

# KIC 004252757

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004252757-01	OBS	No	1.575977	132.826924	91.2	5.586	11.9	11.8	2.26	7540	2.50	14570.10
004252757-02	OBS	No	1.902402	131.507588	35.1	6.000	11.8	-1.0	2.26	7540	1.36	11335.99
004252757-03	OBS	No	1.902476	132.445209	180.7	15.672	12.8	19.6	2.26	7540	3.96	11335.40

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004252757-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
004252757-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004252757-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

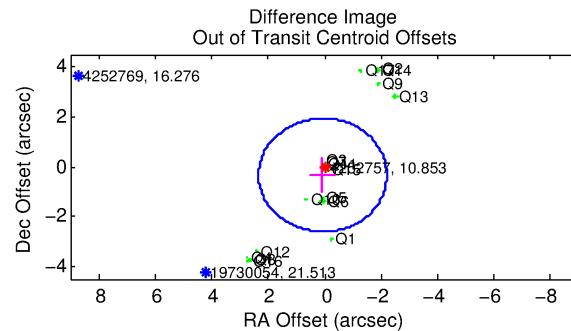
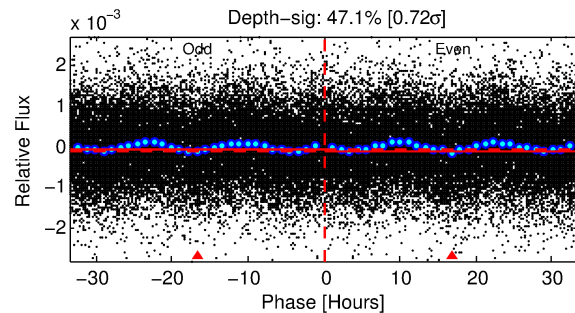
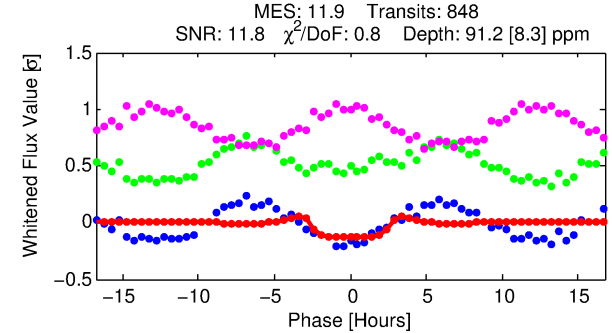
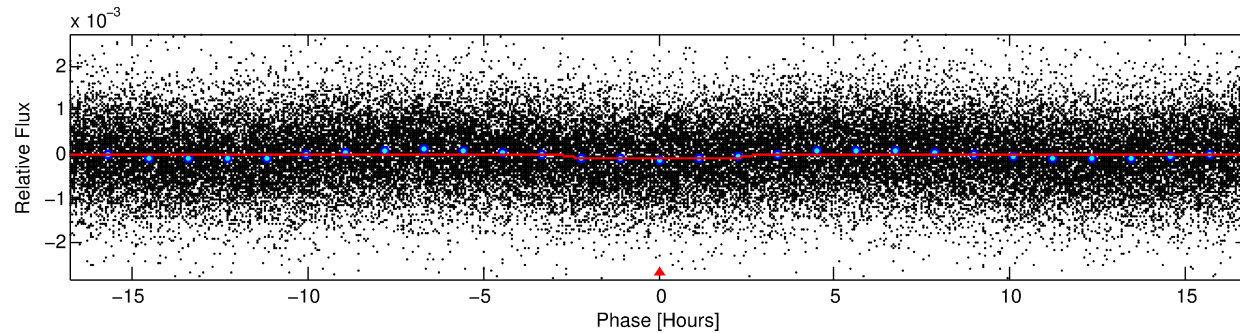
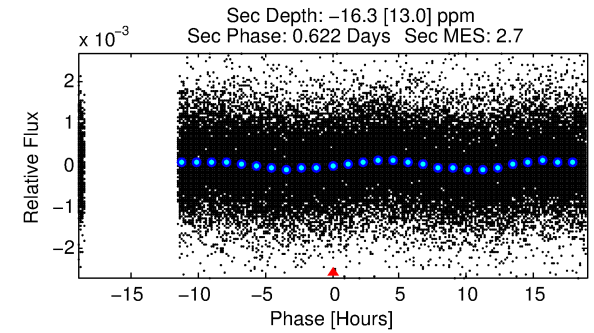
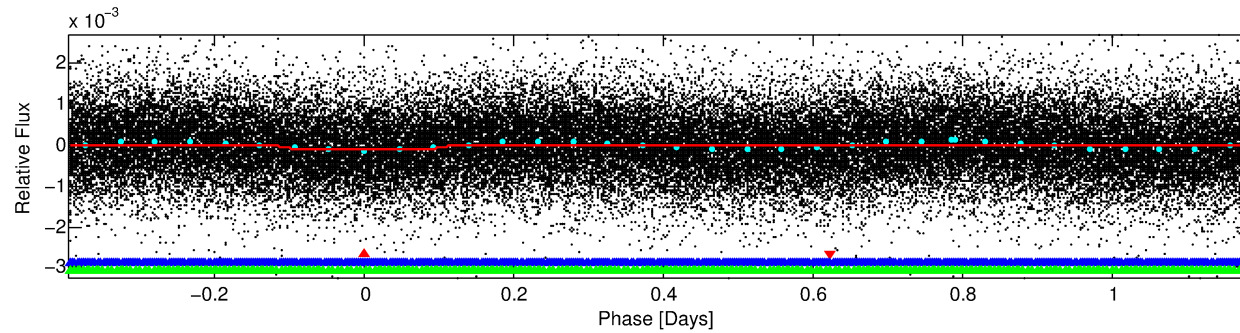
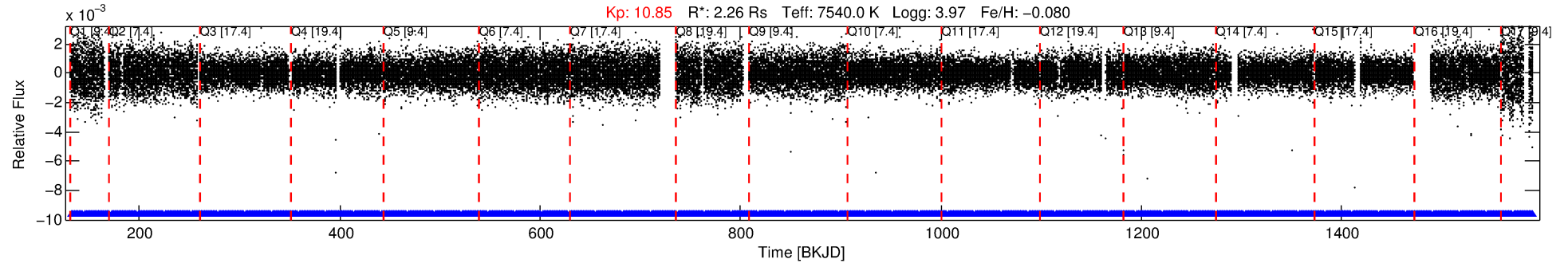
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004252757-01

No Significant Match Found

# DV One-Page Summary

KIC: 4252757 Candidate: 1 of 3 Period: 1.576 d



## DV Fit Results:

Period = 1.57598 [0.00001] d  
Epoch = 132.8269 [0.0044] BKJD  
 $R_p/R^* = 0.0101 [0.0028]$   
 $a/R^* = 1.36 [1.11]$   
 $b = 0.90 [0.38]$   
 $\text{Seff} = 14570.10 [3702.90]$   
 $T_{\text{eq}} = 2802 [178] \text{ K}$   
 $R_p = 2.50 [0.82] R_e$   
 $a = 0.0318 [0.0052] \text{ AU}$   
 $\text{Ag} = \text{N/A}$   
 $\text{Teffp} = \text{N/A}$

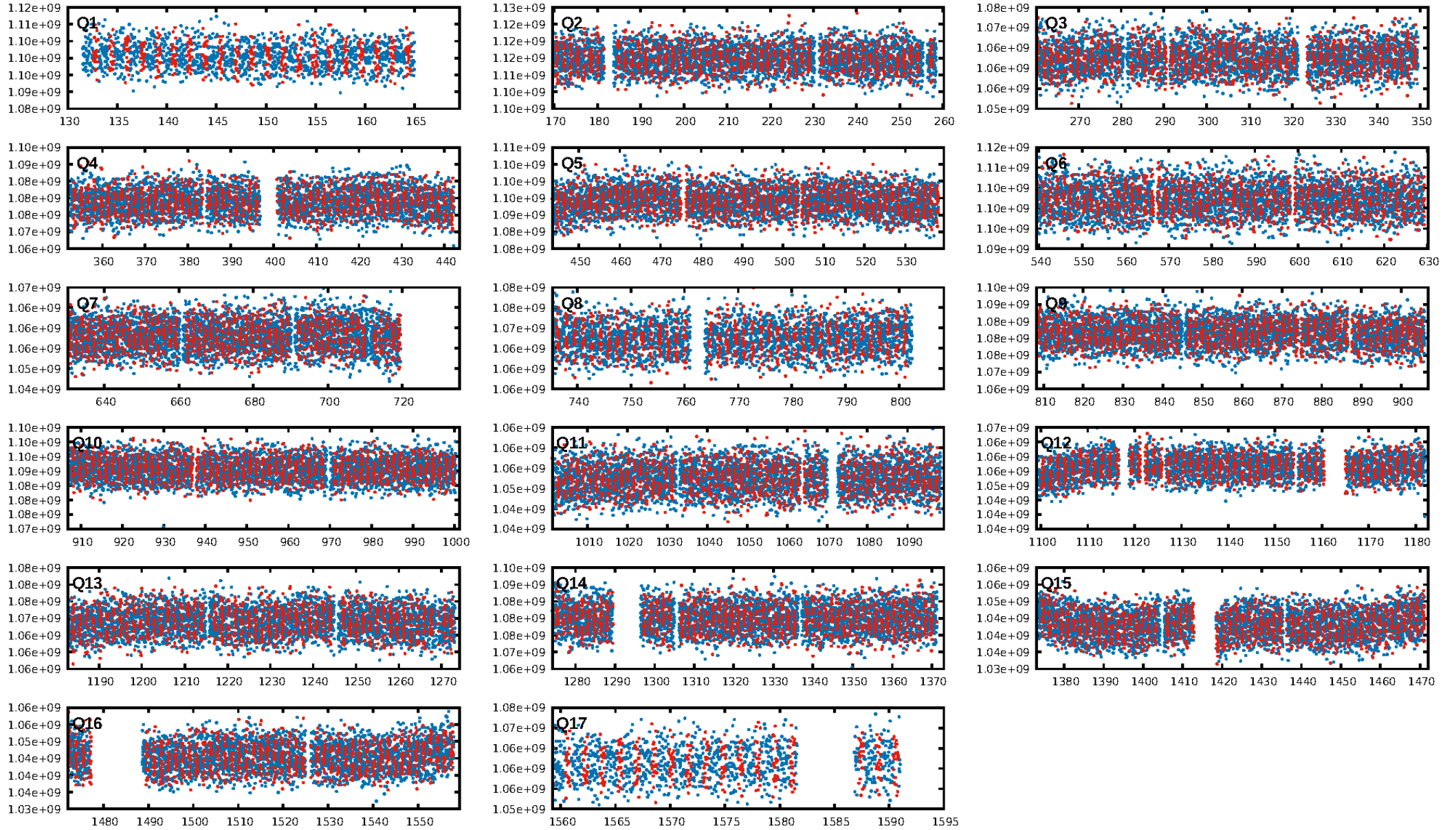
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 66.1% [0.96σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [810/810]  
GhostDiagnostic-chr: 1.196  
Centroid-sig: 27.5%  
Centroid-so: 0.304 arcsec [2.29σ]  
OotOffset-rm: 0.348 arcsec [0.46σ]  
KicOffset-rm: 0.358 arcsec [0.54σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.76 [13/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:23:05 Z

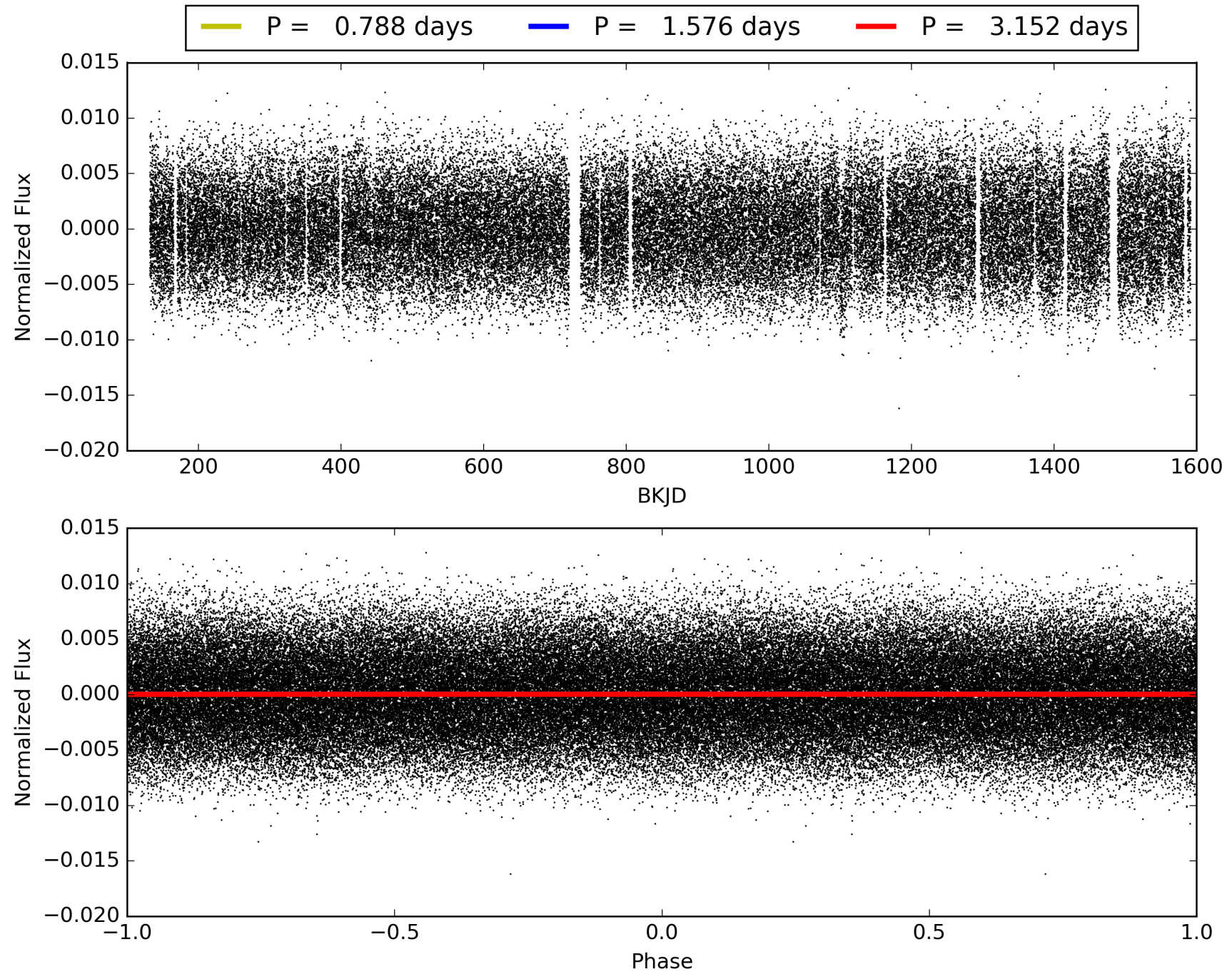
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004252757-01, PDC Light Curves





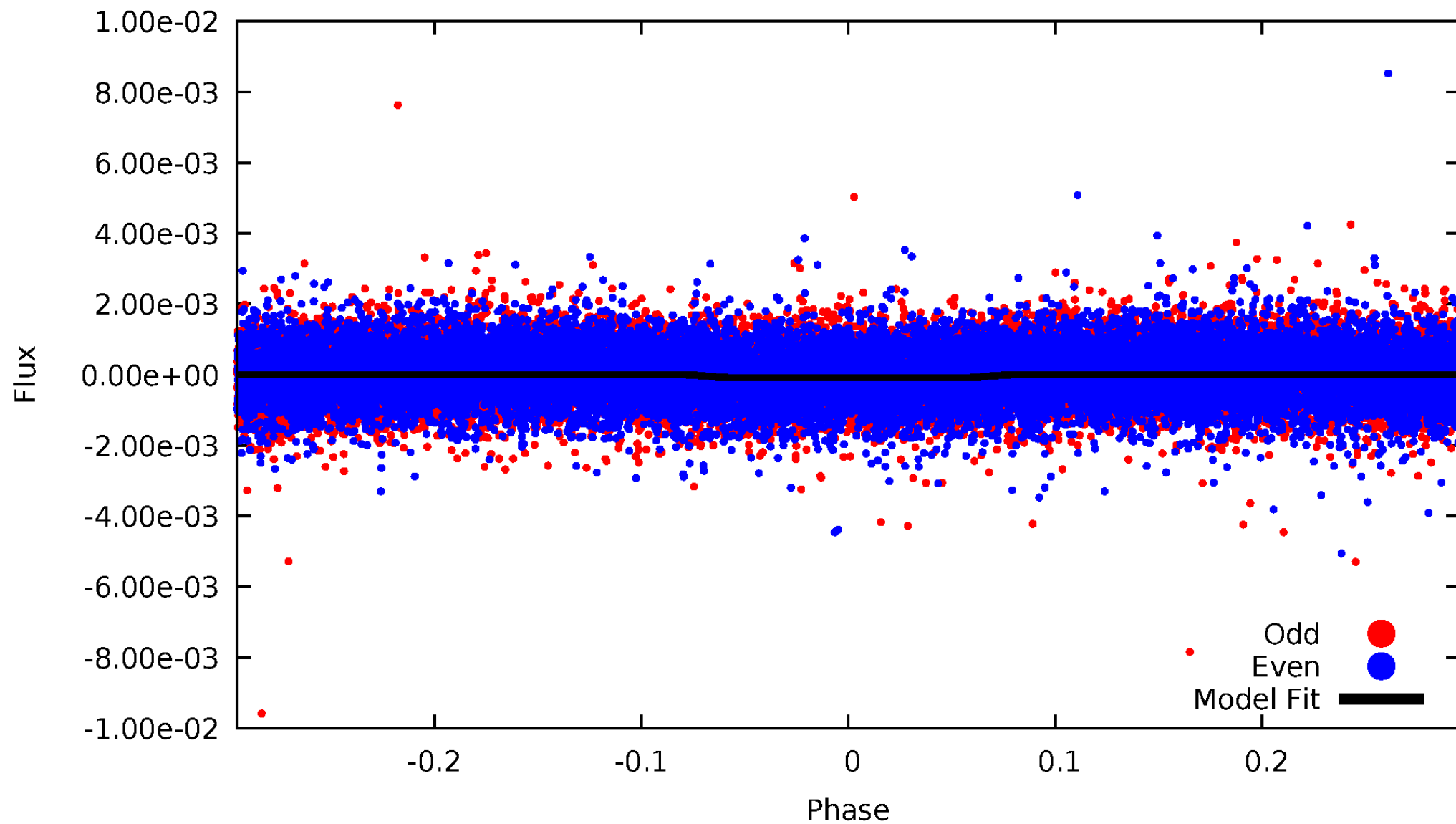
TCE 004252757-01





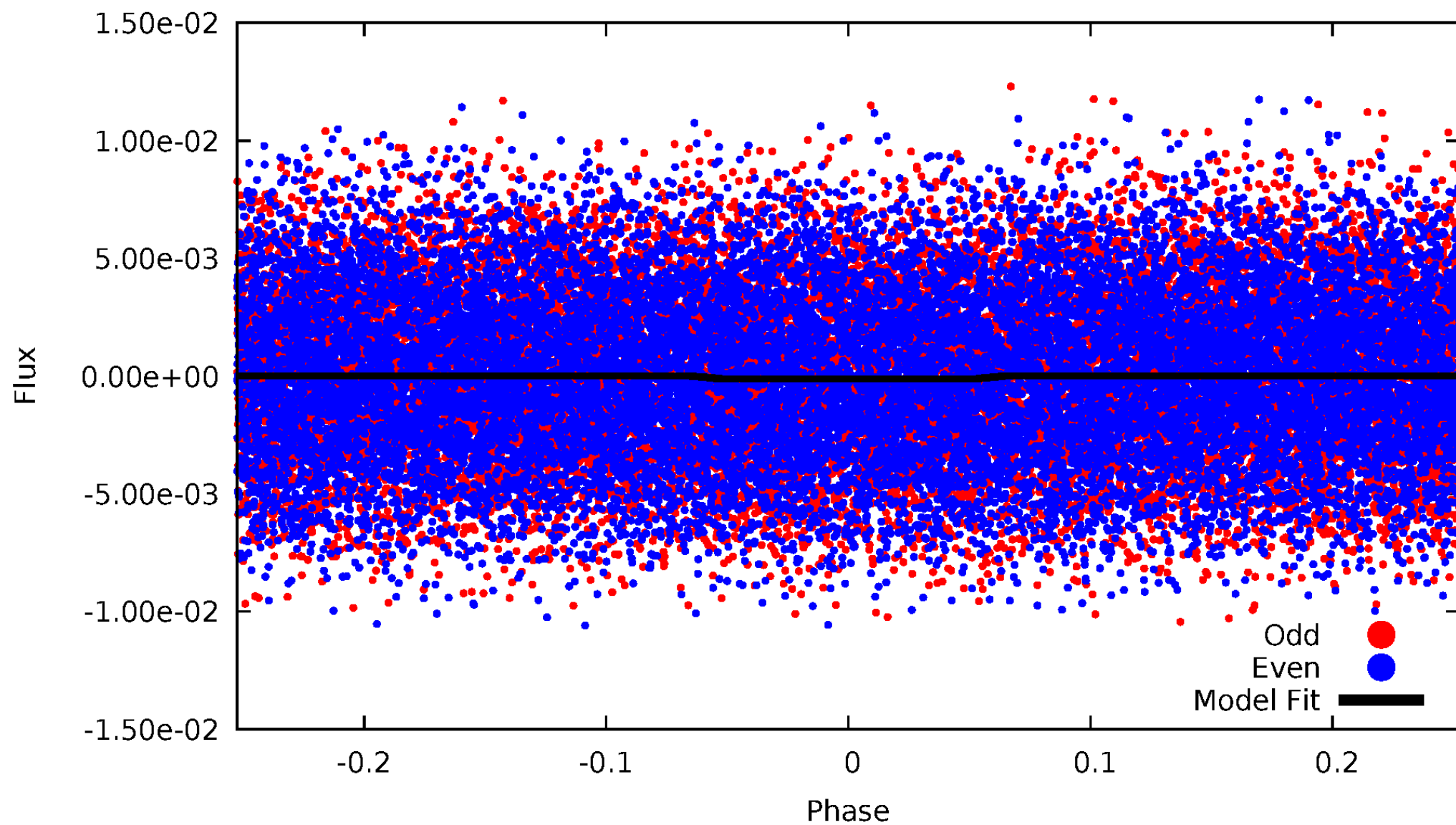
# DV Odd/Even

TCE 004252757-01



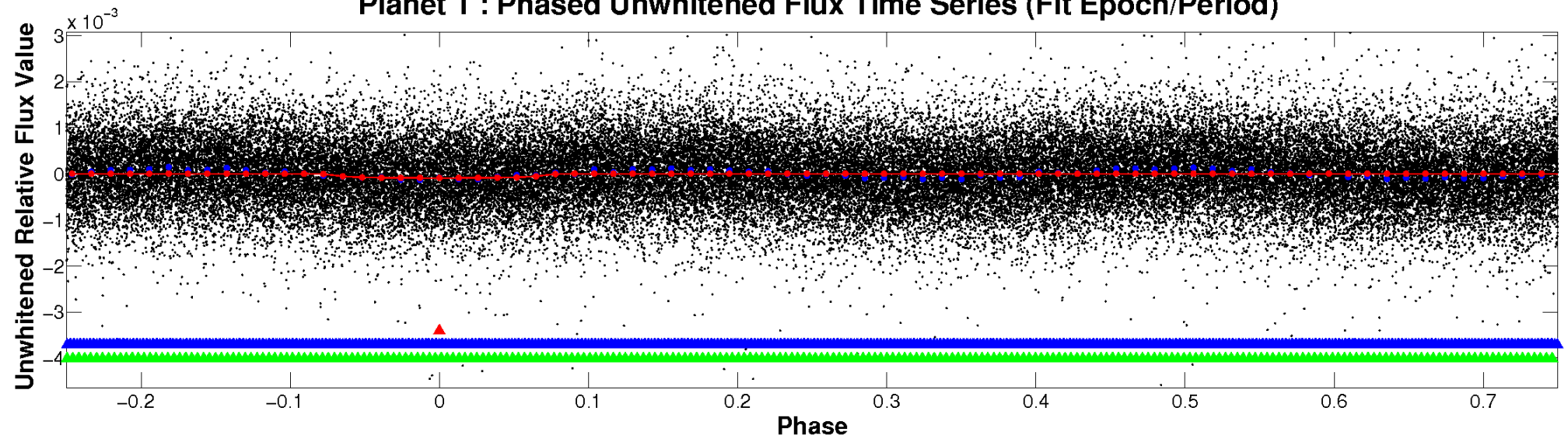
# ALT Odd/Even

TCE 004252757-01

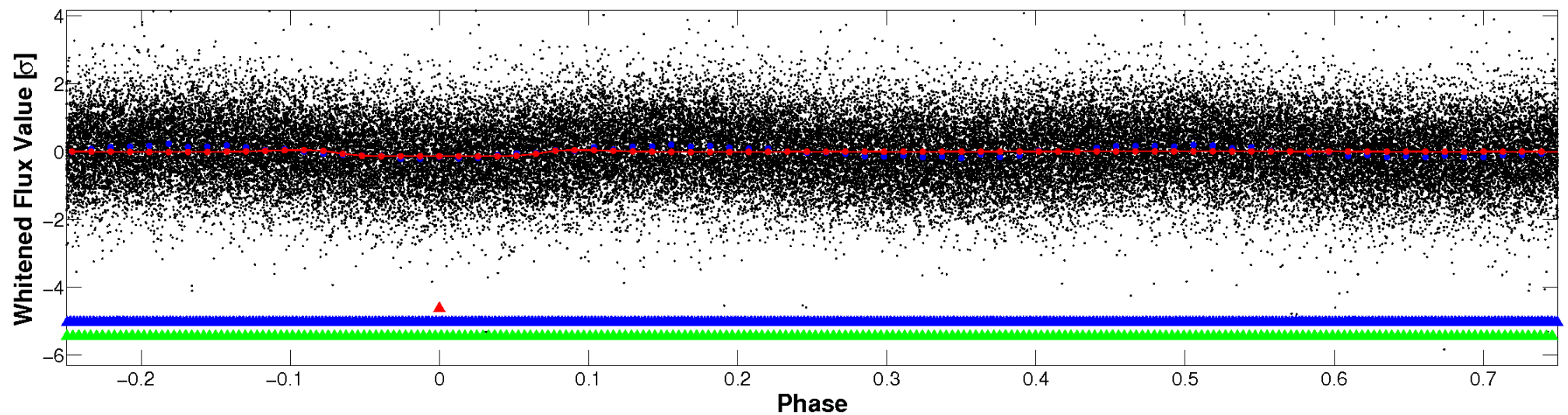


# Non-Whitened Vs. Whitened Light Curve

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



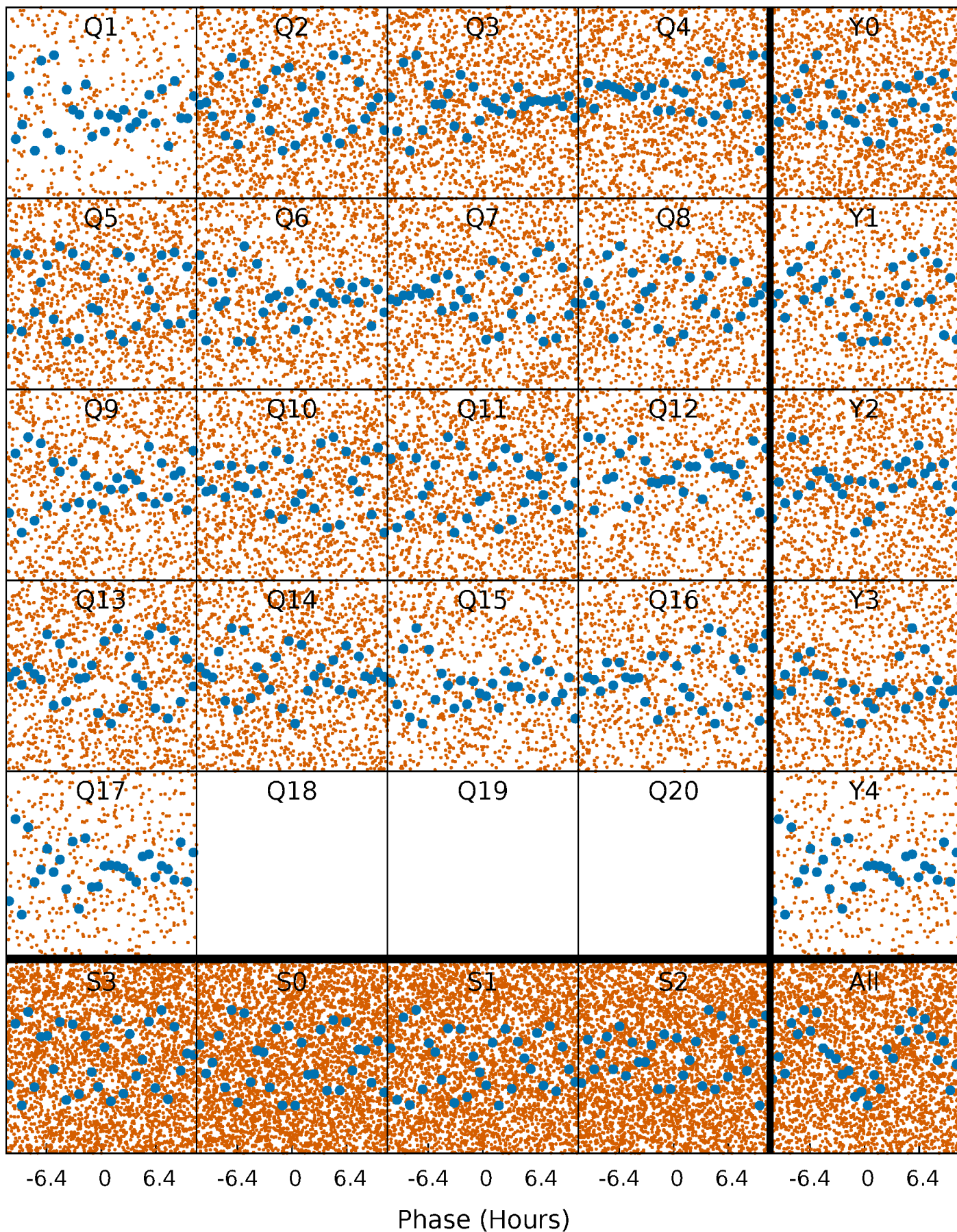
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





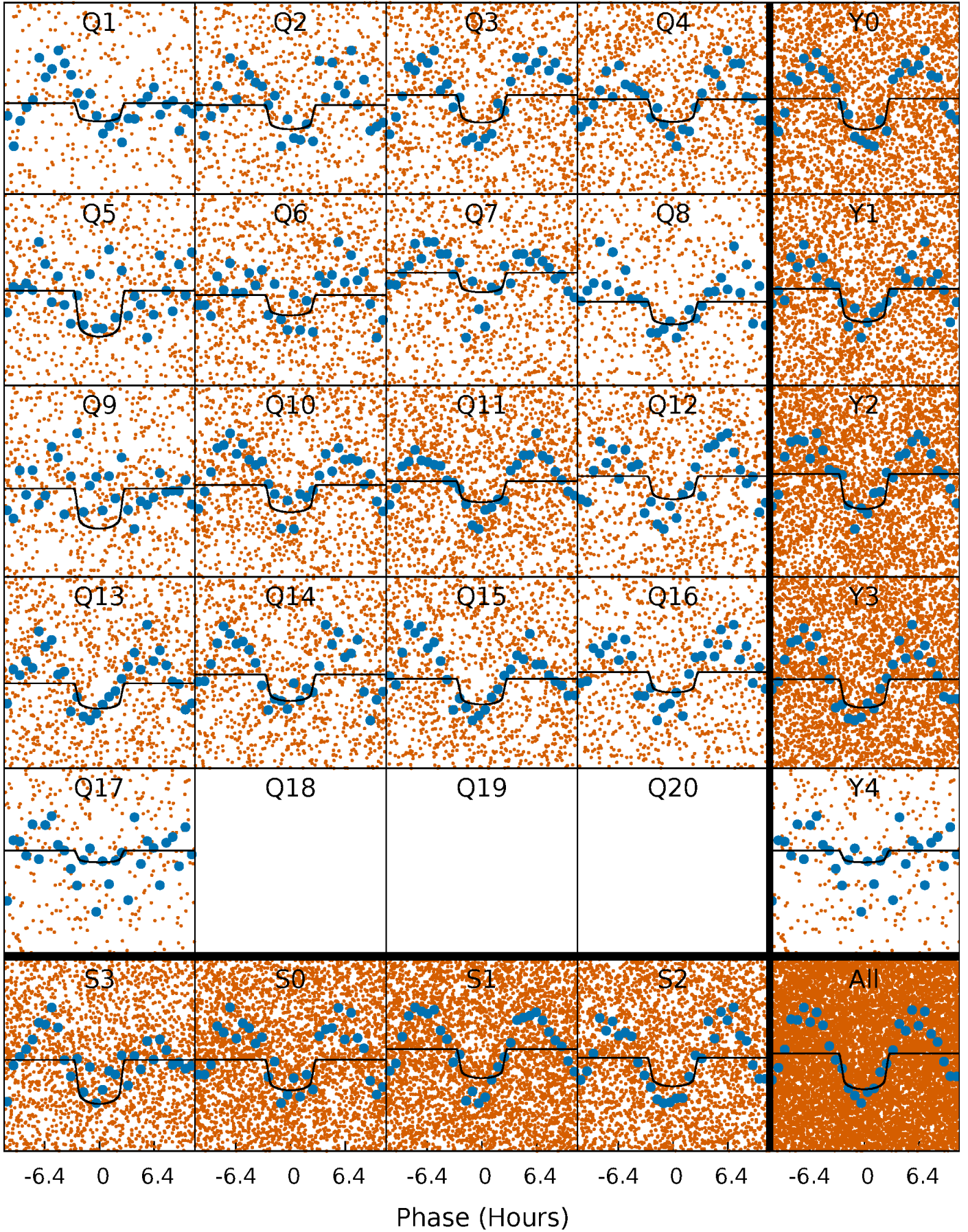
# PDC Quarter-Phased Transit Curves

TCE 004252757-01 P= 1.575977 Days  $T_0=132.826924$  (BKJD)



# DV Quarter-Phased Transit Curves

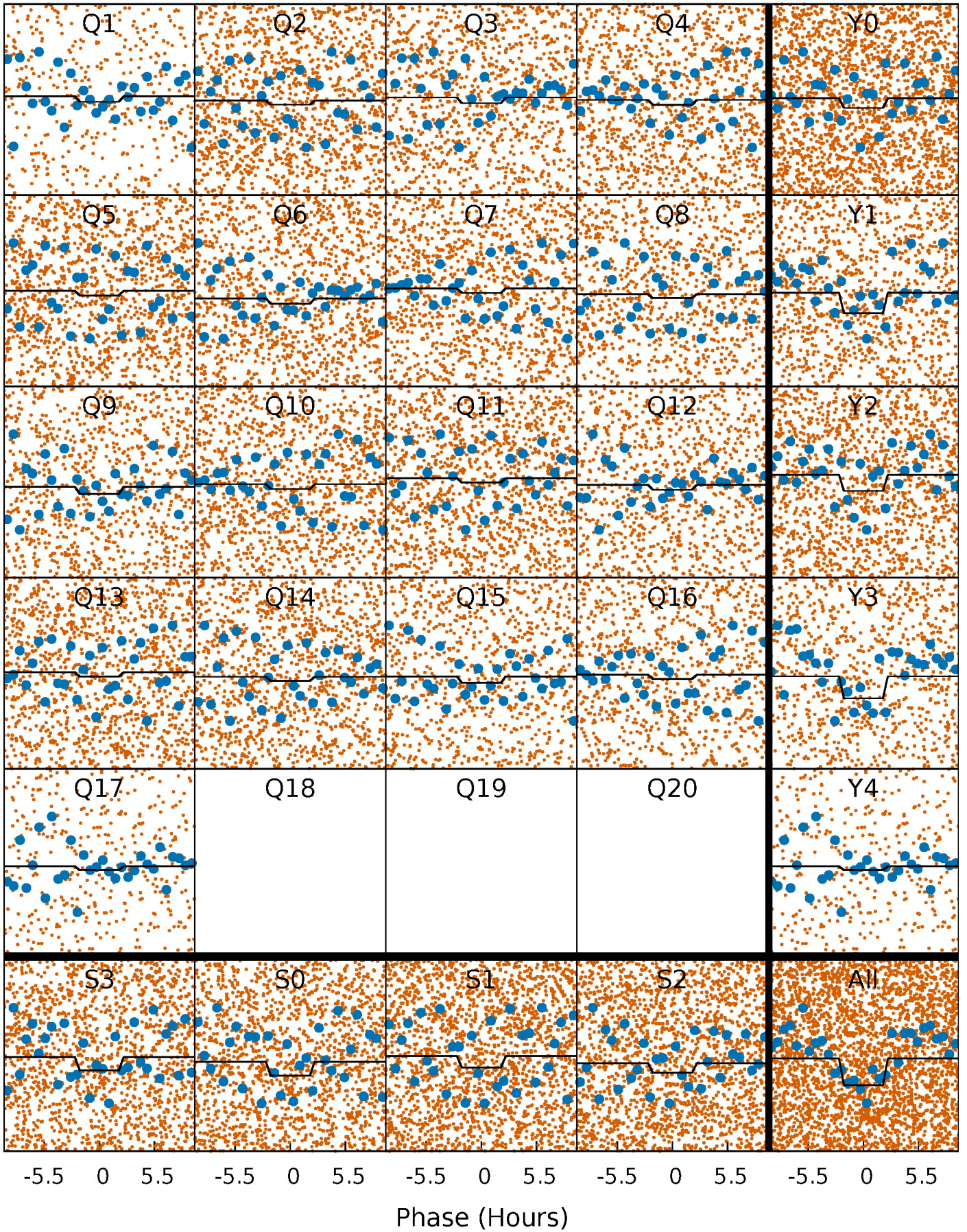
TCE 004252757-01 P= 1.575977 Days  $T_0=132.826924$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 004252757-01 P= 1.575932 Days  $T_0=132.849713$  (BKJD)

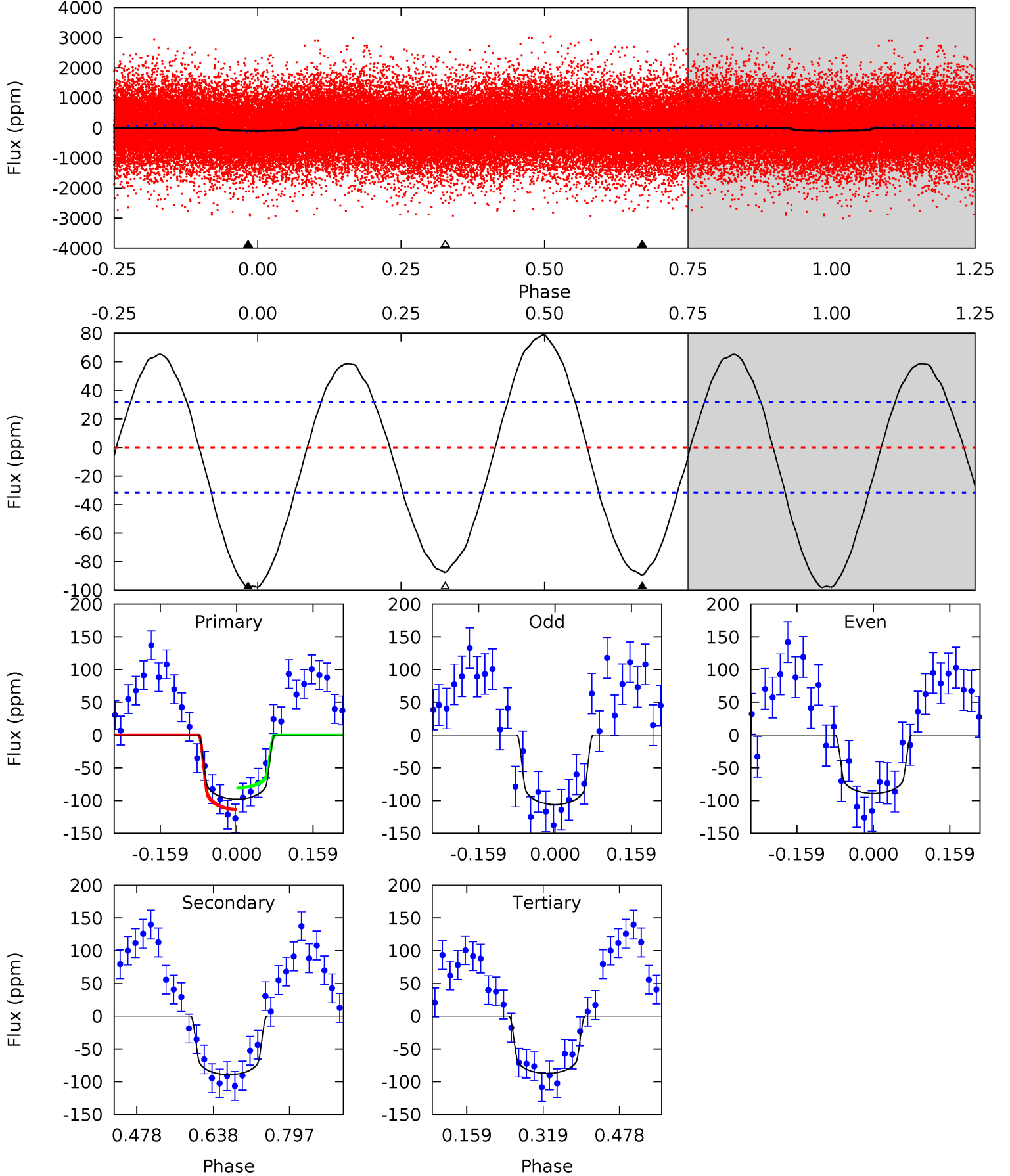




# DV Model-Shift Uniqueness Test

004252757-01, P = 1.575977 Days, E = 131.250947 Days

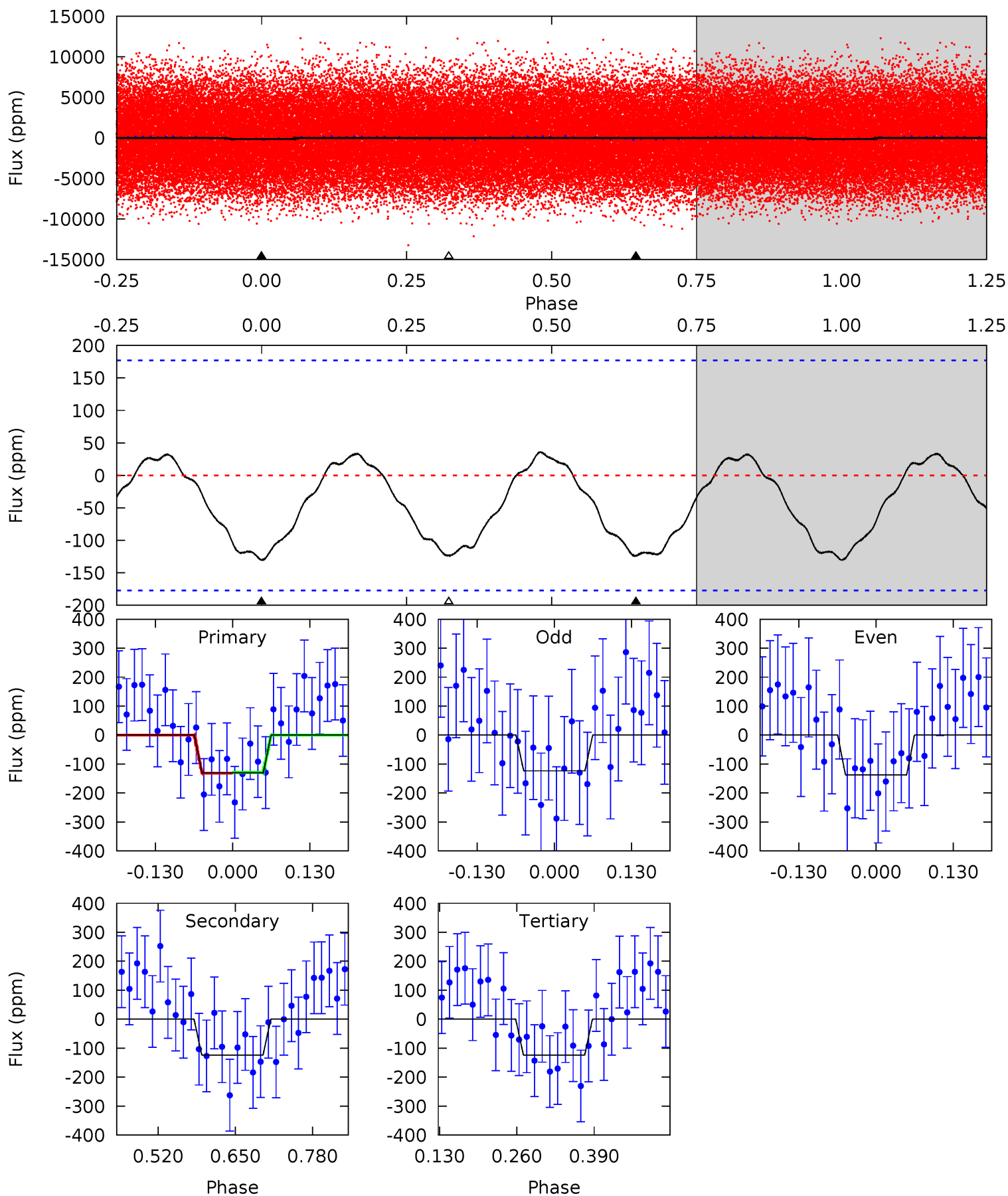
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.8	12.6	12.3	0	4.47	1.41	8.01	1.50	13.8	0.28	12.6	1.21	1.04	0.45	2.32



# Alt Model-Shift Uniqueness Test

004252757-01, P = 1.575932 Days, E = 131.273781 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
3.32	3.16	3.15	0	4.51	1.51	1.38	0.17	3.32	0.01	3.16	0.18	0.93	0.22	0.03



### Stellar Parameters For KIC 004252757

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7540^{+82}_{-82}$	$3.969^{+0.143}_{-0.104}$	$-0.080^{+0.150}_{-0.150}$	$2.258^{+0.408}_{-0.408}$	$1.730^{+0.187}_{-0.153}$	$0.212^{+0.146}_{-0.067}$
	+1%/-1%	+4%/-3%	+188%/-188%	+18%/-18%	+11%/-9%	+69%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004252757-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-89 \pm 7$	$2.50^{+0.80}_{-0.74}$	$3898^{+174}_{-174}$	$7082^{+1739}_{-929}$	$8.068^{+8.068}_{-3.462}$
Alt.	$-124 \pm 39$	$2.79^{+0.81}_{-0.73}$	$3908^{+177}_{-201}$	$7232^{+1826}_{-1052}$	$8.485^{+8.563}_{-3.752}$

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



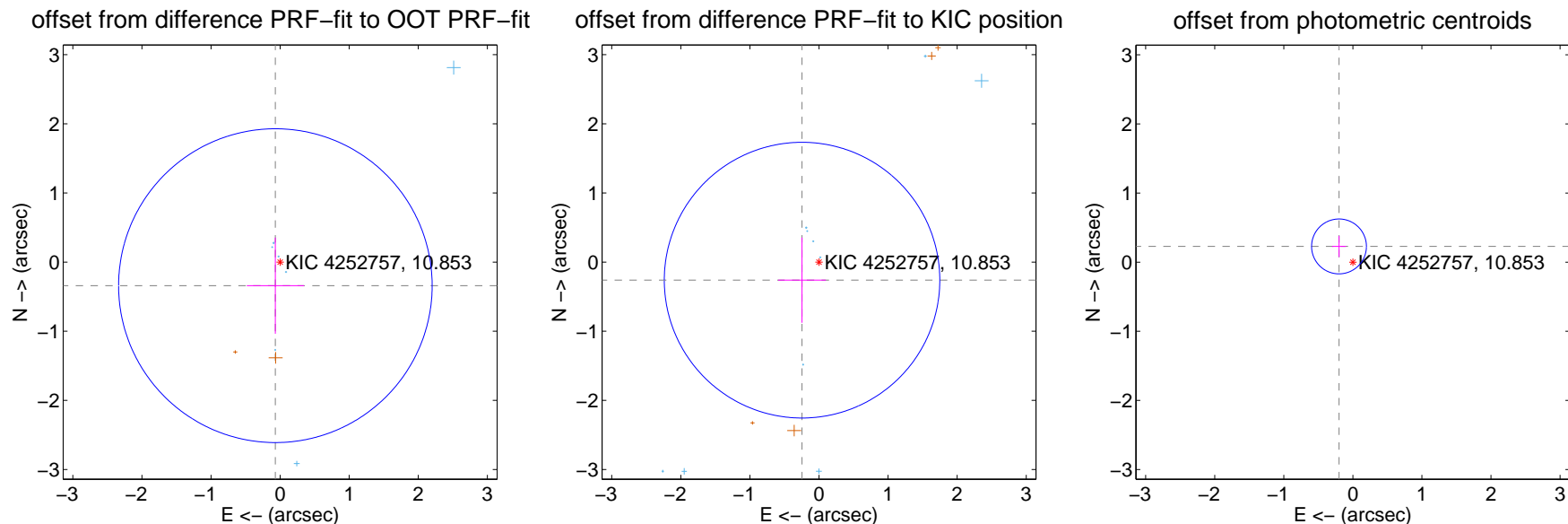
## DV Centroid Data

Supplemental centroid analysis for 004252757-01. **Kepler magnitude: 10.85.** Transit SNR 11.79

There are 13 quarters with good PRF difference image offsets

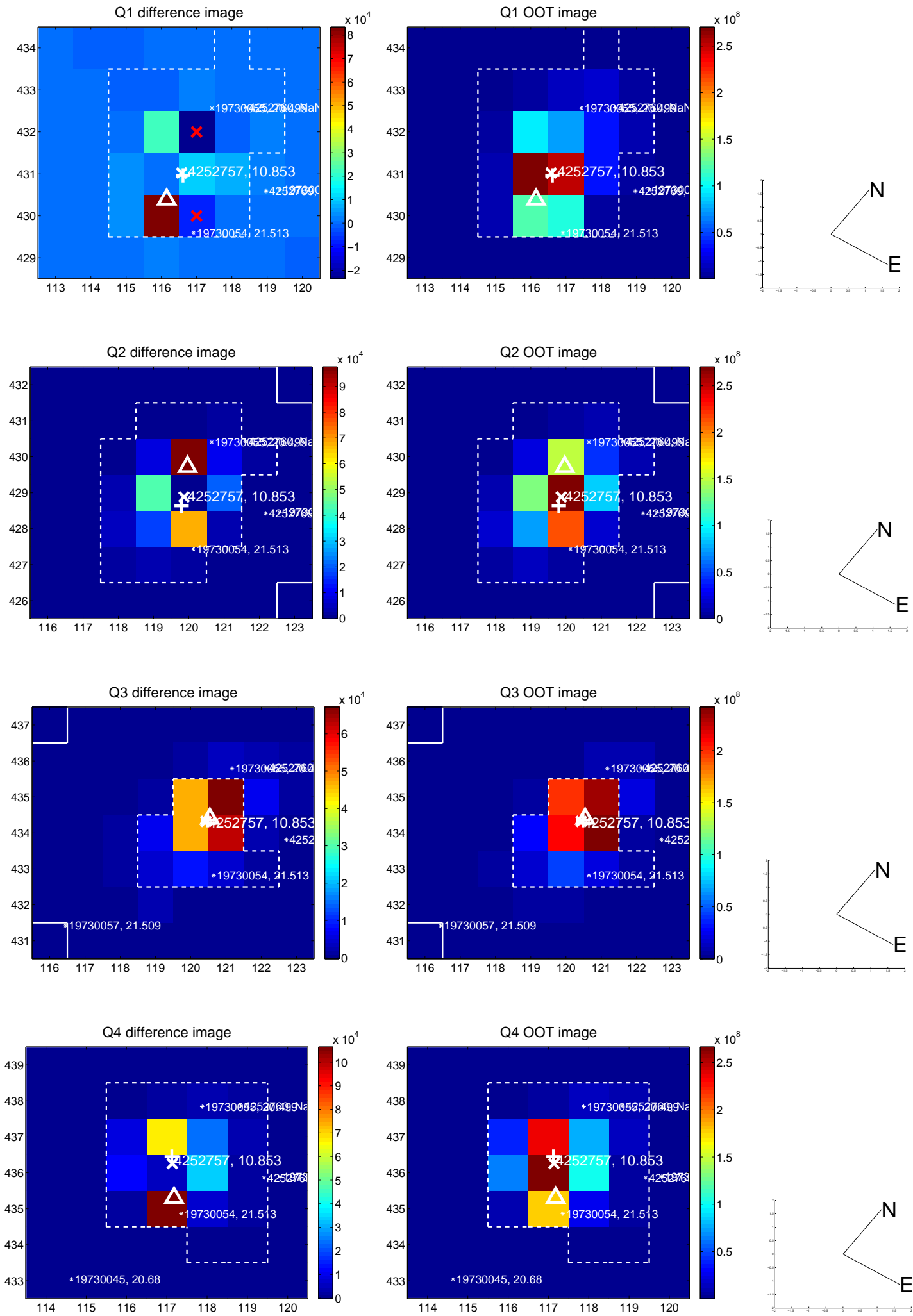
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.348 \pm 0.756$	0.46	$0.068 \pm 0.414$	$-0.341 \pm 0.696$
PRF-fit source offset from KIC position	$0.358 \pm 0.665$	0.54	$0.245 \pm 0.345$	$-0.261 \pm 0.616$
photometric centroid source offset	$0.30 \pm 0.13$	2.29	$0.20 \pm 0.10$	$0.23 \pm 0.15$

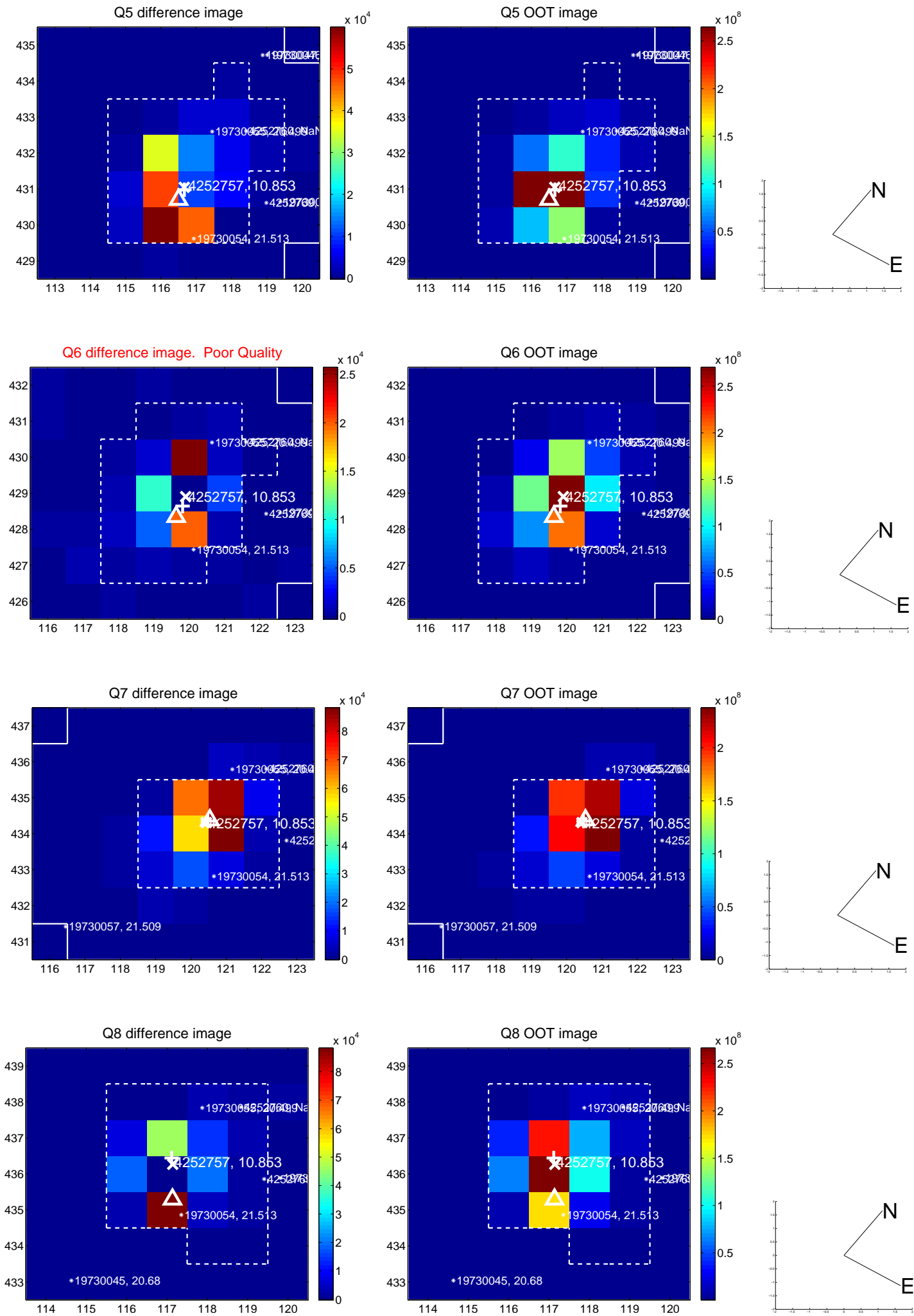


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

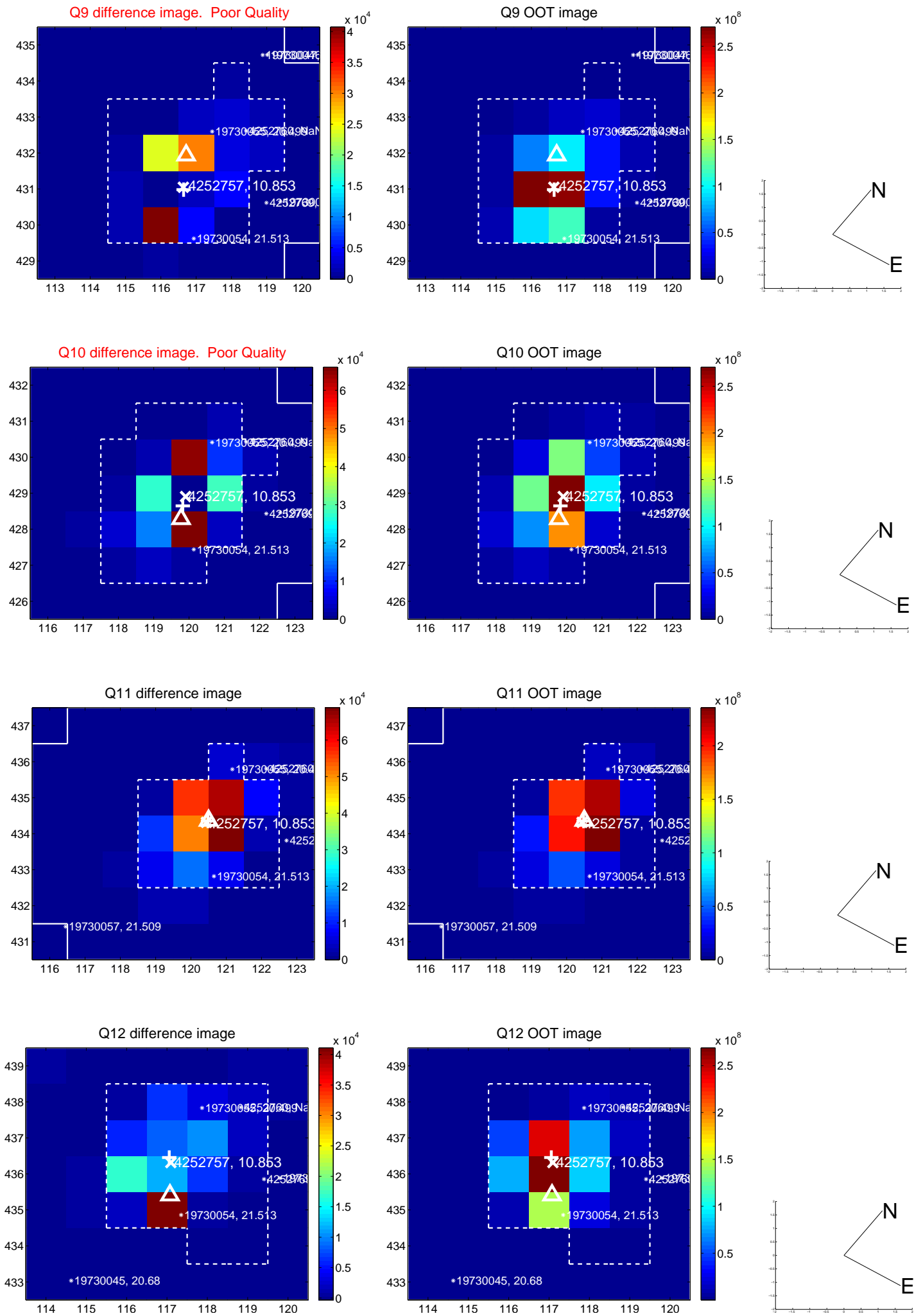


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

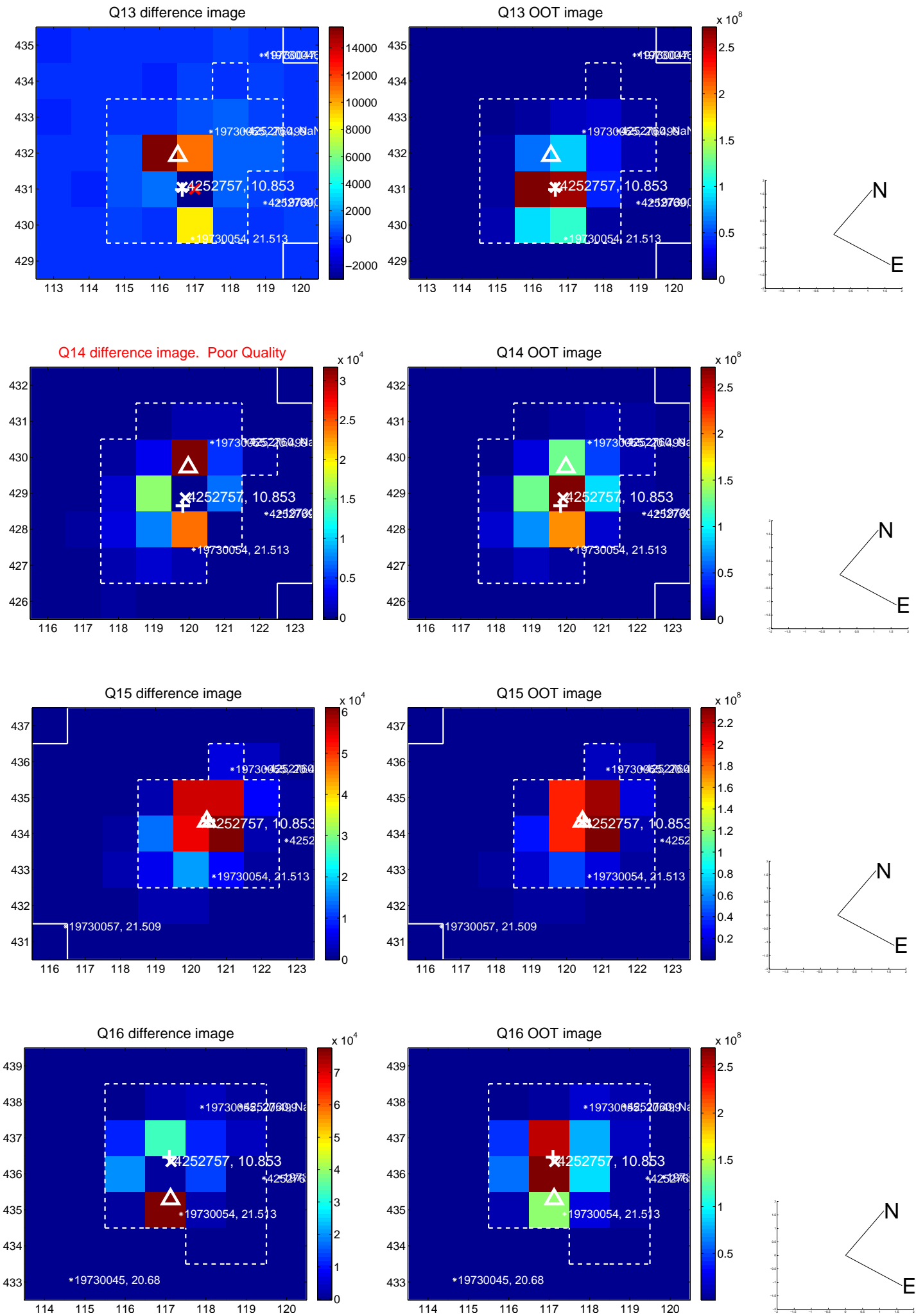




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

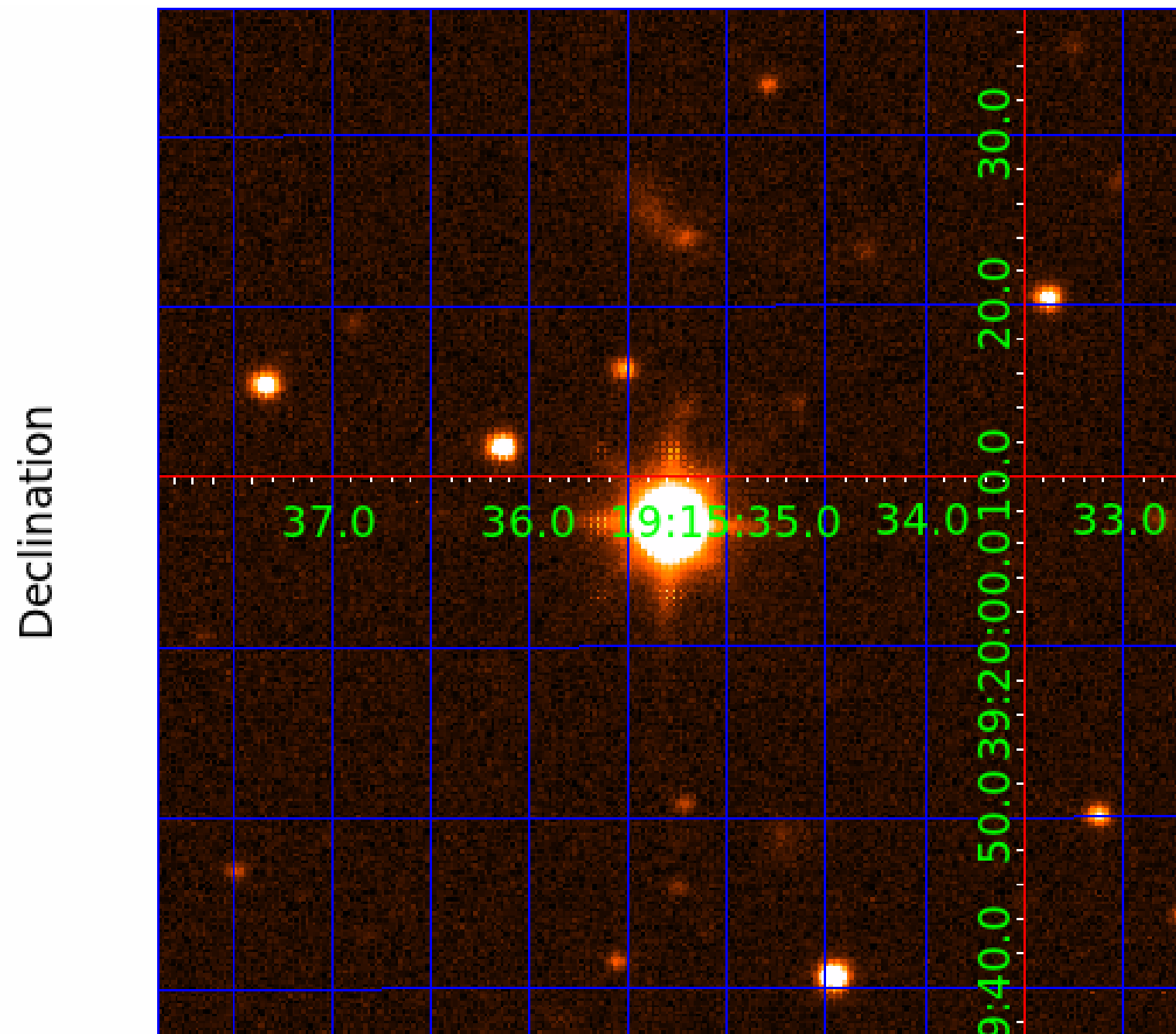


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 004252757

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004252757-01	OBS	No	1.575977	132.826924	91.2	5.586	11.9	11.8	2.26	7540	2.50	14570.10
004252757-02	OBS	No	1.902402	131.507588	35.1	6.000	11.8	-1.0	2.26	7540	1.36	11335.99
004252757-03	OBS	No	1.902476	132.445209	180.7	15.672	12.8	19.6	2.26	7540	3.96	11335.40

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004252757-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
004252757-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004252757-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—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.

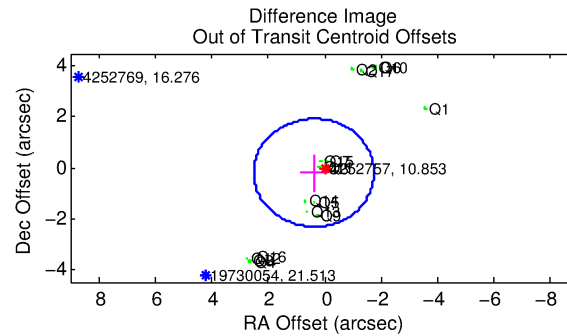
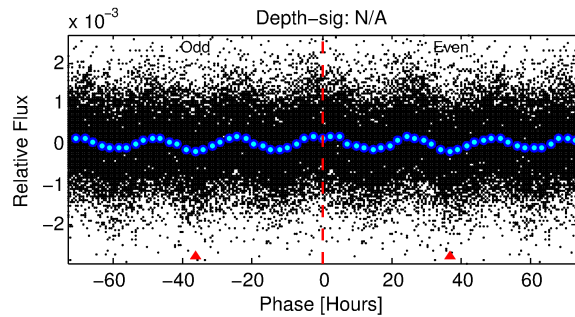
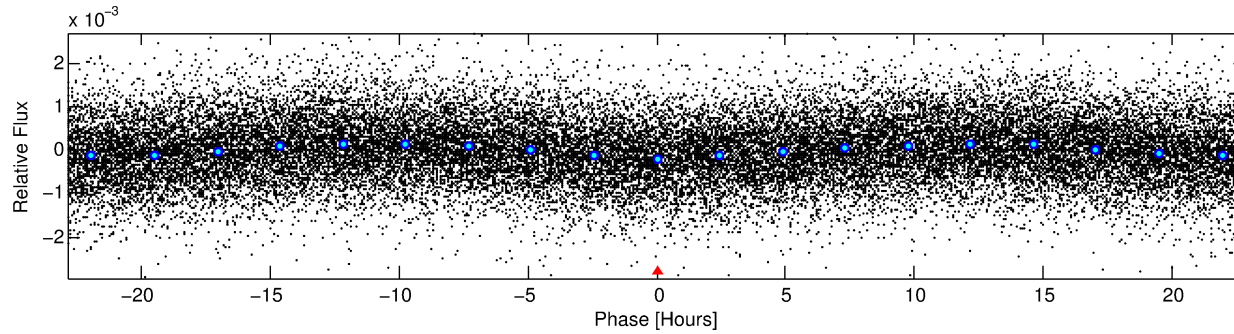
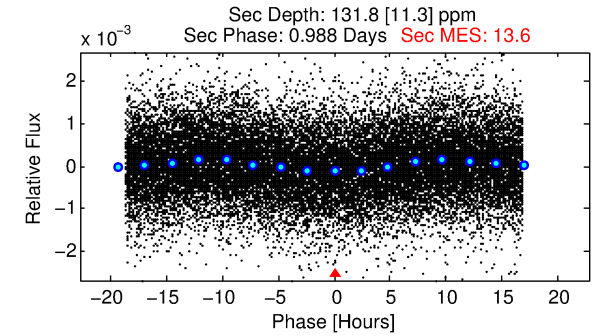
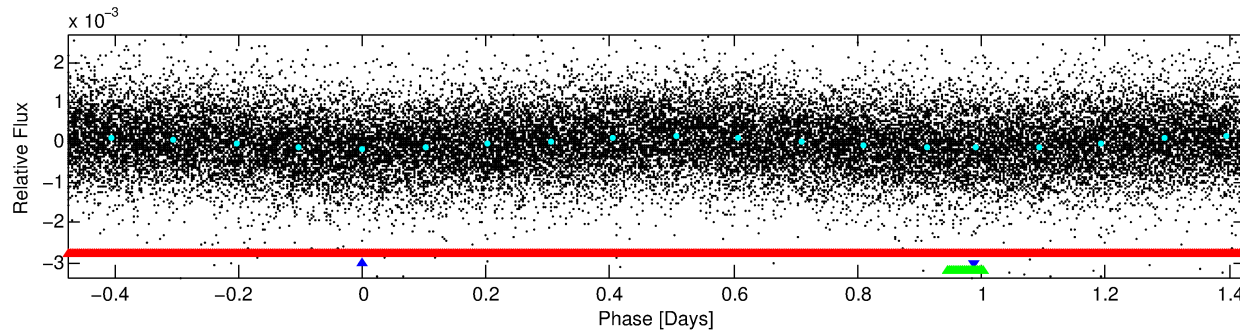
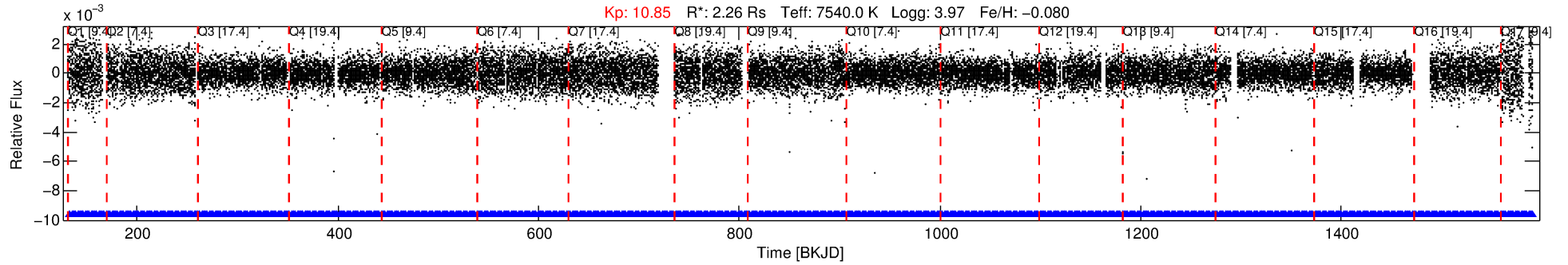
Ephemeris Match Information For 004252757-02

No Significant Match Found



# DV One-Page Summary

KIC: 4252757 Candidate: 2 of 3 Period: 1.902 d



## TPS TCE Results:

Period = 1.90240 d  
Epoch = 131.5076 BKJD

DV fit results are unavailable

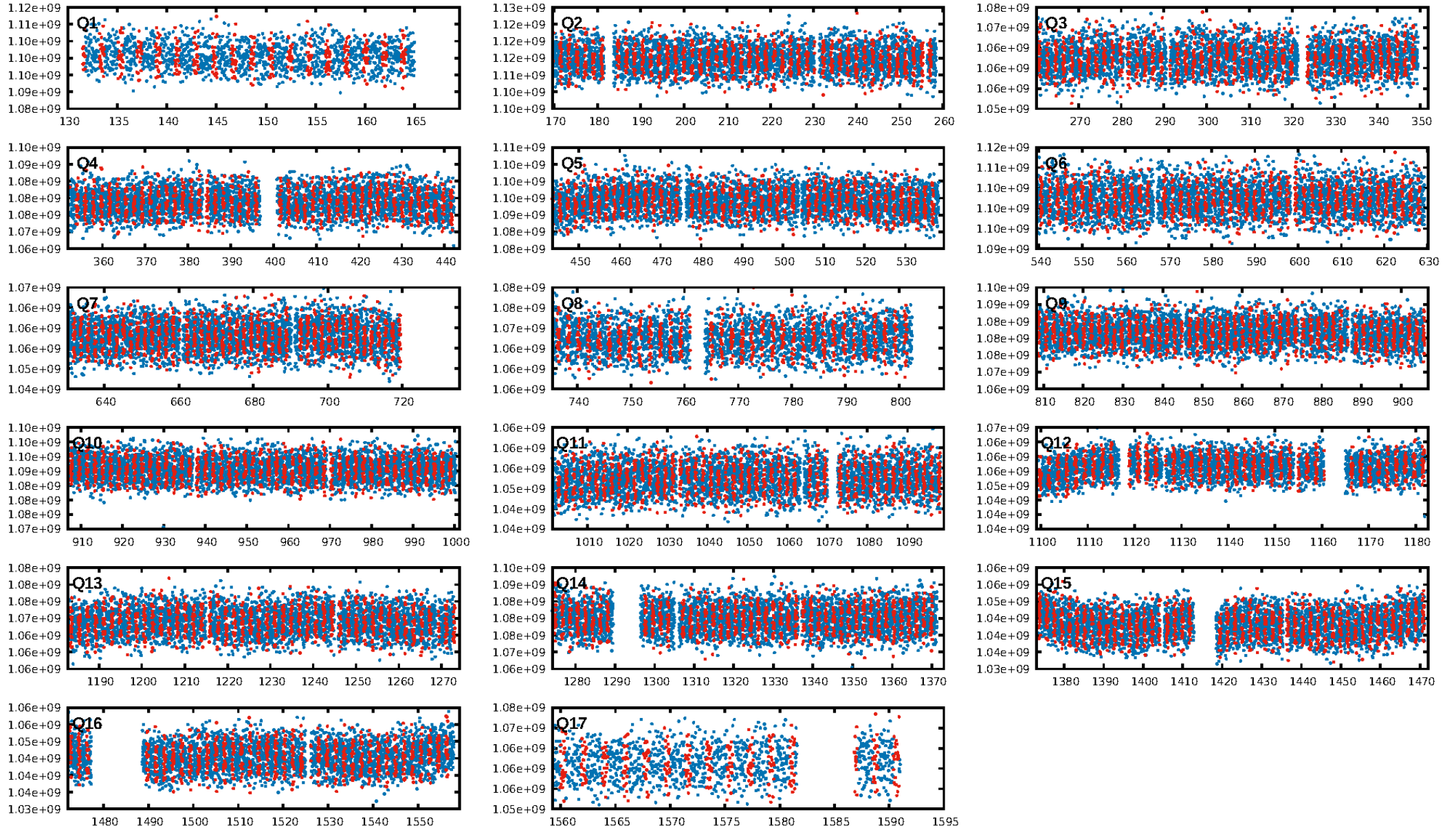
## DV Diagnostic Results:

ShortPeriod-sig: 66.1% [0.96 $\sigma$ ]  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [591/591]  
GhostDiagnostic-chr: 0.9248  
Centroid-sig: 55.0%  
Centroid-so: 0.191 arcsec [4.15 $\sigma$ ]  
OotOffset-rm: 0.429 arcsec [0.60 $\sigma$ ]  
KicOffset-rm: 0.514 arcsec [0.91 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.76 [13/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:23:17 Z

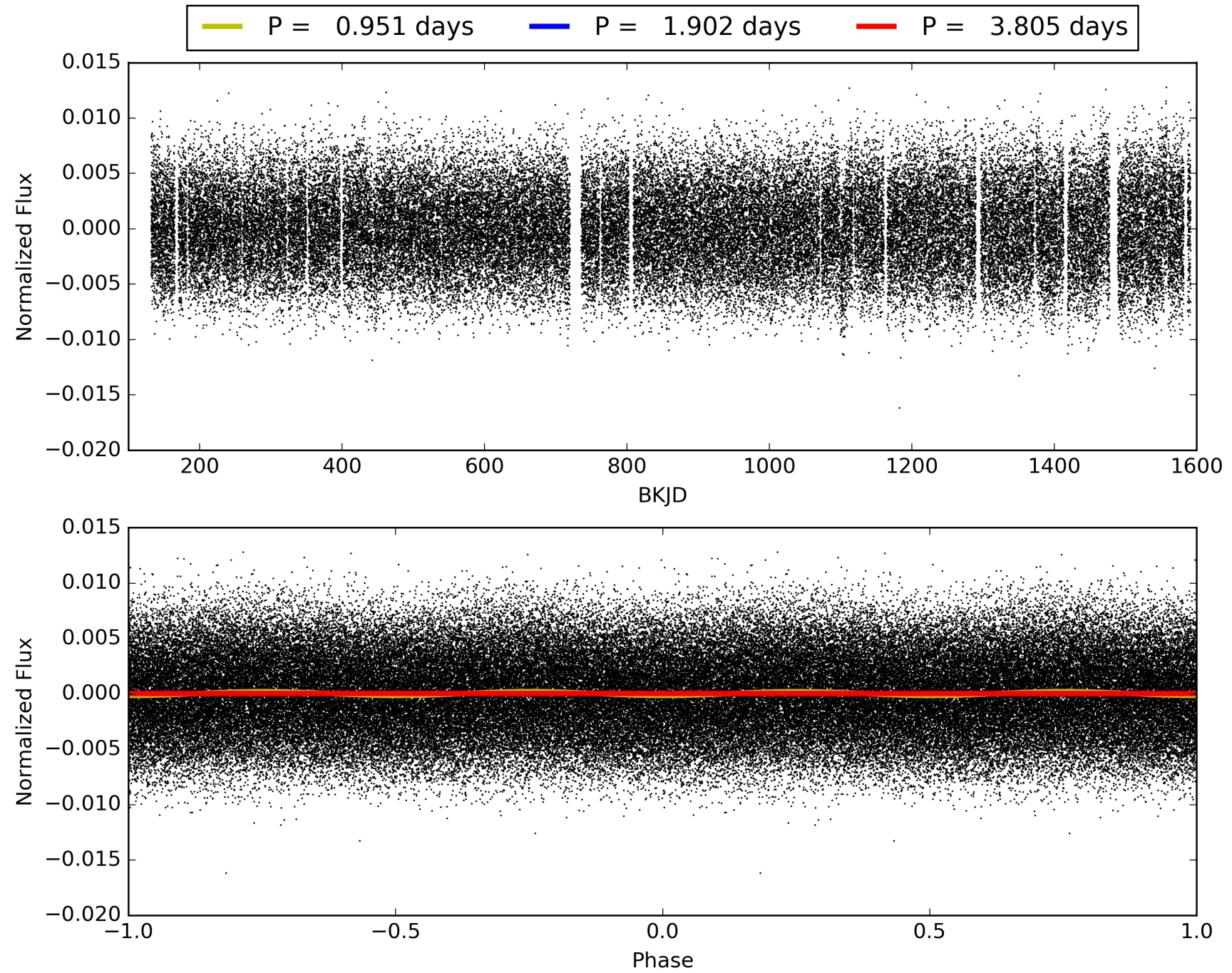
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004252757-02, PDC Light Curves



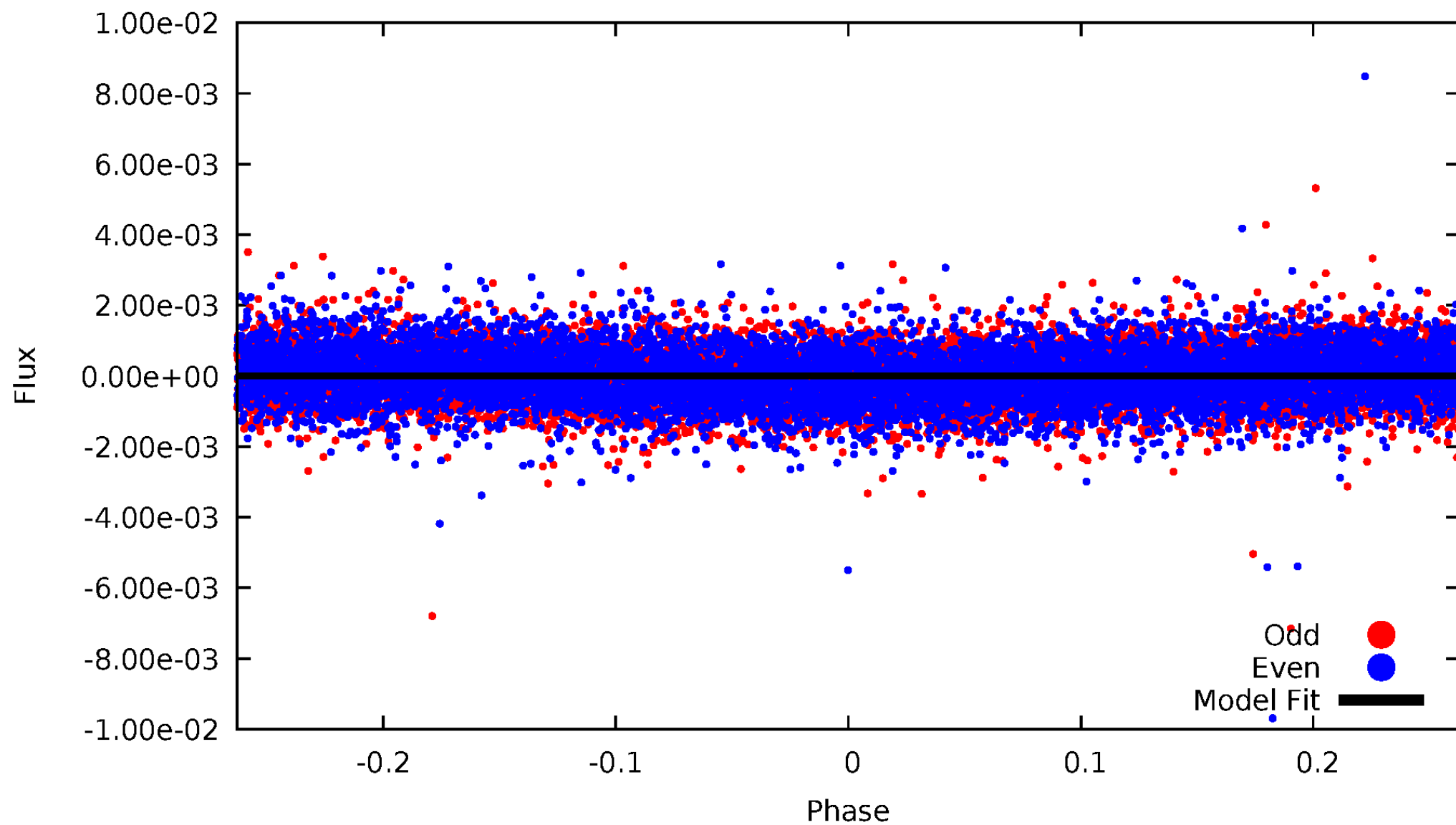


TCE 004252757-02



# DV Odd/Even

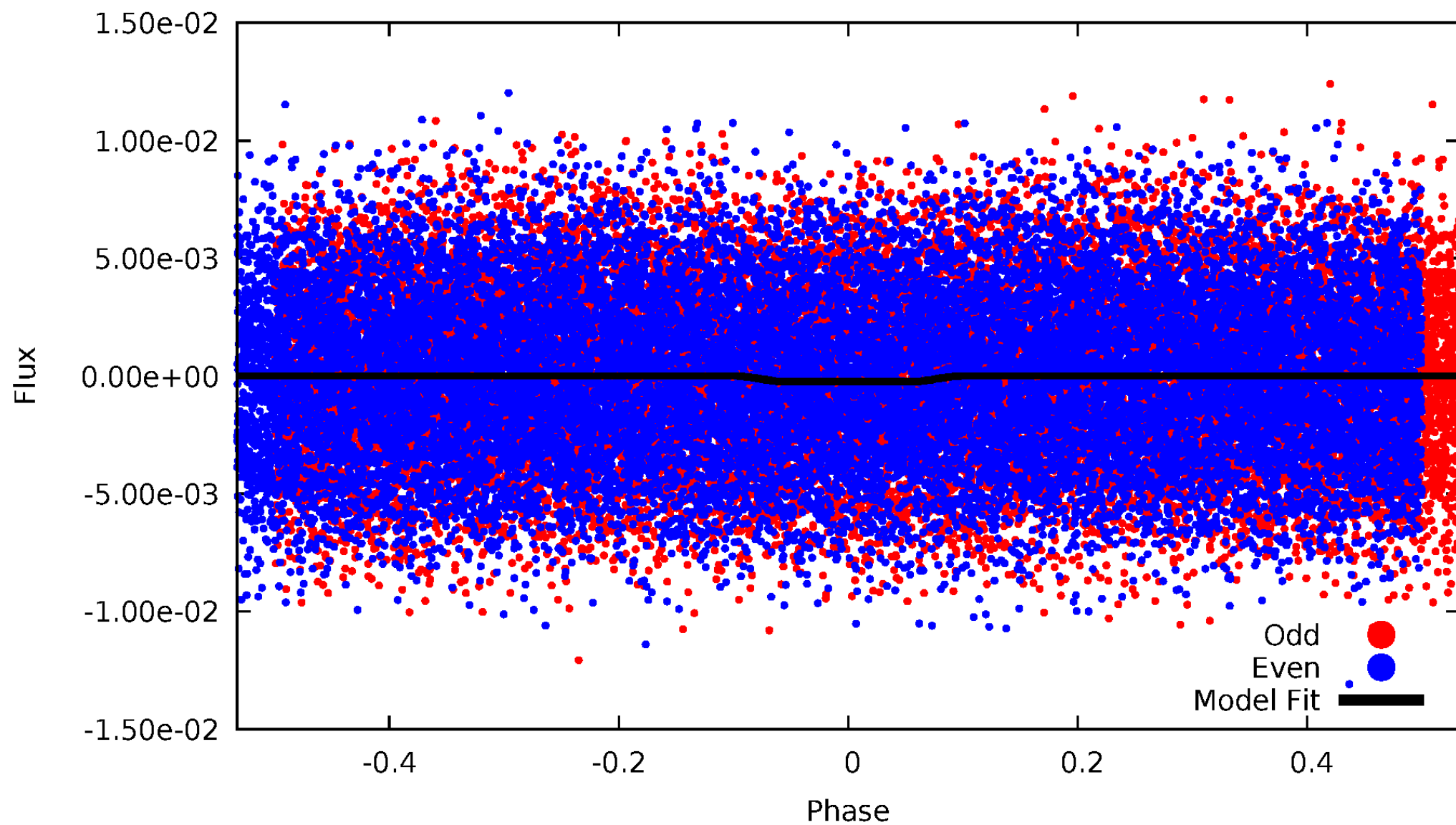
TCE 004252757-02





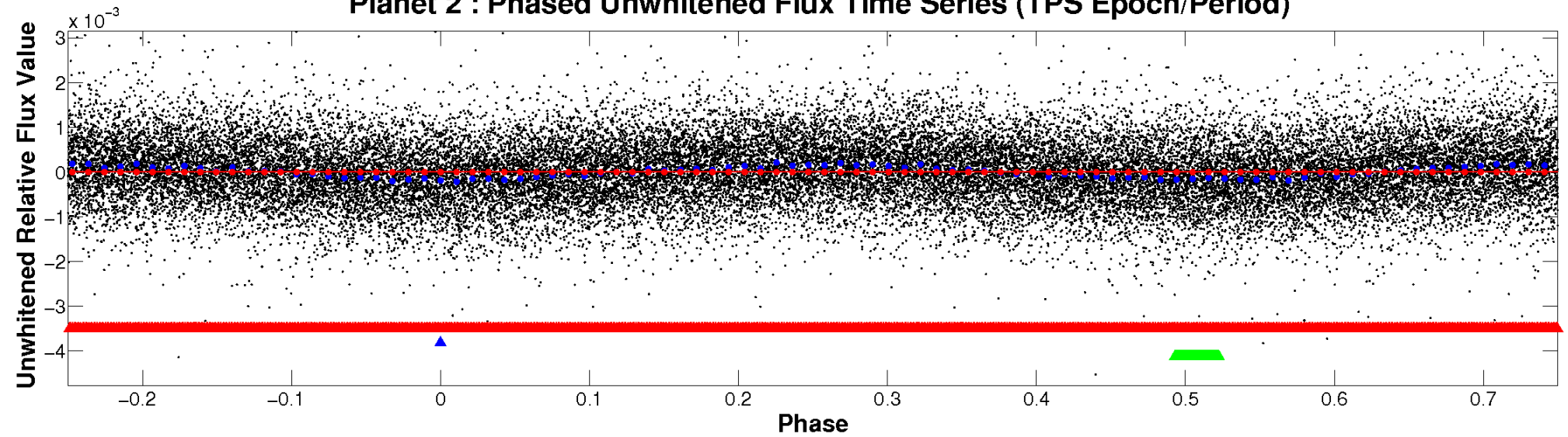
# ALT Odd/Even

TCE 004252757-02

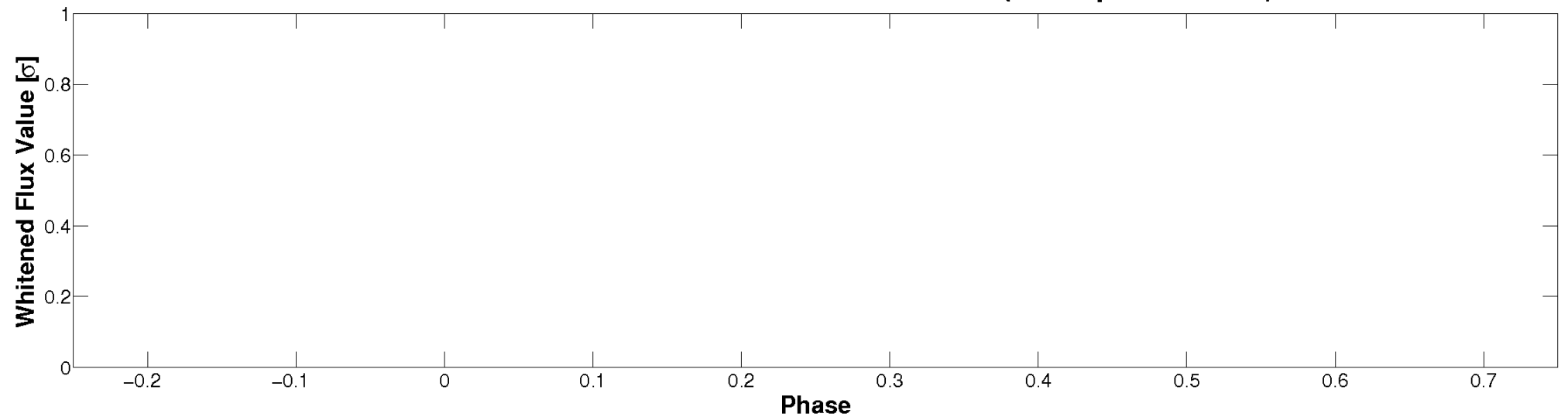


# Non-Whitened Vs. Whitened Light Curve

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

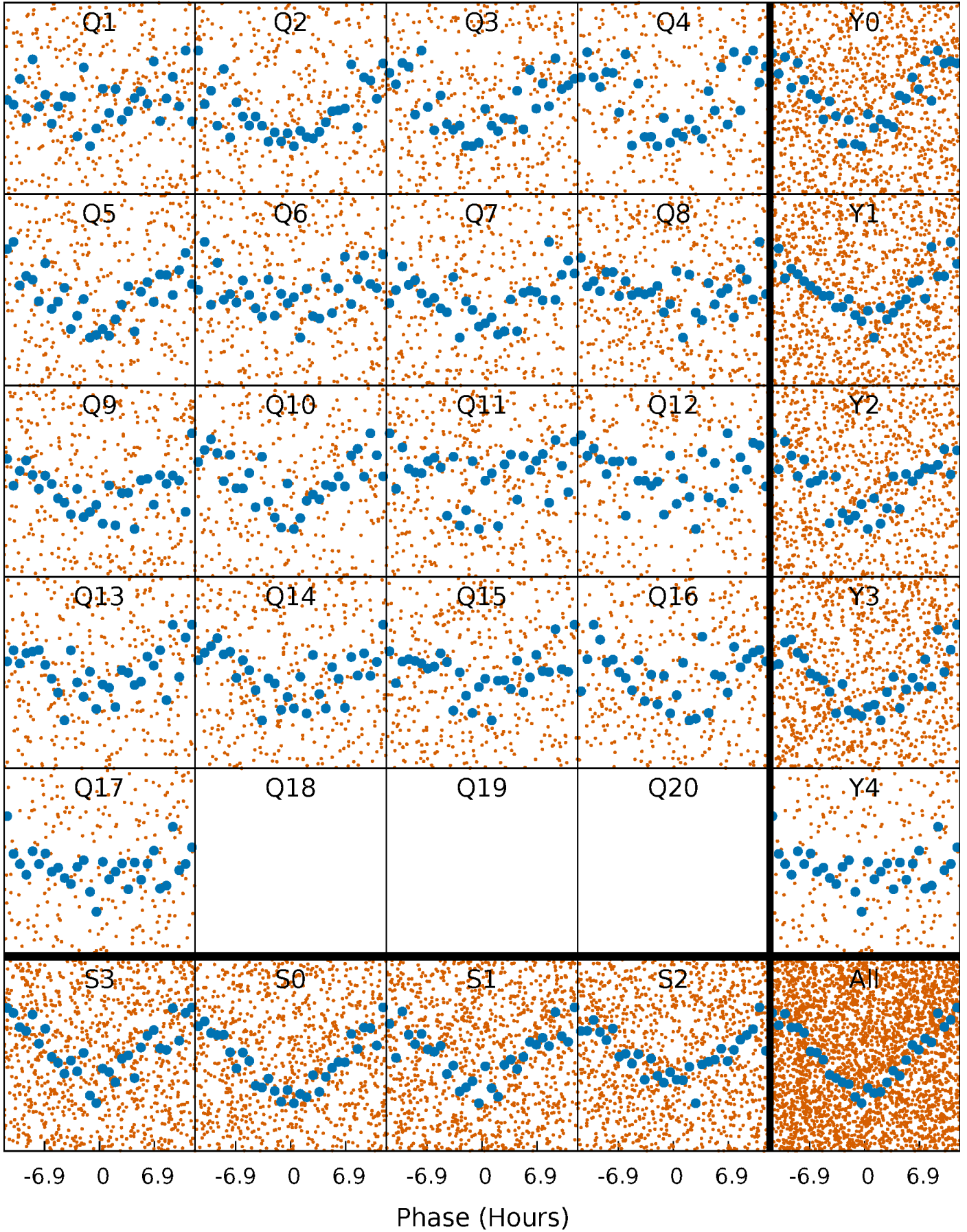


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



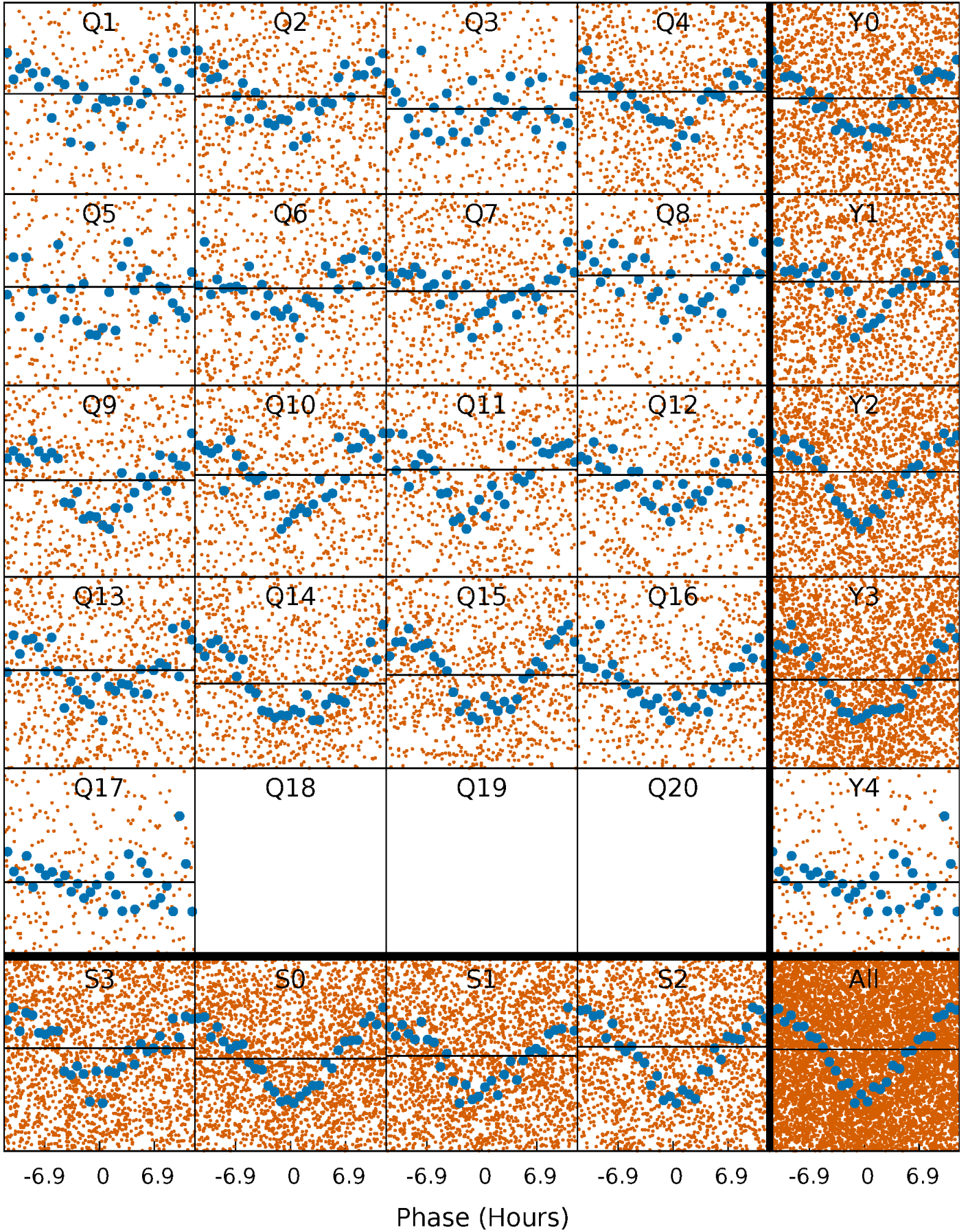
# PDC Quarter-Phased Transit Curves

TCE 004252757-02   P= 1.902402 Days    $T_0=131.507588$  (BKJD)



# DV Quarter-Phased Transit Curves

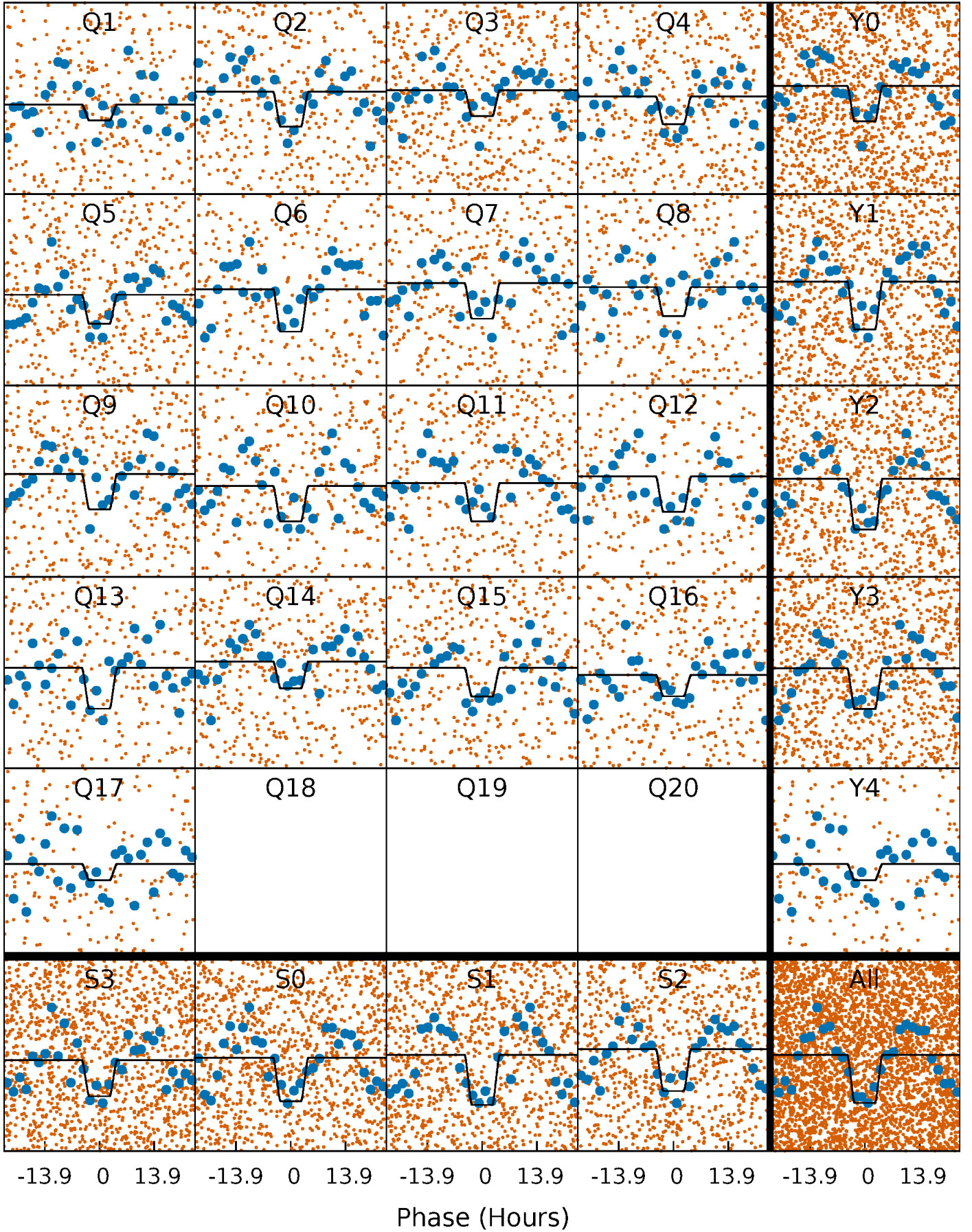
TCE 004252757-02    P= 1.902402 Days     $T_0=131.507588$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

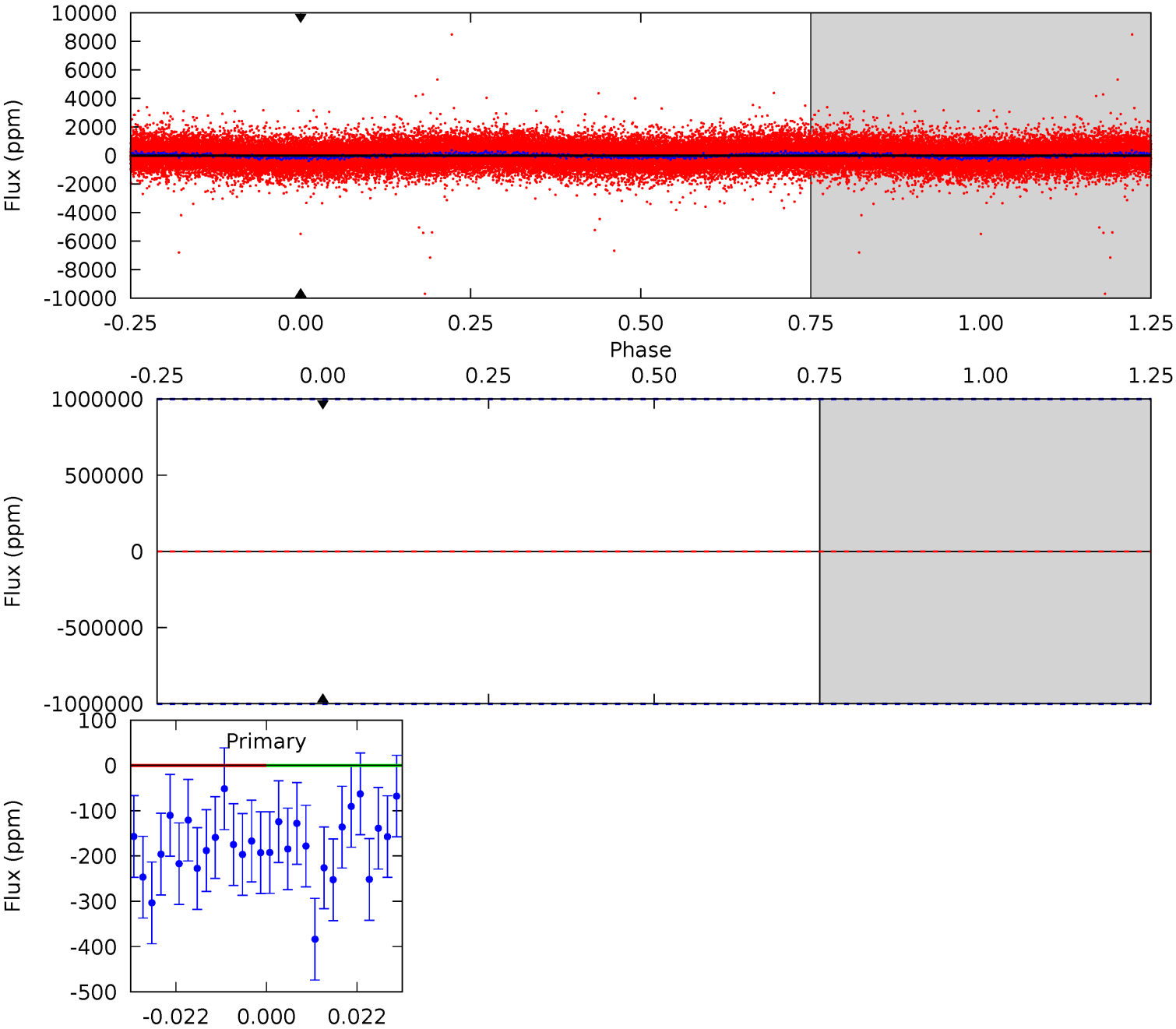
TCE 004252757-02     $P = 1.902402$  Days     $T_0 = 133.402364$  (BKJD)



# DV Model-Shift Uniqueness Test

004252757-02, P = 1.902402 Days, E = 131.507588 Days

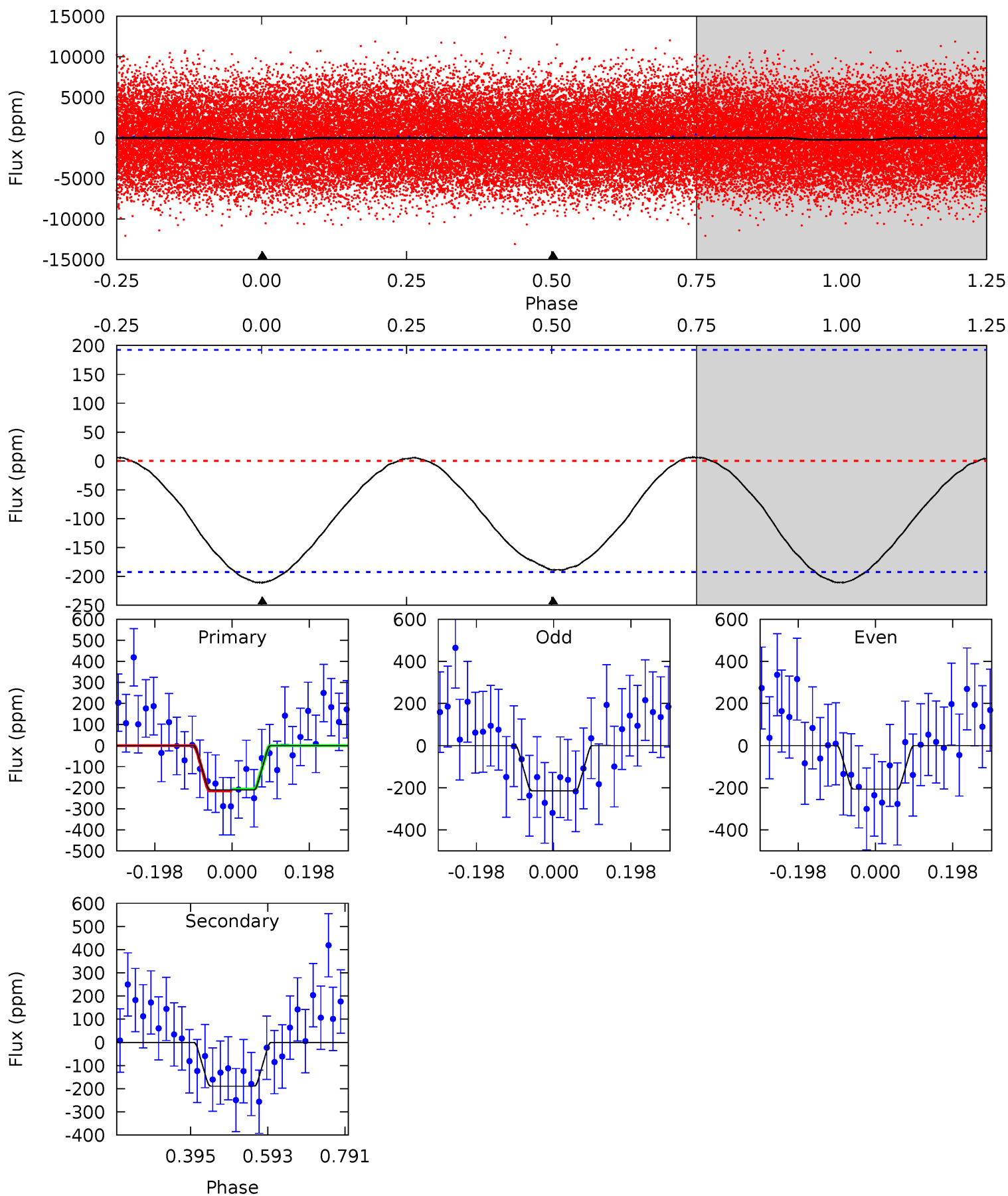
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

004252757-02, P = 1.902402 Days, E = 131.499962 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.84	4.34	0	0	4.42	1.29	0.16	4.84	4.84	4.34	4.34	0.08	0.47	0.03	0.09



### Stellar Parameters For KIC 004252757

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7540^{+82}_{-82}$	$3.969^{+0.143}_{-0.104}$	$-0.080^{+0.150}_{-0.150}$	$2.258^{+0.408}_{-0.408}$	$1.730^{+0.187}_{-0.153}$	$0.212^{+0.146}_{-0.067}$
	+1%/-1%	+4%/-3%	+188%/-188%	+18%/-18%	+11%/-9%	+69%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004252757-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$15.86^{+19.03}_{-10.82}$	$3674^{+160}_{-172}$	$5869^{+48267}_{-48246}$	$4.485^{+589.102}_{-382.051}$
Alt.	$-189 \pm 44$	$18.03^{+18.13}_{-13.09}$	$3678^{+155}_{-174}$	$3038^{+2912}_{-6290}$	$0.426^{+5.025}_{-0.328}$

$T_{max}$  = 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

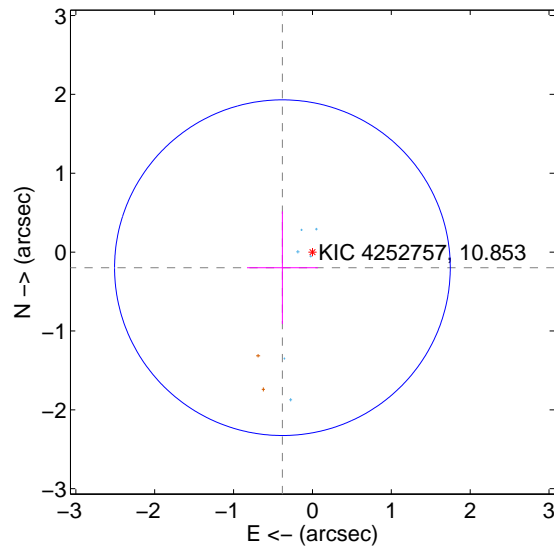
Supplemental centroid analysis for 004252757-02. **Kepler magnitude: 10.85.** Transit SNR -1.00

There are 13 quarters with good PRF difference image offsets

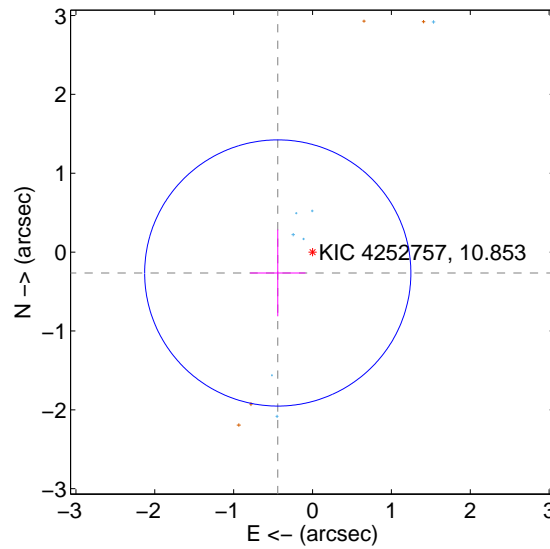
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.429 \pm 0.709$	0.60	$0.381 \pm 0.450$	$-0.198 \pm 0.713$
PRF-fit source offset from KIC position	$0.514 \pm 0.563$	0.91	$0.441 \pm 0.352$	$-0.265 \pm 0.550$
photometric centroid source offset	<b><math>0.19 \pm 0.05</math></b>	<b>4.15</b>	$0.15 \pm 0.04$	$0.12 \pm 0.06$

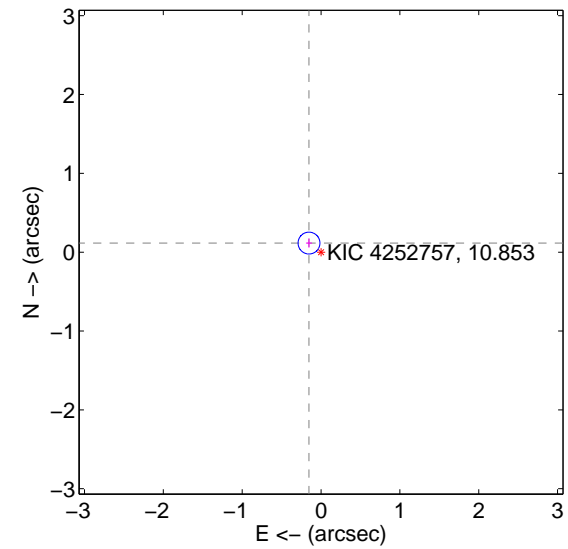
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

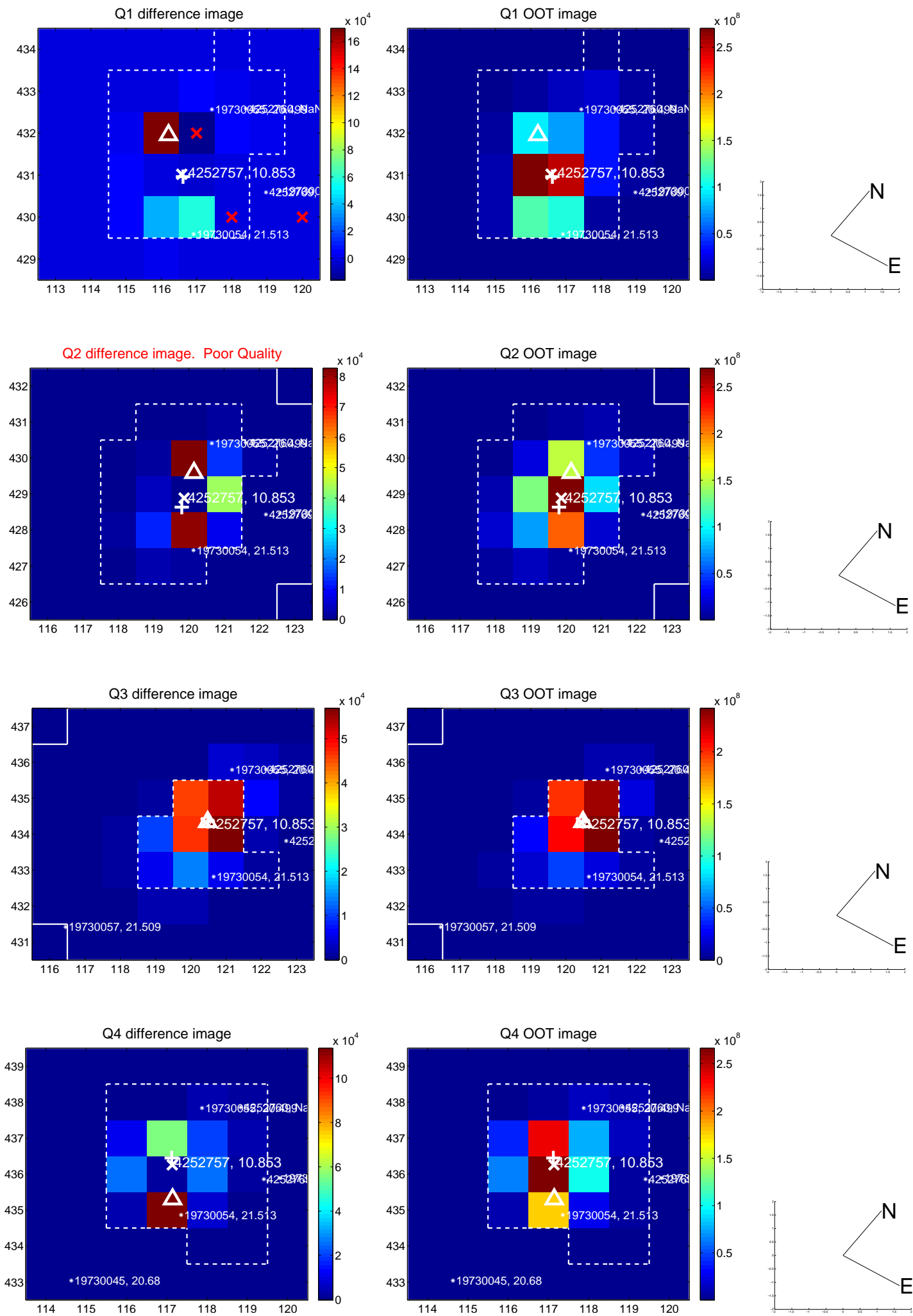


offset from photometric centroids

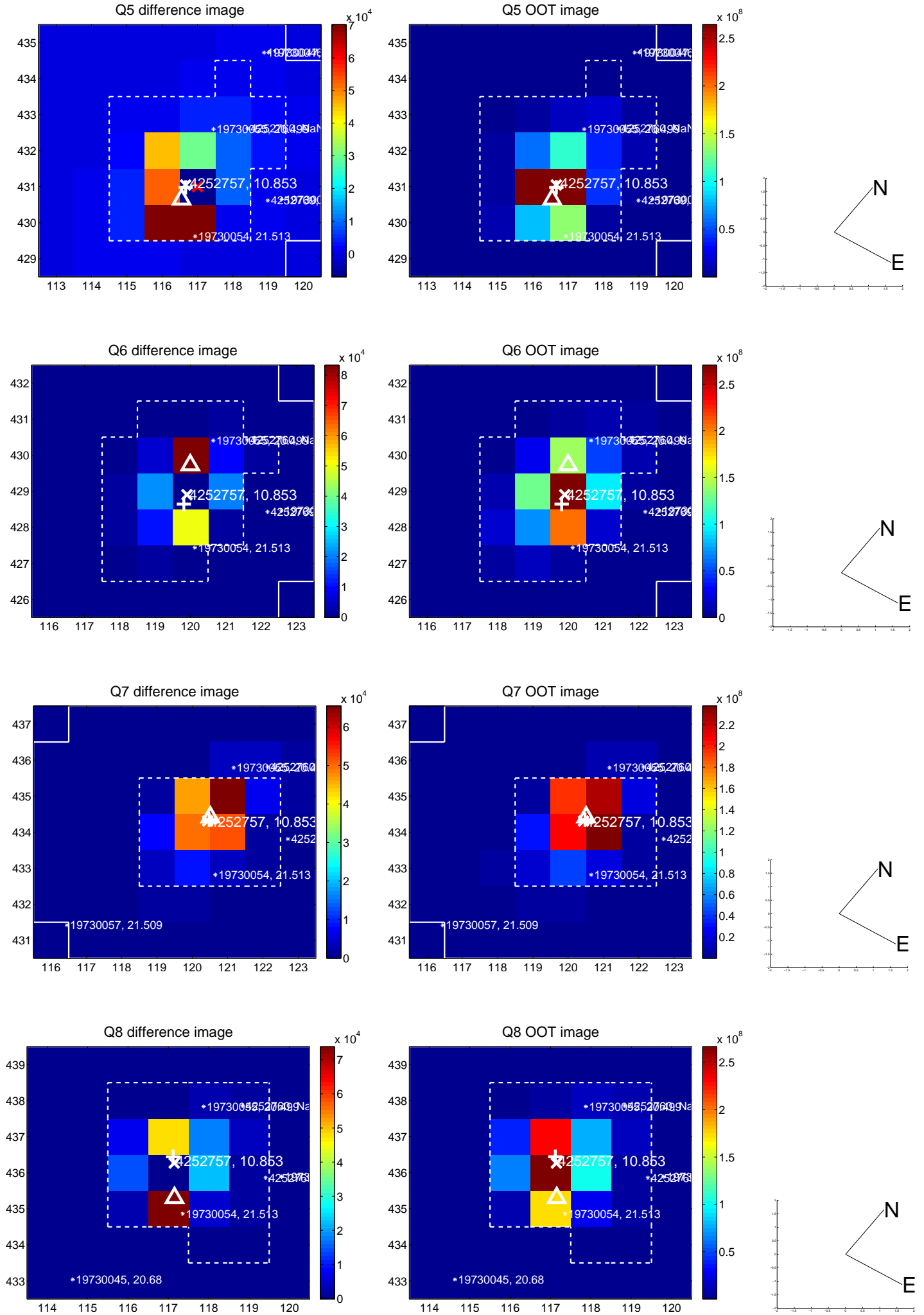


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

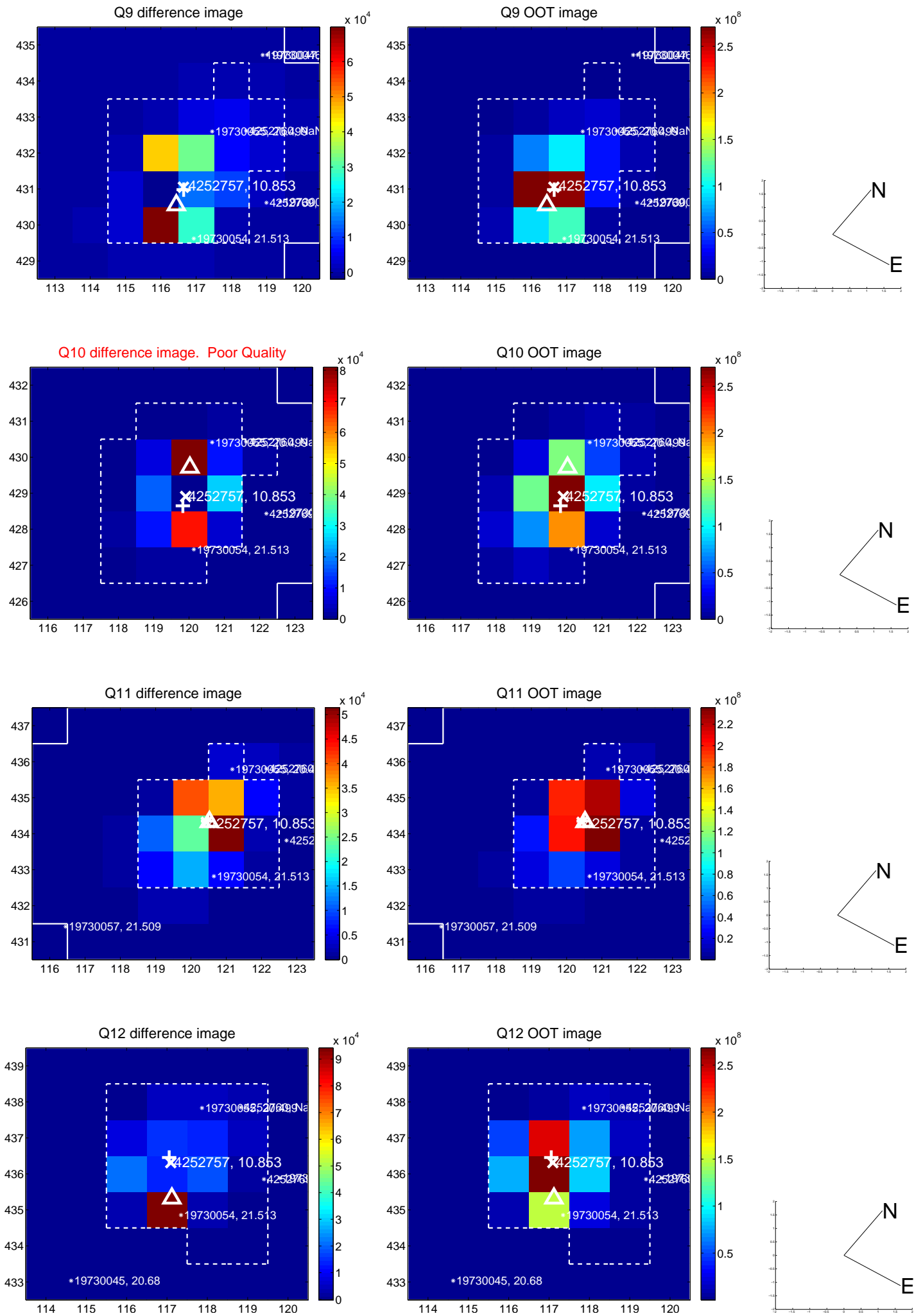
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



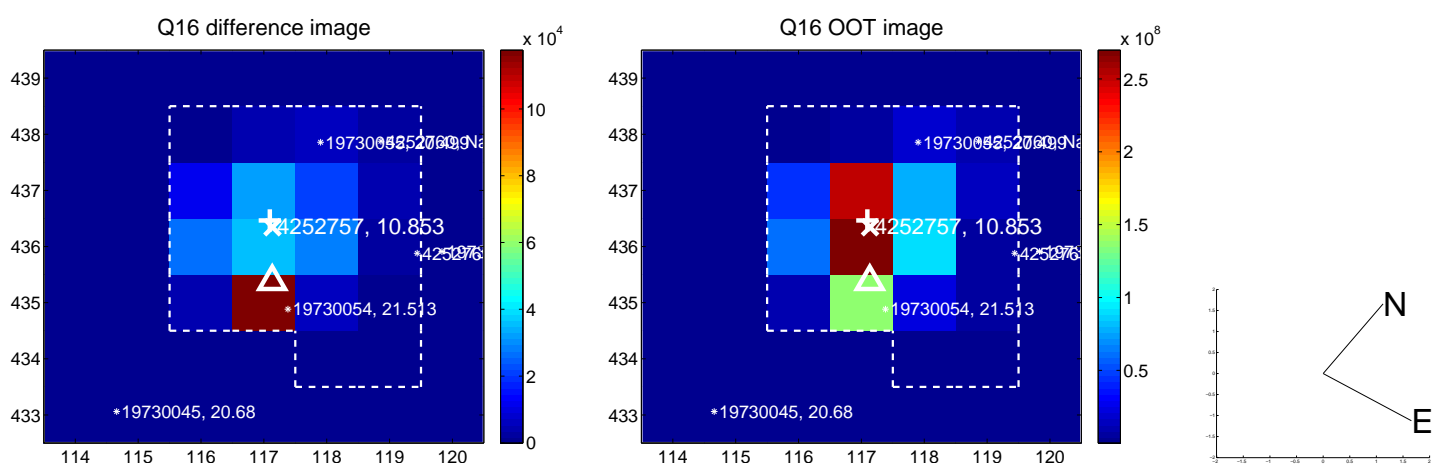
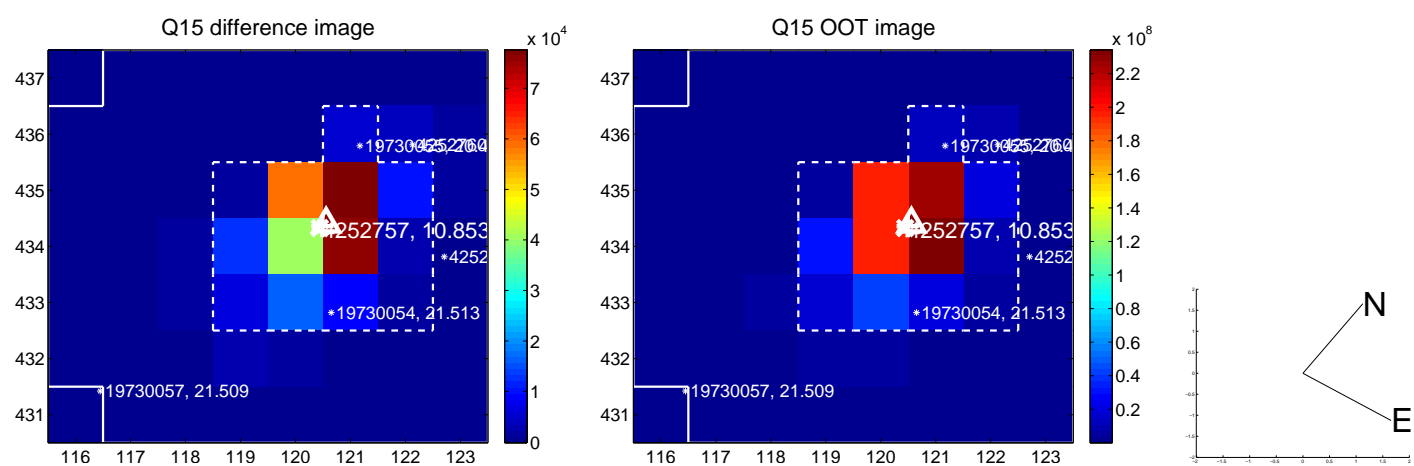
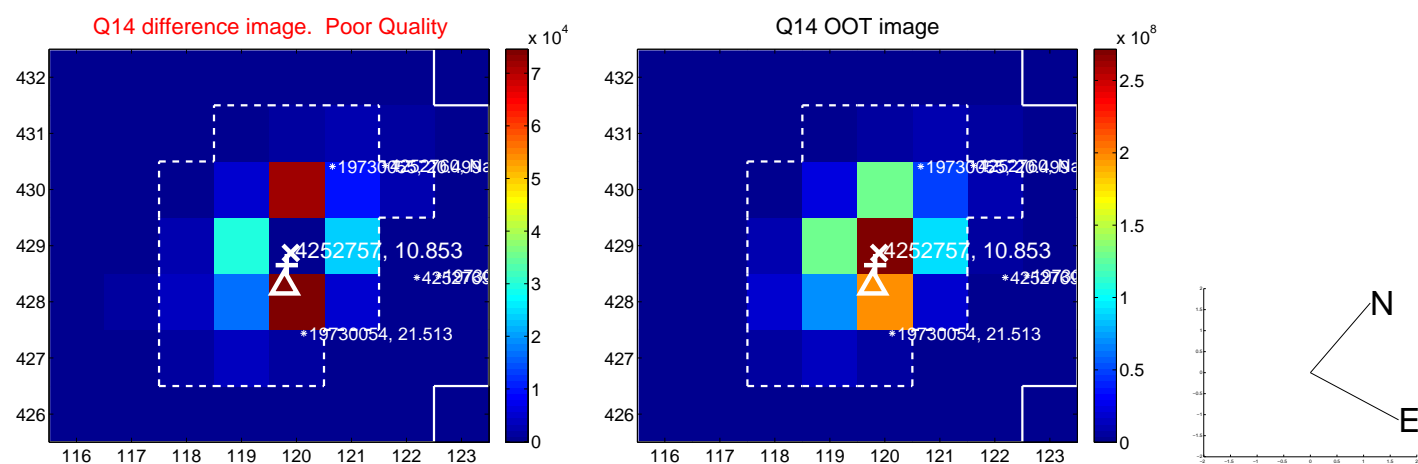
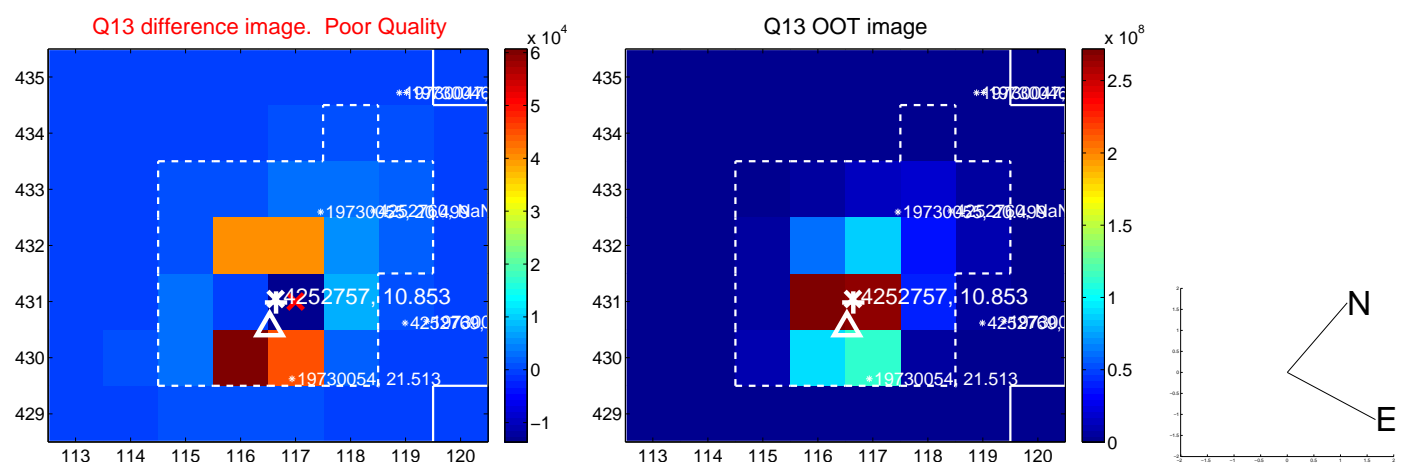
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

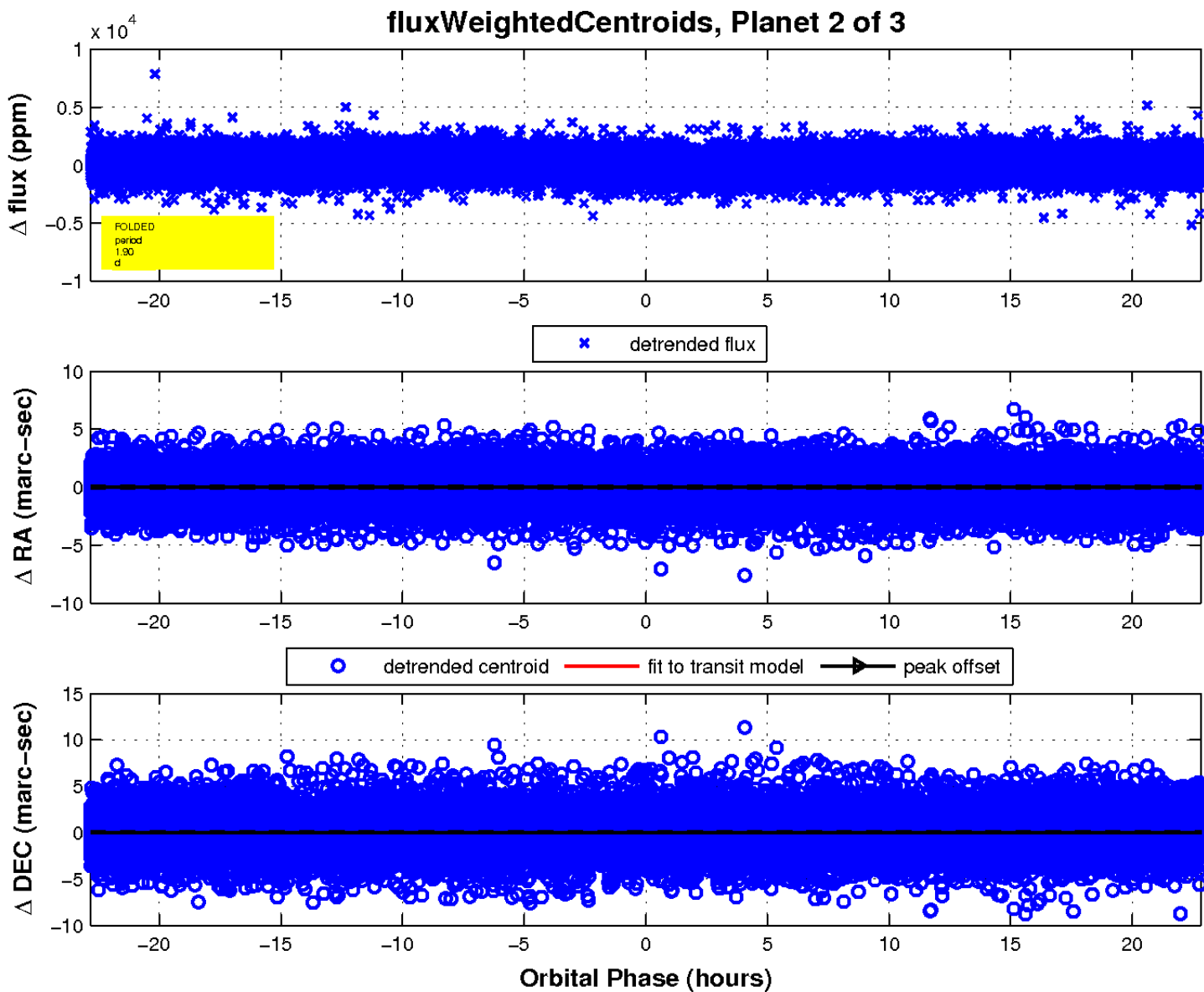
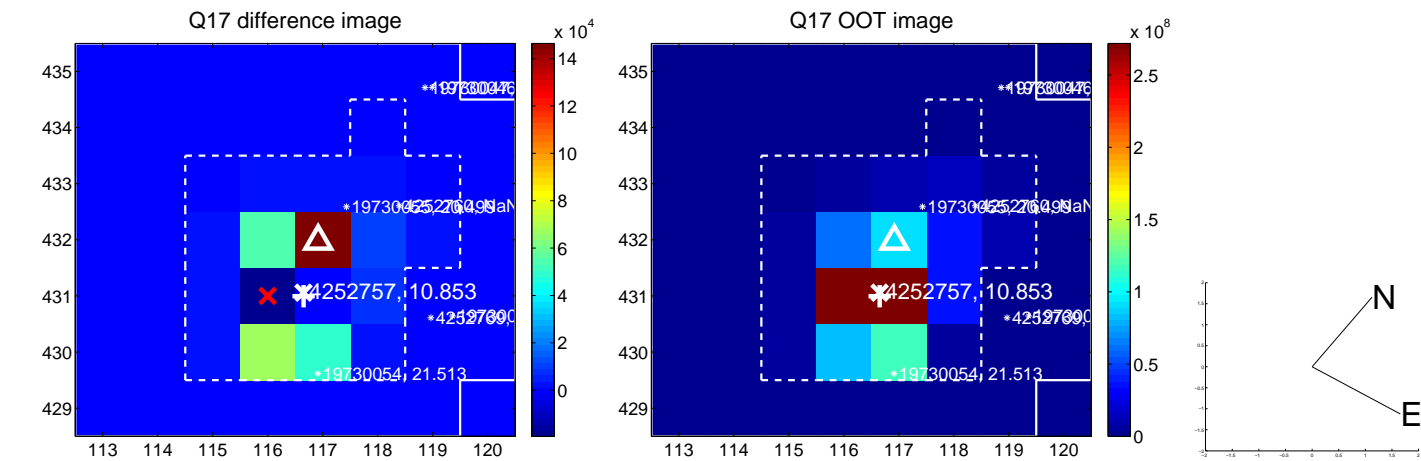


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

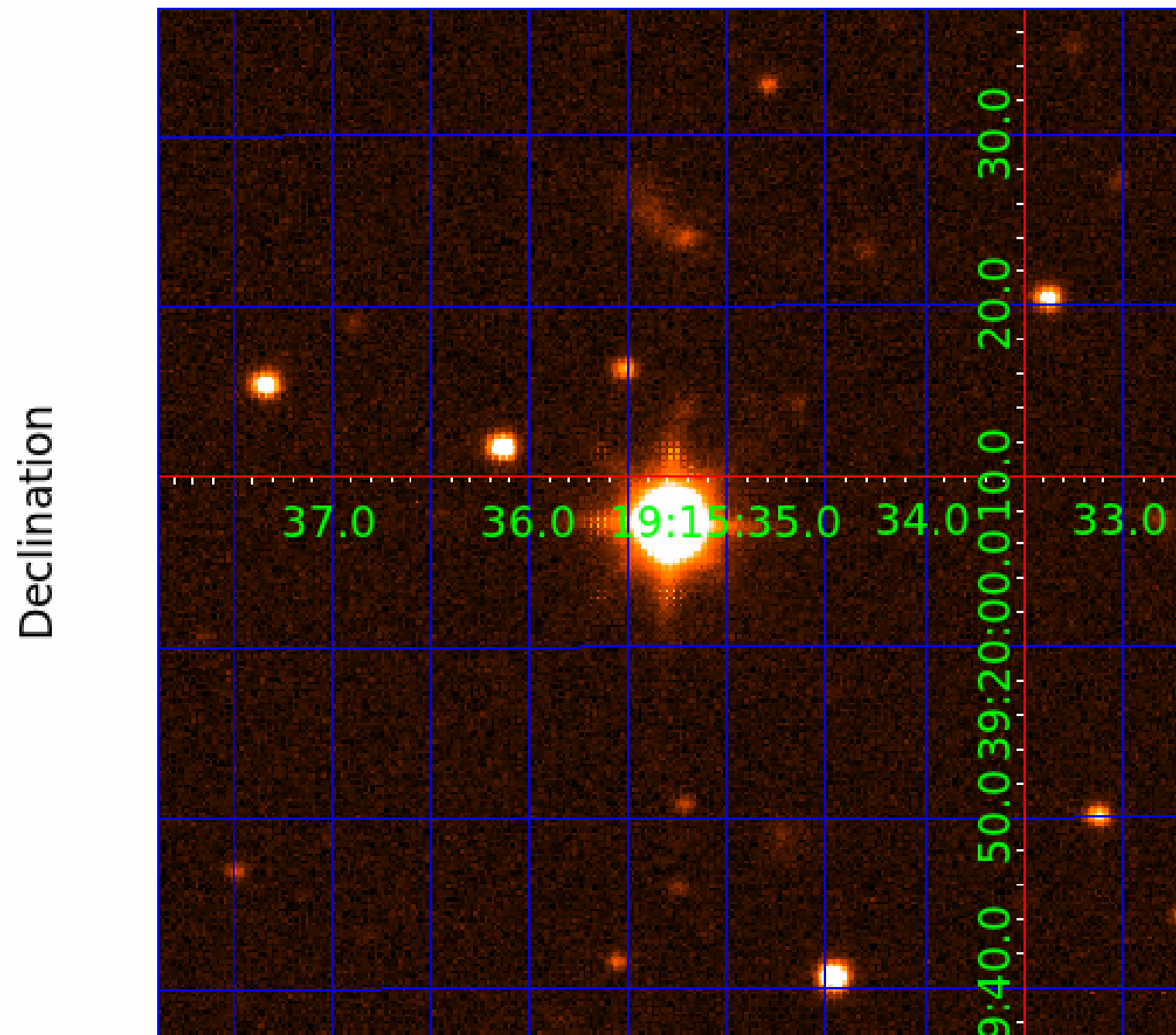




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 004252757

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004252757-01	OBS	No	1.575977	132.826924	91.2	5.586	11.9	11.8	2.26	7540	2.50	14570.10
004252757-02	OBS	No	1.902402	131.507588	35.1	6.000	11.8	-1.0	2.26	7540	1.36	11335.99
004252757-03	OBS	No	1.902476	132.445209	180.7	15.672	12.8	19.6	2.26	7540	3.96	11335.40

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004252757-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
004252757-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—CENT_SATURATED
004252757-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—SAME_NTL_PERIOD—CENT_SATURATED

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

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

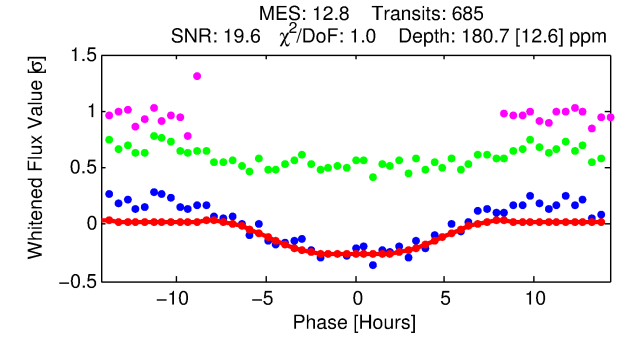
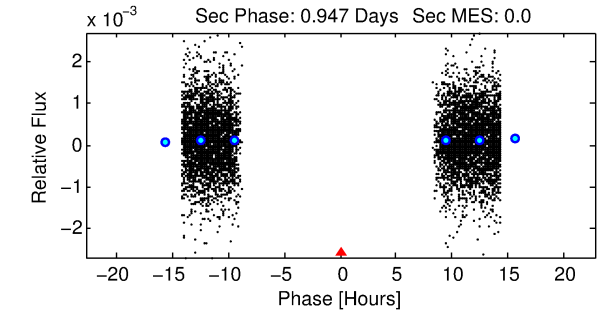
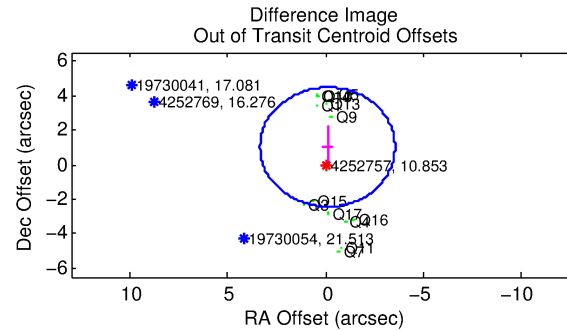
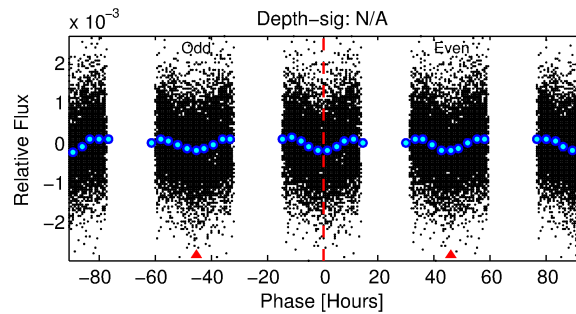
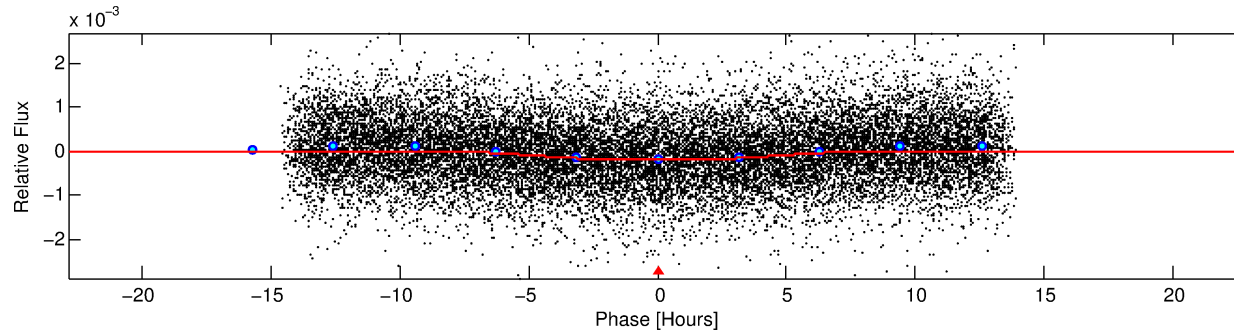
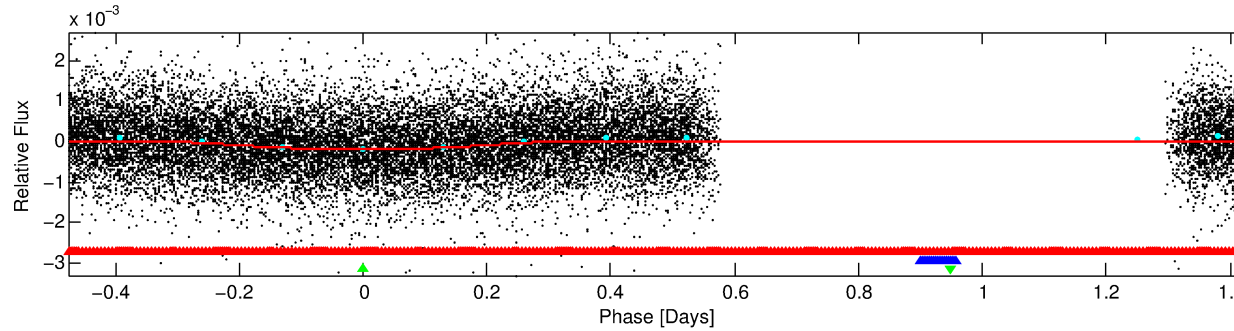
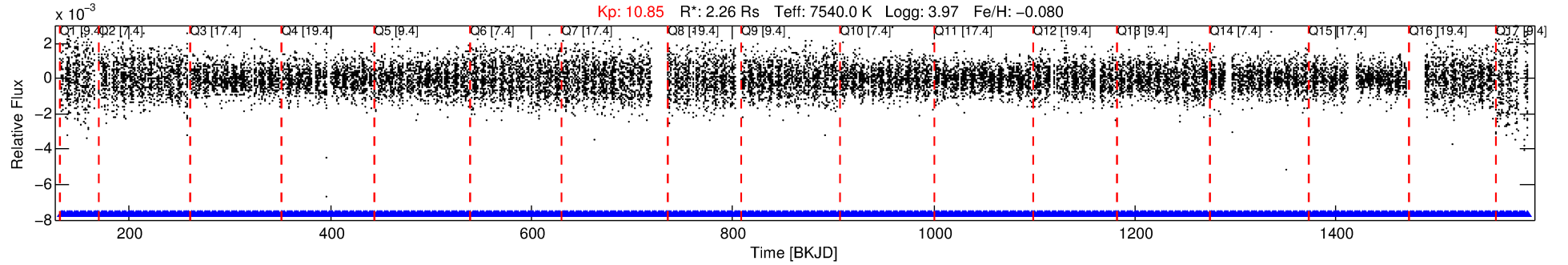
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 004252757-03

No Significant Match Found

# DV One-Page Summary

KIC: 4252757 Candidate: 3 of 3 Period: 1.902 d



## DV Fit Results:

Period = 1.90248 [0.00004] d  
Epoch = 132.4452 [0.0174] BKJD  
Rp/R\* = 0.0161 [0.0007]  
a/R\* = 1.03 [0.00]  
b = 0.98 [0.00]  
Seff = 11335.40 [2880.82]  
Teq = 2631 [167] K  
Rp = 3.96 [0.73] Re  
a = 0.0361 [0.0059] AU  
Ag = N/A  
Teffp = N/A

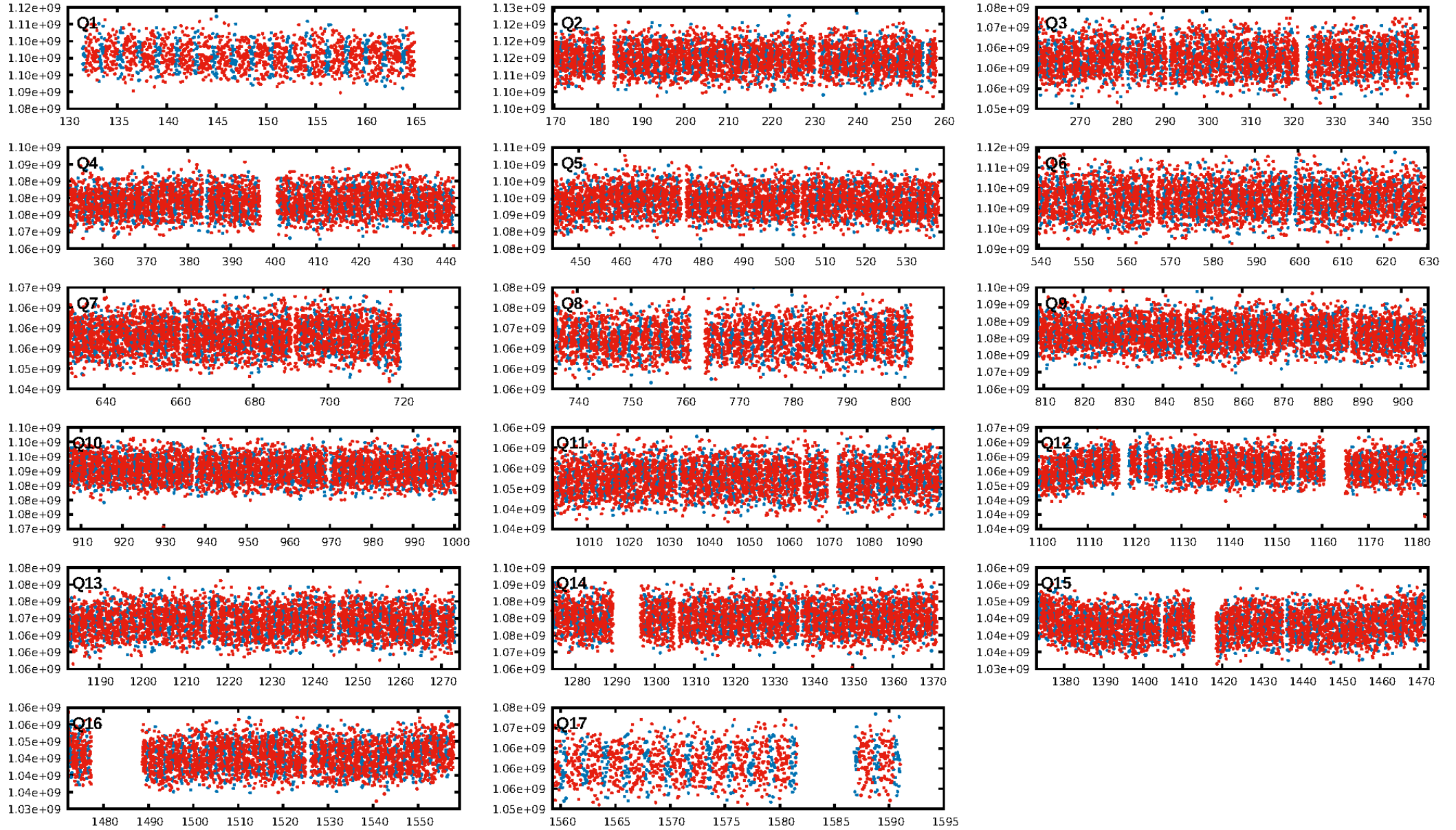
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [655/655]  
GhostDiagnostic-chr: 1.119  
Centroid-sig: 0.3%  
Centroid-so: 0.306 arcsec [4.47σ]  
OotOffset-rm: 1.023 arcsec [0.89σ]  
KicOffset-rm: 0.778 arcsec [0.79σ]  
OotOffset-st: 2/4/2/5 [13]  
KicOffset-st: 2/4/2/5 [13]  
DiffImageQuality-fgm: 0.54 [7/13]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:23:30 Z

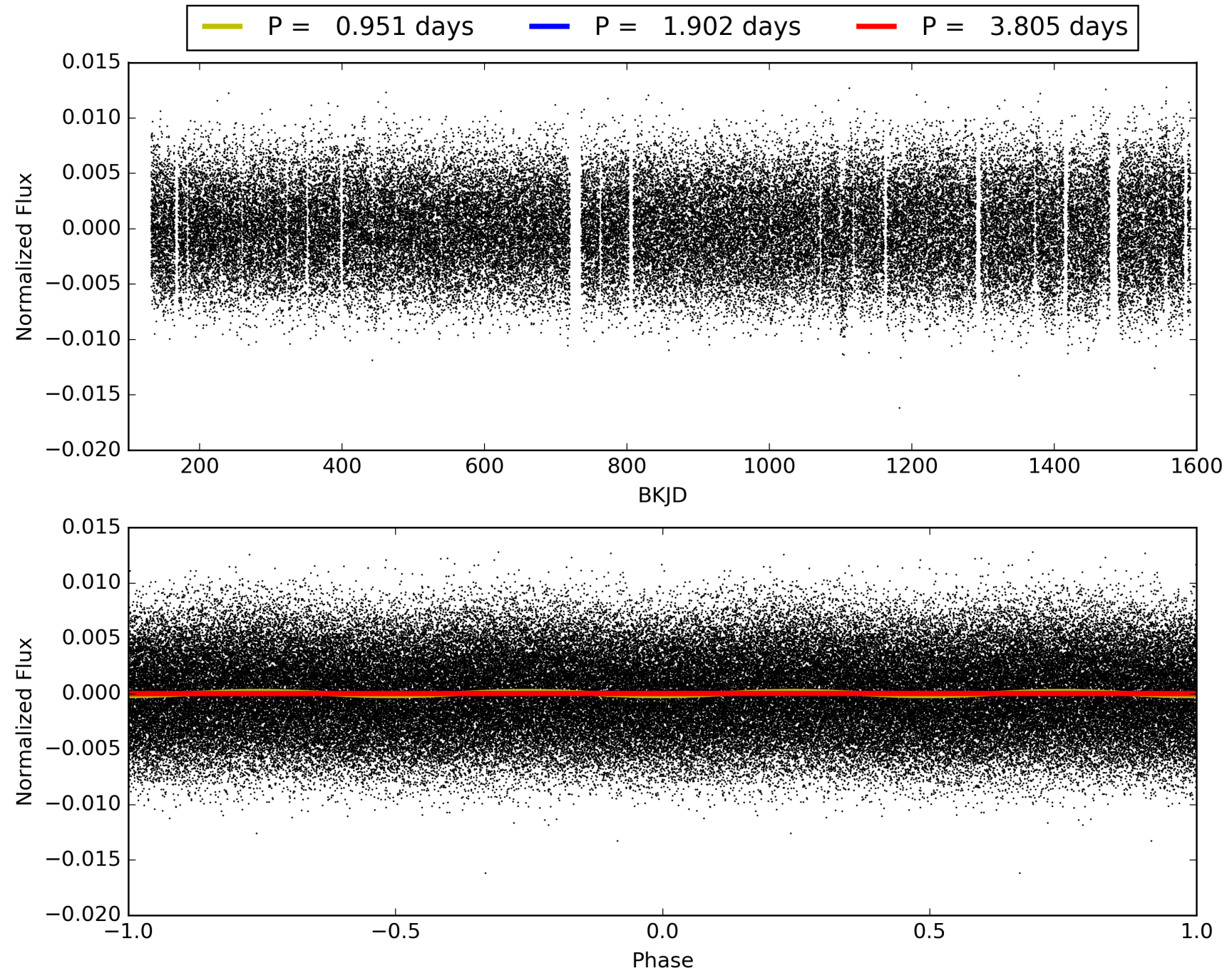
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 004252757-03, PDC Light Curves



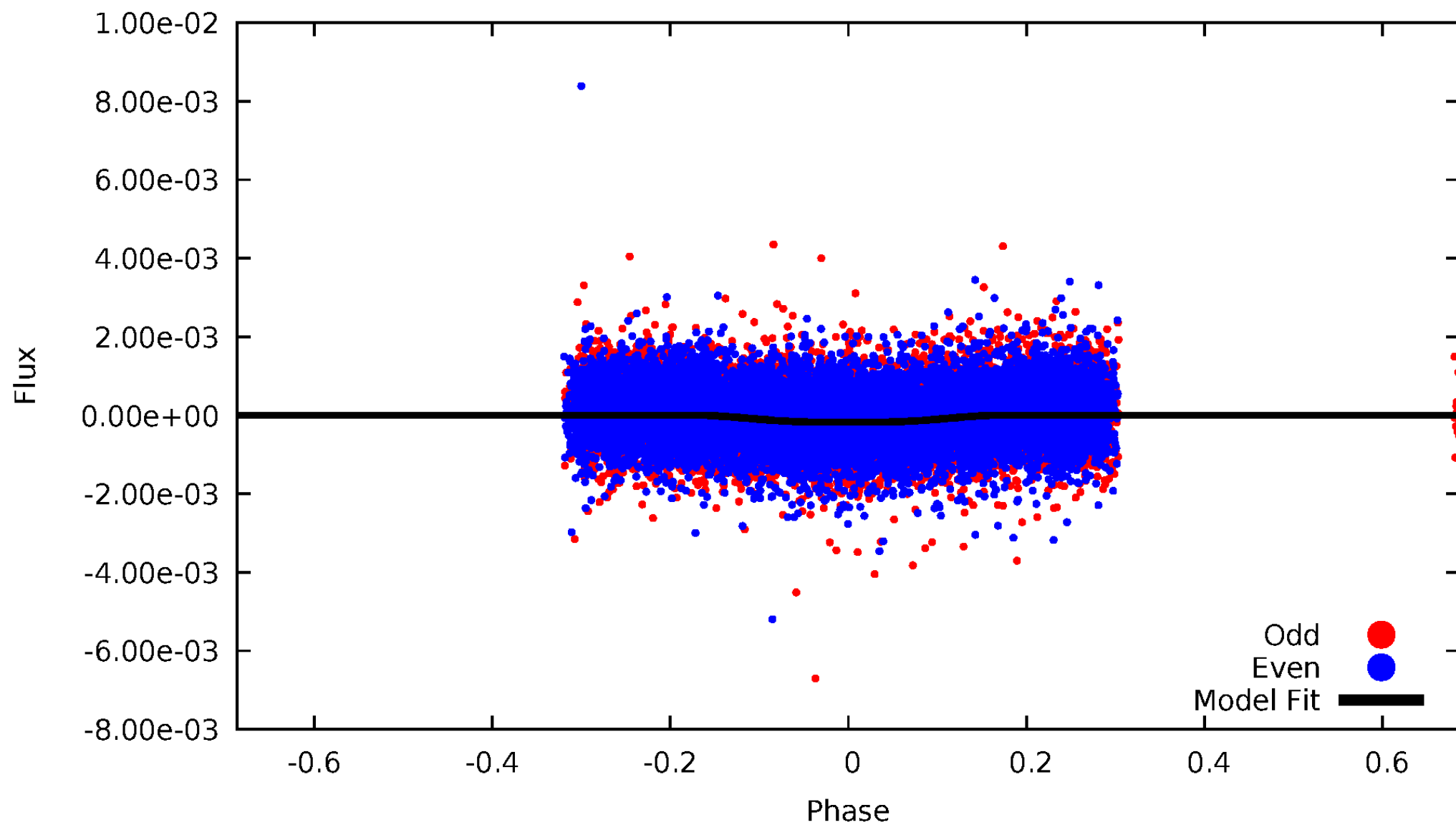


TCE 004252757-03



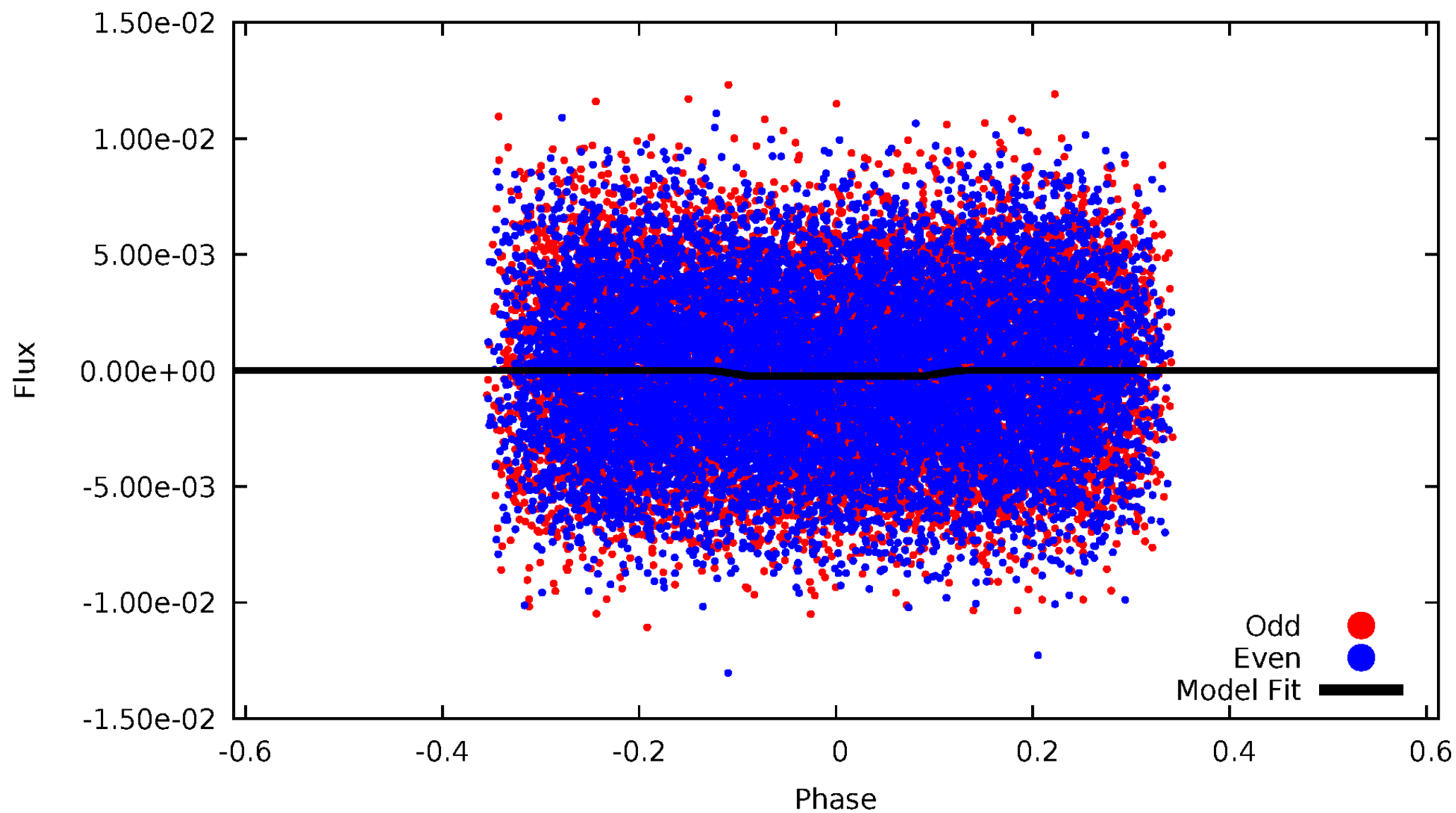
DV Odd/Even

TCE 004252757-03



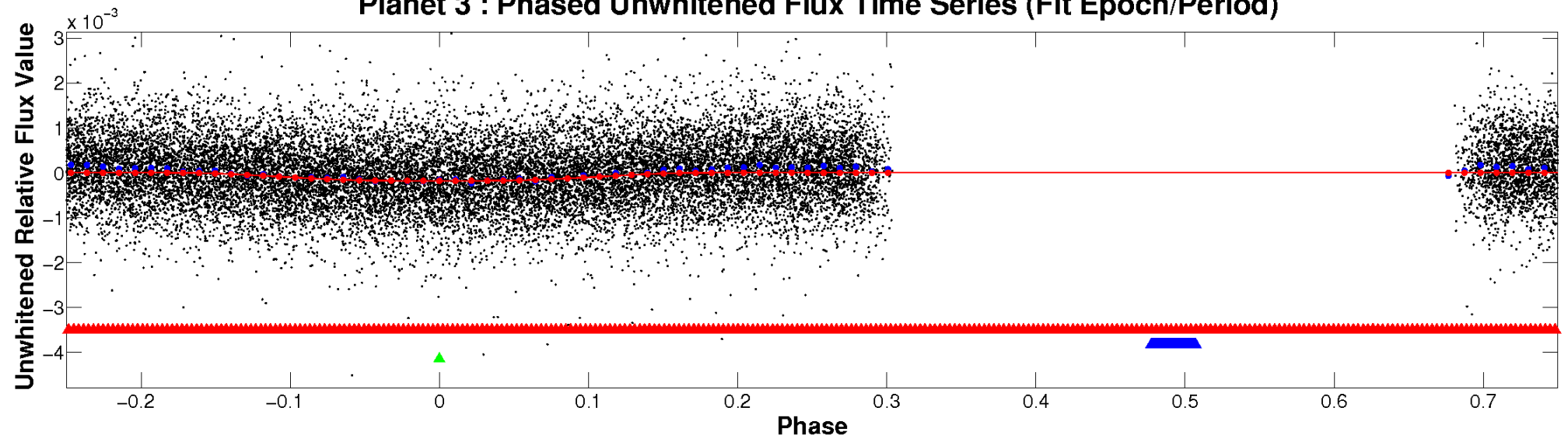
# ALT Odd/Even

TCE 004252757-03

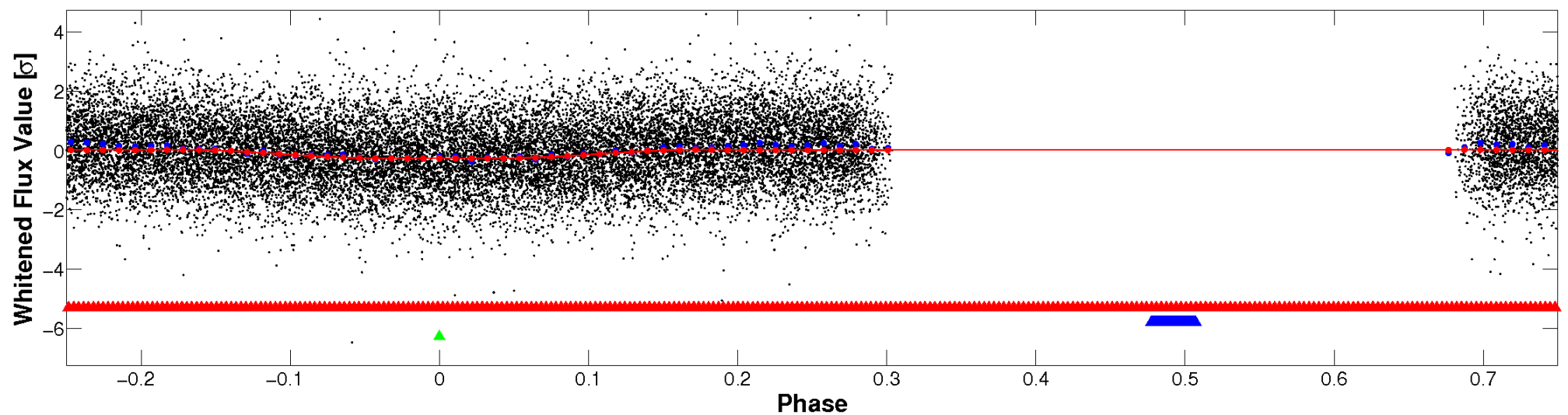


# Non-Whitened Vs. Whitened Light Curve

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



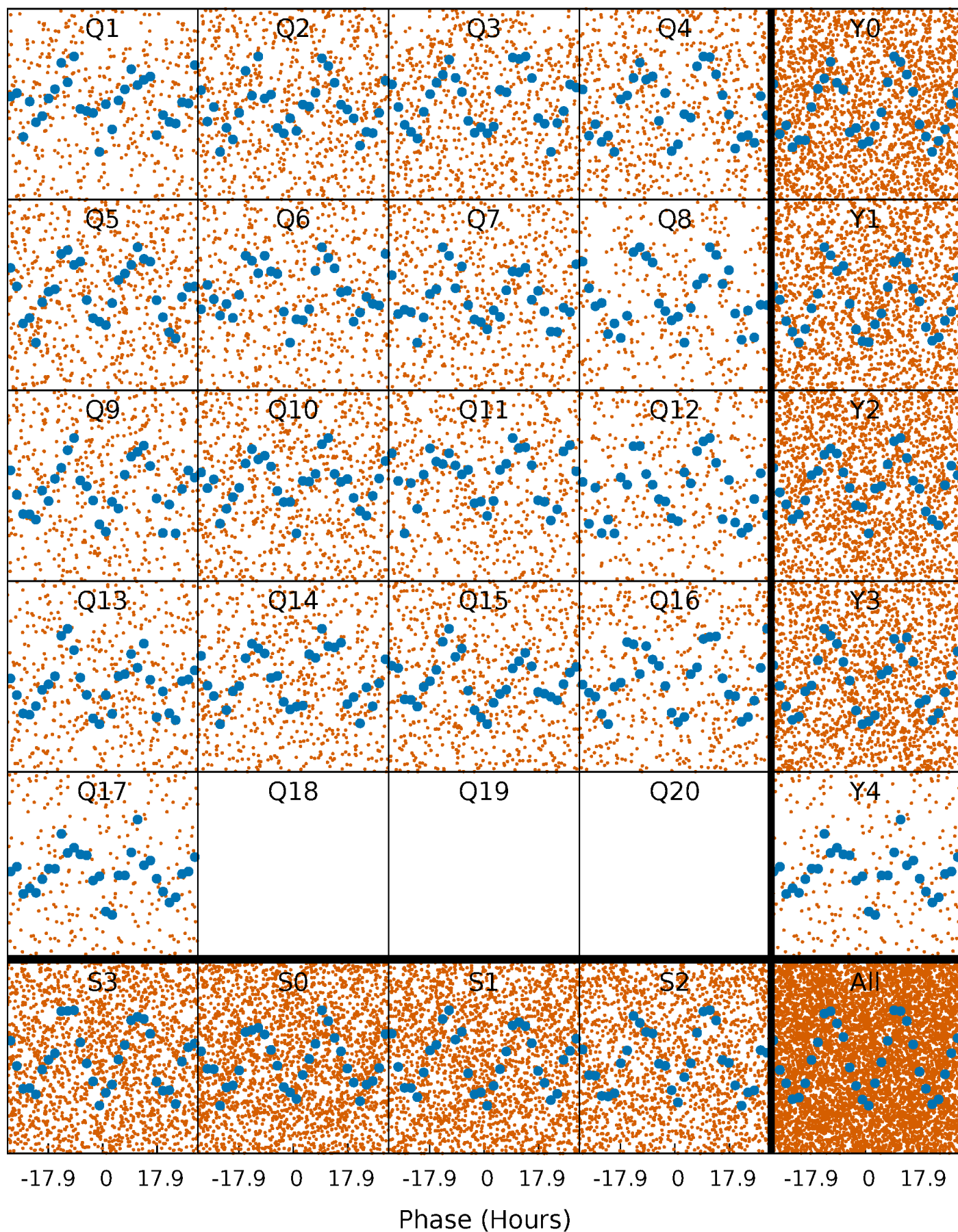
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

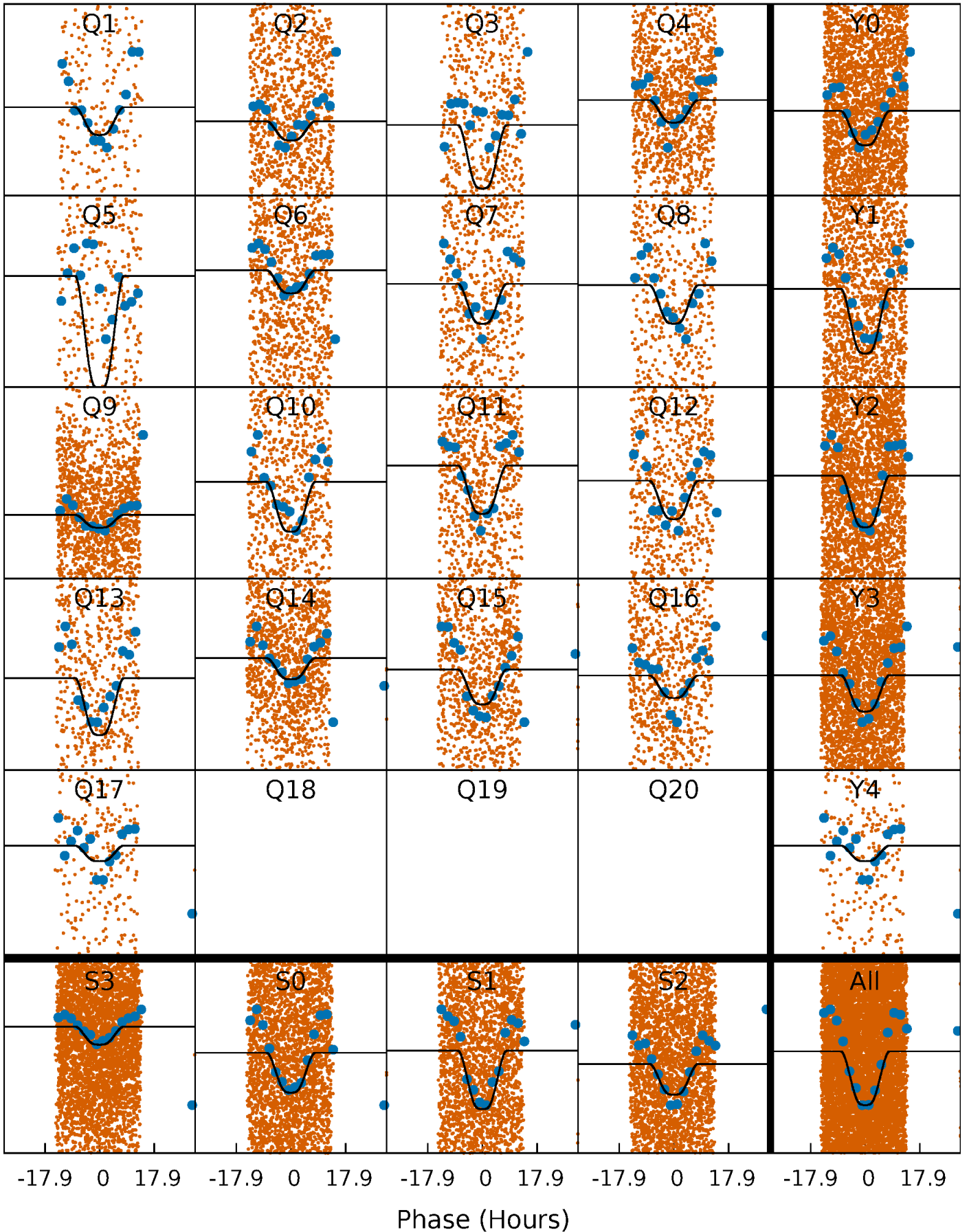
TCE 004252757-03 P= 1.902476 Days  $T_0=132.445209$  (BKJD)





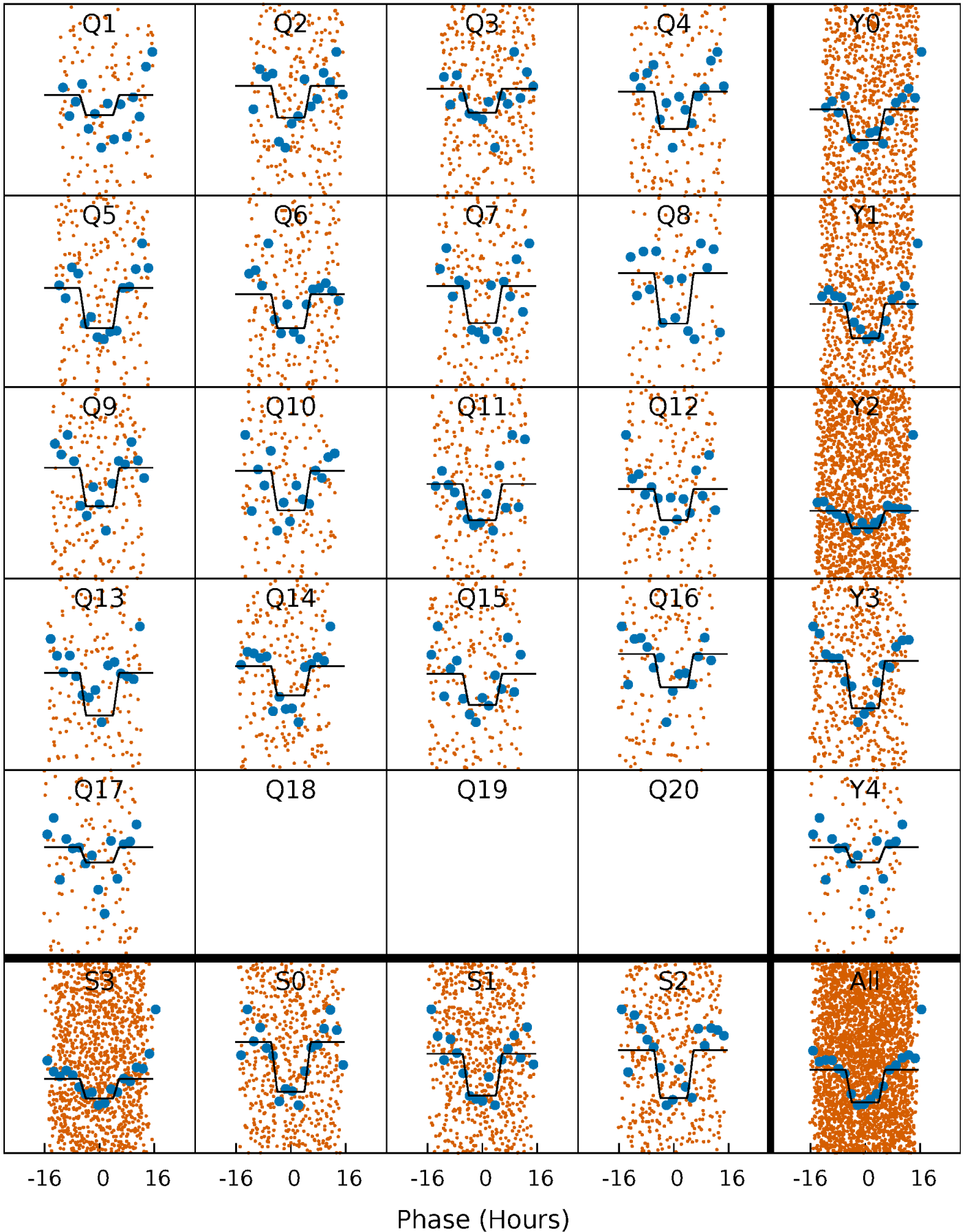
# DV Quarter-Phased Transit Curves

TCE 004252757-03     $P = 1.902476$  Days     $T_0 = 132.445209$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

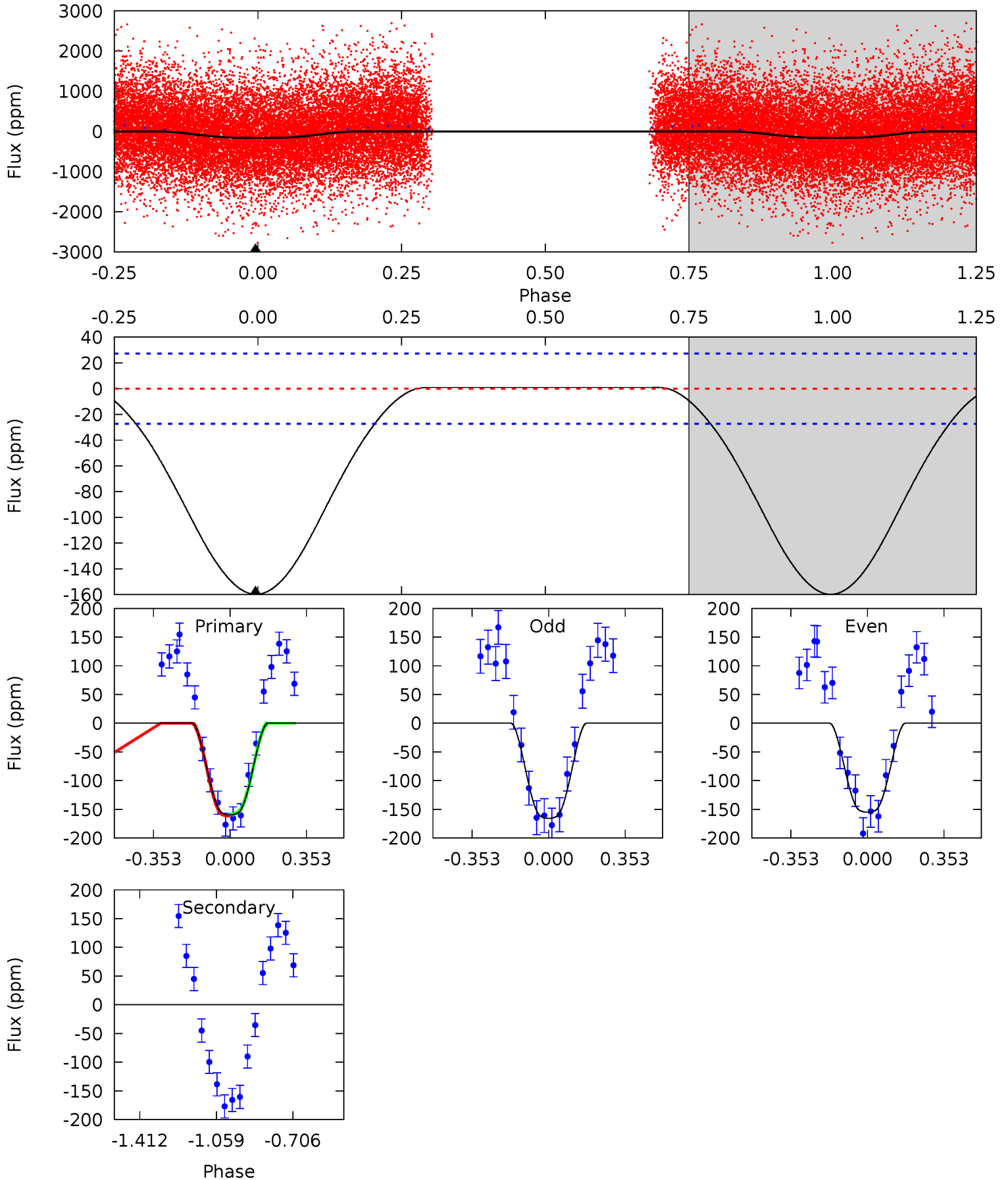
TCE 004252757-03     $P = 1.902662$  Days     $T_0 = 132.372392$  (BKJD)



# DV Model-Shift Uniqueness Test

004252757-03, P = 1.902476 Days, E = 130.542733 Days

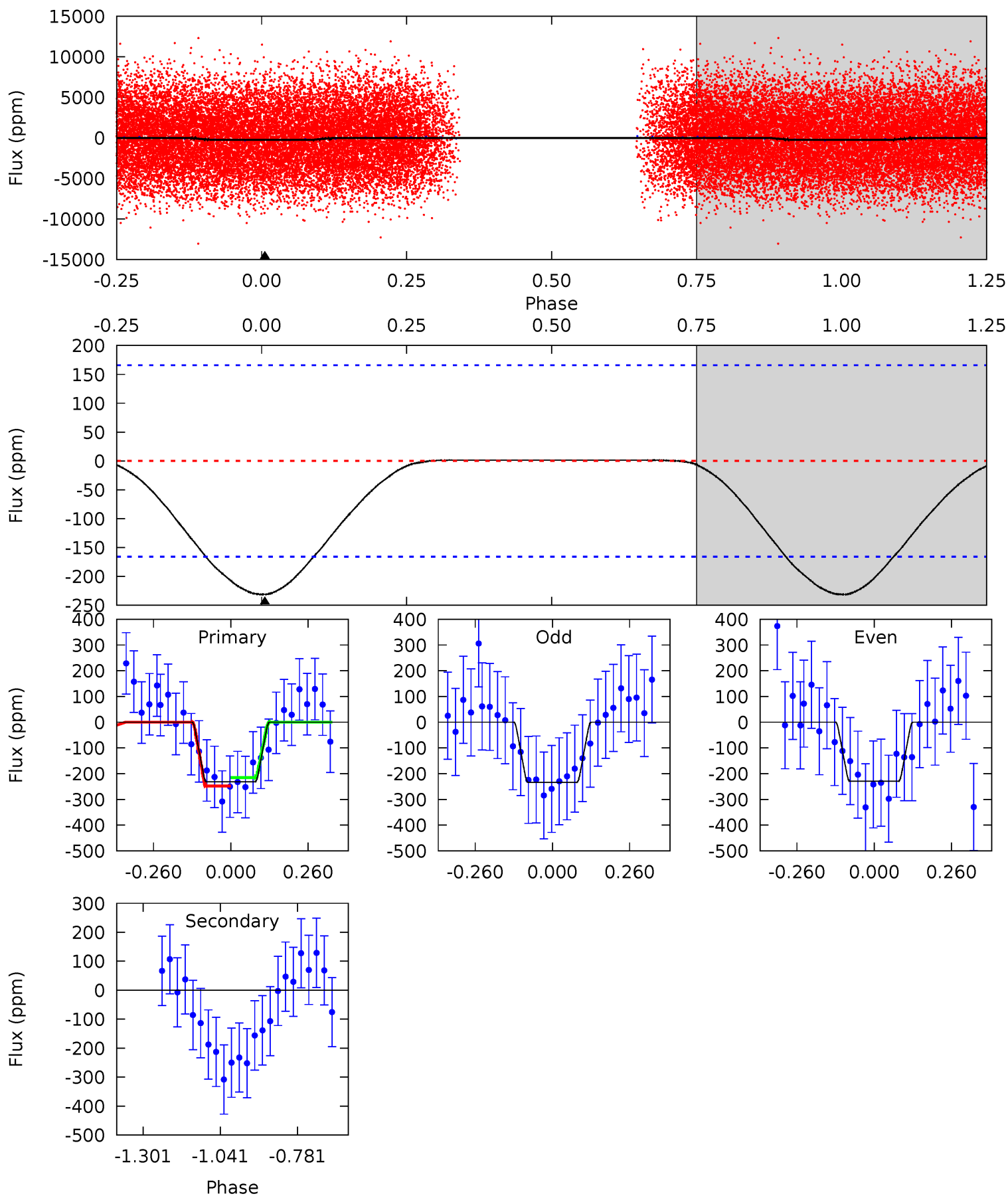
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	0	0	0	4.29	0.93	0.17	25.1	25.1	0	0	0.84	-5.15	0.01	0.25



# Alt Model-Shift Uniqueness Test

004252757-03, P = 1.902662 Days, E = 130.469730 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
6.08	0	0	0	4.36	1.13	0.04	6.08	6.08	0	0	0.05	0.61	0.01	0.45



### Stellar Parameters For KIC 004252757

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7540^{+82}_{-82}$	$3.969^{+0.143}_{-0.104}$	$-0.080^{+0.150}_{-0.150}$	$2.258^{+0.408}_{-0.408}$	$1.730^{+0.187}_{-0.153}$	$0.212^{+0.146}_{-0.067}$
	+1%/-1%	+4%/-3%	+188%/-188%	+18%/-18%	+11%/-9%	+69%/-32%
Source	SPE68	SPE68	SPE68	DSEP		

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

### Secondary Eclipse Parameters for KIC 004252757-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 6$	$3.91^{+0.44}_{-0.38}$	$3659^{+154}_{-168}$	$-3471^{+5595}_{-389}$	$-0.000^{+0.307}_{-0.296}$
Alt.	$0 \pm 38$	$3.80^{+0.45}_{-0.41}$	$3662^{+166}_{-182}$	$-3523^{+8143}_{-1468}$	$-0.049^{+1.919}_{-1.937}$

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



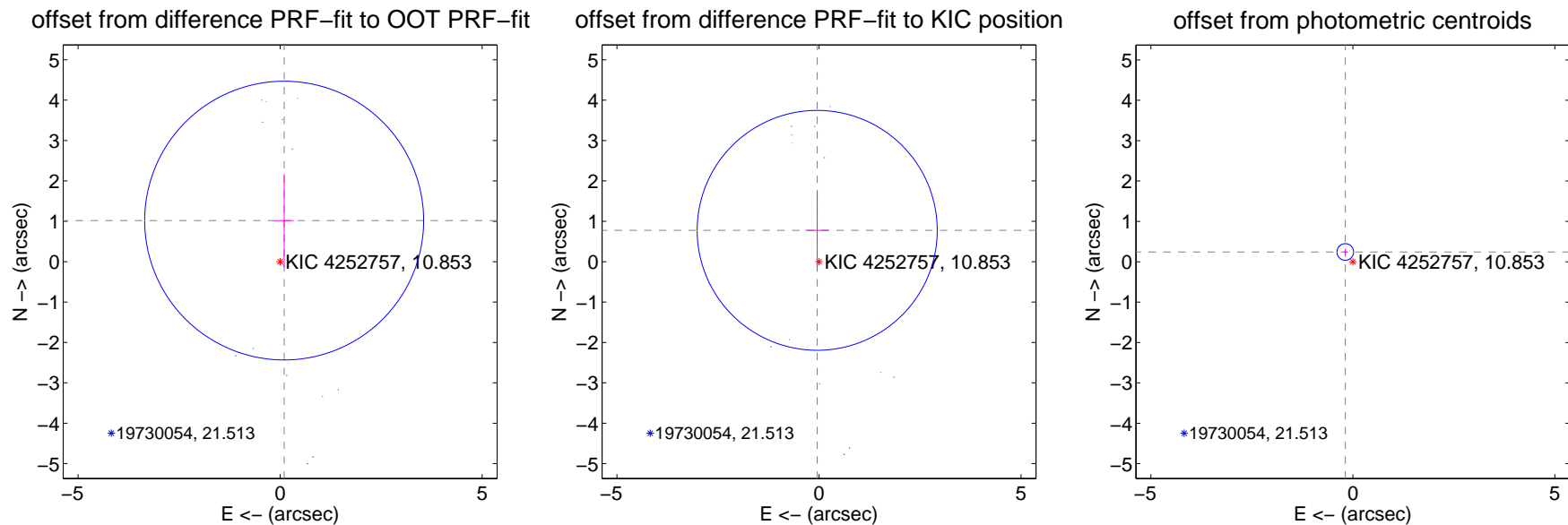
## DV Centroid Data

Supplemental centroid analysis for 004252757-03. **Kepler magnitude: 10.85.** Transit SNR 19.59

There are 7 quarters with good PRF difference image offsets

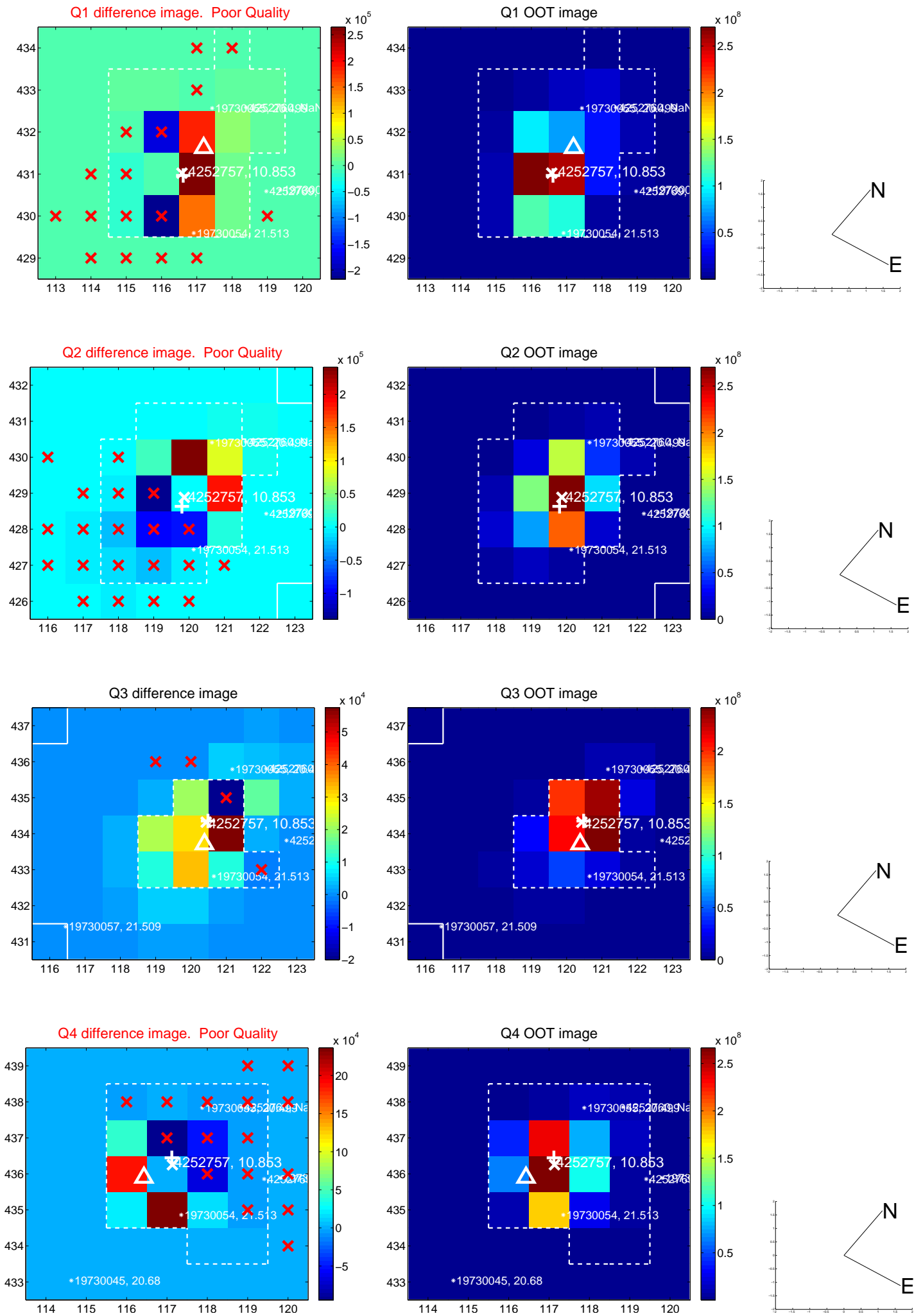
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.023 \pm 1.151$	0.89	$-0.100 \pm 0.234$	$1.018 \pm 1.156$
PRF-fit source offset from KIC position	$0.778 \pm 0.990$	0.79	$0.044 \pm 0.290$	$0.777 \pm 0.992$
photometric centroid source offset	<b><math>0.31 \pm 0.07</math></b>	<b>4.47</b>	$0.19 \pm 0.05$	$0.24 \pm 0.08$

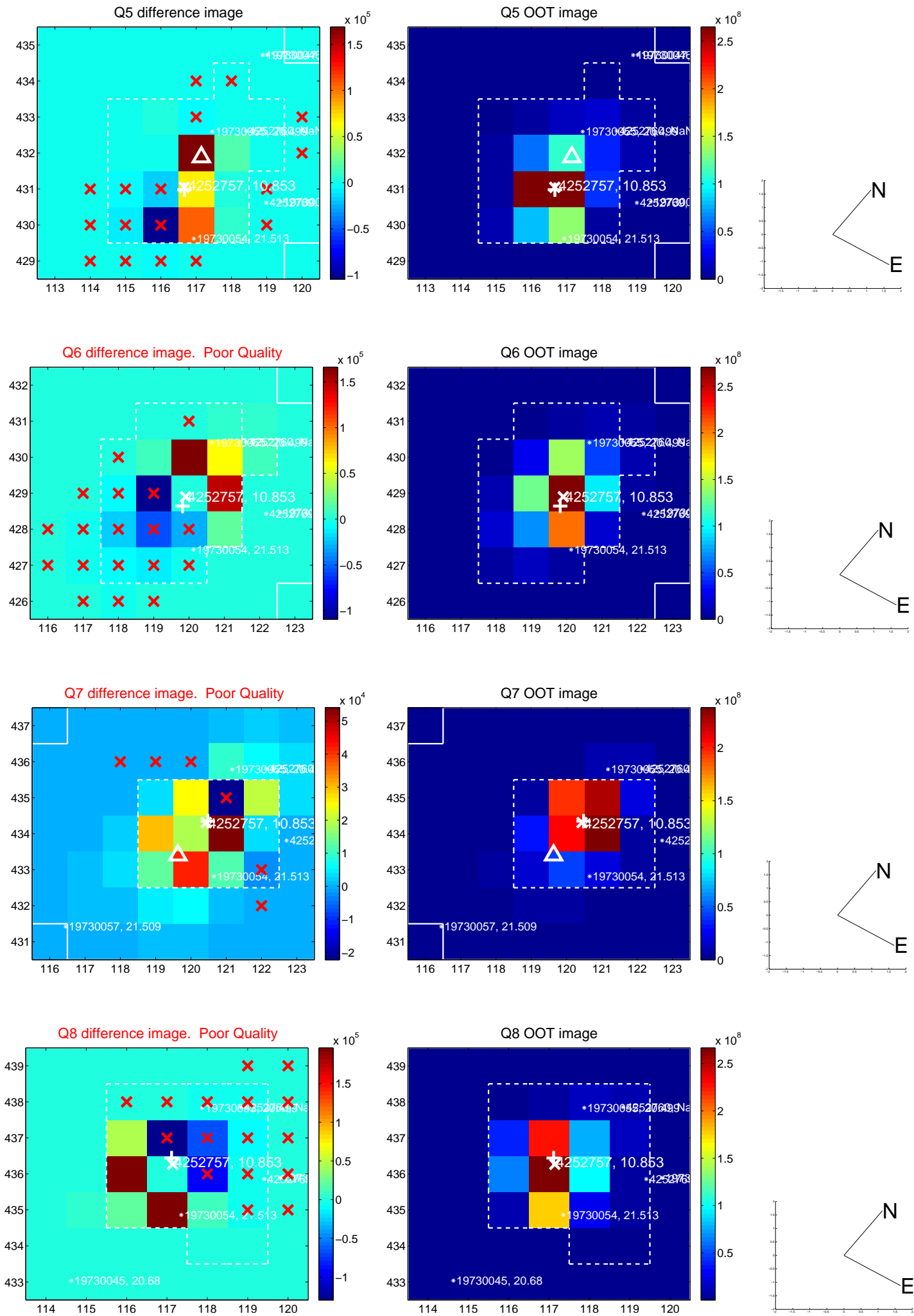


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

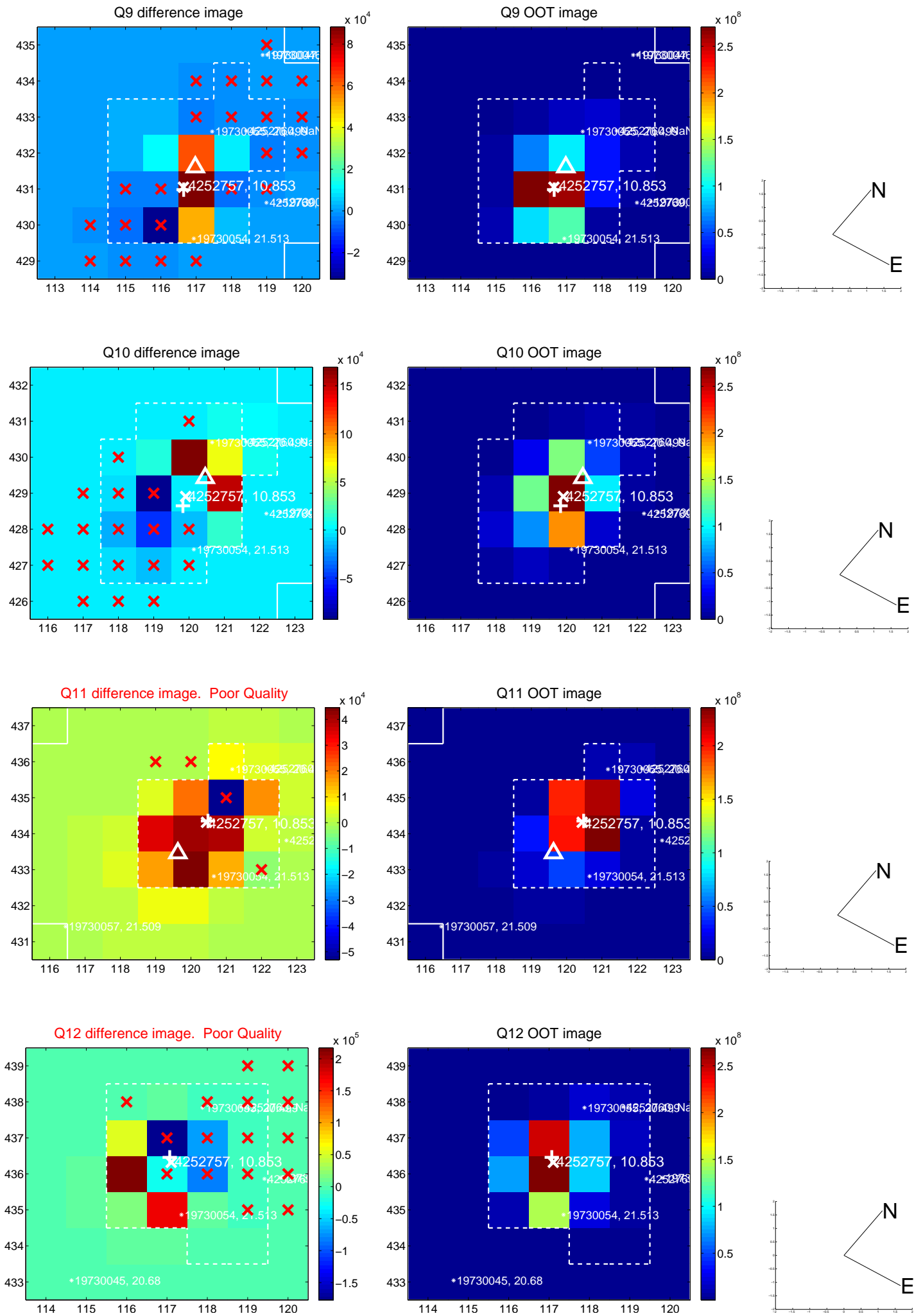
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



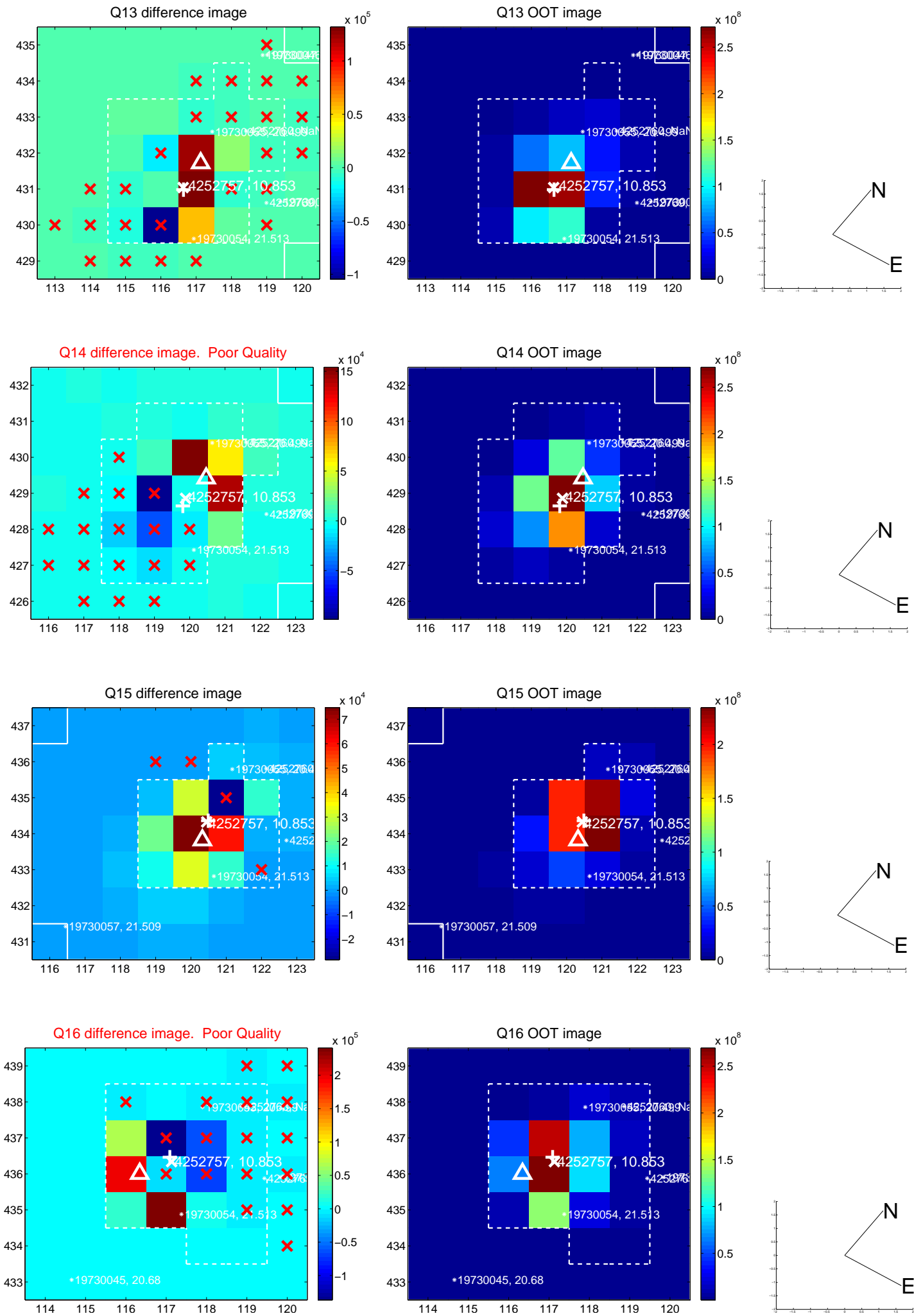
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

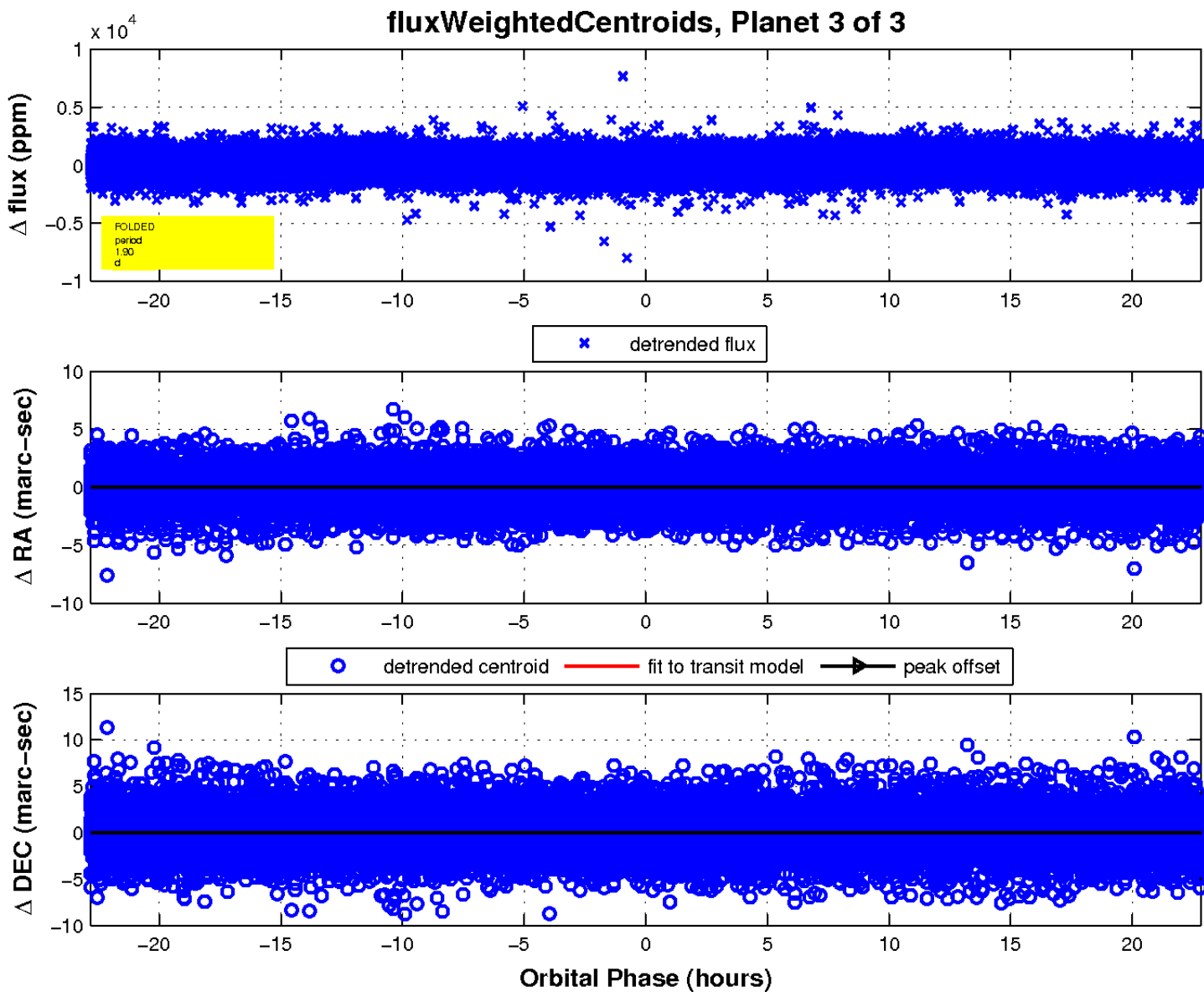
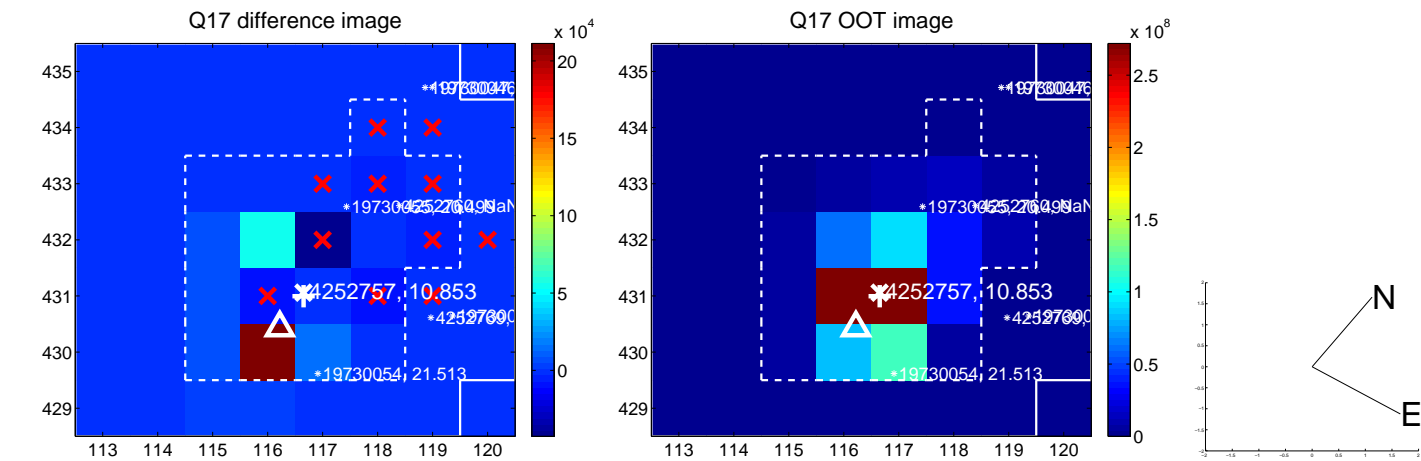


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

