

# KIC 008623953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008623953-01	OBS	No	0.563109	131.653603	50.8	4.186	14.6	13.0	4.59	7742	3.35	0.00
008623953-02	OBS	No	19.549569	136.324654	632.8	3.941	12.5	14.2	4.59	7742	11.67	1862.89
008623953-03	OBS	No	10.155812	133.369629	582.0	0.843	13.3	7.0	4.59	7742	11.54	4460.86
008623953-04	OBS	No	12.121043	140.721640	588.0	1.491	8.9	9.5	4.59	7742	11.47	3523.58
008623953-05	OBS	No	12.121124	136.347490	72.1	1.770	8.4	1.5	4.59	7742	4.05	3523.55
008623953-06	OBS	No	6.689962	137.041695	708.5	1.260	12.5	15.3	4.59	7742	14.11	7782.87
008623953-07	OBS	No	14.972273	140.074249	611.9	1.290	8.7	9.4	4.59	7742	12.86	2658.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008623953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008623953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—SAME_NTL_PERIOD—CENT_SATURATED
008623953-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED

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

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

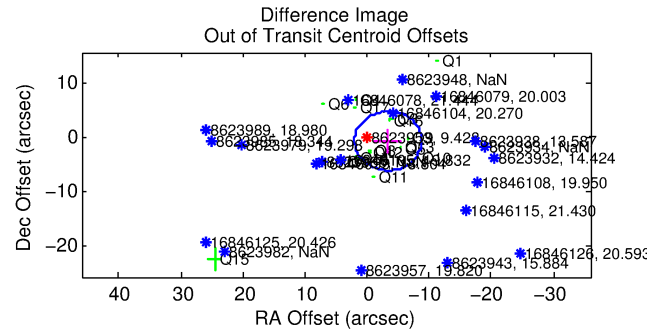
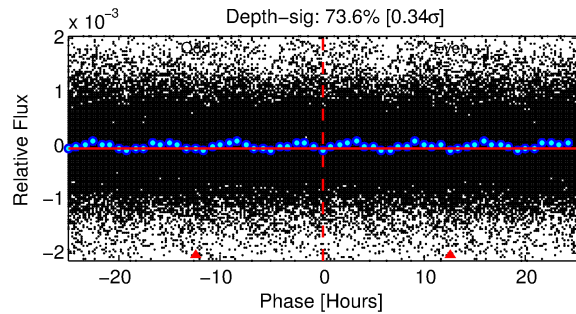
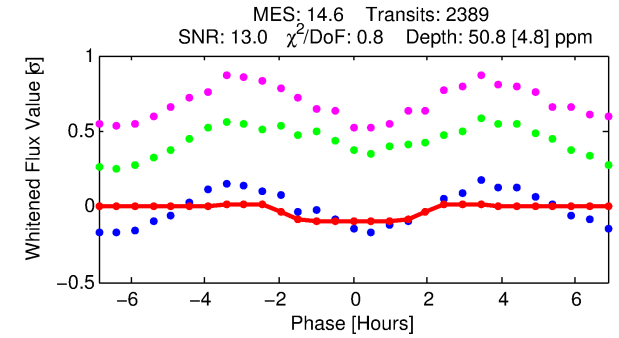
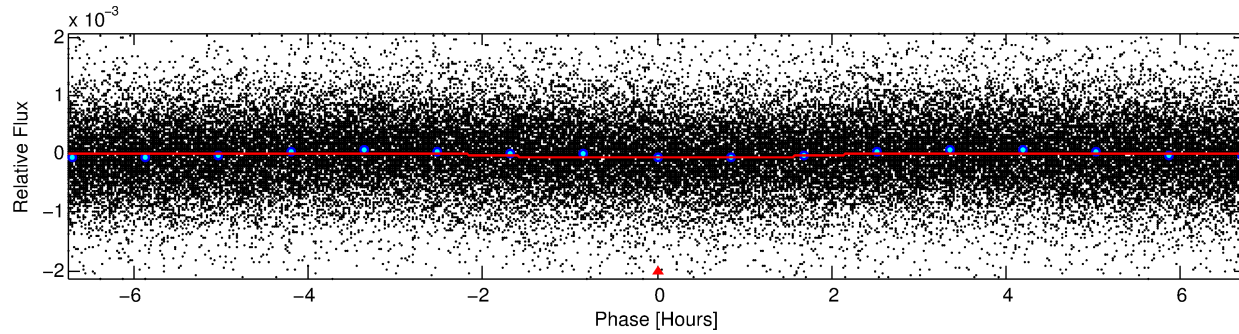
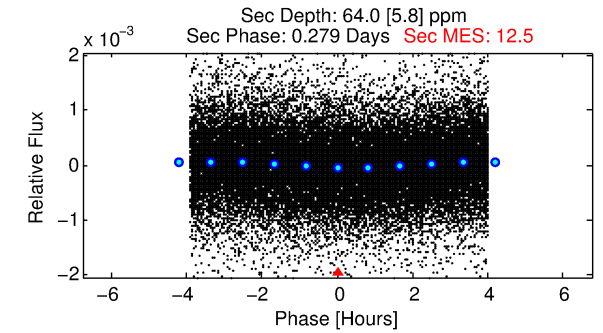
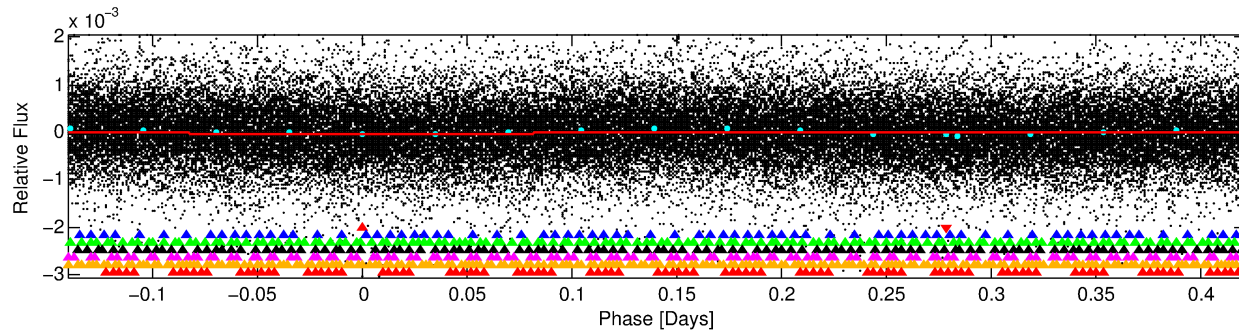
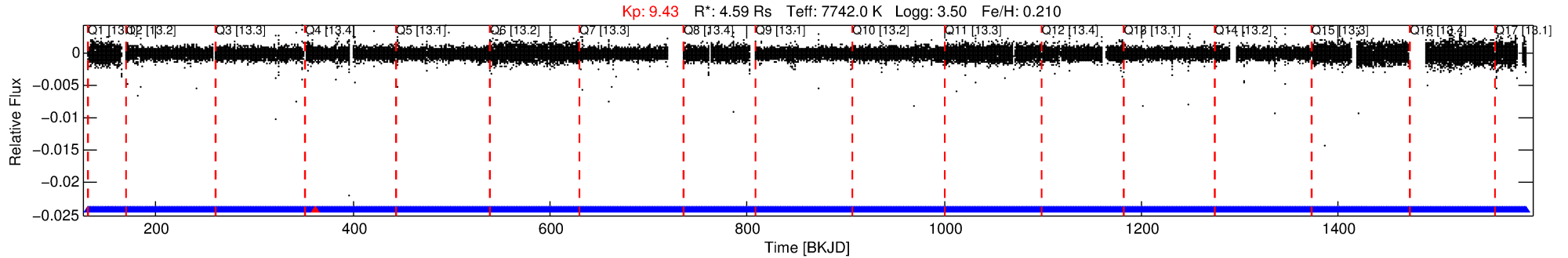
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008623953-01

No Significant Match Found

# DV One-Page Summary

KIC: 8623953 Candidate: 1 of 7 Period: 0.563 d



## DV Fit Results:

Period = 0.56311 [0.00001] d  
Epoch = 131.6536 [0.0036] BKJD  
Rp/R\* = 0.0067 [0.0060]  
a/R\* = 1.19 [1.67]  
b = 0.39 [10.65]  
Seff = N/A  
Teq = N/A  
Rp = 3.35 [3.08] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

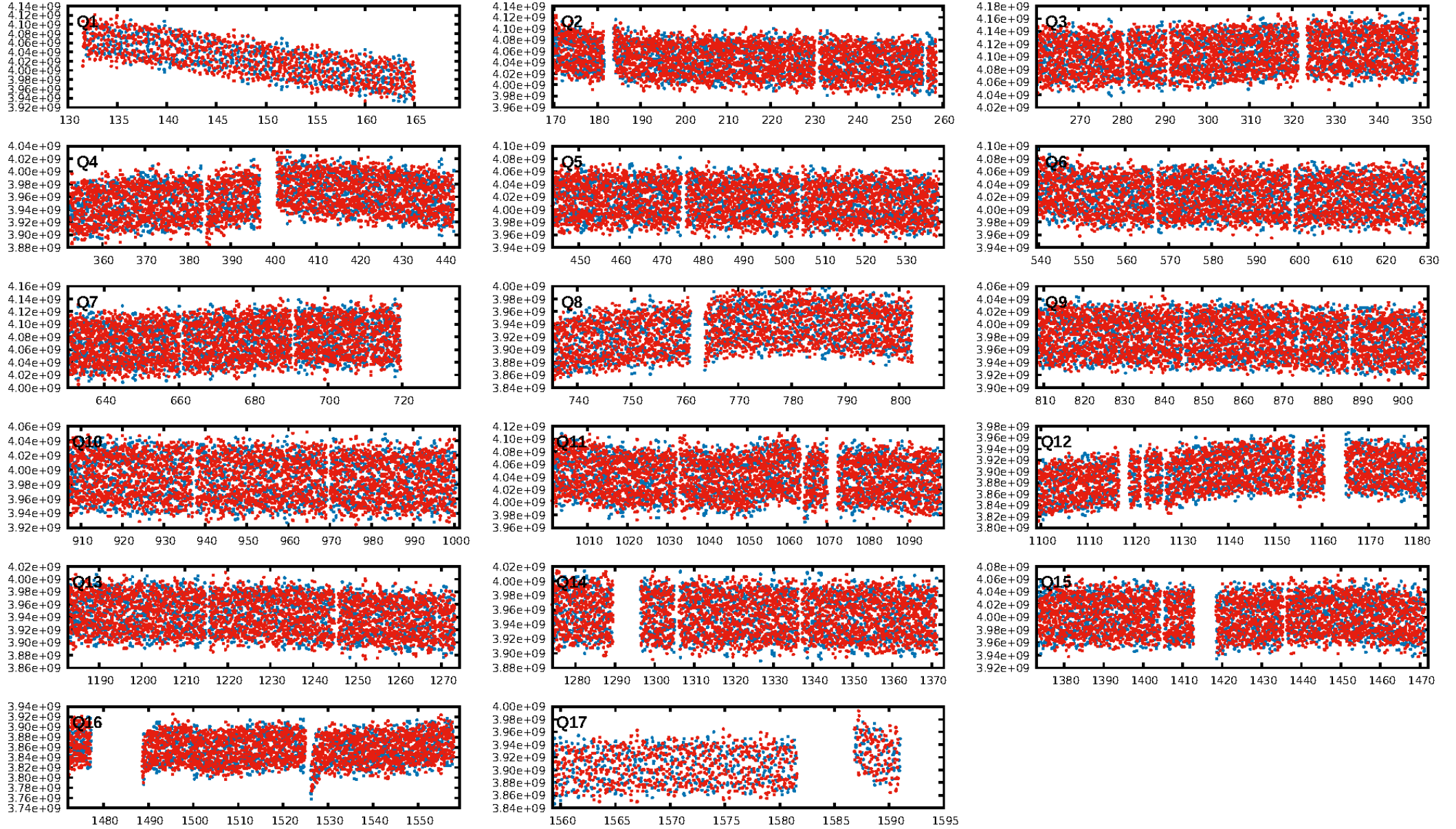
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [33.64σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.80e-09  
RollingBand-igt: 1.00 [2281/2282]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 16.5%  
Centroid-so: 0.742 arcsec [3.17σ]  
OotOffset-rm: 3.409 arcsec [1.90σ]  
KicOffset-rm: 3.283 arcsec [2.70σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.00 [0/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:56:28 Z

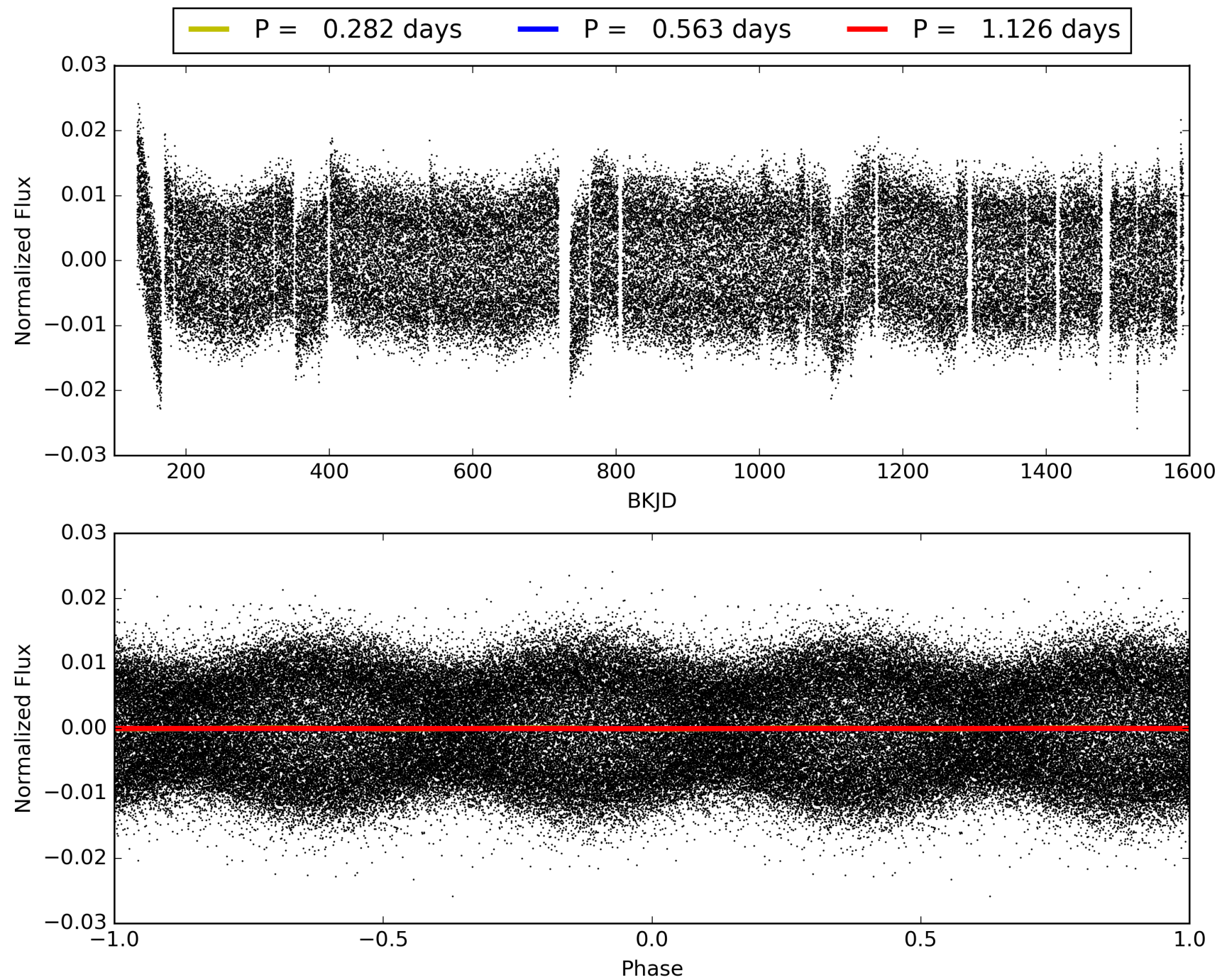
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008623953-01, PDC Light Curves





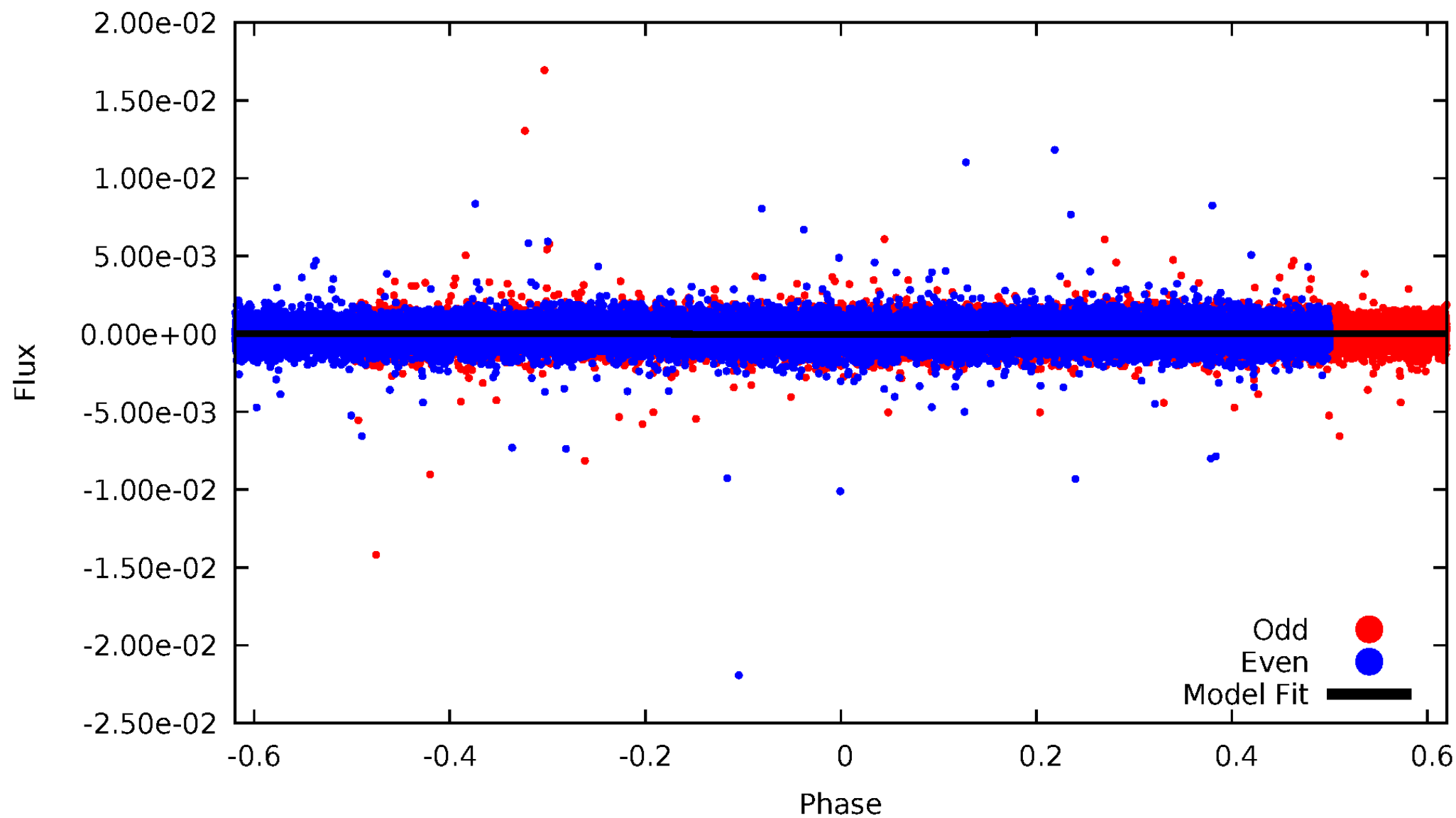
TCE 008623953-01





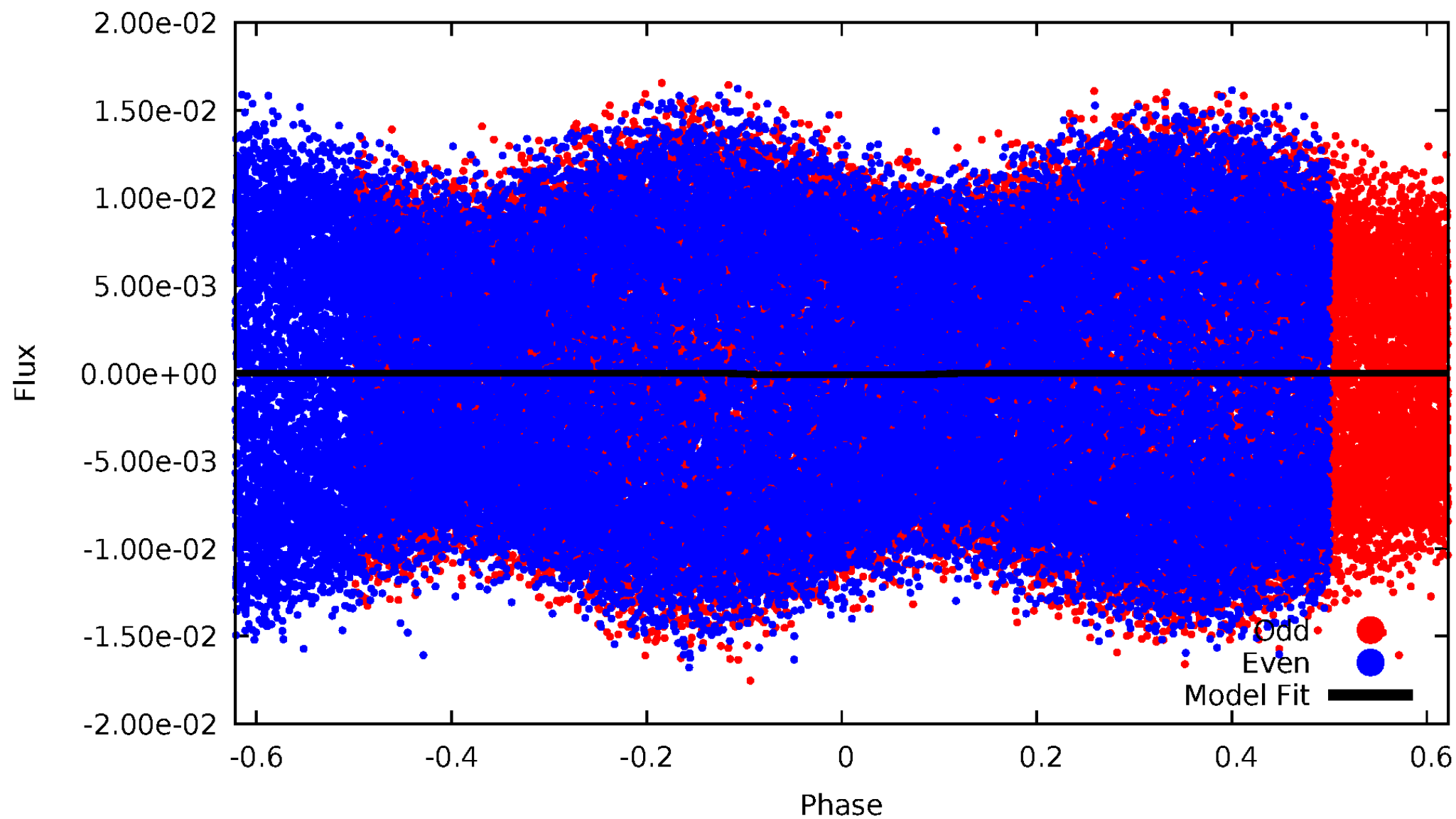
# DV Odd/Even

TCE 008623953-01

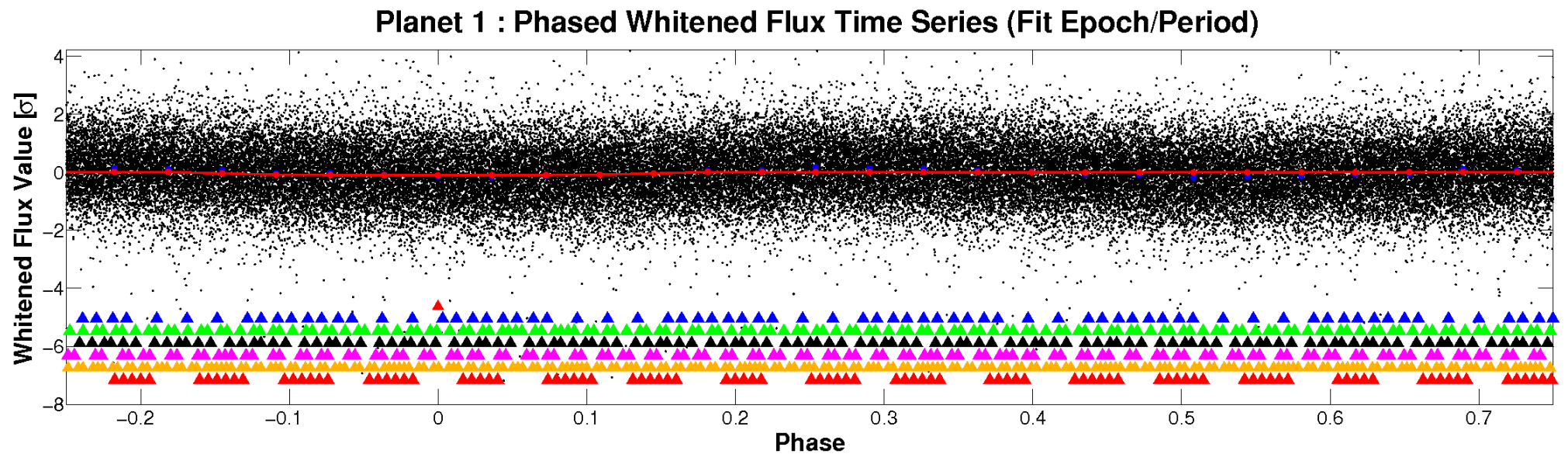
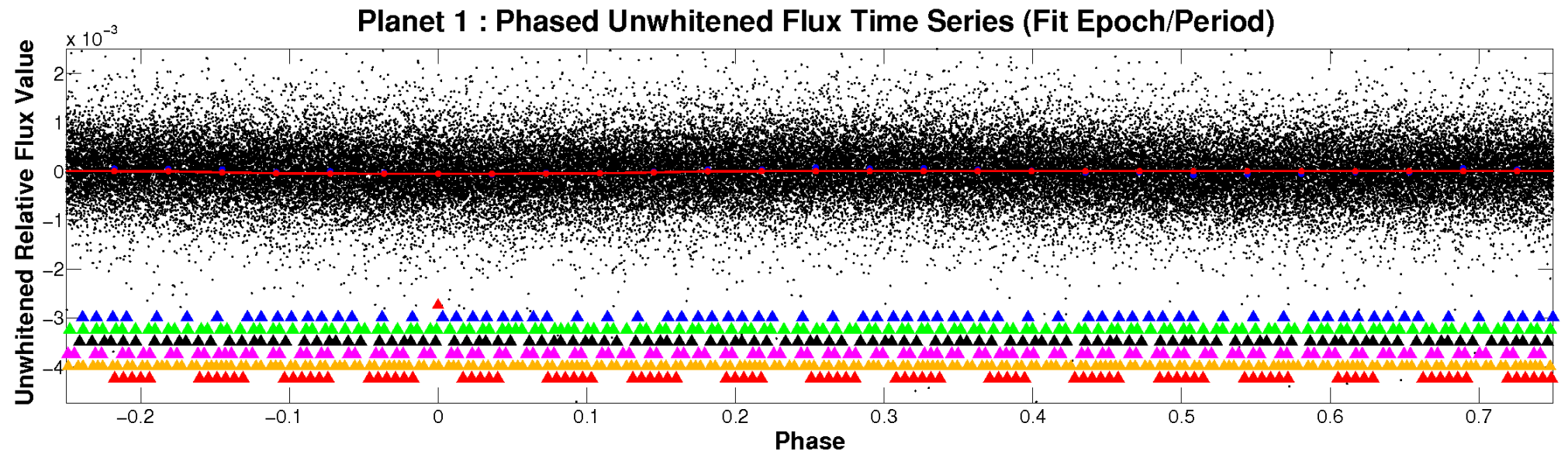


# ALT Odd/Even

TCE 008623953-01



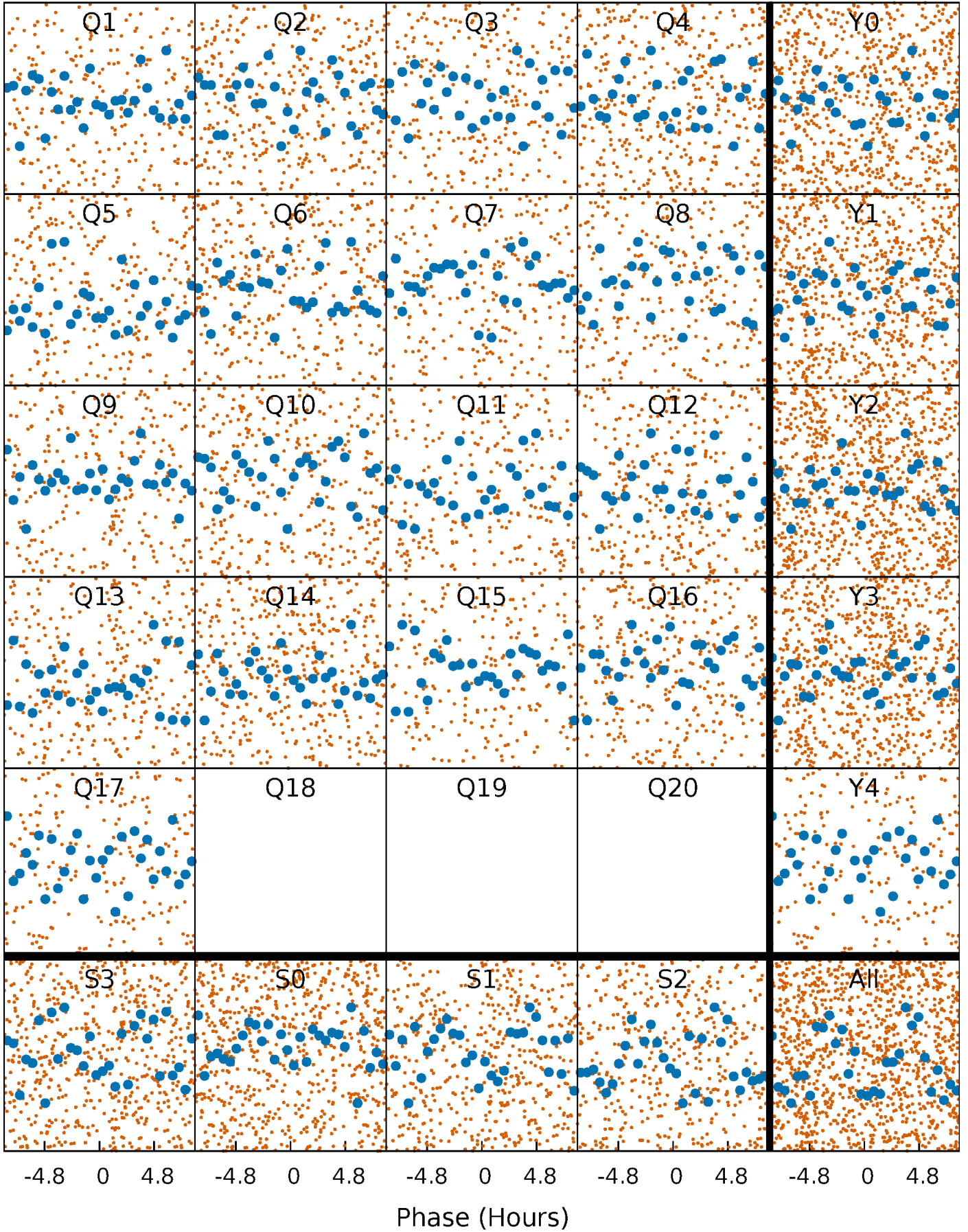
# Non-Whitened Vs. Whitened Light Curve





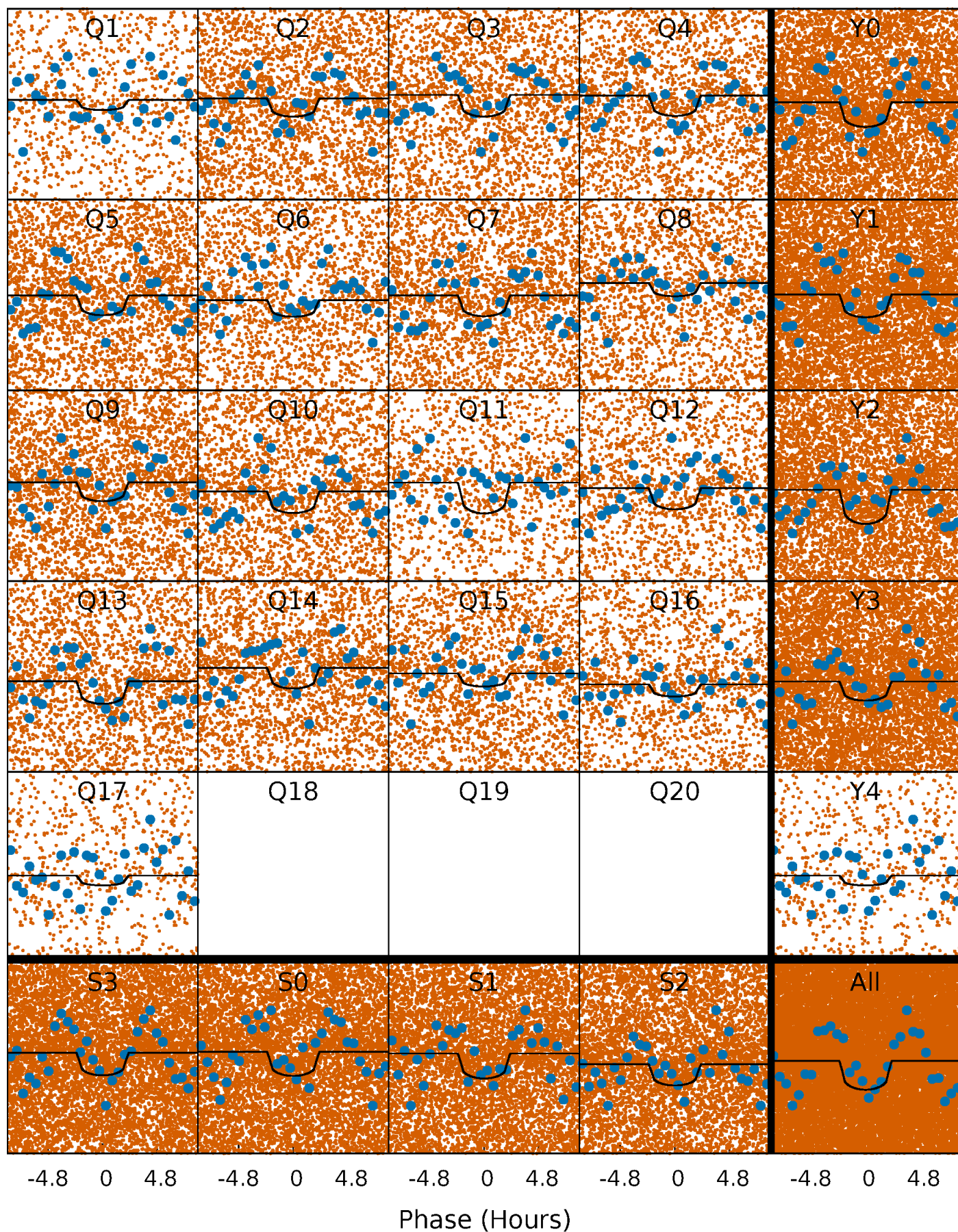
# PDC Quarter-Phased Transit Curves

TCE 008623953-01 P= 0.563109 Days  $T_0=131.653603$  (BKJD)



# DV Quarter-Phased Transit Curves

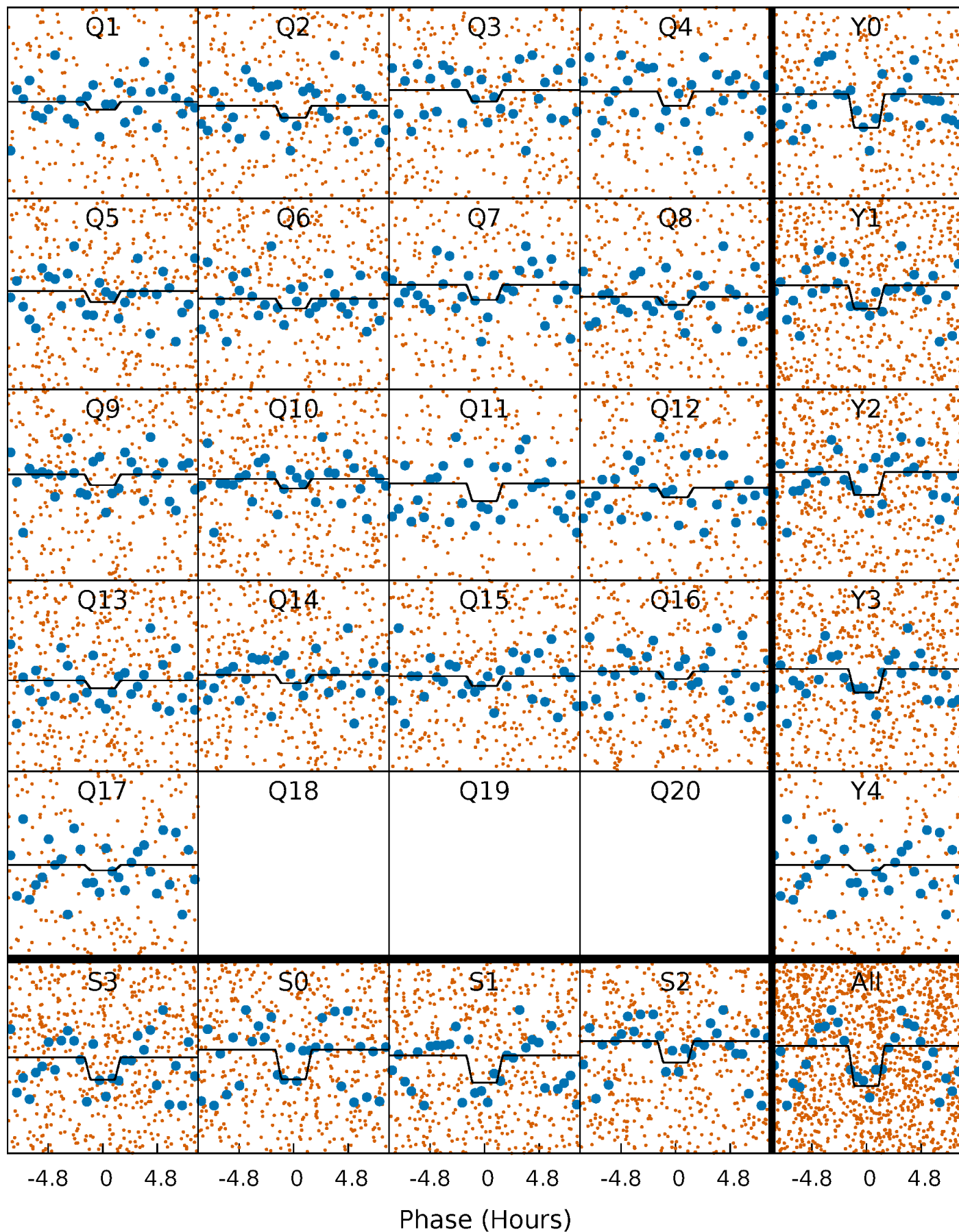
TCE 008623953-01 P= 0.563109 Days  $T_0=131.653603$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 008623953-01 P= 0.563125 Days  $T_0=131.647807$  (BKJD)

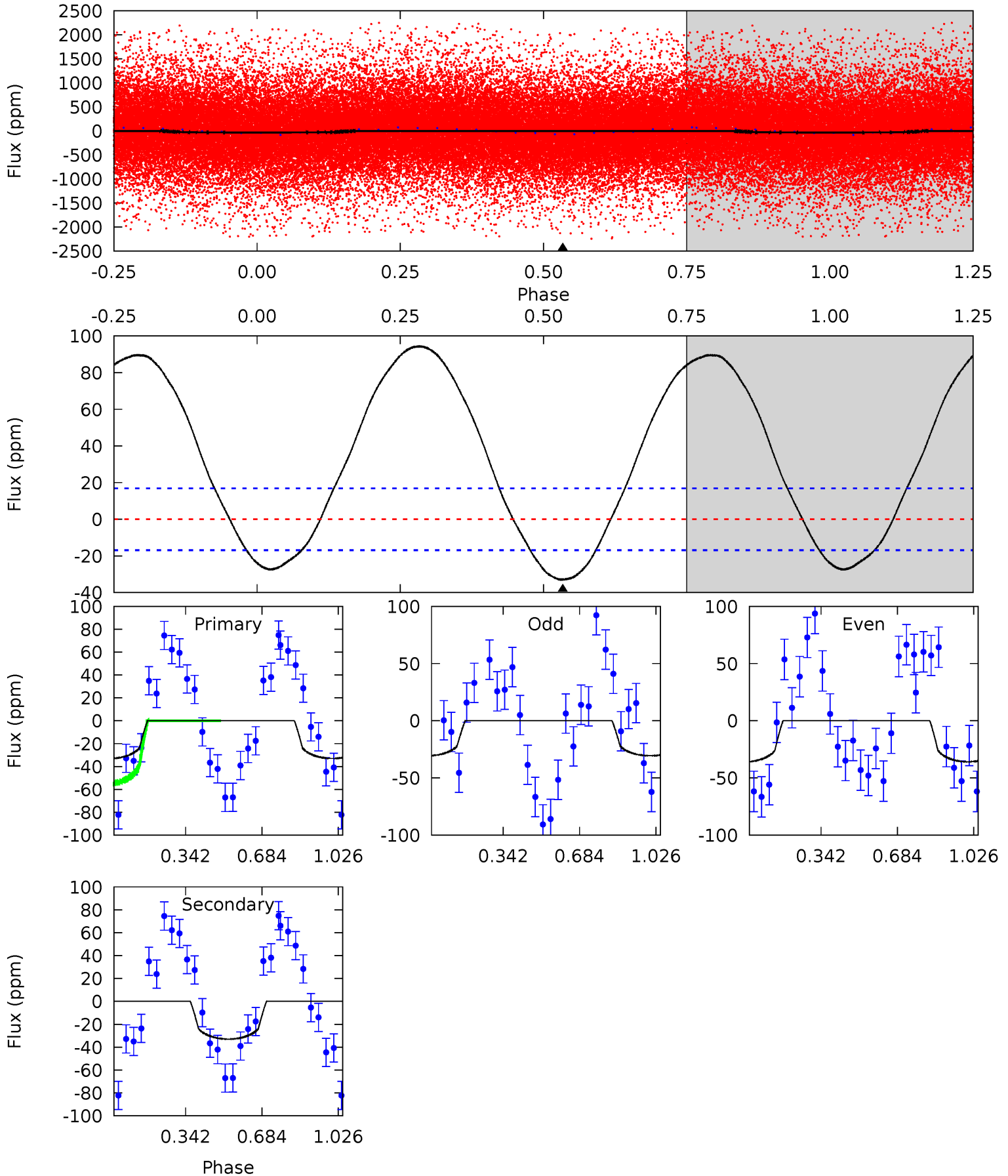




# DV Model-Shift Uniqueness Test

008623953-01, P = 0.563109 Days, E = 131.090494 Days

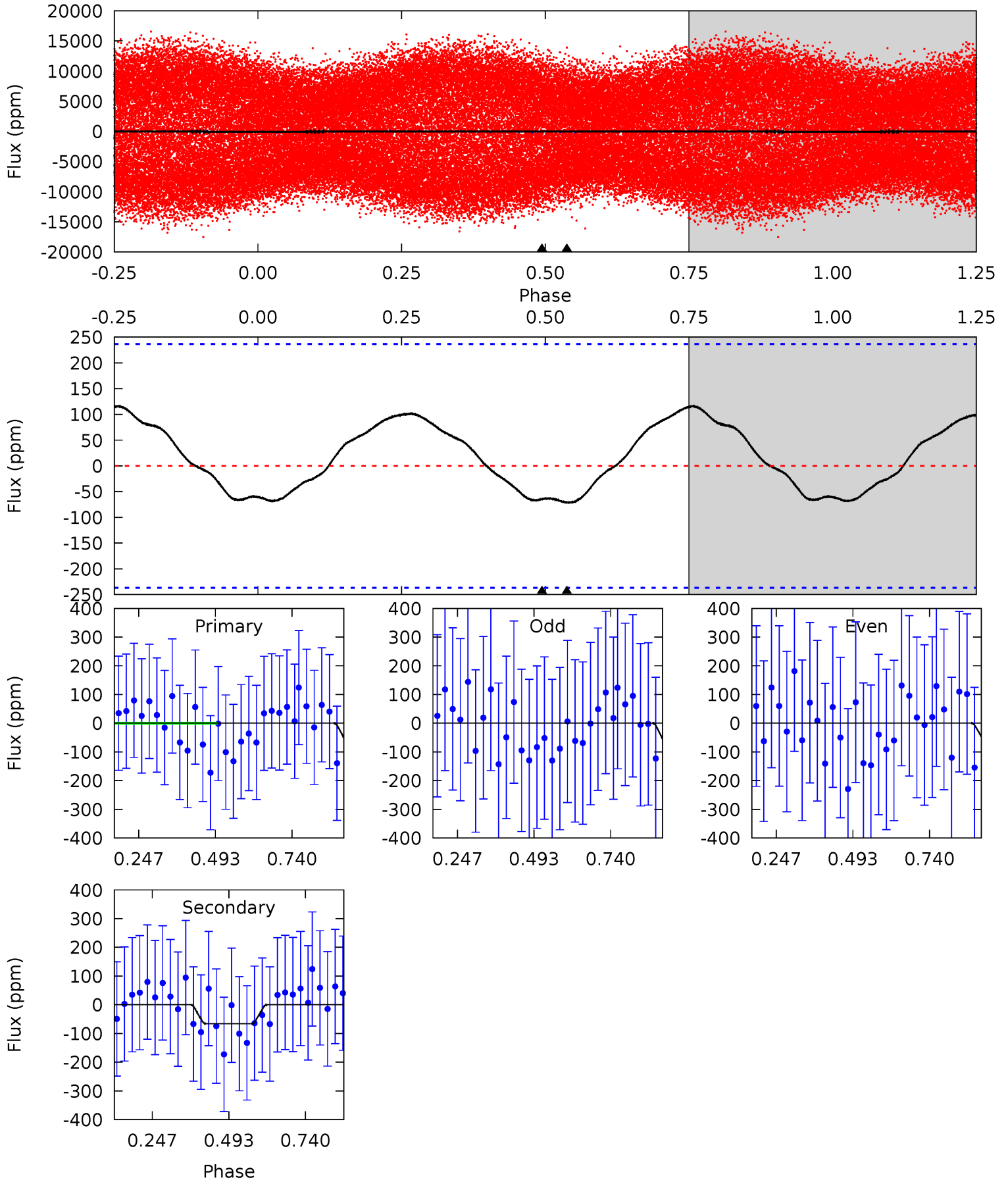
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.41	8.41	0	0	4.30	0.95	6.74	8.41	8.41	8.41	8.41	0.68	1.14	0.74	5.60



# Alt Model-Shift Uniqueness Test

008623953-01, P = 0.563125 Days, E = 131.084682 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.35	1.22	0	0	4.37	1.16	1.05	1.35	1.35	1.22	1.22	0.11	1.22	0.62	0.20



### Stellar Parameters For KIC 008623953

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7742^{+153}_{-184}$	$3.499^{+0.180}_{-0.009}$	$0.210^{+0.200}_{-0.150}$	$4.593^{+0.258}_{-1.032}$	$2.425^{+0.213}_{-0.260}$	$0.035^{+0.033}_{-0.002}$
	+2%/-2%	+5%/-0%	+95%/-71%	+6%/-22%	+9%/-11%	+94%/-7%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 008623953-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-33 \pm 4$	$3.63^{+2.45}_{-2.22}$	$7434^{+250}_{-373}$	$5168^{+6753}_{-10166}$	$0.468^{+2.490}_{-0.303}$
Alt.	$-66 \pm 54$	$4.76^{+2.82}_{-2.40}$	$7426^{+251}_{-386}$	$4906^{+5162}_{-10544}$	$0.445^{+1.796}_{-0.386}$

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



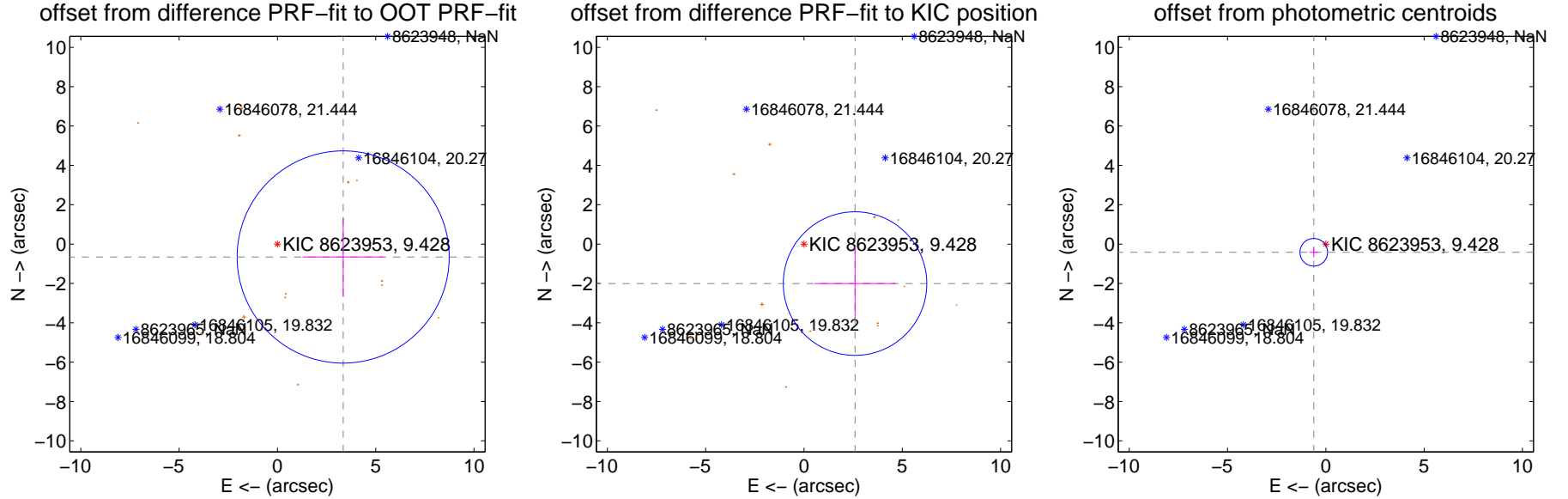
## DV Centroid Data

Supplemental centroid analysis for 008623953-01. **Kepler magnitude: 9.43.** Transit SNR 13.00

There are 0 quarters with good PRF difference image offsets

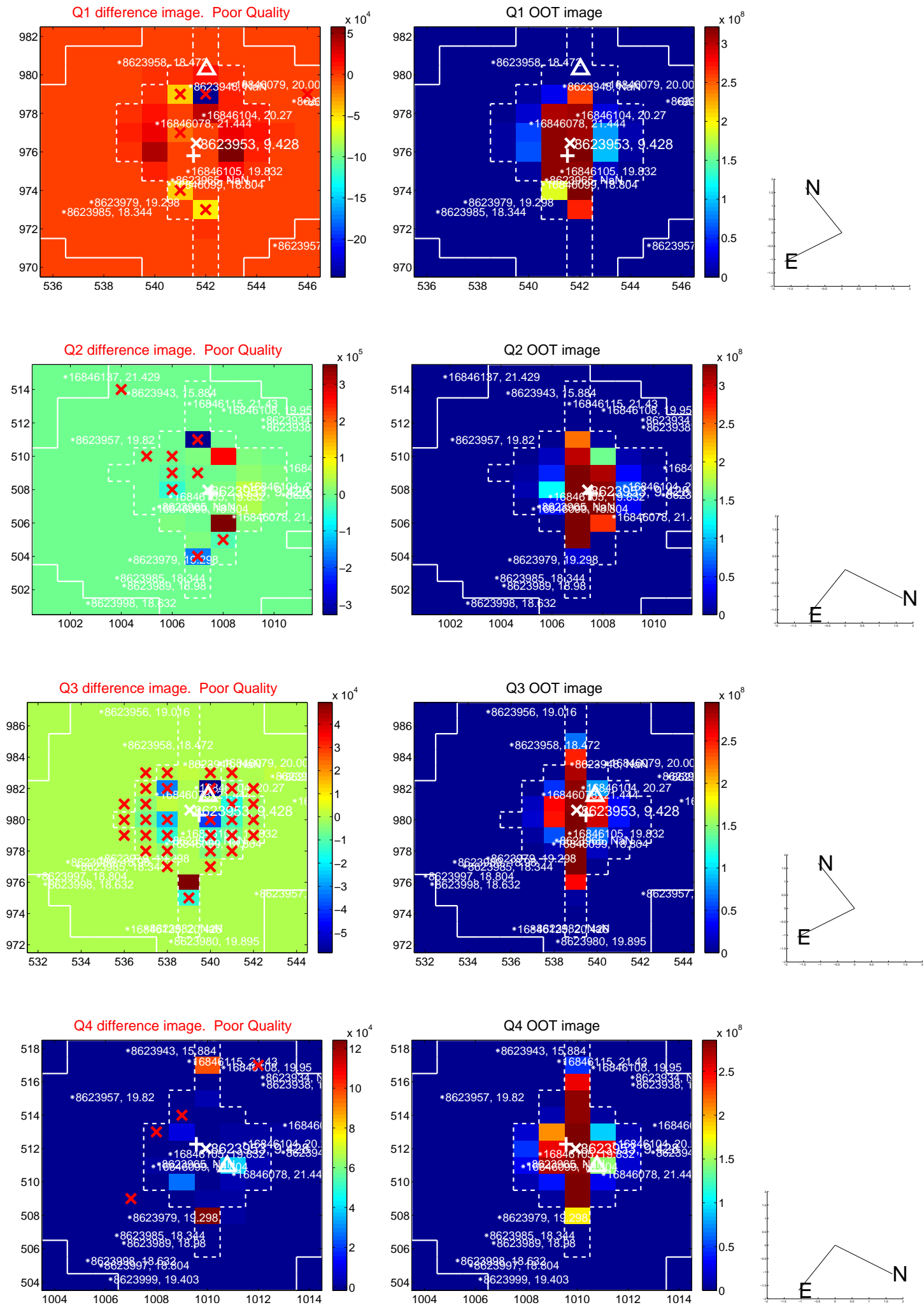
The OOT PRF centroid is offset from the target star catalog position by about 2.56 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.409 \pm 1.798$	1.90	$-3.345 \pm 2.060$	$-0.657 \pm 2.024$
PRF-fit source offset from KIC position	$3.283 \pm 1.217$	2.70	$-2.597 \pm 2.066$	$-2.009 \pm 1.768$
photometric centroid source offset	$0.74 \pm 0.23$	3.17	$0.61 \pm 0.22$	$-0.42 \pm 0.26$

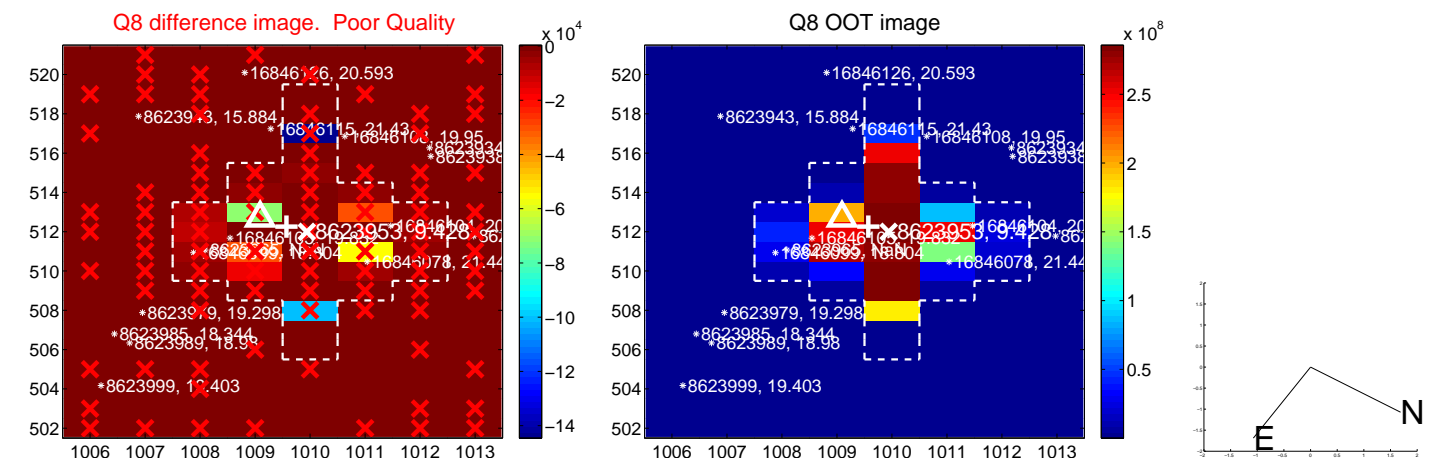
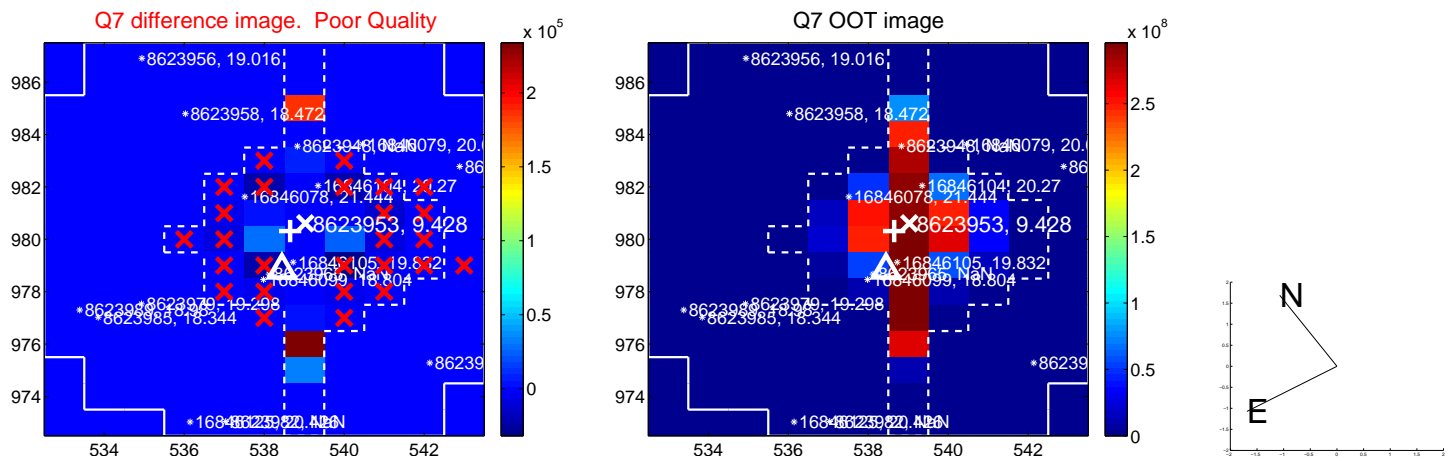
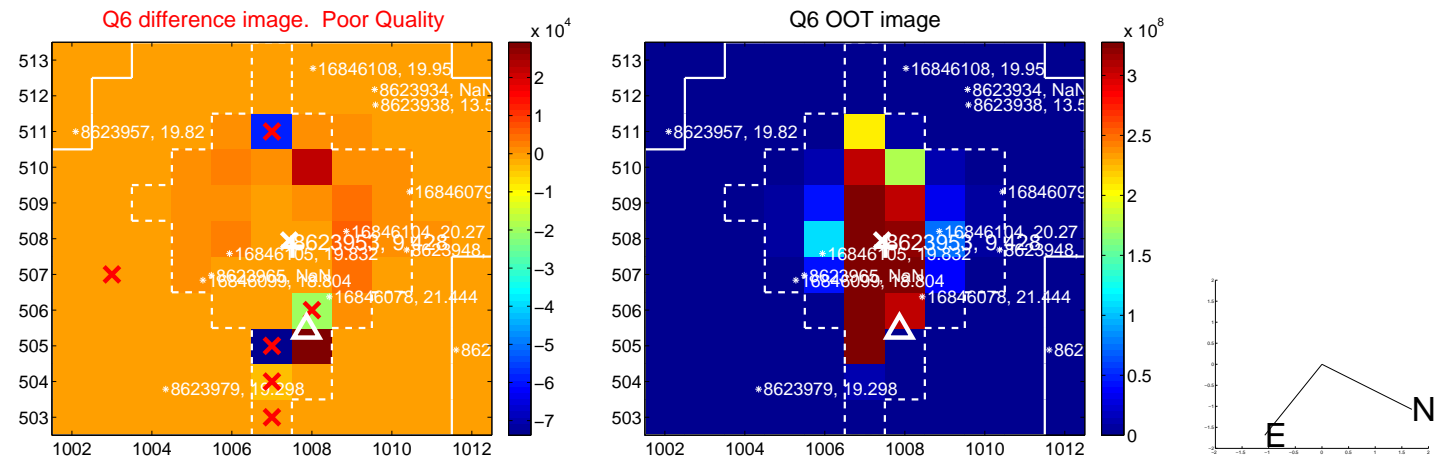
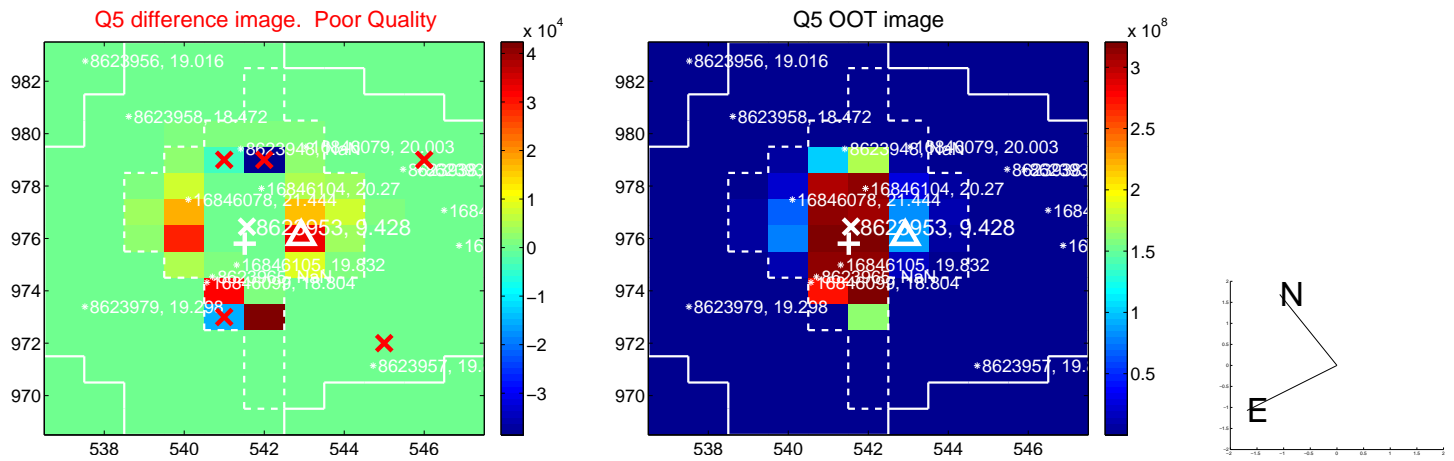


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

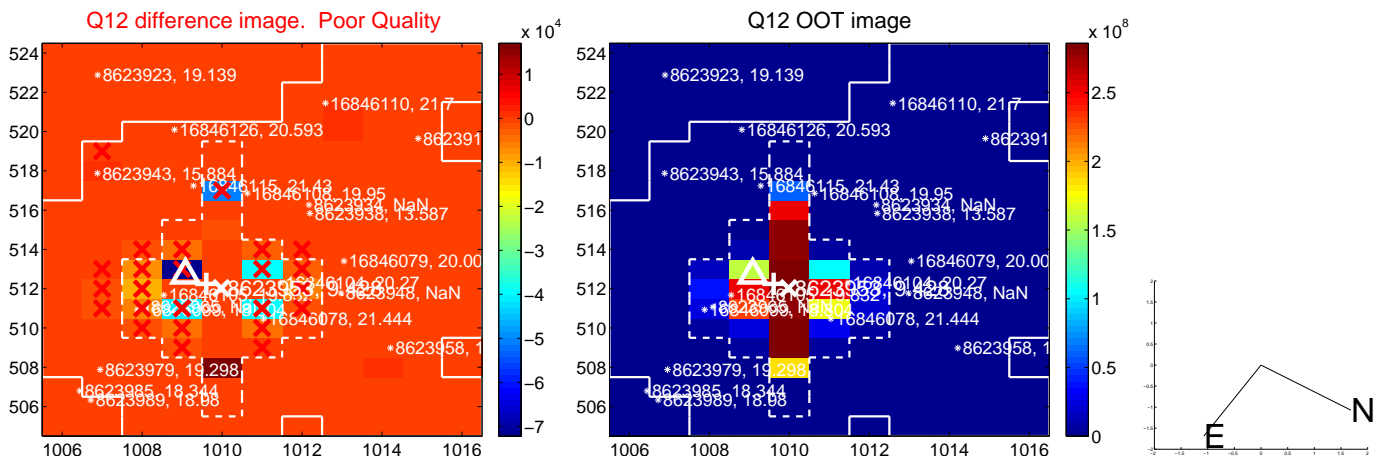
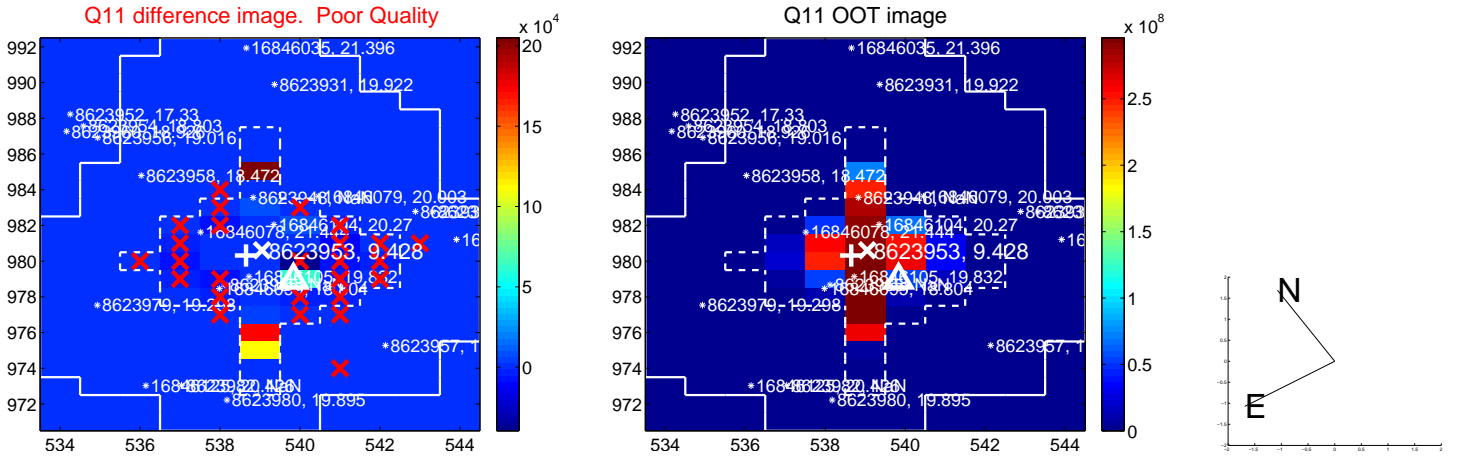
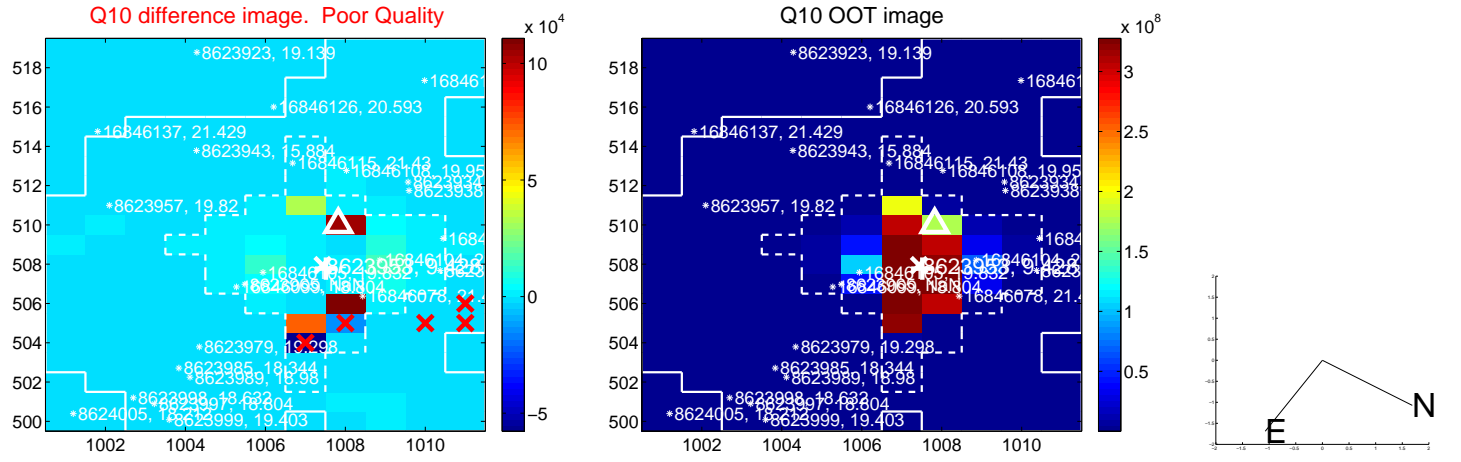
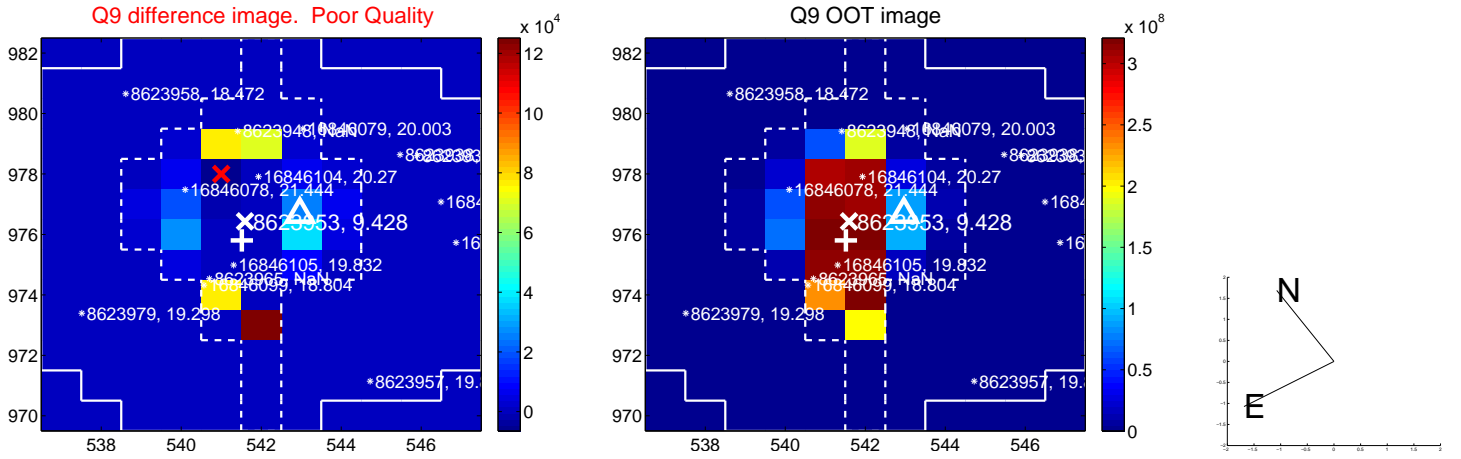


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

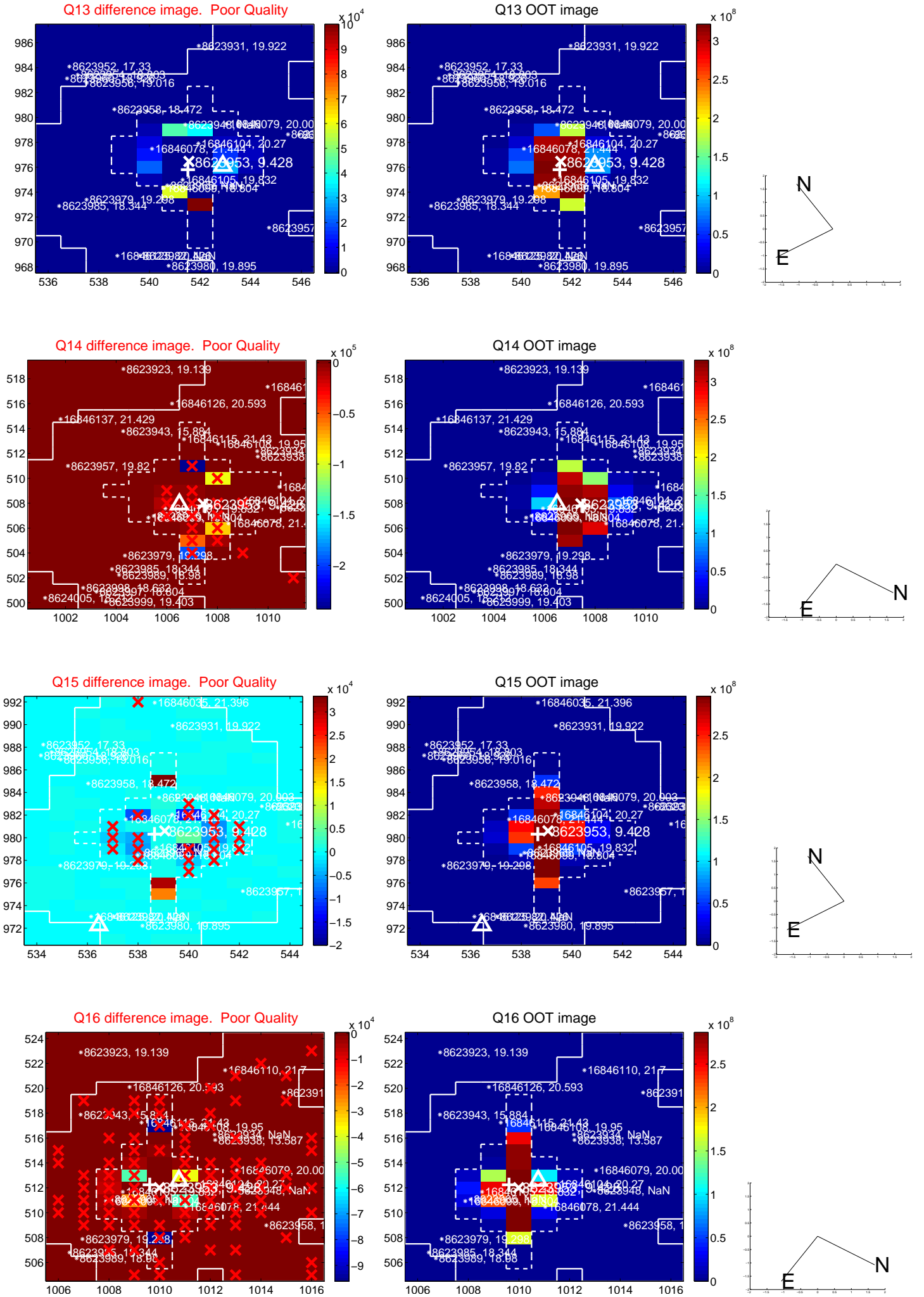




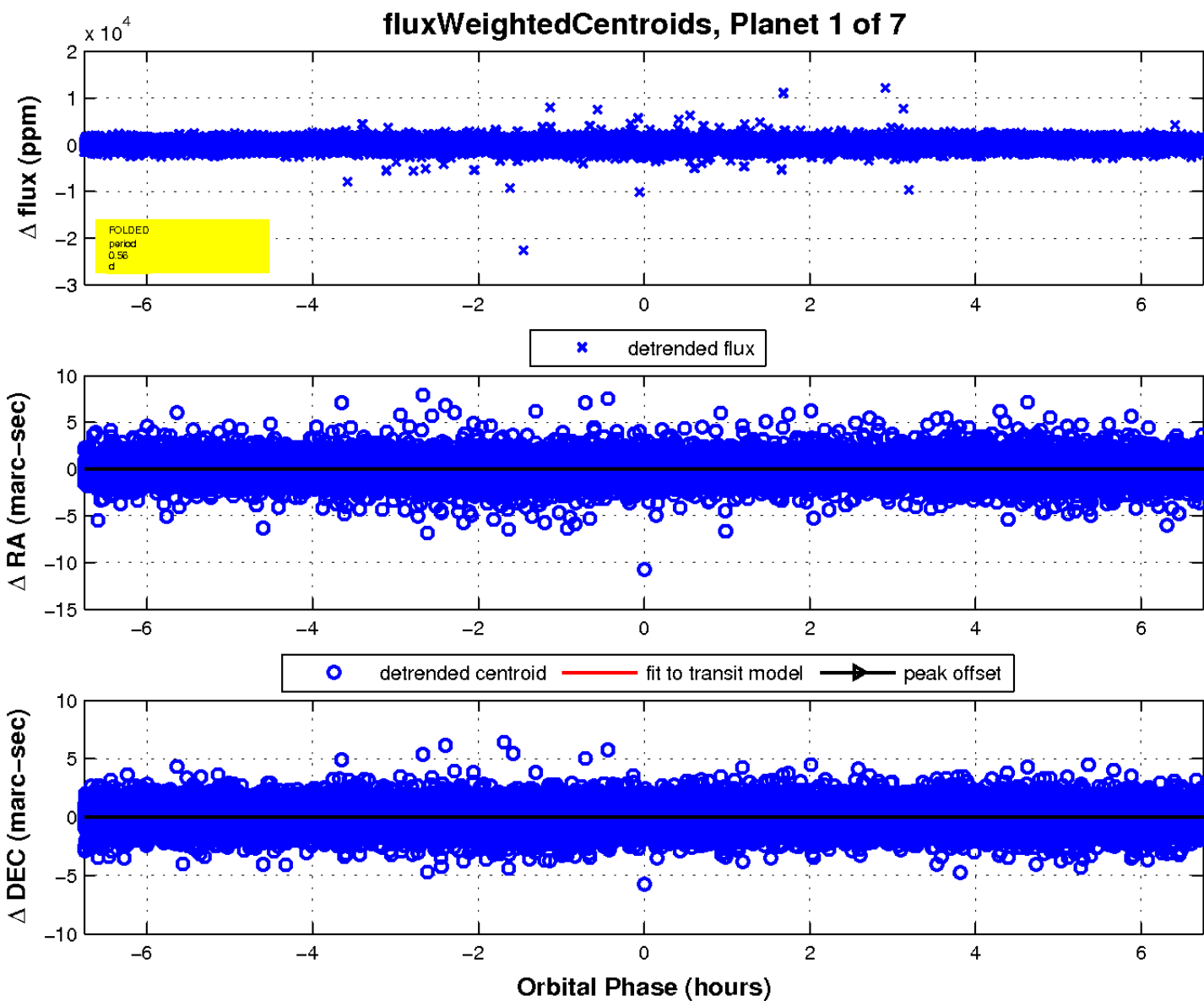
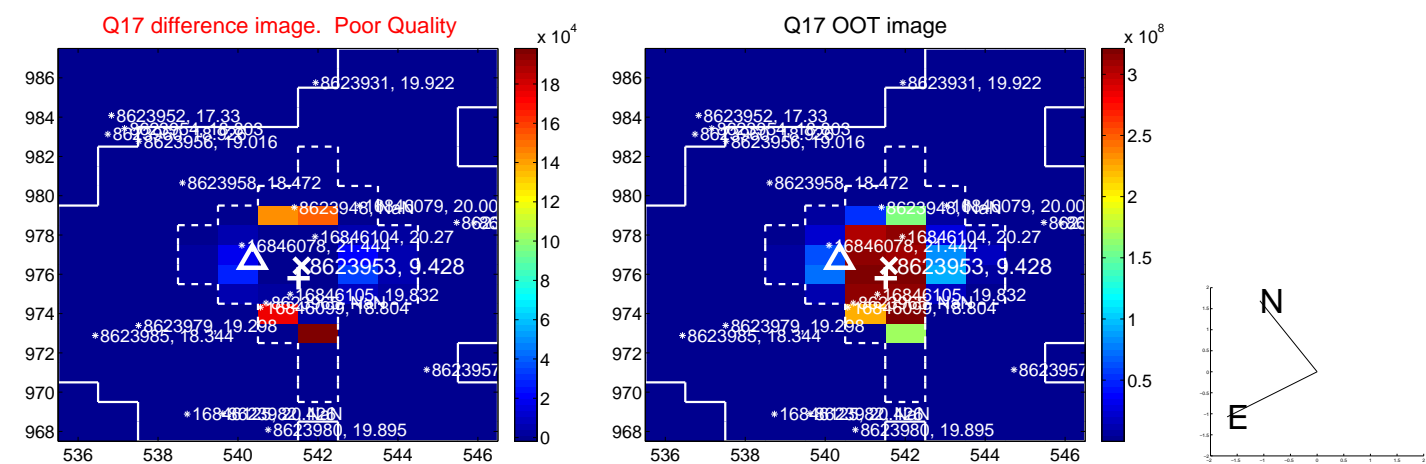
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



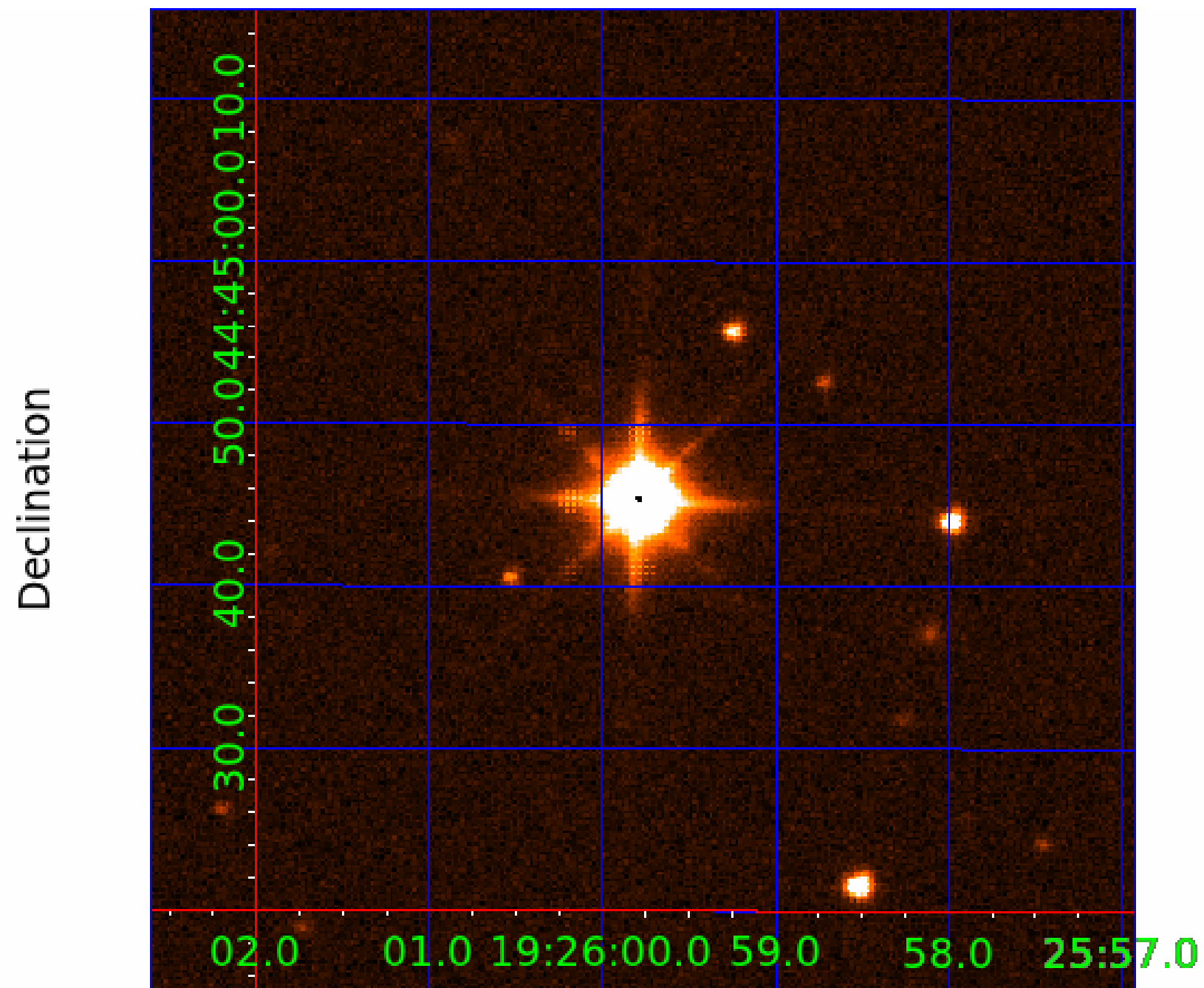
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008623953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008623953-01	OBS	No	0.563109	131.653603	50.8	4.186	14.6	13.0	4.59	7742	3.35	0.00
008623953-02	OBS	No	19.549569	136.324654	632.8	3.941	12.5	14.2	4.59	7742	11.67	1862.89
008623953-03	OBS	No	10.155812	133.369629	582.0	0.843	13.3	7.0	4.59	7742	11.54	4460.86
008623953-04	OBS	No	12.121043	140.721640	588.0	1.491	8.9	9.5	4.59	7742	11.47	3523.58
008623953-05	OBS	No	12.121124	136.347490	72.1	1.770	8.4	1.5	4.59	7742	4.05	3523.55
008623953-06	OBS	No	6.689962	137.041695	708.5	1.260	12.5	15.3	4.59	7742	14.11	7782.87
008623953-07	OBS	No	14.972273	140.074249	611.9	1.290	8.7	9.4	4.59	7742	12.86	2658.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008623953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008623953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—SAME_NTL_PERIOD—CENT_SATURATED
008623953-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—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 008623953-02

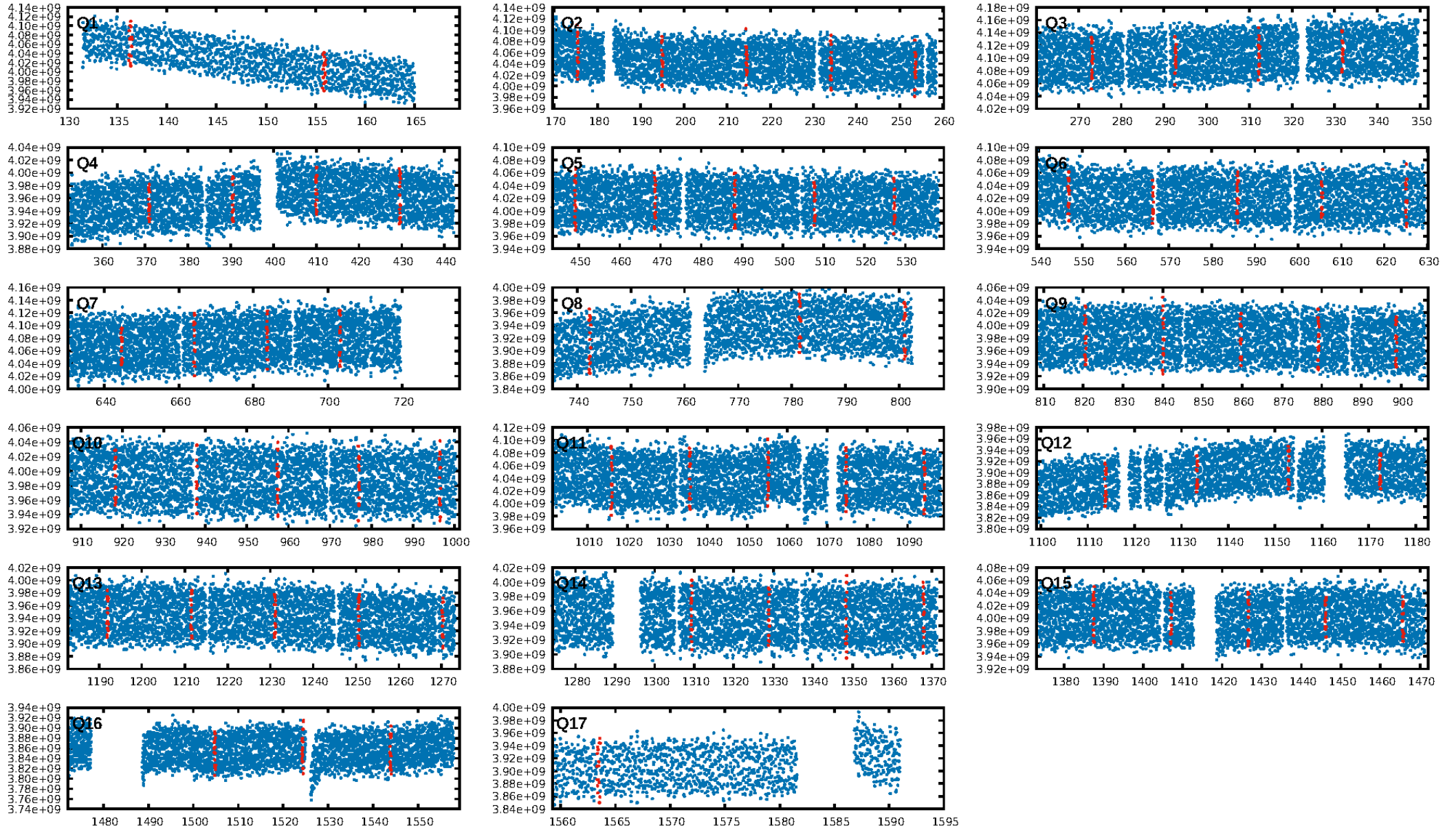
No Significant Match Found



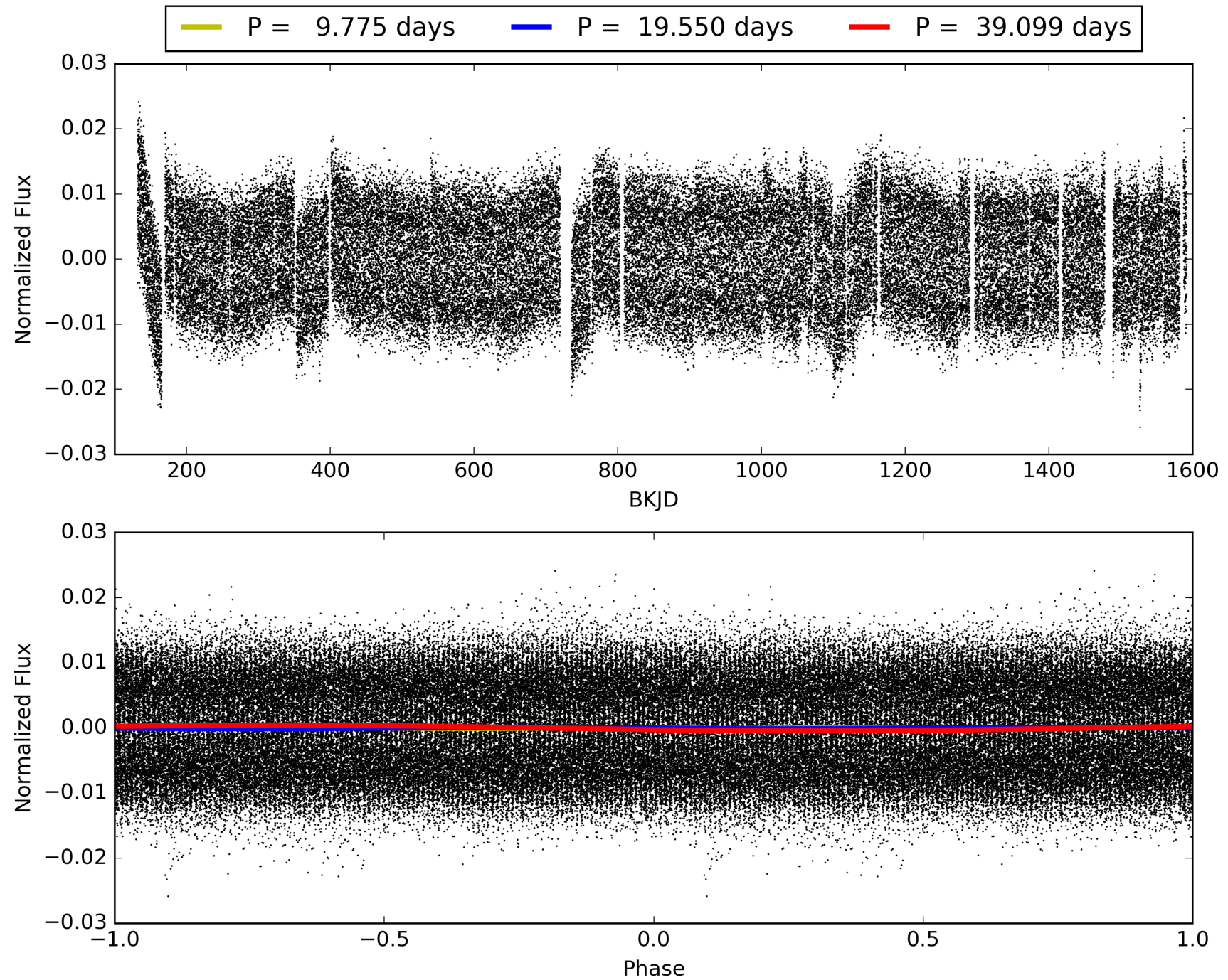
KIC: 8623953    Candidate: 2 of 7    Period: 19.550 d



# TCE 008623953-02, PDC Light Curves

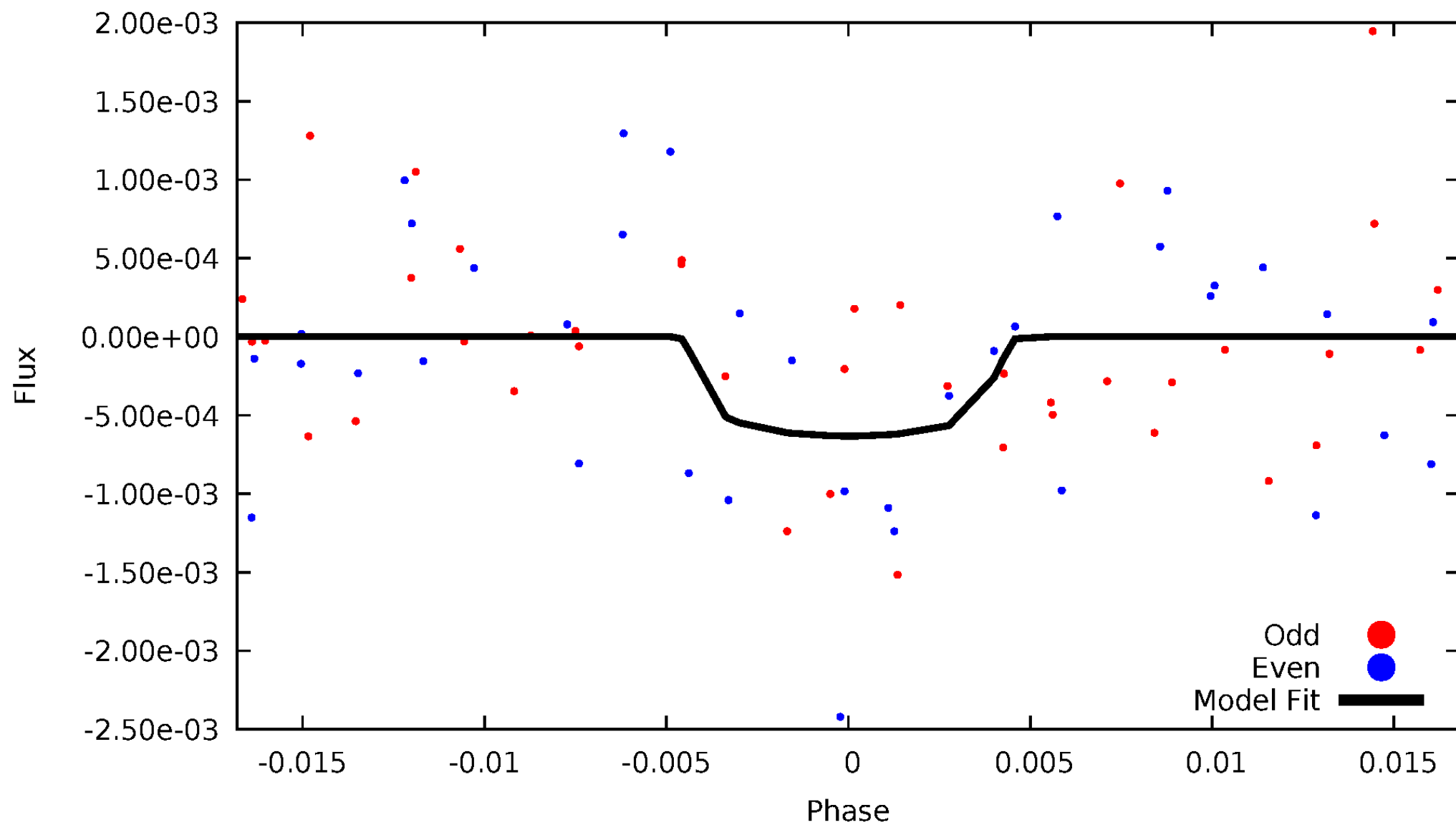


TCE 008623953-02



# DV Odd/Even

TCE 008623953-02





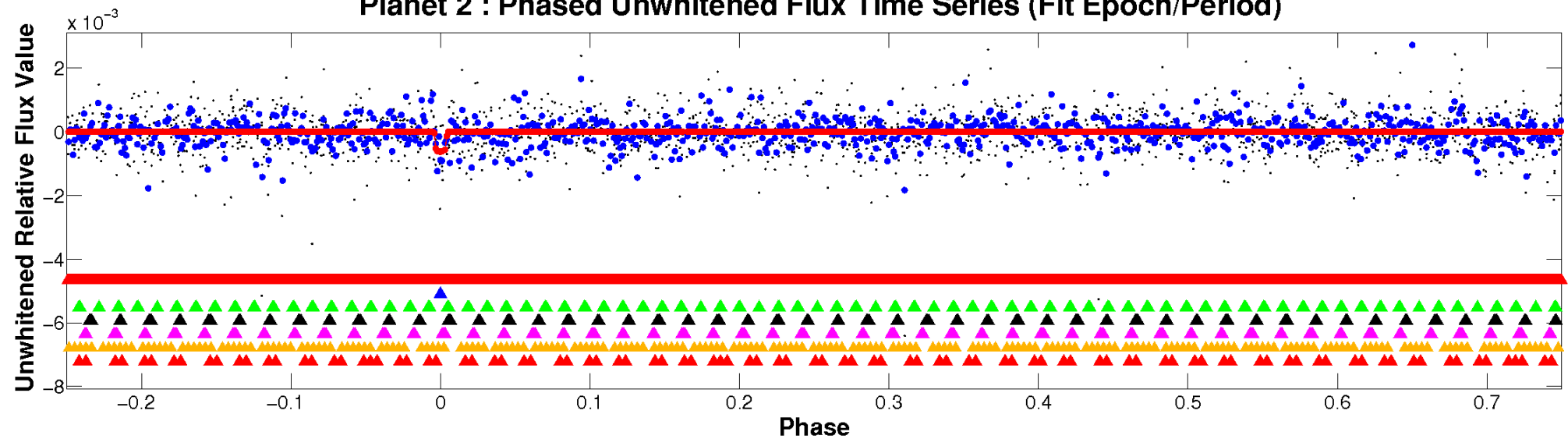


ALT Odd/Even

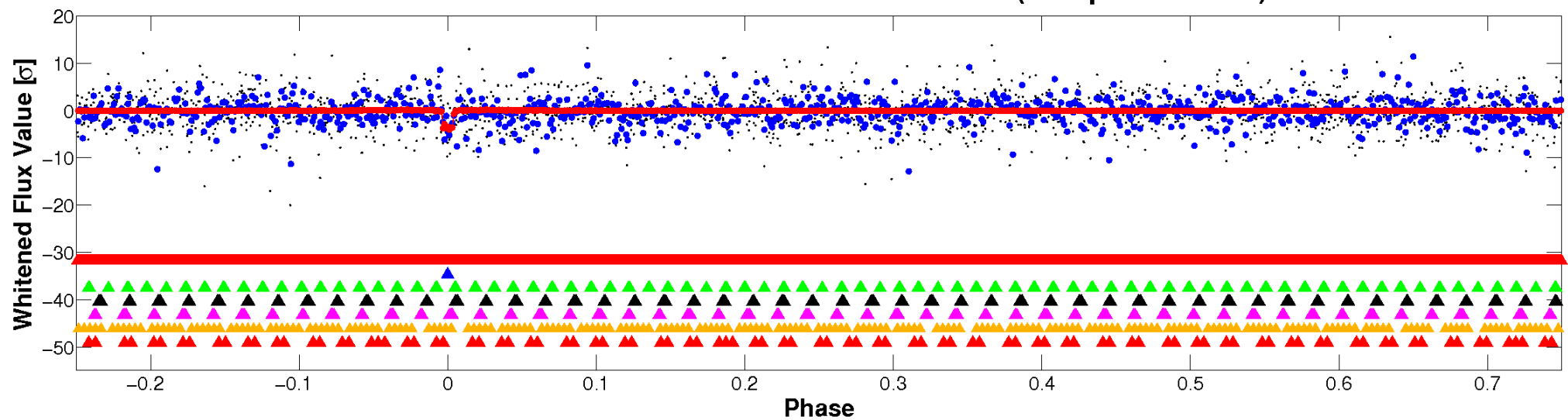
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

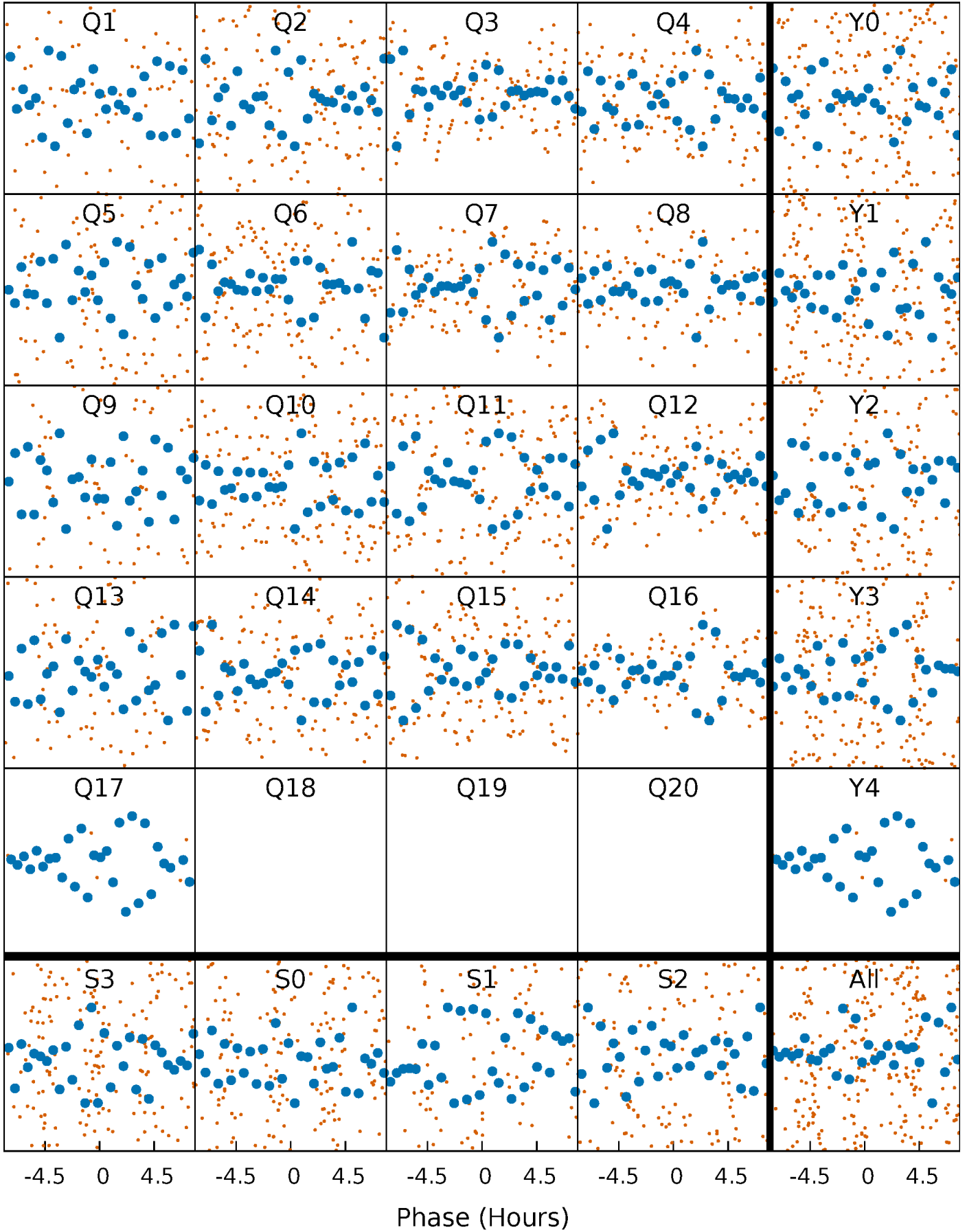


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



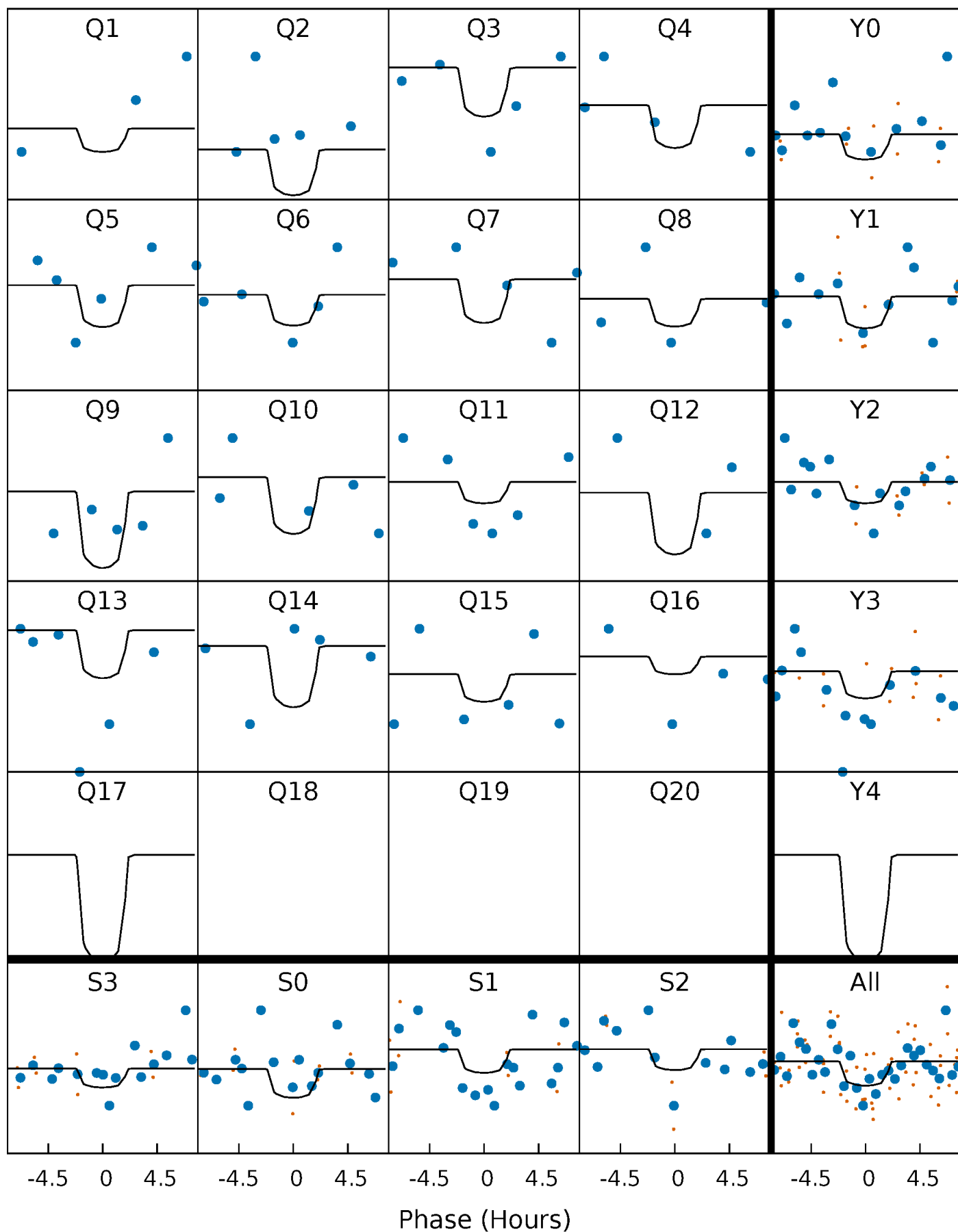
# PDC Quarter-Phased Transit Curves

TCE 008623953-02 P= 19.549569 Days  $T_0=136.324654$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 008623953-02 P= 19.549569 Days  $T_0=136.324654$  (BKJD)



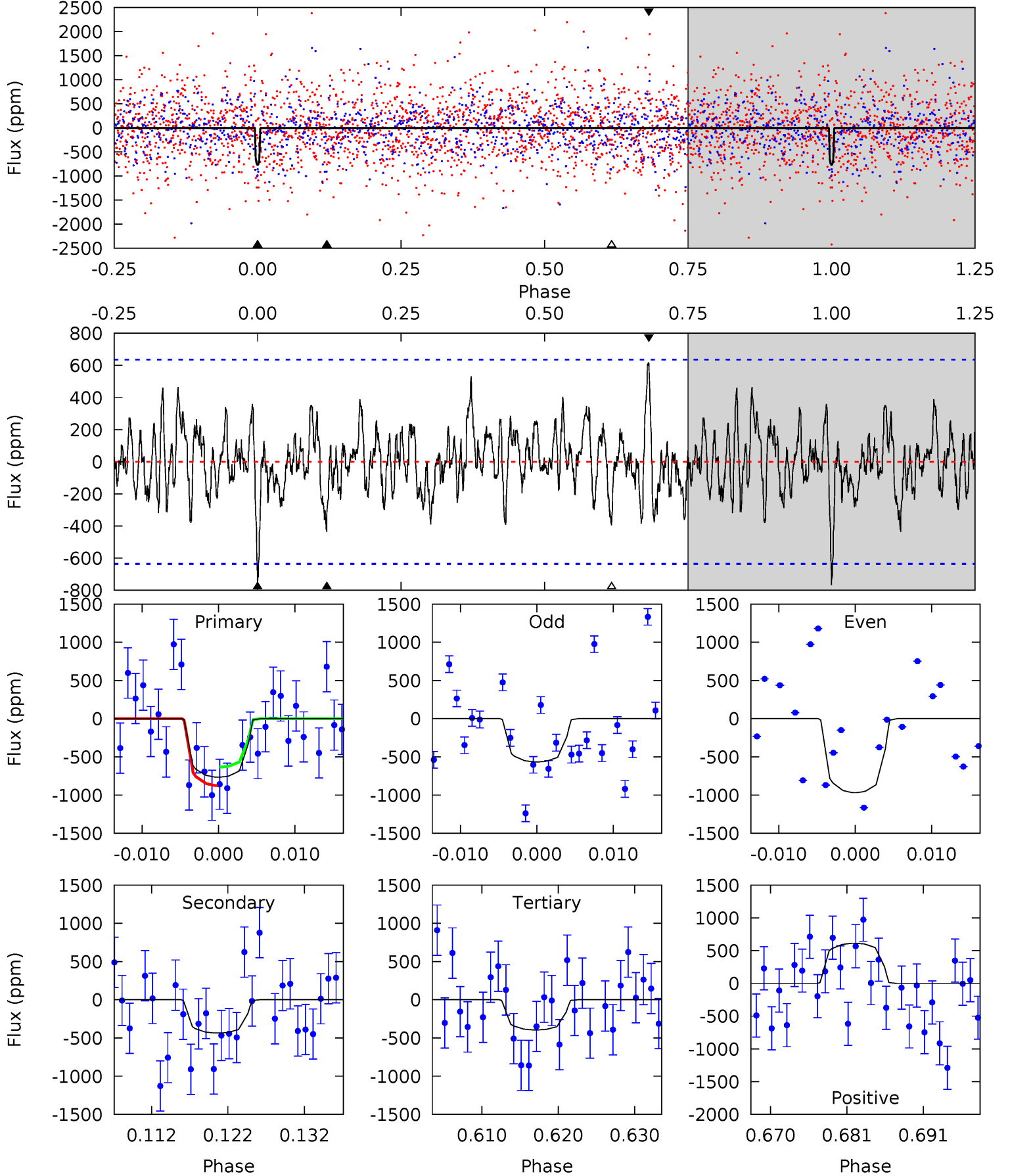


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

008623953-02, P = 19.549569 Days, E = 116.775085 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.05	3.44	3.12	4.84	5.02	2.57	1.33	2.93	1.21	0.32	-1.40	1.56	0	0.44	0.96



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008623953

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7742^{+153}_{-184}$	$3.499^{+0.180}_{-0.009}$	$0.210^{+0.200}_{-0.150}$	$4.593^{+0.258}_{-1.032}$	$2.425^{+0.213}_{-0.260}$	$0.035^{+0.033}_{-0.002}$
	+2%/-2%	+5%/-0%	+95%/-71%	+6%/-22%	+9%/-11%	+94%/-7%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 008623953-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-436 \pm 127$	$76.79^{+83.62}_{-54.21}$	$2276^{+82}_{-114}$	$3138^{+1899}_{-1235}$	$1.473^{+15.740}_{-1.156}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{\text{max}}$  = 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

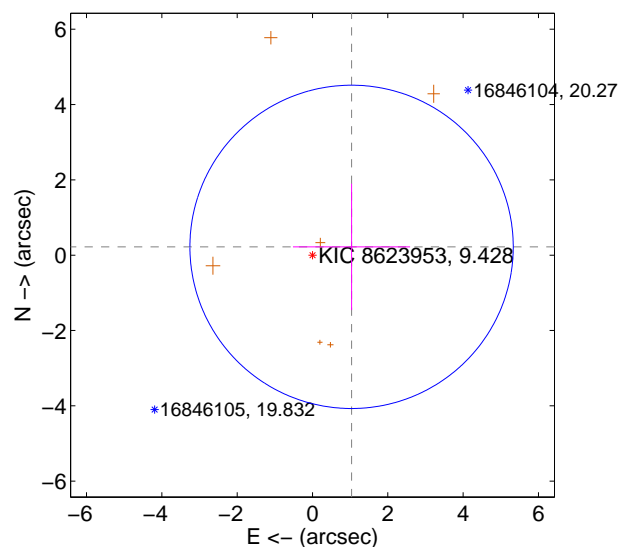
Supplemental centroid analysis for 008623953-02. **Kepler magnitude: 9.43.** Transit SNR 14.21

There are 0 quarters with good PRF difference image offsets

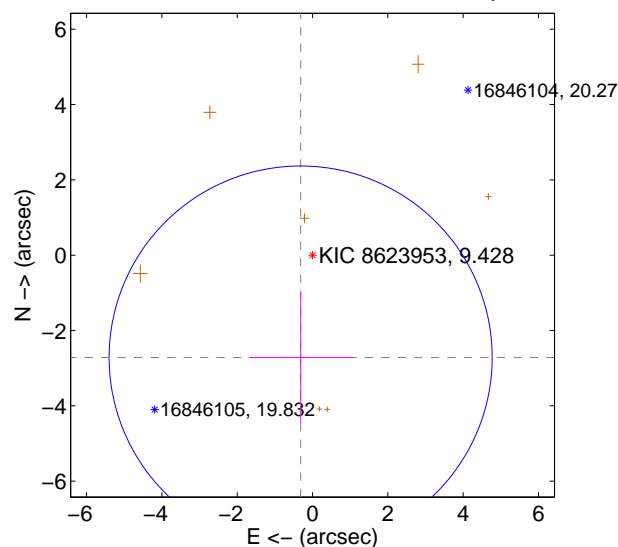
The OOT PRF centroid is offset from the target star catalog position by about 2.56 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.061 \pm 1.431$	0.74	$-1.038 \pm 1.555$	$0.221 \pm 1.677$
PRF-fit source offset from KIC position	$2.735 \pm 1.695$	1.61	$0.315 \pm 1.371$	$-2.717 \pm 1.749$
photometric centroid source offset	$0.92 \pm 0.13$	7.29	$0.58 \pm 0.12$	$-0.71 \pm 0.13$

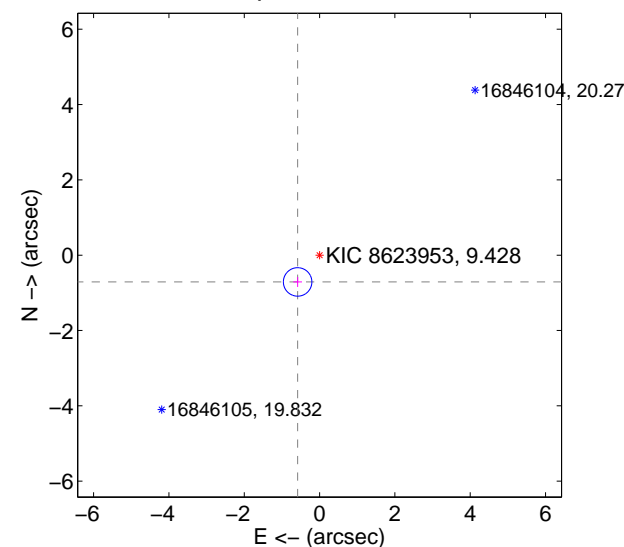
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

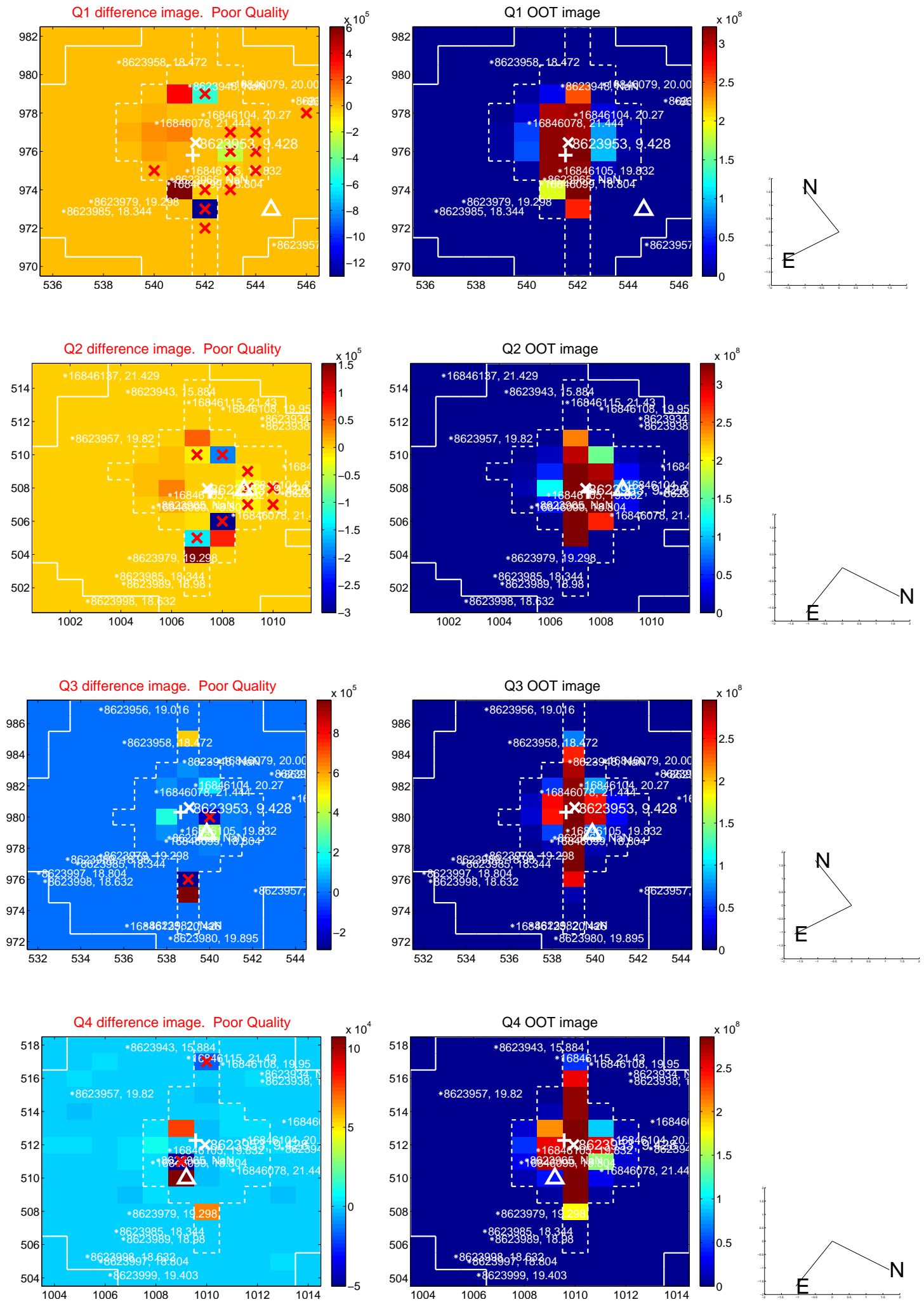


offset from photometric centroids

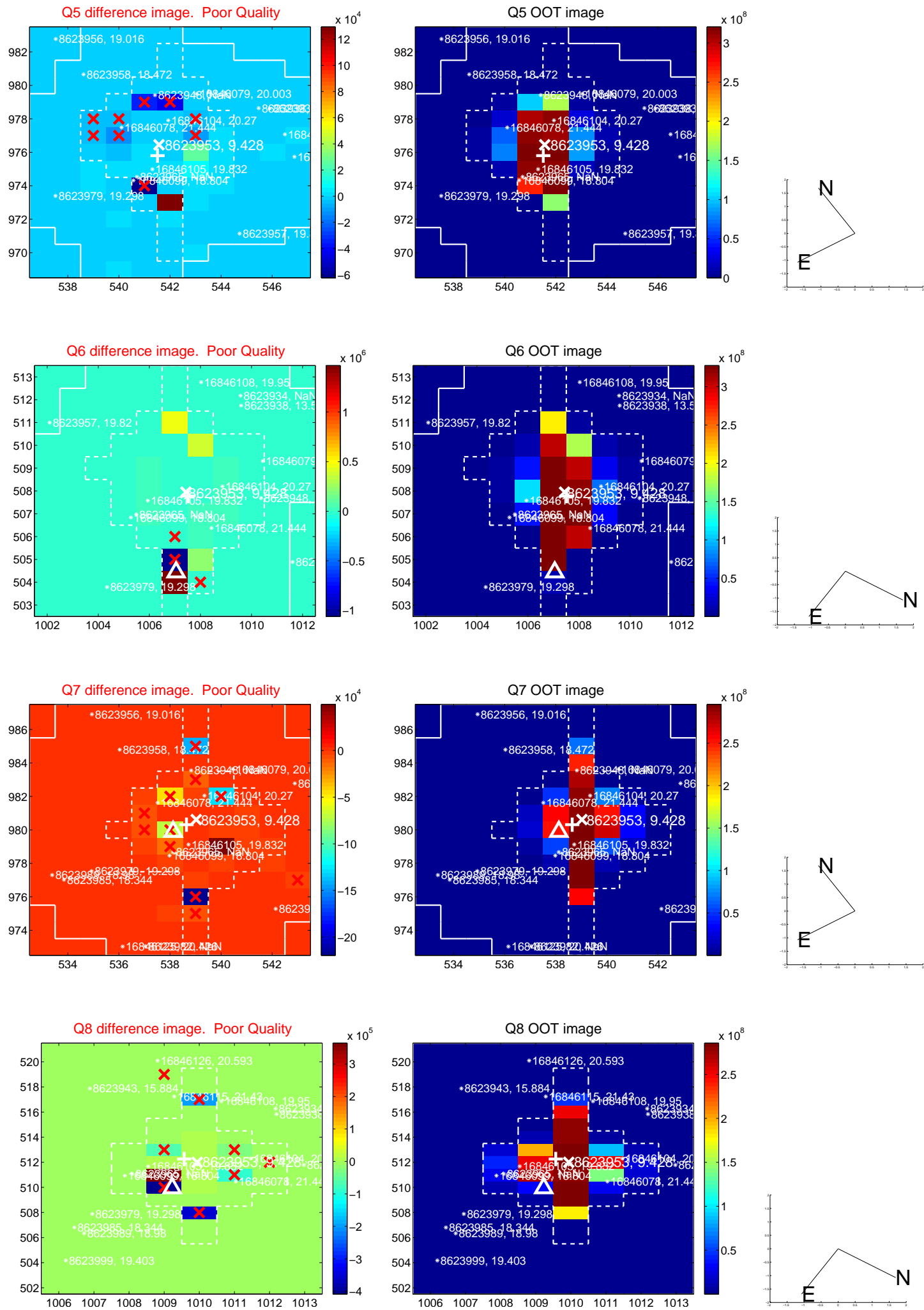


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

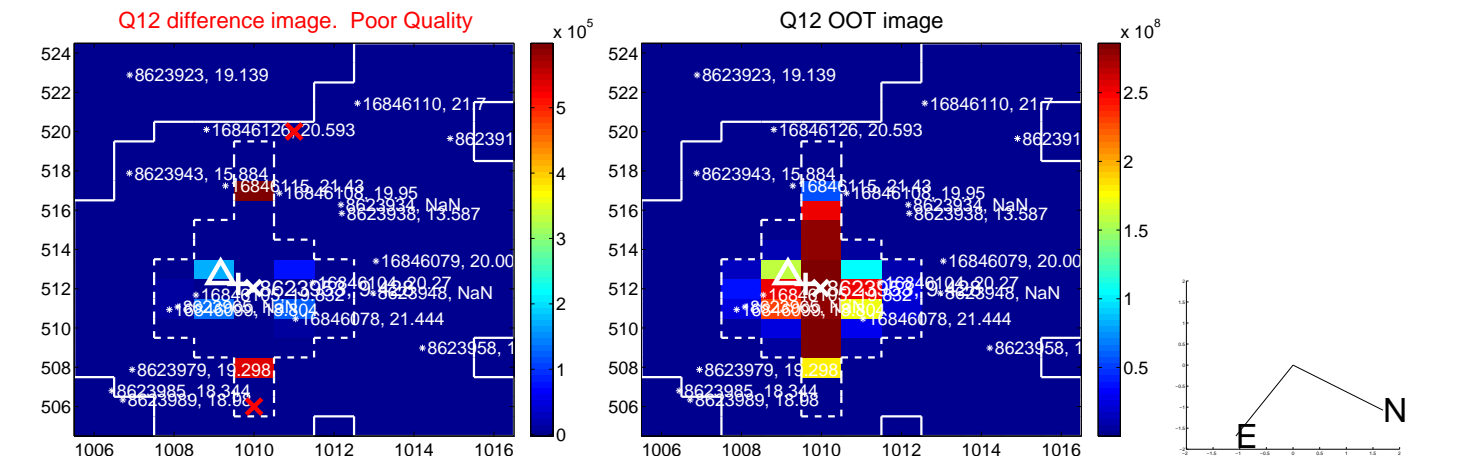
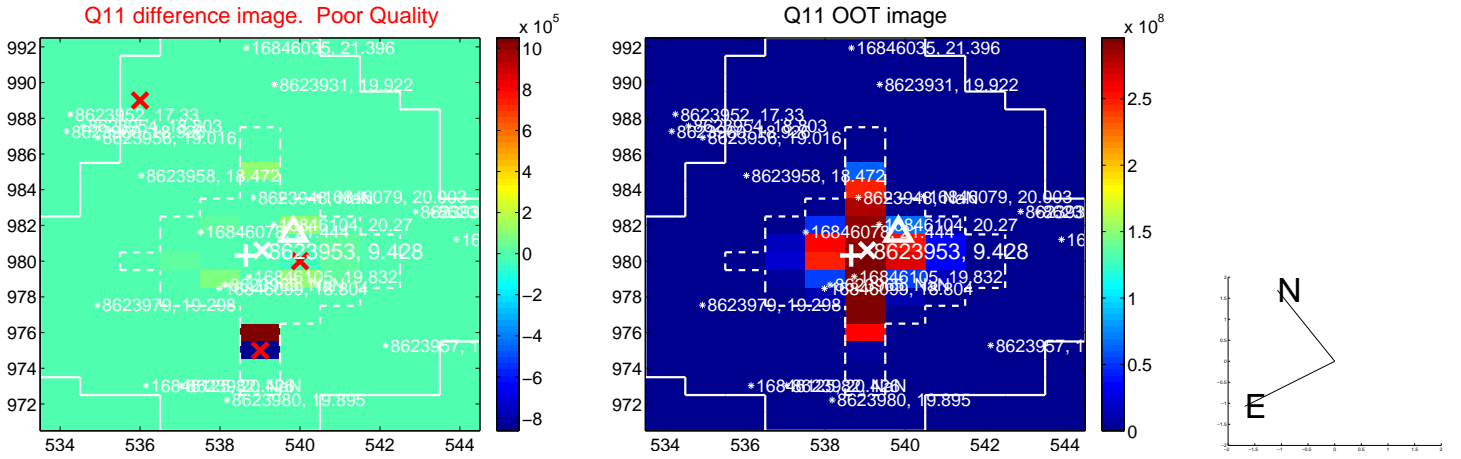
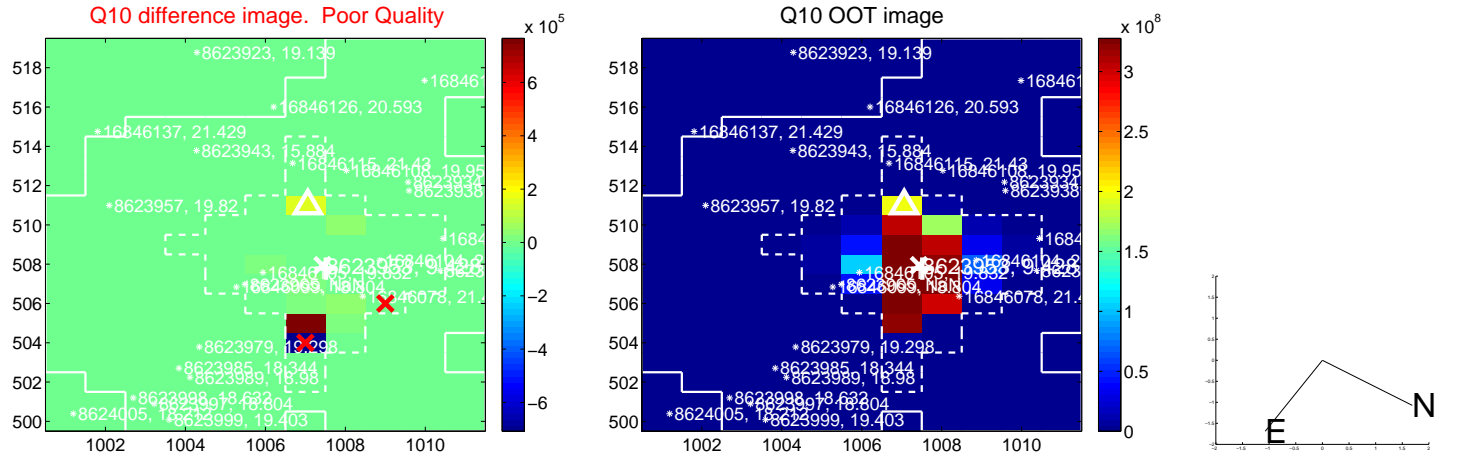
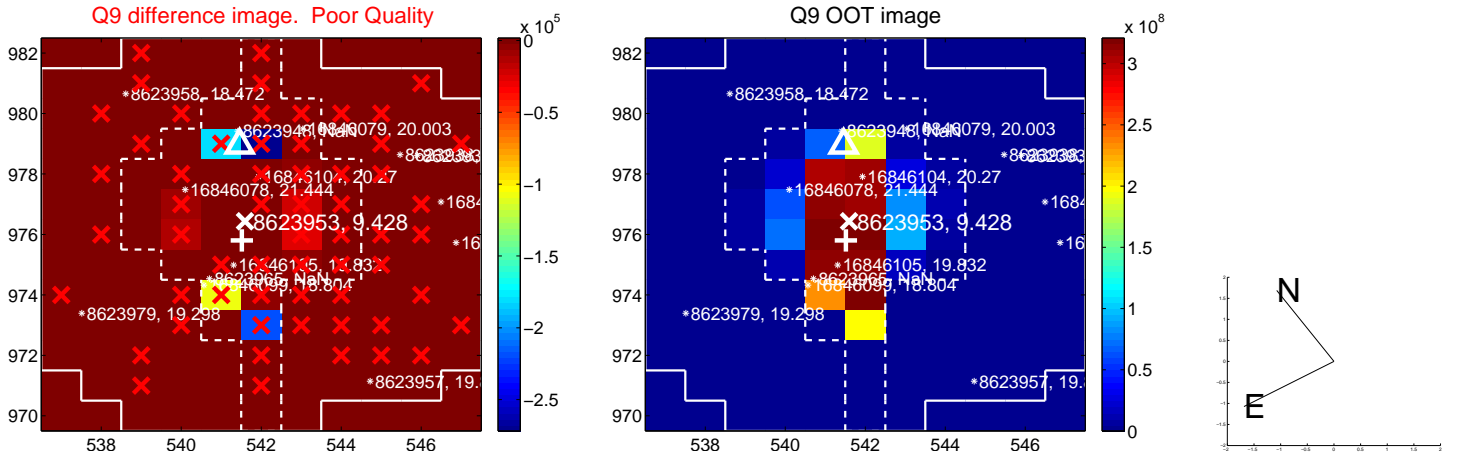
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



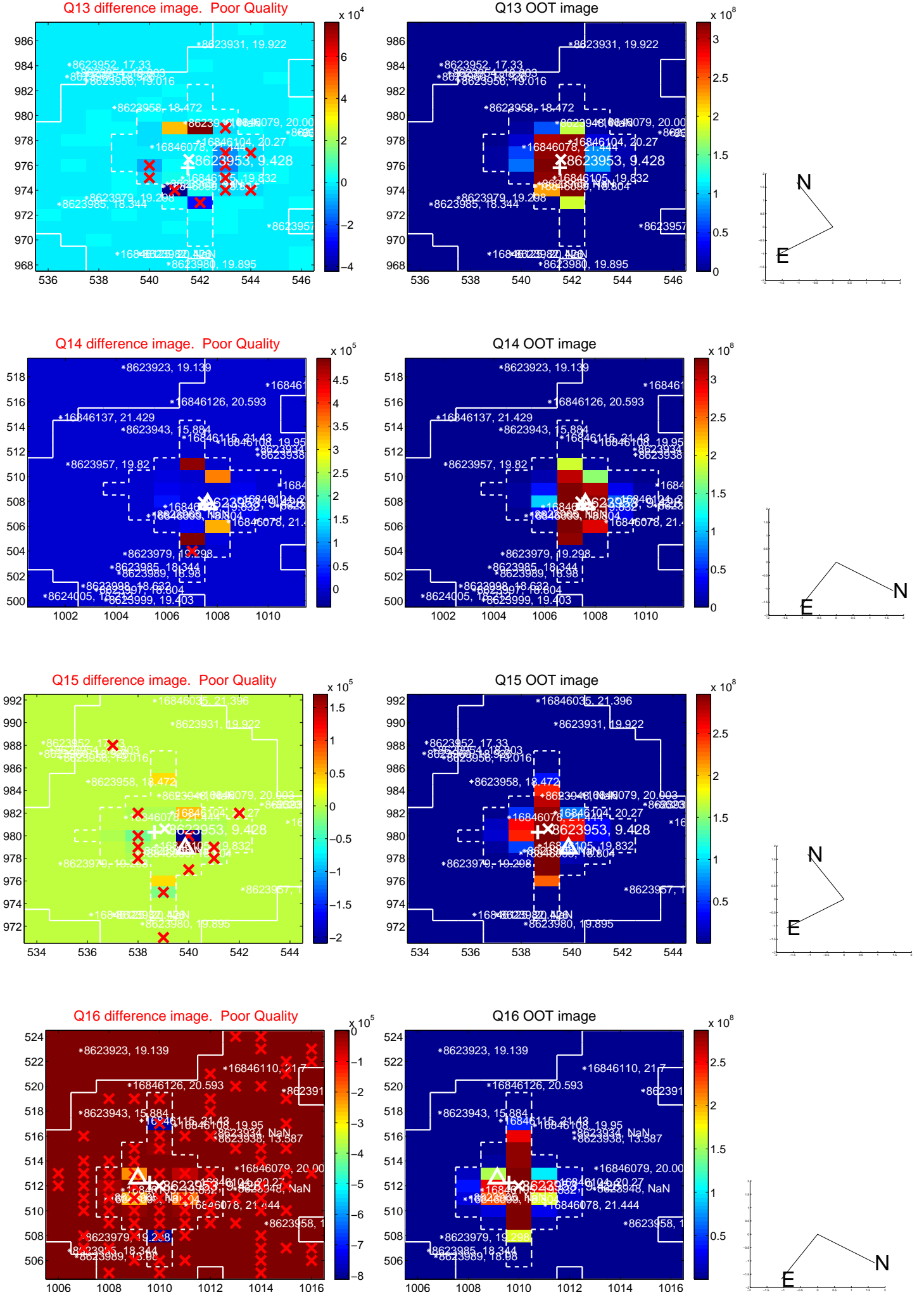
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



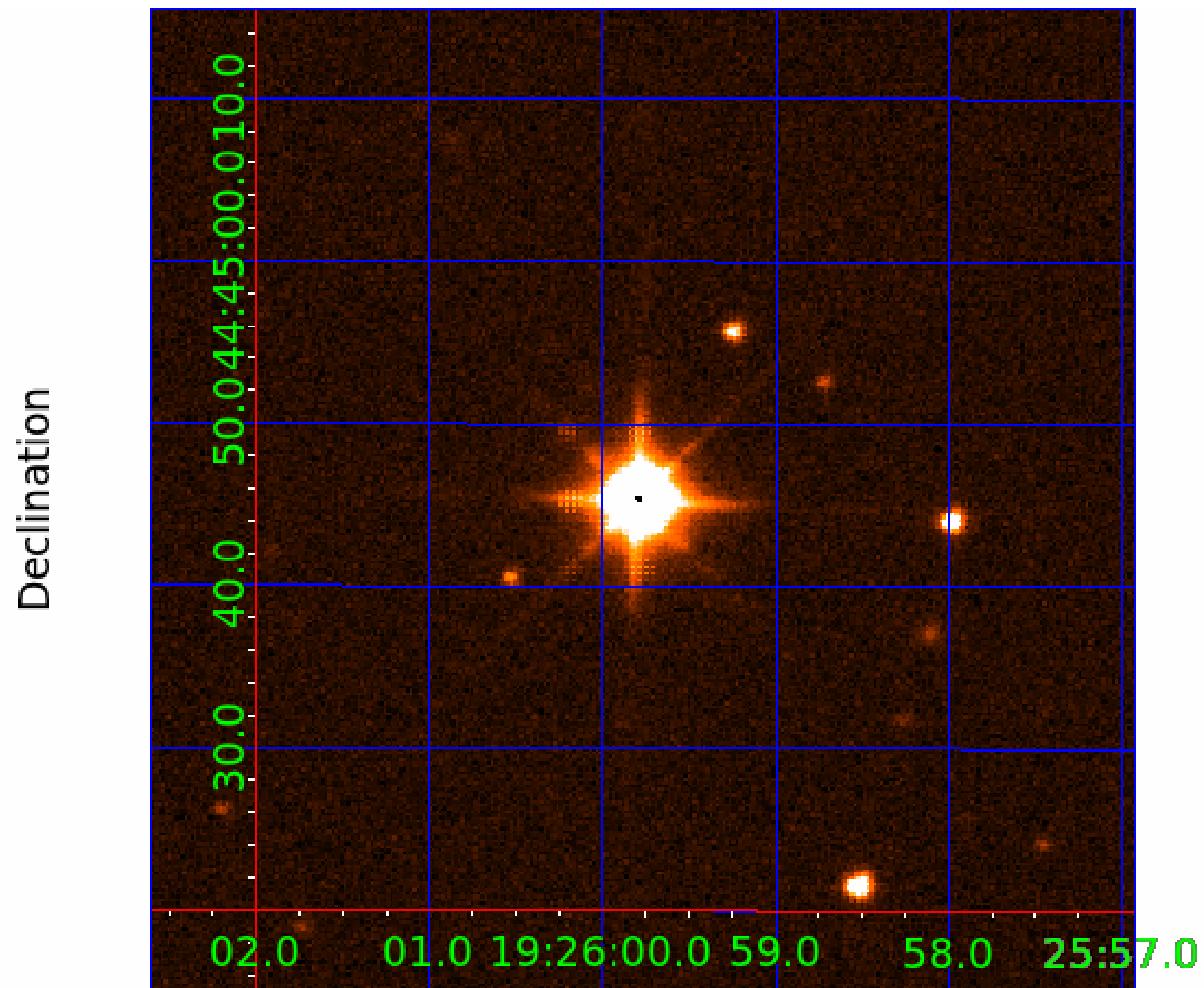
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.







UKIRT Image



# KIC 008623953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008623953-01	OBS	No	0.563109	131.653603	50.8	4.186	14.6	13.0	4.59	7742	3.35	0.00
008623953-02	OBS	No	19.549569	136.324654	632.8	3.941	12.5	14.2	4.59	7742	11.67	1862.89
008623953-03	OBS	No	10.155812	133.369629	582.0	0.843	13.3	7.0	4.59	7742	11.54	4460.86
008623953-04	OBS	No	12.121043	140.721640	588.0	1.491	8.9	9.5	4.59	7742	11.47	3523.58
008623953-05	OBS	No	12.121124	136.347490	72.1	1.770	8.4	1.5	4.59	7742	4.05	3523.55
008623953-06	OBS	No	6.689962	137.041695	708.5	1.260	12.5	15.3	4.59	7742	14.11	7782.87
008623953-07	OBS	No	14.972273	140.074249	611.9	1.290	8.7	9.4	4.59	7742	12.86	2658.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008623953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008623953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—SAME_NTL_PERIOD—CENT_SATURATED
008623953-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED

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

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

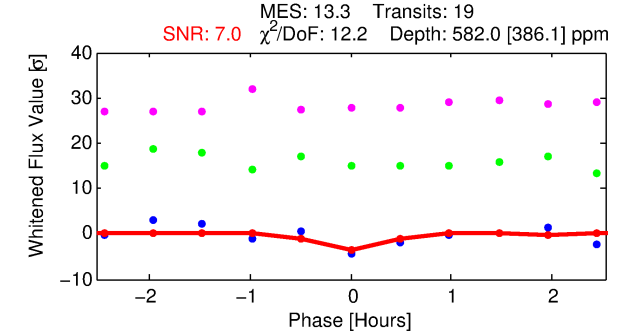
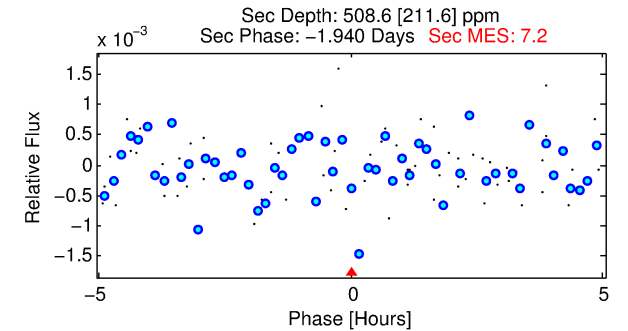
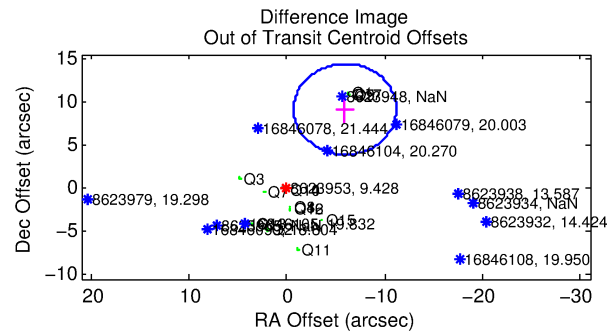
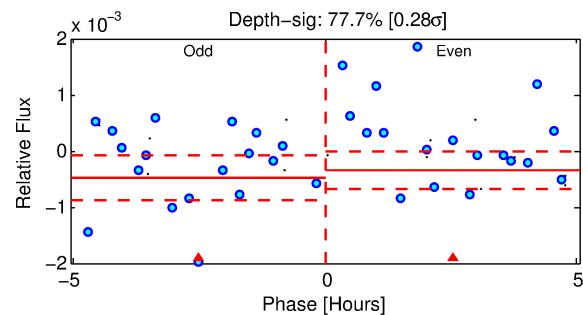
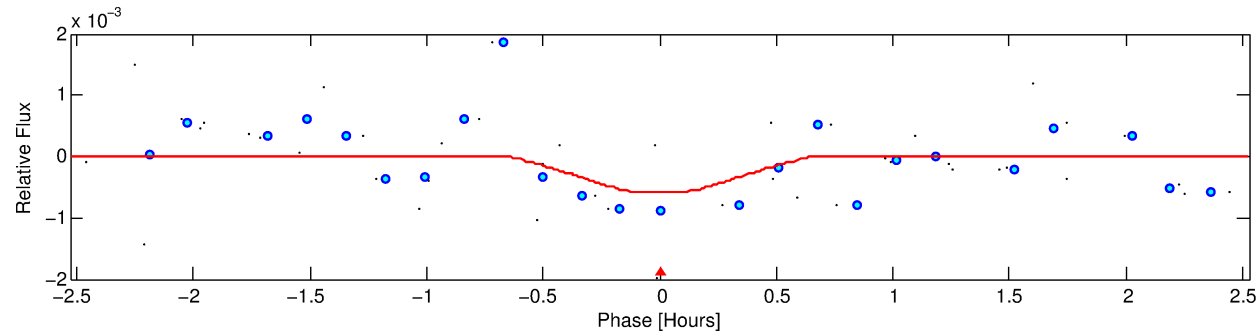
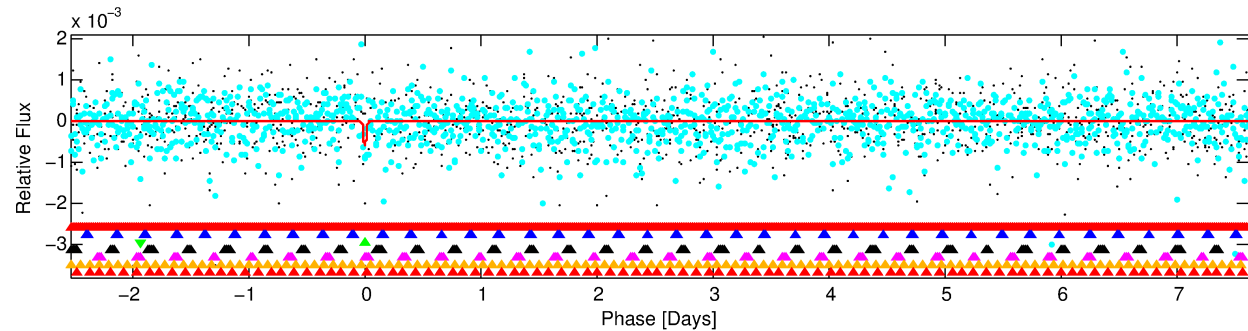
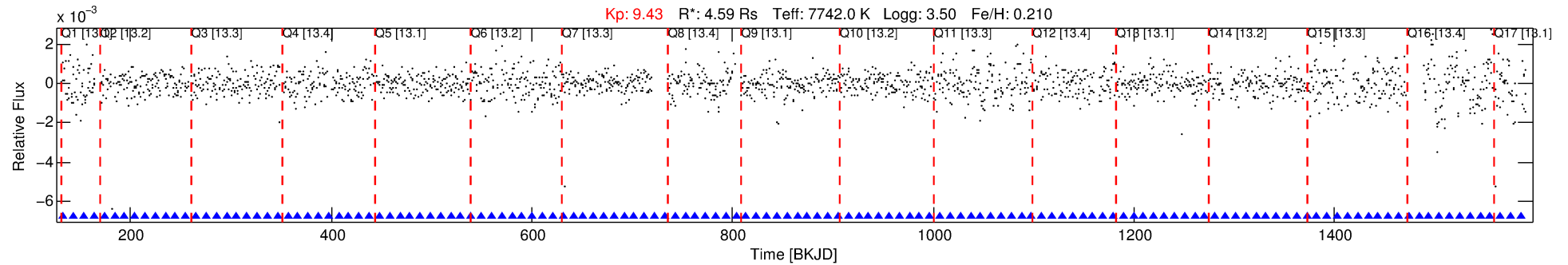
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008623953-03

No Significant Match Found

# DV One-Page Summary

KIC: 8623953 Candidate: 3 of 7 Period: 10.156 d



## DV Fit Results:

Period = 10.15581 [0.00021] d  
Epoch = 133.3696 [0.0142] BKJD  
Rp/R\* = 0.0230 [0.0940]  
a/R\* = 83.93 [1815.90]  
b = 0.46 [36.75]  
Seff = 4460.86 [1464.78]  
Teq = 2084 [171] K  
Rp = 11.54 [47.17] Re  
a = 0.1234 [0.0251] AU  
Ag = 31.96 [261.35] [0.12 $\sigma$ ]  
Teff = 7661 [15650] K [0.36 $\sigma$ ]

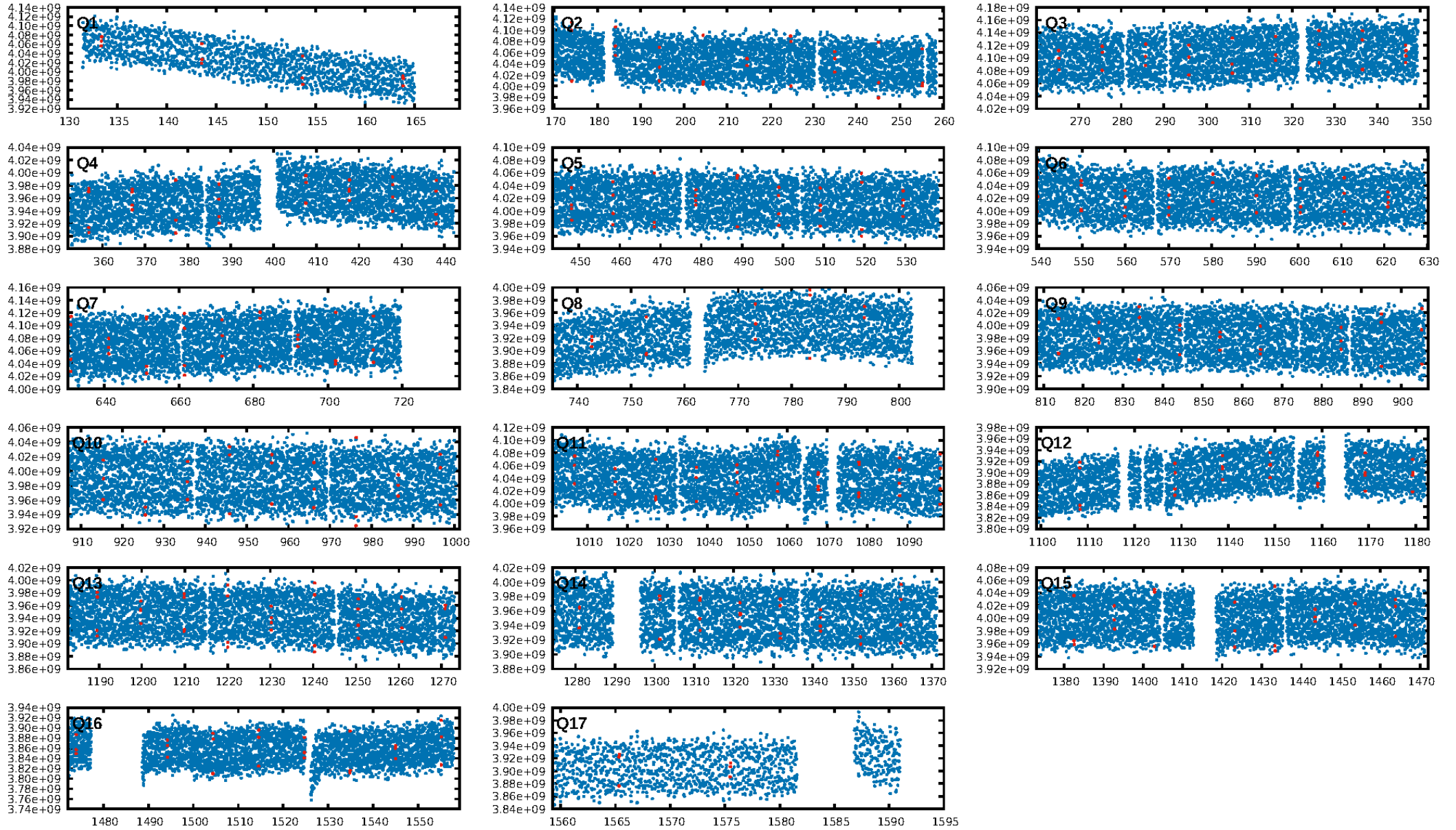
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [54.87 $\sigma$ ]  
LongPeriod-sig: 100.0% [27.54 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 0.0%  
Bootstrap-pfa: 4.00e-06  
RollingBand-fgt: 1.00 [19/19]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 2.4%  
Centroid-so: 0.578 arcsec [3.48 $\sigma$ ]  
OotOffset-rm: 10.896 arcsec [6.23 $\sigma$ ]  
KicOffset-rm: 8.554 arcsec [5.54 $\sigma$ ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.00 [0/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:56:42 Z

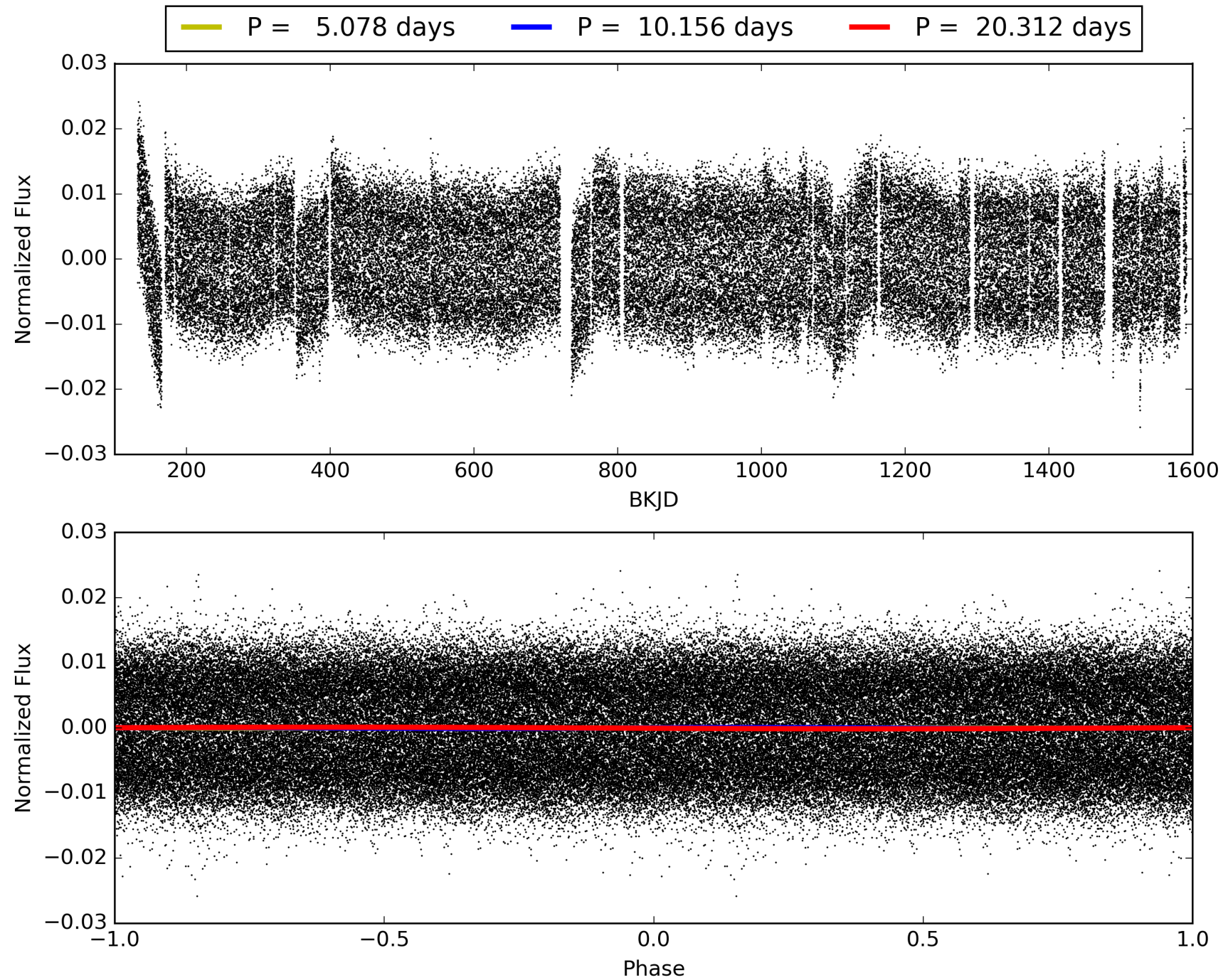
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008623953-03, PDC Light Curves



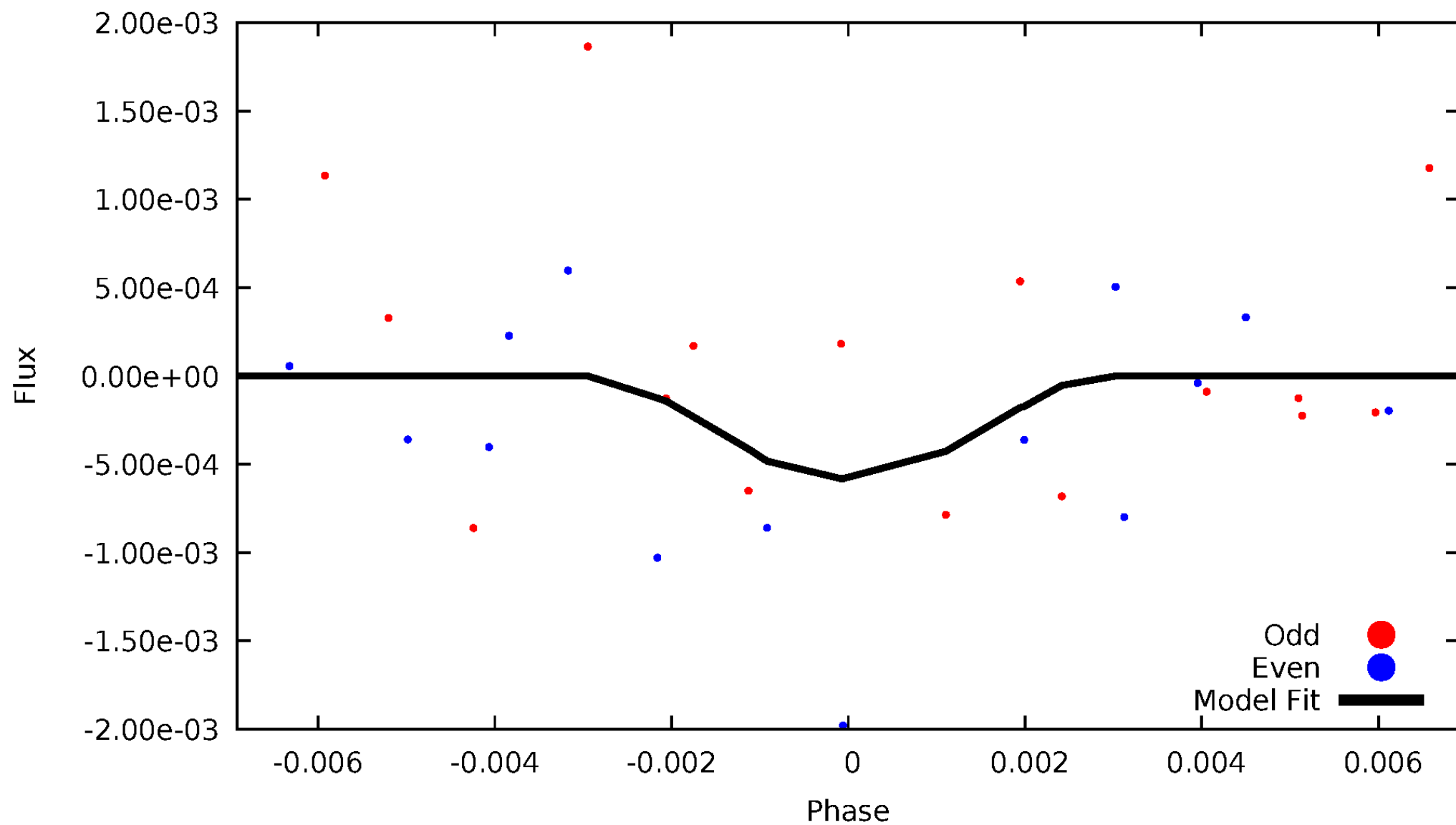


TCE 008623953-03



DV Odd/Even

TCE 008623953-03





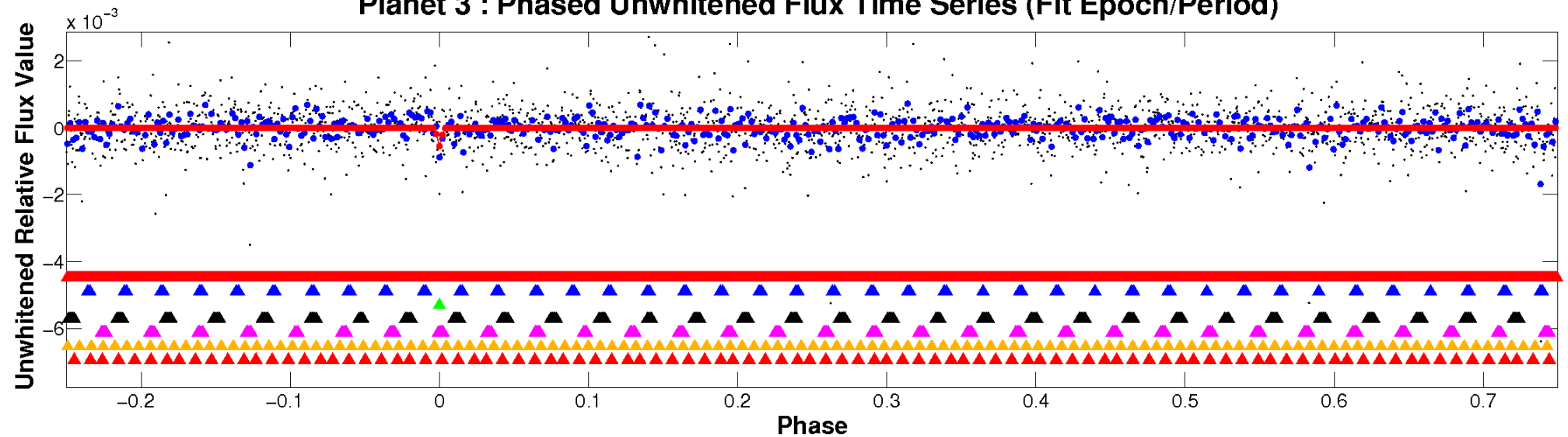


ALT Odd/Even

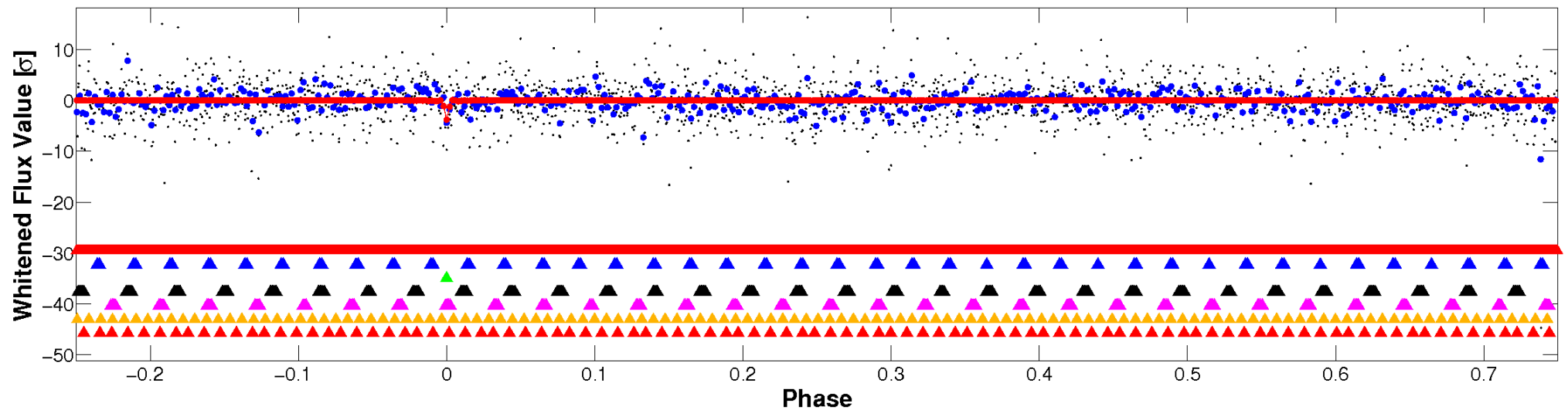
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

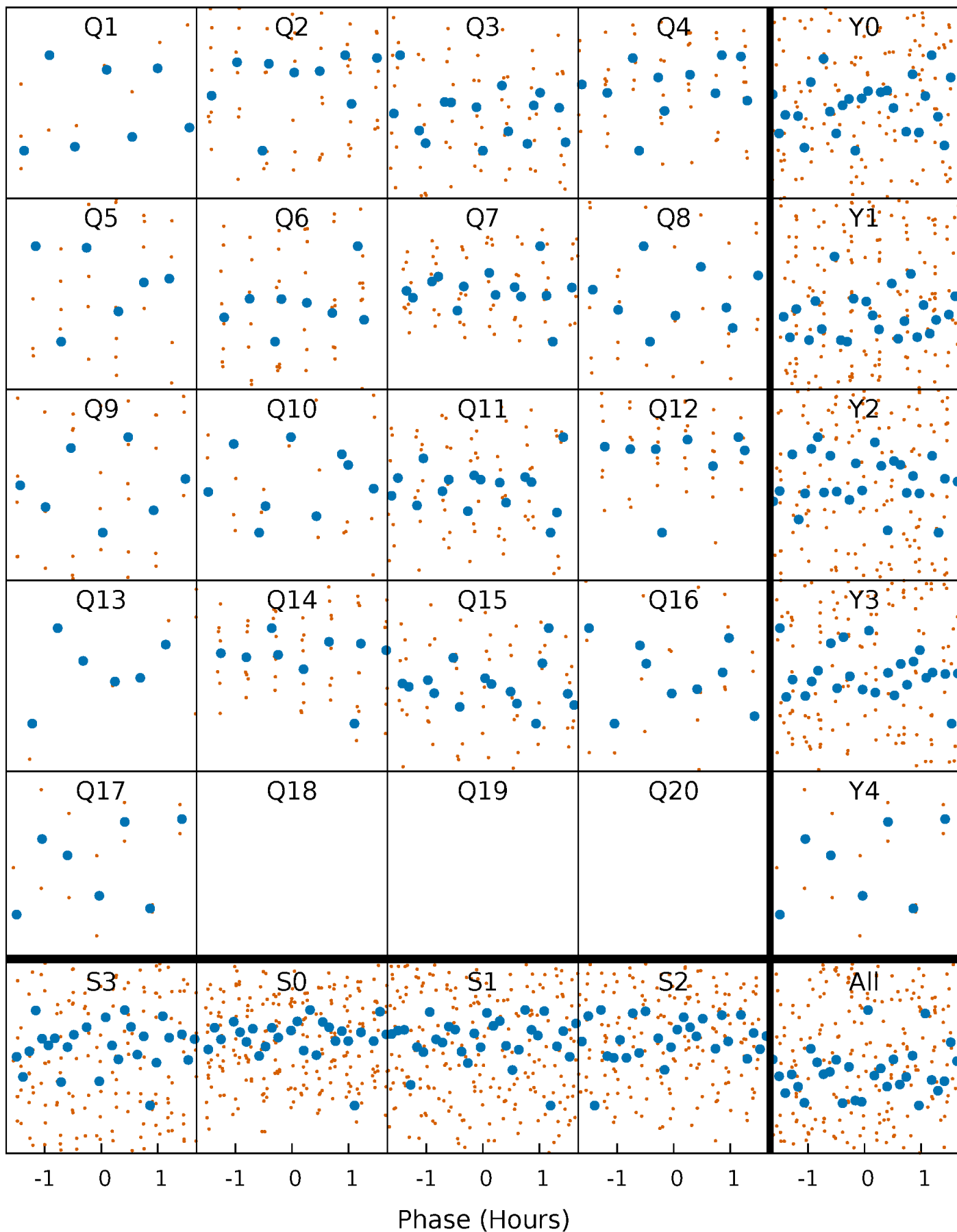


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



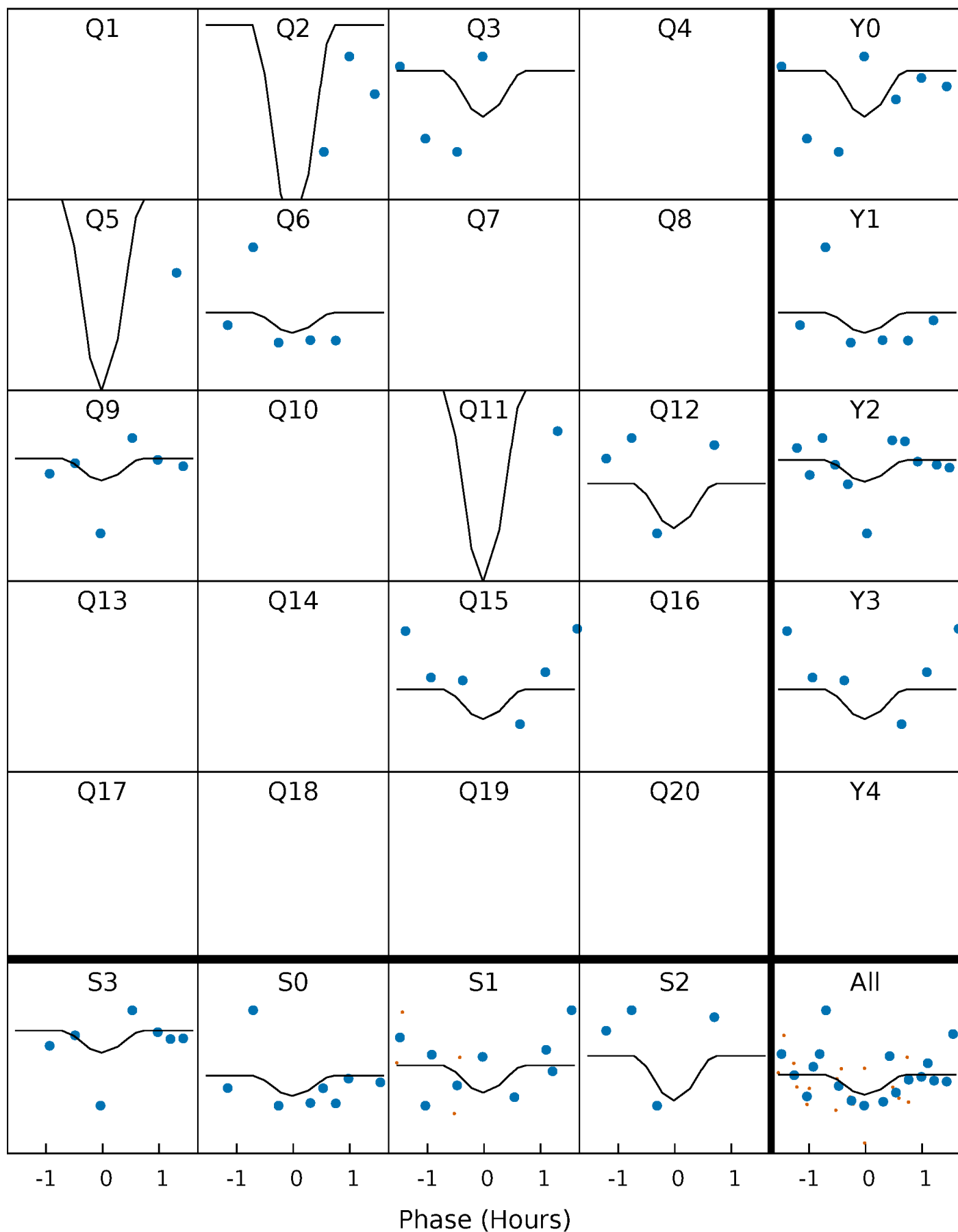
# PDC Quarter-Phased Transit Curves

TCE 008623953-03 P= 10.155812 Days  $T_0=133.369629$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 008623953-03 P= 10.155812 Days  $T_0=133.369629$  (BKJD)



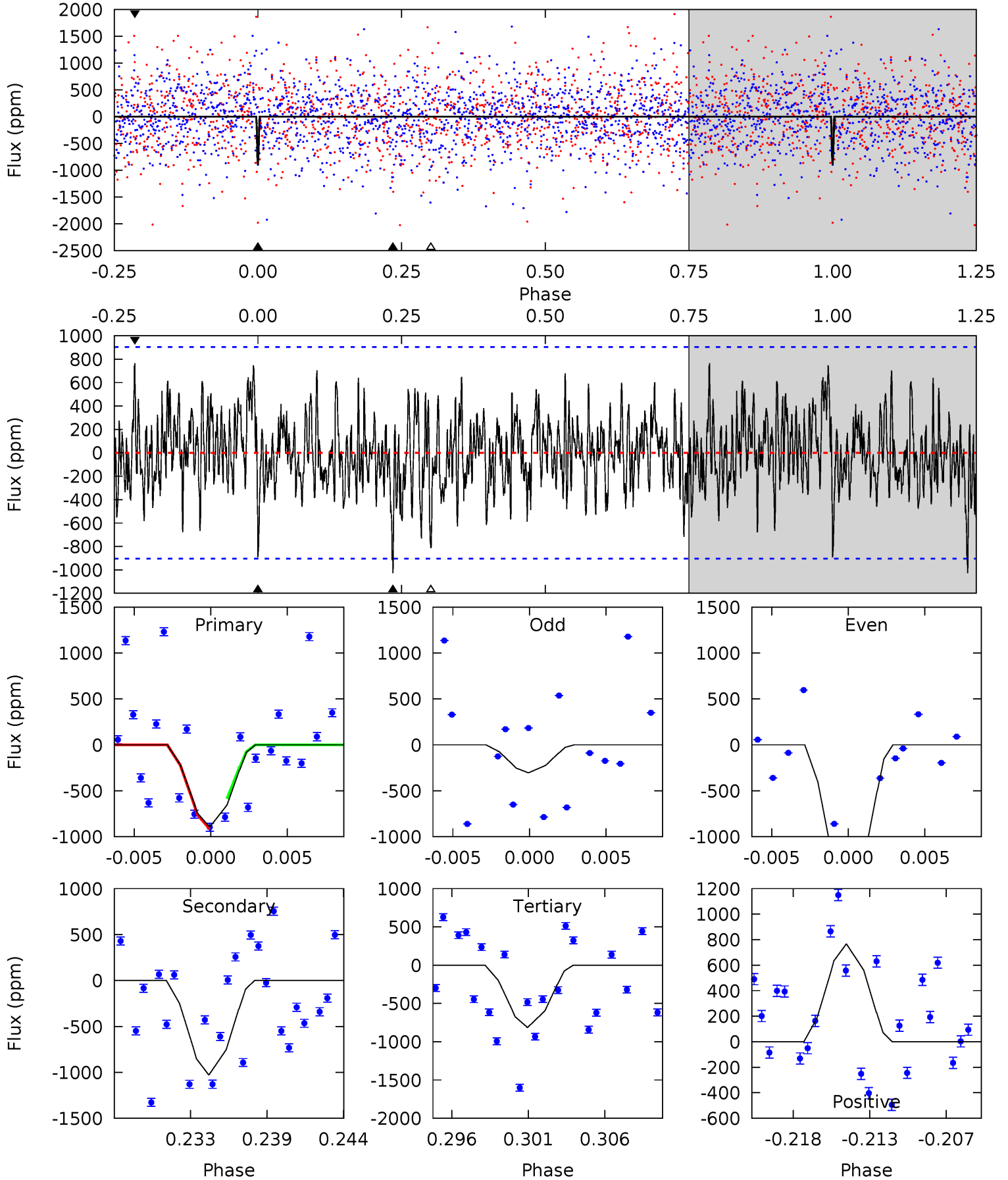
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

008623953-03, P = 10.155812 Days, E = 123.213817 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.09	5.84	4.62	4.35	5.15	2.80	1.51	0.46	0.73	1.22	1.49	3.60	0	0.43	0.93



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008623953

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7742^{+153}_{-184}$	$3.499^{+0.180}_{-0.009}$	$0.210^{+0.200}_{-0.150}$	$4.593^{+0.258}_{-1.032}$	$2.425^{+0.213}_{-0.260}$	$0.035^{+0.033}_{-0.002}$
	+2%/-2%	+5%/-0%	+95%/-71%	+6%/-22%	+9%/-11%	+94%/-7%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 008623953-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1027 \pm 176$	$35.29^{+34.98}_{-23.96}$	$2834^{+95}_{-138}$	$4979^{+3851}_{-1233}$	$6.932^{+54.770}_{-5.182}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

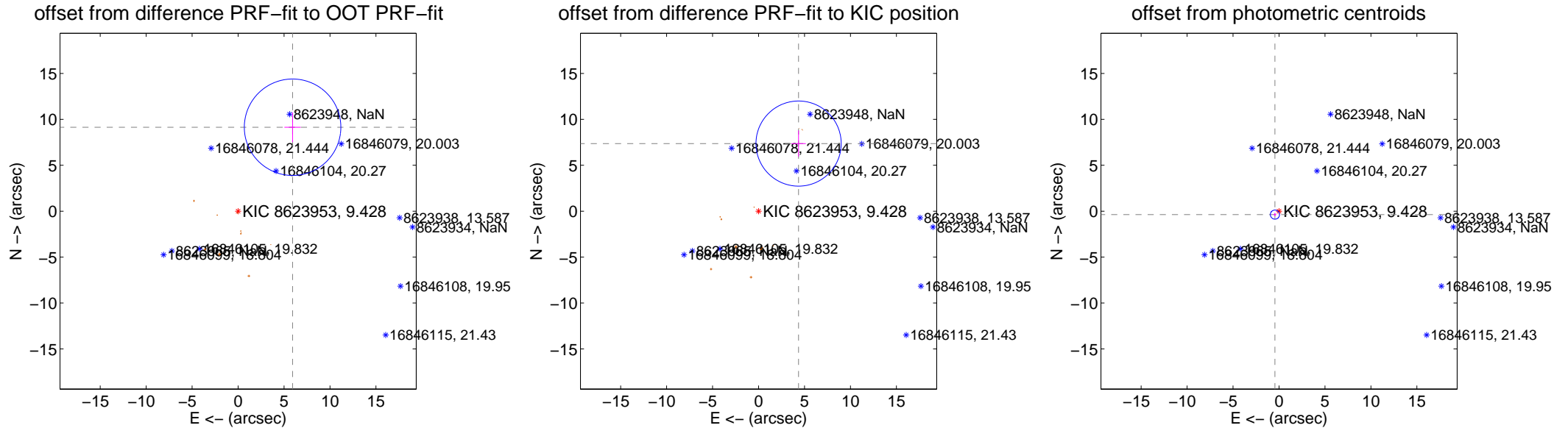
## DV Centroid Data

Supplemental centroid analysis for 008623953-03. **Kepler magnitude: 9.43.** Transit SNR 6.98

There are 0 quarters with good PRF difference image offsets

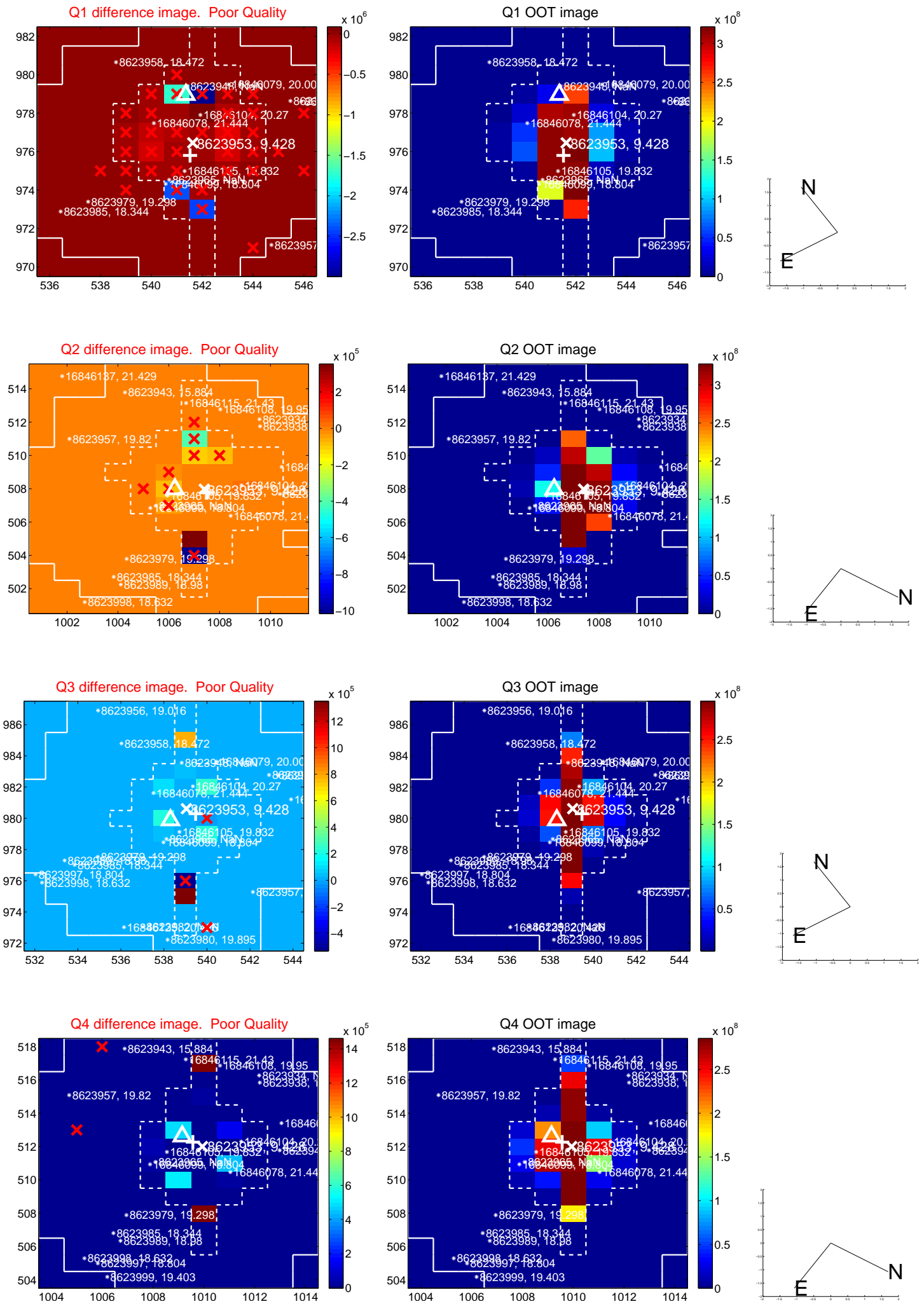
The OOT PRF centroid is offset from the target star catalog position by about 2.56 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>10.896 \pm 1.750</math></b>	<b>6.23</b>	$-5.928 \pm 0.890$	$9.142 \pm 1.623$
PRF-fit source offset from KIC position	<b><math>8.554 \pm 1.545</math></b>	<b>5.54</b>	$-4.355 \pm 0.784$	$7.362 \pm 1.424$
photometric centroid source offset	<b><math>0.58 \pm 0.17</math></b>	<b>3.48</b>	$0.44 \pm 0.15$	$-0.37 \pm 0.18$

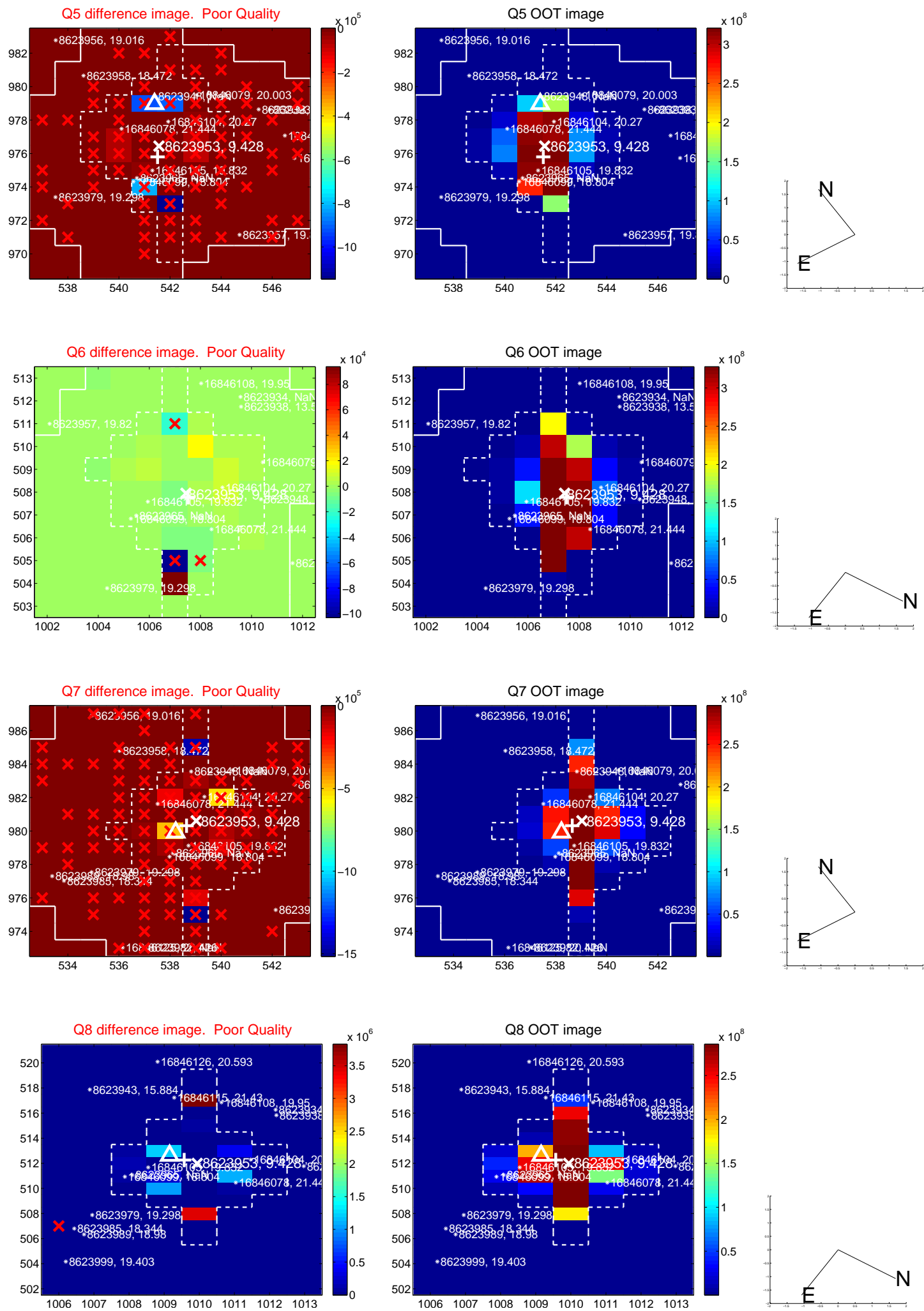


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

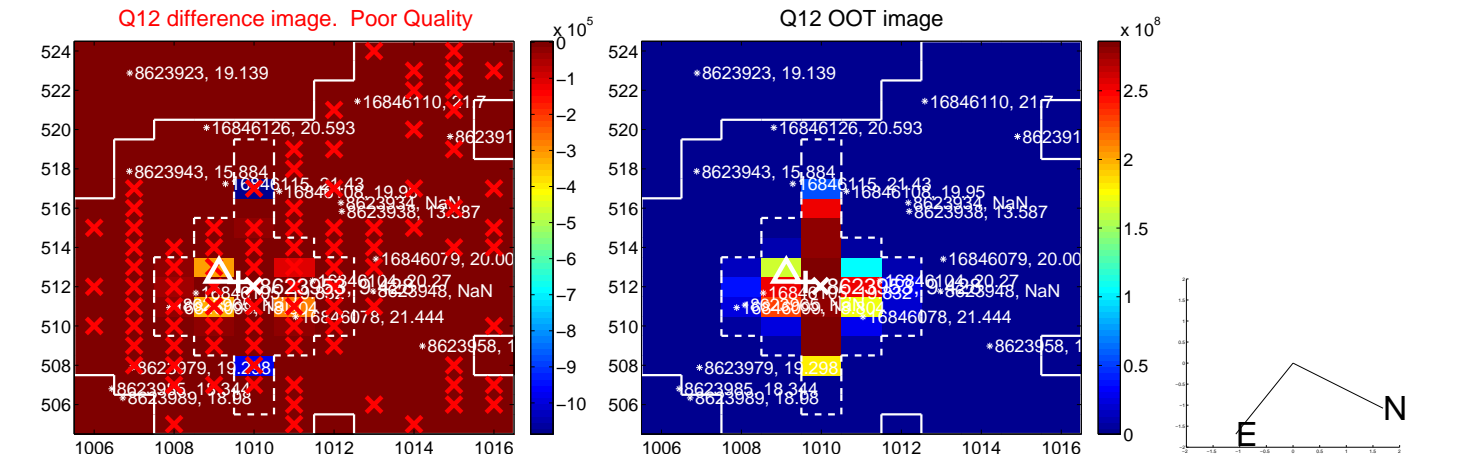
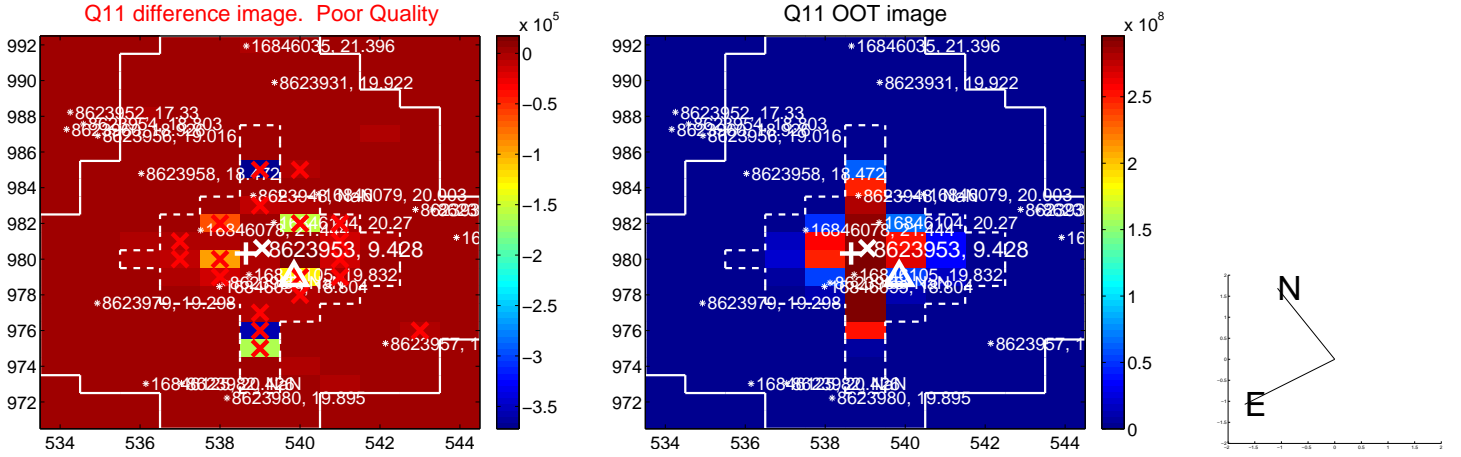
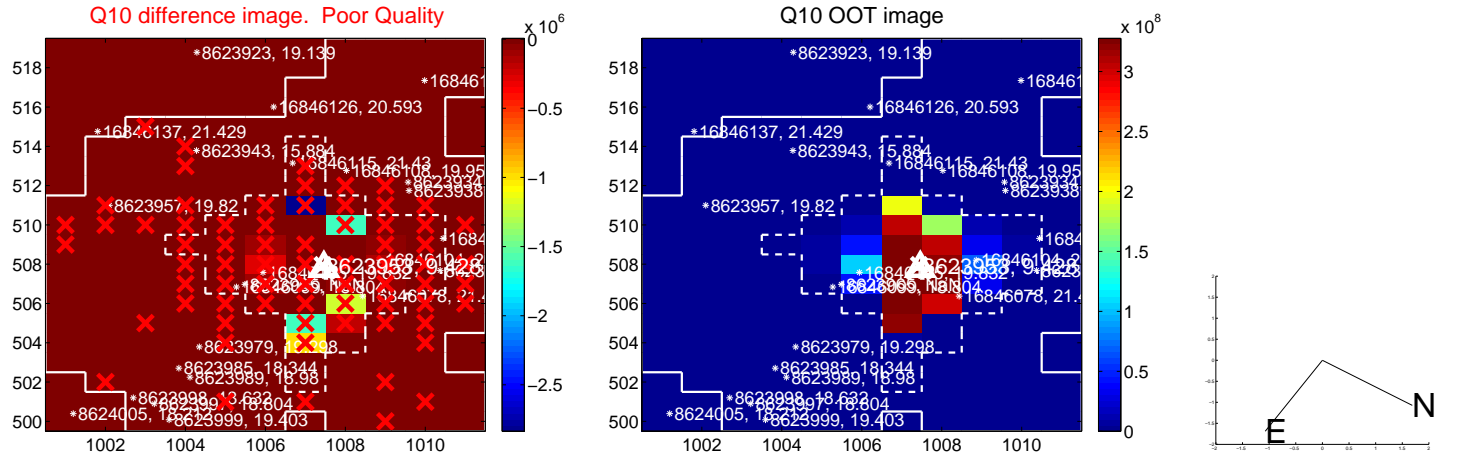
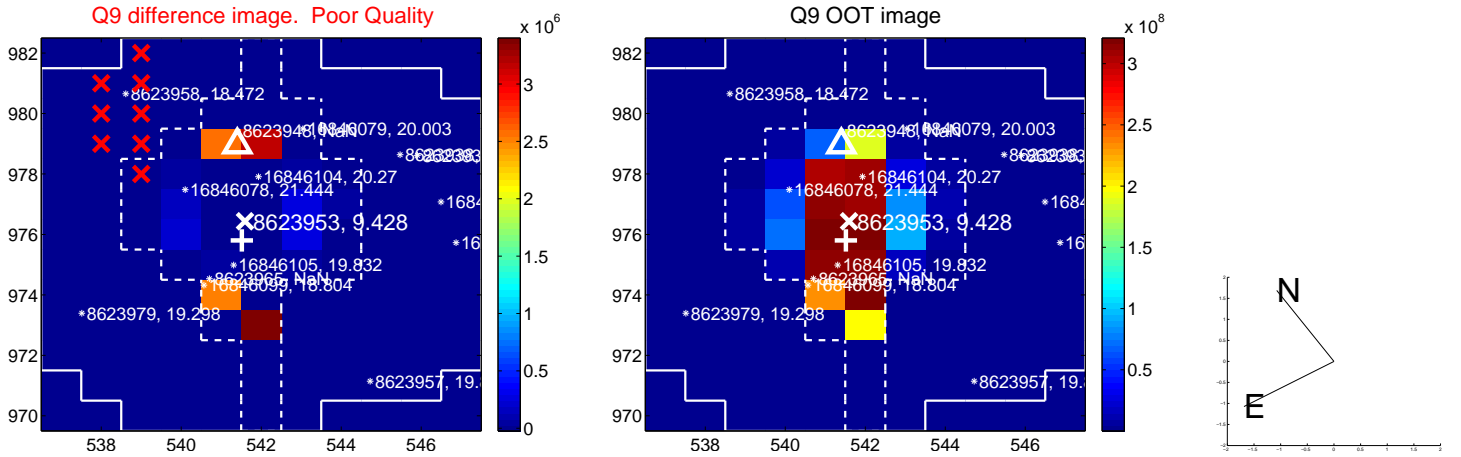


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

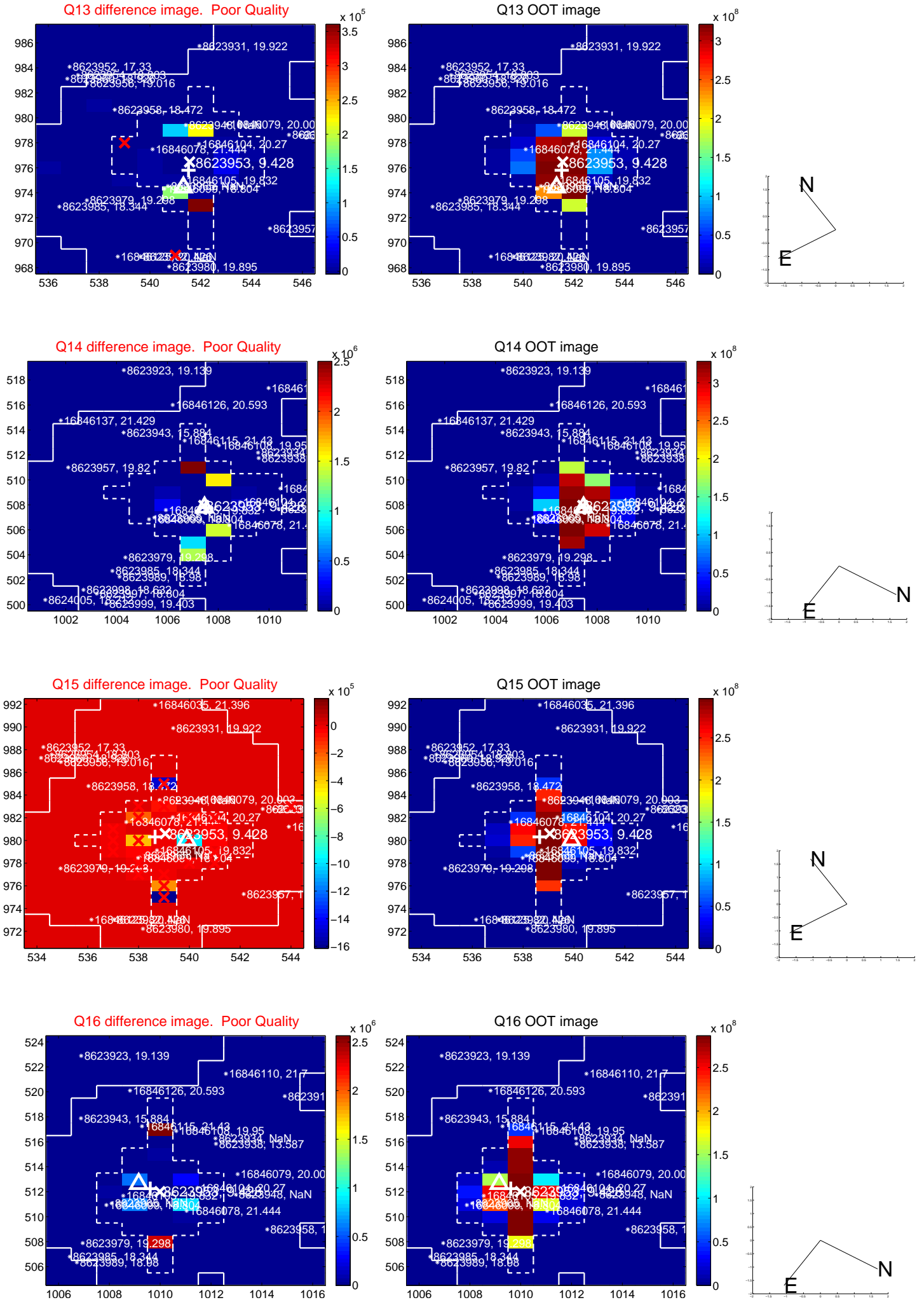




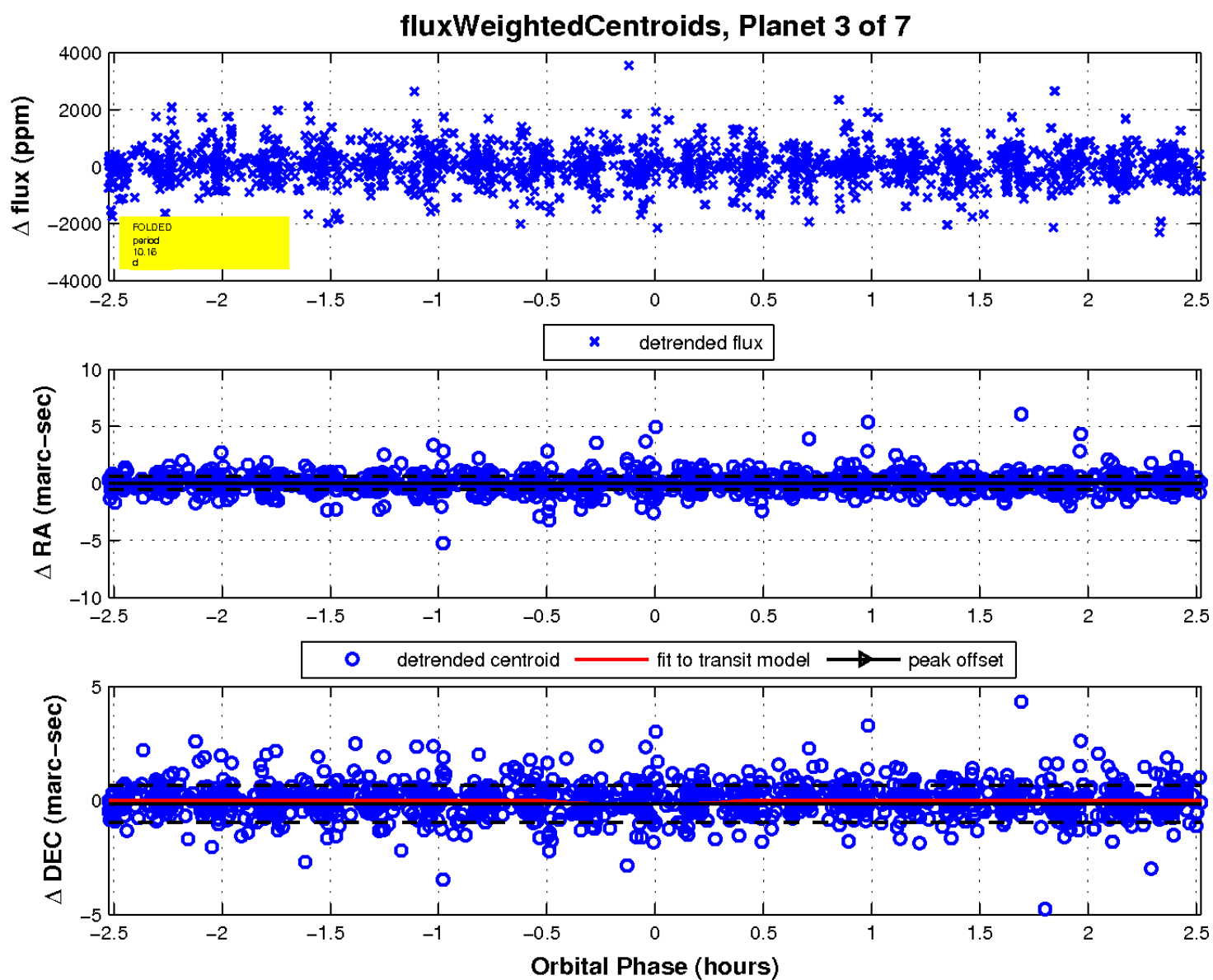
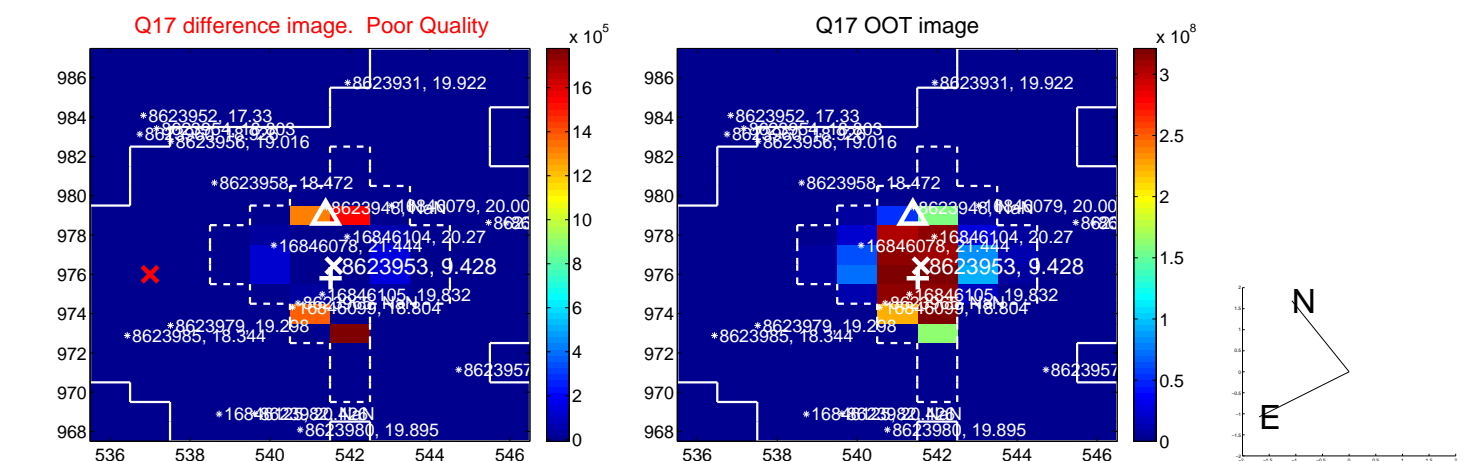
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



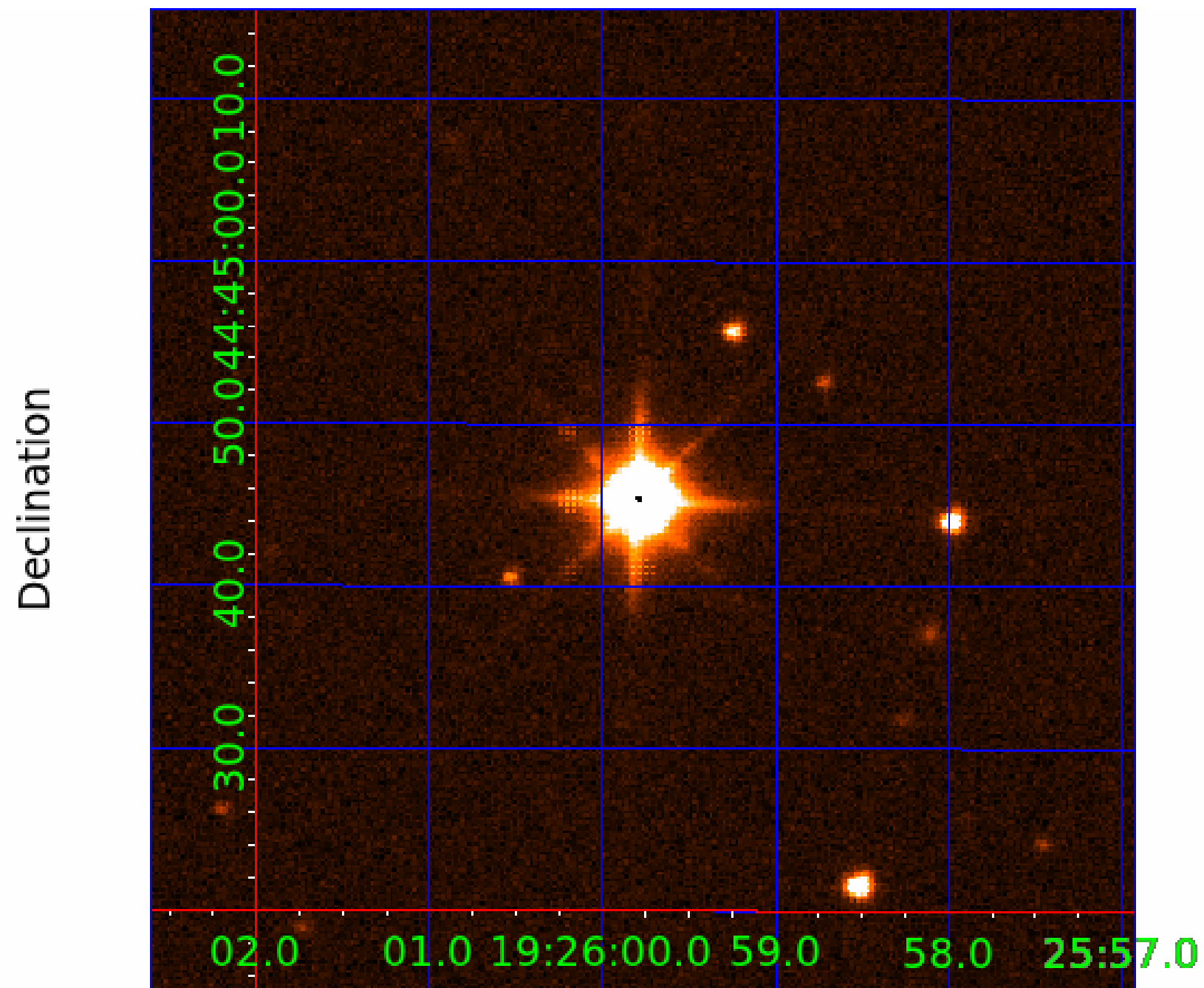
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008623953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008623953-01	OBS	No	0.563109	131.653603	50.8	4.186	14.6	13.0	4.59	7742	3.35	0.00
008623953-02	OBS	No	19.549569	136.324654	632.8	3.941	12.5	14.2	4.59	7742	11.67	1862.89
008623953-03	OBS	No	10.155812	133.369629	582.0	0.843	13.3	7.0	4.59	7742	11.54	4460.86
008623953-04	OBS	No	12.121043	140.721640	588.0	1.491	8.9	9.5	4.59	7742	11.47	3523.58
008623953-05	OBS	No	12.121124	136.347490	72.1	1.770	8.4	1.5	4.59	7742	4.05	3523.55
008623953-06	OBS	No	6.689962	137.041695	708.5	1.260	12.5	15.3	4.59	7742	14.11	7782.87
008623953-07	OBS	No	14.972273	140.074249	611.9	1.290	8.7	9.4	4.59	7742	12.86	2658.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008623953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008623953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—SAME_NTL_PERIOD—CENT_SATURATED
008623953-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED

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

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

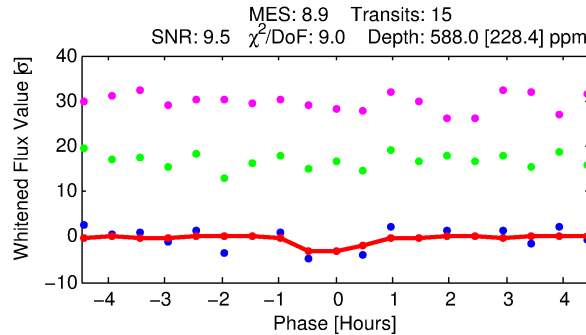
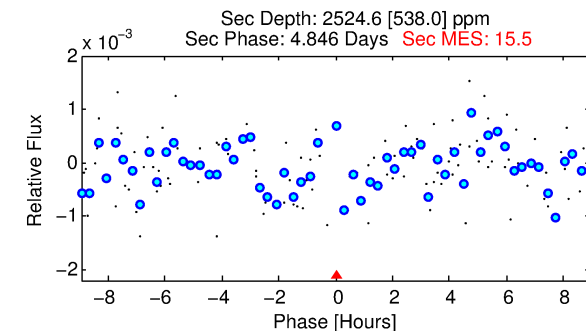
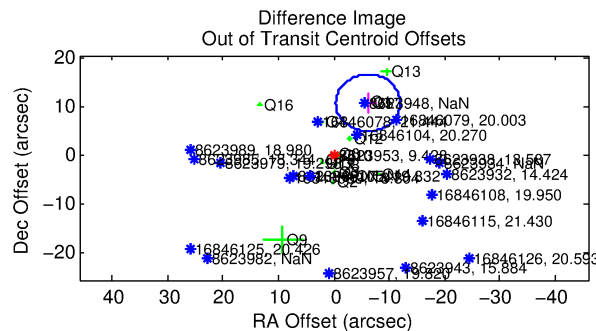
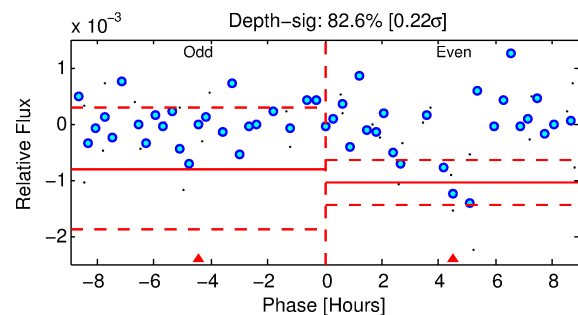
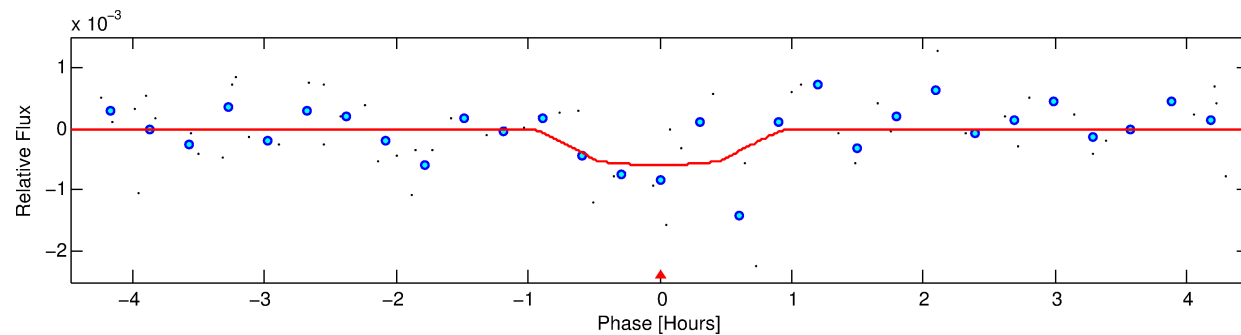
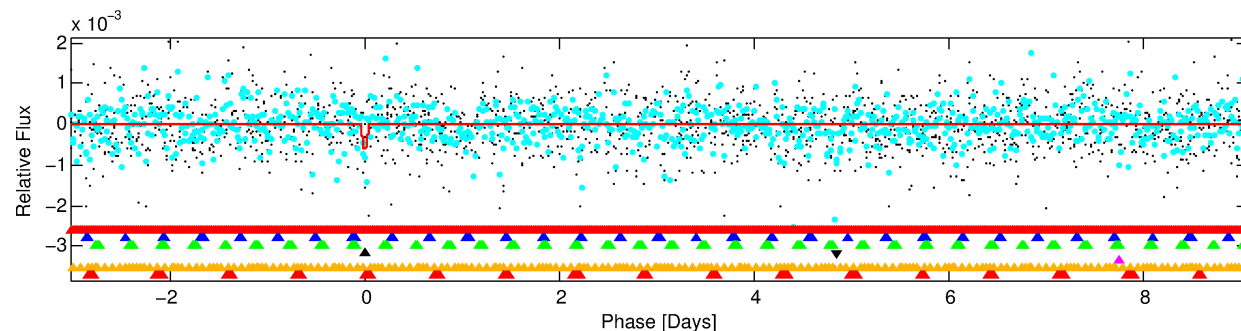
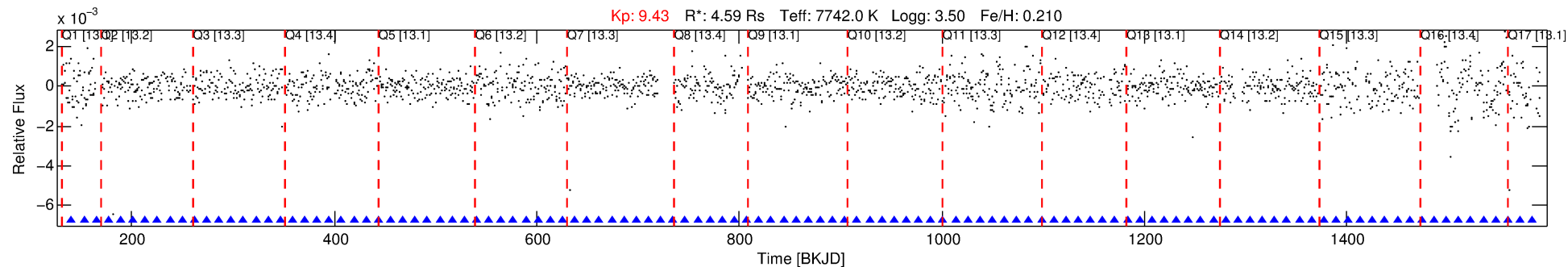
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008623953-04

No Significant Match Found

# DV One-Page Summary

KIC: 8623953 Candidate: 4 of 7 Period: 12.121 d



## DV Fit Results:

Period = 12.12104 [0.00023] d  
Epoch = 140.7216 [0.0195] BKJD  
Rp/R\* = 0.0229 [0.0849]  
a/R\* = 57.52 [1153.22]  
b = 0.43 [38.01]  
Seff = 3523.58 [1157.02]  
Teq = 1965 [161] K  
Rp = 11.47 [42.62] Re  
a = 0.1388 [0.0283] AU  
Ag = 203.49 [1511.39] [0.13σ]  
Teff = 11472 [21285] K [0.45σ]

## DV Diagnostic Results:

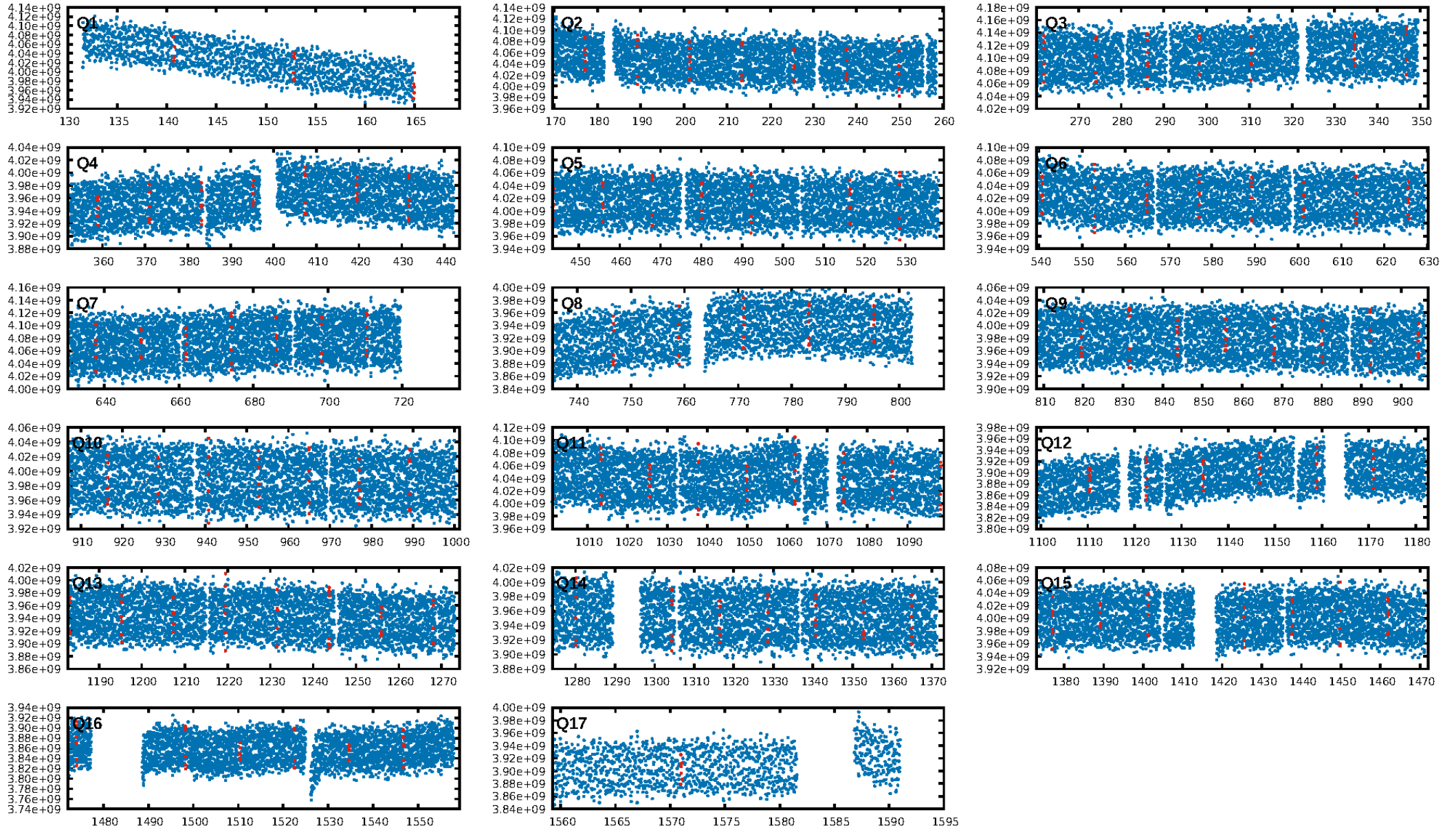
ShortPeriod-sig: 100.0% [27.54σ]  
LongPeriod-sig: 0.1% [0.00σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGoF-sig: 5.3%  
Bootstrap-pfa: 1.02e-03  
RollingBand-fgt: 1.00 [15/15]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 4.7%  
Centroid-so: 0.583 arcsec [3.98σ]  
OotOffset-rm: 12.416 arcsec [6.39σ]  
KicOffset-rm: 9.882 arcsec [5.16σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:56:45 Z

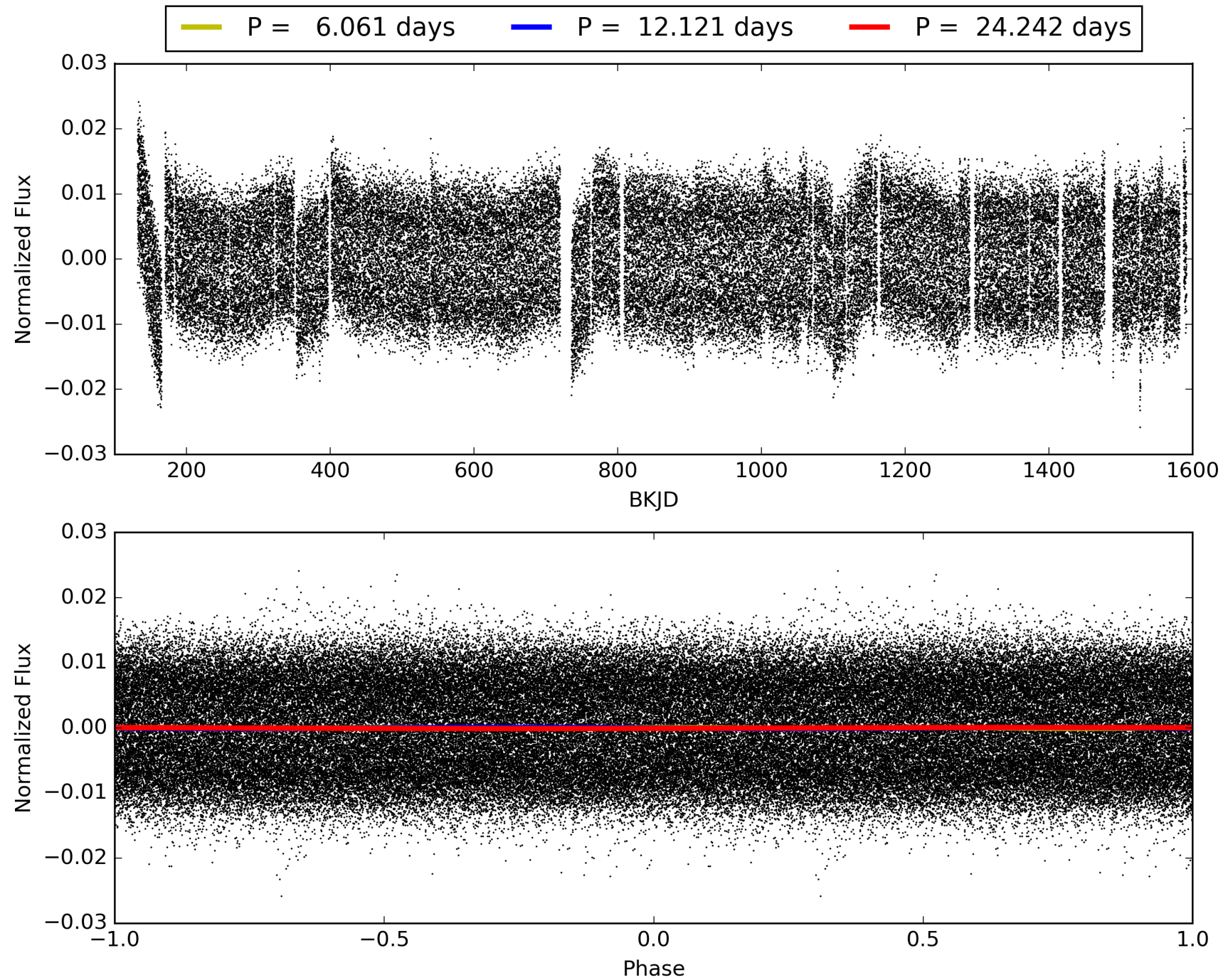
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008623953-04, PDC Light Curves

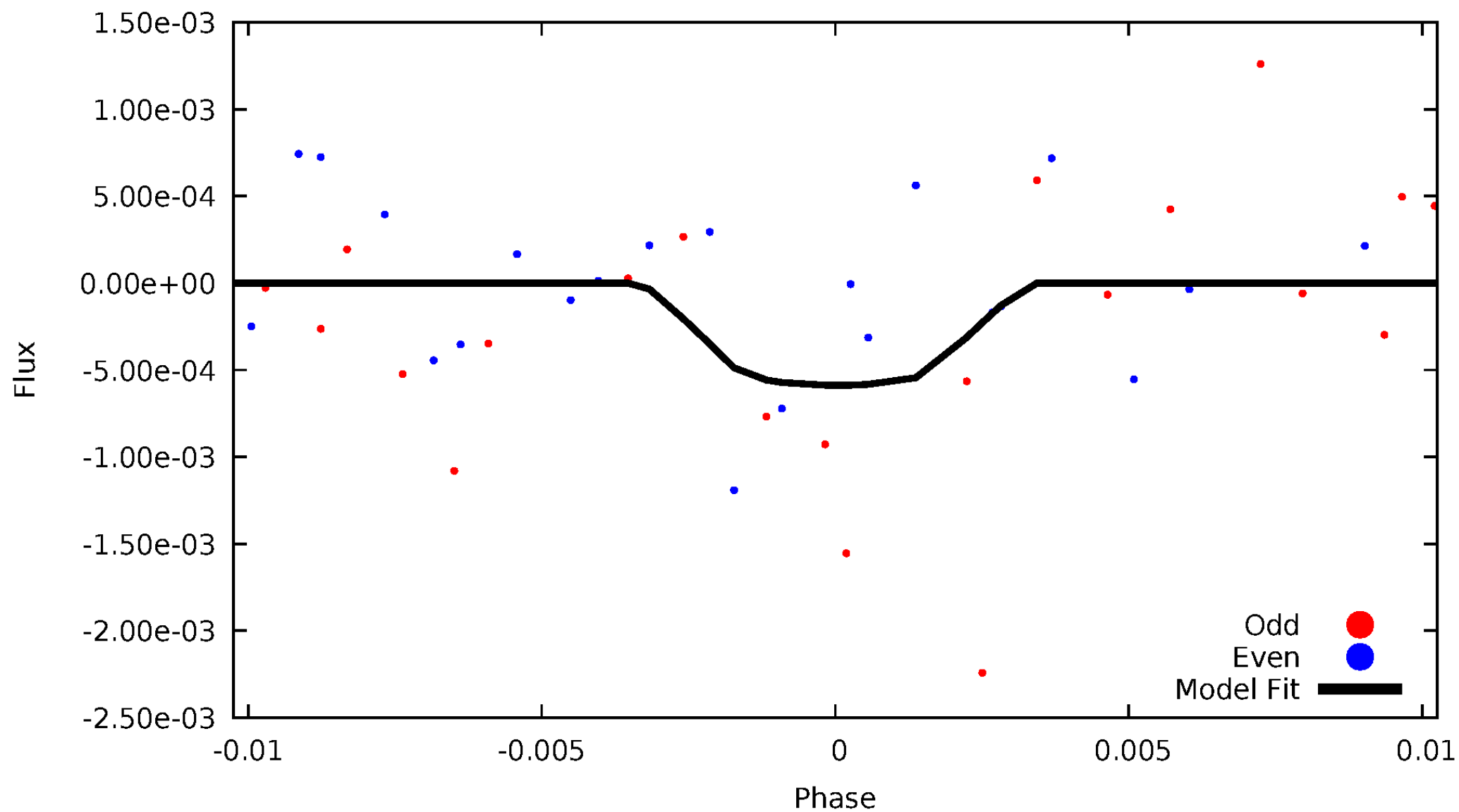


TCE 008623953-04



# DV Odd/Even

TCE 008623953-04



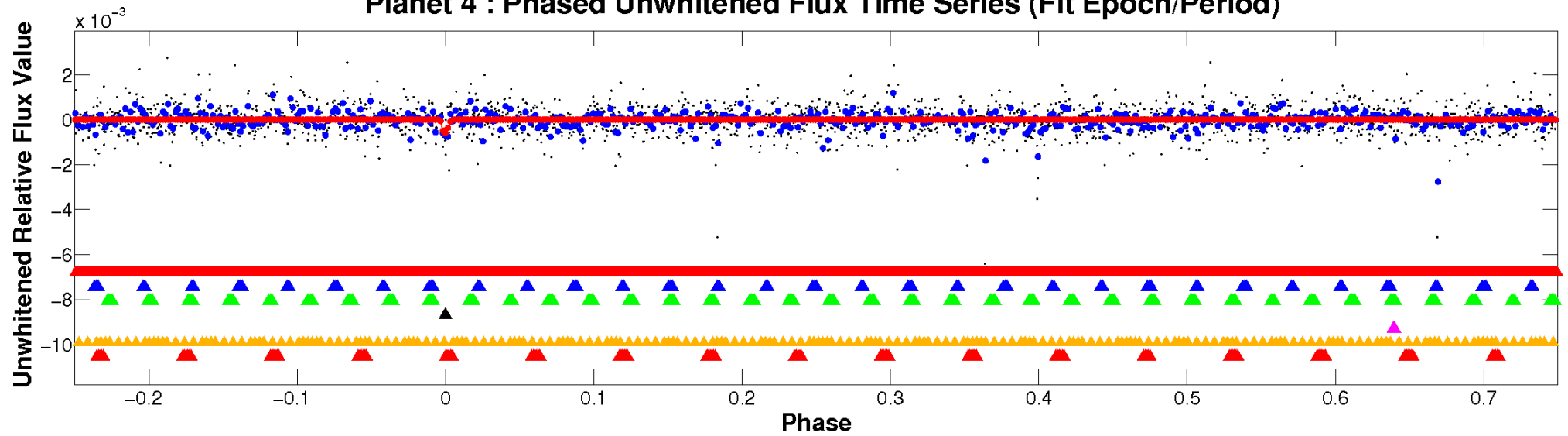


ALT Odd/Even

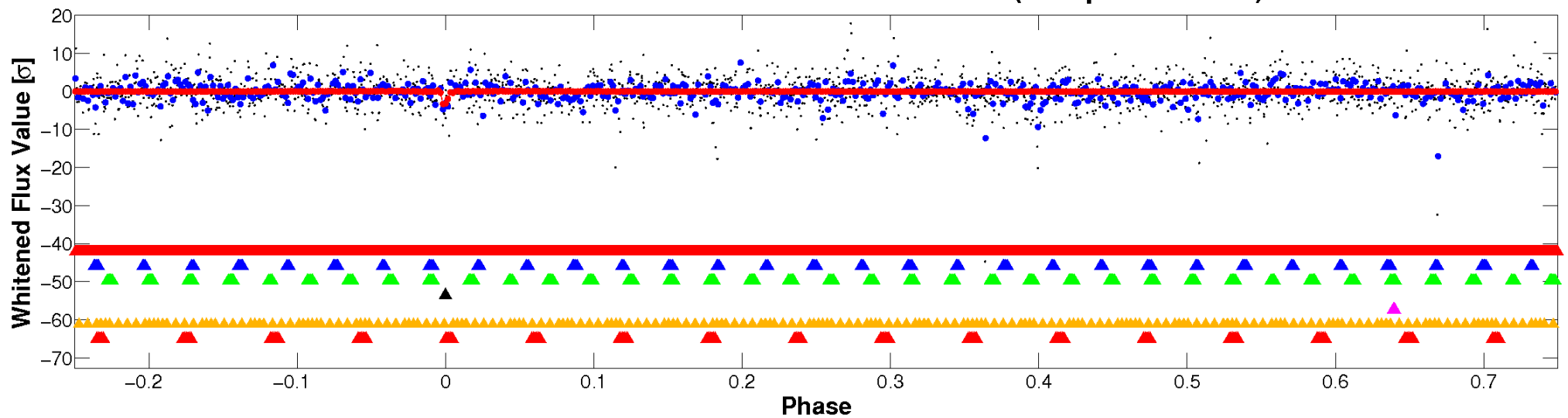
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

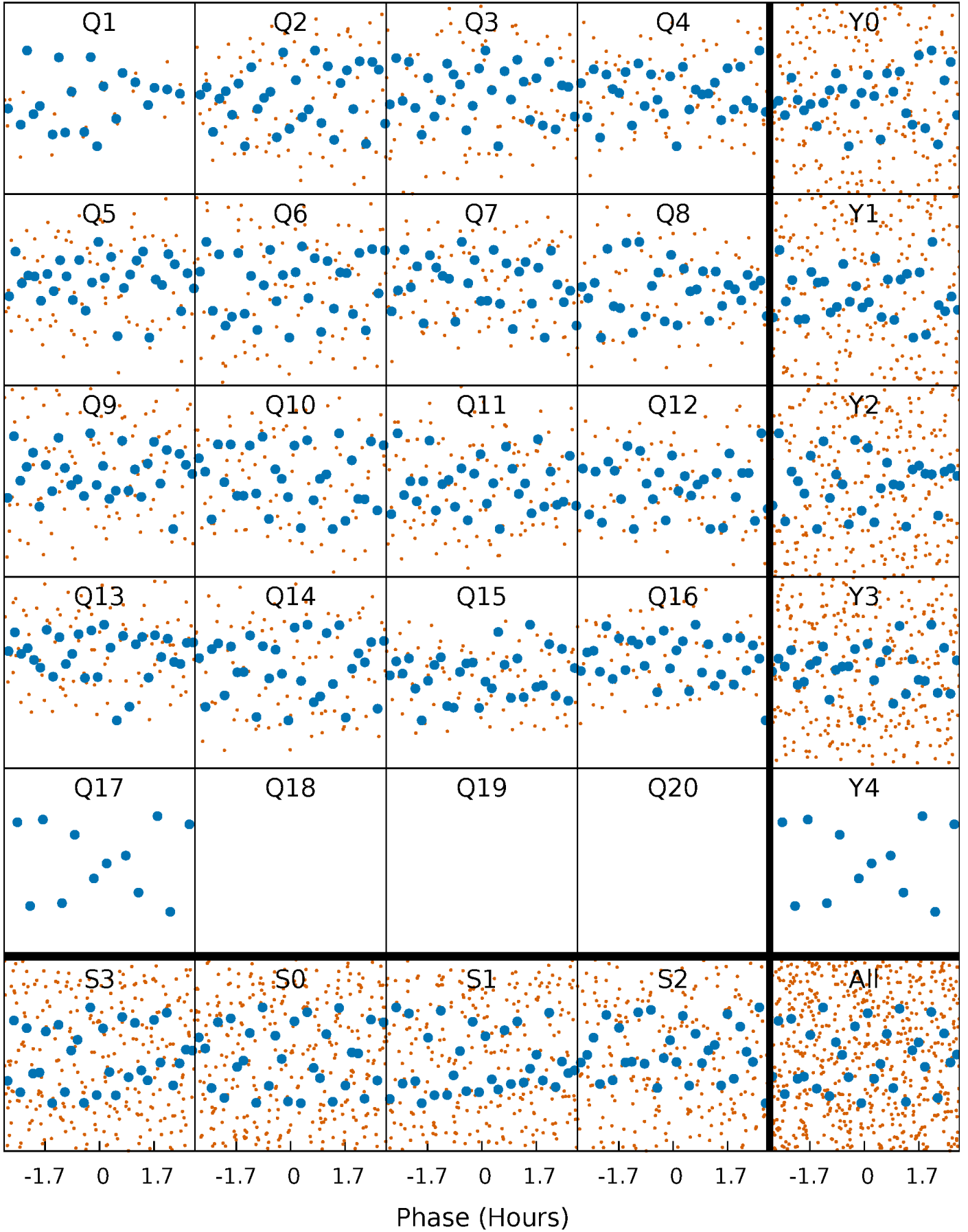


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

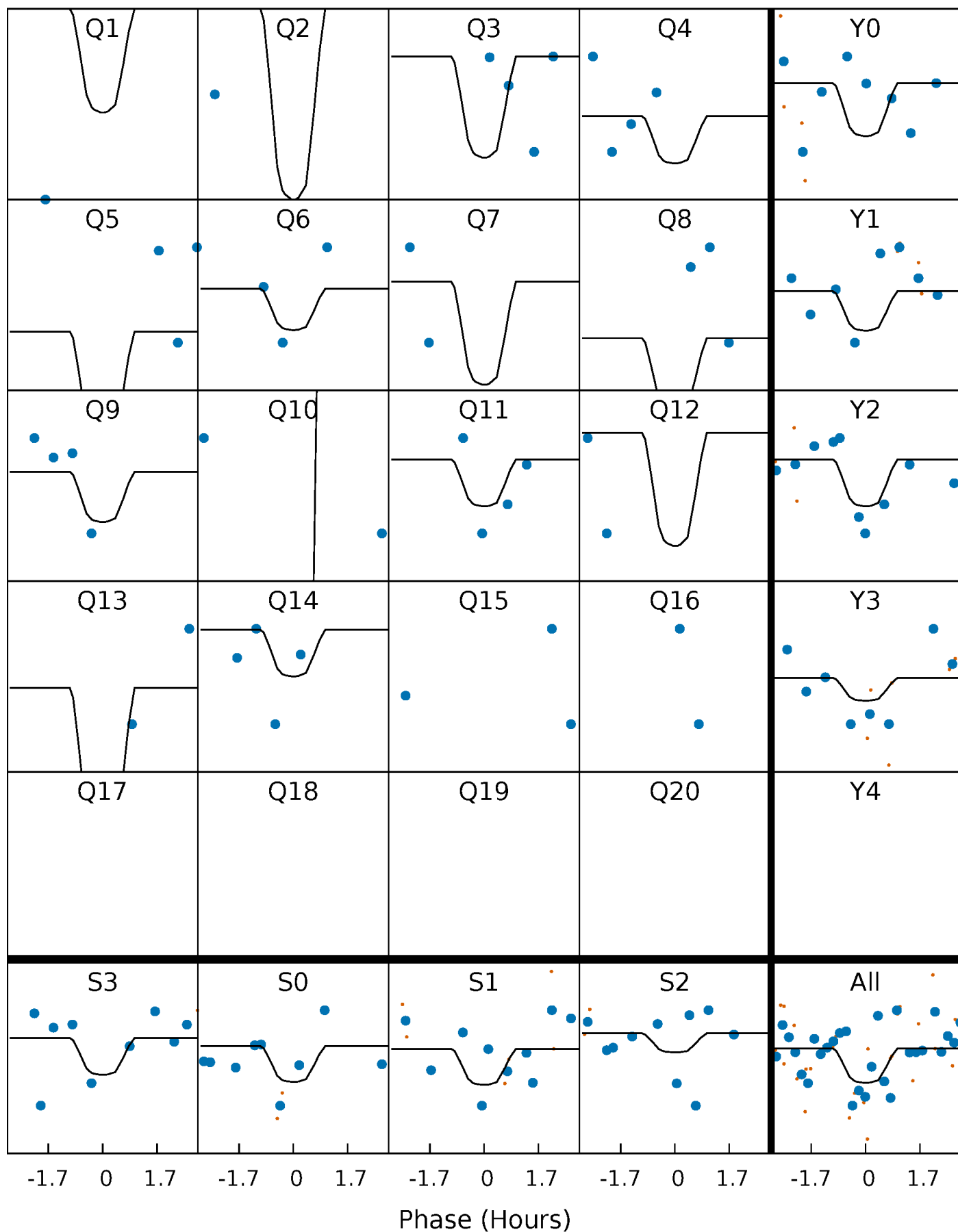
TCE 008623953-04   P= 12.121043 Days    $T_0=140.721640$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008623953-04 P= 12.121043 Days  $T_0=140.721640$  (BKJD)

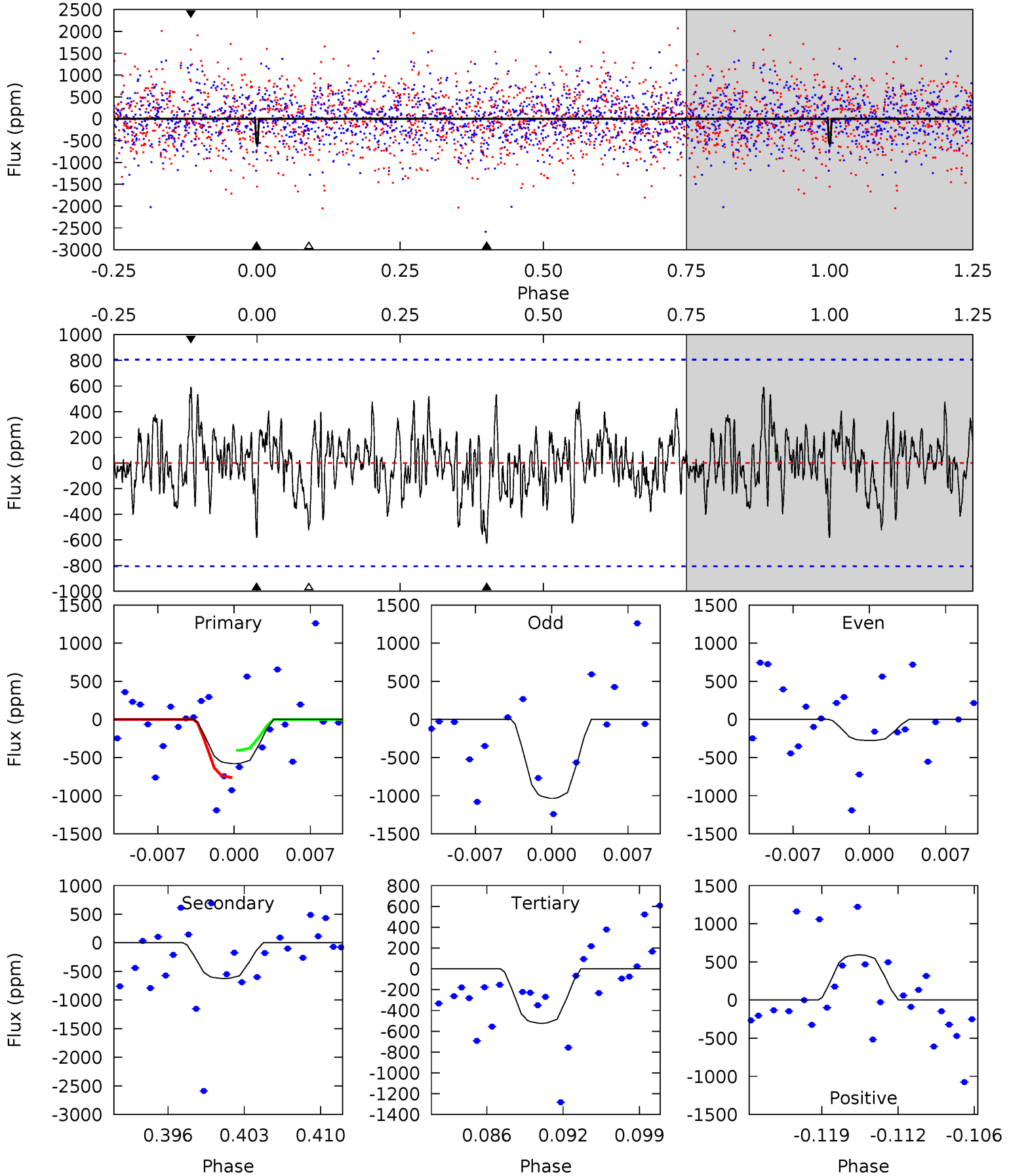


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

008623953-04, P = 12.121043 Days, E = 128.600597 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
3.68	3.95	3.32	3.75	5.11	2.72	1.20	0.36	-0.08	0.64	0.20	2.37	0	0.49	1.15



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008623953

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7742^{+153}_{-184}$	$3.499^{+0.180}_{-0.009}$	$0.210^{+0.200}_{-0.150}$	$4.593^{+0.258}_{-1.032}$	$2.425^{+0.213}_{-0.260}$	$0.035^{+0.033}_{-0.002}$
	+2%/-2%	+5%/-0%	+95%/-71%	+6%/-22%	+9%/-11%	+94%/-7%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 008623953-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	-623±158	$33.23^{+29.96}_{-22.63}$	$2680^{+89}_{-144}$	$4597^{+3764}_{-1033}$	$6.066^{+60.996}_{-4.422}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

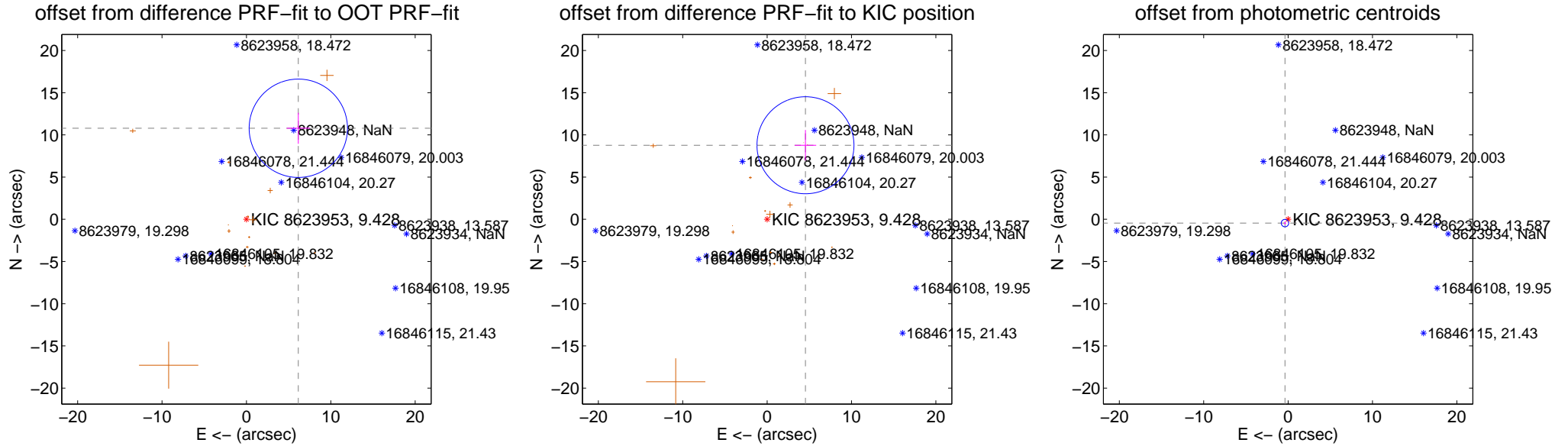
## DV Centroid Data

Supplemental centroid analysis for 008623953-04. **Kepler magnitude: 9.43.** Transit SNR 9.49

There are 0 quarters with good PRF difference image offsets

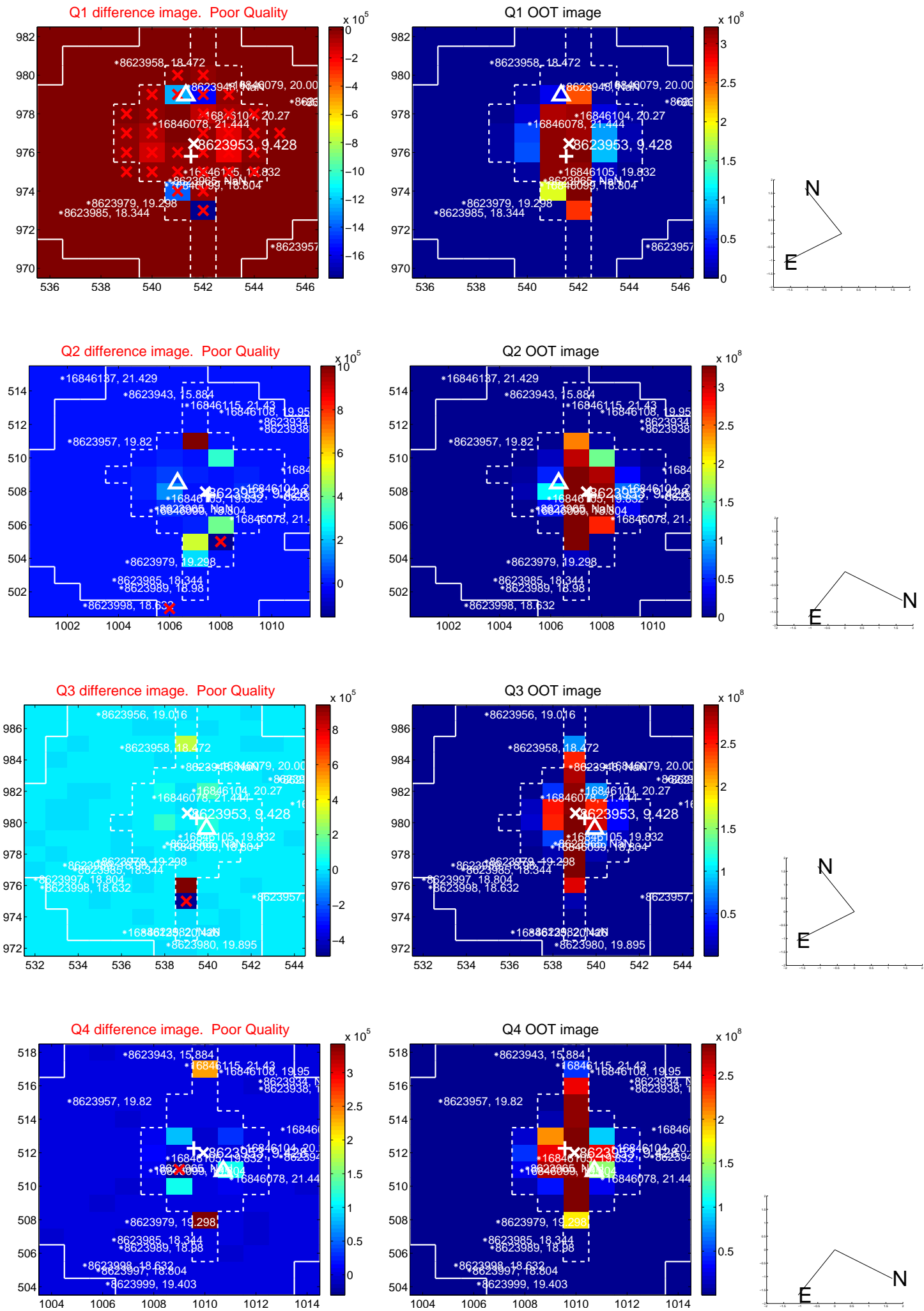
The OOT PRF centroid is offset from the target star catalog position by about 2.56 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>12.416 <math>\pm</math> 1.942</b>	<b>6.39</b>	-6.151 $\pm$ 1.384	10.786 $\pm$ 1.842
PRF-fit source offset from KIC position	<b>9.882 <math>\pm</math> 1.916</b>	<b>5.16</b>	-4.545 $\pm$ 1.276	8.775 $\pm$ 1.810
photometric centroid source offset	<b>0.58 <math>\pm</math> 0.15</b>	<b>3.98</b>	0.37 $\pm$ 0.13	-0.45 $\pm$ 0.15



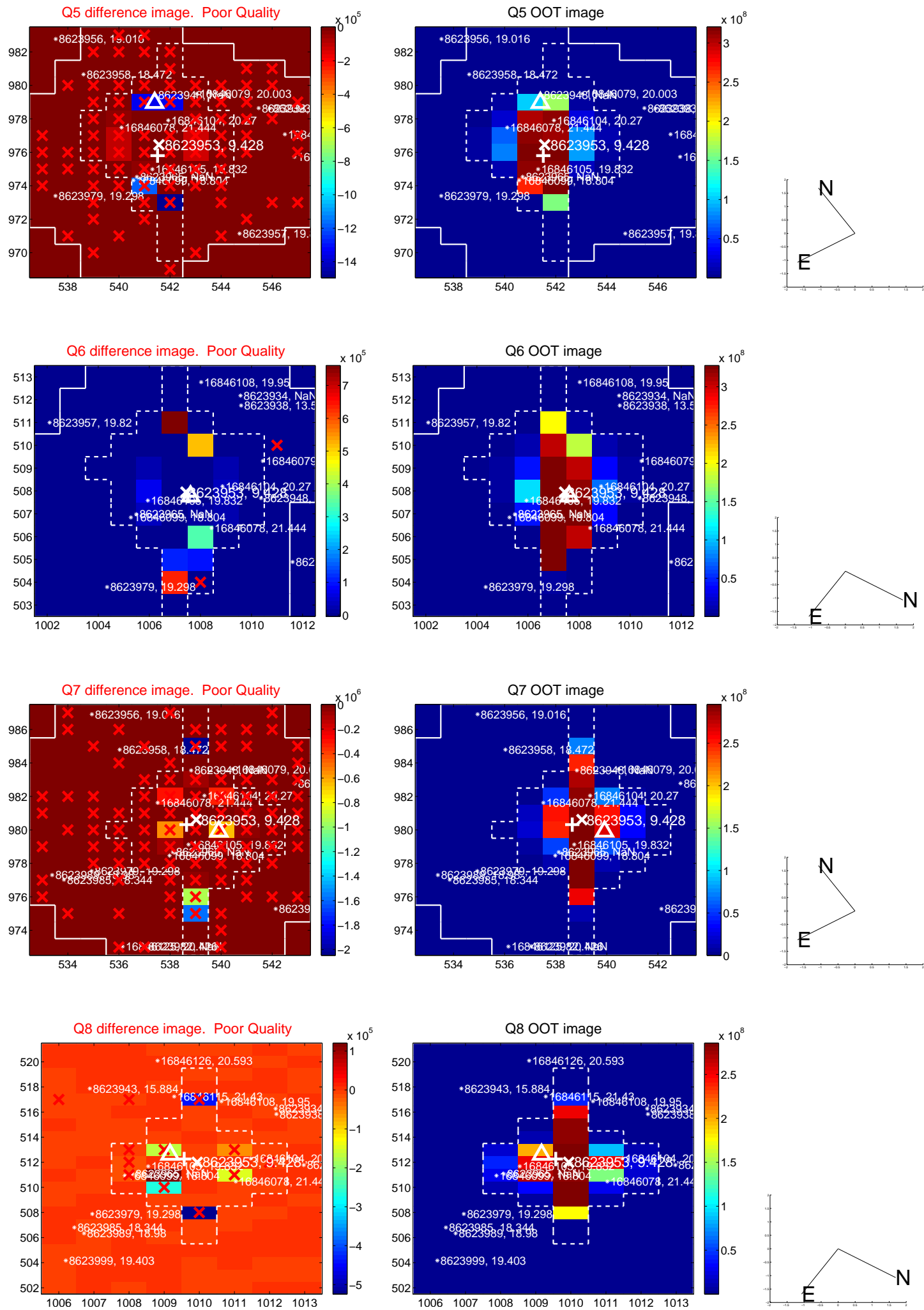
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

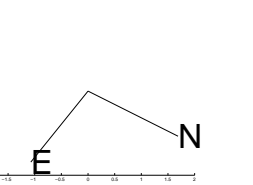
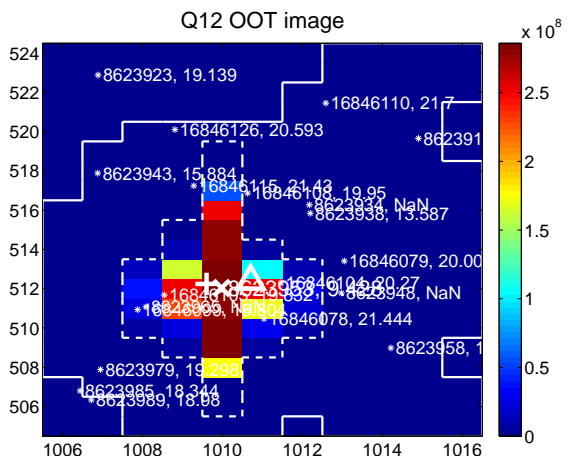
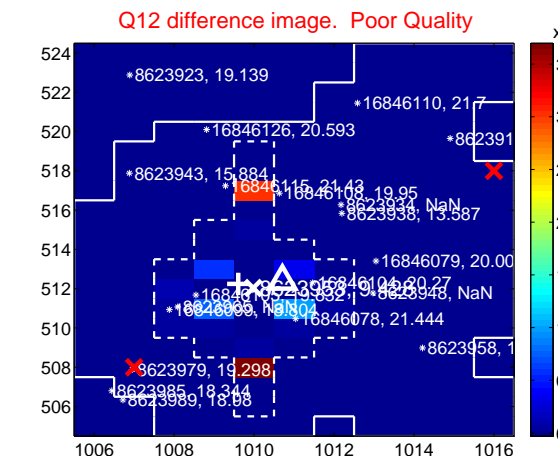
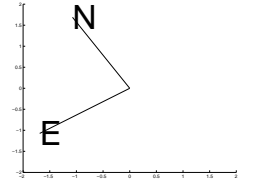
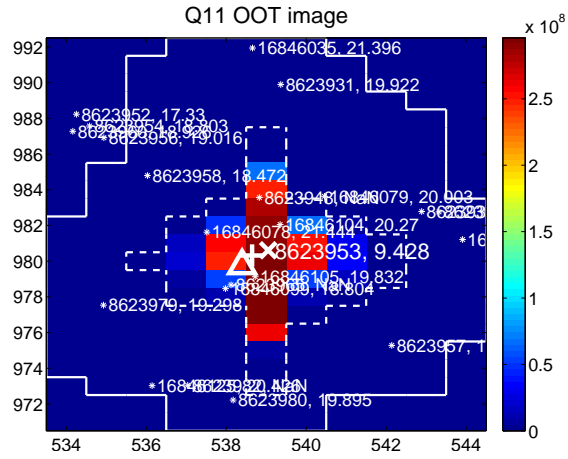
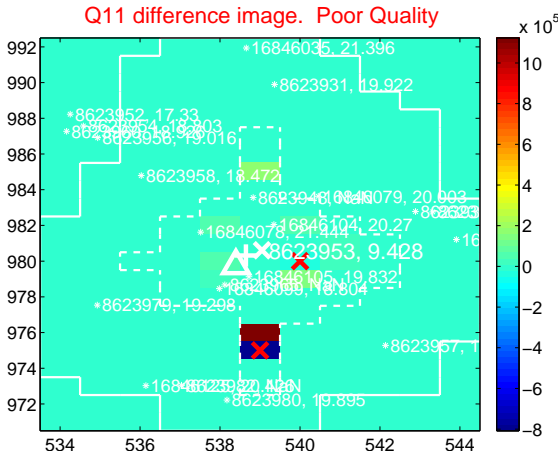
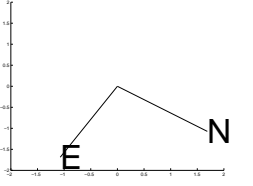
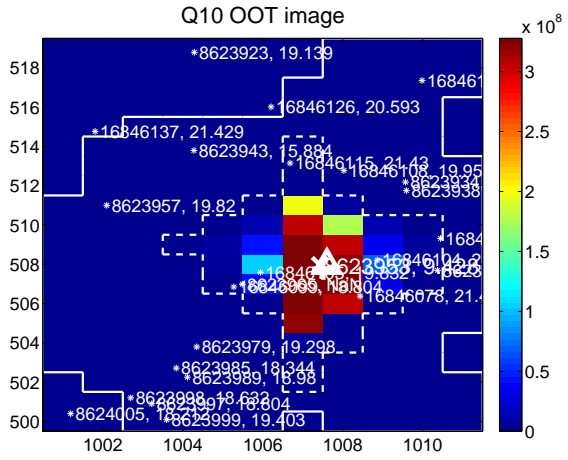
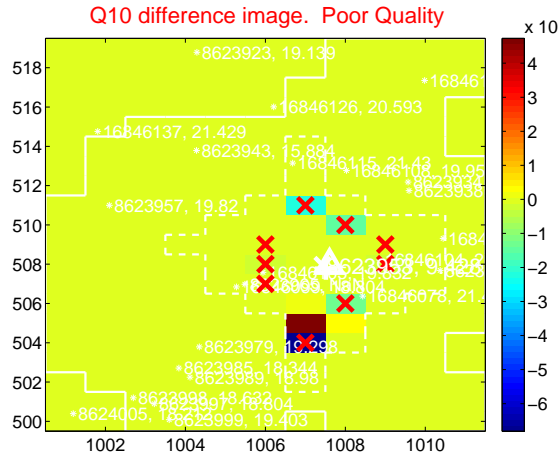
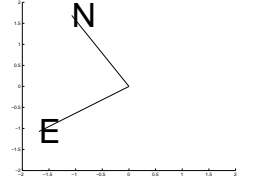
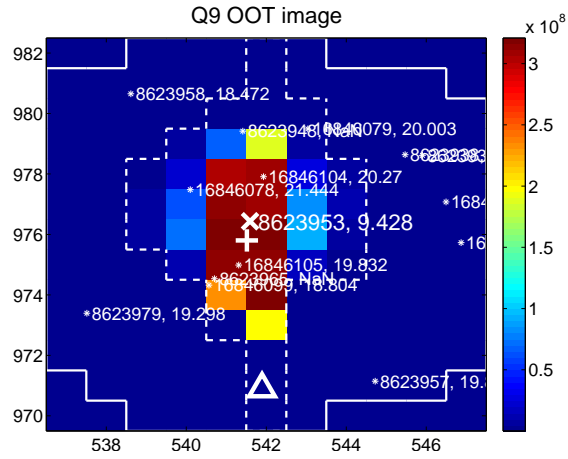
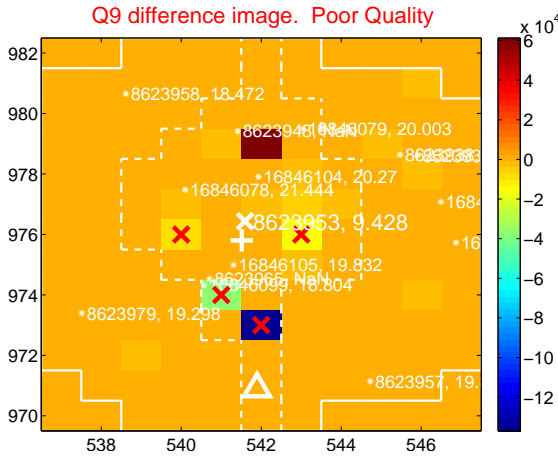




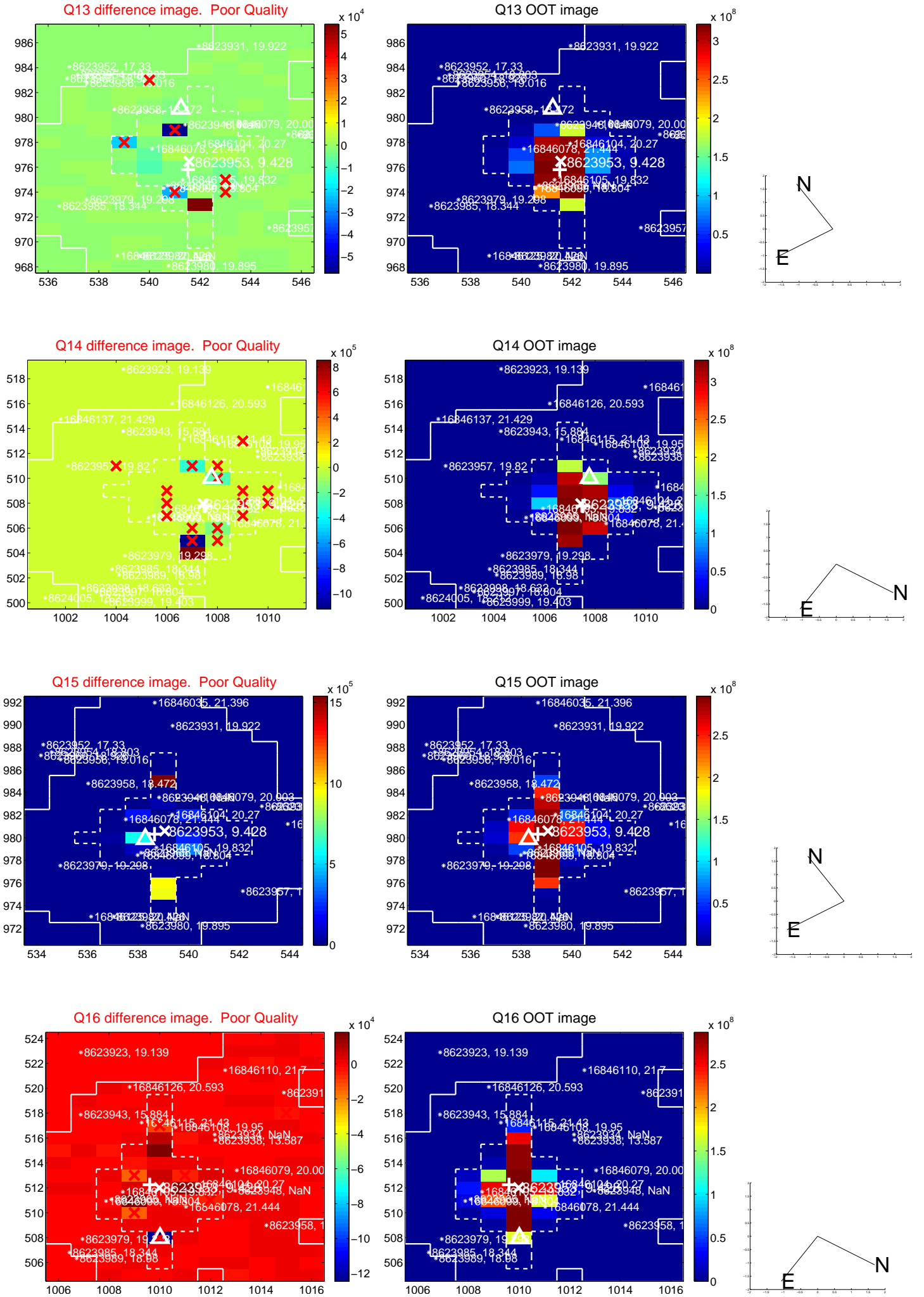
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



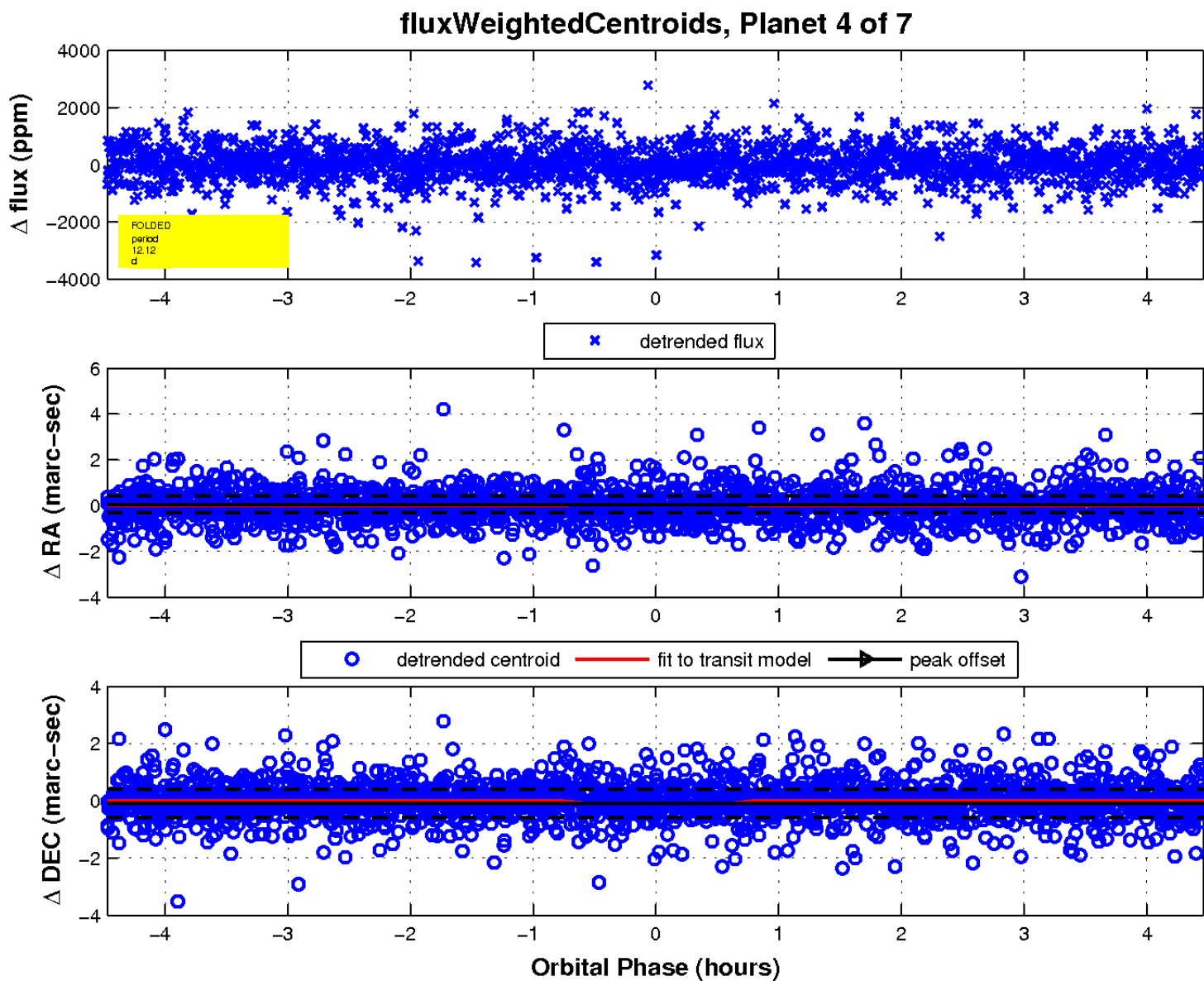
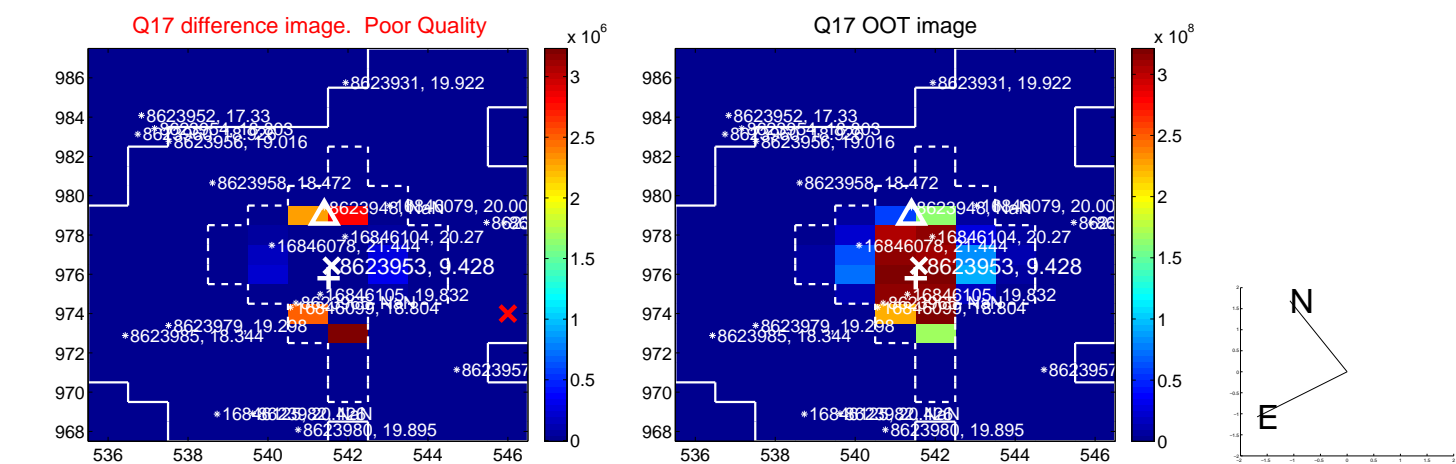
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



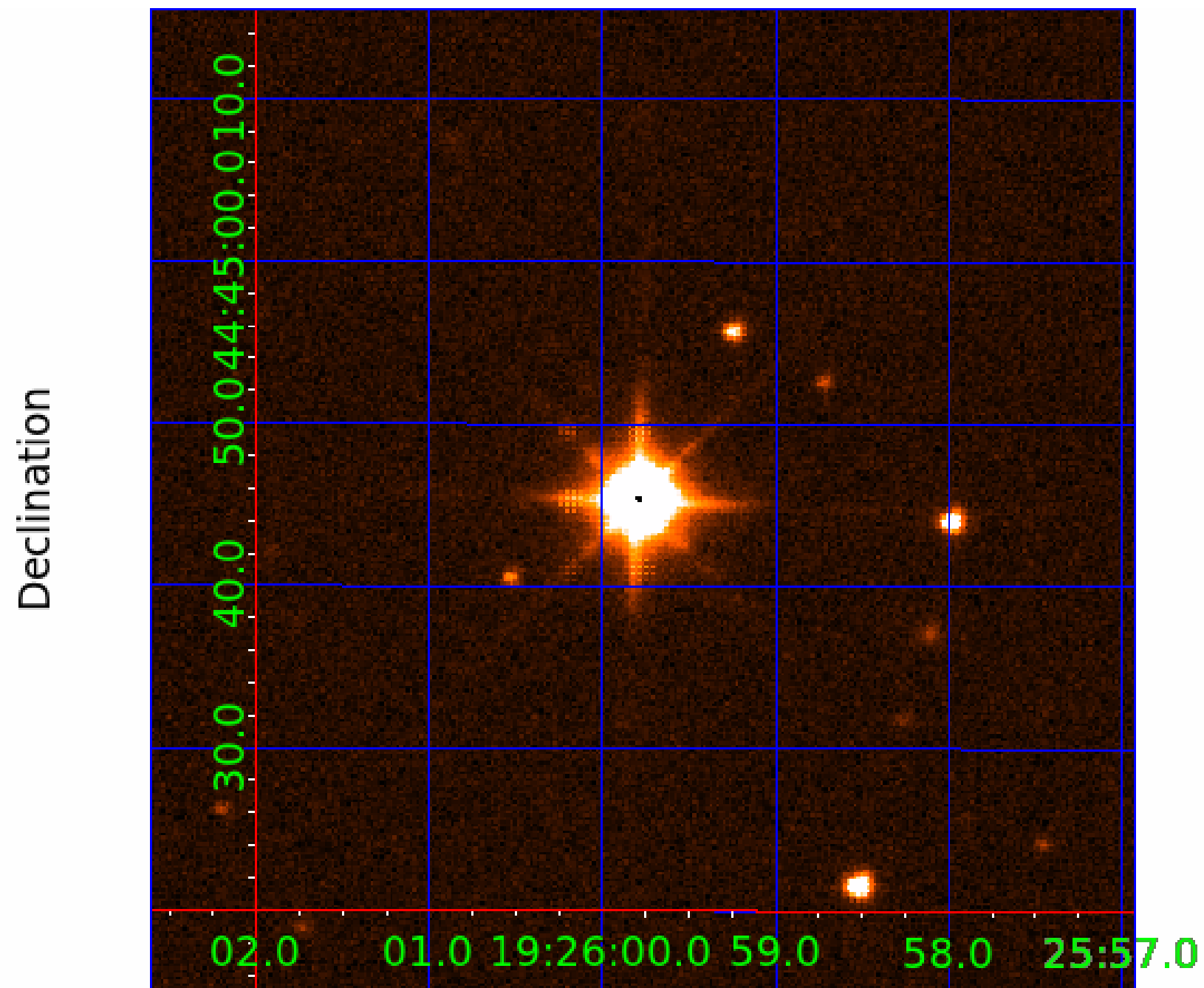
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 008623953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008623953-01	OBS	No	0.563109	131.653603	50.8	4.186	14.6	13.0	4.59	7742	3.35	0.00
008623953-02	OBS	No	19.549569	136.324654	632.8	3.941	12.5	14.2	4.59	7742	11.67	1862.89
008623953-03	OBS	No	10.155812	133.369629	582.0	0.843	13.3	7.0	4.59	7742	11.54	4460.86
008623953-04	OBS	No	12.121043	140.721640	588.0	1.491	8.9	9.5	4.59	7742	11.47	3523.58
008623953-05	OBS	No	12.121124	136.347490	72.1	1.770	8.4	1.5	4.59	7742	4.05	3523.55
008623953-06	OBS	No	6.689962	137.041695	708.5	1.260	12.5	15.3	4.59	7742	14.11	7782.87
008623953-07	OBS	No	14.972273	140.074249	611.9	1.290	8.7	9.4	4.59	7742	12.86	2658.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008623953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008623953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—SAME_NTL_PERIOD—CENT_SATURATED
008623953-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED

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

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

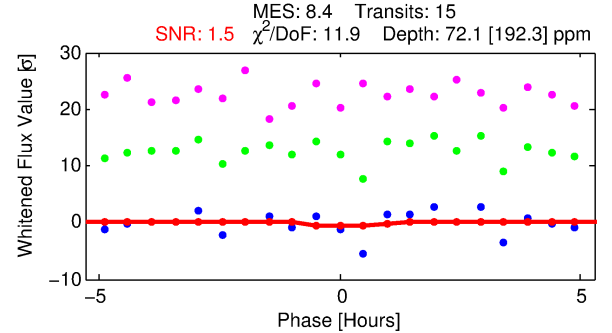
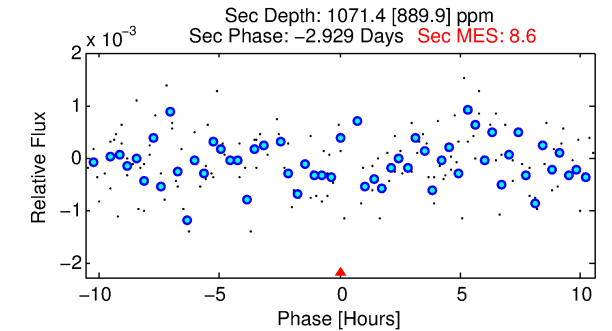
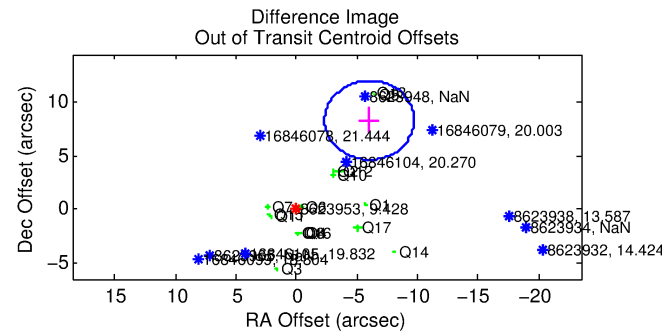
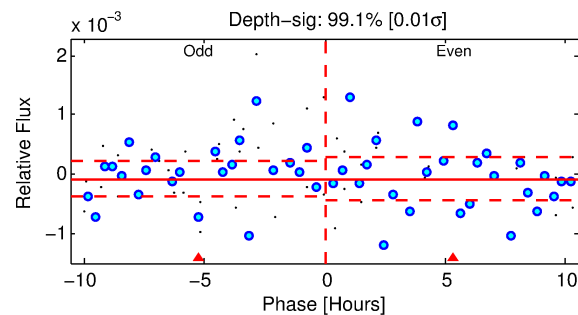
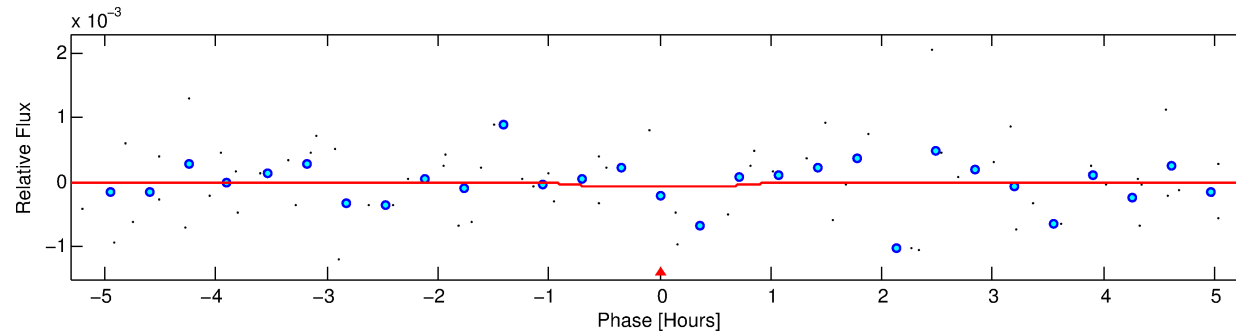
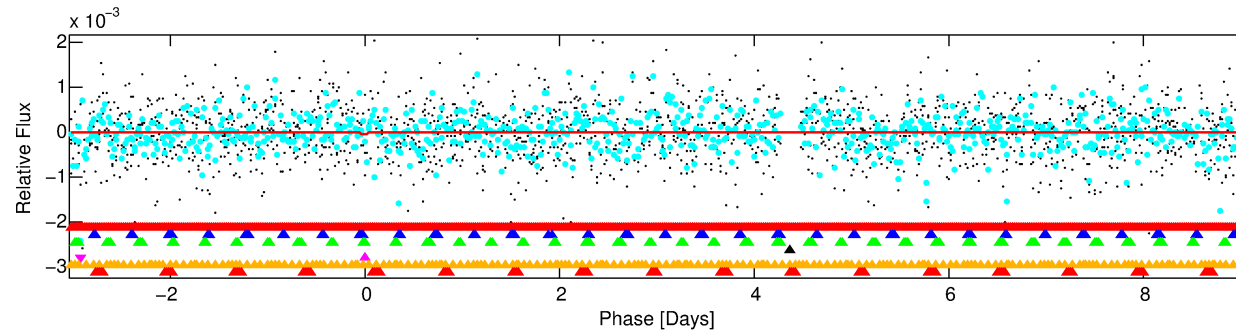
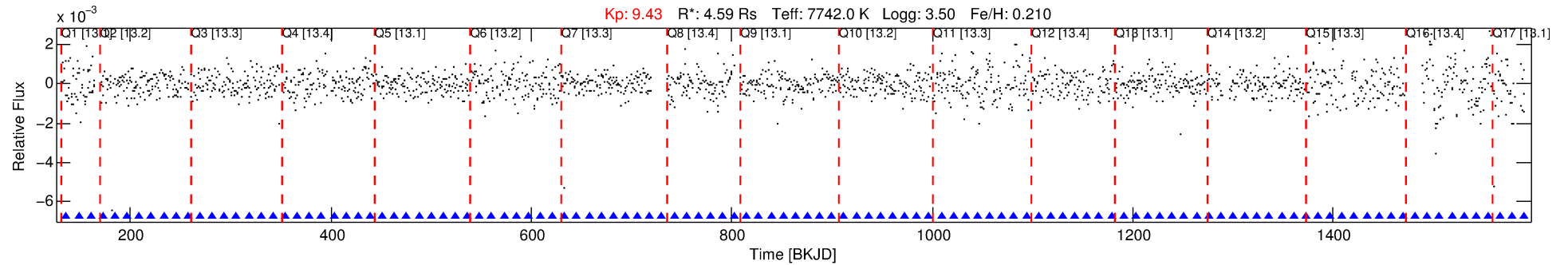
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008623953-05

No Significant Match Found

# DV One-Page Summary

KIC: 8623953 Candidate: 5 of 7 Period: 12.121 d



## DV Fit Results:

Period = 12.12112 [0.00291] d  
Epoch = 136.3475 [0.1555] BKJD  
Rp/R\* = 0.0081 [0.2434]  
a/R\* = 45.26 [7680.50]  
b = 0.52 [236.58]  
Seff = 3523.55 [1157.01]  
Teq = 1965 [161] K  
Rp = 4.05 [122.01] Re  
a = 0.1388 [0.0283] AU  
Ag = 692.80 [41753.03] [0.02σ]  
Teff = 15583 [234789] K [0.06σ]

## DV Diagnostic Results:

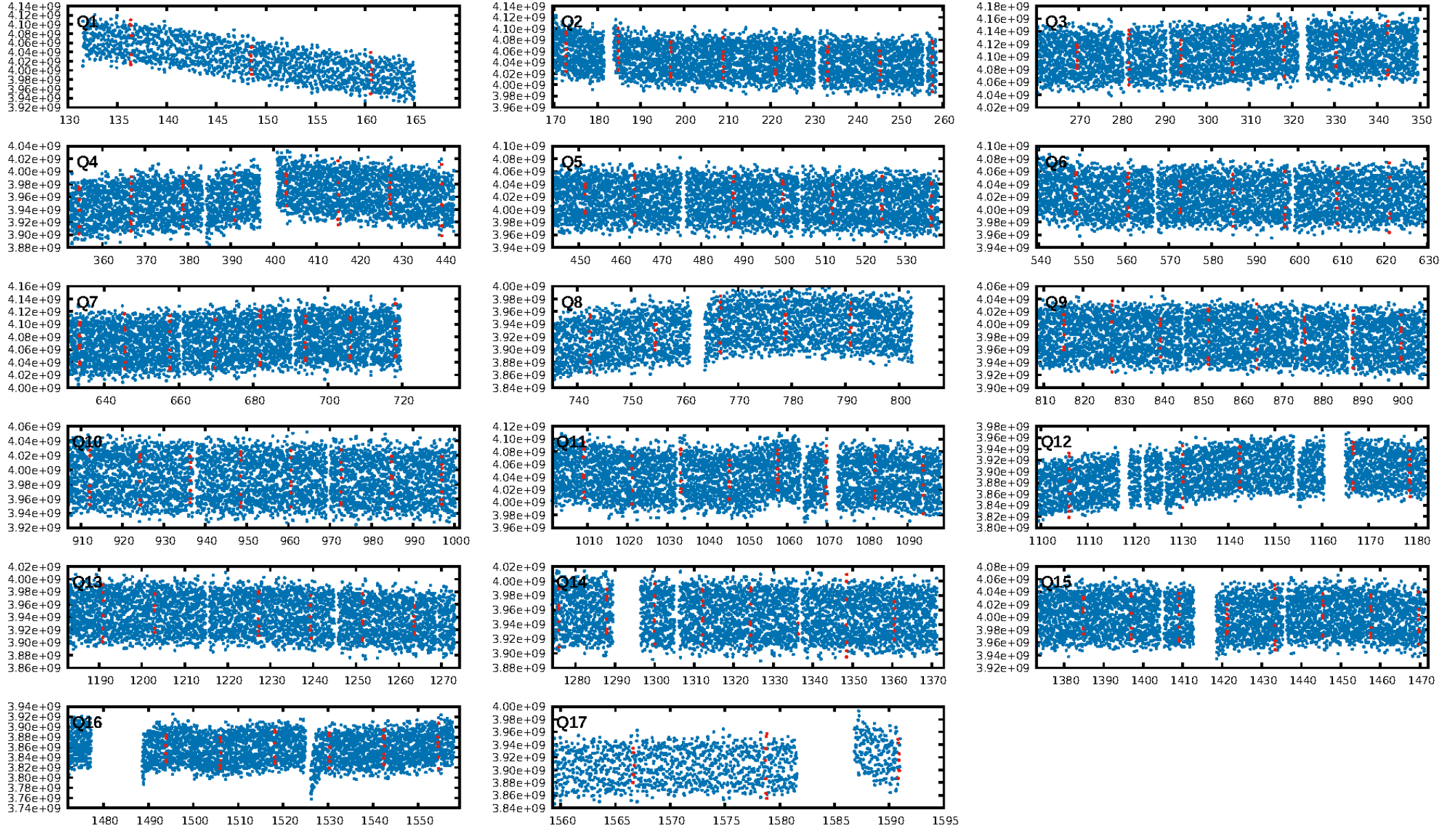
ShortPeriod-sig: 0.1% [0.00σ]  
LongPeriod-sig: 100.0% [31.25σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGot-sig: 0.0%  
Bootstrap-pfa: 2.41e-04  
RollingBand-fgt: 1.00 [15/15]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 73.5%  
Centroid-so: 1.154 arcsec [1.03σ]  
OotOffset-rm: 10.282 arcsec [8.36σ]  
KicOffset-rm: 8.190 arcsec [5.92σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.00 [0/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:56:48 Z

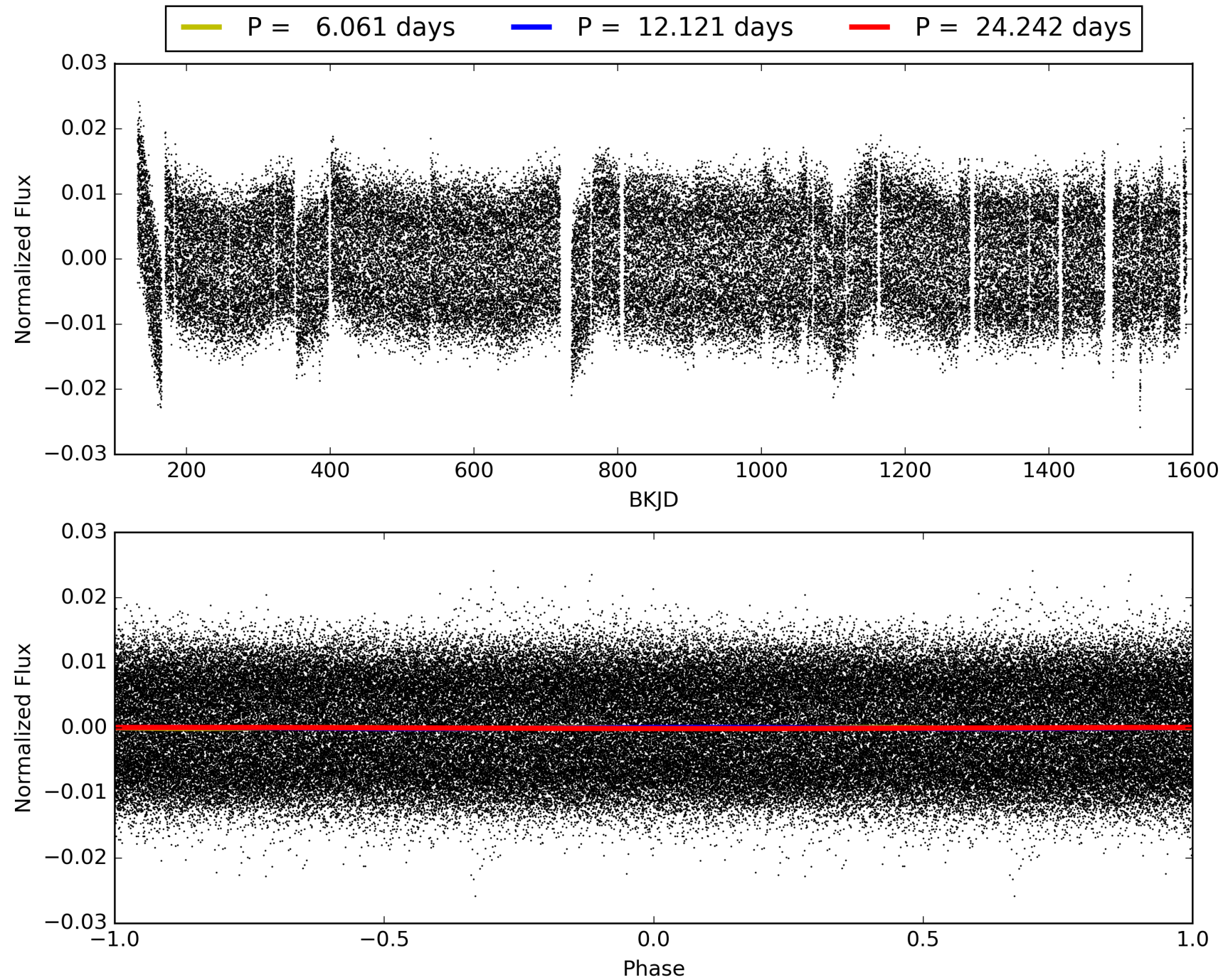
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008623953-05, PDC Light Curves

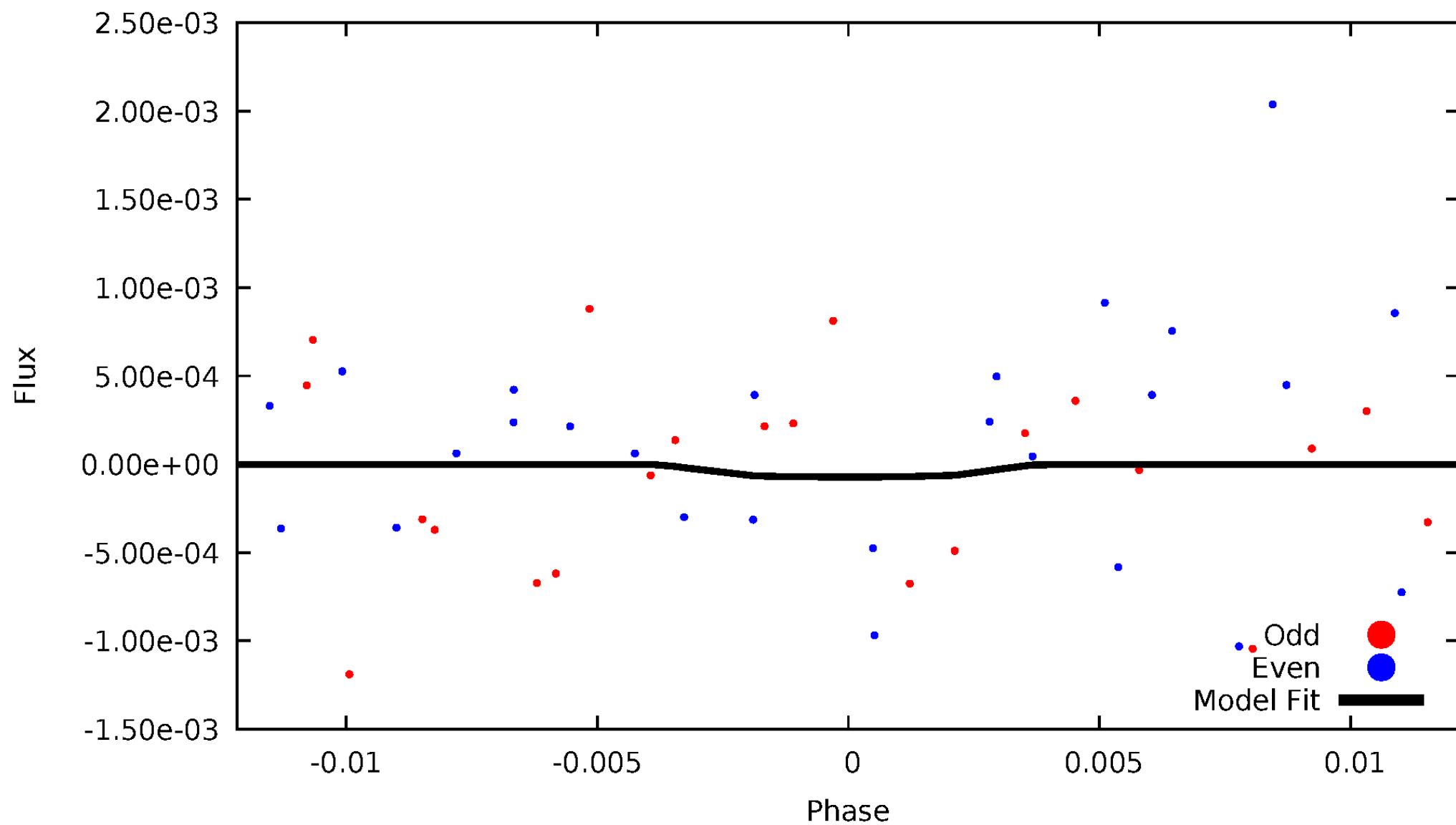


TCE 008623953-05



# DV Odd/Even

TCE 008623953-05



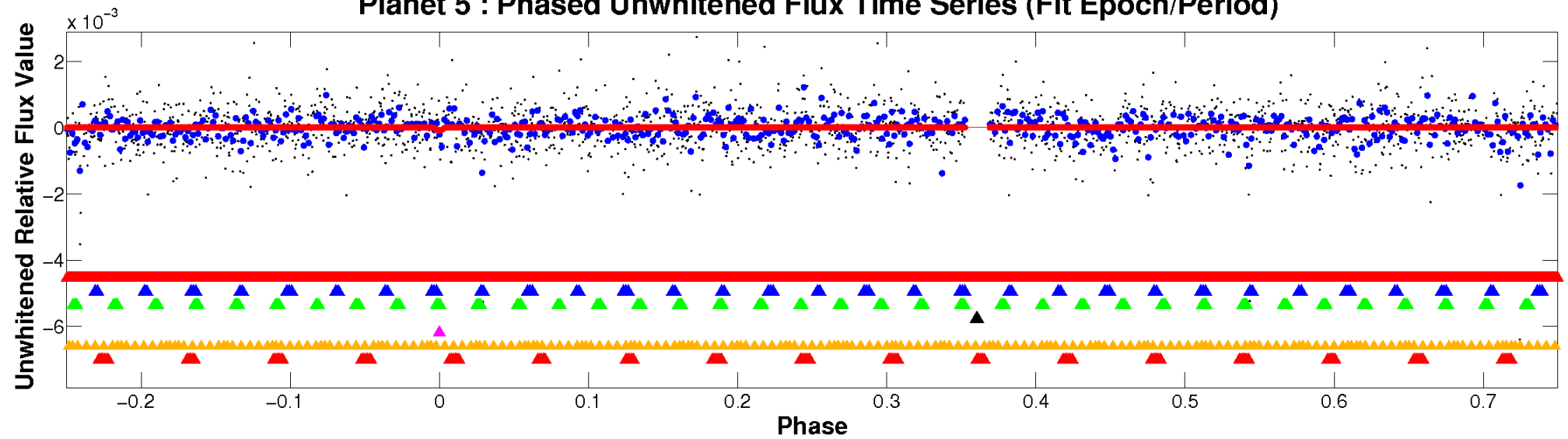


ALT Odd/Even

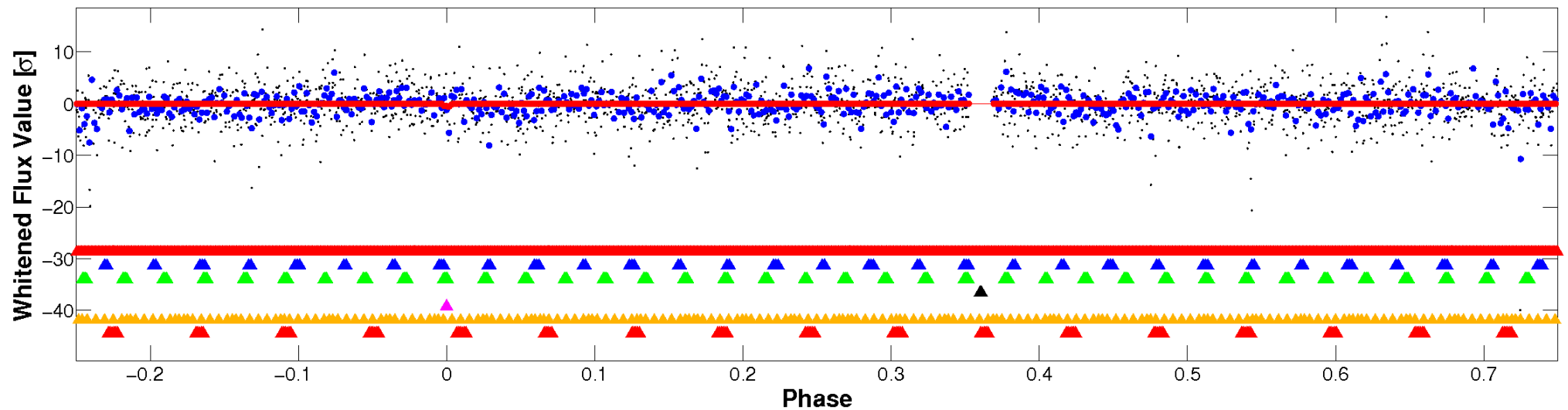
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

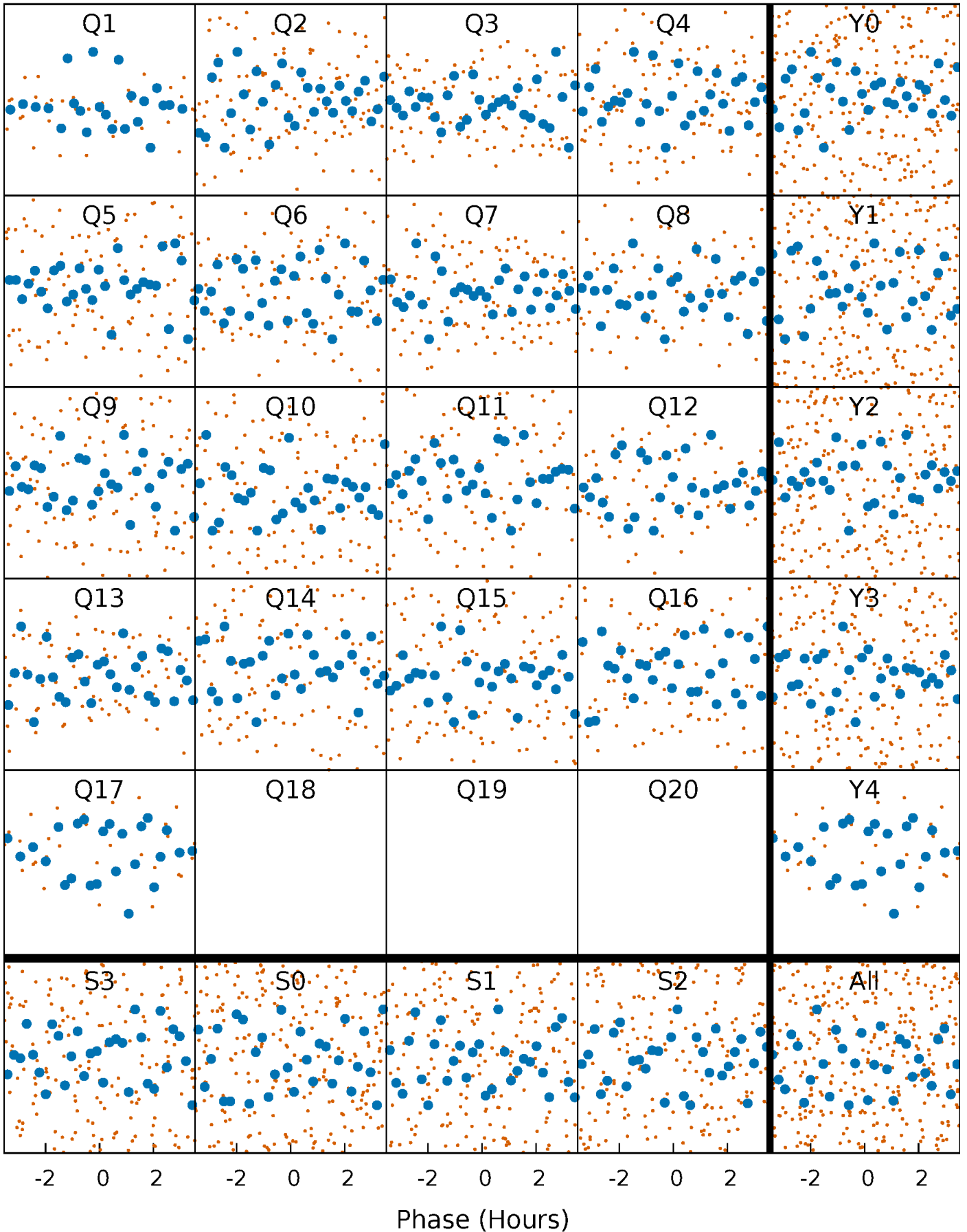


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

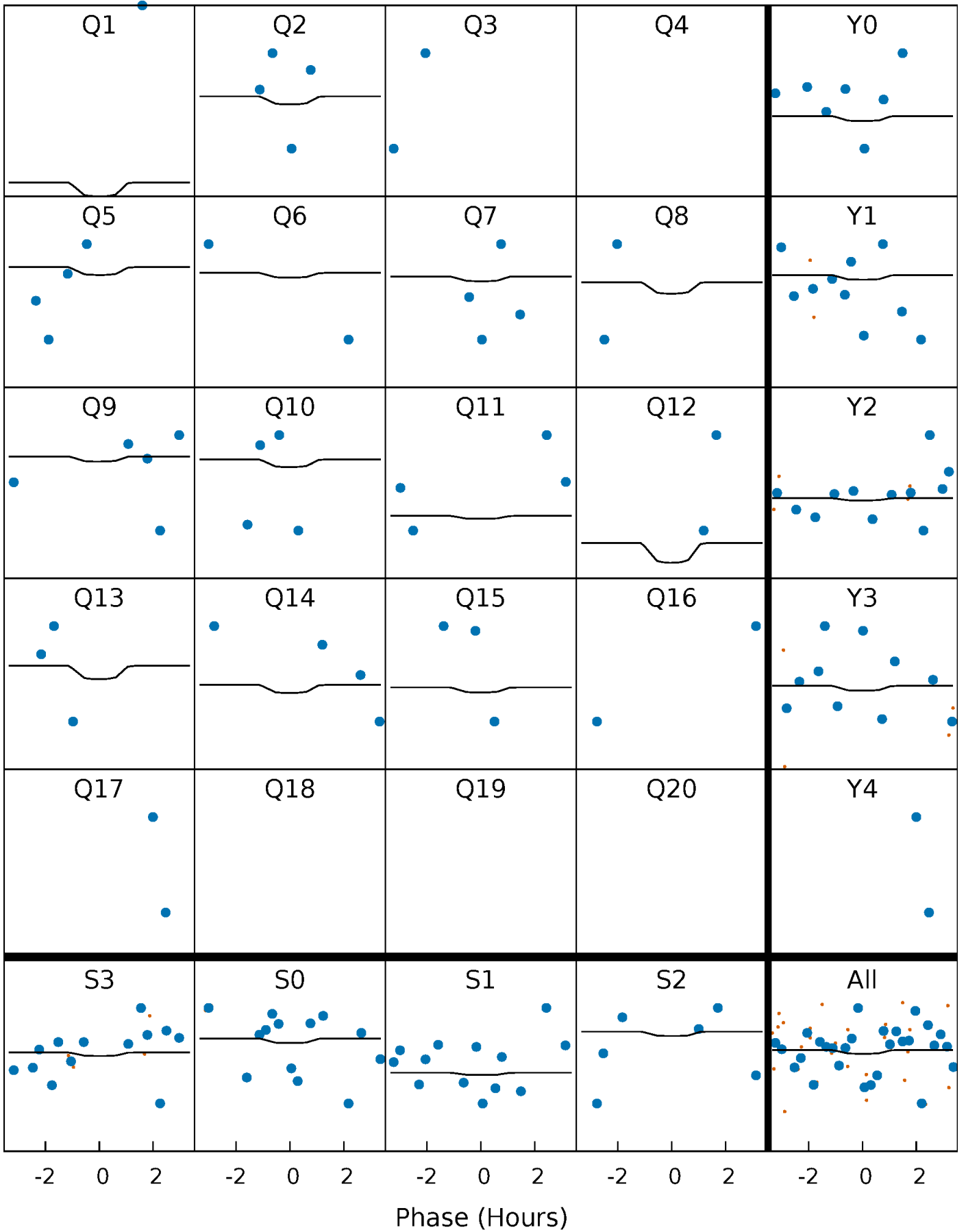
TCE 008623953-05   P= 12.121124 Days    $T_0=136.347490$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008623953-05   P= 12.121124 Days    $T_0=136.347490$  (BKJD)

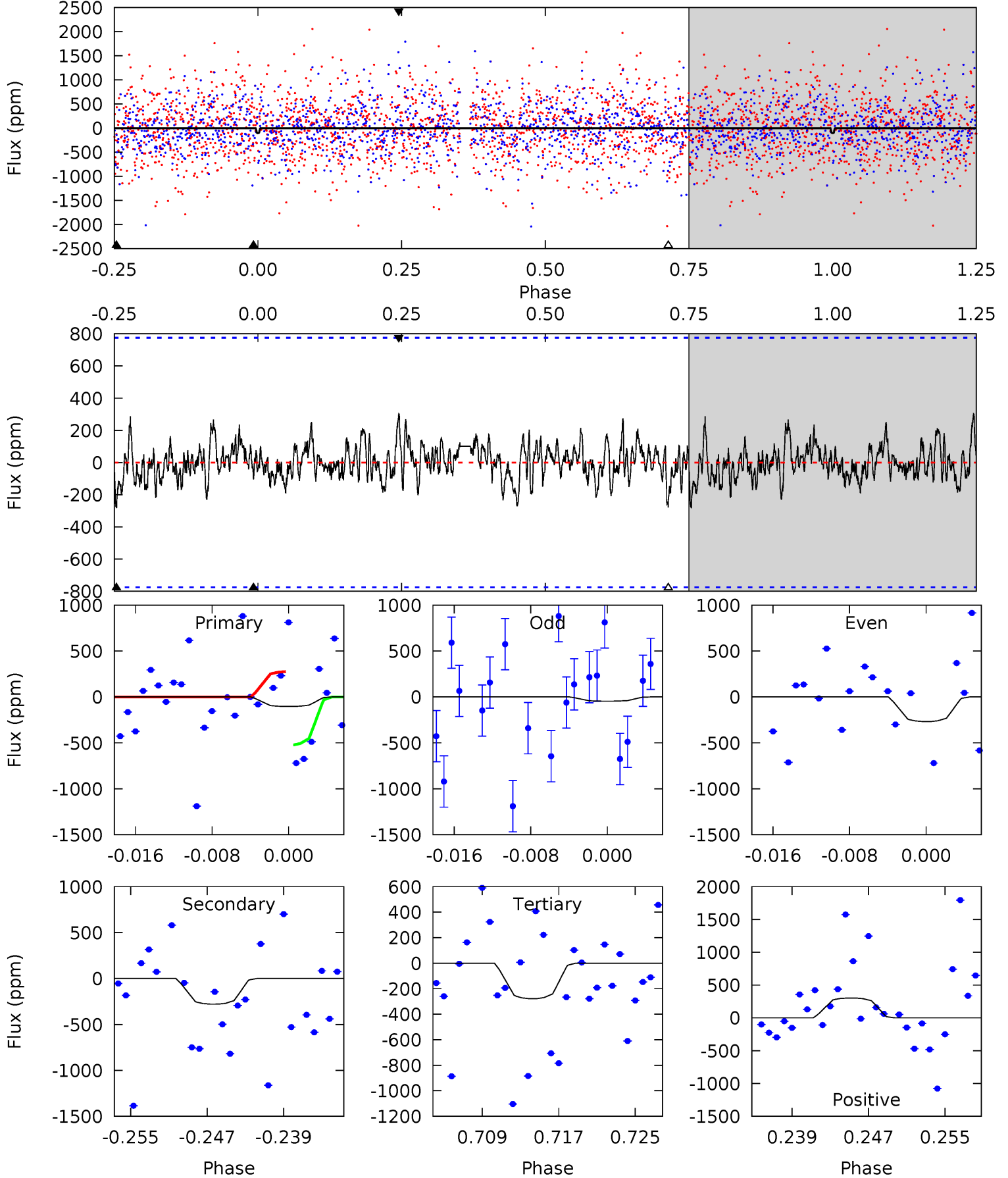


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

008623953-05, P = 12.121124 Days, E = 124.226366 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
0.68	1.83	1.82	1.98	5.07	2.65	0.64	-1.14	-1.30	0.01	-0.15	0.72	0	0.52	0.82



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008623953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7742^{+153}_{-184}$	$3.499^{+0.180}_{-0.009}$	$0.210^{+0.200}_{-0.150}$	$4.593^{+0.258}_{-1.032}$	$2.425^{+0.213}_{-0.260}$	$0.035^{+0.033}_{-0.002}$
	+2%/-2%	+5%/-0%	+95%/-71%	+6%/-22%	+9%/-11%	+94%/-7%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 008623953-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-280 \pm 153$	$77.72^{+78.34}_{-52.83}$	$2665^{+101}_{-142}$	$2564^{+1752}_{-5292}$	$0.435^{+3.930}_{-0.354}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

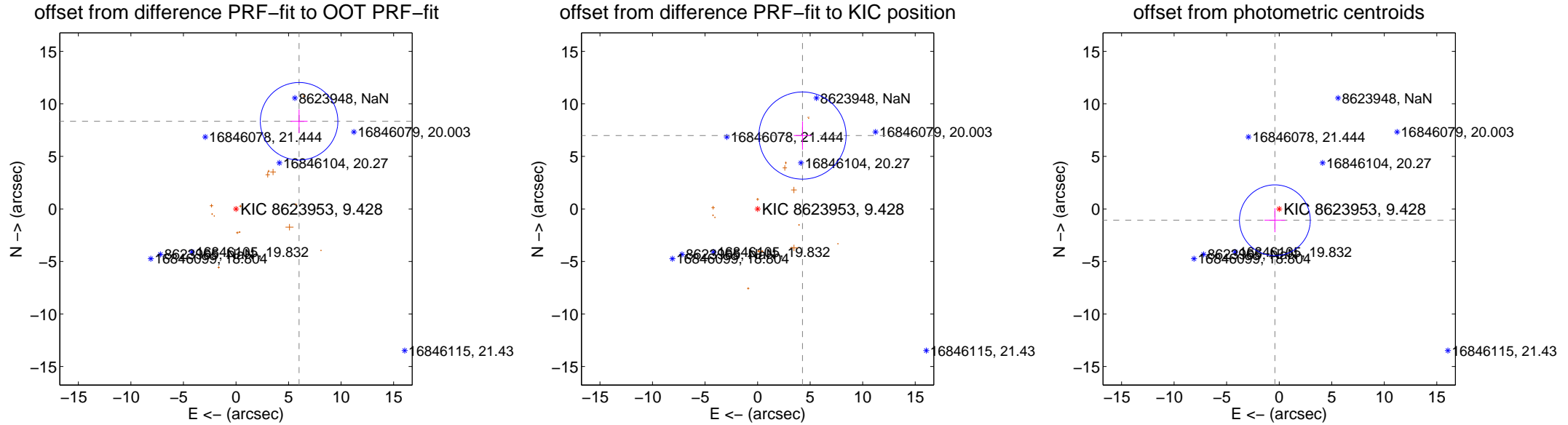
## DV Centroid Data

Supplemental centroid analysis for 008623953-05. **Kepler magnitude: 9.43.** Transit SNR 1.45

There are 0 quarters with good PRF difference image offsets

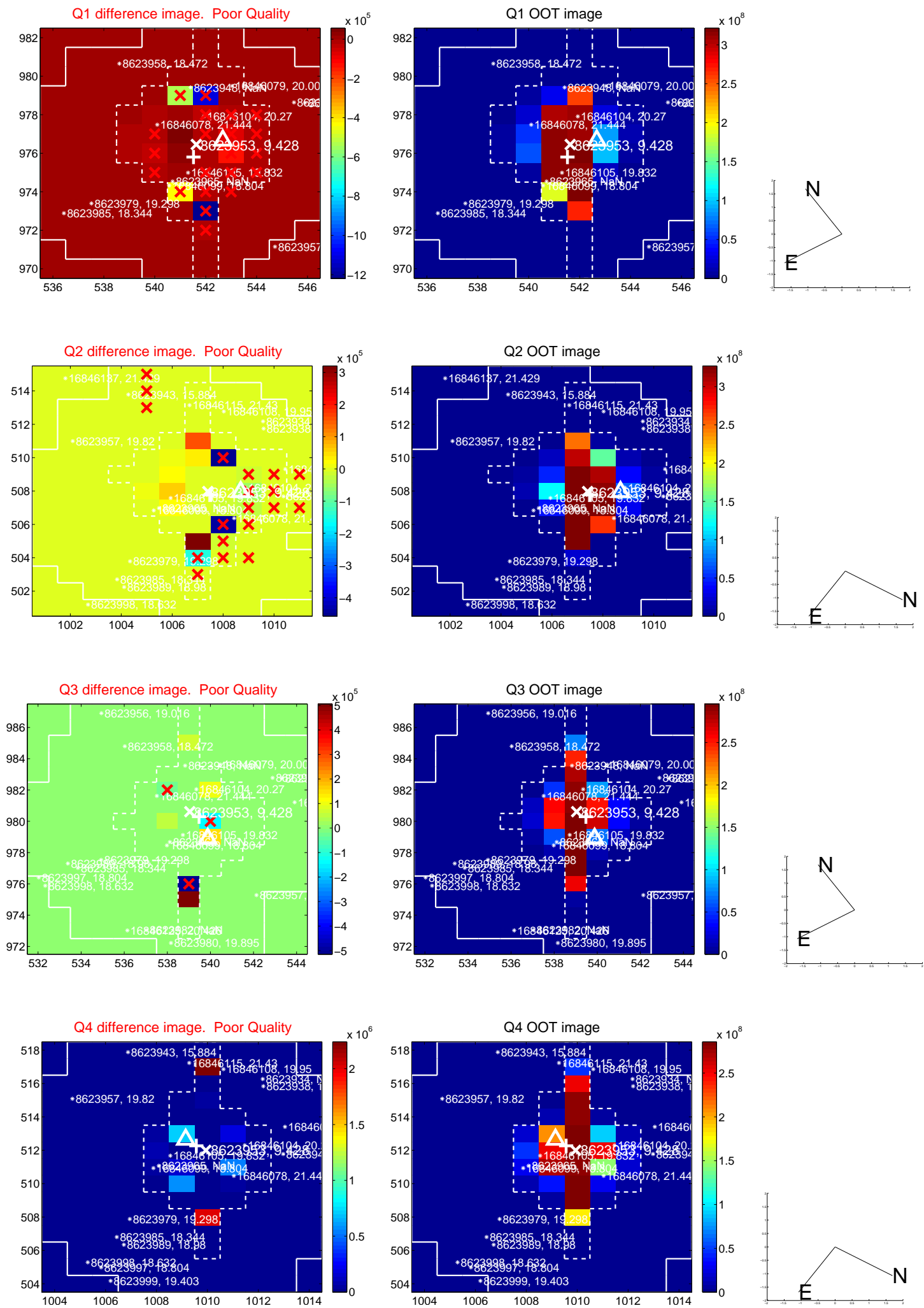
The OOT PRF centroid is offset from the target star catalog position by about 2.56 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>10.282 <math>\pm</math> 1.230</b>	<b>8.36</b>	-6.005 $\pm$ 0.808	8.346 $\pm$ 1.125
PRF-fit source offset from KIC position	<b>8.190 <math>\pm</math> 1.383</b>	<b>5.92</b>	-4.274 $\pm$ 0.829	6.986 $\pm$ 1.350
photometric centroid source offset	1.15 $\pm$ 1.12	1.03	0.41 $\pm$ 0.99	-1.08 $\pm$ 1.14



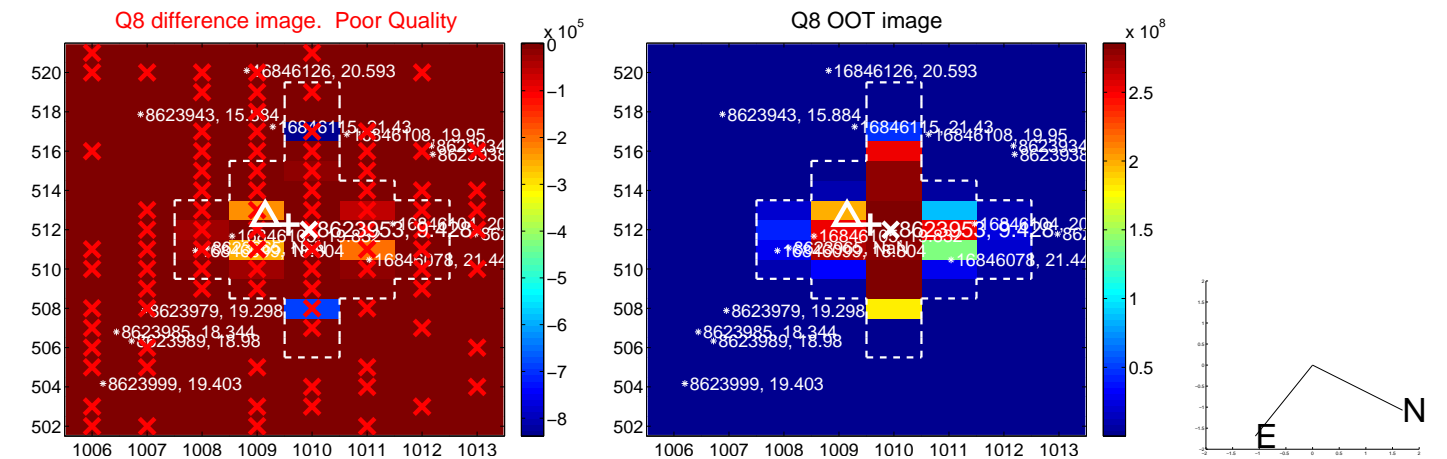
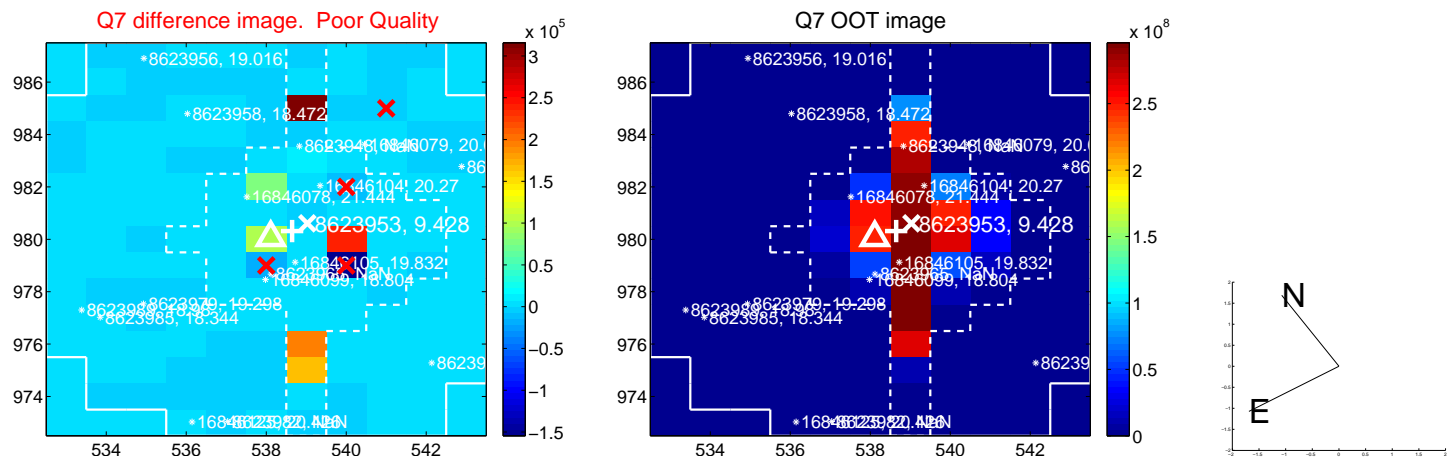
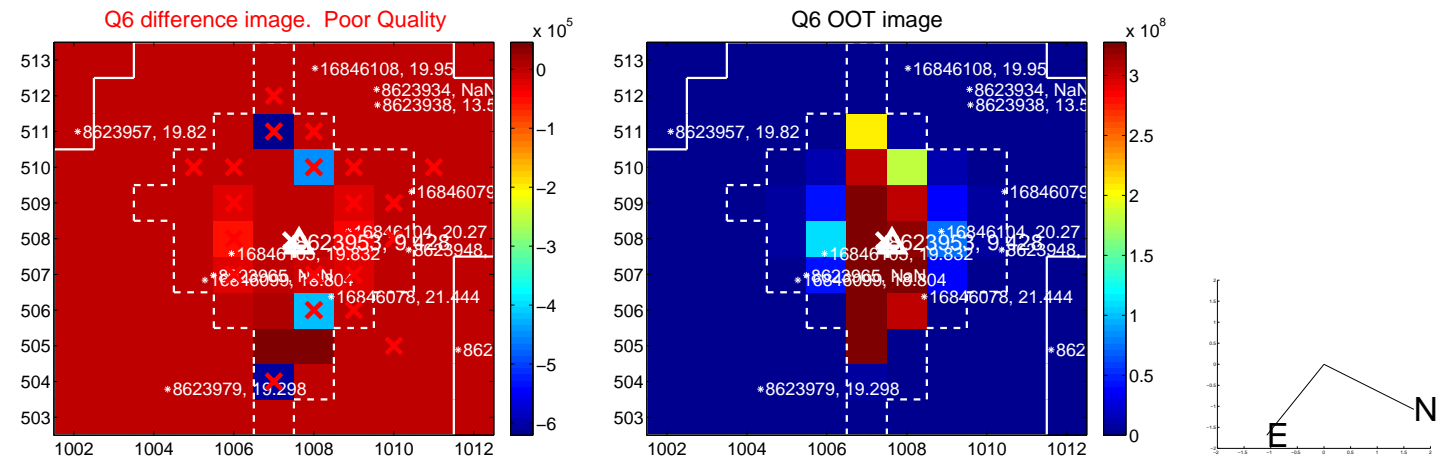
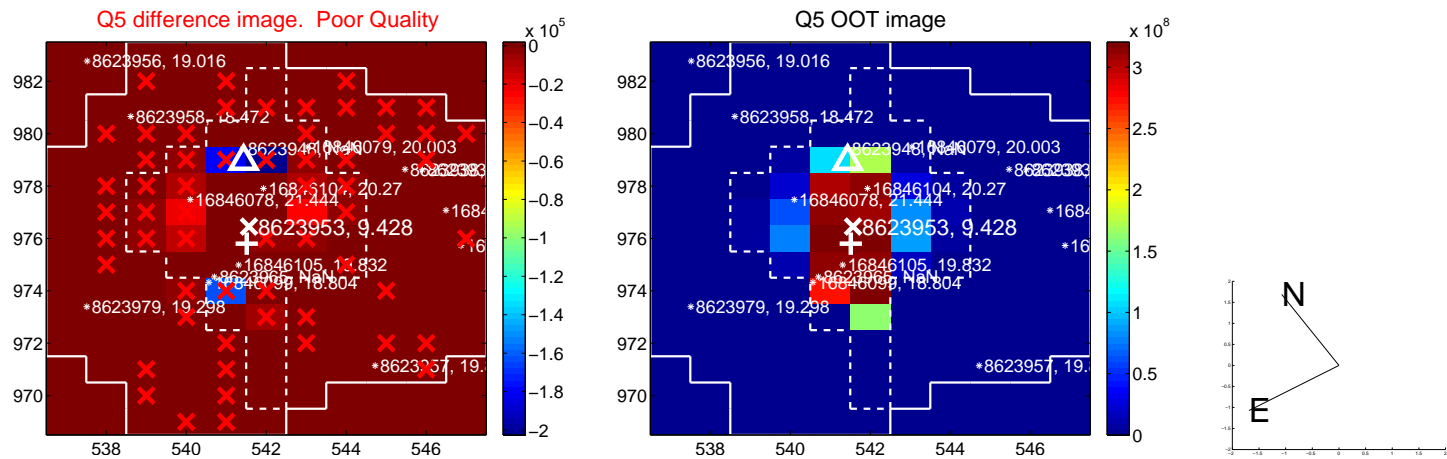
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

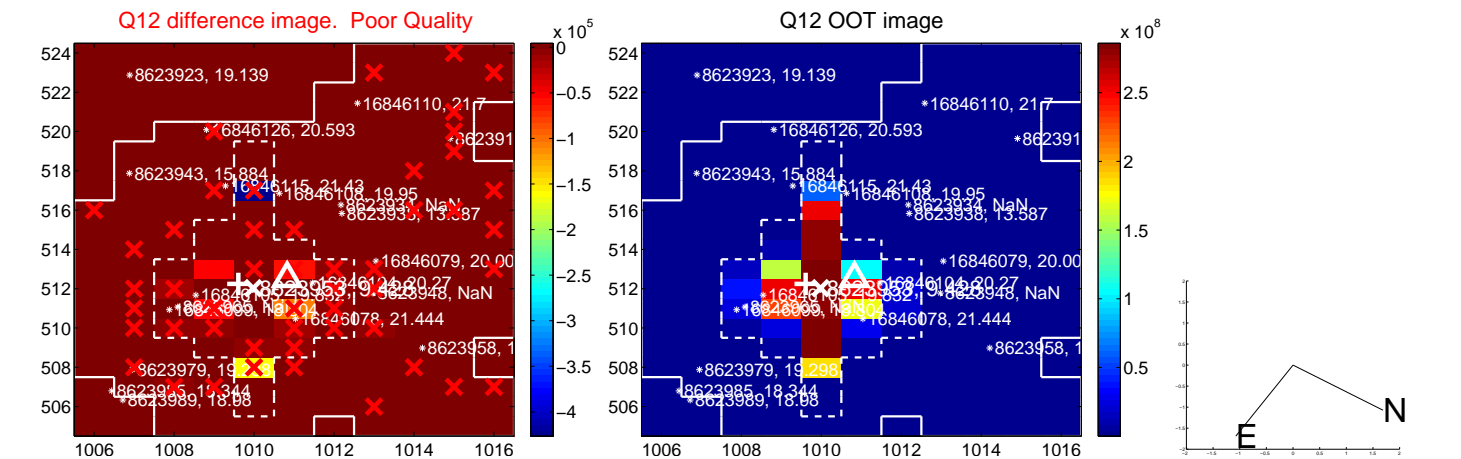
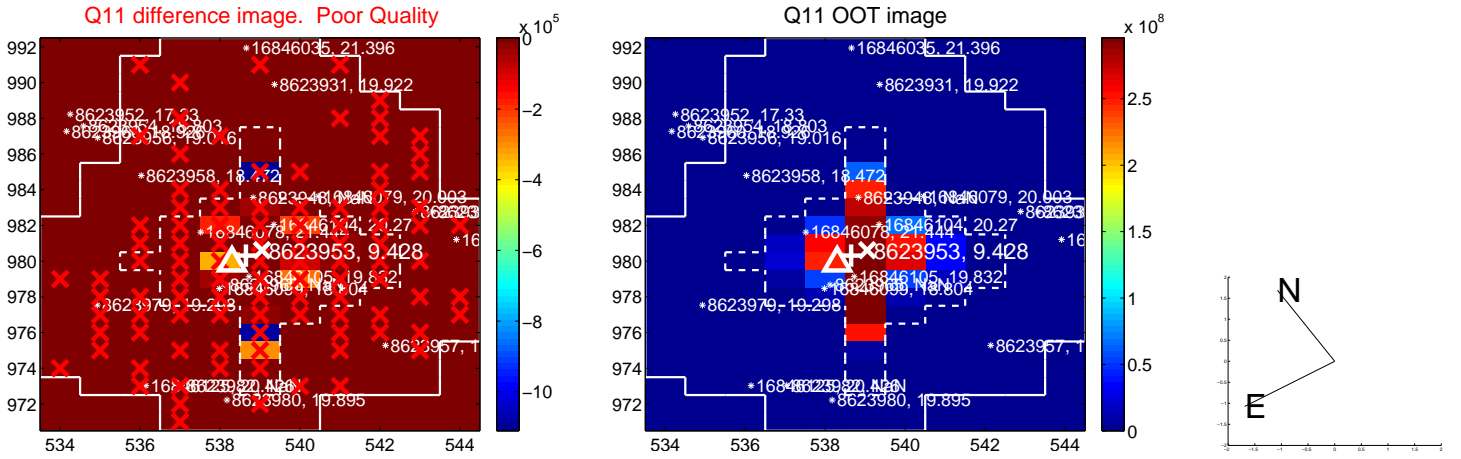
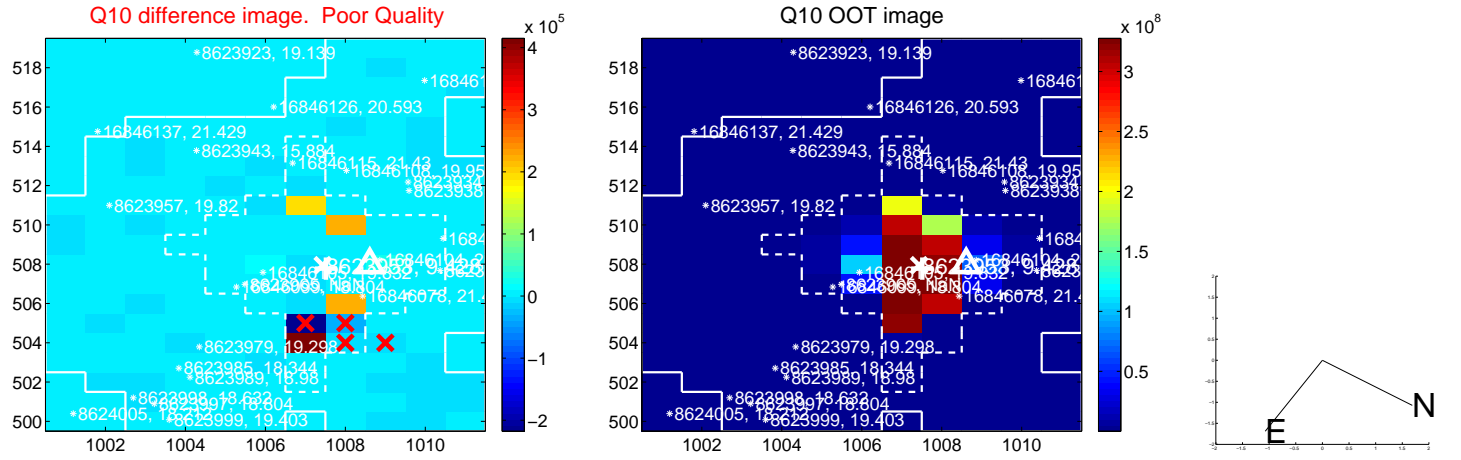
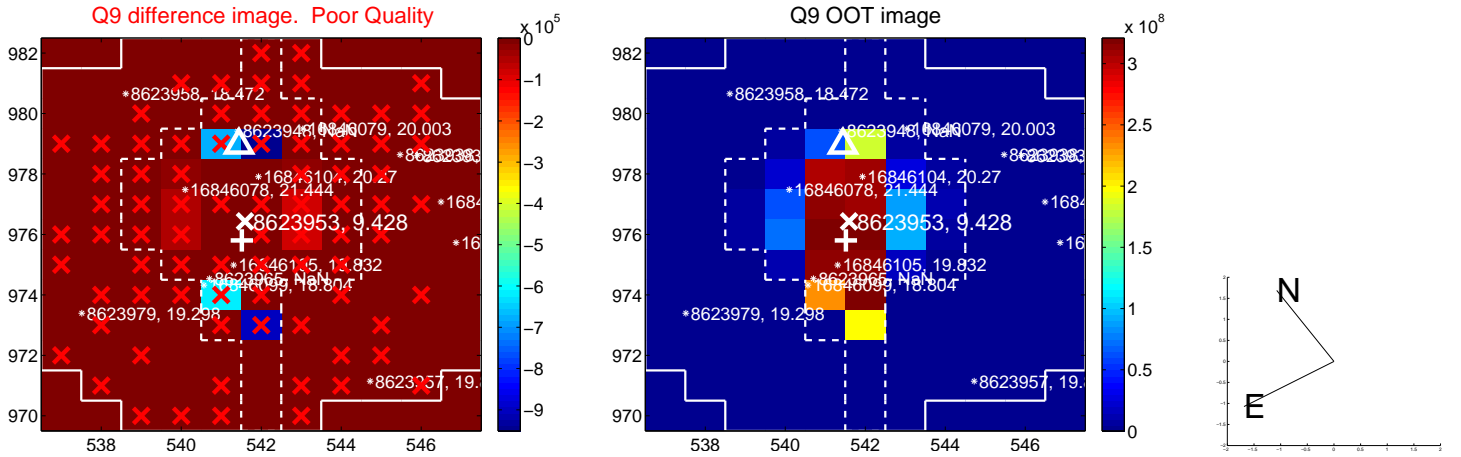




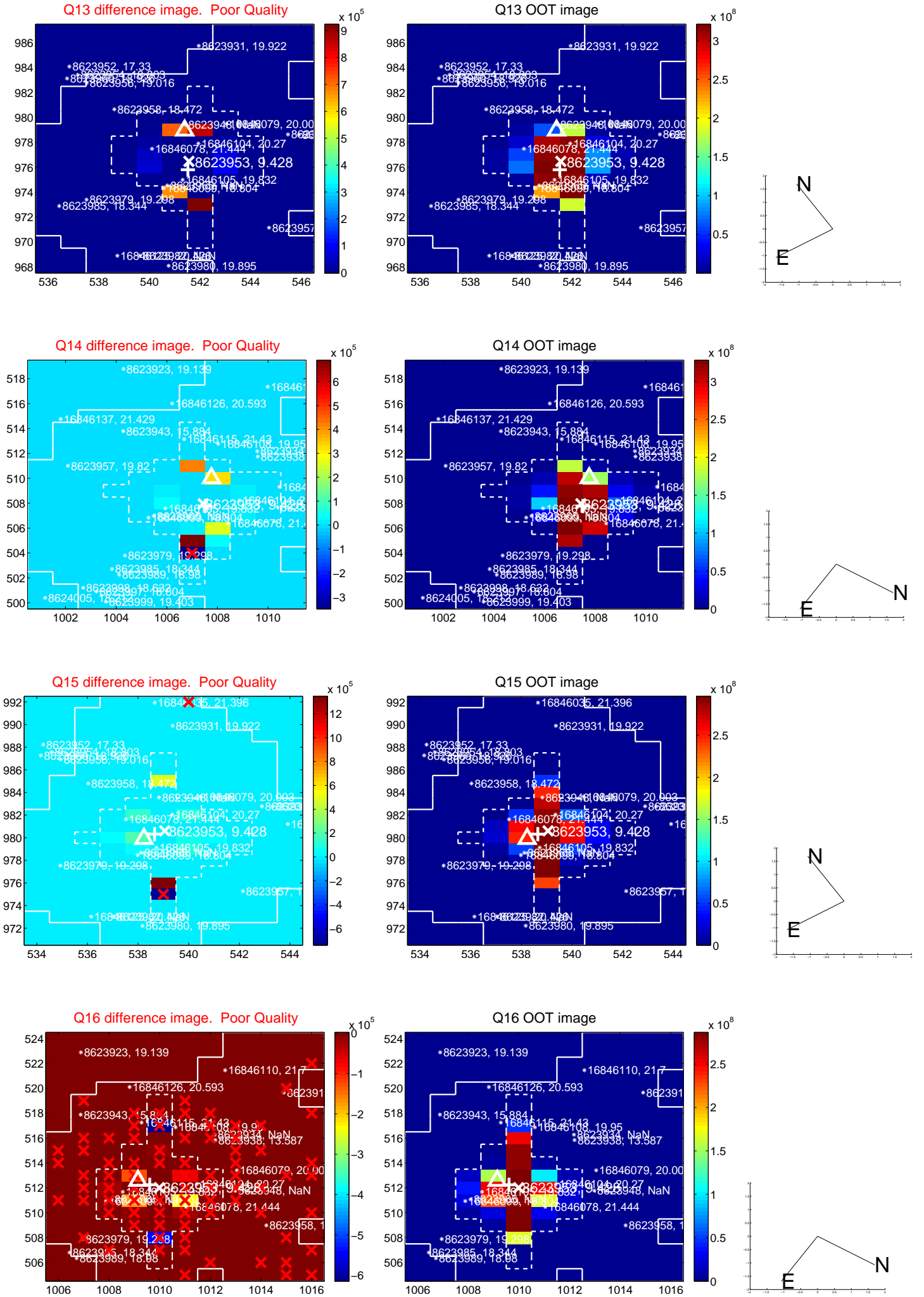
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



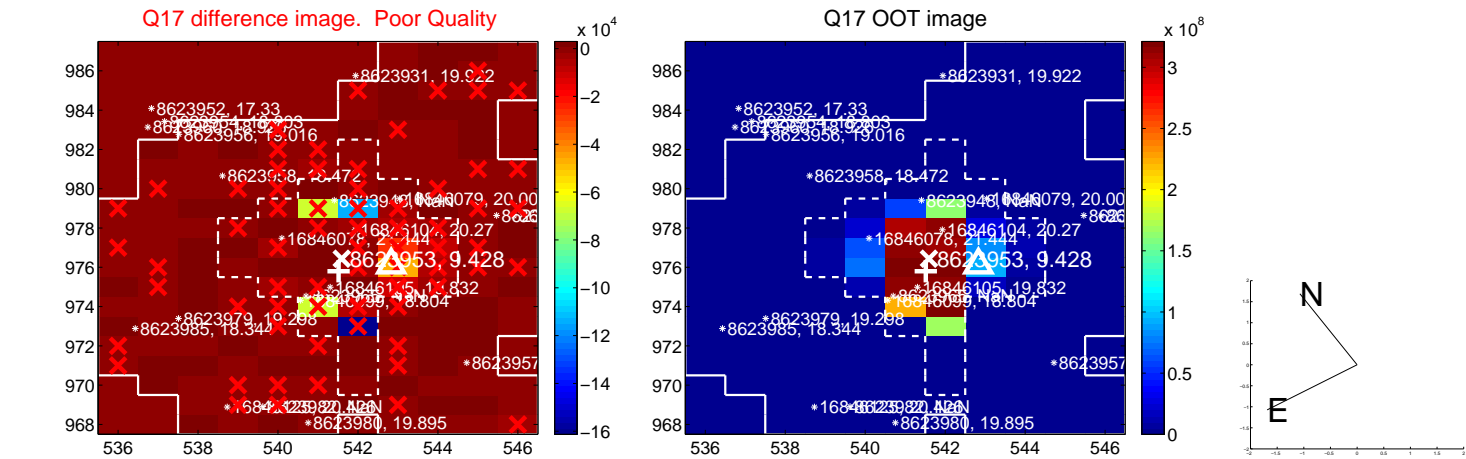
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



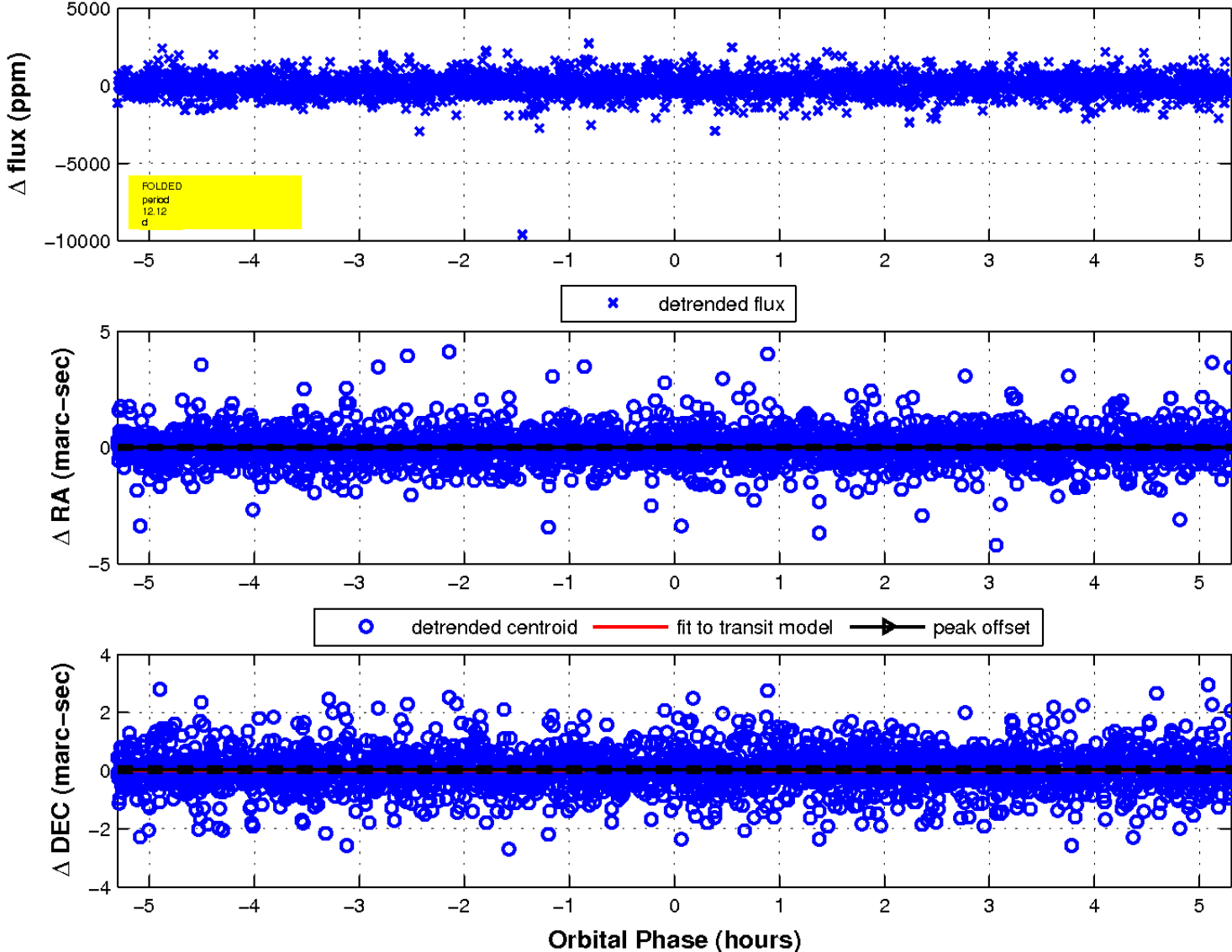
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



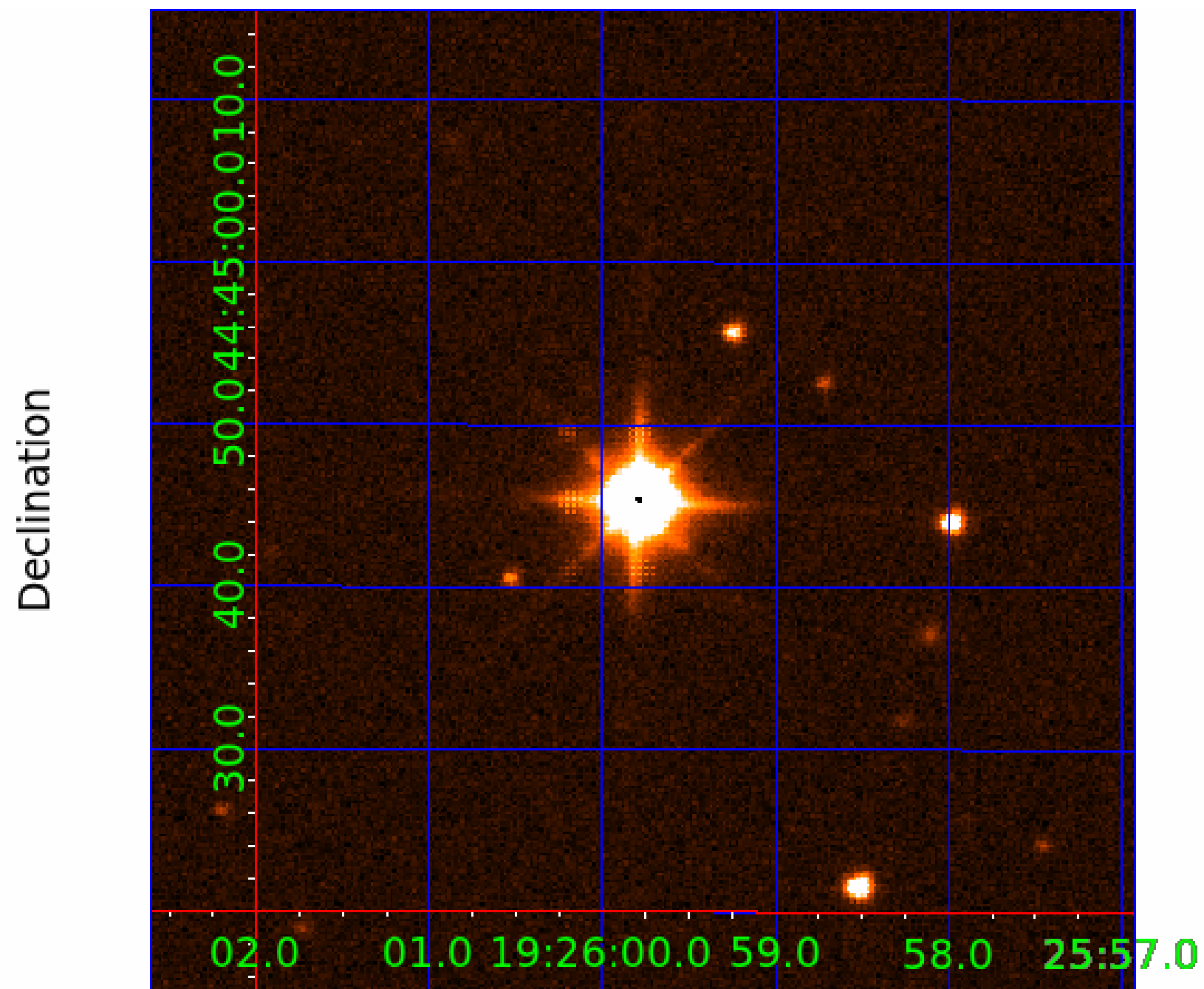
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 5 of 7



UKIRT Image



# KIC 008623953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008623953-01	OBS	No	0.563109	131.653603	50.8	4.186	14.6	13.0	4.59	7742	3.35	0.00
008623953-02	OBS	No	19.549569	136.324654	632.8	3.941	12.5	14.2	4.59	7742	11.67	1862.89
008623953-03	OBS	No	10.155812	133.369629	582.0	0.843	13.3	7.0	4.59	7742	11.54	4460.86
008623953-04	OBS	No	12.121043	140.721640	588.0	1.491	8.9	9.5	4.59	7742	11.47	3523.58
008623953-05	OBS	No	12.121124	136.347490	72.1	1.770	8.4	1.5	4.59	7742	4.05	3523.55
008623953-06	OBS	No	6.689962	137.041695	708.5	1.260	12.5	15.3	4.59	7742	14.11	7782.87
008623953-07	OBS	No	14.972273	140.074249	611.9	1.290	8.7	9.4	4.59	7742	12.86	2658.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008623953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008623953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—SAME_NTL_PERIOD—CENT_SATURATED
008623953-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—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 008623953-06

No Significant Match Found

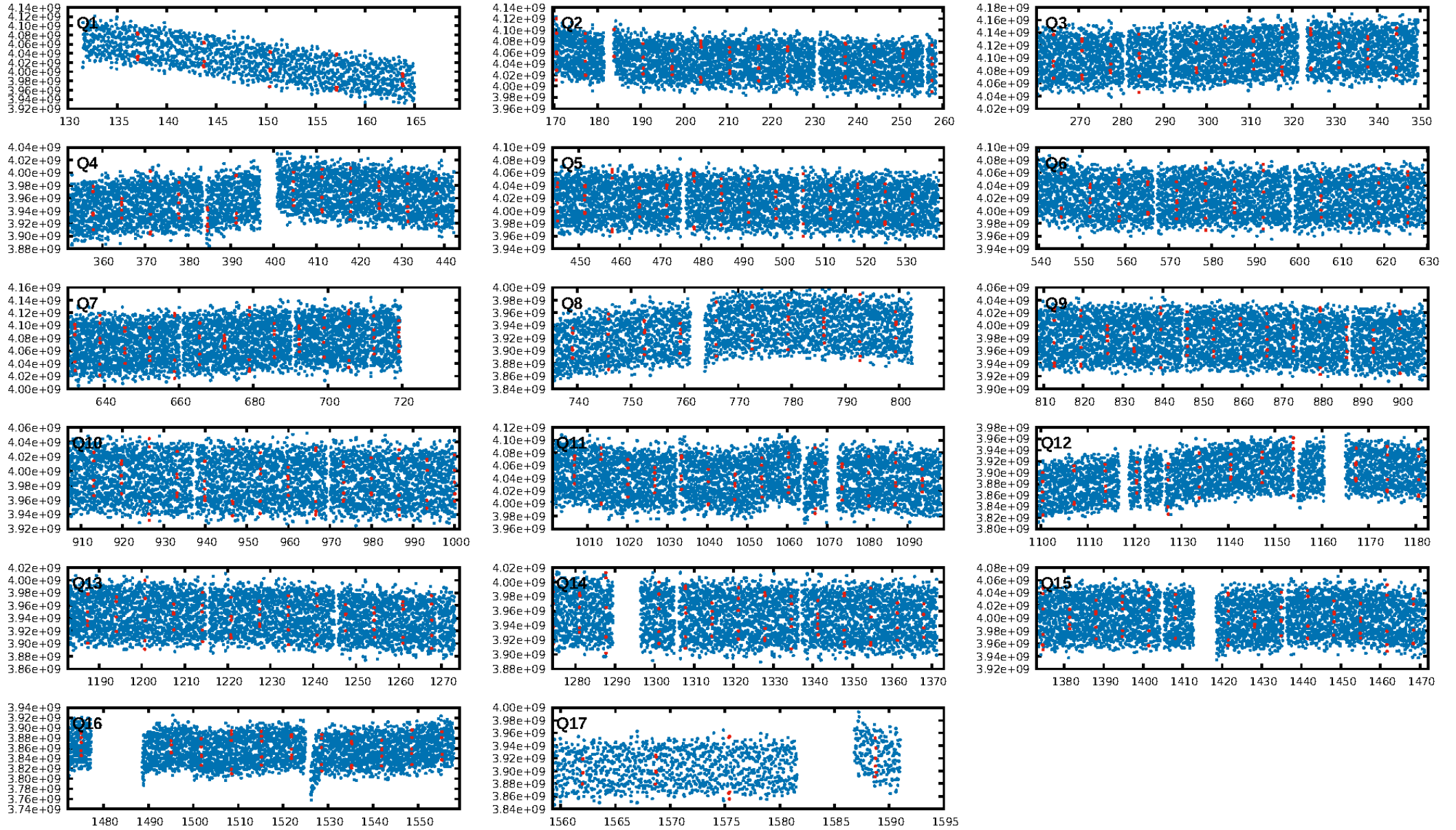


## KIC: 8623953    Candidate: 6 of 7    Period: 6.690 d

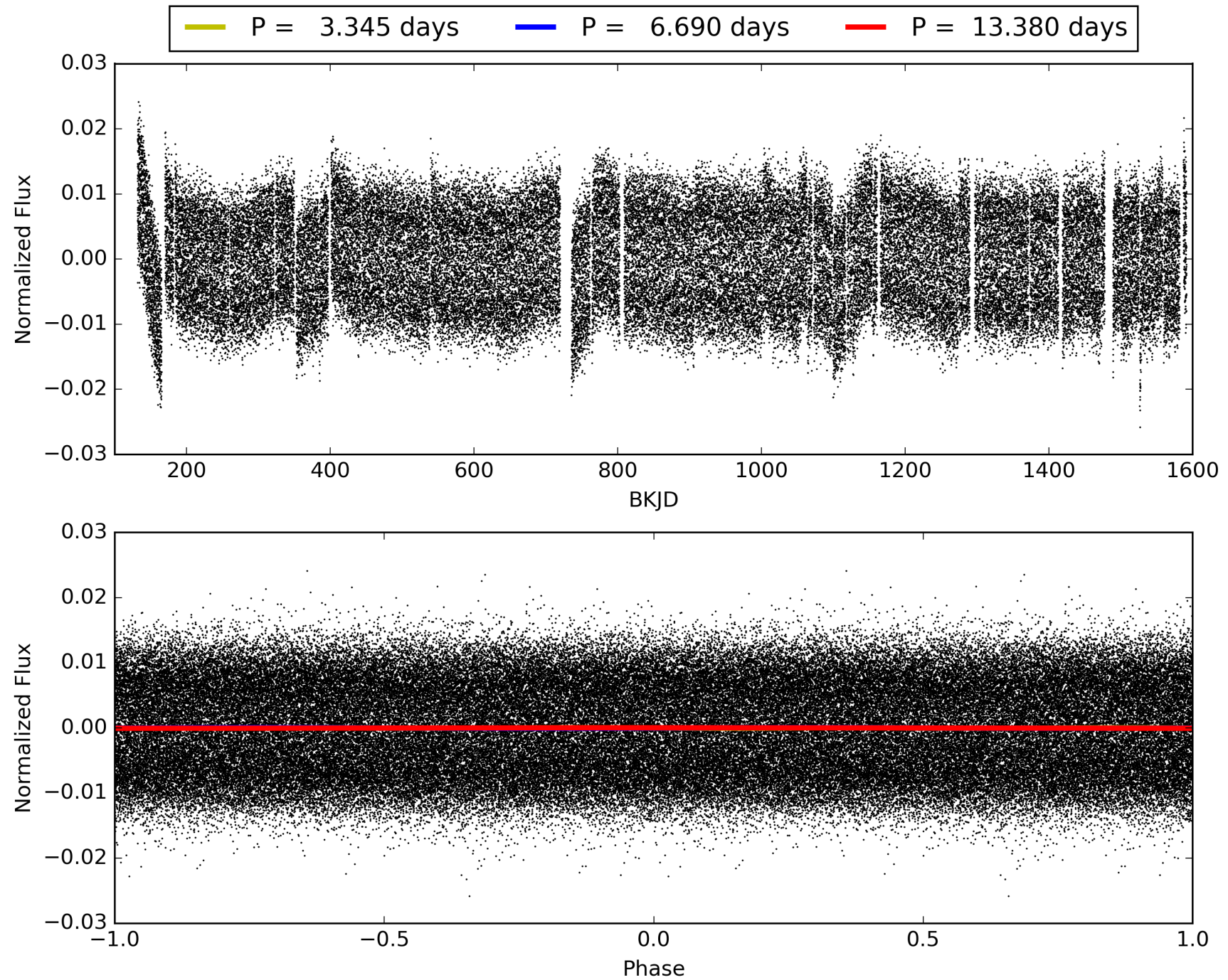




# TCE 008623953-06, PDC Light Curves

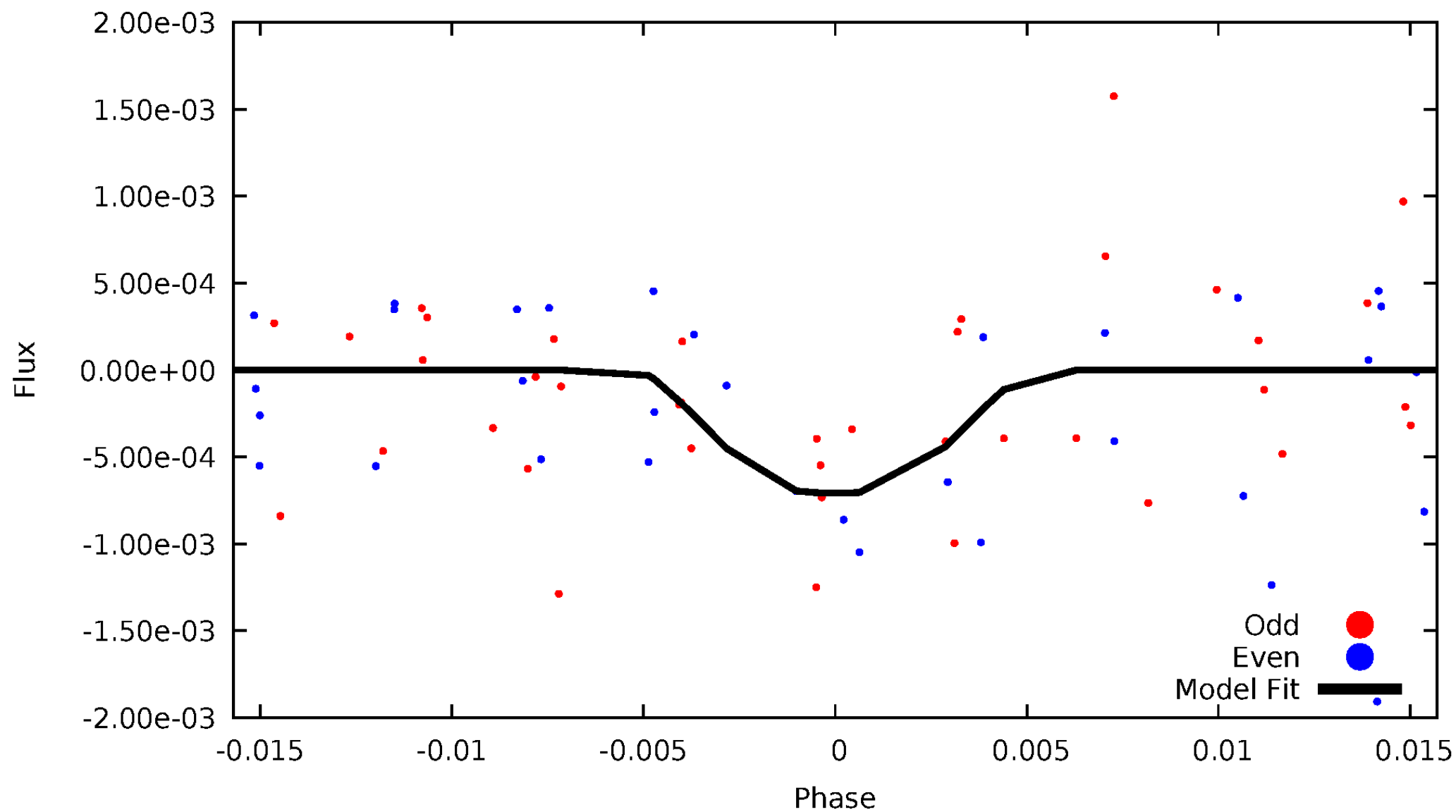


TCE 008623953-06



# DV Odd/Even

TCE 008623953-06



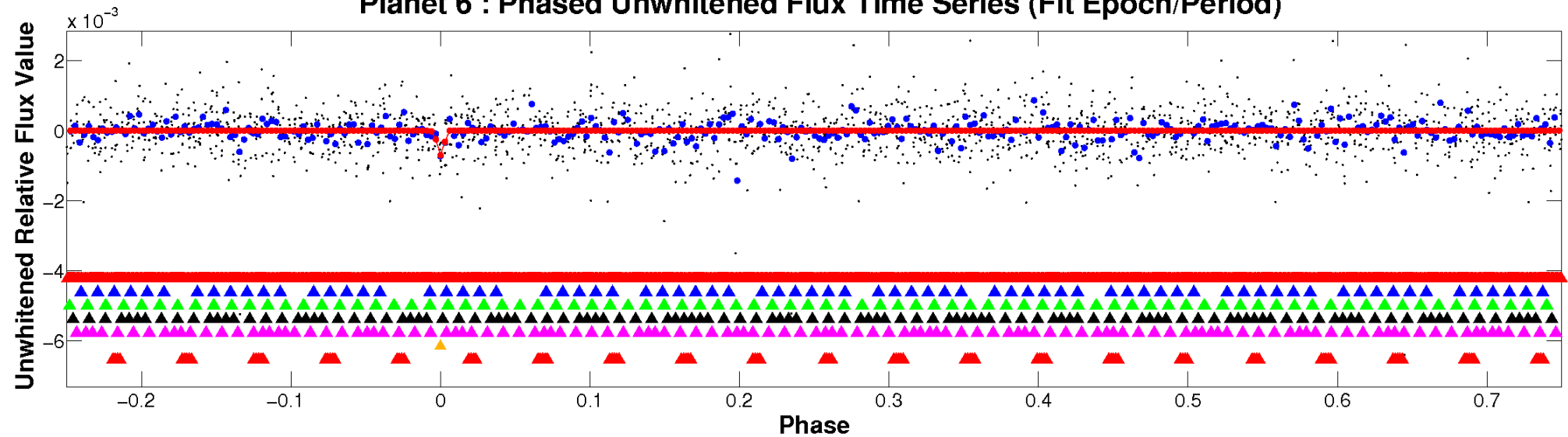


ALT Odd/Even

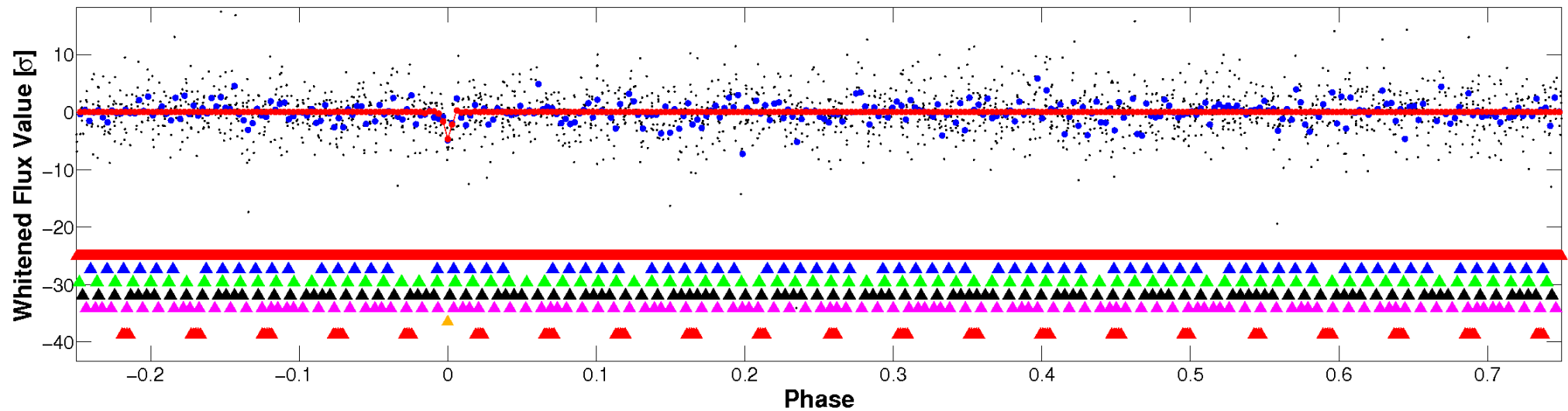
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

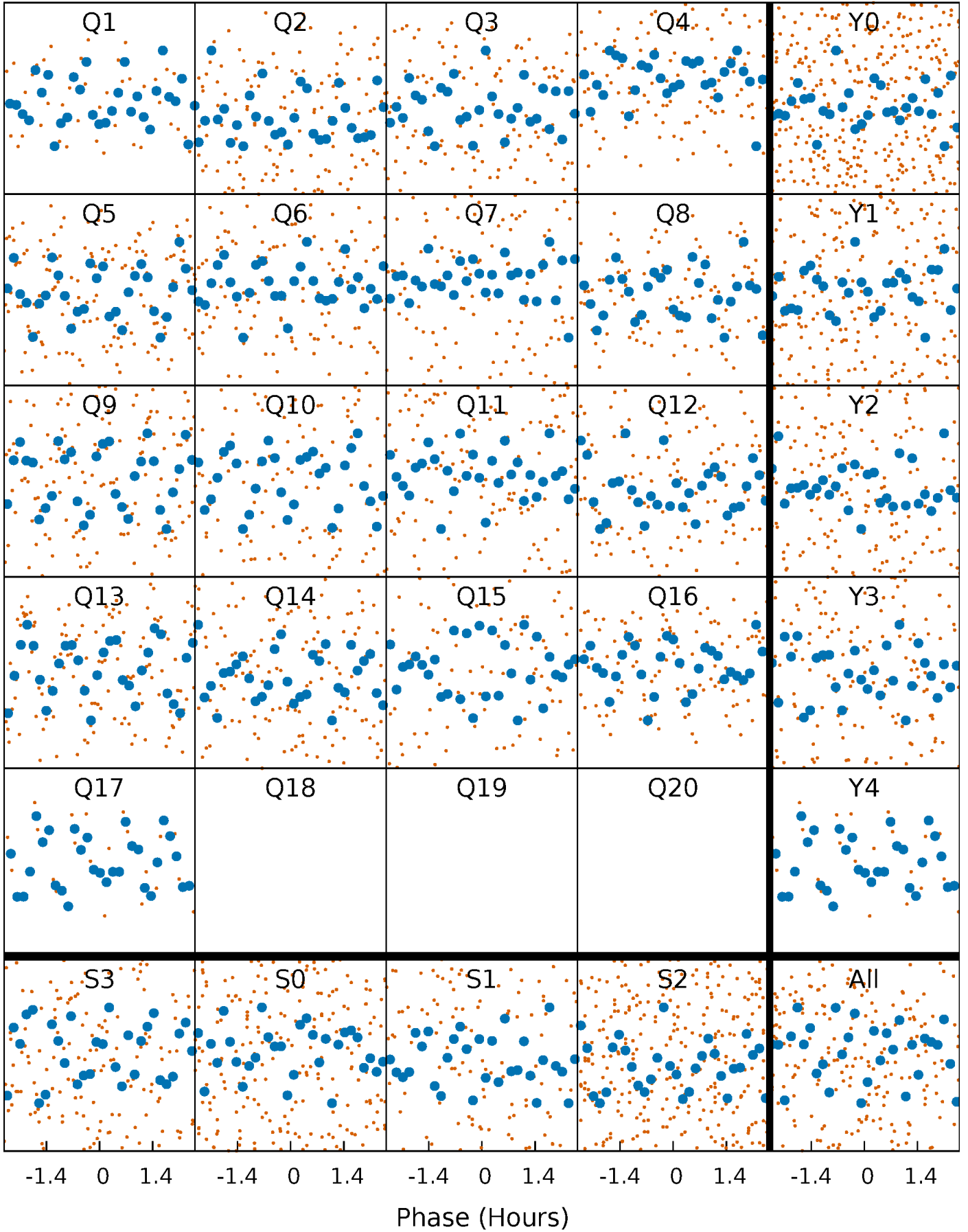


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

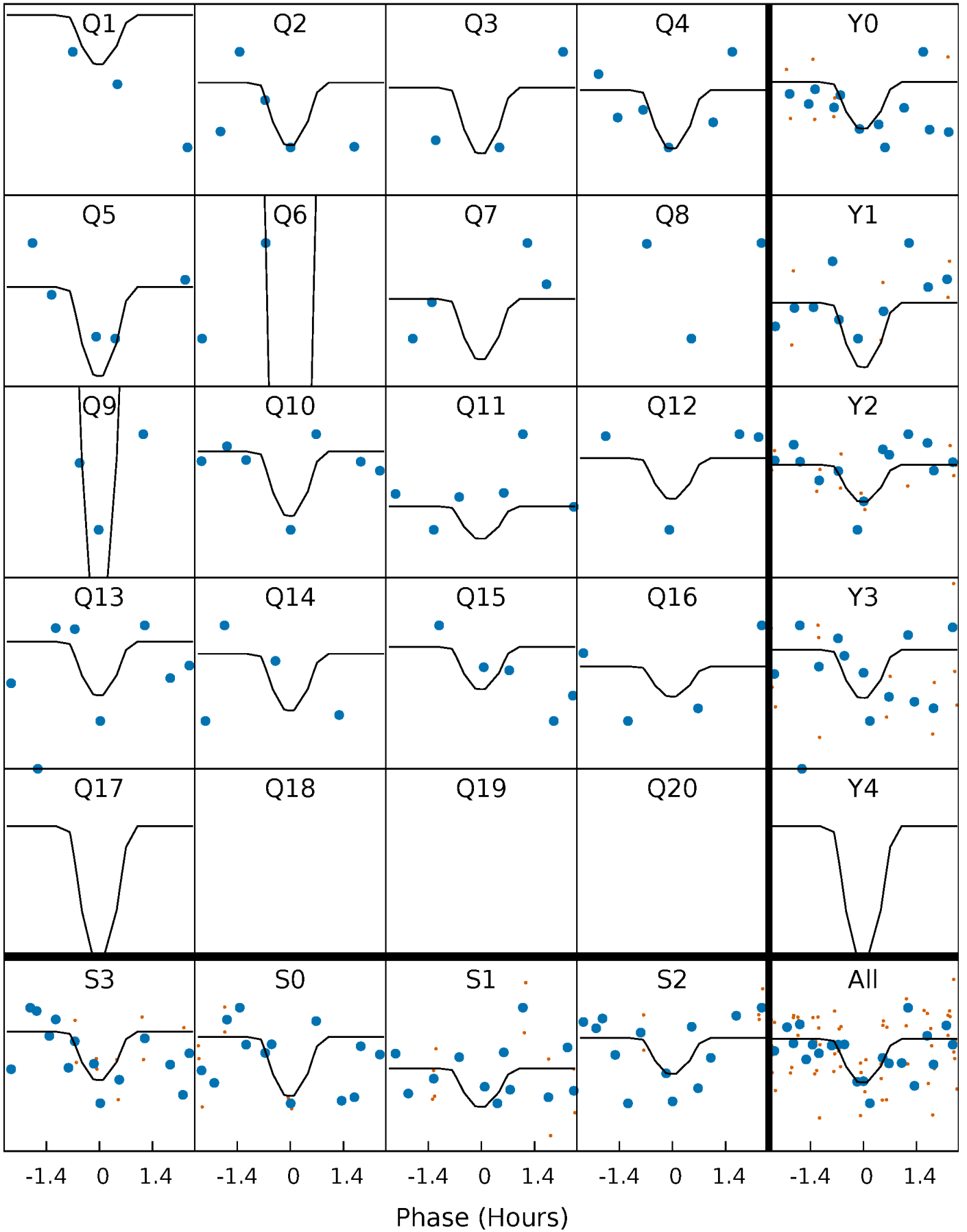
TCE 008623953-06 P= 6.689962 Days  $T_0=137.041695$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008623953-06 P= 6.689962 Days  $T_0=137.041695$  (BKJD)

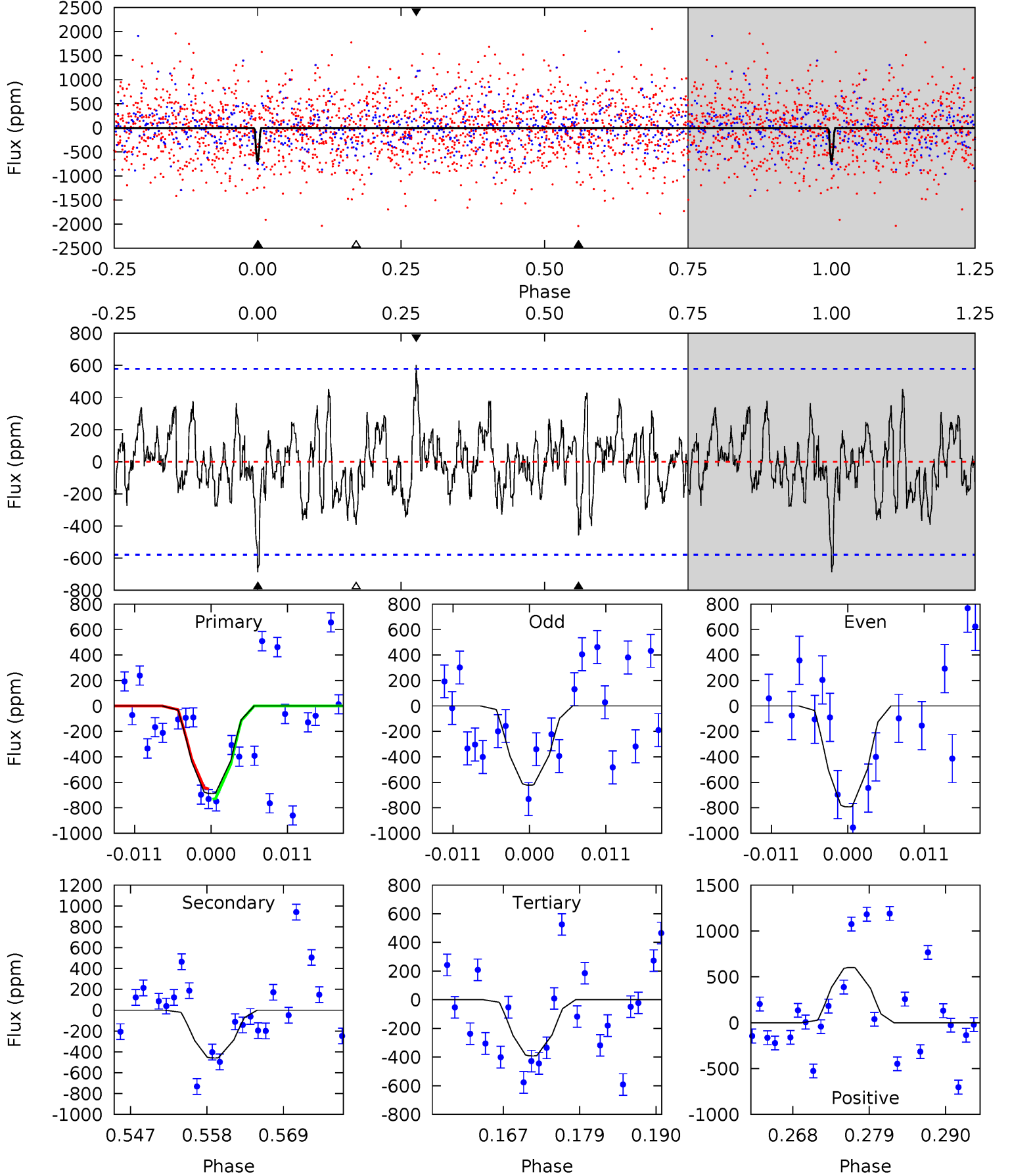


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

008623953-06, P = 6.689962 Days, E = 130.351733 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.96	3.97	3.39	5.21	5.01	2.54	1.40	2.56	0.74	0.58	-1.24	0.75	0	0.47	0.35



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008623953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7742^{+153}_{-184}$	$3.499^{+0.180}_{-0.009}$	$0.210^{+0.200}_{-0.150}$	$4.593^{+0.258}_{-1.032}$	$2.425^{+0.213}_{-0.260}$	$0.035^{+0.033}_{-0.002}$
	+2%/-2%	+5%/-0%	+95%/-71%	+6%/-22%	+9%/-11%	+94%/-7%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 008623953-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	-459±116	$22.43^{+21.23}_{-14.68}$	$3262^{+109}_{-162}$	$5025^{+3824}_{-1289}$	$4.266^{+31.950}_{-3.113}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{\text{max}}$  = 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

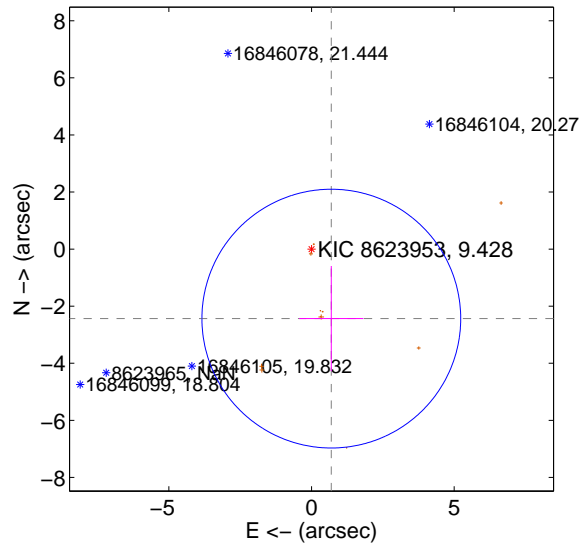
Supplemental centroid analysis for 008623953-06. **Kepler magnitude: 9.43.** Transit SNR 15.35

There are 0 quarters with good PRF difference image offsets

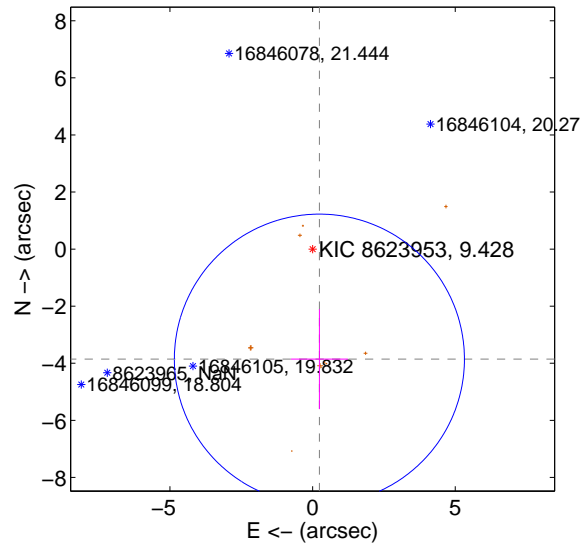
The OOT PRF centroid is offset from the target star catalog position by about 2.55 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.533 \pm 1.511$	1.68	$-0.694 \pm 1.127$	$-2.436 \pm 1.842$
PRF-fit source offset from KIC position	$3.864 \pm 1.694$	2.28	$-0.238 \pm 0.999$	$-3.856 \pm 1.753$
photometric centroid source offset	$0.66 \pm 0.10$	<b>6.71</b>	$0.38 \pm 0.09$	$-0.54 \pm 0.10$

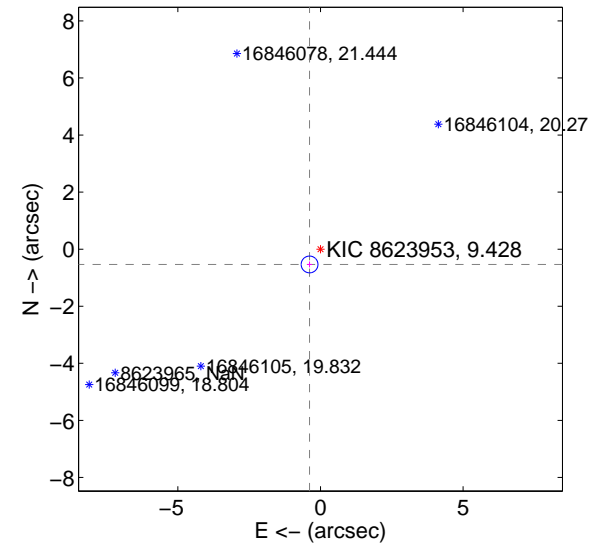
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

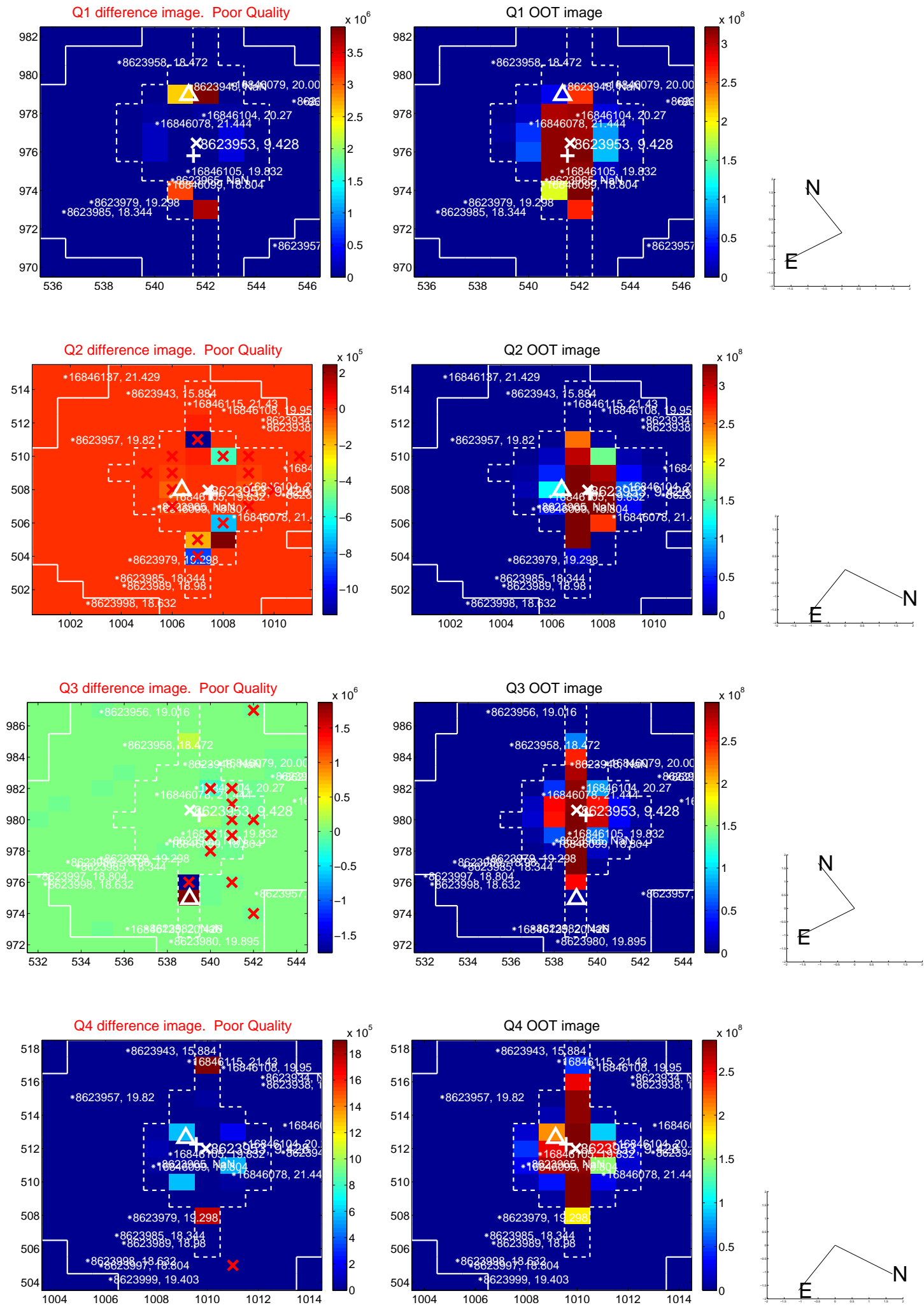


offset from photometric centroids



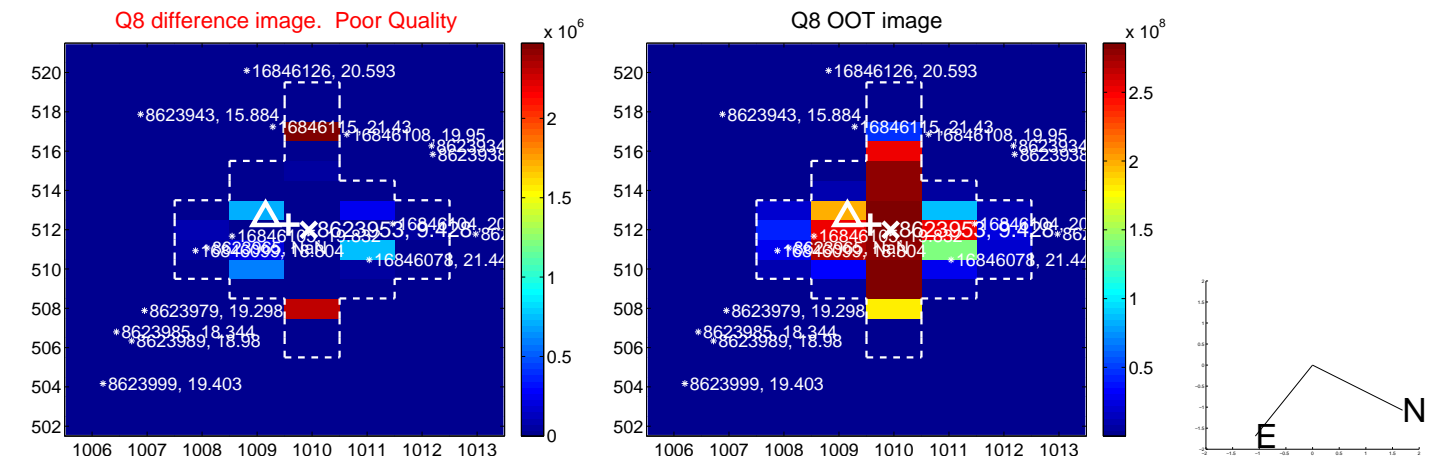
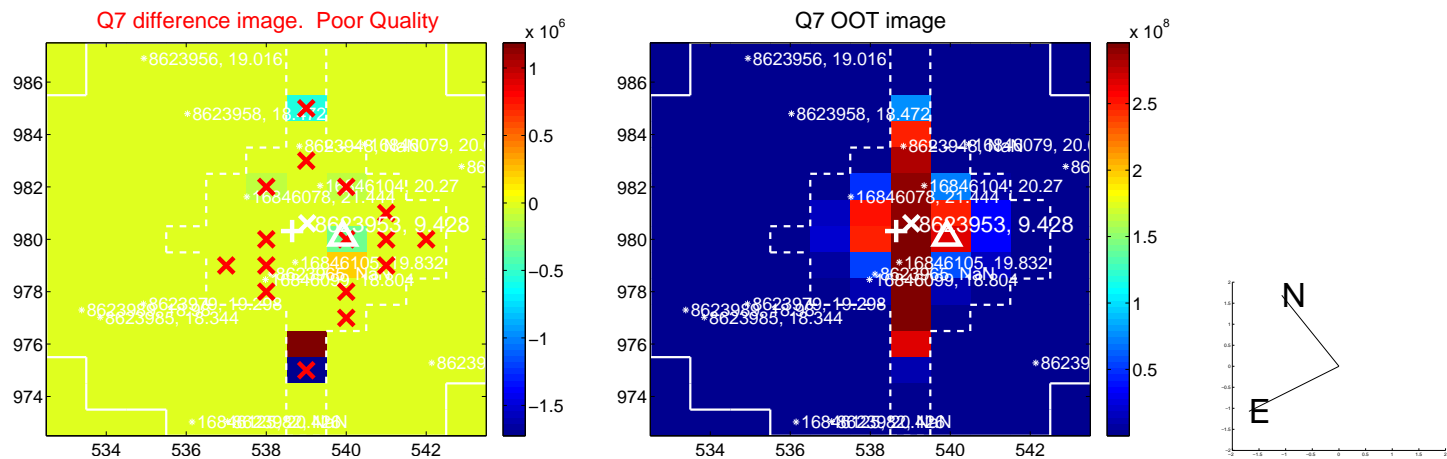
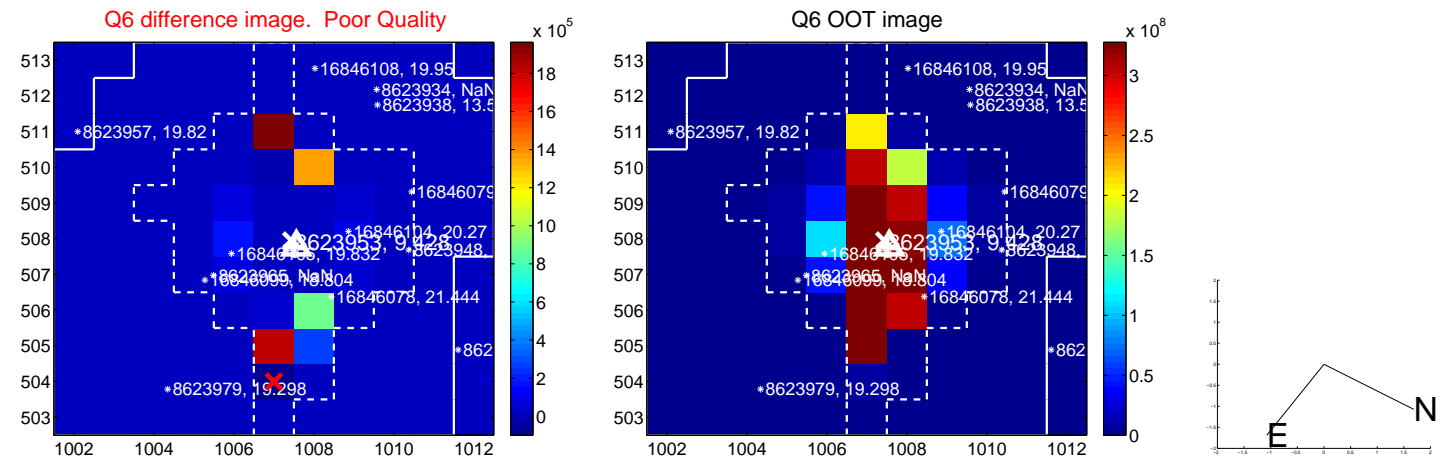
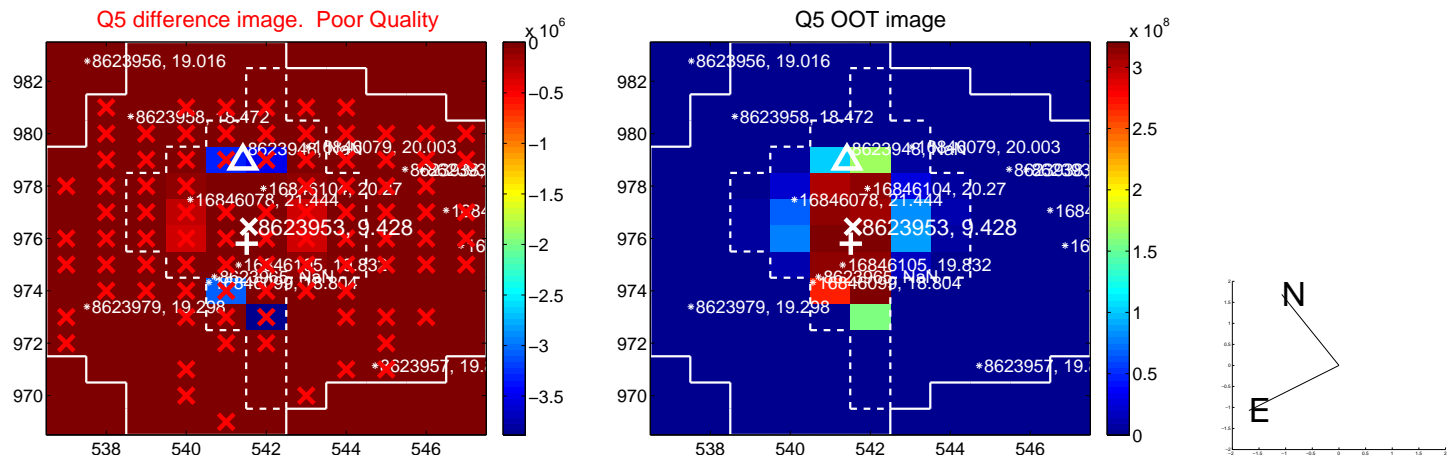
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

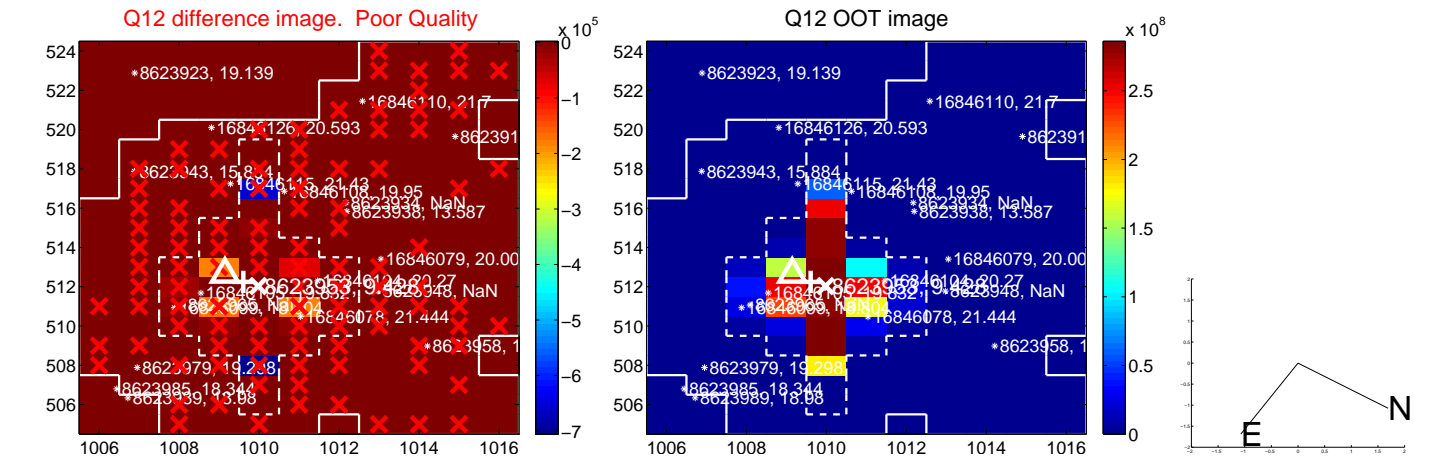
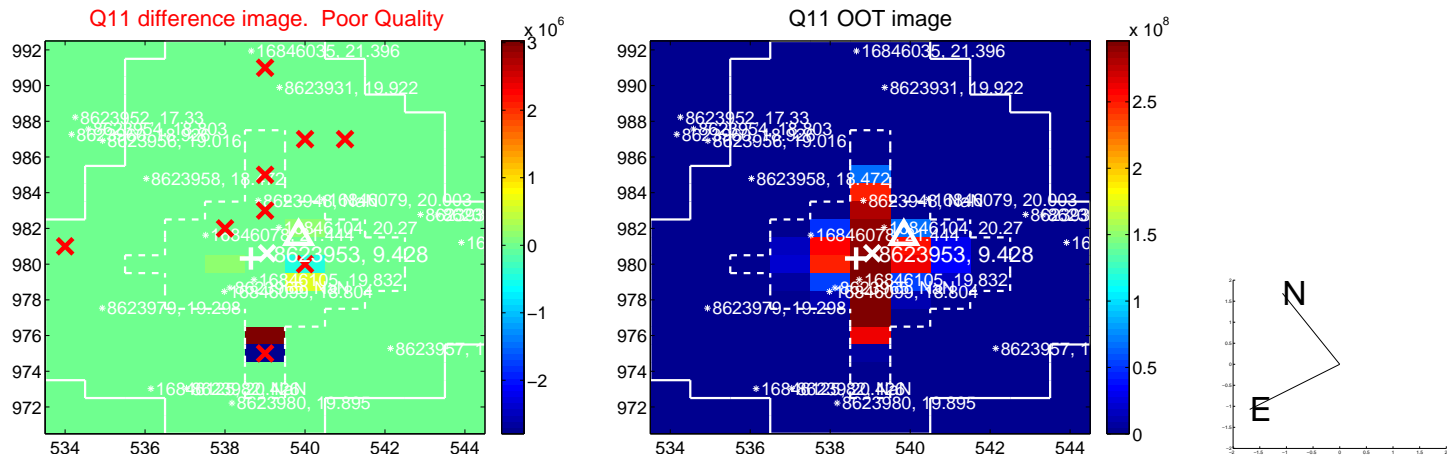
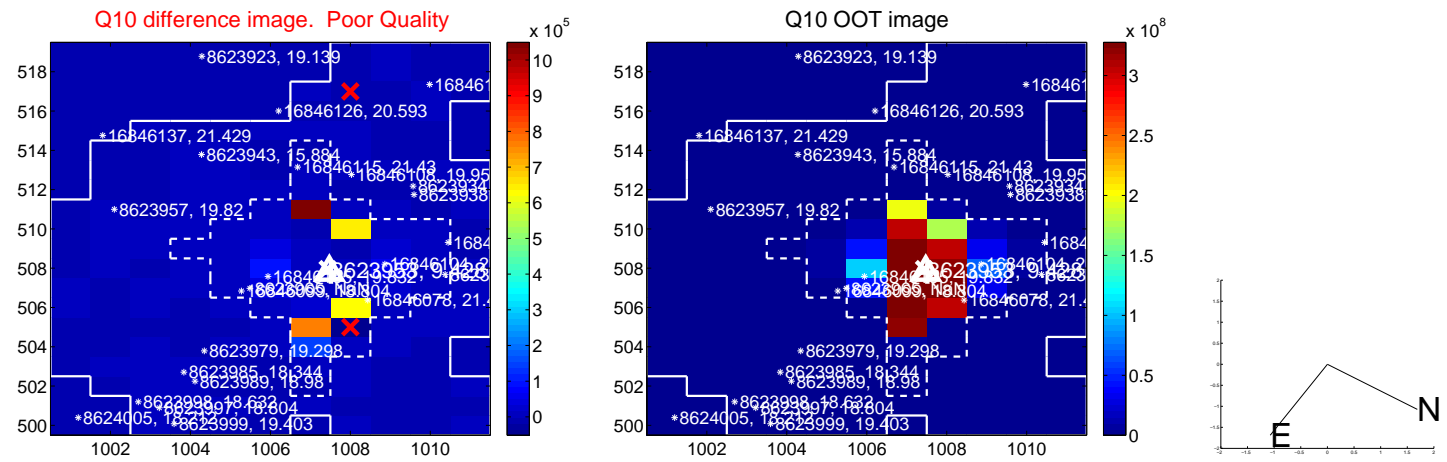
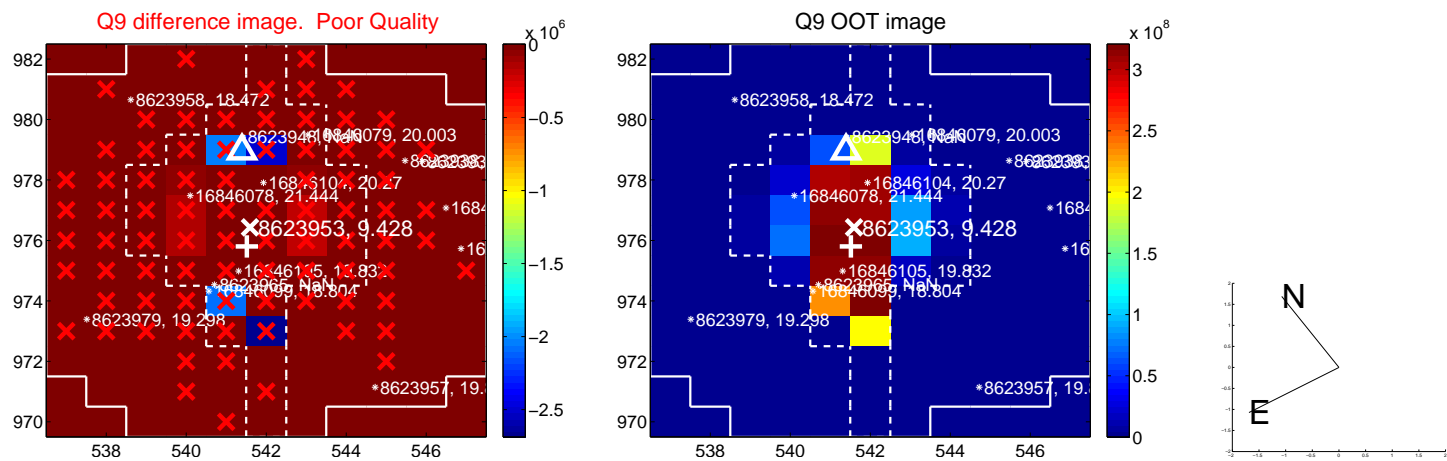




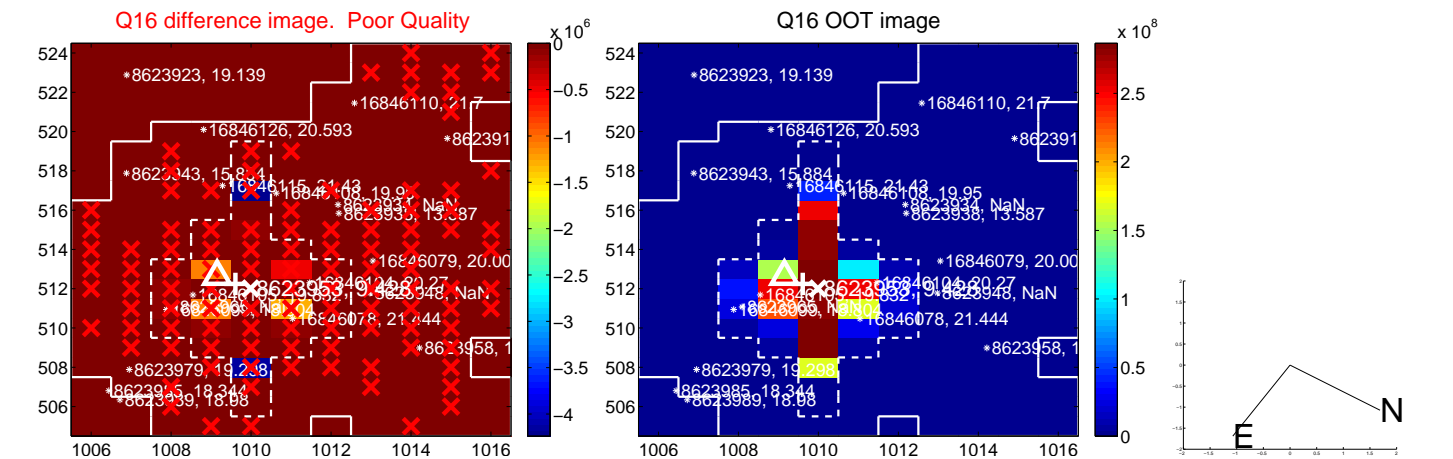
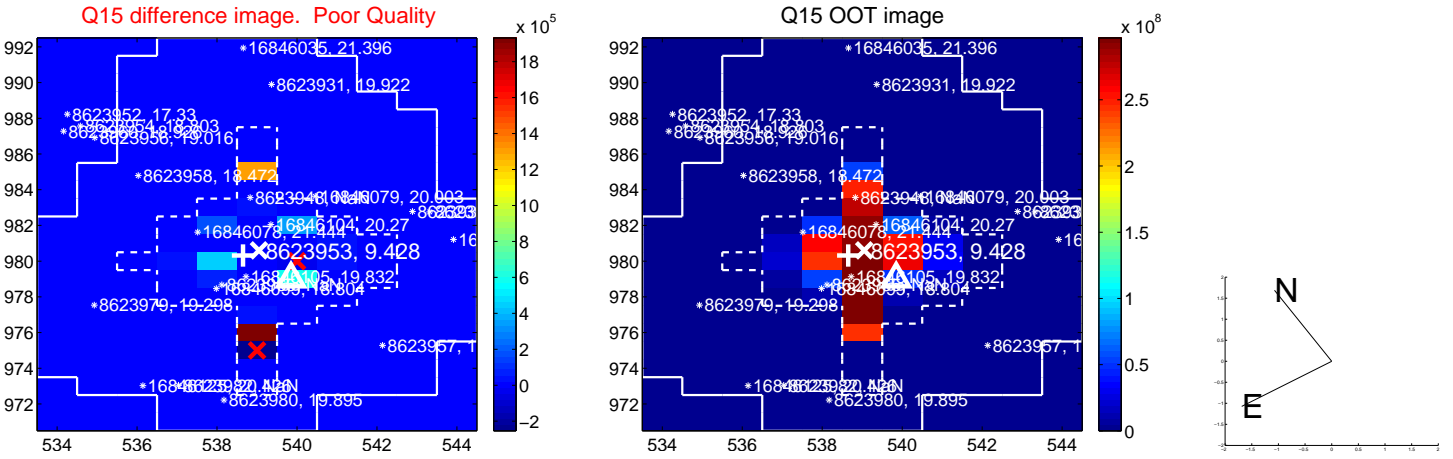
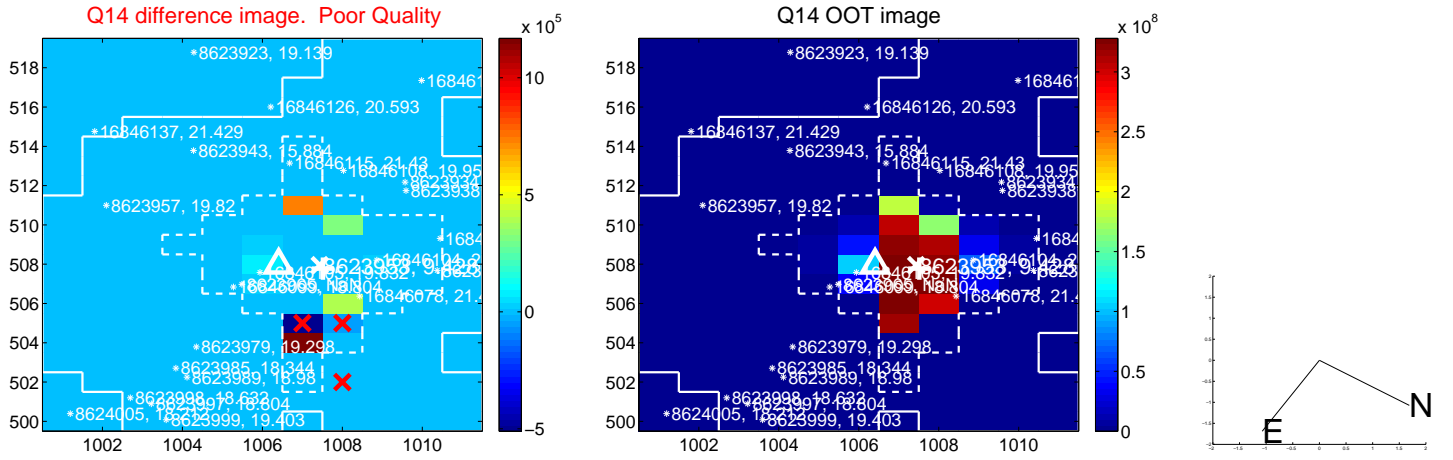
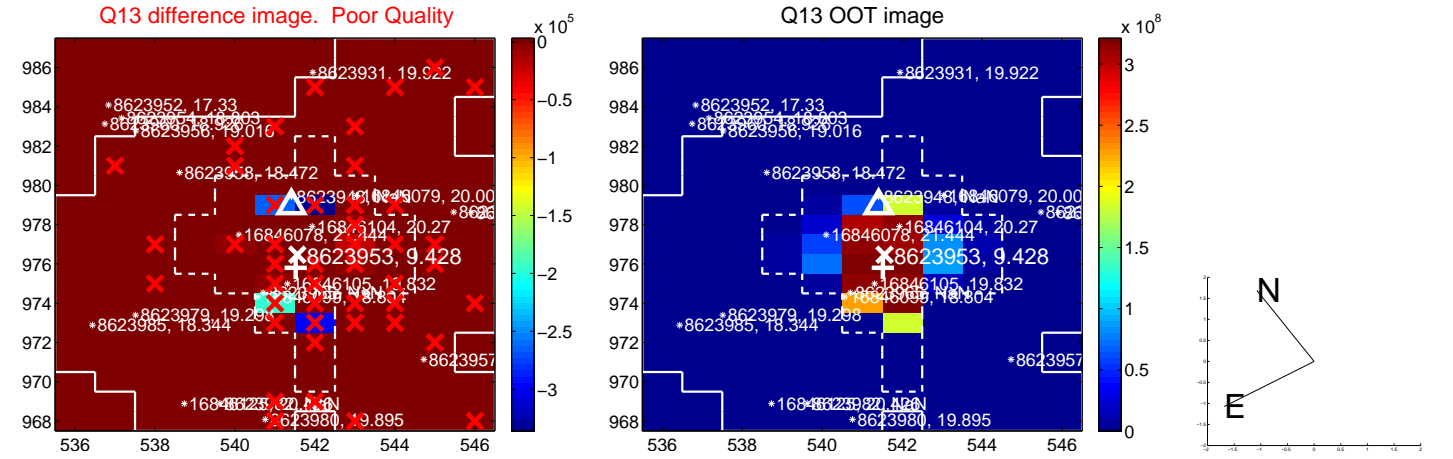
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



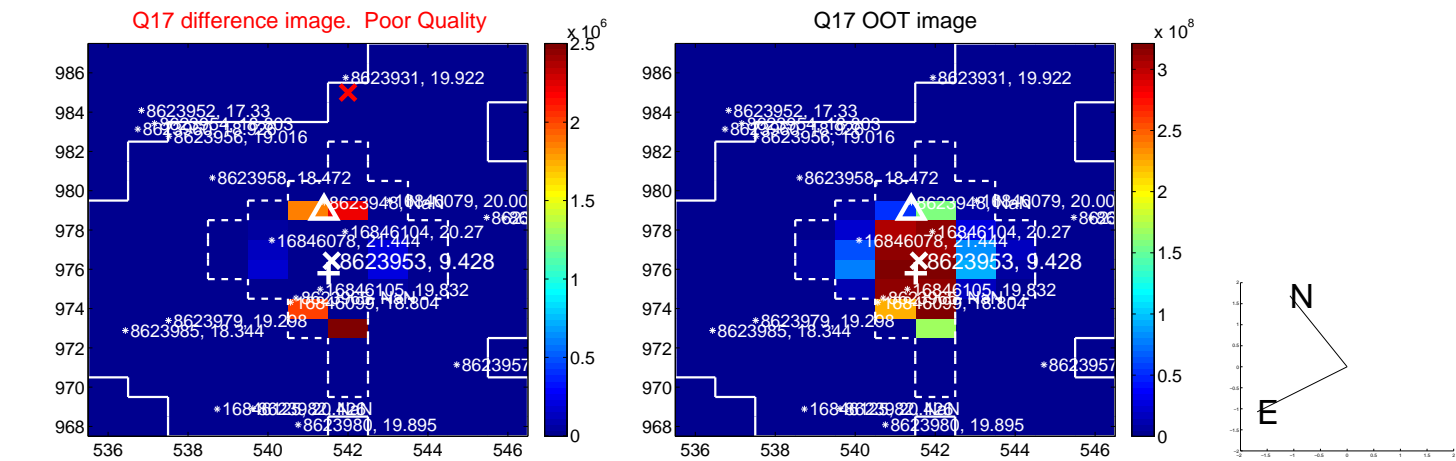
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



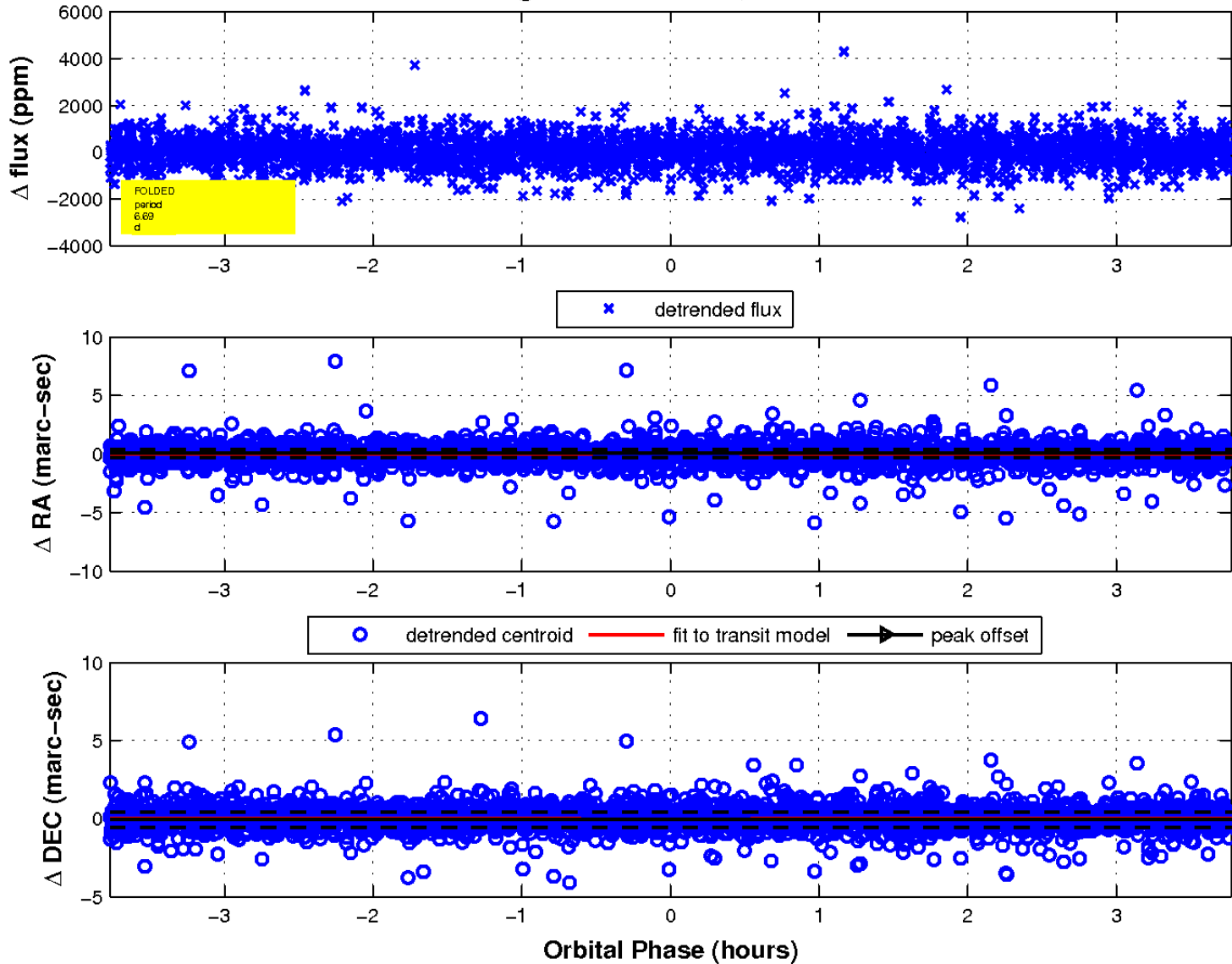
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



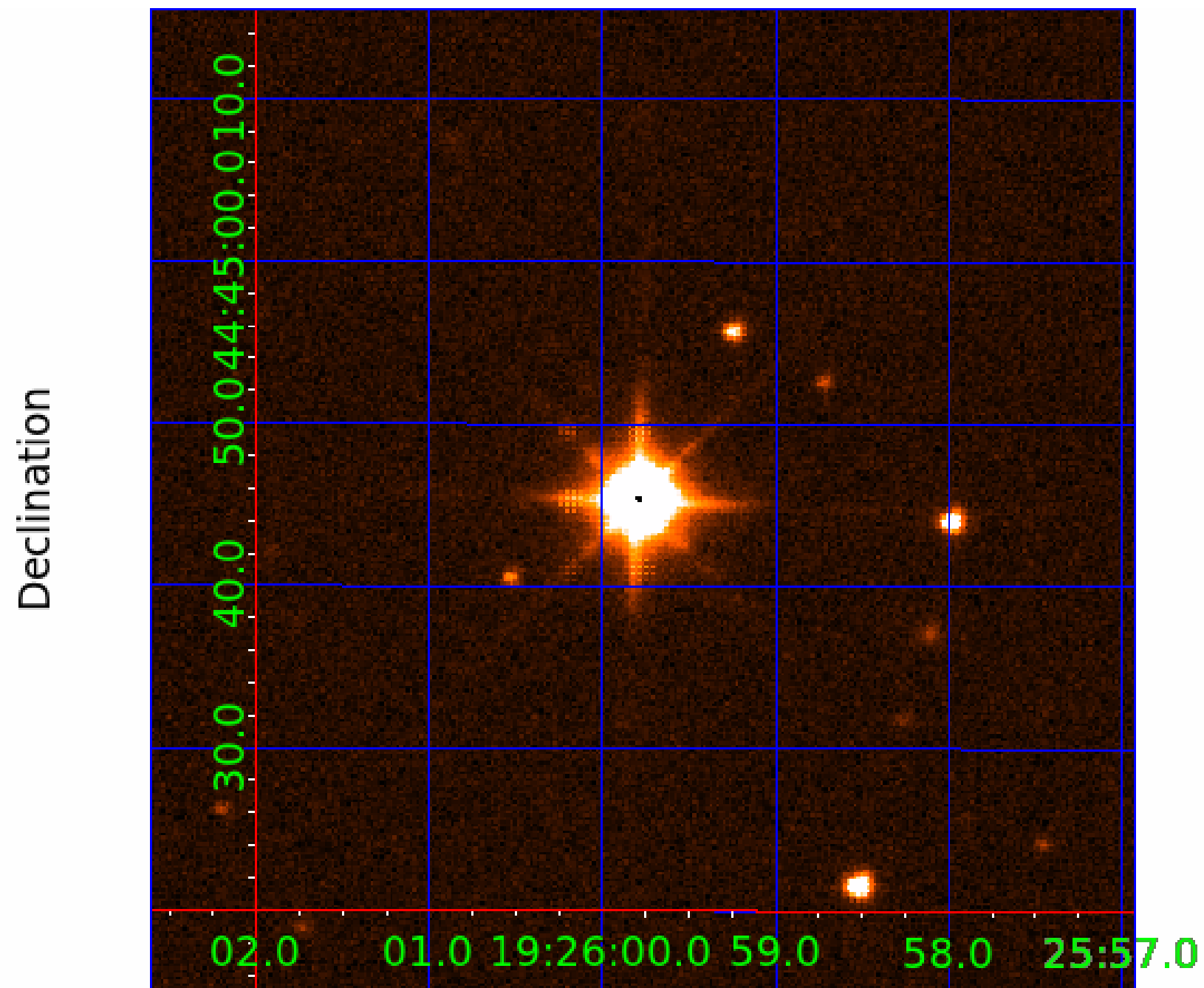
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 6 of 7



UKIRT Image



# KIC 008623953

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008623953-01	OBS	No	0.563109	131.653603	50.8	4.186	14.6	13.0	4.59	7742	3.35	0.00
008623953-02	OBS	No	19.549569	136.324654	632.8	3.941	12.5	14.2	4.59	7742	11.67	1862.89
008623953-03	OBS	No	10.155812	133.369629	582.0	0.843	13.3	7.0	4.59	7742	11.54	4460.86
008623953-04	OBS	No	12.121043	140.721640	588.0	1.491	8.9	9.5	4.59	7742	11.47	3523.58
008623953-05	OBS	No	12.121124	136.347490	72.1	1.770	8.4	1.5	4.59	7742	4.05	3523.55
008623953-06	OBS	No	6.689962	137.041695	708.5	1.260	12.5	15.3	4.59	7742	14.11	7782.87
008623953-07	OBS	No	14.972273	140.074249	611.9	1.290	8.7	9.4	4.59	7742	12.86	2658.61

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008623953-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
008623953-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED
008623953-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—SAME_NTL_PERIOD—CENT_SATURATED
008623953-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
008623953-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_SATURATED

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

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

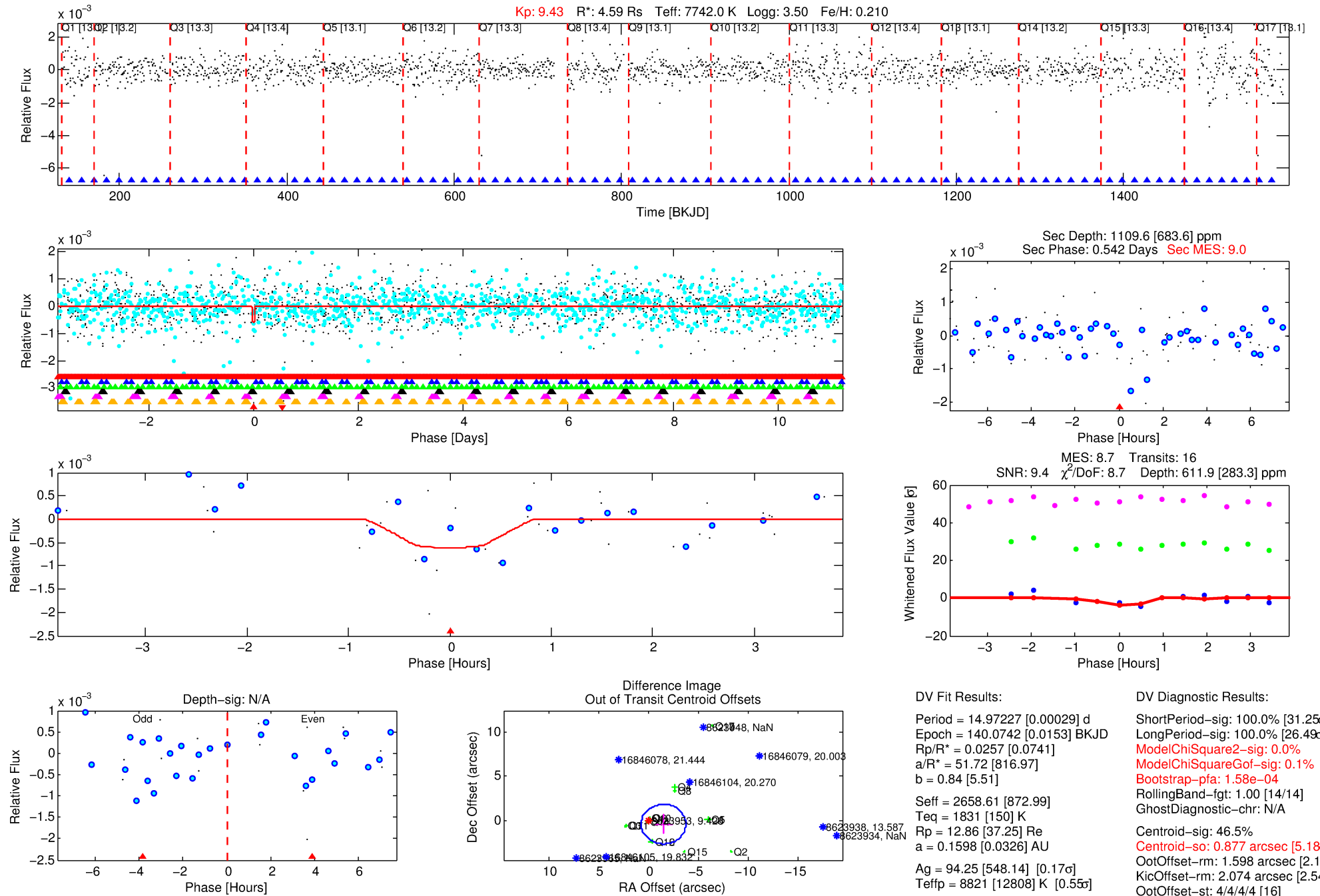
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008623953-07

No Significant Match Found

# DV One-Page Summary

KIC: 8623953 Candidate: 7 of 7 Period: 14.972 d



## DV Fit Results:

Period = 14.97227 [0.00029] d  
Epoch = 140.0742 [0.0153] BKJD  
Rp/R\* = 0.0257 [0.0741]  
a/R\* = 51.72 [816.97]  
b = 0.84 [5.51]  
Seff = 2658.61 [872.99]  
Teq = 1831 [150] K  
Rp = 12.86 [37.25] Re  
a = 0.1598 [0.0326] AU  
Ag = 94.25 [548.14] [0.17] $\sigma$   
Teff = 8821 [12808] K [0.55] $\sigma$

## DV Diagnostic Results:

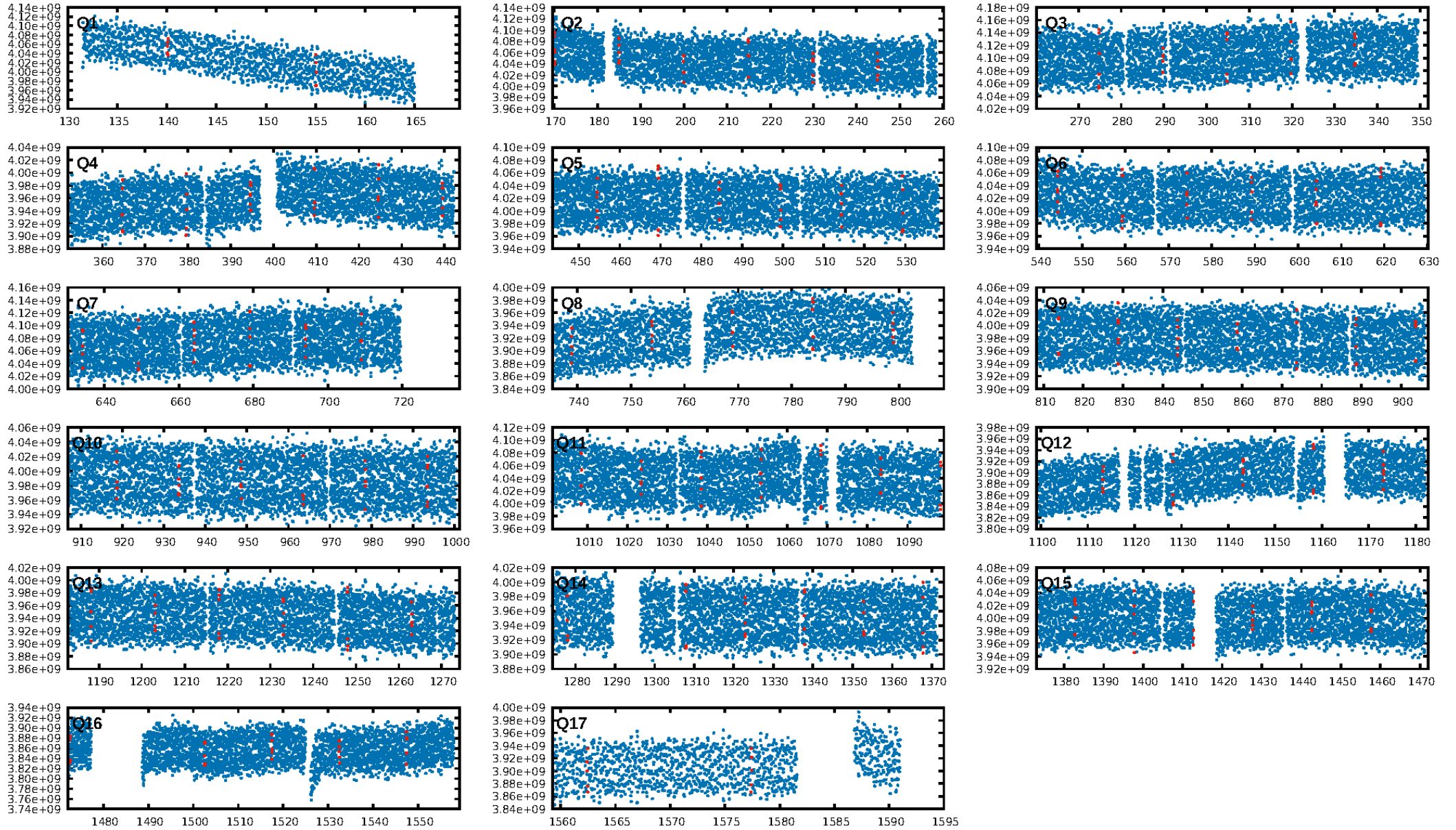
ShortPeriod-sig: 100.0% [31.25] $\sigma$   
LongPeriod-sig: 100.0% [26.49] $\sigma$   
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.1%  
Bootstrap-pfa: 1.58e-04  
RollingBand-fgt: 1.00 [14/14]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 46.5%  
Centroid-so: 0.877 arcsec [5.18] $\sigma$   
OotOffset-rm: 1.598 arcsec [2.14] $\sigma$   
KicOffset-rm: 2.074 arcsec [2.54] $\sigma$   
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.00 [0/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:56:54 Z

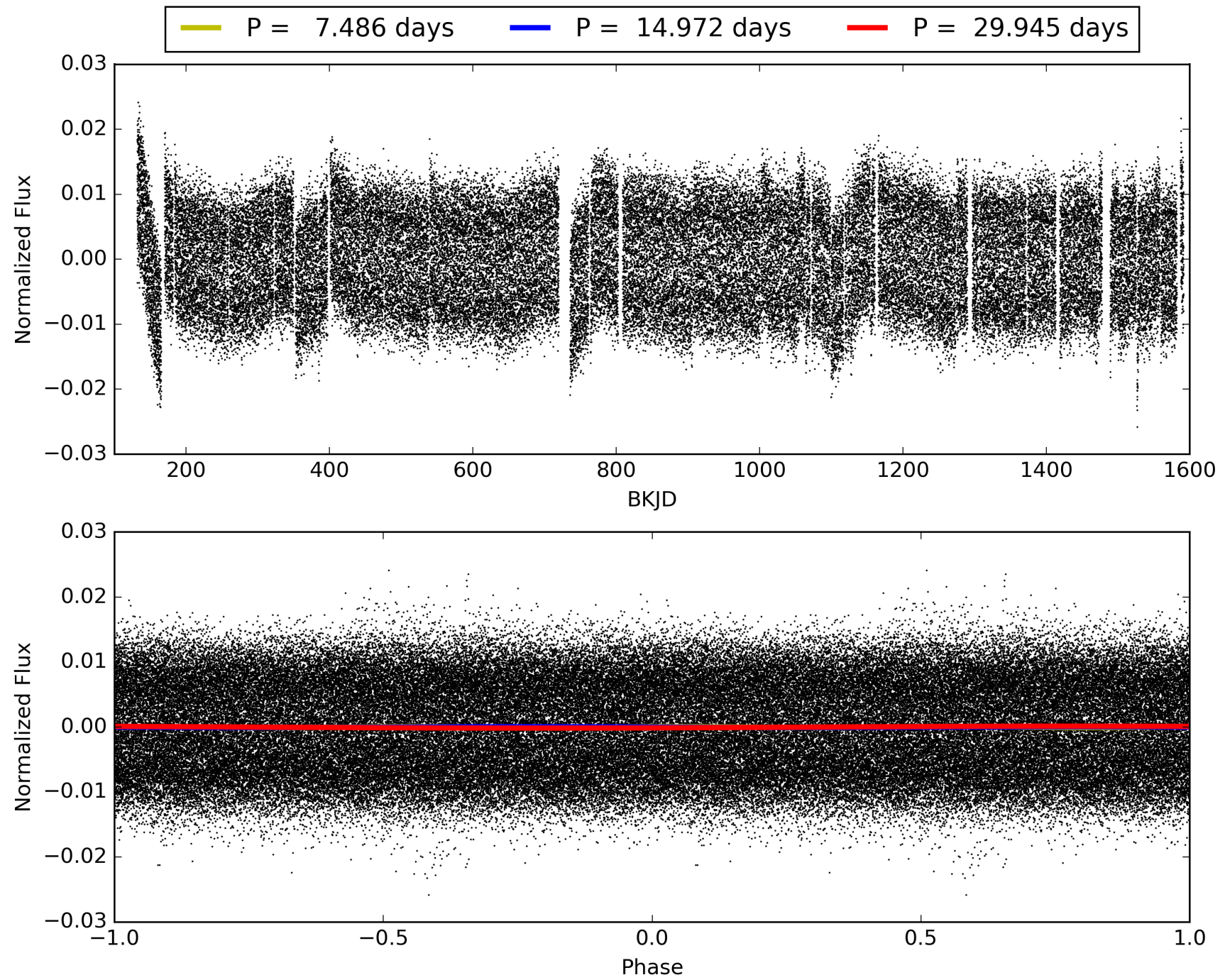
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008623953-07, PDC Light Curves

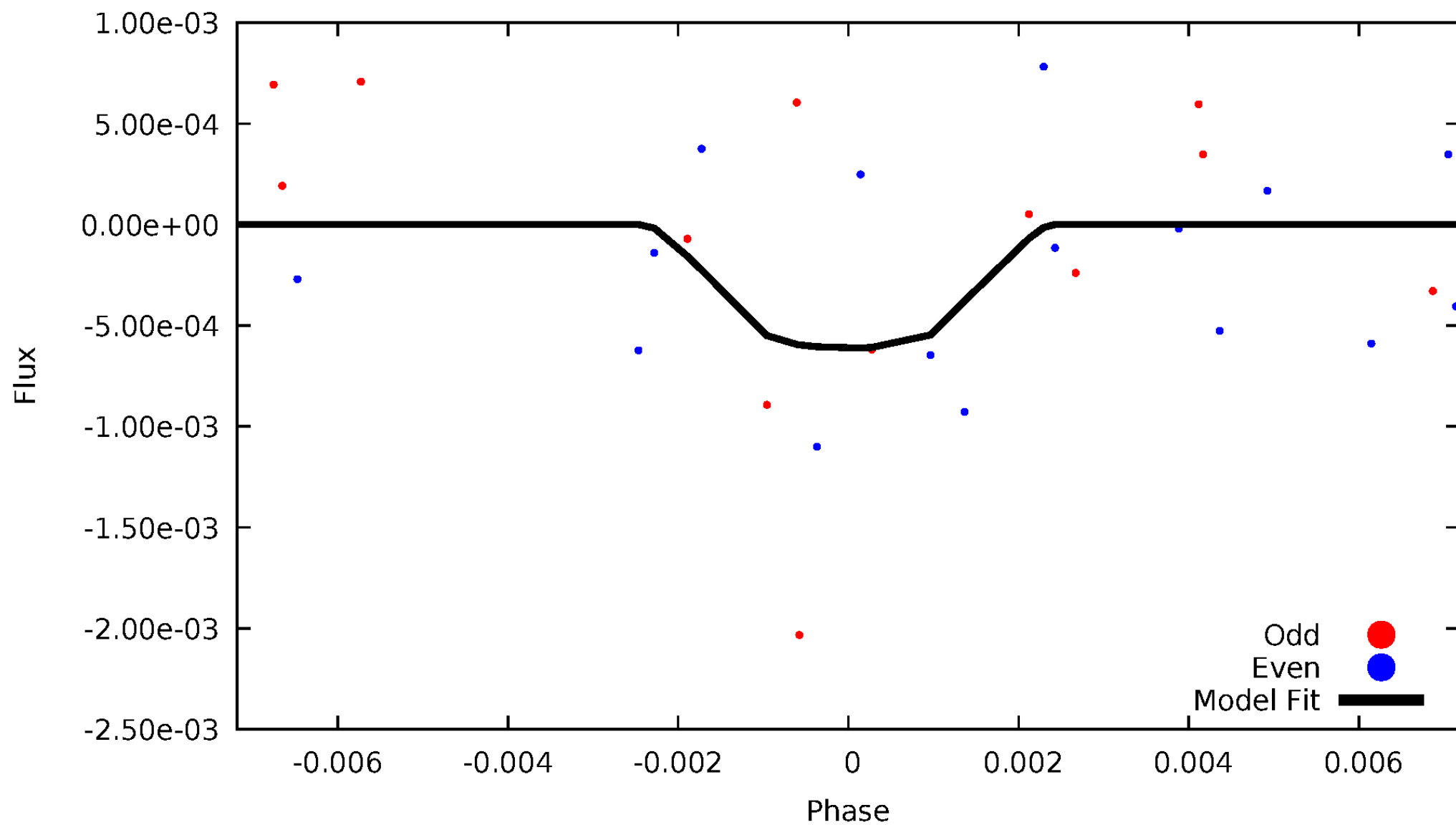


TCE 008623953-07



# DV Odd/Even

TCE 008623953-07

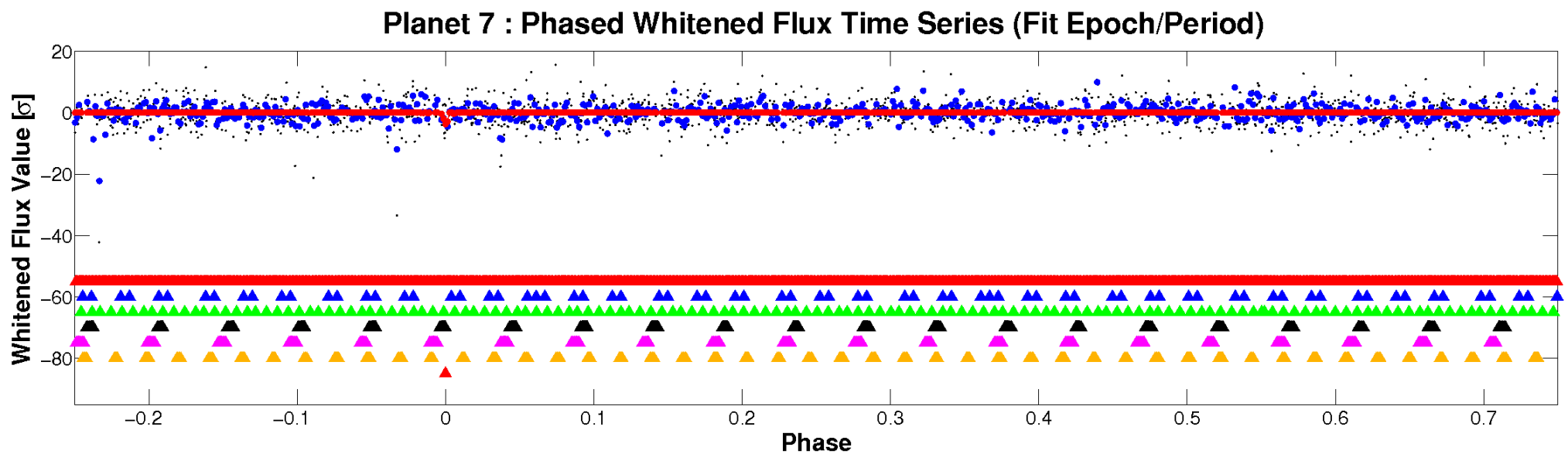
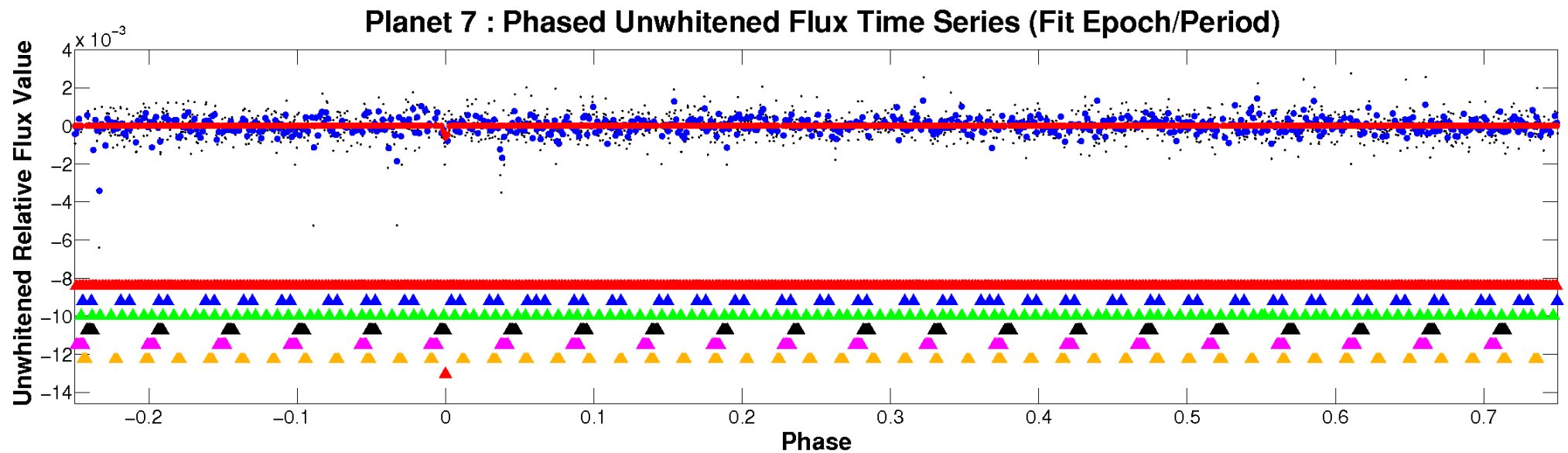




ALT Odd/Even

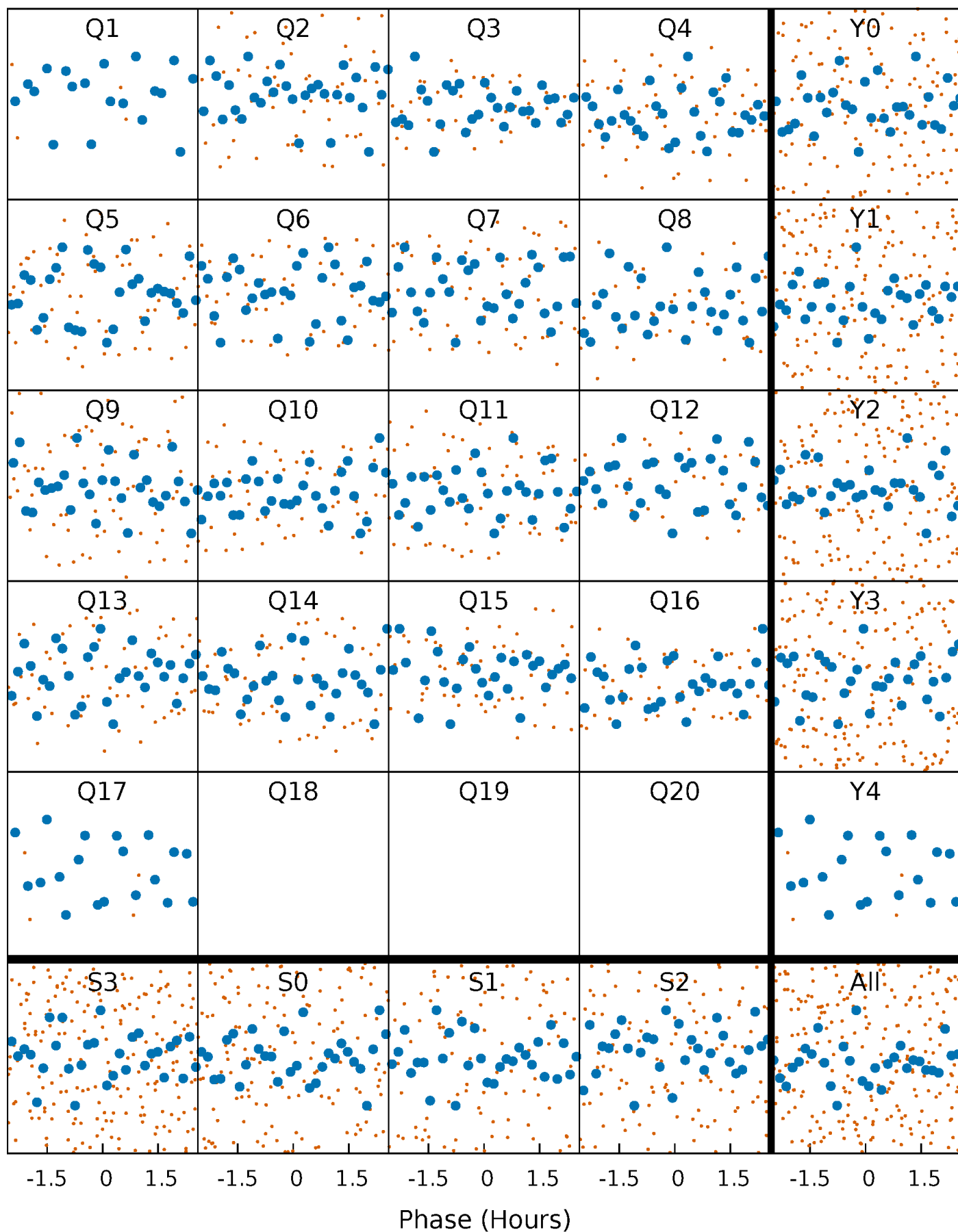
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

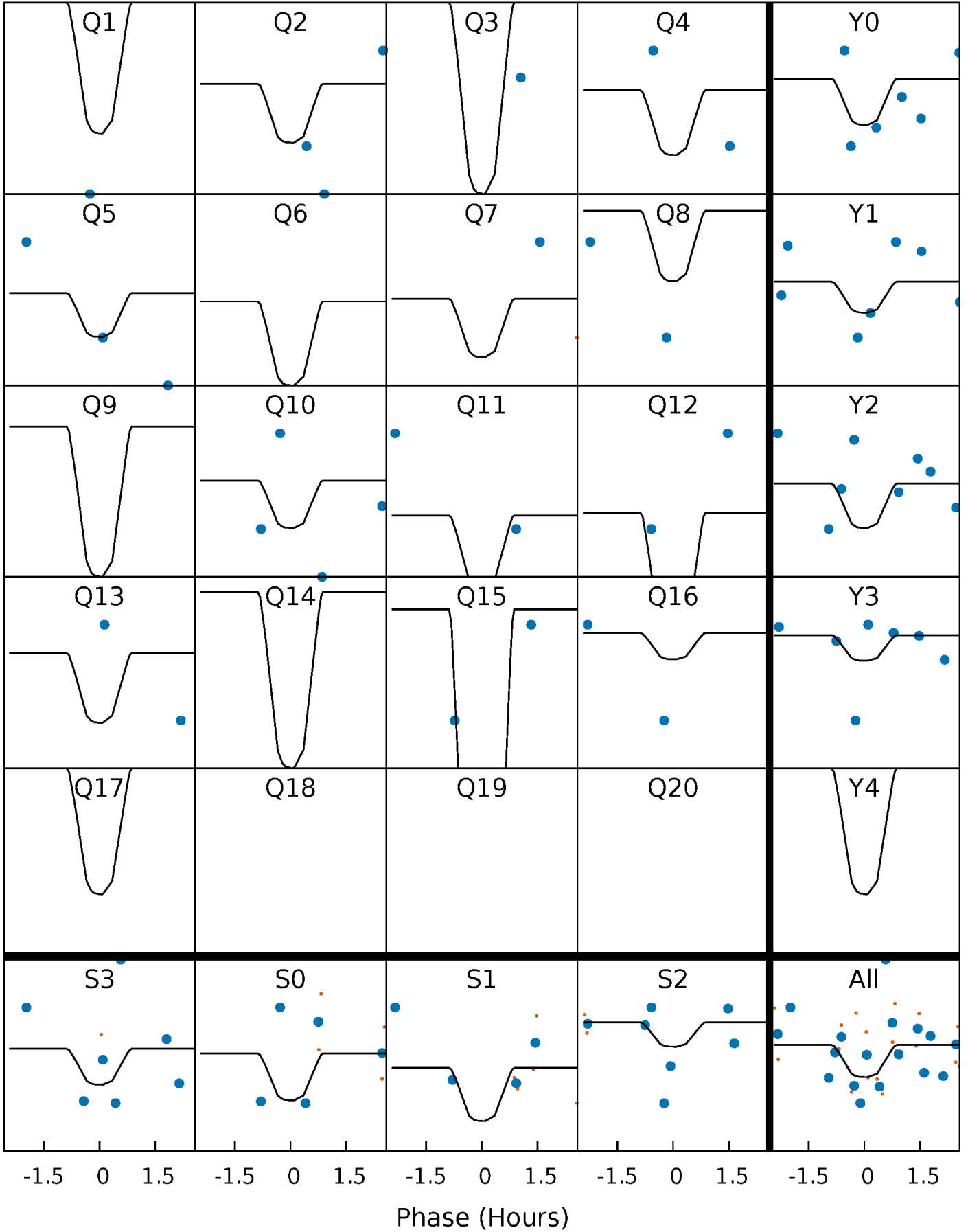
TCE 008623953-07   P= 14.972273 Days    $T_0=140.074249$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008623953-07   P= 14.972273 Days    $T_0=140.074249$  (BKJD)

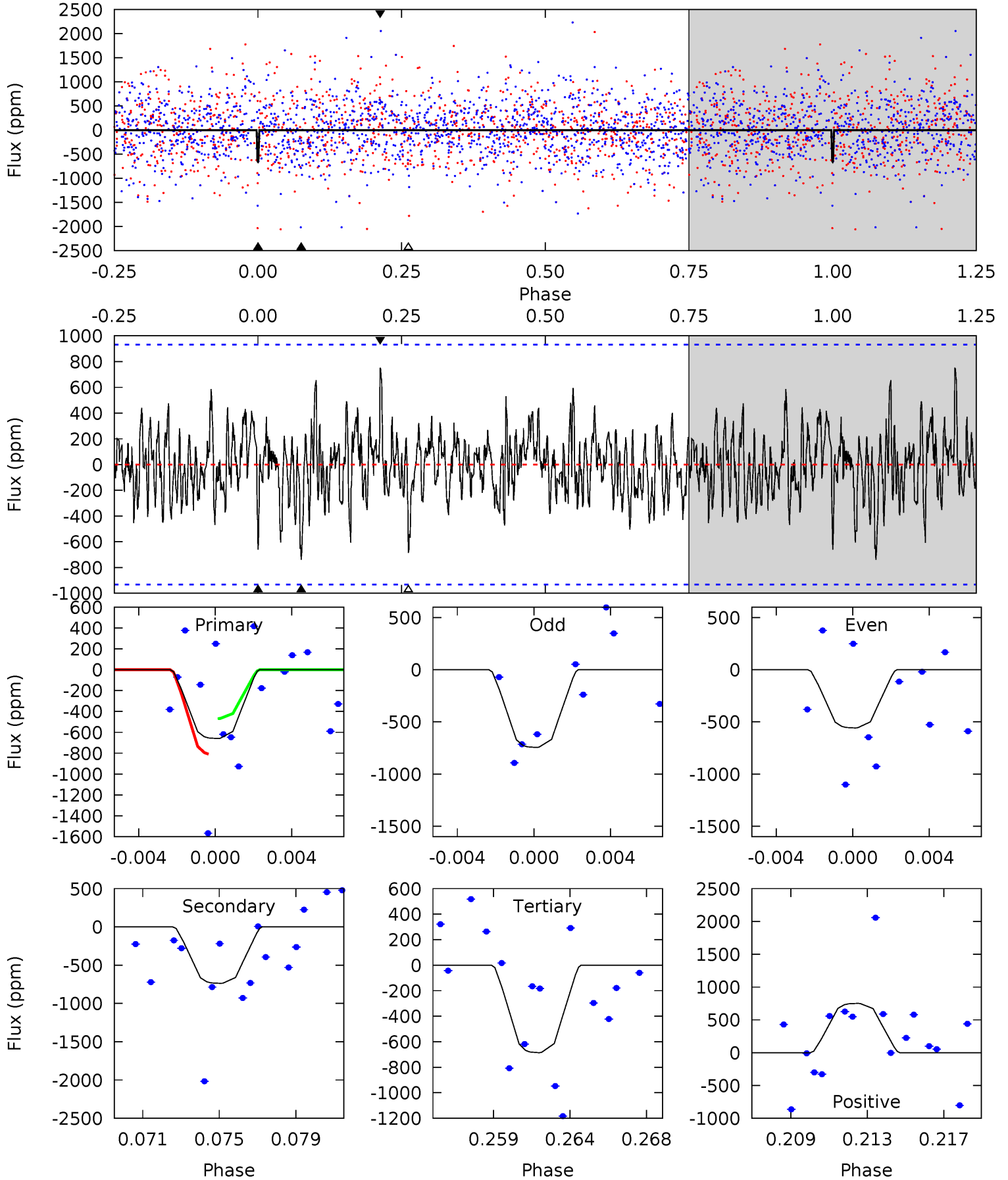


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

008623953-07, P = 14.972273 Days, E = 125.101976 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
3.67	4.11	3.82	4.18	5.19	2.86	1.19	-0.15	-0.51	0.29	-0.07	0.52	0	0.50	0.96



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008623953

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7742^{+153}_{-184}$	$3.499^{+0.180}_{-0.009}$	$0.210^{+0.200}_{-0.150}$	$4.593^{+0.258}_{-1.032}$	$2.425^{+0.213}_{-0.260}$	$0.035^{+0.033}_{-0.002}$
	+2%/-2%	+5%/-0%	+95%/-71%	+6%/-22%	+9%/-11%	+94%/-7%
Source	SPE4	SPE4	SPE4	DSEP		

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

### Secondary Eclipse Parameters for KIC 008623953-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-738 \pm 180$	$29.03^{+26.90}_{-19.21}$	$2479^{+95}_{-138}$	$5069^{+3938}_{-1191}$	$12^{+94}_{-9}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

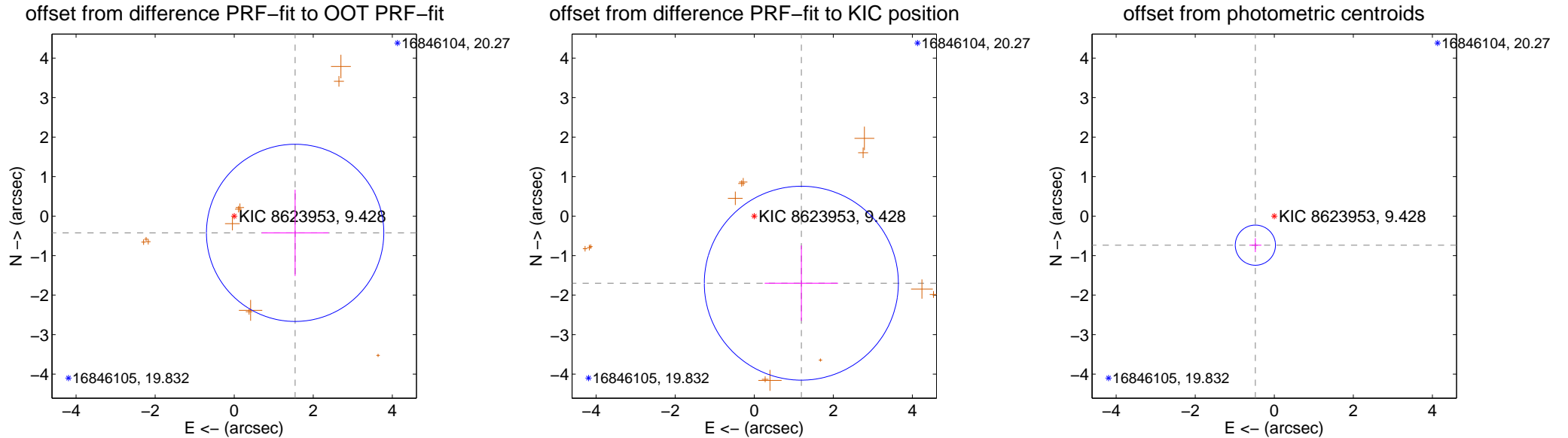
## DV Centroid Data

Supplemental centroid analysis for 008623953-07. **Kepler magnitude: 9.43.** Transit SNR 9.43

There are 0 quarters with good PRF difference image offsets

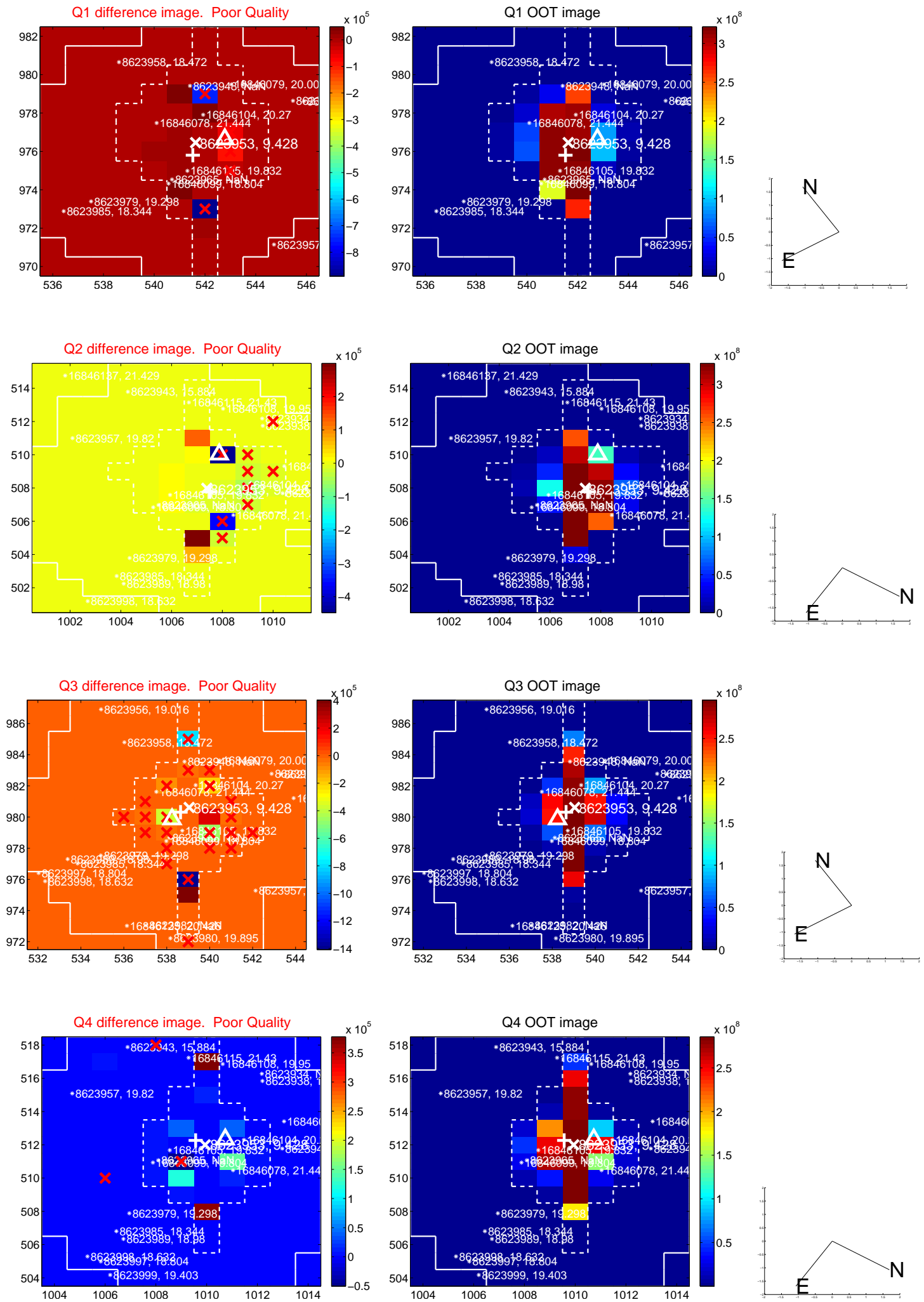
The OOT PRF centroid is offset from the target star catalog position by about 2.56 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.598 \pm 0.747$	2.14	$-1.541 \pm 0.845$	$-0.423 \pm 1.092$
PRF-fit source offset from KIC position	$2.074 \pm 0.818$	2.54	$-1.191 \pm 0.927$	$-1.698 \pm 0.953$
photometric centroid source offset	$0.88 \pm 0.17$	5.18	$0.48 \pm 0.15$	$-0.74 \pm 0.18$



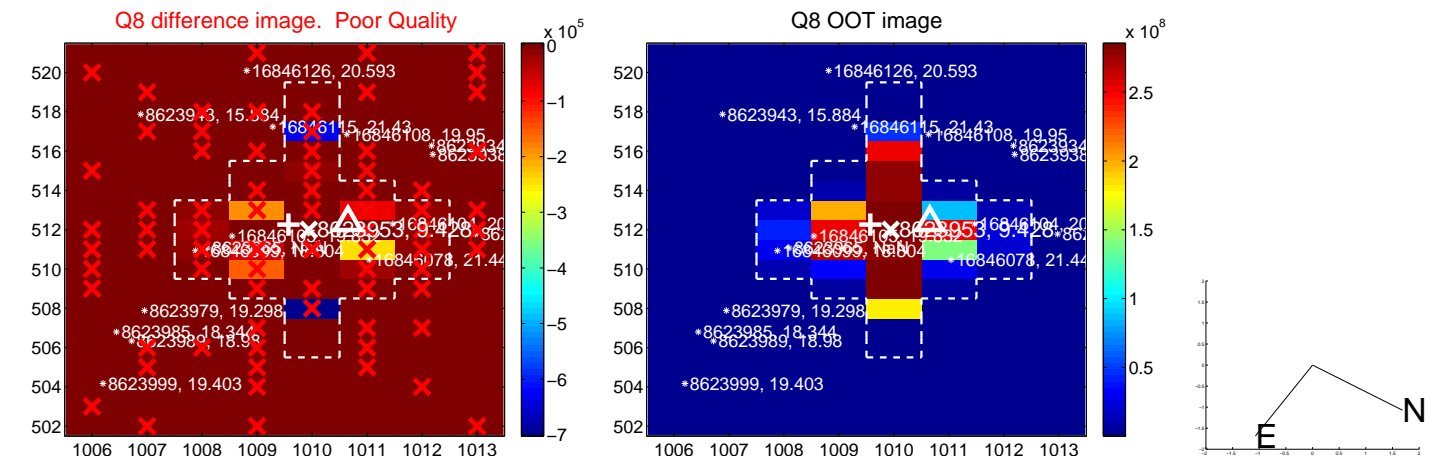
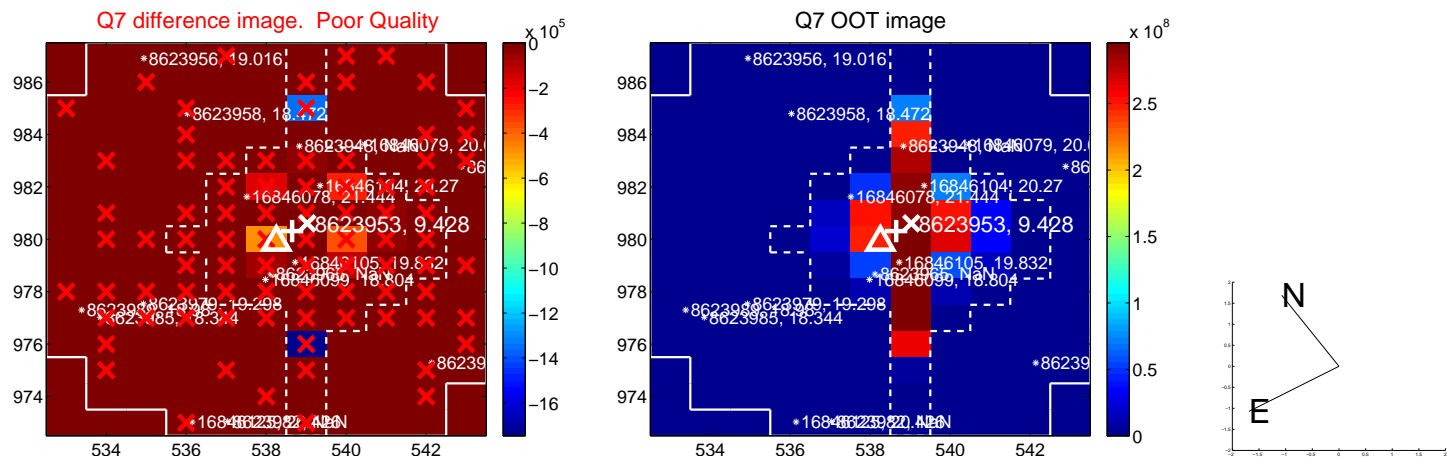
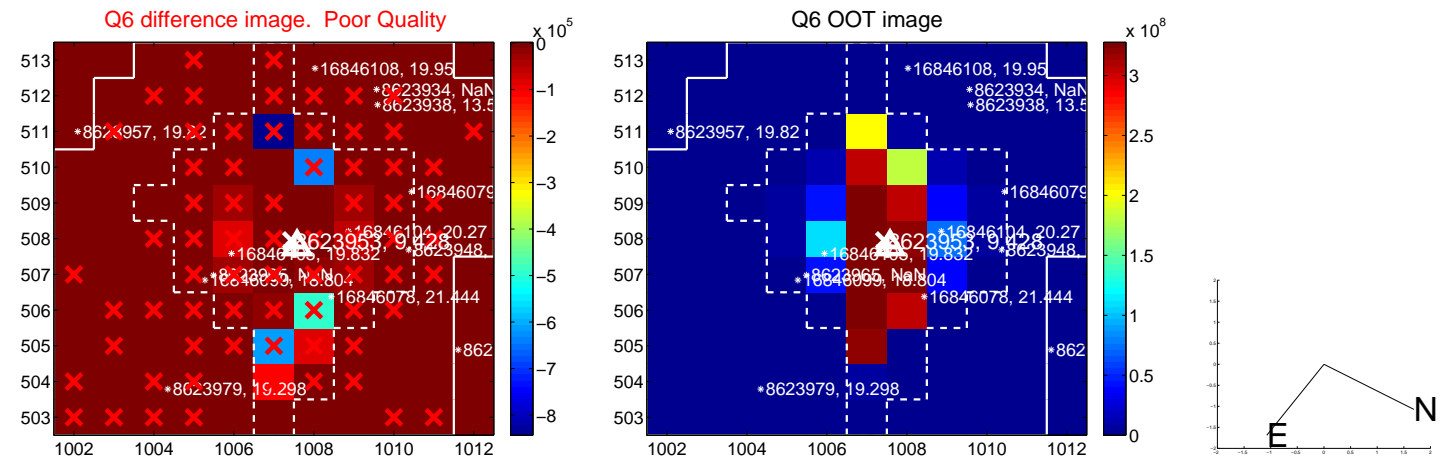
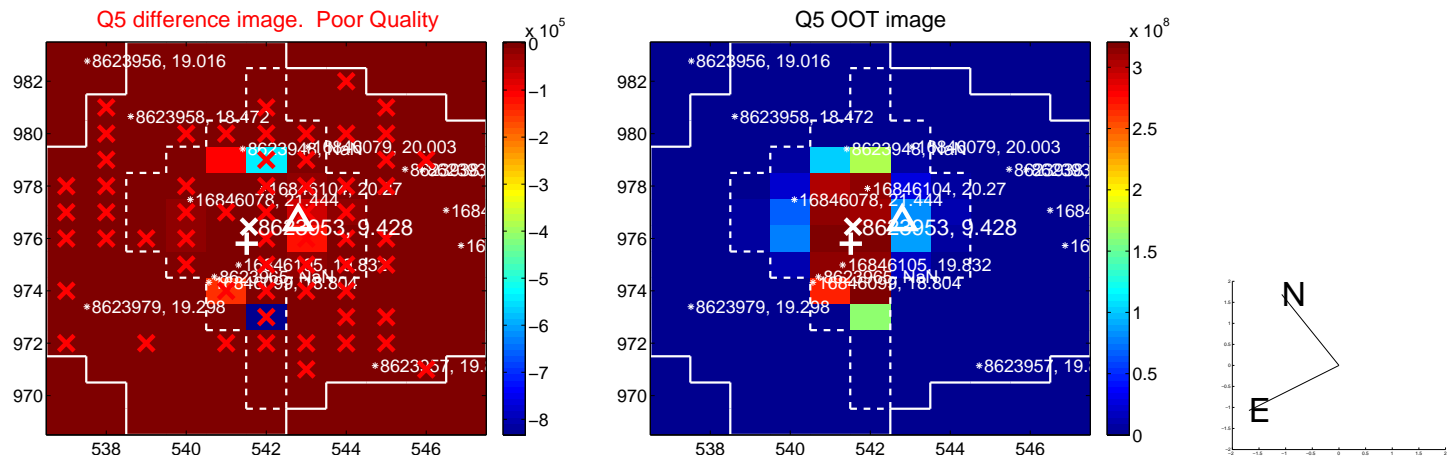
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

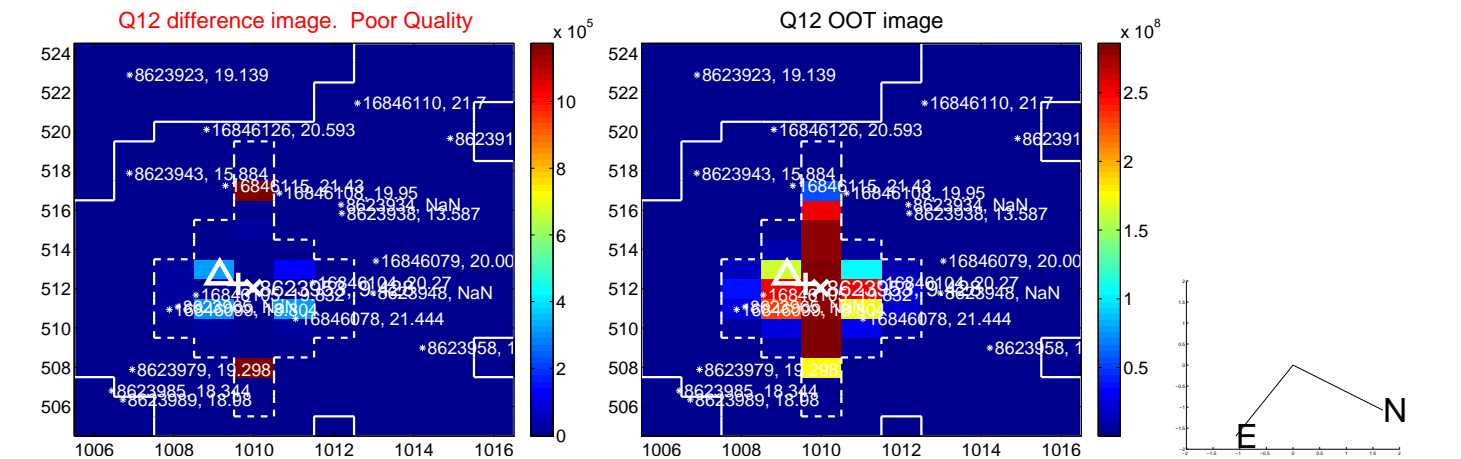
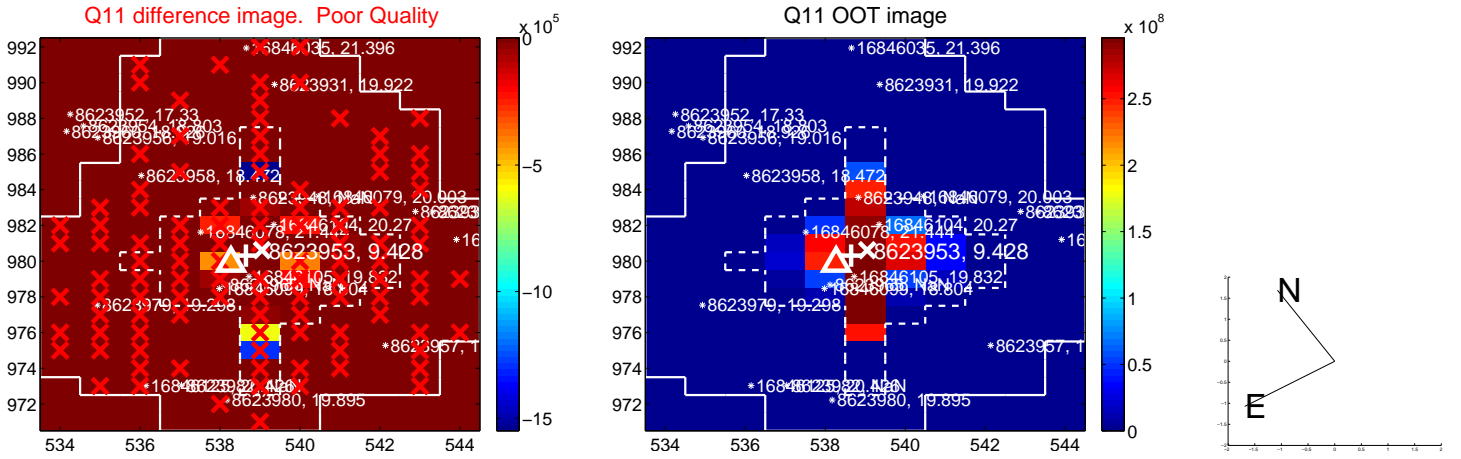
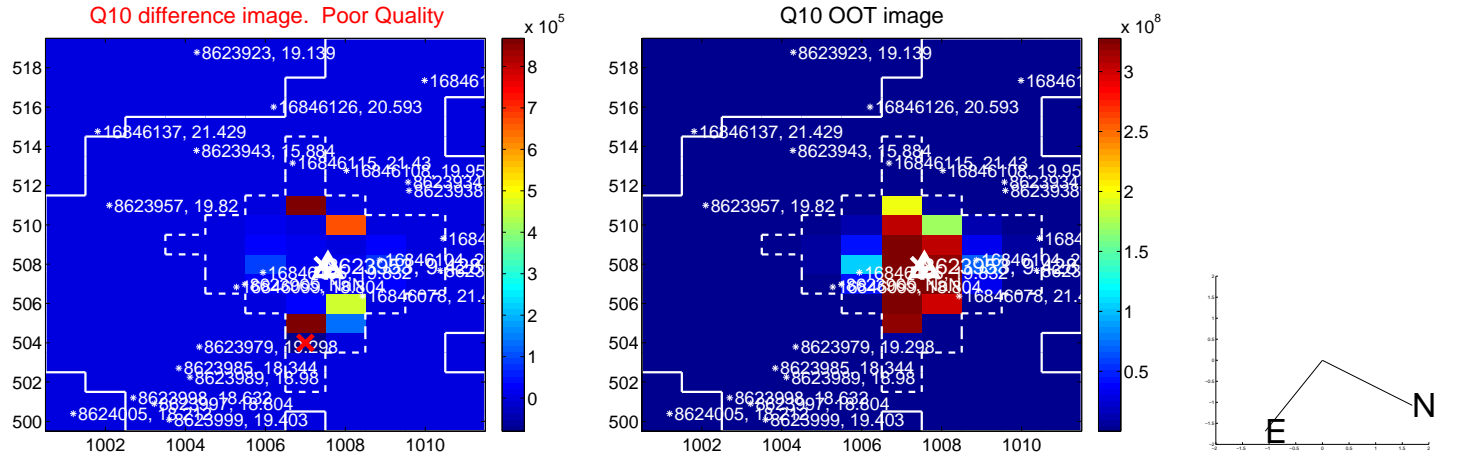
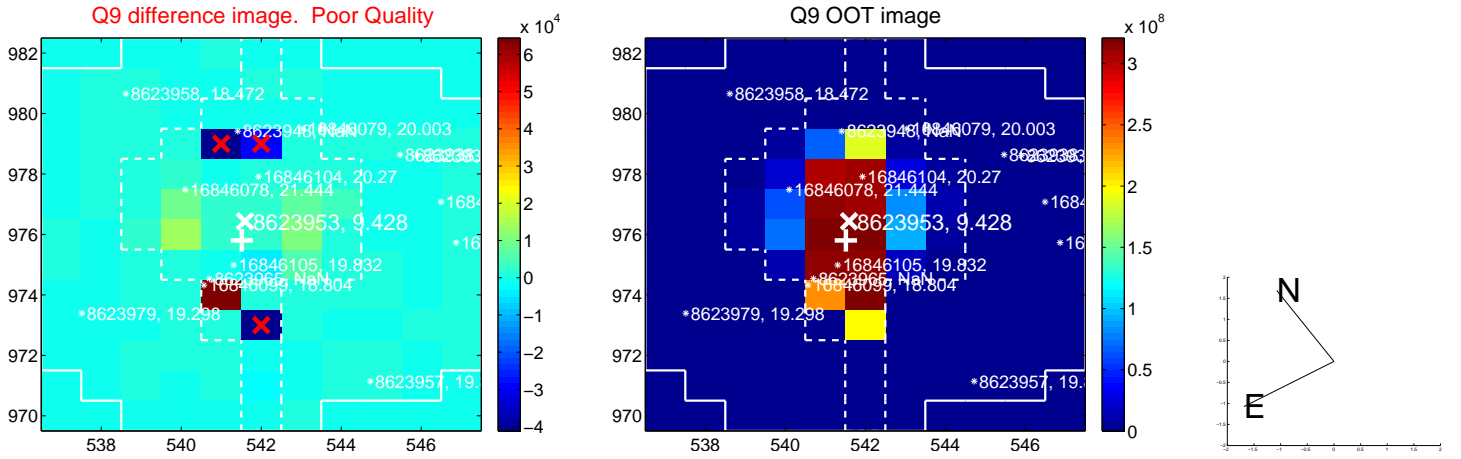




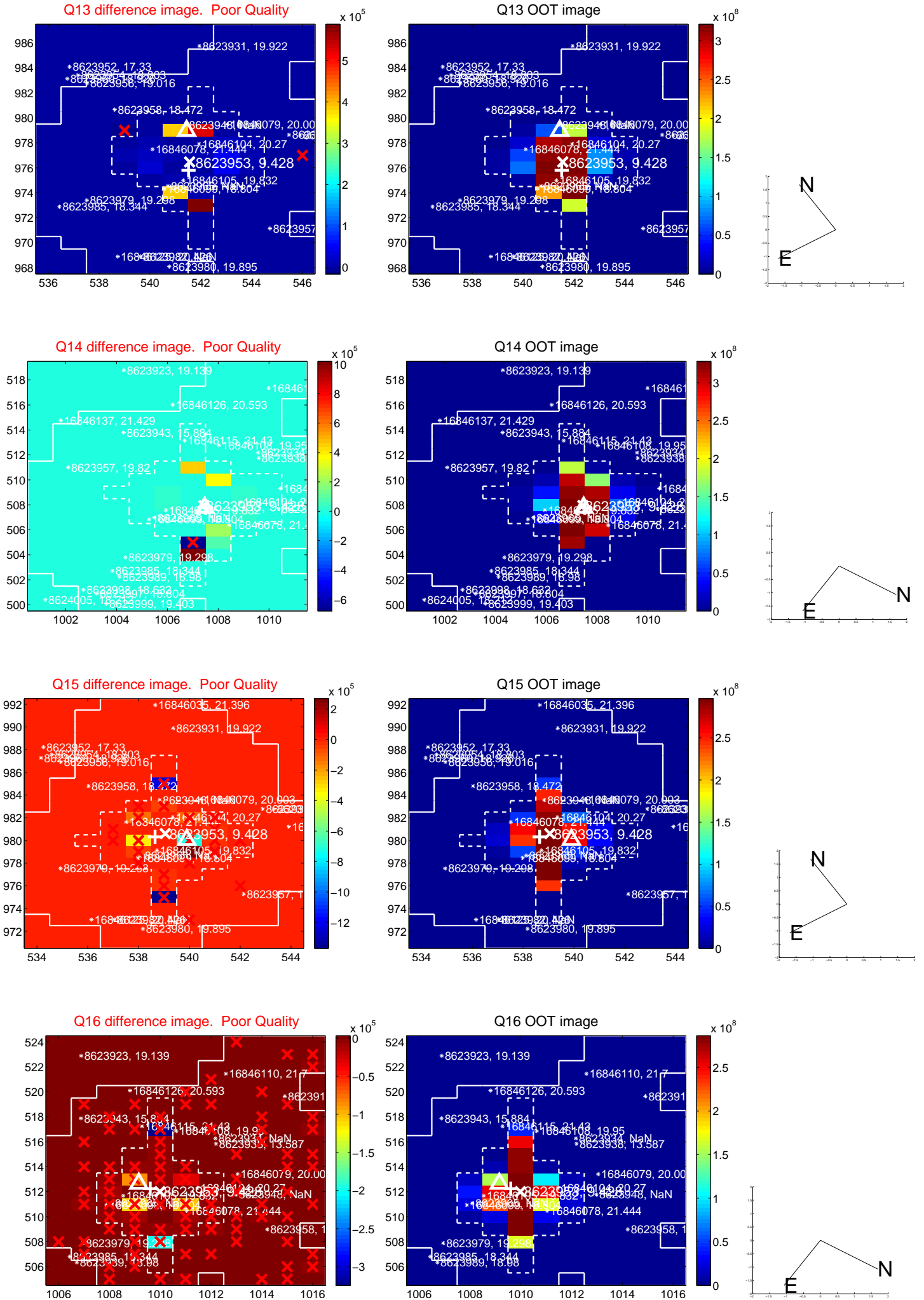
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



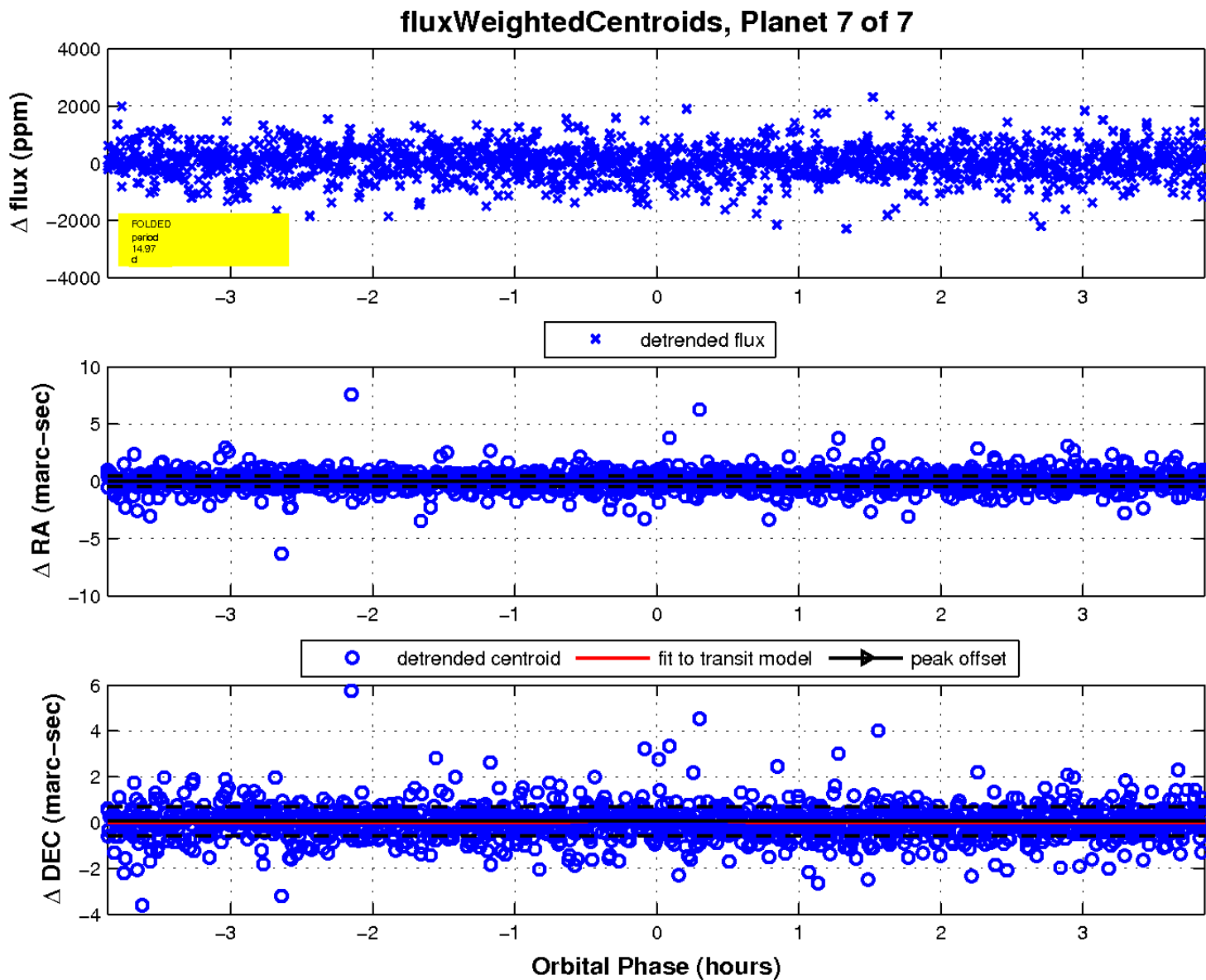
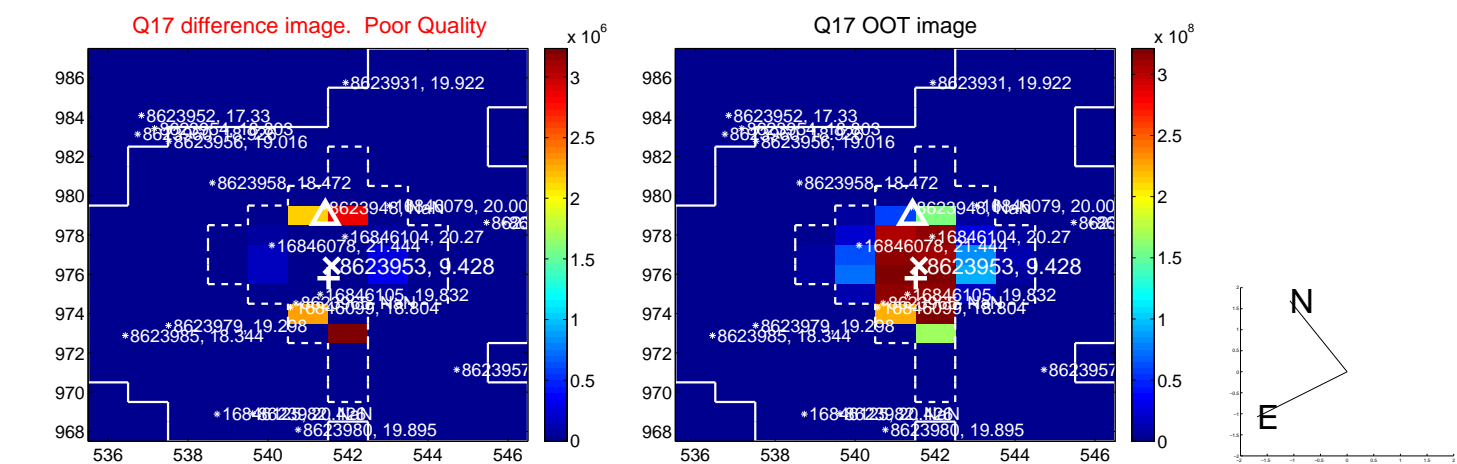
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

