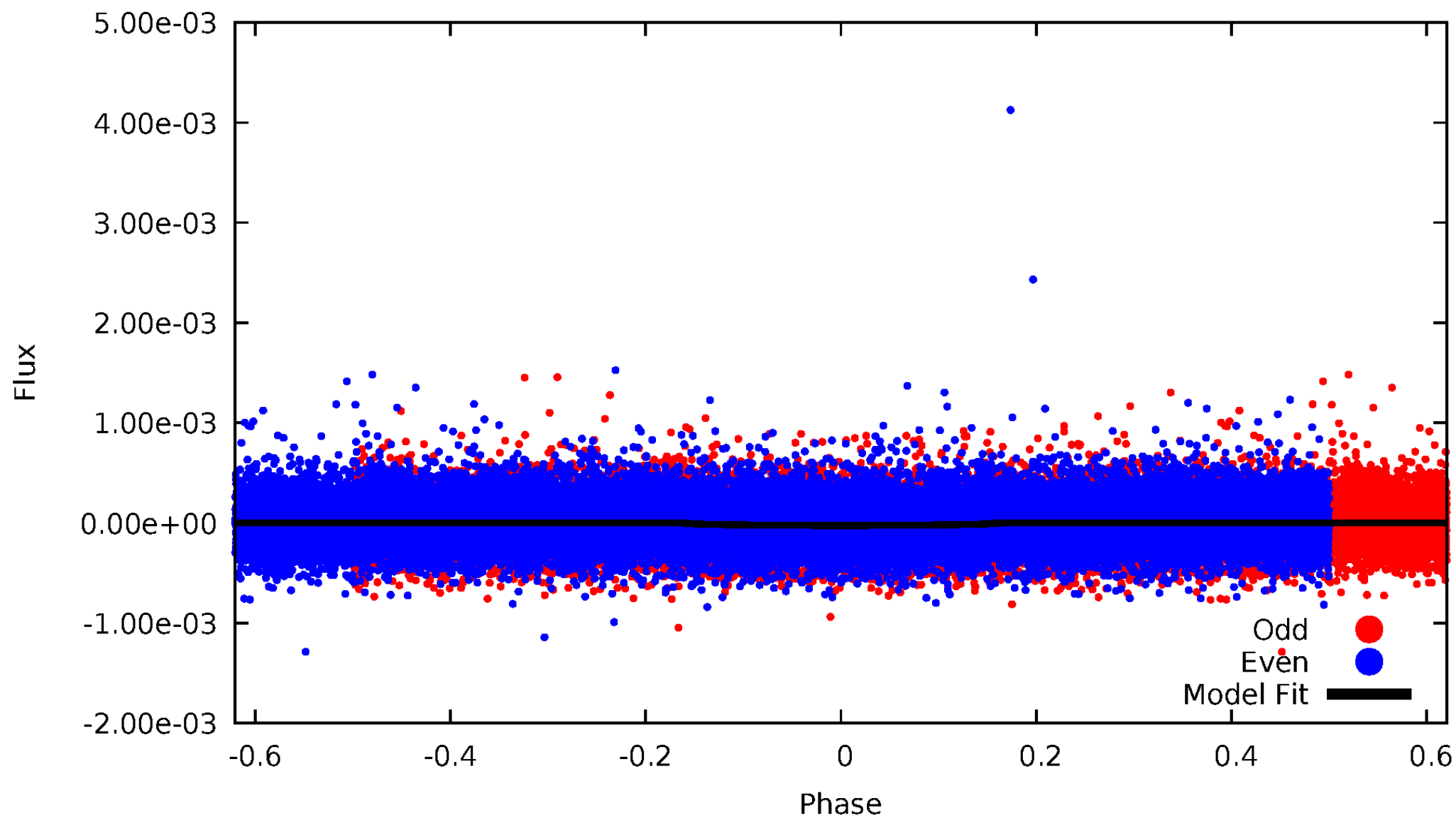


TCE 010749745-01



# DV Odd/Even

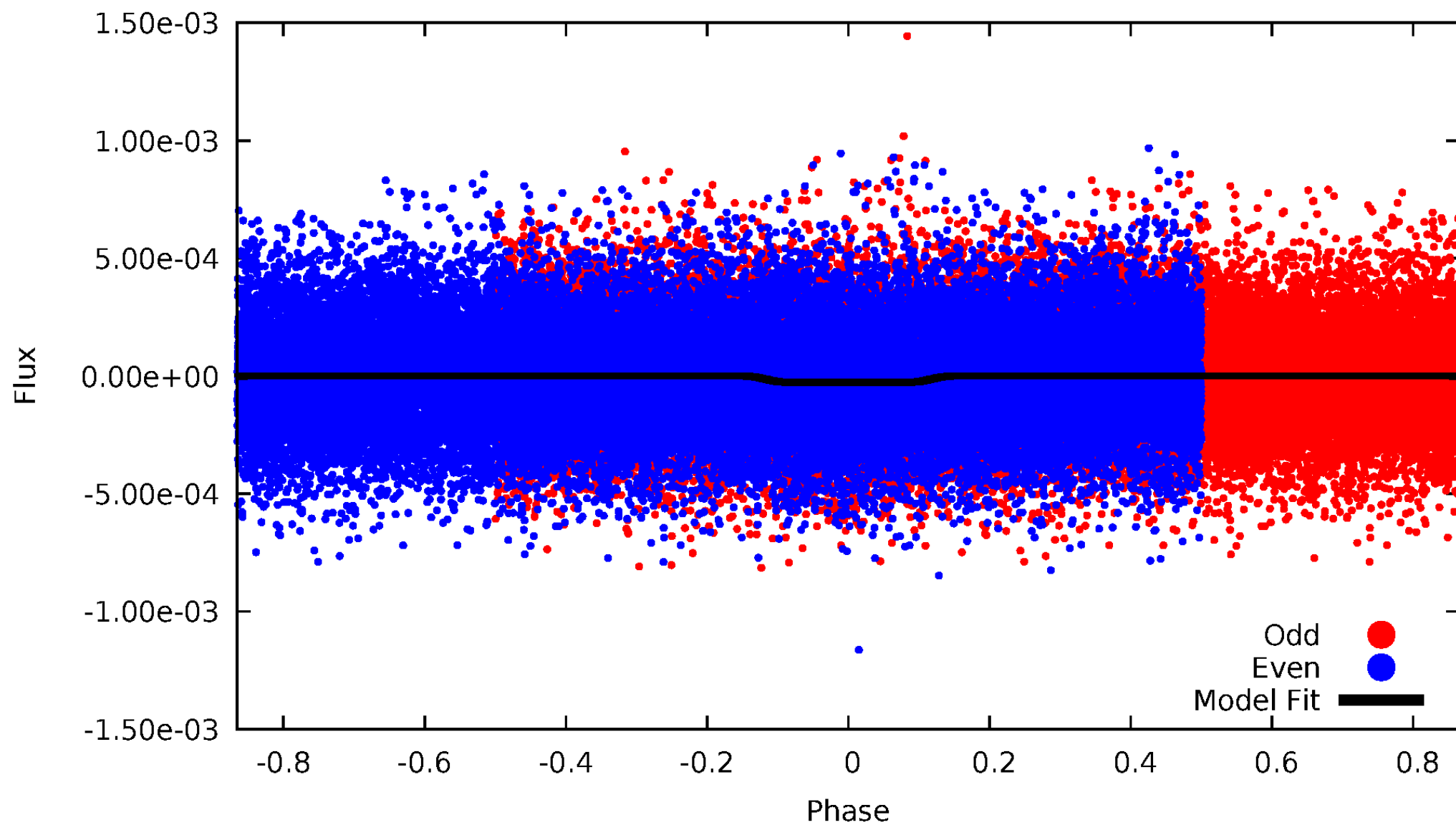
TCE 010749745-01





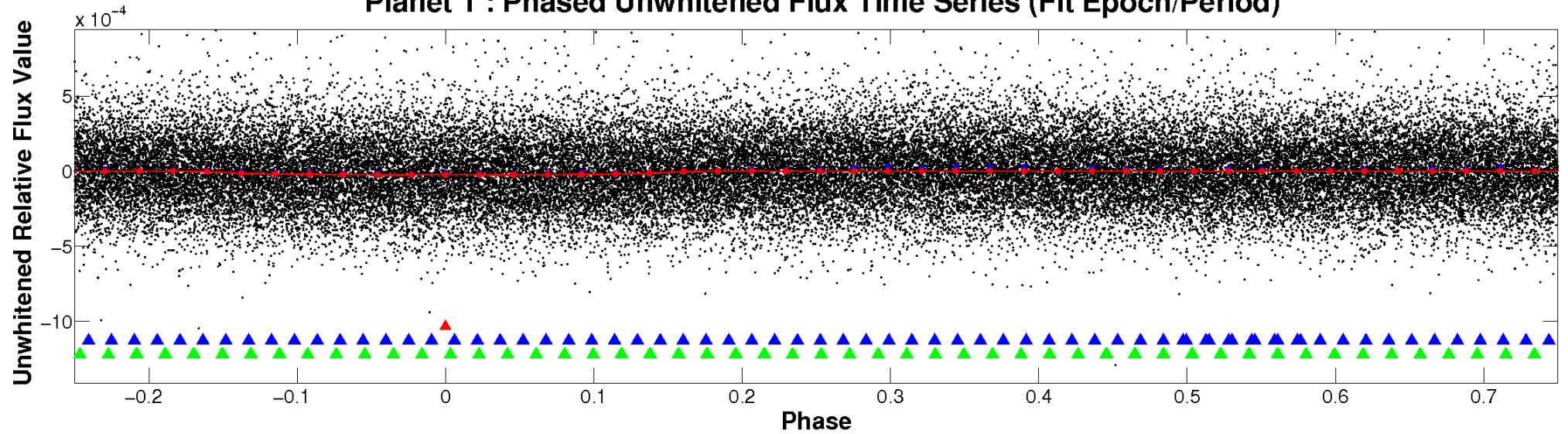
# ALT Odd/Even

TCE 010749745-01

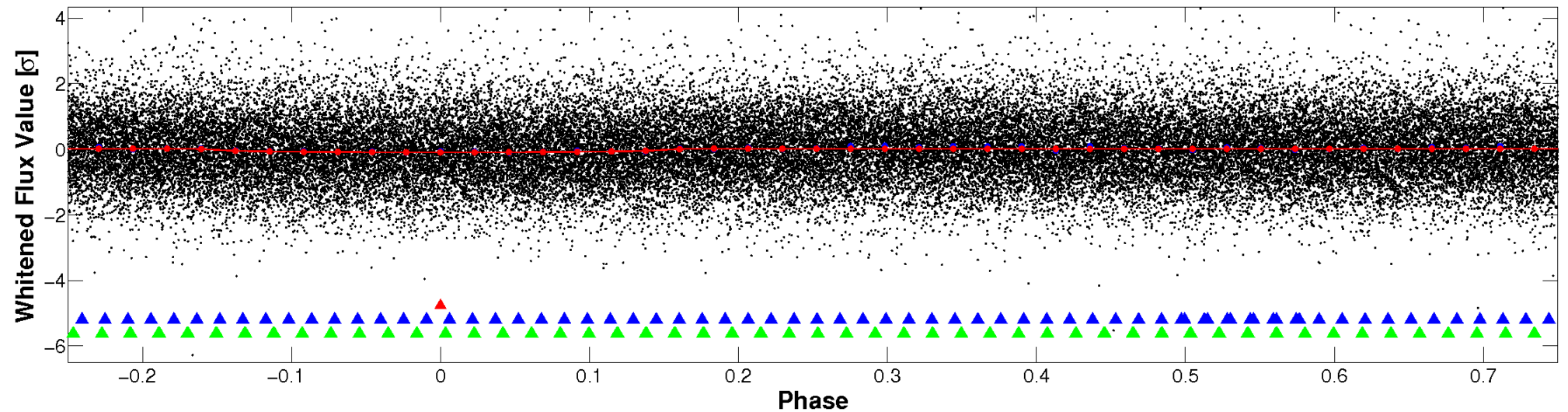


# Non-Whitened Vs. Whitened Light Curve

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

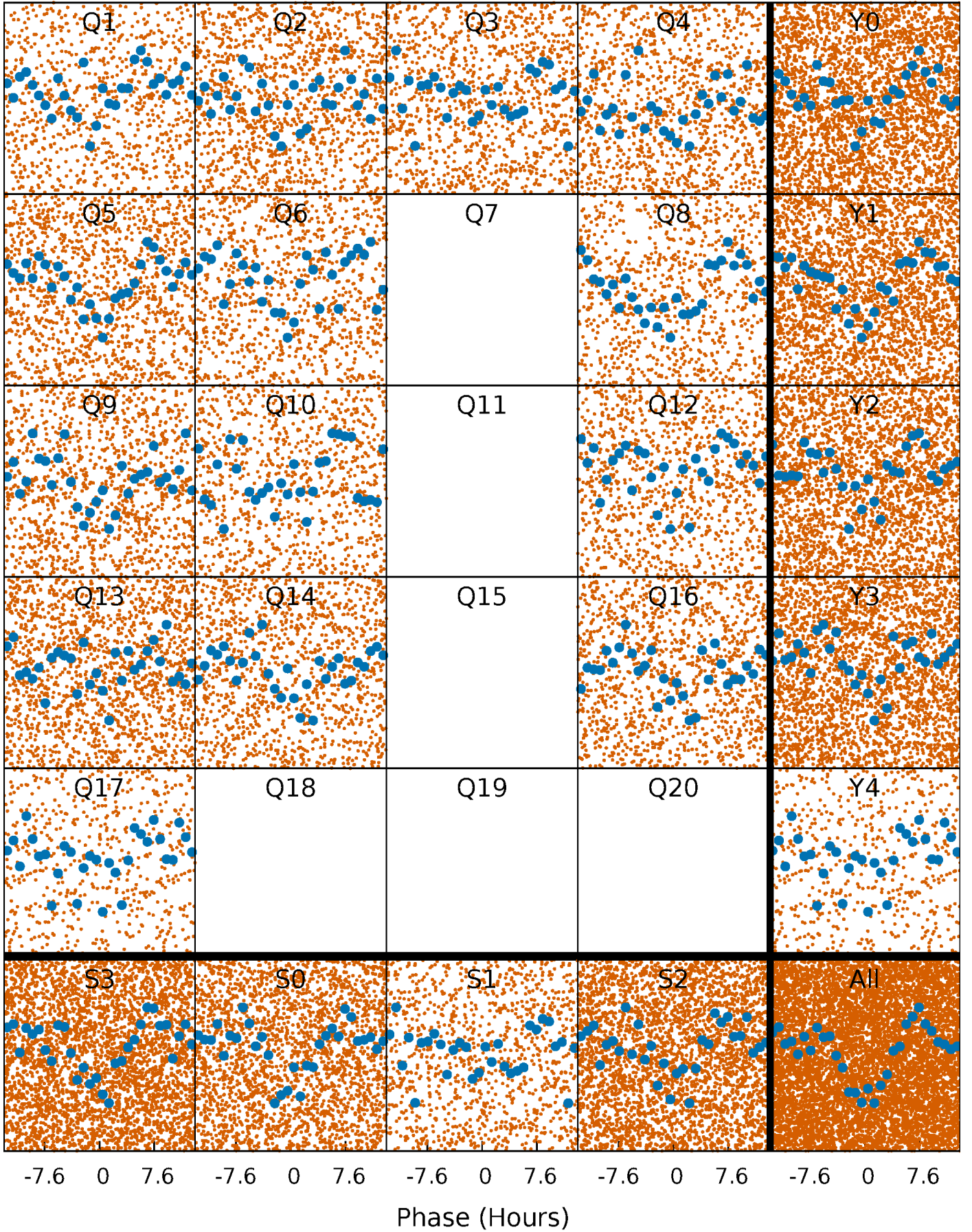


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

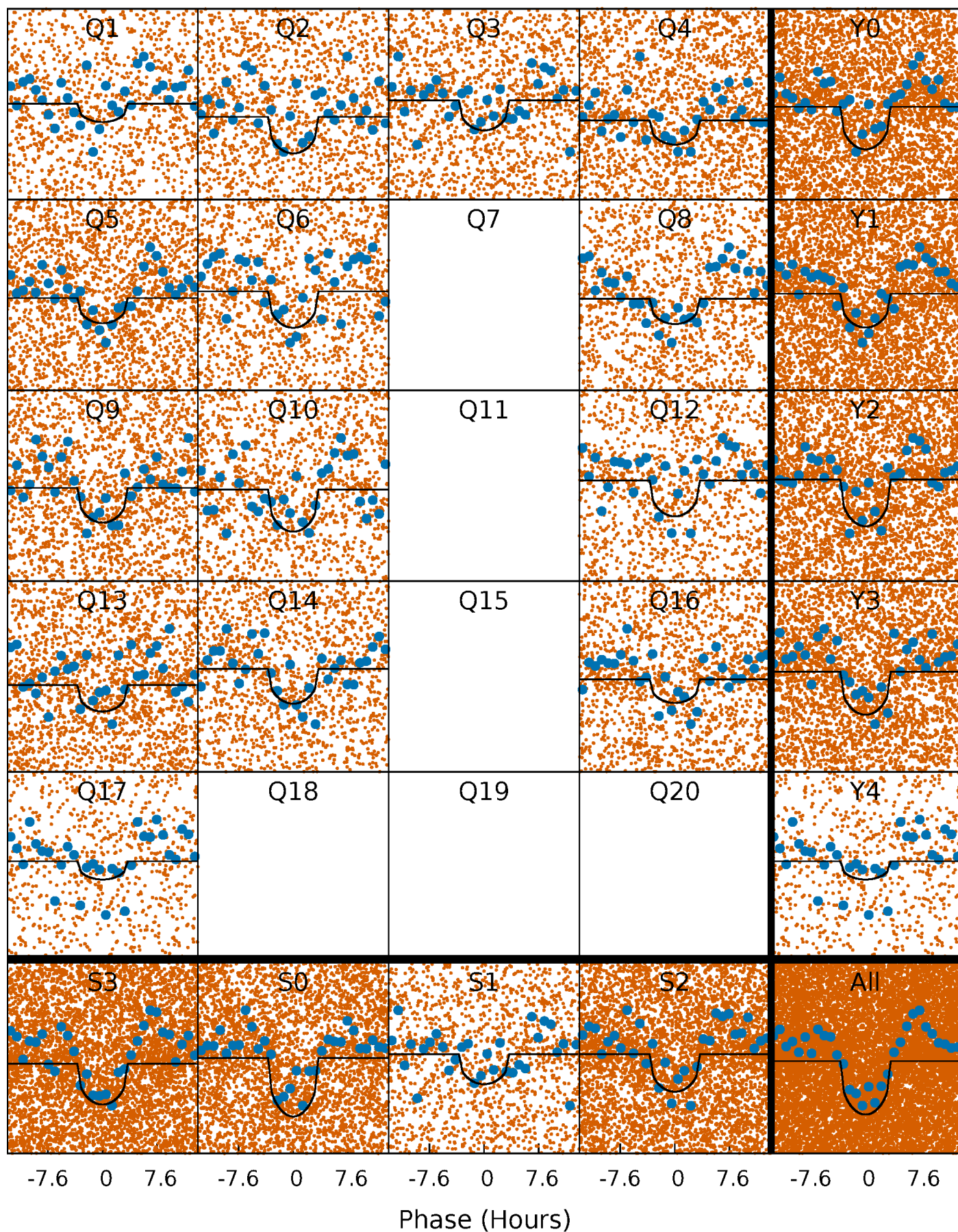
TCE 010749745-01   P= 0.890517 Days    $T_0=131.920858$  (BKJD)





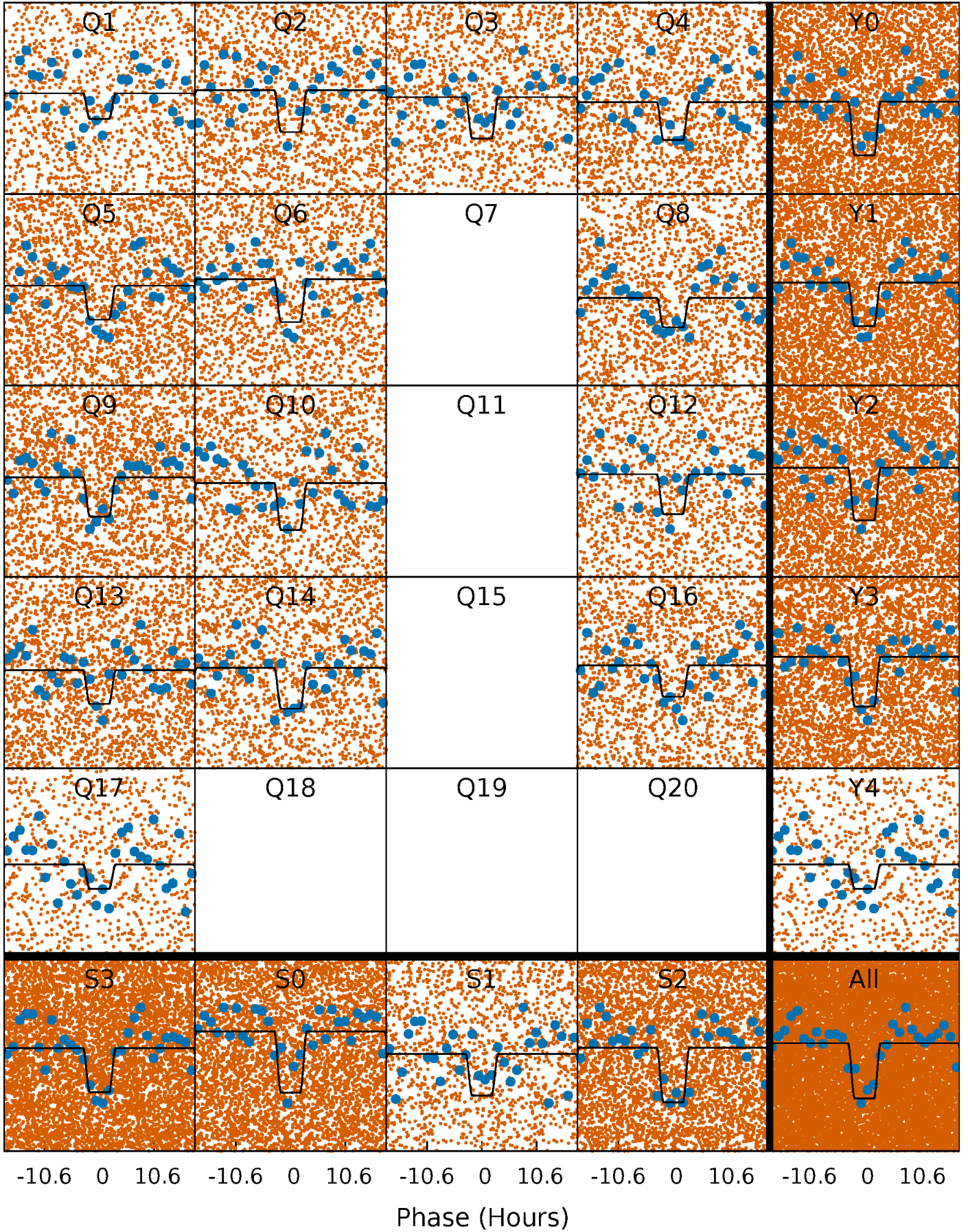
# DV Quarter-Phased Transit Curves

TCE 010749745-01 P= 0.890517 Days  $T_0=131.920858$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010749745-01 P= 0.890584 Days  $T_0=131.874577$  (BKJD)

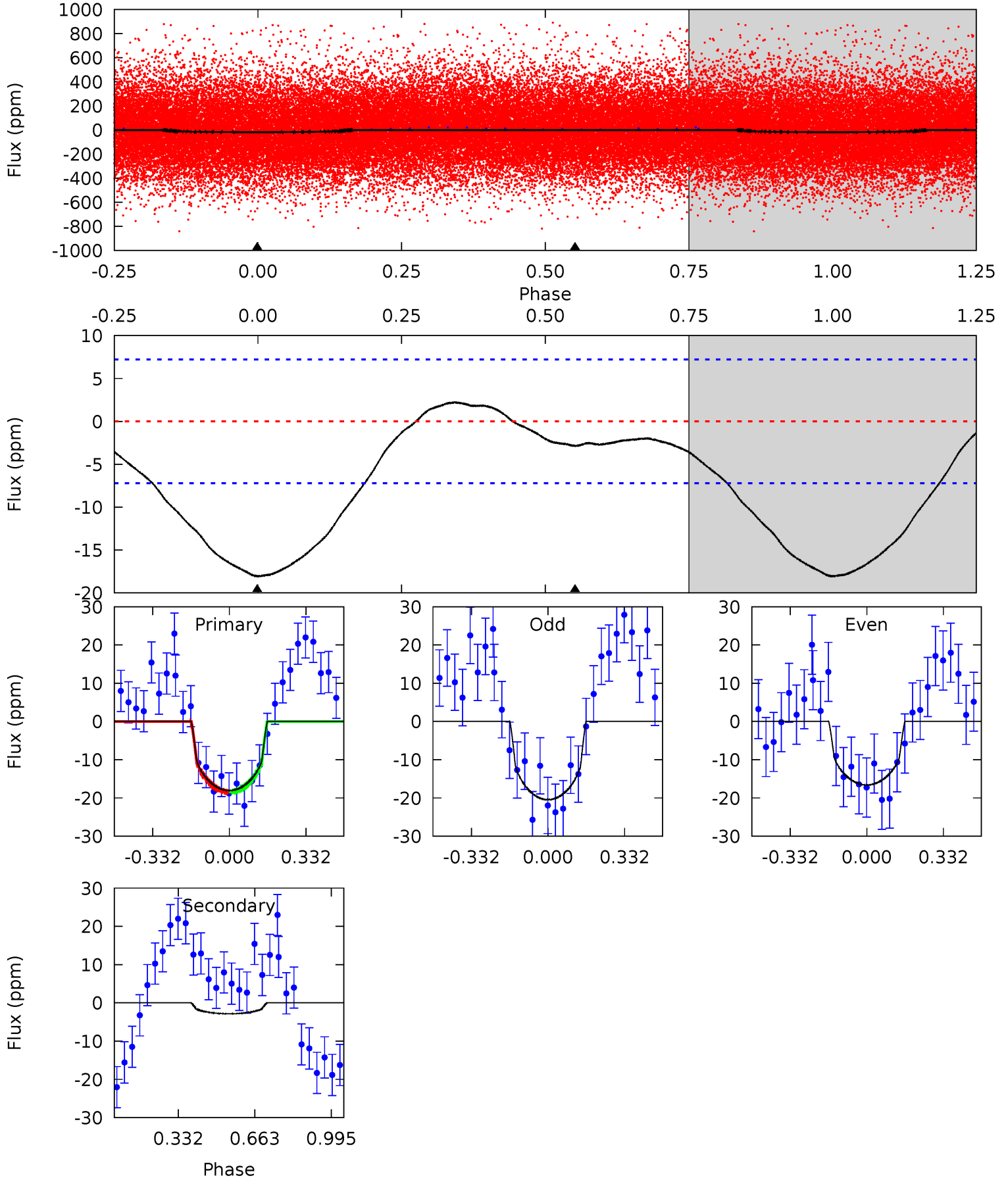




# DV Model-Shift Uniqueness Test

010749745-01, P = 0.890517 Days, E = 131.030341 Days

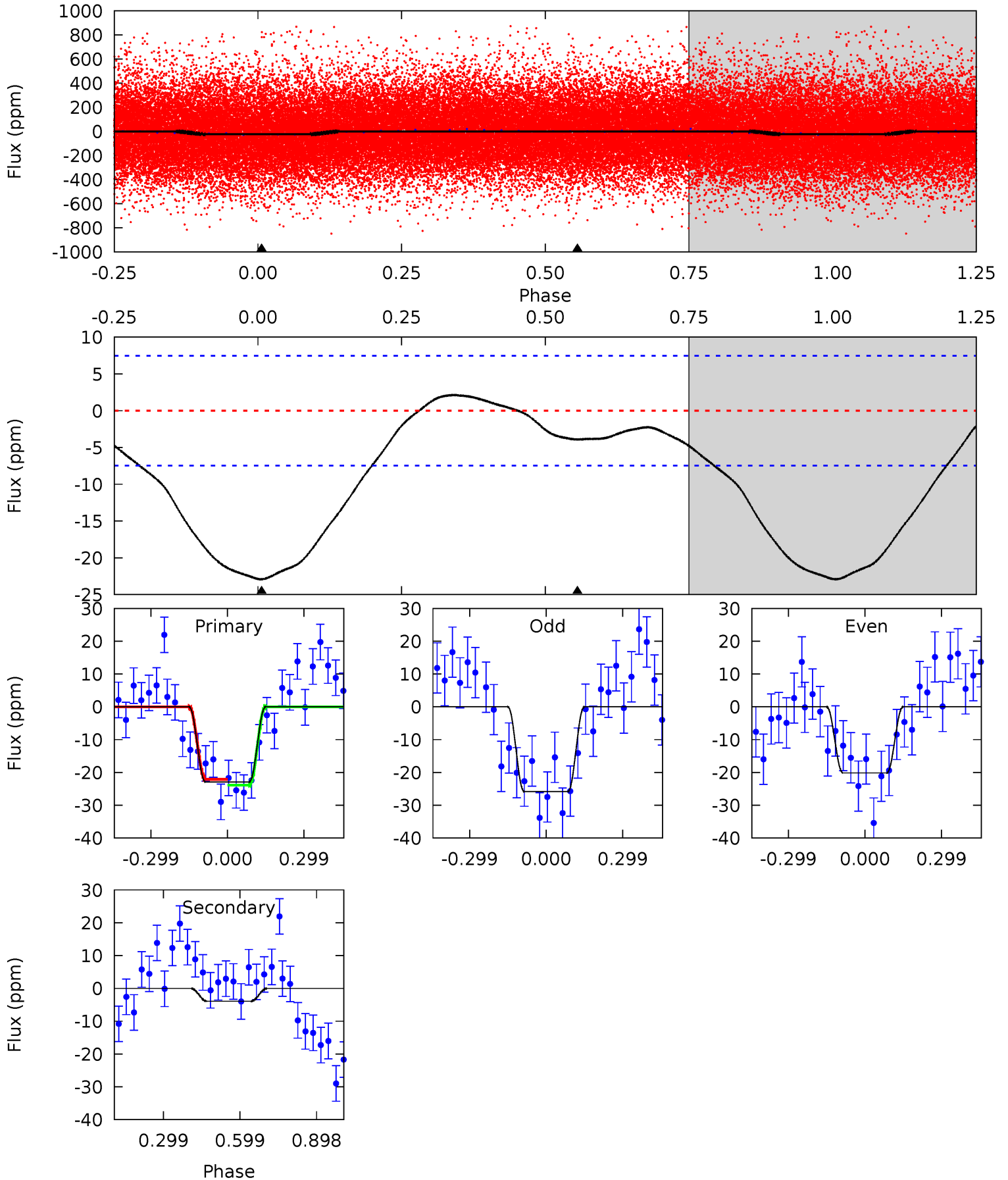
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	1.70	0	0	4.31	0.97	0.93	10.8	10.8	1.70	1.70	1.16	0.93	0.11	0.00



# Alt Model-Shift Uniqueness Test

010749745-01, P = 0.890584 Days, E = 130.983993 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
13.3	2.27	0	0	4.33	1.04	1.11	13.3	13.3	2.27	2.27	1.63	1.10	0.08	0.50





### Stellar Parameters For KIC 010749745

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5009^{+151}_{-136}$	$4.515^{+0.088}_{-0.096}$	$0.000^{+0.300}_{-0.300}$	$0.799^{+0.078}_{-0.086}$	$0.763^{+0.087}_{-0.055}$	$2.106^{+0.711}_{-0.486}$
	+3%/-3%	+2%/-2%	+inf%/-inf%	+10%/-11%	+11%/-7%	+34%/-23%
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 010749745-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-3 \pm 2$	$0.44^{+0.27}_{-0.24}$	$2147^{+84}_{-89}$	$3250^{+1038}_{-721}$	$2.043^{+7.447}_{-1.470}$
Alt.	$-4 \pm 2$	$0.48^{+0.26}_{-0.25}$	$2150^{+96}_{-87}$	$3393^{+1147}_{-630}$	$2.534^{+9.712}_{-1.714}$

$T_{max}$  = 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

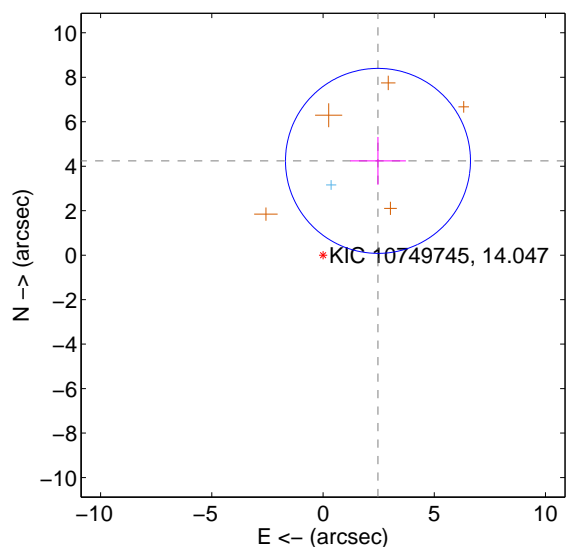
Supplemental centroid analysis for 010749745-01. Kepler magnitude: 14.05. Transit SNR 10.29

There are 1 quarters with good PRF difference image offsets

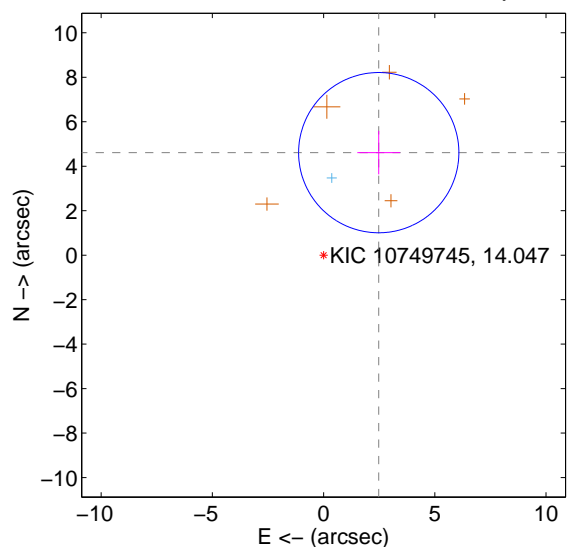
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.908 \pm 1.386$	3.54	$-2.471 \pm 1.255$	$4.240 \pm 1.074$
PRF-fit source offset from KIC position	$5.235 \pm 1.201$	4.36	$-2.480 \pm 0.962$	$4.611 \pm 0.976$
photometric centroid source offset	$1.50 \pm 1.27$	1.18	$1.37 \pm 1.27$	$-0.60 \pm 1.28$

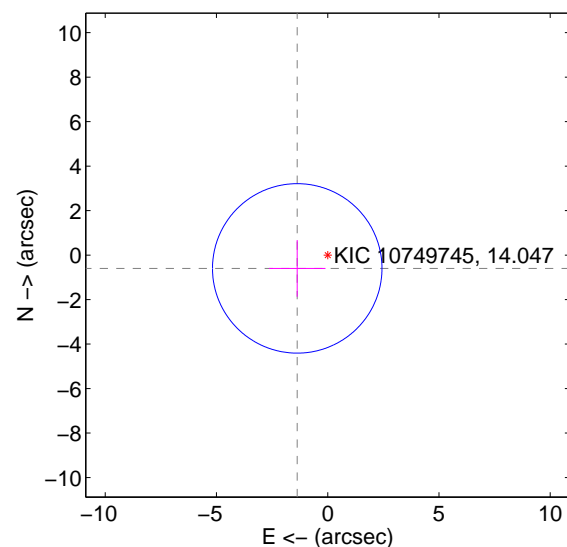
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

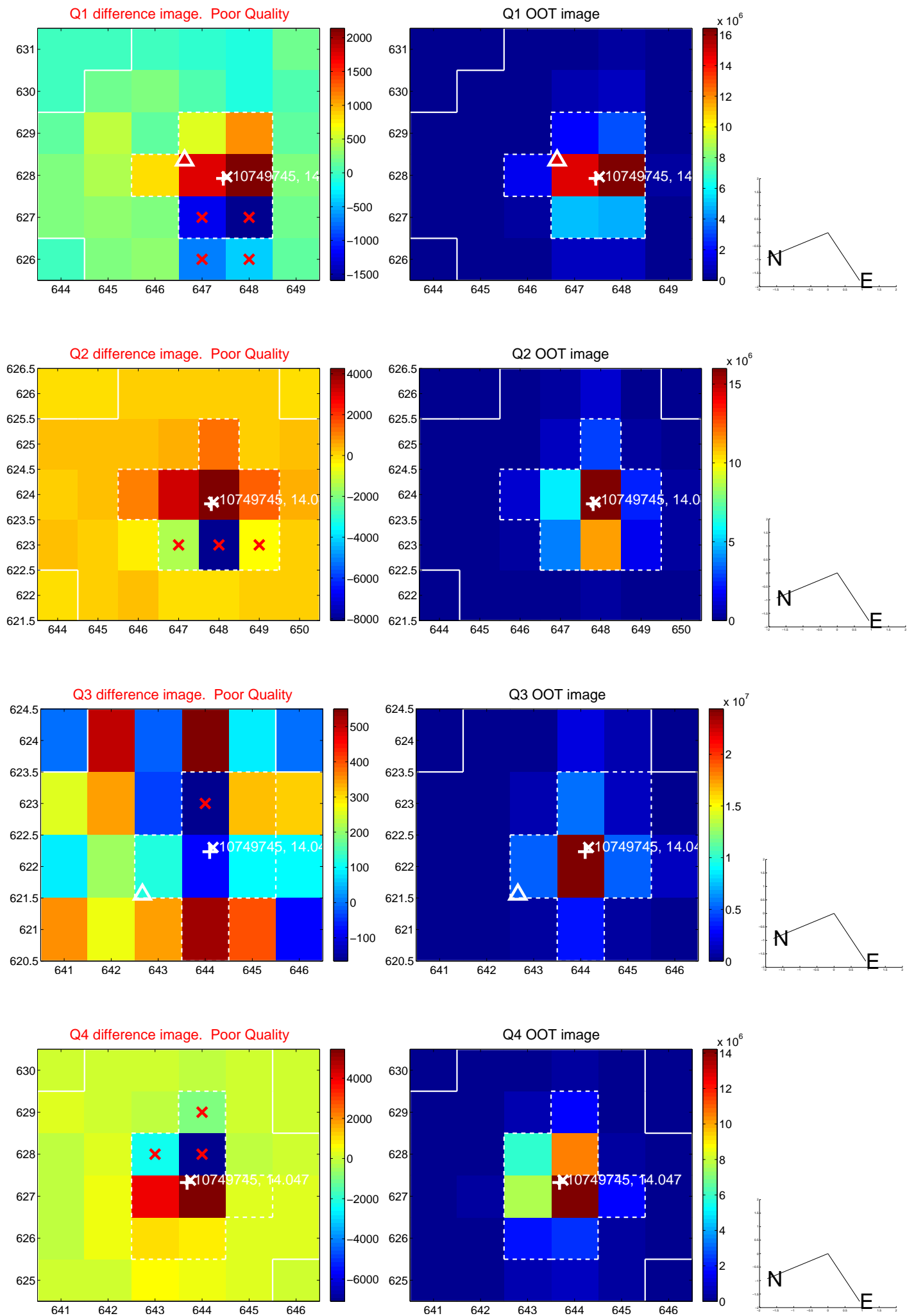


offset from photometric centroids

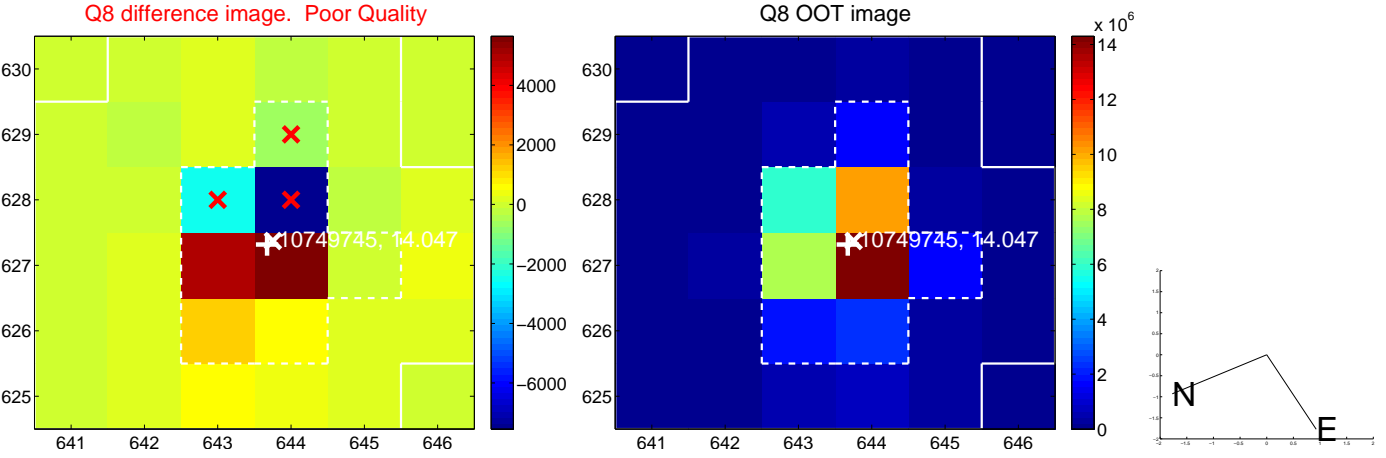
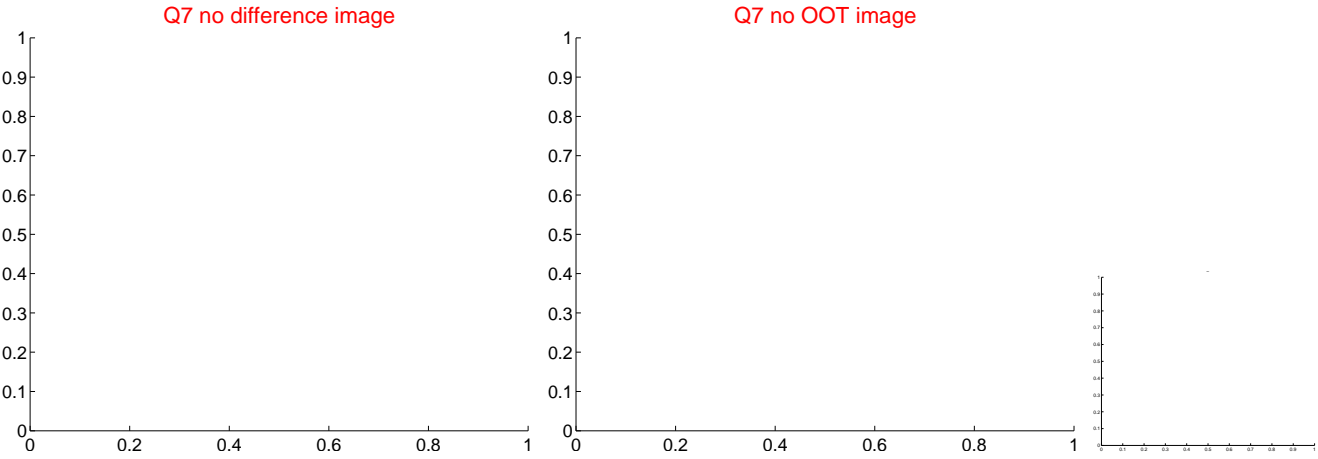
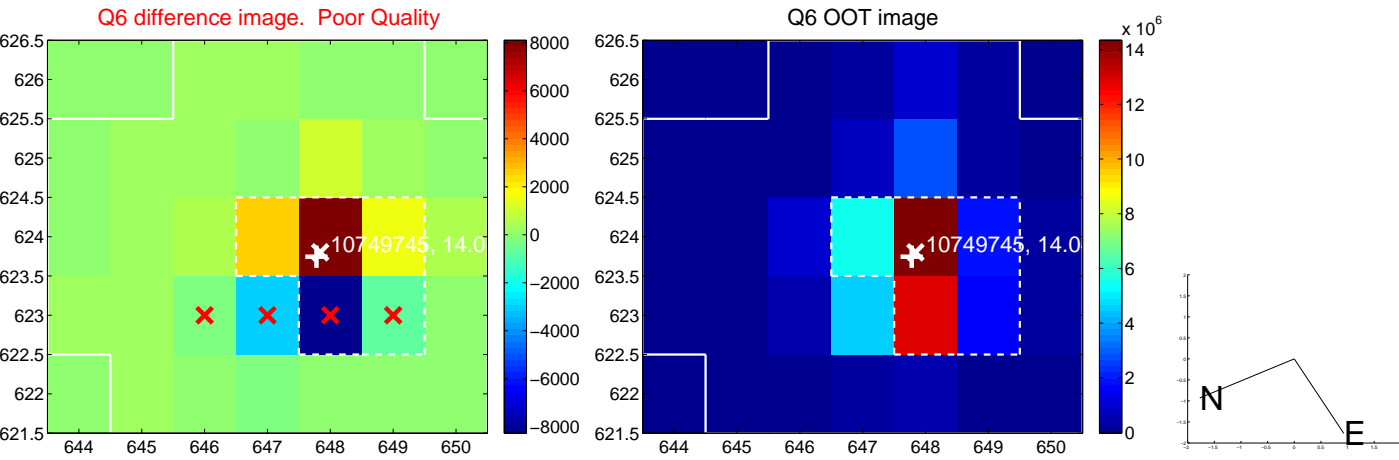
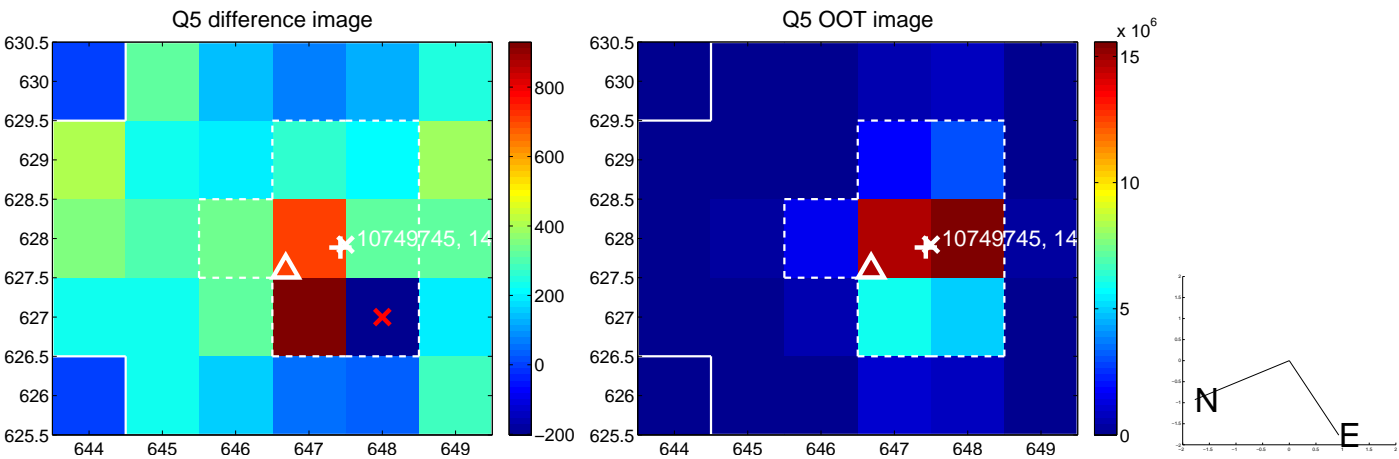


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

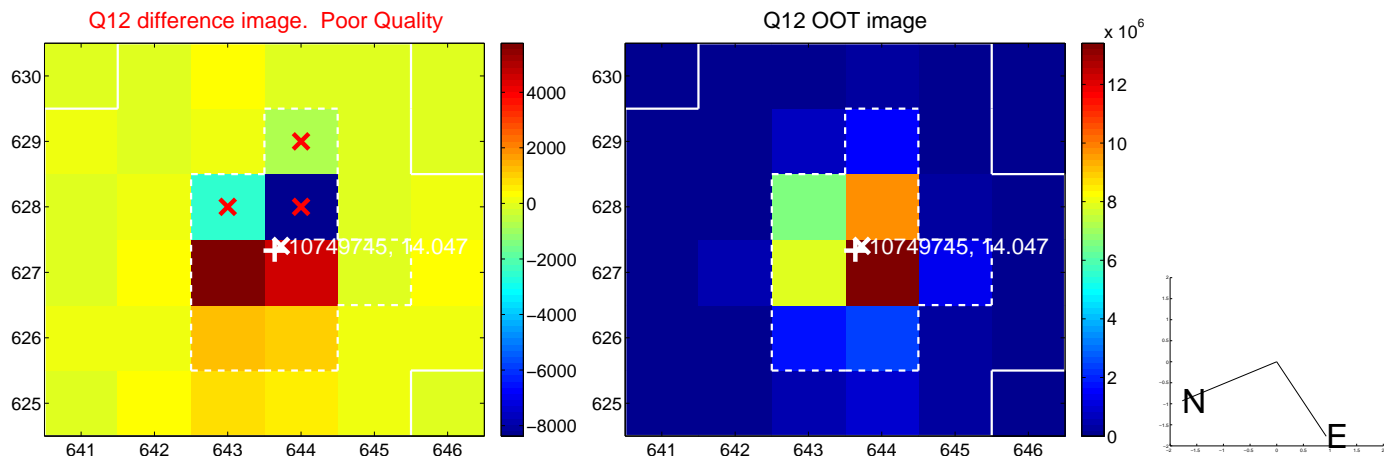
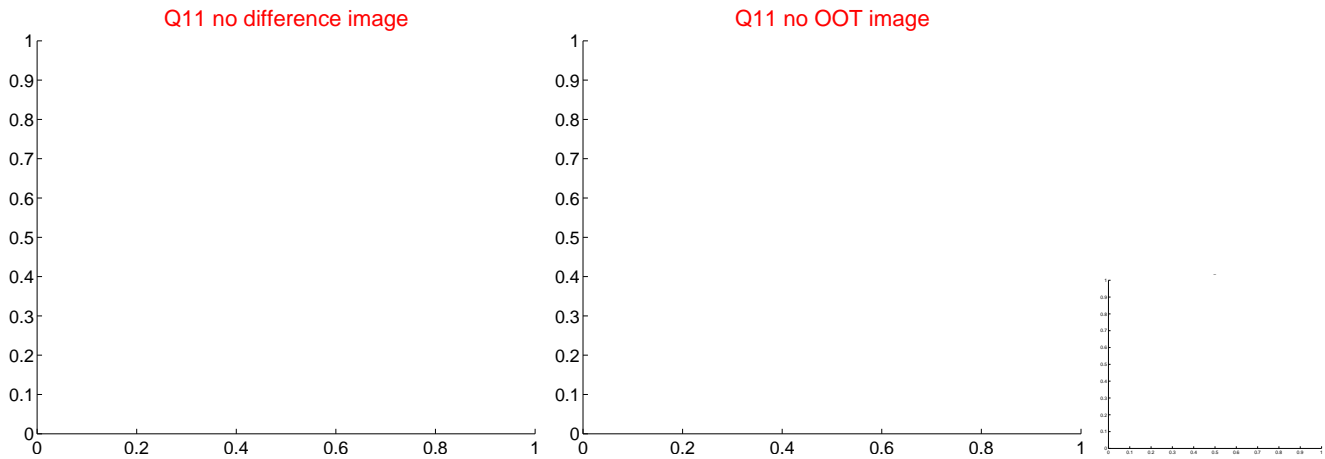
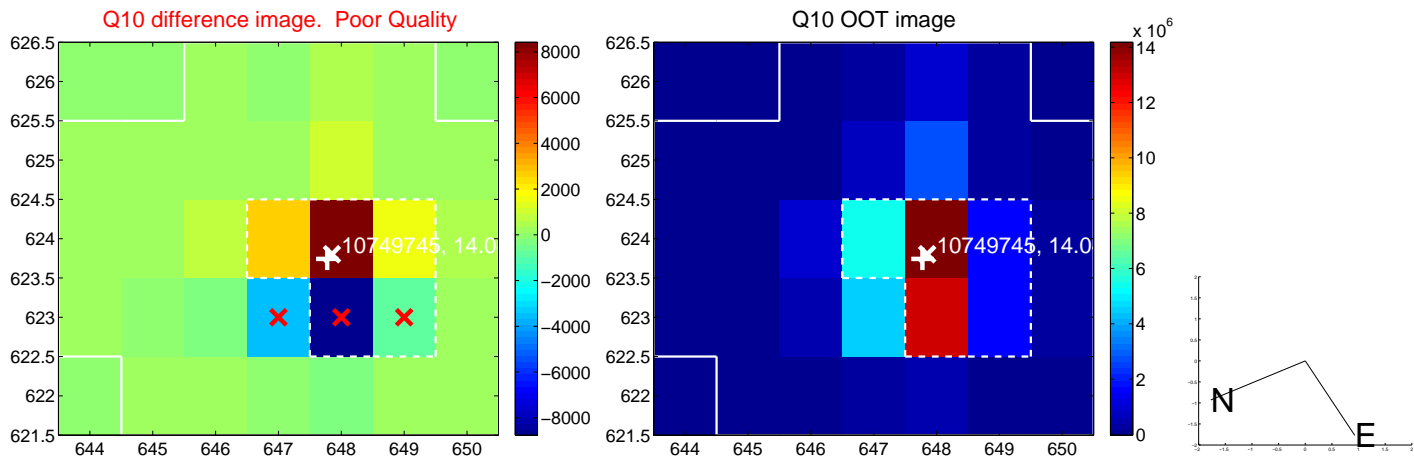
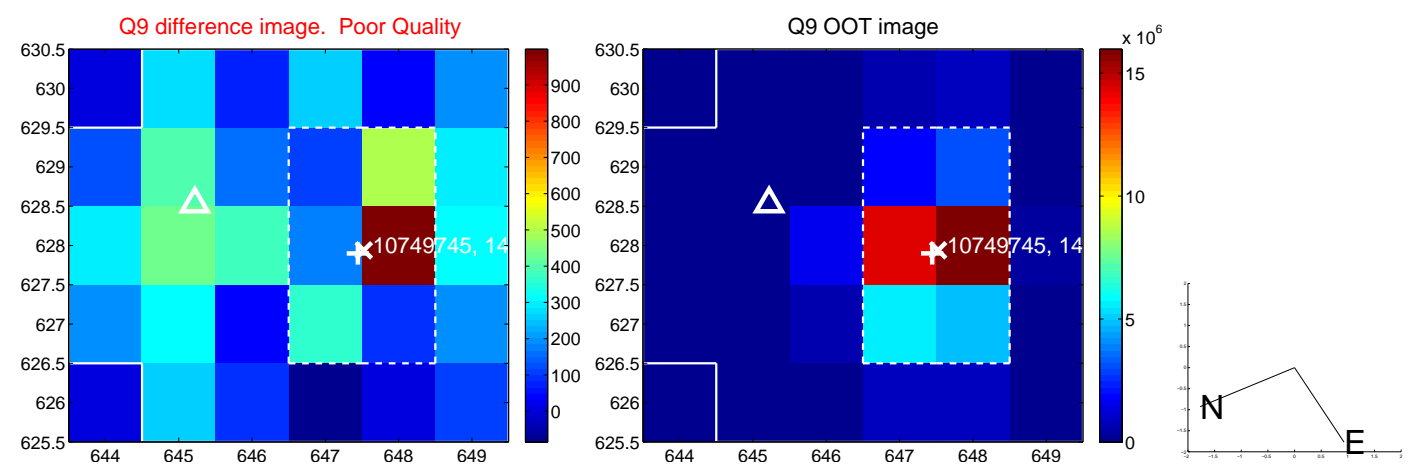


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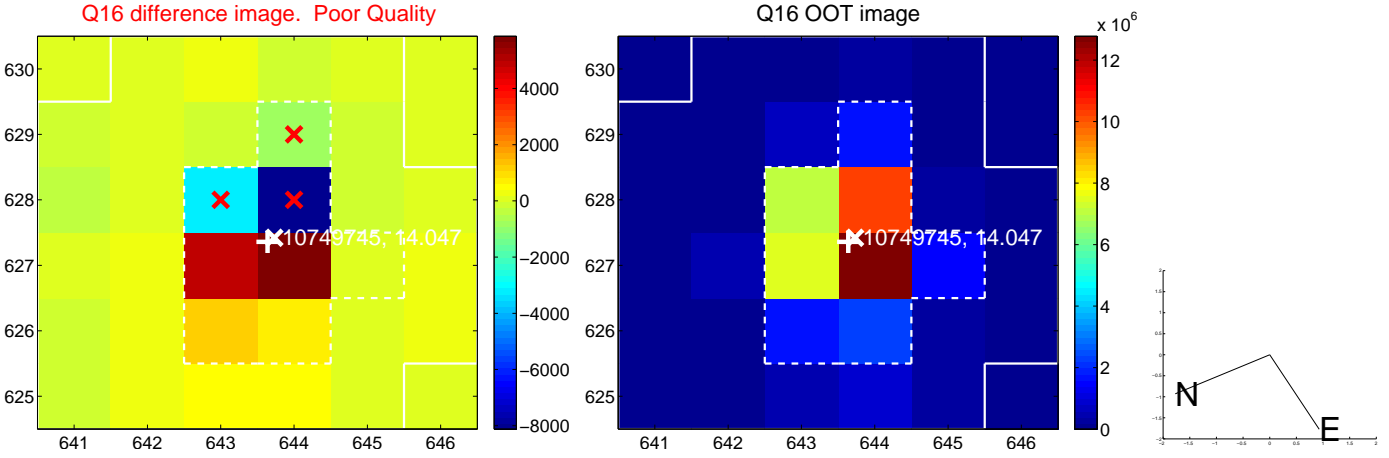
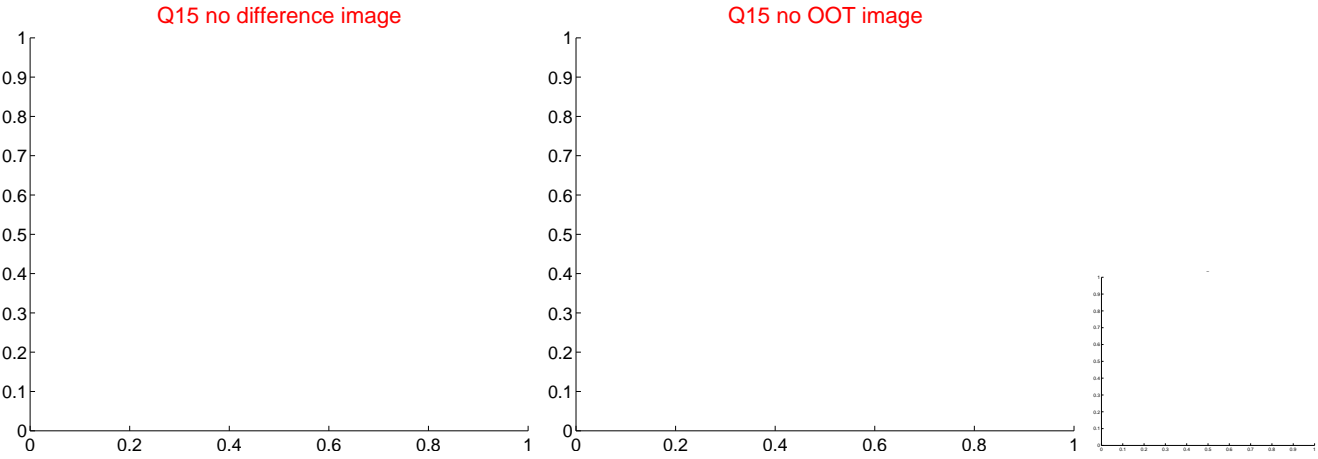
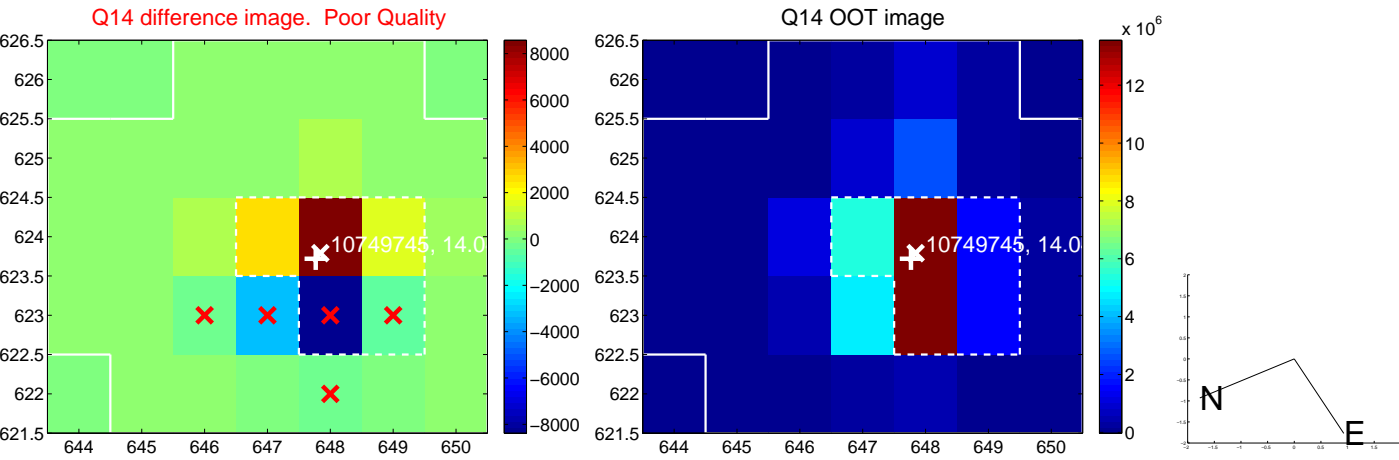
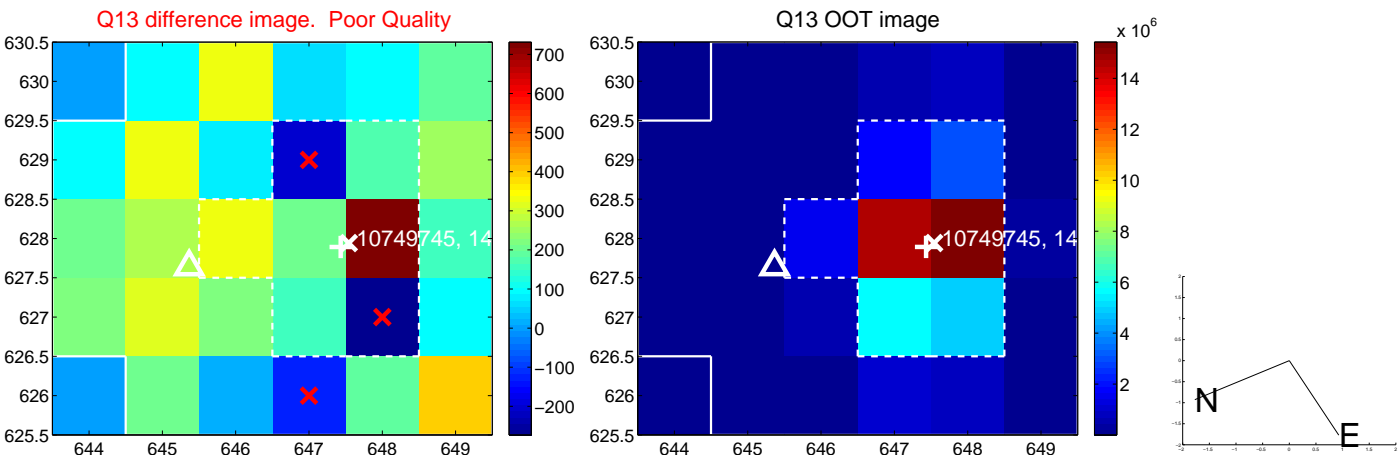




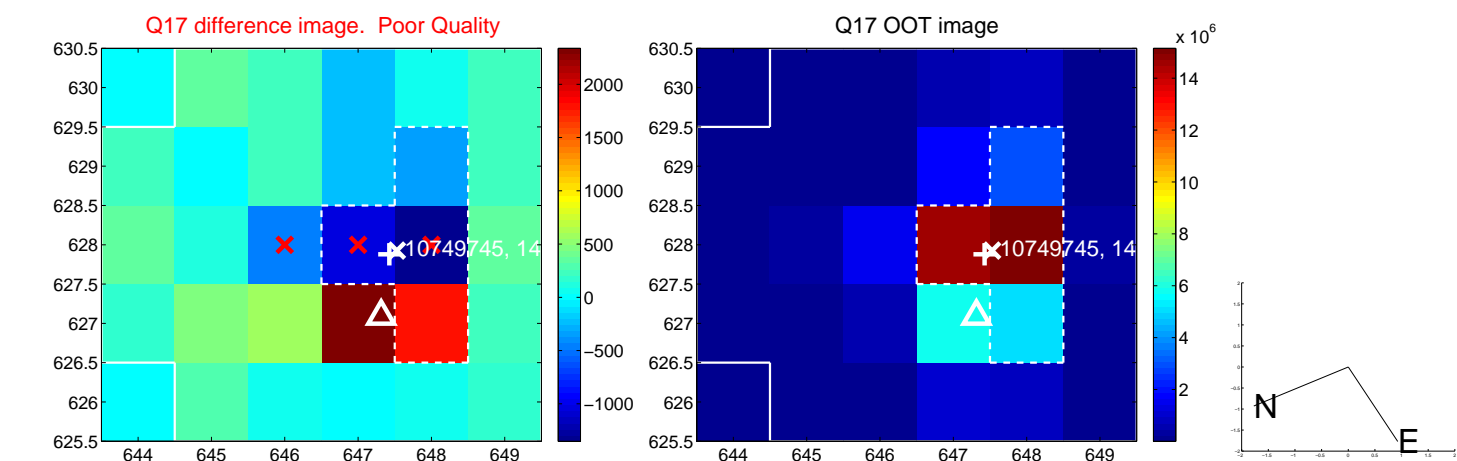
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



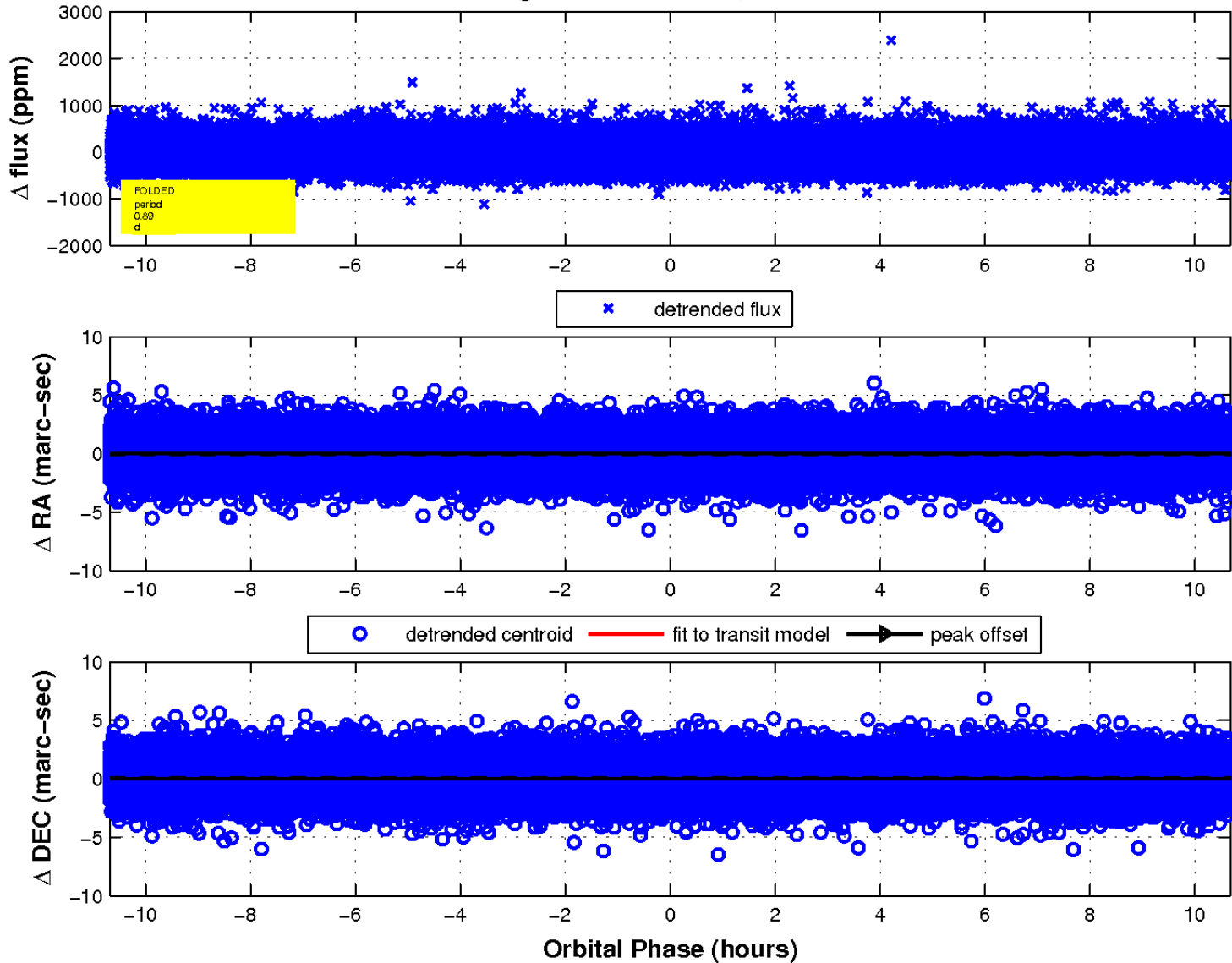
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

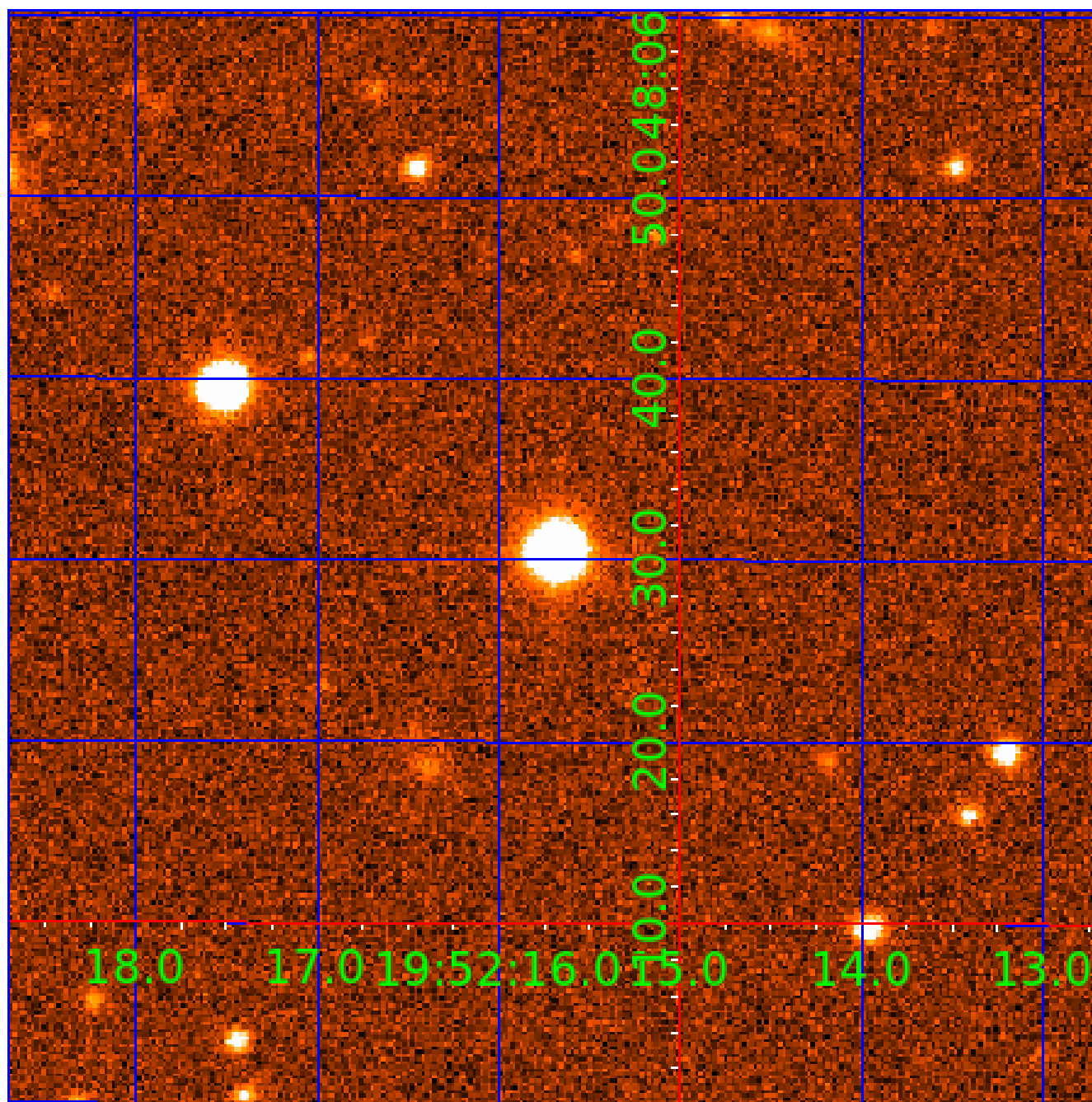


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination





# KIC 010749745

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010749745-01	OBS	No	0.890517	131.920858	25.2	6.630	7.7	10.3	0.80	5009	0.42	1314.44
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010749745-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010749745-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010749745-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

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

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

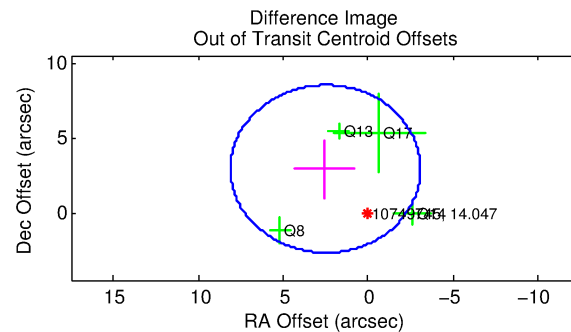
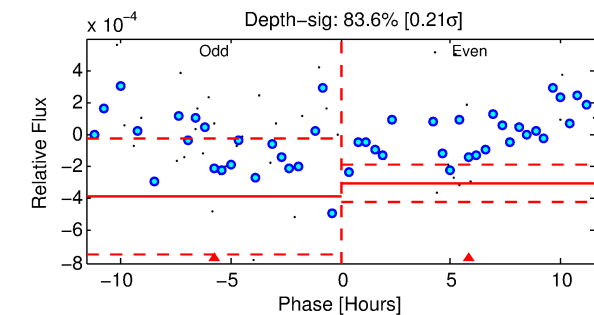
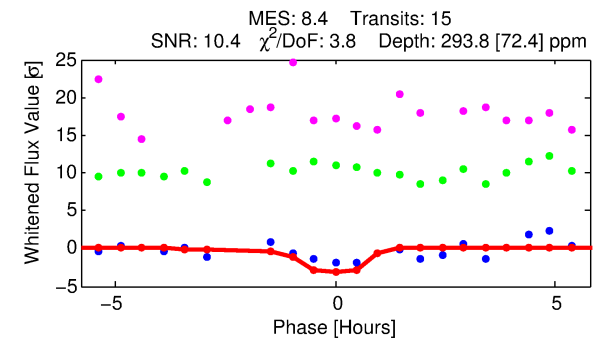
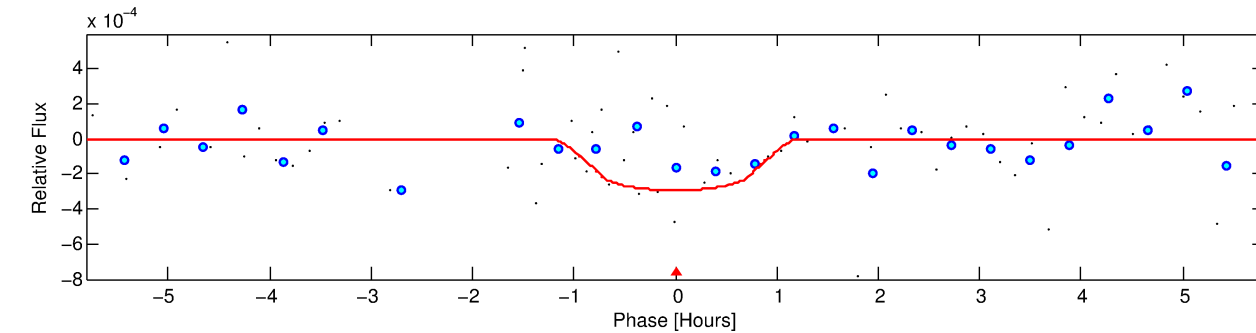
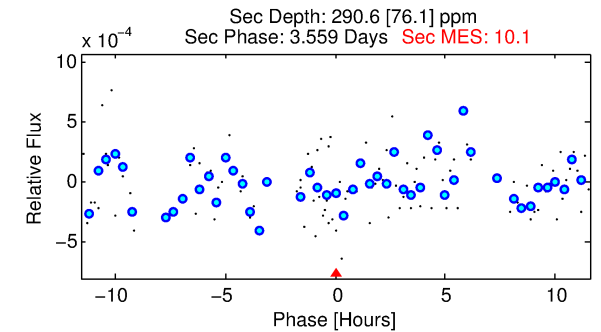
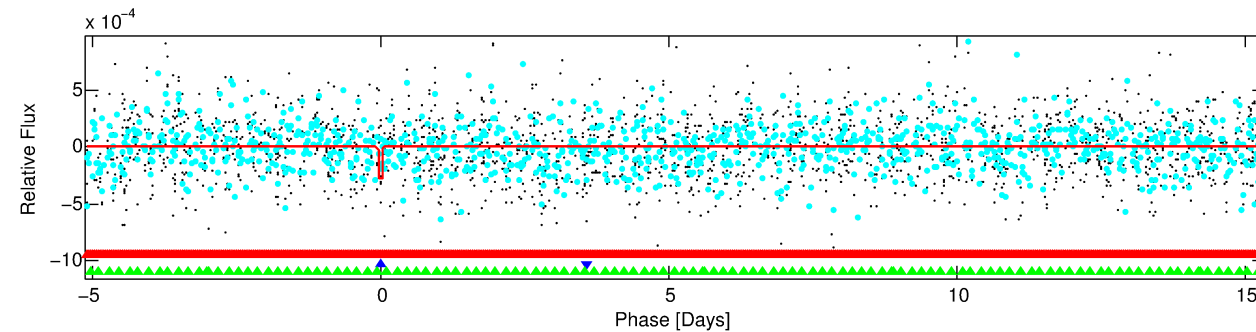
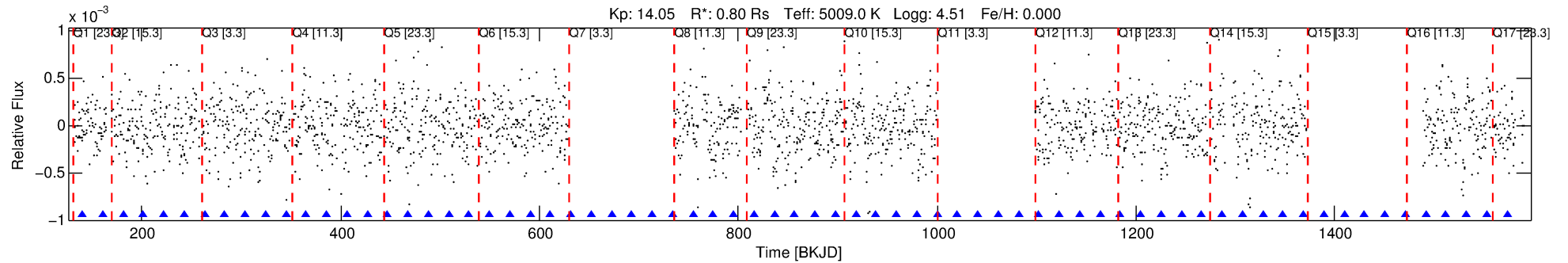
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010749745-02

No Significant Match Found

# DV One-Page Summary

KIC: 10749745 Candidate: 2 of 3 Period: 20.468 d



## DV Fit Results:

Period = 20.46815 [0.00672] d  
Epoch = 140.4489 [0.0306] BKJD  
Rp/R\* = 0.0170 [0.0884]  
a/R\* = 57.84 [1055.30]  
b = 0.72 [12.30]  
Seff = 20.11 [4.09]  
Teff = 540 [27] K  
Rp = 1.48 [7.71] Re  
a = 0.1338 [0.0138] AU  
Ag = 1310.22 [13677.11] [0.10 $\sigma$ ]  
Teffp = 5023 [13108] K [0.34 $\sigma$ ]

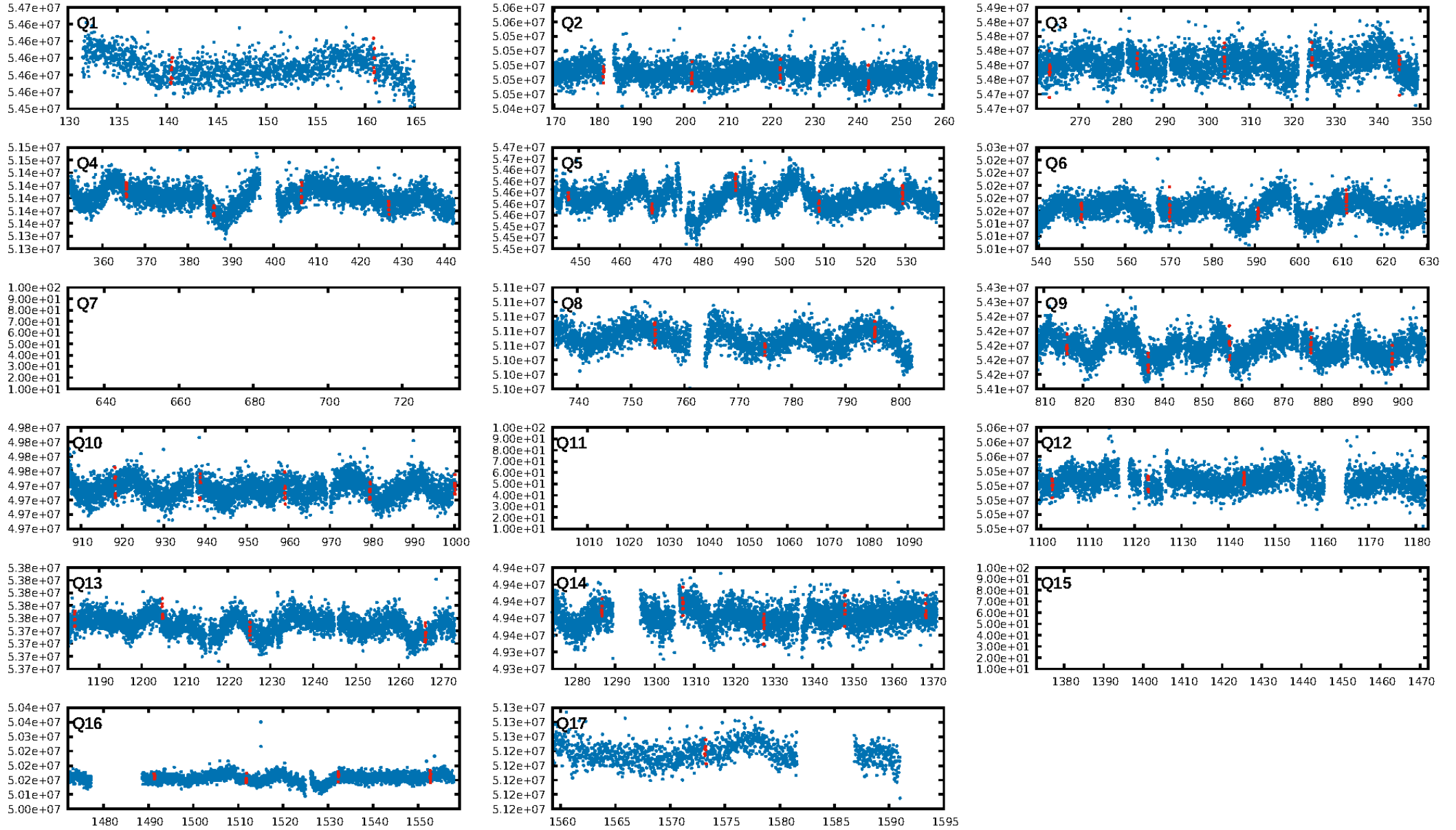
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [87.45 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 61.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.50e-07  
RollingBand-fgt: 1.00 [12/12]  
GhostDiagnostic-chr: 1.602  
Centroid-sig: 0.5%  
Centroid-so: 1.259 arcsec [1.36 $\sigma$ ]  
OotOffset-rm: 3.842 arcsec [2.06 $\sigma$ ]  
KicOffset-rm: 4.197 arcsec [2.22 $\sigma$ ]  
OotOffset-st: 1/0/1/2 [4]  
KicOffset-st: 1/0/1/2 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 0.29 [4/14]

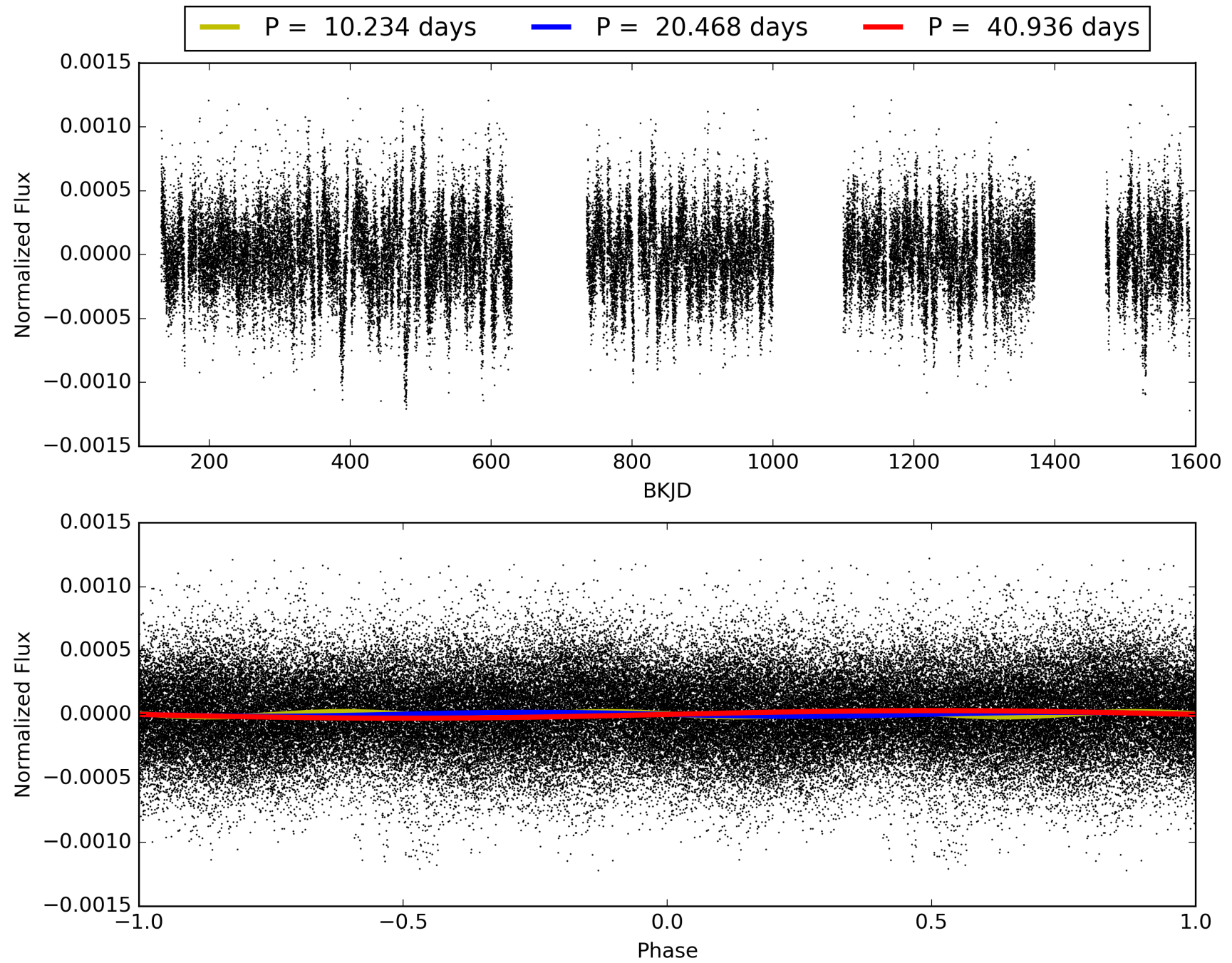
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:39:10 Z

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

# TCE 010749745-02, PDC Light Curves



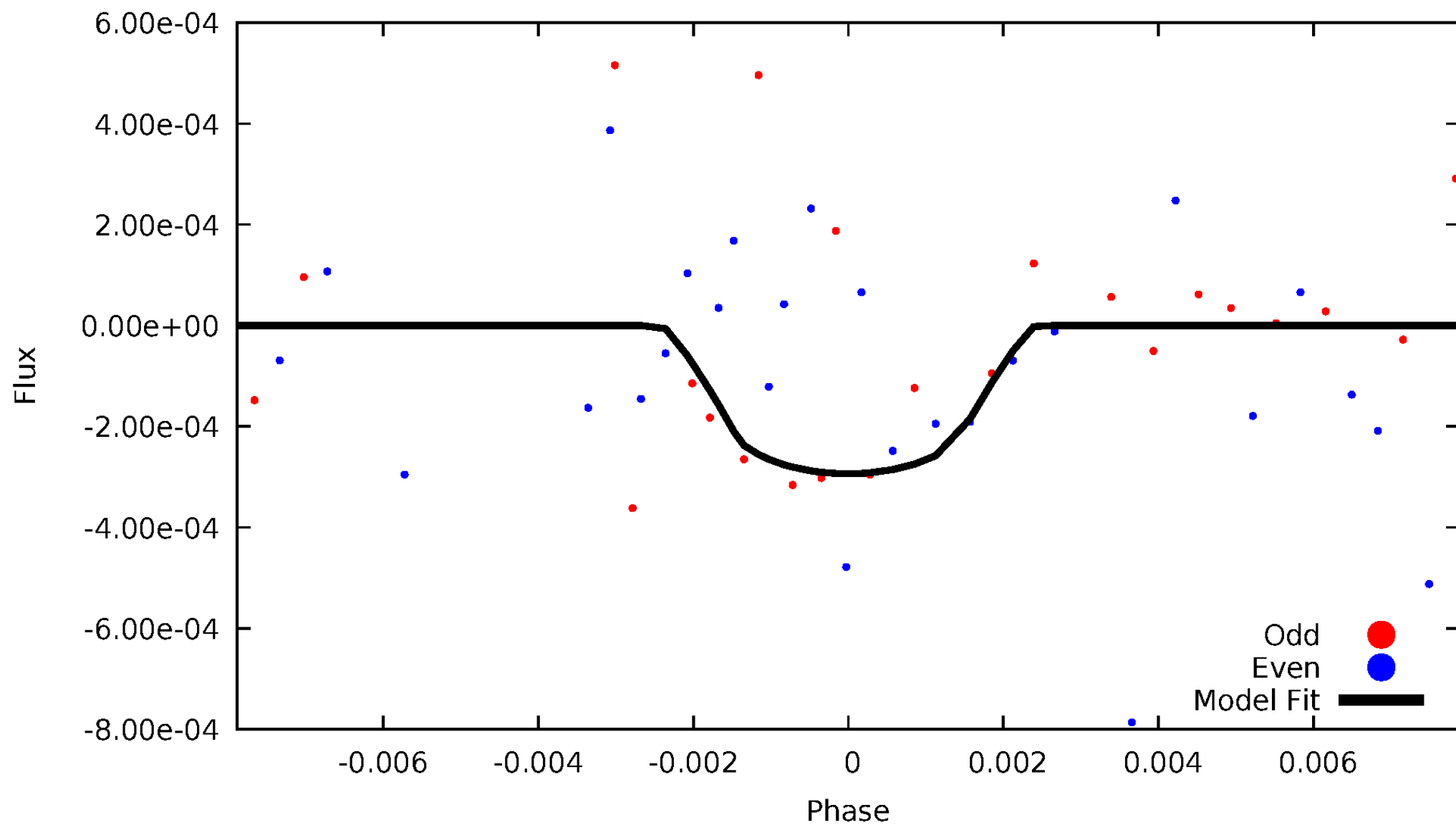
TCE 010749745-02





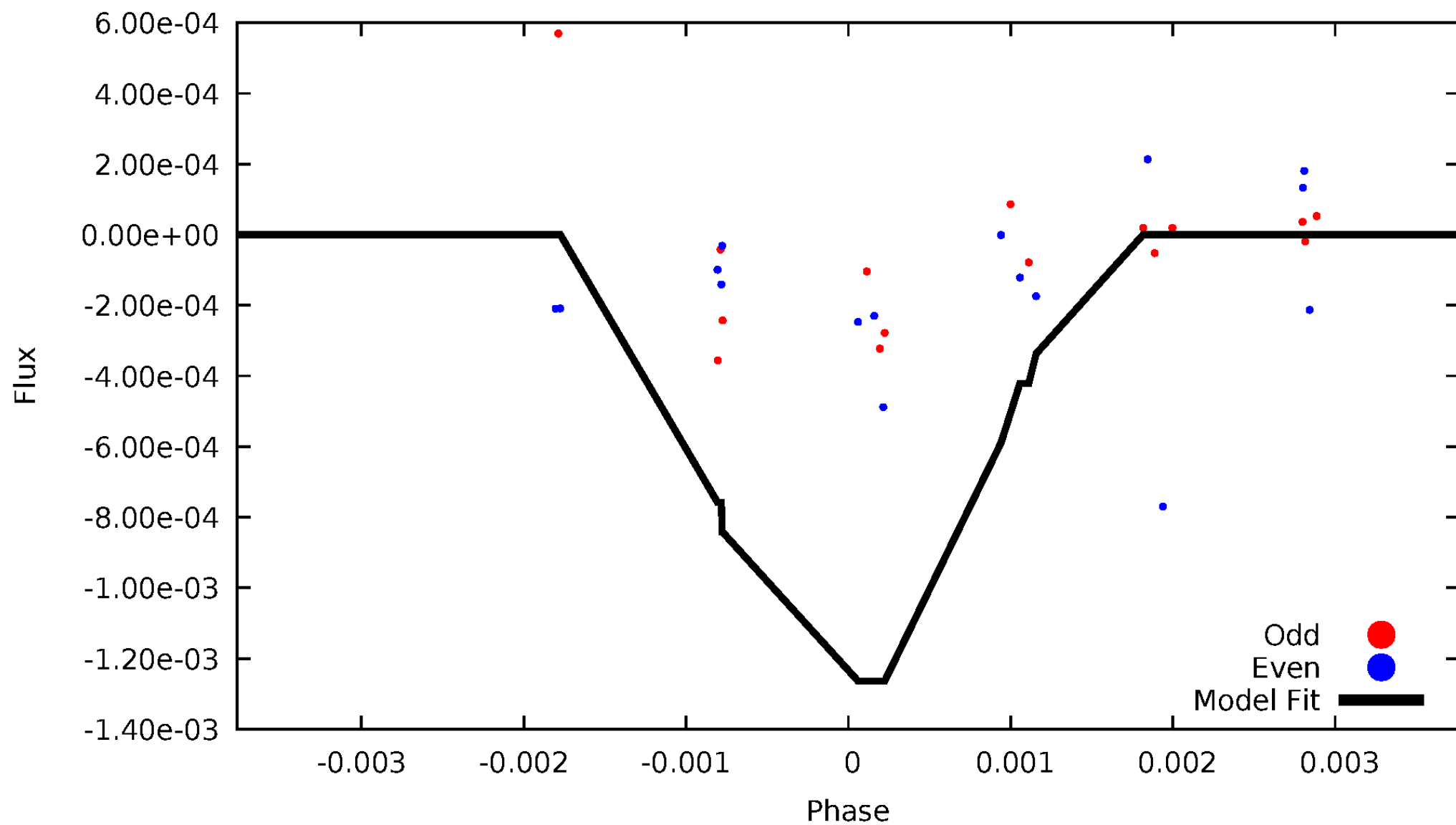
# DV Odd/Even

TCE 010749745-02



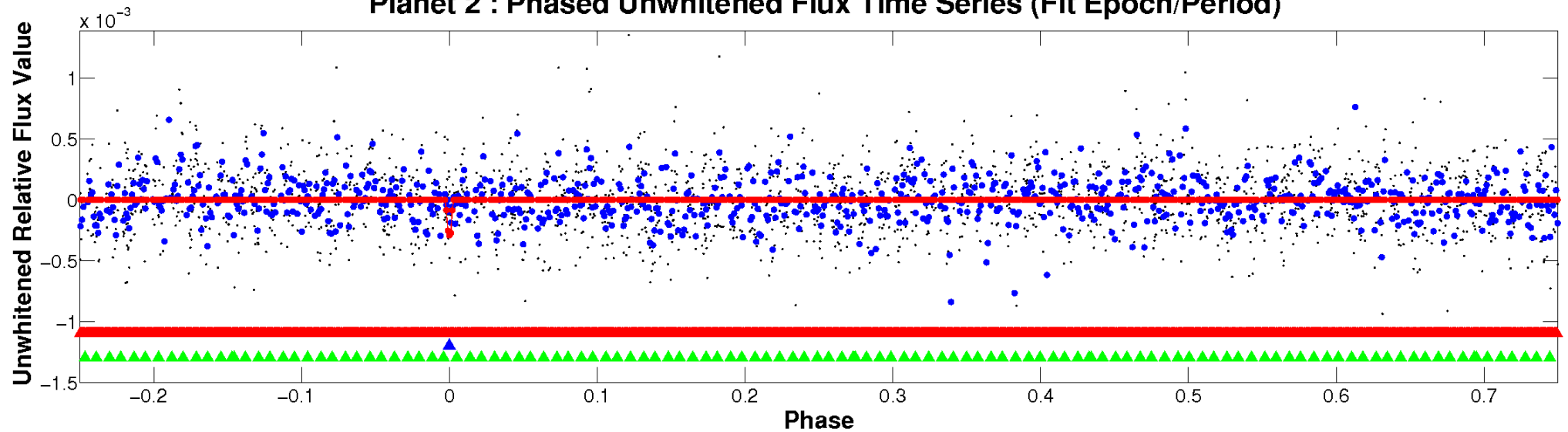
# ALT Odd/Even

TCE 010749745-02

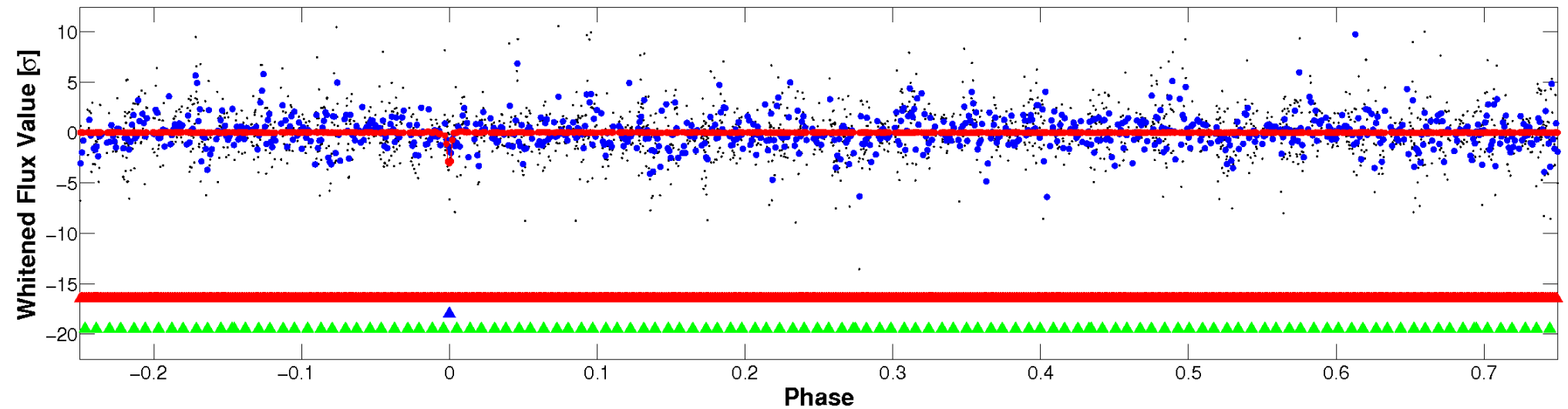


# Non-Whitened Vs. Whitened Light Curve

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

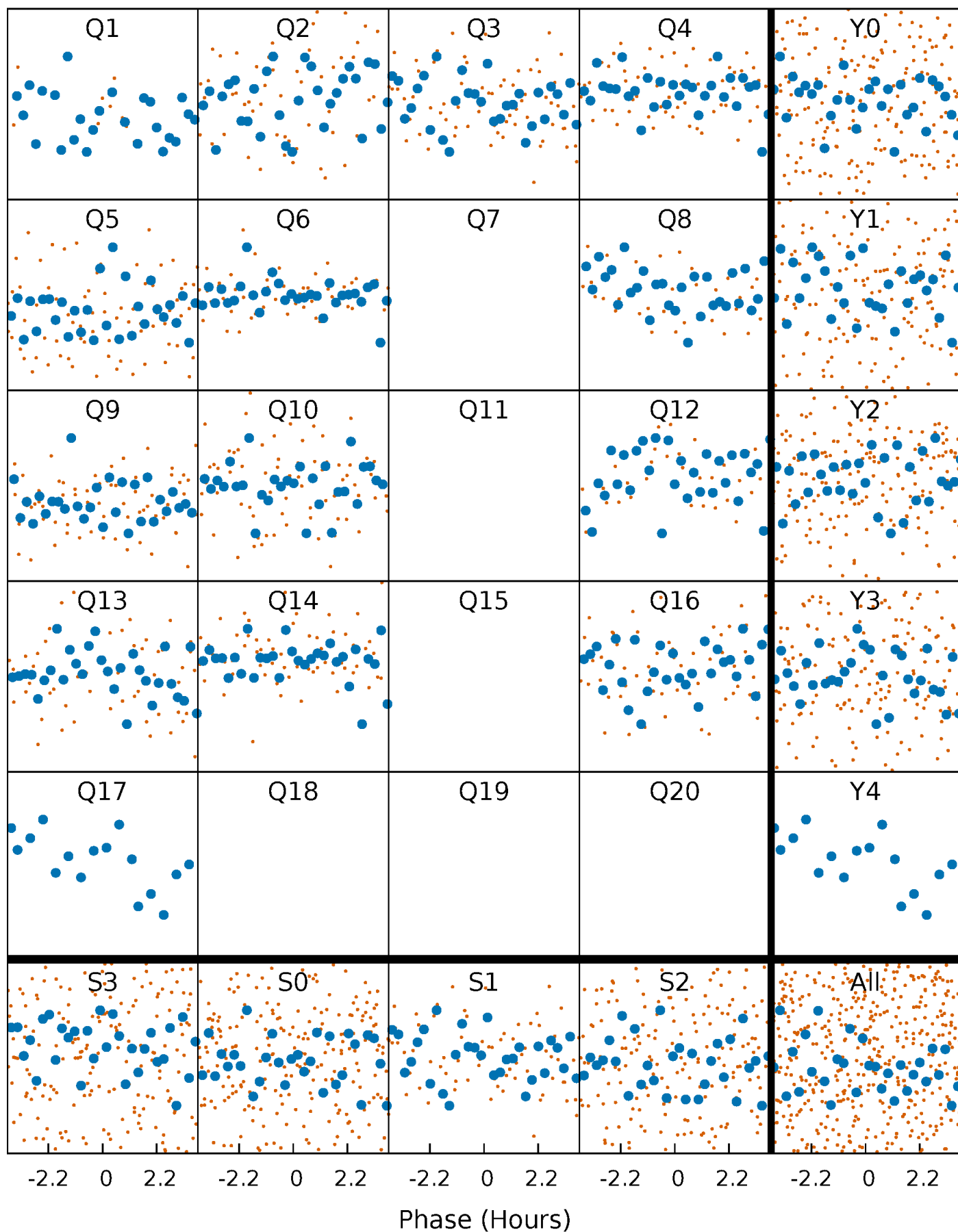


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



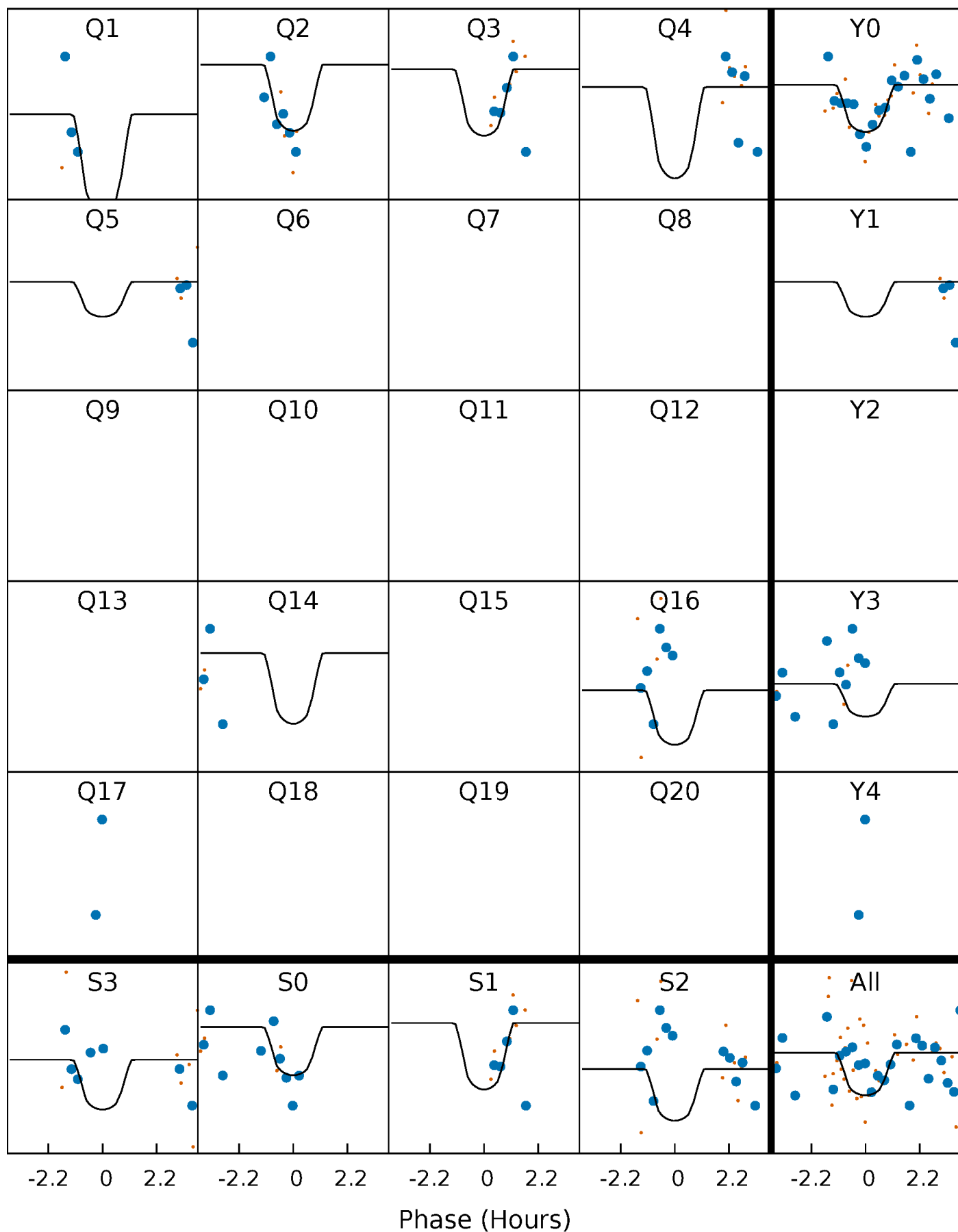
# PDC Quarter-Phased Transit Curves

TCE 010749745-02 P= 20.468153 Days  $T_0=140.448923$  (BKJD)



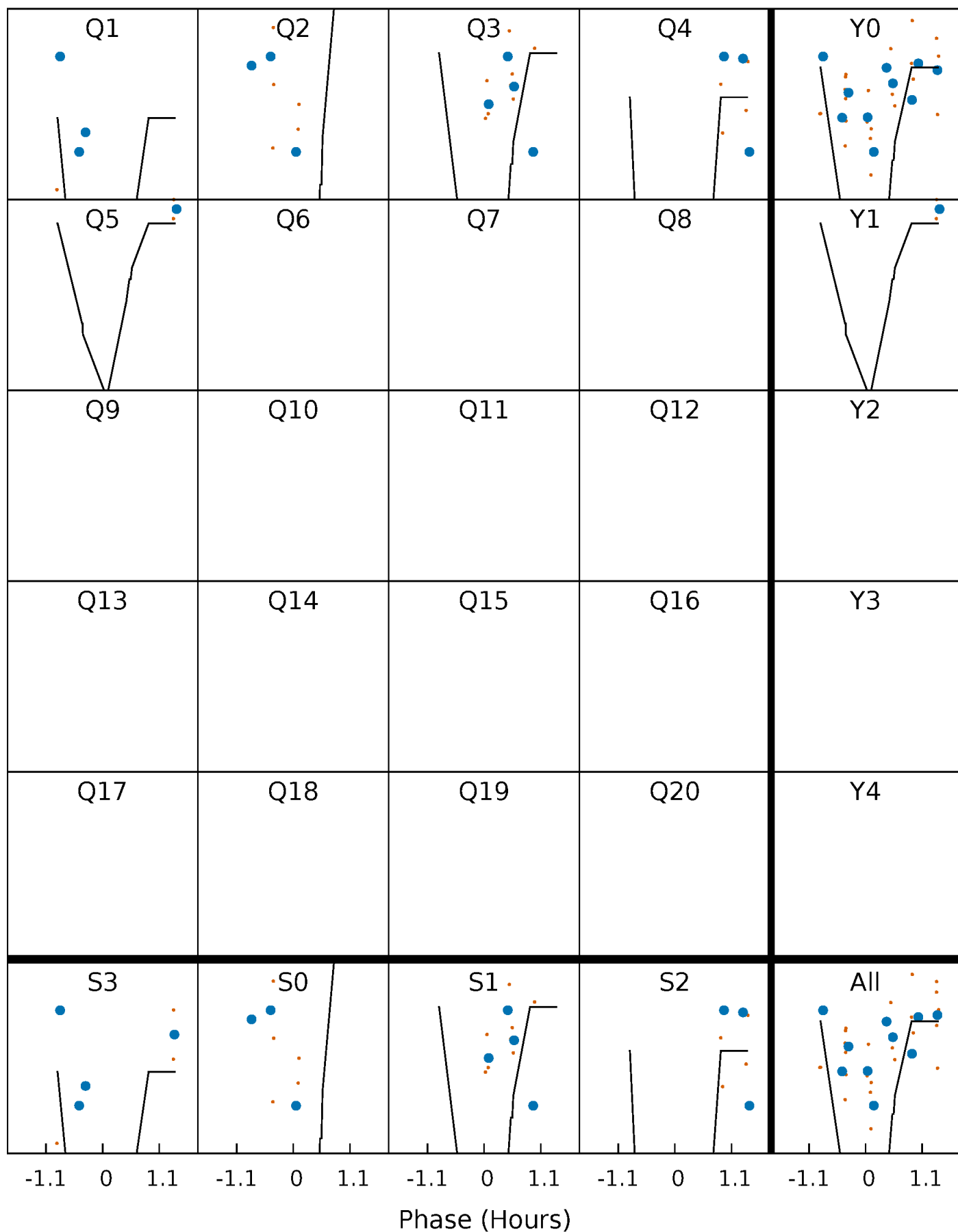
# DV Quarter-Phased Transit Curves

TCE 010749745-02     $P = 20.468153$  Days     $T_0 = 140.448923$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 010749745-02     $P = 20.474848$  Days     $T_0 = 140.417177$  (BKJD)

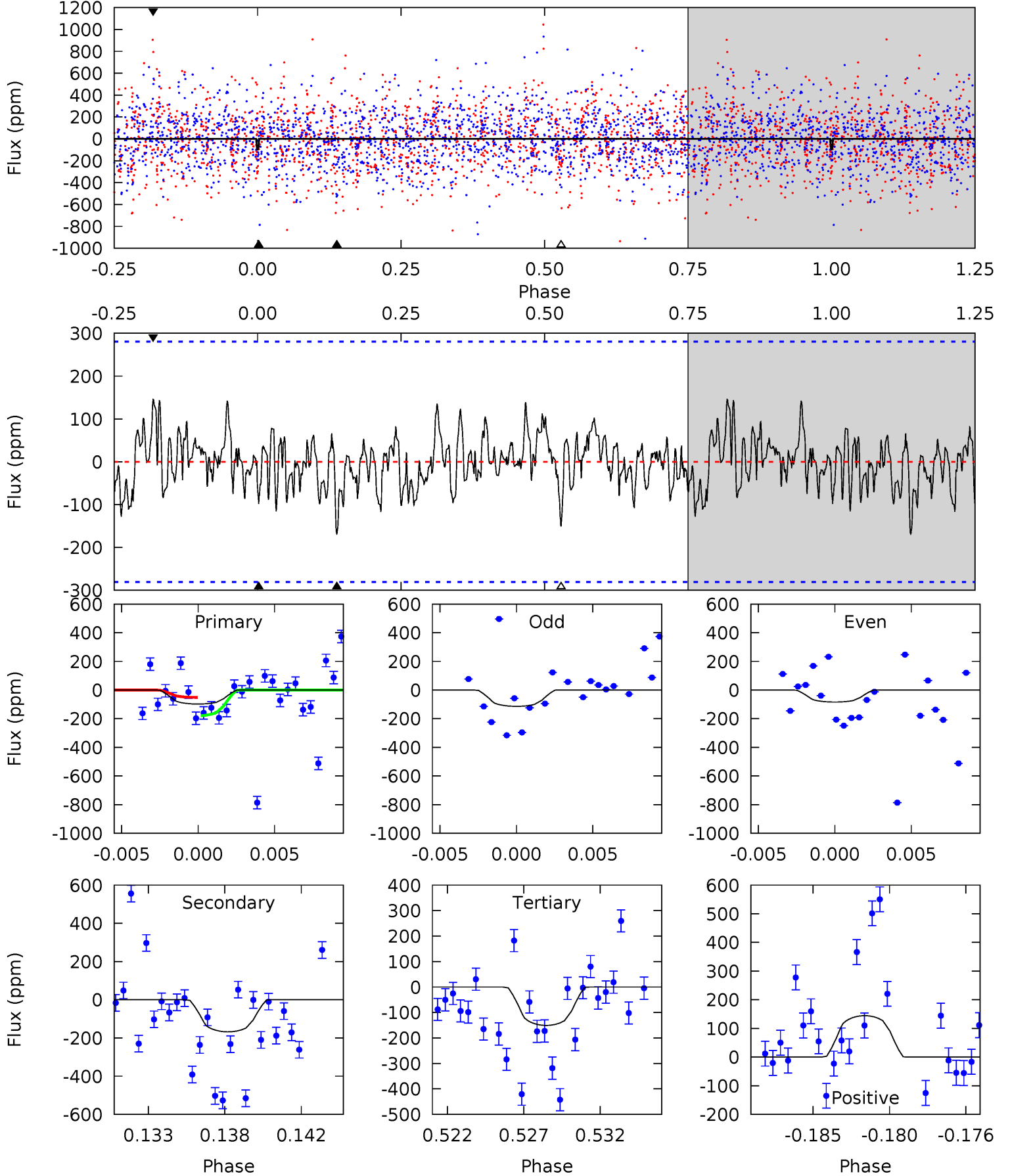




# DV Model-Shift Uniqueness Test

010749745-02, P = 20.468153 Days, E = 119.980770 Days

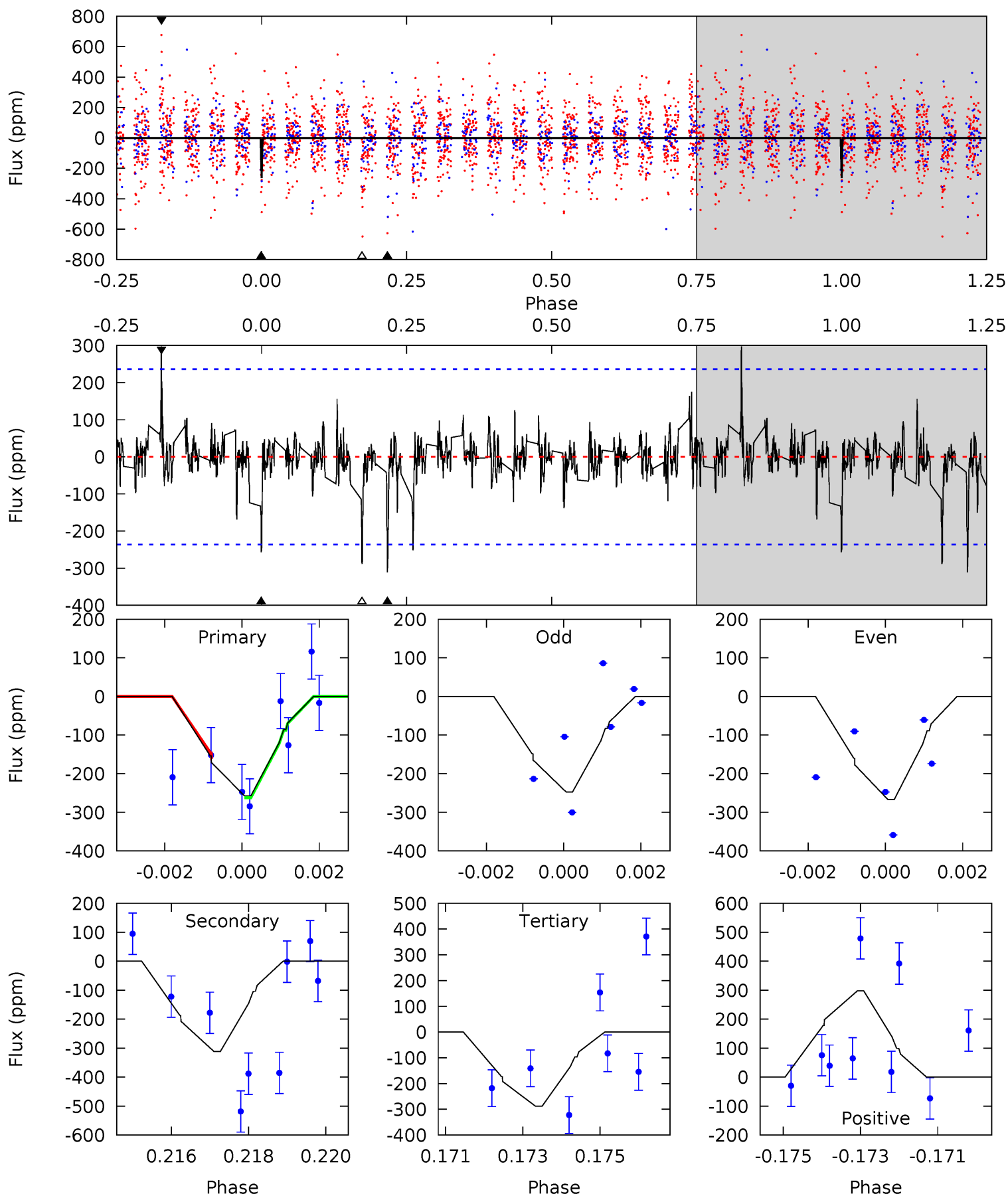
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.81	3.10	2.78	2.66	5.17	2.82	0.96	-0.97	-0.86	0.32	0.43	0.27	0.46	0.46	1.13



# Alt Model-Shift Uniqueness Test

010749745-02, P = 20.474848 Days, E = 119.942329 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
5.80	7.02	6.50	6.71	5.33	3.10	1.10	-0.70	-0.91	0.52	0.31	0.22	1.04	0.49	1.03



### Stellar Parameters For KIC 010749745

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5009^{+151}_{-136}$	$4.515^{+0.088}_{-0.096}$	$0.000^{+0.300}_{-0.300}$	$0.799^{+0.078}_{-0.086}$	$0.763^{+0.087}_{-0.055}$	$2.106^{+0.711}_{-0.486}$
	+3%/-3%	+2%/-2%	+inf%/-inf%	+10%/-11%	+11%/-7%	+34%/-23%
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 010749745-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-168 \pm 54$	$5.70^{+5.93}_{-4.02}$	$755^{+33}_{-31}$	$2880^{+1367}_{-486}$	$48^{+448}_{-37}$
Alt.	$-311 \pm 44$	$6.34^{+6.08}_{-4.38}$	$755^{+29}_{-31}$	$3070^{+1448}_{-518}$	$77^{+718}_{-58}$

$T_{max}$  = 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

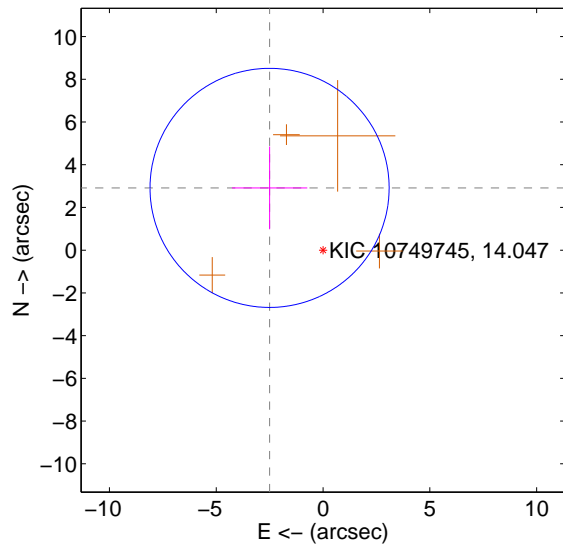
Supplemental centroid analysis for 010749745-02. Kepler magnitude: 14.05. Transit SNR 10.42

There are 0 quarters with good PRF difference image offsets

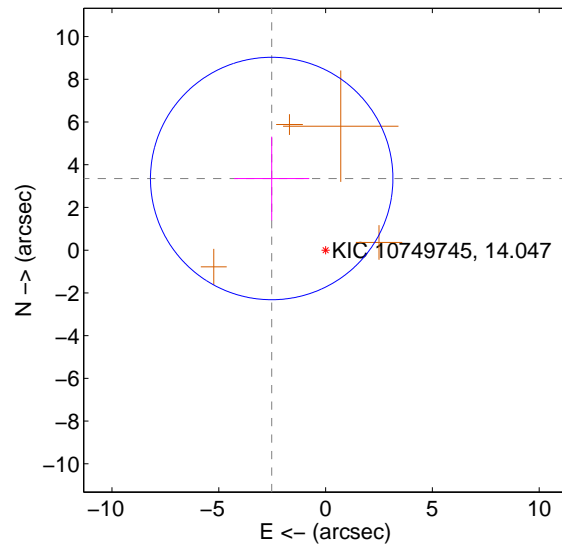
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.842 \pm 1.865$	2.06	$2.502 \pm 1.764$	$2.915 \pm 1.936$
PRF-fit source offset from KIC position	$4.197 \pm 1.891$	2.22	$2.522 \pm 1.760$	$3.355 \pm 1.962$
photometric centroid source offset	$1.26 \pm 0.92$	1.36	$-0.54 \pm 0.93$	$-1.14 \pm 0.92$

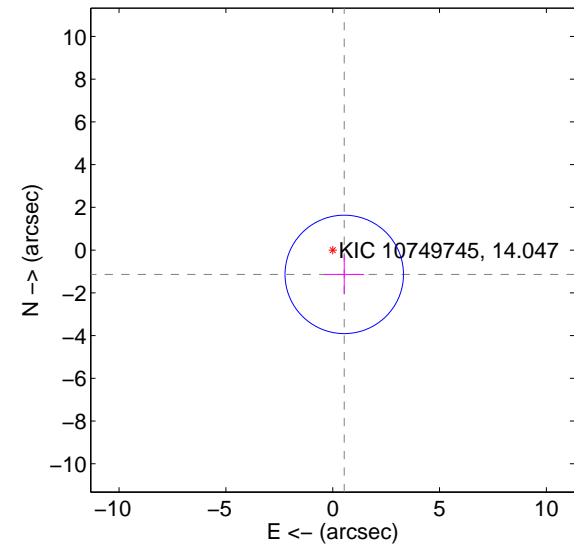
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

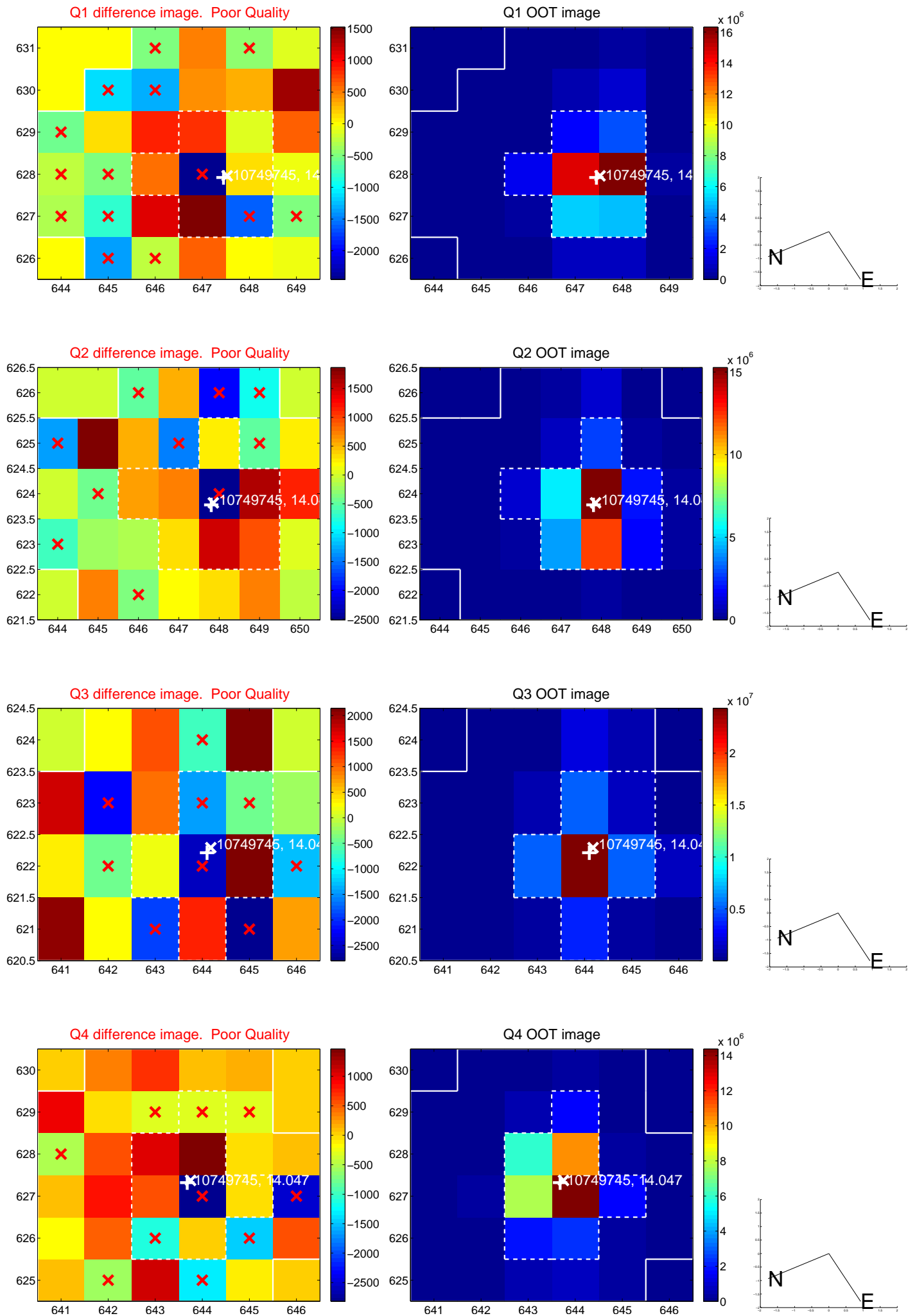


offset from photometric centroids

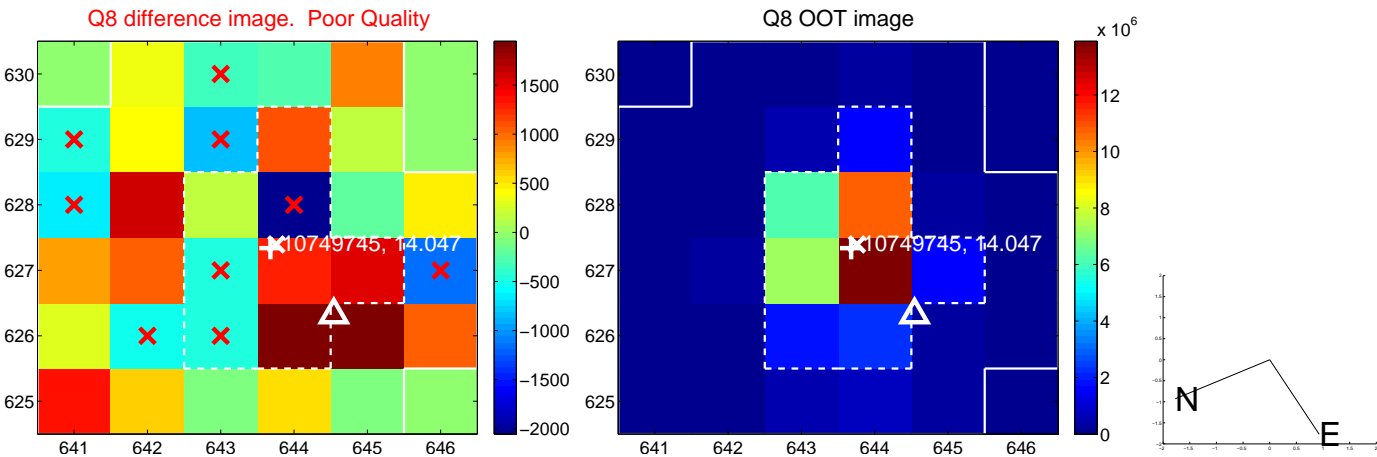
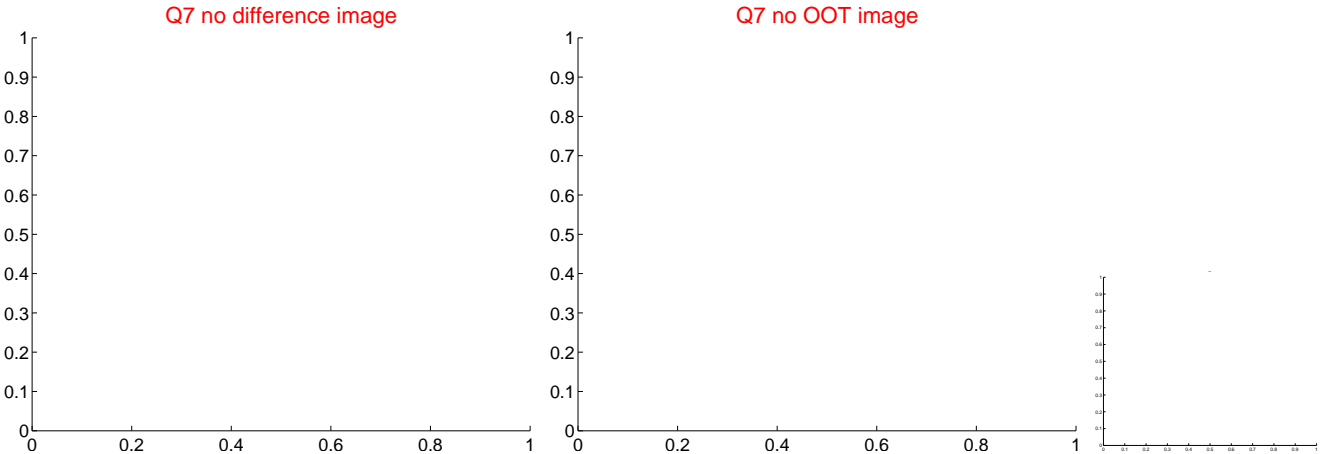
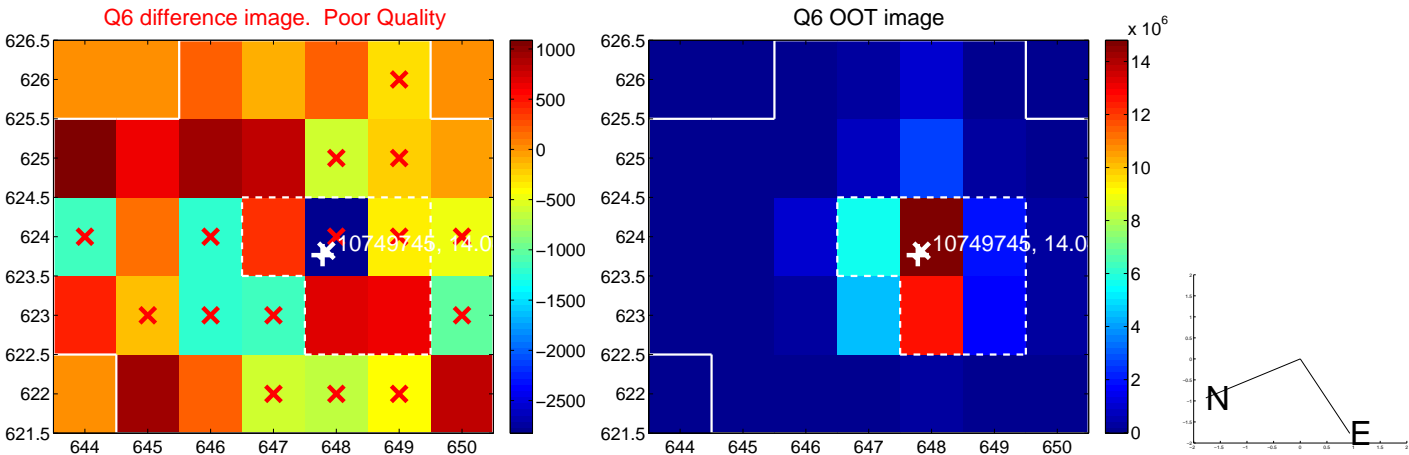
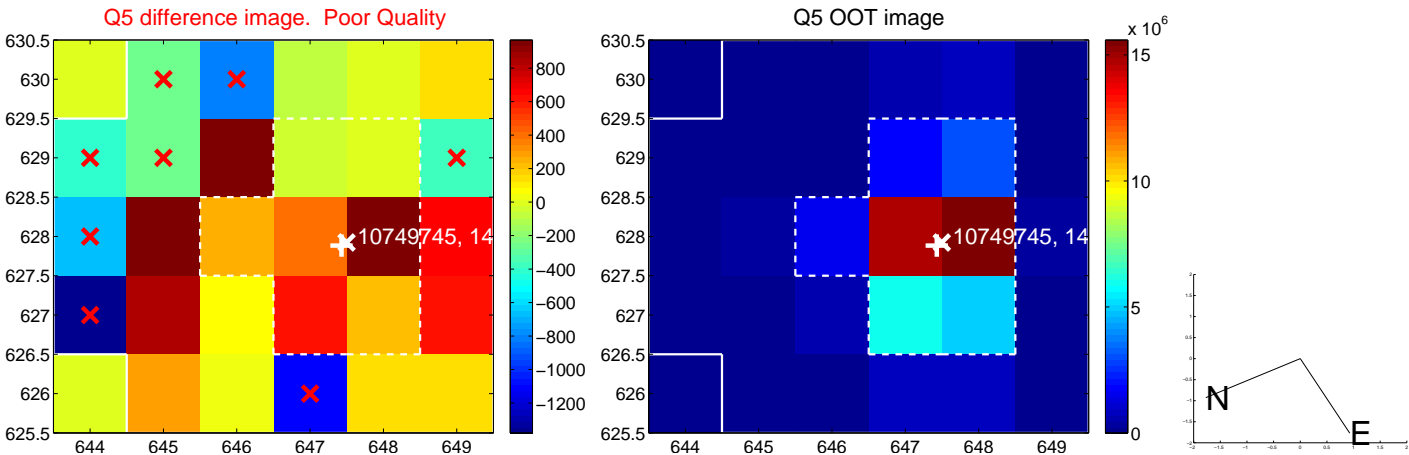


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

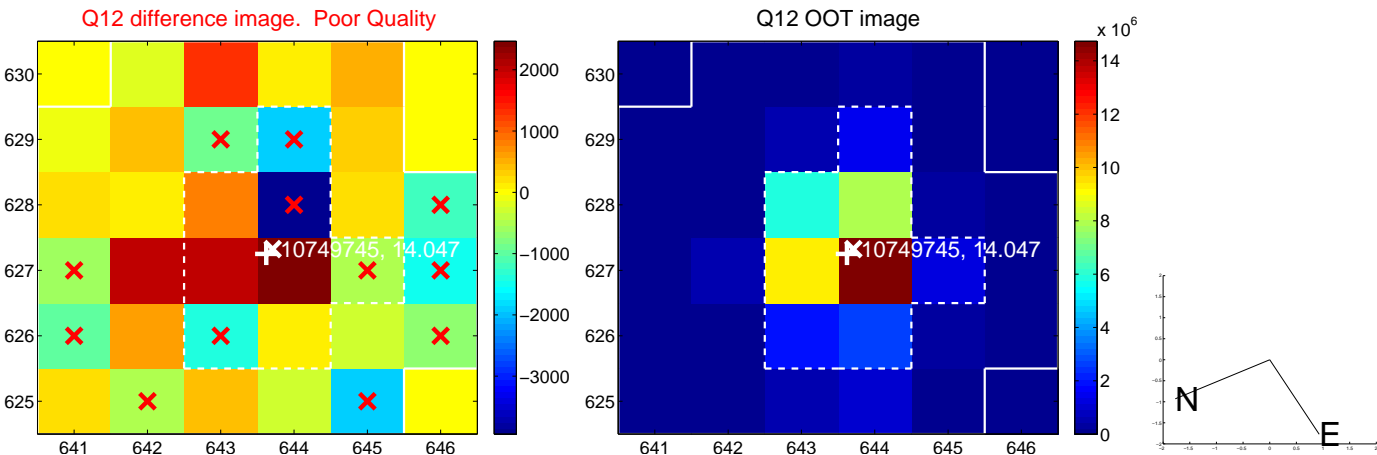
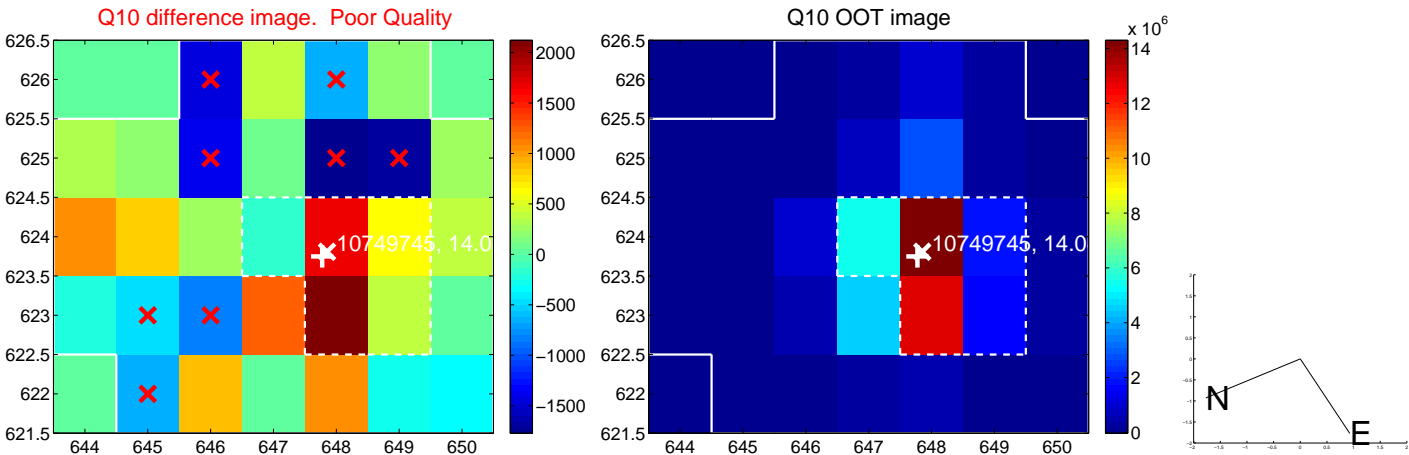
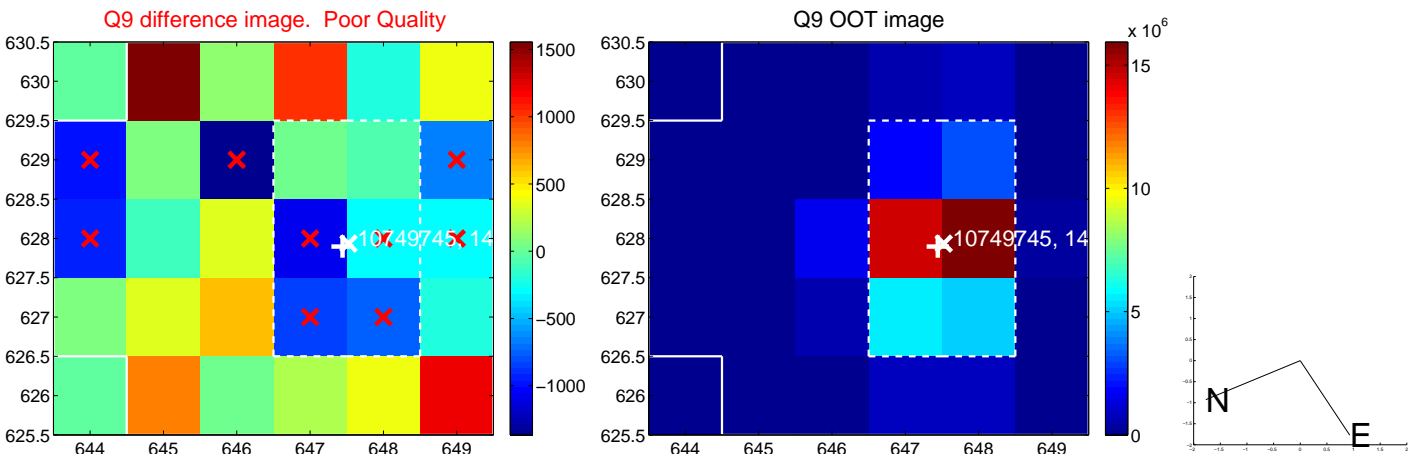


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

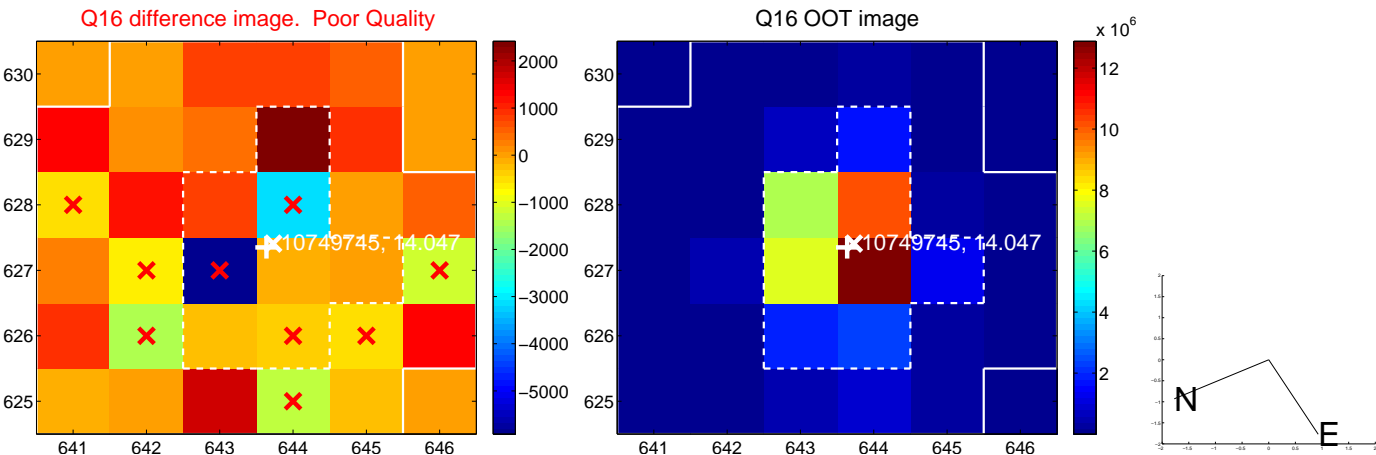
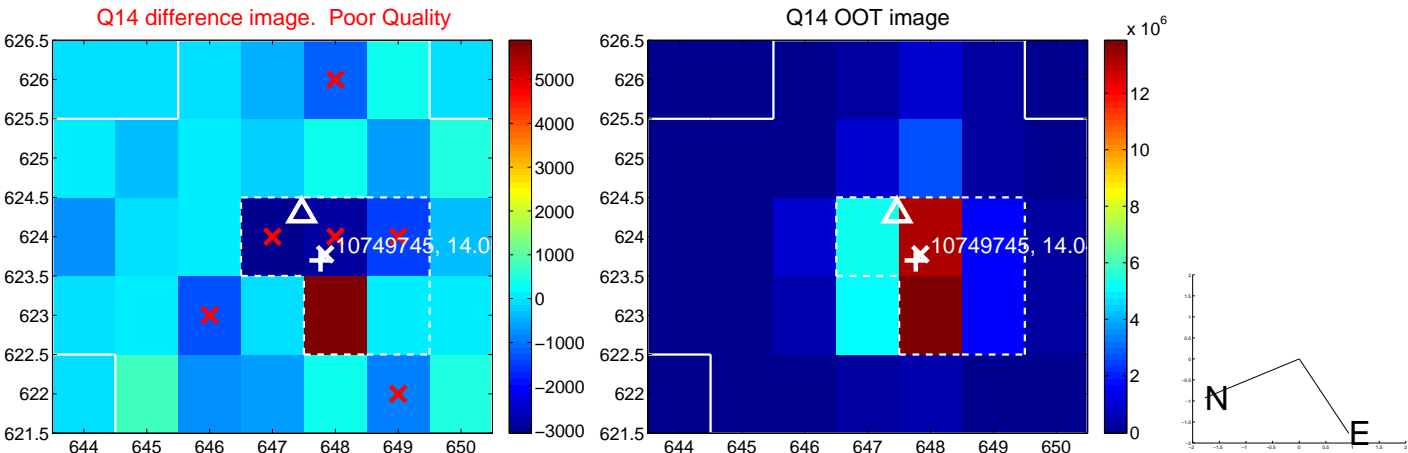
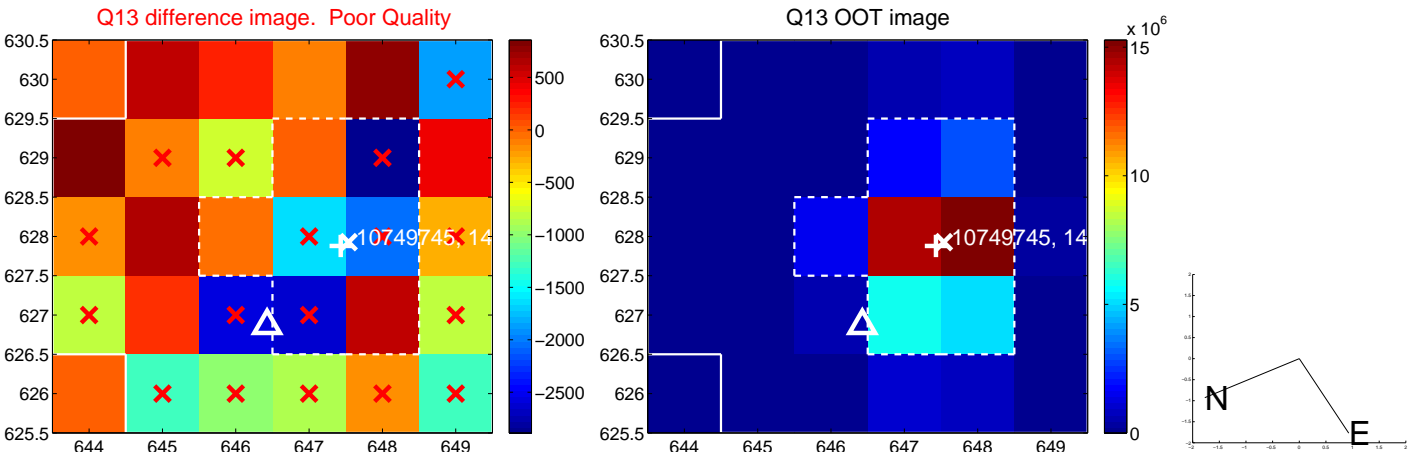




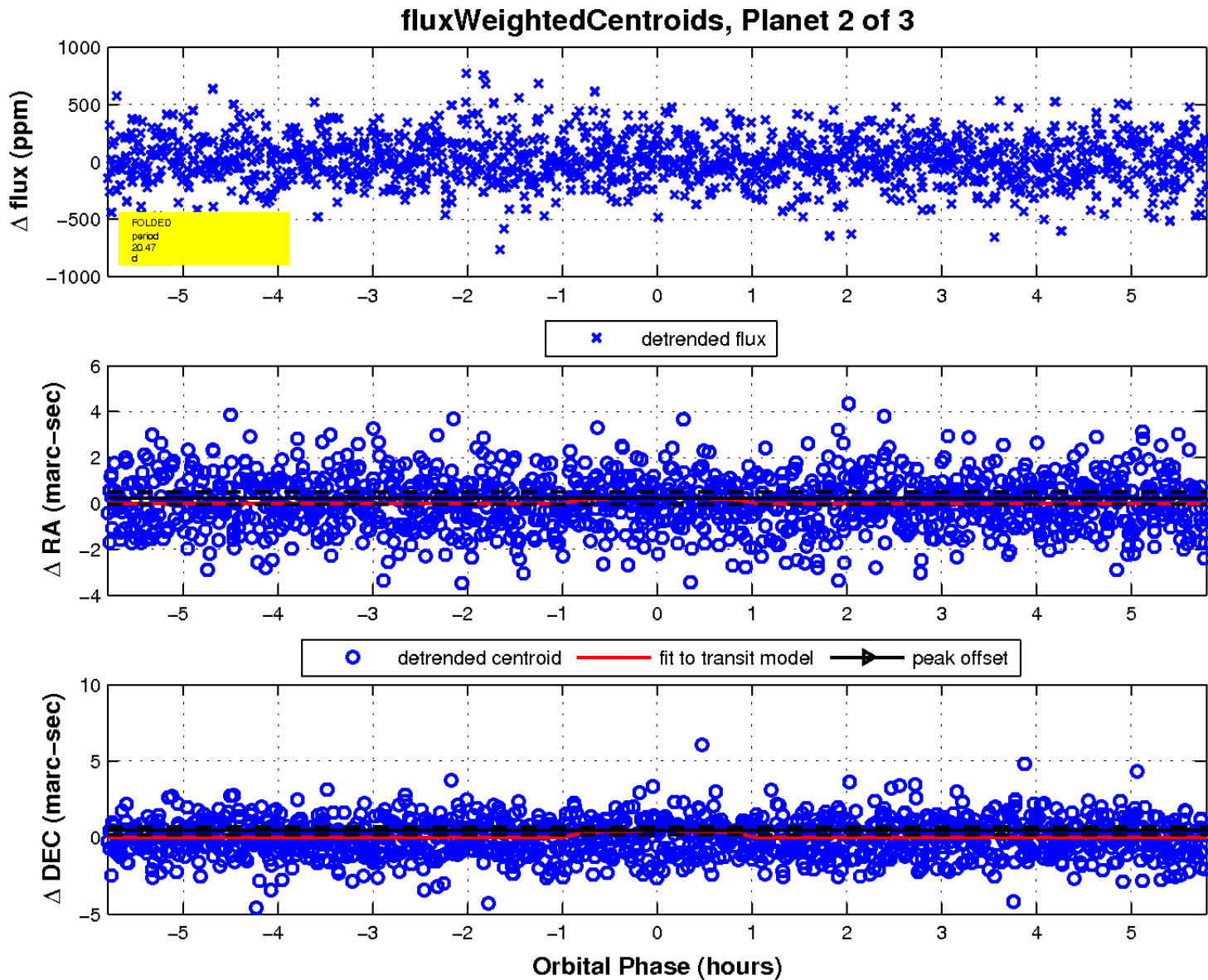
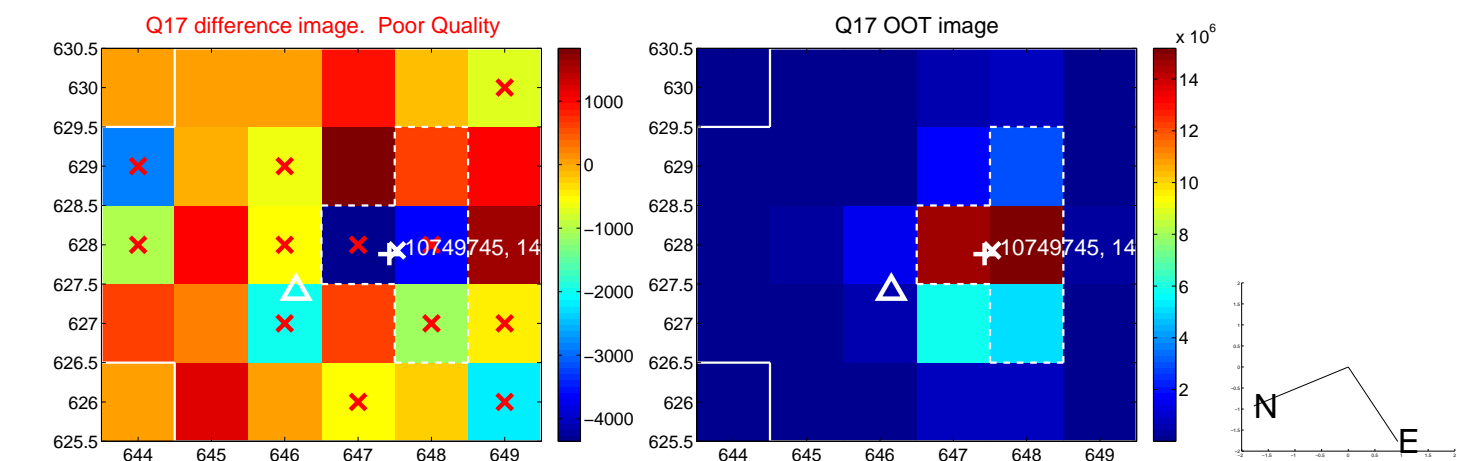
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

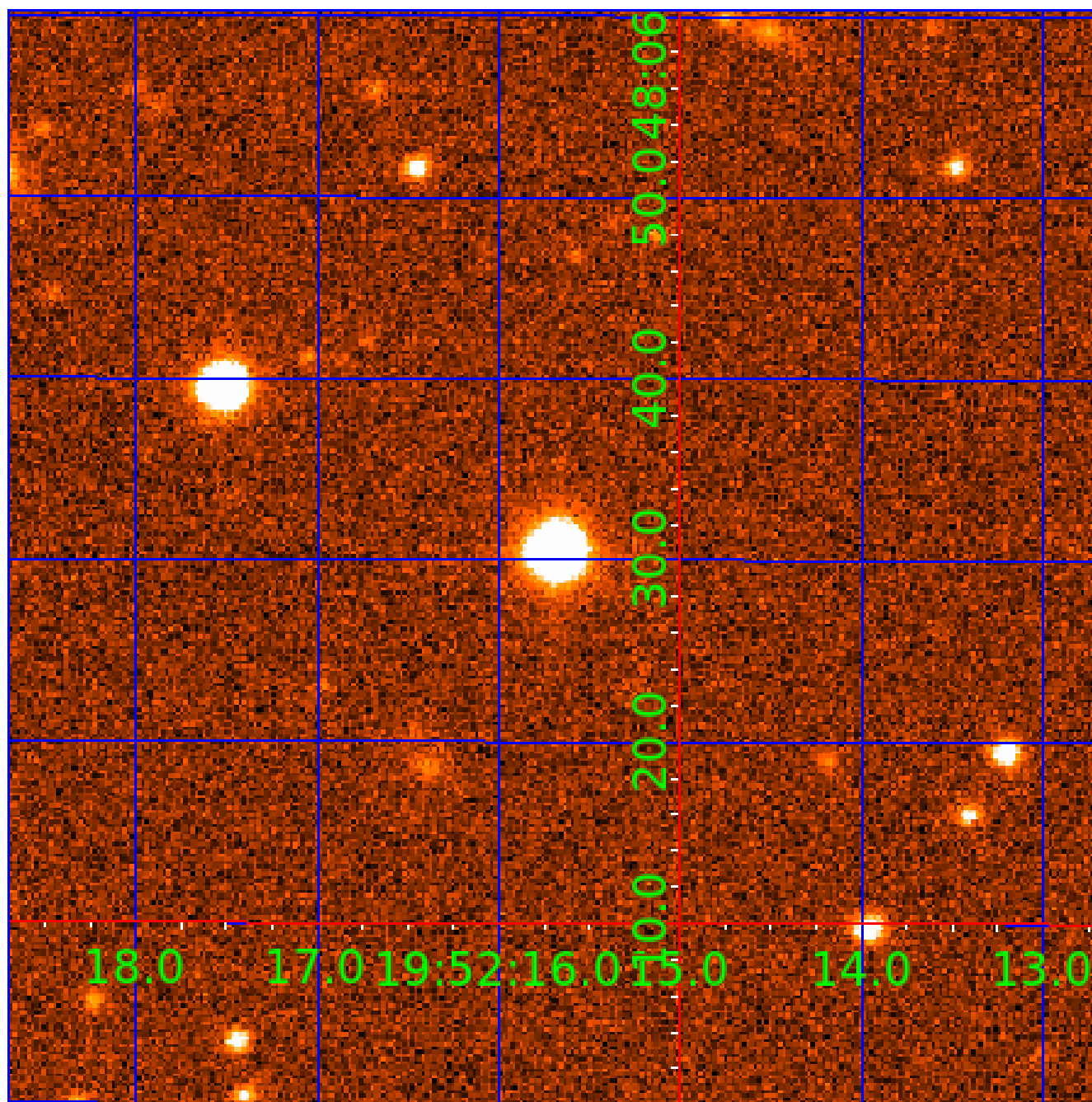


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010749745

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010749745-01	OBS	No	0.890517	131.920858	25.2	6.630	7.7	10.3	0.80	5009	0.42	1314.44
010749745-02	OBS	No	20.468153	140.448923	293.8	1.936	8.4	10.4	0.80	5009	1.48	20.11
010749745-03	OBS	No	11.867840	134.201960	401.4	1.351	12.0	14.0	0.80	5009	1.72	41.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010749745-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
010749745-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
010749745-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS—HALO_GHOST

**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.

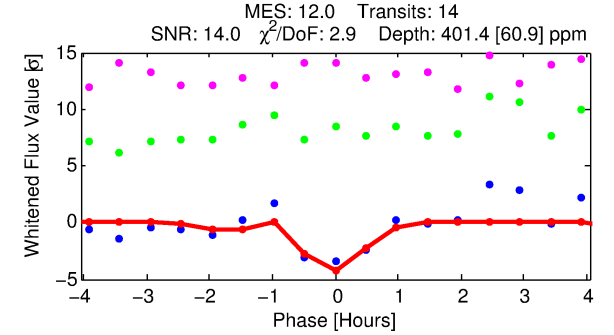
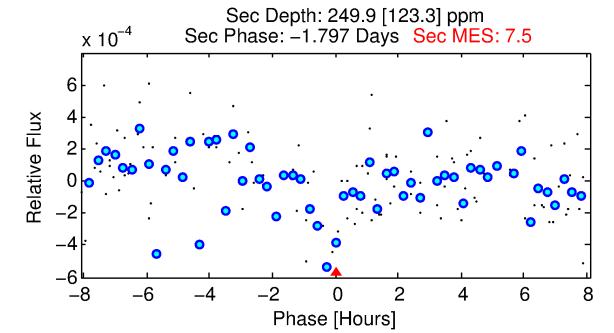
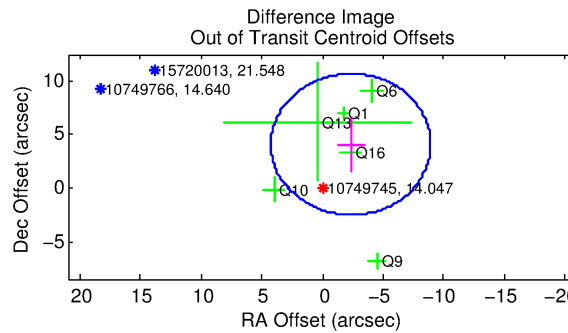
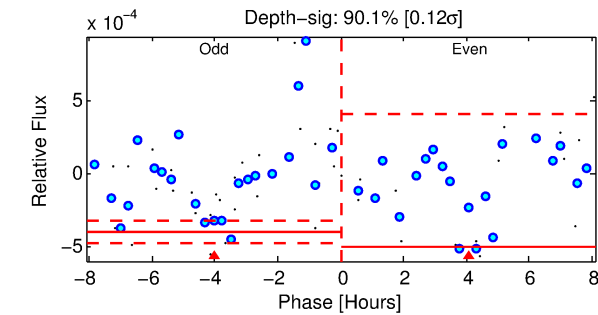
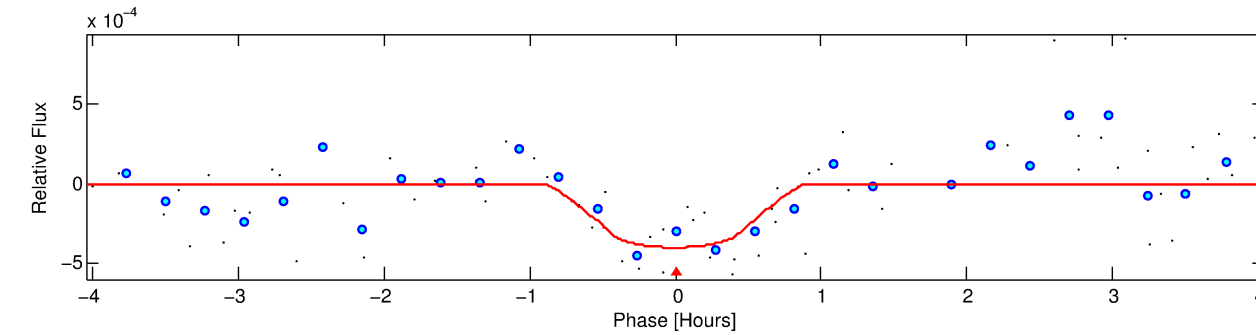
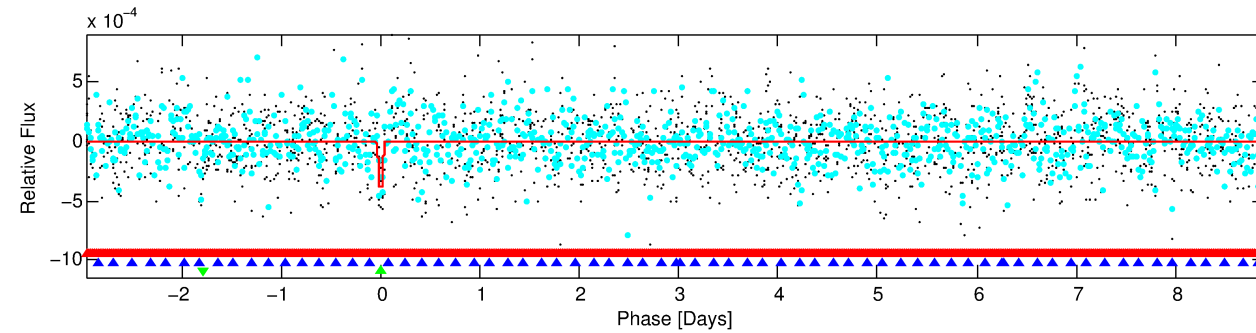
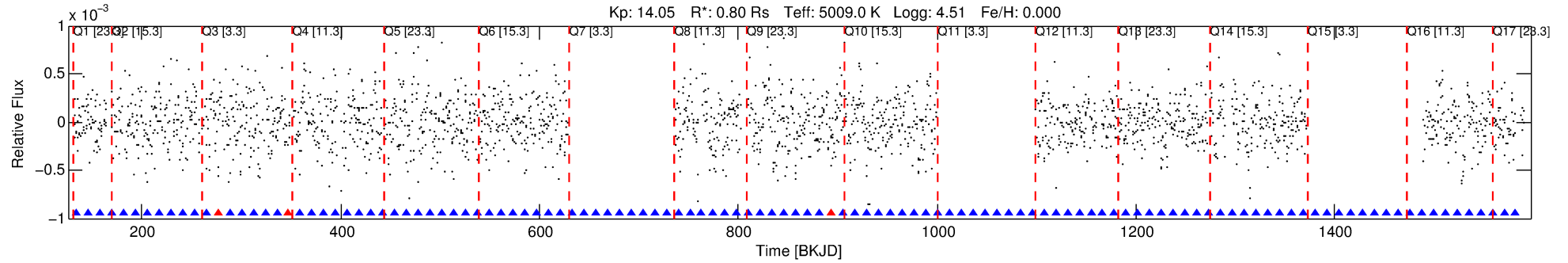
Ephemeris Match Information For 010749745-03

No Significant Match Found



# DV One-Page Summary

KIC: 10749745 Candidate: 3 of 3 Period: 11.868 d



## DV Fit Results:

Period = 11.86784 [0.00013] d  
Epoch = 134.2020 [0.0060] BKJD  
Rp/R\* = 0.0197 [0.0302]  
a/R\* = 49.65 [255.30]  
b = 0.70 [3.86]  
Seff = 41.60 [8.47]  
Teff = 648 [33] K  
Rp = 1.72 [2.64] Re  
a = 0.0930 [0.0096] AU  
Ag = 402.31 [1248.76] [0.32 $\sigma$ ]  
Teffp = 4484 [3477] K [1.10 $\sigma$ ]

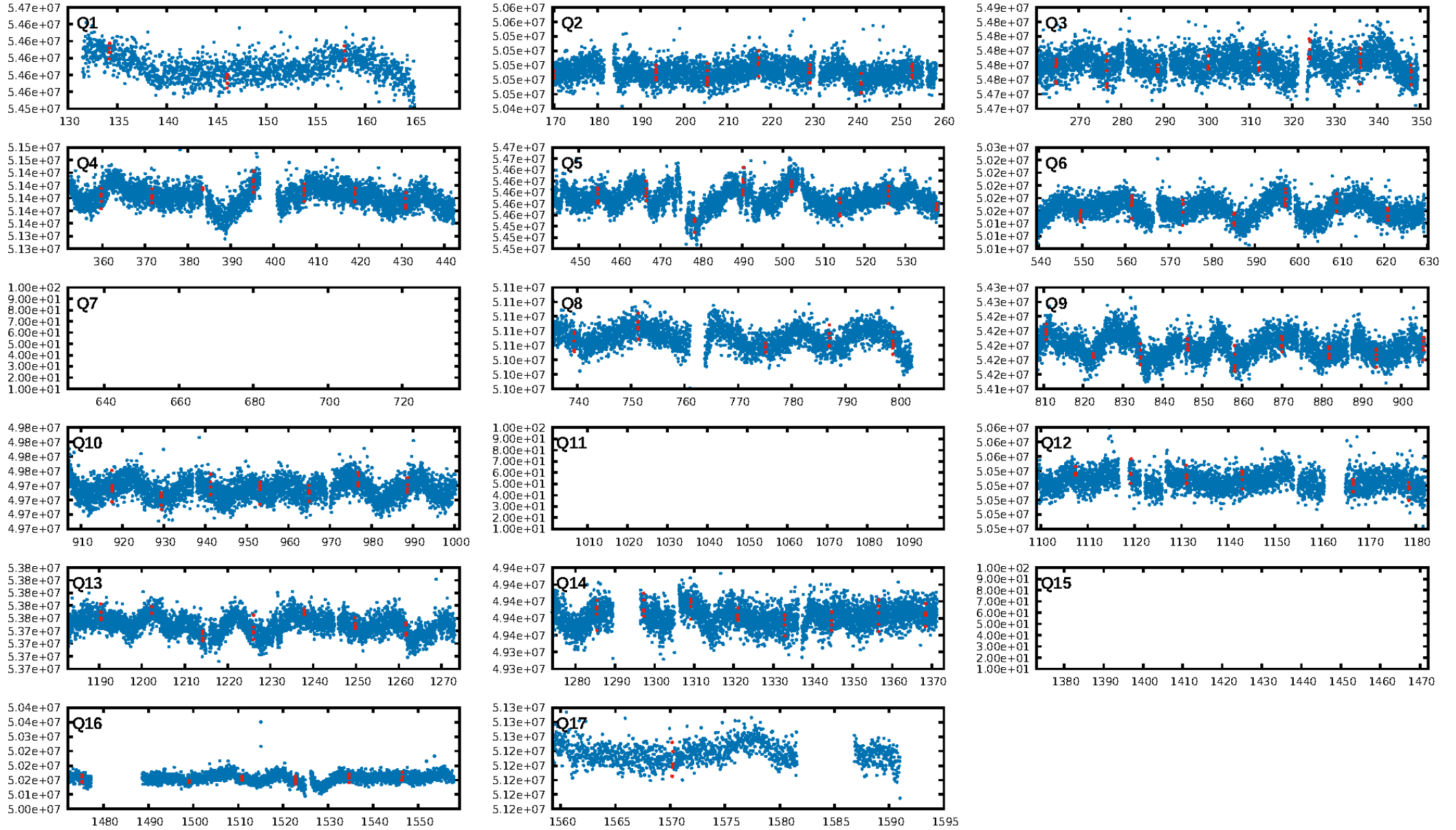
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.94 $\sigma$ ]  
LongPeriod-sig: 100.0% [87.45 $\sigma$ ]  
ModelChiSquare2-sig: 3.4%  
ModelChiSquareGof-sig: 93.4%  
Bootstrap-pfa: 6.81e-13  
RollingBand-fgt: 0.79 [11/14]  
GhostDiagnostic-chr: 0.1695  
Centroid-sig: 59.6%  
Centroid-so: 0.144 arcsec [0.22 $\sigma$ ]  
OotOffset-rm: 4.704 arcsec [2.14 $\sigma$ ]  
KicOffset-rm: 5.049 arcsec [2.29 $\sigma$ ]  
OotOffset-st: 2/0/1/3 [6]  
KicOffset-st: 2/0/1/3 [6]  
DiffImageQuality-fgm: 0.00 [0/6]  
DiffImageOverlap-fno: 0.57 [8/14]

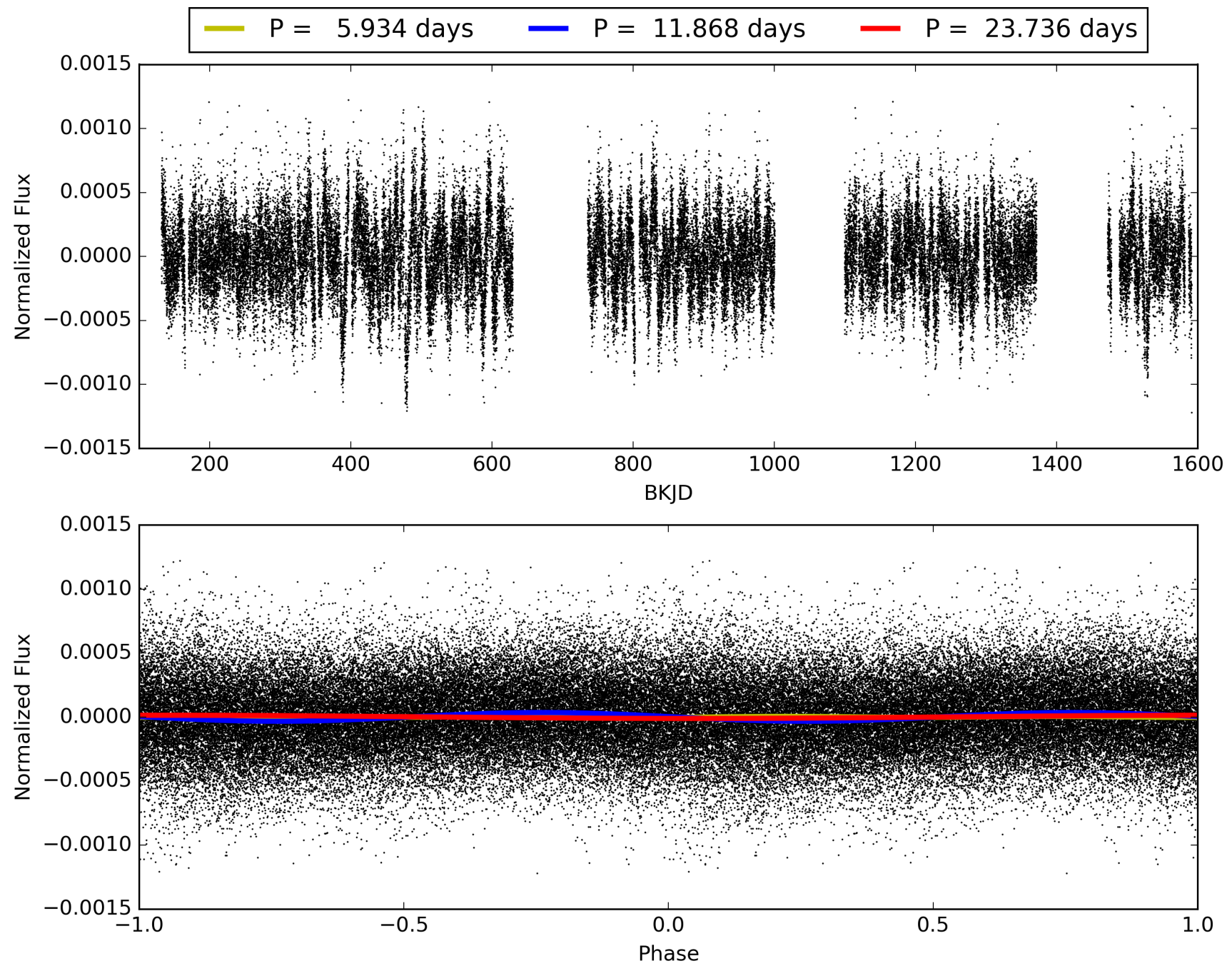
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 19:39:12 Z

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

# TCE 010749745-03, PDC Light Curves

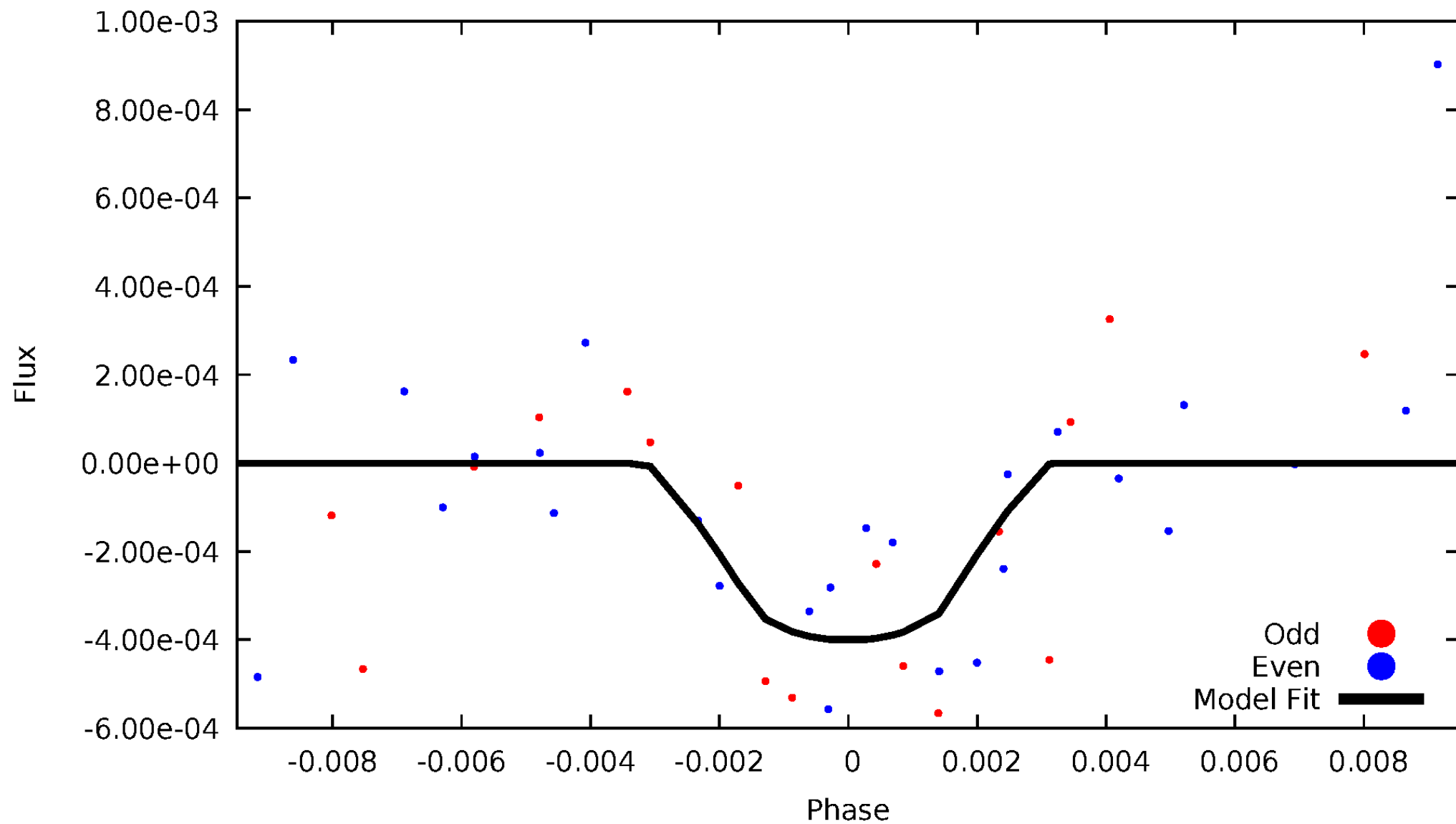


TCE 010749745-03



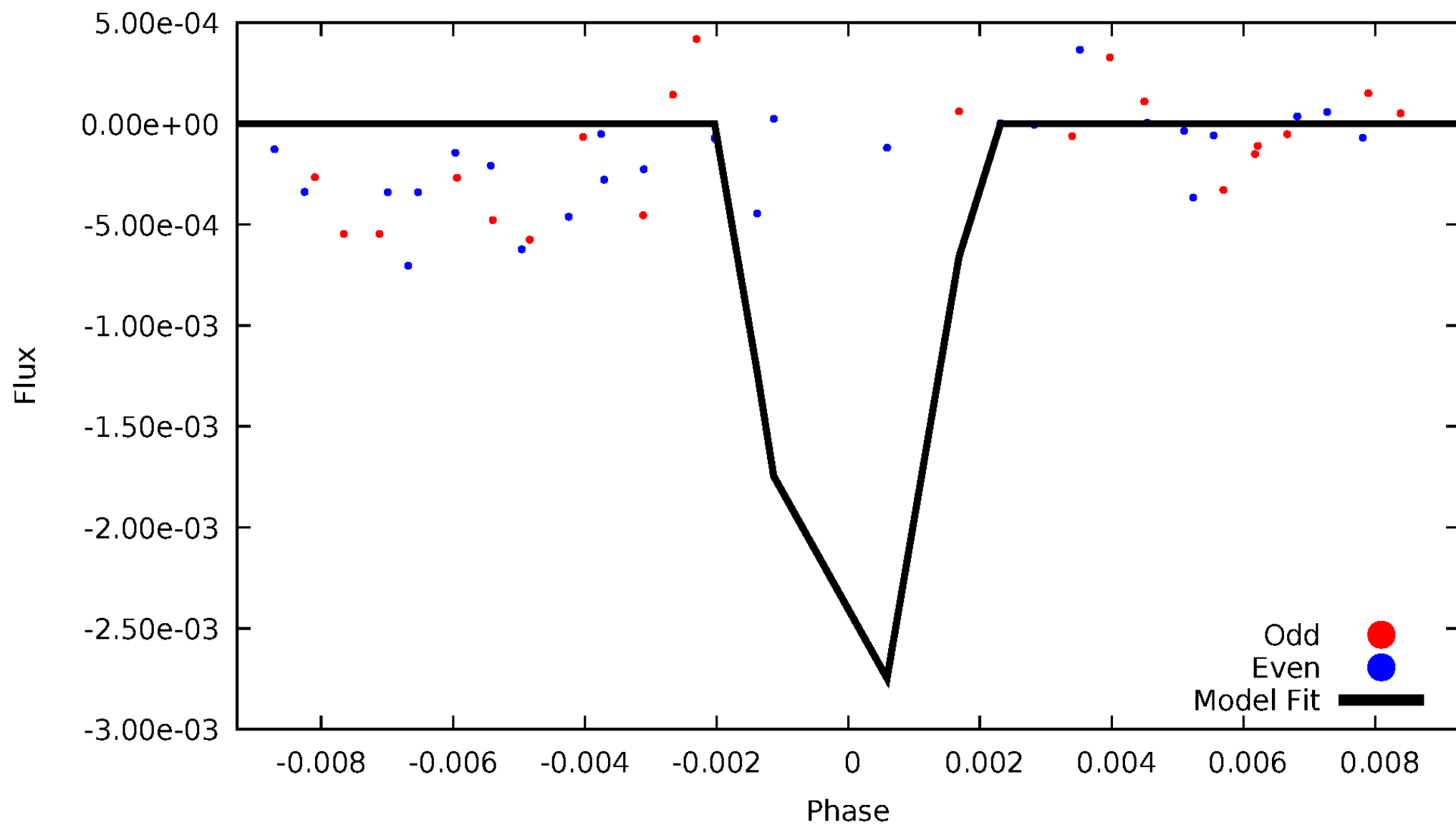
# DV Odd/Even

TCE 010749745-03



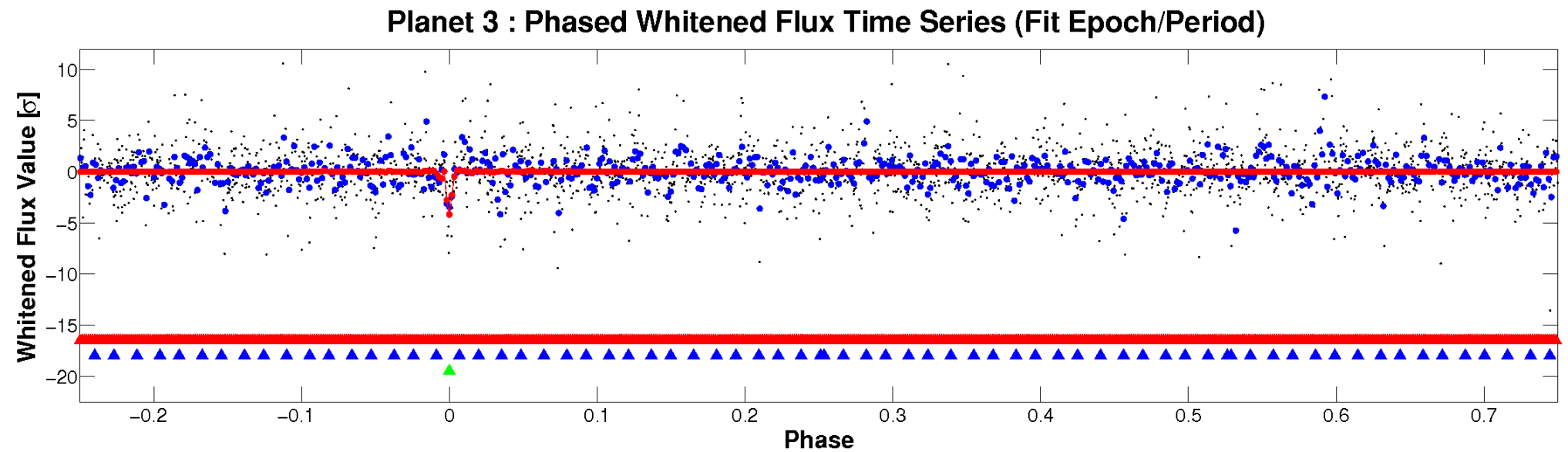
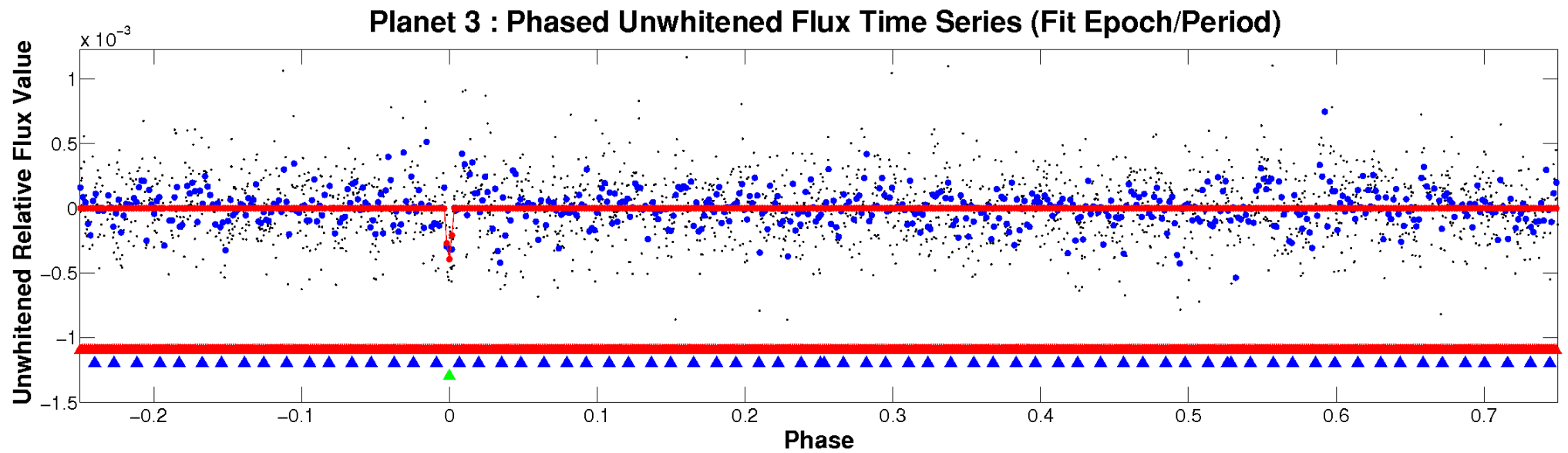
# ALT Odd/Even

TCE 010749745-03



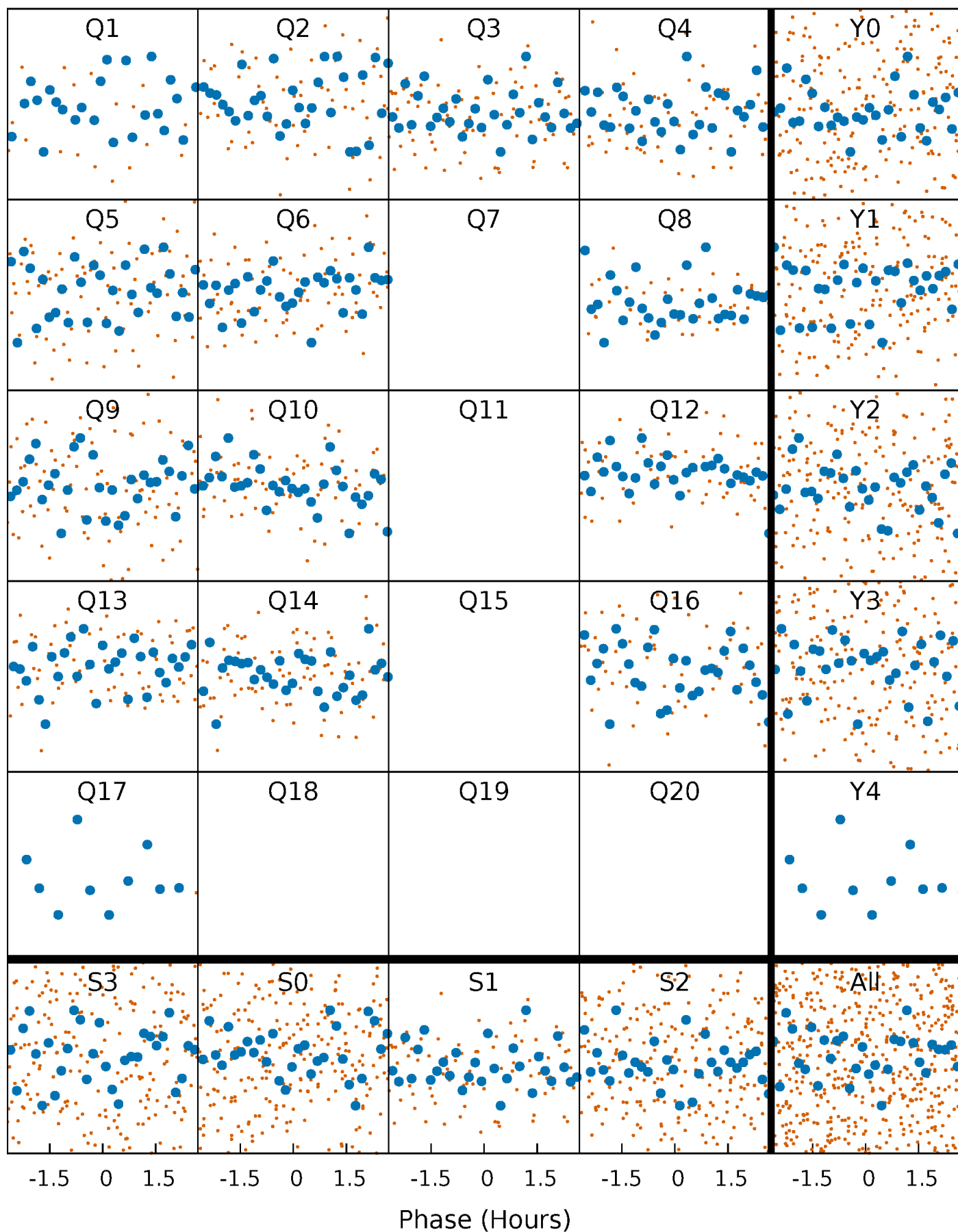


# Non-Whitened Vs. Whitened Light Curve



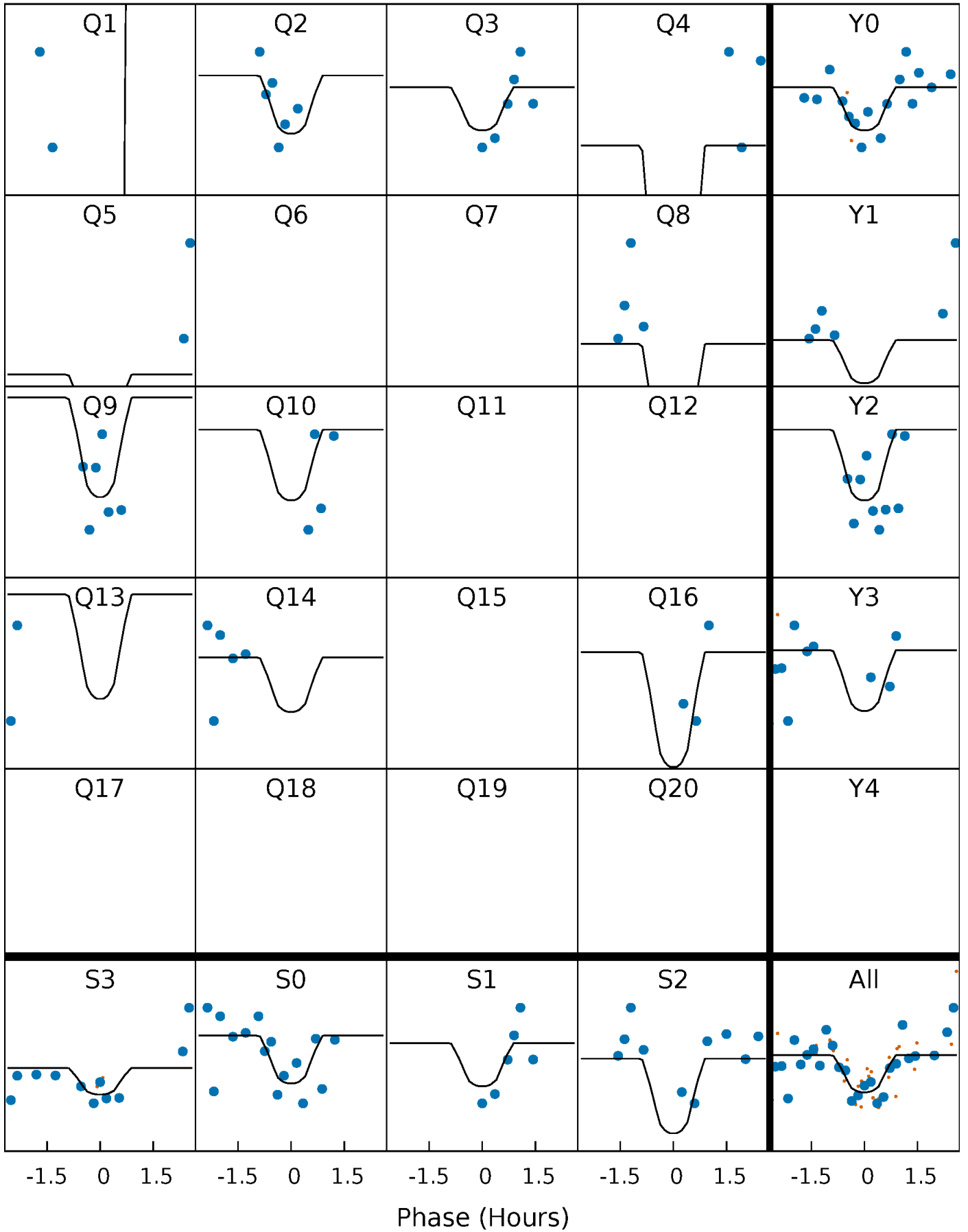
# PDC Quarter-Phased Transit Curves

TCE 010749745-03 P= 11.867840 Days  $T_0=134.201960$  (BKJD)



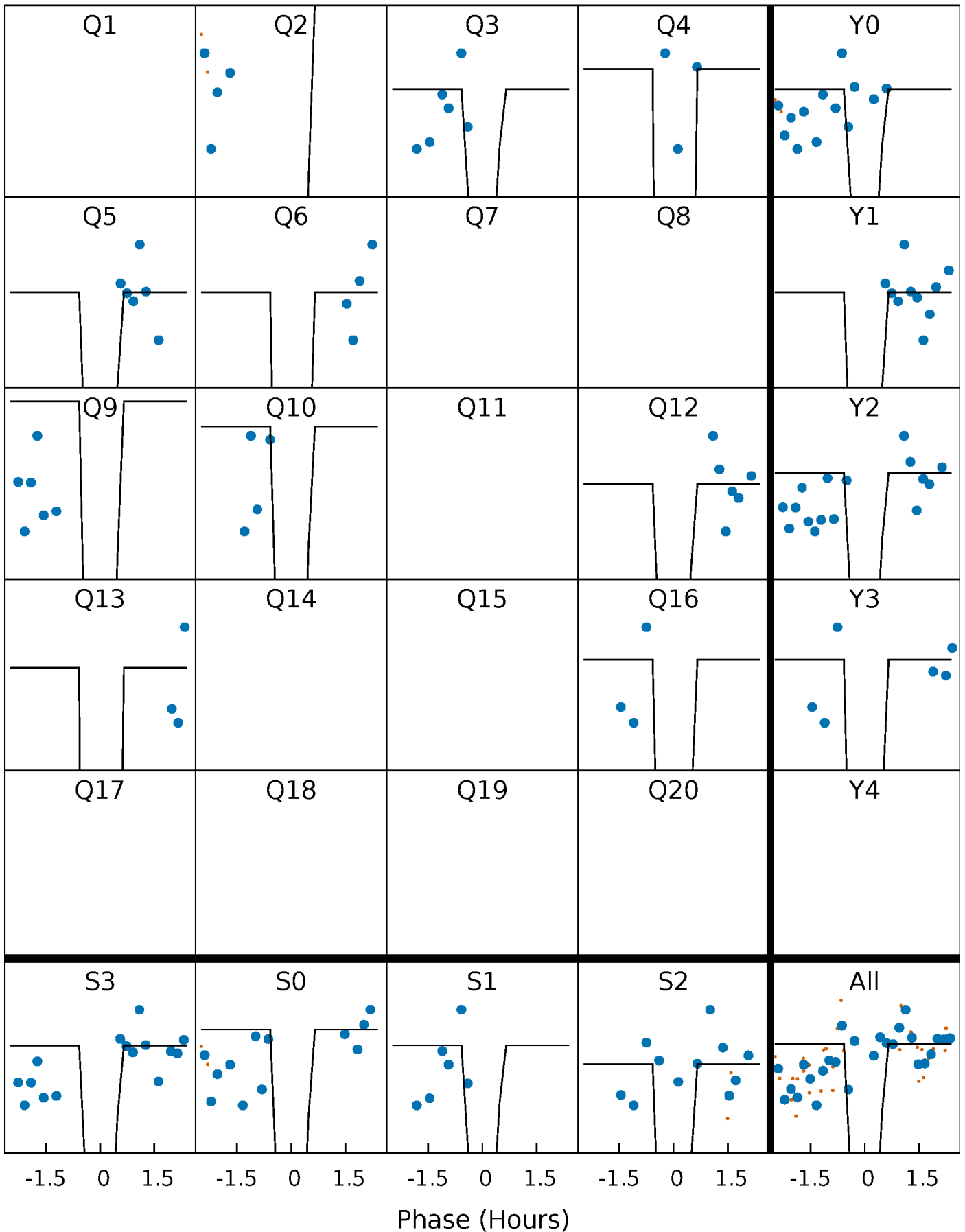
# DV Quarter-Phased Transit Curves

TCE 010749745-03 P= 11.867840 Days  $T_0=134.201960$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

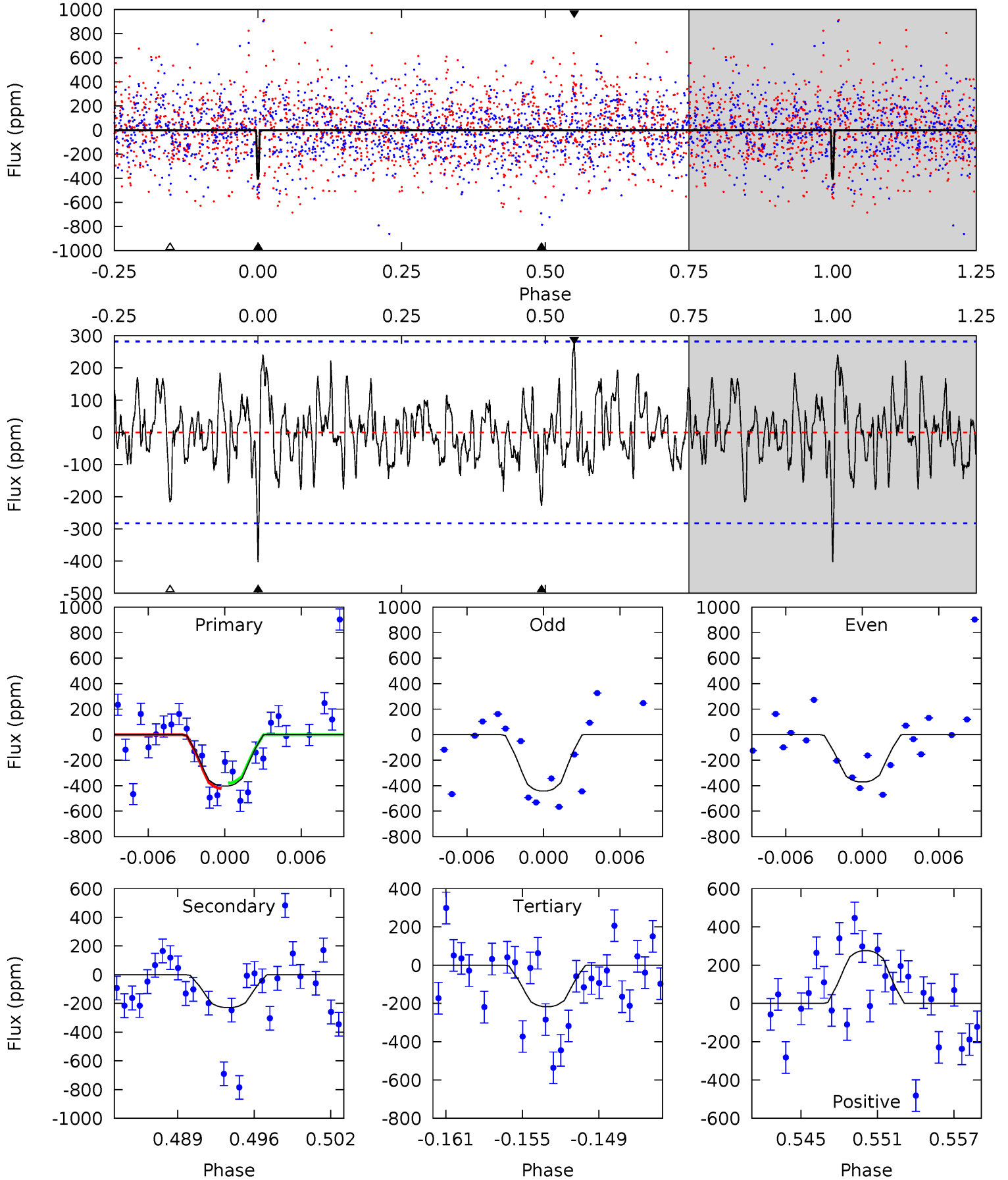
TCE 010749745-03   P= 11.867811 Days    $T_0=134.277900$  (BKJD)



# DV Model-Shift Uniqueness Test

010749745-03, P = 11.867840 Days, E = 122.334120 Days

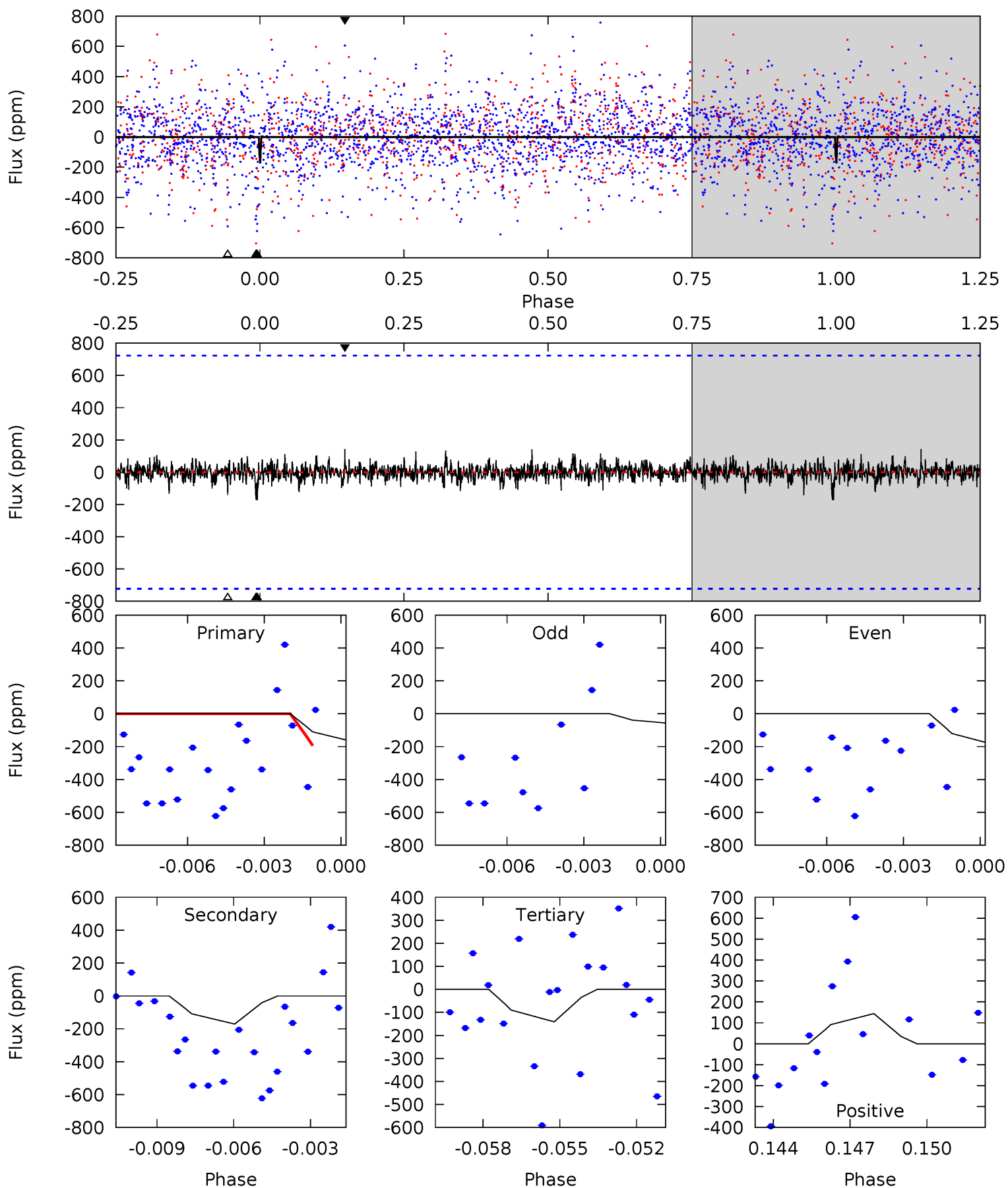
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.30	4.14	3.93	4.99	5.12	2.74	1.48	3.37	2.31	0.22	-0.85	0.63	1.16	0.41	0.37



# Alt Model-Shift Uniqueness Test

010749745-03, P = 11.867811 Days, E = 122.410089 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
1.26	1.24	1.02	1.05	5.25	2.96	0.27	0.24	0.22	0.22	0.19	0.54	1.00	0.45	0.35



### Stellar Parameters For KIC 010749745

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5009^{+151}_{-136}$	$4.515^{+0.088}_{-0.096}$	$0.000^{+0.300}_{-0.300}$	$0.799^{+0.078}_{-0.086}$	$0.763^{+0.087}_{-0.055}$	$2.106^{+0.711}_{-0.486}$
	+3%/-3%	+2%/-2%	+inf%/-inf%	+10%/-11%	+11%/-7%	+34%/-23%
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 010749745-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-229 \pm 55$	$2.58^{+2.32}_{-1.79}$	$907^{+37}_{-36}$	$3875^{+2430}_{-743}$	$164^{+1508}_{-119}$
Alt.	$-171 \pm 138$	$5.12^{+2.78}_{-2.50}$	$908^{+37}_{-37}$	$2960^{+717}_{-727}$	$27^{+89}_{-24}$

$T_{max}$  = 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

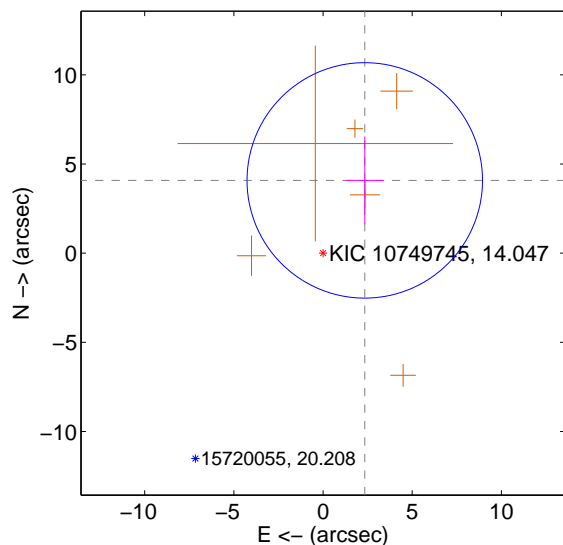
Supplemental centroid analysis for 010749745-03. Kepler magnitude: 14.05. Transit SNR 14.03

There are 0 quarters with good PRF difference image offsets

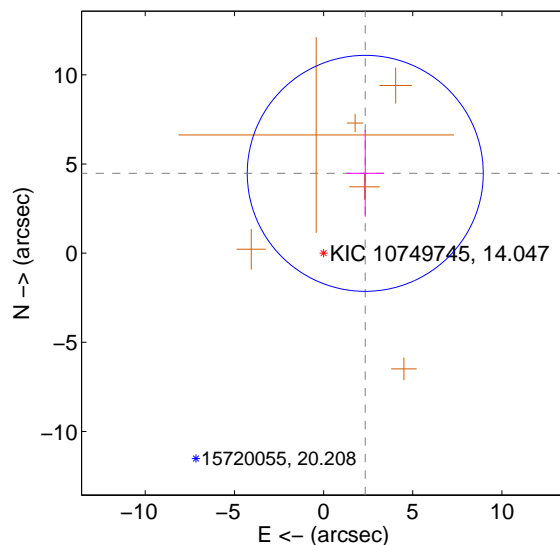
The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.704 \pm 2.200$	2.14	$-2.340 \pm 1.058$	$4.081 \pm 2.462$
PRF-fit source offset from KIC position	$5.049 \pm 2.205$	2.29	$-2.337 \pm 1.047$	$4.475 \pm 2.427$
photometric centroid source offset	$0.14 \pm 0.65$	0.22	$-0.08 \pm 0.65$	$0.12 \pm 0.64$

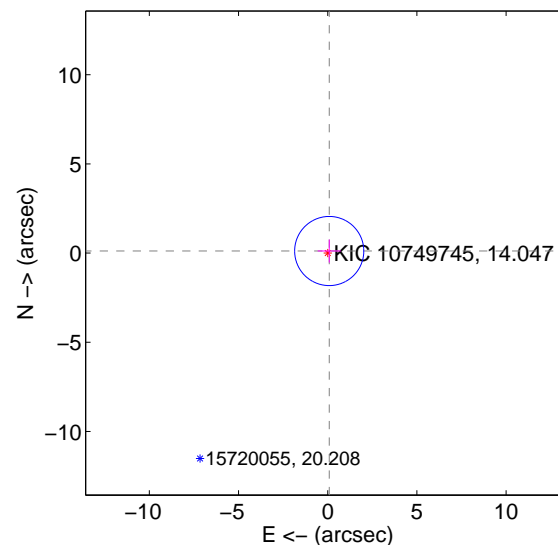
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

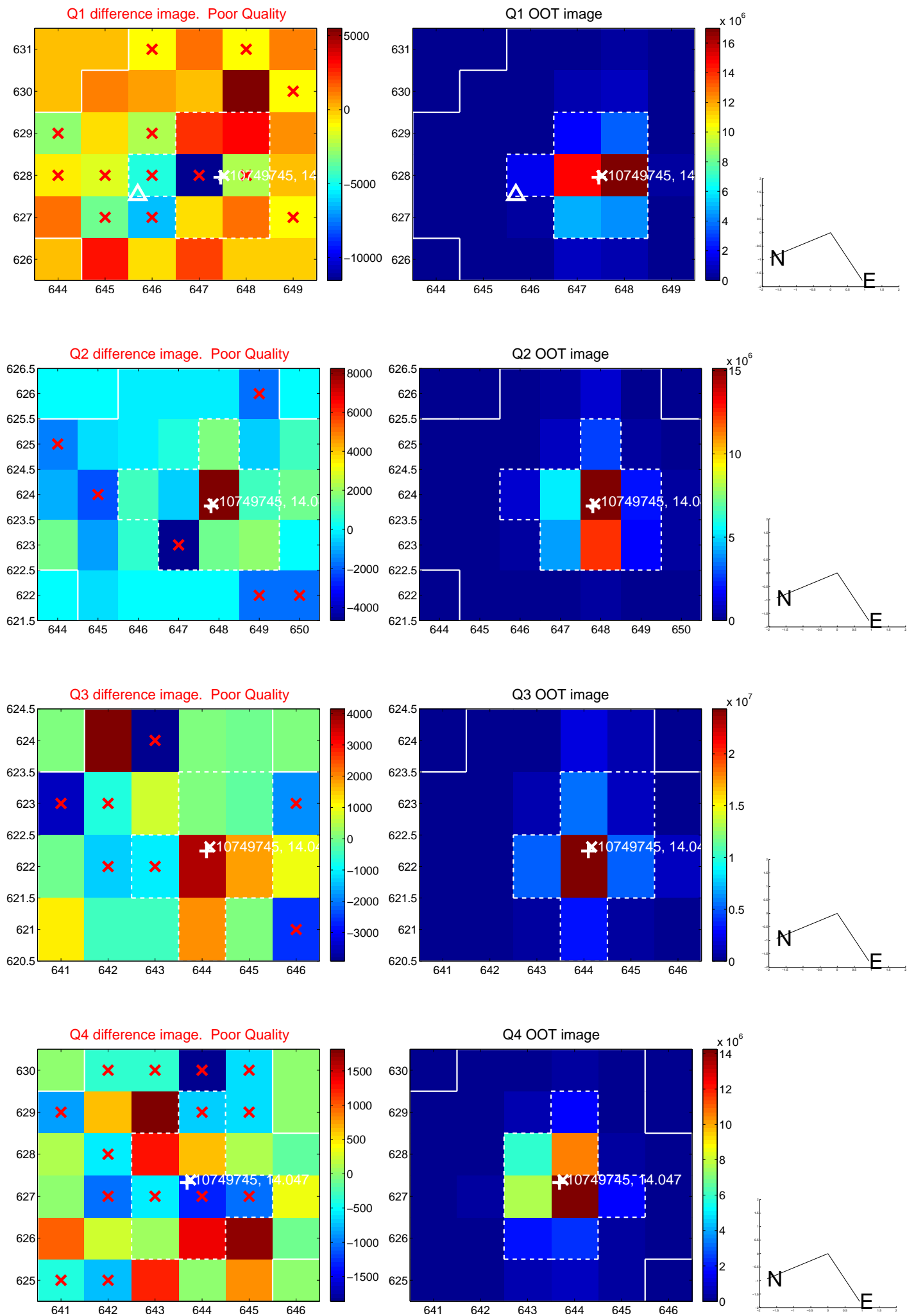


offset from photometric centroids

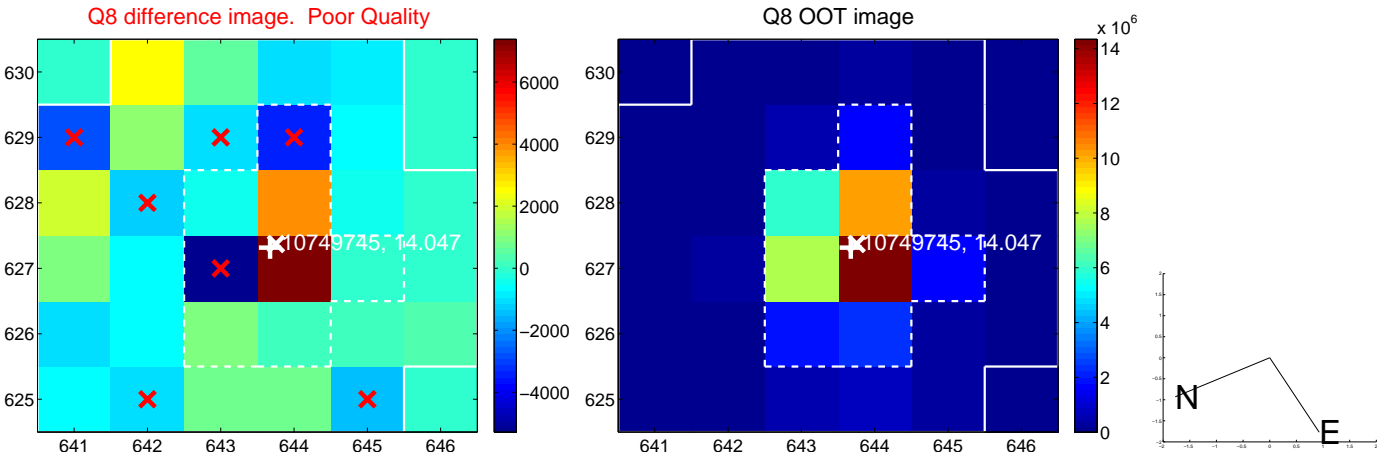
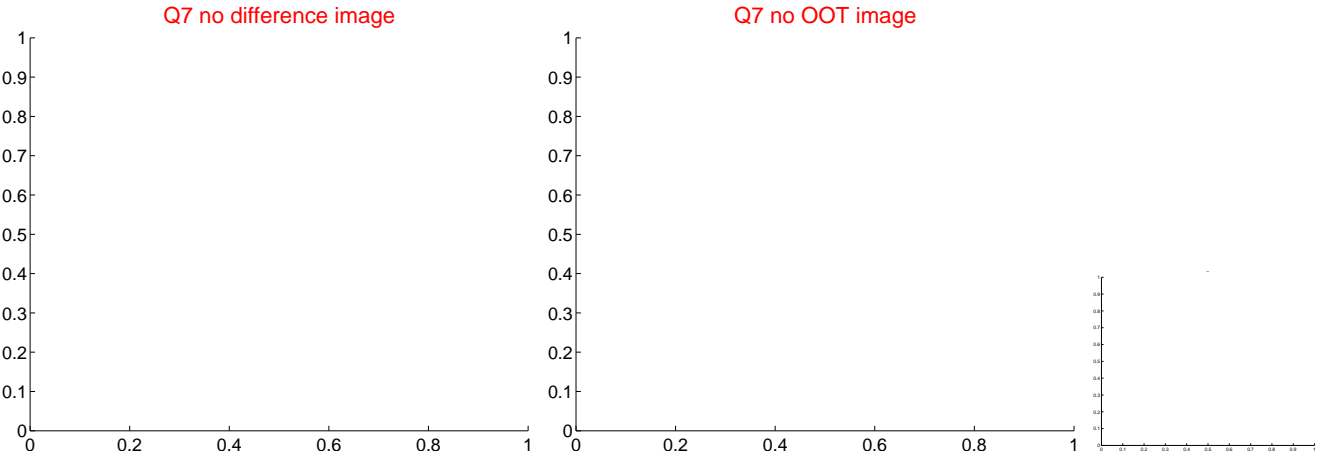
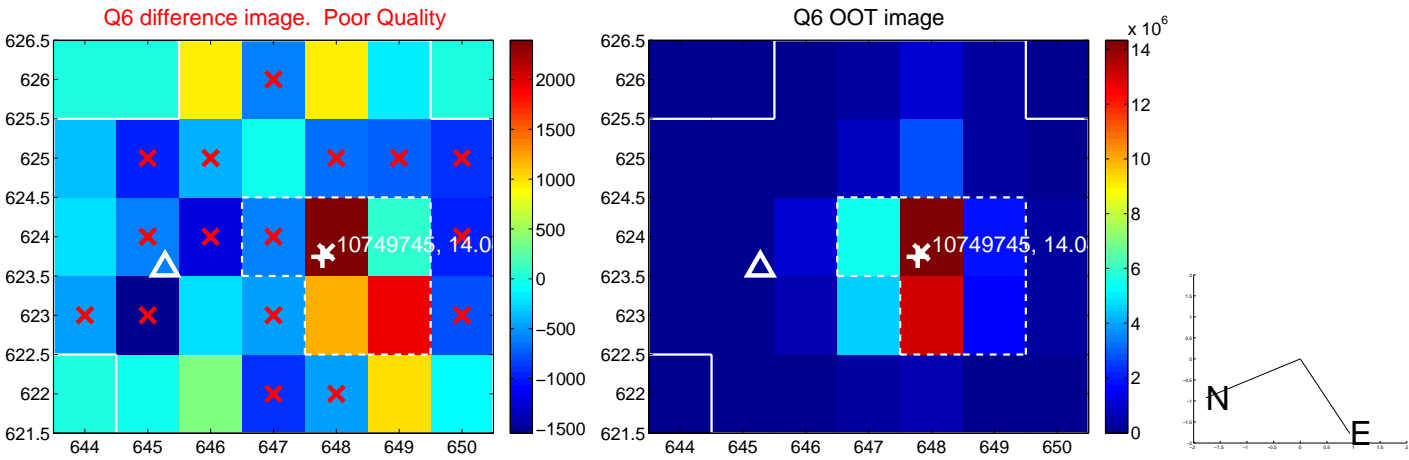
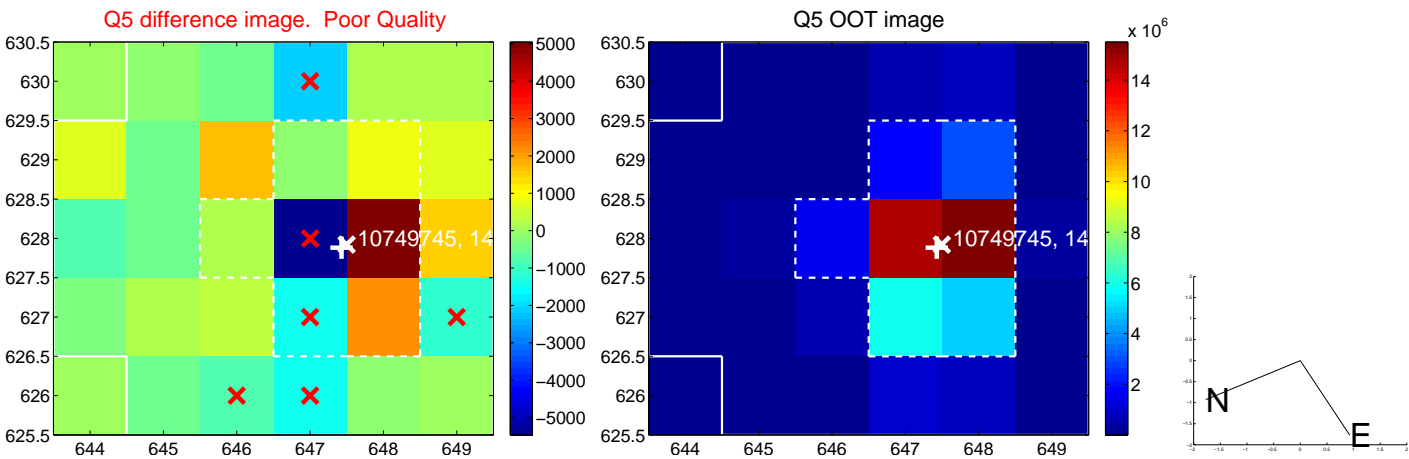


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

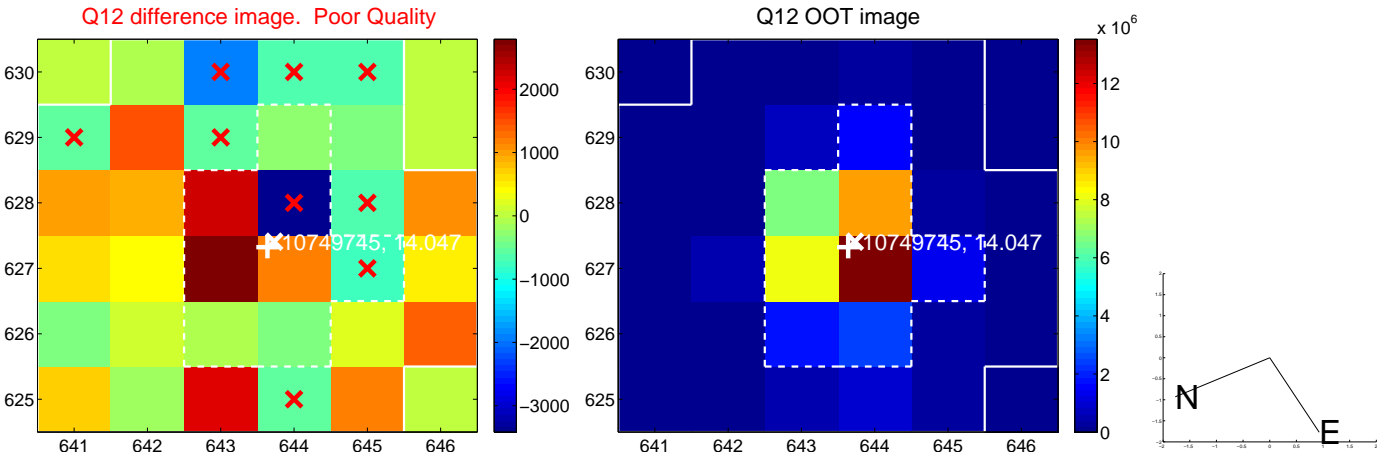
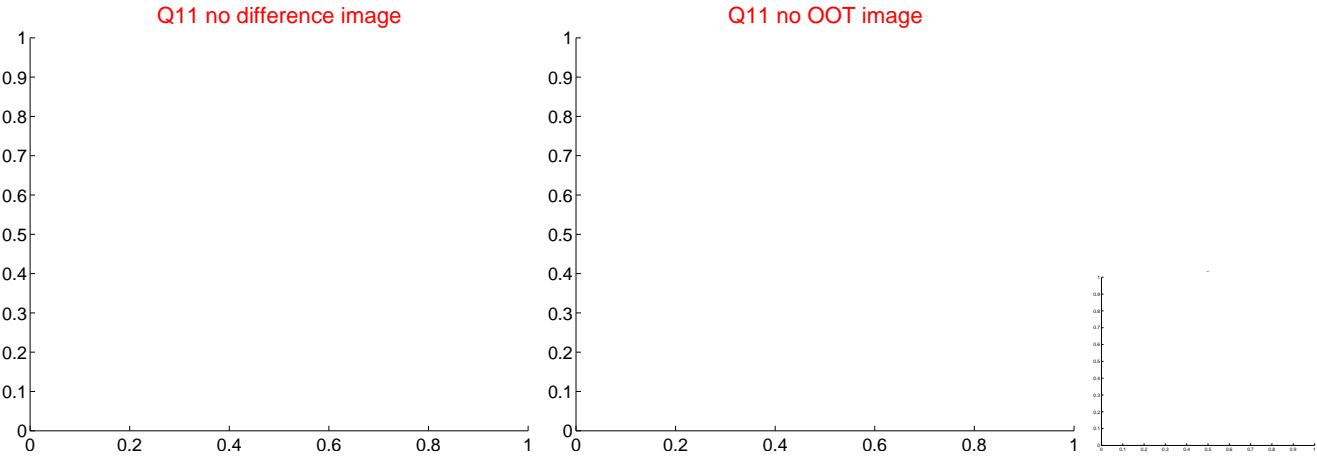
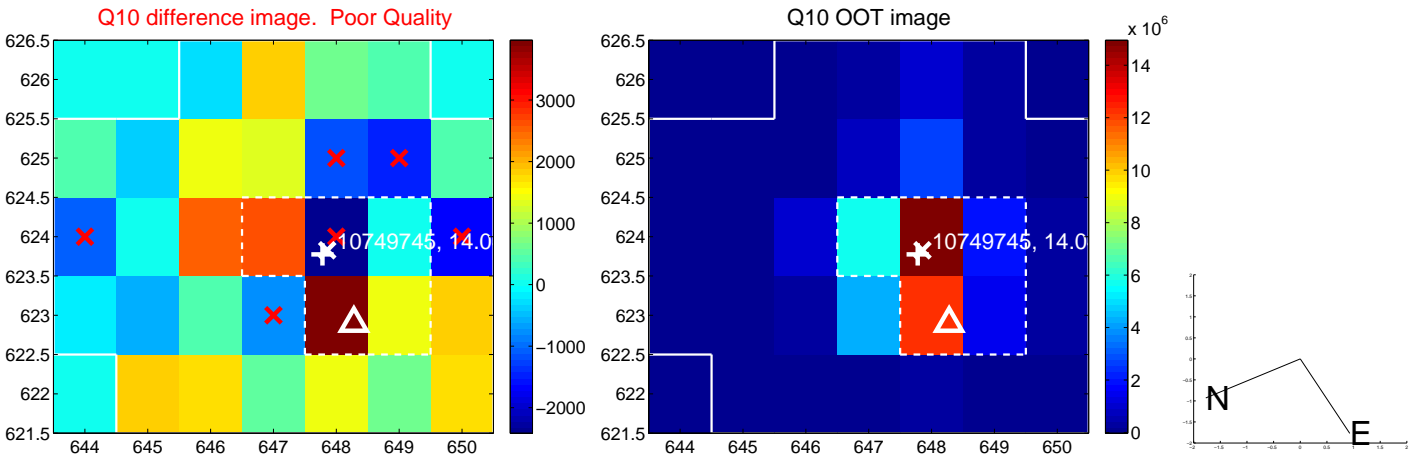
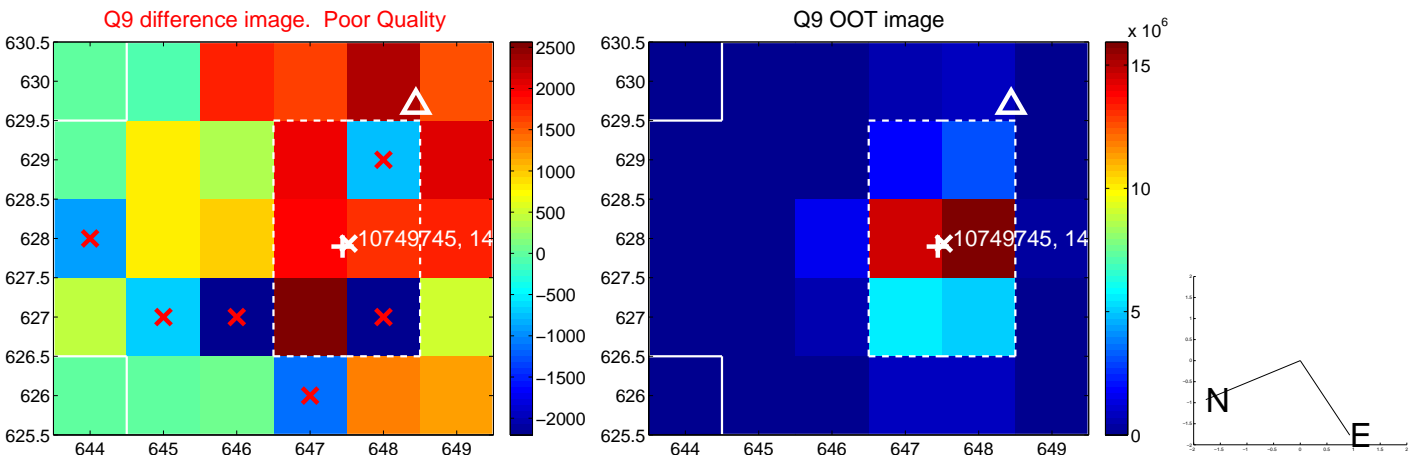
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



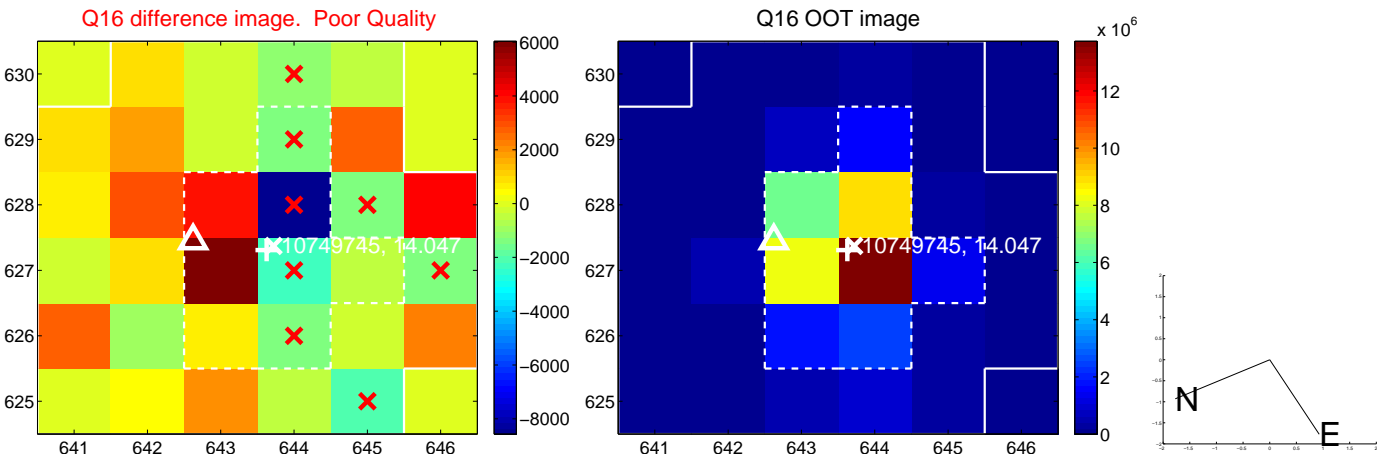
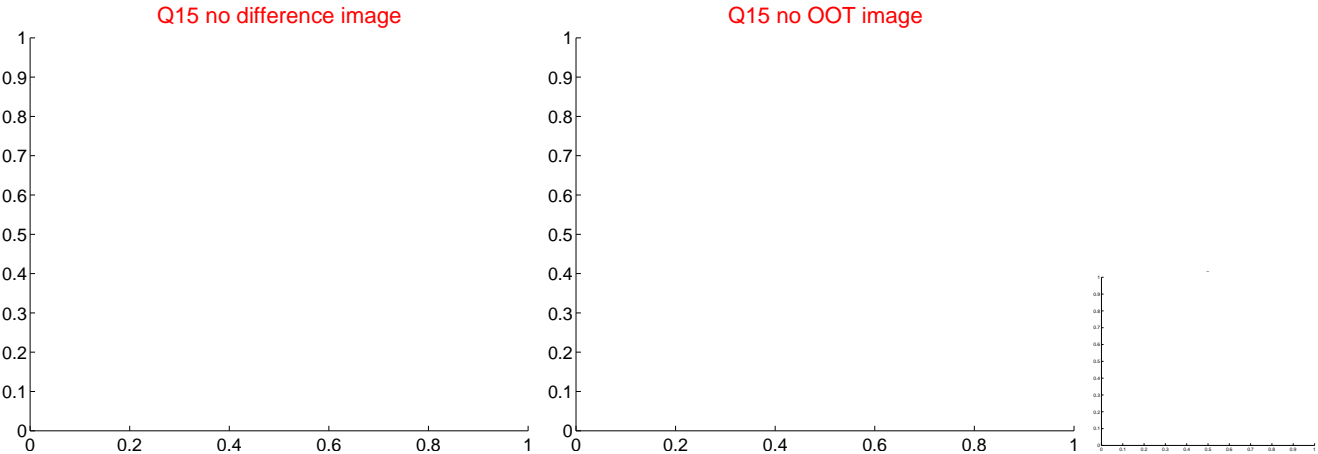
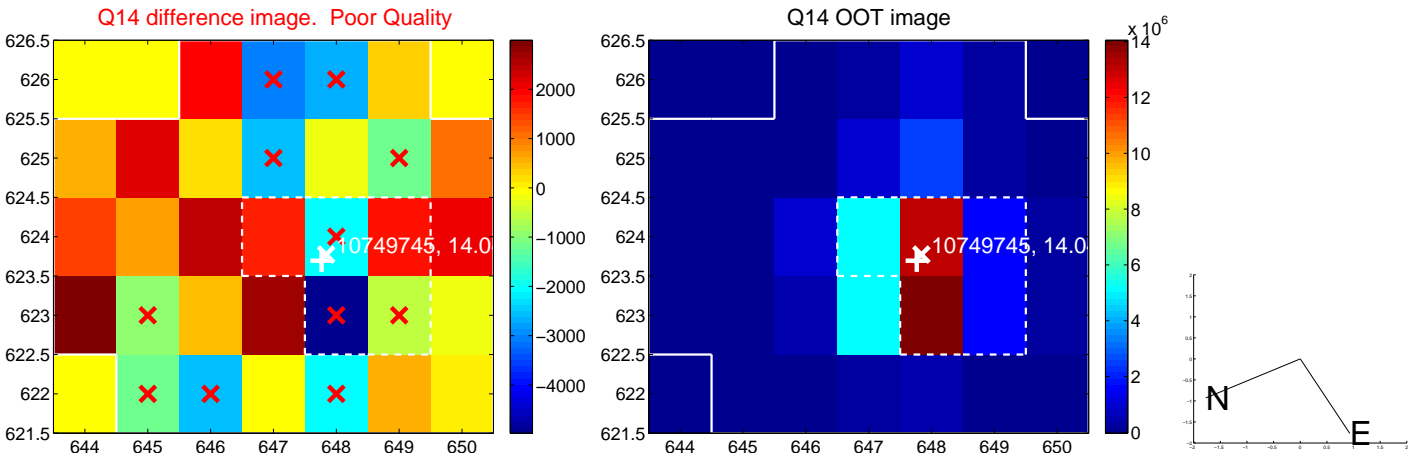
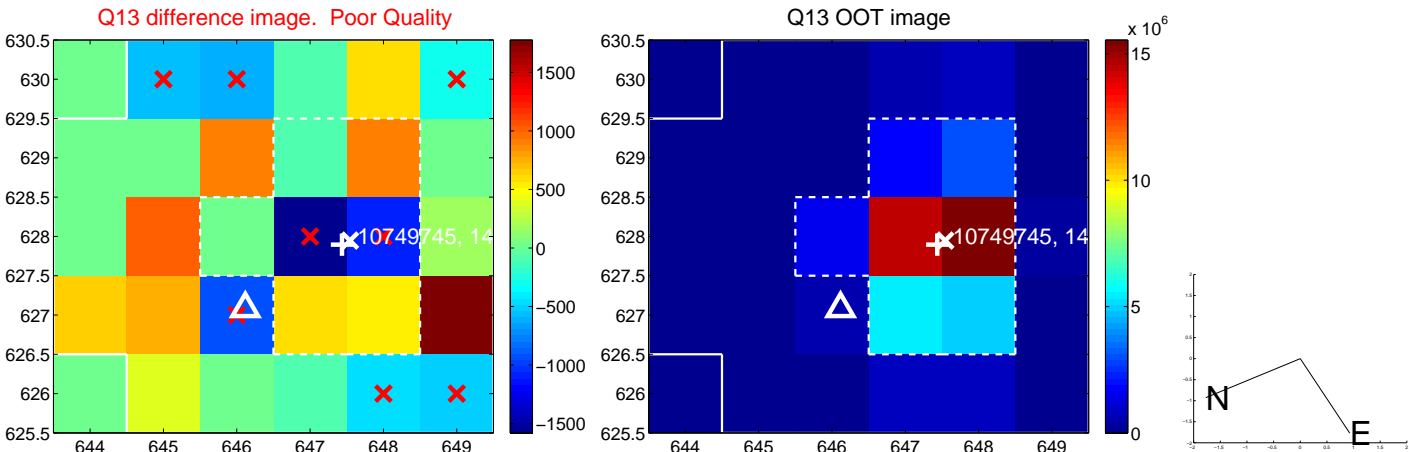
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



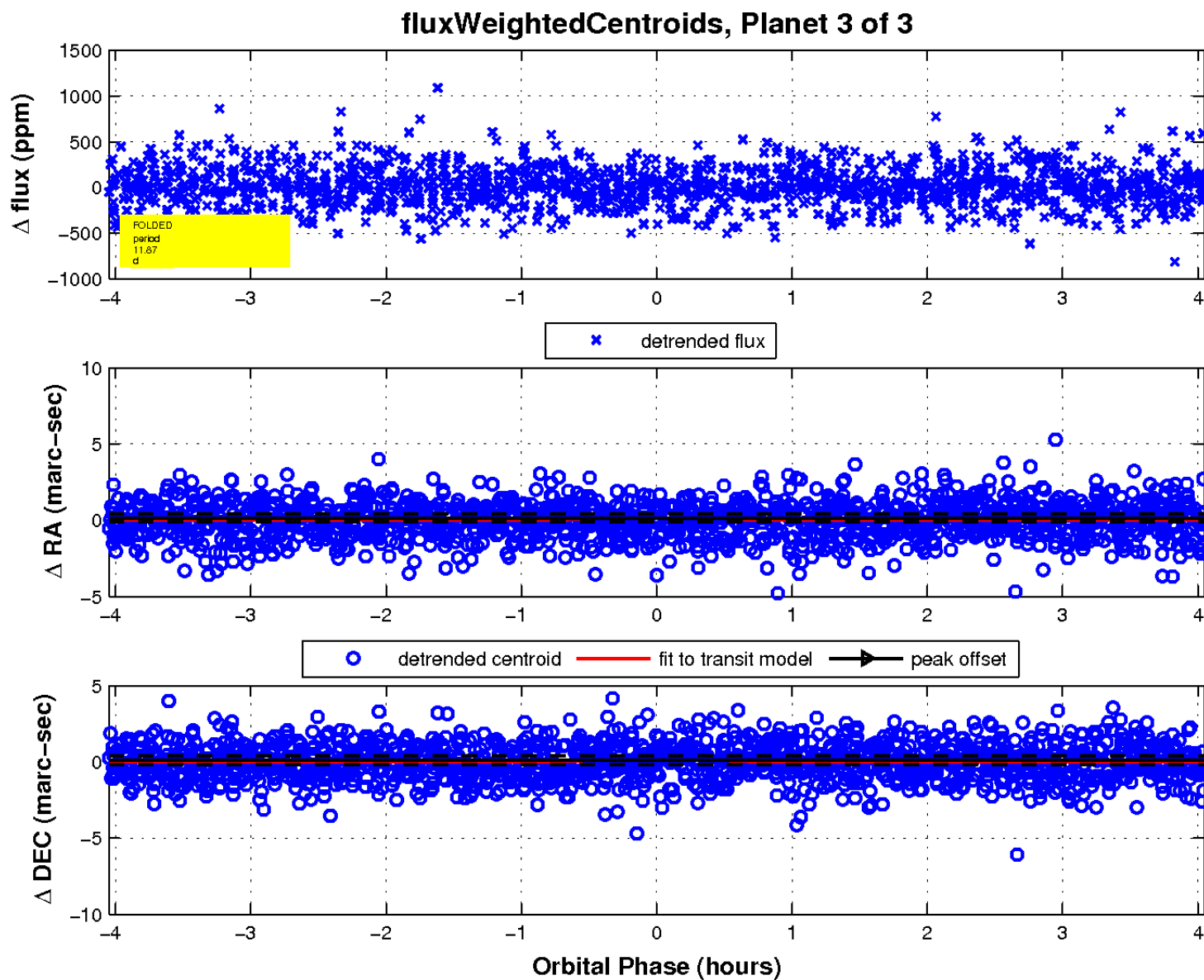
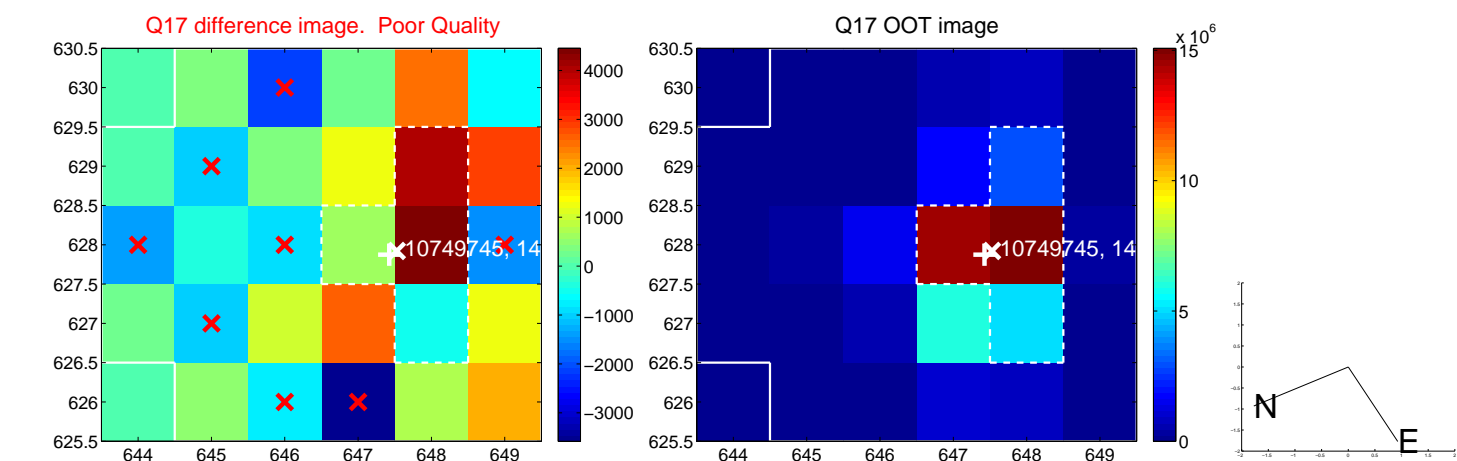
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

Declination

