

# KIC 006071791

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006071791-01	OBS	No	1.735497	132.911328	82.1	7.394	7.8	8.5	0.95	6068	1.58	1417.95
006071791-02	OBS	No	147.192989	168.080015	625.2	5.996	9.8	6.9	0.95	6068	2.93	3.81

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006071791-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006071791-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

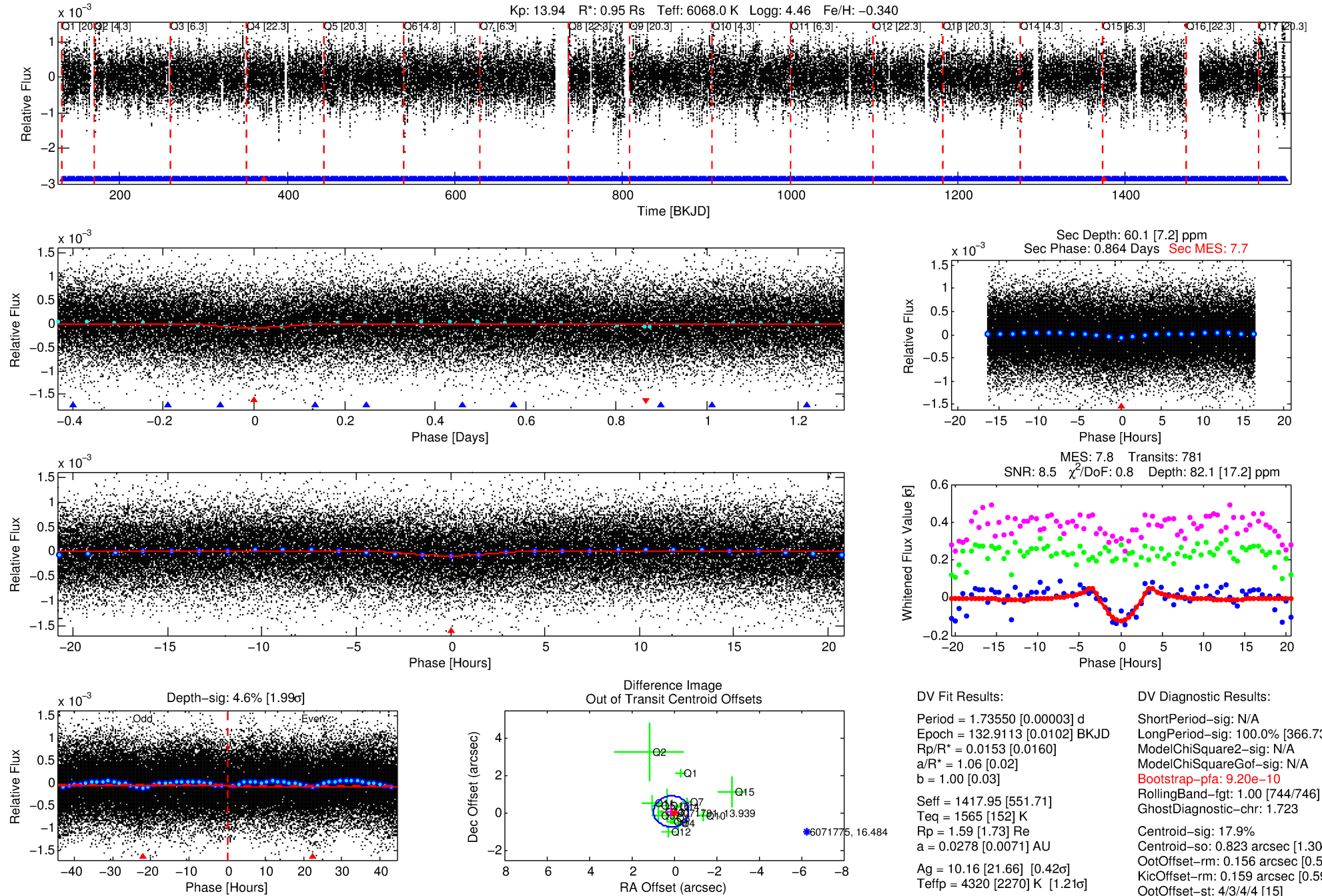
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006071791-01

No Significant Match Found

# DV One-Page Summary

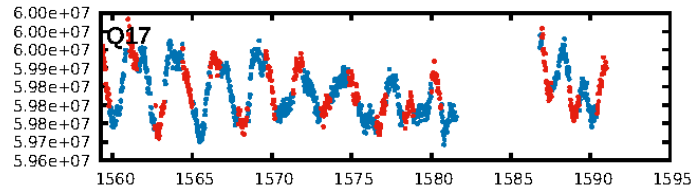
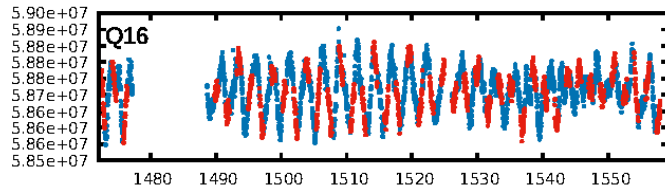
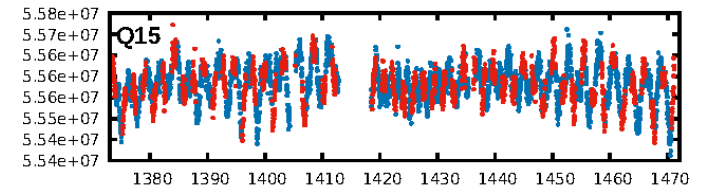
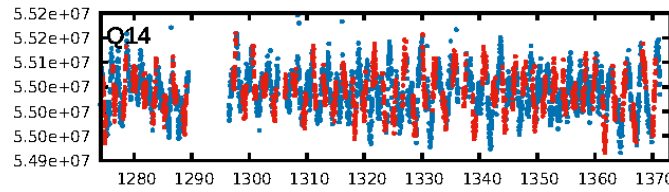
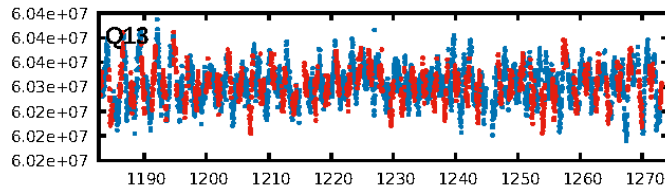
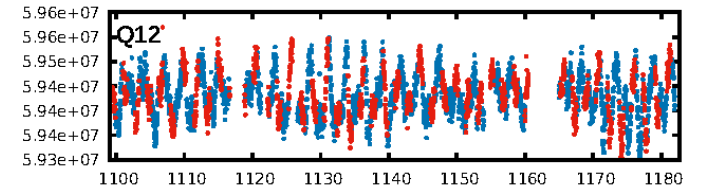
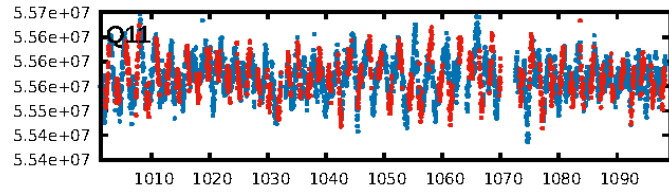
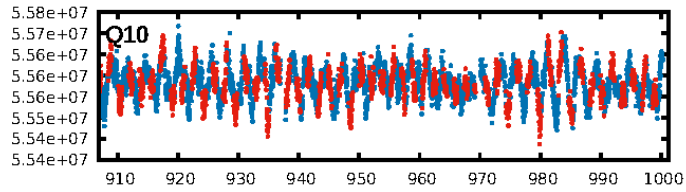
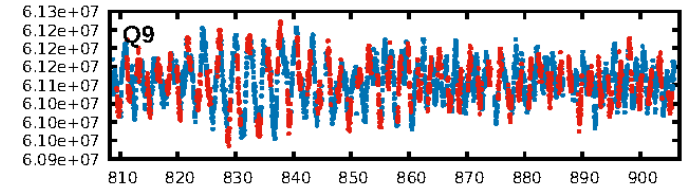
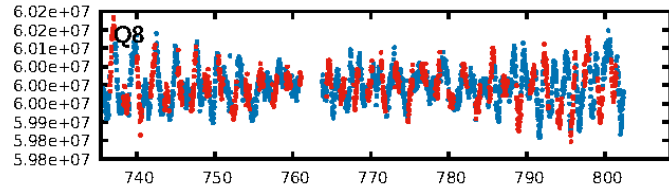
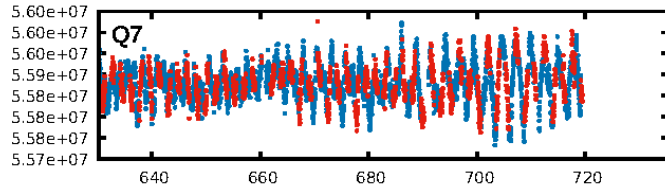
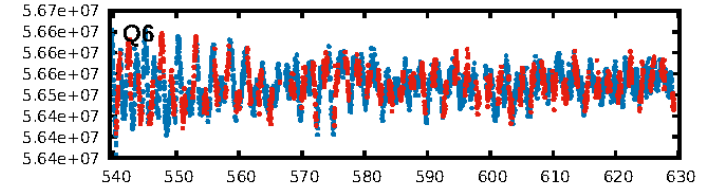
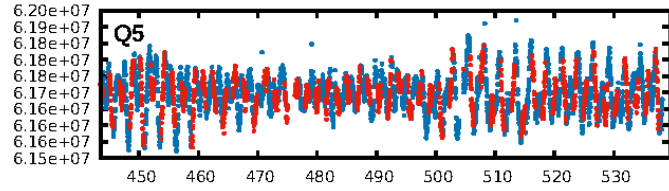
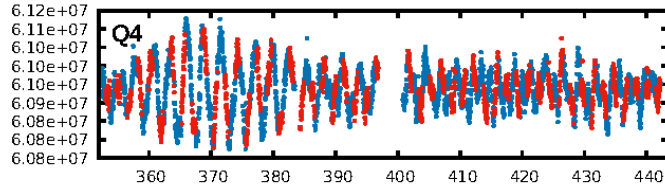
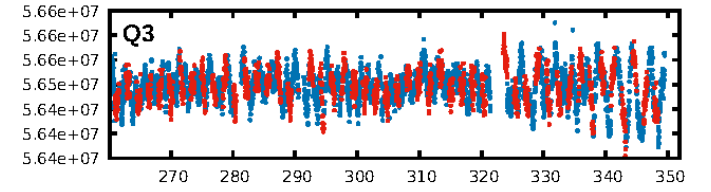
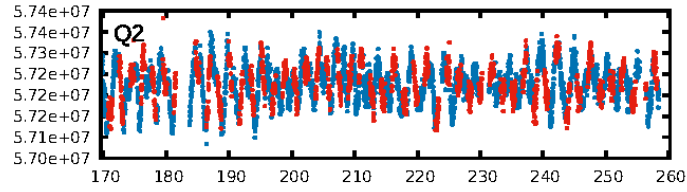
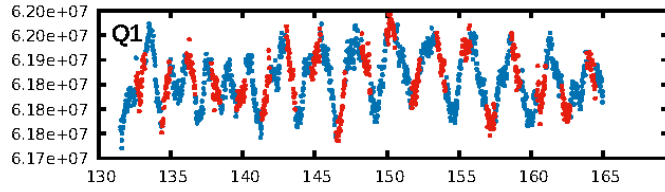
KIC: 6071791 Candidate: 1 of 2 Period: 1.735 d



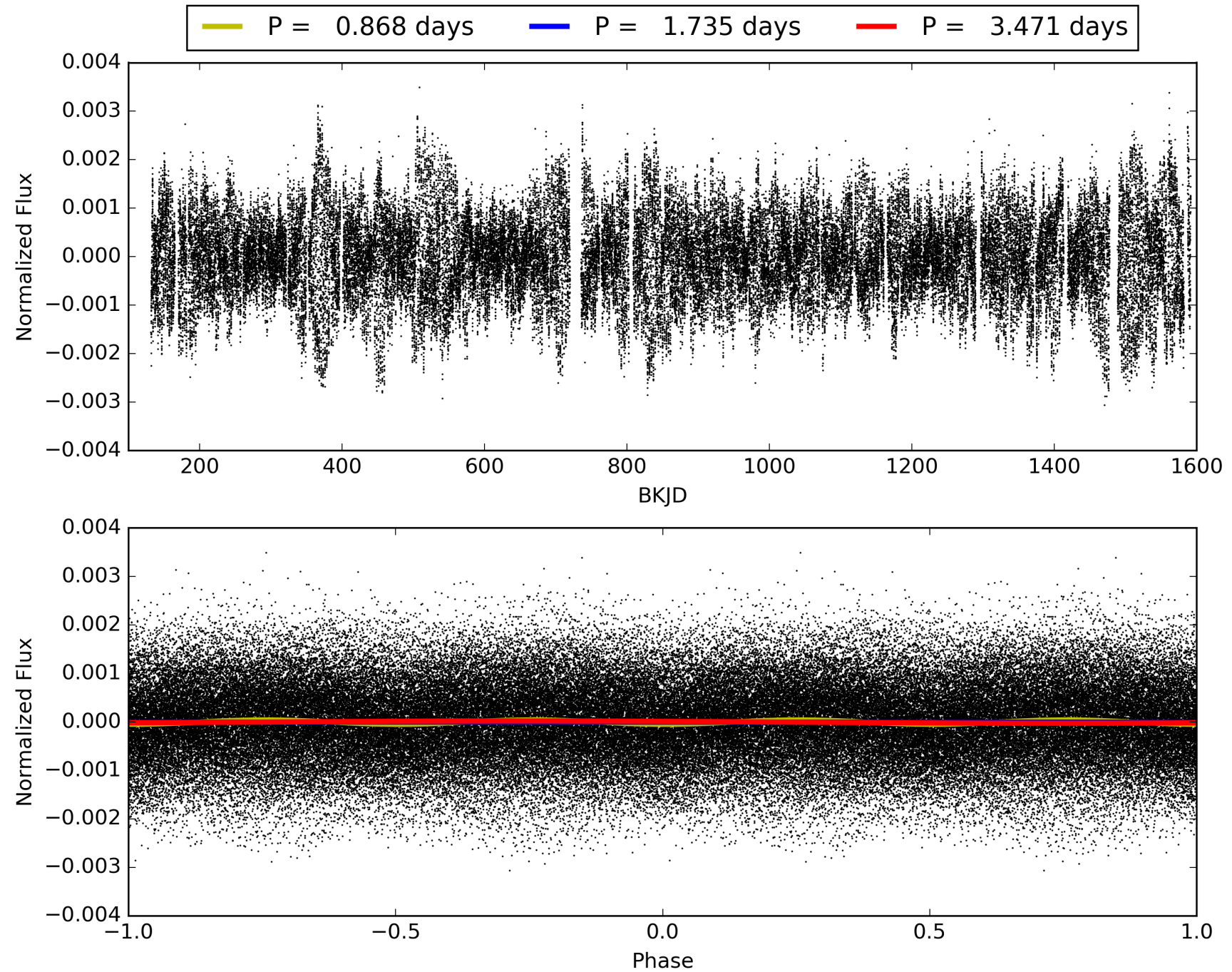
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006071791-01, PDC Light Curves



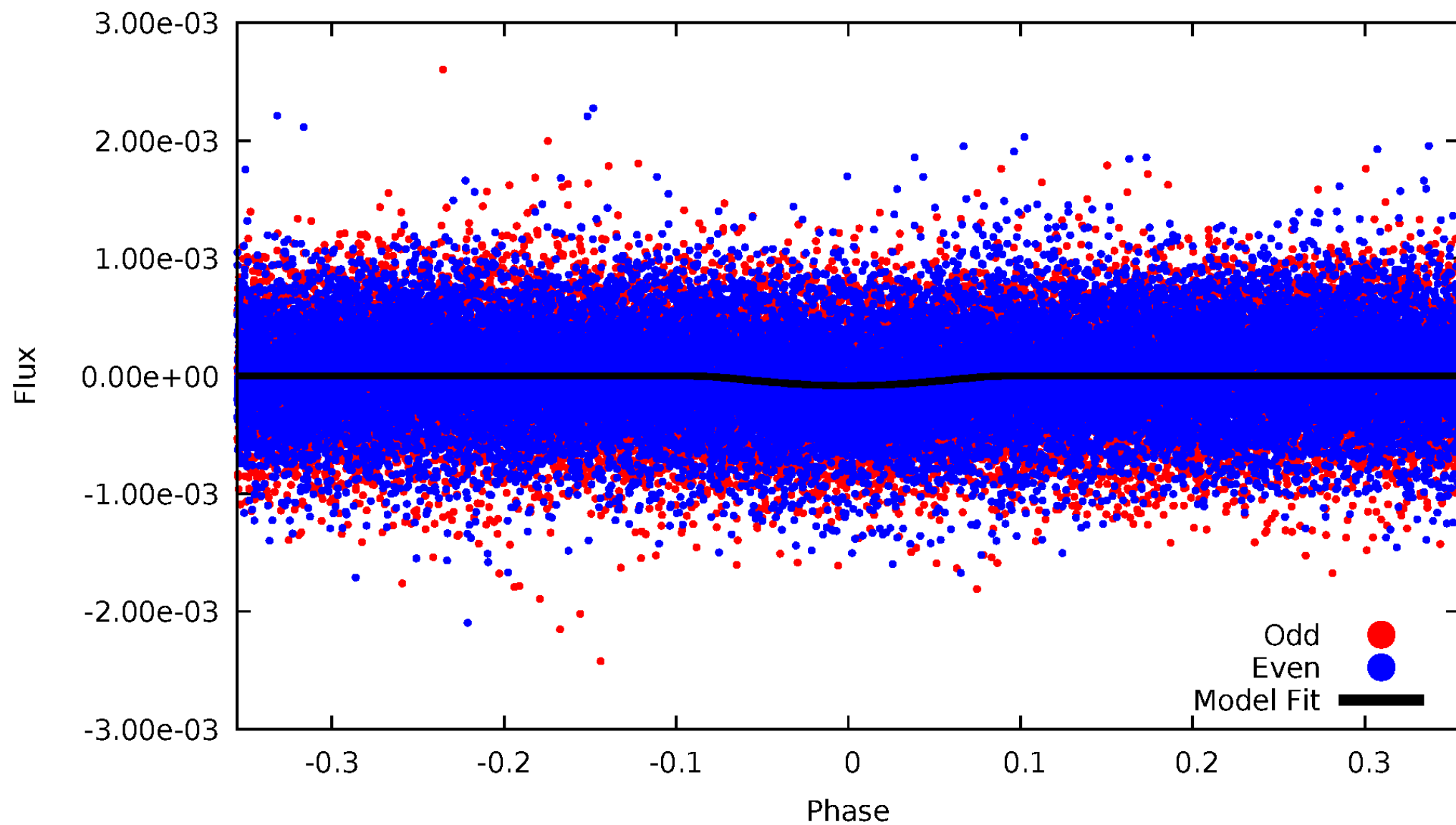
# TCE 006071791-01





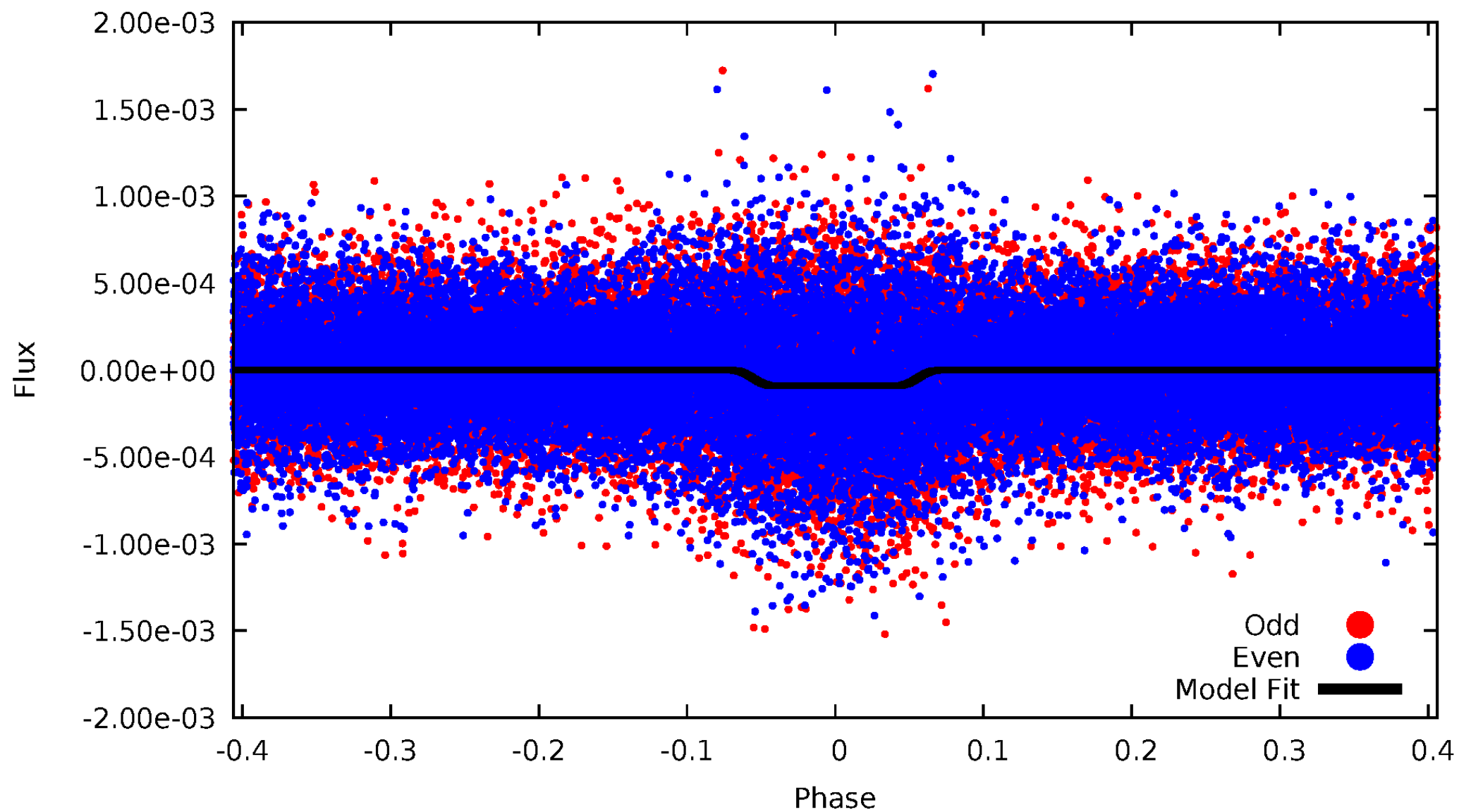
# DV Odd/Even

TCE 006071791-01



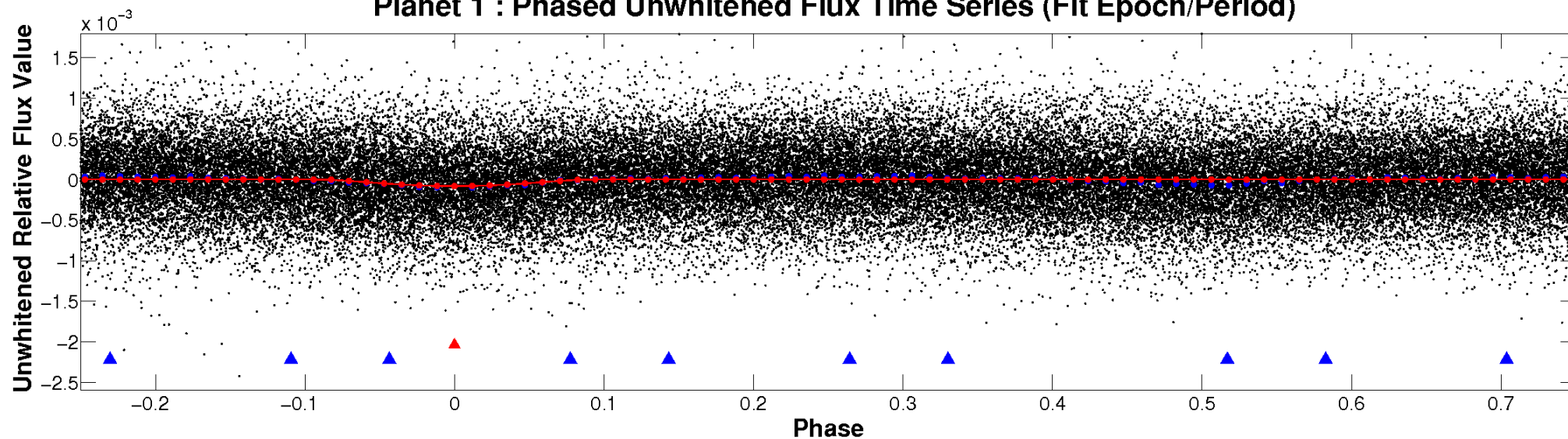
# ALT Odd/Even

TCE 006071791-01

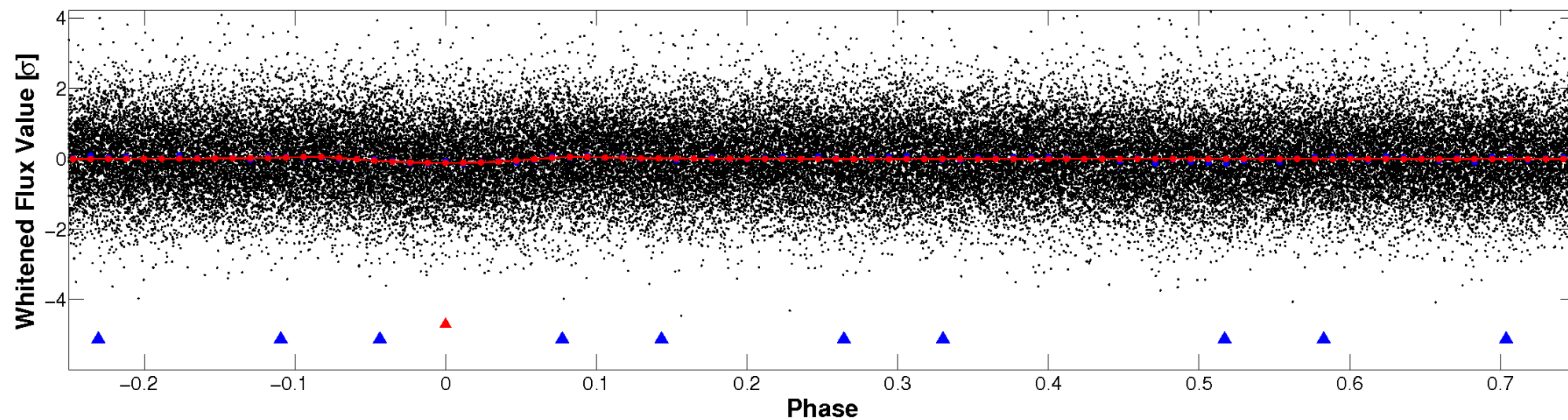


# Non-Whitened Vs. Whitened Light Curve

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

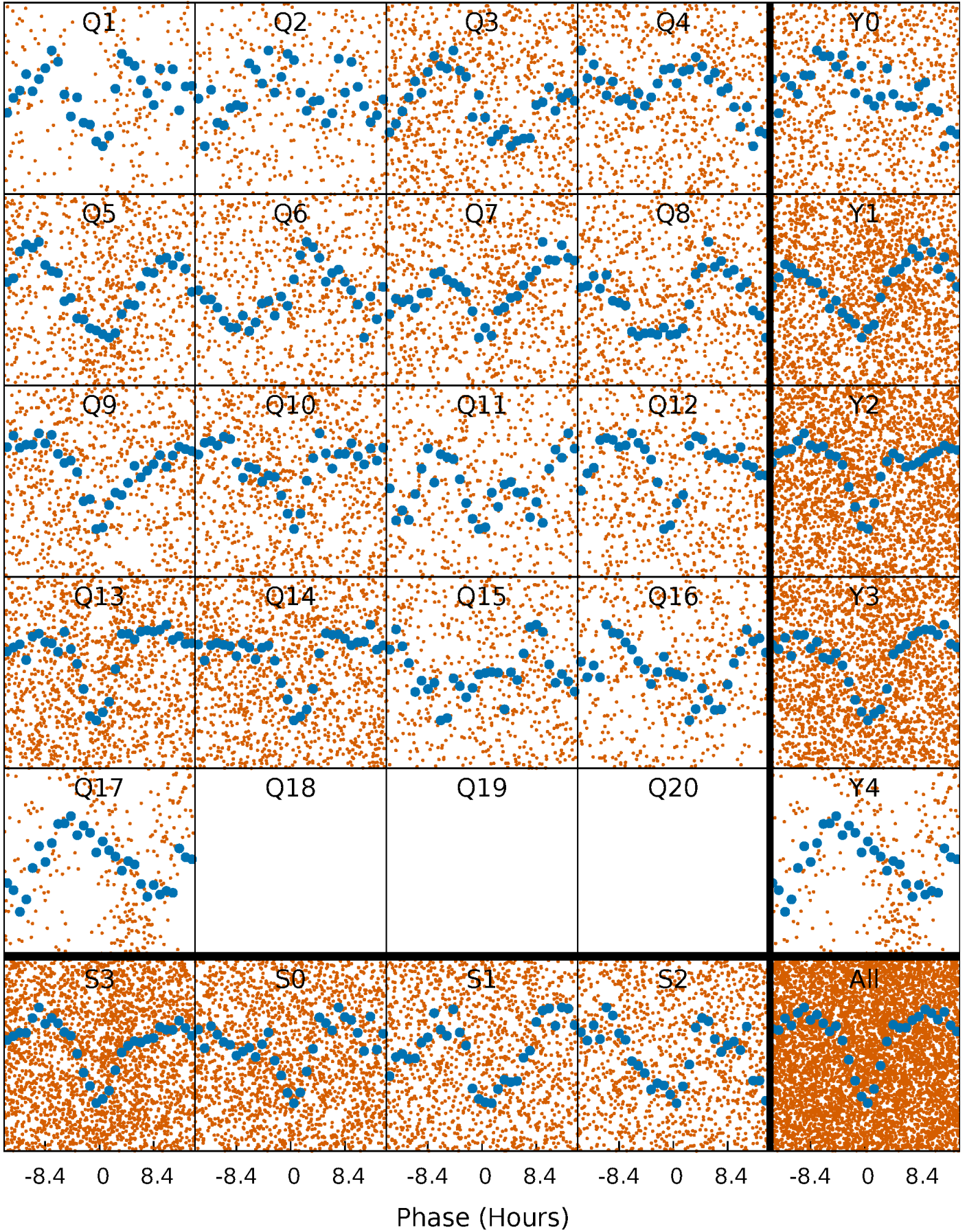


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

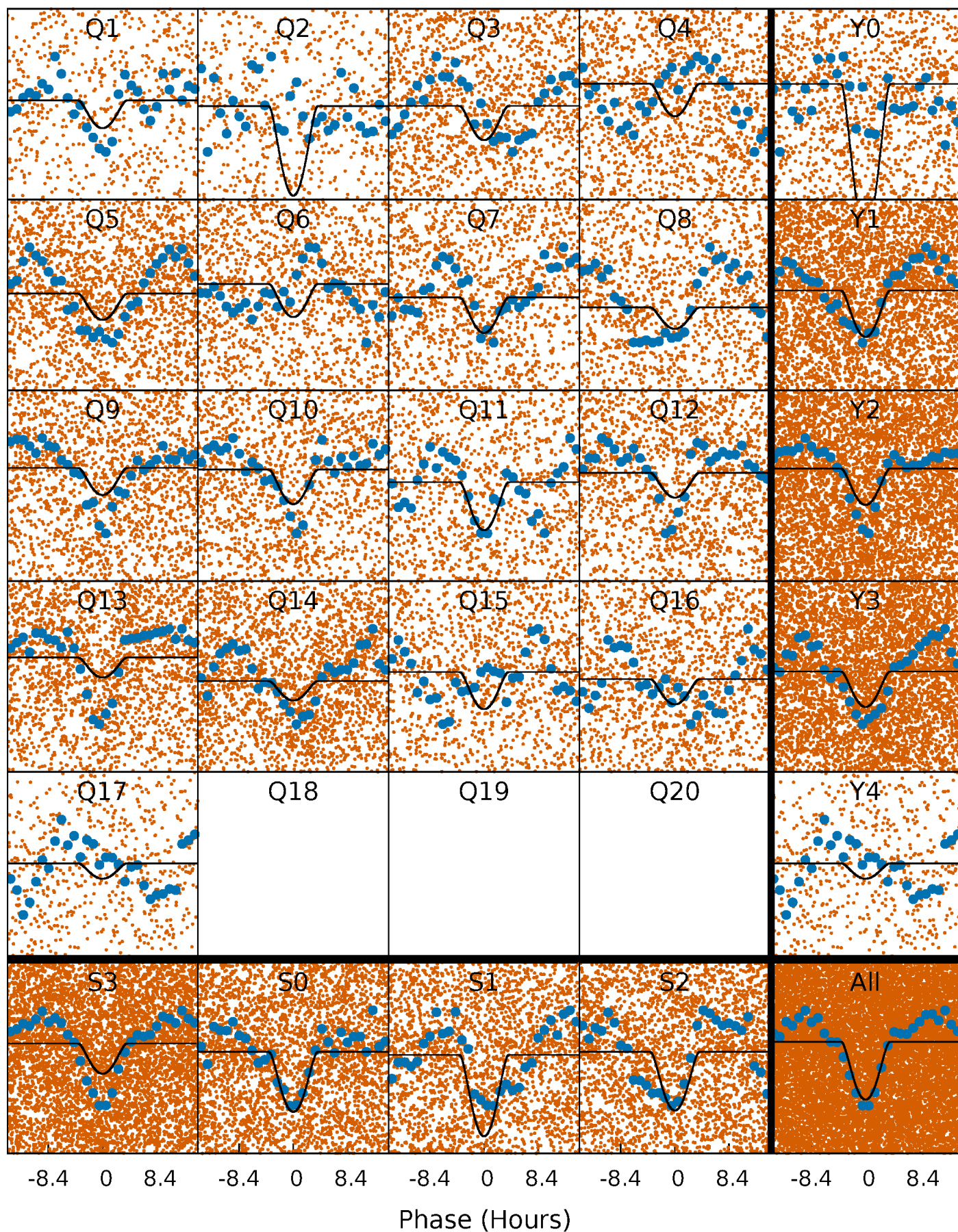
TCE 006071791-01 P= 1.735497 Days  $T_0=132.911328$  (BKJD)





# DV Quarter-Phased Transit Curves

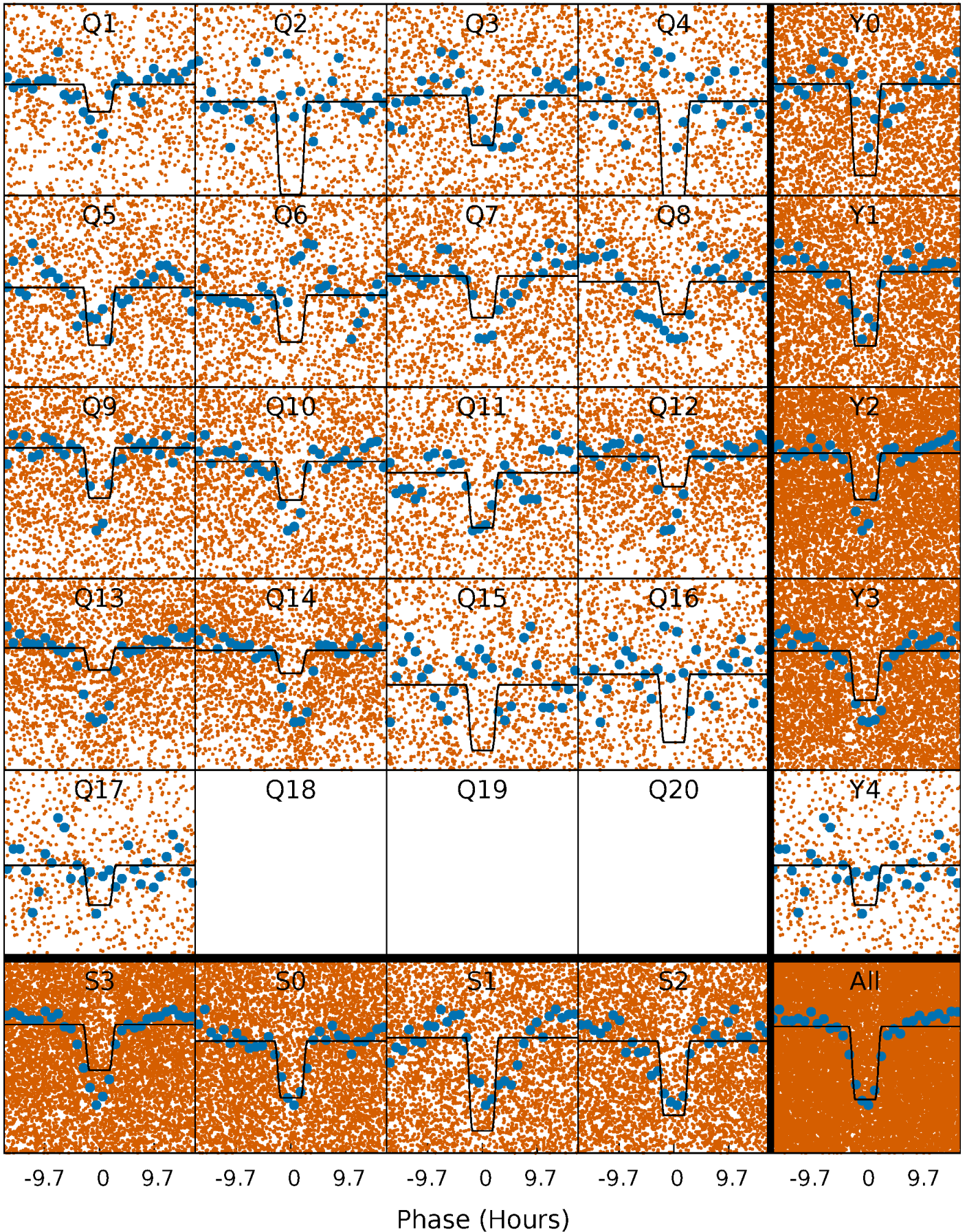
TCE 006071791-01 P= 1.735497 Days  $T_0=132.911328$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

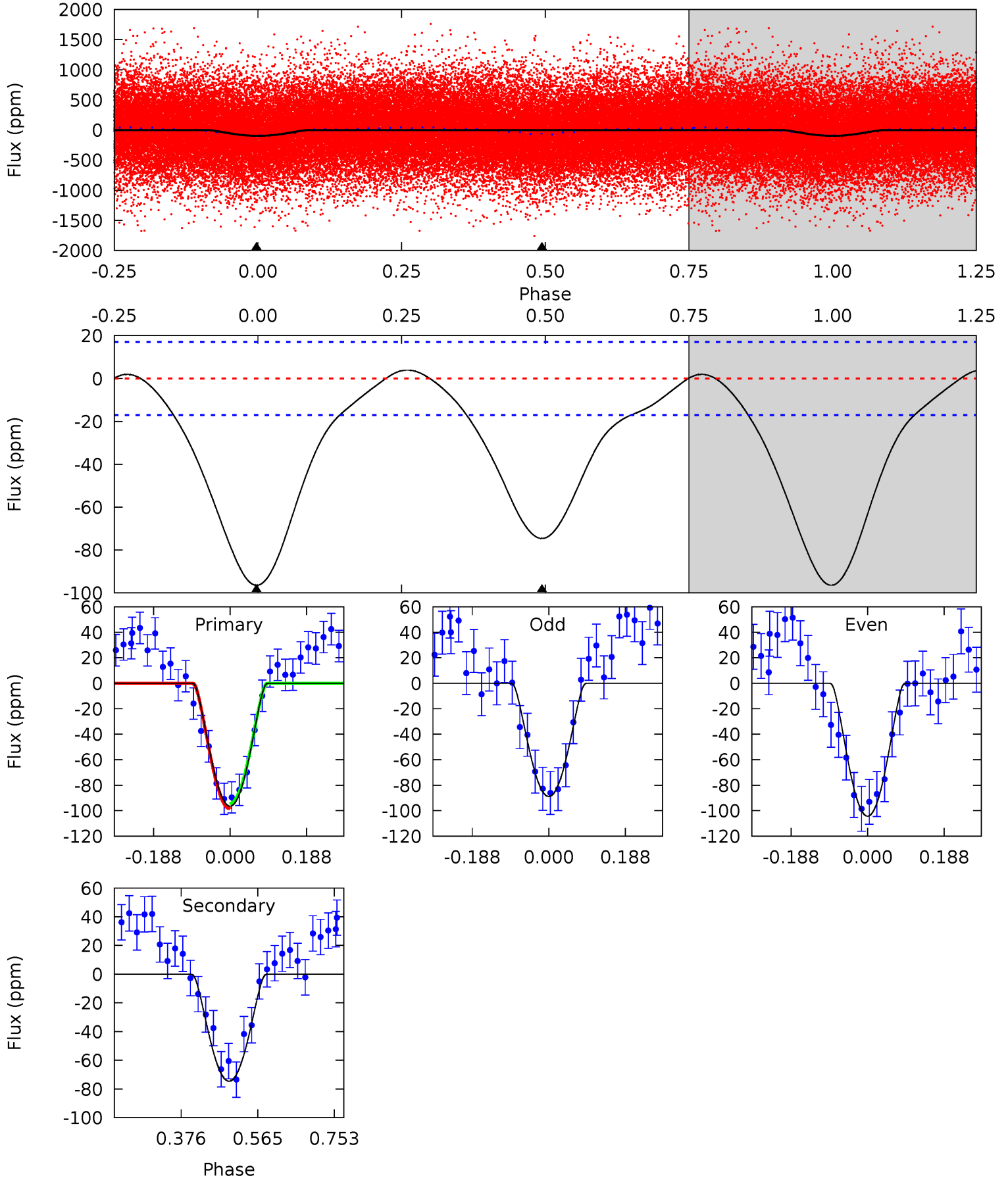
TCE 006071791-01 P= 1.735486 Days  $T_0=132.921836$  (BKJD)



# DV Model-Shift Uniqueness Test

006071791-01, P = 1.735497 Days, E = 131.175831 Days

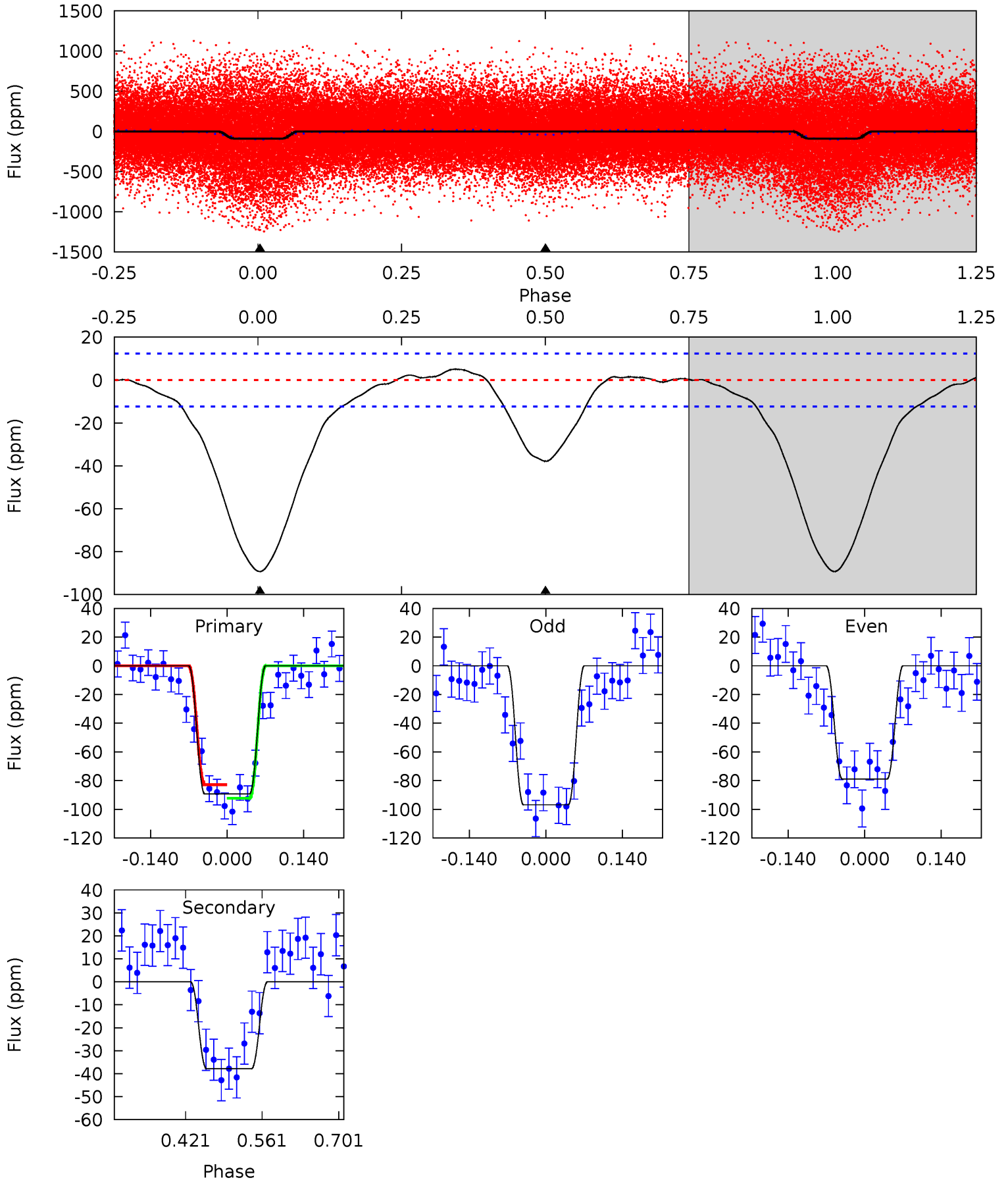
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.1	19.4	0	0	4.43	1.32	1.14	25.1	25.1	19.4	19.4	2.01	1.00	0.04	0.51



# Alt Model-Shift Uniqueness Test

006071791-01, P = 1.735486 Days, E = 131.186350 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
32.4	13.8	0	0	4.49	1.47	1.51	32.4	32.4	13.8	13.8	3.26	1.13	0.05	1.70





### Stellar Parameters For KIC 006071791

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6068^{+164}_{-182}$	$4.461^{+0.081}_{-0.202}$	$-0.340^{+0.300}_{-0.300}$	$0.950^{+0.288}_{-0.115}$	$0.952^{+0.120}_{-0.109}$	$1.563^{+0.553}_{-0.792}$
	+3%/-3%	+2%/-5%	+88%/-88%	+30%/-12%	+13%/-11%	+35%/-51%
Source	PHO1	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 006071791-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-75 \pm 4$	$2.03^{+1.62}_{-1.25}$	$2234^{+156}_{-122}$	$4332^{+2351}_{-869}$	$7.639^{+43.246}_{-5.339}$
Alt.	$-38 \pm 3$	$1.59^{+1.62}_{-1.15}$	$2219^{+162}_{-112}$	$4137^{+3460}_{-915}$	$6.278^{+76.888}_{-4.681}$

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

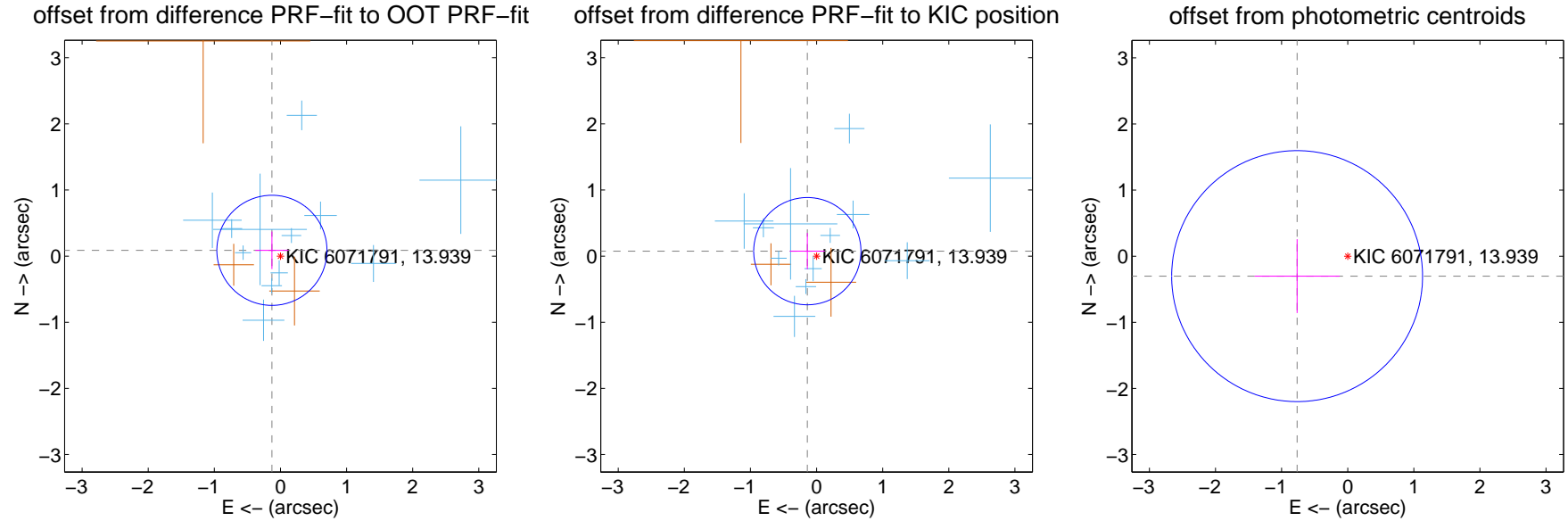
## DV Centroid Data

Supplemental centroid analysis for 006071791-01. Kepler magnitude: 13.94. Transit SNR 8.50

There are 12 quarters with good PRF difference image offsets

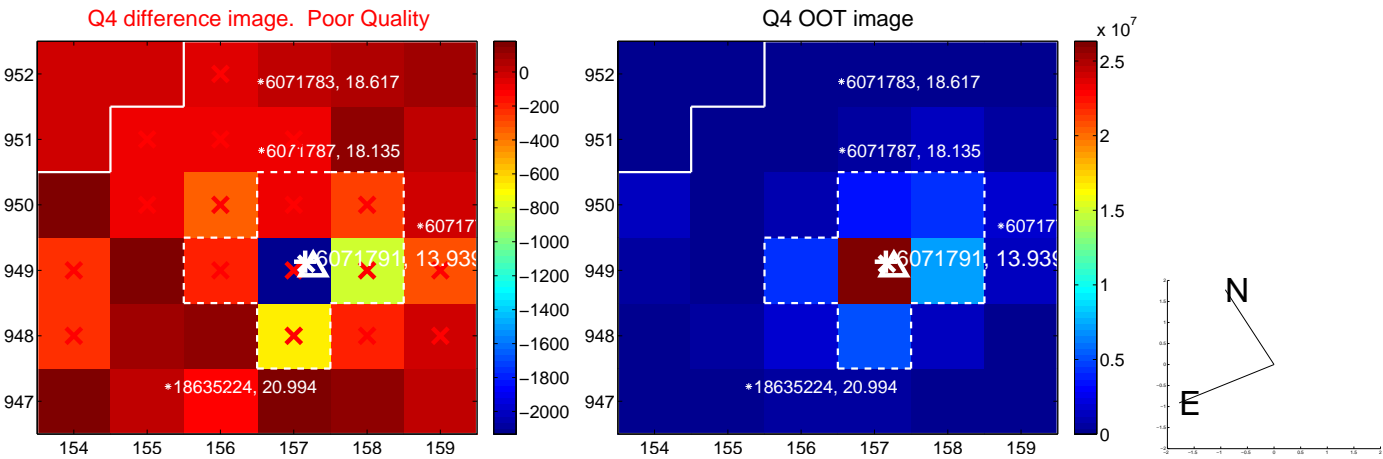
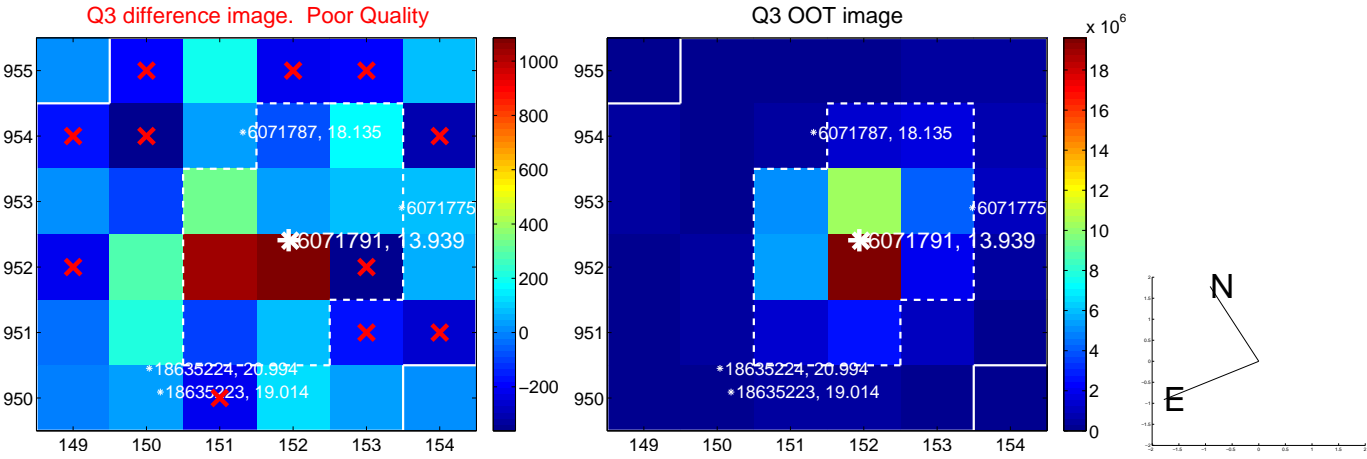
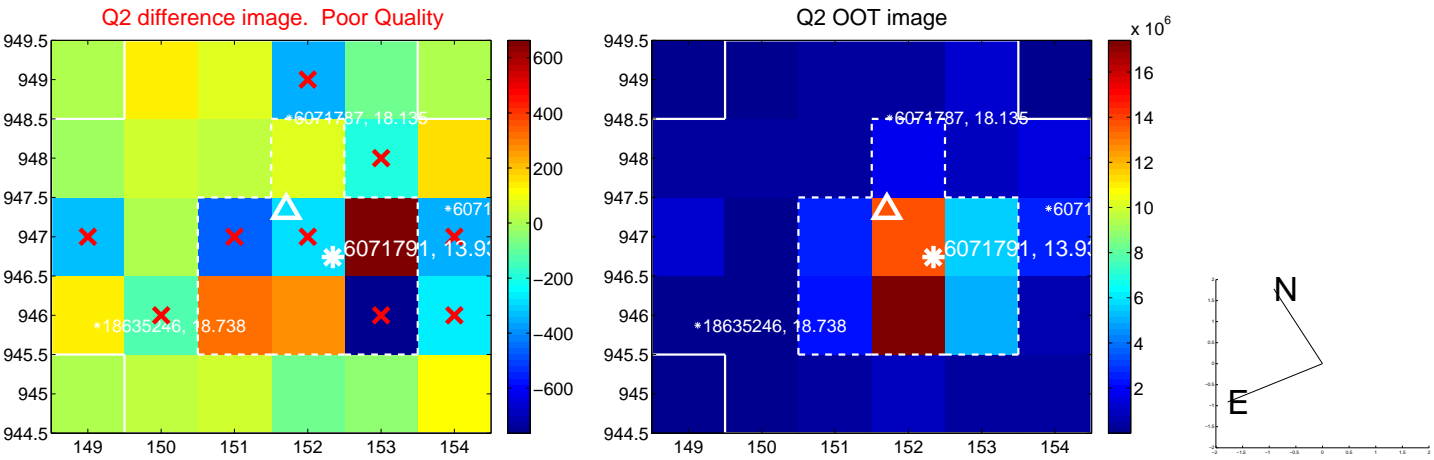
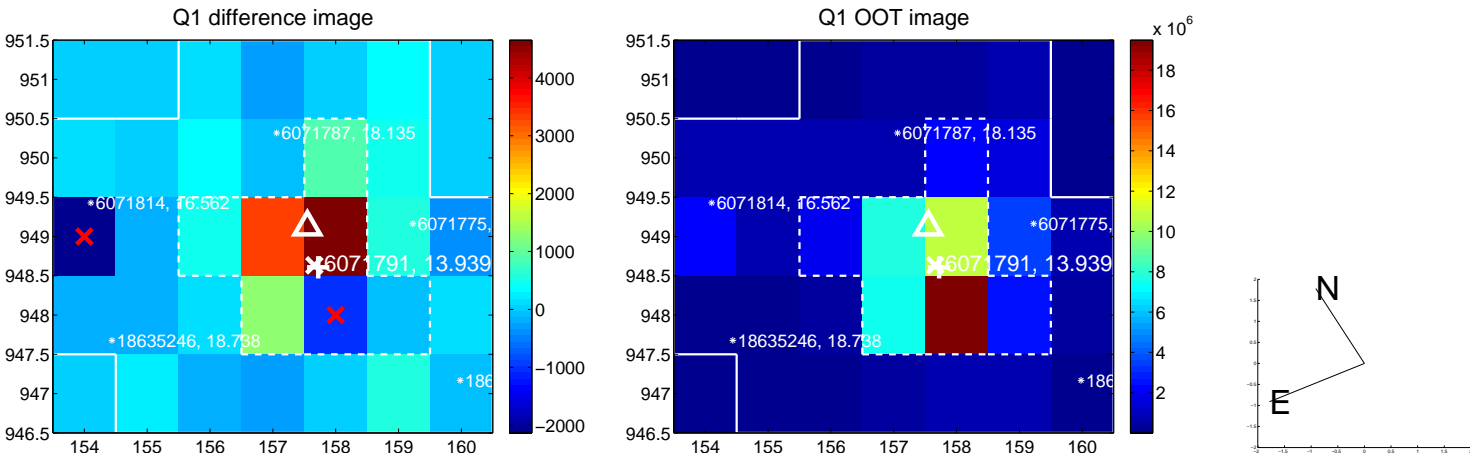
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.156 \pm 0.278$	0.56	$0.129 \pm 0.250$	$0.088 \pm 0.284$
PRF-fit source offset from KIC position	$0.159 \pm 0.270$	0.59	$0.140 \pm 0.264$	$0.075 \pm 0.275$
photometric centroid source offset	$0.82 \pm 0.63$	1.30	$0.77 \pm 0.64$	$-0.30 \pm 0.56$

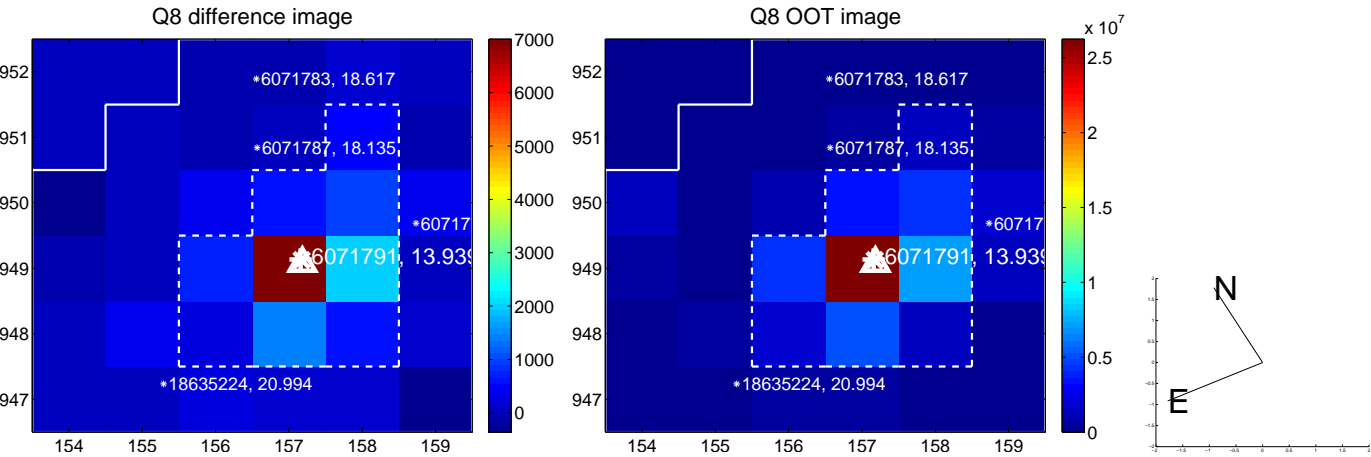
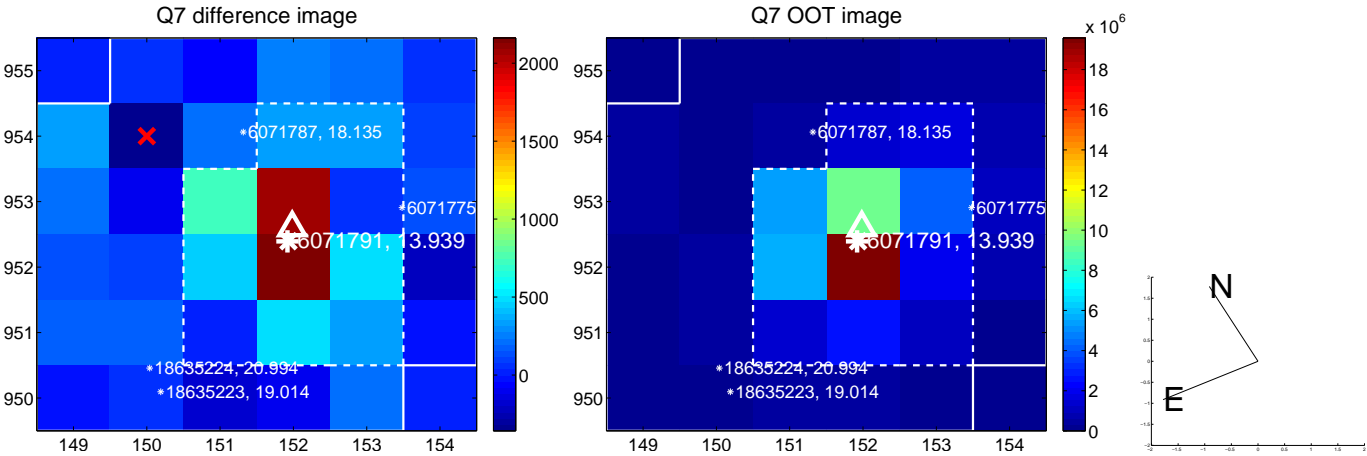
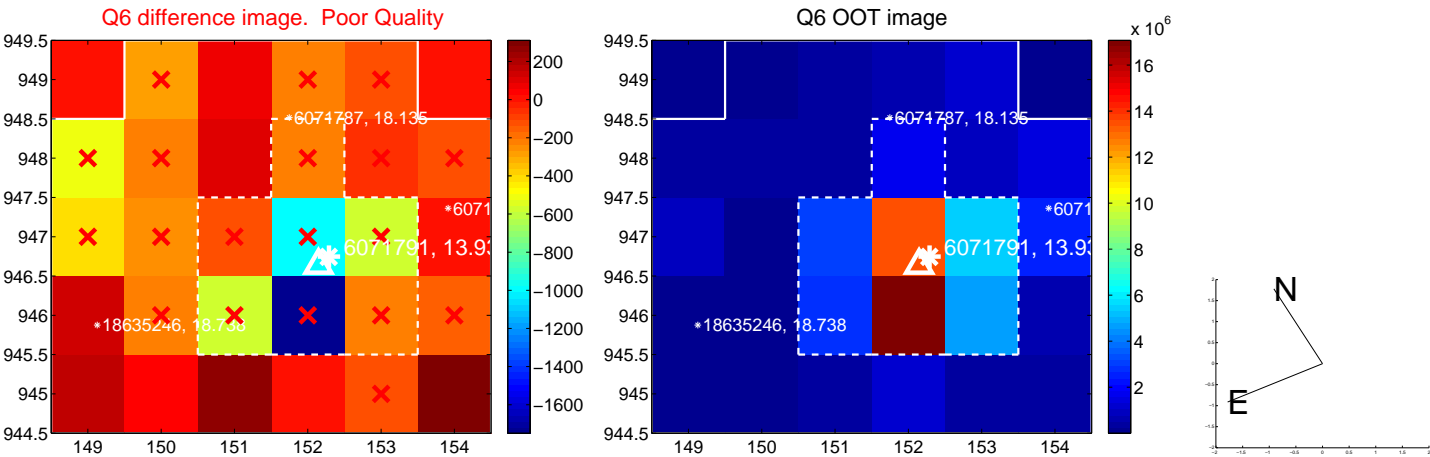
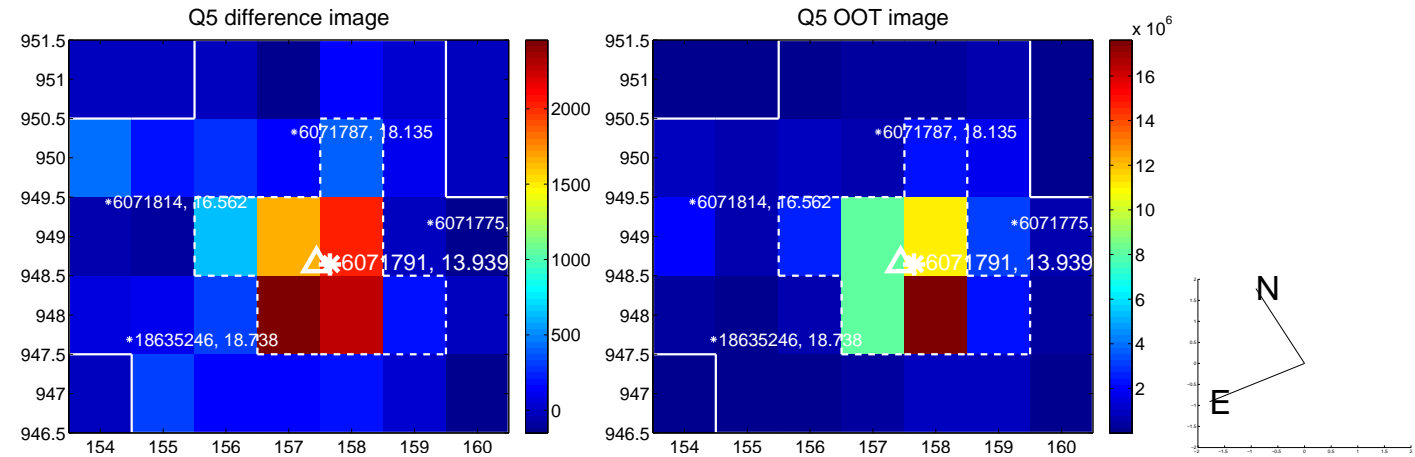


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

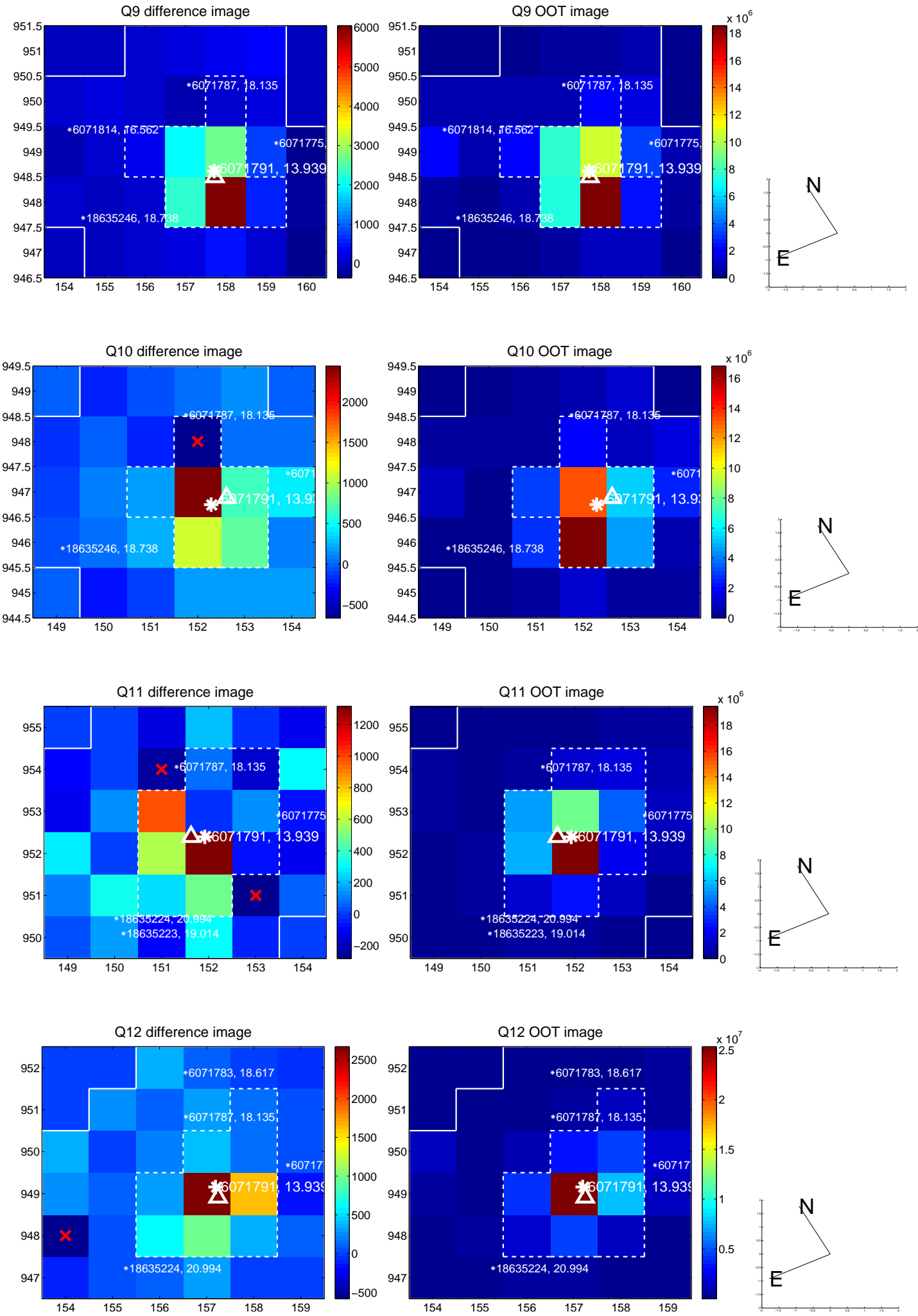


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

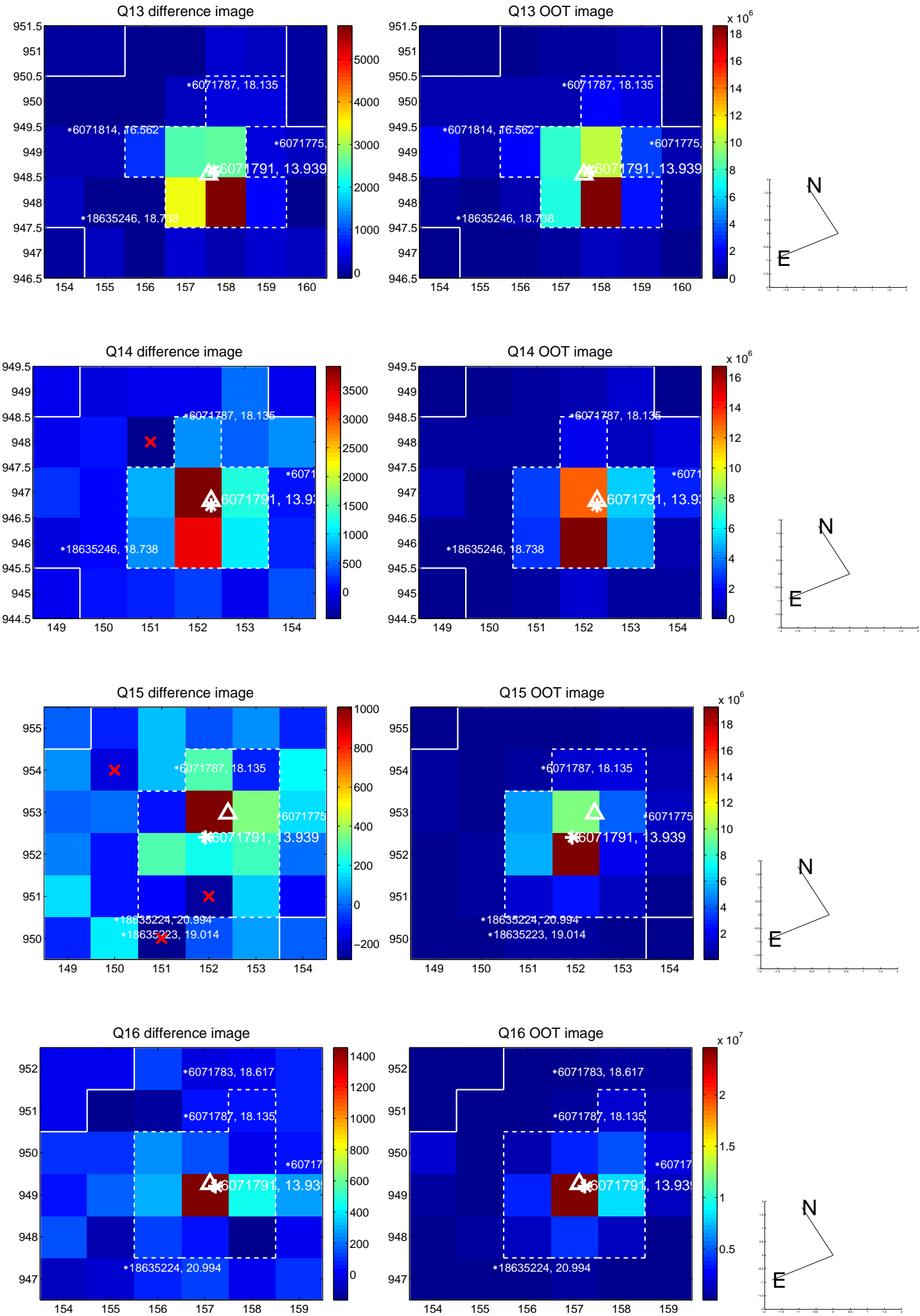




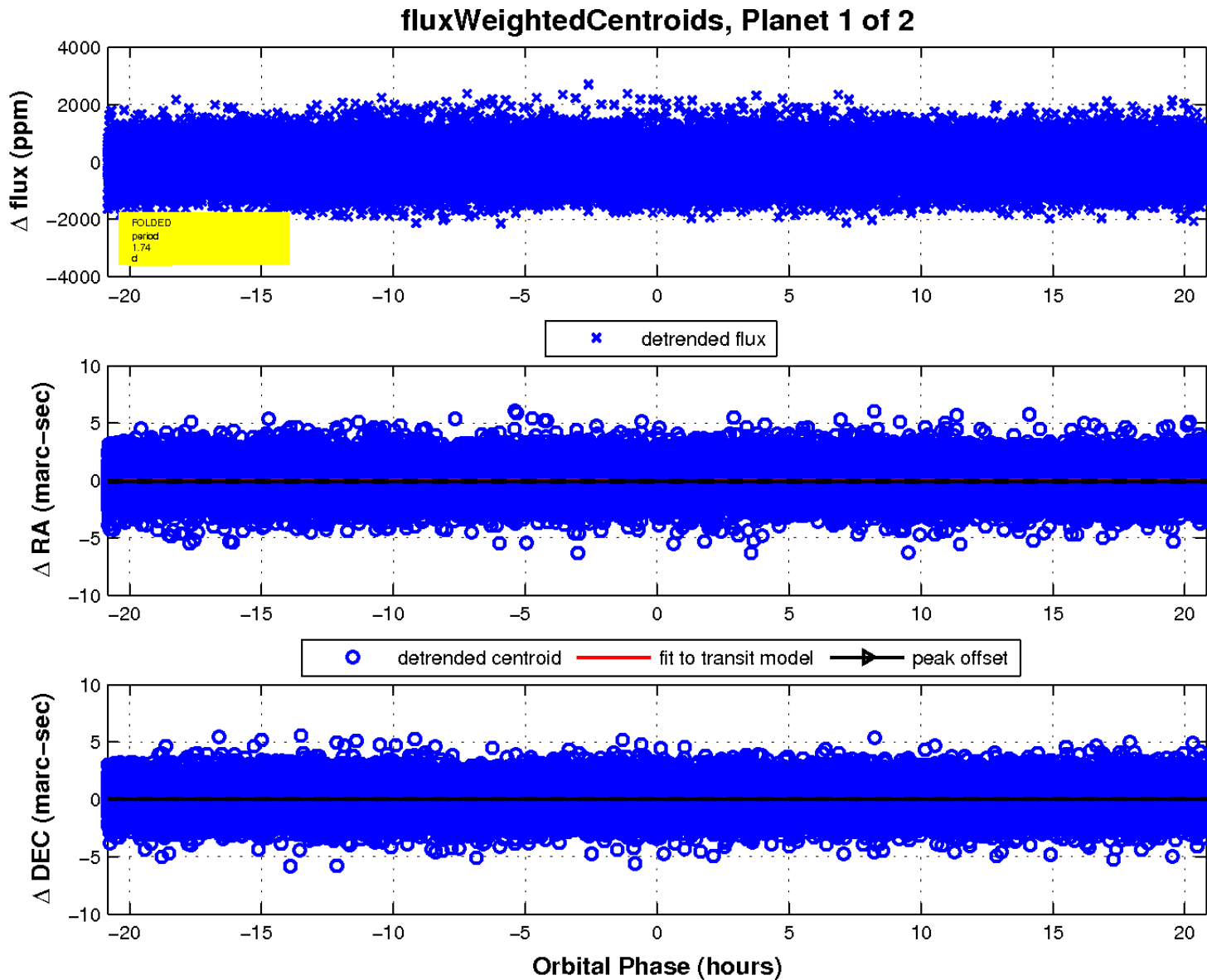
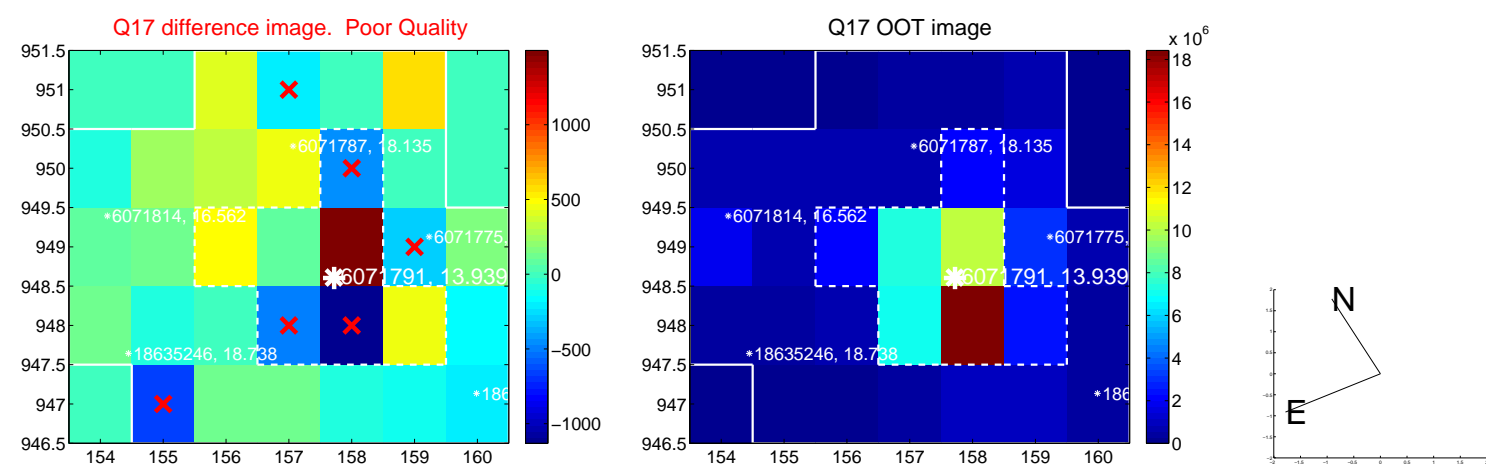
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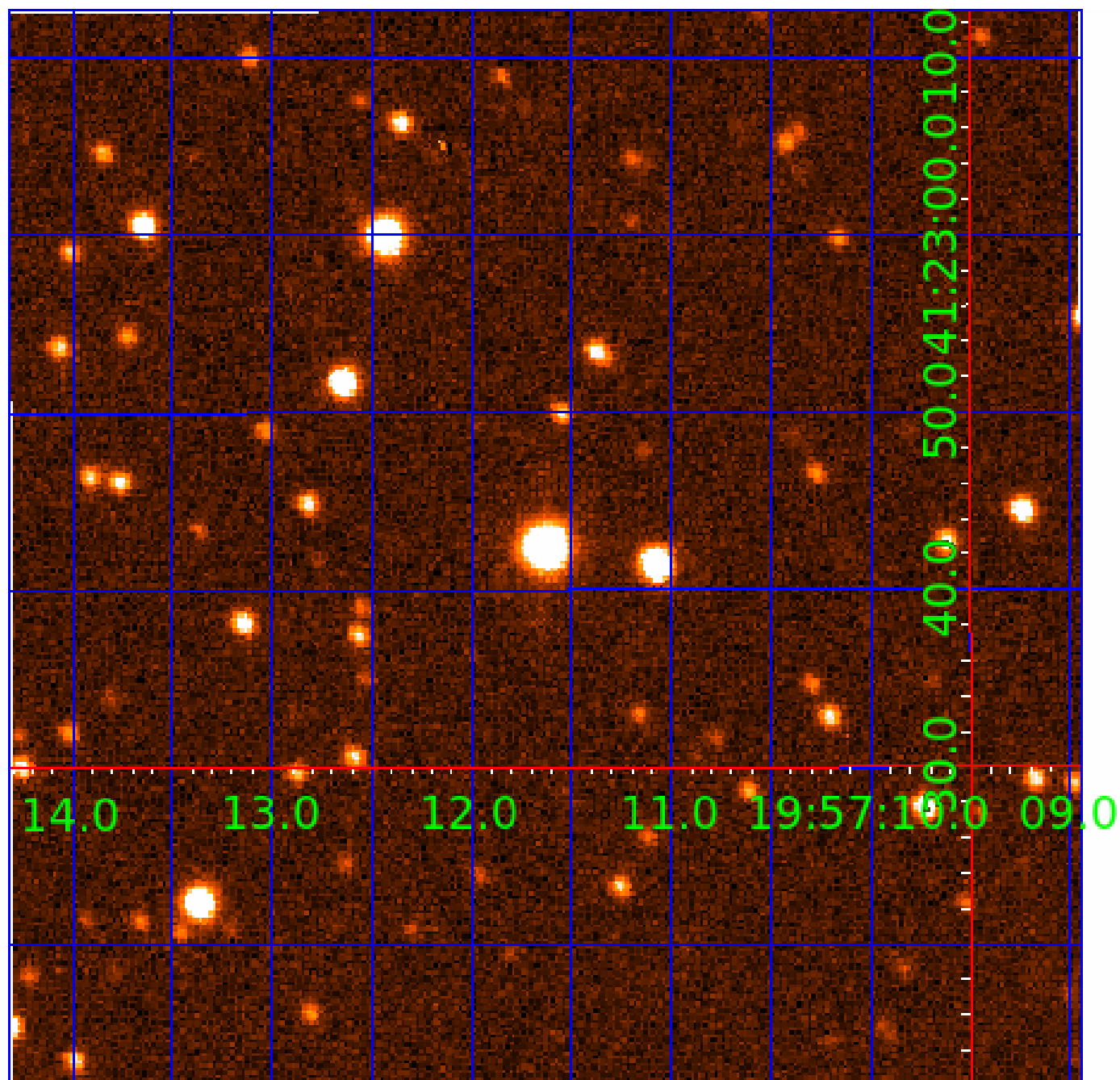


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006071791

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006071791-01	OBS	No	1.735497	132.911328	82.1	7.394	7.8	8.5	0.95	6068	1.58	1417.95
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006071791-01	OBS	FP	0.00	1	0	0	0	LPP_DV
006071791-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS

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

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

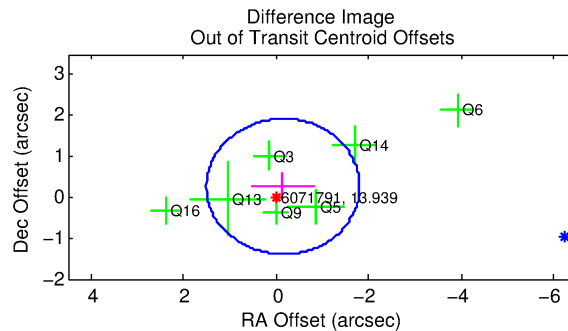
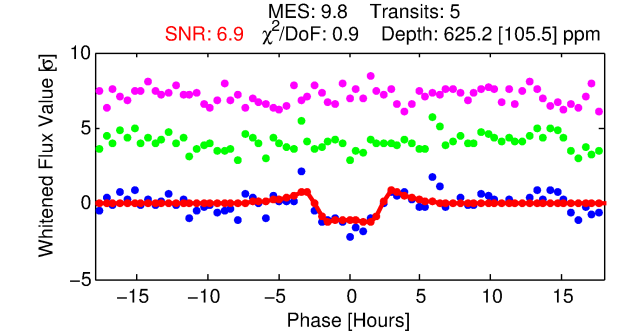
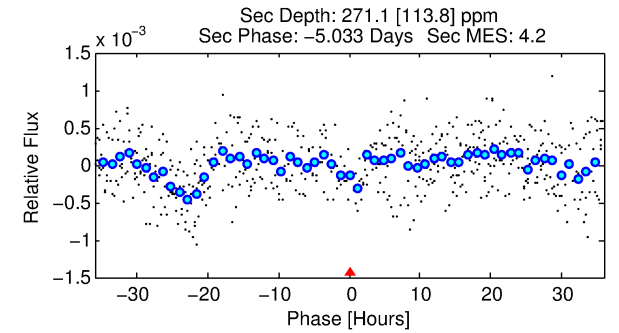
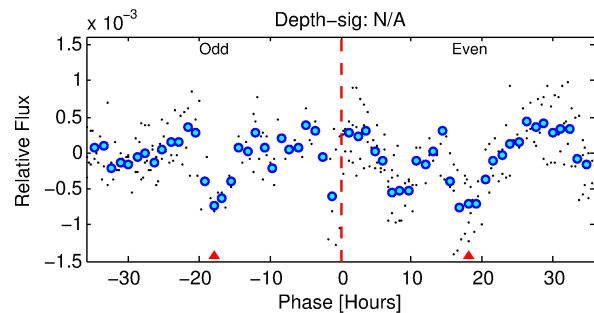
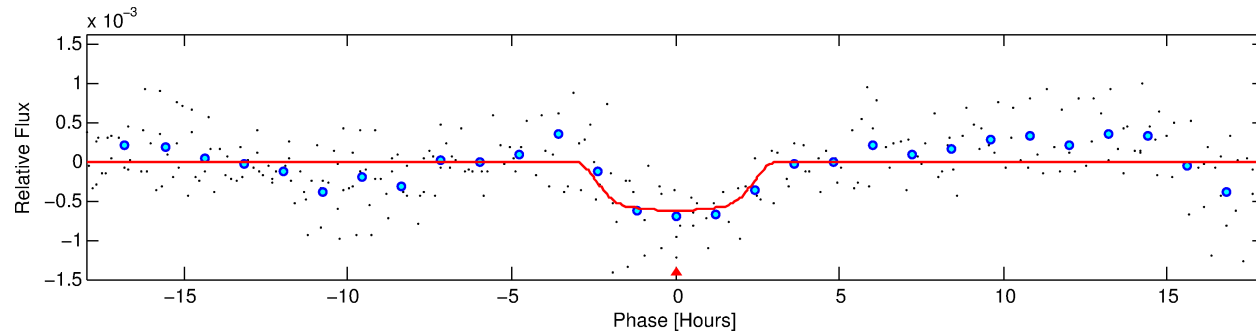
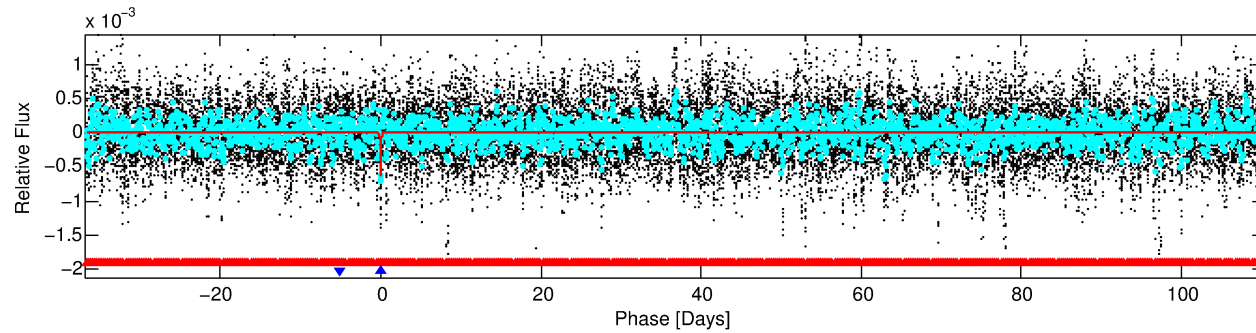
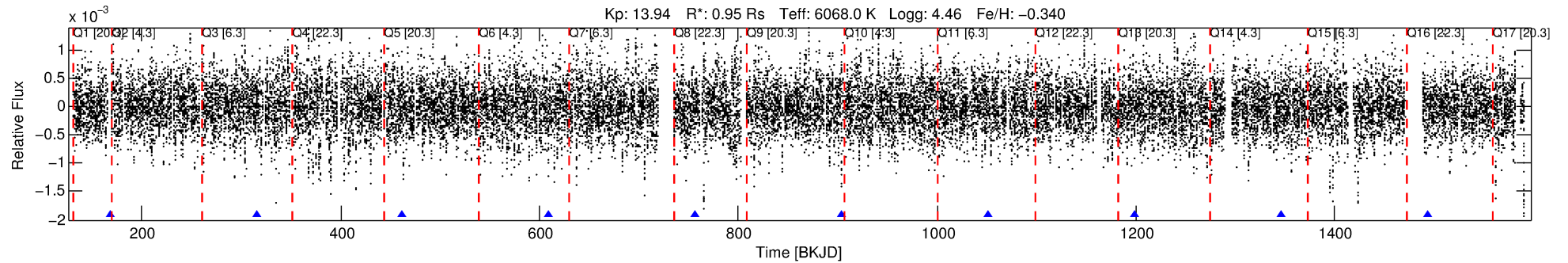
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006071791-02

No Significant Match Found

# DV One-Page Summary

KIC: 6071791 Candidate: 2 of 2 Period: 147.193 d



## DV Fit Results:

Period = 147.19299 [0.00268] d  
Epoch = 168.0800 [0.0175] BKJD  
Rp/R\* = 0.0282 [0.0032]  
a/R\* = 77.52 [22.99]  
b = 0.94 [0.04]  
Seff = 3.81 [1.48]  
Teq = 356 [35] K  
Ag = 5018.00 [3023.76] [1.66] $\sigma$   
Teffp = 4634 [568] K [7.52] $\sigma$

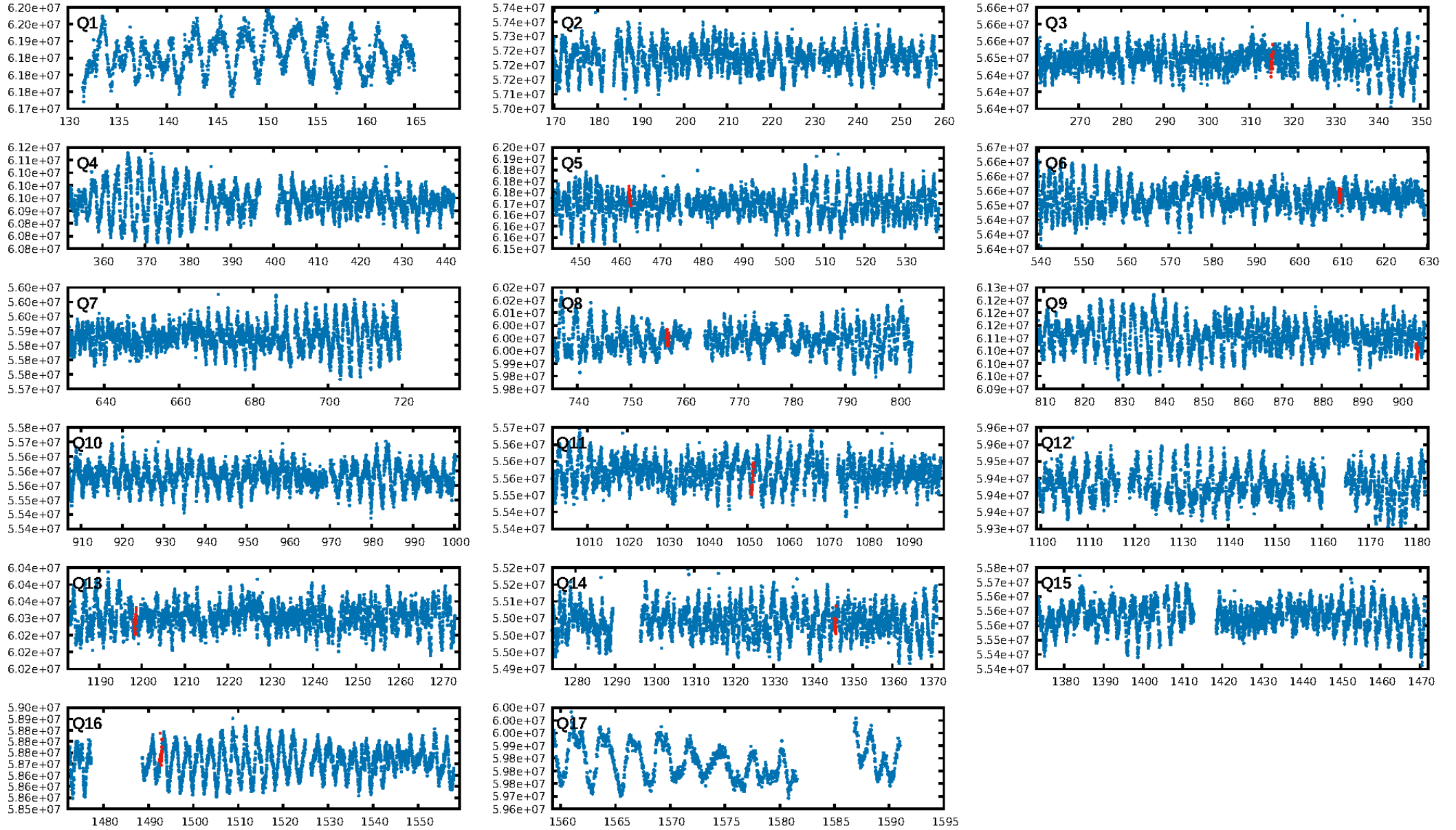
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [366.73] $\sigma$   
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 94.4%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 4.06e-12**  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: 0.767**  
Centroid-sig: 0.8%  
Centroid-so: 0.975 arcsec [1.44] $\sigma$   
OotOffset-rm: 0.302 arcsec [0.55] $\sigma$   
KicOffset-rm: 0.292 arcsec [0.48] $\sigma$   
OotOffset-st: 2/1/1/3 [7]  
KicOffset-st: 2/1/1/3 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 0.22 [2/9]

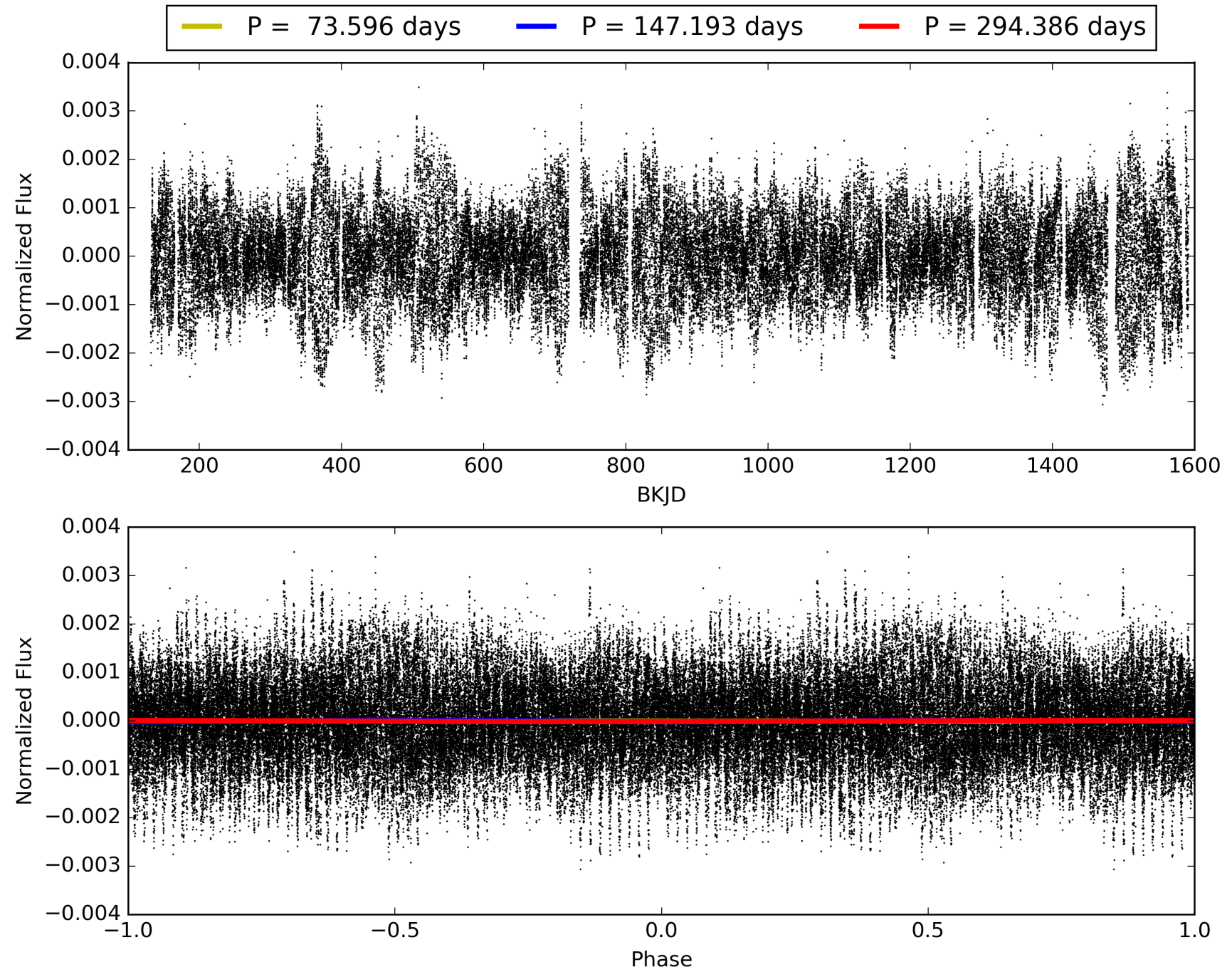
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 17:54:53 Z

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

# TCE 006071791-02, PDC Light Curves

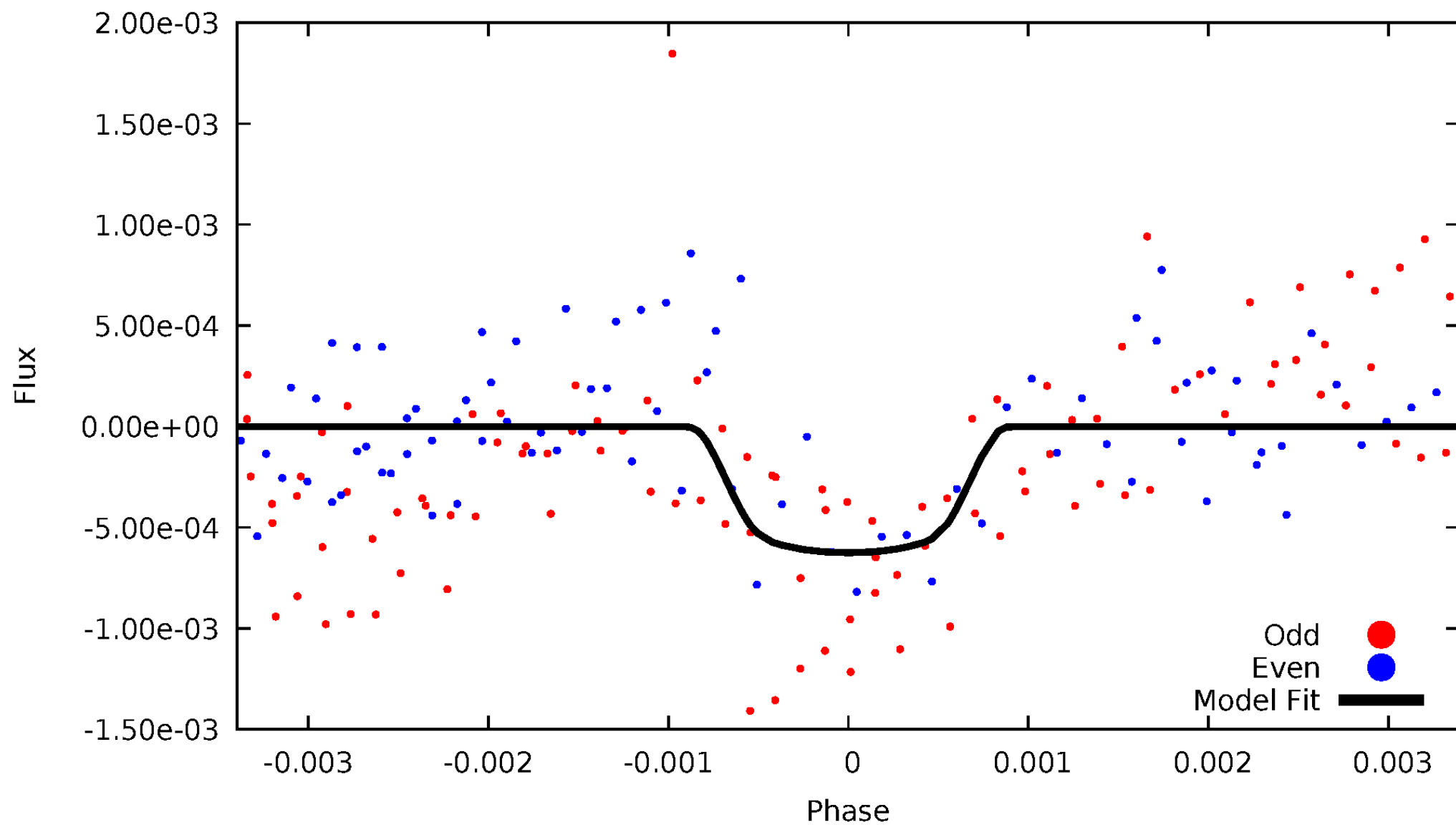


# TCE 006071791-02



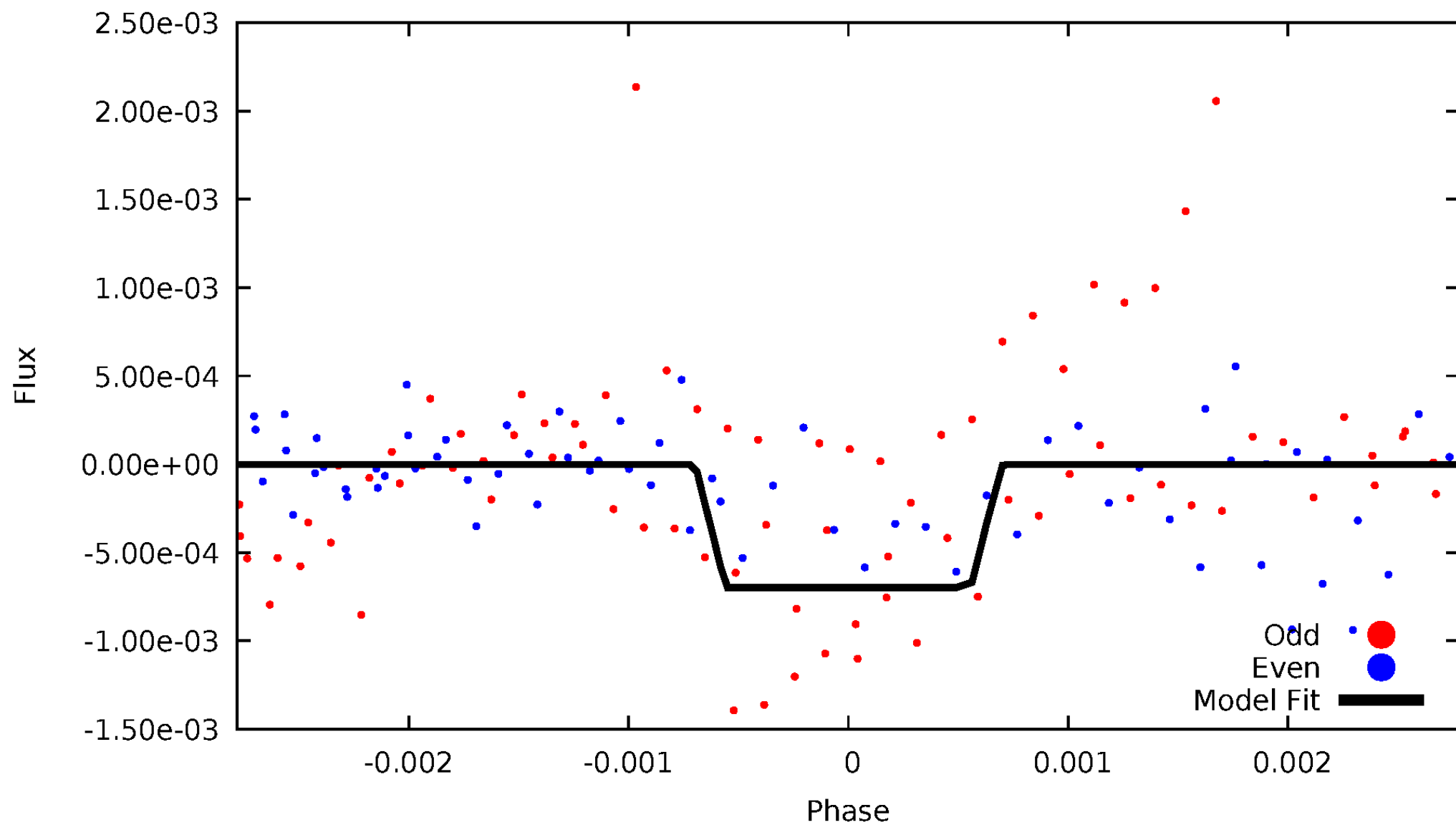
# DV Odd/Even

TCE 006071791-02



# ALT Odd/Even

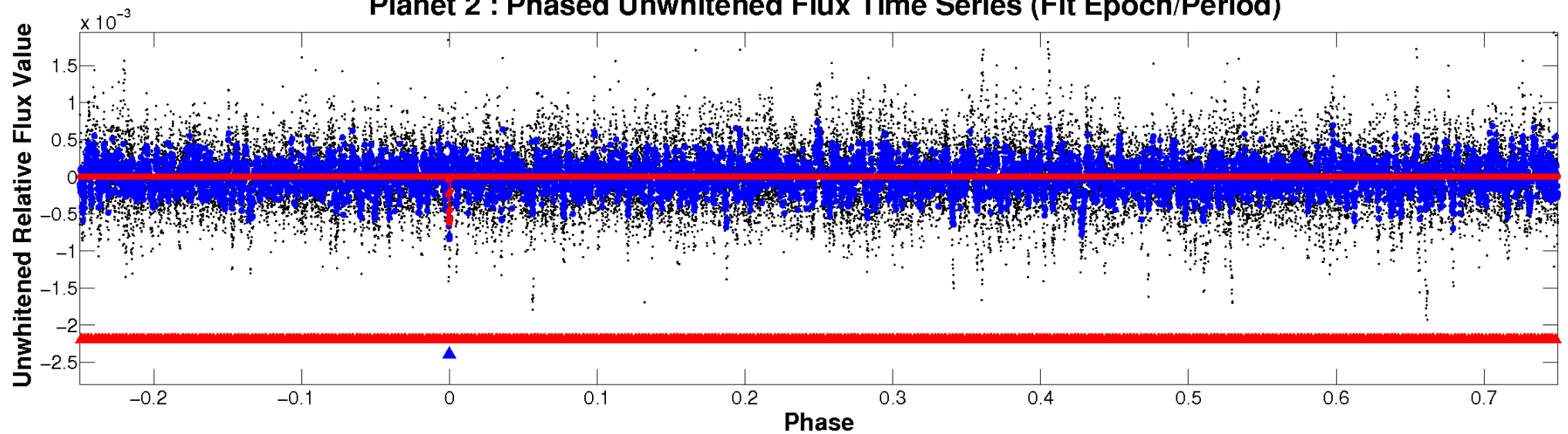
TCE 006071791-02



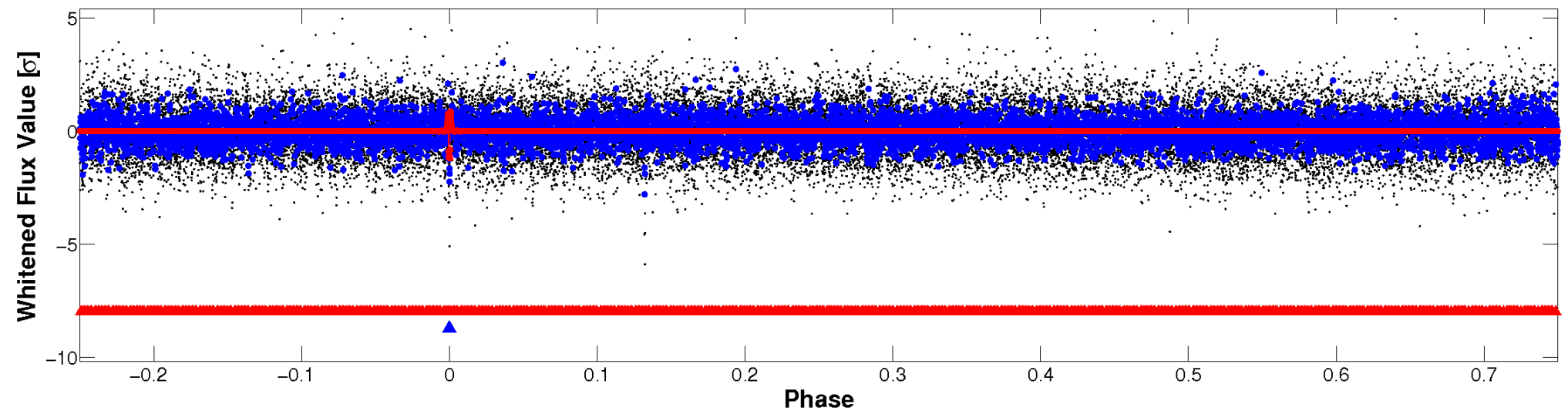


# Non-Whitened Vs. Whitened Light Curve

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

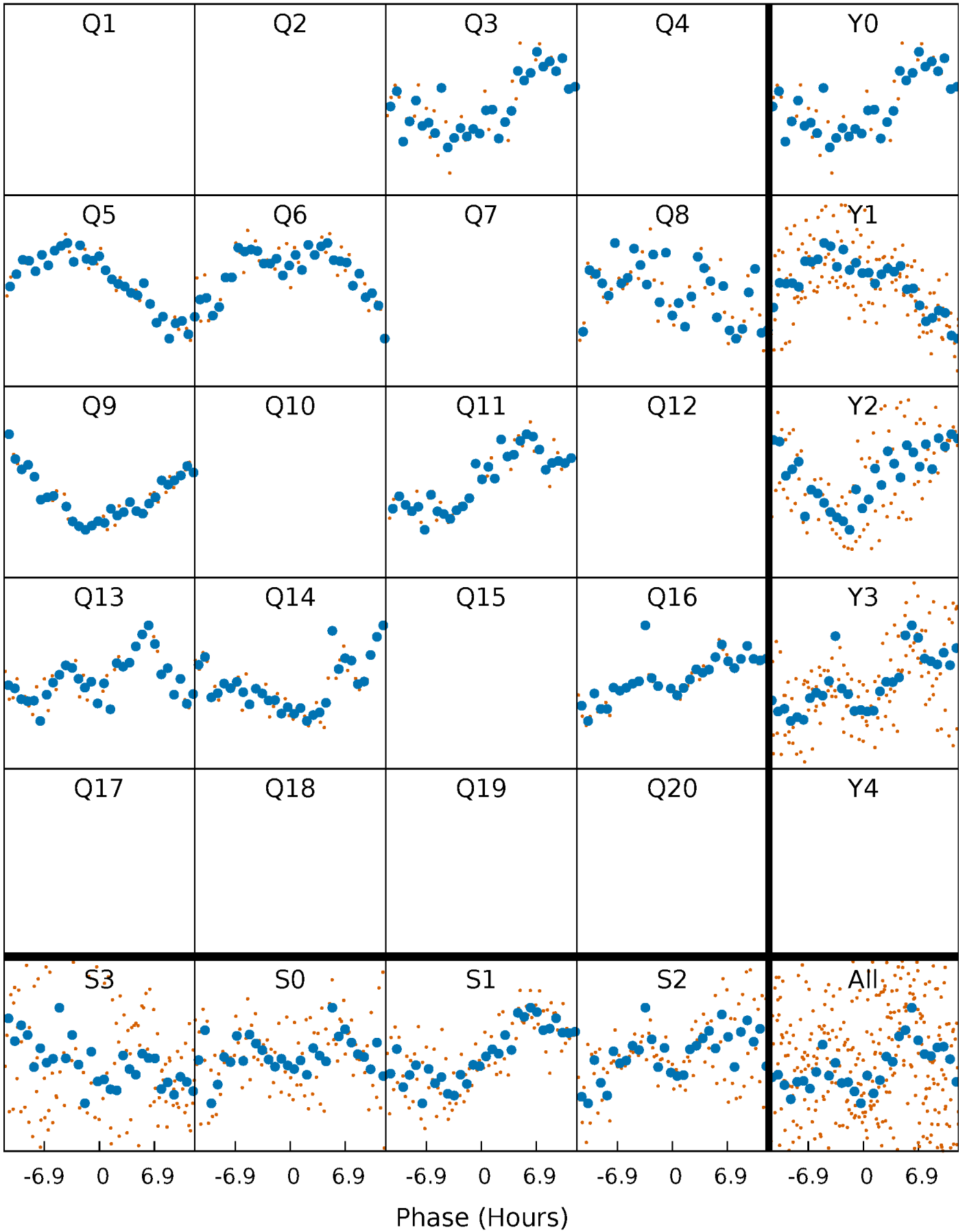


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



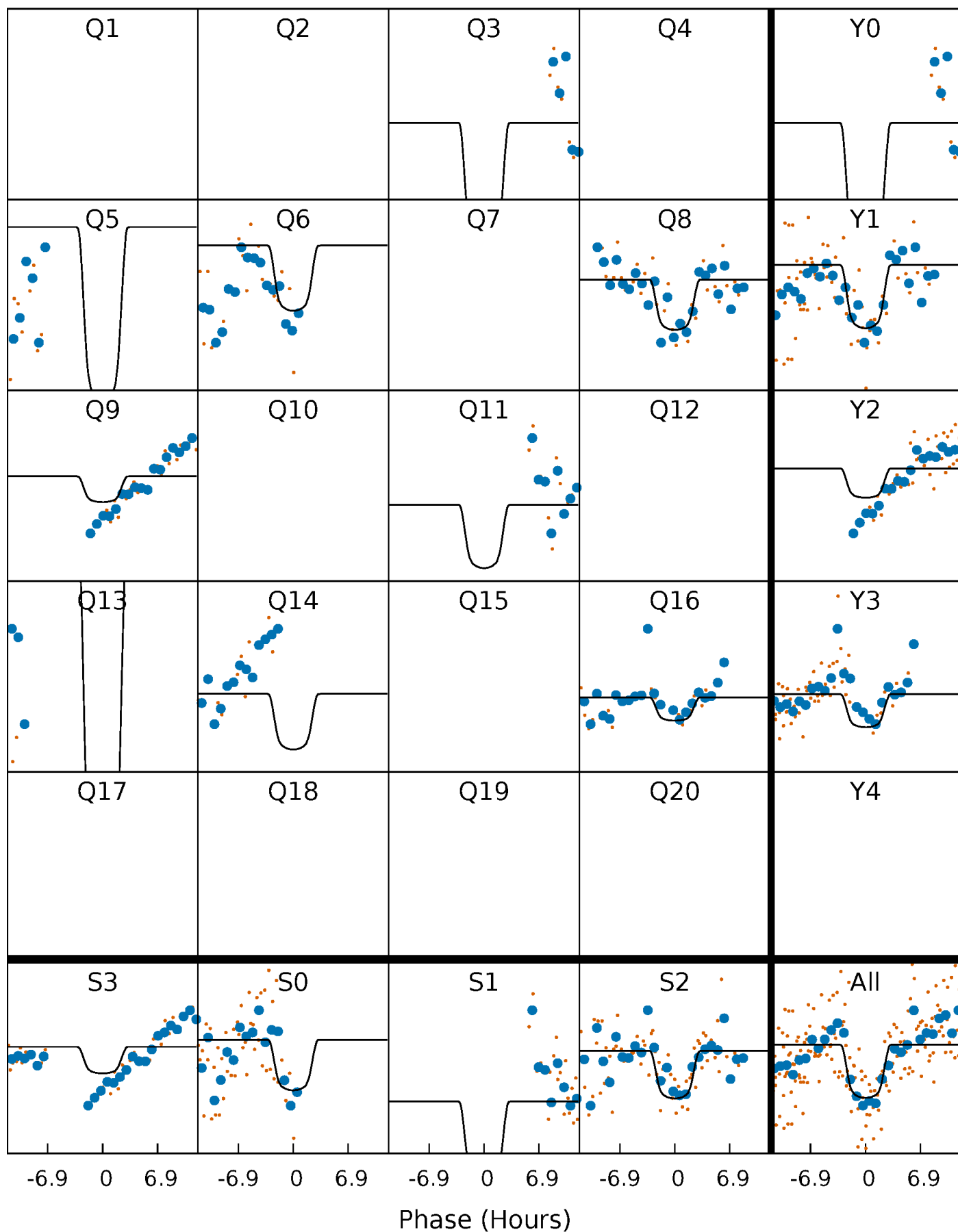
# PDC Quarter-Phased Transit Curves

TCE 006071791-02 P=147.192989 Days  $T_0=168.080015$  (BKJD)



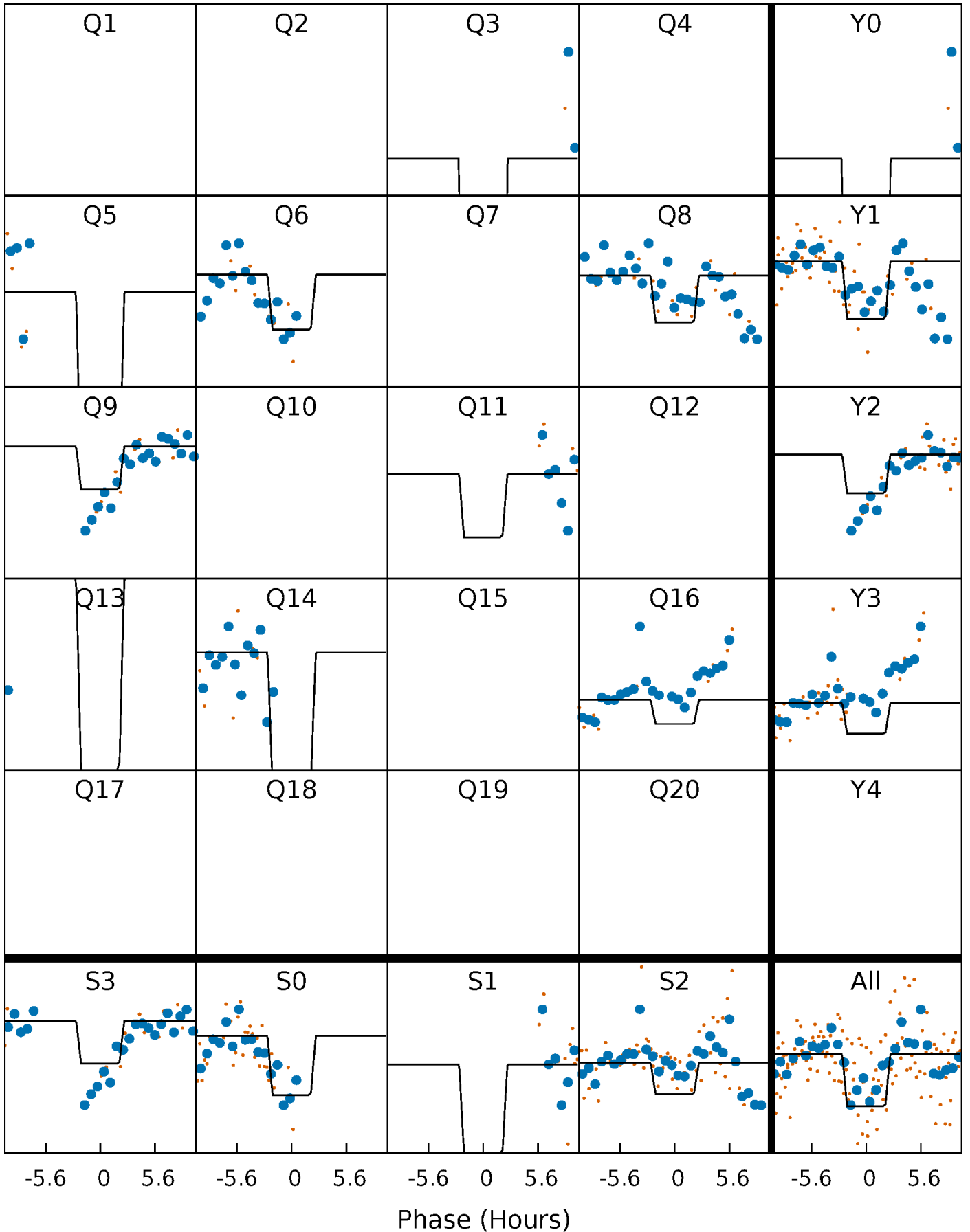
# DV Quarter-Phased Transit Curves

TCE 006071791-02 P=147.192989 Days  $T_0=168.080015$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

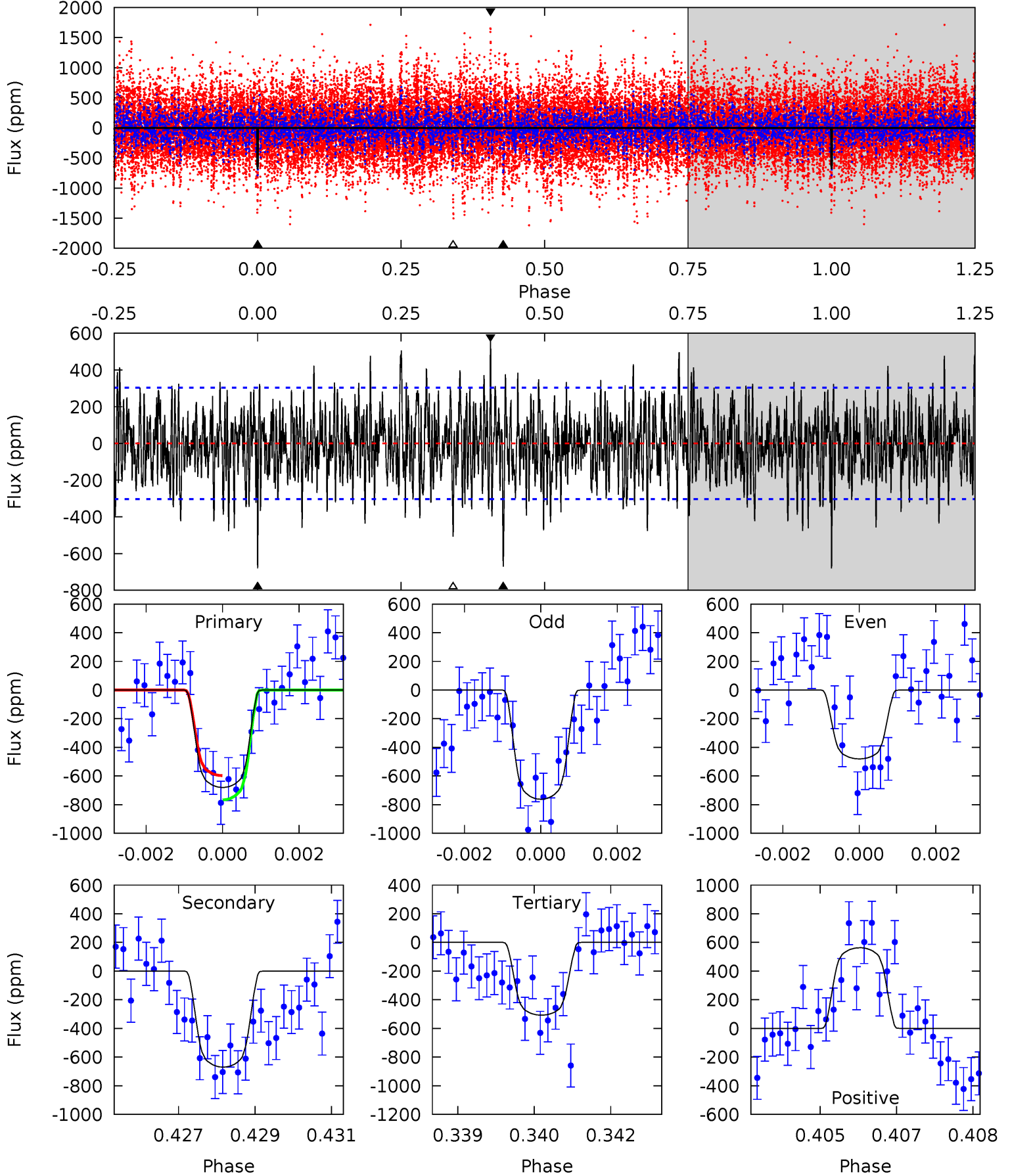
TCE 006071791-02 P=147.193409 Days  $T_0=168.074352$  (BKJD)



# DV Model-Shift Uniqueness Test

006071791-02, P = 147.192989 Days, E = 20.887026 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
12.0	11.8	8.94	9.92	5.34	3.11	2.83	3.04	2.06	2.86	1.89	2.32	0.55	0.45	1.49

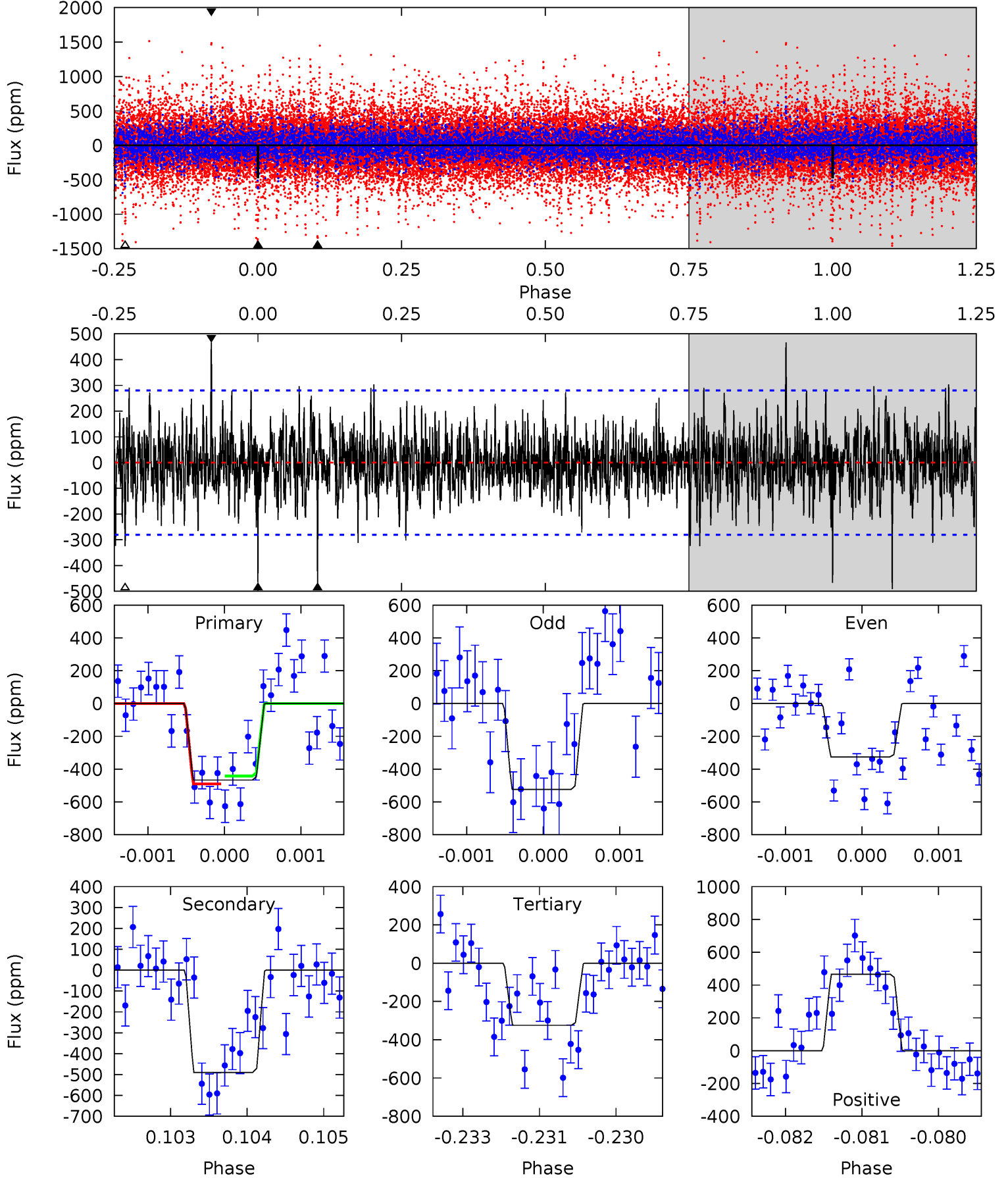




# Alt Model-Shift Uniqueness Test

006071791-02, P = 147.193409 Days, E = 20.880943 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
8.98	9.44	6.24	8.97	5.40	3.20	1.72	2.74	0.01	3.20	0.47	1.76	0.97	0.49	0.48



### Stellar Parameters For KIC 006071791

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6068^{+164}_{-182}$	$4.461^{+0.081}_{-0.202}$	$-0.340^{+0.300}_{-0.300}$	$0.950^{+0.288}_{-0.115}$	$0.952^{+0.120}_{-0.109}$	$1.563^{+0.553}_{-0.792}$
	+3%/-3%	+2%/-5%	+88%/-88%	+30%/-12%	+13%/-11%	+35%/-51%
Source	PHO1	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 006071791-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-670 \pm 57$	$3.04^{+0.55}_{-0.49}$	$505^{+32}_{-26}$	$5799^{+468}_{-351}$	$11506^{+4856}_{-3262}$
Alt.	$-491 \pm 52$	$2.85^{+0.49}_{-0.45}$	$503^{+39}_{-24}$	$5553^{+409}_{-334}$	$9491^{+3789}_{-2600}$

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

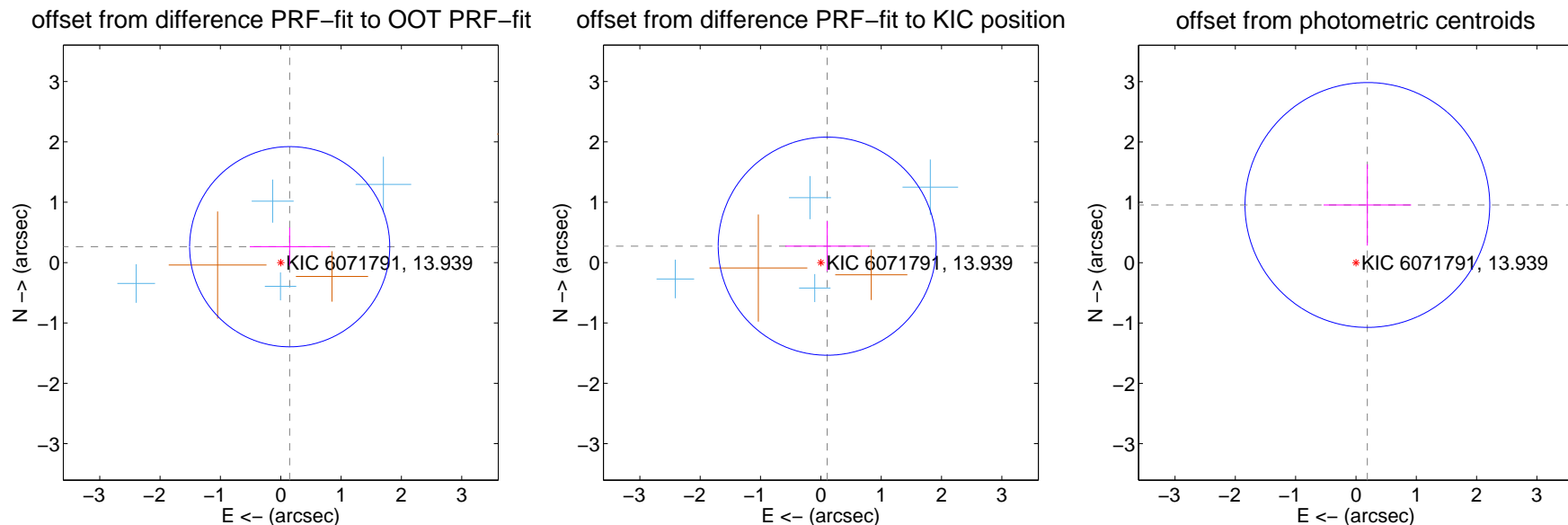
## DV Centroid Data

Supplemental centroid analysis for 006071791-02. Kepler magnitude: 13.94. Transit SNR 6.86

There are 4 quarters with good PRF difference image offsets

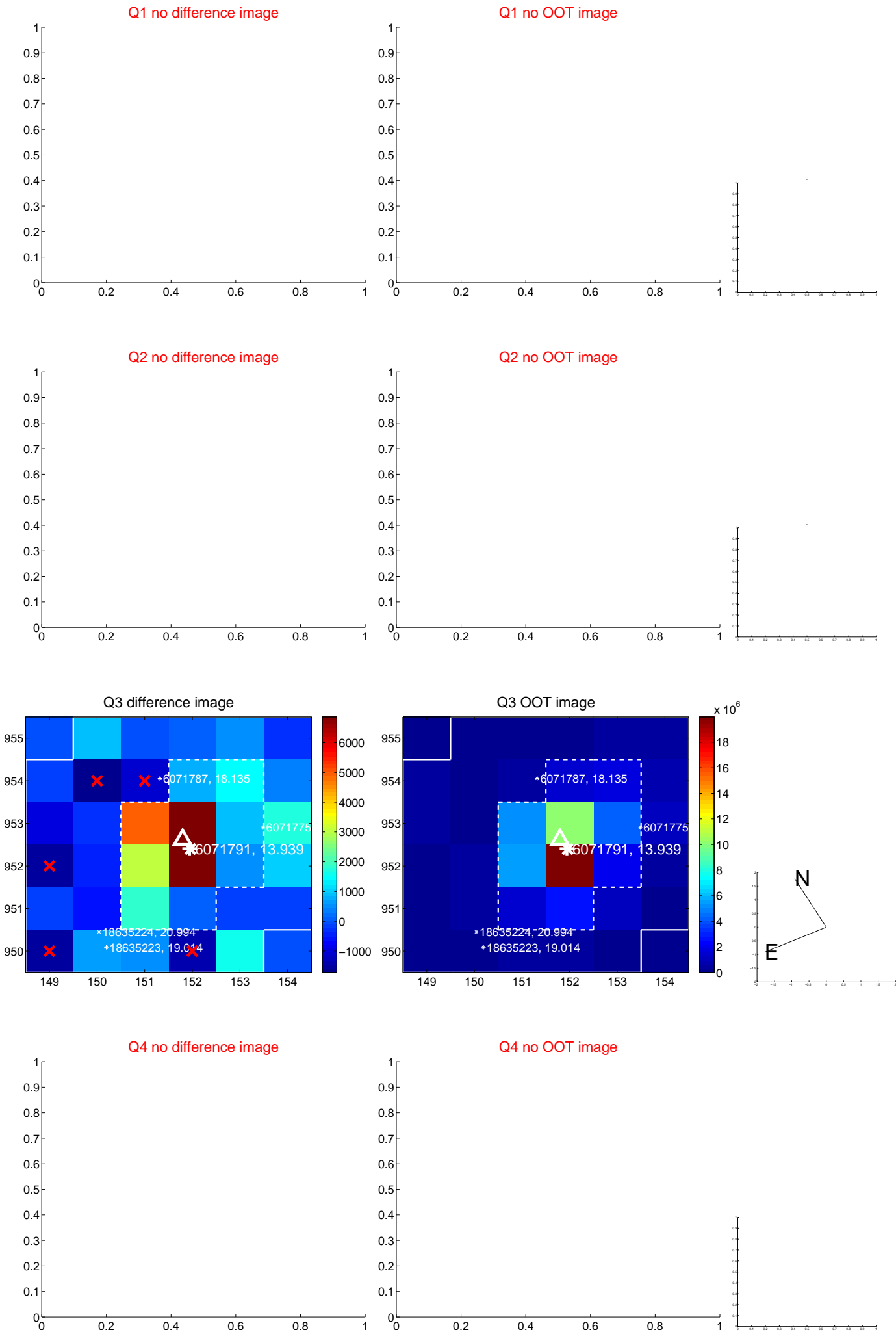
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.302 \pm 0.553$	0.55	$-0.148 \pm 0.663$	$0.263 \pm 0.316$
PRF-fit source offset from KIC position	$0.292 \pm 0.602$	0.48	$-0.105 \pm 0.695$	$0.272 \pm 0.413$
photometric centroid source offset	$0.97 \pm 0.68$	1.44	$-0.19 \pm 0.73$	$0.96 \pm 0.67$

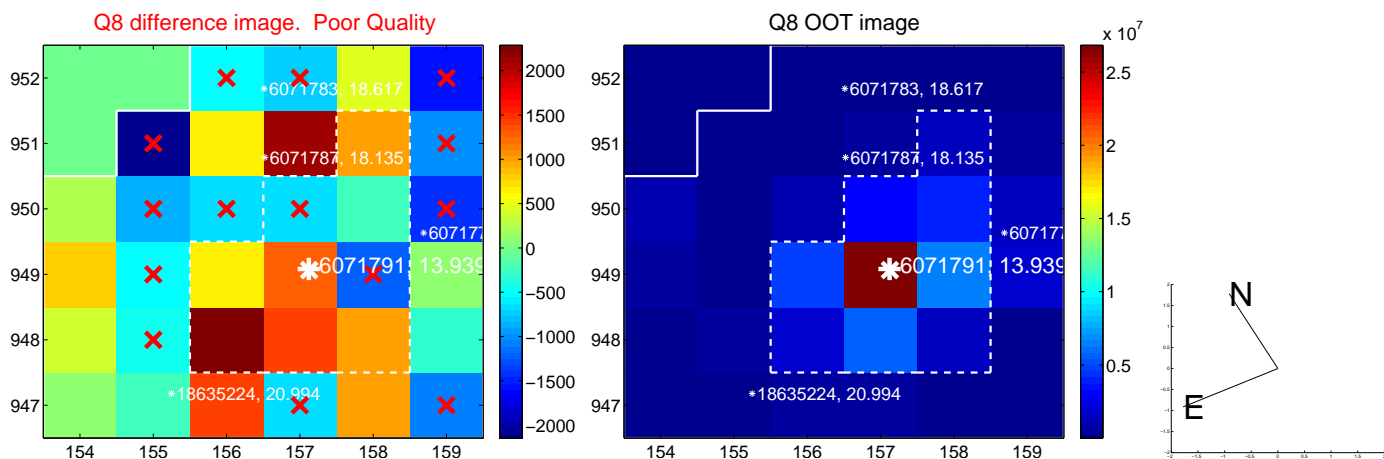
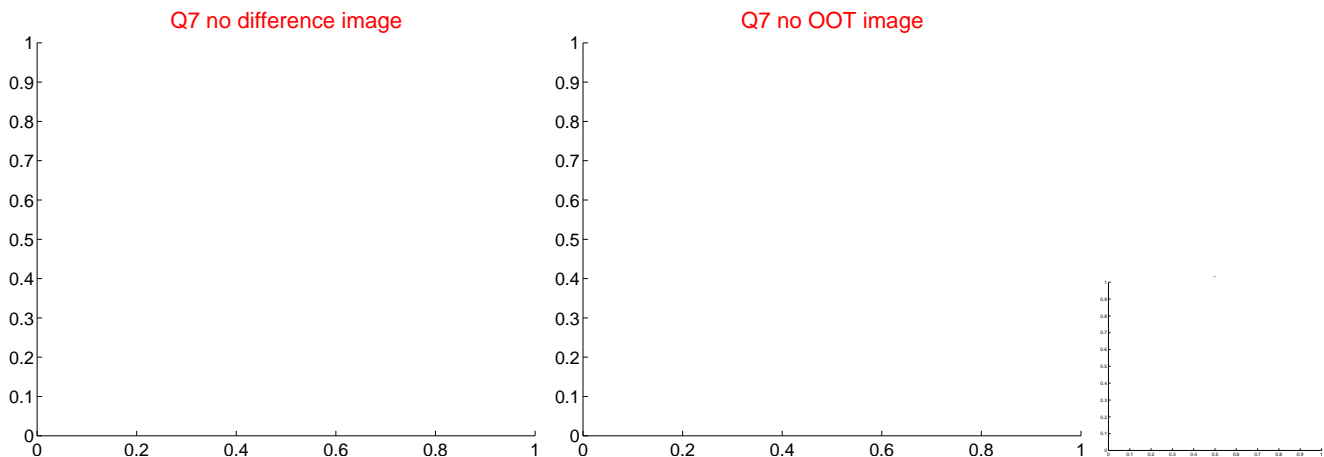
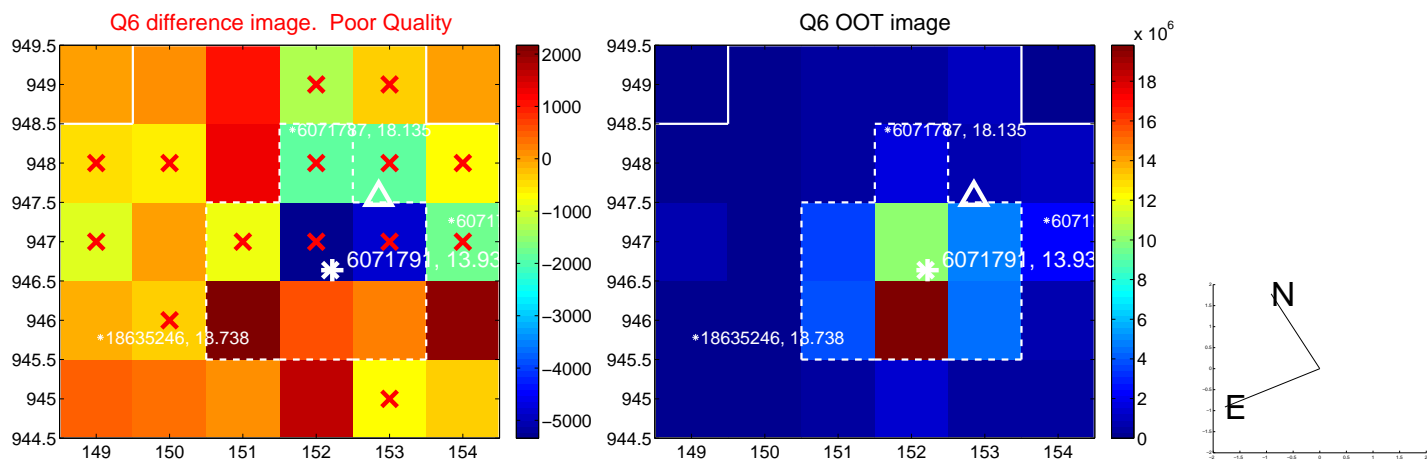
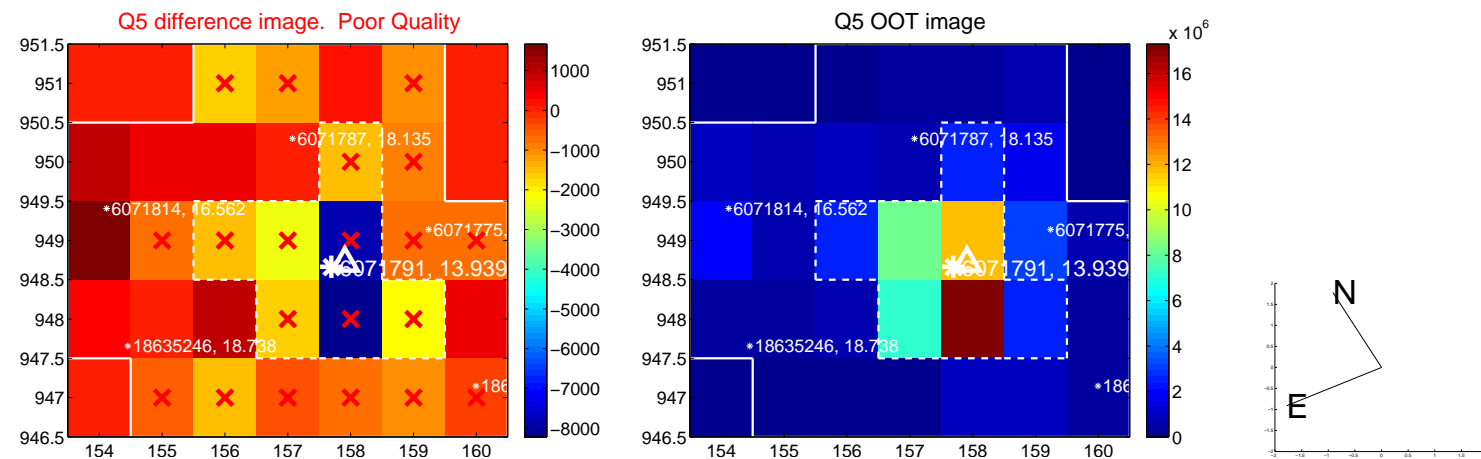


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

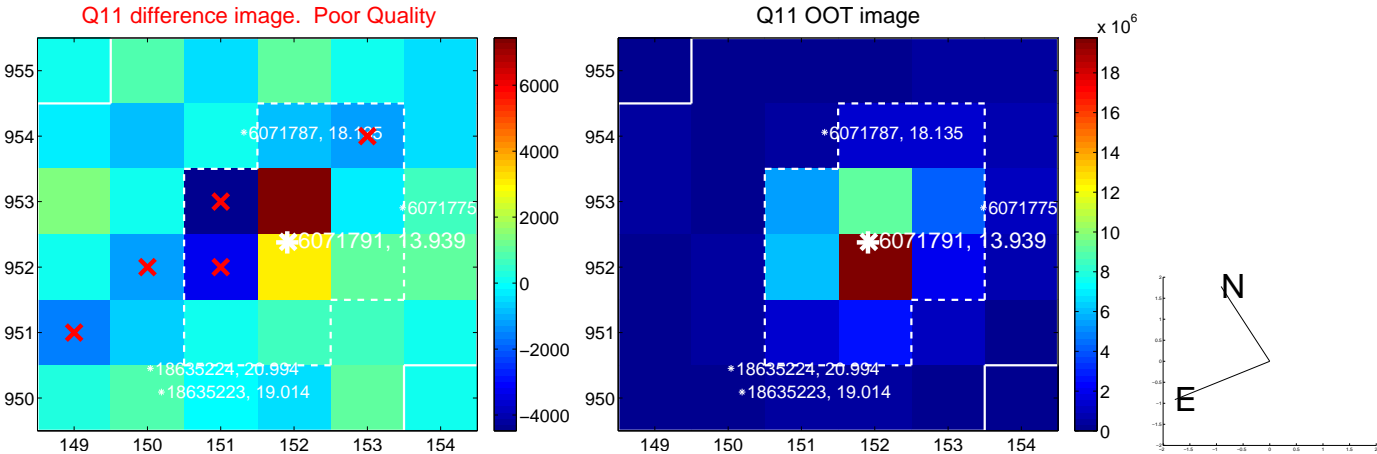
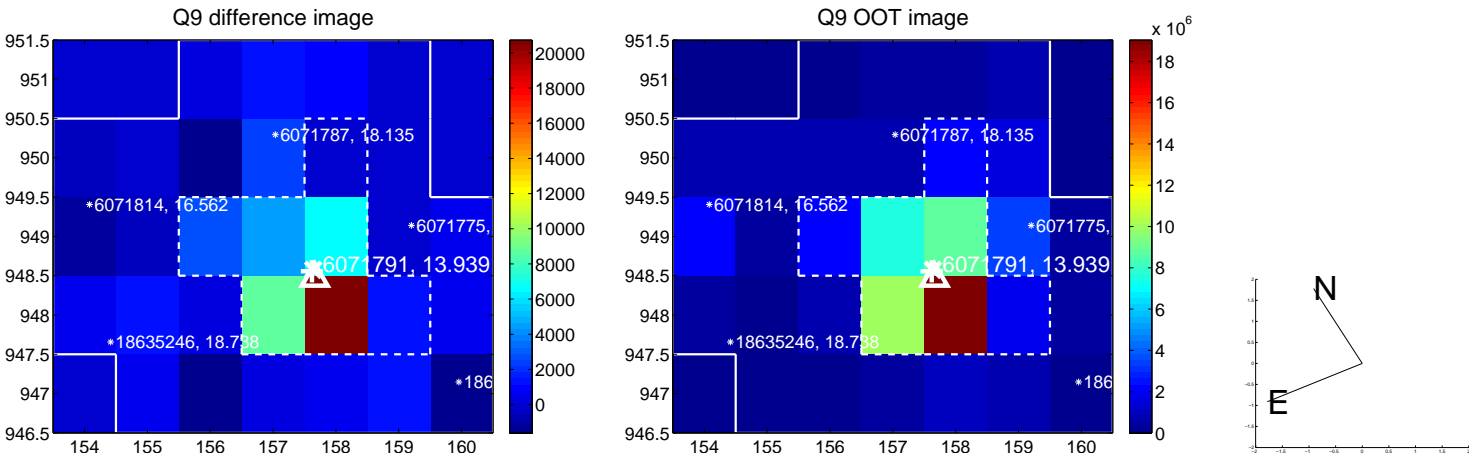


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

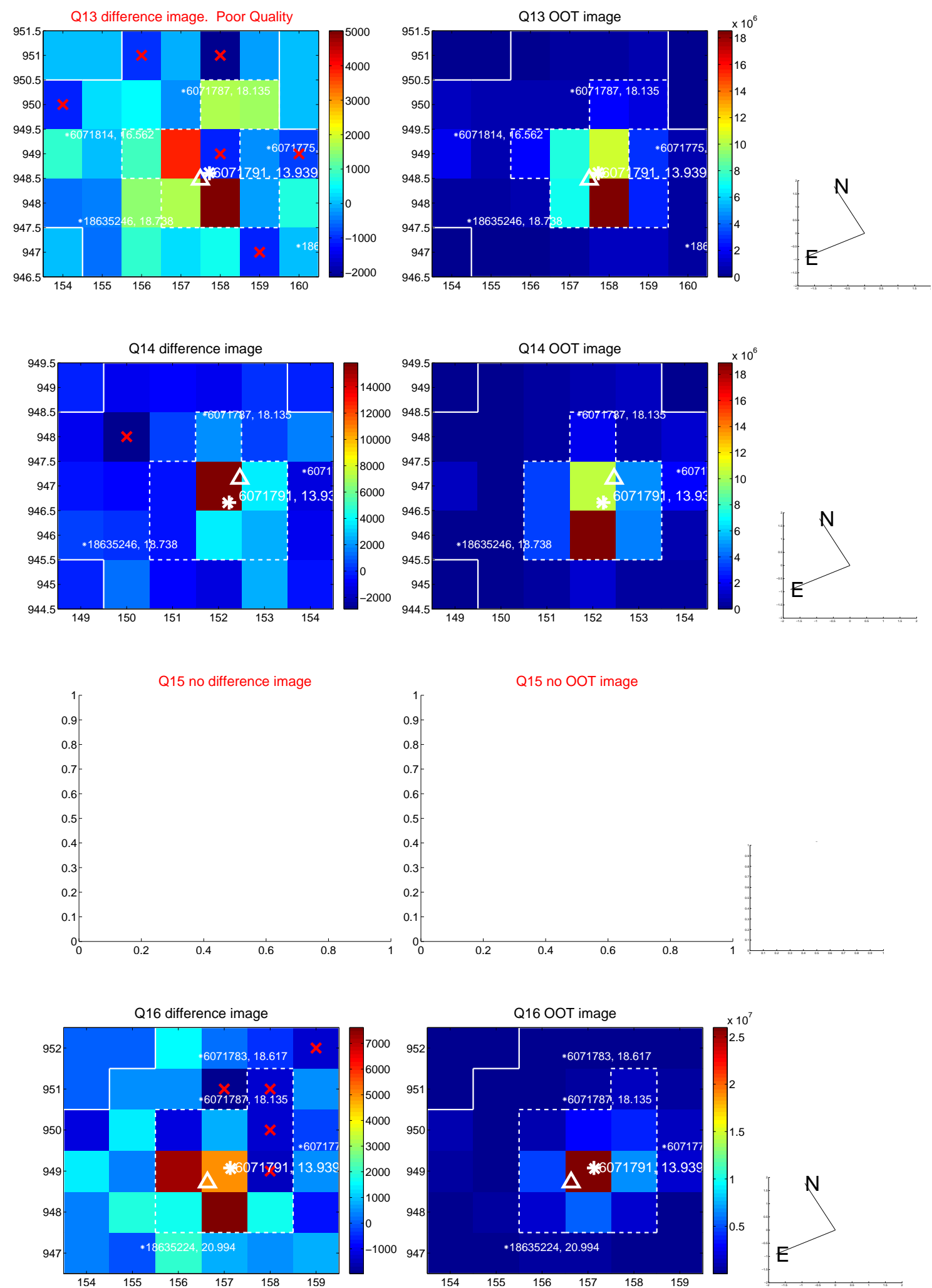




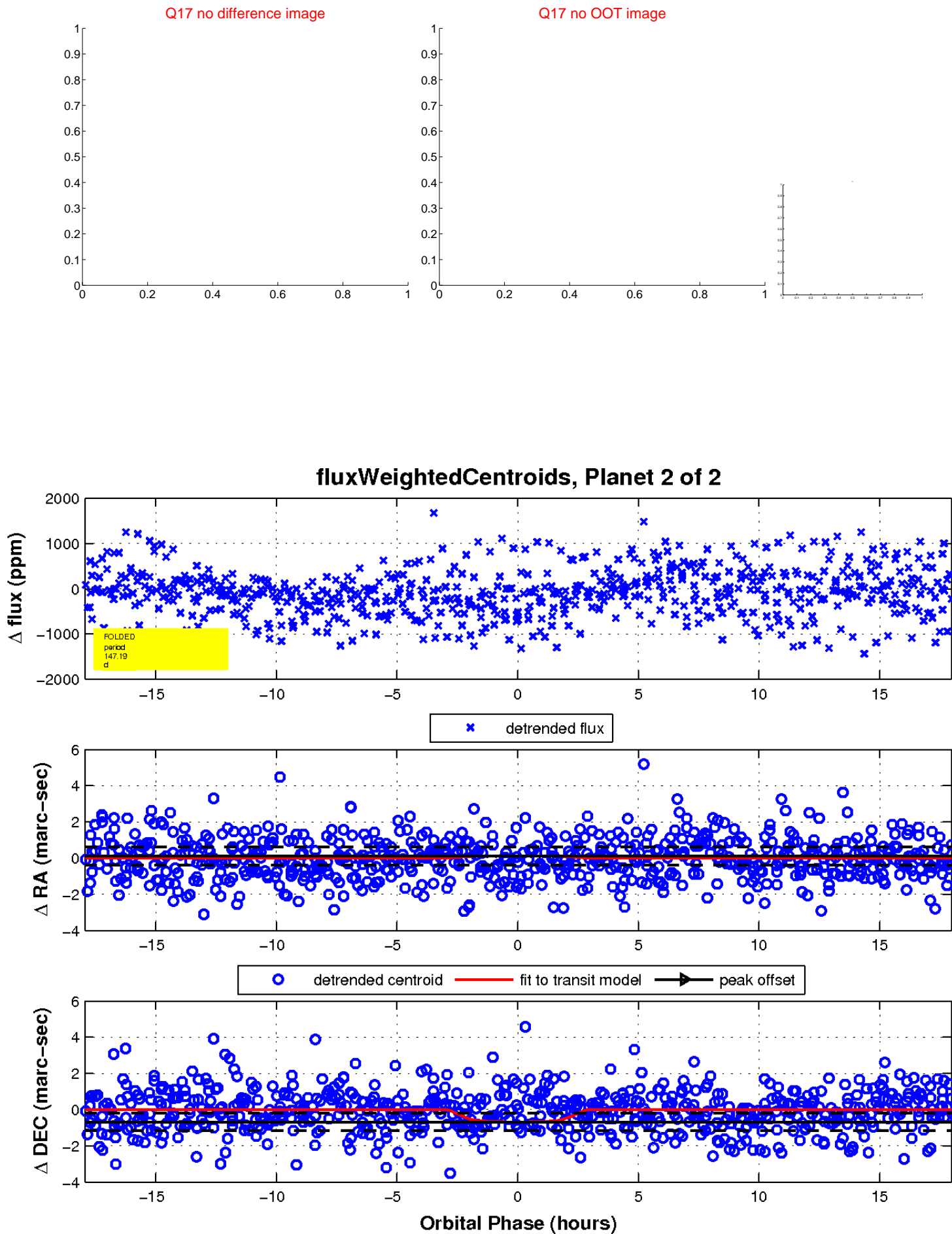
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



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



UKIRT Image

Declination

