

# KIC 005295670

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005295670-01	OBS	No	3.772074	132.938433	8.3	5.852	8.1	5.3	1.43	6277	0.48	1221.65
005295670-02	OBS	No	679.014010	156.004021	118.0	7.500	10.3	-1.0	1.43	6277	1.56	1.20
005295670-03	OBS	No	3.772363	132.628937	0.0	17.599	7.9	0.0	1.43	6277	0.00	1221.53
005295670-04	OBS	No	422.559210	261.965652	161.1	15.000	21.5	-1.0	1.43	6277	1.82	2.26
005295670-05	OBS	No	139.005557	207.605394	62.3	28.693	9.0	4.5	1.43	6277	1.26	9.96
005295670-06	OBS	No	154.109364	154.042378	37.1	10.137	8.4	3.8	1.43	6277	0.96	8.68

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005295670-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005295670-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
005295670-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
005295670-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

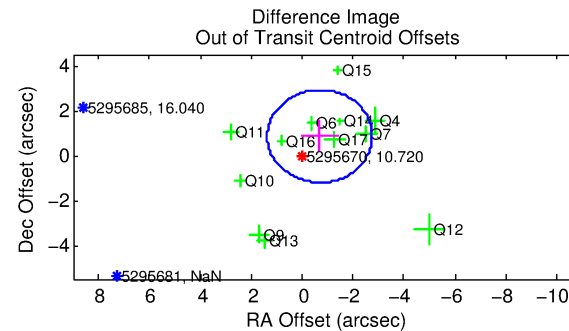
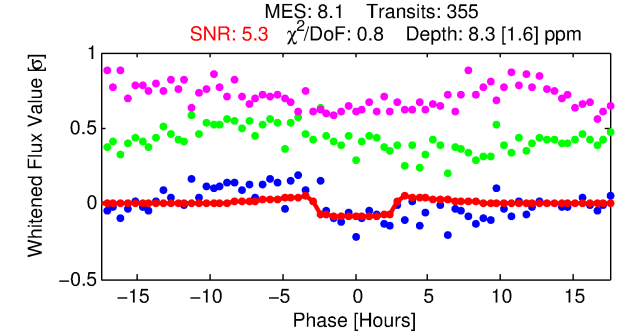
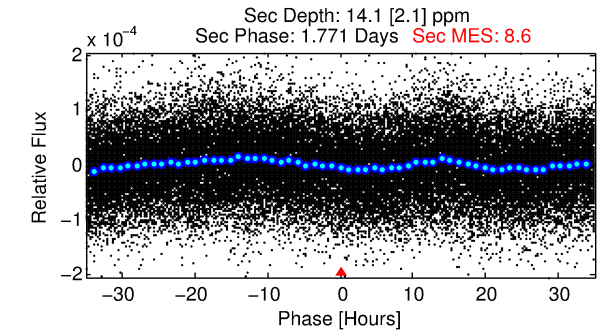
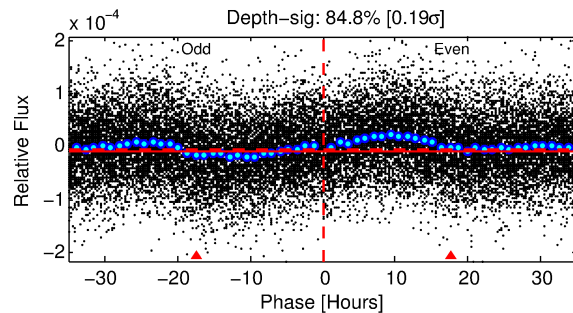
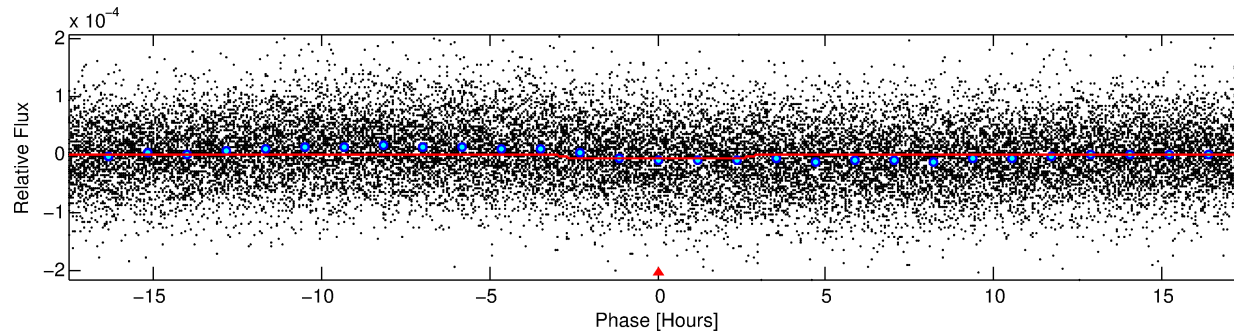
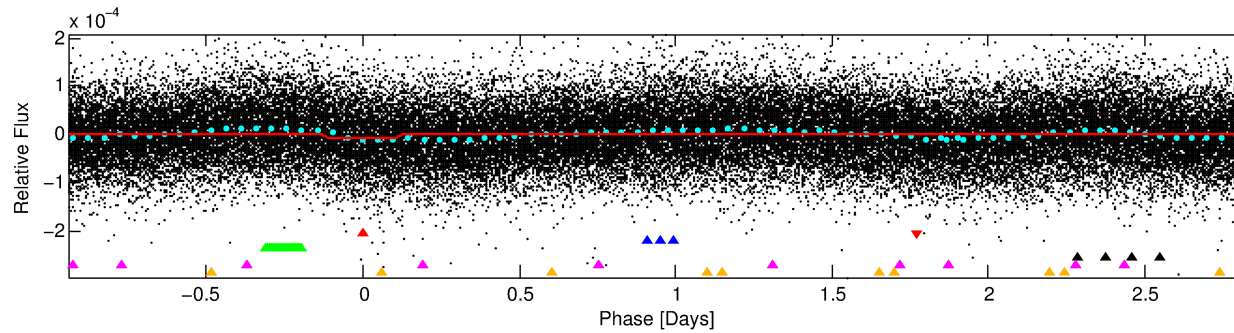
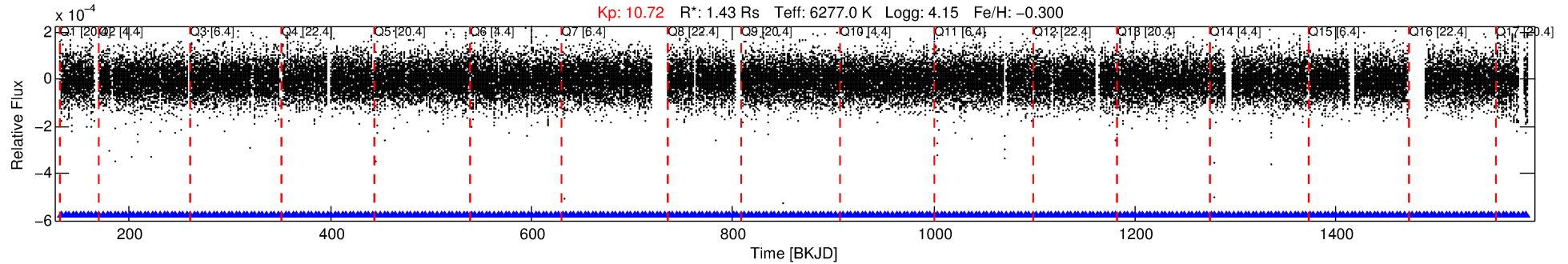
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005295670-01

No Significant Match Found

# DV One-Page Summary

KIC: 5295670 Candidate: 1 of 6 Period: 3.772 d



## DV Fit Results:

Period = 3.77207 [0.00005] d  
Epoch = 132.9384 [0.0082] BKJD  
Rp/R\* = 0.0031 [0.0009]  
a/R\* = 2.37 [3.01]  
b = 0.90 [0.33]  
Seff = 1221.65 [396.92]  
Teq = 1508 [122] K  
Rp = 0.48 [0.17] Re  
a = 0.0482 [0.0097] AU  
Ag = 77.94 [52.89] [1.45 $\sigma$ ]  
Teff = 6925 [1039] K [5.18 $\sigma$ ]

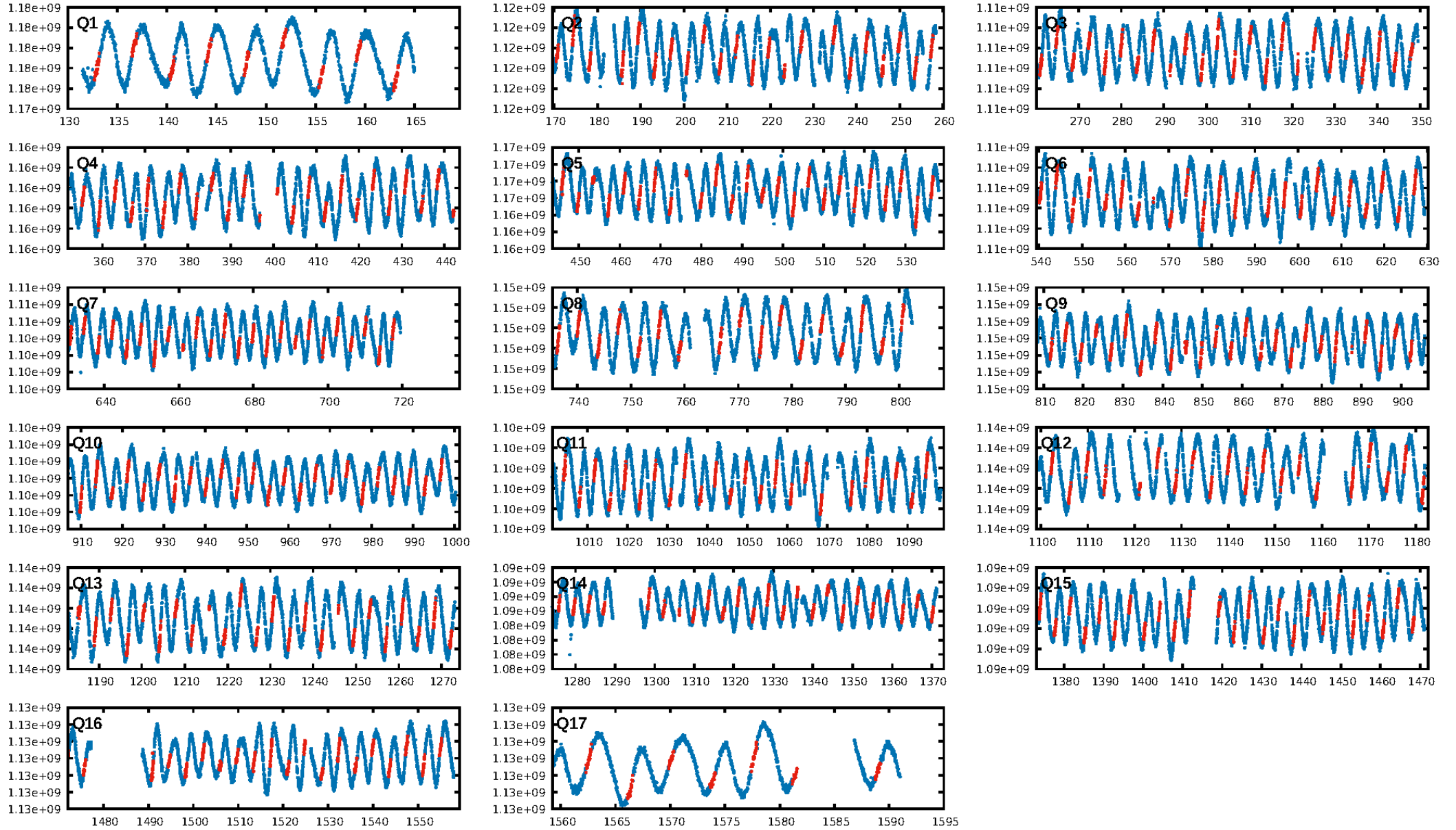
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.56e-09  
RollingBand-fgt: 1.00 [339/339]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 0.1%  
Centroid-so: 4.252 arcsec [1.99 $\sigma$ ]  
OotOffset-rm: 1.096 arcsec [1.59 $\sigma$ ]  
KicOffset-rm: 0.913 arcsec [1.31 $\sigma$ ]  
OotOffset-st: 3/3/3/3 [12]  
KicOffset-st: 3/3/3/3 [12]  
DiffImageQuality-fgm: 0.67 [8/12]  
DiffImageOverlap-fno: 0.00 [0/17]

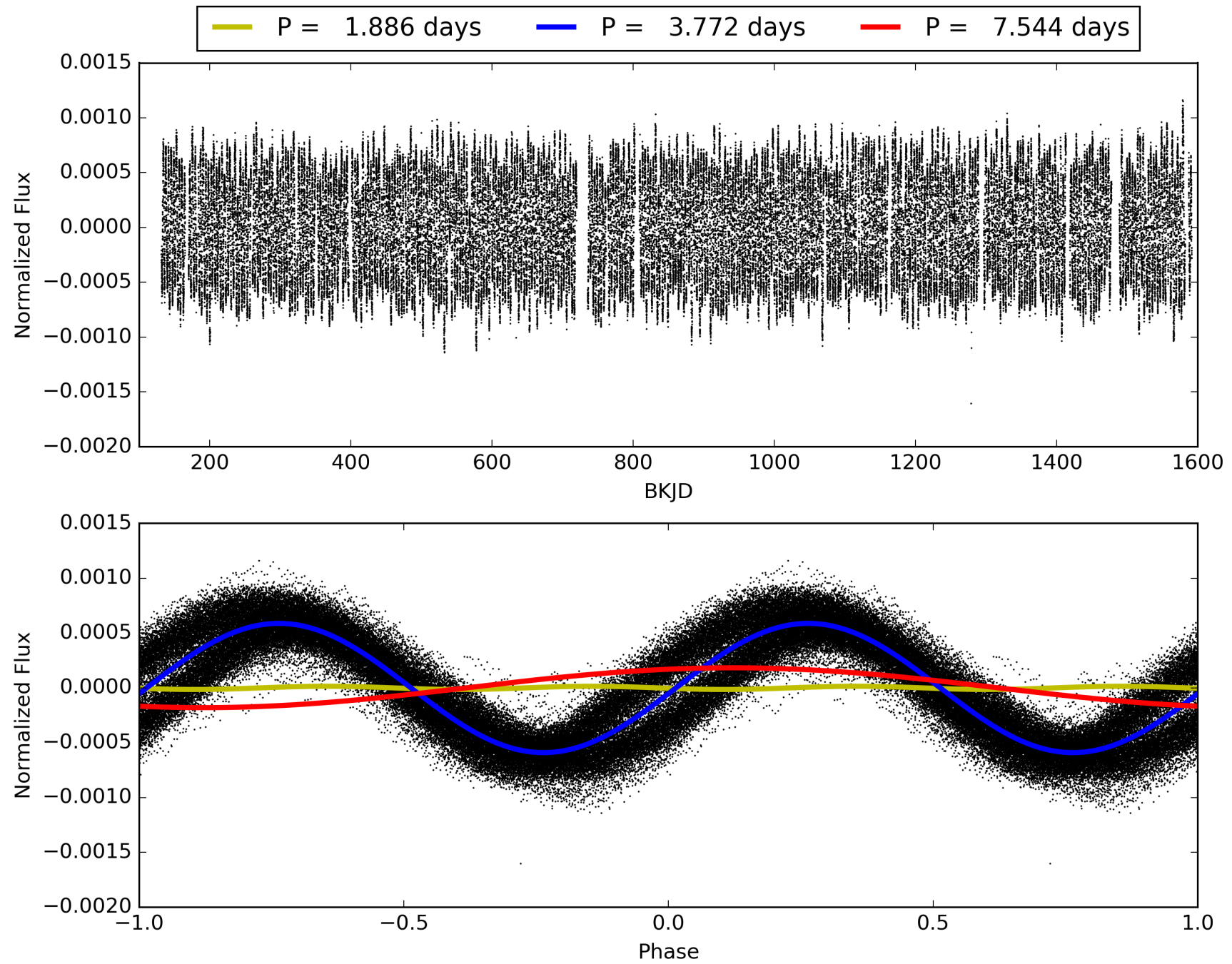
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:36:29 Z

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

# TCE 005295670-01, PDC Light Curves



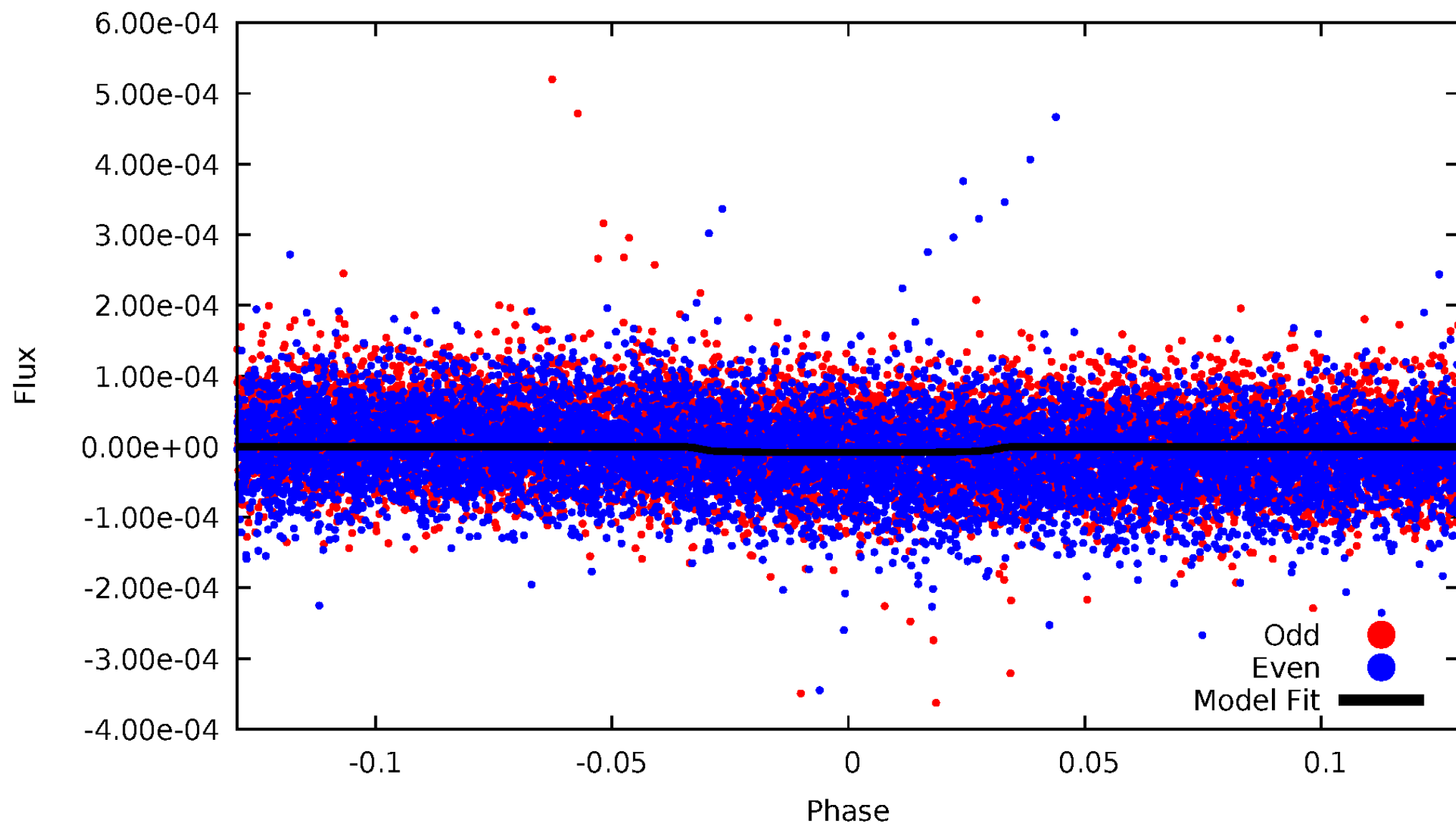
TCE 005295670-01





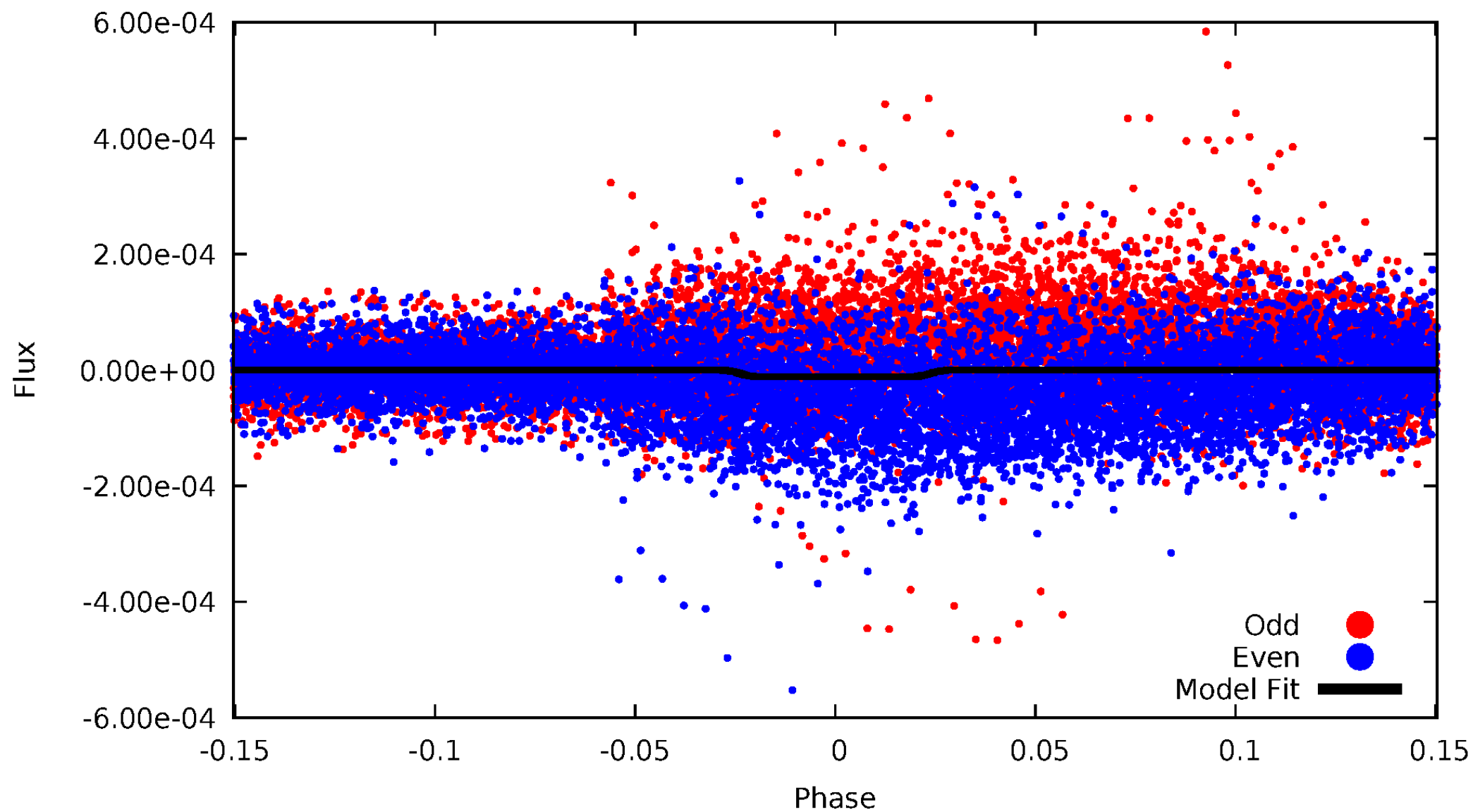
# DV Odd/Even

TCE 005295670-01



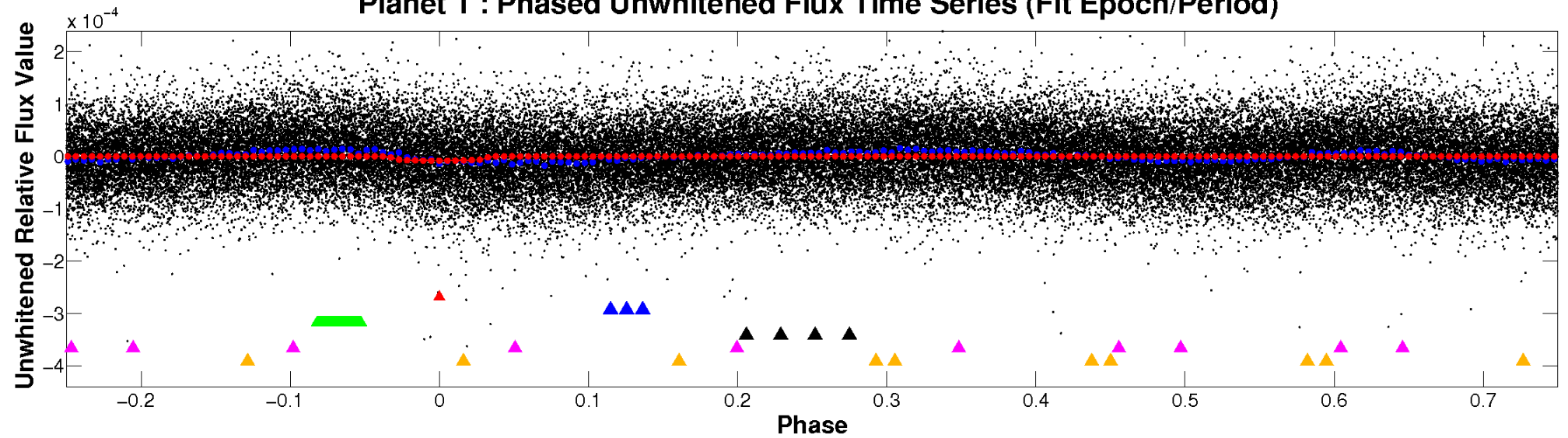
# ALT Odd/Even

TCE 005295670-01

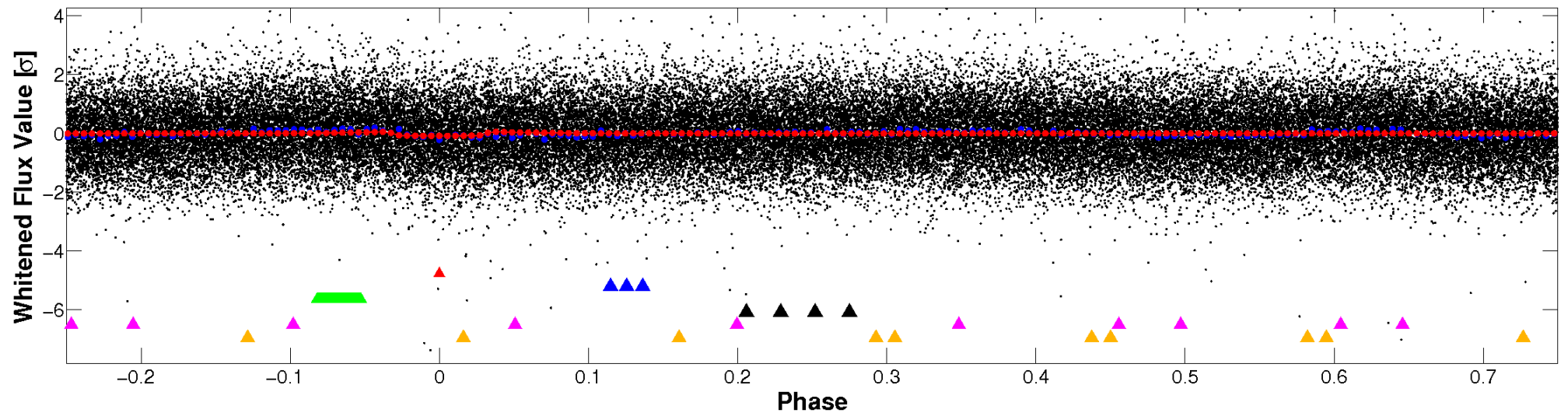


# Non-Whitened Vs. Whitened Light Curve

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

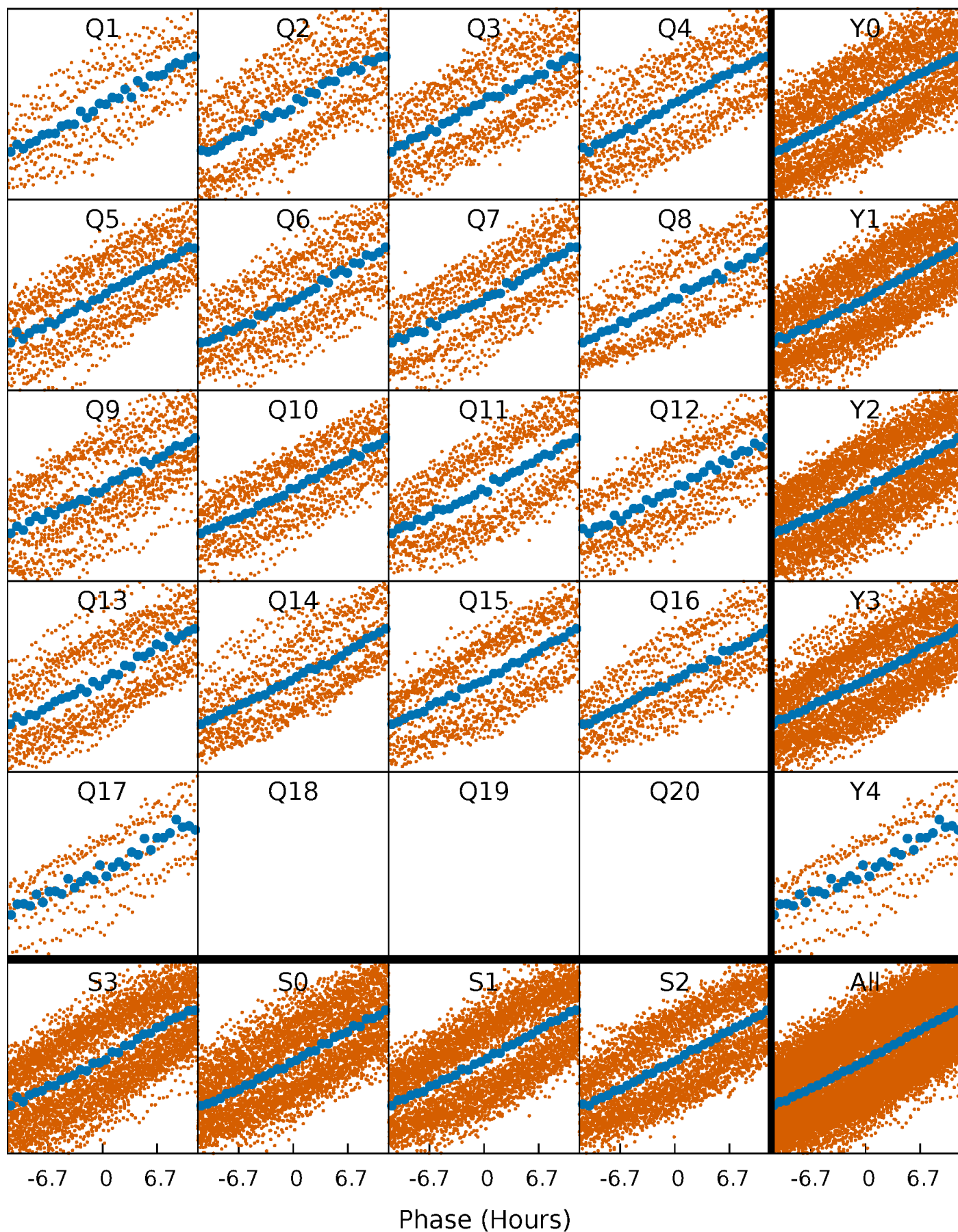


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

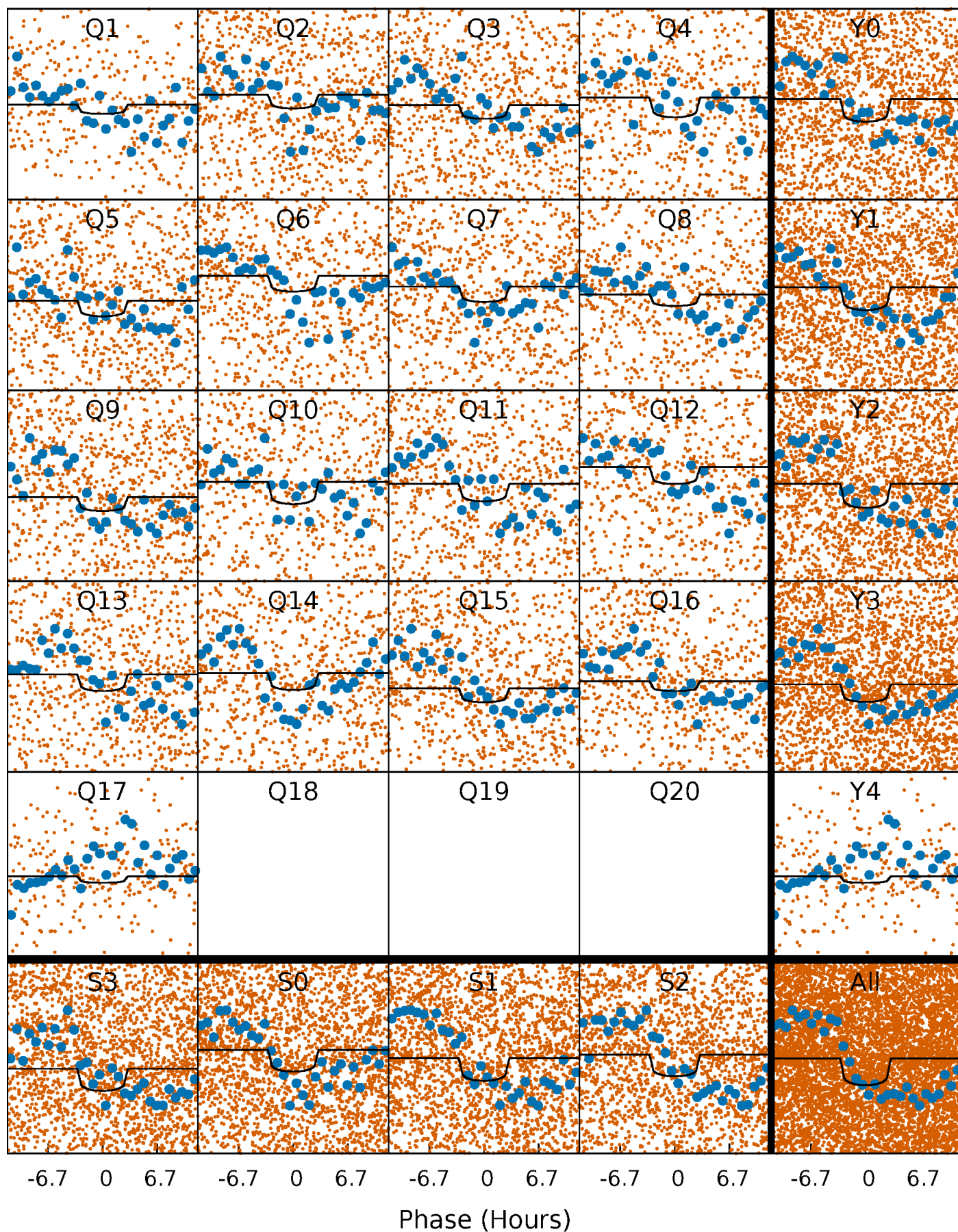
TCE 005295670-01 P= 3.772074 Days  $T_0=132.938433$  (BKJD)





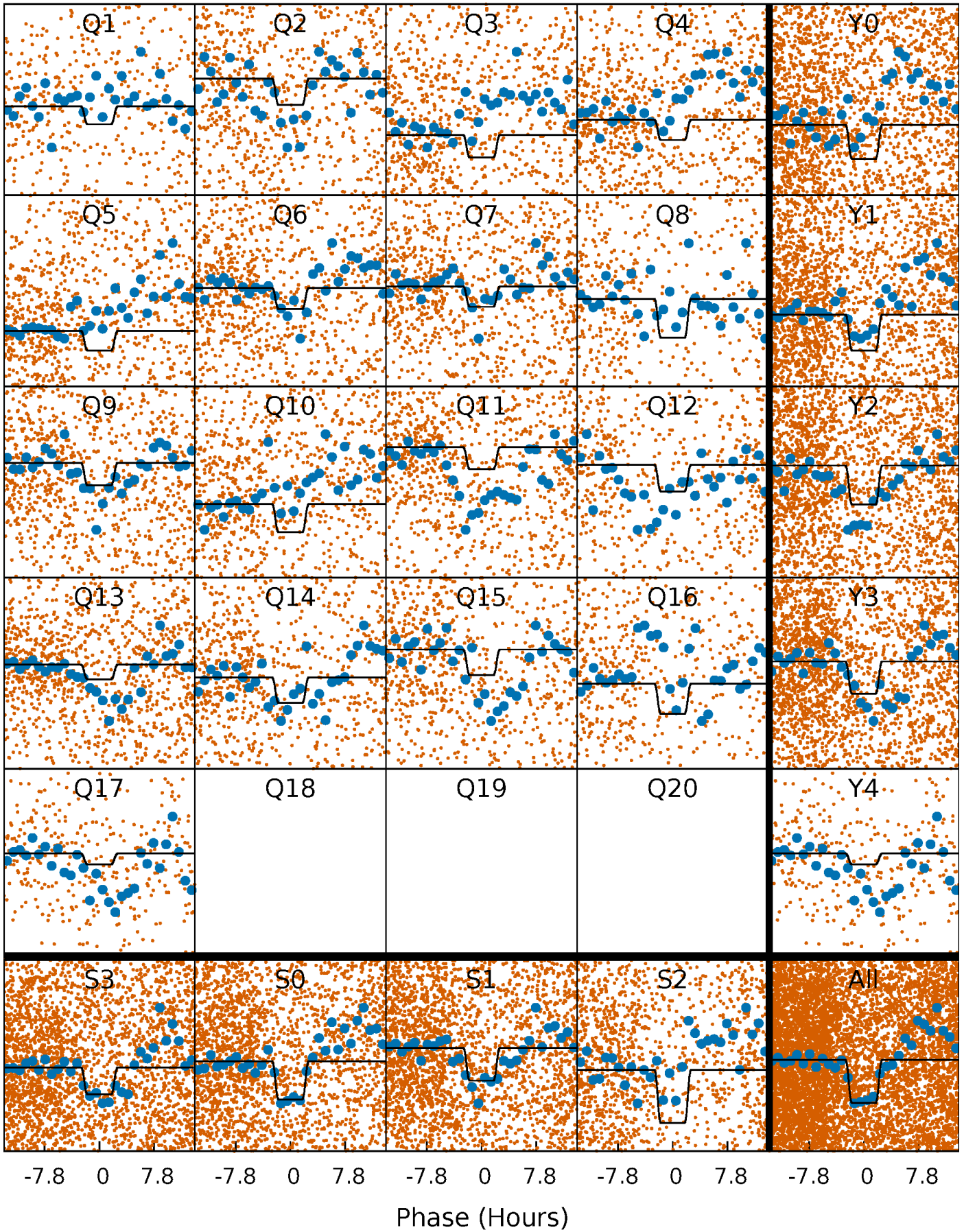
# DV Quarter-Phased Transit Curves

TCE 005295670-01 P= 3.772074 Days  $T_0=132.938433$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

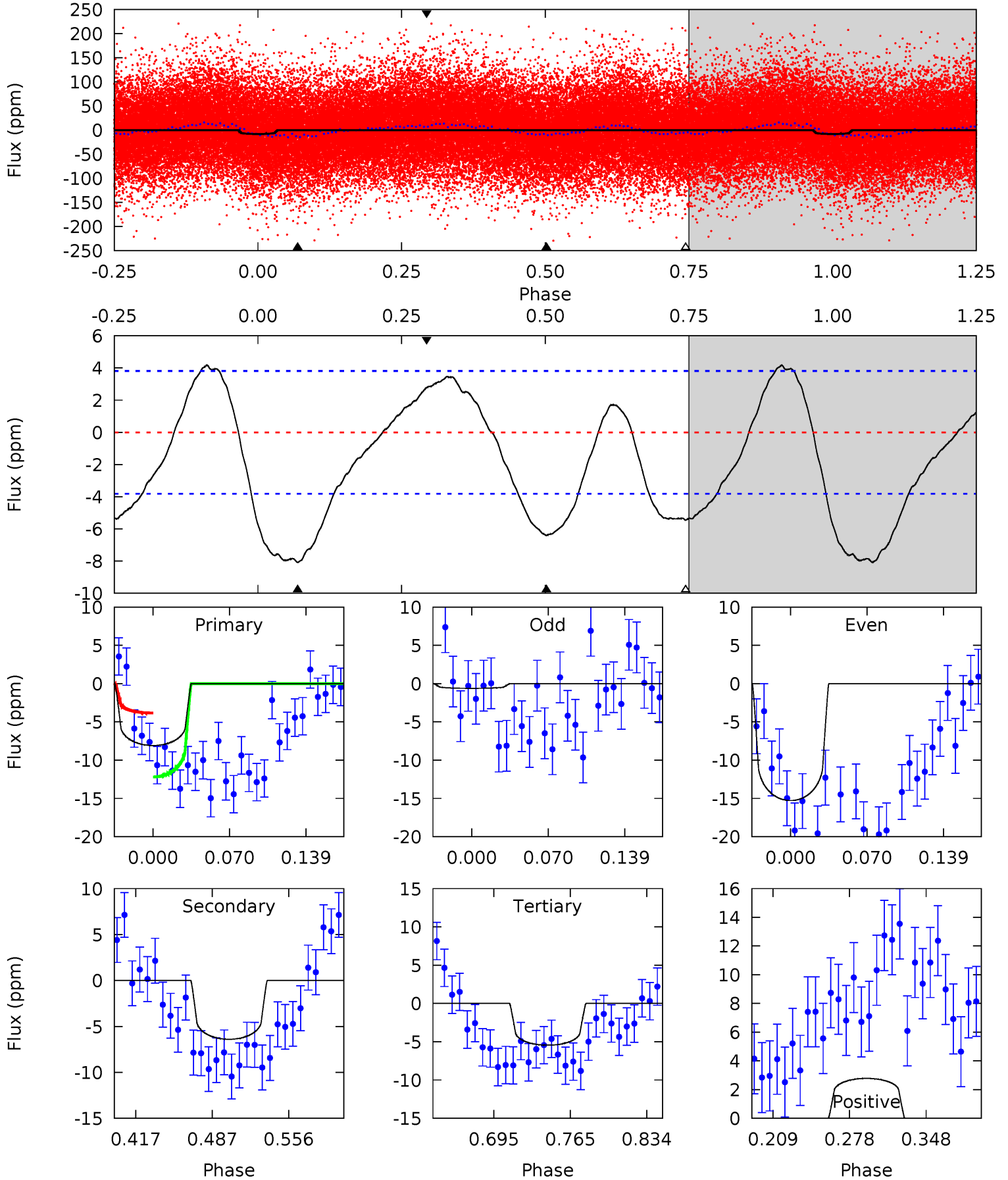
TCE 005295670-01 P= 3.771970 Days  $T_0=132.933476$  (BKJD)



# DV Model-Shift Uniqueness Test

005295670-01, P = 3.772074 Days, E = 129.166359 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
9.83	7.78	6.63	3.38	4.64	1.81	3.51	3.20	6.45	1.15	4.40	8.93	1.31	0.34	5.10

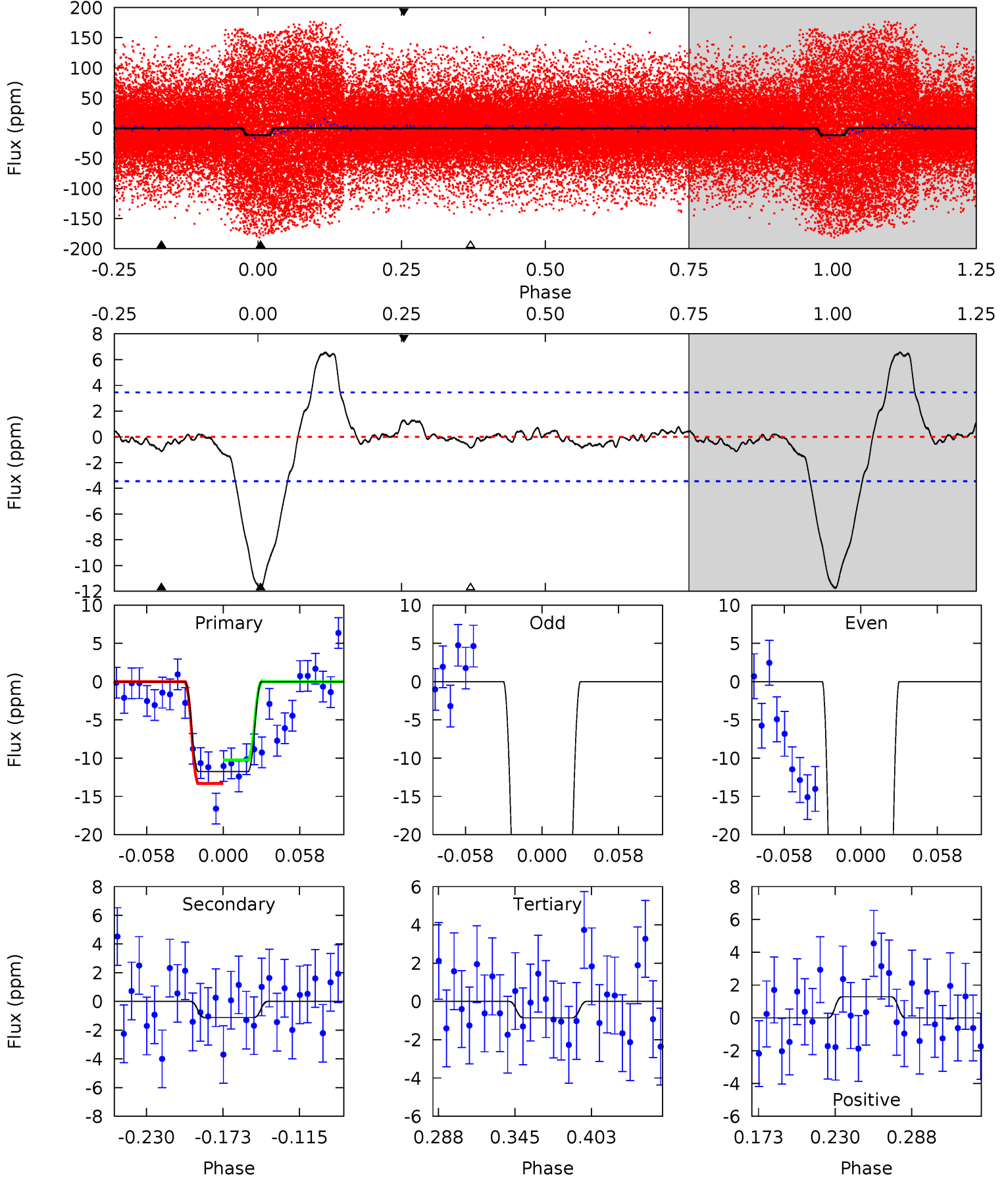




# Alt Model-Shift Uniqueness Test

005295670-01, P = 3.771970 Days, E = 129.161506 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	1.52	1.16	1.74	4.68	1.90	2.12	14.8	14.2	0.37	-0.22	16.2	0.79	0.36	2.07





### Stellar Parameters For KIC 005295670

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6277^{+81}_{-81}$	$4.149^{+0.188}_{-0.101}$	$-0.300^{+0.150}_{-0.150}$	$1.428^{+0.245}_{-0.300}$	$1.049^{+0.099}_{-0.076}$	$0.507^{+0.446}_{-0.176}$
	+1%/-1%	+5%/-2%	+50%/-50%	+17%/-21%	+9%/-7%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005295670-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-6 \pm 1$	$0.47^{+0.14}_{-0.14}$	$2097^{+92}_{-134}$	$5673^{+1072}_{-624}$	$38^{+38}_{-16}$
Alt.	$-1 \pm 1$	$0.51^{+0.15}_{-0.14}$	$2092^{+97}_{-114}$	$3812^{+638}_{-697}$	$5.064^{+6.978}_{-3.444}$

$T_{max}$  = 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

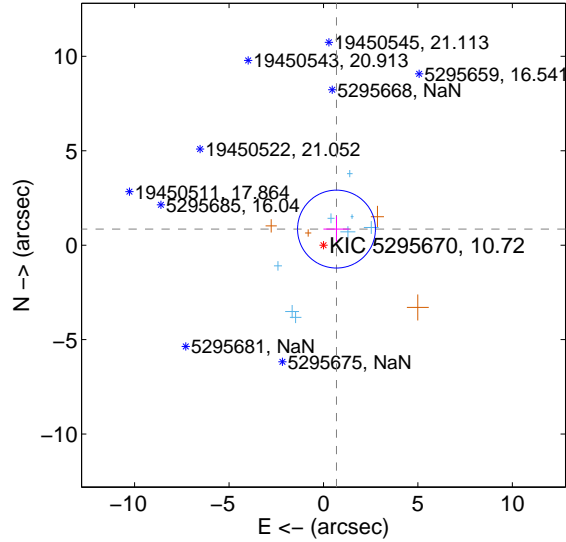
Supplemental centroid analysis for 005295670-01. **Kepler magnitude: 10.72**. Transit SNR 5.32

There are 8 quarters with good PRF difference image offsets

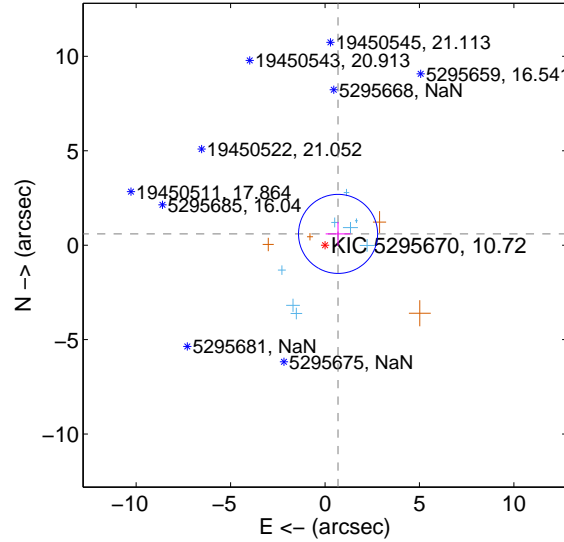
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.096 \pm 0.687$	1.59	$-0.690 \pm 0.690$	$0.852 \pm 0.675$
PRF-fit source offset from KIC position	$0.913 \pm 0.698$	1.31	$-0.691 \pm 0.657$	$0.597 \pm 0.630$
photometric centroid source offset	$4.25 \pm 2.14$	1.99	$-0.11 \pm 1.93$	$-4.25 \pm 2.14$

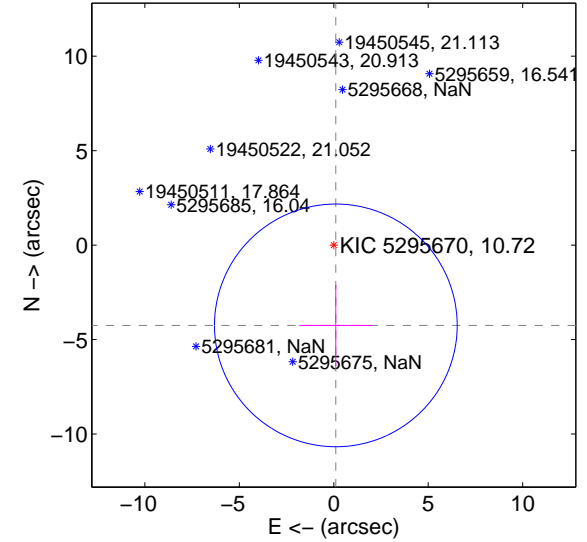
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

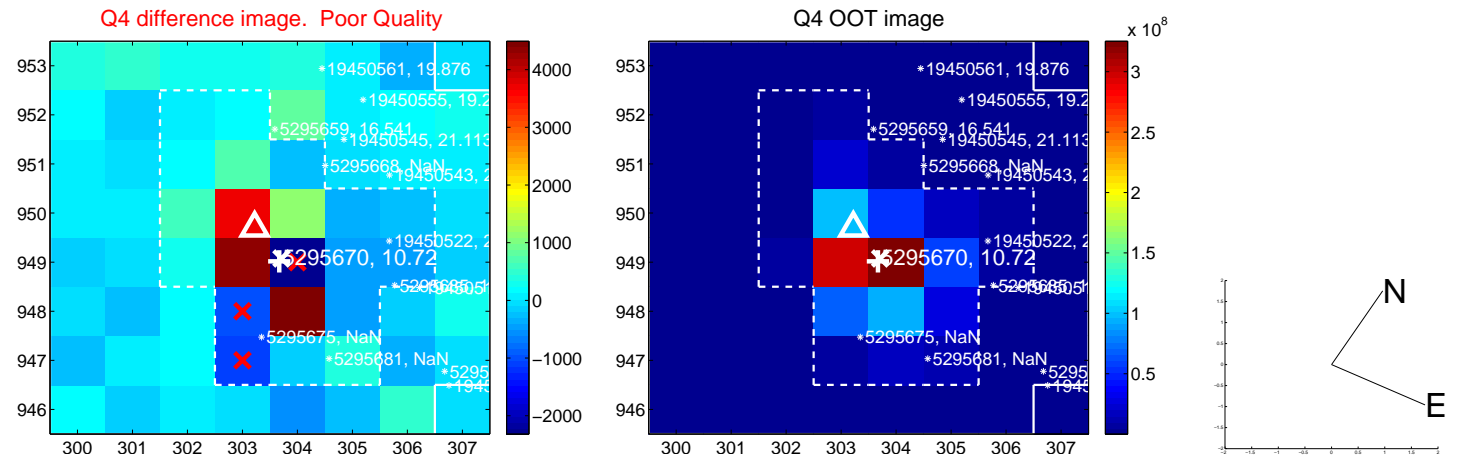
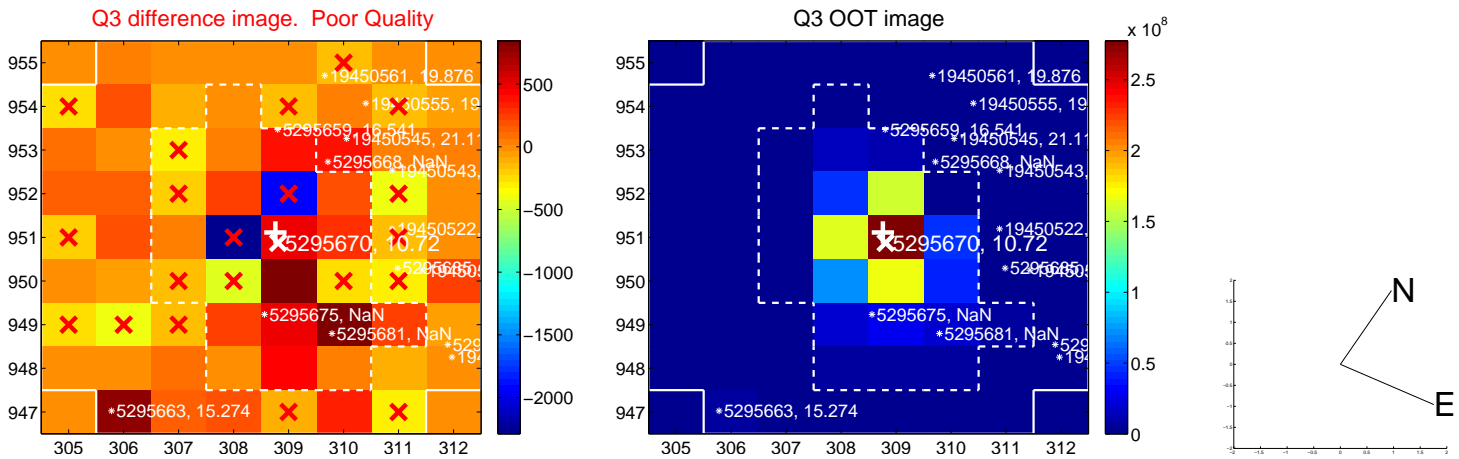
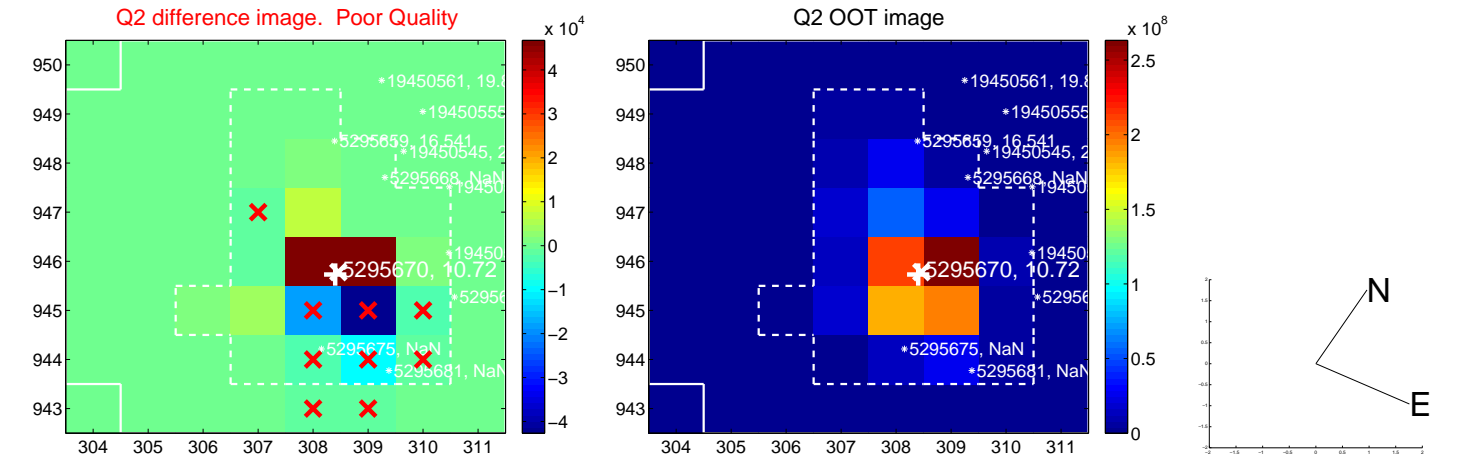
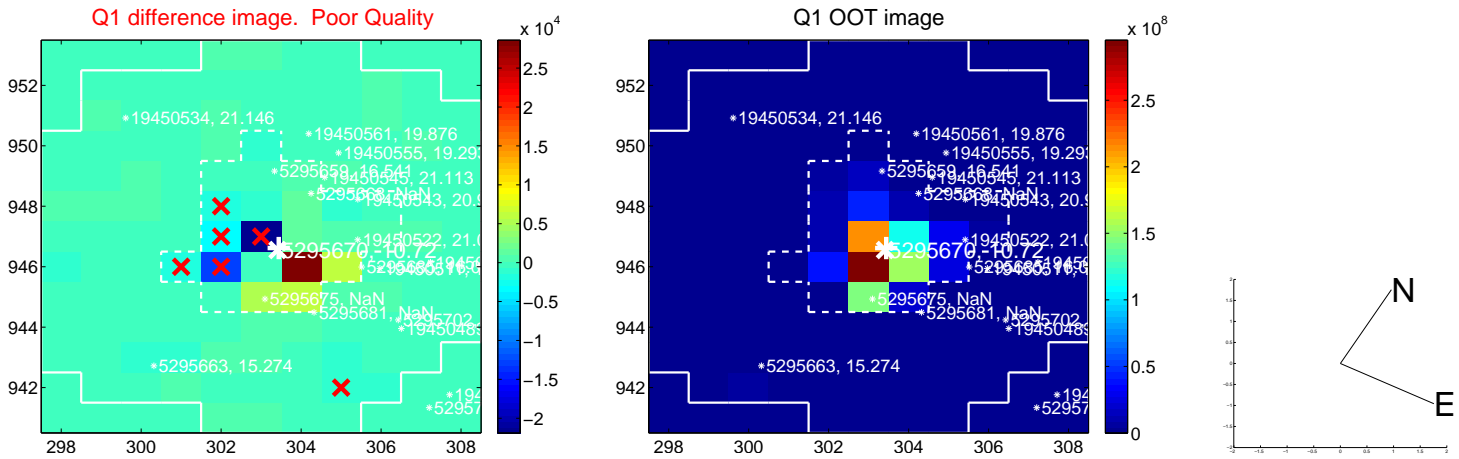


offset from photometric centroids

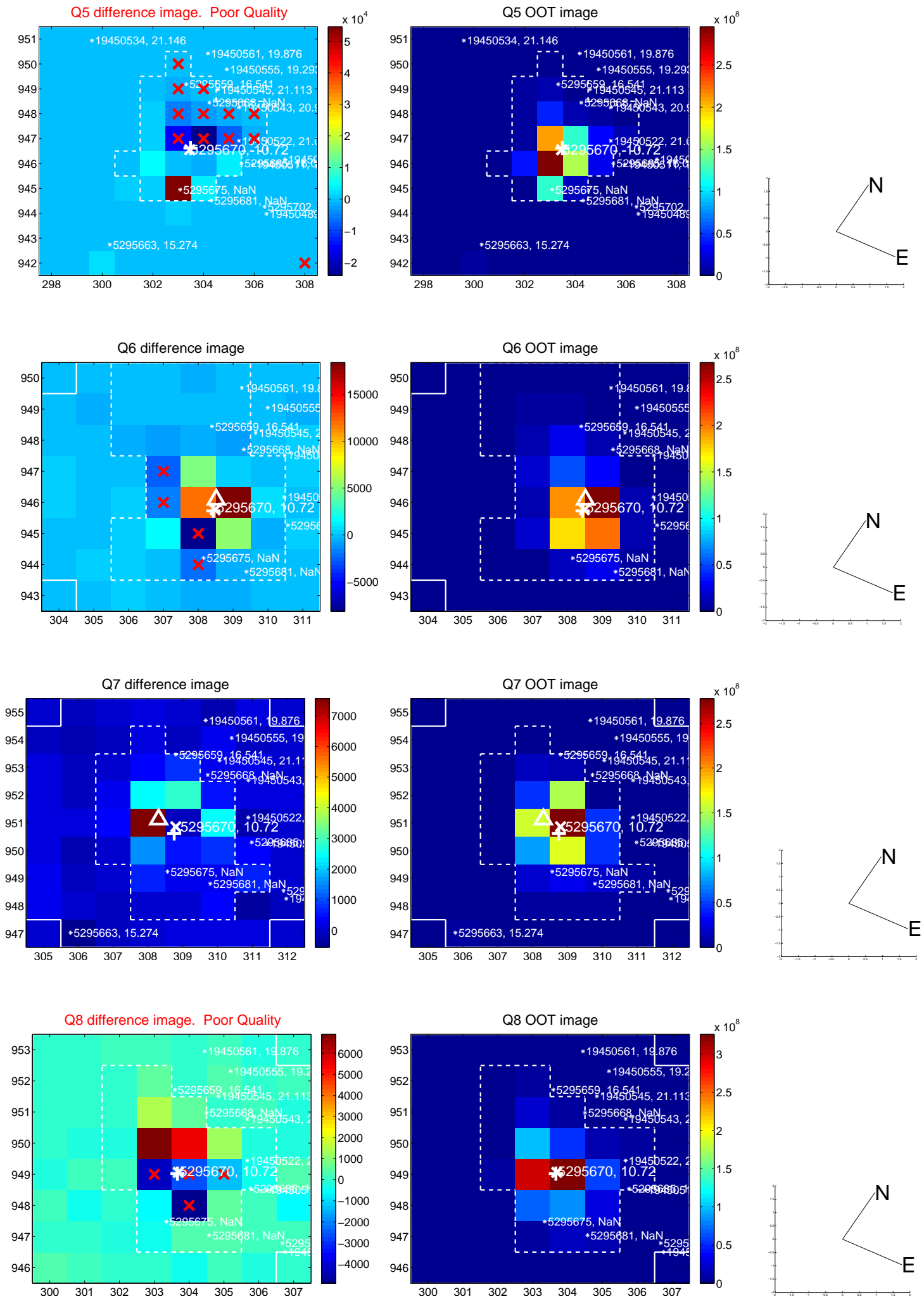


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

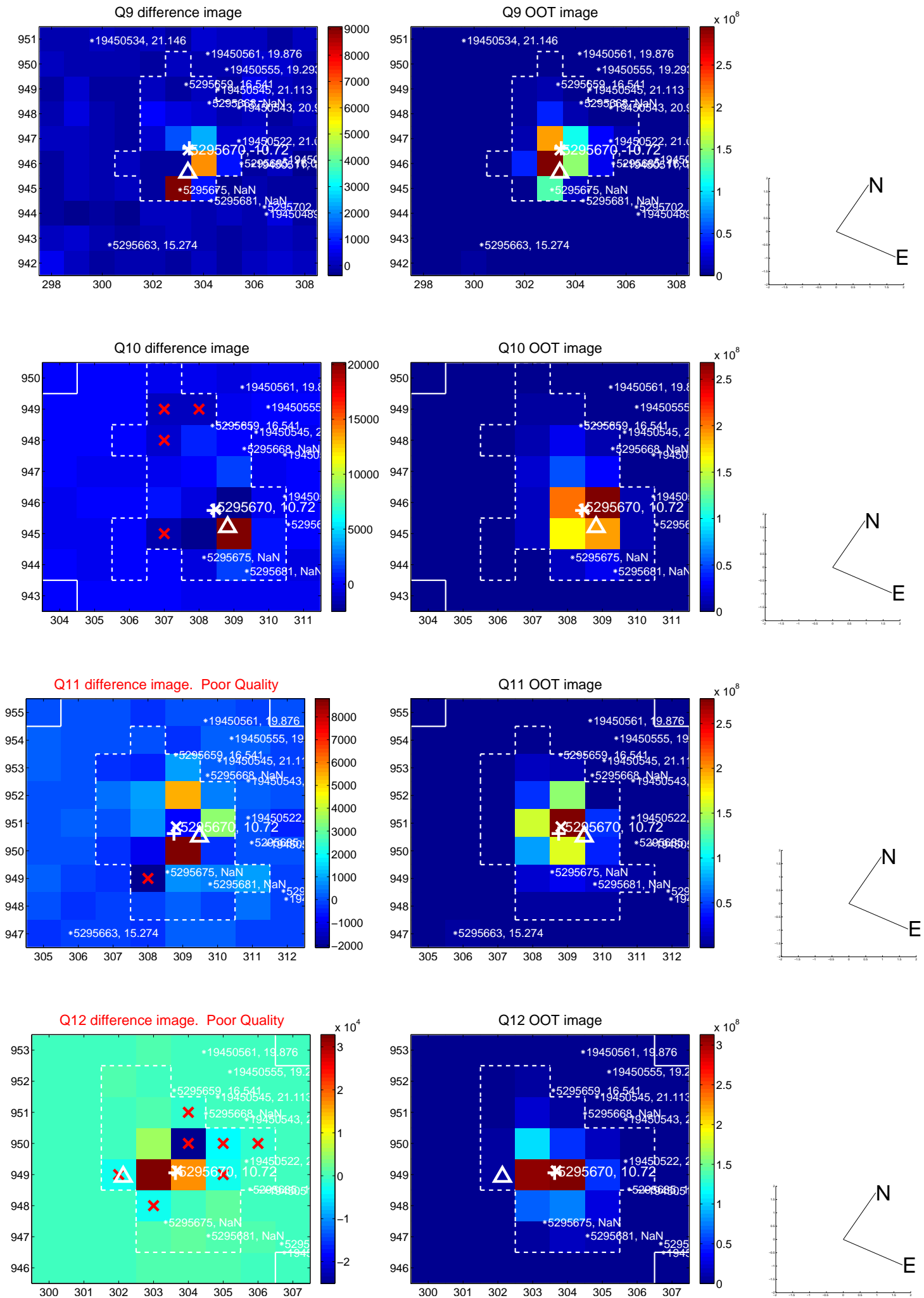


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

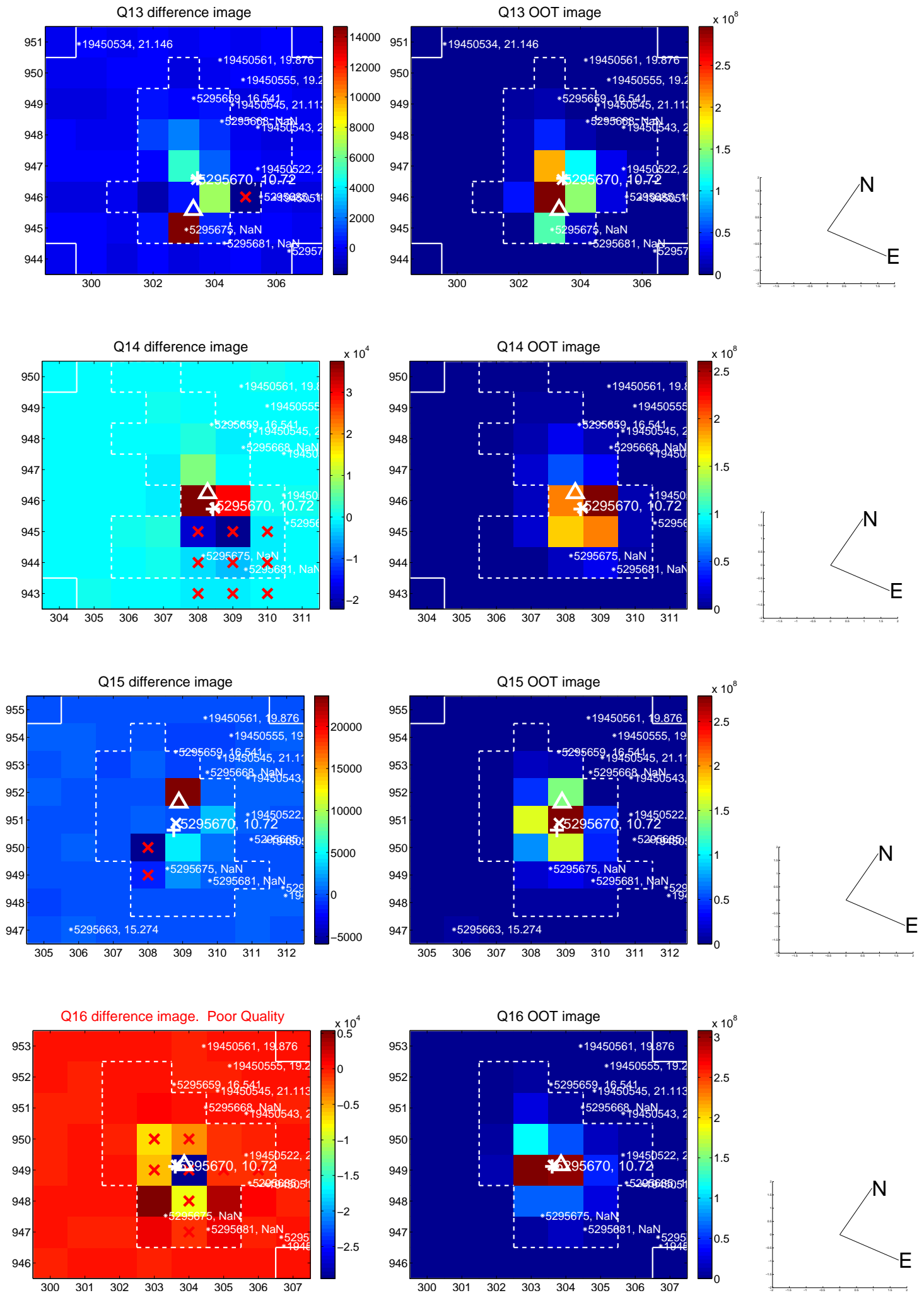




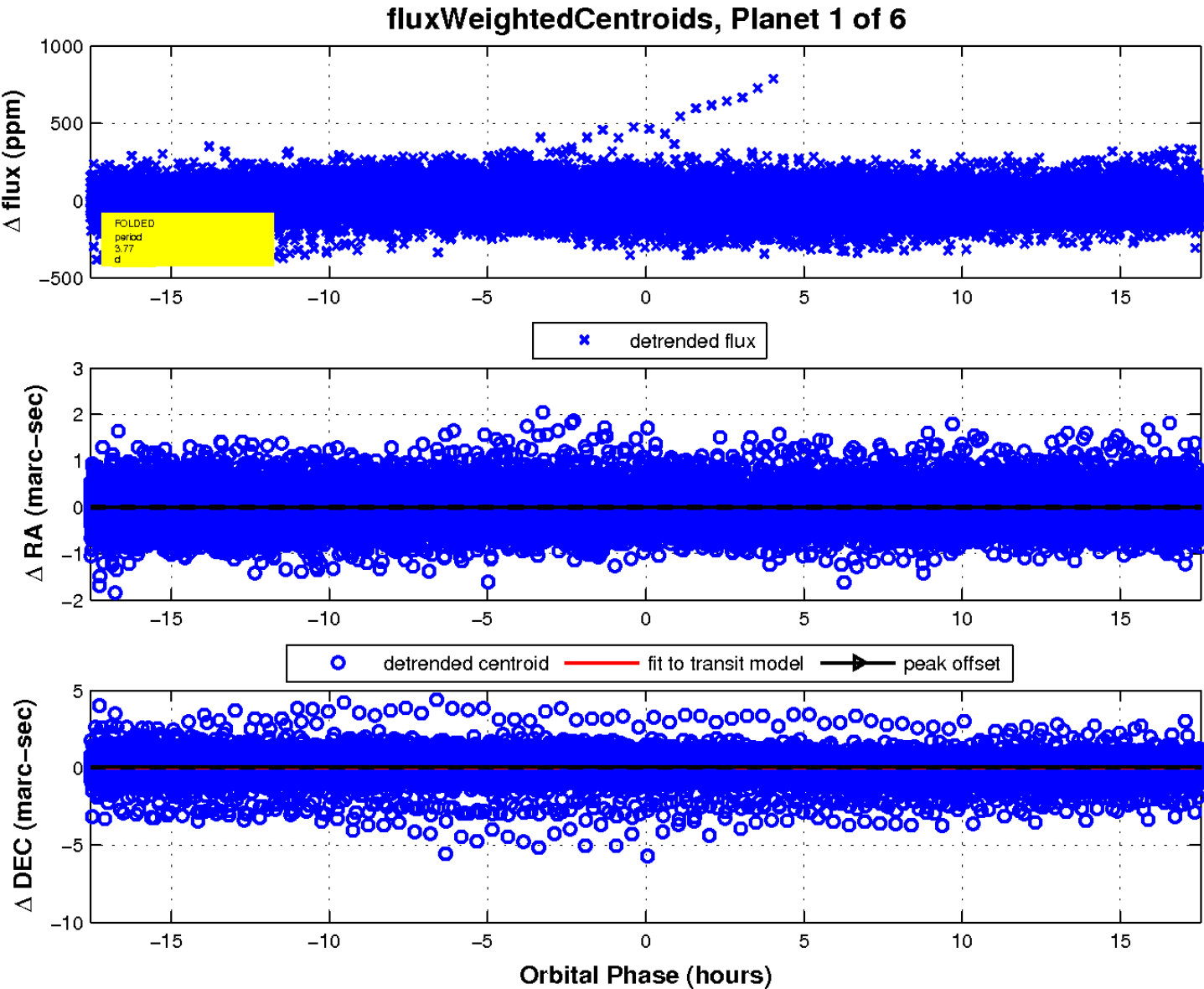
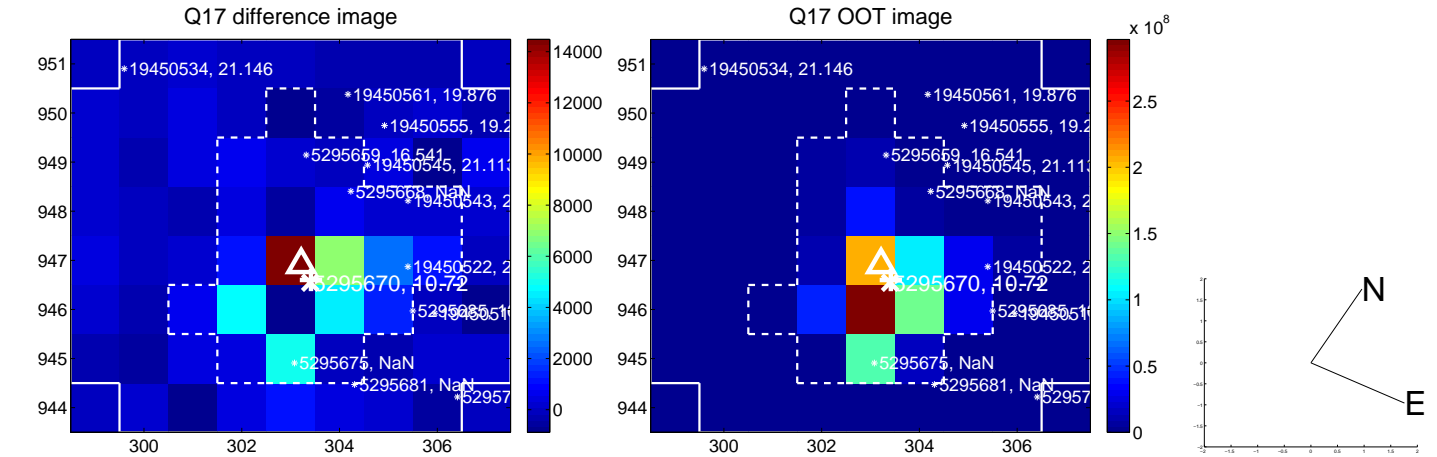
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

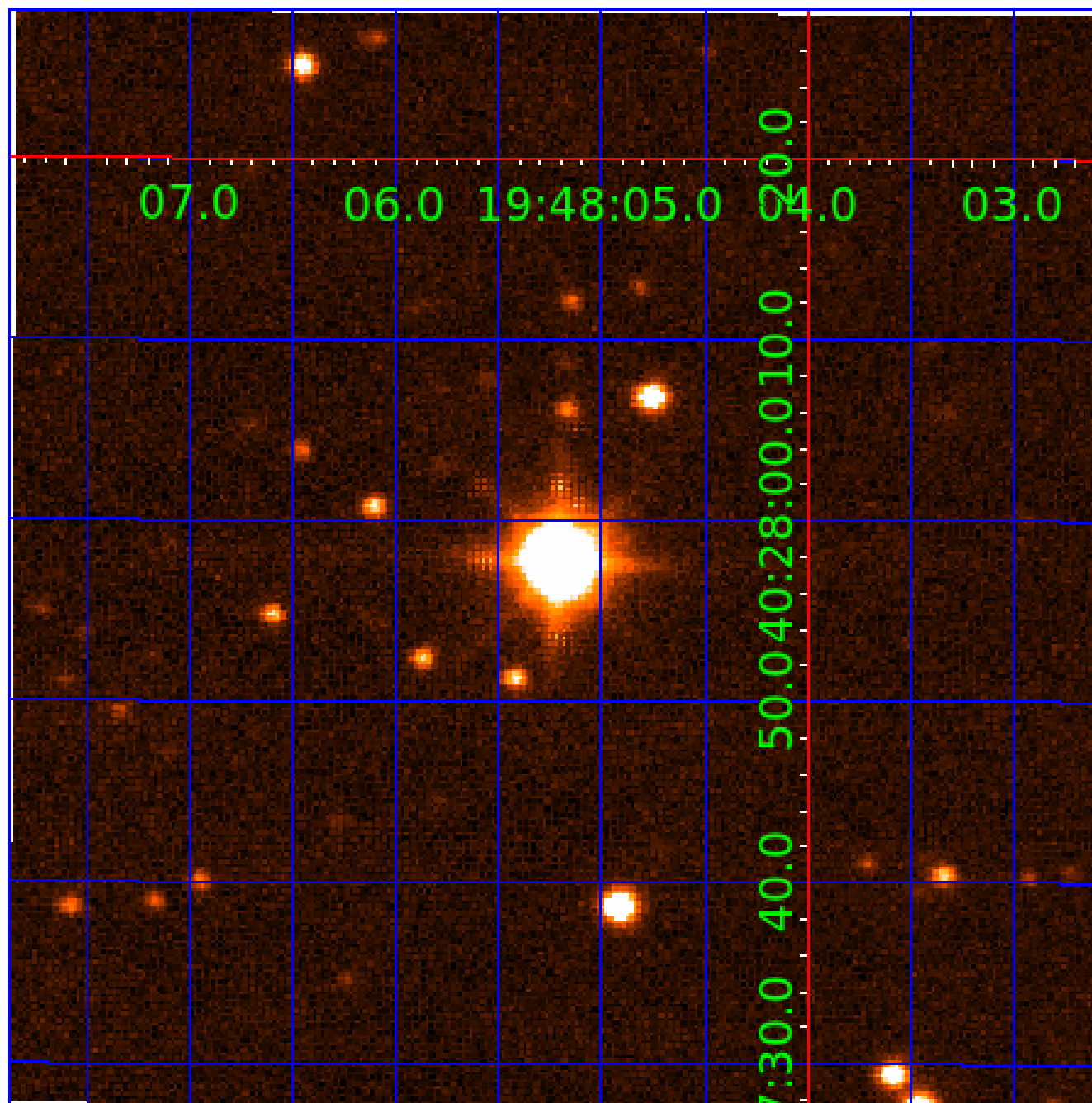


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005295670

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

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005295670-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005295670-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
005295670-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
005295670-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

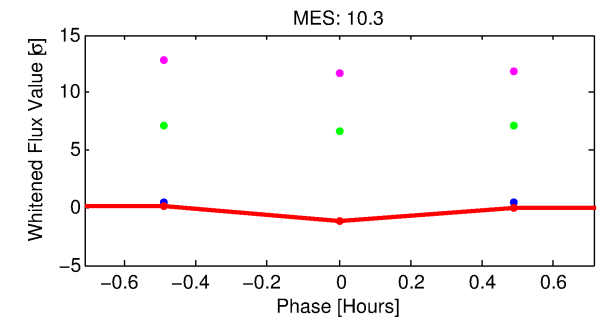
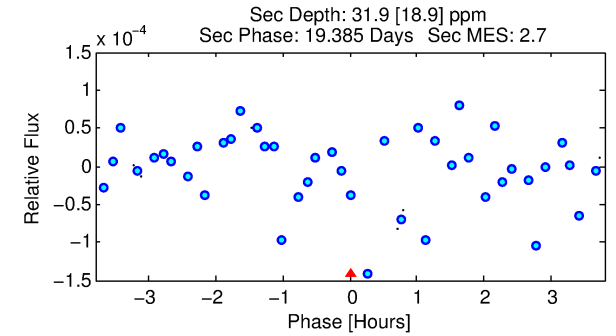
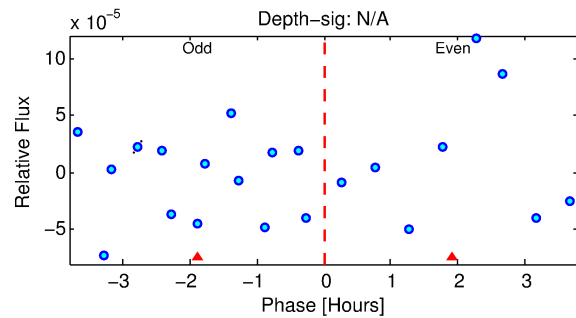
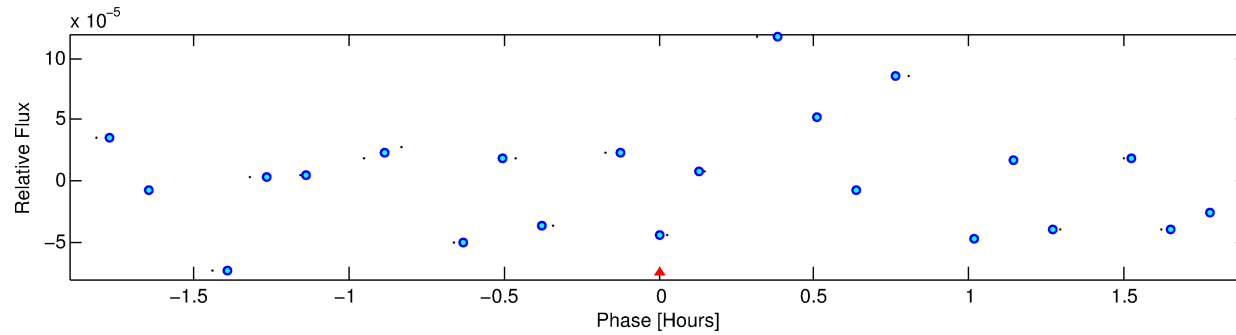
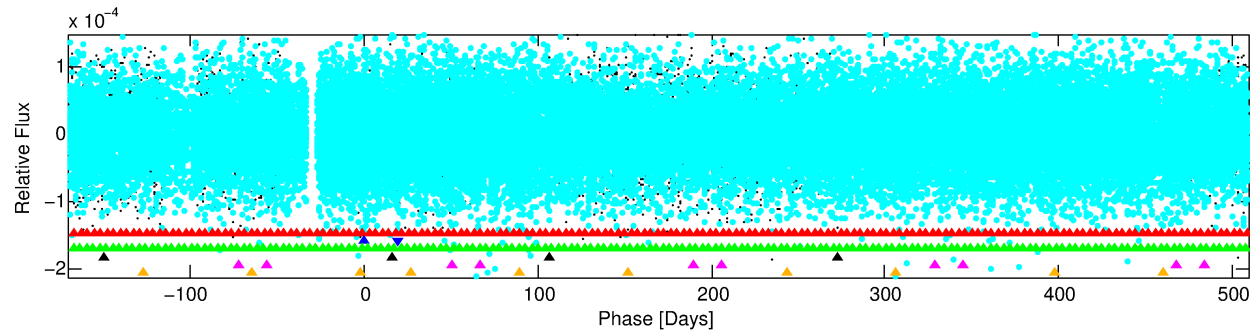
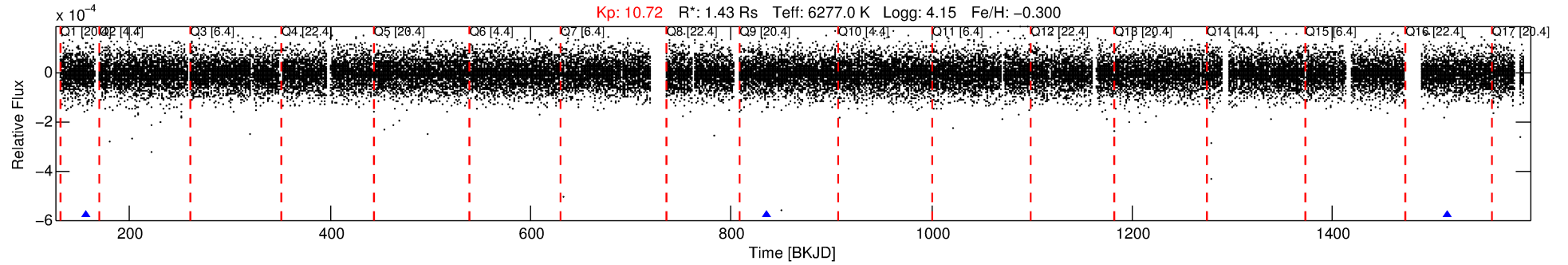
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005295670-02

No Significant Match Found

# DV One-Page Summary

KIC: 5295670 Candidate: 2 of 6 Period: 679.014 d



## TPS TCE Results:

Period = 679.01401 d  
Epoch = 156.0040 BKJD

DV fit results are unavailable

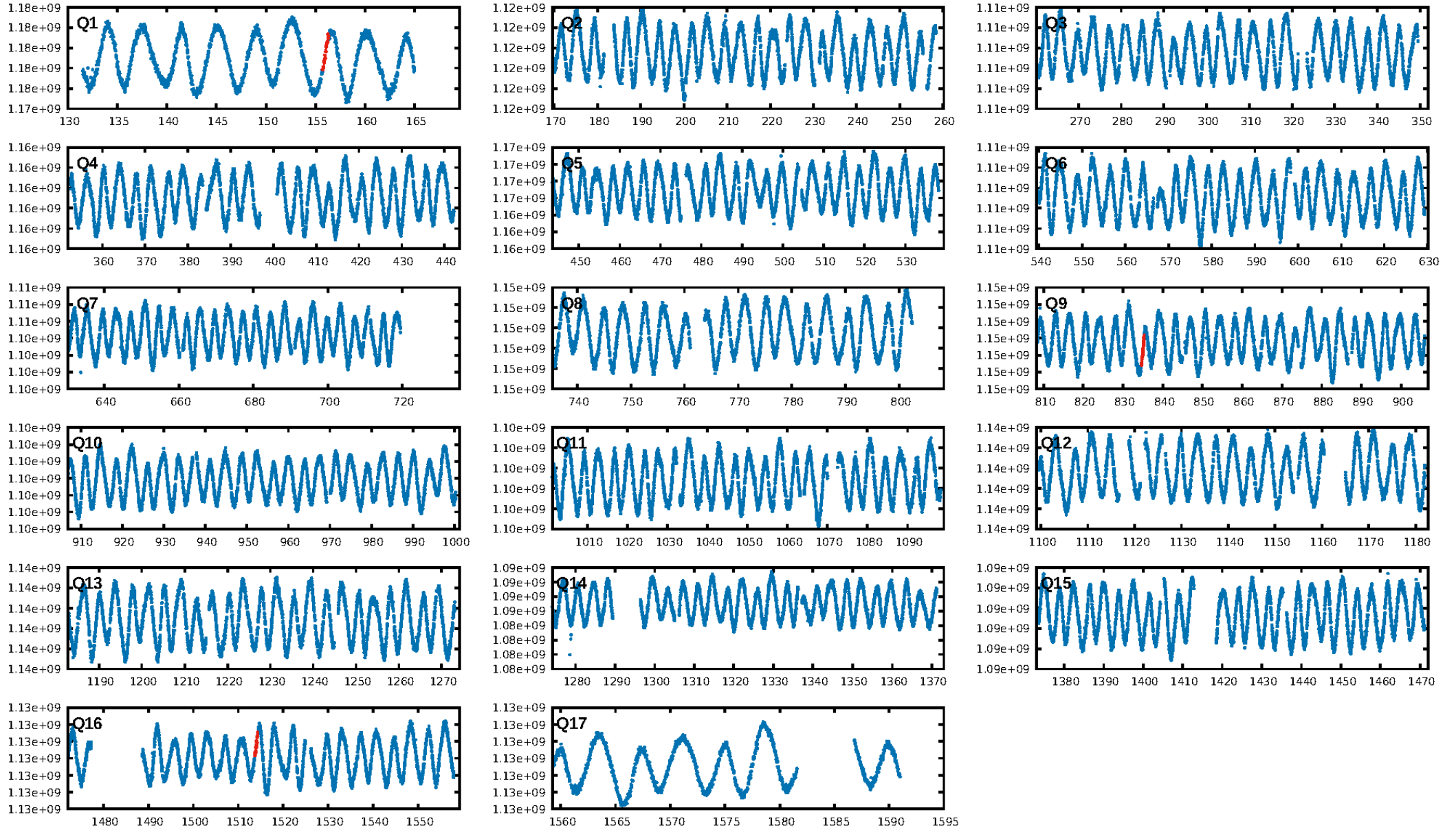
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [367.01σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.16e-12  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 53.3%  
Centroid-so: 27.241 arcsec [0.49σ]  
OotOffset-rm: N/A  
KicOffset-rm: N/A  
OotOffset-st: 0/0/0/0 [0]  
KicOffset-st: 0/0/0/0 [0]  
DiffImageQuality-fgm: N/A  
DiffImageOverlap-fno: 1.00 [2/2]

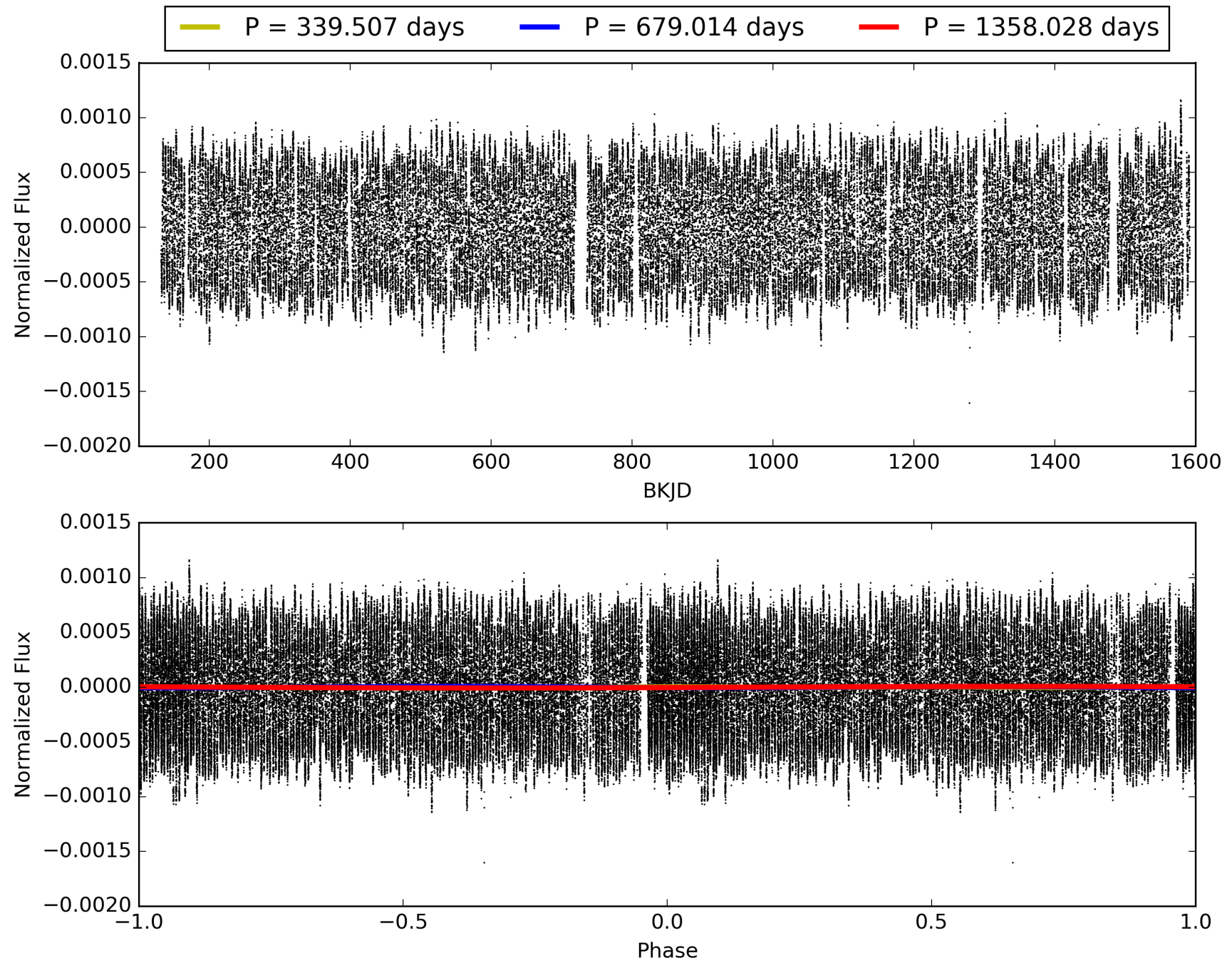
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005295670-02, PDC Light Curves

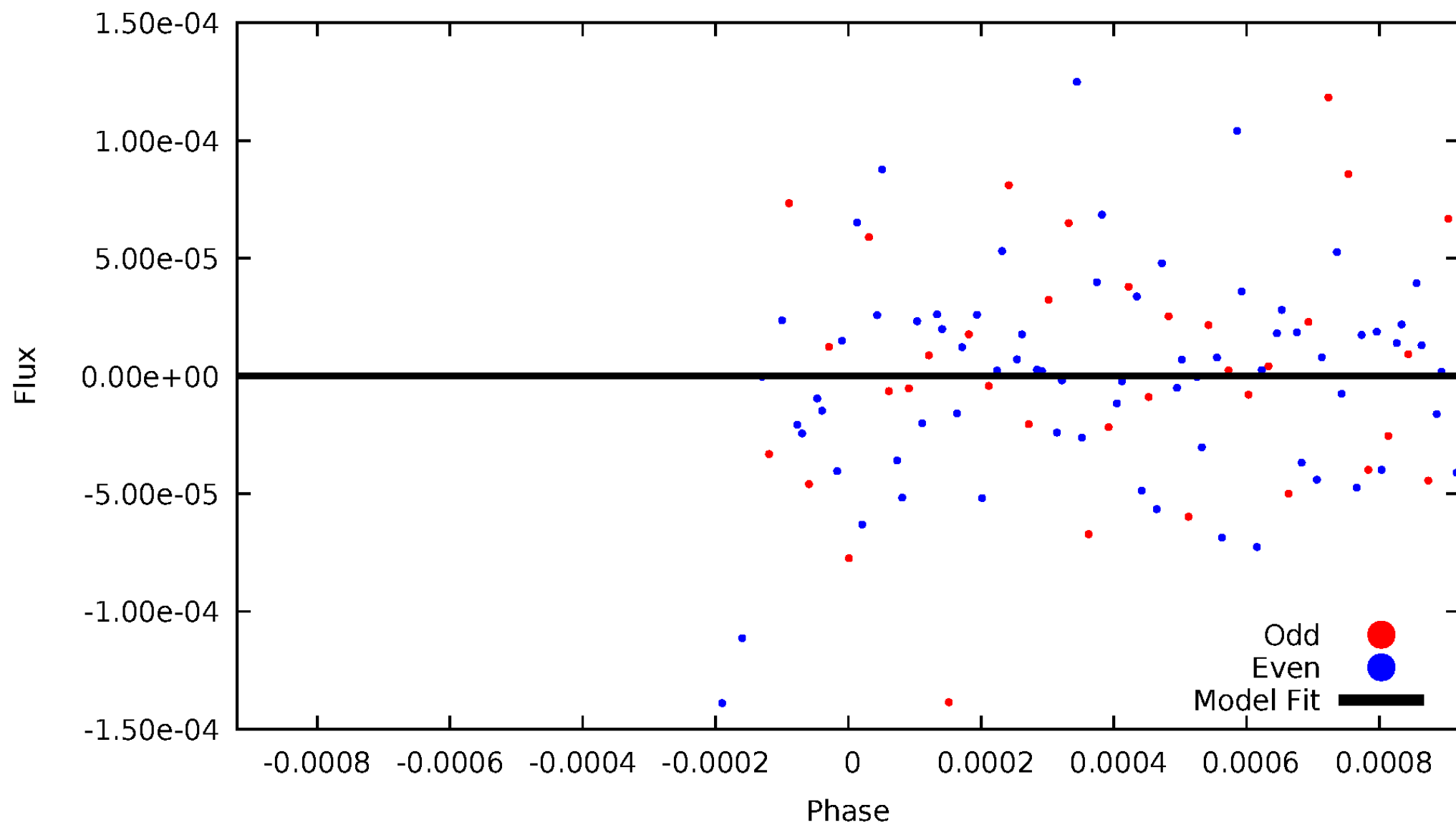


# TCE 005295670-02



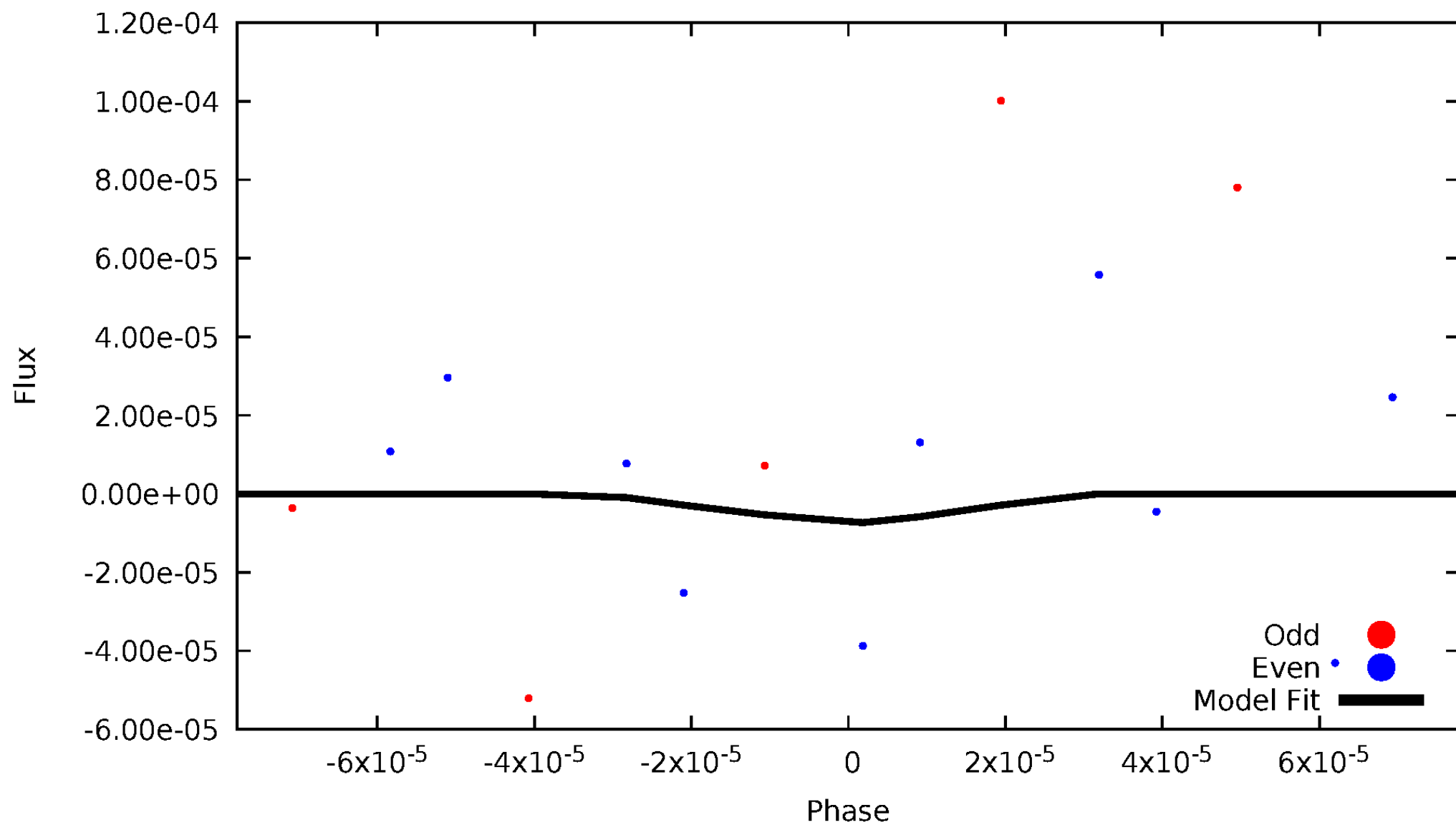
# DV Odd/Even

TCE 005295670-02



# ALT Odd/Even

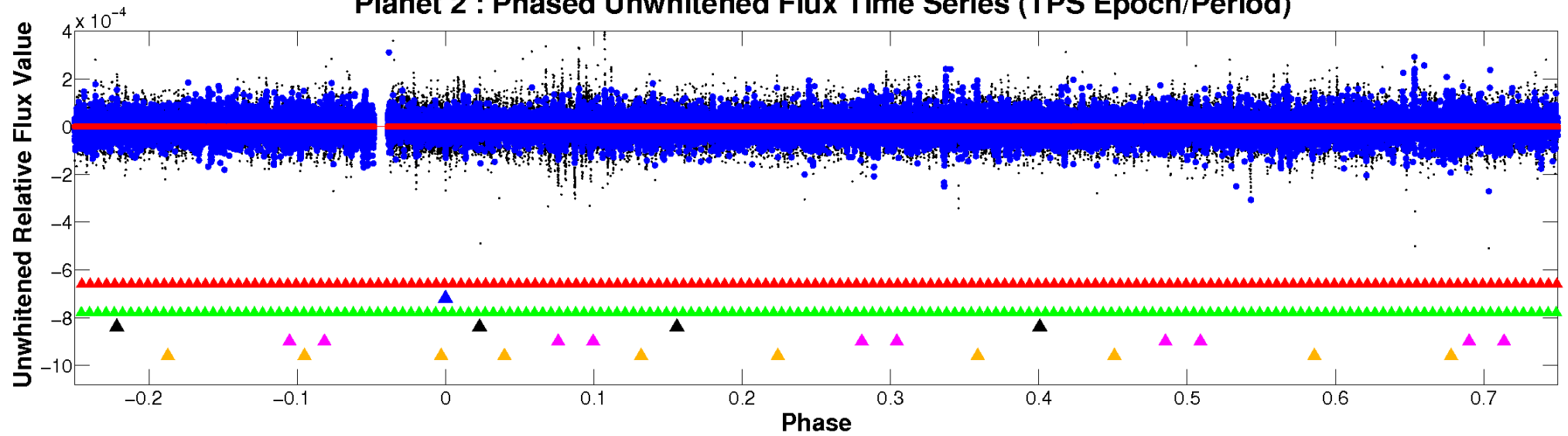
TCE 005295670-02



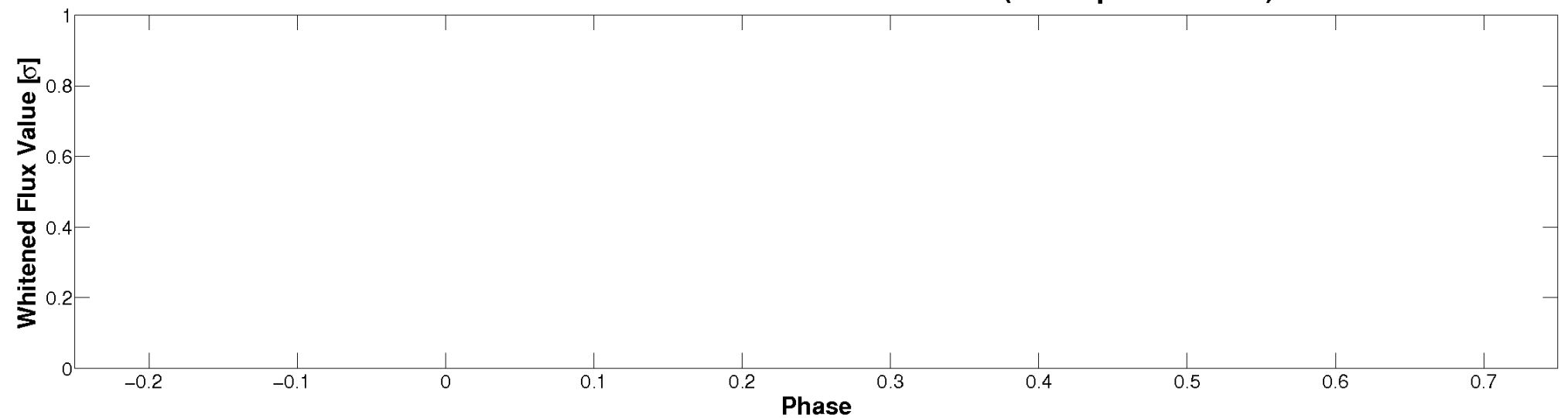


# Non-Whitened Vs. Whitened Light Curve

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

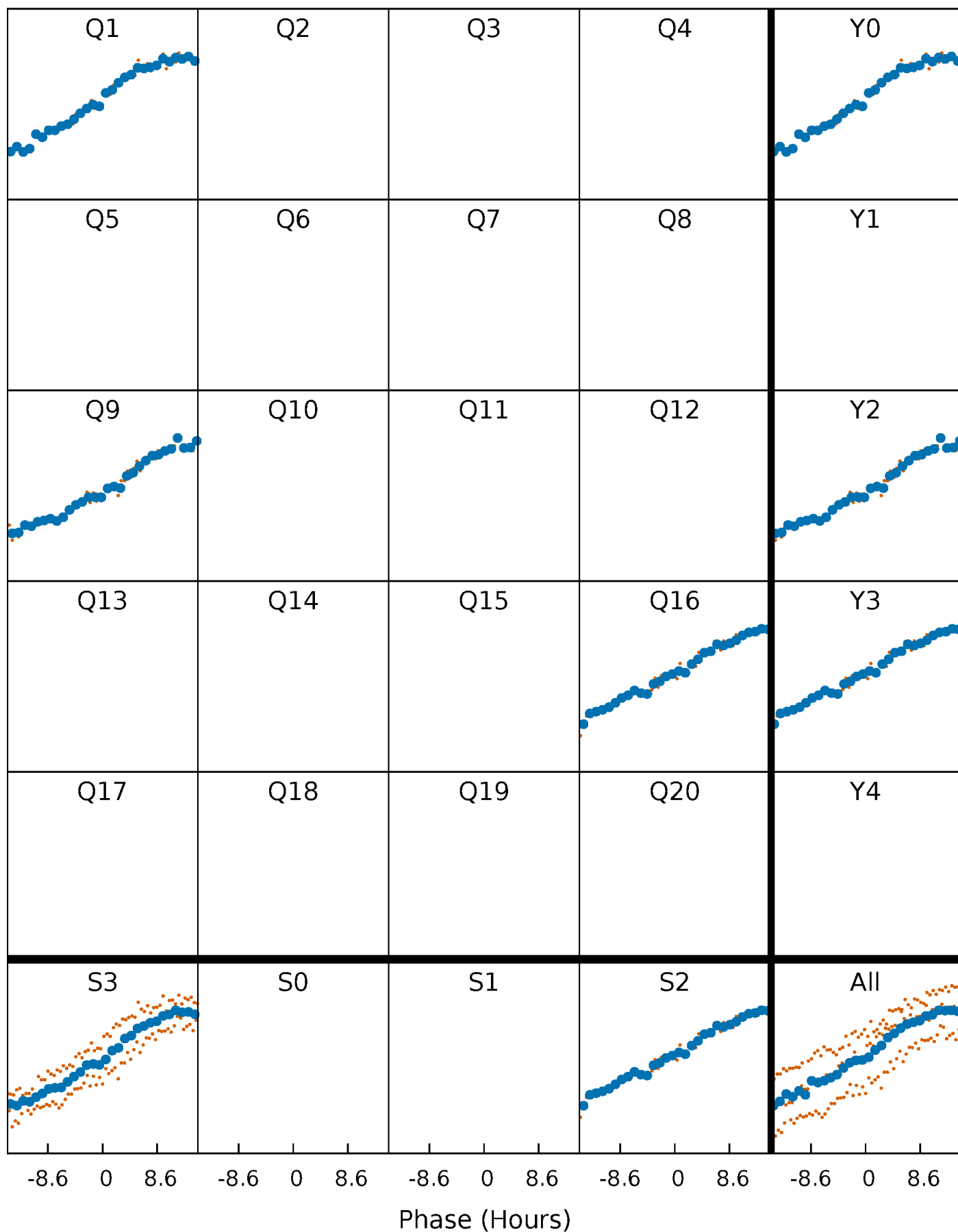


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



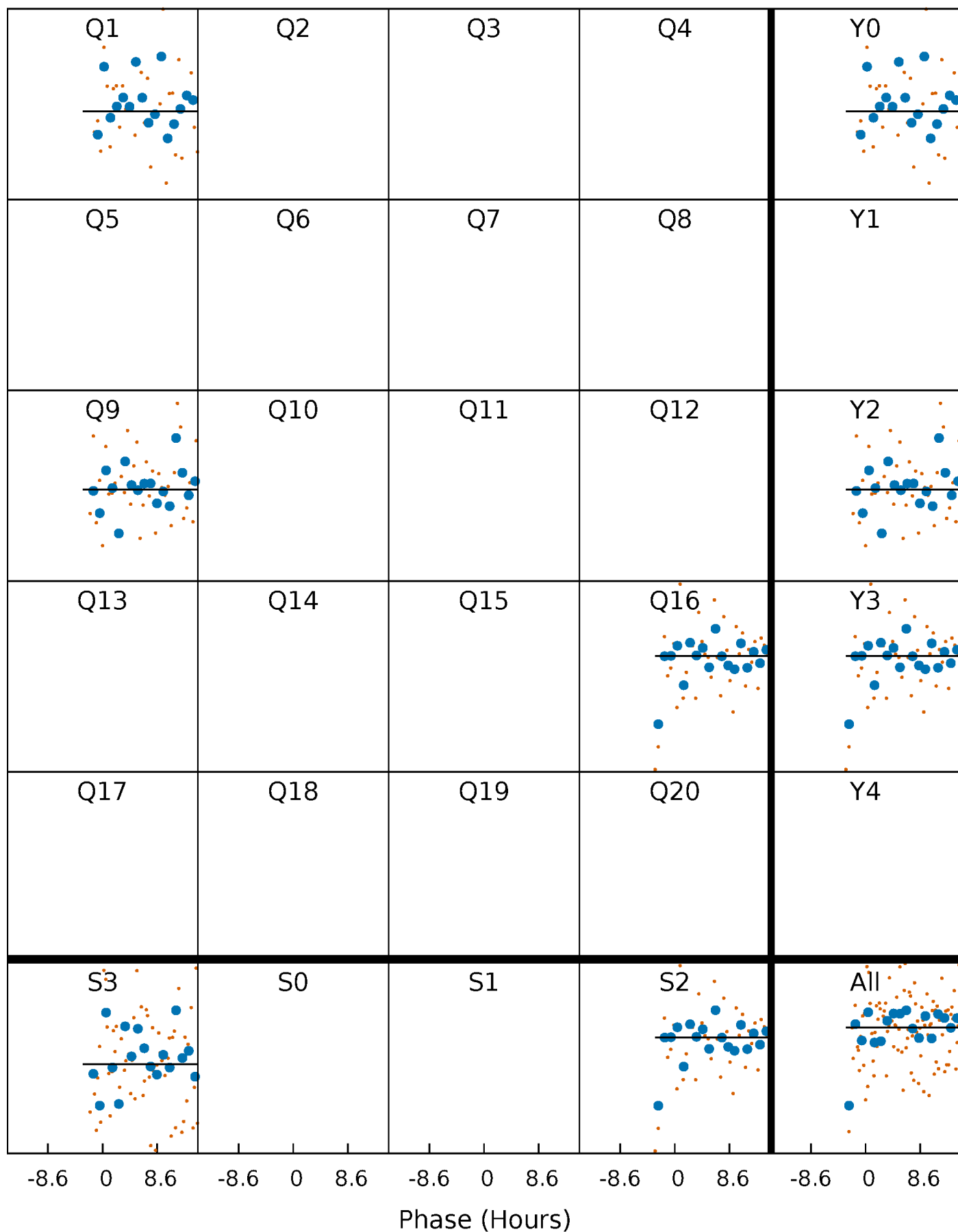
# PDC Quarter-Phased Transit Curves

TCE 005295670-02     $P=679.014010$  Days     $T_0=156.004021$  (BKJD)



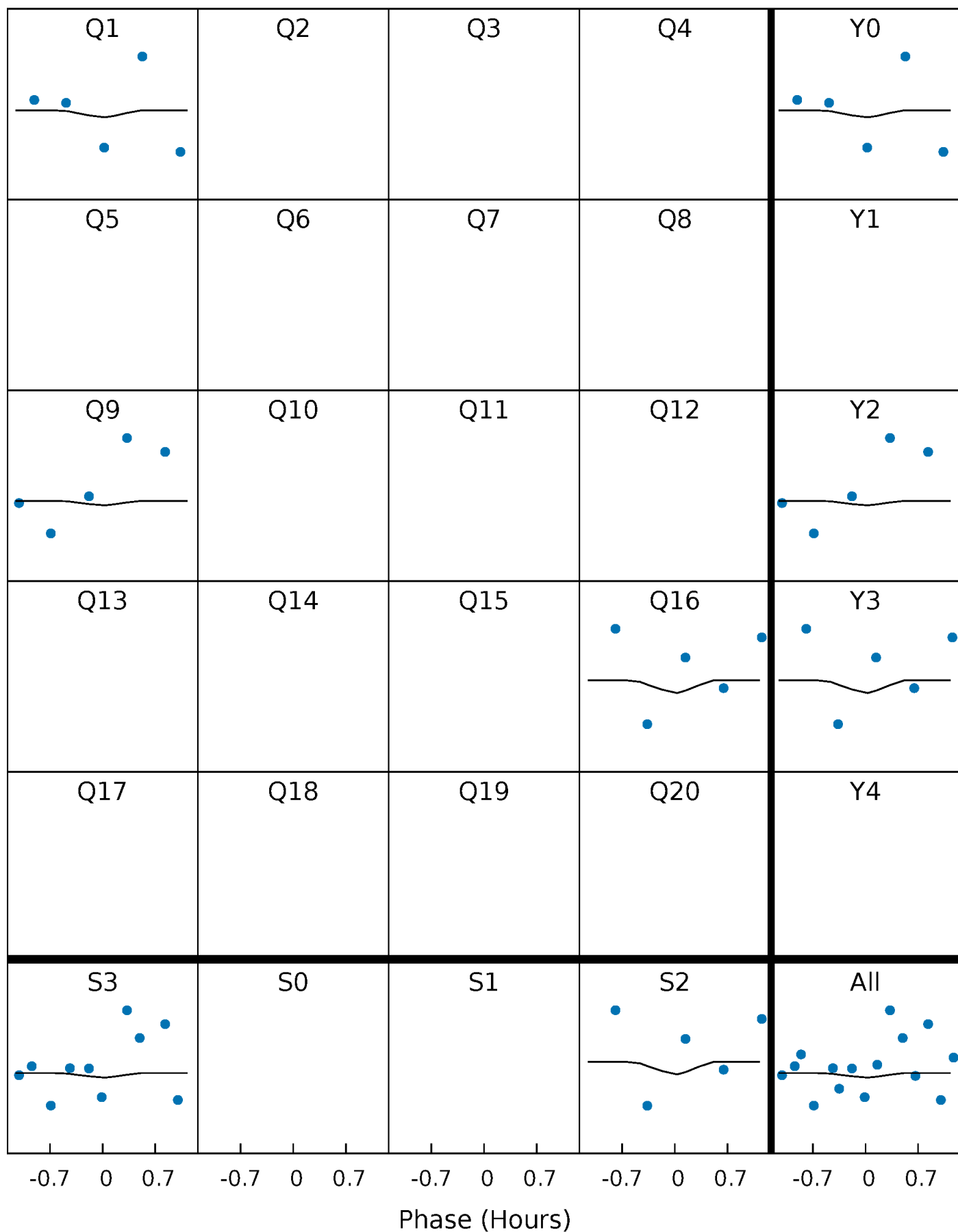
# DV Quarter-Phased Transit Curves

TCE 005295670-02     $P=679.014010$  Days     $T_0=156.004021$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

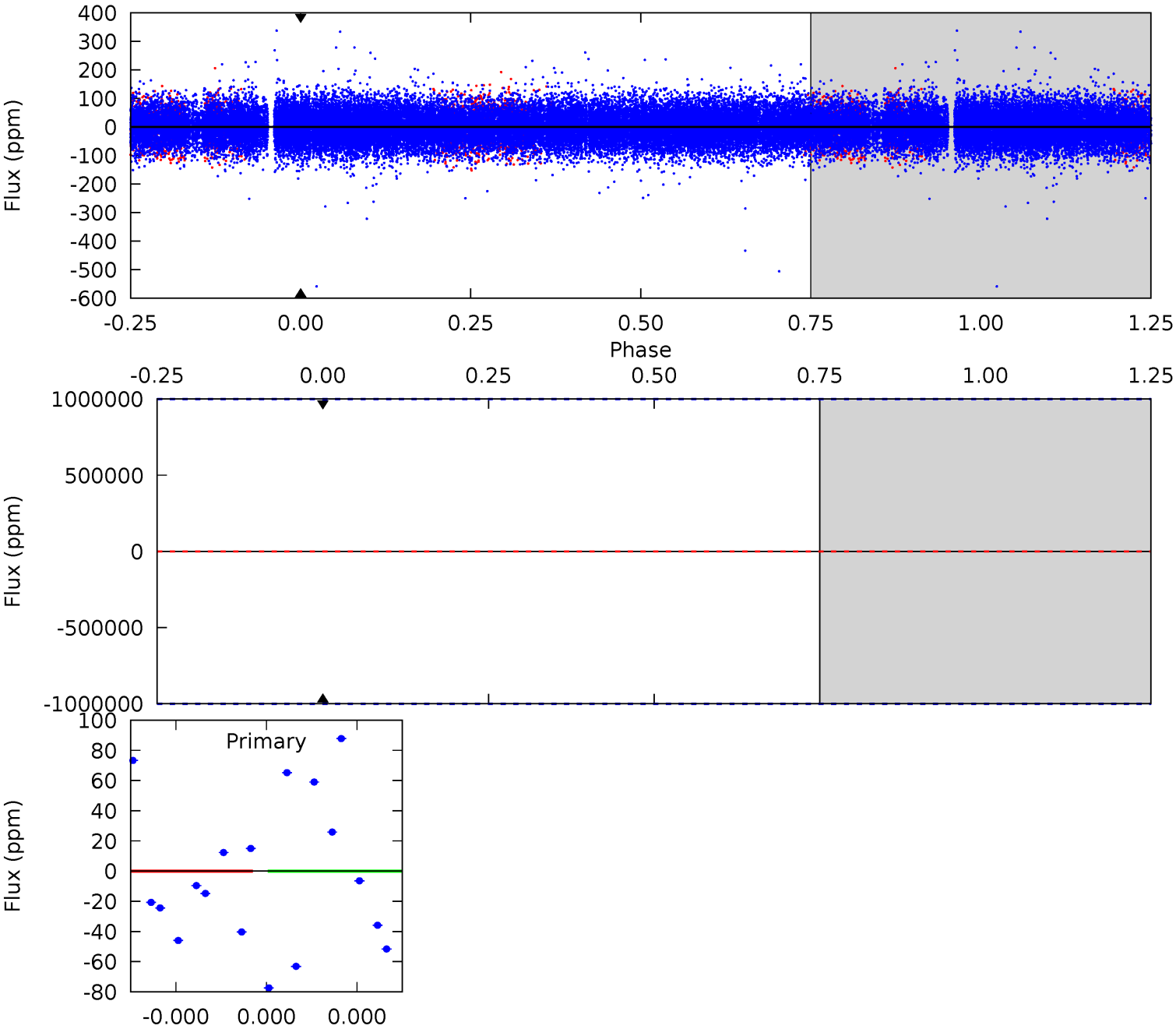
TCE 005295670-02 P=679.014010 Days  $T_0=156.481868$  (BKJD)



DV Model-Shift Uniqueness Test

005295670-02, P = 679.014010 Days, E = 156.004021 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

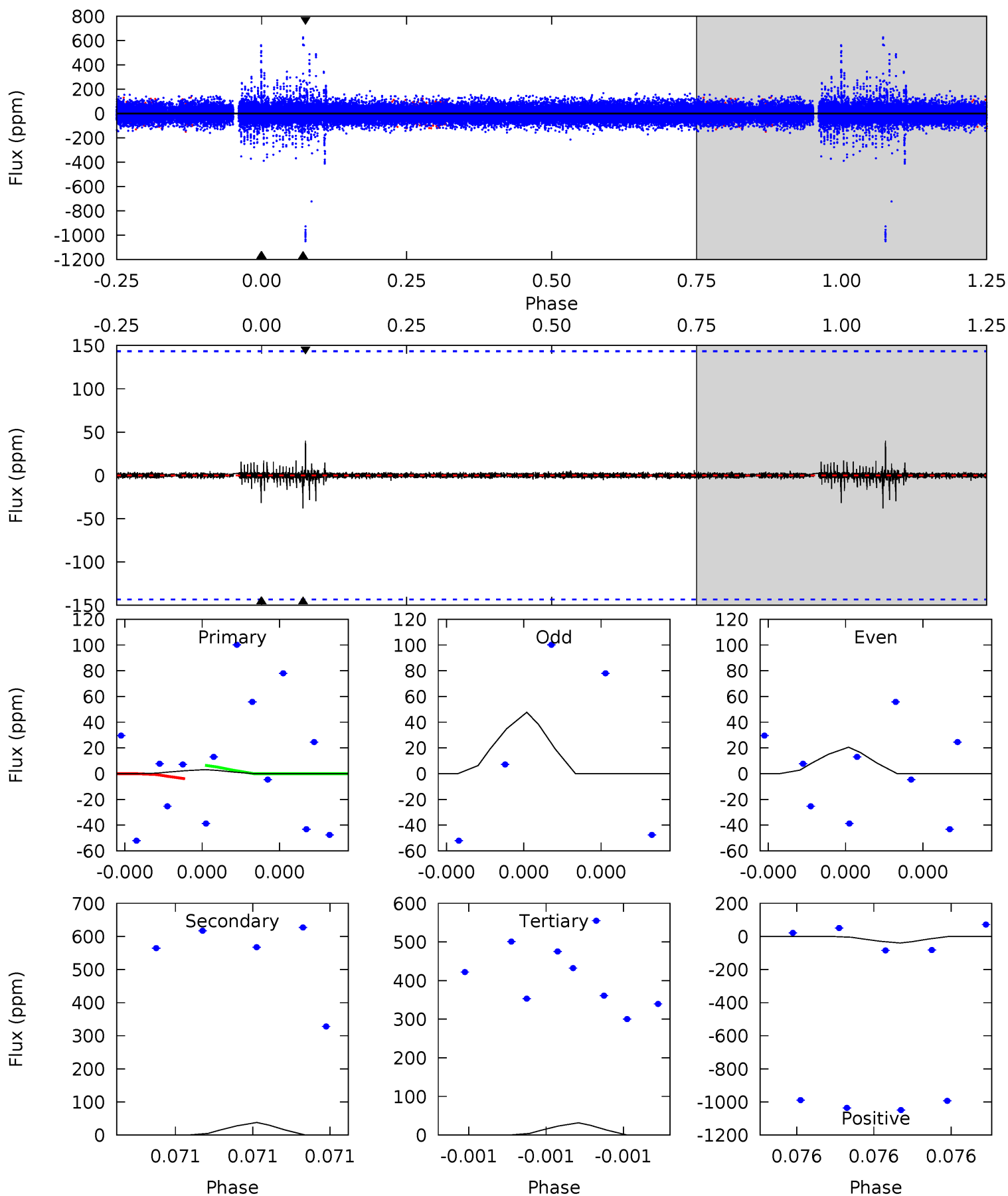




# Alt Model-Shift Uniqueness Test

005295670-02, P = 679.014010 Days, E = 156.481868 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
0.13	1.58	1.32	1.66	5.97	4.07	0.07	-1.19	-1.53	0.26	-0.08	0.36	22.2	0.51	0.05



### Stellar Parameters For KIC 005295670

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6277^{+81}_{-81}$	$4.149^{+0.188}_{-0.101}$	$-0.300^{+0.150}_{-0.150}$	$1.428^{+0.245}_{-0.300}$	$1.049^{+0.099}_{-0.076}$	$0.507^{+0.446}_{-0.176}$
	+1%/-1%	+5%/-2%	+50%/-50%	+17%/-21%	+9%/-7%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005295670-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$9.99^{+12.94}_{-6.87}$	$370^{+18}_{-21}$	$3206^{+28358}_{-31823}$	$1388^{+2426369}_{-2510433}$
Alt.	$-38 \pm 24$	$9.95^{+11.16}_{-7.34}$	$369^{+17}_{-23}$	$2636^{+1311}_{-543}$	$419^{+6315}_{-362}$

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

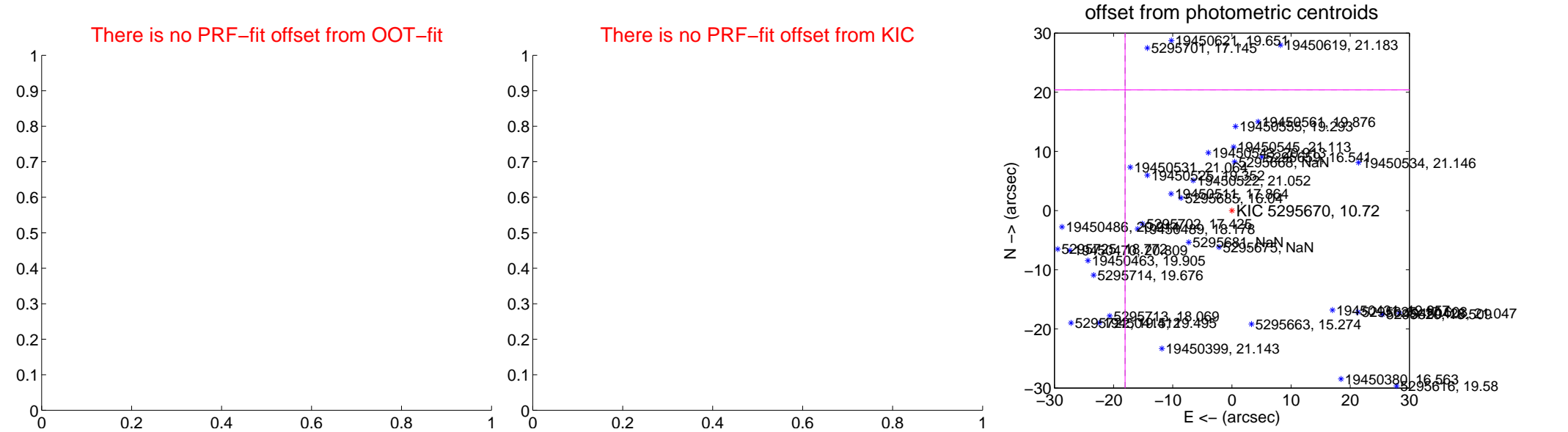
## DV Centroid Data

Supplemental centroid analysis for 005295670-02. **Kepler magnitude: 10.72.** Transit SNR -1.00

**There are 0 quarters with good PRF difference image offsets**

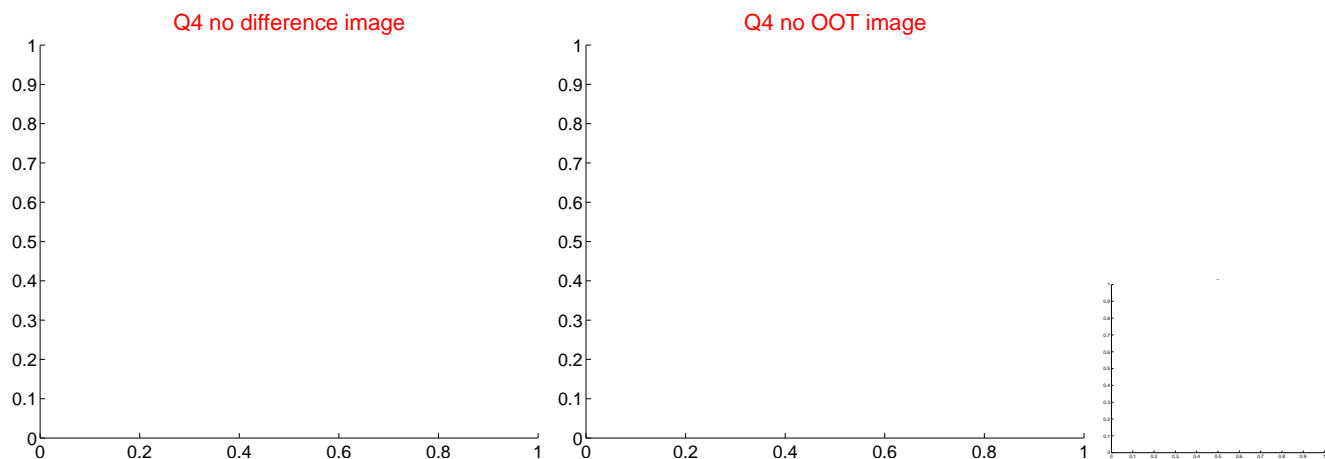
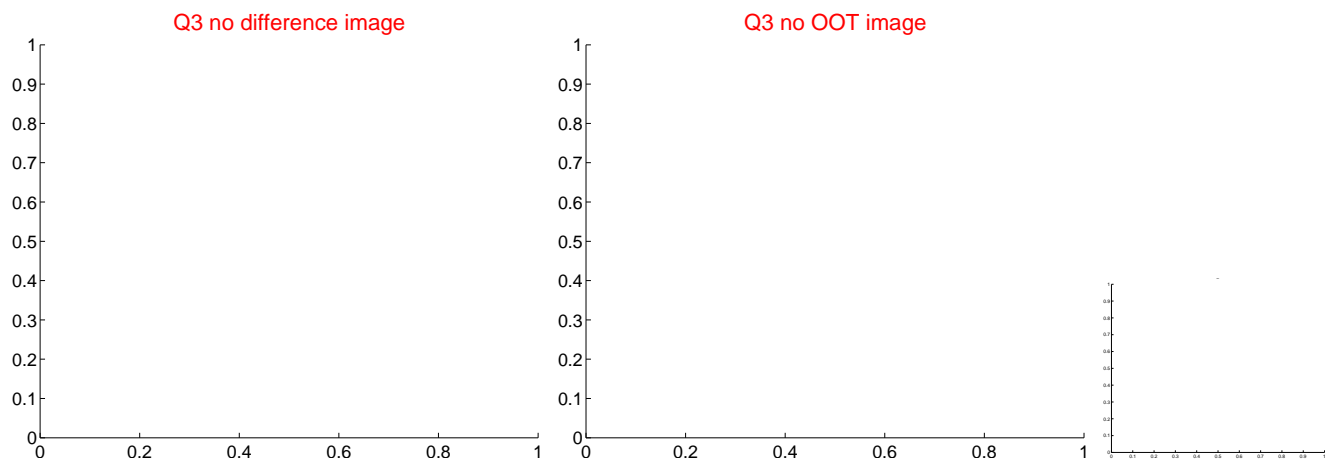
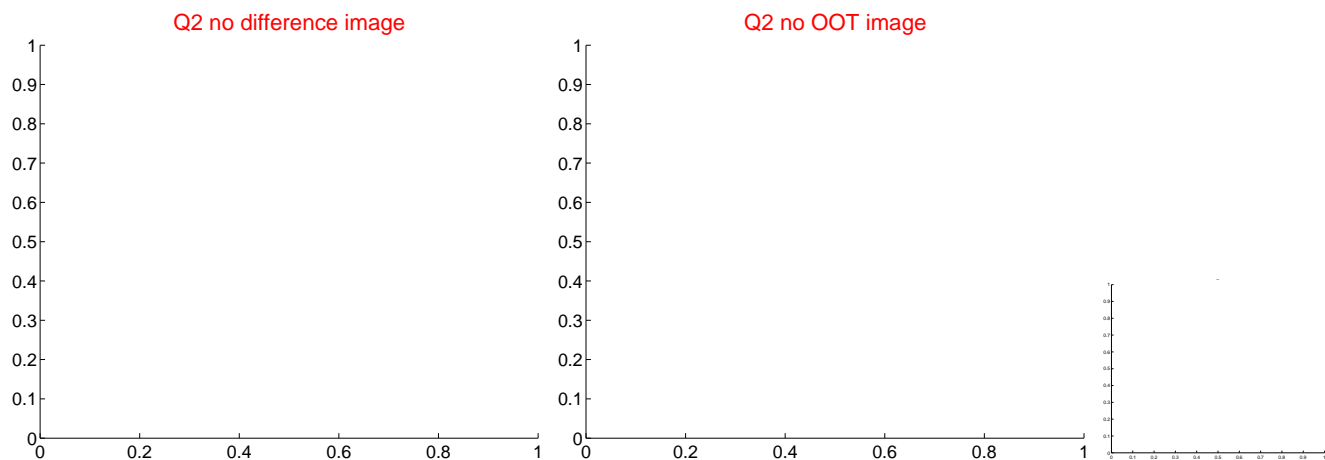
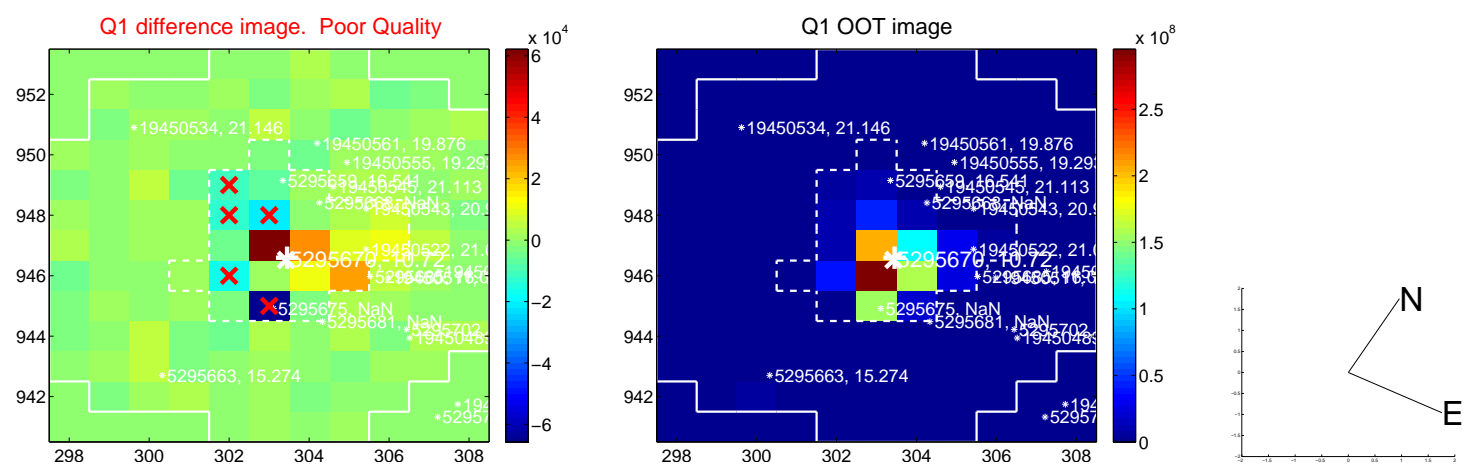
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	$27.24 \pm 56.03$	0.49	$18.05 \pm 57.20$	$20.40 \pm 55.10$



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

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



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

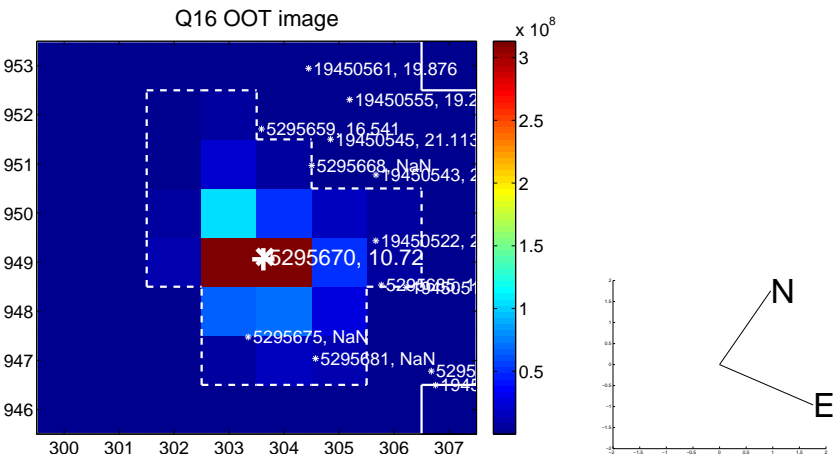
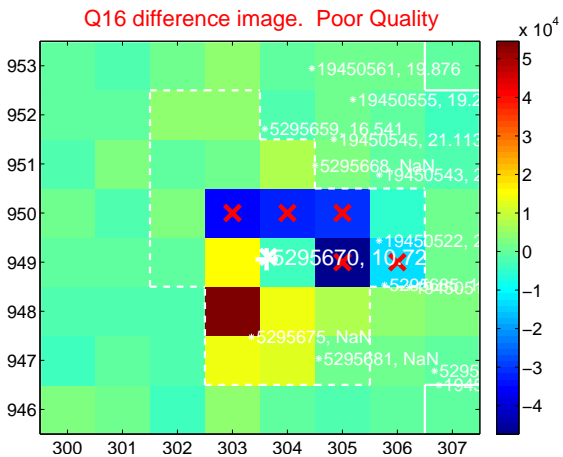
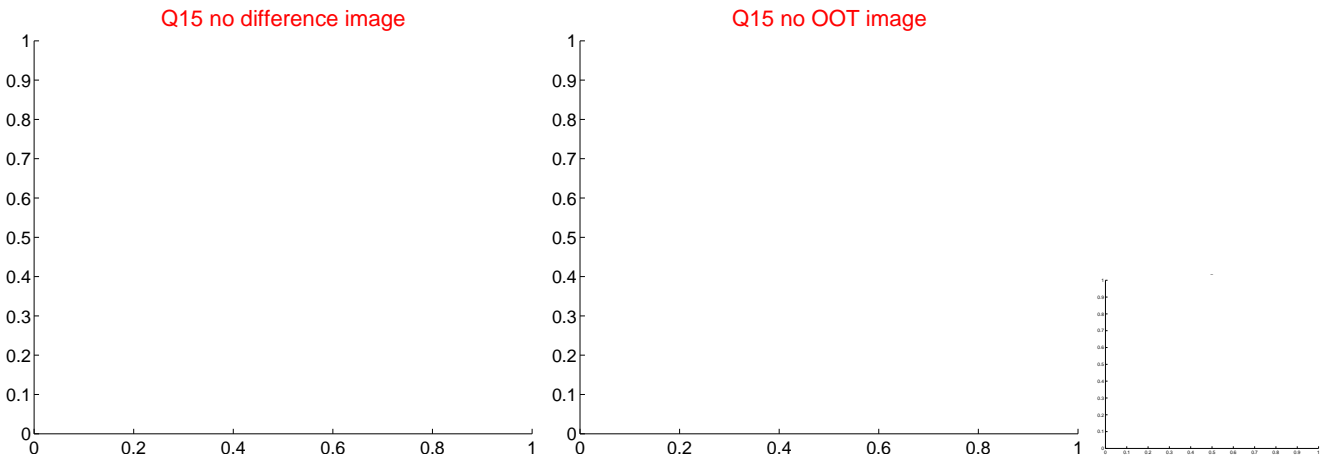
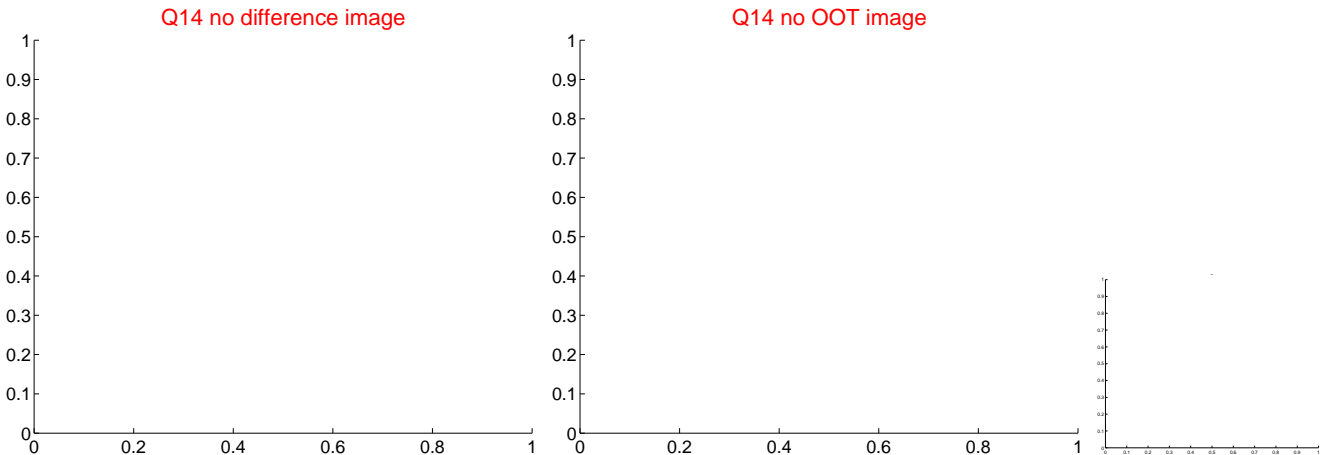
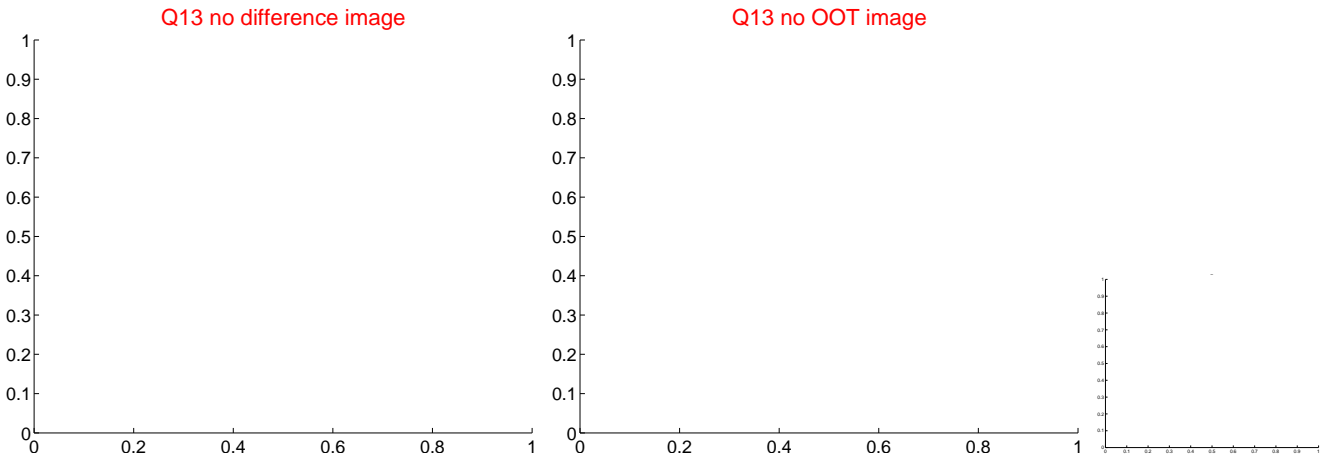




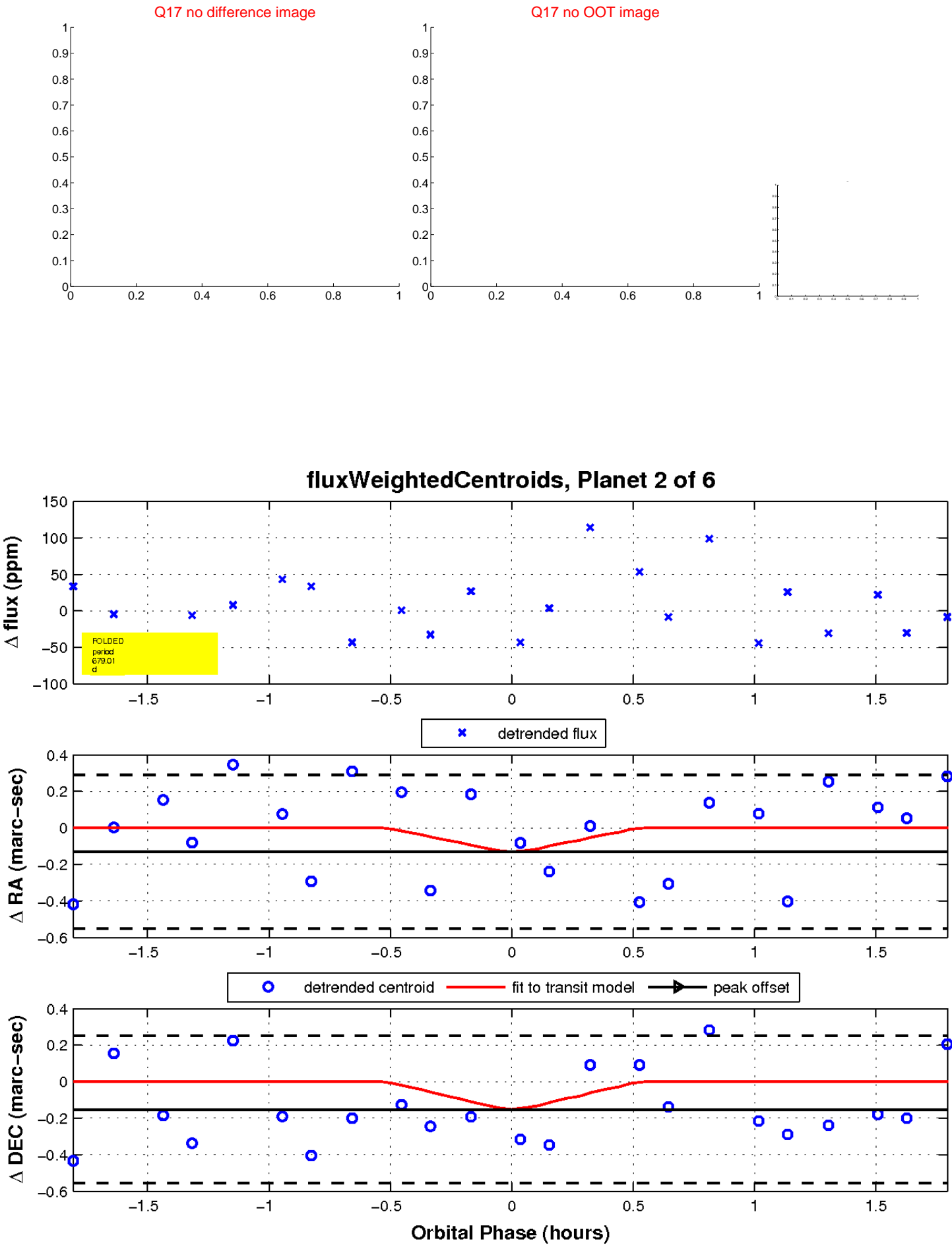
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

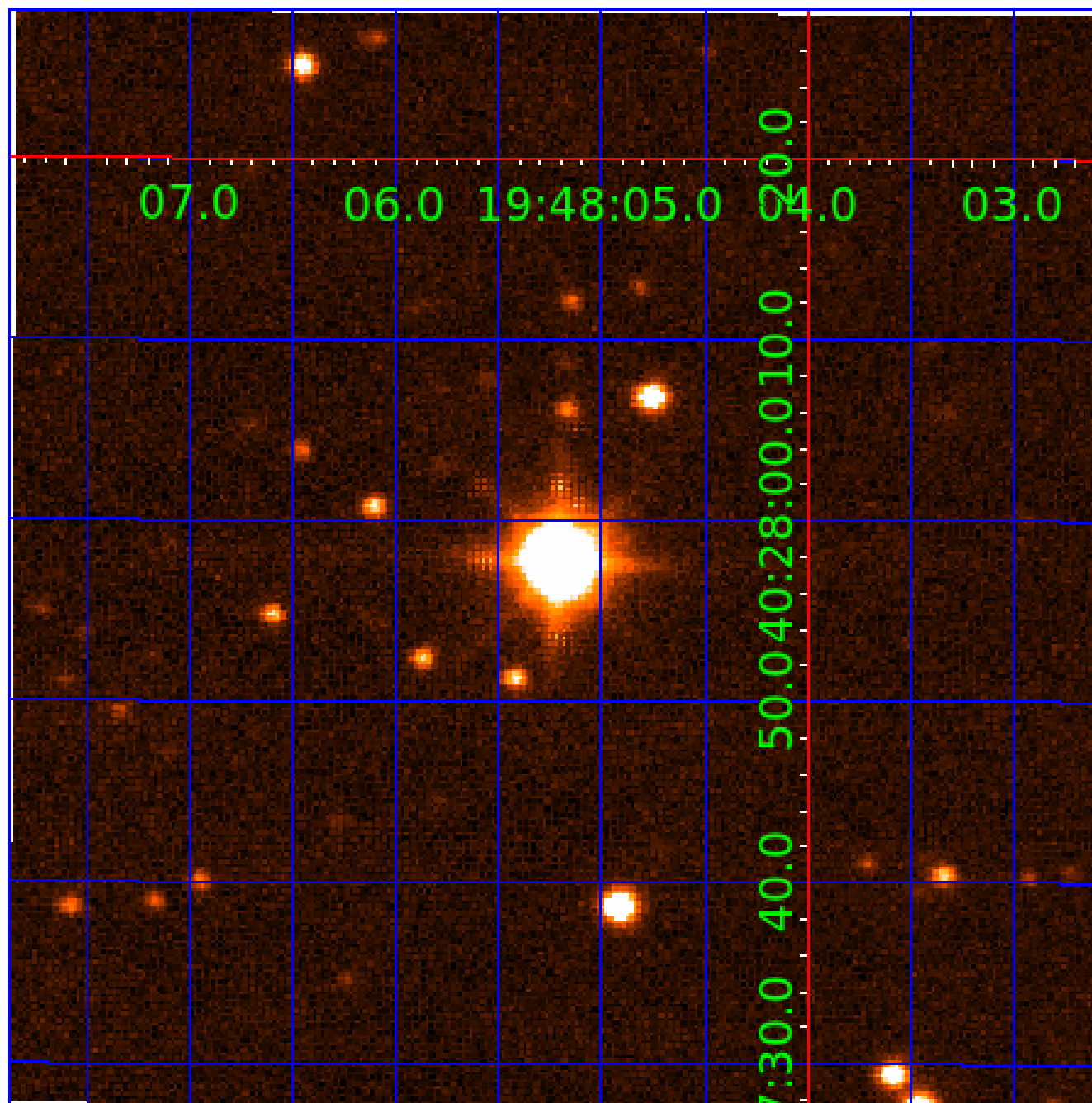


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005295670

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005295670-01	OBS	No	3.772074	132.938433	8.3	5.852	8.1	5.3	1.43	6277	0.48	1221.65
005295670-02	OBS	No	679.014010	156.004021	118.0	7.500	10.3	-1.0	1.43	6277	1.56	1.20
005295670-03	OBS	No	3.772363	132.628937	0.0	17.599	7.9	0.0	1.43	6277	0.00	1221.53
005295670-04	OBS	No	422.559210	261.965652	161.1	15.000	21.5	-1.0	1.43	6277	1.82	2.26
005295670-05	OBS	No	139.005557	207.605394	62.3	28.693	9.0	4.5	1.43	6277	1.26	9.96
005295670-06	OBS	No	154.109364	154.042378	37.1	10.137	8.4	3.8	1.43	6277	0.96	8.68

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005295670-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005295670-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
005295670-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
005295670-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

**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.

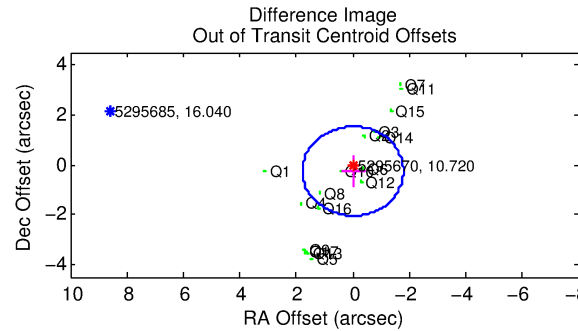
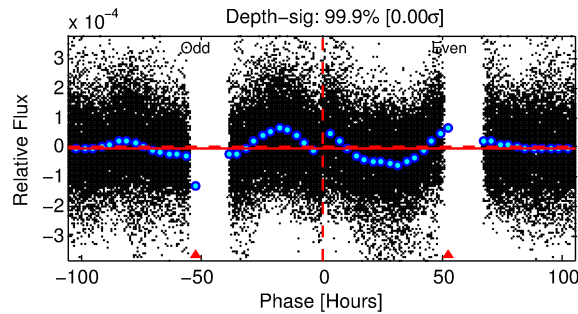
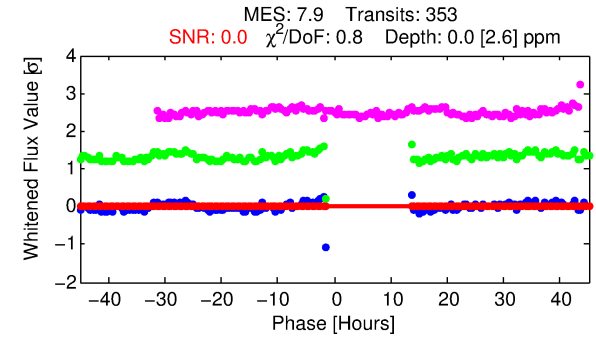
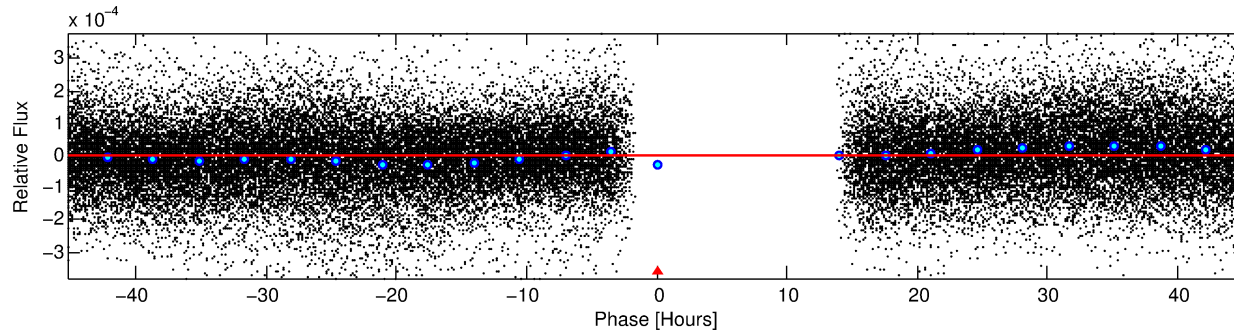
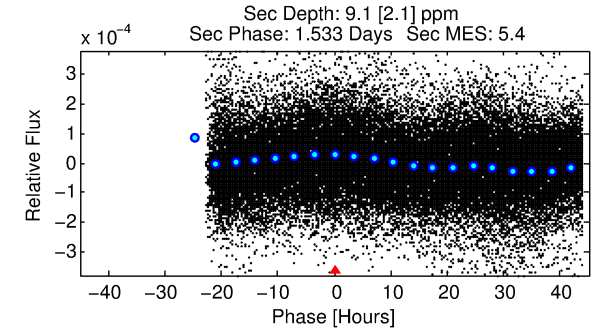
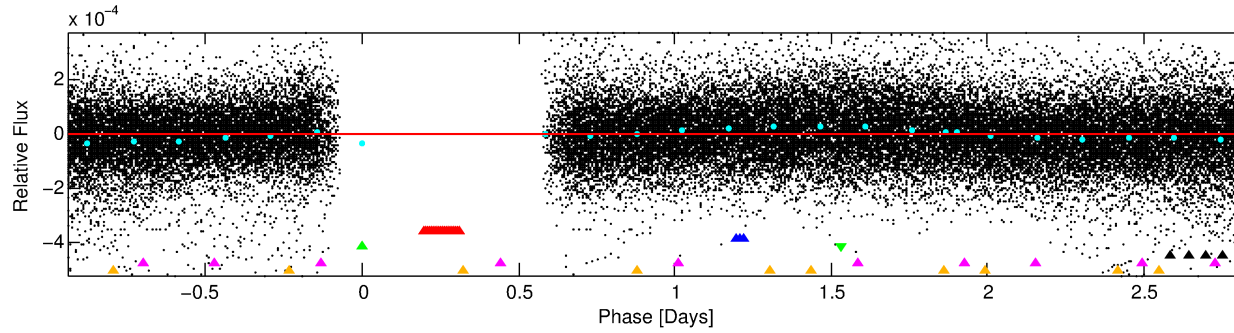
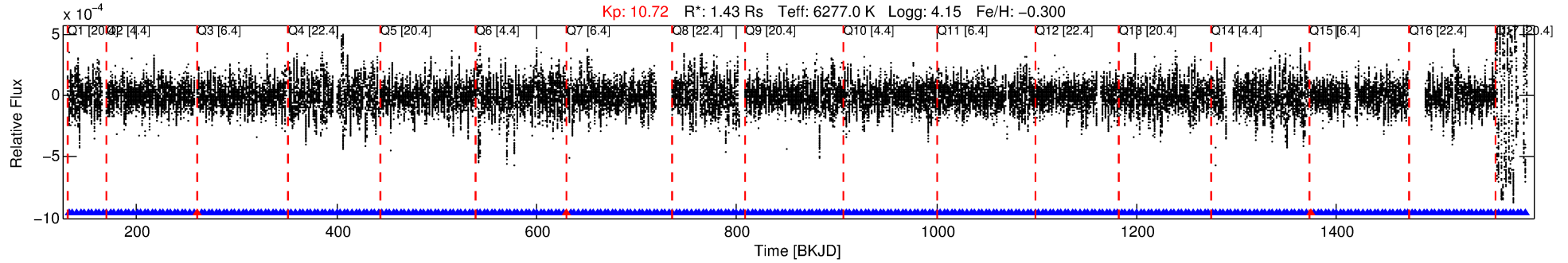
Ephemeris Match Information For 005295670-03

No Significant Match Found



# DV One-Page Summary

KIC: 5295670 Candidate: 3 of 6 Period: 3.772 d



## DV Fit Results:

Period = 3.77236 [3.76118] d  
Epoch = 132.6289 [838.2438] BKJD  
Rp/R\* = 0.0000 [0.1058]  
a/R\* = 1.15 [123.60]  
b = 0.92 [318.10]  
Seff = 1221.53 [1671.68]  
Teq = 1507 [516] K  
Rp = 0.00 [16.48] Re  
a = 0.0482 [0.0335] AU  
Ag = 2298391.13 [33620054602.72] [0.00σ]  
Teffp = 90750 [331874475] K [0.00σ]

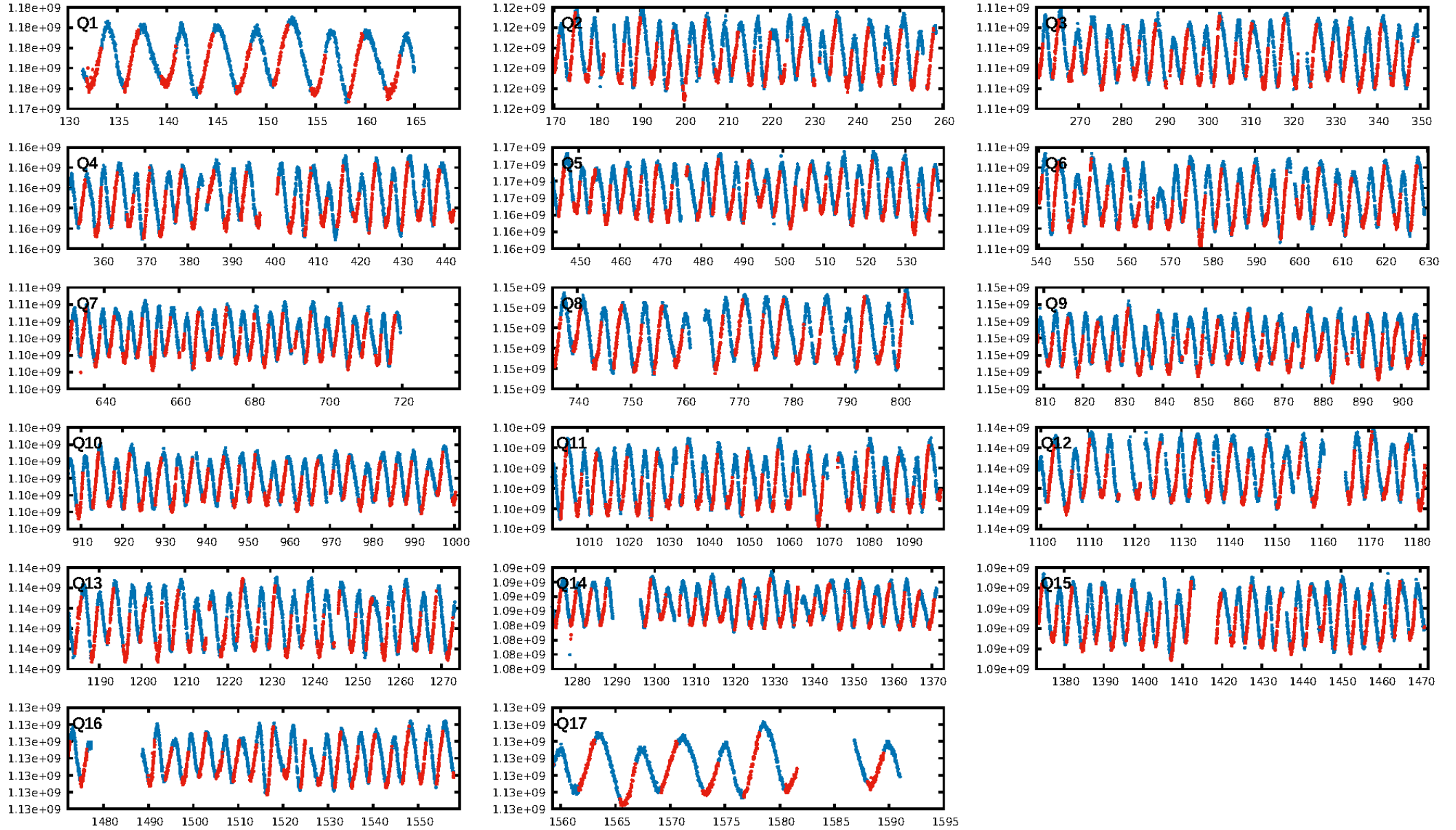
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [96.42σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.55e-08  
RollingBand-fgt: 0.99 [334/337]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 0.260 arcsec [0.44σ]  
KicOffset-rm: 0.346 arcsec [0.67σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.00 [0/17]

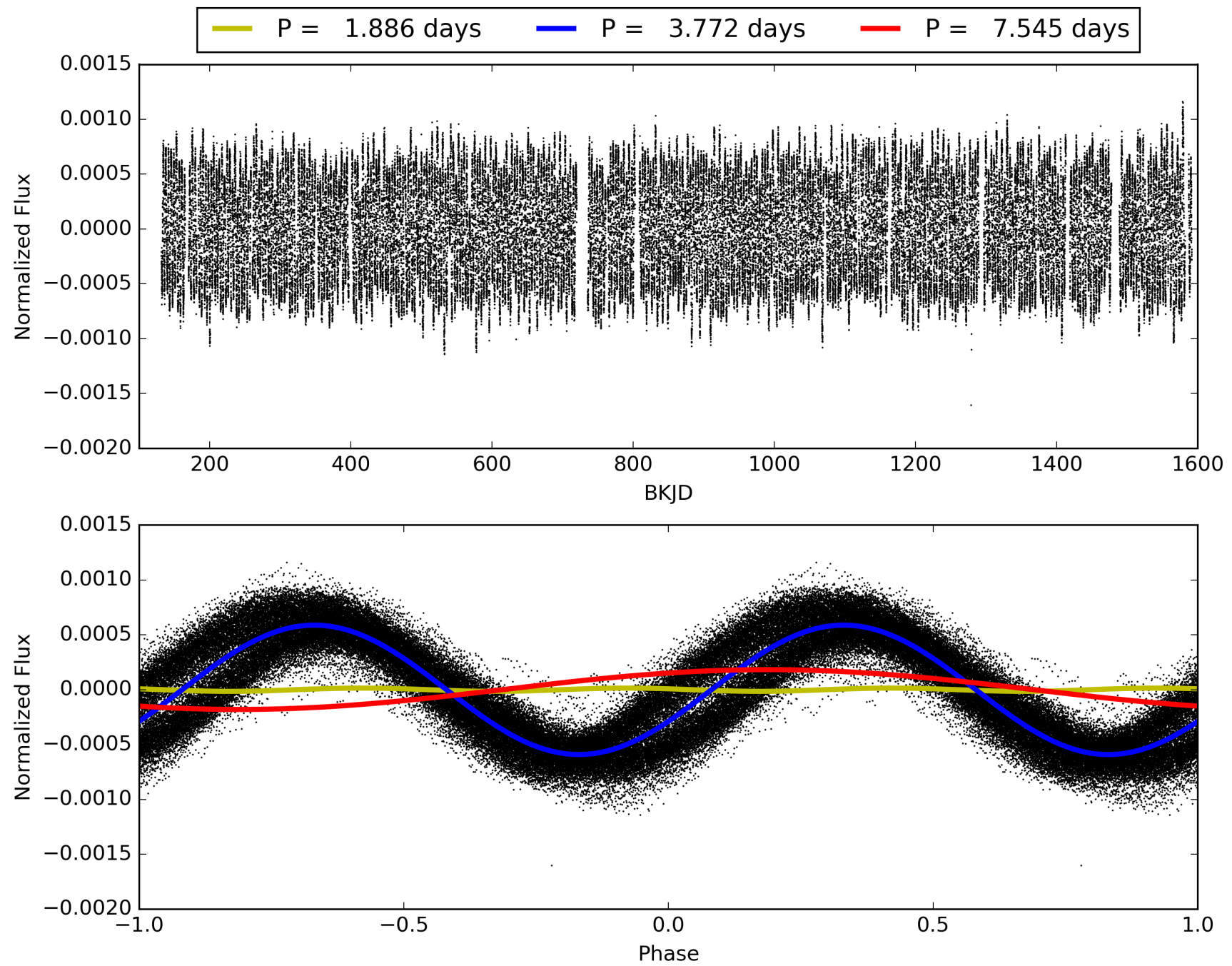
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:38:12 Z

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# TCE 005295670-03, PDC Light Curves

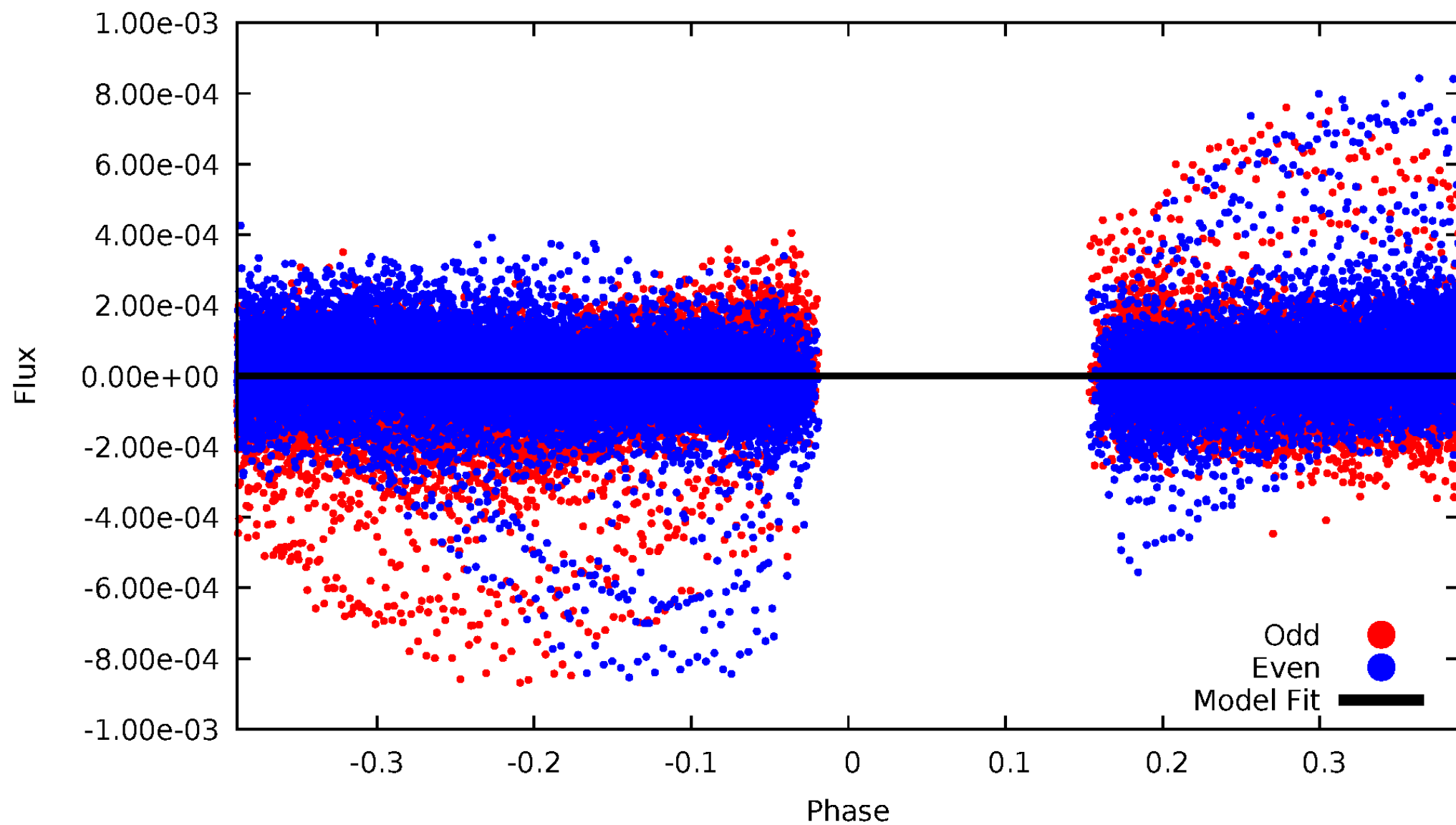


TCE 005295670-03



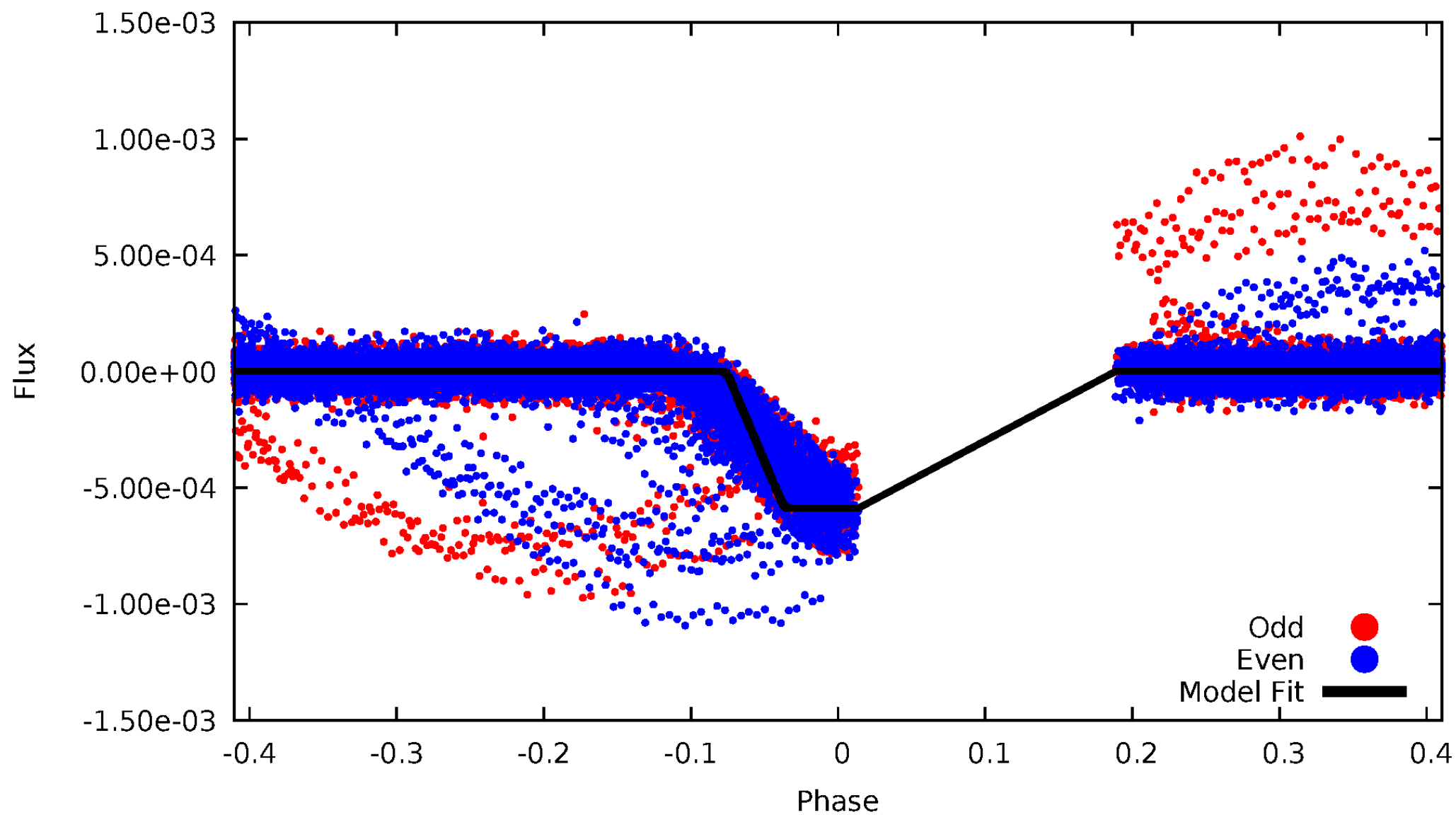
# DV Odd/Even

TCE 005295670-03



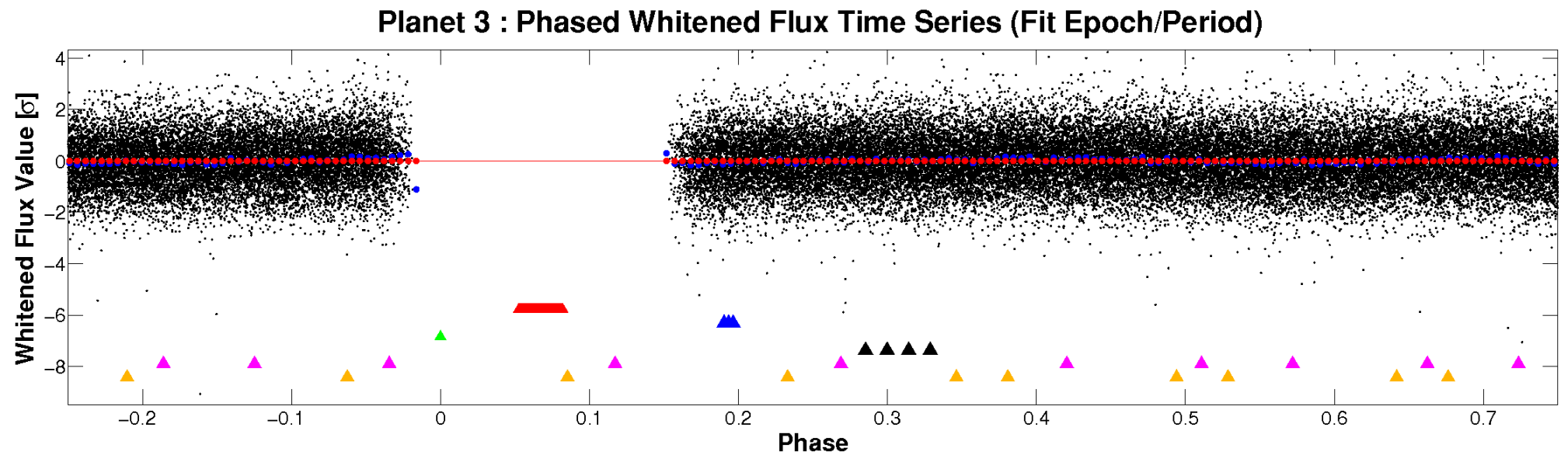
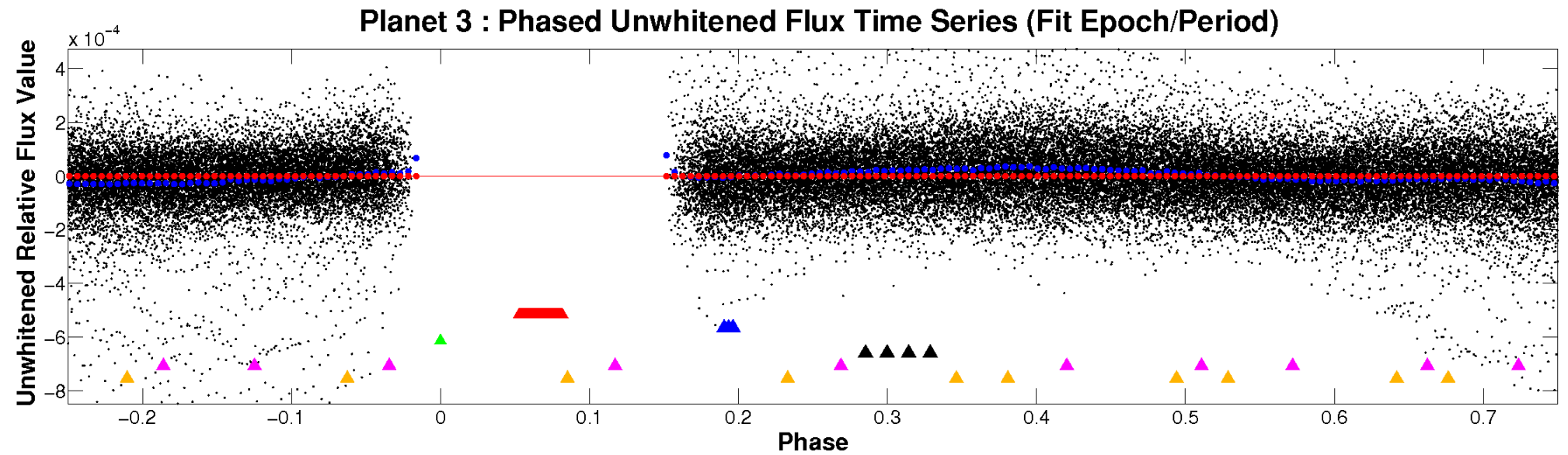
# ALT Odd/Even

TCE 005295670-03



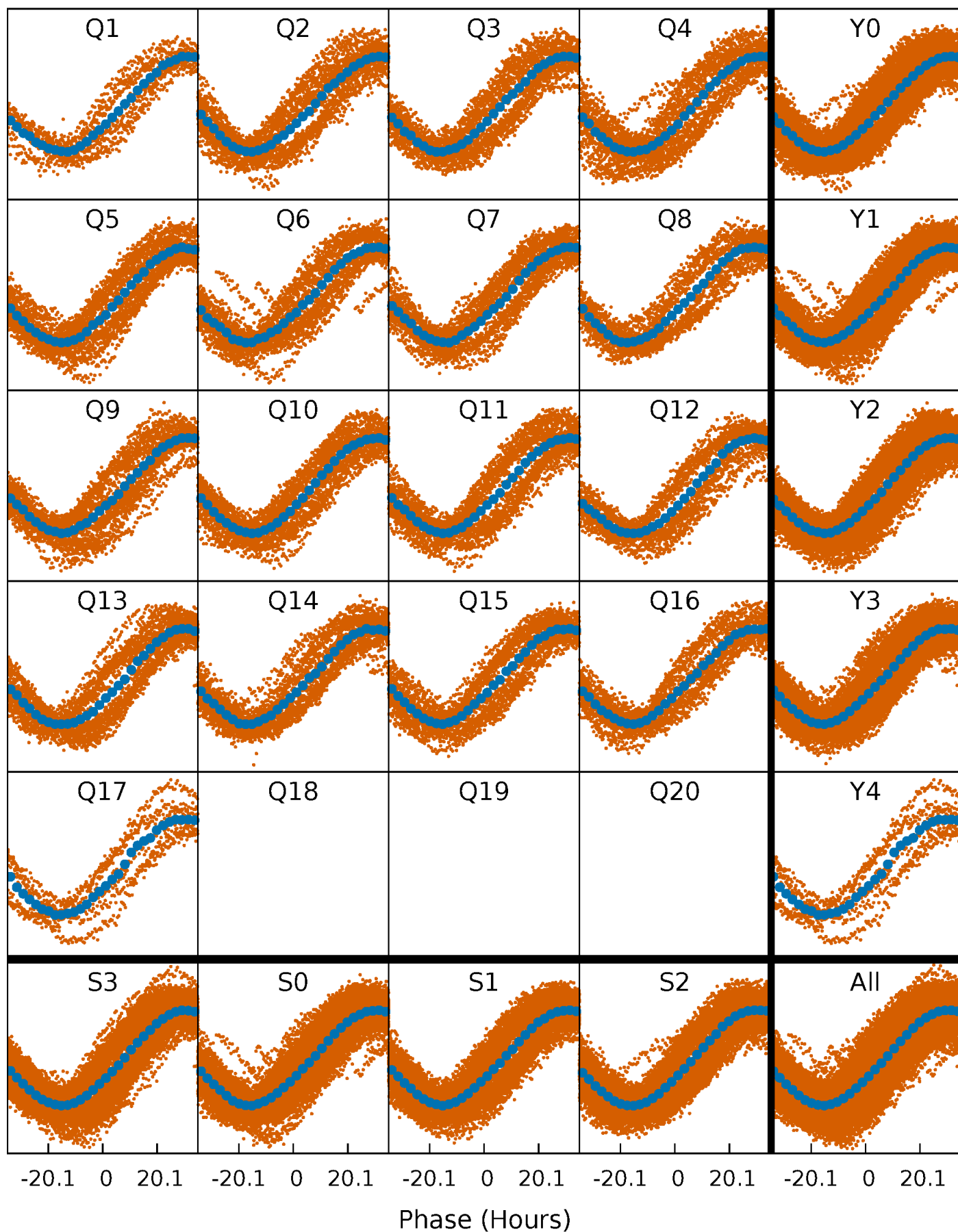


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

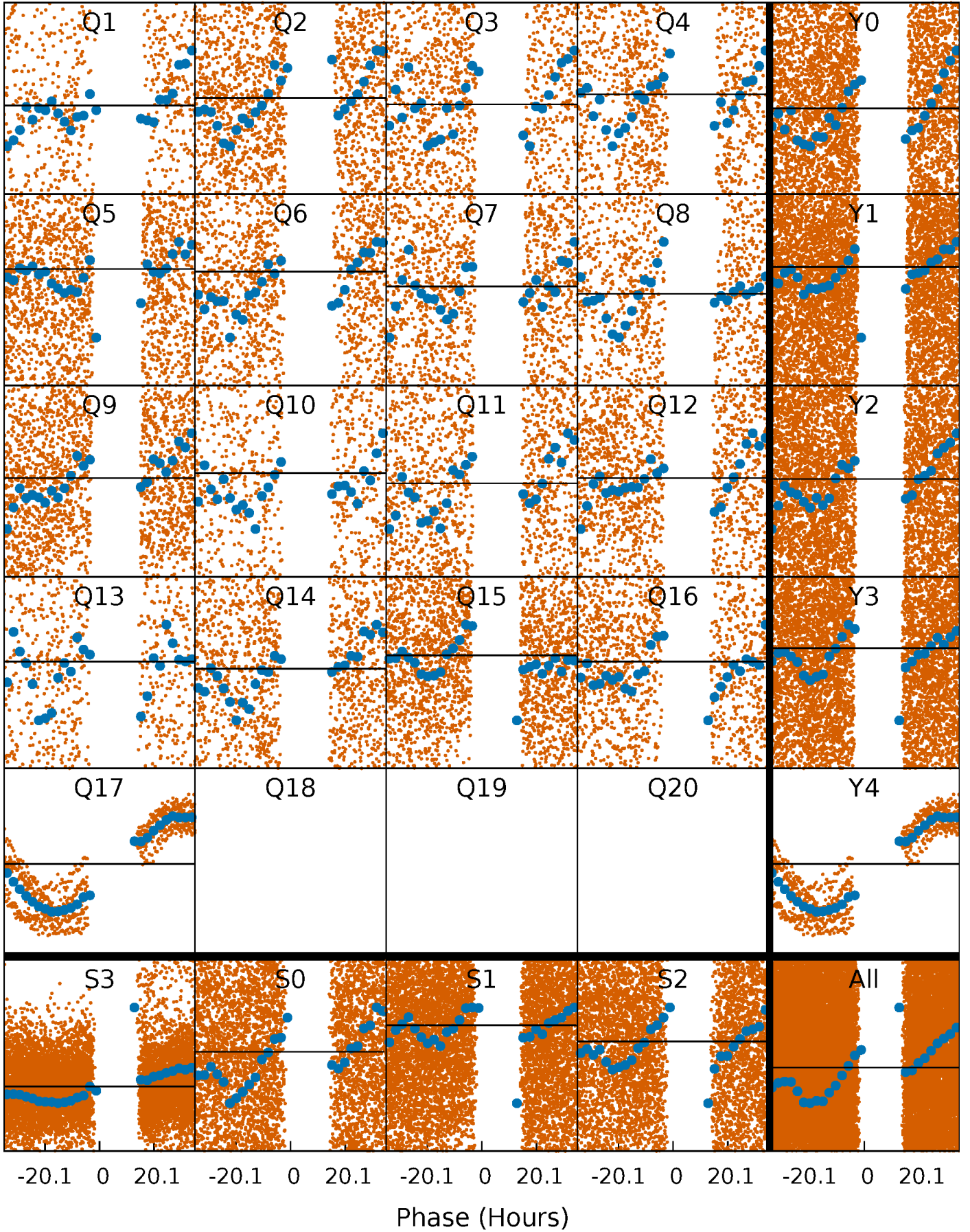
TCE 005295670-03     $P = 3.772363$  Days     $T_0 = 132.628937$  (BKJD)





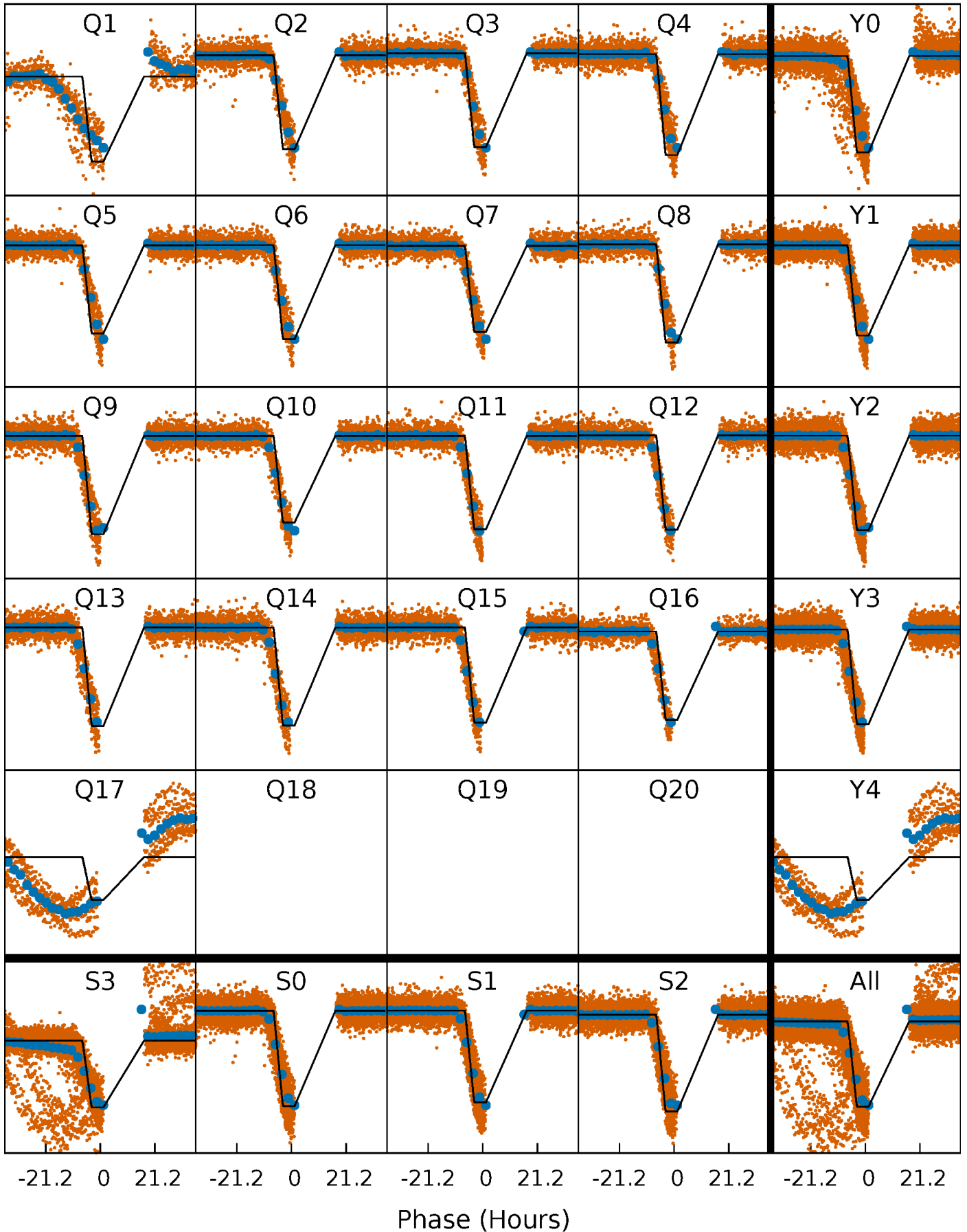
# DV Quarter-Phased Transit Curves

TCE 005295670-03 P= 3.772363 Days  $T_0=132.628937$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

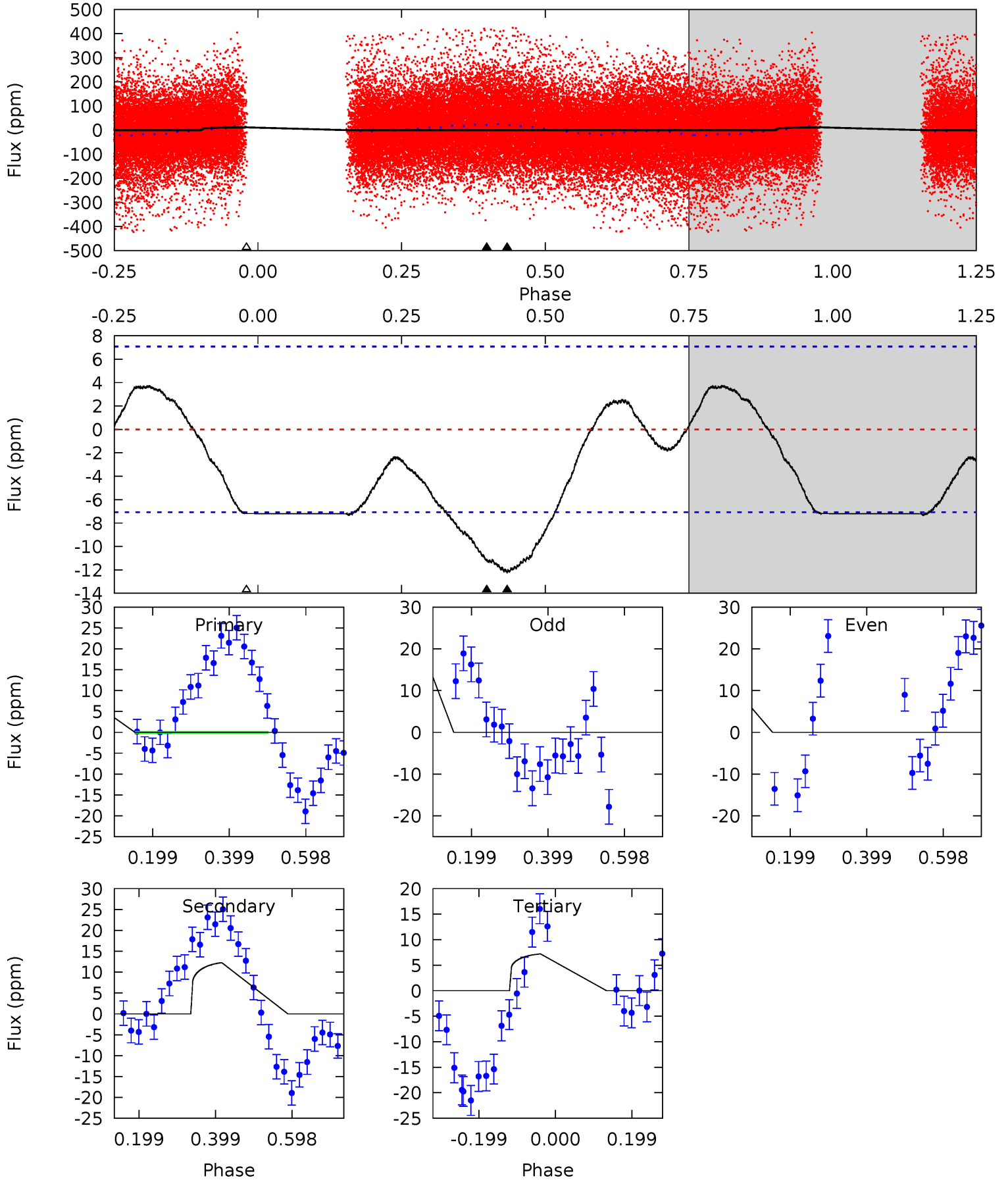
TCE 005295670-03     $P = 3.772334$  Days     $T_0 = 132.505885$  (BKJD)



# DV Model-Shift Uniqueness Test

005295670-03, P = 3.772363 Days, E = 128.856574 Days

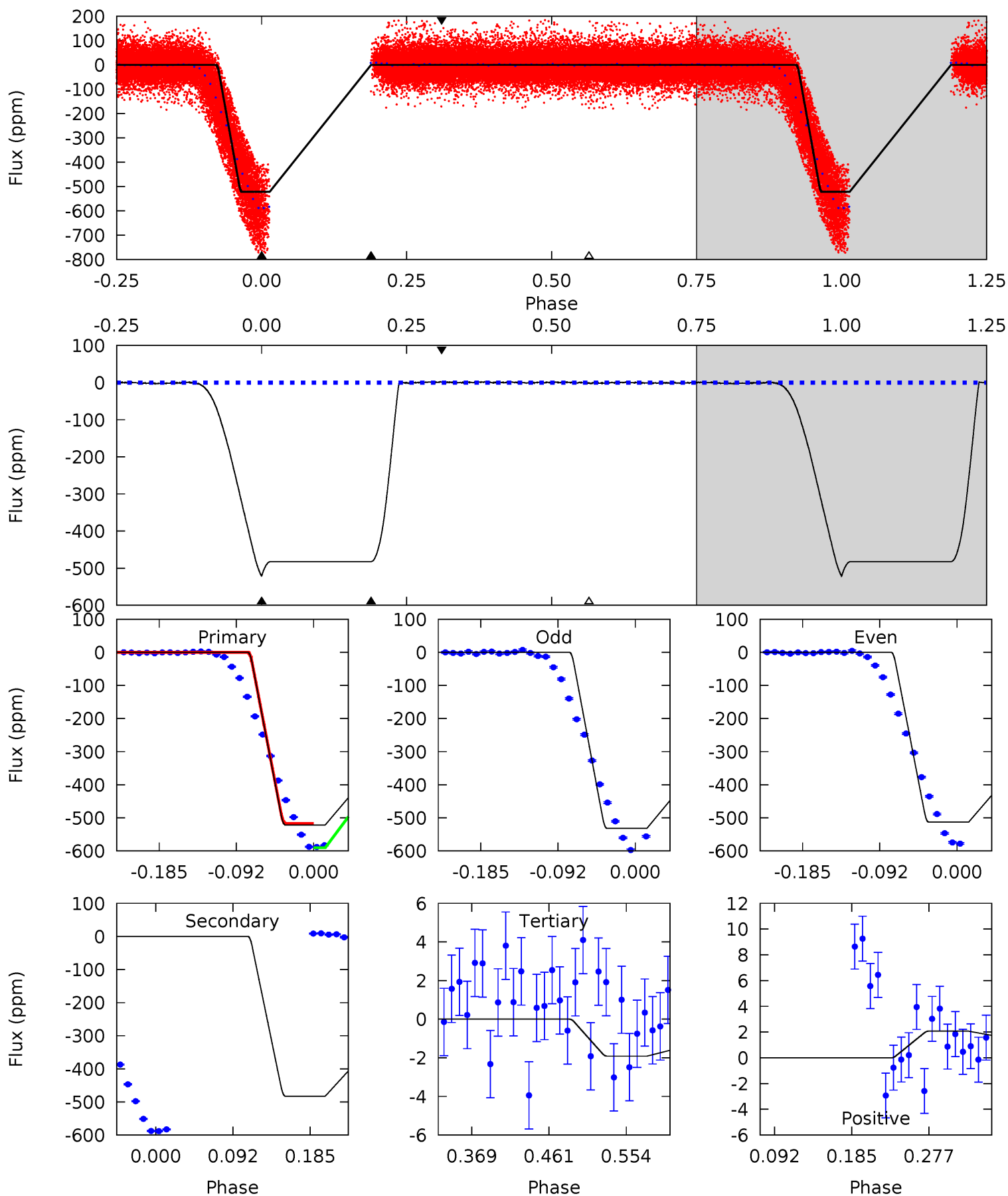
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.00	7.66	4.50	0	4.42	1.28	1.97	2.50	7.00	3.16	7.66	7.76	0	0.23	0



# Alt Model-Shift Uniqueness Test

005295670-03, P = 3.772334 Days, E = 128.733551 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
818.2	756.9	3.00	3.25	4.58	1.68	47.8	815.2	814.9	753.9	753.6	14.8	1.03	0.00	25.4



### Stellar Parameters For KIC 005295670

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6277^{+81}_{-81}$	$4.149^{+0.188}_{-0.101}$	$-0.300^{+0.150}_{-0.150}$	$1.428^{+0.245}_{-0.300}$	$1.049^{+0.099}_{-0.076}$	$0.507^{+0.446}_{-0.176}$
	+1%/-1%	+5%/-2%	+50%/-50%	+17%/-21%	+9%/-7%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005295670-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-12 \pm 2$	$10.47^{+11.72}_{-7.70}$	$1982^{+818}_{-372}$	$-2161^{+5345}_{-644}$	$0.160^{+2.671}_{-0.135}$
Alt.	$-483 \pm 1$	$12.61^{+12.52}_{-8.71}$	$1954^{+775}_{-332}$	$3584^{+2240}_{-856}$	$4.583^{+46.546}_{-3.838}$

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

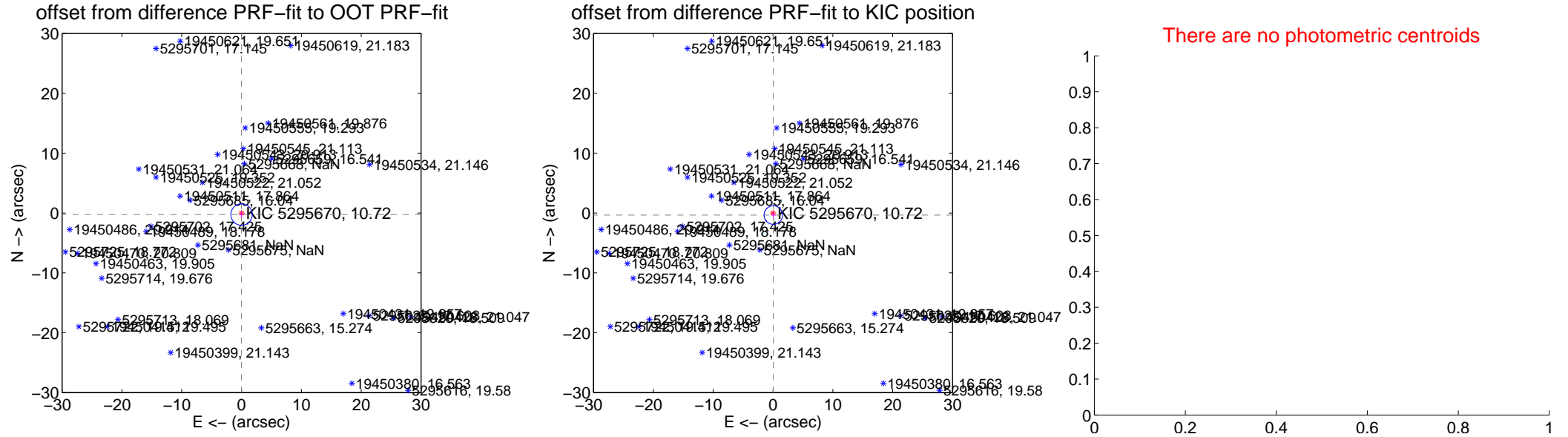
## DV Centroid Data

Supplemental centroid analysis for 005295670-03. **Kepler magnitude: 10.72**. Transit SNR 0.00

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

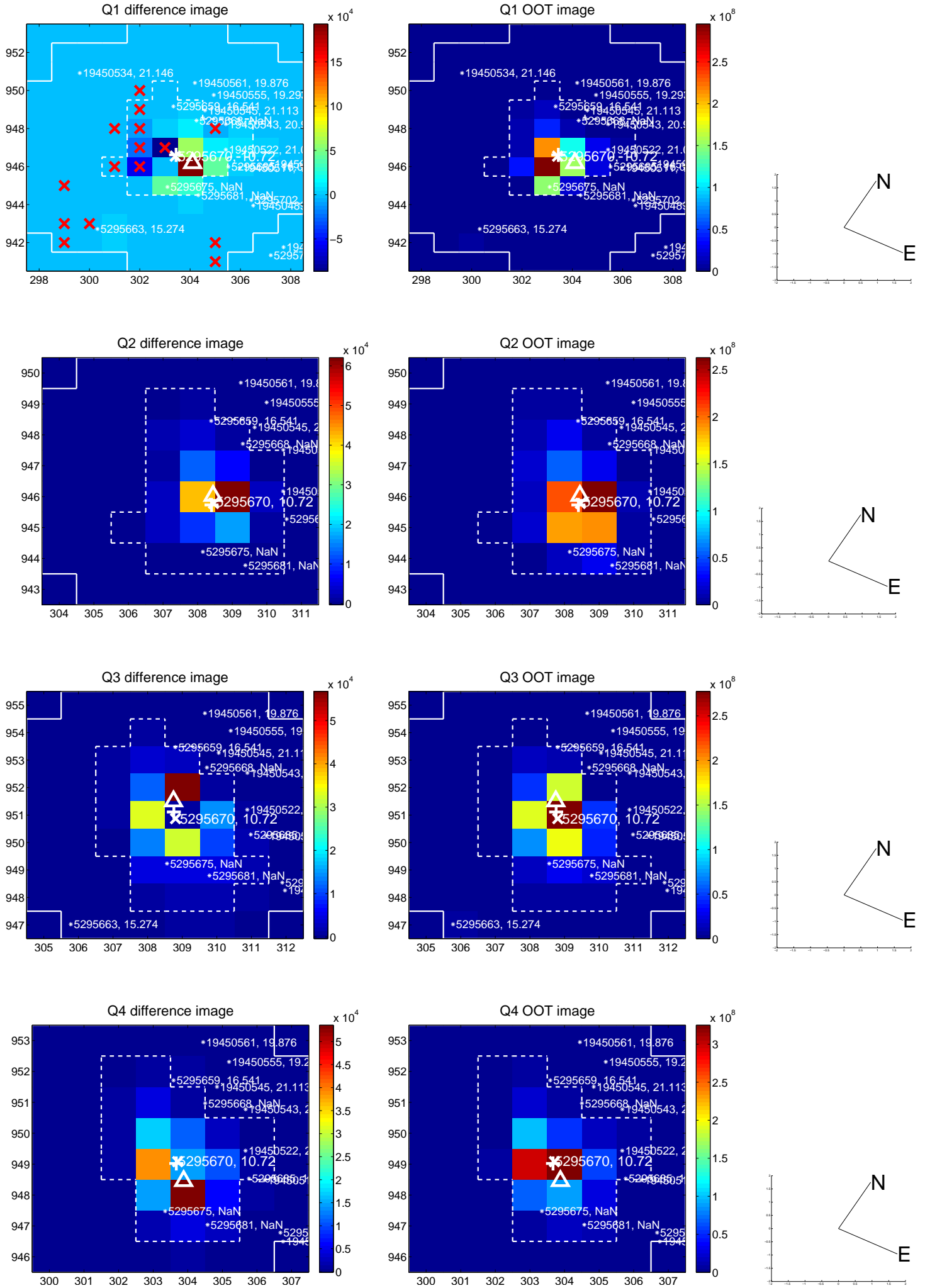
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.260 \pm 0.596$	0.44	$0.000 \pm 0.398$	$-0.260 \pm 0.596$
PRF-fit source offset from KIC position	$0.346 \pm 0.515$	0.67	$-0.049 \pm 0.387$	$-0.342 \pm 0.518$
photometric centroid source offset	—	—	—	—



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.

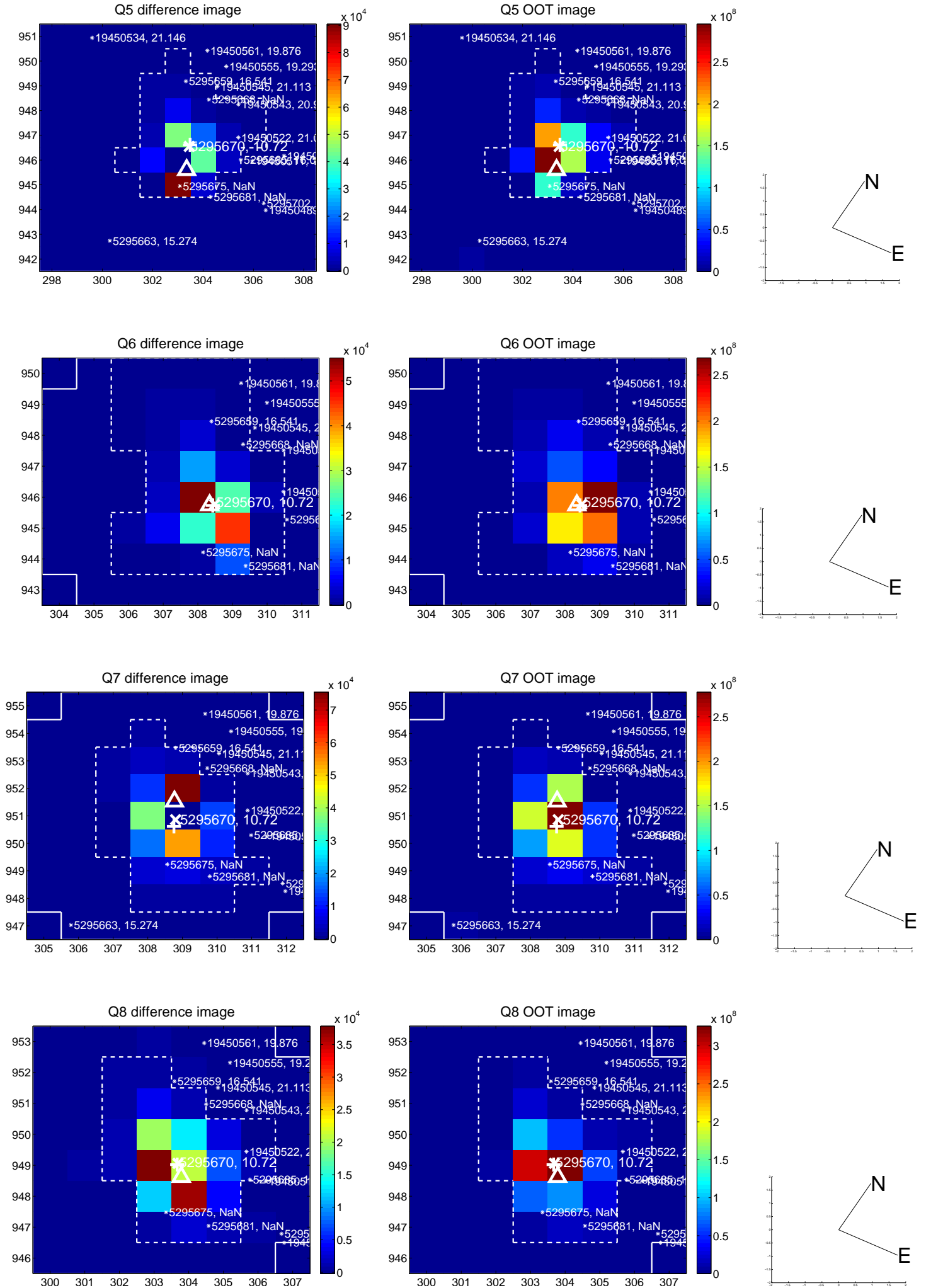


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

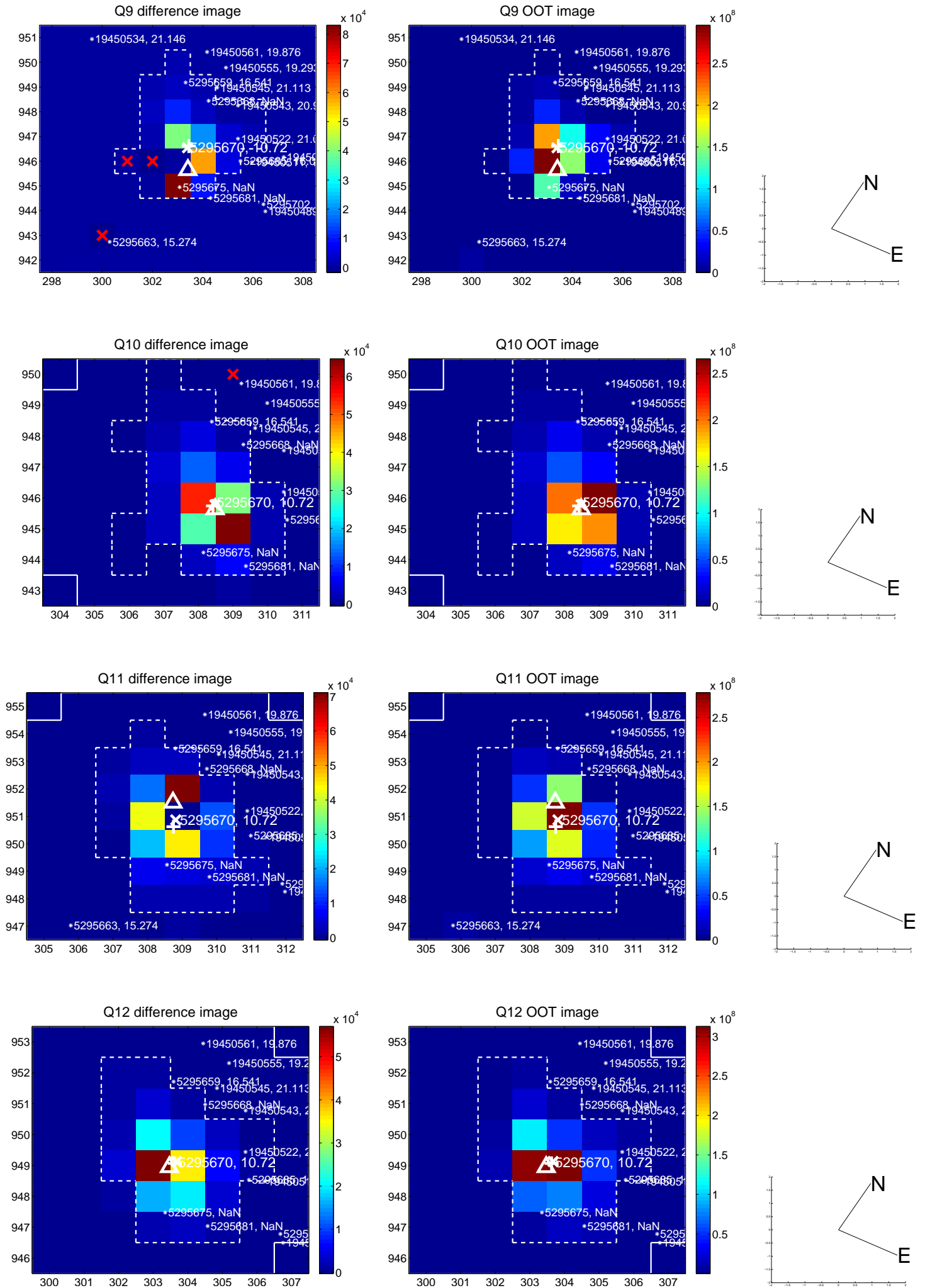




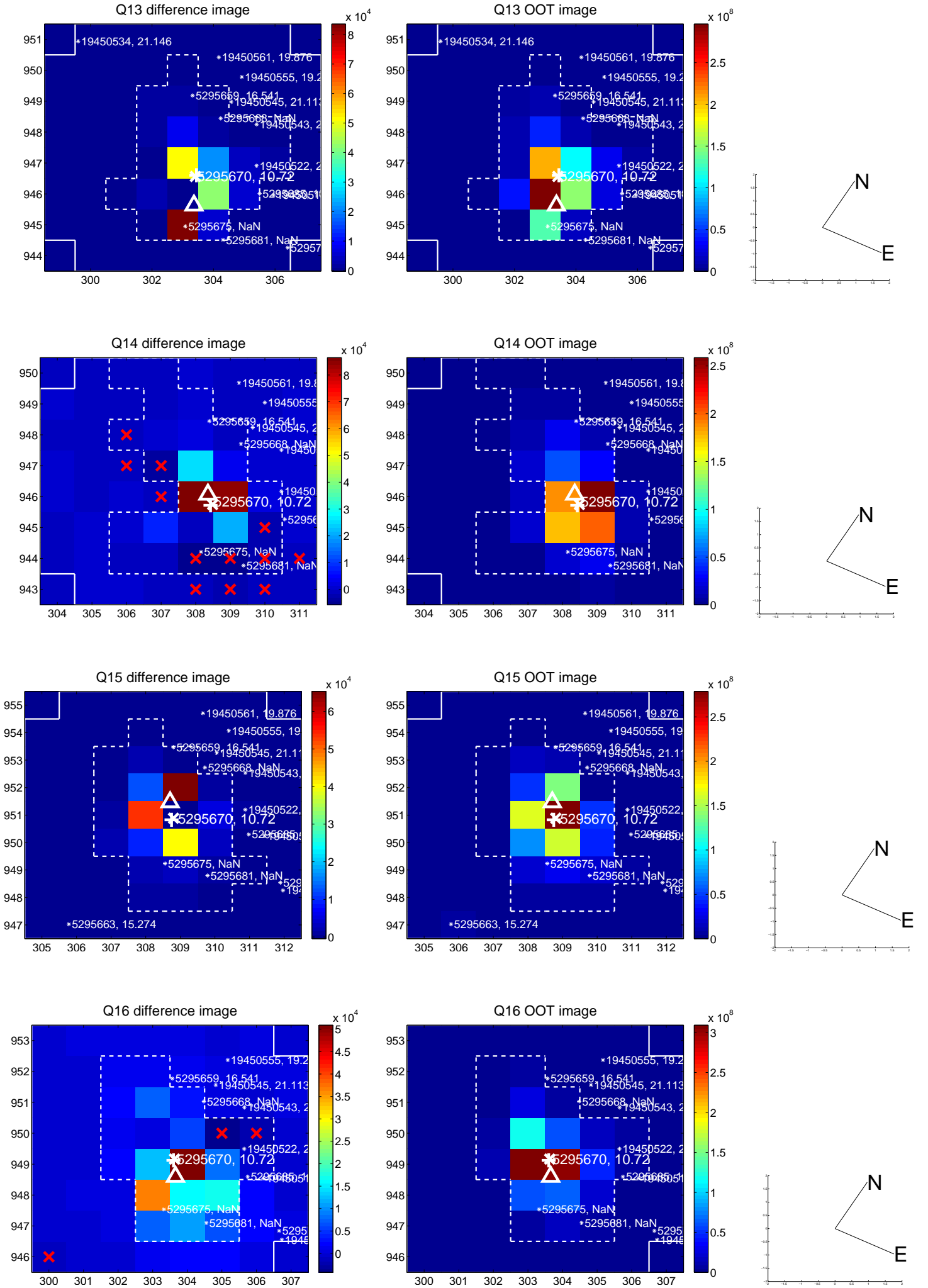
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



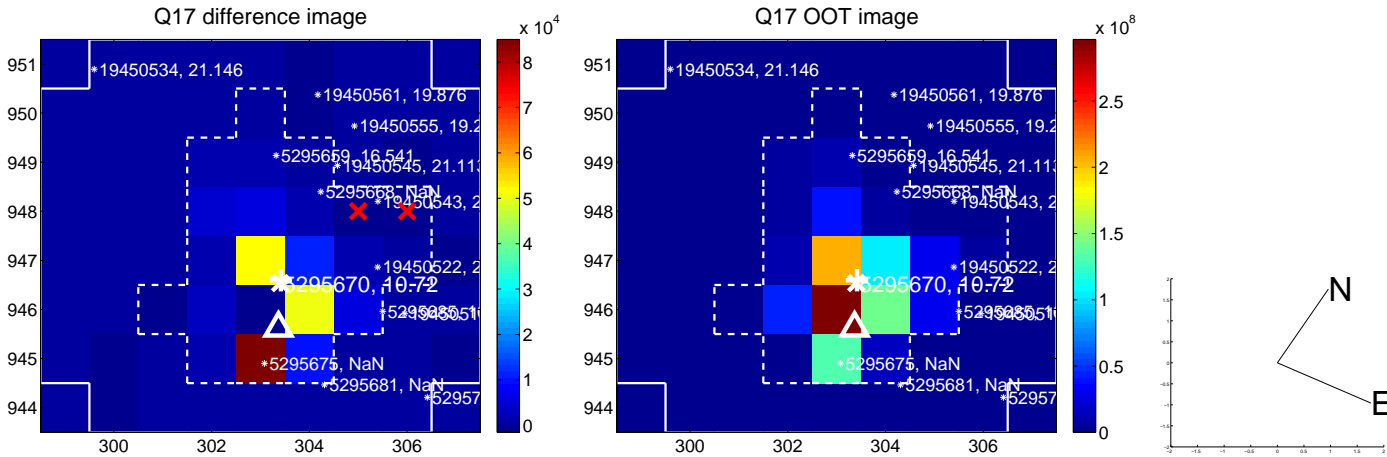
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



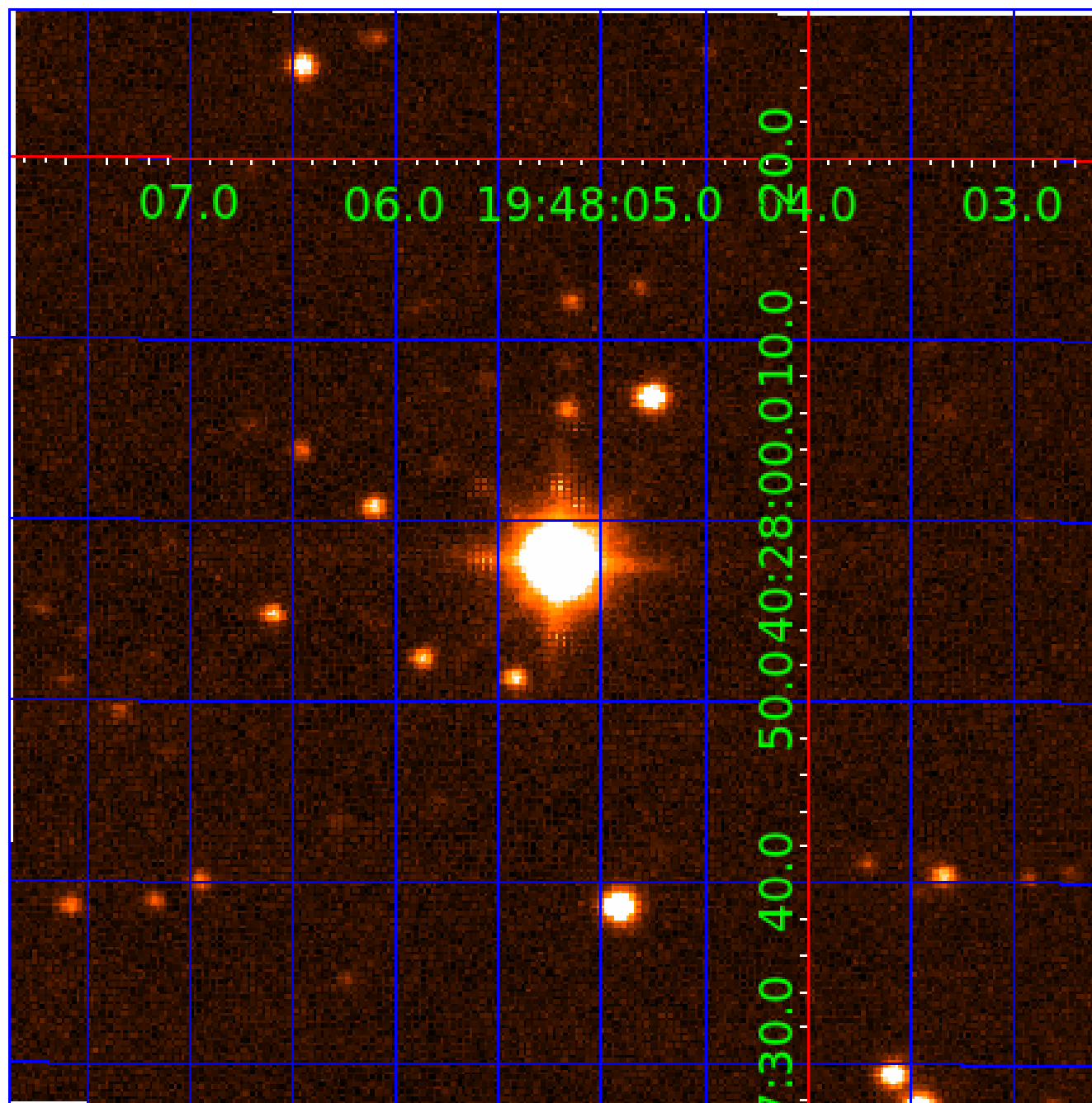
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



# KIC 005295670

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005295670-01	OBS	No	3.772074	132.938433	8.3	5.852	8.1	5.3	1.43	6277	0.48	1221.65
005295670-02	OBS	No	679.014010	156.004021	118.0	7.500	10.3	-1.0	1.43	6277	1.56	1.20
005295670-03	OBS	No	3.772363	132.628937	0.0	17.599	7.9	0.0	1.43	6277	0.00	1221.53
005295670-04	OBS	No	422.559210	261.965652	161.1	15.000	21.5	-1.0	1.43	6277	1.82	2.26
005295670-05	OBS	No	139.005557	207.605394	62.3	28.693	9.0	4.5	1.43	6277	1.26	9.96
005295670-06	OBS	No	154.109364	154.042378	37.1	10.137	8.4	3.8	1.43	6277	0.96	8.68

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005295670-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005295670-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
005295670-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
005295670-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

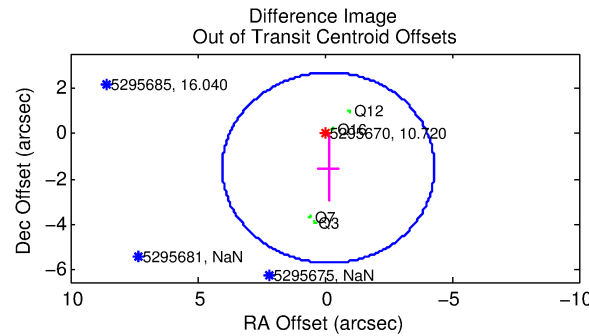
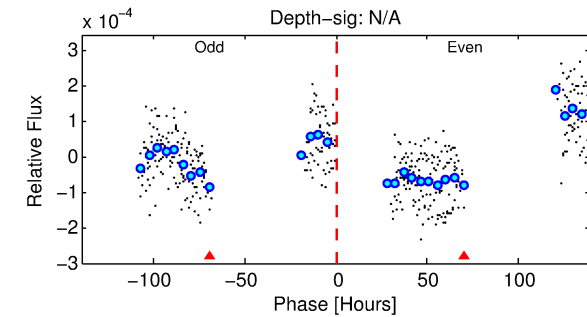
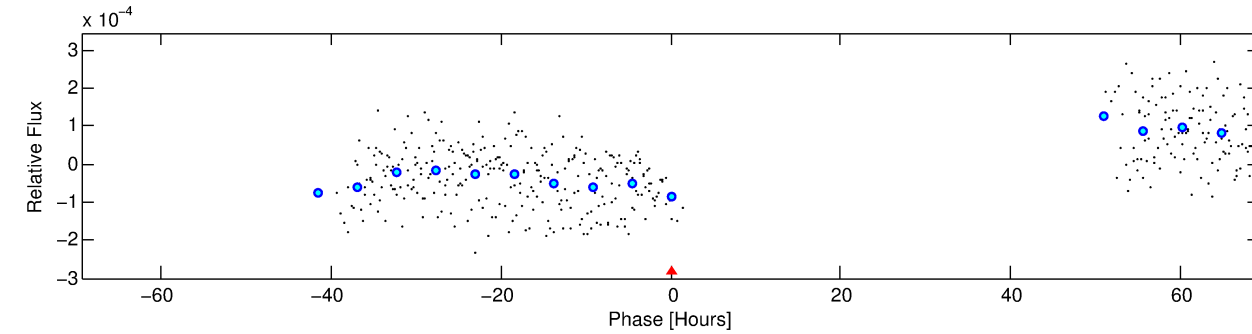
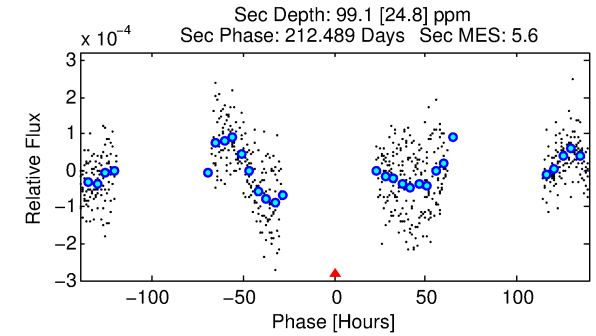
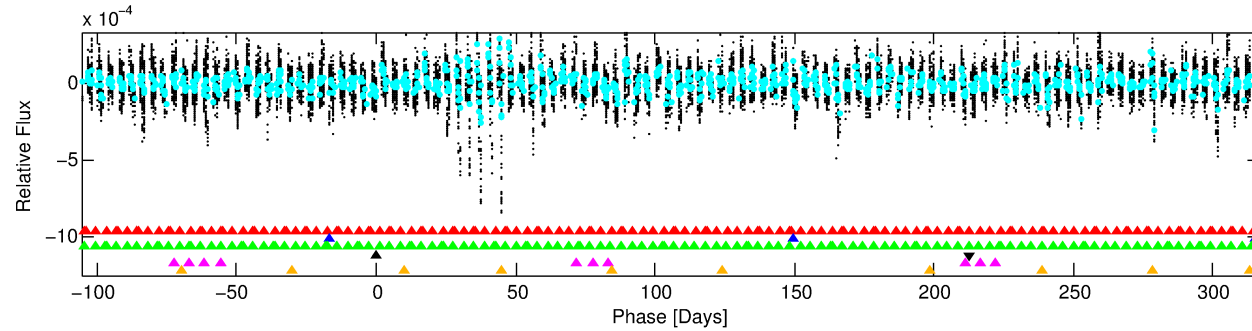
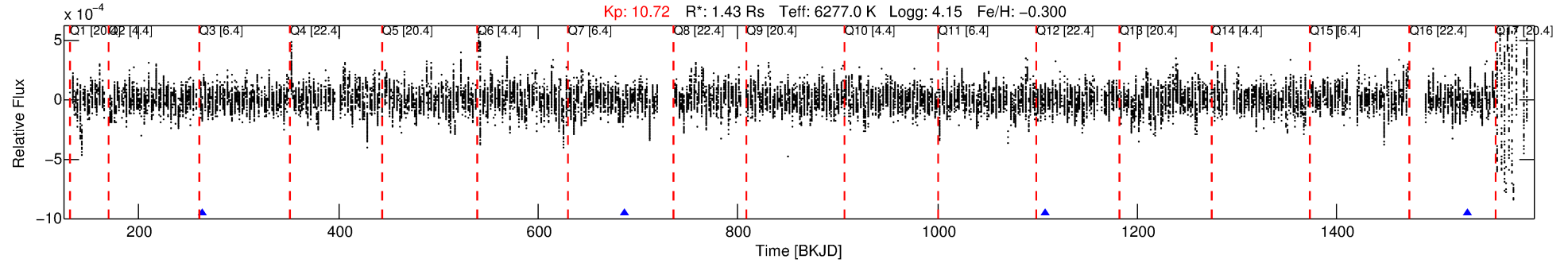
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005295670-04

No Significant Match Found

# DV One-Page Summary

KIC: 5295670 Candidate: 4 of 6 Period: 422.559 d



## TPS TCE Results:

Period = 422.55921 d  
Epoch = 261.9657 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

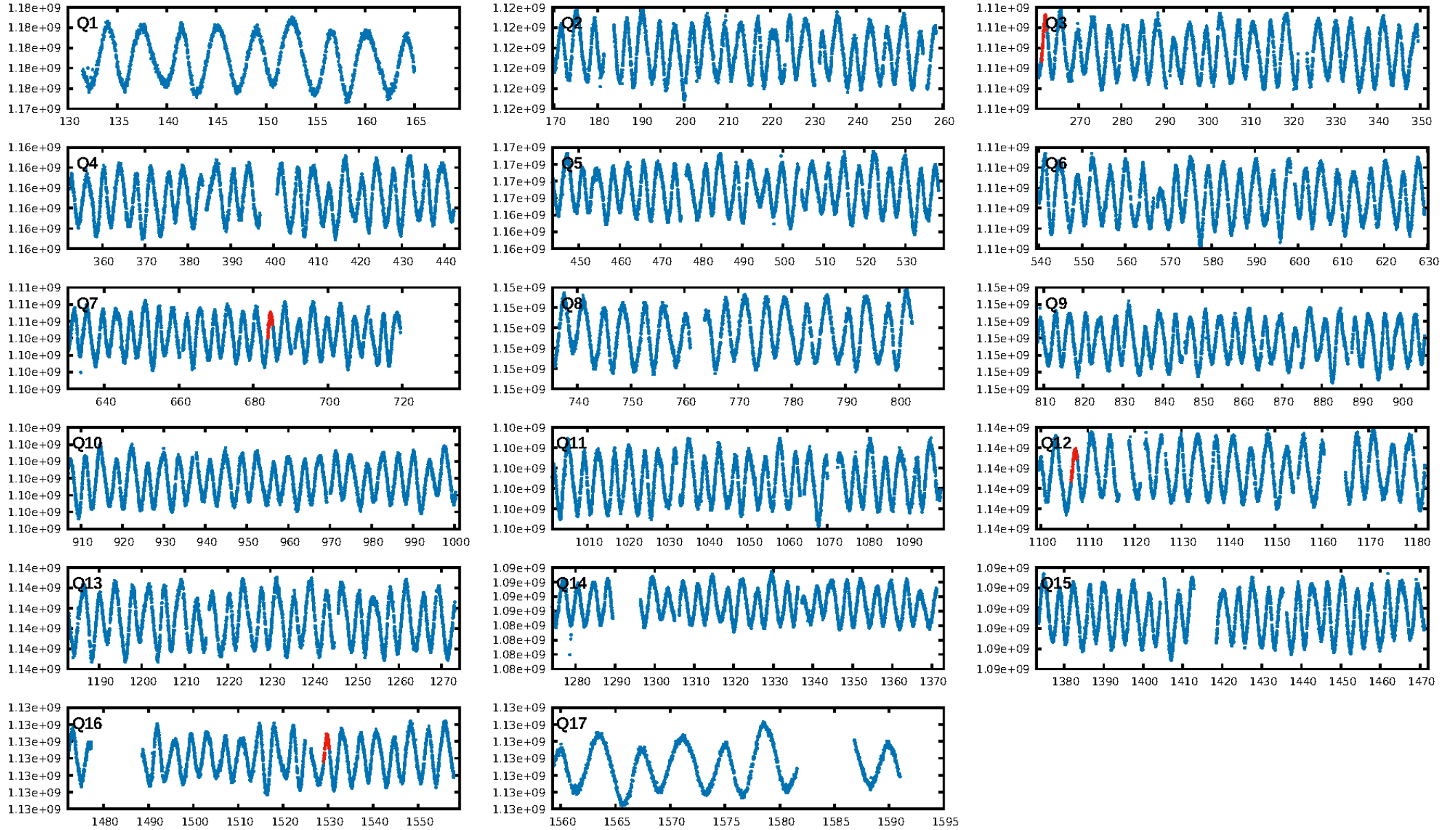
ShortPeriod-sig: 100.0% [355.87 $\sigma$ ]  
LongPeriod-sig: 100.0% [367.01 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.26e-40  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 13.5%  
Centroid-so: 0.383 arcsec [1.83 $\sigma$ ]  
OotOffset-rm: 1.510 arcsec [1.09 $\sigma$ ]  
KicOffset-rm: 1.808 arcsec [1.26 $\sigma$ ]  
OotOffset-st: 0/2/2/0 [4]  
KicOffset-st: 0/2/2/0 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 0.00 [0/4]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:38:30 Z

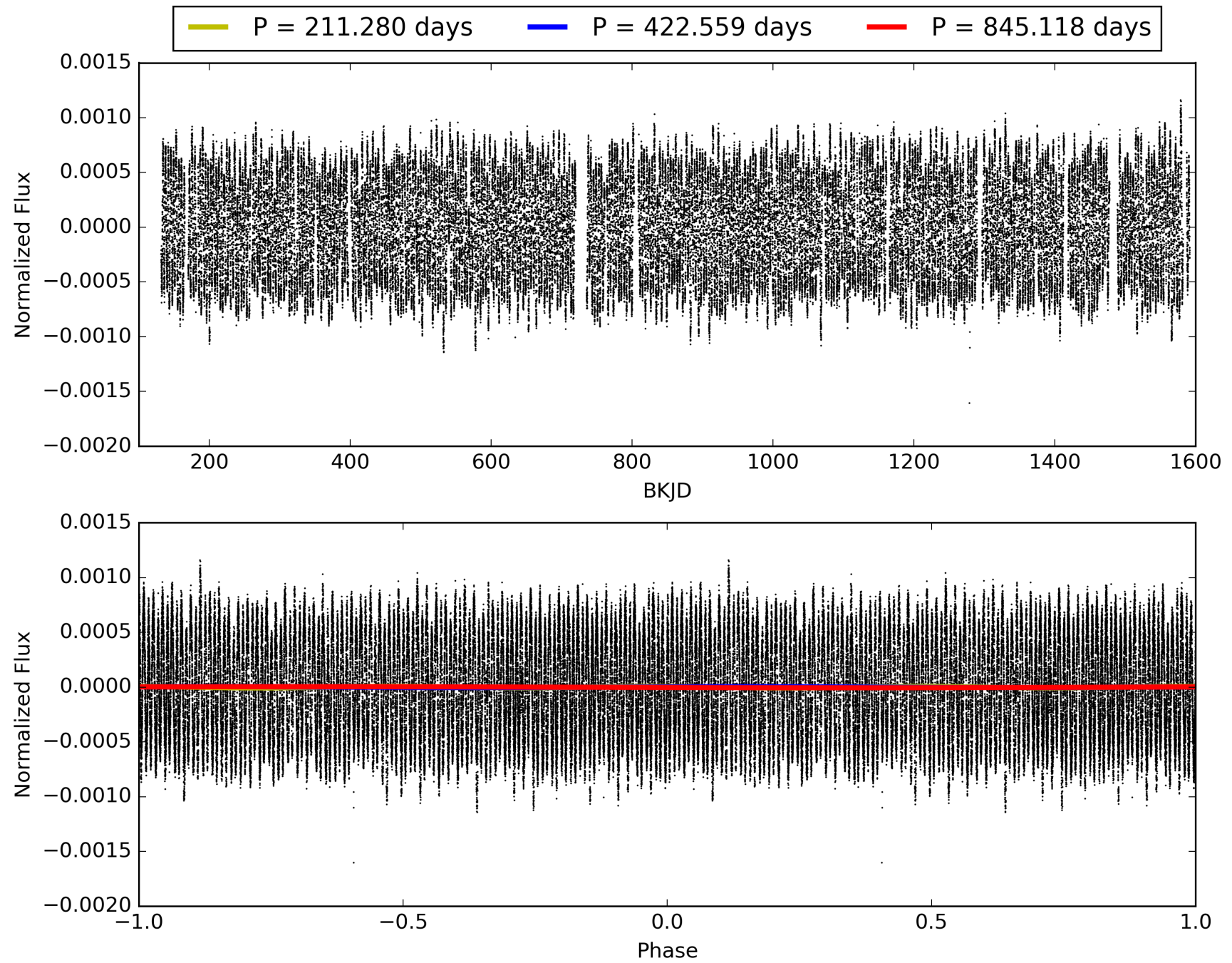
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005295670-04, PDC Light Curves

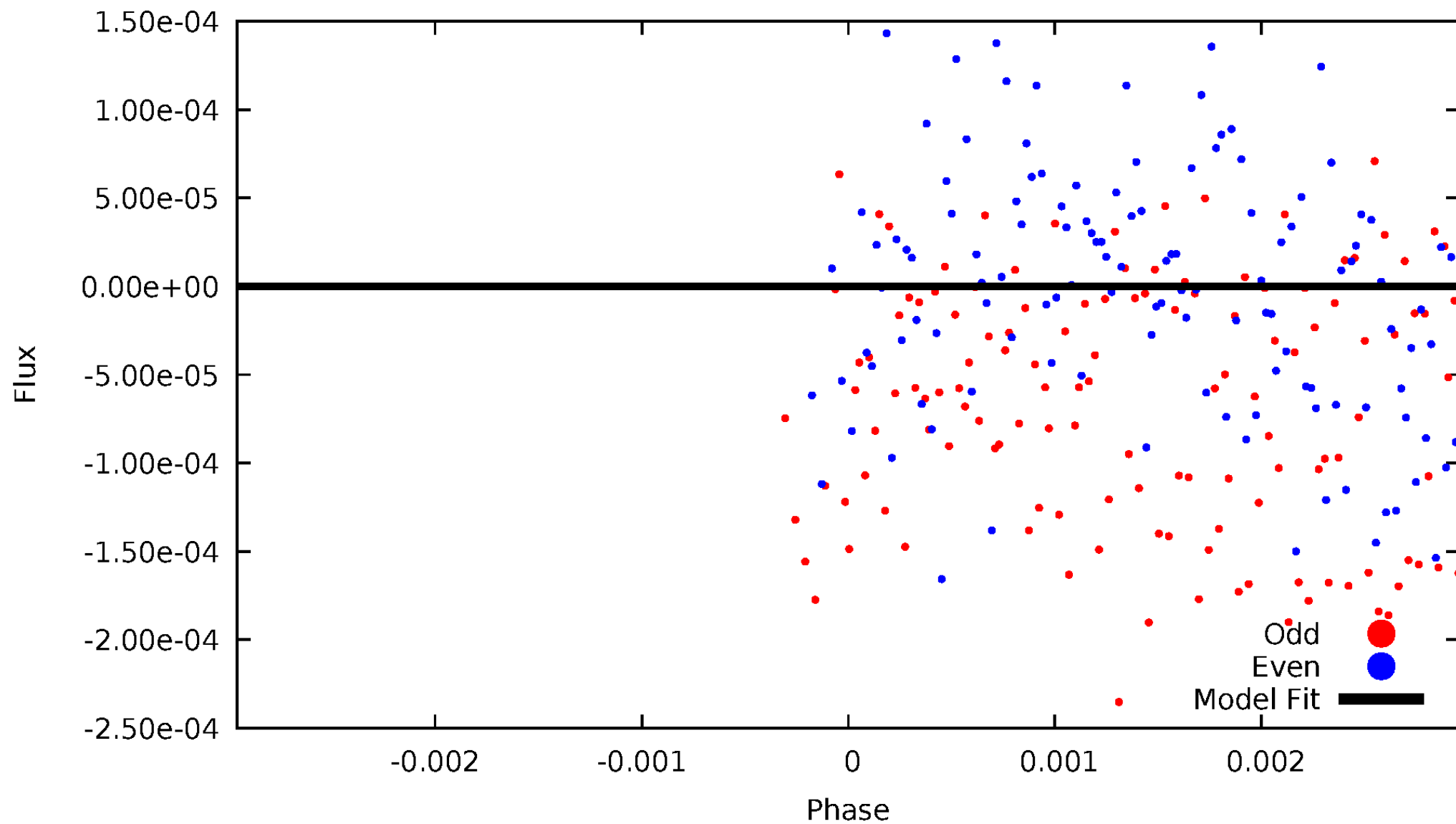


# TCE 005295670-04



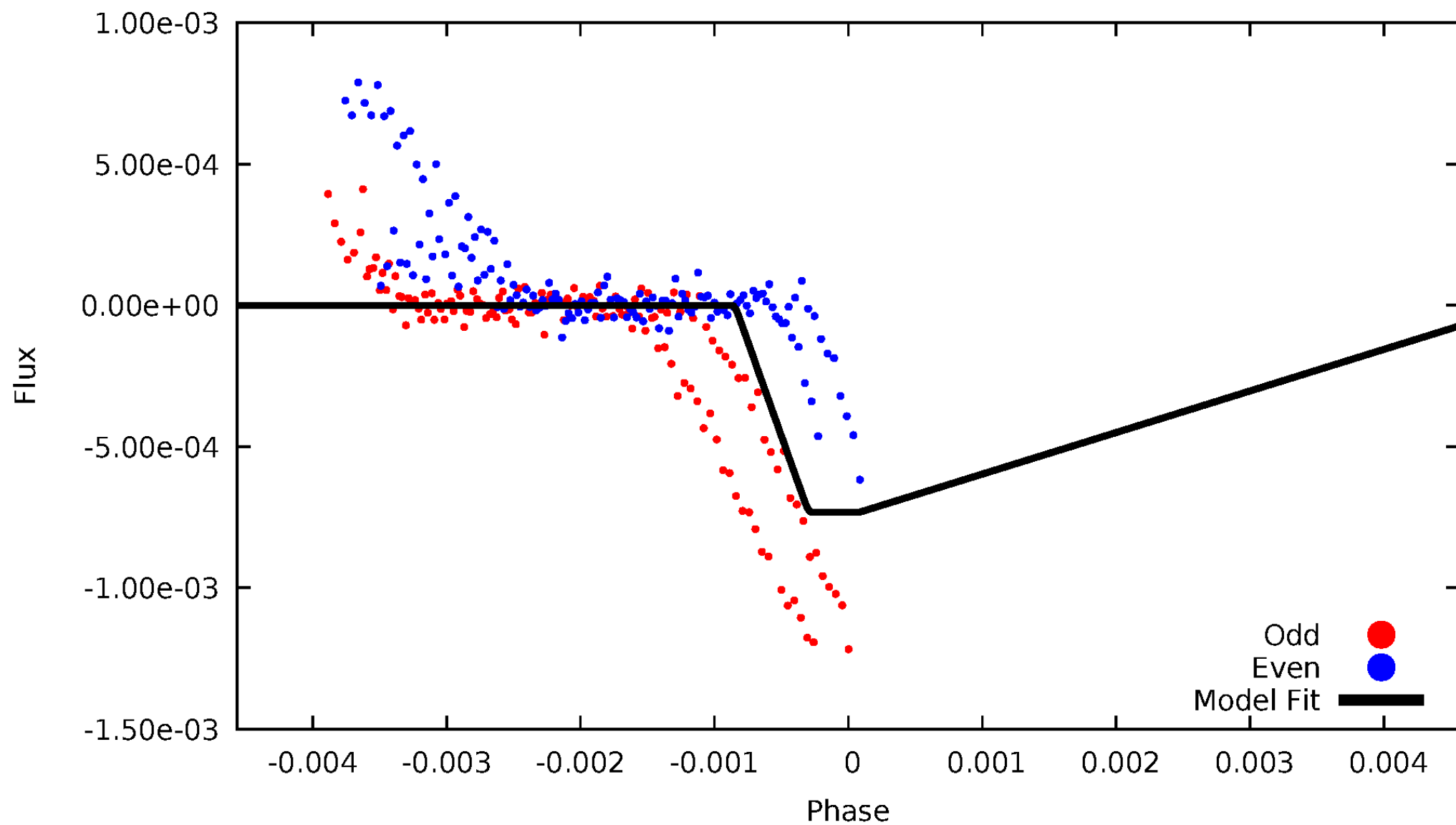
# DV Odd/Even

TCE 005295670-04



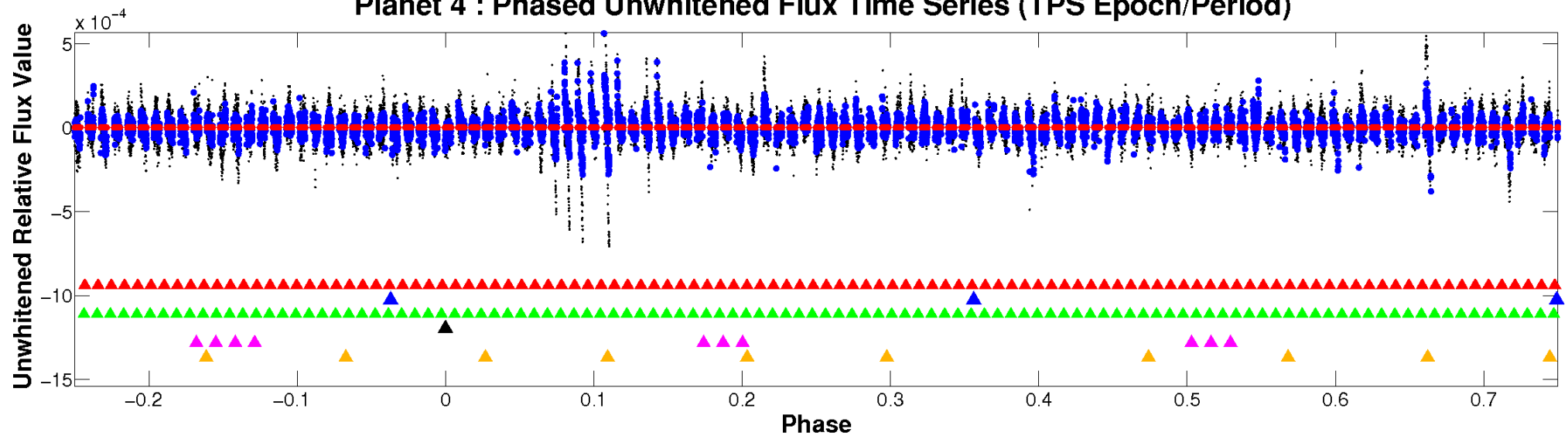
# ALT Odd/Even

TCE 005295670-04

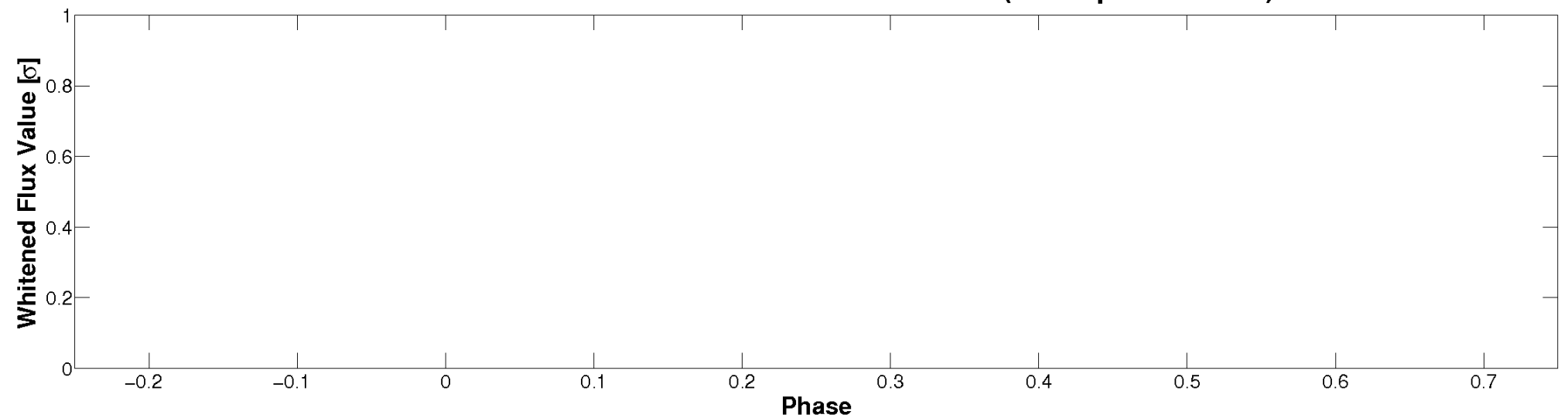


# Non-Whitened Vs. Whitened Light Curve

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

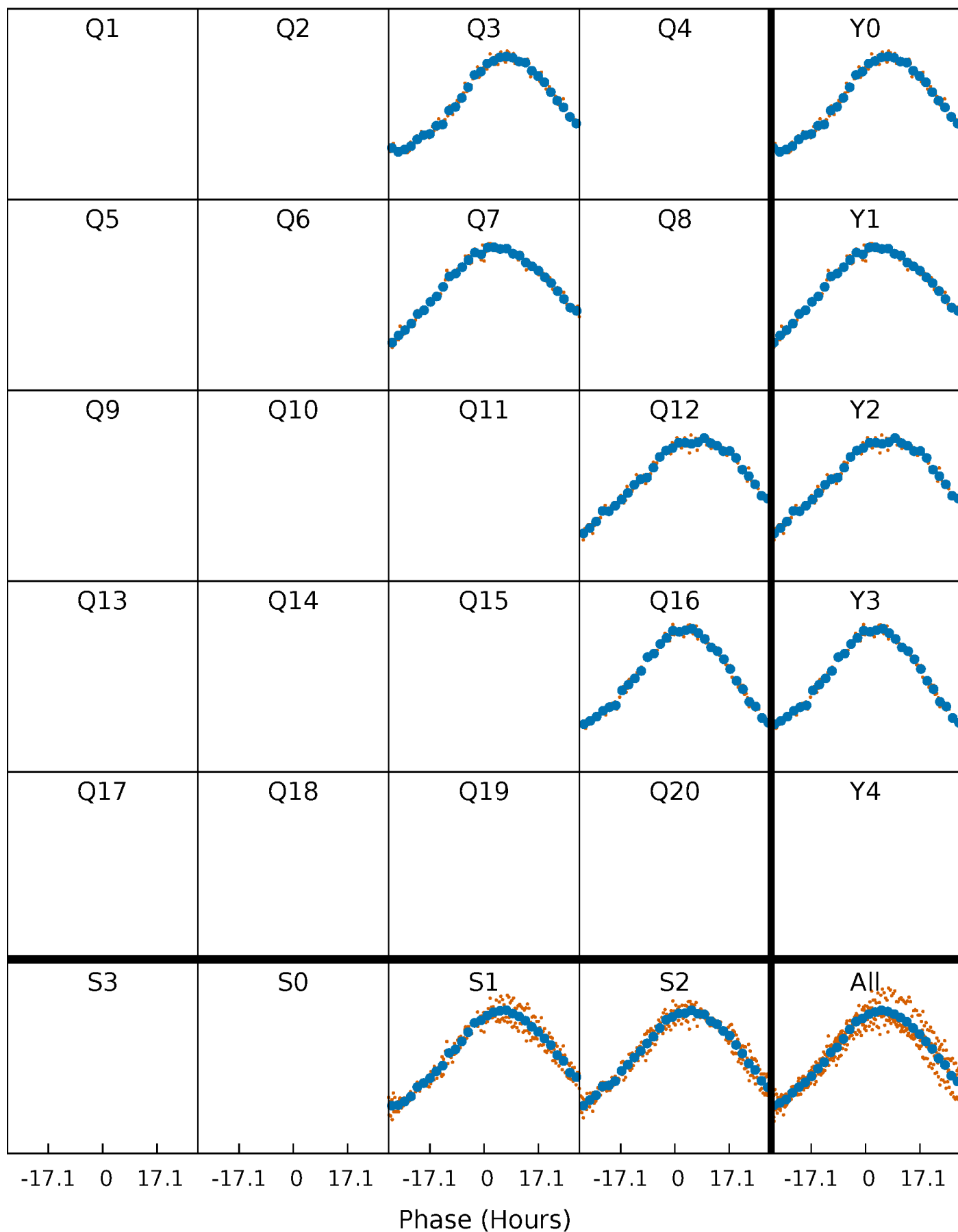


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



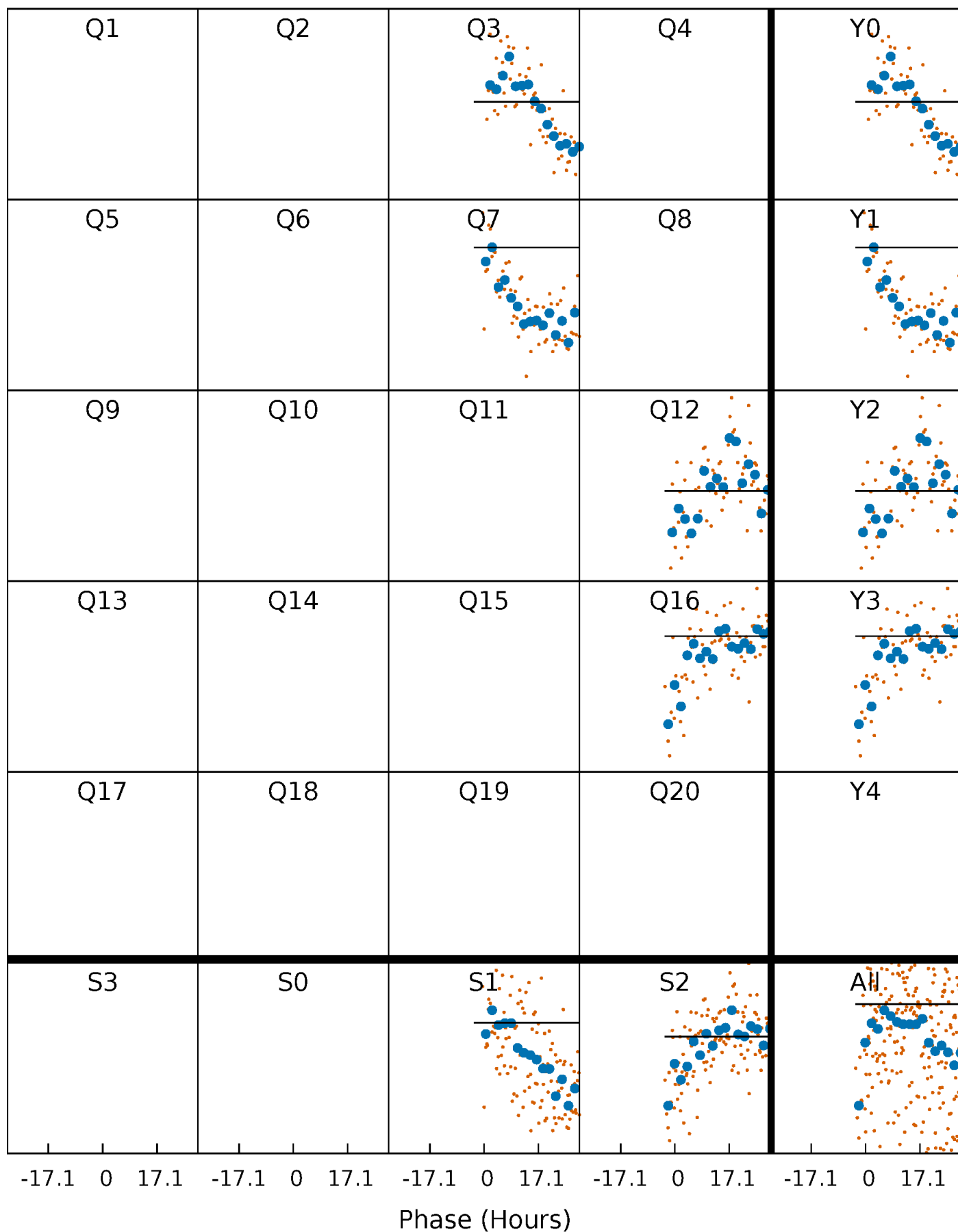
# PDC Quarter-Phased Transit Curves

TCE 005295670-04     $P=422.559210$  Days     $T_0=261.965652$  (BKJD)



# DV Quarter-Phased Transit Curves

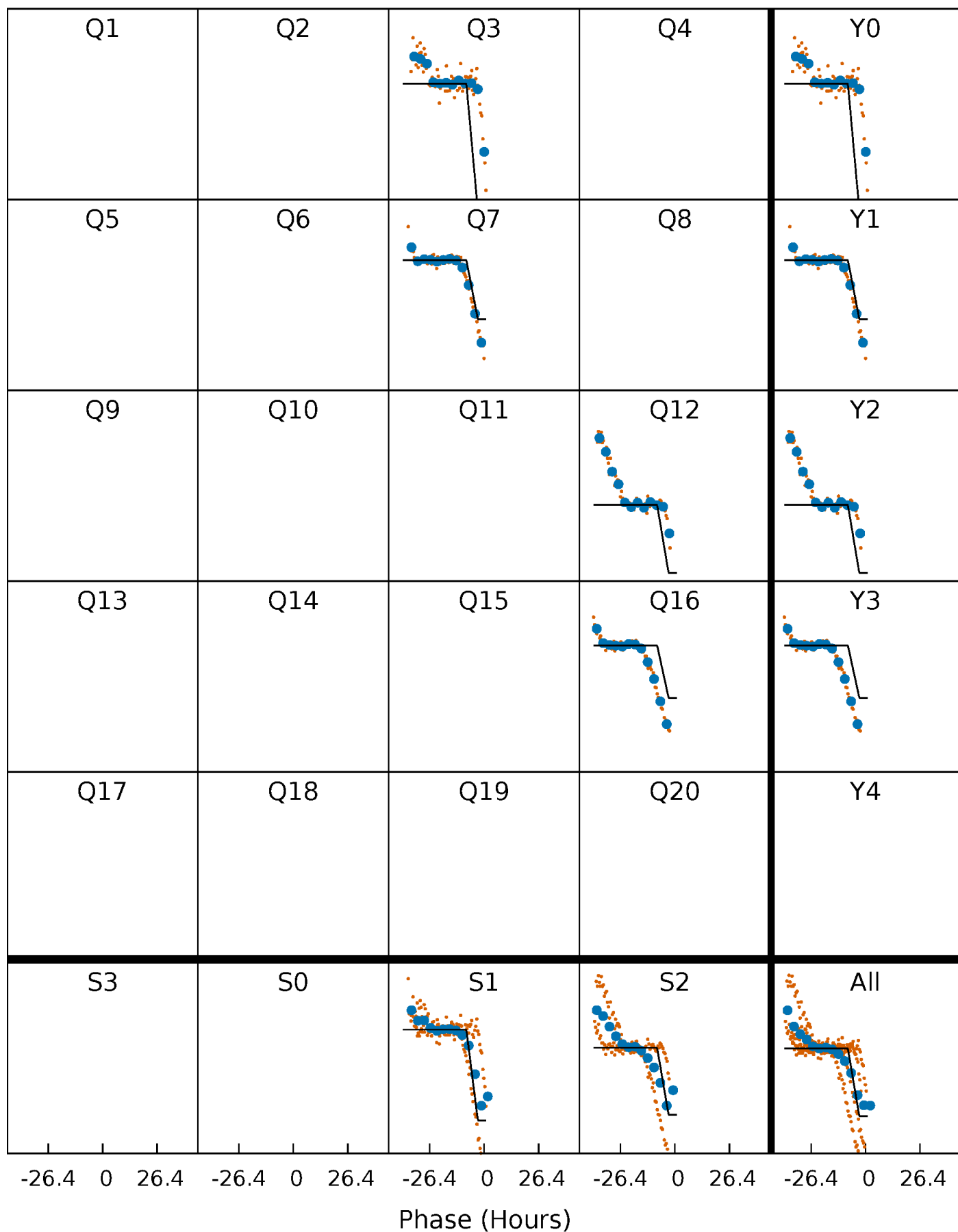
TCE 005295670-04     $P=422.559210$  Days     $T_0=261.965652$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

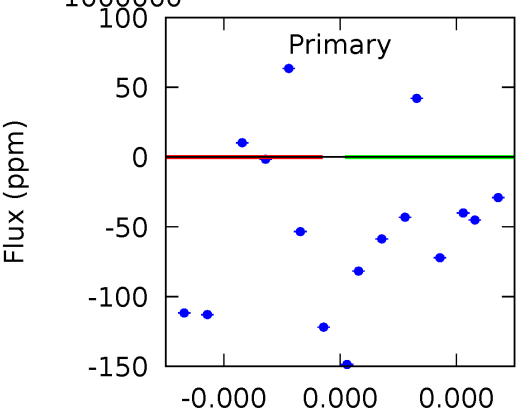
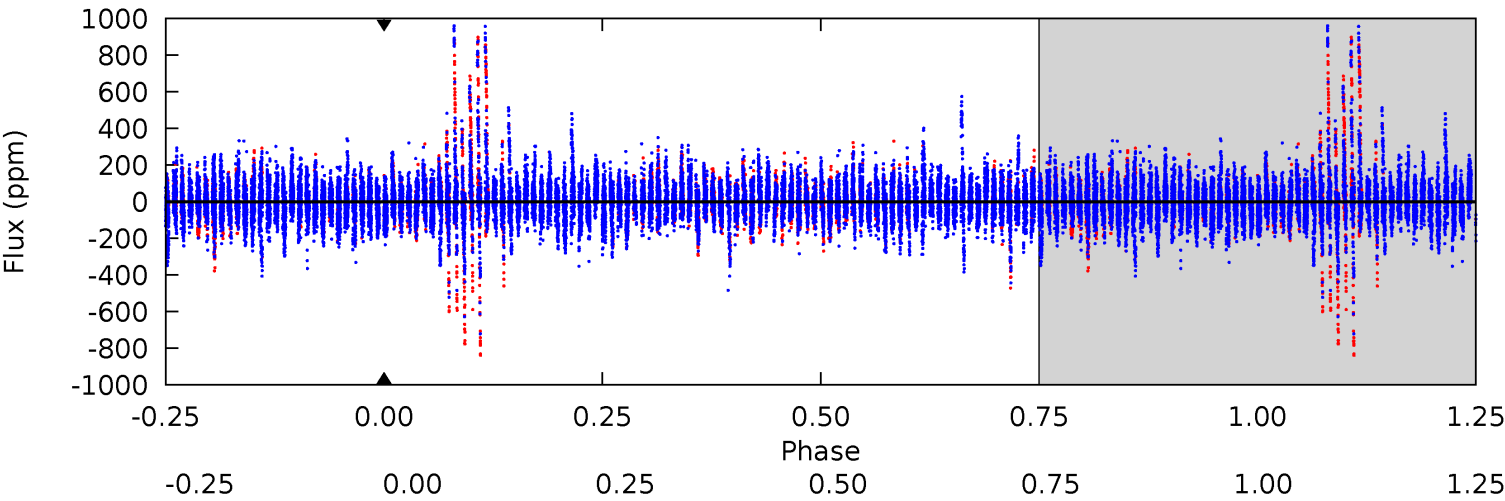
TCE 005295670-04     $P=422.559210$  Days     $T_0=263.478528$  (BKJD)



# DV Model-Shift Uniqueness Test

005295670-04, P = 422.559210 Days, E = 261.965652 Days

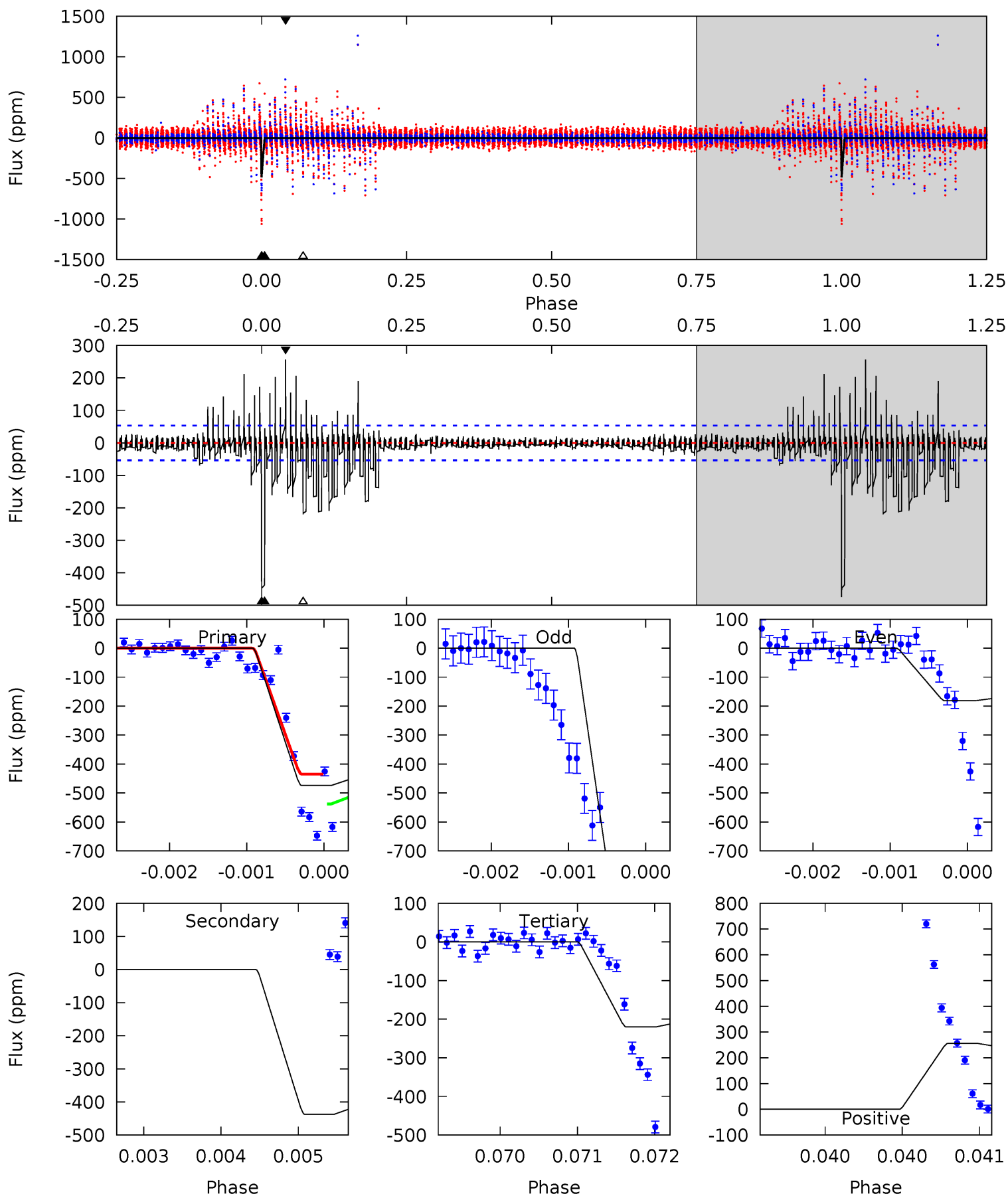
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

005295670-04, P = 422.559210 Days, E = 263.478528 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
48.6	44.8	22.6	26.2	5.46	3.31	2.35	26.1	22.4	22.3	18.6	48.5	1.16	0.35	1.47



### Stellar Parameters For KIC 005295670

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6277^{+81}_{-81}$	$4.149^{+0.188}_{-0.101}$	$-0.300^{+0.150}_{-0.150}$	$1.428^{+0.245}_{-0.300}$	$1.049^{+0.099}_{-0.076}$	$0.507^{+0.446}_{-0.176}$
	+1%/-1%	+5%/-2%	+50%/-50%	+17%/-21%	+9%/-7%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005295670-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$10.96^{+10.24}_{-7.88}$	$435^{+19}_{-25}$	$-3983^{+35322}_{-18260}$	$-3174.381^{+1294920.475}_{-799817.342}$
Alt.	$-437 \pm 10$	$12.31^{+12.32}_{-9.03}$	$434^{+19}_{-26}$	$3639^{+2496}_{-682}$	$2059^{+27043}_{-1549}$

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

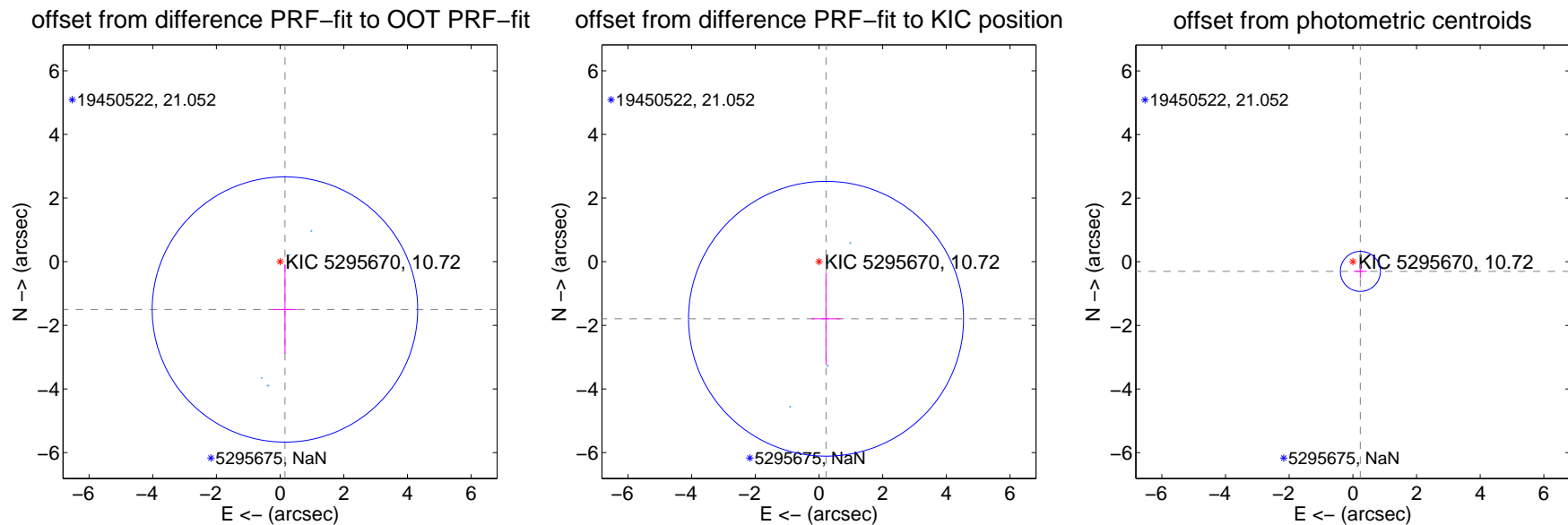
## DV Centroid Data

Supplemental centroid analysis for 005295670-04. **Kepler magnitude: 10.72.** 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 0.21 arcsec

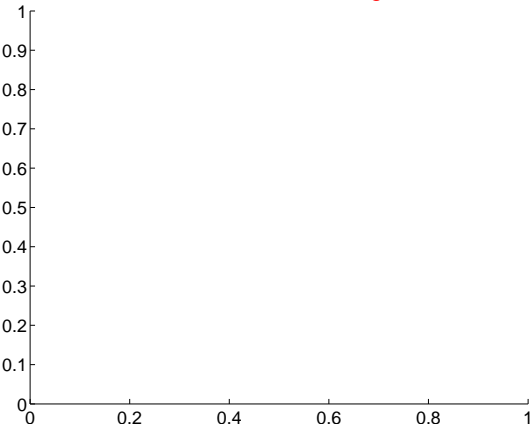
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.510 \pm 1.390$	1.09	$-0.152 \pm 0.378$	$-1.502 \pm 1.397$
PRF-fit source offset from KIC position	$1.808 \pm 1.440$	1.26	$-0.222 \pm 0.457$	$-1.794 \pm 1.450$
photometric centroid source offset	$0.38 \pm 0.21$	1.83	$-0.24 \pm 0.20$	$-0.30 \pm 0.21$



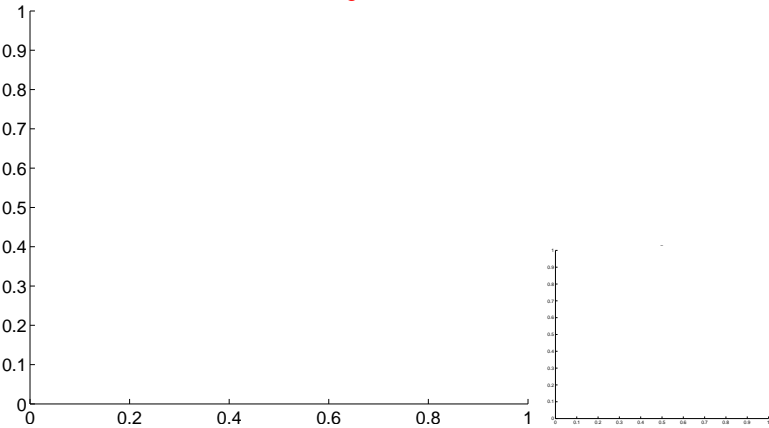
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

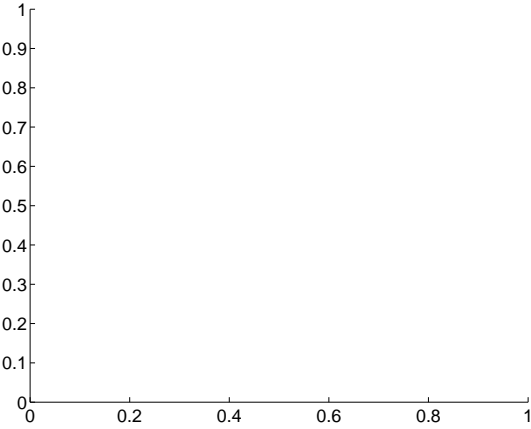
Q1 no difference image



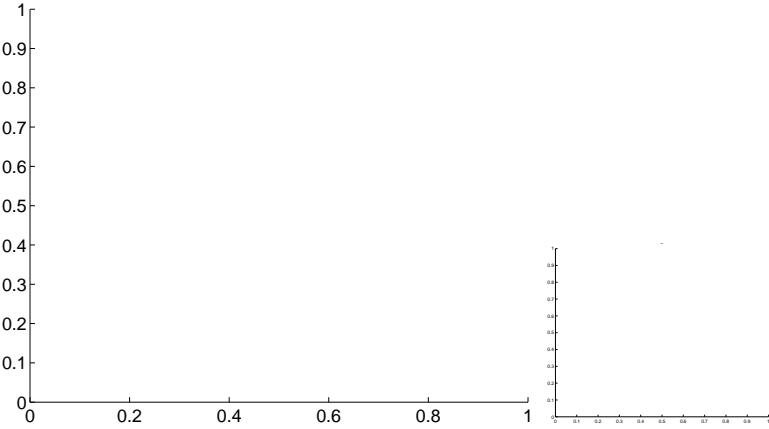
Q1 no OOT image



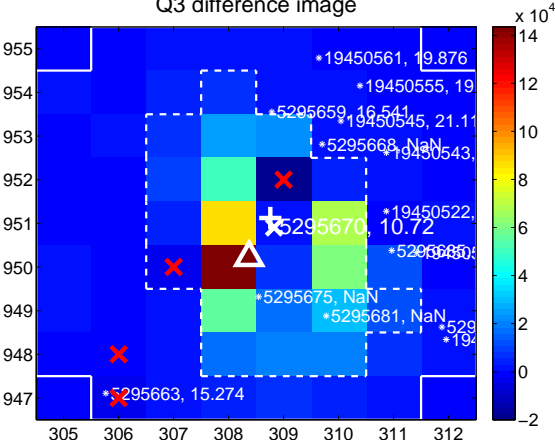
Q2 no difference image



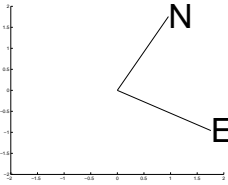
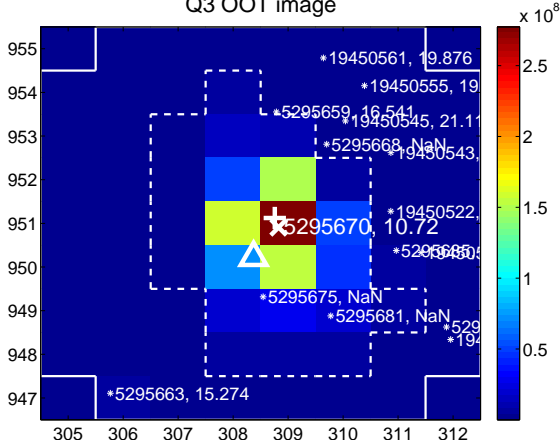
Q2 no OOT image



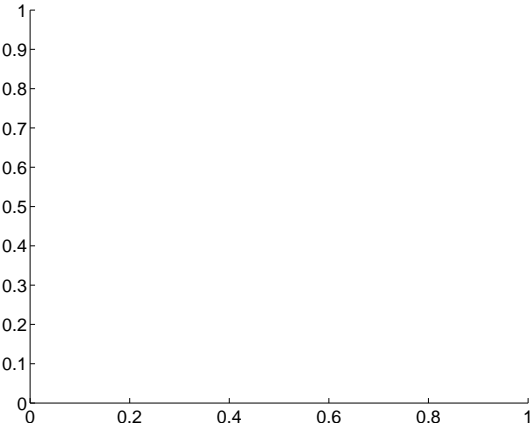
Q3 difference image



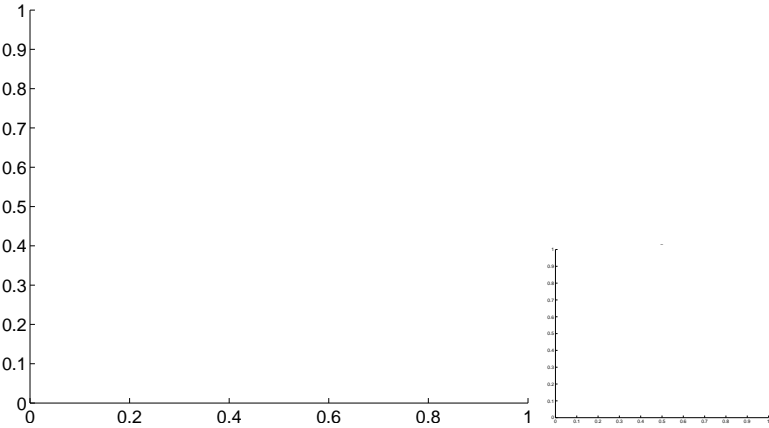
Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



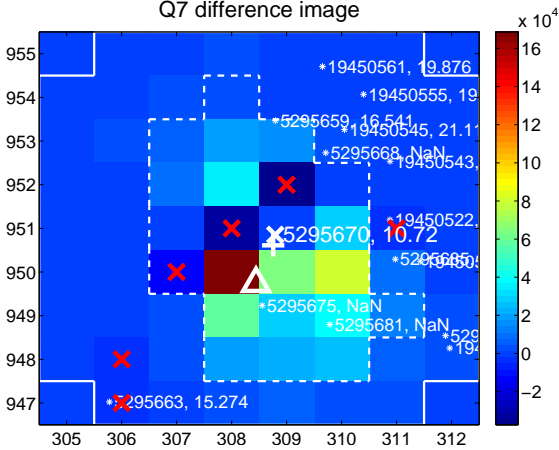
Q6 no difference image



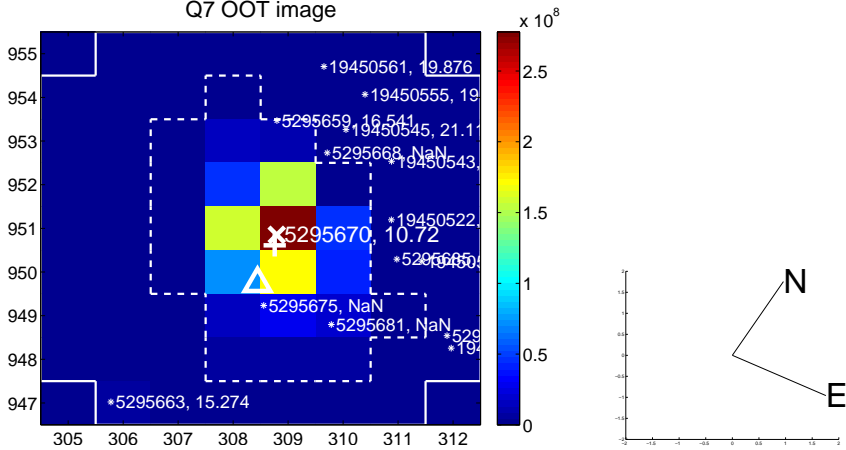
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image





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

Q9 no difference image



Q9 no OOT image



Q10 no difference image



Q10 no OOT image



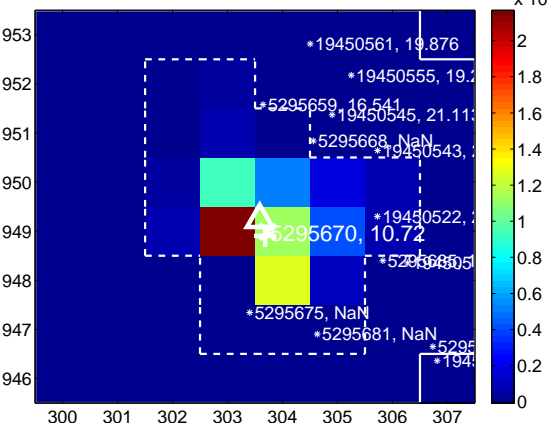
Q11 no difference image



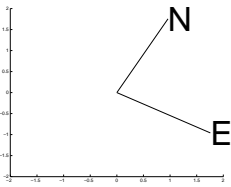
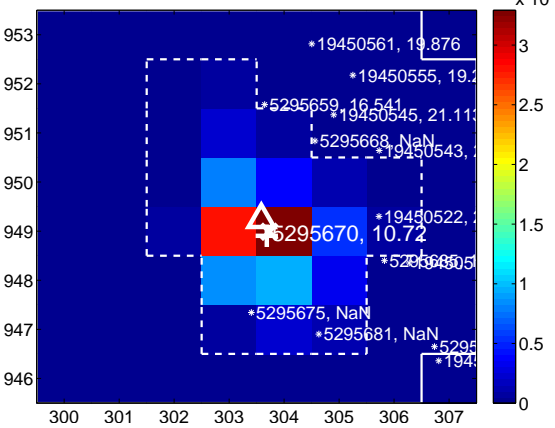
Q11 no OOT image



Q12 difference image

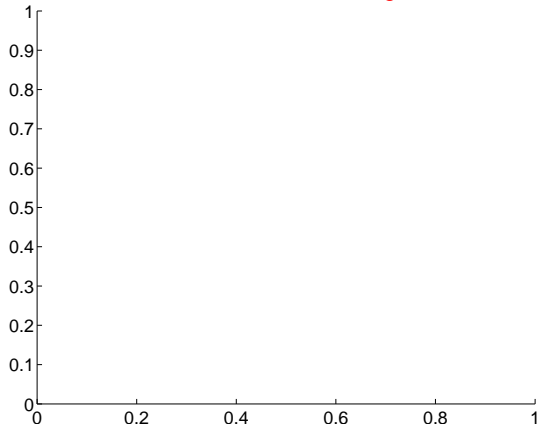


Q12 OOT image

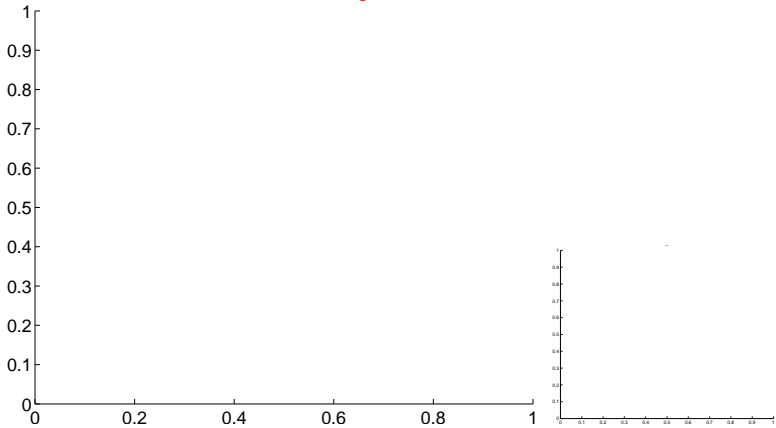


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

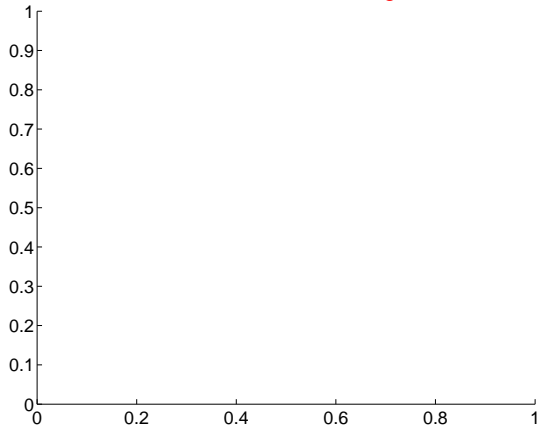
Q13 no difference image



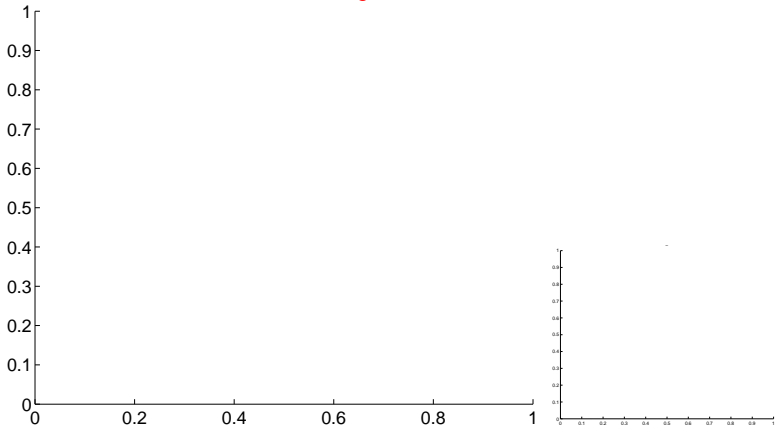
Q13 no OOT image



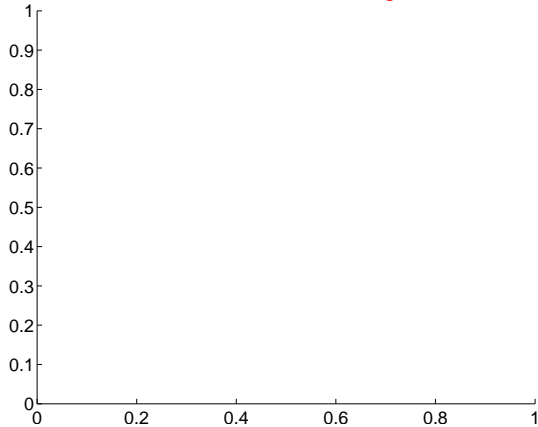
Q14 no difference image



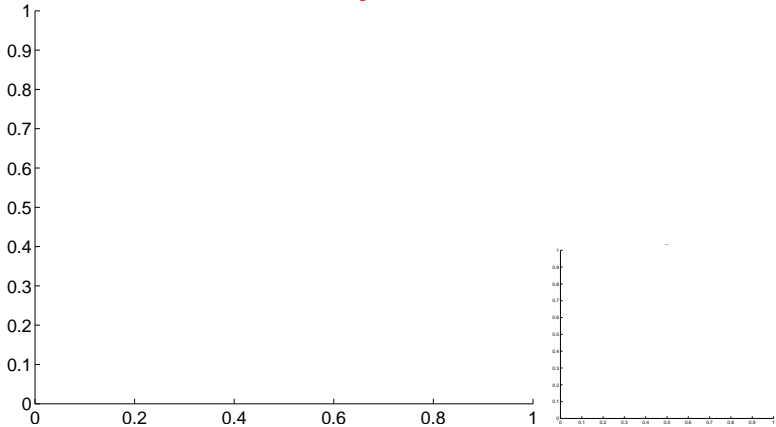
Q14 no OOT image



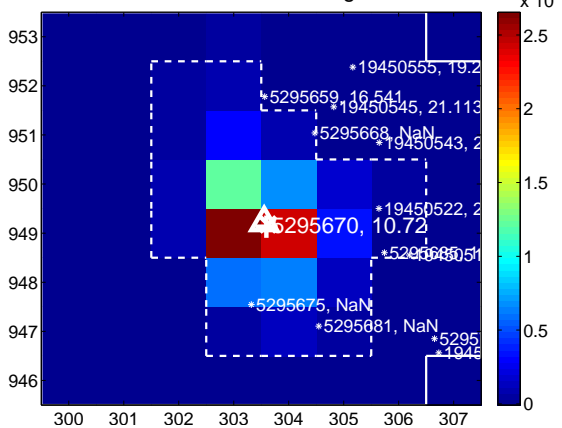
Q15 no difference image



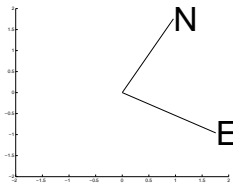
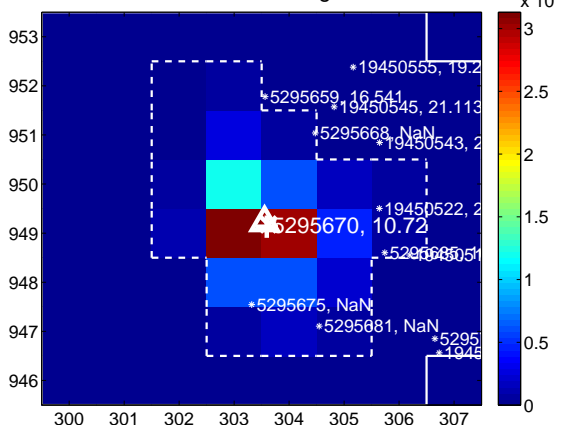
Q15 no OOT image



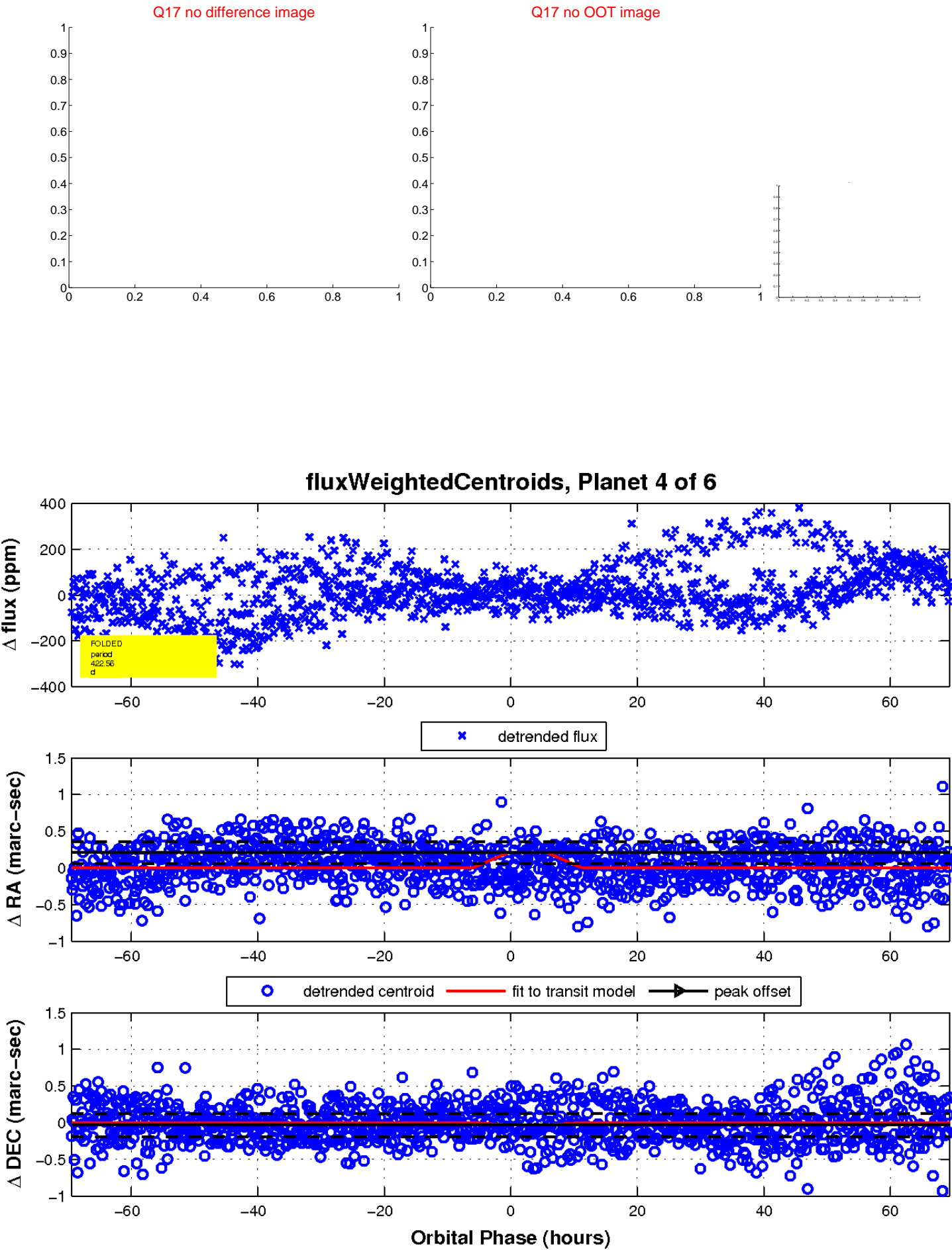
Q16 difference image



Q16 OOT image

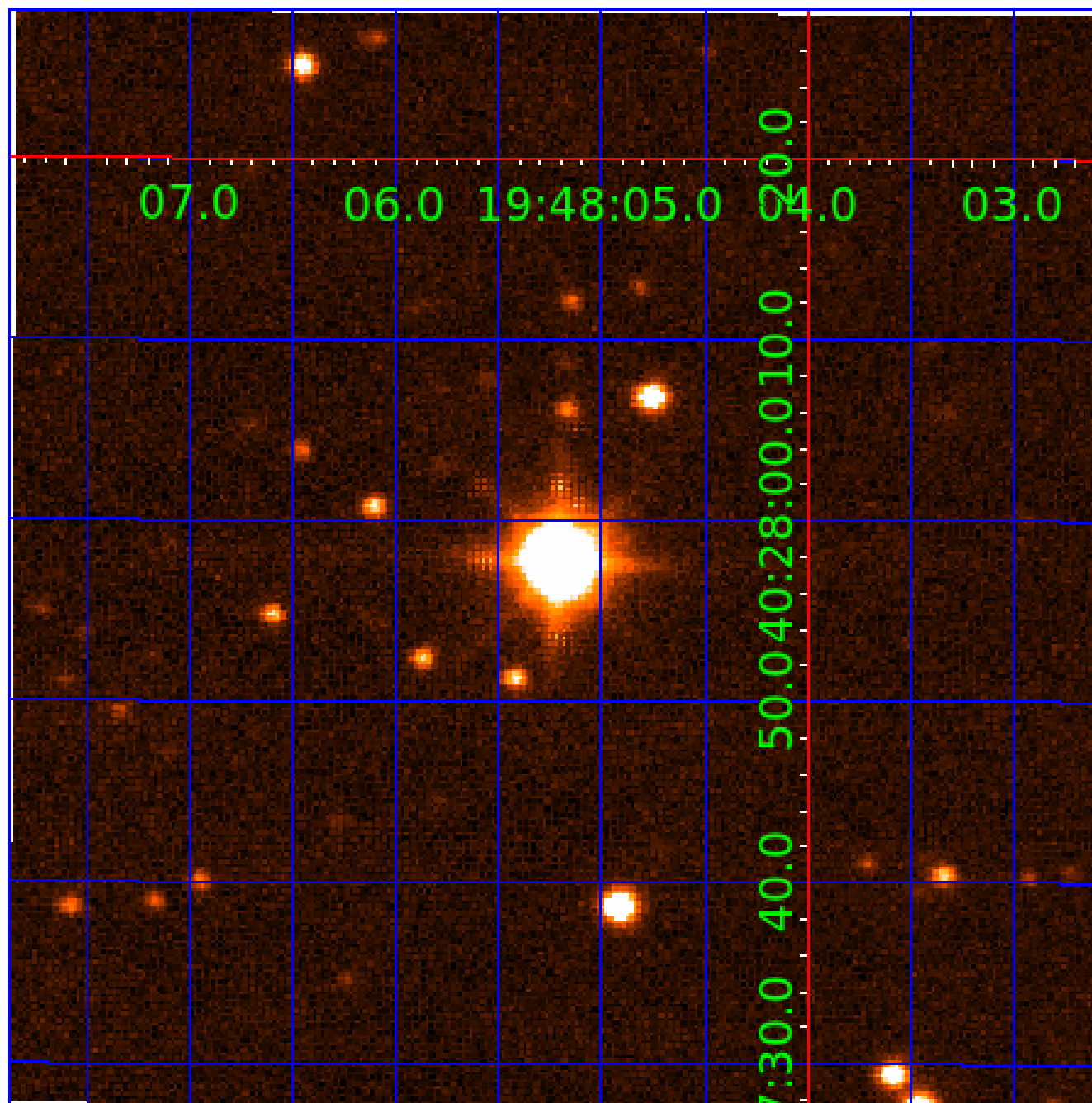


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005295670

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005295670-01	OBS	No	3.772074	132.938433	8.3	5.852	8.1	5.3	1.43	6277	0.48	1221.65
005295670-02	OBS	No	679.014010	156.004021	118.0	7.500	10.3	-1.0	1.43	6277	1.56	1.20
005295670-03	OBS	No	3.772363	132.628937	0.0	17.599	7.9	0.0	1.43	6277	0.00	1221.53
005295670-04	OBS	No	422.559210	261.965652	161.1	15.000	21.5	-1.0	1.43	6277	1.82	2.26
005295670-05	OBS	No	139.005557	207.605394	62.3	28.693	9.0	4.5	1.43	6277	1.26	9.96
005295670-06	OBS	No	154.109364	154.042378	37.1	10.137	8.4	3.8	1.43	6277	0.96	8.68

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005295670-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005295670-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
005295670-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
005295670-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

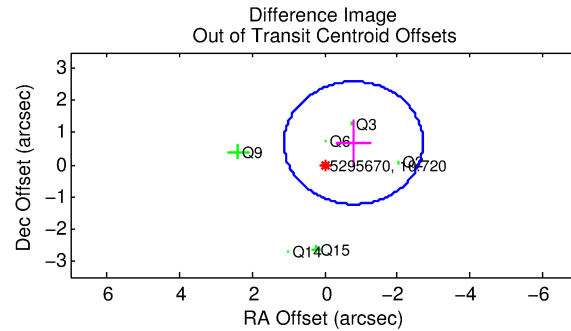
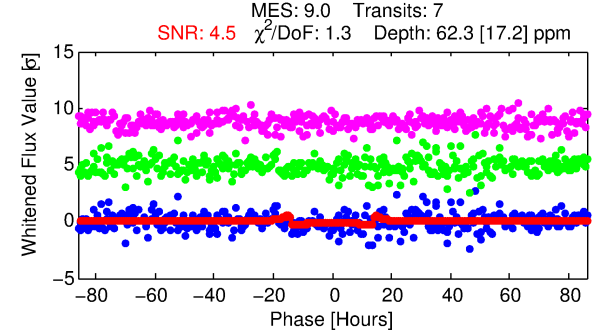
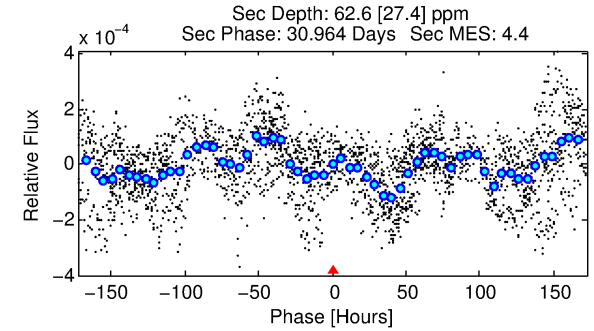
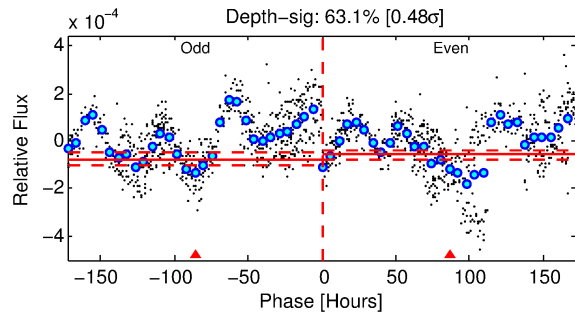
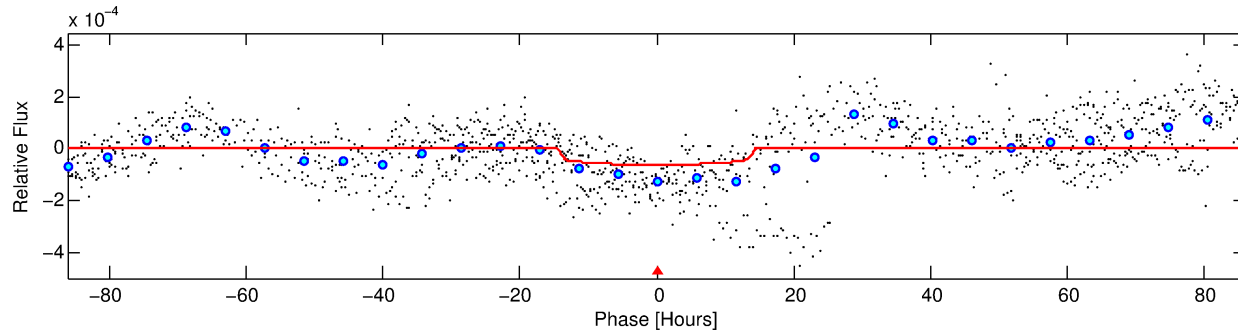
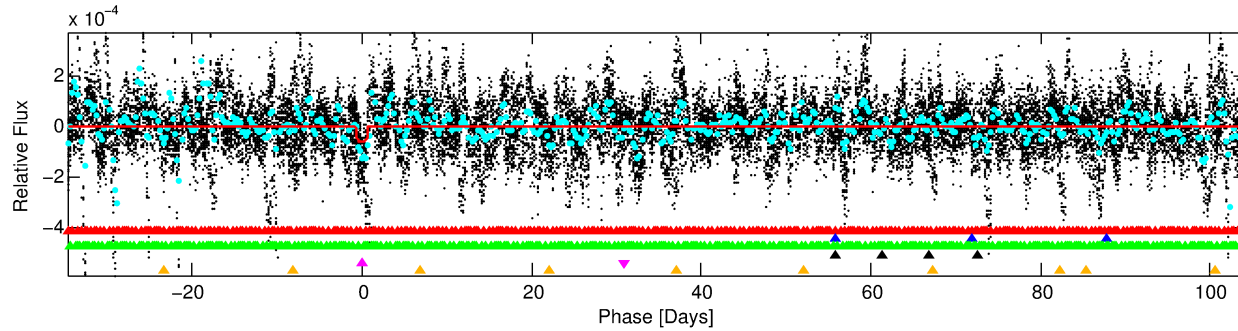
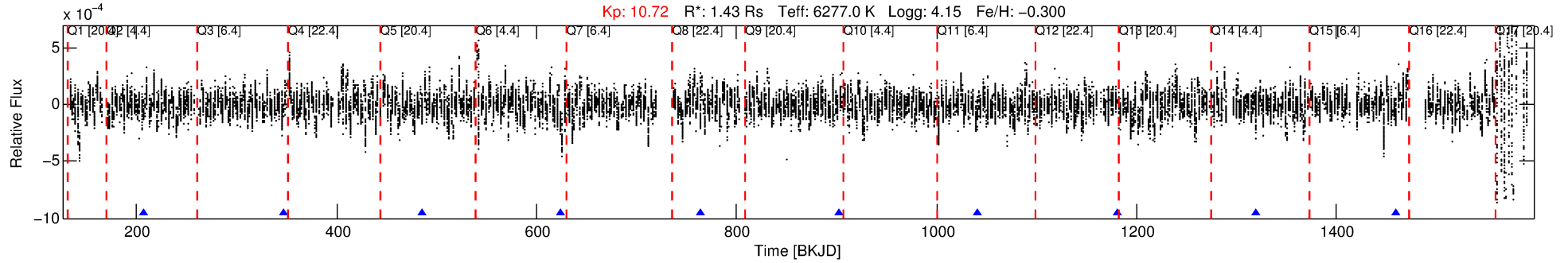
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005295670-05

No Significant Match Found

# DV One-Page Summary

KIC: 5295670 Candidate: 5 of 6 Period: 139.006 d



## DV Fit Results:

Period = 139.00556 [0.00439] d  
Epoch = 207.6054 [0.0273] BKJD  
Rp/R\* = 0.0081 [0.0015]  
a/R\* = 21.50 [11.51]  
b = 0.82 [0.21]  
Seff = 9.96 [3.24]  
Teq = 453 [37] K  
Rp = 1.26 [0.35] Re  
a = 0.5336 [0.1073] AU  
Ag = 6183.44 [4045.19] [1.53 $\sigma$ ]  
Teffp = 6211 [889] K [6.47 $\sigma$ ]

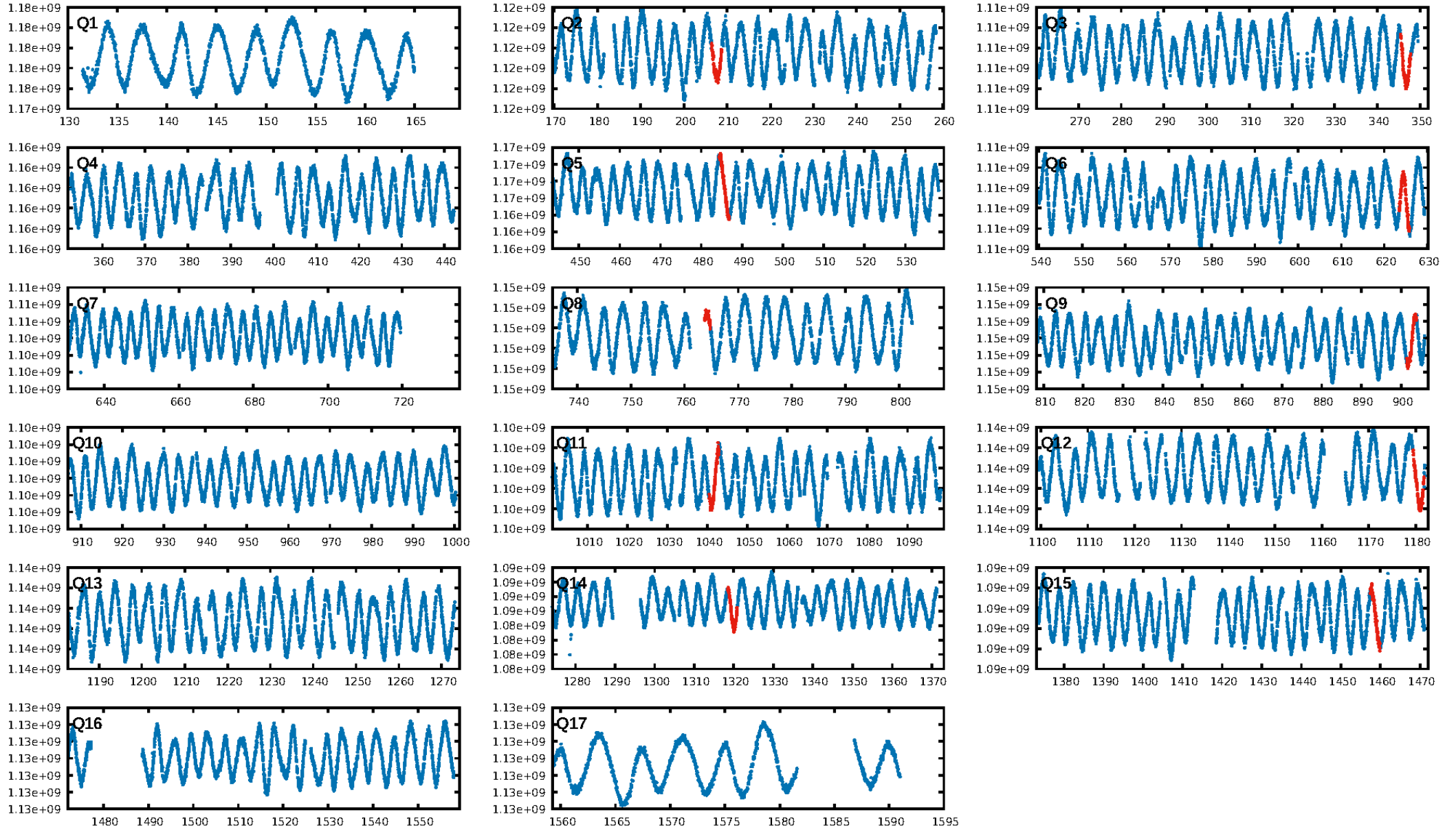
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [96.42 $\sigma$ ]  
LongPeriod-sig: 100.0% [11.91 $\sigma$ ]  
ModelChiSquare2-sig: 78.1%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.23e-09**  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 24.7%  
Centroid-so: 1.285 arcsec [0.77 $\sigma$ ]  
OotOffset-rm: 1.044 arcsec [1.64 $\sigma$ ]  
KicOffset-rm: 1.384 arcsec [1.61 $\sigma$ ]  
OotOffset-st: 3/2/0/1 [6]  
KicOffset-st: 3/2/0/1 [6]  
DiffImageQuality-fgm: 0.67 [4/6]  
DiffImageOverlap-fno: 0.00 [0/7]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:38:35 Z

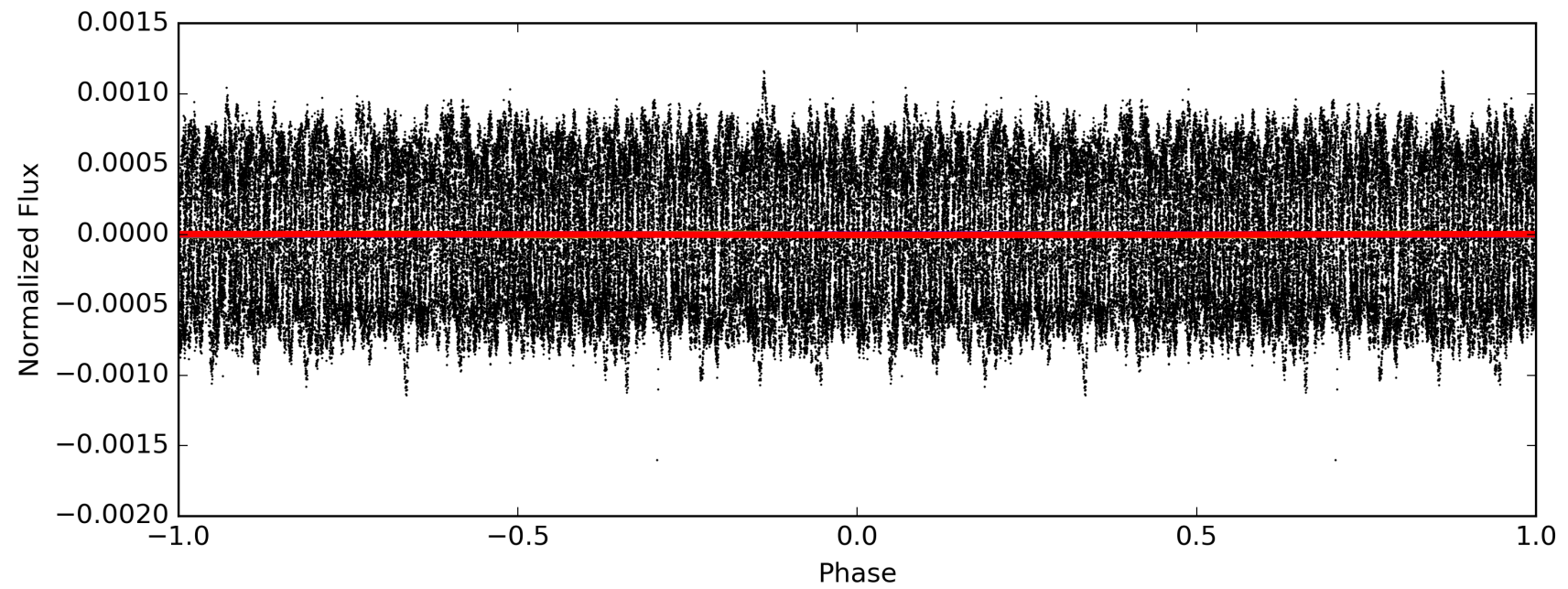
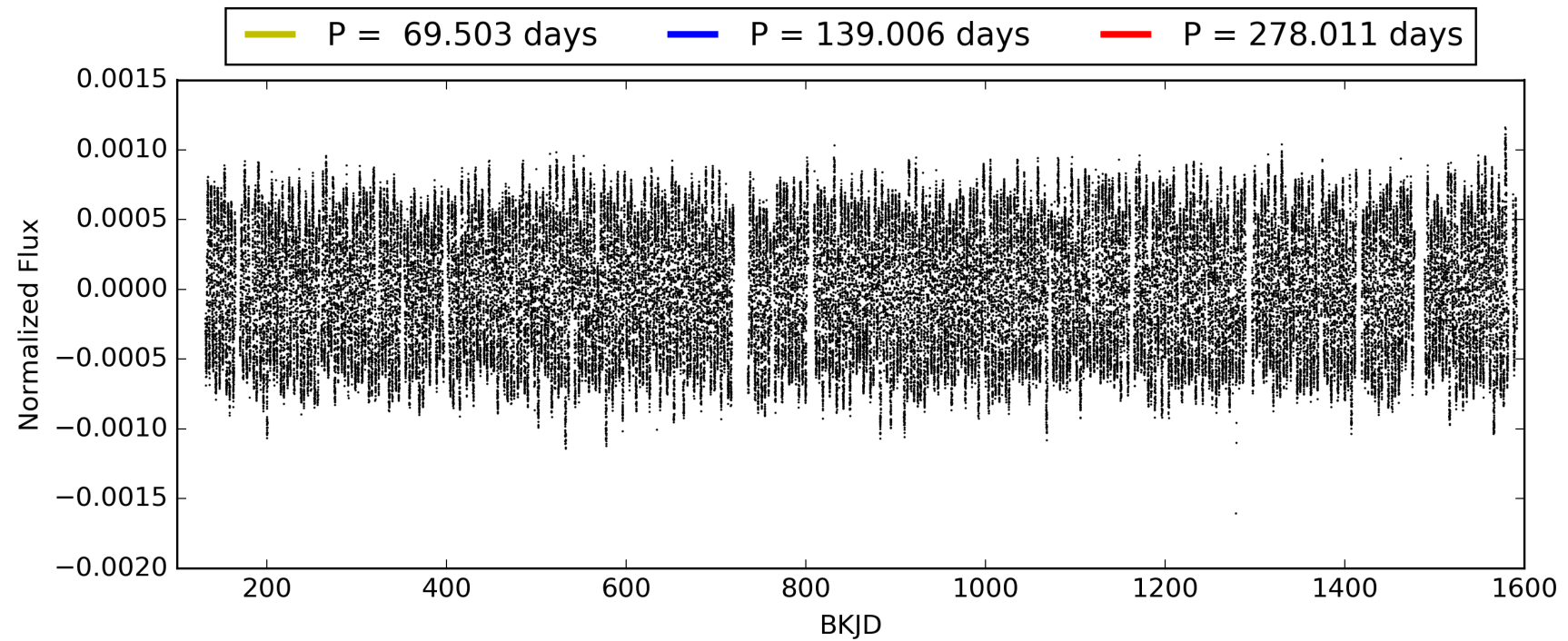
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005295670-05, PDC Light Curves



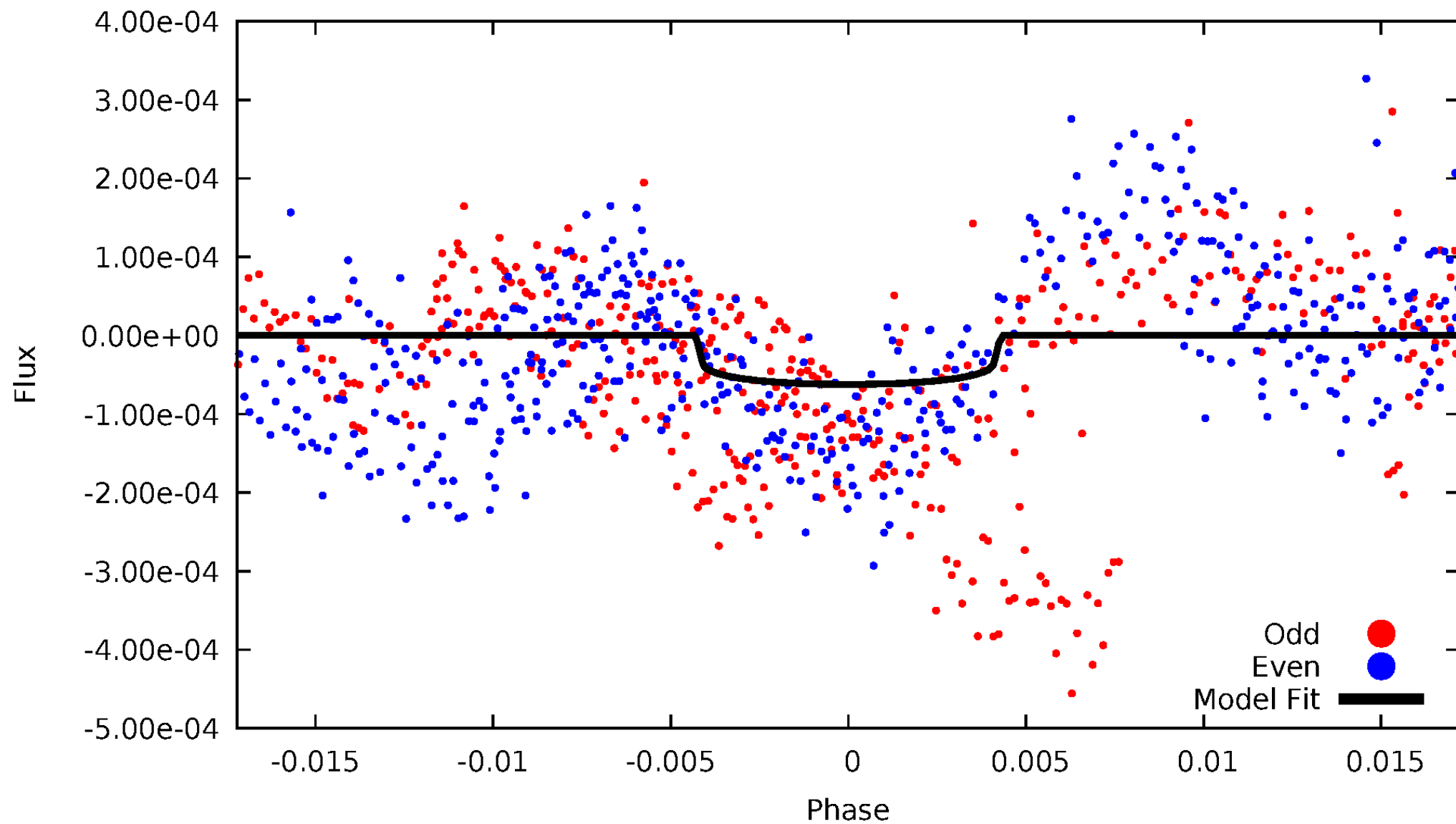


TCE 005295670-05



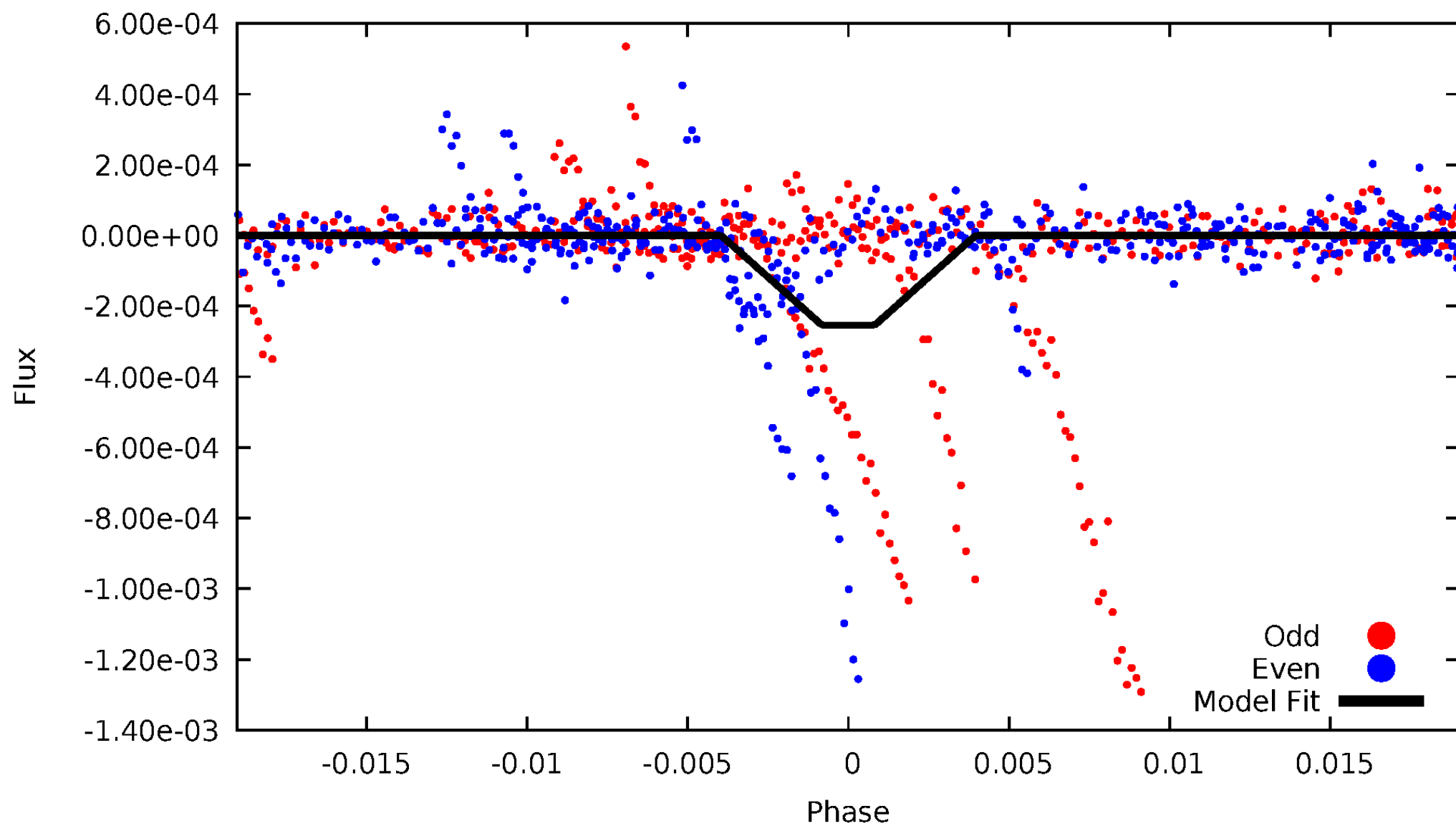
# DV Odd/Even

TCE 005295670-05



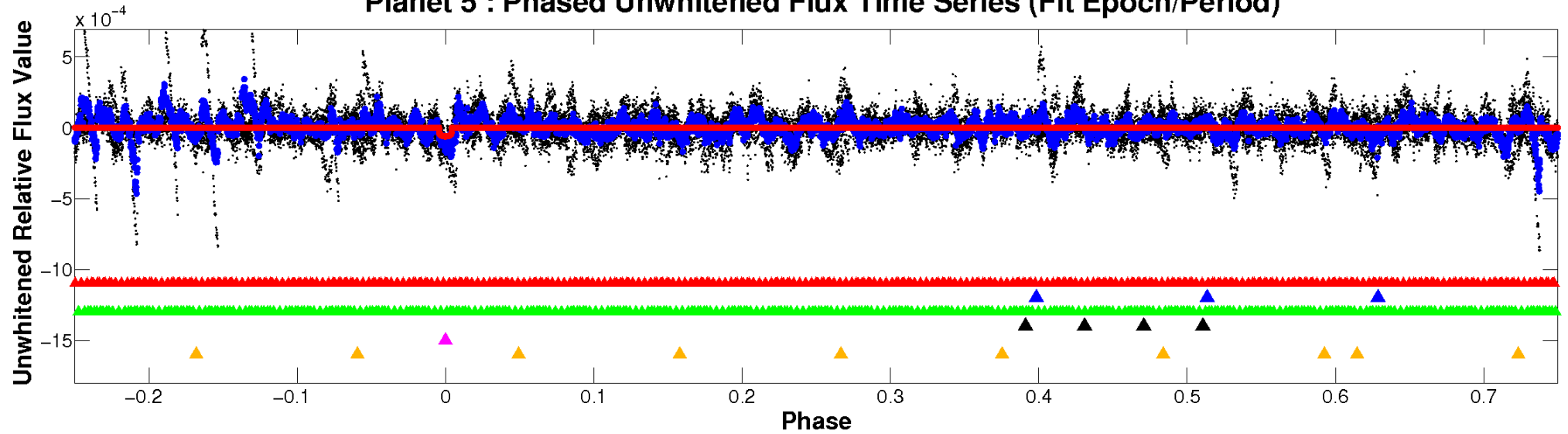
# ALT Odd/Even

TCE 005295670-05

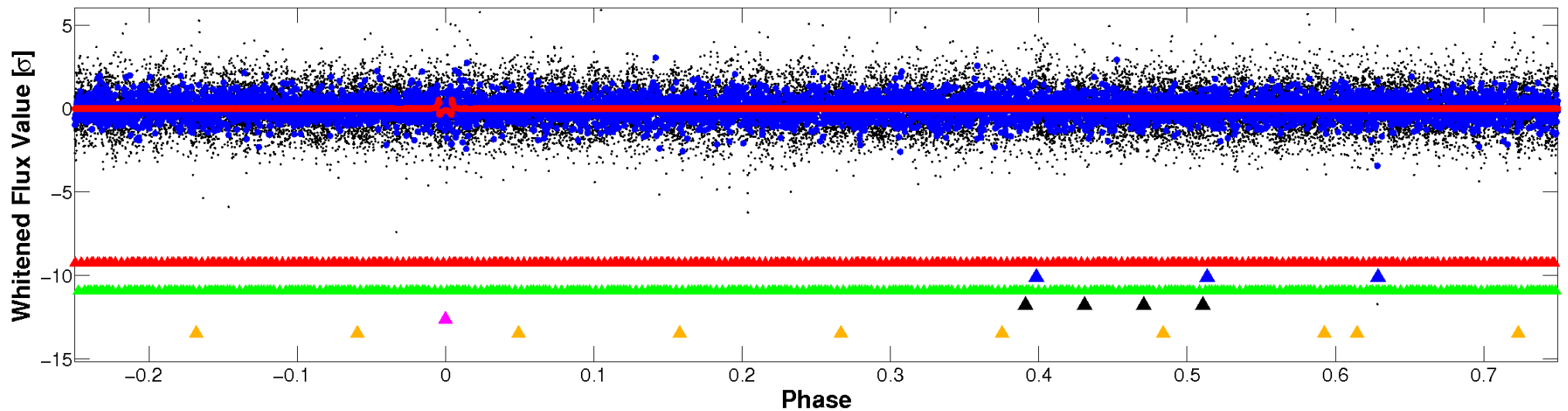


# Non-Whitened Vs. Whitened Light Curve

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

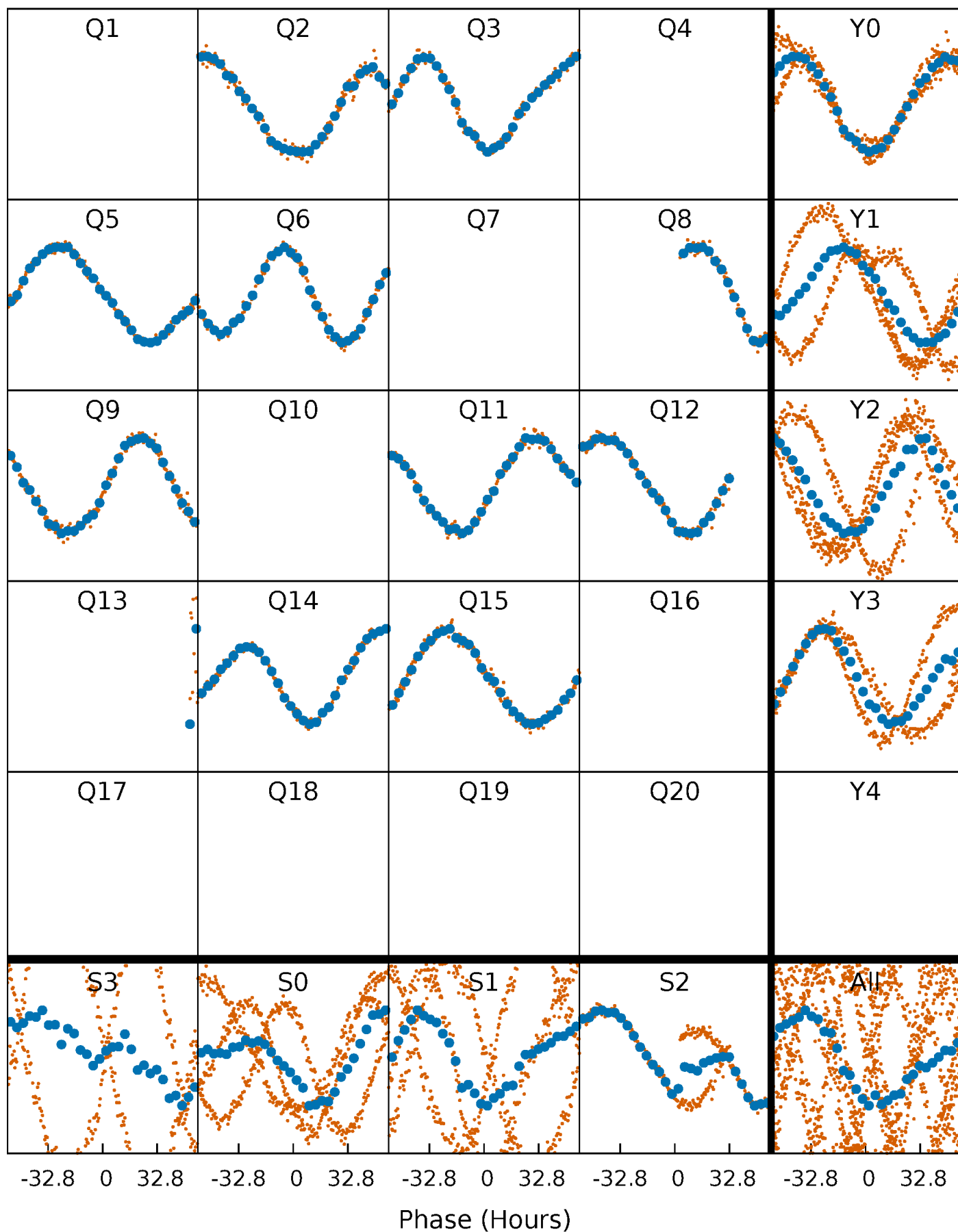


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



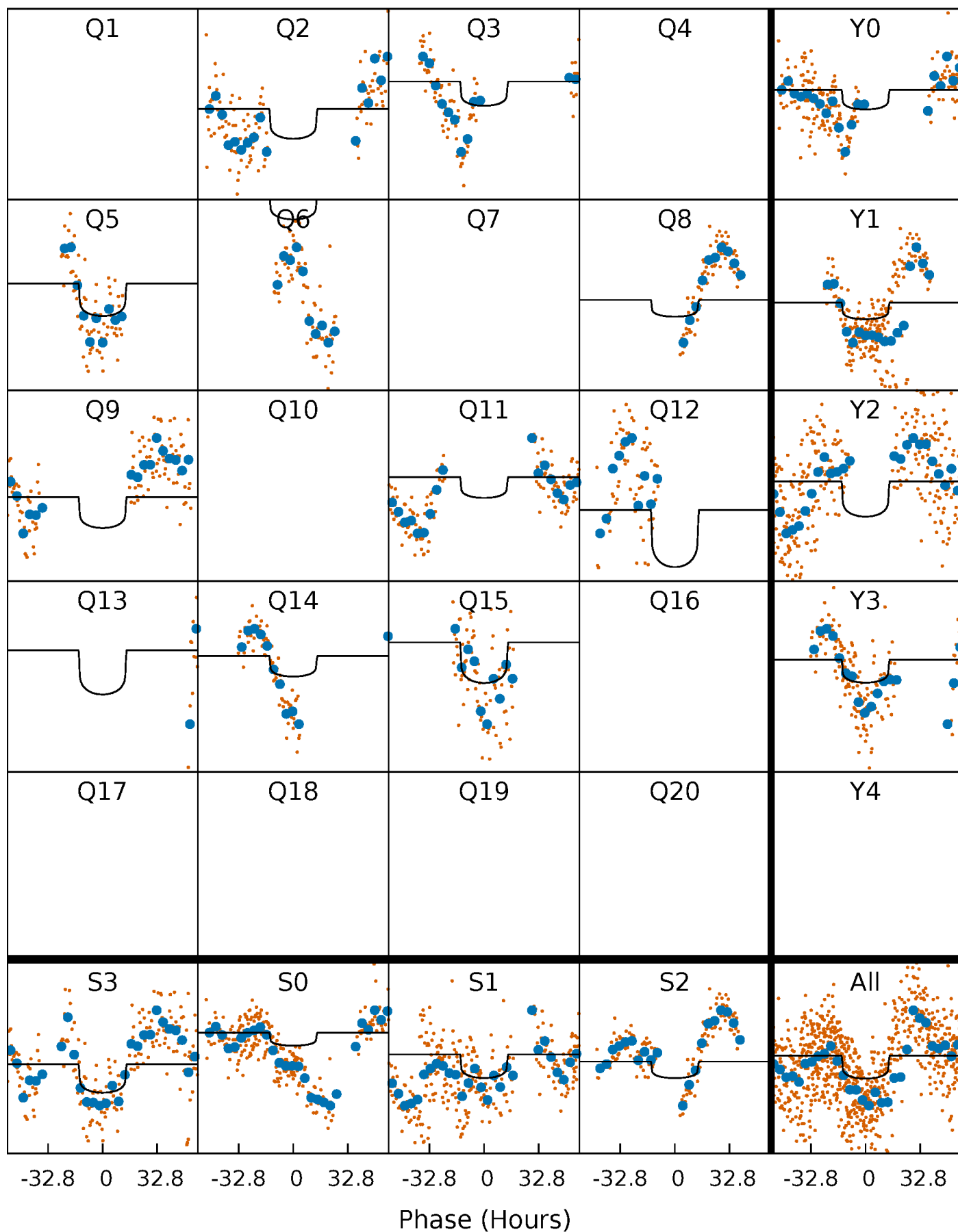
# PDC Quarter-Phased Transit Curves

TCE 005295670-05     $P=139.005557$  Days     $T_0=207.605394$  (BKJD)



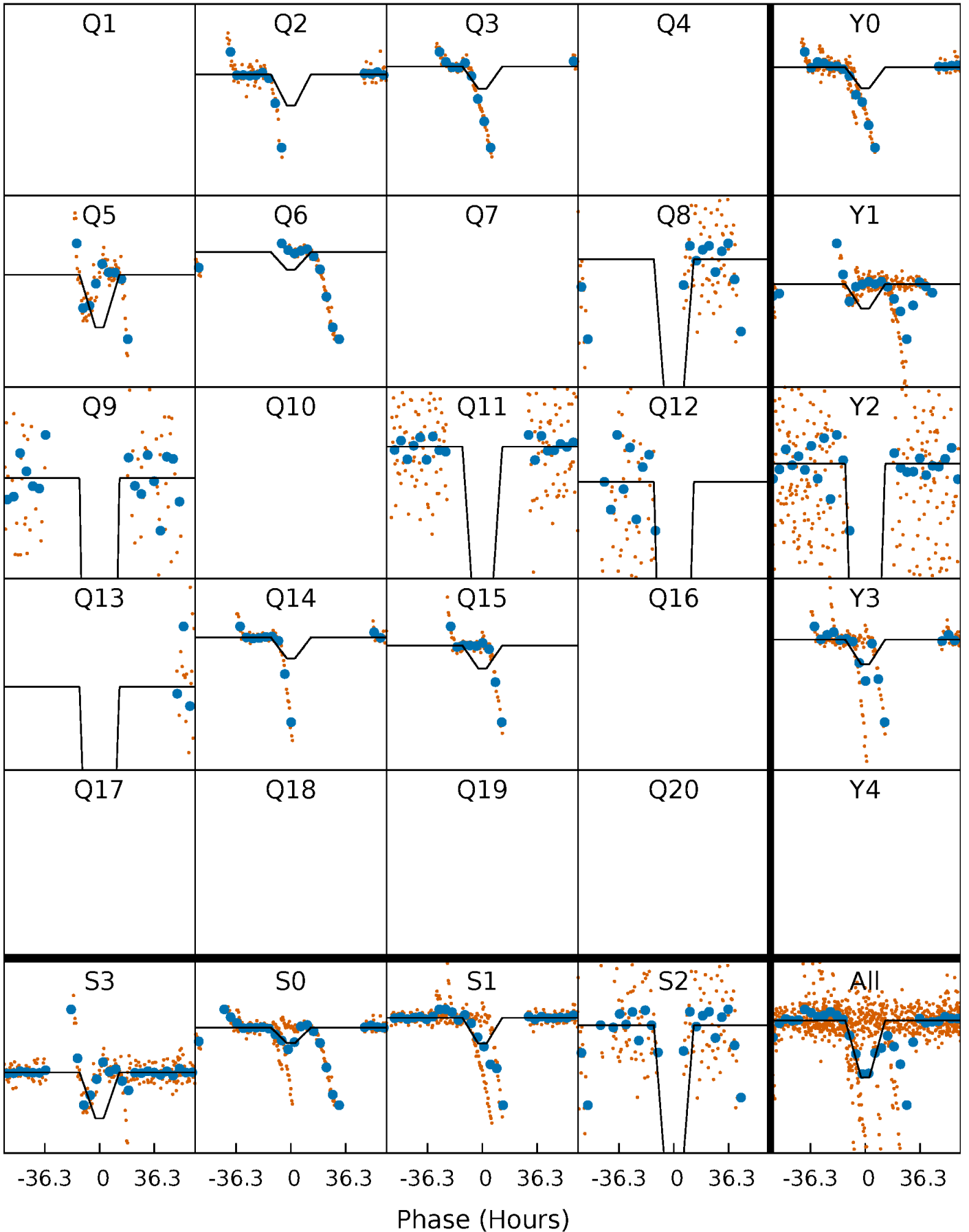
# DV Quarter-Phased Transit Curves

TCE 005295670-05     $P=139.005557$  Days     $T_0=207.605394$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005295670-05     $P=139.070809$  Days     $T_0=207.200982$  (BKJD)

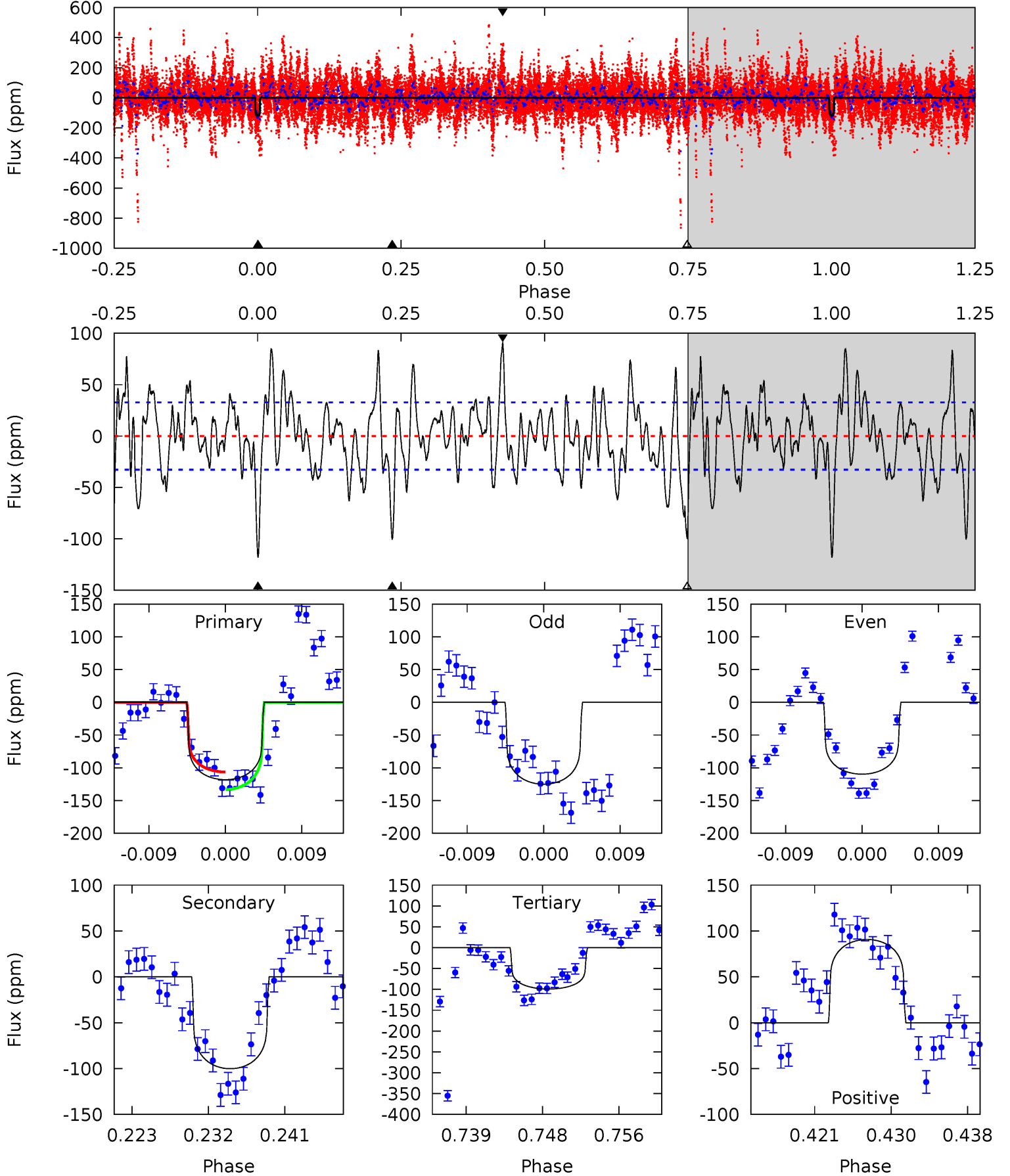




# DV Model-Shift Uniqueness Test

005295670-05,  $P = 139.005557$  Days,  $E = 68.599837$  Days

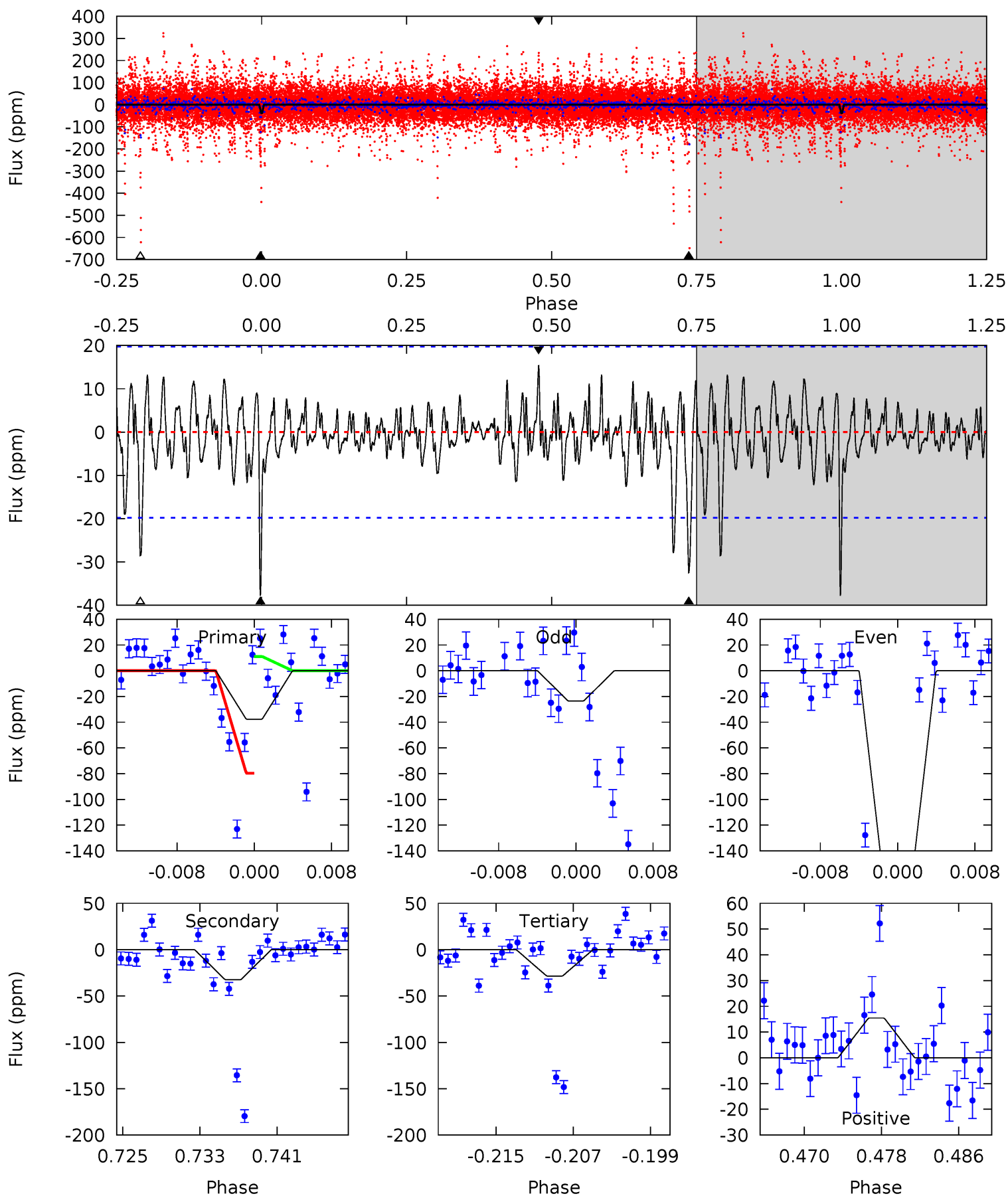
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.3	15.5	15.3	14.0	5.06	2.63	4.83	2.93	4.25	0.15	1.47	1.11	0.88	0.43	2.08



# Alt Model-Shift Uniqueness Test

005295670-05, P = 139.070809 Days, E = 68.130173 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
9.68	8.32	7.31	3.96	5.07	2.65	1.34	2.37	5.72	1.01	4.36	18.3	1.78	0.29	8.87



### Stellar Parameters For KIC 005295670

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6277^{+81}_{-81}$	$4.149^{+0.188}_{-0.101}$	$-0.300^{+0.150}_{-0.150}$	$1.428^{+0.245}_{-0.300}$	$1.049^{+0.099}_{-0.076}$	$0.507^{+0.446}_{-0.176}$
	+1%/-1%	+5%/-2%	+50%/-50%	+17%/-21%	+9%/-7%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005295670-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-100 \pm 6$	$1.23^{+0.26}_{-0.26}$	$627^{+25}_{-38}$	$7050^{+897}_{-640}$	$10562^{+6106}_{-3408}$
Alt.	$-32 \pm 4$	$2.45^{+0.37}_{-0.36}$	$628^{+30}_{-36}$	$4058^{+175}_{-172}$	$862^{+324}_{-227}$

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

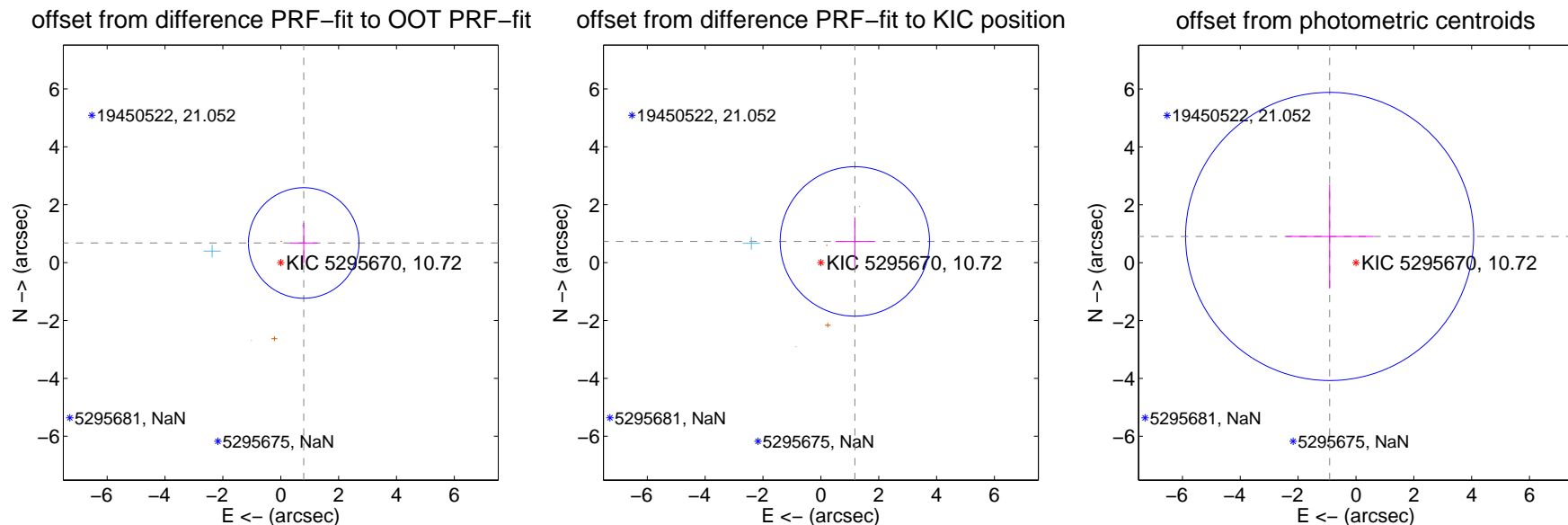
## DV Centroid Data

Supplemental centroid analysis for 005295670-05. **Kepler magnitude: 10.72.** Transit SNR 4.48

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.65 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.044 \pm 0.637$	1.64	$-0.794 \pm 0.470$	$0.677 \pm 0.690$
PRF-fit source offset from KIC position	$1.384 \pm 0.861$	1.61	$-1.175 \pm 0.670$	$0.731 \pm 0.831$
photometric centroid source offset	$1.28 \pm 1.66$	0.77	$0.91 \pm 1.51$	$0.91 \pm 1.80$



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.

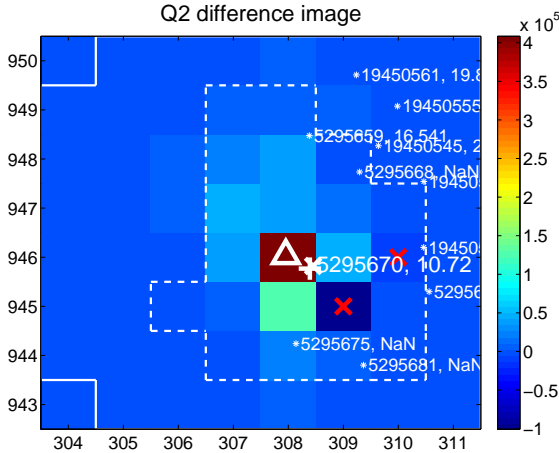
Q1 no difference image



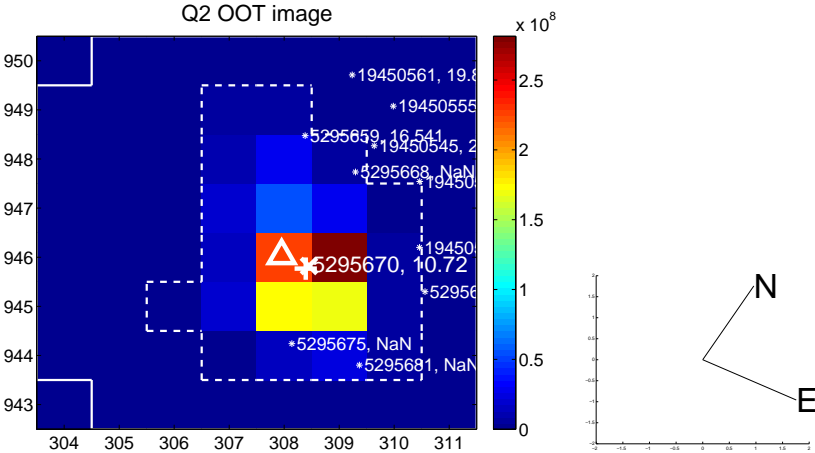
Q1 no OOT image



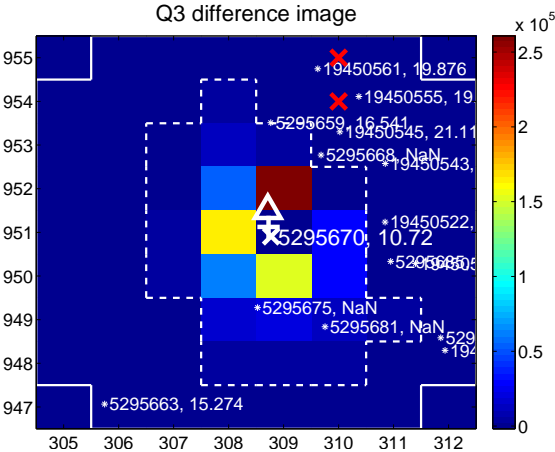
Q2 difference image



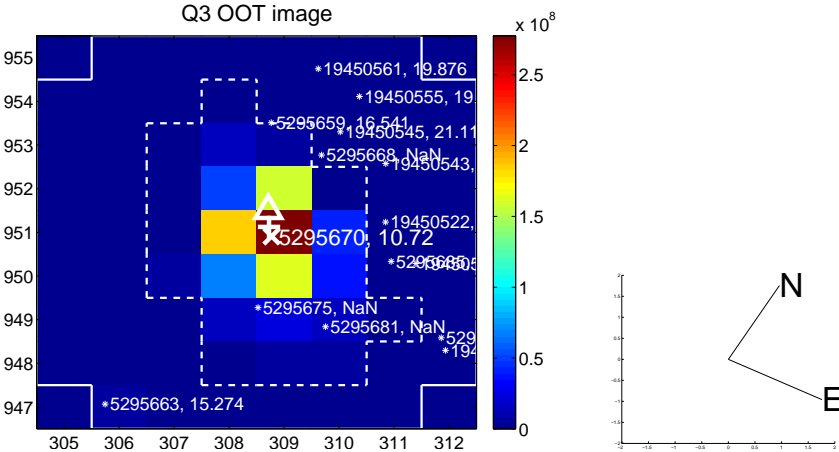
Q2 OOT image



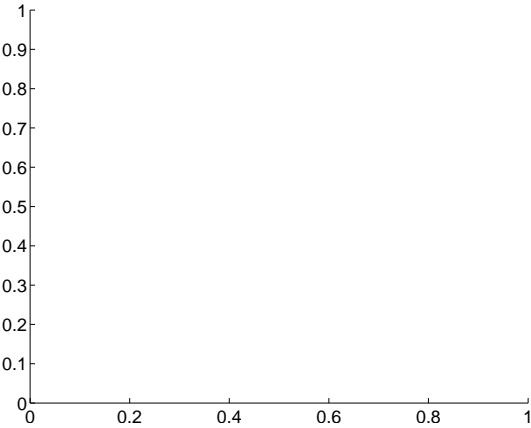
Q3 difference image



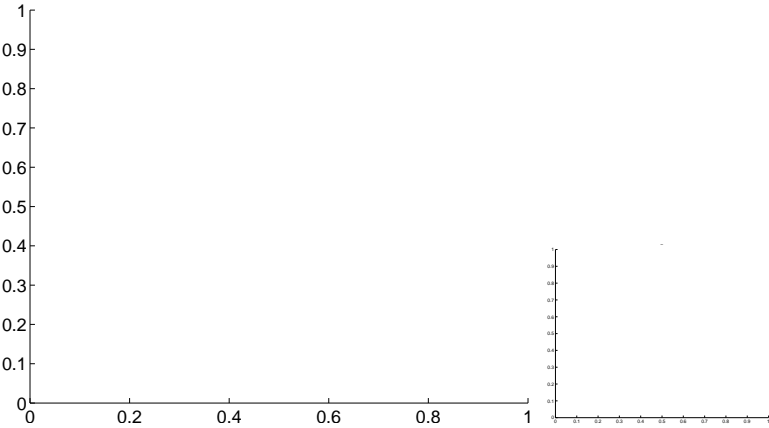
Q3 OOT image



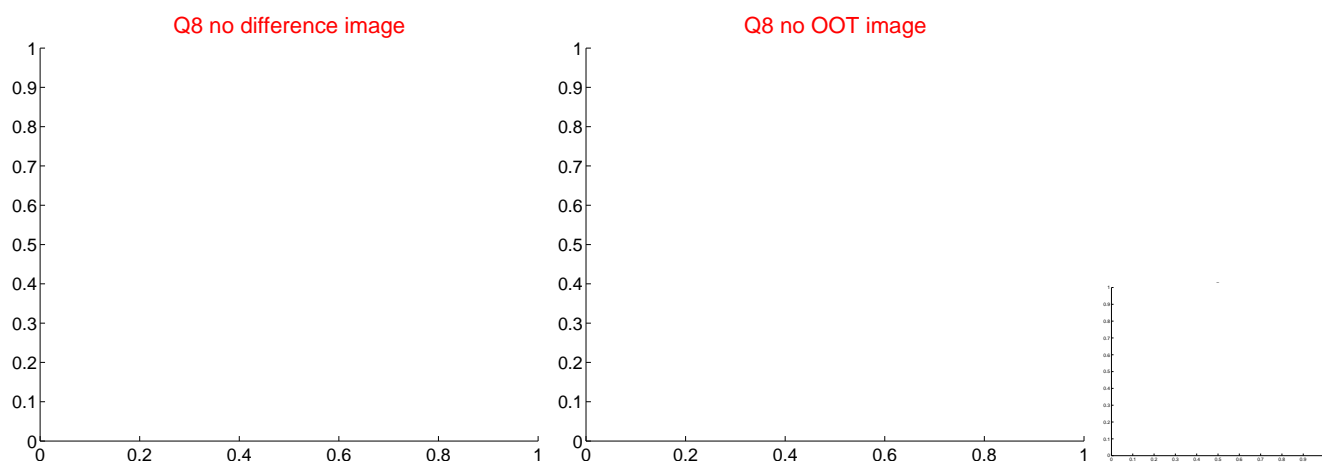
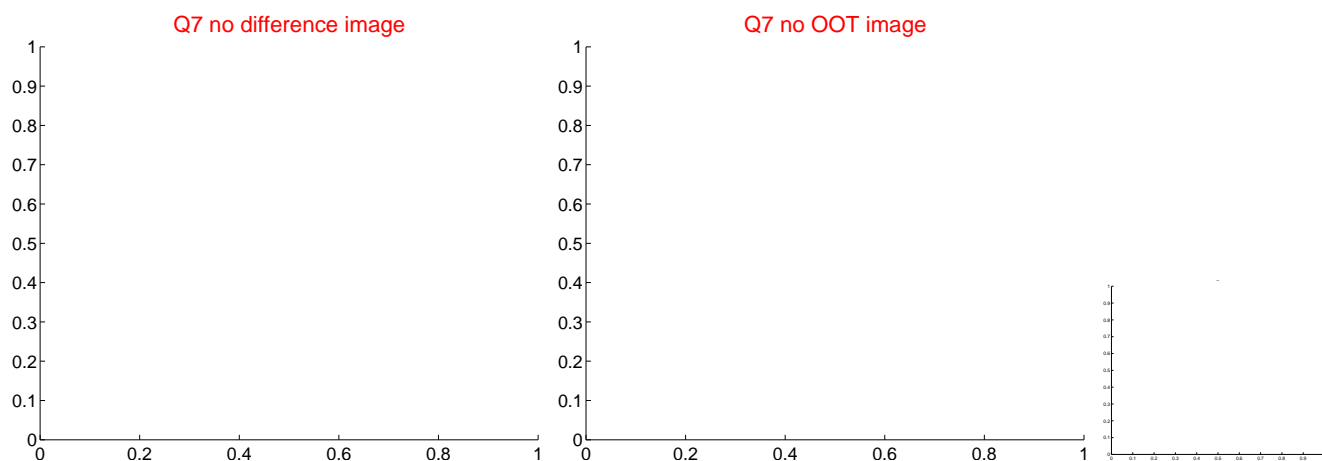
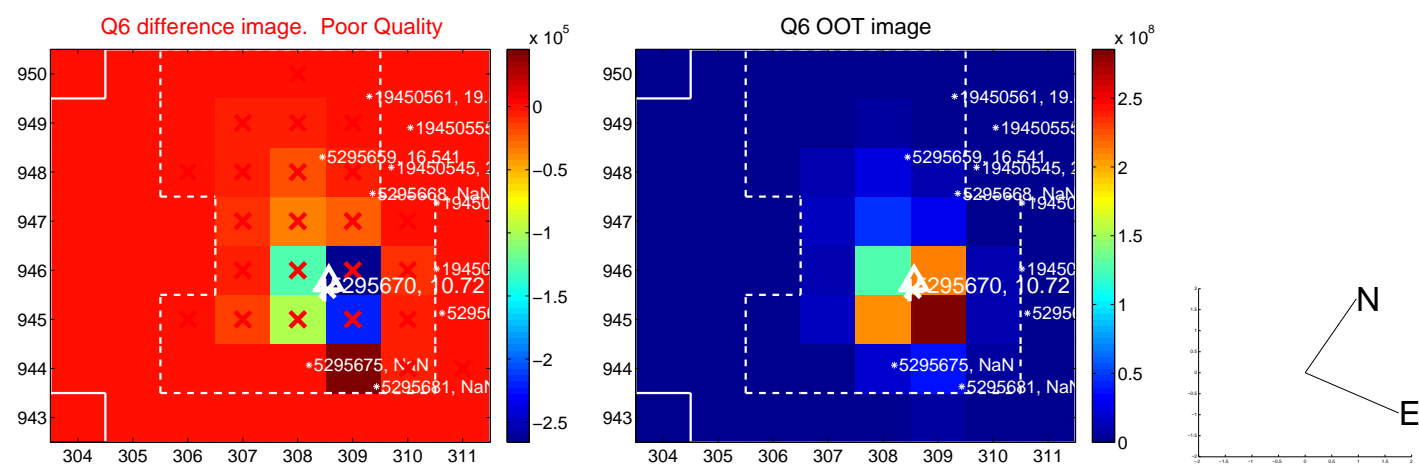
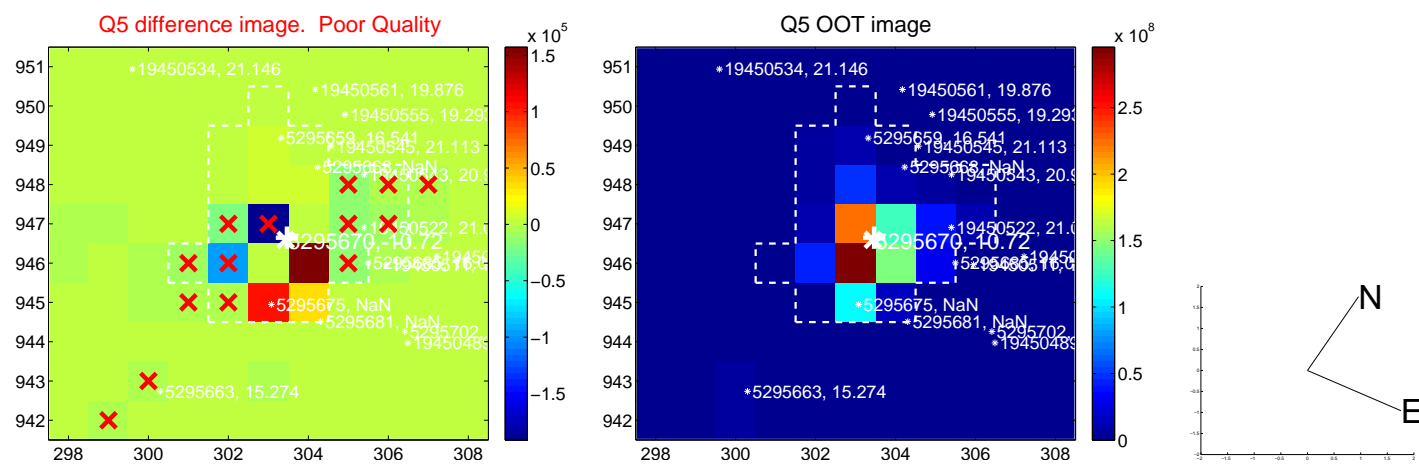
Q4 no difference image



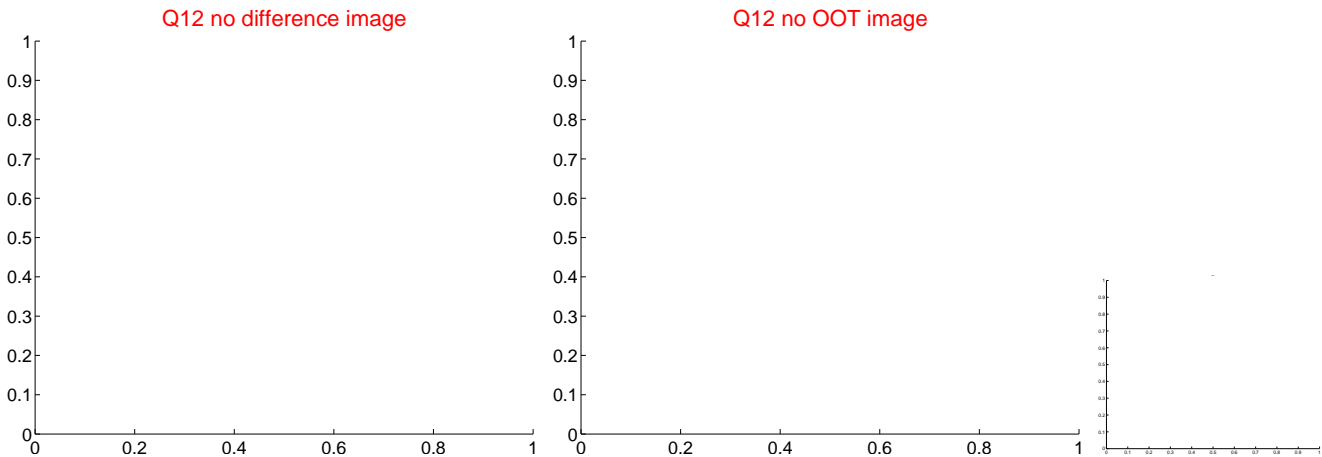
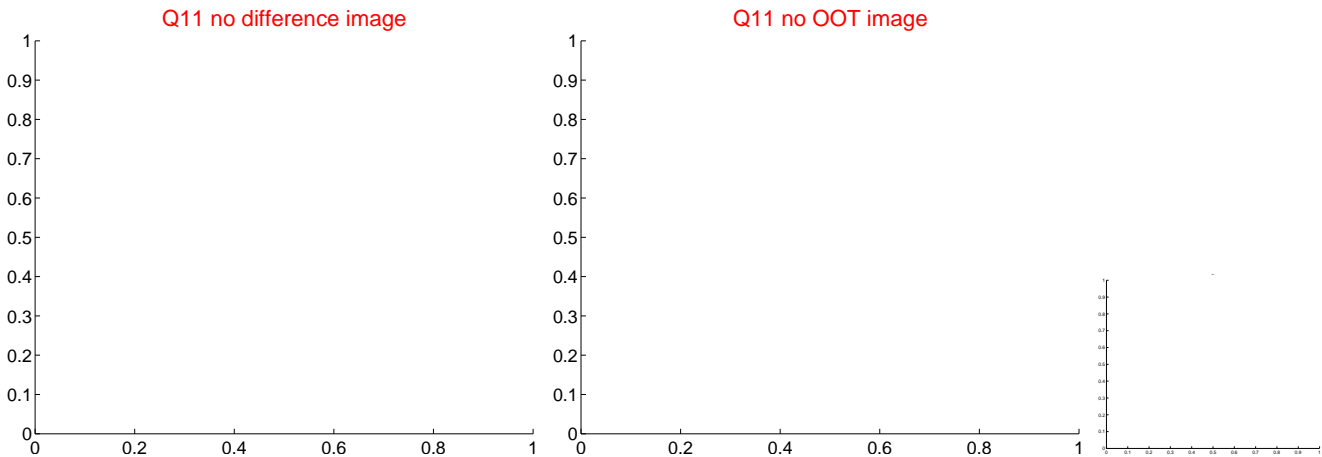
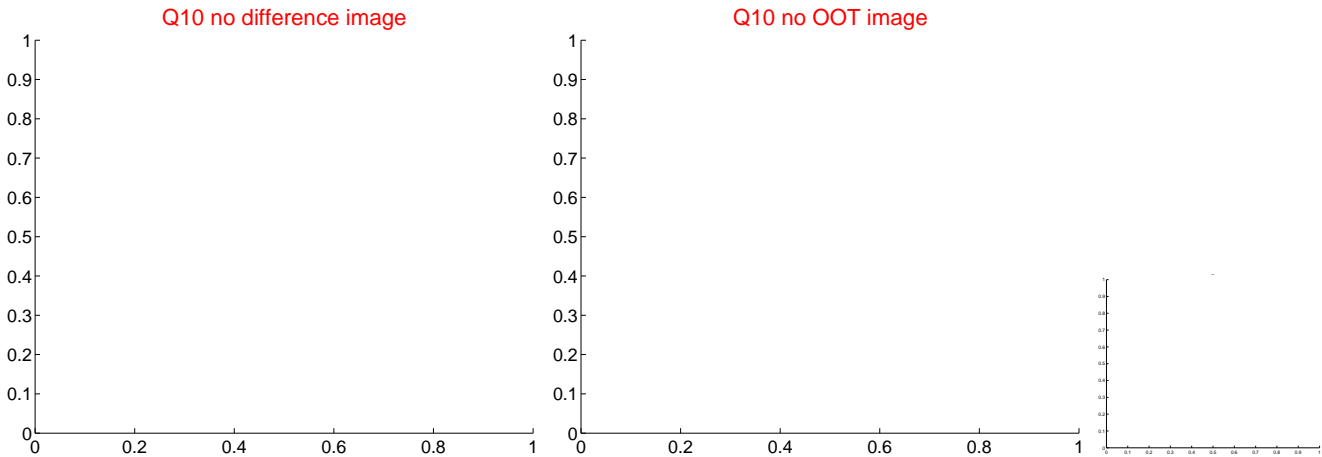
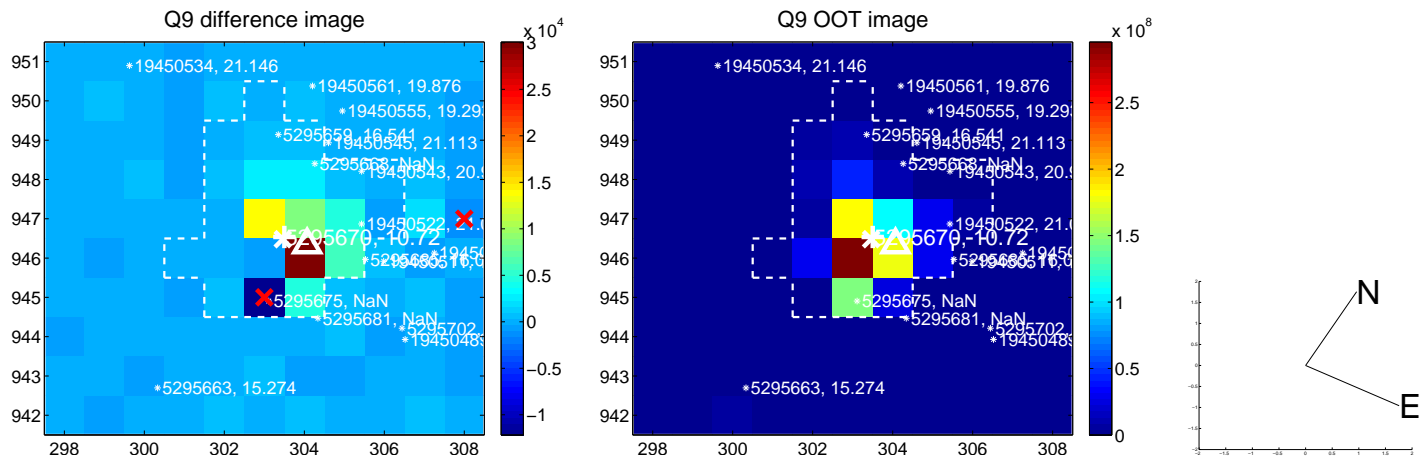
Q4 no OOT image



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

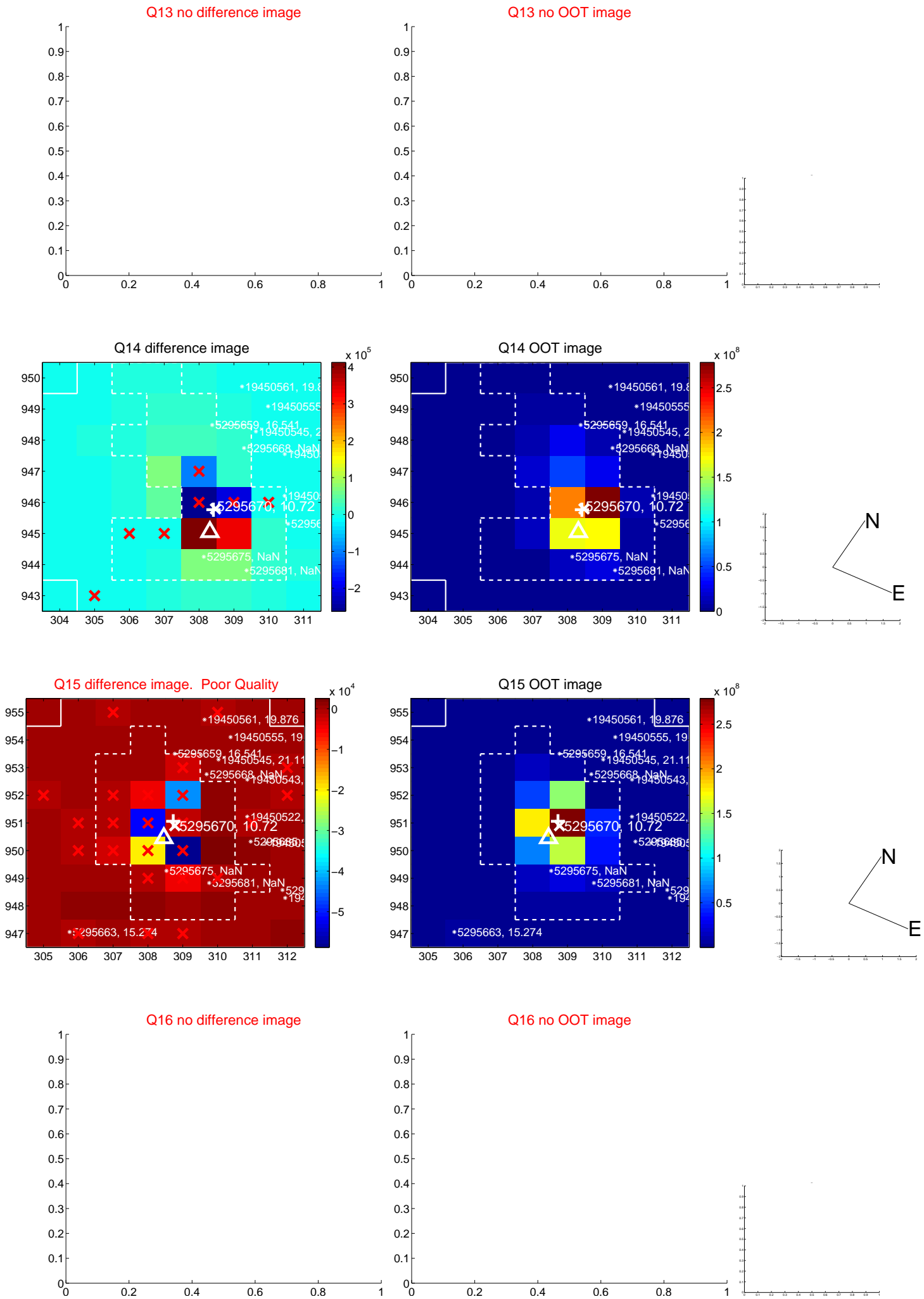


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

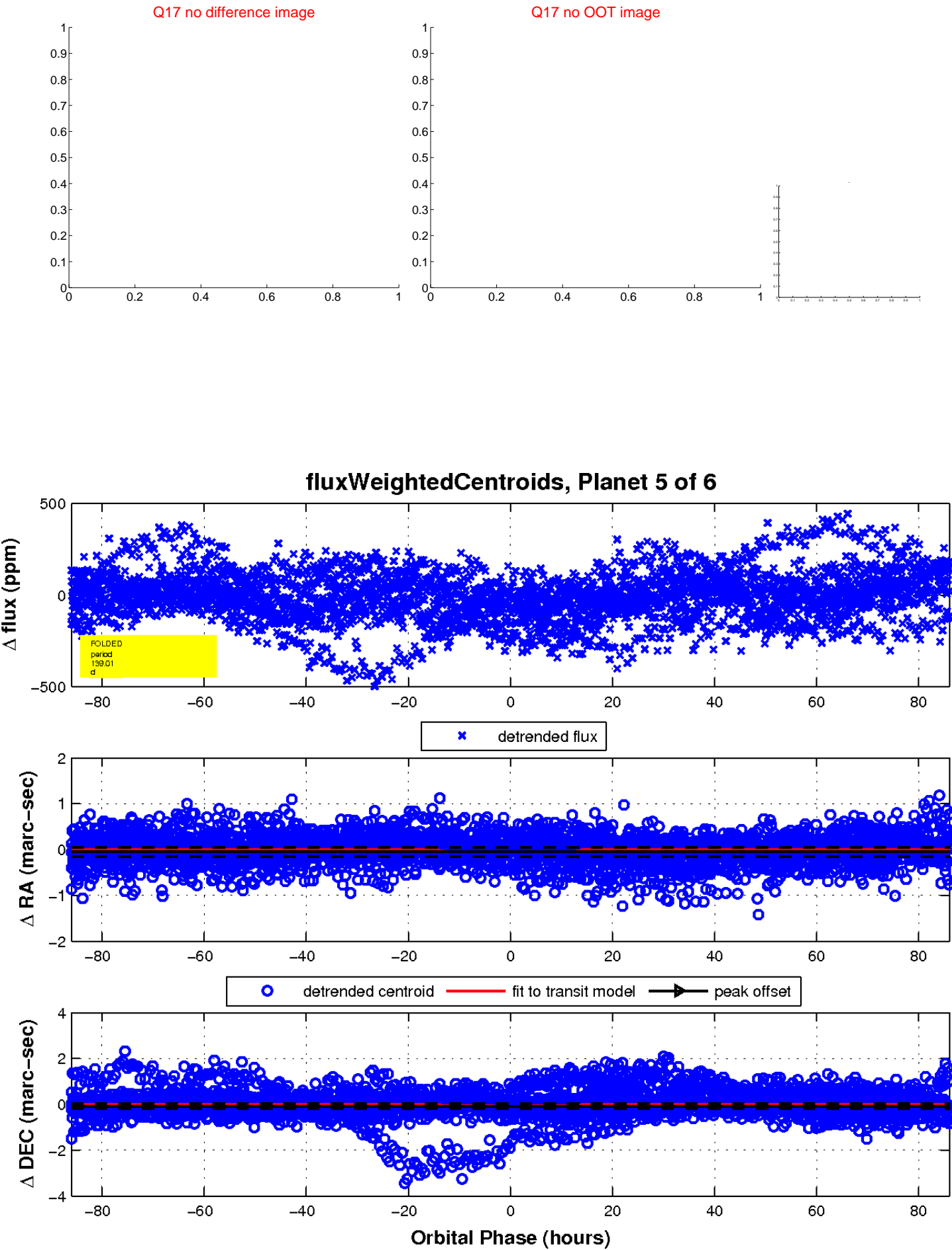




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

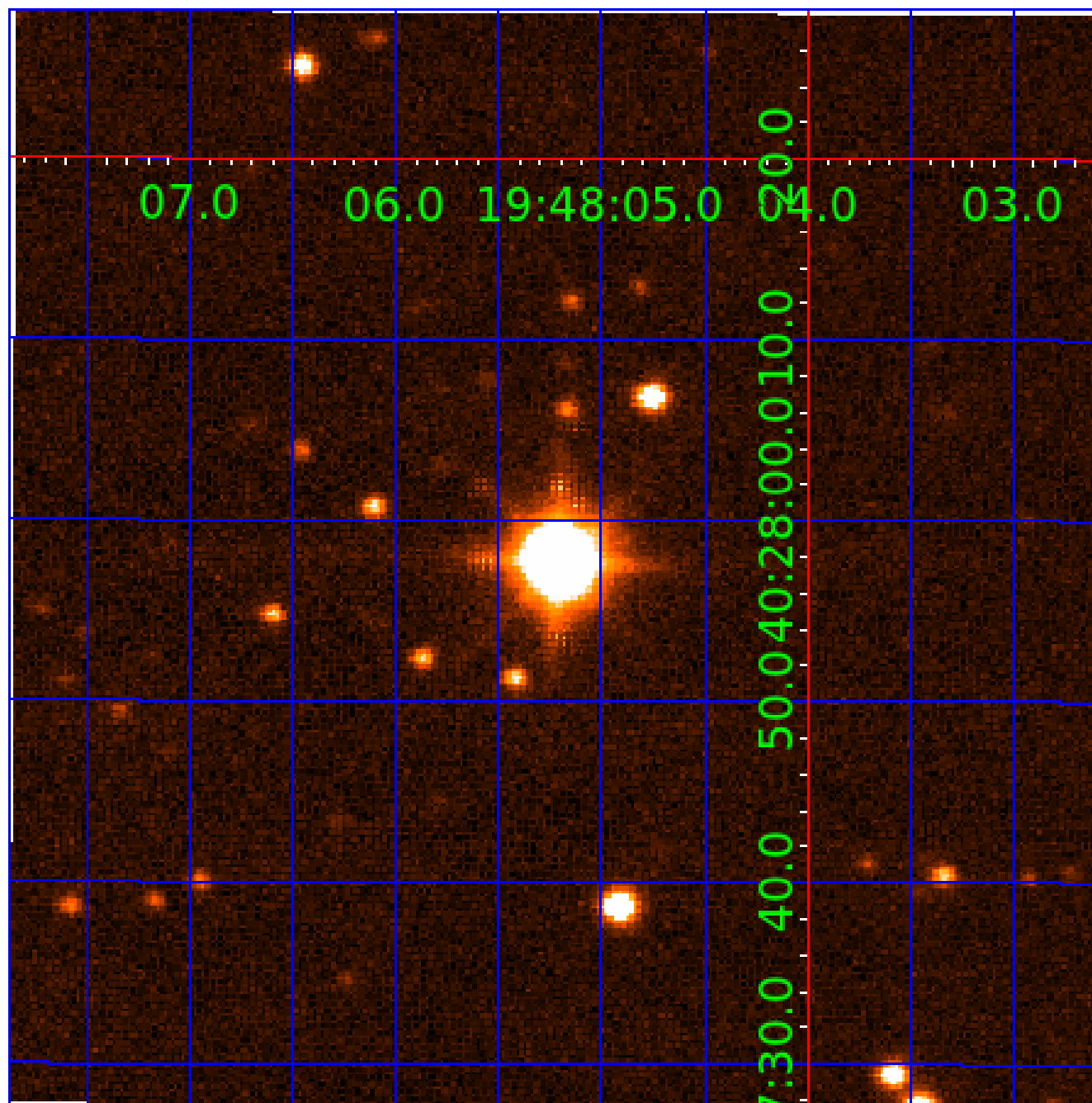


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005295670

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005295670-01	OBS	No	3.772074	132.938433	8.3	5.852	8.1	5.3	1.43	6277	0.48	1221.65
005295670-02	OBS	No	679.014010	156.004021	118.0	7.500	10.3	-1.0	1.43	6277	1.56	1.20
005295670-03	OBS	No	3.772363	132.628937	0.0	17.599	7.9	0.0	1.43	6277	0.00	1221.53
005295670-04	OBS	No	422.559210	261.965652	161.1	15.000	21.5	-1.0	1.43	6277	1.82	2.26
005295670-05	OBS	No	139.005557	207.605394	62.3	28.693	9.0	4.5	1.43	6277	1.26	9.96
005295670-06	OBS	No	154.109364	154.042378	37.1	10.137	8.4	3.8	1.43	6277	0.96	8.68

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005295670-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
005295670-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED
005295670-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_SATURATED
005295670-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005295670-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

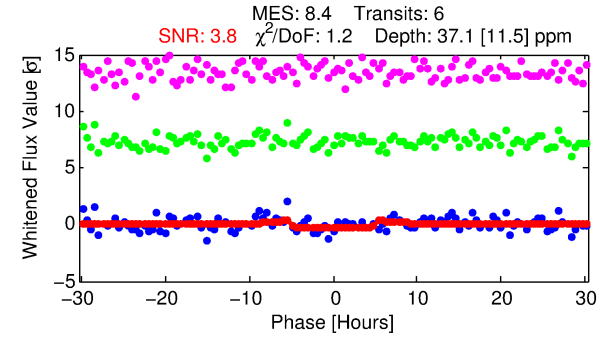
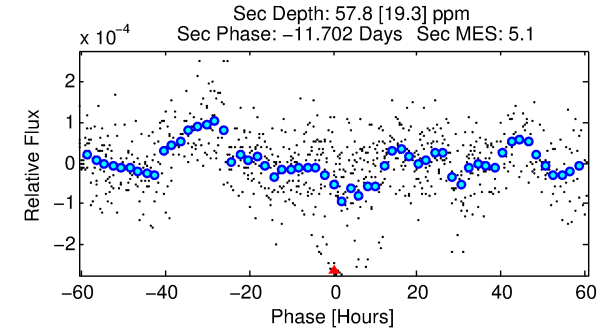
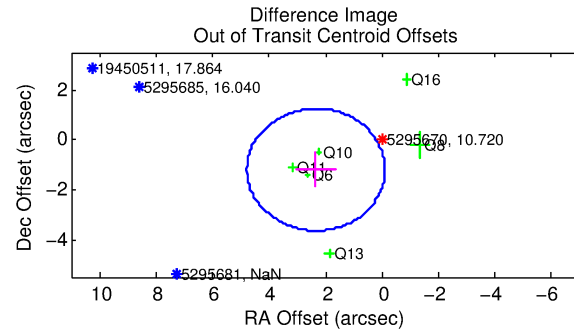
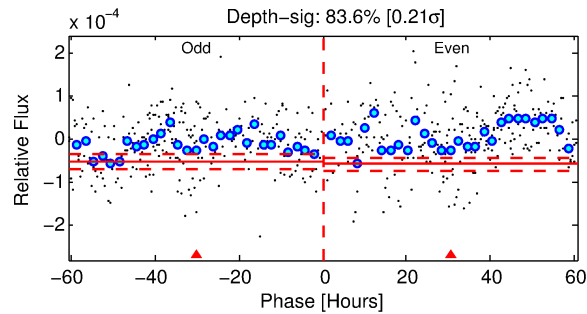
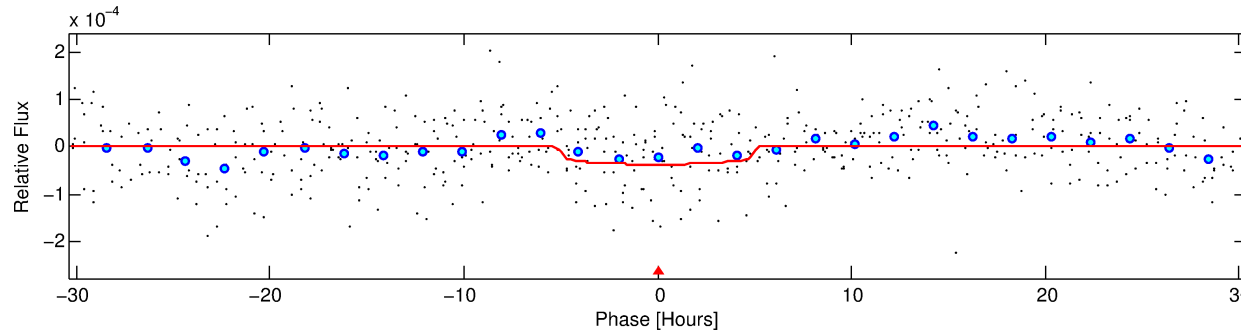
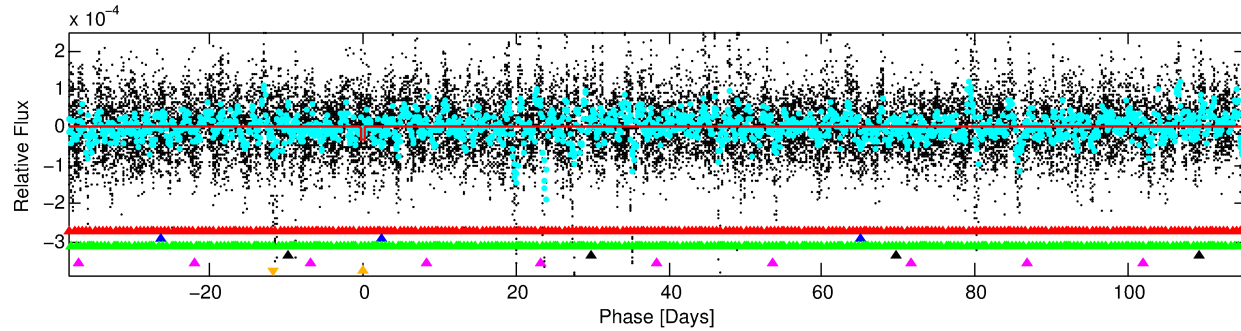
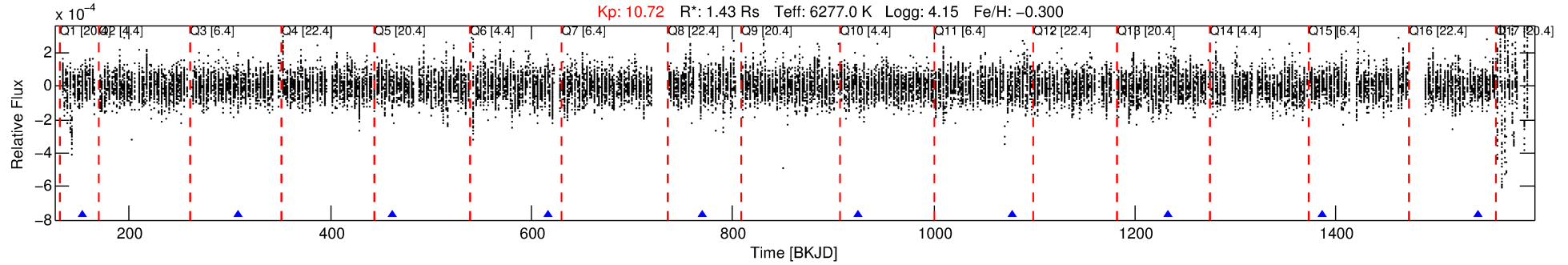
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005295670-06

No Significant Match Found

# DV One-Page Summary

KIC: 5295670 Candidate: 6 of 6 Period: 154.109 d



## DV Fit Results:

Period = 154.10936 [0.00439] d  
Epoch = 154.0424 [0.0290] BKJD  
Rp/R\* = 0.0061 [0.0040]  
a/R\* = 72.47 [248.34]  
b = 0.79 [1.64]  
Seff = 8.68 [2.82]  
Teq = 438 [36] K  
Rp = 0.96 [0.66] Re  
a = 0.5716 [0.1149] AU  
Ag = 11354.03 [15820.35] [0.72 $\sigma$ ]  
Teffp = 6986 [2370] K [2.76 $\sigma$ ]

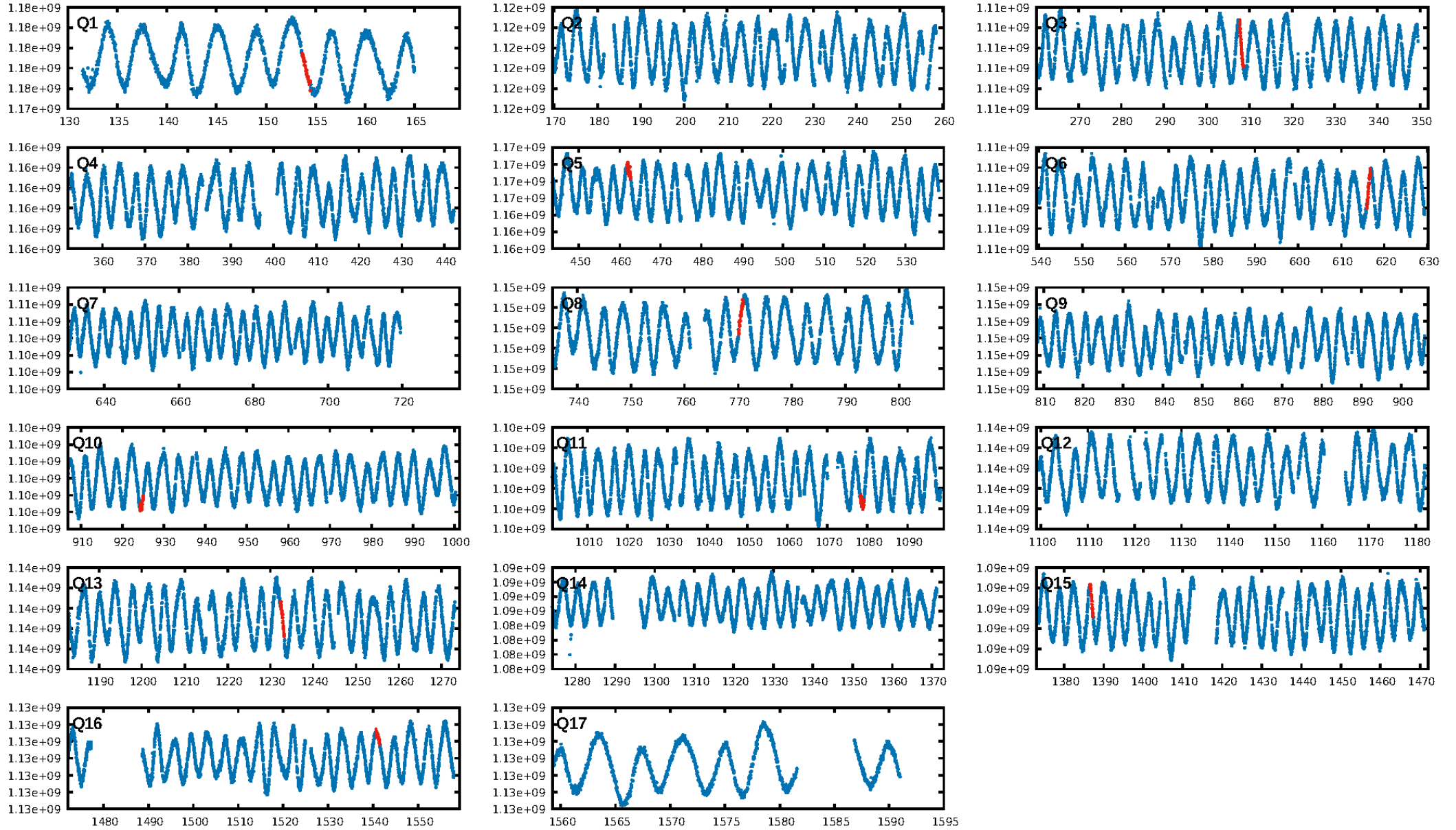
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.91 $\sigma$ ]  
LongPeriod-sig: 100.0% [355.87 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 95.8%  
Bootstrap-pfa: 3.99e-09  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 46.8%  
Centroid-so: 1.984 arcsec [0.74 $\sigma$ ]  
OotOffset-rm: 2.632 arcsec [3.23 $\sigma$ ]  
KicOffset-rm: 2.613 arcsec [2.35 $\sigma$ ]  
OotOffset-st: 2/1/2/1 [6]  
KicOffset-st: 2/1/2/1 [6]  
DiffImageQuality-fgm: 0.00 [0/6]  
DiffImageOverlap-fno: 0.56 [5/9]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:38:40 Z

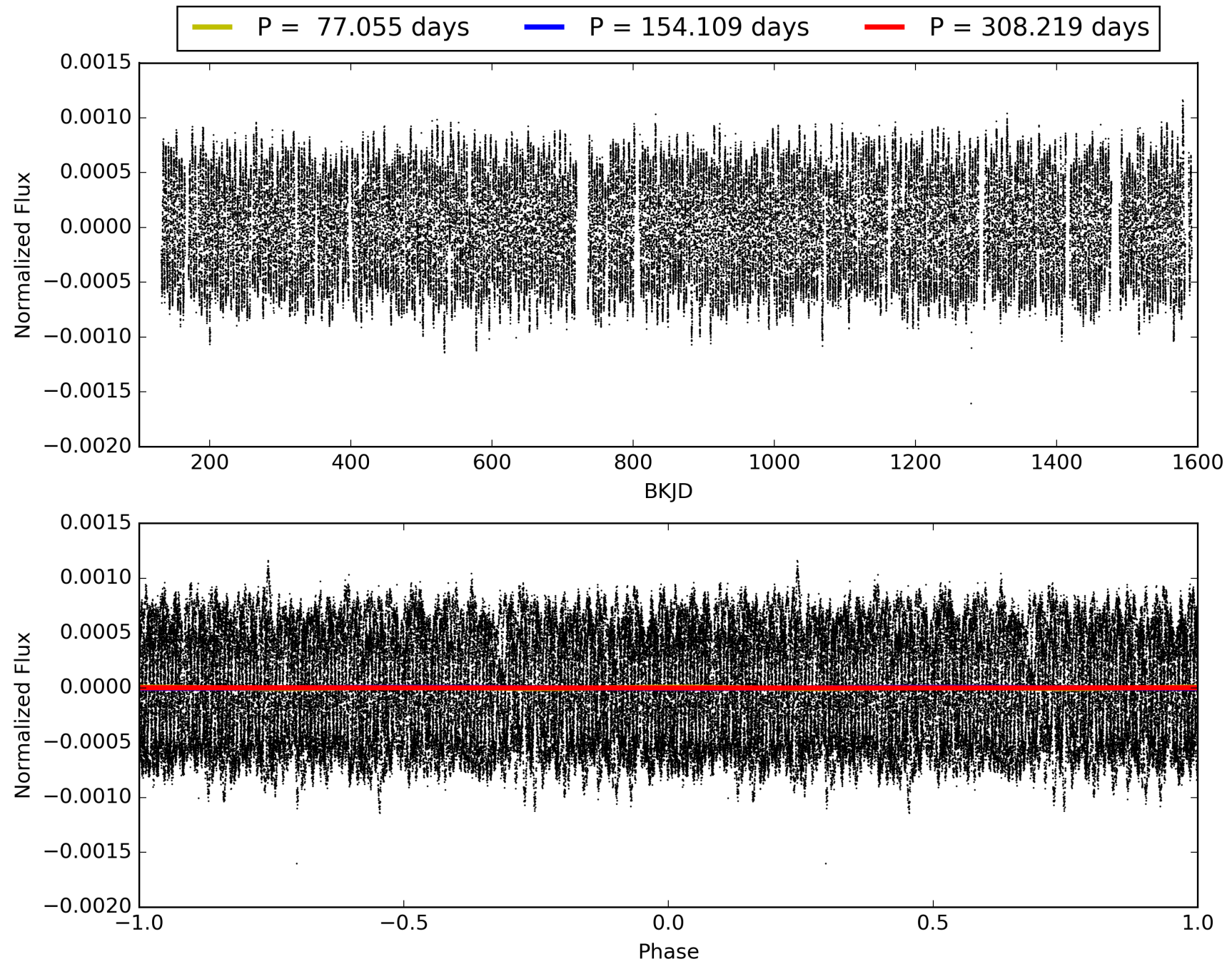
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005295670-06, PDC Light Curves



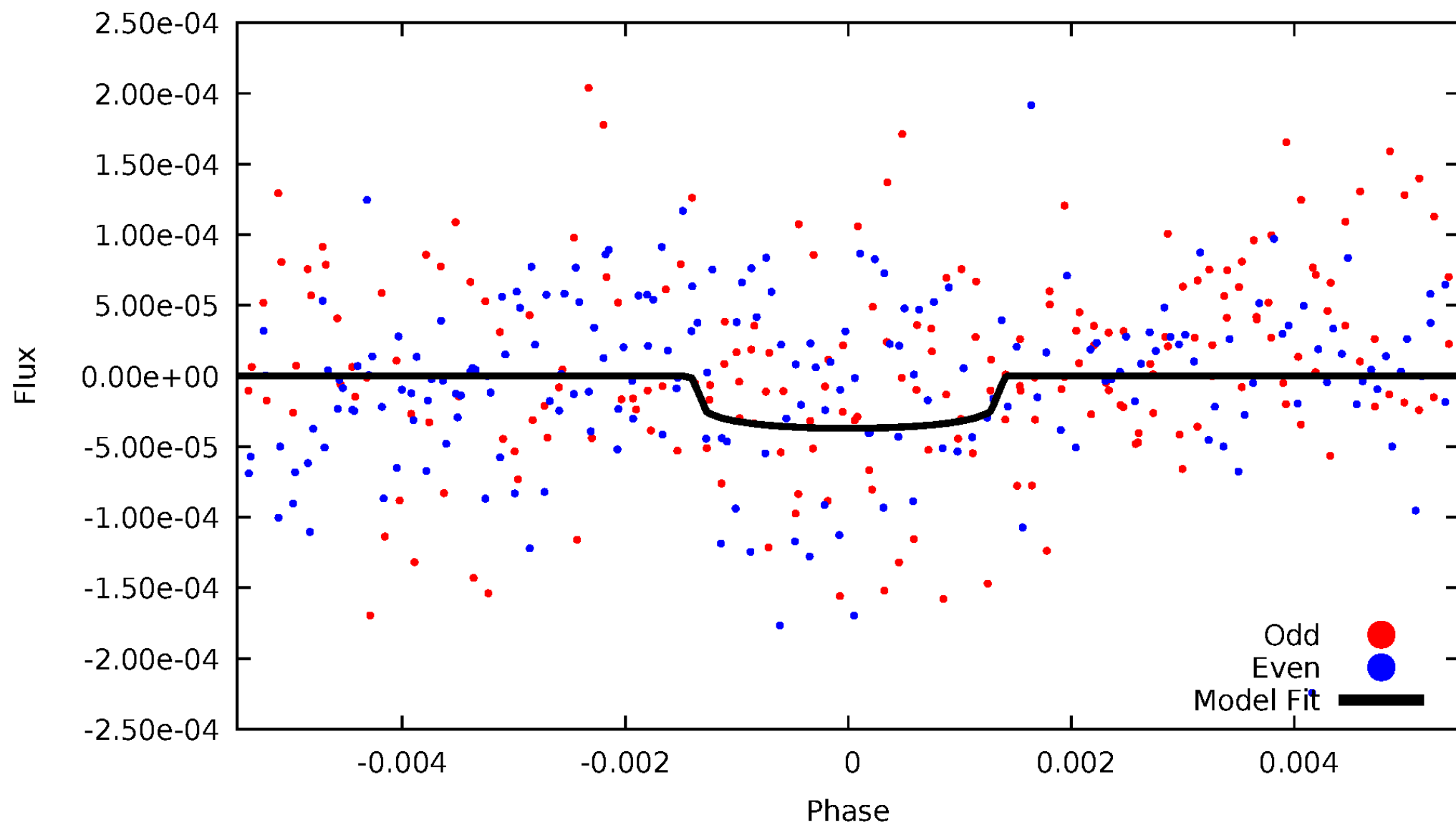


TCE 005295670-06



# DV Odd/Even

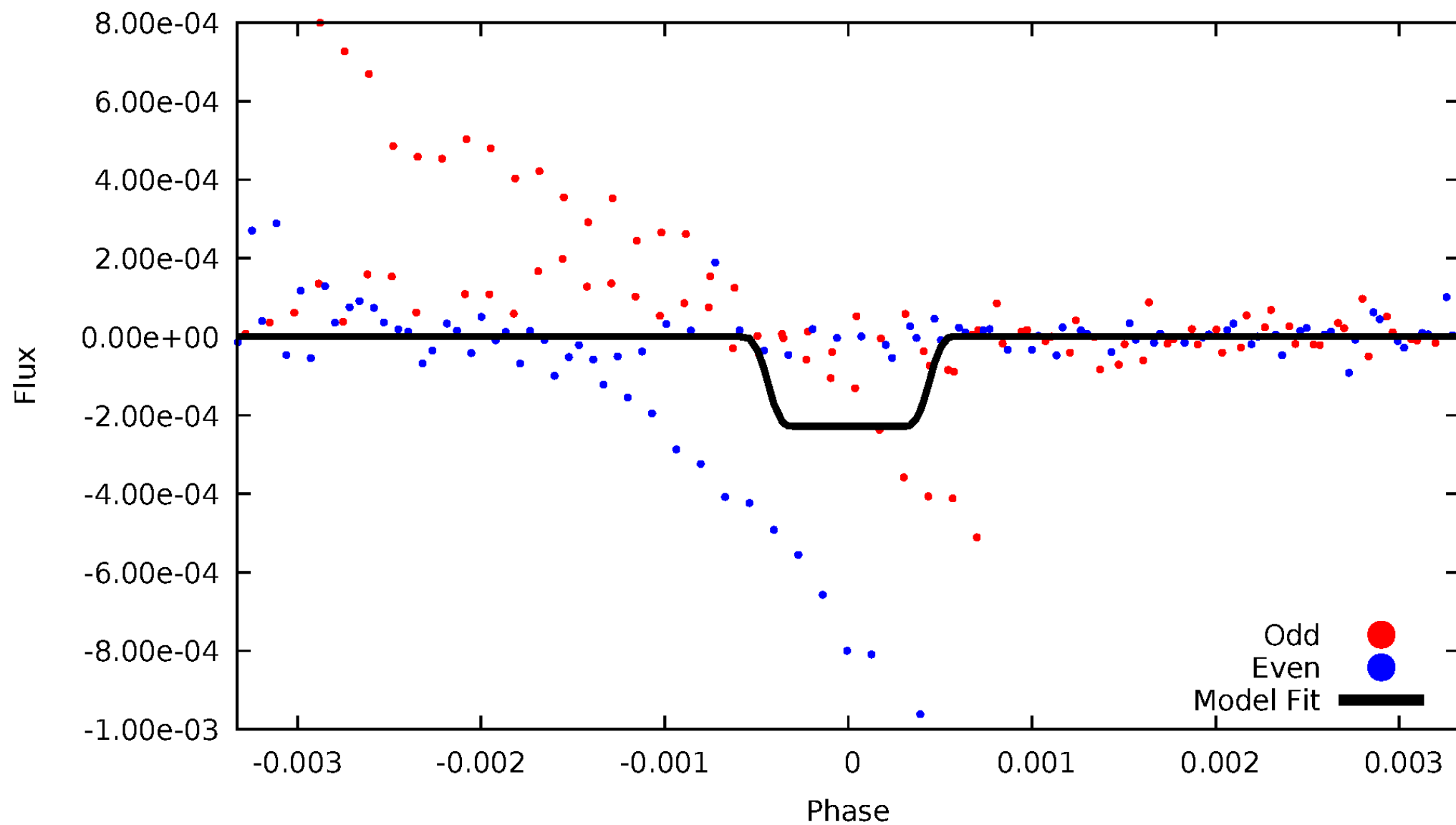
TCE 005295670-06





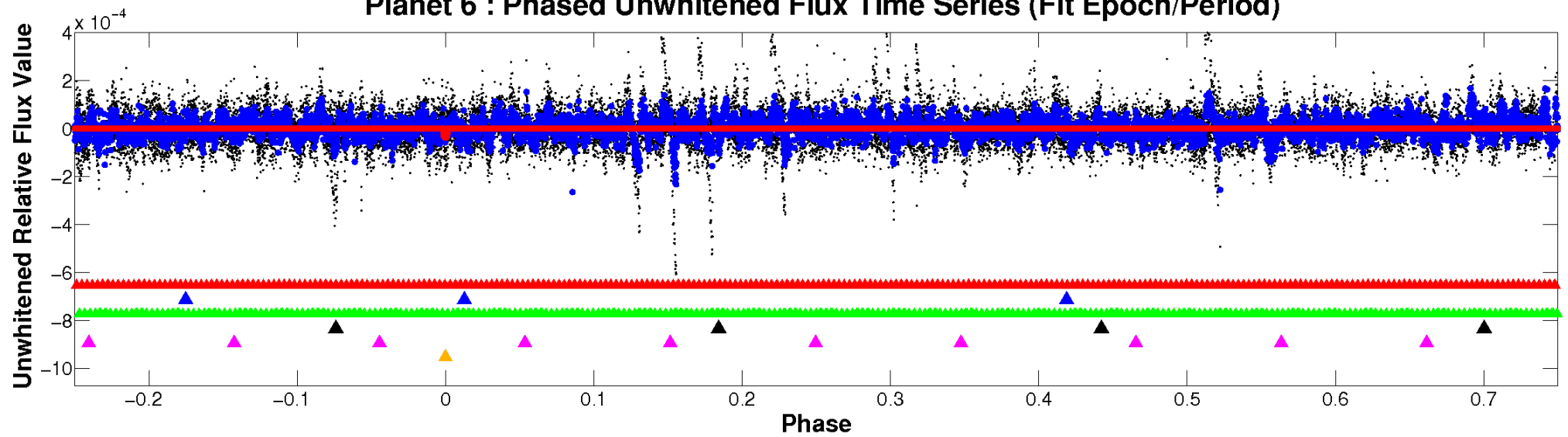
# ALT Odd/Even

TCE 005295670-06

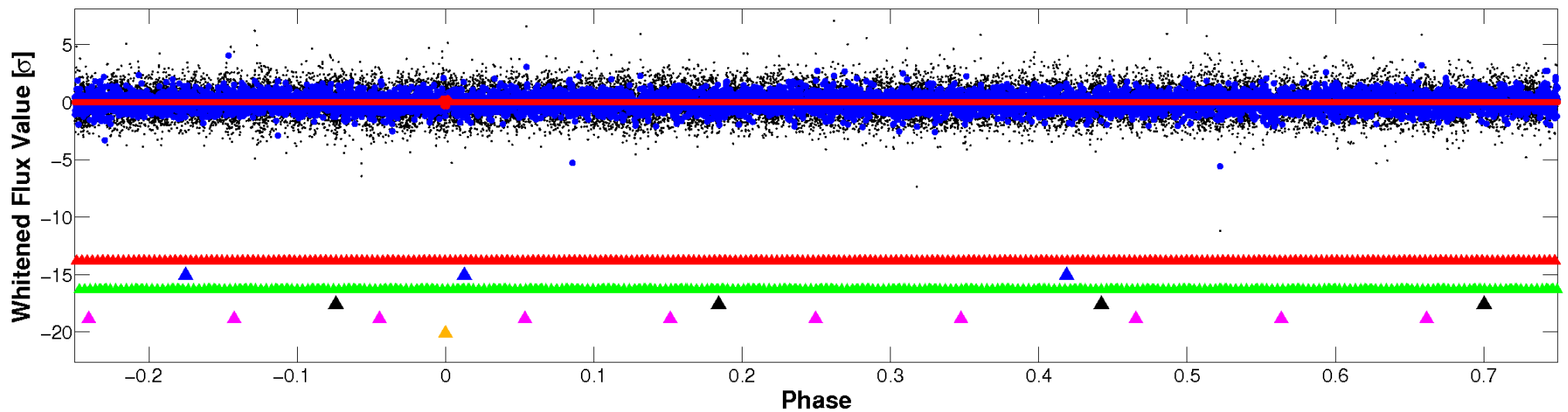


# Non-Whitened Vs. Whitened Light Curve

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

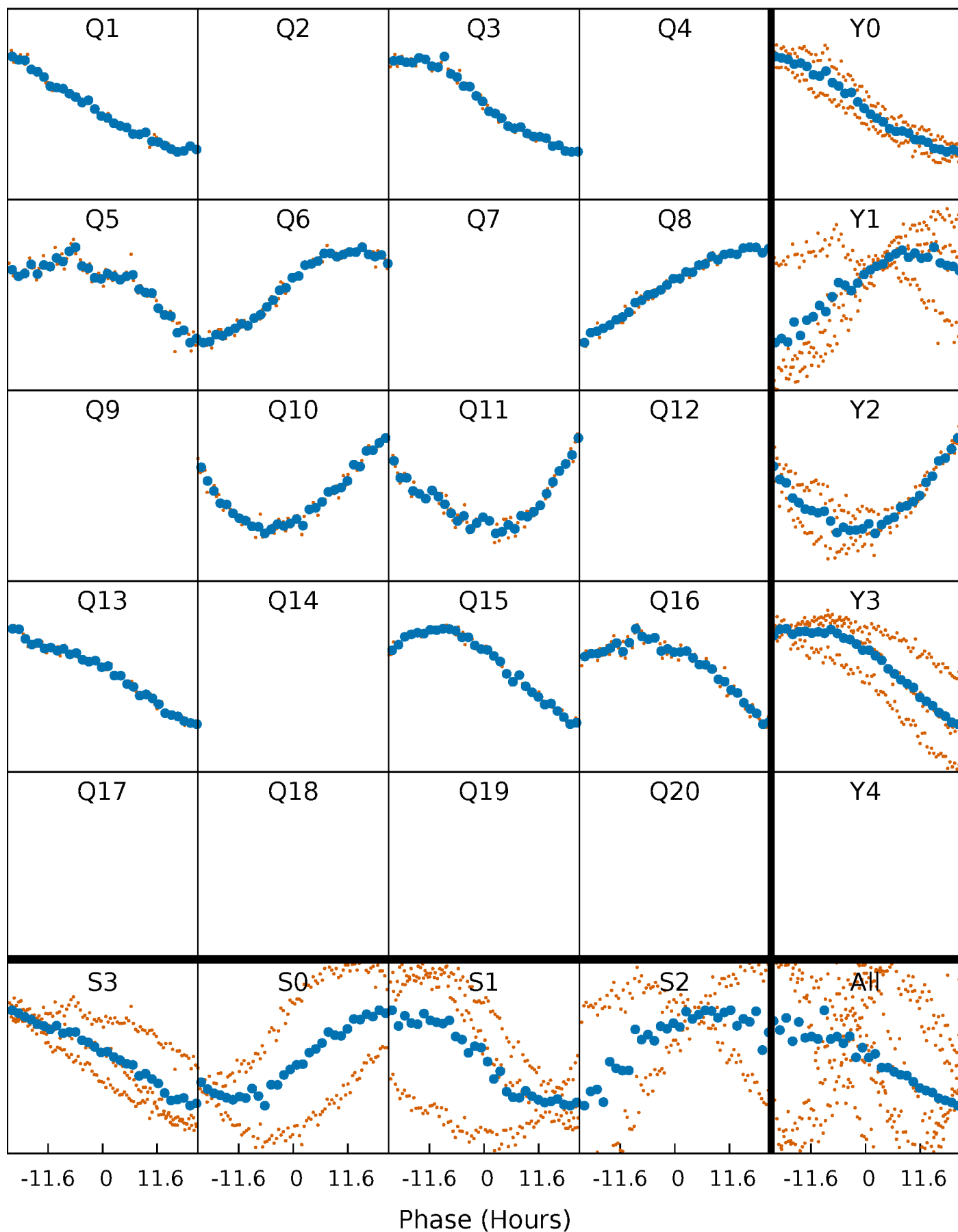


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



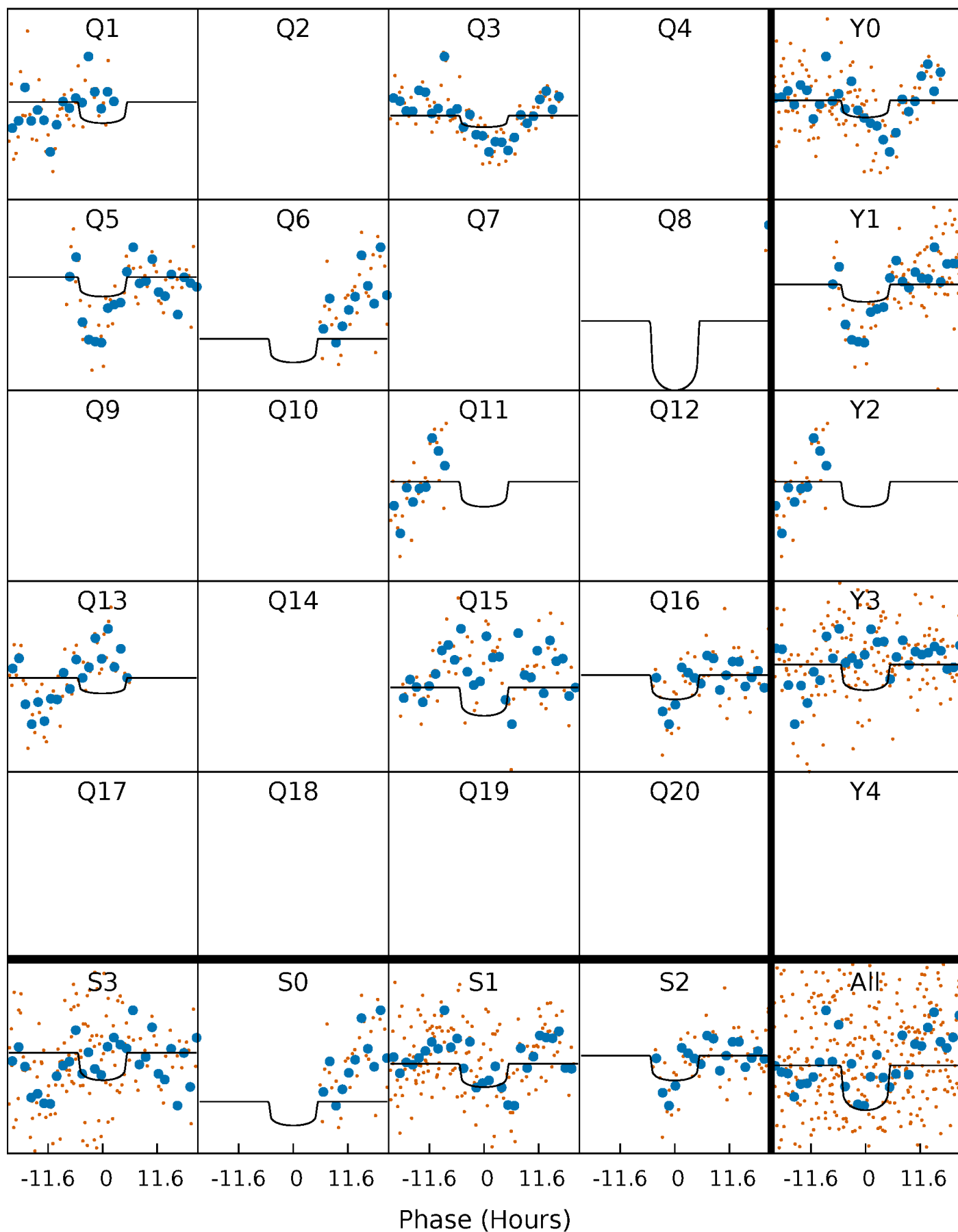
# PDC Quarter-Phased Transit Curves

TCE 005295670-06   P=154.109364 Days    $T_0=154.042378$  (BKJD)



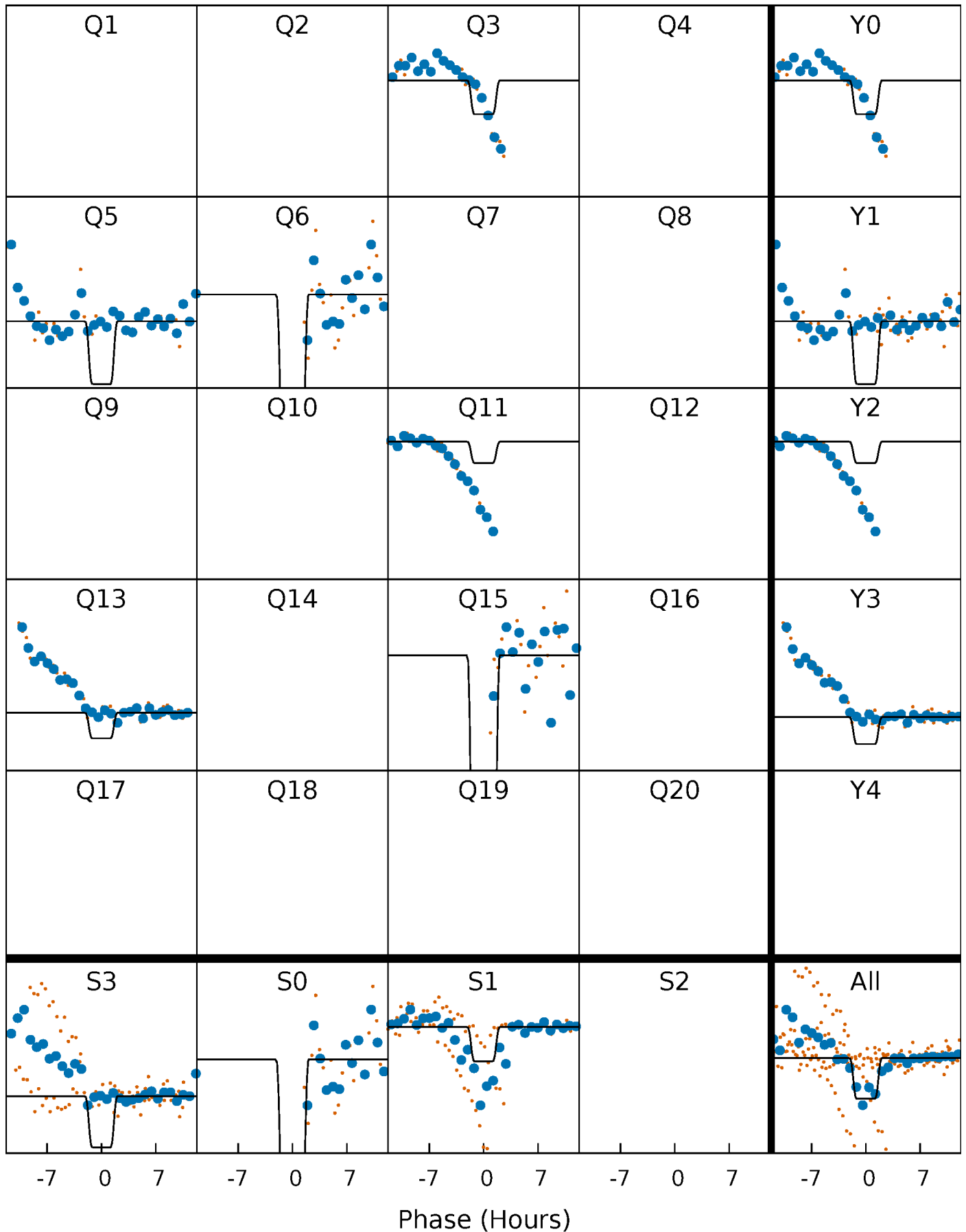
# DV Quarter-Phased Transit Curves

TCE 005295670-06   P=154.109364 Days    $T_0=154.042378$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

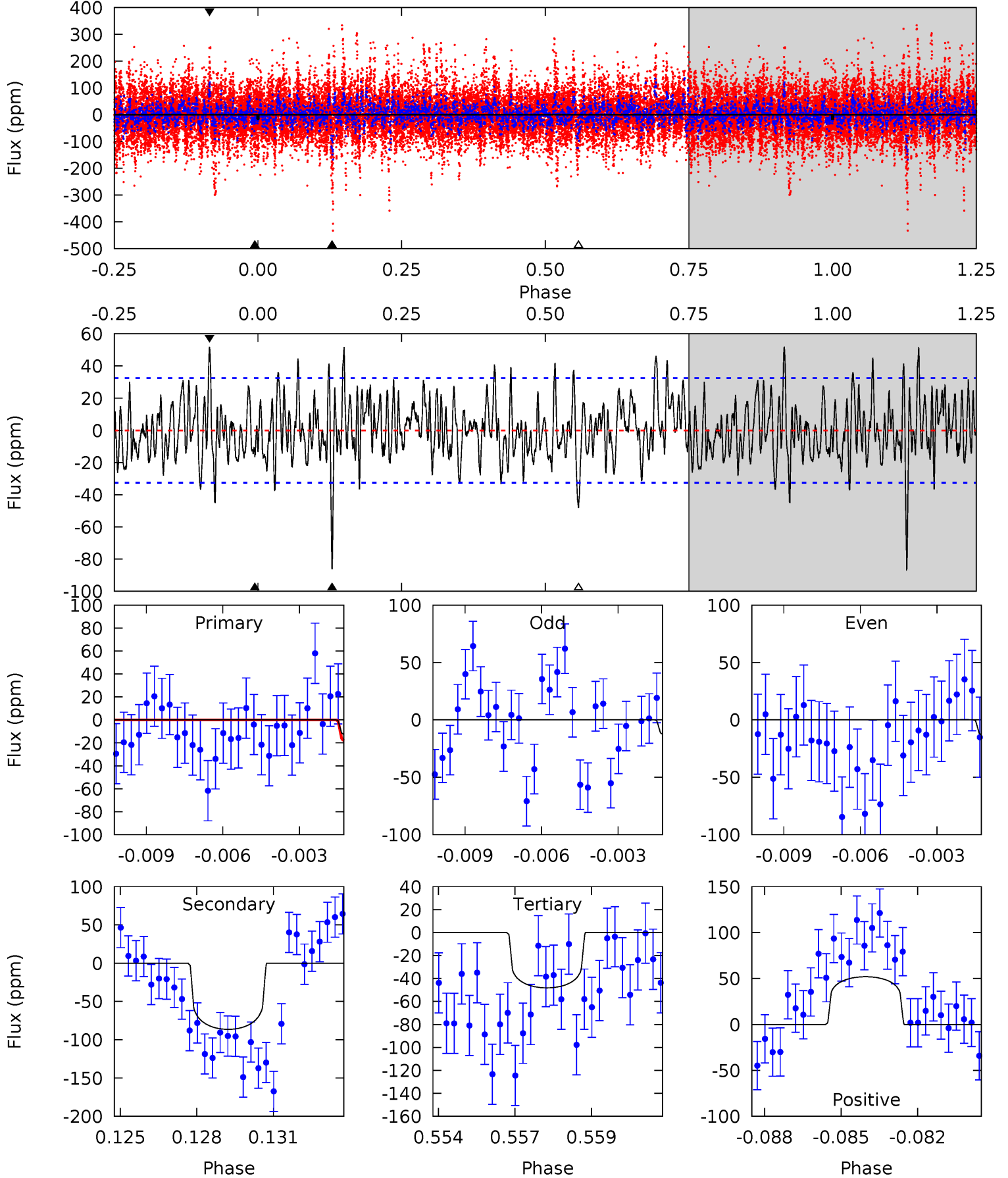
TCE 005295670-06 P=153.919196 Days  $T_0=154.787344$  (BKJD)



# DV Model-Shift Uniqueness Test

005295670-06, P = 154.109364 Days, E = 154.042378 Days

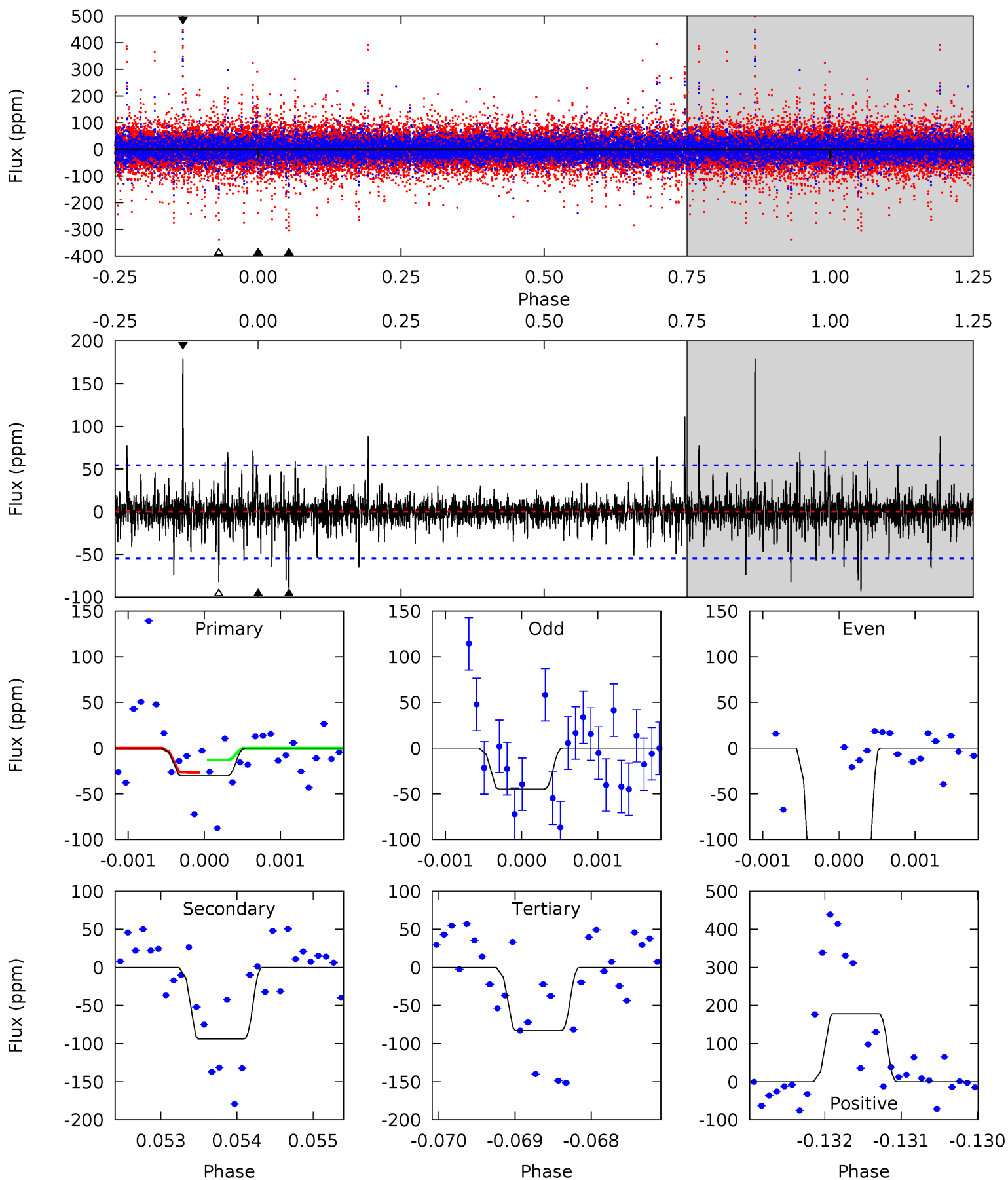
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.68	14.0	7.80	8.40	5.26	2.98	2.53	-5.11	-5.71	6.19	5.59	0.05	2.24	0.38	1.19



# Alt Model-Shift Uniqueness Test

005295670-06, P = 153.919196 Days, E = 0.868148 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
3.06	9.41	8.30	18.0	5.44	3.27	1.40	-5.25	-14.9	1.11	-8.54	8.28	4.06	0.66	0



### Stellar Parameters For KIC 005295670

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6277^{+81}_{-81}$	$4.149^{+0.188}_{-0.101}$	$-0.300^{+0.150}_{-0.150}$	$1.428^{+0.245}_{-0.300}$	$1.049^{+0.099}_{-0.076}$	$0.507^{+0.446}_{-0.176}$
	+1%/-1%	+5%/-2%	+50%/-50%	+17%/-21%	+9%/-7%	+88%/-35%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 005295670-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-86 \pm 6$	$0.98^{+0.65}_{-0.52}$	$609^{+27}_{-35}$	$7831^{+5665}_{-1950}$	$16581^{+59854}_{-10733}$
Alt.	$-94 \pm 10$	$2.33^{+0.73}_{-0.67}$	$609^{+27}_{-37}$	$5078^{+816}_{-506}$	$3102^{+3027}_{-1327}$

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



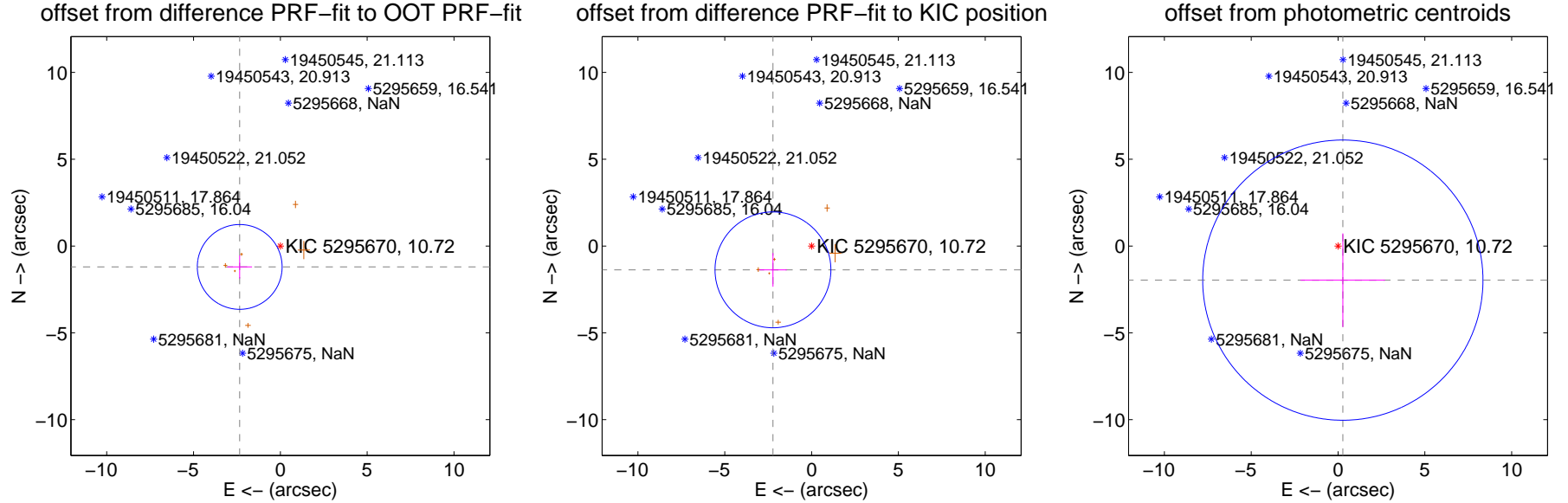
## DV Centroid Data

Supplemental centroid analysis for 005295670-06. **Kepler magnitude: 10.72.** Transit SNR 3.83

**There are 0 quarters with good PRF difference image offsets**

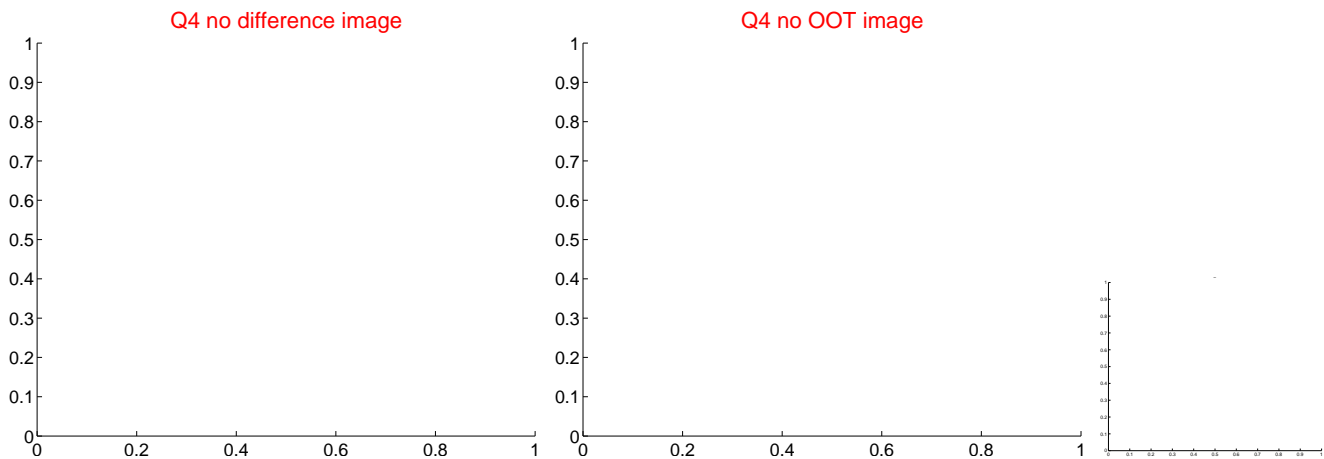
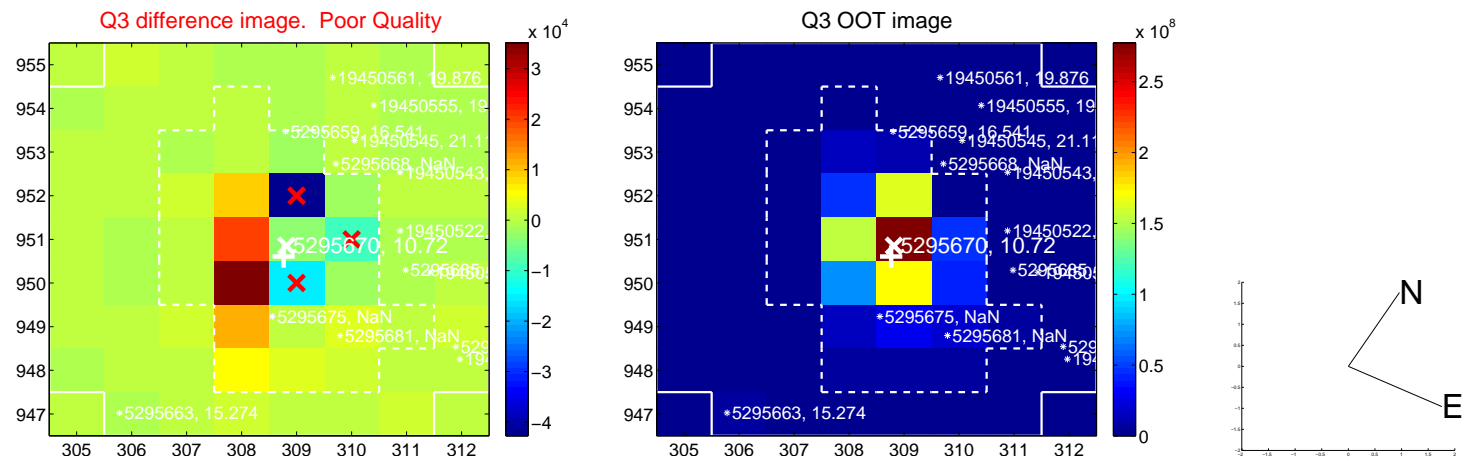
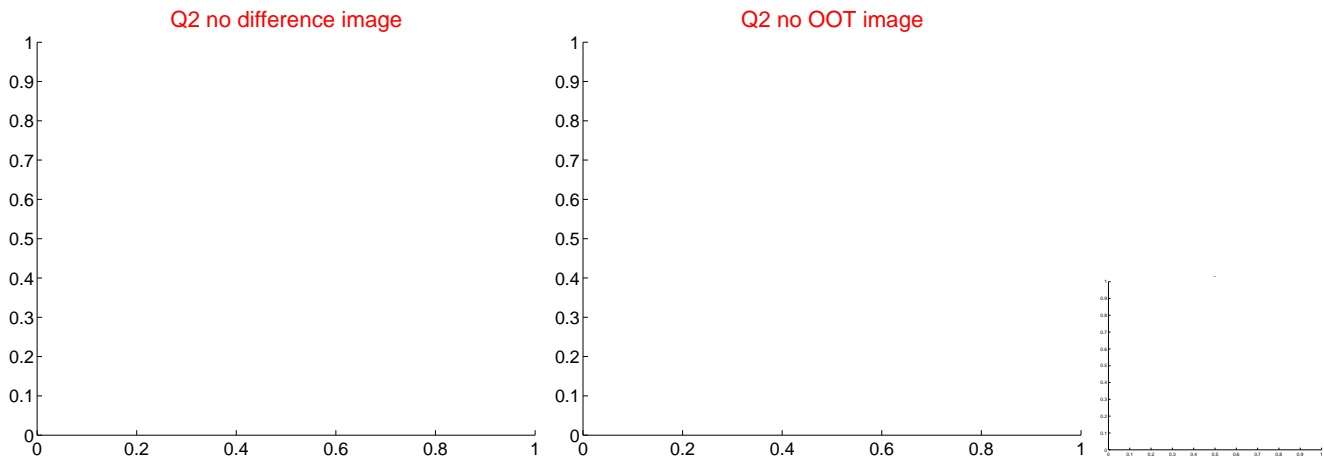
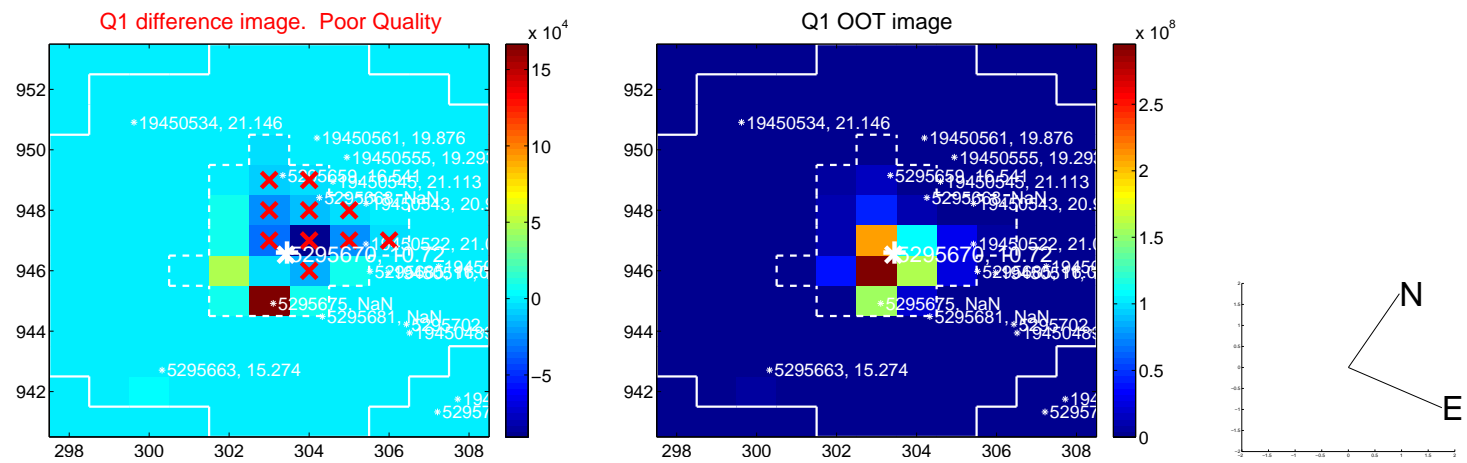
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>2.632 <math>\pm</math> 0.814</b>	<b>3.23</b>	2.341 $\pm$ 0.711	-1.204 $\pm$ 0.664
PRF-fit source offset from KIC position	2.613 $\pm$ 1.112	2.35	2.224 $\pm$ 0.792	-1.371 $\pm$ 0.972
photometric centroid source offset	1.98 $\pm$ 2.69	0.74	-0.28 $\pm$ 2.43	-1.96 $\pm$ 2.69



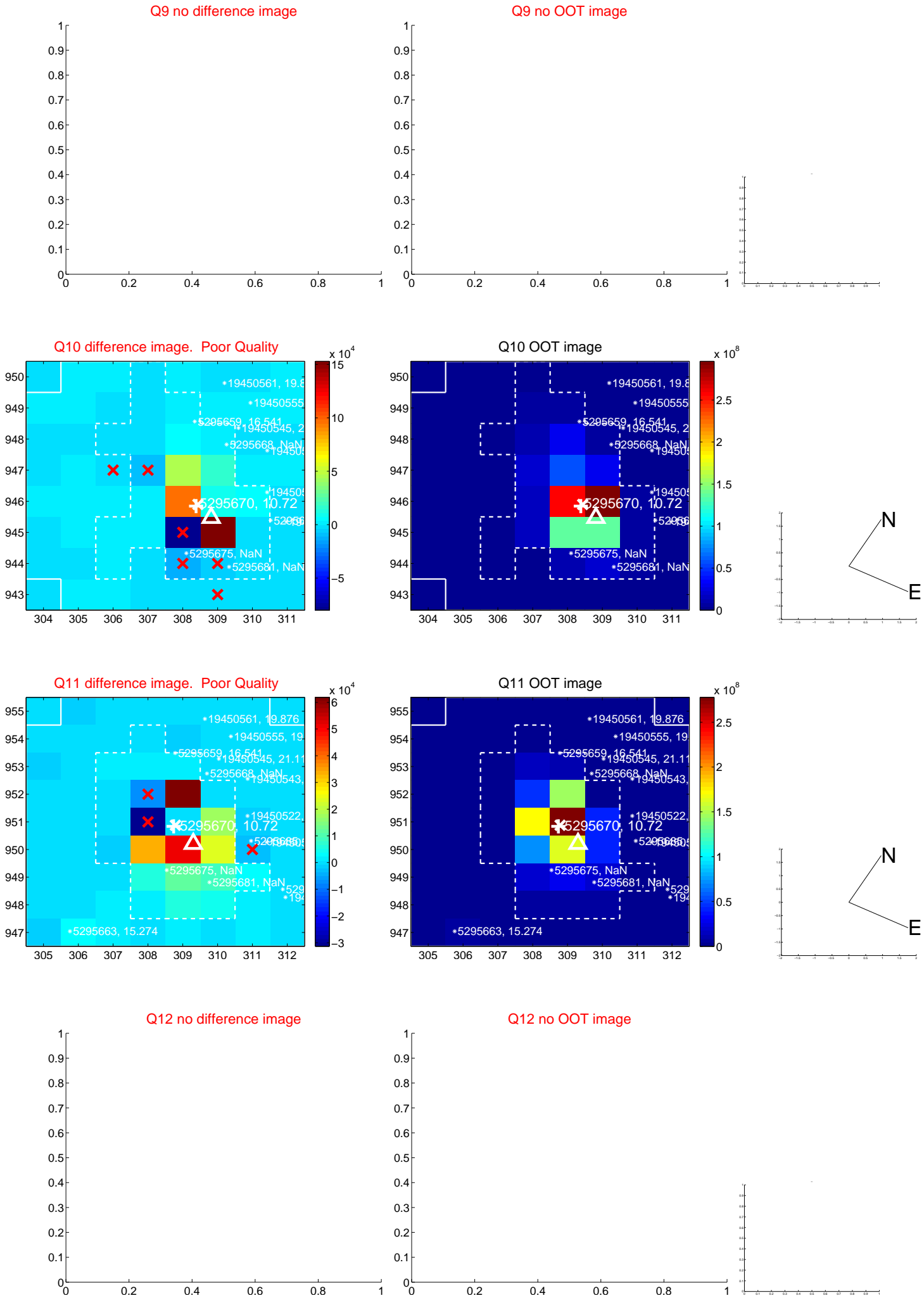
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

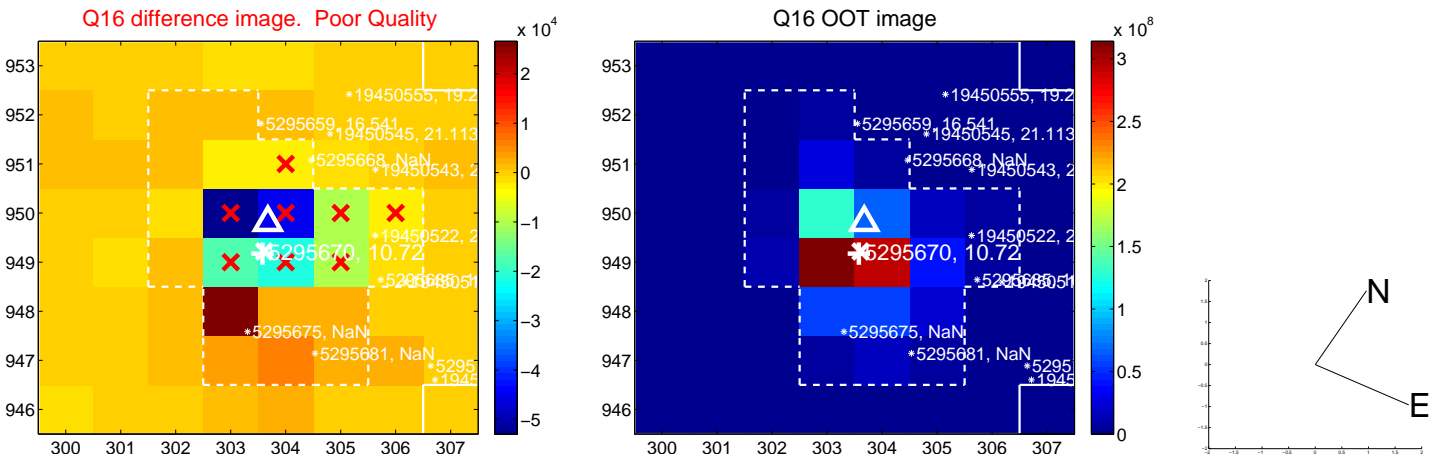
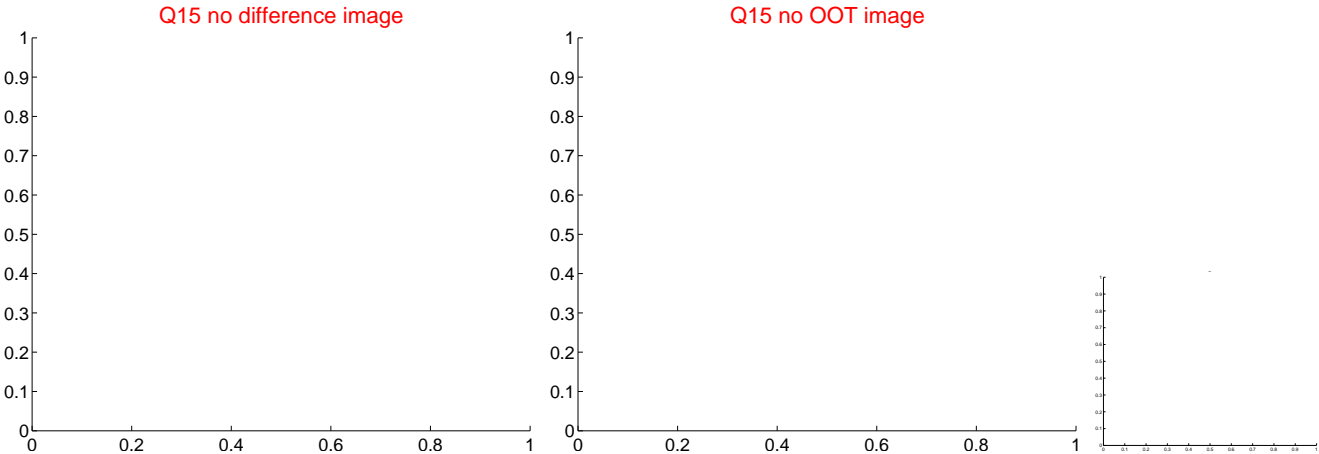
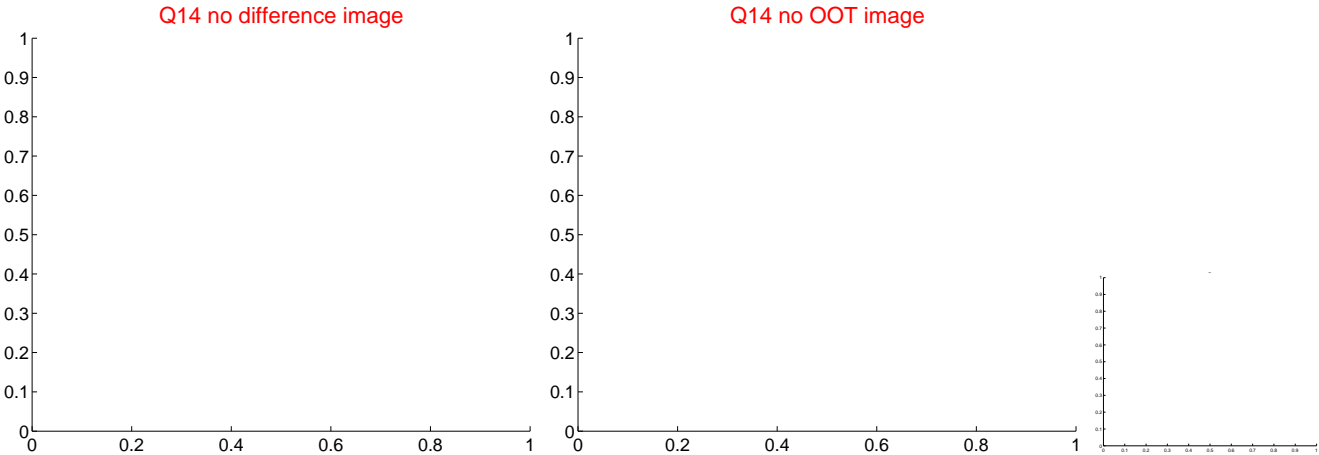
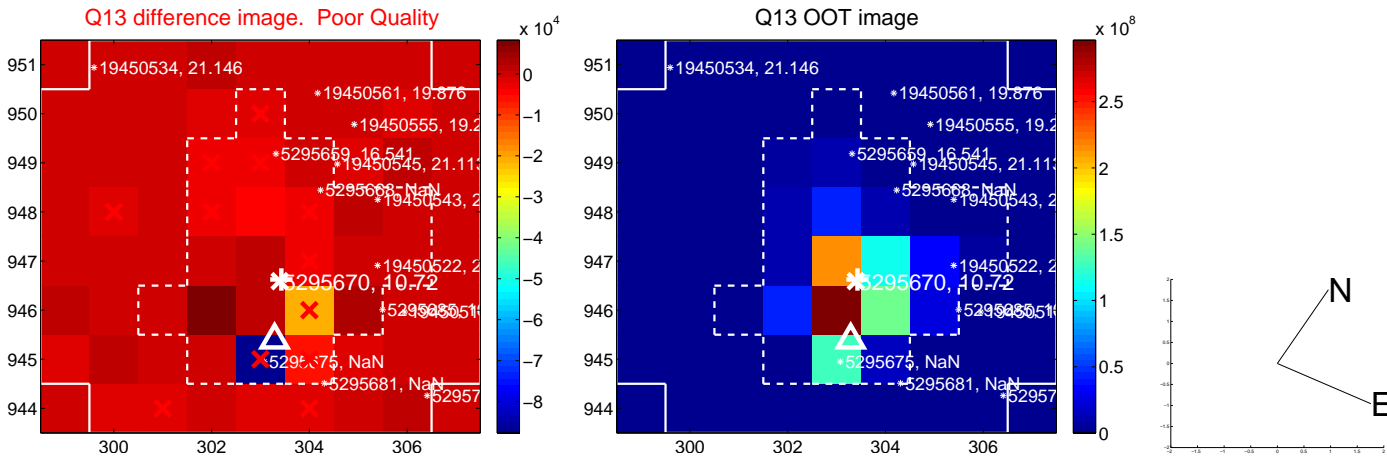




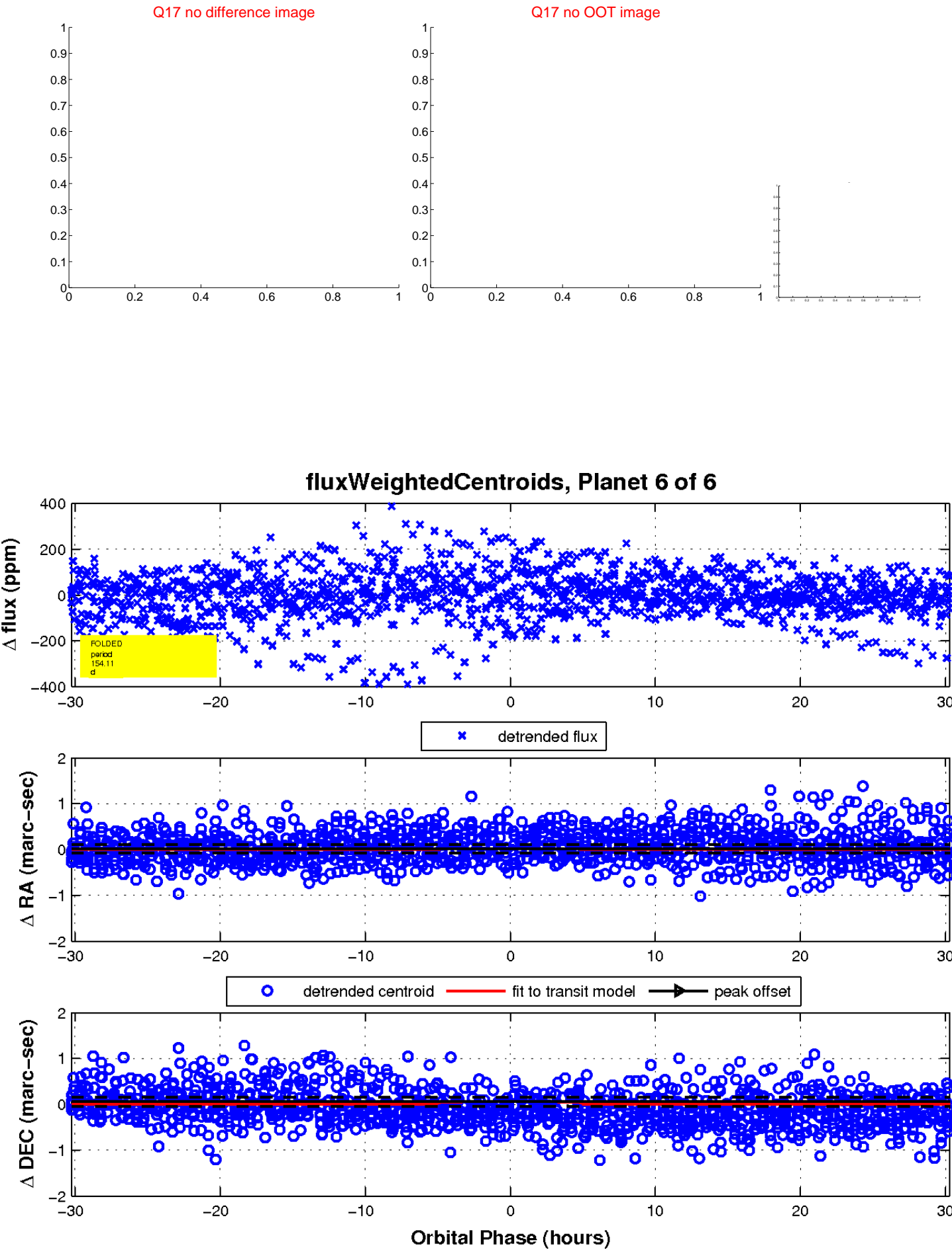
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

