

# KIC 008299332

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008299332-01	OBS	No	3.584458	134.883987	137.4	15.622	8.4	10.3	1.84	7533	2.52	3311.92
008299332-02	OBS	No	4.374820	132.981322	359.3	40.123	9.8	14.3	1.84	7533	5.53	2539.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008299332-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008299332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT

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

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

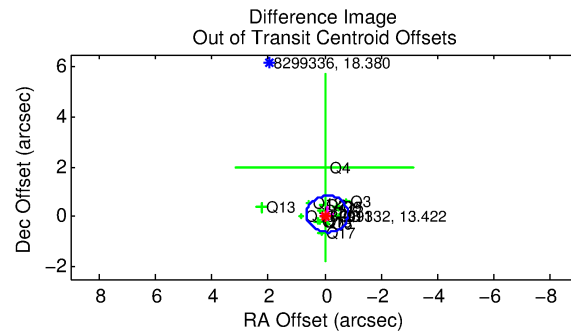
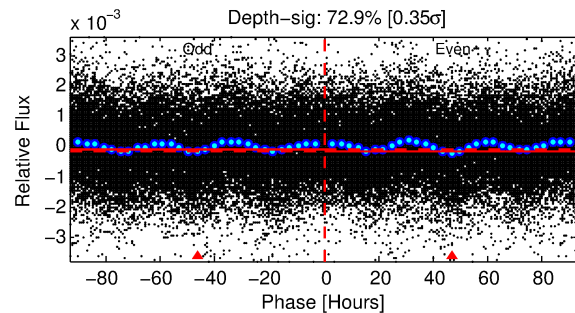
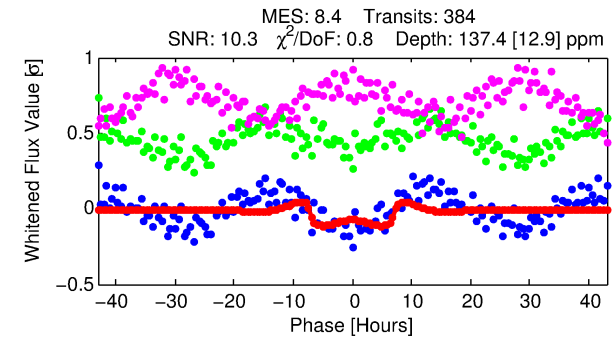
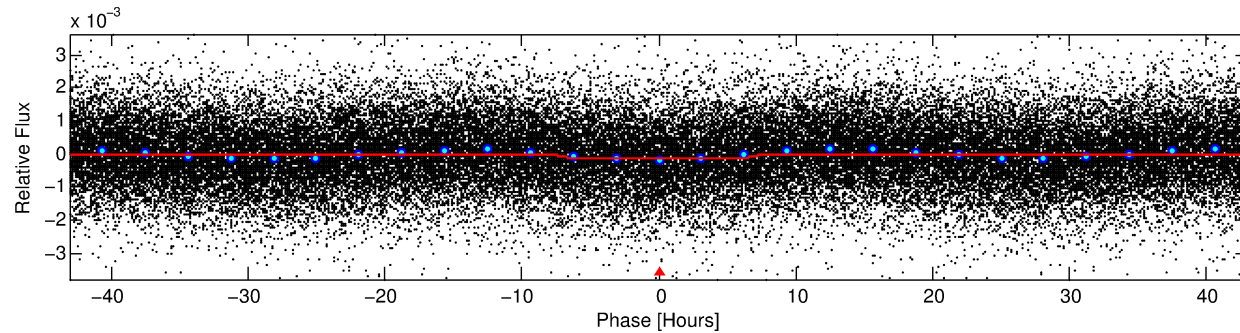
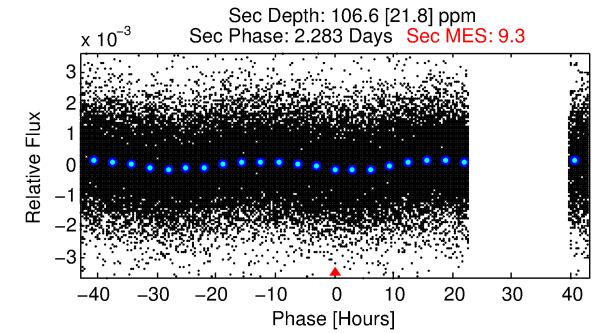
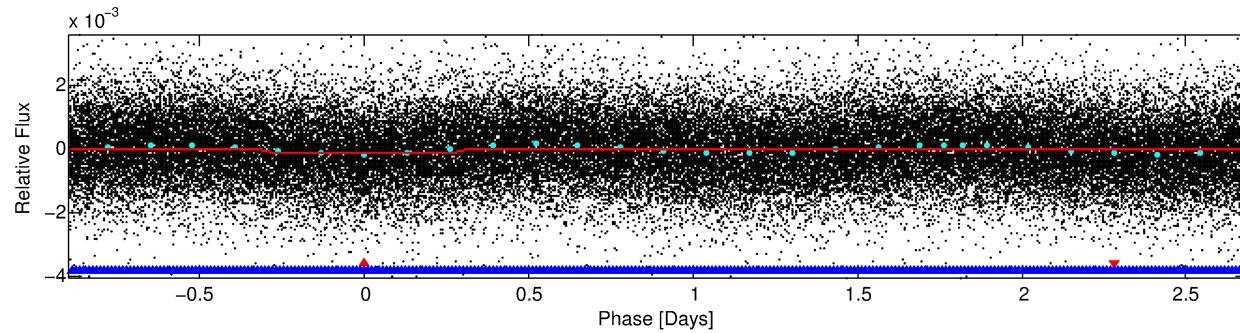
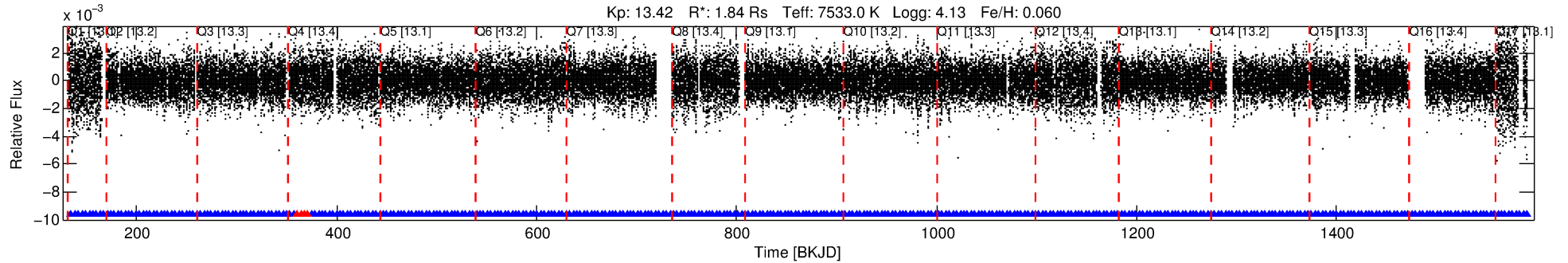
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008299332-01

No Significant Match Found

# DV One-Page Summary

KIC: 8299332 Candidate: 1 of 2 Period: 3.584 d



## DV Fit Results:

Period = 3.58446 [0.00007] d  
Epoch = 134.8840 [0.0149] BKJD  
Rp/R\* = 0.0126 [0.0010]  
a/R\* = 1.22 [0.17]  
b = 0.92 [0.08]  
Seff = 3311.92 [1326.74]  
Teff = 1934 [194] K  
Rp = 2.52 [0.77] Re  
a = 0.0543 [0.0134] AU  
Ag = 27.17 [12.04] [2.17σ]  
Teffp = 6828 [542] K [8.50σ]

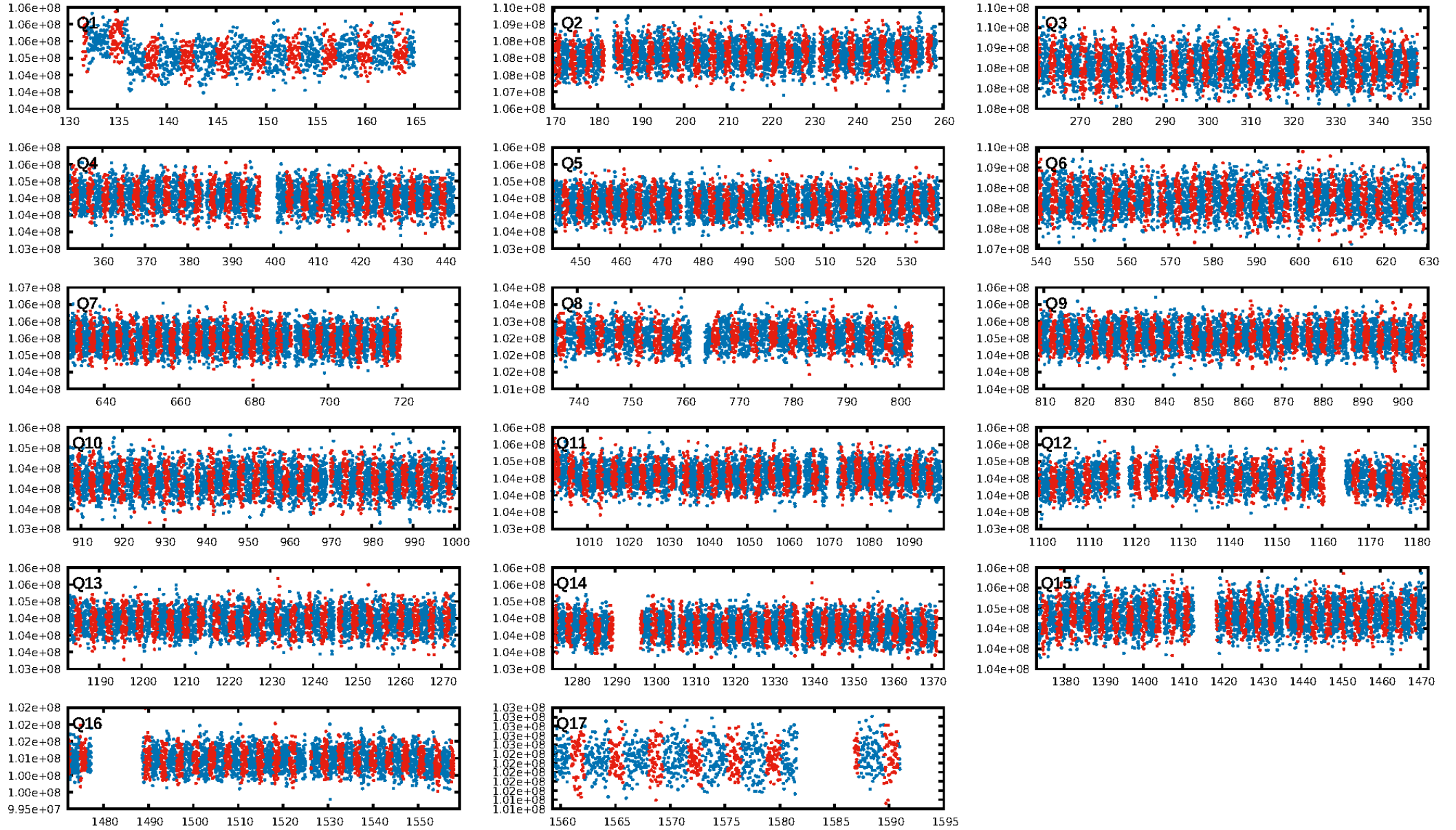
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 34.0% [0.44σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [362/366]  
GhostDiagnostic-chr: 2.007  
Centroid-sig: 37.1%  
Centroid-so: 0.090 arcsec [0.55σ]  
OotOffset-rm: 0.136 arcsec [0.56σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-rm: 0.116 arcsec [0.53σ]  
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DiffImageOverlap-fno: 0.94 [16/17]

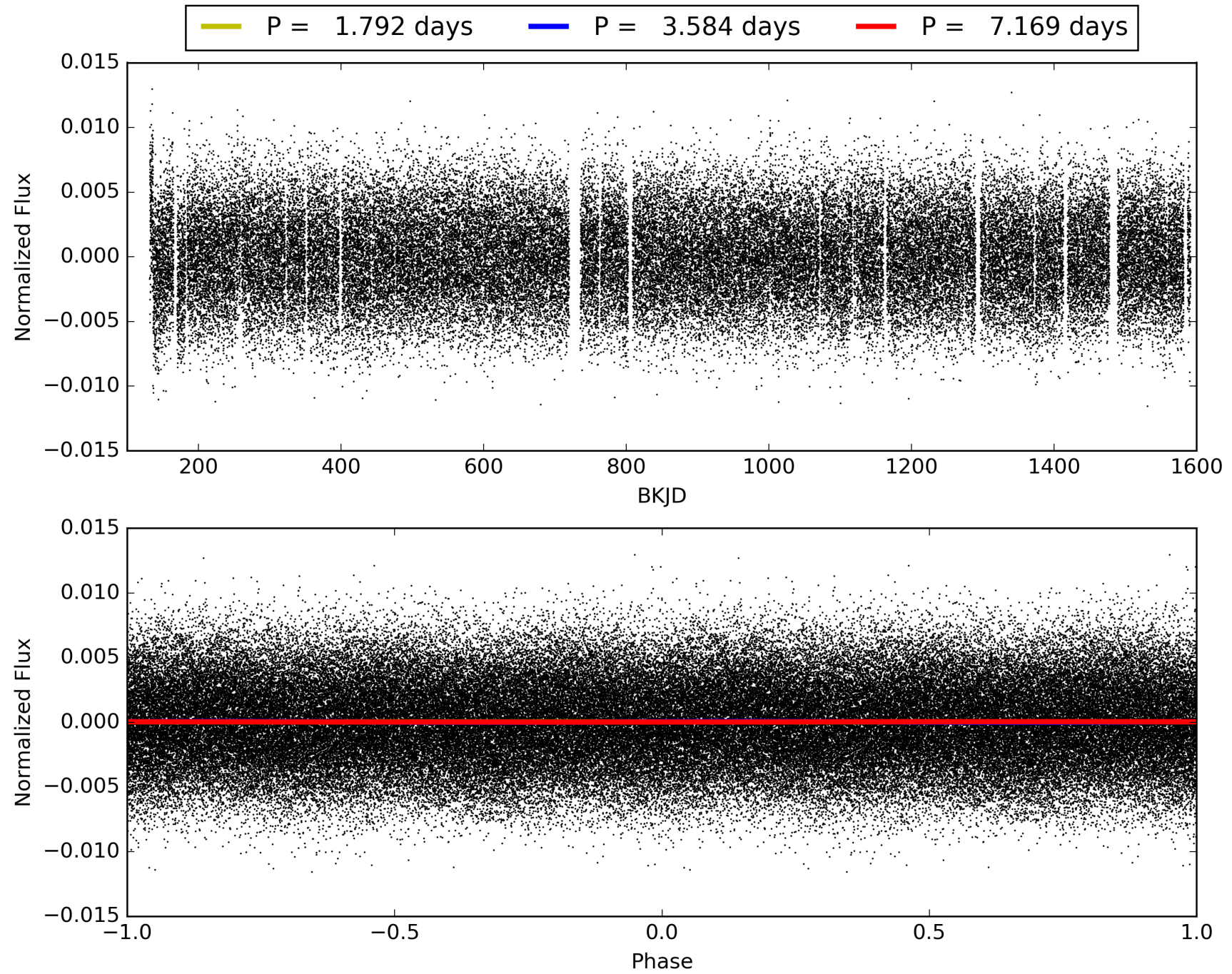
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008299332-01, PDC Light Curves

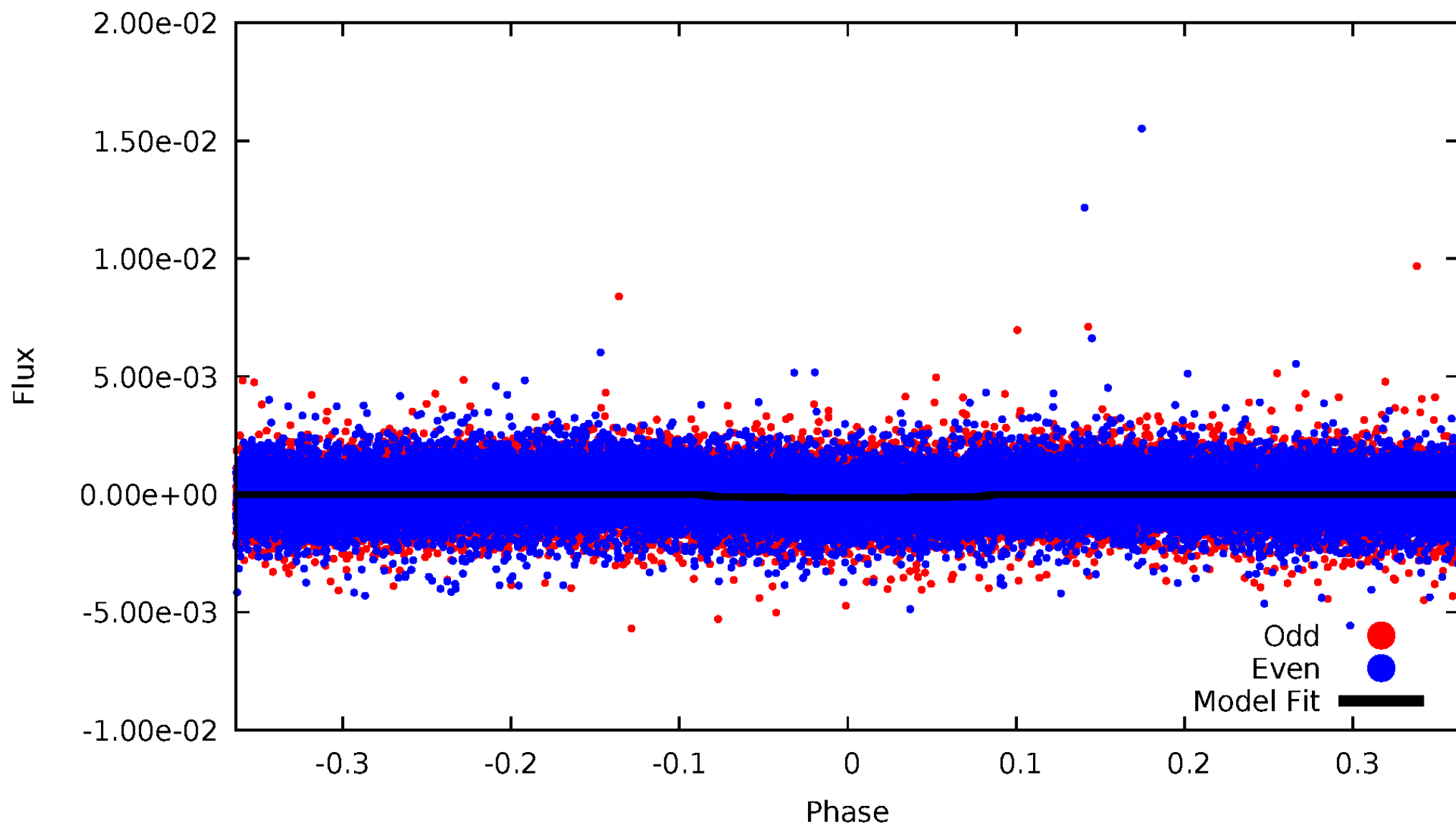


TCE 008299332-01



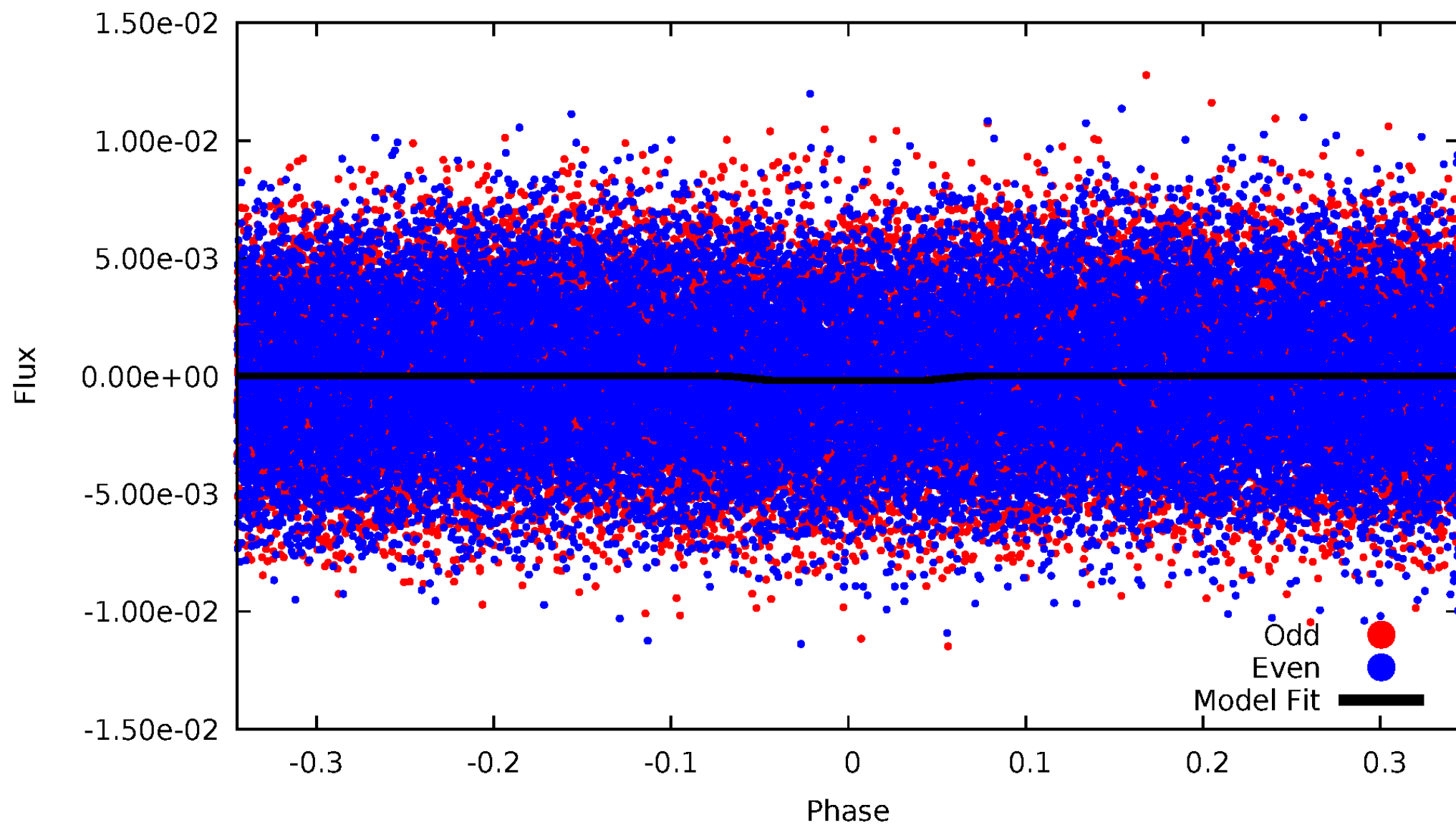
# DV Odd/Even

TCE 008299332-01



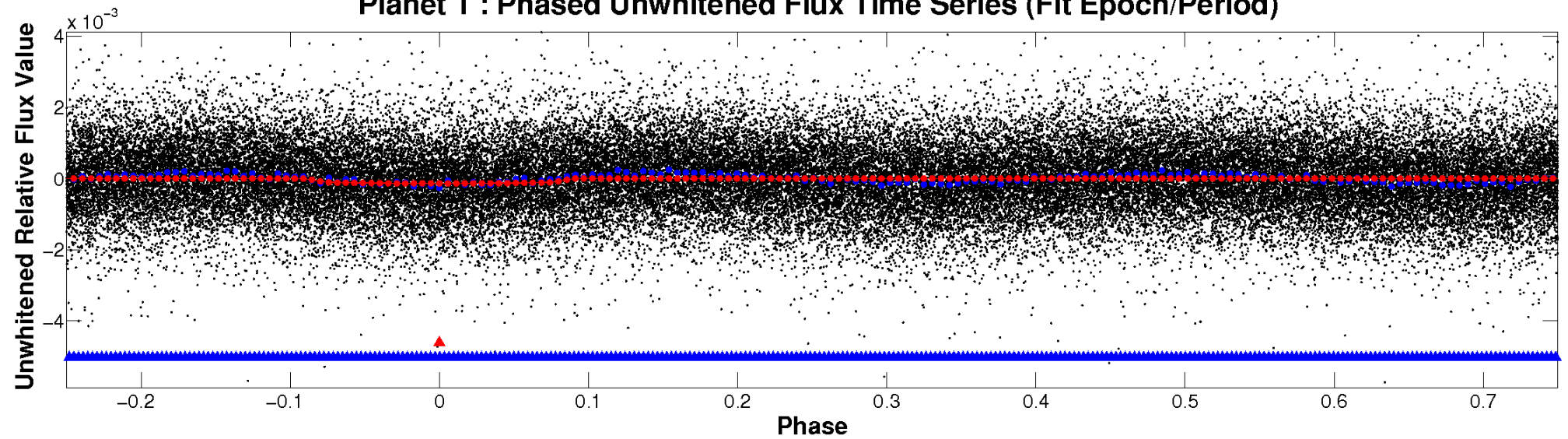
# ALT Odd/Even

TCE 008299332-01

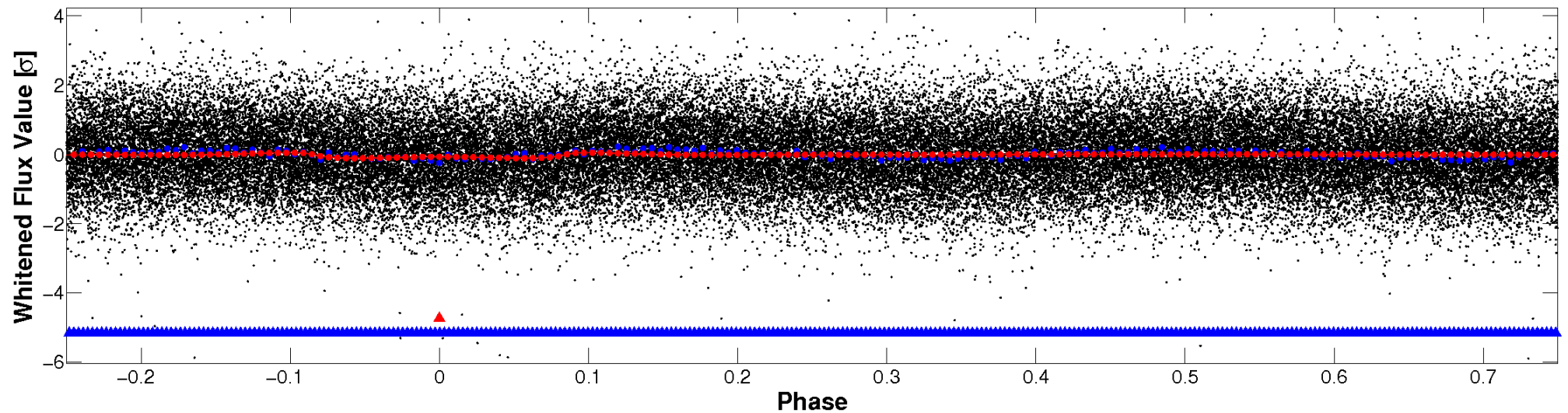


# Non-Whitened Vs. Whitened Light Curve

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

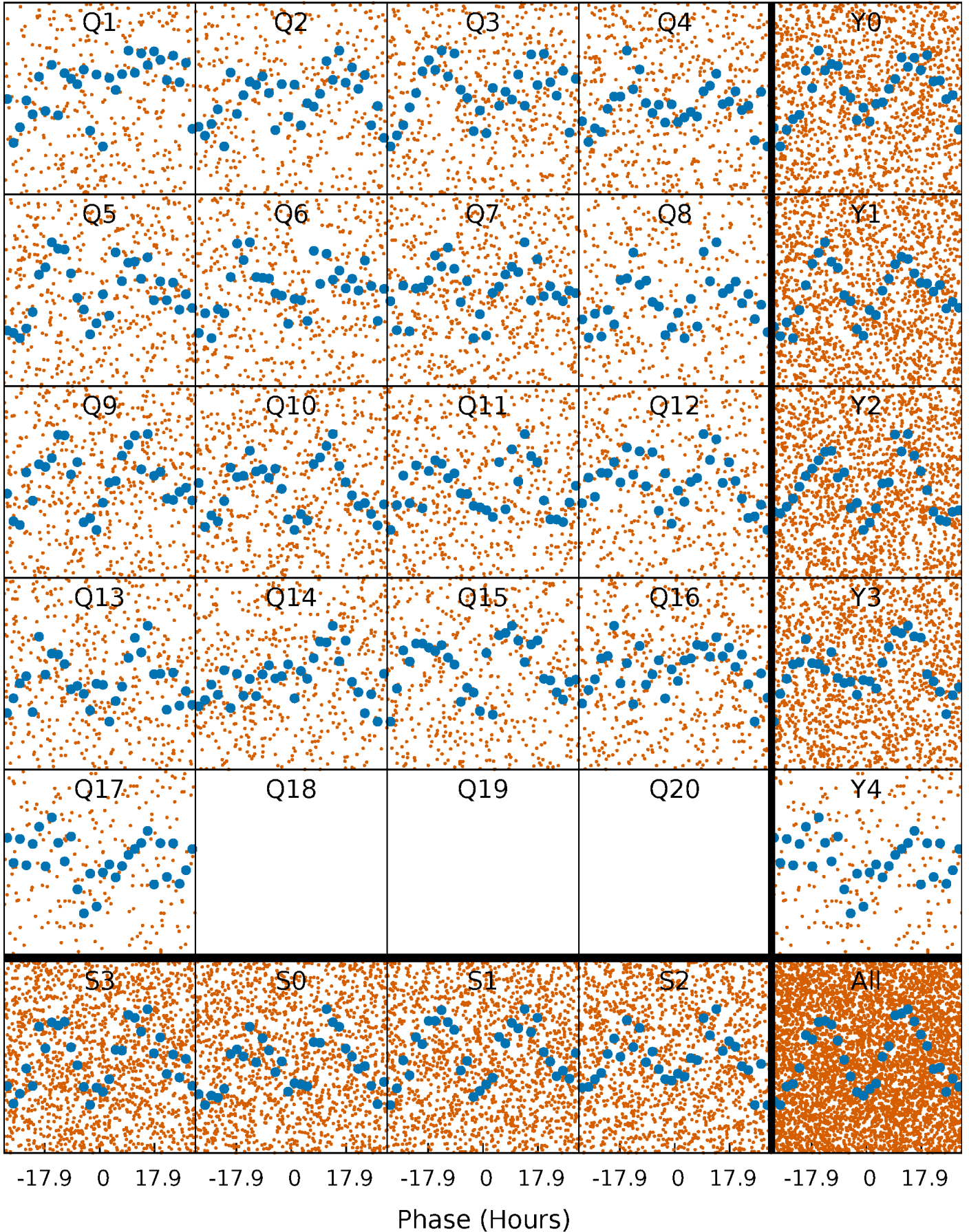


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



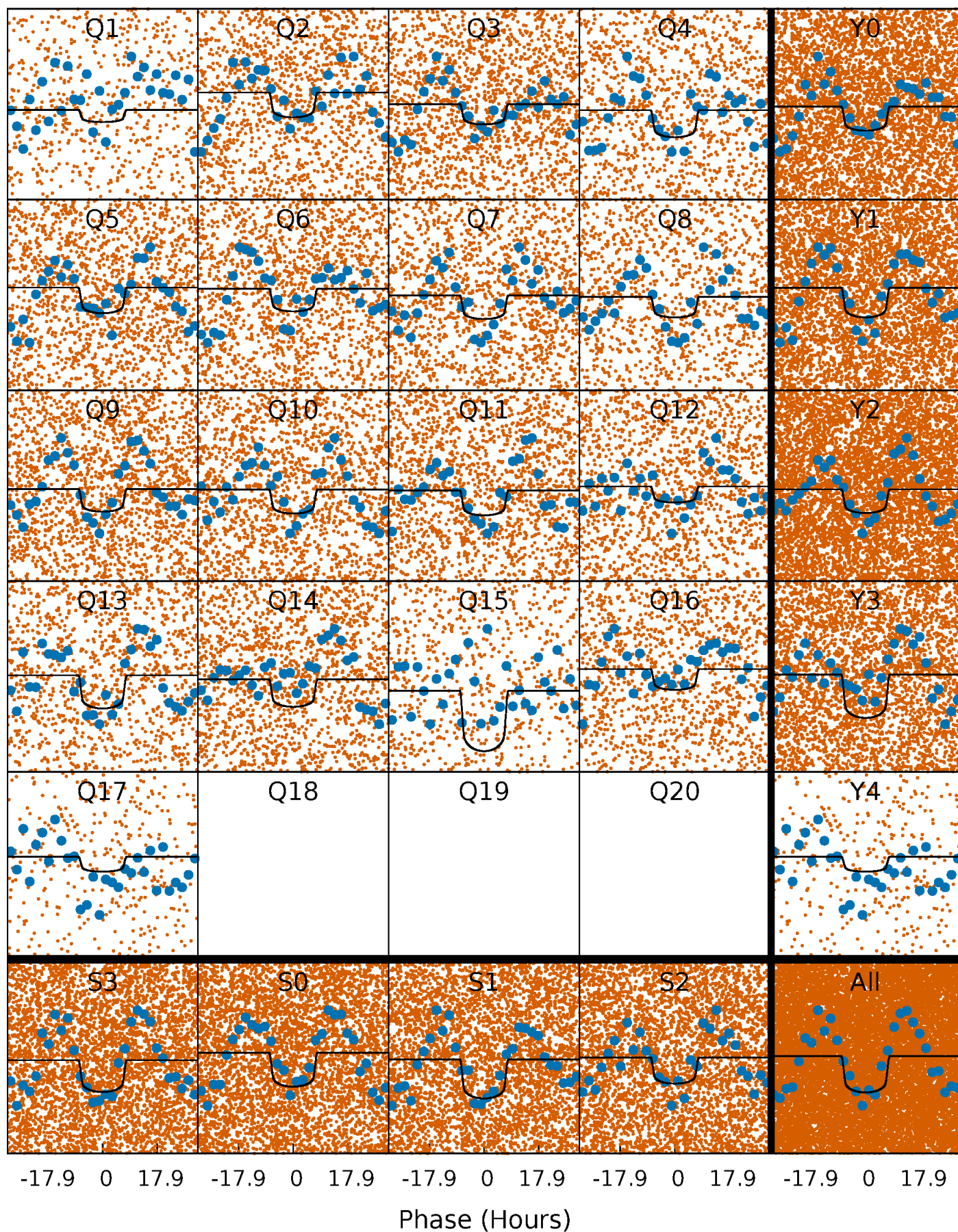
# PDC Quarter-Phased Transit Curves

TCE 008299332-01 P= 3.584458 Days  $T_0=134.883987$  (BKJD)



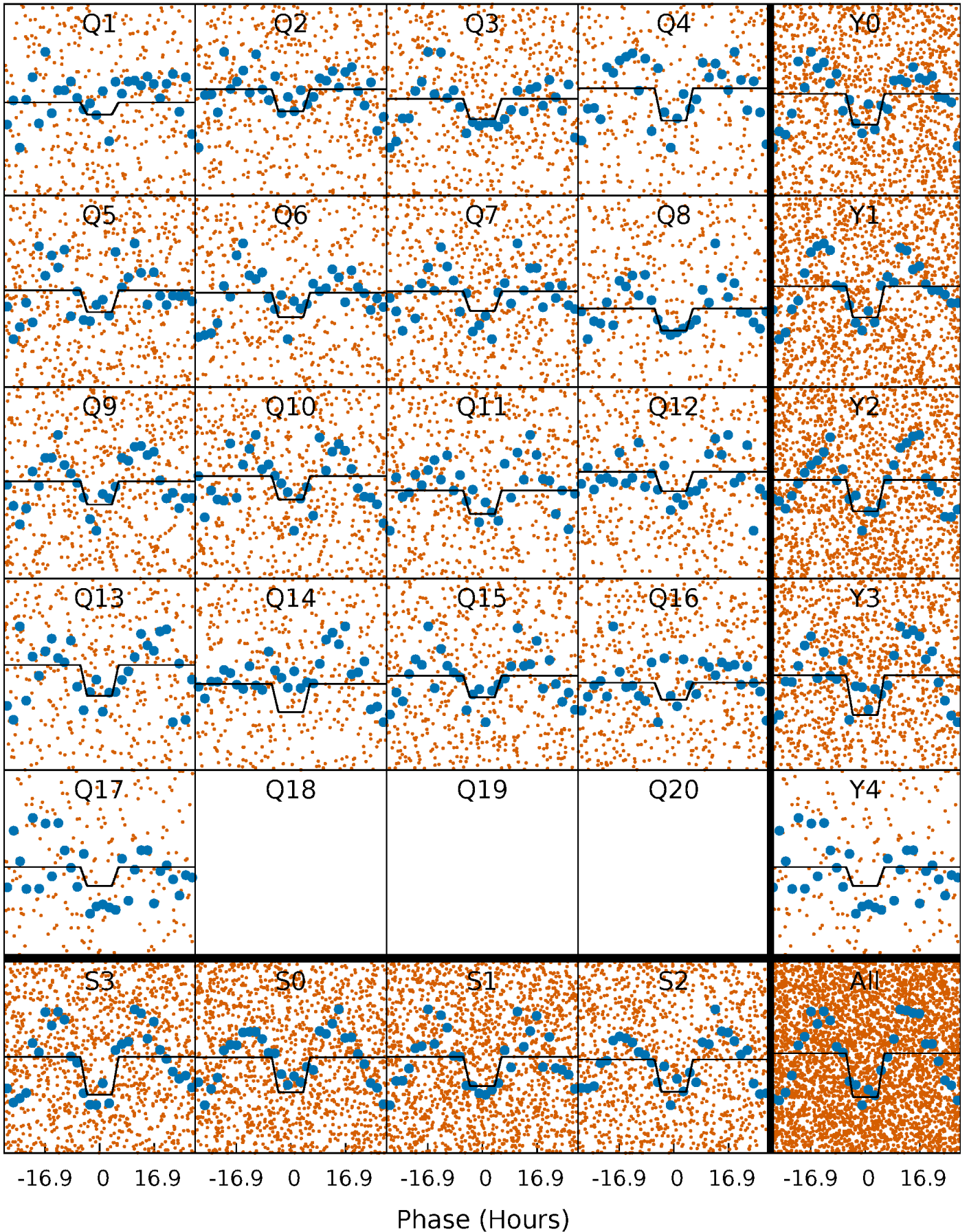
# DV Quarter-Phased Transit Curves

TCE 008299332-01 P= 3.584458 Days  $T_0=134.883987$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

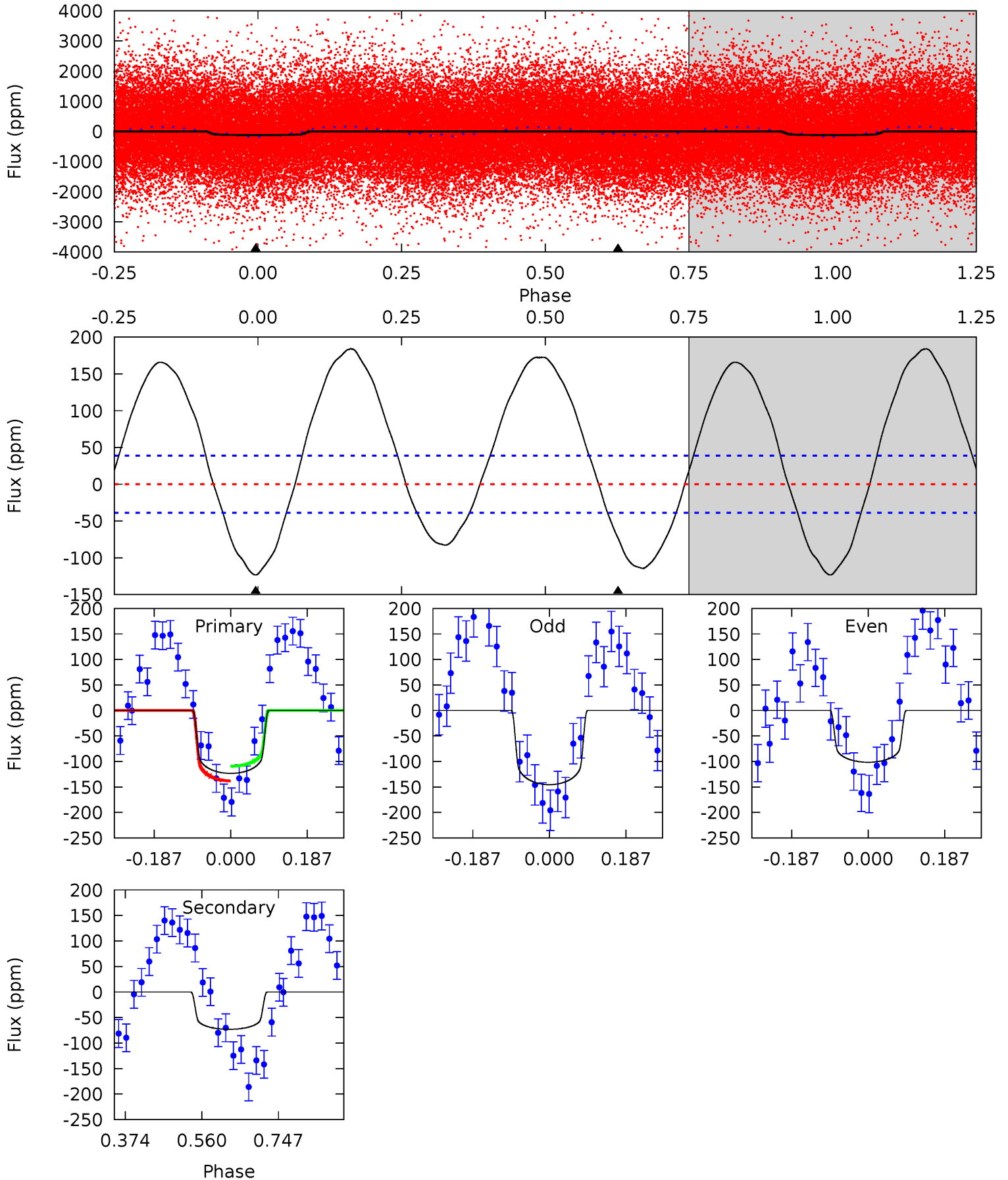
TCE 008299332-01 P= 3.584042 Days  $T_0=134.932926$  (BKJD)



# DV Model-Shift Uniqueness Test

008299332-01, P = 3.584458 Days, E = 131.299529 Days

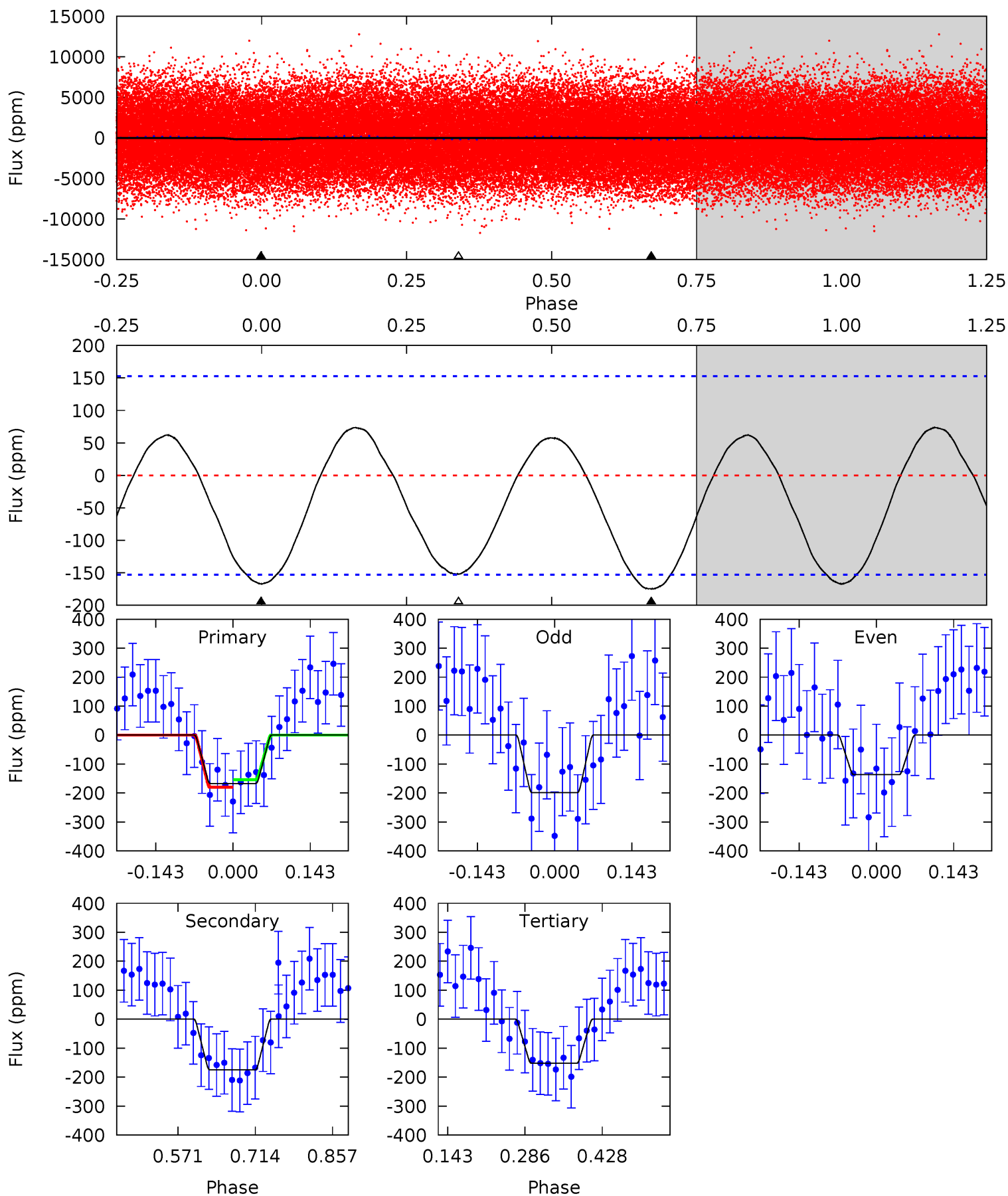
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.1	8.34	0	0	4.43	1.32	8.62	14.1	14.1	8.34	8.34	2.52	1.09	0.60	1.64



# Alt Model-Shift Uniqueness Test

008299332-01, P = 3.584042 Days, E = 131.348884 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.91	5.13	4.46	0	4.49	1.47	2.36	0.44	4.91	0.66	5.13	0.91	1.12	0.30	0.38



### Stellar Parameters For KIC 008299332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7533^{+209}_{-340}$	$4.129^{+0.120}_{-0.195}$	$0.060^{+0.200}_{-0.350}$	$1.840^{+0.540}_{-0.360}$	$1.663^{+0.212}_{-0.259}$	$0.376^{+0.222}_{-0.189}$
	+3%/-5%	+3%/-5%	+333%/-583%	+29%/-20%	+13%/-16%	+59%/-50%
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 008299332-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-73 \pm 9$	$2.57^{+0.45}_{-0.34}$	$2724^{+213}_{-174}$	$6063^{+392}_{-350}$	$18^{+6}_{-5}$
Alt.	$-175 \pm 34$	$2.73^{+0.54}_{-0.37}$	$2715^{+236}_{-186}$	$7378^{+703}_{-612}$	$37^{+15}_{-13}$

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

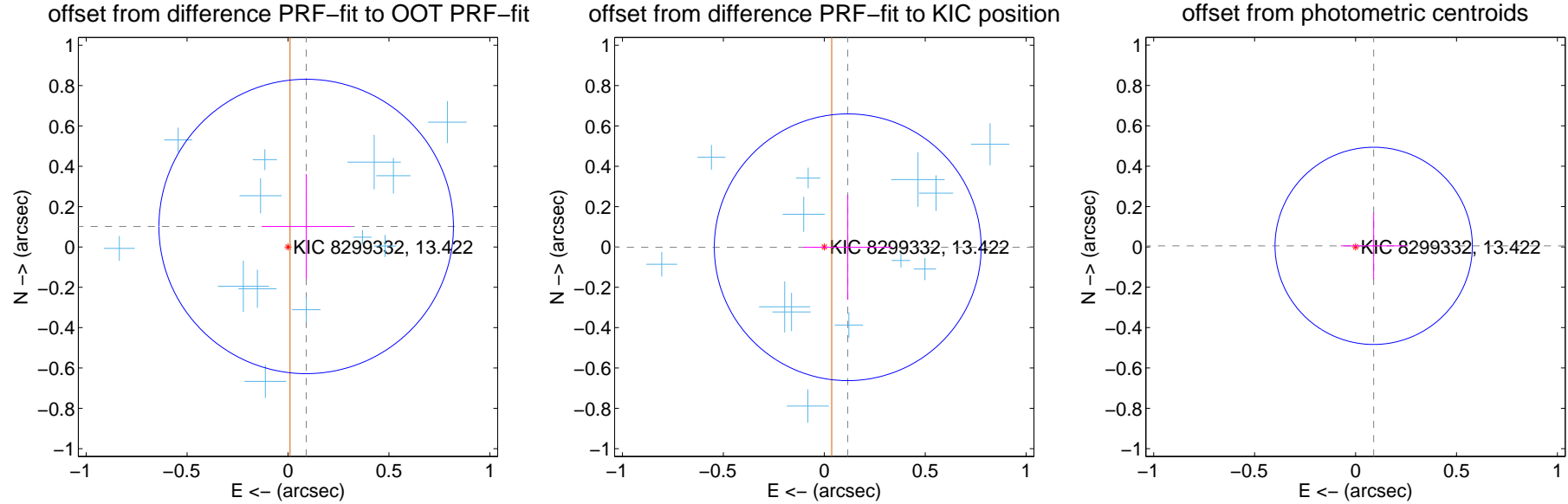
## DV Centroid Data

Supplemental centroid analysis for 008299332-01. Kepler magnitude: 13.42. Transit SNR 10.35

There are 13 quarters with good PRF difference image offsets

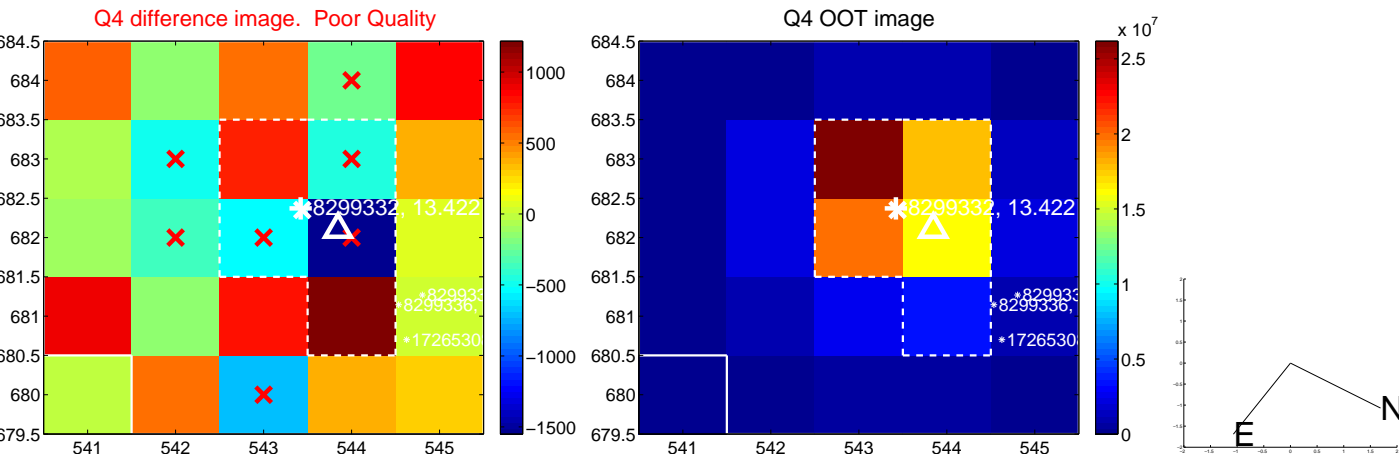
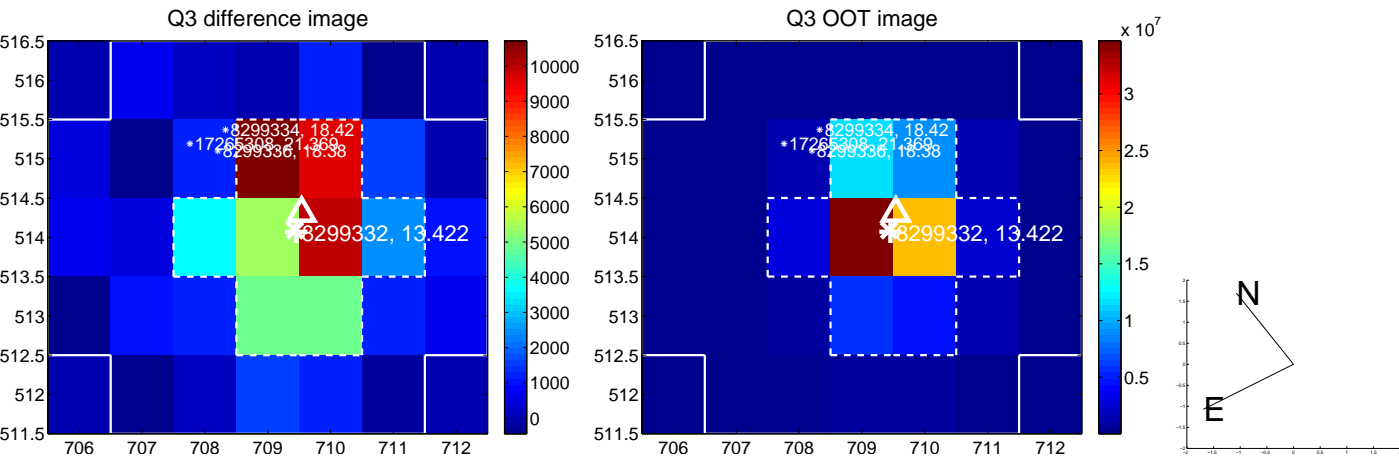
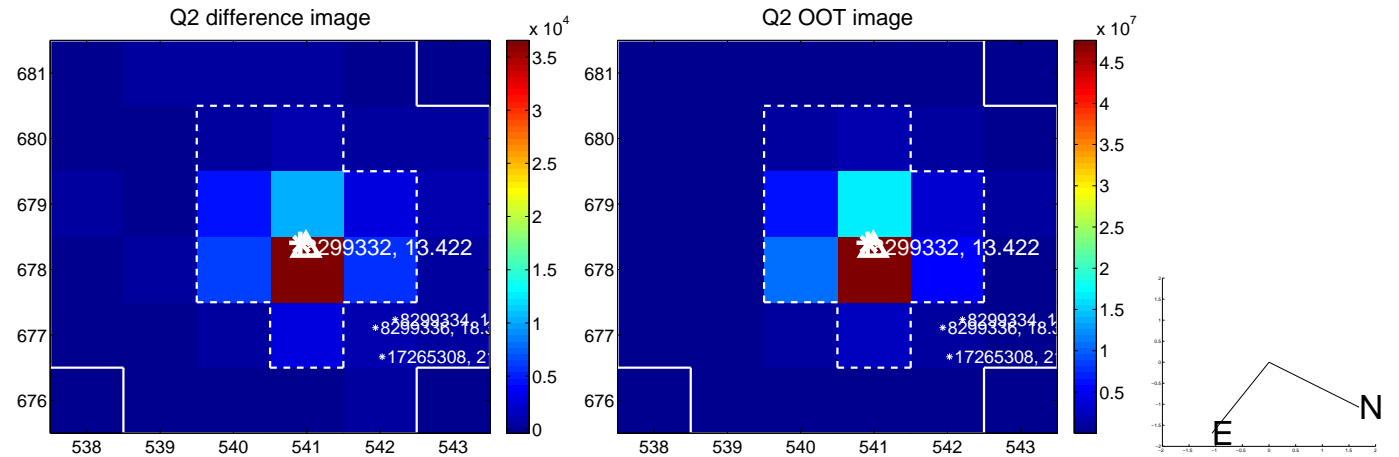
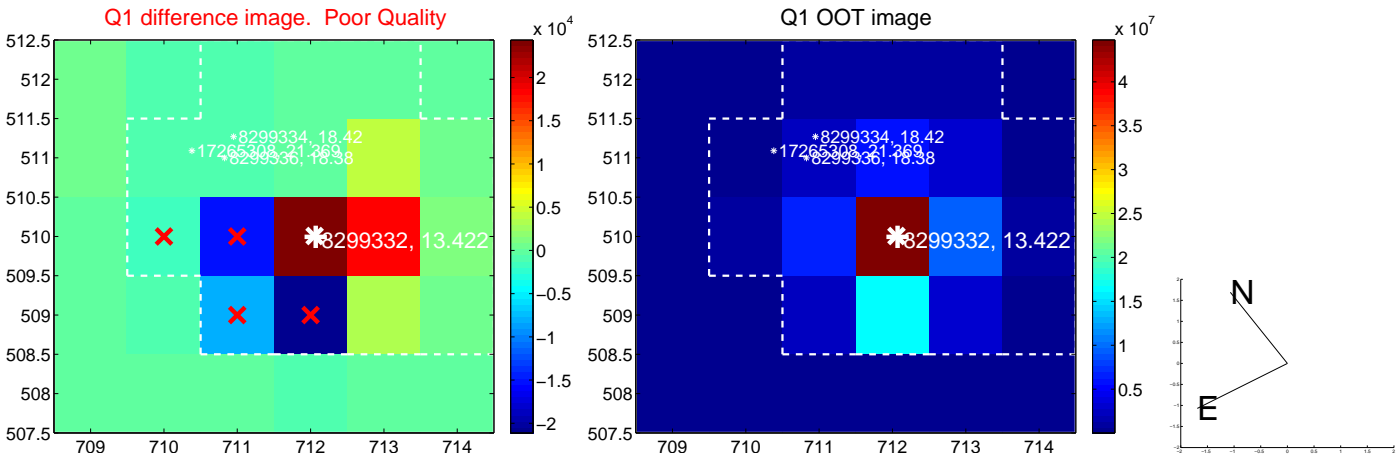
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.136 \pm 0.243$	0.56	$-0.090 \pm 0.220$	$0.102 \pm 0.260$
PRF-fit source offset from KIC position	$0.116 \pm 0.220$	0.53	$-0.116 \pm 0.220$	$-0.001 \pm 0.260$
photometric centroid source offset	$0.09 \pm 0.16$	0.55	$-0.09 \pm 0.16$	$0.01 \pm 0.16$

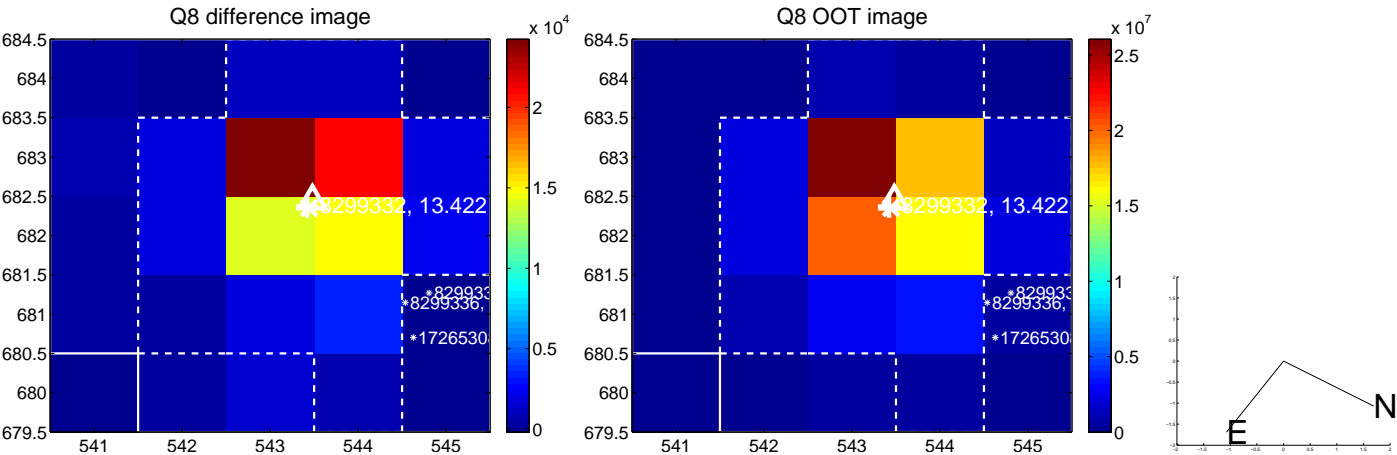
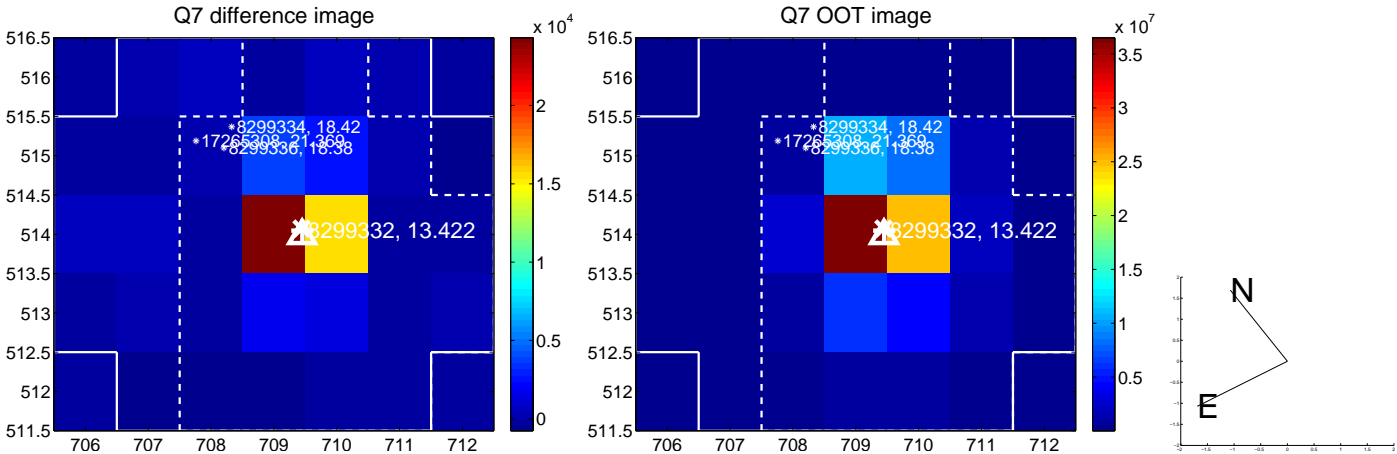
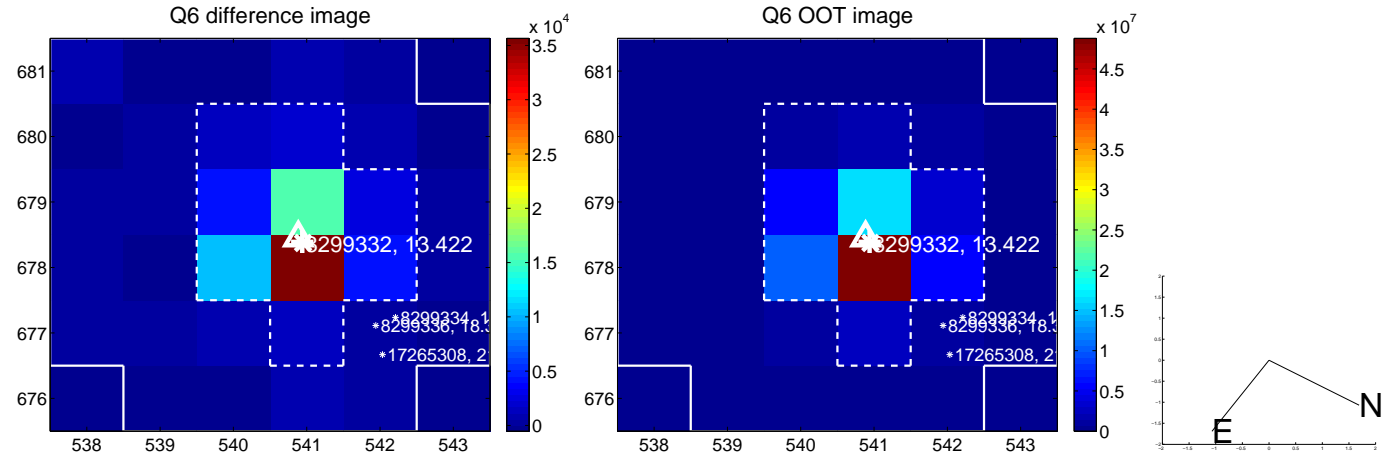
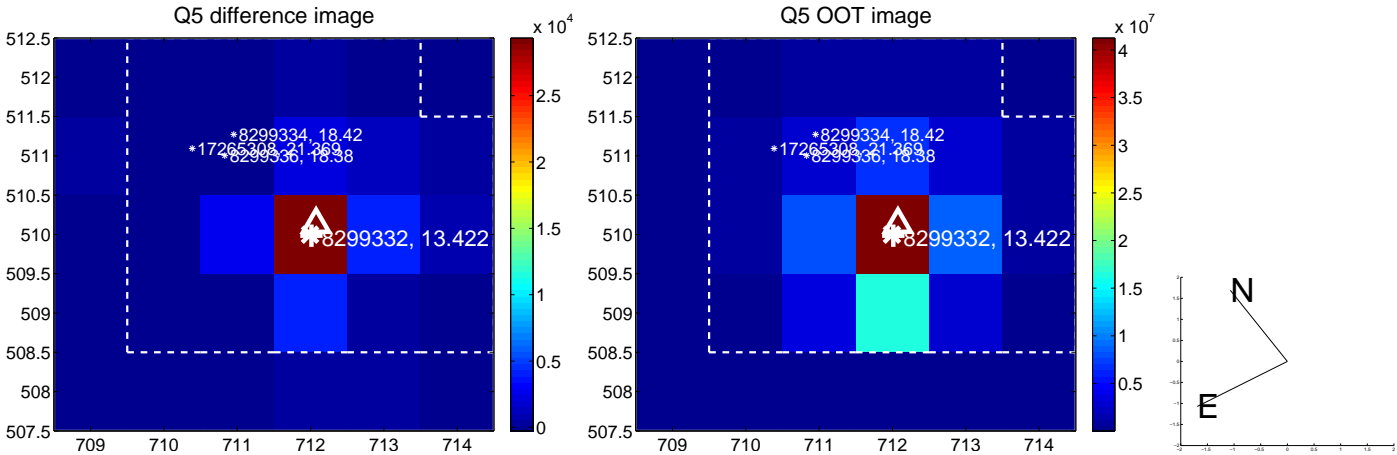


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

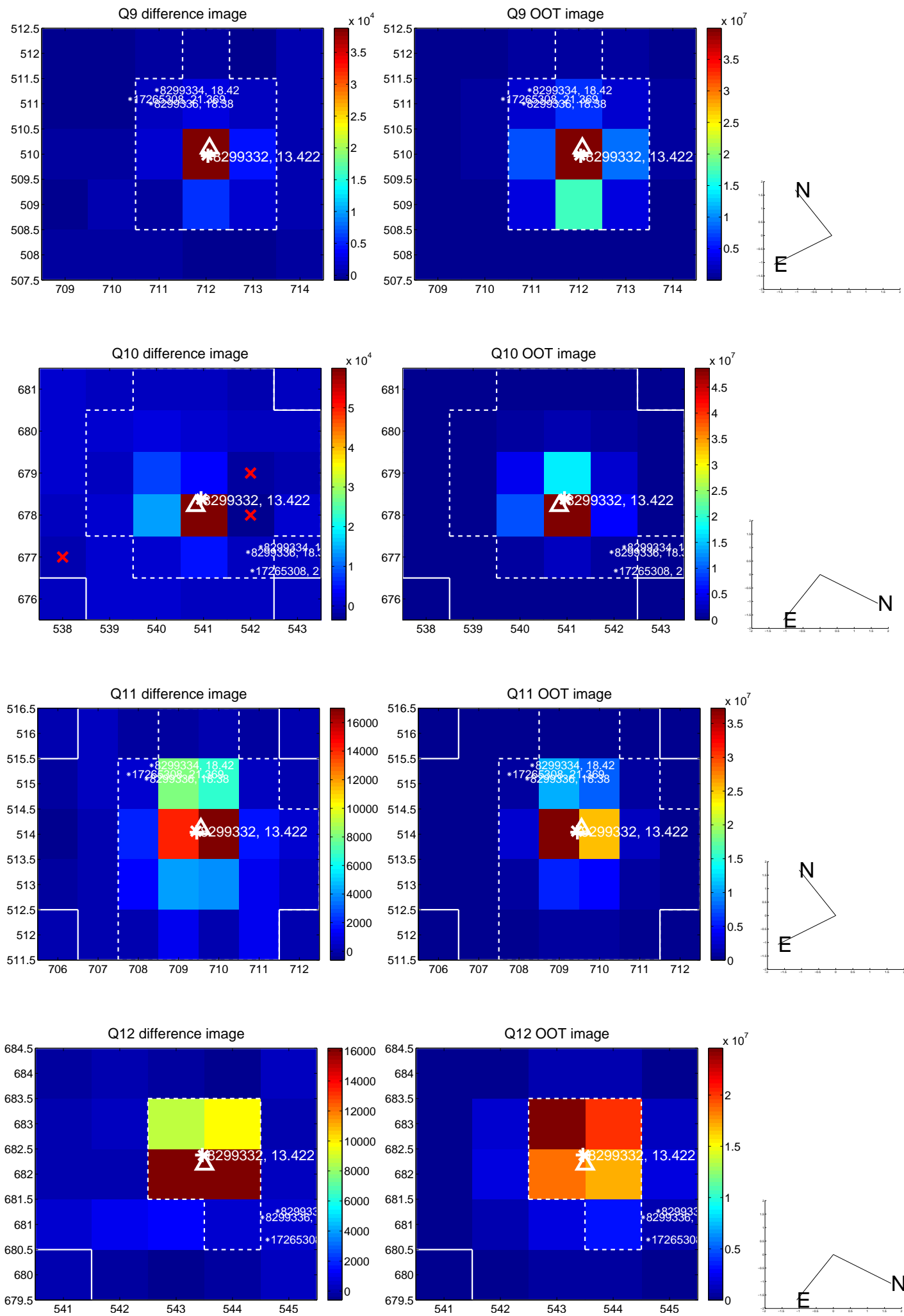
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



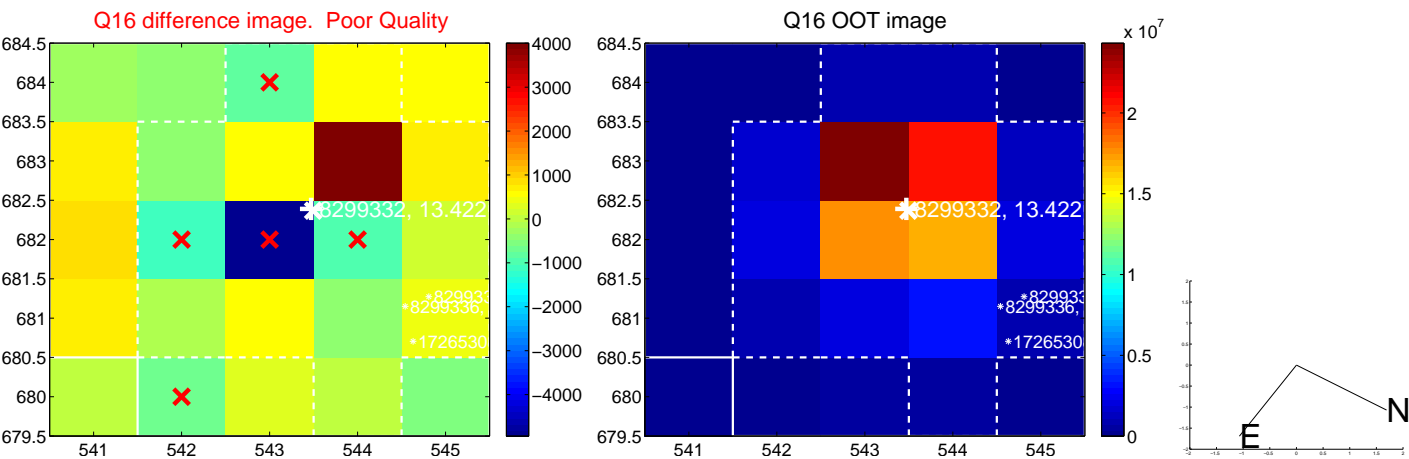
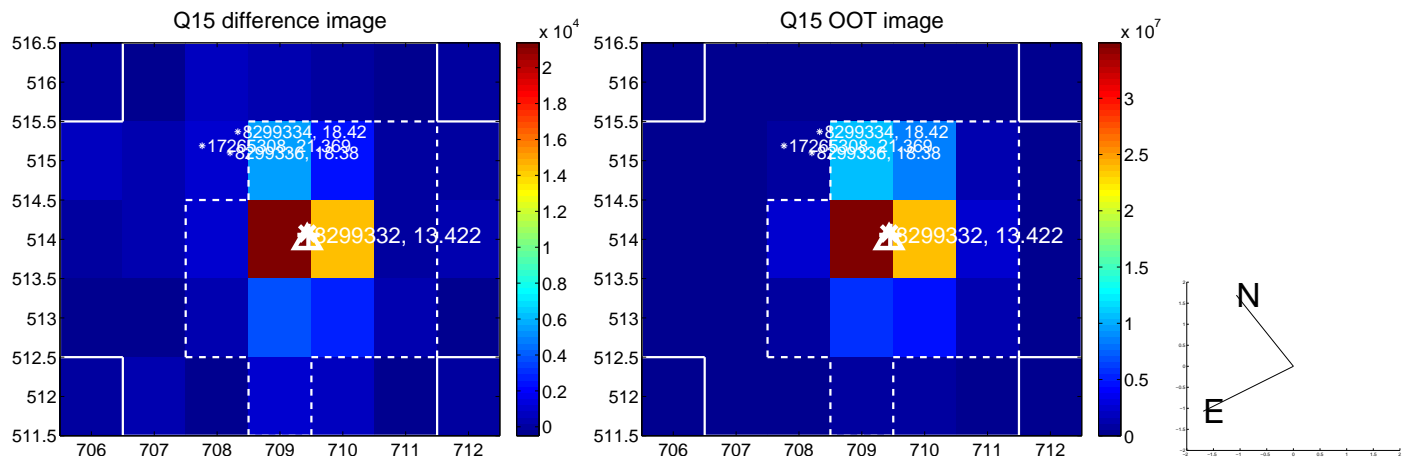
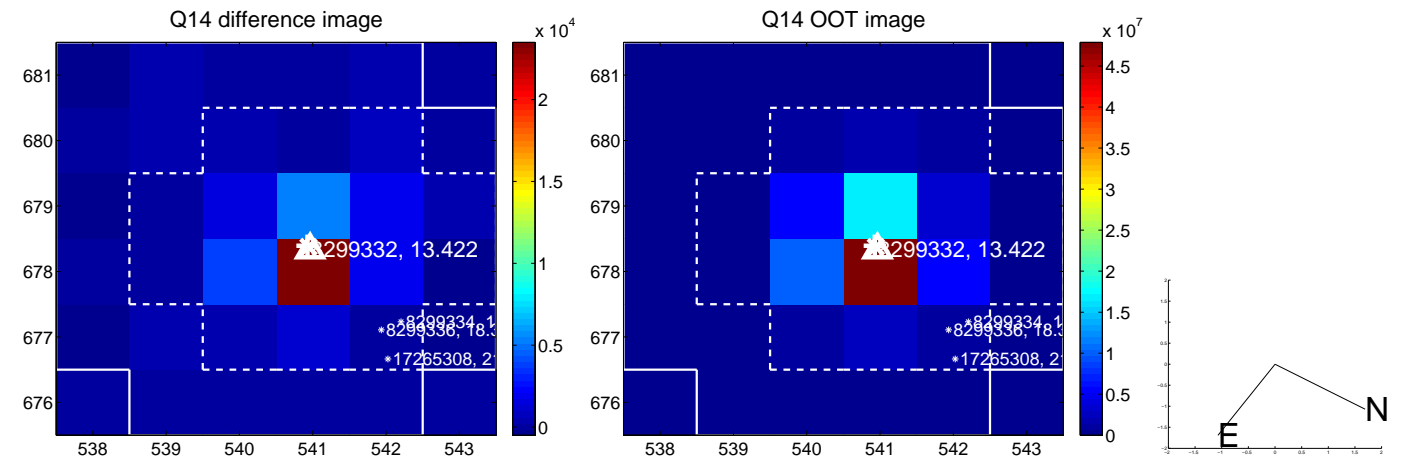
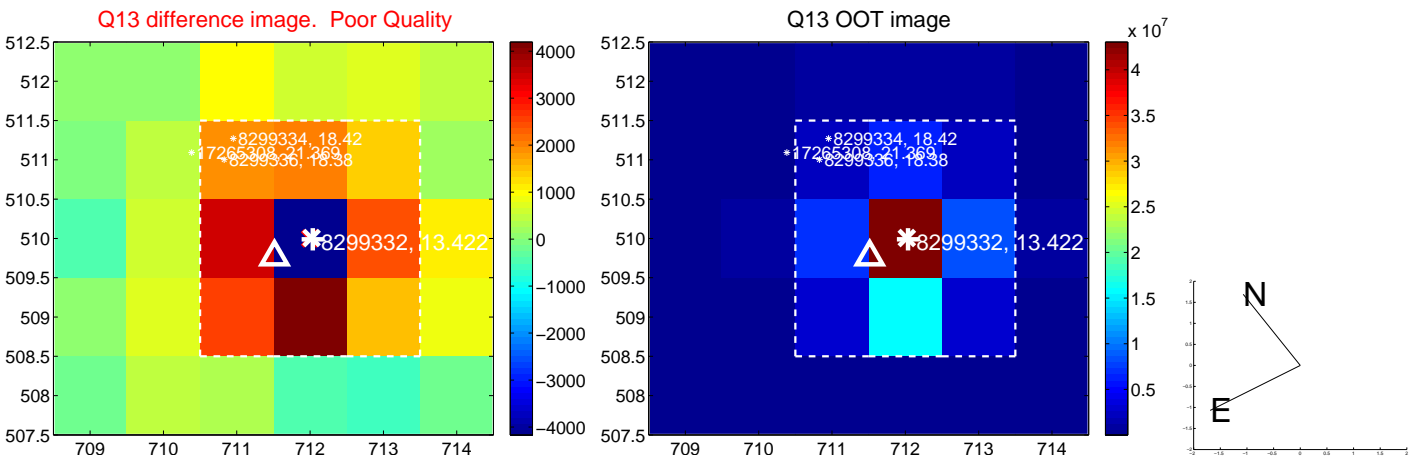
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



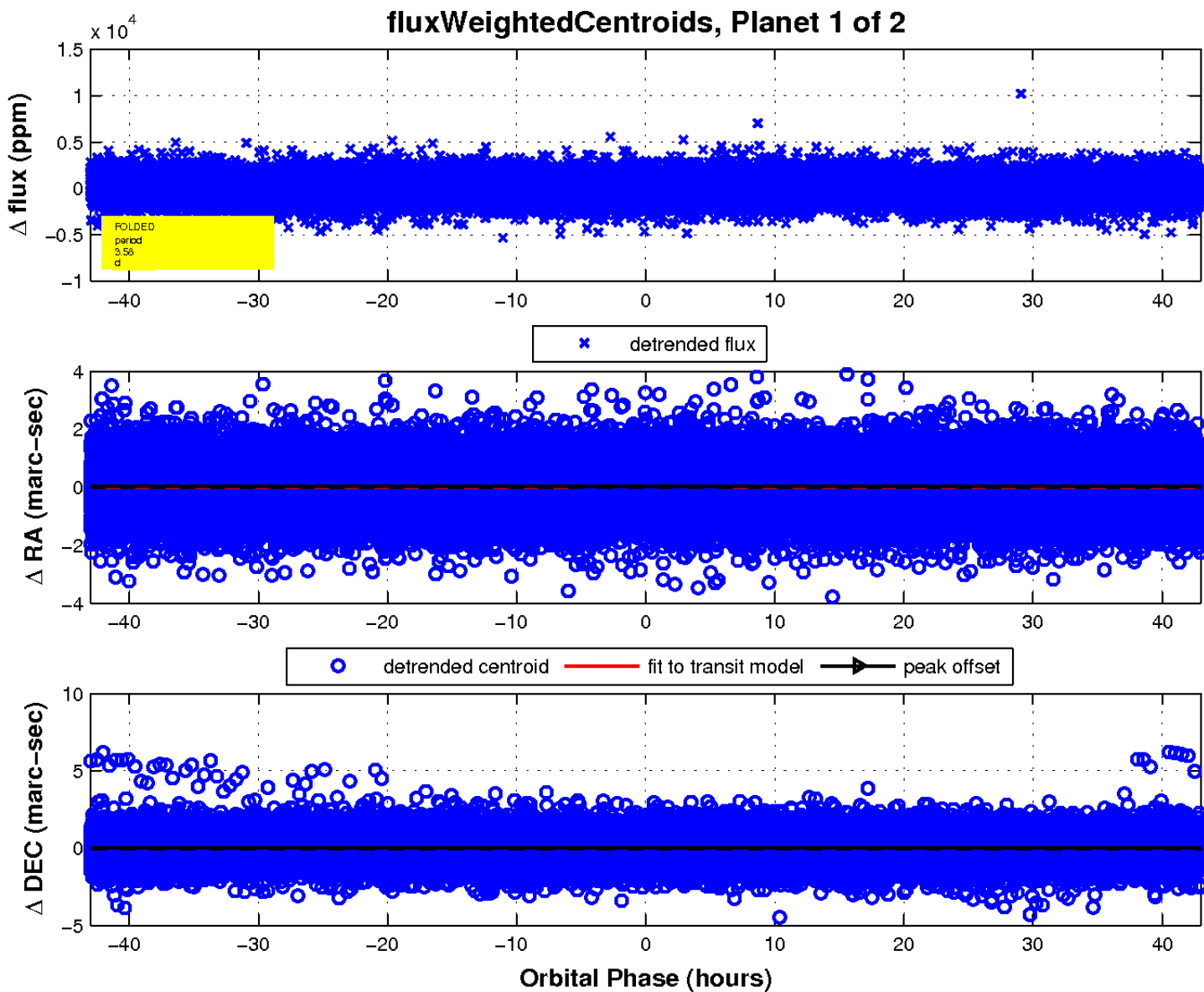
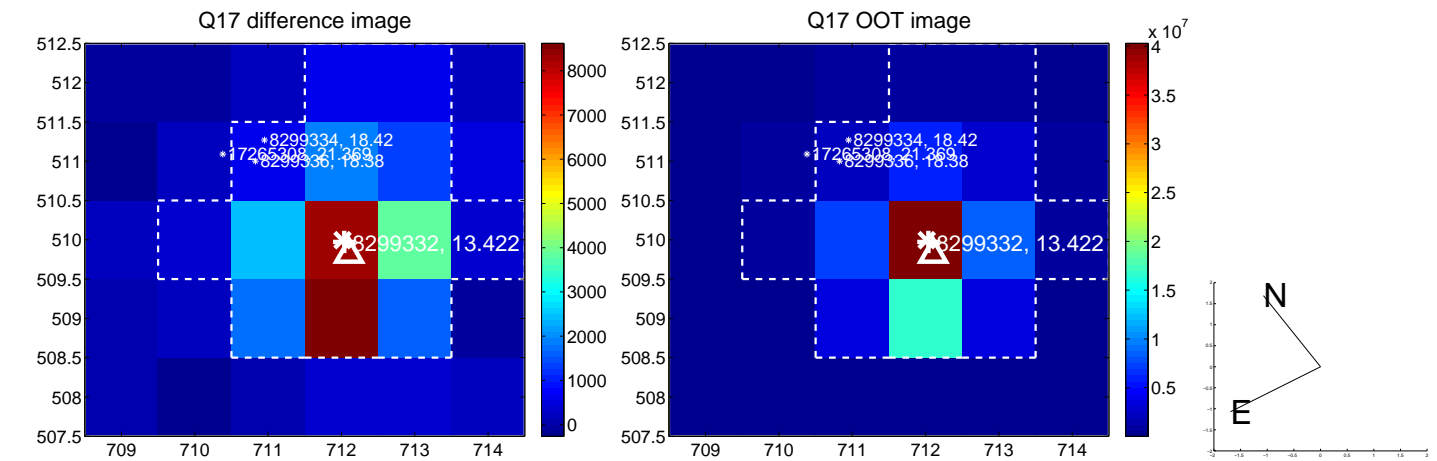
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

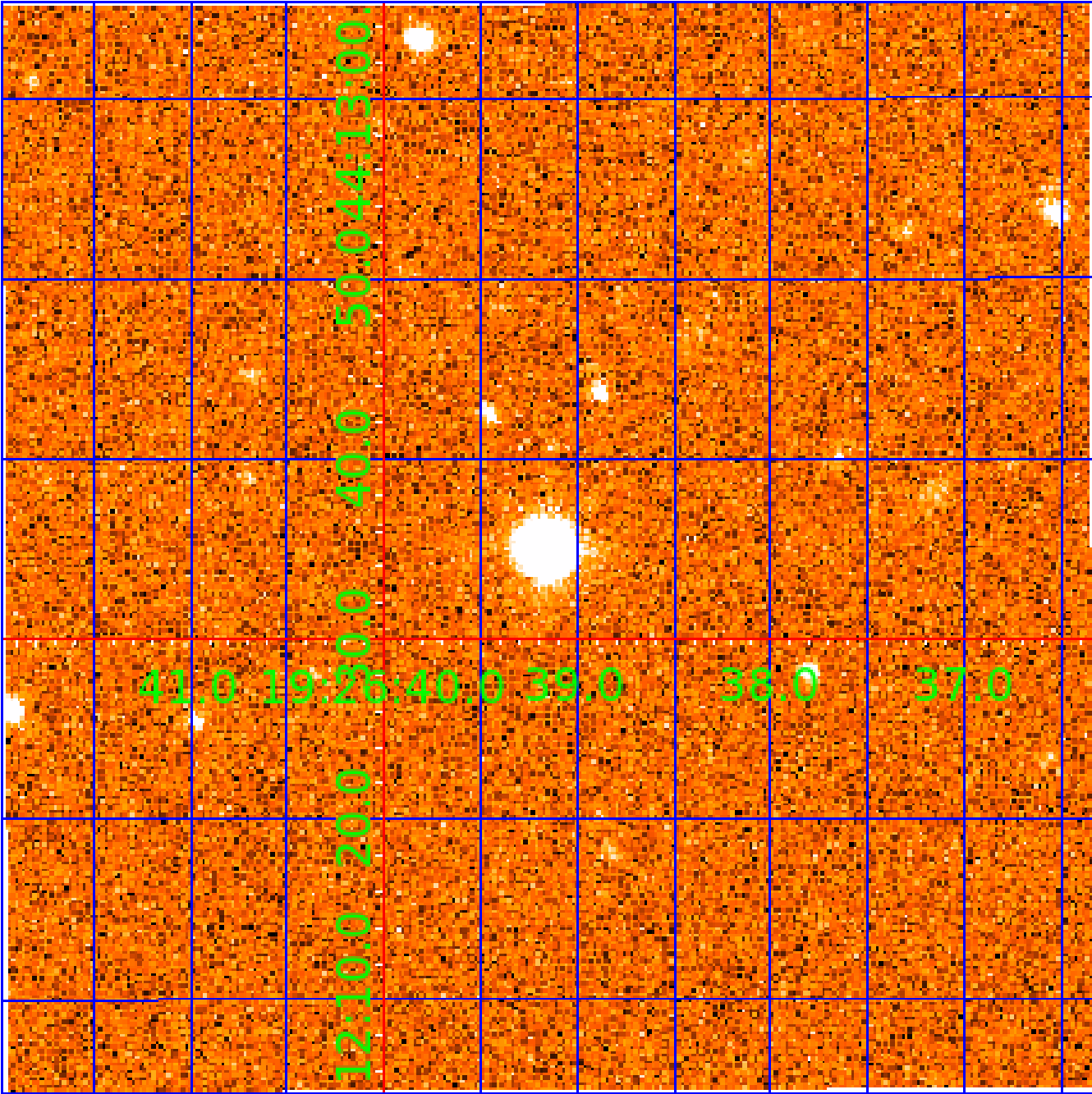


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008299332

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008299332-01	OBS	No	3.584458	134.883987	137.4	15.622	8.4	10.3	1.84	7533	2.52	3311.92
008299332-02	OBS	No	4.374820	132.981322	359.3	40.123	9.8	14.3	1.84	7533	5.53	2539.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008299332-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
008299332-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT

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

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

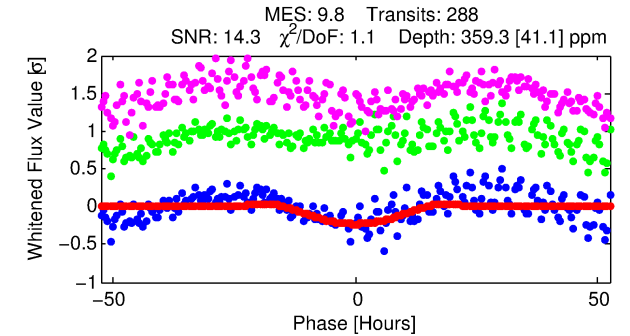
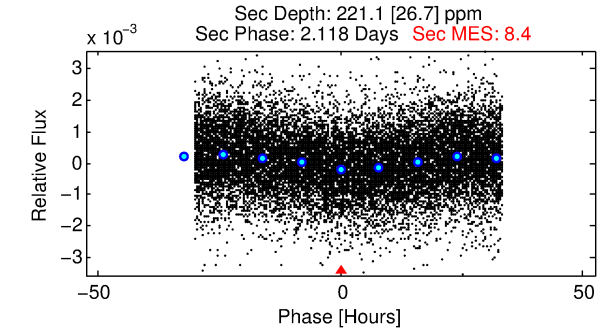
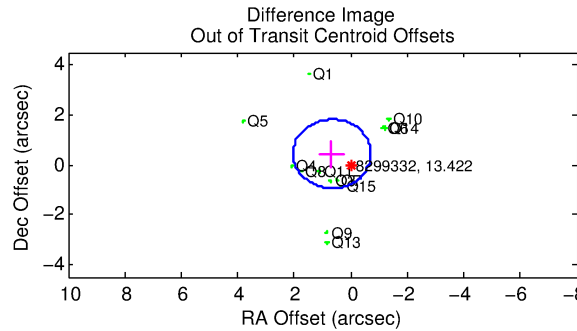
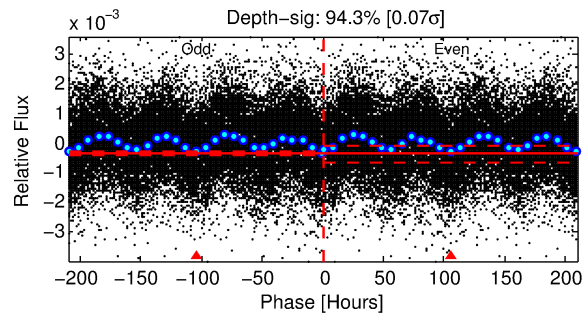
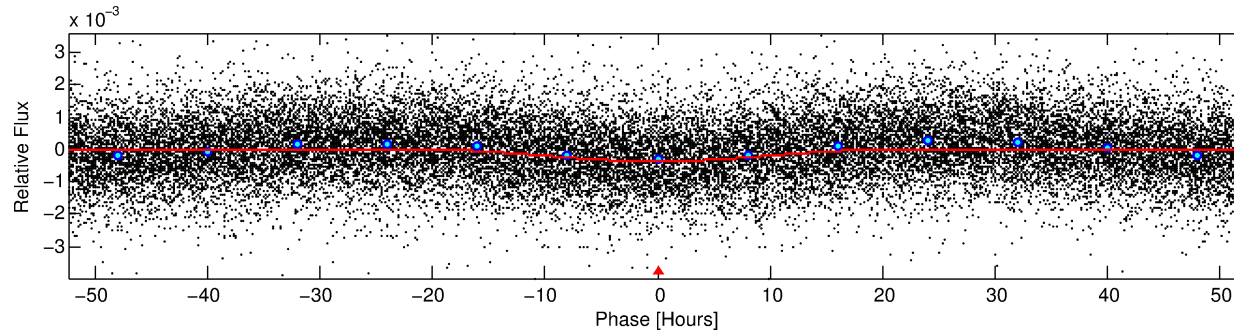
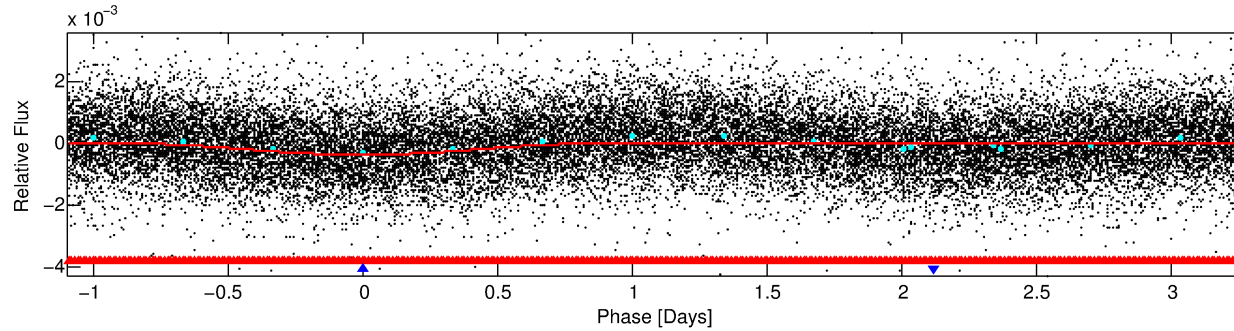
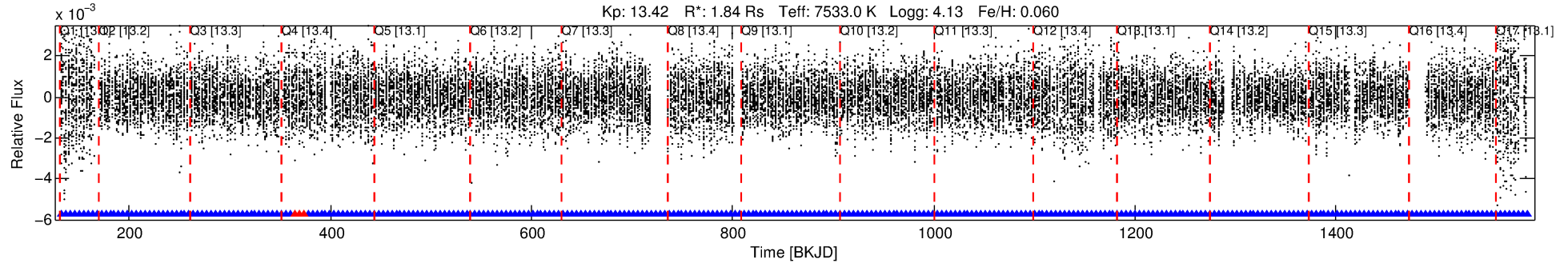
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008299332-02

No Significant Match Found

# DV One-Page Summary

KIC: 8299332 Candidate: 2 of 2 Period: 4.375 d



## DV Fit Results:

Period = 4.37482 [0.00032] d  
Epoch = 132.9813 [0.0602] BKJD  
Rp/R\* = 0.0275 [0.0163]  
a/R\* = 1.03 [0.01]  
b = 0.99 [0.03]  
Seff = 2539.21 [1017.19]  
Teq = 1810 [181] K  
Rp = 5.53 [3.66] Re  
a = 0.0620 [0.0153] AU  
Ag = 15.31 [19.05] [0.75 $\sigma$ ]  
Teffp = 5536 [1668] K [2.22 $\sigma$ ]

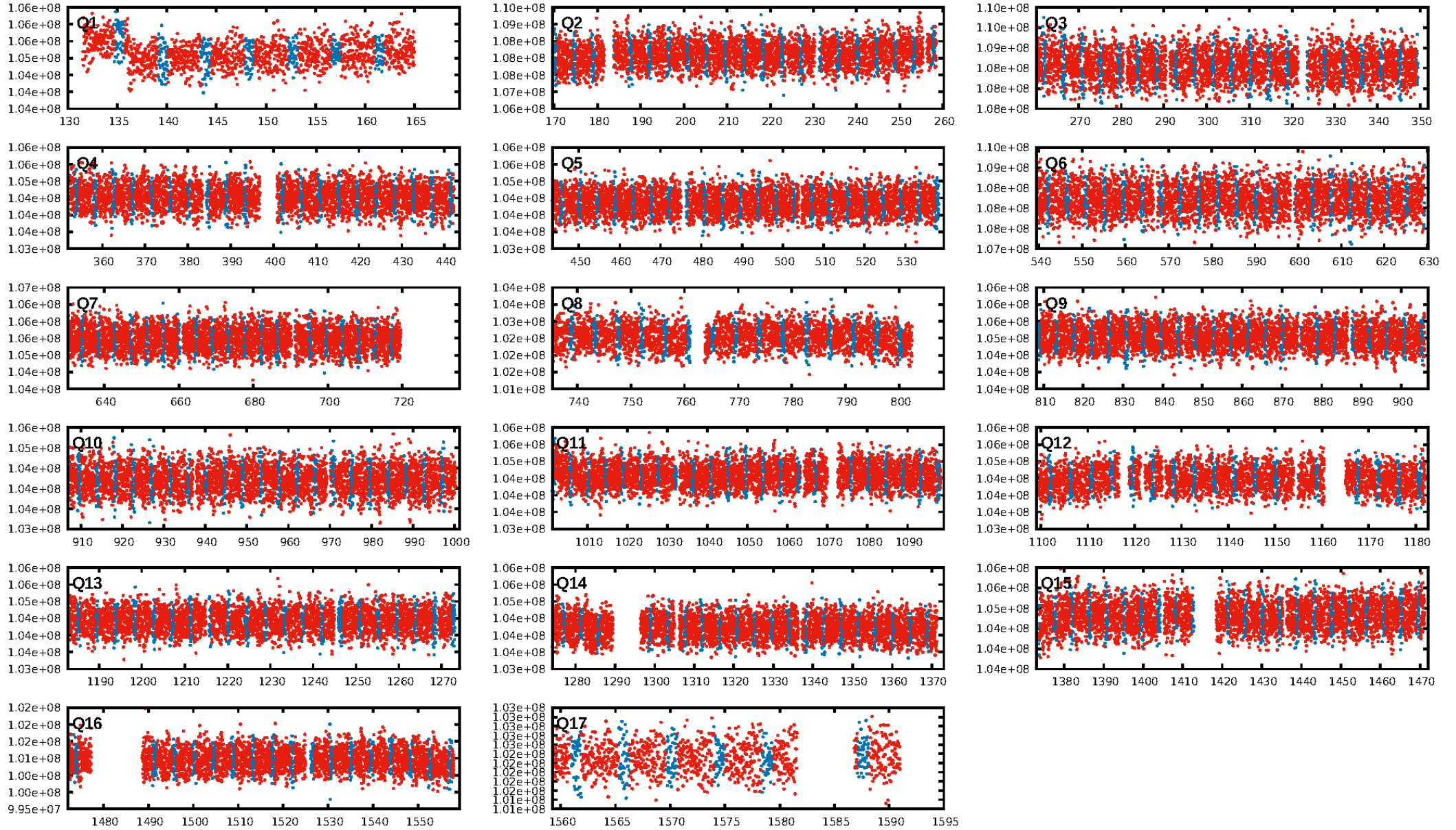
## DV Diagnostic Results:

ShortPeriod-sig: 34.0% [0.44 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [272/275]  
GhostDiagnostic-chr: 3.244  
Centroid-sig: 18.4%  
Centroid-so: 0.093 arcsec [1.50 $\sigma$ ]  
OotOffset-rm: 0.795 arcsec [1.73 $\sigma$ ]  
KicOffset-rm: 0.733 arcsec [1.62 $\sigma$ ]  
OotOffset-st: 3/4/2/4 [13]  
KicOffset-st: 3/4/2/4 [13]  
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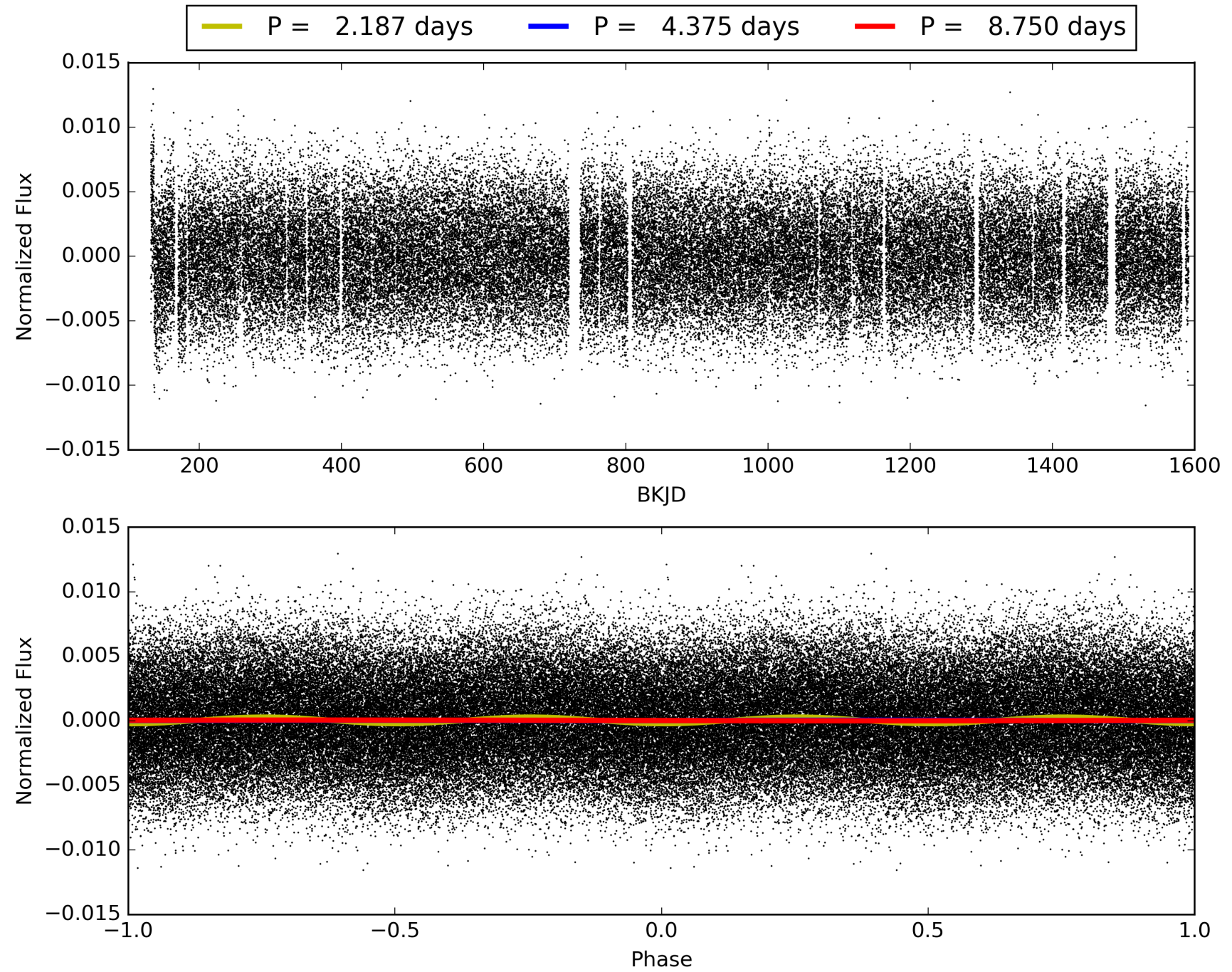
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 10:16:37 Z

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

# TCE 008299332-02, PDC Light Curves

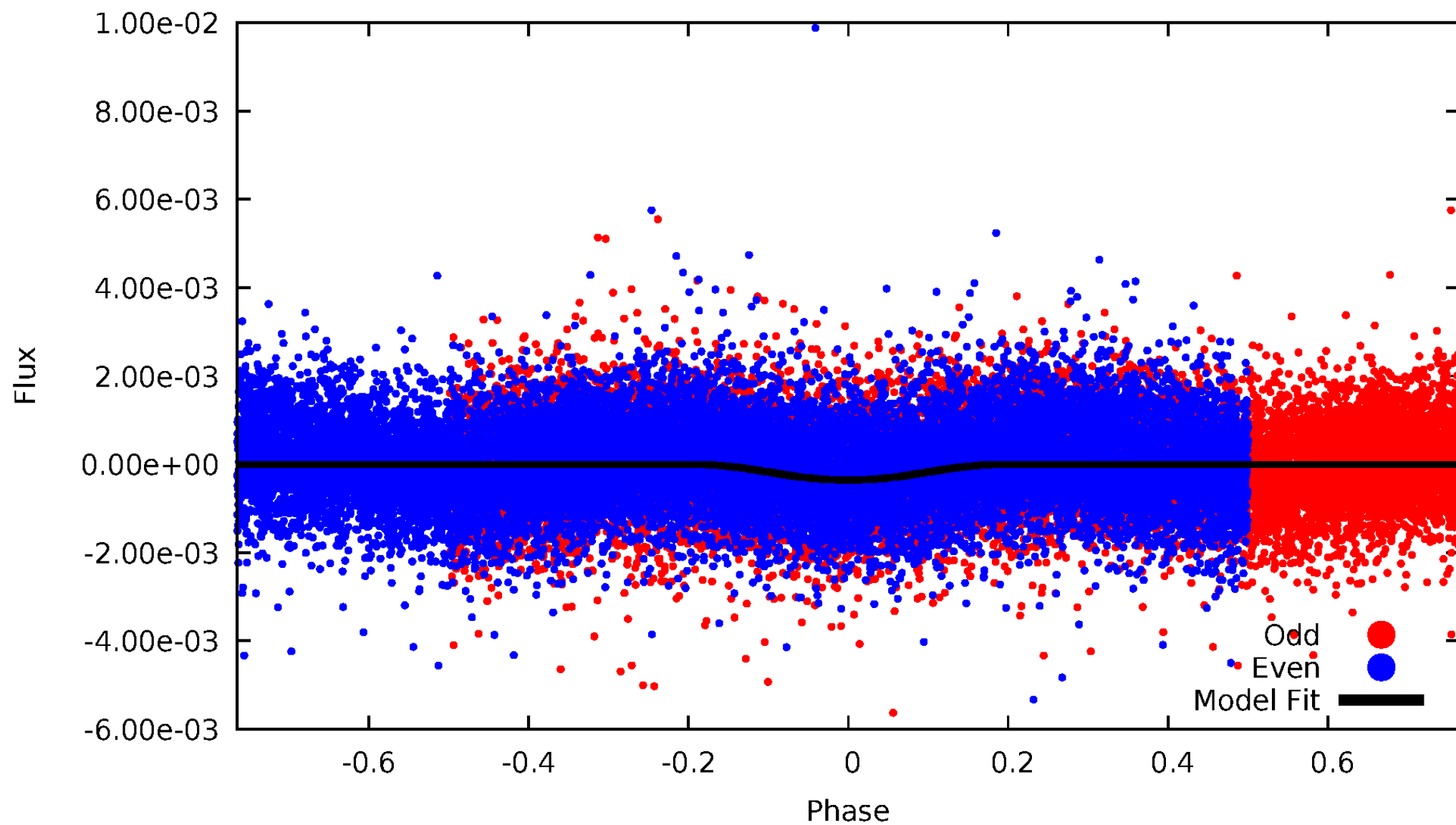


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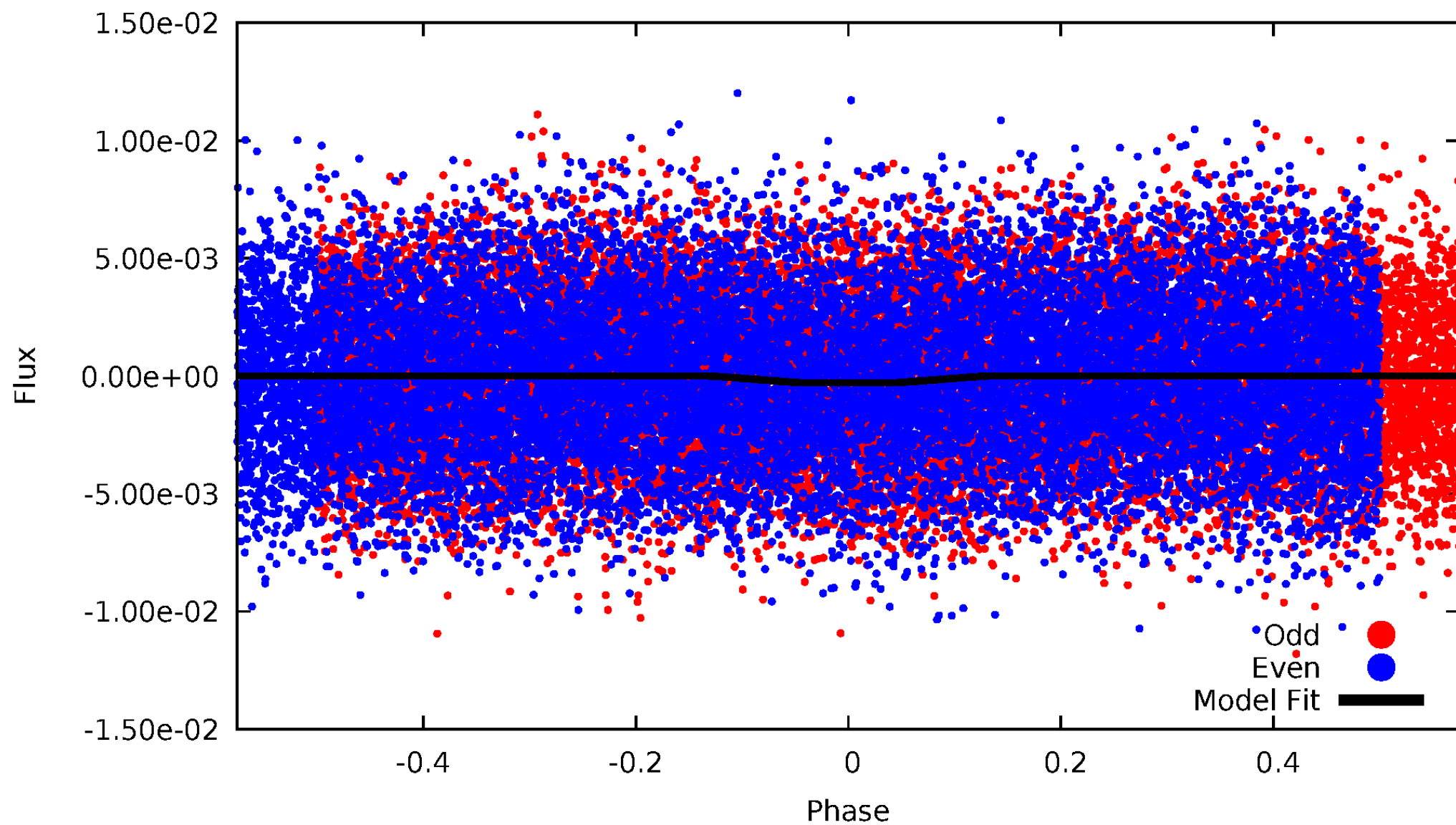
# DV Odd/Even

TCE 008299332-02



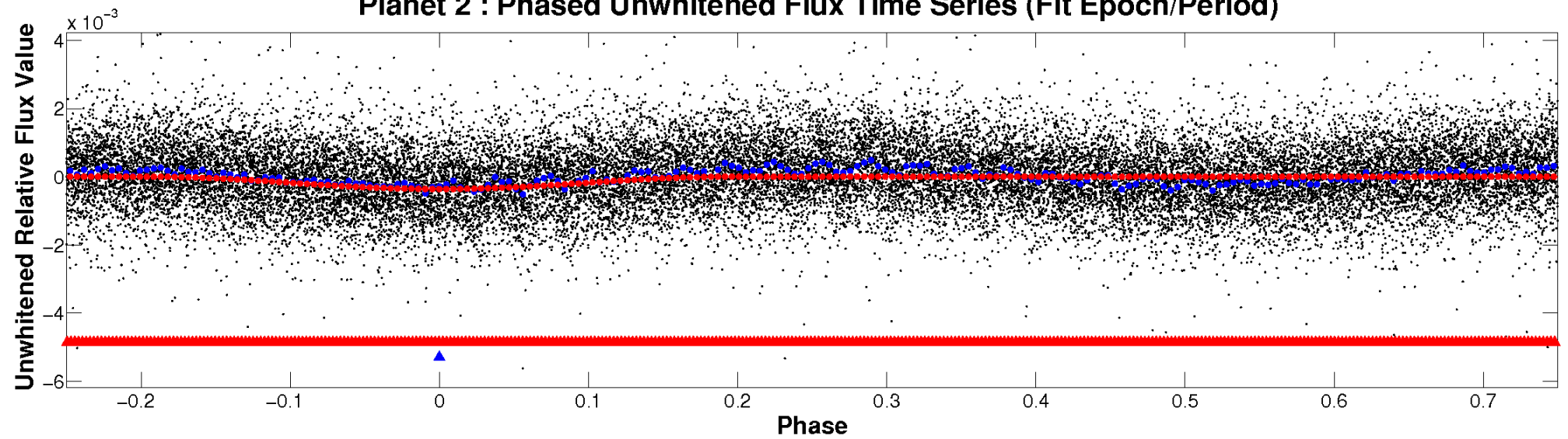
# ALT Odd/Even

TCE 008299332-02

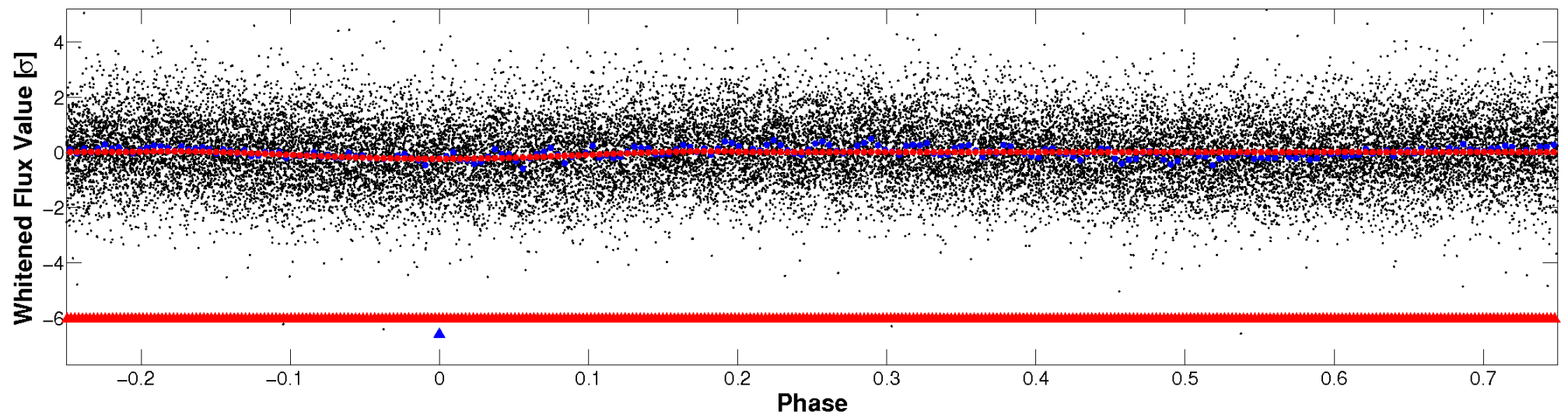


# Non-Whitened Vs. Whitened Light Curve

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

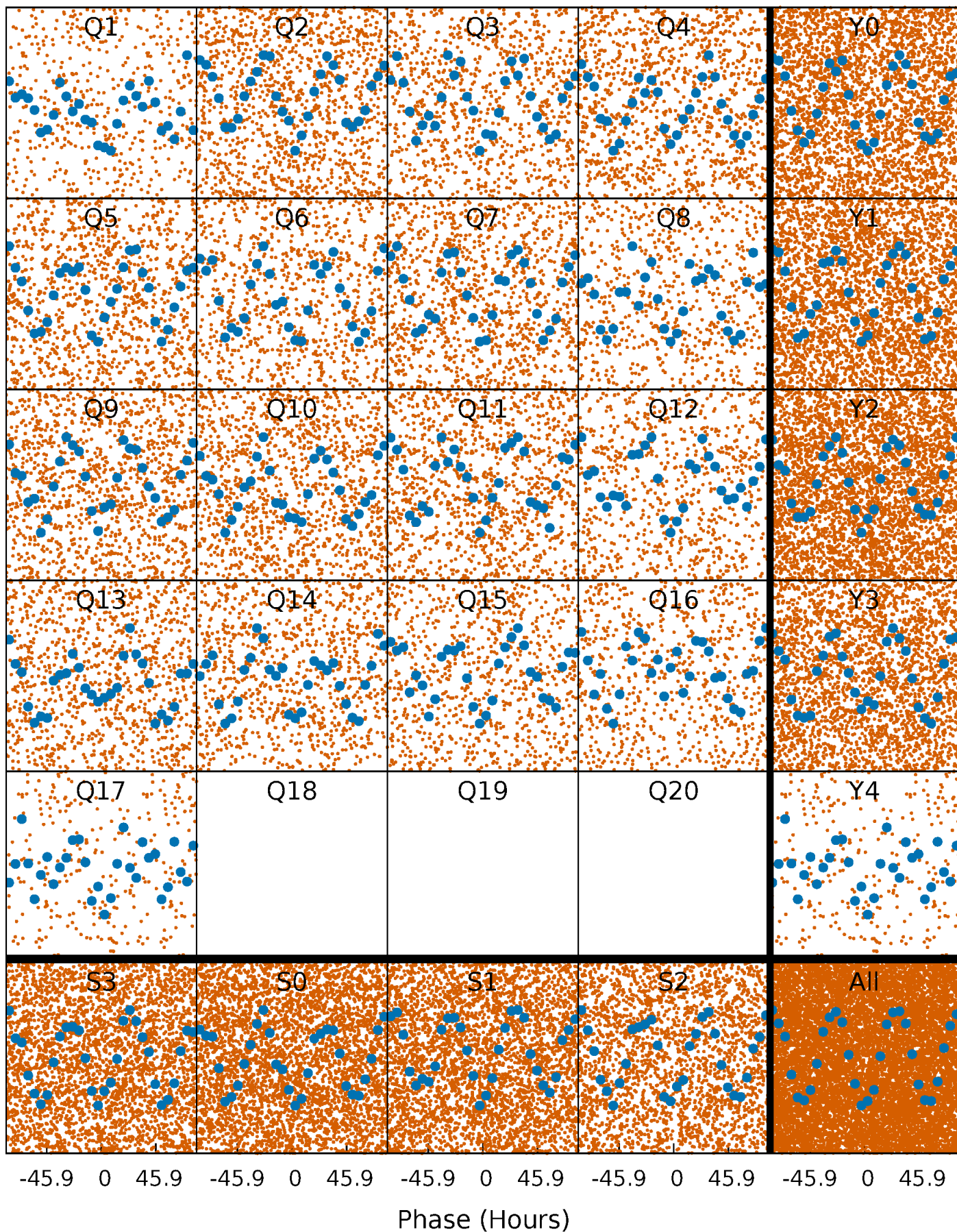


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



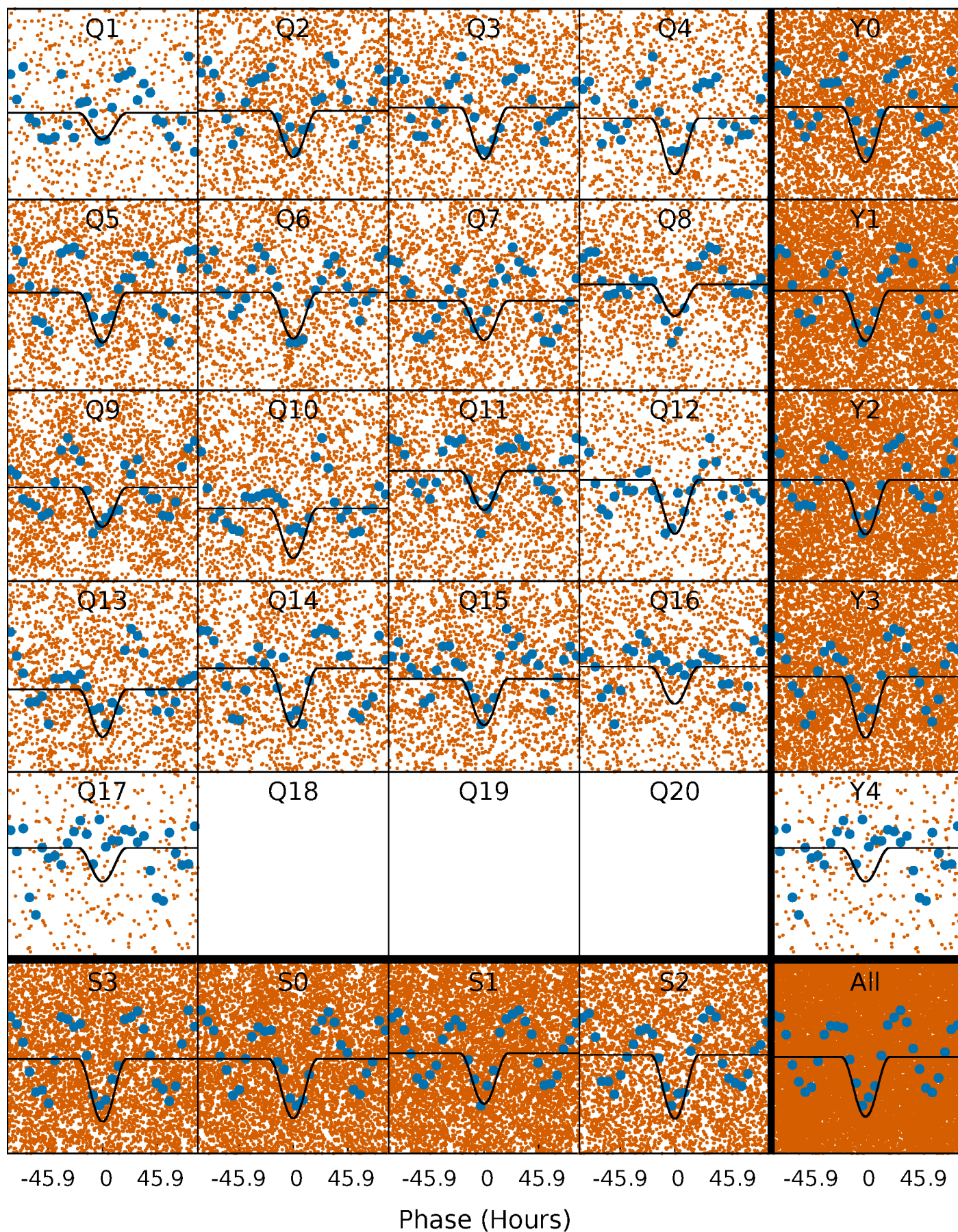
# PDC Quarter-Phased Transit Curves

TCE 008299332-02   P= 4.374820 Days    $T_0=132.981322$  (BKJD)



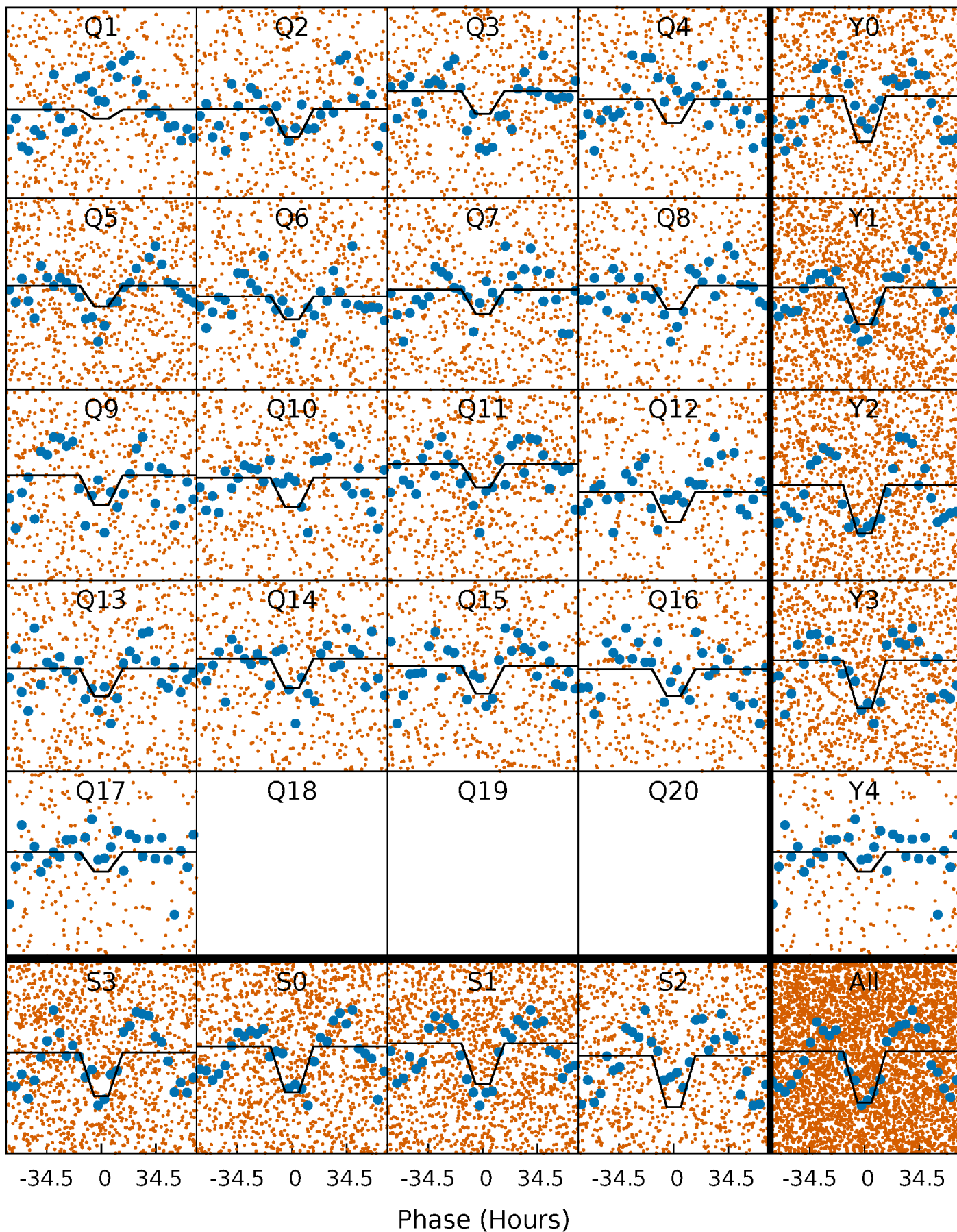
# DV Quarter-Phased Transit Curves

TCE 008299332-02   P= 4.374820 Days    $T_0=132.981322$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

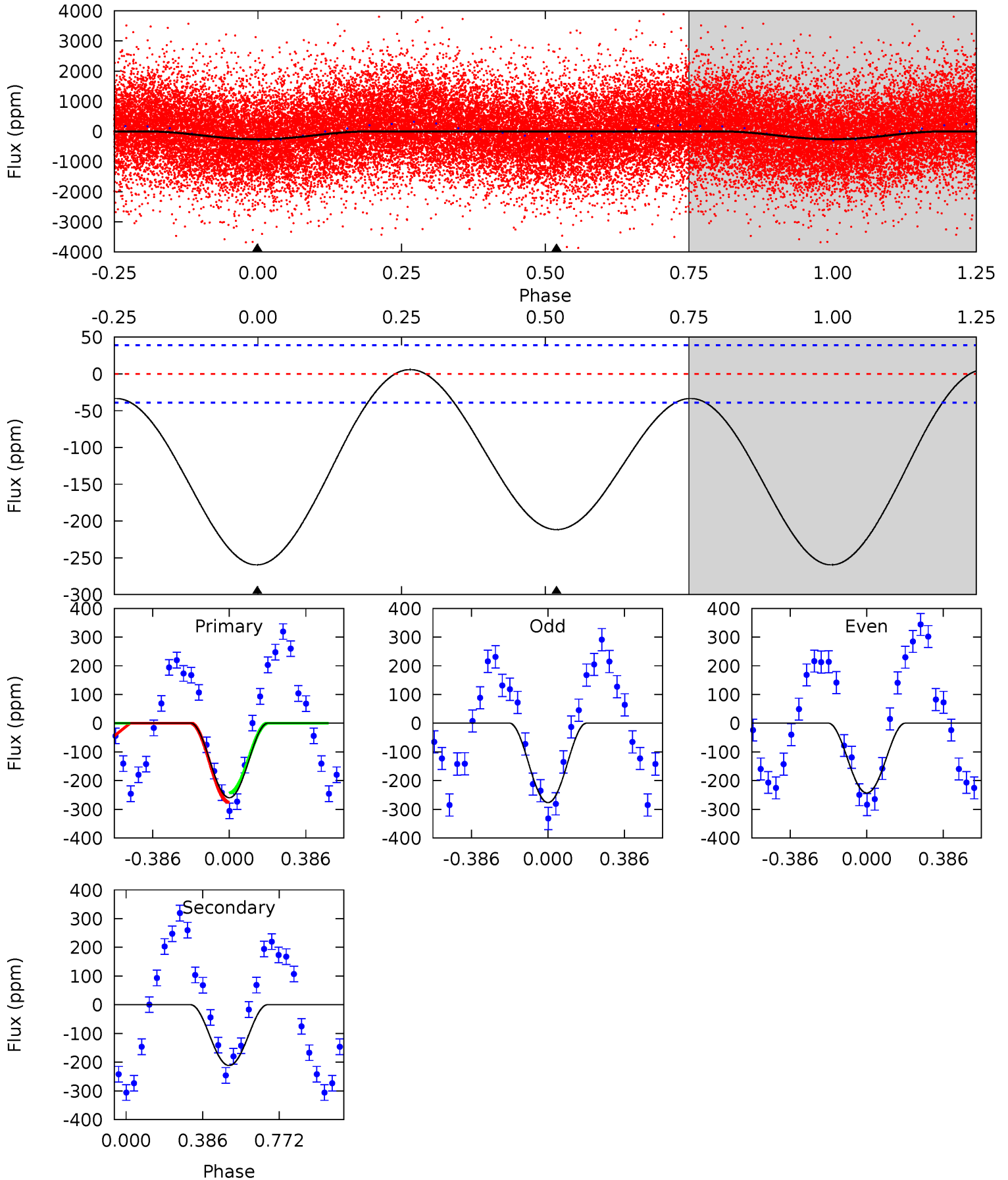
TCE 008299332-02   P= 4.375310 Days    $T_0=132.908087$  (BKJD)



# DV Model-Shift Uniqueness Test

008299332-02, P = 4.374820 Days, E = 128.606502 Days

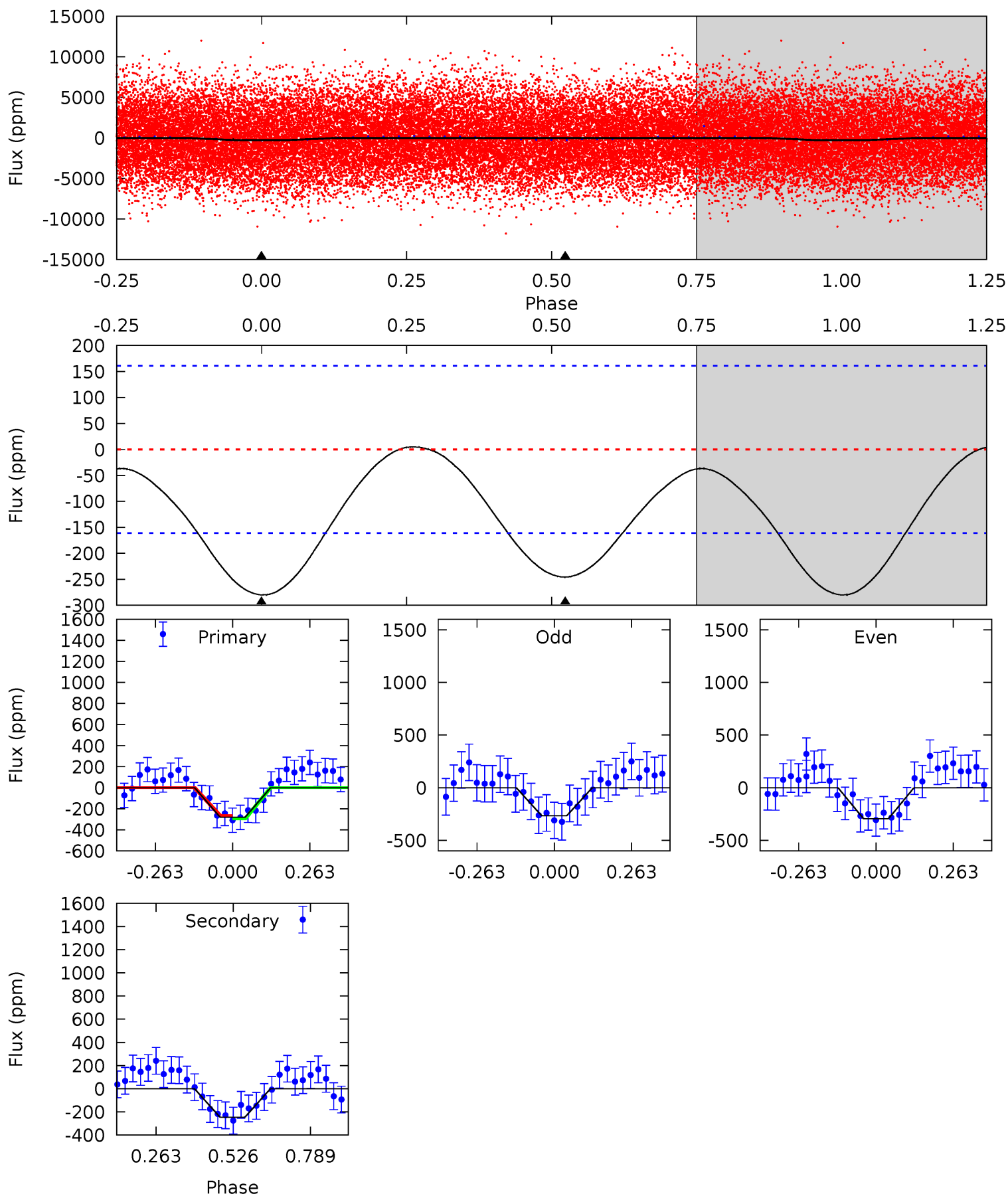
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.3	23.1	0	0	4.27	0.87	1.87	28.3	28.3	23.1	23.1	1.84	2.89	0.02	1.90



# Alt Model-Shift Uniqueness Test

008299332-02, P = 4.375310 Days, E = 128.532777 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
7.58	6.65	0	0	4.36	1.12	0.47	7.58	7.58	6.65	6.65	0.38	-1.55	0.02	0.44



### Stellar Parameters For KIC 008299332

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7533^{+209}_{-340}$	$4.129^{+0.120}_{-0.195}$	$0.060^{+0.200}_{-0.350}$	$1.840^{+0.540}_{-0.360}$	$1.663^{+0.212}_{-0.259}$	$0.376^{+0.222}_{-0.189}$
	+3%/-5%	+3%/-5%	+333%/-583%	+29%/-20%	+13%/-16%	+59%/-50%
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 008299332-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-212 \pm 9$	$5.83^{+3.50}_{-2.92}$	$2541^{+185}_{-167}$	$5288^{+2346}_{-922}$	$13^{+42}_{-8}$
Alt.	$-246 \pm 37$	$4.20^{+3.17}_{-2.60}$	$2546^{+195}_{-159}$	$6383^{+6053}_{-1432}$	$28^{+175}_{-19}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

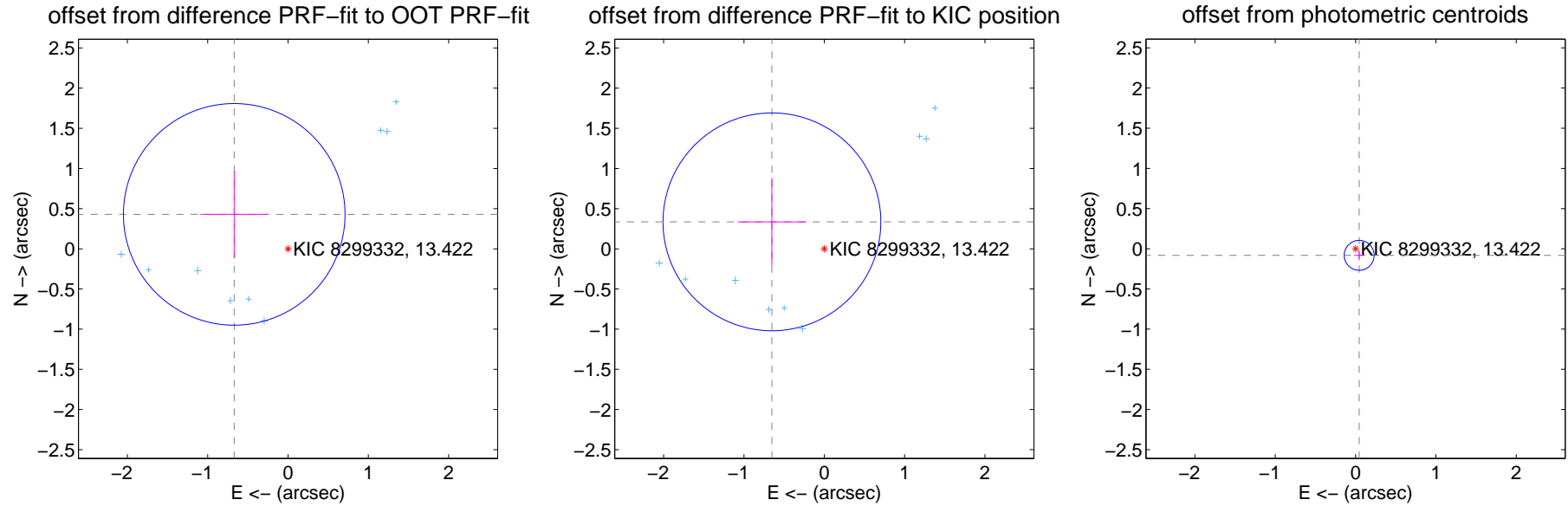
## DV Centroid Data

Supplemental centroid analysis for 008299332-02. Kepler magnitude: 13.42. Transit SNR 14.28

There are 9 quarters with good PRF difference image offsets

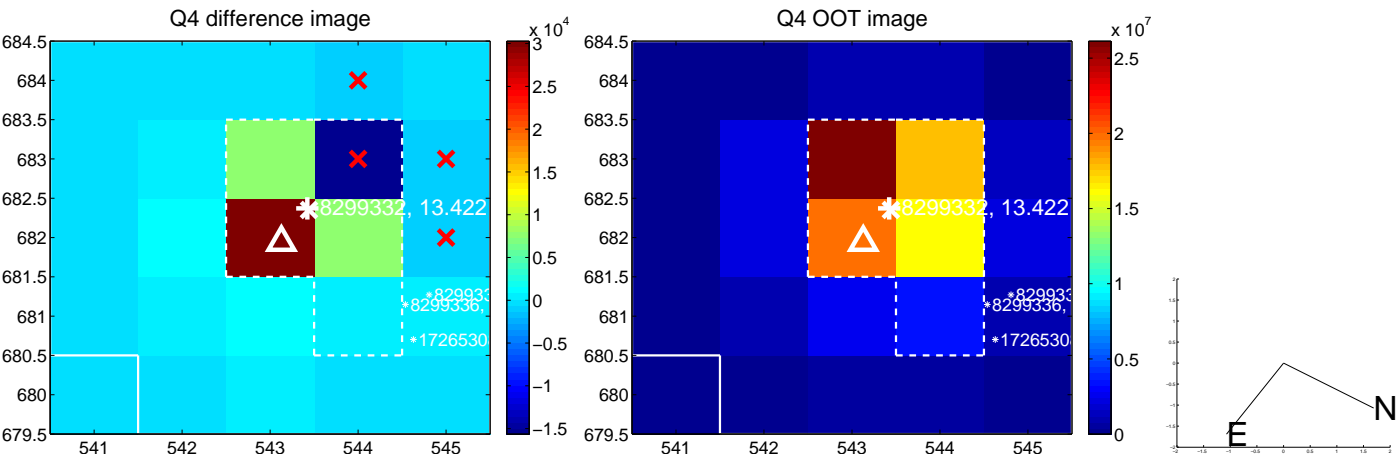
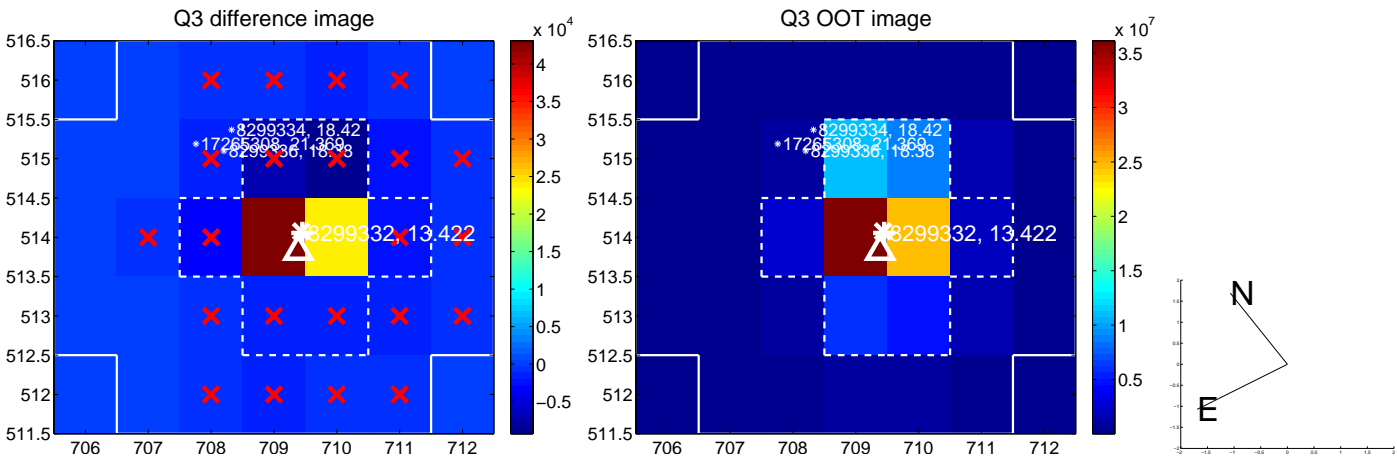
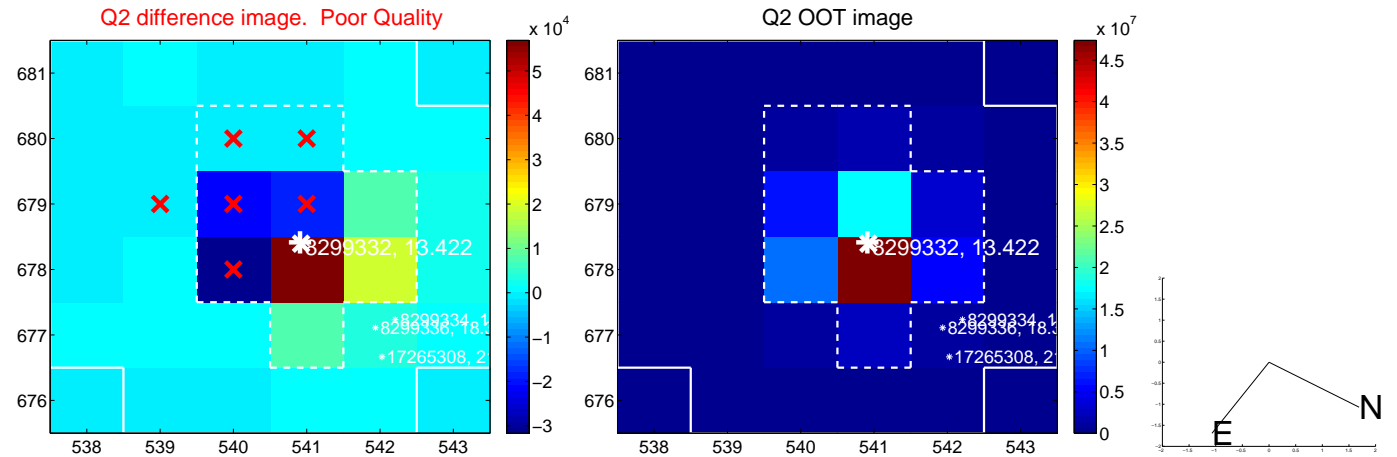
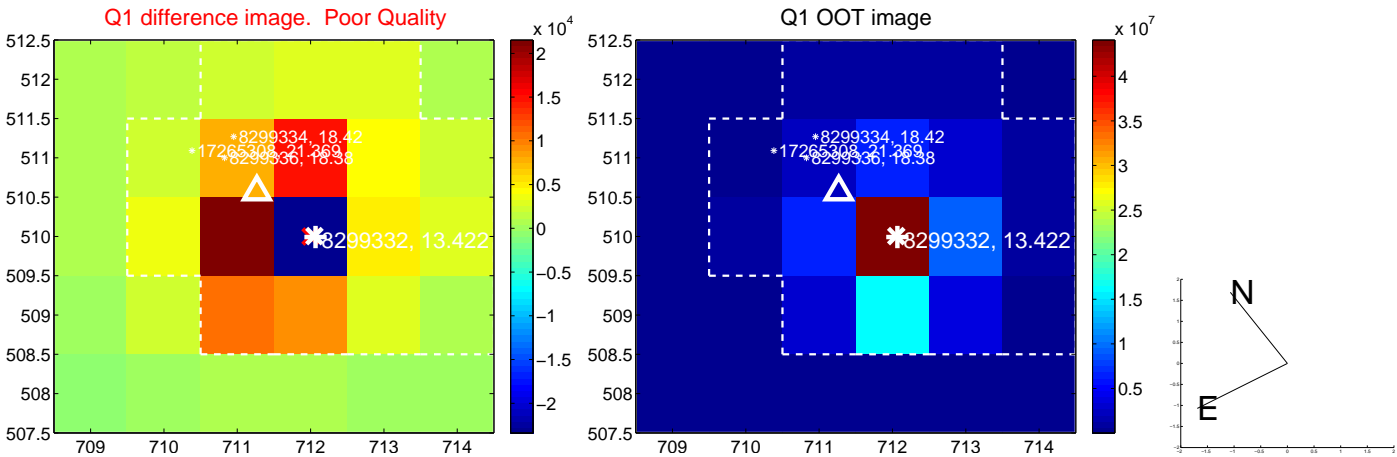
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.795 \pm 0.460$	1.73	$0.669 \pm 0.421$	$0.429 \pm 0.542$
PRF-fit source offset from KIC position	$0.733 \pm 0.452$	1.62	$0.652 \pm 0.424$	$0.336 \pm 0.545$
photometric centroid source offset	$0.09 \pm 0.06$	1.50	$-0.04 \pm 0.06$	$-0.08 \pm 0.06$

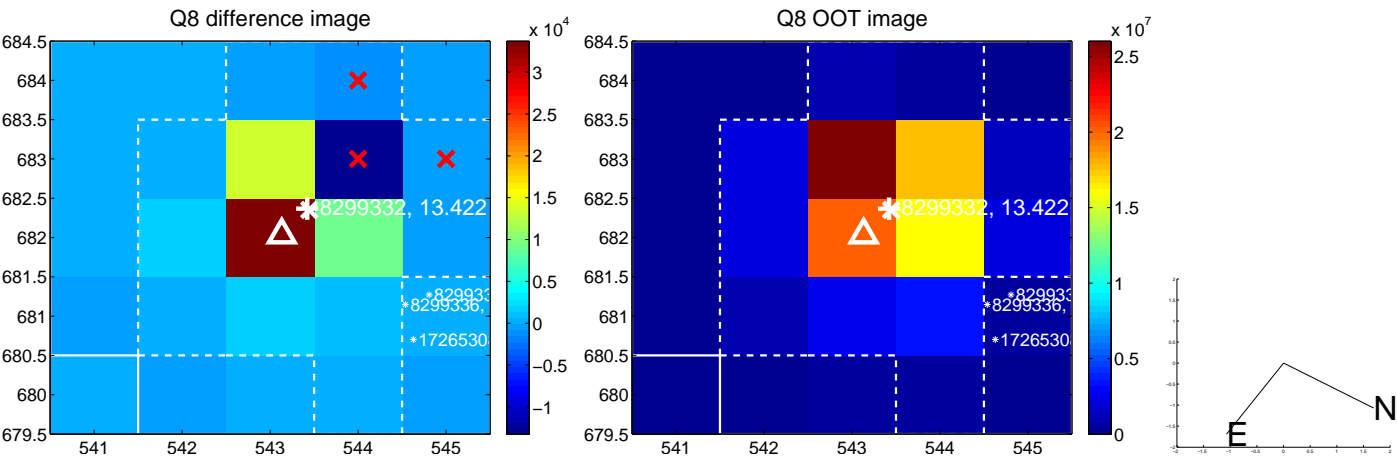
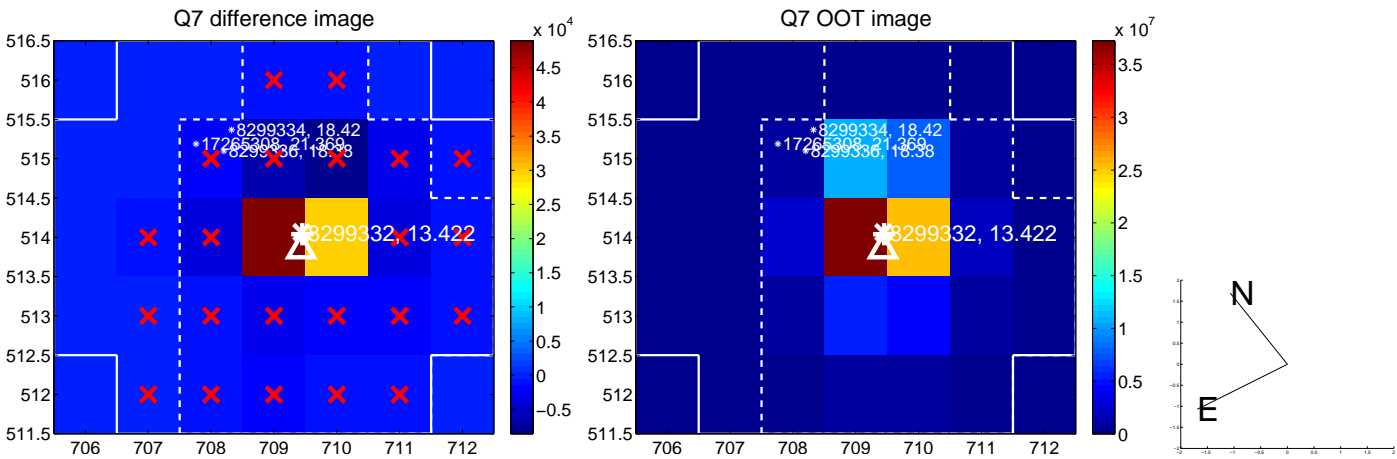
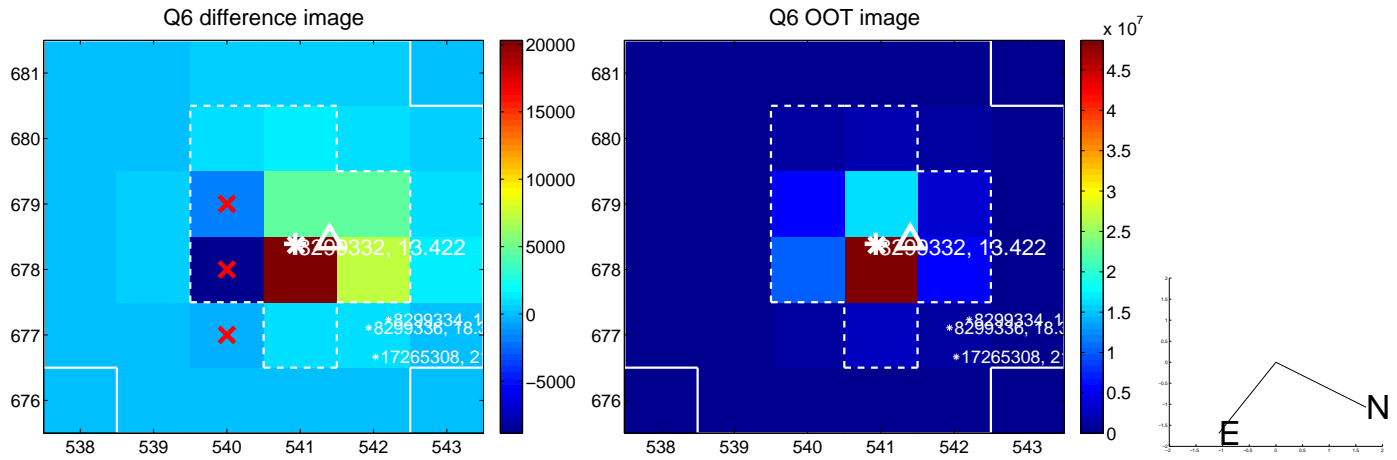
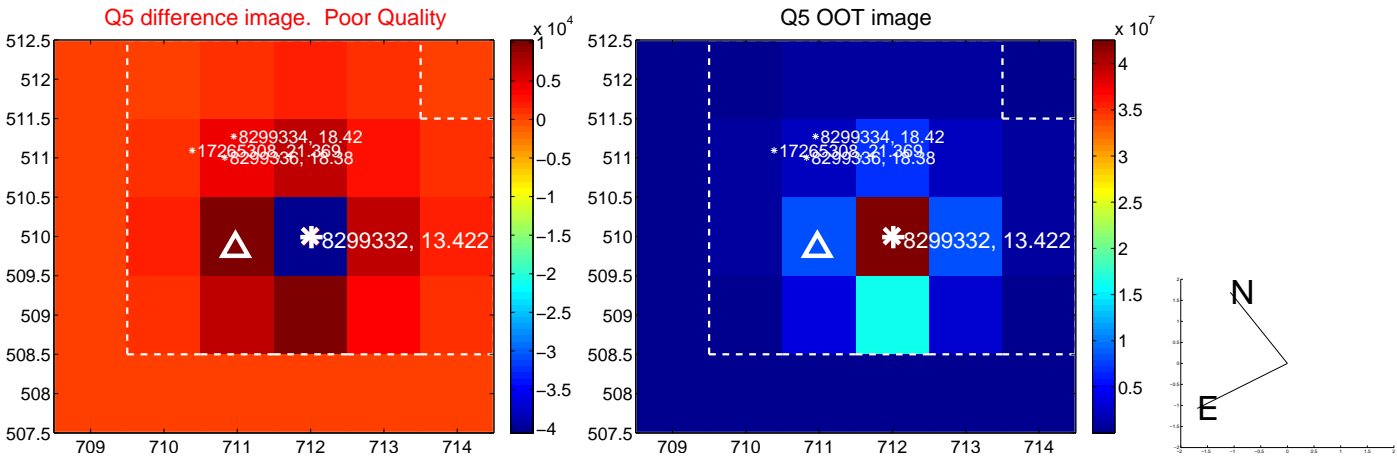


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

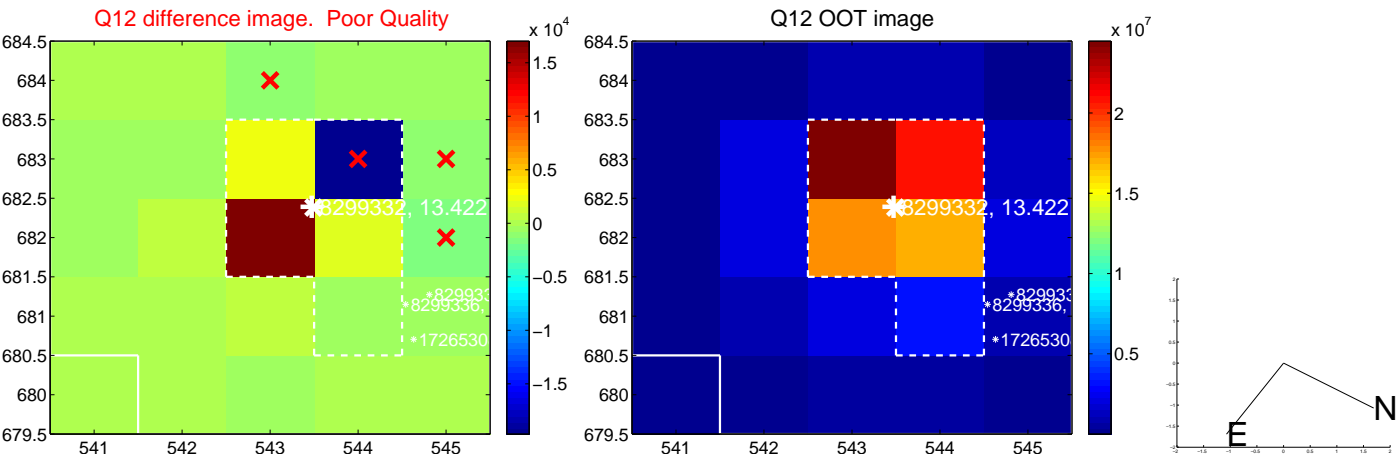
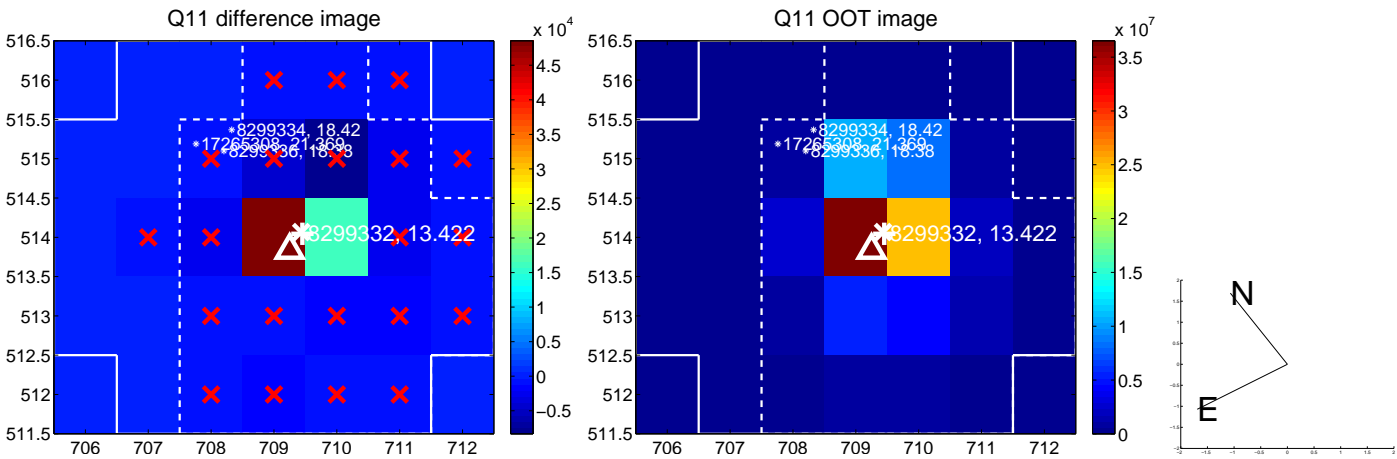
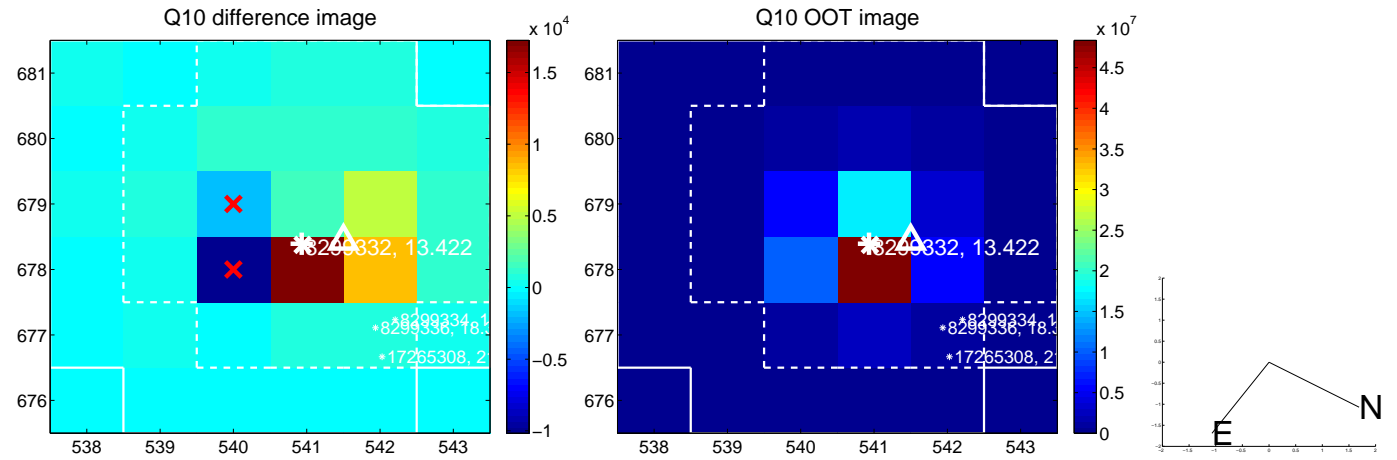
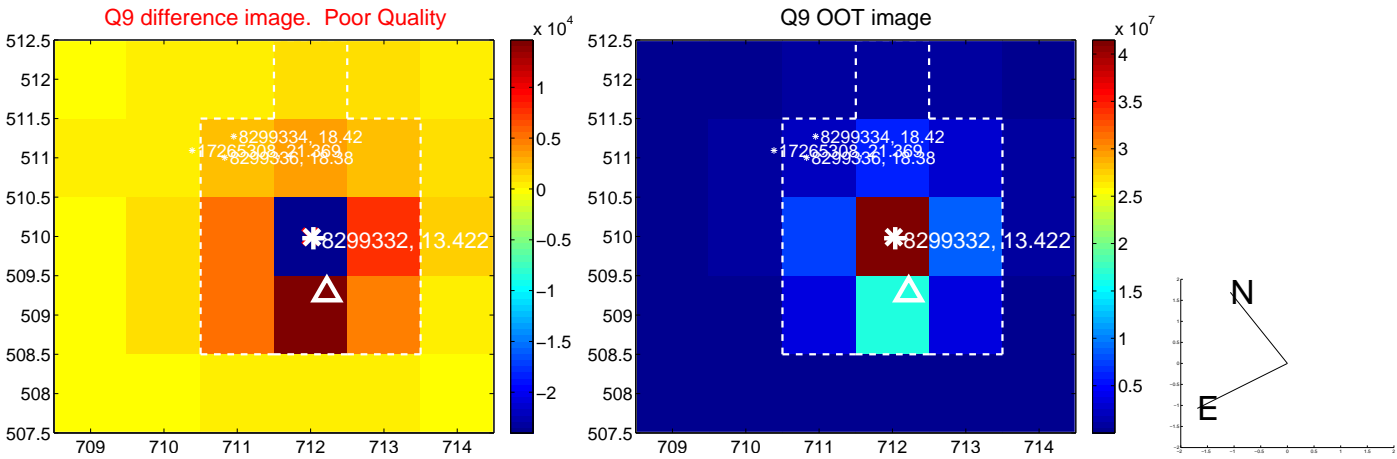
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



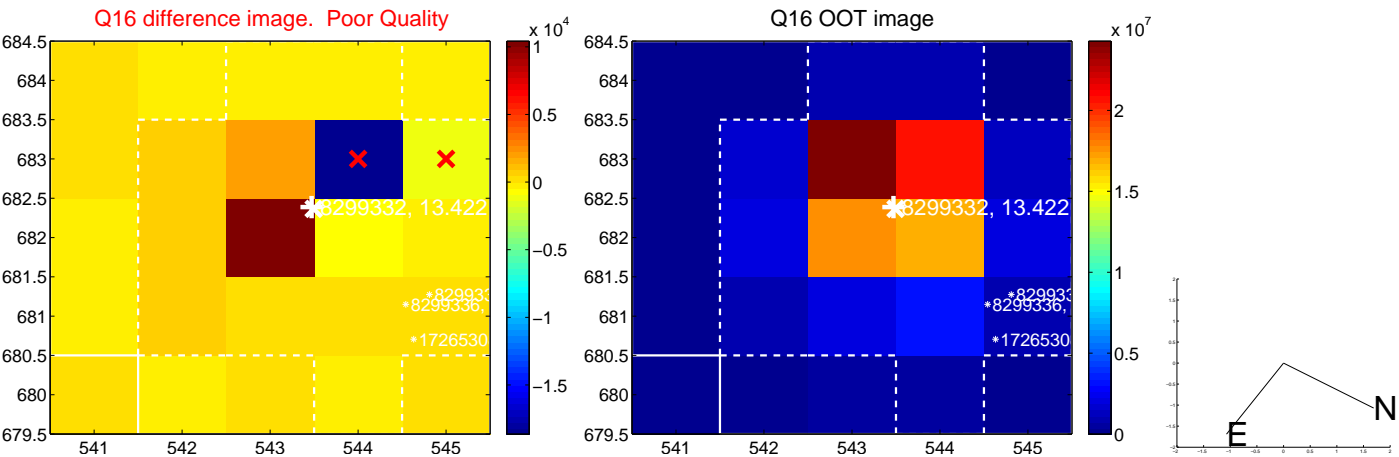
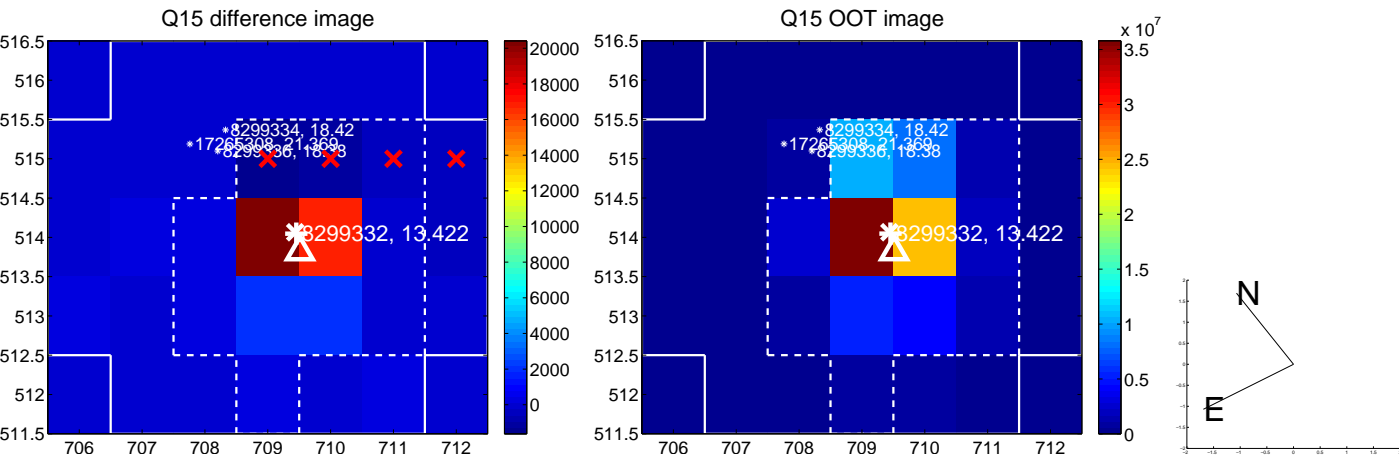
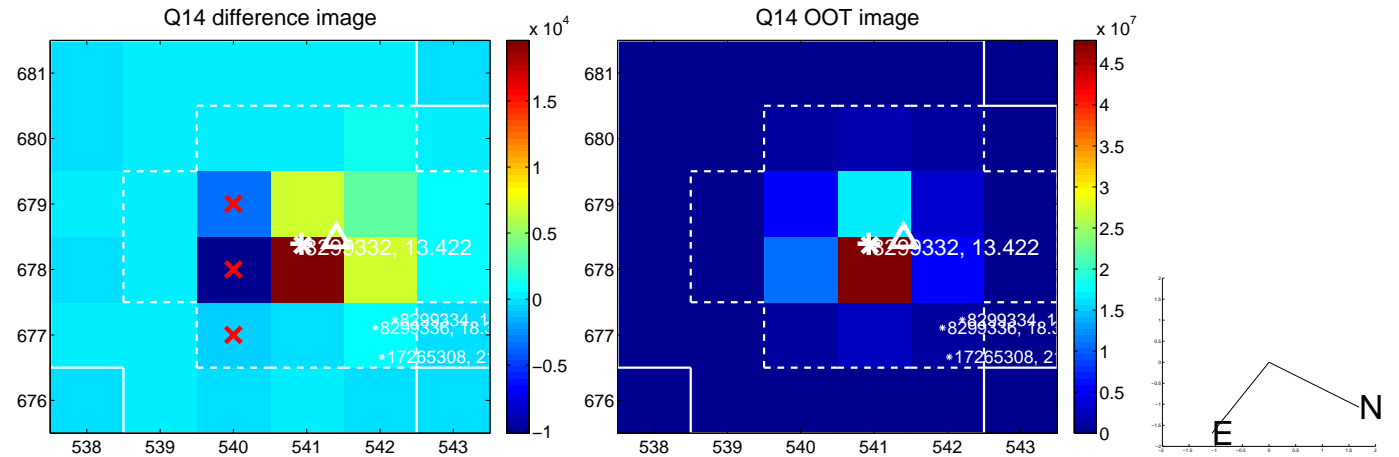
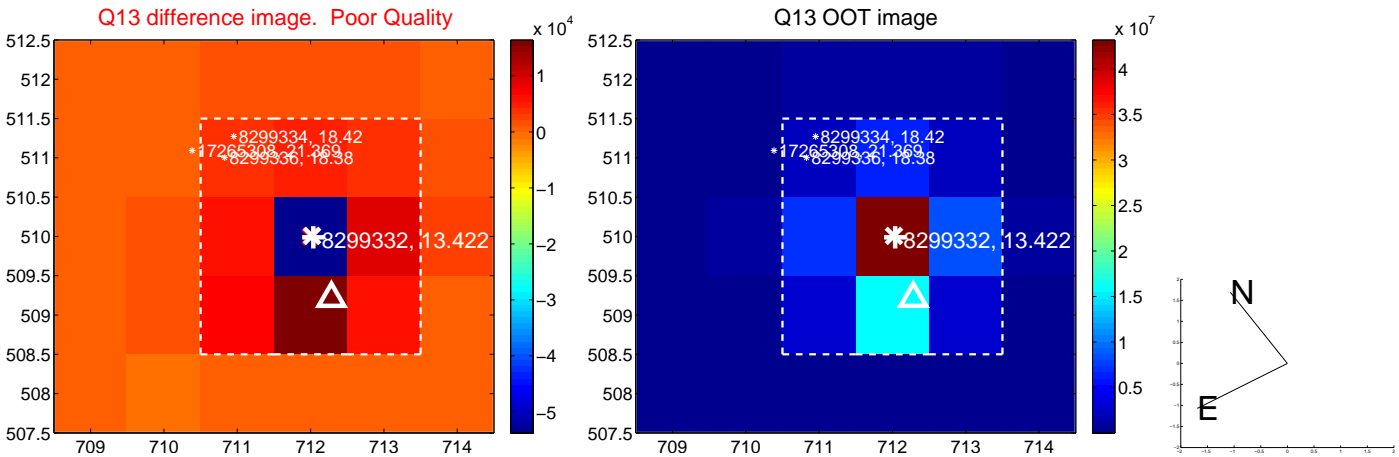
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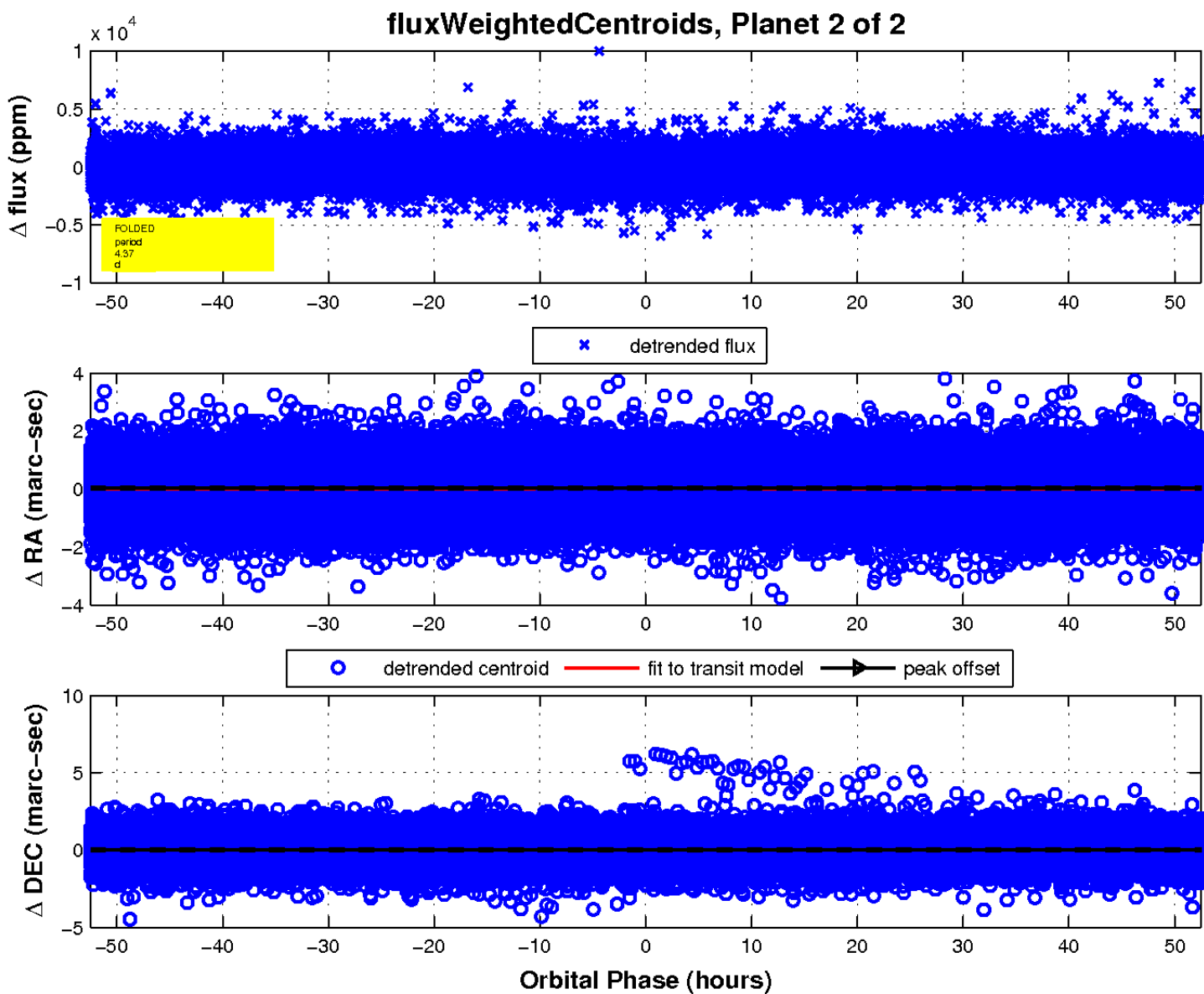
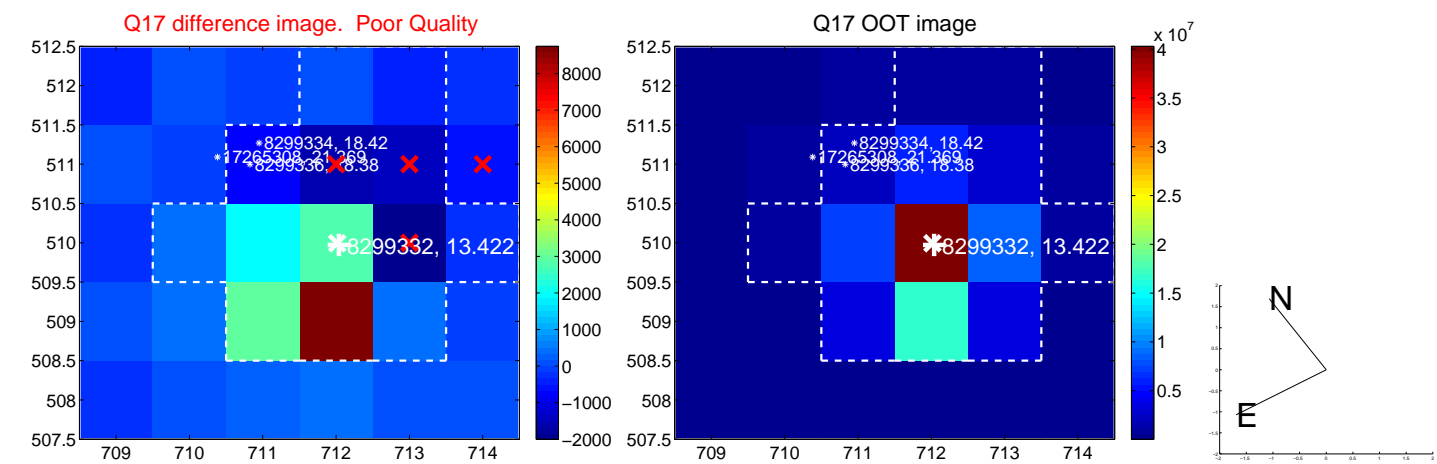
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UKIRT Image

Declination

