

# KIC 008175399

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008175399-01	OBS	No	0.779644	132.083412	16.8	3.497	9.0	7.3	2.06	7286	0.98	29174.57
008175399-02	OBS	No	110.290970	154.098331	86.4	9.674	7.3	3.5	2.06	7286	2.22	39.58

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008175399-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008175399-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

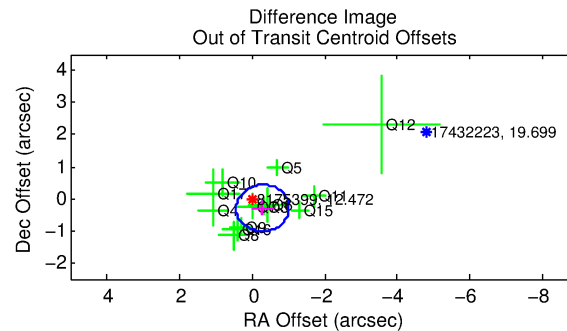
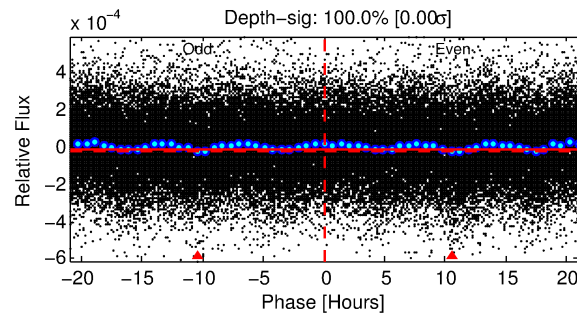
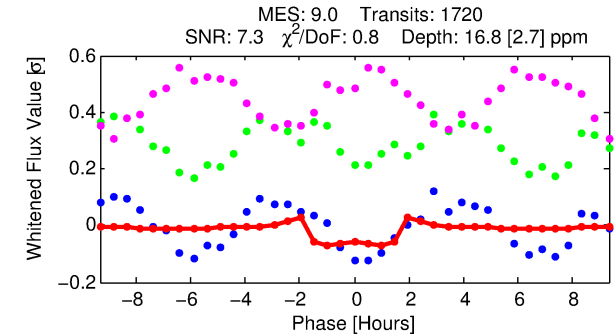
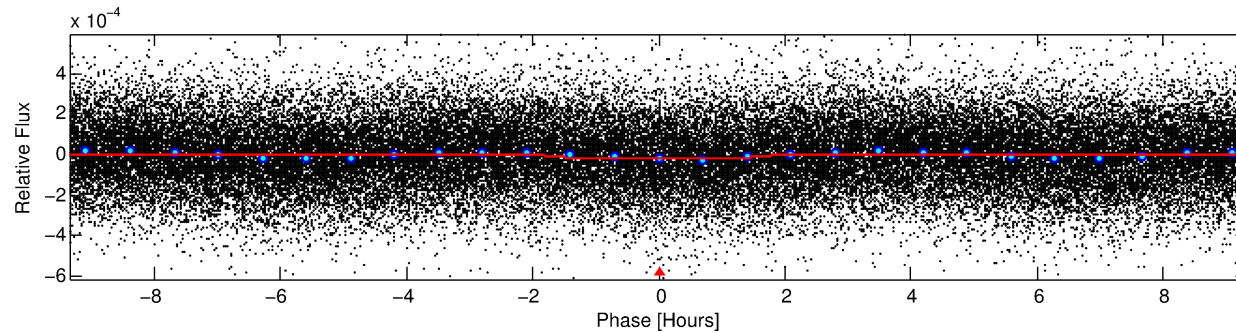
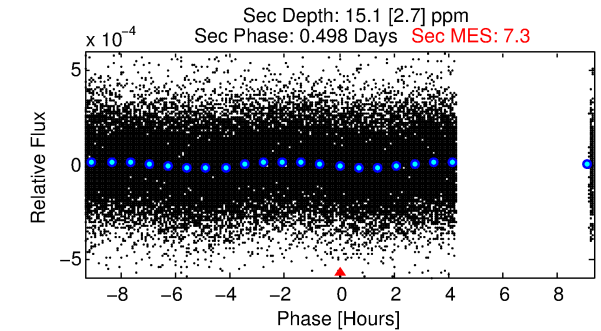
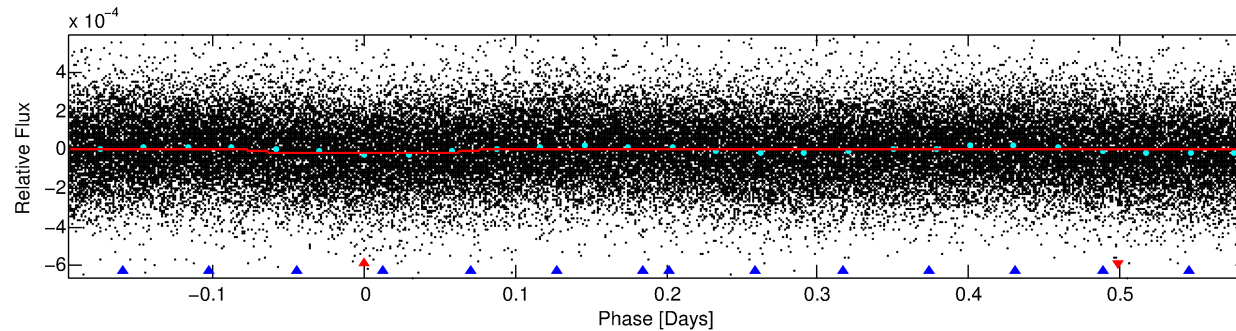
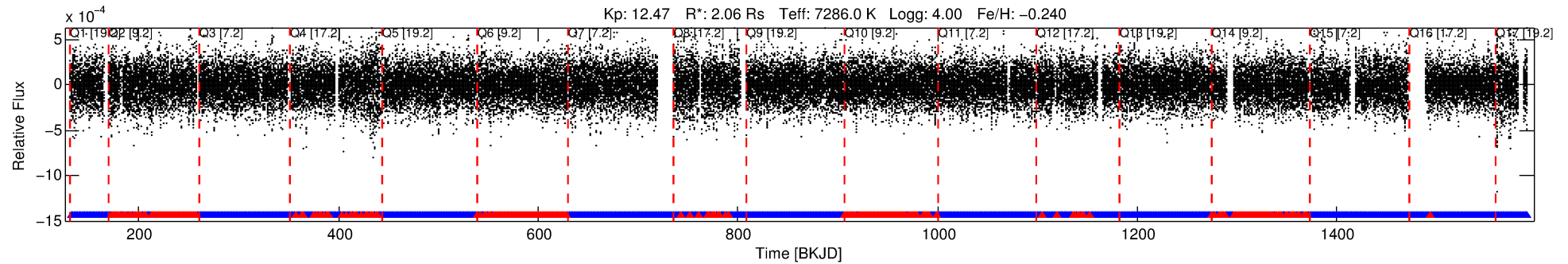
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008175399-01

No Significant Match Found

# DV One-Page Summary

KIC: 8175399 Candidate: 1 of 2 Period: 0.780 d



## DV Fit Results:

Period = 0.77964 [0.00001] d  
Epoch = 132.0834 [0.0029] BKJD  
Rp/R\* = 0.0044 [0.0010]  
a/R\* = 1.21 [0.52]  
b = 0.90 [0.29]  
Seff = 29174.57 [13641.82]  
Teq = 3333 [390] K  
Rp = 0.98 [0.39] Re  
a = 0.0191 [0.0055] AU  
Ag = 3.17 [2.10] [1.04σ]  
Teffp = 6877 [900] K [3.62σ]

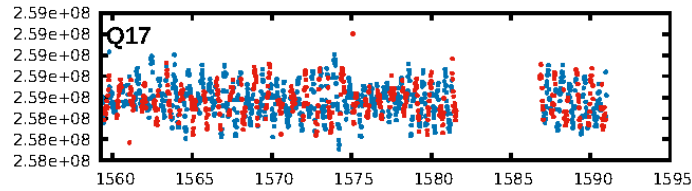
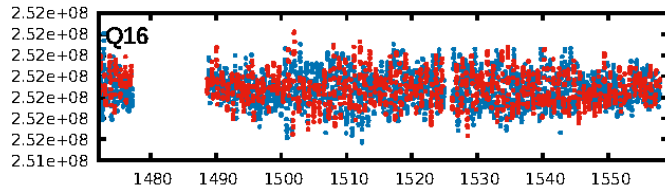
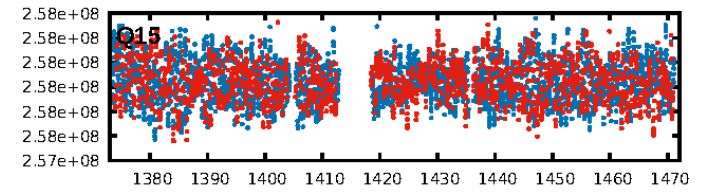
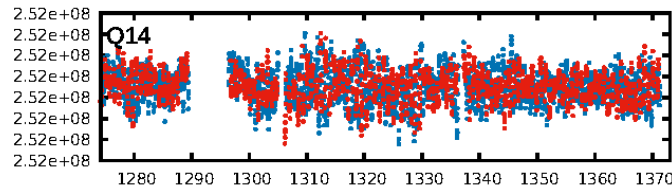
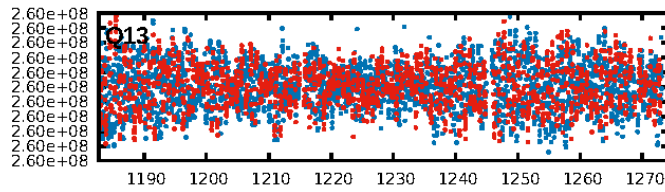
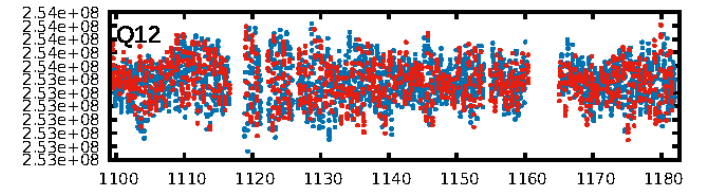
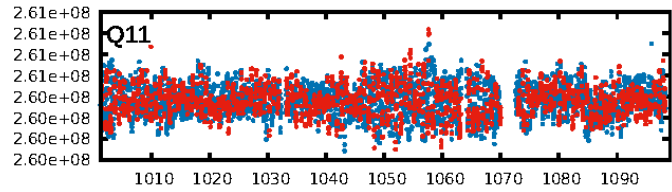
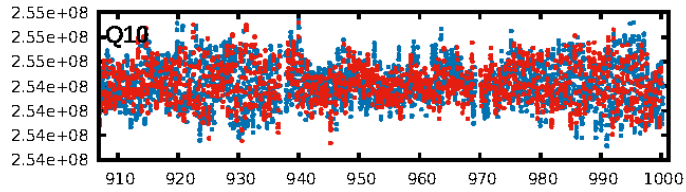
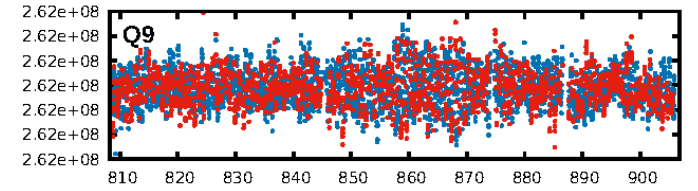
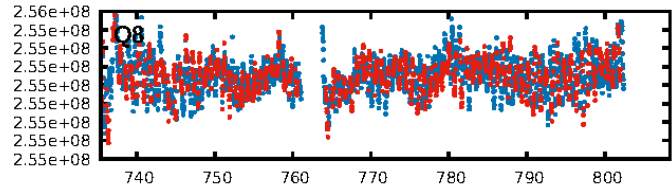
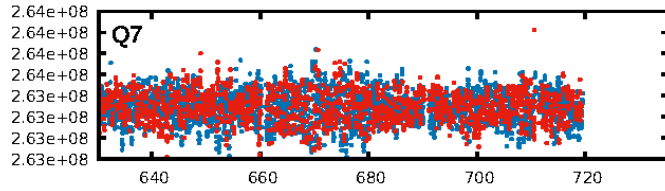
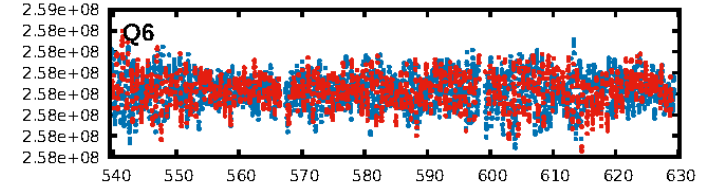
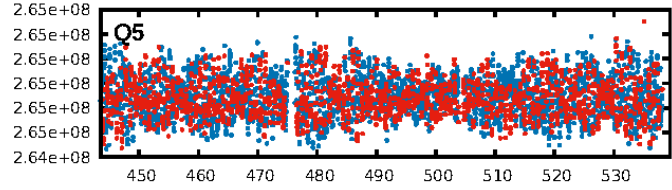
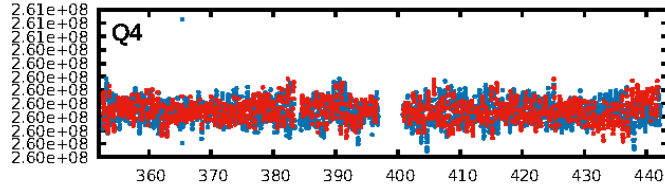
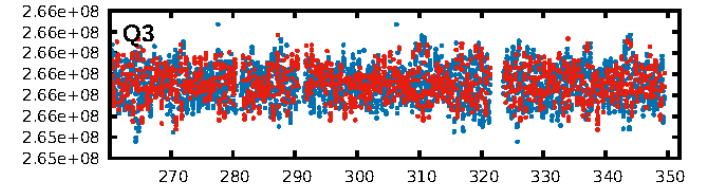
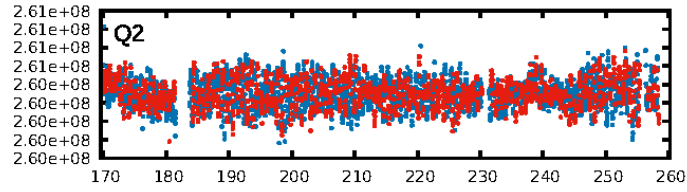
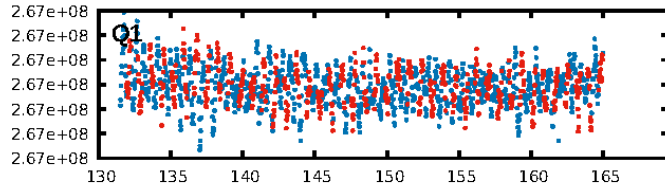
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [255.50σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.53e-13  
RollingBand-fgt: 0.76 [1251/1642]  
GhostDiagnostic-chr: 2.091  
Centroid-sig: 1.4%  
Centroid-so: 1.275 arcsec [2.03σ]  
OotOffset-rm: 0.410 arcsec [1.69σ]  
KicOffset-rm: 0.436 arcsec [1.79σ]  
OotOffset-st: 2/4/4/3 [13]  
KicOffset-st: 2/4/4/3 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:19:24 Z

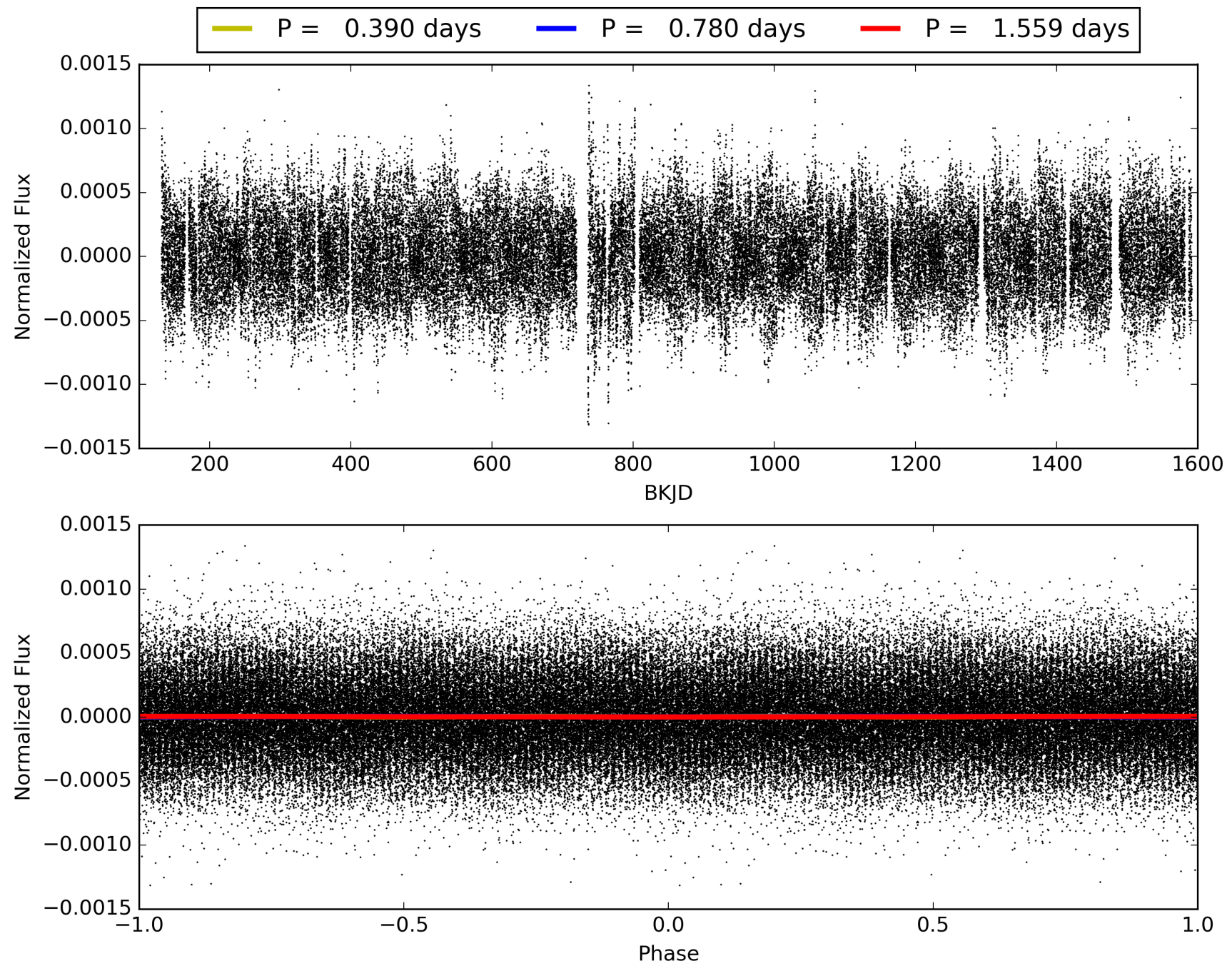
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008175399-01, PDC Light Curves



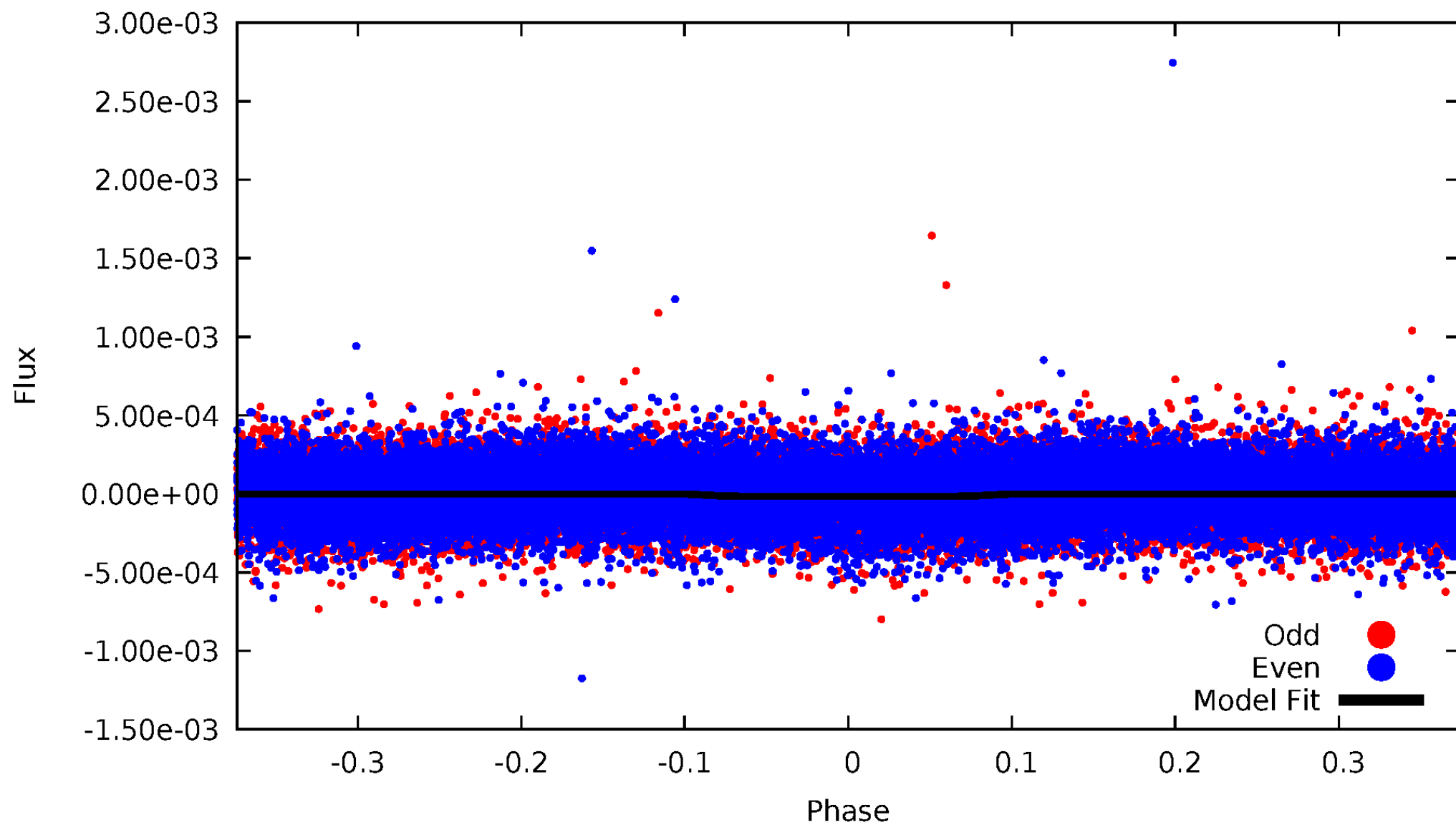


TCE 008175399-01



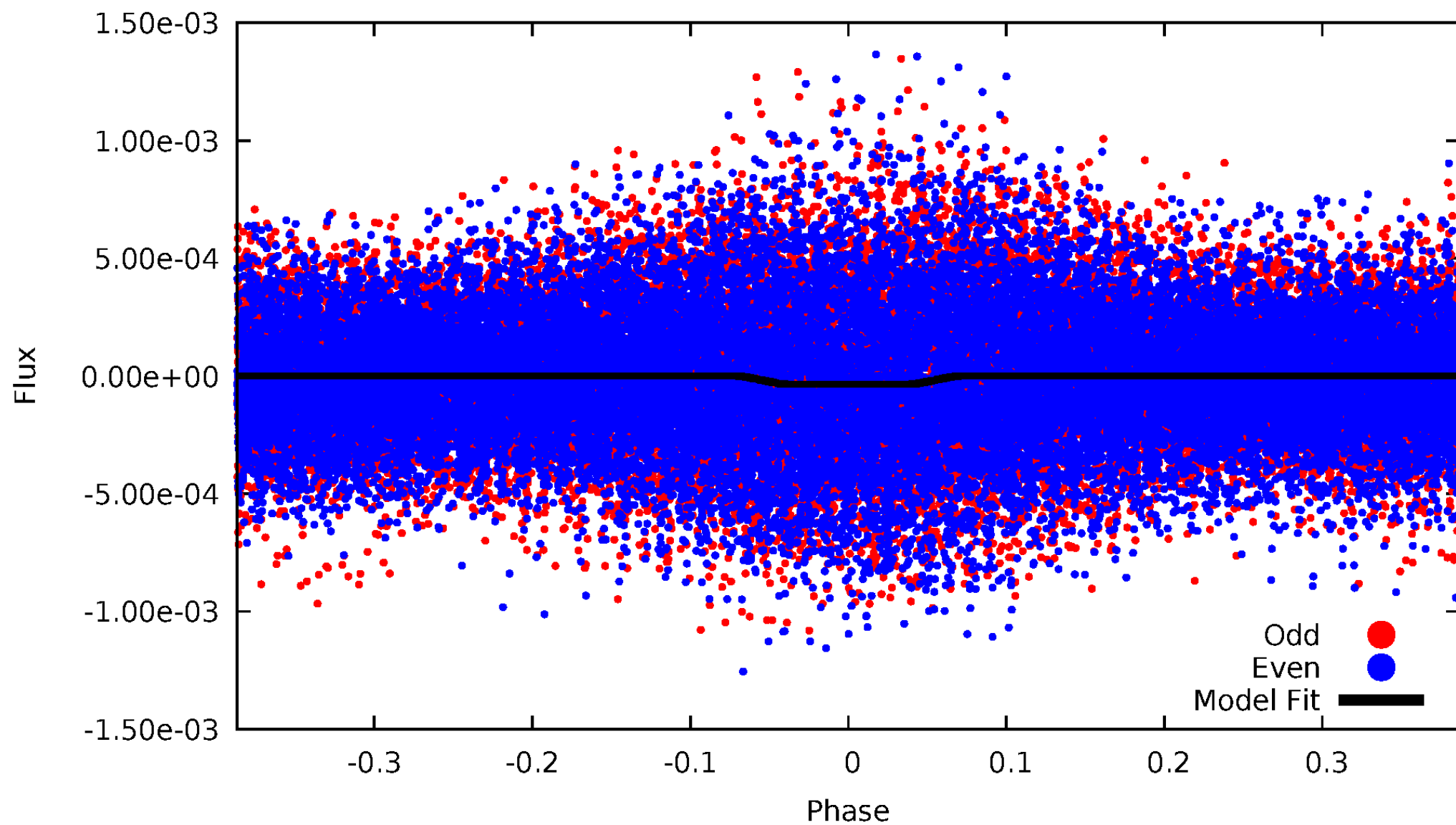
# DV Odd/Even

TCE 008175399-01

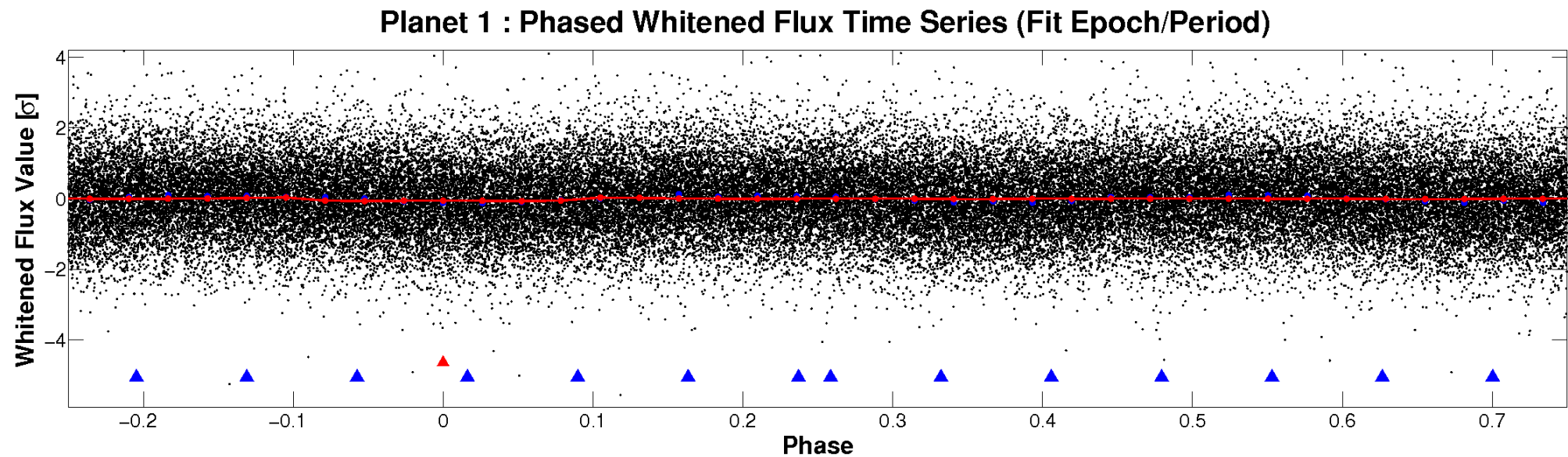
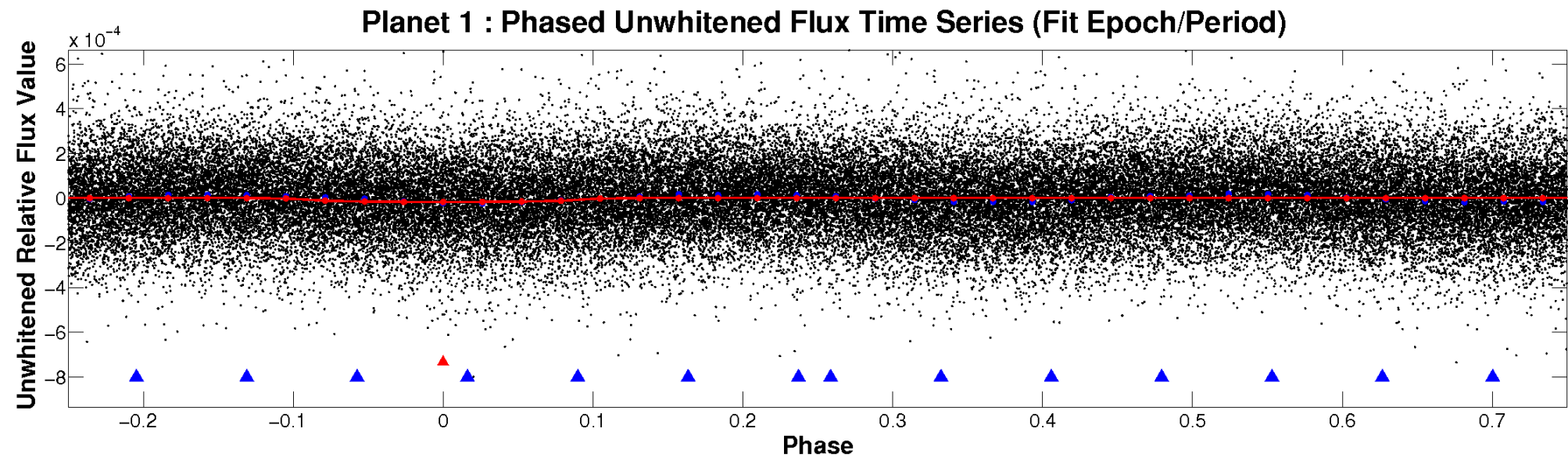


# ALT Odd/Even

TCE 008175399-01



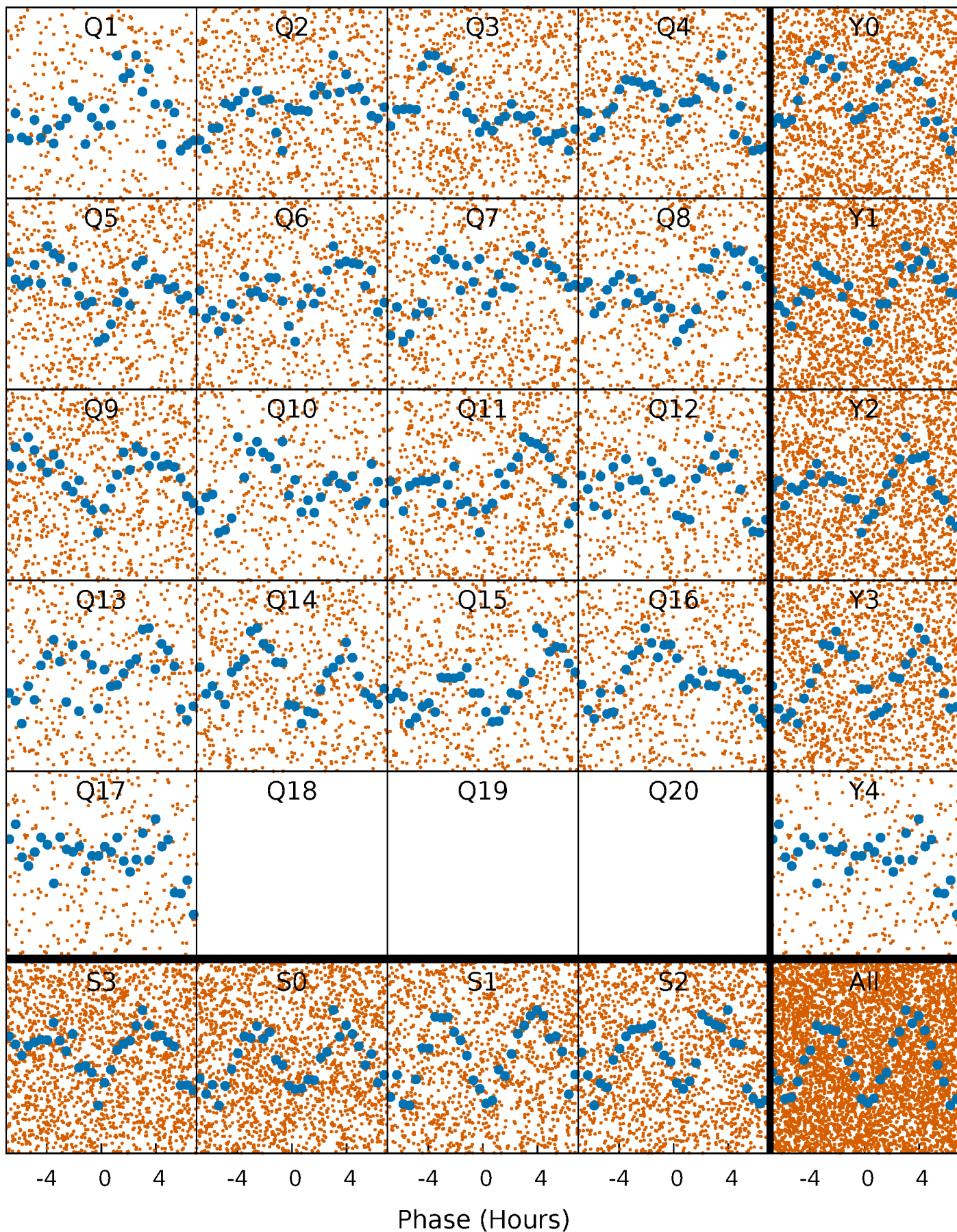
# Non-Whitened Vs. Whitened Light Curve





# PDC Quarter-Phased Transit Curves

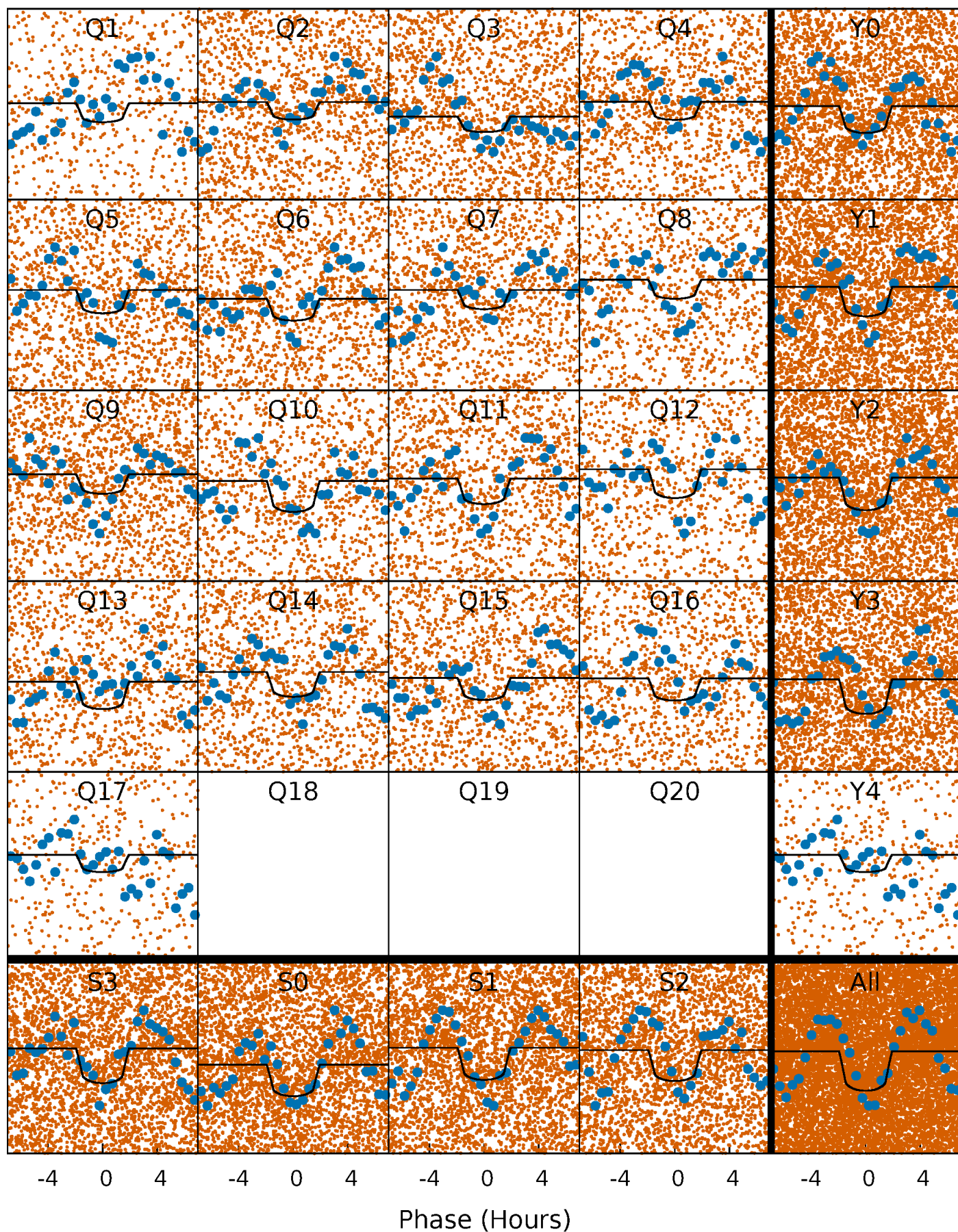
TCE 008175399-01 P= 0.779644 Days  $T_0=132.083412$  (BKJD)





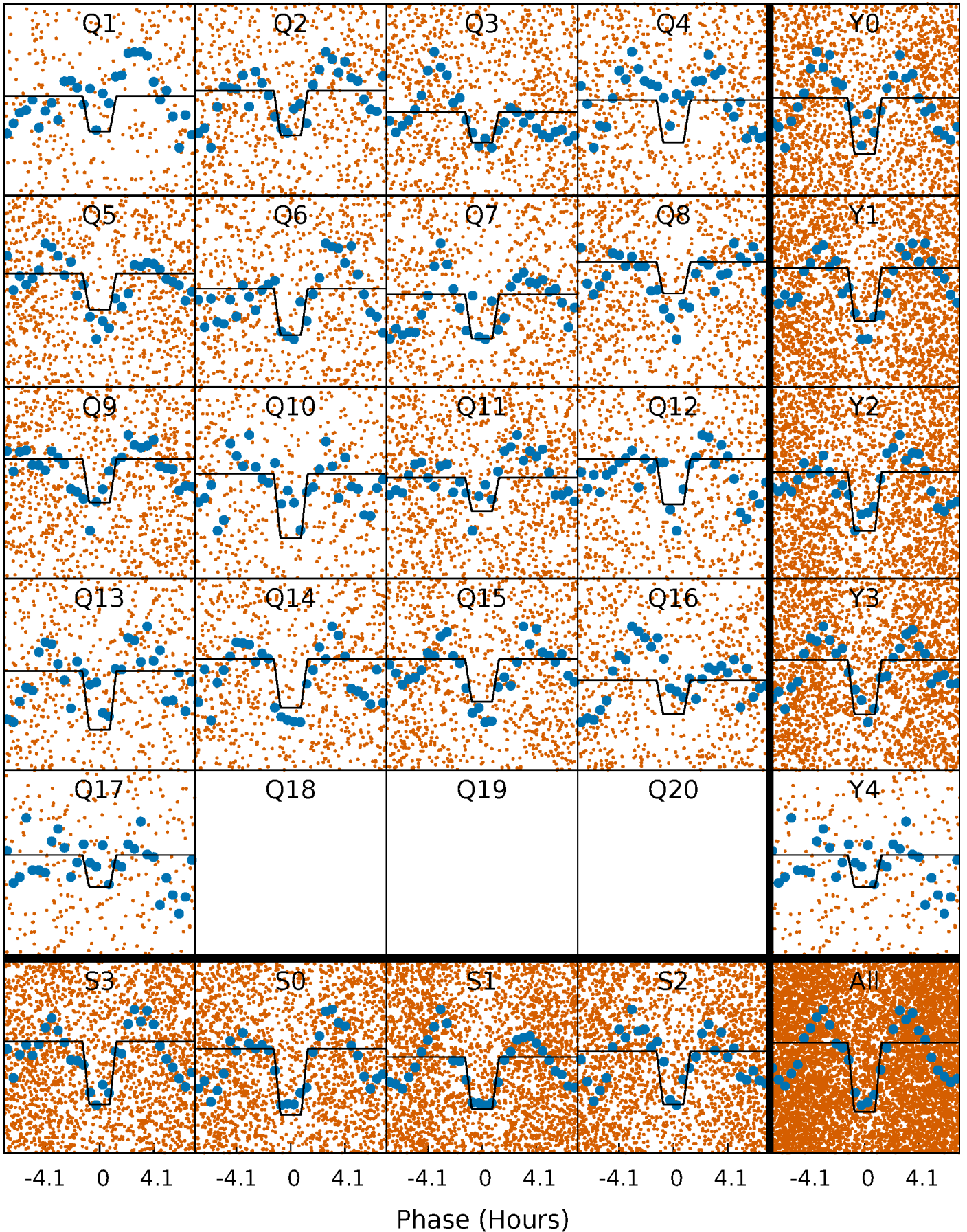
# DV Quarter-Phased Transit Curves

TCE 008175399-01   P= 0.779644 Days    $T_0=132.083412$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008175399-01   P= 0.779669 Days    $T_0=132.079103$  (BKJD)

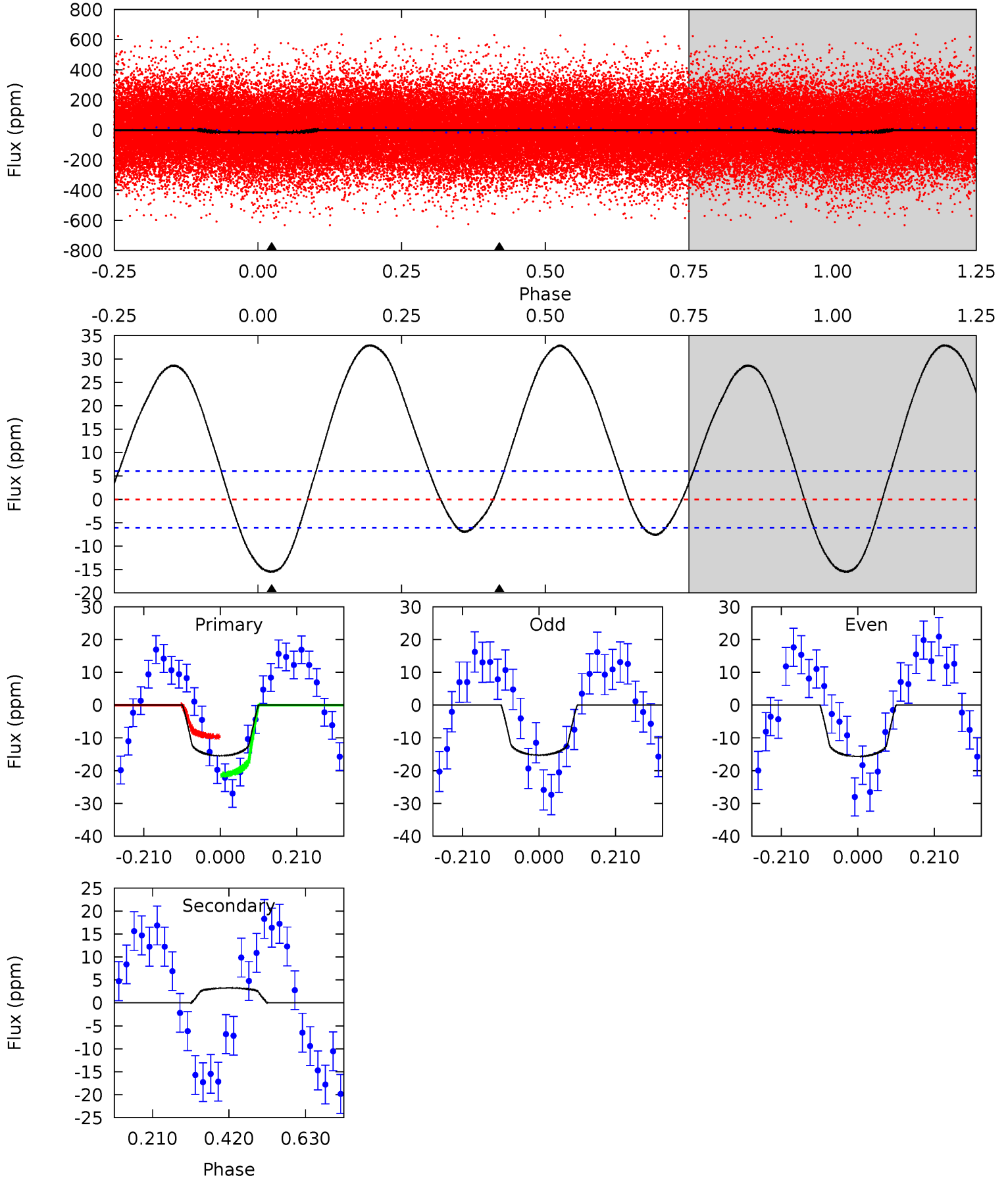




# DV Model-Shift Uniqueness Test

008175399-01, P = 0.779644 Days, E = 131.303768 Days

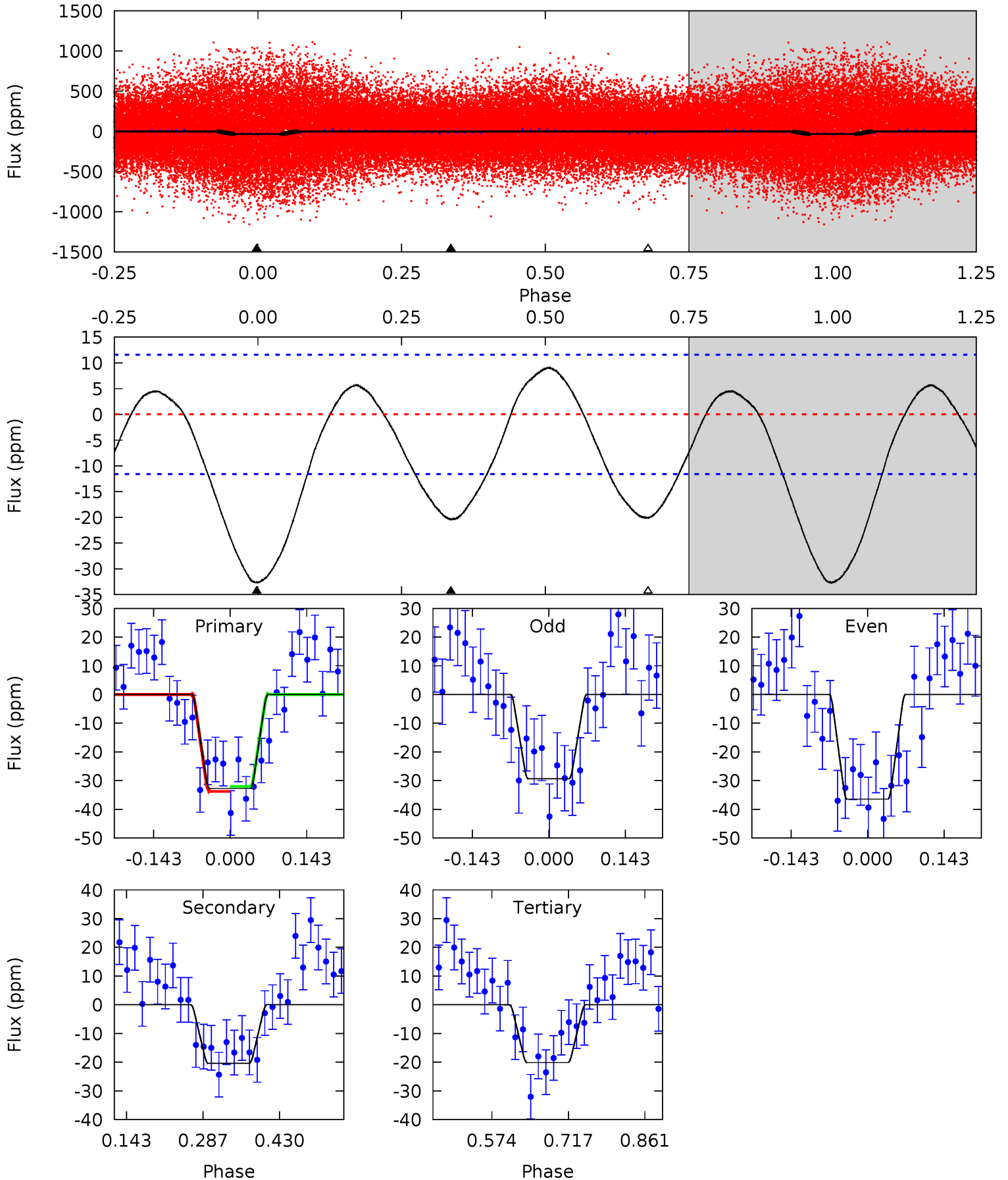
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	-2.36	0	0	4.41	1.25	6.82	11.3	11.3	-2.36	-2.36	0.15	1.09	0.68	4.36



# Alt Model-Shift Uniqueness Test

008175399-01, P = 0.779669 Days, E = 131.299434 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	7.90	7.79	0	4.49	1.46	3.79	4.88	12.7	0.11	7.90	1.38	0.80	0.22	0.36





### Stellar Parameters For KIC 008175399

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7286^{+228}_{-304}$	$3.998^{+0.246}_{-0.164}$	$-0.240^{+0.250}_{-0.350}$	$2.056^{+0.554}_{-0.677}$	$1.532^{+0.204}_{-0.306}$	$0.248^{+0.412}_{-0.100}$
	+3%/-4%	+6%/-4%	+104%/-146%	+27%/-33%	+13%/-20%	+166%/-40%
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 008175399-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$3 \pm 1$	$0.95^{+0.28}_{-0.25}$	$4623^{+359}_{-398}$	$-5125^{+496}_{-660}$	$-0.697^{+0.374}_{-0.727}$
Alt.	$-20 \pm 3$	$1.28^{+0.32}_{-0.29}$	$4602^{+380}_{-403}$	$6065^{+816}_{-585}$	$2.460^{+1.704}_{-0.852}$

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

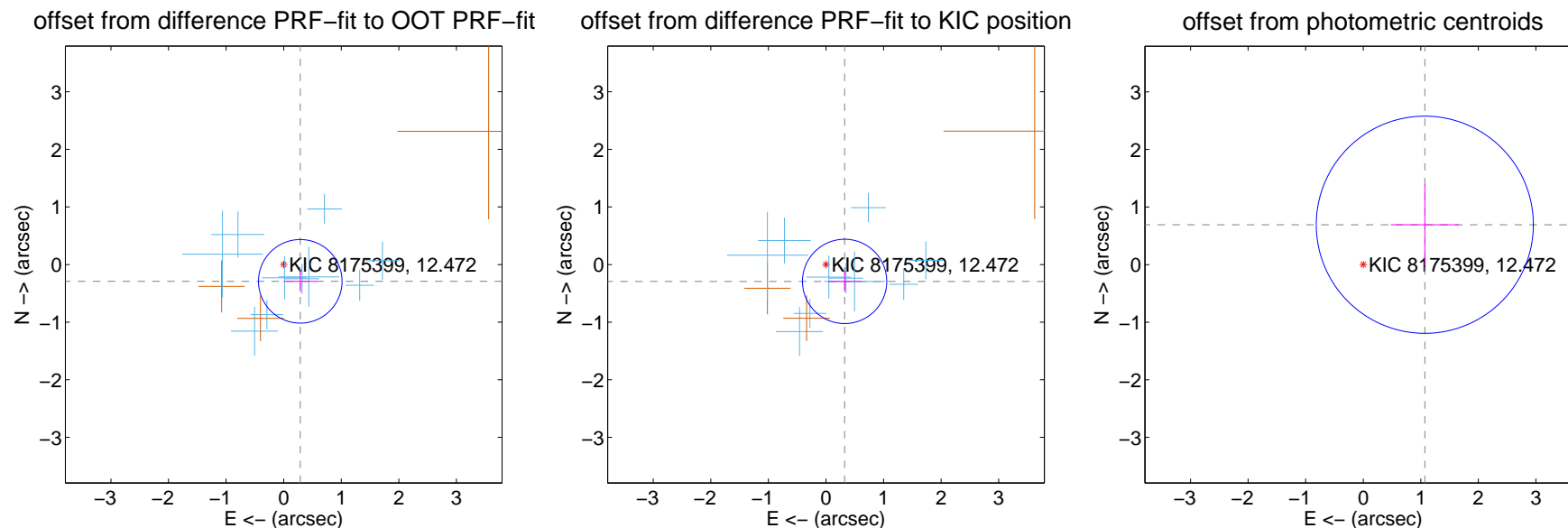
## DV Centroid Data

Supplemental centroid analysis for 008175399-01. Kepler magnitude: 12.47. Transit SNR 7.32

There are 10 quarters with good PRF difference image offsets

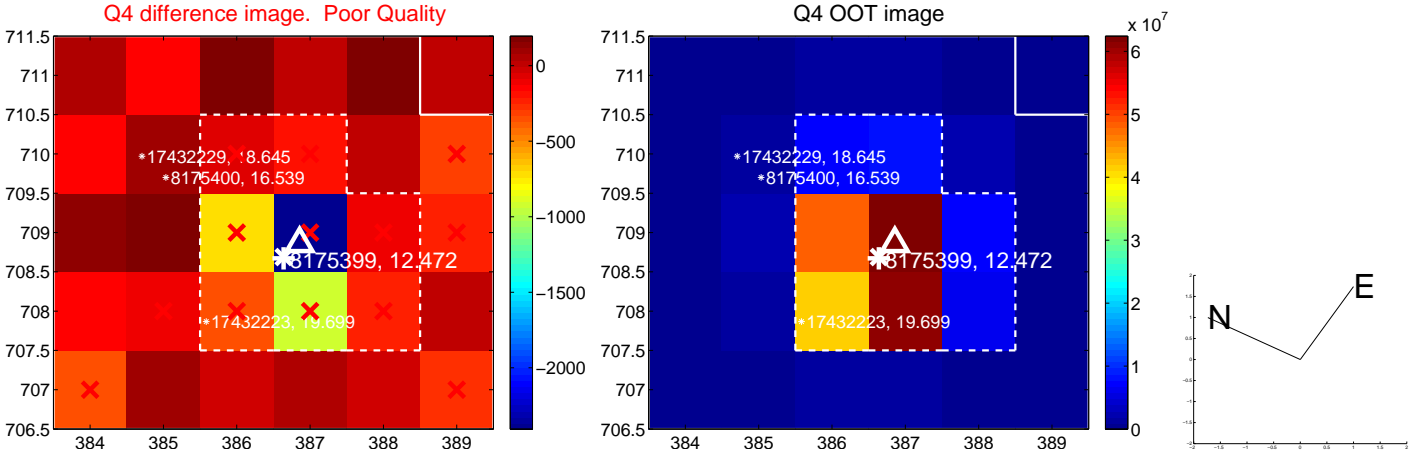
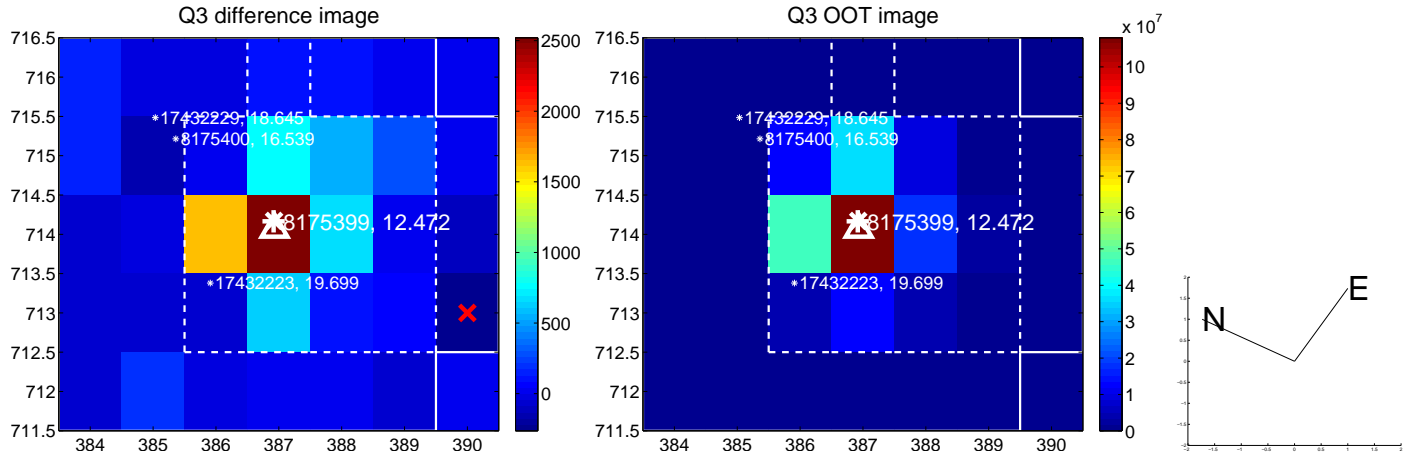
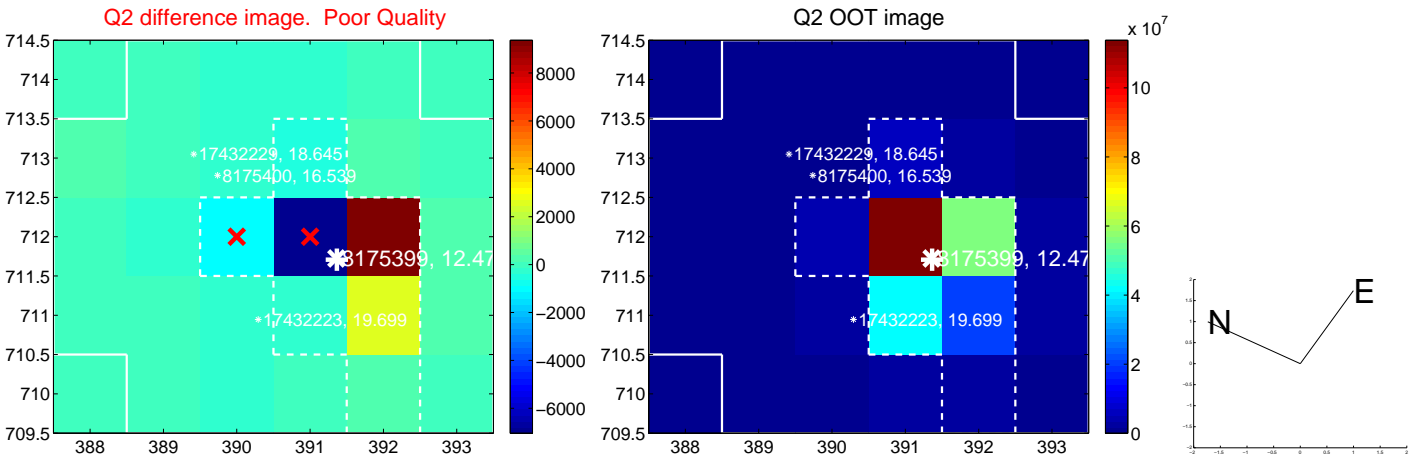
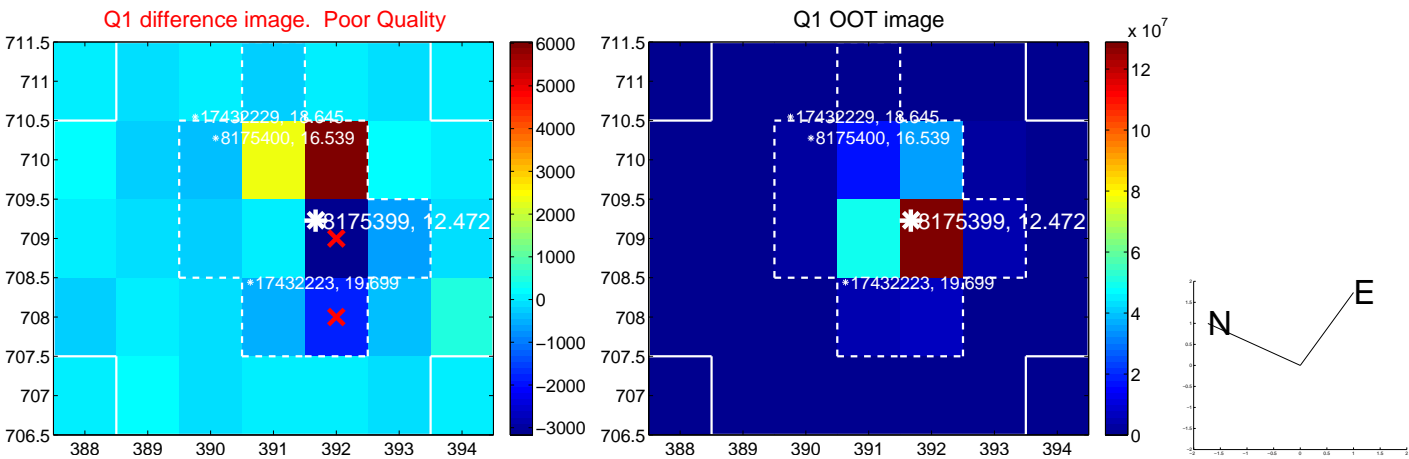
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.410 \pm 0.242$	1.69	$-0.288 \pm 0.287$	$-0.291 \pm 0.187$
PRF-fit source offset from KIC position	$0.436 \pm 0.244$	1.79	$-0.324 \pm 0.285$	$-0.293 \pm 0.182$
photometric centroid source offset	$1.27 \pm 0.63$	2.03	$-1.07 \pm 0.59$	$0.69 \pm 0.71$

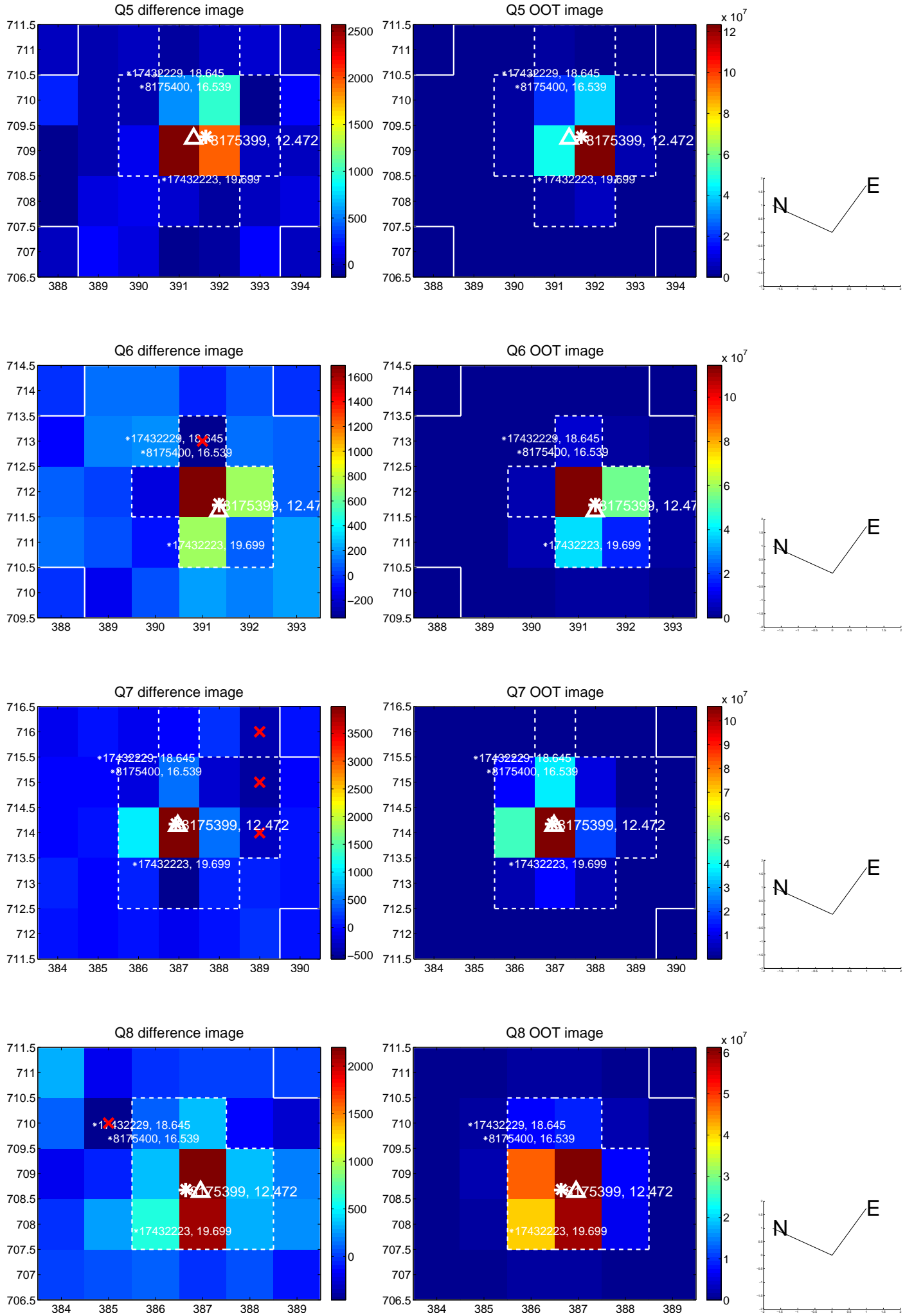


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

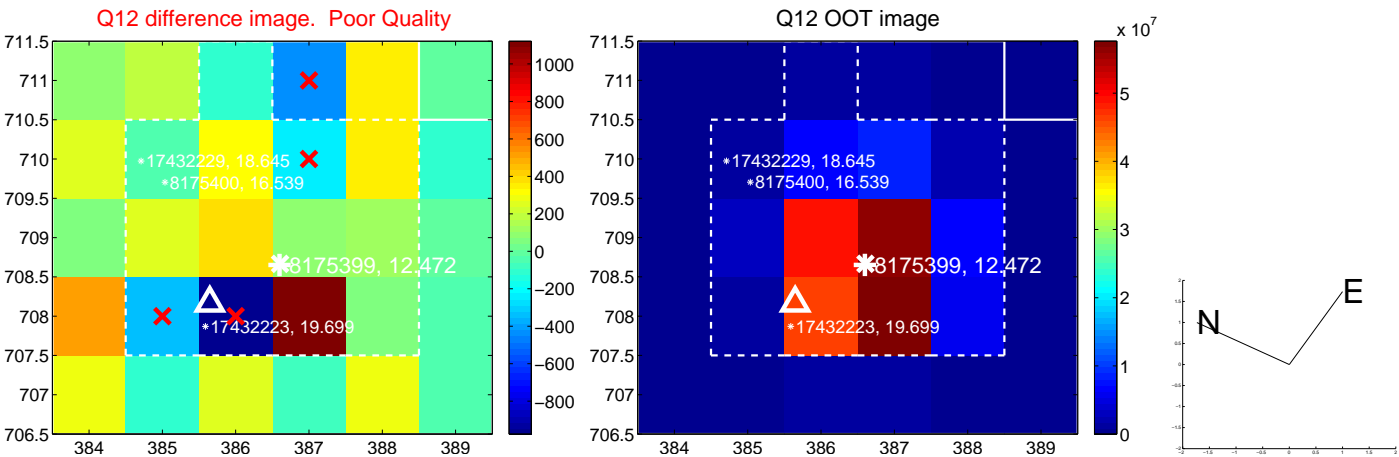
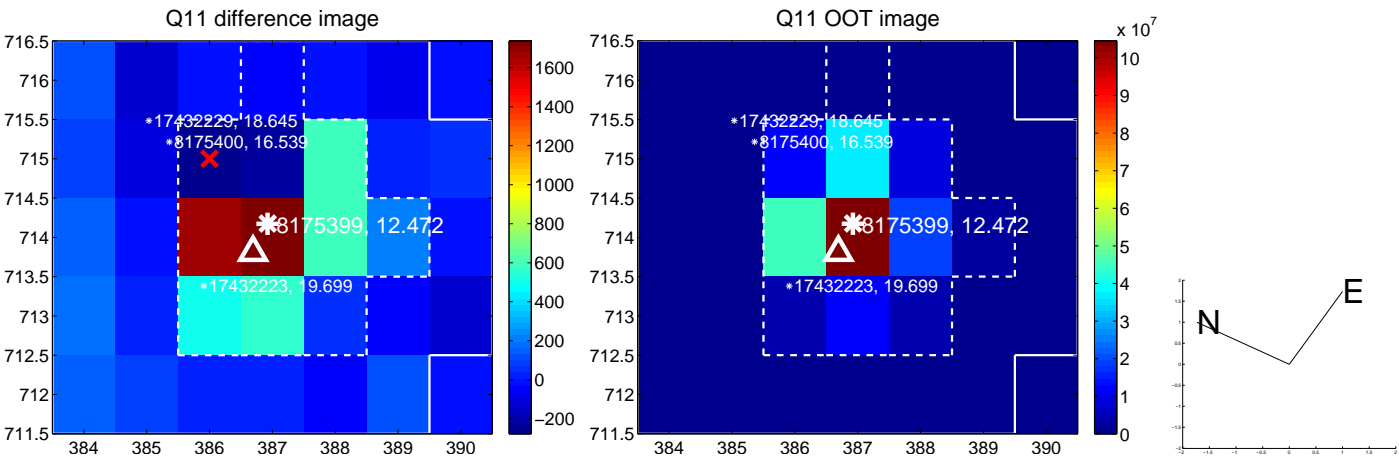
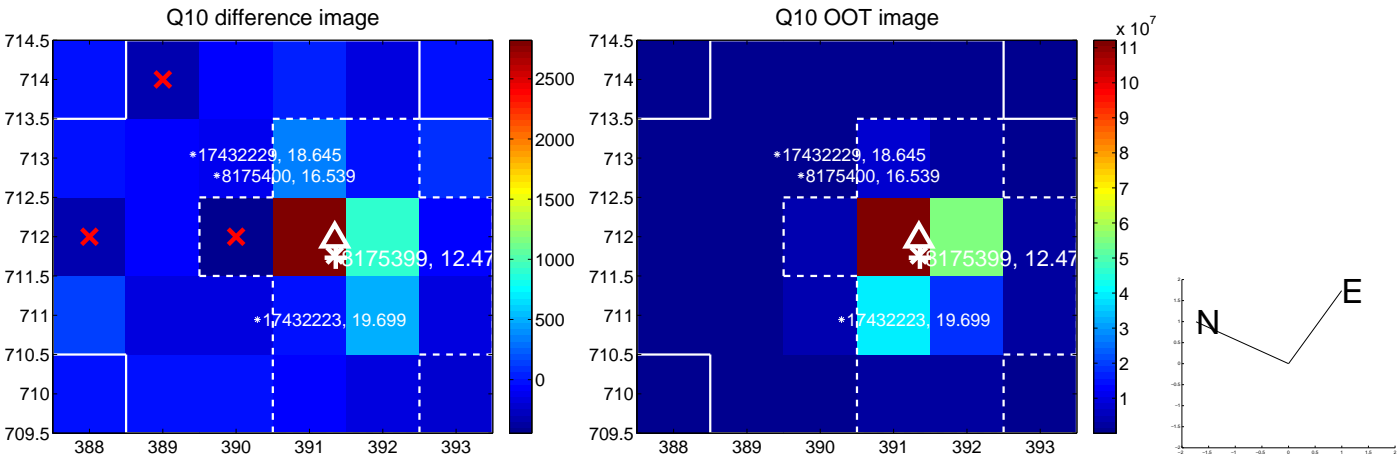
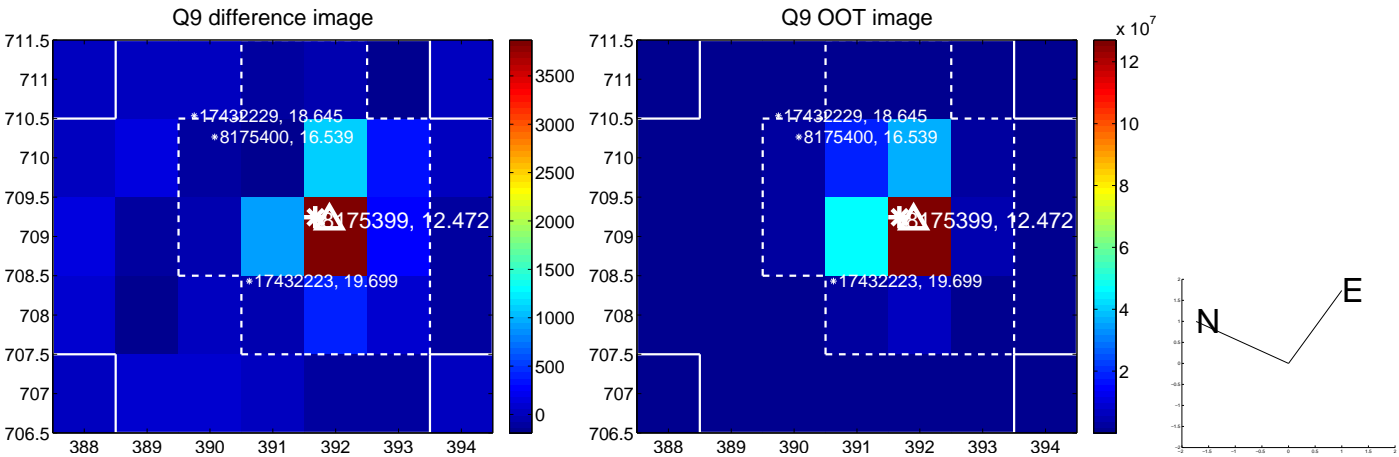


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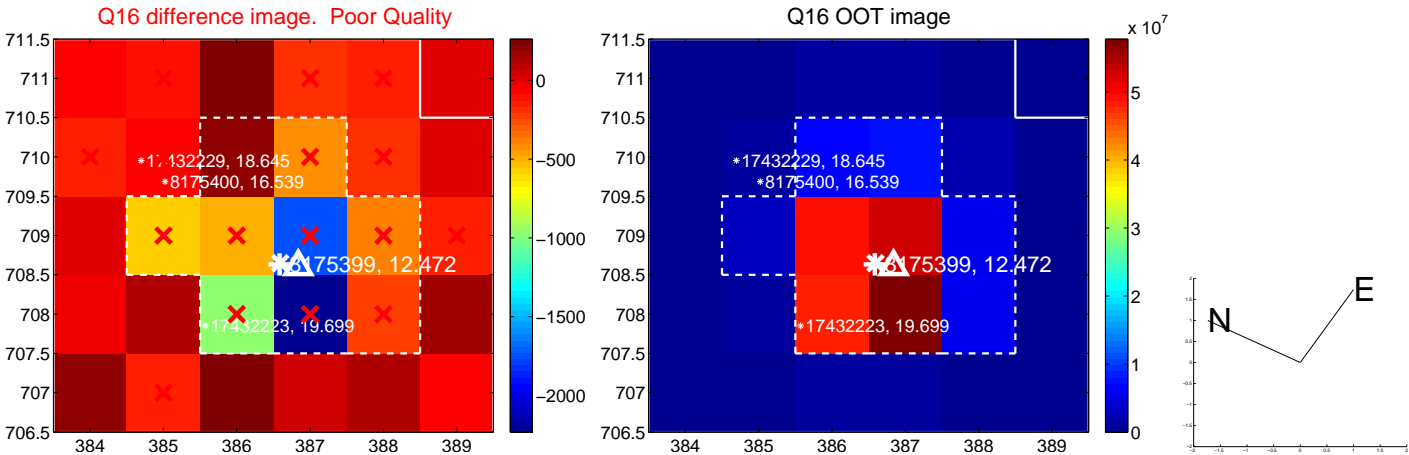
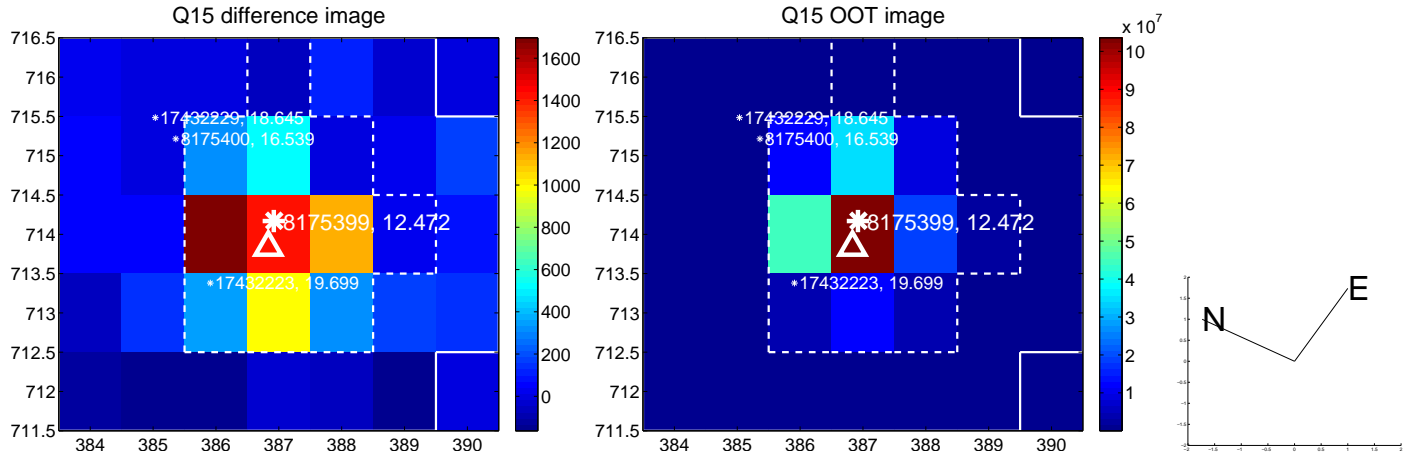
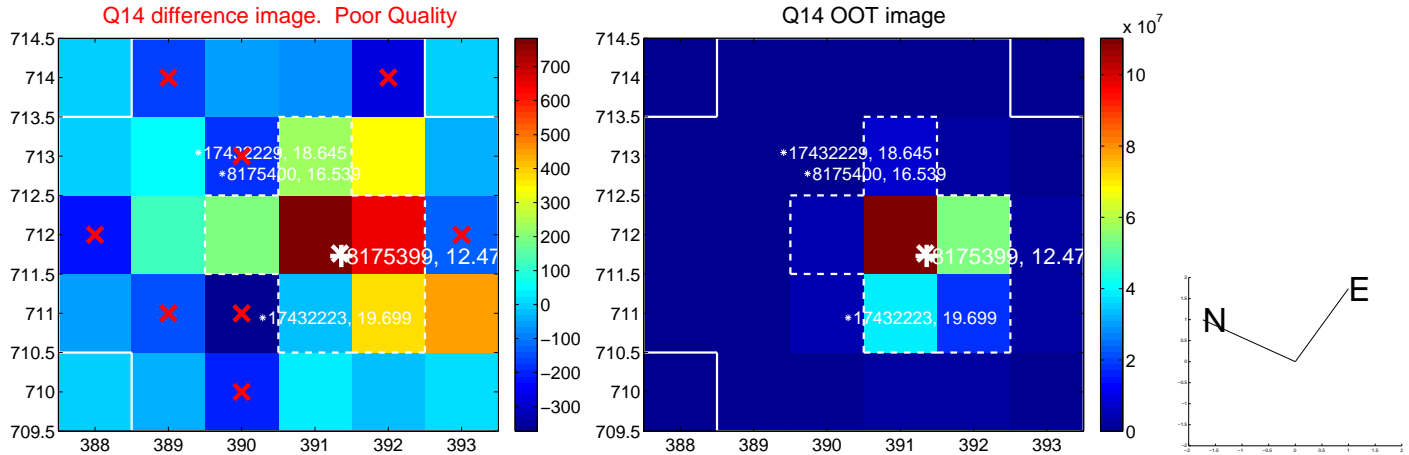
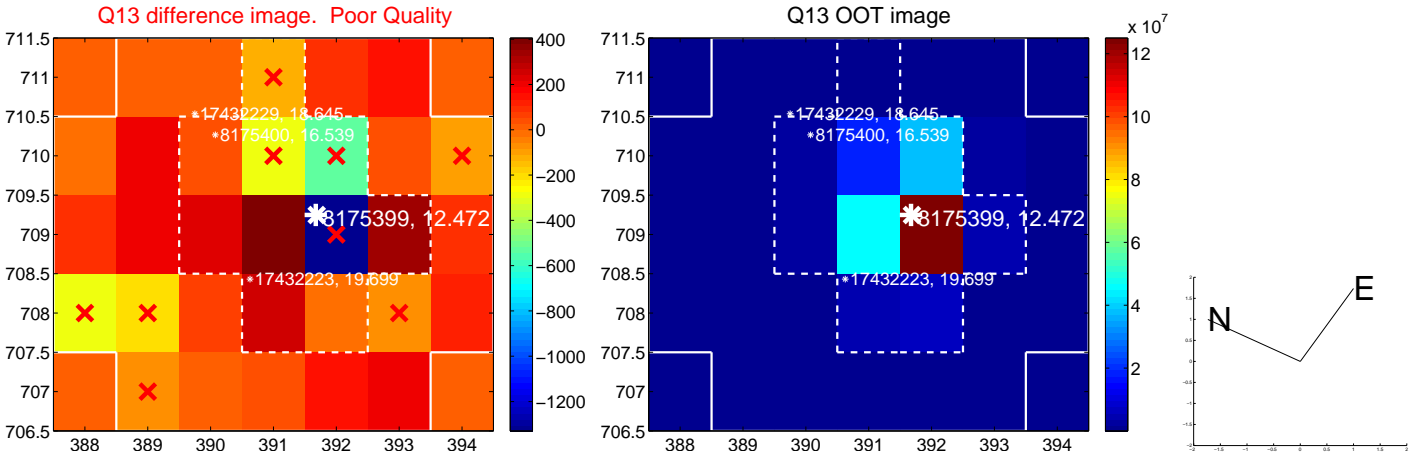




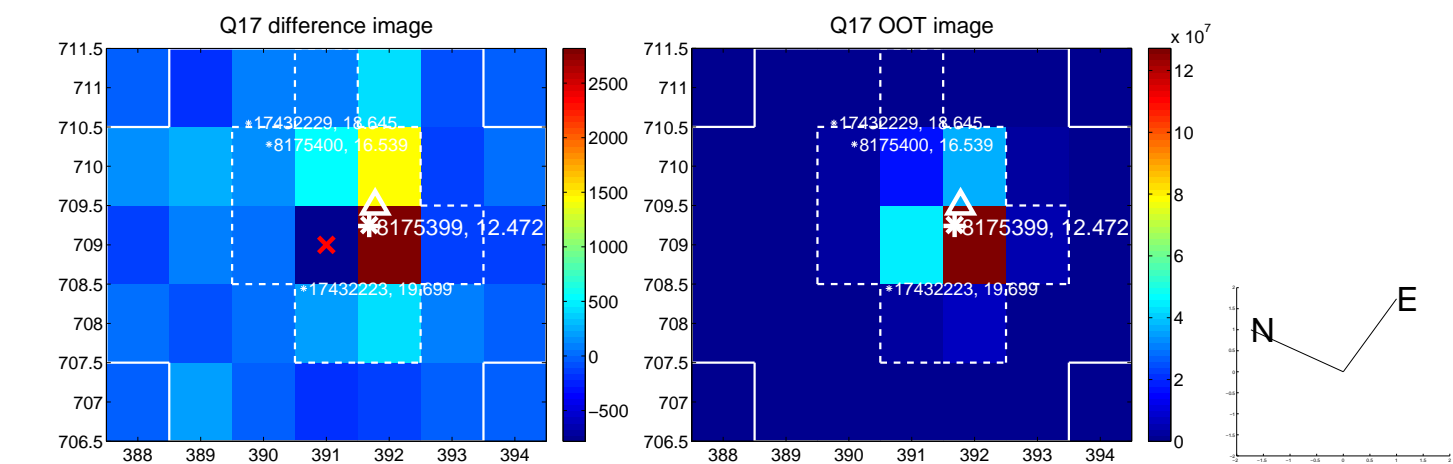
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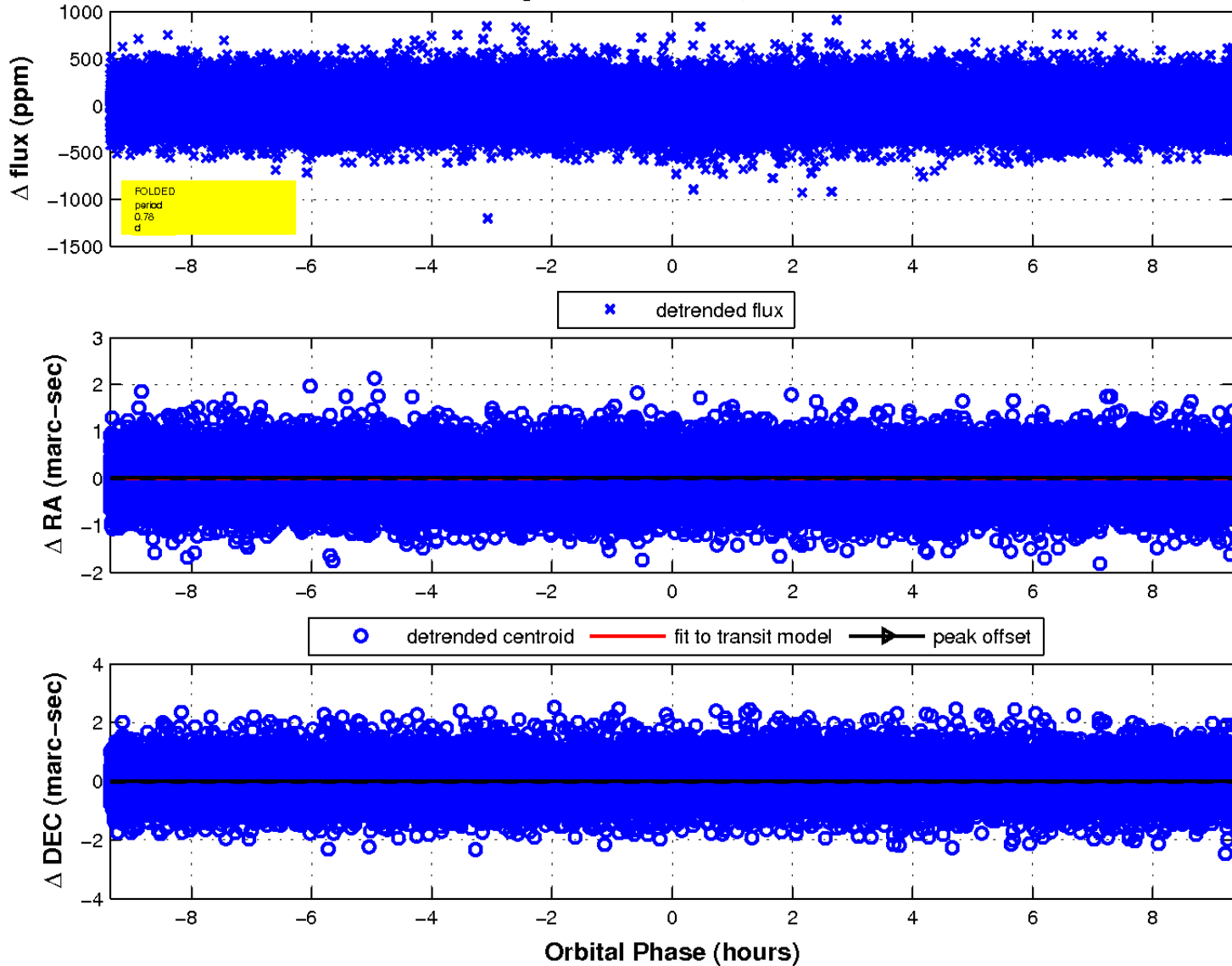
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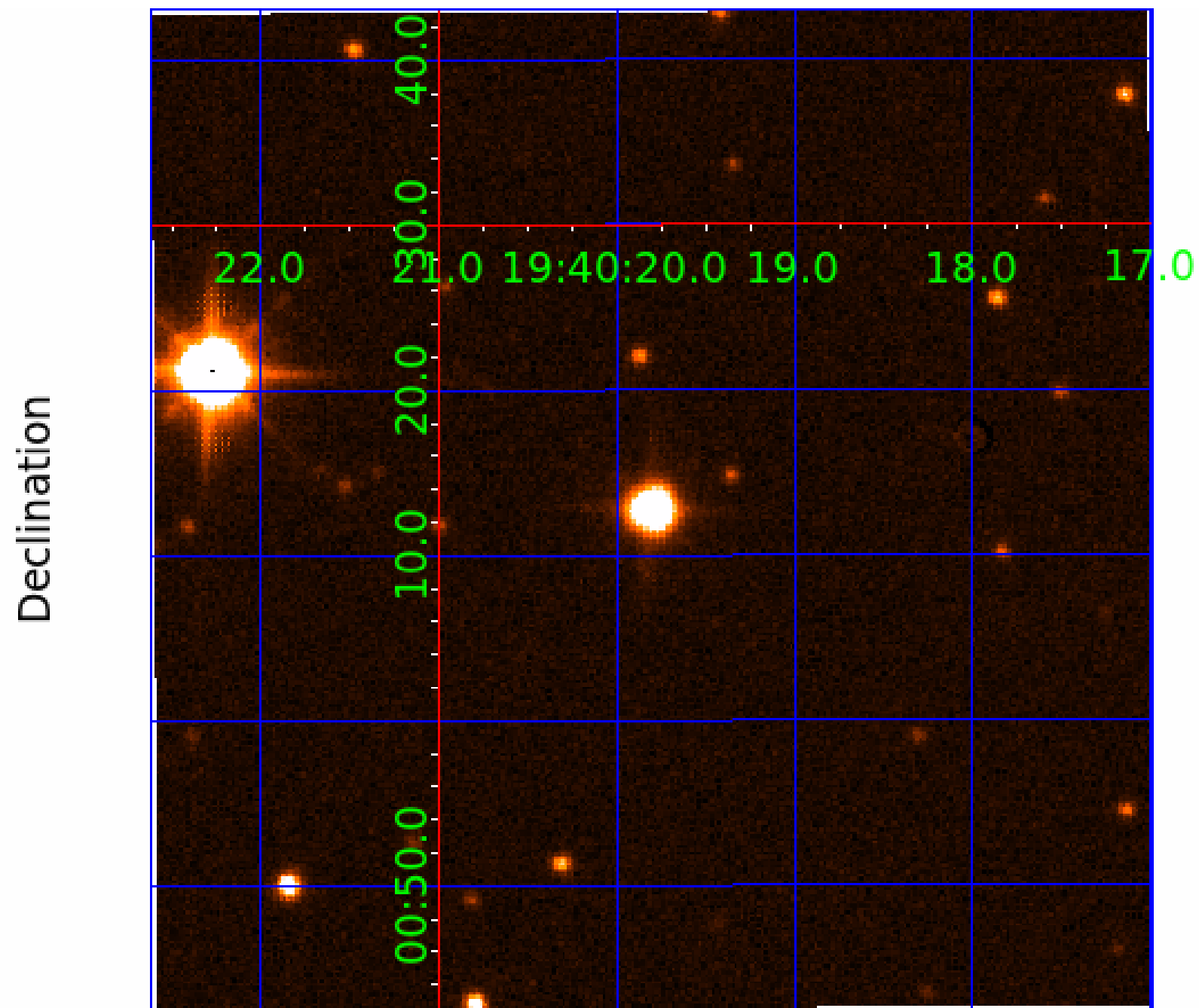
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image





# KIC 008175399

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008175399-01	OBS	No	0.779644	132.083412	16.8	3.497	9.0	7.3	2.06	7286	0.98	29174.57
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008175399-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
008175399-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

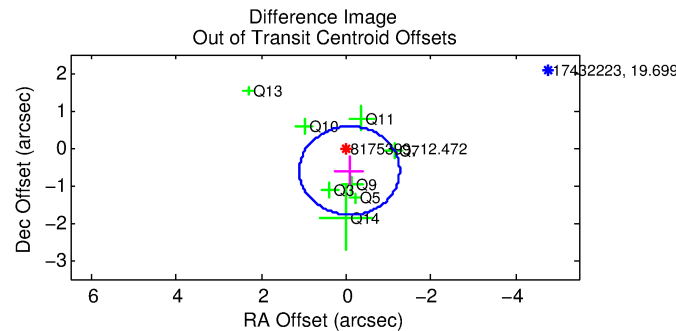
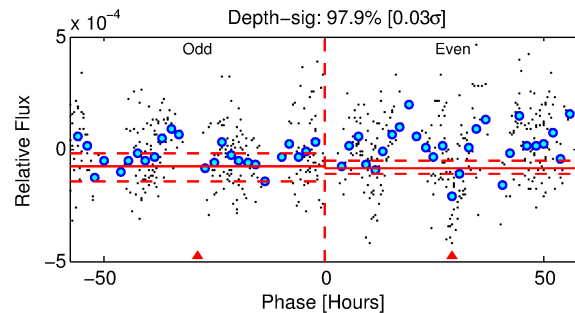
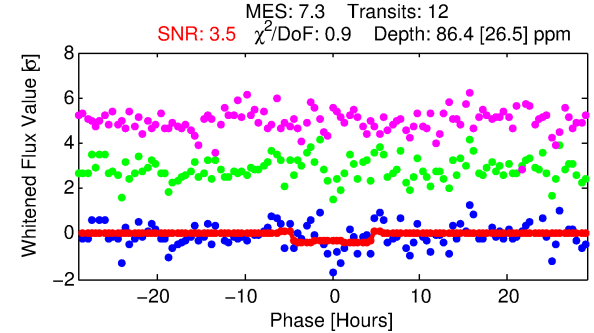
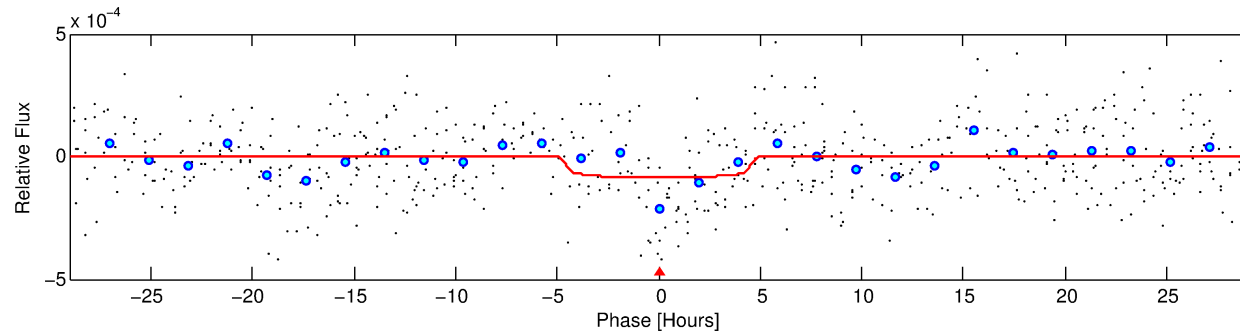
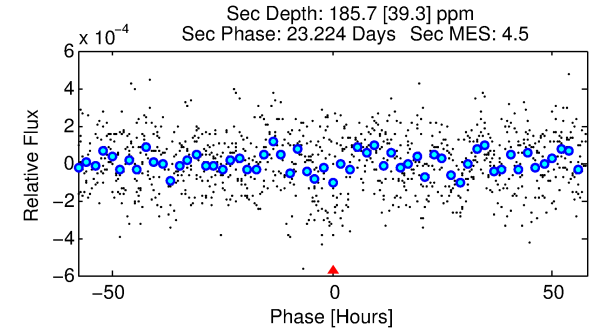
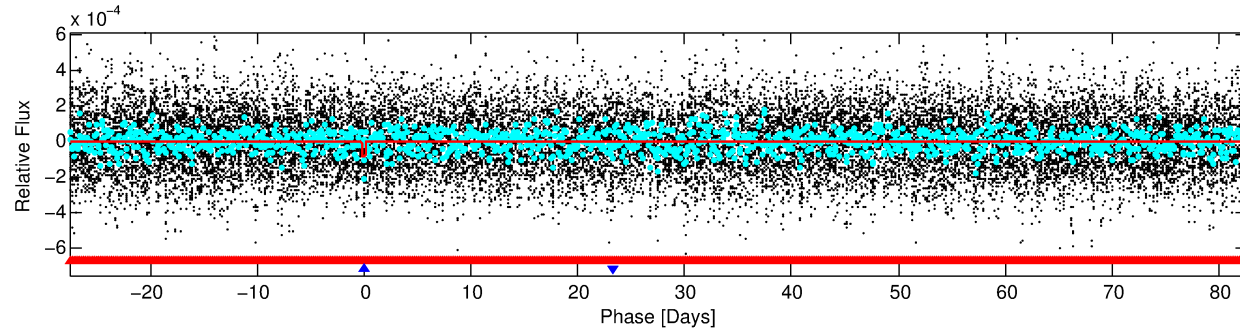
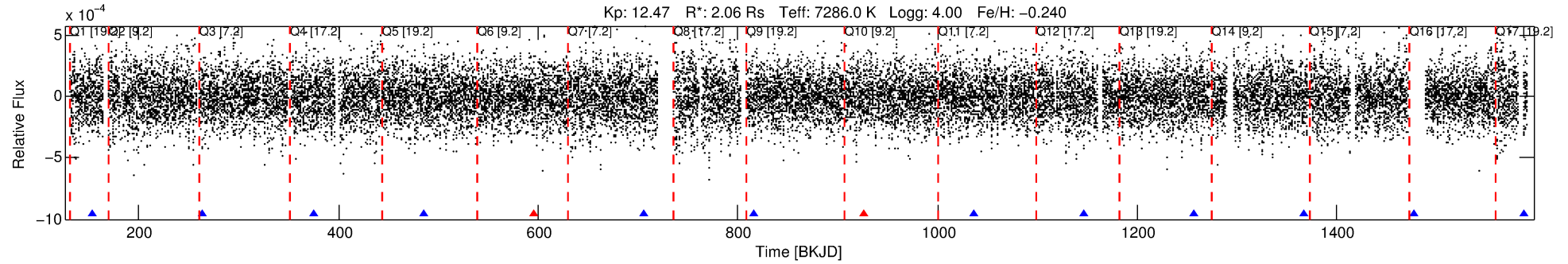
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008175399-02

No Significant Match Found

# DV One-Page Summary

KIC: 8175399 Candidate: 2 of 2 Period: 110.291 d



## DV Fit Results:

Period = 110.29097 [0.00386] d  
Epoch = 154.0983 [0.0279] BKJD  
Rp/R\* = 0.0099 [0.0031]  
a/R\* = 40.11 [62.89]  
b = 0.90 [0.34]  
Seff = 39.58 [18.51]  
Teq = 640 [75] K  
Rp = 2.22 [1.01] Re  
a = 0.5193 [0.1504] AU  
Ag = 5606.30 [4465.02] [1.26σ]  
Teffp = 8557 [1469] K [5.38σ]

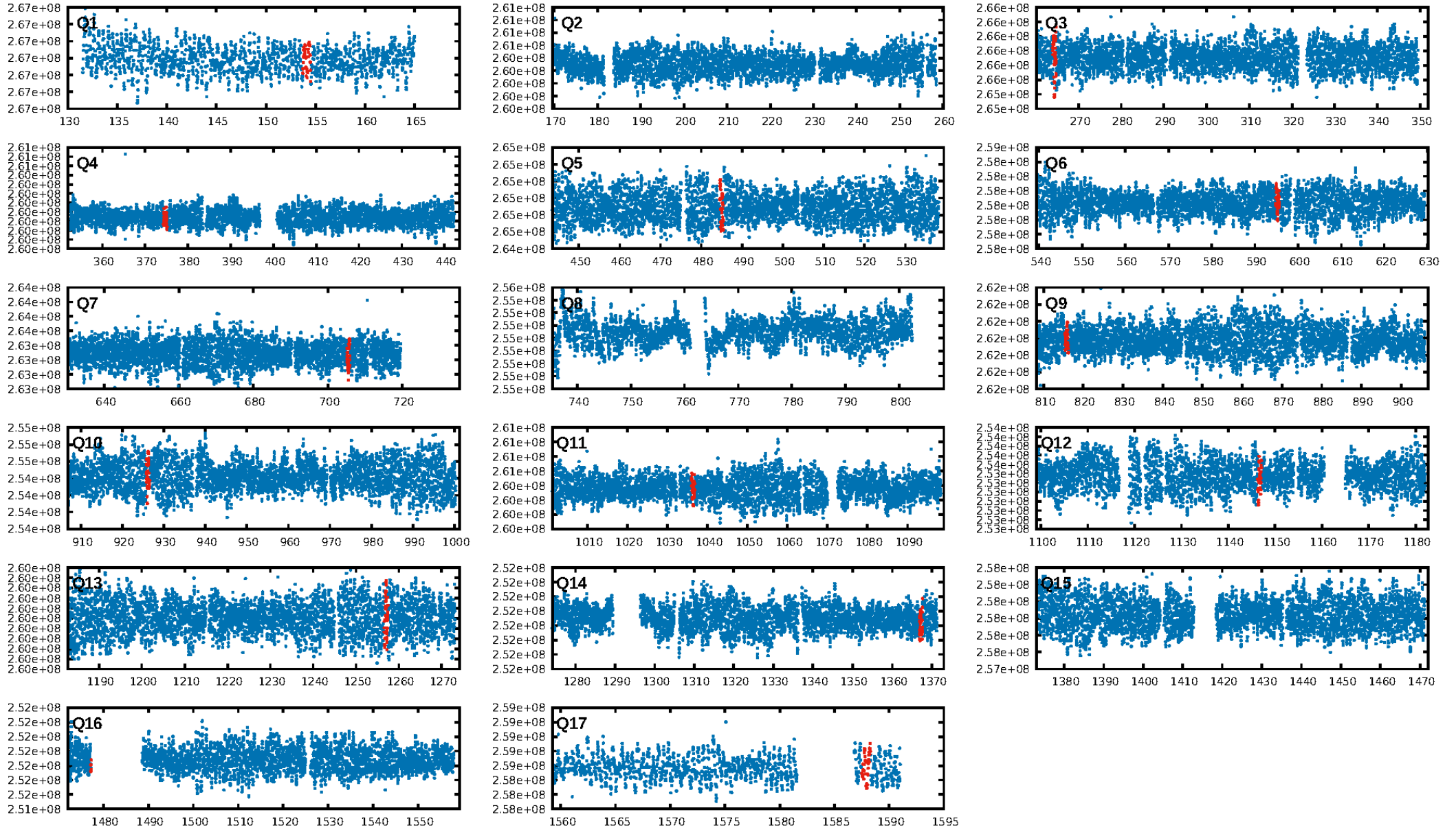
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [255.50σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 57.9%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.35e-09**  
RollingBand-fgt: 0.80 [8/10]  
GhostDiagnostic-chr: -4.422  
Centroid-sig: 3.3%  
Centroid-so: 1.518 arcsec [1.38σ]  
OotOffset-rm: 0.613 arcsec [1.55σ]  
KicOffset-rm: 0.625 arcsec [1.63σ]  
OotOffset-st: 2/3/0/3 [8]  
KicOffset-st: 2/3/0/3 [8]  
DiffImageQuality-fgm: 0.62 [5/8]  
DiffImageOverlap-fno: 0.00 [0/12]

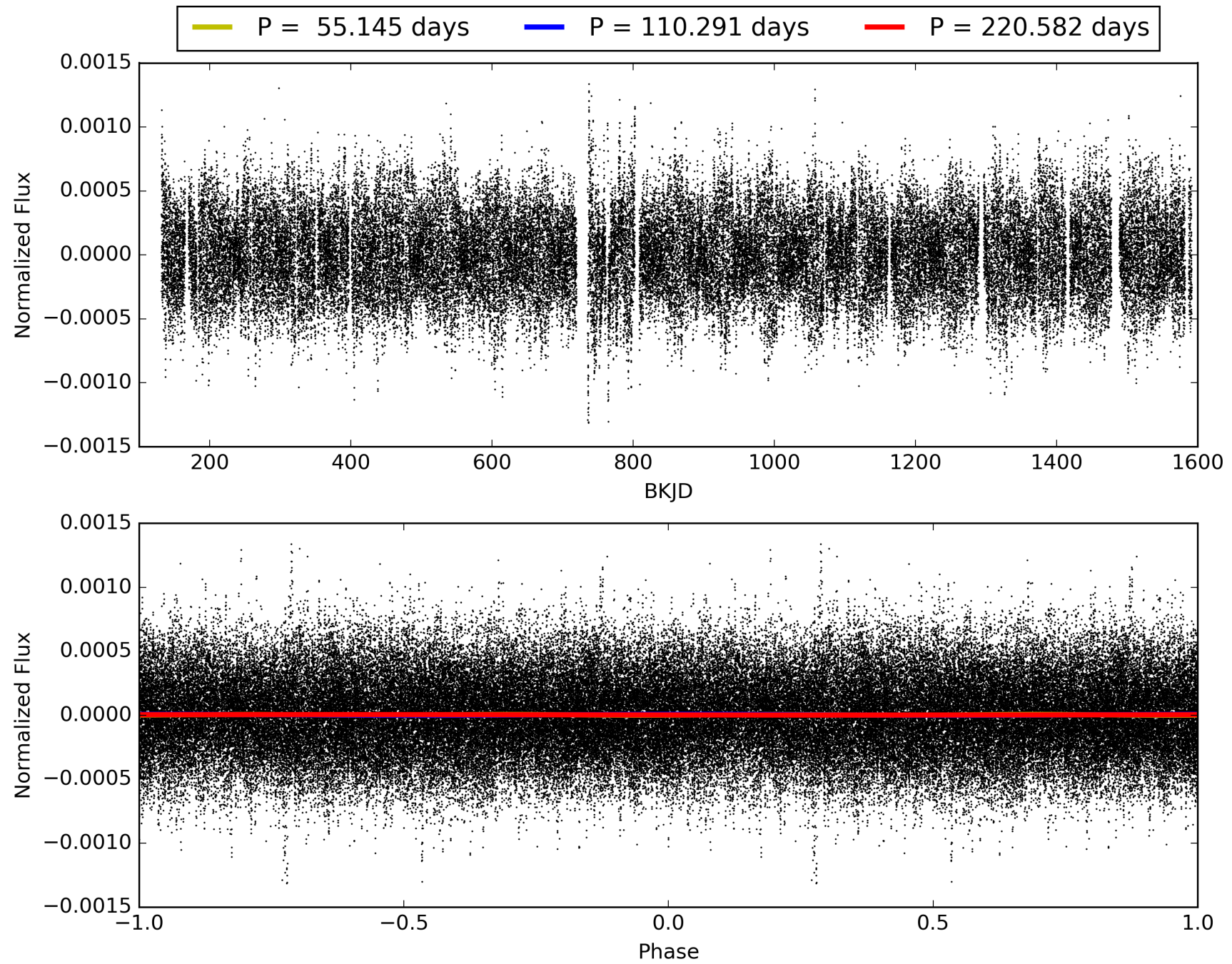
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 09:19:34 Z

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

# TCE 008175399-02, PDC Light Curves



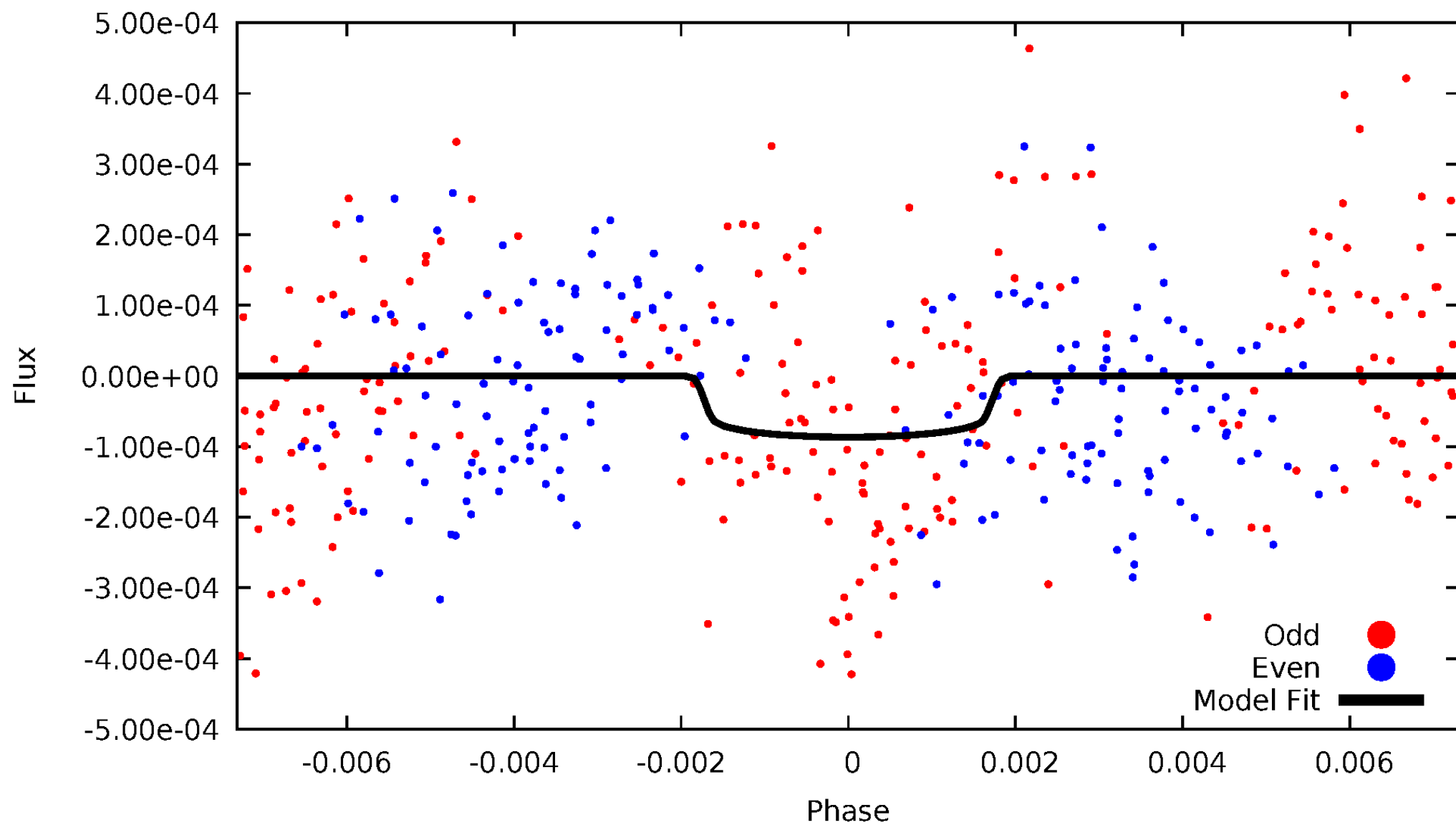
TCE 008175399-02





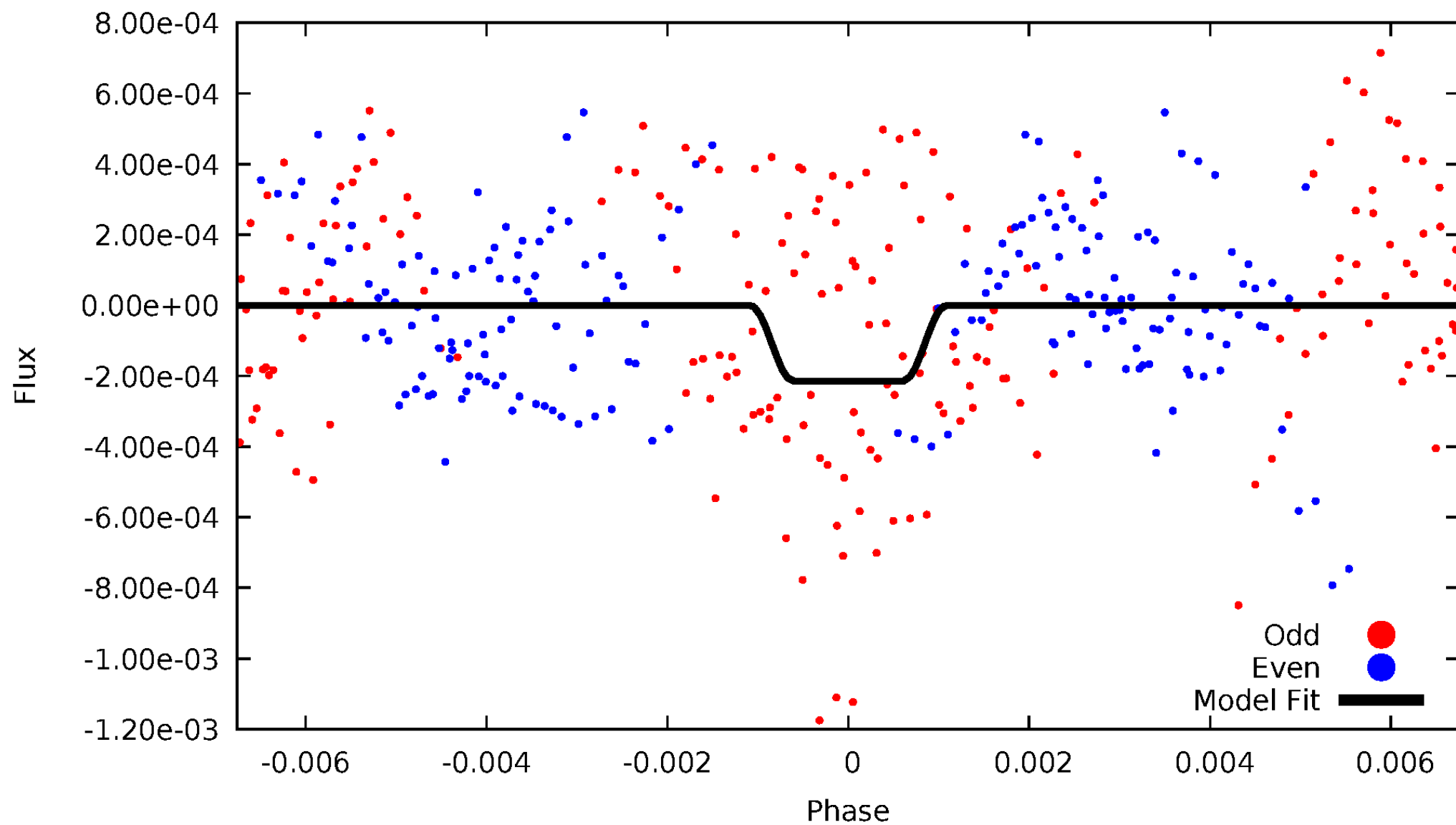
# DV Odd/Even

TCE 008175399-02



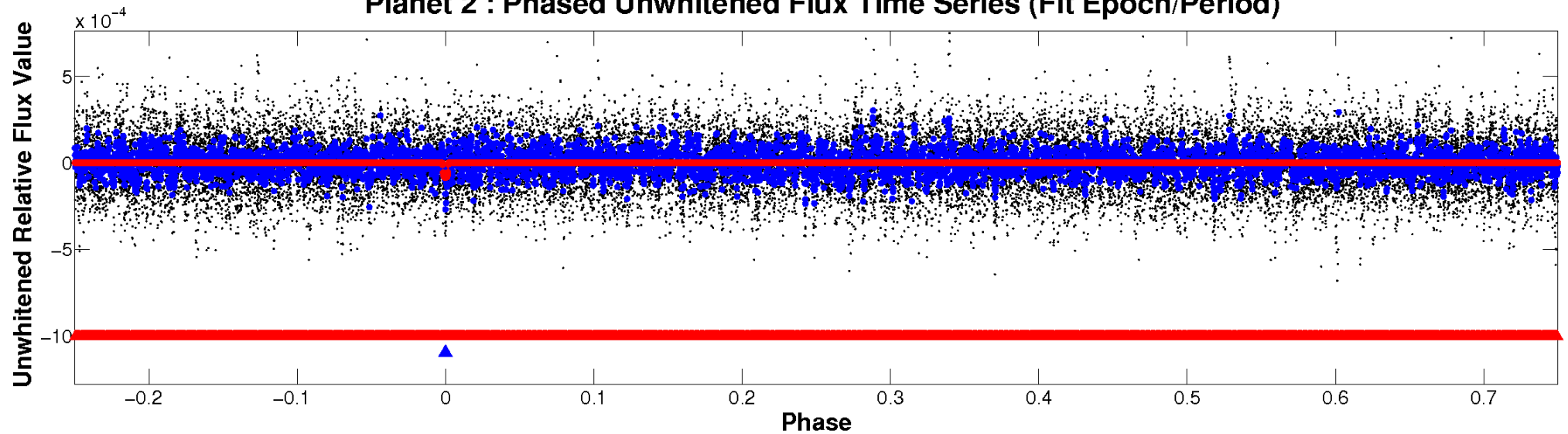
# ALT Odd/Even

TCE 008175399-02

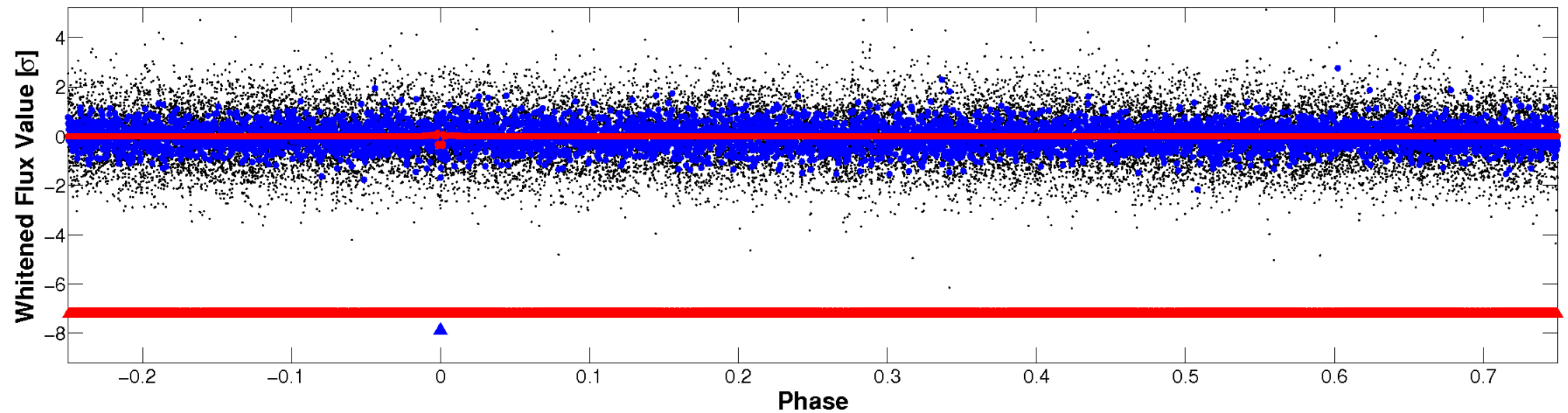


# Non-Whitened Vs. Whitened Light Curve

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

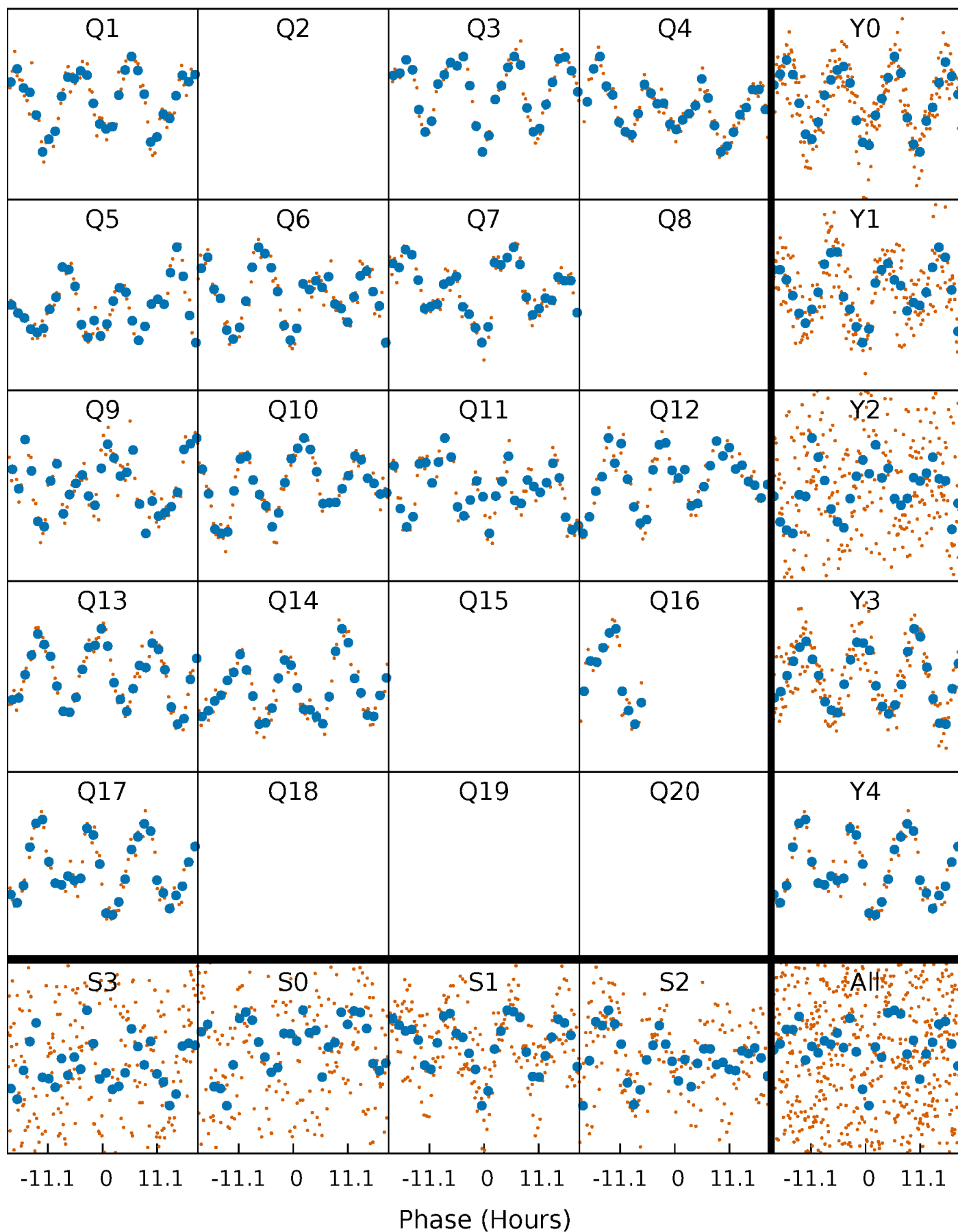


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



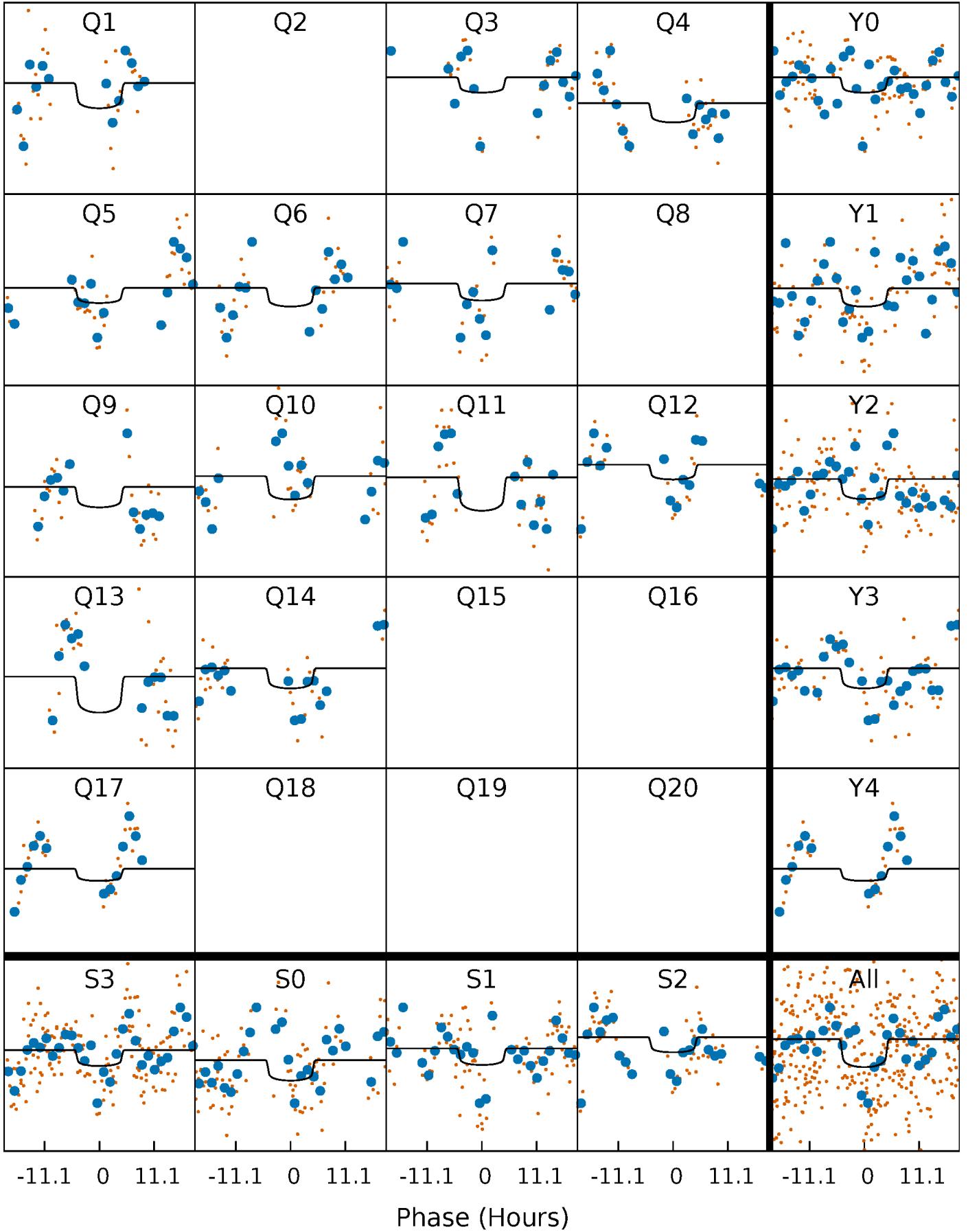
# PDC Quarter-Phased Transit Curves

TCE 008175399-02     $P=110.290970$  Days     $T_0=154.098331$  (BKJD)



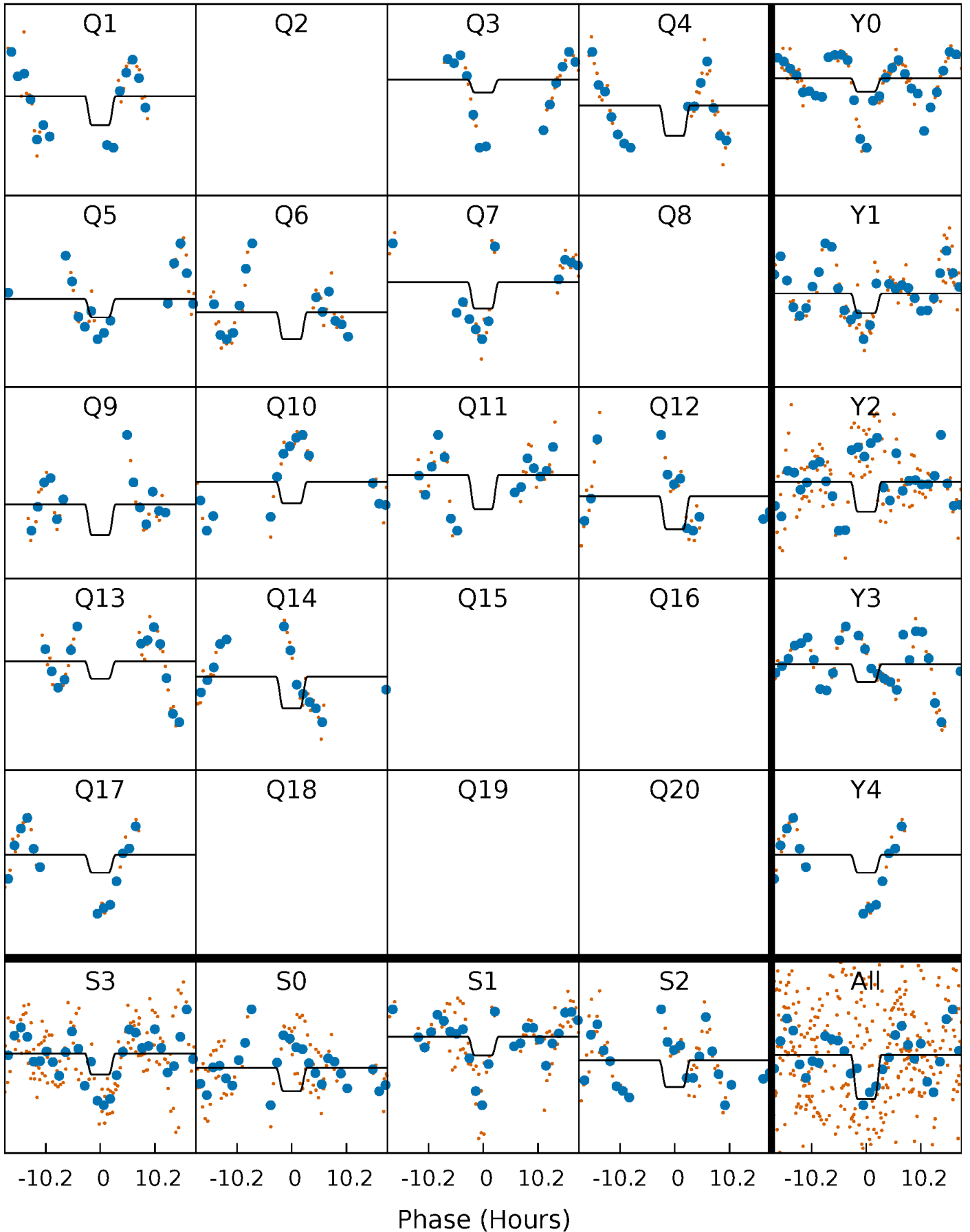
# DV Quarter-Phased Transit Curves

TCE 008175399-02 P=110.290970 Days  $T_0=154.098331$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008175399-02 P=110.294527 Days  $T_0=154.093117$  (BKJD)

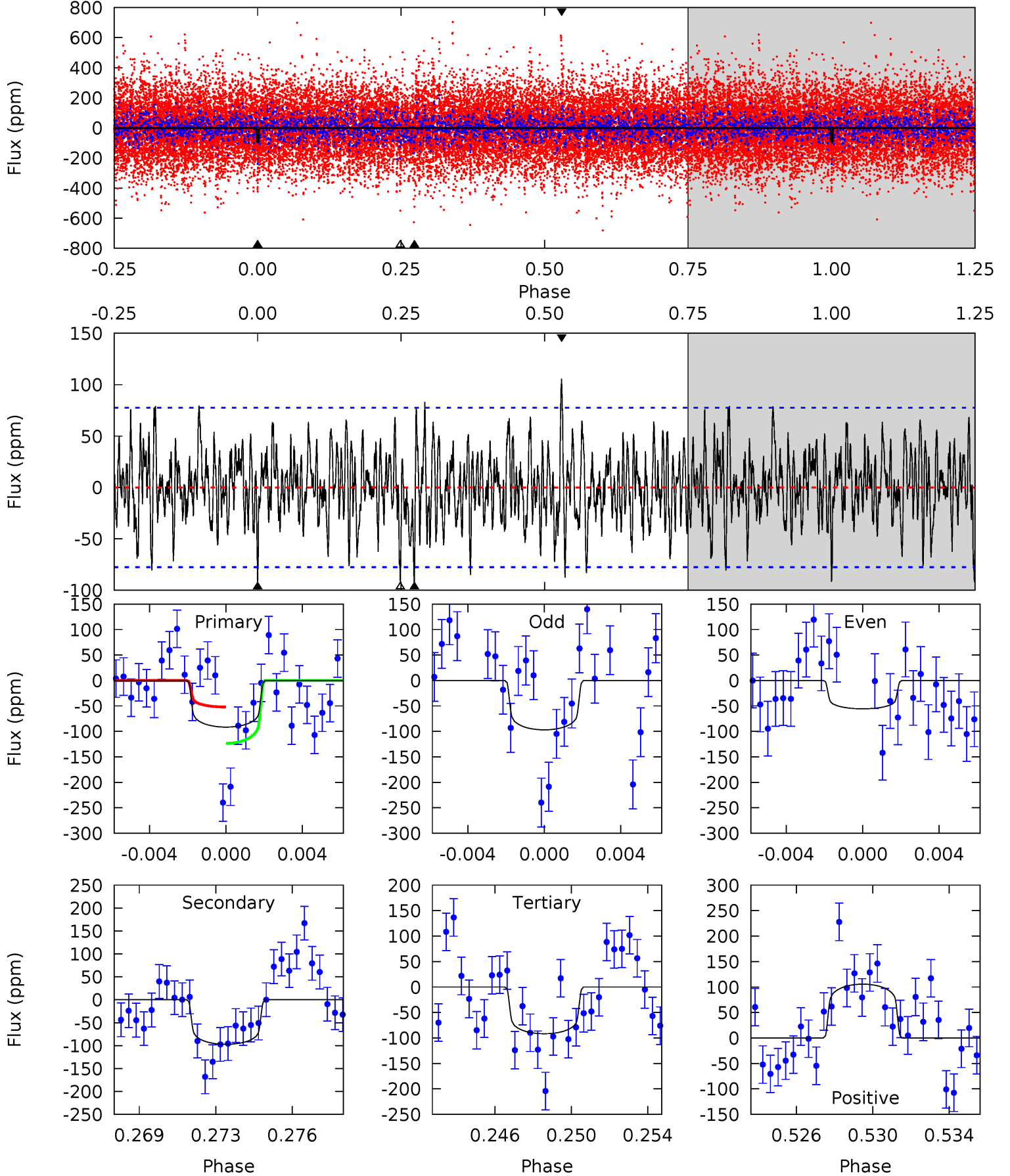




# DV Model-Shift Uniqueness Test

008175399-02, P = 110.290970 Days, E = 43.807361 Days

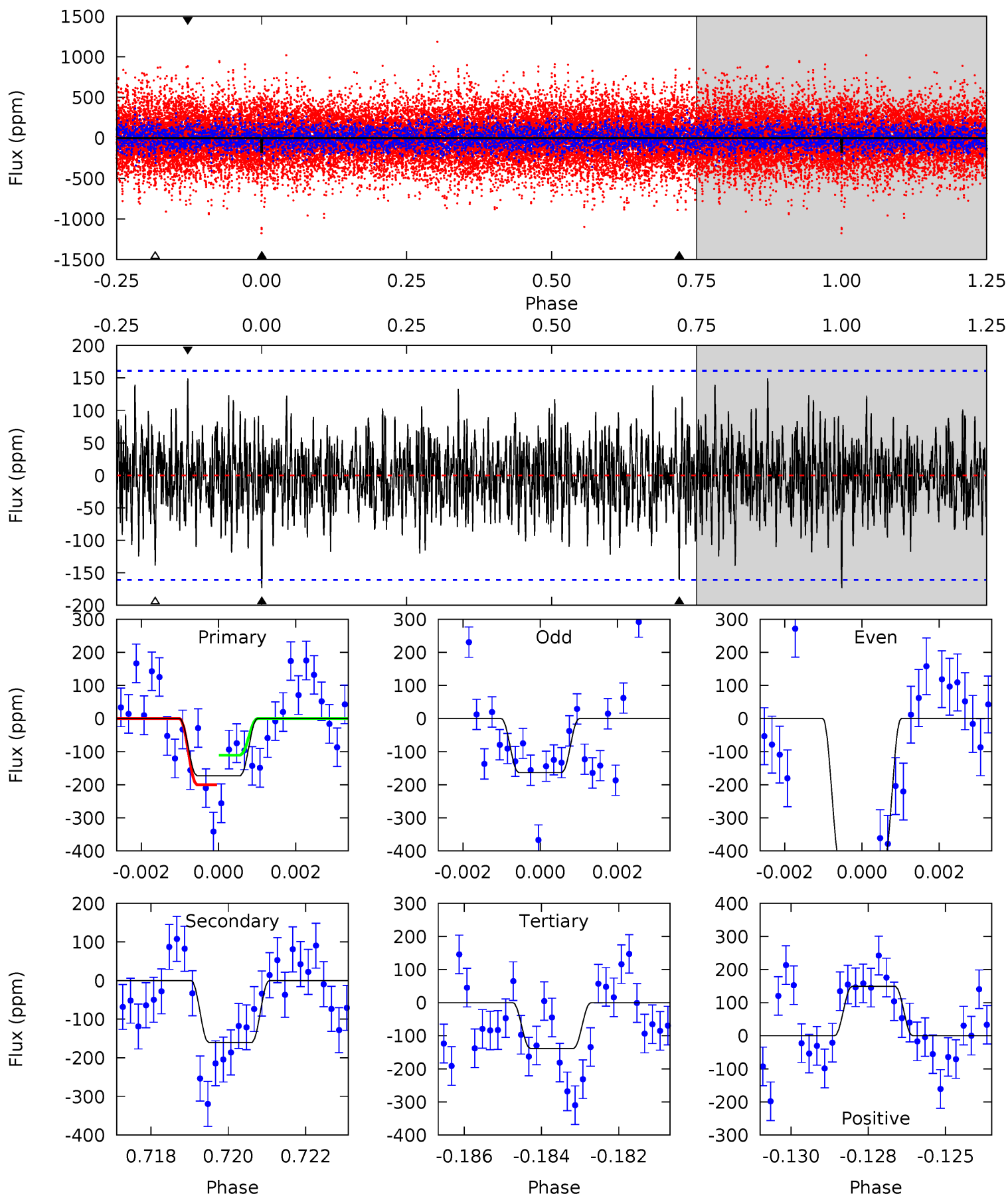
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.16	6.53	6.17	7.10	5.21	2.90	2.00	-0.01	-0.94	0.36	-0.57	1.08	0.78	0.52	2.38



# Alt Model-Shift Uniqueness Test

008175399-02, P = 110.294527 Days, E = 43.798590 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
5.72	5.30	4.58	4.94	5.31	3.07	1.43	1.14	0.78	0.72	0.36	2.18	0.88	0.46	1.47



### Stellar Parameters For KIC 008175399

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7286^{+228}_{-304}$	$3.998^{+0.246}_{-0.164}$	$-0.240^{+0.250}_{-0.350}$	$2.056^{+0.554}_{-0.677}$	$1.532^{+0.204}_{-0.306}$	$0.248^{+0.412}_{-0.100}$
	+3%/-4%	+6%/-4%	+104%/-146%	+27%/-33%	+13%/-20%	+166%/-40%
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 008175399-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-97 \pm 15$	$2.15^{+0.88}_{-0.71}$	$892^{+65}_{-84}$	$7233^{+1869}_{-1087}$	$2952^{+3951}_{-1412}$
Alt.	$-160 \pm 30$	$3.15^{+1.00}_{-0.80}$	$886^{+72}_{-74}$	$6706^{+1111}_{-790}$	$2334^{+1814}_{-996}$

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

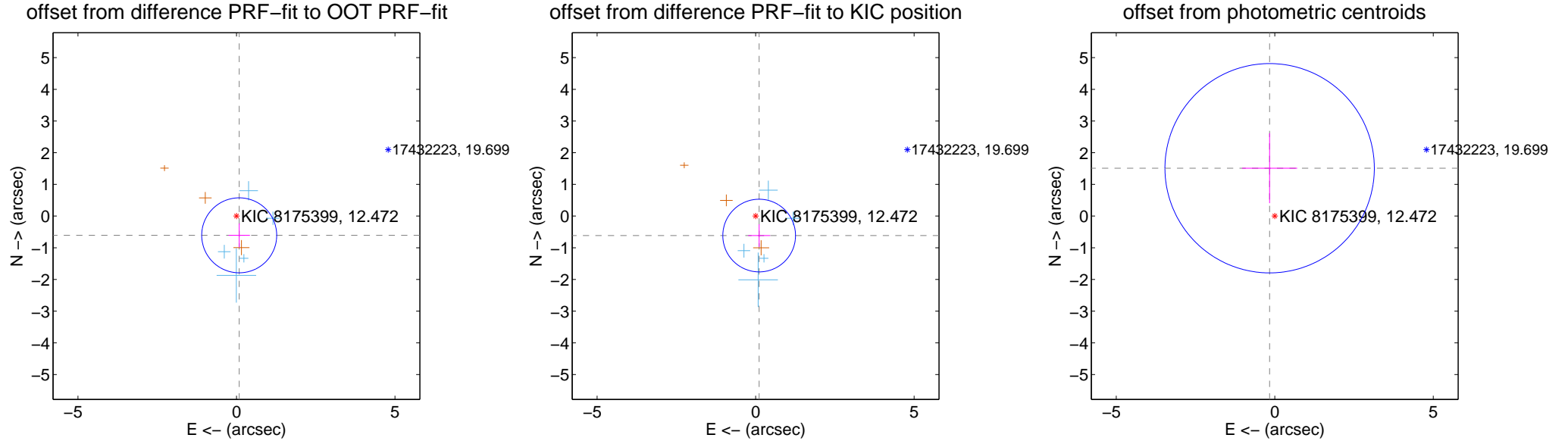
## DV Centroid Data

Supplemental centroid analysis for 008175399-02. Kepler magnitude: 12.47. Transit SNR 3.47

There are 5 quarters with good PRF difference image offsets

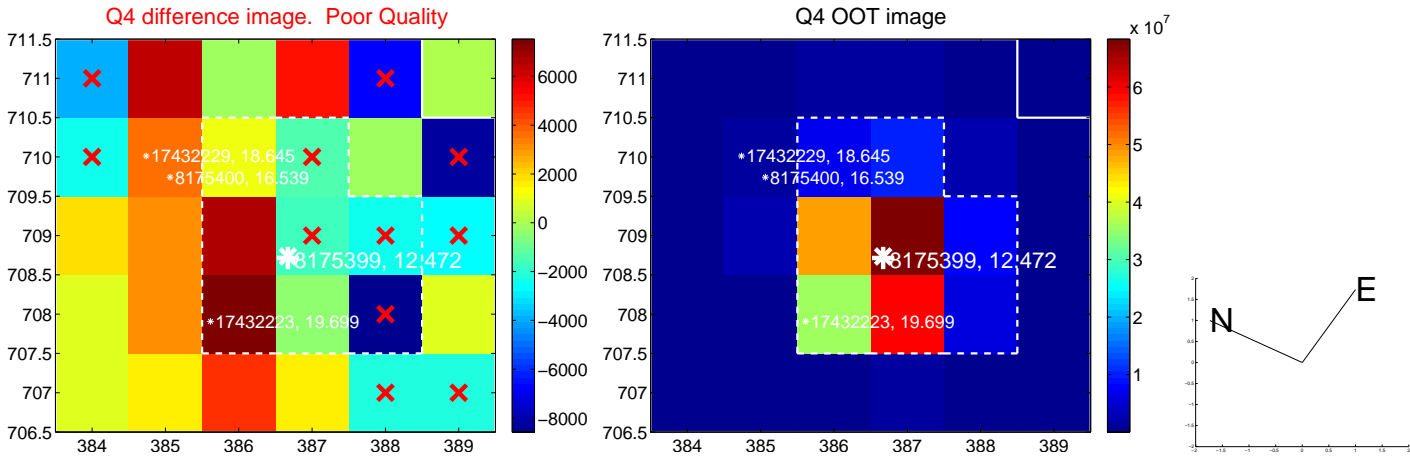
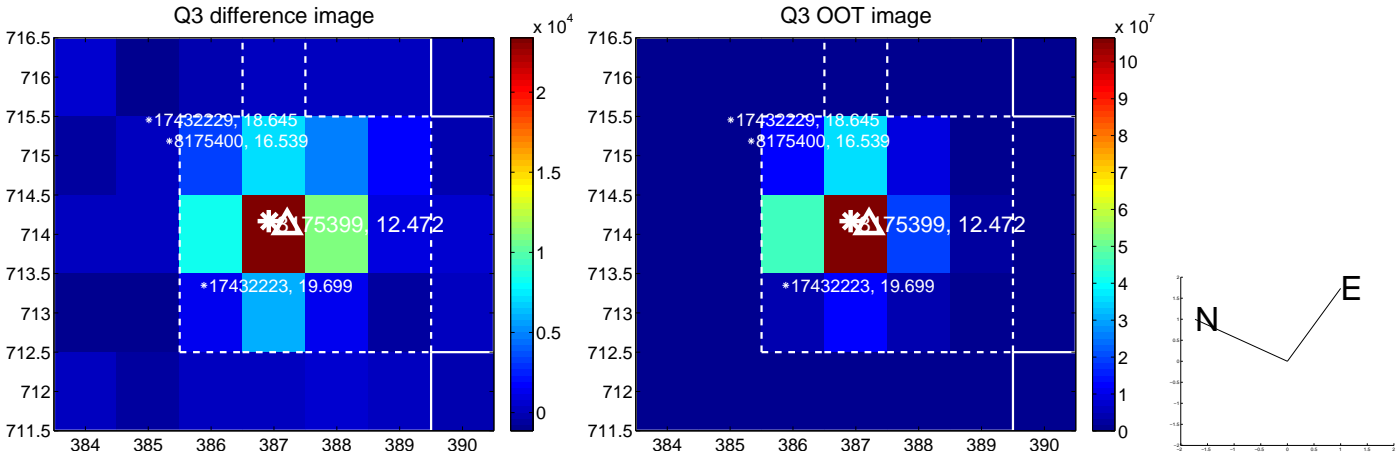
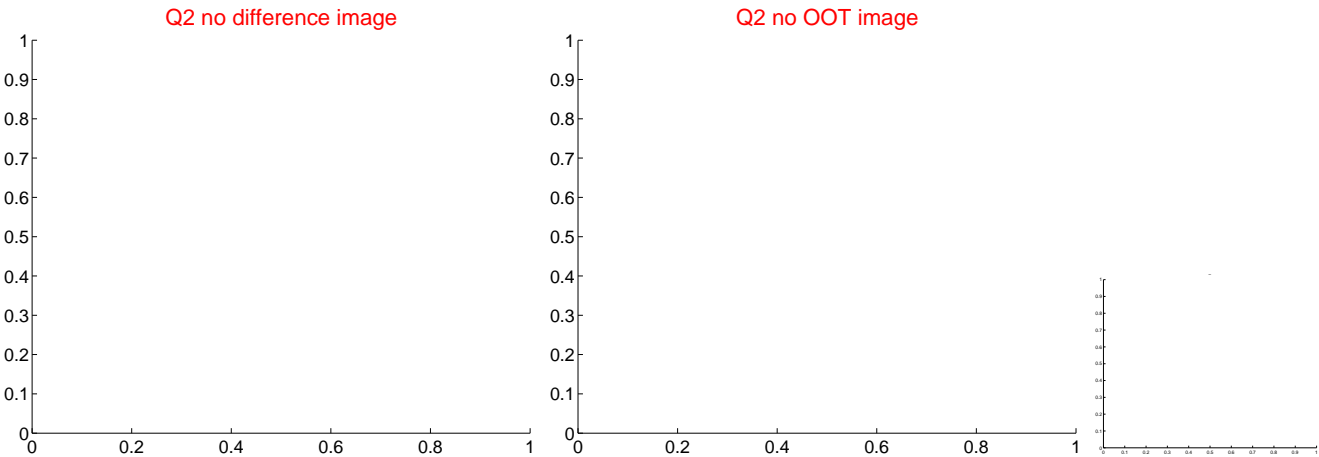
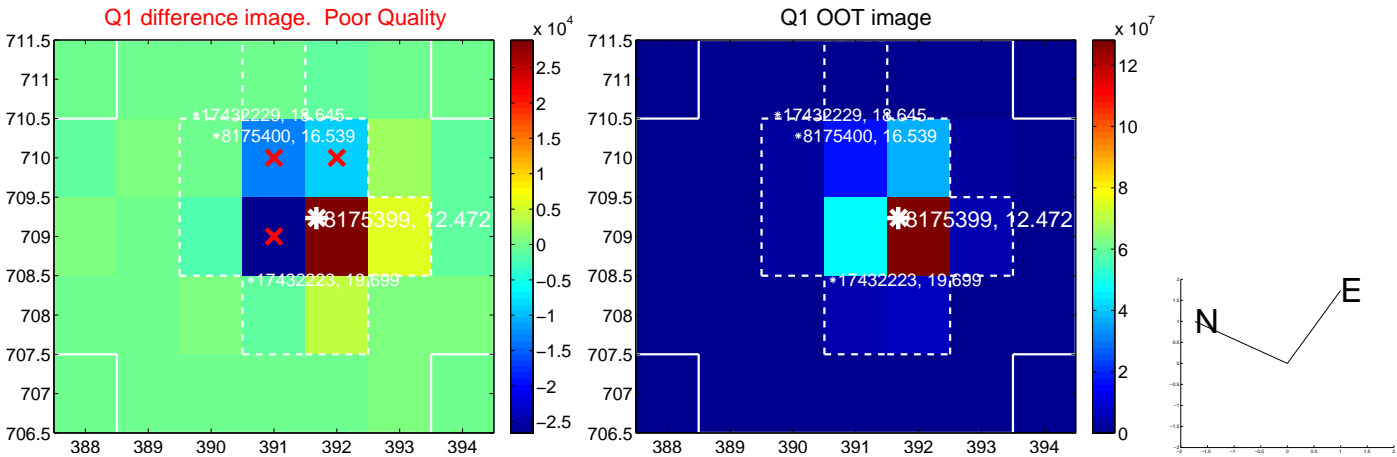
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.613 \pm 0.394$	1.55	$-0.086 \pm 0.336$	$-0.607 \pm 0.377$
PRF-fit source offset from KIC position	$0.625 \pm 0.382$	1.63	$-0.112 \pm 0.347$	$-0.615 \pm 0.356$
photometric centroid source offset	$1.52 \pm 1.10$	1.38	$0.16 \pm 0.87$	$1.51 \pm 1.10$

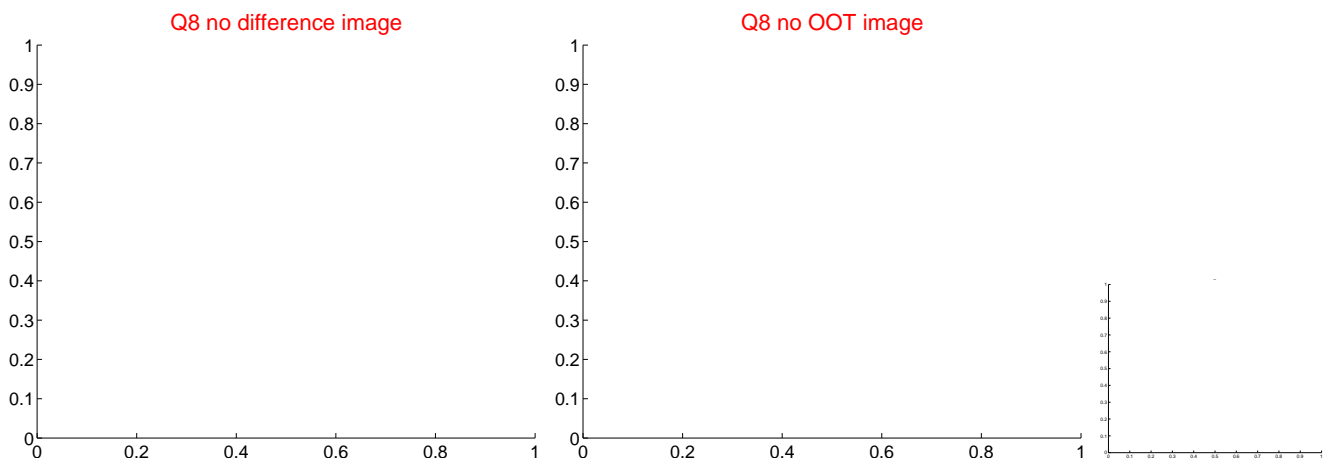
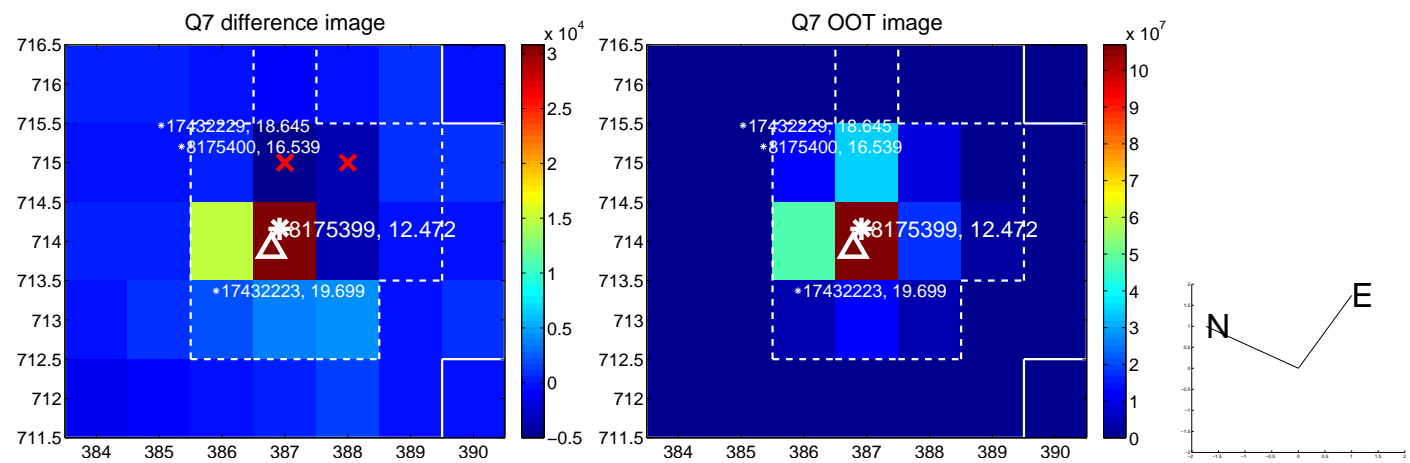
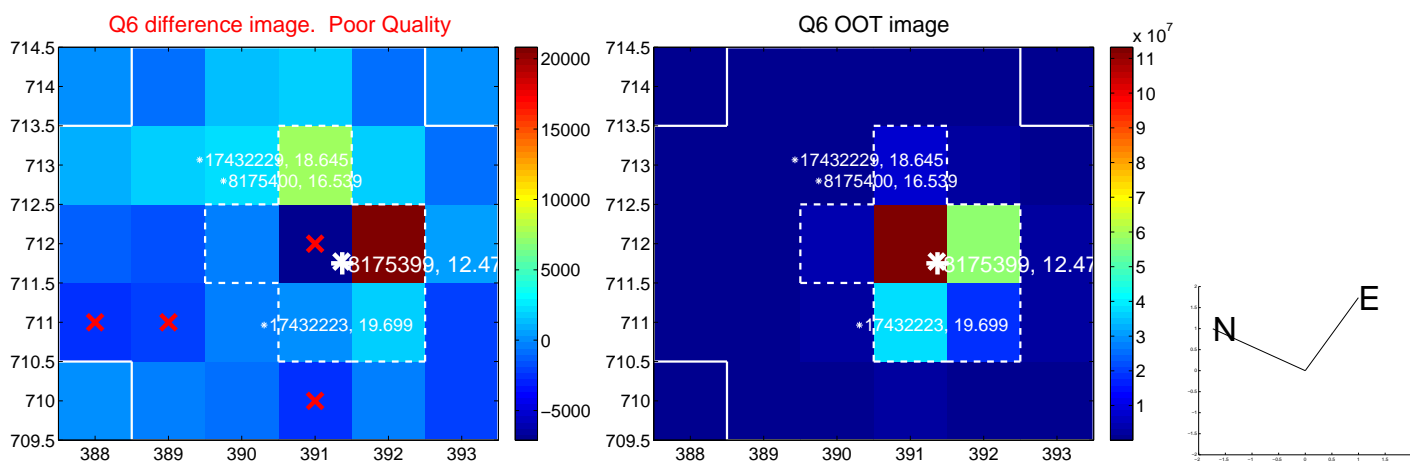
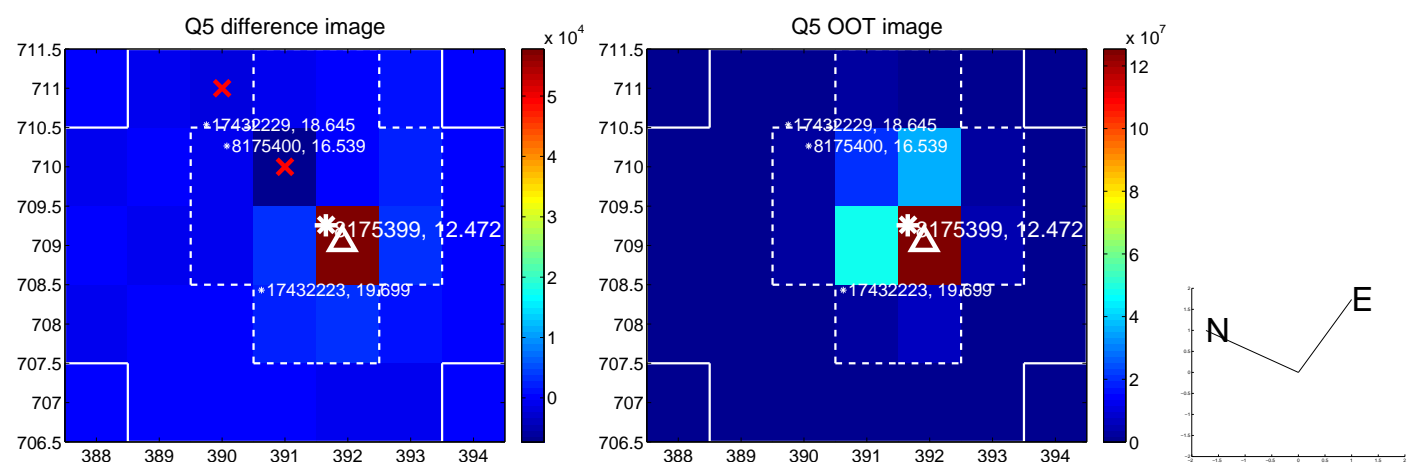


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

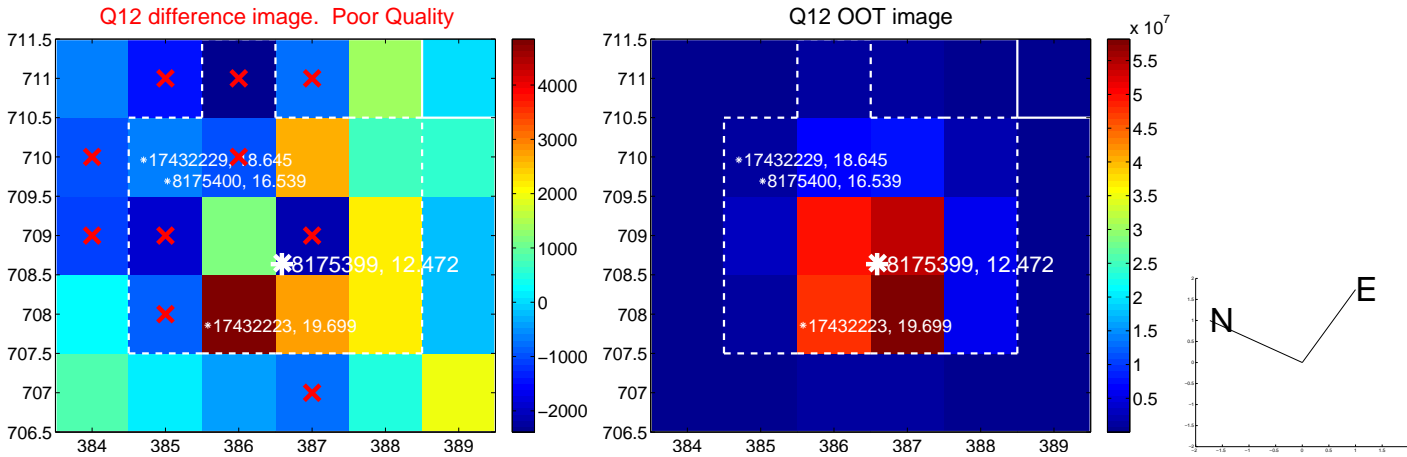
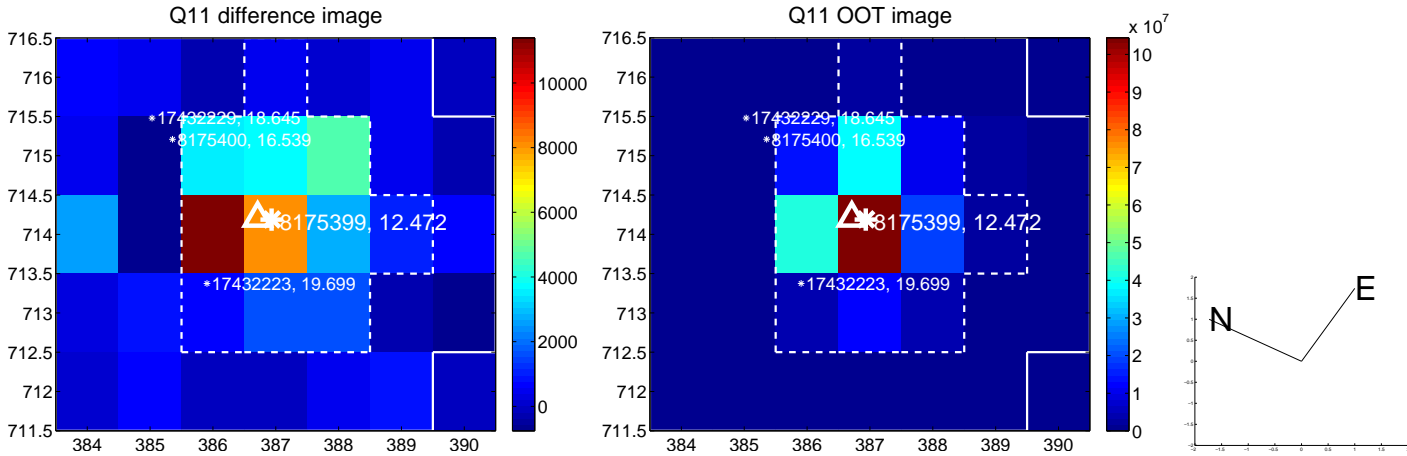
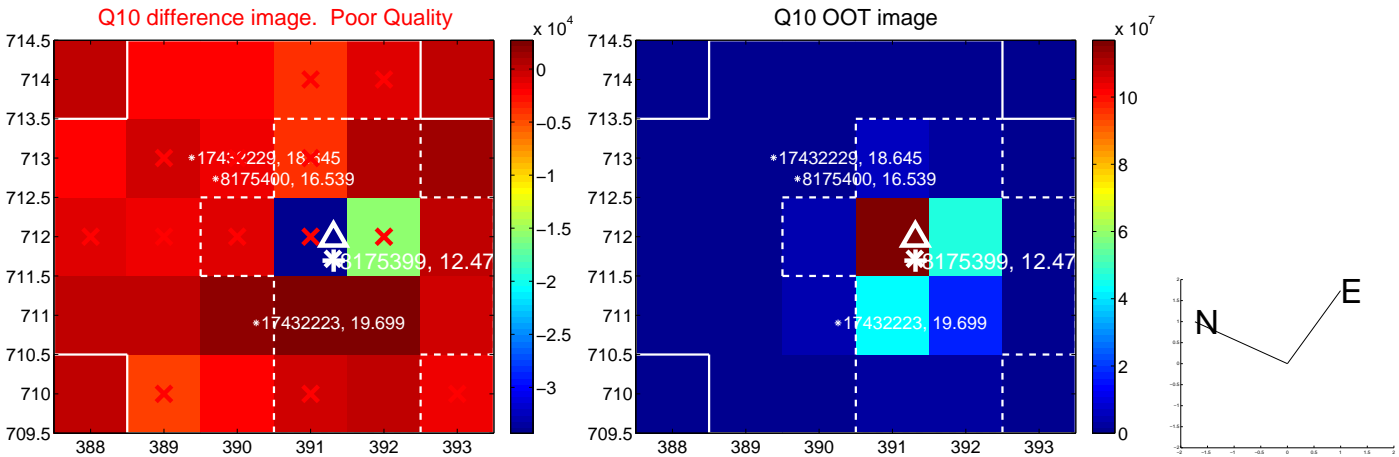
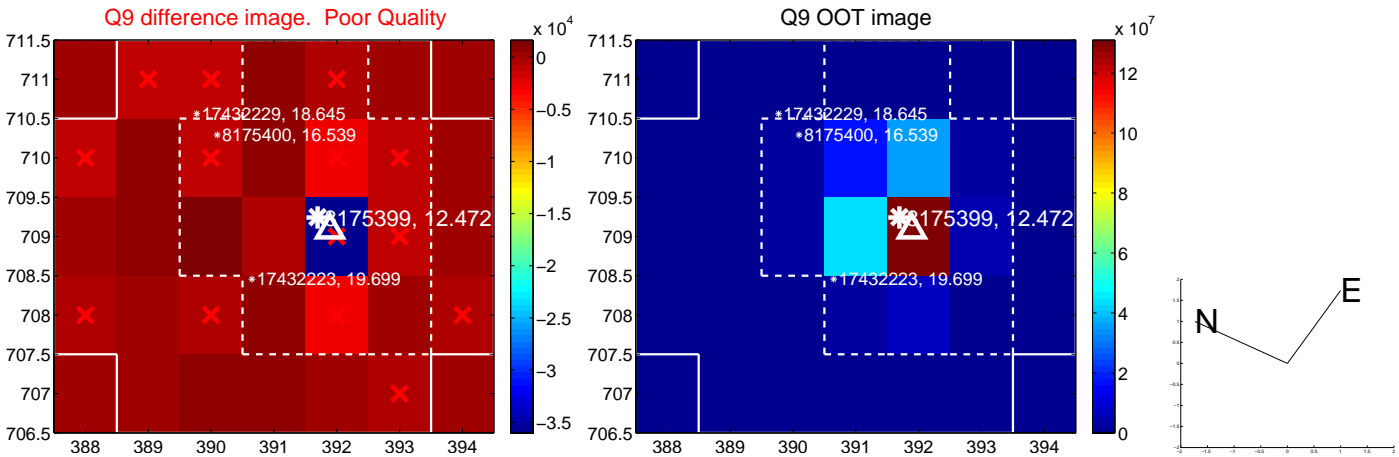


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

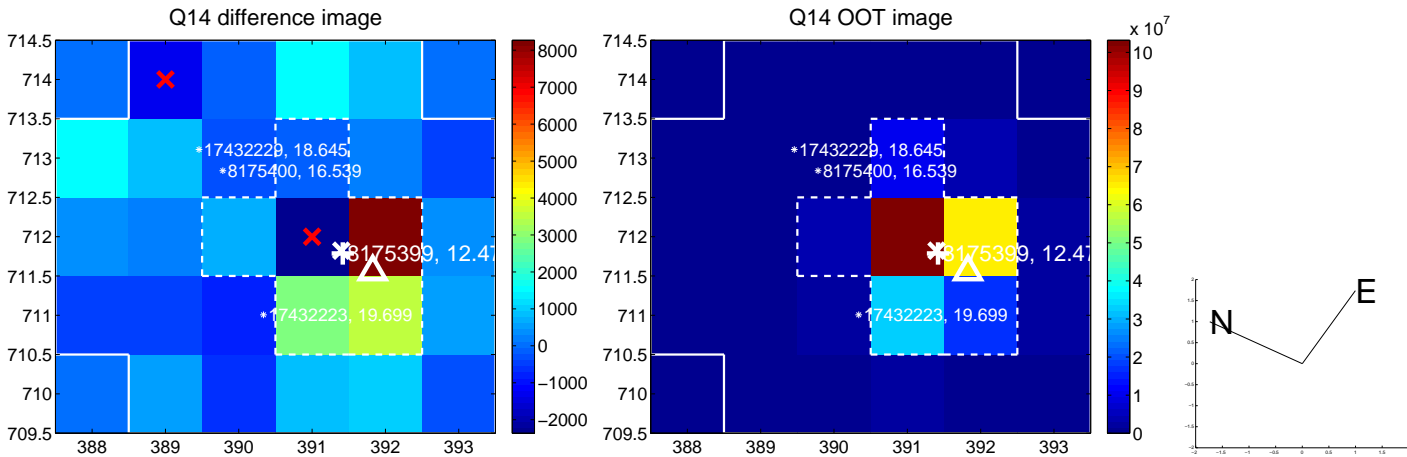
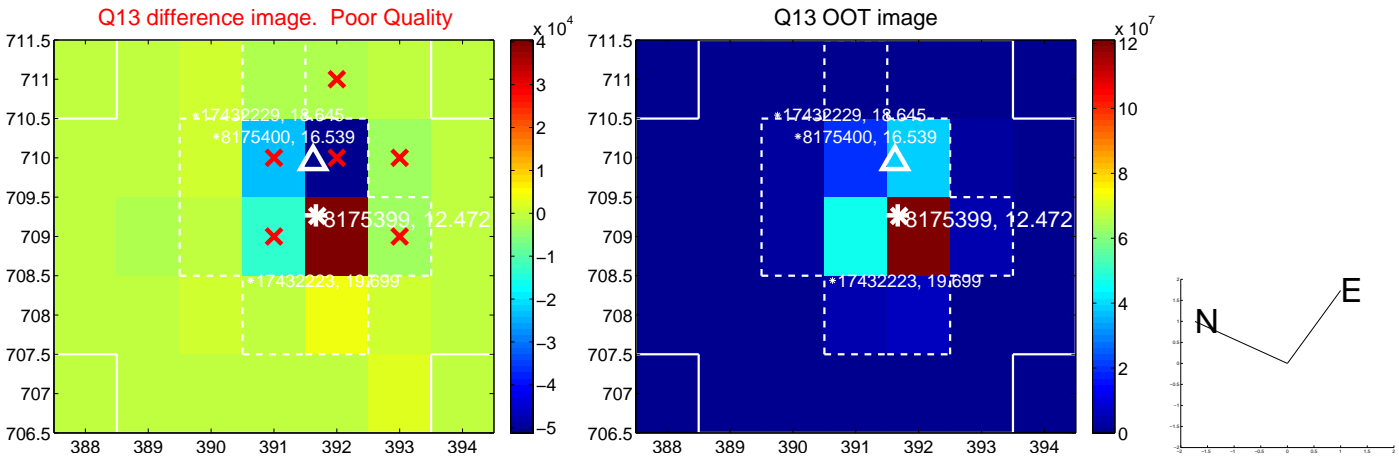




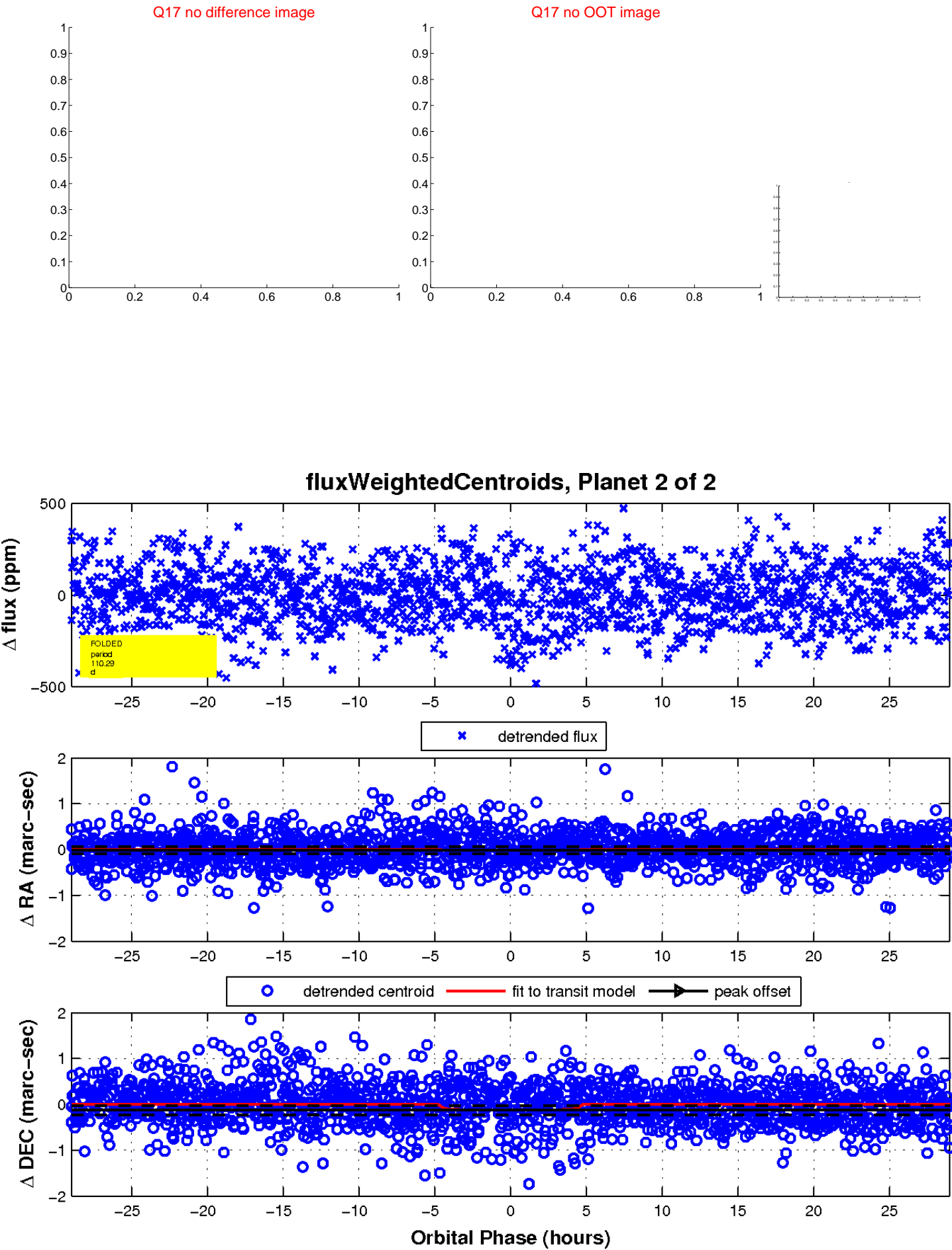
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



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



UKIRT Image

