

# KIC 005304819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005304819-01	OBS	No	1.035400	132.027433	203.5	4.849	11.9	9.9	1.64	6648	3.15	10627.47
005304819-02	OBS	No	0.521954	131.514179	206.5	1.243	11.5	8.9	1.64	6648	2.45	26488.90
005304819-03	OBS	No	94.624386	150.400782	280.1	2.000	9.4	-1.0	1.64	6648	2.77	25.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005304819-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005304819-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005304819-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

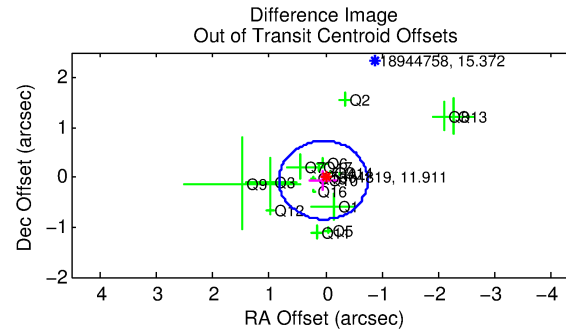
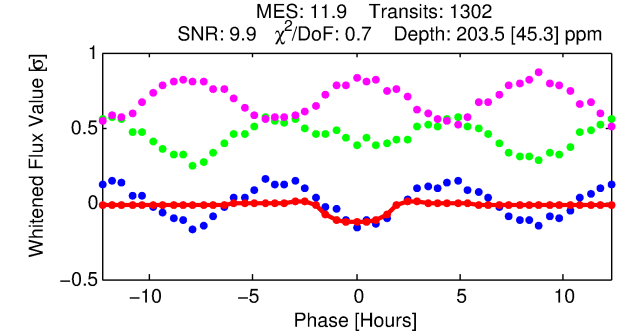
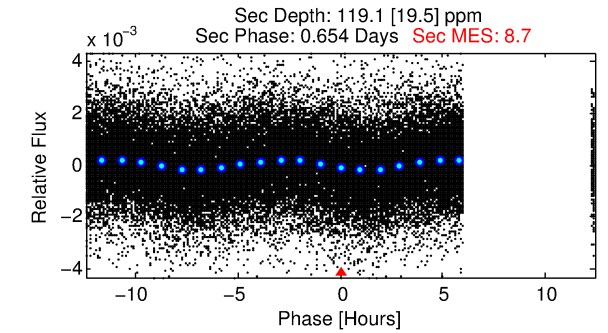
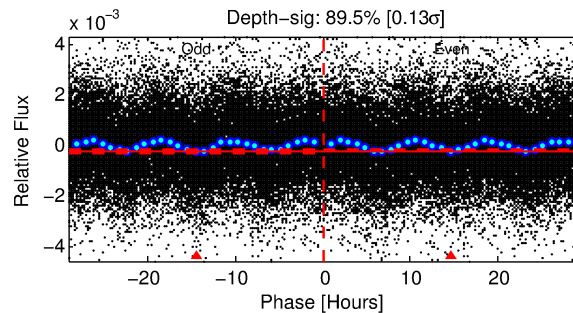
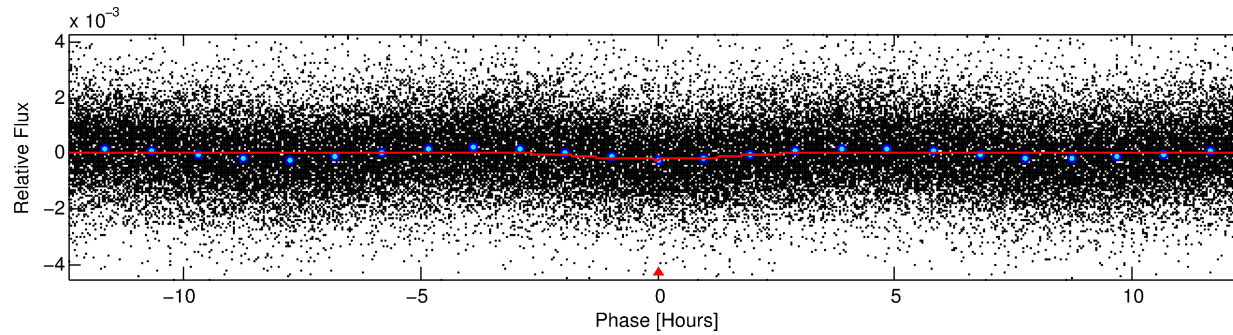
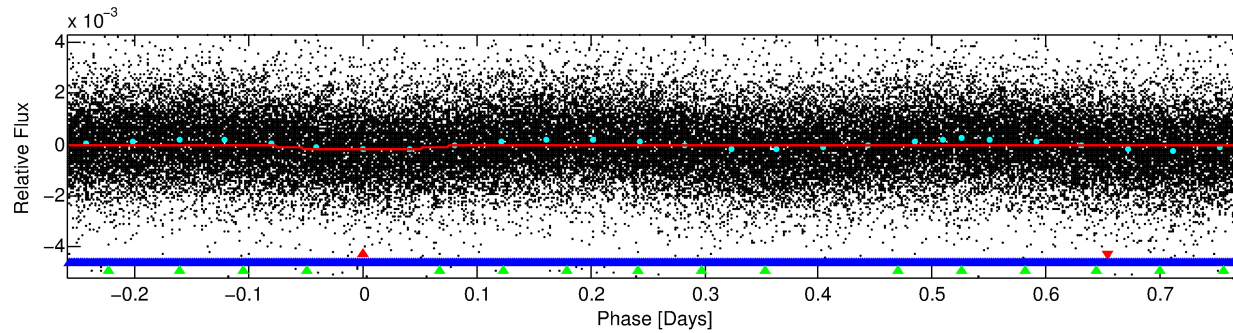
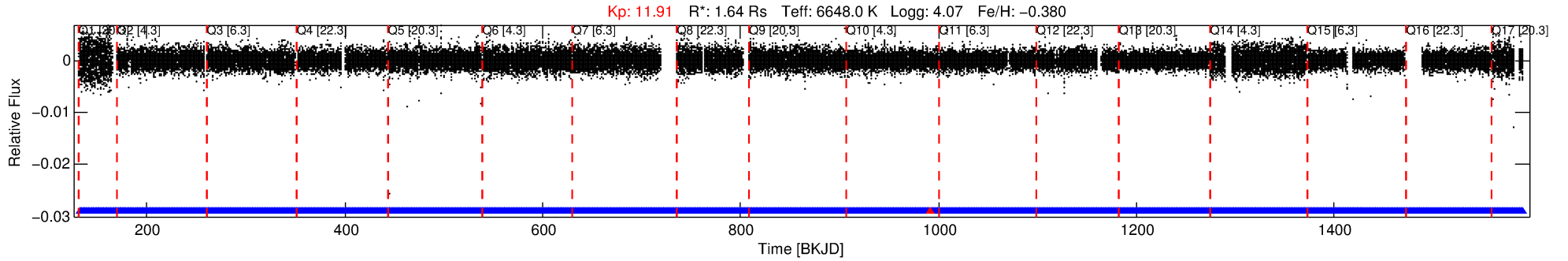
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005304819-01

No Significant Match Found

# DV One-Page Summary

KIC: 5304819 Candidate: 1 of 3 Period: 1.035 d



## DV Fit Results:

Period = 1.03540 [0.00001] d  
Epoch = 132.0274 [0.0055] BKJD  
Rp/R\* = 0.0176 [0.0029]  
a/R\* = 1.08 [0.02]  
b = 0.98 [0.01]  
Seff = 10627.47 [5238.18]  
Teff = 2589 [319] K  
Rp = 3.15 [1.12] Re  
a = 0.0211 [0.0063] AU  
Ag = 2.93 [1.76] [1.10 $\sigma$ ]  
Teffp = 5237 [502] K [4.45 $\sigma$ ]

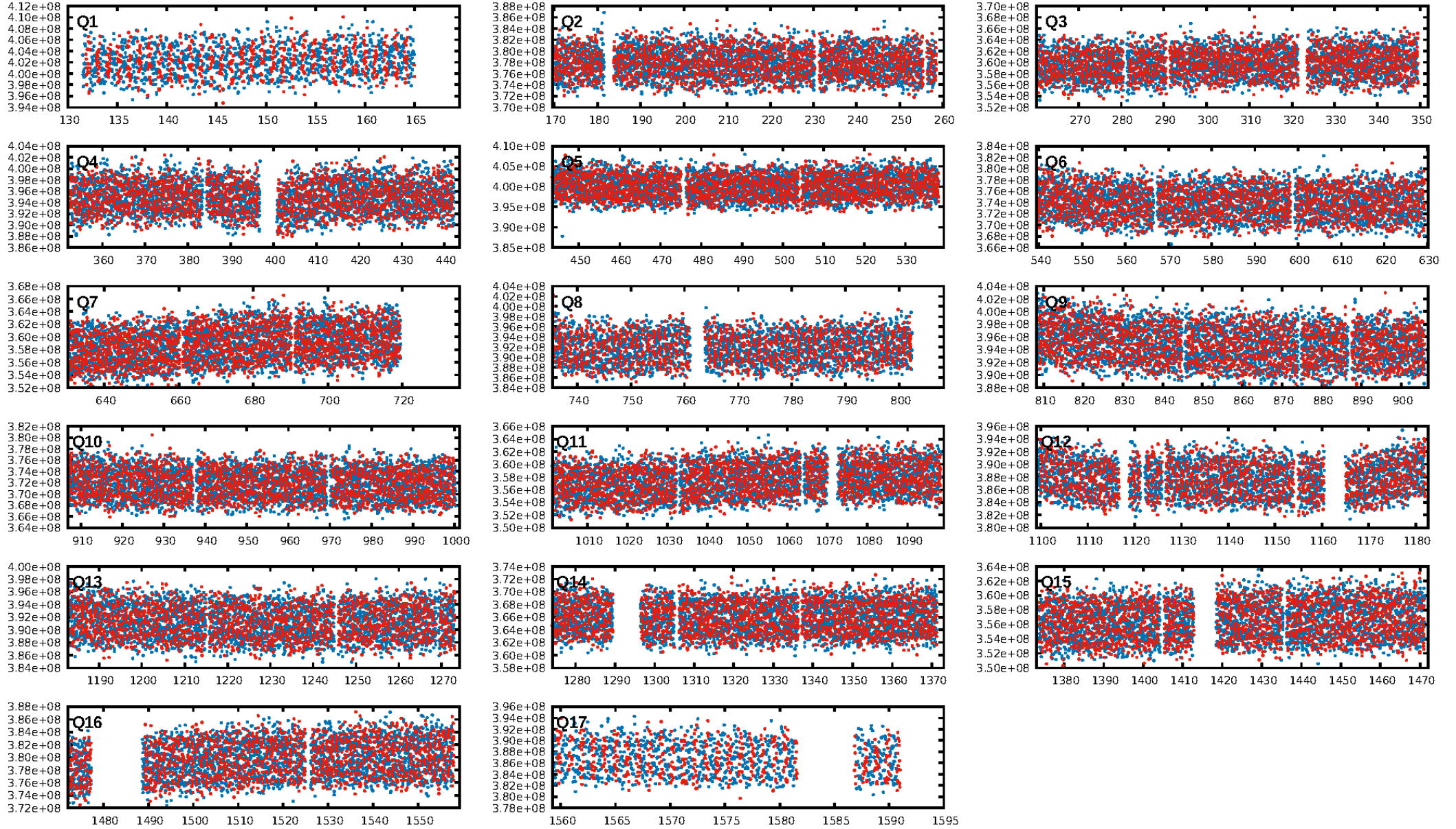
## DV Diagnostic Results:

ShortPeriod-sig: 98.6% [2.46 $\sigma$ ]  
LongPeriod-sig: 100.0% [428.24 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1242/1243]  
GhostDiagnostic-chr: 1.445  
Centroid-sig: 0.1%  
Centroid-so: 0.063 arcsec [0.65 $\sigma$ ]  
OotOffset-rm: 0.073 arcsec [0.28 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.053 arcsec [0.21 $\sigma$ ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.65 [11/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:36:23 Z

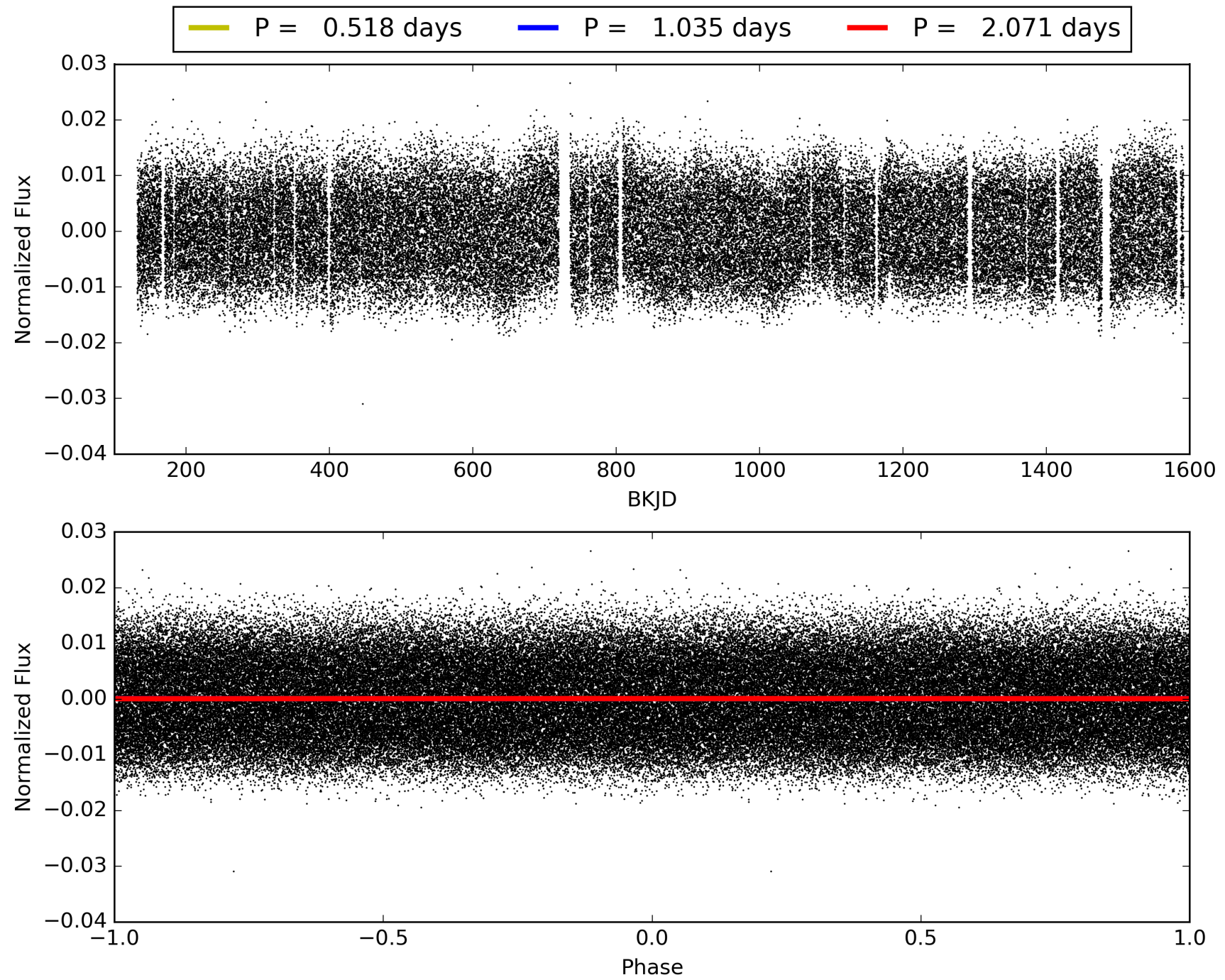
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005304819-01, PDC Light Curves





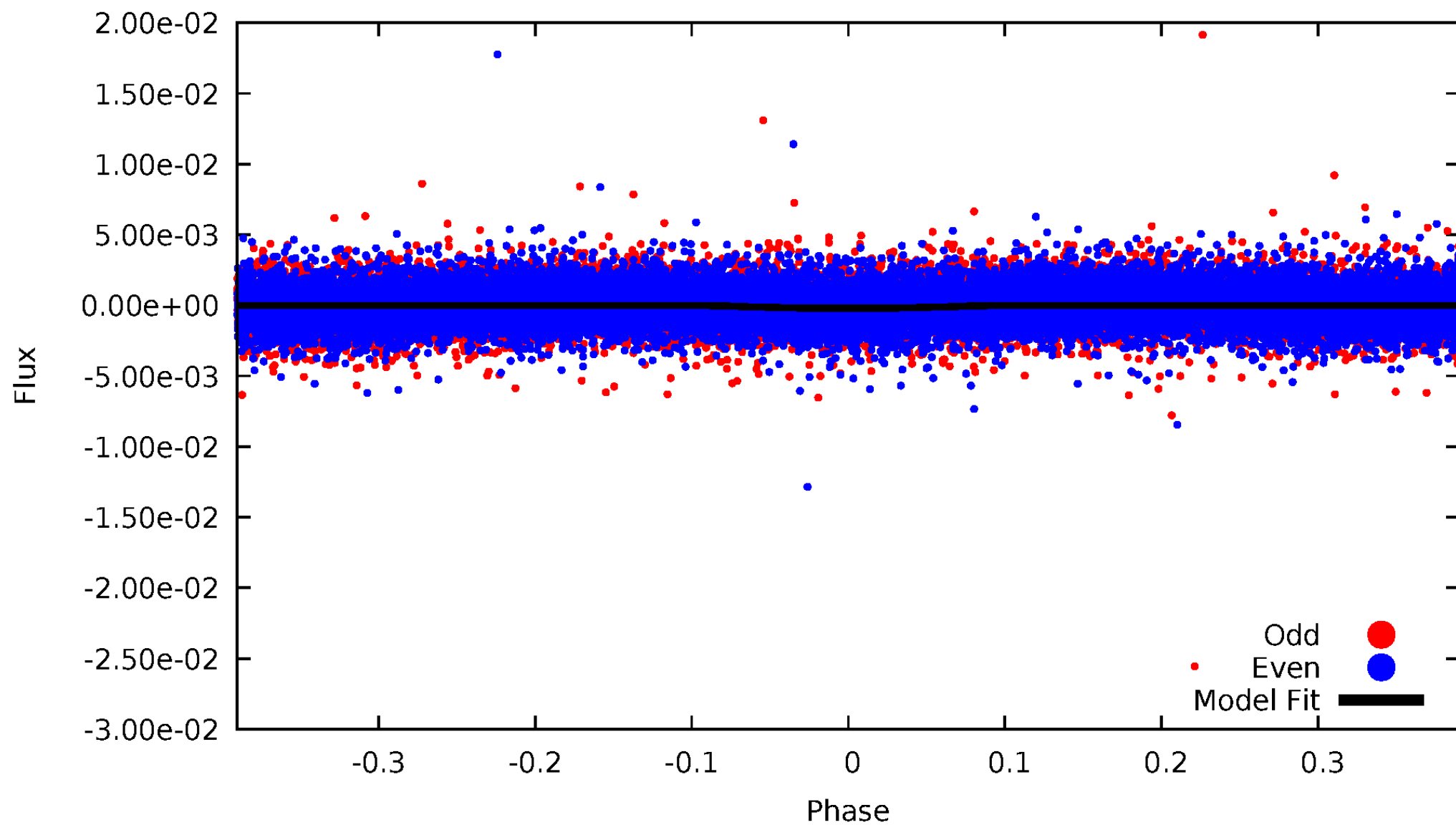
TCE 005304819-01





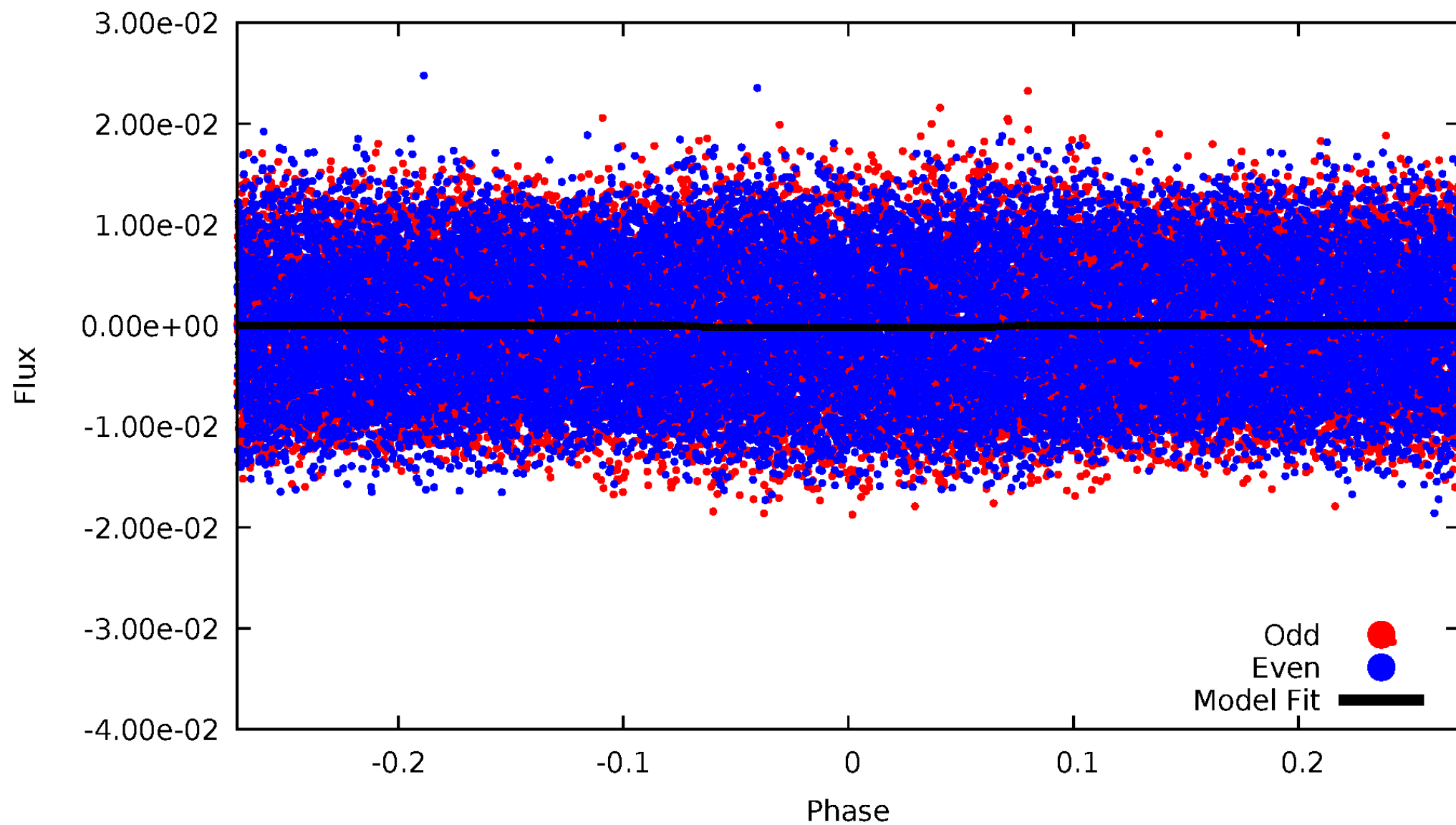
# DV Odd/Even

TCE 005304819-01



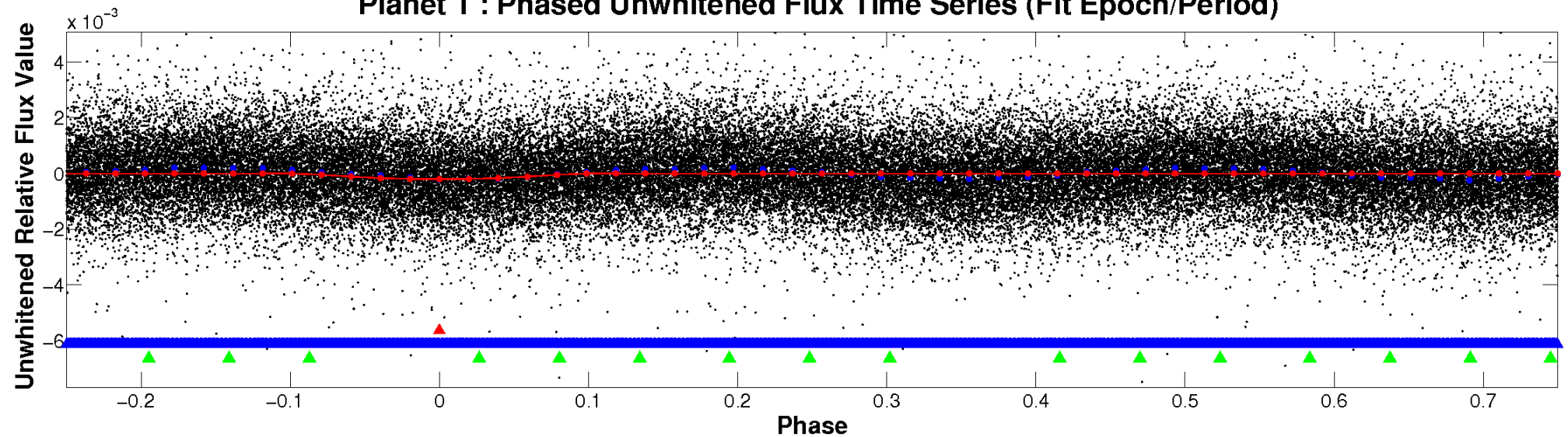
# ALT Odd/Even

TCE 005304819-01

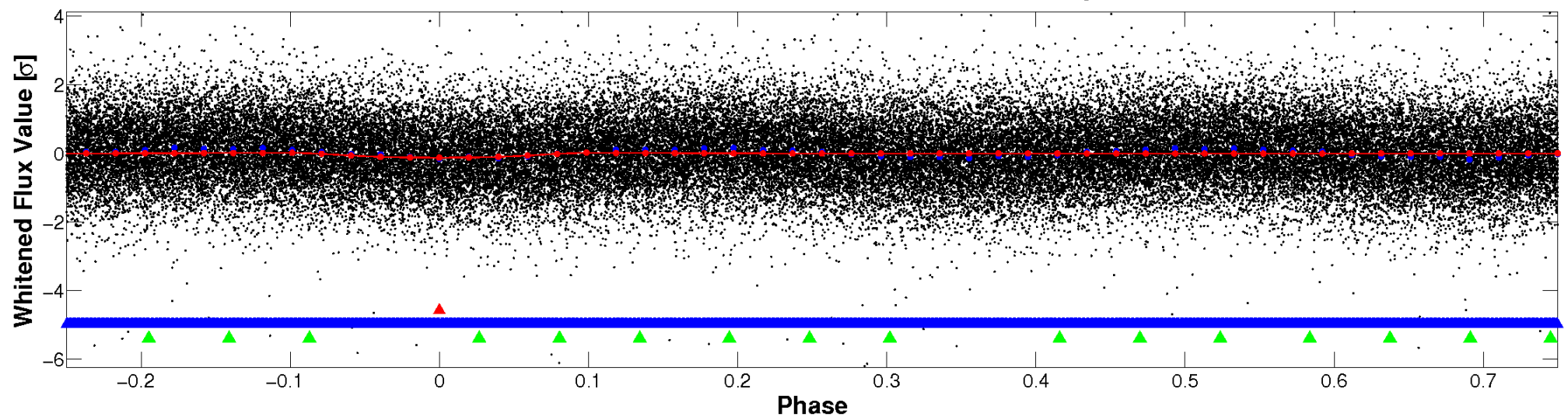


# Non-Whitened Vs. Whitened Light Curve

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



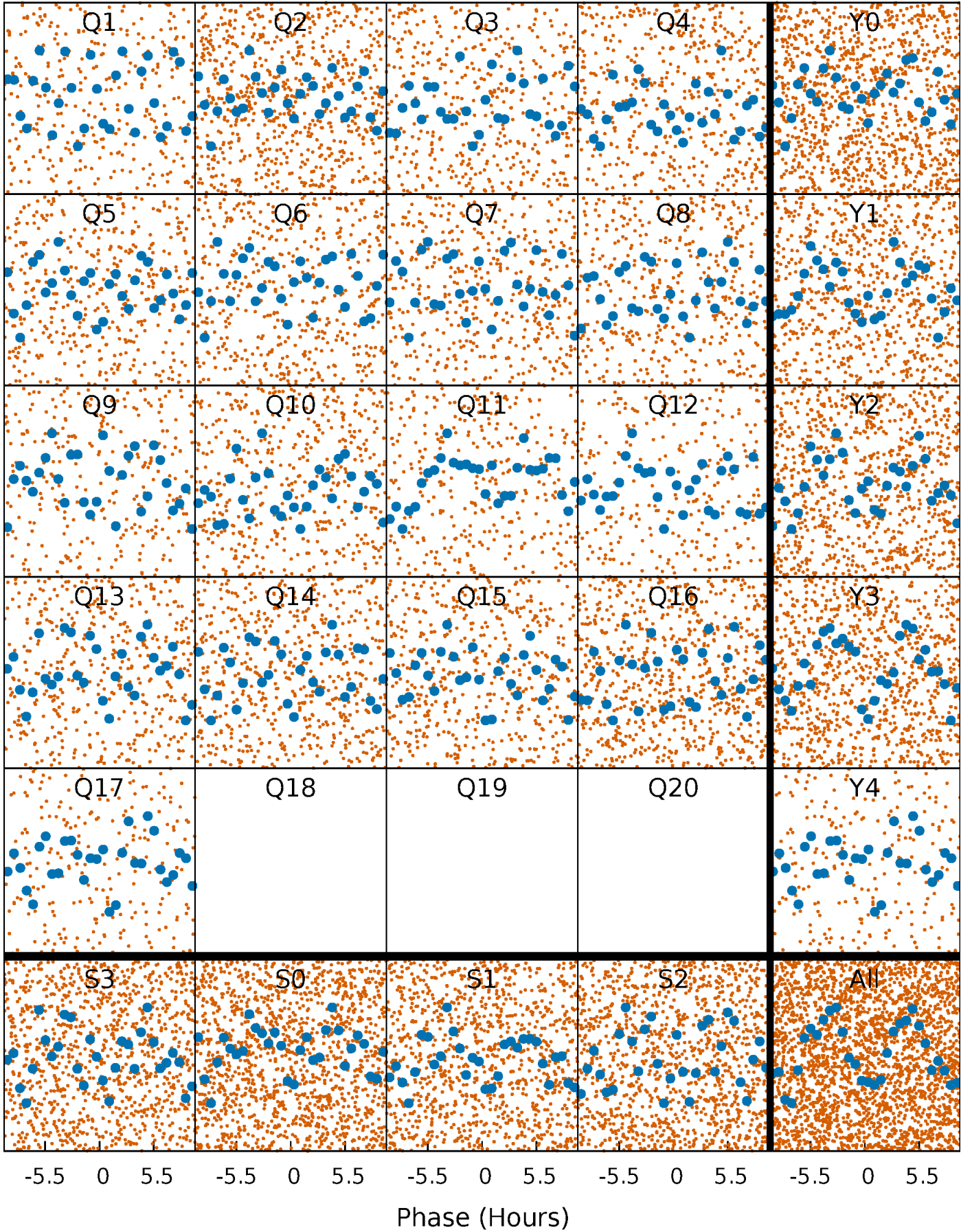
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





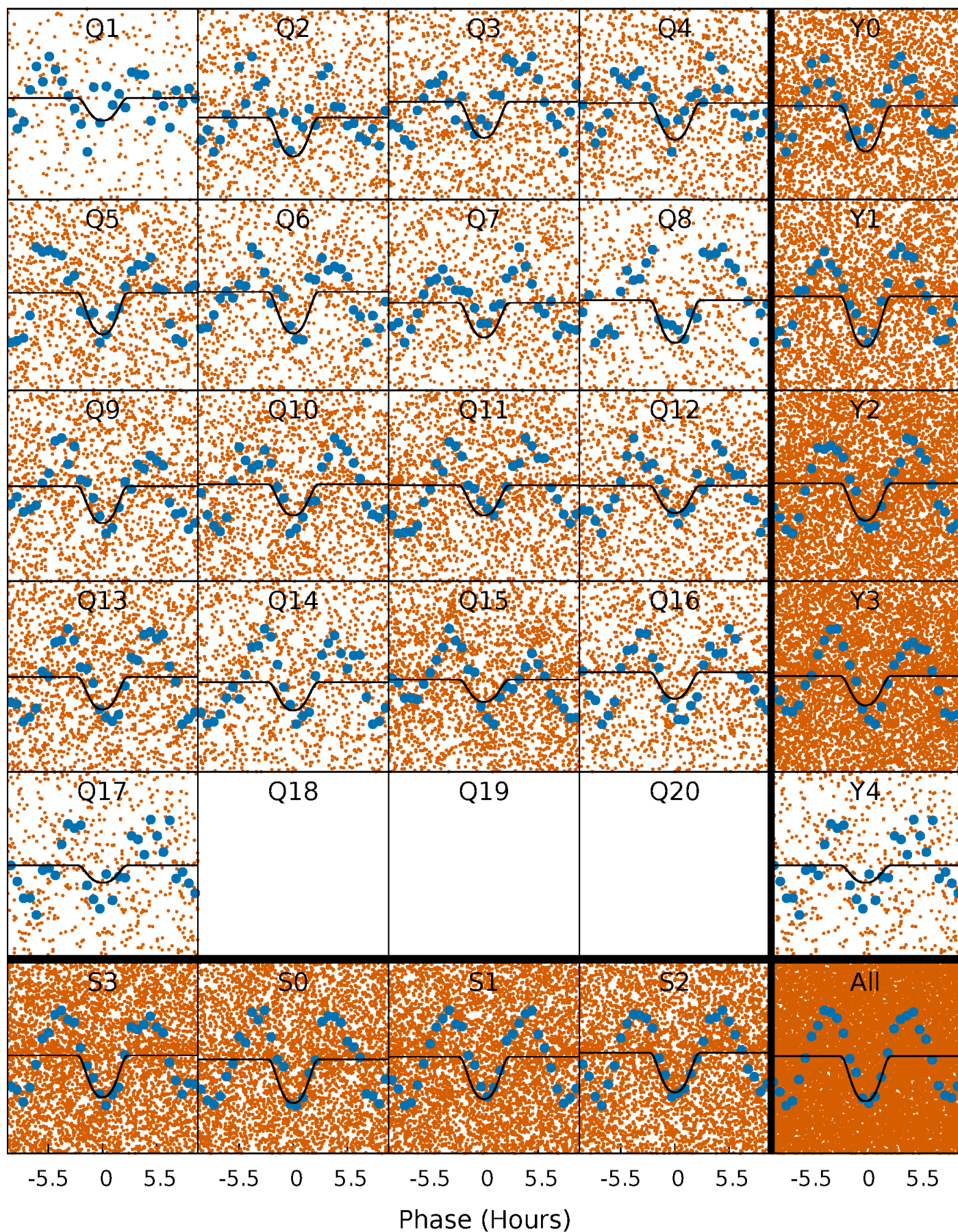
# PDC Quarter-Phased Transit Curves

TCE 005304819-01   P= 1.035400 Days    $T_0=132.027433$  (BKJD)



# DV Quarter-Phased Transit Curves

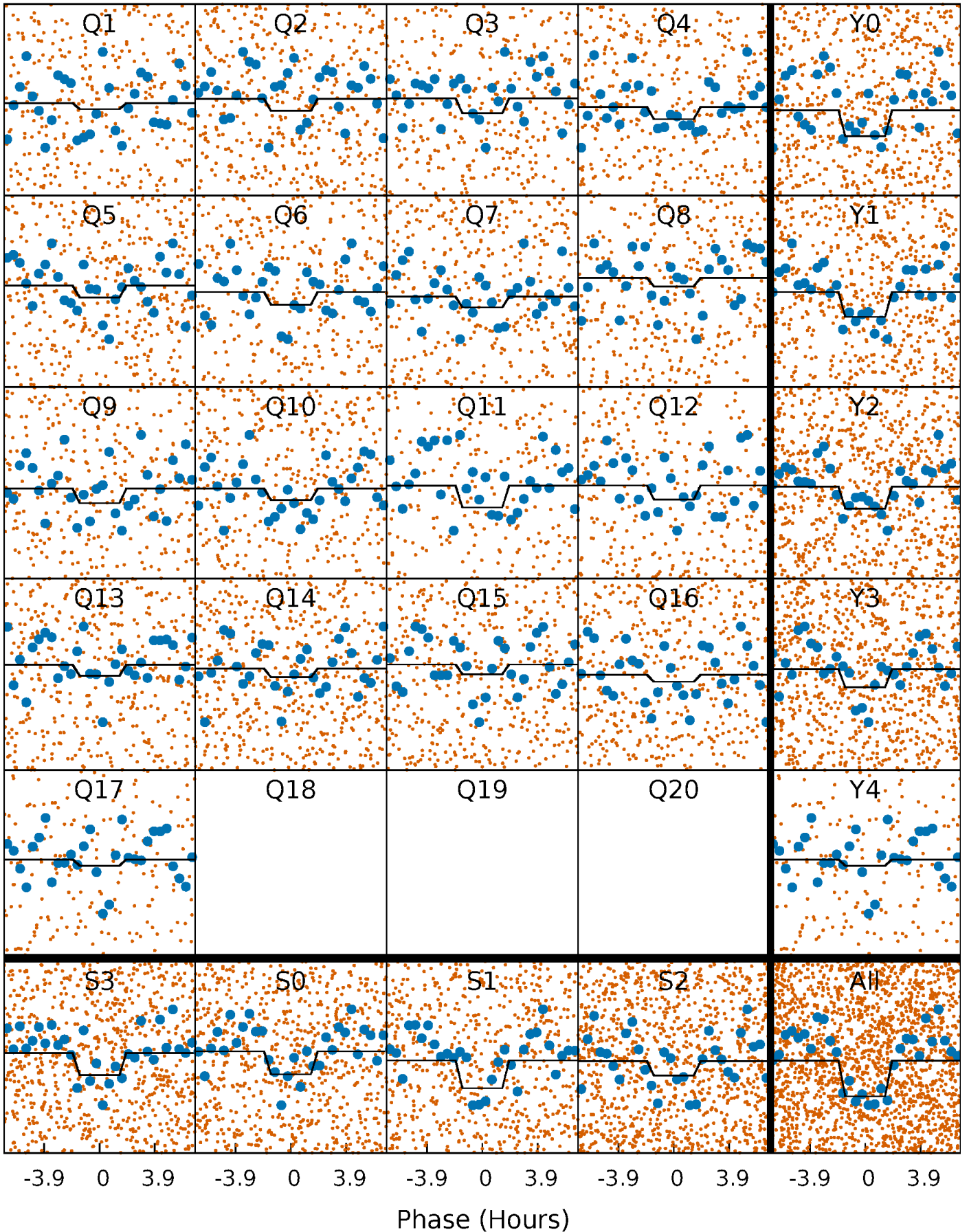
TCE 005304819-01 P= 1.035400 Days  $T_0=132.027433$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 005304819-01 P= 1.035458 Days  $T_0=131.988095$  (BKJD)

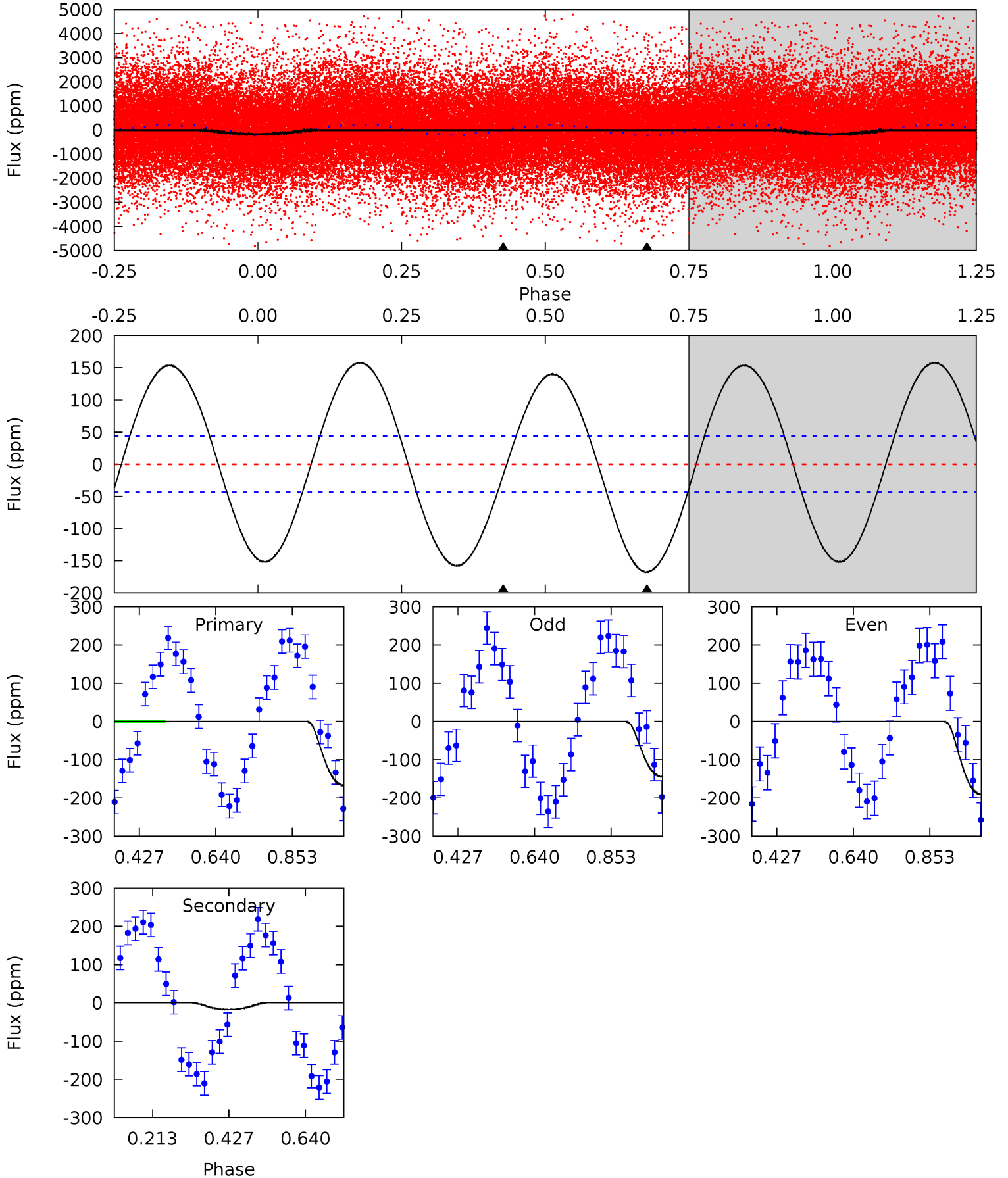




# DV Model-Shift Uniqueness Test

005304819-01, P = 1.035400 Days, E = 130.992033 Days

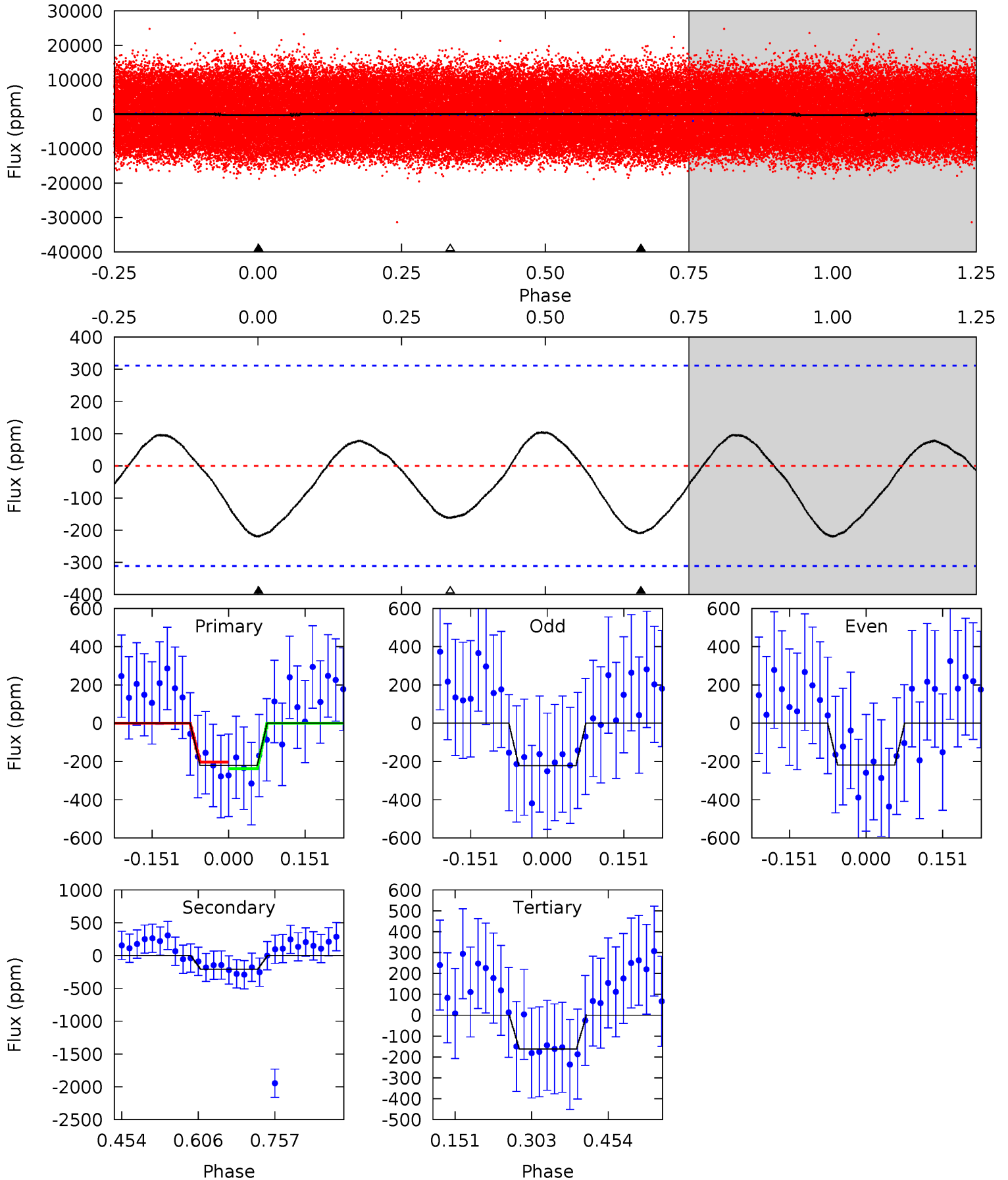
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.9	1.74	0	0	4.40	1.24	11.1	16.9	16.9	1.74	1.74	2.32	1.01	0.49	4.37



# Alt Model-Shift Uniqueness Test

005304819-01, P = 1.035458 Days, E = 130.952637 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
3.16	3.00	2.33	0	4.48	1.43	1.33	0.84	3.16	0.68	3.00	0.02	1.13	0.32	0.24



### Stellar Parameters For KIC 005304819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6648^{+161}_{-202}$	$4.073^{+0.279}_{-0.172}$	$-0.380^{+0.250}_{-0.300}$	$1.642^{+0.473}_{-0.521}$	$1.161^{+0.177}_{-0.159}$	$0.370^{+0.606}_{-0.177}$
	+2%/-3%	+7%/-4%	+66%/-79%	+29%/-32%	+15%/-14%	+164%/-48%
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 005304819-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-17 \pm 10$	$3.07^{+0.77}_{-0.66}$	$3605^{+284}_{-318}$	$2993^{+724}_{-6161}$	$0.415^{+0.429}_{-0.268}$
Alt.	$-209 \pm 70$	$2.55^{+0.73}_{-0.64}$	$3583^{+277}_{-340}$	$6464^{+1208}_{-817}$	$7.687^{+7.527}_{-3.618}$

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



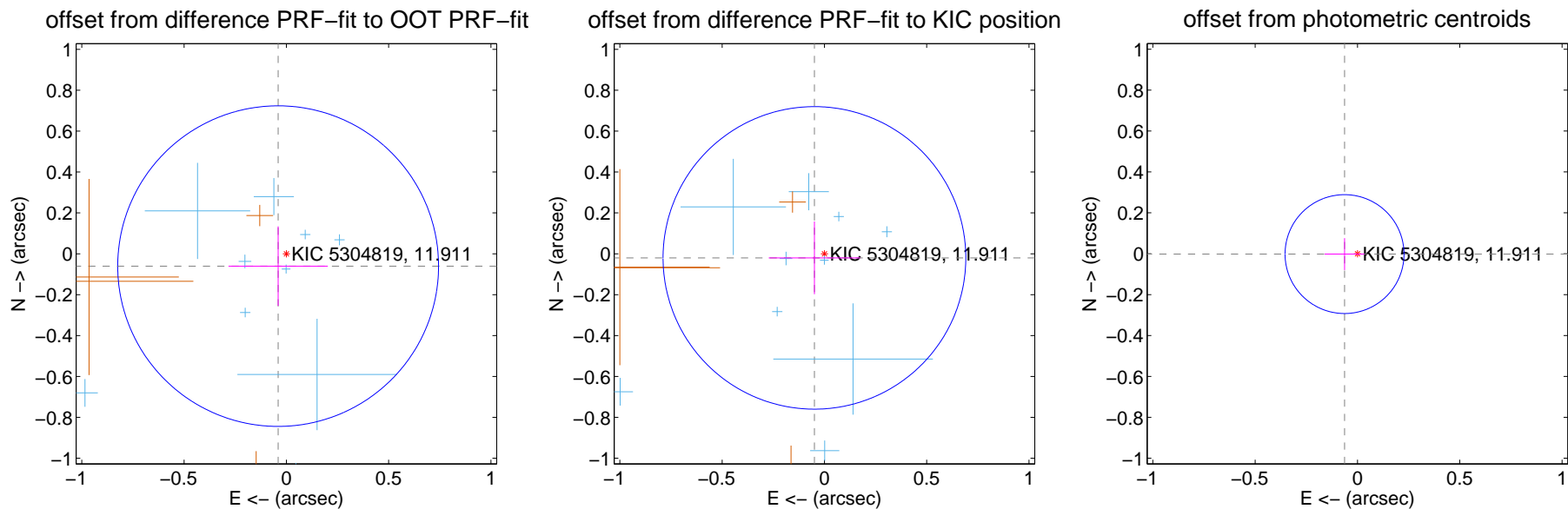
## DV Centroid Data

Supplemental centroid analysis for 005304819-01. **Kepler magnitude: 11.91.** Transit SNR 9.87

There are 11 quarters with good PRF difference image offsets

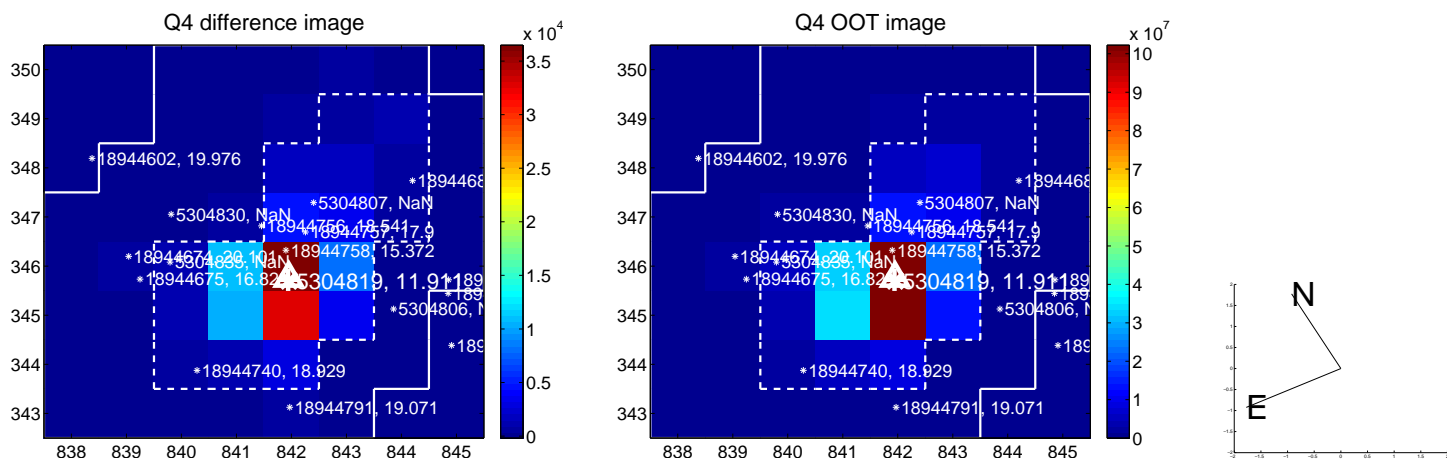
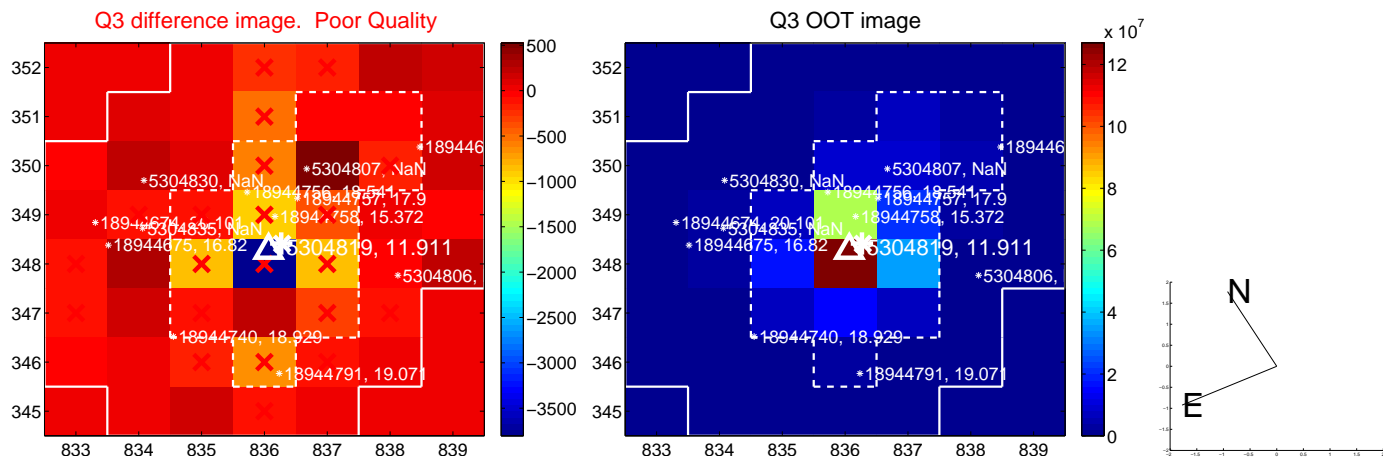
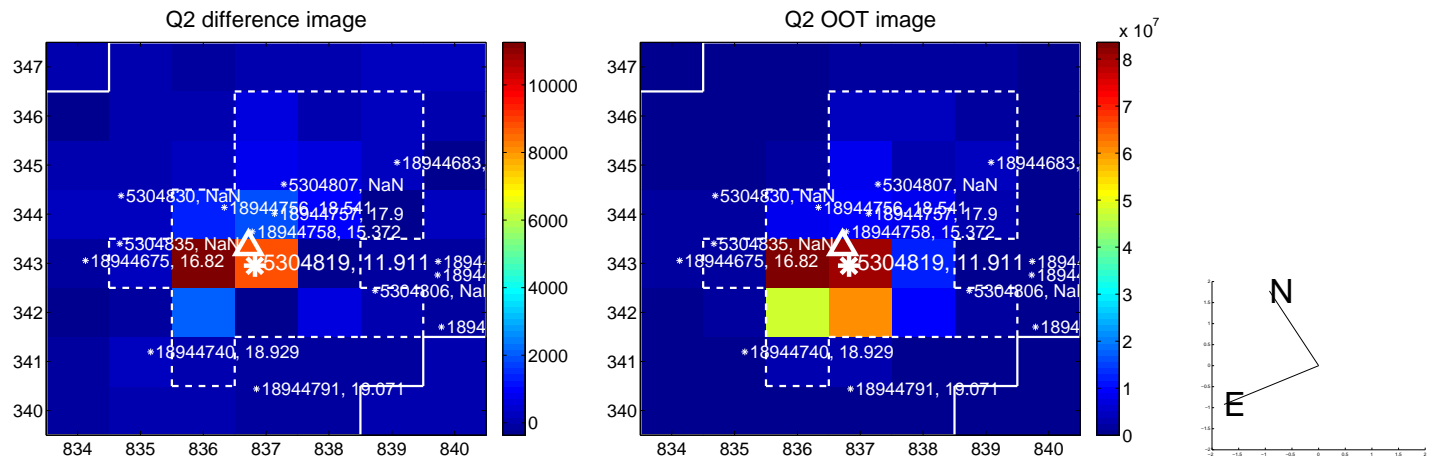
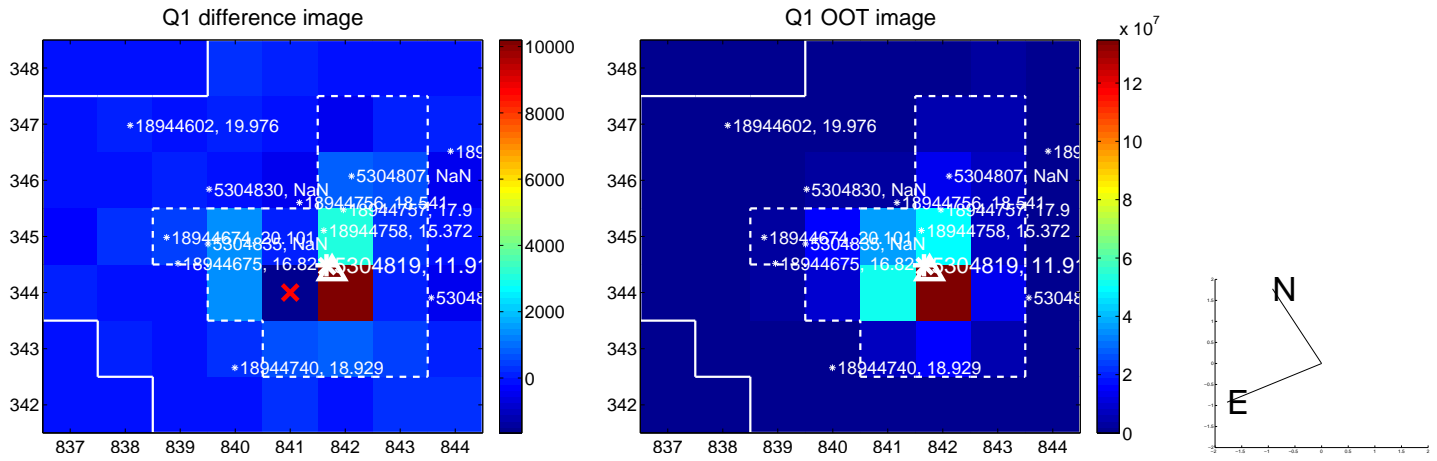
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.073 \pm 0.261$	0.28	$0.040 \pm 0.243$	$-0.060 \pm 0.195$
PRF-fit source offset from KIC position	$0.053 \pm 0.247$	0.21	$0.049 \pm 0.223$	$-0.020 \pm 0.178$
photometric centroid source offset	$0.06 \pm 0.10$	0.65	$0.06 \pm 0.10$	$-0.00 \pm 0.08$

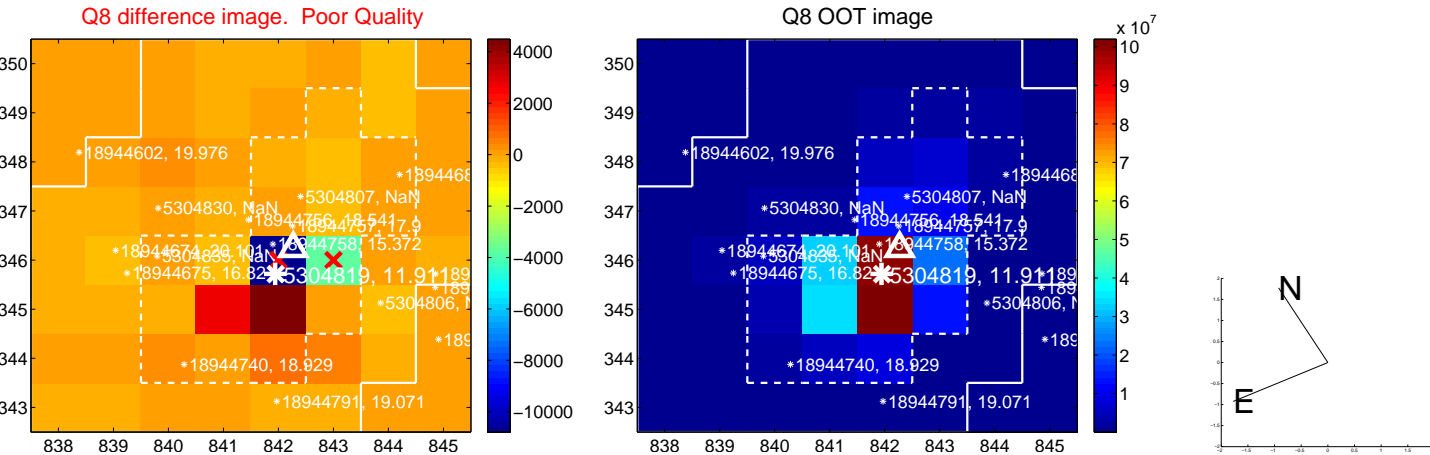
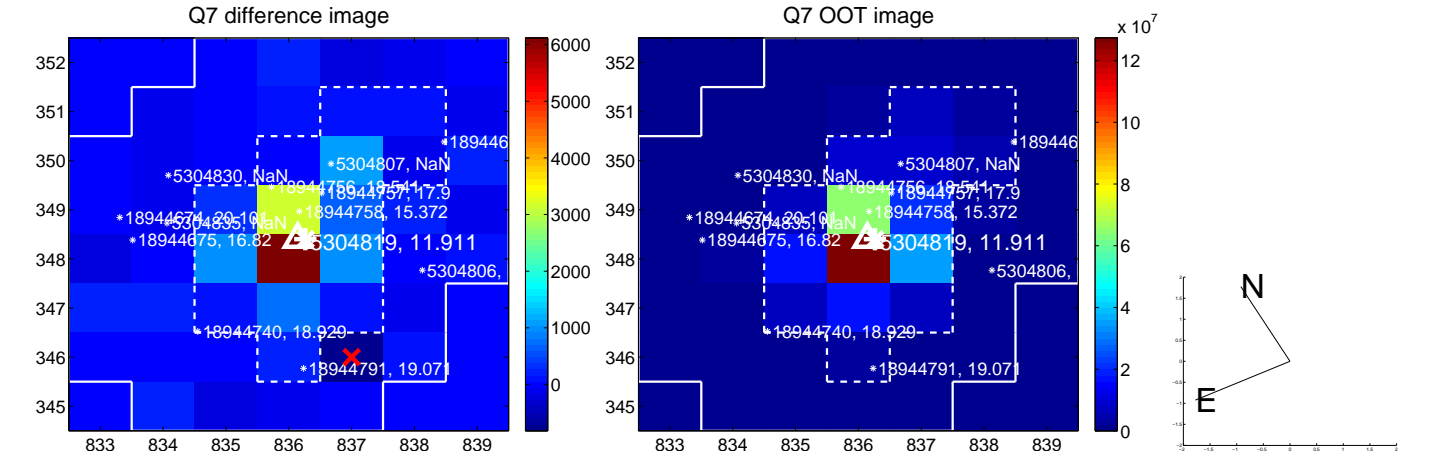
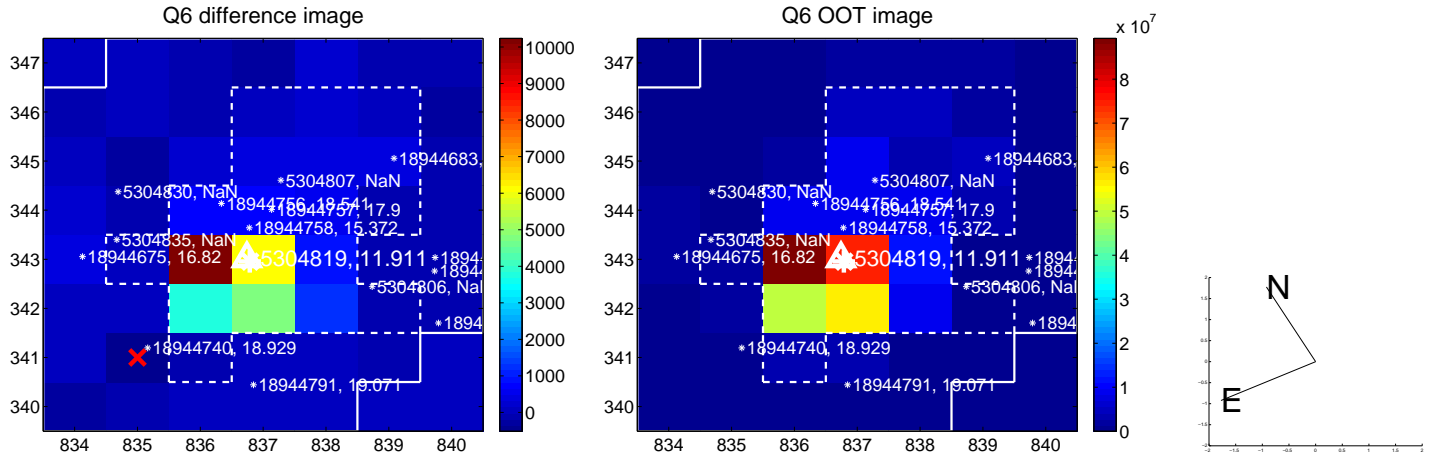
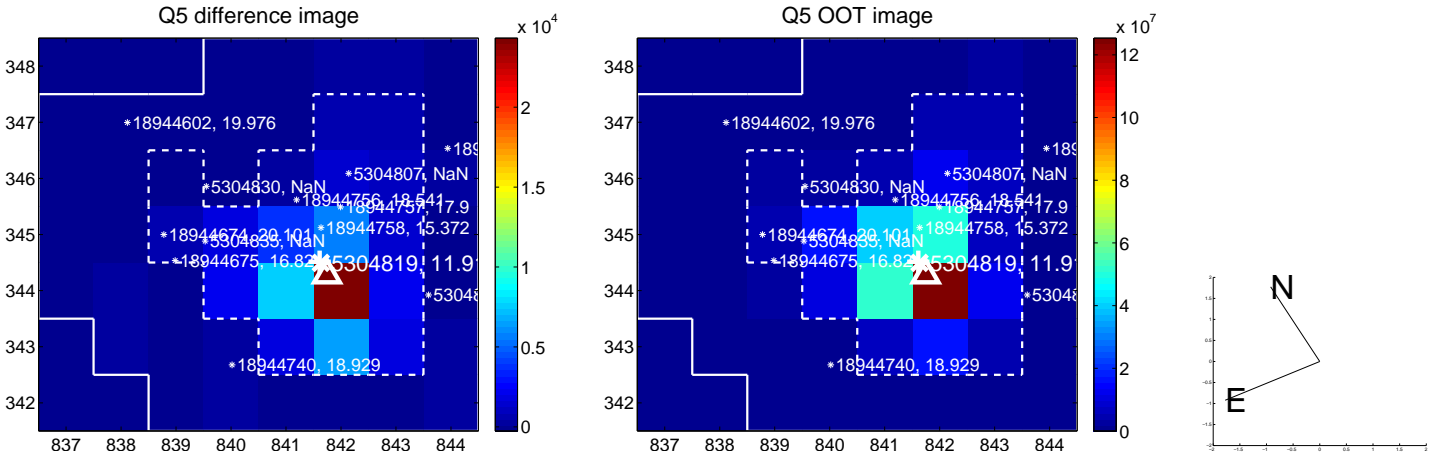


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

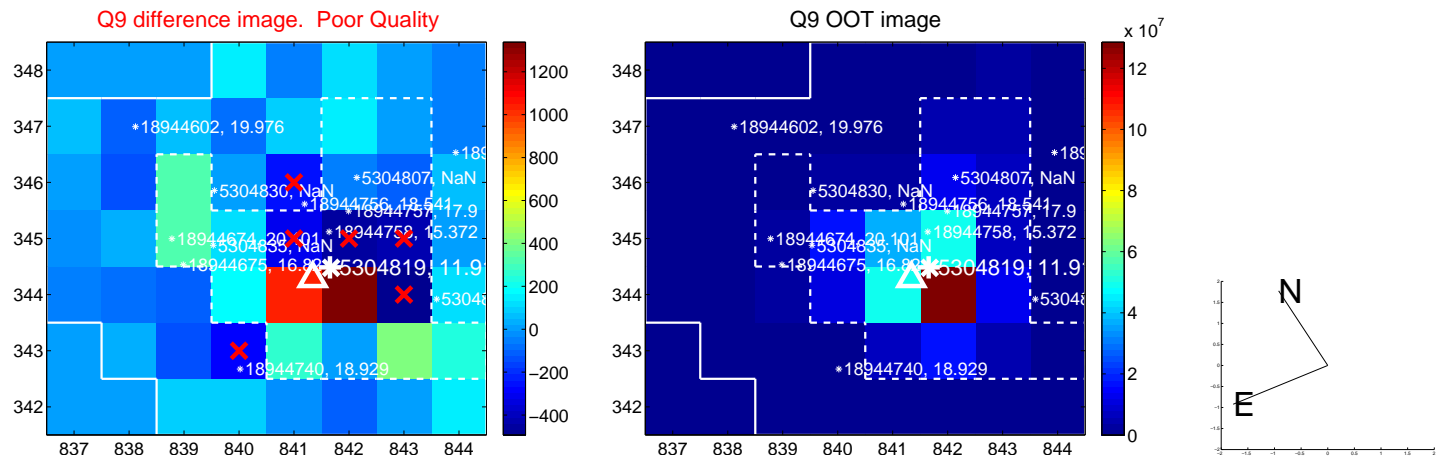


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

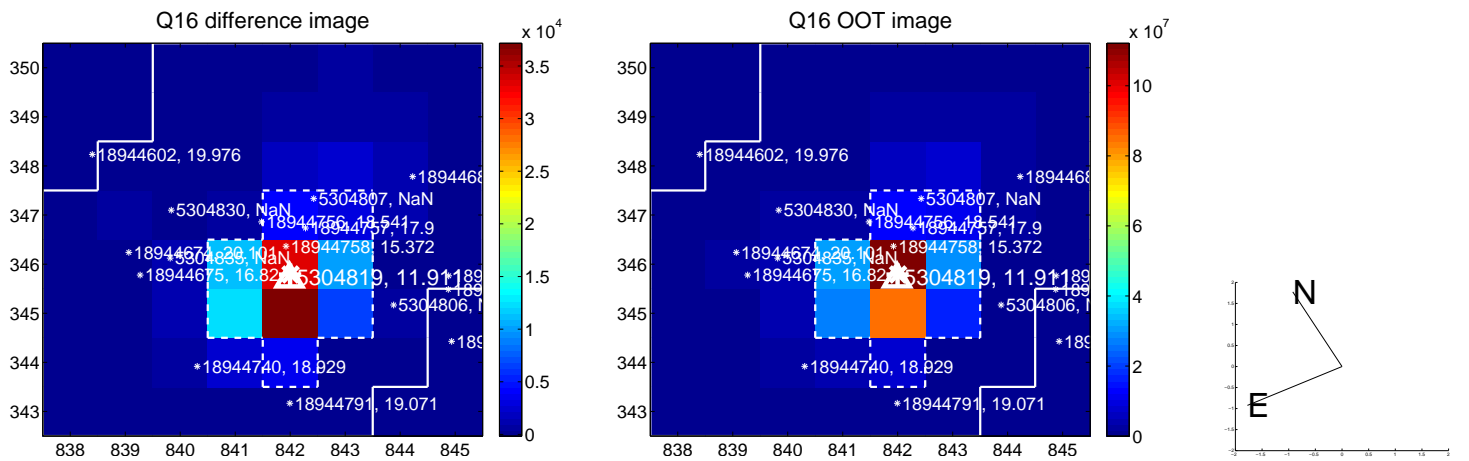
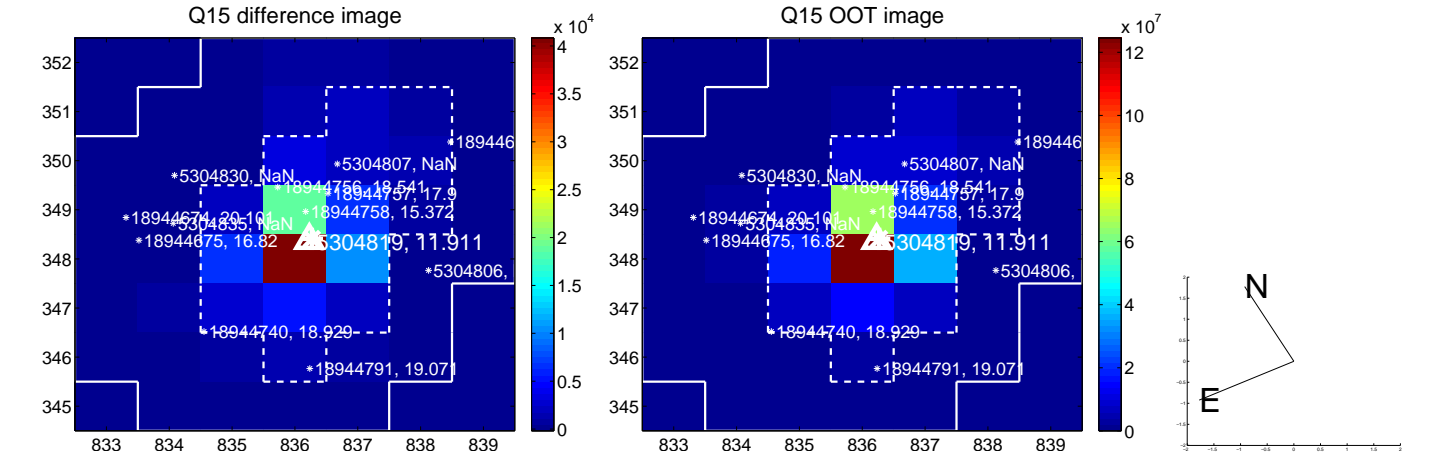
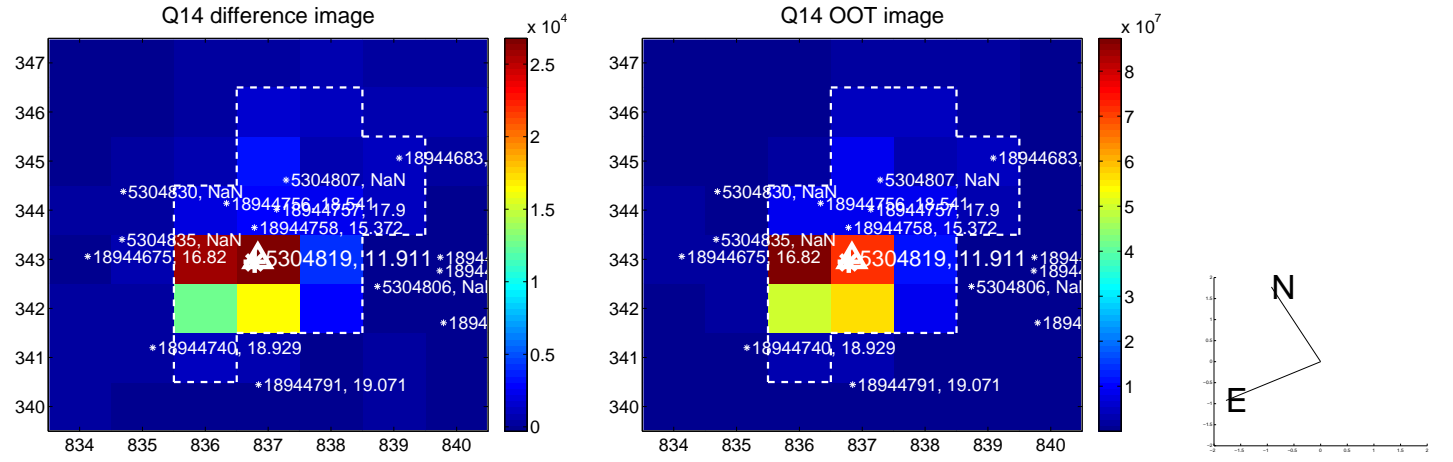
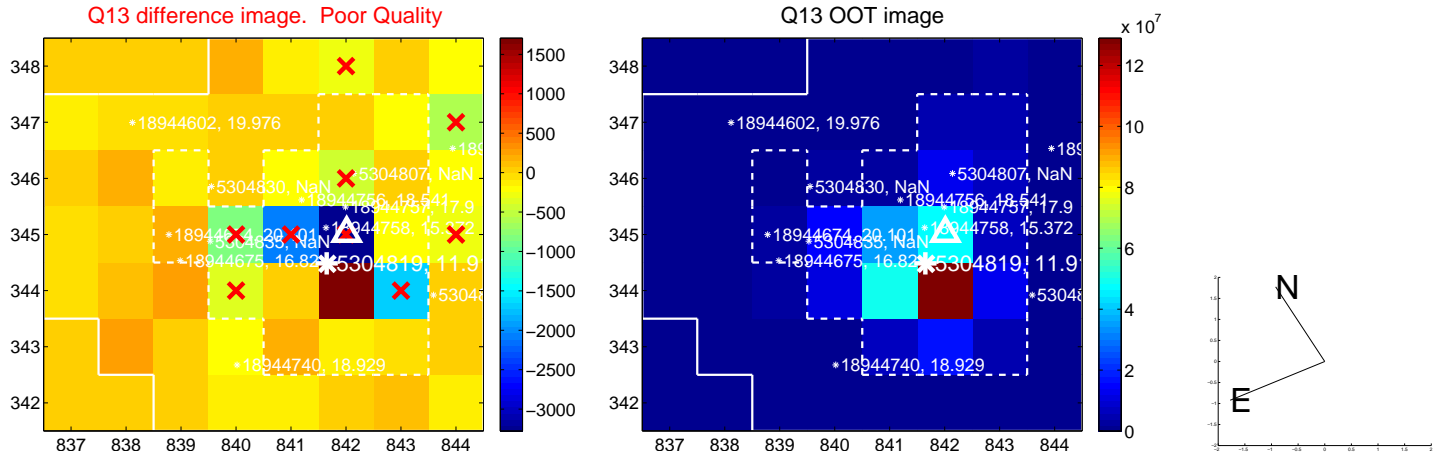




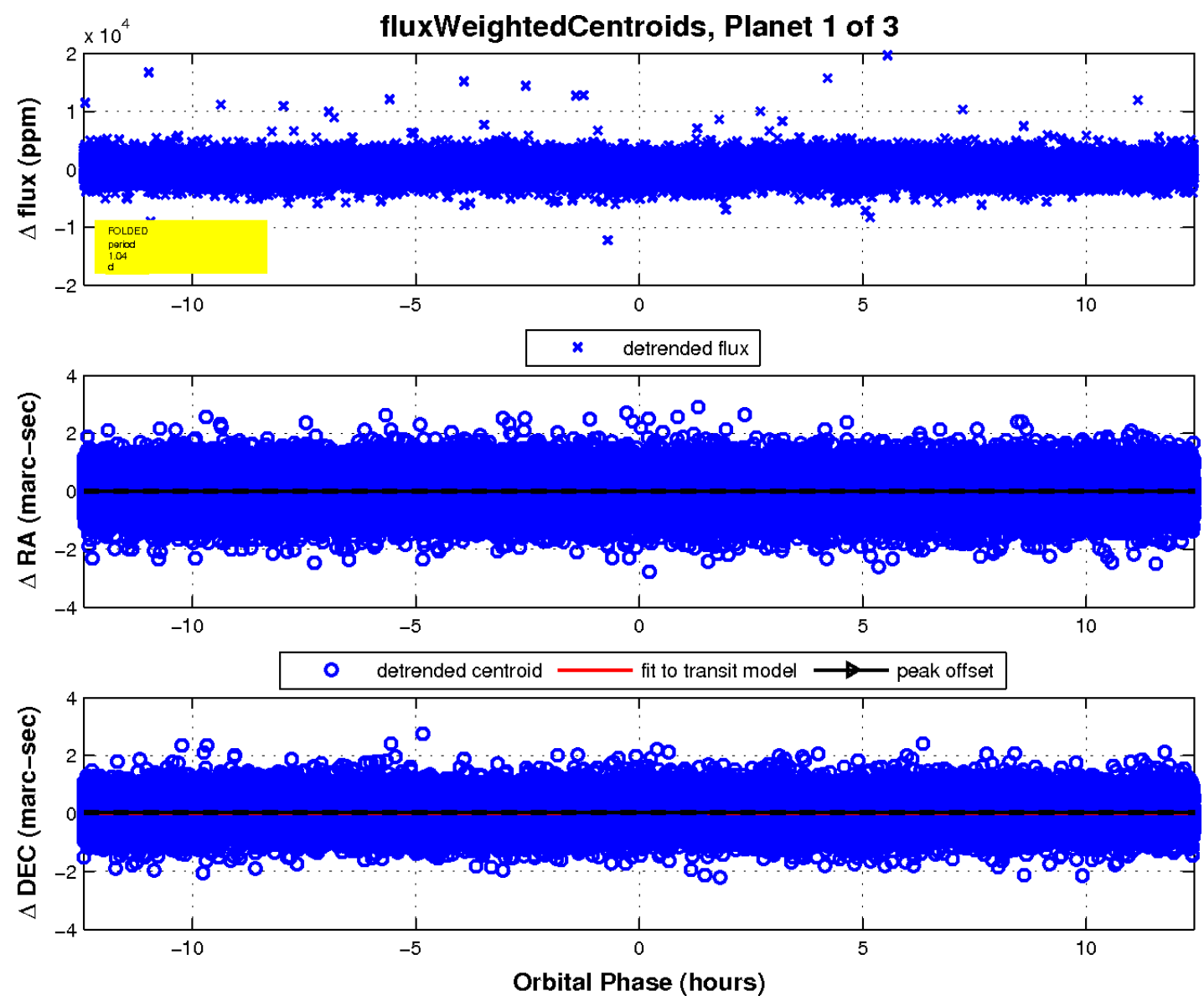
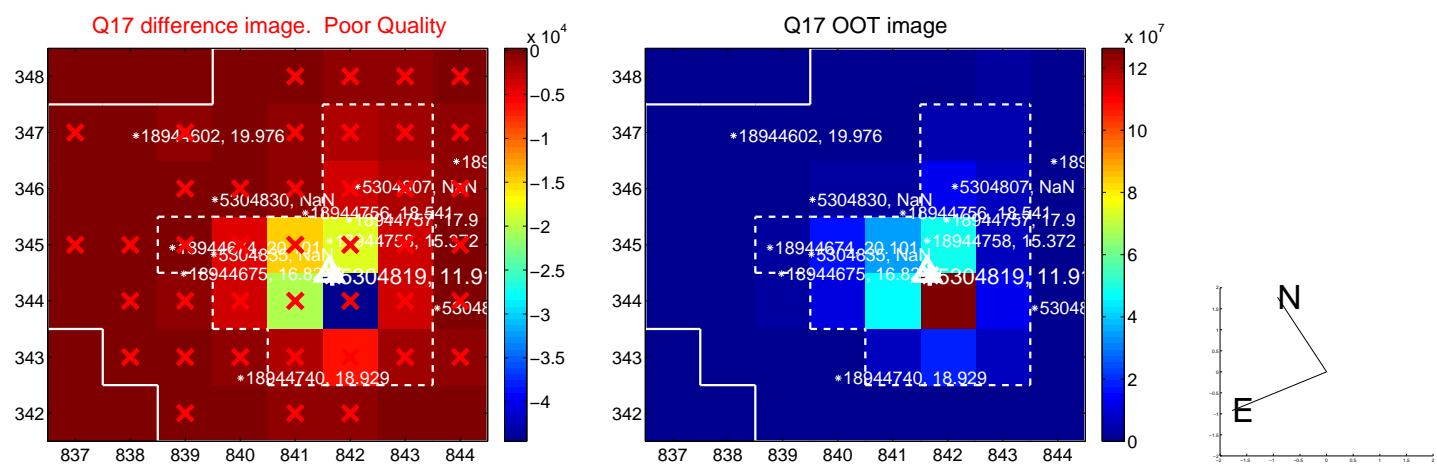
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



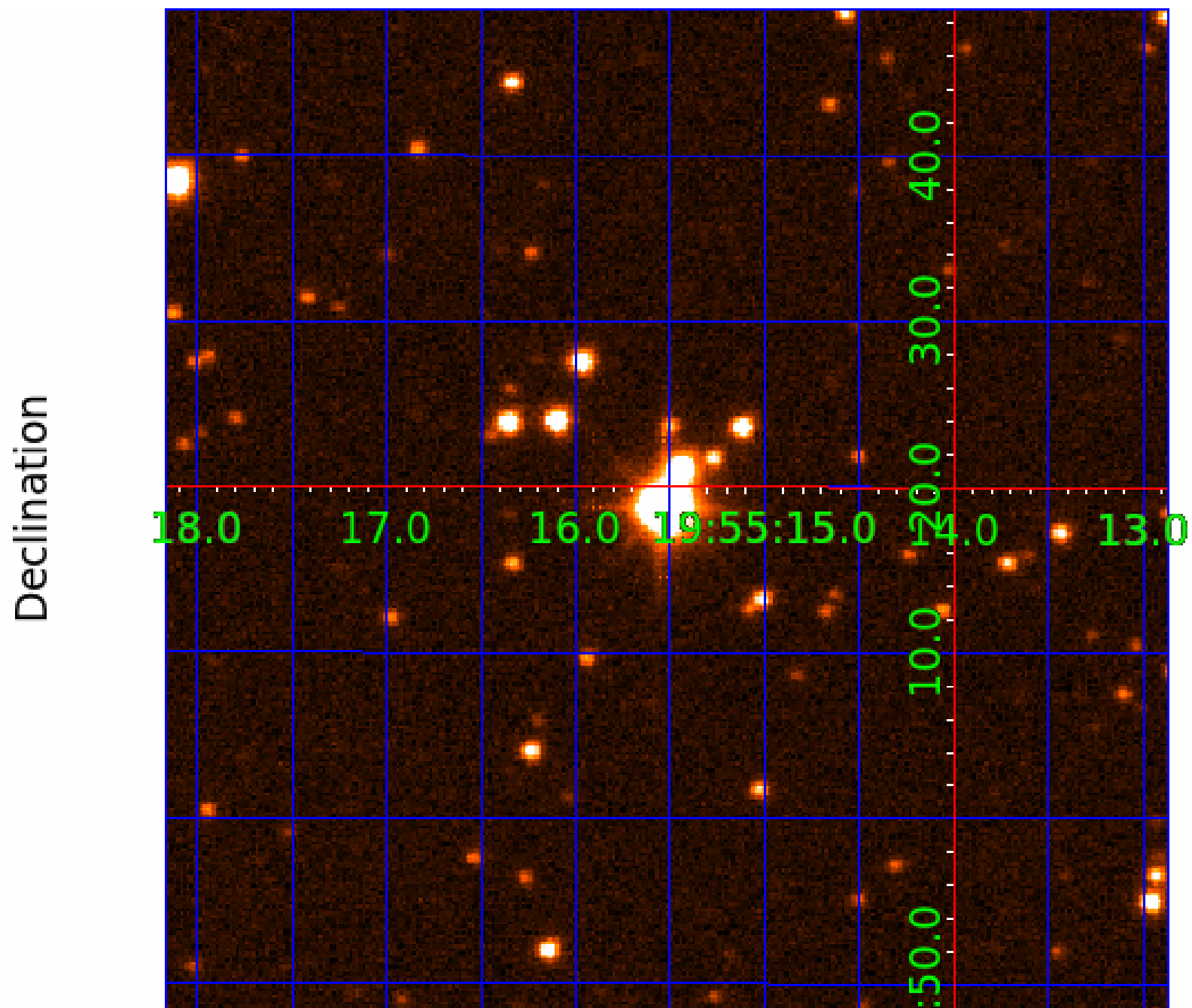
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 005304819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005304819-01	OBS	No	1.035400	132.027433	203.5	4.849	11.9	9.9	1.64	6648	3.15	10627.47
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005304819-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005304819-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005304819-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—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.

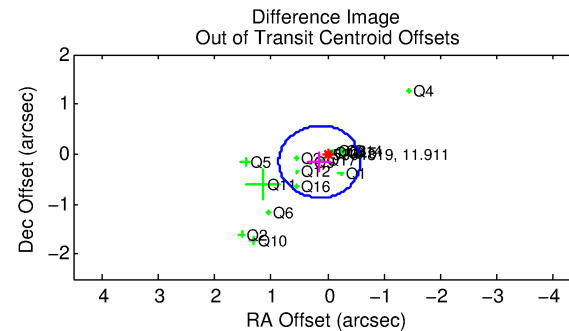
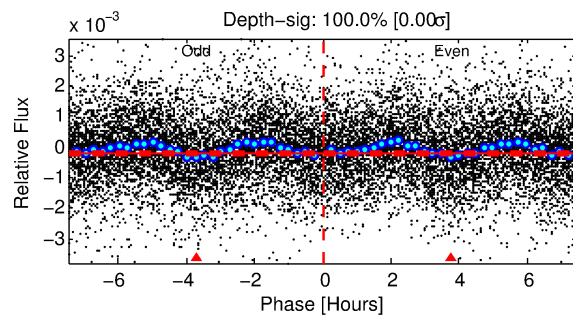
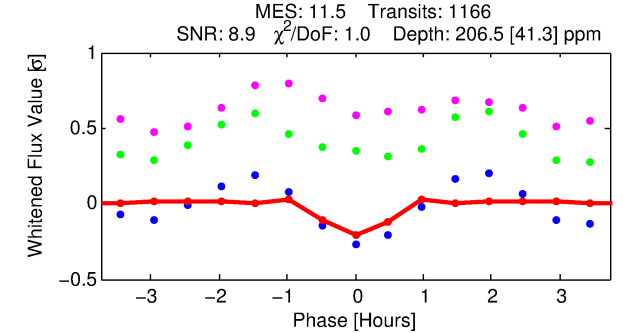
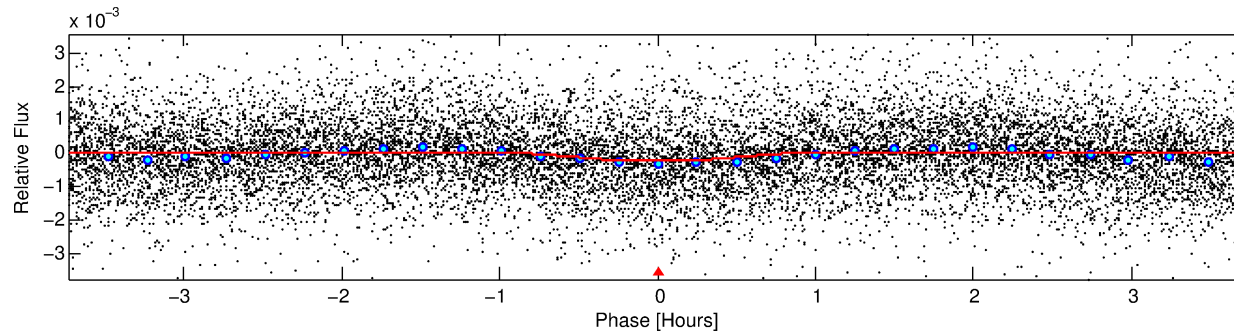
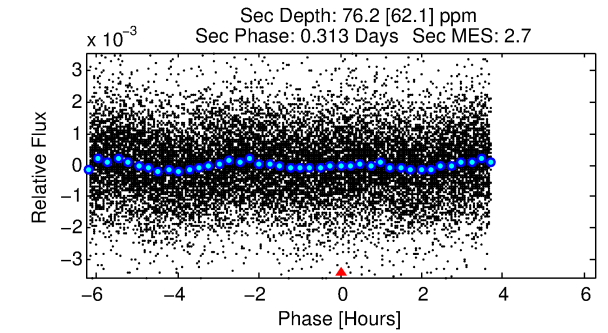
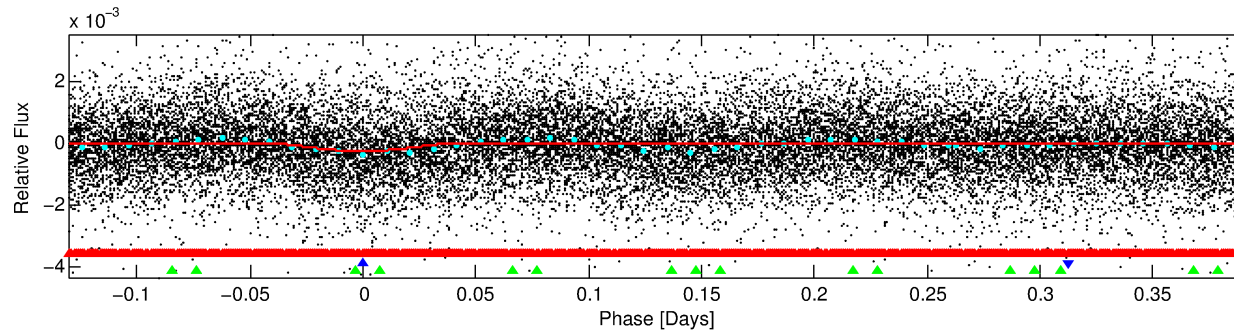
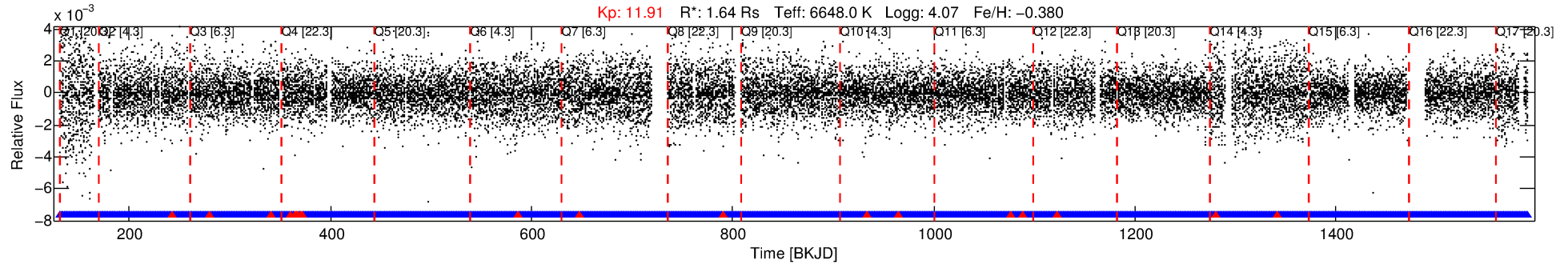
## Ephemeris Match Information For 005304819-02

No Significant Match Found



# DV One-Page Summary

KIC: 5304819 Candidate: 2 of 3 Period: 0.522 d



## DV Fit Results:

Period = 0.52195 [0.00002] d  
Epoch = 131.5142 [0.0020] BKJD  
Rp/R\* = 0.0137 [0.0084]  
a/R\* = 2.92 [8.61]  
b = 0.50 [5.05]  
Seff = 26488.90 [13056.15]  
Teq = 3253 [401] K  
Rp = 2.45 [1.69] Re  
a = 0.0133 [0.0040] AU  
Ag = 1.24 [1.92] [0.13σ]  
Teffp = 5309 [1962] K [1.03σ]

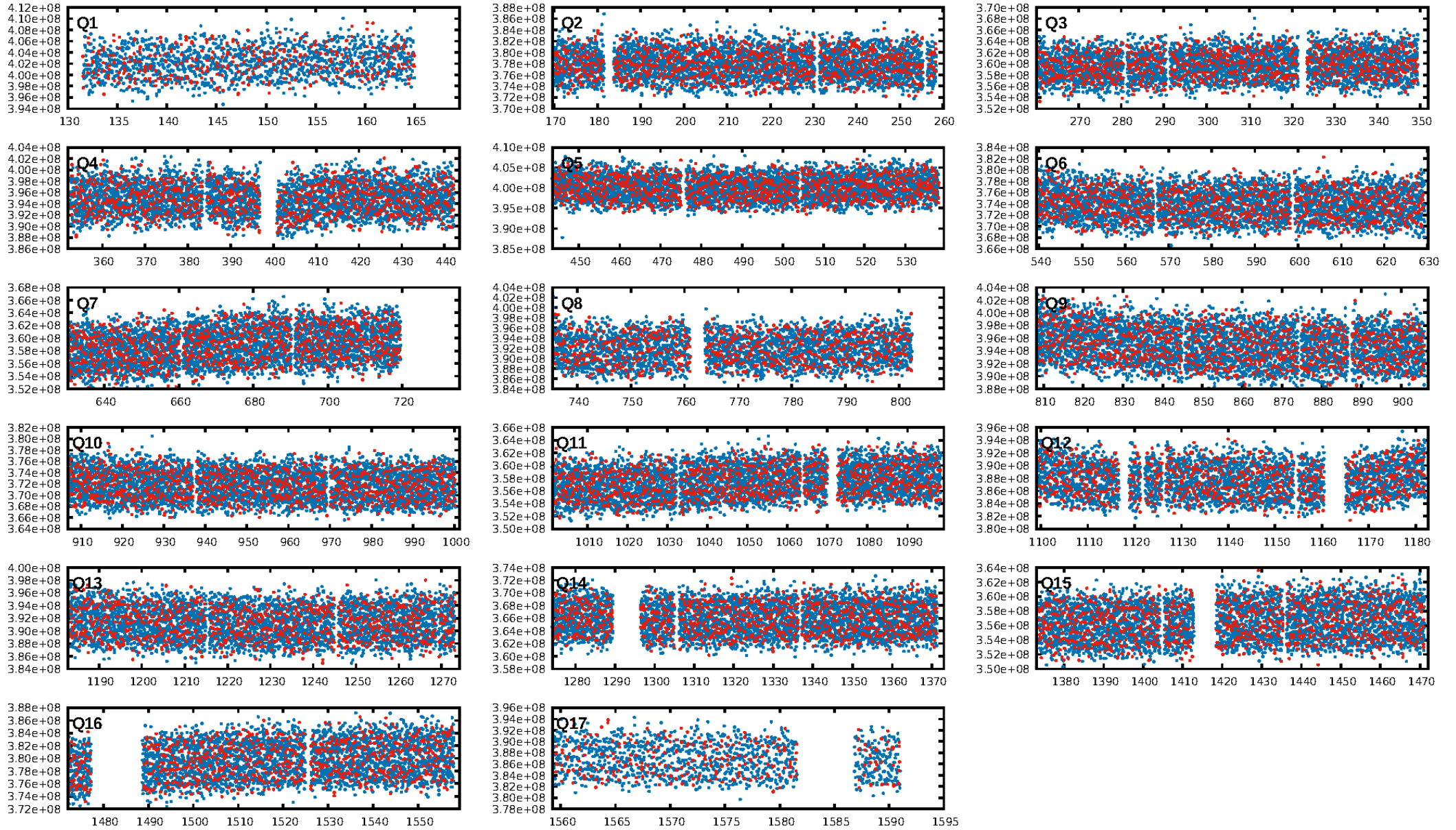
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 98.6% [2.46σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [1097/1116]  
GhostDiagnostic-chr: 0.9374  
Centroid-sig: 25.1%  
Centroid-so: 0.204 arcsec [2.47σ]  
OotOffset-rm: 0.206 arcsec [0.86σ]  
KicOffset-rm: 0.177 arcsec [0.73σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.71 [12/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:36:35 Z

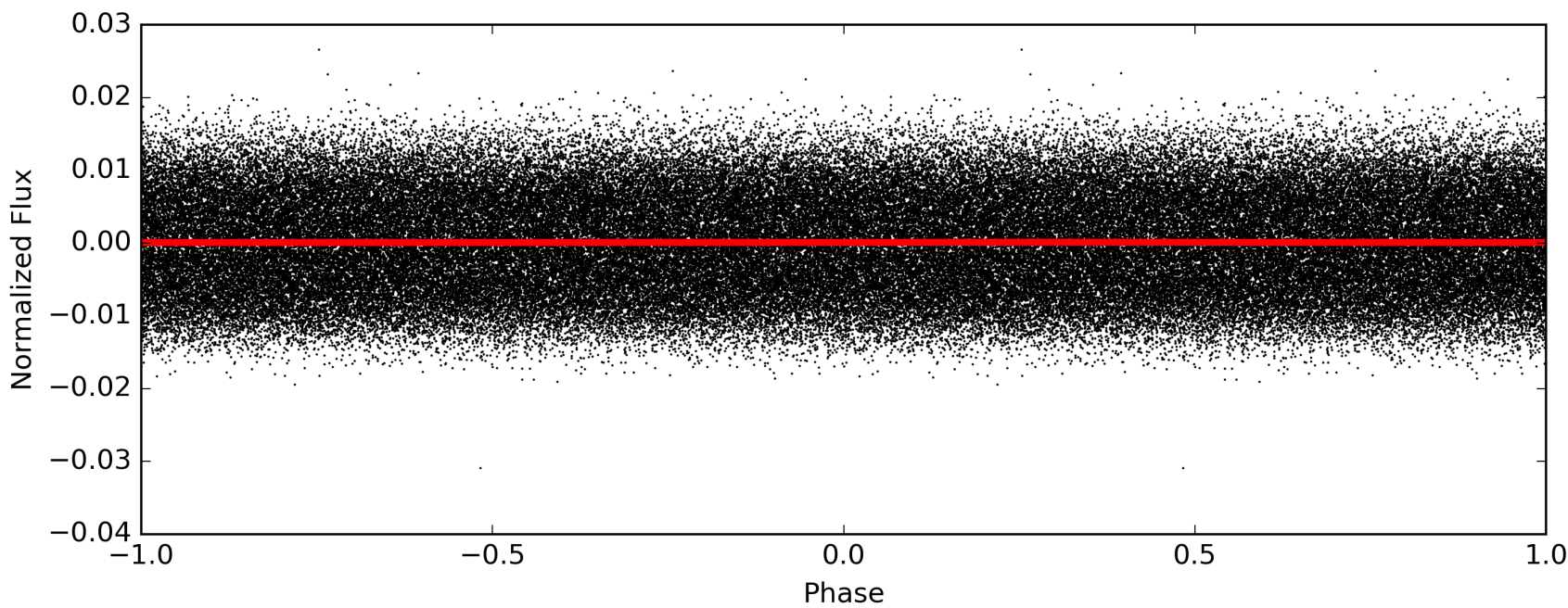
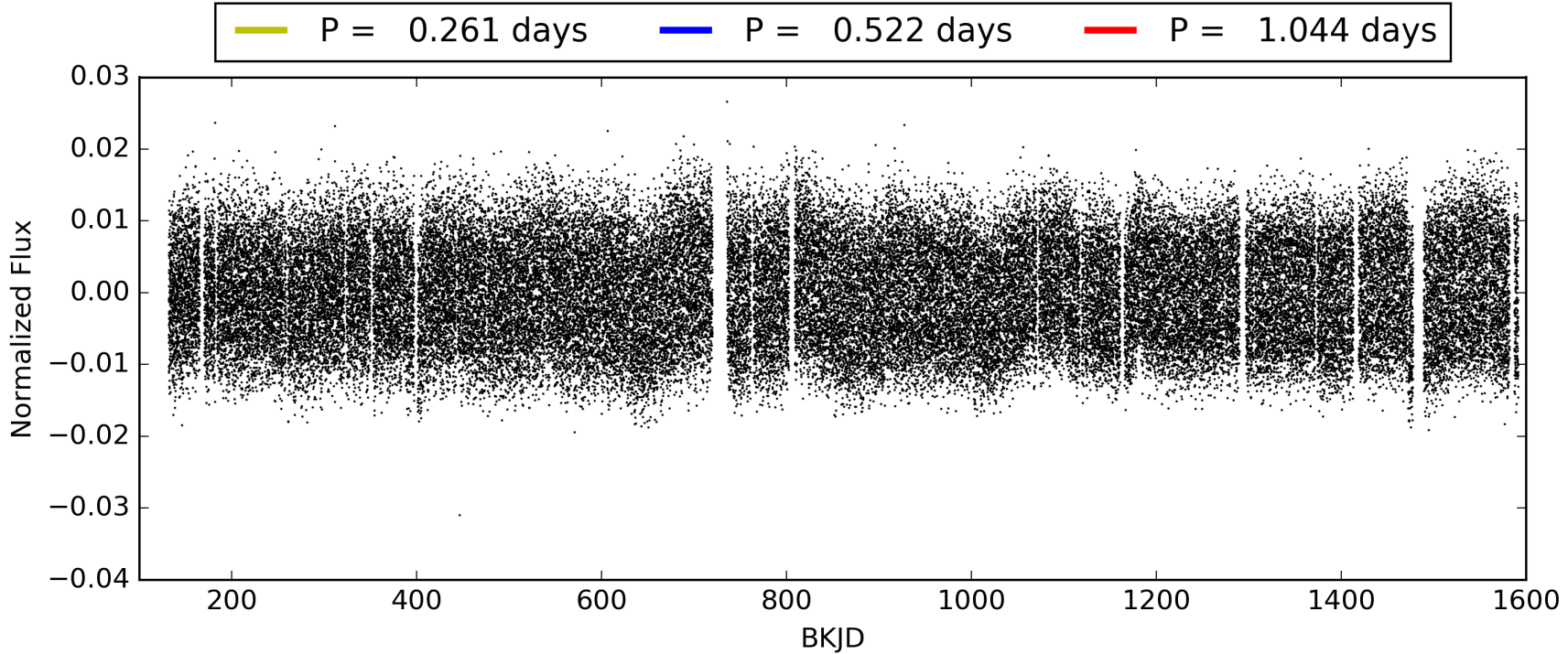
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005304819-02, PDC Light Curves



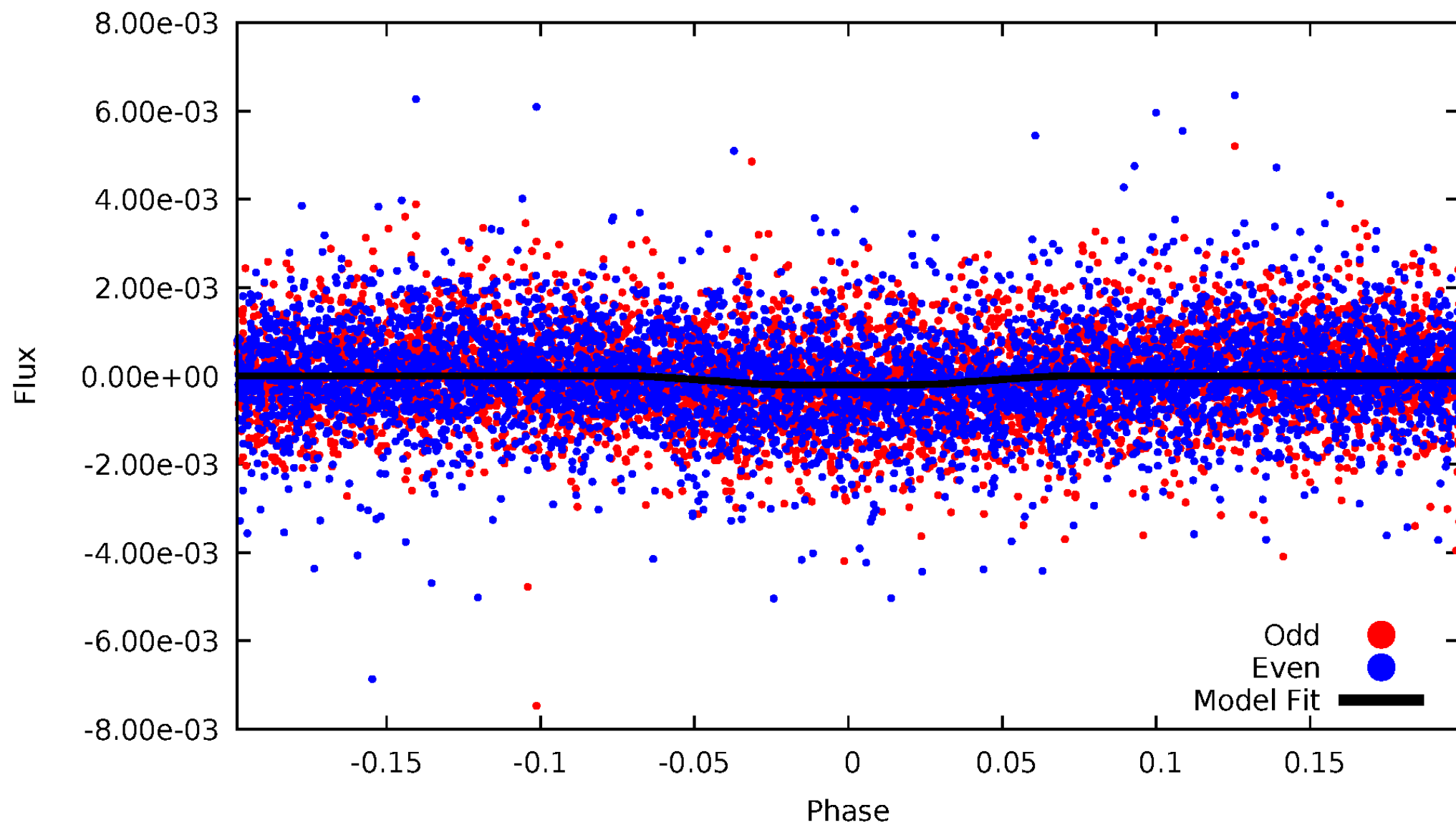


TCE 005304819-02



DV Odd/Even

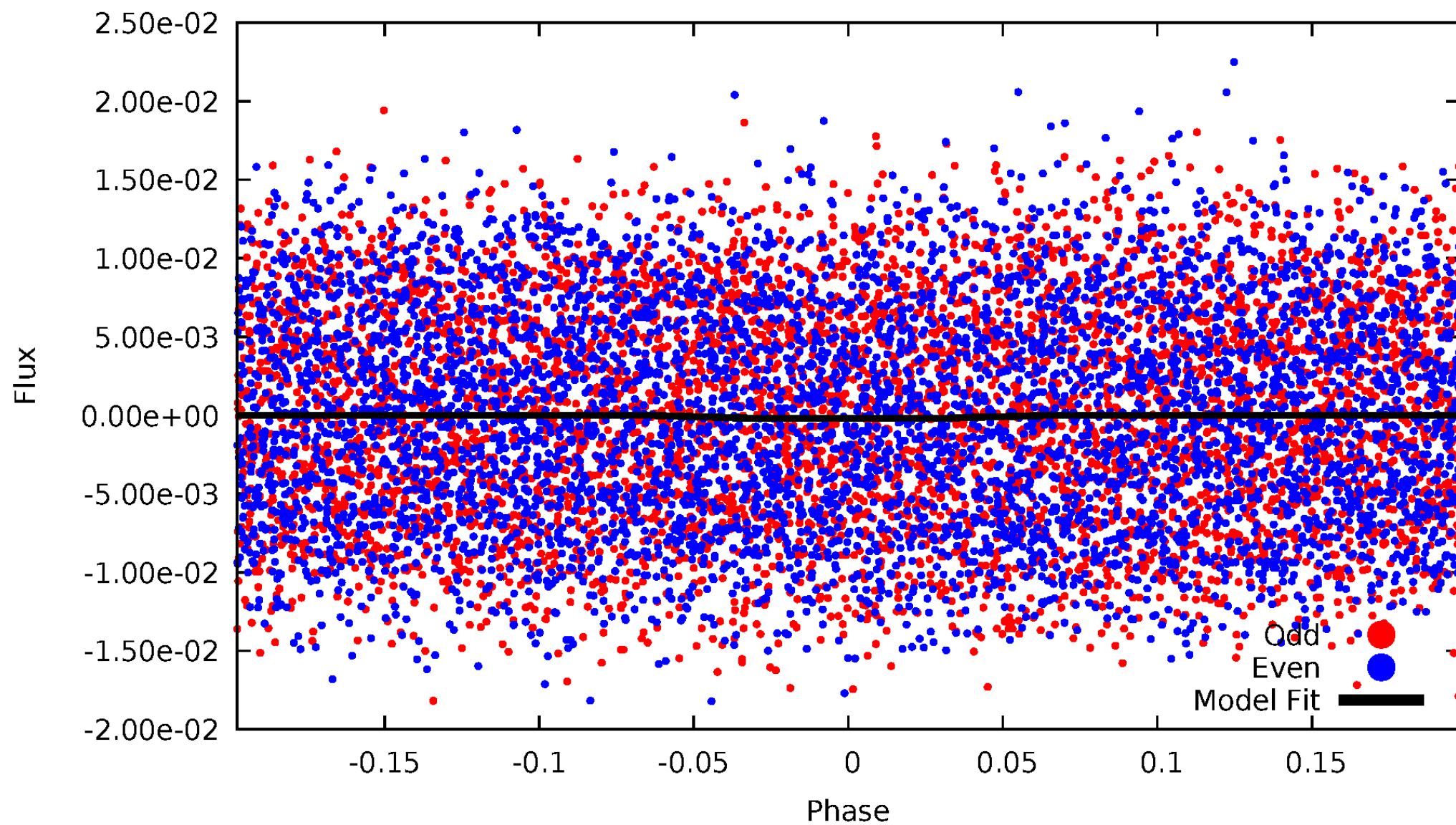
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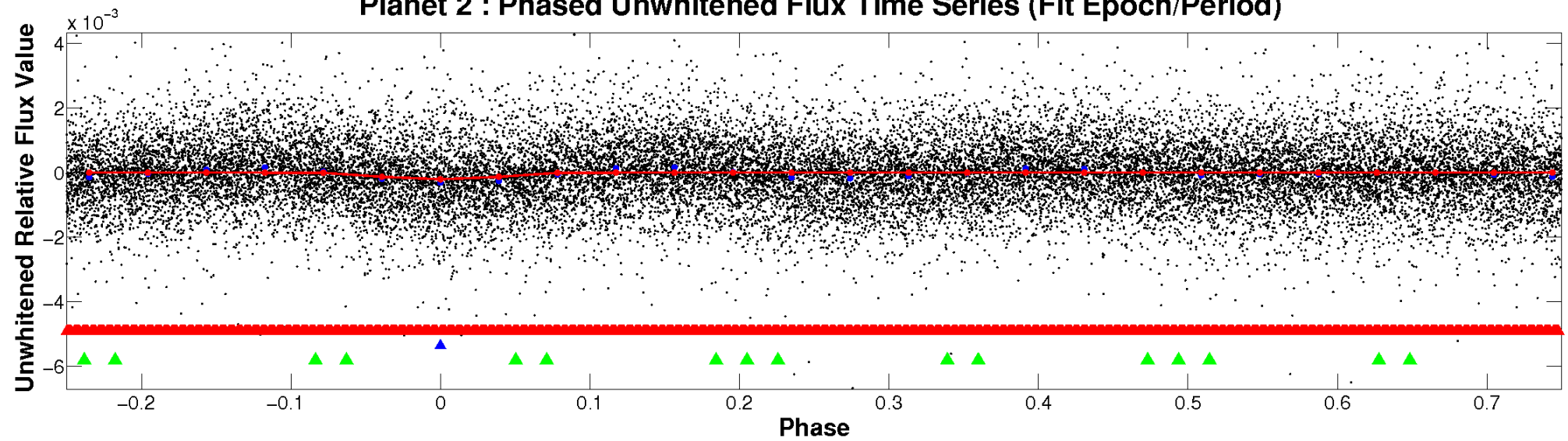
# ALT Odd/Even

TCE 005304819-02

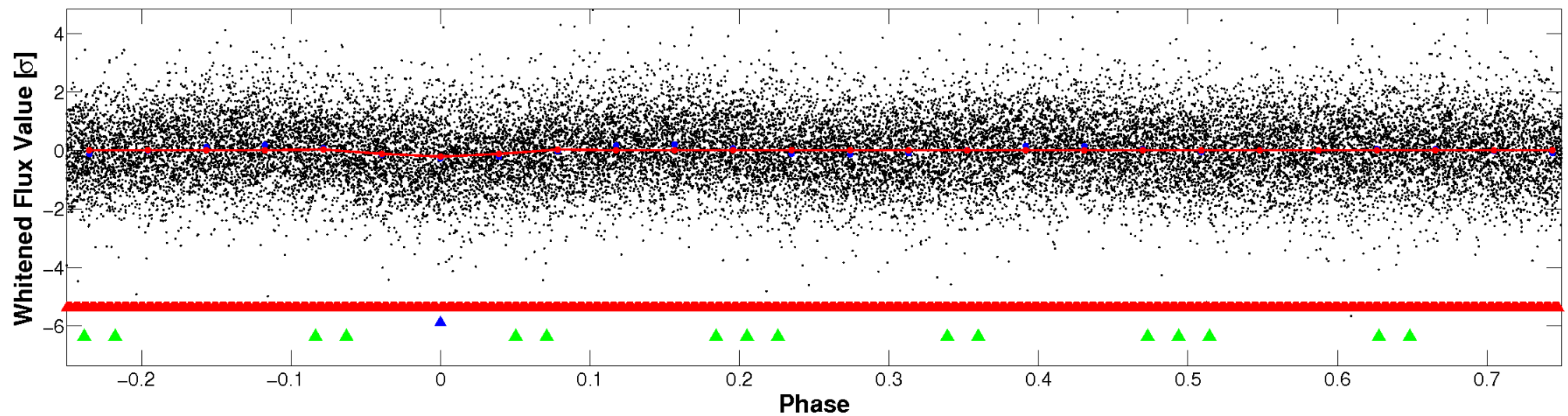


# Non-Whitened Vs. Whitened Light Curve

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

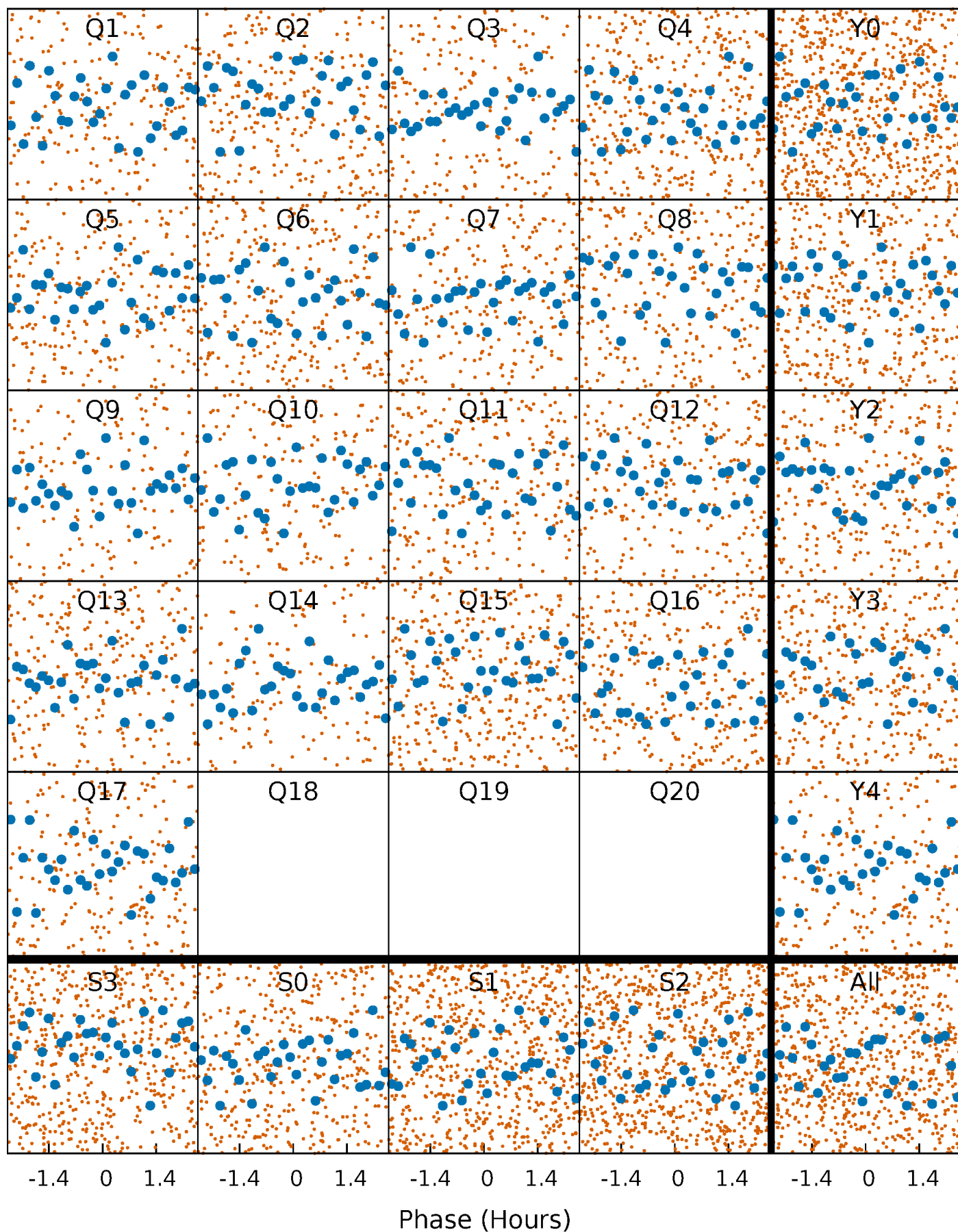


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



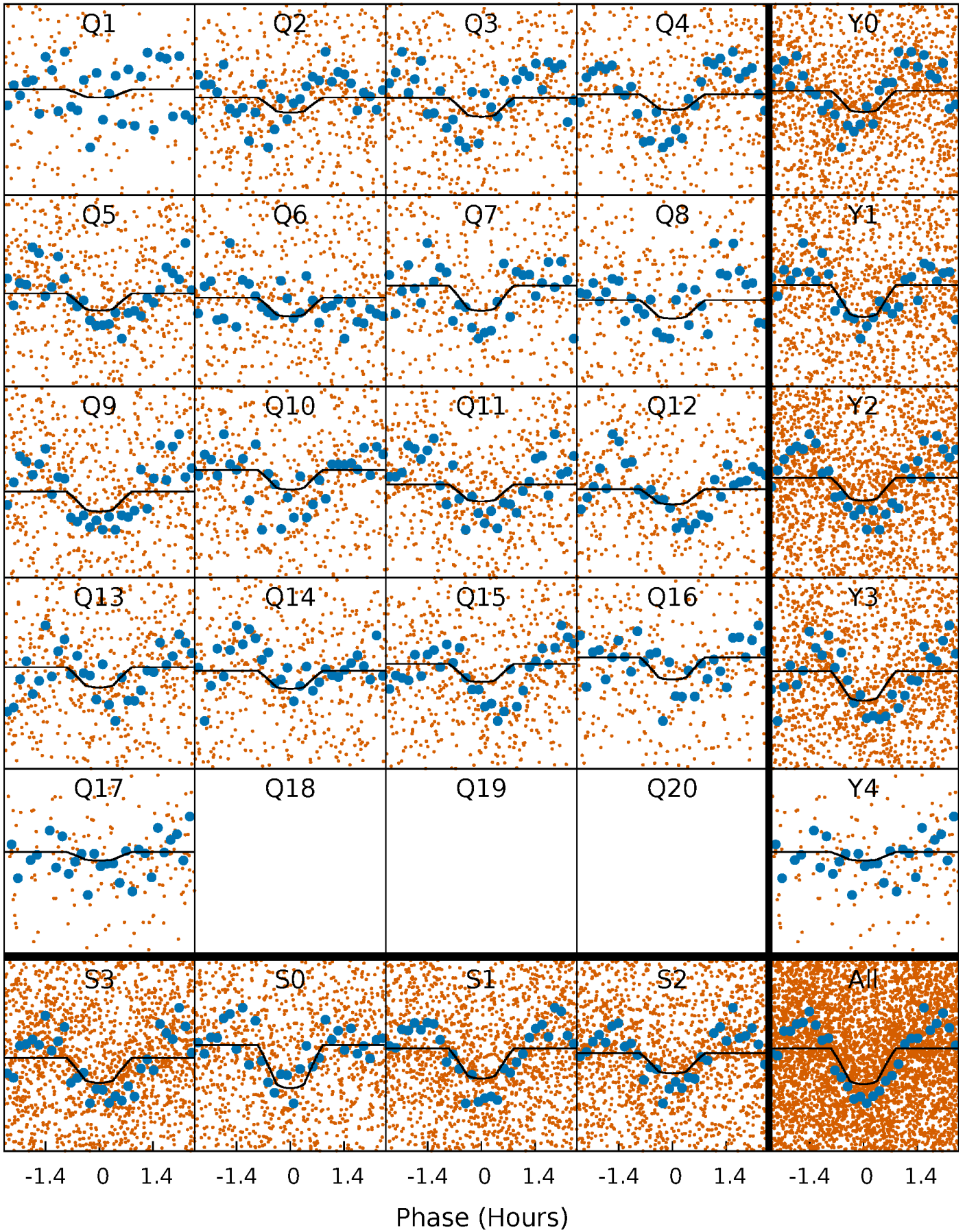
# PDC Quarter-Phased Transit Curves

TCE 005304819-02   P= 0.521954 Days    $T_0=131.514179$  (BKJD)



# DV Quarter-Phased Transit Curves

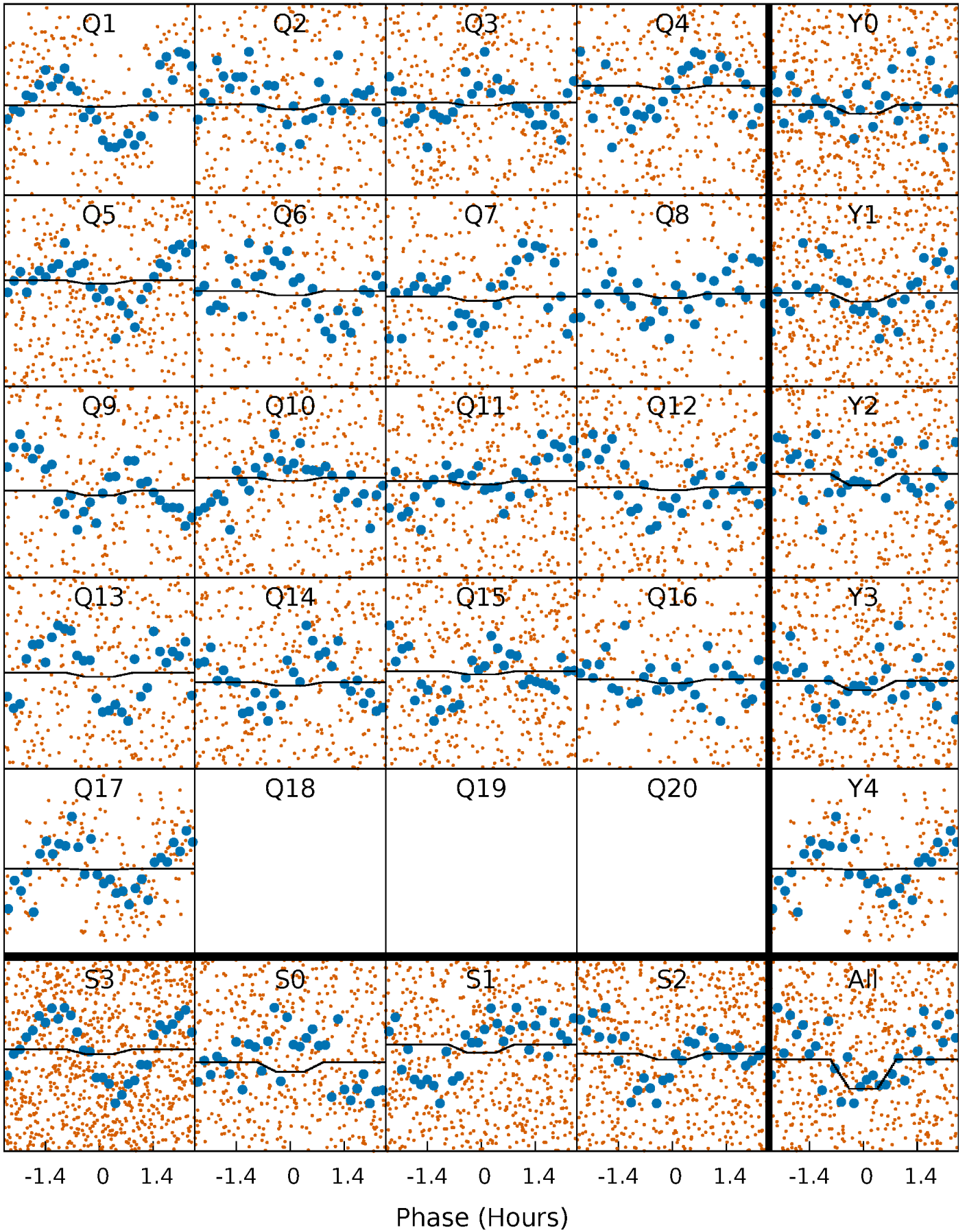
TCE 005304819-02 P= 0.521954 Days  $T_0=131.514179$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

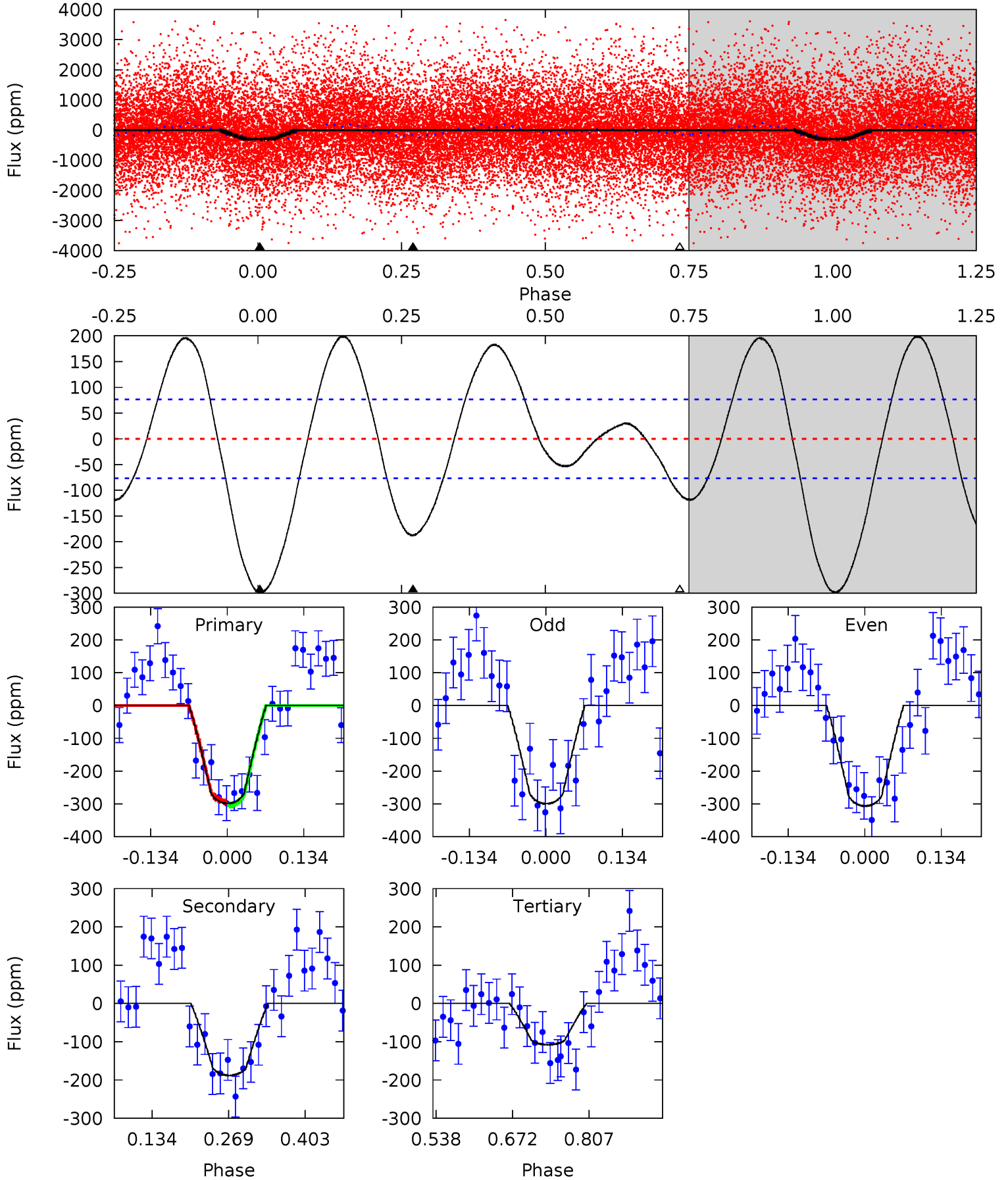
TCE 005304819-02 P= 0.521964 Days  $T_0=131.516557$  (BKJD)



# DV Model-Shift Uniqueness Test

005304819-02, P = 0.521954 Days, E = 130.992225 Days

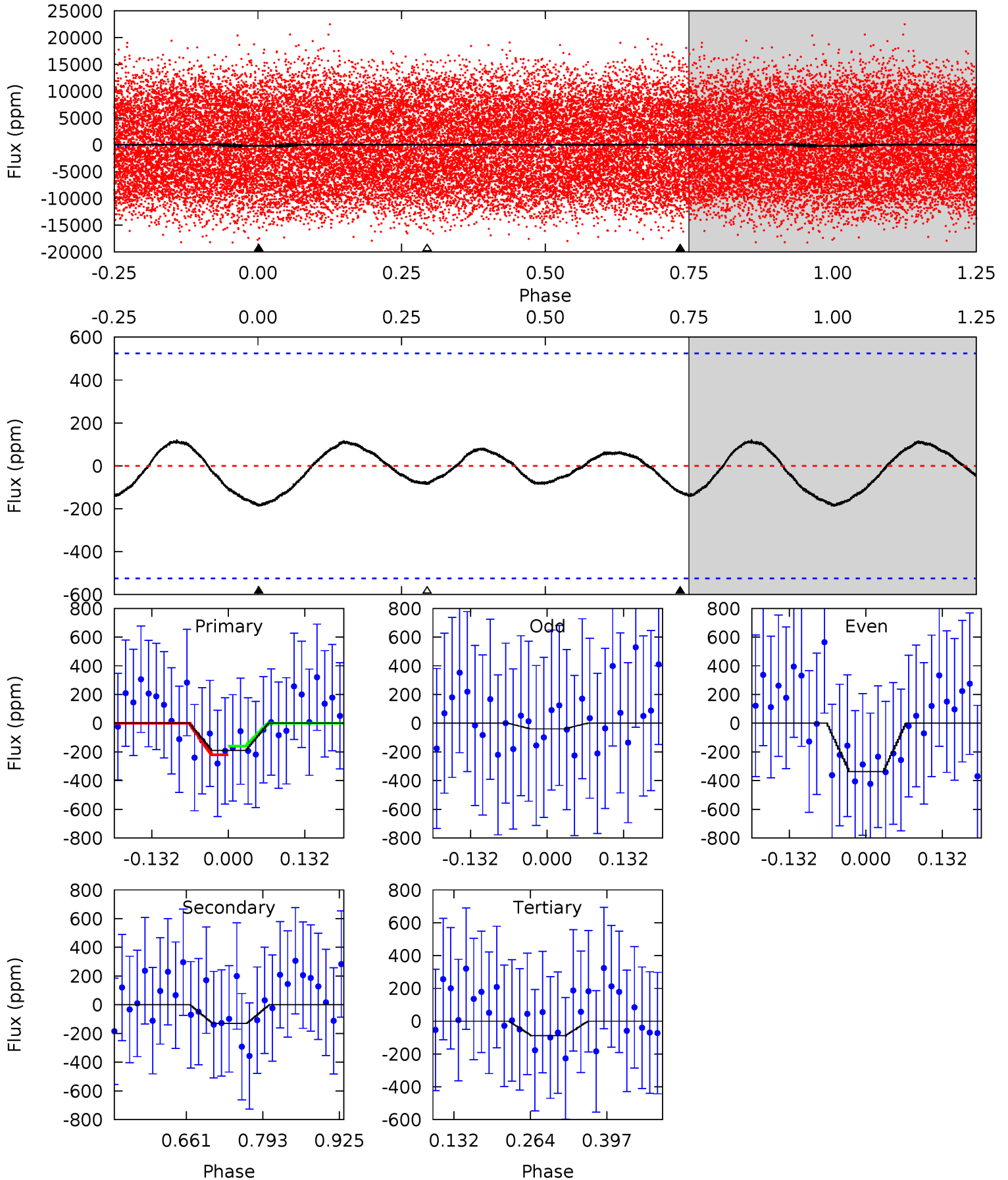
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.5	11.0	6.33	0	4.50	1.50	5.06	11.2	17.5	4.71	11.0	0.21	1.05	0.40	0.32



# Alt Model-Shift Uniqueness Test

005304819-02, P = 0.521964 Days, E = 130.994593 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.62	1.12	0.76	0	4.51	1.51	0.52	0.87	1.62	0.36	1.12	1.26	8.78	0.40	0.25



### Stellar Parameters For KIC 005304819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$\rho_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6648^{+161}_{-202}$	$4.073^{+0.279}_{-0.172}$	$-0.380^{+0.250}_{-0.300}$	$1.642^{+0.473}_{-0.521}$	$1.161^{+0.177}_{-0.159}$	$0.370^{+0.606}_{-0.177}$
	+2%/-3%	+7%/-4%	+66%/-79%	+29%/-32%	+15%/-14%	+164%/-48%
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 005304819-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-188 \pm 17$	$2.44^{+1.56}_{-1.40}$	$4507^{+366}_{-411}$	$6349^{+4771}_{-1458}$	$3.126^{+14.152}_{-1.967}$
Alt.	$-130 \pm 116$	$2.52^{+1.62}_{-1.28}$	$4512^{+364}_{-401}$	$5407^{+3419}_{-8625}$	$1.638^{+7.517}_{-1.427}$

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



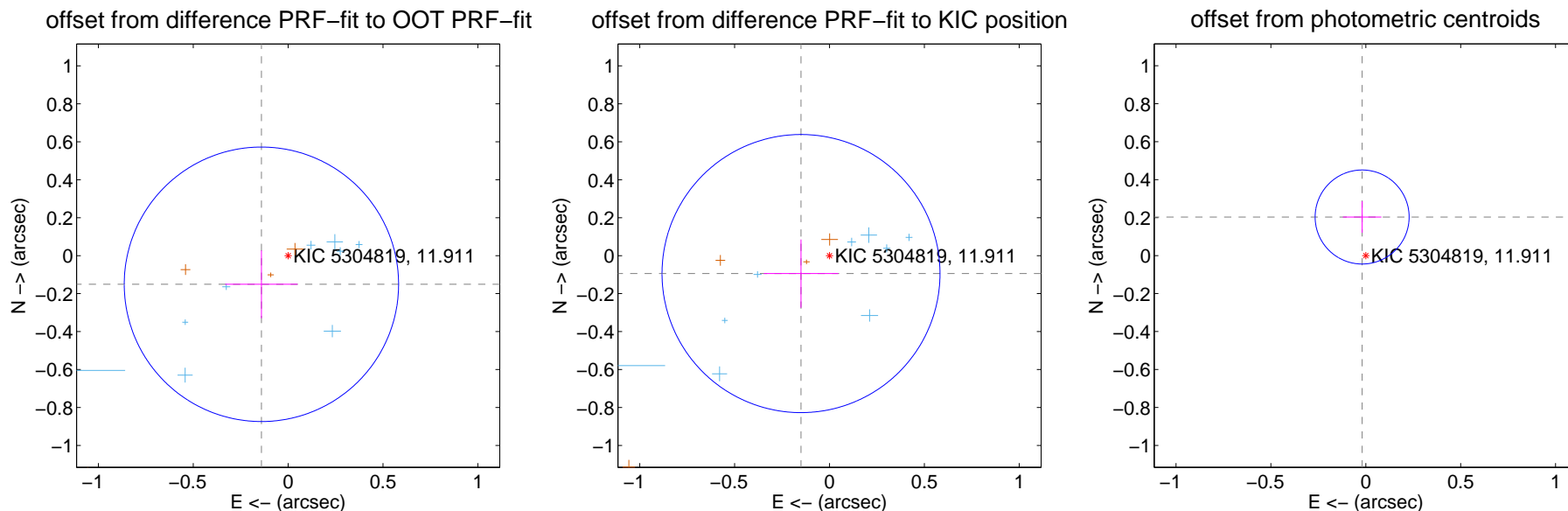
## DV Centroid Data

Supplemental centroid analysis for 005304819-02. **Kepler magnitude: 11.91.** Transit SNR 8.93

There are 12 quarters with good PRF difference image offsets

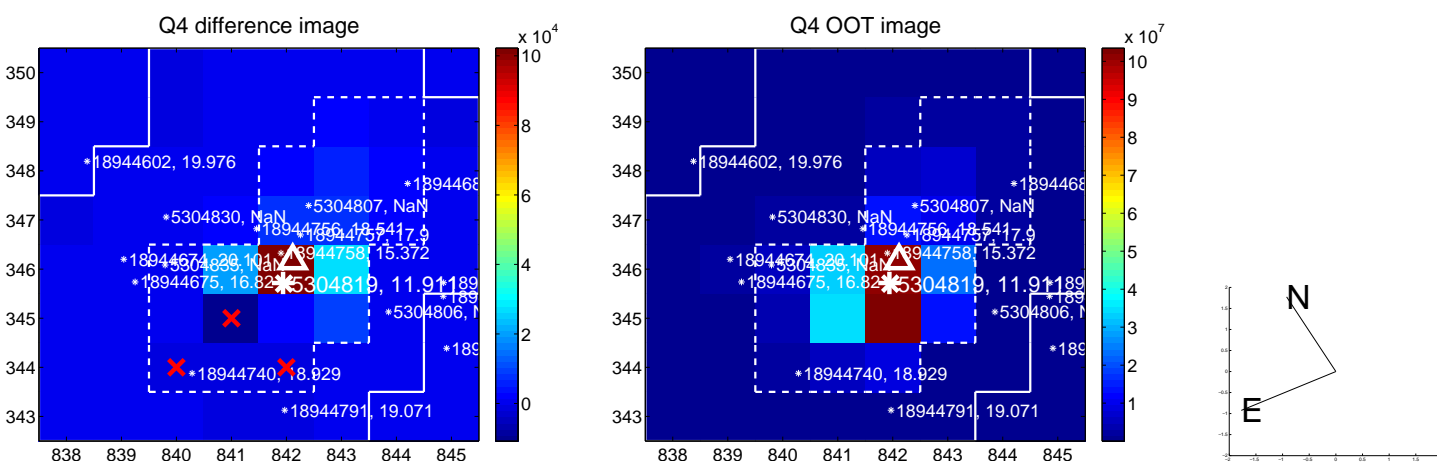
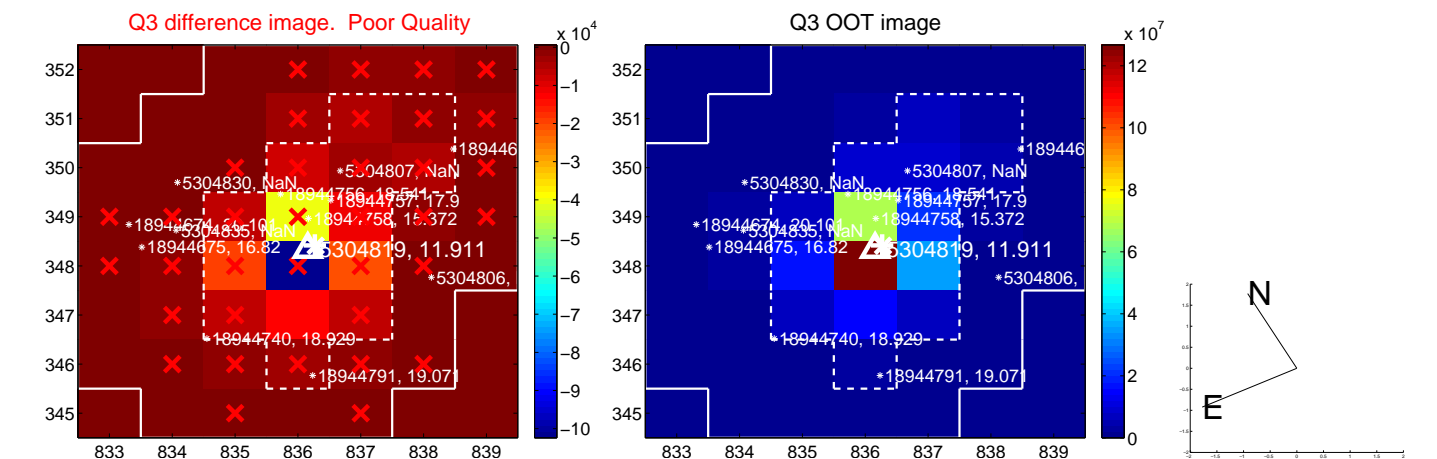
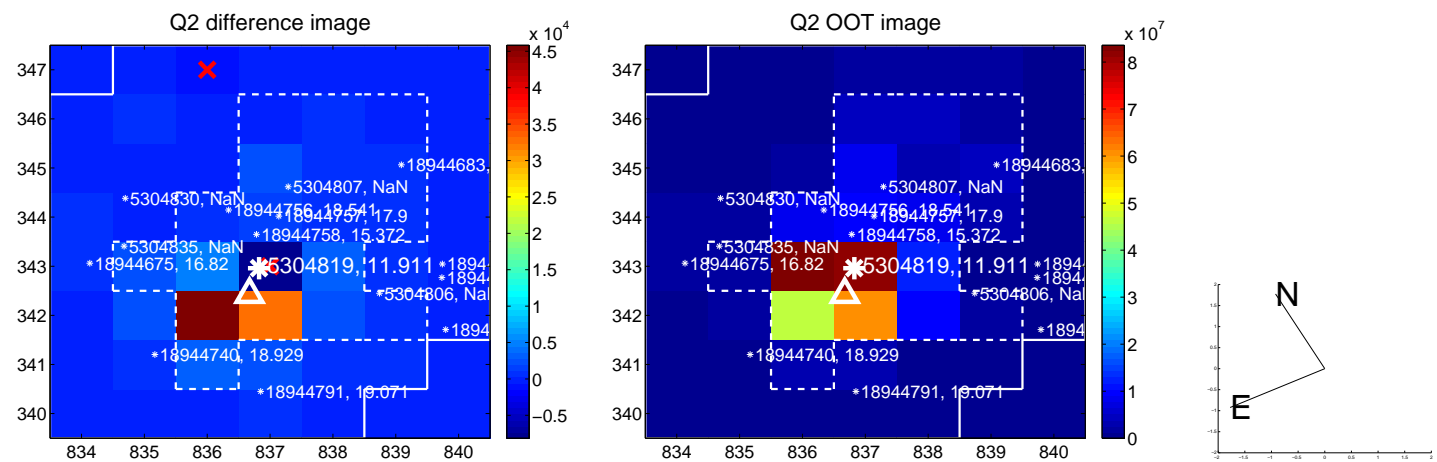
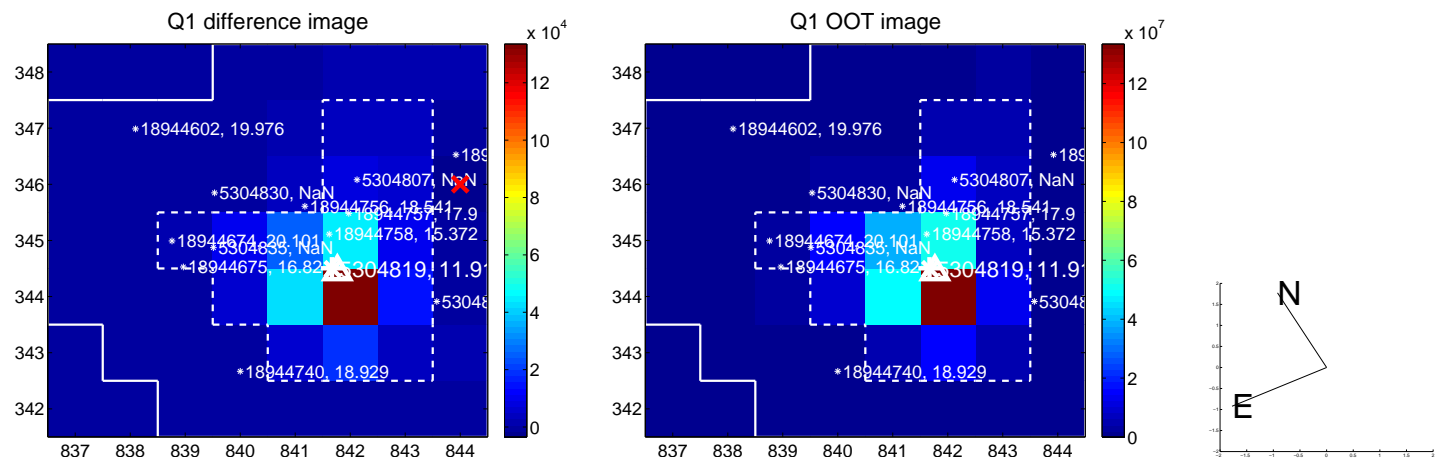
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.206 \pm 0.241$	0.86	$0.141 \pm 0.191$	$-0.151 \pm 0.179$
PRF-fit source offset from KIC position	$0.177 \pm 0.244$	0.73	$0.150 \pm 0.197$	$-0.094 \pm 0.180$
photometric centroid source offset	$0.20 \pm 0.08$	2.47	$0.02 \pm 0.10$	$0.20 \pm 0.08$

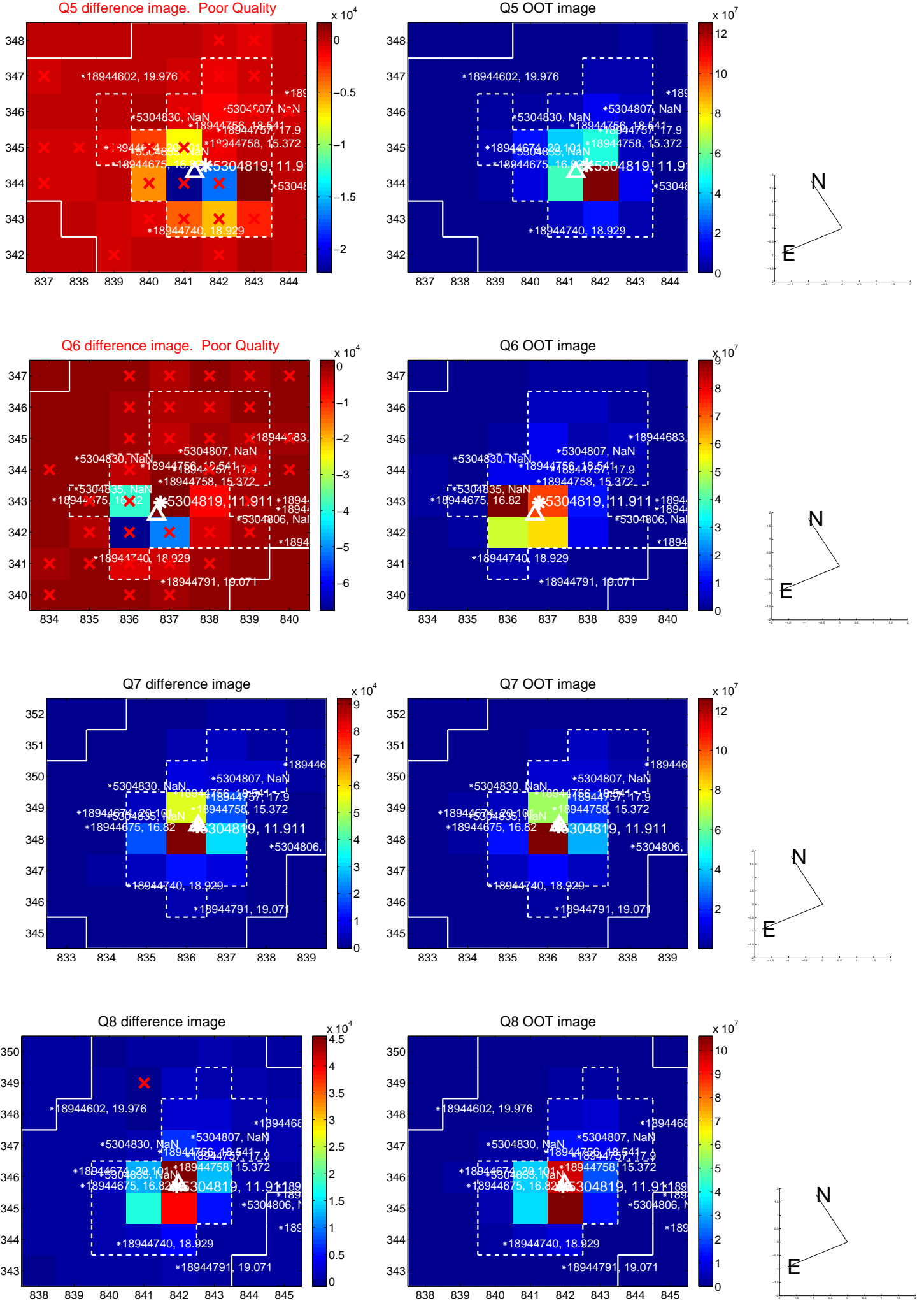


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

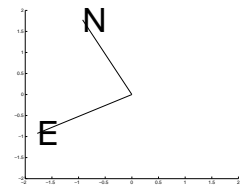
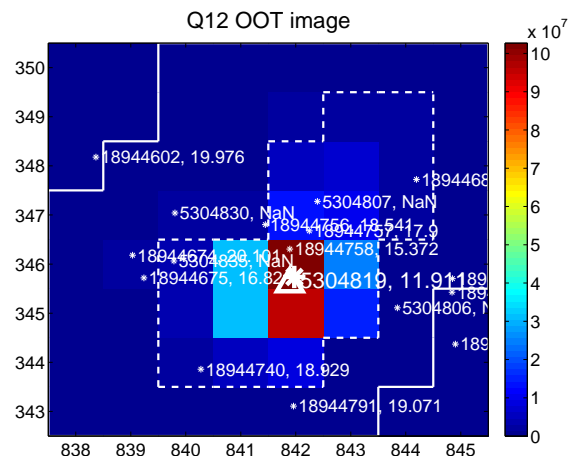
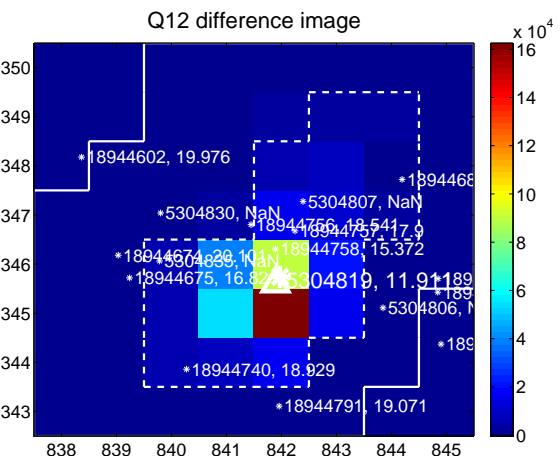
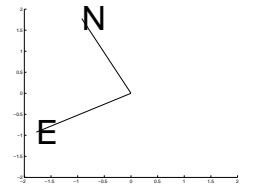
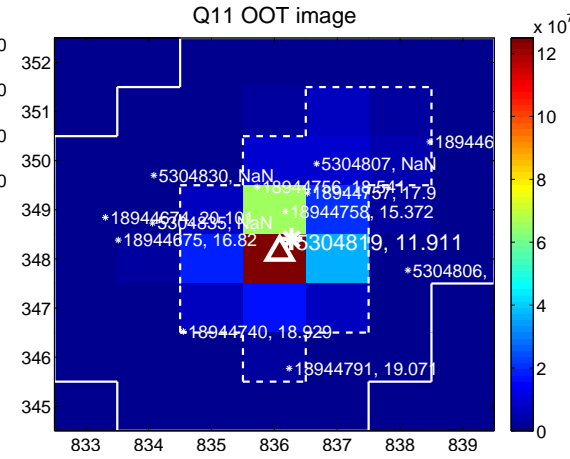
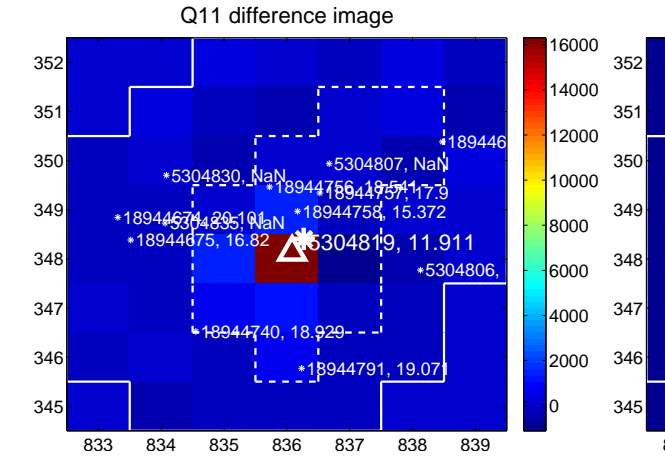
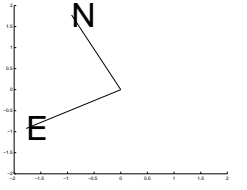
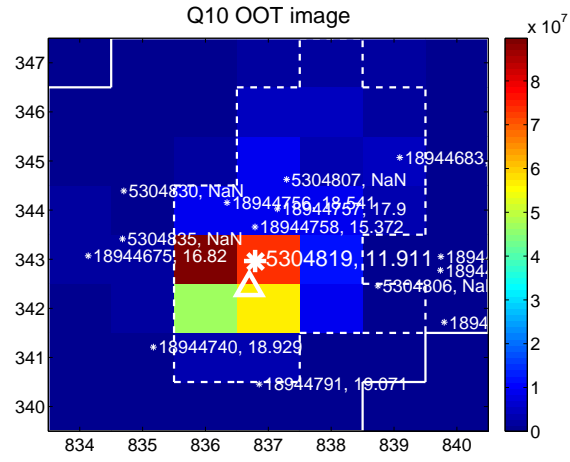
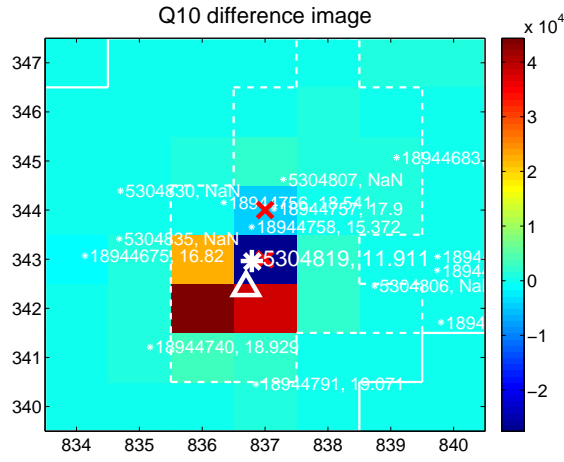
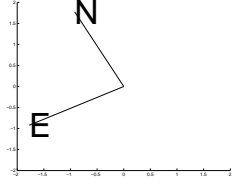
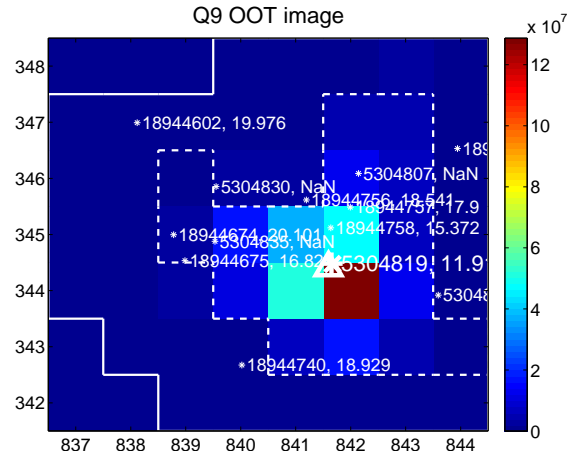
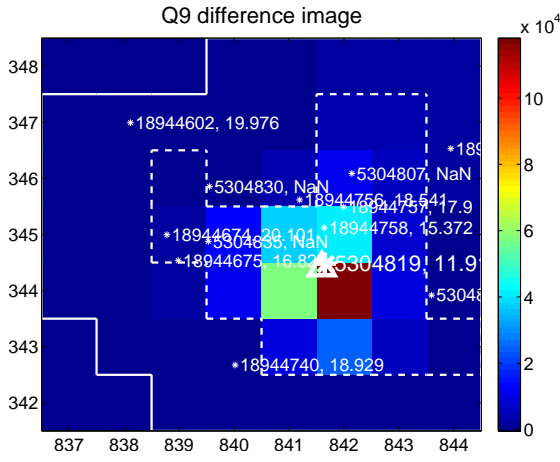
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



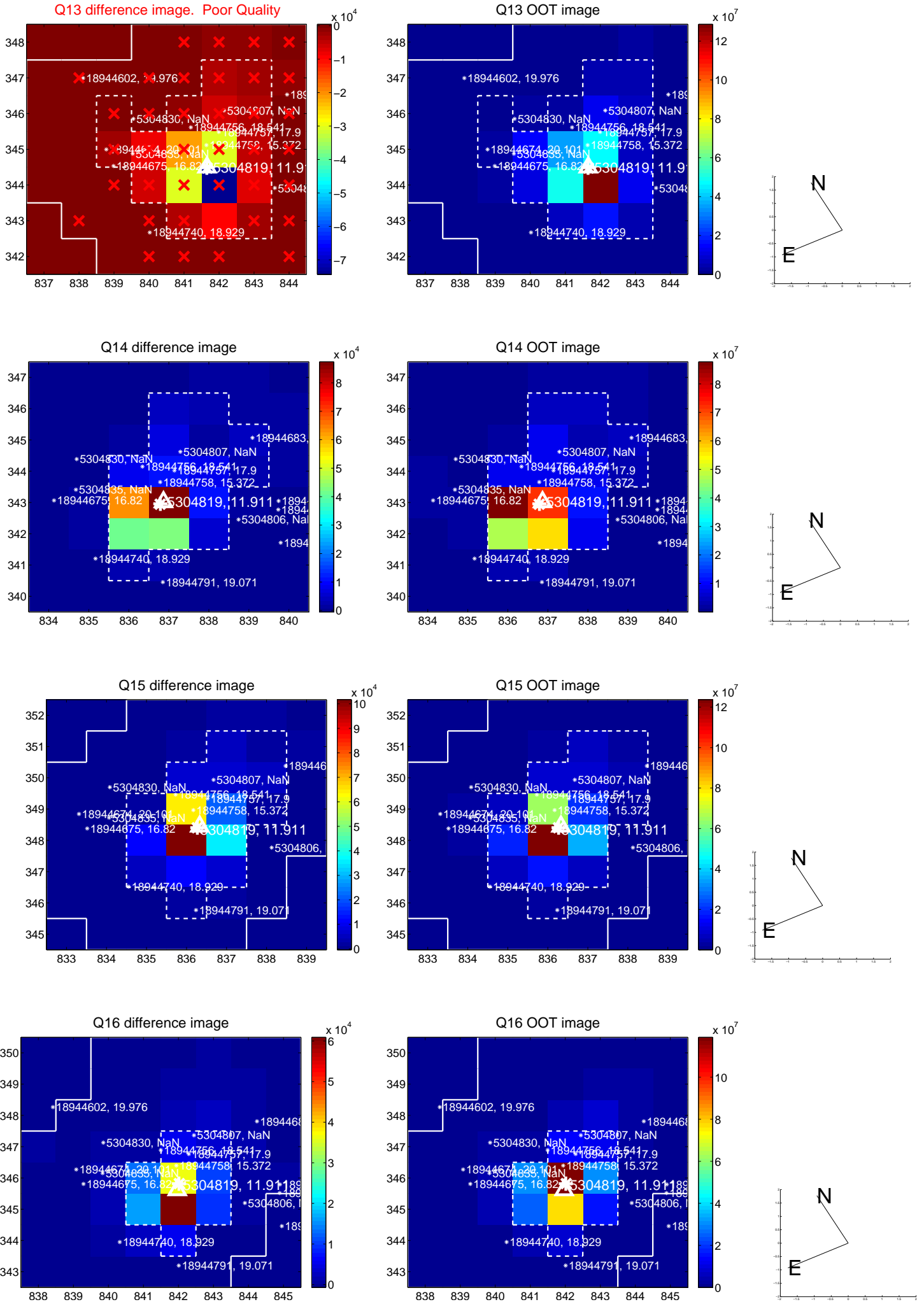
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



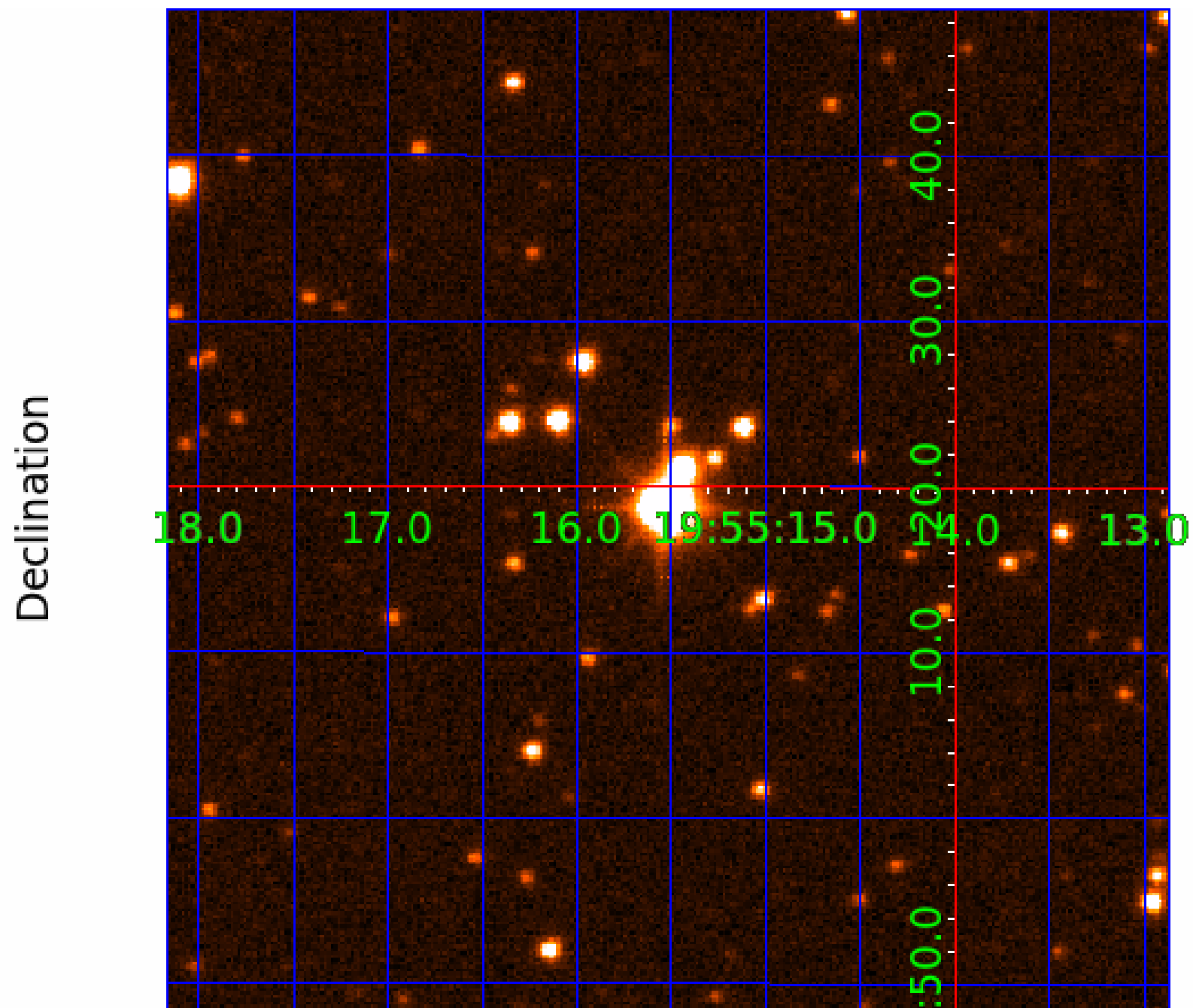
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.







UKIRT Image



# KIC 005304819

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005304819-01	OBS	No	1.035400	132.027433	203.5	4.849	11.9	9.9	1.64	6648	3.15	10627.47
005304819-02	OBS	No	0.521954	131.514179	206.5	1.243	11.5	8.9	1.64	6648	2.45	26488.90
005304819-03	OBS	No	94.624386	150.400782	280.1	2.000	9.4	-1.0	1.64	6648	2.77	25.82

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005304819-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005304819-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005304819-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

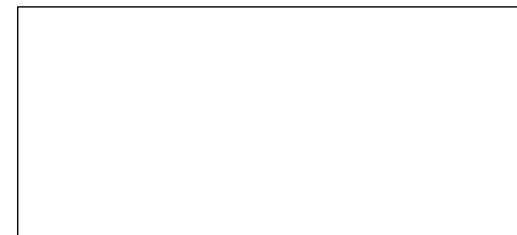
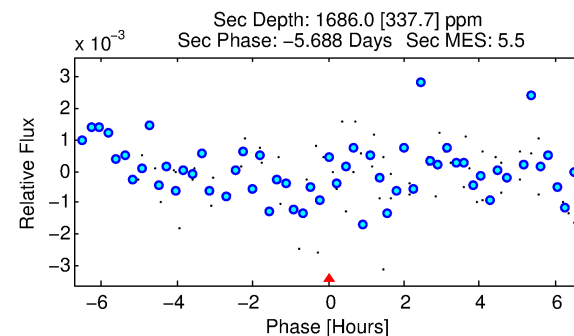
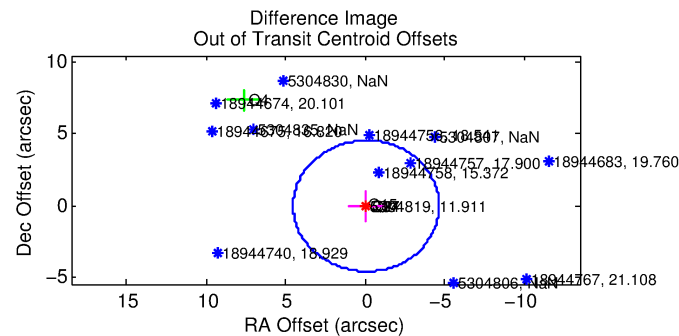
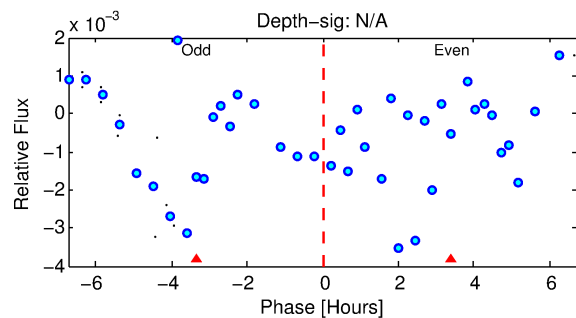
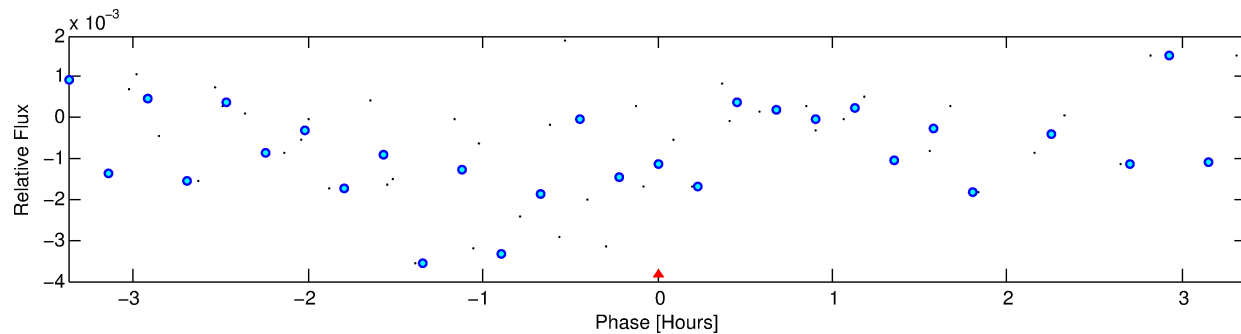
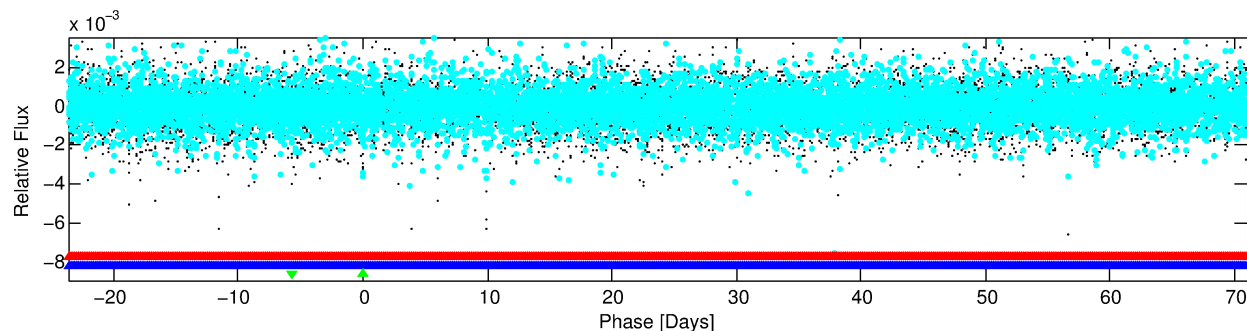
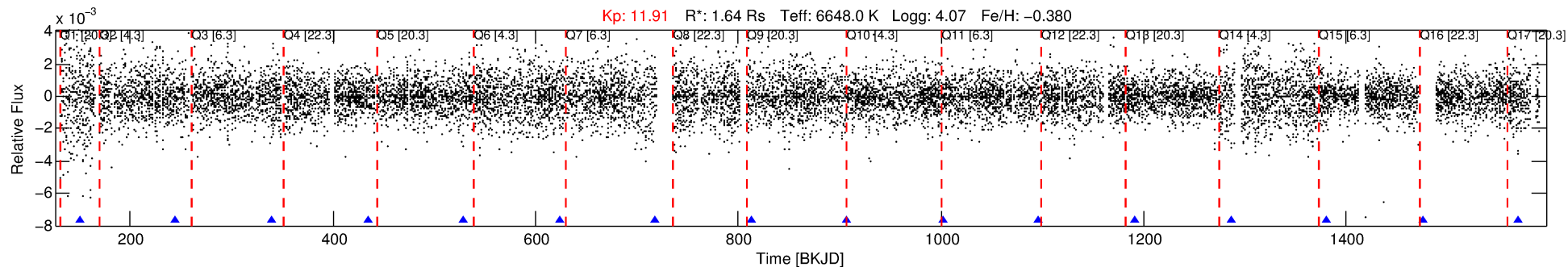
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005304819-03

No Significant Match Found

# DV One-Page Summary

KIC: 5304819 Candidate: 3 of 3 Period: 94.624 d



## TPS TCE Results:

Period = 94.62439 d  
Epoch = 150.4008 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

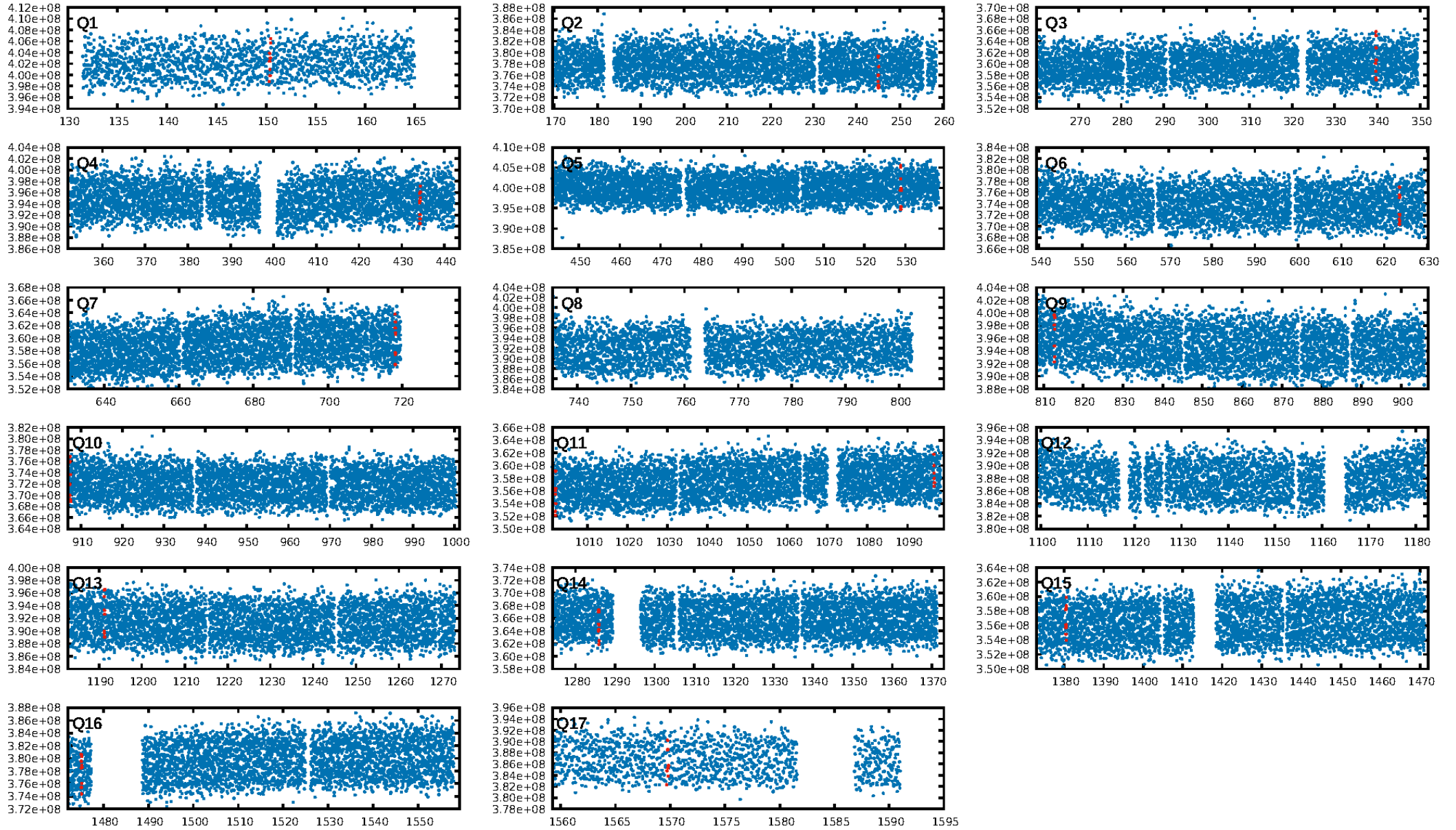
ShortPeriod-sig: 100.0% [428.24 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -3.54

Centroid-sig: 21.1%  
Centroid-so: 0.208 arcsec [8.67 $\sigma$ ]  
OotOffset-rm: 0.063 arcsec [0.04 $\sigma$ ]  
KicOffset-rm: 0.036 arcsec [0.04 $\sigma$ ]  
OotOffset-st: 2/2/1/2 [7]  
KicOffset-st: 2/2/1/2 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 0.00 [0/7]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:36:43 Z

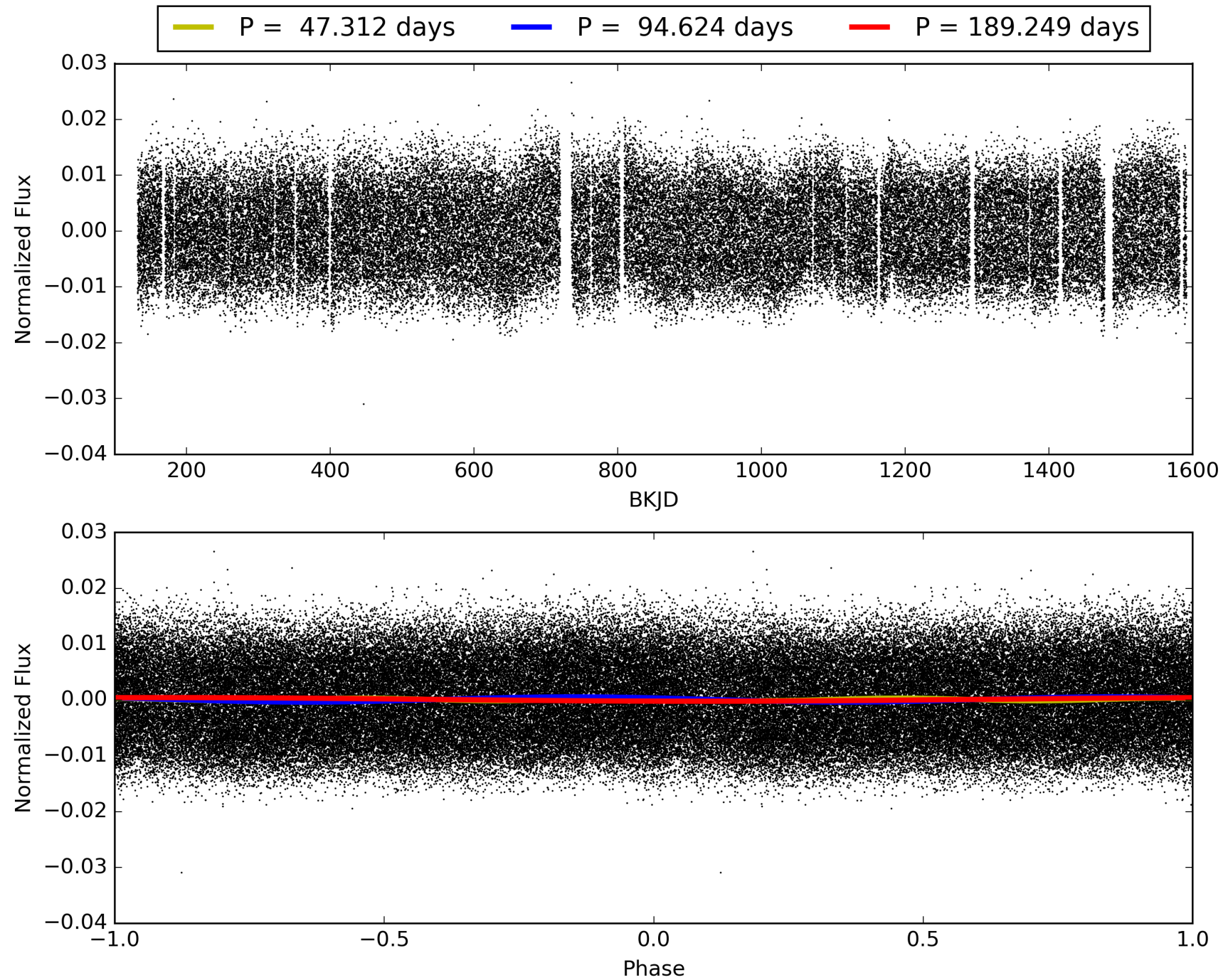
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005304819-03, PDC Light Curves



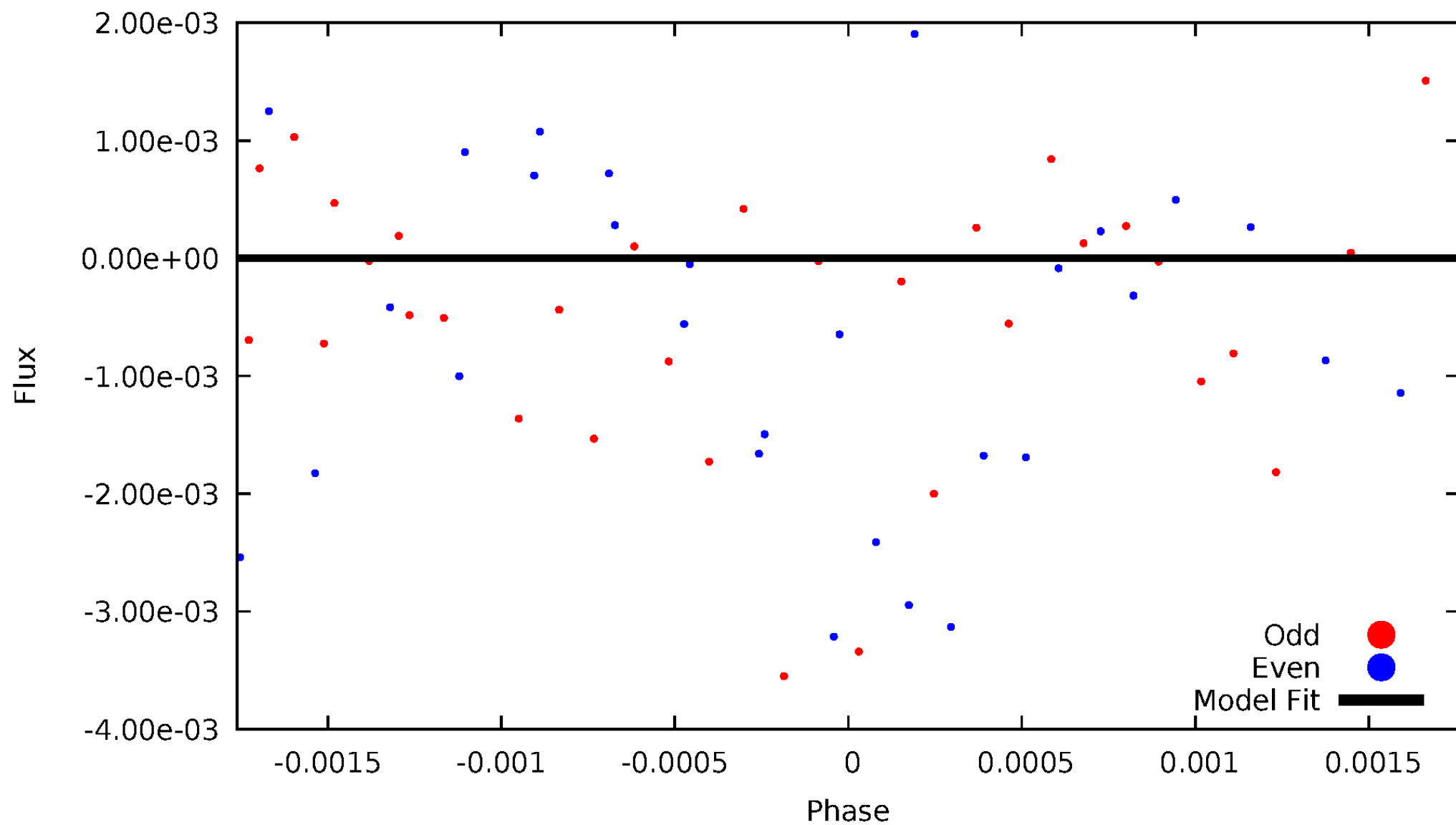


TCE 005304819-03



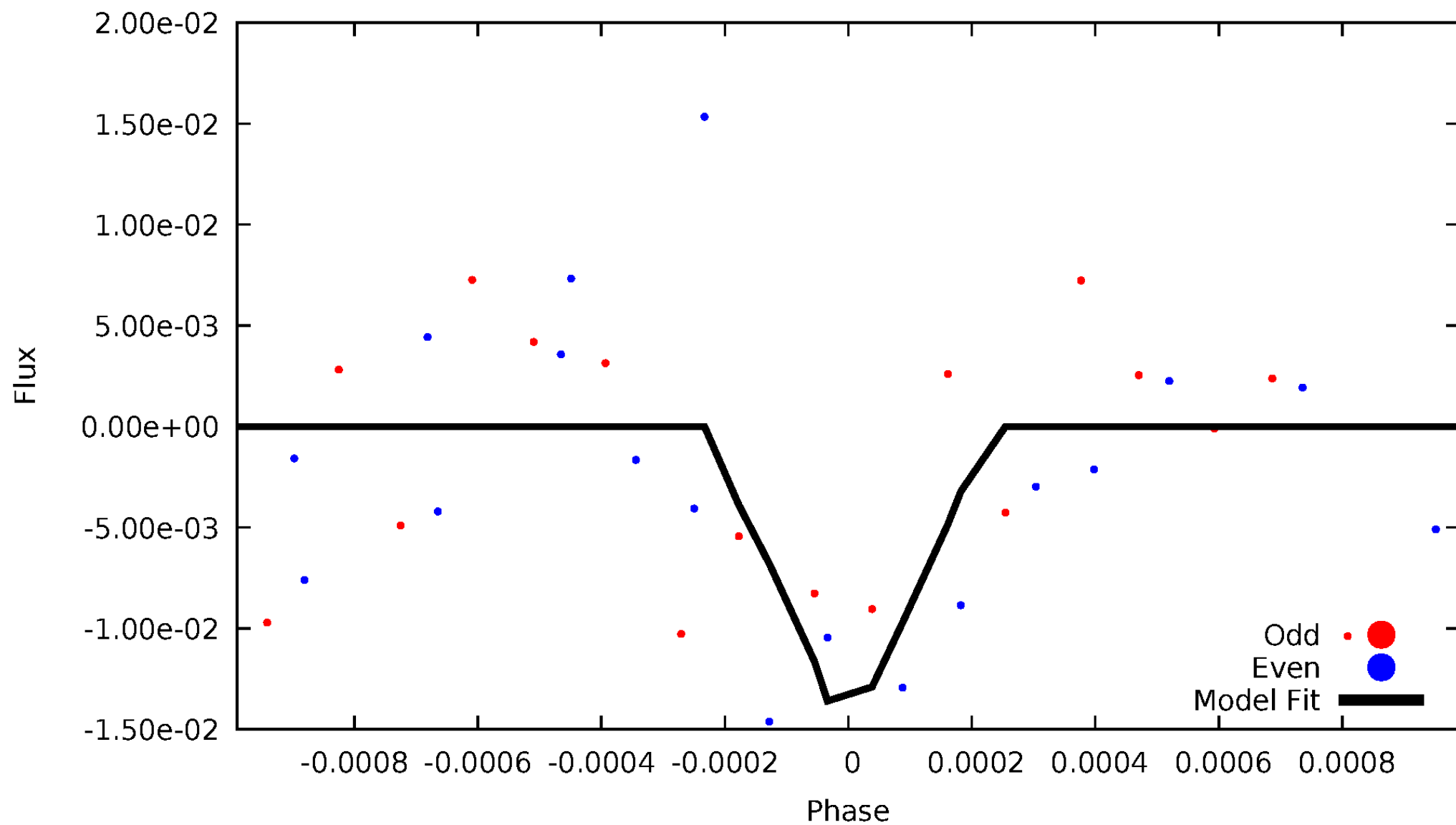
# DV Odd/Even

TCE 005304819-03

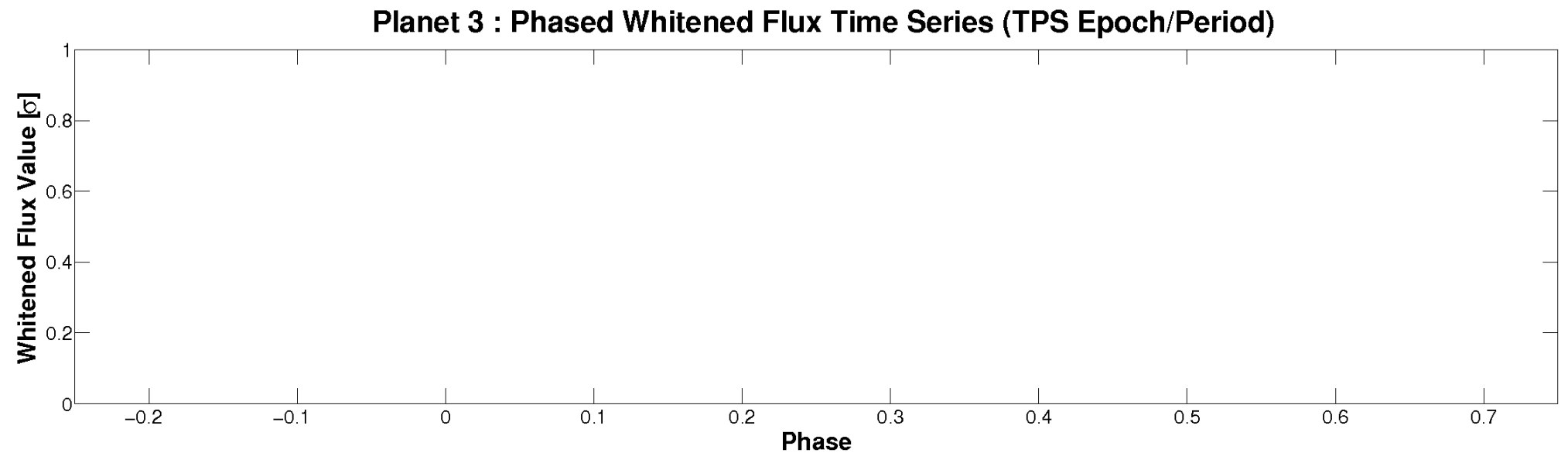
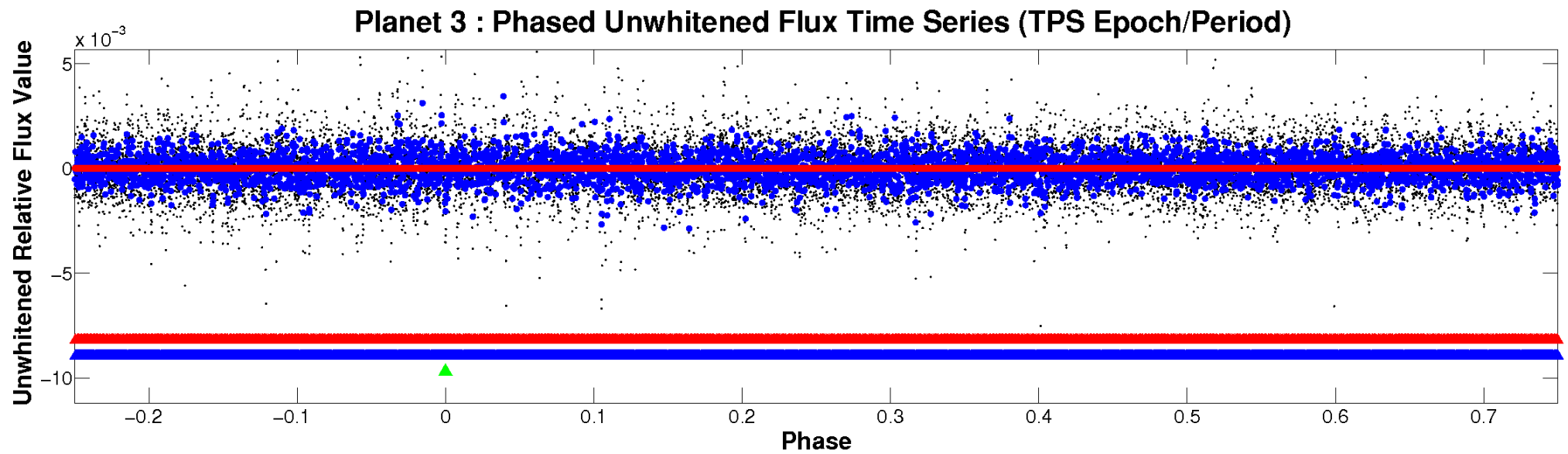


# ALT Odd/Even

TCE 005304819-03

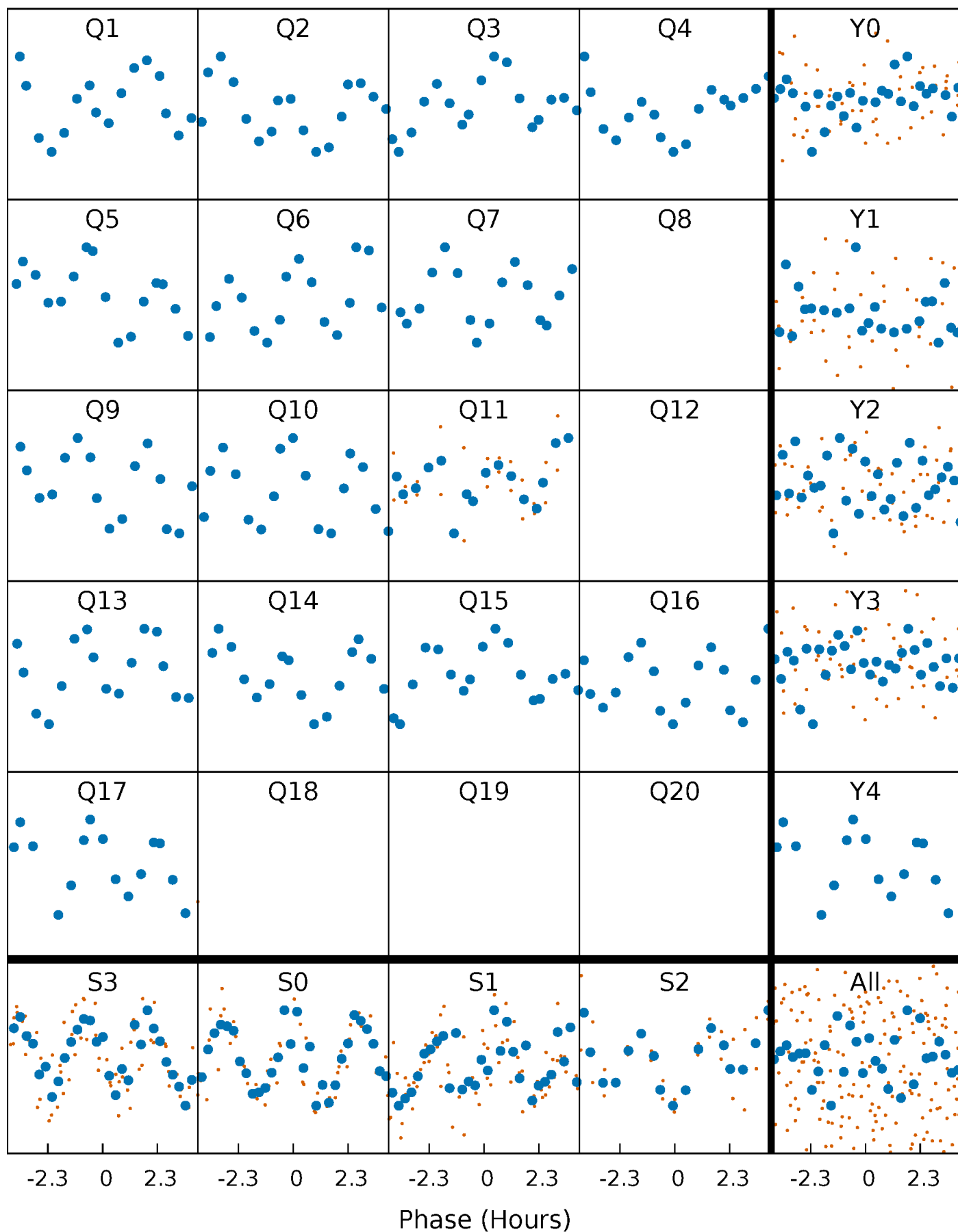


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

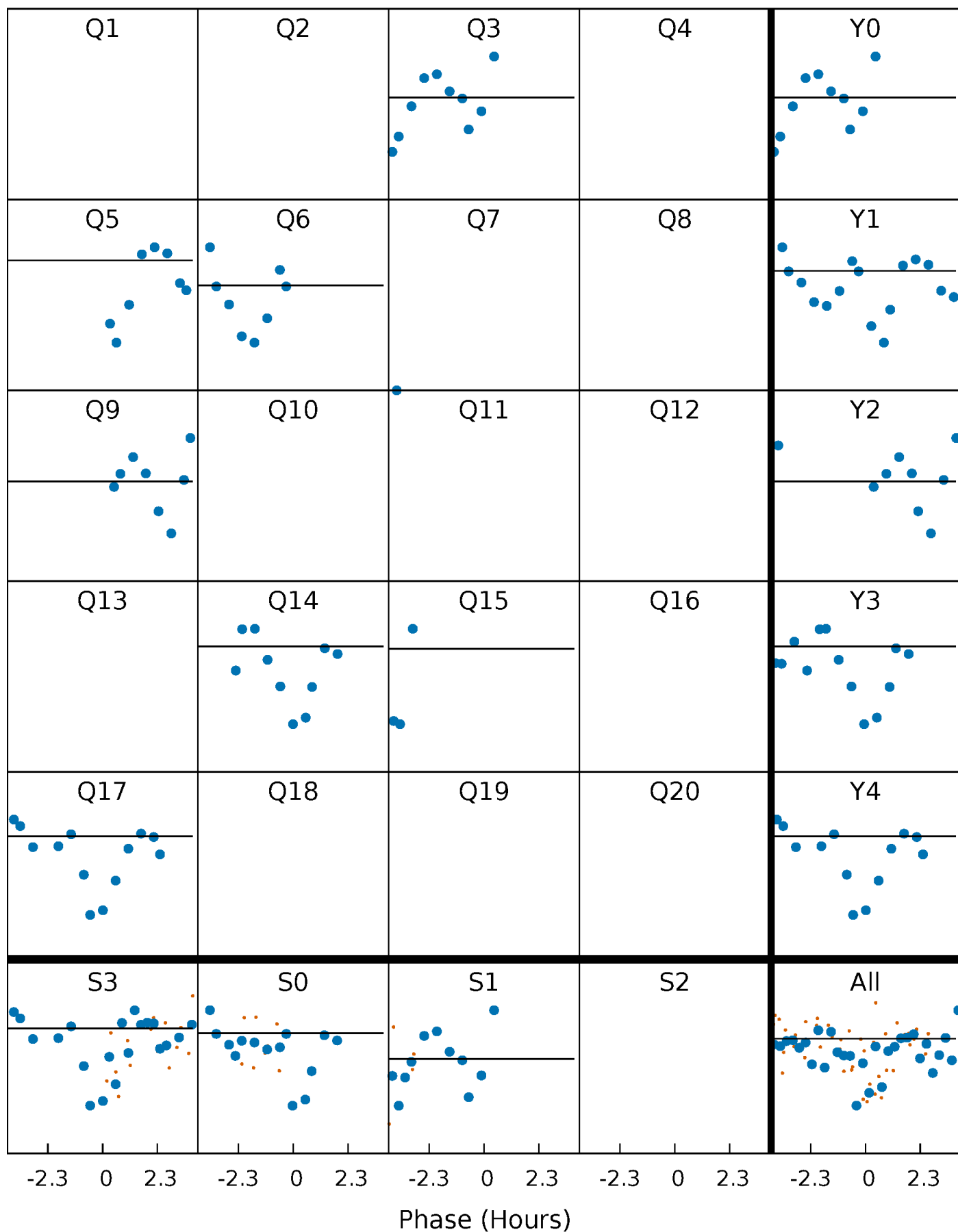
TCE 005304819-03   P= 94.624386 Days    $T_0=150.400781$  (BKJD)





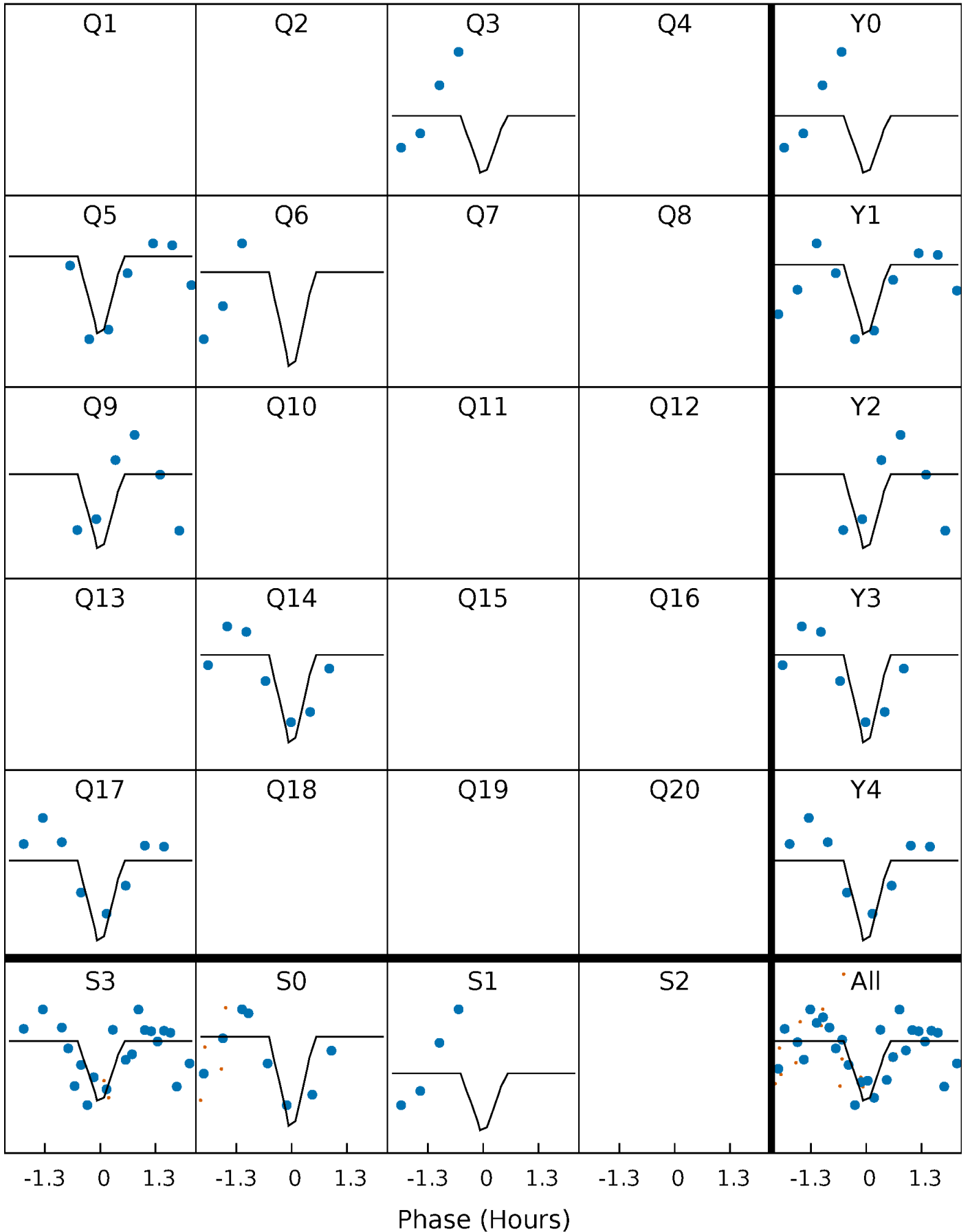
# DV Quarter-Phased Transit Curves

TCE 005304819-03 P= 94.624386 Days  $T_0=150.400781$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

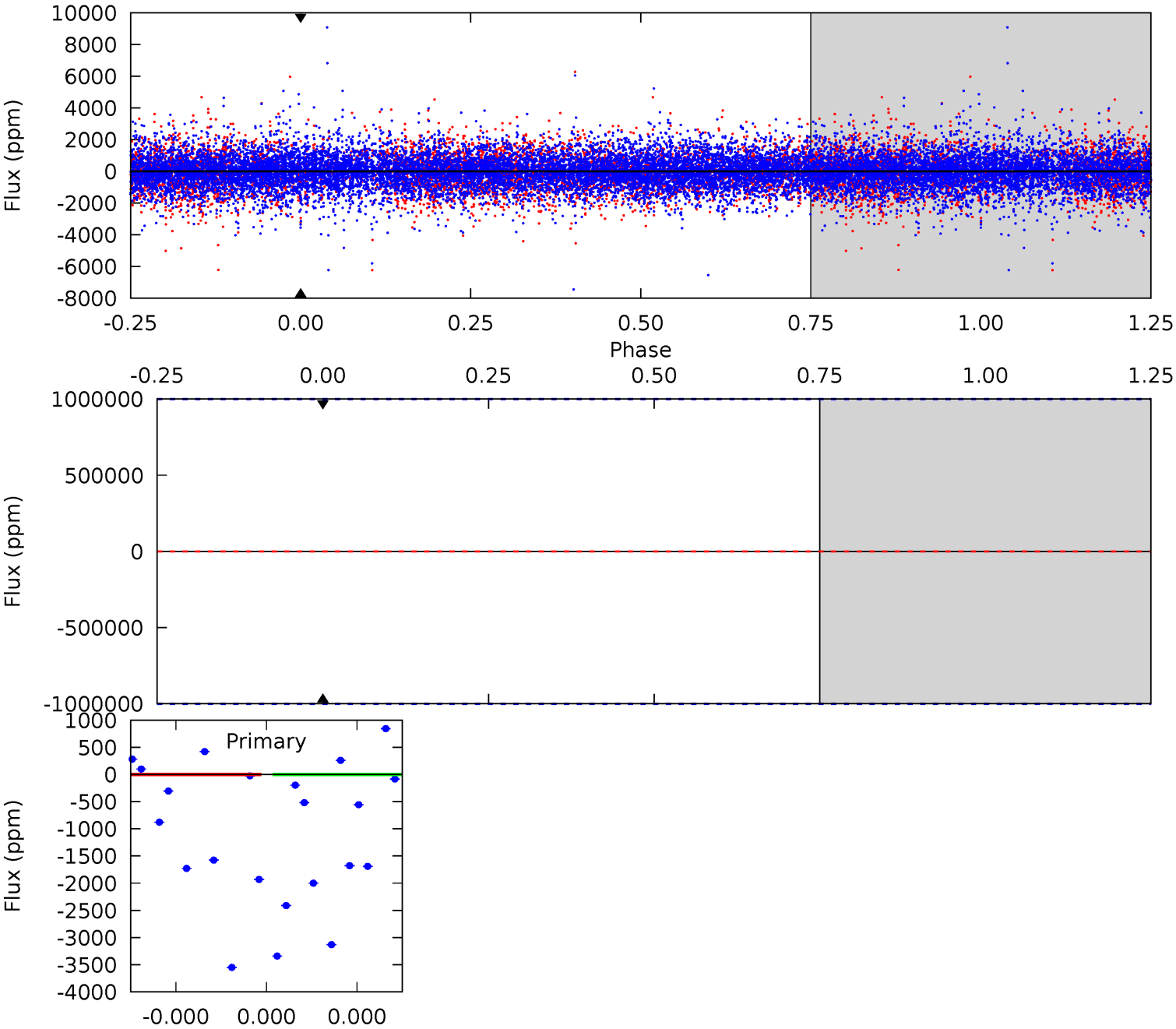
TCE 005304819-03 P= 94.624386 Days  $T_0=150.440888$  (BKJD)



# DV Model-Shift Uniqueness Test

005304819-03, P = 94.624386 Days, E = 55.776395 Days

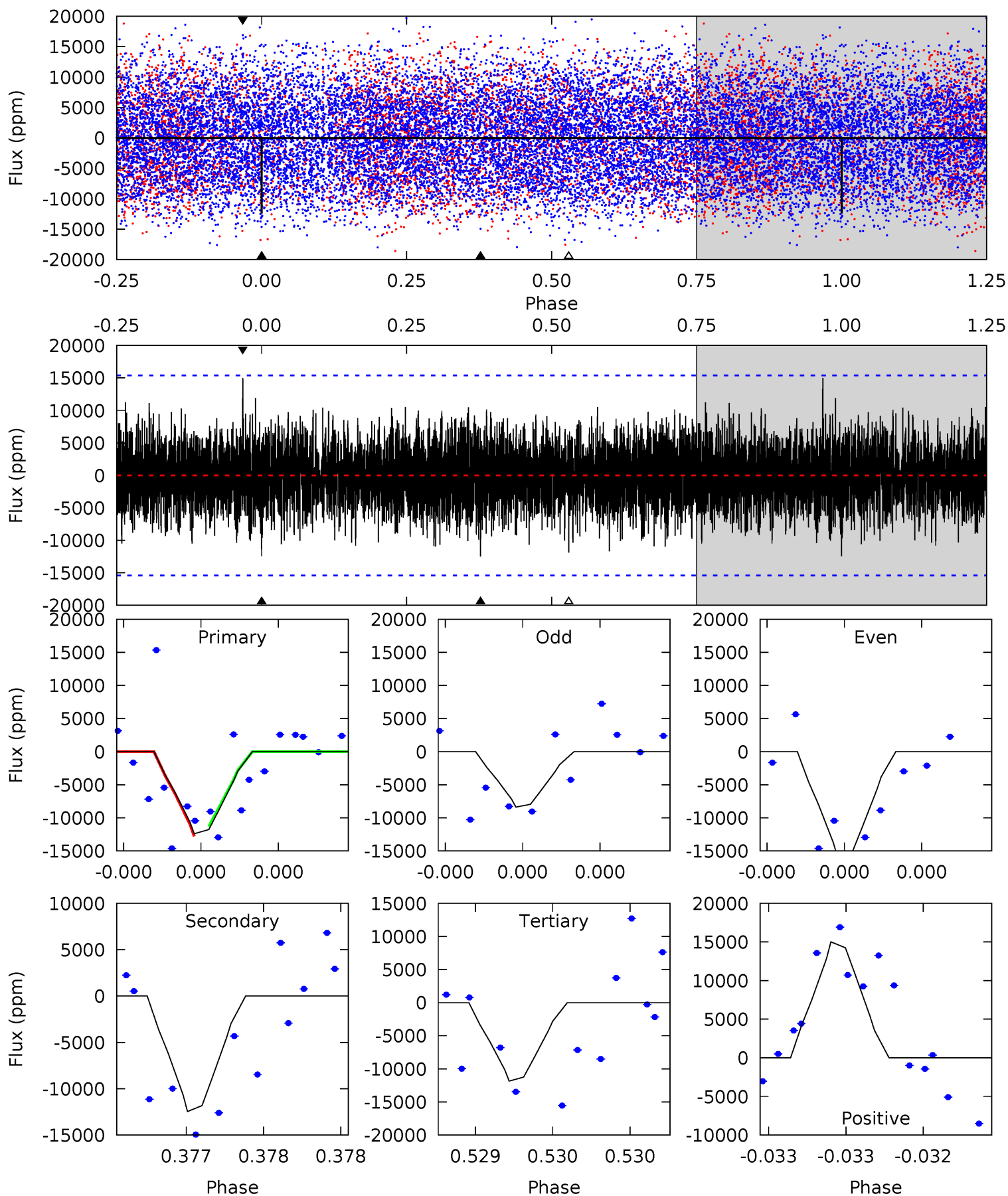
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

005304819-03, P = 94.624386 Days, E = 55.816502 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
4.53	4.55	4.33	5.48	5.62	3.55	1.45	0.20	-0.95	0.22	-0.93	1.39	1.15	0.55	0.25



### Stellar Parameters For KIC 005304819

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6648^{+161}_{-202}$	$4.073^{+0.279}_{-0.172}$	$-0.380^{+0.250}_{-0.300}$	$1.642^{+0.473}_{-0.521}$	$1.161^{+0.177}_{-0.159}$	$0.370^{+0.606}_{-0.177}$
	+2%/-3%	+7%/-4%	+66%/-79%	+29%/-32%	+15%/-14%	+164%/-48%
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 005304819-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$11.91^{+13.18}_{-8.12}$	$798^{+61}_{-71}$	$-4235^{+38218}_{-24111}$	$-463.108^{+131739.348}_{-109701.819}$
Alt.	$-12466 \pm 2740$	$24.22^{+16.72}_{-14.59}$	$798^{+62}_{-72}$	$5896^{+4590}_{-1173}$	$2092^{+11781}_{-1362}$

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



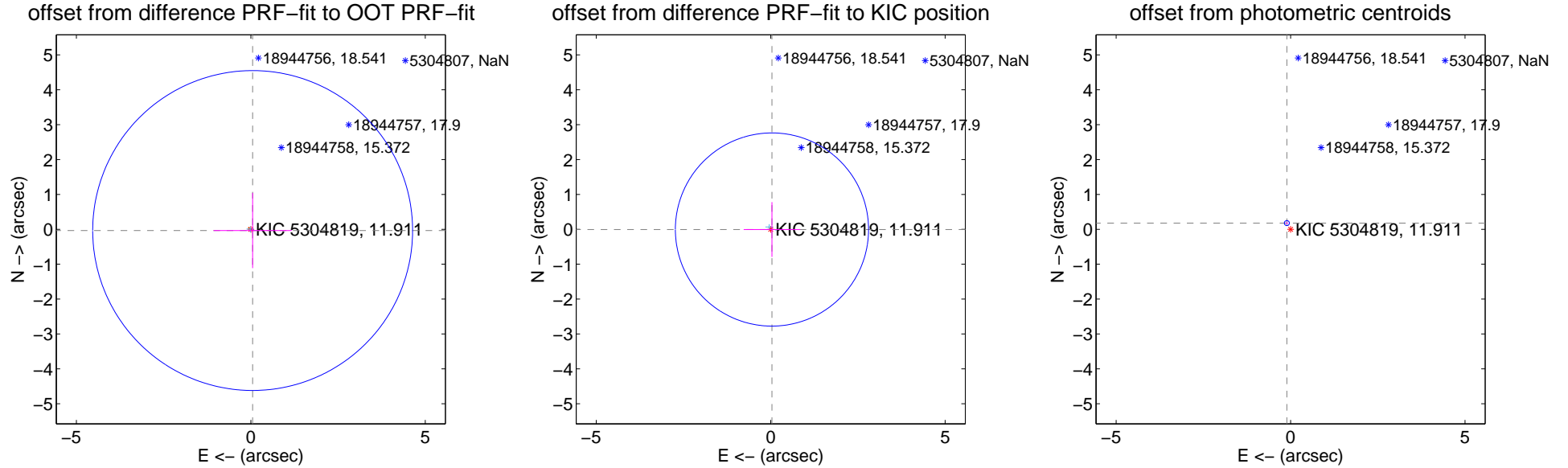
## DV Centroid Data

Supplemental centroid analysis for 005304819-03. **Kepler magnitude: 11.91.** Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

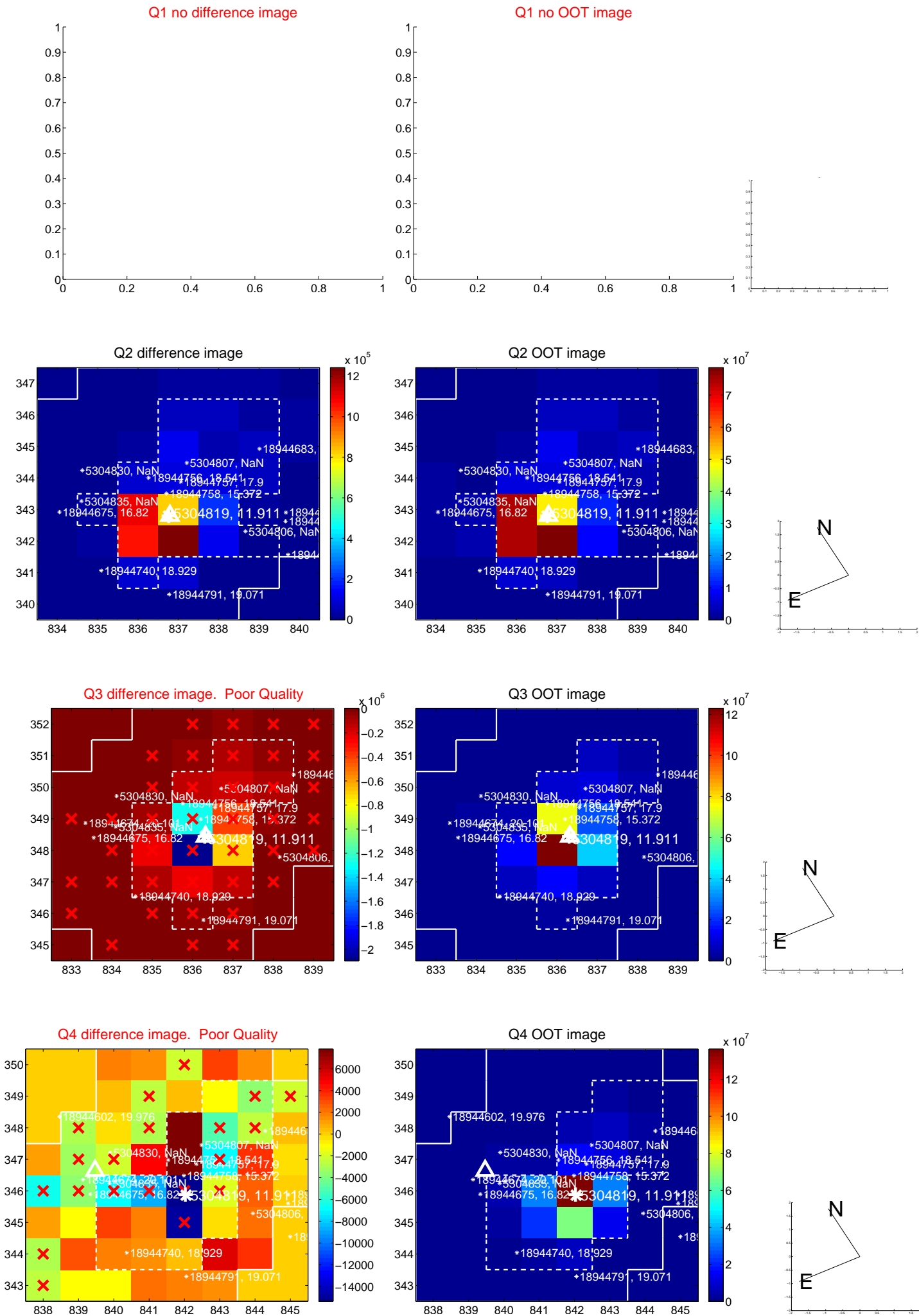
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.063 \pm 1.529$	0.04	$-0.052 \pm 1.119$	$-0.035 \pm 1.078$
PRF-fit source offset from KIC position	$0.036 \pm 0.923$	0.04	$-0.036 \pm 0.810$	$-0.006 \pm 0.785$
photometric centroid source offset	<b><math>0.21 \pm 0.02</math></b>	<b>8.67</b>	$0.11 \pm 0.03$	$0.18 \pm 0.02$



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.

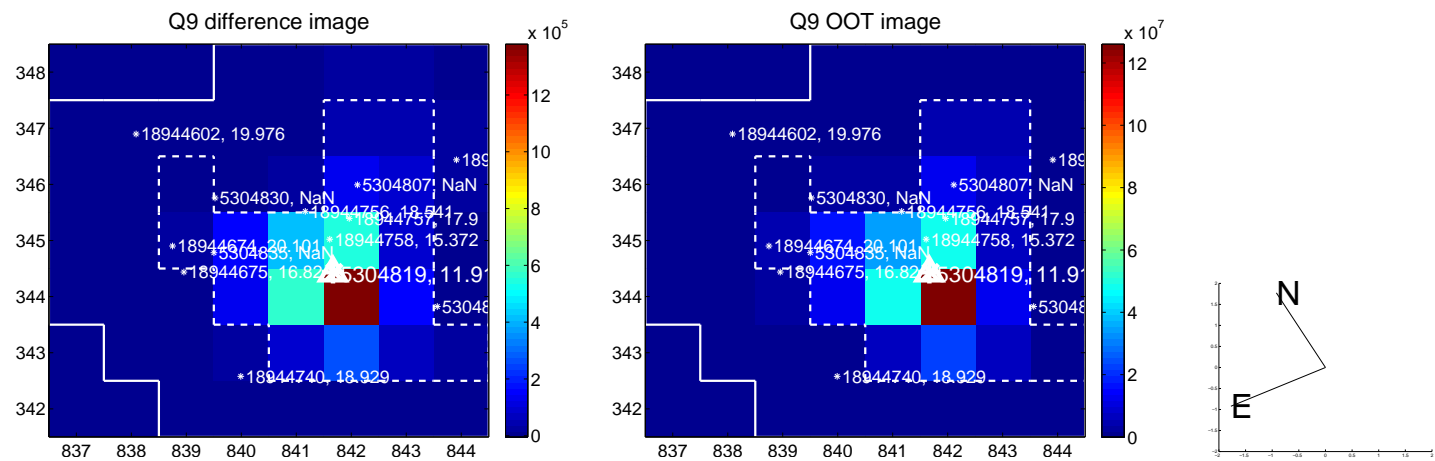
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.

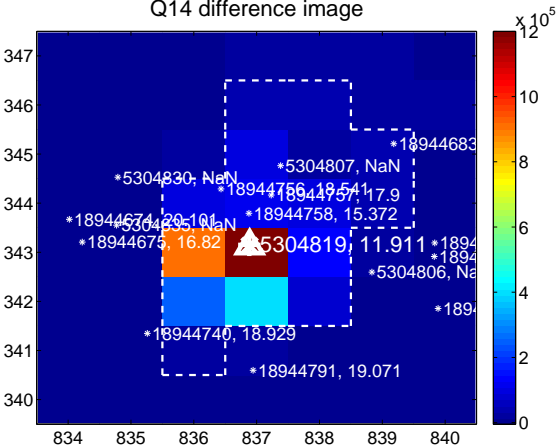
Q13 no difference image



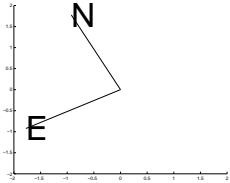
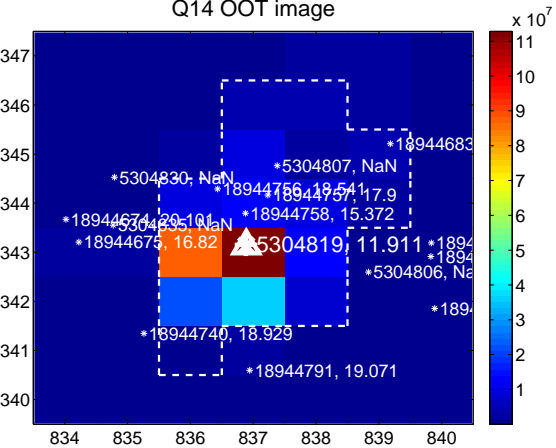
Q13 no OOT image



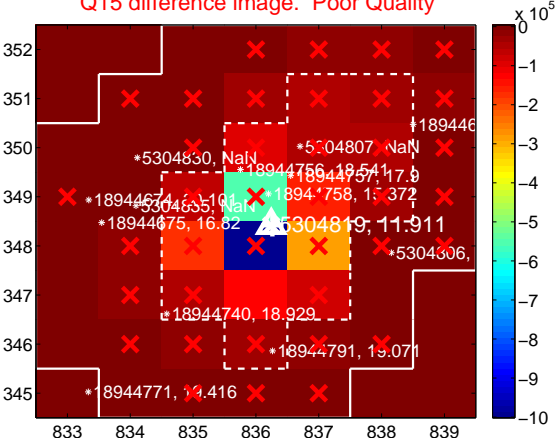
Q14 difference image



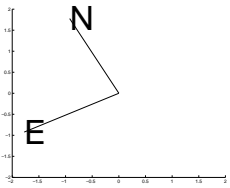
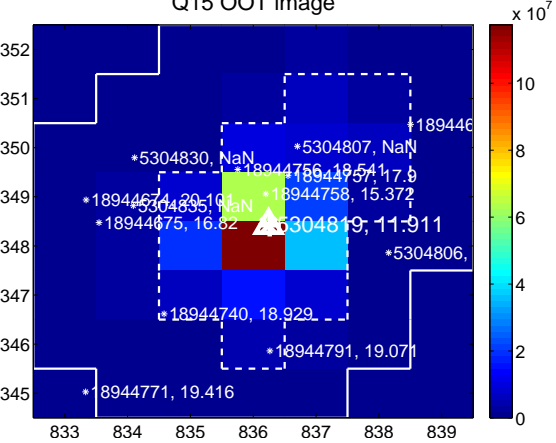
Q14 OOT image



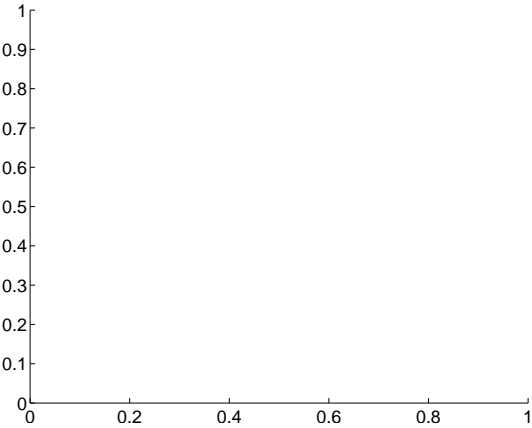
Q15 difference image. Poor Quality



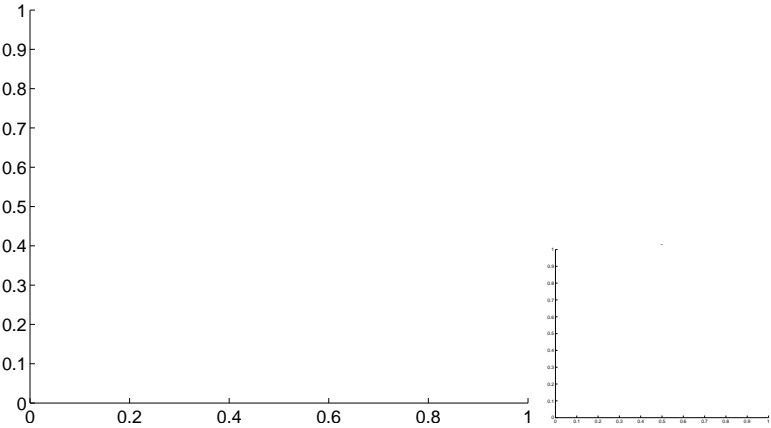
Q15 OOT image



Q16 no difference image

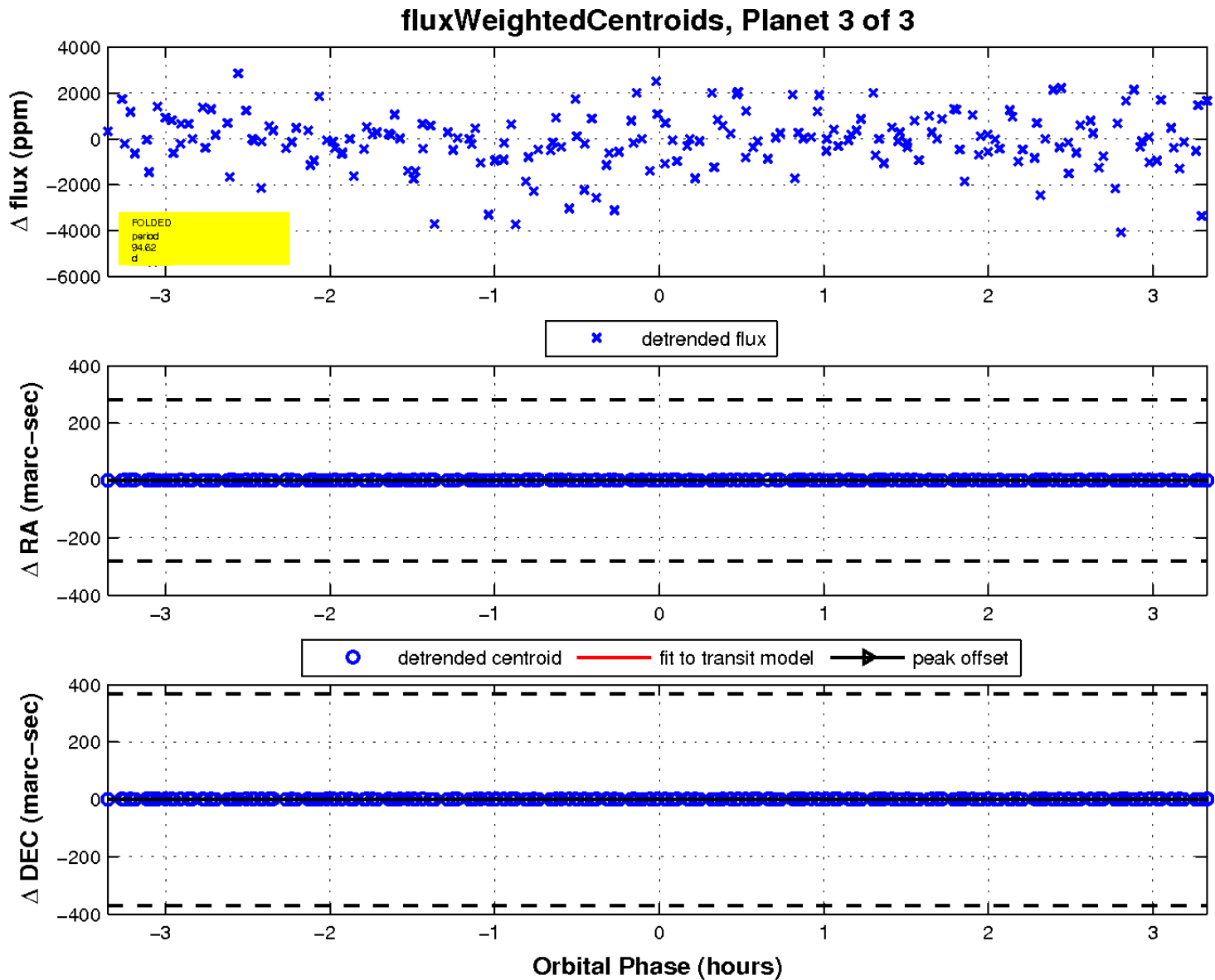
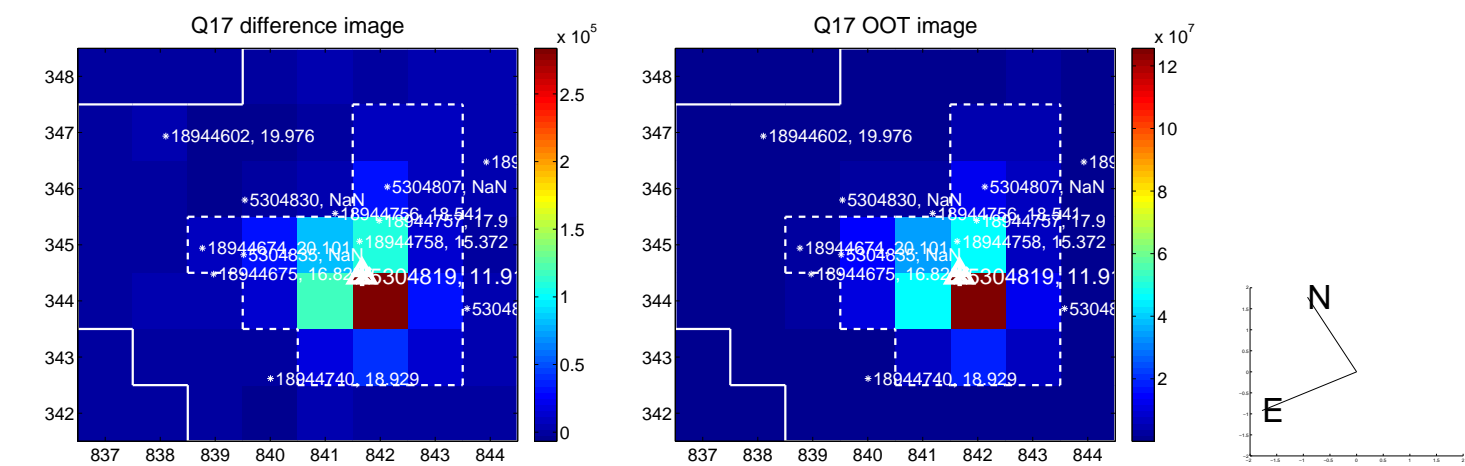


Q16 no OOT image





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



UKIRT Image

