

# KIC 006705026

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006705026-01	OBS	3374.01	9.508429	140.561823	84.5	4.553	11.6	10.9	1.67	6144	1.79	387.27
006705026-02	OBS	3374.02	34.107505	158.429545	128.1	6.940	9.5	10.5	1.67	6144	2.09	70.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006705026-01	OBS	PC	0.97	0	0	0	0	NO_COMMENT
006705026-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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

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

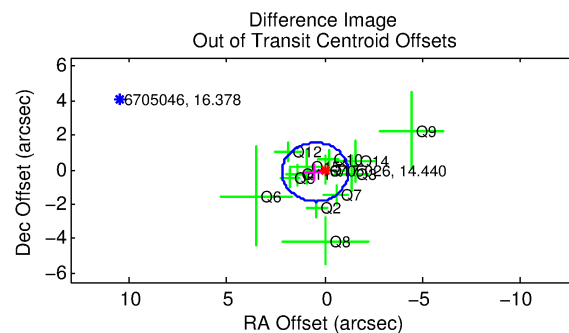
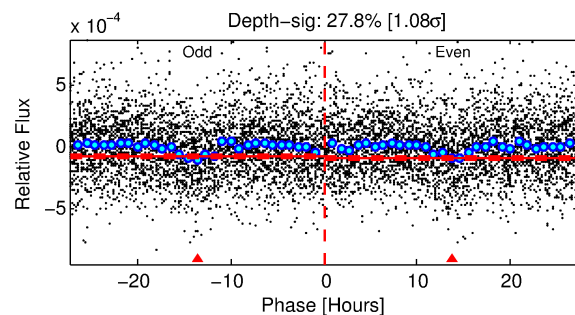
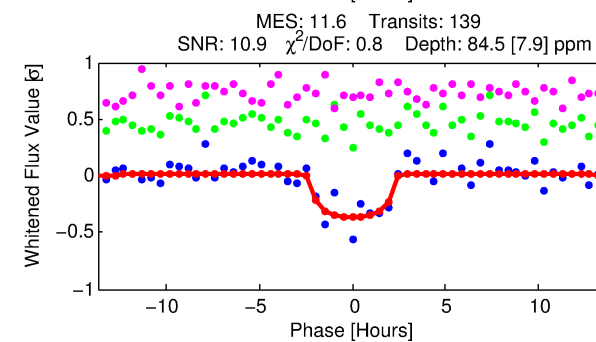
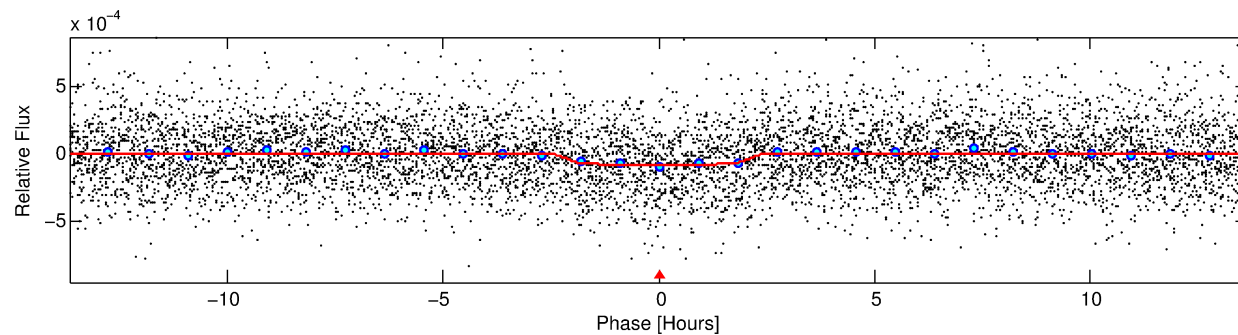
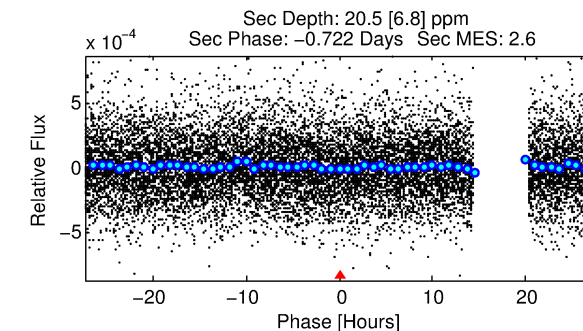
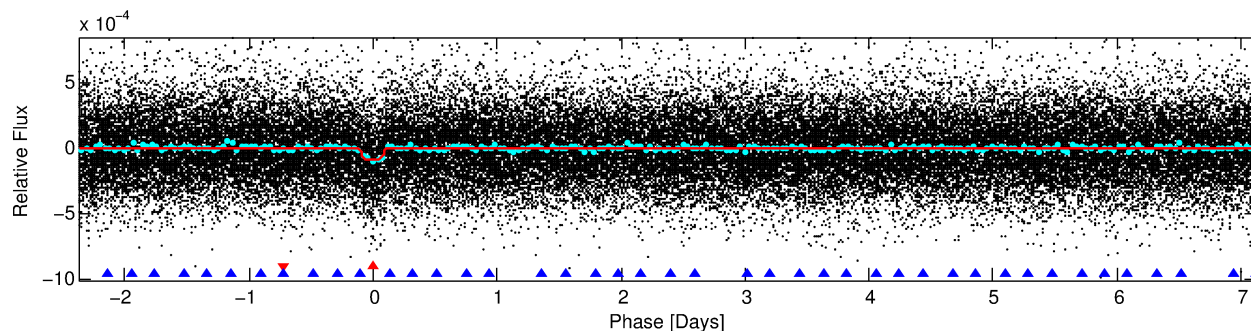
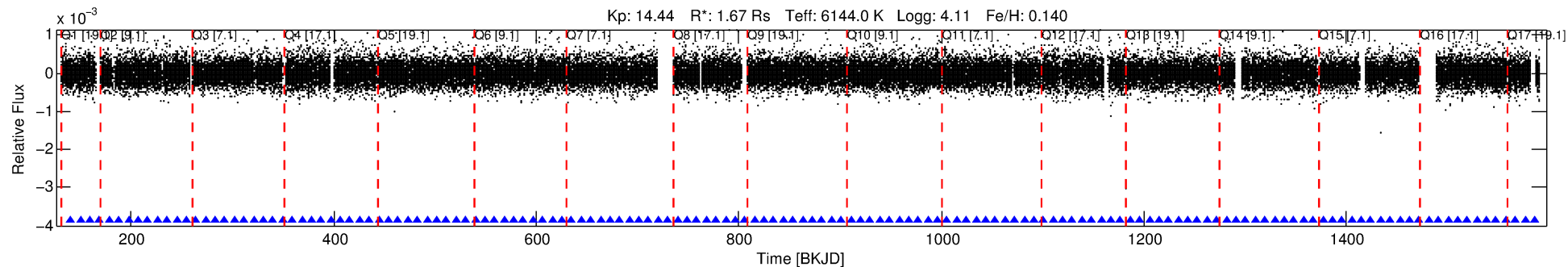
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006705026-01

No Significant Match Found

# DV One-Page Summary

KIC: 6705026 Candidate: 1 of 2 Period: 9.508 d  
KOI: K03374.01 Corr: 0.972



## DV Fit Results:

Period = 9.50843 [0.00010] d  
Epoch = 140.5618 [0.0080] BKJD  
Rp/R\* = 0.0098 [0.0046]  
a/R\* = 7.69 [18.51]  
b = 0.89 [0.58]  
Seff = 387.27 [109.61]  
Teq = 1131 [80] K  
Rp = 1.79 [0.92] Re  
a = 0.0958 [0.0173] AU  
Ag = 32.28 [33.53] [0.93σ]  
Teffp = 4169 [1044] K [2.90σ]

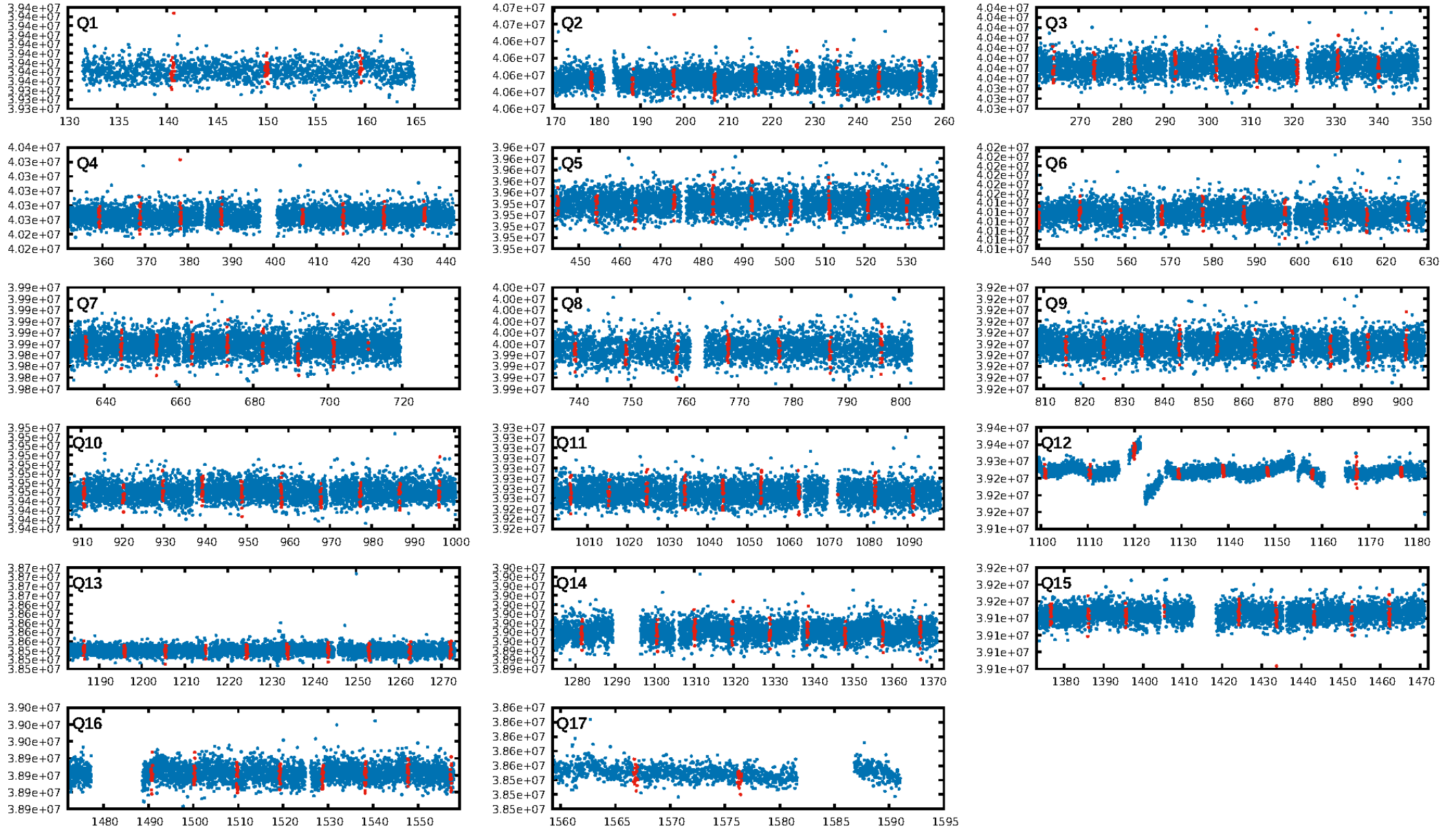
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [71.13σ]  
ModelChiSquare2-sig: 99.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.81e-30  
RollingBand-fgt: 1.00 [134/134]  
GhostDiagnostic-chr: -8.492  
Centroid-sig: 0.0%  
Centroid-so: 3.148 arcsec [2.74σ]  
OotOffset-rm: 0.504 arcsec [0.89σ]  
KicOffset-rm: 0.436 arcsec [0.77σ]  
OotOffset-st: 4/4/2/3 [13]  
KicOffset-st: 4/4/2/3 [13]  
DiffImageQuality-fgm: 0.69 [9/13]  
DiffImageOverlap-fno: 1.00 [17/17]

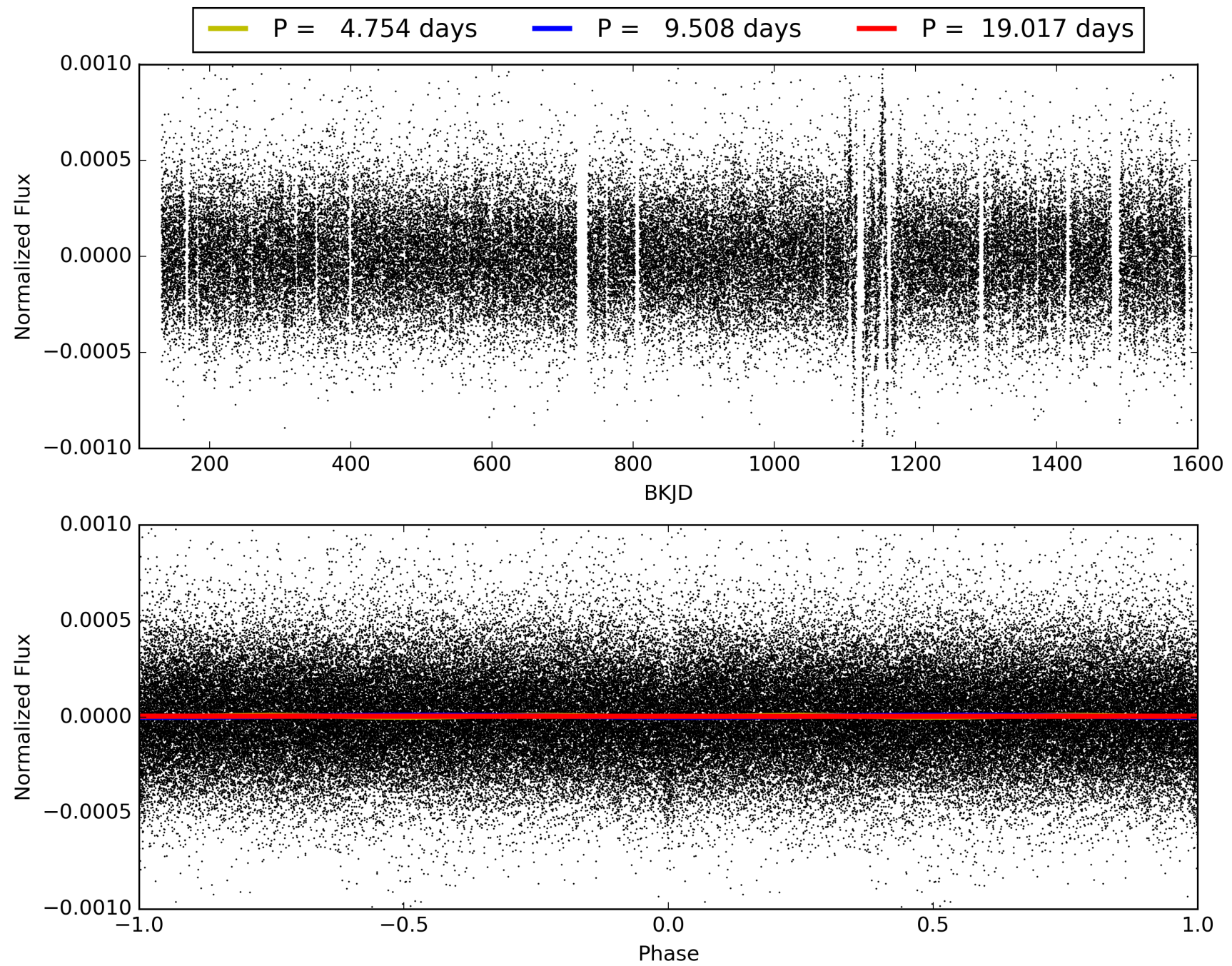
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:18:21 Z

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

# TCE 006705026-01, PDC Light Curves



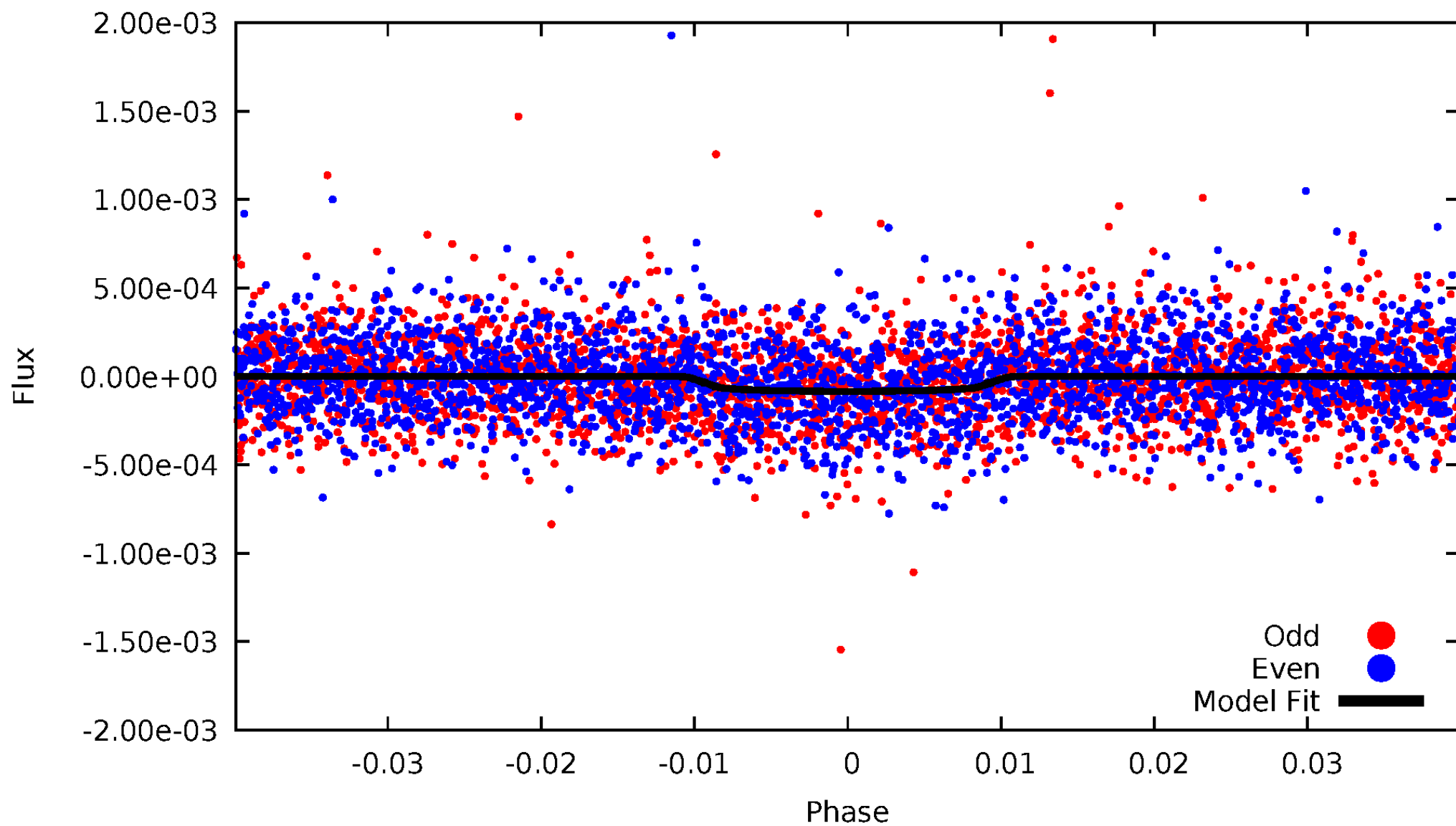
TCE 006705026-01





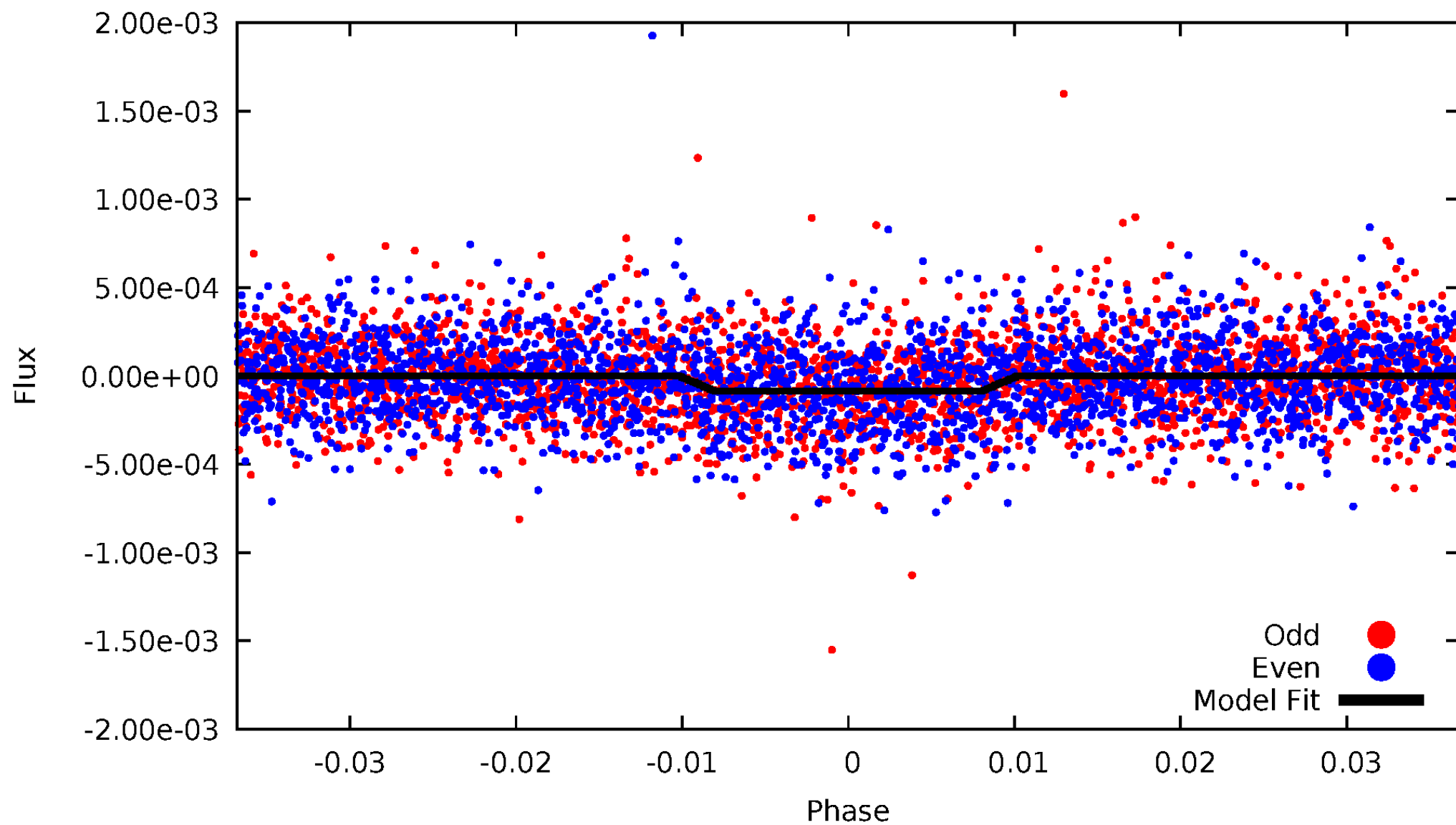
# DV Odd/Even

TCE 006705026-01

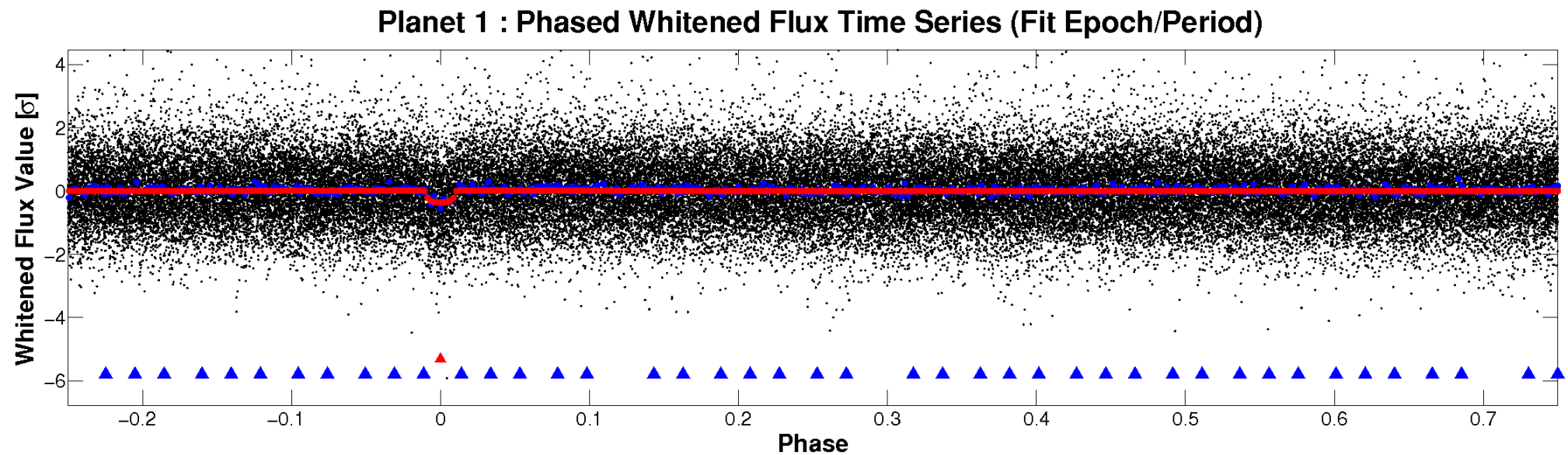
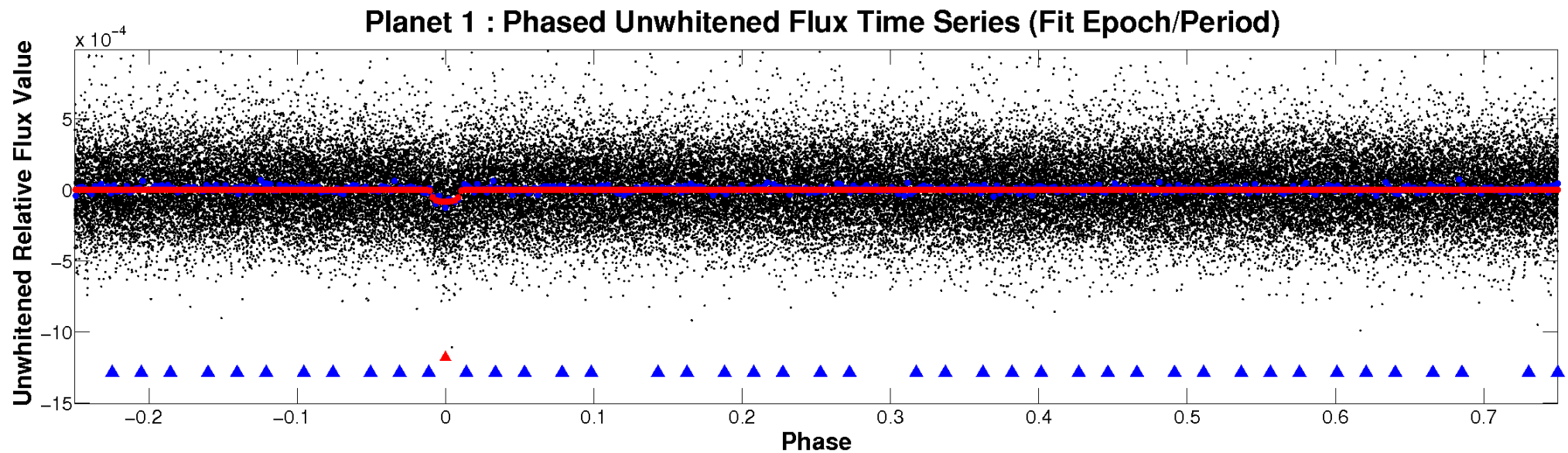


# ALT Odd/Even

TCE 006705026-01

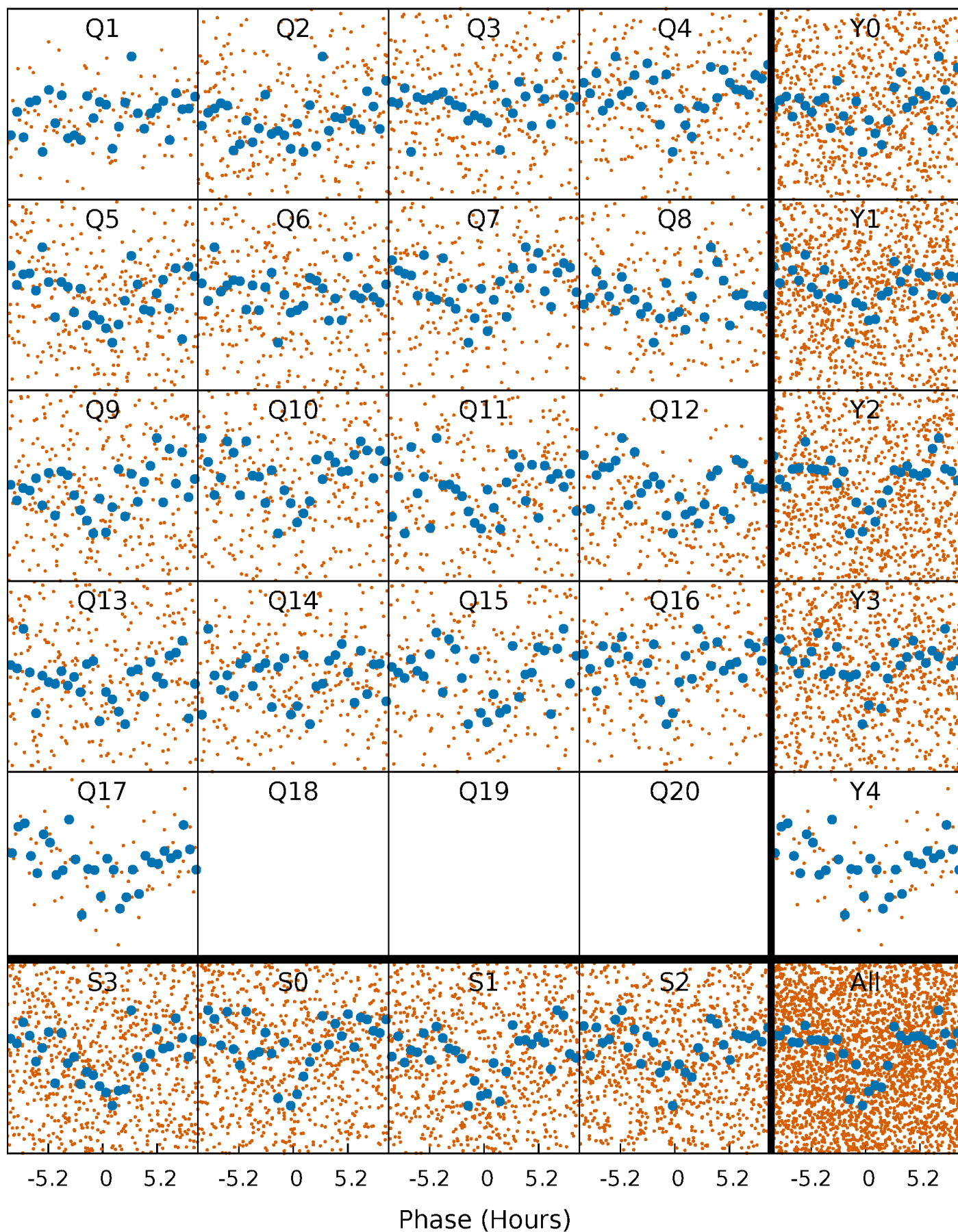


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

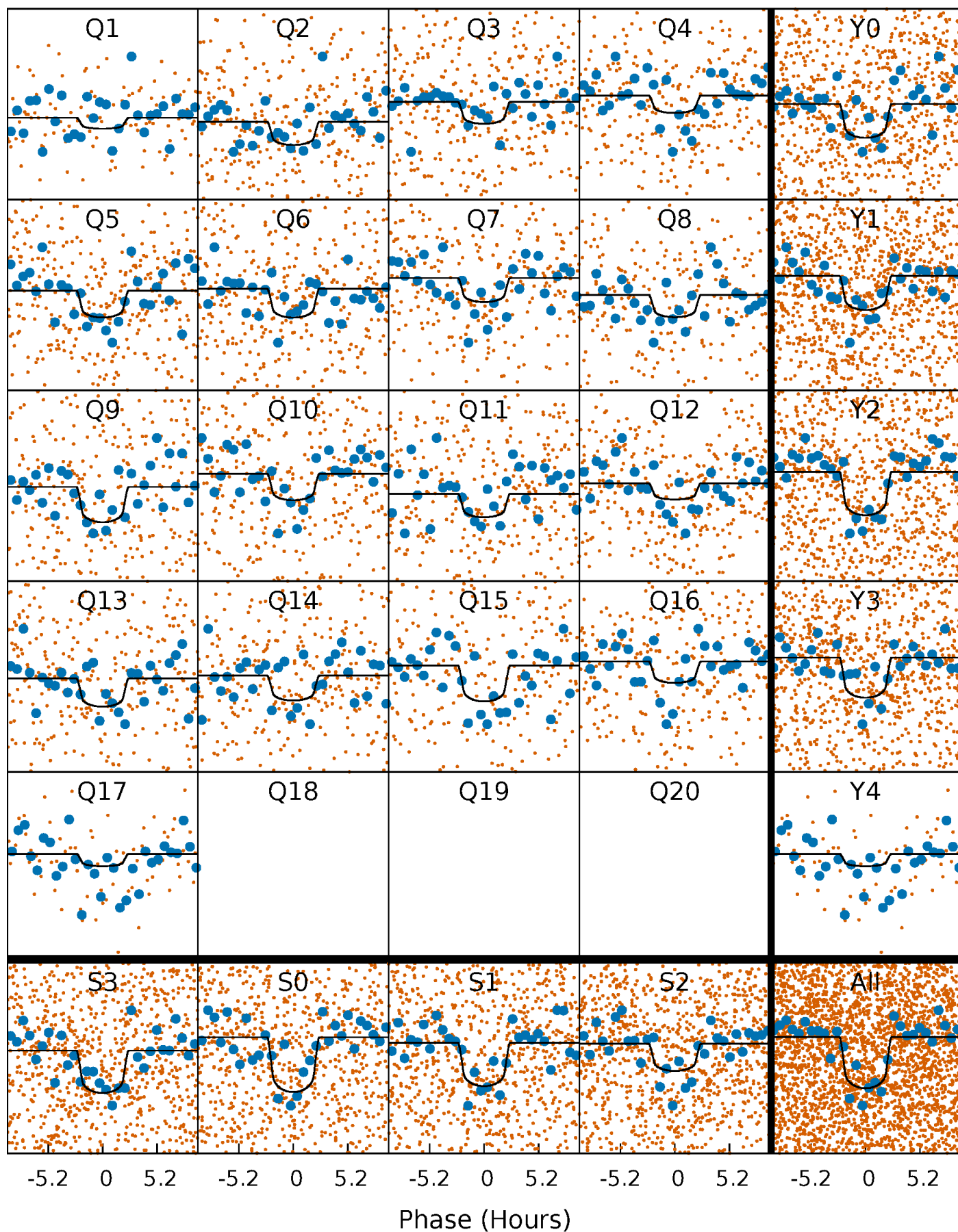
TCE 006705026-01 P= 9.508429 Days  $T_0=140.561823$  (BKJD)





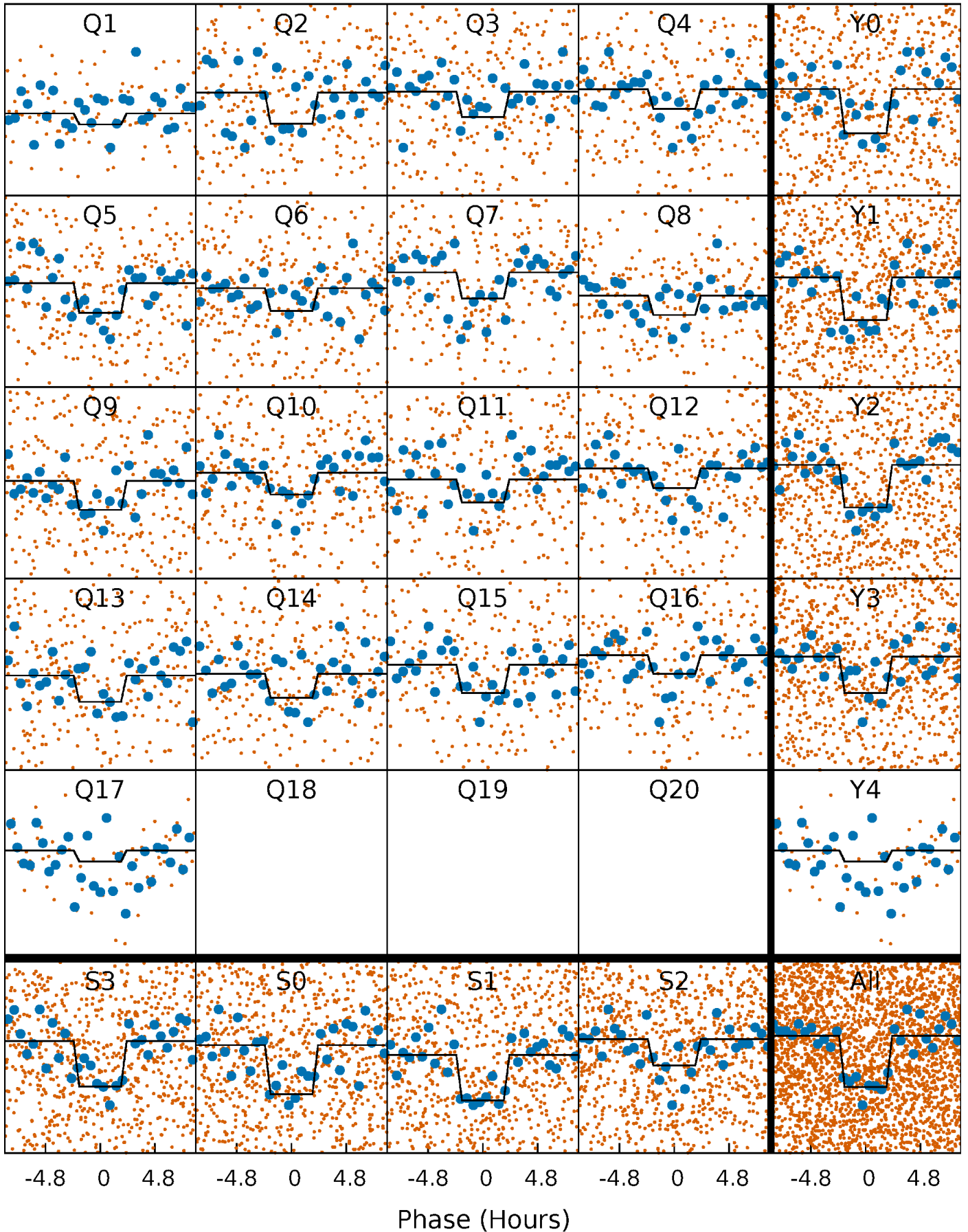
# DV Quarter-Phased Transit Curves

TCE 006705026-01 P= 9.508429 Days  $T_0=140.561823$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

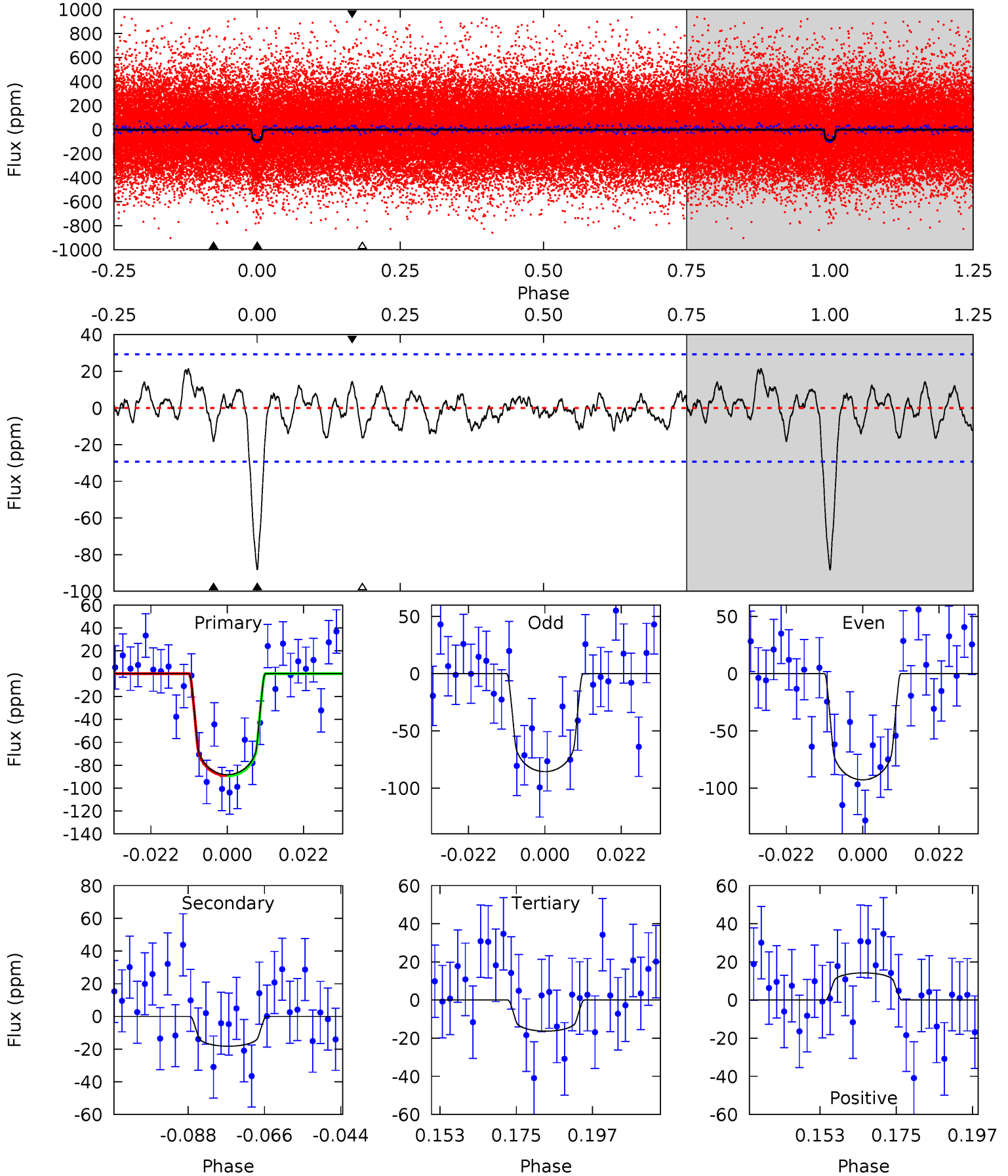
TCE 006705026-01 P= 9.508450 Days  $T_0=140.564047$  (BKJD)



# DV Model-Shift Uniqueness Test

006705026-01, P = 9.508429 Days, E = 131.053394 Days

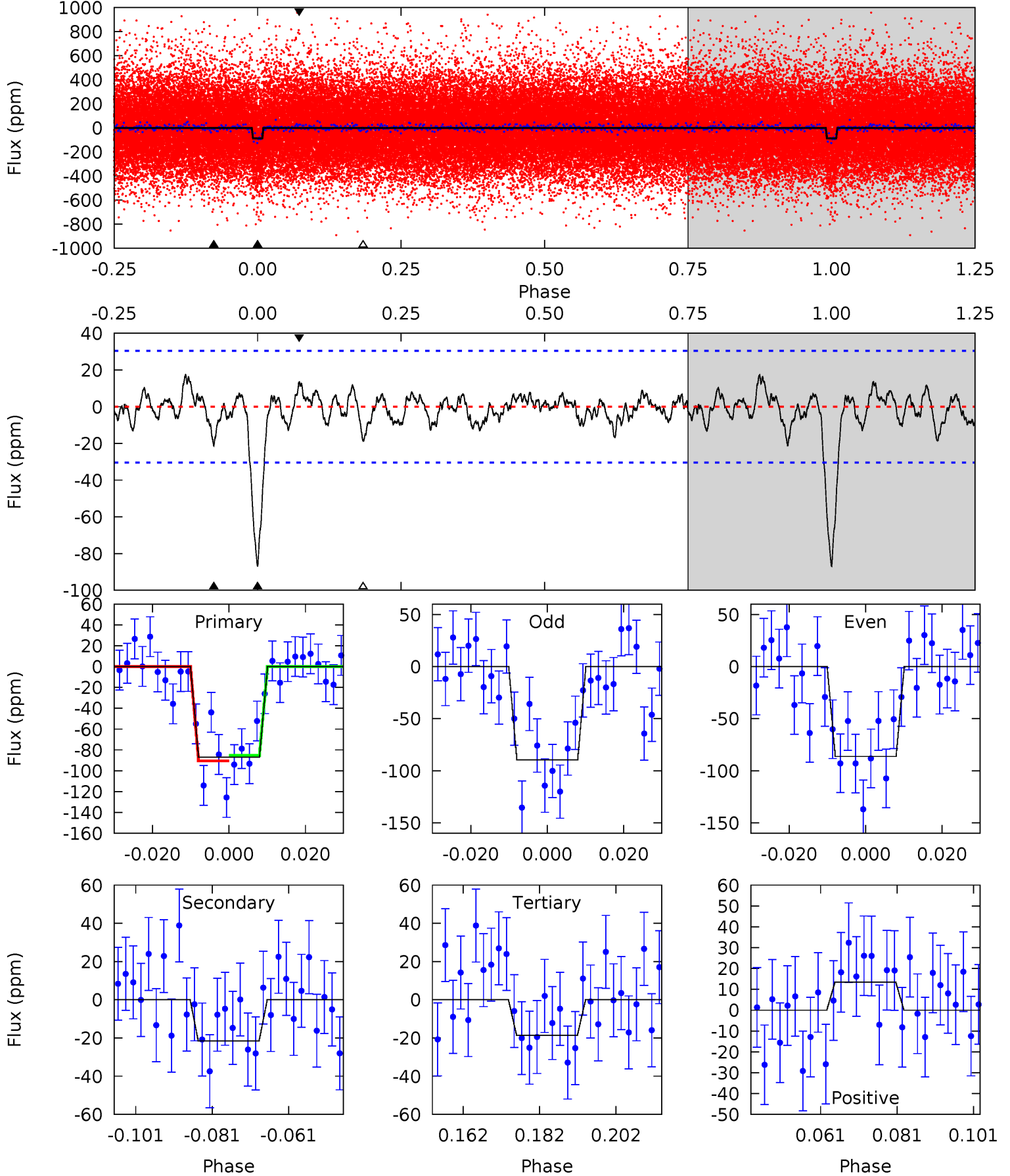
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	3.03	2.71	2.37	4.87	2.29	1.12	12.0	12.3	0.32	0.66	0.59	0.97	0.20	0.02



# Alt Model-Shift Uniqueness Test

006705026-01, P = 9.508450 Days, E = 131.055597 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	3.47	2.99	2.17	4.89	2.32	0.95	11.0	11.8	0.48	1.30	0.26	1.02	0.17	0.42





### Stellar Parameters For KIC 006705026

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6144^{+80}_{-80}$	$4.106^{+0.159}_{-0.130}$	$0.140^{+0.150}_{-0.150}$	$1.668^{+0.334}_{-0.334}$	$1.296^{+0.121}_{-0.145}$	$0.393^{+0.312}_{-0.149}$
	+1%/-1%	+4%/-3%	+107%/-107%	+20%/-20%	+9%/-11%	+79%/-38%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 006705026-01 / KOI 3374.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-18 \pm 6$	$1.74^{+0.89}_{-0.77}$	$1576^{+79}_{-78}$	$4269^{+1212}_{-586}$	$29^{+74}_{-17}$
Alt.	$-22 \pm 6$	$1.72^{+0.88}_{-0.81}$	$1582^{+86}_{-93}$	$4447^{+1428}_{-628}$	$37^{+98}_{-22}$

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

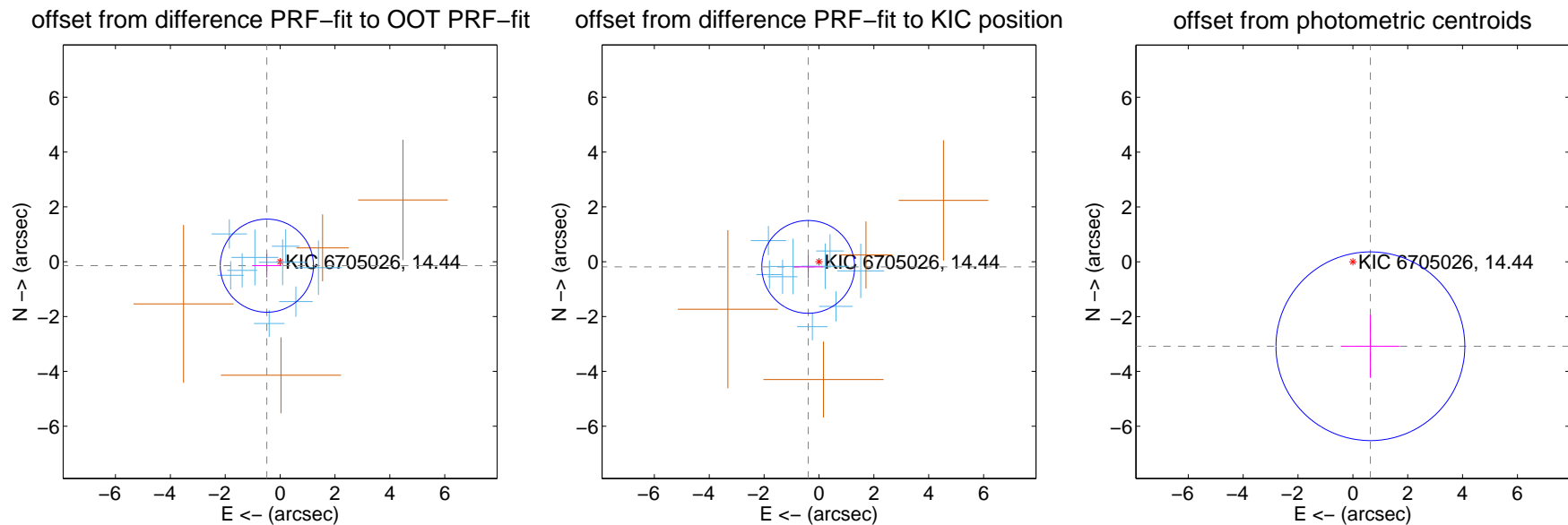
## DV Centroid Data

Supplemental centroid analysis for 006705026-01. Kepler magnitude: 14.44. Transit SNR 10.92

There are 9 quarters with good PRF difference image offsets

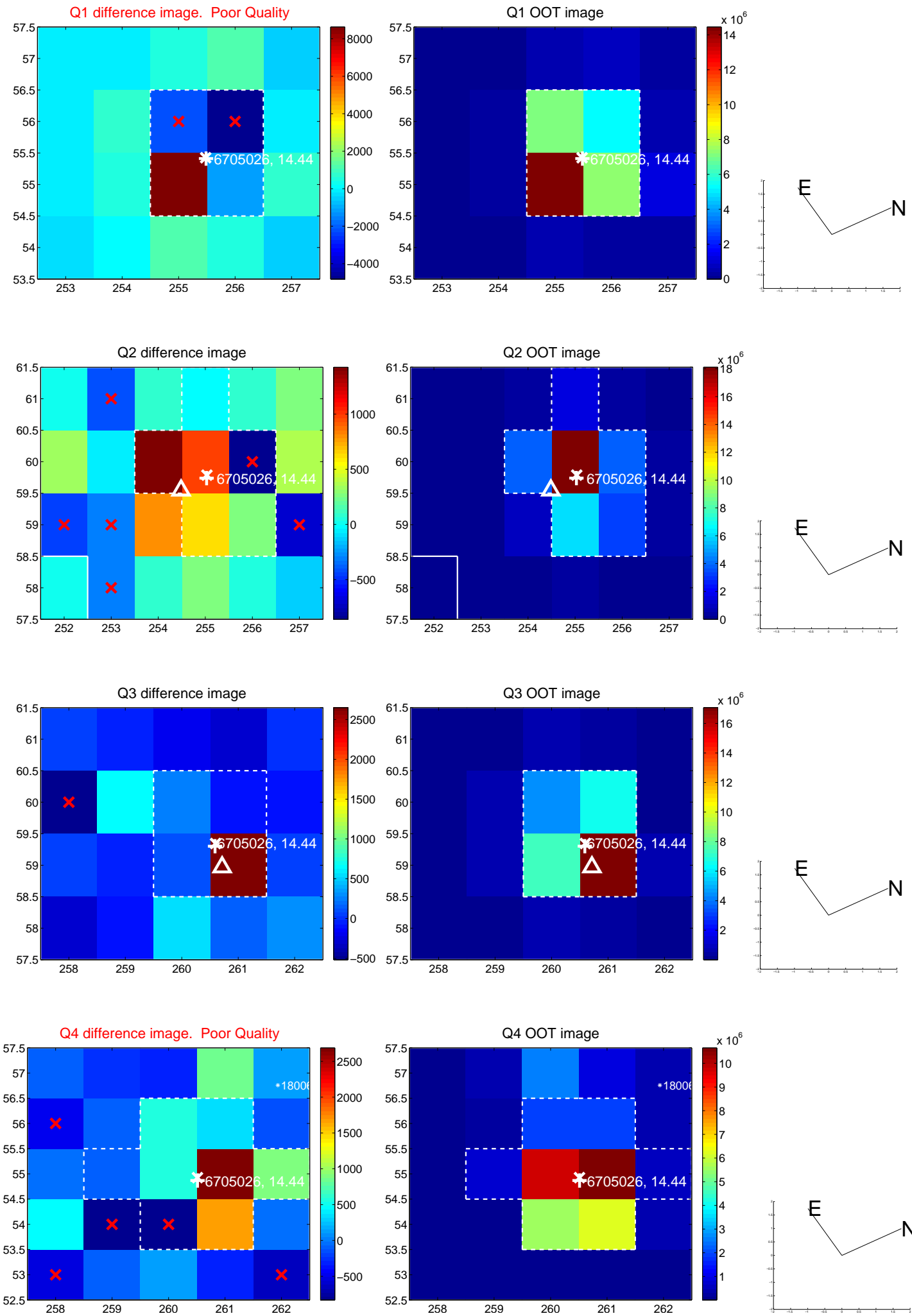
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.504 \pm 0.566$	0.89	$0.483 \pm 0.537$	$-0.145 \pm 0.429$
PRF-fit source offset from KIC position	$0.436 \pm 0.564$	0.77	$0.393 \pm 0.524$	$-0.190 \pm 0.419$
photometric centroid source offset	$3.15 \pm 1.15$	2.74	$-0.64 \pm 1.06$	$-3.08 \pm 1.15$

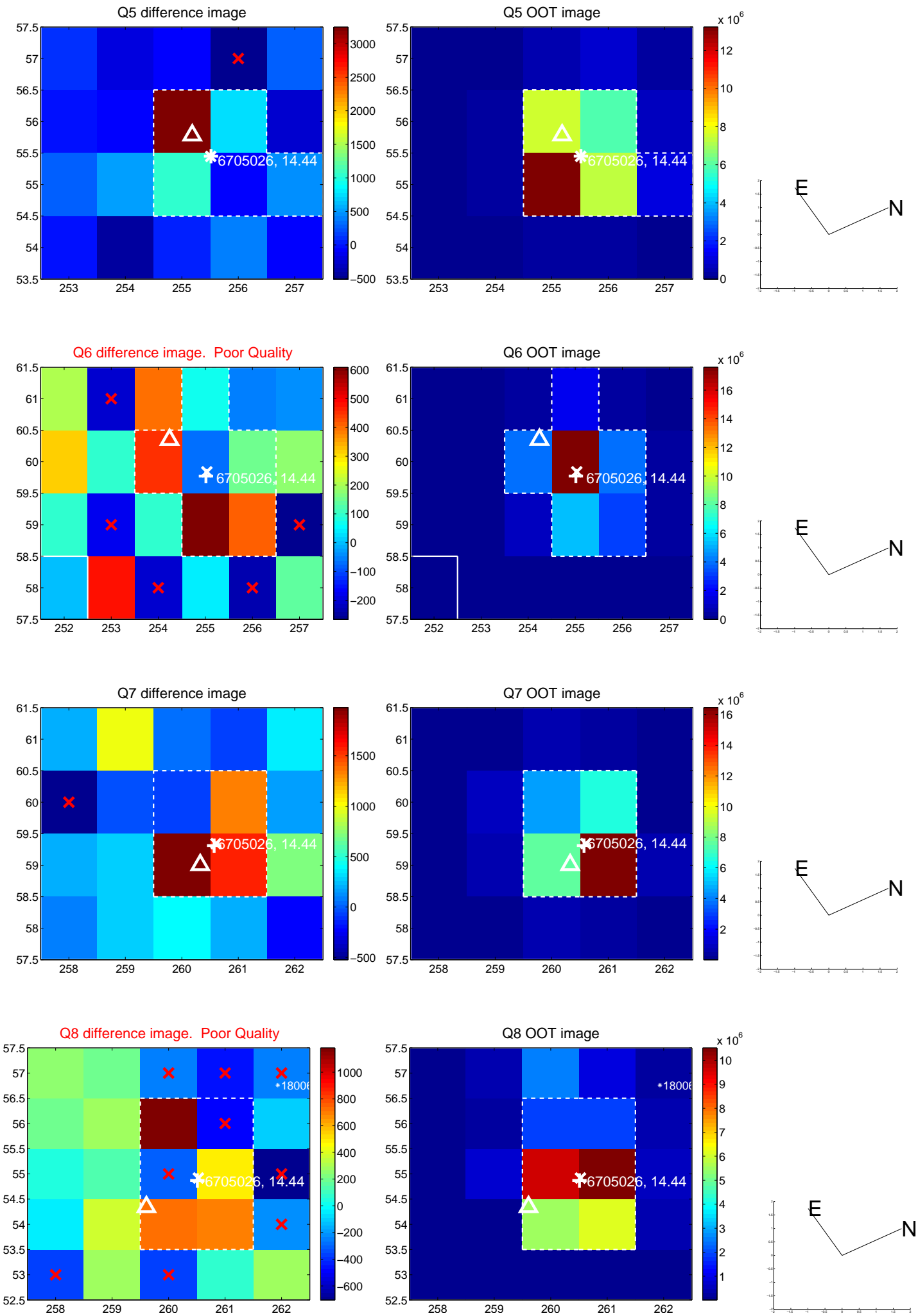


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

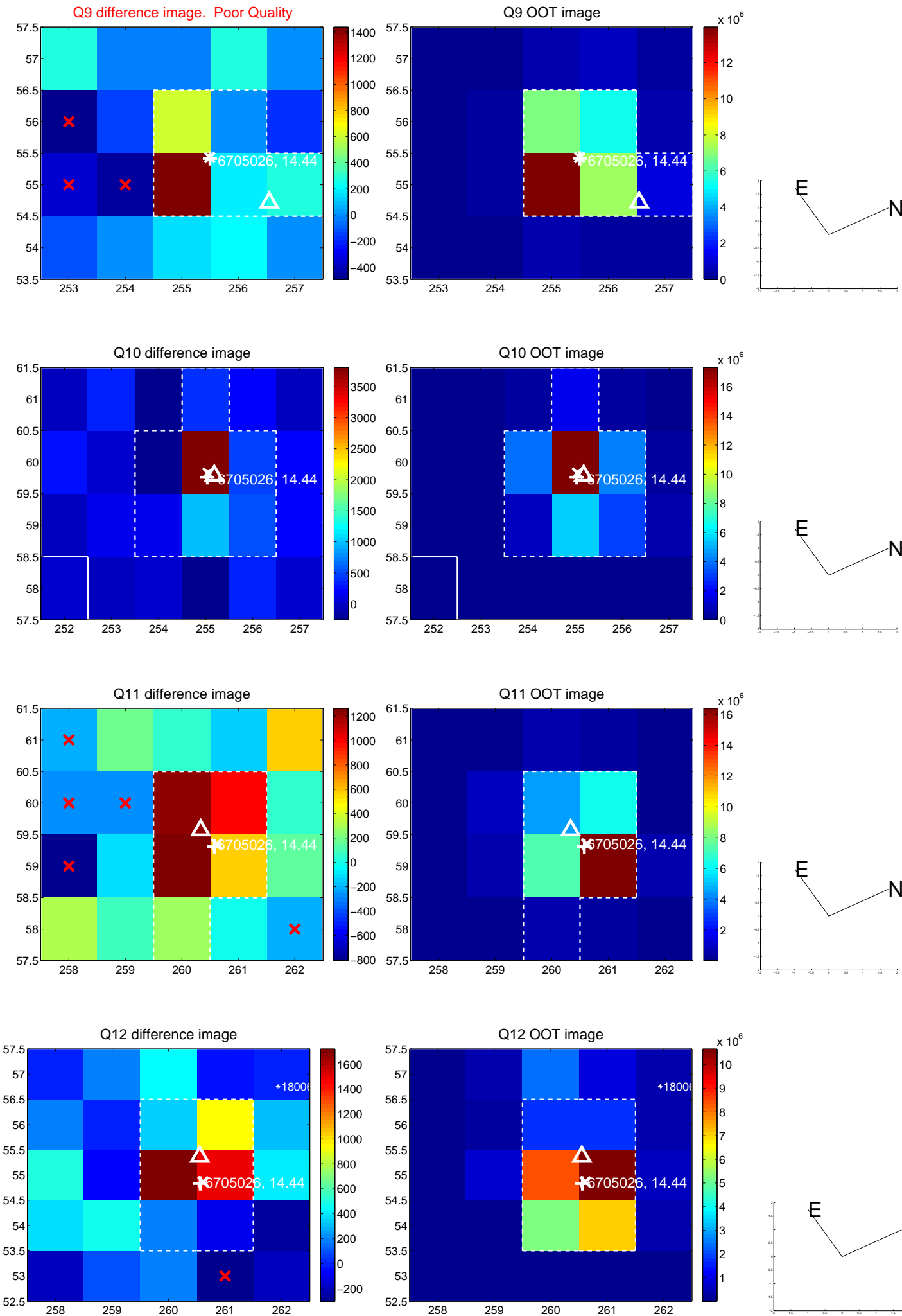


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

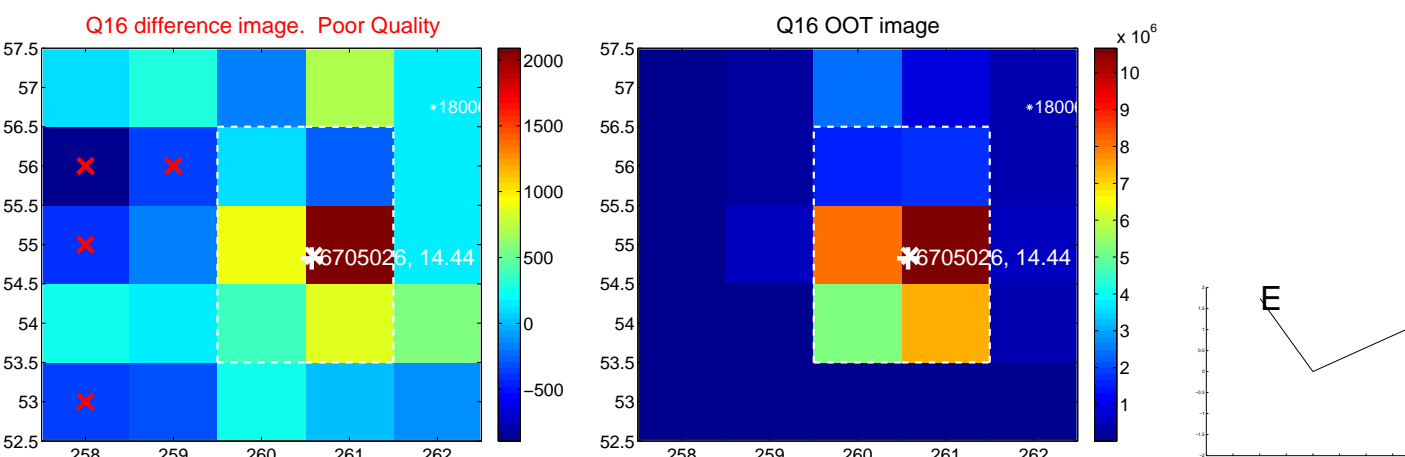
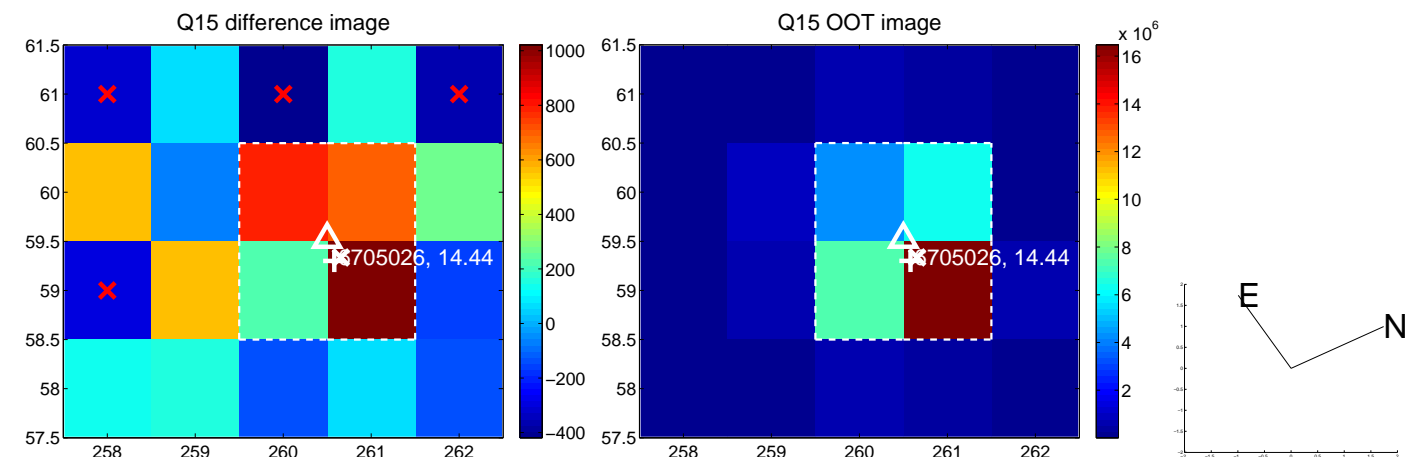
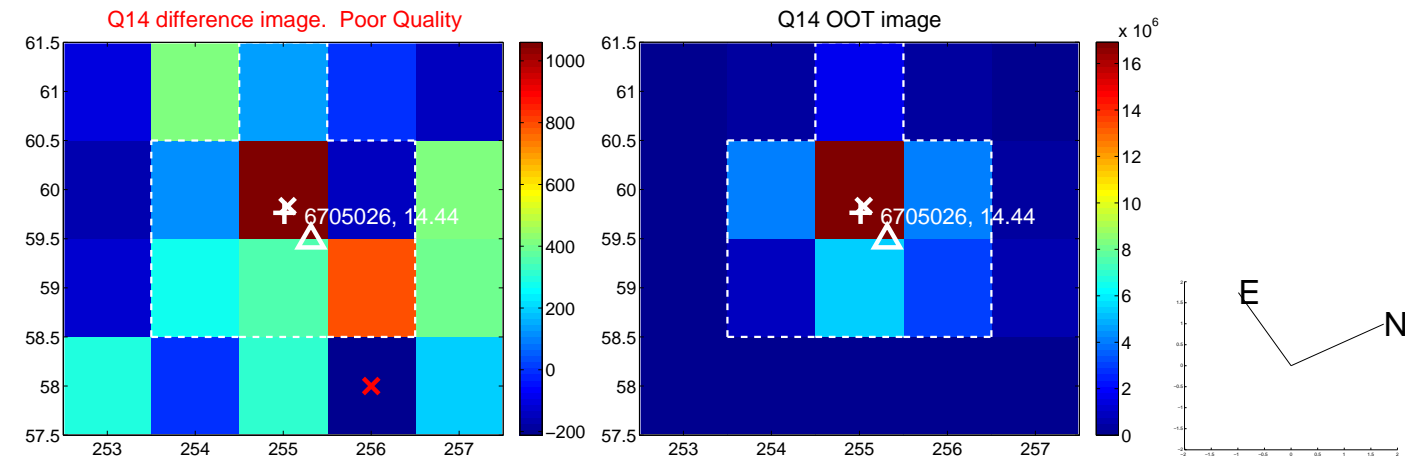
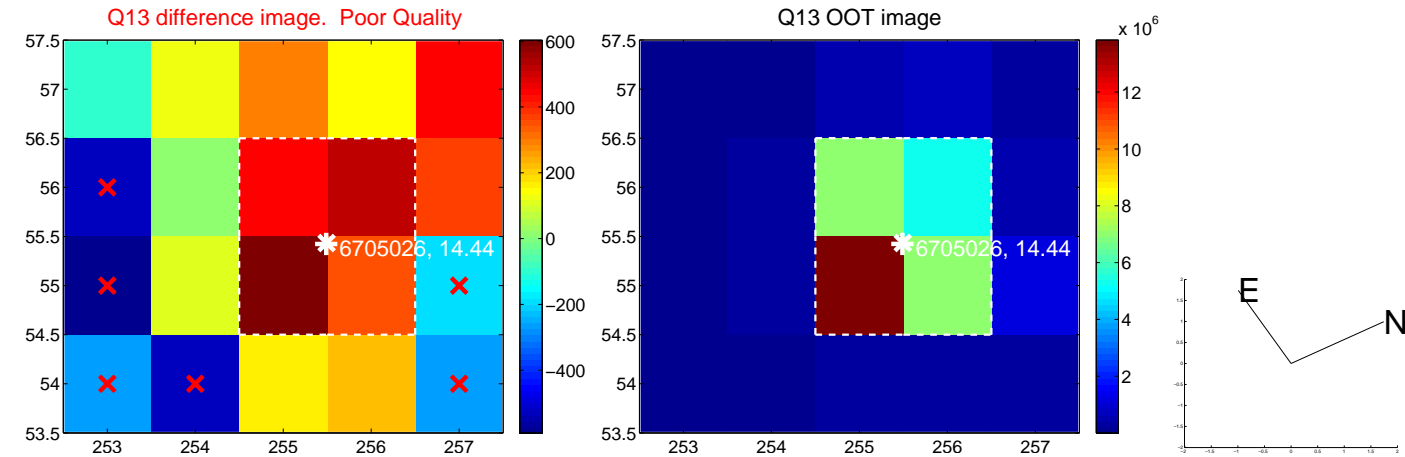




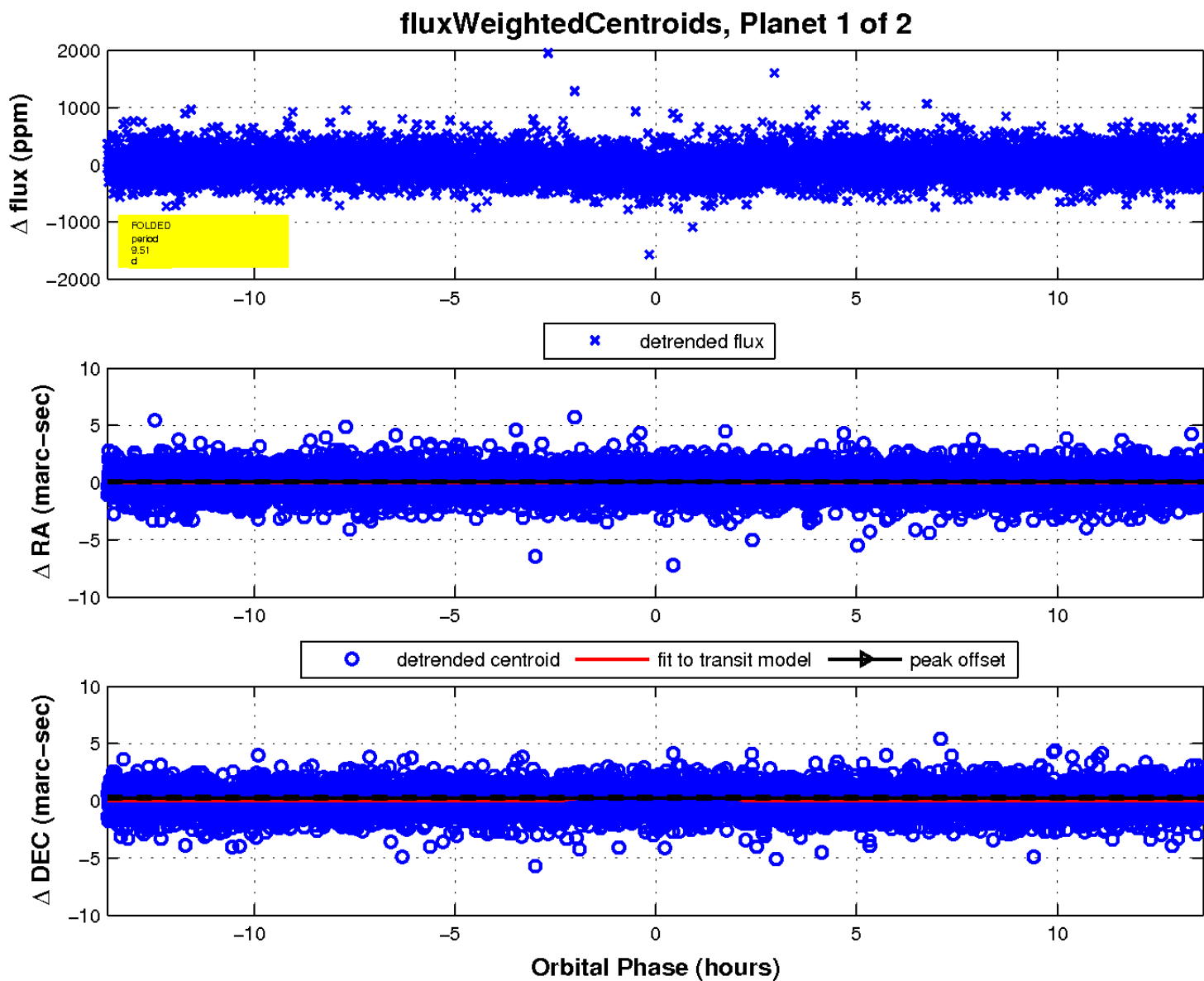
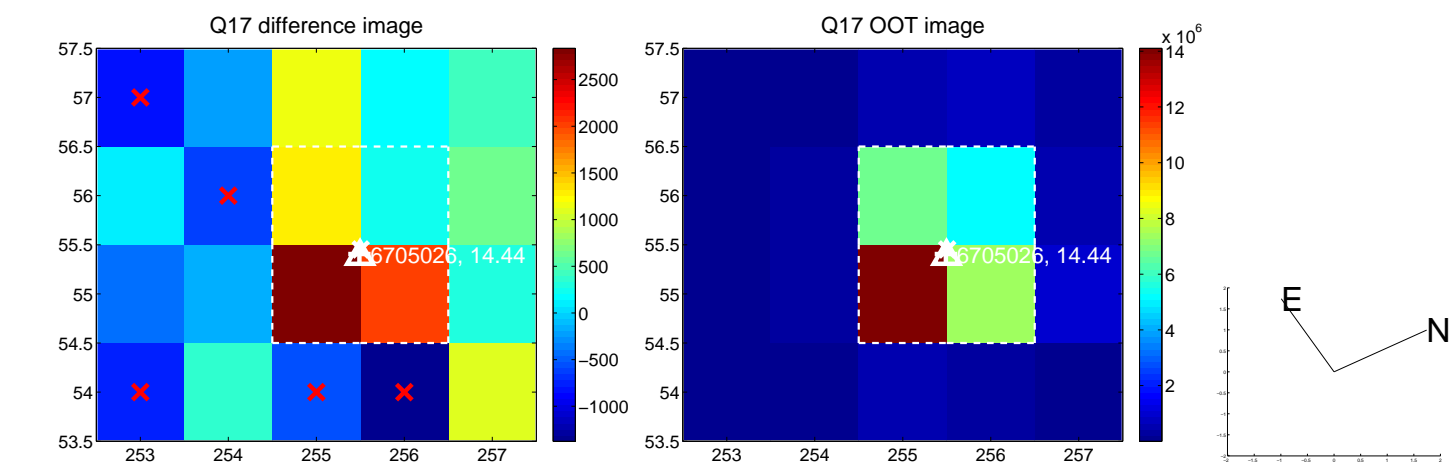
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



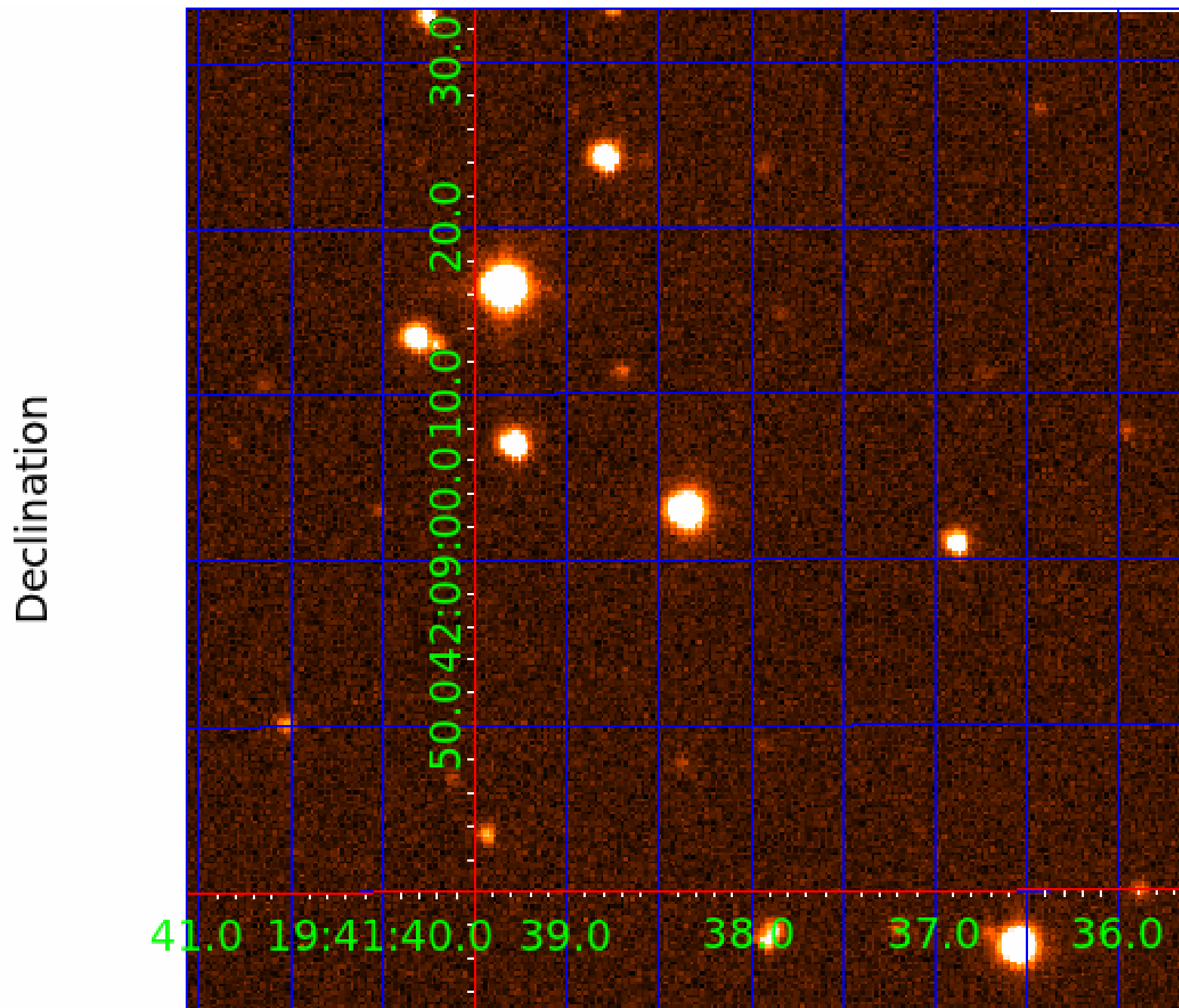
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 006705026

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006705026-01	OBS	3374.01	9.508429	140.561823	84.5	4.553	11.6	10.9	1.67	6144	1.79	387.27
006705026-02	OBS	3374.02	34.107505	158.429545	128.1	6.940	9.5	10.5	1.67	6144	2.09	70.53

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006705026-01	OBS	PC	0.97	0	0	0	0	NO_COMMENT
006705026-02	OBS	PC	0.95	0	0	0	0	NO_COMMENT

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

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

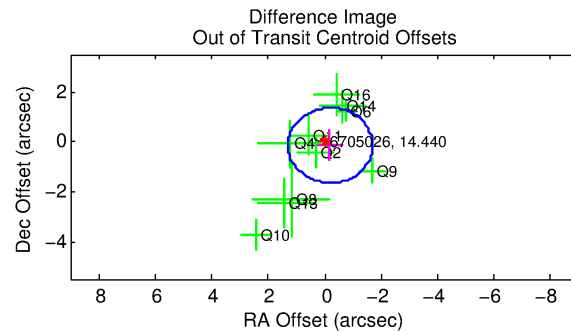
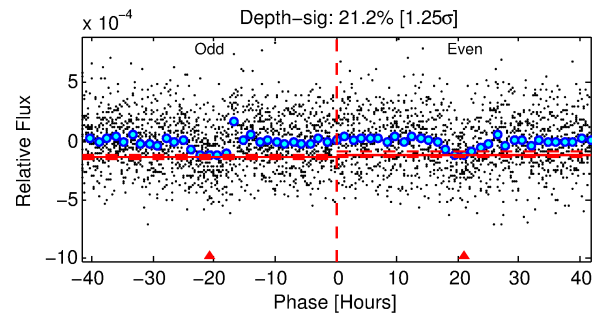
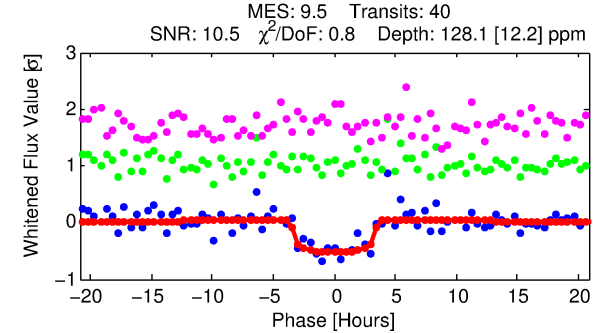
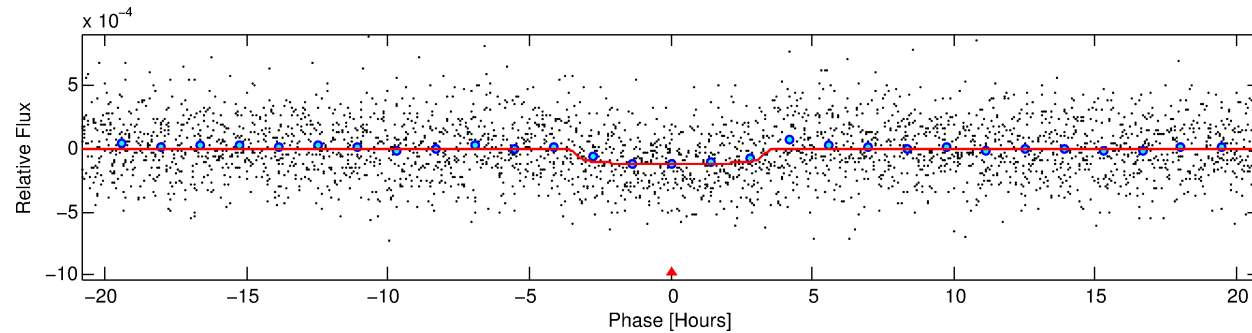
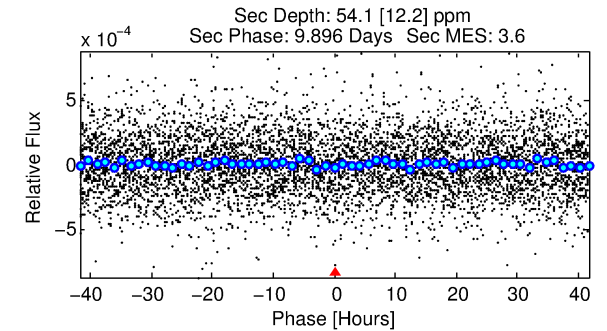
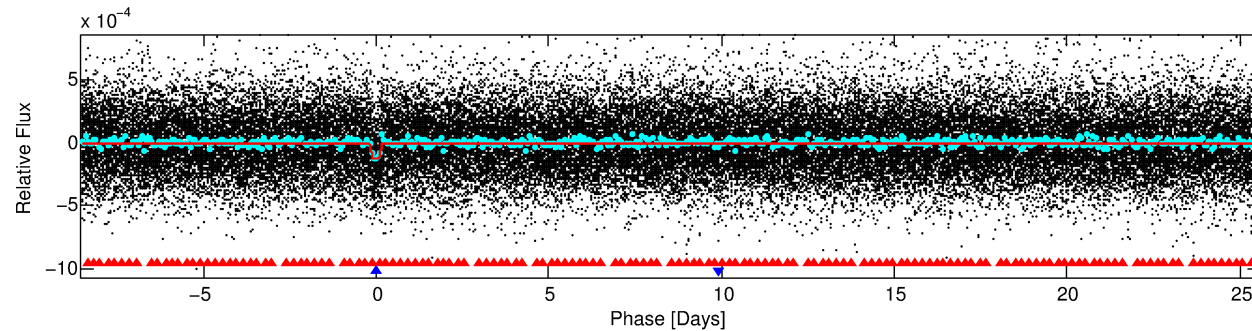
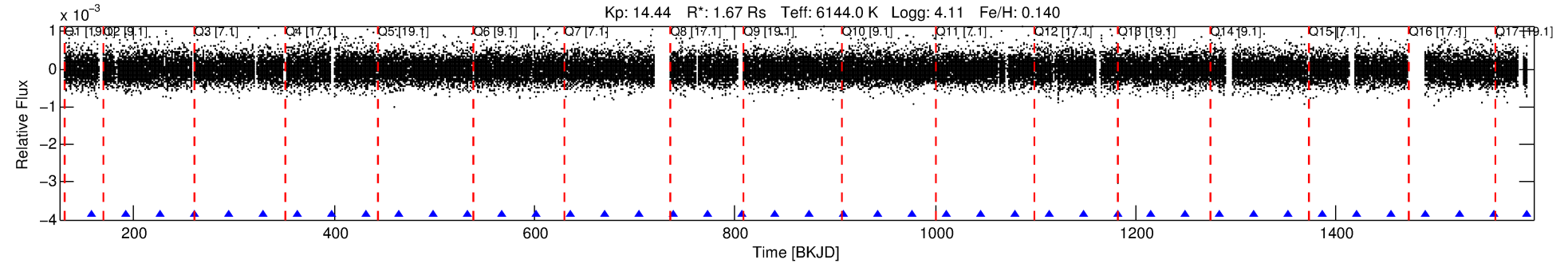
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006705026-02

No Significant Match Found

# DV One-Page Summary

KIC: 6705026 Candidate: 2 of 2 Period: 34.108 d  
KOI: K03374.02 Corr: 0.948



## DV Fit Results:

Period = 34.10751 [0.00051] d  
Epoch = 158.4295 [0.0121] BKJD  
Rp/R\* = 0.0115 [0.0063]  
a/R\* = 23.44 [64.38]  
b = 0.80 [1.28]  
Seff = 70.53 [19.96]  
Teq = 739 [52] K  
Rp = 2.09 [1.23] Re  
a = 0.2244 [0.0406] AU  
Ag = 344.37 [400.18] [0.86σ]  
Teffp = 4922 [1390] K [3.01σ]

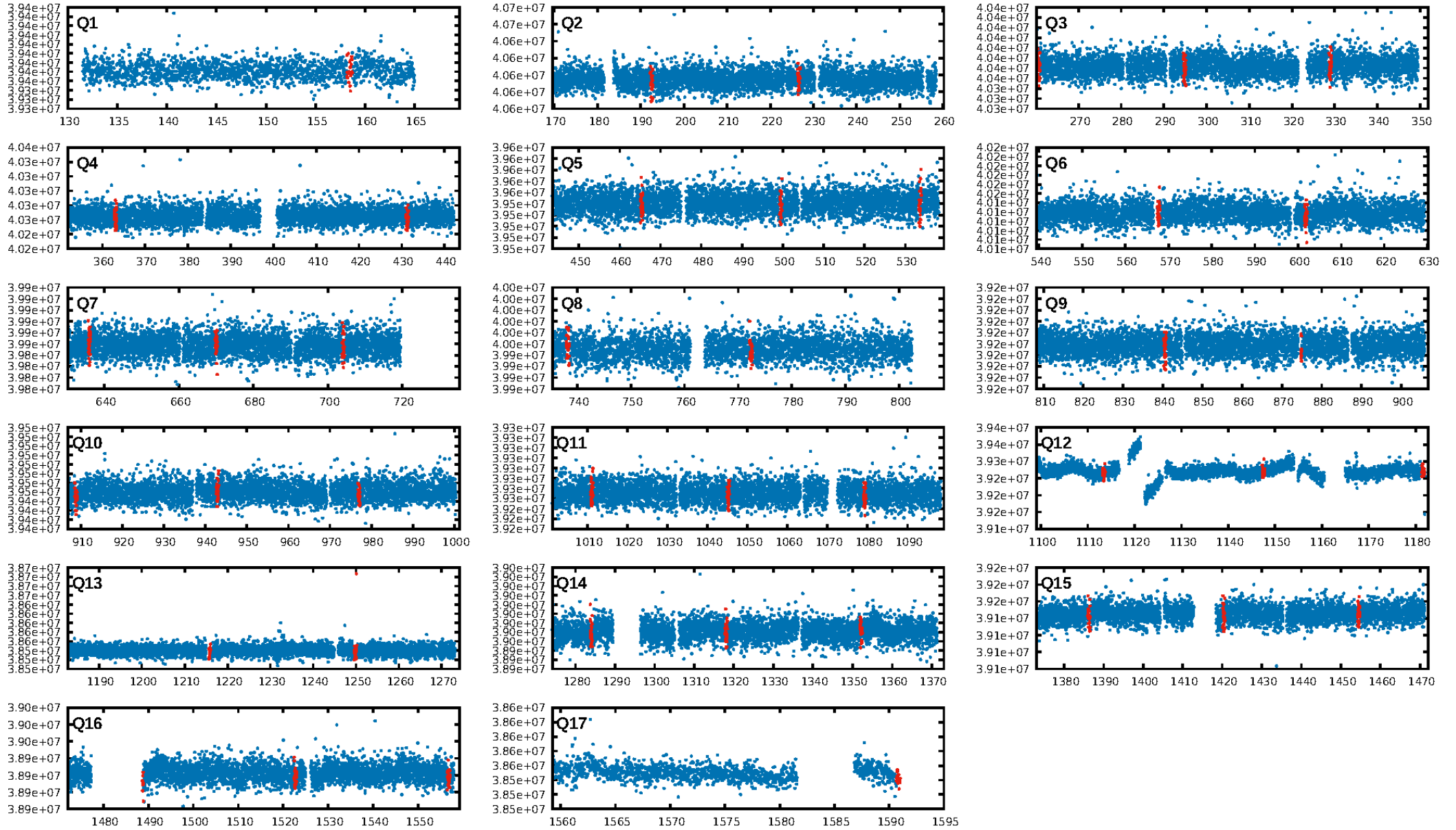
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [71.13σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 98.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 6.09e-21  
RollingBand-fgt: 1.00 [38/38]  
GhostDiagnostic-chr: 3.155  
Centroid-sig: 38.9%  
Centroid-so: 0.893 arcsec [0.78σ]  
OotOffset-rm: 0.245 arcsec [0.49σ]  
OotOffset-st: 4/1/3/2 [10]  
KicOffset-rm: 0.407 arcsec [0.81σ]  
KicOffset-st: 4/1/3/2 [10]  
DiffImageQuality-fgm: 0.60 [6/10]  
DiffImageOverlap-fno: 1.00 [16/16]

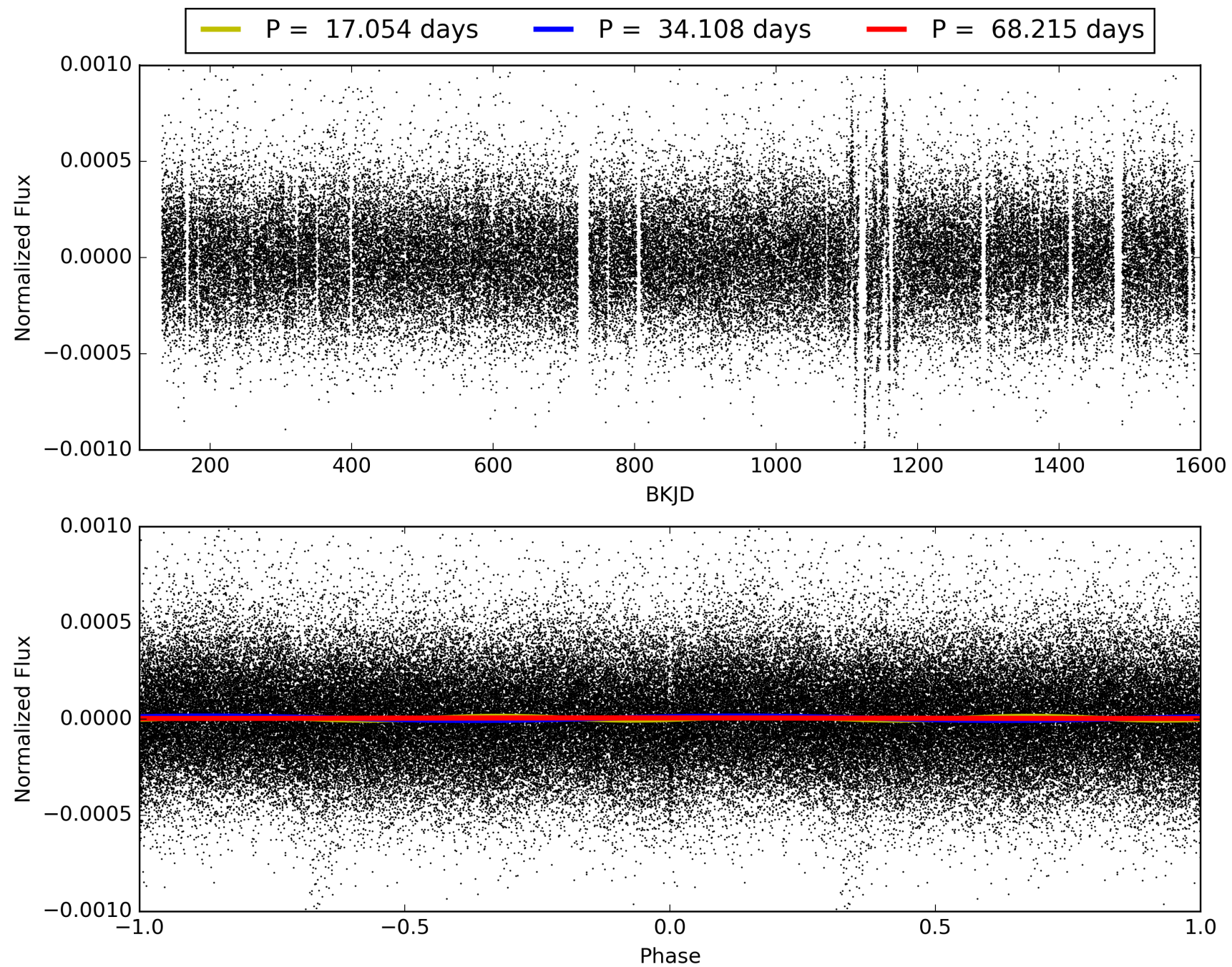
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:18:28 Z

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

# TCE 006705026-02, PDC Light Curves



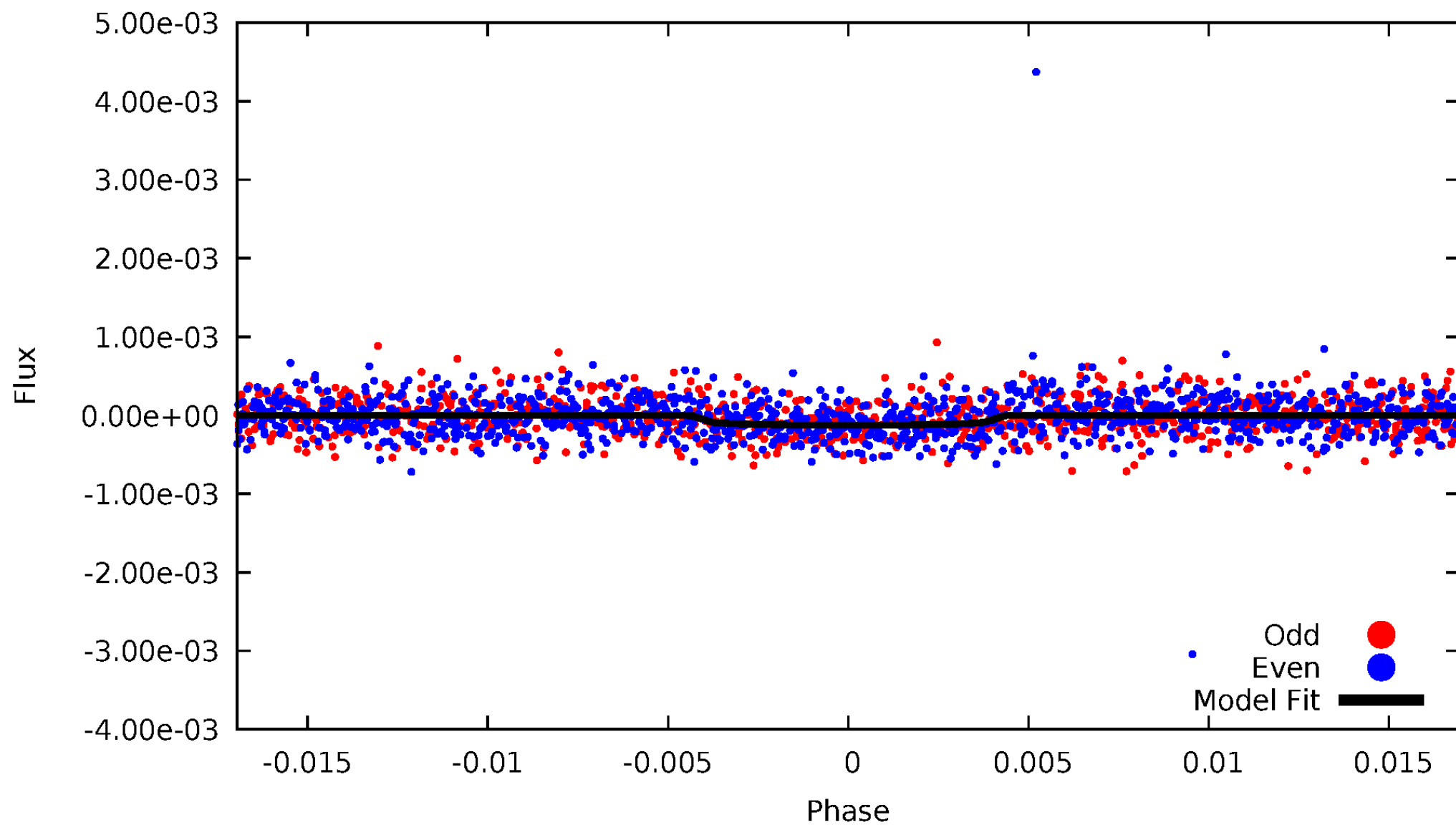
TCE 006705026-02





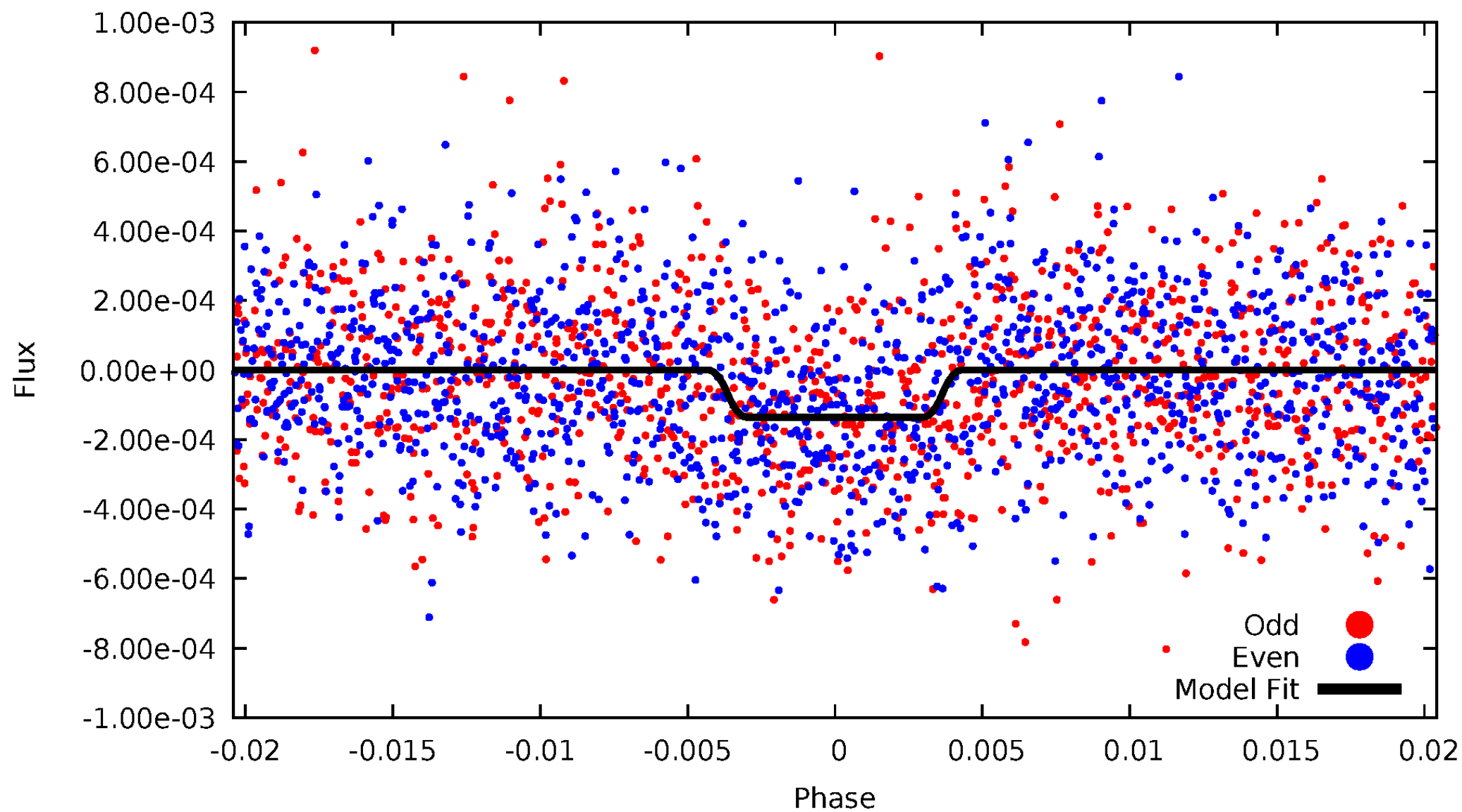
# DV Odd/Even

TCE 006705026-02



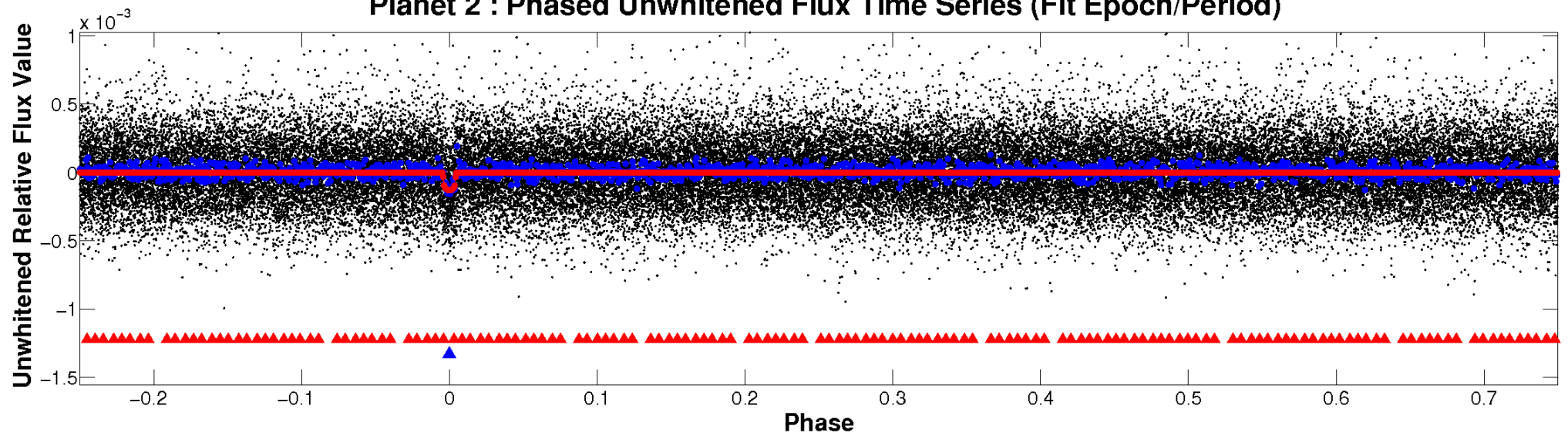
# ALT Odd/Even

TCE 006705026-02

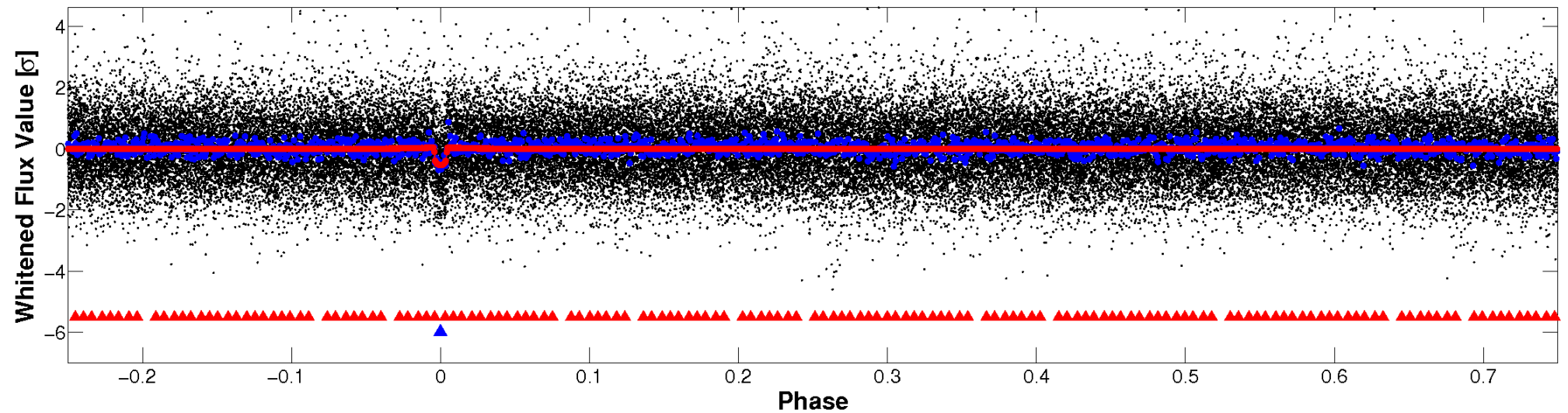


# Non-Whitened Vs. Whitened Light Curve

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

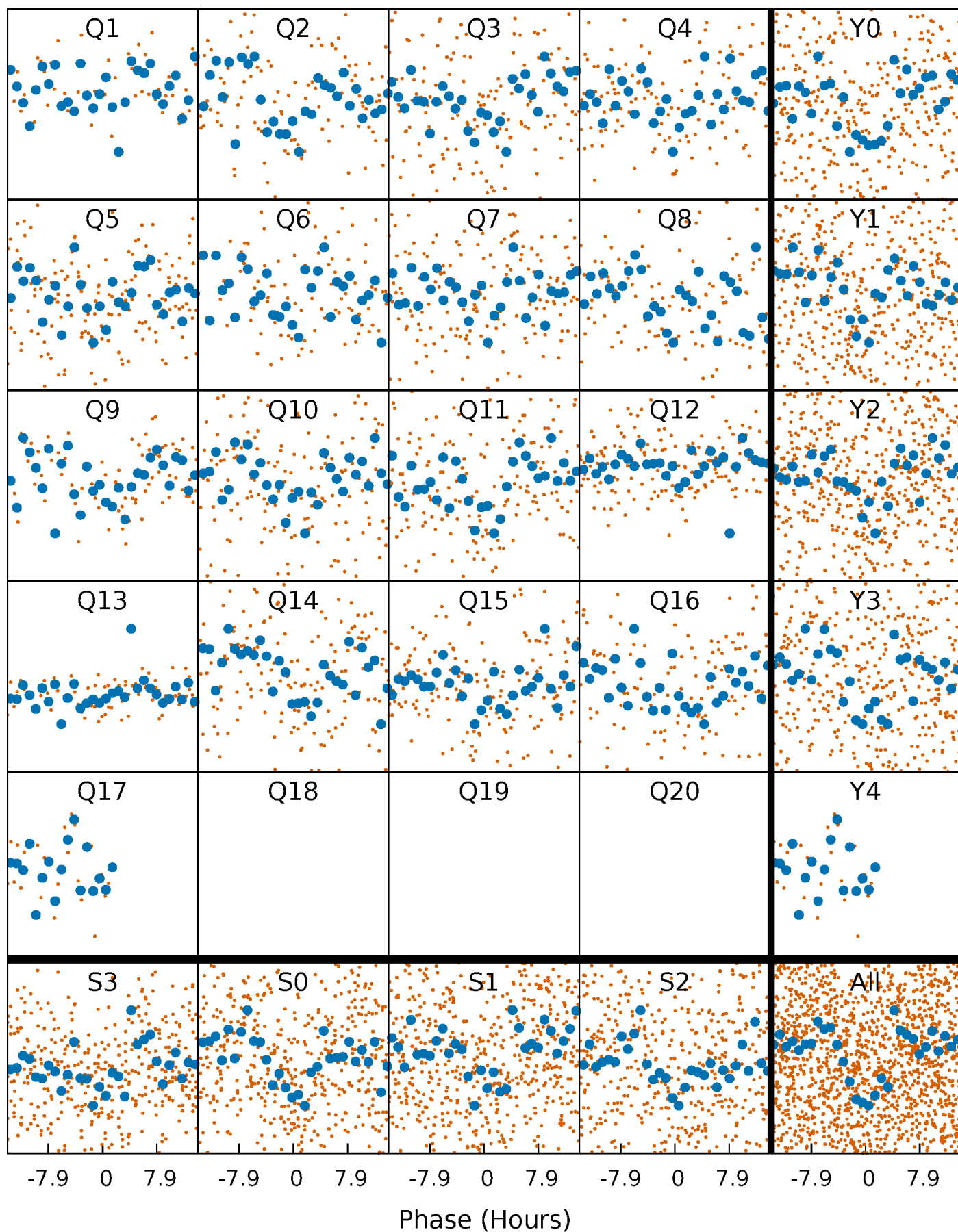


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



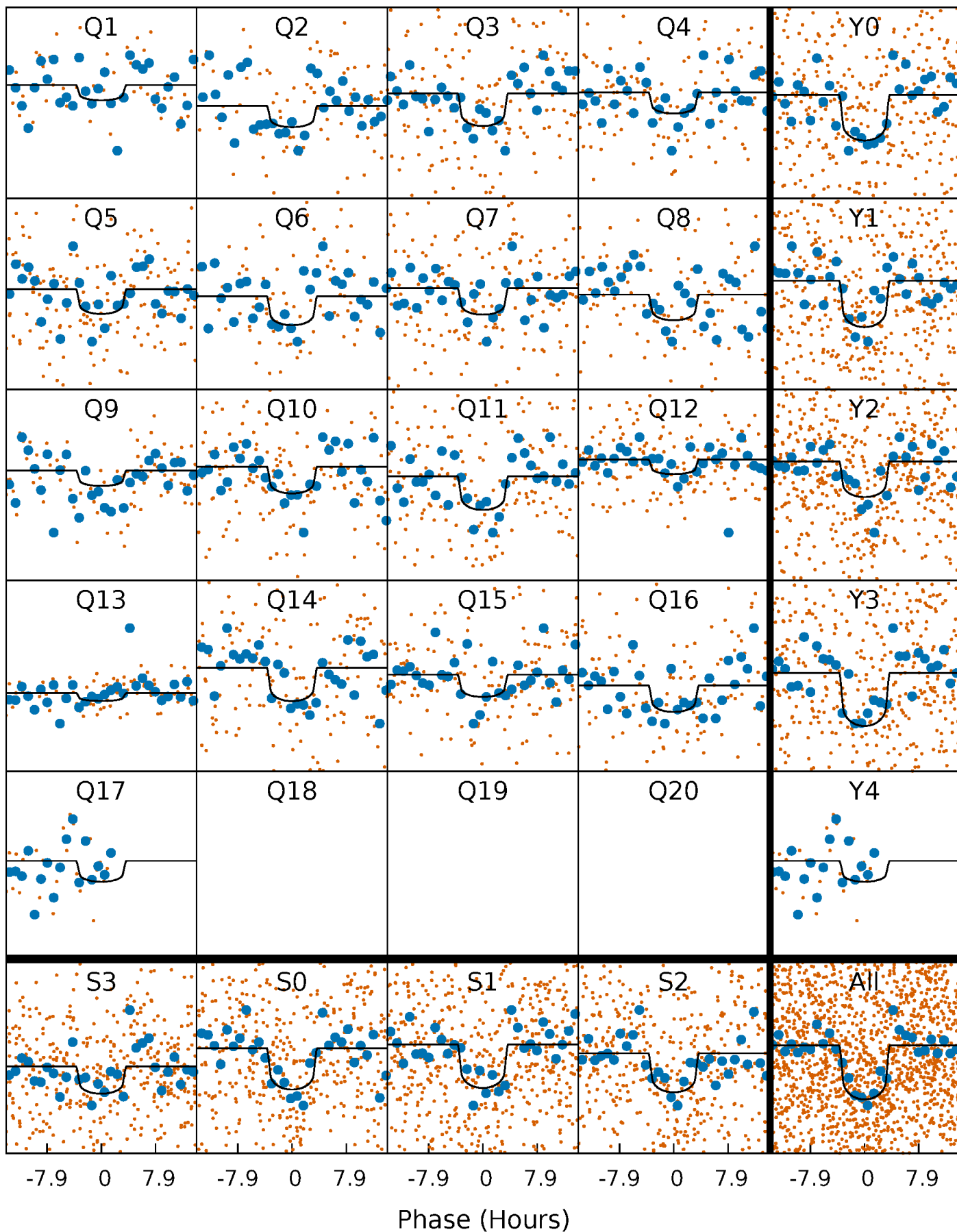
# PDC Quarter-Phased Transit Curves

TCE 006705026-02 P= 34.107505 Days  $T_0=158.429545$  (BKJD)



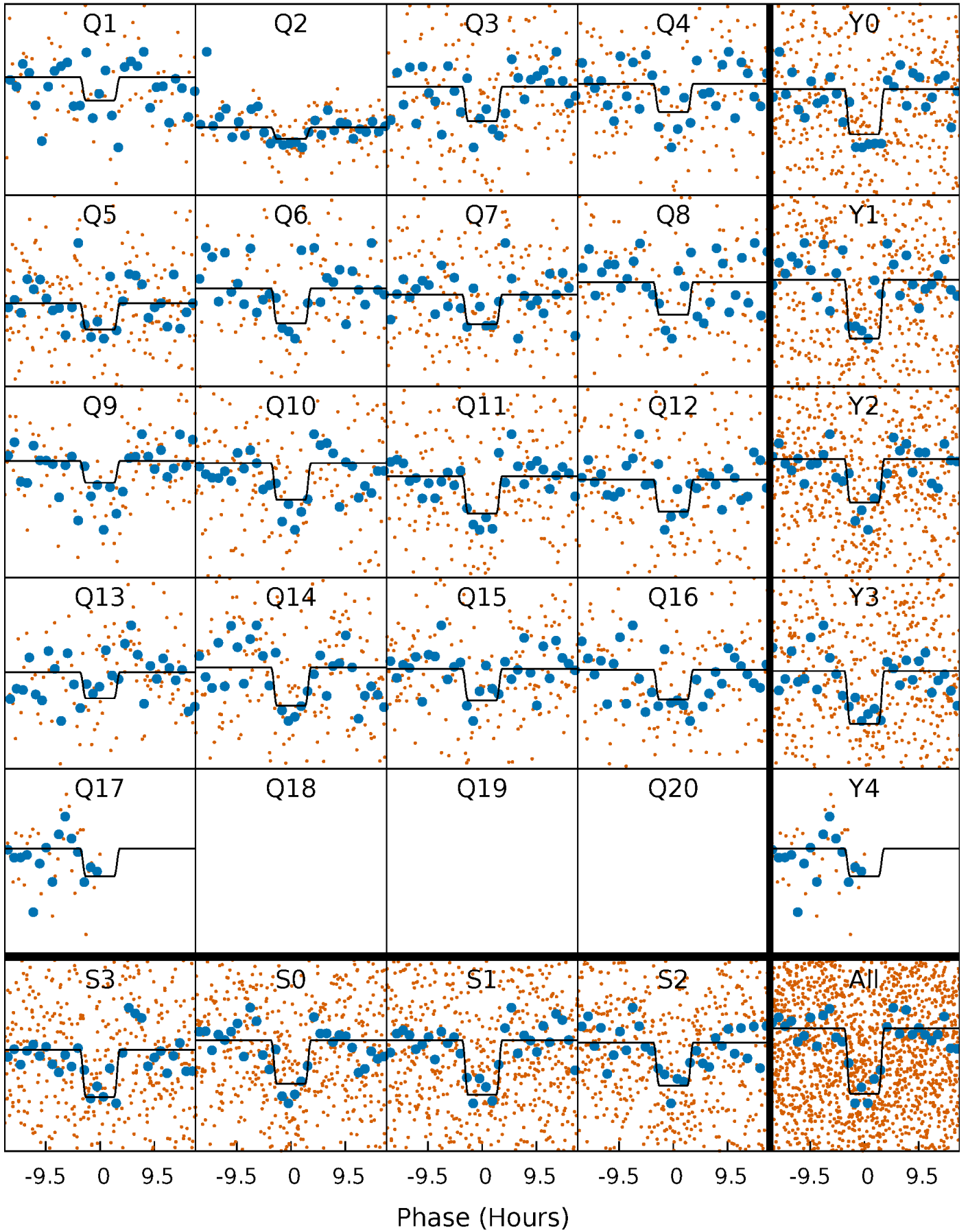
# DV Quarter-Phased Transit Curves

TCE 006705026-02 P= 34.107505 Days  $T_0=158.429545$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006705026-02 P= 34.109342 Days  $T_0=158.408534$  (BKJD)

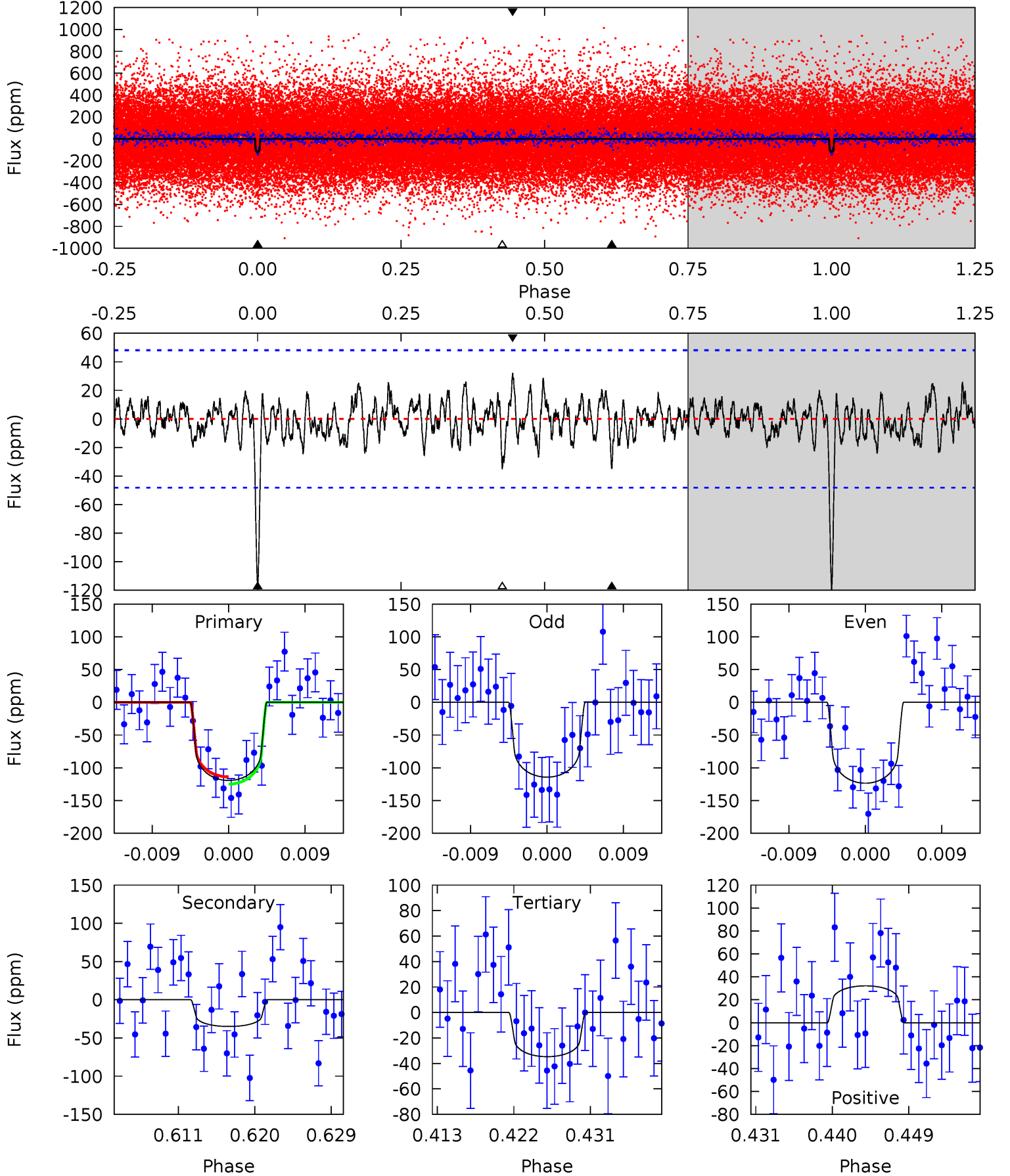




# DV Model-Shift Uniqueness Test

006705026-02, P = 34.107505 Days, E = 124.322040 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
12.5	3.67	3.63	3.37	5.05	2.61	1.09	8.87	9.13	0.03	0.30	0.48	0.97	0.21	0.58

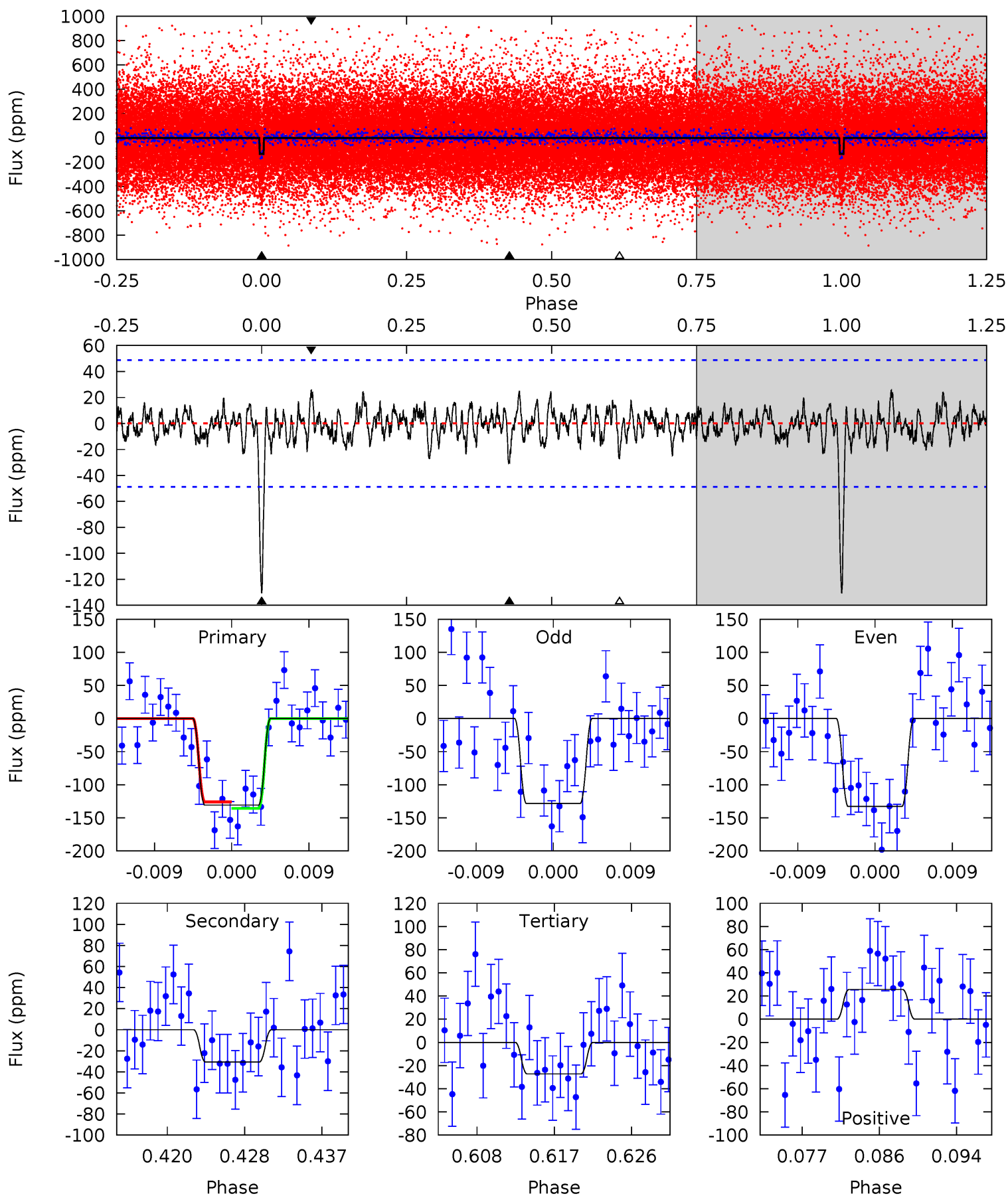




# Alt Model-Shift Uniqueness Test

006705026-02, P = 34.109342 Days, E = 124.299192 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
13.6	3.18	2.82	2.65	5.06	2.63	0.95	10.7	10.9	0.35	0.52	0.23	0.97	0.16	0.50



### Stellar Parameters For KIC 006705026

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6144^{+80}_{-80}$	$4.106^{+0.159}_{-0.130}$	$0.140^{+0.150}_{-0.150}$	$1.668^{+0.334}_{-0.334}$	$1.296^{+0.121}_{-0.145}$	$0.393^{+0.312}_{-0.149}$
	+1%/-1%	+4%/-3%	+107%/-107%	+20%/-20%	+9%/-11%	+79%/-38%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 006705026-02 / KOI 3374.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-35 \pm 10$	$2.06^{+1.25}_{-1.10}$	$1034^{+52}_{-56}$	$4524^{+1961}_{-664}$	$215^{+817}_{-132}$
Alt.	$-31 \pm 10$	$2.16^{+1.26}_{-1.06}$	$1035^{+55}_{-57}$	$4390^{+1428}_{-660}$	$179^{+529}_{-109}$

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

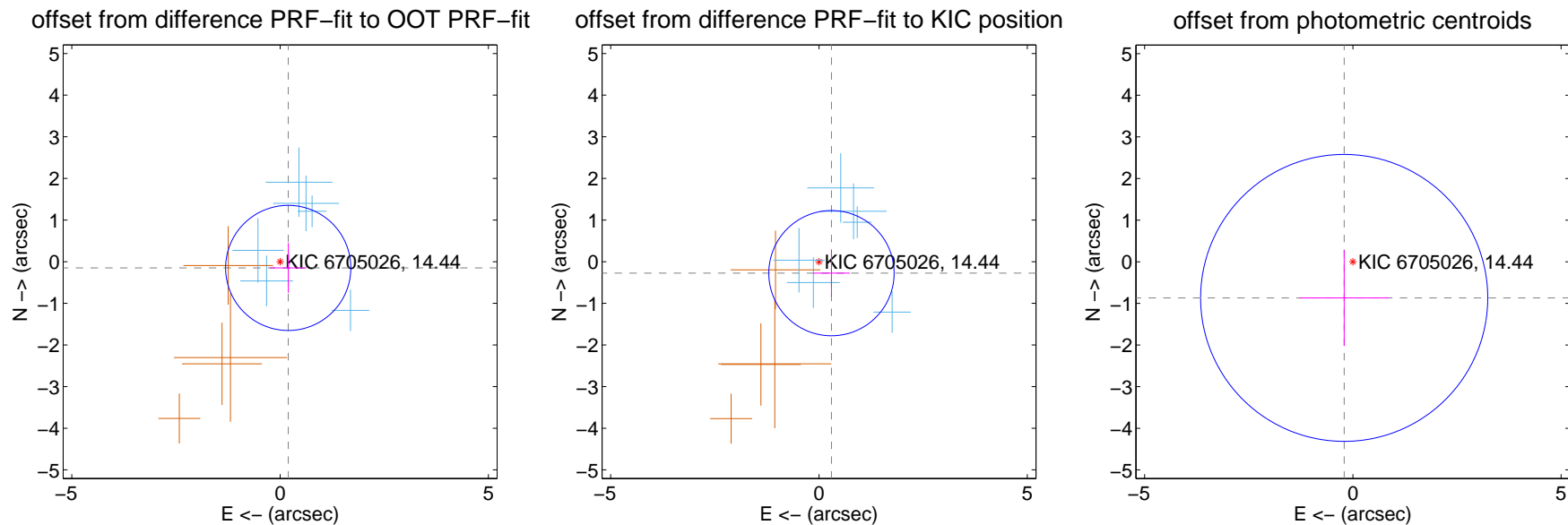
## DV Centroid Data

Supplemental centroid analysis for 006705026-02. Kepler magnitude: 14.44. Transit SNR 10.53

There are 6 quarters with good PRF difference image offsets

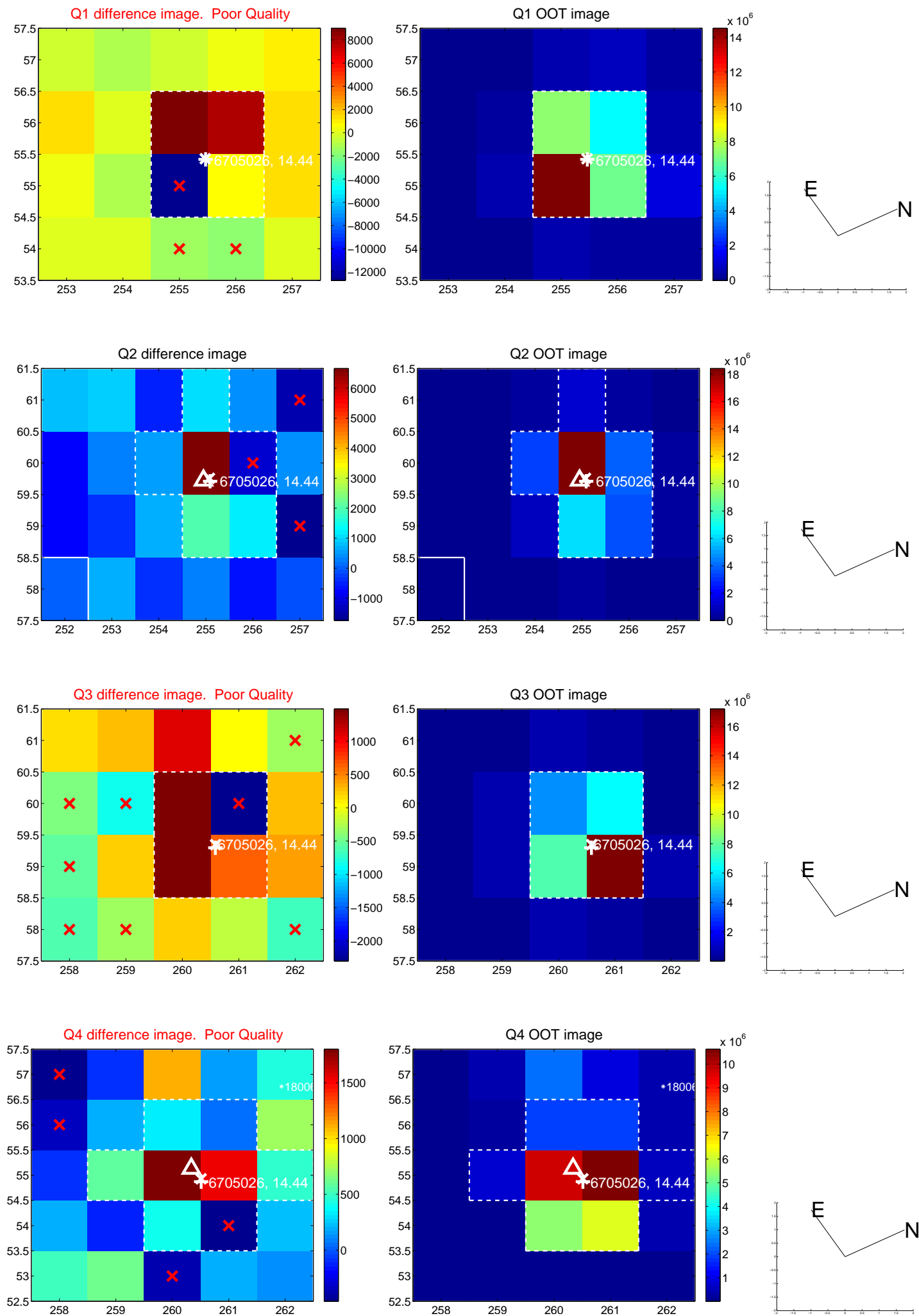
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.245 \pm 0.501$	0.49	$-0.195 \pm 0.435$	$-0.150 \pm 0.597$
PRF-fit source offset from KIC position	$0.407 \pm 0.501$	0.81	$-0.299 \pm 0.439$	$-0.276 \pm 0.566$
photometric centroid source offset	$0.89 \pm 1.15$	0.78	$0.21 \pm 1.07$	$-0.87 \pm 1.15$

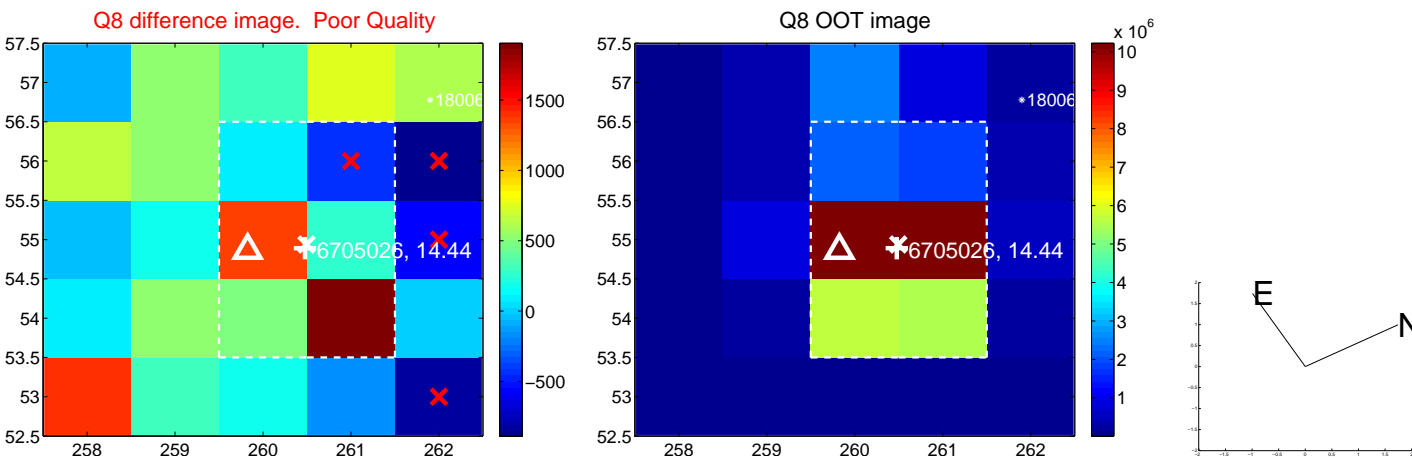
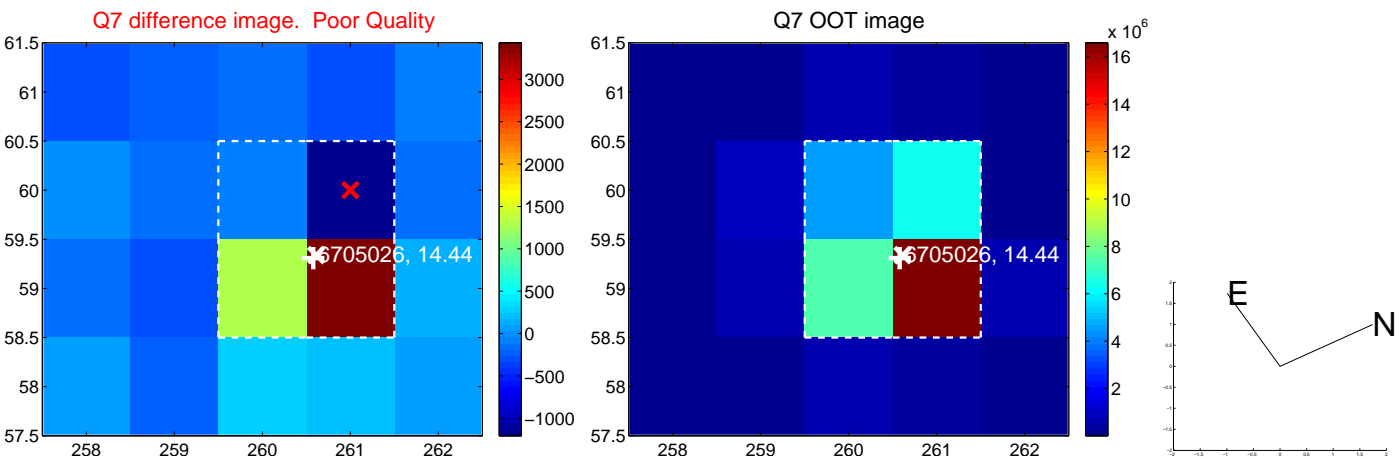
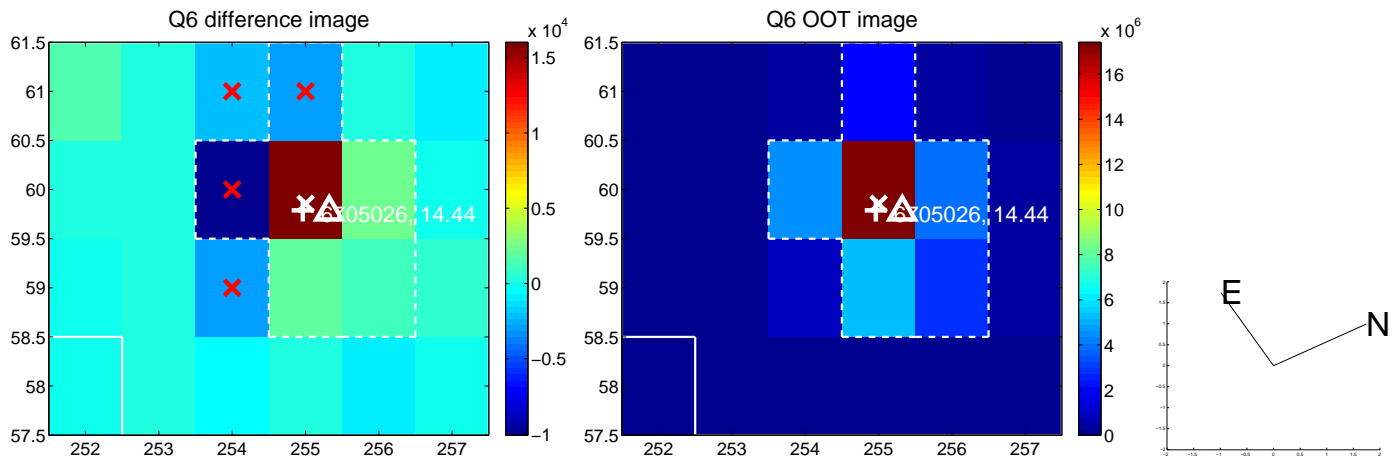
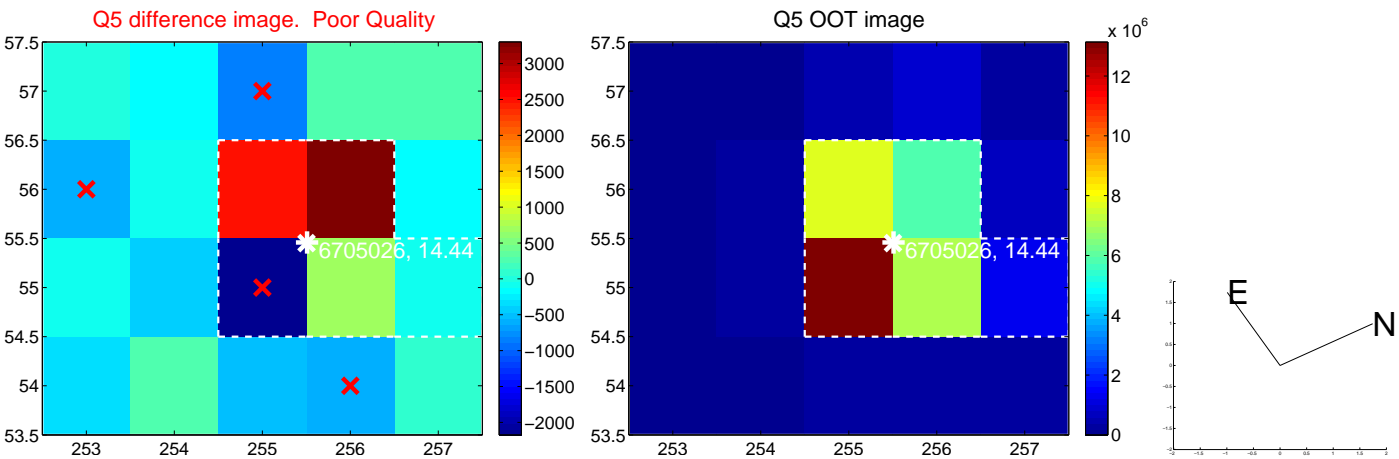


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

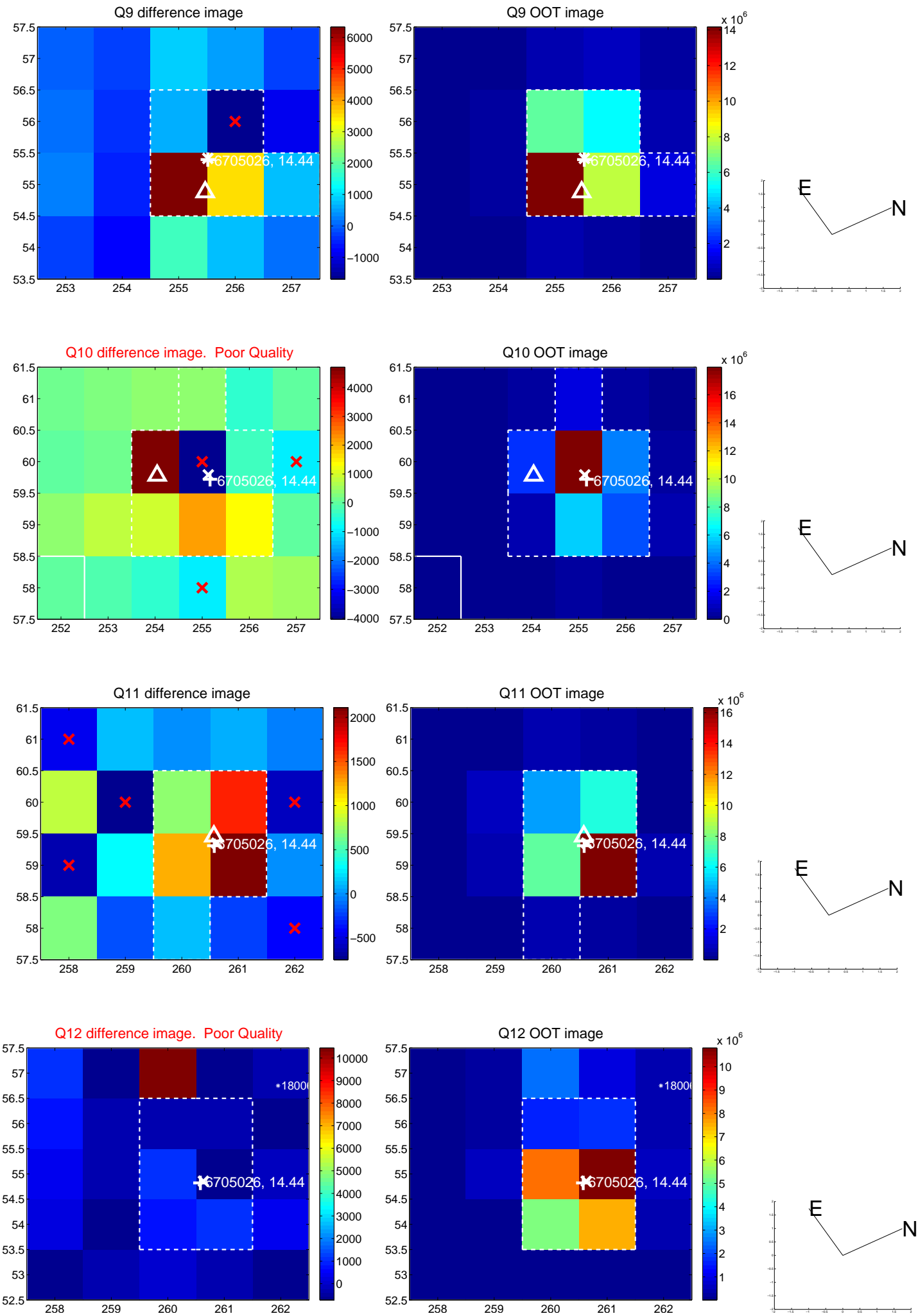
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



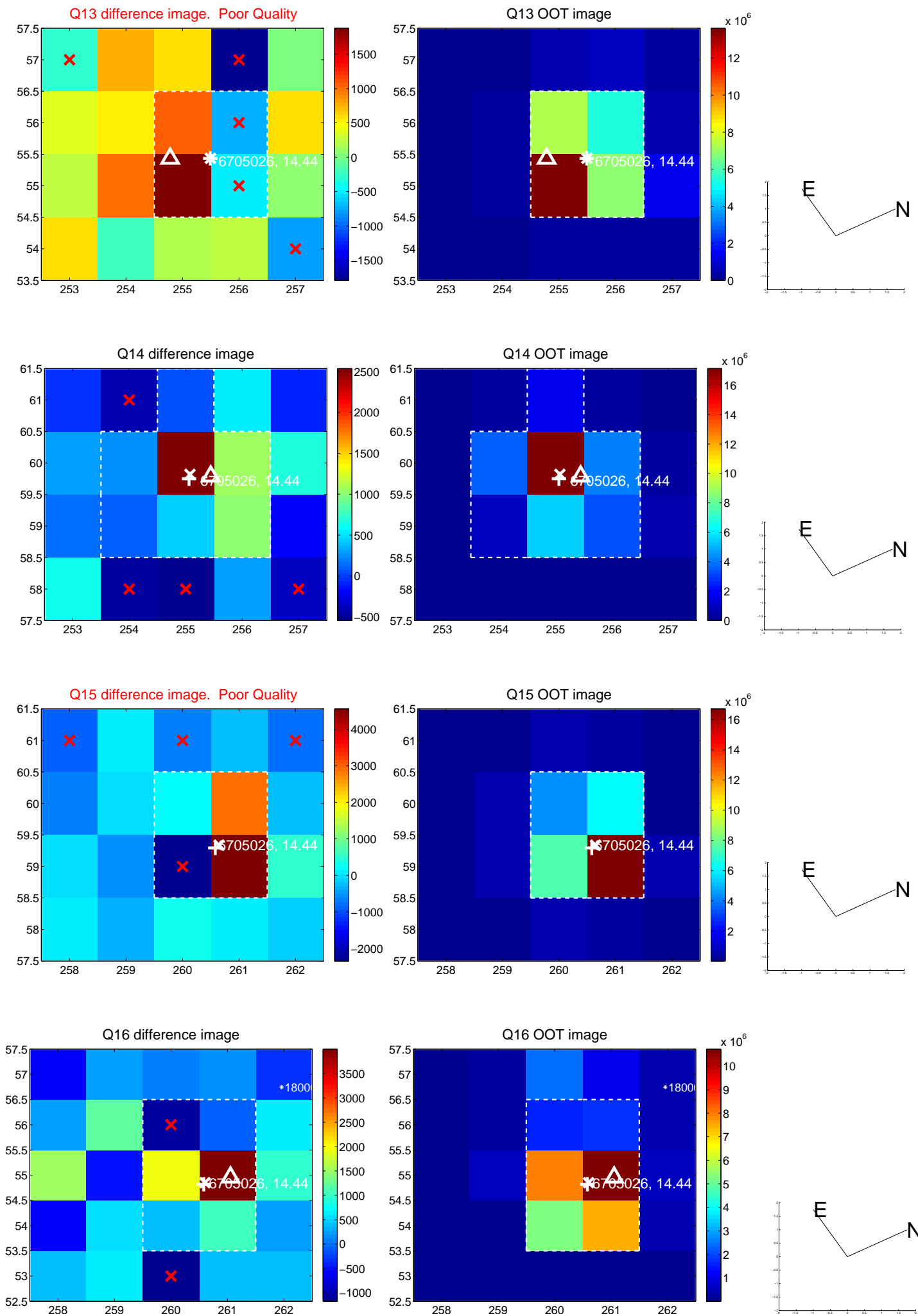
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

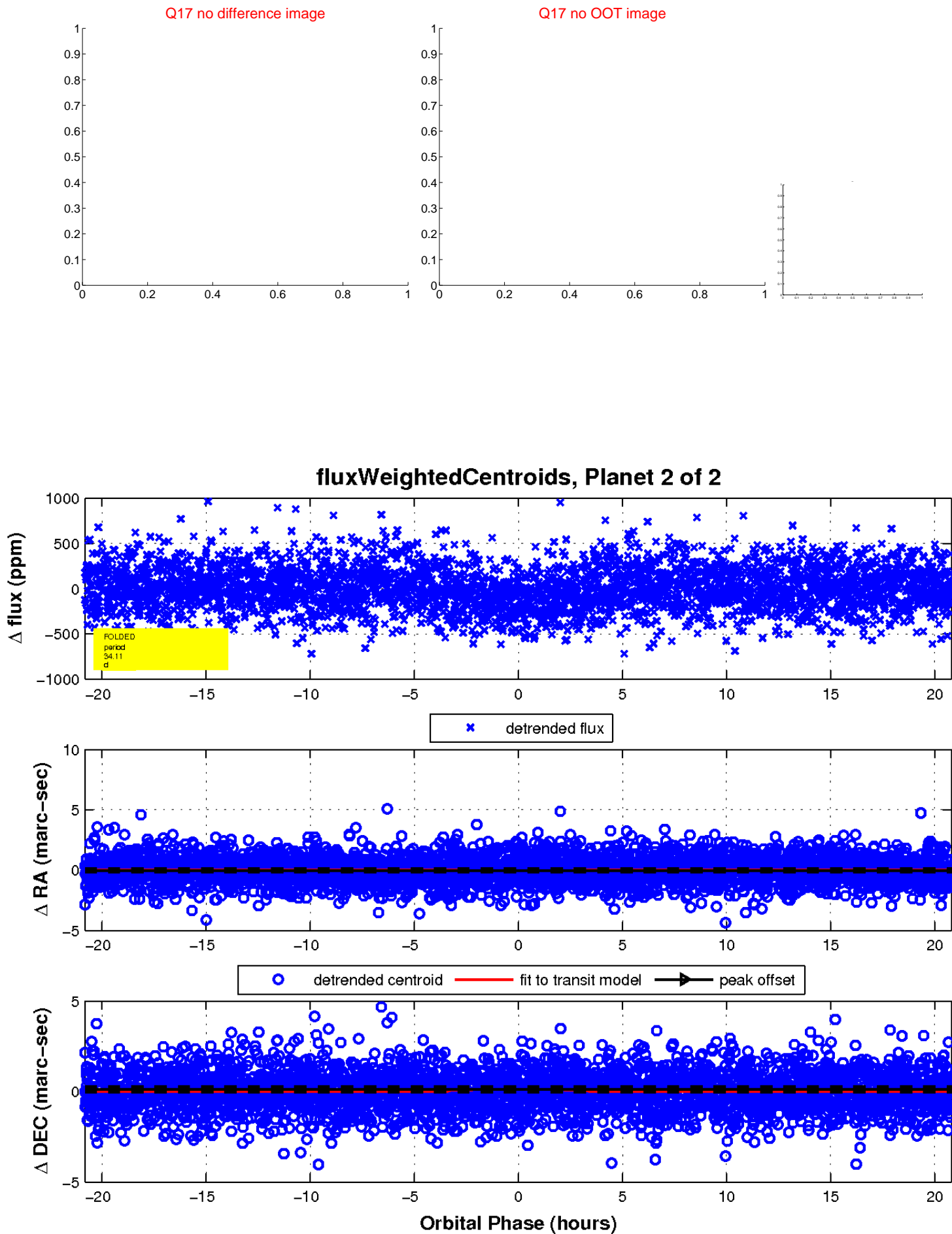


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

