

# KIC 011454304

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011454304-01	OBS	No	1.331299	132.133336	14.2	8.146	9.8	2.5	3.52	13203	1.43	274630.10
011454304-02	OBS	No	86.597921	168.692235	1467.7	8.898	18.1	8.9	3.52	13203	23.25	1049.80
011454304-03	OBS	No	196.969825	184.882274	904.9	6.845	9.3	9.2	3.52	13203	18.48	350.95
011454304-04	OBS	No	86.625656	179.736995	807.2	5.484	9.0	7.2	3.52	13203	17.49	1049.35
011454304-05	OBS	No	130.558915	144.168424	1109.1	6.697	9.3	8.9	3.52	13203	20.38	607.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011454304-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011454304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011454304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
011454304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011454304-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES

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

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

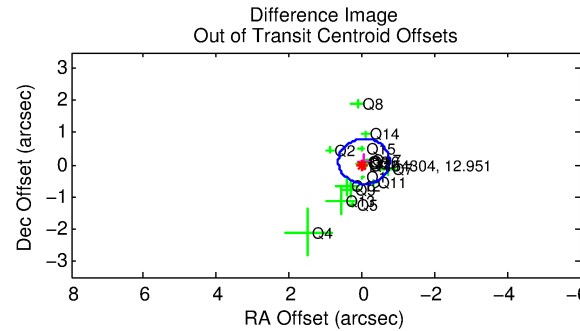
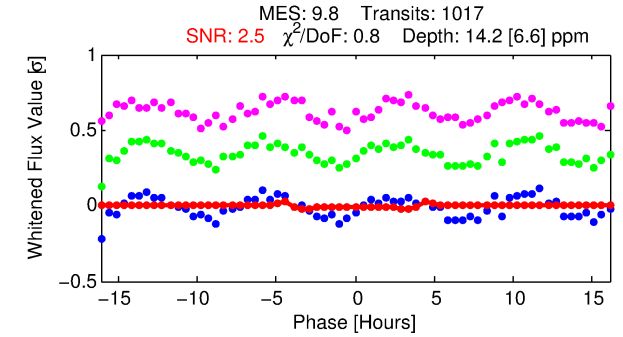
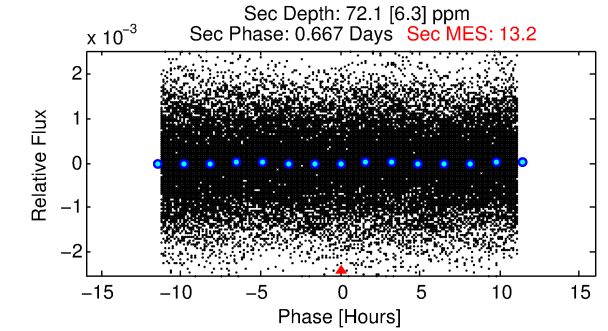
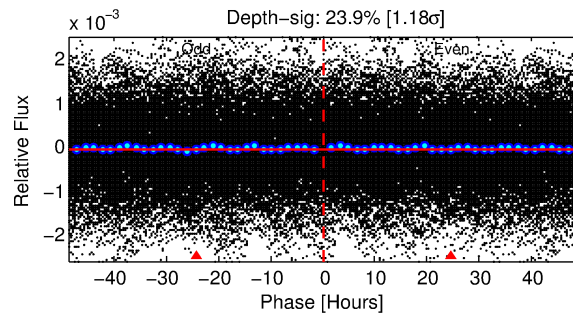
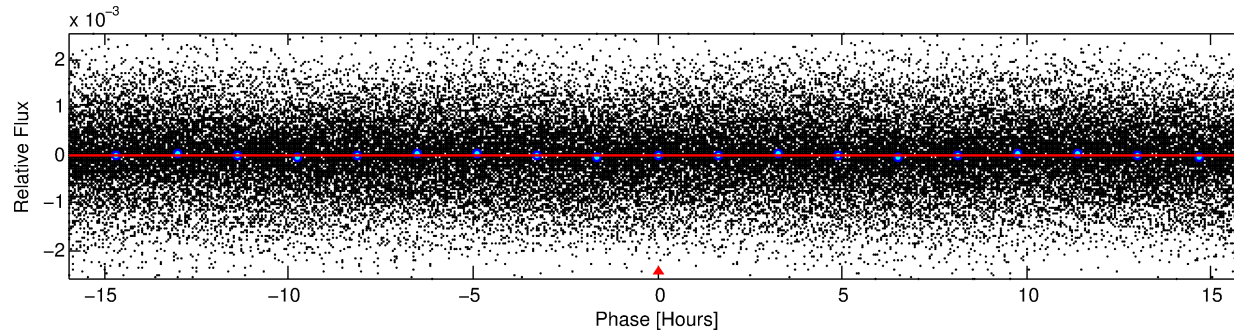
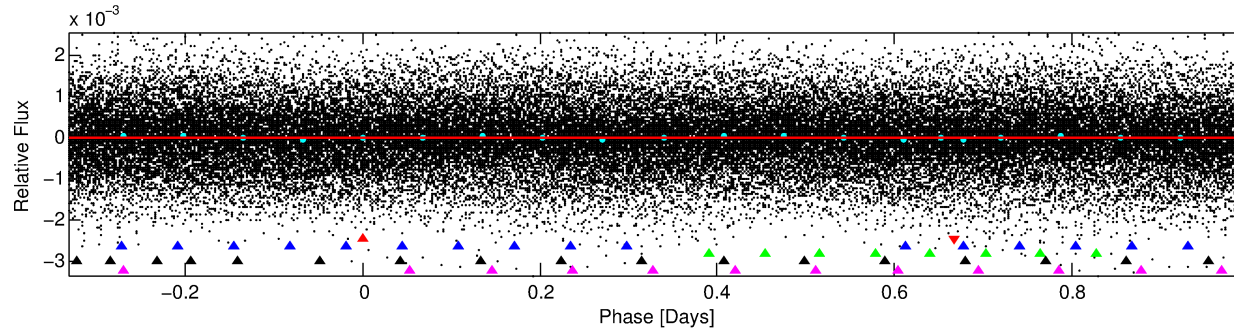
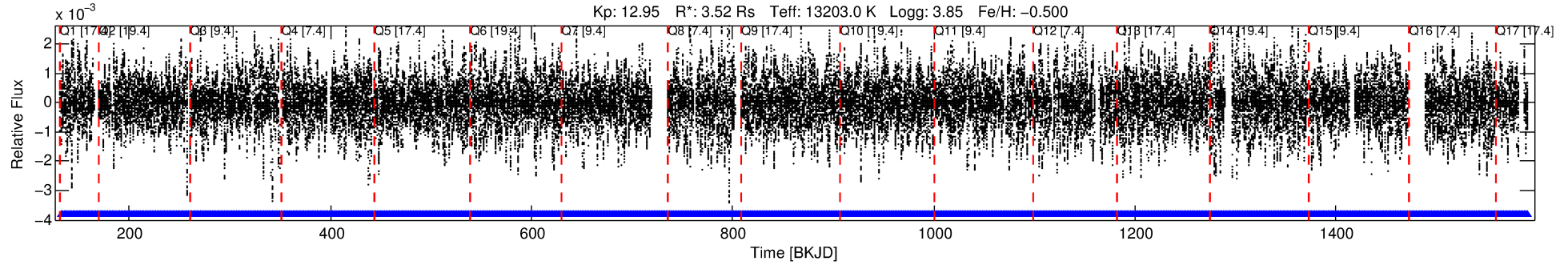
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011454304-01

No Significant Match Found

# DV One-Page Summary

KIC: 11454304 Candidate: 1 of 5 Period: 1.331 d



## DV Fit Results:

Period = 1.33130 [0.00004] d  
Epoch = 132.1333 [0.0060] BKJD  
Rp/R\* = 0.0037 [0.0011]  
a/R\* = 1.22 [0.75]  
b = 0.71 [1.33]  
Seff = 274630.10 [218445.07]  
Teq = 5837 [1161] K  
Rp = 1.43 [0.75] Re  
a = 0.0350 [0.0143] AU  
Ag = 23.68 [21.28] [1.07 $\sigma$ ]  
Teffp = 19910 [3815] K [3.53 $\sigma$ ]

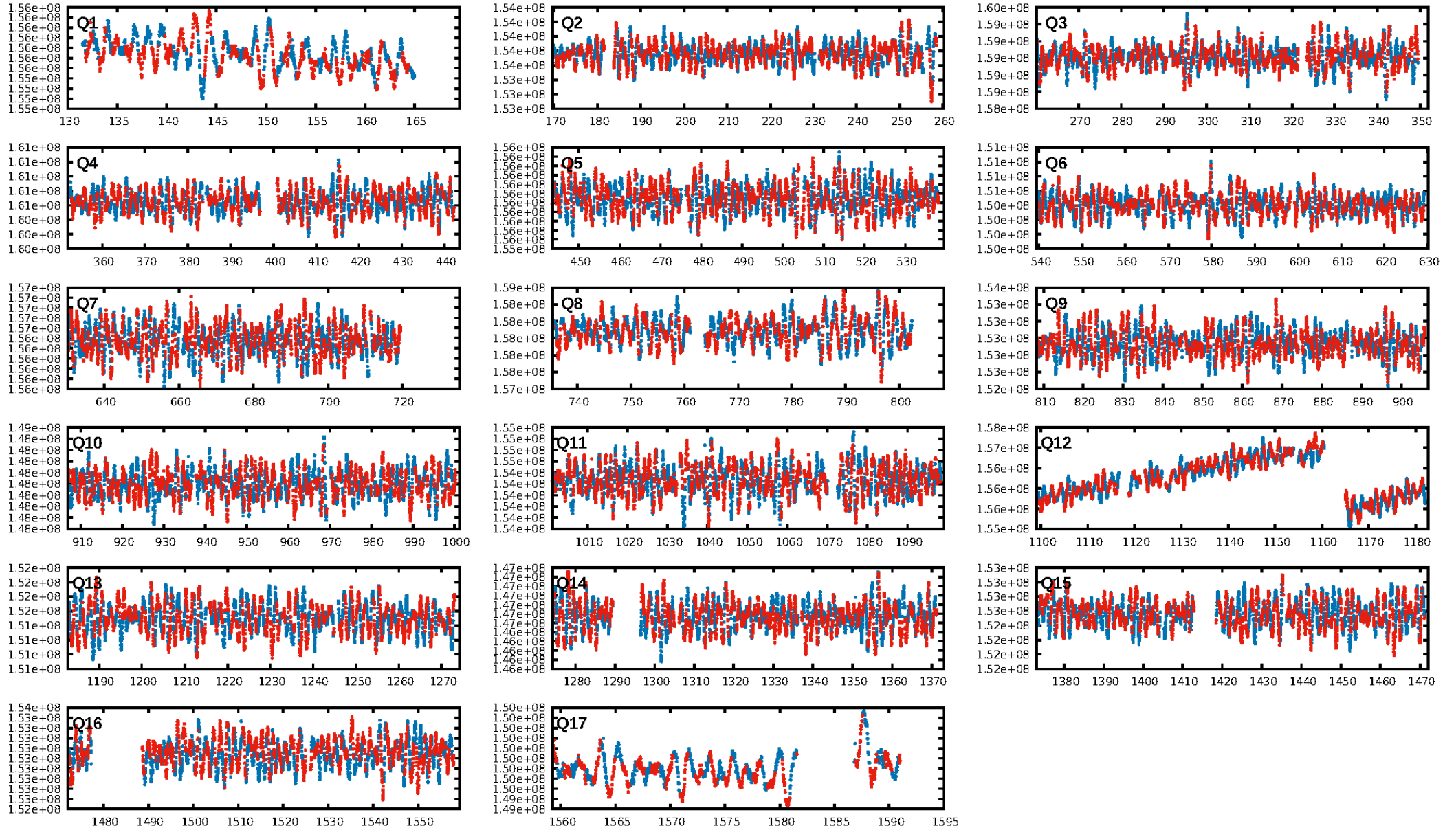
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [169.64 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [972/972]  
GhostDiagnostic-chr: 2.923  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.112 arcsec [0.48 $\sigma$ ]  
KicOffset-rm: 0.148 arcsec [0.71 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.59 [10/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:24:53 Z

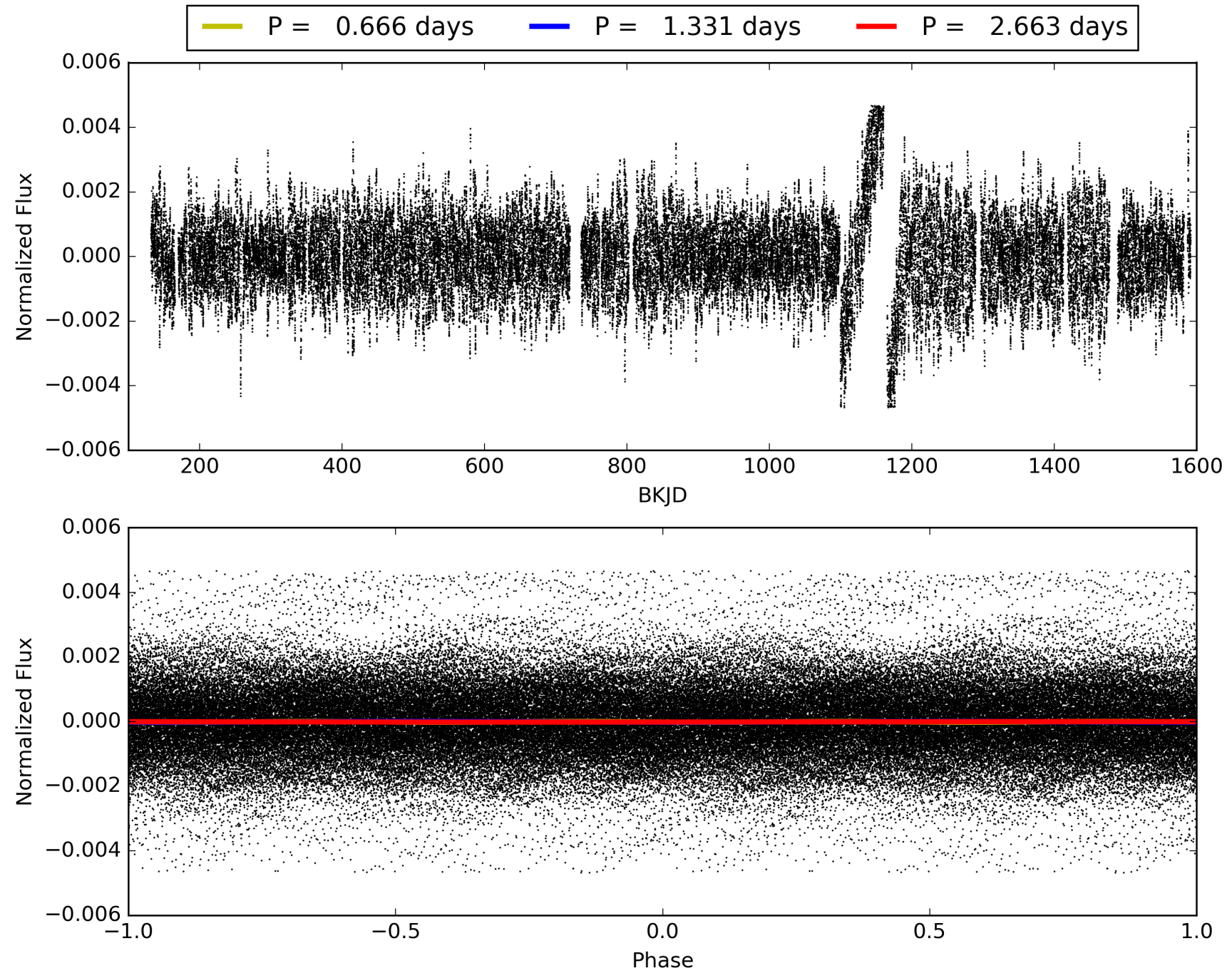
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011454304-01, PDC Light Curves





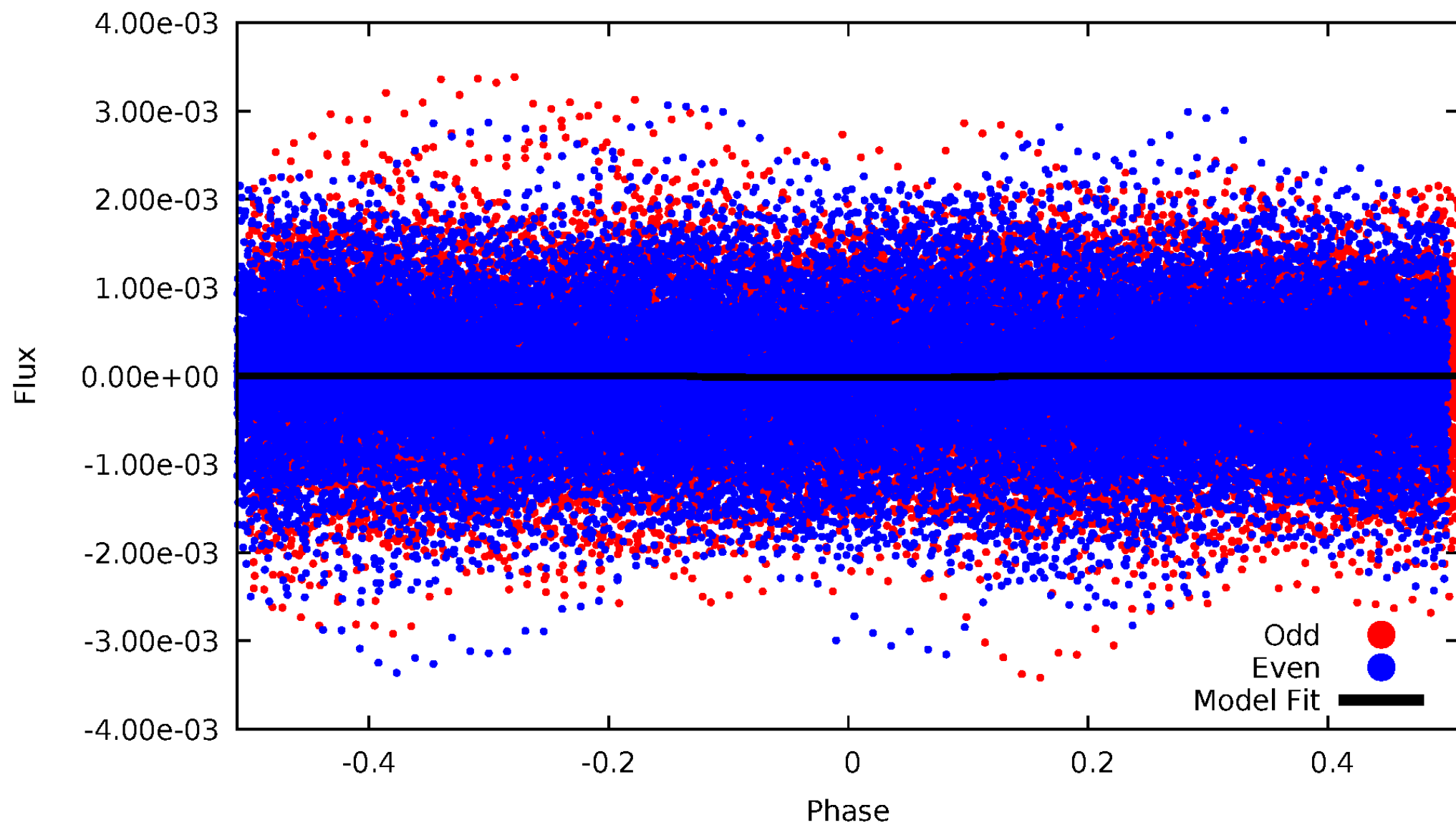
TCE 011454304-01





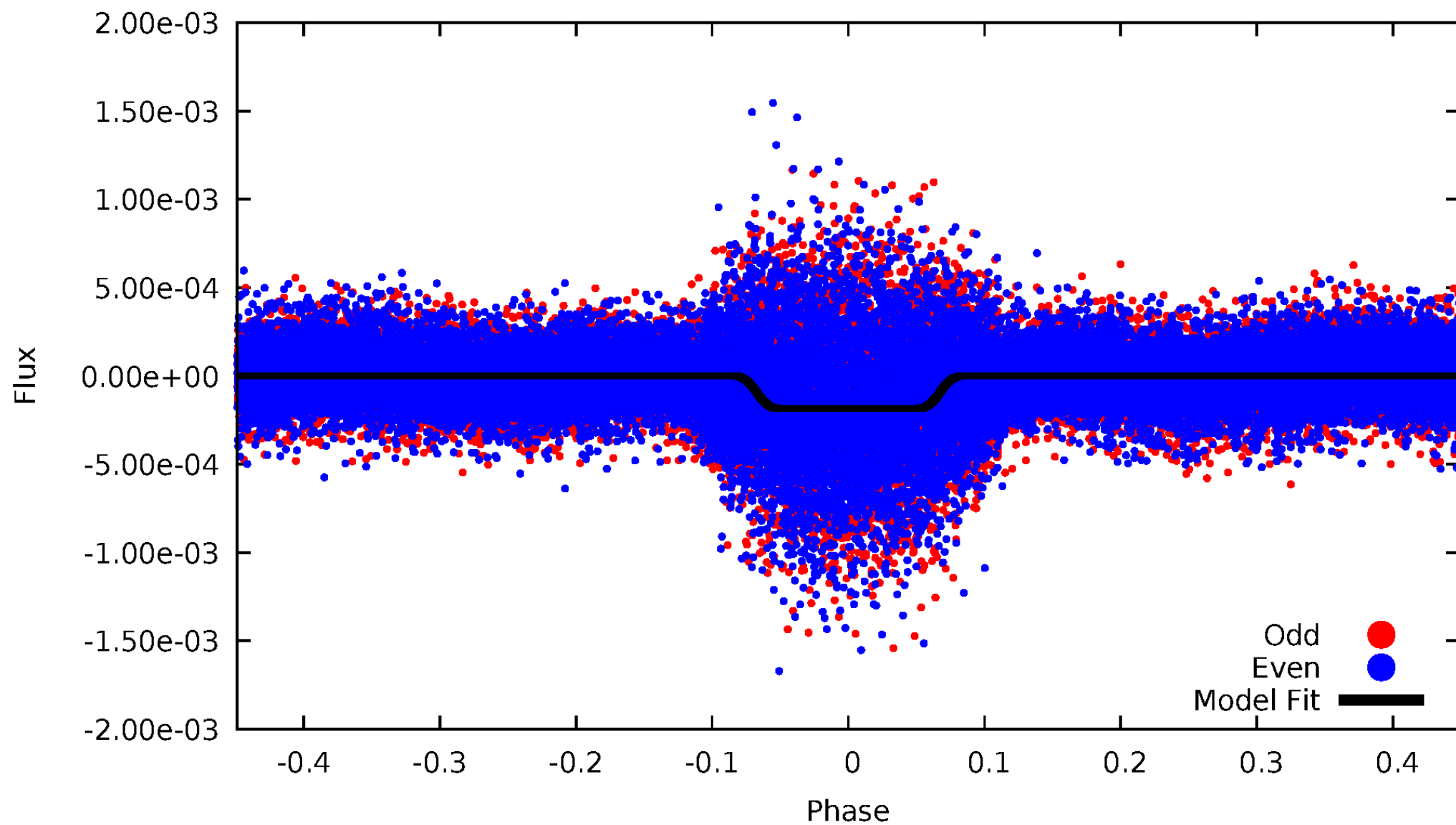
# DV Odd/Even

TCE 011454304-01



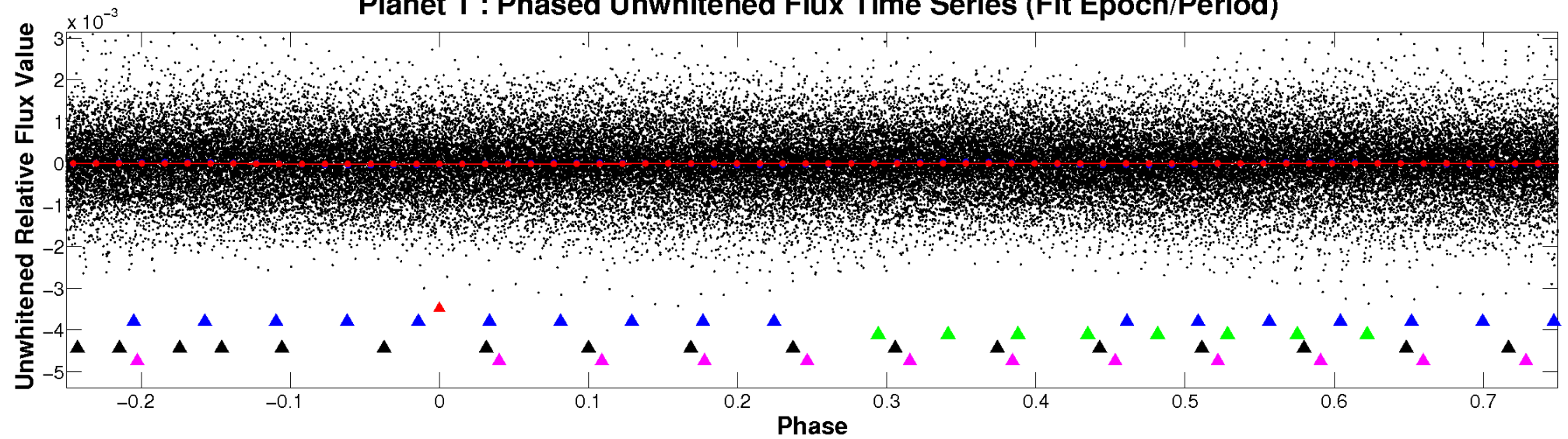
# ALT Odd/Even

TCE 011454304-01

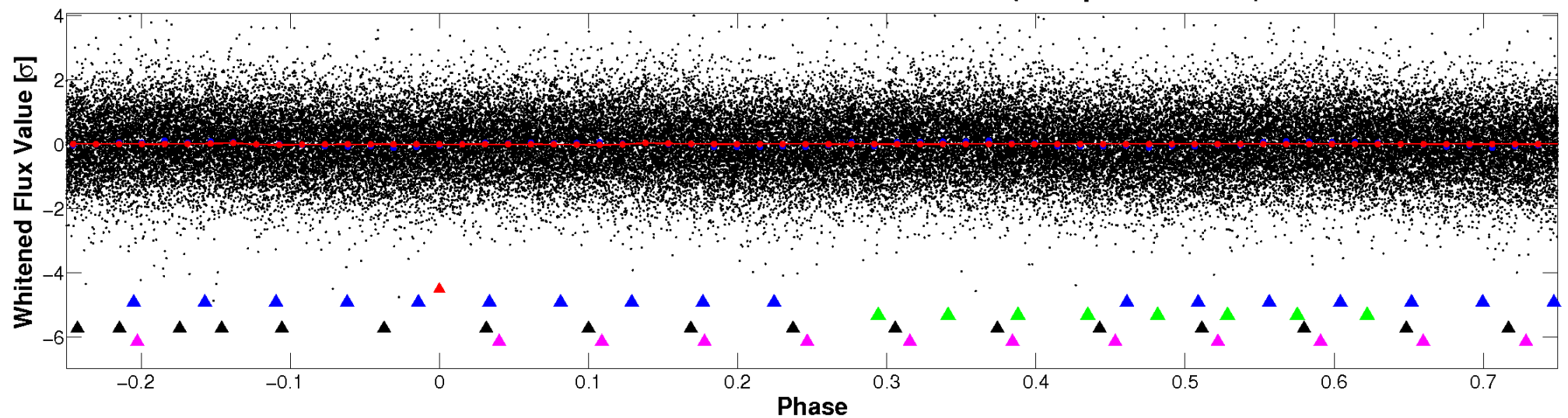


# Non-Whitened Vs. Whitened Light Curve

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



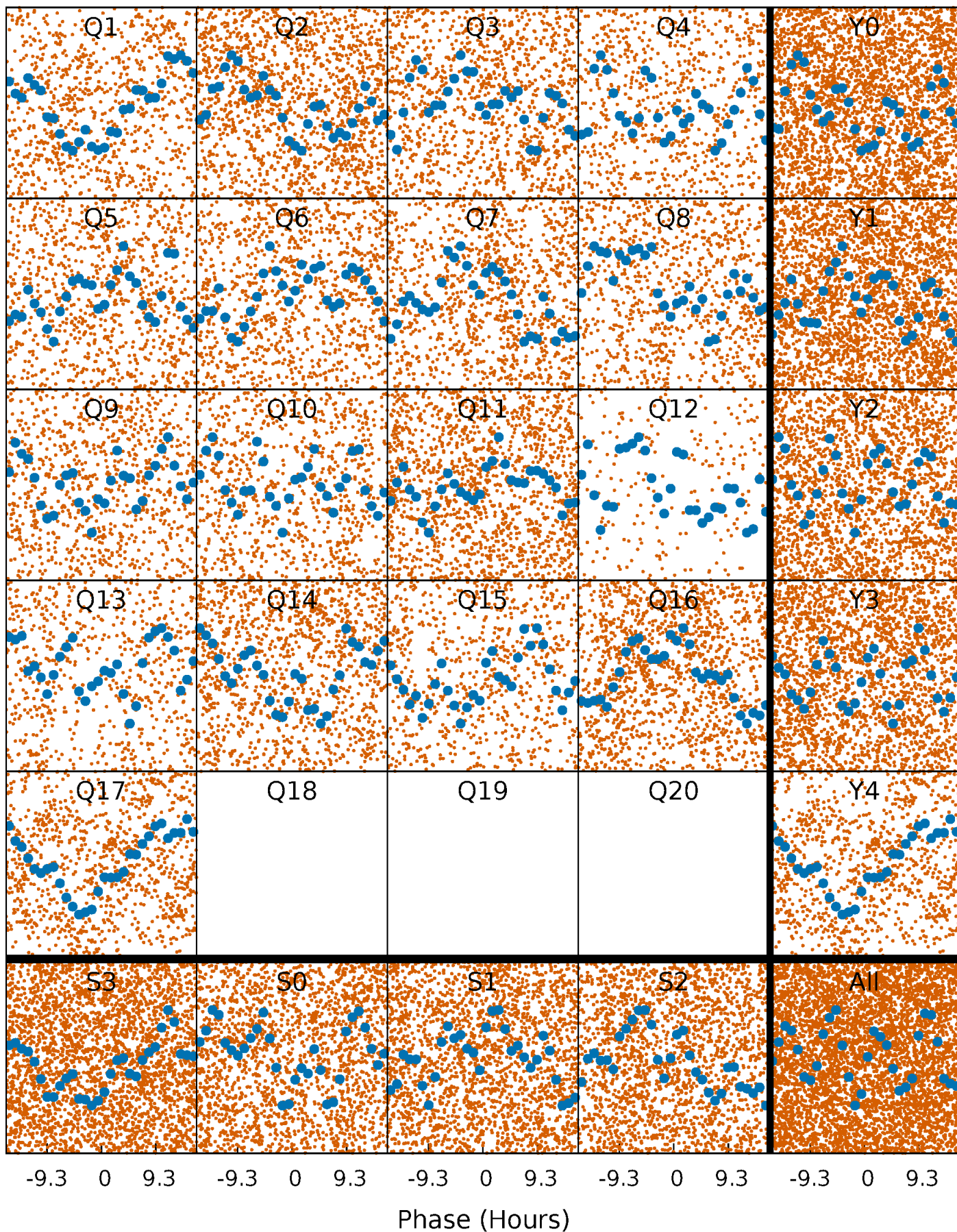
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

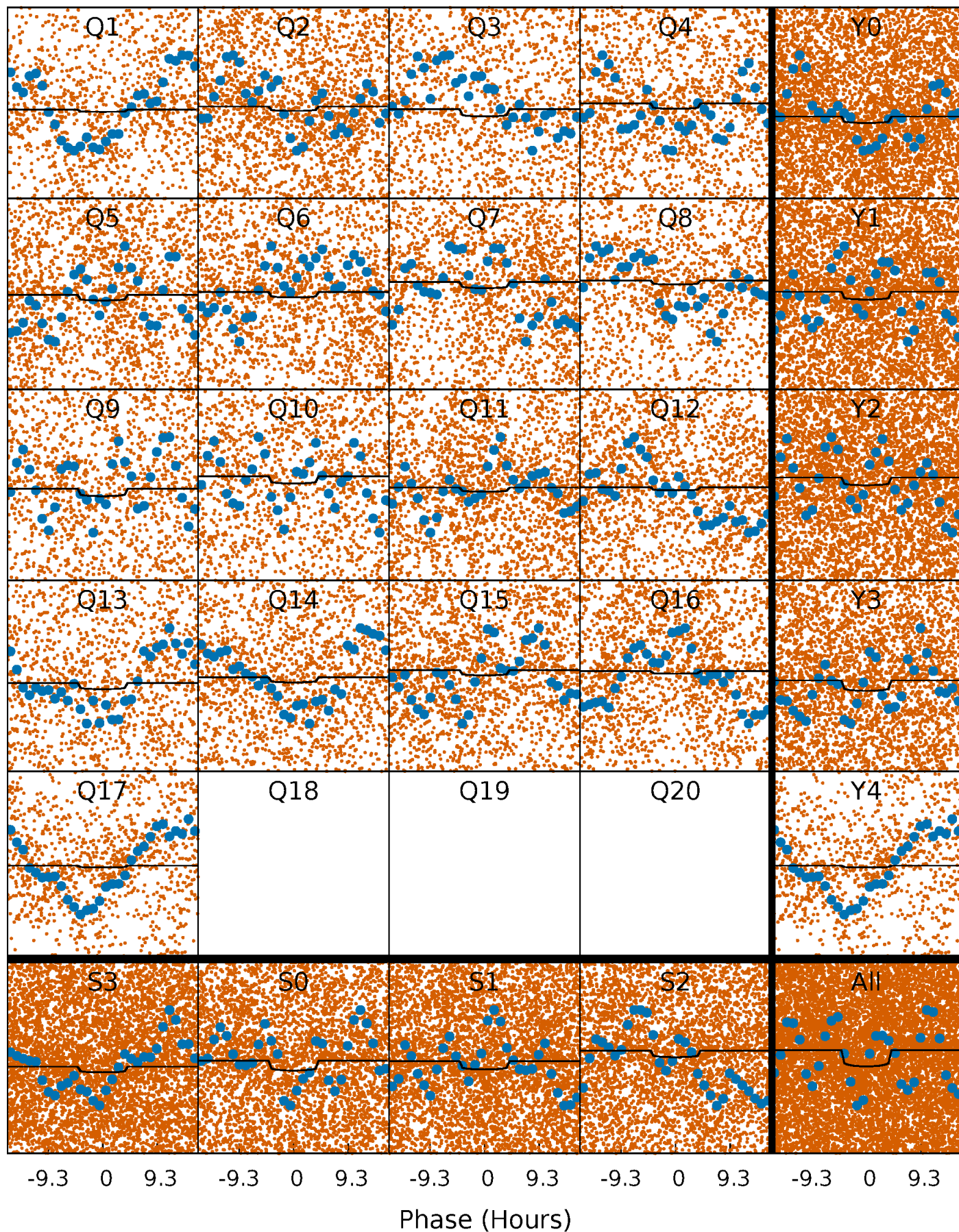
TCE 011454304-01 P= 1.331299 Days  $T_0=132.133336$  (BKJD)





# DV Quarter-Phased Transit Curves

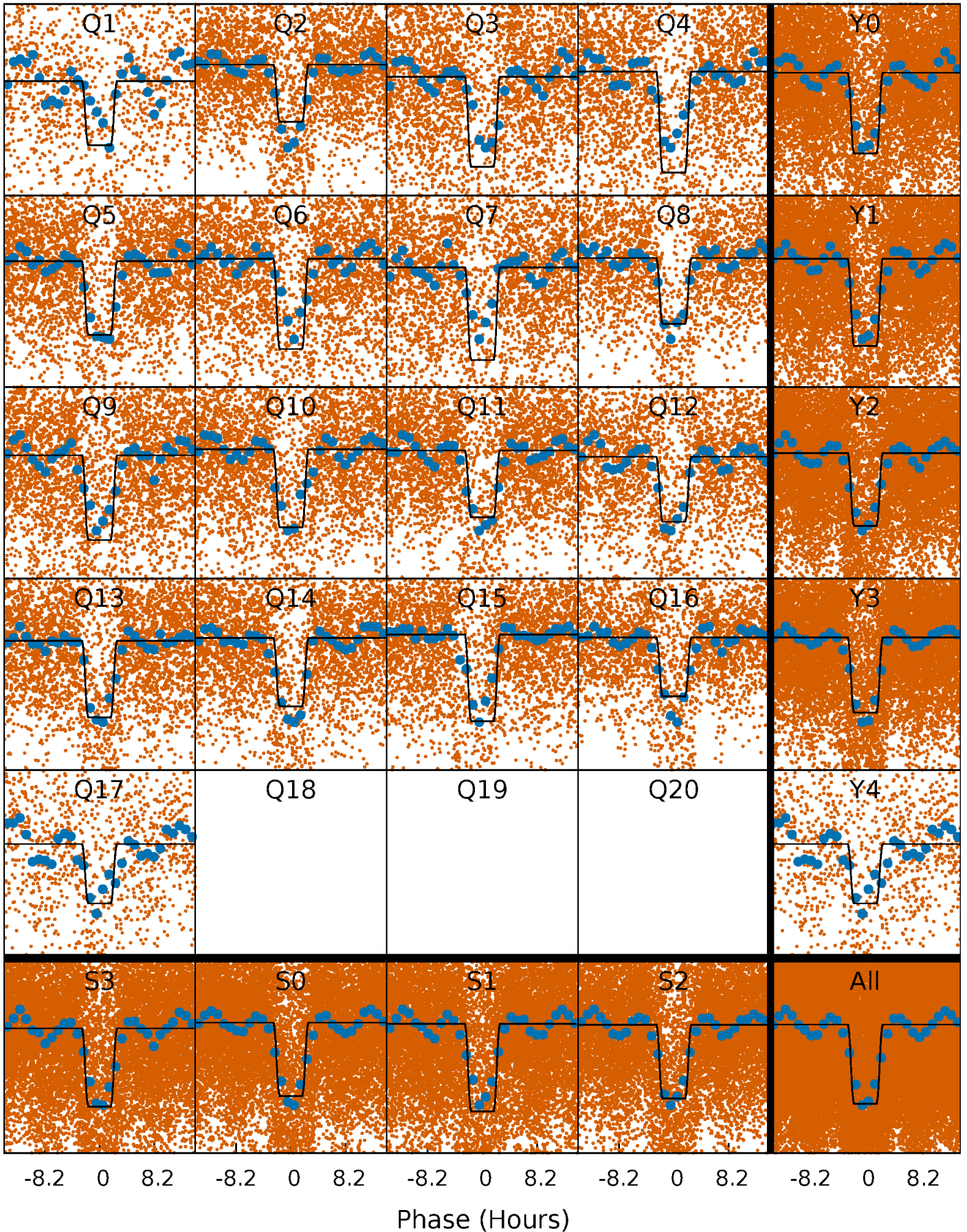
TCE 011454304-01 P= 1.331299 Days  $T_0=132.133336$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 011454304-01 P= 1.331146 Days  $T_0=132.159641$  (BKJD)

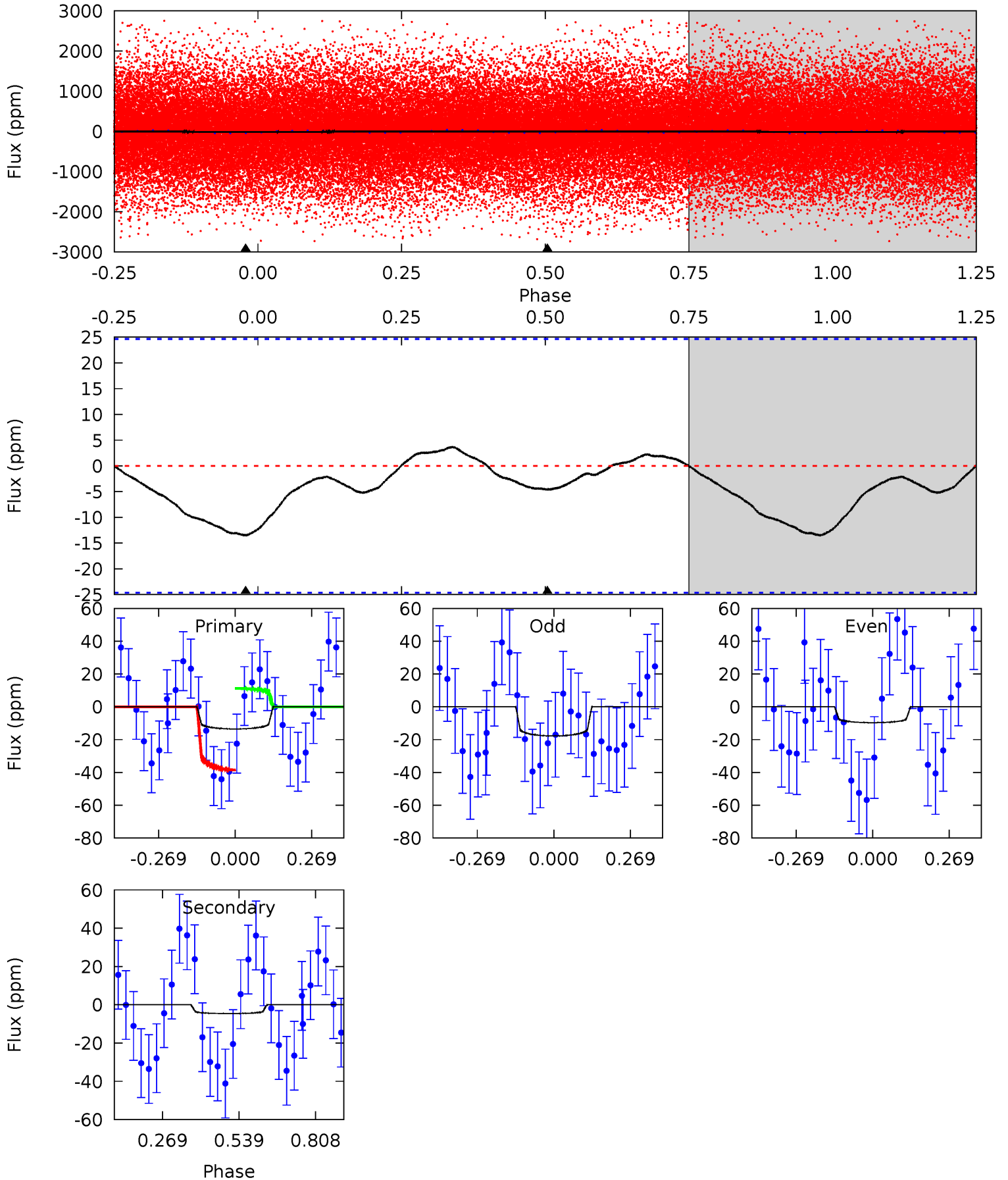




# DV Model-Shift Uniqueness Test

011454304-01, P = 1.331299 Days, E = 130.802037 Days

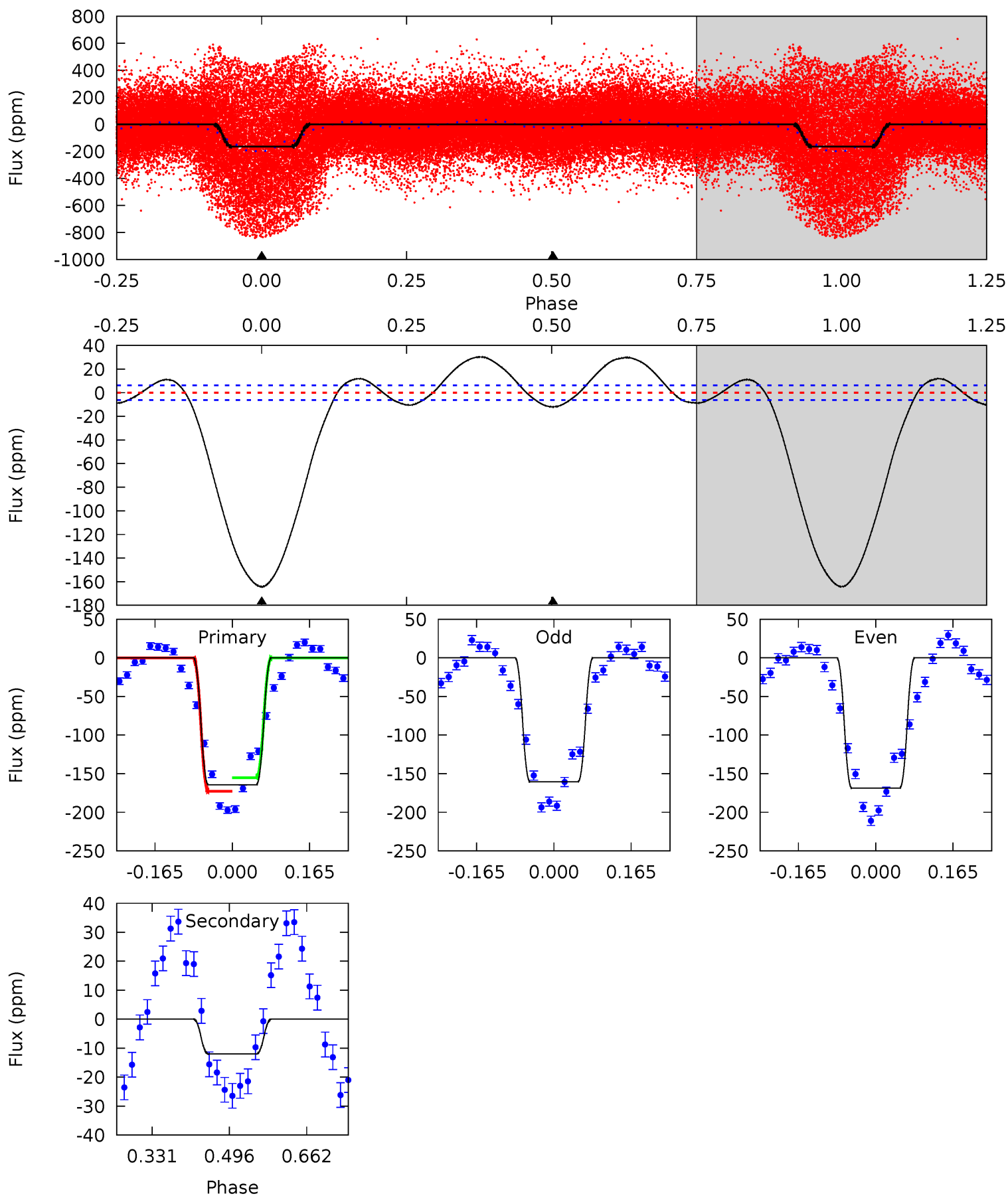
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.39	0.82	0	0	4.35	1.10	0.35	2.39	2.39	0.82	0.82	0.70	1.03	0.21	2.47



# Alt Model-Shift Uniqueness Test

011454304-01, P = 1.331146 Days, E = 130.828495 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
117.6	8.57	0	0	4.46	1.39	6.26	117.6	117.6	8.57	8.57	2.89	0.96	0.16	6.24



### Stellar Parameters For KIC 011454304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$13203^{+642}_{-1499}$	$3.855^{+0.384}_{-0.096}$	$-0.500^{+0.050}_{-0.500}$	$3.518^{+0.395}_{-1.483}$	$3.230^{+0.120}_{-0.759}$	$0.104^{+0.331}_{-0.031}$
	+5%/-11%	+10%/-2%	+10%/-100%	+11%/-42%	+4%/-23%	+317%/-30%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011454304-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-5\pm6$	$1.33^{+0.49}_{-0.47}$	$7795^{+767}_{-1066}$	$7611^{+4451}_{-13767}$	$1.586^{+3.632}_{-1.865}$
Alt.	$-12\pm1$	$4.93^{+0.72}_{-1.04}$	$7803^{+773}_{-1117}$	$3374^{+1167}_{-7417}$	$0.324^{+0.175}_{-0.084}$

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



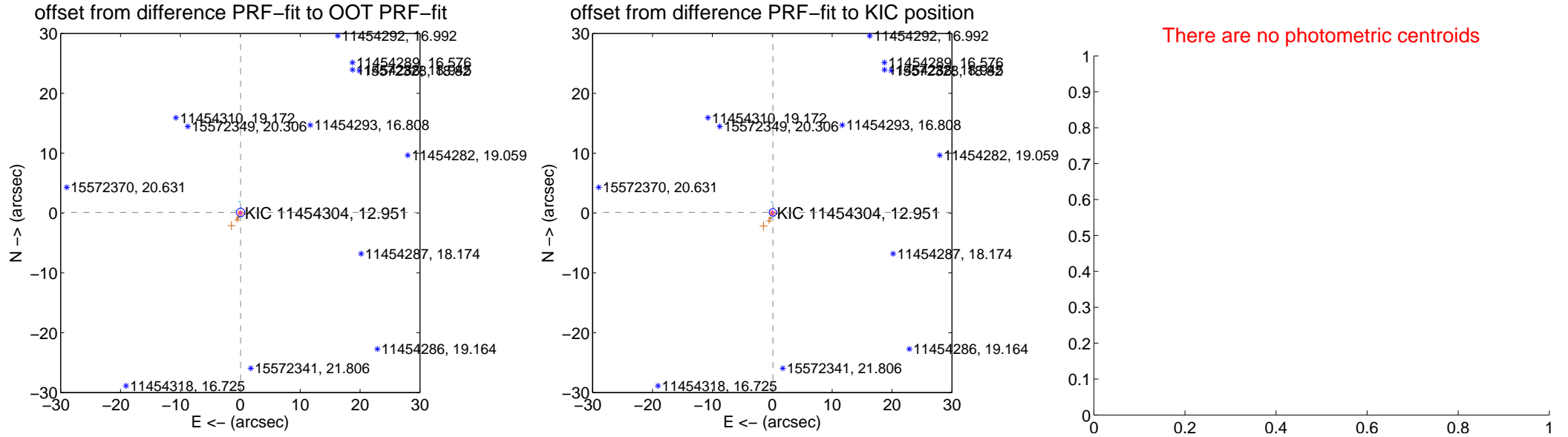
## DV Centroid Data

Supplemental centroid analysis for 011454304-01. Kepler magnitude: 12.95. Transit SNR 2.52

There are 10 quarters with good PRF difference image offsets

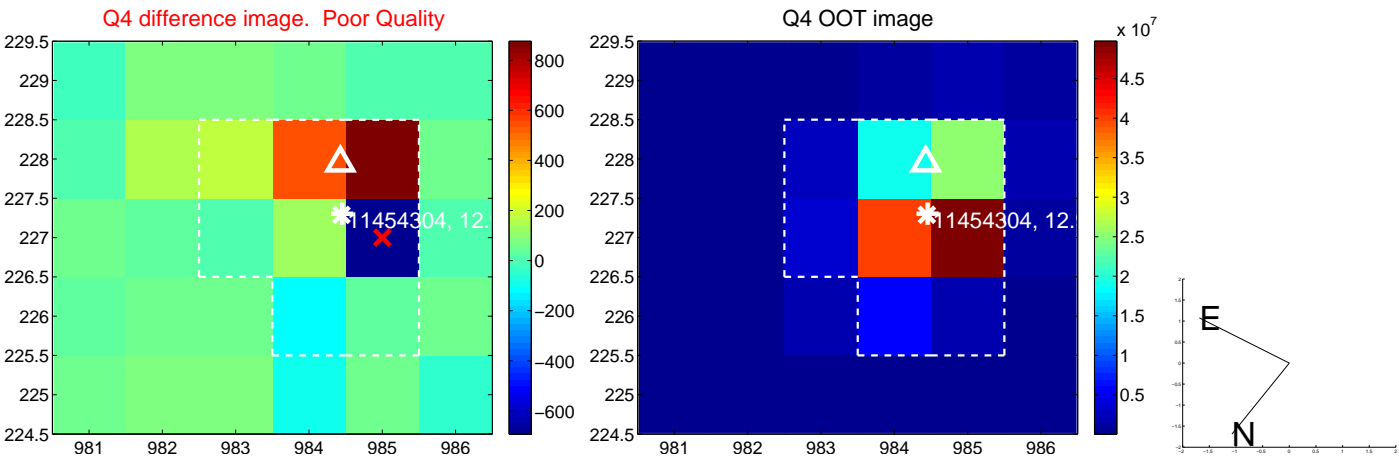
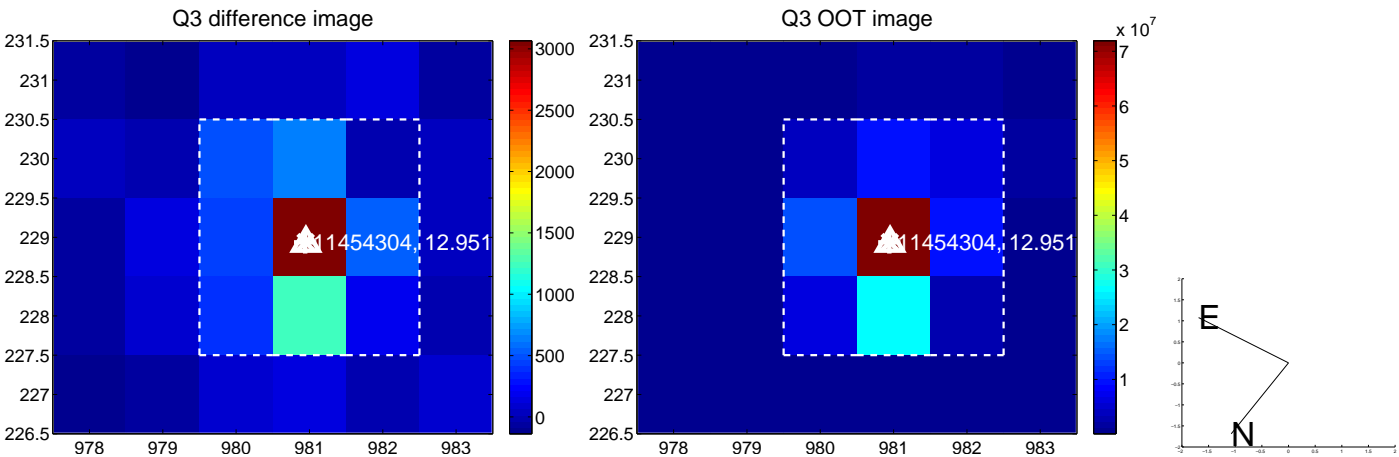
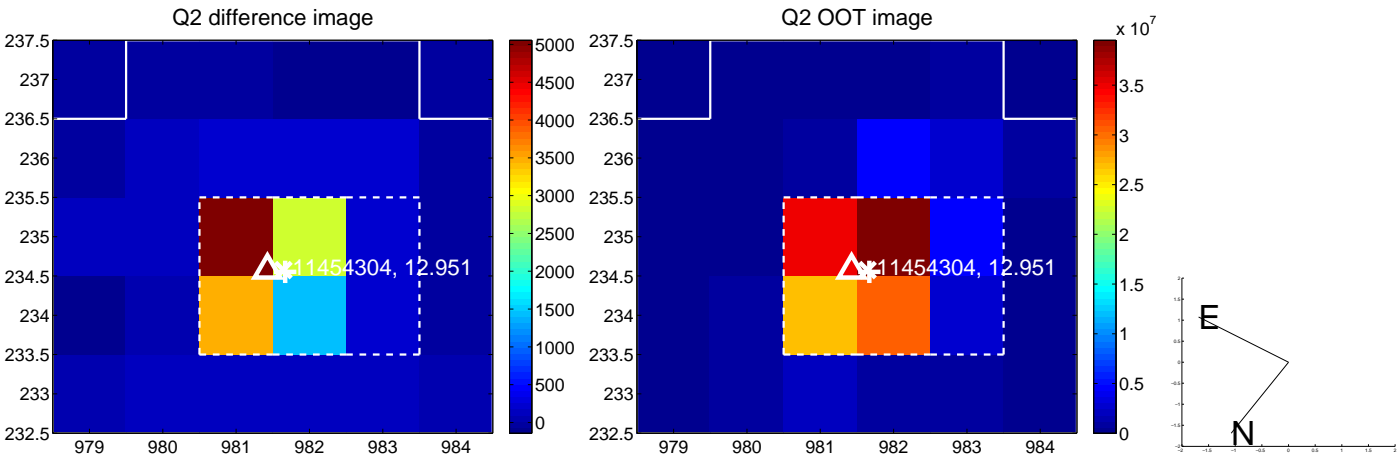
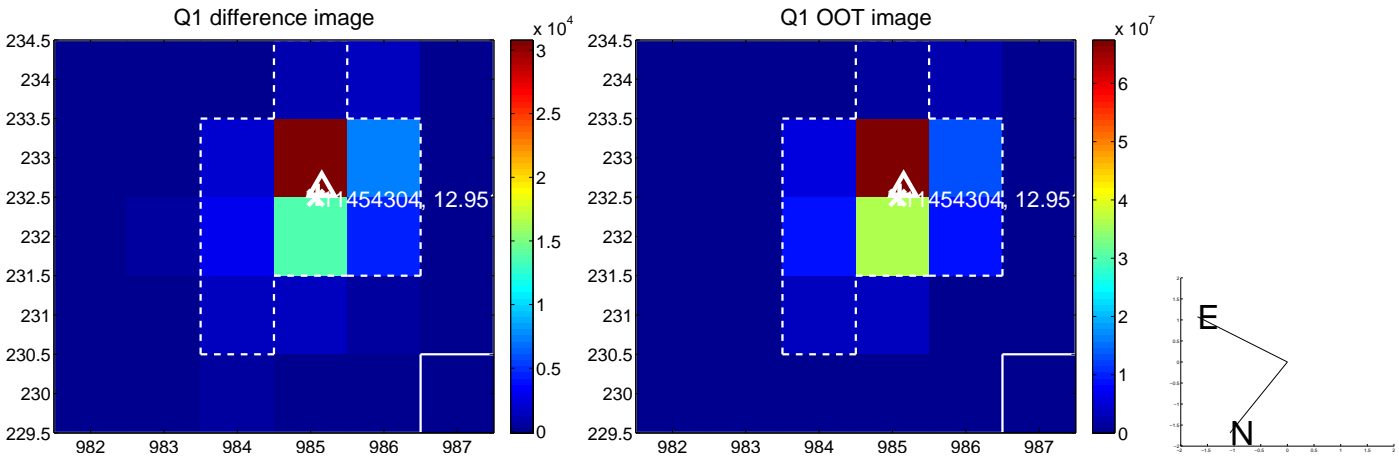
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.112 \pm 0.234$	0.48	$-0.055 \pm 0.135$	$0.098 \pm 0.229$
PRF-fit source offset from KIC position	$0.148 \pm 0.207$	0.71	$-0.110 \pm 0.135$	$0.098 \pm 0.217$
photometric centroid source offset	—	—	—	—

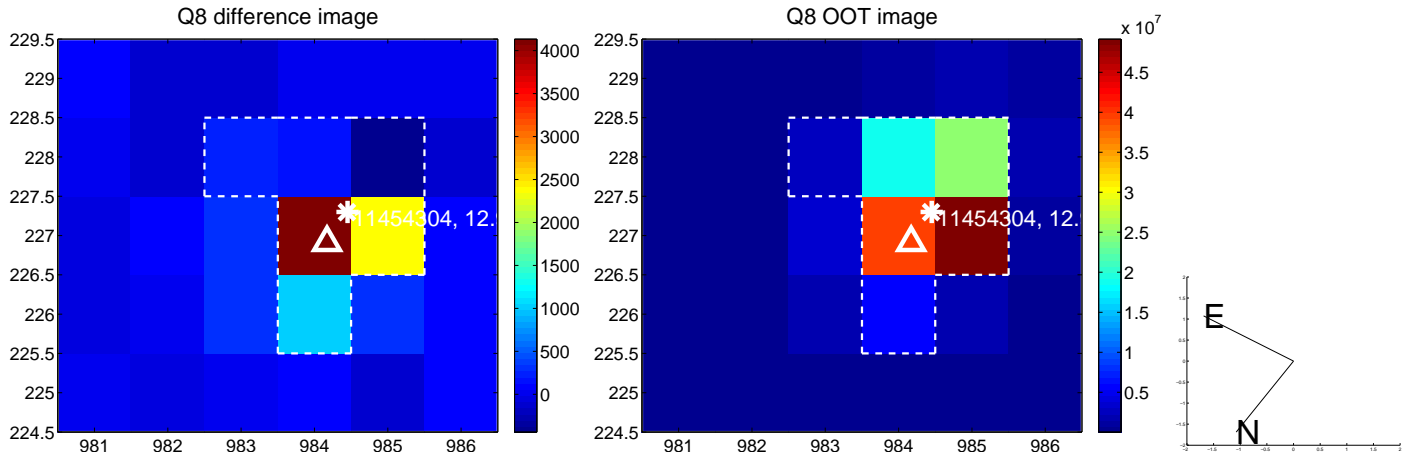
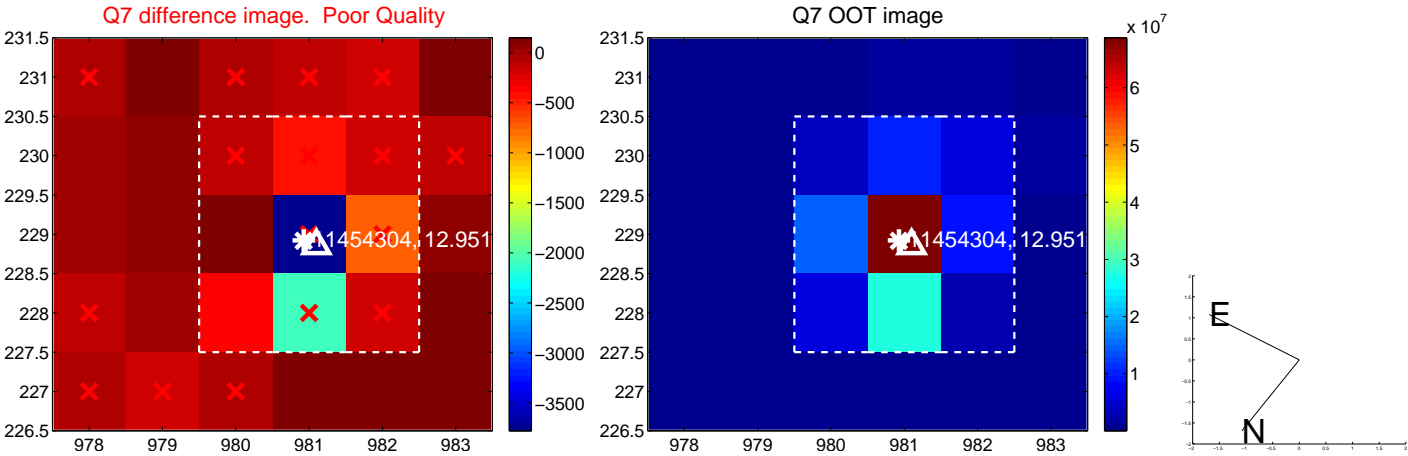
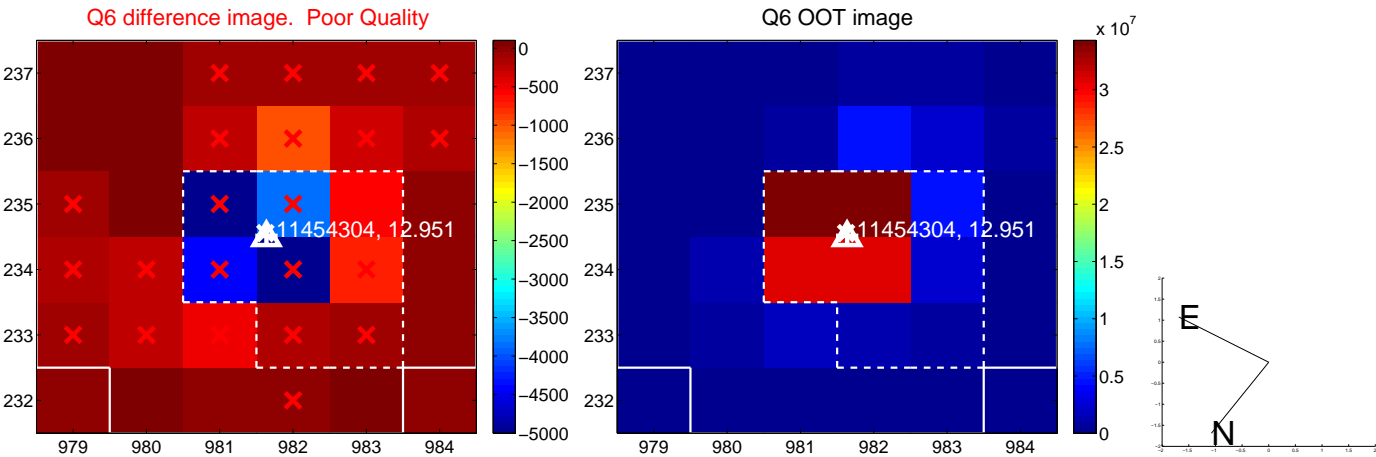
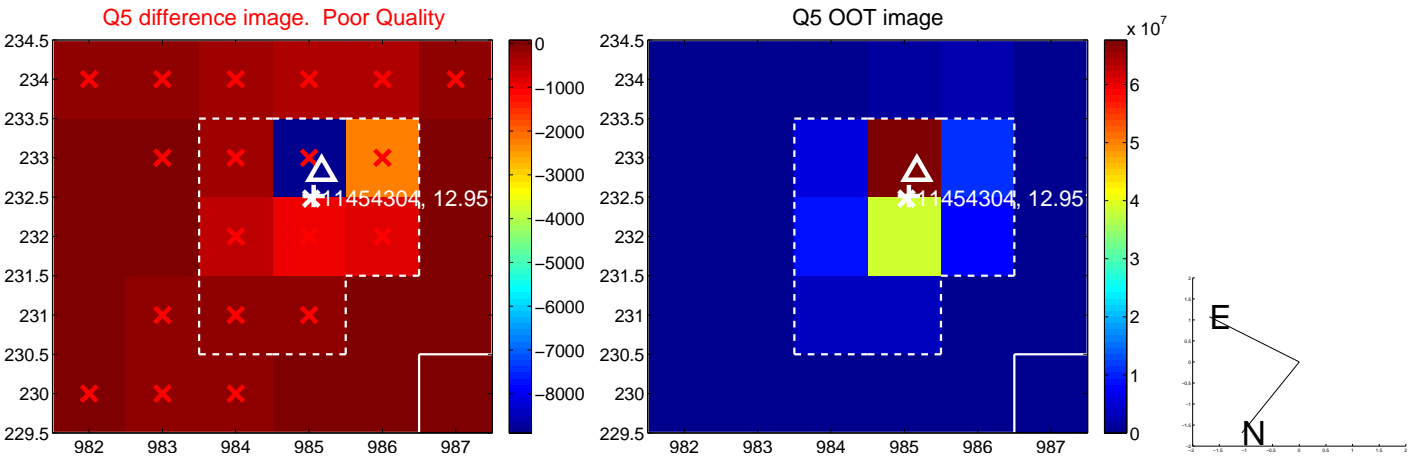


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

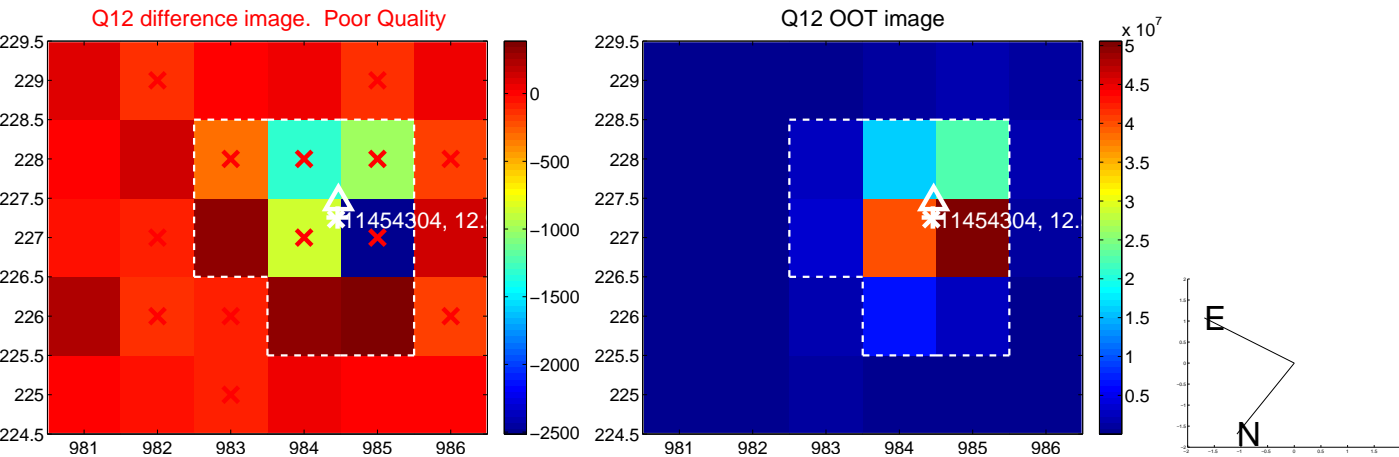
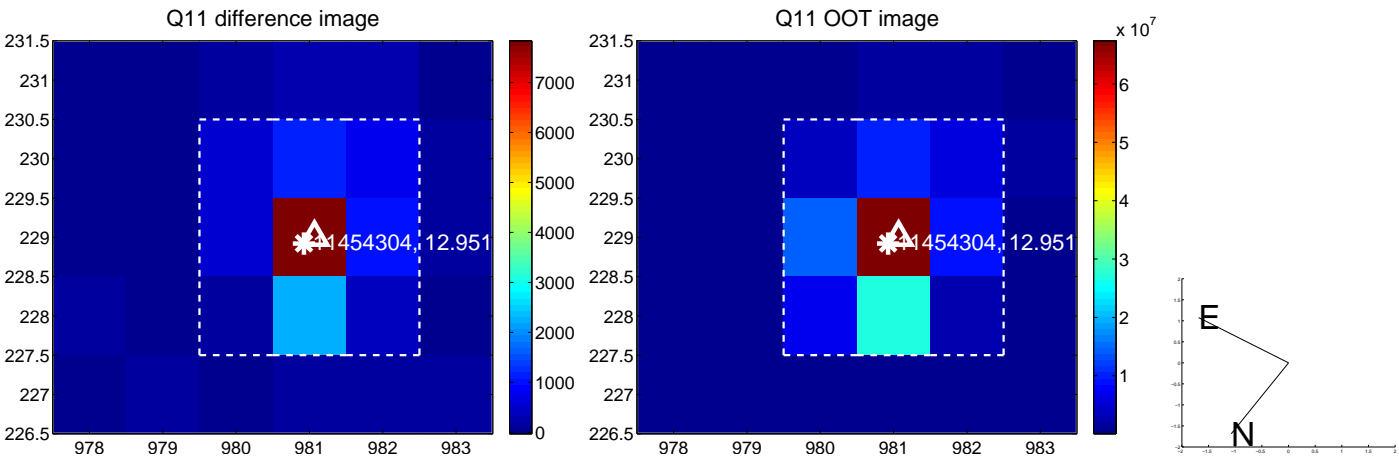
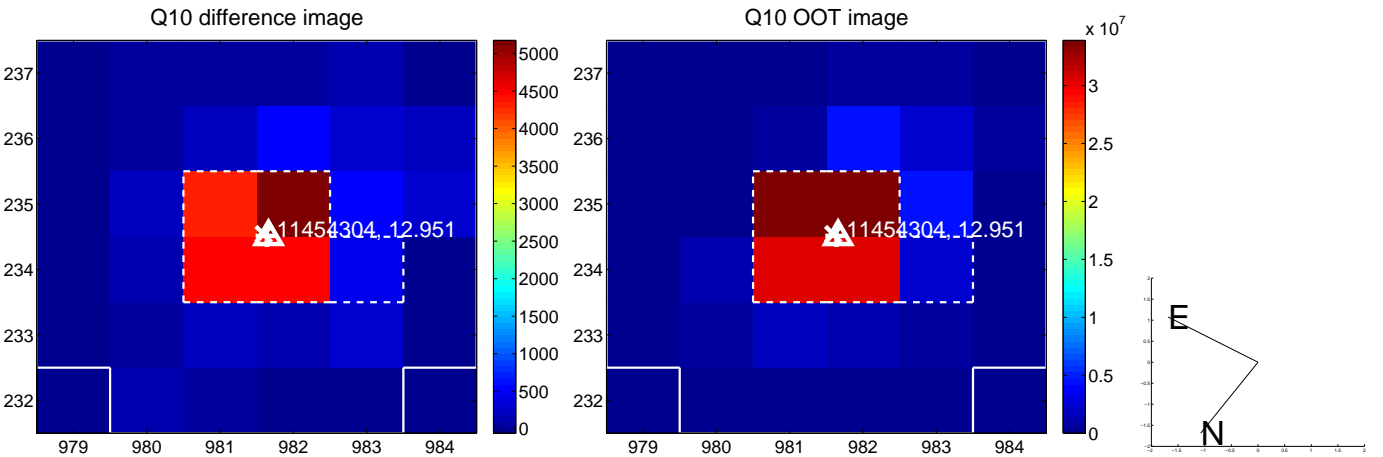
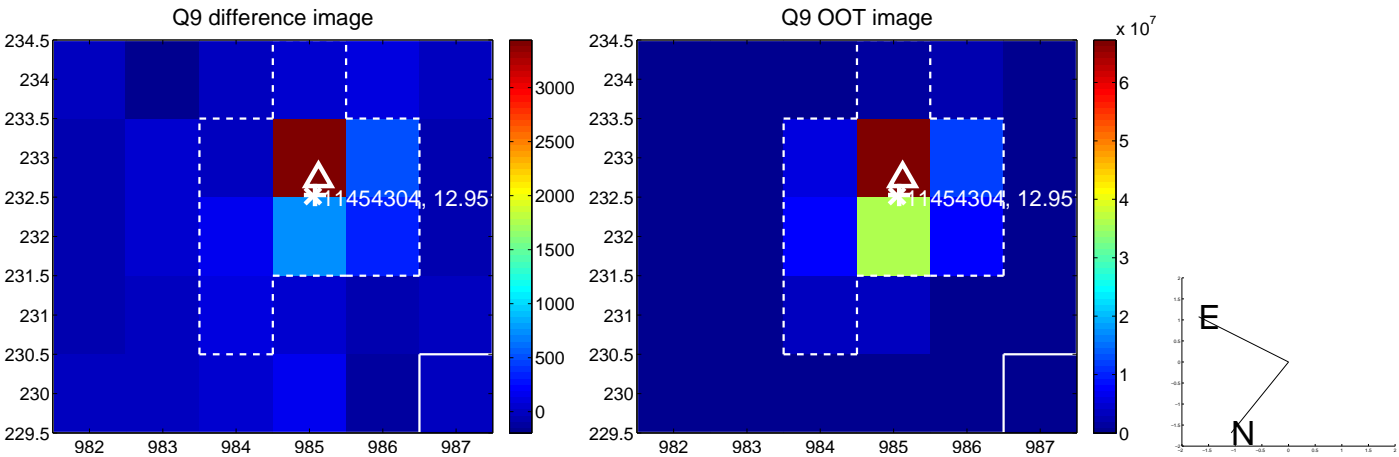


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

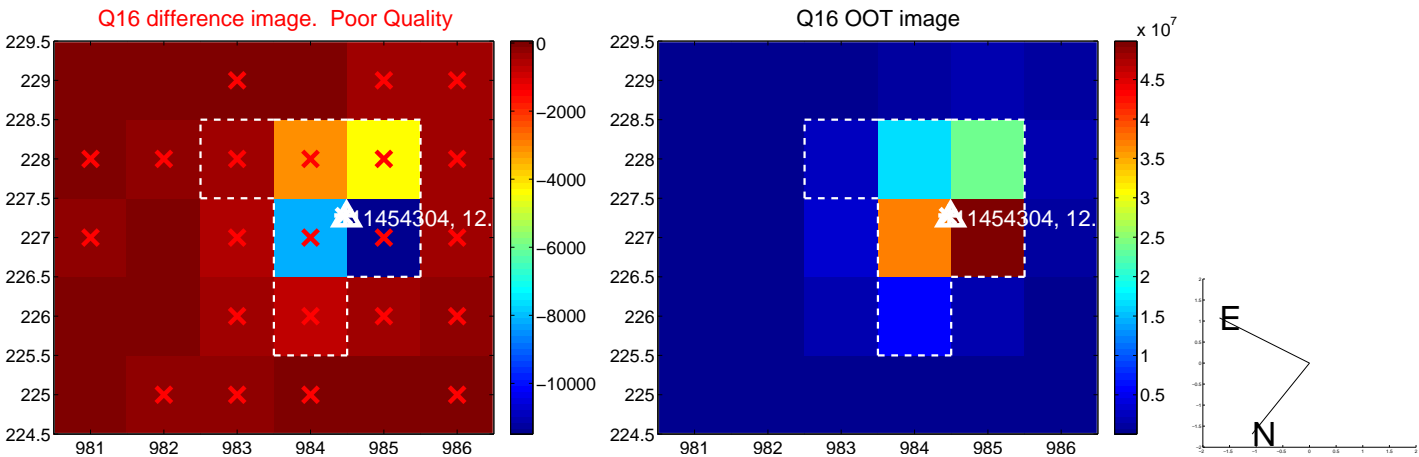
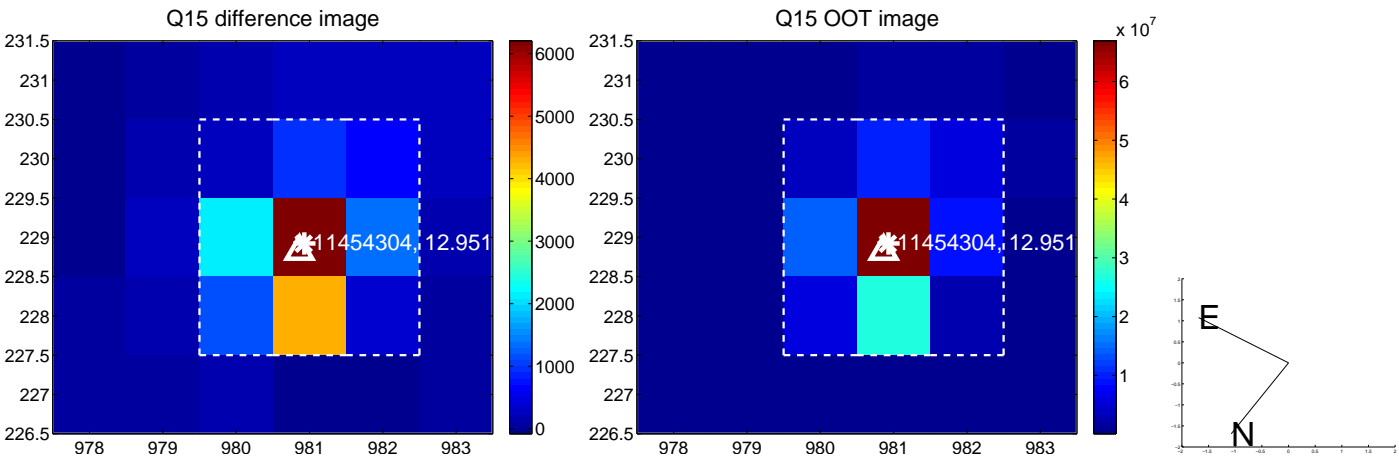
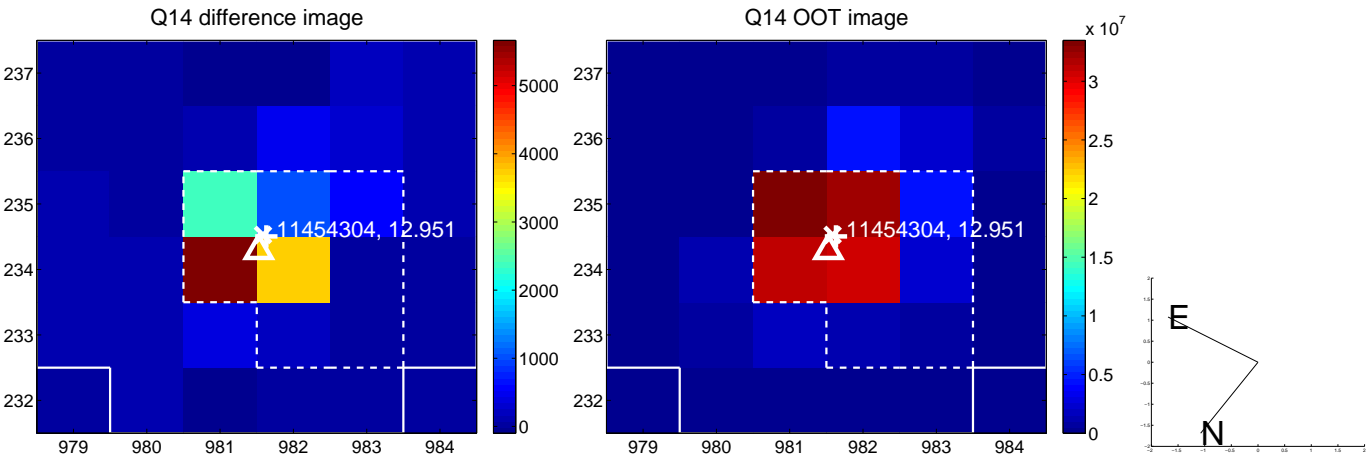
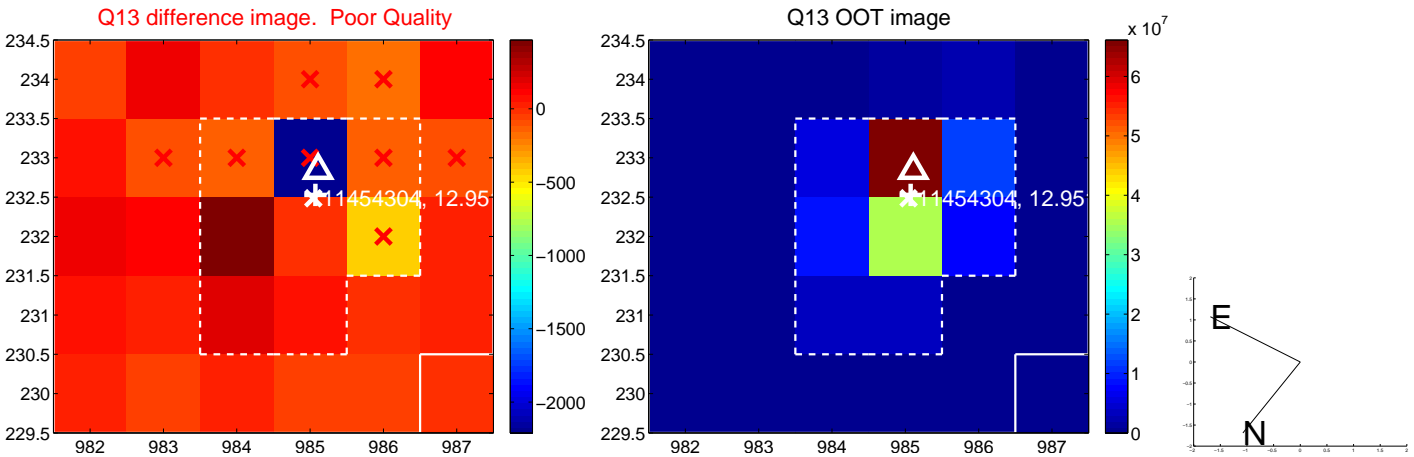




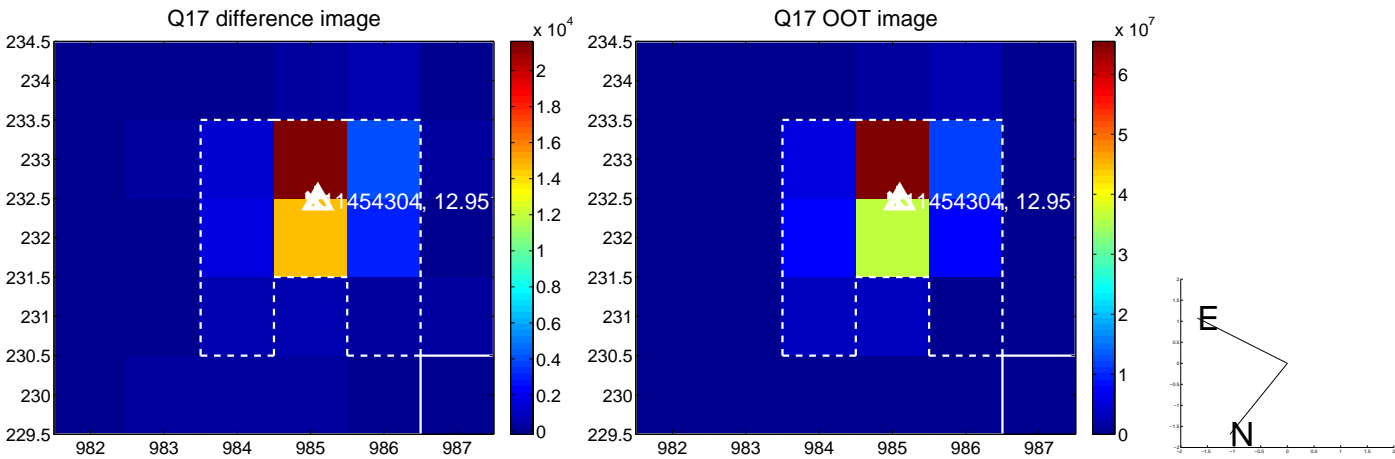
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



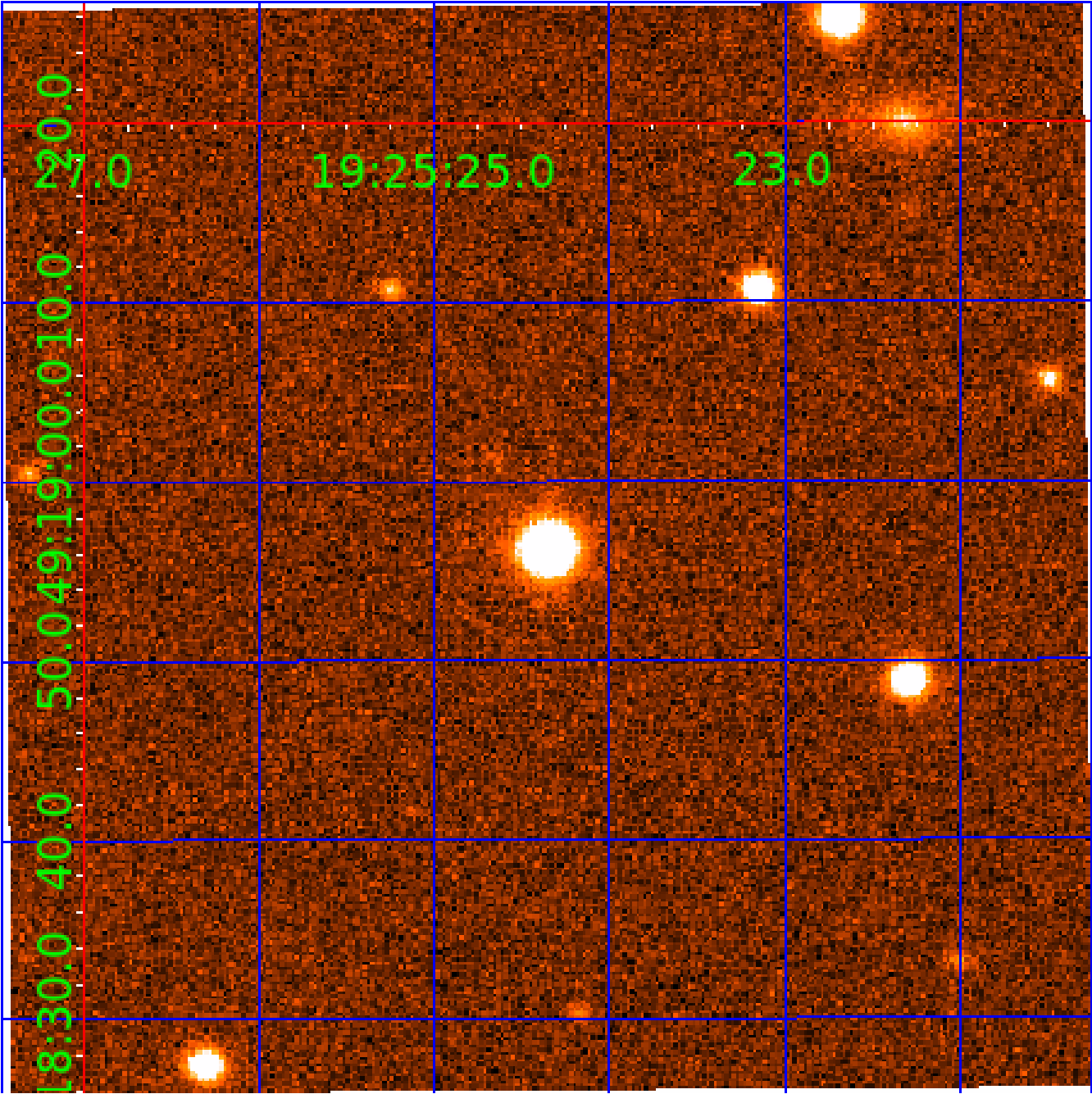
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 011454304

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011454304-01	OBS	No	1.331299	132.133336	14.2	8.146	9.8	2.5	3.52	13203	1.43	274630.10
011454304-02	OBS	No	86.597921	168.692235	1467.7	8.898	18.1	8.9	3.52	13203	23.25	1049.80
011454304-03	OBS	No	196.969825	184.882274	904.9	6.845	9.3	9.2	3.52	13203	18.48	350.95
011454304-04	OBS	No	86.625656	179.736995	807.2	5.484	9.0	7.2	3.52	13203	17.49	1049.35
011454304-05	OBS	No	130.558915	144.168424	1109.1	6.697	9.3	8.9	3.52	13203	20.38	607.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011454304-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011454304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011454304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
011454304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011454304-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES

**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.

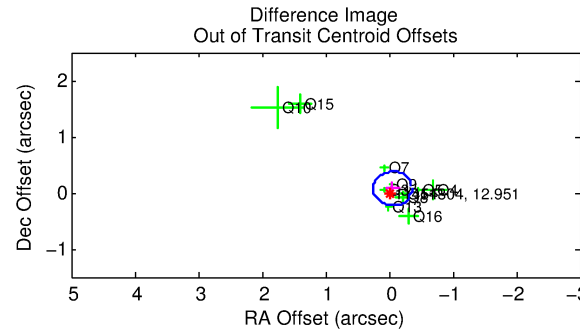
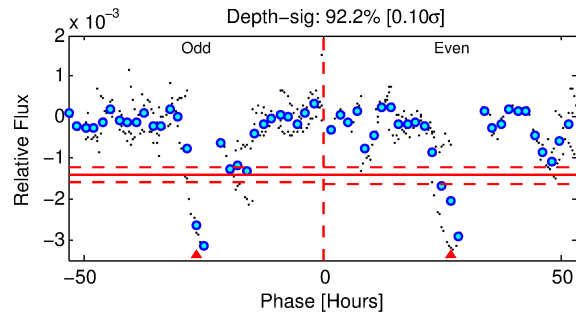
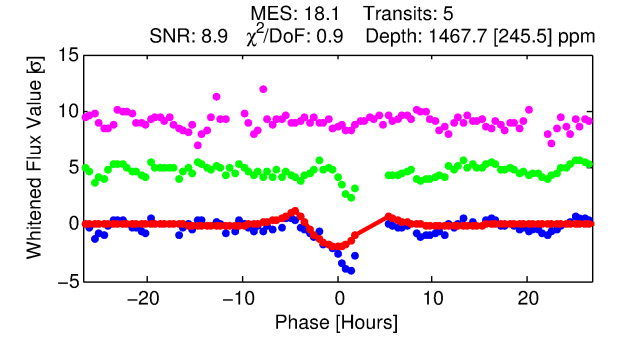
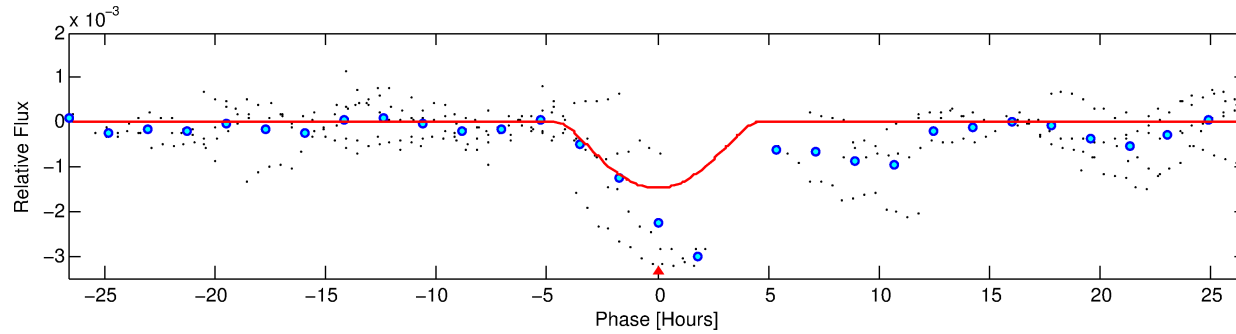
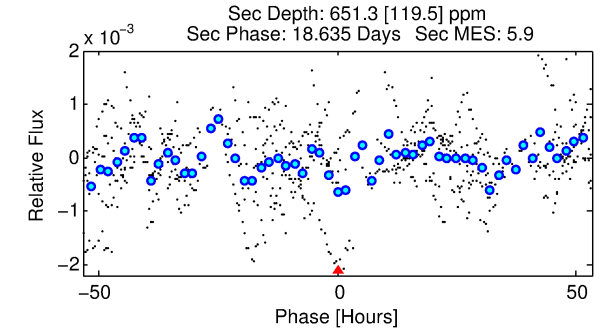
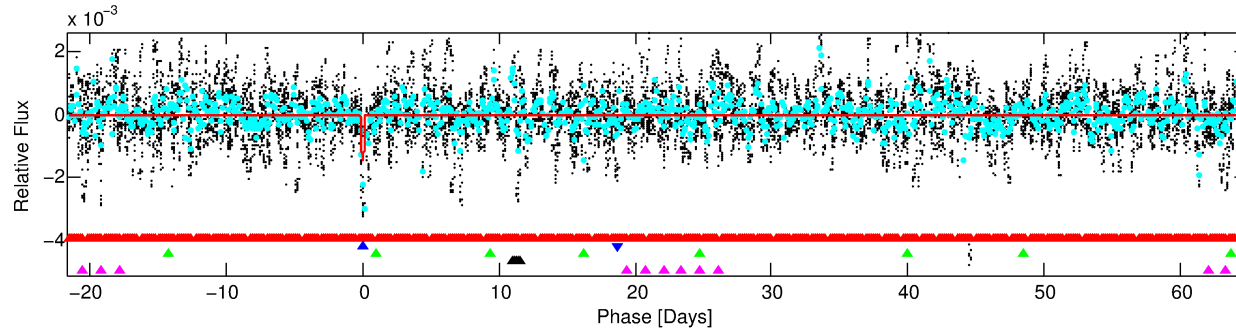
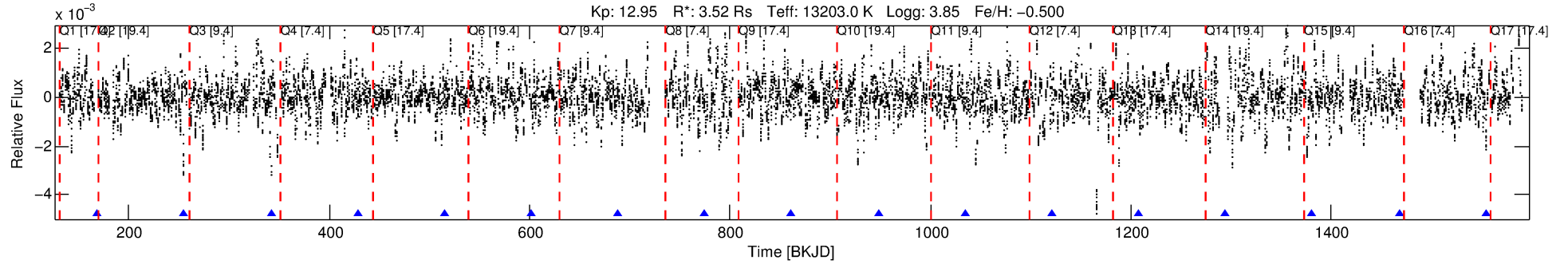
## Ephemeris Match Information For 011454304-02

No Significant Match Found



# DV One-Page Summary

KIC: 11454304 Candidate: 2 of 5 Period: 86.598 d



## DV Fit Results:

Period = 86.59792 [0.00336] d  
Epoch = 168.6922 [0.0186] BKJD  
Rp/R\* = 0.0606 [0.0866]  
a/R\* = 26.35 [9.40]  
b = 1.00 [0.13]  
Seff = 1049.80 [835.03]  
Teq = 1451 [289] K  
Rp = 23.25 [34.65] Re  
a = 0.5665 [0.2307] AU  
Ag = 212.76 [625.20] [0.34 $\sigma$ ]  
Teffp = 8571 [6216] K [1.14 $\sigma$ ]

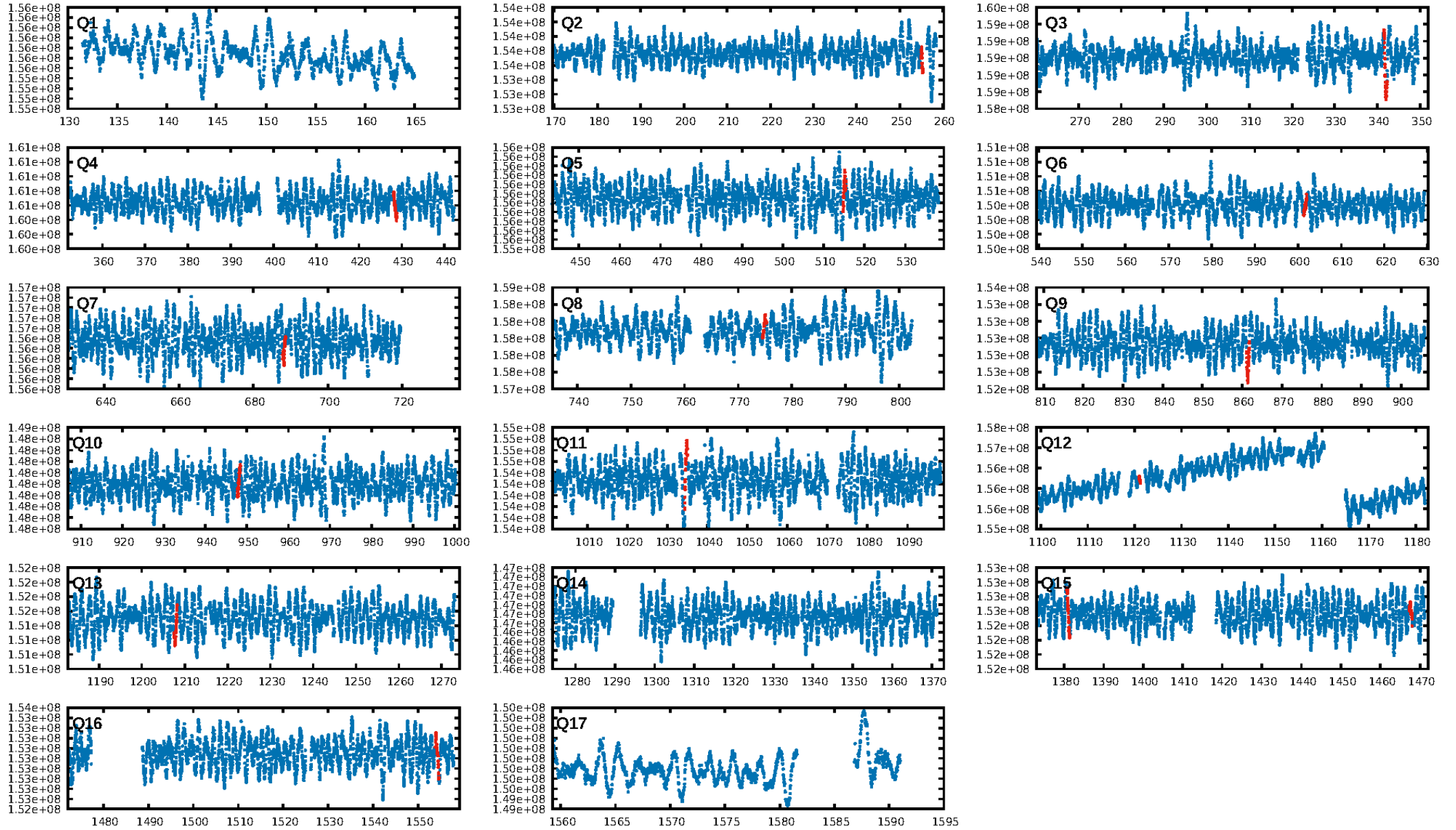
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [169.64 $\sigma$ ]  
LongPeriod-sig: 5.1% [0.06 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 1.333  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.090 arcsec [0.89 $\sigma$ ]  
KicOffset-rm: 0.080 arcsec [0.48 $\sigma$ ]  
OotOffset-st: 1/4/3/3 [11]  
KicOffset-st: 1/4/3/3 [11]  
DiffImageQuality-fgm: 0.55 [6/11]  
DiffImageOverlap-fno: 0.00 [0/12]

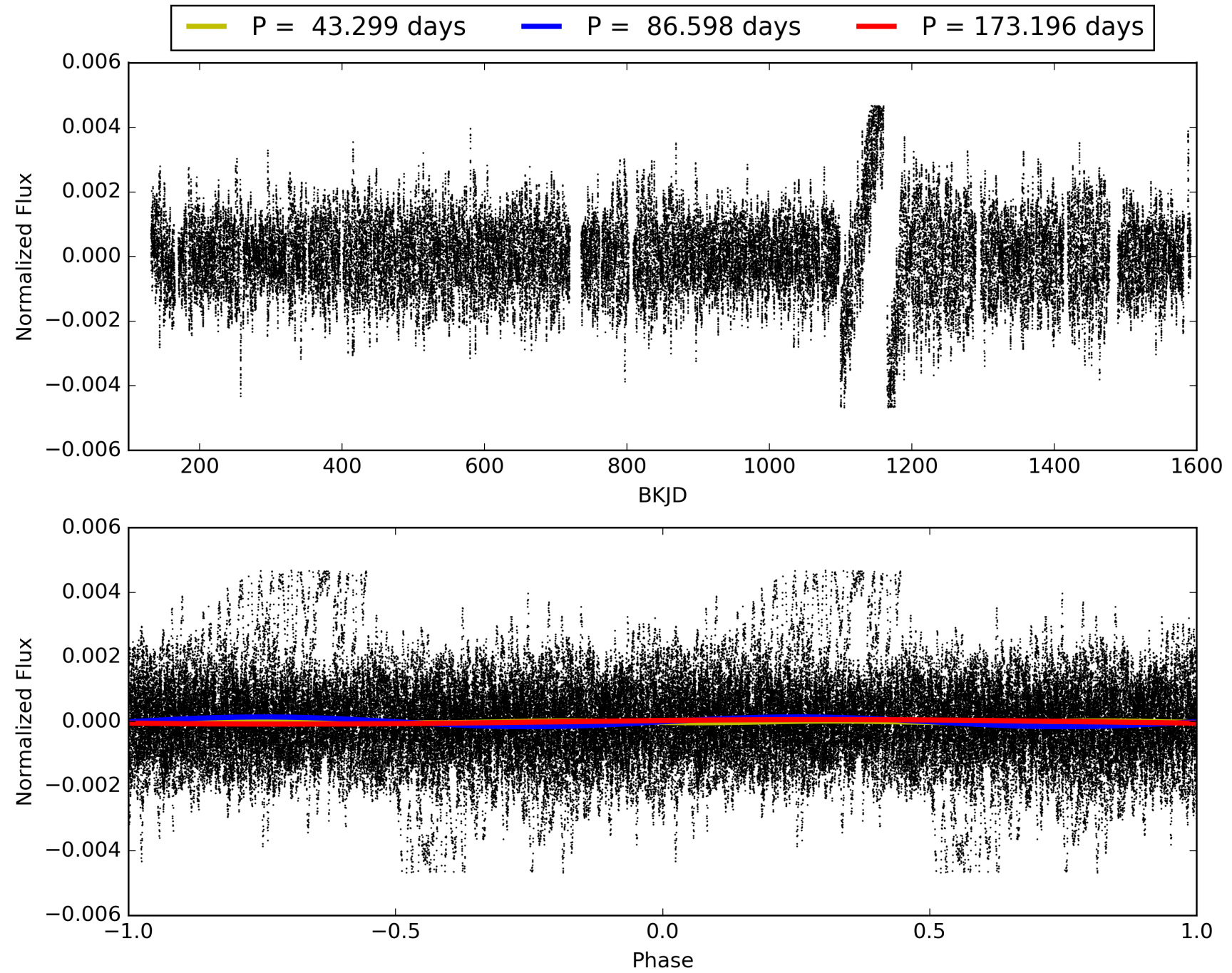
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:25:04 Z

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

# TCE 011454304-02, PDC Light Curves

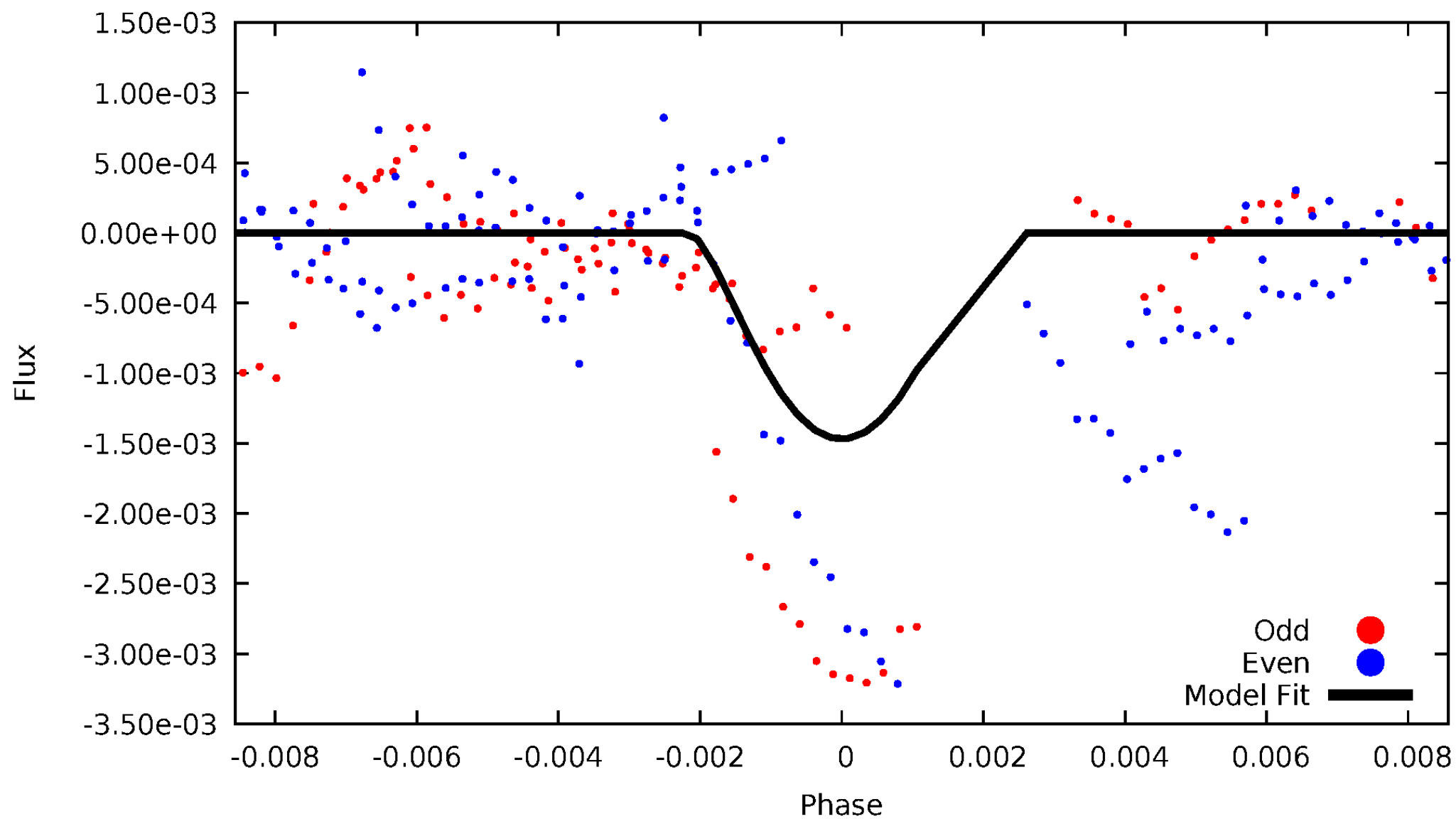


# TCE 011454304-02



# DV Odd/Even

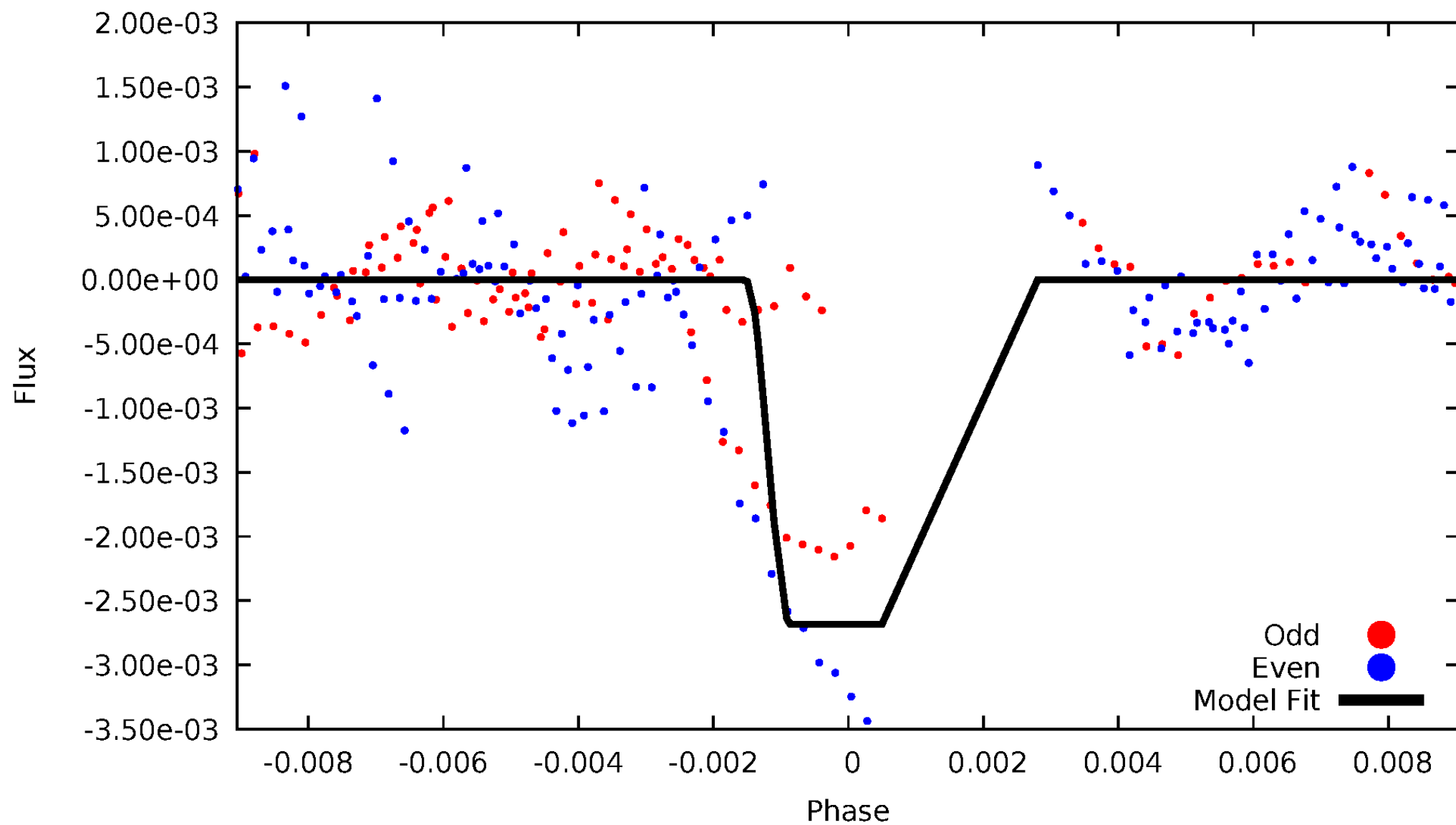
TCE 011454304-02





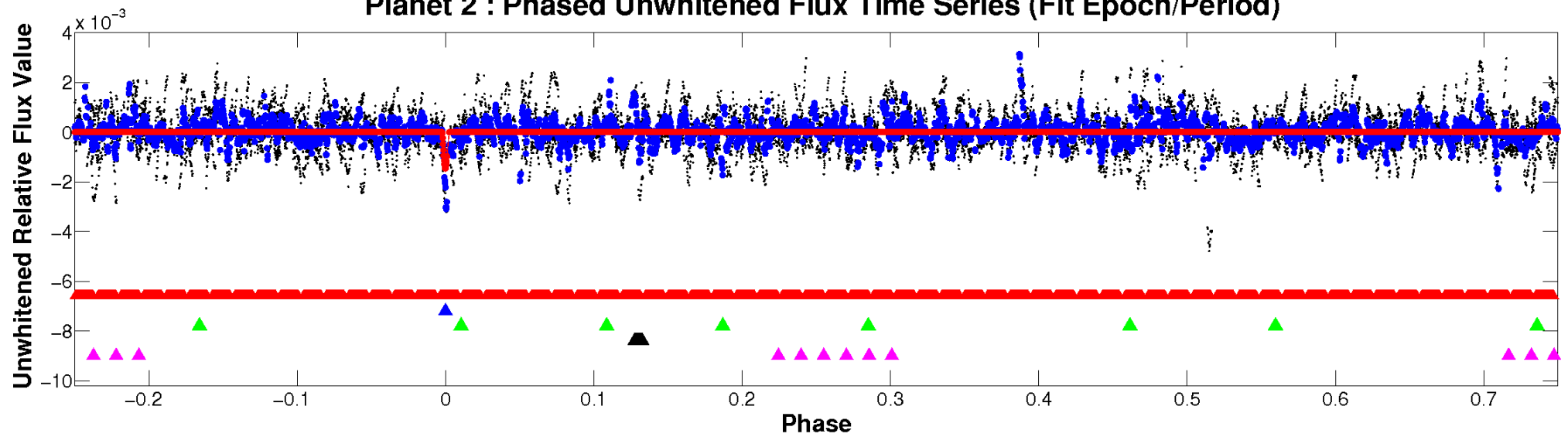
# ALT Odd/Even

TCE 011454304-02

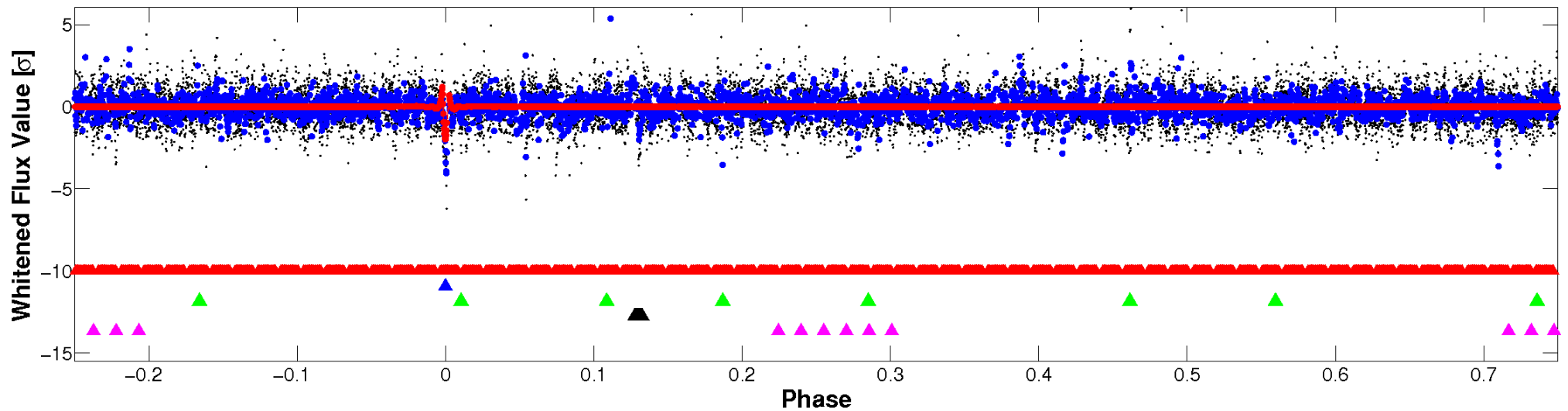


# Non-Whitened Vs. Whitened Light Curve

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

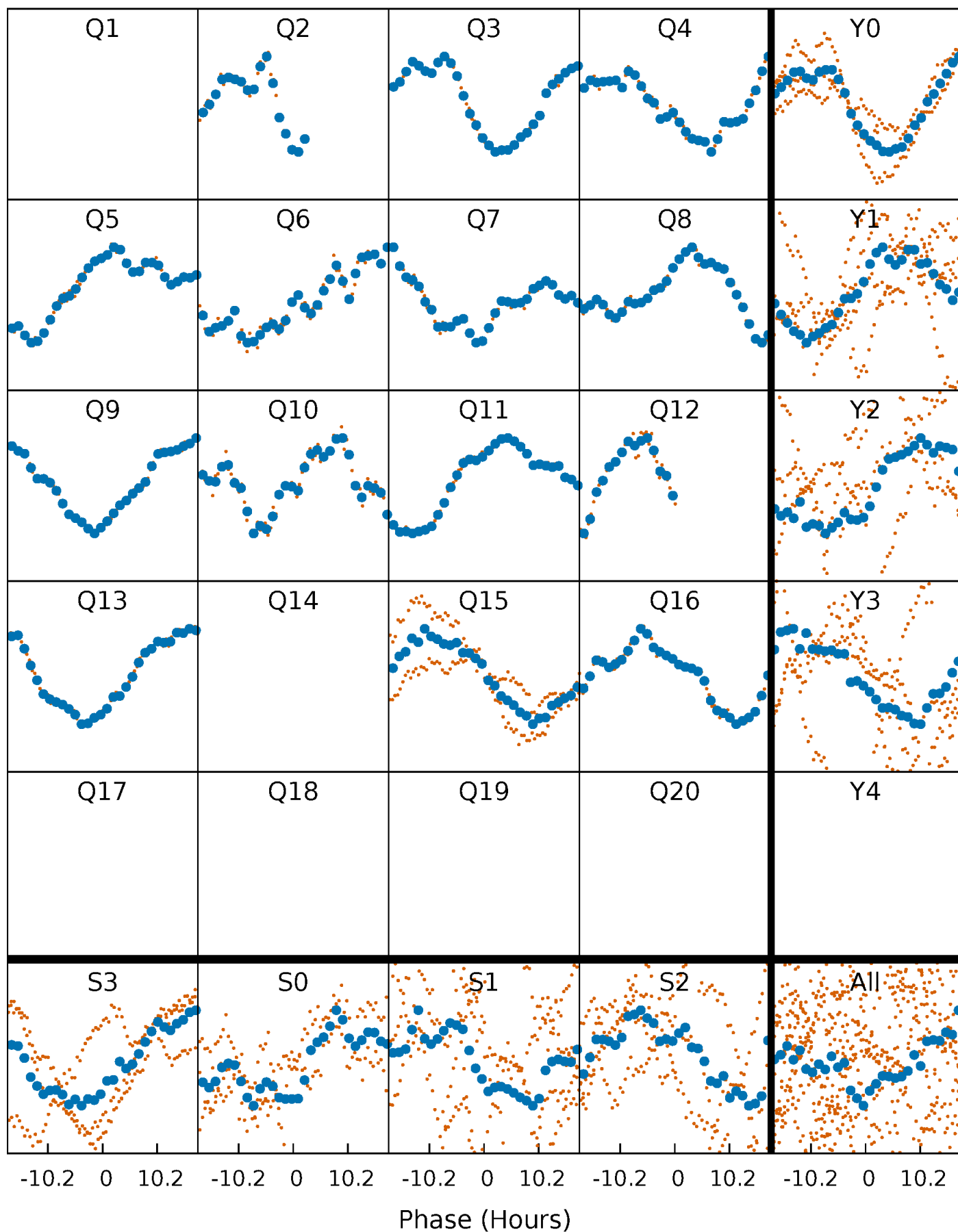


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



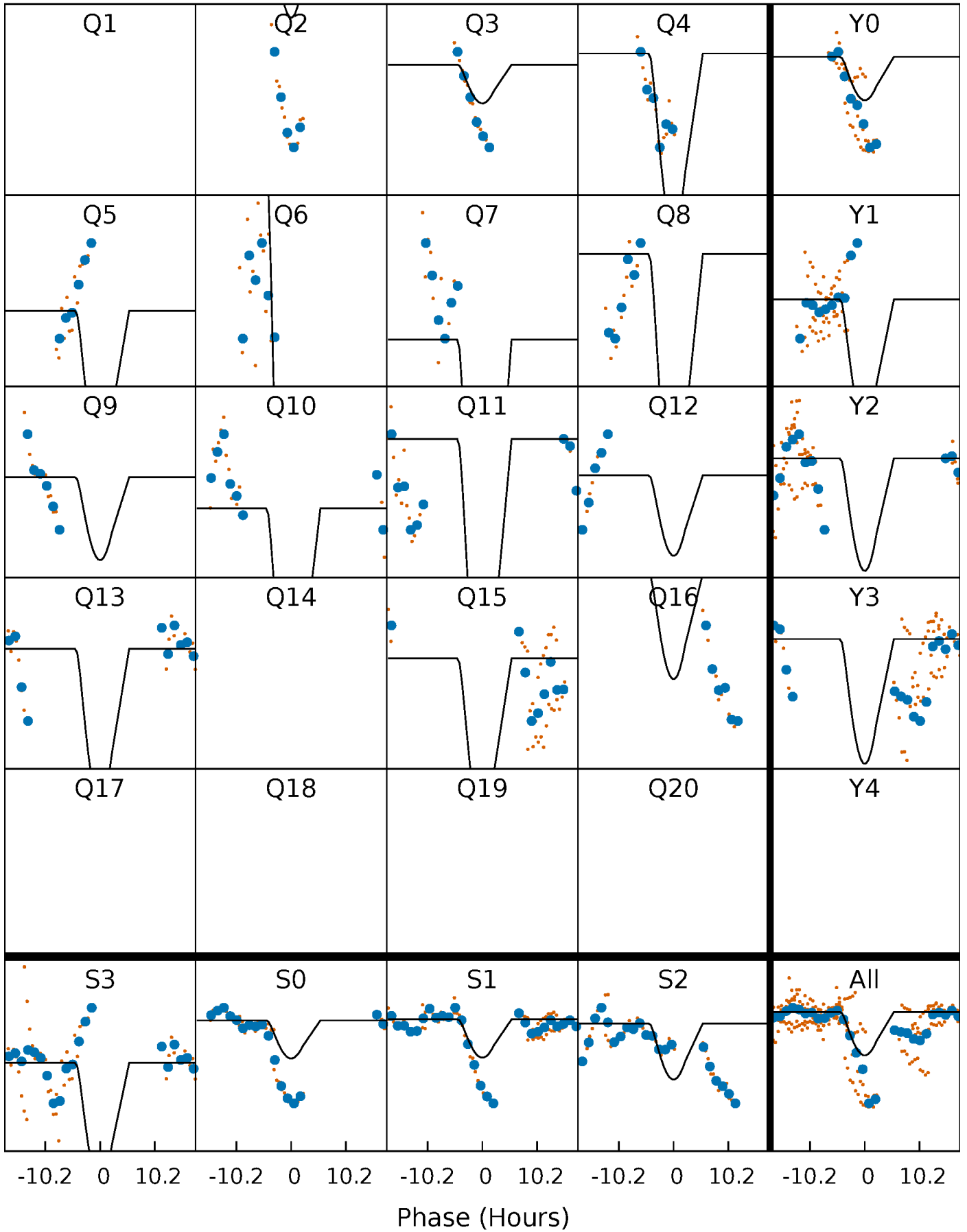
# PDC Quarter-Phased Transit Curves

TCE 011454304-02 P= 86.597921 Days  $T_0=168.692235$  (BKJD)



# DV Quarter-Phased Transit Curves

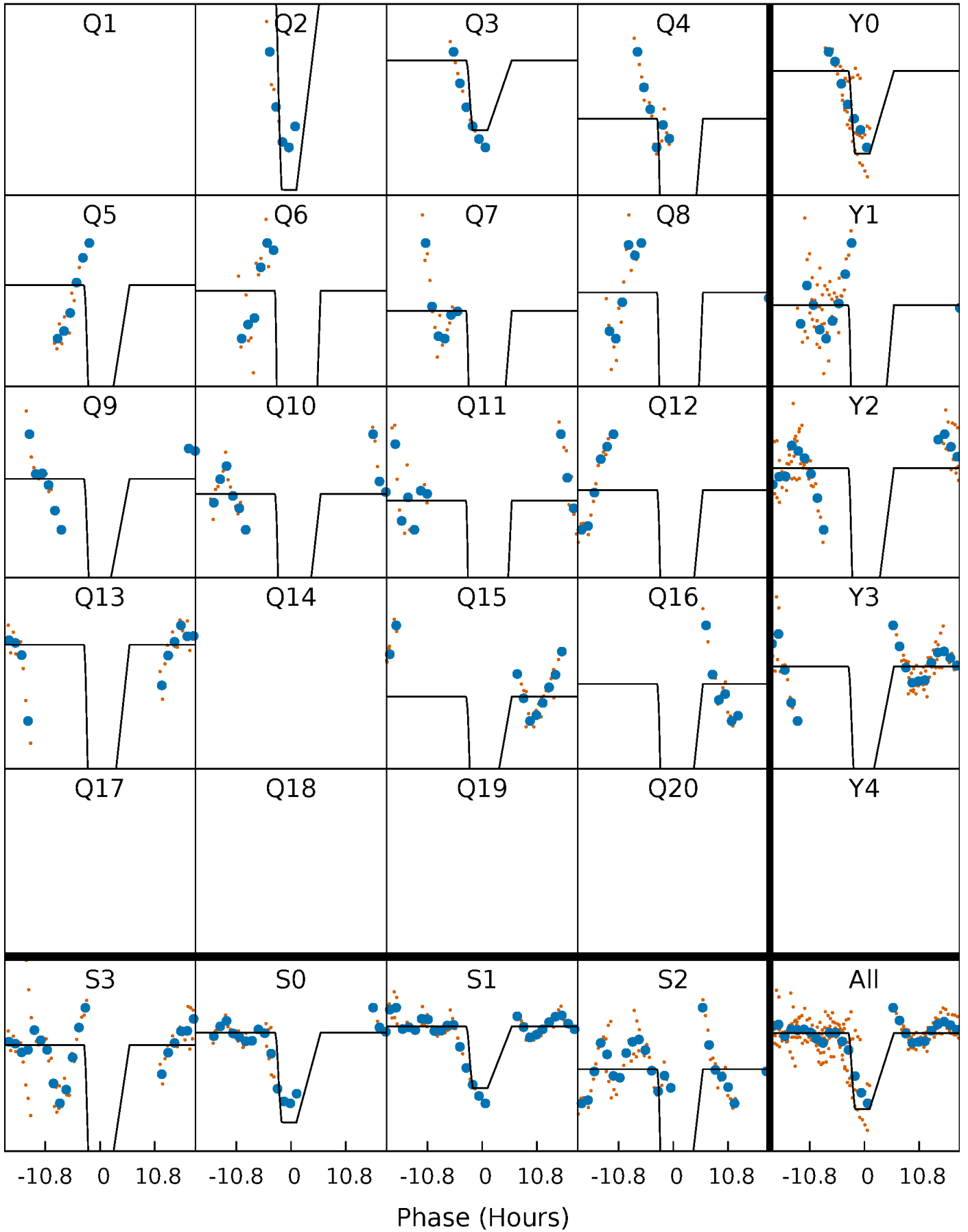
TCE 011454304-02     $P = 86.597921$  Days     $T_0 = 168.692235$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

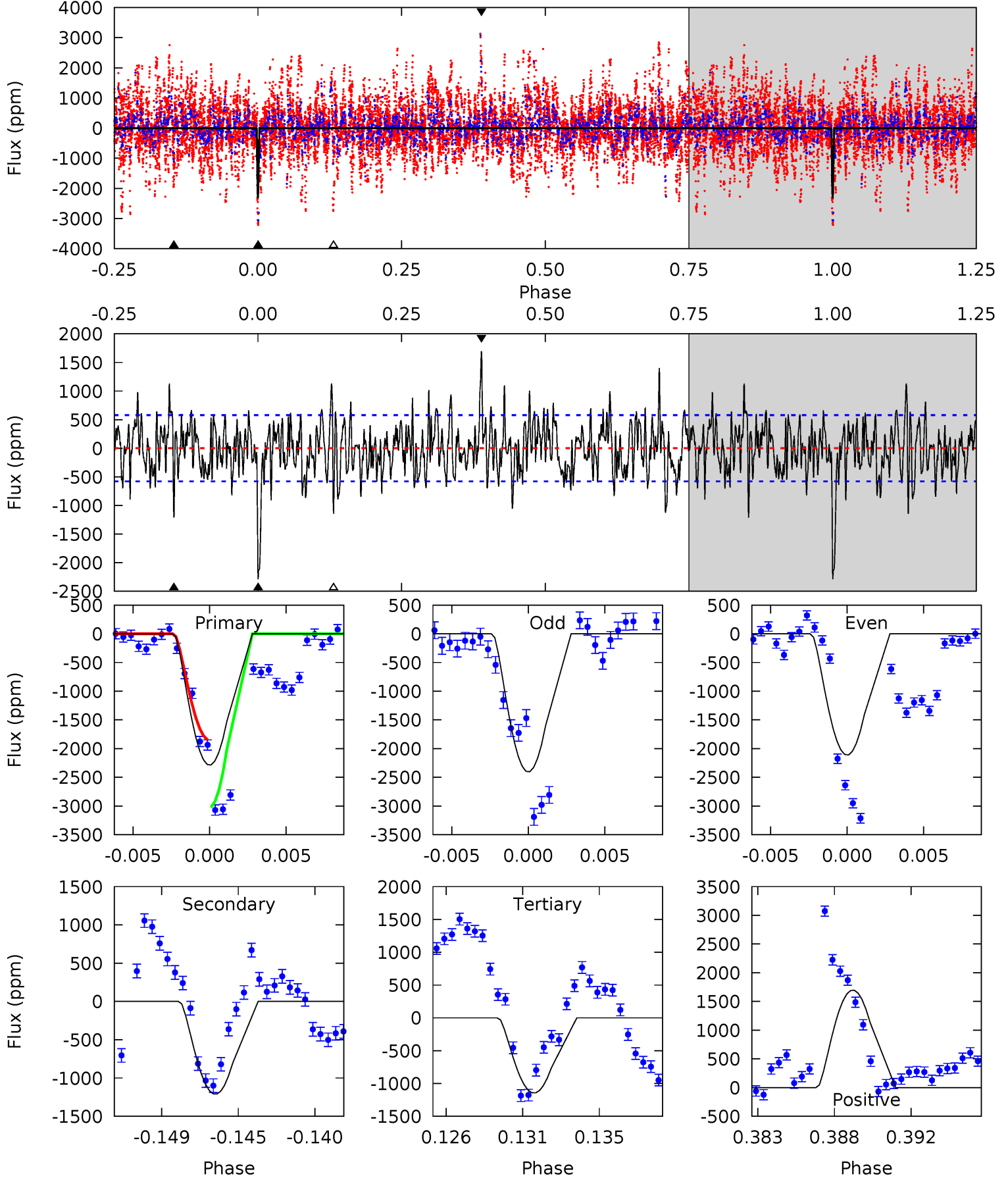
TCE 011454304-02   P= 86.593594 Days    $T_0=168.745013$  (BKJD)



# DV Model-Shift Uniqueness Test

011454304-02, P = 86.597921 Days, E = 82.094314 Days

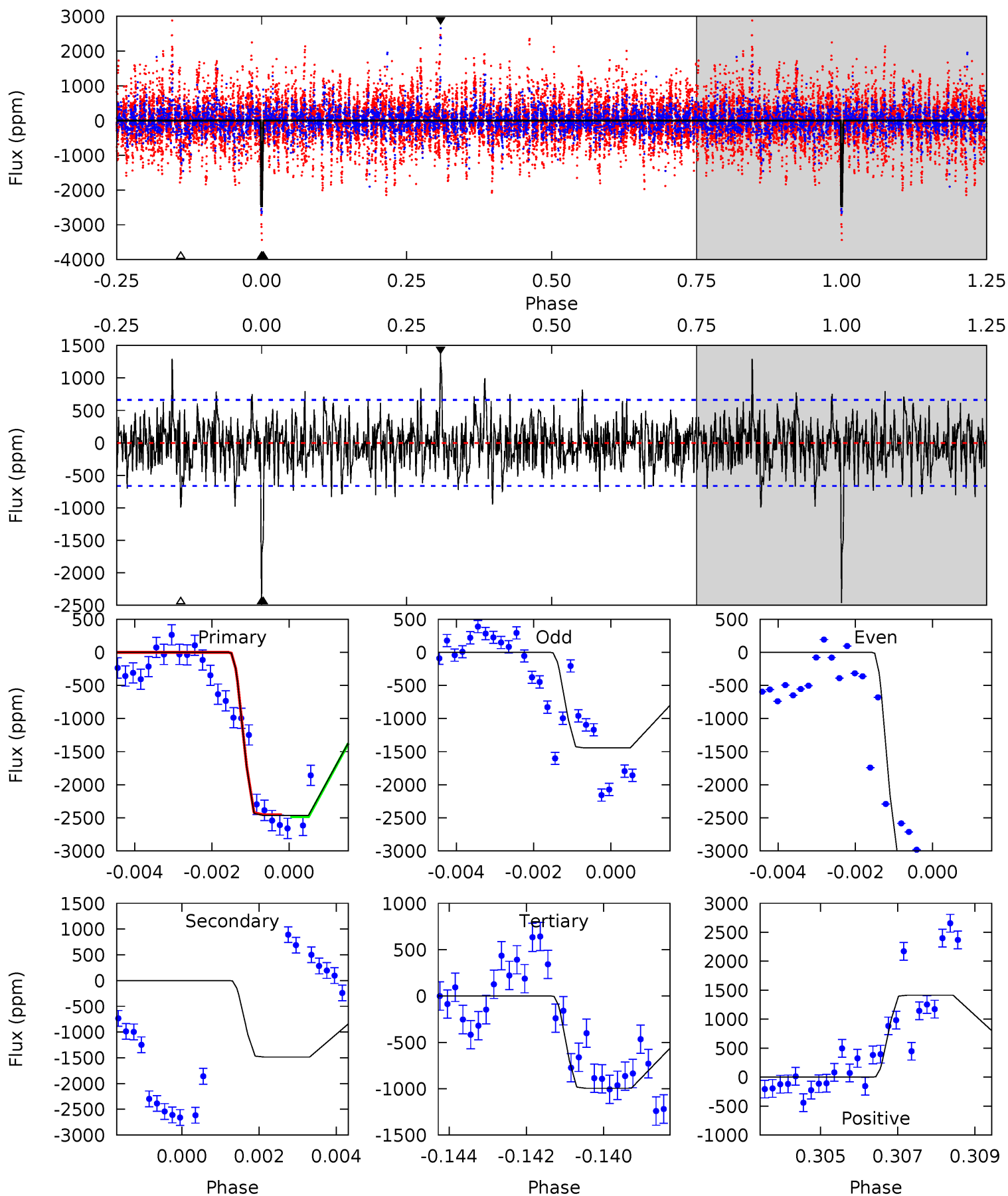
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	10.8	10.2	15.1	5.17	2.83	3.35	10.2	5.27	0.59	-4.33	1.30	1.11	0.43	4.39



# Alt Model-Shift Uniqueness Test

011454304-02, P = 86.593594 Days, E = 82.151419 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.8	12.0	8.01	11.4	5.33	3.09	2.18	11.8	8.43	3.95	0.56	6.80	0.70	0.36	0.10



### Stellar Parameters For KIC 011454304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$13203^{+642}_{-1499}$	$3.855^{+0.384}_{-0.096}$	$-0.500^{+0.050}_{-0.500}$	$3.518^{+0.395}_{-1.483}$	$3.230^{+0.120}_{-0.759}$	$0.104^{+0.331}_{-0.031}$
	+5%/-11%	+10%/-2%	+10%/-100%	+11%/-42%	+4%/-23%	+317%/-30%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011454304-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1210 \pm 112$	$31.29^{+27.38}_{-21.44}$	$1949^{+197}_{-270}$	$6687^{+8648}_{-1676}$	$220^{+1797}_{-159}$
Alt.	$-1485 \pm 124$	$28.49^{+27.43}_{-18.80}$	$1951^{+186}_{-252}$	$7508^{+10876}_{-2097}$	$320^{+2391}_{-238}$

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



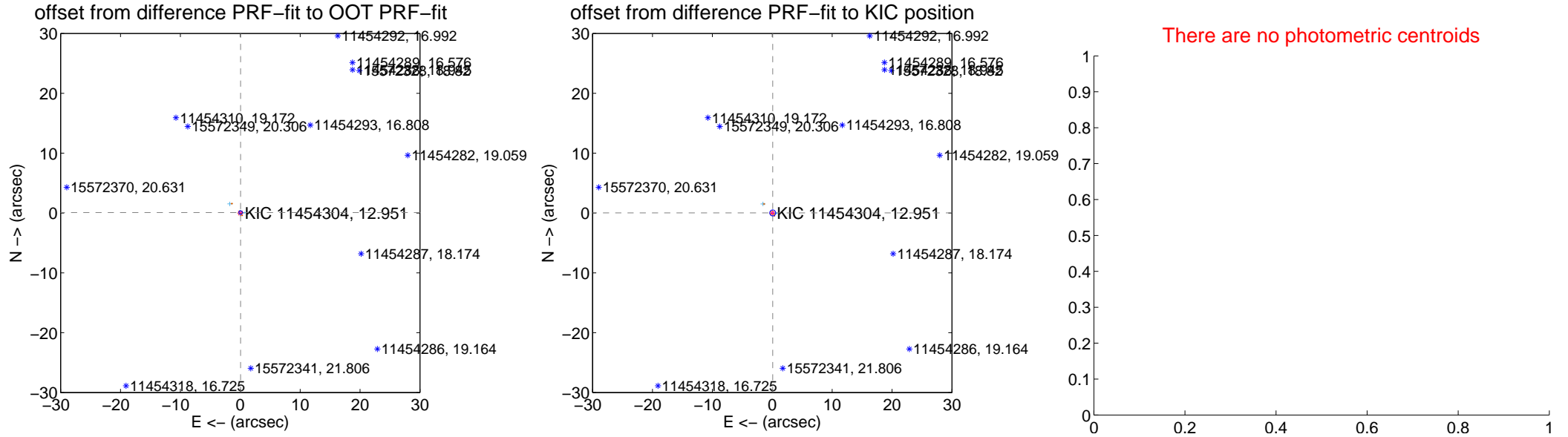
## DV Centroid Data

Supplemental centroid analysis for 011454304-02. Kepler magnitude: 12.95. Transit SNR 8.94

There are 6 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.090 \pm 0.101$	0.89	$-0.054 \pm 0.103$	$0.073 \pm 0.100$
PRF-fit source offset from KIC position	$0.080 \pm 0.166$	0.48	$-0.079 \pm 0.196$	$0.015 \pm 0.187$
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.

Q1 no difference image



Q1 no OOT image



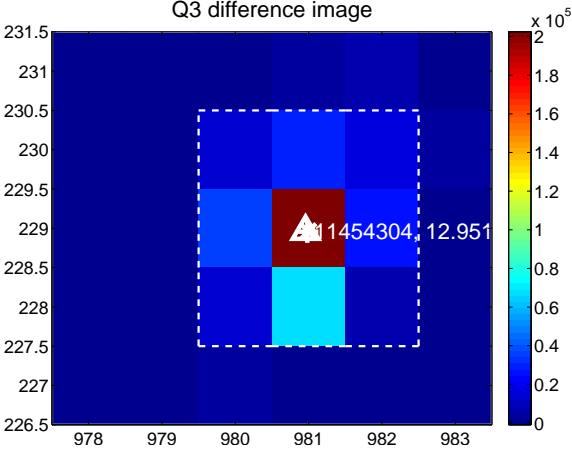
Q2 no difference image



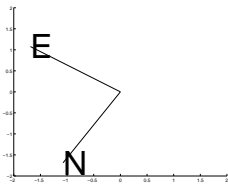
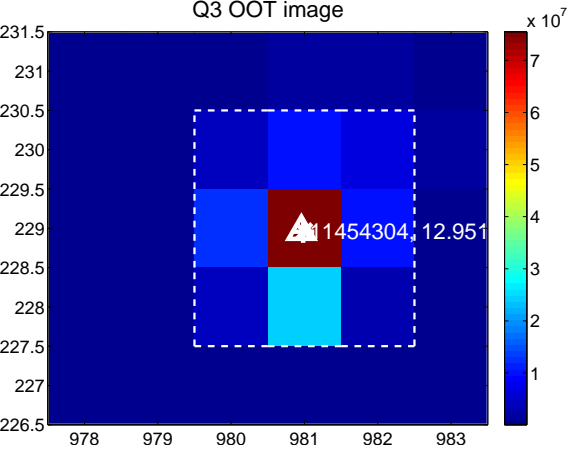
Q2 no OOT image



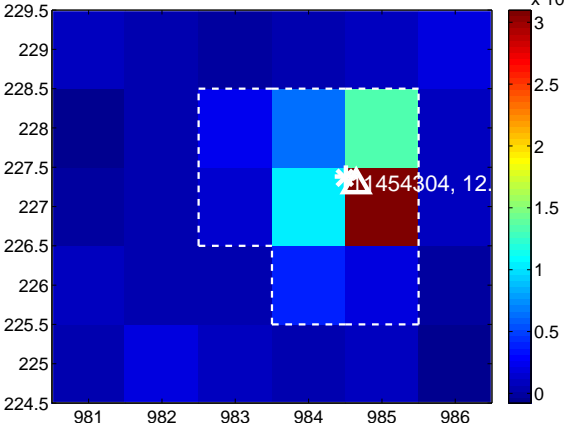
Q3 difference image



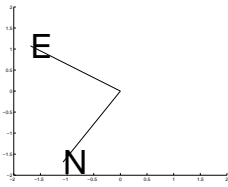
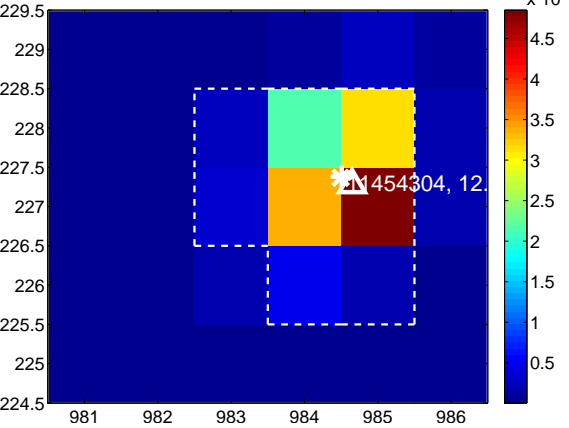
Q3 OOT image



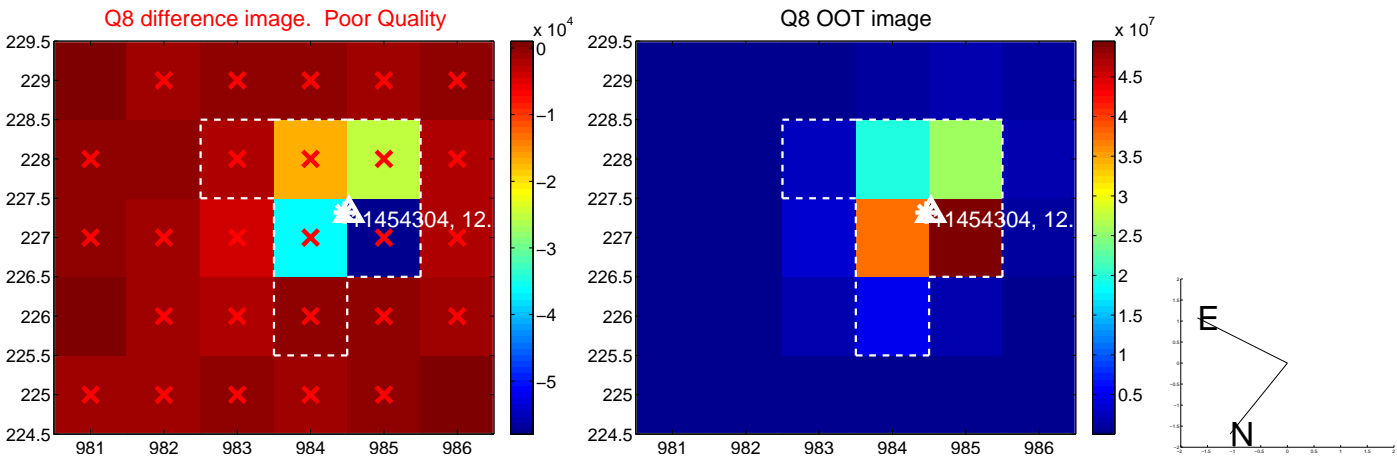
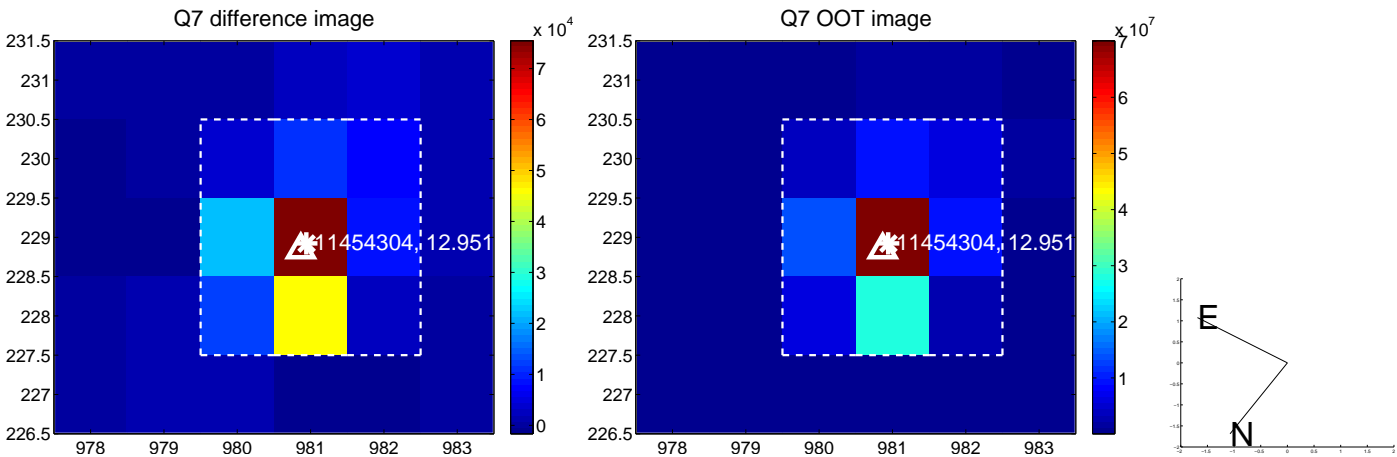
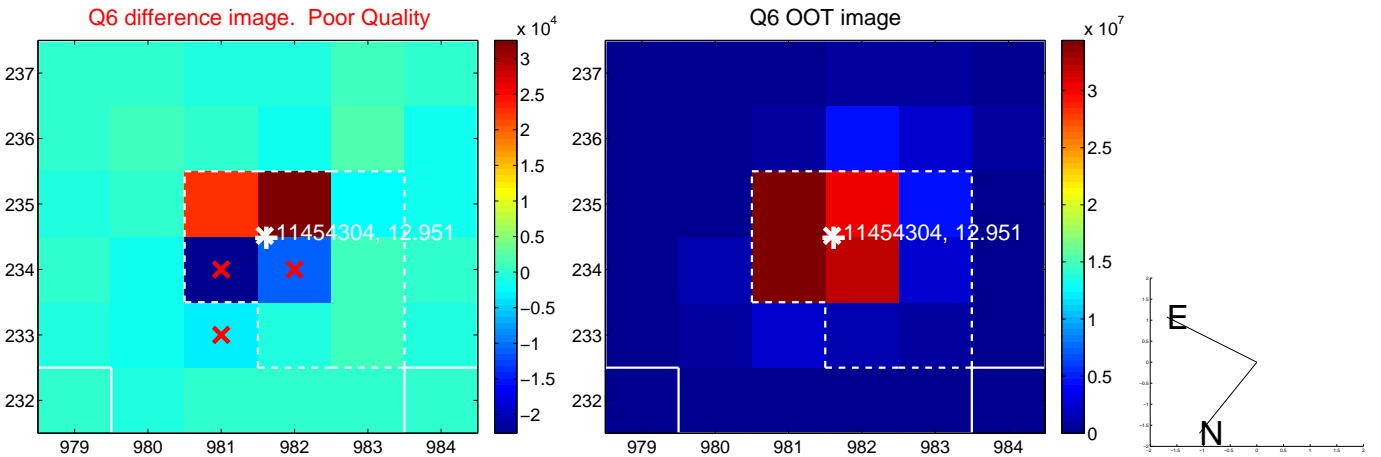
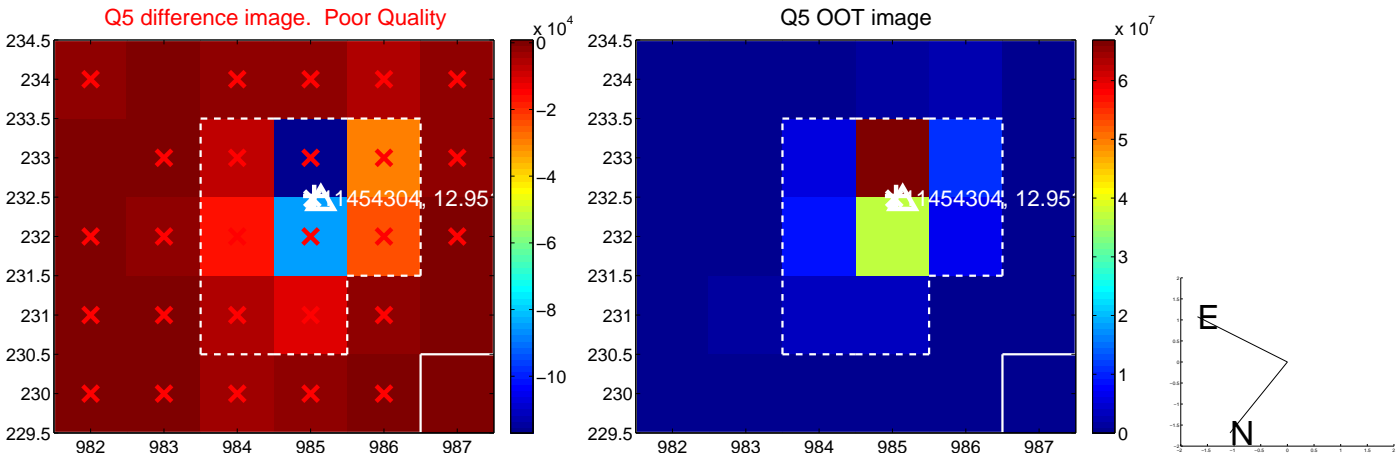
Q4 difference image



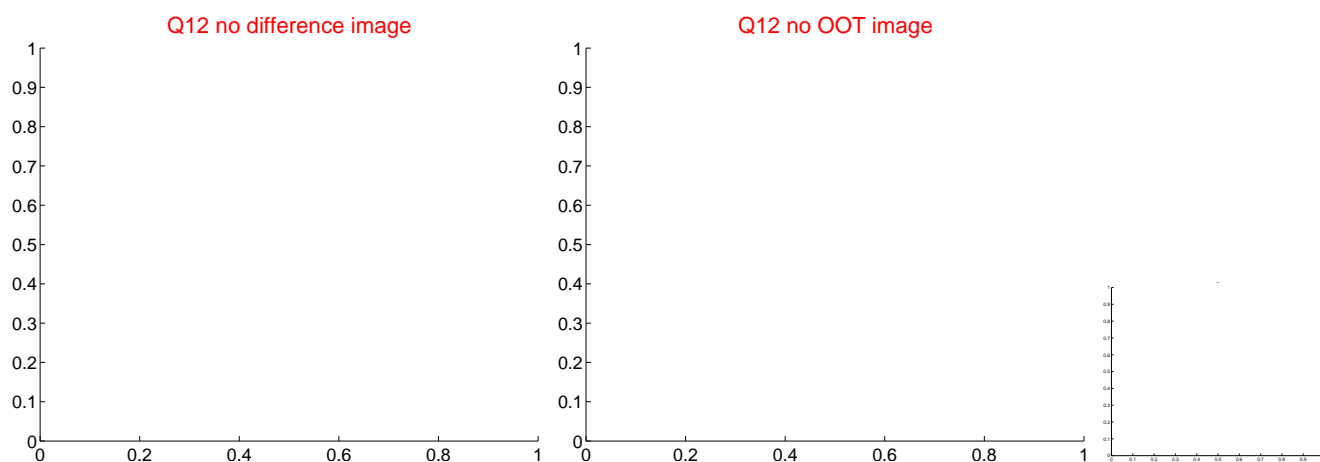
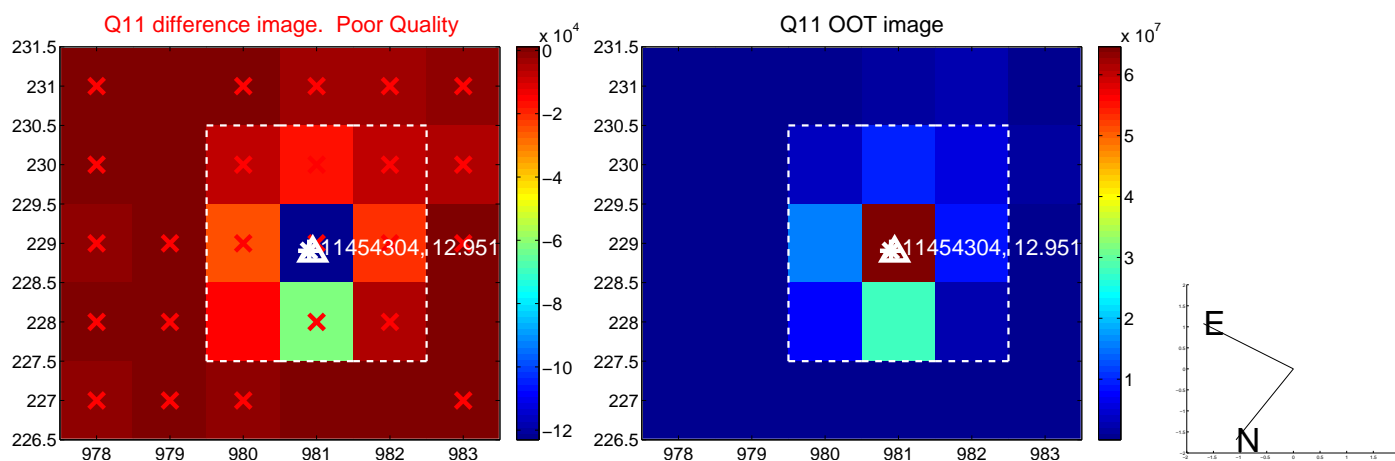
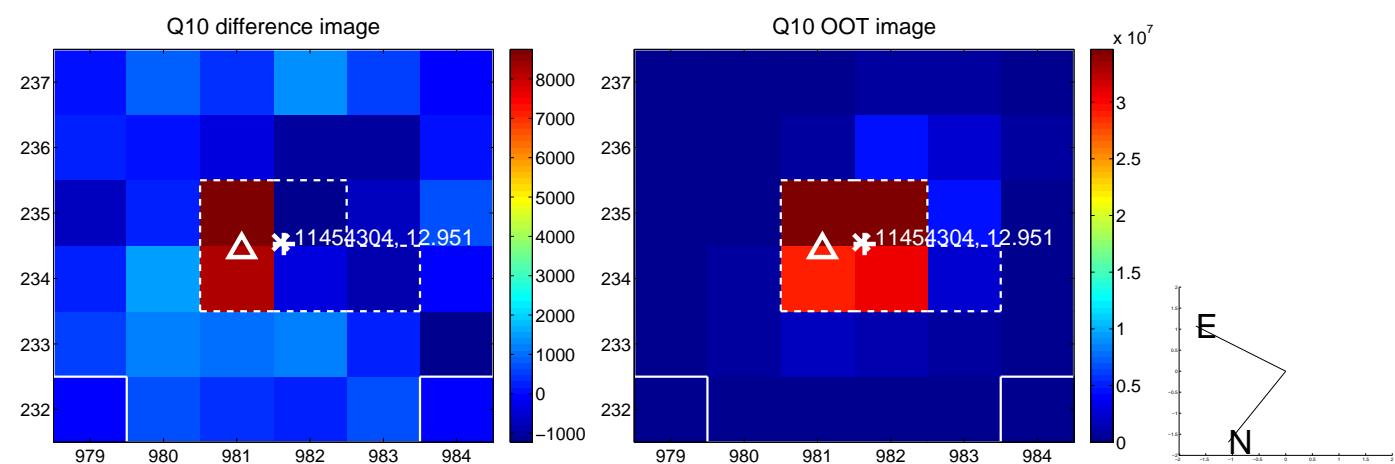
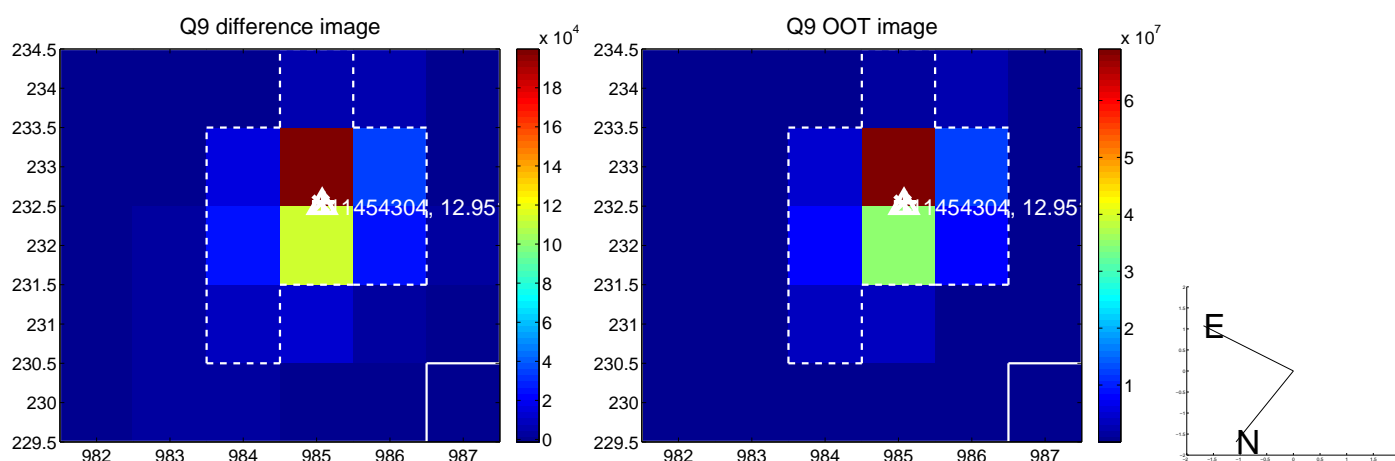
Q4 OOT image



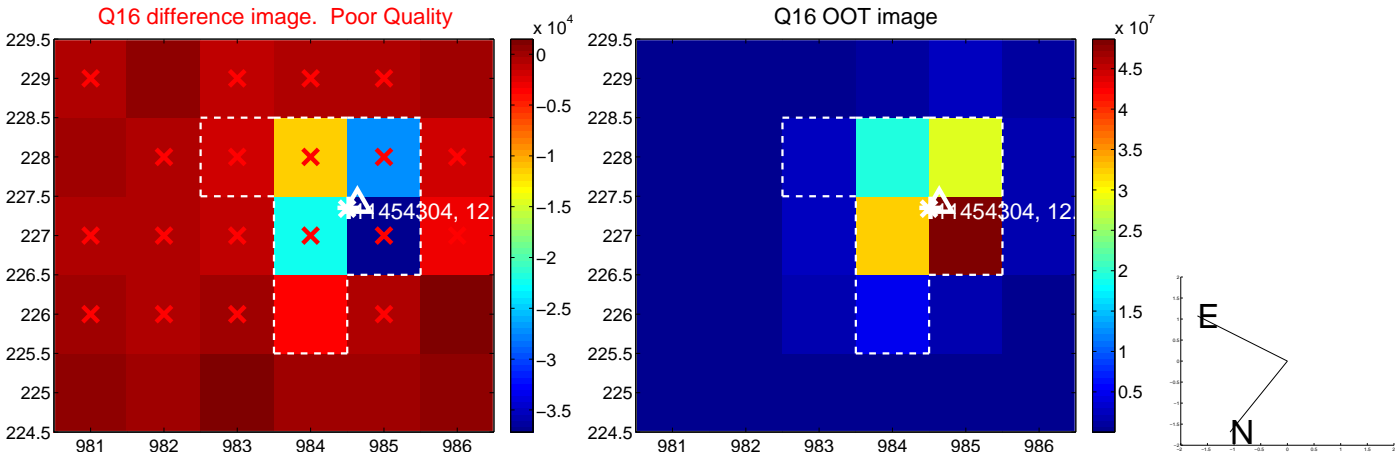
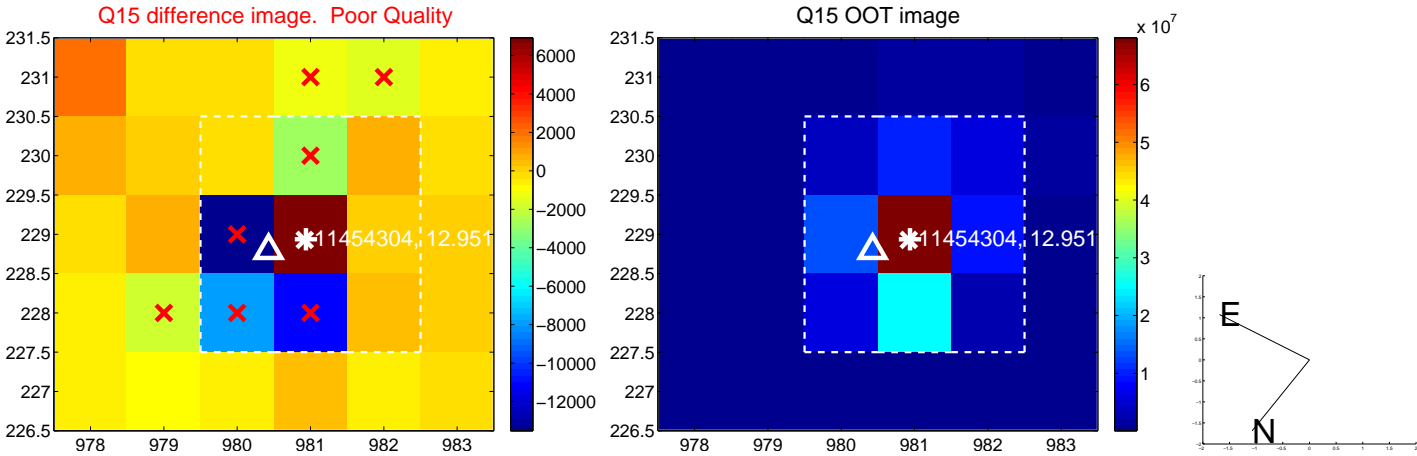
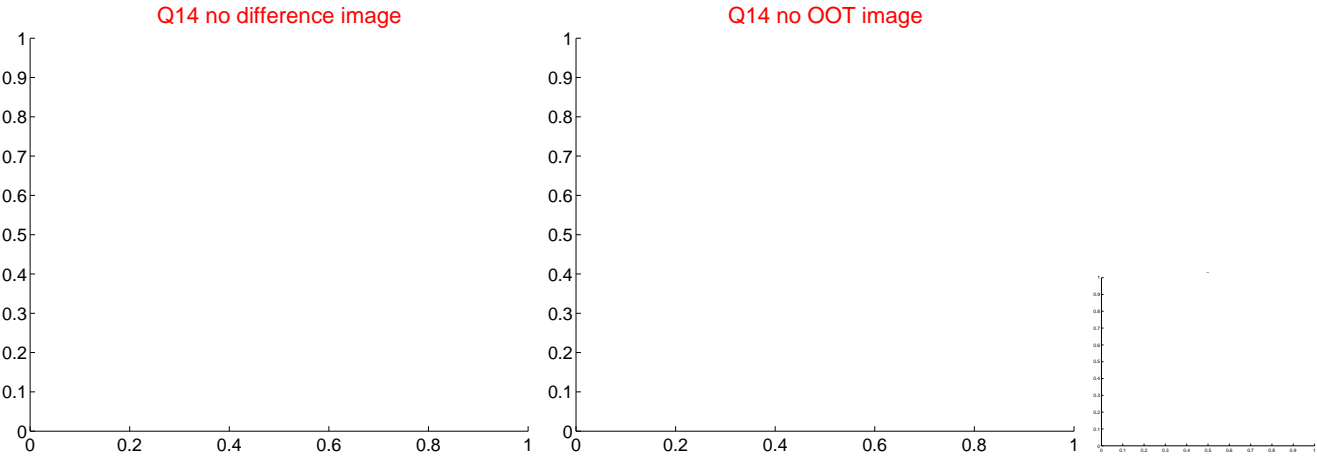
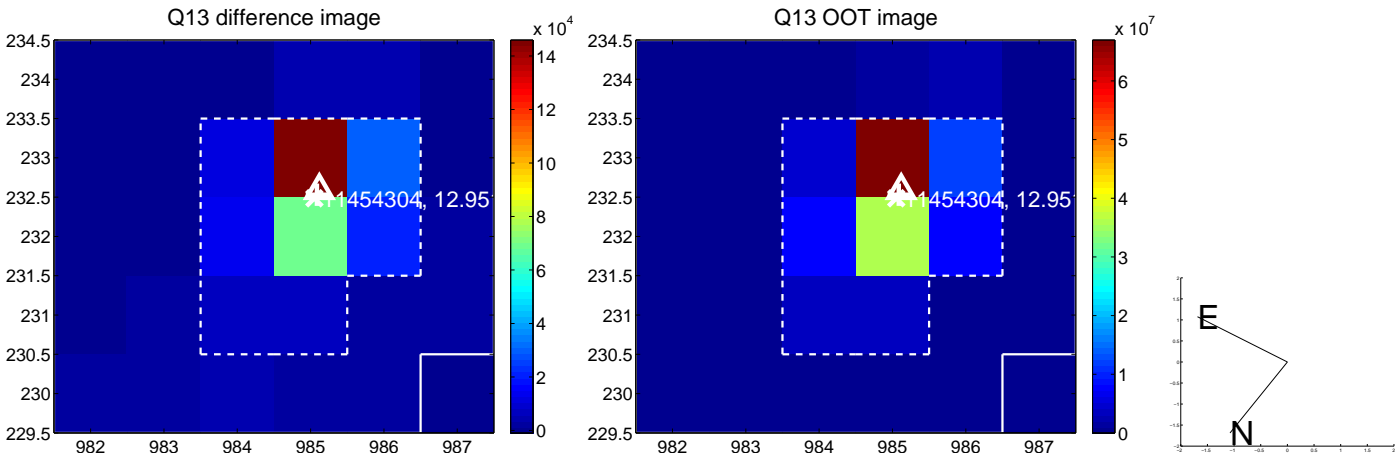
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.





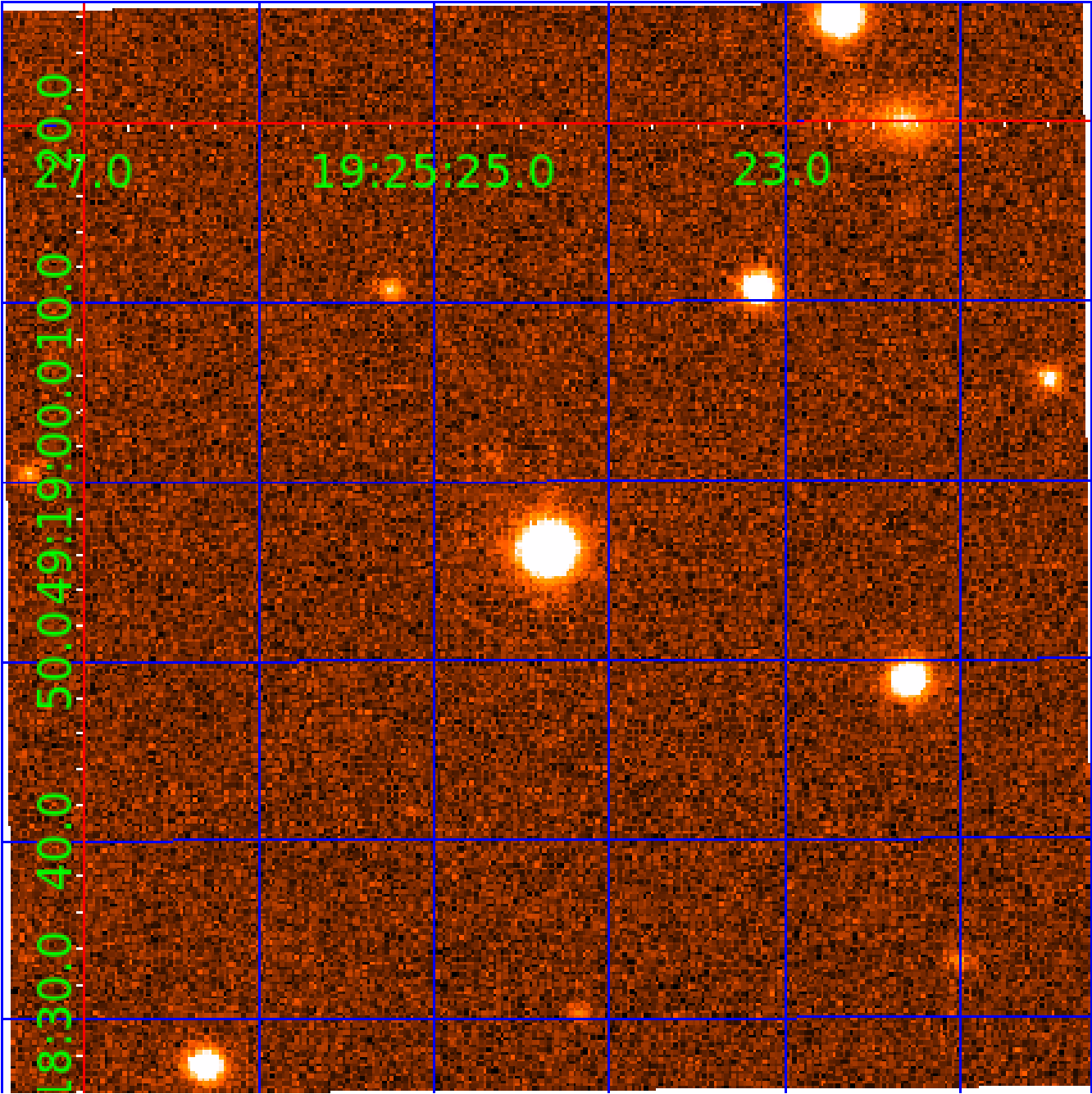
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 011454304

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011454304-01	OBS	No	1.331299	132.133336	14.2	8.146	9.8	2.5	3.52	13203	1.43	274630.10
011454304-02	OBS	No	86.597921	168.692235	1467.7	8.898	18.1	8.9	3.52	13203	23.25	1049.80
011454304-03	OBS	No	196.969825	184.882274	904.9	6.845	9.3	9.2	3.52	13203	18.48	350.95
011454304-04	OBS	No	86.625656	179.736995	807.2	5.484	9.0	7.2	3.52	13203	17.49	1049.35
011454304-05	OBS	No	130.558915	144.168424	1109.1	6.697	9.3	8.9	3.52	13203	20.38	607.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011454304-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011454304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011454304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
011454304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011454304-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES

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

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

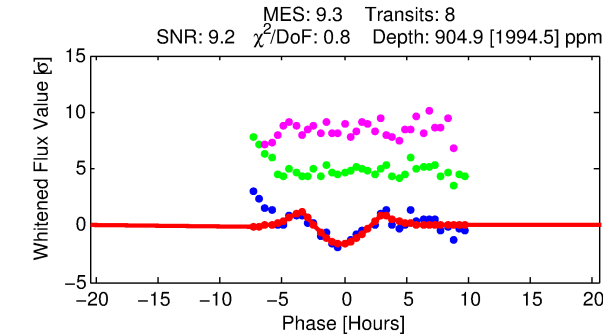
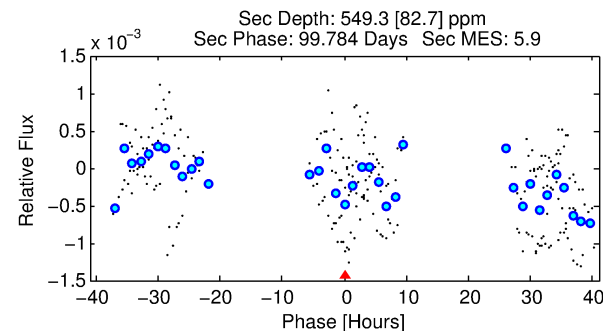
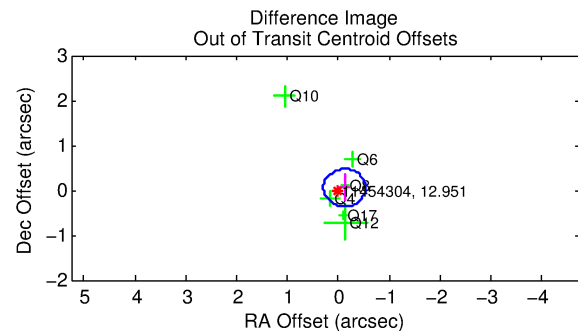
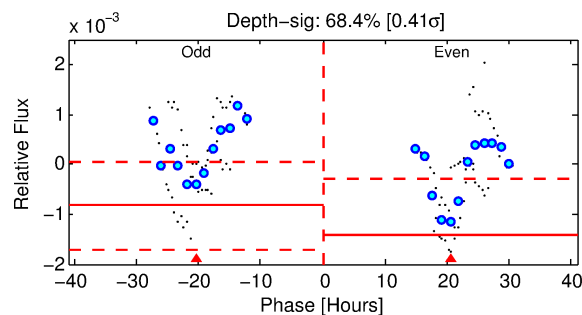
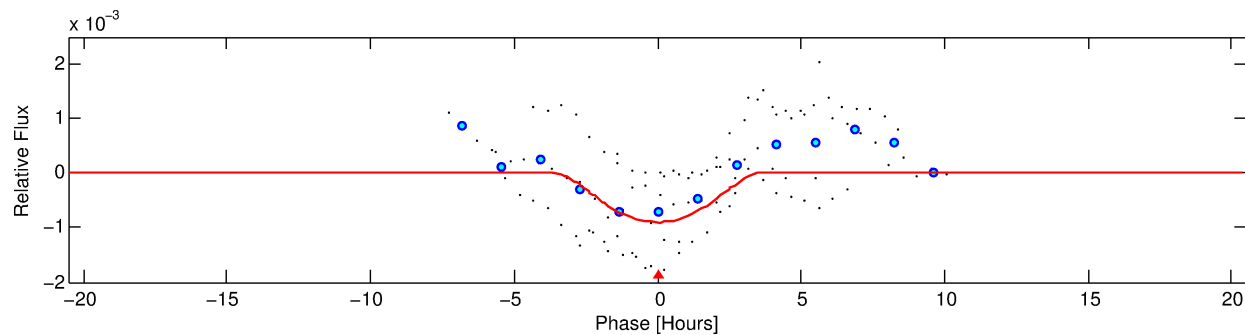
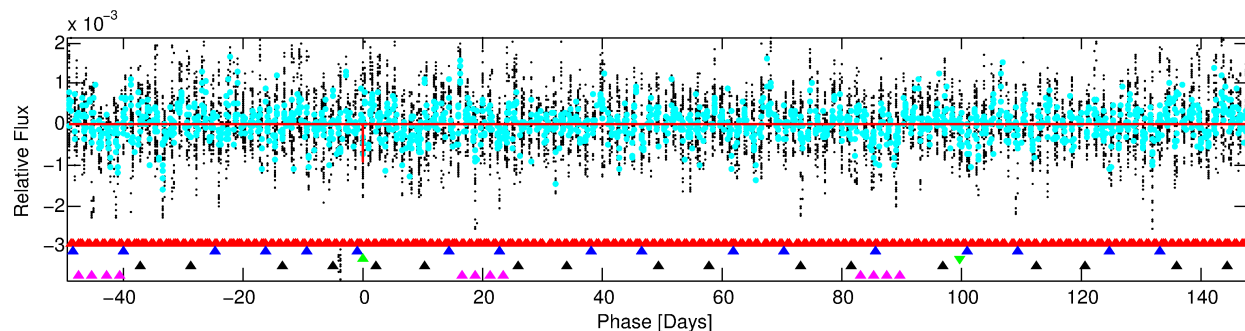
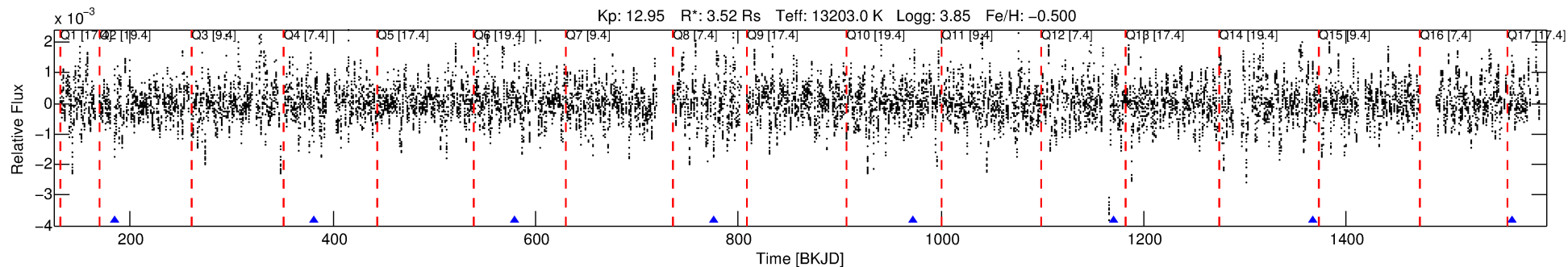
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011454304-03

No Significant Match Found

# DV One-Page Summary

KIC: 11454304 Candidate: 3 of 5 Period: 196.970 d



## DV Fit Results:

Period = 196.96982 [0.00433] d  
Epoch = 184.8823 [0.0124] BKJD  
Rp/R\* = 0.0481 [0.0696]  
a/R\* = 69.02 [26.59]  
b = 1.00 [0.03]  
Seff = 350.95 [279.15]  
Teq = 1104 [219] K  
Rp = 18.47 [27.81] Re  
a = 0.9799 [0.3990] AU  
Ag = 850.01 [2522.10] [0.34 $\sigma$ ]  
Teffp = 9214 [6749] K [1.20 $\sigma$ ]

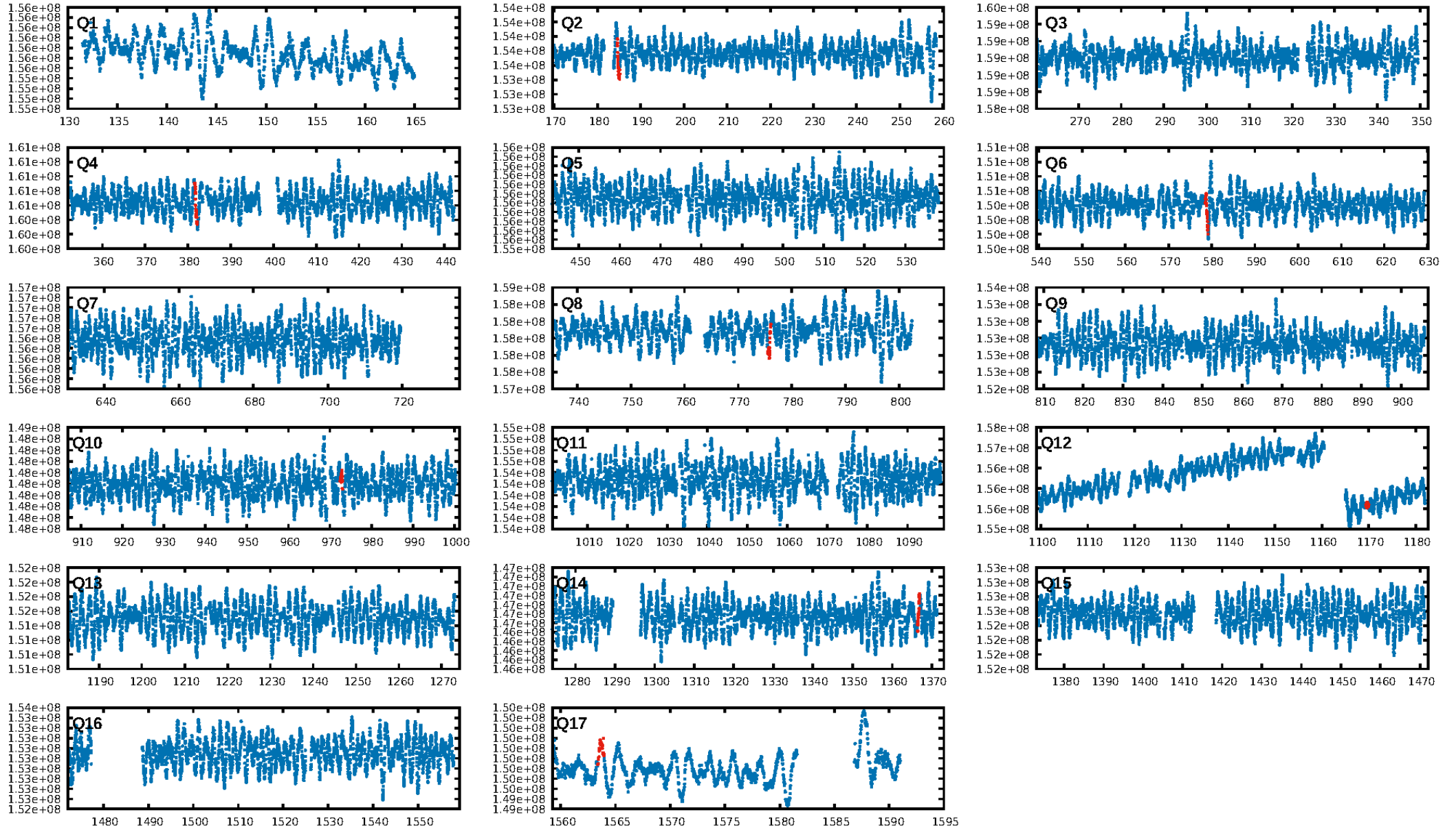
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [166.43 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 50.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
**GhostDiagnostic-chr: 0.7986**  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.131 arcsec [0.94 $\sigma$ ]  
KicOffset-rm: 0.144 arcsec [0.98 $\sigma$ ]  
OotOffset-st: 2/0/3/1 [6]  
KicOffset-st: 2/0/3/1 [6]  
DiffImageQuality-fgm: 0.33 [2/6]  
DiffImageOverlap-fno: 0.00 [0/7]

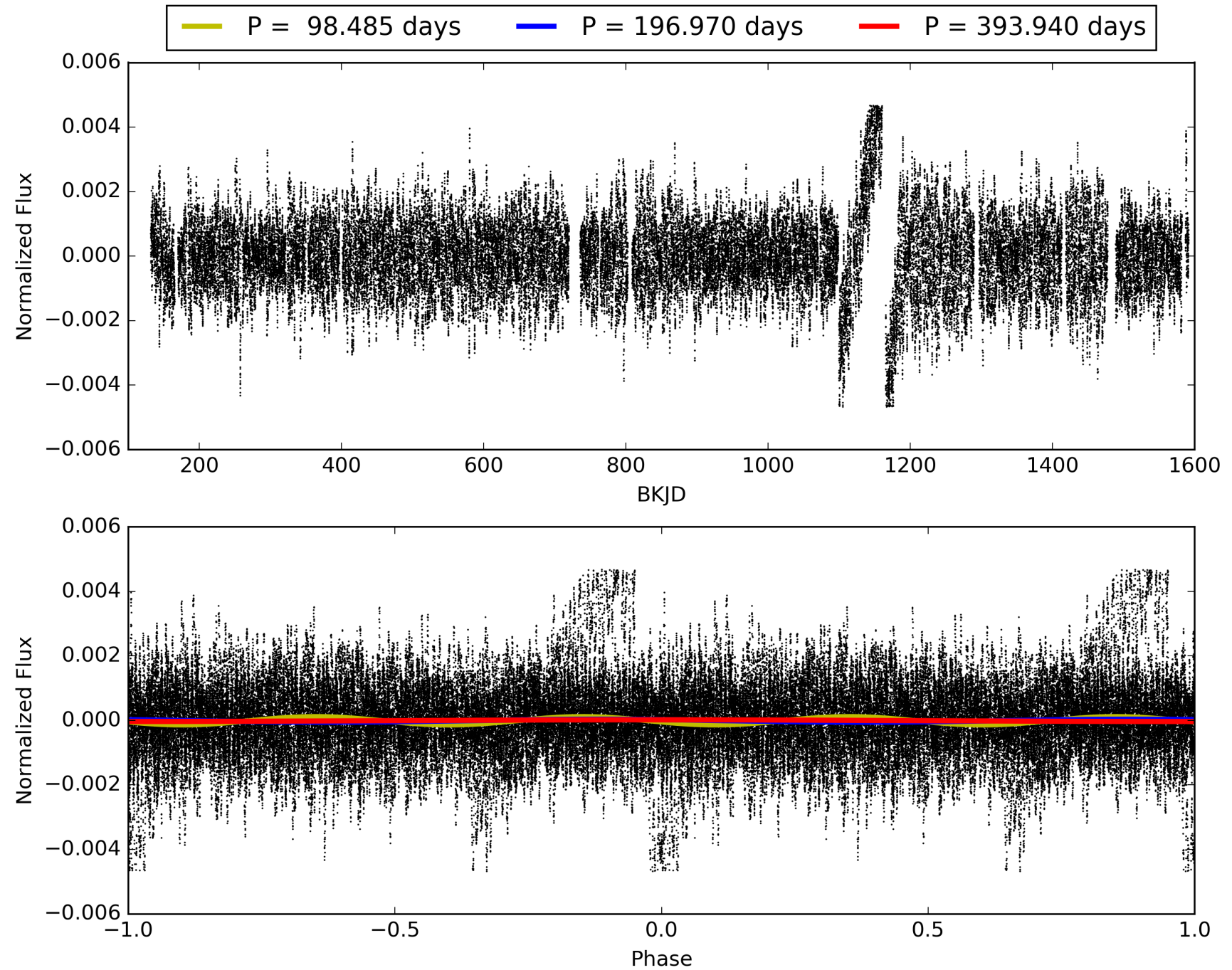
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:25:08 Z

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

# TCE 011454304-03, PDC Light Curves



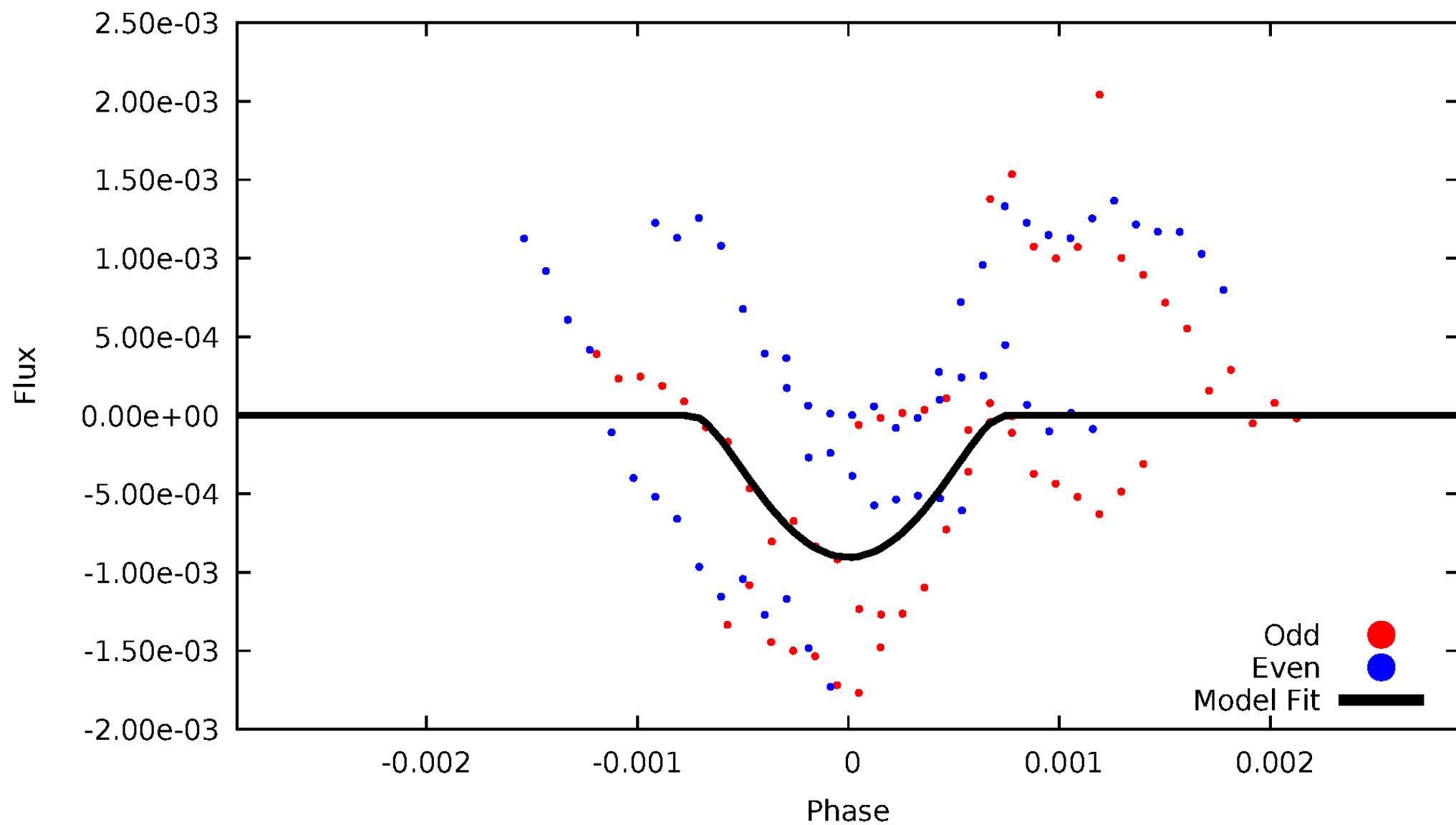
# TCE 011454304-03





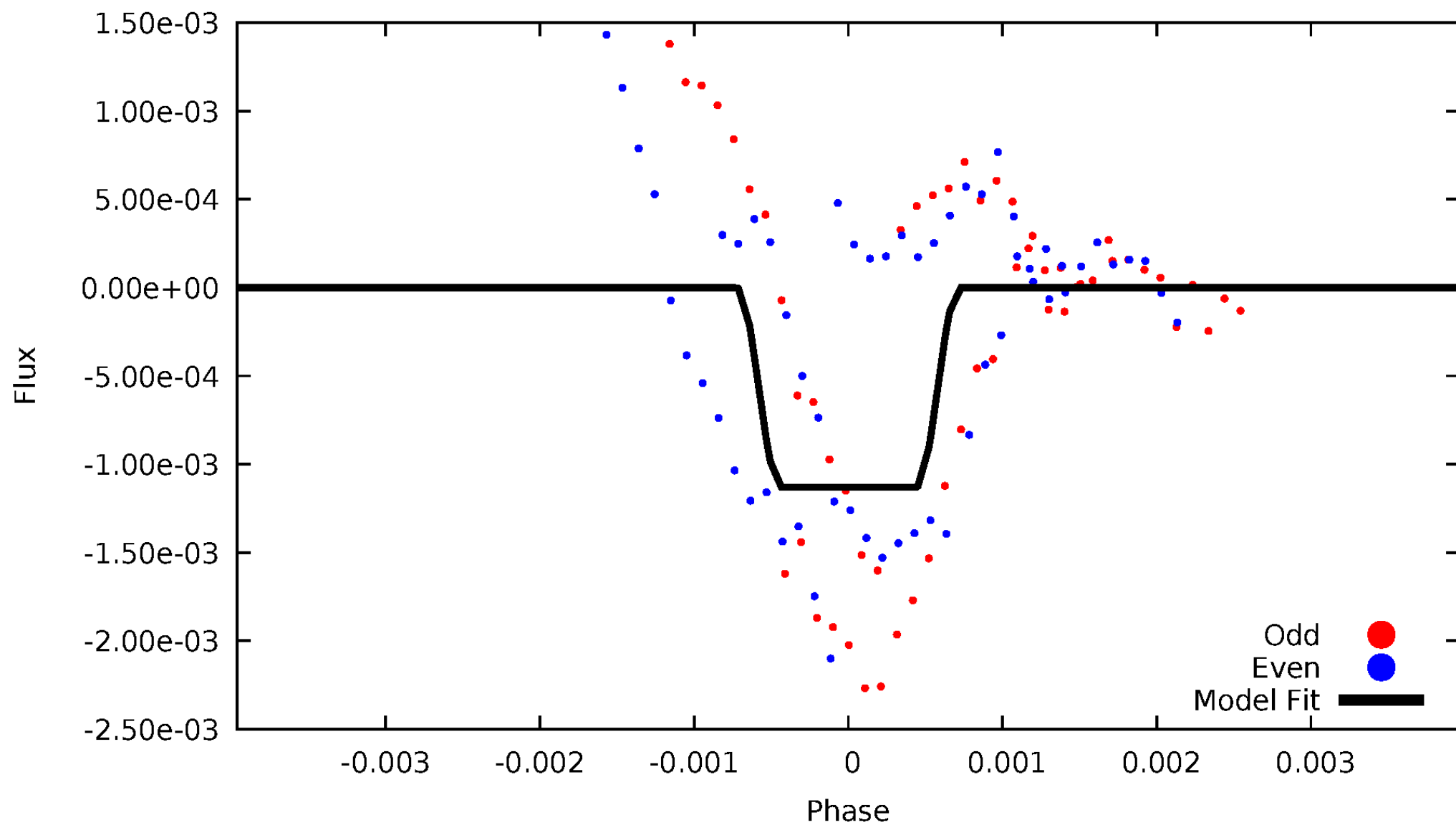
# DV Odd/Even

TCE 011454304-03



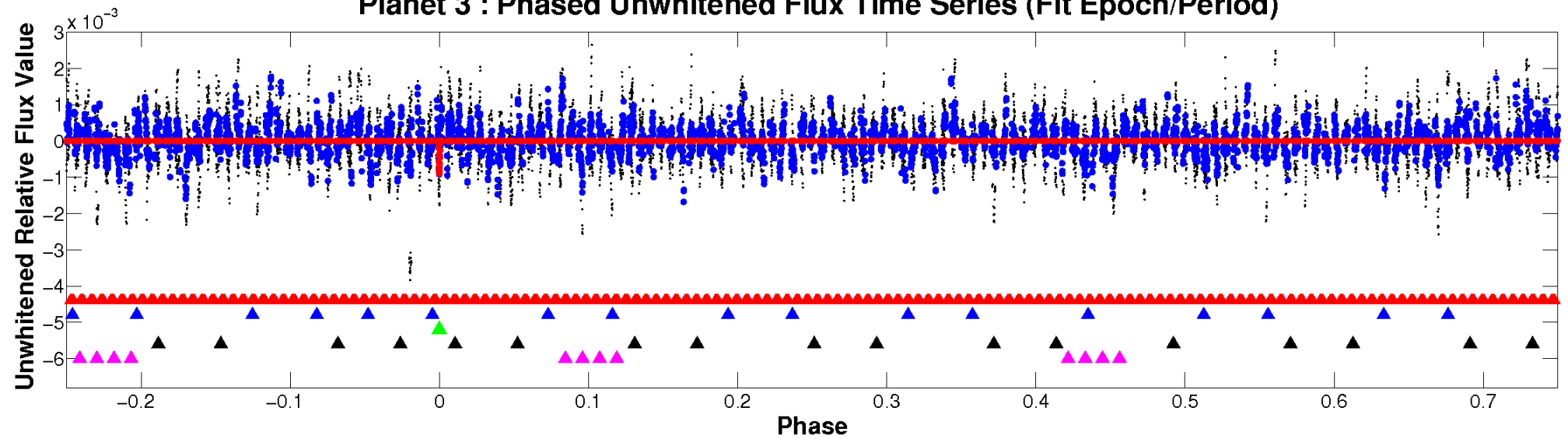
# ALT Odd/Even

TCE 011454304-03

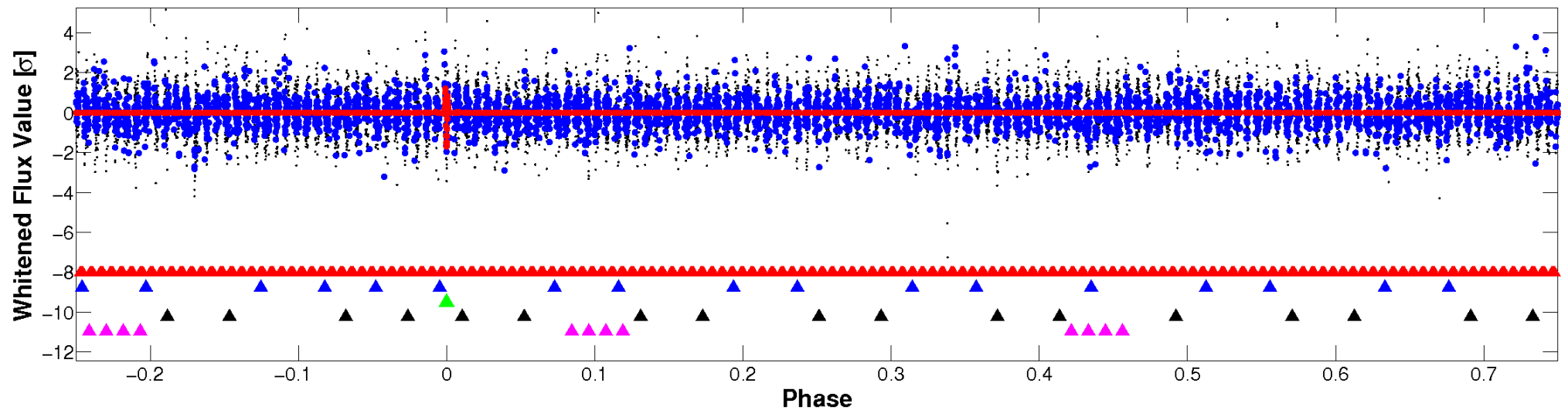


# Non-Whitened Vs. Whitened Light Curve

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

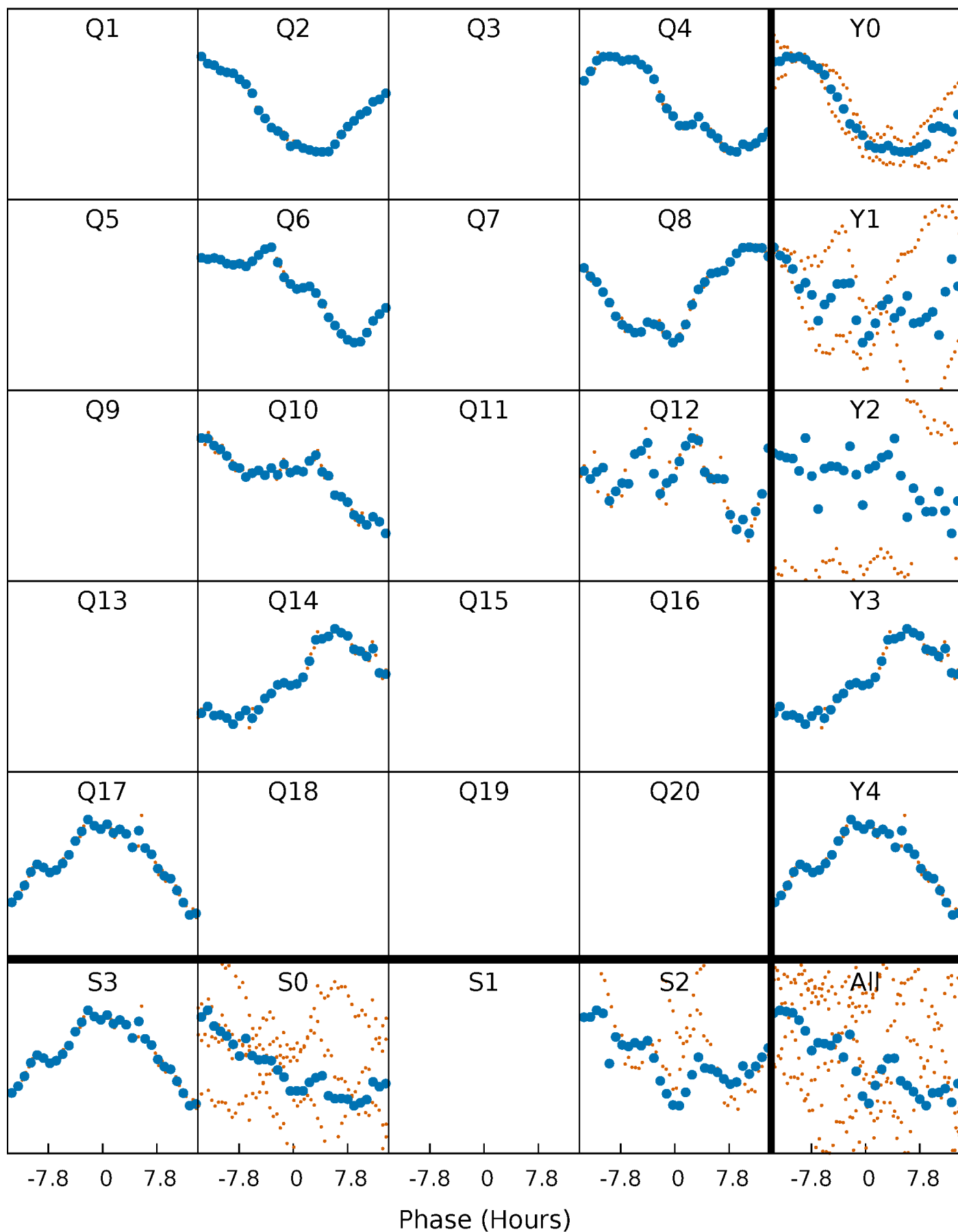


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



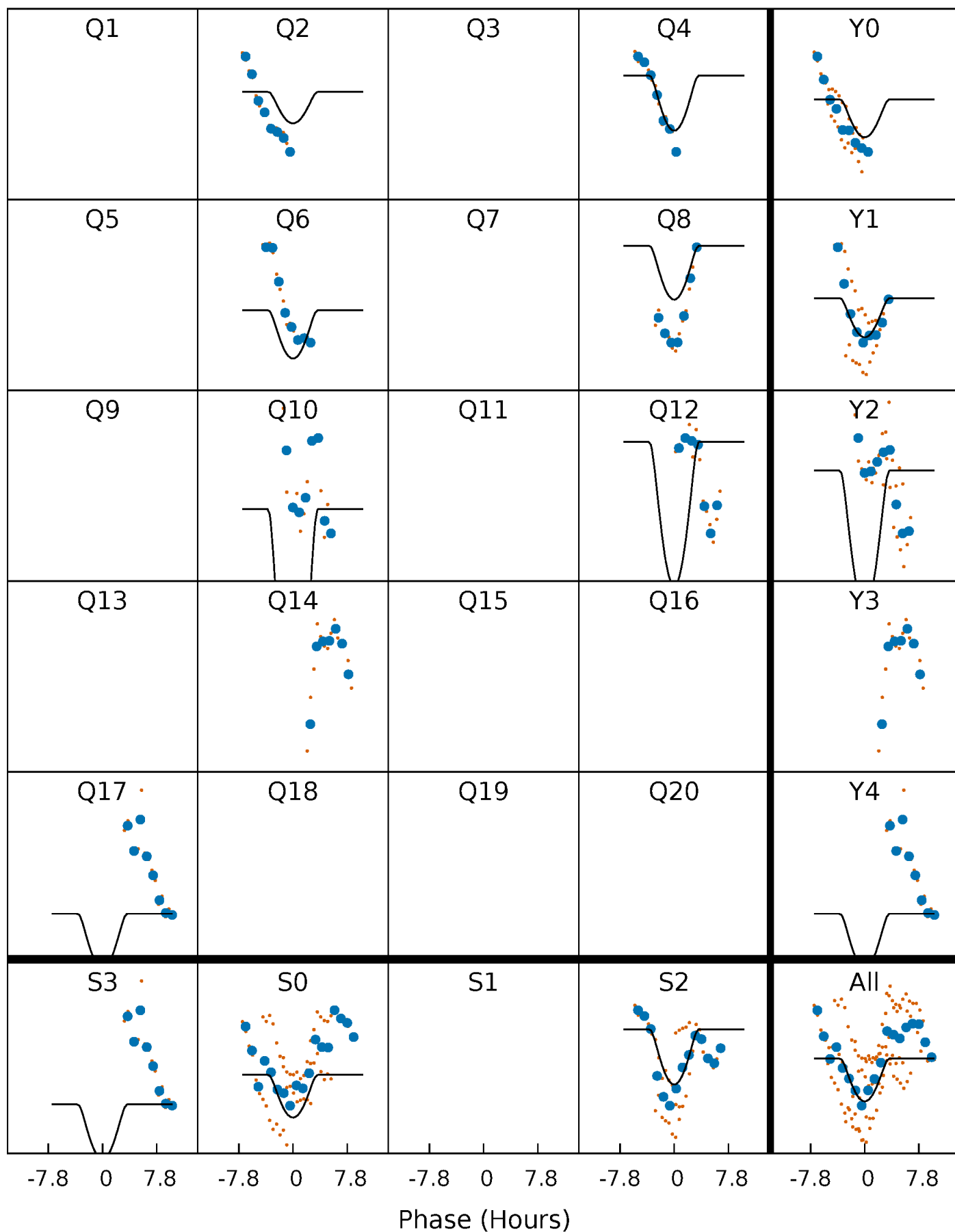
# PDC Quarter-Phased Transit Curves

TCE 011454304-03 P=196.969825 Days  $T_0=184.882274$  (BKJD)



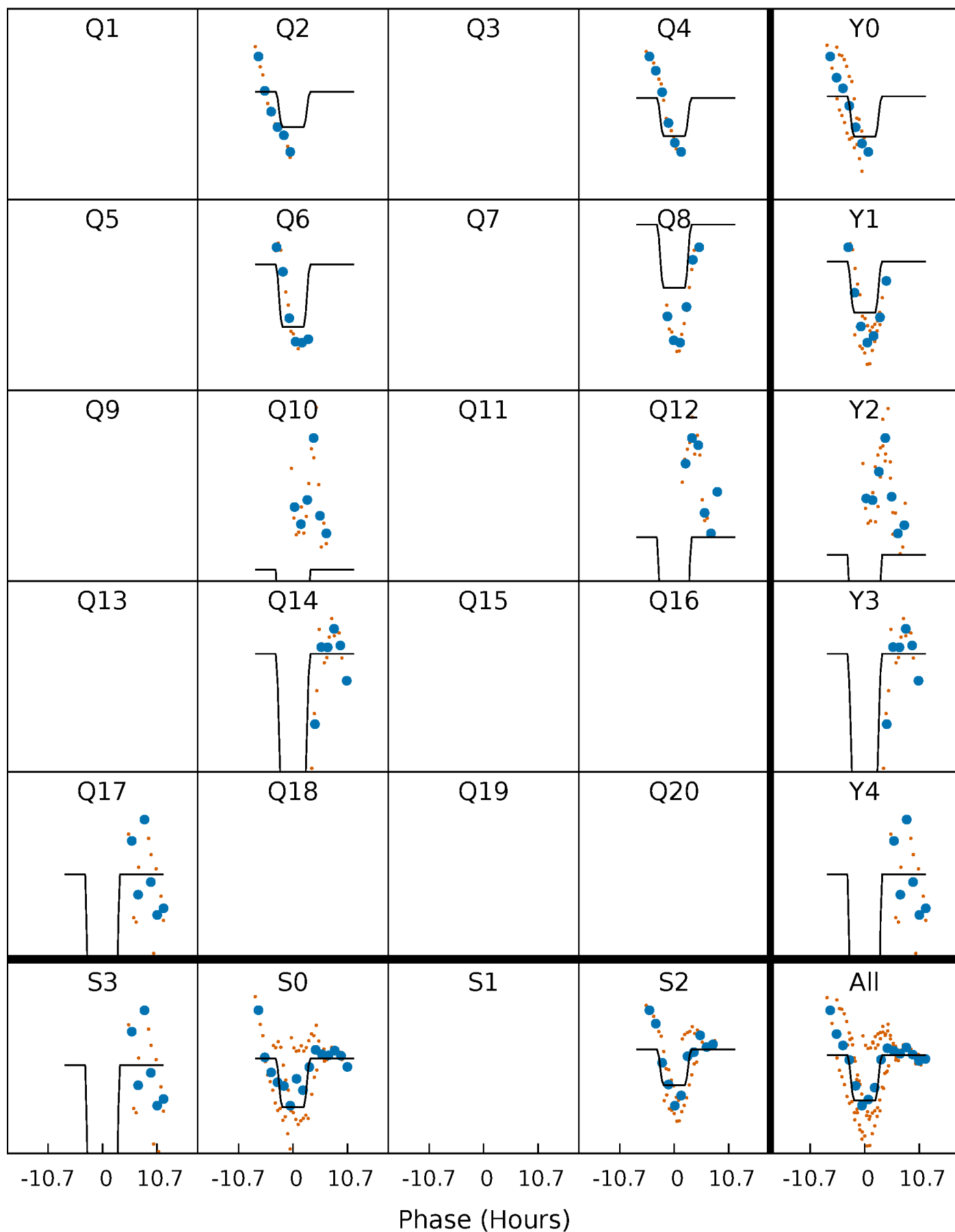
# DV Quarter-Phased Transit Curves

TCE 011454304-03 P=196.969825 Days  $T_0=184.882274$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 011454304-03 P=196.957194 Days  $T_0=184.888284$  (BKJD)

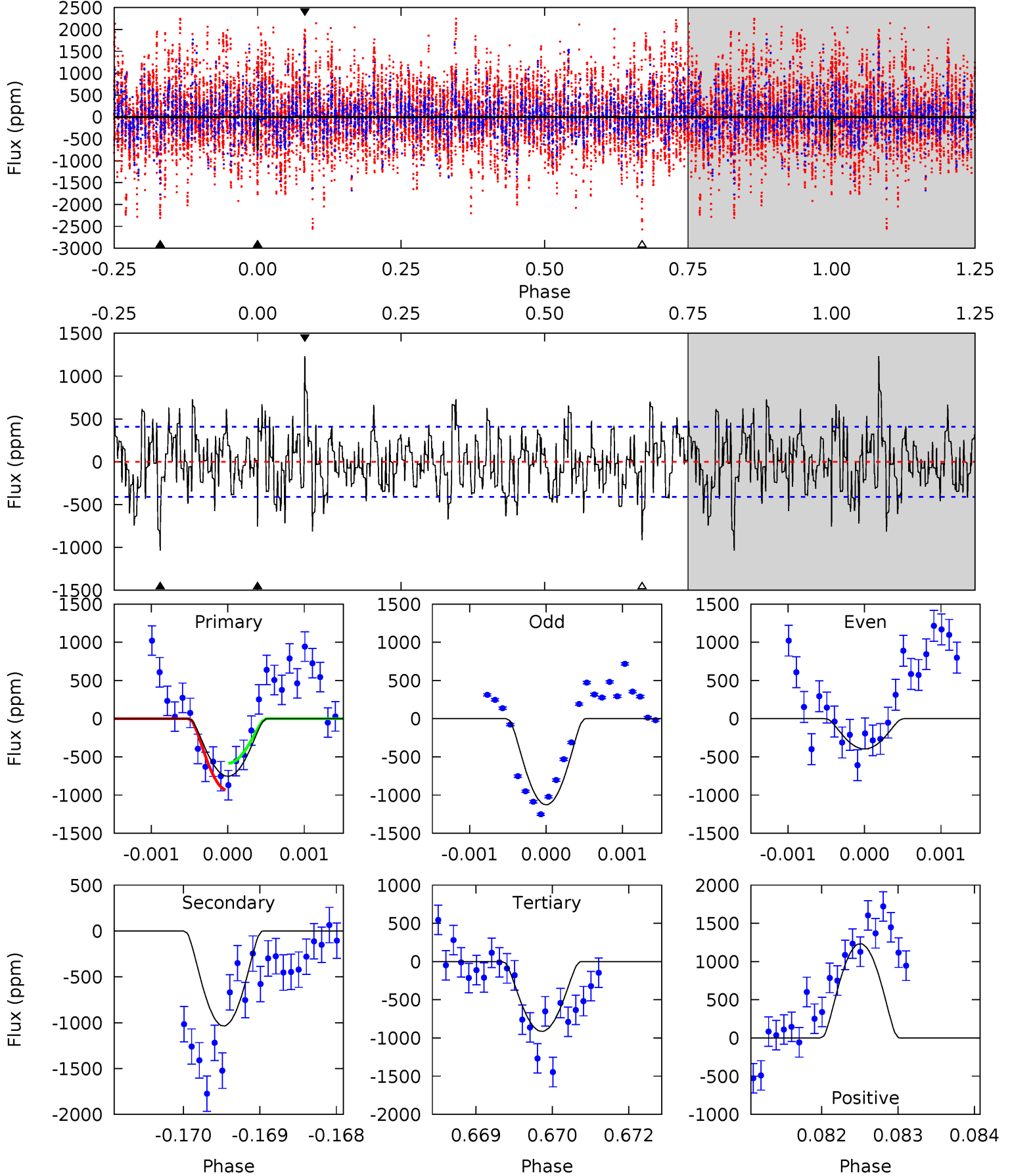




# DV Model-Shift Uniqueness Test

011454304-03, P = 196.969825 Days, E = 184.882274 Days

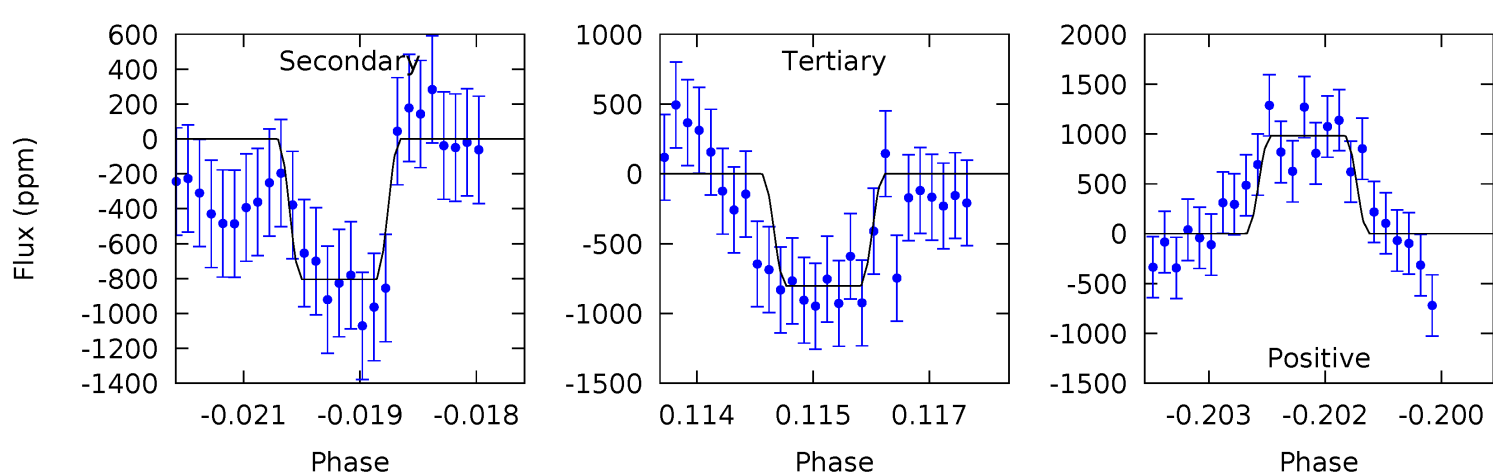
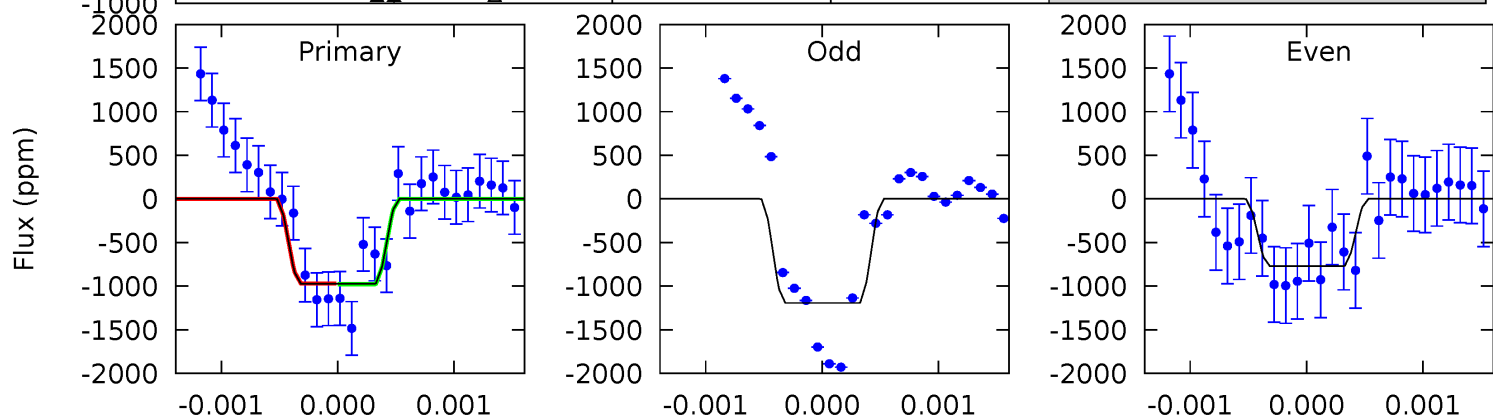
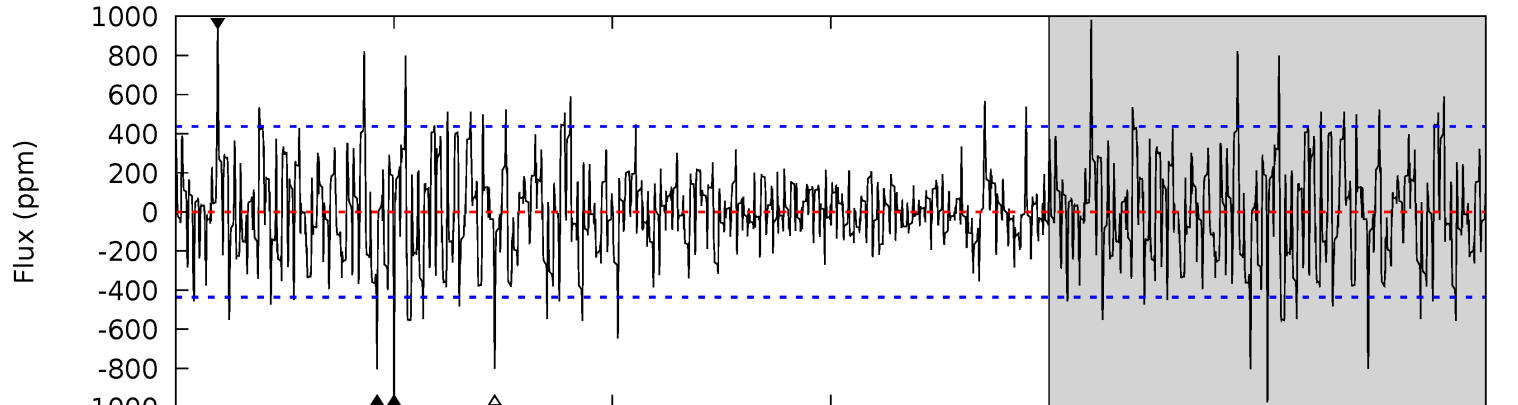
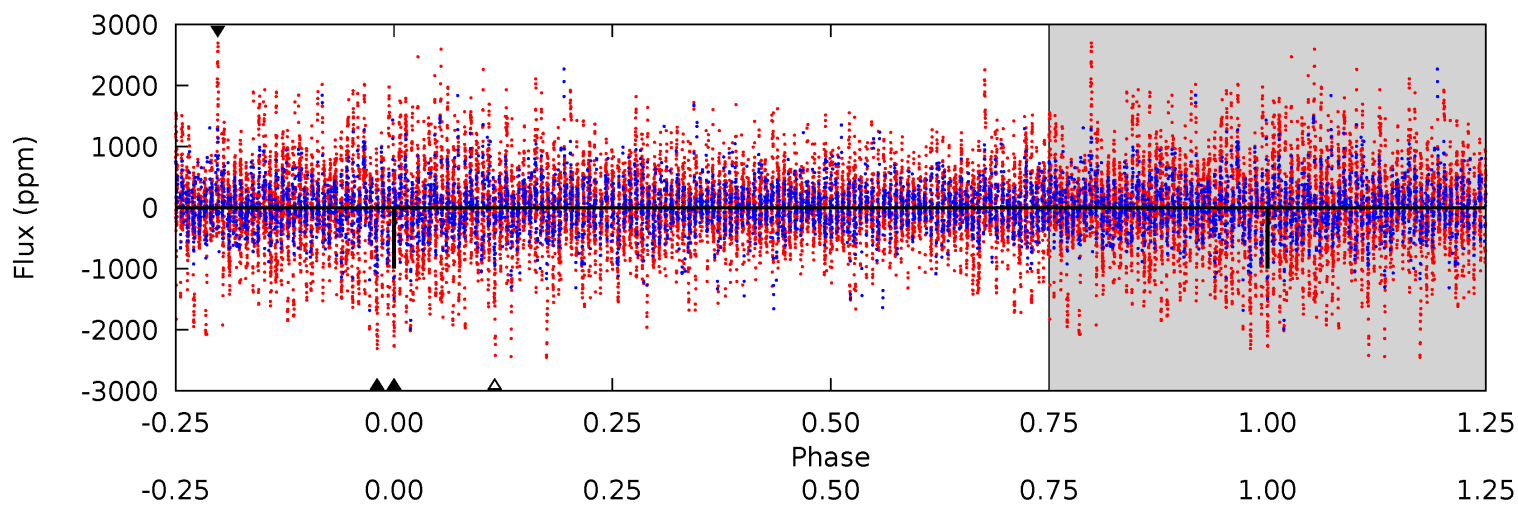
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.92	13.6	12.0	16.2	5.38	3.18	3.74	-2.10	-6.31	1.61	-2.60	4.80	1.81	0.54	2.28



# Alt Model-Shift Uniqueness Test

011454304-03, P = 196.957194 Days, E = 184.888284 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
12.0	9.93	9.91	12.1	5.39	3.20	2.47	2.12	-0.08	0.03	-2.17	2.50	0.85	0.50	0.06



### Stellar Parameters For KIC 011454304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$13203^{+642}_{-1499}$	$3.855^{+0.384}_{-0.096}$	$-0.500^{+0.050}_{-0.500}$	$3.518^{+0.395}_{-1.483}$	$3.230^{+0.120}_{-0.759}$	$0.104^{+0.331}_{-0.031}$
	+5%/-11%	+10%/-2%	+10%/-100%	+11%/-42%	+4%/-23%	+317%/-30%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011454304-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1036 \pm 76$	$23.81^{+21.42}_{-16.22}$	$1467^{+154}_{-195}$	$7517^{+10481}_{-2153}$	$923^{+8339}_{-660}$
Alt.	$-804 \pm 81$	$21.67^{+20.56}_{-14.67}$	$1477^{+144}_{-194}$	$7396^{+9772}_{-2143}$	$904^{+7294}_{-682}$

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

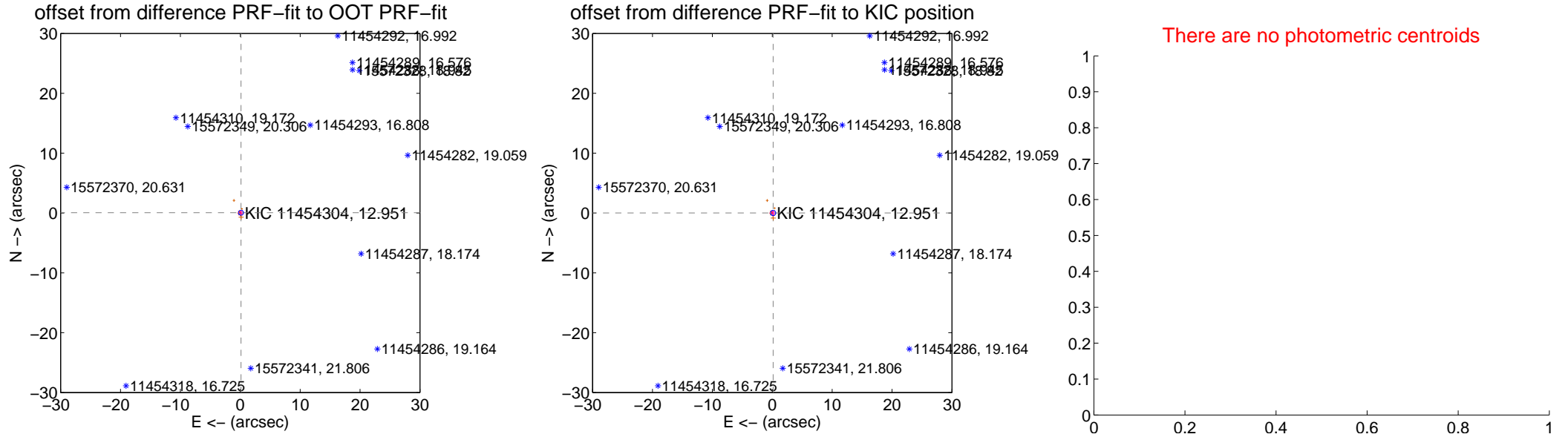
## DV Centroid Data

Supplemental centroid analysis for 011454304-03. Kepler magnitude: 12.95. Transit SNR 9.17

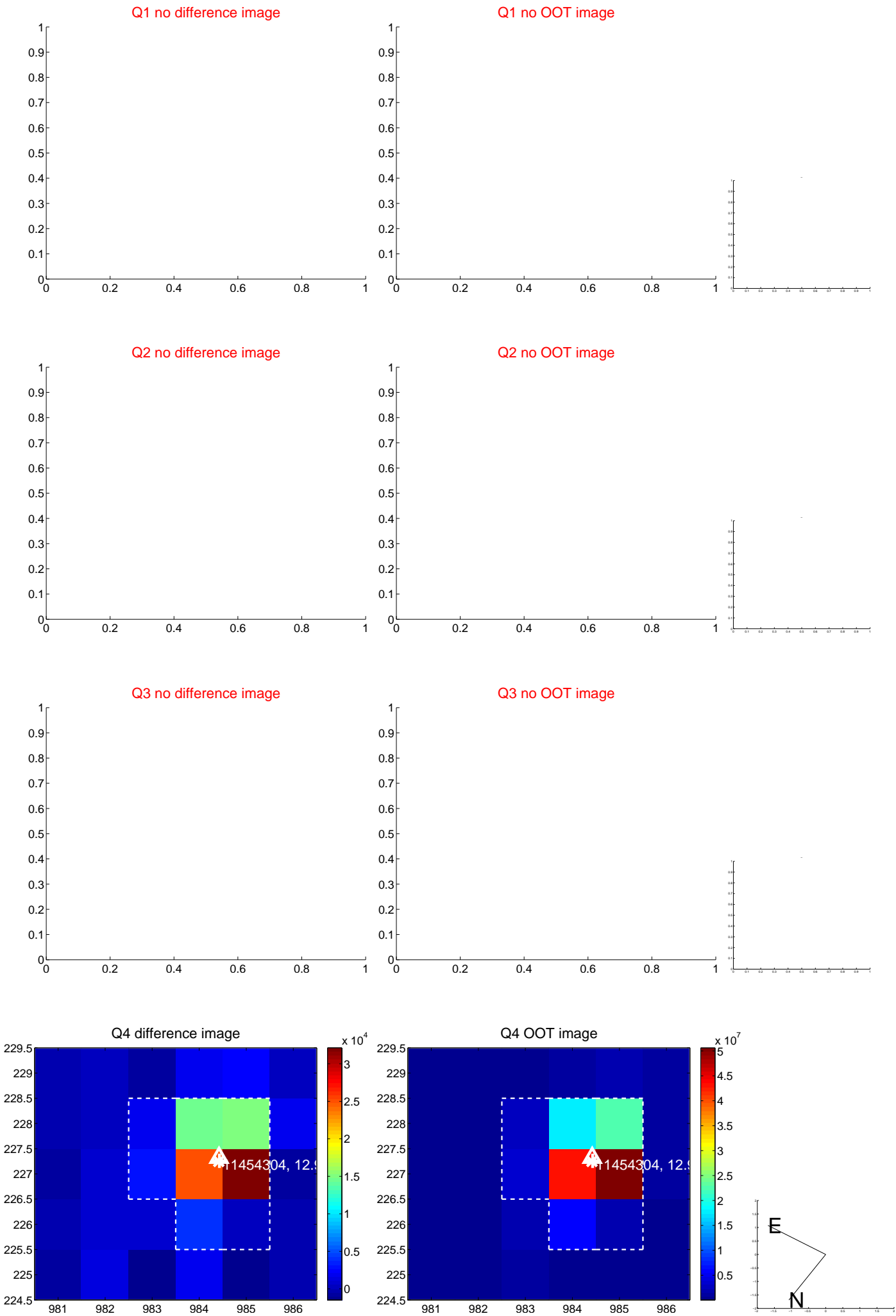
There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

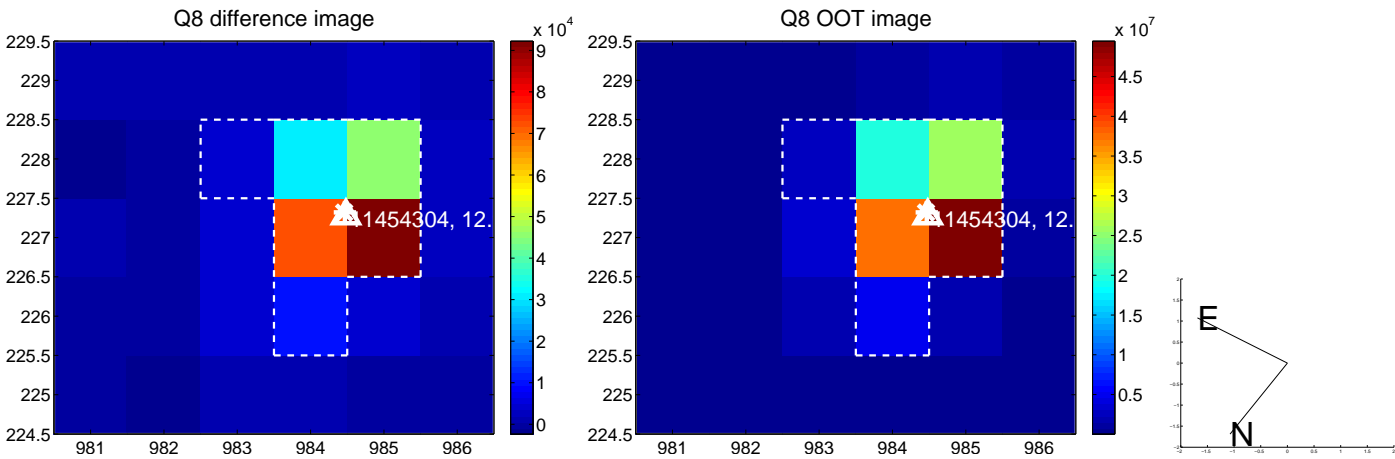
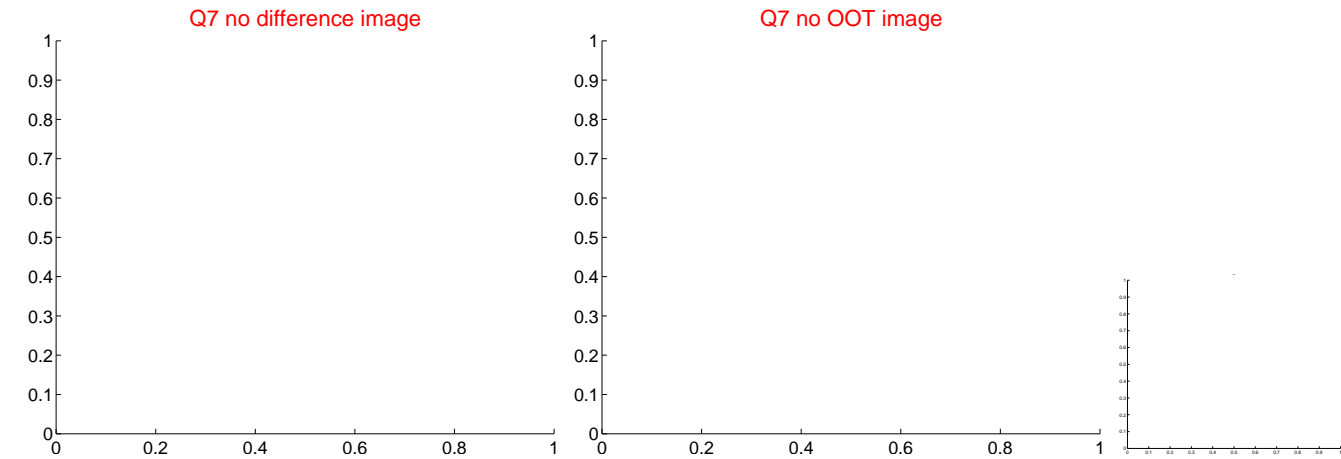
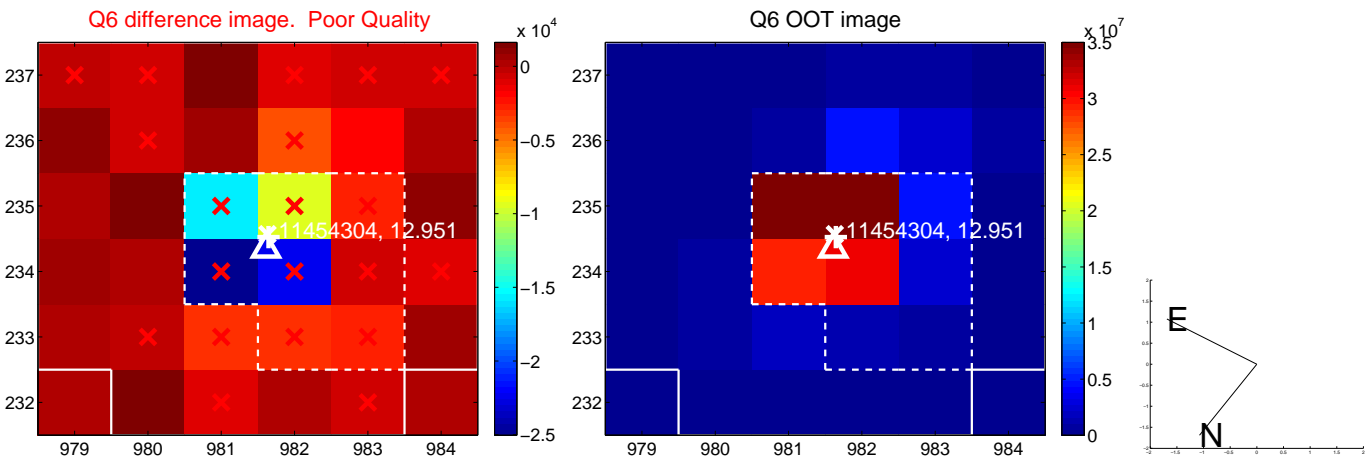
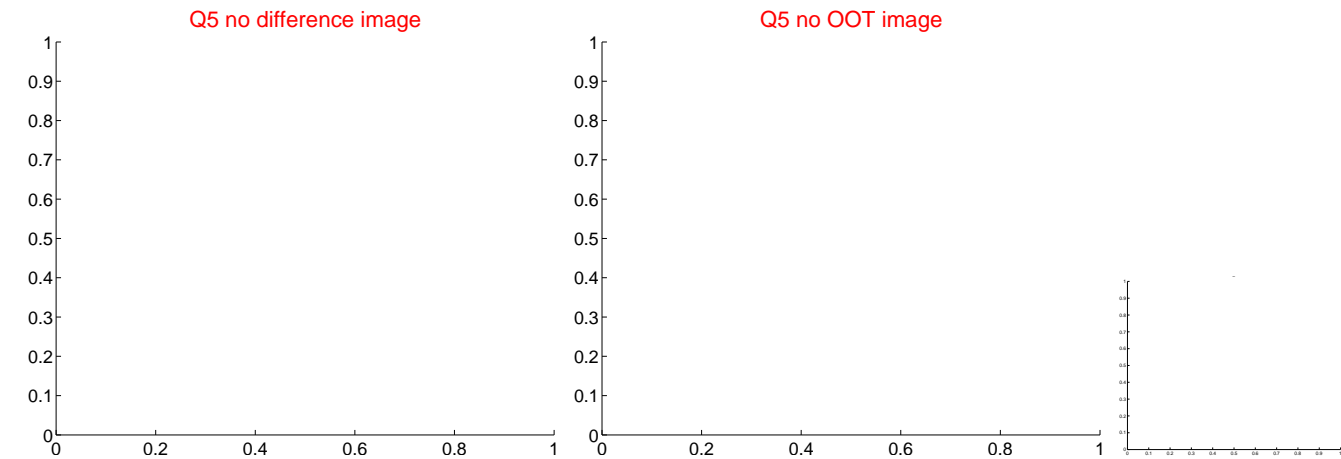
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.131 \pm 0.139$	0.94	$-0.121 \pm 0.092$	$0.050 \pm 0.285$
PRF-fit source offset from KIC position	$0.144 \pm 0.147$	0.98	$-0.143 \pm 0.151$	$0.005 \pm 0.350$
photometric centroid source offset	—	—	—	—



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.

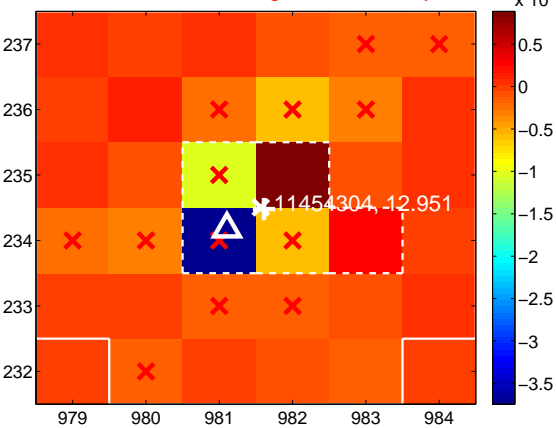
Q9 no difference image



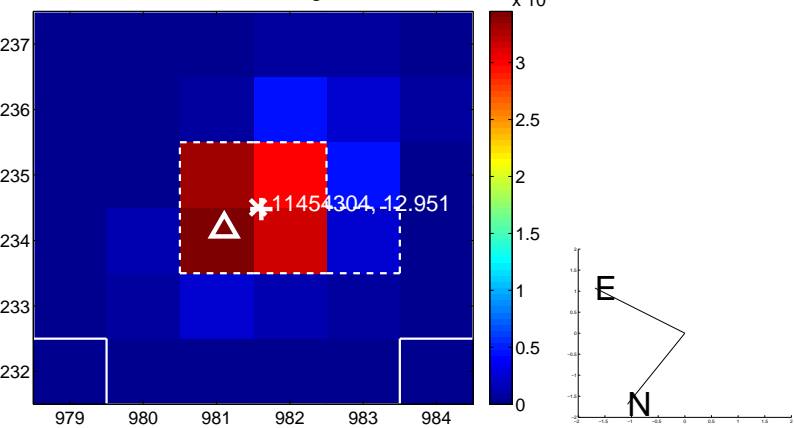
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



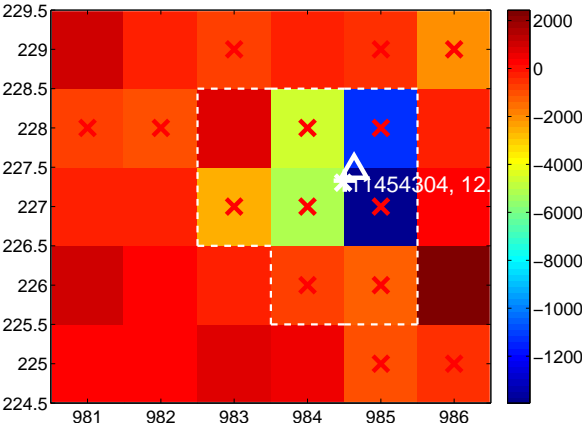
Q11 no difference image



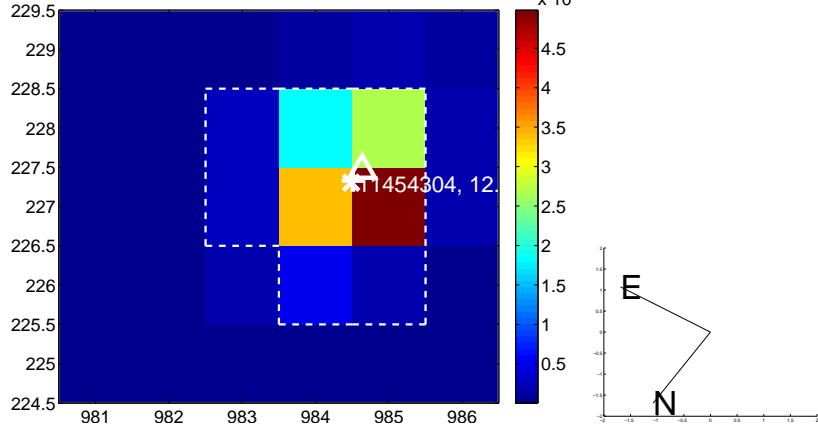
Q11 no OOT image



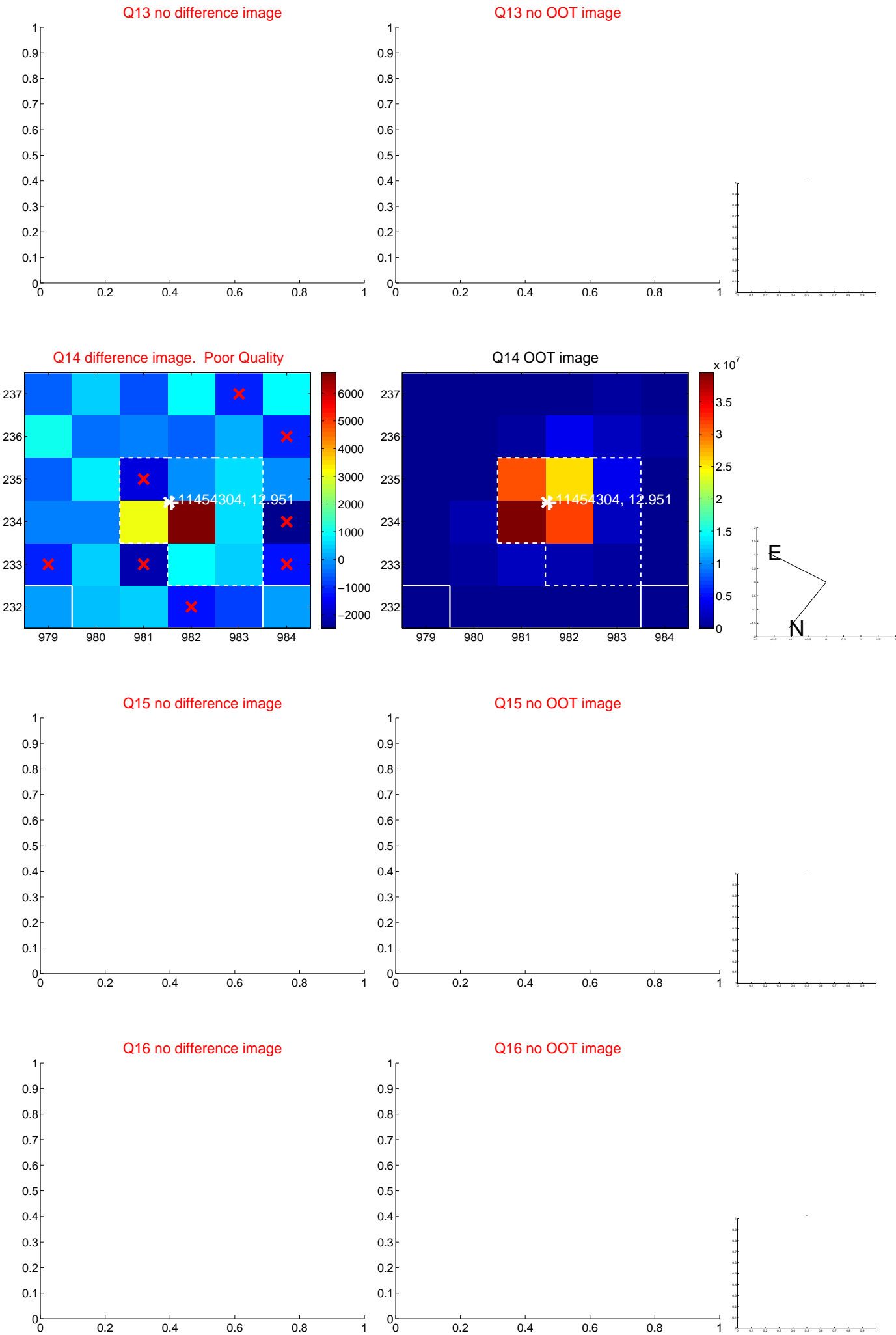
Q12 difference image. Poor Quality



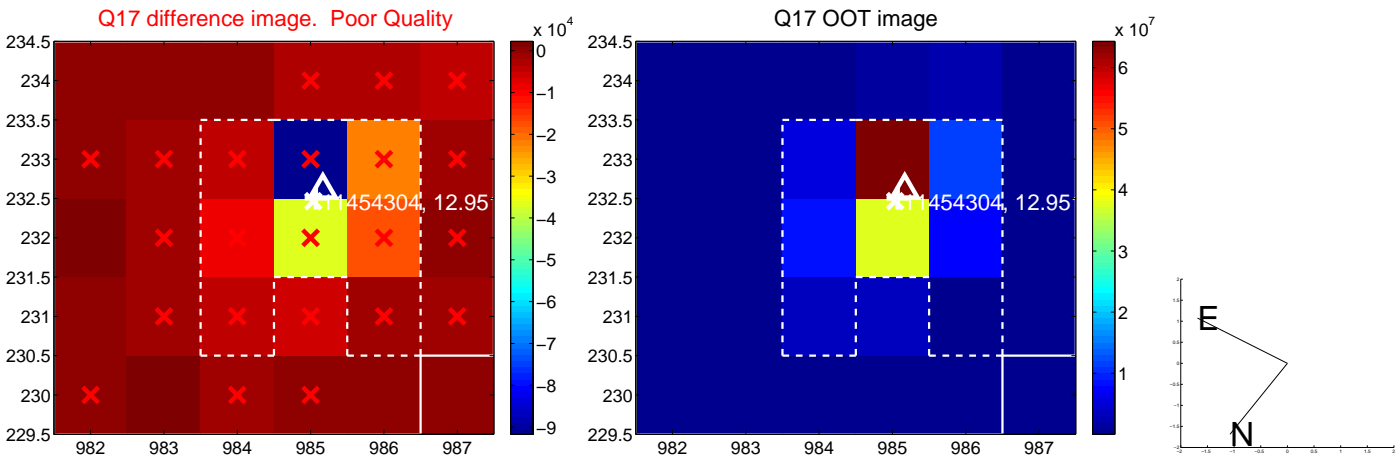
Q12 OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



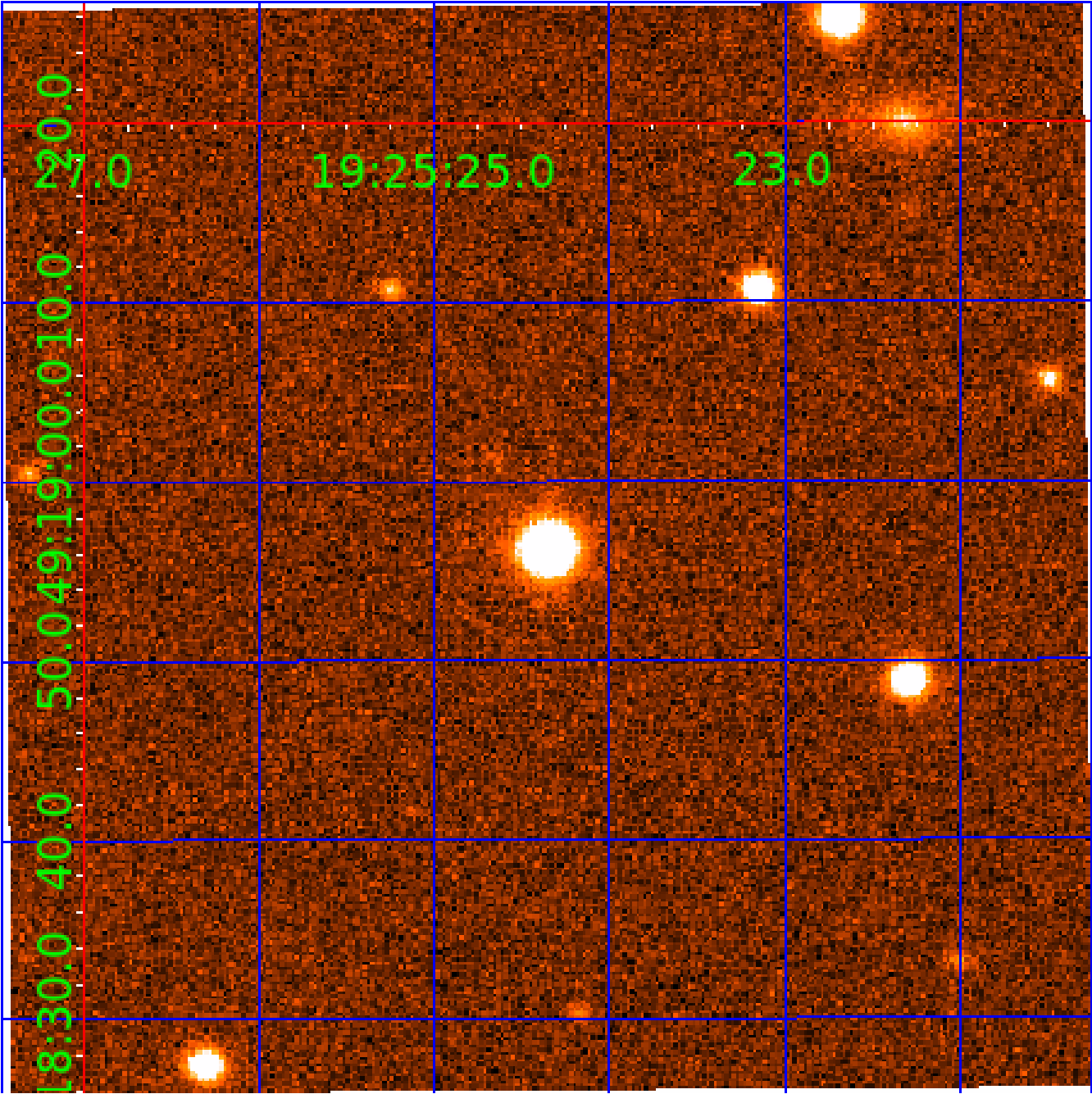
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 011454304

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011454304-01	OBS	No	1.331299	132.133336	14.2	8.146	9.8	2.5	3.52	13203	1.43	274630.10
011454304-02	OBS	No	86.597921	168.692235	1467.7	8.898	18.1	8.9	3.52	13203	23.25	1049.80
011454304-03	OBS	No	196.969825	184.882274	904.9	6.845	9.3	9.2	3.52	13203	18.48	350.95
011454304-04	OBS	No	86.625656	179.736995	807.2	5.484	9.0	7.2	3.52	13203	17.49	1049.35
011454304-05	OBS	No	130.558915	144.168424	1109.1	6.697	9.3	8.9	3.52	13203	20.38	607.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011454304-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011454304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011454304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
011454304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011454304-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES

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

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

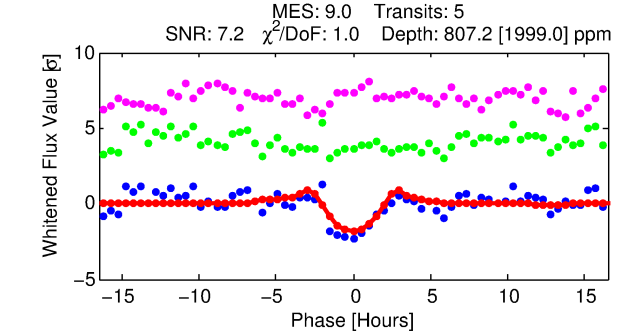
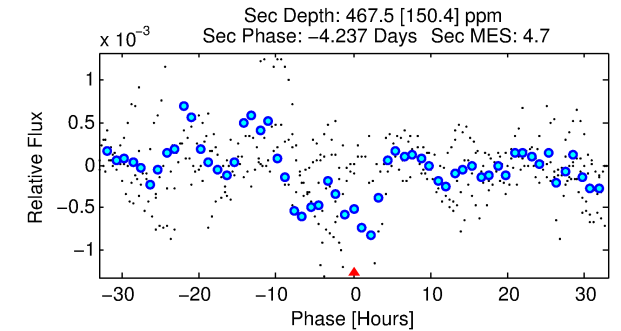
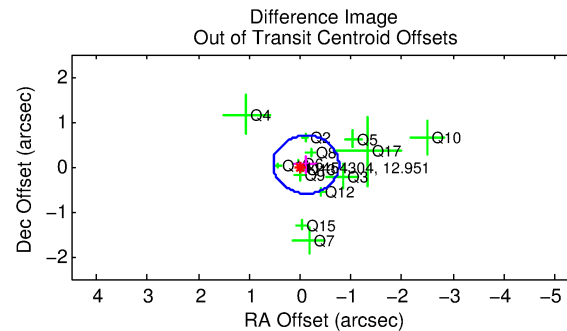
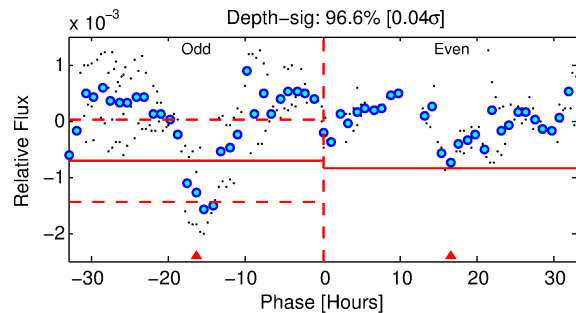
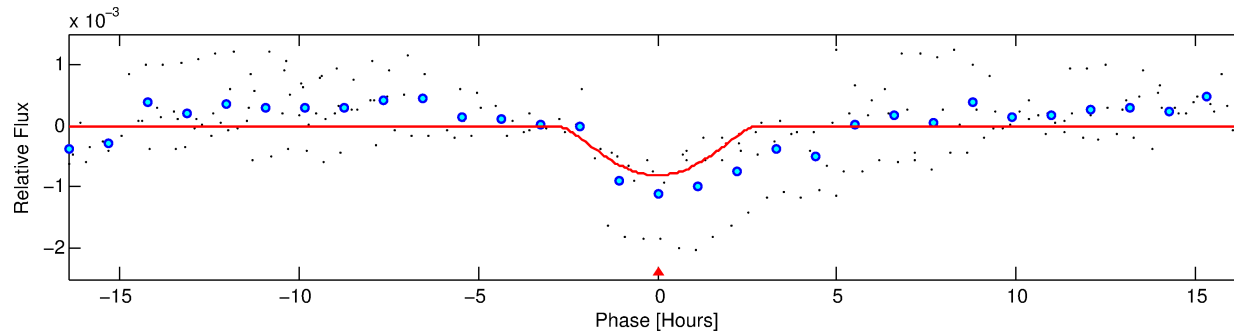
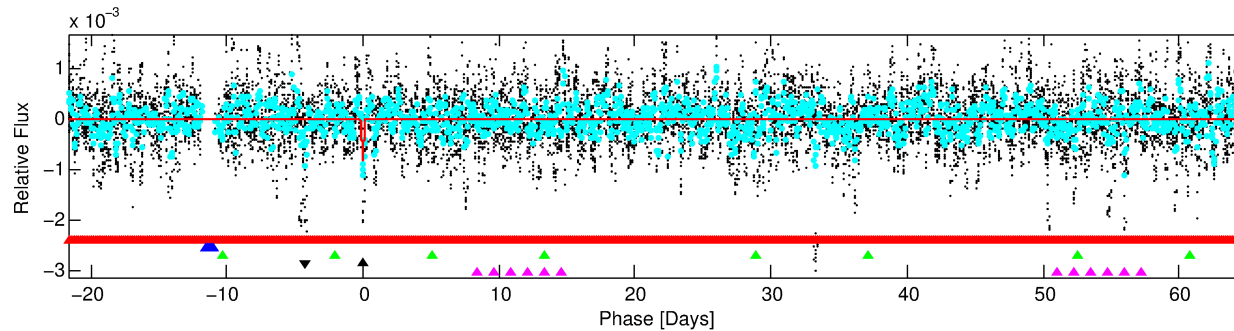
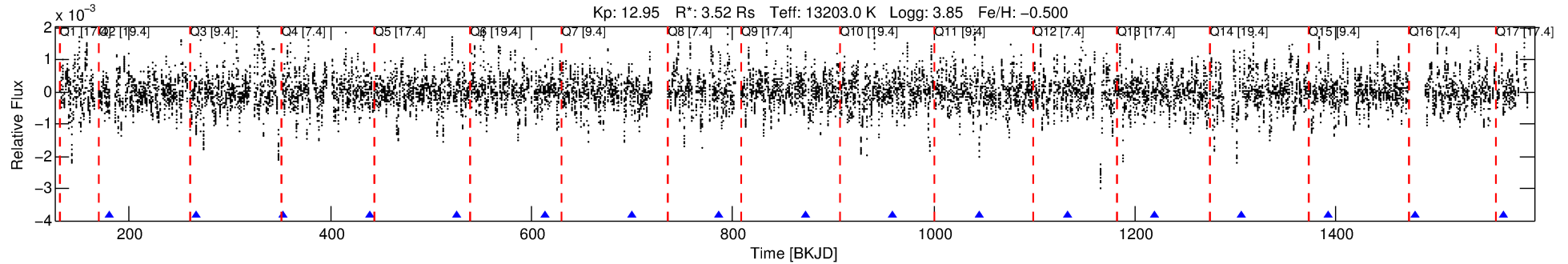
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011454304-04

No Significant Match Found

# DV One-Page Summary

KIC: 11454304 Candidate: 4 of 5 Period: 86.626 d



## DV Fit Results:

Period = 86.62566 [0.00814] d  
Epoch = 179.7370 [0.0877] BKJD  
Rp/R\* = 0.0456 [0.1364]  
a/R\* = 36.85 [30.85]  
b = 1.00 [0.12]  
Seff = 1049.35 [834.67]  
Teq = 1451 [289] K  
Rp = 17.49 [52.89] Re  
a = 0.5667 [0.2308] AU  
Ag = 270.08 [1629.71] [0.17 $\sigma$ ]  
Teffp = 9096 [13681] K [0.56 $\sigma$ ]

## DV Diagnostic Results:

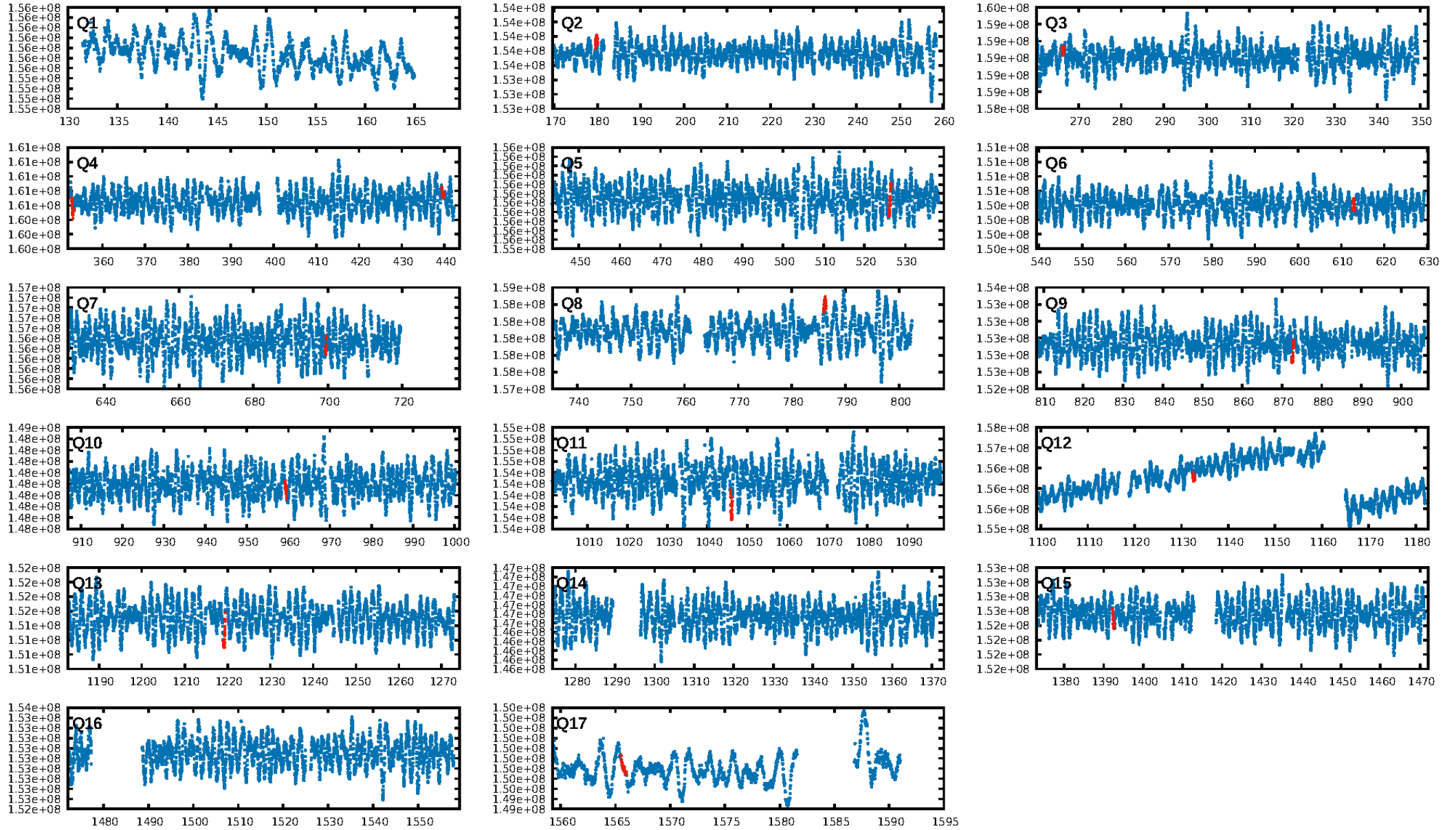
ShortPeriod-sig: 5.1% [0.06 $\sigma$ ]  
LongPeriod-sig: 100.0% [121.80 $\sigma$ ]  
ModelChiSquare2-sig: 16.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -11.25  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.125 arcsec [0.58 $\sigma$ ]  
KicOffset-rm: 0.189 arcsec [0.87 $\sigma$ ]  
OotOffset-st: 3/4/3/4 [14]  
KicOffset-st: 3/4/3/4 [14]  
DiffImageQuality-fgm: 0.79 [11/14]  
DiffImageOverlap-fno: 0.07 [1/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:25:12 Z

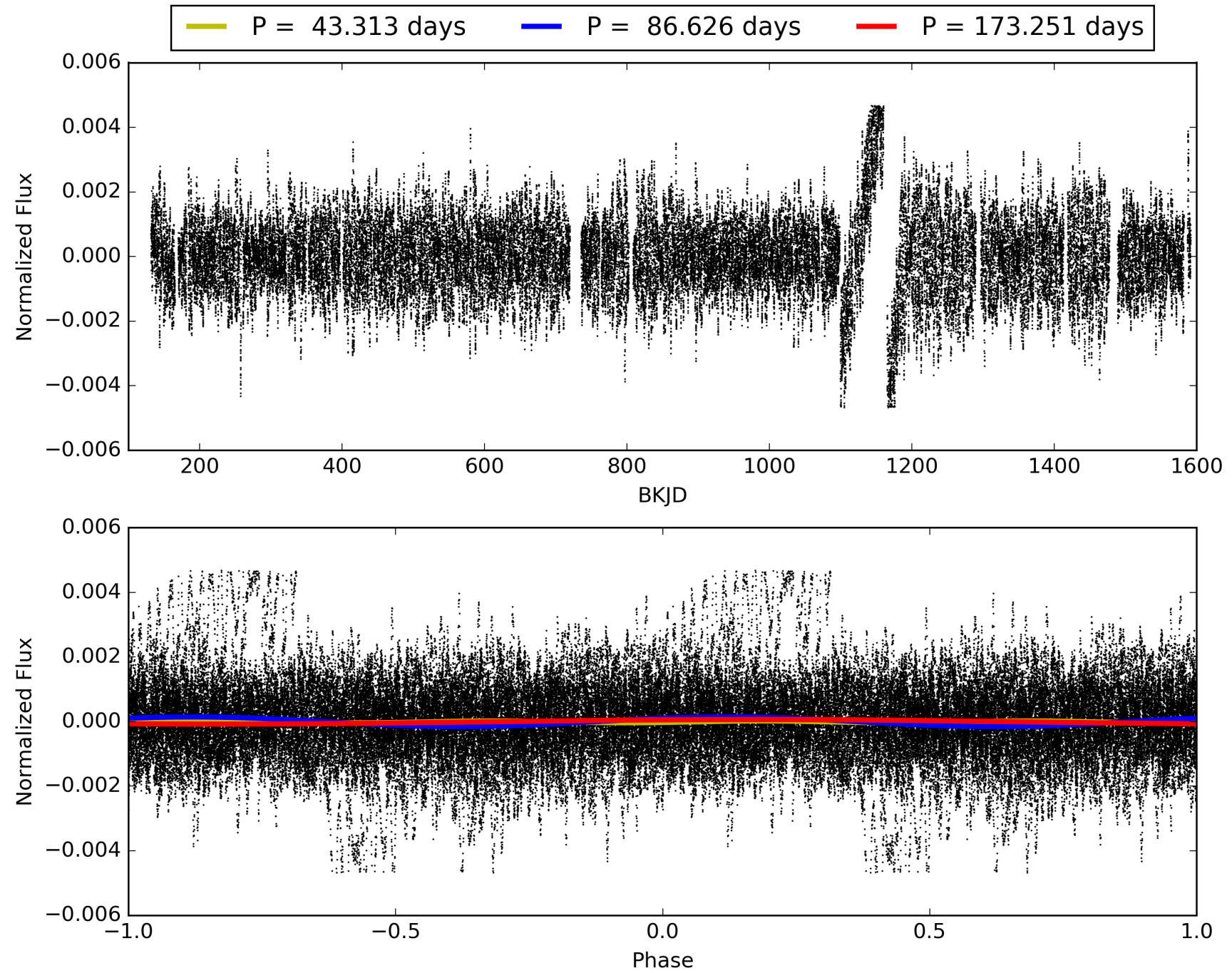
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 011454304-04, PDC Light Curves

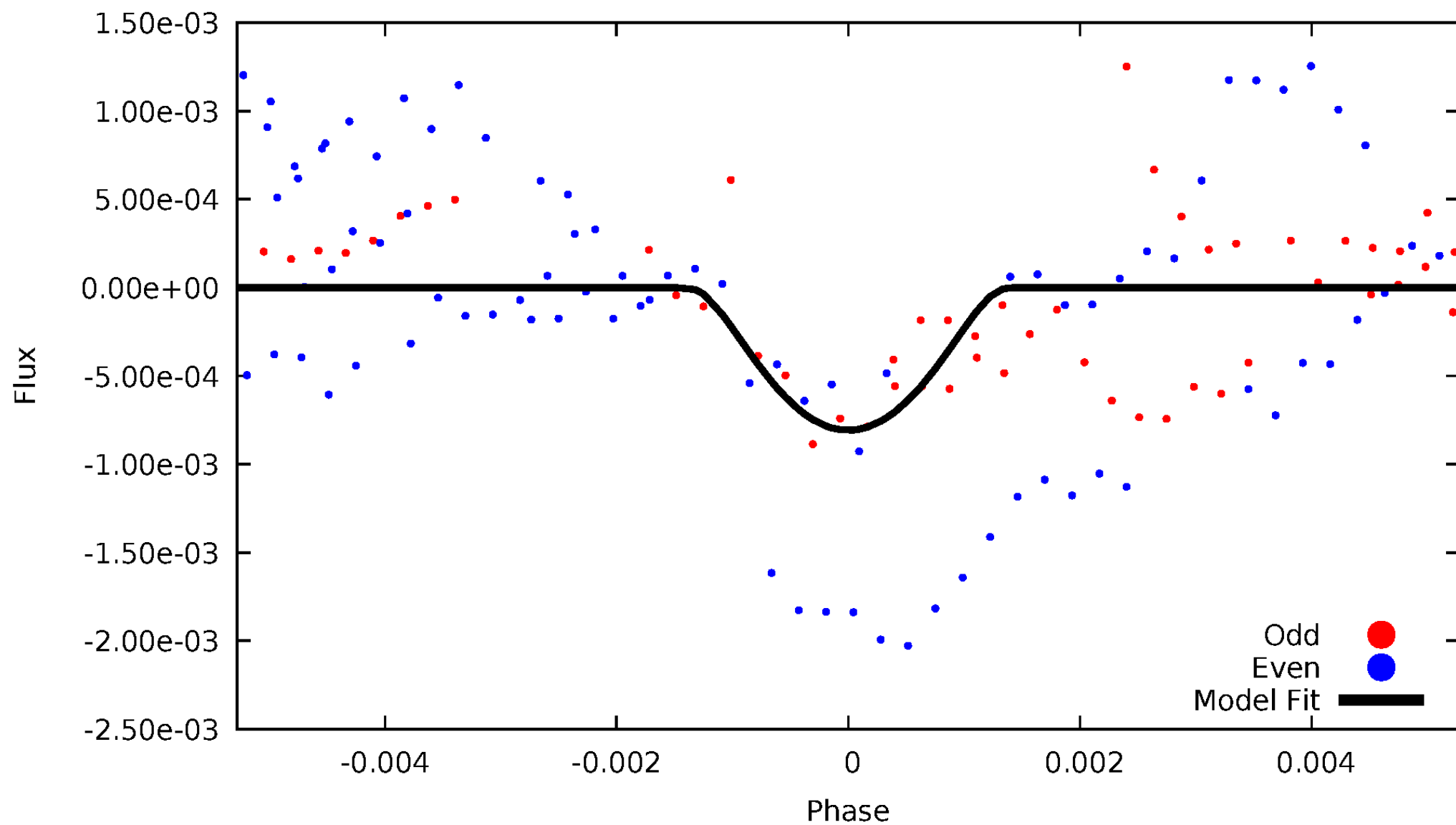


TCE 011454304-04



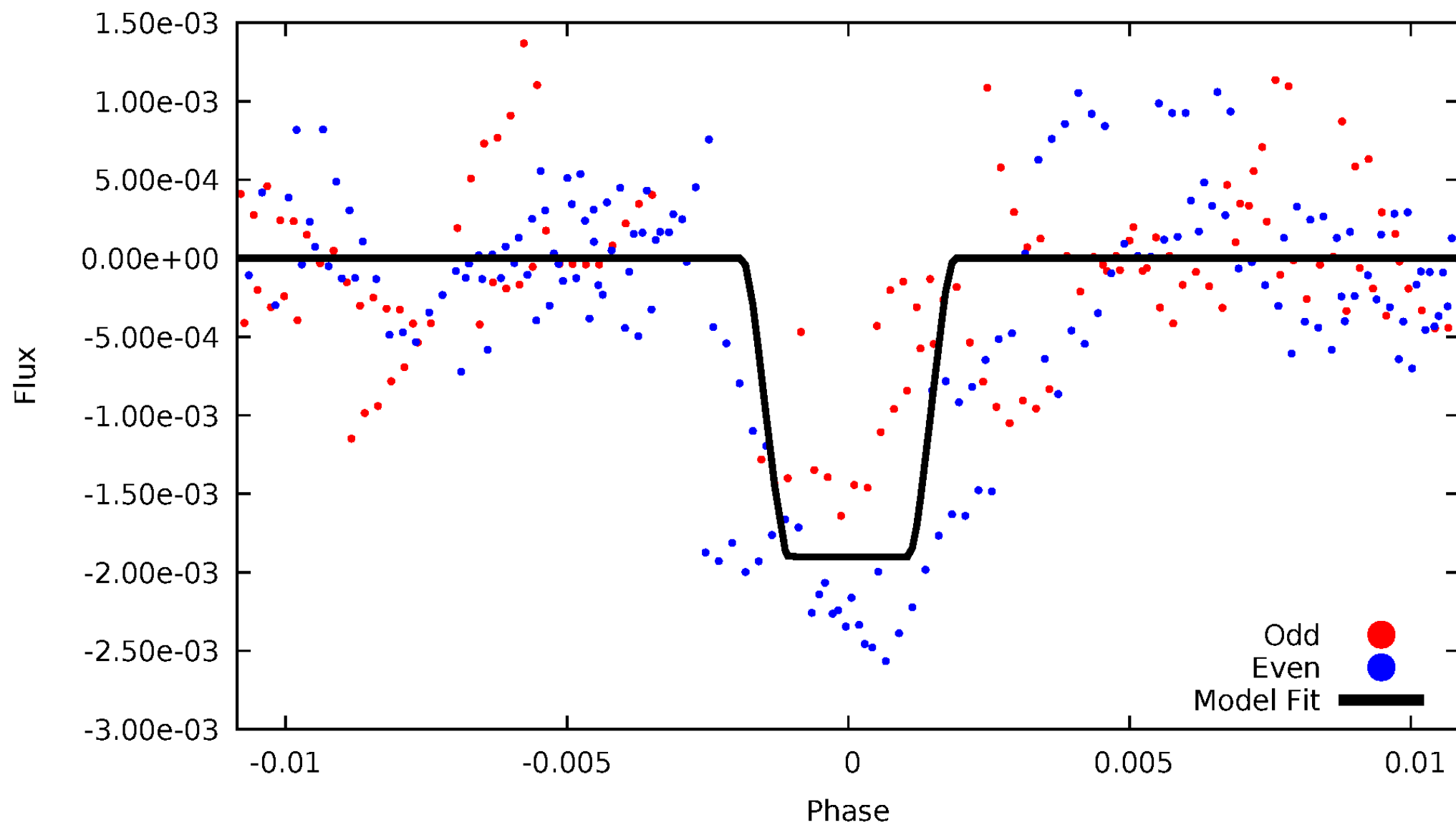
# DV Odd/Even

TCE 011454304-04



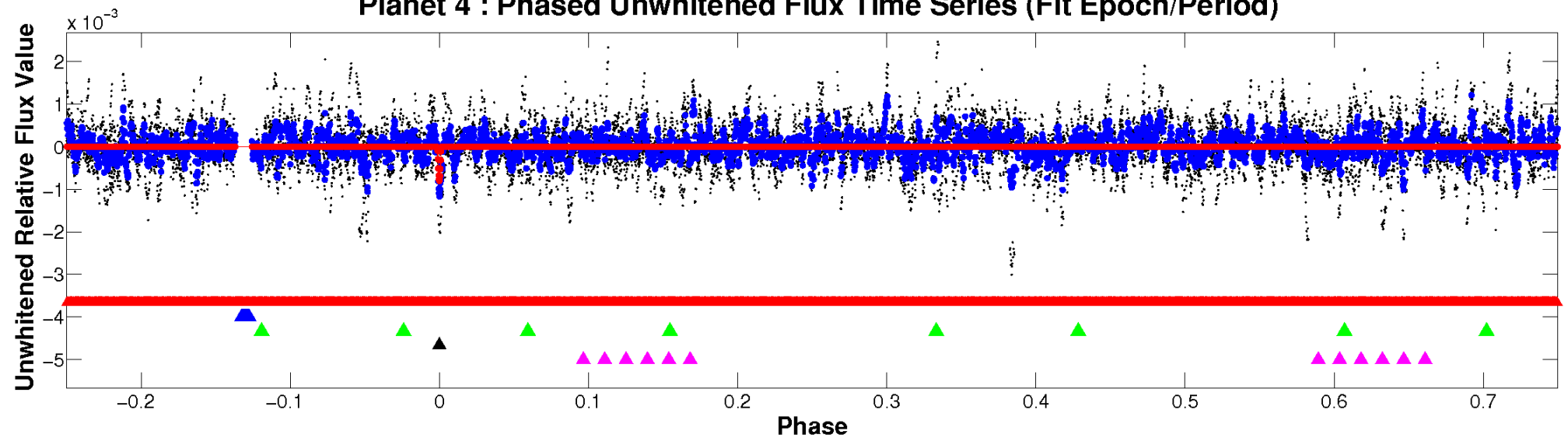
# ALT Odd/Even

TCE 011454304-04

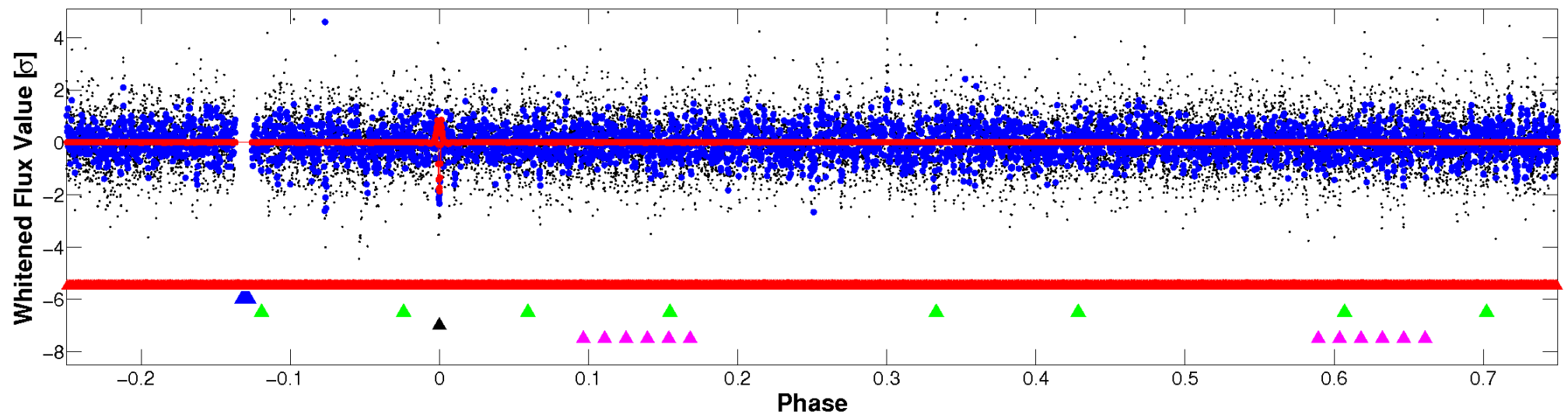


# Non-Whitened Vs. Whitened Light Curve

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

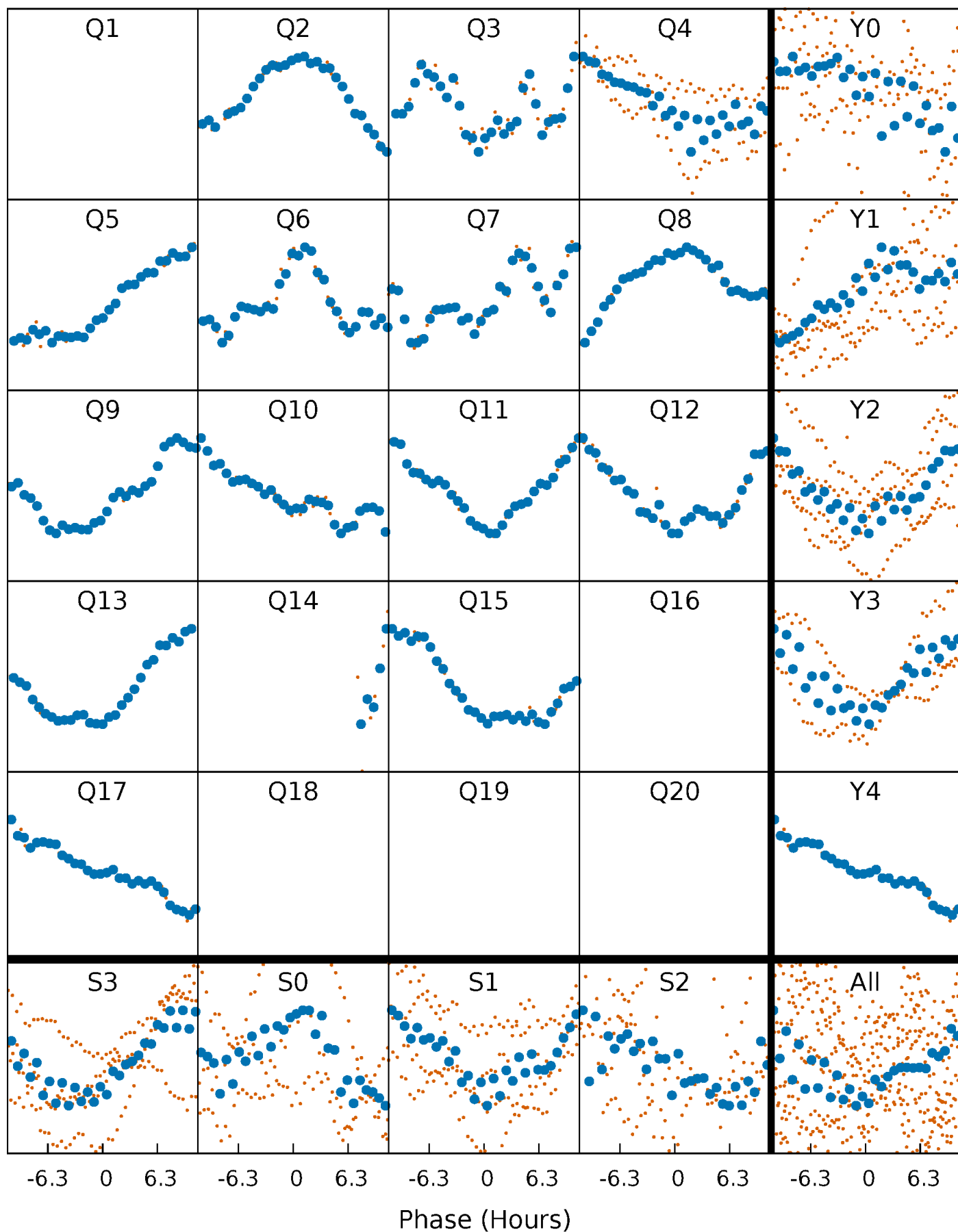


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



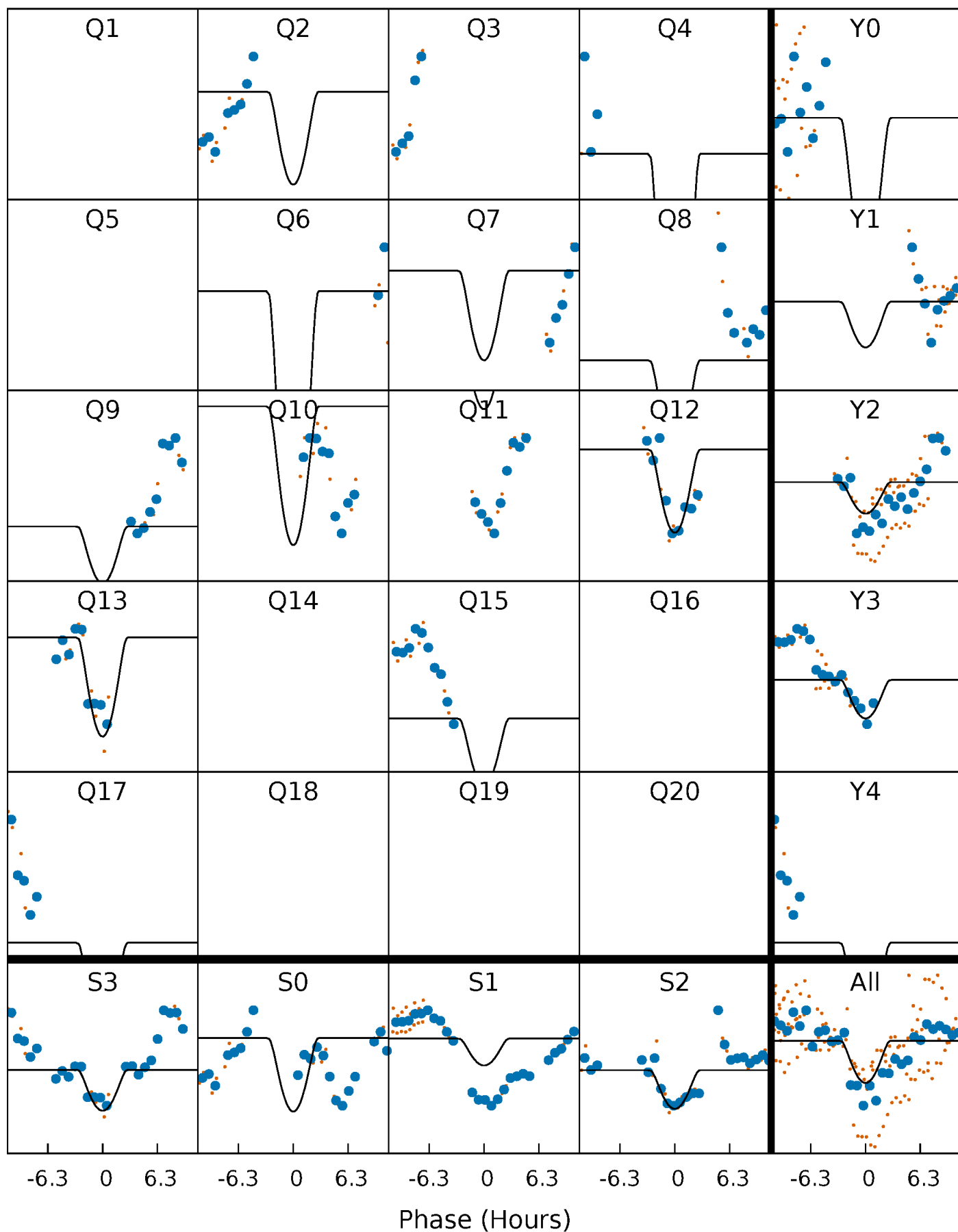
# PDC Quarter-Phased Transit Curves

TCE 011454304-04   P= 86.625656 Days    $T_0=179.736995$  (BKJD)



# DV Quarter-Phased Transit Curves

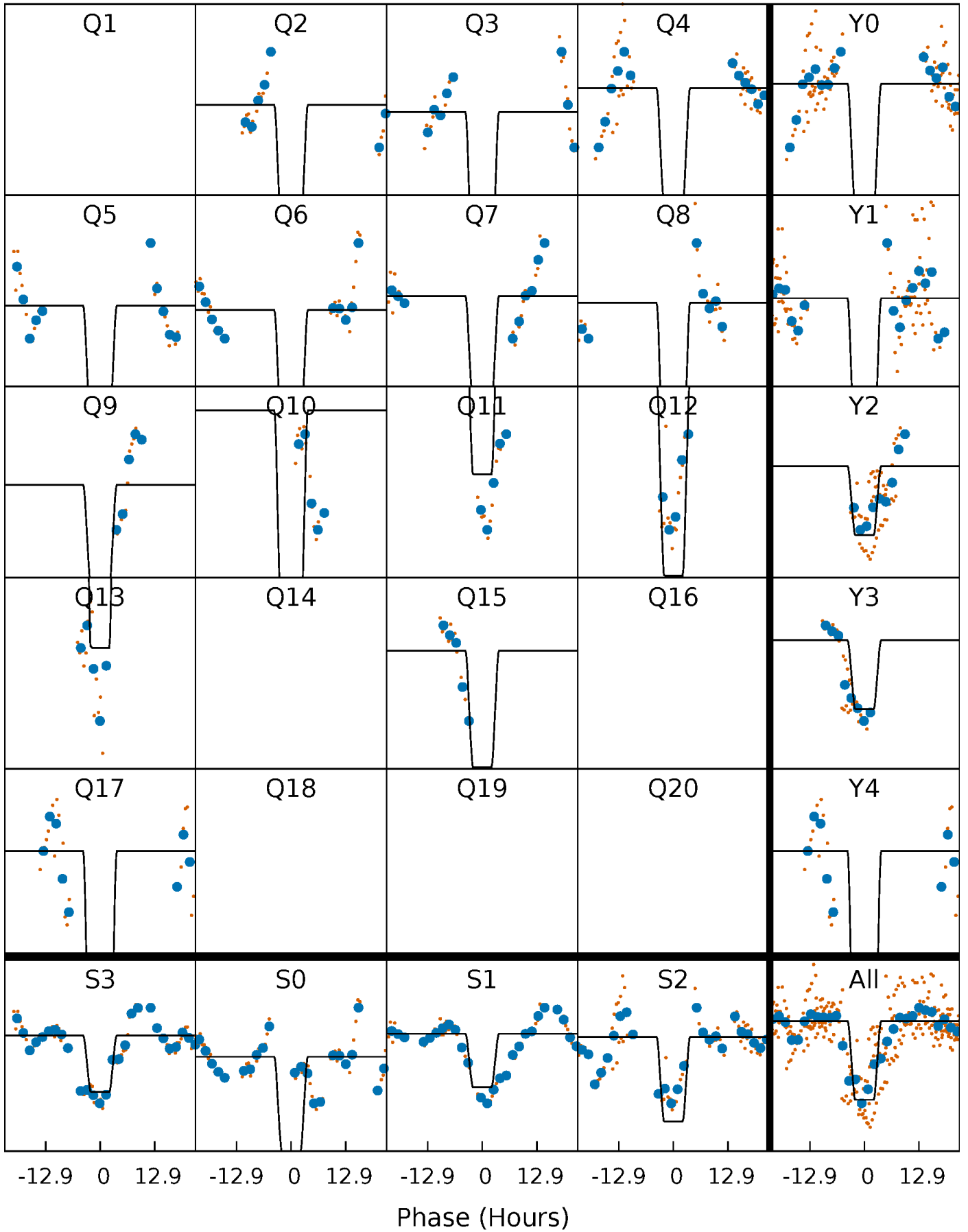
TCE 011454304-04   P= 86.625656 Days    $T_0=179.736995$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

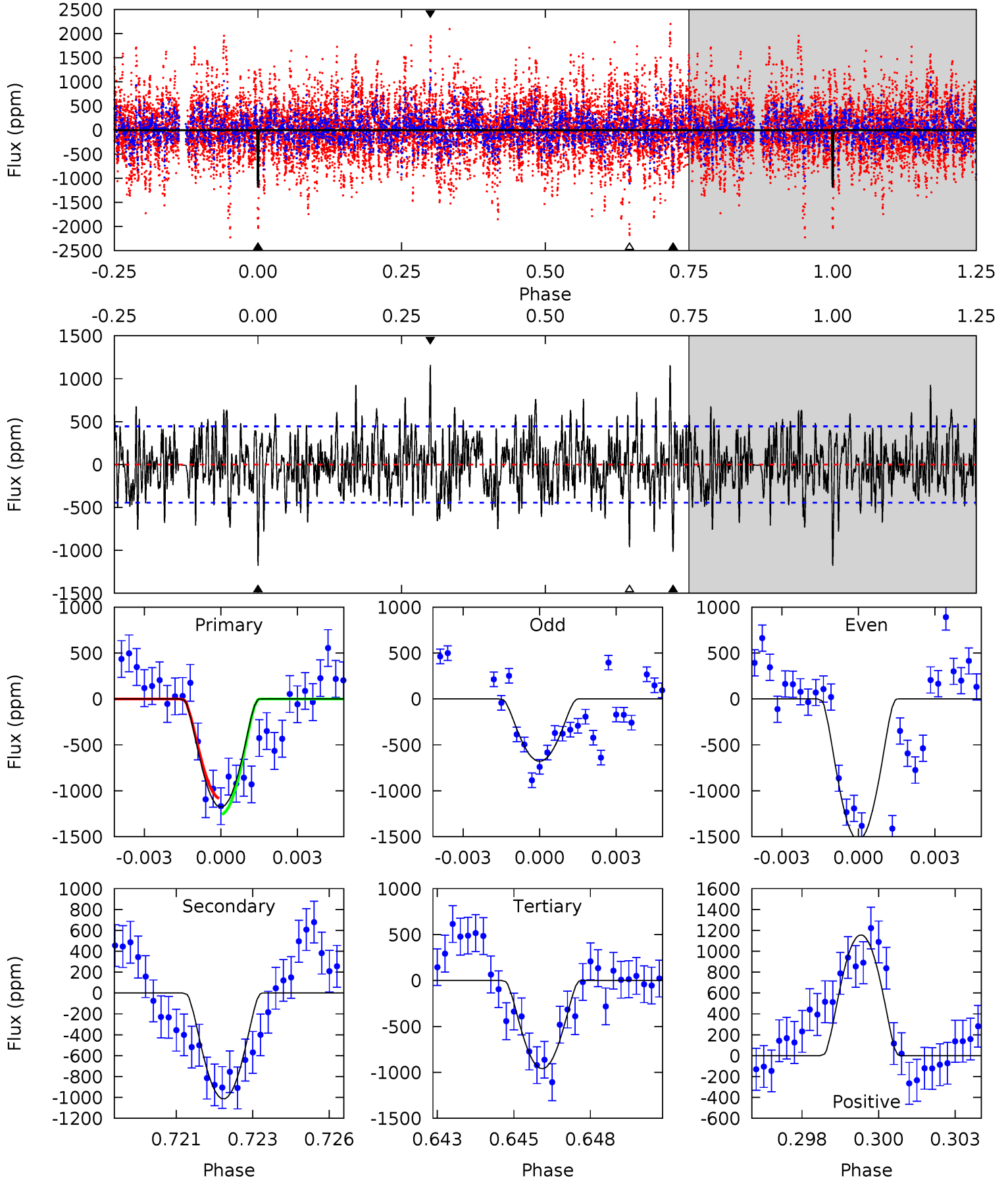
TCE 011454304-04   P= 86.623357 Days    $T_0=179.747179$  (BKJD)



# DV Model-Shift Uniqueness Test

011454304-04, P = 86.625656 Days, E = 93.111339 Days

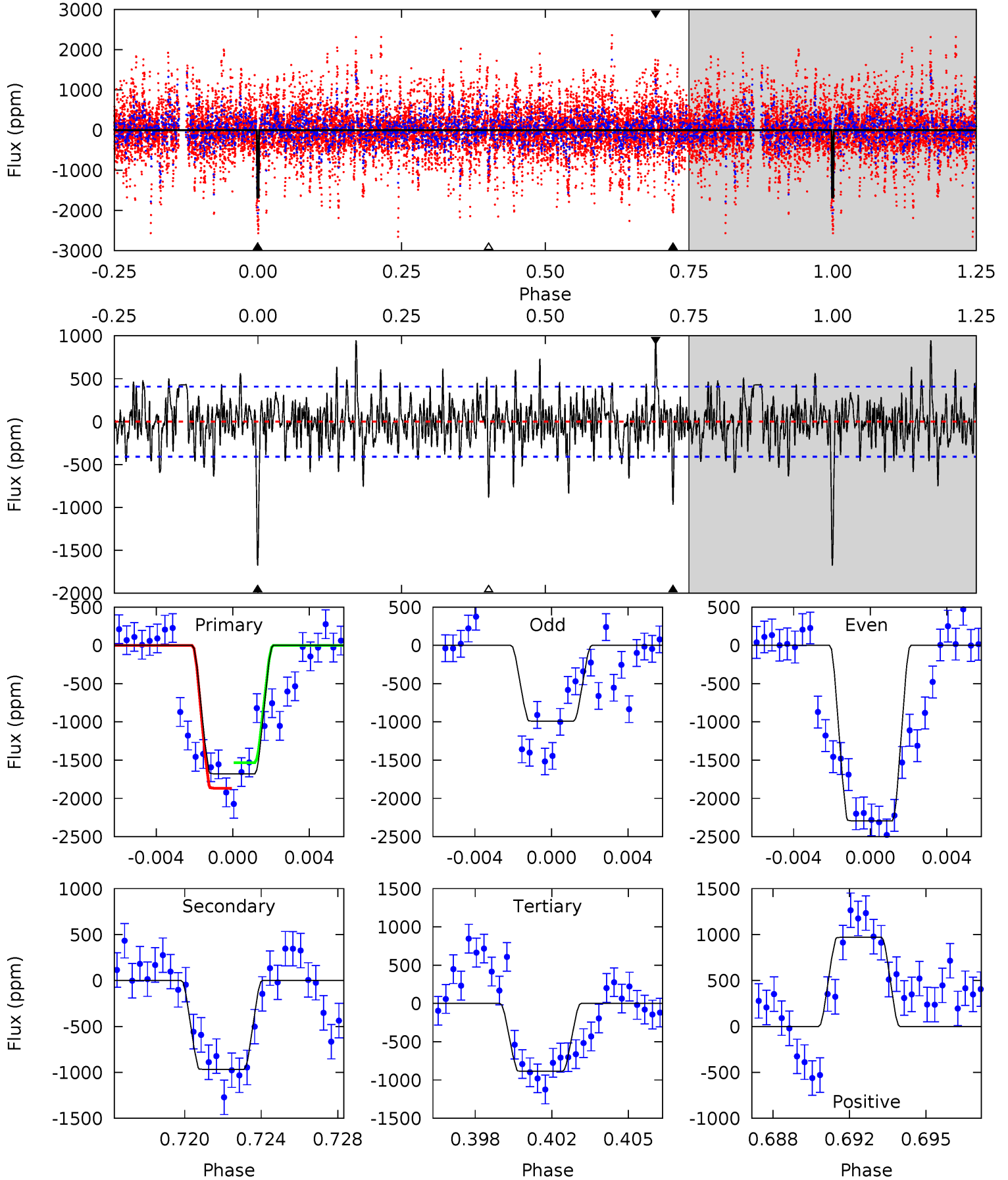
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	12.0	11.3	13.7	5.27	2.99	3.34	2.58	0.26	0.64	-1.68	5.03	1.42	0.50	1.01



# Alt Model-Shift Uniqueness Test

011454304-04, P = 86.623357 Days, E = 93.123822 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
21.5	12.4	11.3	12.4	5.22	2.91	2.74	10.1	9.06	1.05	-0.03	8.13	0.86	0.37	2.11



### Stellar Parameters For KIC 011454304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$13203^{+642}_{-1499}$	$3.855^{+0.384}_{-0.096}$	$-0.500^{+0.050}_{-0.500}$	$3.518^{+0.395}_{-1.483}$	$3.230^{+0.120}_{-0.759}$	$0.104^{+0.331}_{-0.031}$
	+5%/-11%	+10%/-2%	+10%/-100%	+11%/-42%	+4%/-23%	+317%/-30%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011454304-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1013 \pm 85$	$37.43^{+44.37}_{-25.01}$	$1945^{+184}_{-277}$	$5863^{+5838}_{-1556}$	$123^{+953}_{-95}$
Alt.	$-967 \pm 78$	$39.21^{+38.93}_{-27.02}$	$1932^{+201}_{-250}$	$5689^{+6241}_{-1395}$	$111^{+1074}_{-84}$

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

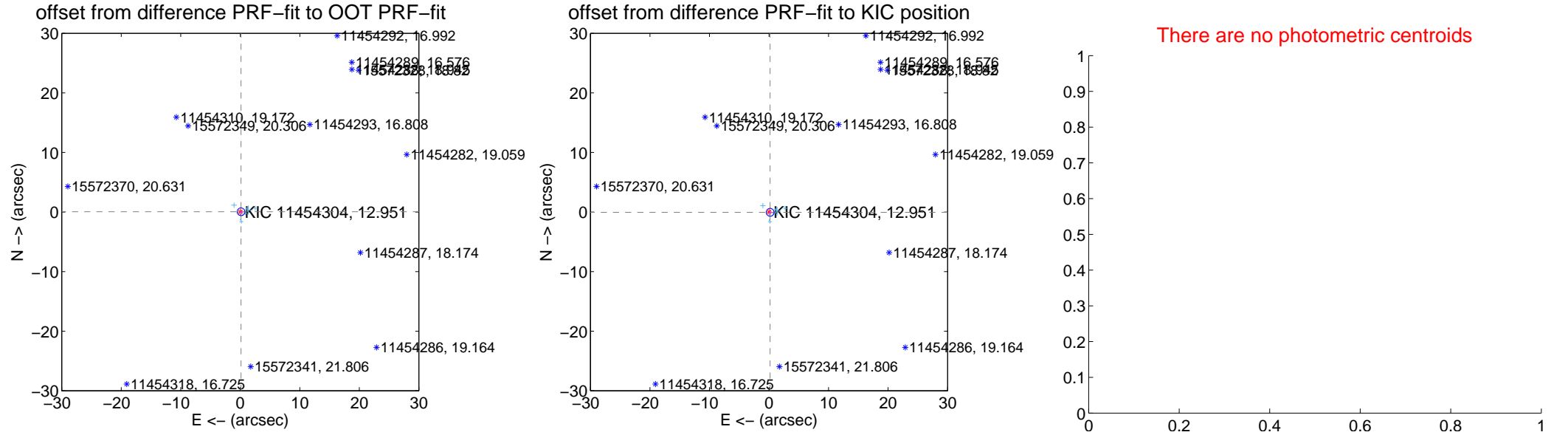
## DV Centroid Data

Supplemental centroid analysis for 011454304-04. Kepler magnitude: 12.95. Transit SNR 7.23

There are 11 quarters with good PRF difference image offsets

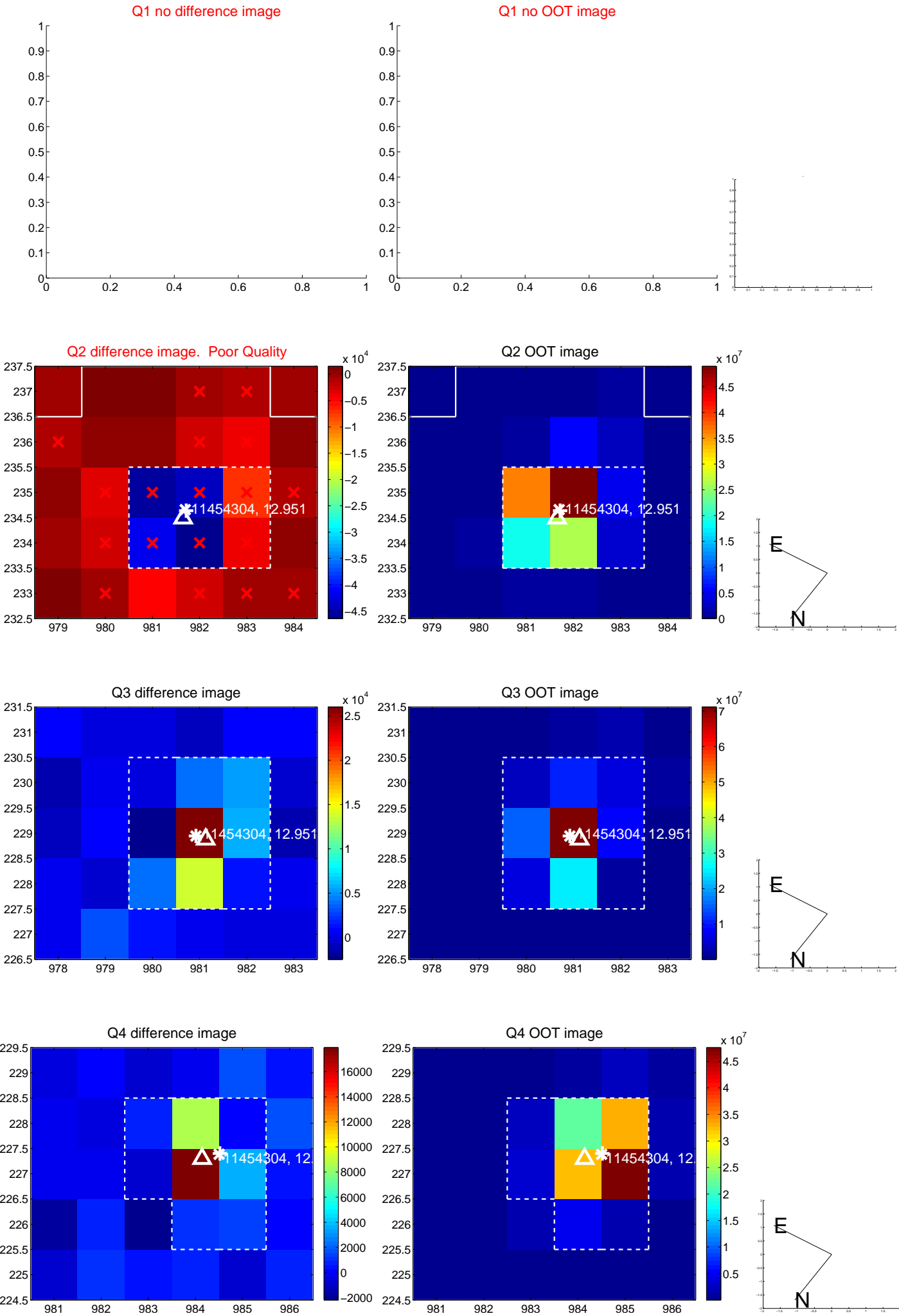
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.125 \pm 0.215$	0.58	$-0.117 \pm 0.220$	$0.044 \pm 0.196$
PRF-fit source offset from KIC position	$0.189 \pm 0.219$	0.87	$-0.184 \pm 0.228$	$-0.046 \pm 0.189$
photometric centroid source offset	—	—	—	—

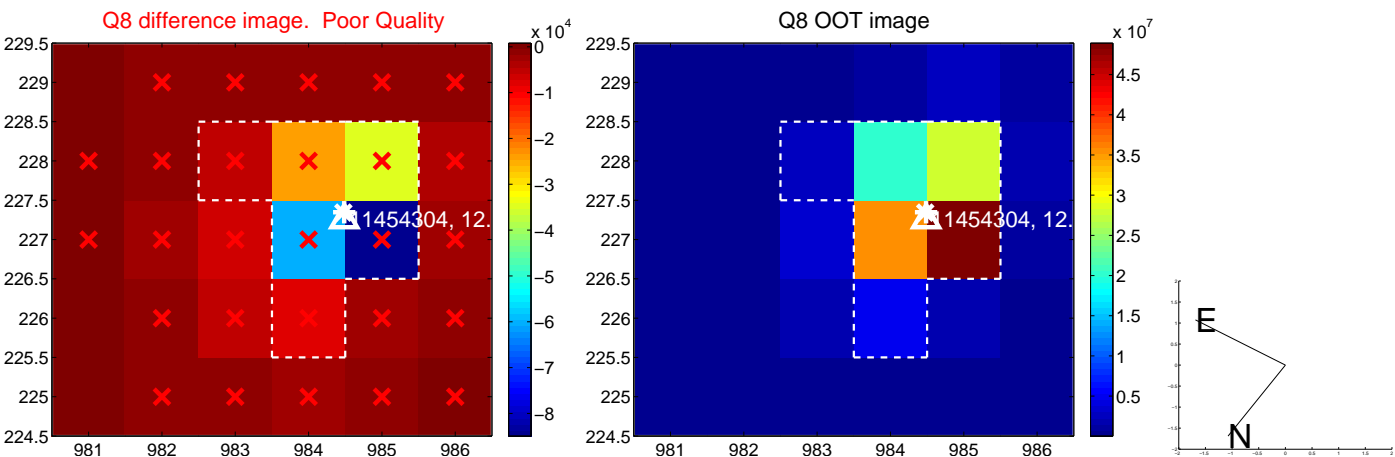
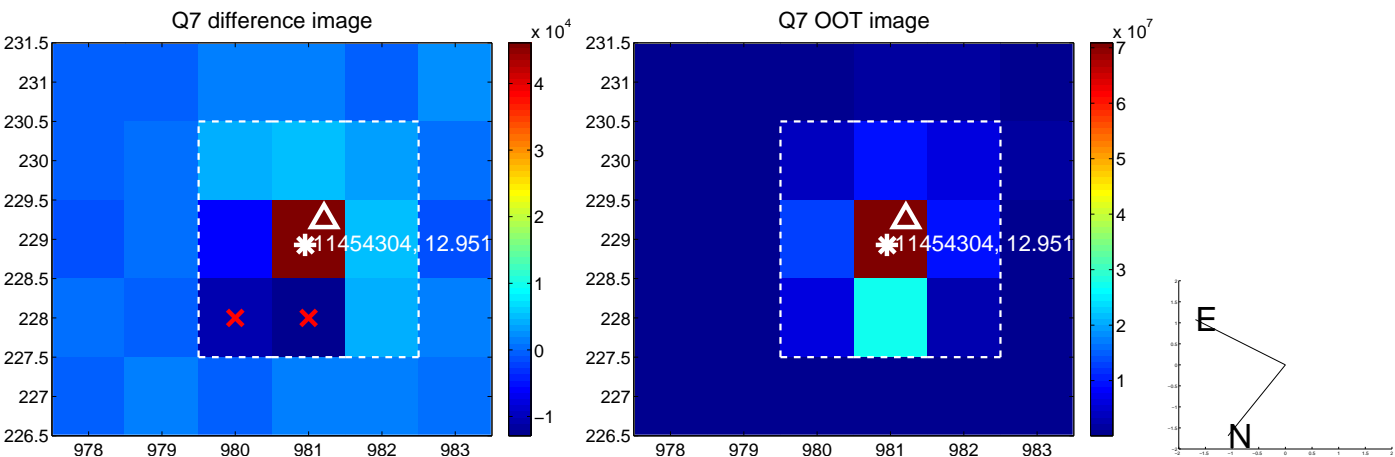
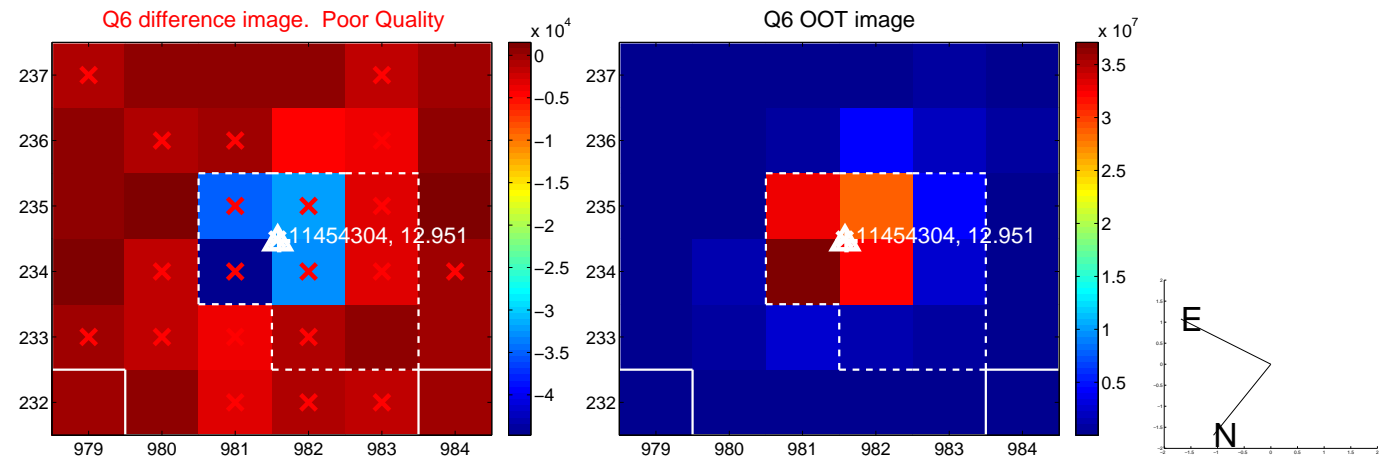
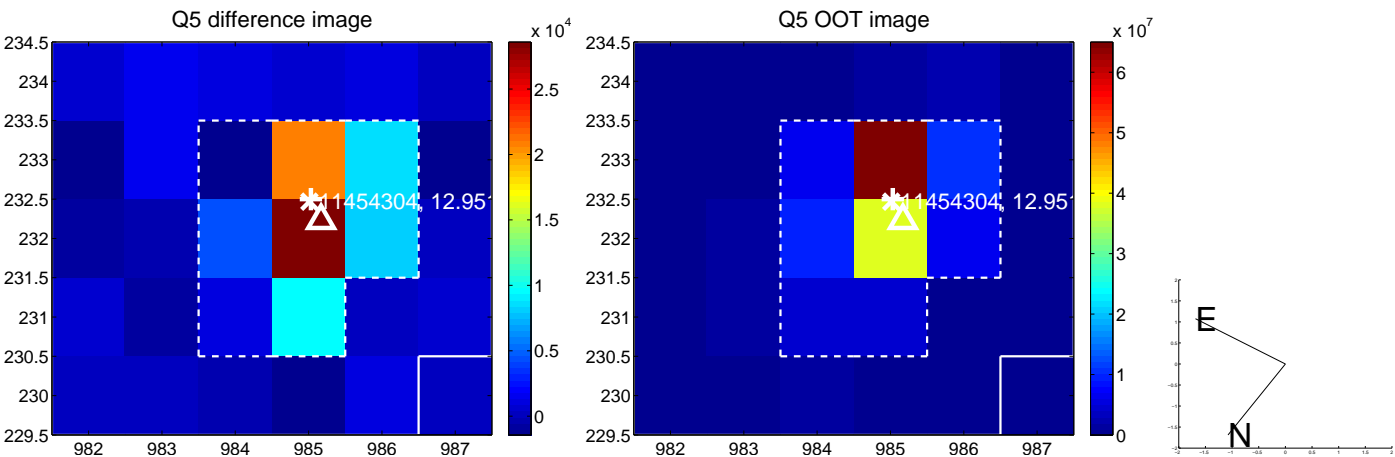


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

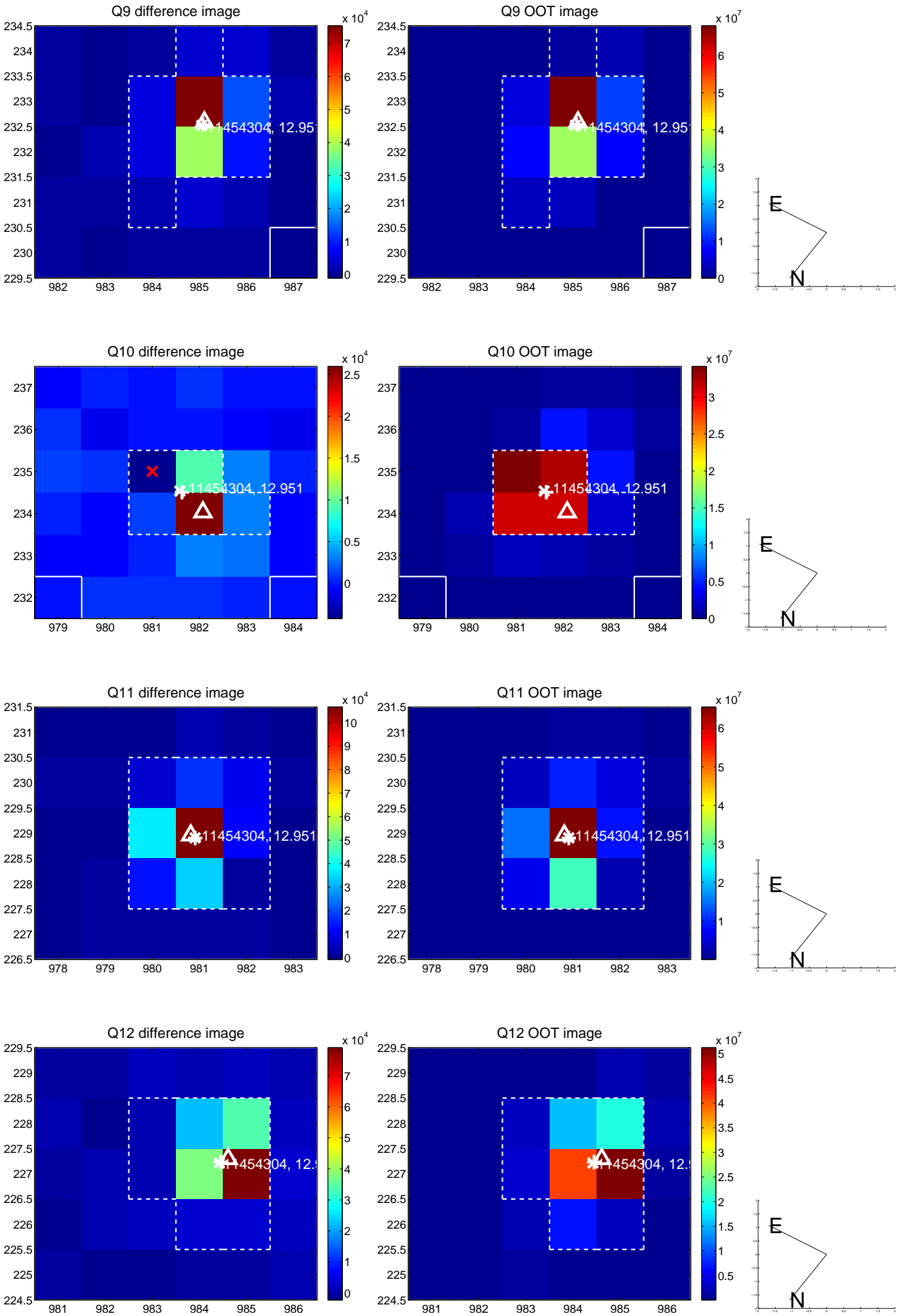


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

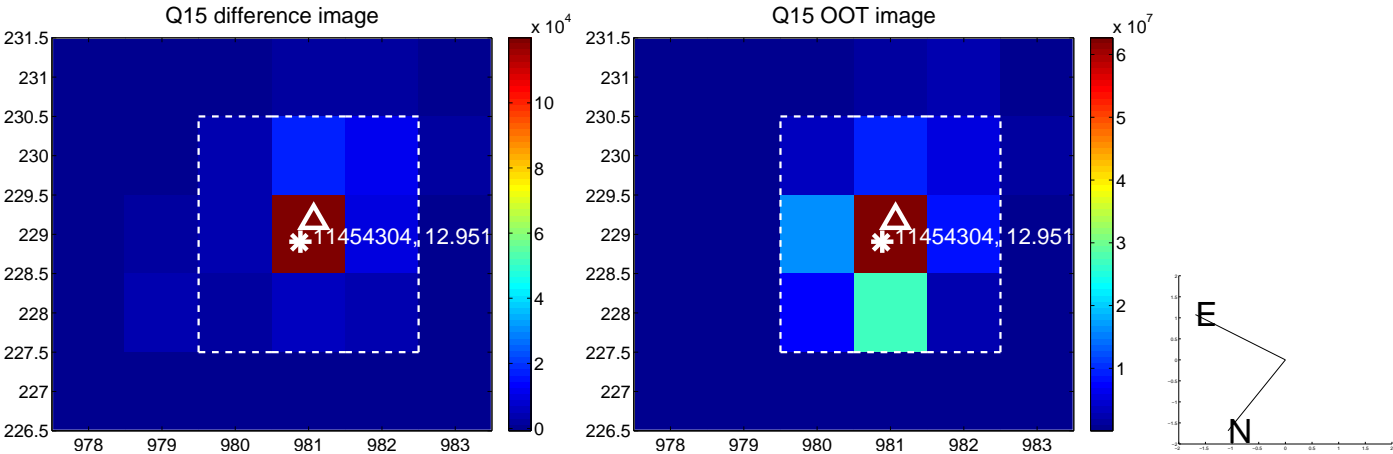
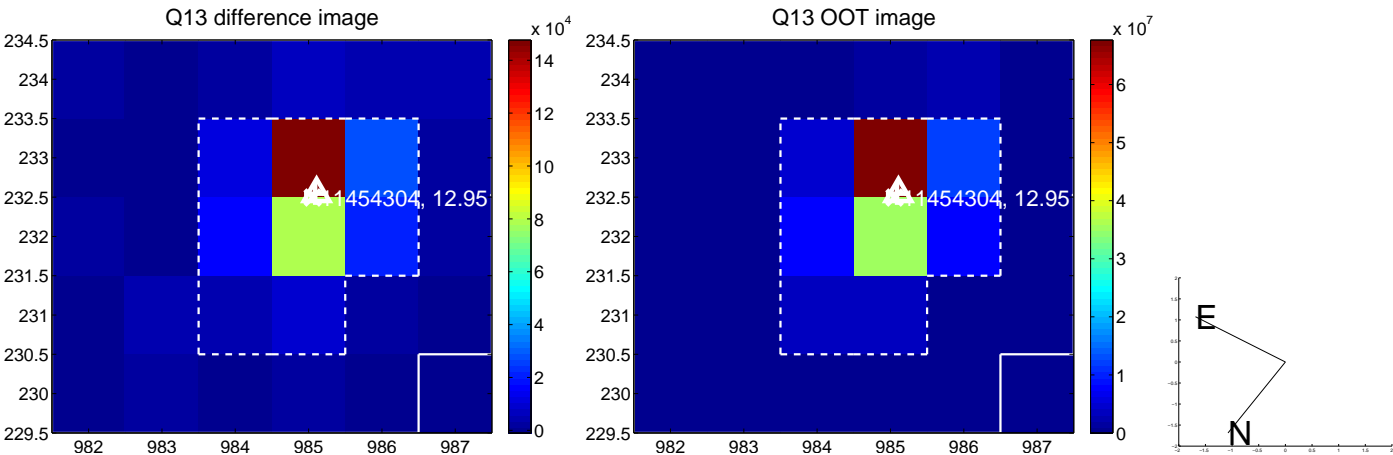




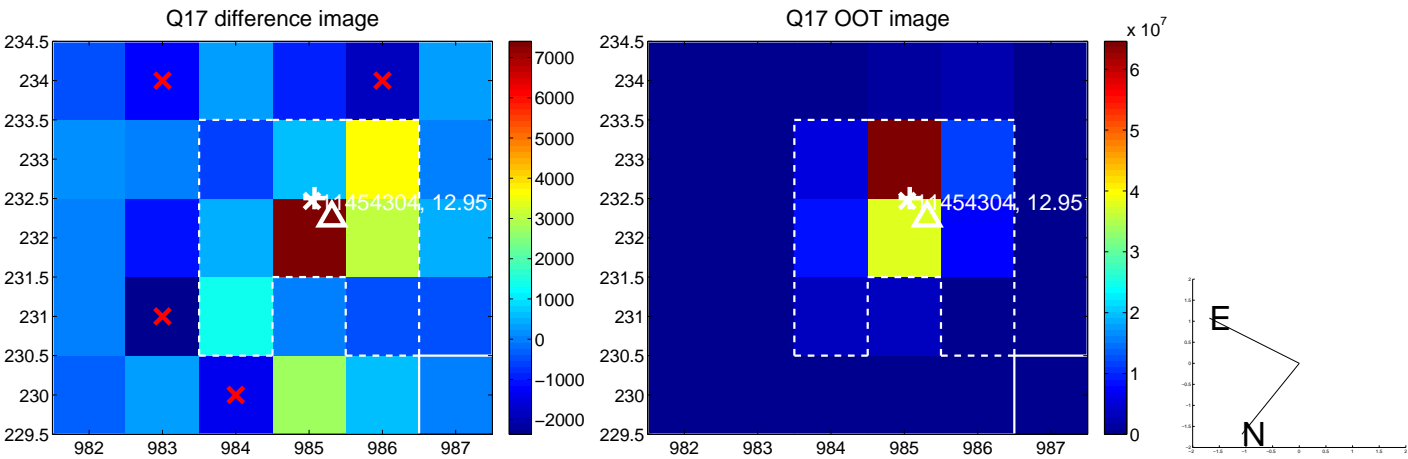
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



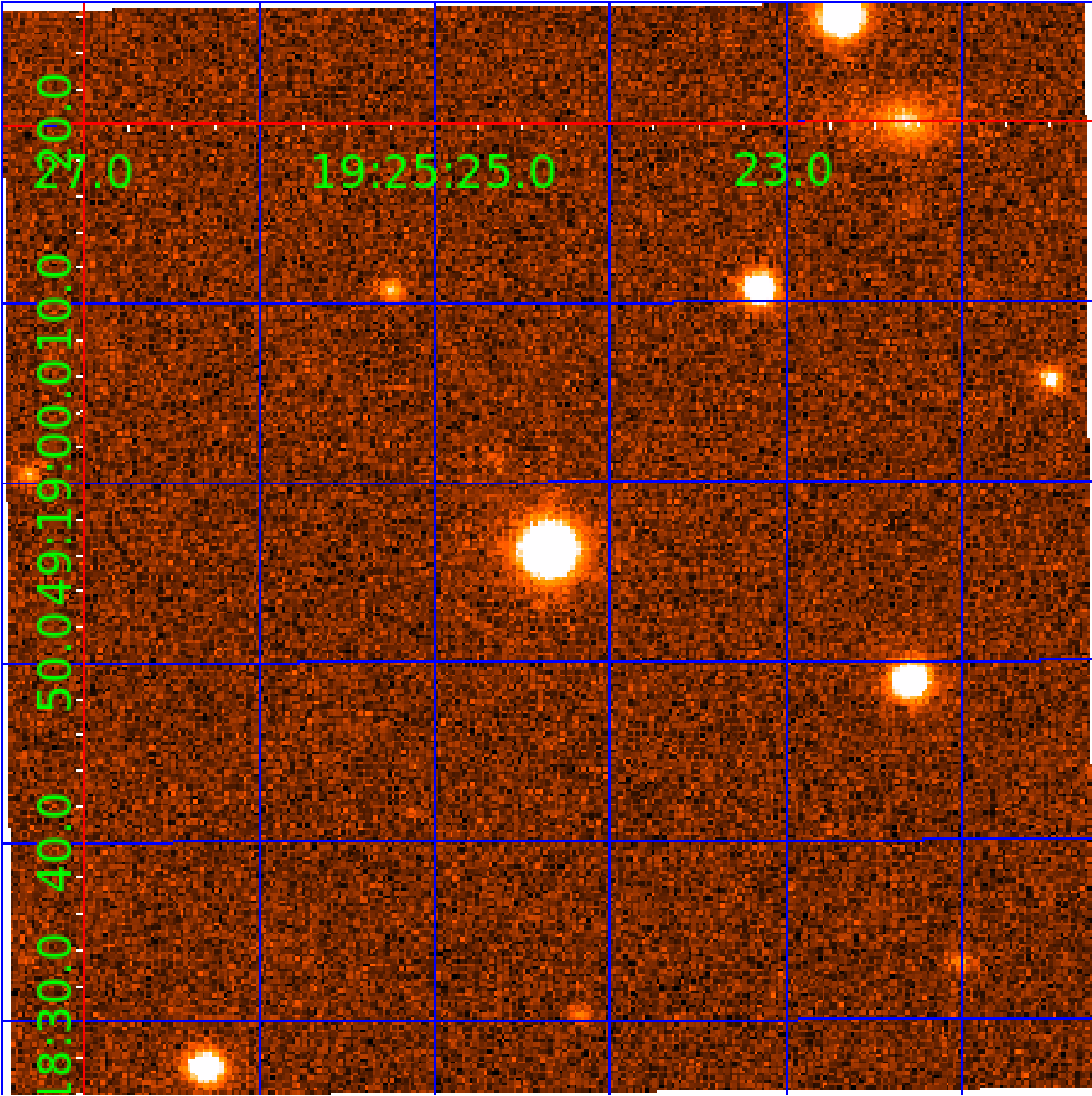
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 011454304

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011454304-01	OBS	No	1.331299	132.133336	14.2	8.146	9.8	2.5	3.52	13203	1.43	274630.10
011454304-02	OBS	No	86.597921	168.692235	1467.7	8.898	18.1	8.9	3.52	13203	23.25	1049.80
011454304-03	OBS	No	196.969825	184.882274	904.9	6.845	9.3	9.2	3.52	13203	18.48	350.95
011454304-04	OBS	No	86.625656	179.736995	807.2	5.484	9.0	7.2	3.52	13203	17.49	1049.35
011454304-05	OBS	No	130.558915	144.168424	1109.1	6.697	9.3	8.9	3.52	13203	20.38	607.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011454304-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011454304-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT
011454304-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
011454304-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD
011454304-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES

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

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

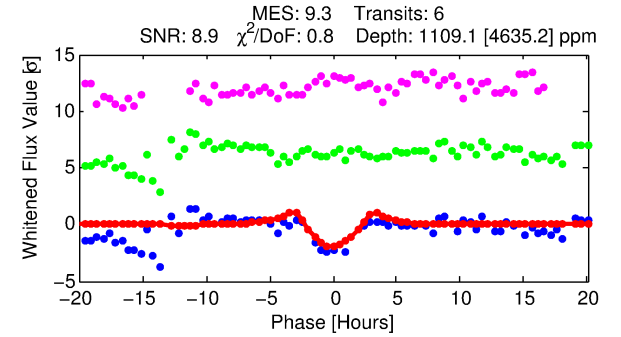
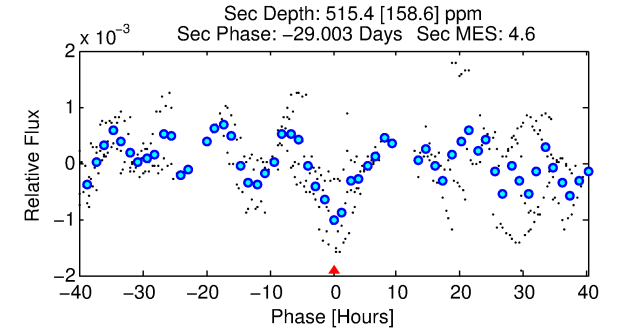
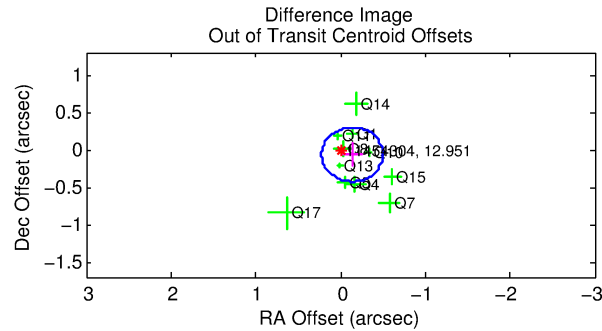
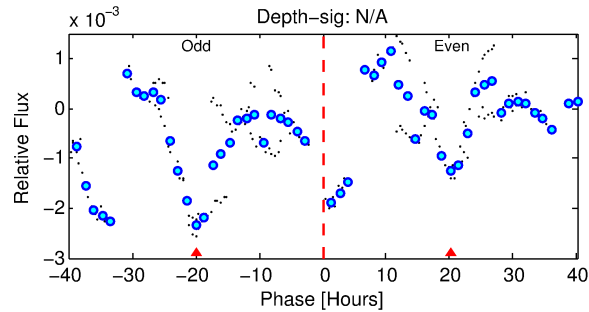
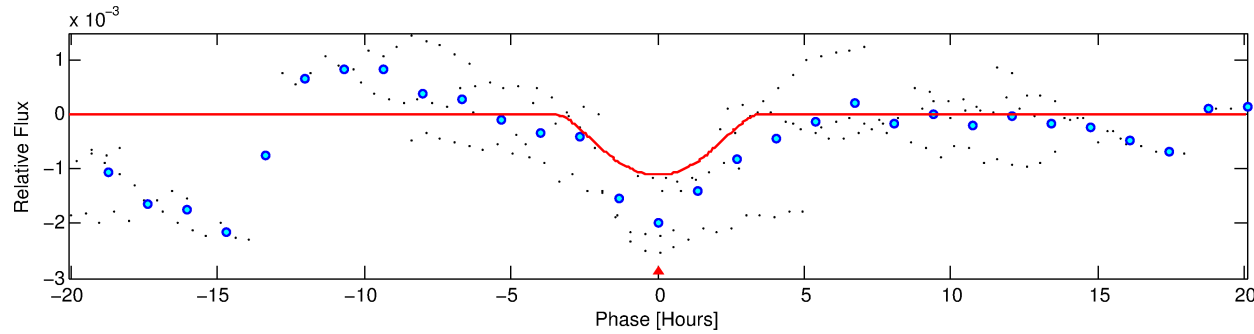
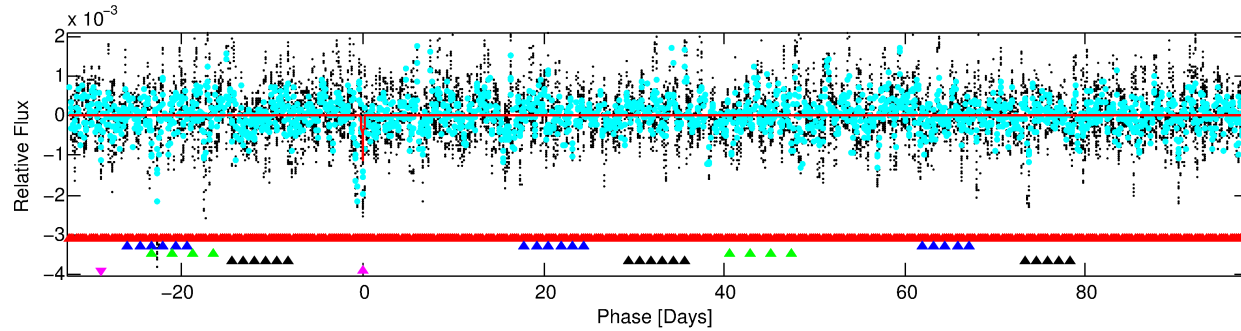
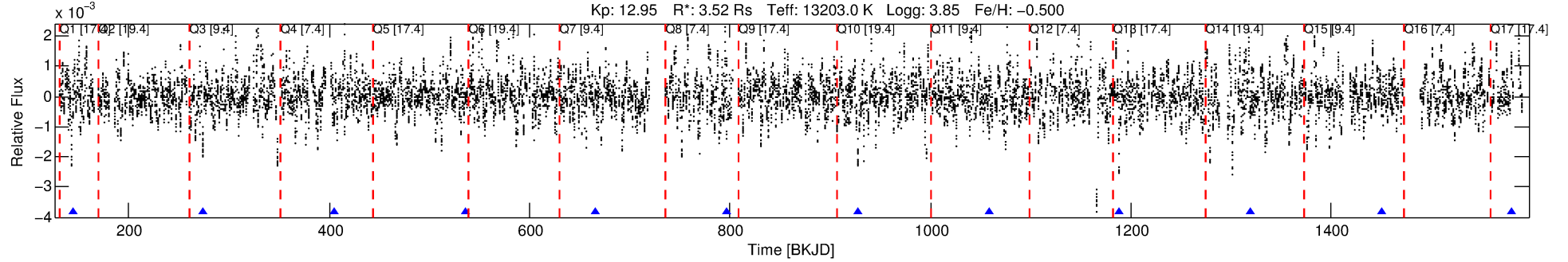
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011454304-05

No Significant Match Found

# DV One-Page Summary

KIC: 11454304 Candidate: 5 of 5 Period: 130.559 d



## DV Fit Results:

Period = 130.55891 [0.00527] d  
Epoch = 144.1684 [0.0356] BKJD  
Rp/R\* = 0.0531 [0.0873]  
a/R\* = 49.18 [21.71]  
b = 1.00 [0.29]  
Seff = 607.26 [483.02]  
Teq = 1266 [252] K  
Rp = 20.38 [34.61] Re  
a = 0.7449 [0.3034] AU  
Ag = 378.64 [1275.09] [0.30σ]  
Teffp = 8633 [7197] K [1.02σ]

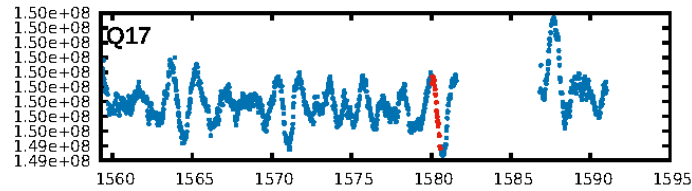
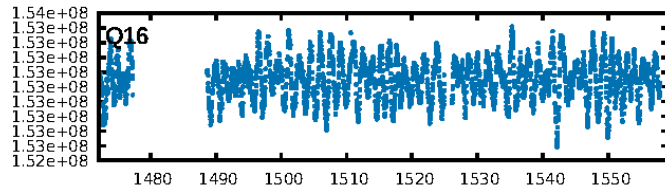
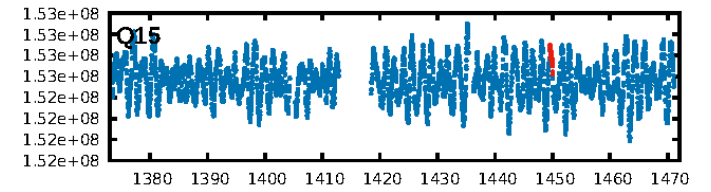
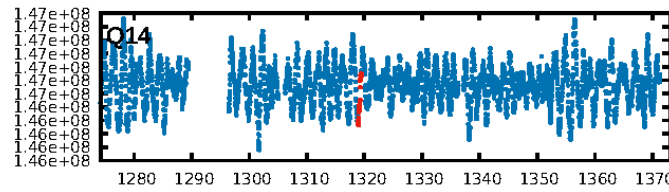
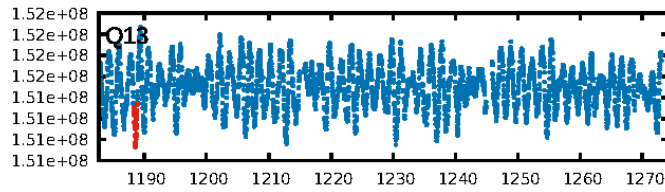
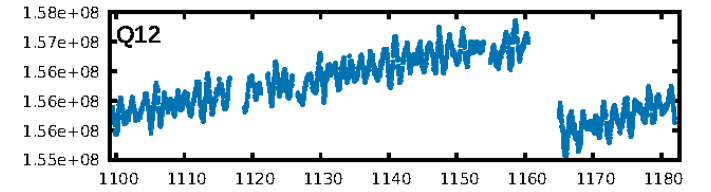
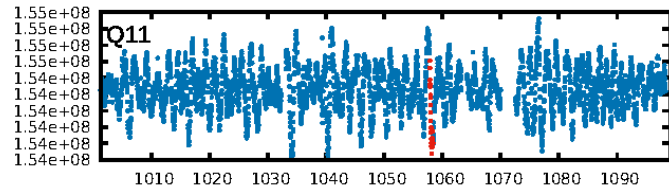
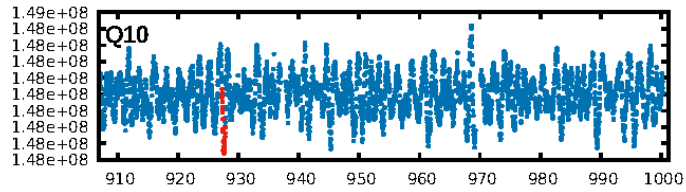
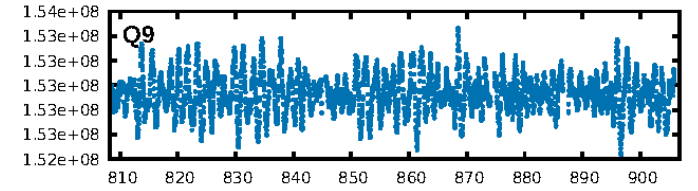
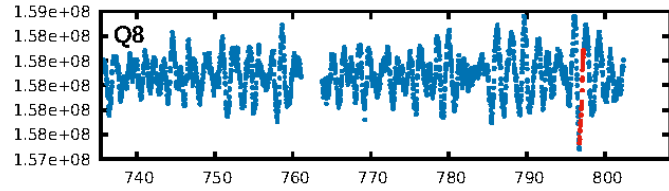
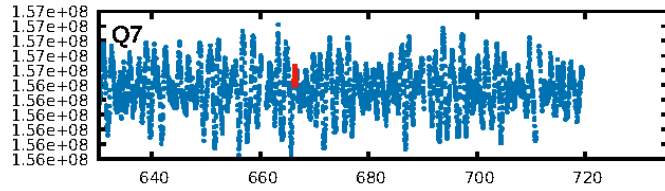
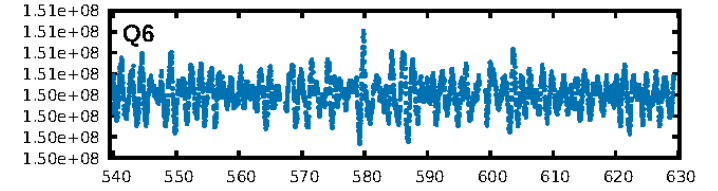
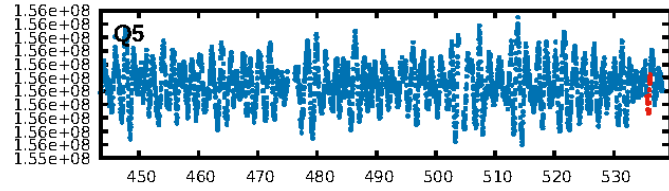
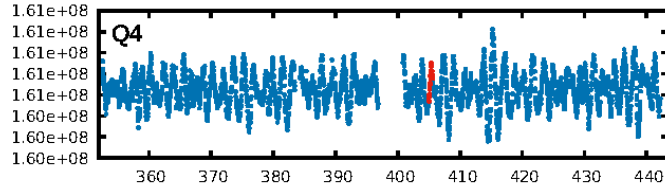
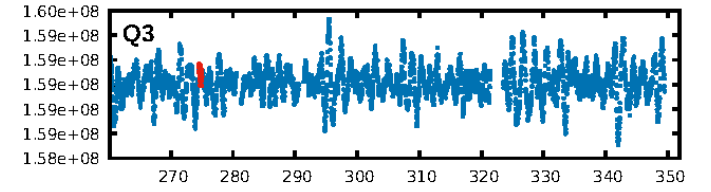
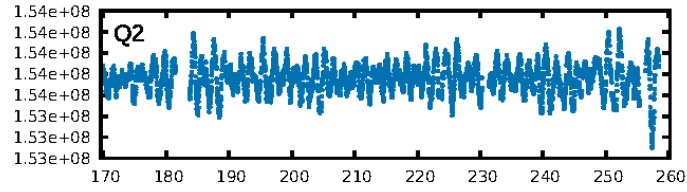
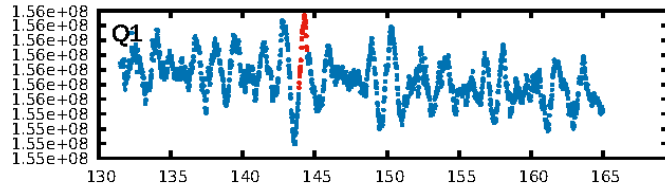
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [121.80σ]  
LongPeriod-sig: 100.0% [166.43σ]  
ModelChiSquare2-sig: 75.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 1.819  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.151 arcsec [1.25σ]  
KicOffset-rm: 0.211 arcsec [1.82σ]  
OotOffset-st: 2/3/2/4 [11]  
KicOffset-st: 2/3/2/4 [11]  
DiffImageQuality-fgm: 0.55 [6/11]  
DiffImageOverlap-fno: 0.00 [0/12]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 08:25:16 Z

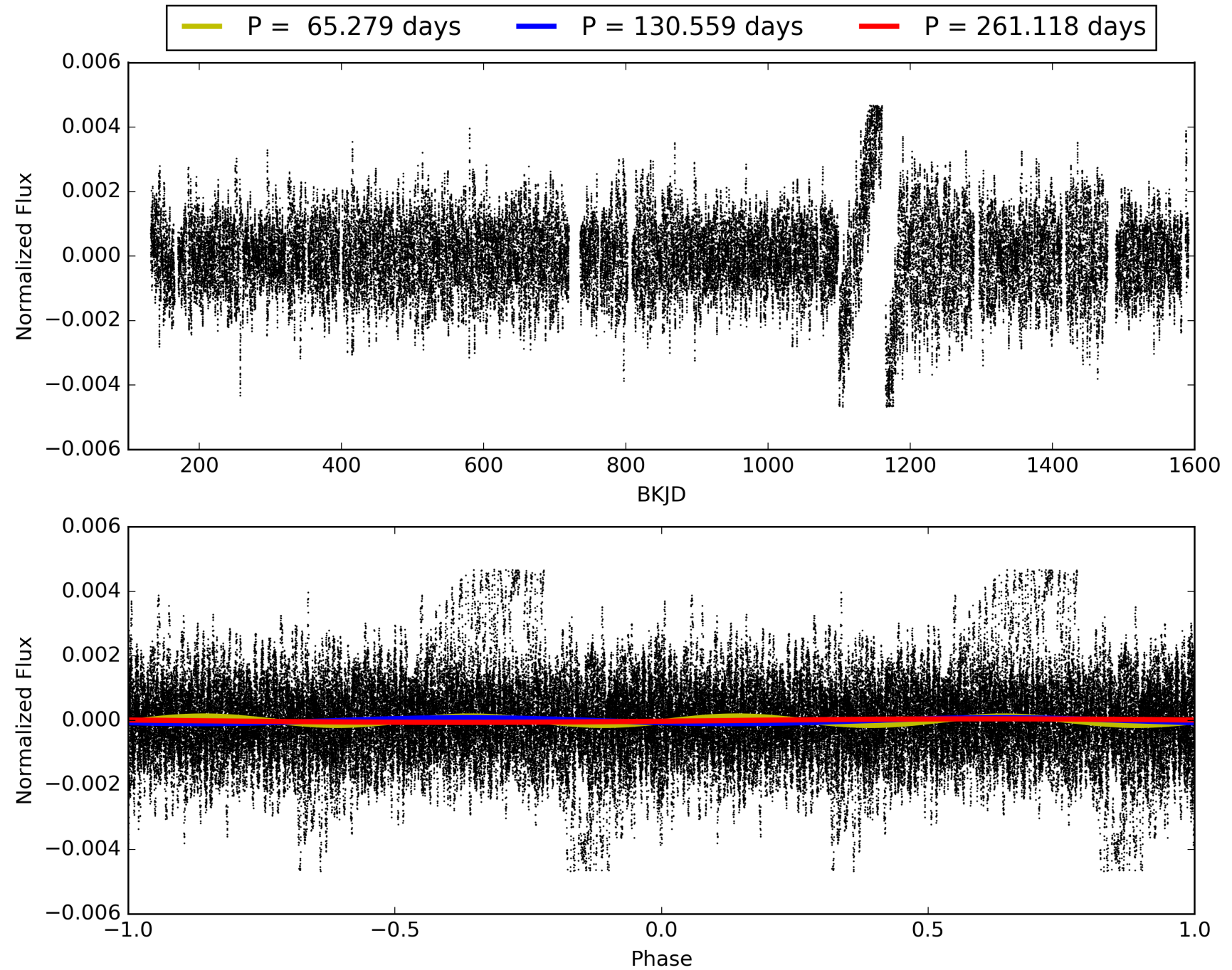
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011454304-05, PDC Light Curves



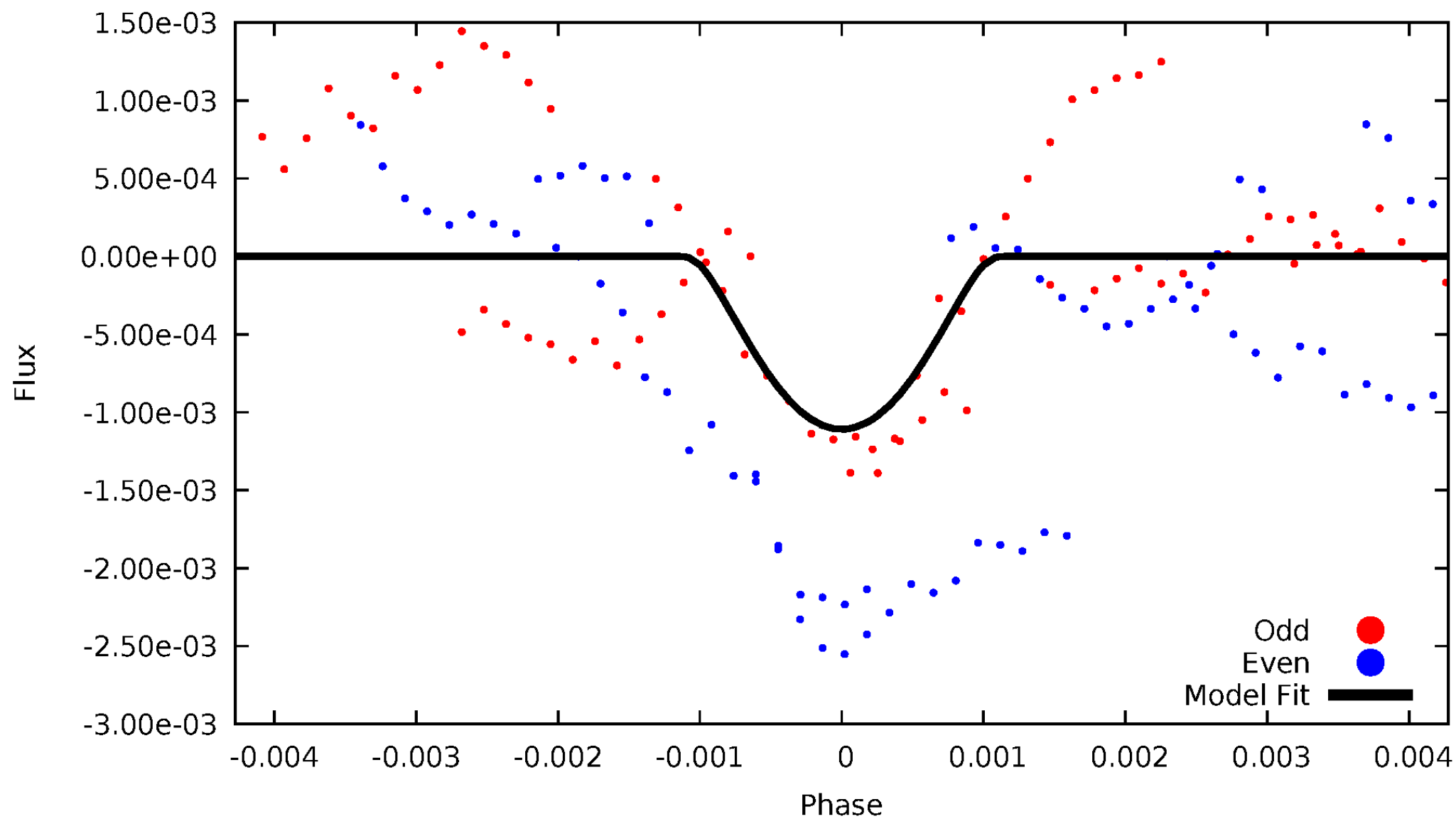


# TCE 011454304-05



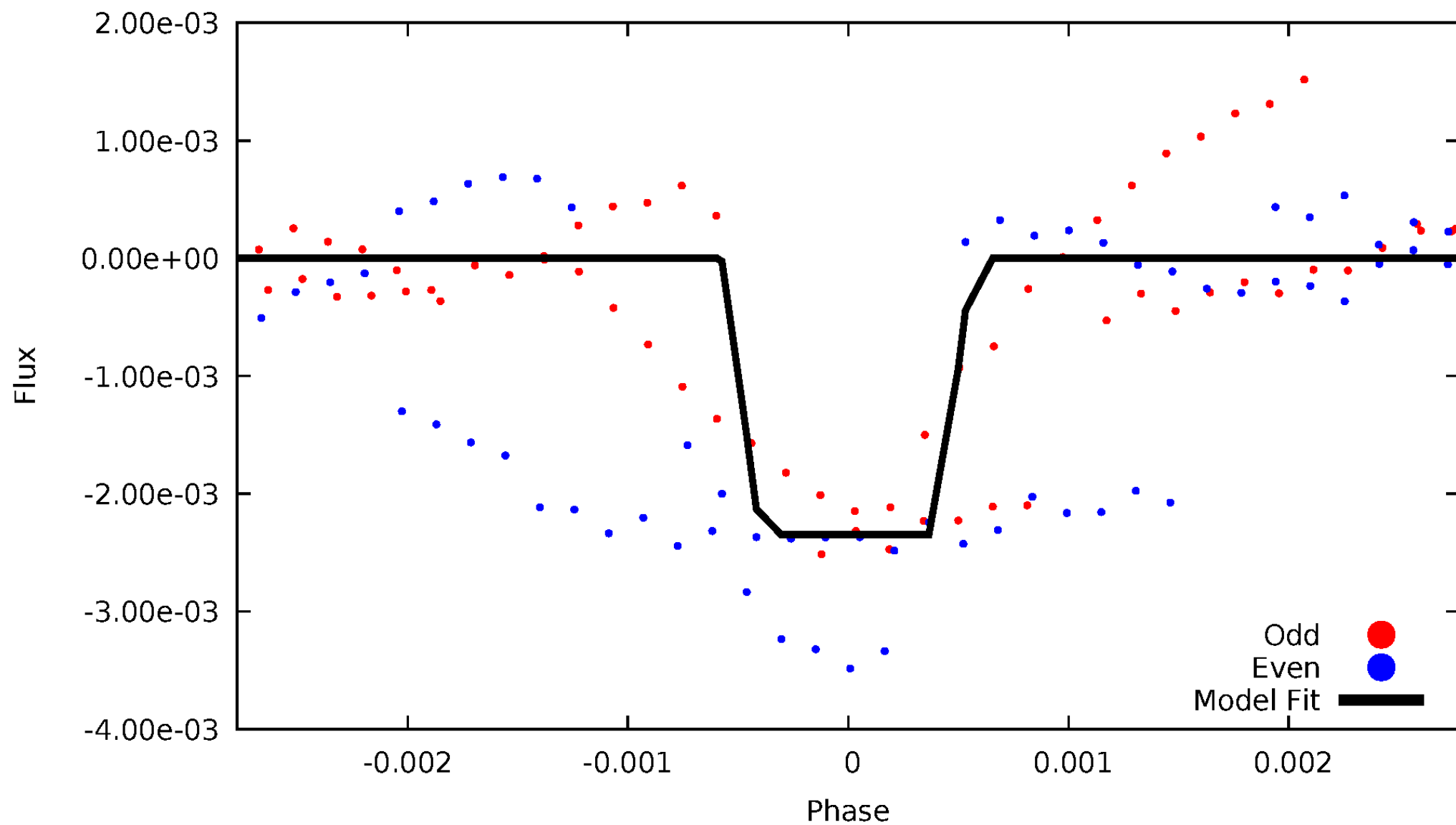
# DV Odd/Even

TCE 011454304-05



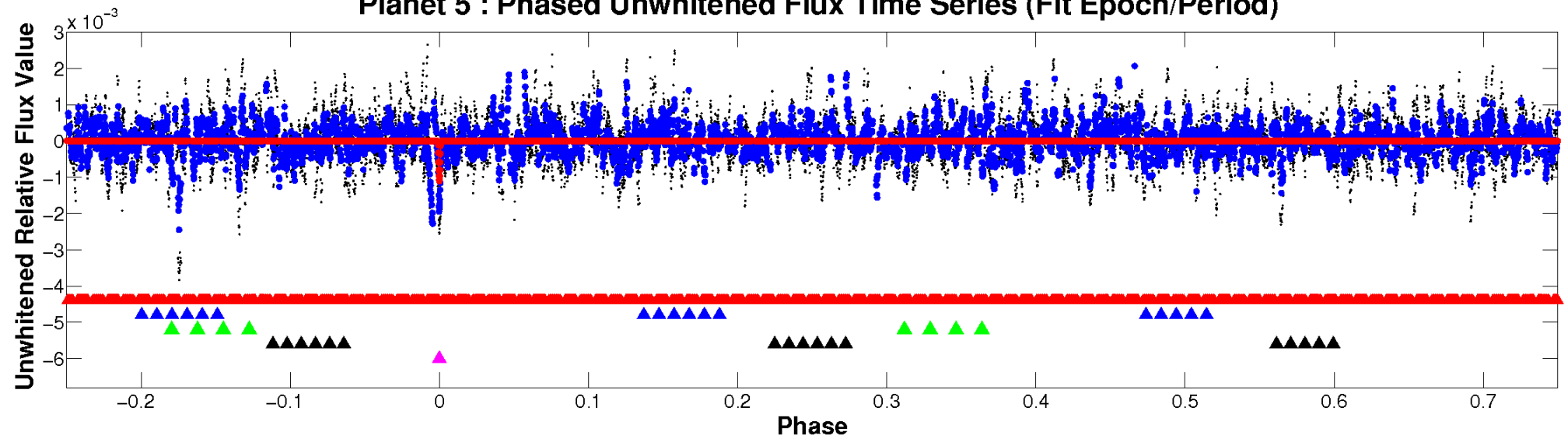
# ALT Odd/Even

TCE 011454304-05

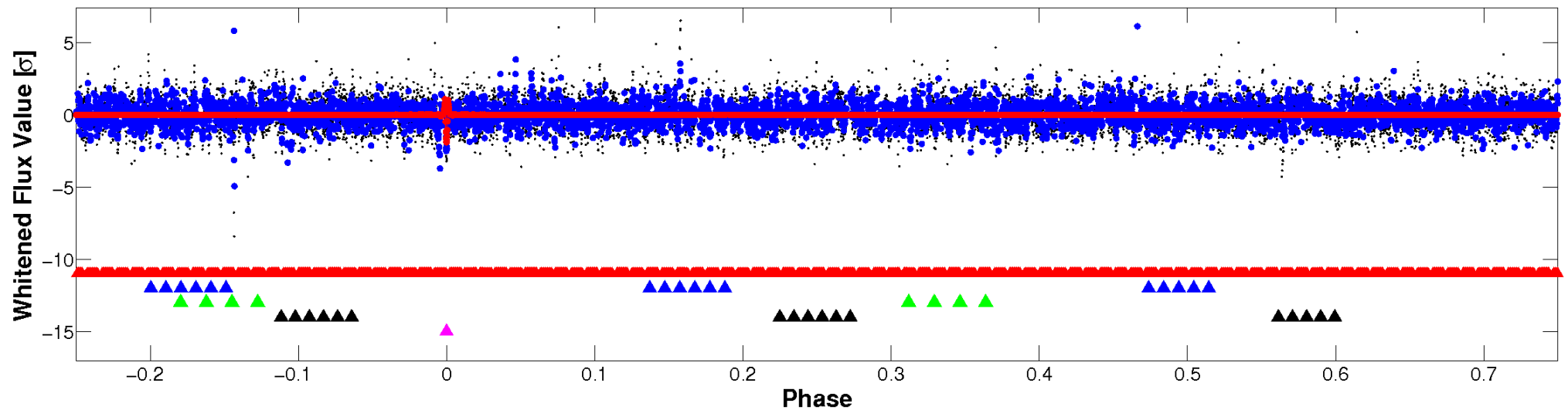


# Non-Whitened Vs. Whitened Light Curve

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

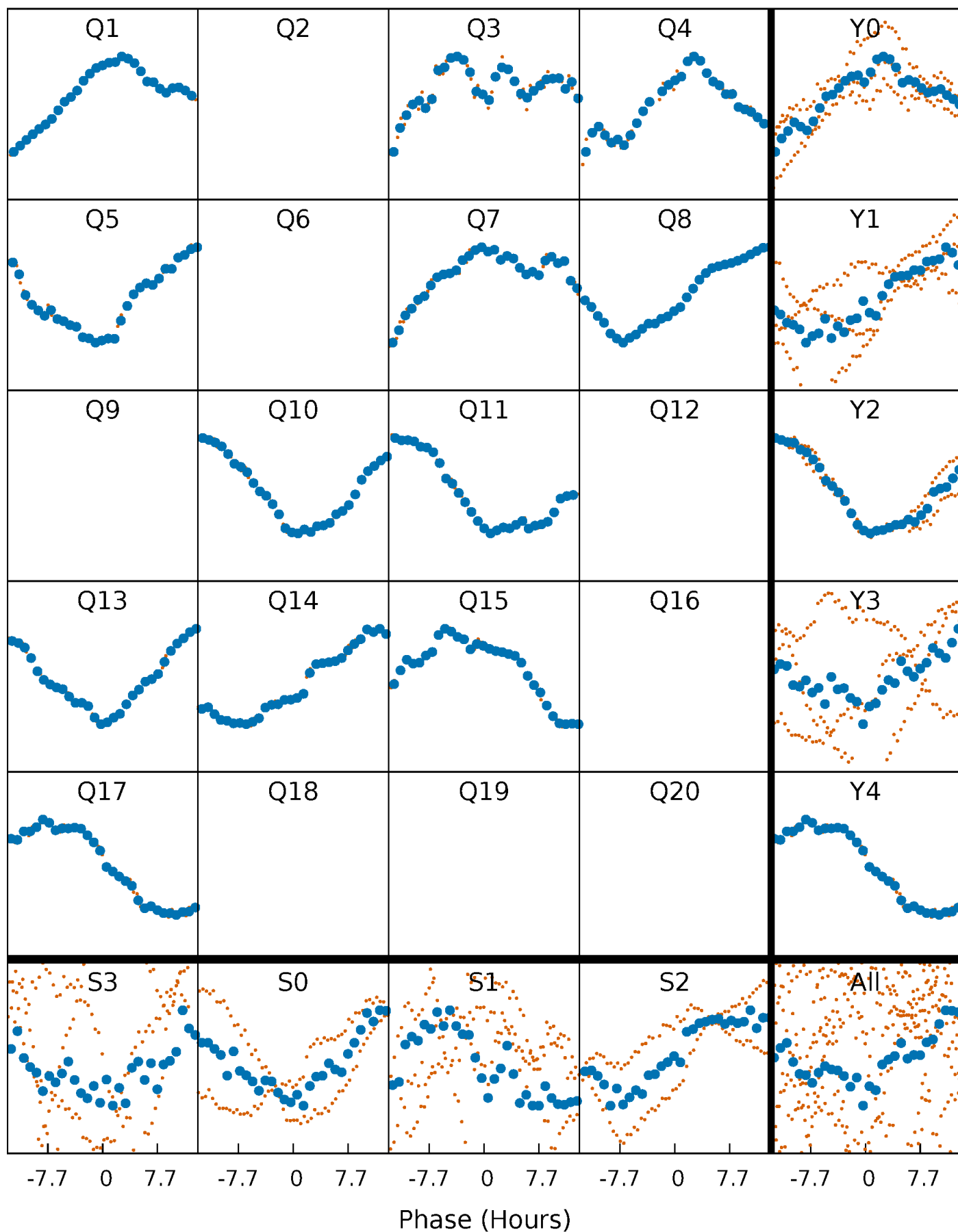


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



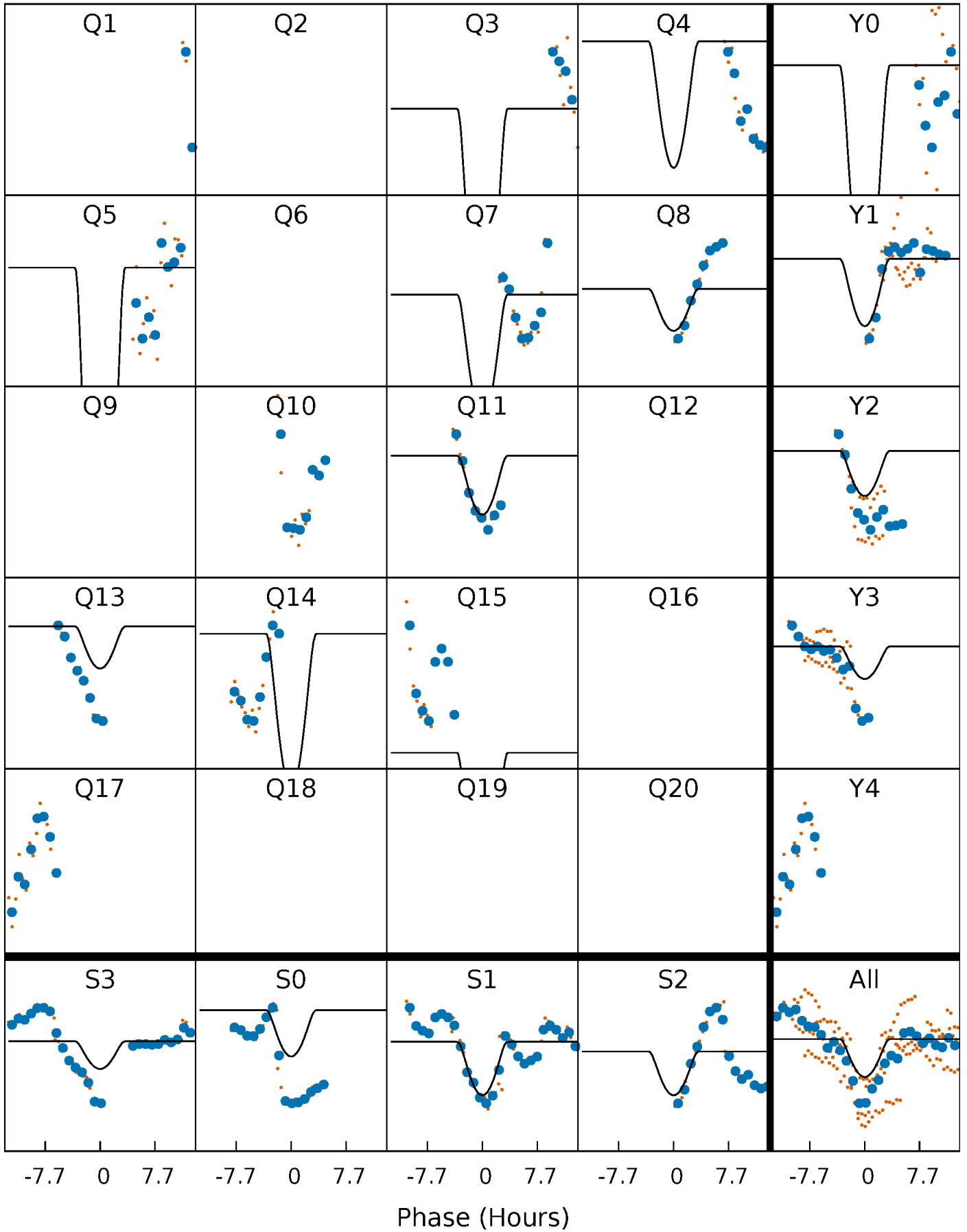
# PDC Quarter-Phased Transit Curves

TCE 011454304-05     $P=130.558915$  Days     $T_0=144.168424$  (BKJD)



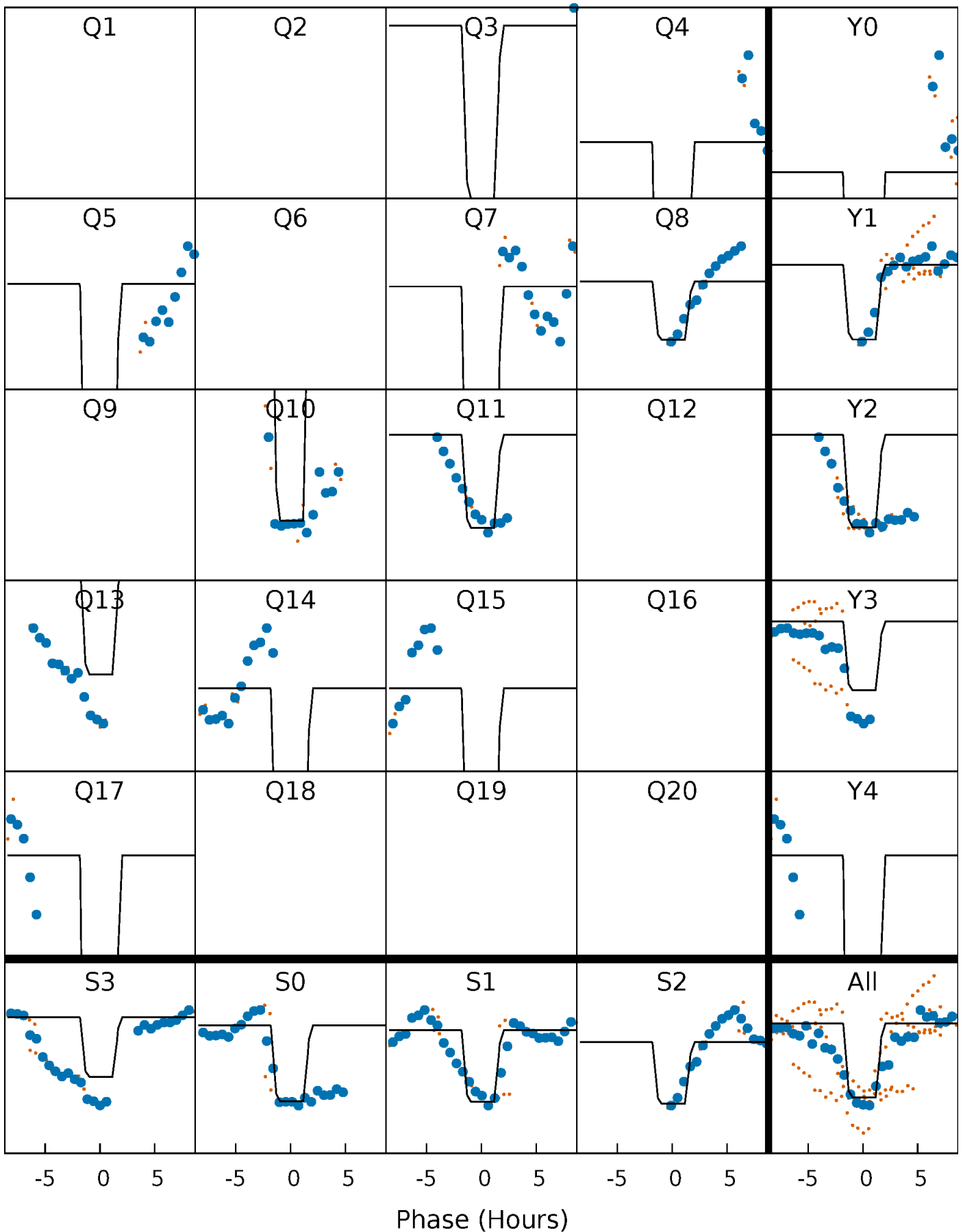
# DV Quarter-Phased Transit Curves

TCE 011454304-05     $P=130.558915$  Days     $T_0=144.168424$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 011454304-05     $P=130.551466$  Days     $T_0=144.229569$  (BKJD)

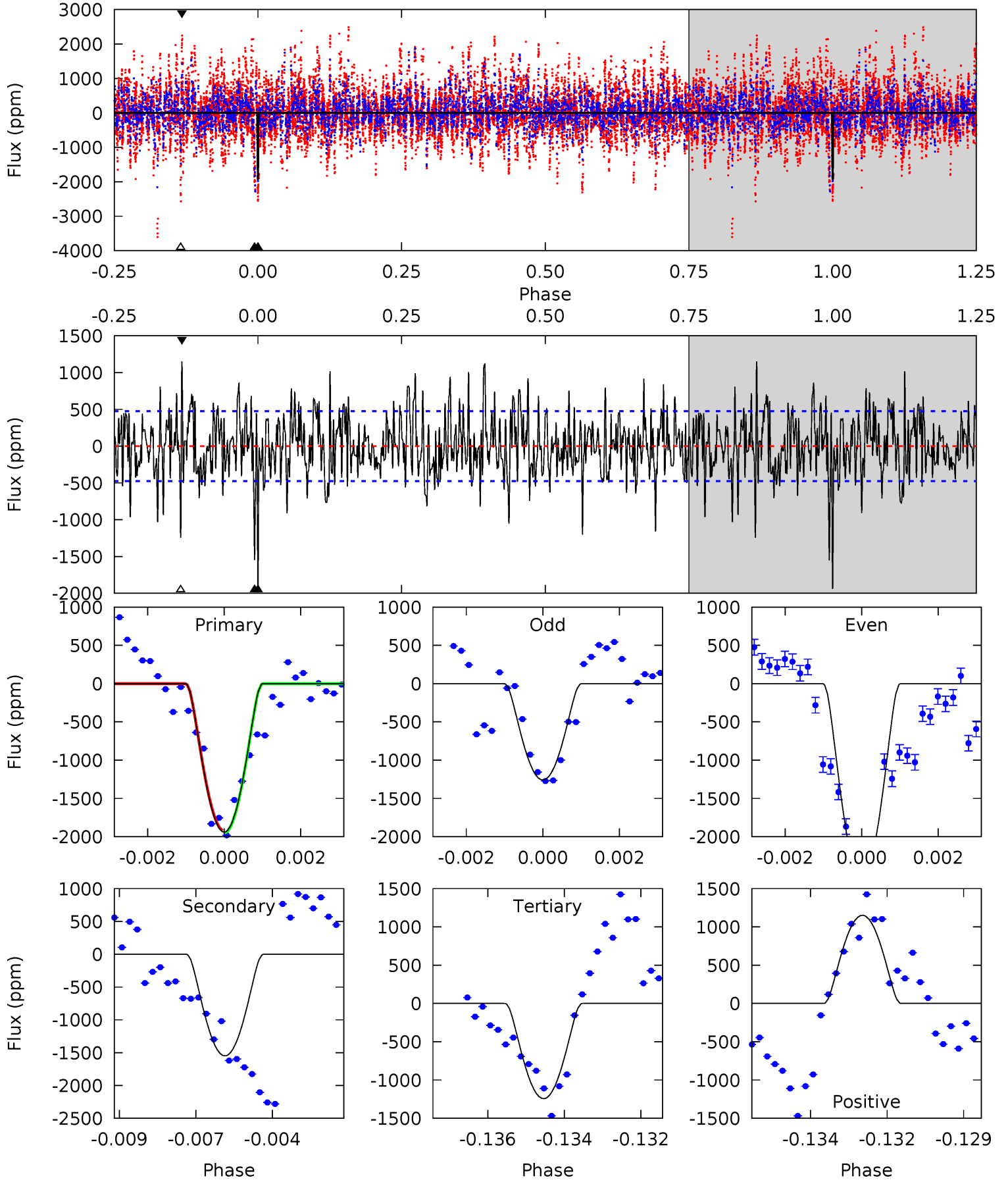




# DV Model-Shift Uniqueness Test

011454304-05, P = 130.558915 Days, E = 13.609509 Days

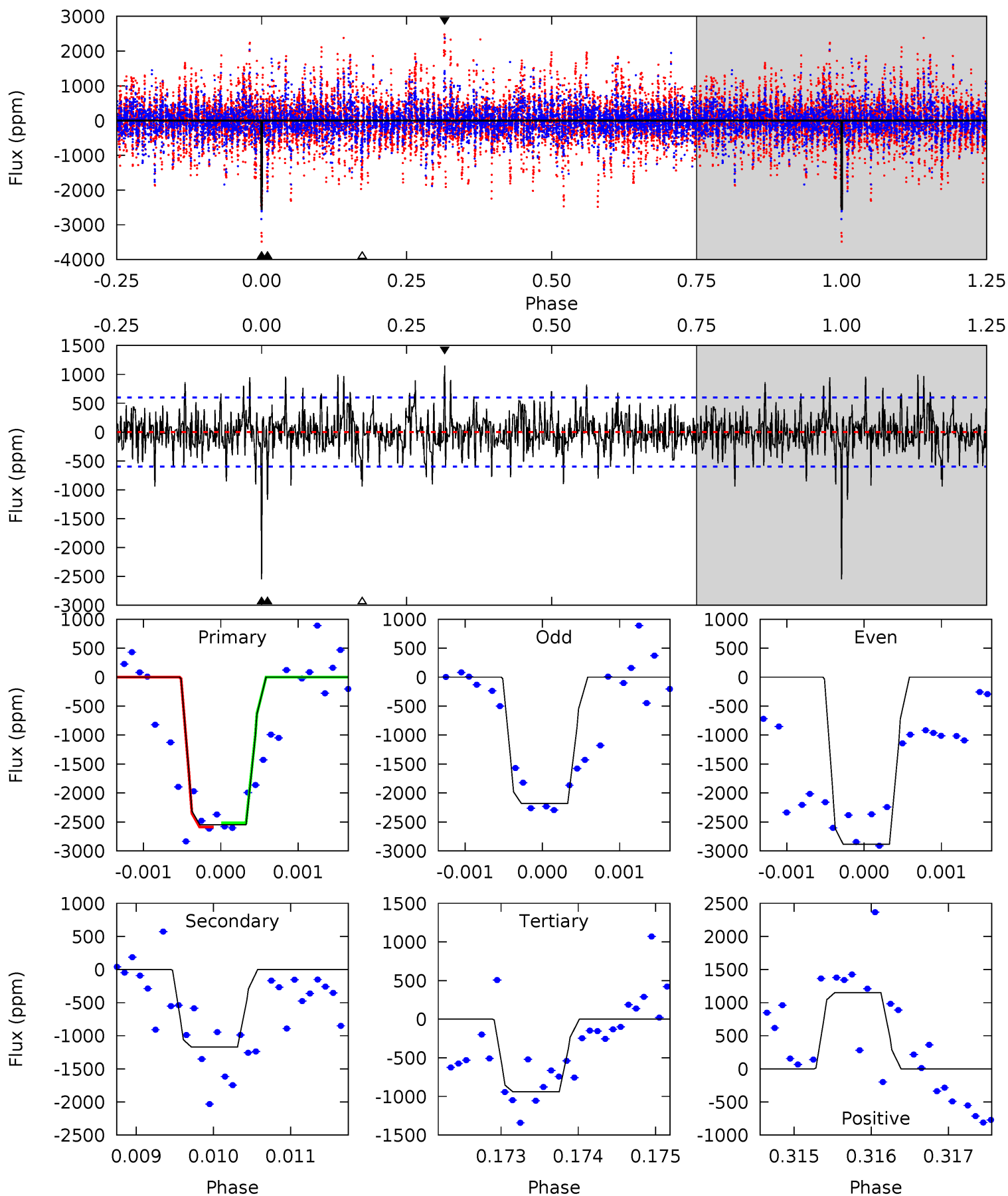
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.6	17.3	13.9	12.8	5.31	3.06	3.83	7.77	8.79	3.41	4.43	7.20	0.91	0.37	0.19



# Alt Model-Shift Uniqueness Test

011454304-05,  $P = 130.551466$  Days,  $E = 13.678103$  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
23.1	10.6	8.55	10.4	5.43	3.26	2.44	14.6	12.7	2.07	0.18	3.08	1.09	0.31	0.34



### Stellar Parameters For KIC 011454304

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$13203^{+642}_{-1499}$	$3.855^{+0.384}_{-0.096}$	$-0.500^{+0.050}_{-0.500}$	$3.518^{+0.395}_{-1.483}$	$3.230^{+0.120}_{-0.759}$	$0.104^{+0.331}_{-0.031}$
	+5%/-11%	+10%/-2%	+10%/-100%	+11%/-42%	+4%/-23%	+317%/-30%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011454304-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1549 \pm 90$	$29.93^{+28.60}_{-21.08}$	$1690^{+172}_{-219}$	$7429^{+11624}_{-2083}$	$519^{+5174}_{-380}$
Alt.	$-1169 \pm 110$	$27.42^{+29.68}_{-17.95}$	$1685^{+167}_{-229}$	$7088^{+8646}_{-2029}$	$454^{+3516}_{-348}$

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

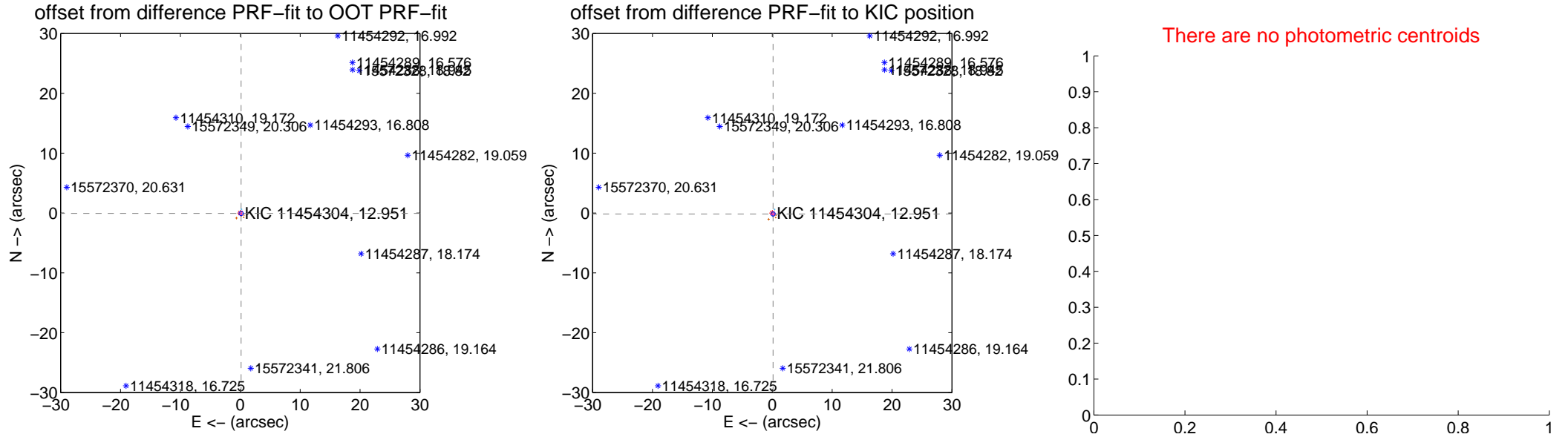
## DV Centroid Data

Supplemental centroid analysis for 011454304-05. Kepler magnitude: 12.95. Transit SNR 8.94

There are 6 quarters with good PRF difference image offsets

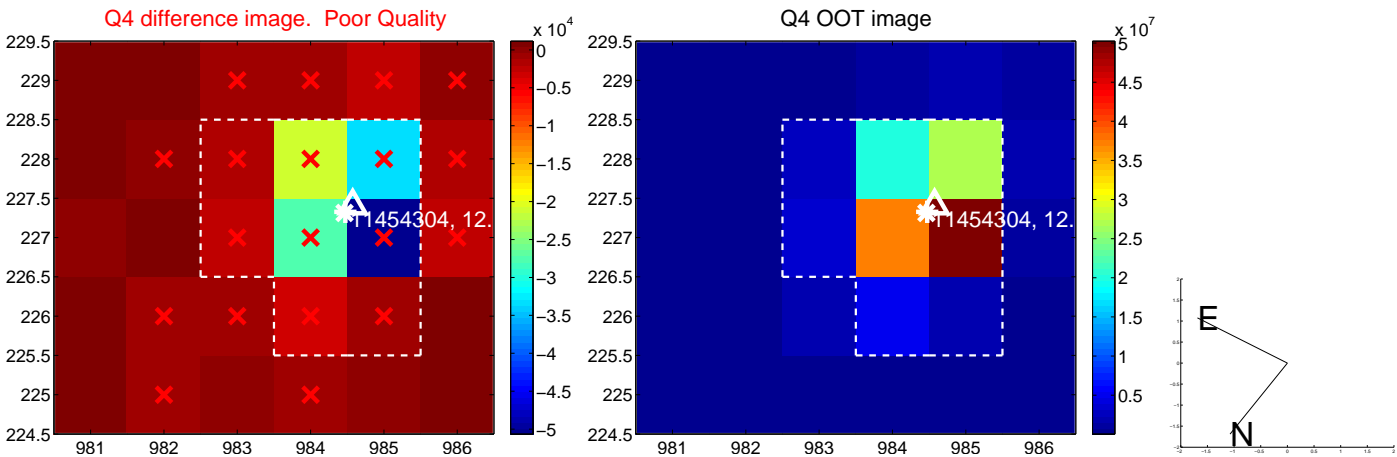
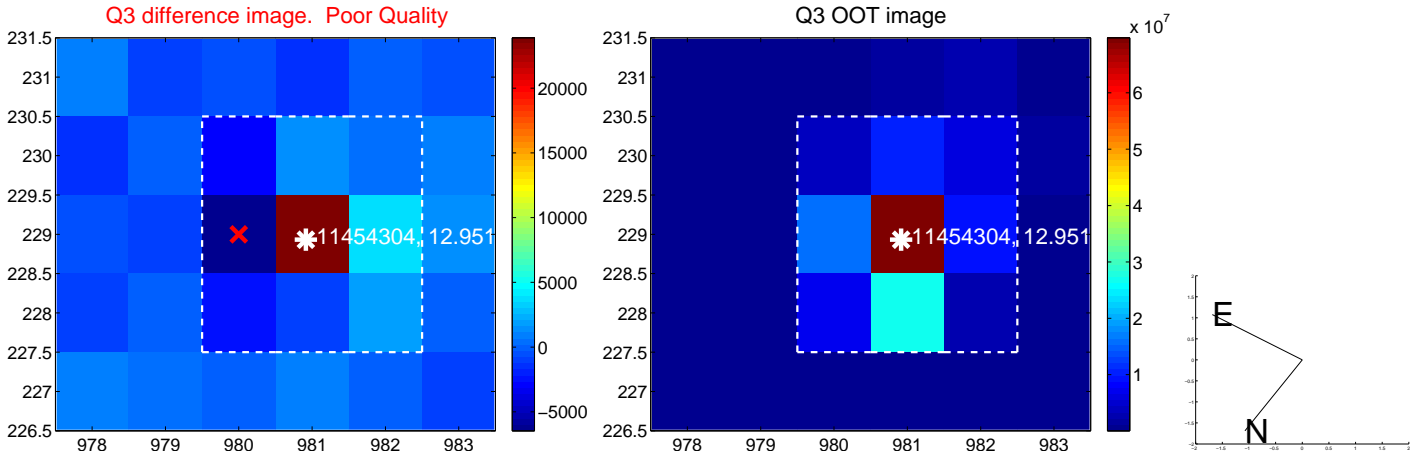
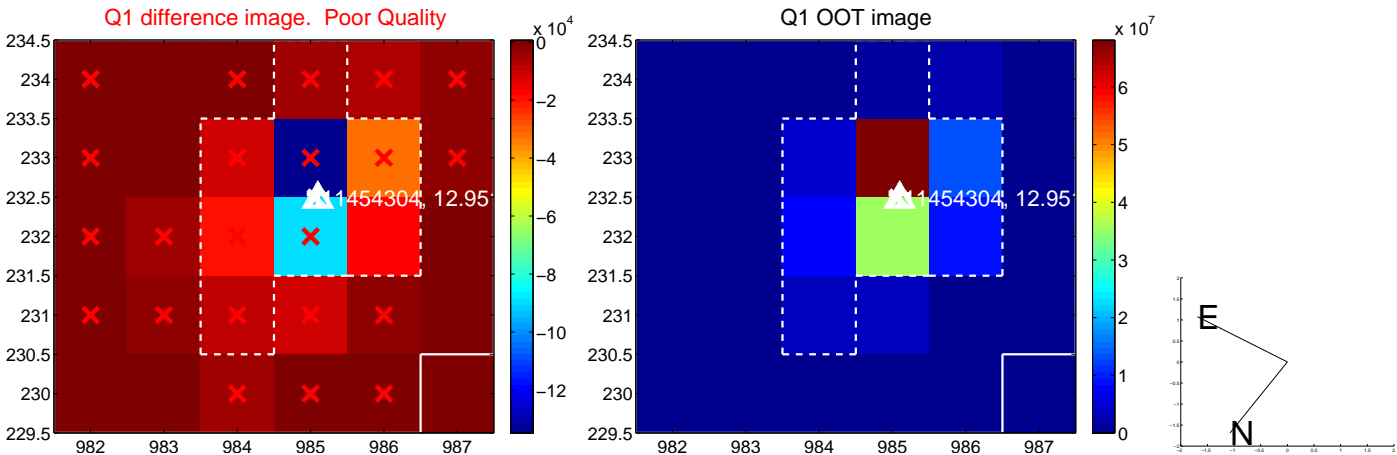
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.151 \pm 0.121$	1.25	$-0.137 \pm 0.113$	$-0.064 \pm 0.158$
PRF-fit source offset from KIC position	$0.211 \pm 0.116$	1.82	$-0.142 \pm 0.120$	$-0.157 \pm 0.145$
photometric centroid source offset	—	—	—	—

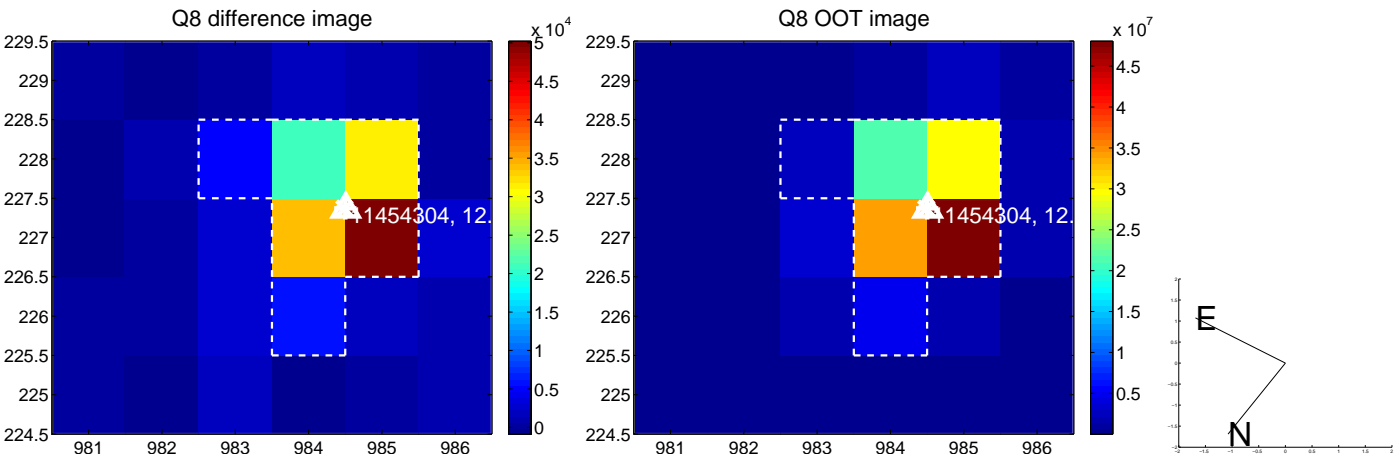
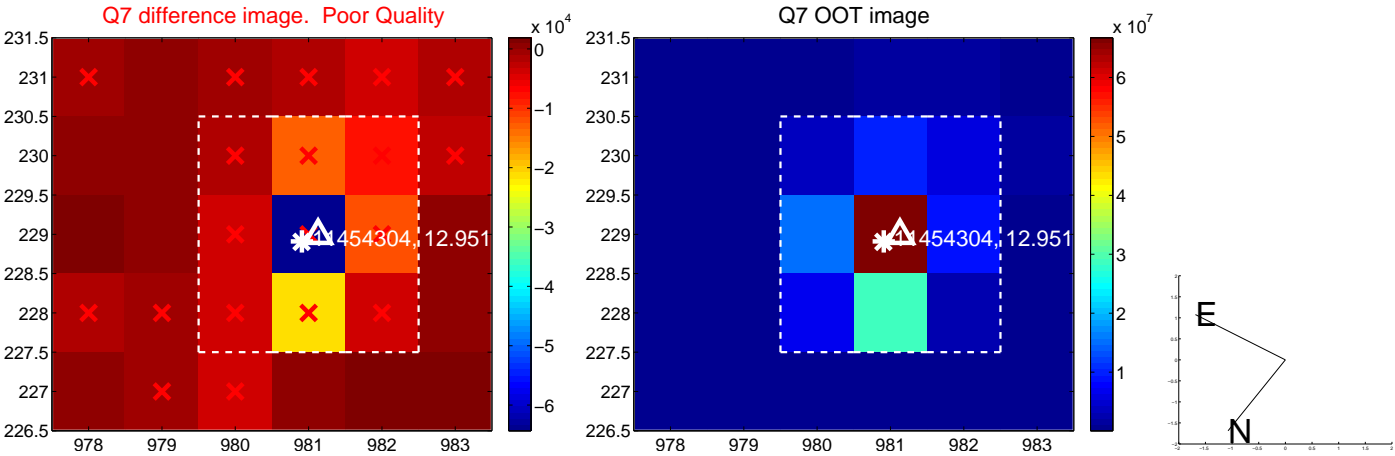
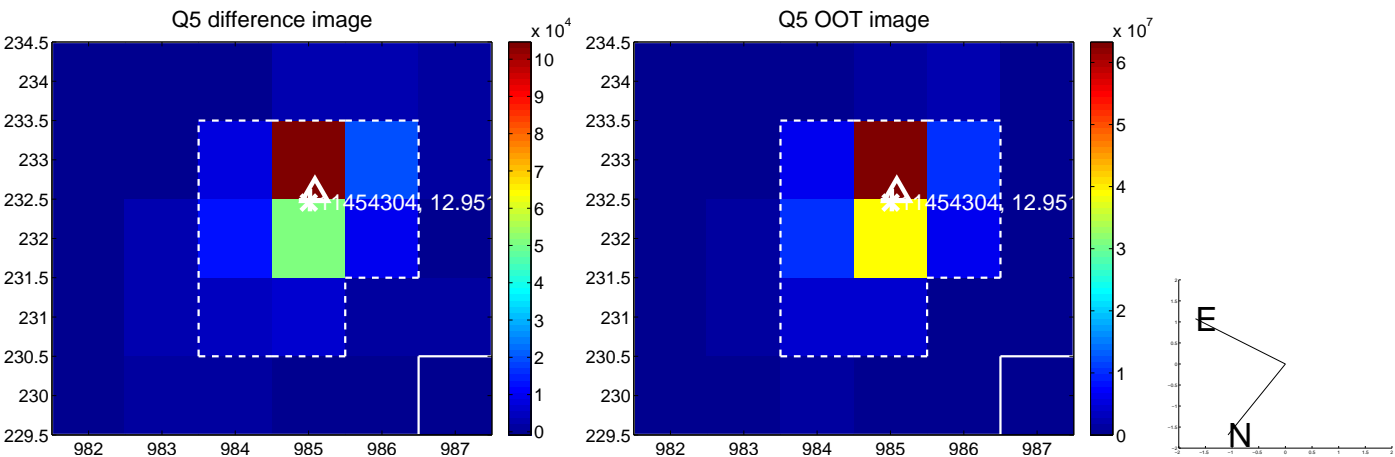


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

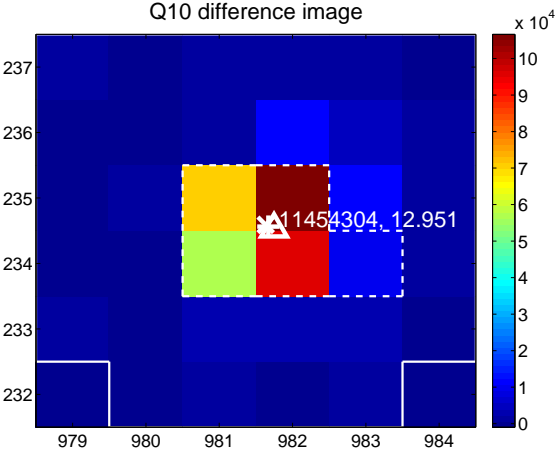
Q9 no difference image



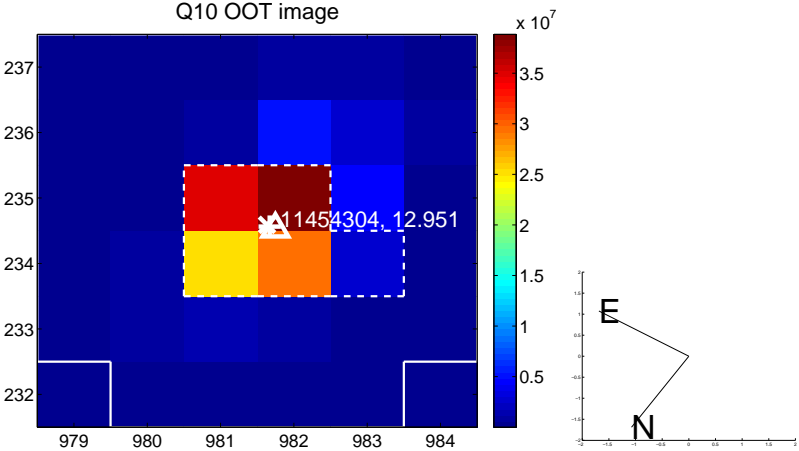
Q9 no OOT image



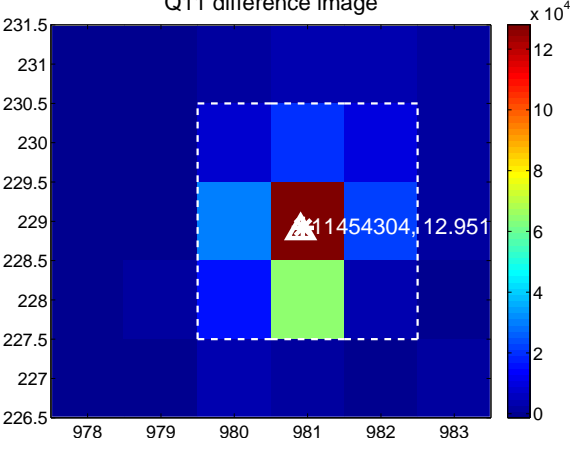
Q10 difference image



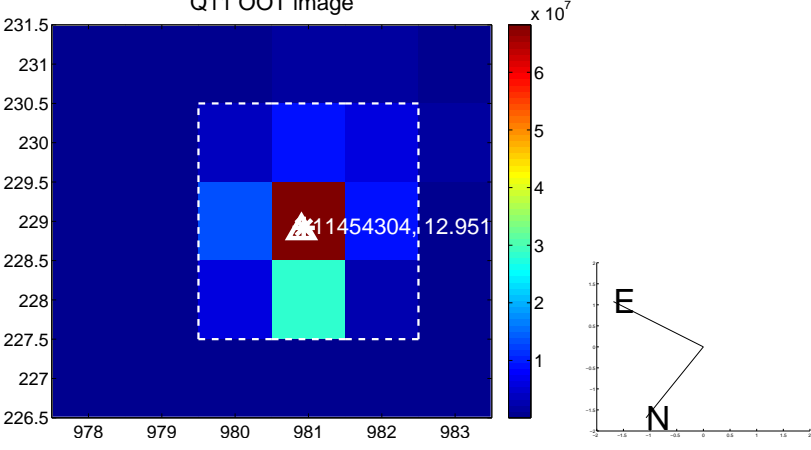
Q10 OOT image



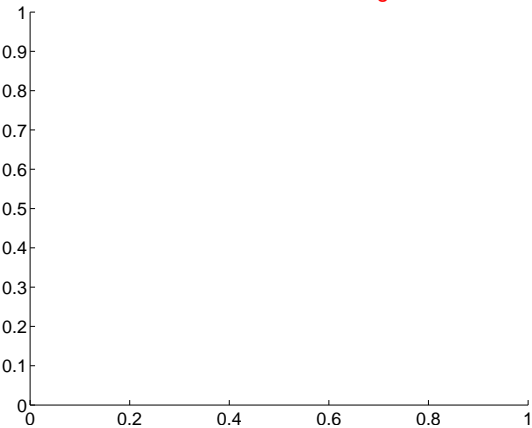
Q11 difference image



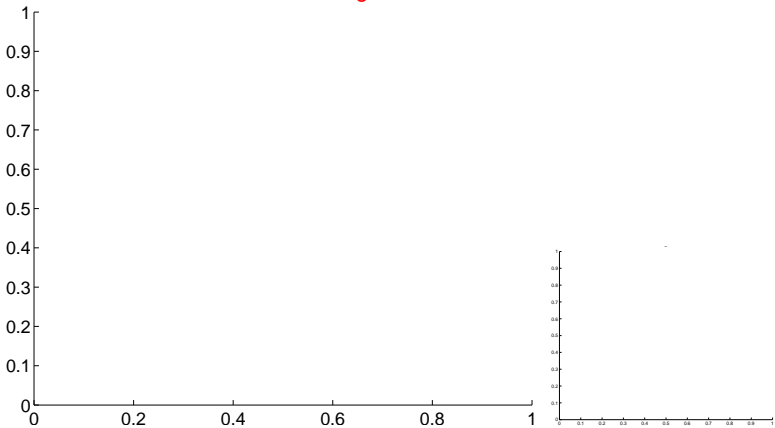
Q11 OOT image



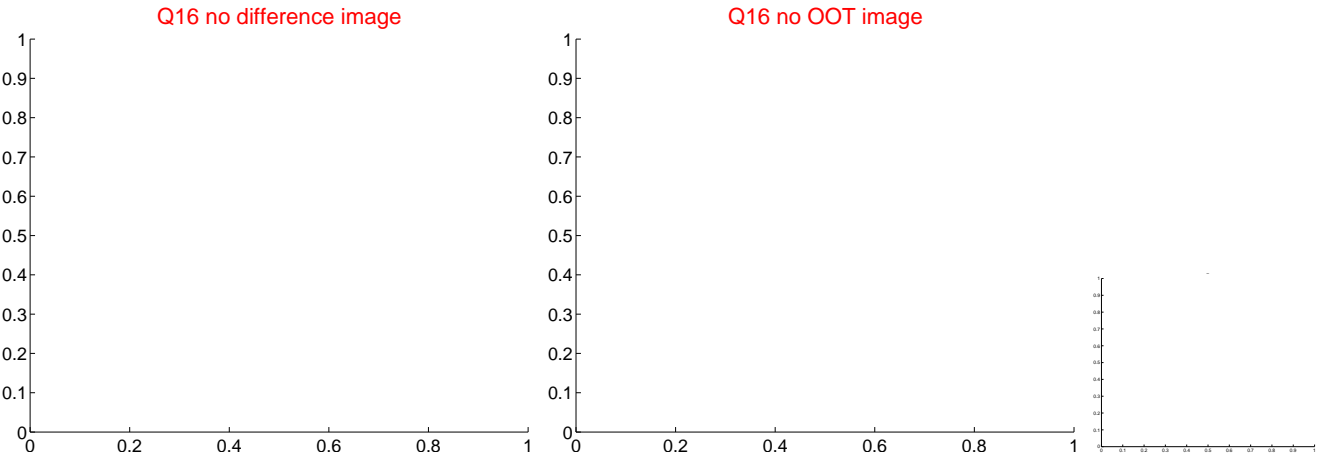
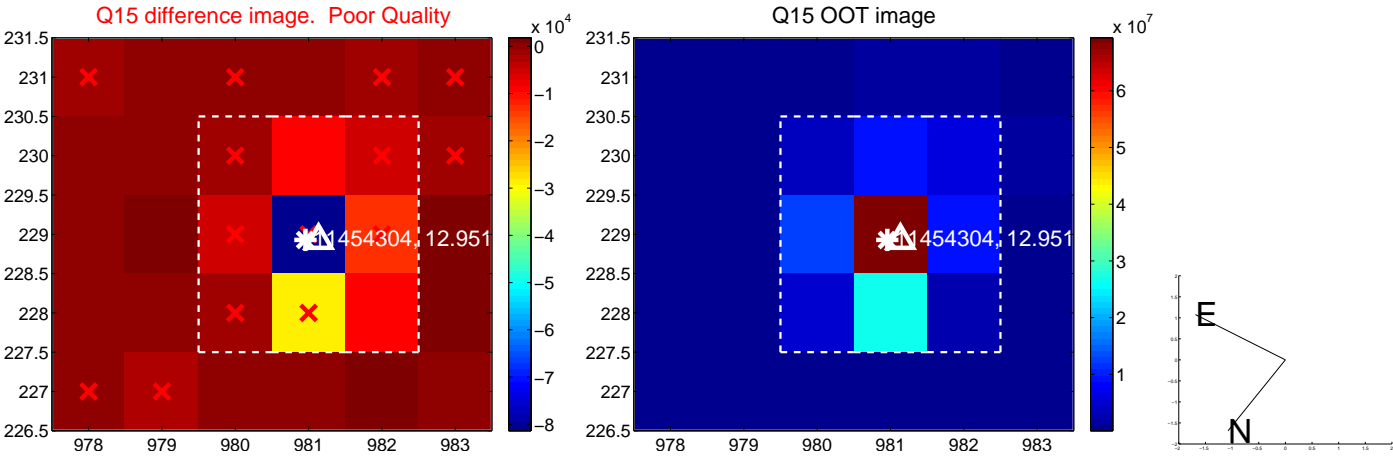
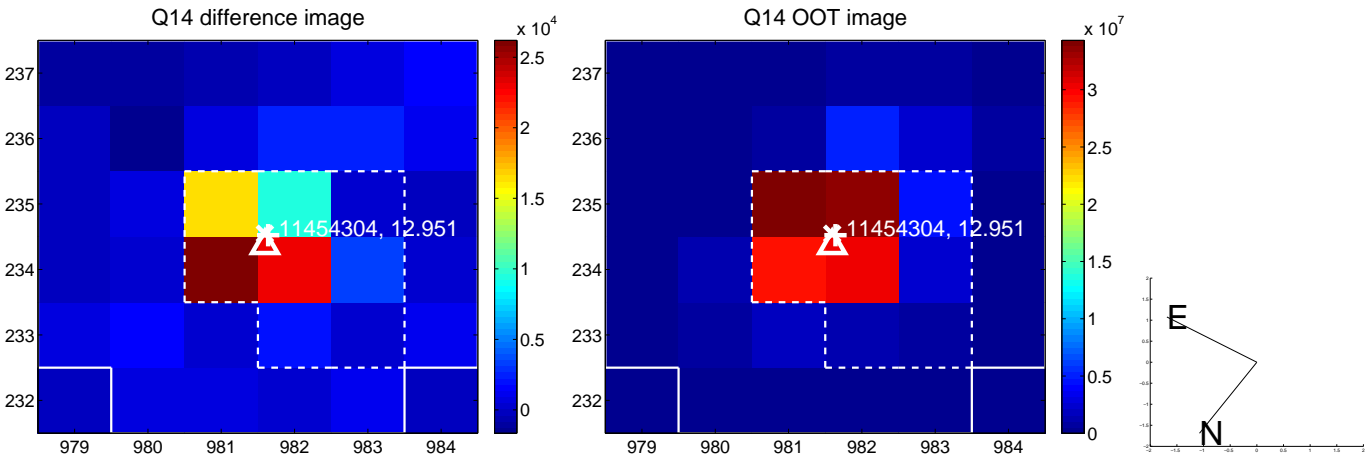
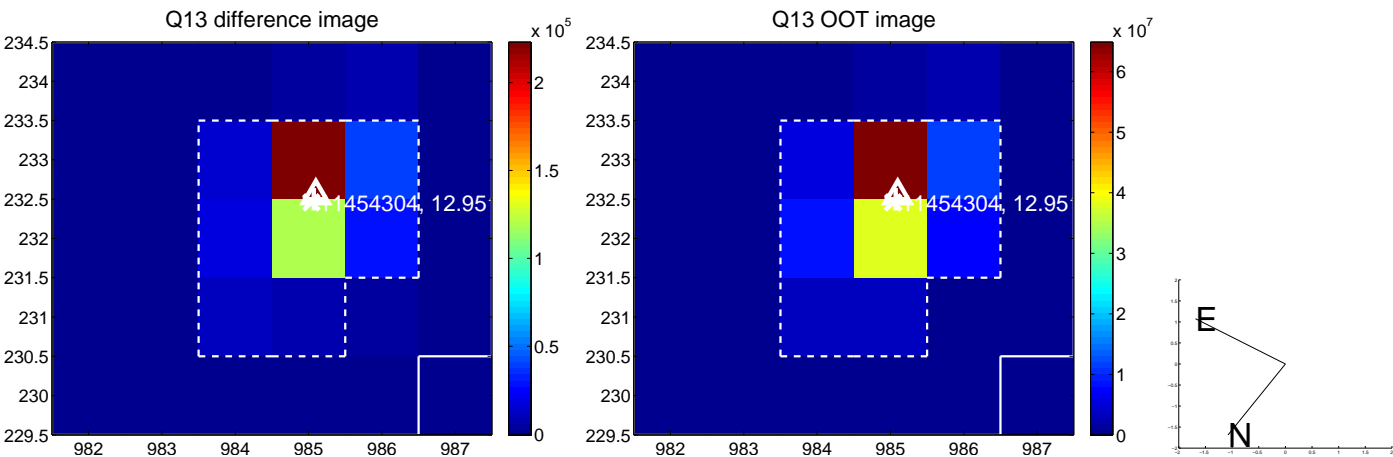
Q12 no difference image



Q12 no OOT image

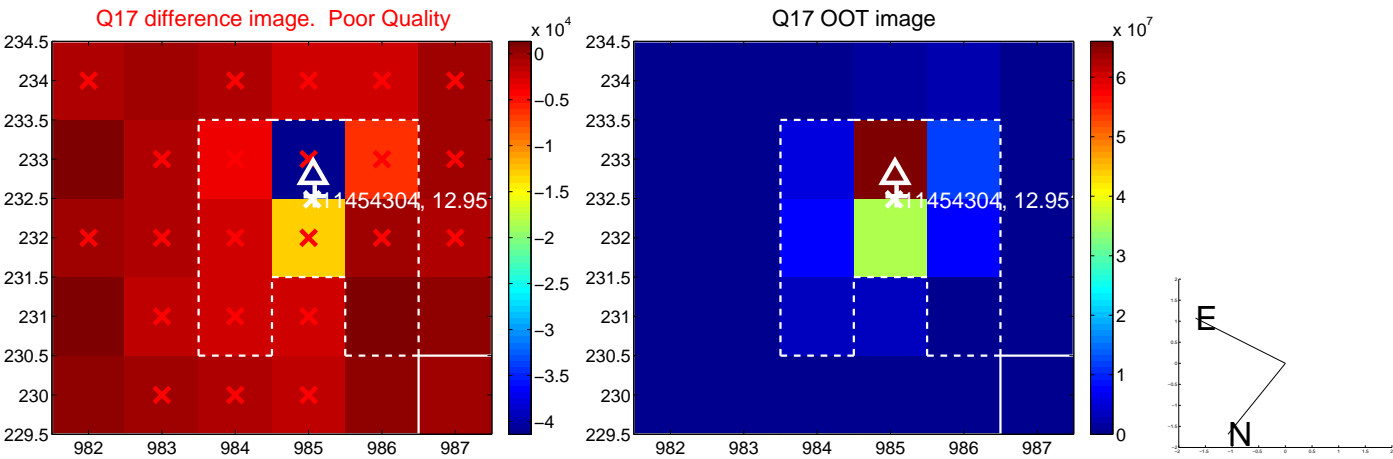


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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

