

# KIC 009092496

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009092496-01	OBS	4193.01	94.177944	200.293674	811.0	6.596	14.0	13.4	1.00	6997	3.49	12.36
009092496-02	OBS	No	0.706923	131.569984	0.3	0.996	7.2	0.0	1.00	6997	0.06	8408.37
009092496-03	OBS	No	1.355958	131.960180	75.6	7.534	9.1	8.7	1.00	6997	0.88	3528.15
009092496-04	OBS	No	184.408229	237.033919	574.8	8.101	9.5	9.2	1.00	6997	2.46	5.04
009092496-05	OBS	No	4.478336	135.059846	228.7	5.942	9.0	9.0	1.00	6997	1.86	717.33
009092496-06	OBS	No	51.599819	160.611399	618.5	5.493	11.0	5.0	1.00	6997	2.65	27.56
009092496-07	OBS	No	56.015115	135.185629	405.5	6.000	8.1	-1.0	1.00	6997	2.04	24.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009092496-01	OBS	PC	0.84	0	0	0	0	NO_COMMENT
009092496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009092496-03	OBS	FP	0.00	1	0	0	0	LPP_DV
009092496-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT
009092496-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009092496-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009092496-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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 009092496-01

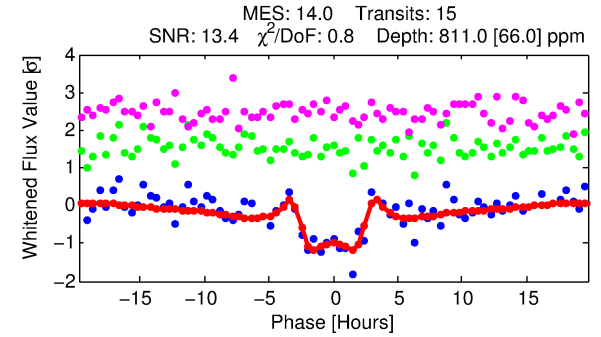
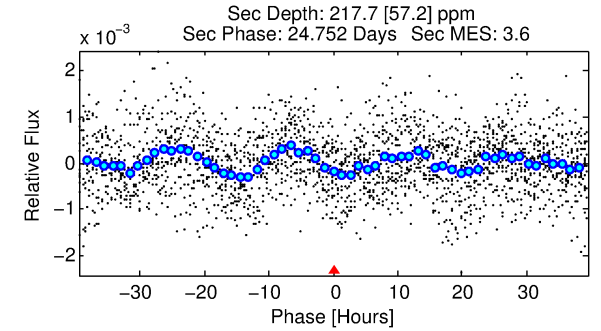
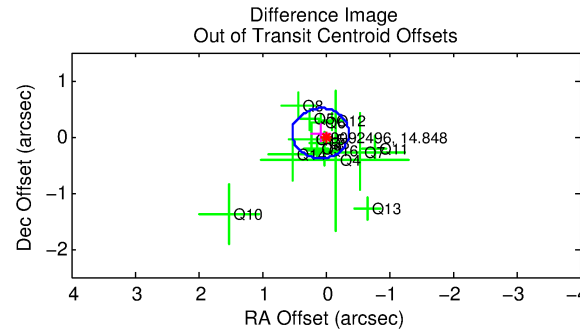
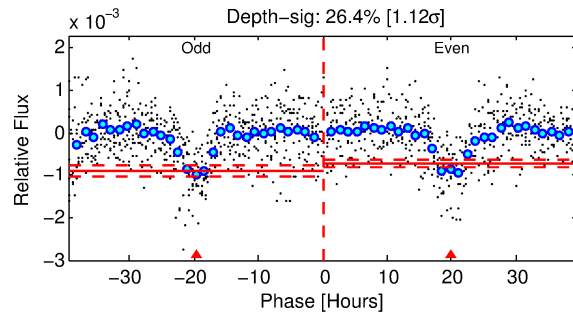
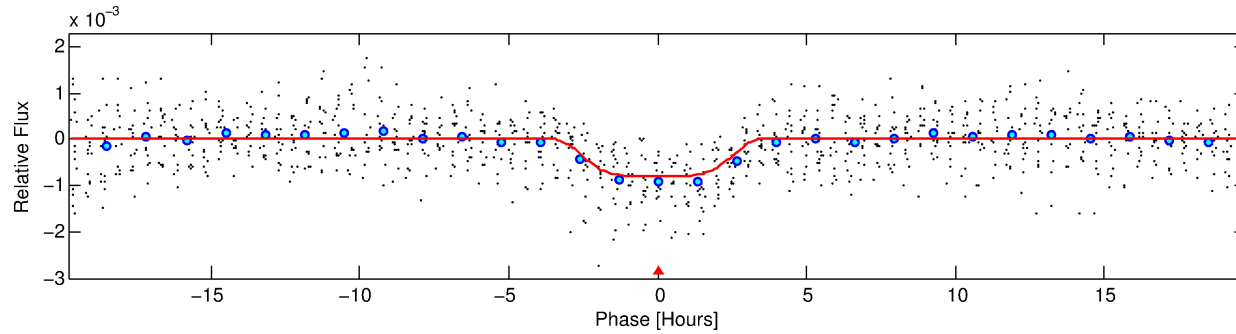
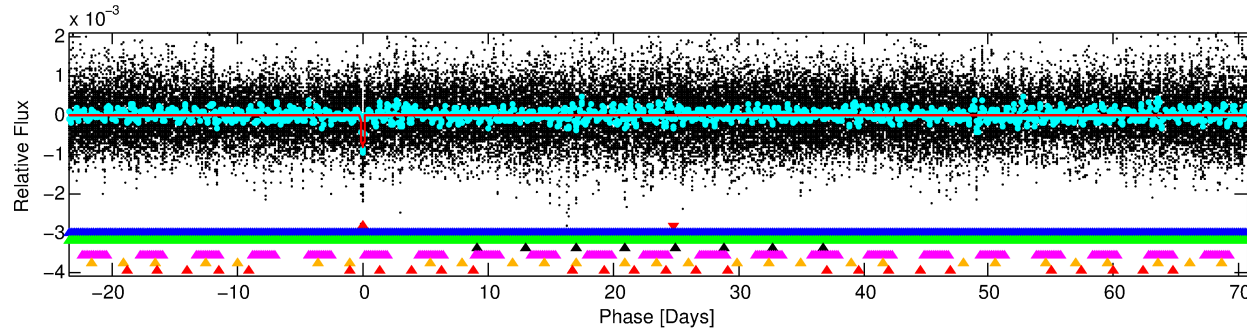
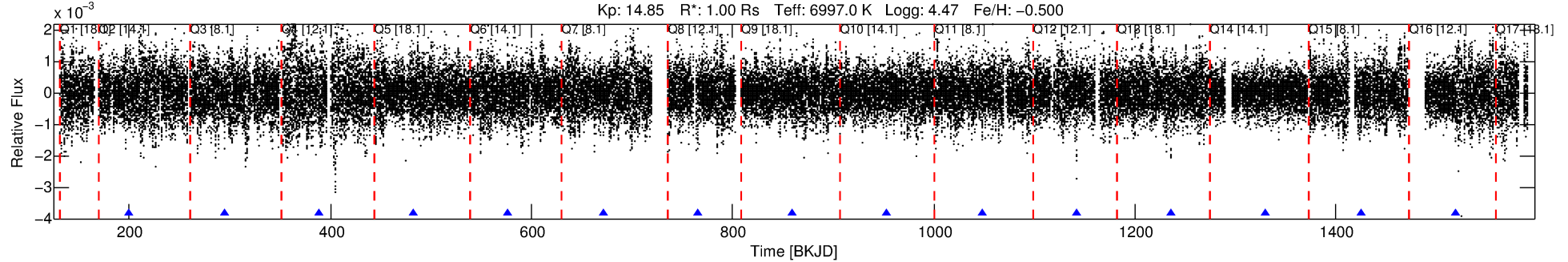
No Significant Match Found

# DV One-Page Summary

KIC: 9092496 Candidate: 1 of 7 Period: 94.178 d

KOI: K04193.01 Corr: 0.964

Kp: 14.85 R\*: 1.00 Rs Teff: 6997.0 K Logg: 4.47 Fe/H: -0.500



## DV Fit Results:

Period = 94.17794 [0.00099] d  
Epoch = 200.2937 [0.0086] BKJD  
Rp/R\* = 0.0319 [0.0016]  
a/R\* = 44.32 [4.73]  
b = 0.95 [0.01]  
Seff = 12.36 [5.70]  
Teq = 478 [55] K  
Rp = 3.49 [1.30] Re  
a = 0.4169 [0.1274] AU  
Ag = 1712.67 [888.16] [1.93σ]  
Teff = 4755 [378] K [11.18σ]

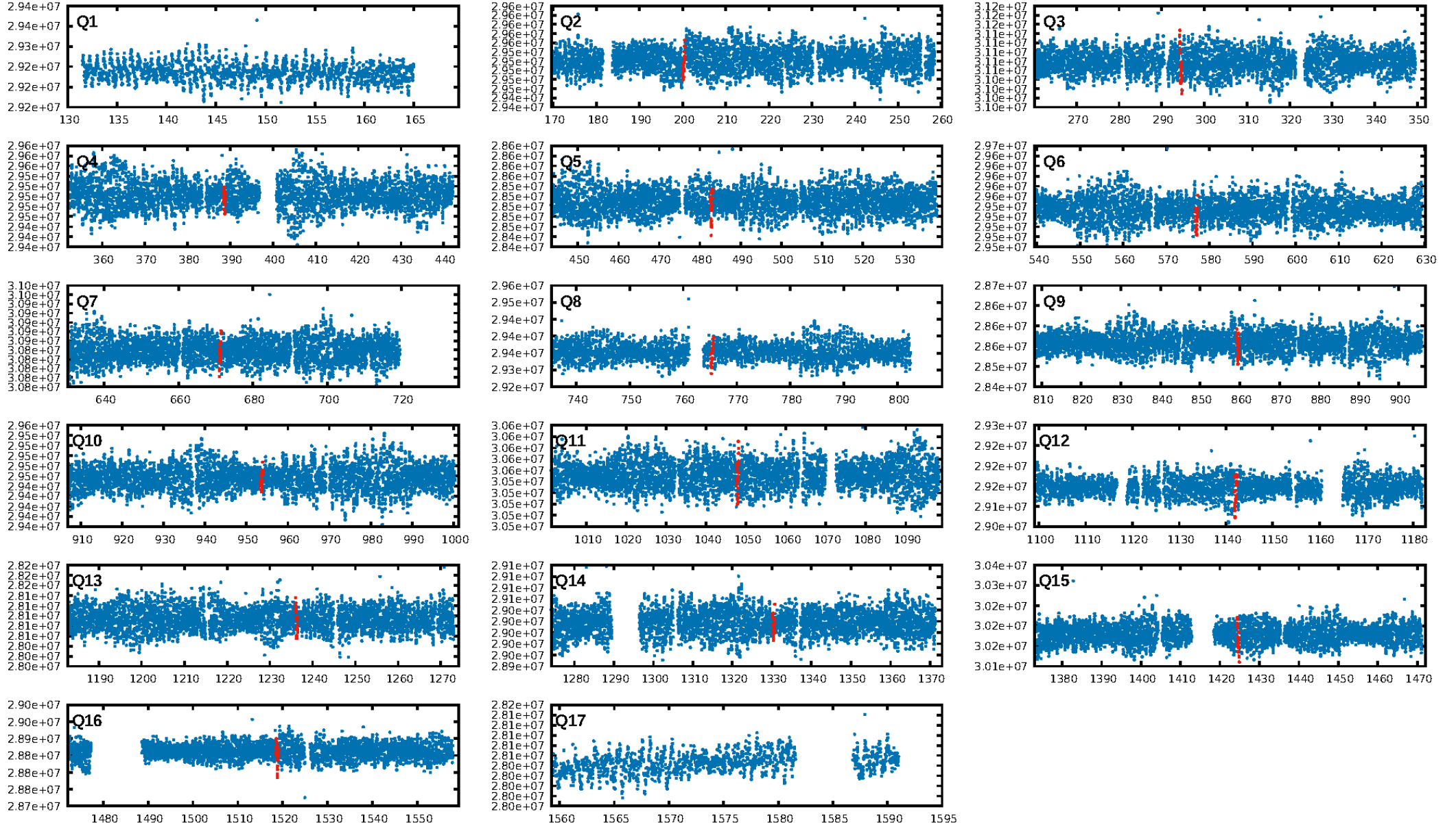
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [102.71σ]  
LongPeriod-sig: 100.0% [207.29σ]  
ModelChiSquare2-sig: 48.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [15/15]  
GhostDiagnostic-chr: 372.7  
Centroid-sig: 7.2%  
Centroid-so: 0.604 arcsec [1.22σ]  
OotOffset-rm: 0.100 arcsec [0.67σ]  
KicOffset-rm: 0.119 arcsec [0.76σ]  
OotOffset-st: 3/4/4/3 [14]  
KicOffset-st: 3/4/4/3 [14]  
DiffImageQuality-fgm: 0.93 [13/14]  
DiffImageOverlap-fno: 0.00 [0/14]

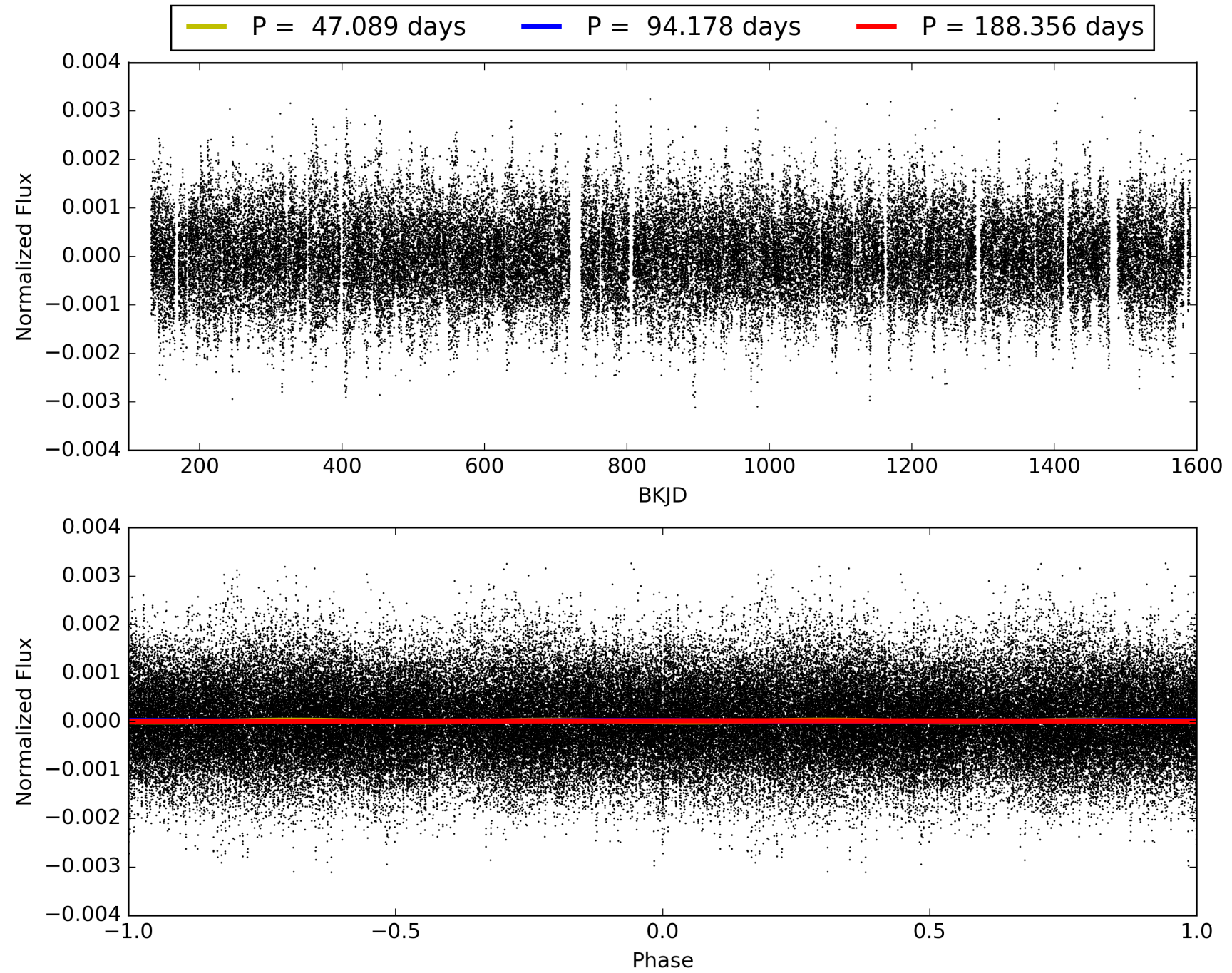
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:44:15 Z

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

# TCE 009092496-01, PDC Light Curves



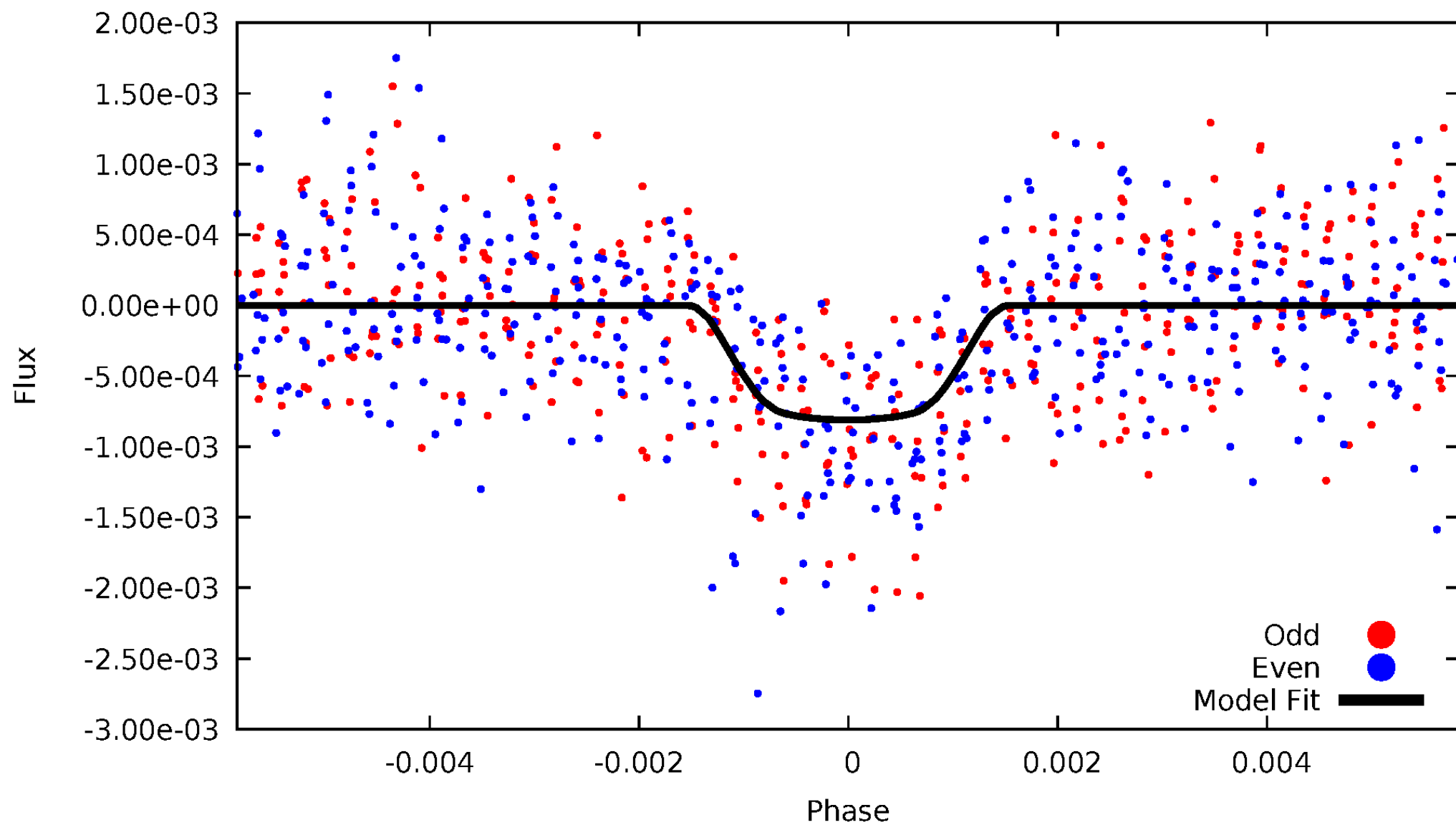
TCE 009092496-01





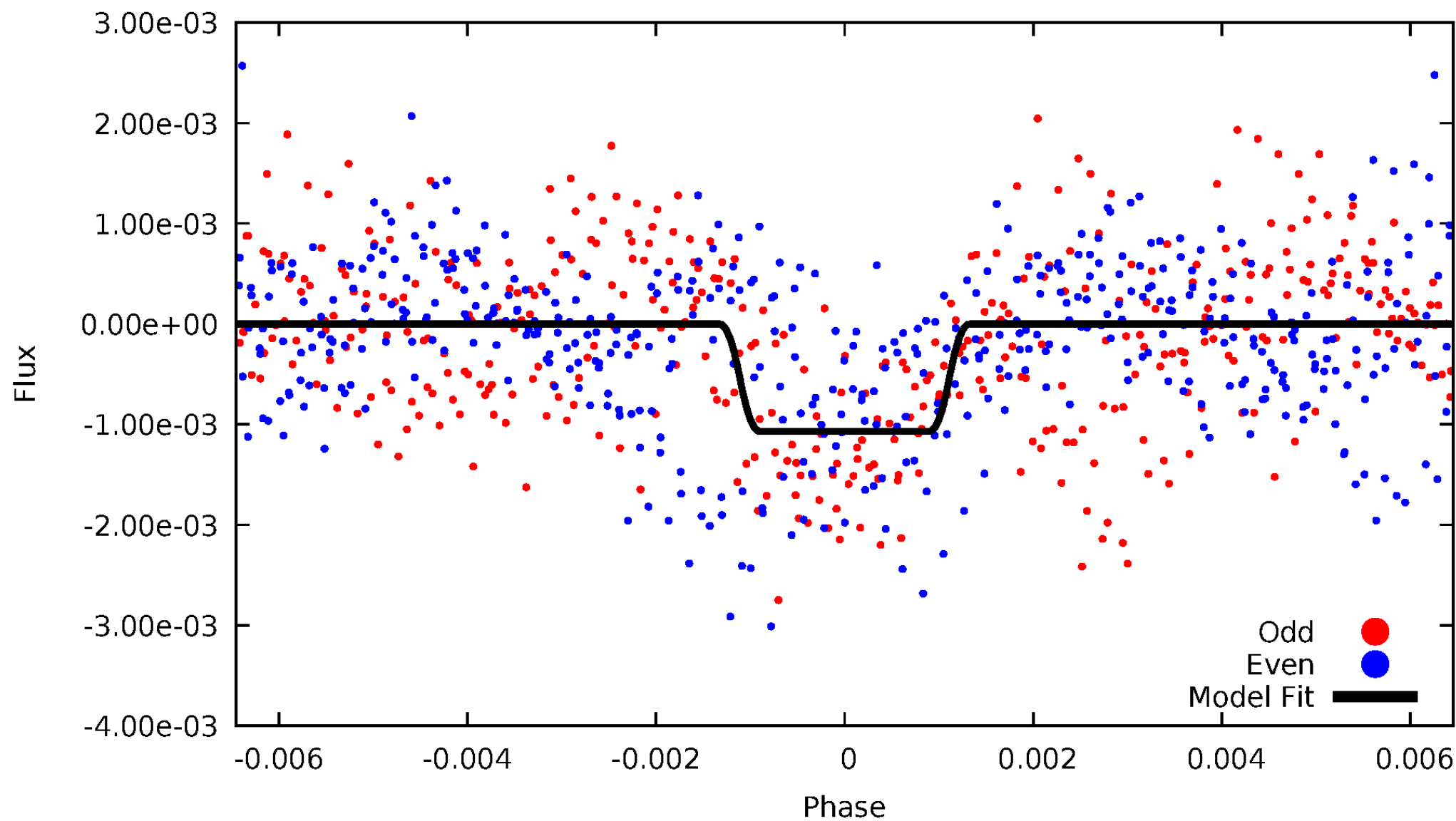
# DV Odd/Even

TCE 009092496-01



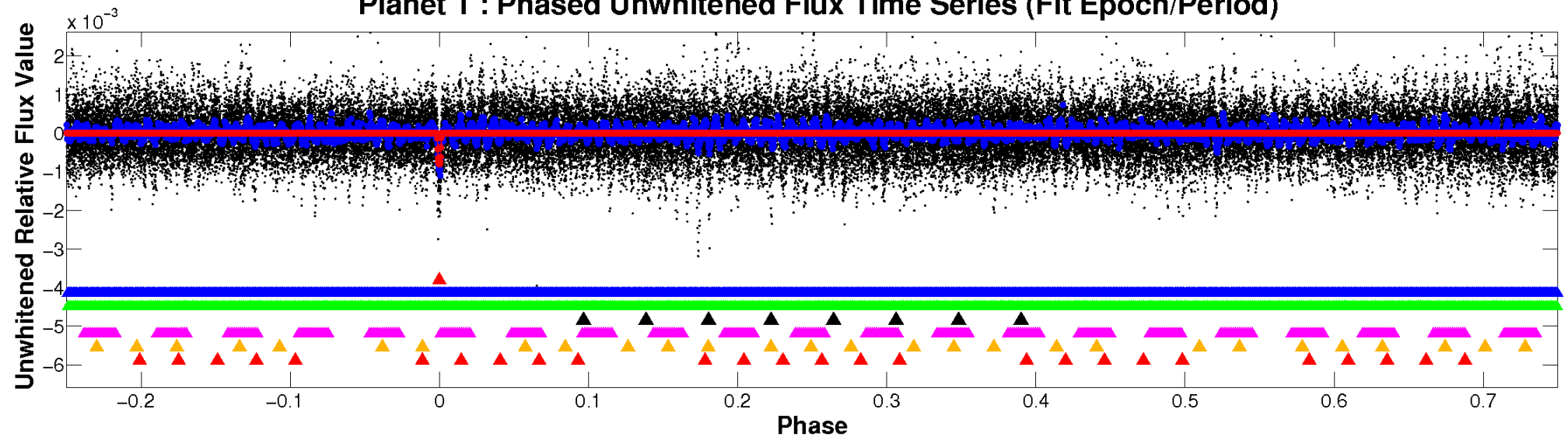
# ALT Odd/Even

TCE 009092496-01

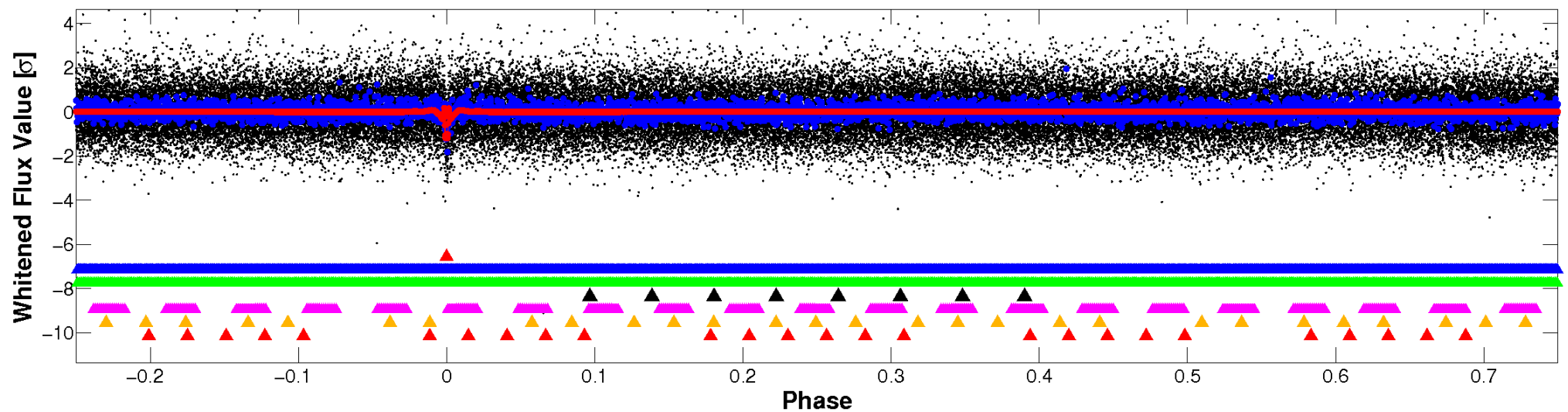


# Non-Whitened Vs. Whitened Light Curve

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

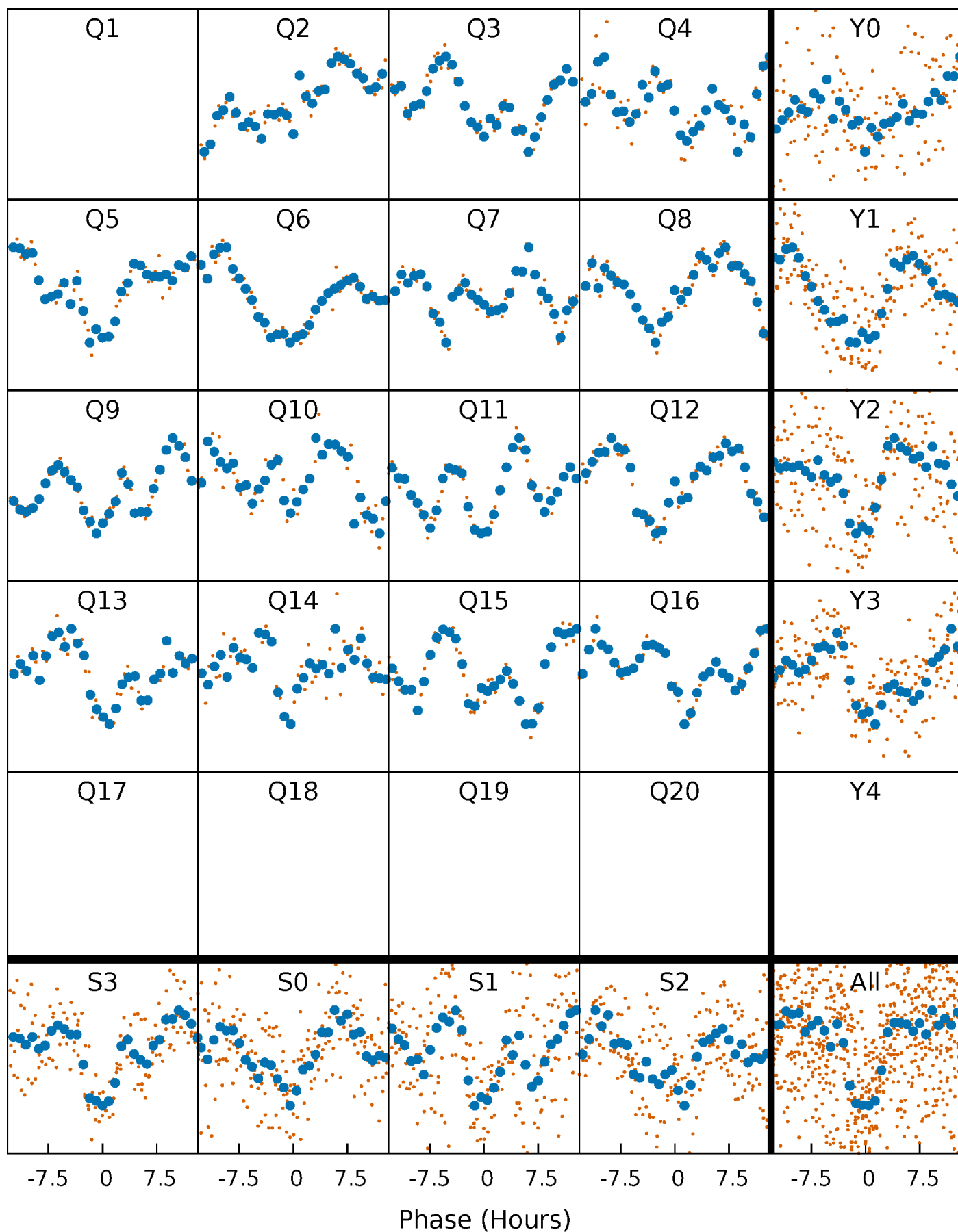


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

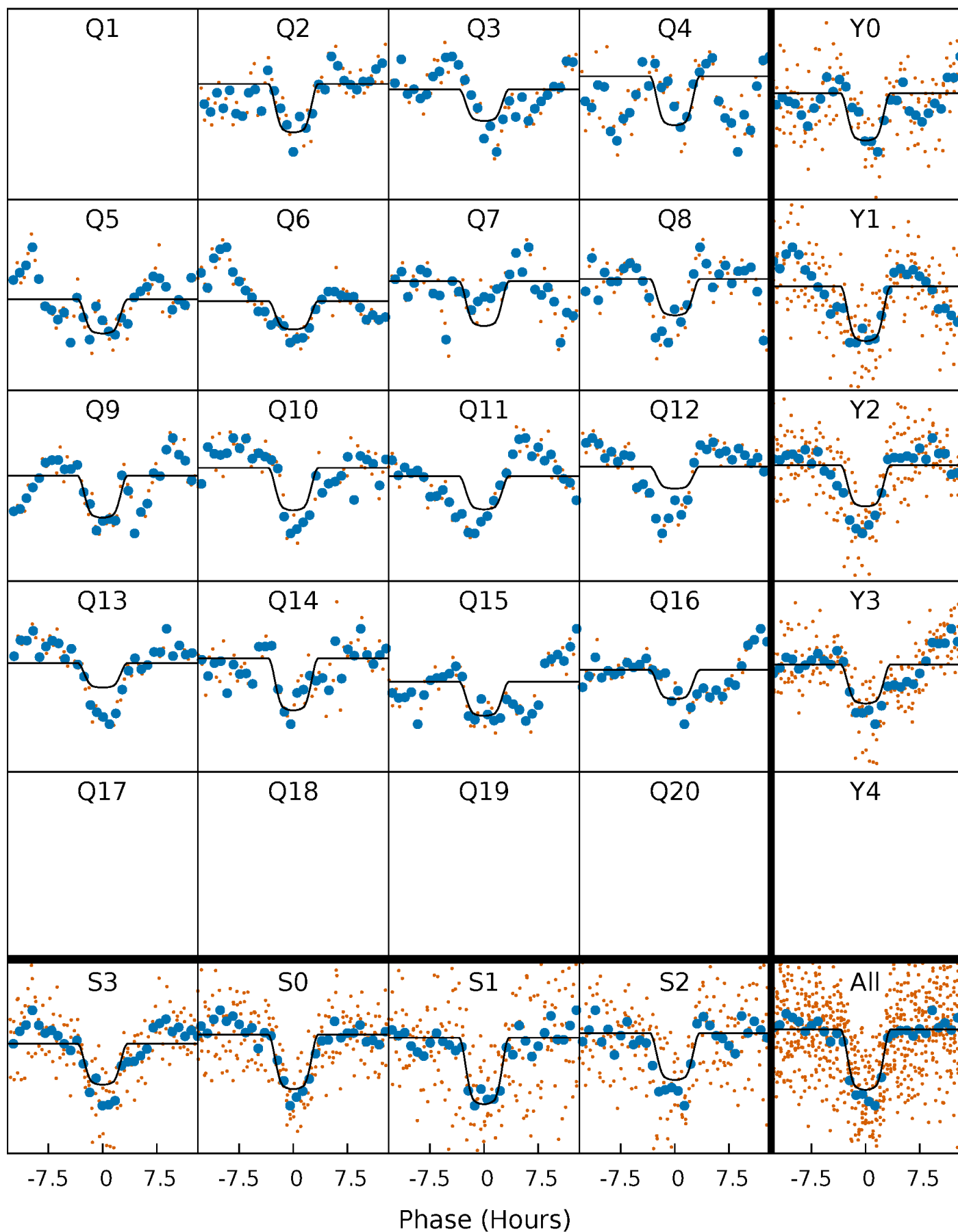
TCE 009092496-01   P= 94.177944 Days    $T_0=200.293674$  (BKJD)





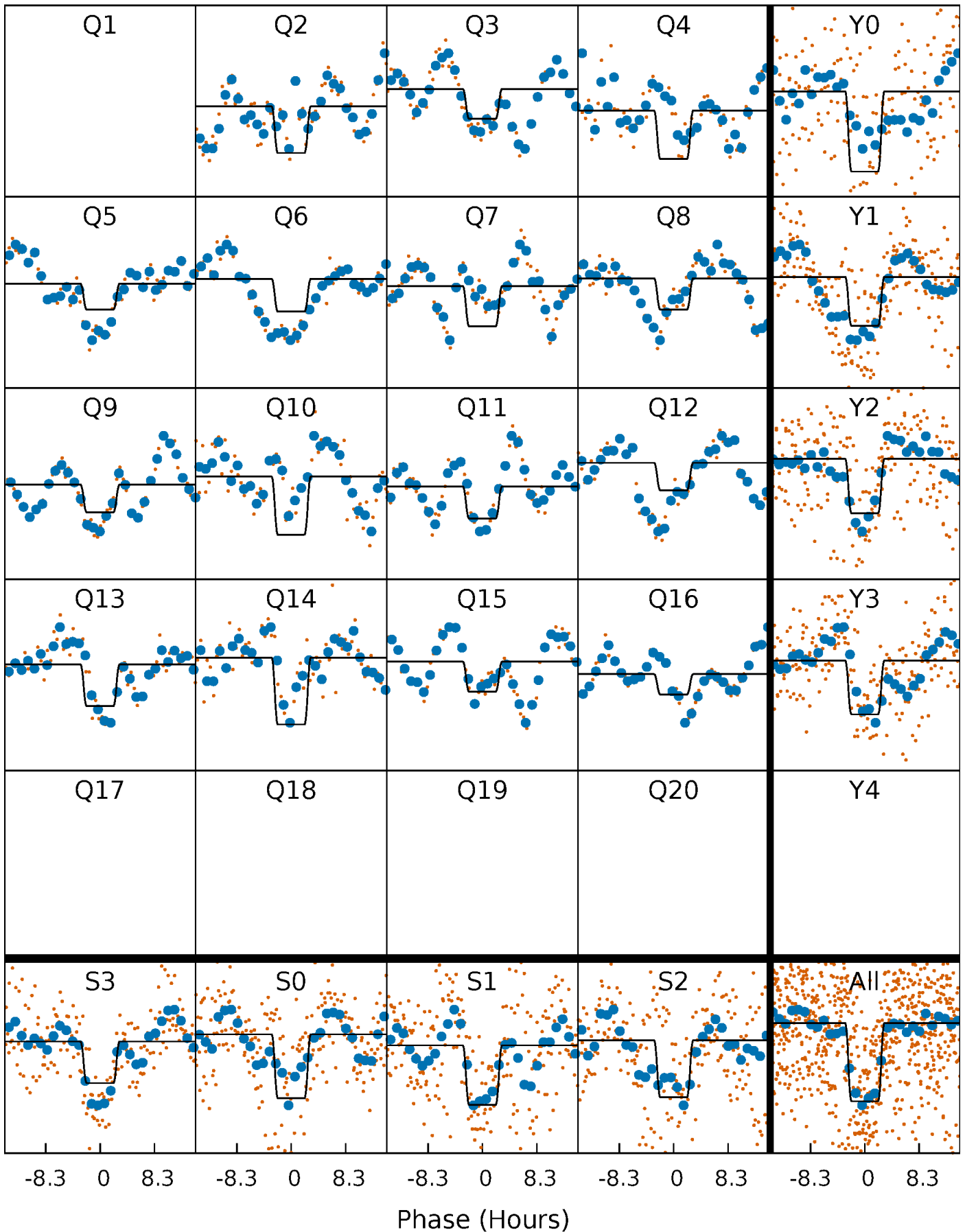
# DV Quarter-Phased Transit Curves

TCE 009092496-01   P= 94.177944 Days    $T_0=200.293674$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

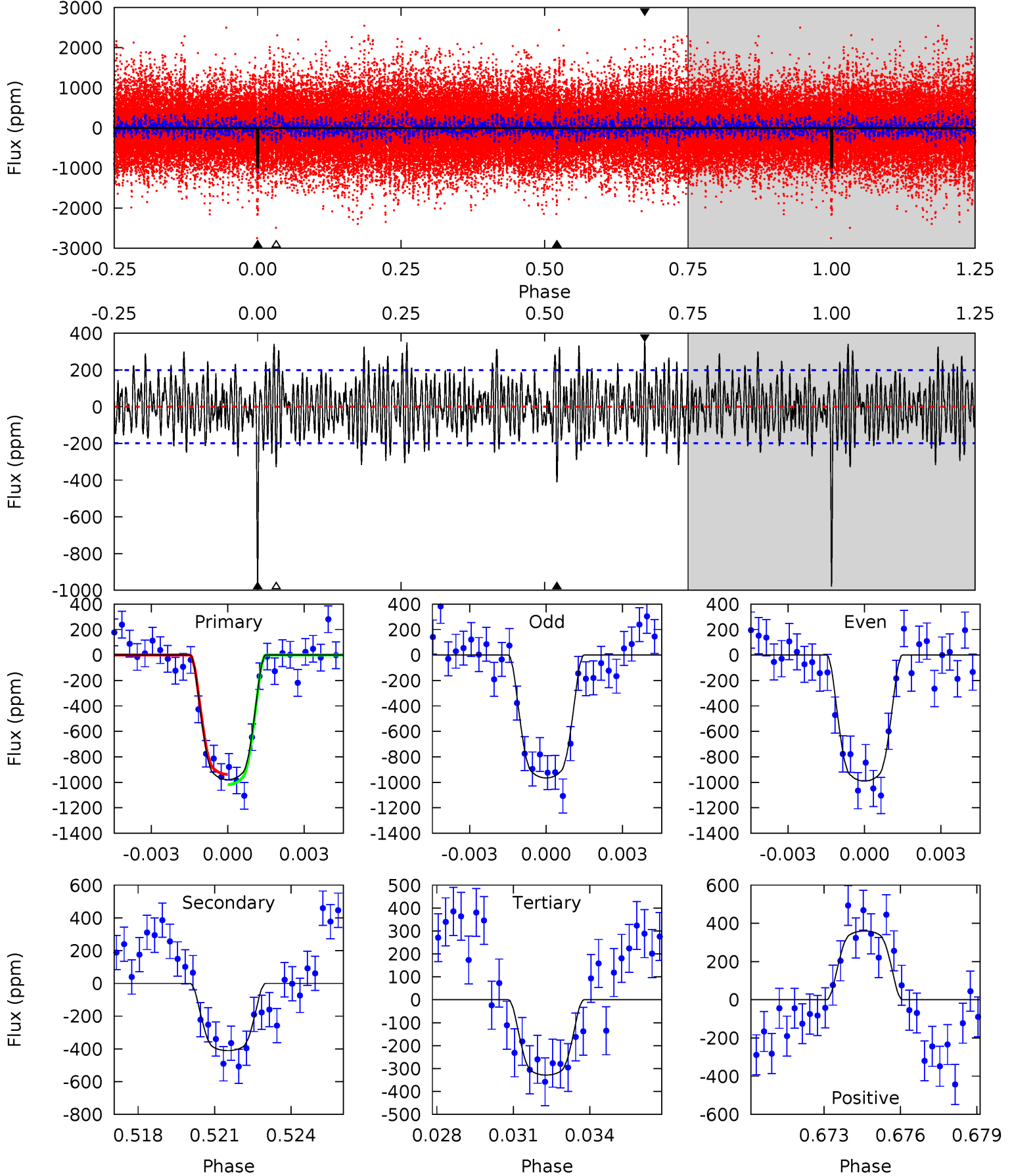
TCE 009092496-01     $P = 94.176284$  Days     $T_0 = 200.302216$  (BKJD)



# DV Model-Shift Uniqueness Test

009092496-01, P = 94.177944 Days, E = 106.115730 Days

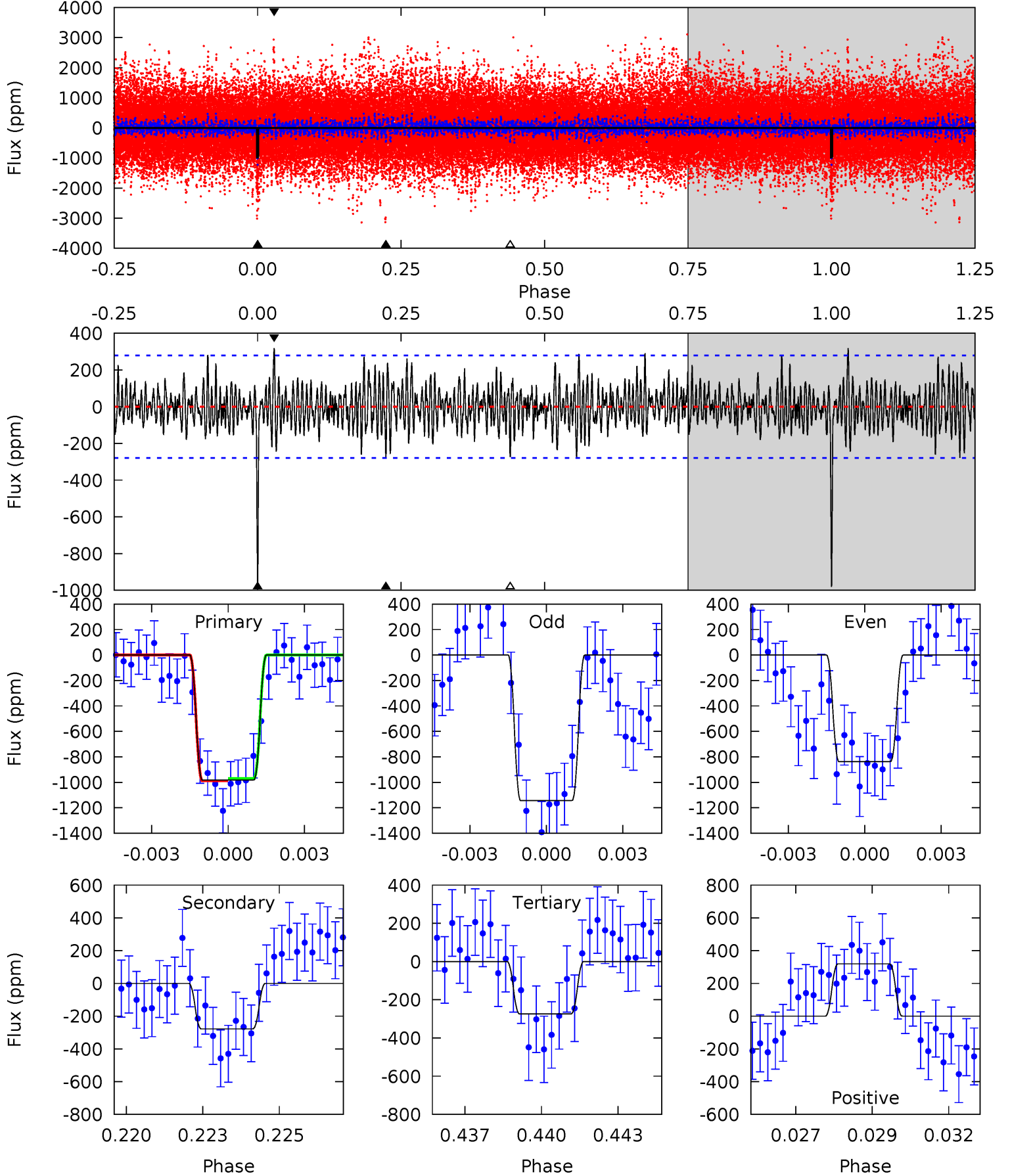
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.8	10.8	8.66	9.49	5.25	2.96	3.08	17.1	16.3	2.16	1.33	0.33	1.08	0.27	1.06



# Alt Model-Shift Uniqueness Test

009092496-01, P = 94.176284 Days, E = 106.125932 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
18.5	5.25	5.17	6.03	5.28	3.01	1.72	13.4	12.5	0.08	-0.78	2.88	1.00	0.25	0.16





### Stellar Parameters For KIC 009092496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6997^{+167}_{-263}$	$4.475^{+0.026}_{-0.234}$	$-0.500^{+0.300}_{-0.300}$	$1.000^{+0.371}_{-0.066}$	$1.155^{+0.159}_{-0.119}$	$1.628^{+0.174}_{-0.976}$
	+2%/-4%	+1%/-5%	+60%/-60%	+37%/-7%	+14%/-10%	+11%/-60%
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 009092496-01 / KOI 4193.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-411 \pm 38$	$3.79^{+0.73}_{-0.43}$	$691^{+54}_{-36}$	$5542^{+211}_{-214}$	$2769^{+681}_{-754}$
Alt.	$-278 \pm 53$	$3.90^{+0.66}_{-0.43}$	$689^{+54}_{-33}$	$4996^{+272}_{-255}$	$1732^{+534}_{-520}$

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

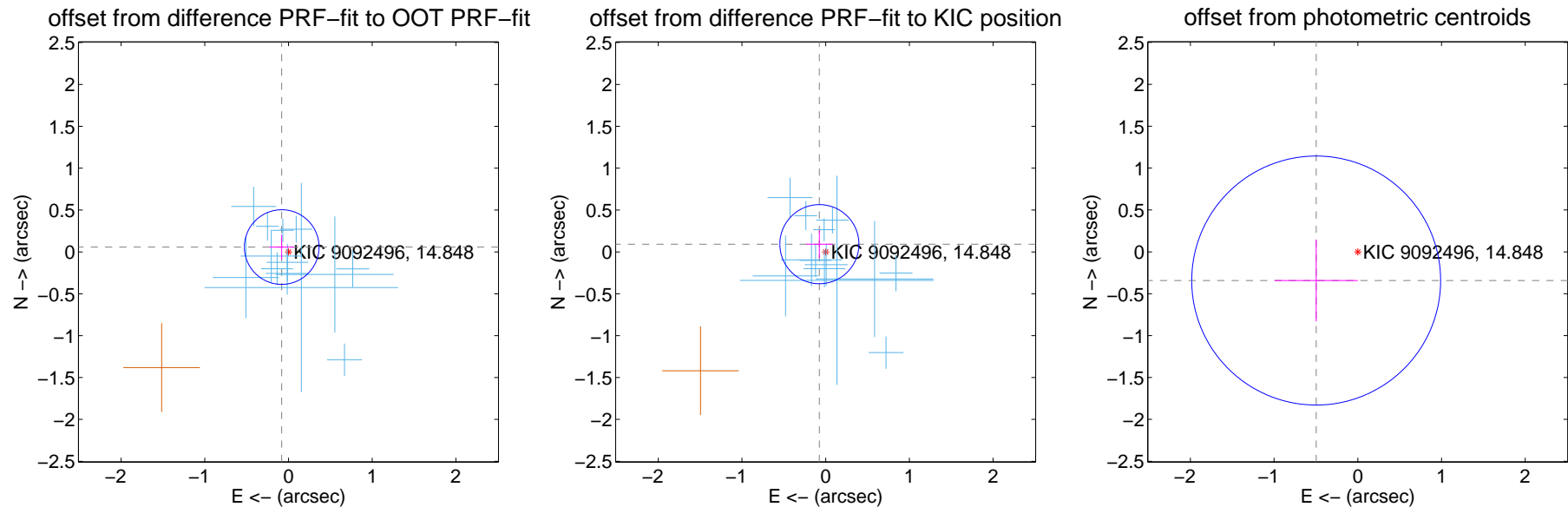
## DV Centroid Data

Supplemental centroid analysis for 009092496-01. Kepler magnitude: 14.85. Transit SNR 13.40

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.100 \pm 0.149$	0.67	$0.081 \pm 0.148$	$0.058 \pm 0.147$
PRF-fit source offset from KIC position	$0.119 \pm 0.157$	0.76	$0.075 \pm 0.160$	$0.092 \pm 0.168$
photometric centroid source offset	$0.60 \pm 0.50$	1.22	$0.50 \pm 0.50$	$-0.34 \pm 0.49$



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.

Q1 no difference image



Q1 no OOT image



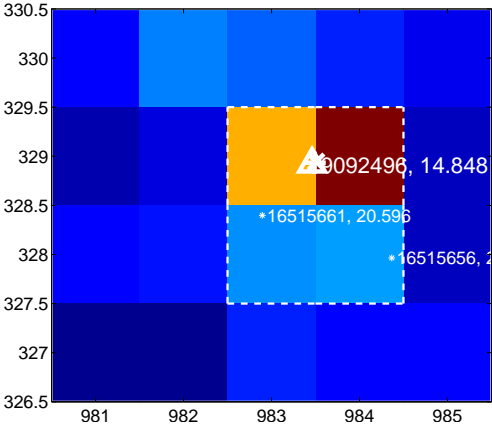
Q2 no difference image



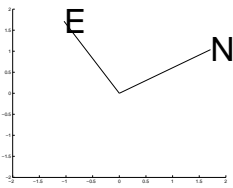
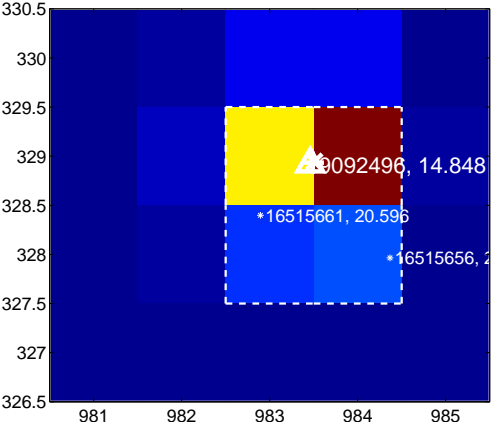
Q2 no OOT image



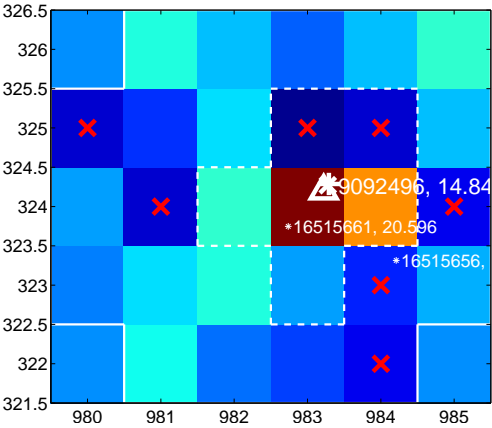
Q3 difference image



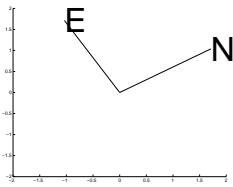
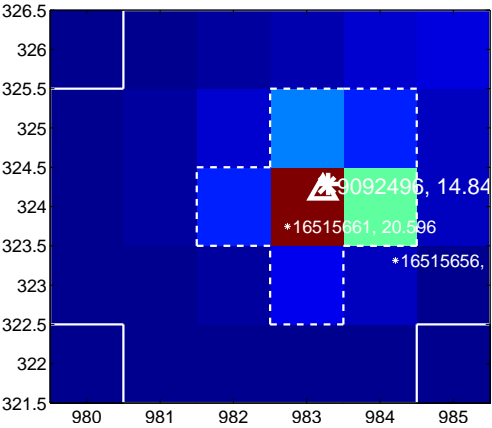
Q3 OOT image



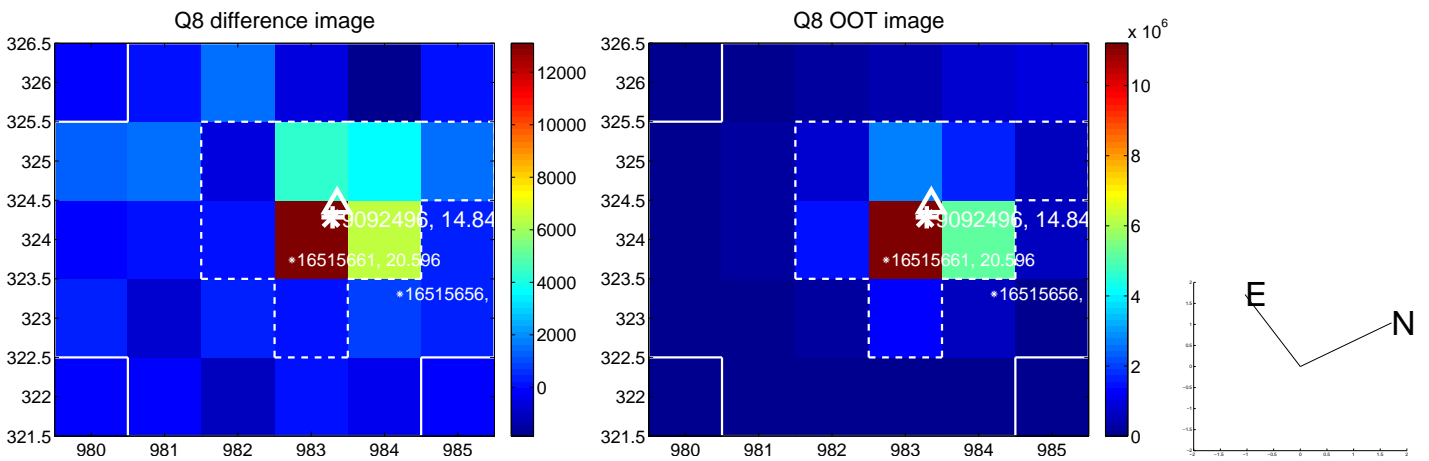
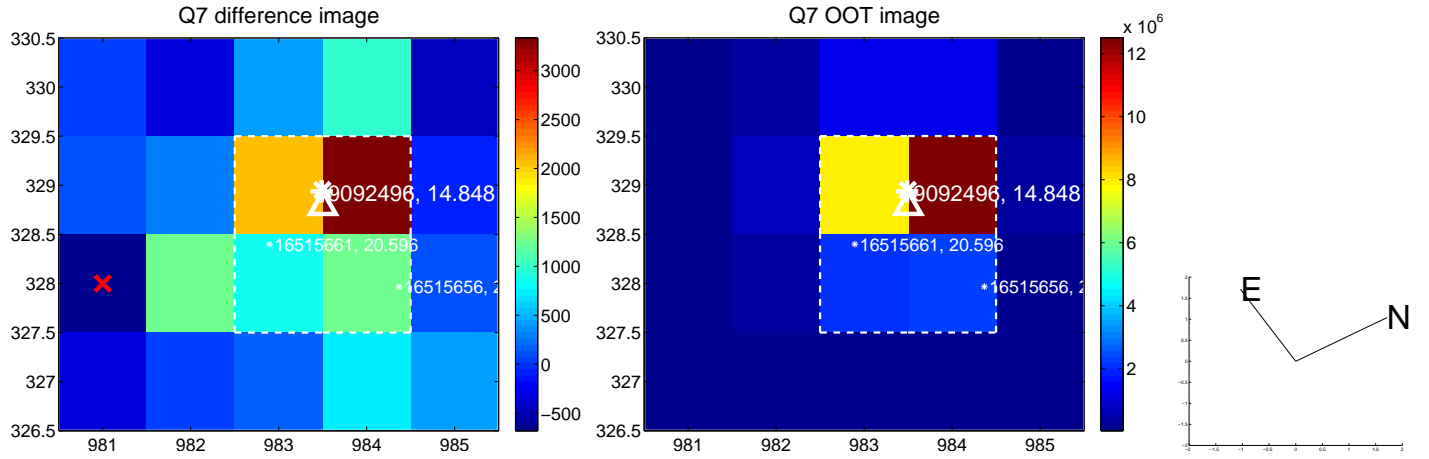
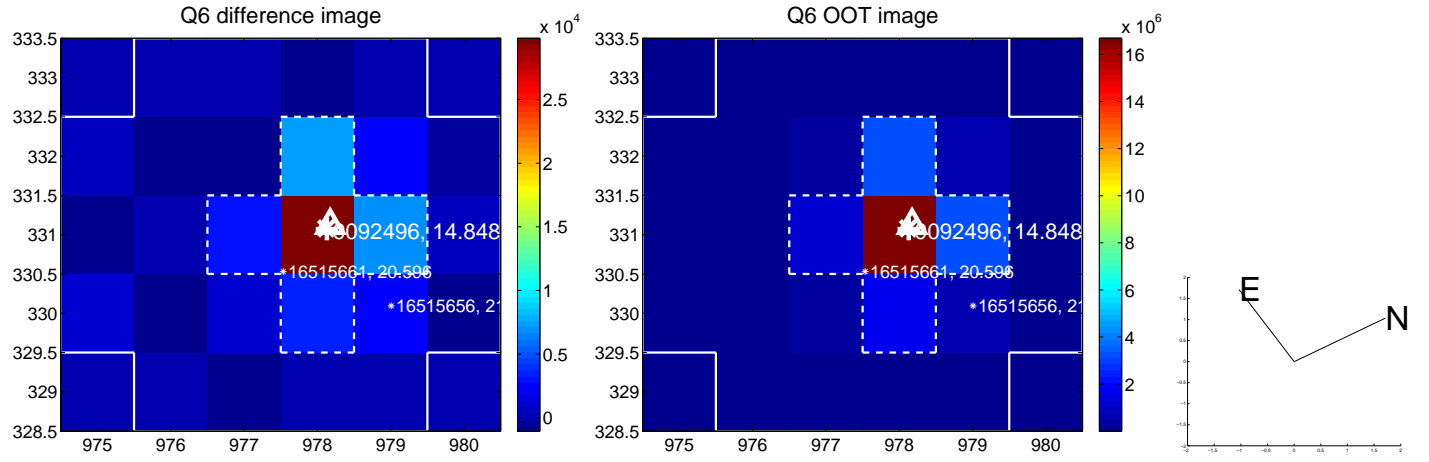
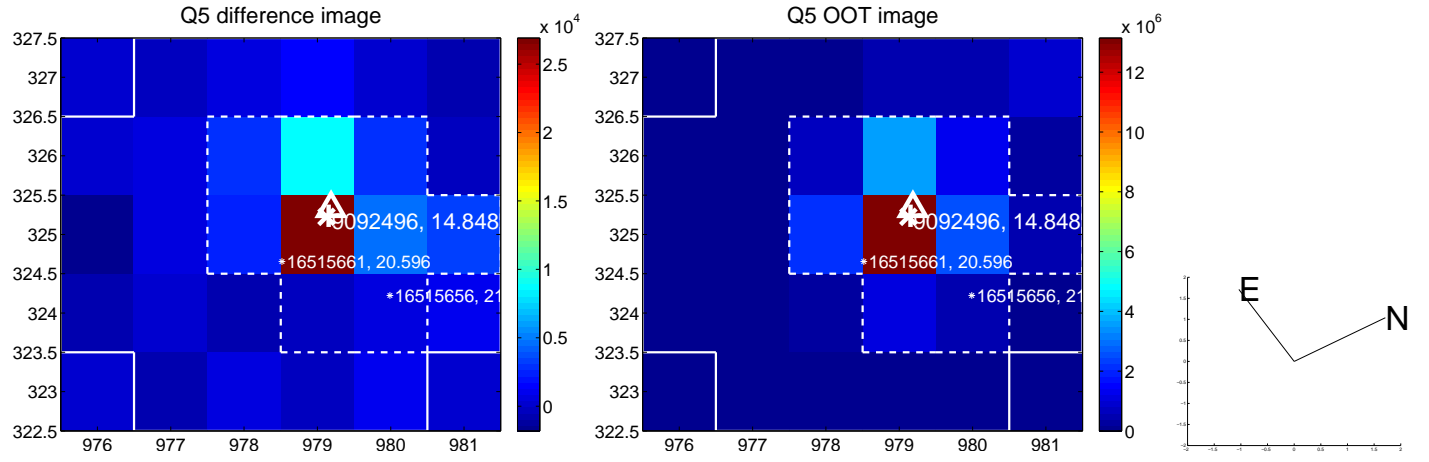
Q4 difference image



Q4 OOT image

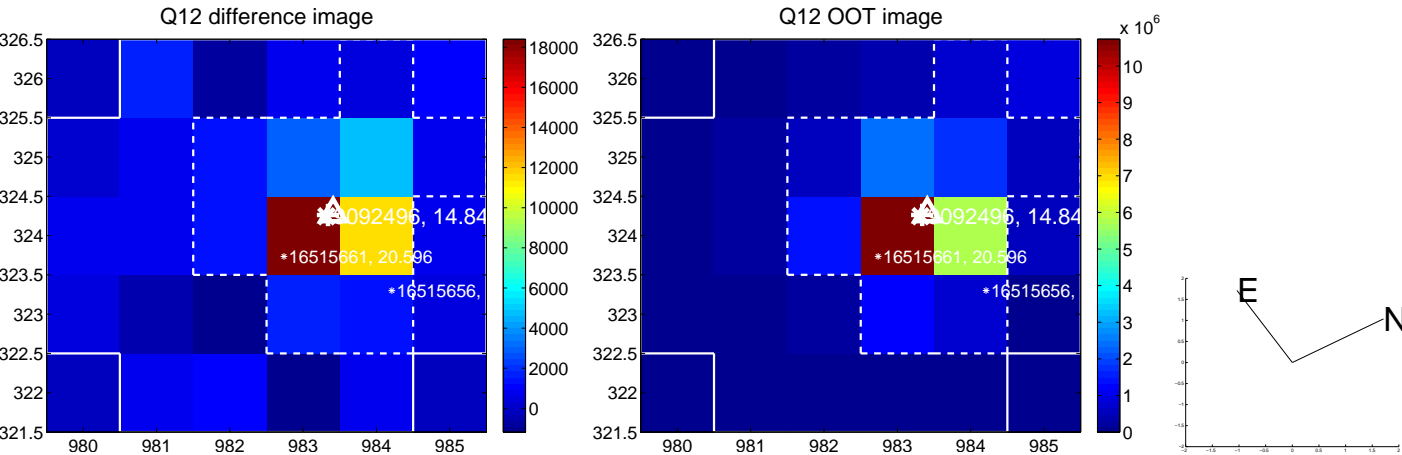
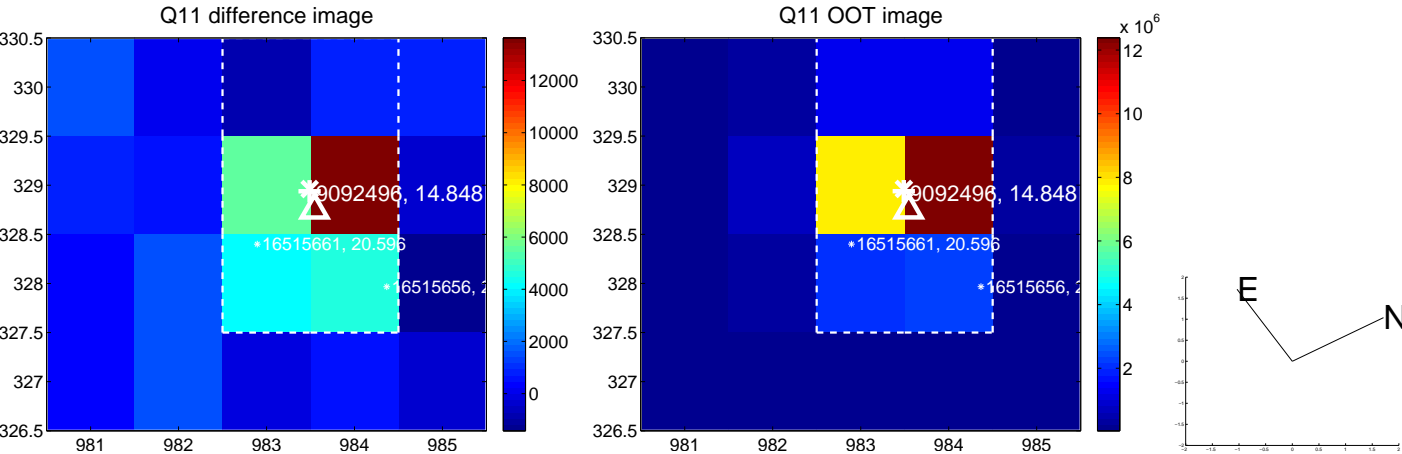
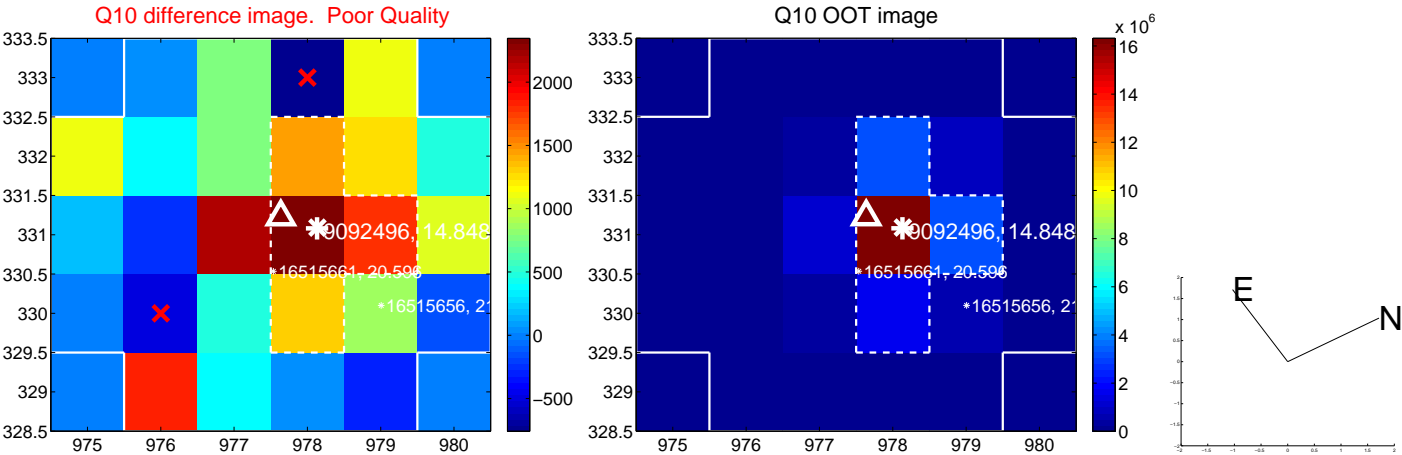
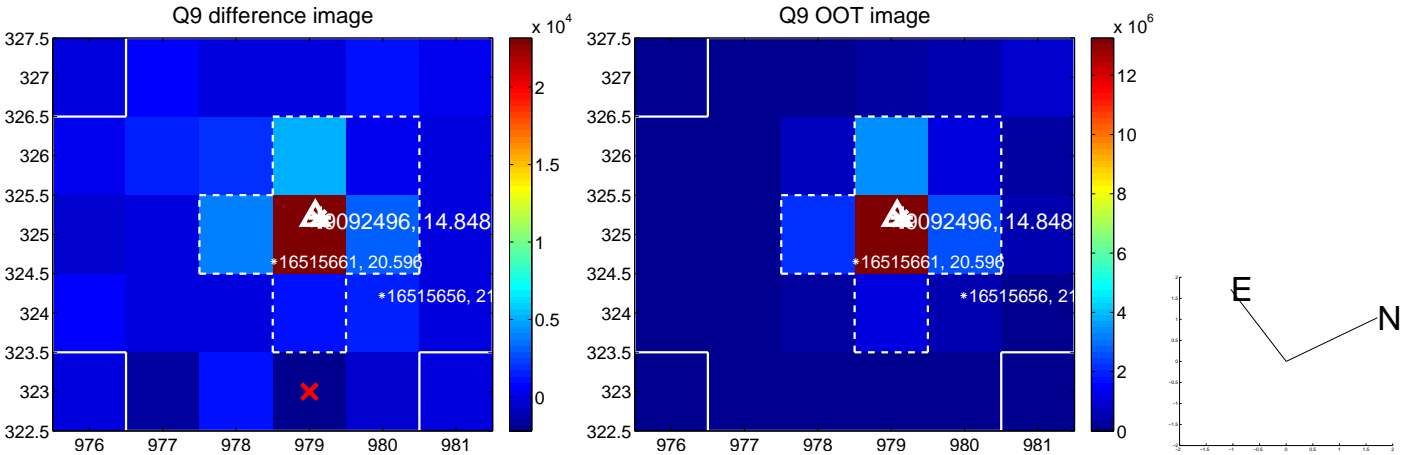


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

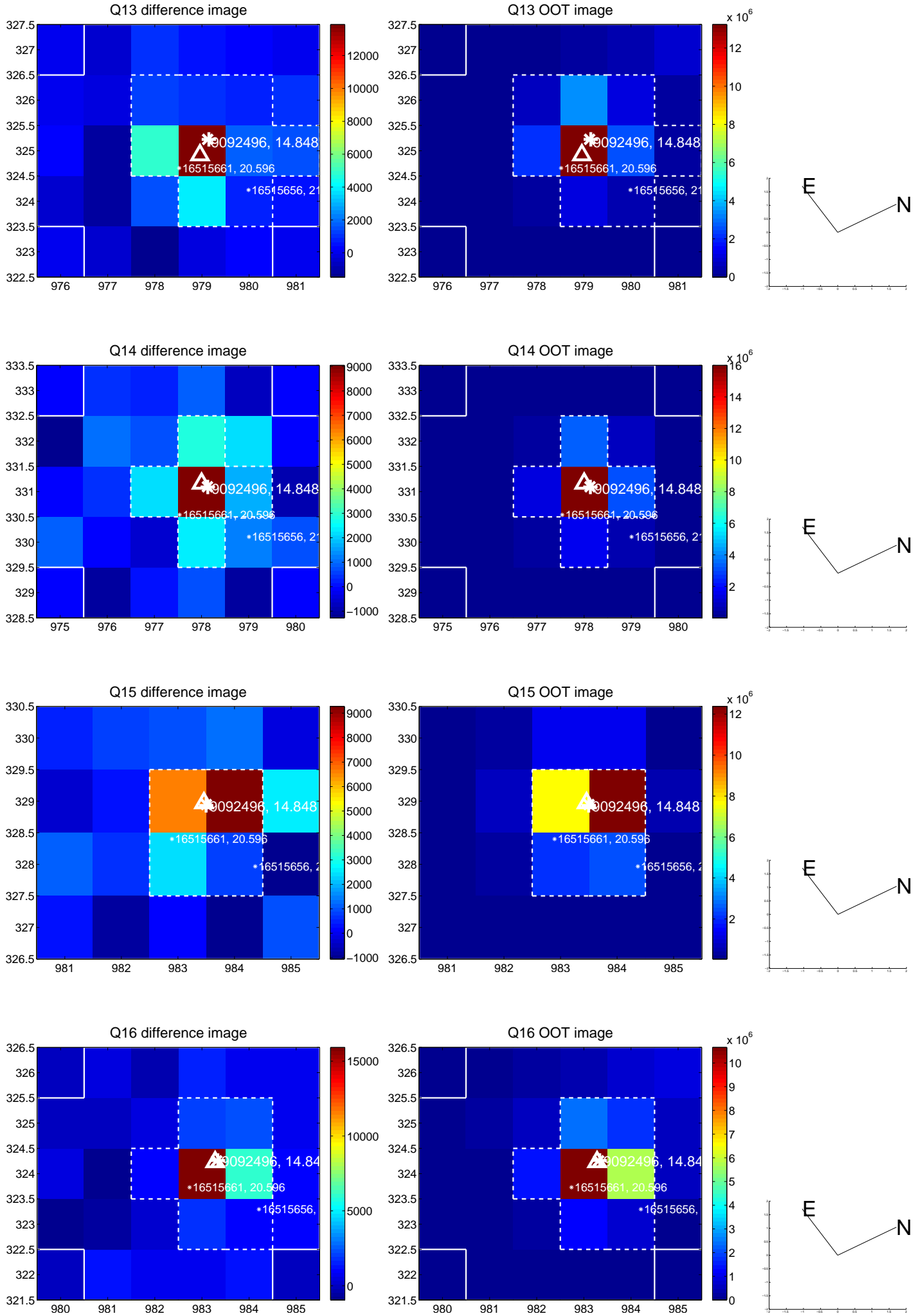




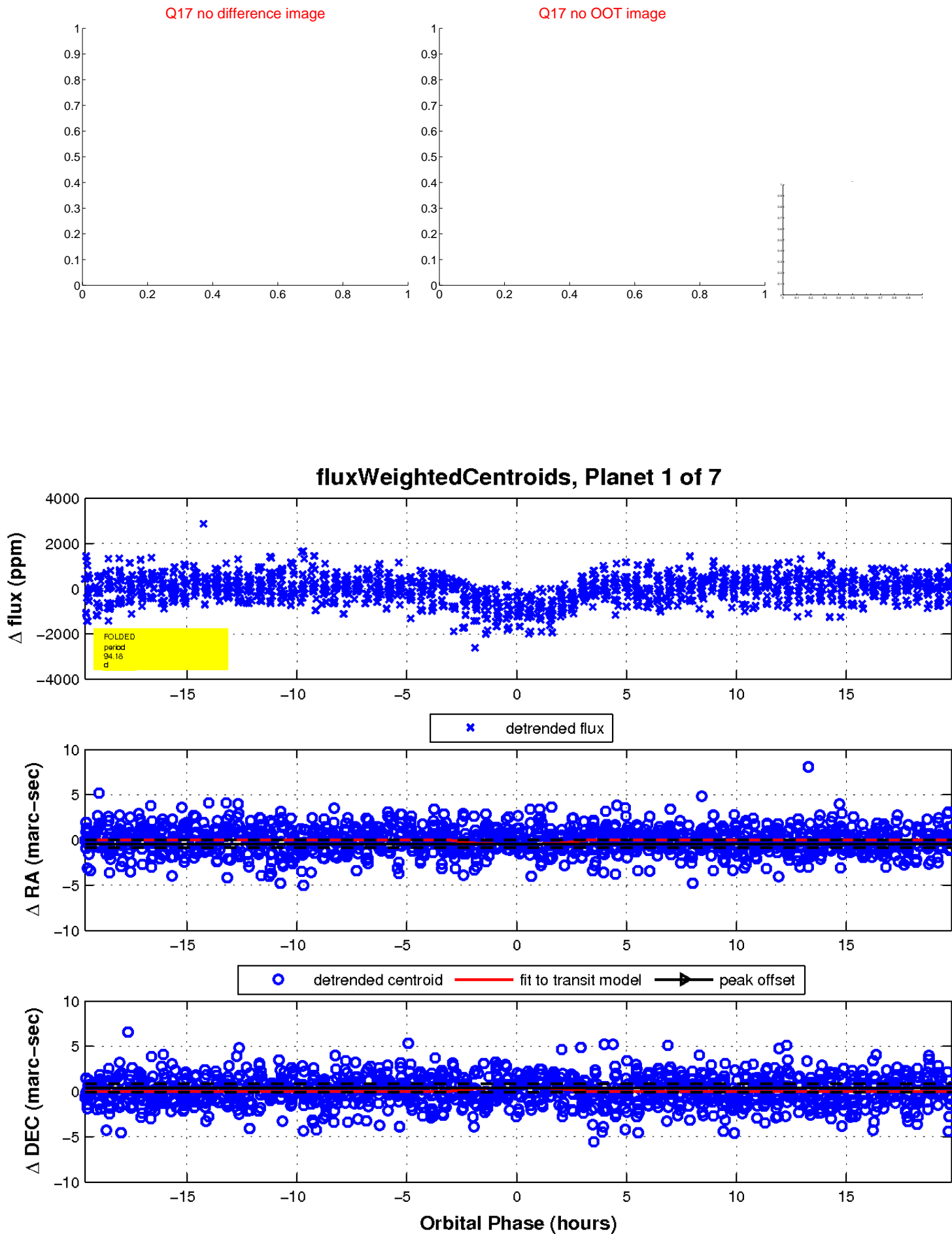
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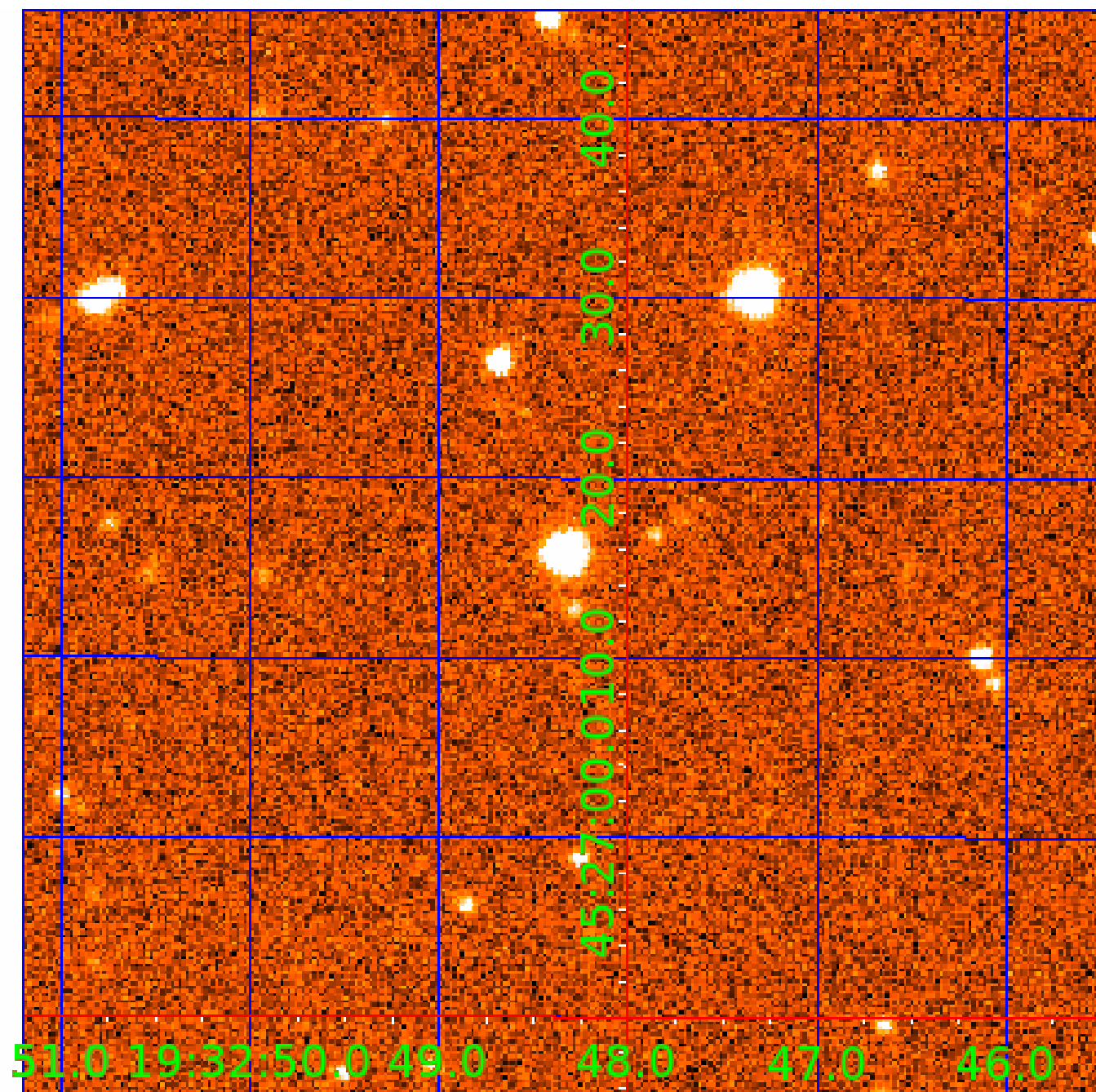


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UKIRT Image

Declination





# KIC 009092496

## Q1-17 DR25 TCE Parameters

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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009092496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009092496-03	OBS	FP	0.00	1	0	0	0	LPP_DV
009092496-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT
009092496-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009092496-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009092496-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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 009092496-02

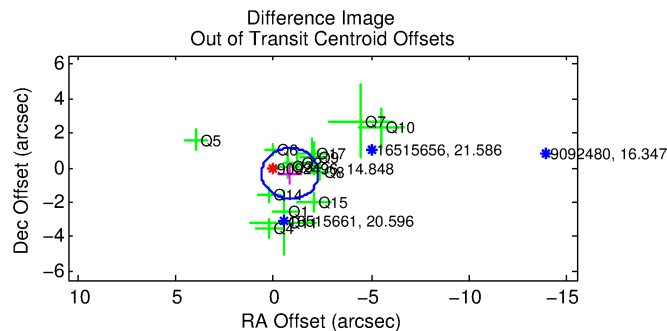
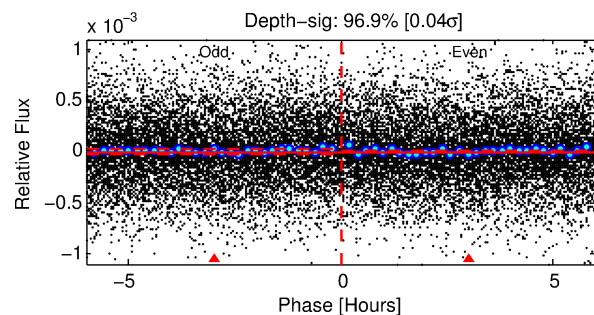
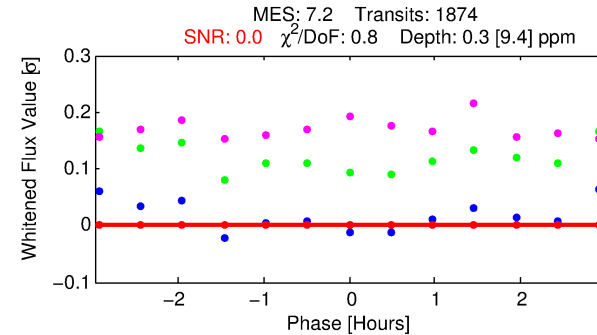
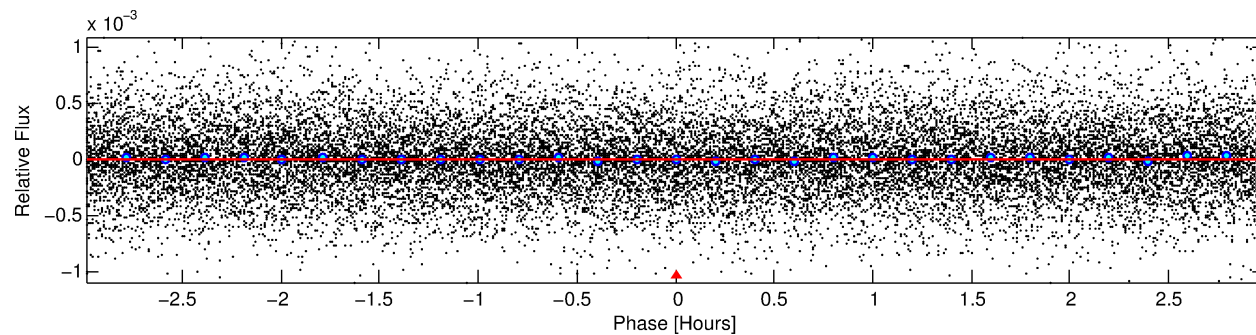
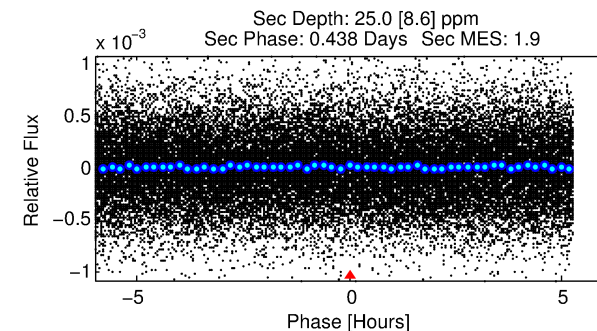
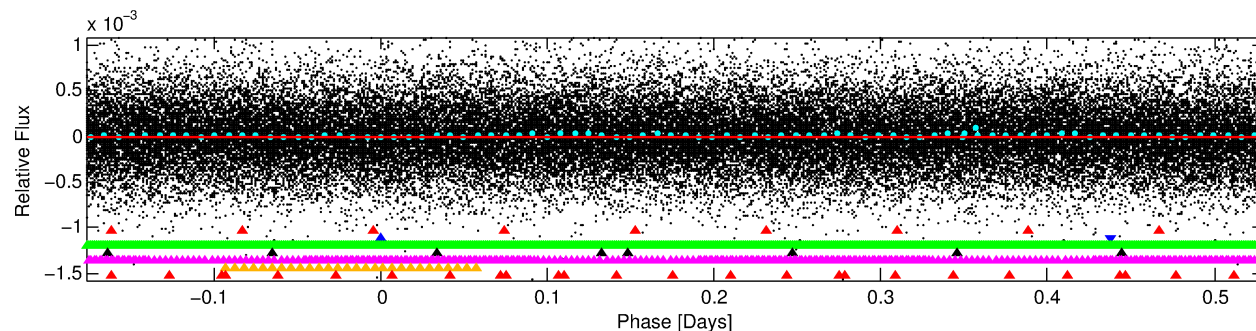
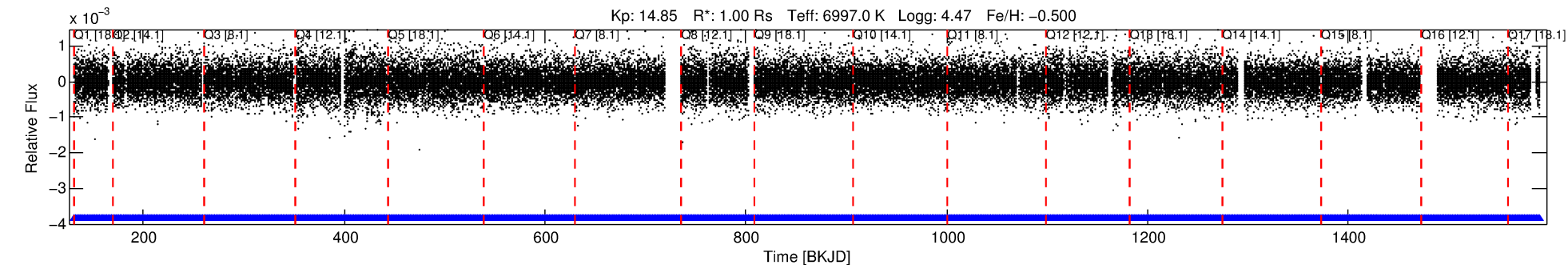
No Significant Match Found

# DV One-Page Summary

KIC: 9092496 Candidate: 2 of 7 Period: 0.707 d

KOI: K04193 Corr: No Ephemeris Match

Kp: 14.85 R\*: 1.00 Rs Teff: 6997.0 K Logg: 4.47 Fe/H: -0.500



## DV Fit Results:

Period = 0.70692 [0.00271] d  
Epoch = 131.5700 [0.4197] BKJD  
Rp/R\* = 0.0005 [0.0098]  
a/R\* = 3.20 [39.60]  
b = 0.82 [5.84]  
Seff = 8408.37 [3879.10]  
Teff = 2442 [282] K  
Rp = 0.06 [1.07] Re  
a = 0.0160 [0.0049] AU  
Ag = 1105.52 [41919.14] [0.03σ]  
Teffp = 21769 [206365] K [0.09σ]

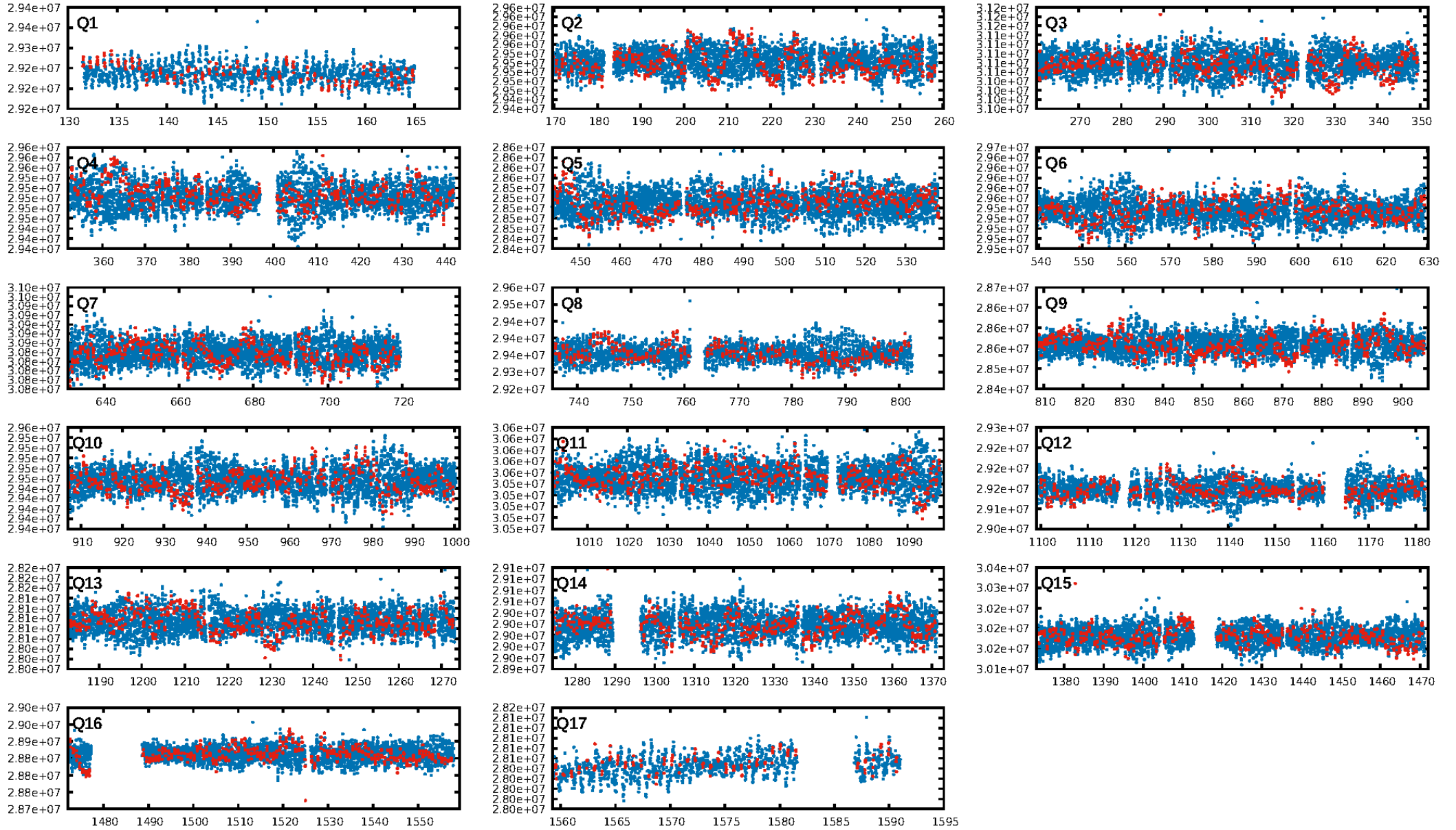
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 96.0% [2.05σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1788/1788]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.906 arcsec [1.86σ]  
KicOffset-rm: 0.911 arcsec [1.66σ]  
OotOffset-st: 4/4/2/4 [14]  
KicOffset-st: 4/4/2/4 [14]  
DiffImageQuality-fgm: 0.36 [5/14]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:44:22 Z

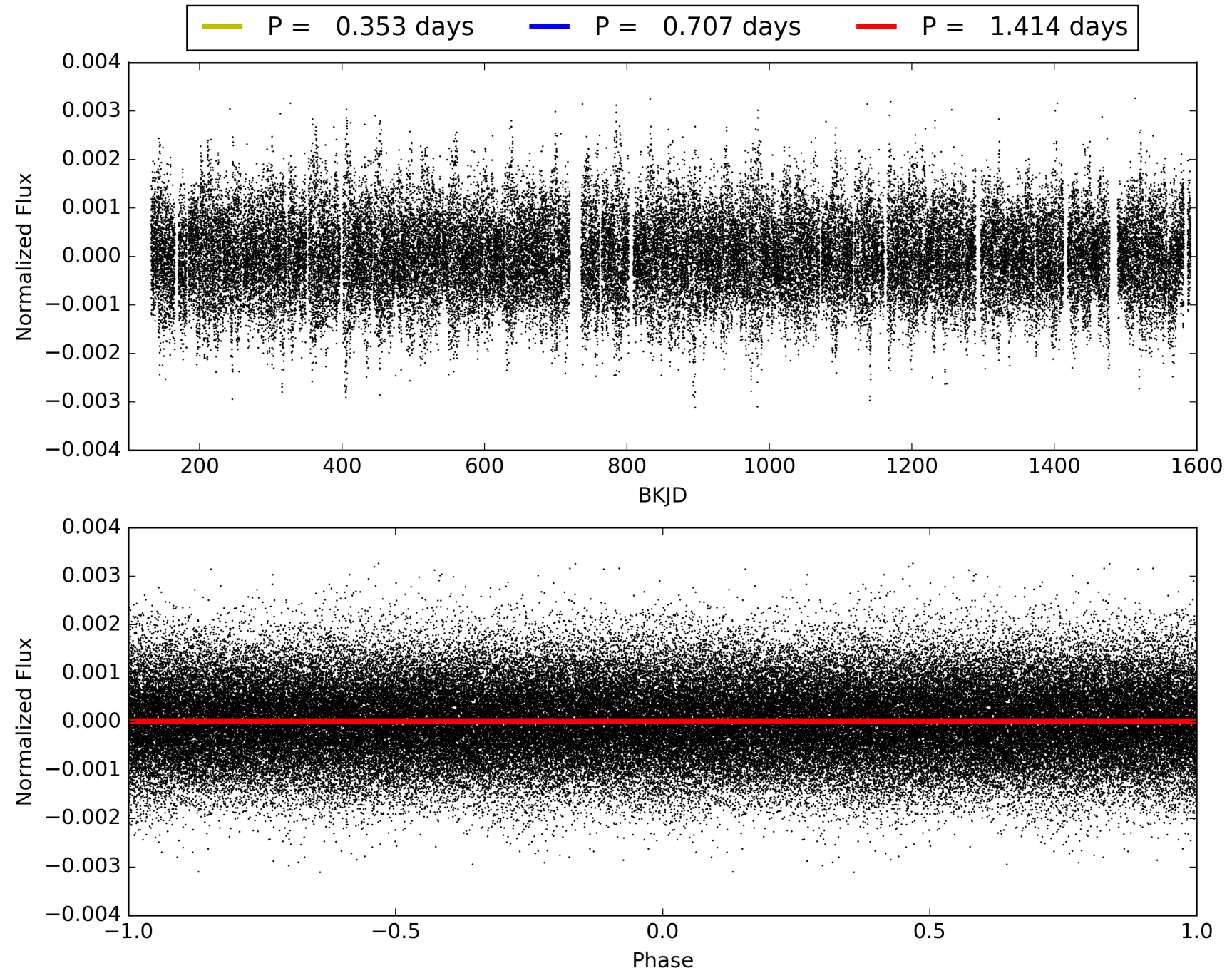
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009092496-02, PDC Light Curves



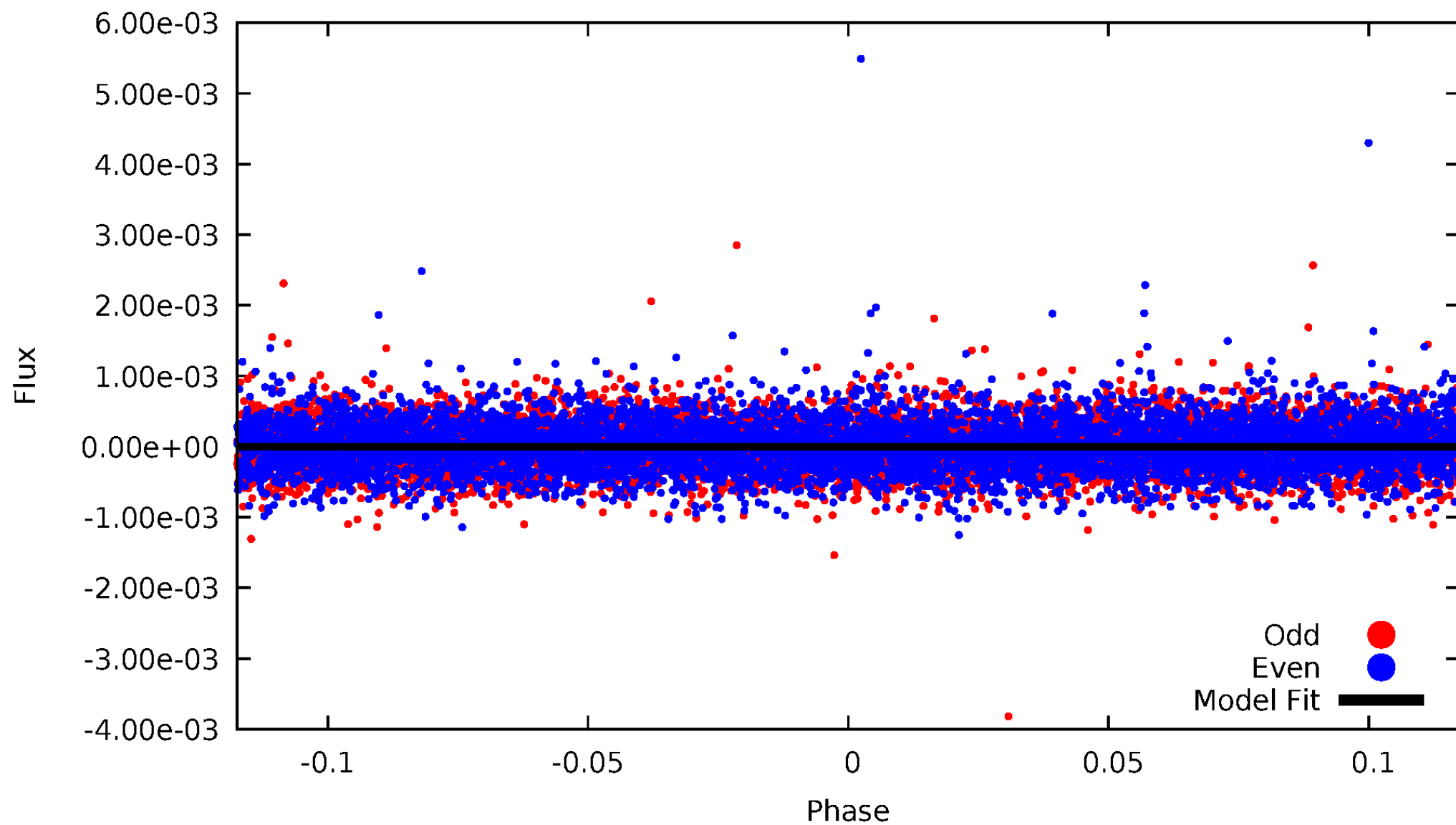


TCE 009092496-02



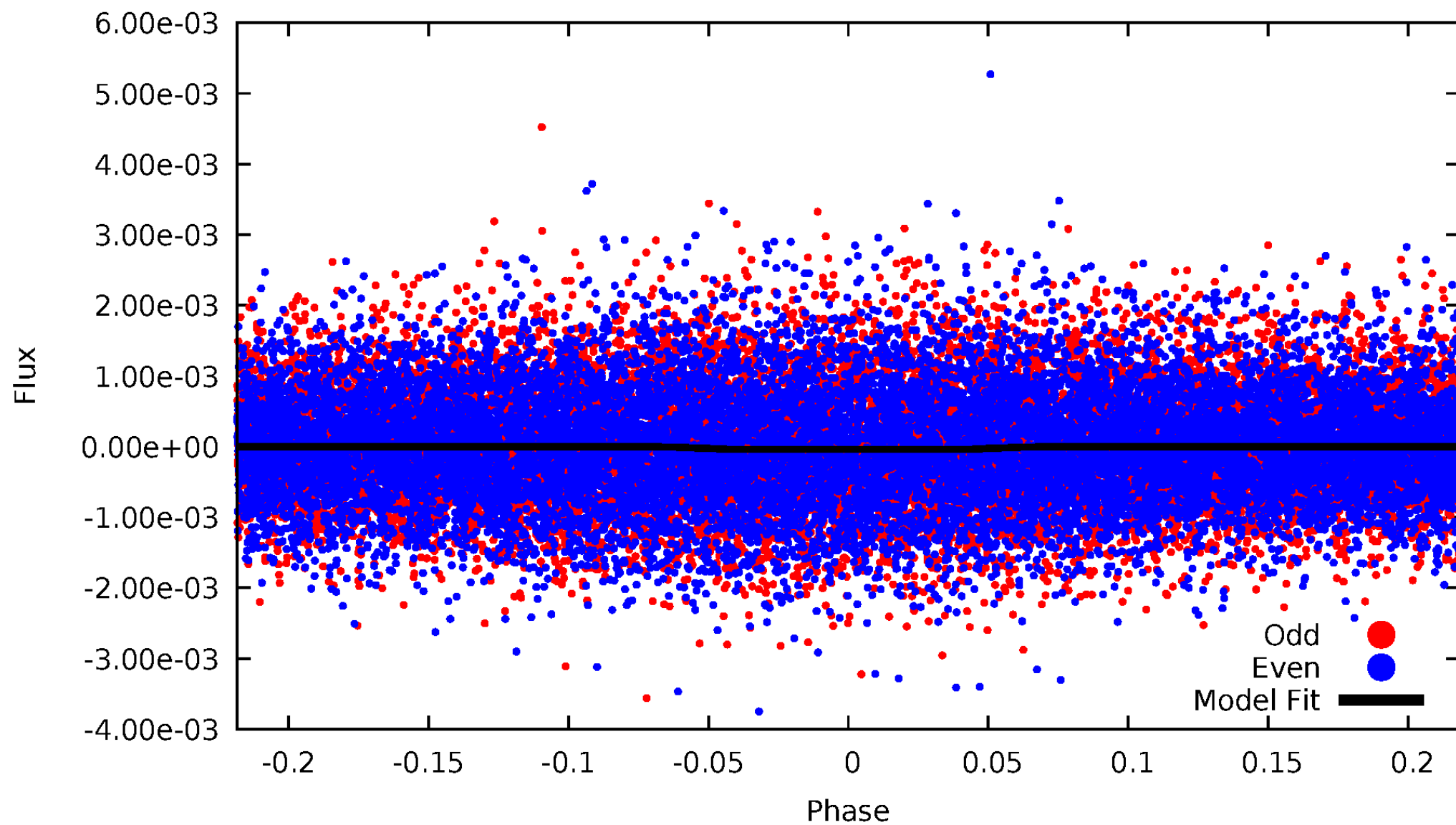
# DV Odd/Even

TCE 009092496-02



# ALT Odd/Even

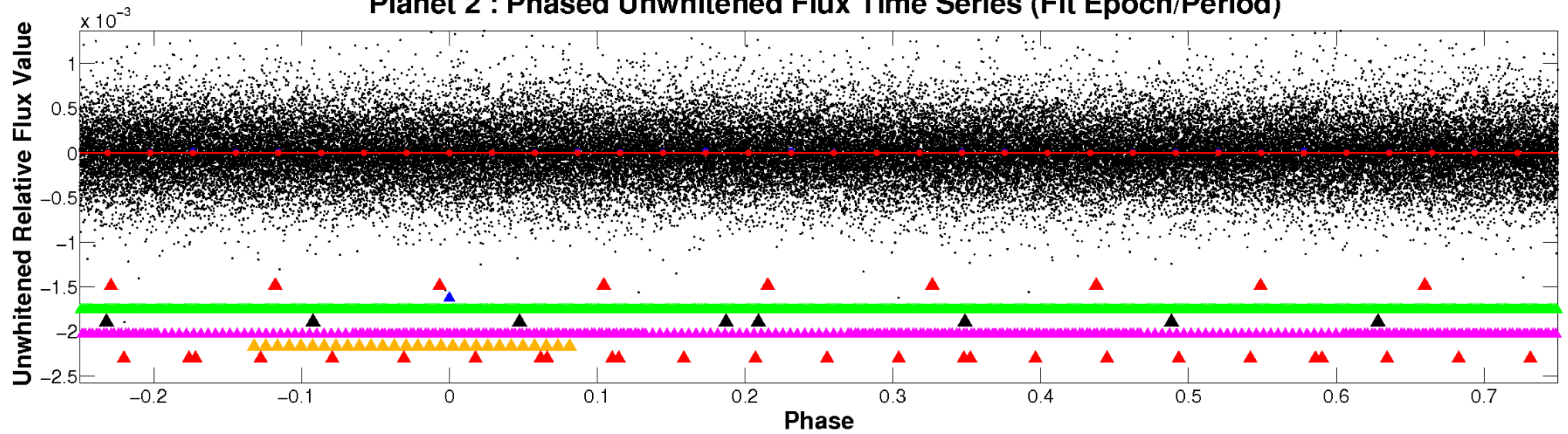
TCE 009092496-02



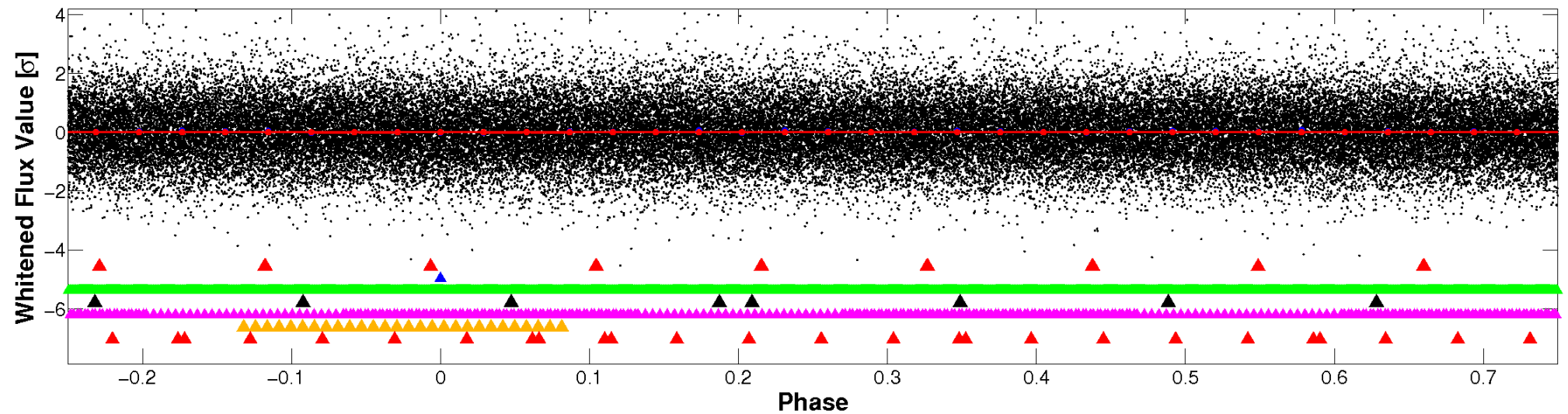


# Non-Whitened Vs. Whitened Light Curve

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

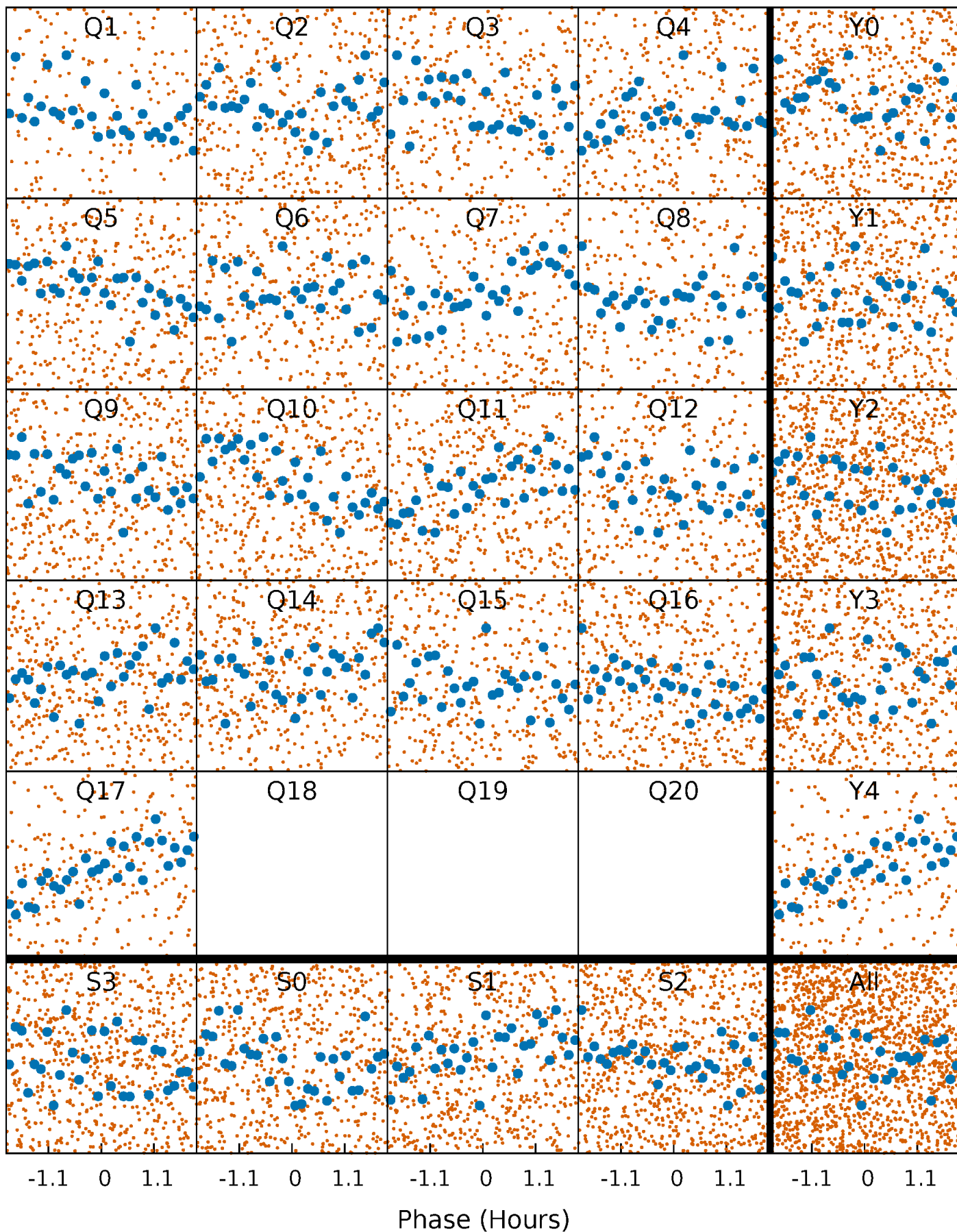


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



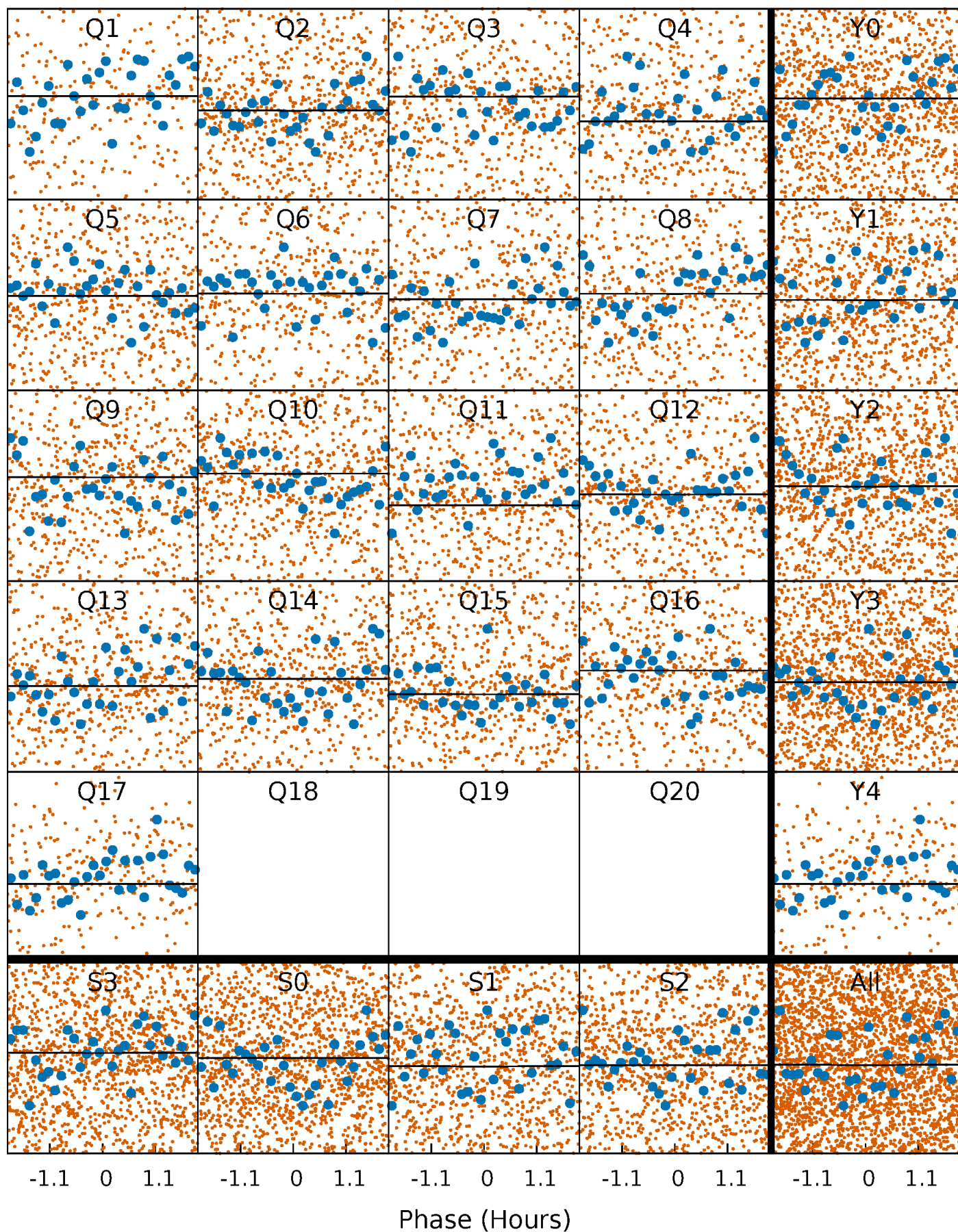
# PDC Quarter-Phased Transit Curves

TCE 009092496-02     $P = 0.706923$  Days     $T_0 = 131.569984$  (BKJD)



# DV Quarter-Phased Transit Curves

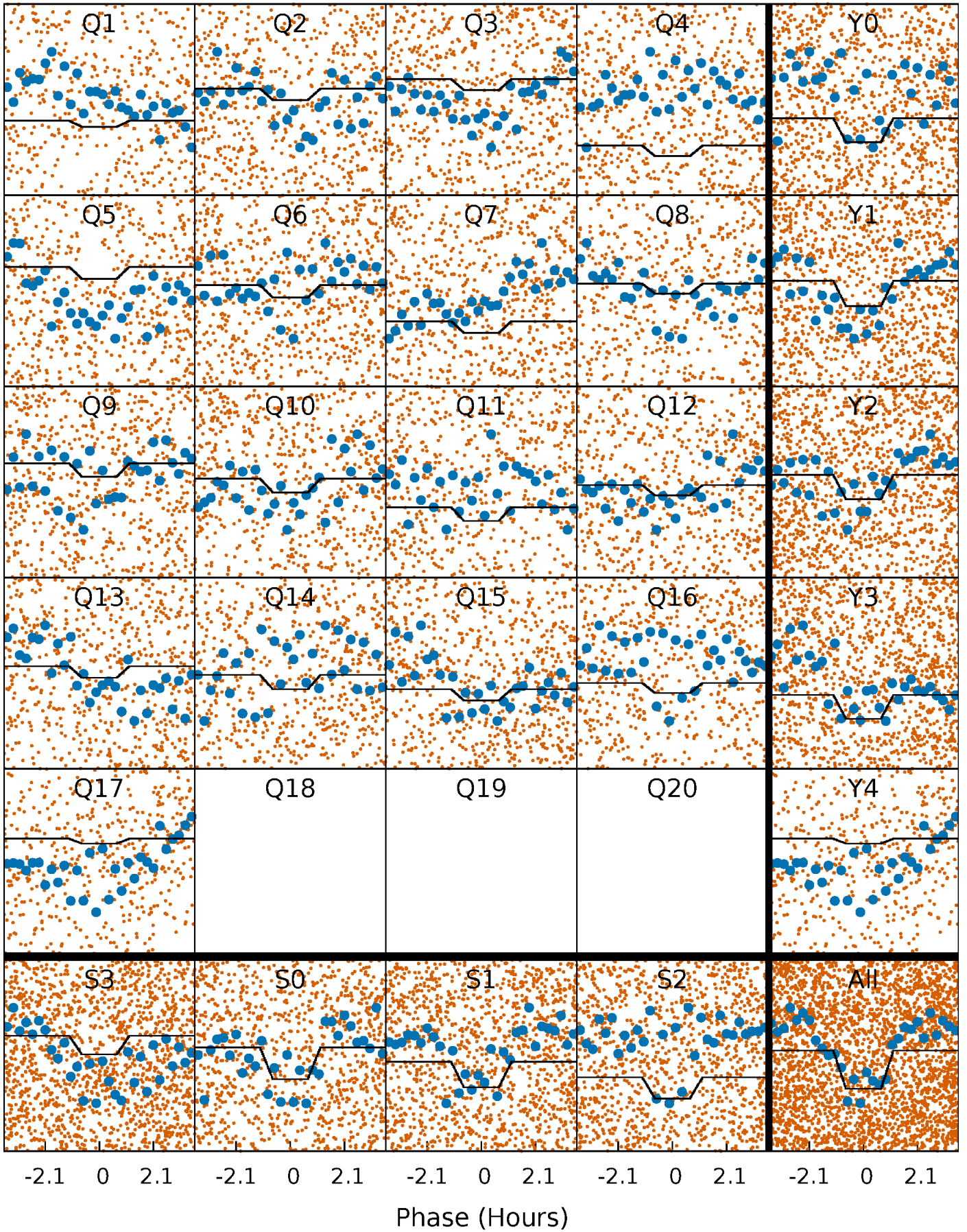
TCE 009092496-02     $P = 0.706923$  Days     $T_0 = 131.569984$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

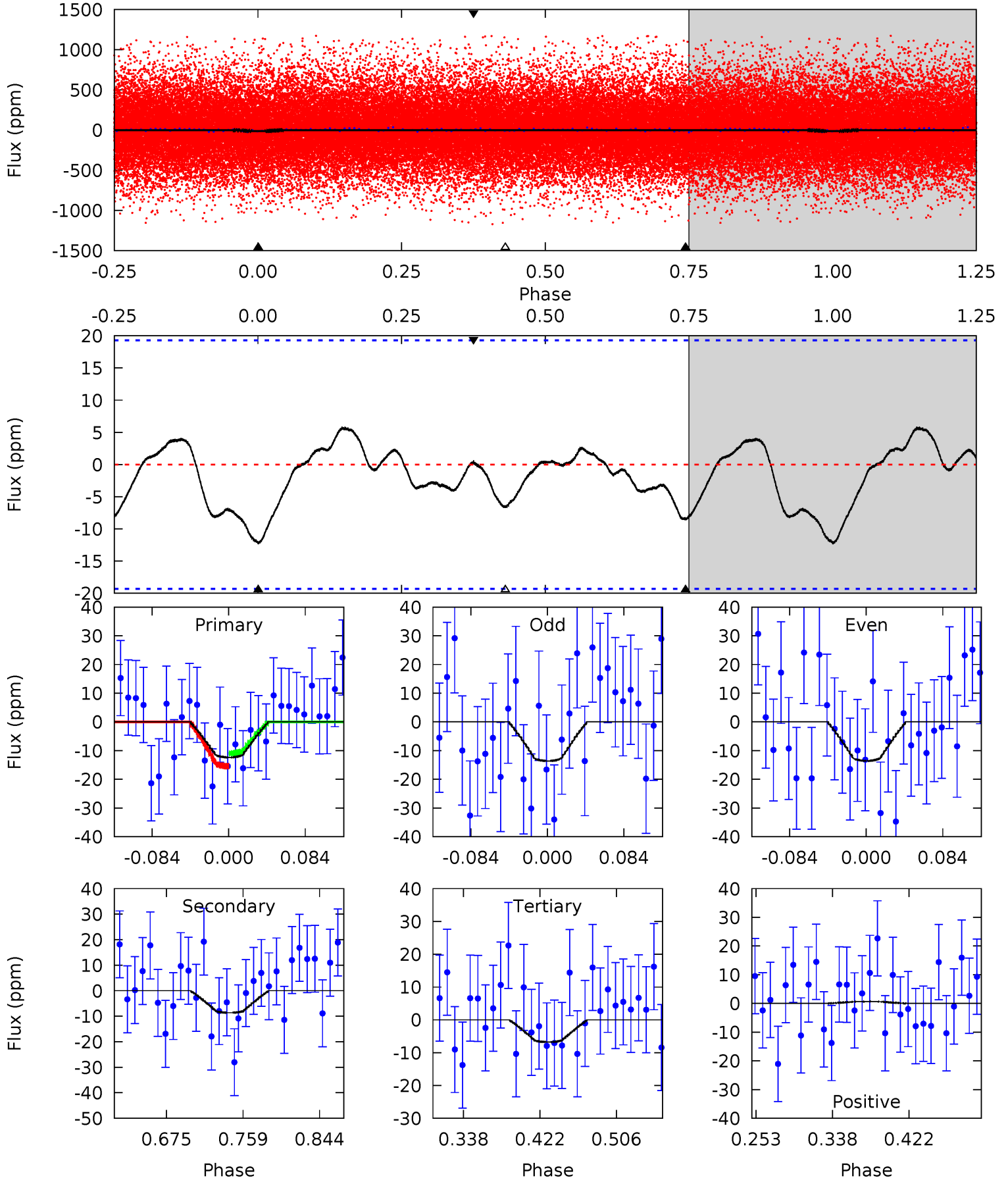
TCE 009092496-02   P= 0.707222 Days    $T_0=131.523516$  (BKJD)



# DV Model-Shift Uniqueness Test

009092496-02, P = 0.706923 Days, E = 130.863061 Days

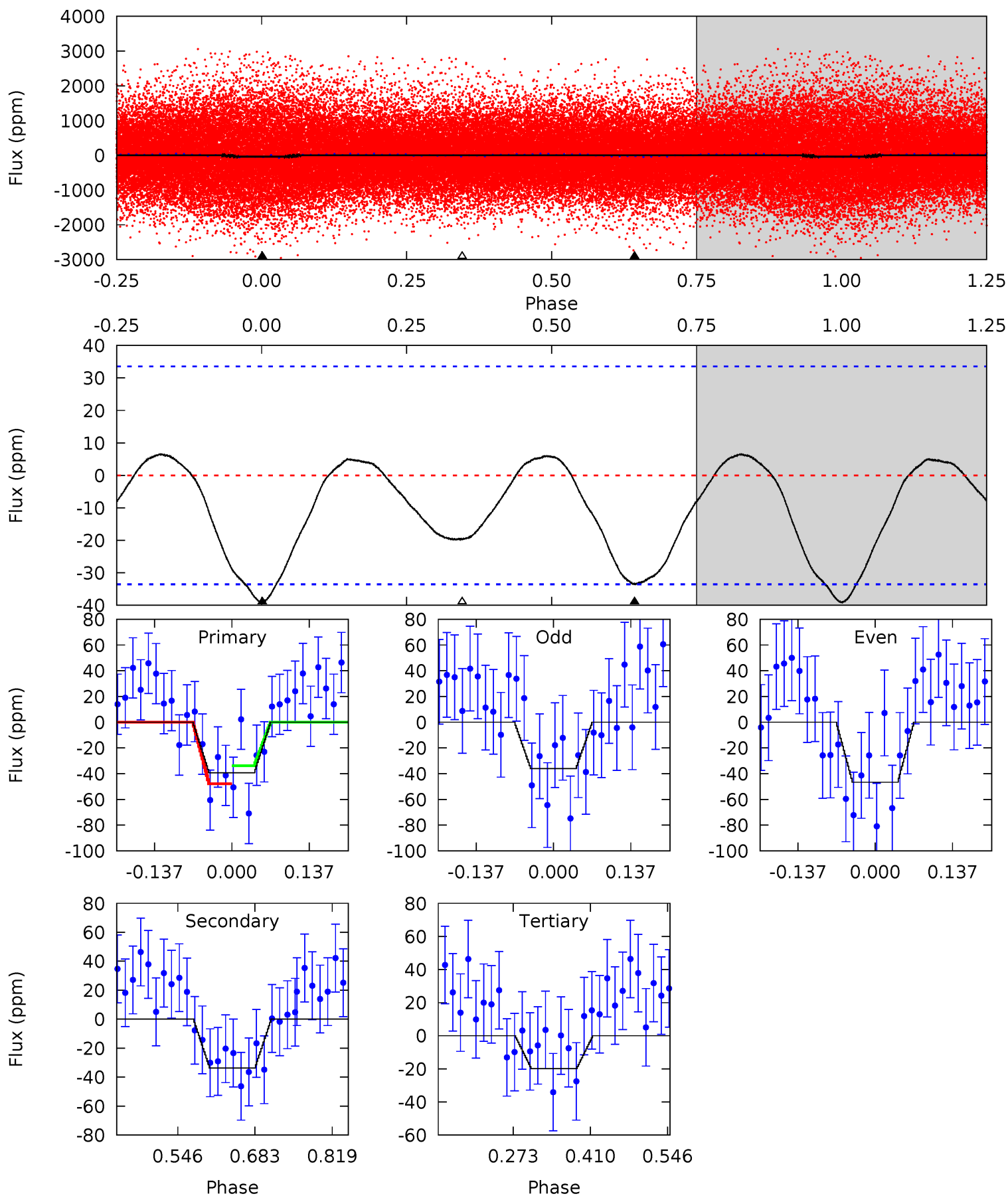
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.95	2.06	1.61	0.15	4.60	1.73	0.70	1.34	2.79	0.45	1.91	0.01	0.41	0.32	0.53



# Alt Model-Shift Uniqueness Test

009092496-02, P = 0.707222 Days, E = 130.816294 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
5.26	4.52	2.67	0	4.50	1.49	1.26	2.59	5.26	1.85	4.52	0.71	0.47	0.15	0.95



### Stellar Parameters For KIC 009092496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6997^{+167}_{-263}$	$4.475^{+0.026}_{-0.234}$	$-0.500^{+0.300}_{-0.300}$	$1.000^{+0.371}_{-0.066}$	$1.155^{+0.159}_{-0.119}$	$1.628^{+0.174}_{-0.976}$
	+2%/-4%	+1%/-5%	+60%/-60%	+37%/-7%	+14%/-10%	+11%/-60%
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 009092496-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-9 \pm 4$	$0.82^{+0.93}_{-0.55}$	$3522^{+268}_{-176}$	$4408^{+3694}_{-5834}$	$1.612^{+16.171}_{-1.313}$
Alt.	$-34 \pm 7$	$1.17^{+1.03}_{-0.73}$	$3535^{+270}_{-174}$	$5257^{+3934}_{-1320}$	$3.492^{+21.382}_{-2.500}$

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

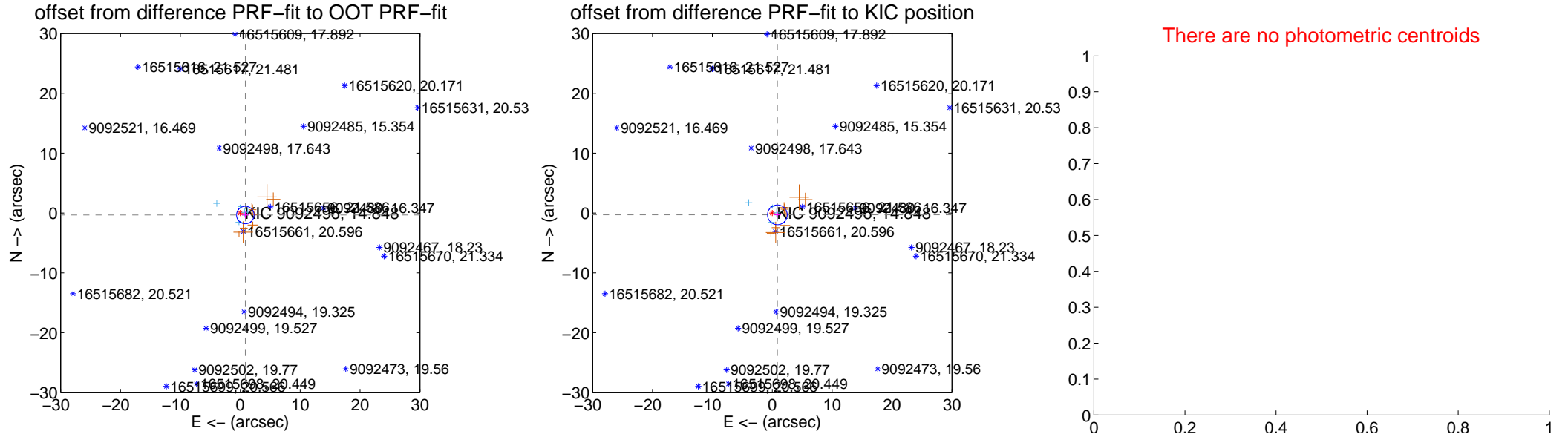
## DV Centroid Data

Supplemental centroid analysis for 009092496-02. Kepler magnitude: 14.85. Transit SNR 0.04

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

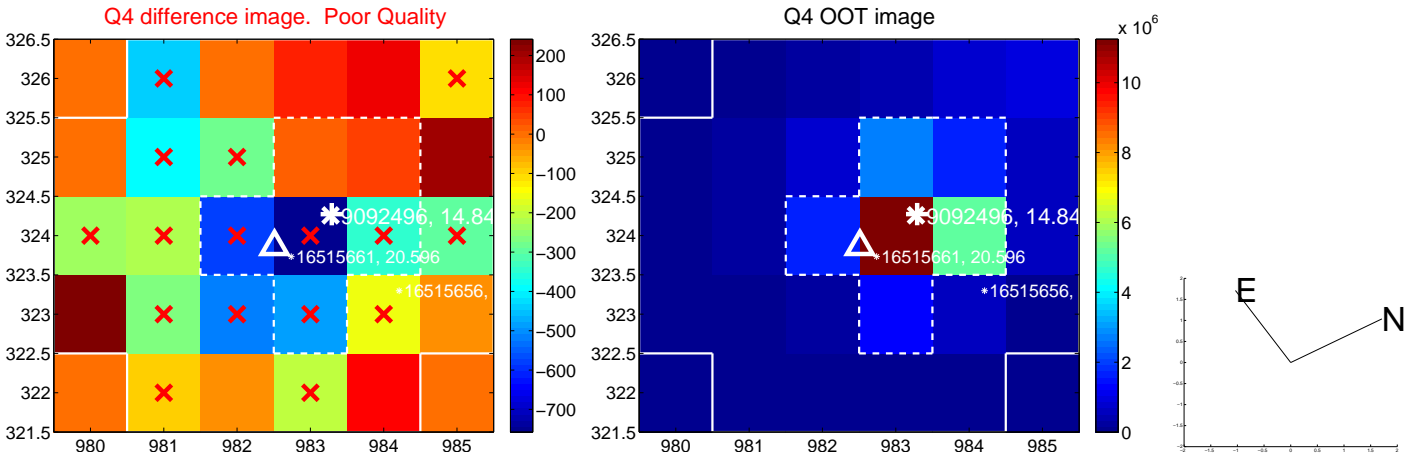
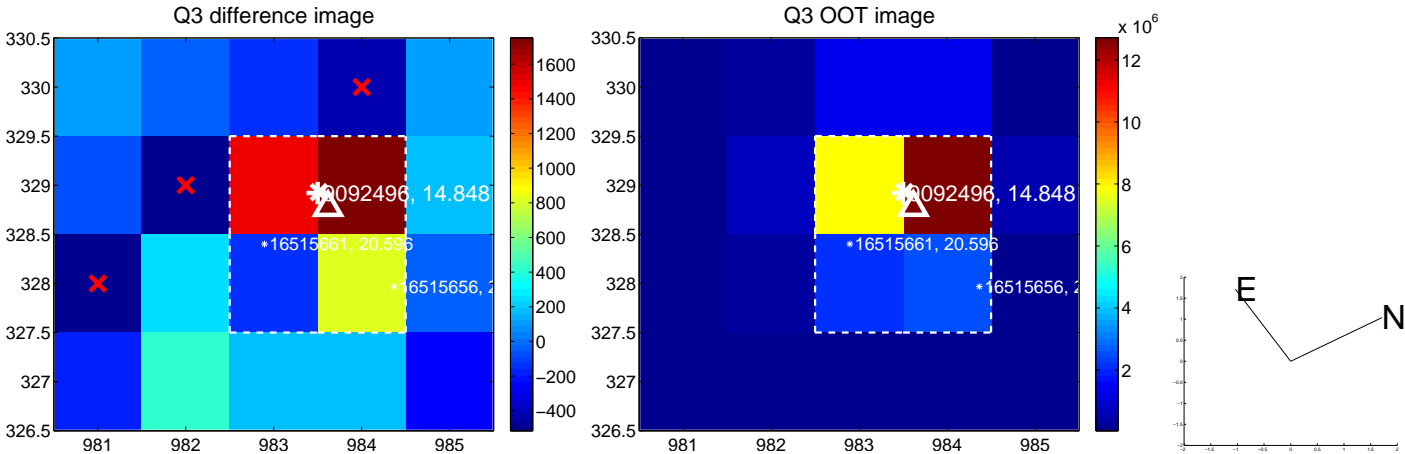
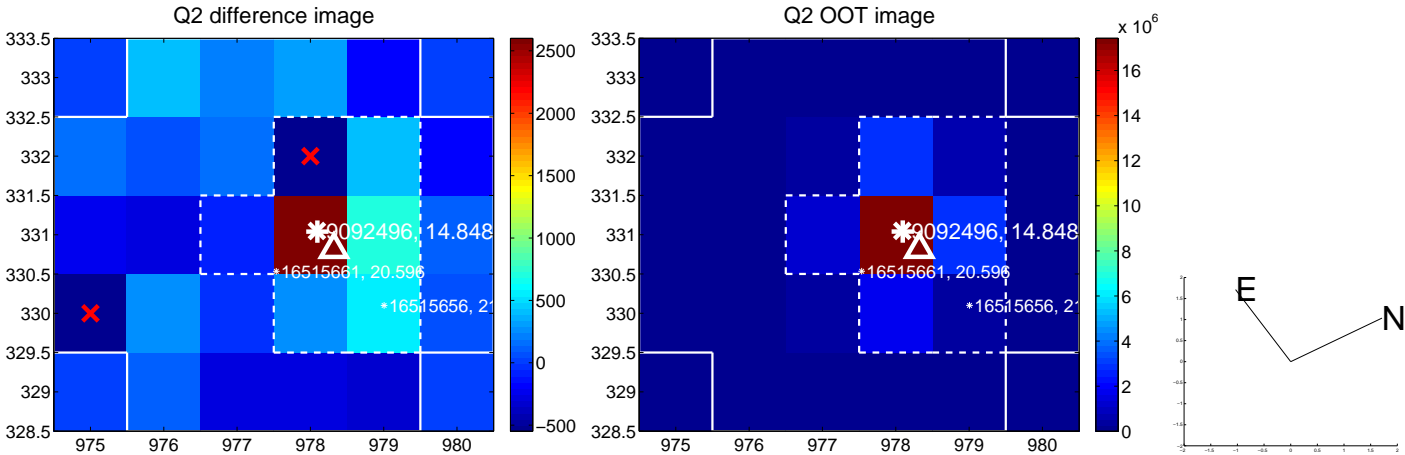
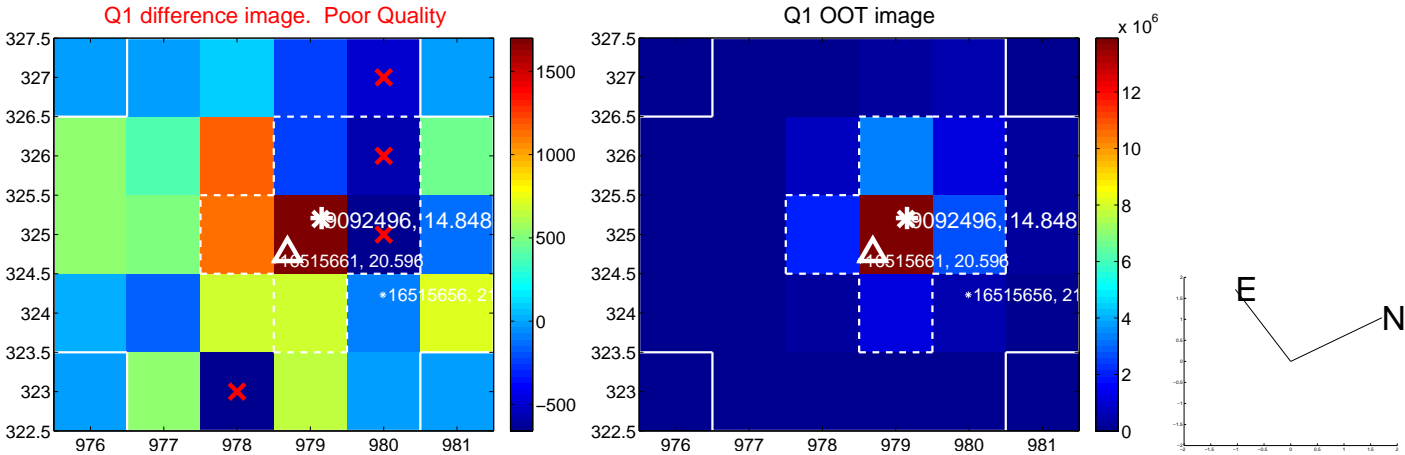
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.906 \pm 0.488$	1.86	$-0.841 \pm 0.553$	$-0.337 \pm 0.532$
PRF-fit source offset from KIC position	$0.911 \pm 0.549$	1.66	$-0.858 \pm 0.603$	$-0.306 \pm 0.471$
photometric centroid source offset	—	—	—	—



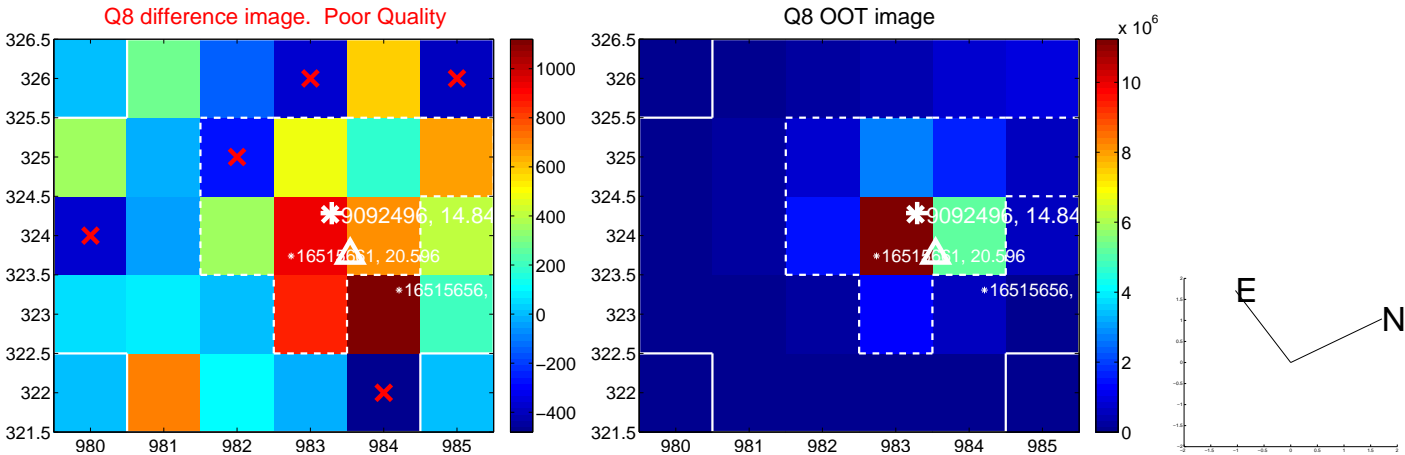
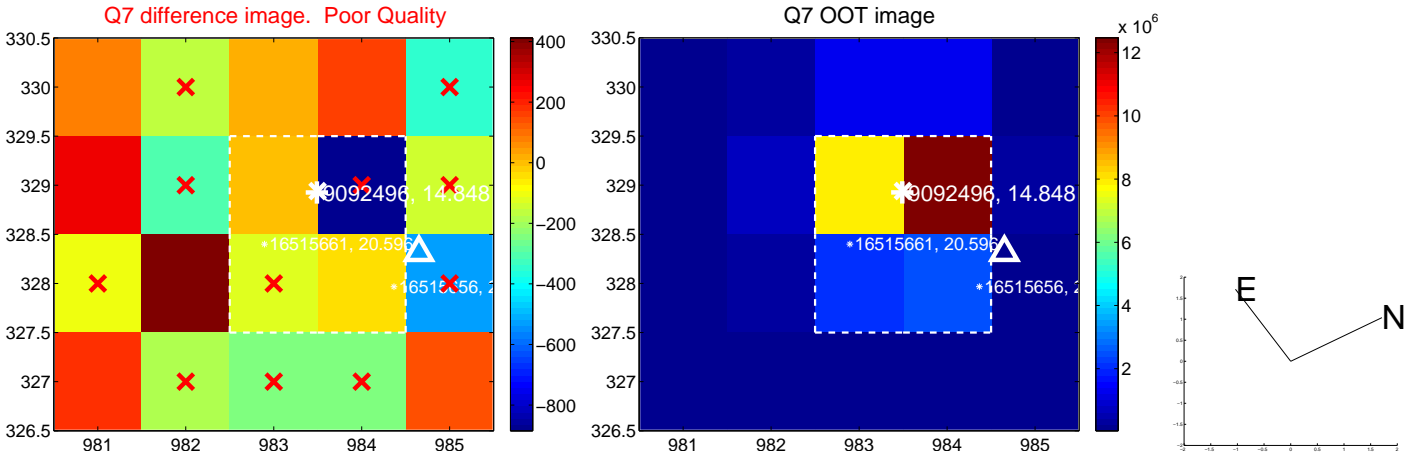
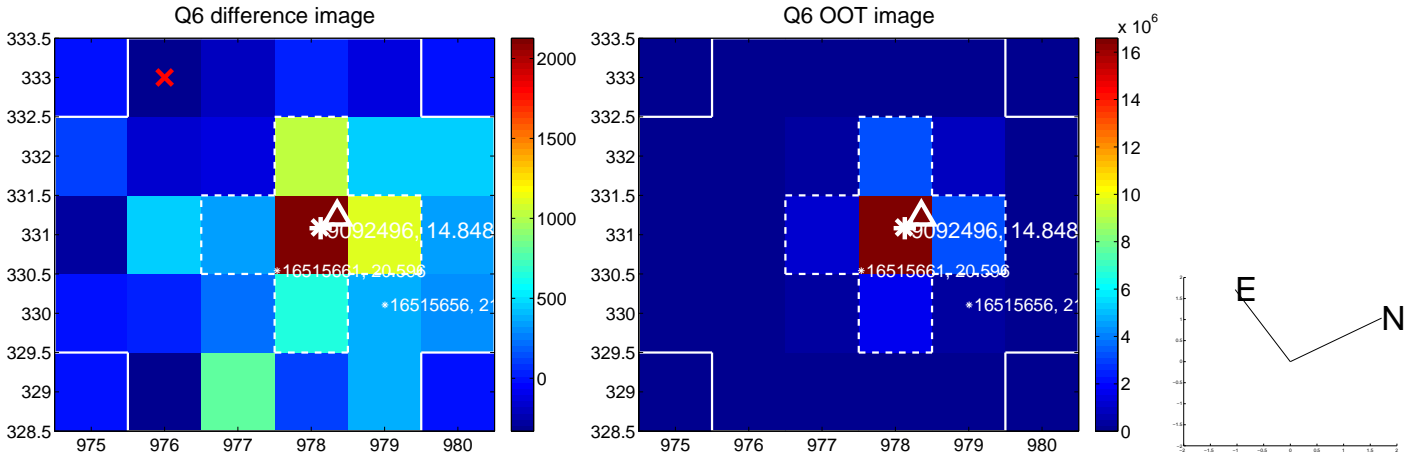
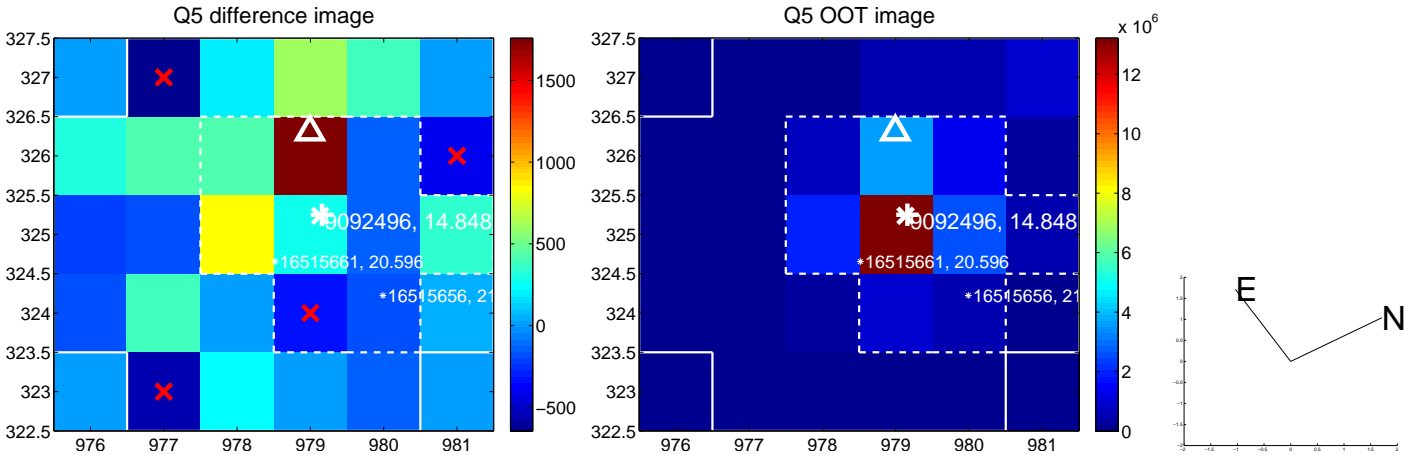
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



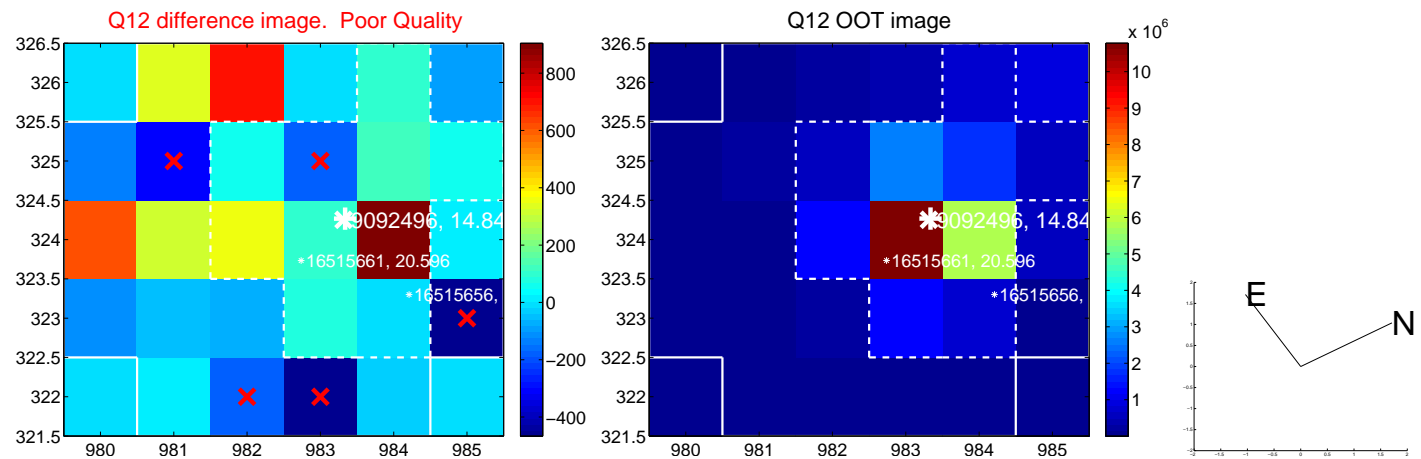
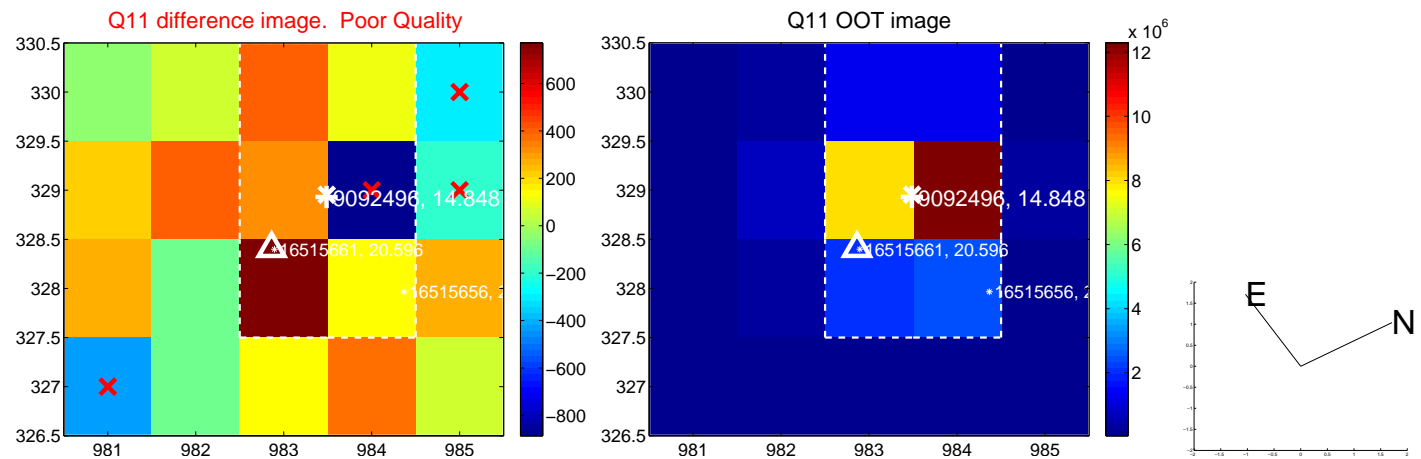
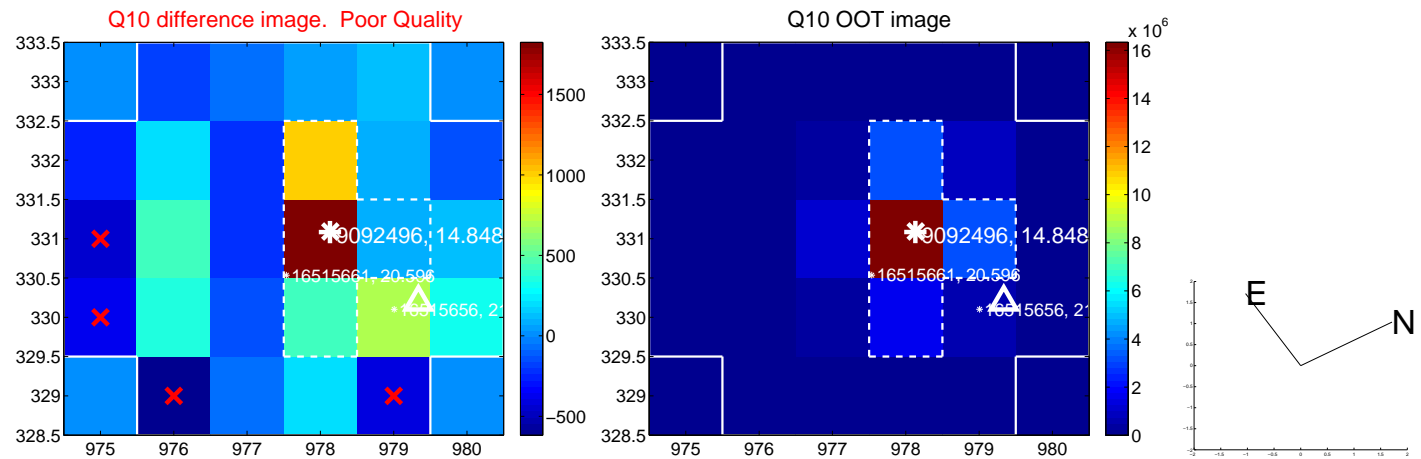
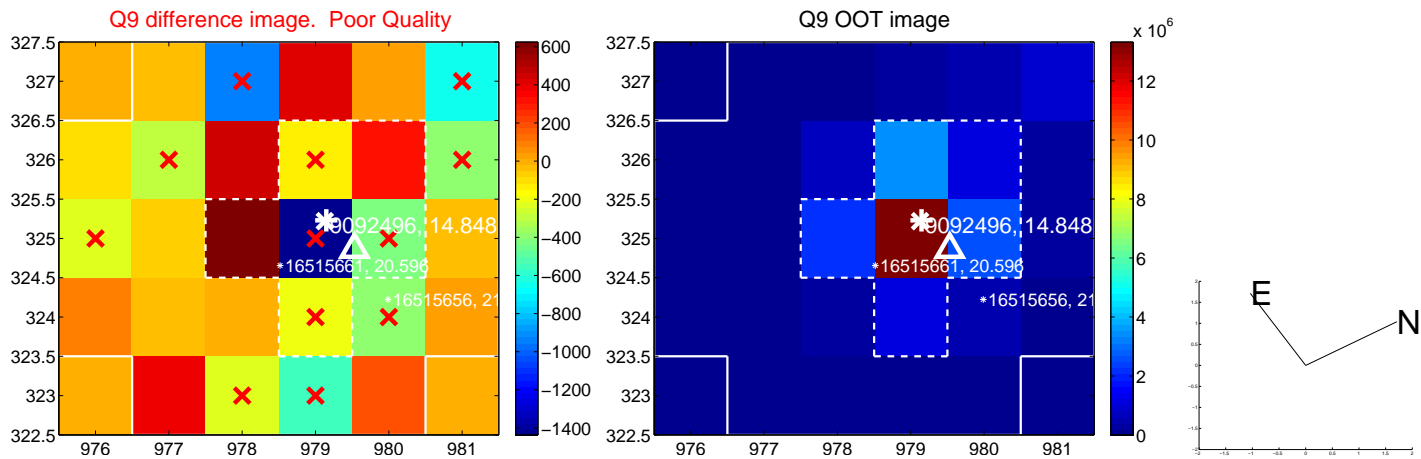
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



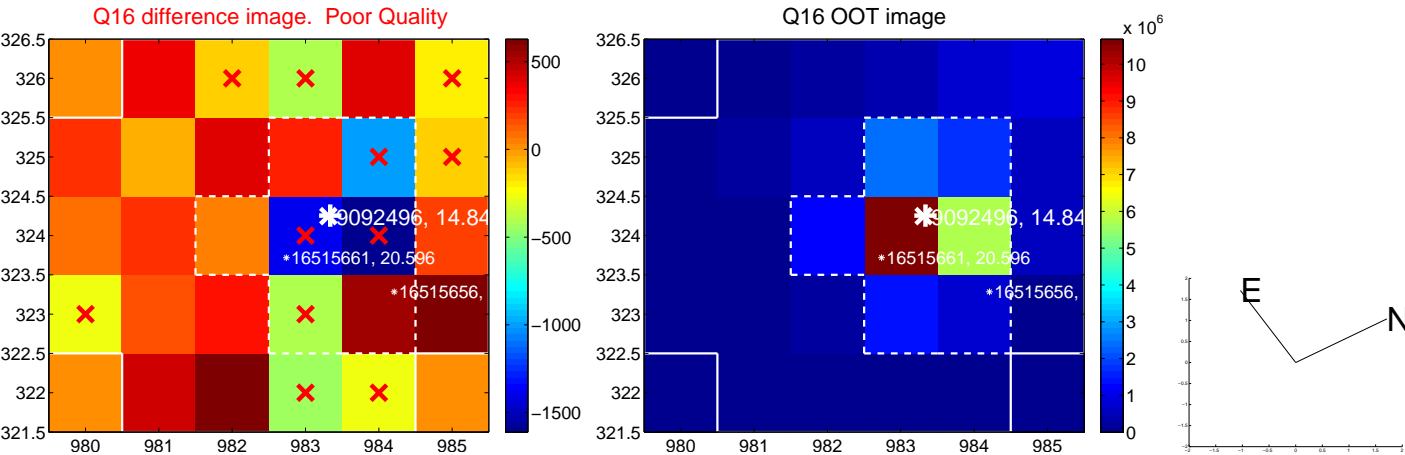
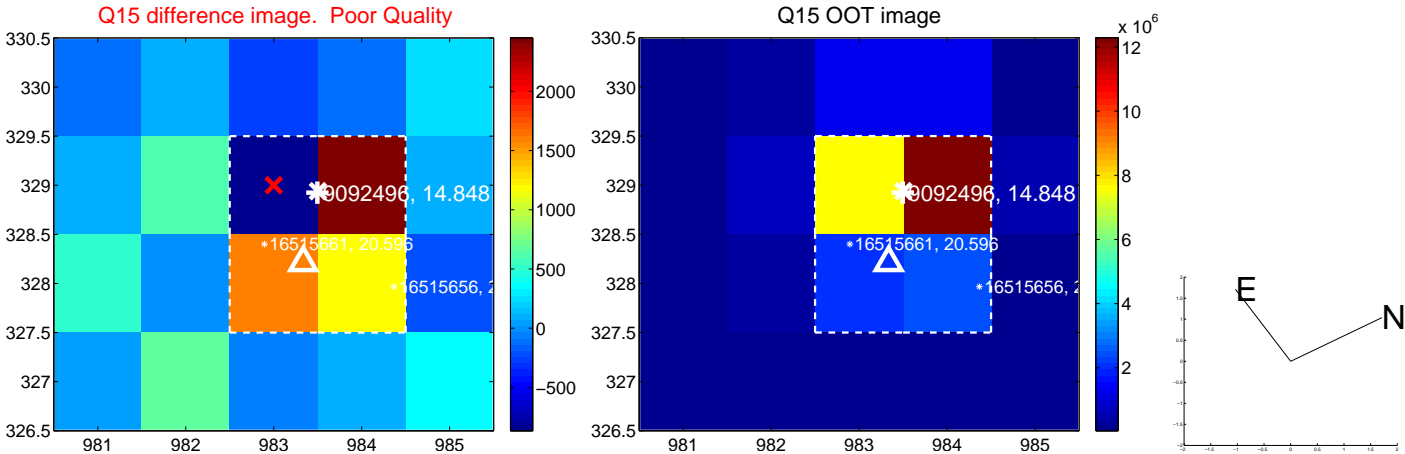
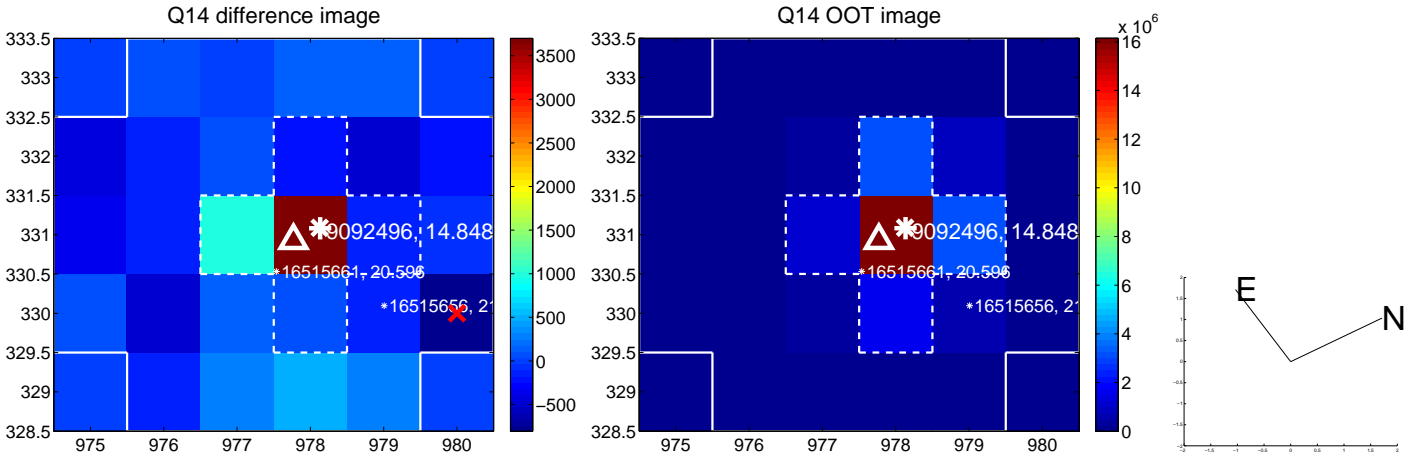
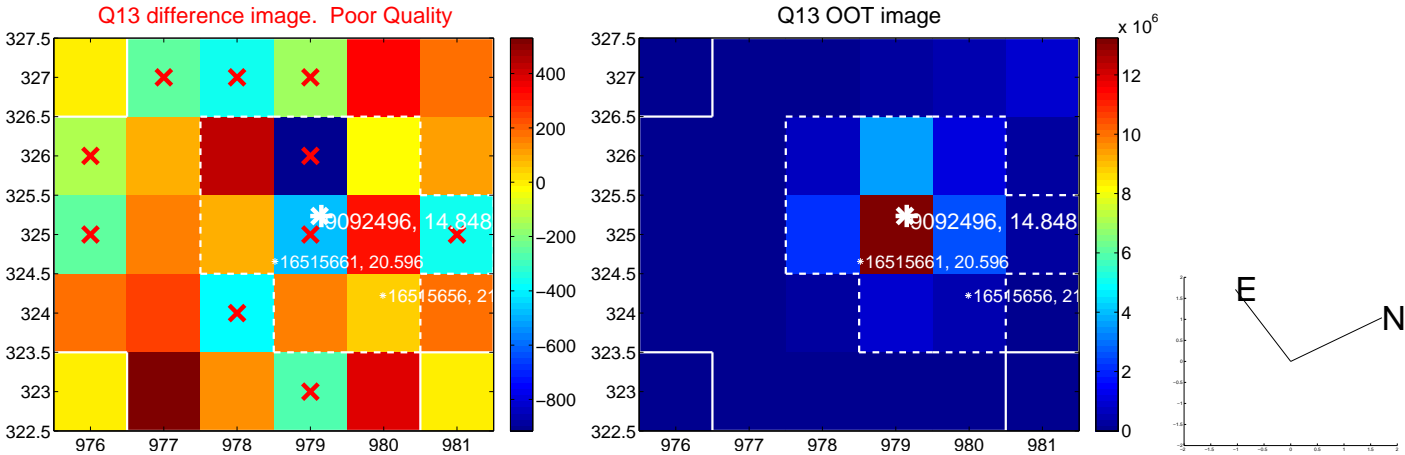
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



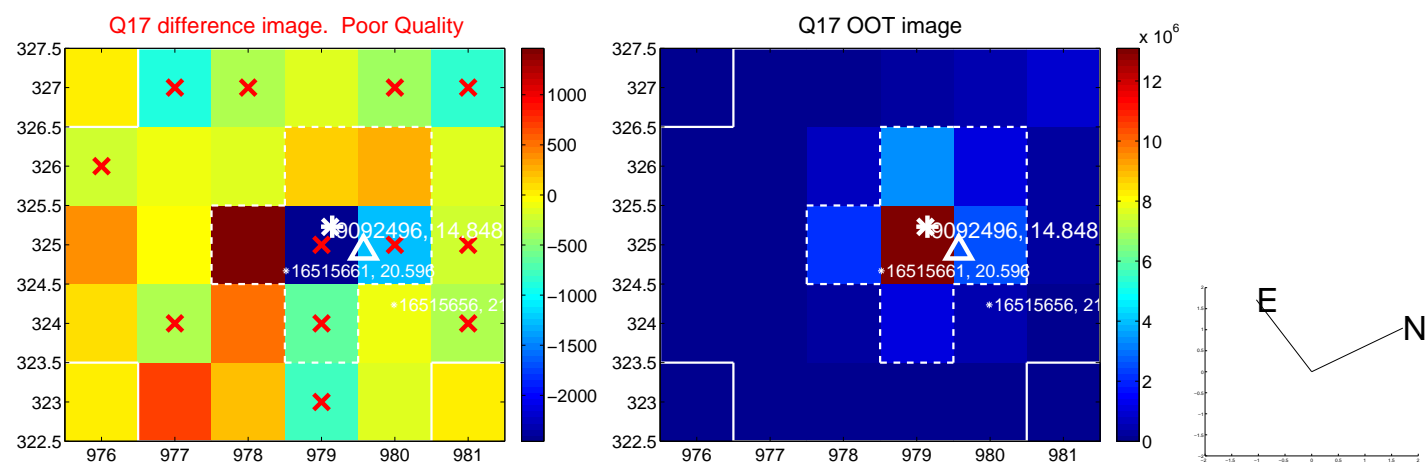
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



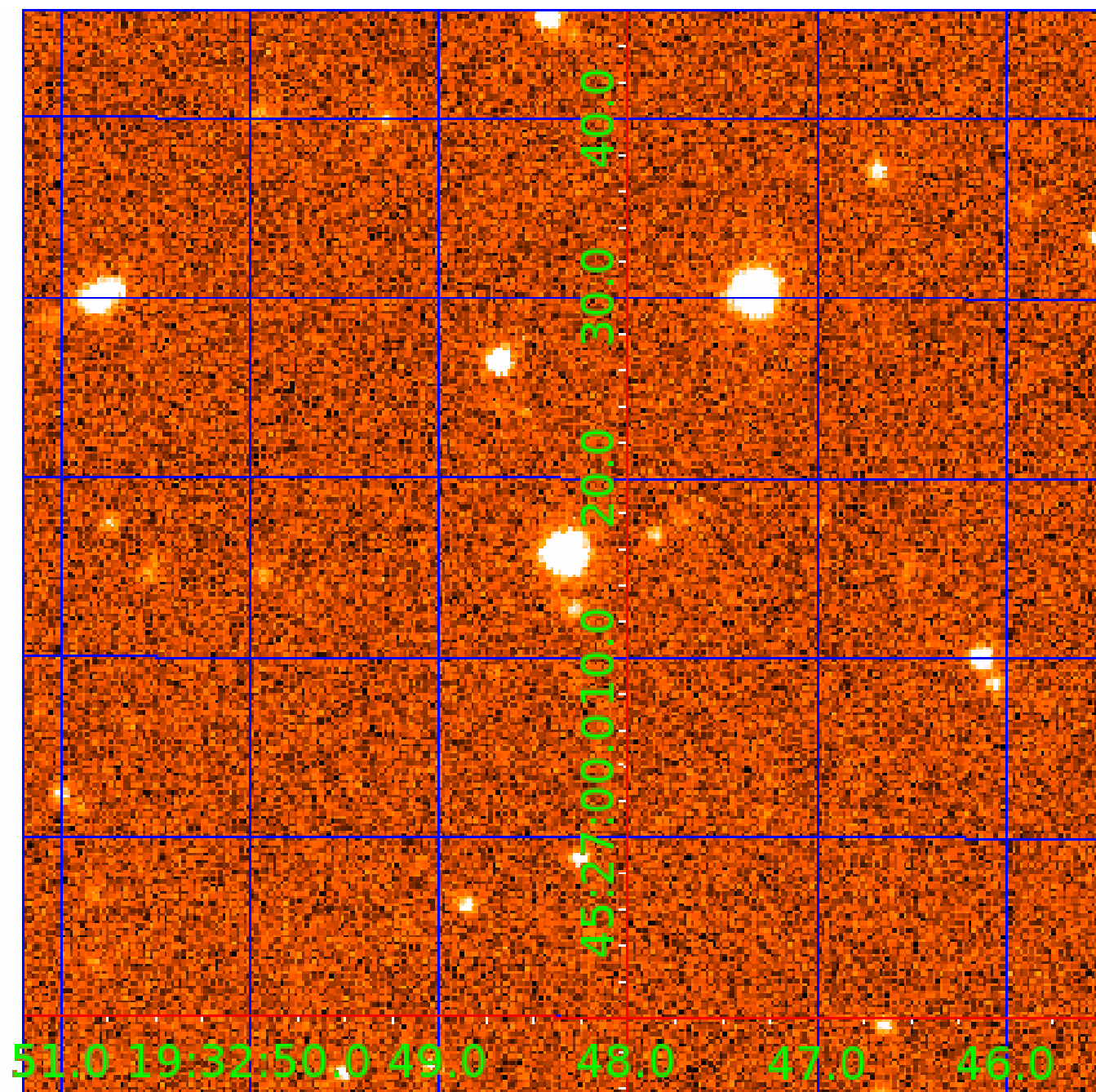
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 009092496

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009092496-01	OBS	4193.01	94.177944	200.293674	811.0	6.596	14.0	13.4	1.00	6997	3.49	12.36
009092496-02	OBS	No	0.706923	131.569984	0.3	0.996	7.2	0.0	1.00	6997	0.06	8408.37
009092496-03	OBS	No	1.355958	131.960180	75.6	7.534	9.1	8.7	1.00	6997	0.88	3528.15
009092496-04	OBS	No	184.408229	237.033919	574.8	8.101	9.5	9.2	1.00	6997	2.46	5.04
009092496-05	OBS	No	4.478336	135.059846	228.7	5.942	9.0	9.0	1.00	6997	1.86	717.33
009092496-06	OBS	No	51.599819	160.611399	618.5	5.493	11.0	5.0	1.00	6997	2.65	27.56
009092496-07	OBS	No	56.015115	135.185629	405.5	6.000	8.1	-1.0	1.00	6997	2.04	24.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009092496-01	OBS	PC	0.84	0	0	0	0	NO_COMMENT
009092496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009092496-03	OBS	FP	0.00	1	0	0	0	LPP_DV
009092496-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT
009092496-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009092496-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009092496-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

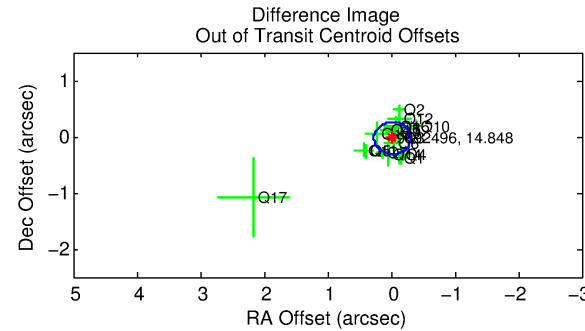
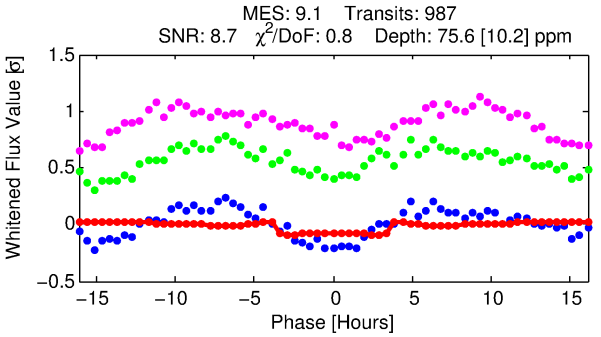
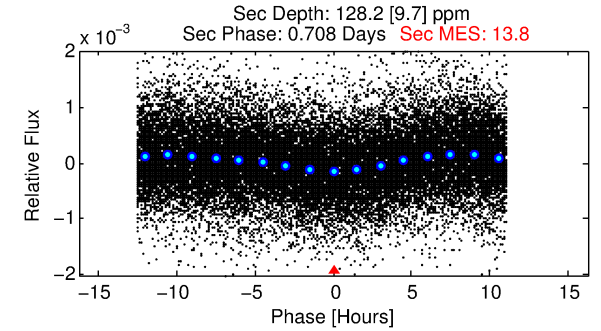
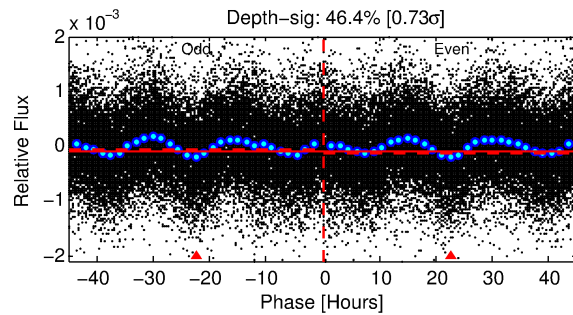
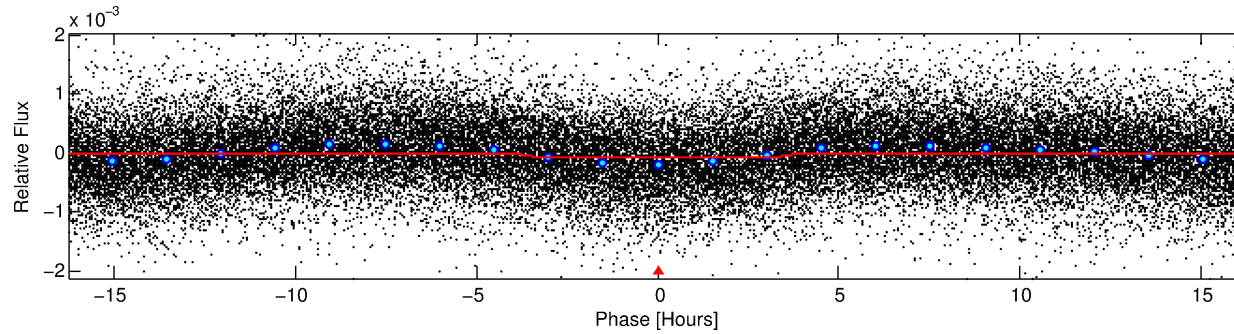
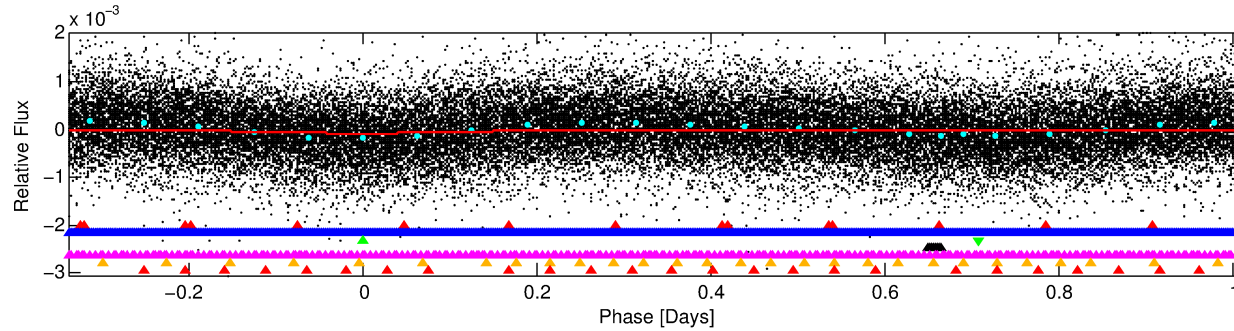
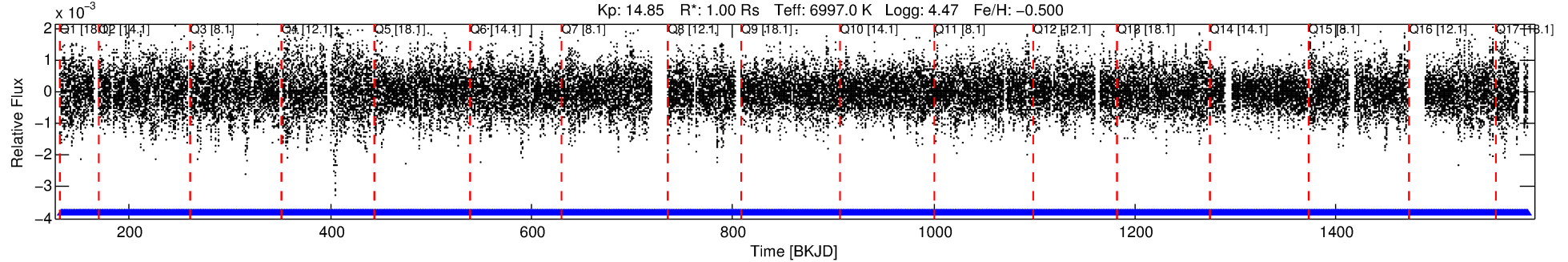
## Ephemeris Match Information For 009092496-03

No Significant Match Found

# DV One-Page Summary

KIC: 9092496 Candidate: 3 of 7 Period: 1.356 d  
KOI: K04193 Corr: No Ephemeris Match

Kp: 14.85 R\*: 1.00 Rs Teff: 6997.0 K Logg: 4.47 Fe/H: -0.500



## DV Fit Results:

Period = 1.35596 [0.00002] d  
Epoch = 131.9602 [0.0040] BKJD  
Rp/R\* = 0.0080 [0.0062]  
a/R\* = 1.52 [3.75]  
b = 0.01 [487.08]  
Seff = 3528.15 [1627.57]  
Teff = 1965 [227] K  
Rp = 0.88 [0.75] Re  
a = 0.0247 [0.0075] AU  
Ag = 55.68 [88.63] [0.62σ]  
Teffp = 8300 [3192] K [1.98σ]

## DV Diagnostic Results:

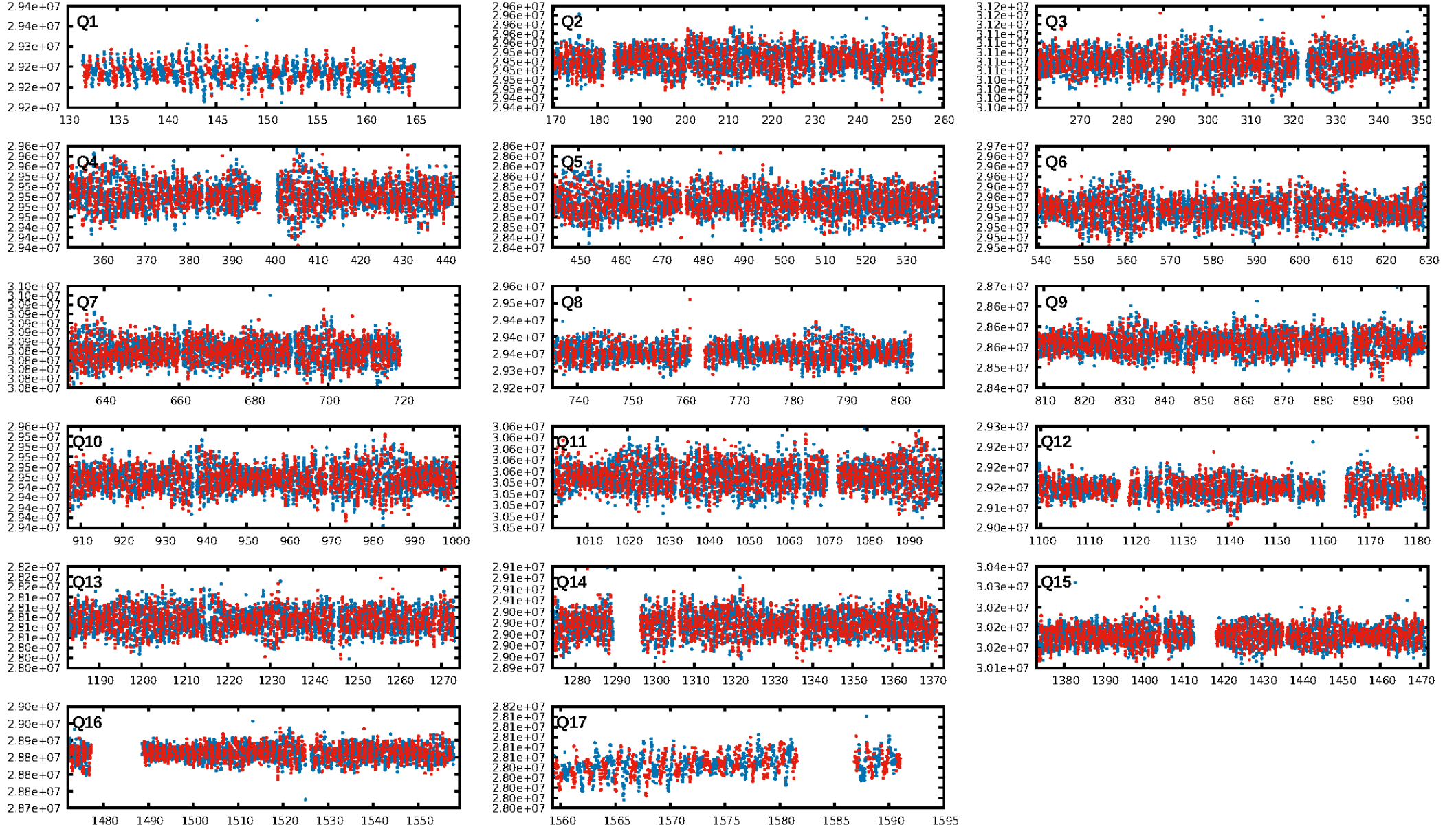
ShortPeriod-sig: 96.0% [2.05σ]  
LongPeriod-sig: 100.0% [7.81σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [941/941]  
GhostDiagnostic-chr: 3.26  
Centroid-sig: 0.0%  
Centroid-so: 1.880 arcsec [3.45σ]  
OotOffset-rm: 0.032 arcsec [0.34σ]  
KicOffset-rm: 0.063 arcsec [0.52σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:44:34 Z

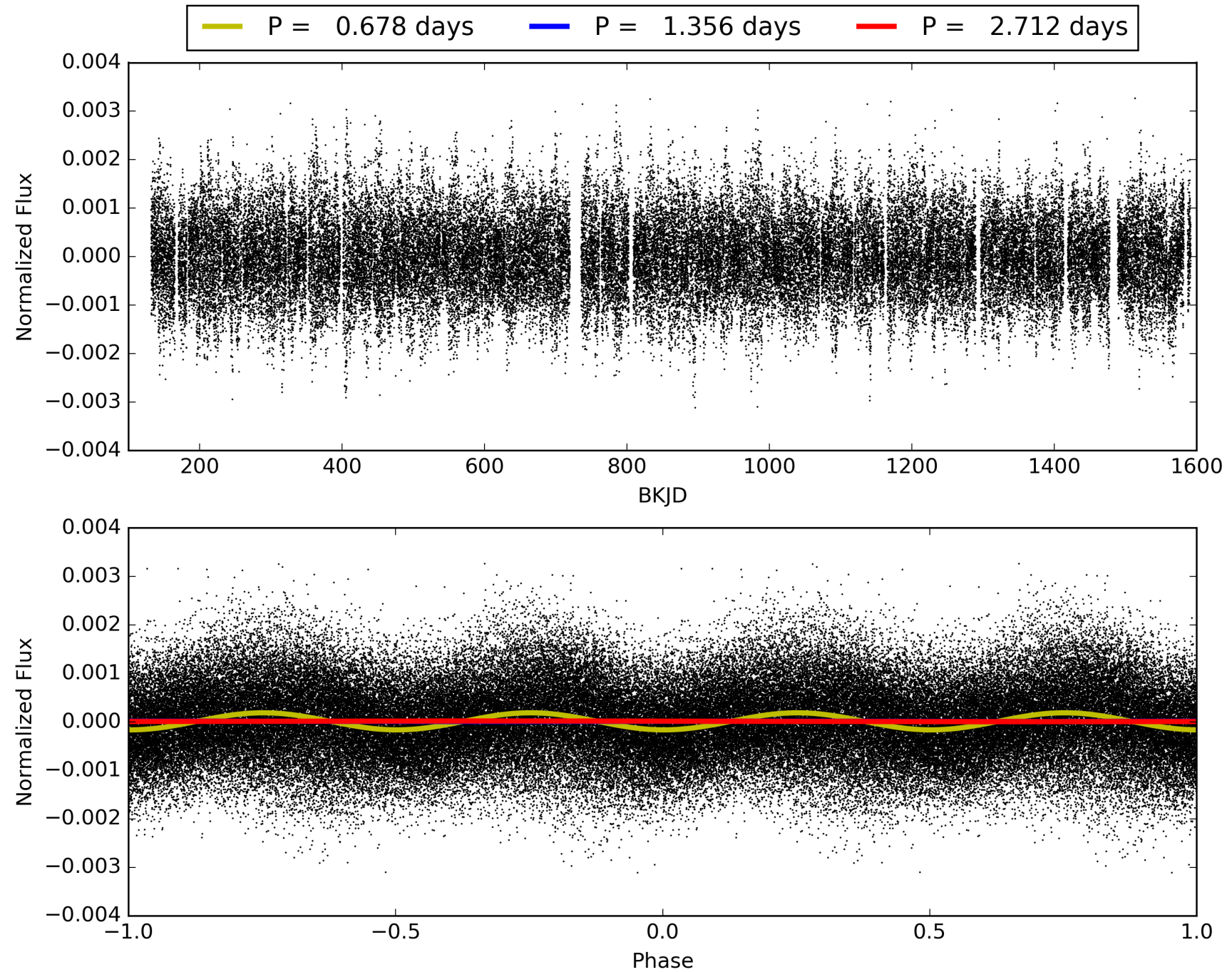
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 009092496-03, PDC Light Curves

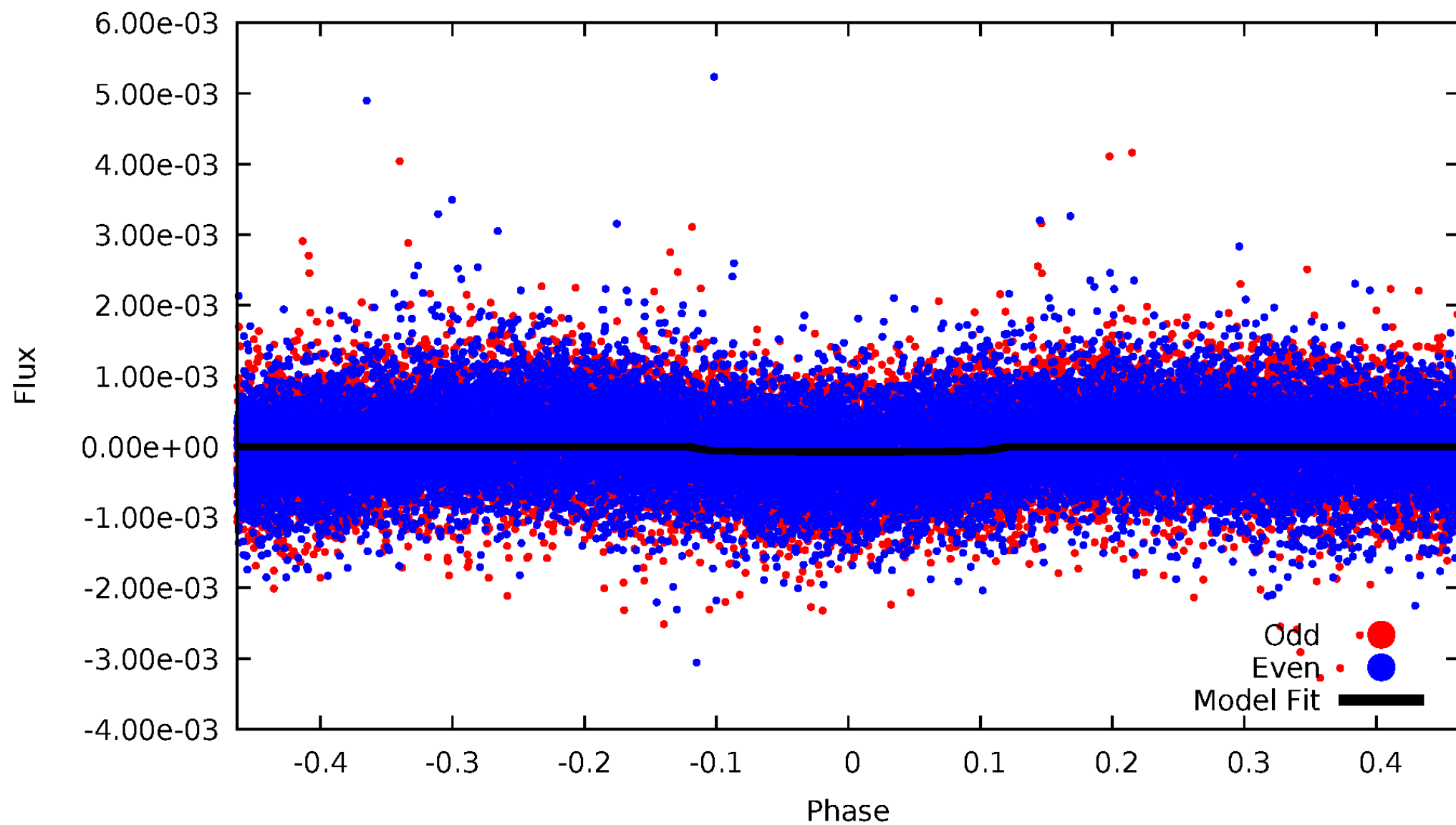


TCE 009092496-03



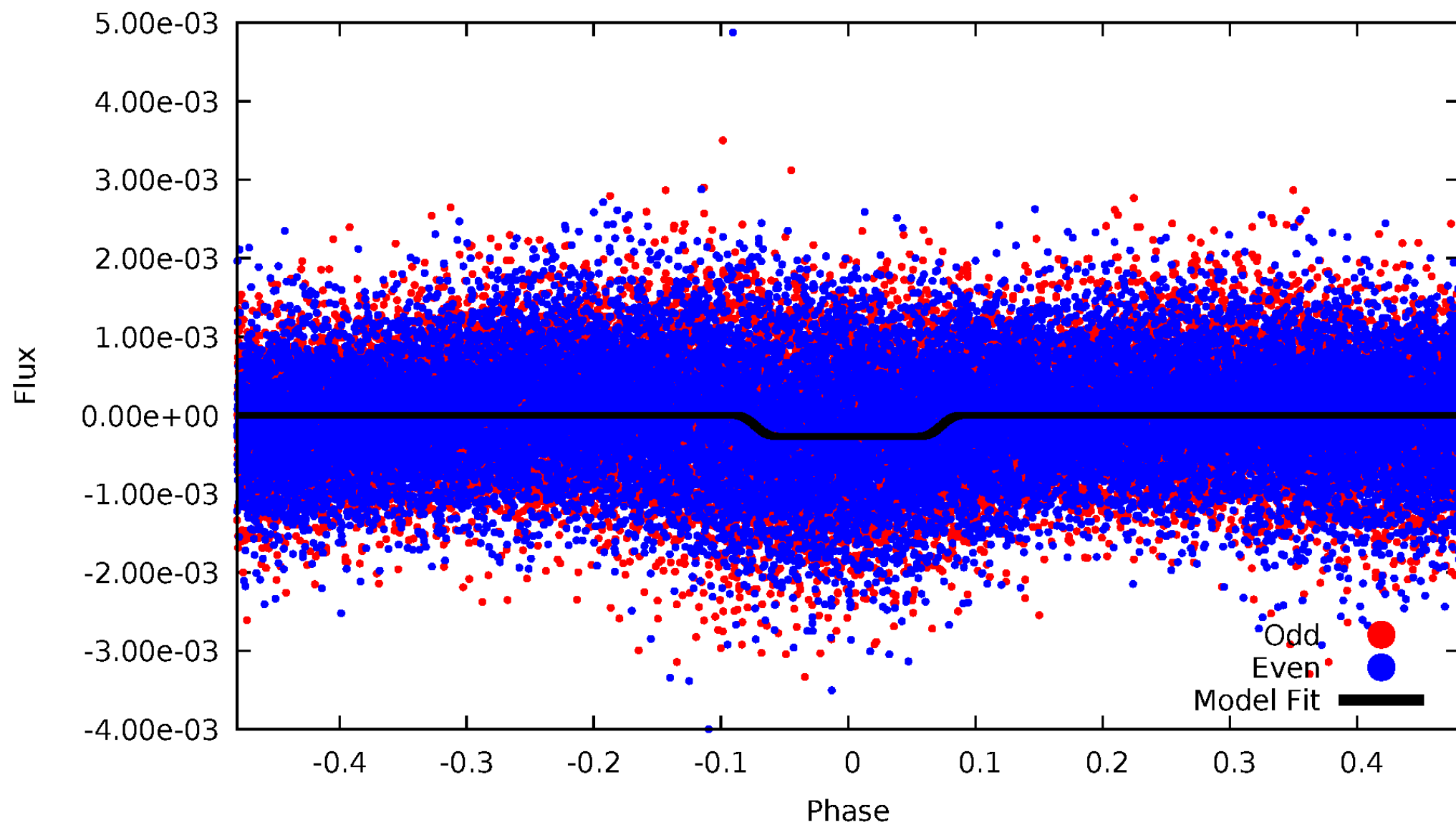
# DV Odd/Even

TCE 009092496-03



# ALT Odd/Even

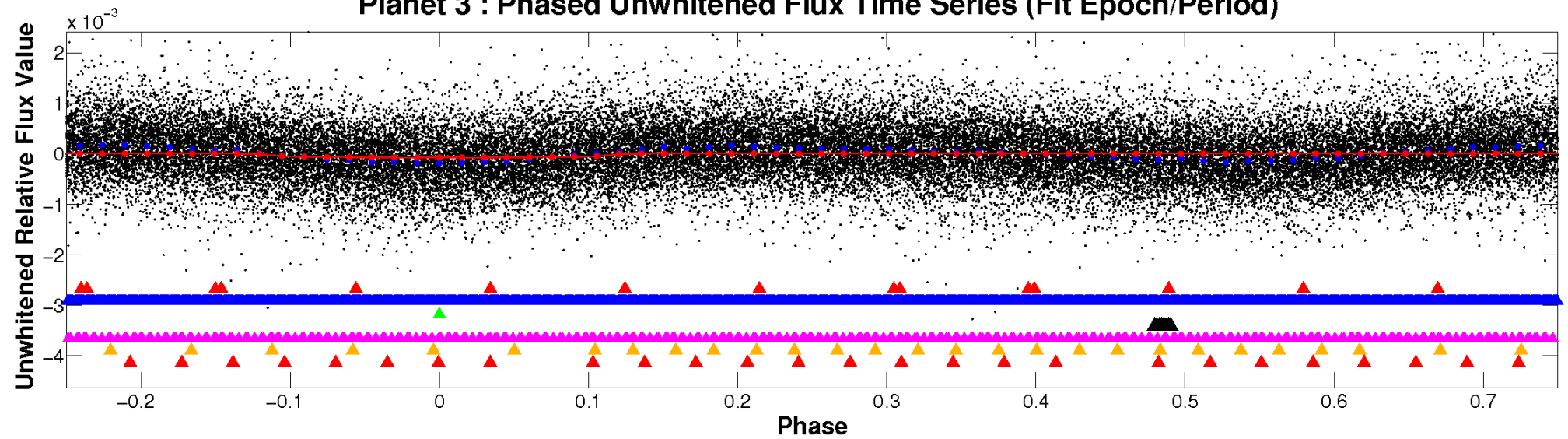
TCE 009092496-03



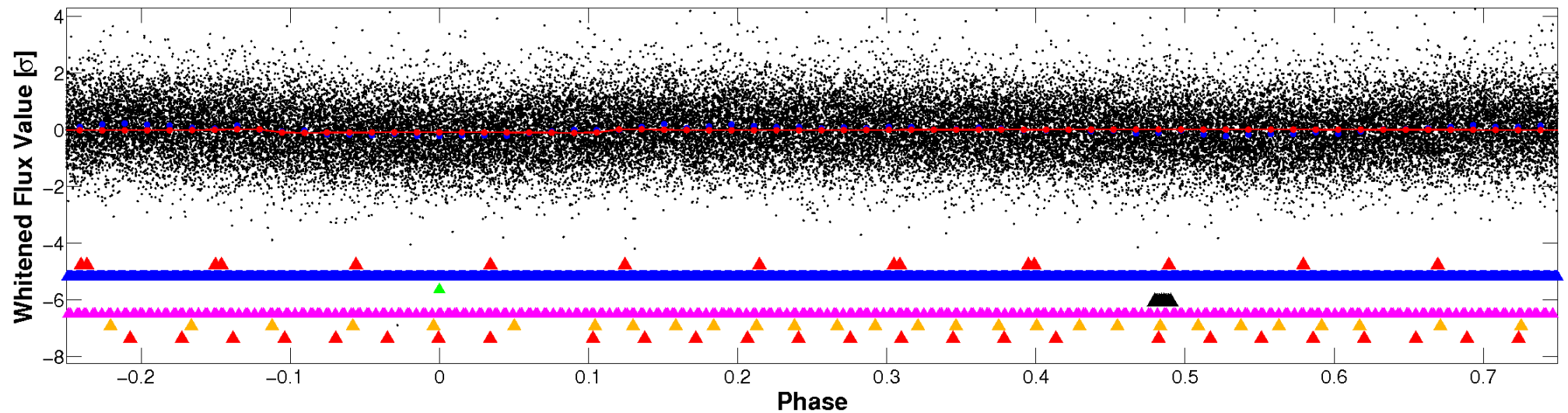


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

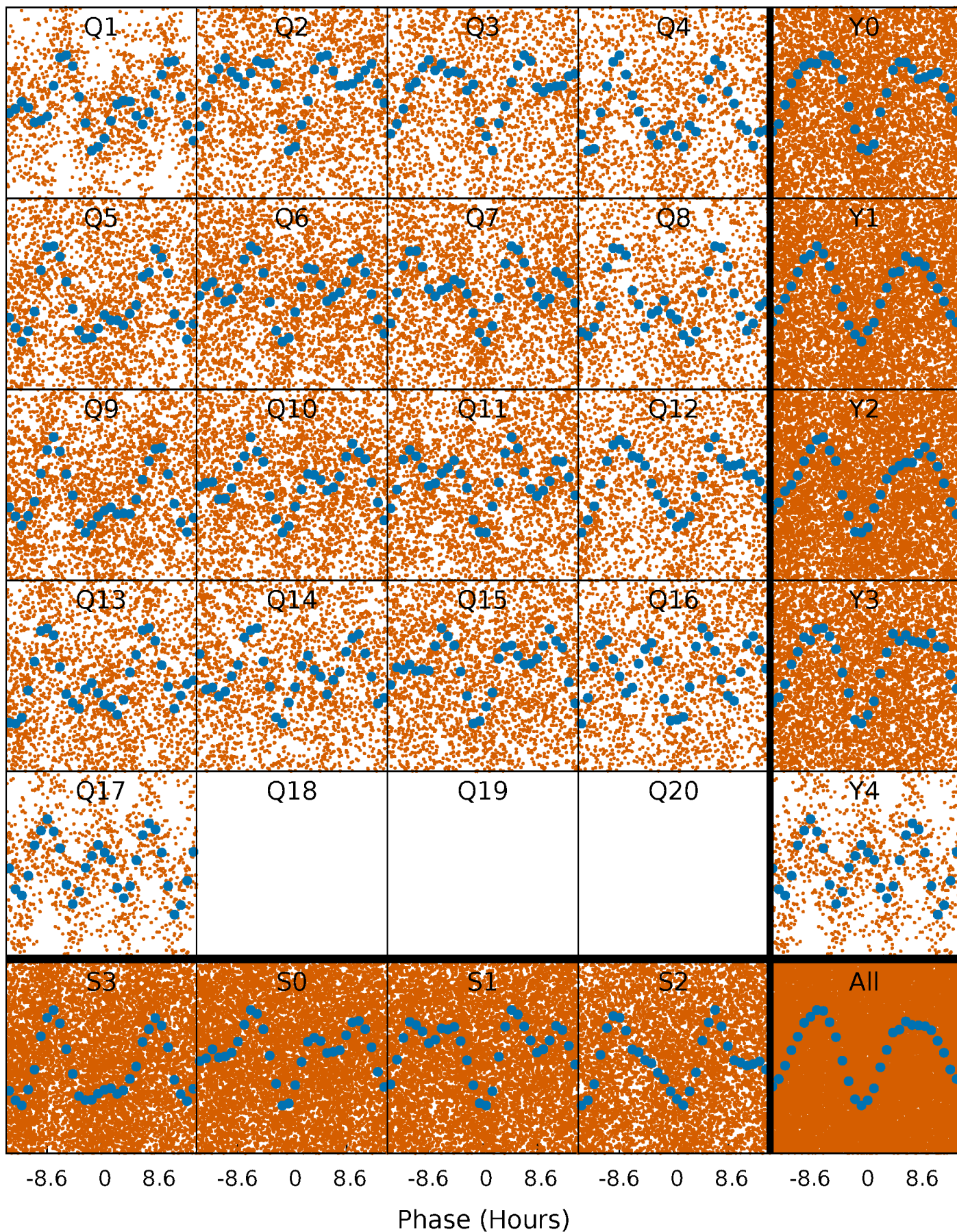


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

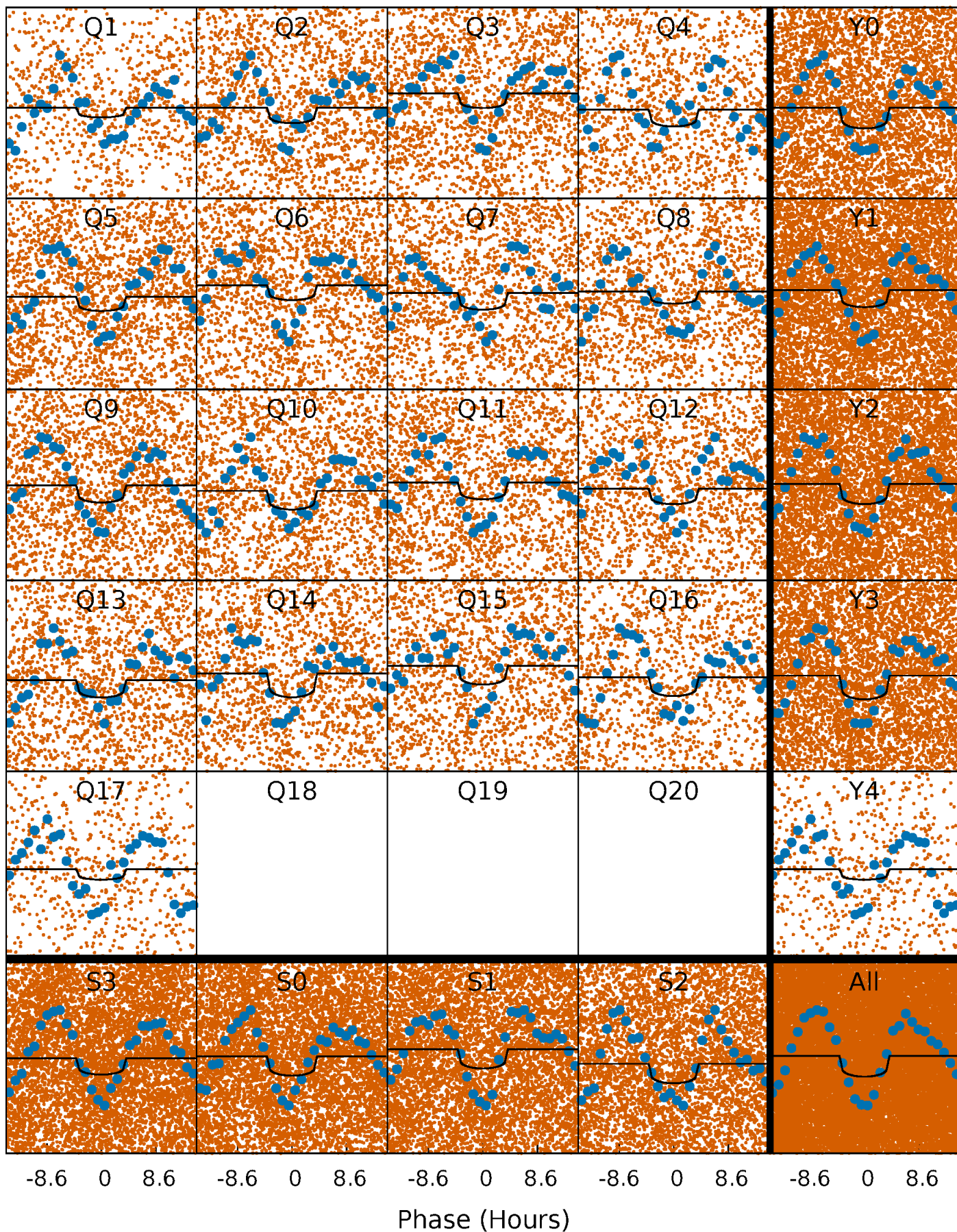
TCE 009092496-03 P= 1.355958 Days  $T_0=131.960180$  (BKJD)





# DV Quarter-Phased Transit Curves

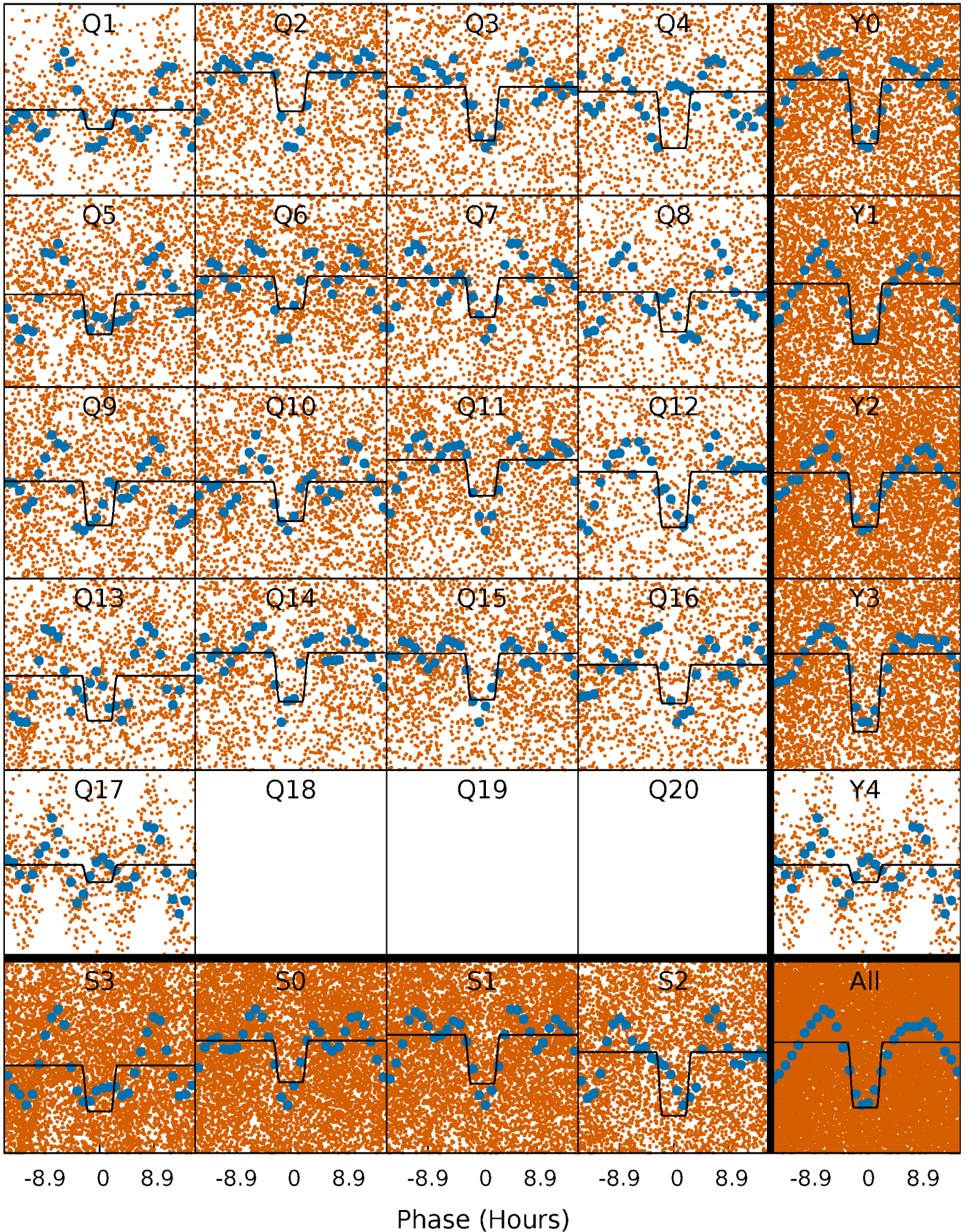
TCE 009092496-03 P= 1.355958 Days  $T_0=131.960180$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 009092496-03   P= 1.355927 Days    $T_0=131.959719$  (BKJD)

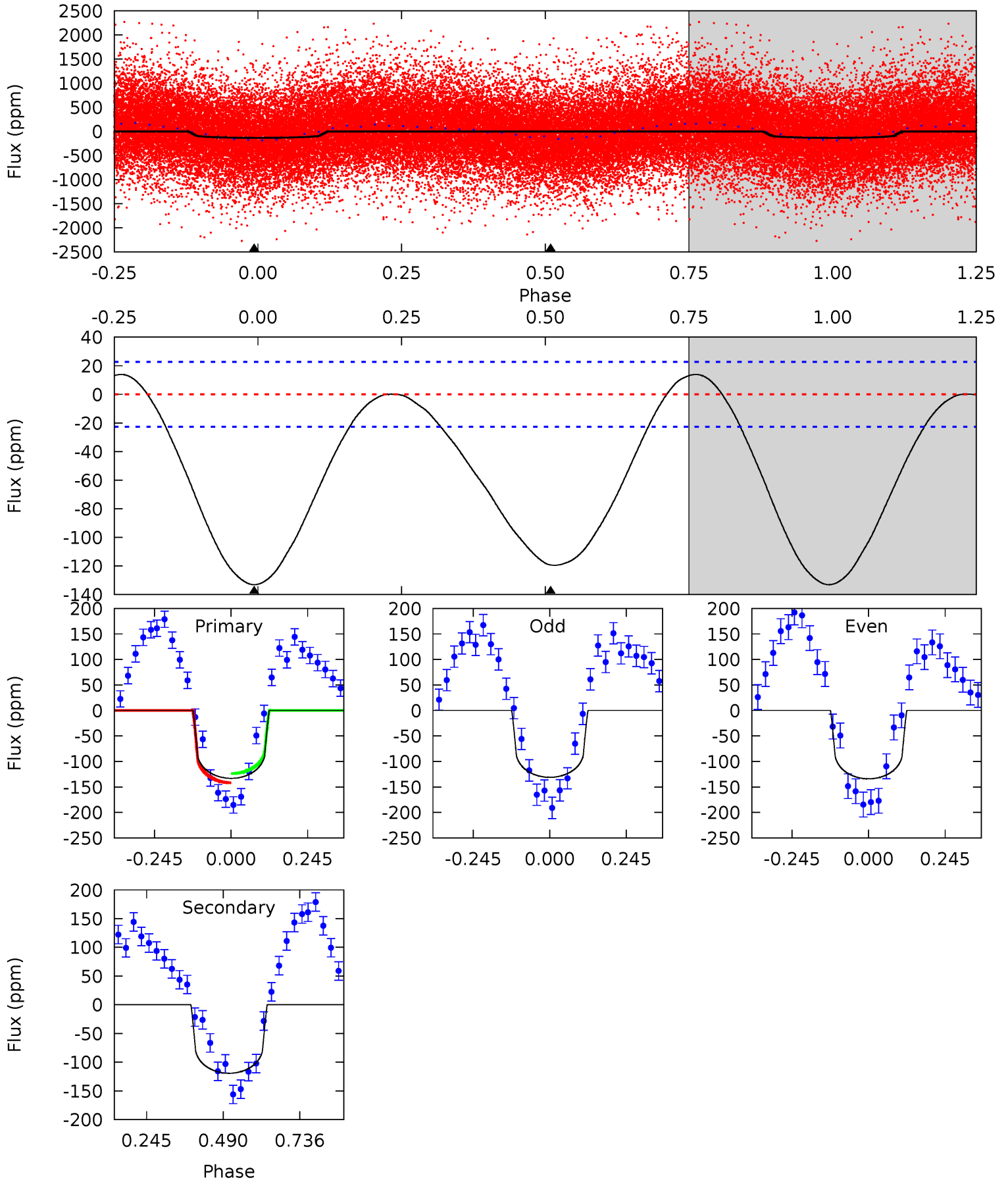




# DV Model-Shift Uniqueness Test

009092496-03, P = 1.355958 Days, E = 130.604222 Days

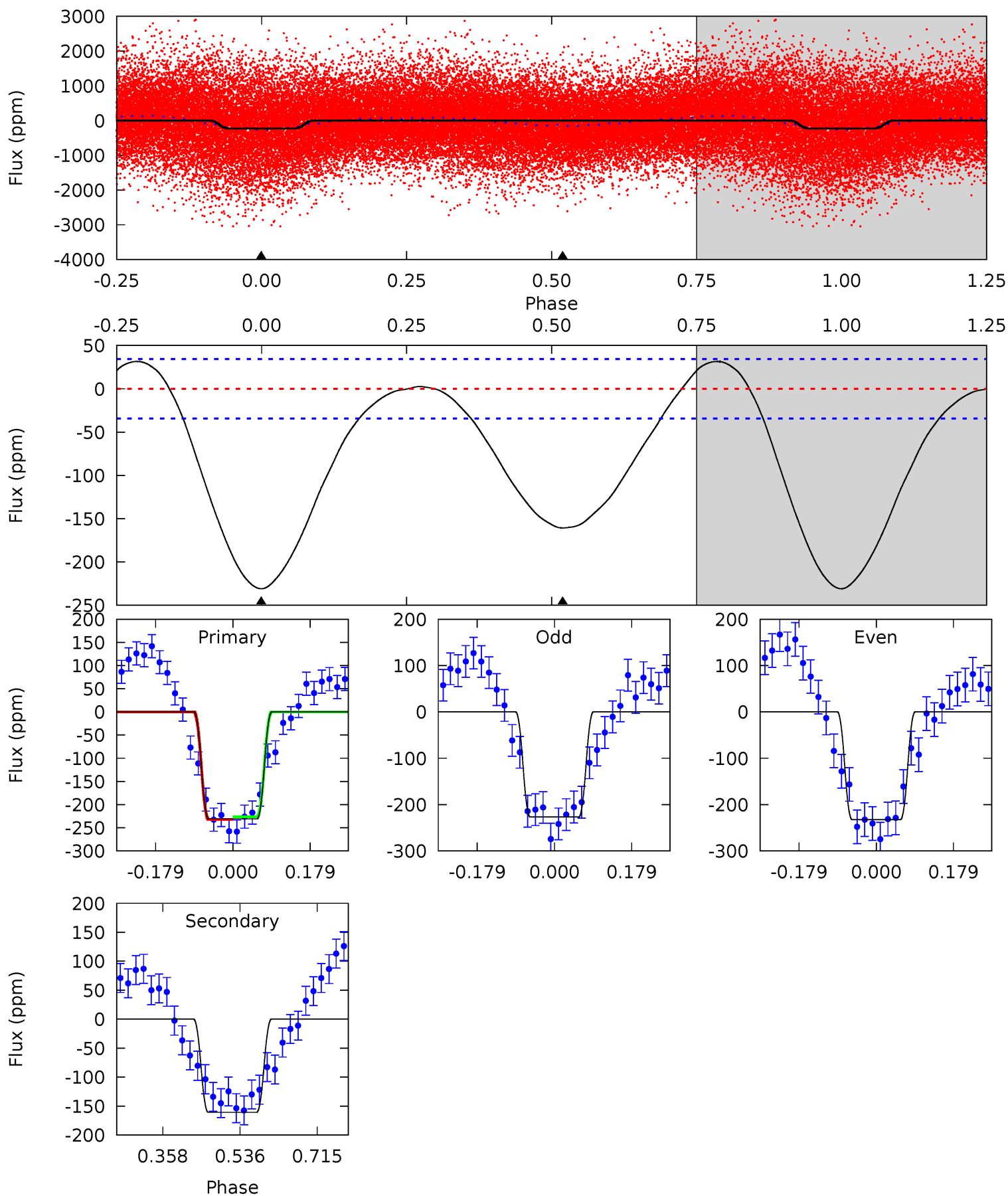
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.6	22.9	0	0	4.37	1.16	1.44	25.6	25.6	22.9	22.9	0.28	1.22	0.09	1.78



# Alt Model-Shift Uniqueness Test

009092496-03, P = 1.355927 Days, E = 130.603792 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
29.9	20.8	0	0	4.44	1.34	2.12	29.9	29.9	20.8	20.8	0.34	1.05	0.12	0.38



### Stellar Parameters For KIC 009092496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6997^{+167}_{-263}$	$4.475^{+0.026}_{-0.234}$	$-0.500^{+0.300}_{-0.300}$	$1.000^{+0.371}_{-0.066}$	$1.155^{+0.159}_{-0.119}$	$1.628^{+0.174}_{-0.976}$
	+2%/-4%	+1%/-5%	+60%/-60%	+37%/-7%	+14%/-10%	+11%/-60%
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 009092496-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-119 \pm 5$	$1.05^{+0.72}_{-0.64}$	$2855^{+201}_{-154}$	$8031^{+9379}_{-2098}$	$37^{+208}_{-24}$
Alt.	$-161 \pm 8$	$2.00^{+0.86}_{-0.74}$	$2843^{+240}_{-138}$	$6030^{+1793}_{-882}$	$14^{+21}_{-7}$

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

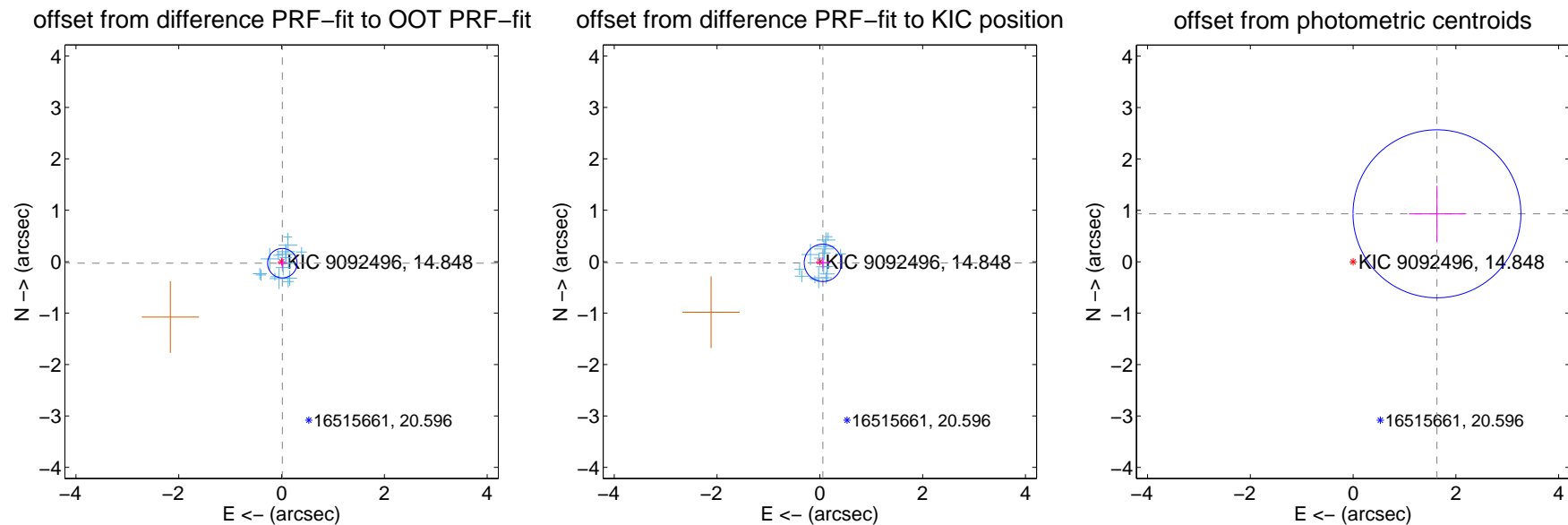
## DV Centroid Data

Supplemental centroid analysis for 009092496-03. Kepler magnitude: 14.85. Transit SNR 8.74

There are 16 quarters with good PRF difference image offsets

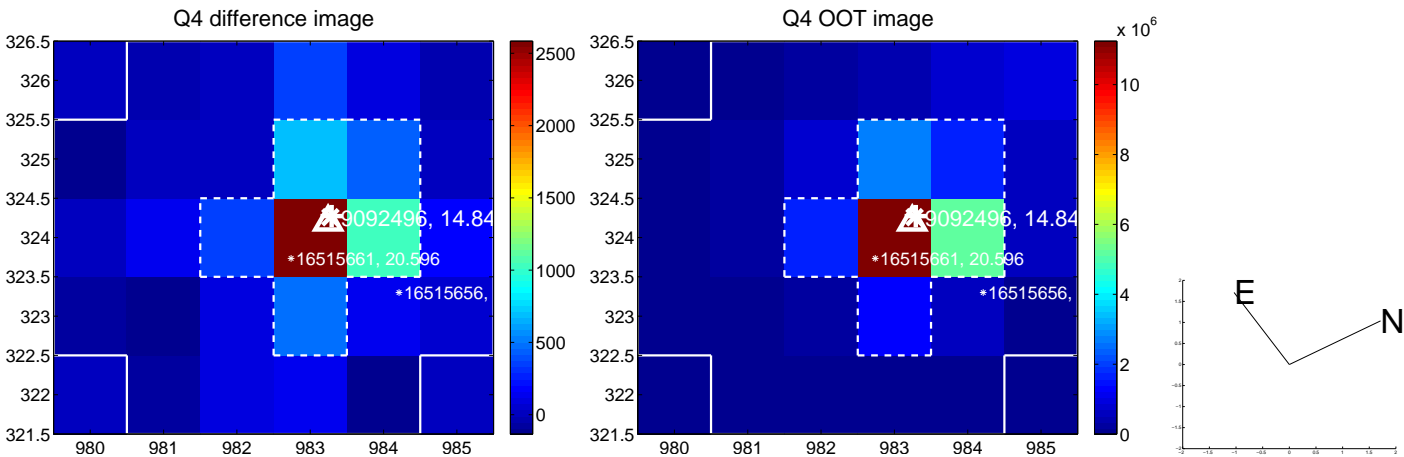
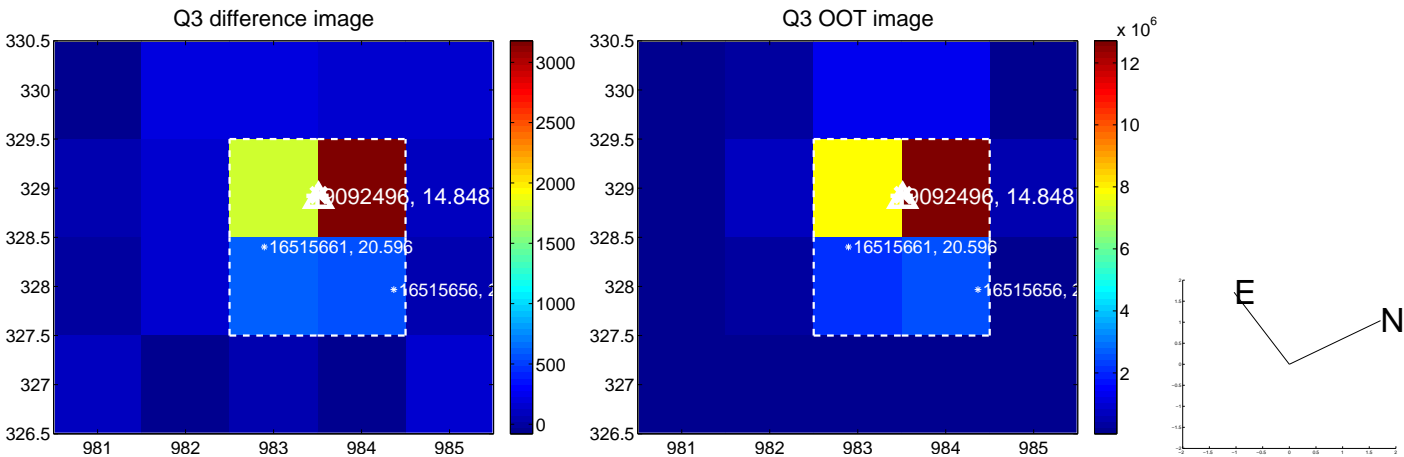
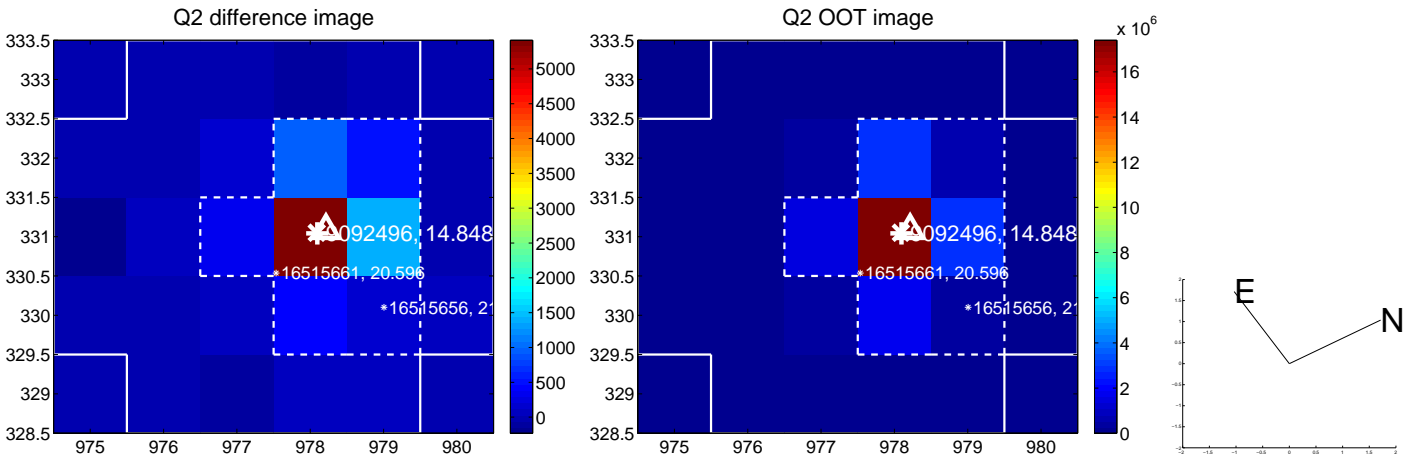
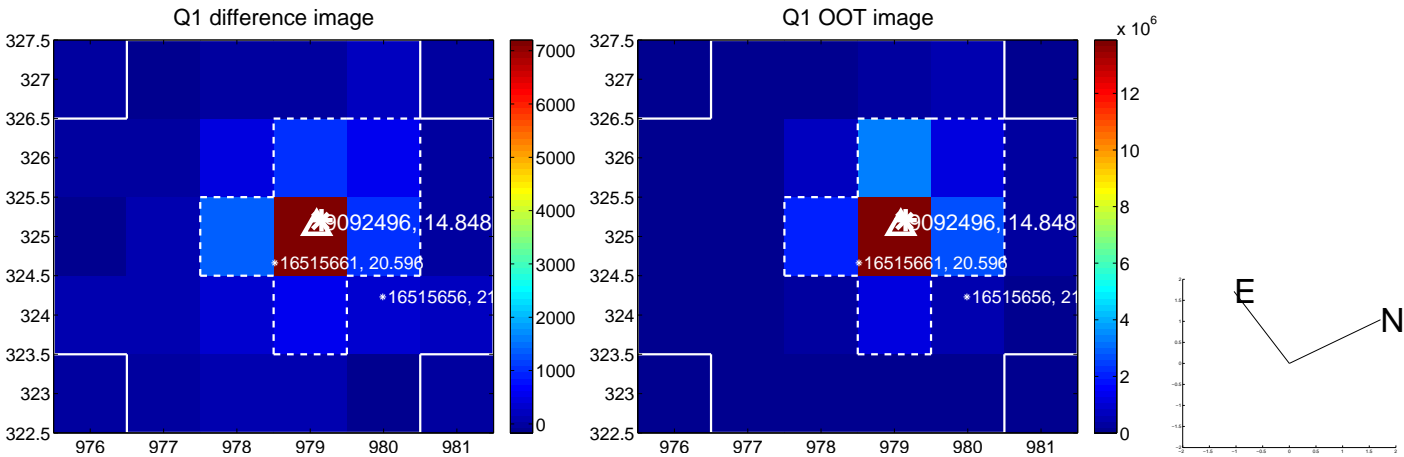
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.032 \pm 0.095$	0.34	$-0.014 \pm 0.091$	$-0.029 \pm 0.096$
PRF-fit source offset from KIC position	$0.063 \pm 0.121$	0.52	$-0.059 \pm 0.145$	$-0.023 \pm 0.107$
photometric centroid source offset	$1.88 \pm 0.54$	3.45	$-1.63 \pm 0.54$	$0.93 \pm 0.55$

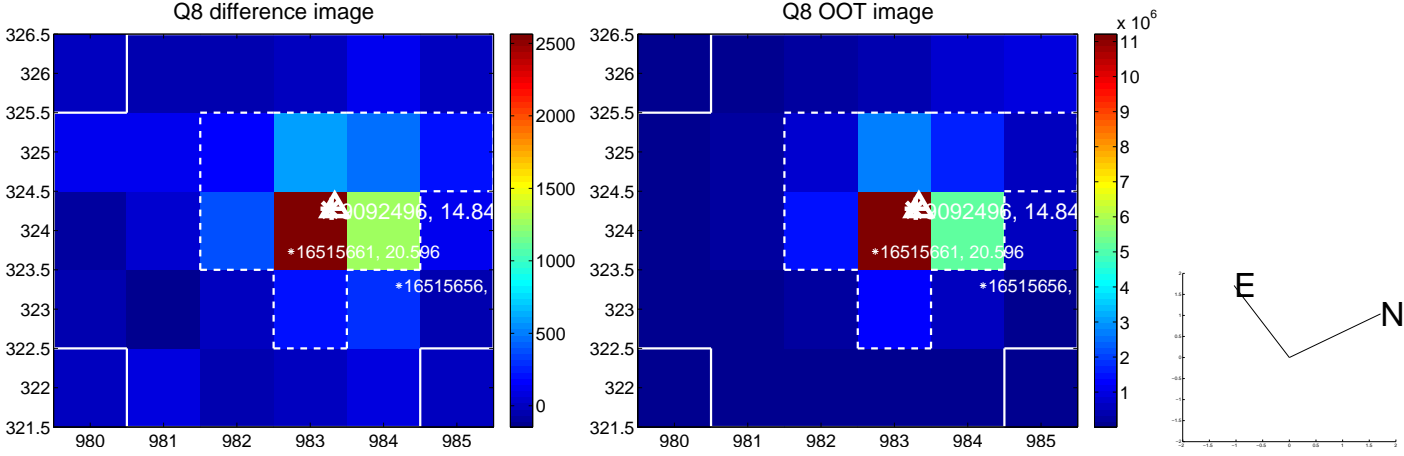
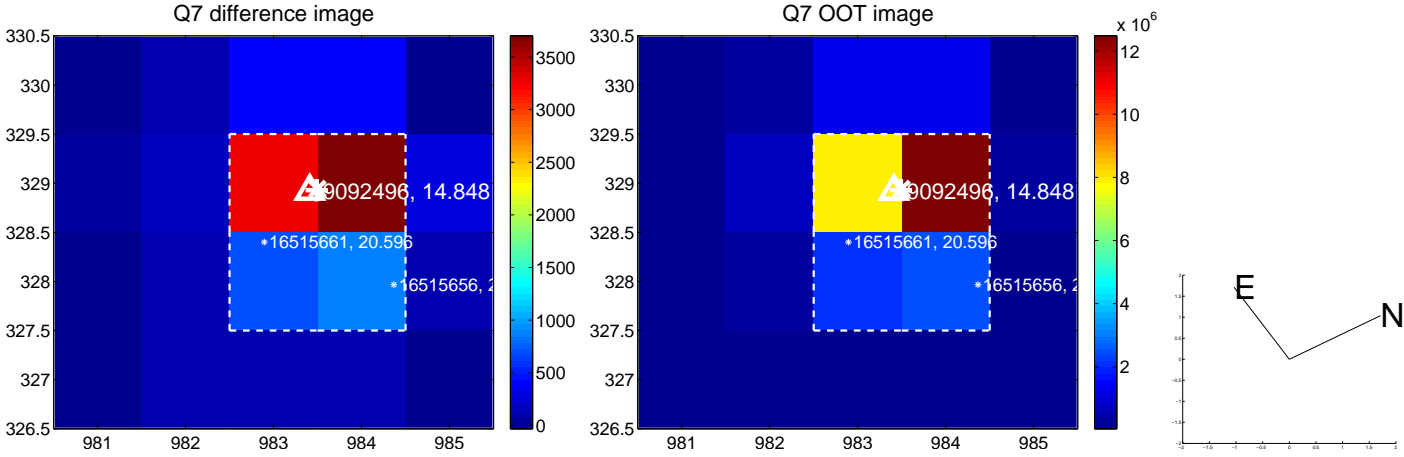
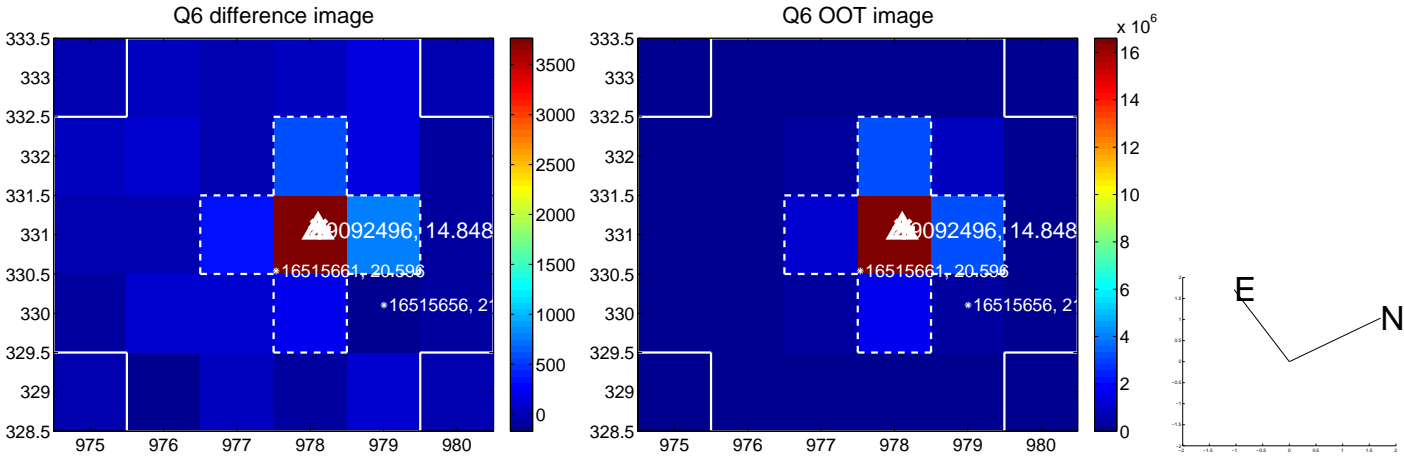
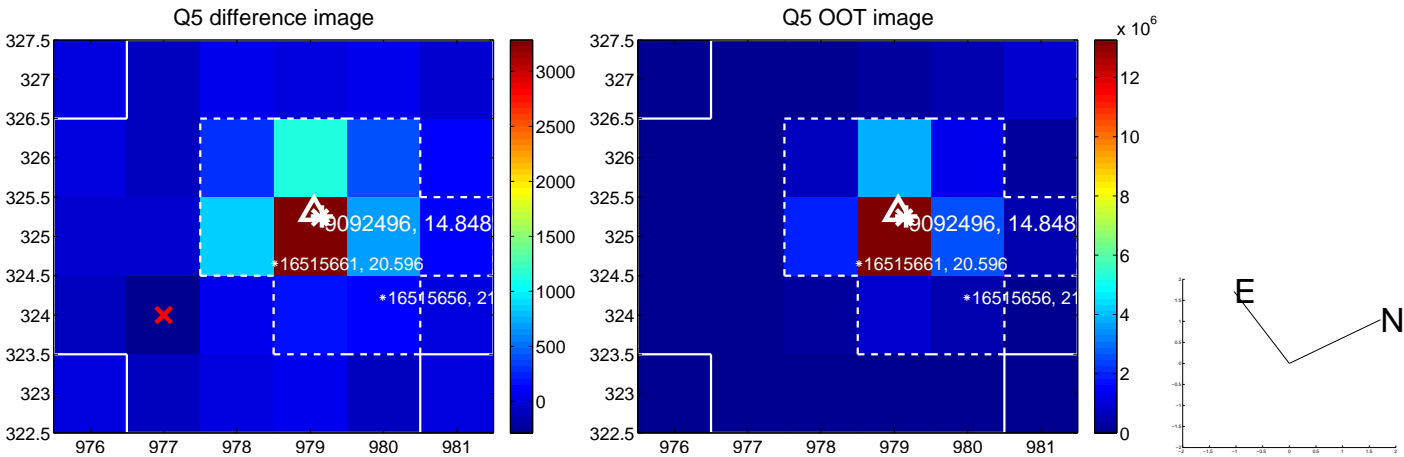


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

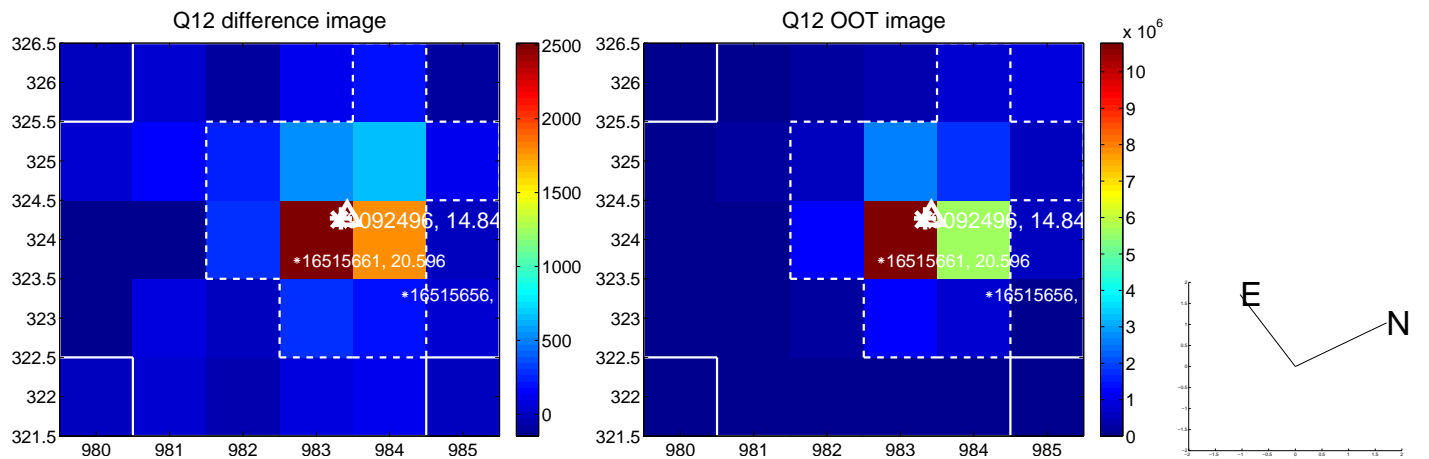
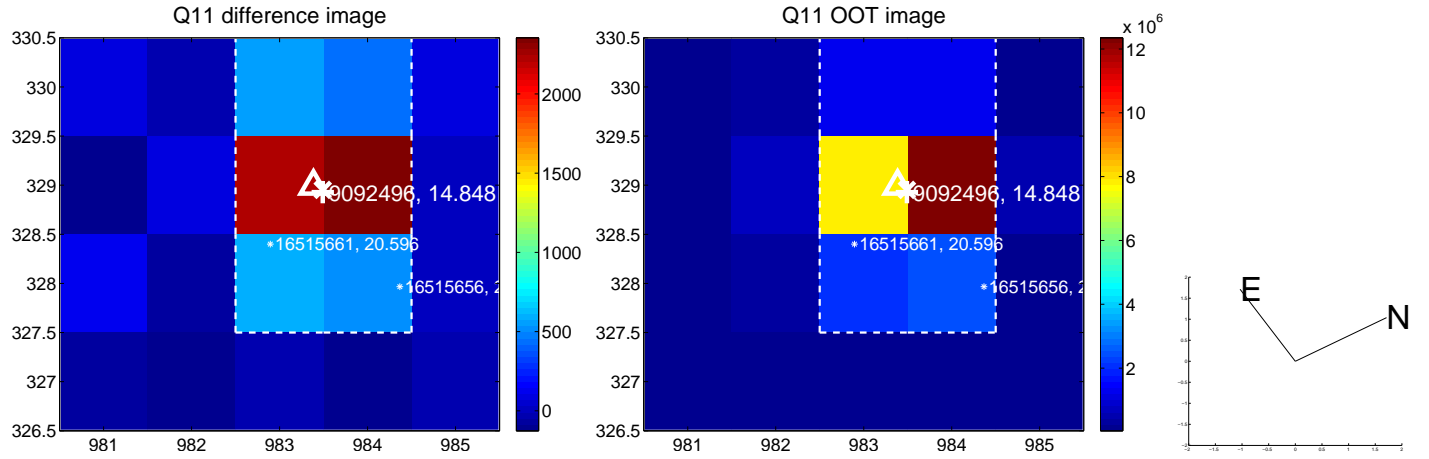
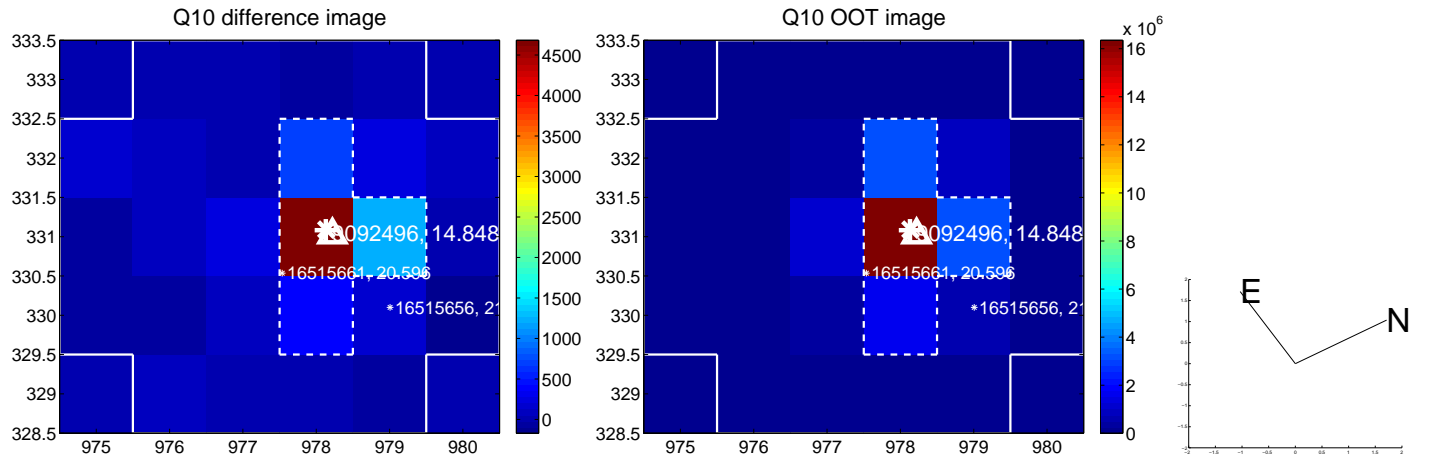
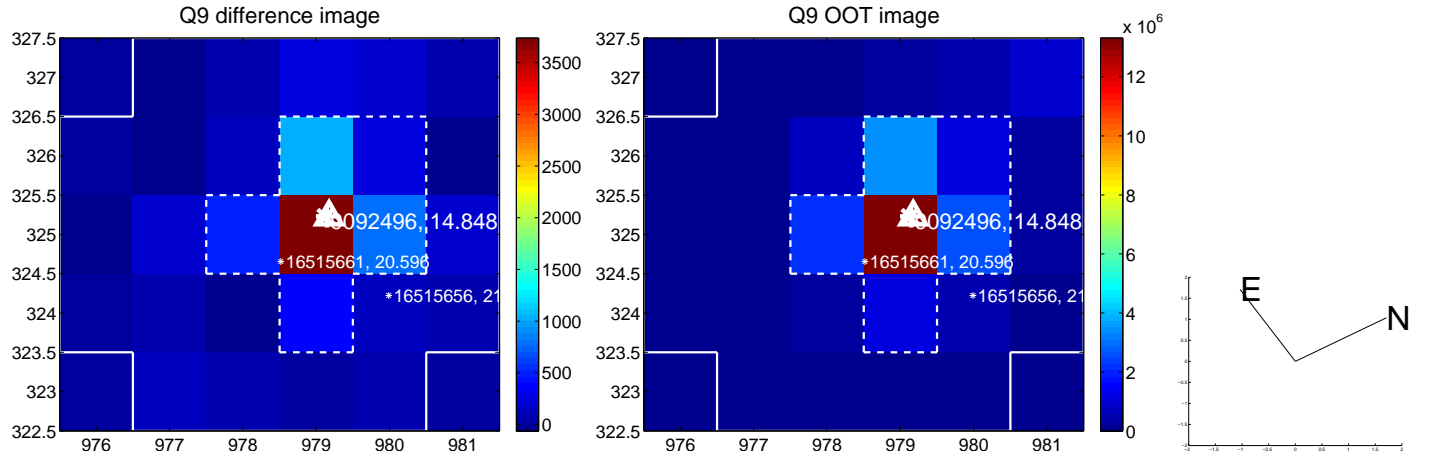
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

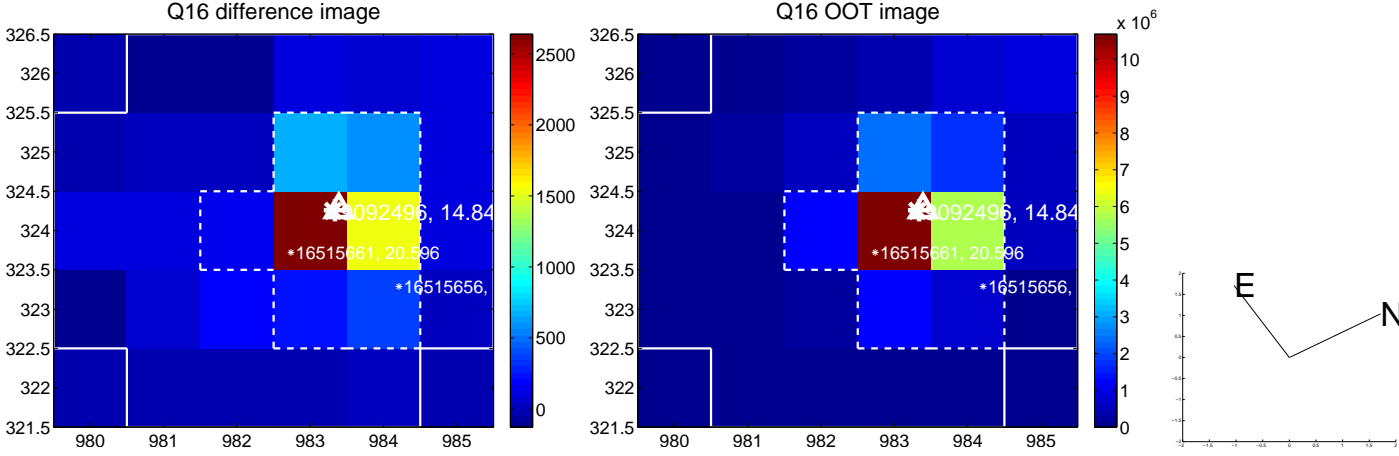
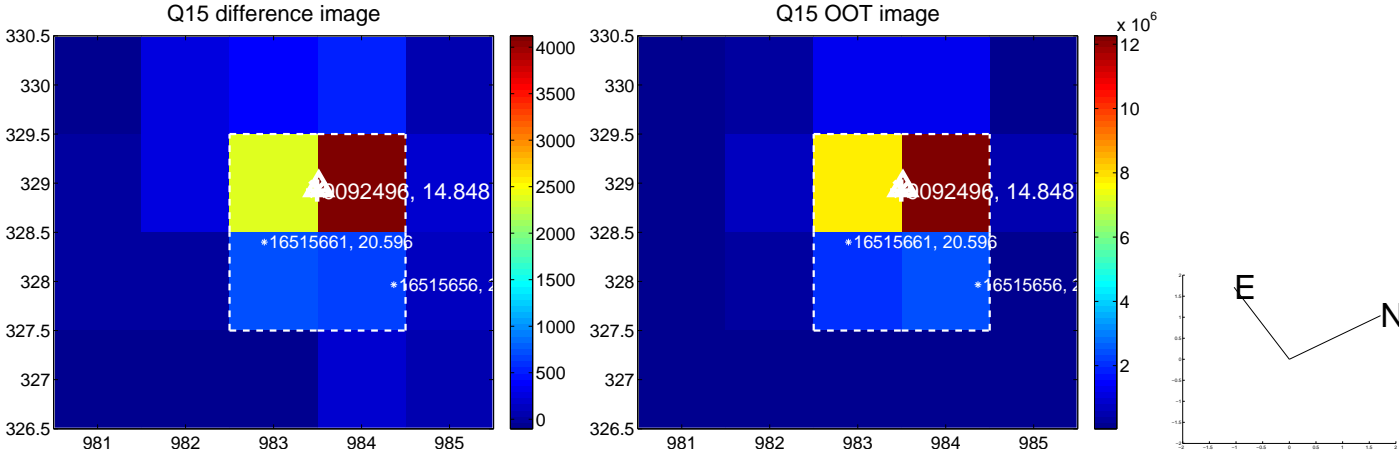
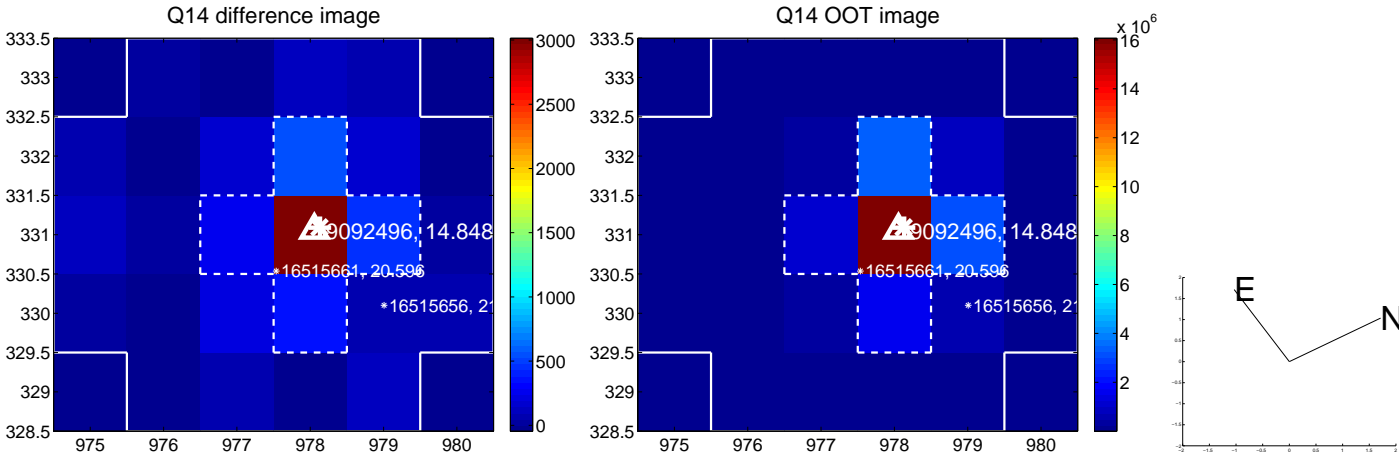
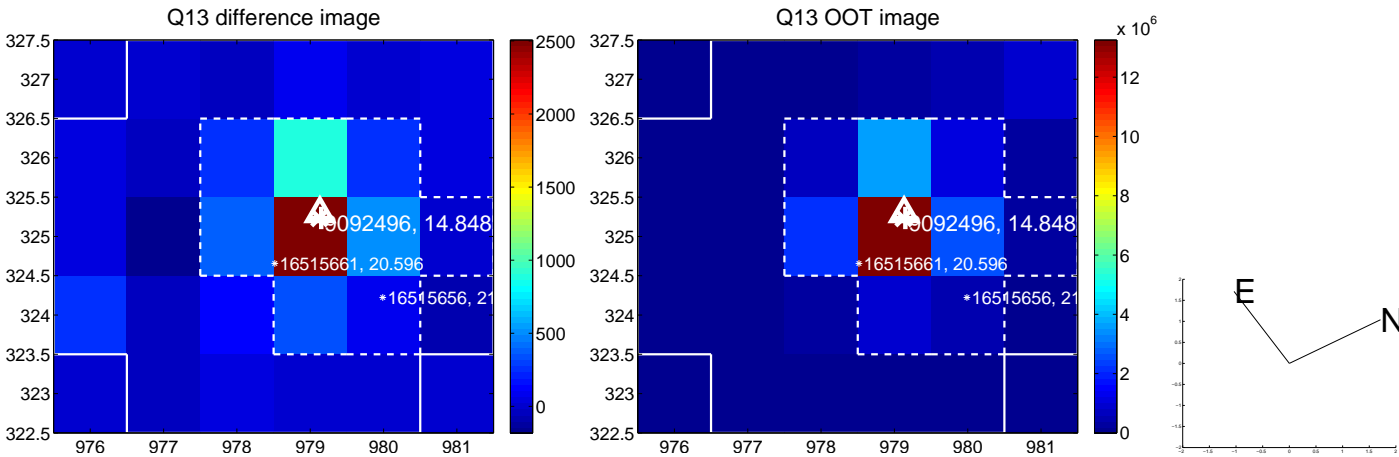


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

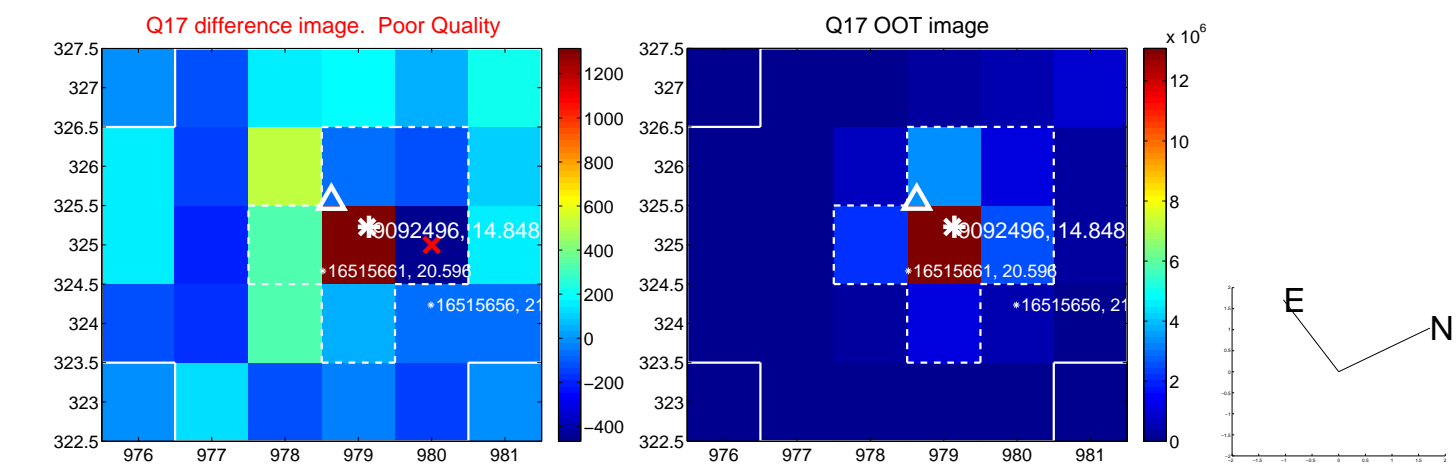




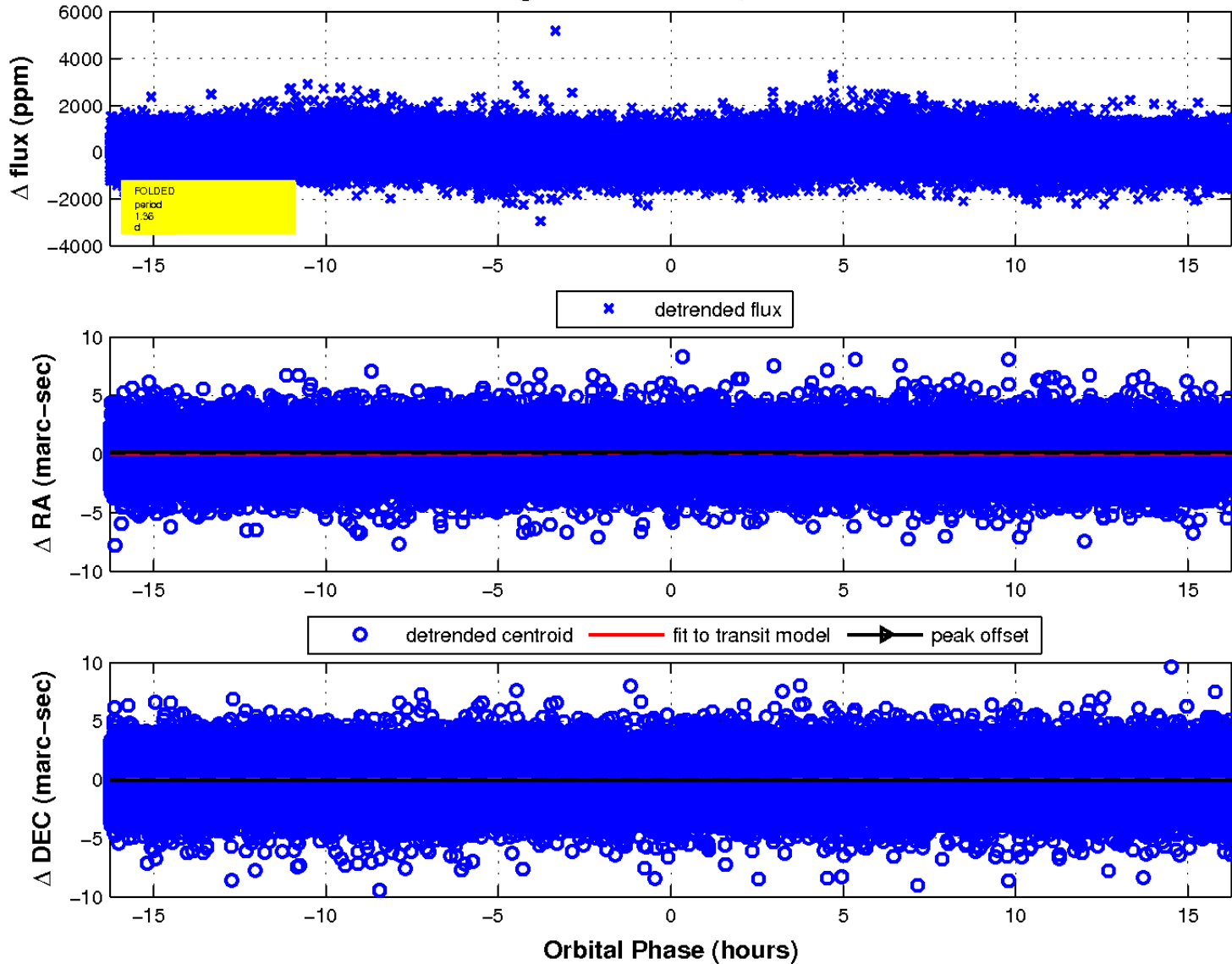
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

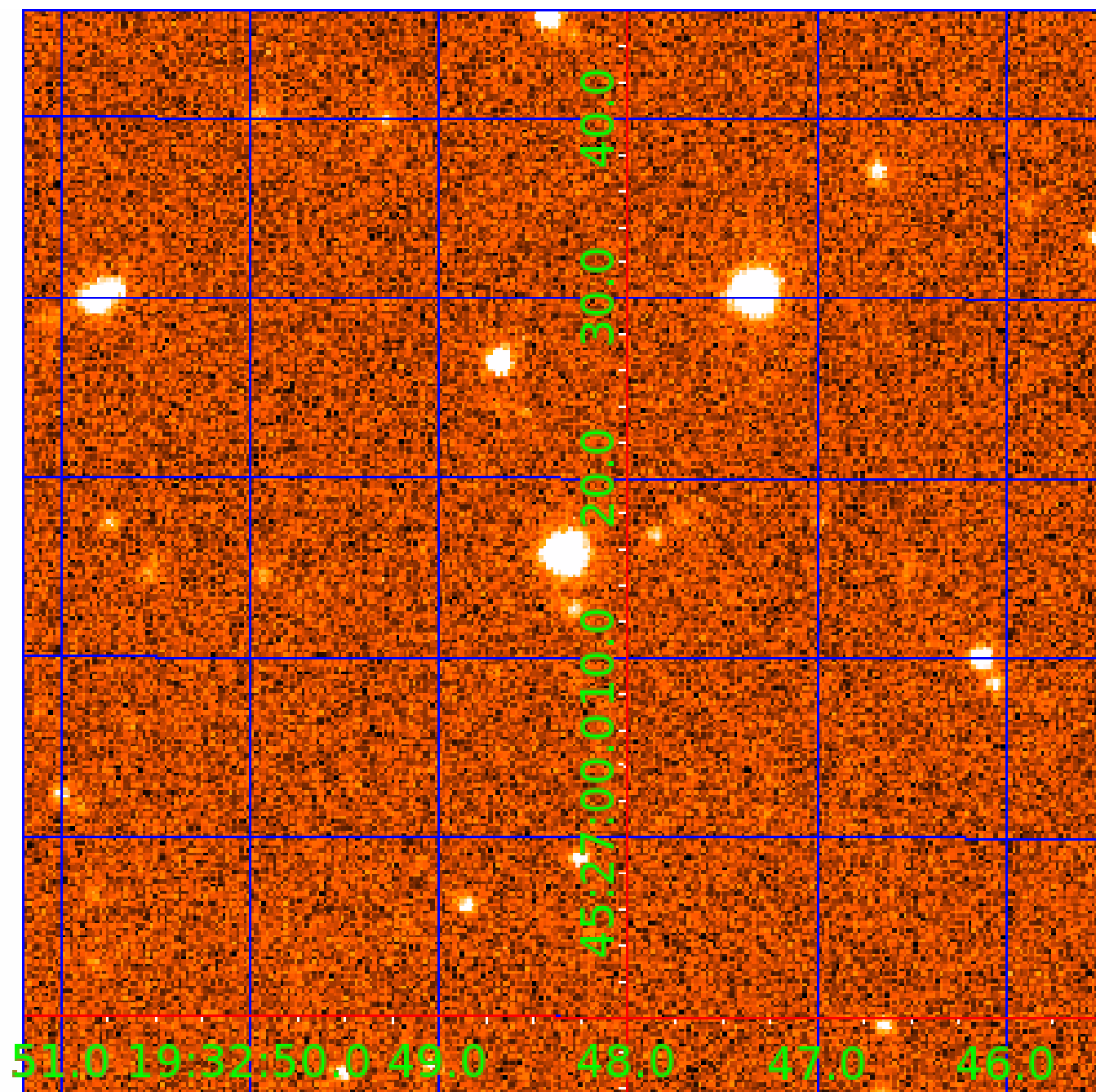


fluxWeightedCentroids, Planet 3 of 7



UKIRT Image

Declination



# KIC 009092496

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009092496-01	OBS	4193.01	94.177944	200.293674	811.0	6.596	14.0	13.4	1.00	6997	3.49	12.36
009092496-02	OBS	No	0.706923	131.569984	0.3	0.996	7.2	0.0	1.00	6997	0.06	8408.37
009092496-03	OBS	No	1.355958	131.960180	75.6	7.534	9.1	8.7	1.00	6997	0.88	3528.15
009092496-04	OBS	No	184.408229	237.033919	574.8	8.101	9.5	9.2	1.00	6997	2.46	5.04
009092496-05	OBS	No	4.478336	135.059846	228.7	5.942	9.0	9.0	1.00	6997	1.86	717.33
009092496-06	OBS	No	51.599819	160.611399	618.5	5.493	11.0	5.0	1.00	6997	2.65	27.56
009092496-07	OBS	No	56.015115	135.185629	405.5	6.000	8.1	-1.0	1.00	6997	2.04	24.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009092496-01	OBS	PC	0.84	0	0	0	0	NO_COMMENT
009092496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009092496-03	OBS	FP	0.00	1	0	0	0	LPP_DV
009092496-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT
009092496-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009092496-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009092496-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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 009092496-04

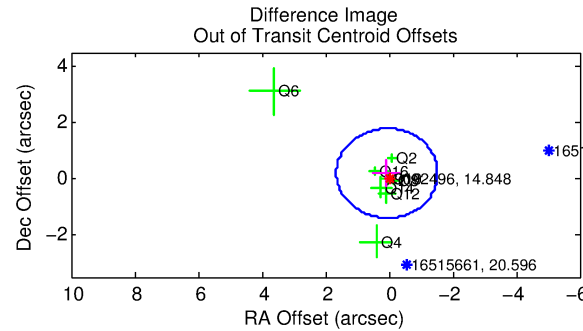
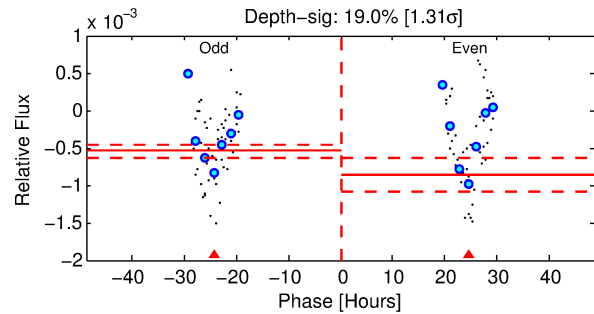
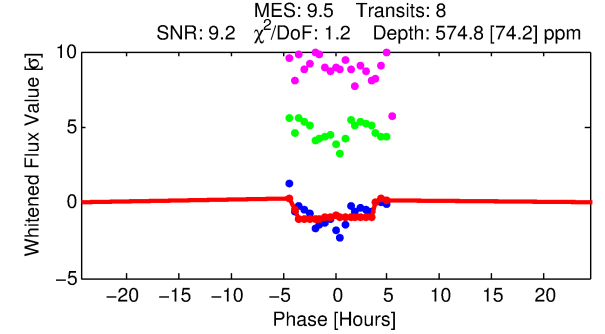
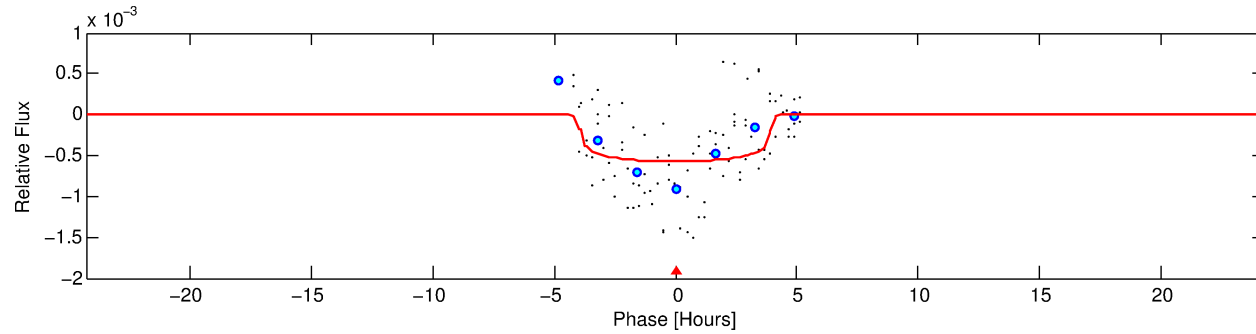
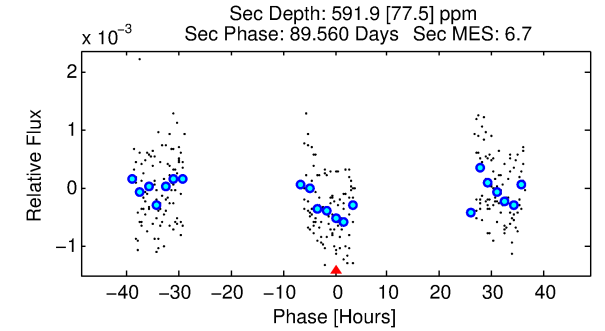
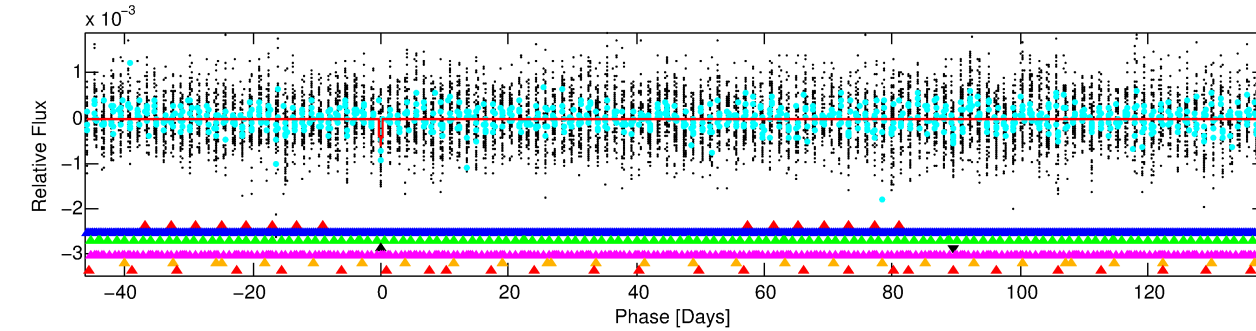
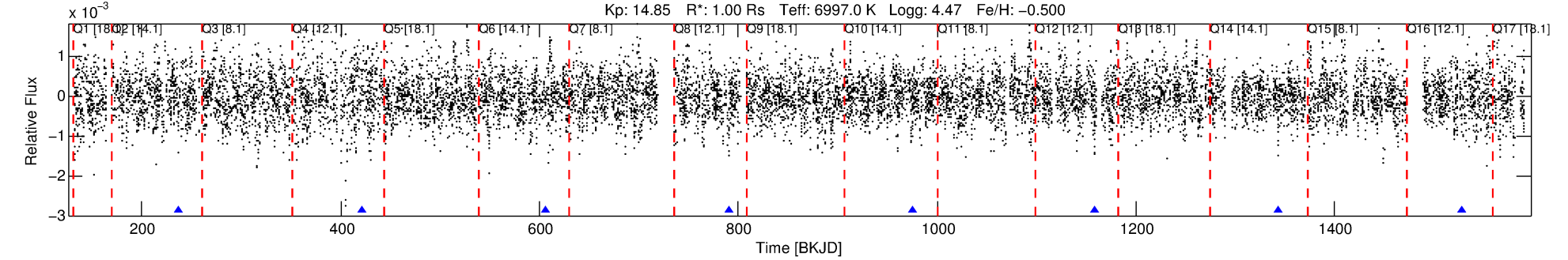
No Significant Match Found

# DV One-Page Summary

KIC: 9092496 Candidate: 4 of 7 Period: 184.408 d

KOI: K04193 Corr: No Ephemeris Match

Kp: 14.85 R\*: 1.00 Rs Teff: 6997.0 K Logg: 4.47 Fe/H: -0.500



## DV Fit Results:

Period = 184.40823 [0.00298] d  
Epoch = 237.0339 [0.0124] BKJD  
Rp/R\* = 0.0226 [0.0144]  
a/R\* = 161.98 [589.53]  
b = 0.42 [7.12]  
Seff = 5.04 [2.33]  
Teff = 382 [44] K  
Rp = 2.46 [1.81] Re  
a = 0.6525 [0.1994] AU  
Ag = 22816.91 [30824.48] [0.74σ]  
Teffp = 7262 [2337] K [2.94σ]

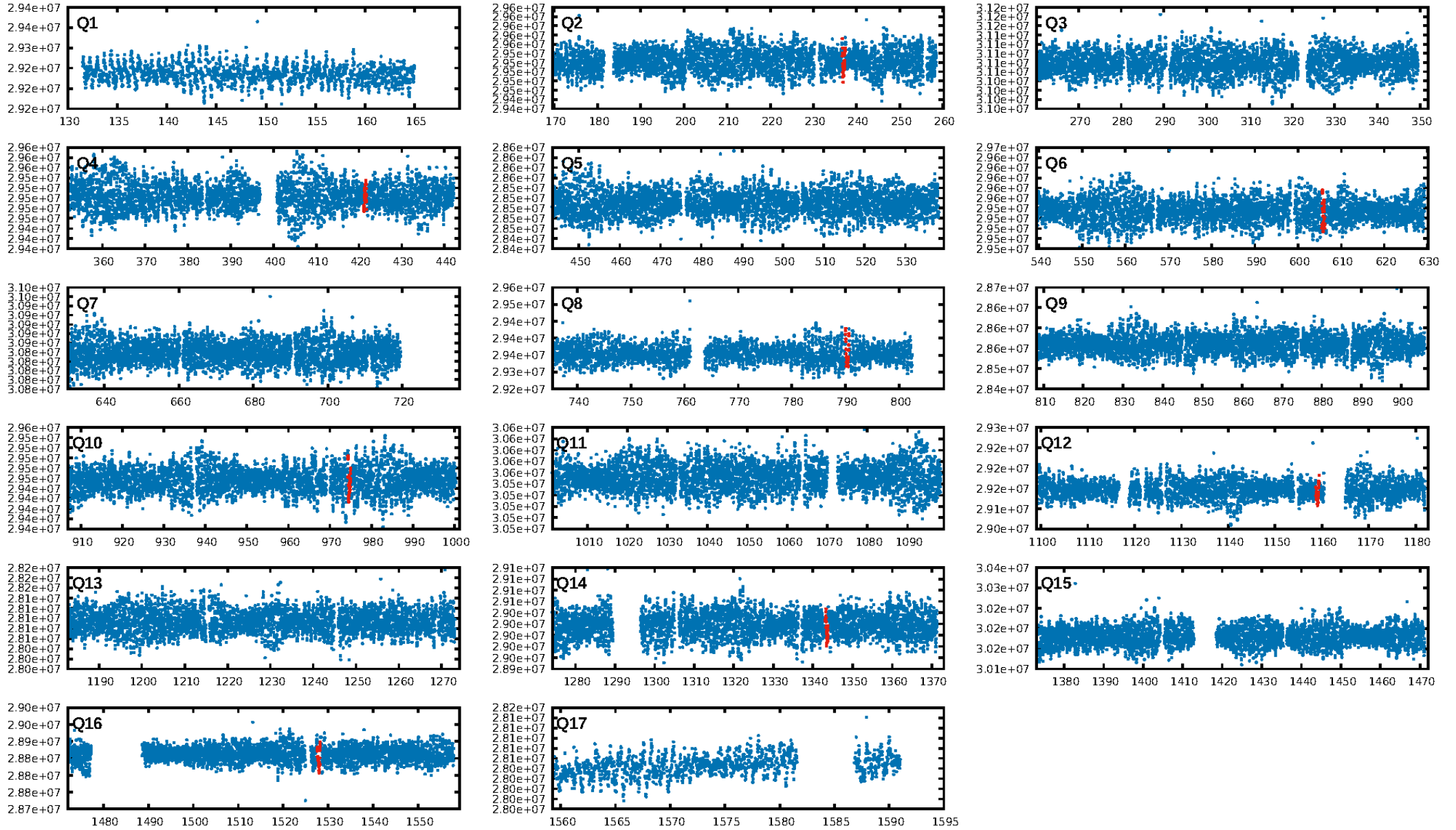
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [207.29σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 11.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 1.816  
Centroid-sig: 16.0%  
Centroid-so: 0.816 arcsec [1.00σ]  
OotOffset-rm: 0.203 arcsec [0.38σ]  
KicOffset-rm: 0.261 arcsec [0.42σ]  
OotOffset-st: 4/0/4/0 [8]  
KicOffset-st: 4/0/4/0 [8]  
DiffImageQuality-fgm: 0.75 [6/8]  
DiffImageOverlap-fno: 0.00 [0/8]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:44:43 Z

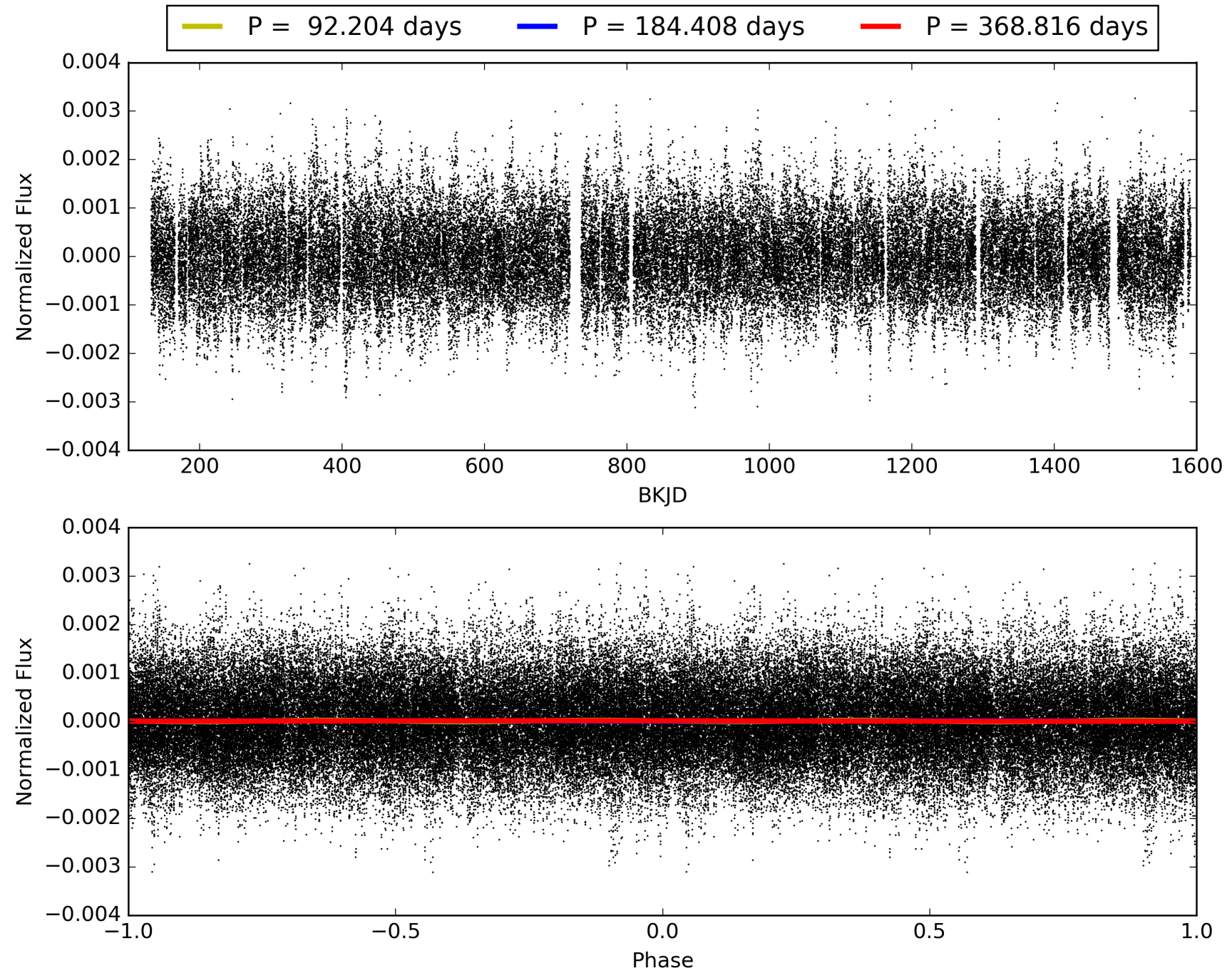
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009092496-04, PDC Light Curves



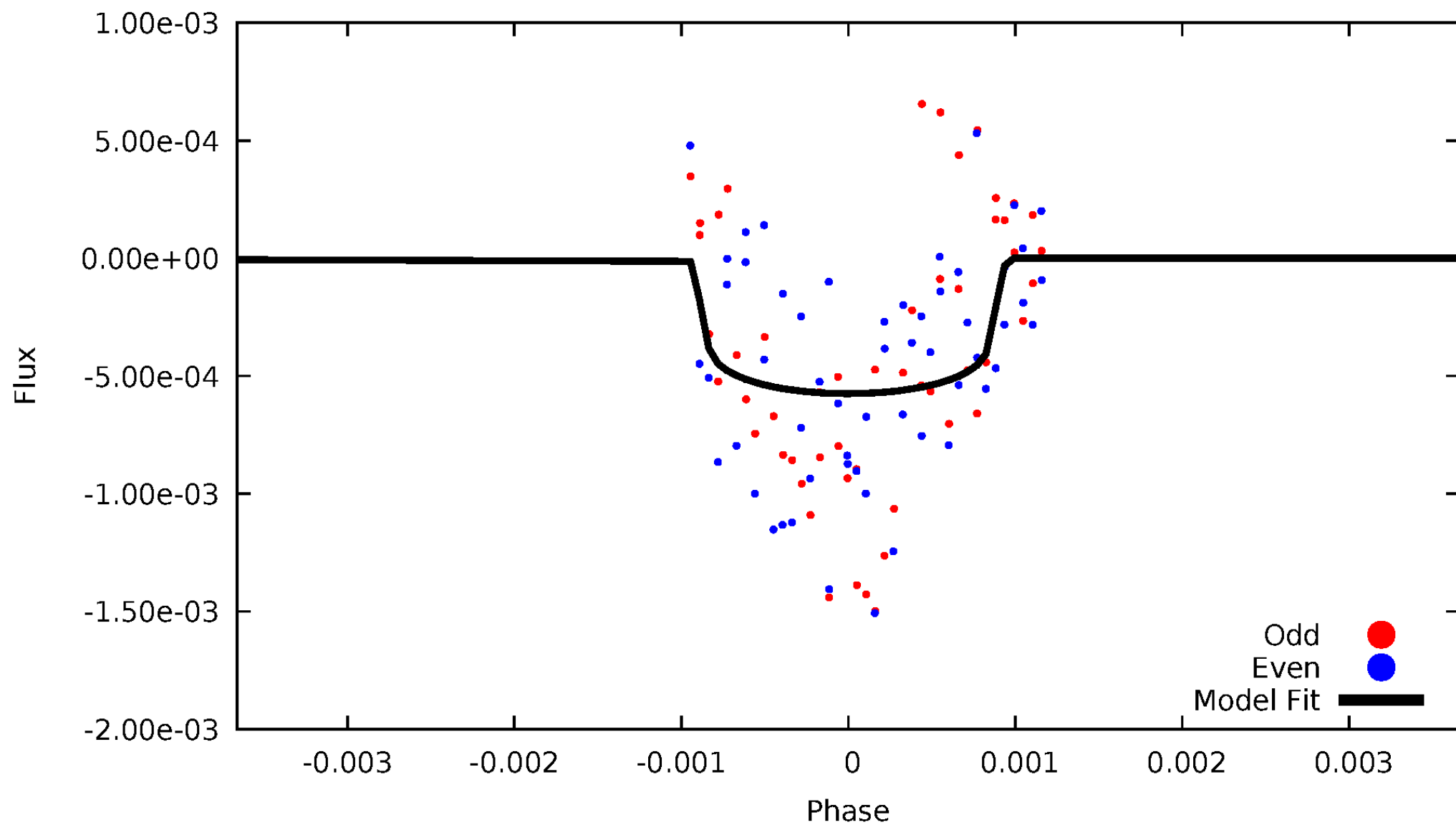


TCE 009092496-04



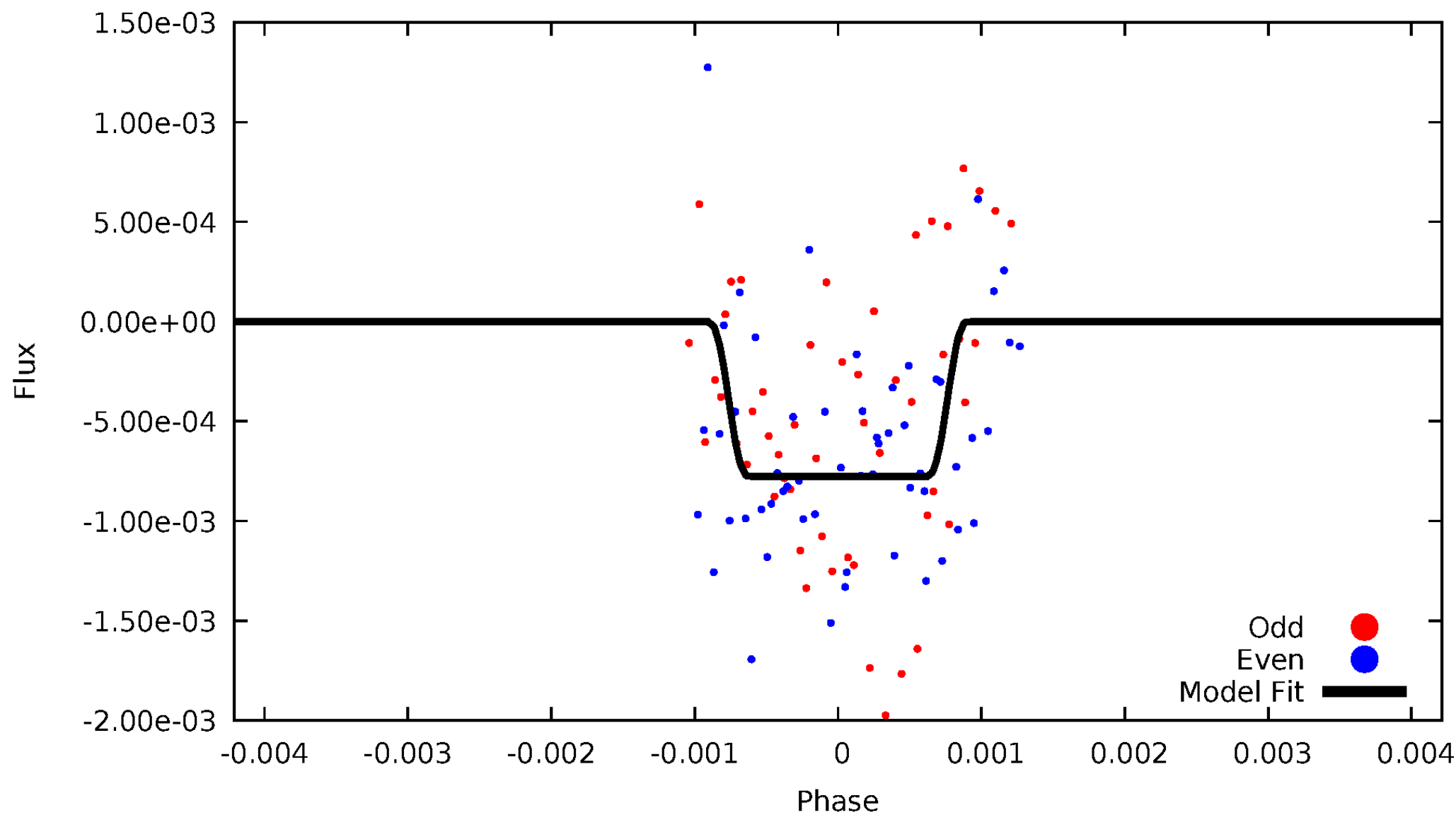
# DV Odd/Even

TCE 009092496-04



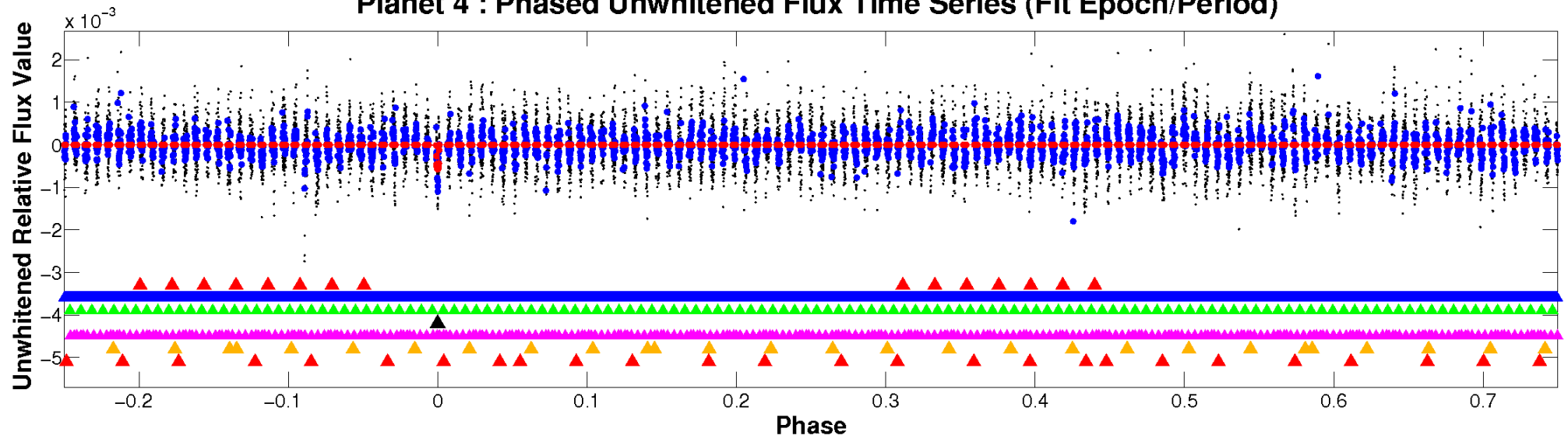
# ALT Odd/Even

TCE 009092496-04

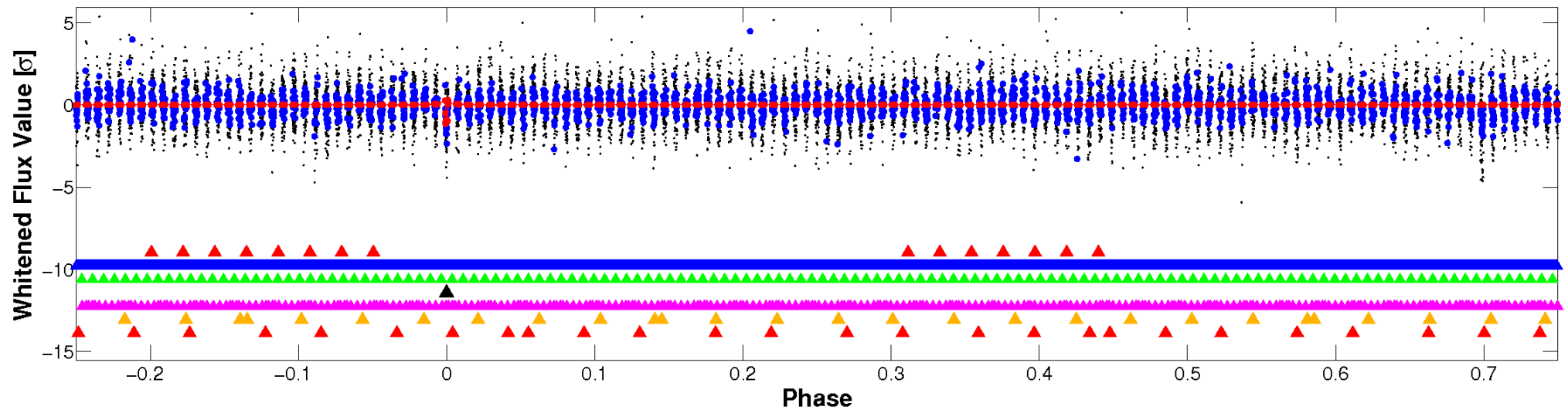


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

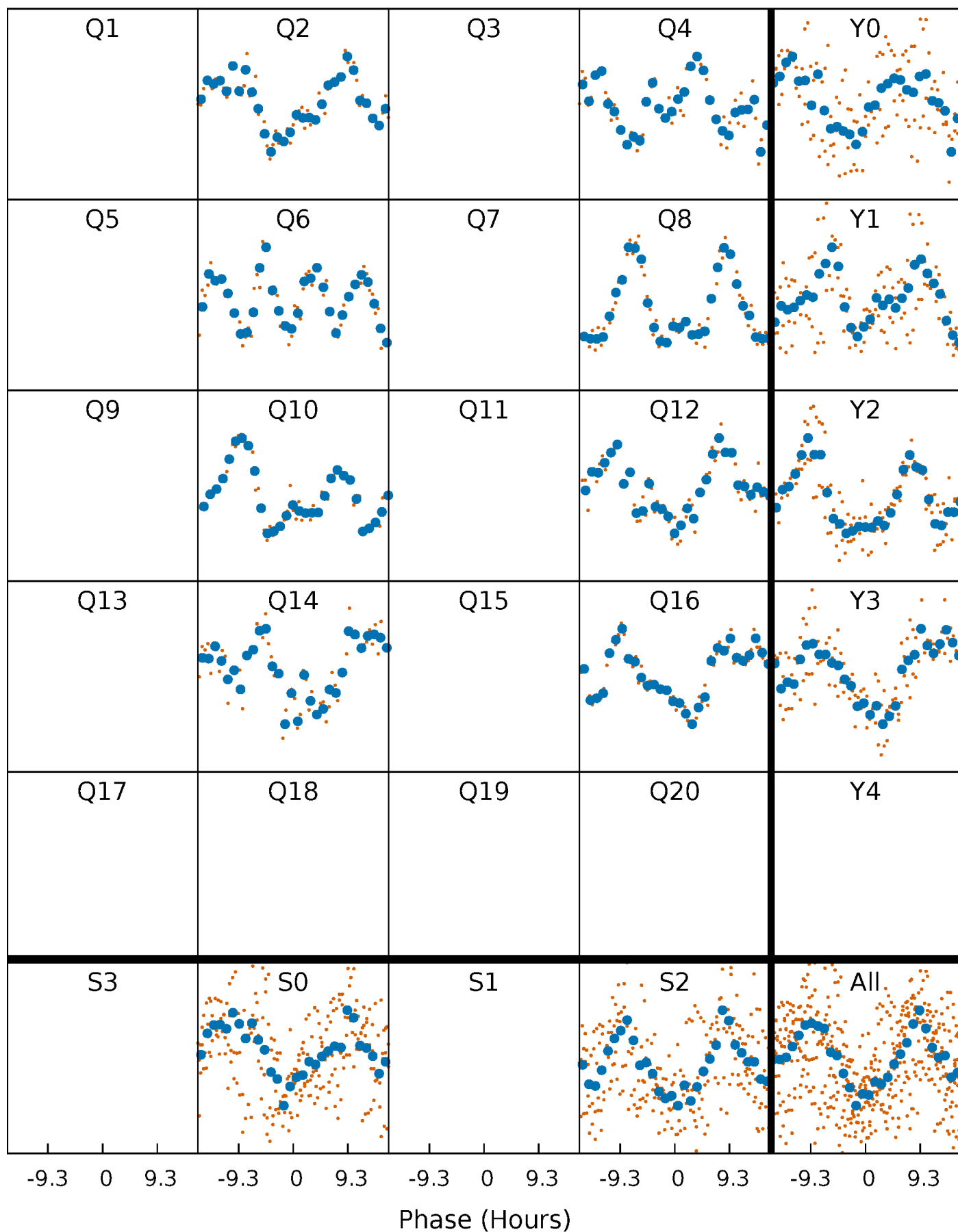


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

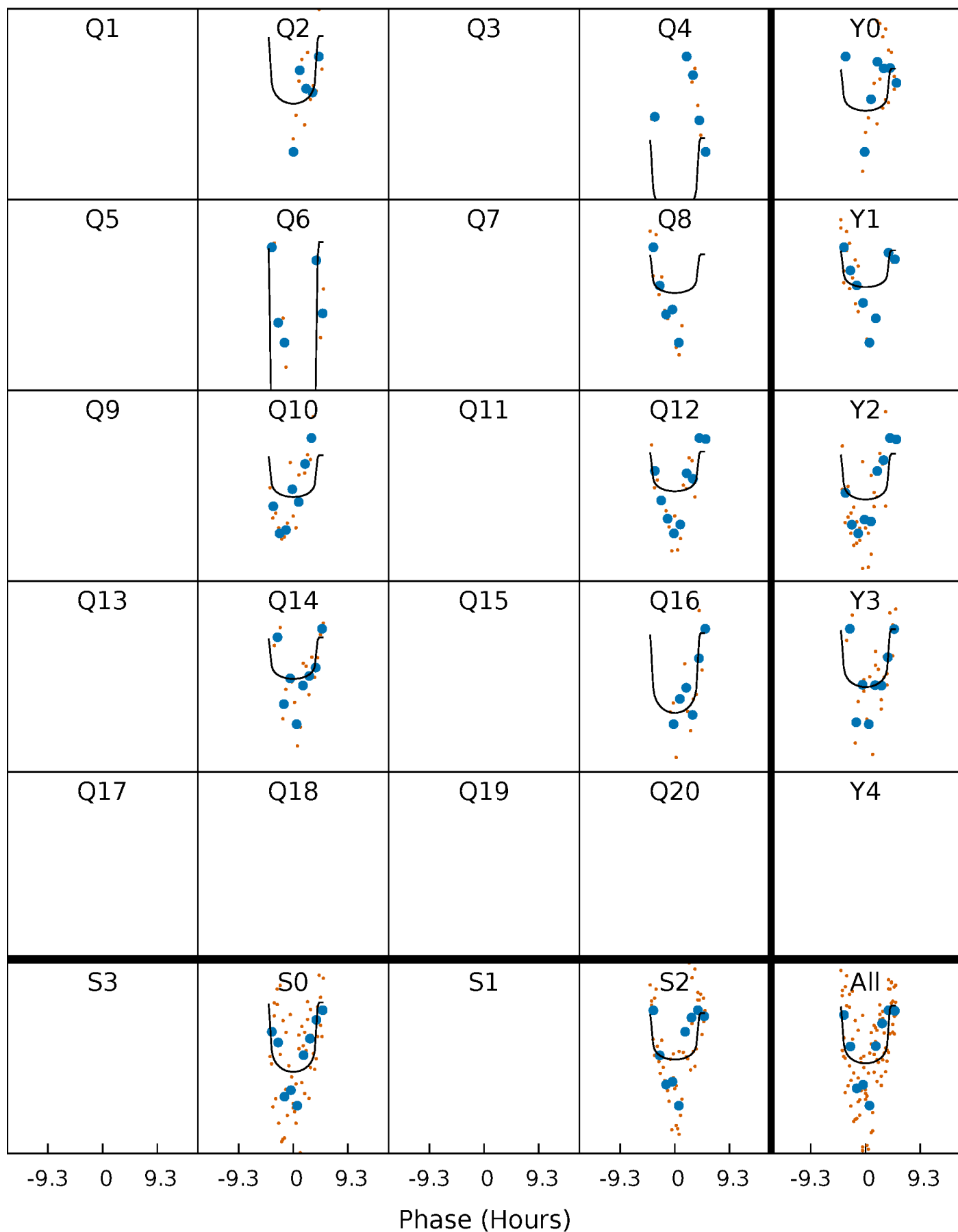
TCE 009092496-04     $P=184.408229$  Days     $T_0=237.033919$  (BKJD)





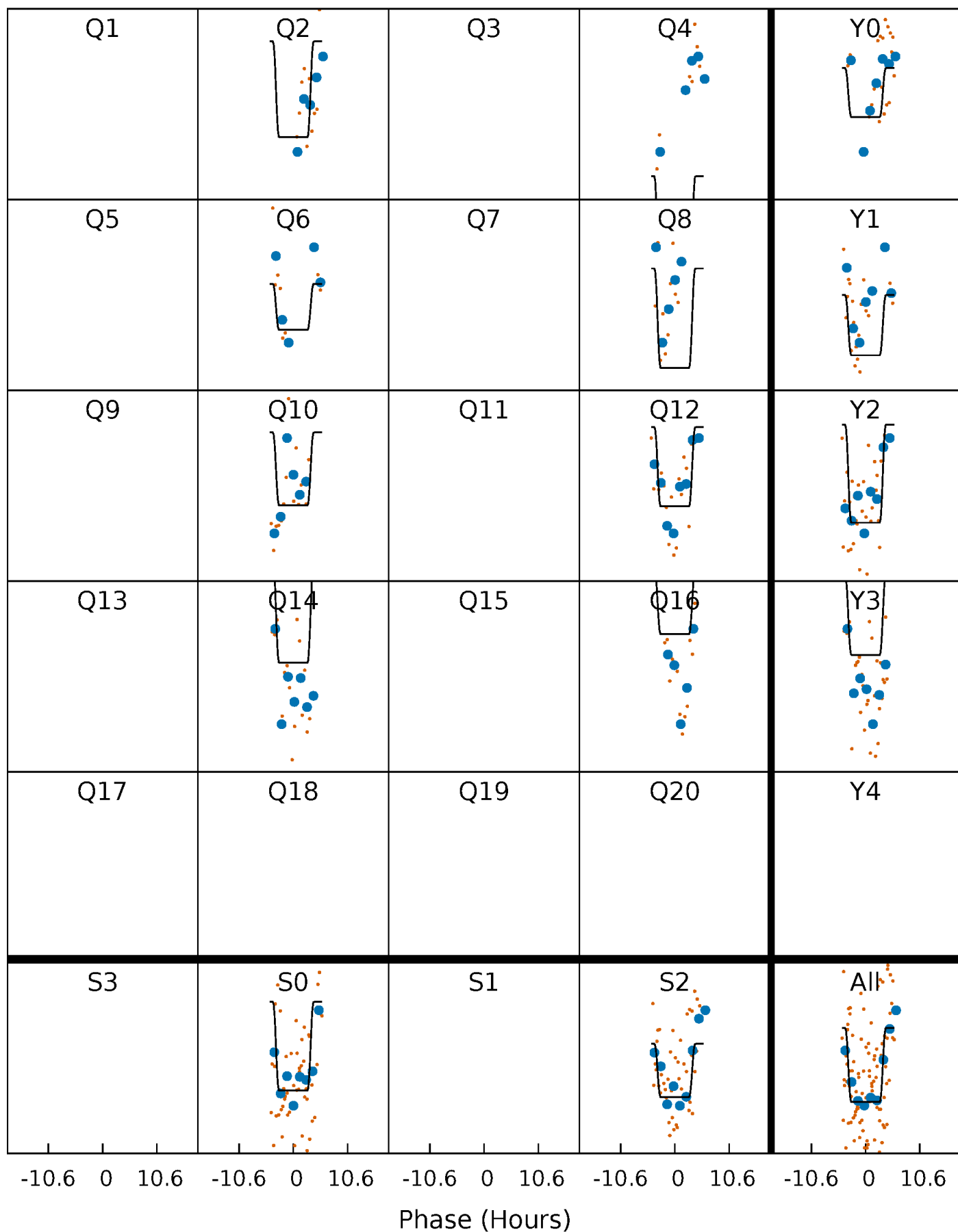
# DV Quarter-Phased Transit Curves

TCE 009092496-04 P=184.408229 Days  $T_0=237.033919$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

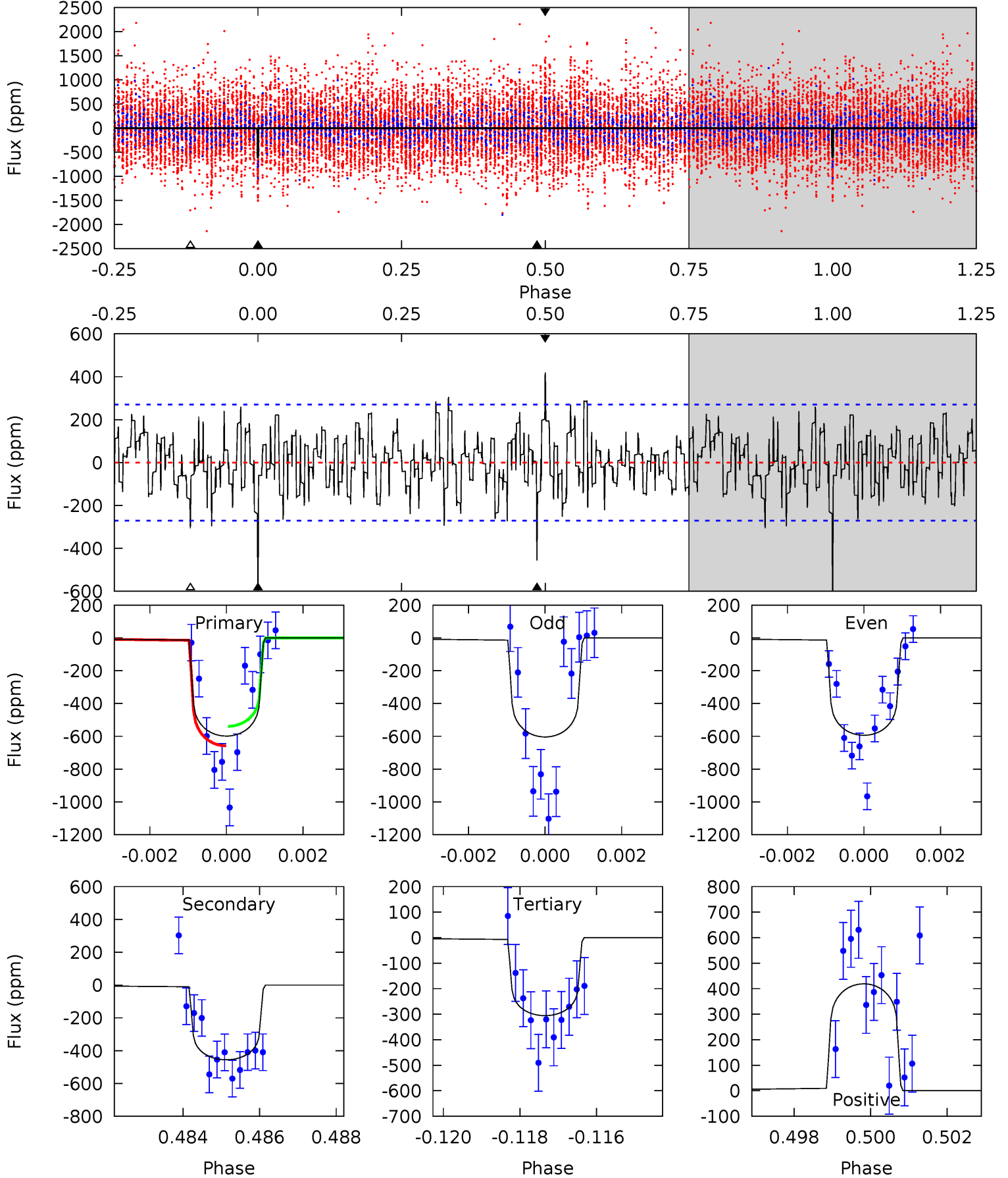
TCE 009092496-04 P=184.419690 Days  $T_0=237.003773$  (BKJD)



# DV Model-Shift Uniqueness Test

009092496-04, P = 184.408229 Days, E = 52.625690 Days

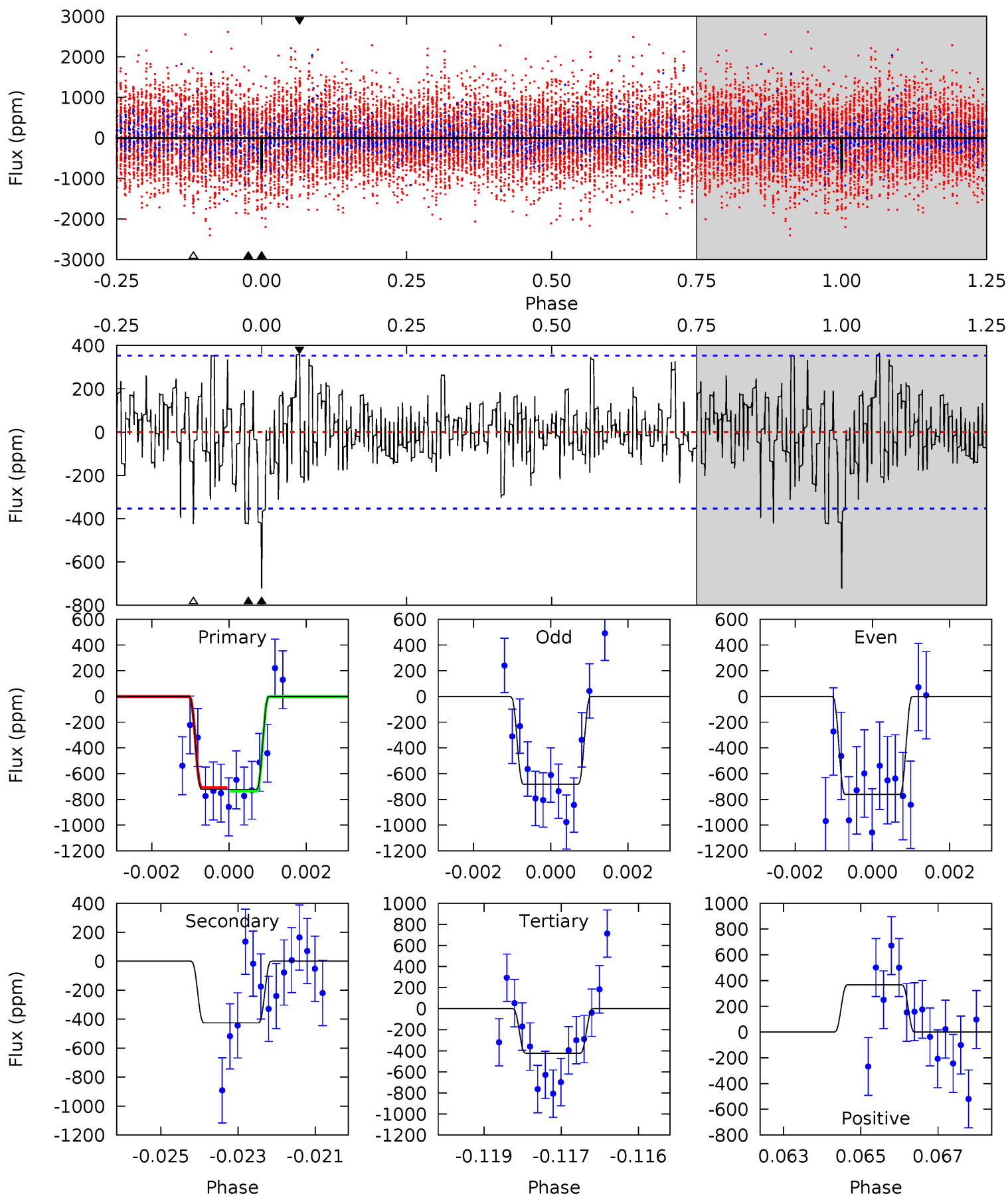
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.8	8.98	6.02	8.26	5.33	3.10	2.24	5.78	3.54	2.95	0.72	0.10	0.74	0.41	1.17



# Alt Model-Shift Uniqueness Test

009092496-04, P = 184.419690 Days, E = 52.584083 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
10.9	6.44	6.41	5.55	5.35	3.13	1.76	4.54	5.39	0.03	0.89	0.60	0.96	0.34	0.20



### Stellar Parameters For KIC 009092496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6997^{+167}_{-263}$	$4.475^{+0.026}_{-0.234}$	$-0.500^{+0.300}_{-0.300}$	$1.000^{+0.371}_{-0.066}$	$1.155^{+0.159}_{-0.119}$	$1.628^{+0.174}_{-0.976}$
	+2%/-4%	+1%/-5%	+60%/-60%	+37%/-7%	+14%/-10%	+11%/-60%
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 009092496-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-455 \pm 51$	$2.96^{+1.71}_{-1.61}$	$554^{+46}_{-27}$	$6494^{+4312}_{-1270}$	$12719^{+47618}_{-7783}$
Alt.	$-425 \pm 66$	$3.34^{+1.85}_{-1.68}$	$549^{+45}_{-27}$	$5885^{+2787}_{-1018}$	$8924^{+24936}_{-5262}$

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

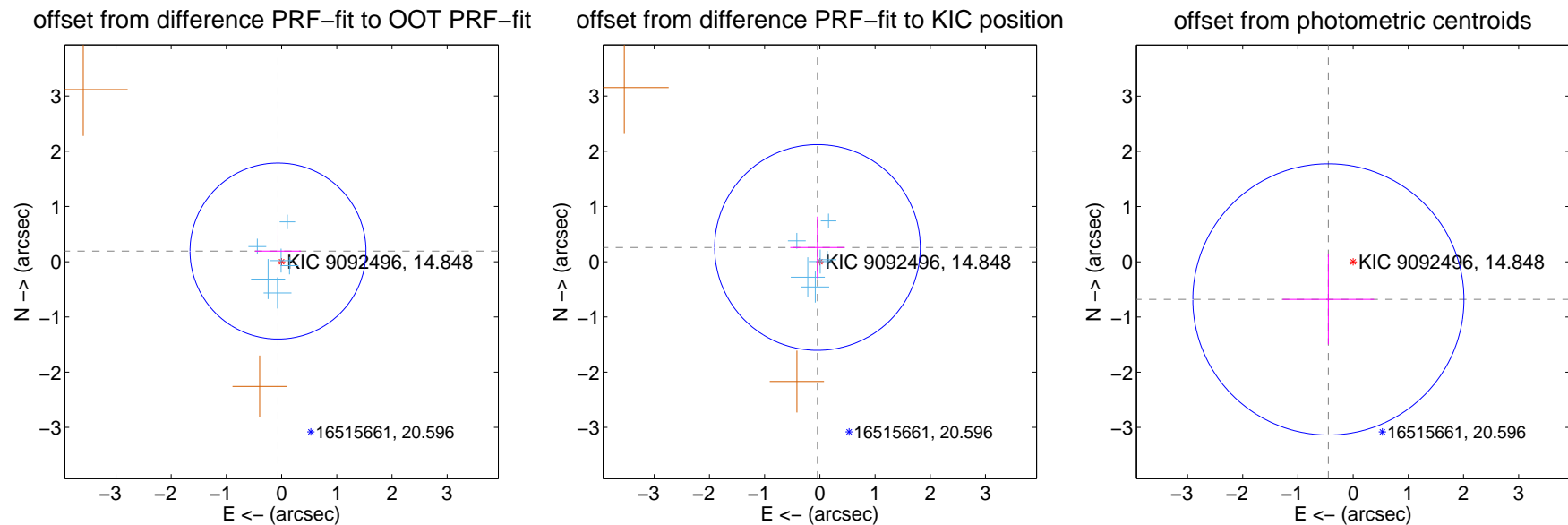
## DV Centroid Data

Supplemental centroid analysis for 009092496-04. Kepler magnitude: 14.85. Transit SNR 9.18

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

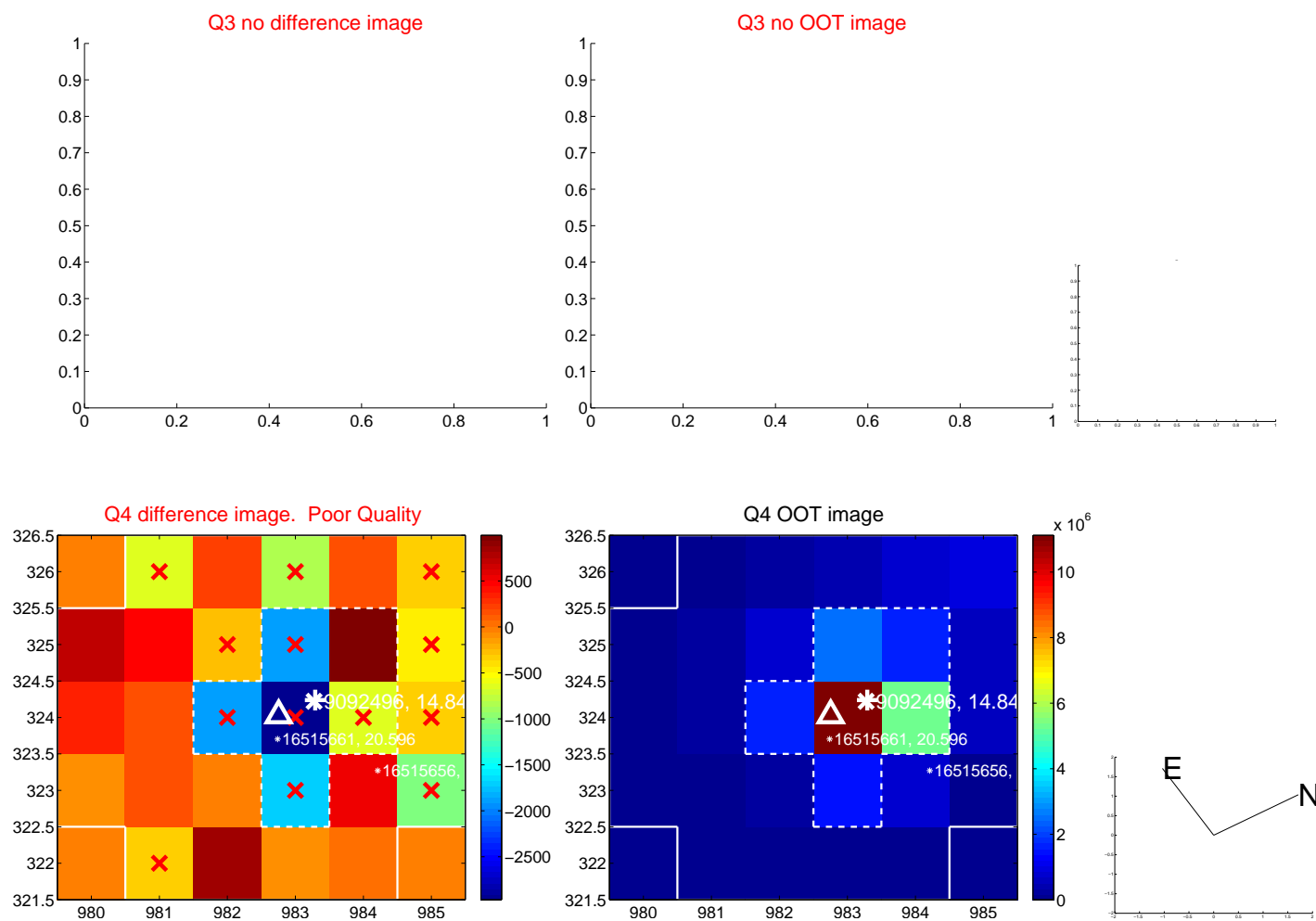
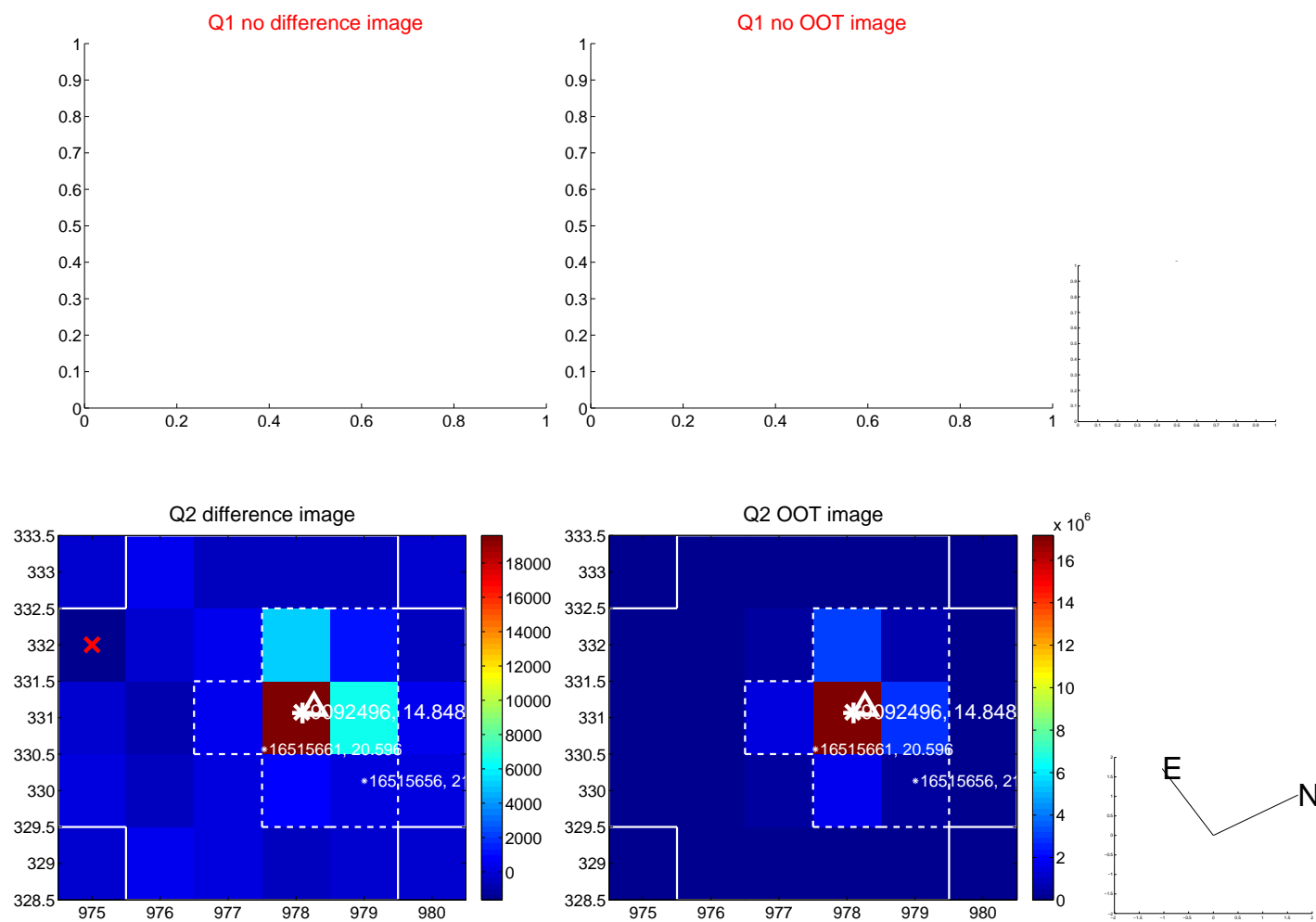
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.203 \pm 0.531$	0.38	$0.065 \pm 0.416$	$0.193 \pm 0.449$
PRF-fit source offset from KIC position	$0.261 \pm 0.621$	0.42	$0.043 \pm 0.493$	$0.258 \pm 0.560$
photometric centroid source offset	$0.82 \pm 0.82$	1.00	$0.45 \pm 0.83$	$-0.68 \pm 0.81$



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.

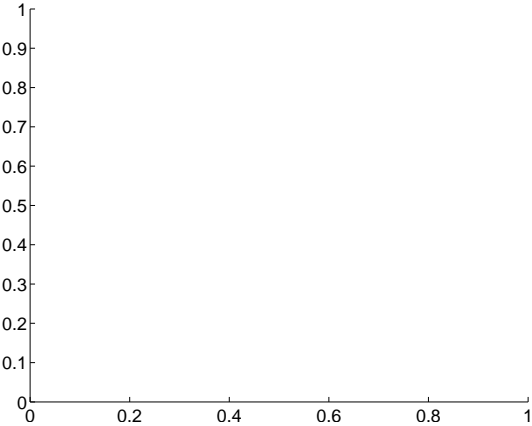


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value

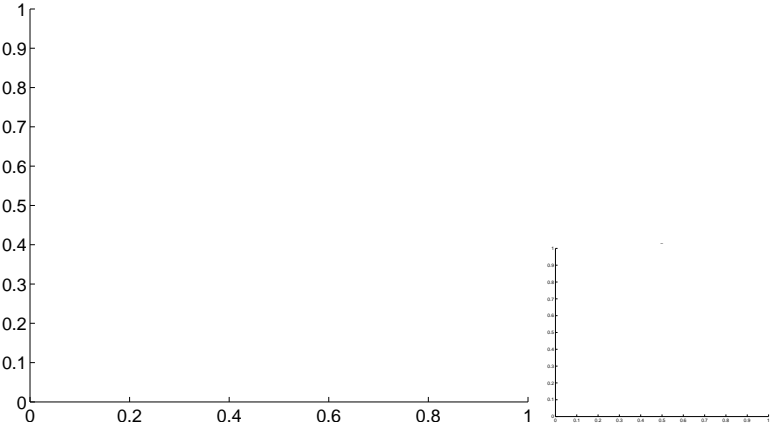


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

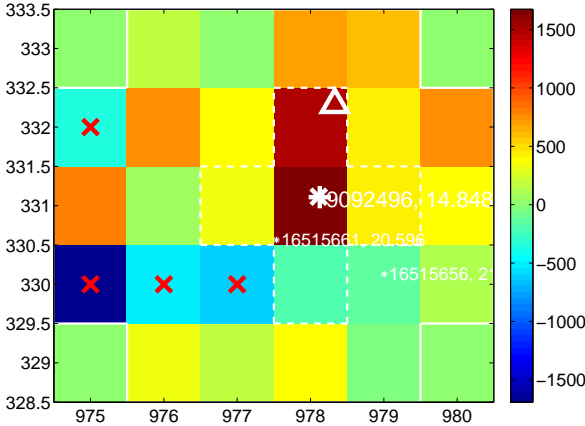
Q5 no difference image



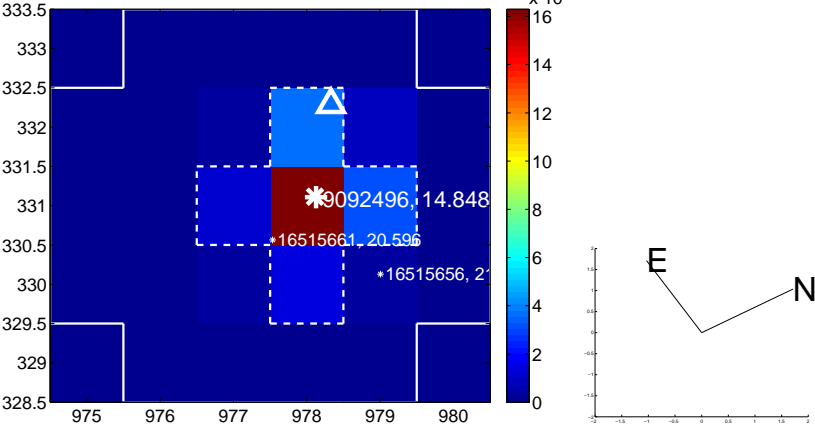
Q5 no OOT image



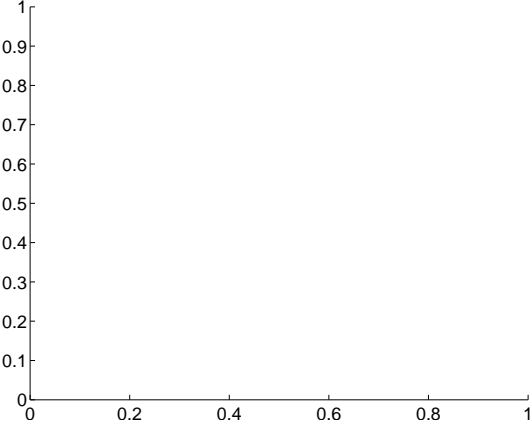
Q6 difference image. Poor Quality



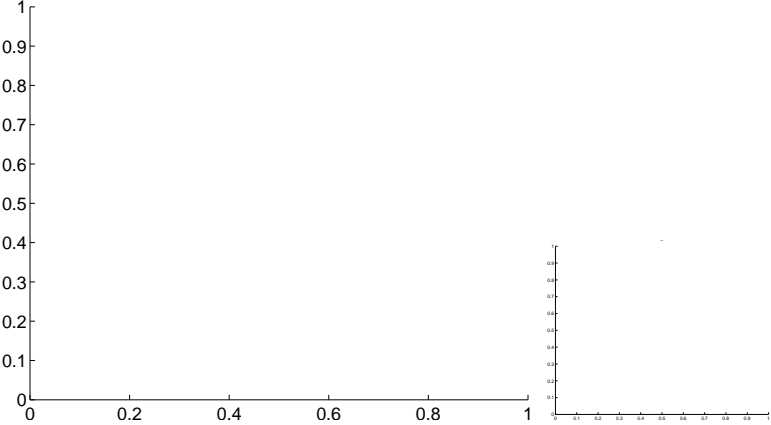
Q6 OOT image



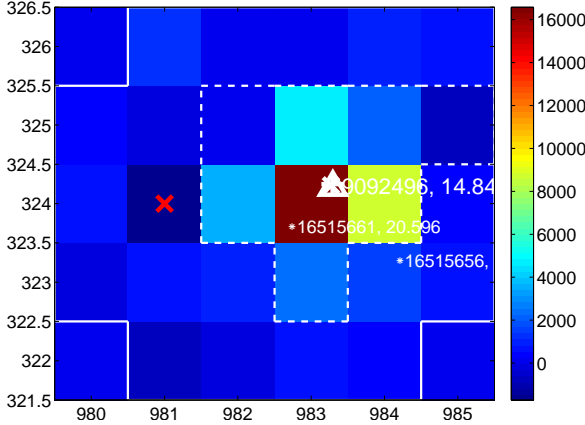
Q7 no difference image



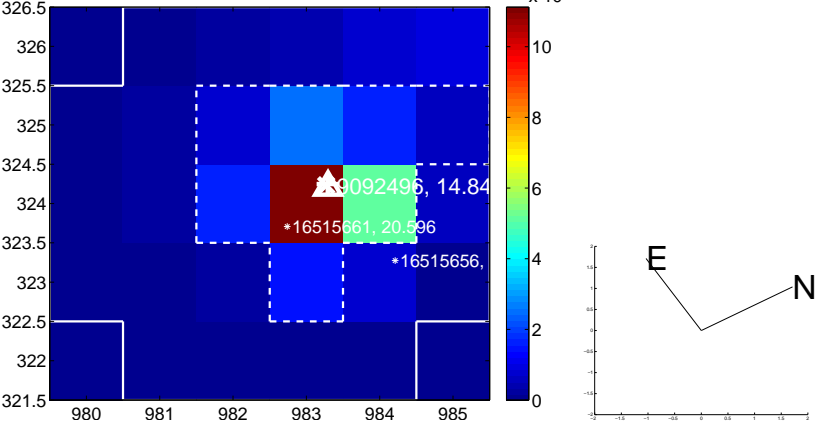
Q7 no OOT image



Q8 difference image



Q8 OOT image

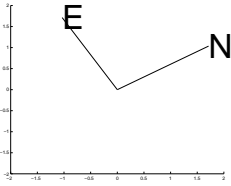
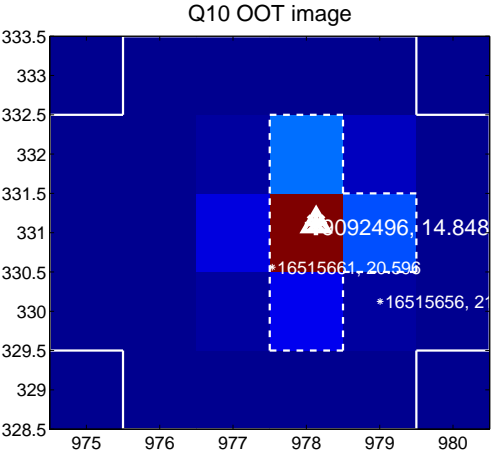
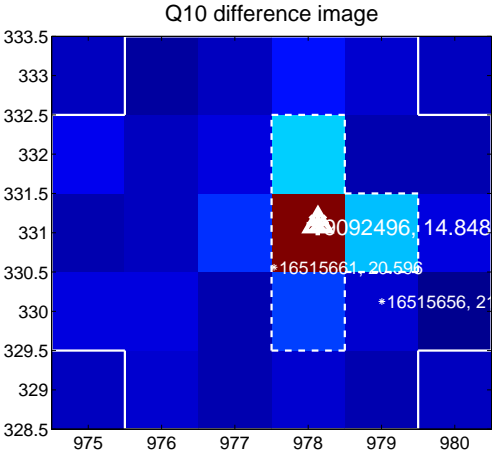


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

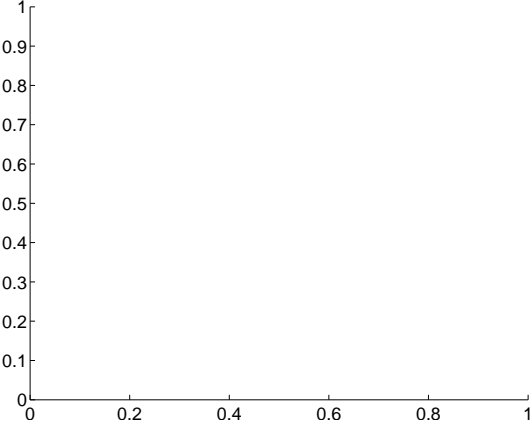
Q9 no difference image



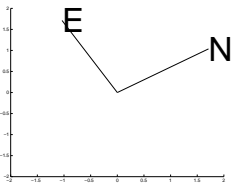
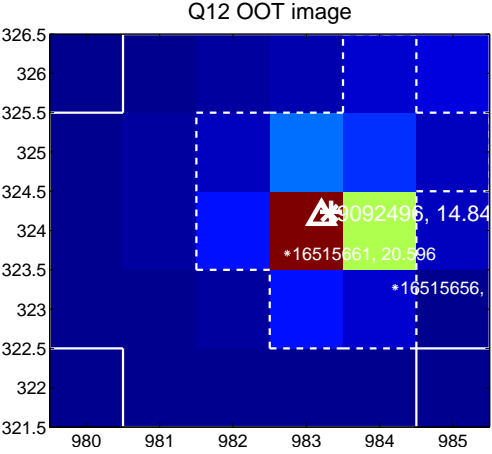
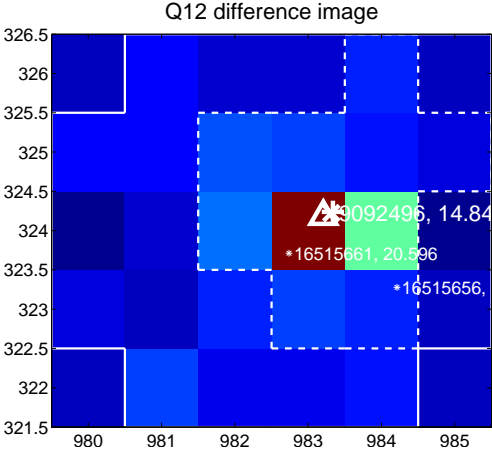
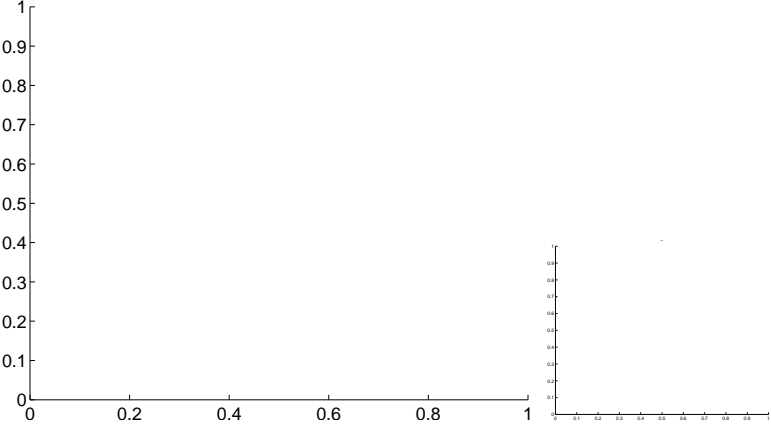
Q9 no OOT image



Q11 no difference image



Q11 no OOT image



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

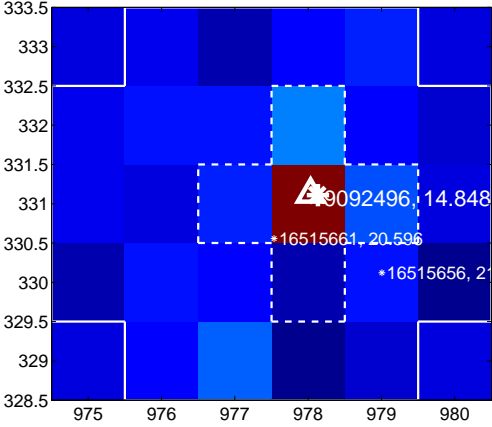
Q13 no difference image



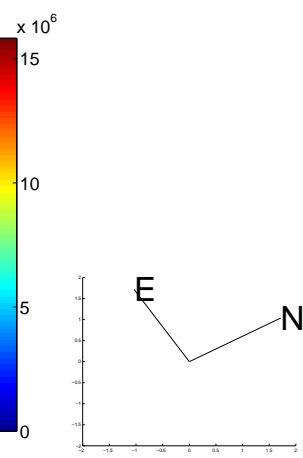
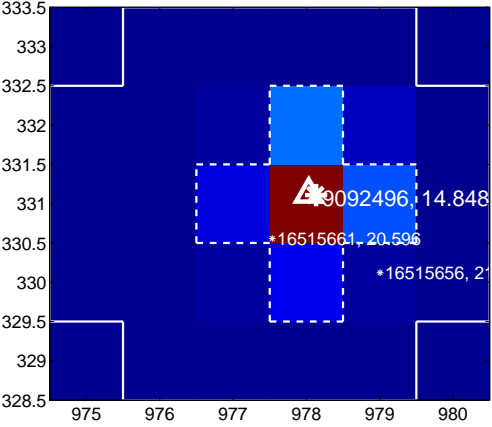
Q13 no OOT image



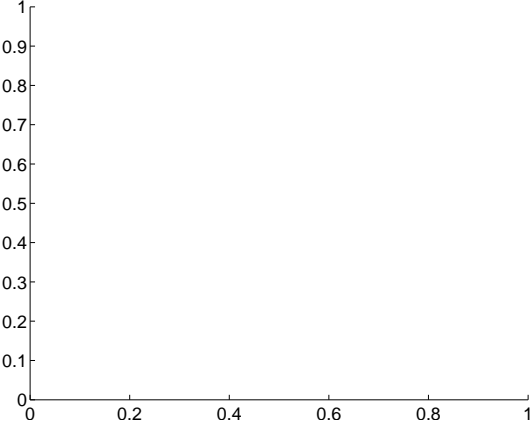
Q14 difference image



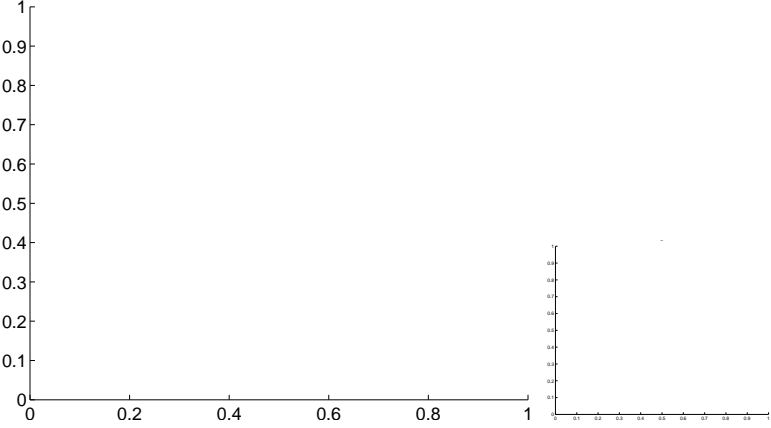
Q14 OOT image



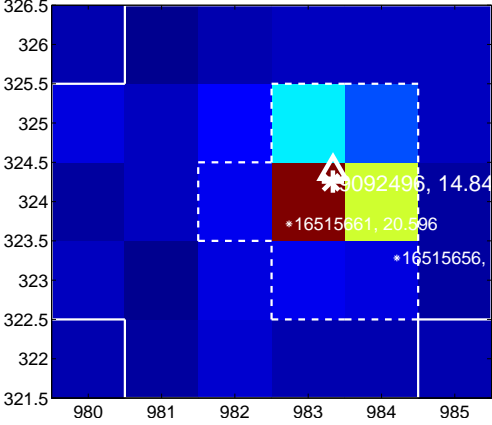
Q15 no difference image



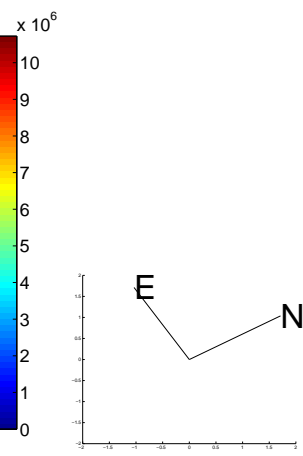
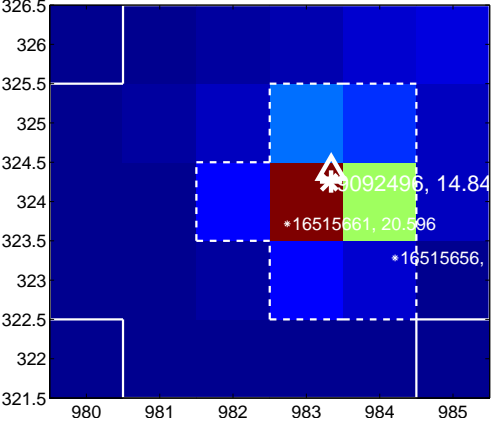
Q15 no OOT image



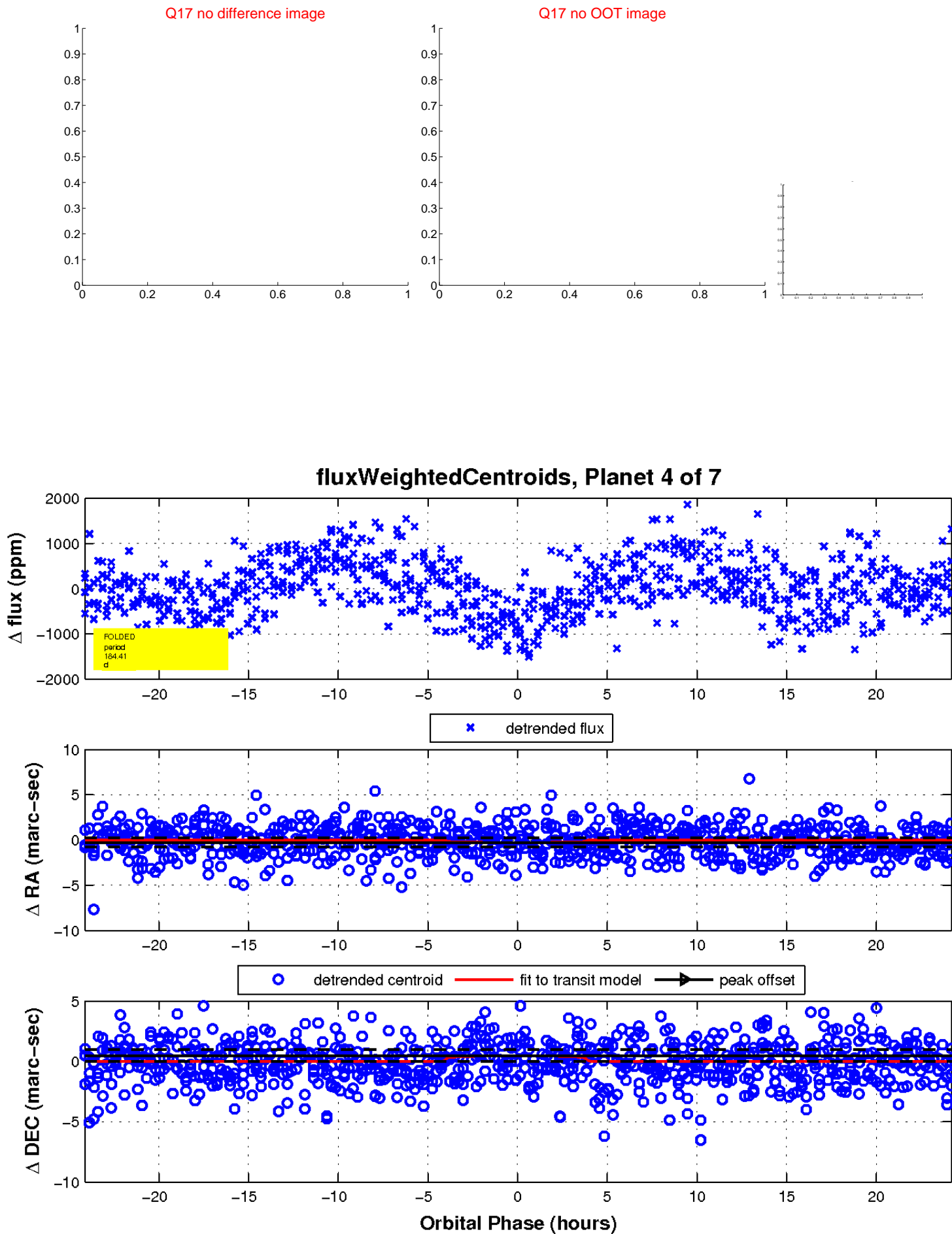
Q16 difference image



Q16 OOT image

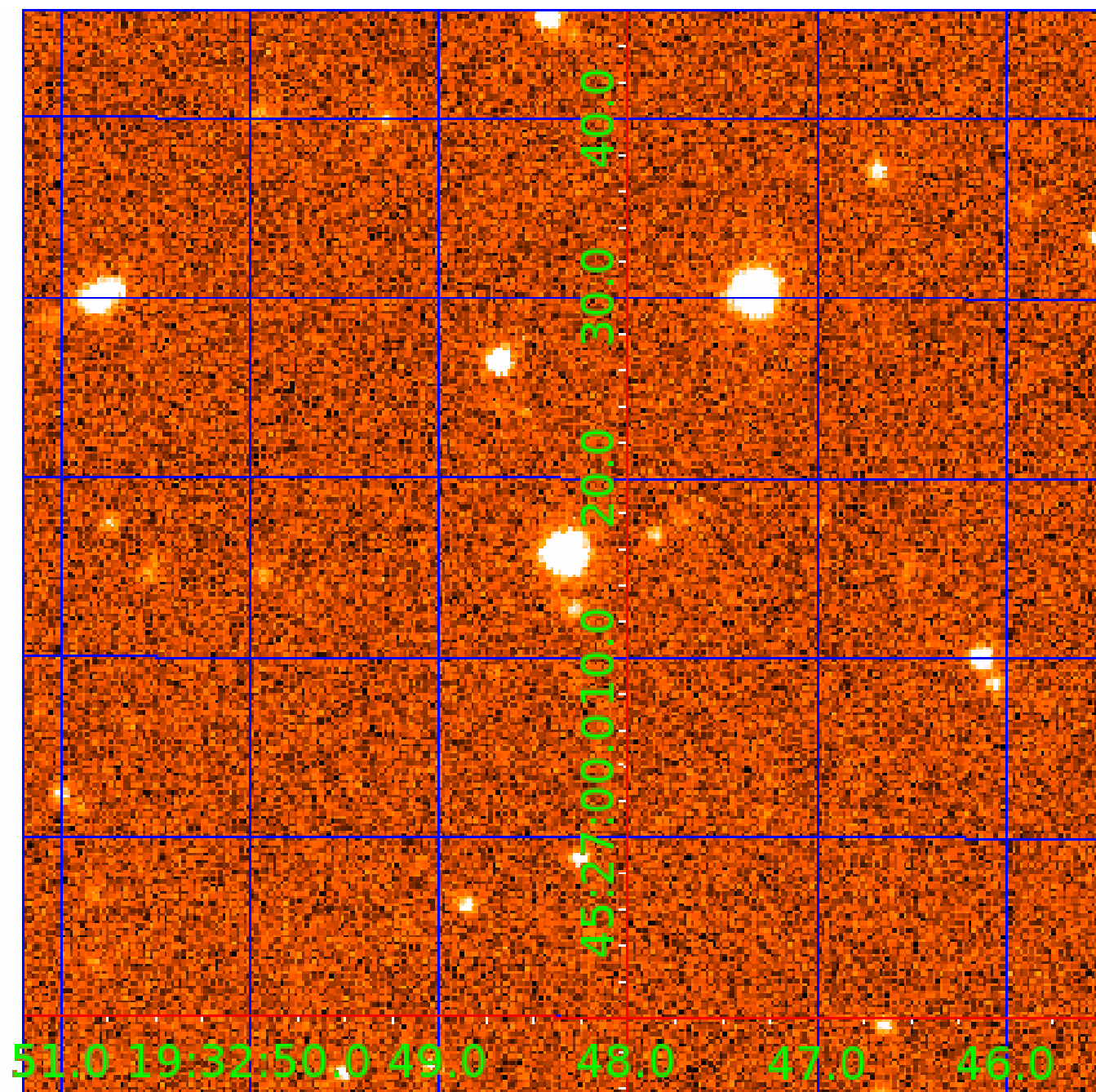


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 009092496

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009092496-01	OBS	4193.01	94.177944	200.293674	811.0	6.596	14.0	13.4	1.00	6997	3.49	12.36
009092496-02	OBS	No	0.706923	131.569984	0.3	0.996	7.2	0.0	1.00	6997	0.06	8408.37
009092496-03	OBS	No	1.355958	131.960180	75.6	7.534	9.1	8.7	1.00	6997	0.88	3528.15
009092496-04	OBS	No	184.408229	237.033919	574.8	8.101	9.5	9.2	1.00	6997	2.46	5.04
009092496-05	OBS	No	4.478336	135.059846	228.7	5.942	9.0	9.0	1.00	6997	1.86	717.33
009092496-06	OBS	No	51.599819	160.611399	618.5	5.493	11.0	5.0	1.00	6997	2.65	27.56
009092496-07	OBS	No	56.015115	135.185629	405.5	6.000	8.1	-1.0	1.00	6997	2.04	24.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009092496-01	OBS	PC	0.84	0	0	0	0	NO_COMMENT
009092496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009092496-03	OBS	FP	0.00	1	0	0	0	LPP_DV
009092496-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT
009092496-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009092496-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009092496-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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.

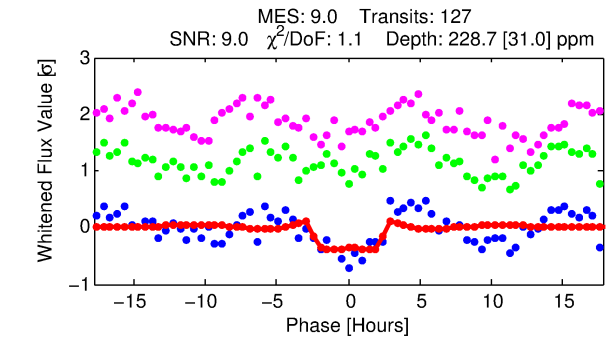
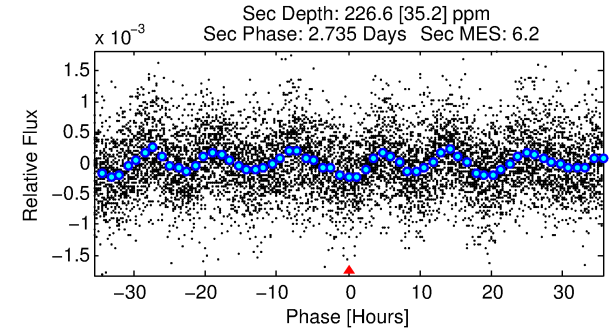
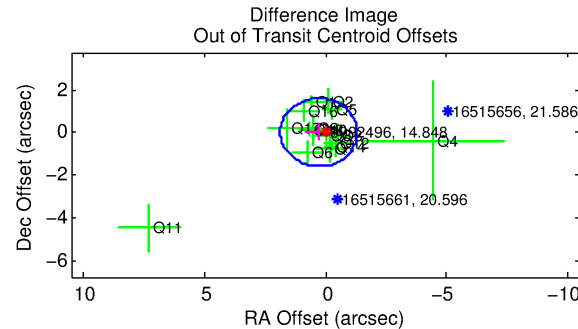
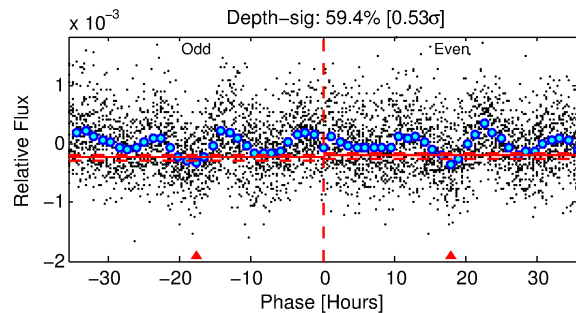
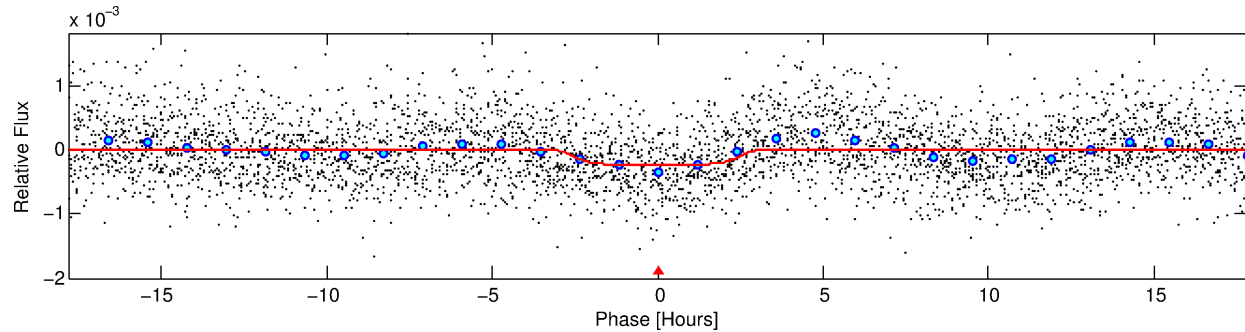
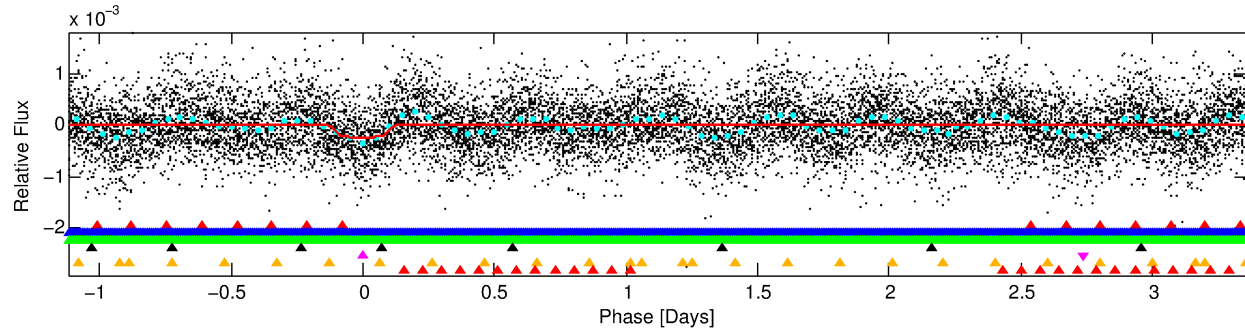
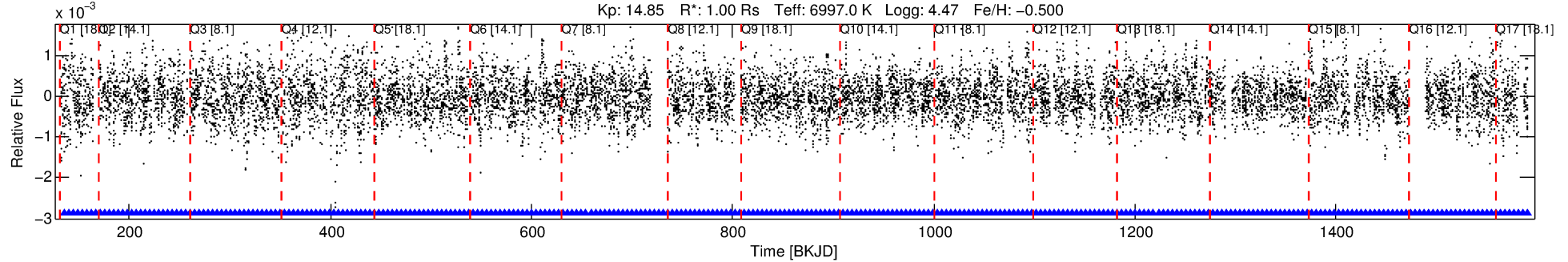
Ephemeris Match Information For 009092496-05

No Significant Match Found

# DV One-Page Summary

KIC: 9092496 Candidate: 5 of 7 Period: 4.478 d  
KOI: K04193 Corr: No Ephemeris Match

Kp: 14.85 R\*: 1.00 Rs Teff: 6997.0 K Logg: 4.47 Fe/H: -0.500



## DV Fit Results:

Period = 4.47834 [0.00006] d  
Epoch = 135.0598 [0.0089] BKJD  
Rp/R\* = 0.0170 [0.0016]  
a/R\* = 2.27 [0.67]  
b = 0.95 [0.04]  
Seff = 717.33 [330.91]  
Teq = 1320 [152] K  
Rp = 1.86 [0.71] Re  
a = 0.0547 [0.0167] AU  
Ag = 108.02 [53.98] [1.98σ]  
Teffp = 6578 [471] K [10.62σ]

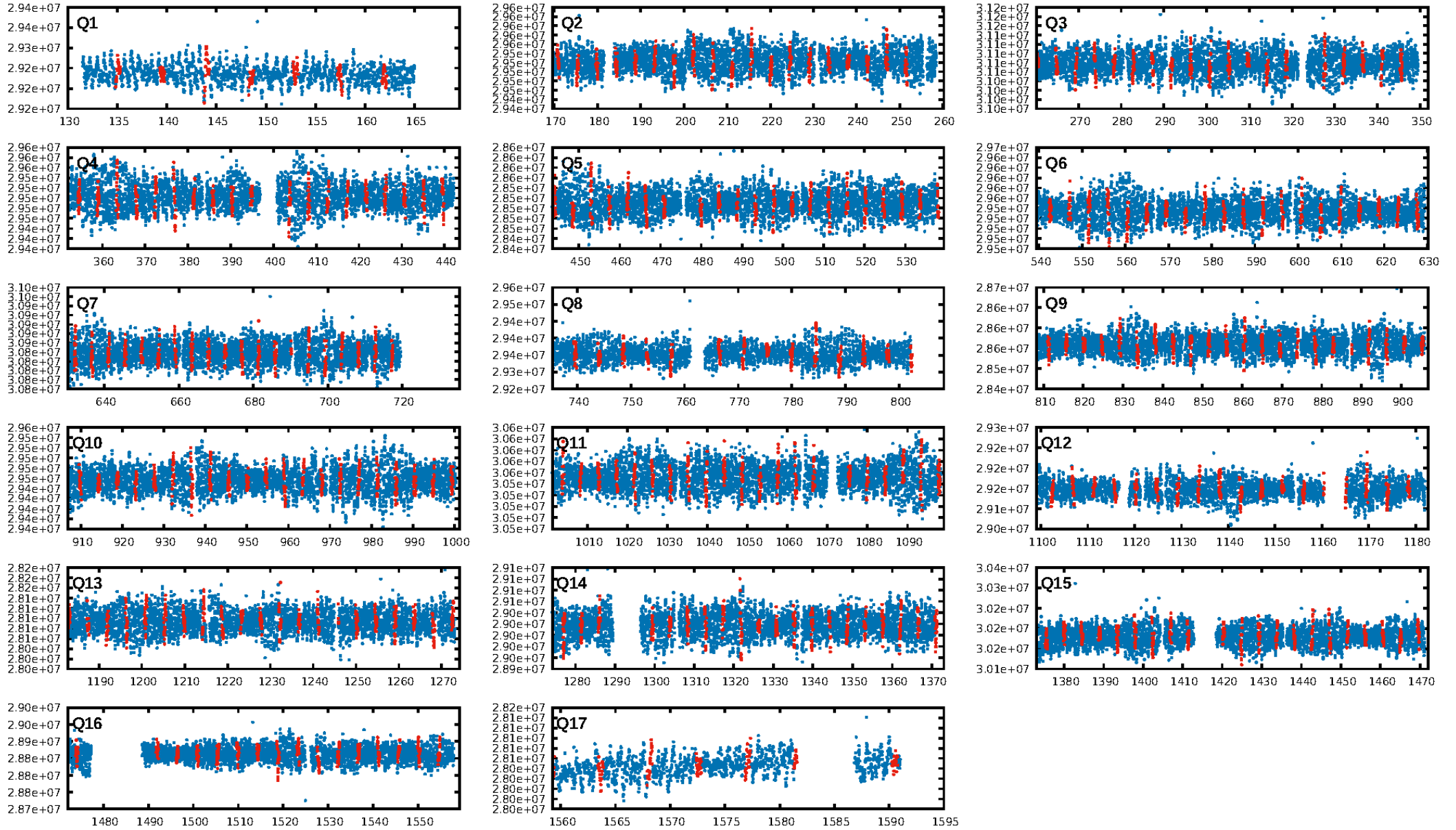
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [7.81σ]  
LongPeriod-sig: 100.0% [139.76σ]  
ModelChiSquare2-sig: 0.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [122/122]  
GhostDiagnostic-chr: 2.567  
Centroid-sig: 35.2%  
Centroid-so: 0.404 arcsec [1.03σ]  
OotOffset-rm: 0.280 arcsec [0.53σ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-rm: 0.270 arcsec [0.51σ]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 0.50 [8/16]  
DiffImageOverlap-fno: 0.00 [0/17]

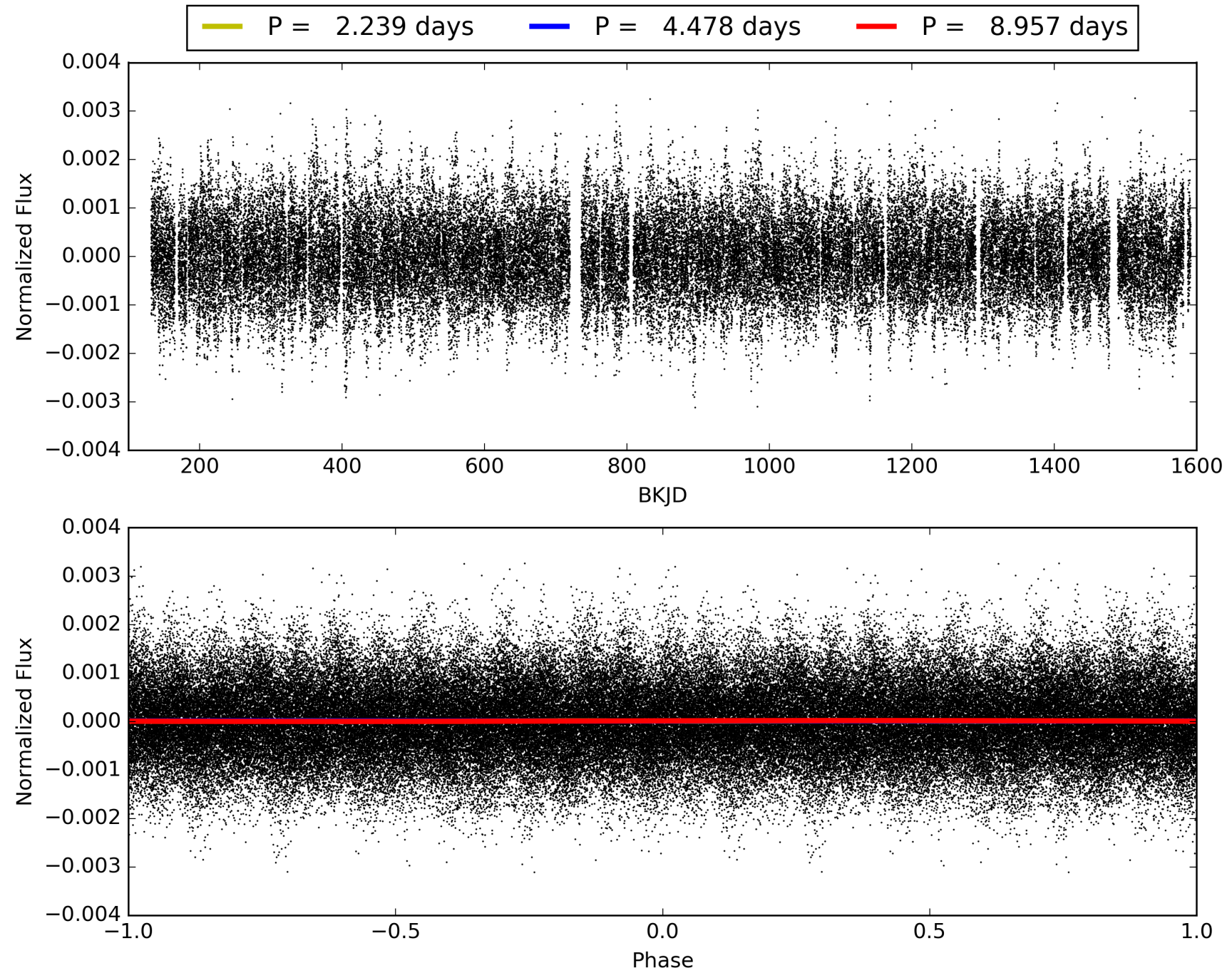
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:44:47 Z

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

# TCE 009092496-05, PDC Light Curves



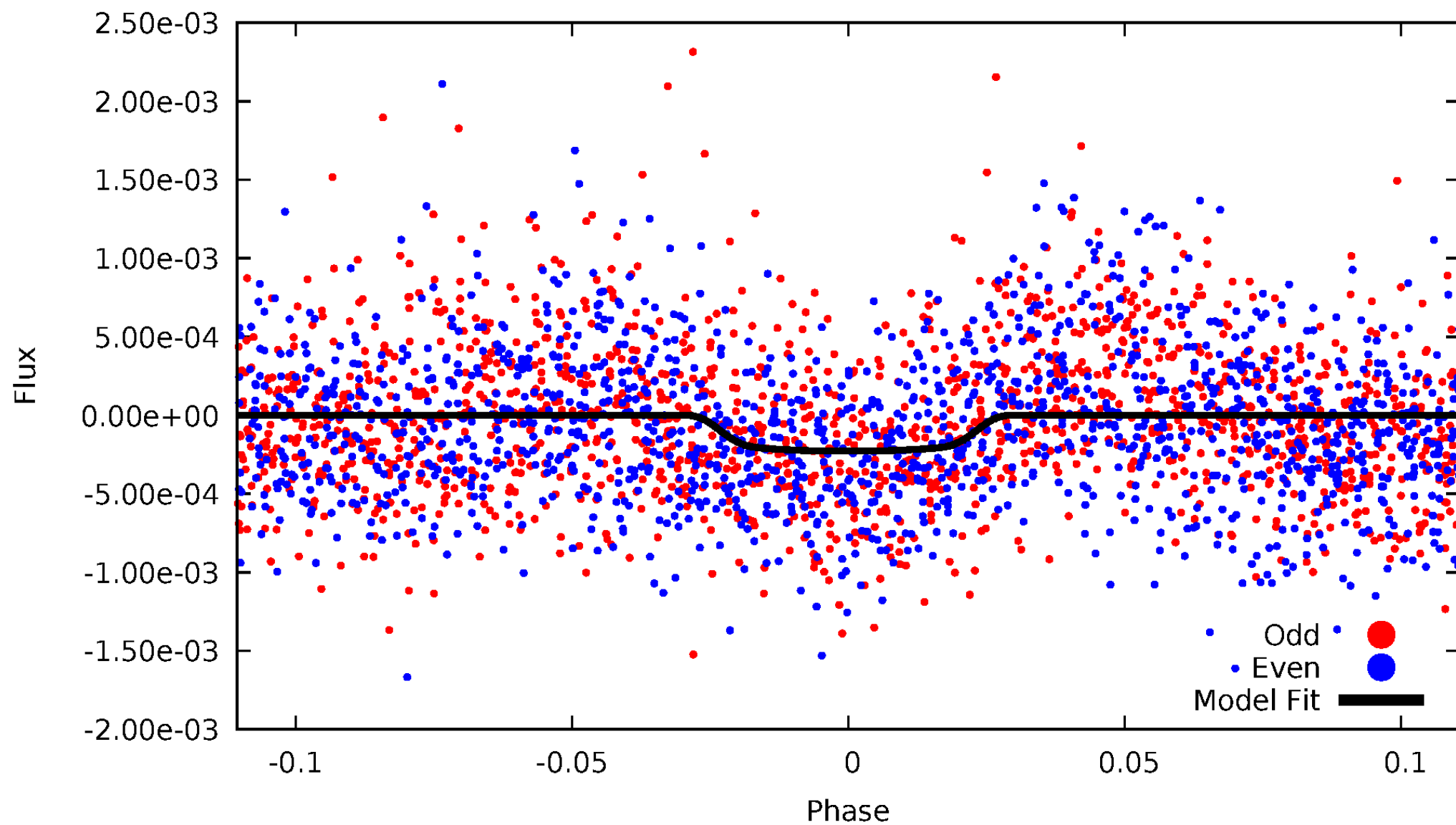
TCE 009092496-05





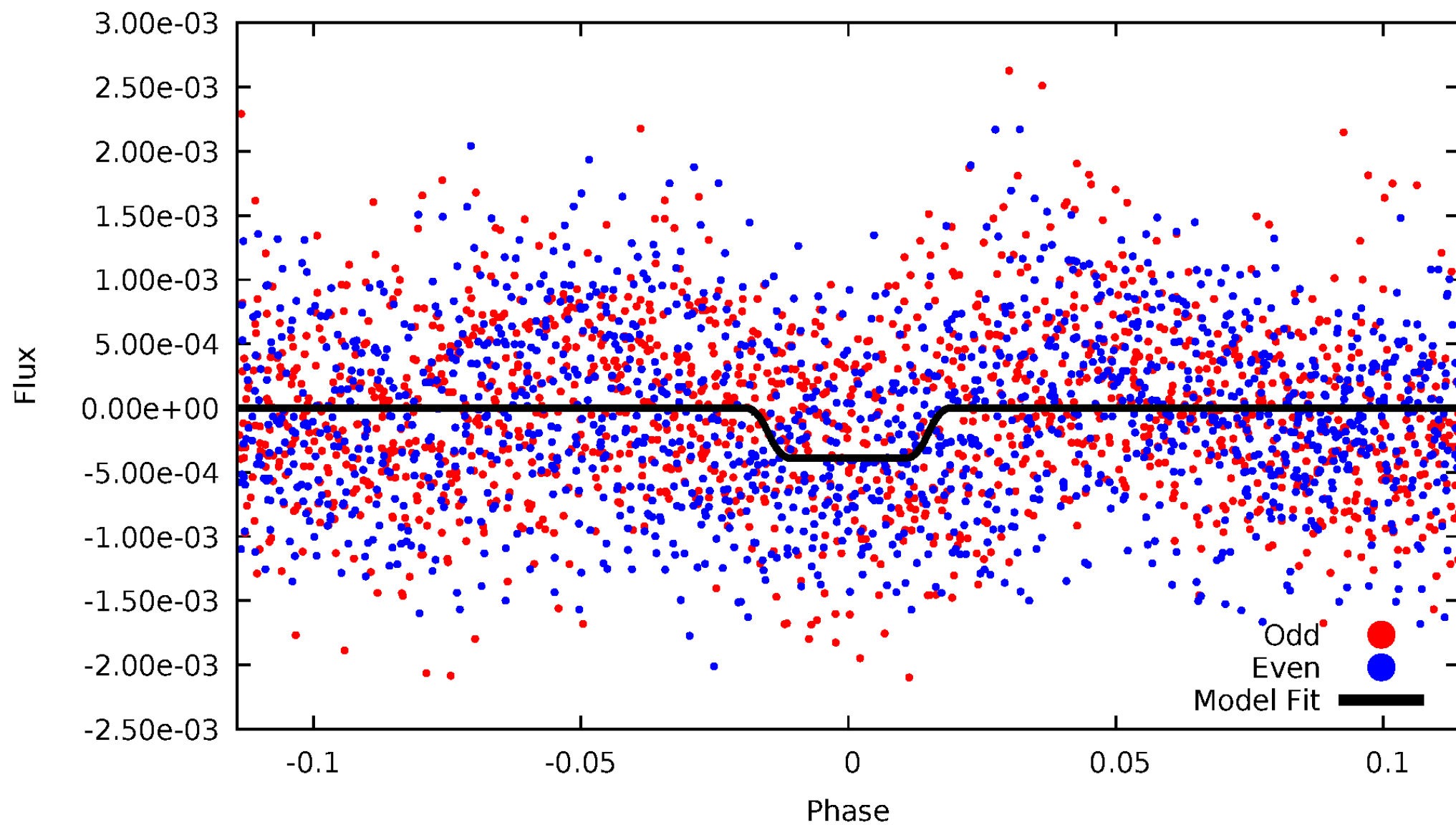
# DV Odd/Even

TCE 009092496-05



# ALT Odd/Even

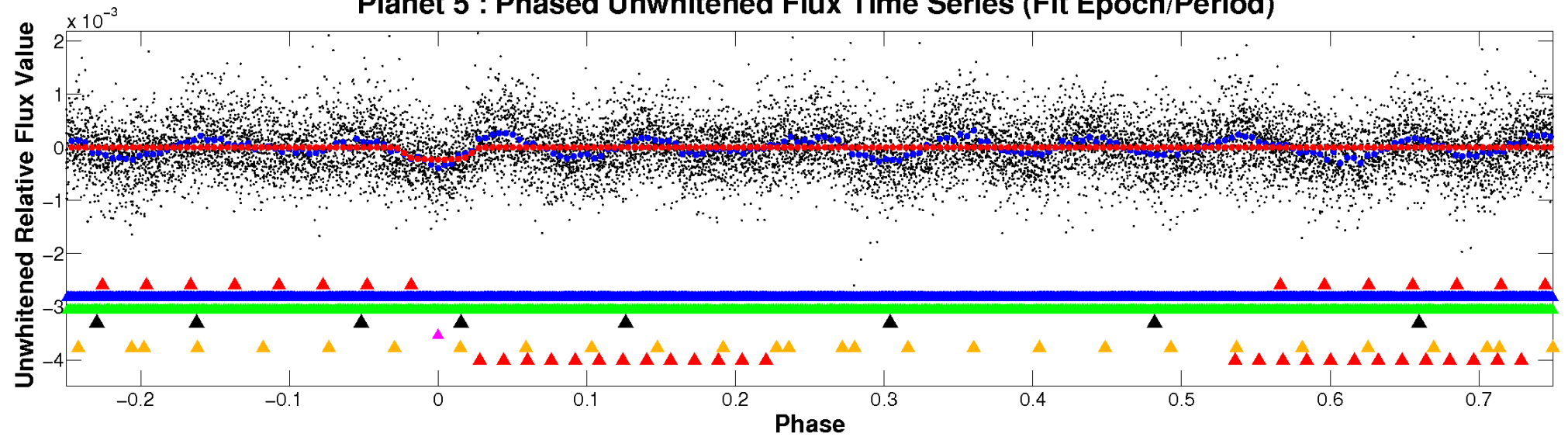
TCE 009092496-05



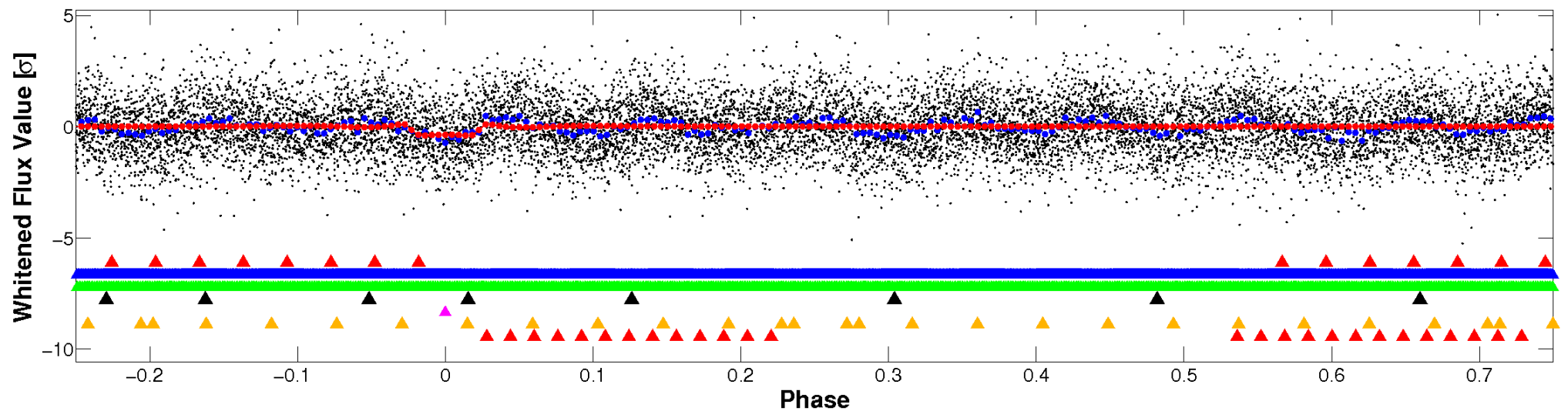


# Non-Whitened Vs. Whitened Light Curve

## Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

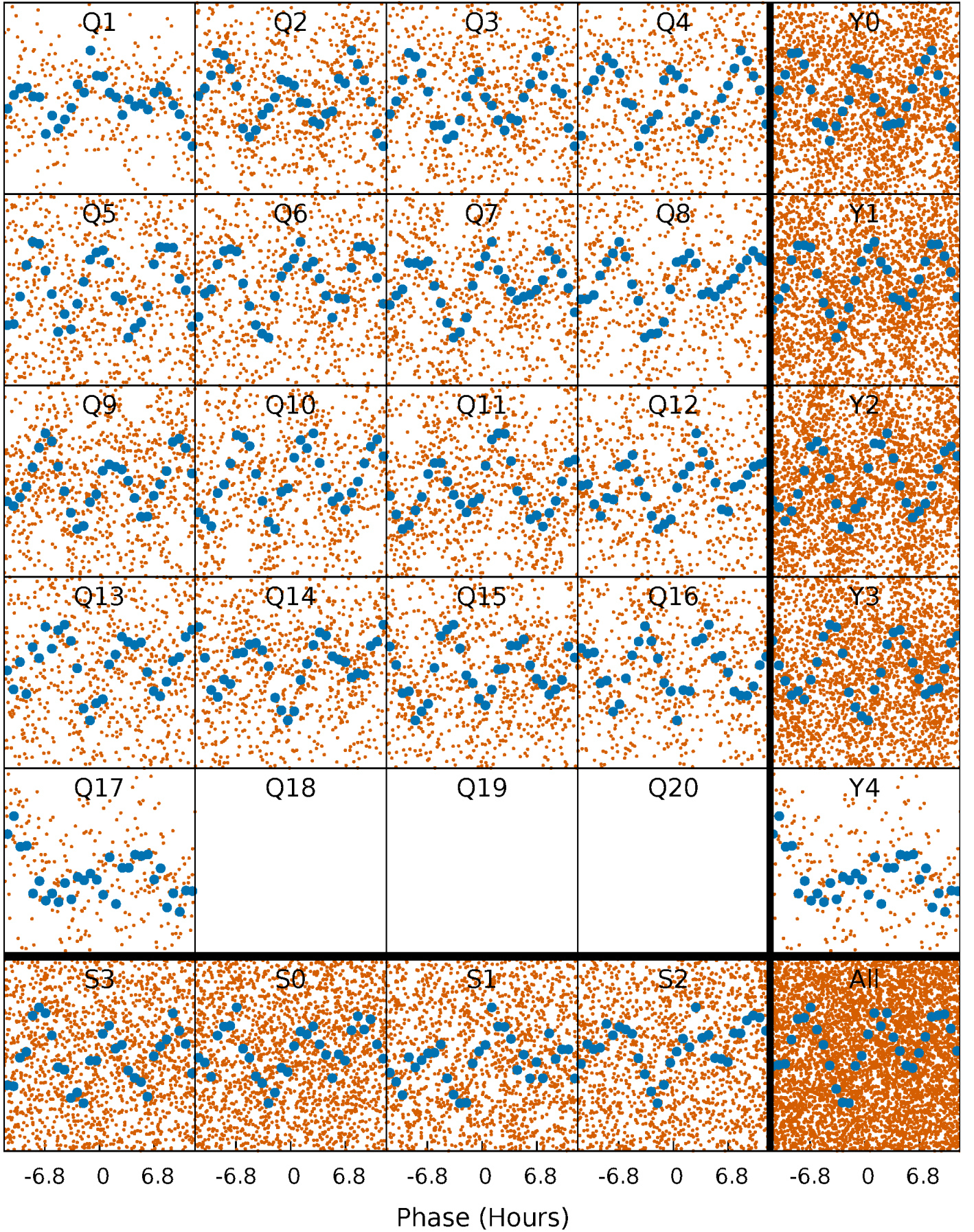


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



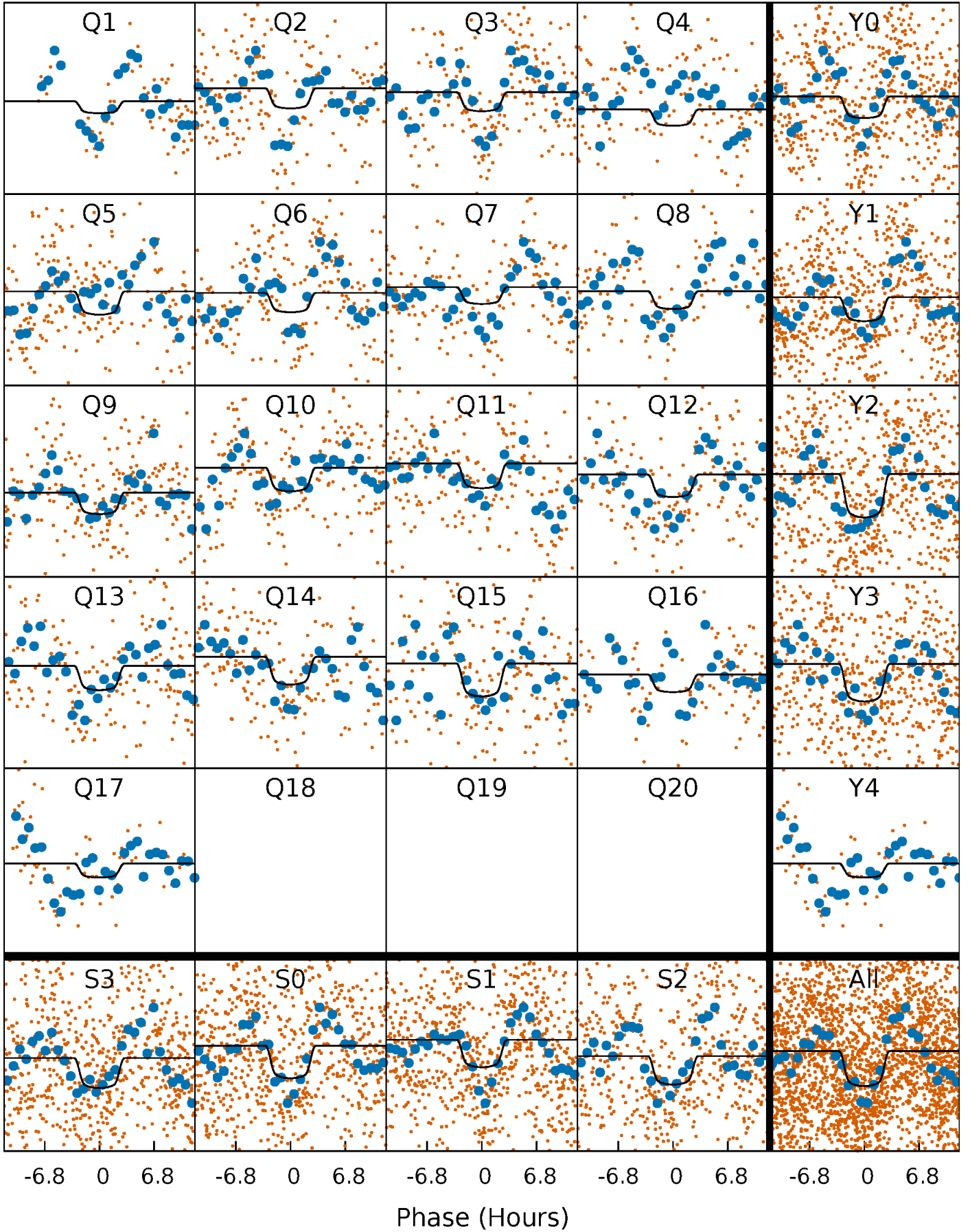
# PDC Quarter-Phased Transit Curves

TCE 009092496-05     $P = 4.478336$  Days     $T_0 = 135.059846$  (BKJD)



# DV Quarter-Phased Transit Curves

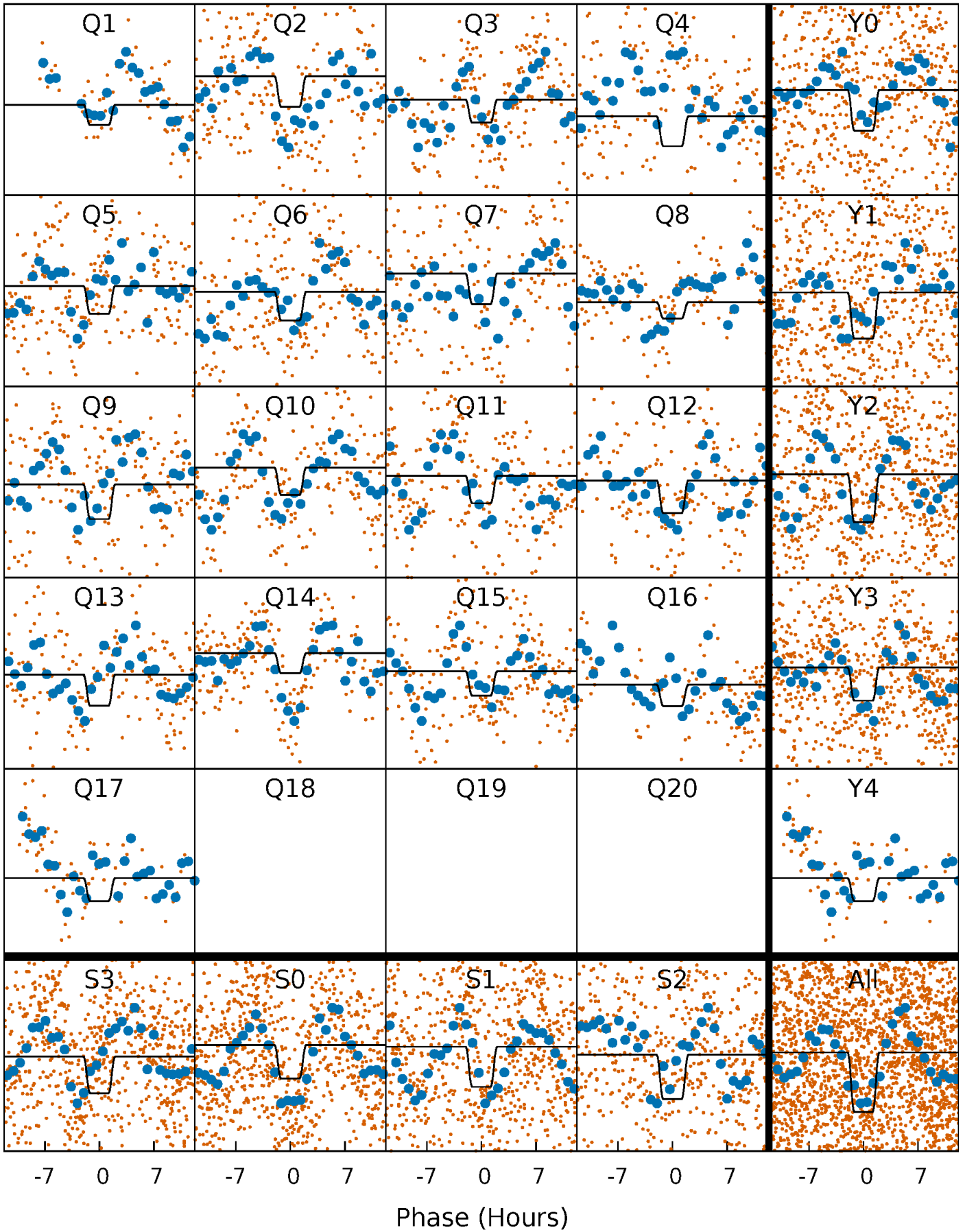
TCE 009092496-05     $P = 4.478336$  Days     $T_0 = 135.059846$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

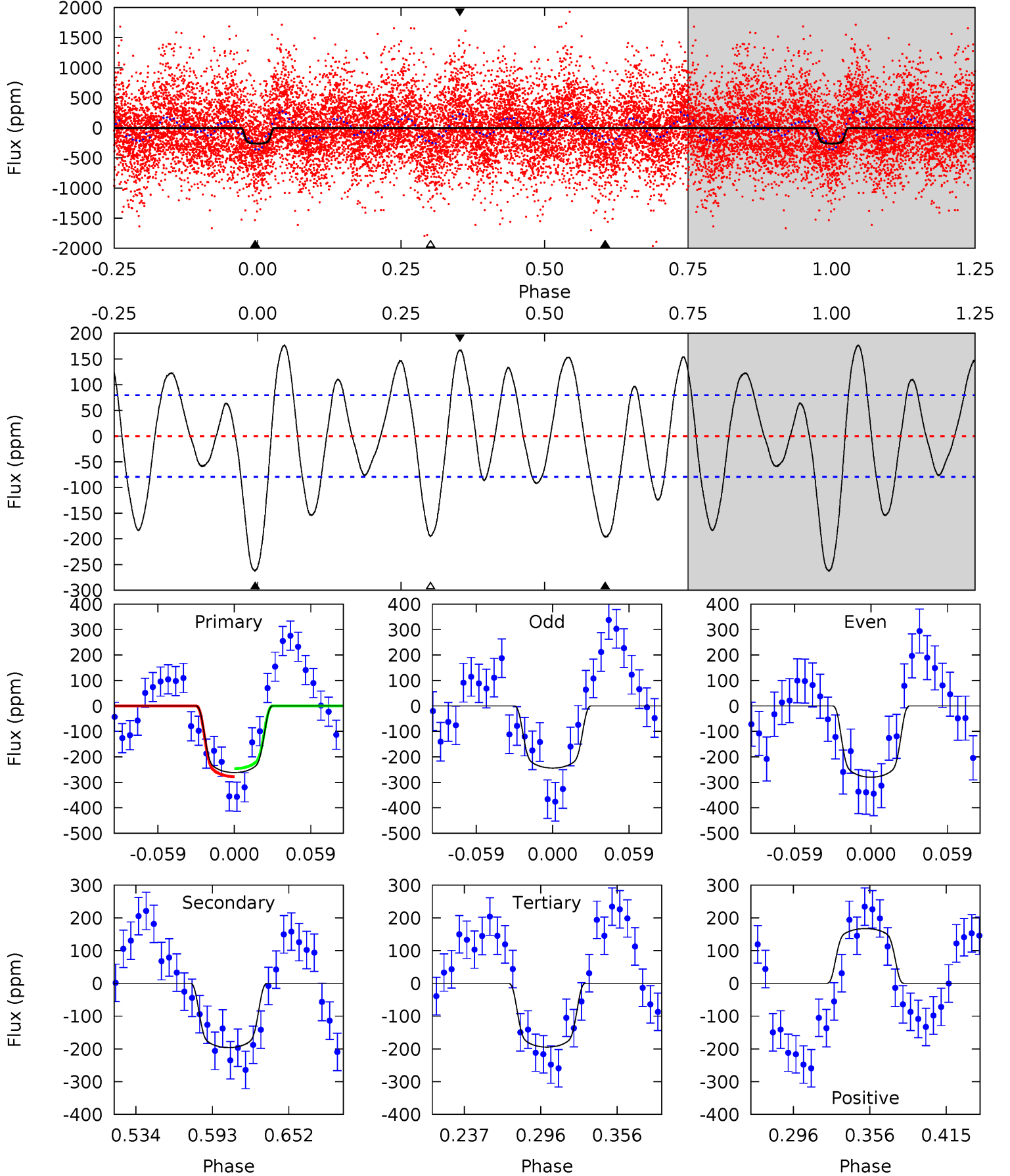
TCE 009092496-05     $P = 4.478263$  Days     $T_0 = 135.062666$  (BKJD)



# DV Model-Shift Uniqueness Test

009092496-05, P = 4.478336 Days, E = 130.581510 Days

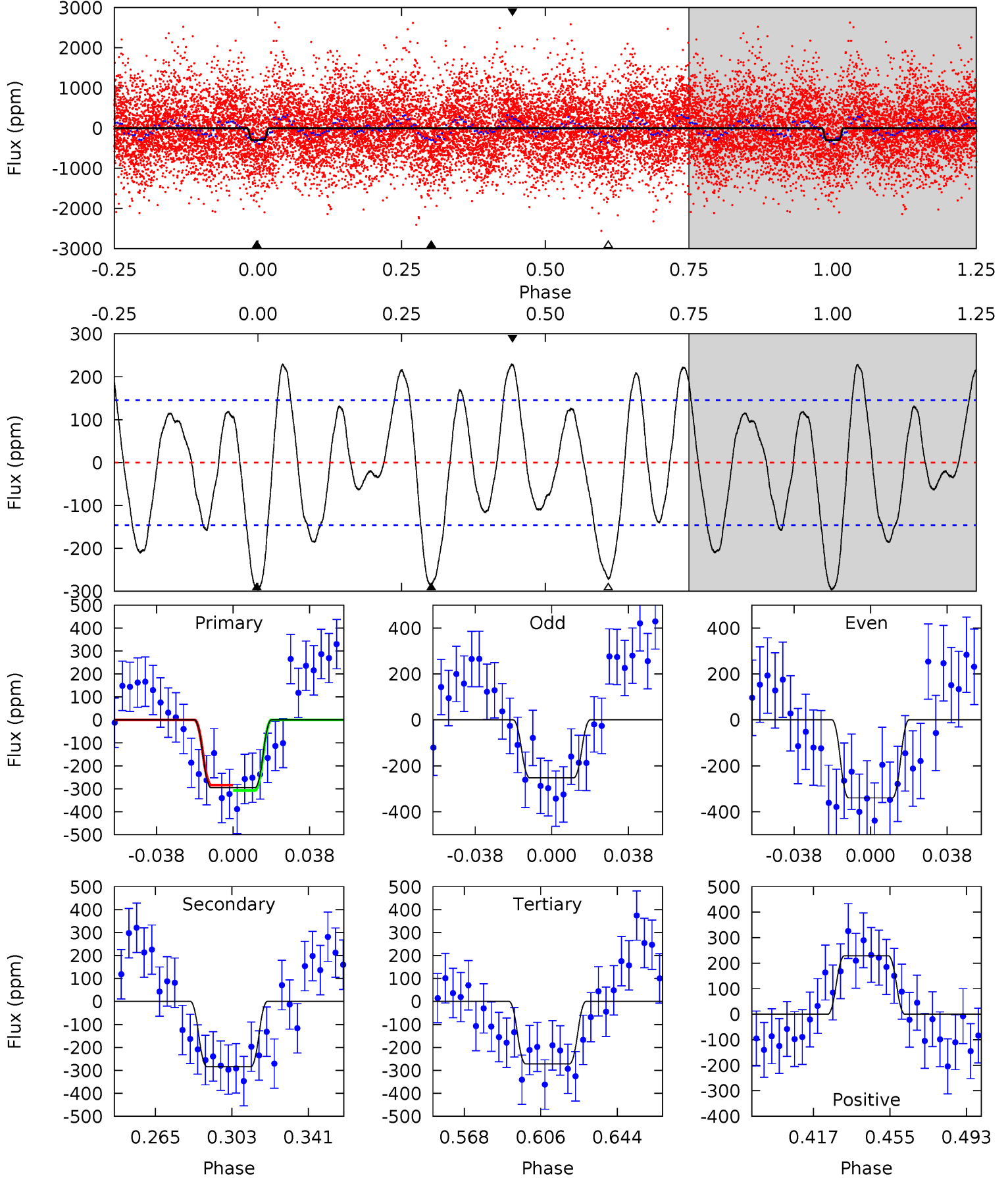
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	11.5	11.5	9.85	4.67	1.89	5.59	3.95	5.55	0.09	1.70	1.06	0.01	0.40	0.93



# Alt Model-Shift Uniqueness Test

009092496-05, P = 4.478263 Days, E = 130.584403 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
9.67	9.30	8.89	7.49	4.76	2.08	4.11	0.78	2.18	0.41	1.81	1.43	1.14	0.44	0.38





### Stellar Parameters For KIC 009092496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6997^{+167}_{-263}$	$4.475^{+0.026}_{-0.234}$	$-0.500^{+0.300}_{-0.300}$	$1.000^{+0.371}_{-0.066}$	$1.155^{+0.159}_{-0.119}$	$1.628^{+0.174}_{-0.976}$
	+2%/-4%	+1%/-5%	+60%/-60%	+37%/-7%	+14%/-10%	+11%/-60%
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 009092496-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-196 \pm 17$	$2.03^{+0.41}_{-0.26}$	$1903^{+152}_{-101}$	$6245^{+419}_{-334}$	$79^{+24}_{-24}$
Alt.	$-284 \pm 31$	$2.36^{+0.44}_{-0.31}$	$1908^{+148}_{-94}$	$6387^{+371}_{-336}$	$85^{+27}_{-24}$

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

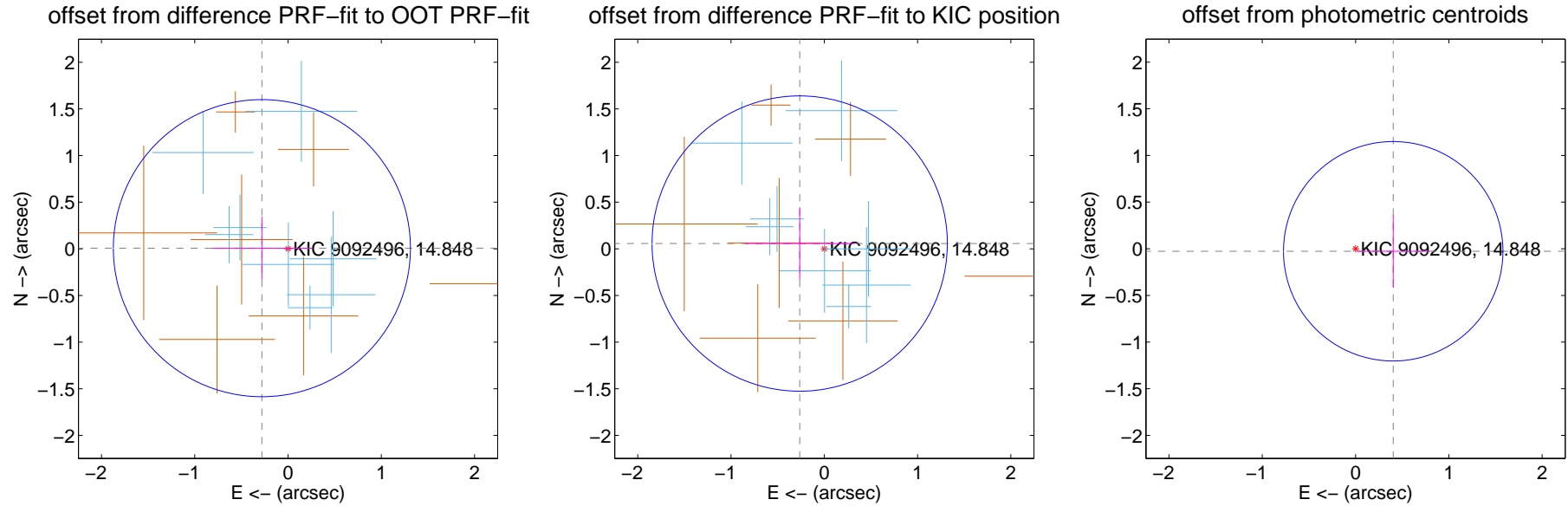
## DV Centroid Data

Supplemental centroid analysis for 009092496-05. Kepler magnitude: 14.85. Transit SNR 9.02

There are 8 quarters with good PRF difference image offsets

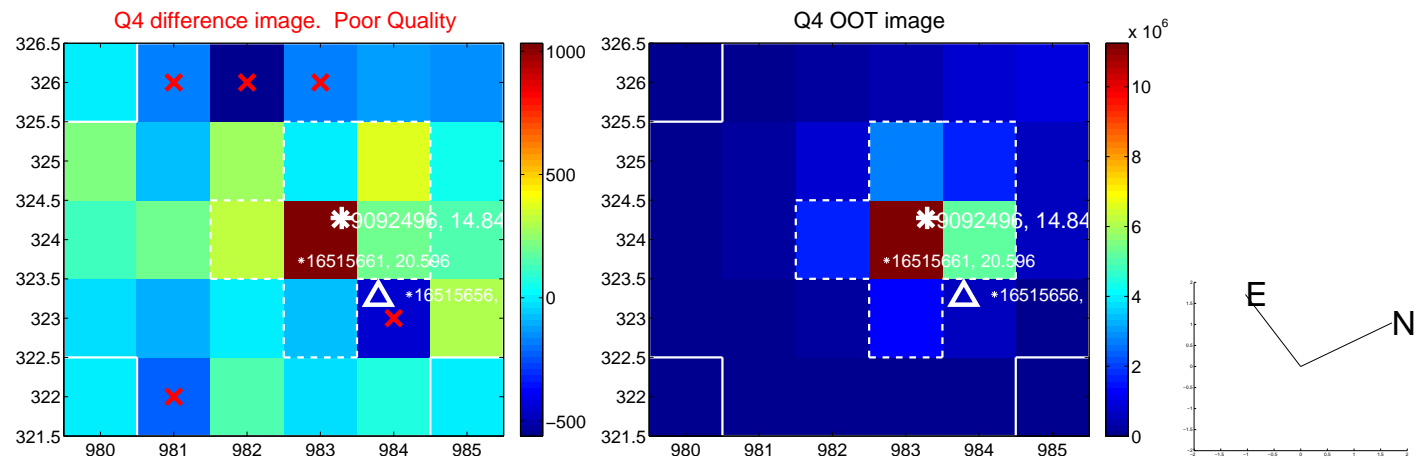
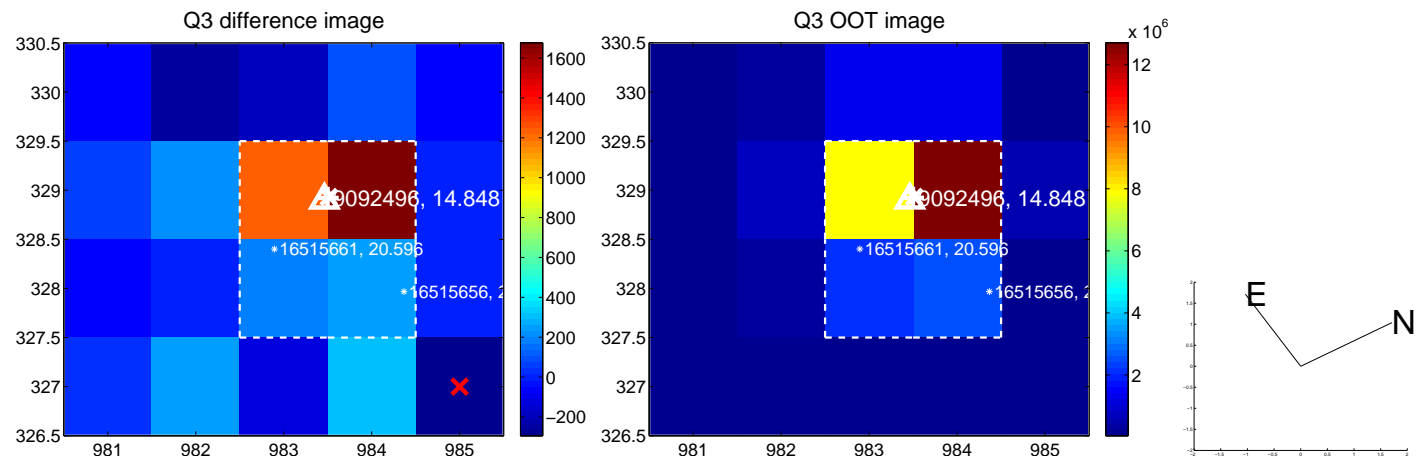
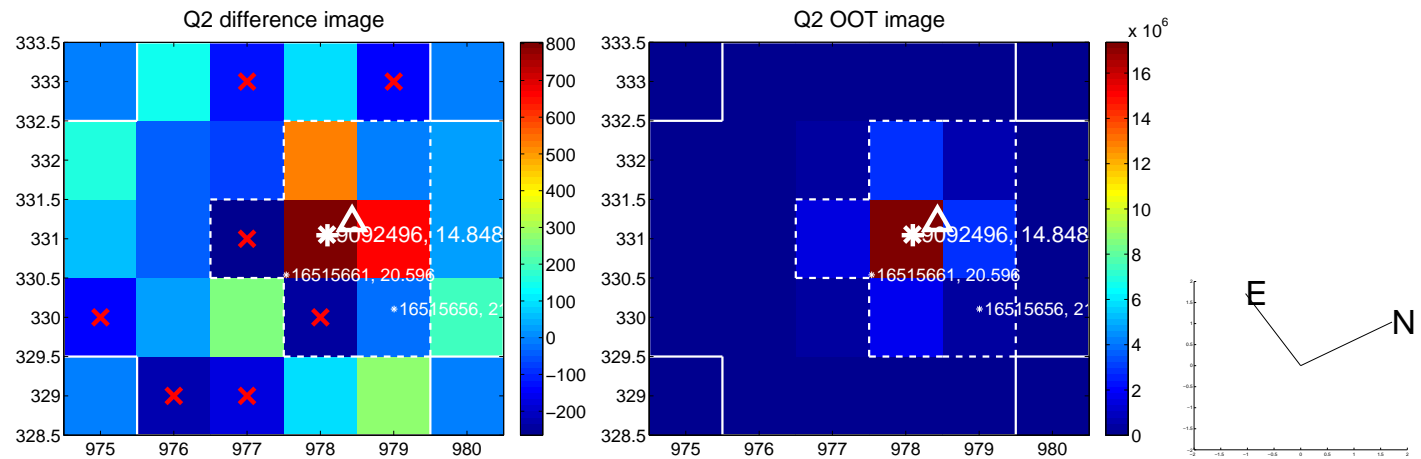
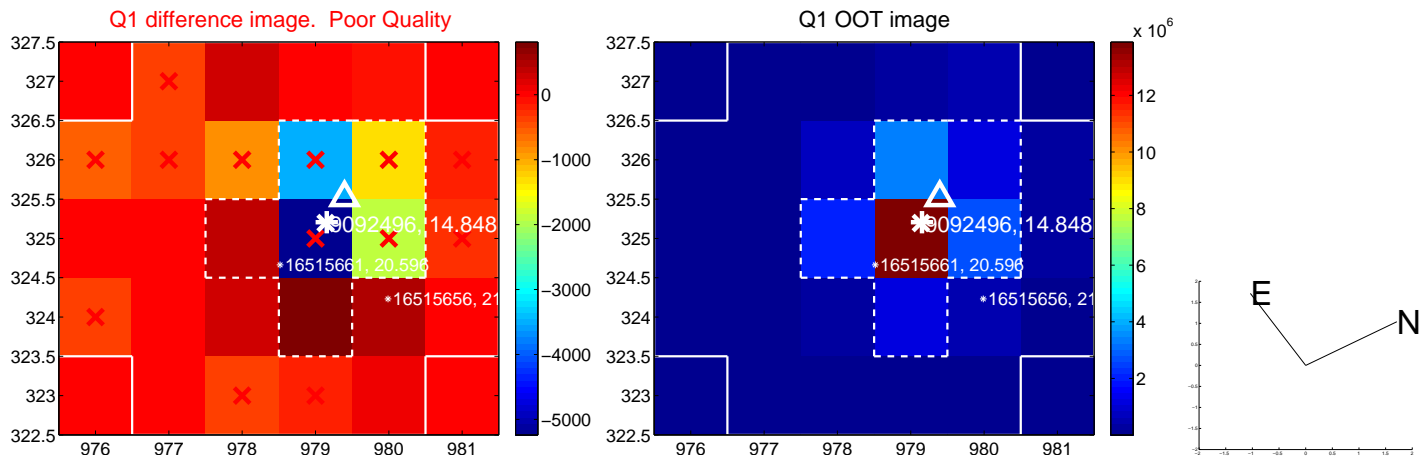
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.280 \pm 0.531$	0.53	$0.280 \pm 0.536$	$0.007 \pm 0.338$
PRF-fit source offset from KIC position	$0.270 \pm 0.528$	0.51	$0.264 \pm 0.588$	$0.057 \pm 0.388$
photometric centroid source offset	$0.40 \pm 0.39$	1.03	$-0.40 \pm 0.39$	$-0.03 \pm 0.39$

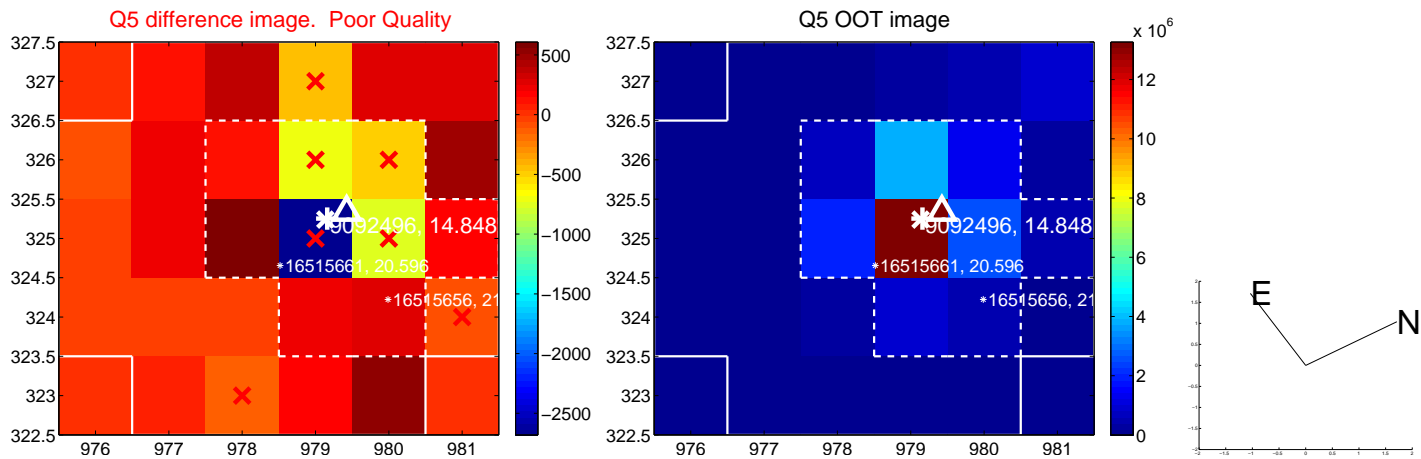


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

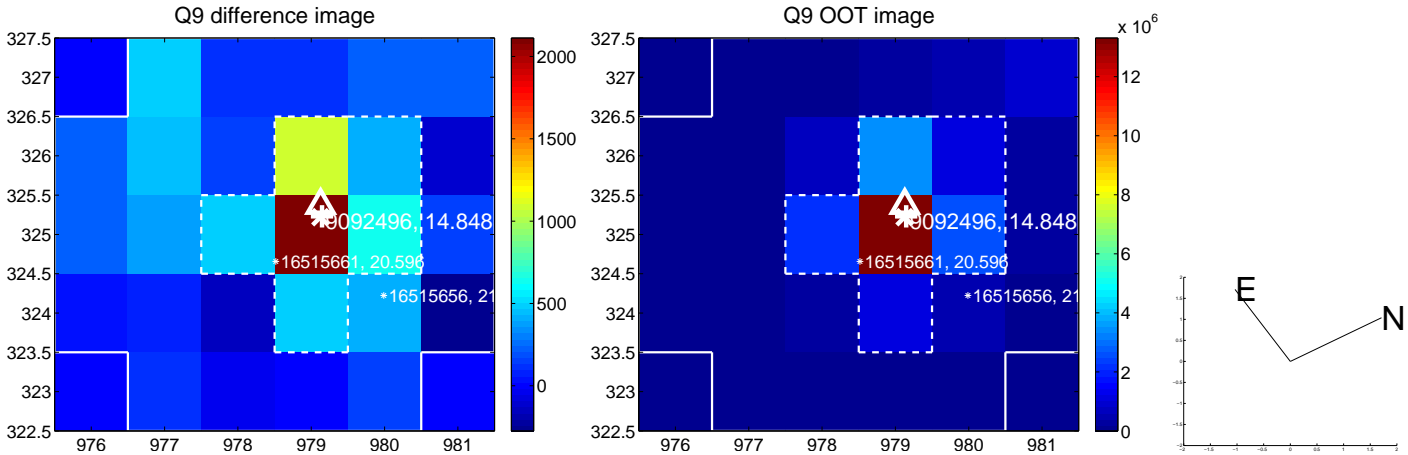
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



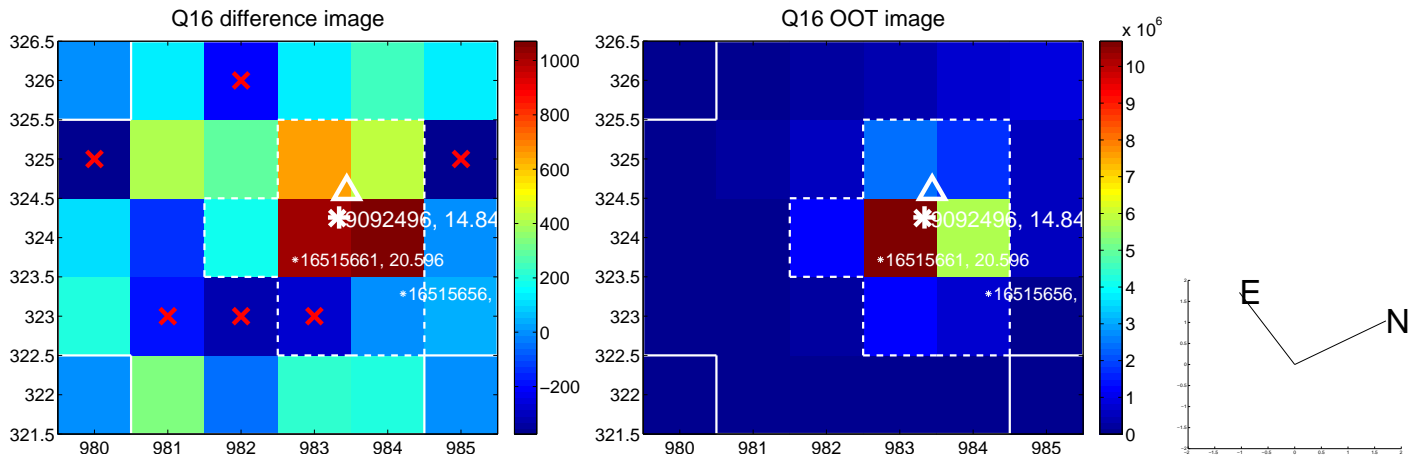
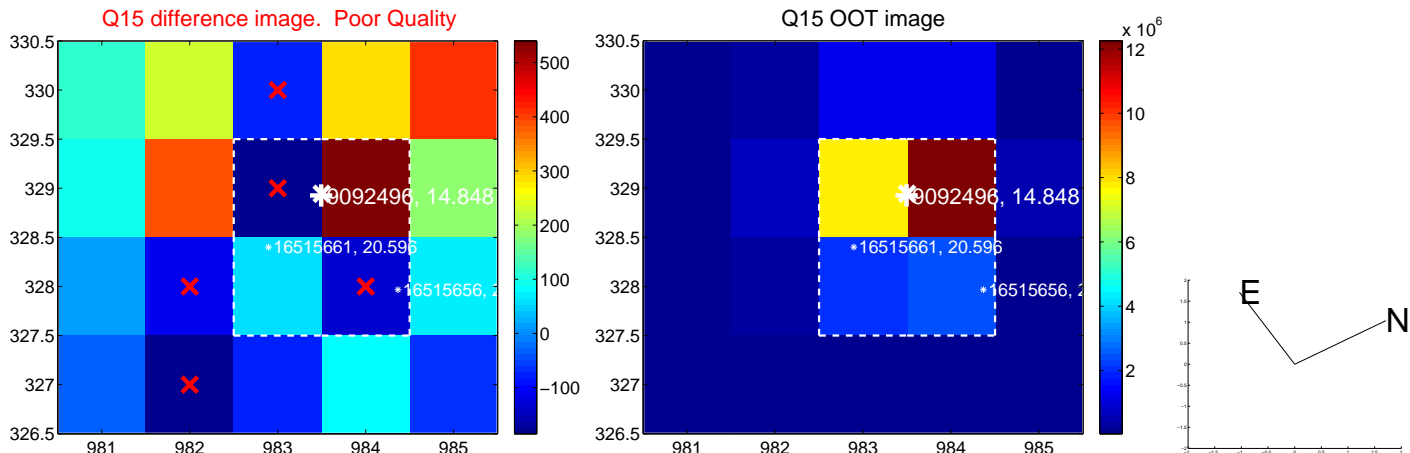
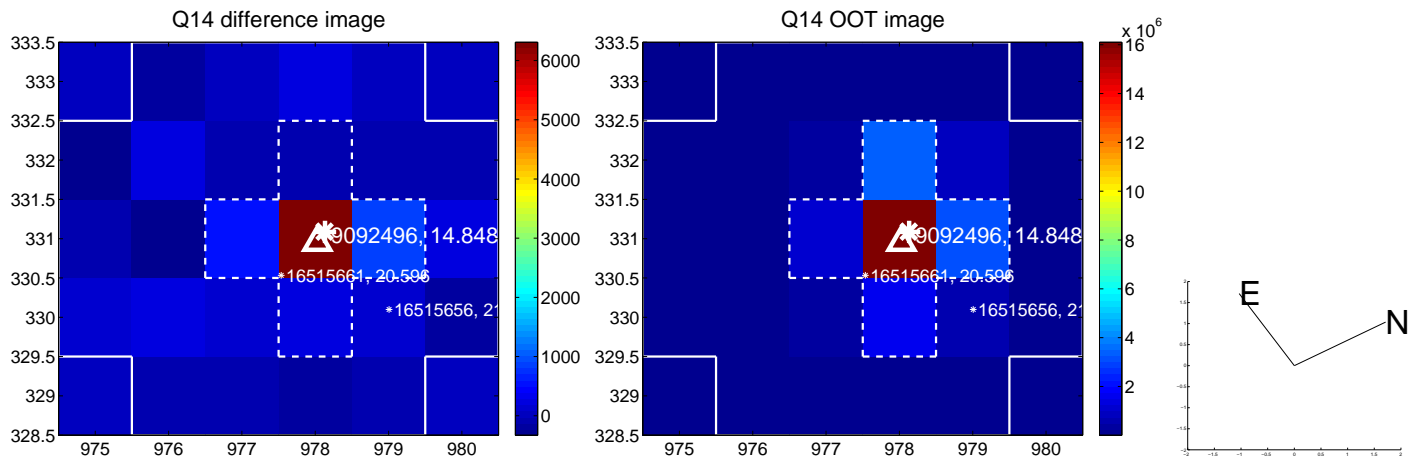
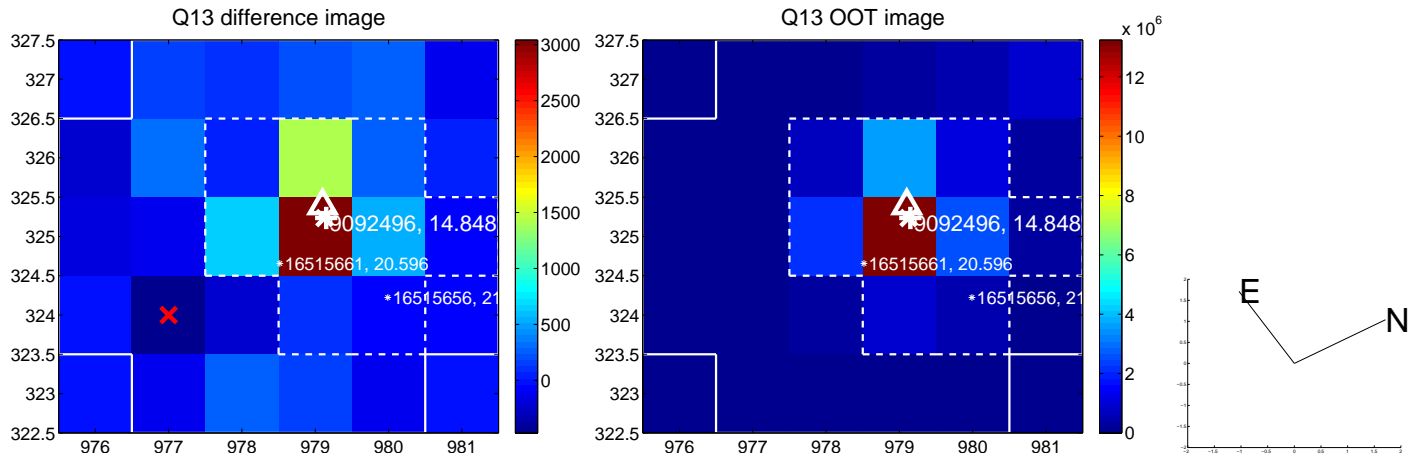
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

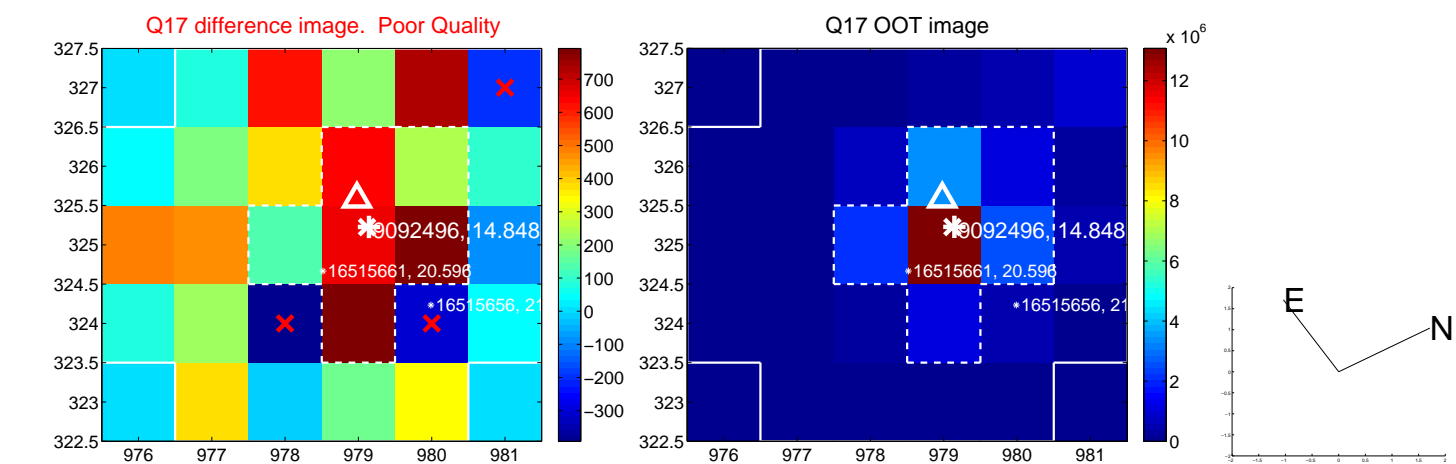


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

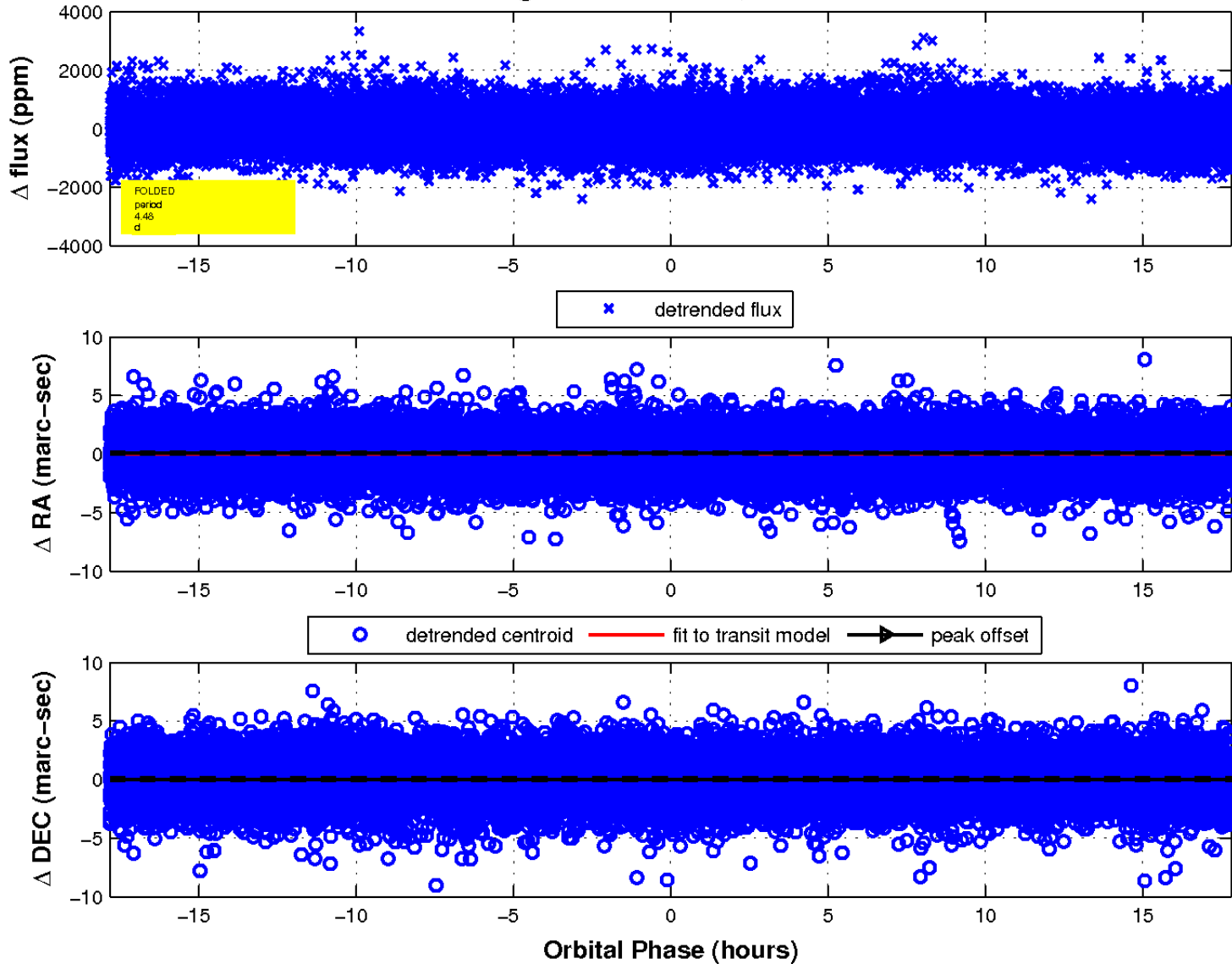




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

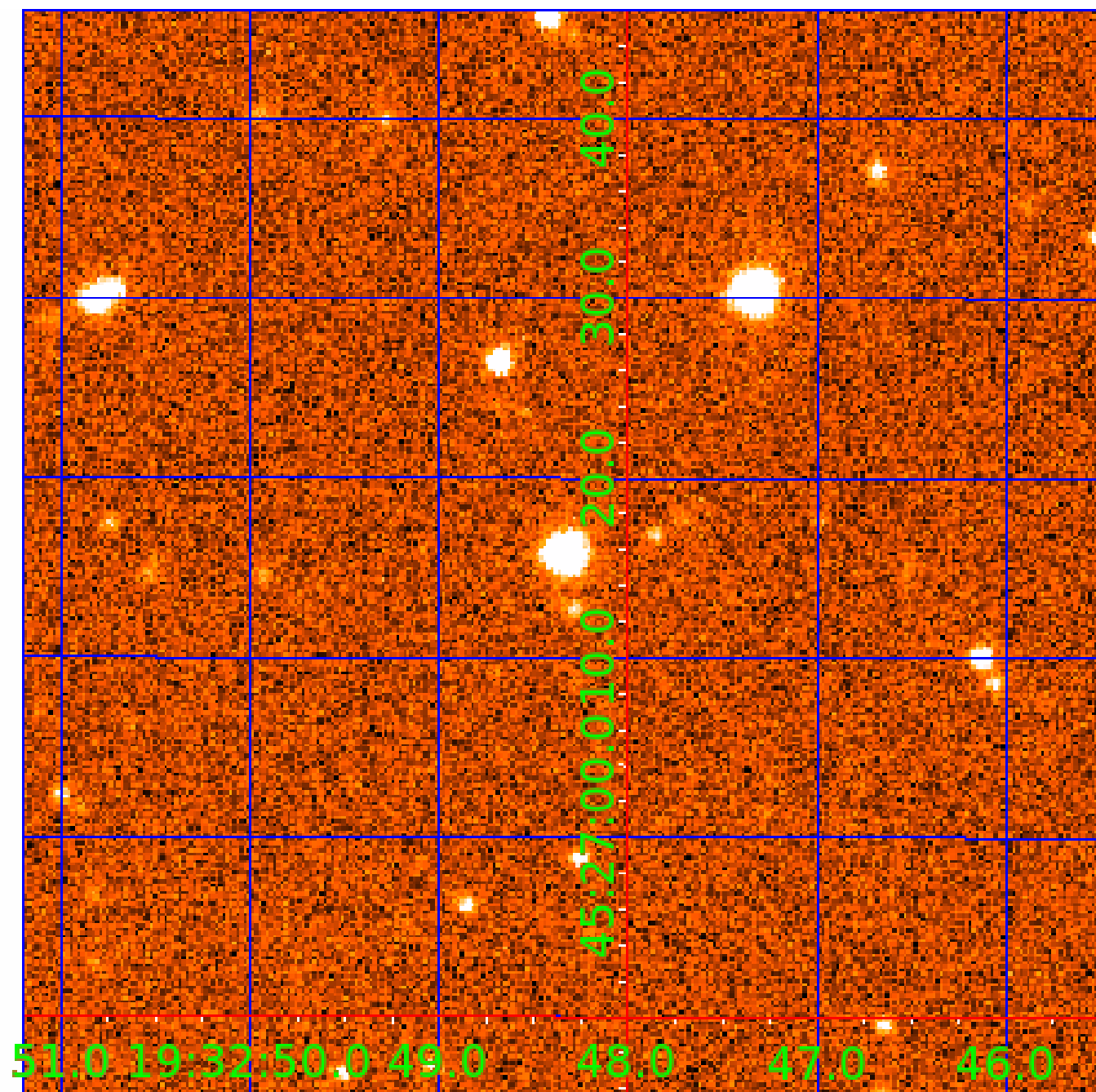


fluxWeightedCentroids, Planet 5 of 7



UKIRT Image

Declination



# KIC 009092496

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009092496-01	OBS	4193.01	94.177944	200.293674	811.0	6.596	14.0	13.4	1.00	6997	3.49	12.36
009092496-02	OBS	No	0.706923	131.569984	0.3	0.996	7.2	0.0	1.00	6997	0.06	8408.37
009092496-03	OBS	No	1.355958	131.960180	75.6	7.534	9.1	8.7	1.00	6997	0.88	3528.15
009092496-04	OBS	No	184.408229	237.033919	574.8	8.101	9.5	9.2	1.00	6997	2.46	5.04
009092496-05	OBS	No	4.478336	135.059846	228.7	5.942	9.0	9.0	1.00	6997	1.86	717.33
009092496-06	OBS	No	51.599819	160.611399	618.5	5.493	11.0	5.0	1.00	6997	2.65	27.56
009092496-07	OBS	No	56.015115	135.185629	405.5	6.000	8.1	-1.0	1.00	6997	2.04	24.71

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009092496-01	OBS	PC	0.84	0	0	0	0	NO_COMMENT
009092496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009092496-03	OBS	FP	0.00	1	0	0	0	LPP_DV
009092496-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—MOD_NONUNIQ_ALT
009092496-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009092496-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009092496-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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 009092496-06

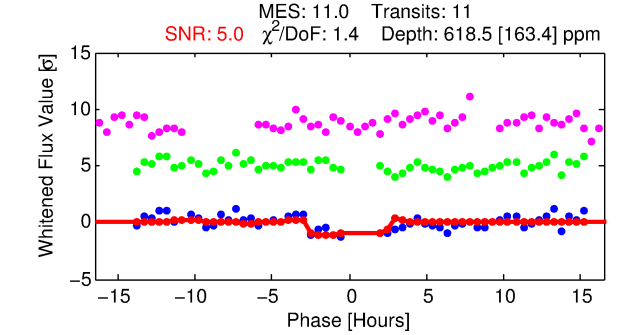
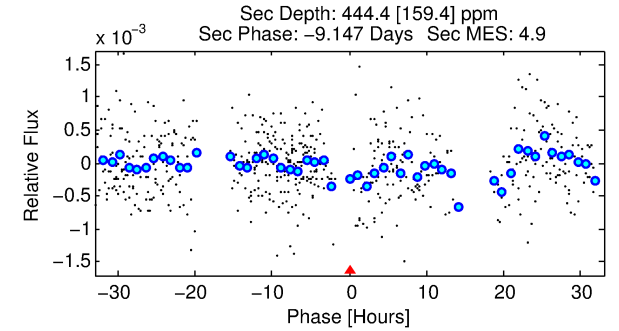
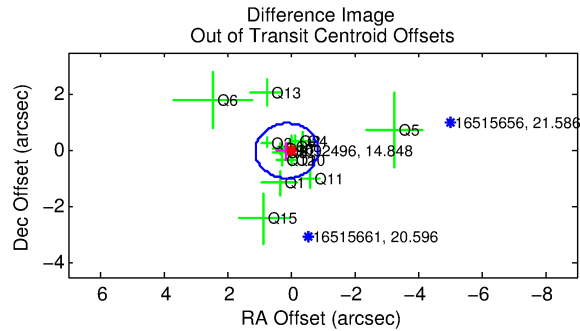
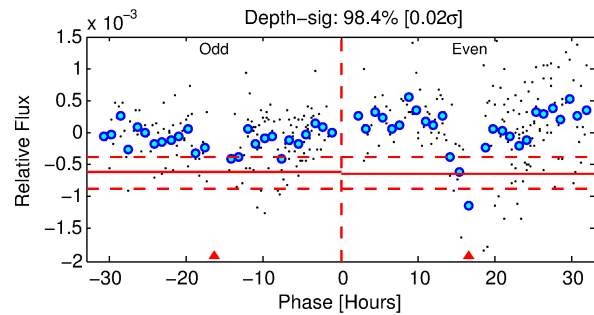
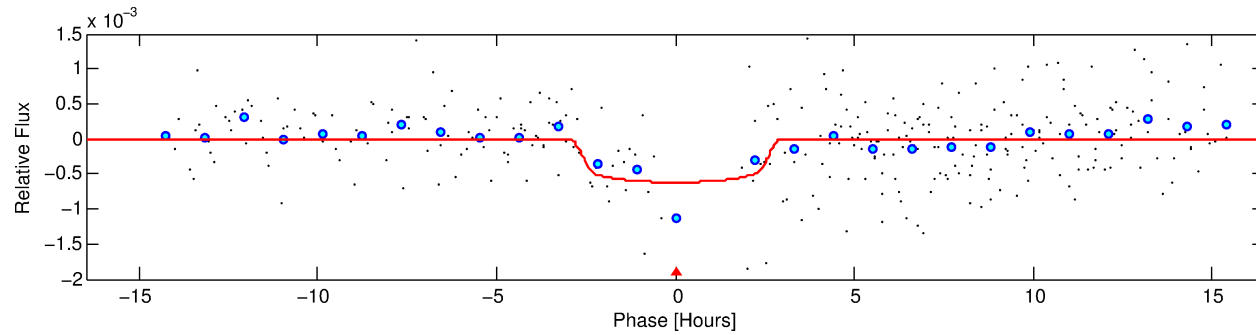
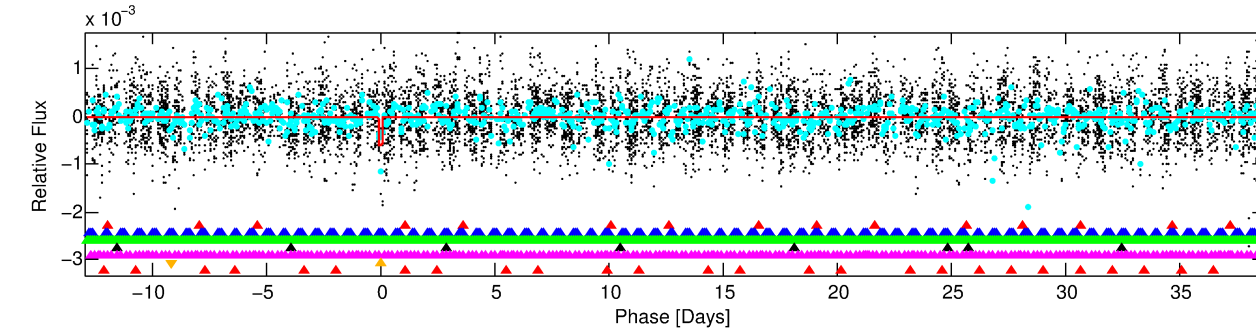
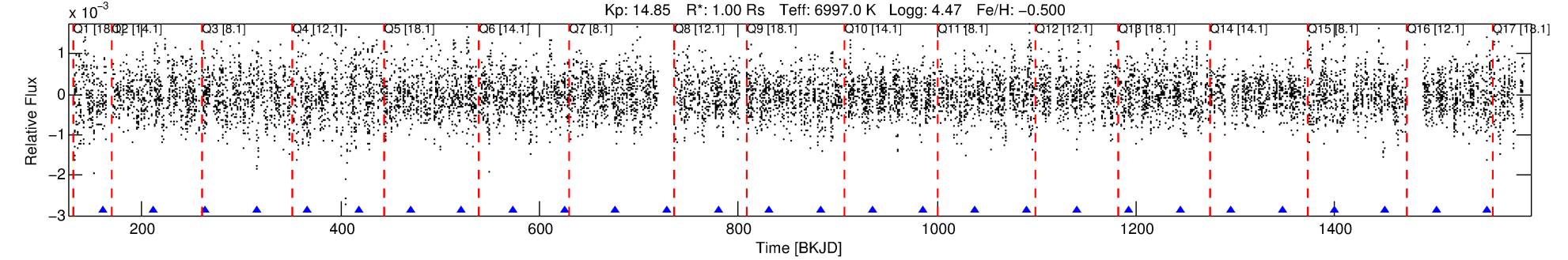
No Significant Match Found

# DV One-Page Summary

KIC: 9092496 Candidate: 6 of 7 Period: 51.600 d

KOI: K04193 Corr: No Ephemeris Match

Kp: 14.85 R\*: 1.00 Rs Teff: 6997.0 K Logg: 4.47 Fe/H: -0.500



## DV Fit Results:

Period = 51.59982 [0.00135] d  
Epoch = 160.6114 [0.0198] BKJD  
Rp/R\* = 0.0243 [0.0170]  
a/R\* = 54.98 [217.42]  
b = 0.68 [3.13]  
Seff = 27.56 [12.72]  
Teq = 584 [67] K  
Rp = 2.65 [2.10] Re  
a = 0.2791 [0.0853] AU  
Ag = 2706.52 [4077.01] [0.66σ]  
Teff = 6516 [2361] K [2.51σ]

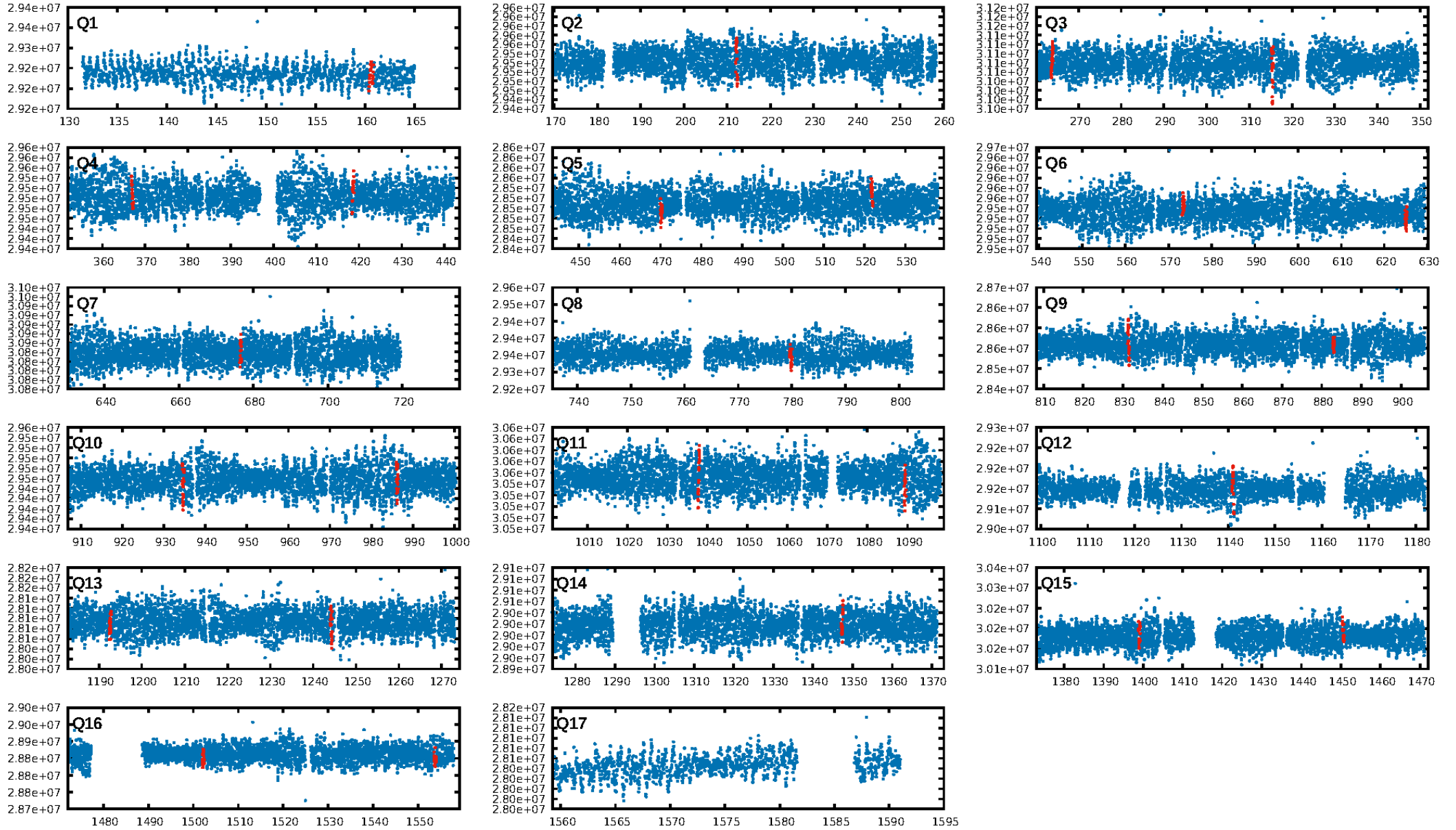
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [139.76σ]  
LongPeriod-sig: 100.0% [13.03σ]  
ModelChiSquare2-sig: 2.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [11/11]  
GhostDiagnostic-chr: 2.653  
Centroid-sig: 47.2%  
Centroid-so: 0.366 arcsec [0.78σ]  
OotOffset-rm: 0.126 arcsec [0.38σ]  
KicOffset-rm: 0.109 arcsec [0.30σ]  
OotOffset-st: 3/4/4/3 [14]  
KicOffset-st: 3/4/4/3 [14]  
DiffImageQuality-fgm: 0.50 [7/14]  
DiffImageOverlap-fno: 0.00 [0/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:44:51 Z

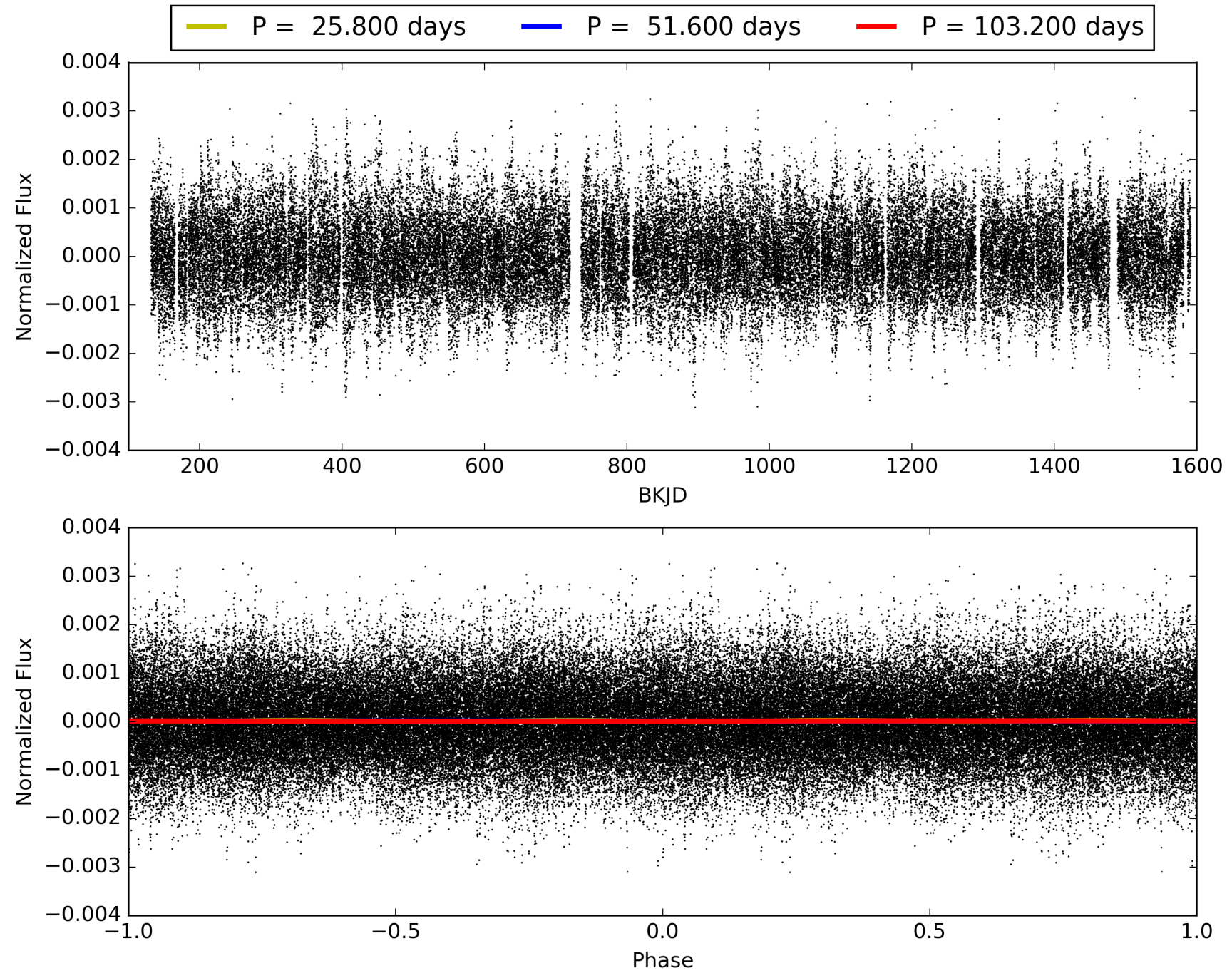
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009092496-06, PDC Light Curves





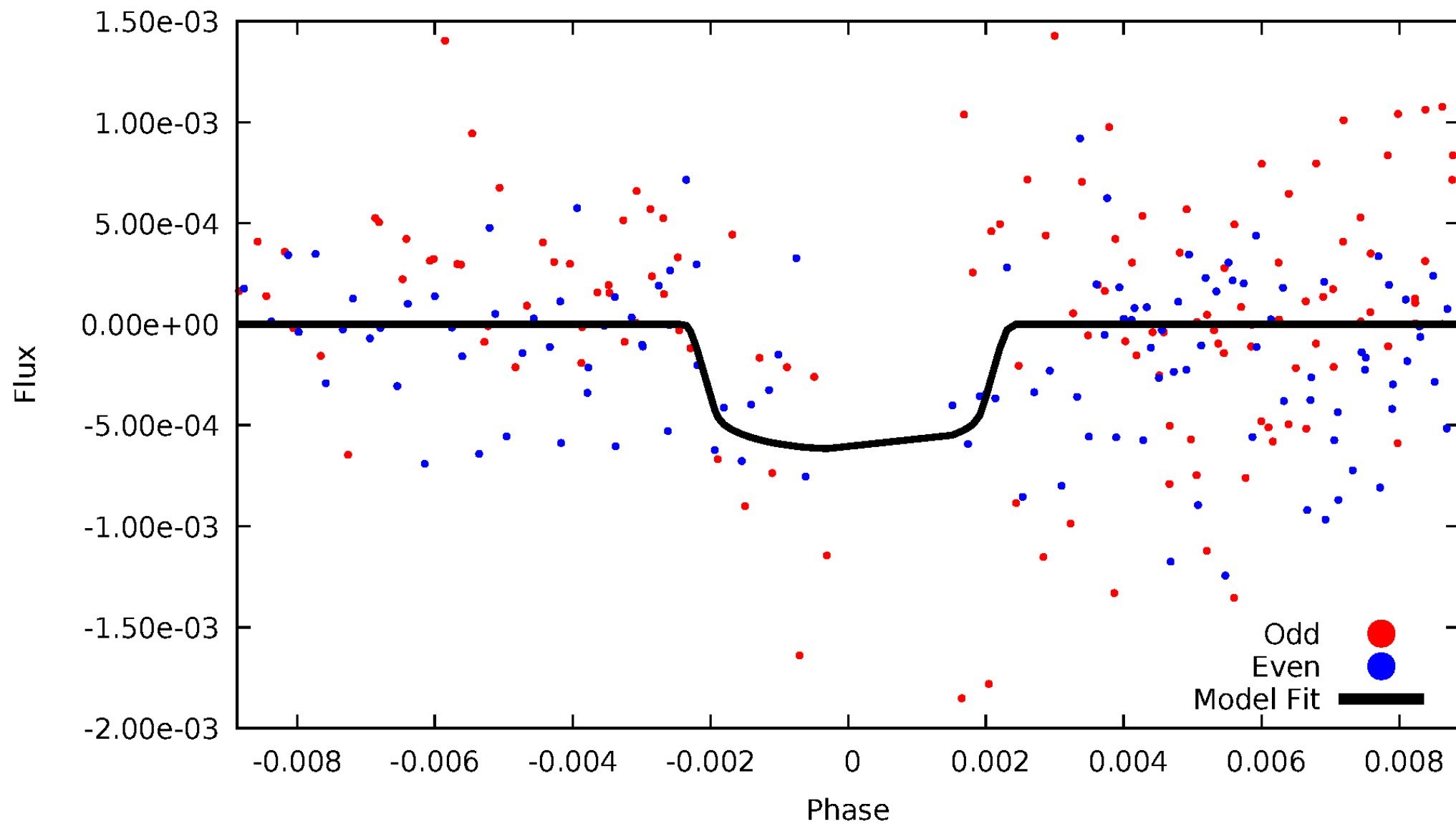
TCE 009092496-06





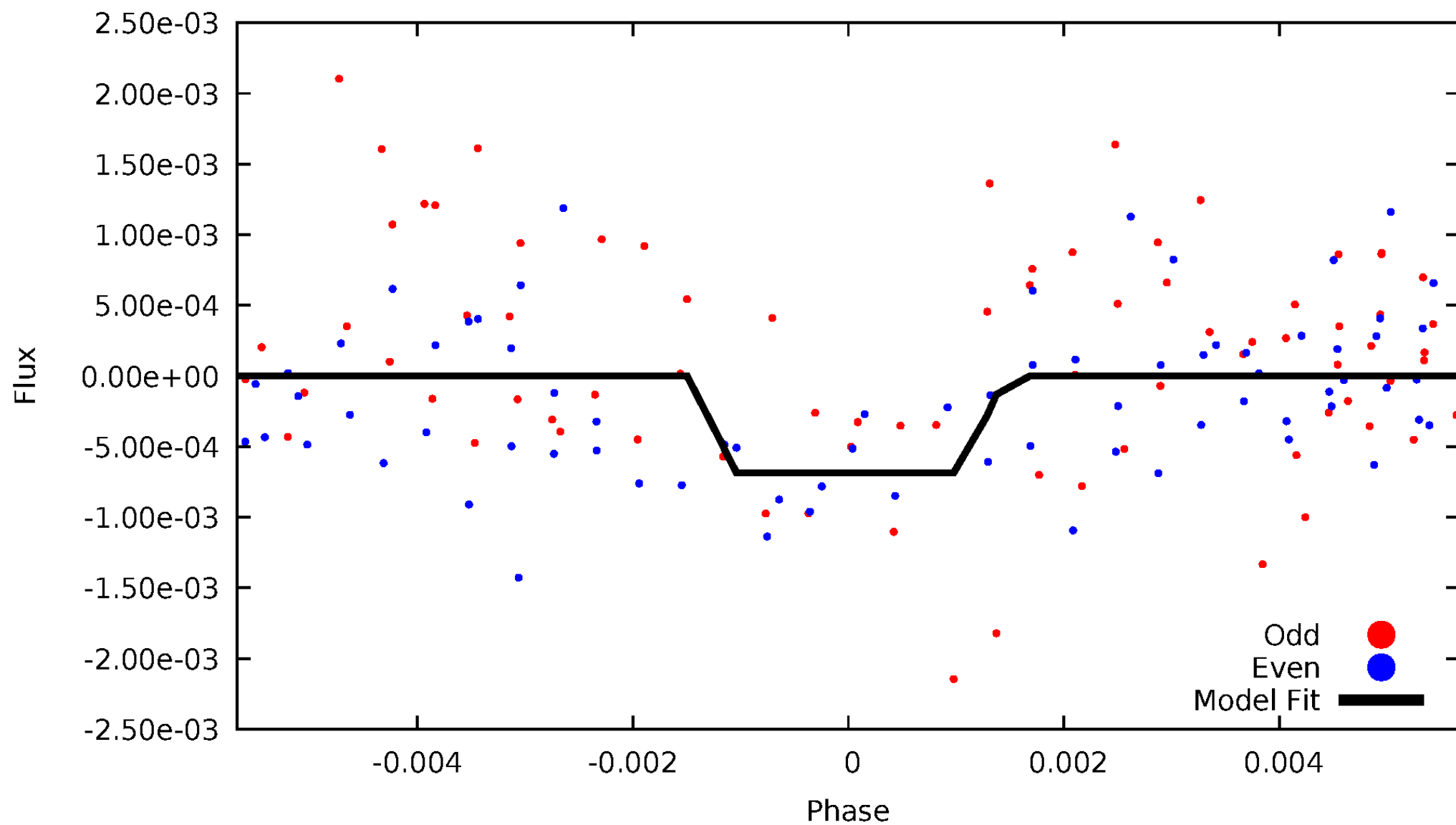
# DV Odd/Even

TCE 009092496-06



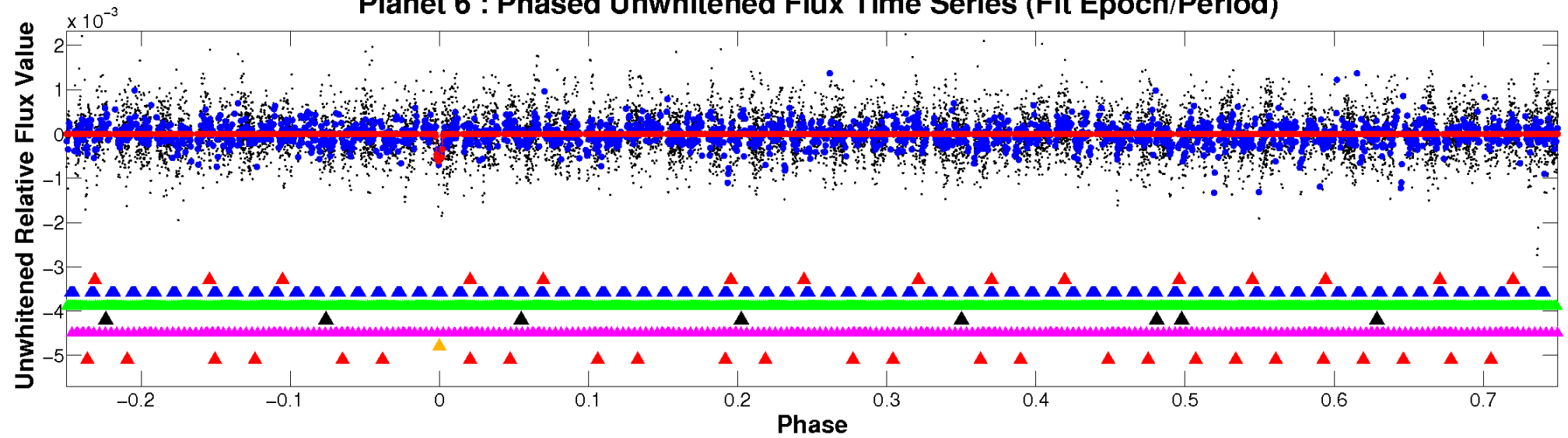
# ALT Odd/Even

TCE 009092496-06

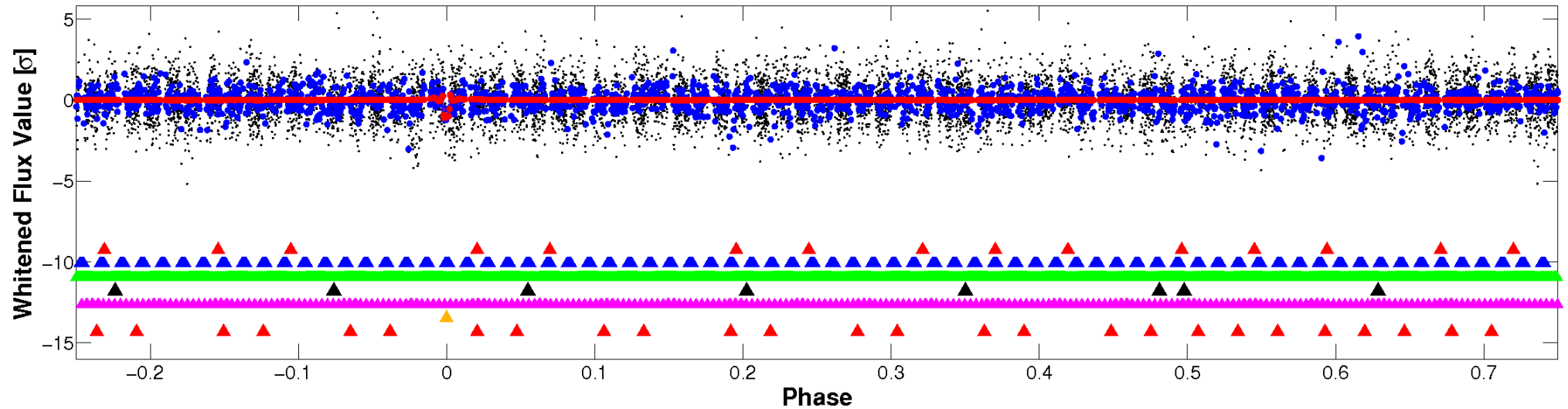


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

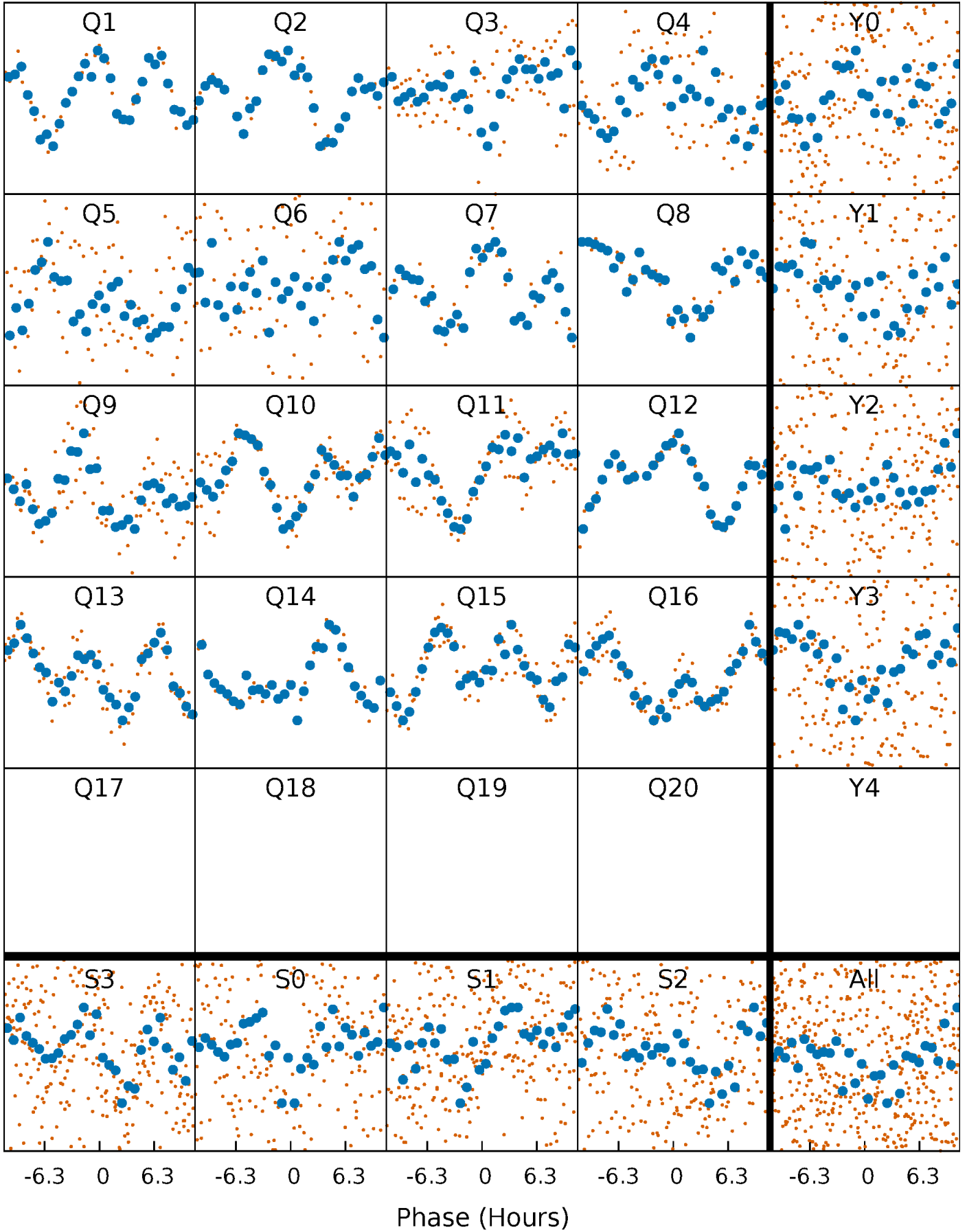


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



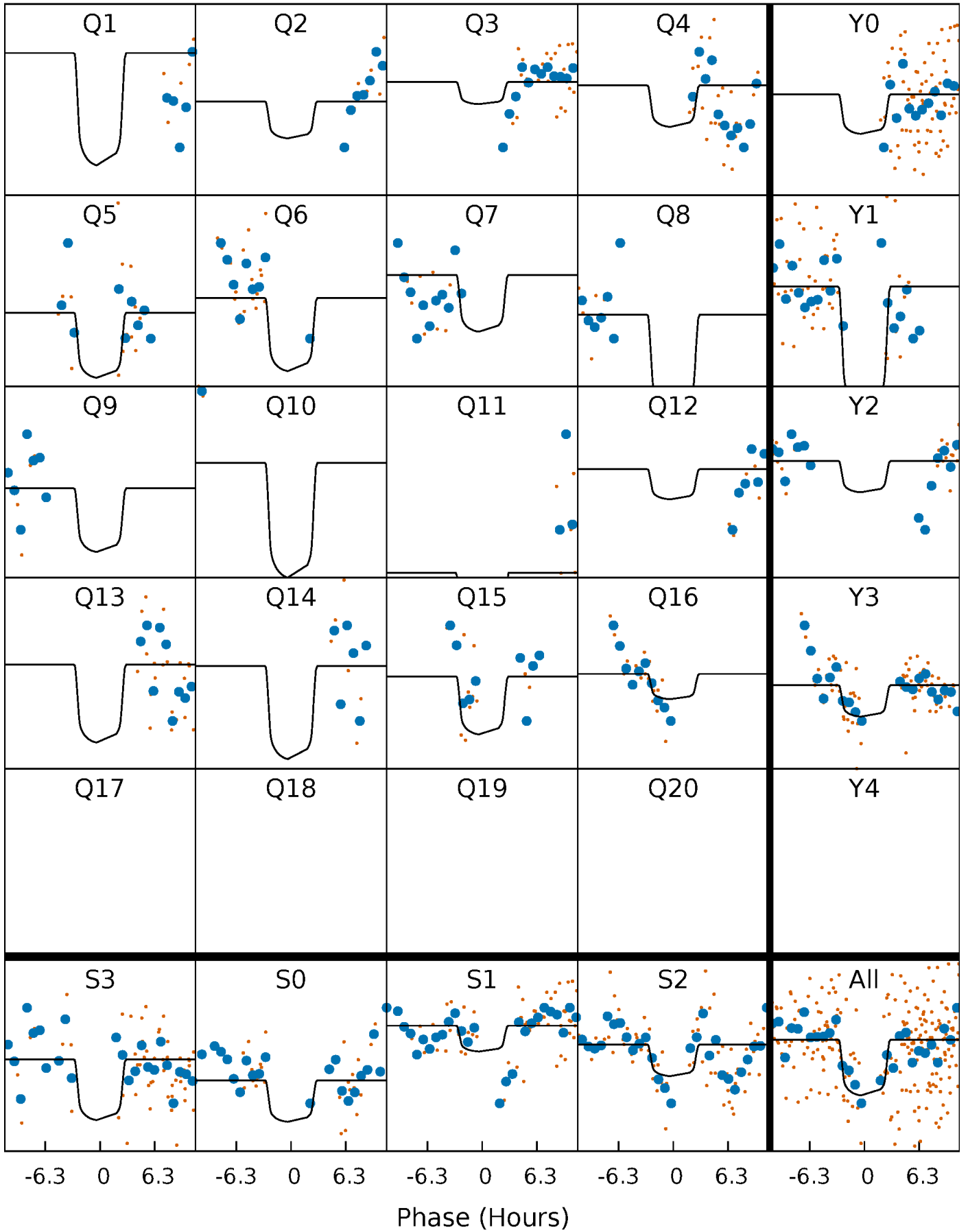
# PDC Quarter-Phased Transit Curves

TCE 009092496-06   P= 51.599819 Days    $T_0=160.611399$  (BKJD)



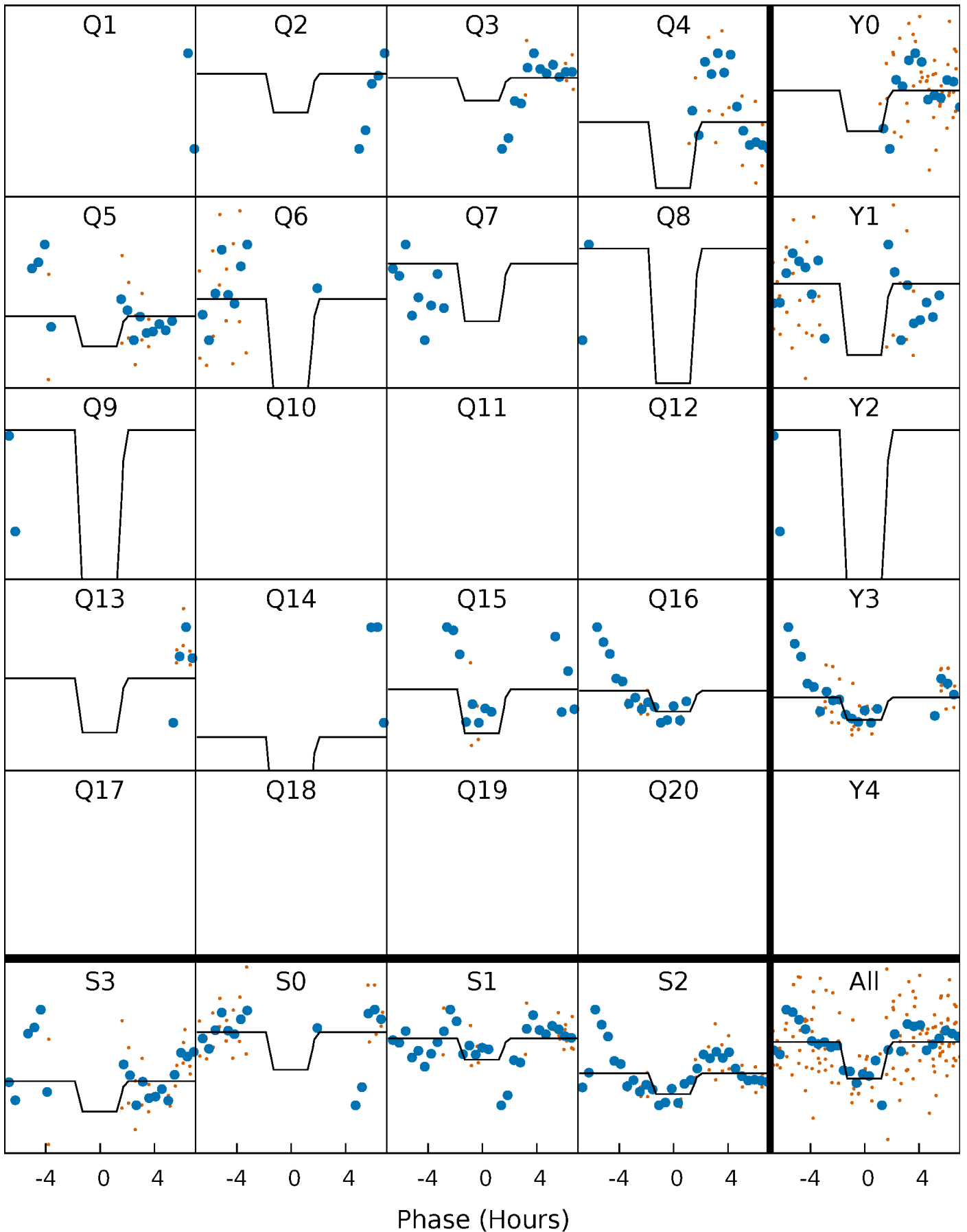
# DV Quarter-Phased Transit Curves

TCE 009092496-06 P= 51.599819 Days  $T_0=160.611399$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 009092496-06   P= 51.595962 Days    $T_0=160.657341$  (BKJD)

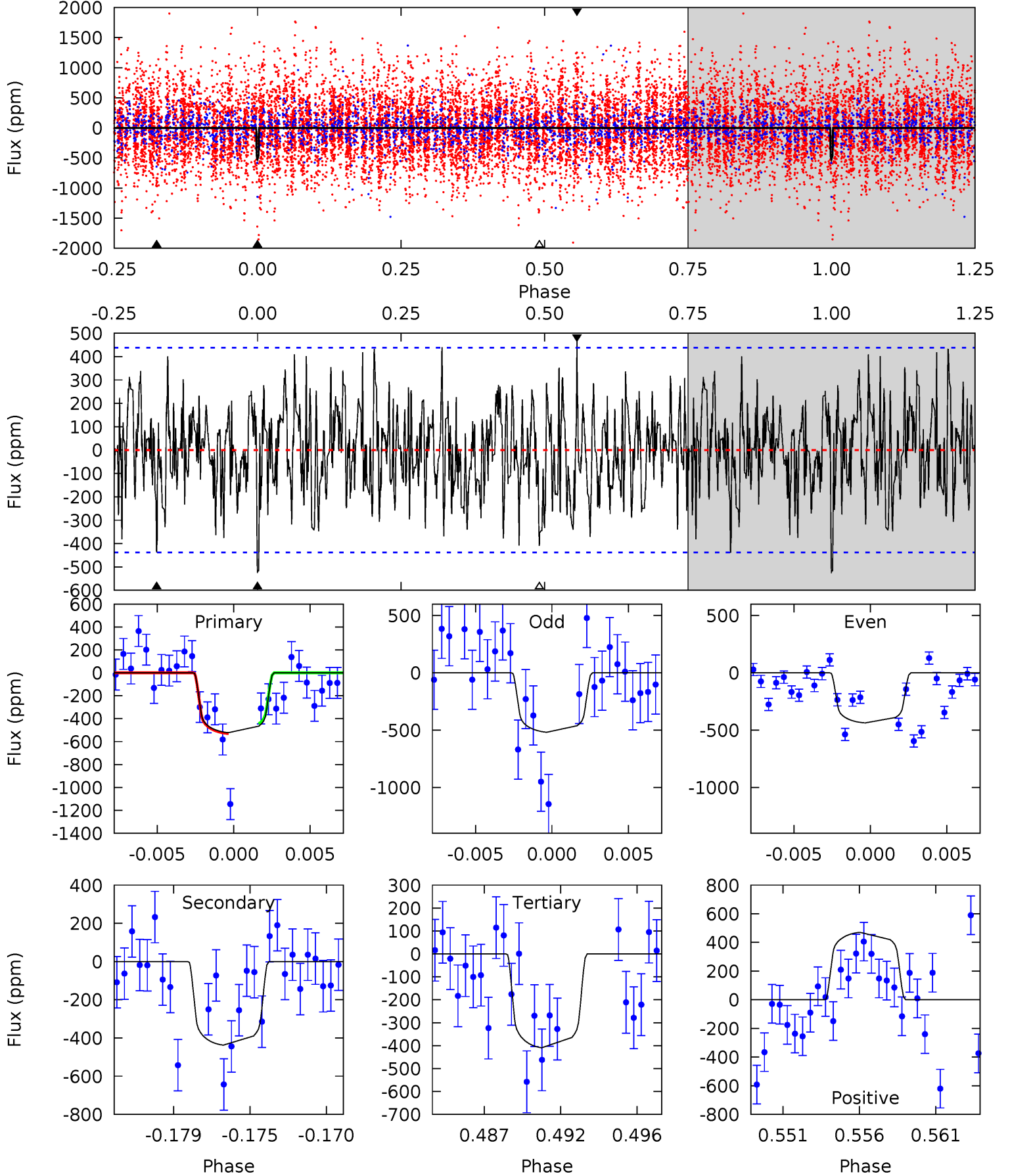




# DV Model-Shift Uniqueness Test

009092496-06,  $P = 51.599819$  Days,  $E = 109.011580$  Days

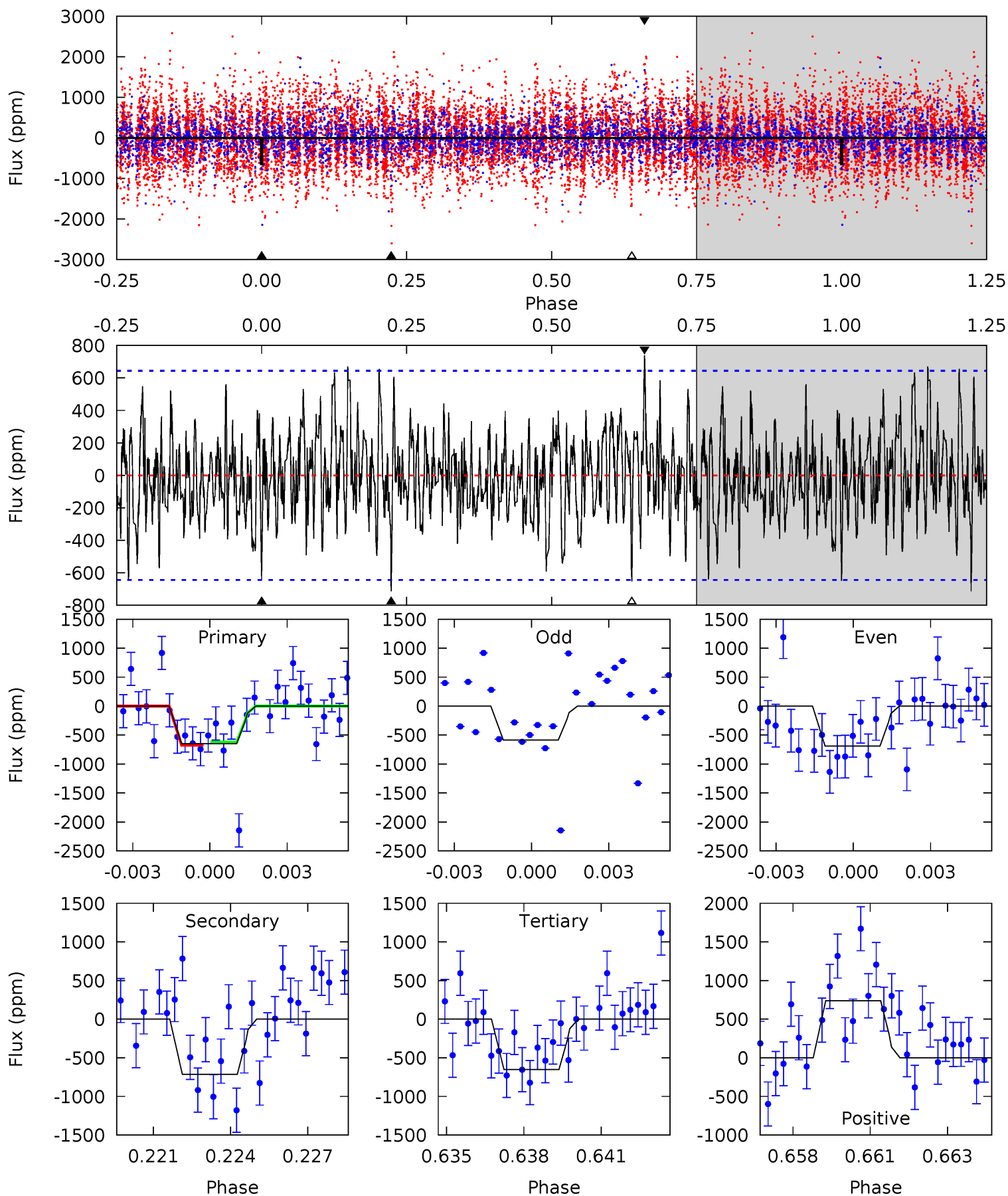
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.17	5.17	4.83	5.56	5.17	2.83	1.76	1.33	0.61	0.33	-0.39	0.47	1.03	0.47	0.49



# Alt Model-Shift Uniqueness Test

009092496-06, P = 51.595962 Days, E = 109.061379 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
5.30	5.82	5.33	6.03	5.26	2.99	1.64	-0.03	-0.73	0.49	-0.21	0.42	1.20	0.51	0.22



### Stellar Parameters For KIC 009092496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6997^{+167}_{-263}$	$4.475^{+0.026}_{-0.234}$	$-0.500^{+0.300}_{-0.300}$	$1.000^{+0.371}_{-0.066}$	$1.155^{+0.159}_{-0.119}$	$1.628^{+0.174}_{-0.976}$
	+2%/-4%	+1%/-5%	+60%/-60%	+37%/-7%	+14%/-10%	+11%/-60%
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 009092496-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-438 \pm 85$	$3.06^{+2.21}_{-1.75}$	$846^{+71}_{-43}$	$6330^{+4400}_{-1426}$	$2015^{+8823}_{-1341}$
Alt.	$-713 \pm 122$	$3.34^{+2.03}_{-1.85}$	$842^{+61}_{-45}$	$6726^{+5140}_{-1305}$	$2723^{+11617}_{-1652}$

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

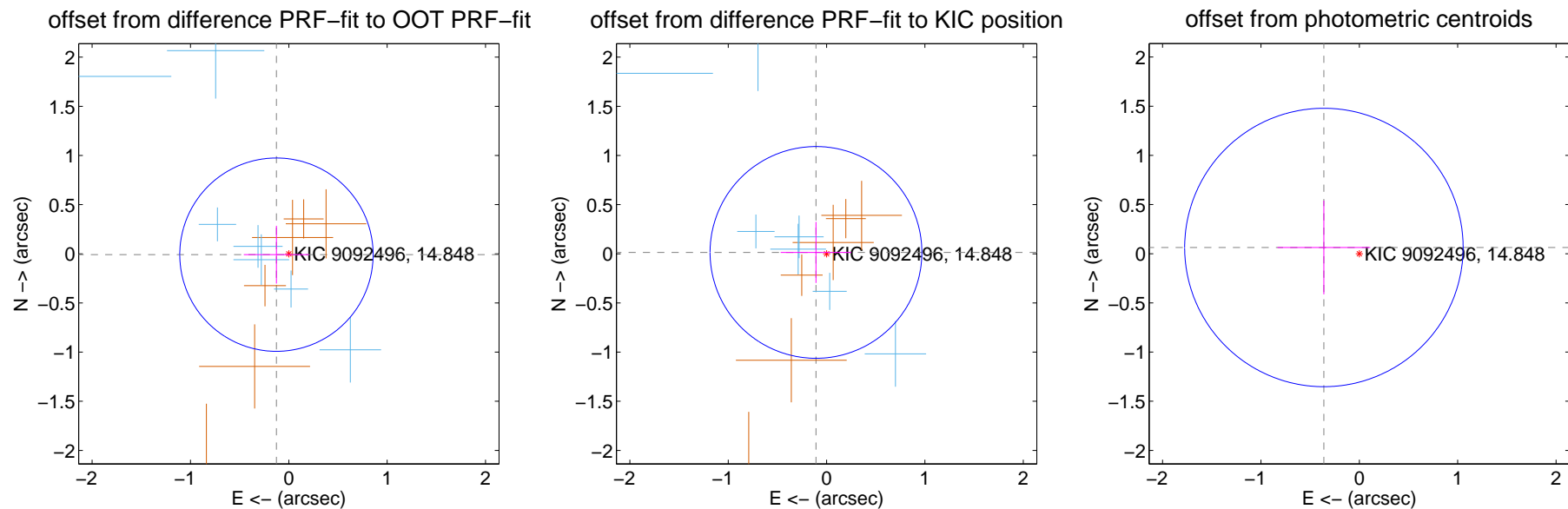
## DV Centroid Data

Supplemental centroid analysis for 009092496-06. Kepler magnitude: 14.85. Transit SNR 4.97

There are 7 quarters with good PRF difference image offsets

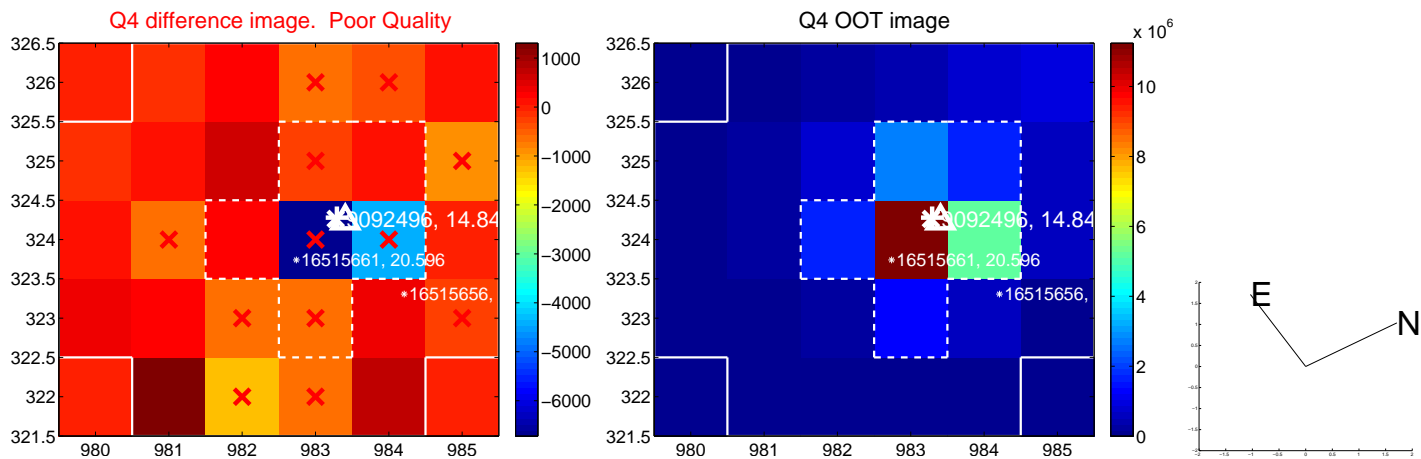
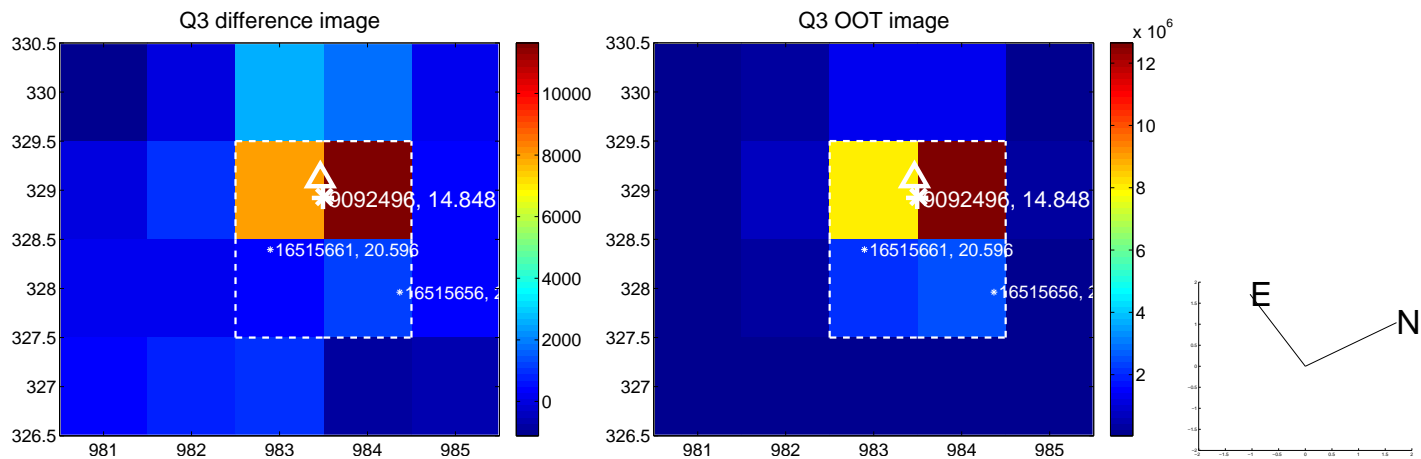
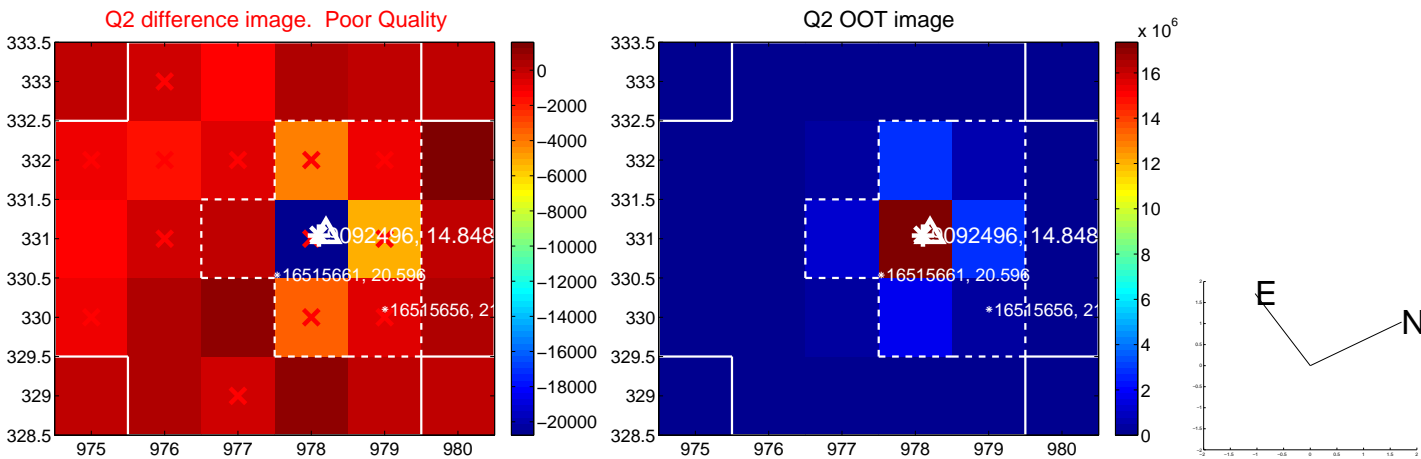
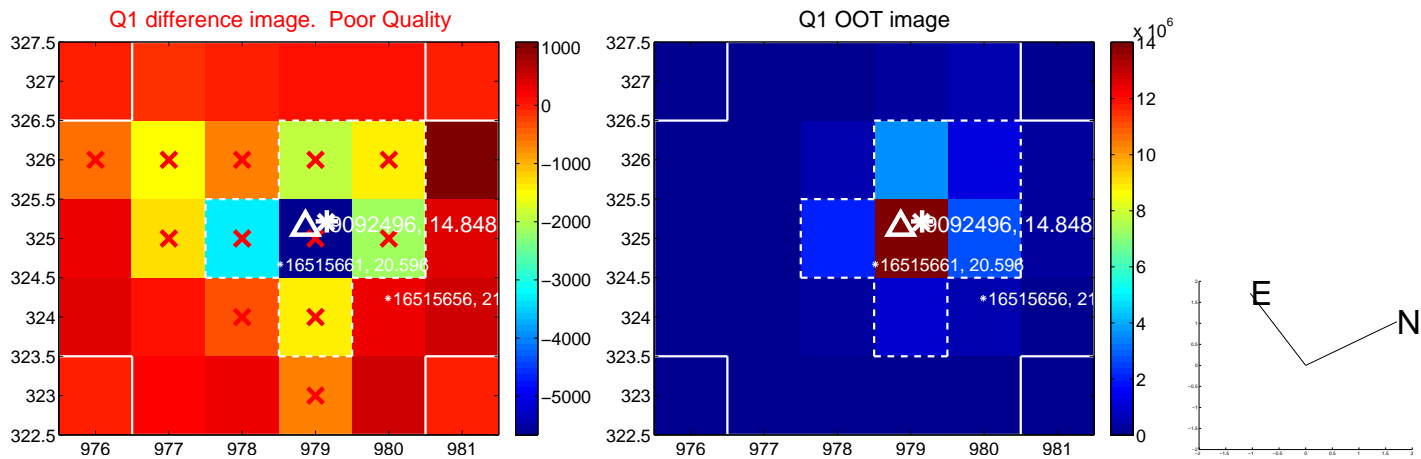
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.126 \pm 0.328$	0.38	$0.126 \pm 0.332$	$-0.009 \pm 0.294$
PRF-fit source offset from KIC position	$0.109 \pm 0.359$	0.30	$0.108 \pm 0.359$	$0.014 \pm 0.310$
photometric centroid source offset	$0.37 \pm 0.47$	0.78	$0.36 \pm 0.47$	$0.06 \pm 0.48$

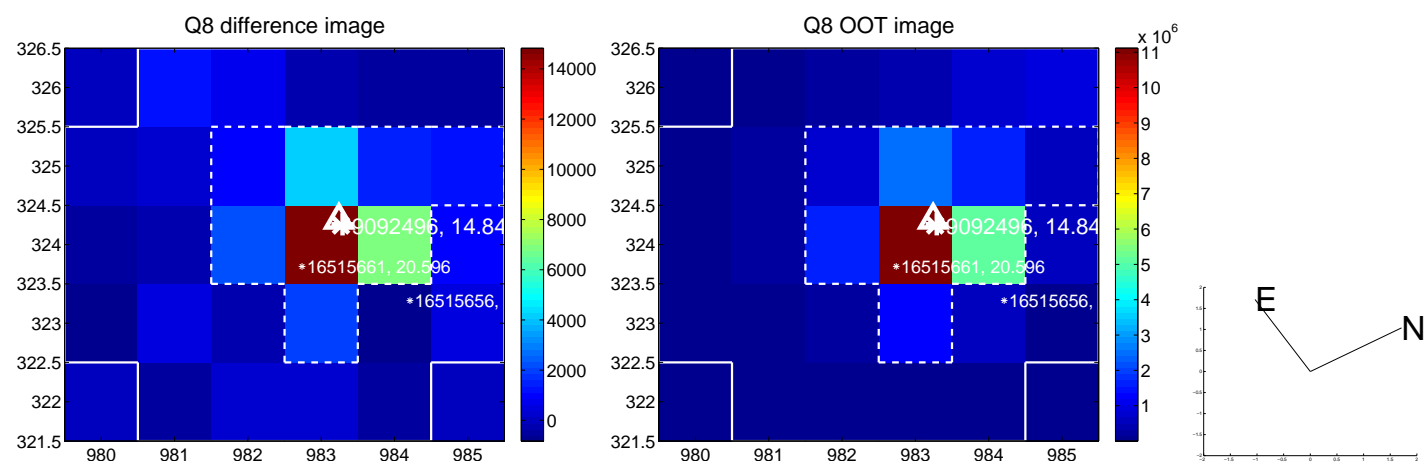
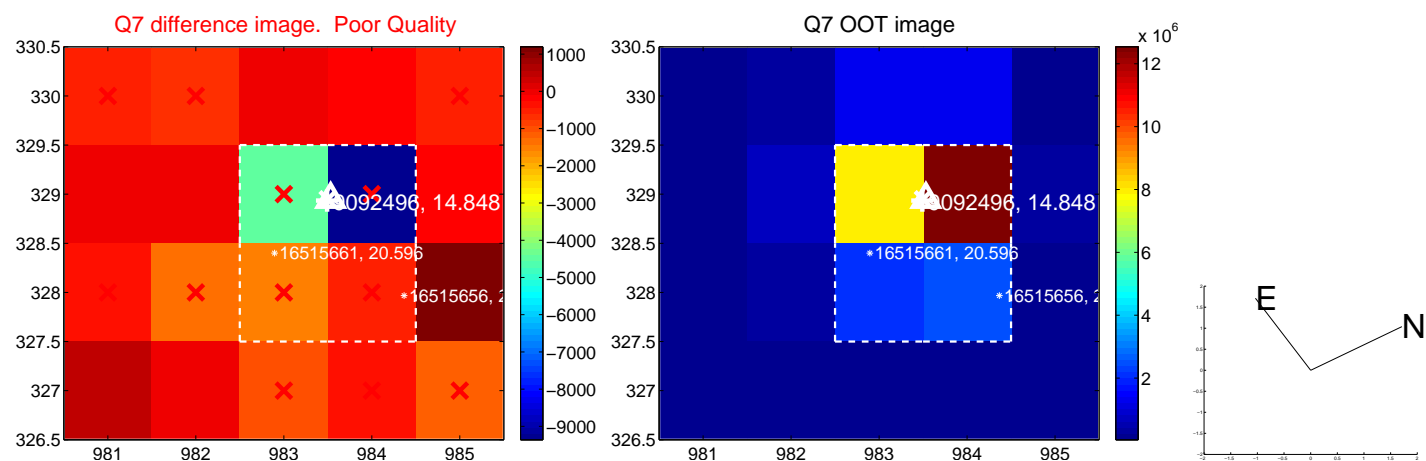
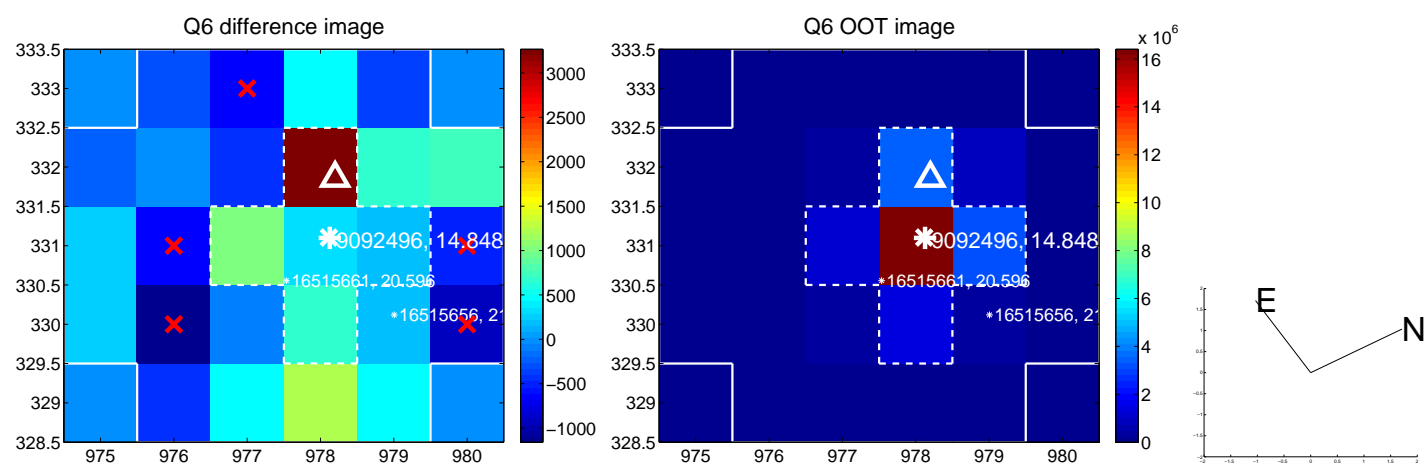
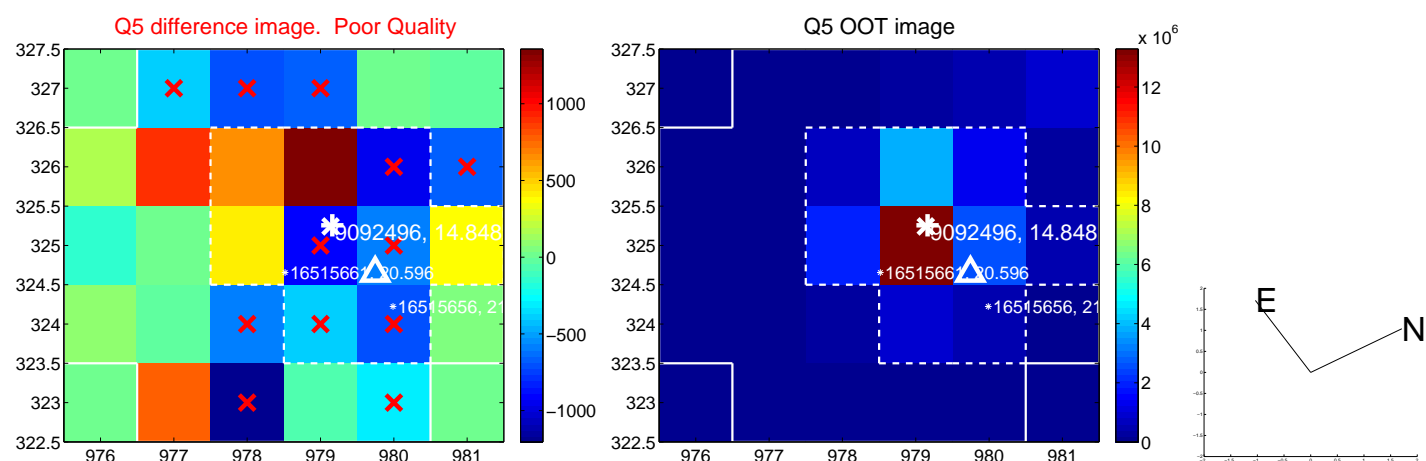


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

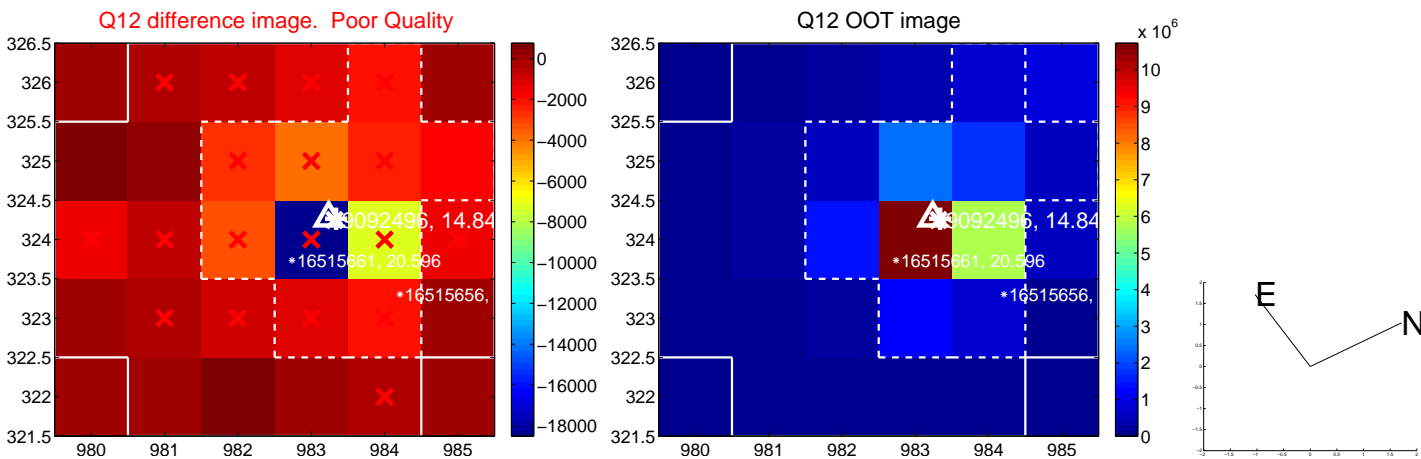
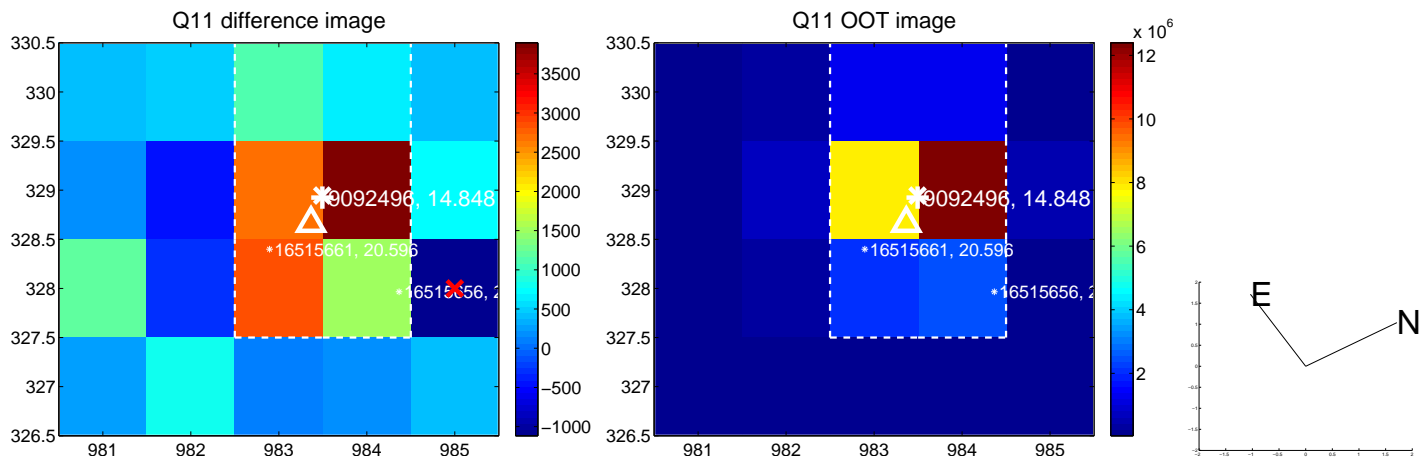
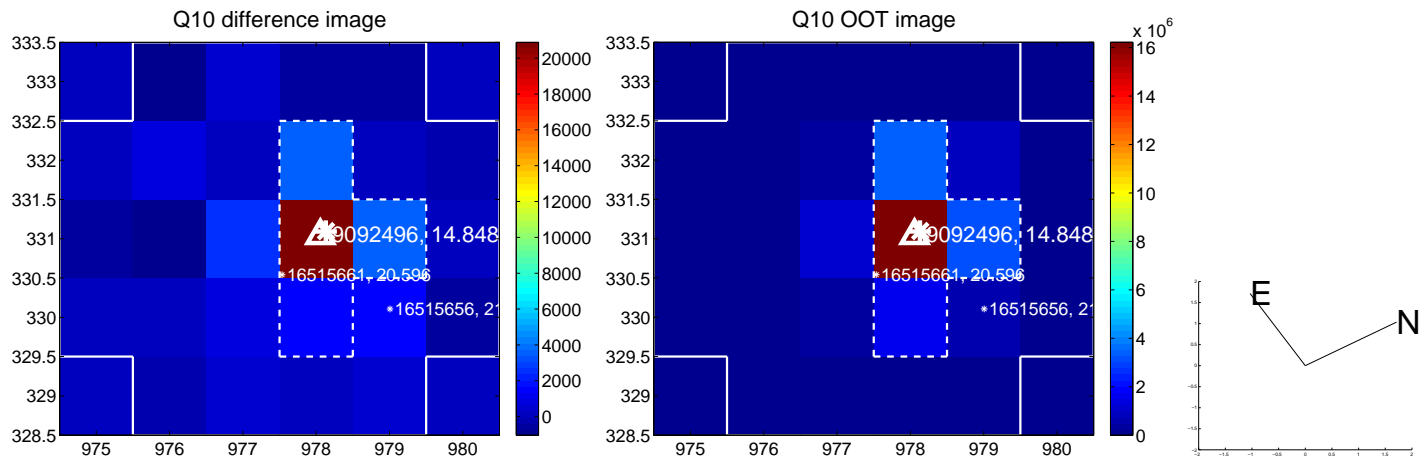
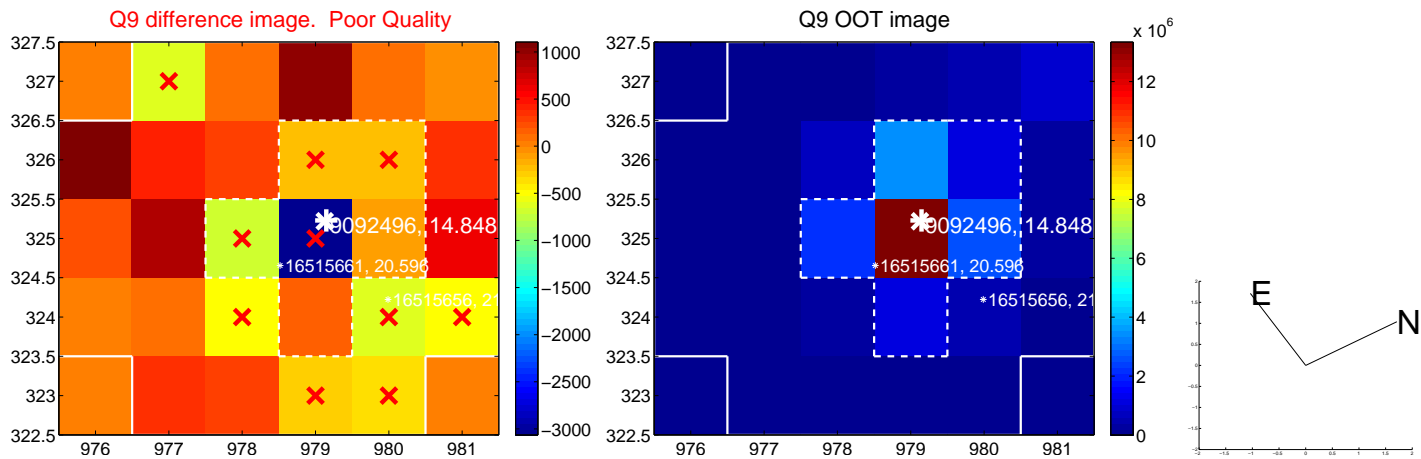


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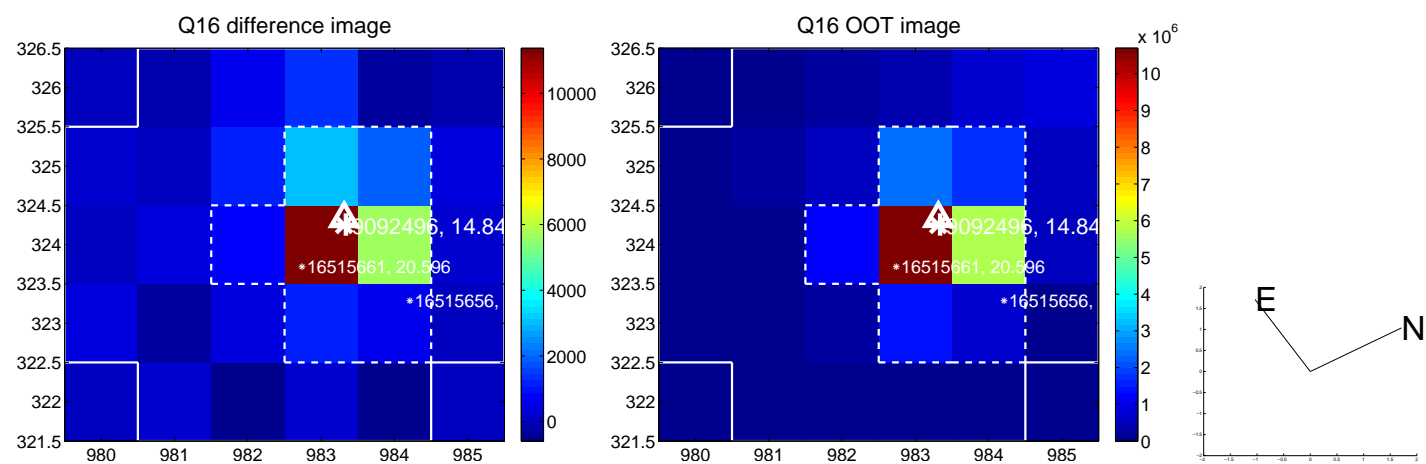
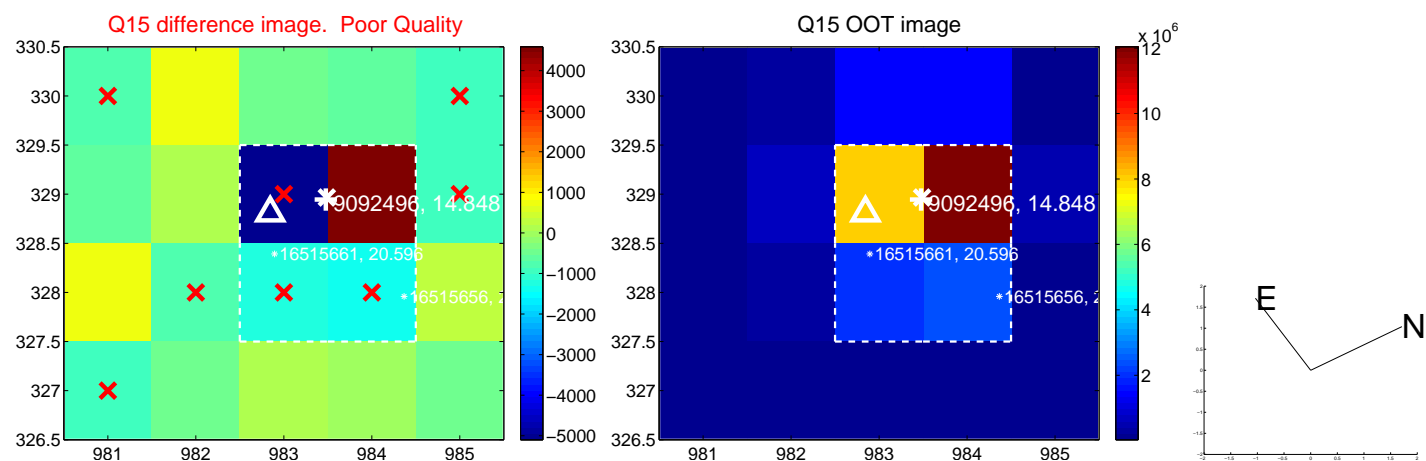
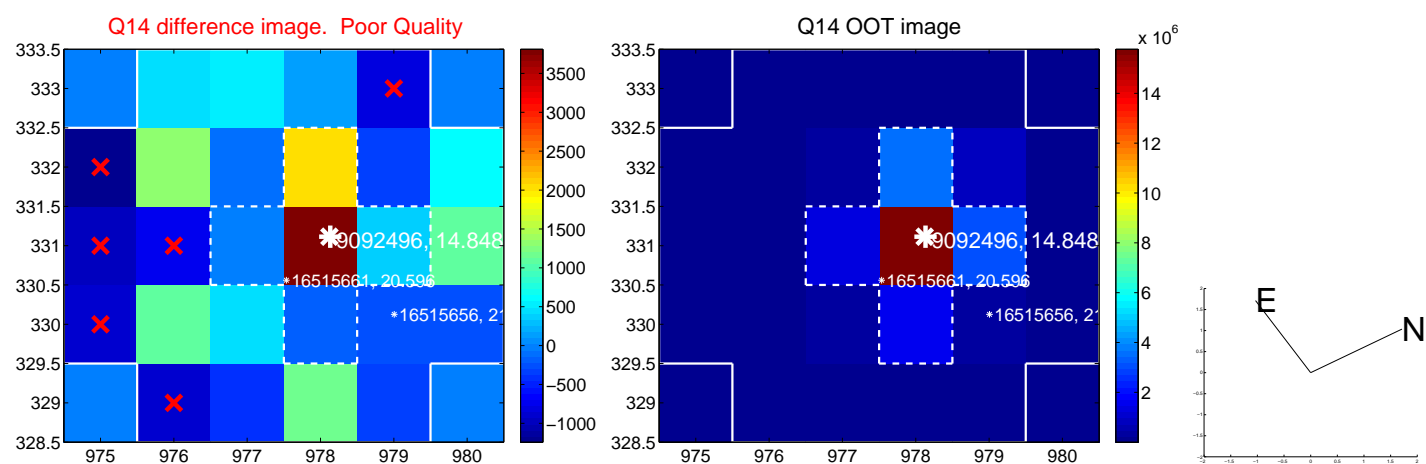
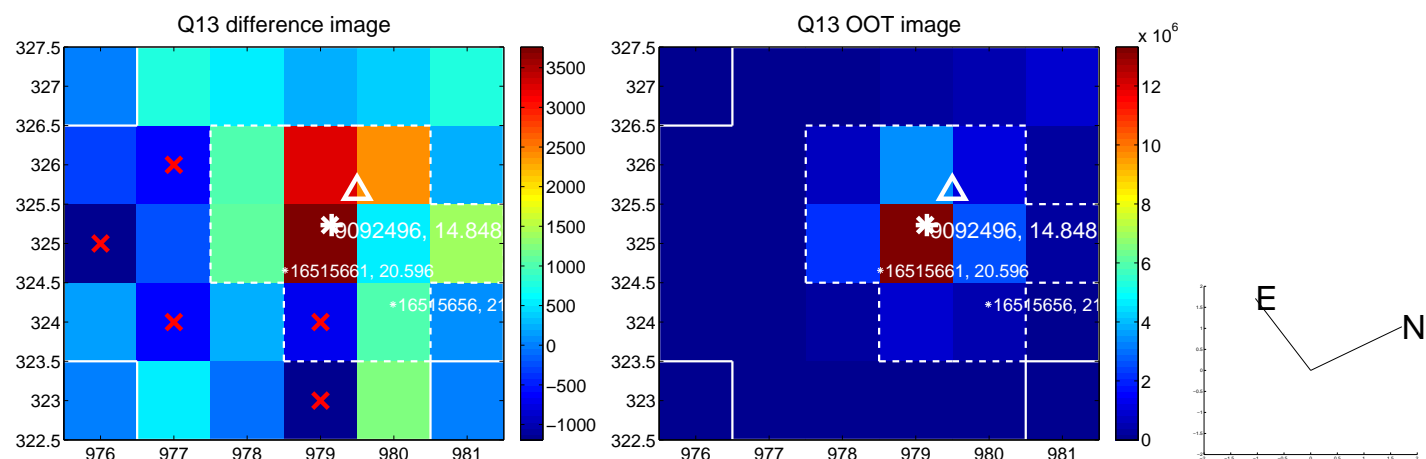




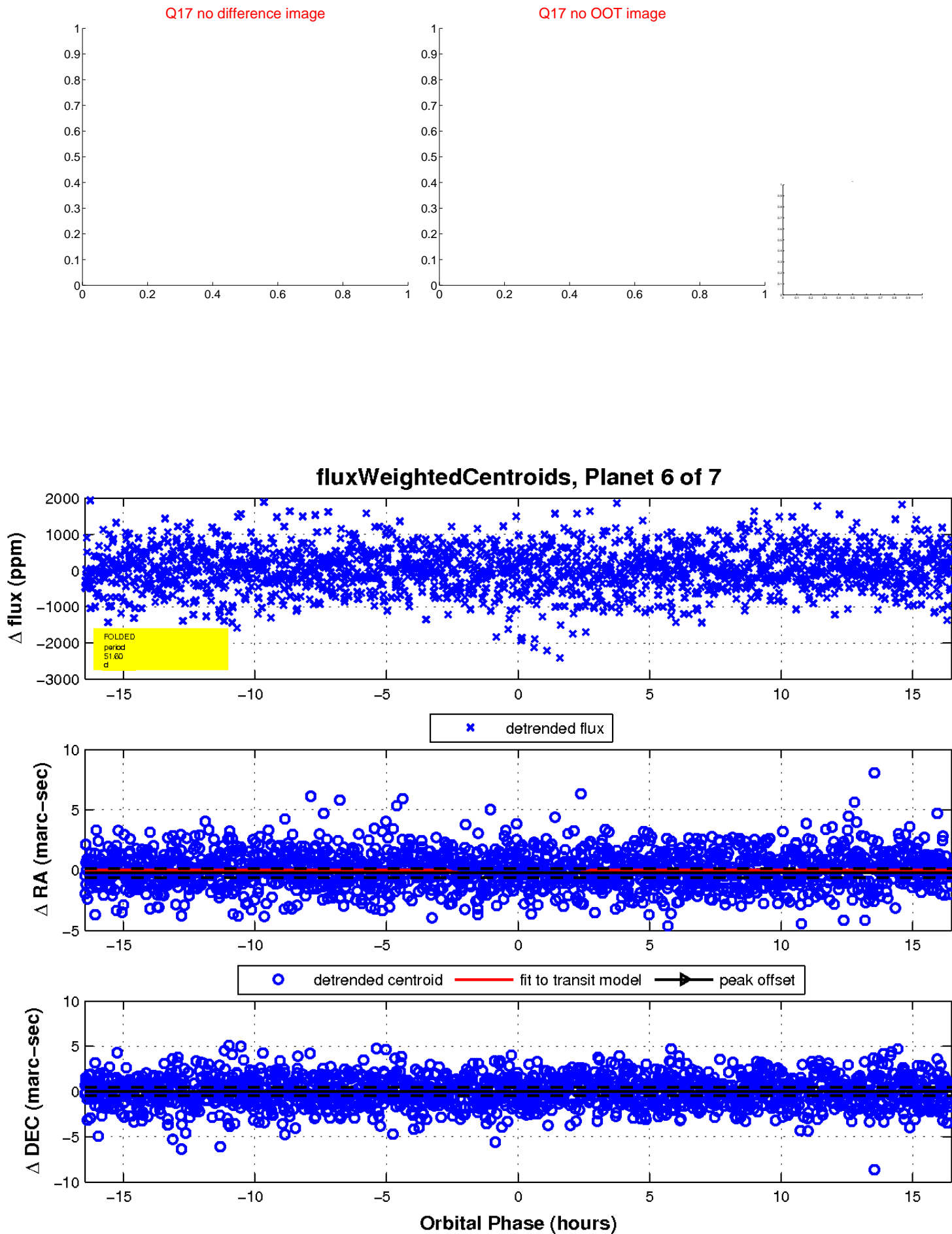
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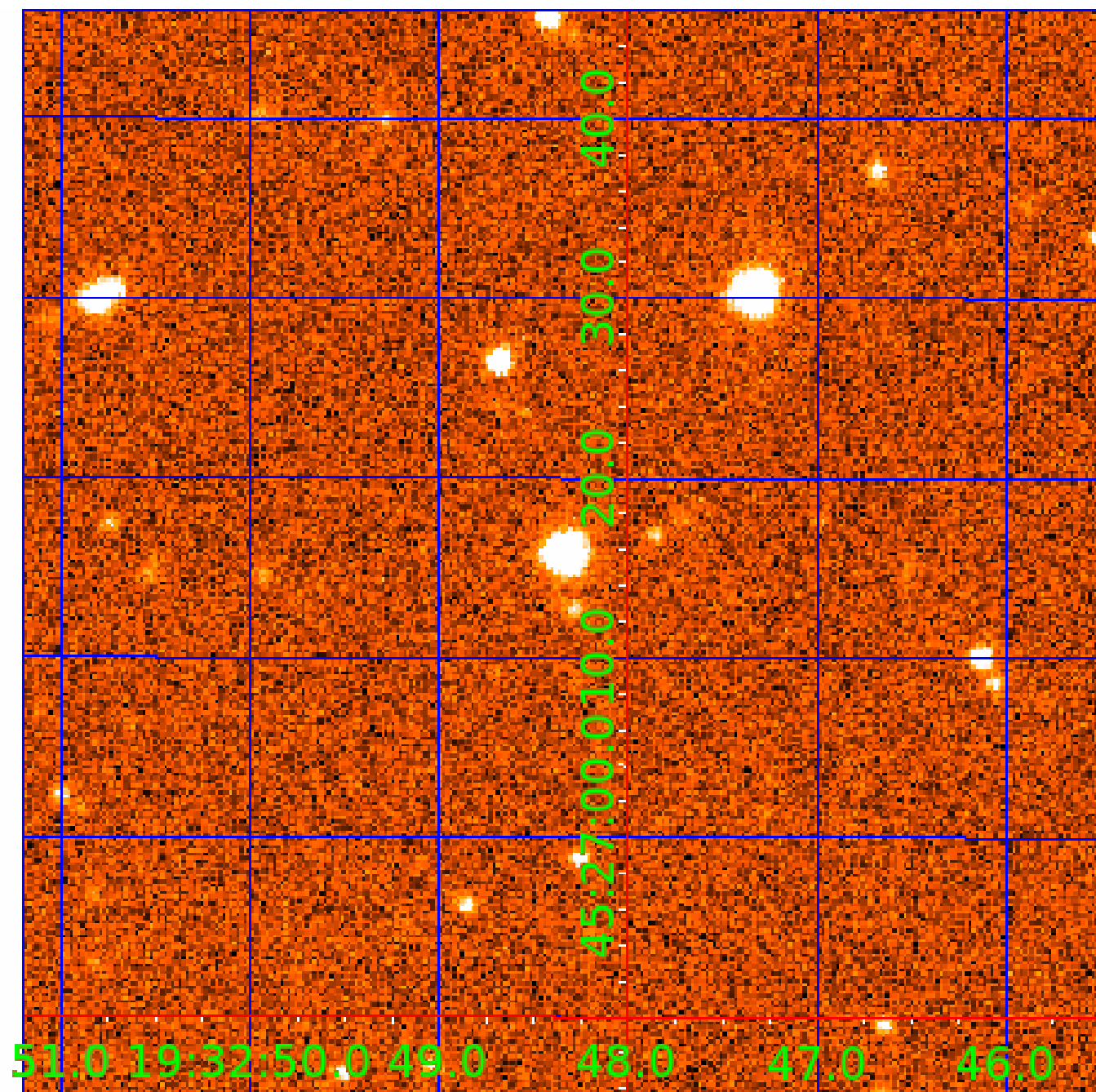


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UKIRT Image

Declination



# KIC 009092496

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009092496-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009092496-03	OBS	FP	0.00	1	0	0	0	LPP_DV
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009092496-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
009092496-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
009092496-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—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 009092496-07

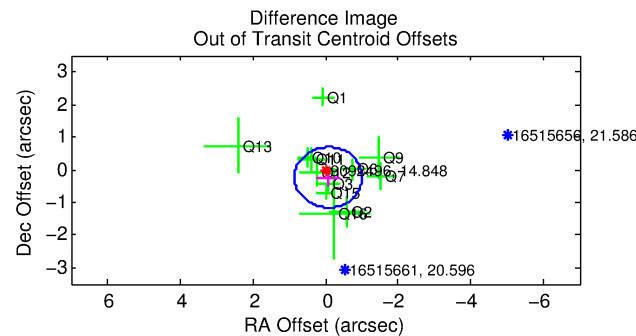
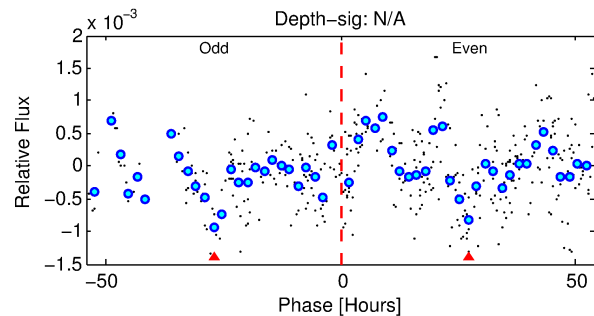
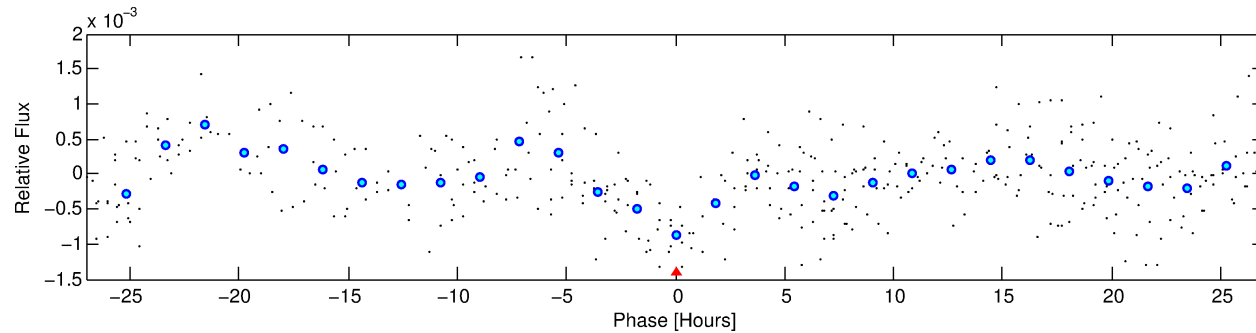
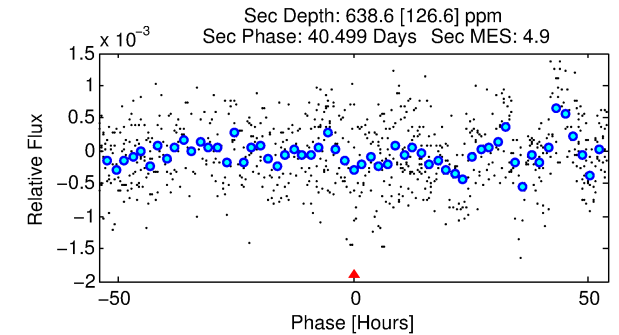
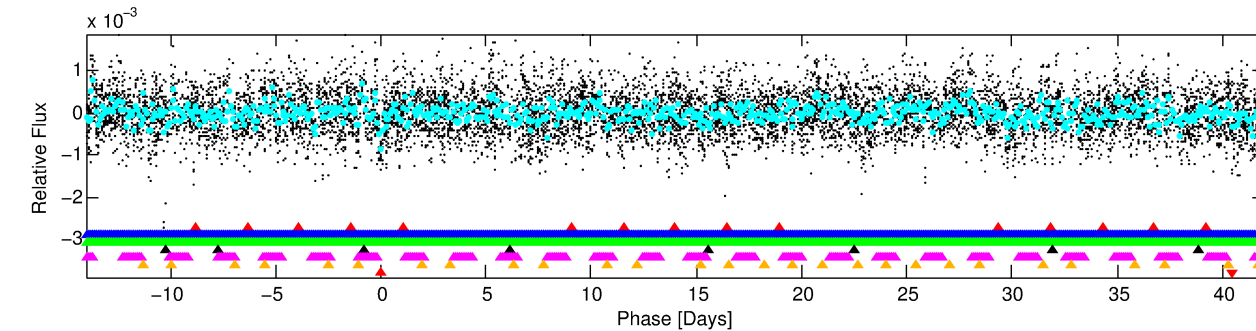
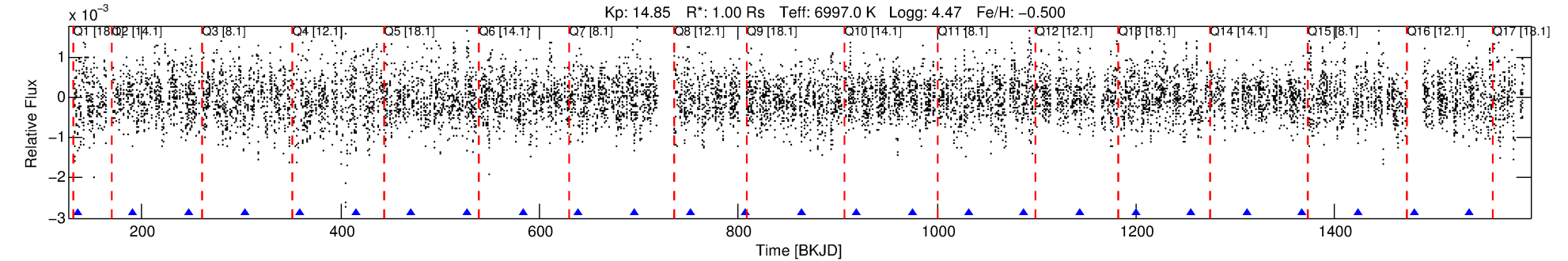
No Significant Match Found

# DV One-Page Summary

KIC: 9092496 Candidate: 7 of 7 Period: 56.015 d

KOI: K04193 Corr: No Ephemeris Match

Kp: 14.85 R\*: 1.00 Rs Teff: 6997.0 K Logg: 4.47 Fe/H: -0.500



TPS TCE Results:

Period = 56.01512 d

Epoch = 135.1856 BKJD

DV fit results are unavailable

DV Diagnostic Results:

ShortPeriod-sig: 100.0% [13.03σ]

LongPeriod-sig: 100.0% [102.71σ]

ModelChiSquare2-sig: N/A

ModelChiSquareGof-sig: N/A

Bootstrap-pfa: N/A

RollingBand-fgt: 1.00 [11/11]

GhostDiagnostic-chr: -3.157

Centroid-sig: 1.0%

Centroid-so: 0.612 arcsec [2.05σ]

OotOffset-rm: 0.245 arcsec [0.79σ]

KicOffset-rm: 0.274 arcsec [0.99σ]

OotOffset-st: 3/4/2/3 [12]

KicOffset-st: 3/4/2/3 [12]

DiffImageQuality-fgm: 0.42 [5/12]

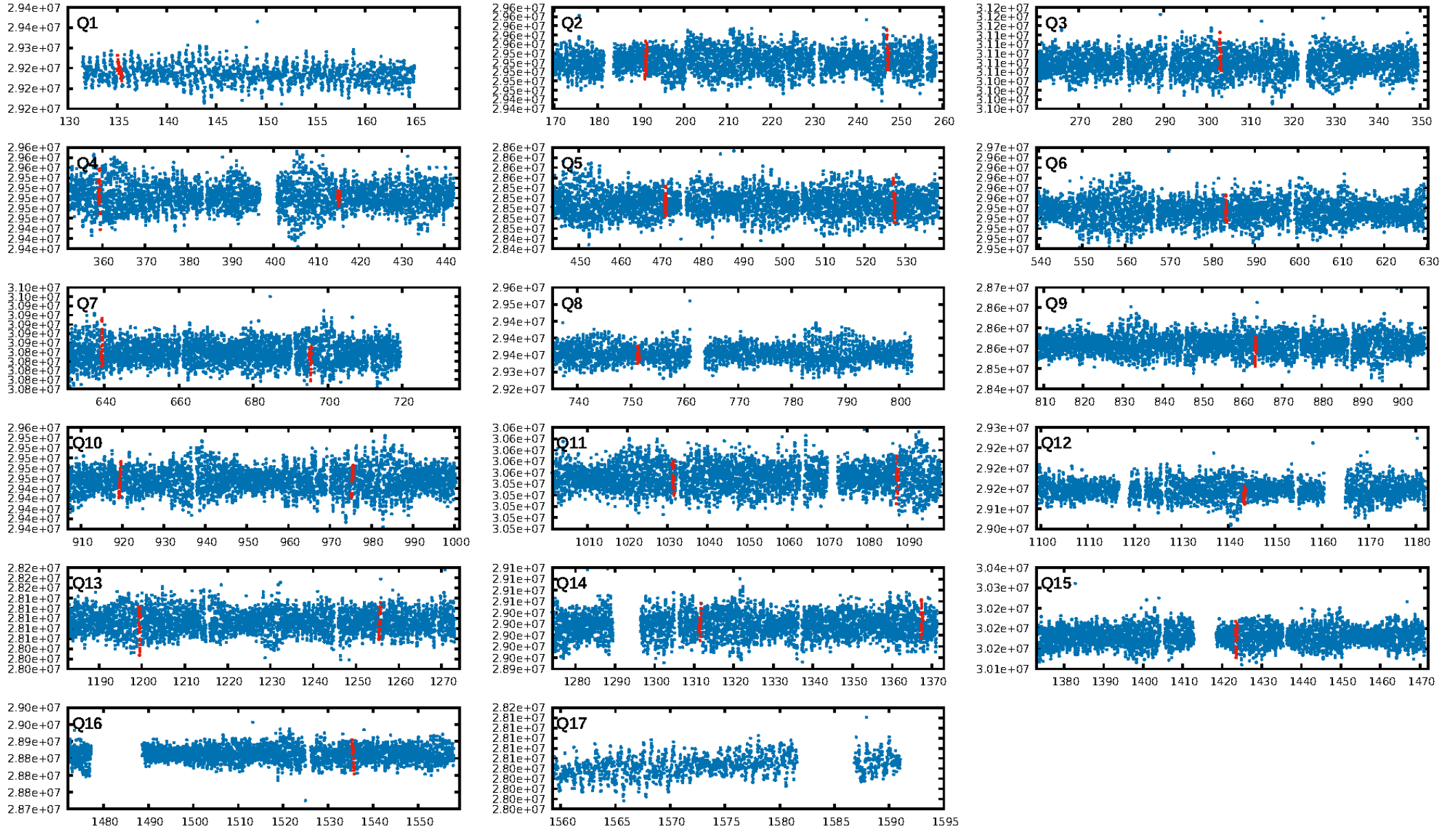
DiffImageOverlap-fno: 0.00 [0/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 23:44:54 Z

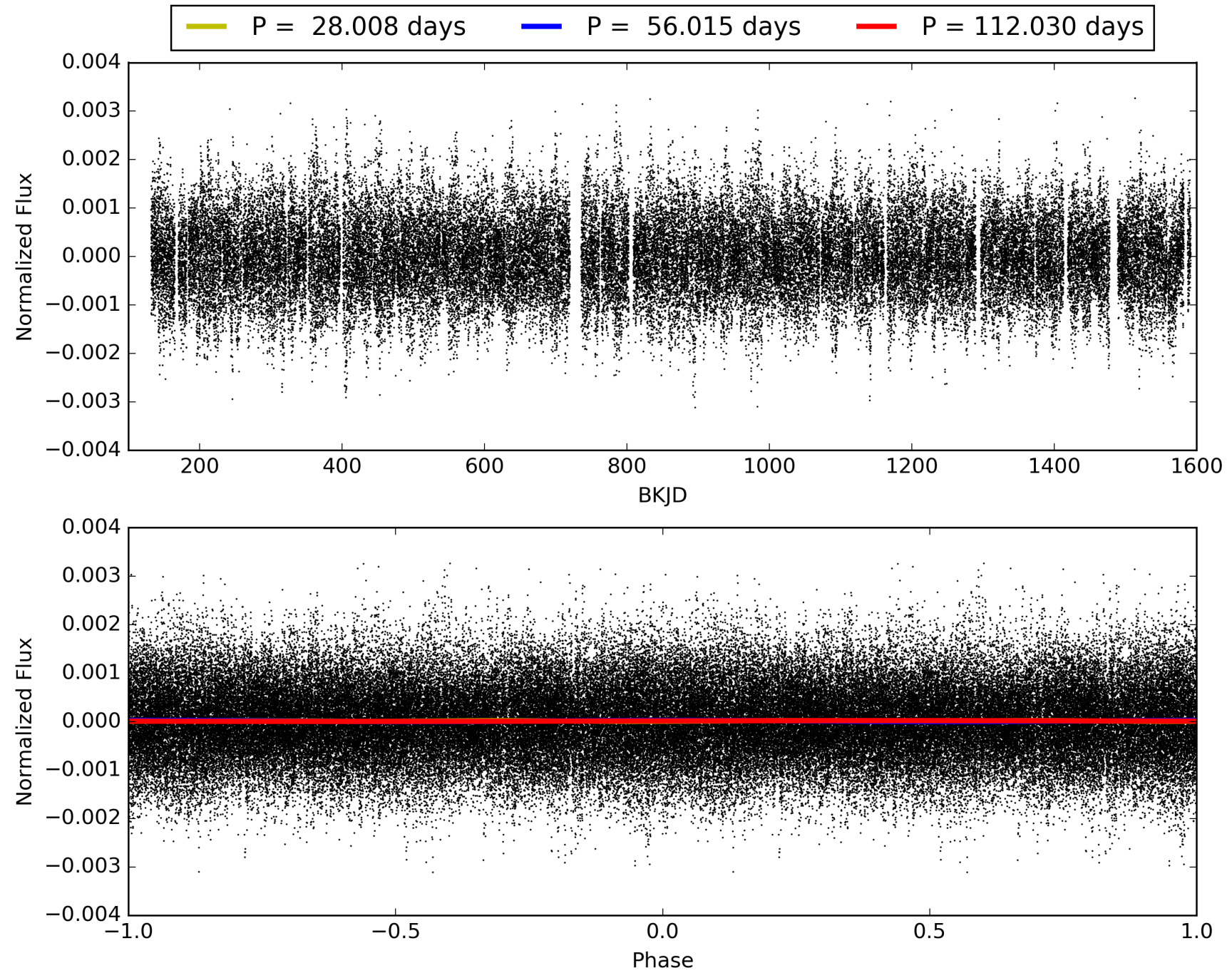
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 009092496-07, PDC Light Curves

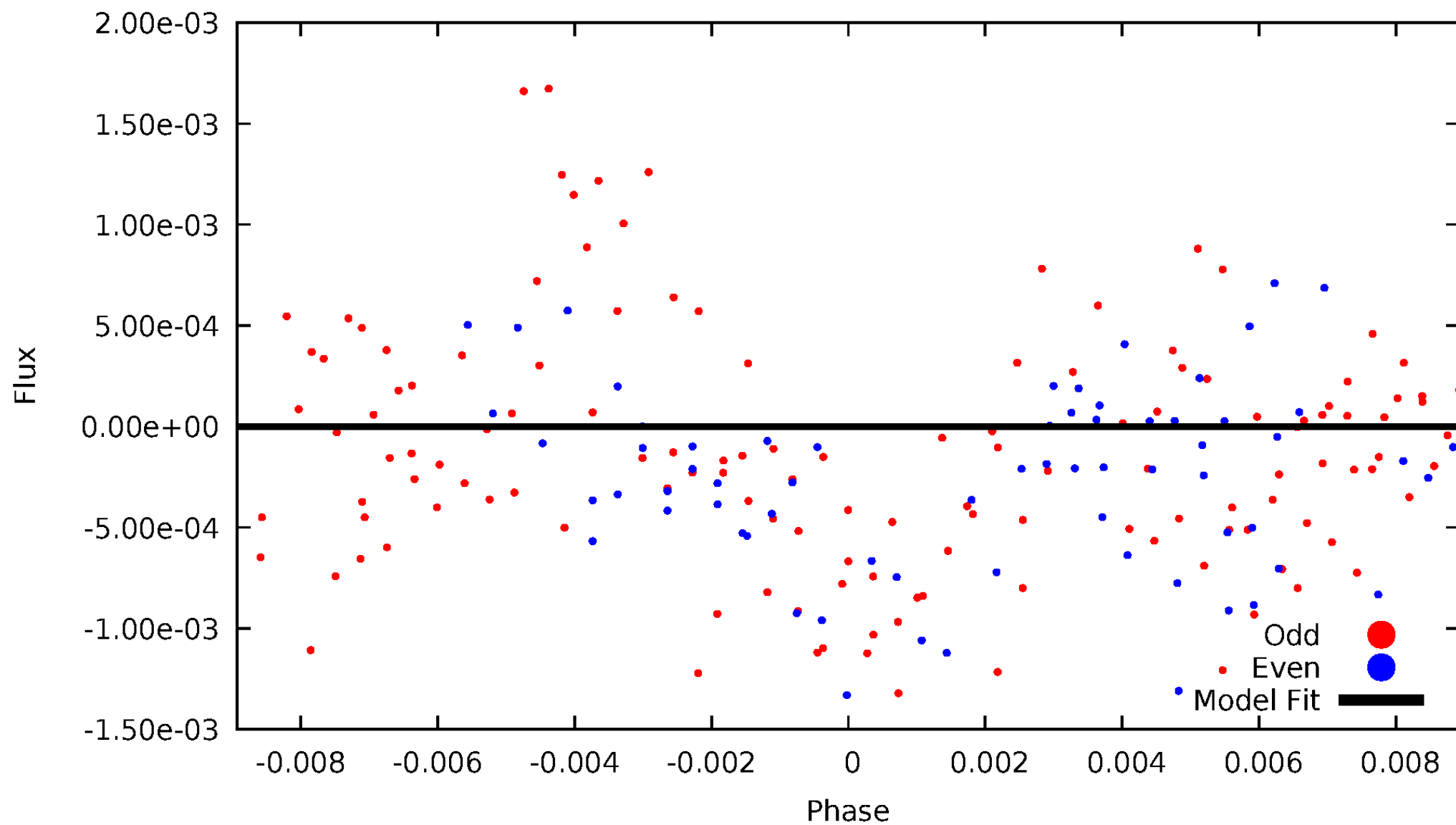


TCE 009092496-07



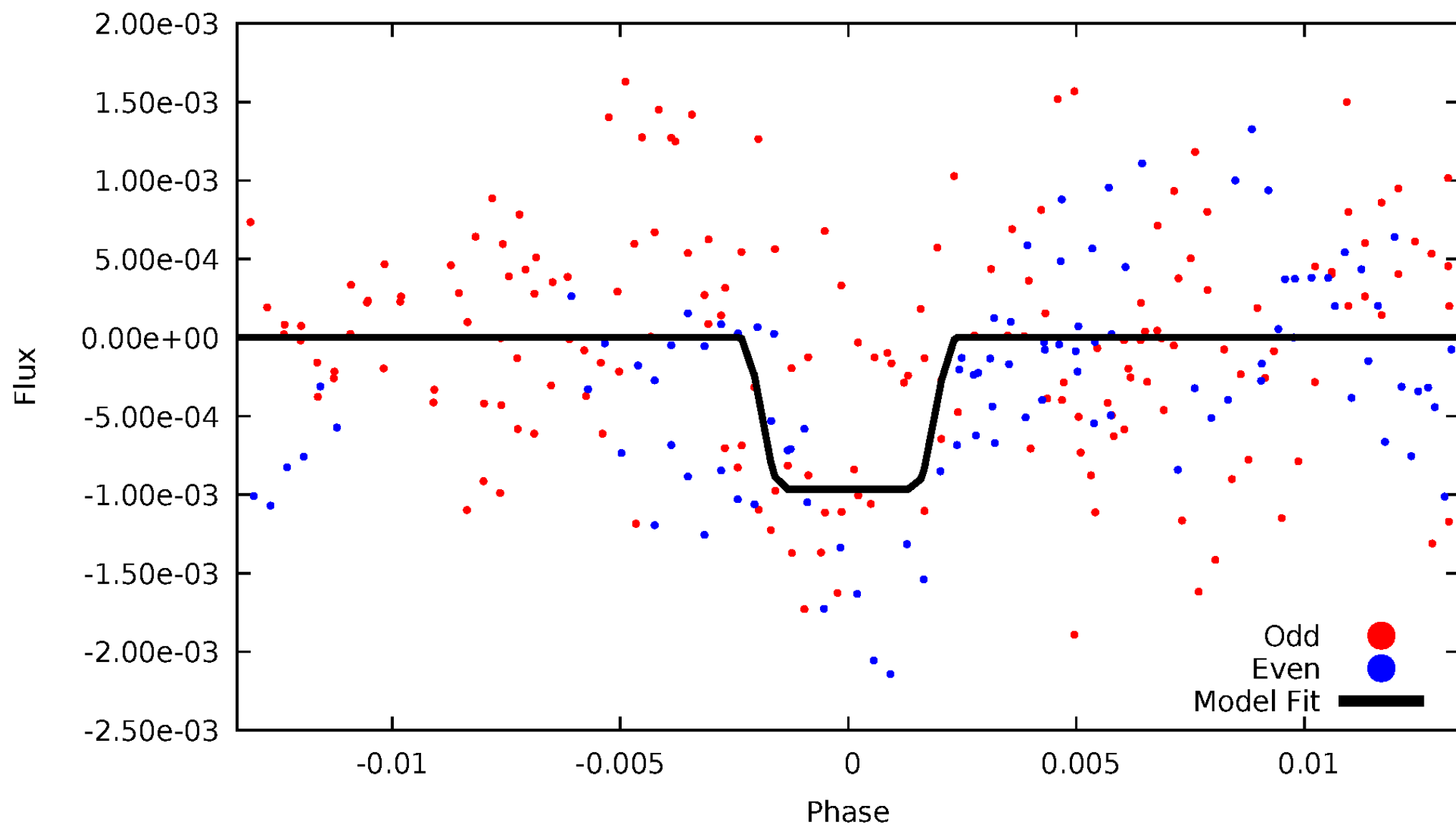
# DV Odd/Even

TCE 009092496-07



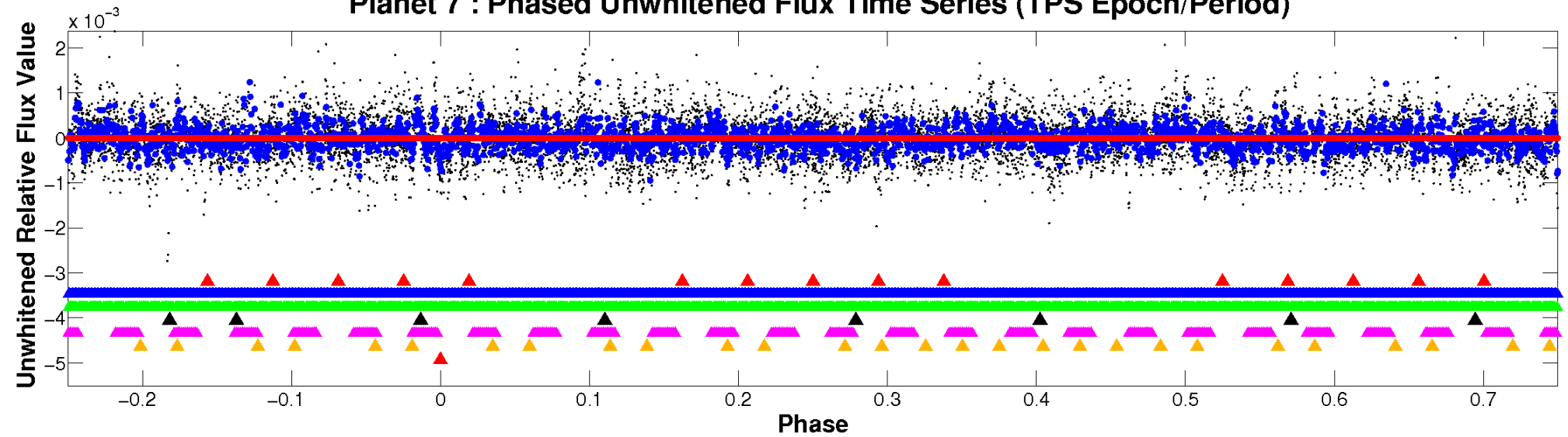
# ALT Odd/Even

TCE 009092496-07

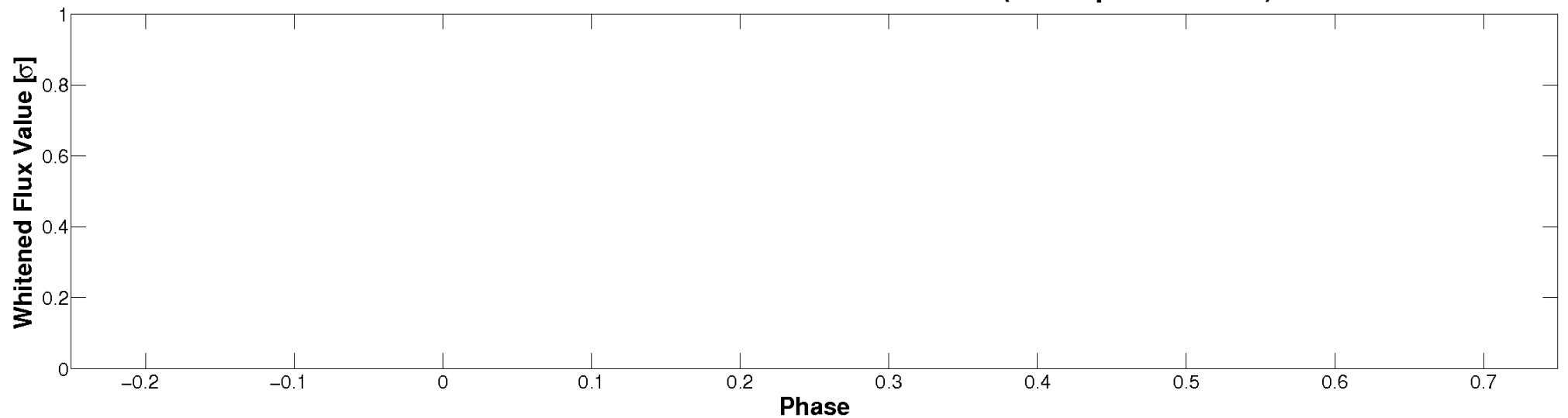


# Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

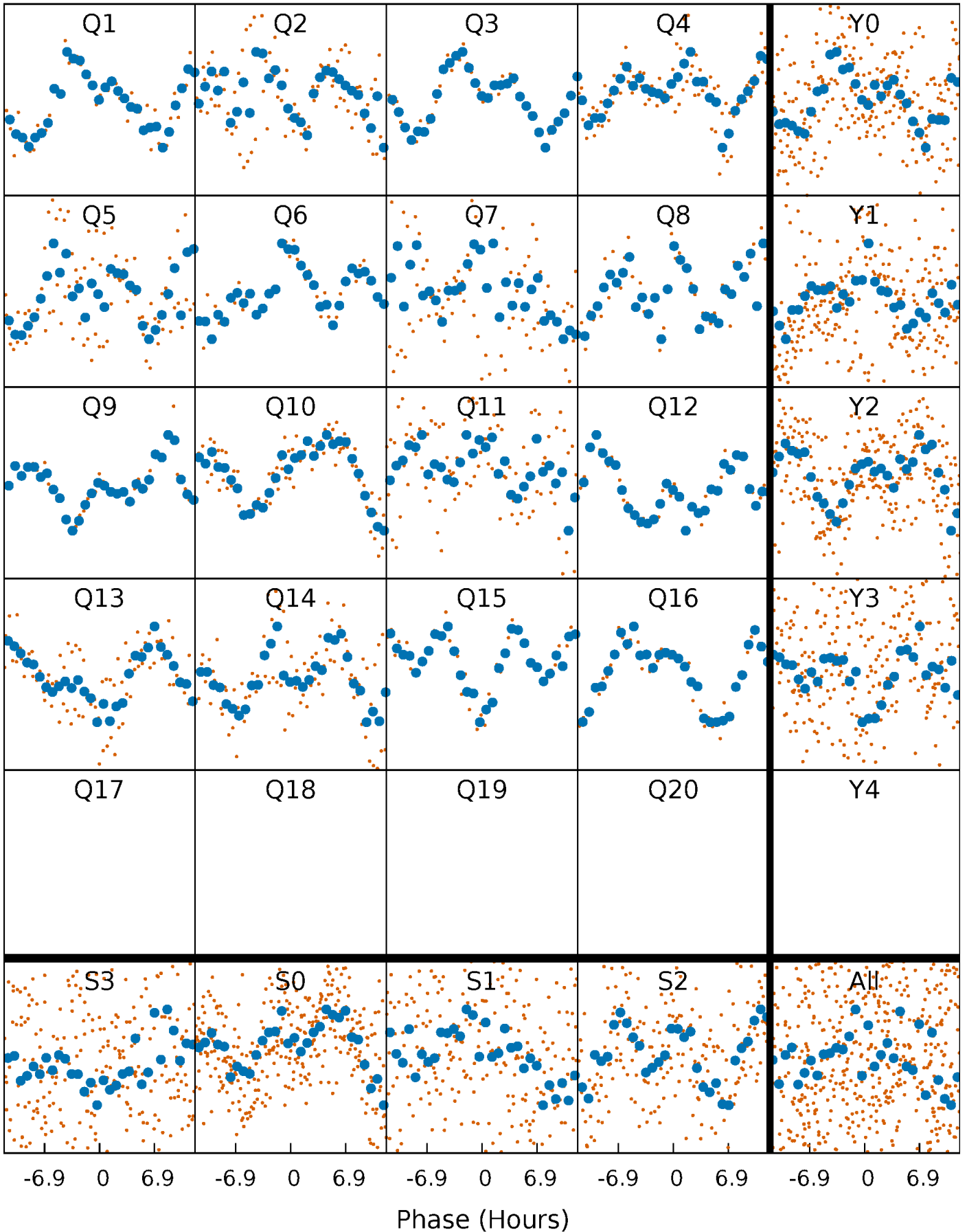


Planet 7 : Phased Whitened Flux Time Series (TPS Epoch/Period)



# PDC Quarter-Phased Transit Curves

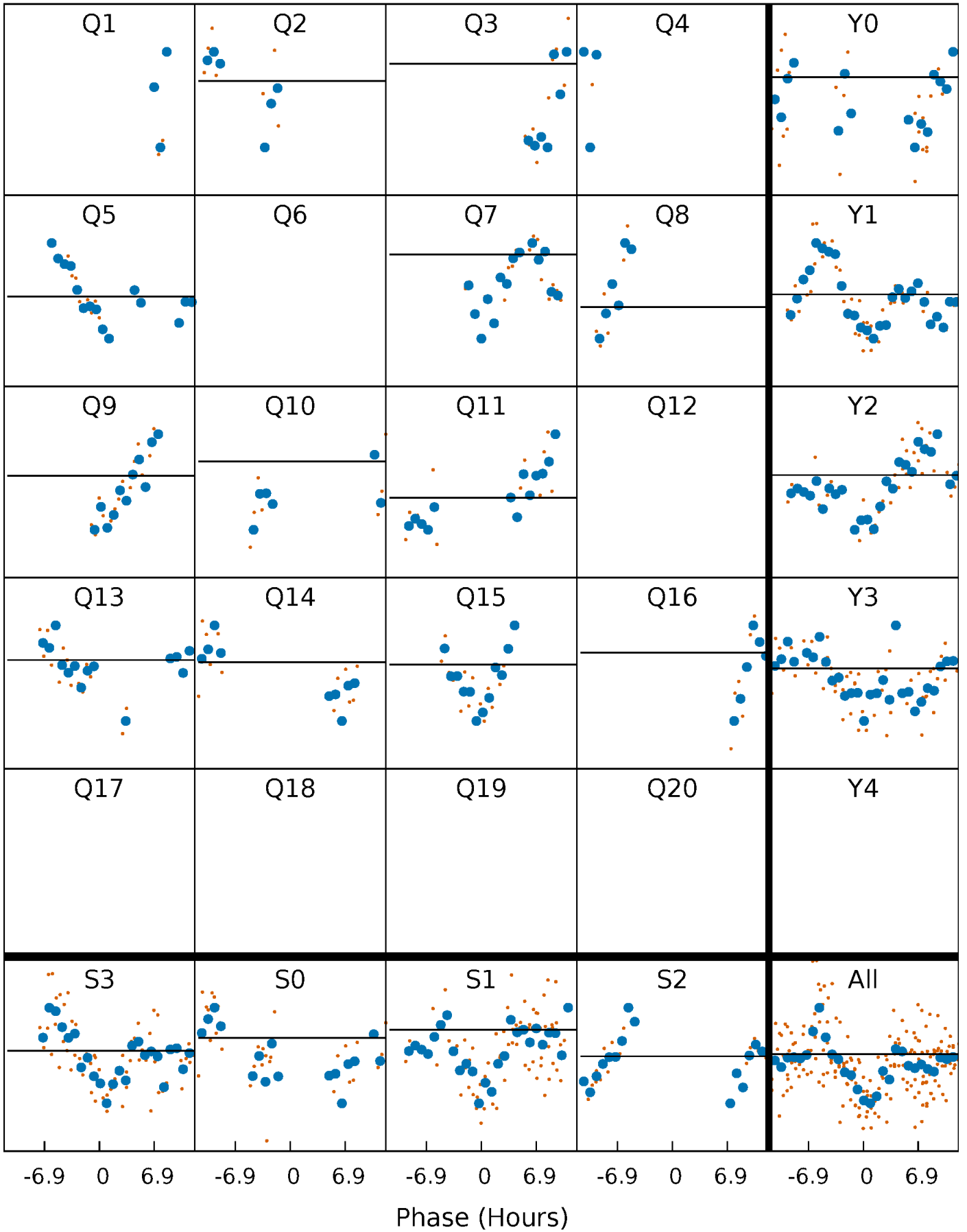
TCE 009092496-07     $P = 56.015115$  Days     $T_0 = 135.185629$  (BKJD)





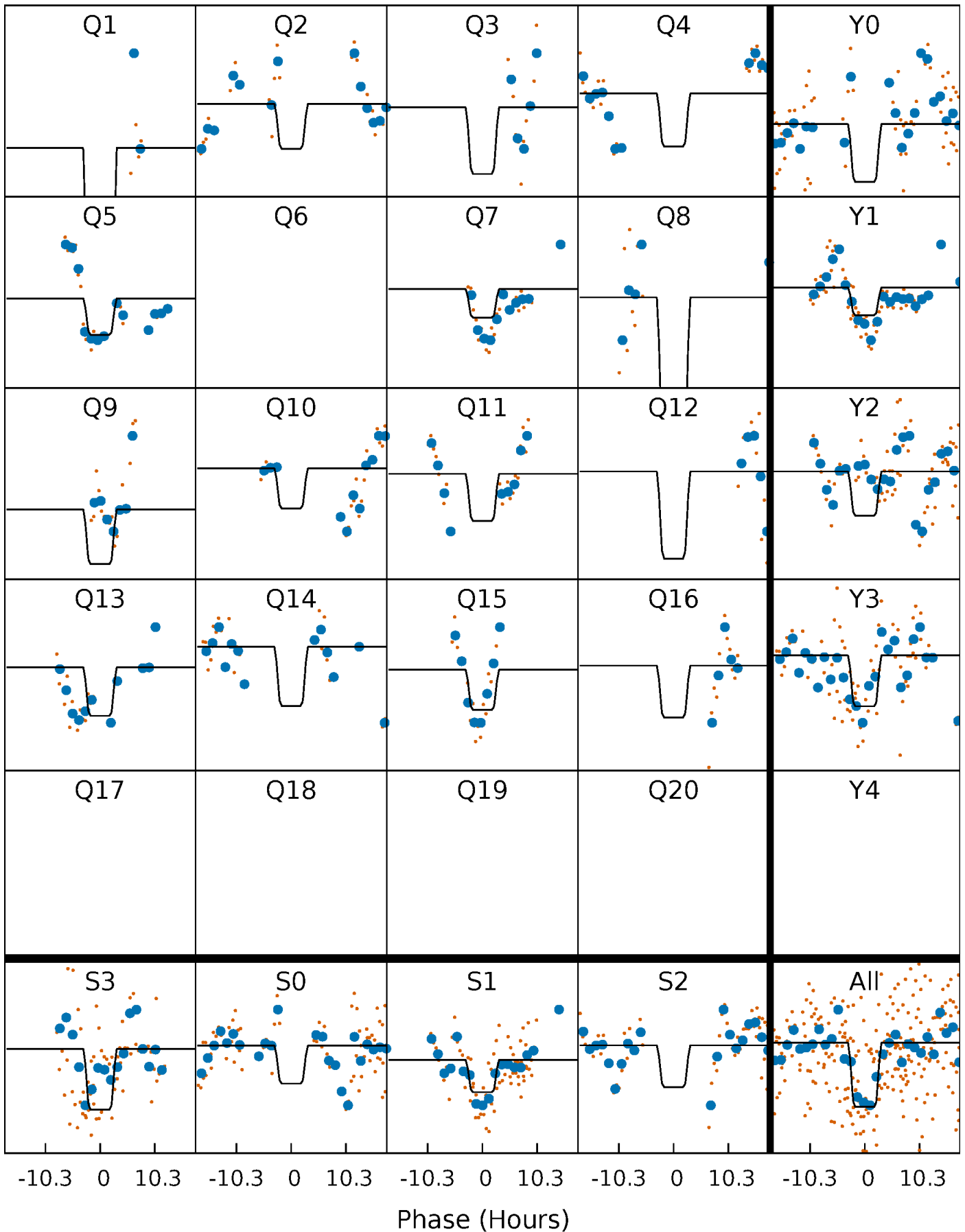
# DV Quarter-Phased Transit Curves

TCE 009092496-07     $P = 56.015115$  Days     $T_0 = 135.185629$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

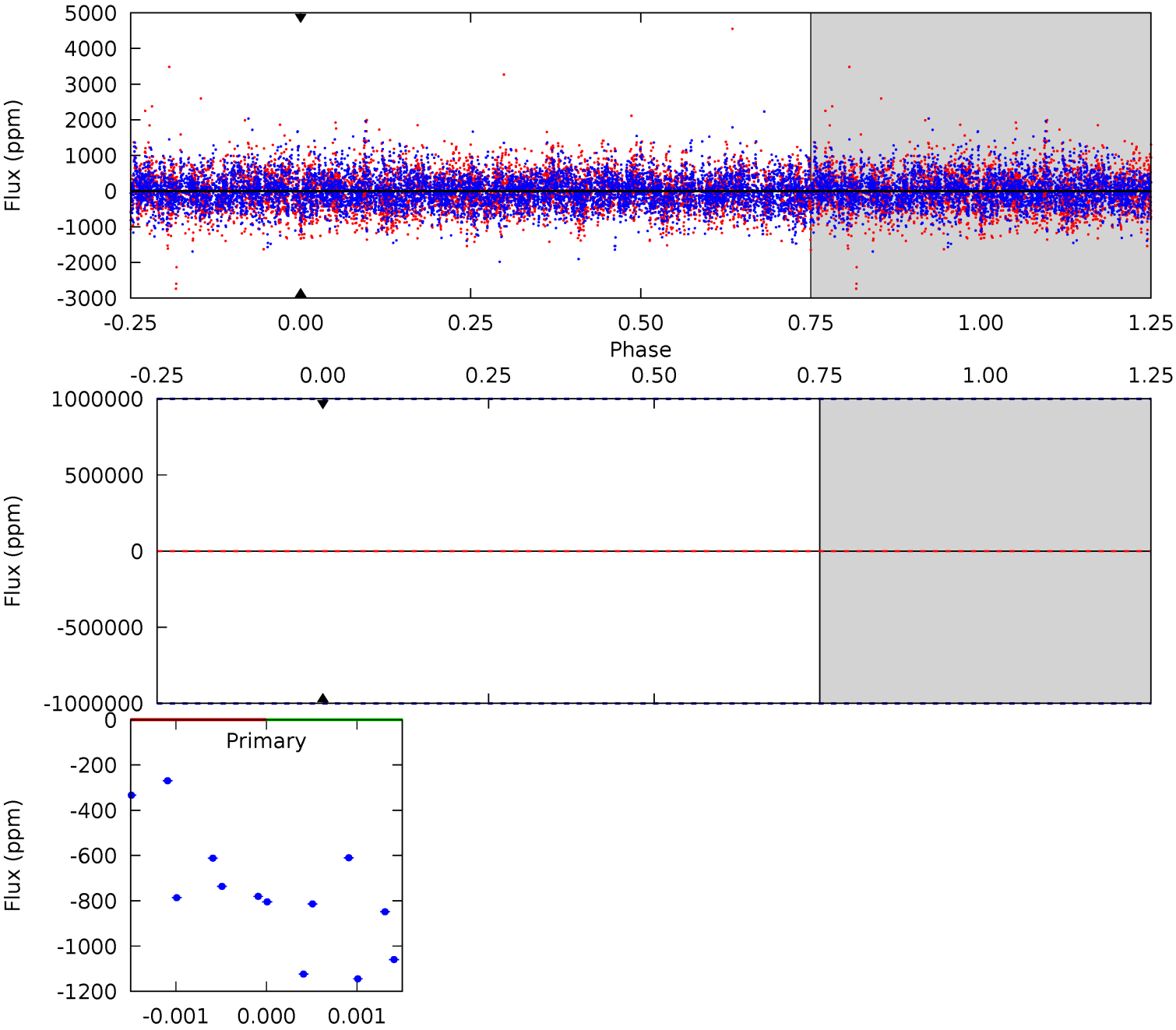
TCE 009092496-07     $P = 56.015115$  Days     $T_0 = 135.214335$  (BKJD)



# DV Model-Shift Uniqueness Test

009092496-07, P = 56.015115 Days, E = 79.170514 Days

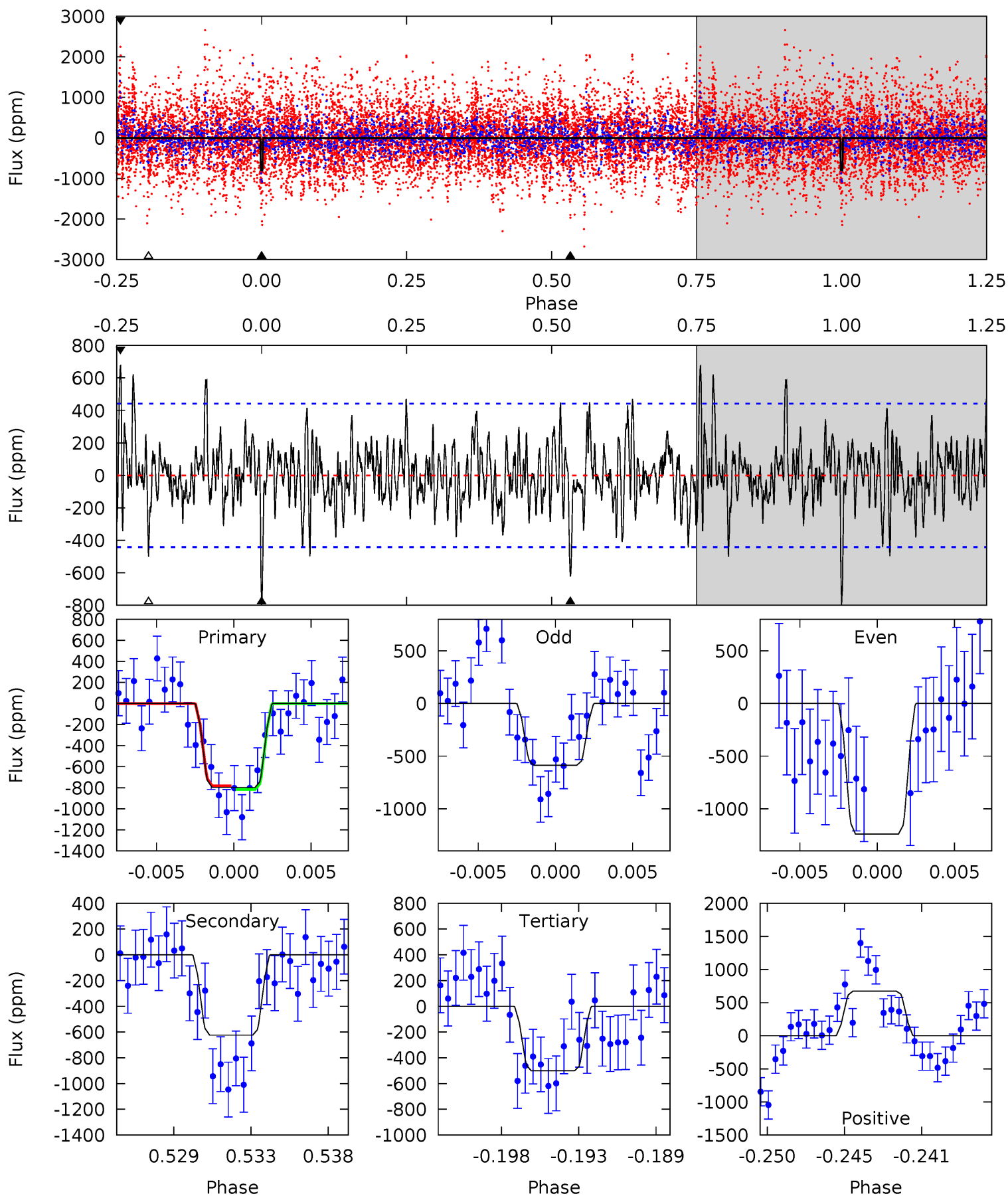
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

009092496-07, P = 56.015115 Days, E = 79.199220 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
9.31	7.29	5.86	7.89	5.17	2.83	1.97	3.45	1.42	1.43	-0.60	3.66	0.72	0.46	0.20



### Stellar Parameters For KIC 009092496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6997^{+167}_{-263}$	$4.475^{+0.026}_{-0.234}$	$-0.500^{+0.300}_{-0.300}$	$1.000^{+0.371}_{-0.066}$	$1.155^{+0.159}_{-0.119}$	$1.628^{+0.174}_{-0.976}$
	+2%/-4%	+1%/-5%	+60%/-60%	+37%/-7%	+14%/-10%	+11%/-60%
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 009092496-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$9.36^{+9.83}_{-6.32}$	$823^{+65}_{-44}$	$-5274^{+36297}_{-22590}$	$-987.561^{+100300.098}_{-76989.580}$
Alt.	$-623 \pm 86$	$9.86^{+10.50}_{-6.74}$	$819^{+65}_{-37}$	$4131^{+2682}_{-879}$	$312^{+2846}_{-237}$

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

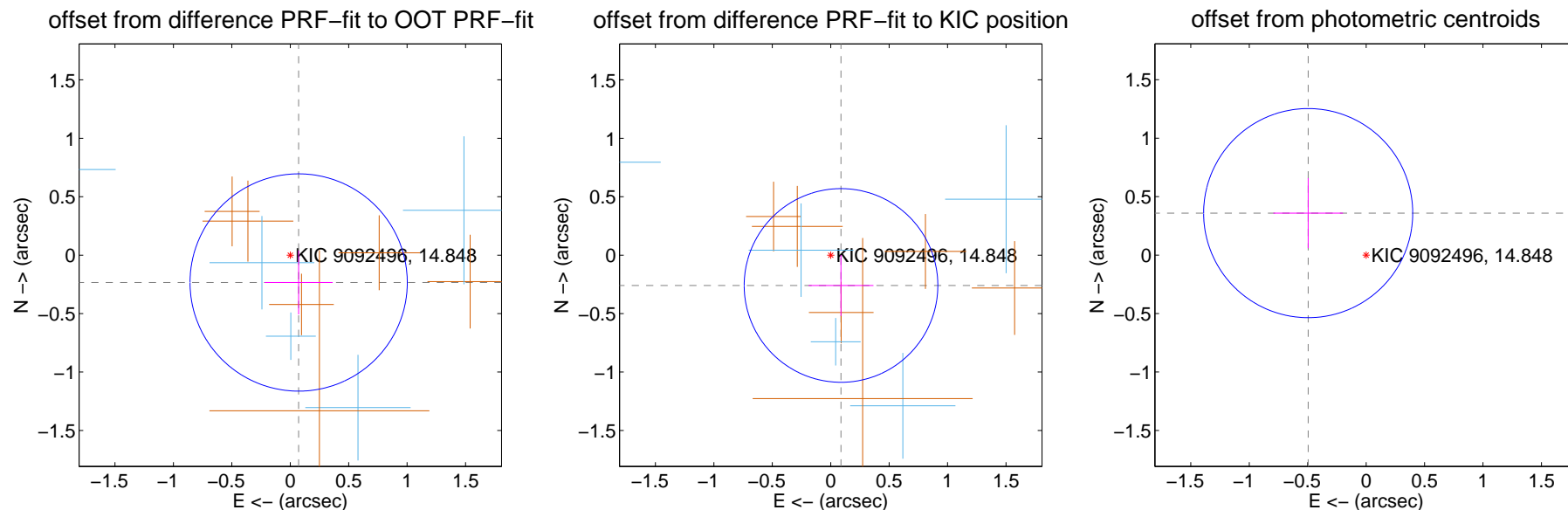
## DV Centroid Data

Supplemental centroid analysis for 009092496-07. Kepler magnitude: 14.85. Transit SNR -1.00

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.245 \pm 0.310$	0.79	$-0.072 \pm 0.291$	$-0.234 \pm 0.273$
PRF-fit source offset from KIC position	$0.274 \pm 0.276$	0.99	$-0.088 \pm 0.277$	$-0.259 \pm 0.260$
photometric centroid source offset	$0.61 \pm 0.30$	2.05	$0.50 \pm 0.30$	$0.36 \pm 0.30$



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.

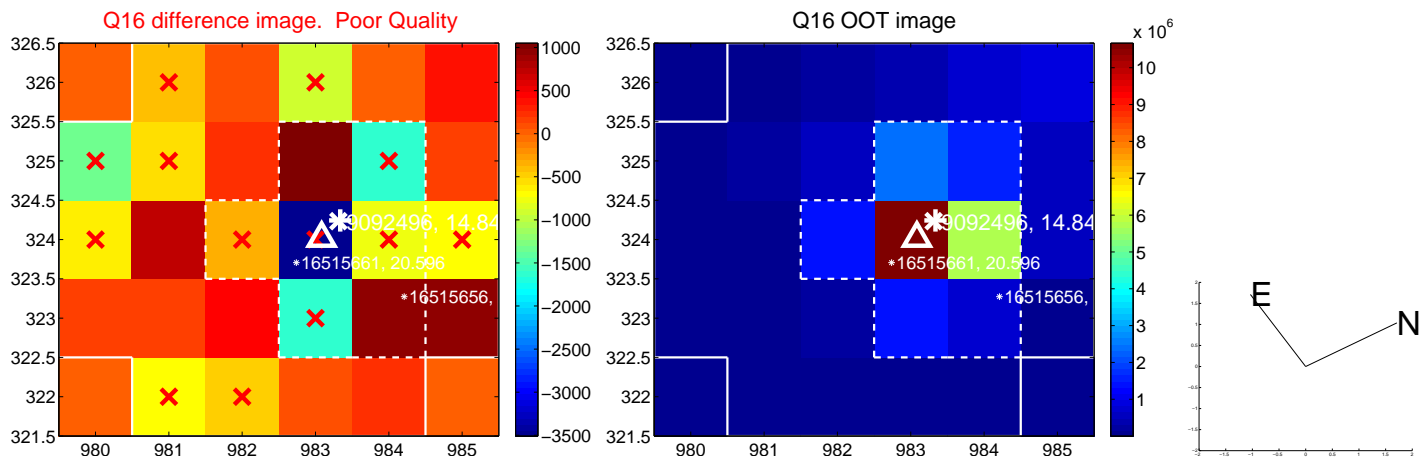
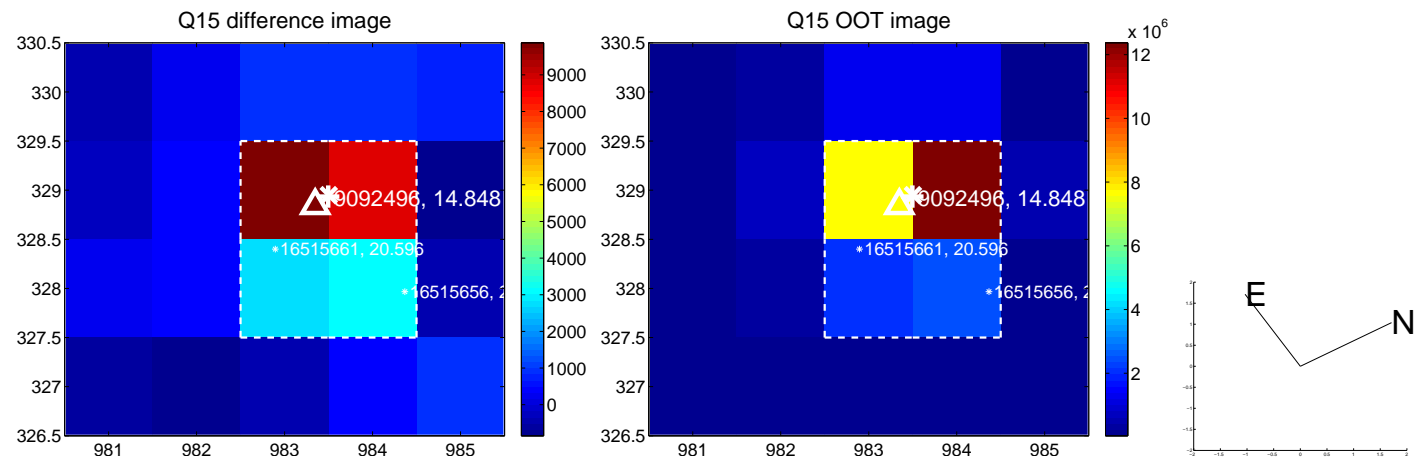
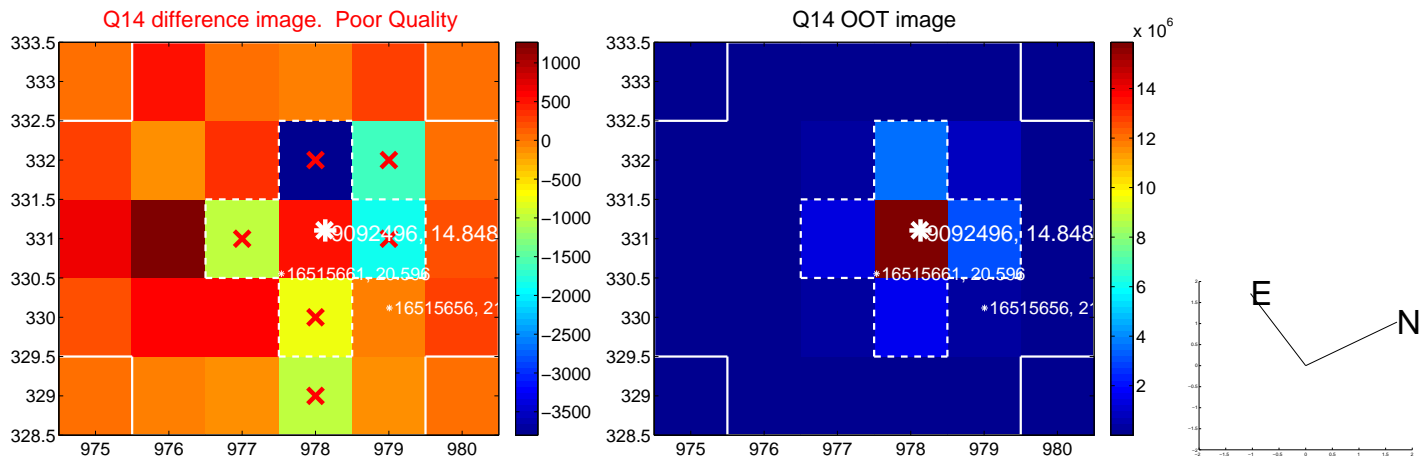
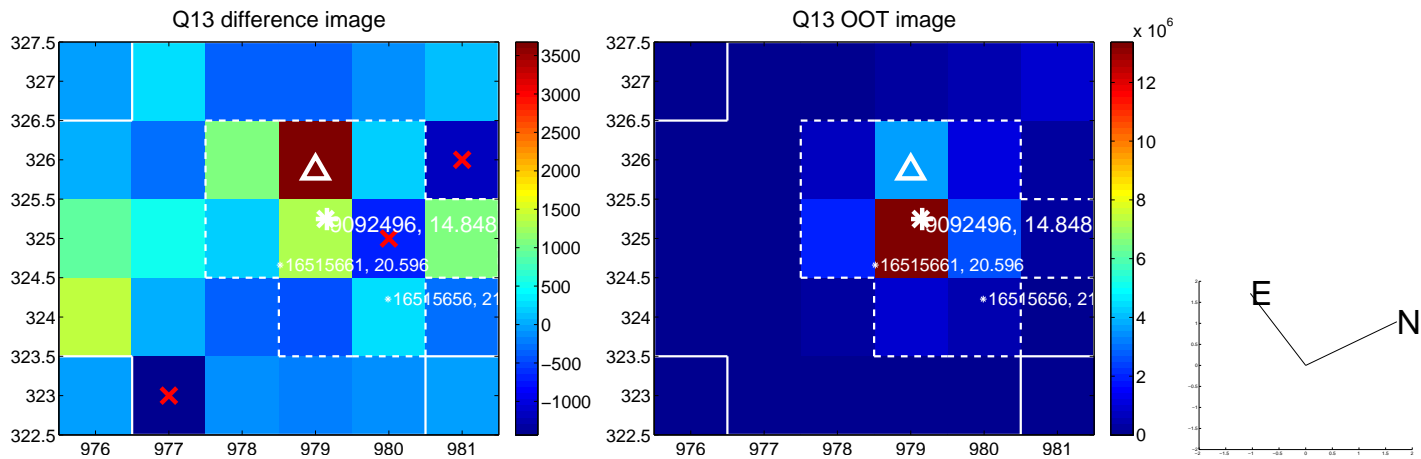




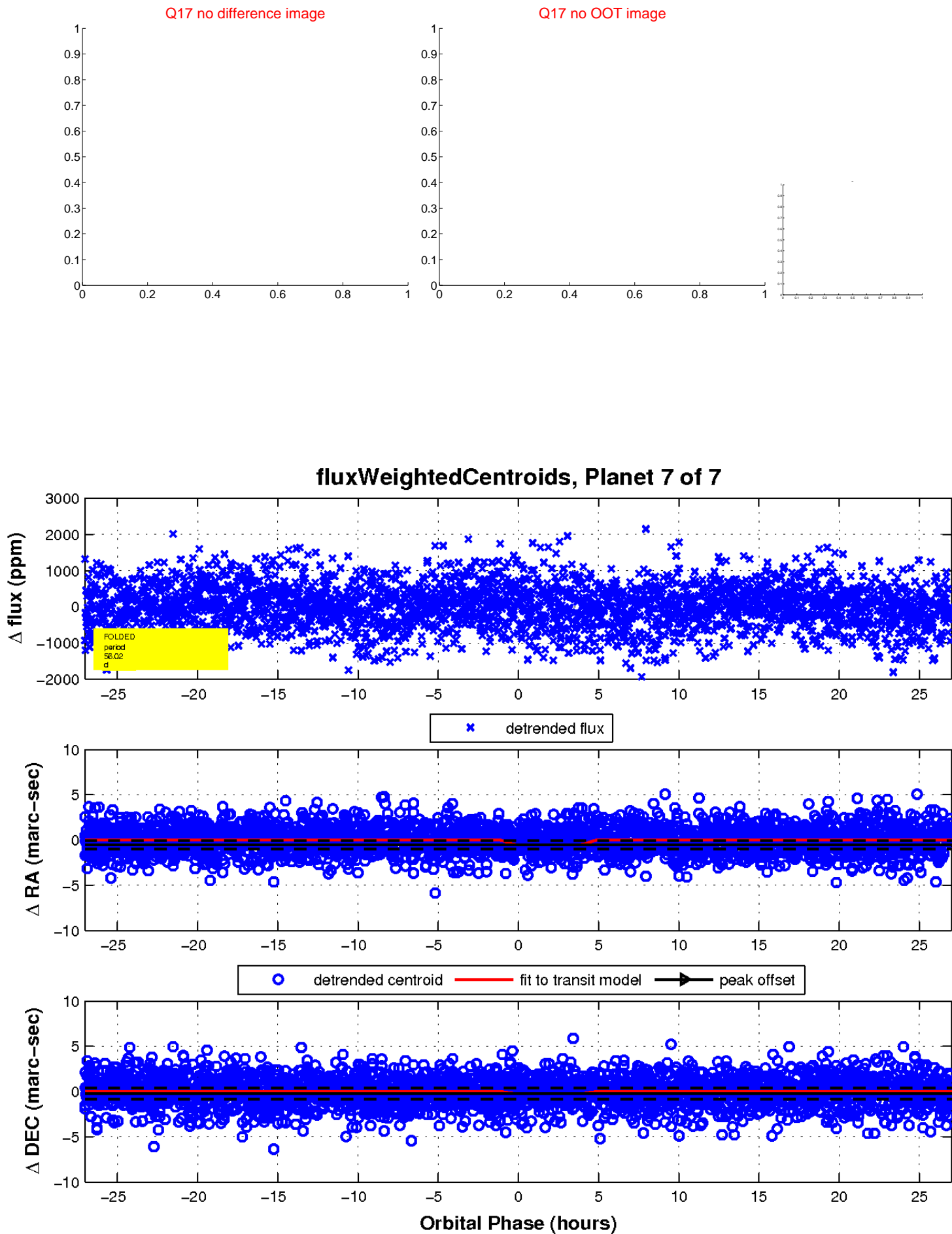




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

