

# KIC 007518797

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007518797-01	OBS	No	1.303697	131.960422	31.9	8.704	9.0	9.0	1.16	5468	0.64	1971.04
007518797-02	OBS	No	160.371067	210.838038	303.0	7.494	12.8	7.2	1.16	5468	1.97	3.22
007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
007518797-05	OBS	No	56.420658	152.191015	398.1	3.455	9.9	9.0	1.16	5468	2.61	12.97
007518797-06	OBS	No	47.291833	132.854028	492.2	3.929	9.0	9.1	1.16	5468	2.93	16.41
007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007518797-01	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

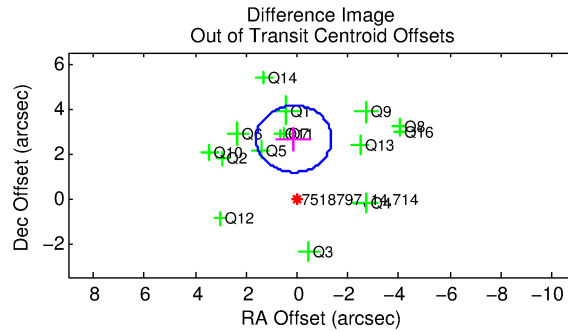
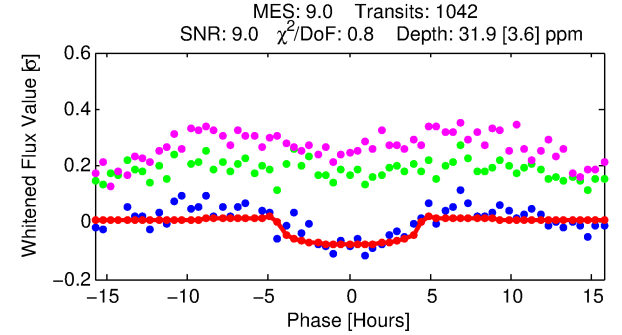
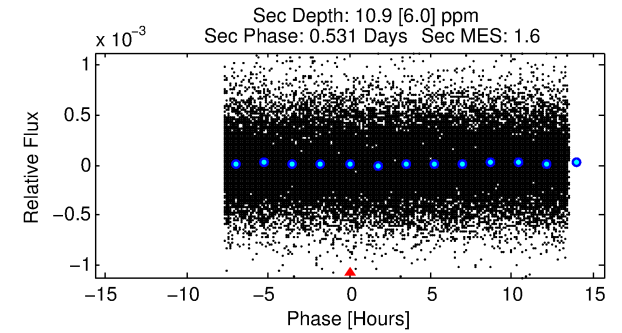
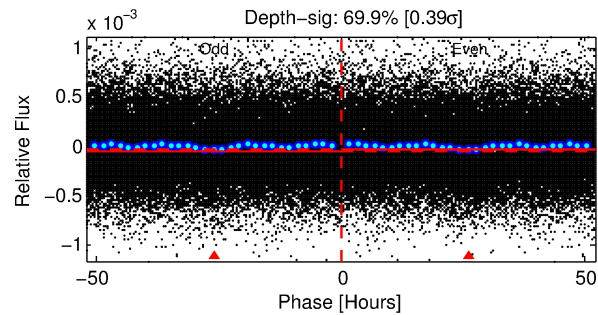
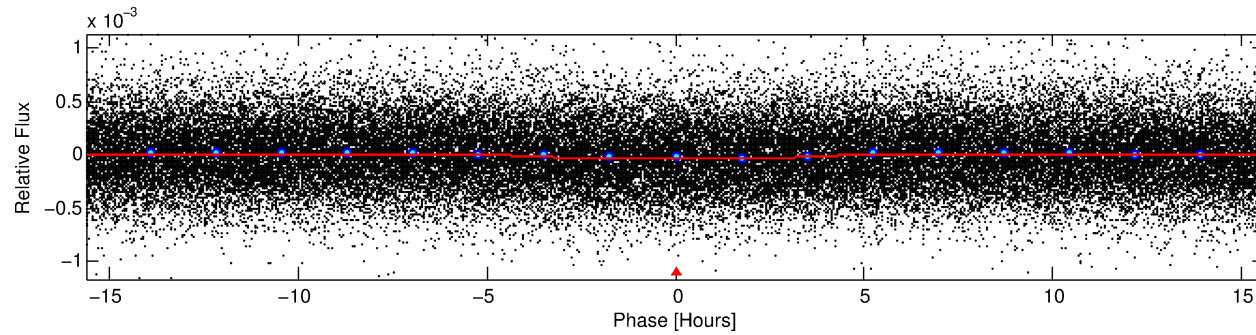
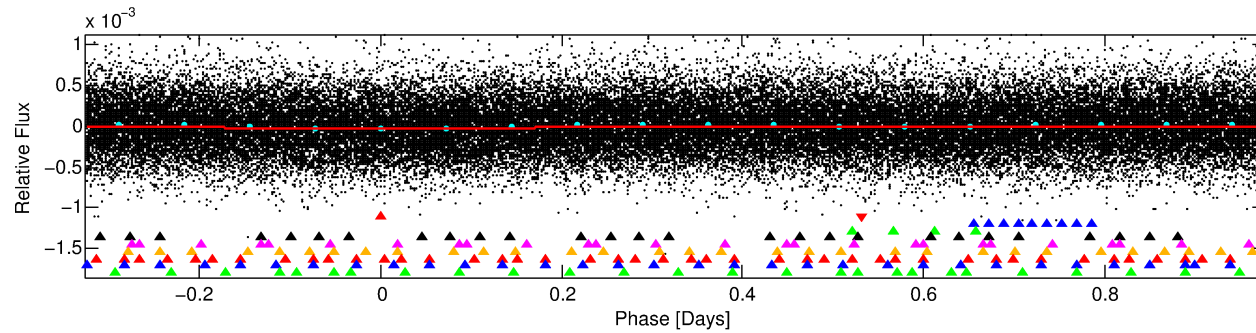
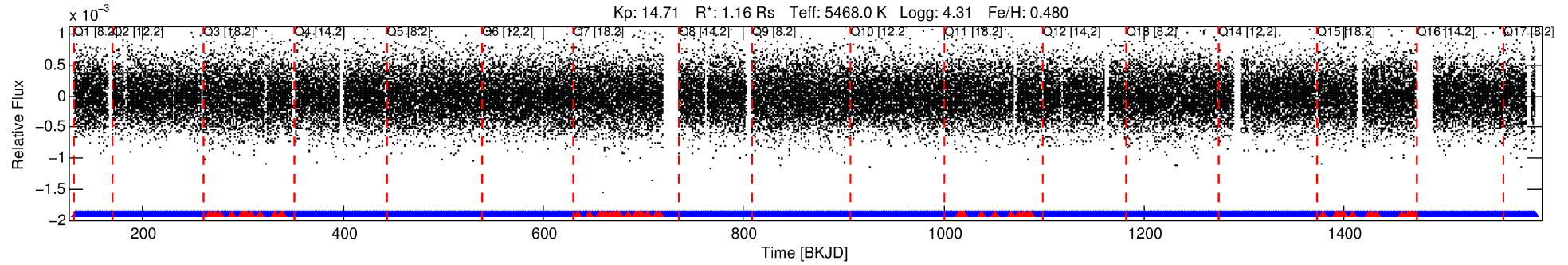
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-01

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 1 of 9 Period: 1.304 d



## DV Fit Results:

Period = 1.30370 [0.00002] d  
Epoch = 131.9604 [0.0084] BKJD  
Rp/R\* = 0.0050 [0.0056]  
a/R\* = 1.31 [2.24]  
b = 0.02 [176.45]  
Seff = 1971.04 [668.30]  
Teff = 1699 [144] K  
Rp = 0.64 [0.73] Re  
a = 0.0234 [0.0050] AU  
Ag = 8.06 [18.61] [0.38 $\sigma$ ]  
Teffp = 4427 [2533] K [1.07 $\sigma$ ]

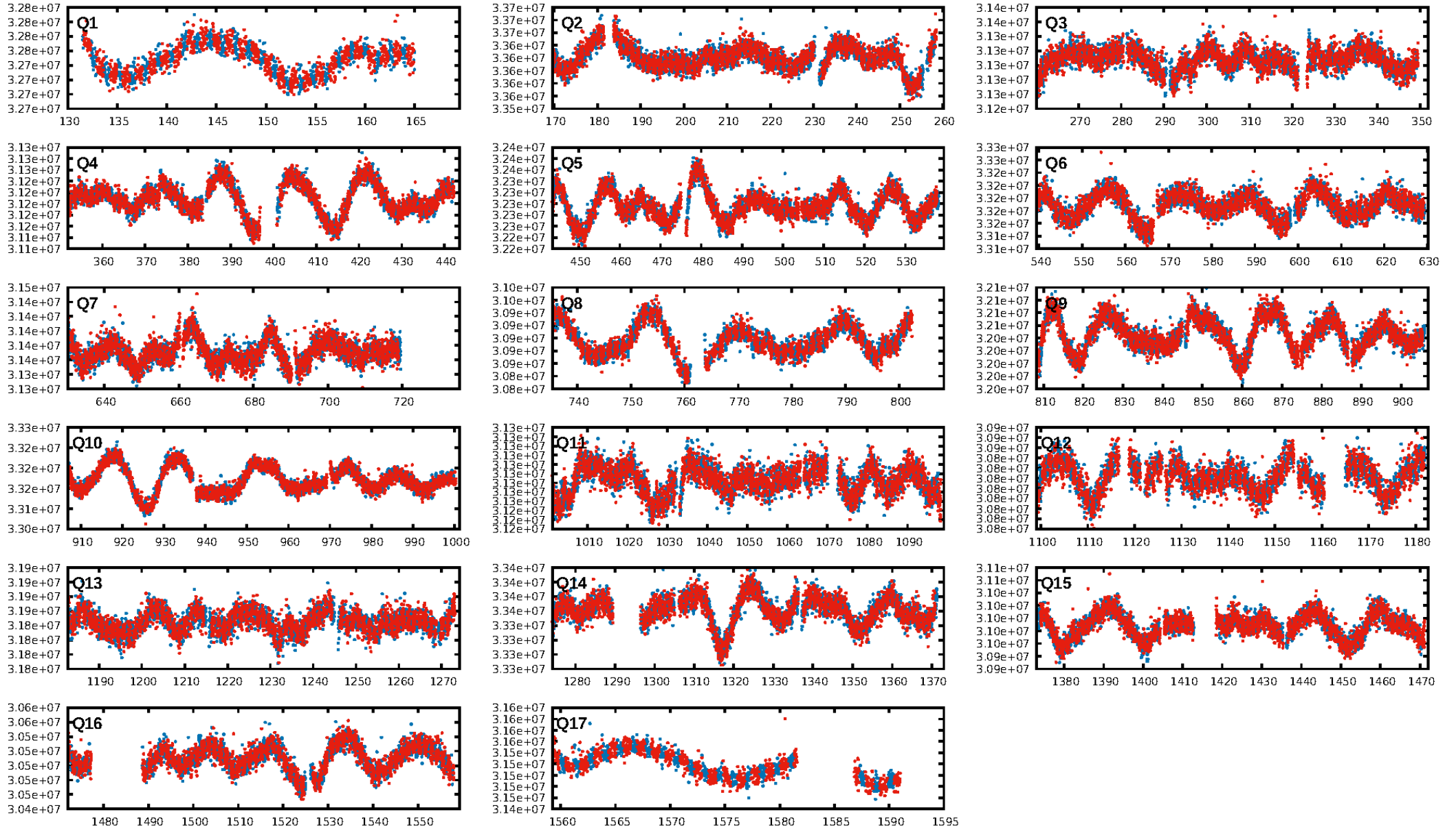
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [86.51 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.56e-16  
RollingBand-fgt: 0.94 [932/994]  
GhostDiagnostic-chr: -0.01273  
Centroid-sig: 0.0%  
Centroid-so: 4.426 arcsec [3.75 $\sigma$ ]  
OotOffset-rm: 2.647 arcsec [5.35 $\sigma$ ]  
KicOffset-rm: 2.640 arcsec [5.27 $\sigma$ ]  
OotOffset-st: 4/3/4/4 [15]  
KicOffset-st: 4/3/4/4 [15]  
DiffImageQuality-fgm: 0.20 [3/15]  
DiffImageOverlap-fno: 1.00 [17/17]

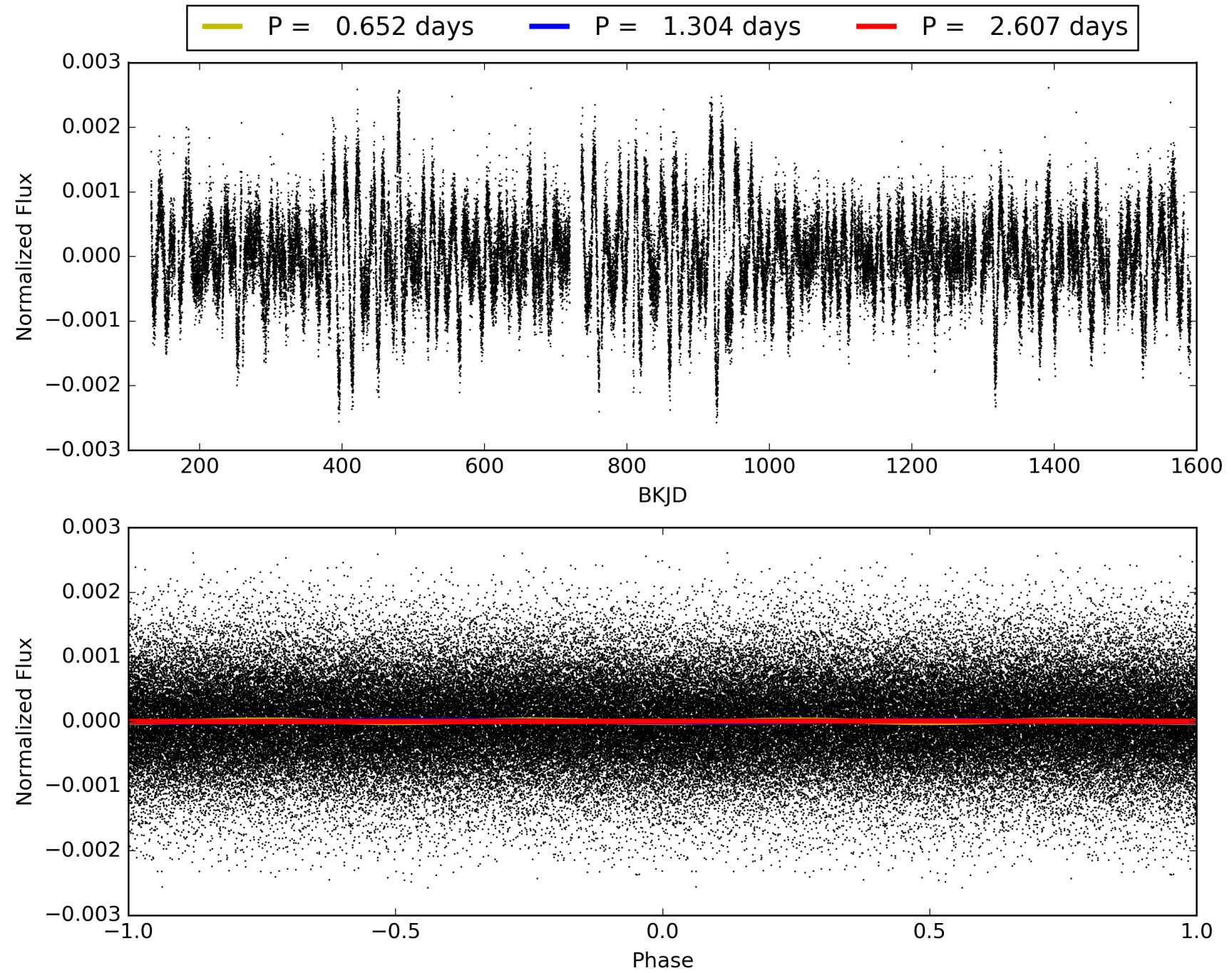
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:21:29 Z

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

# TCE 007518797-01, PDC Light Curves



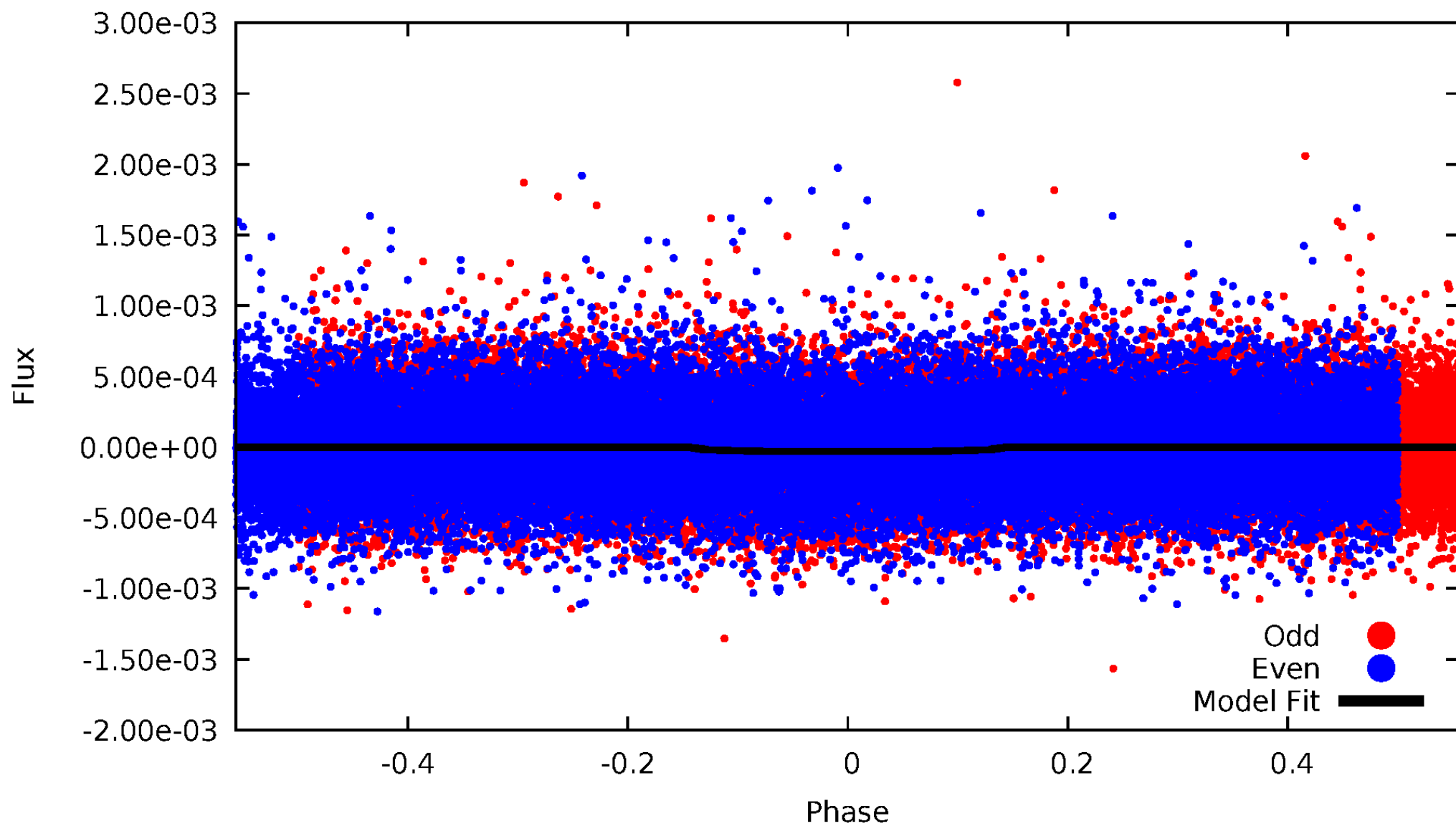
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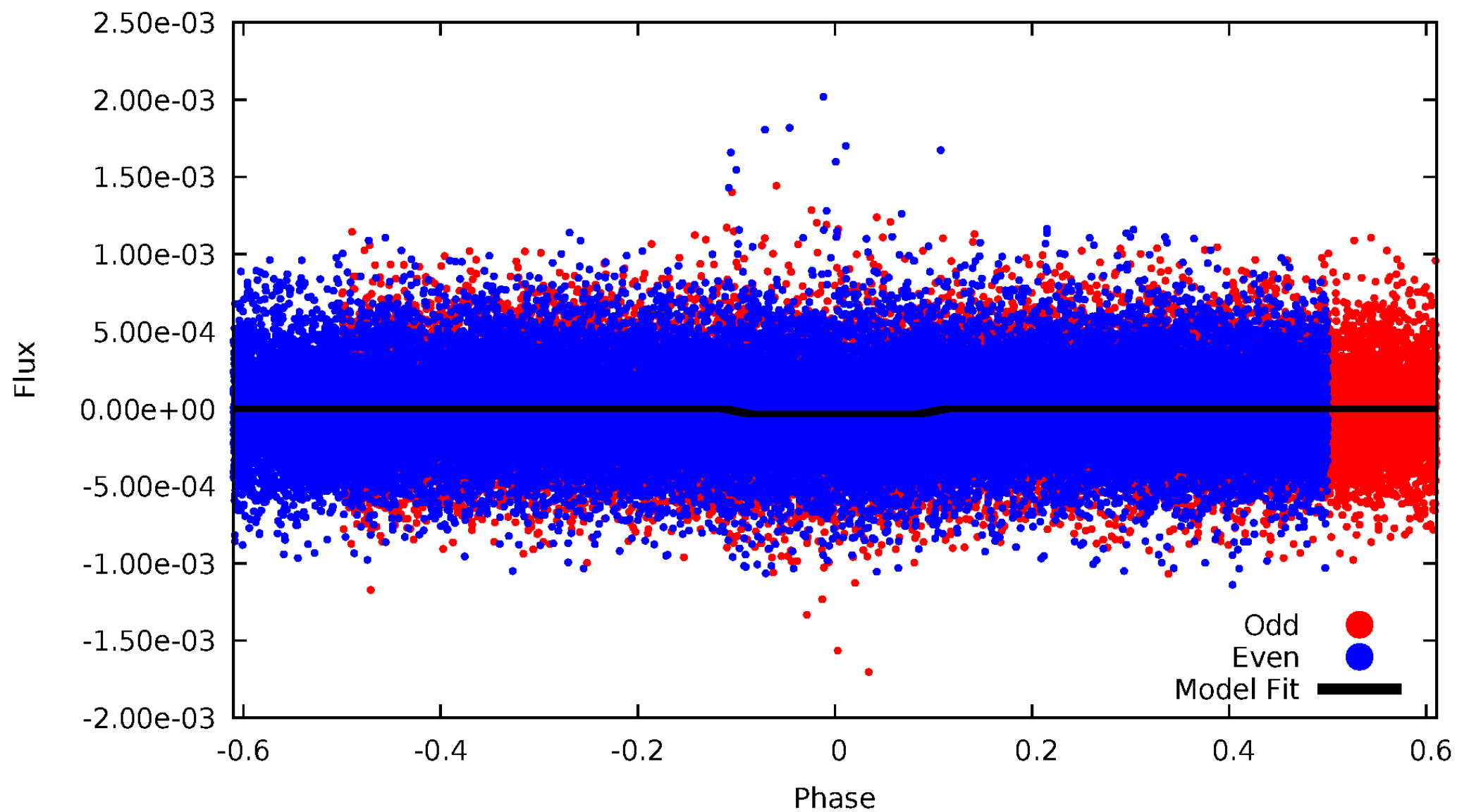
# DV Odd/Even

TCE 007518797-01



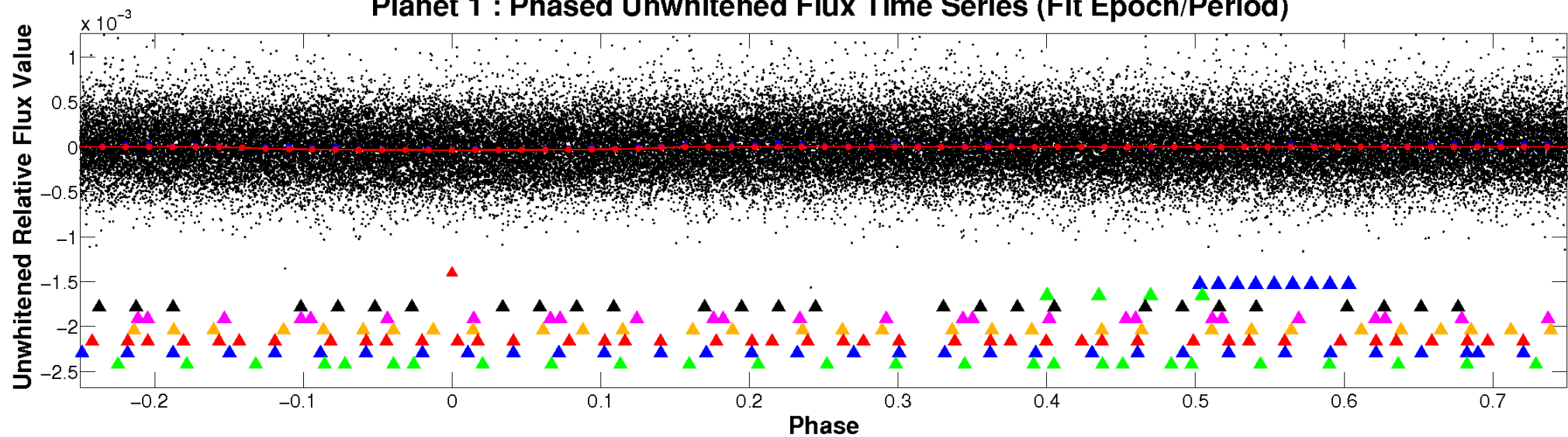
# ALT Odd/Even

TCE 007518797-01

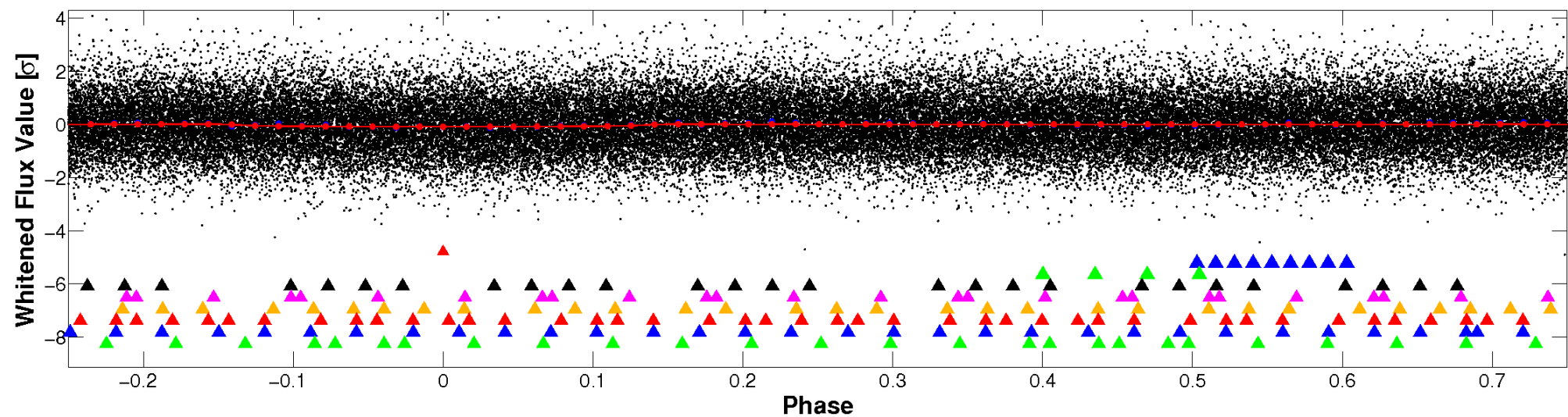


# Non-Whitened Vs. Whitened Light Curve

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

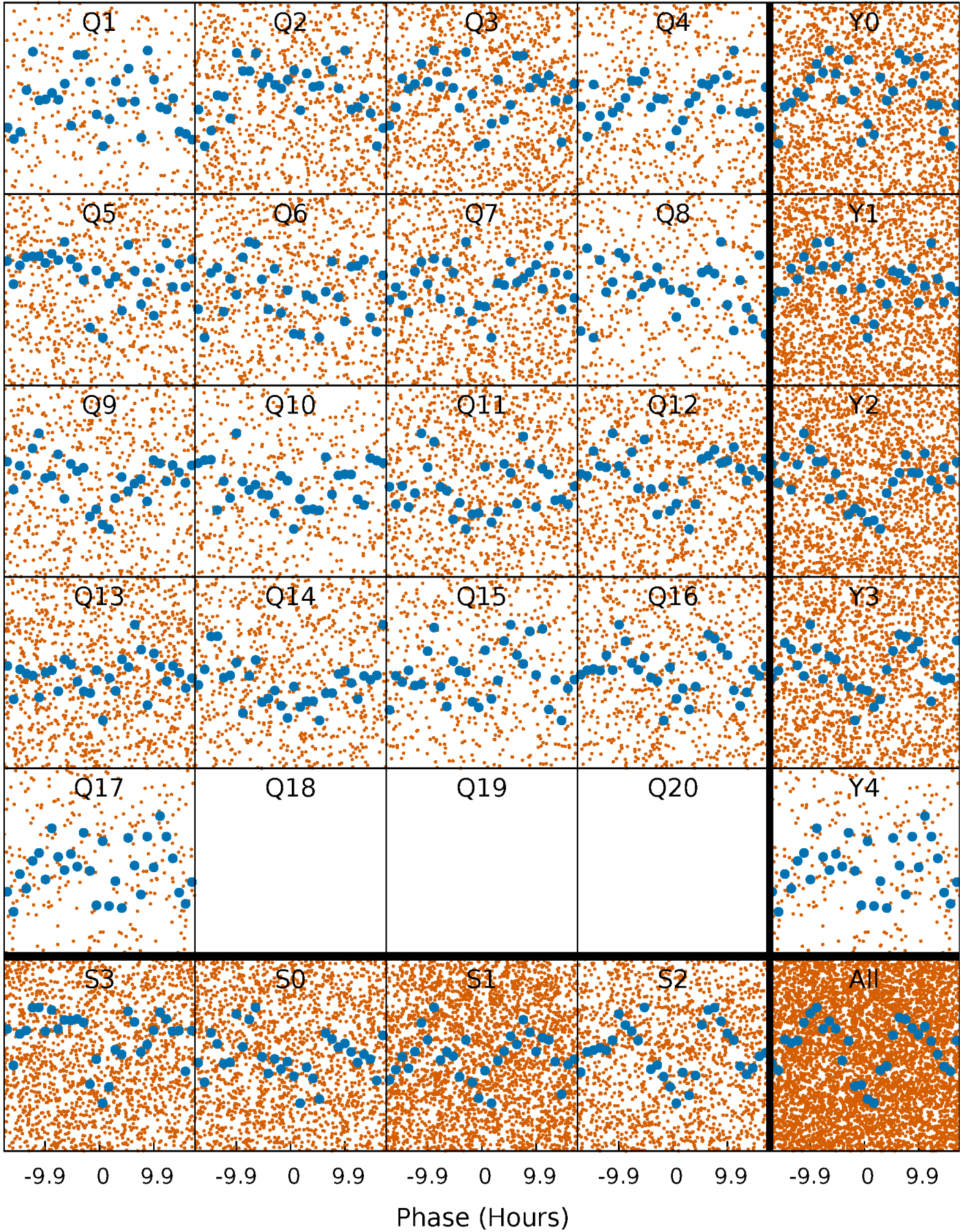


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

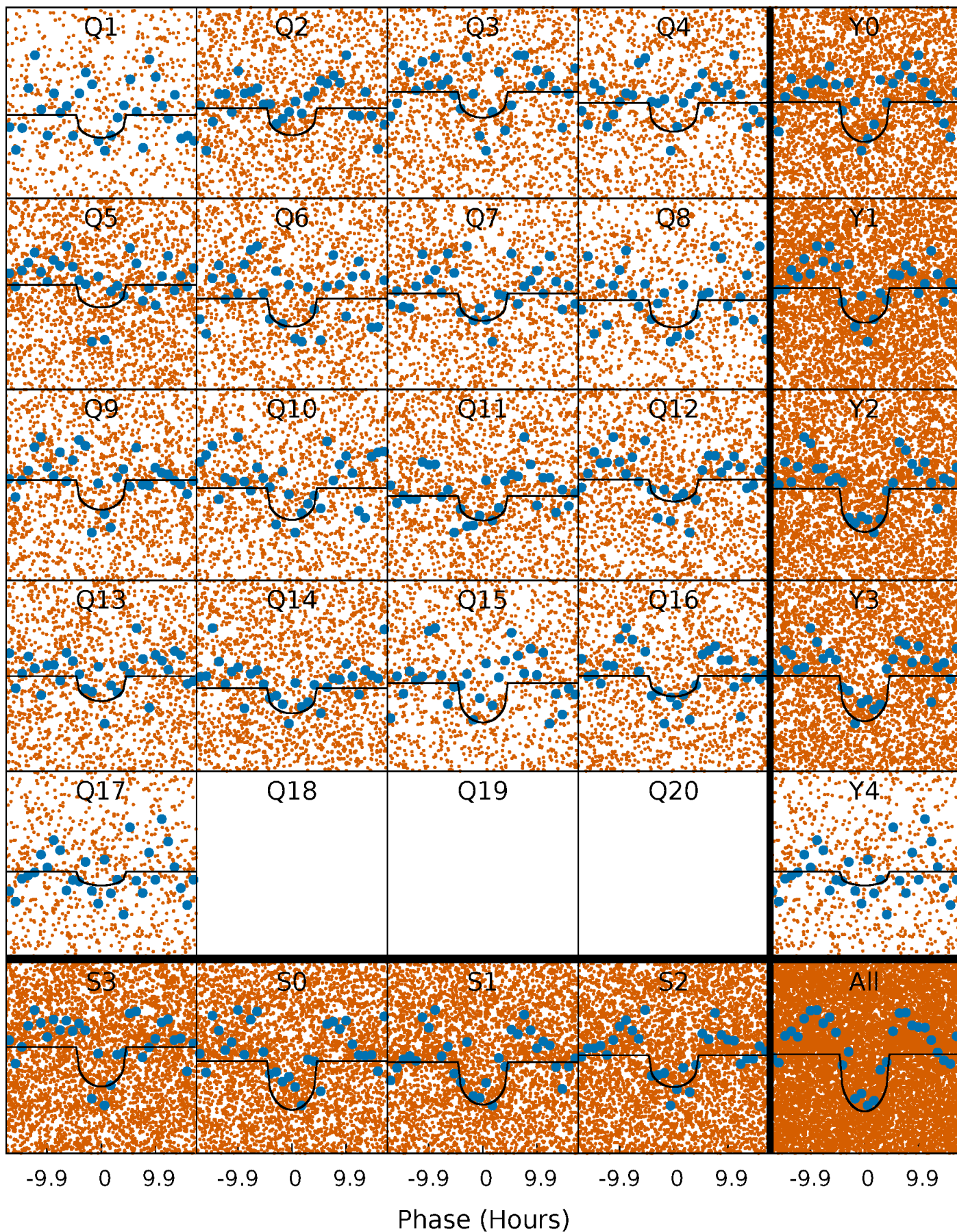
TCE 007518797-01 P= 1.303697 Days  $T_0=131.960422$  (BKJD)





# DV Quarter-Phased Transit Curves

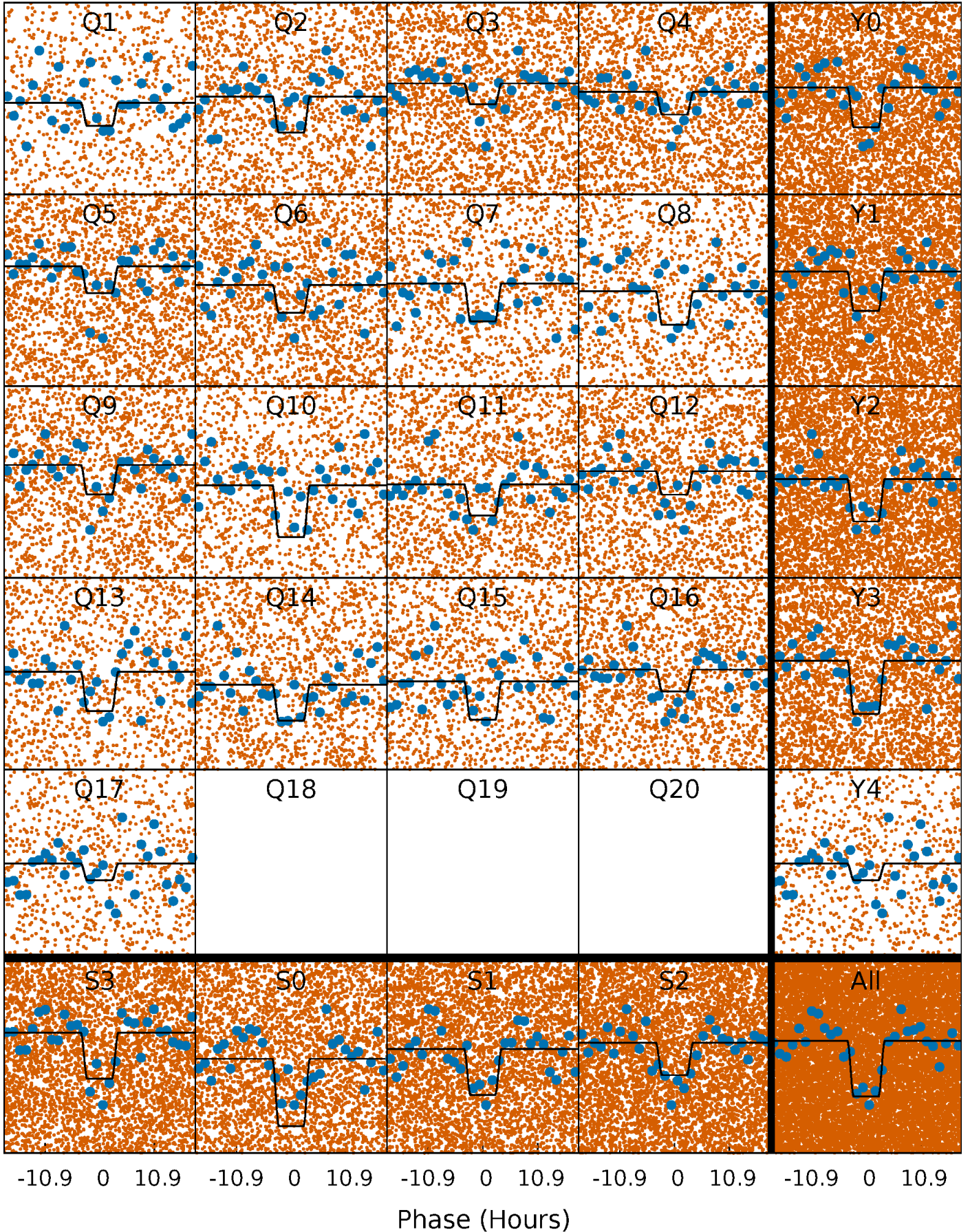
TCE 007518797-01 P= 1.303697 Days  $T_0=131.960422$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

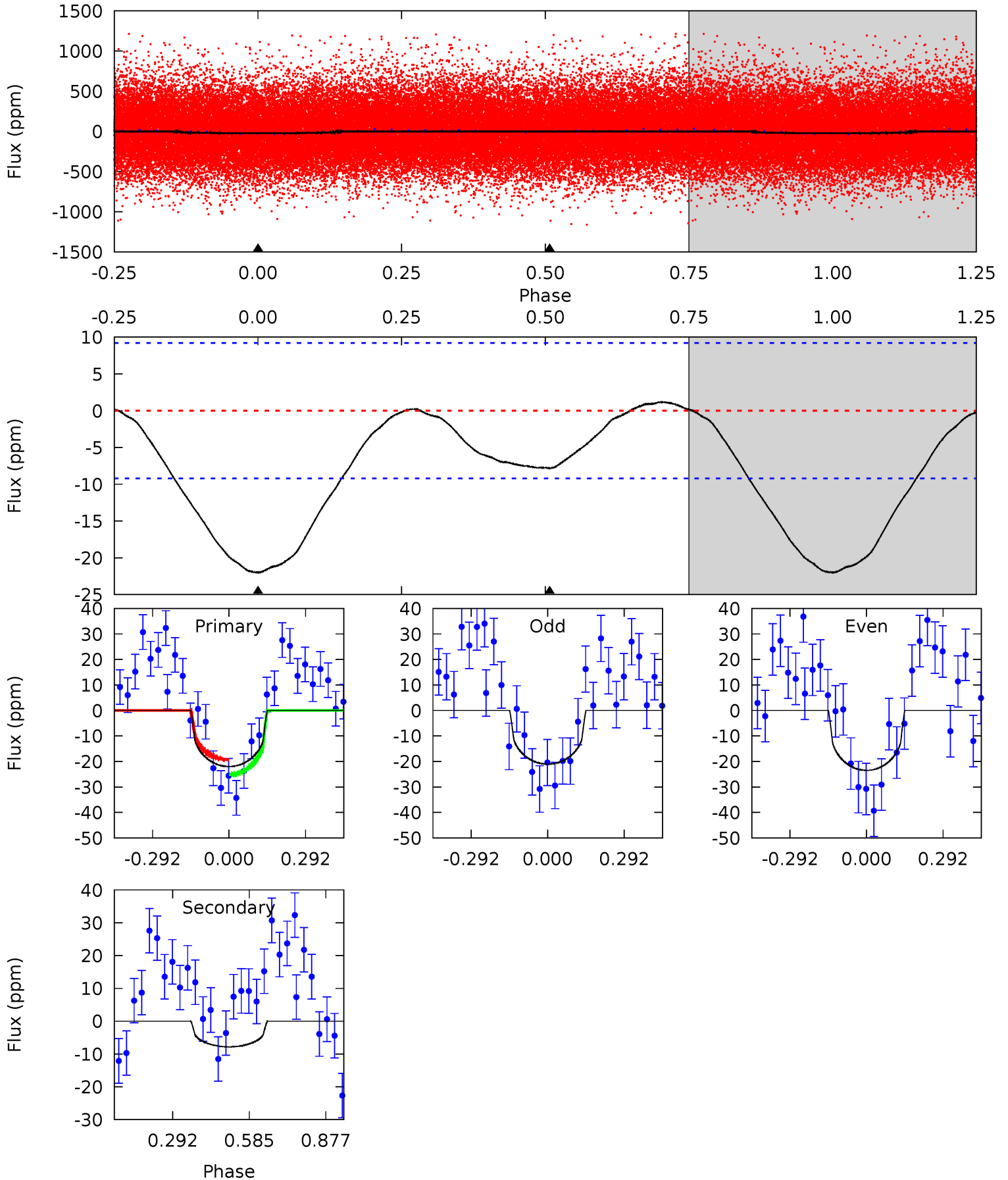
TCE 007518797-01 P= 1.303719 Days  $T_0=131.956694$  (BKJD)



# DV Model-Shift Uniqueness Test

007518797-01, P = 1.303697 Days, E = 130.656725 Days

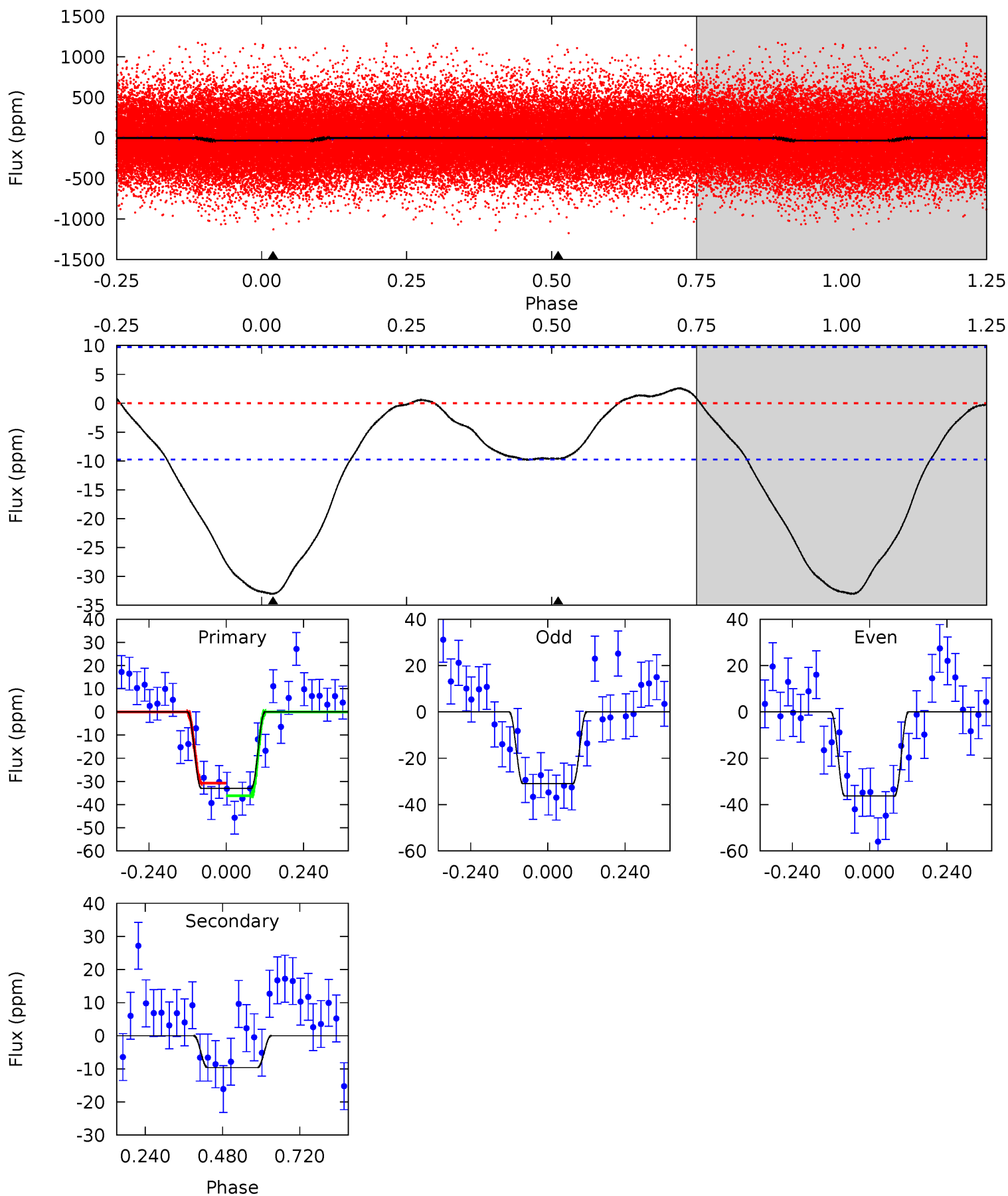
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	3.69	0	0	4.33	1.05	0.23	10.4	10.4	3.69	3.69	0.57	0.92	0.05	1.39



# Alt Model-Shift Uniqueness Test

007518797-01, P = 1.303719 Days, E = 130.652975 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
14.8	4.32	0	0	4.38	1.17	0.78	14.8	14.8	4.32	4.32	1.19	0.92	0.07	1.23





### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-8 \pm 2$	$0.84^{+0.63}_{-0.55}$	$2377^{+166}_{-162}$	$3806^{+2211}_{-758}$	$3.369^{+22.197}_{-2.396}$
Alt.	$-10 \pm 2$	$0.86^{+0.65}_{-0.52}$	$2372^{+172}_{-150}$	$3894^{+1884}_{-735}$	$3.791^{+19.613}_{-2.597}$

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

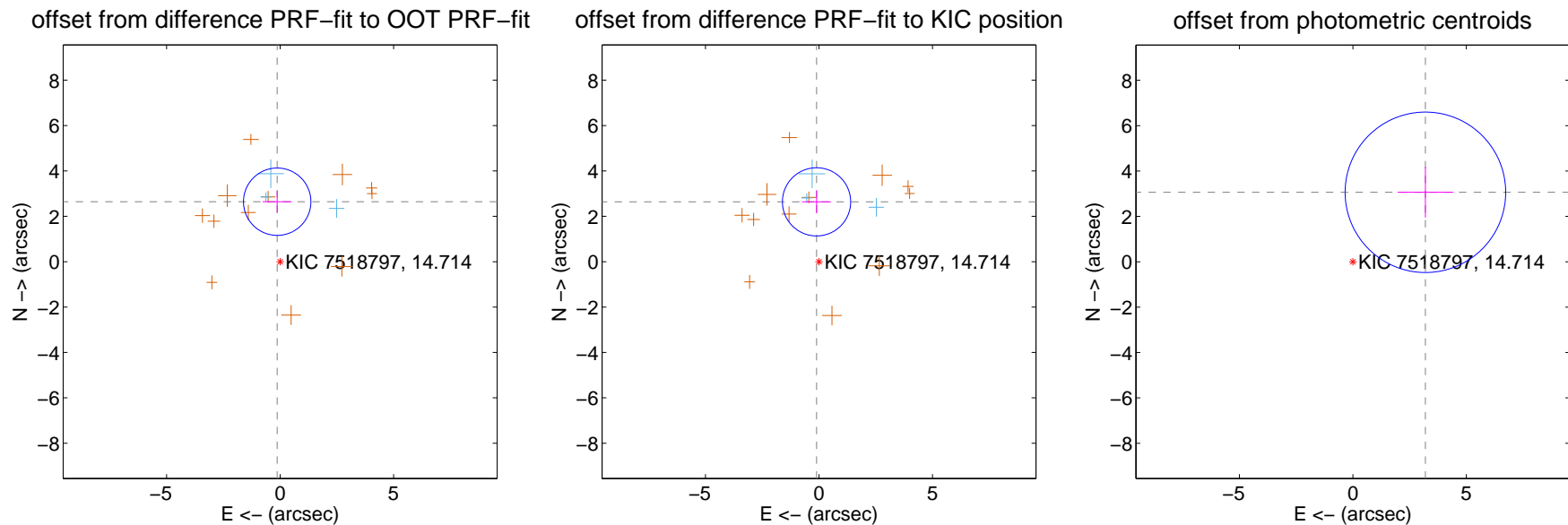
## DV Centroid Data

Supplemental centroid analysis for 007518797-01. Kepler magnitude: 14.71. Transit SNR 9.04

There are 3 quarters with good PRF difference image offsets

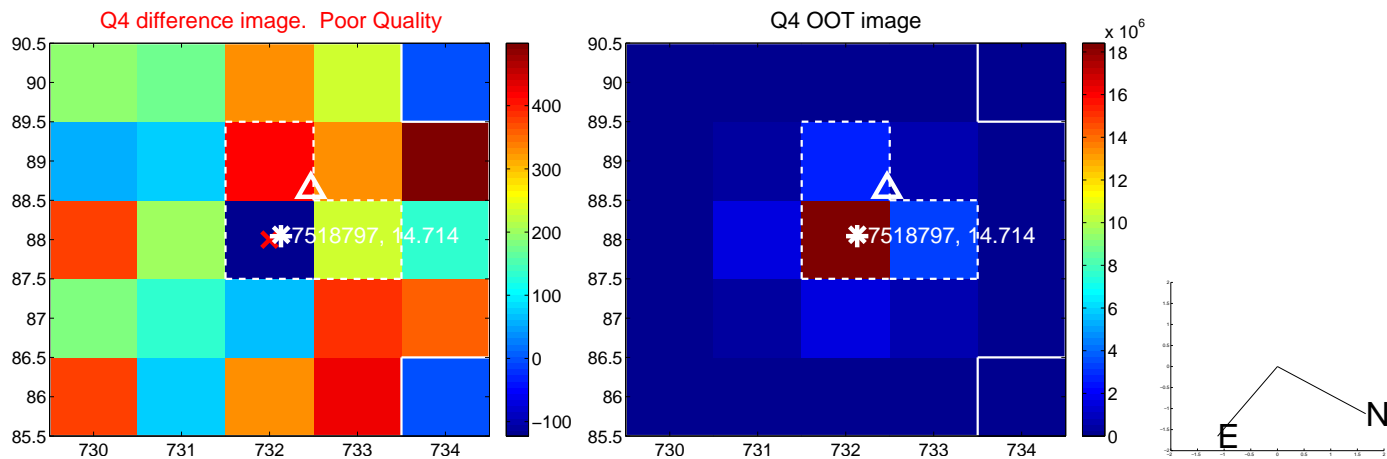
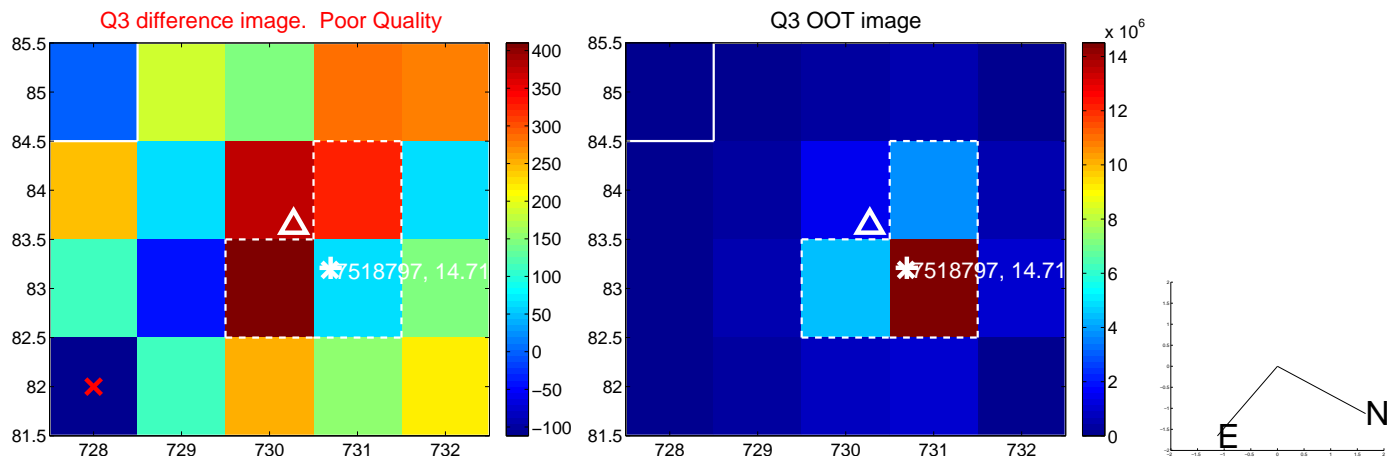
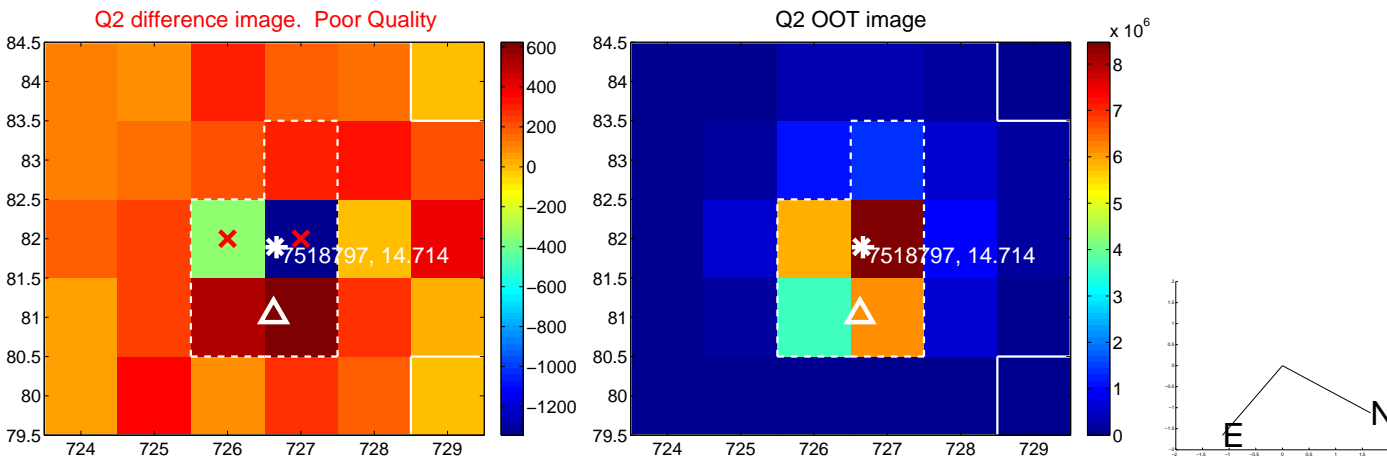
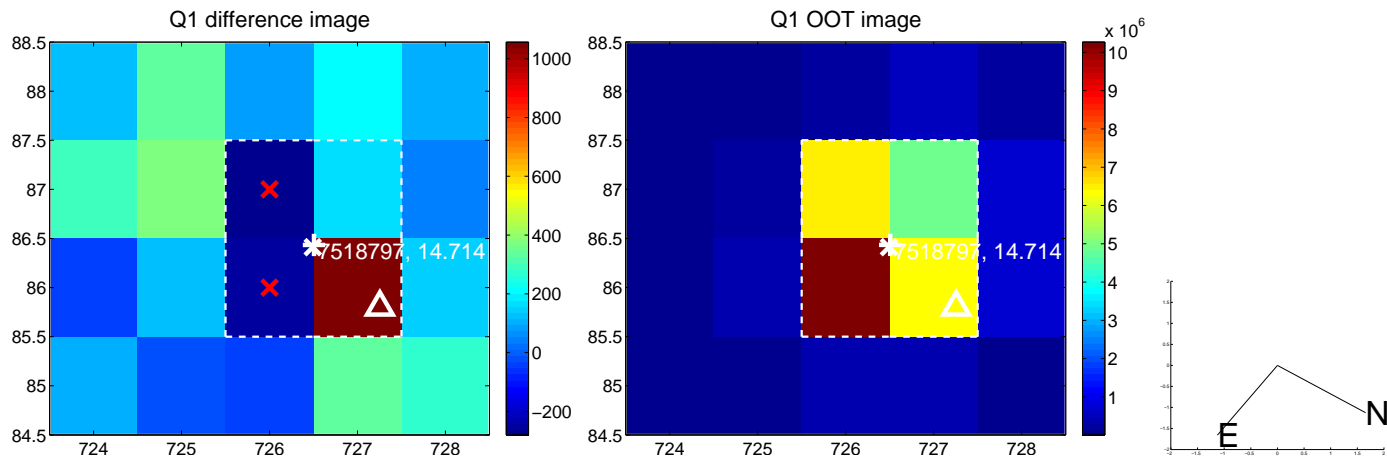
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.647 \pm 0.495$	5.35	$0.128 \pm 0.640$	$2.644 \pm 0.497$
PRF-fit source offset from KIC position	$2.640 \pm 0.501$	5.27	$0.107 \pm 0.632$	$2.637 \pm 0.504$
photometric centroid source offset	$4.43 \pm 1.18$	3.75	$-3.20 \pm 1.23$	$3.06 \pm 1.12$

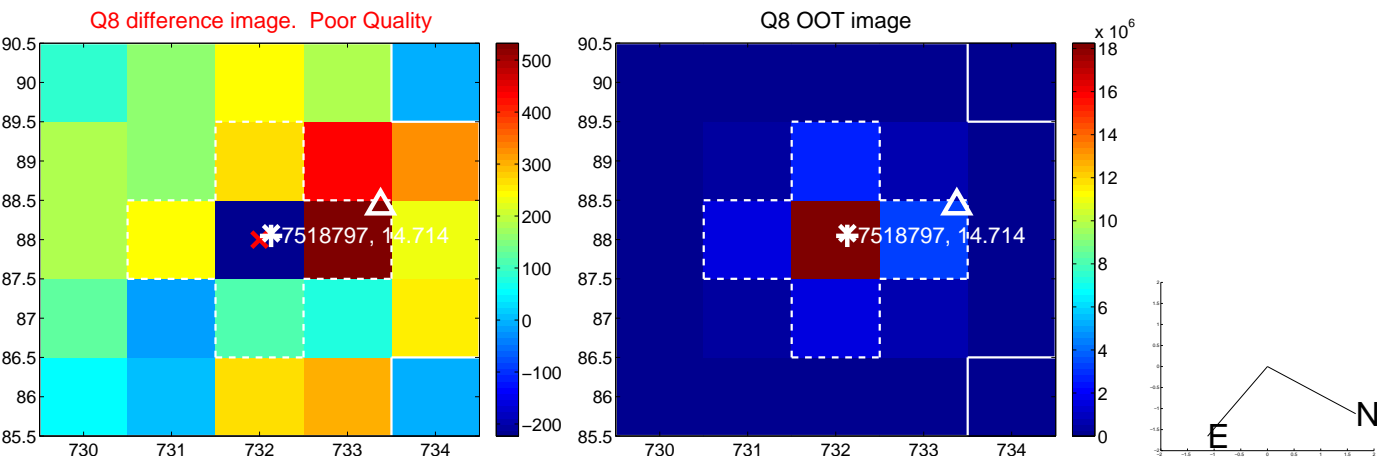
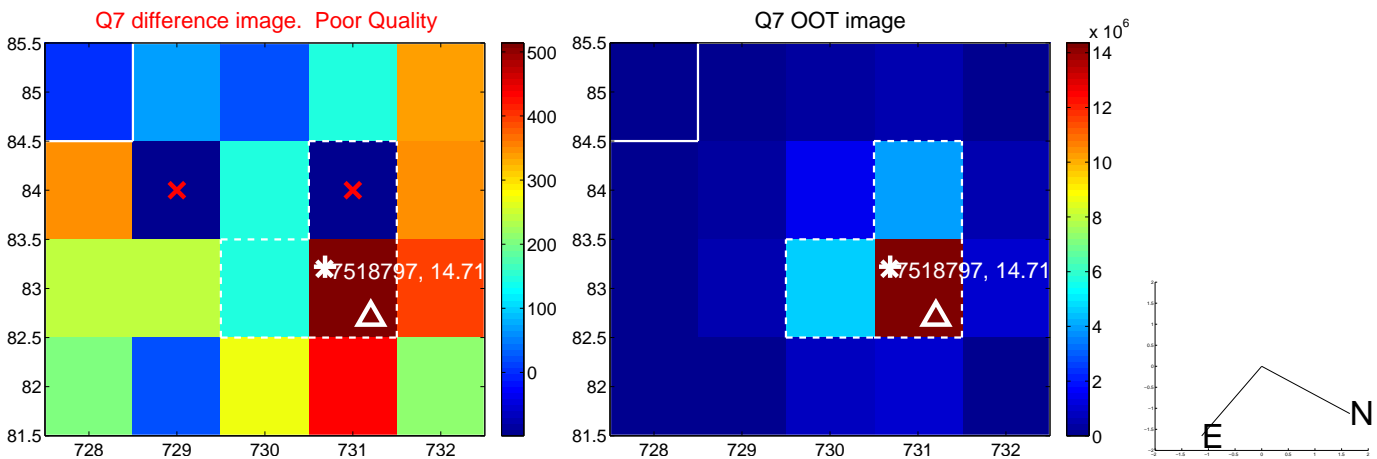
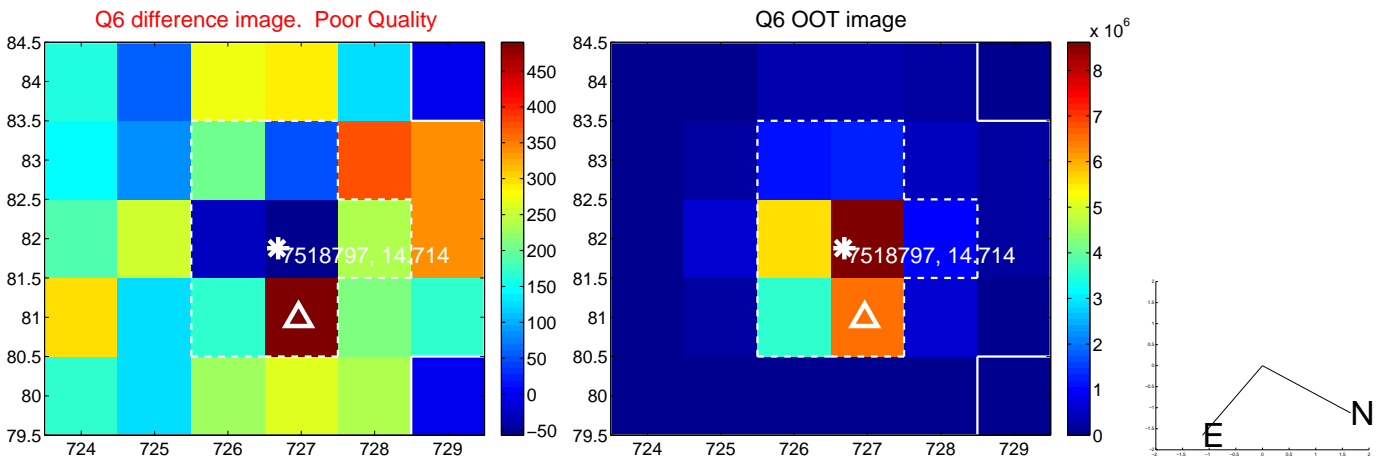
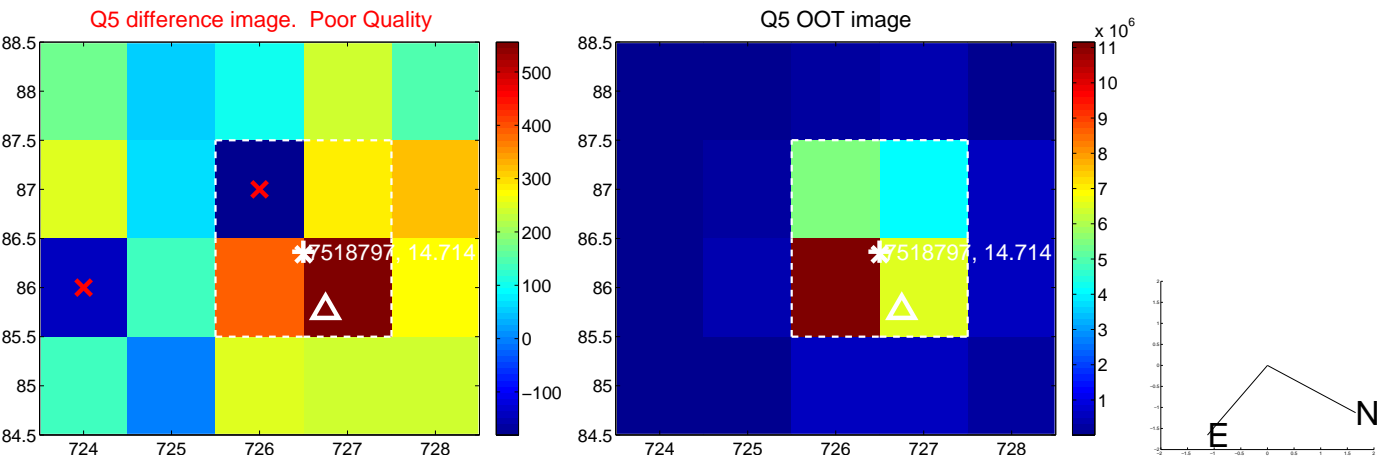


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

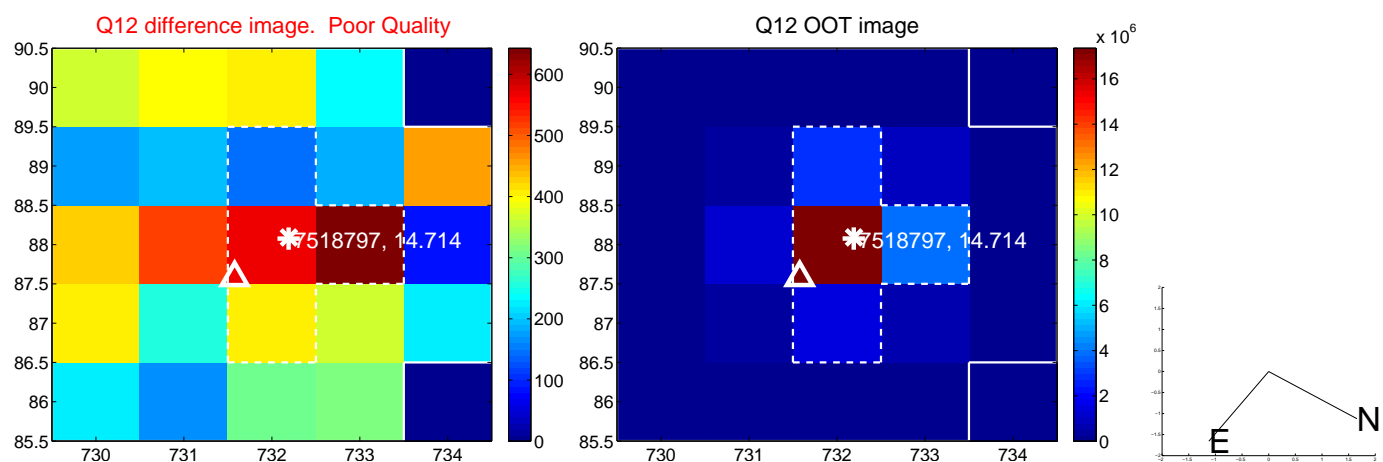
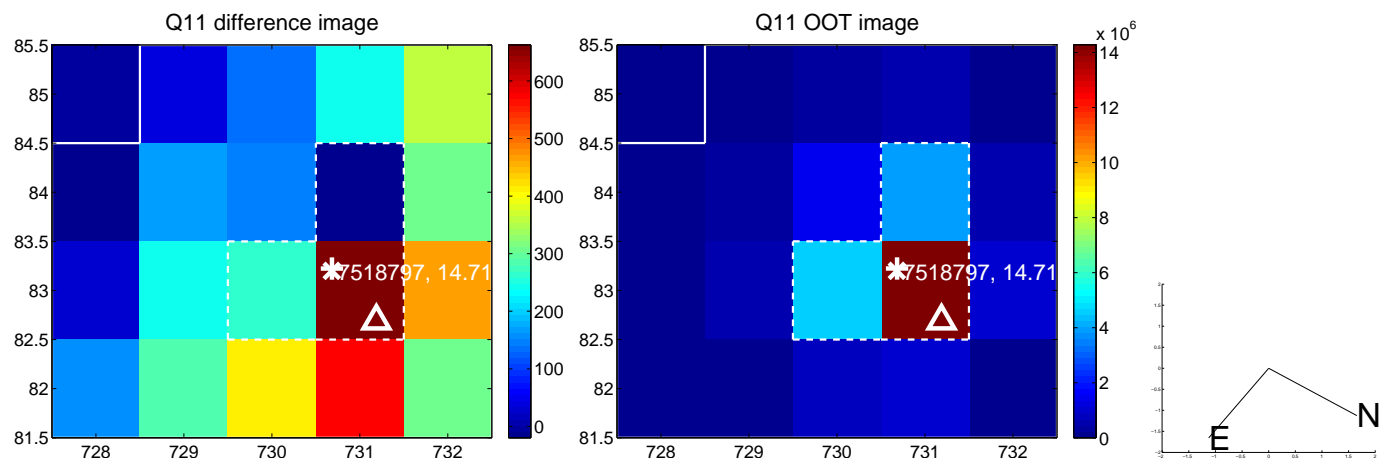
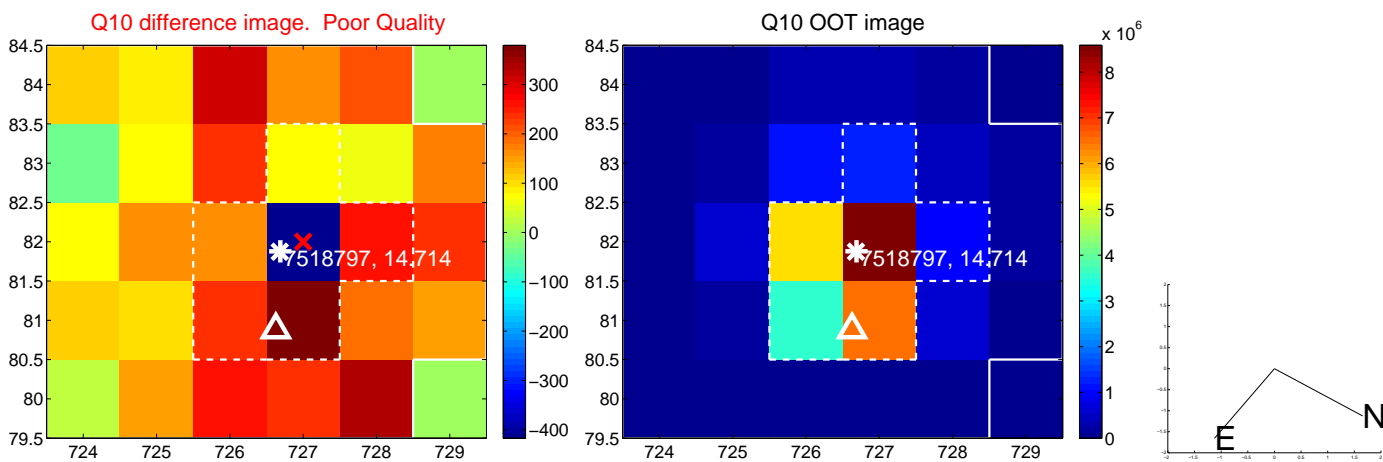
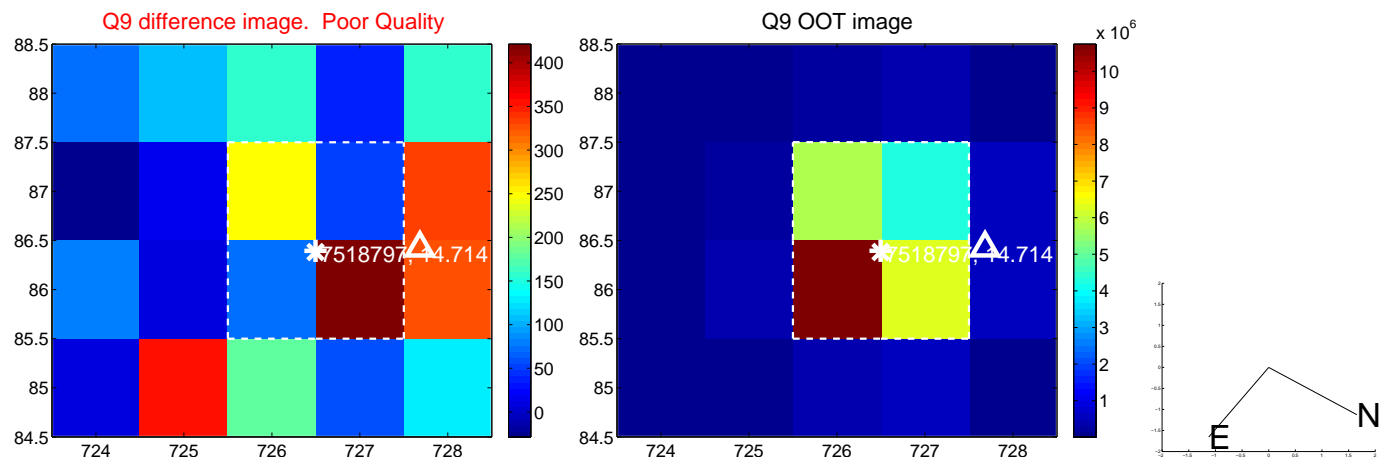


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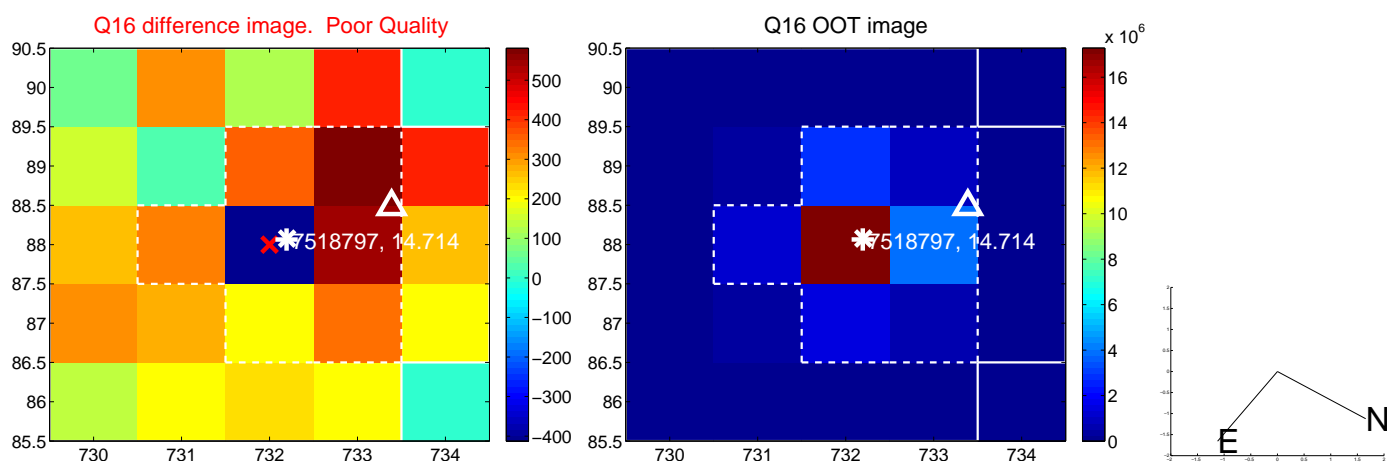
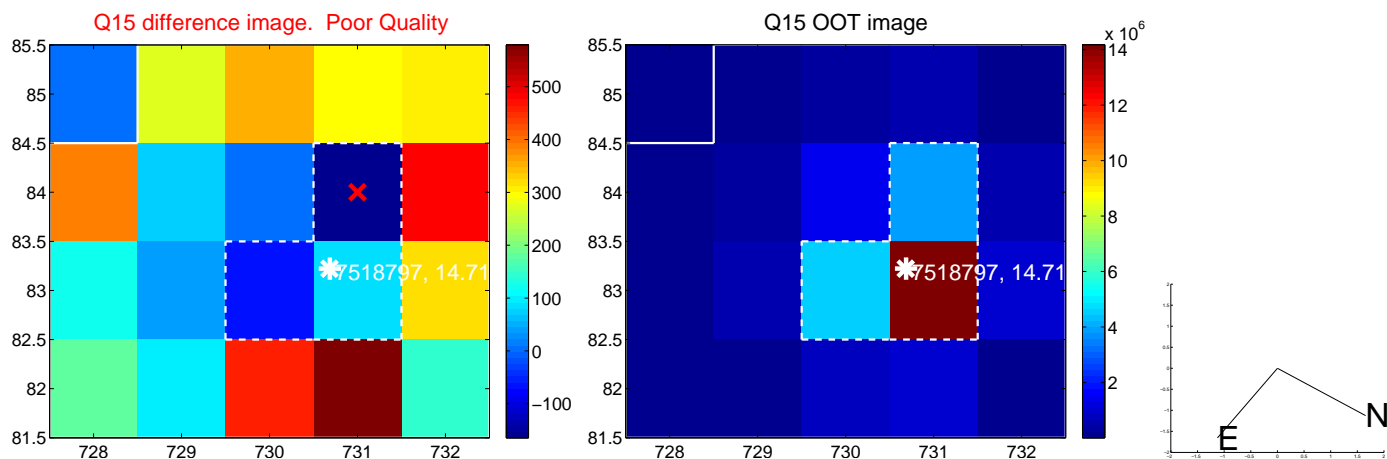
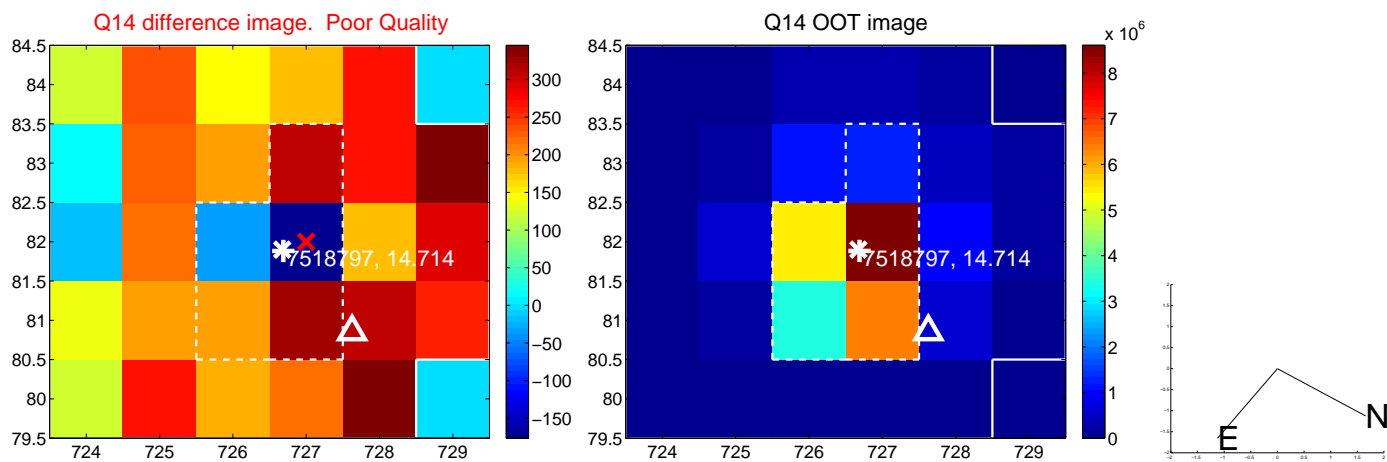
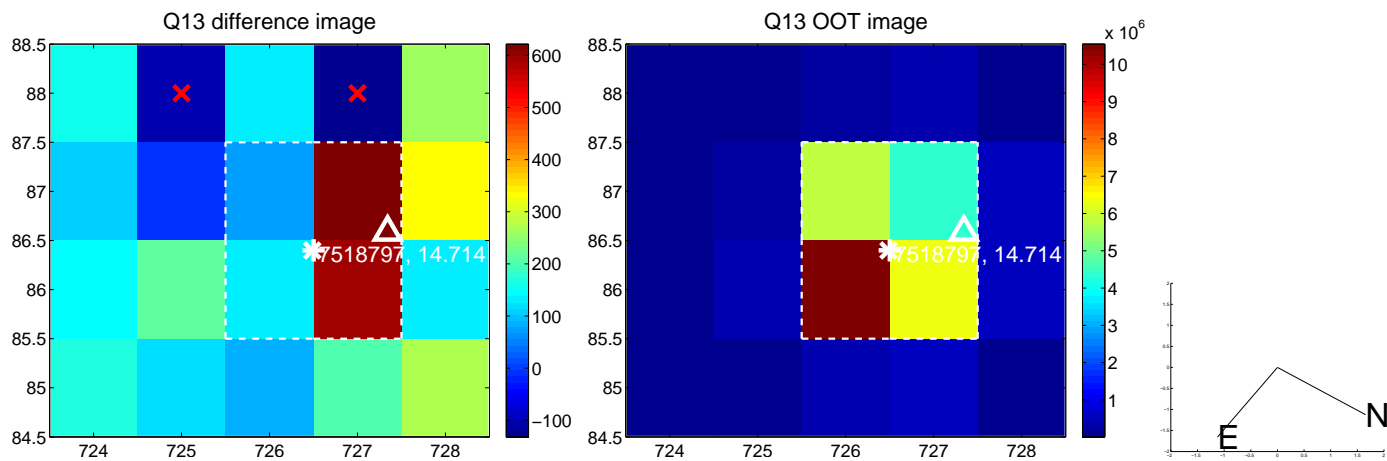




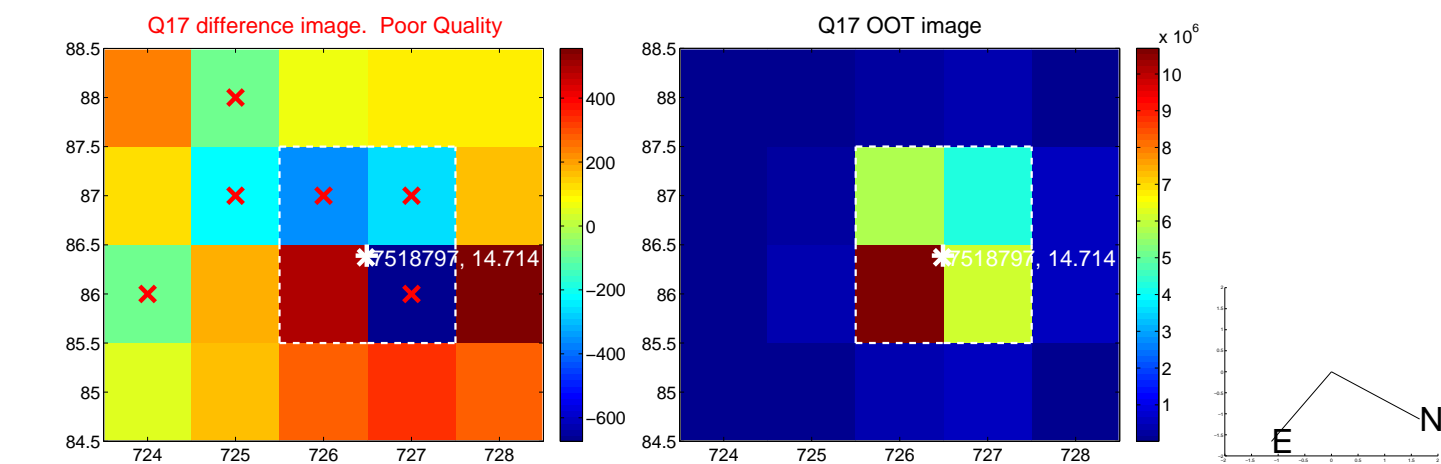
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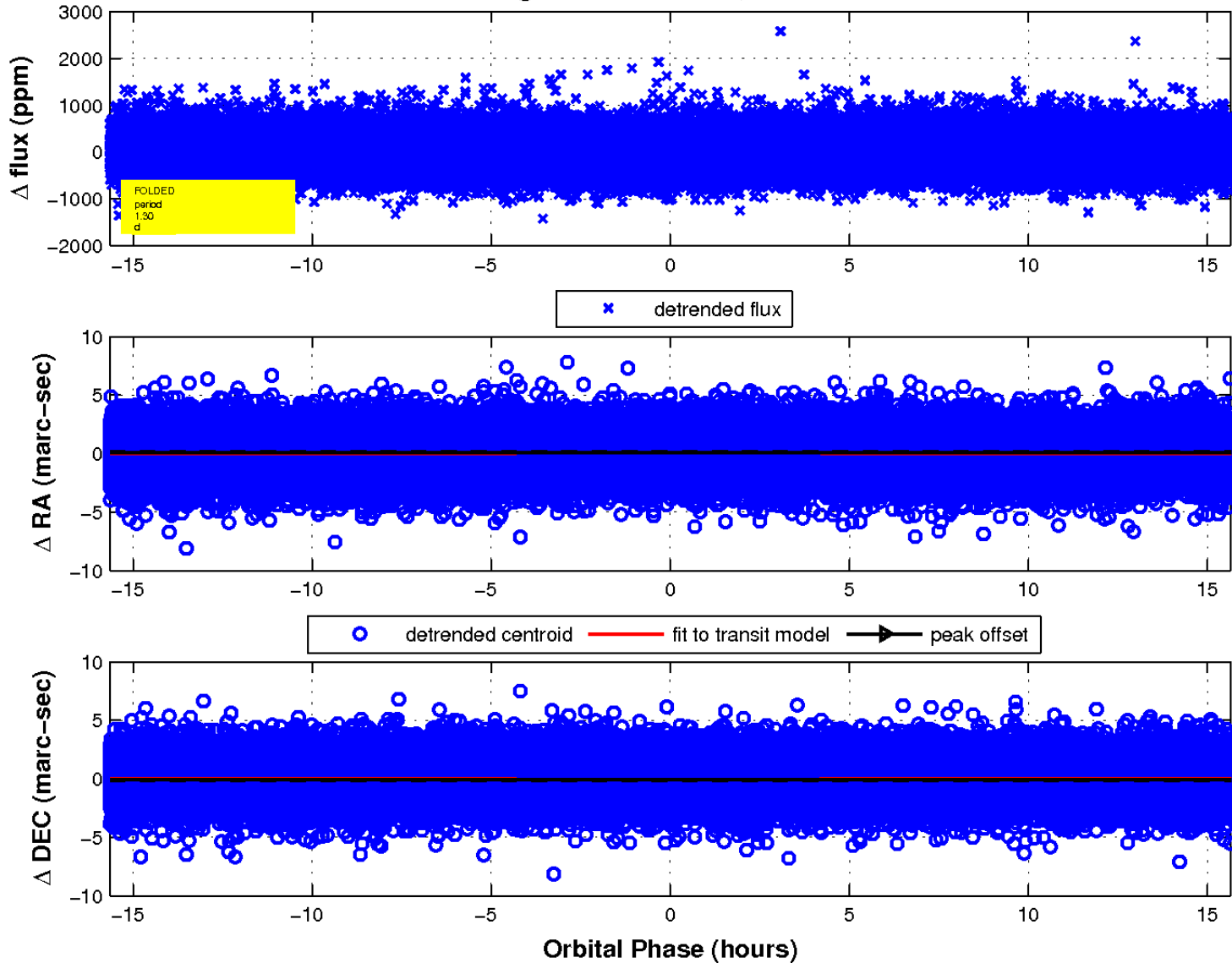
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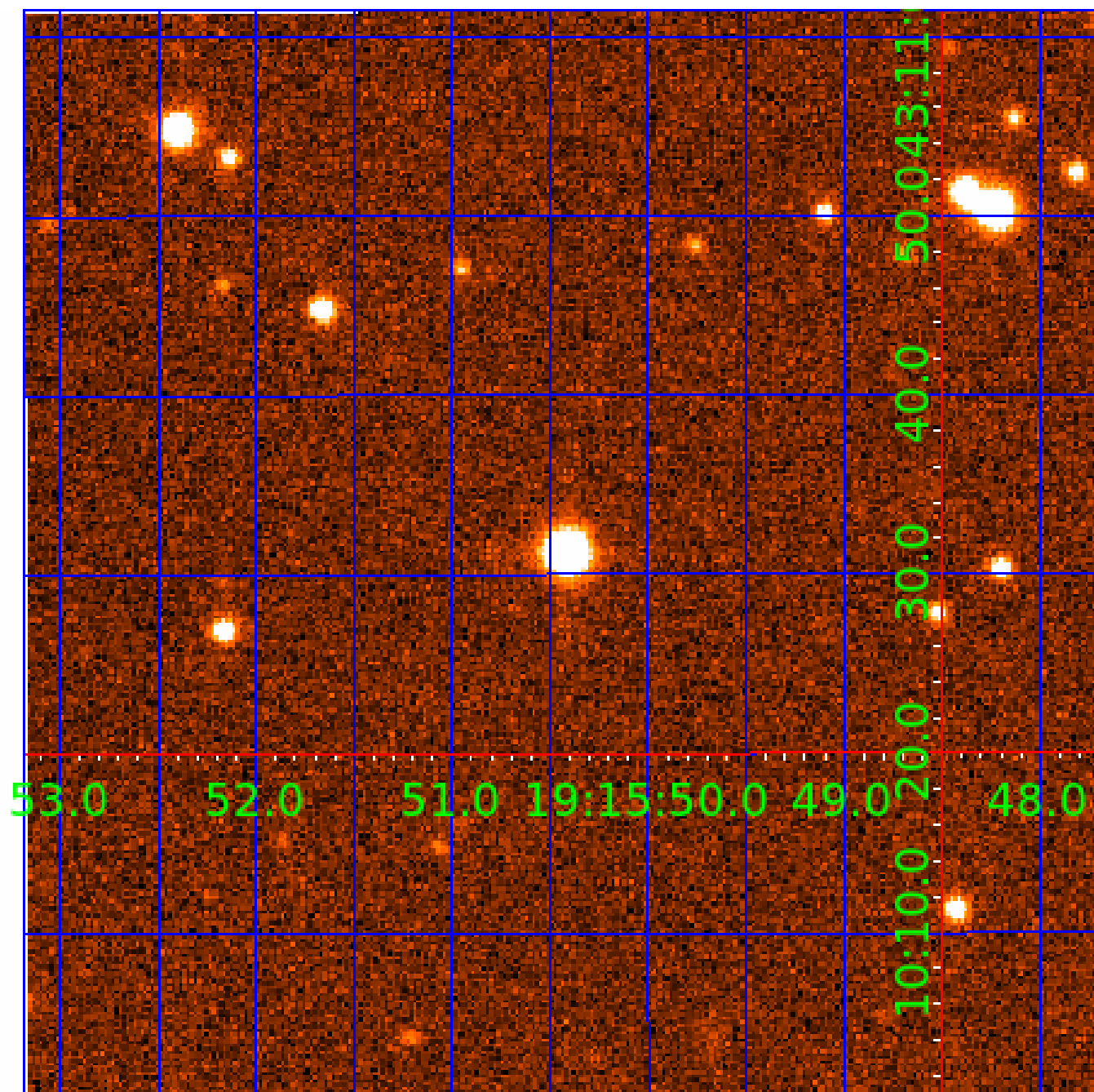


fluxWeightedCentroids, Planet 1 of 9



UKIRT Image

Declination





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## Q1-17 DR25 TCE Parameters

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007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

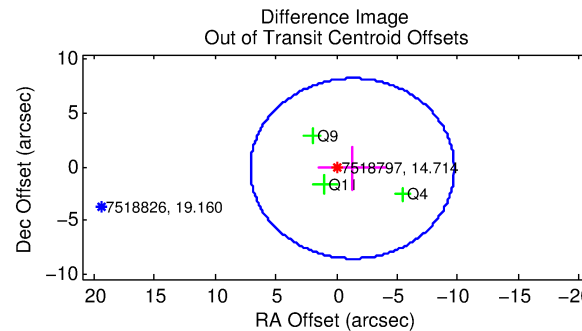
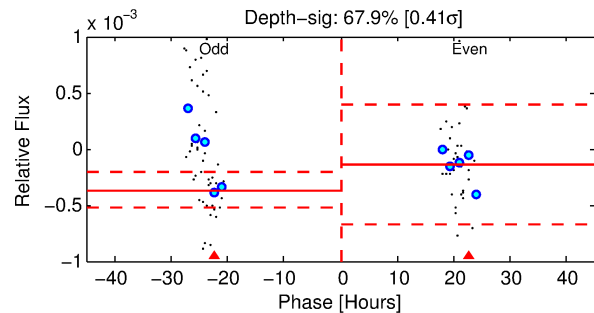
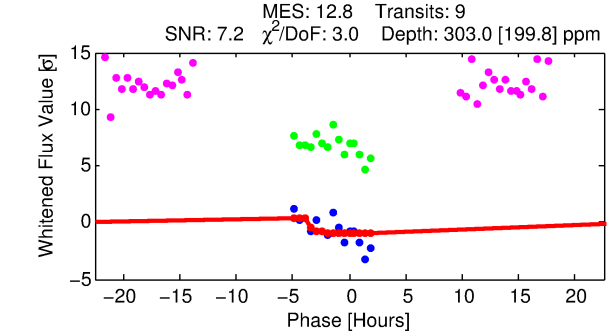
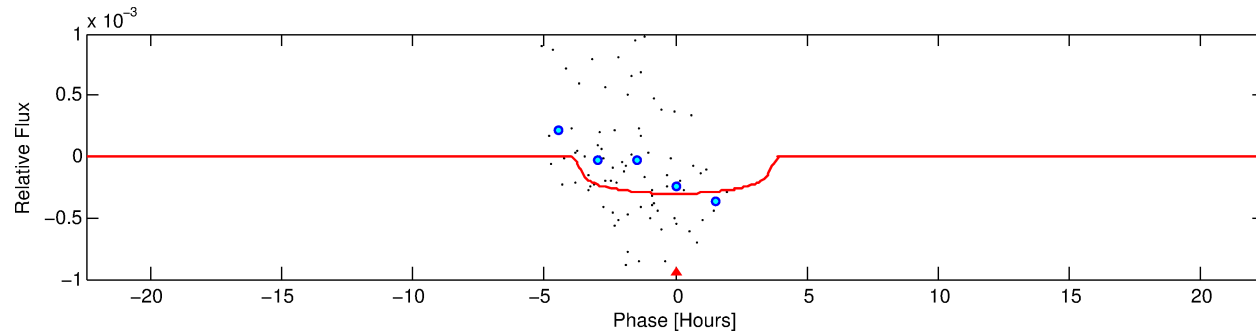
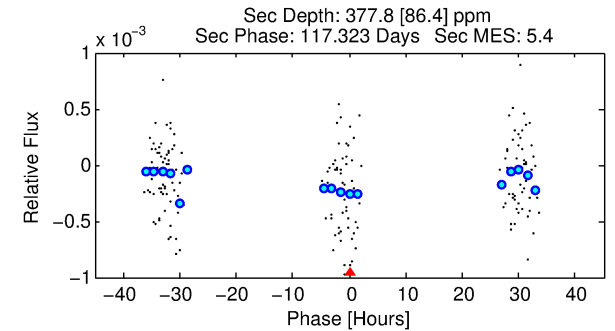
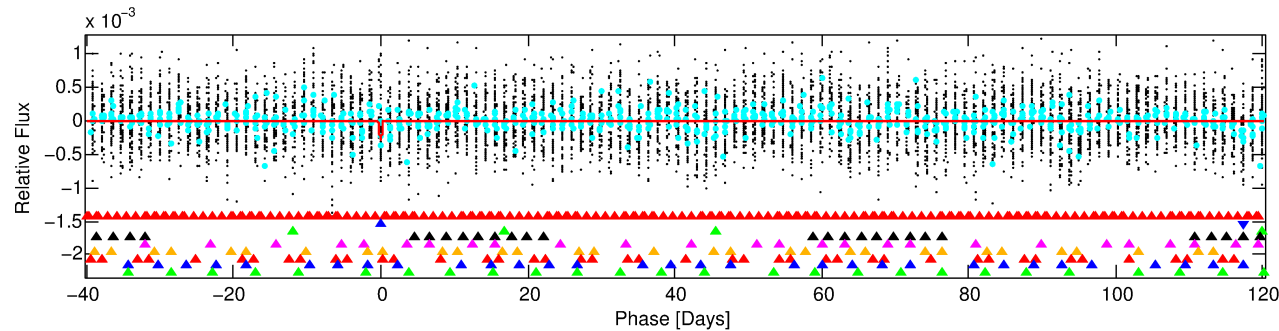
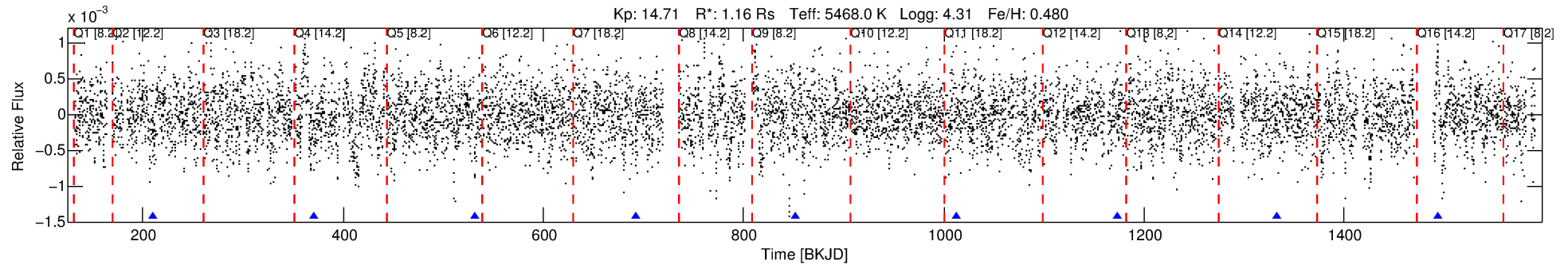
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-02

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 2 of 9 Period: 160.371 d



## DV Fit Results:

Period = 160.37107 [0.01255] d  
Epoch = 210.8380 [0.1477] BKJD  
Rp/R\* = 0.0155 [0.0790]  
a/R\* = 166.03 [3119.25]  
b = 0.01 [1508.30]  
Seff = 3.22 [1.09]  
Teq = 342 [29] K  
Rp = 1.97 [10.00] Re  
a = 0.5779 [0.1245] AU  
Ag = 17950.16 [182538.16] [0.10 $\sigma$ ]  
Teffp = 6114 [15536] K [0.37 $\sigma$ ]

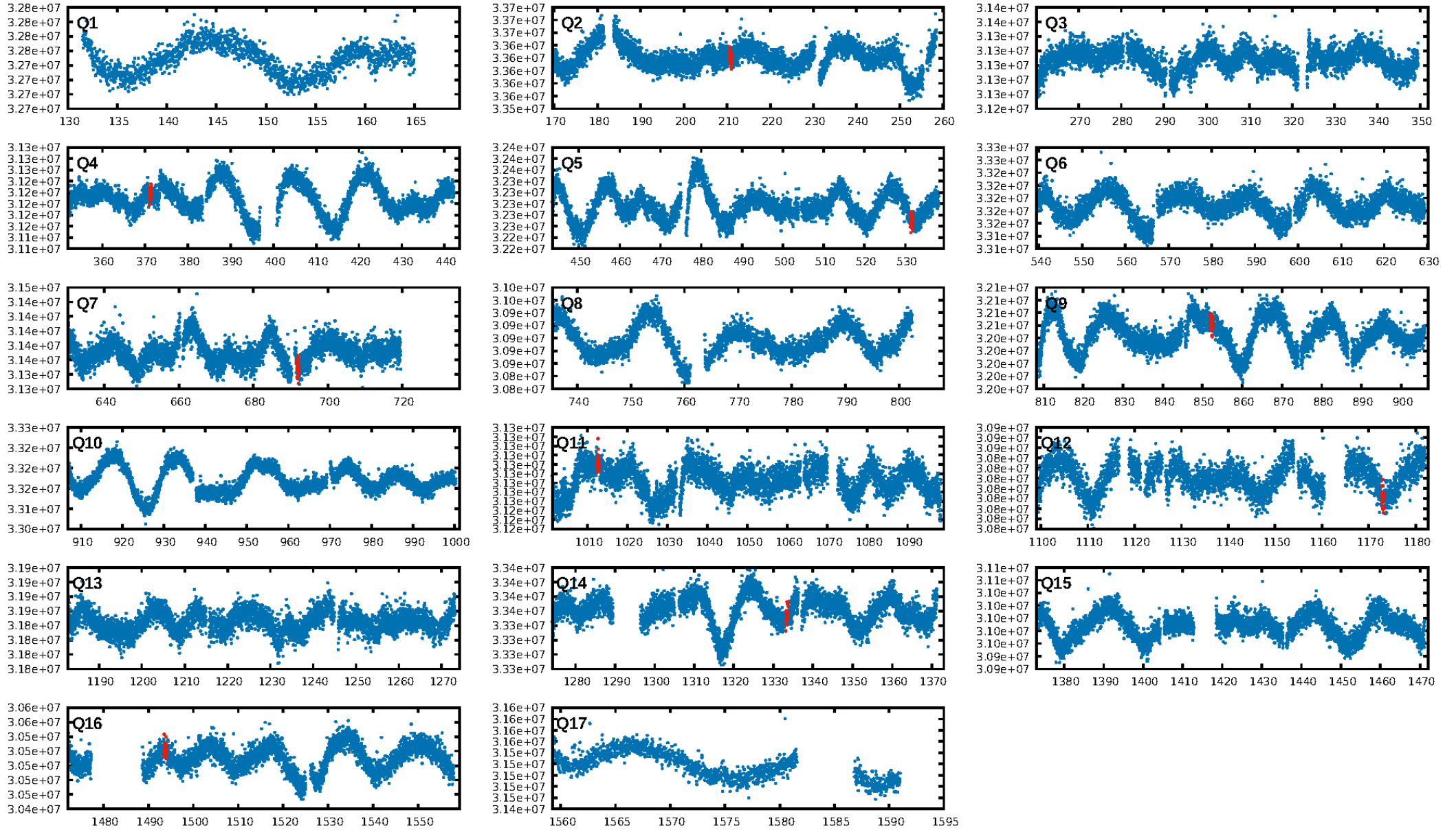
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [302.34 $\sigma$ ]  
LongPeriod-sig: 100.0% [377.18 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 34.9%  
Bootstrap-pfa: 1.76e-49  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: 0.0535  
Centroid-sig: 74.7%  
Centroid-so: 0.485 arcsec [0.37 $\sigma$ ]  
OotOffset-rm: 1.335 arcsec [0.48 $\sigma$ ]  
KicOffset-rm: 1.335 arcsec [0.48 $\sigma$ ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 0.00 [0/8]

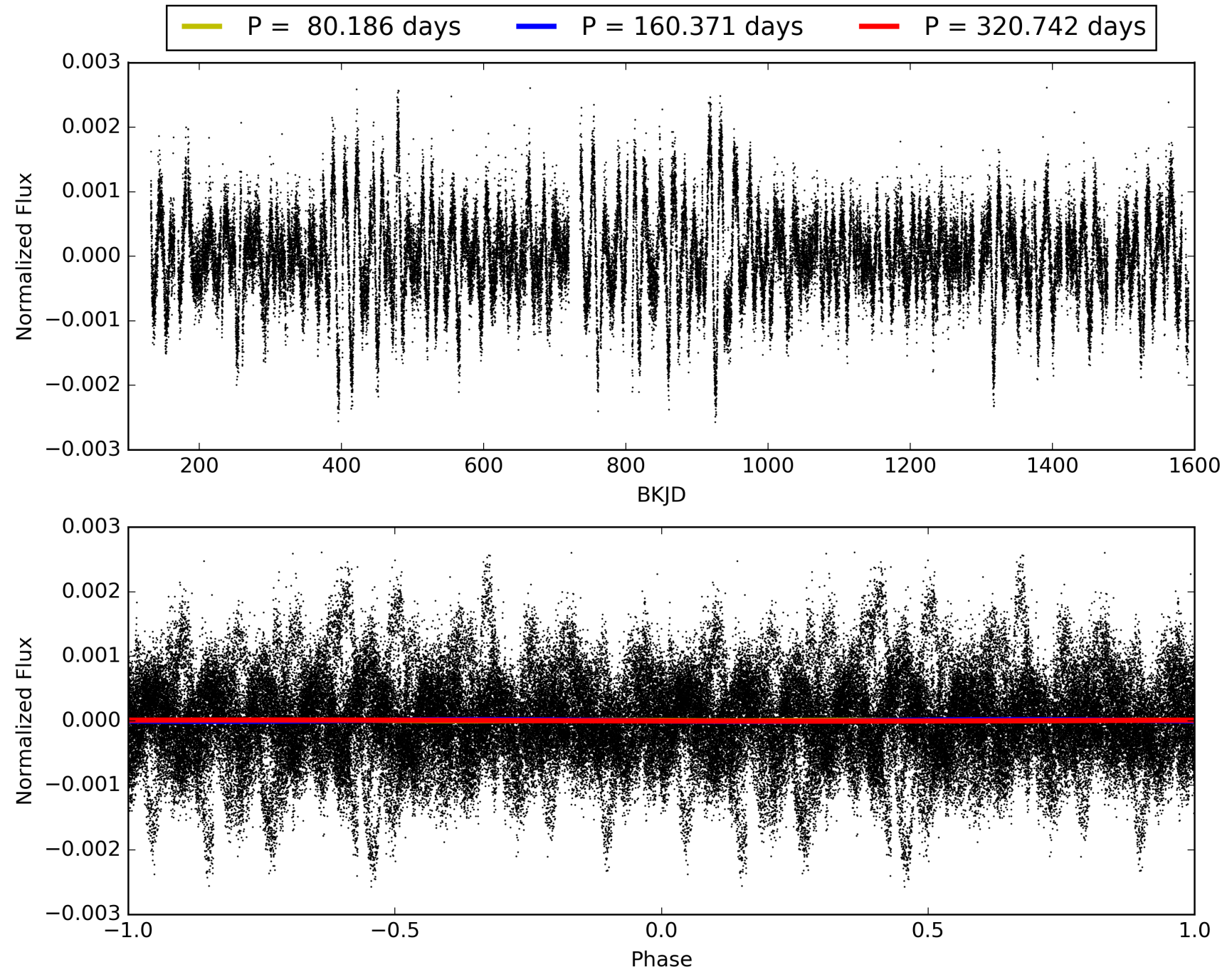
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:21:41 Z

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

# TCE 007518797-02, PDC Light Curves

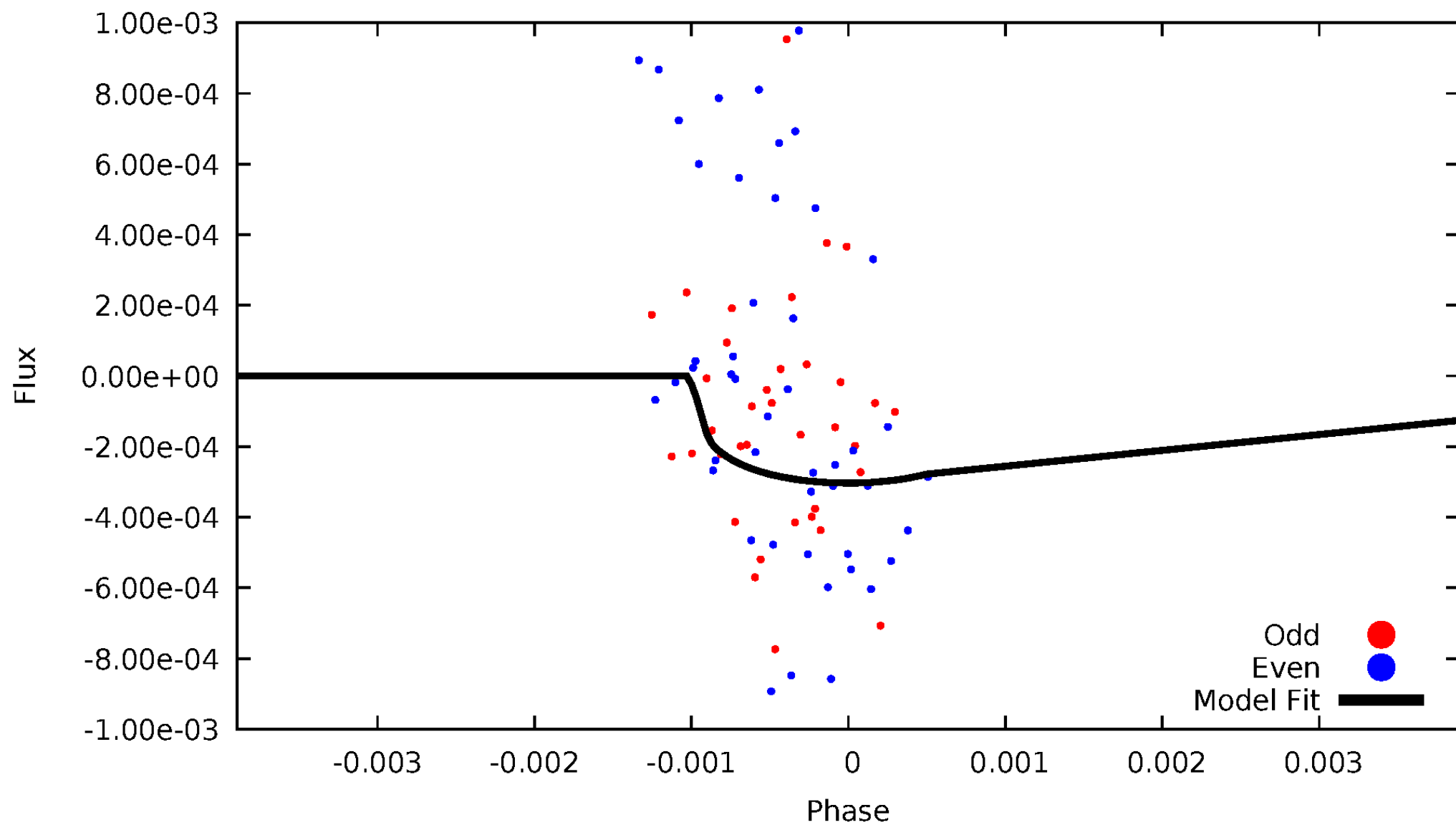


# TCE 007518797-02



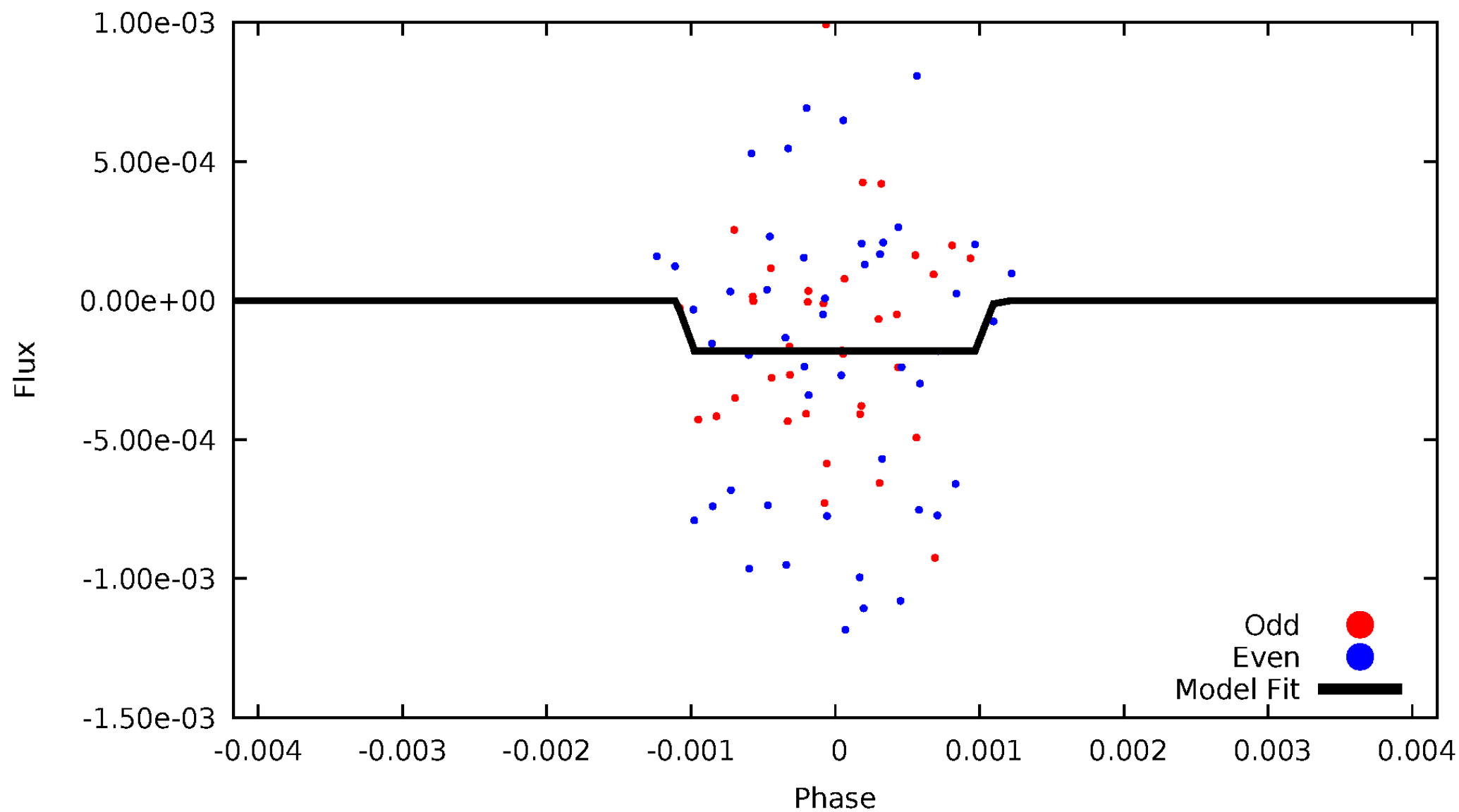
# DV Odd/Even

TCE 007518797-02



# ALT Odd/Even

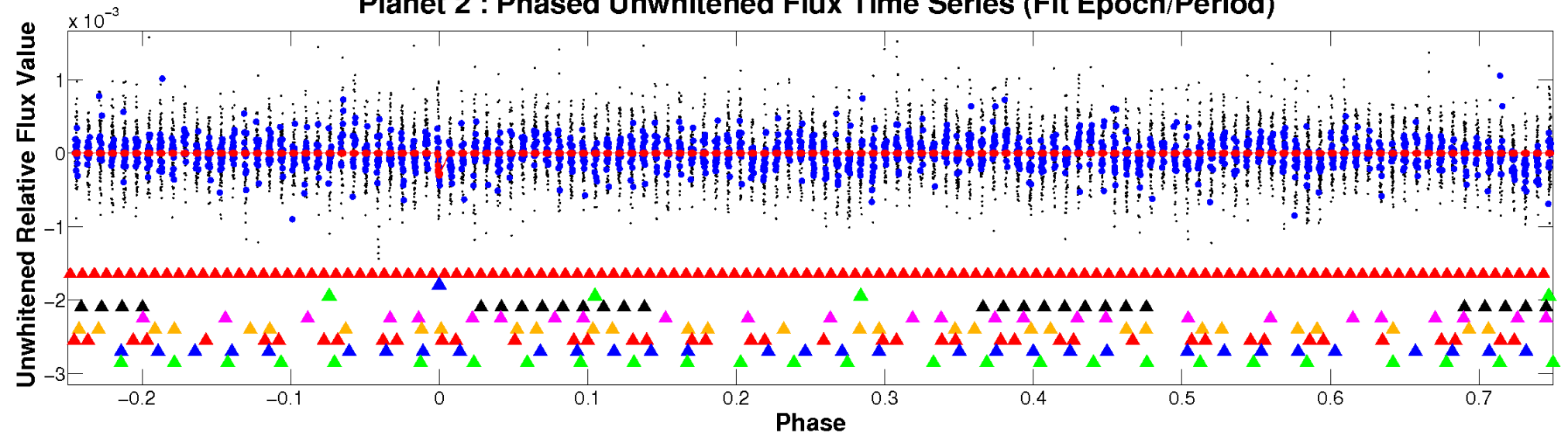
TCE 007518797-02



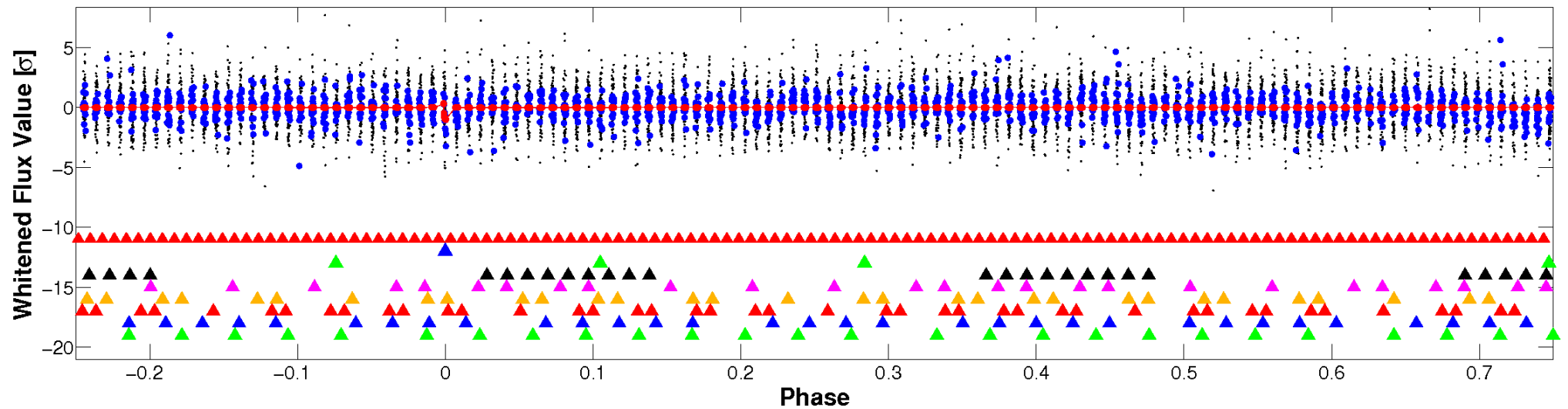


# Non-Whitened Vs. Whitened Light Curve

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

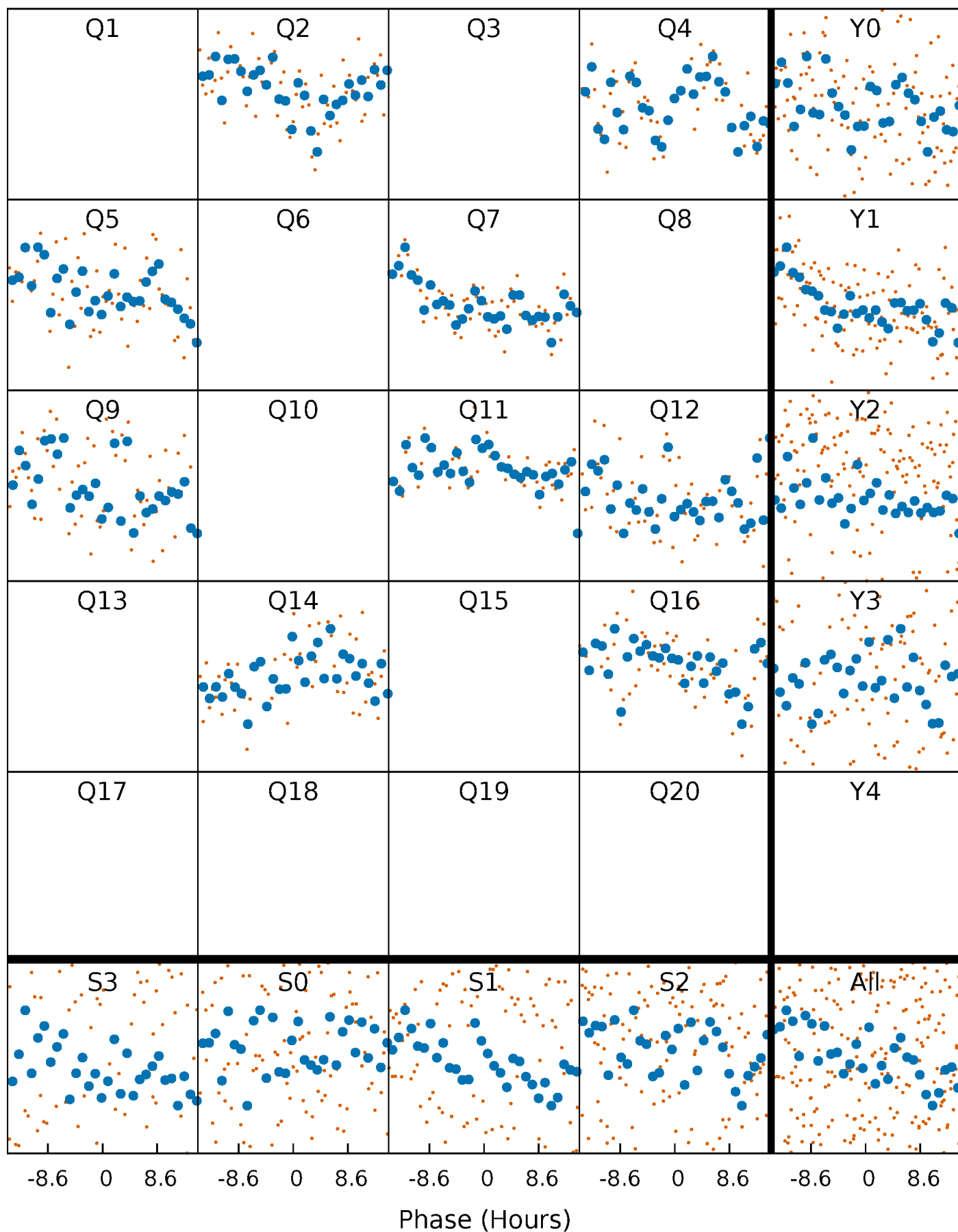


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



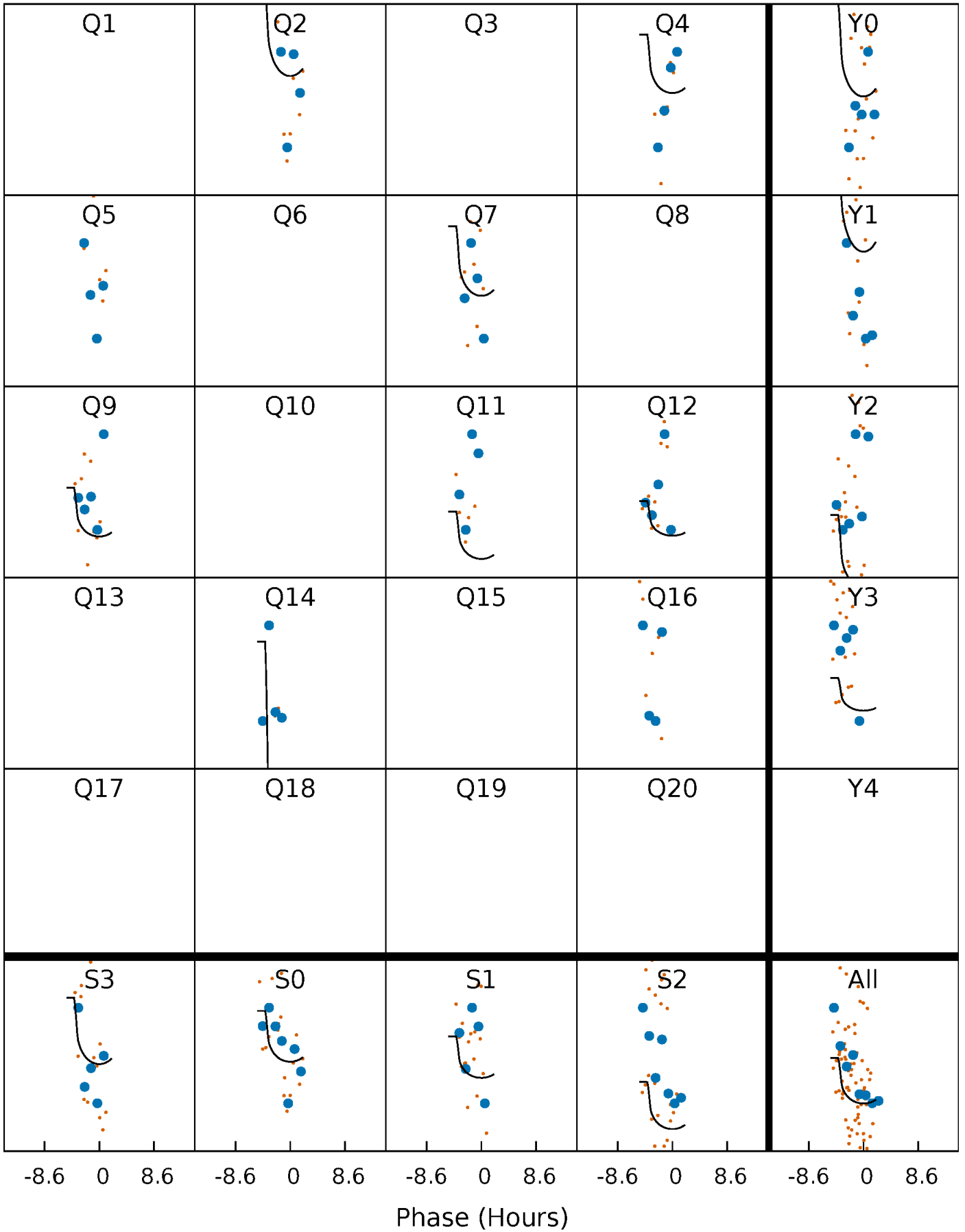
# PDC Quarter-Phased Transit Curves

TCE 007518797-02 P=160.371067 Days  $T_0=210.838038$  (BKJD)



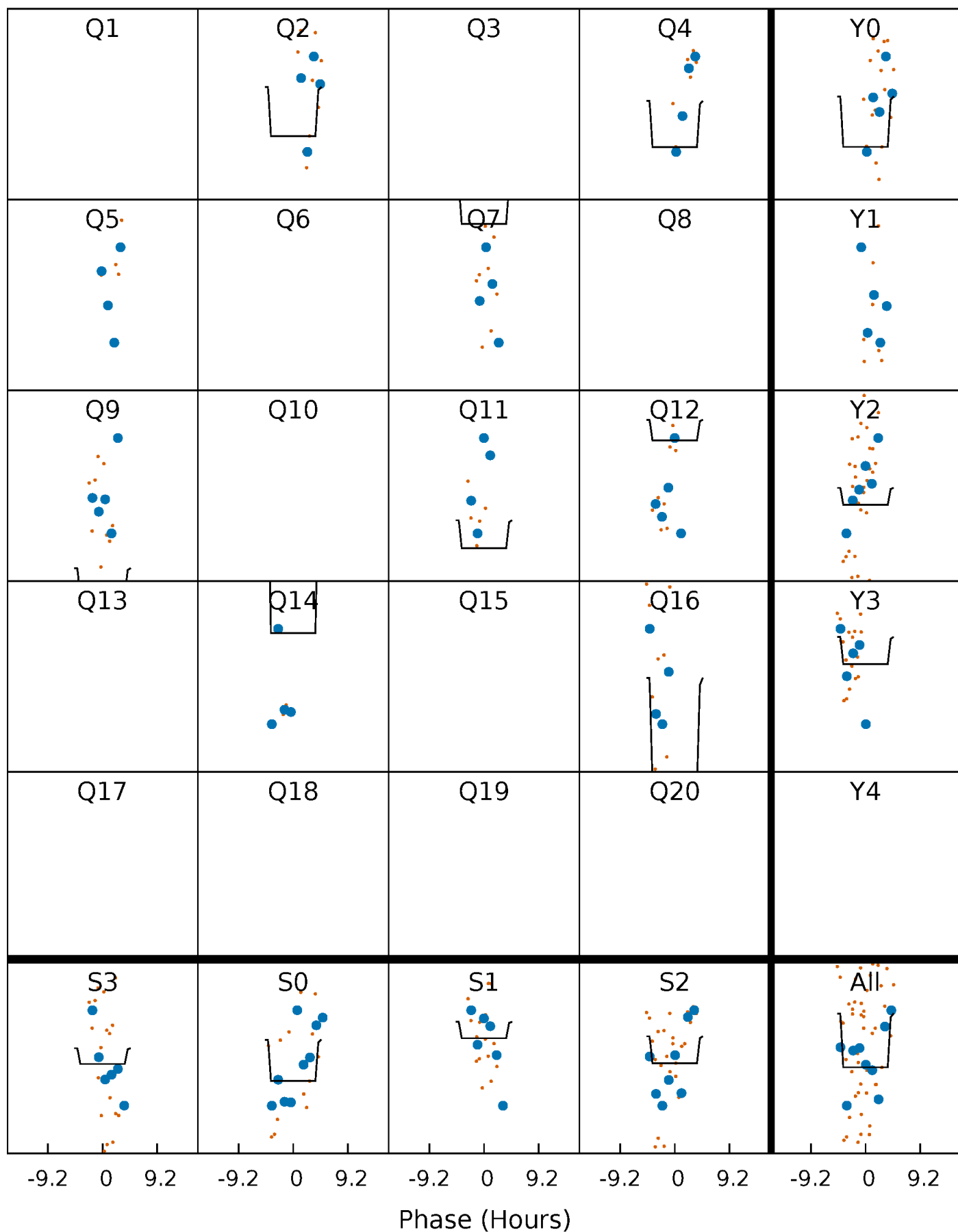
# DV Quarter-Phased Transit Curves

TCE 007518797-02     $P=160.371067$  Days     $T_0=210.838038$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

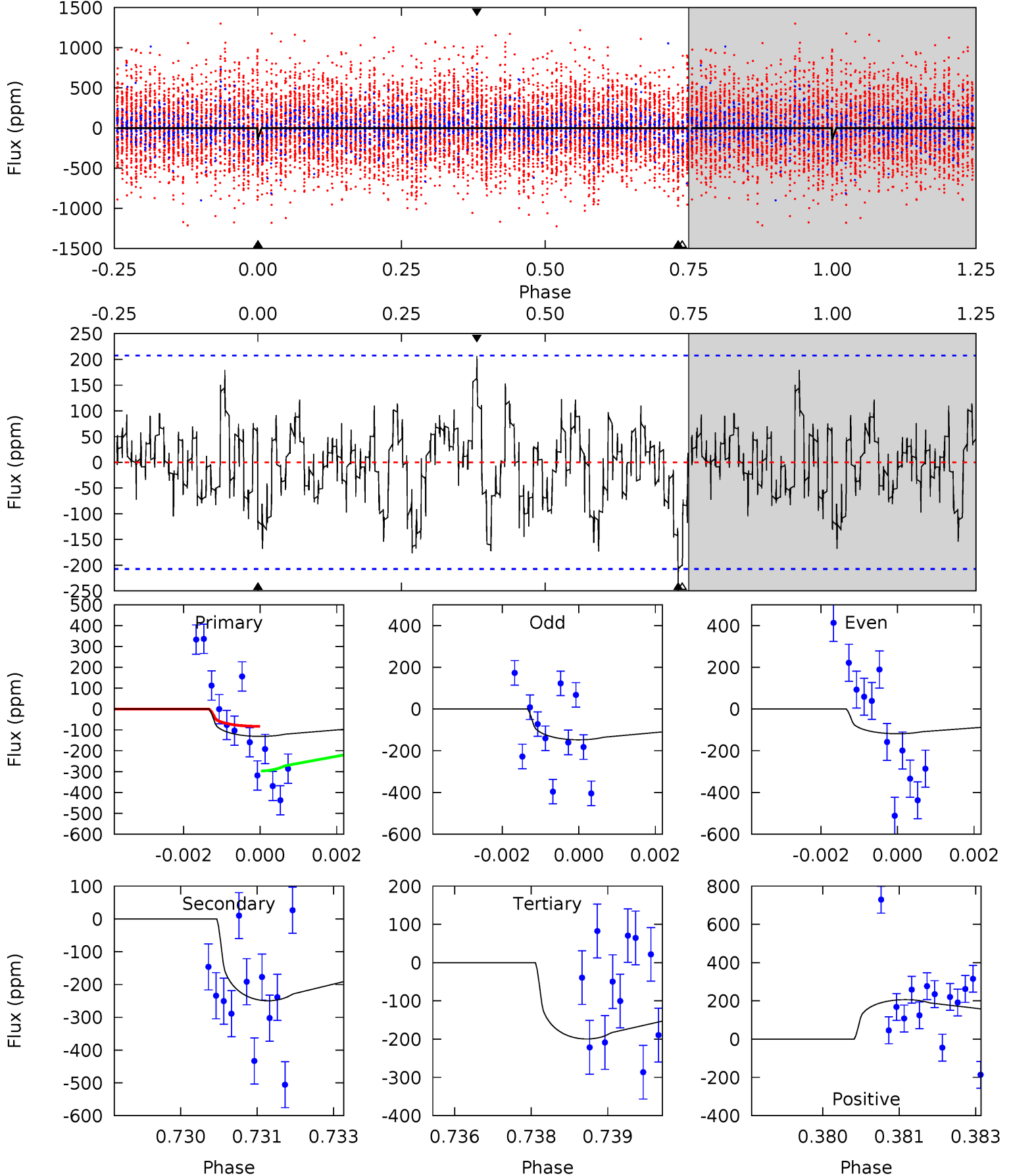
TCE 007518797-02 P=160.383504 Days  $T_0=210.723044$  (BKJD)



# DV Model-Shift Uniqueness Test

007518797-02, P = 160.371067 Days, E = 50.466971 Days

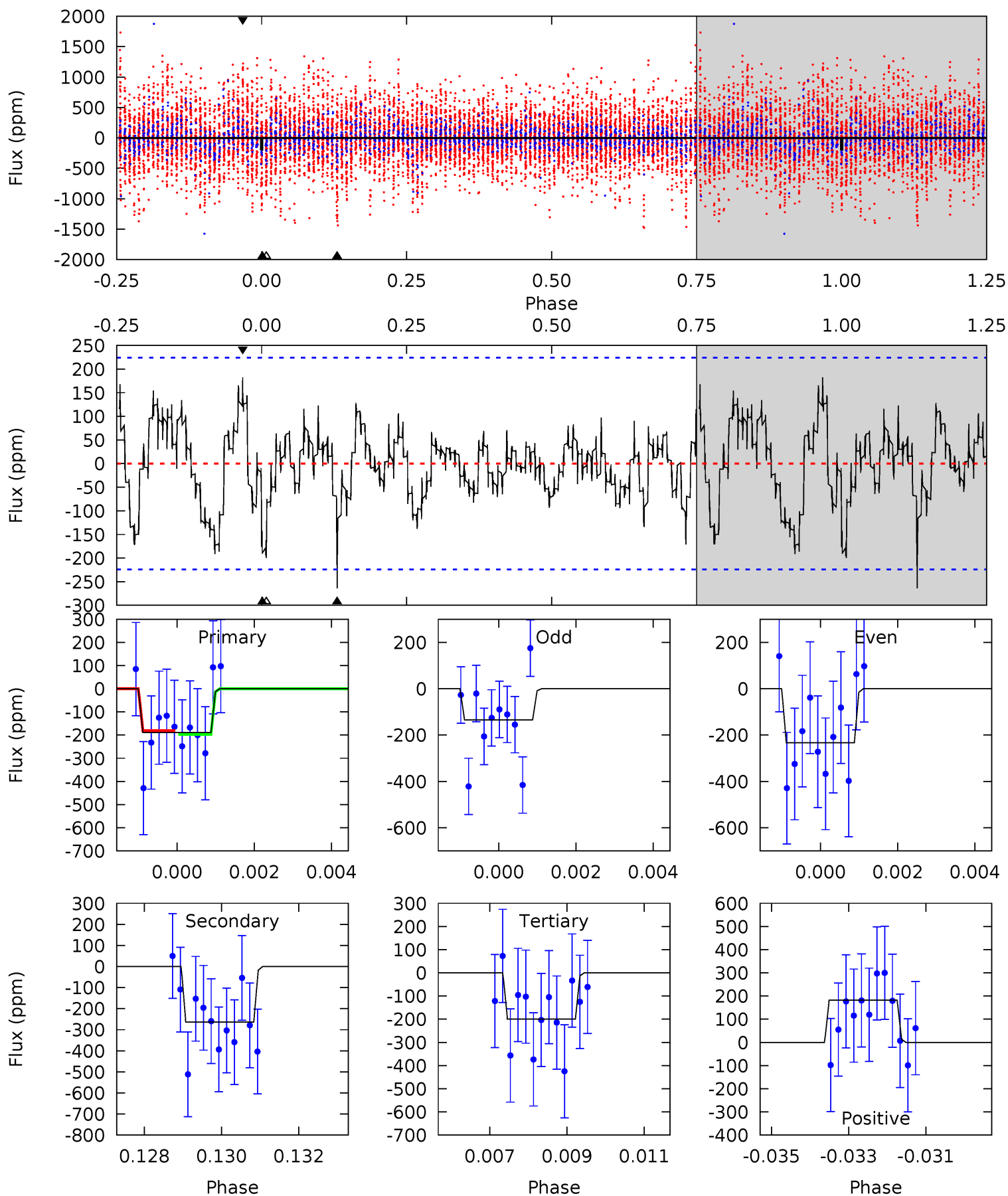
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.40	6.47	5.17	5.35	5.37	3.17	1.67	-1.77	-1.95	1.30	1.12	0.38	0.52	0.45	2.10



# Alt Model-Shift Uniqueness Test

007518797-02, P = 160.383504 Days, E = 50.339540 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
4.48	6.25	4.73	4.32	5.31	3.06	1.54	-0.25	0.16	1.52	1.93	1.16	4.35	0.41	0.20





### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-250 \pm 39$	$7.58^{+7.29}_{-5.35}$	$478^{+33}_{-32}$	$3359^{+1804}_{-580}$	$796^{+8467}_{-594}$
Alt.	$-264 \pm 42$	$7.58^{+7.78}_{-5.21}$	$478^{+35}_{-29}$	$3365^{+1727}_{-603}$	$855^{+7593}_{-660}$

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

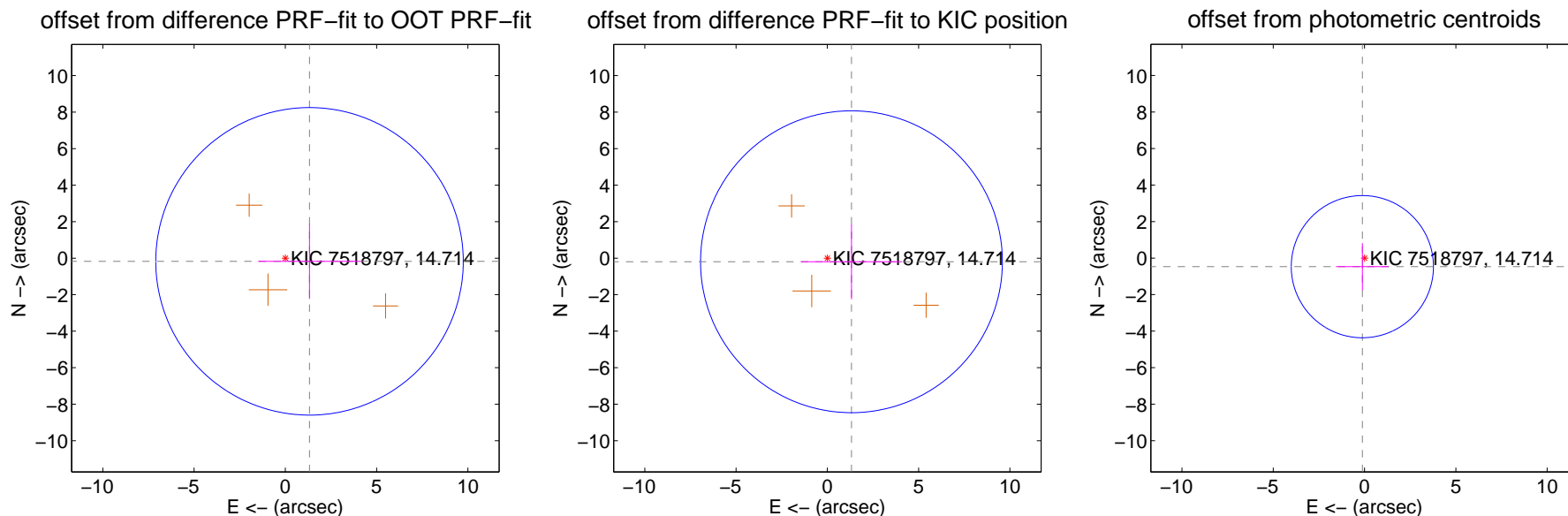
## DV Centroid Data

Supplemental centroid analysis for 007518797-02. Kepler magnitude: 14.71. Transit SNR 7.23

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.335 \pm 2.808$	0.48	$-1.323 \pm 2.819$	$-0.174 \pm 2.064$
PRF-fit source offset from KIC position	$1.335 \pm 2.756$	0.48	$-1.321 \pm 2.769$	$-0.196 \pm 2.055$
photometric centroid source offset	$0.48 \pm 1.30$	0.37	$0.12 \pm 1.45$	$-0.47 \pm 1.29$



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.

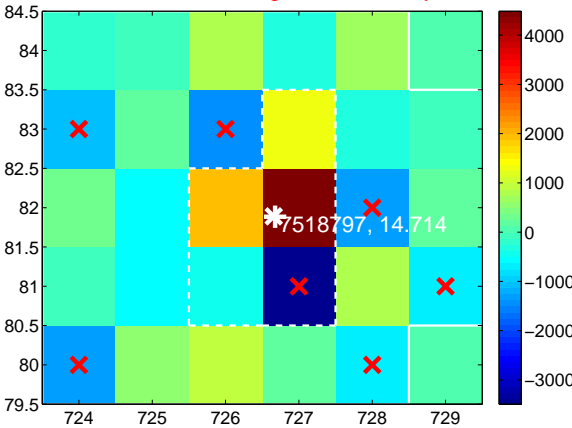
Q1 no difference image



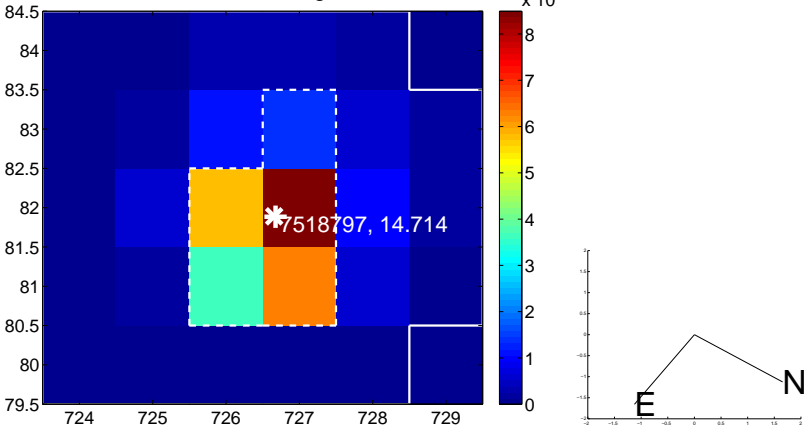
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



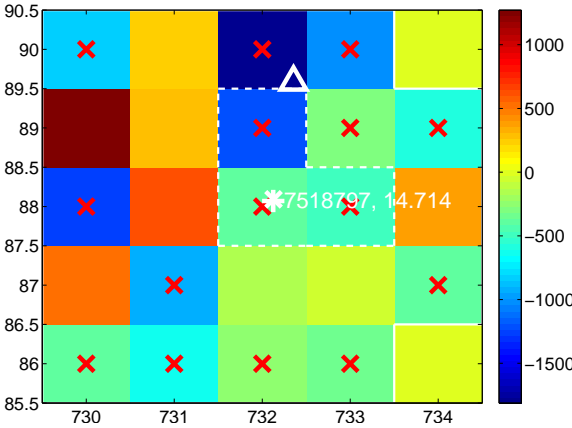
Q3 no difference image



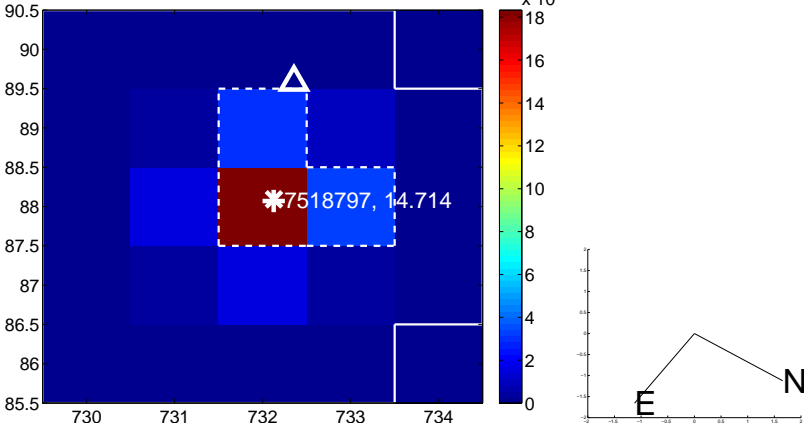
Q3 no OOT image



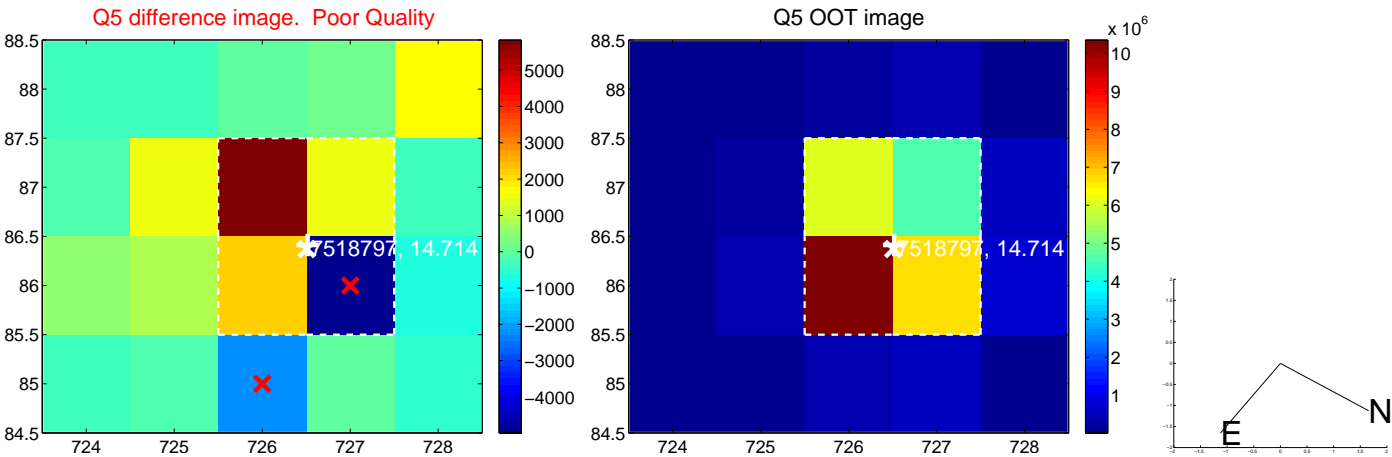
Q4 difference image. Poor Quality



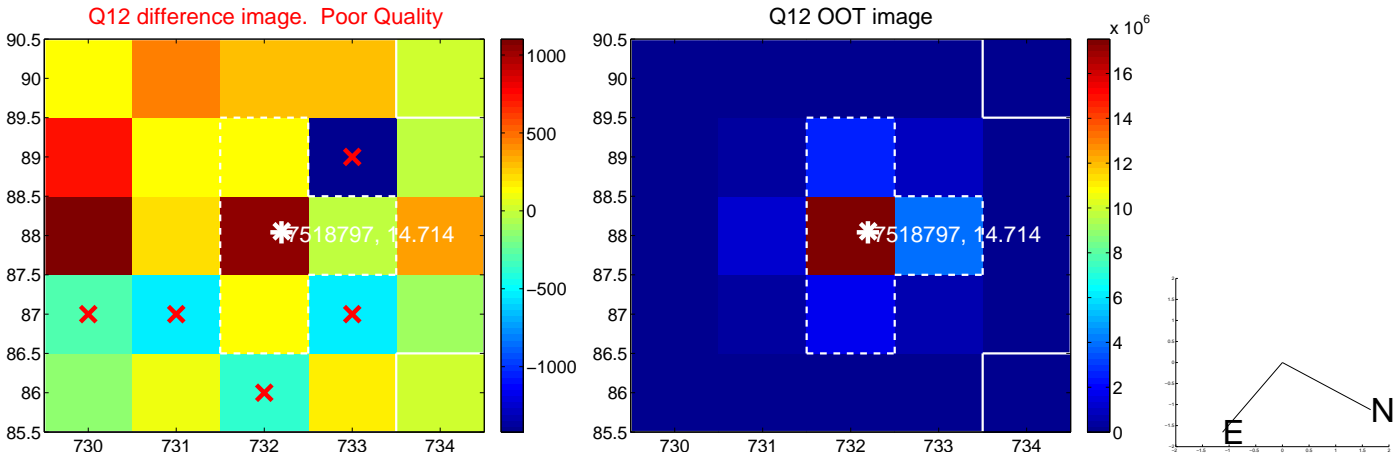
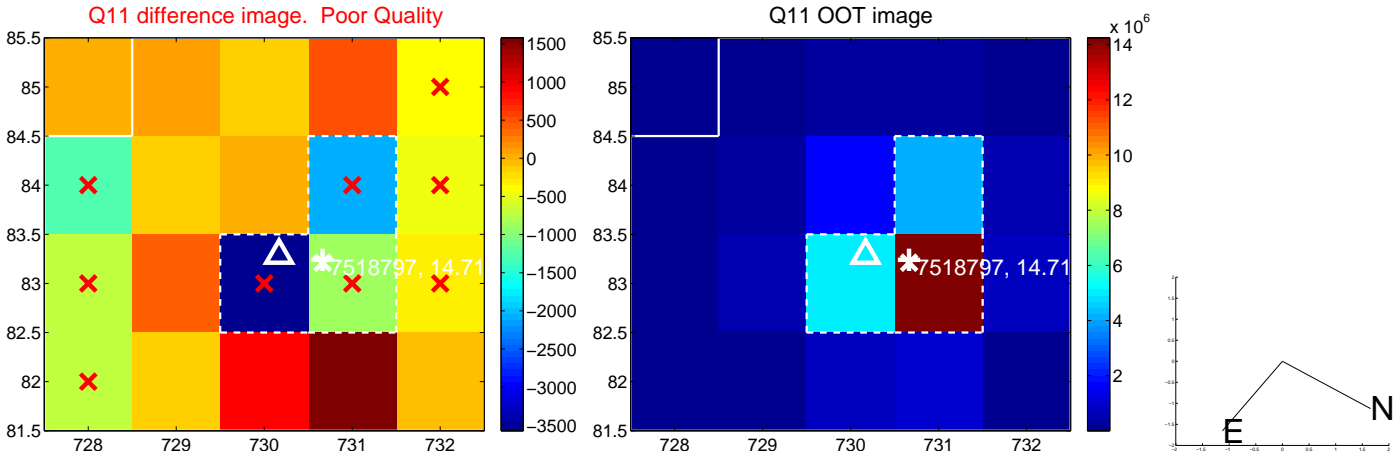
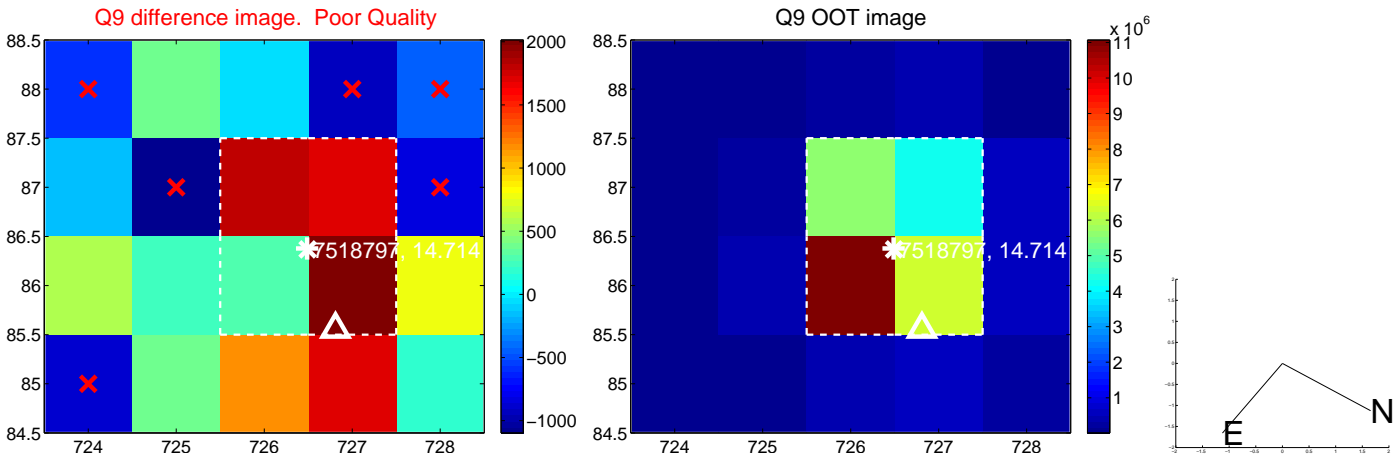
Q4 OOT image



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.

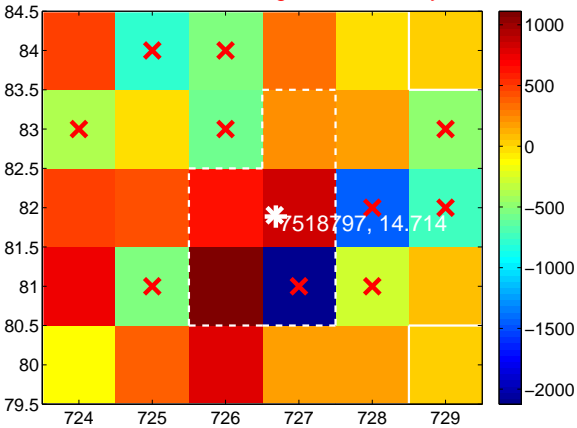
Q13 no difference image



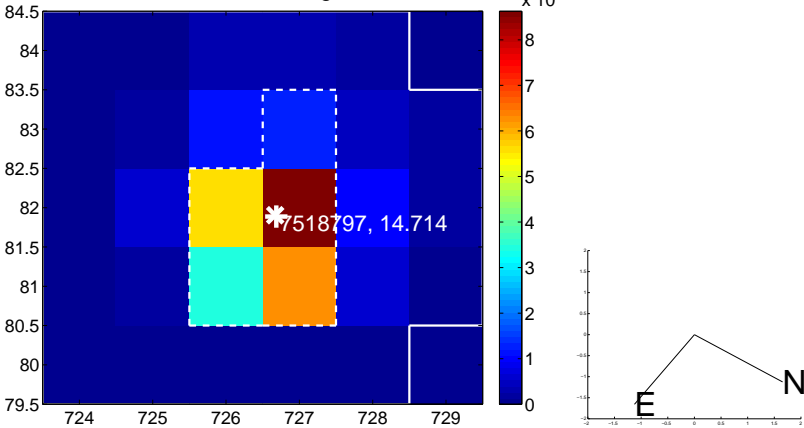
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



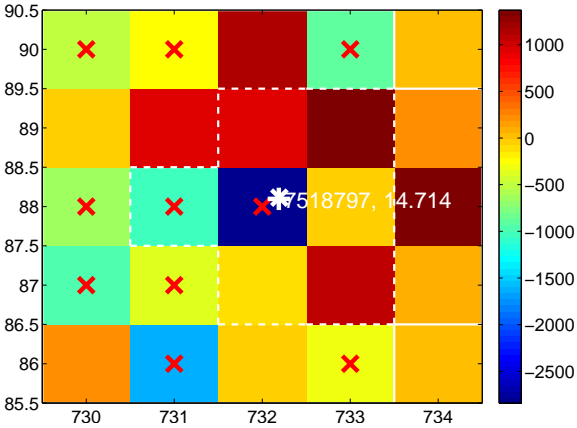
Q15 no difference image



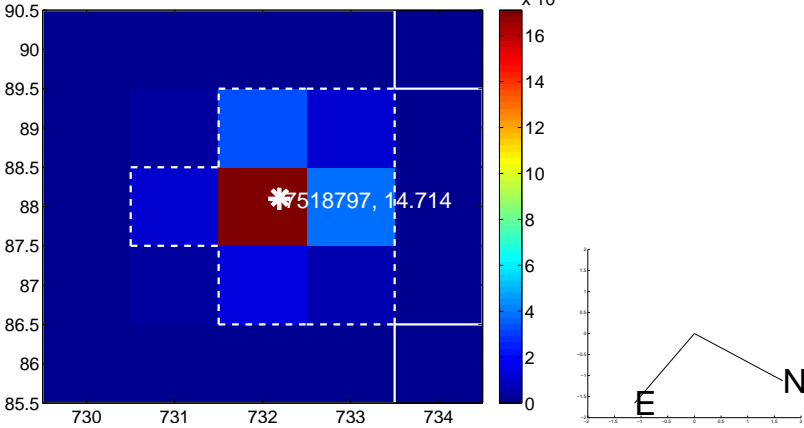
Q15 no OOT image



Q16 difference image. Poor Quality

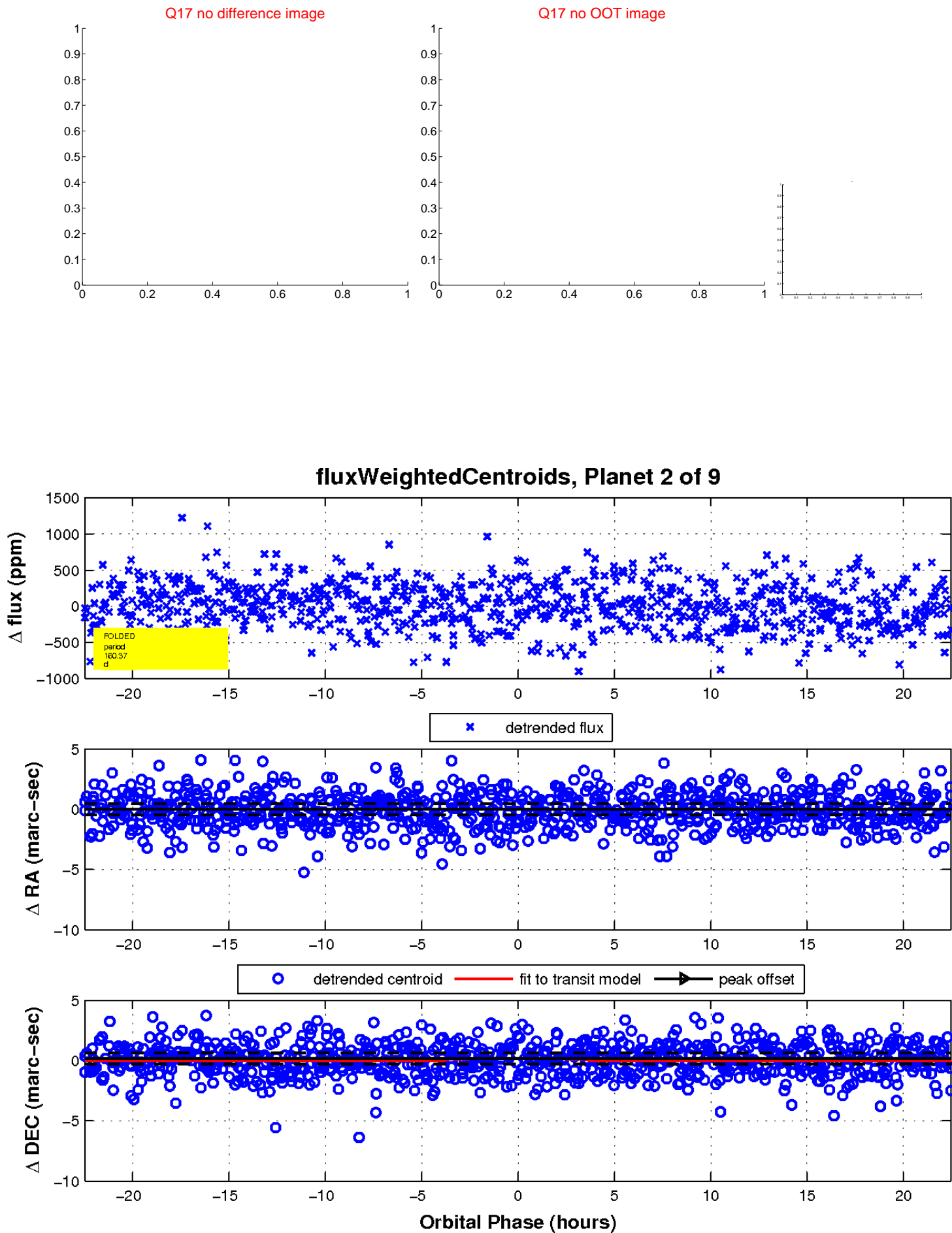


Q16 OOT image



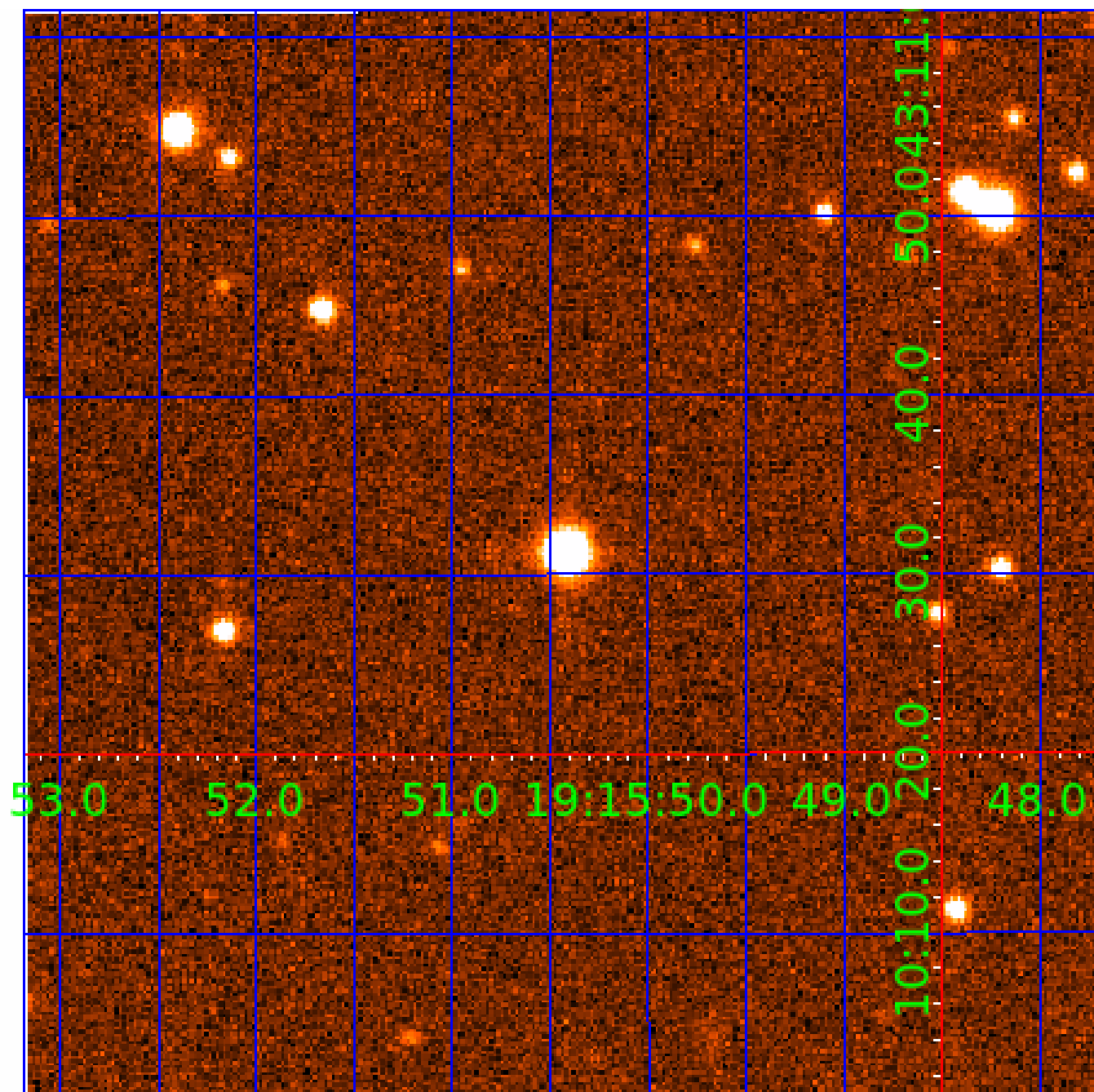


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 007518797

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007518797-01	OBS	No	1.303697	131.960422	31.9	8.704	9.0	9.0	1.16	5468	0.64	1971.04
007518797-02	OBS	No	160.371067	210.838038	303.0	7.494	12.8	7.2	1.16	5468	1.97	3.22
007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
007518797-05	OBS	No	56.420658	152.191015	398.1	3.455	9.9	9.0	1.16	5468	2.61	12.97
007518797-06	OBS	No	47.291833	132.854028	492.2	3.929	9.0	9.1	1.16	5468	2.93	16.41
007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007518797-01	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

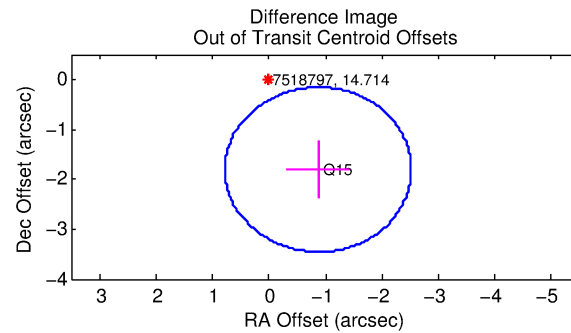
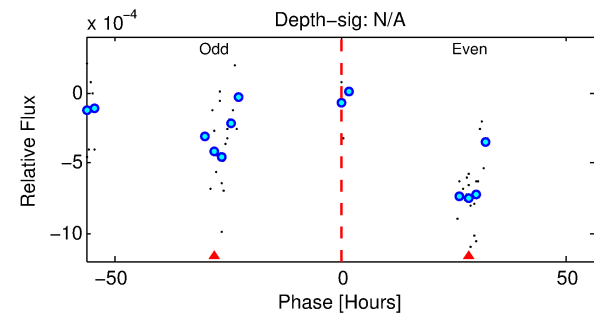
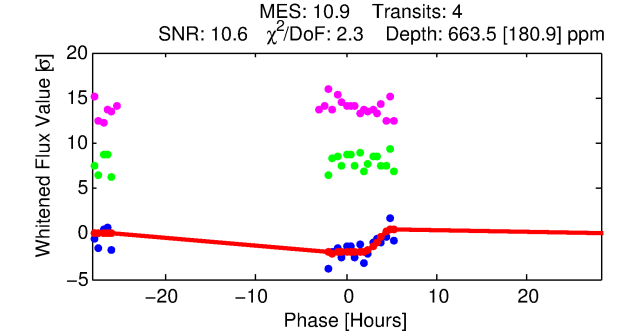
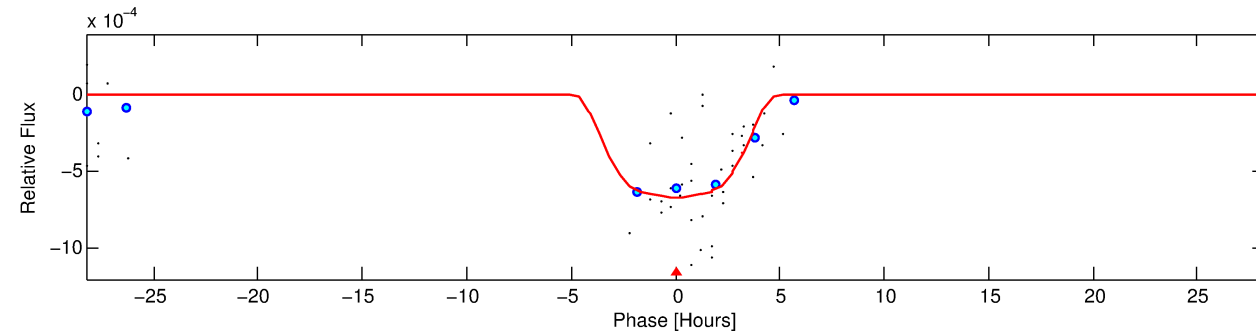
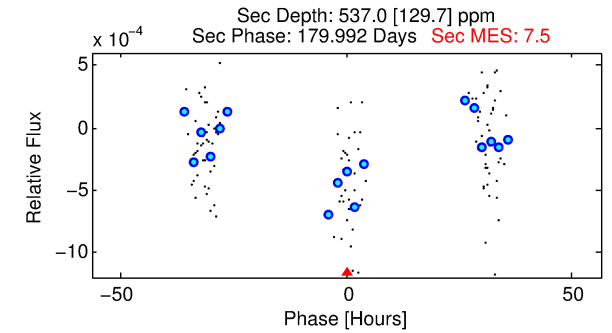
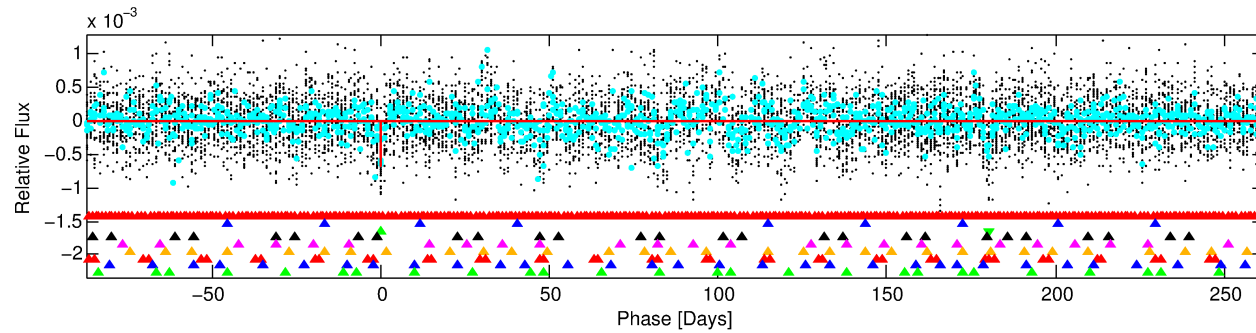
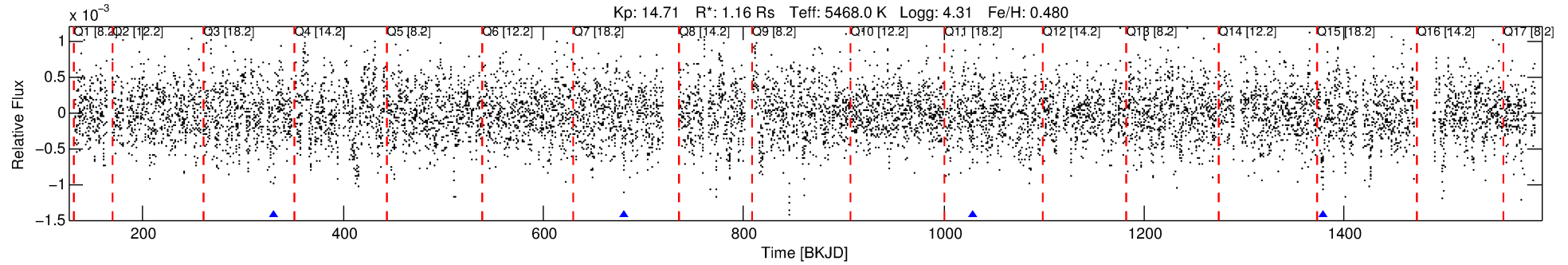
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-03

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 3 of 9 Period: 349.436 d



## DV Fit Results:

Period = 349.43625 [0.02813] d  
Epoch = 330.6442 [0.0886] BKJD  
Rp/R\* = 0.0309 [0.0056]  
a/R\* = 111.97 [77.63]  
b = 0.95 [0.05]  
Seff = 1.14 [0.39]  
Teff = 264 [22] K  
Rp = 3.91 [1.21] Re  
a = 0.9713 [0.2093] AU  
Ag = 18240.33 [9804.58] [1.86 $\sigma$ ]  
Teffp = 4735 [533] K [8.38 $\sigma$ ]

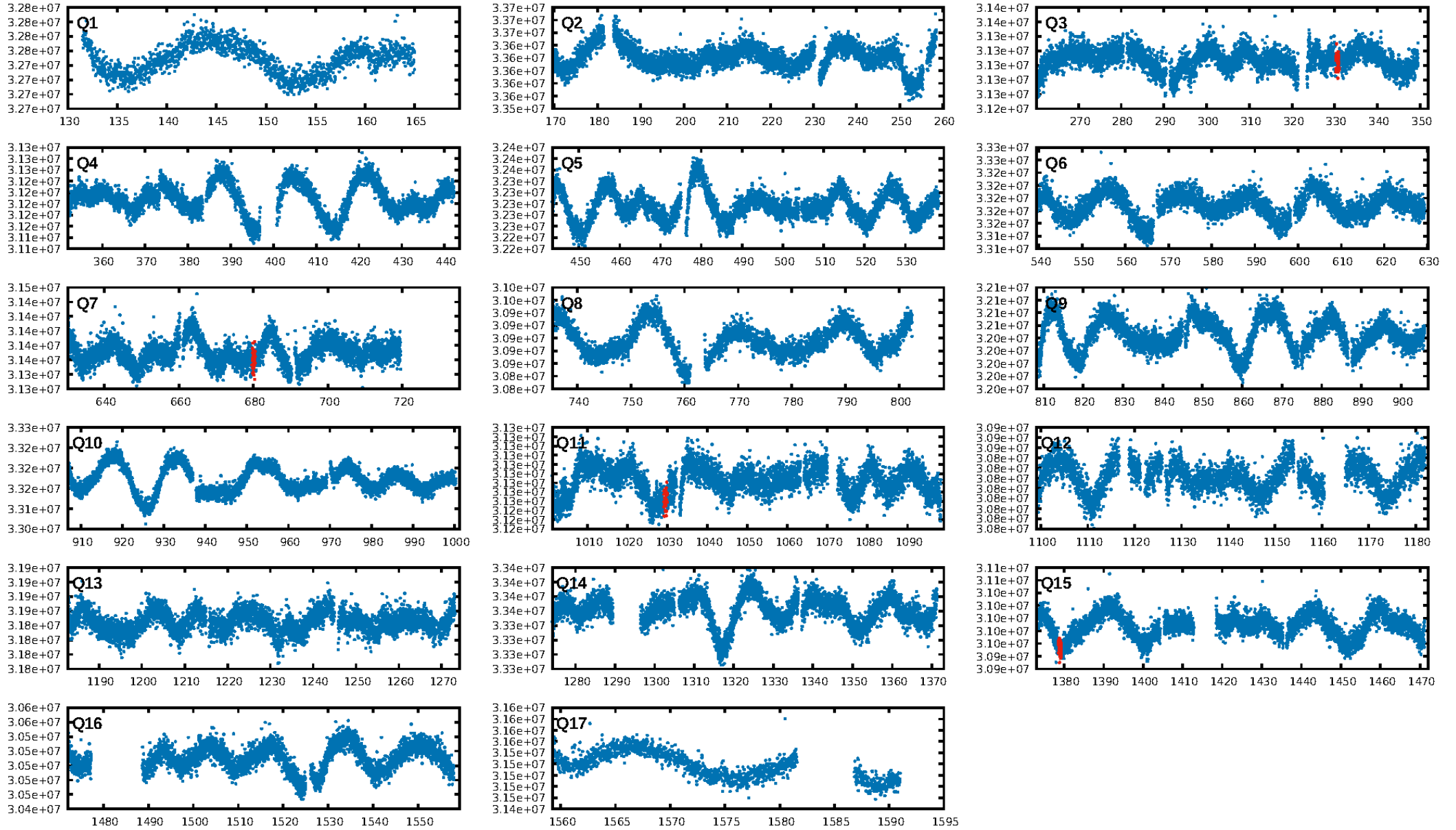
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [377.18 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 24.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.79e-46  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 3.732  
Centroid-sig: 46.1%  
Centroid-so: 0.992 arcsec [0.92 $\sigma$ ]  
OotOffset-rm: 2.009 arcsec [3.66 $\sigma$ ]  
KicOffset-rm: 2.037 arcsec [3.71 $\sigma$ ]  
OotOffset-st: 0/1/0/0 [1]  
KicOffset-st: 0/1/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:21:44 Z

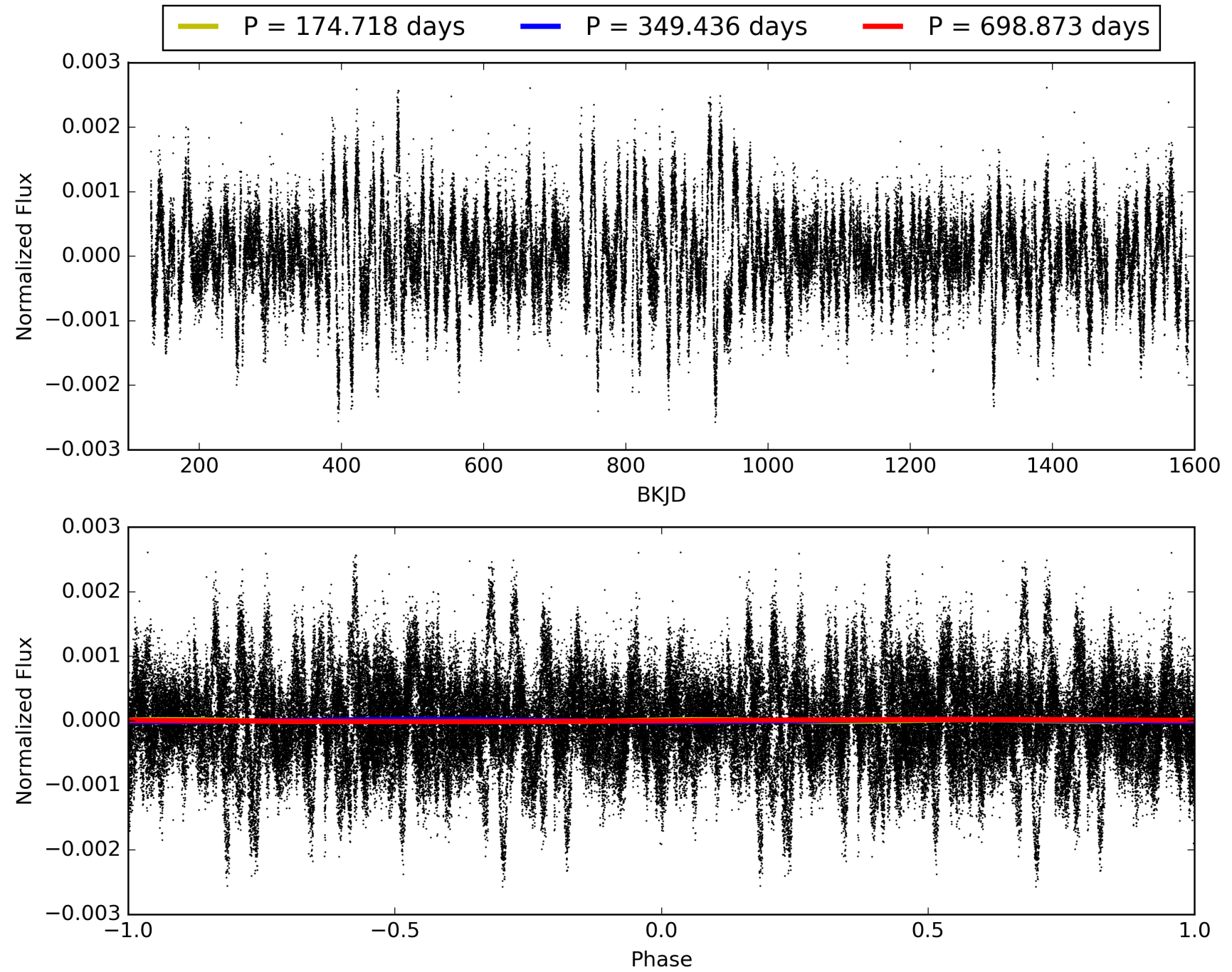
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007518797-03, PDC Light Curves



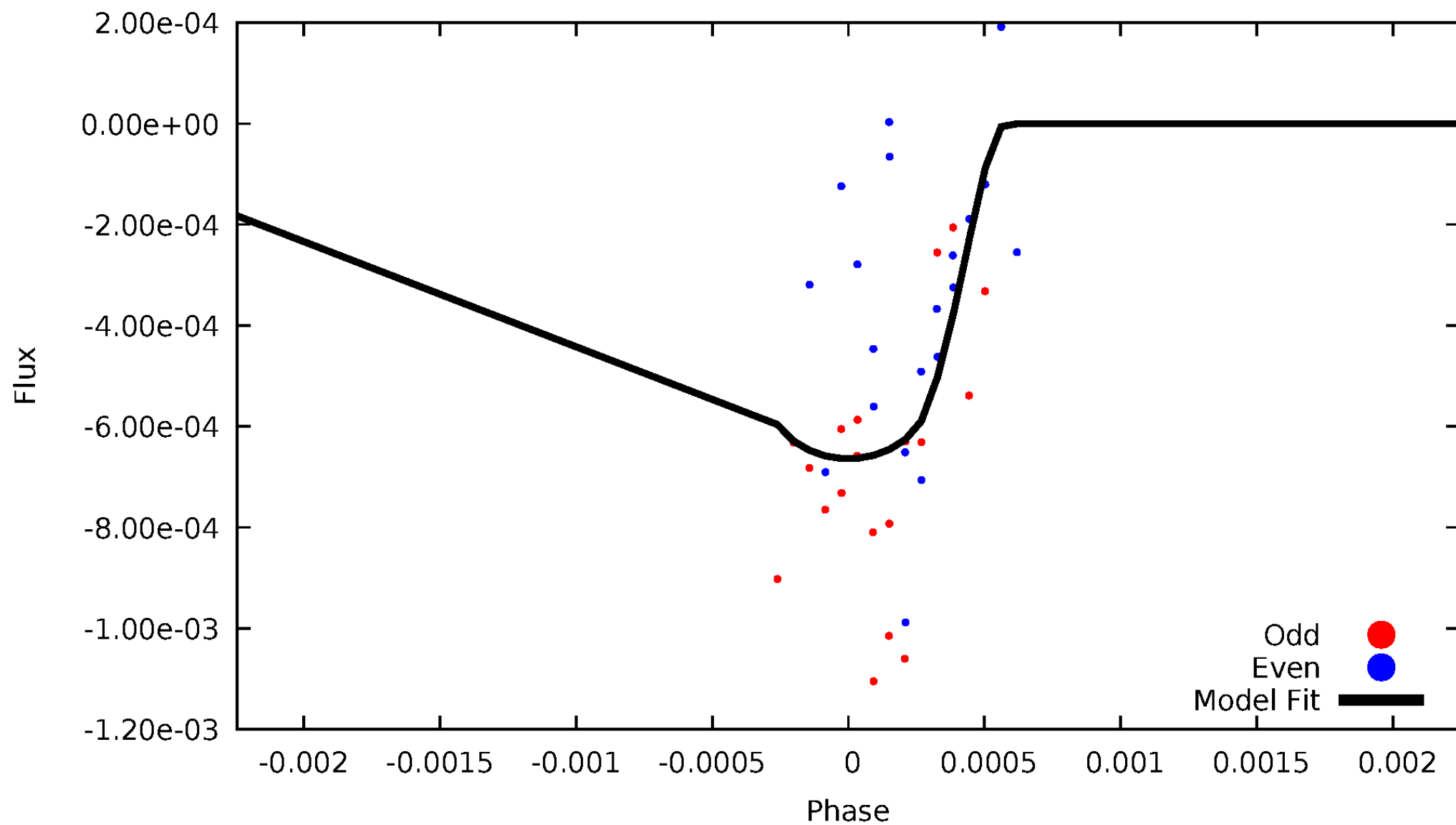


# TCE 007518797-03



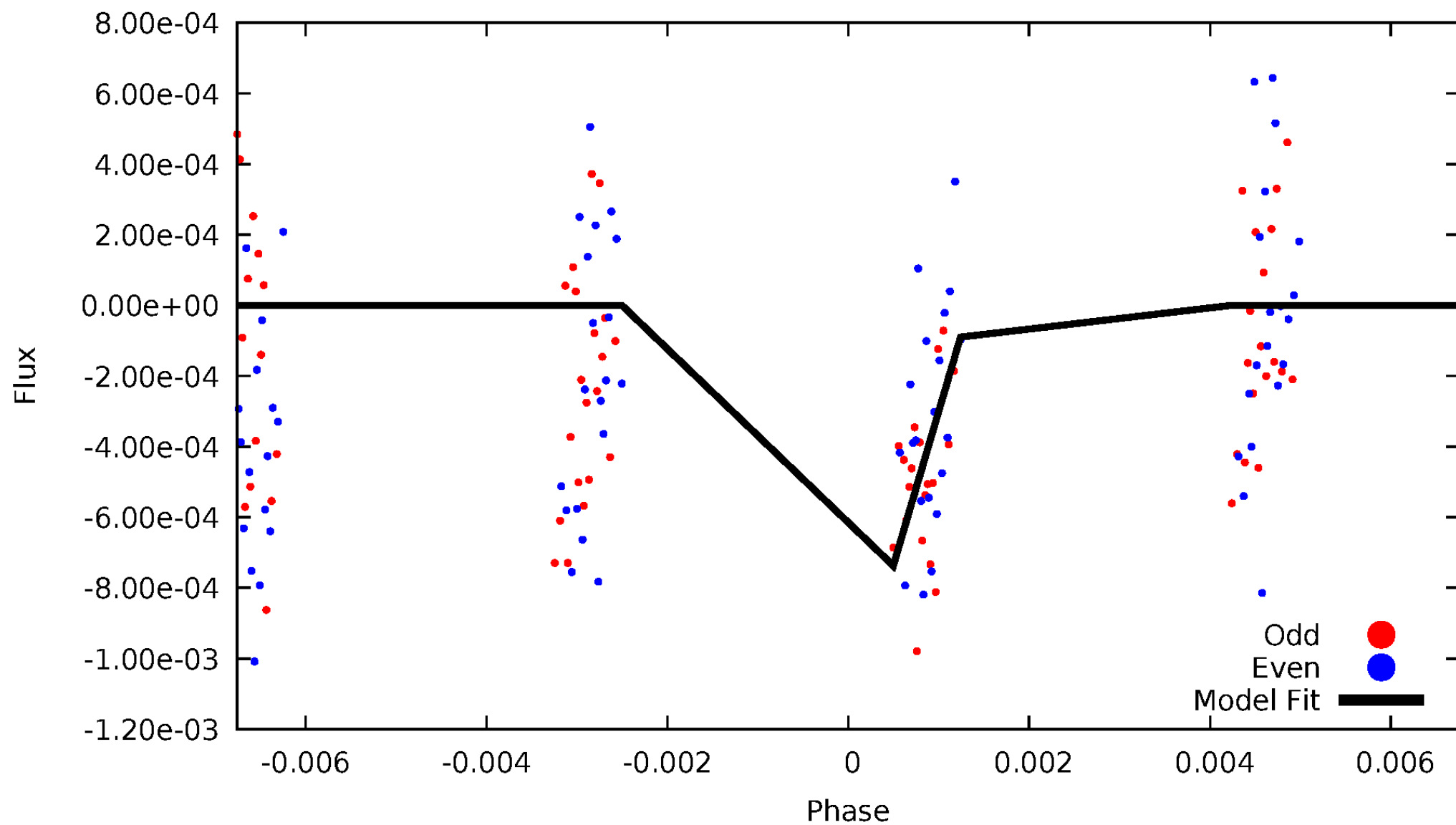
# DV Odd/Even

TCE 007518797-03



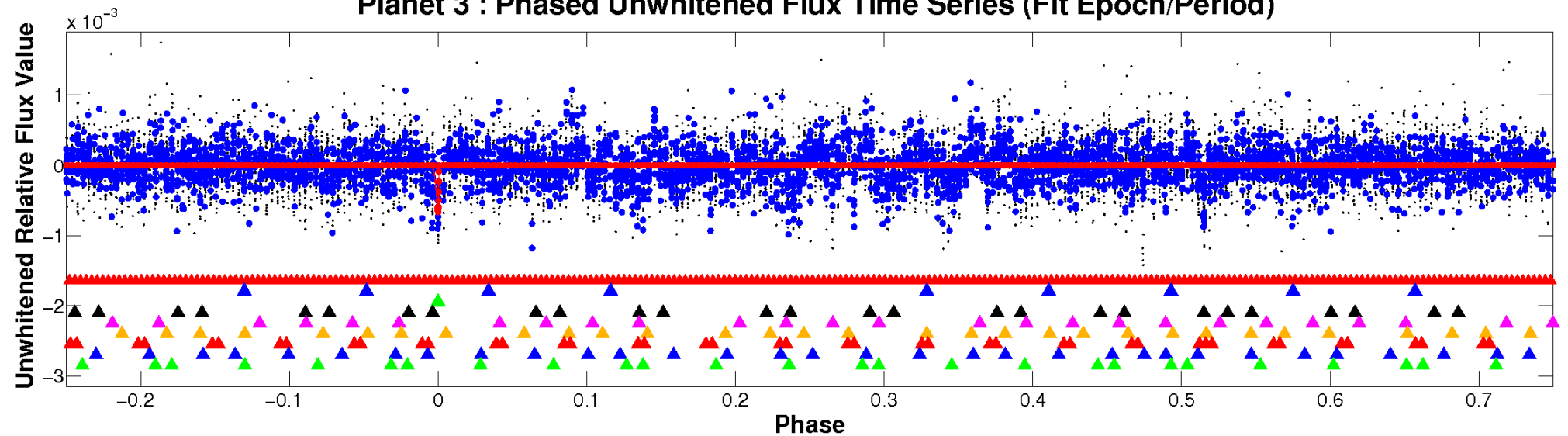
ALT Odd/Even

TCE 007518797-03

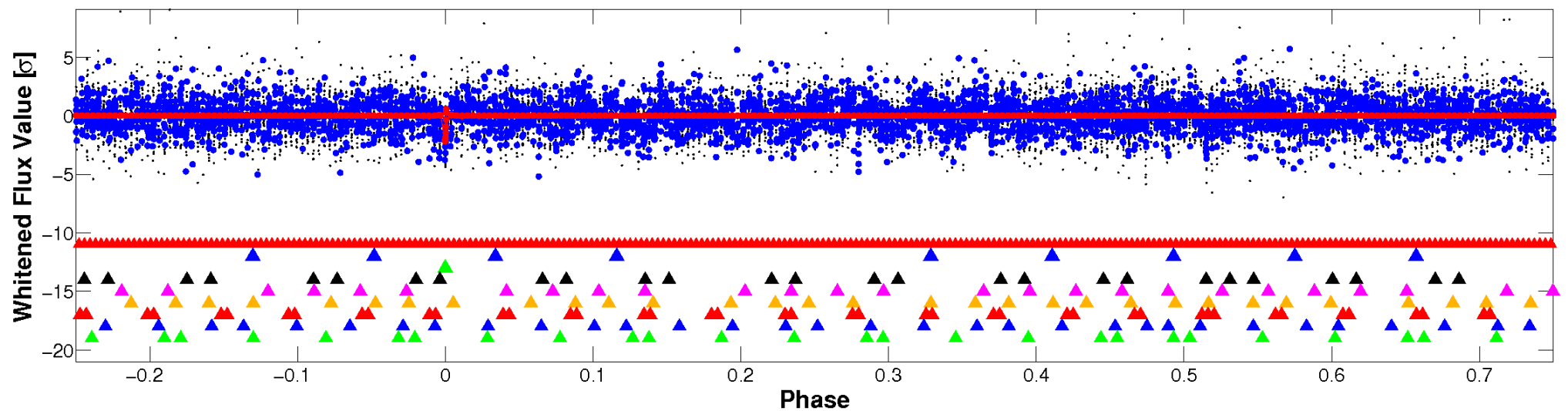


# Non-Whitened Vs. Whitened Light Curve

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

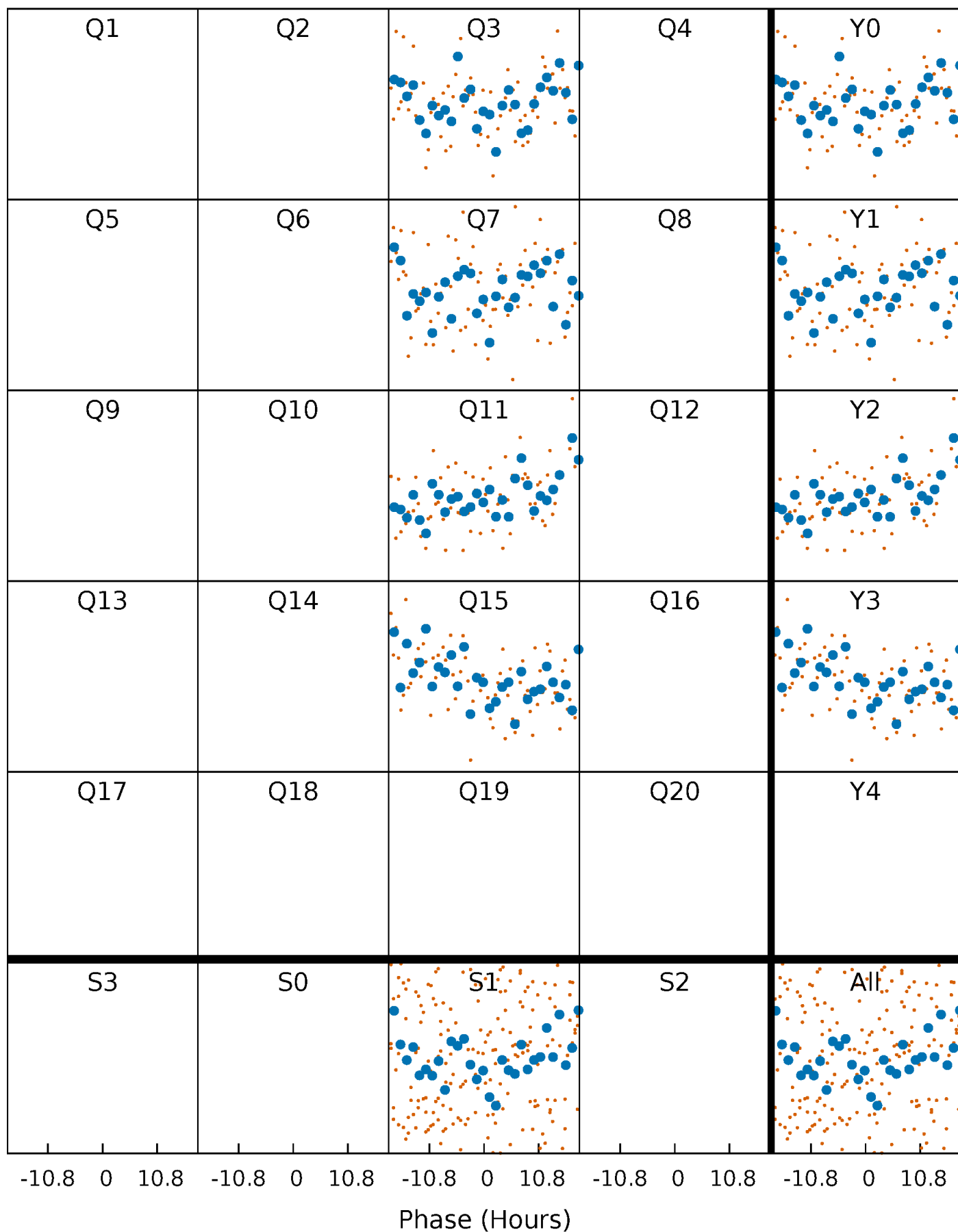


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

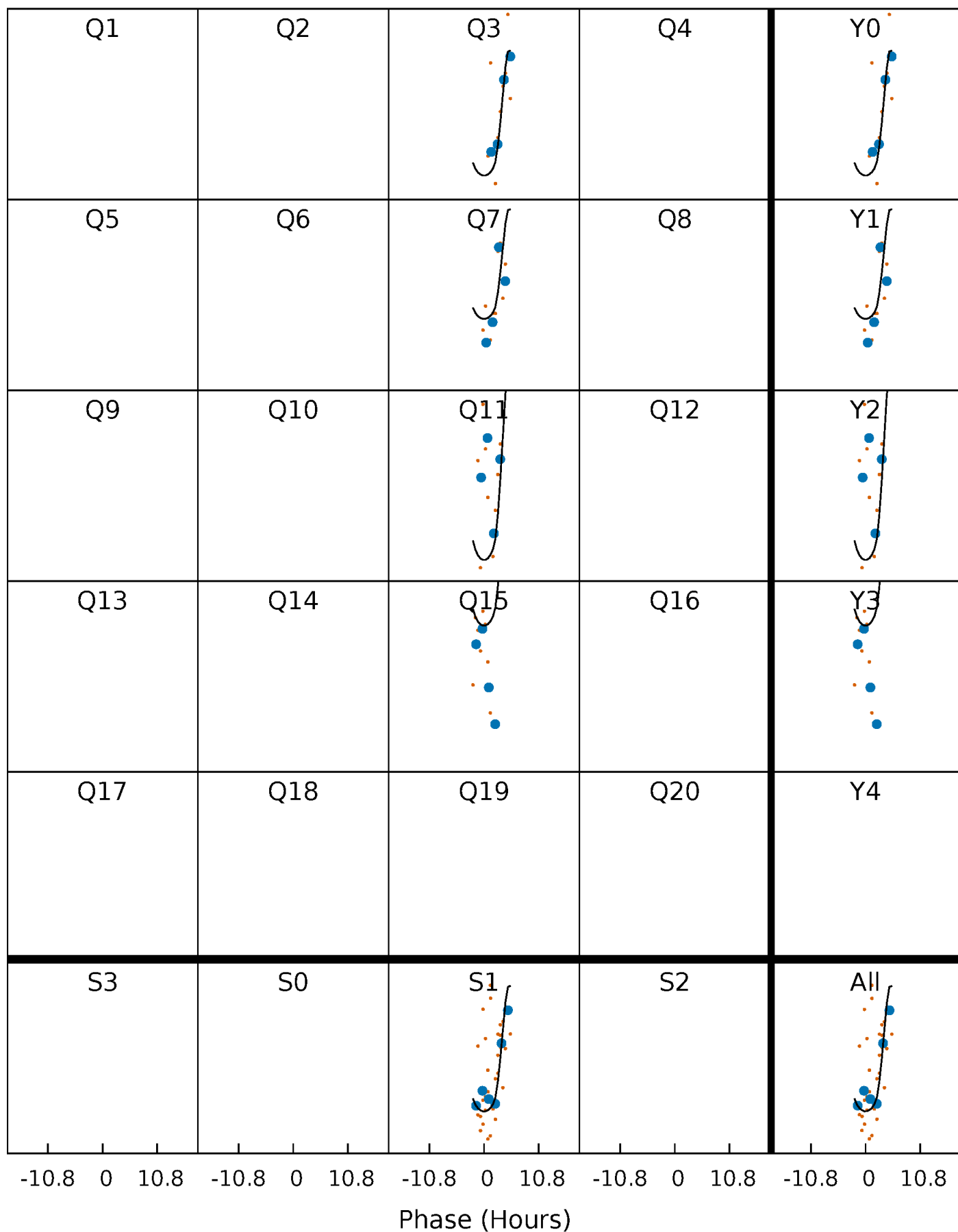
TCE 007518797-03     $P=349.436253$  Days     $T_0=330.644208$  (BKJD)





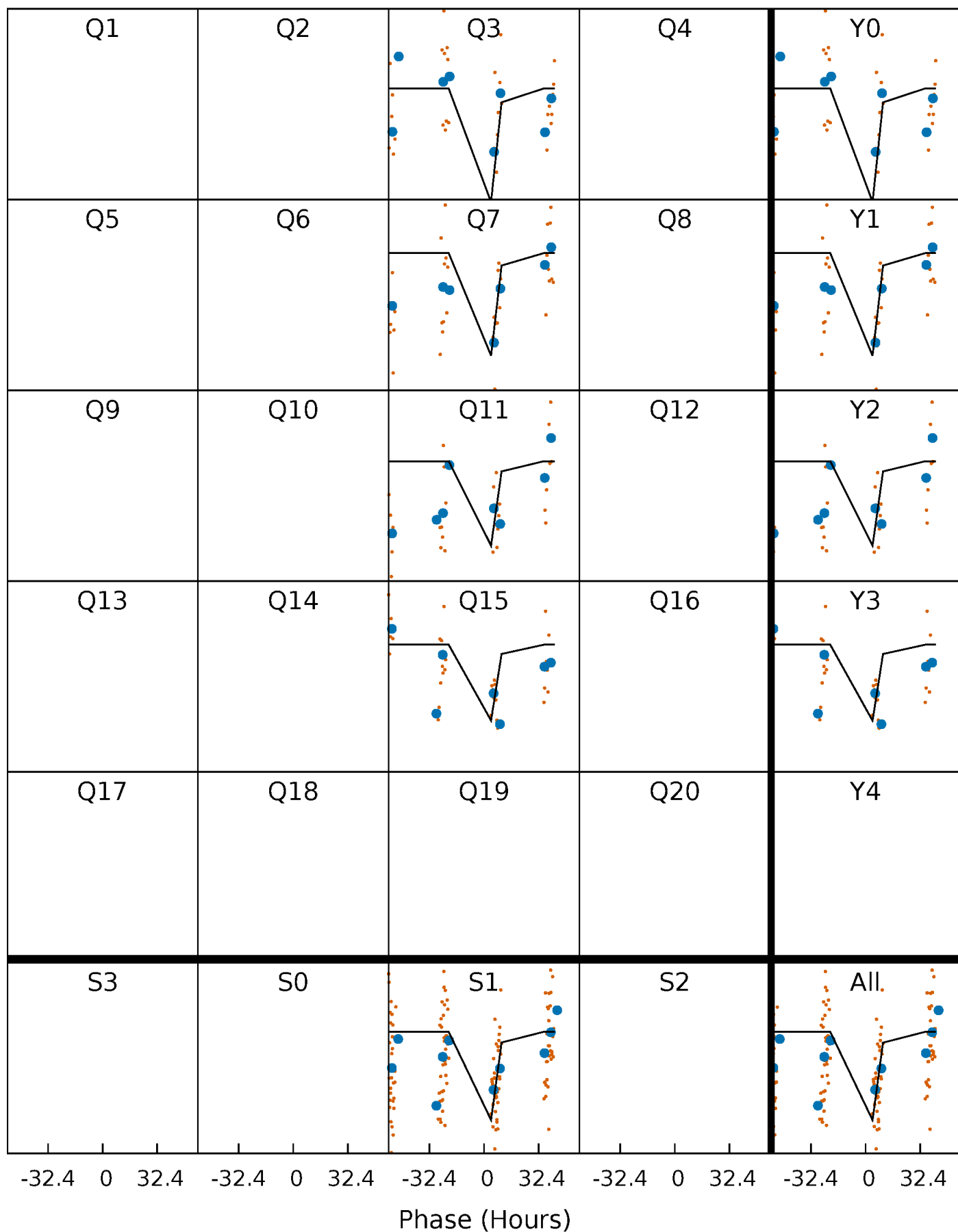
# DV Quarter-Phased Transit Curves

TCE 007518797-03     $P=349.436253$  Days     $T_0=330.644208$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

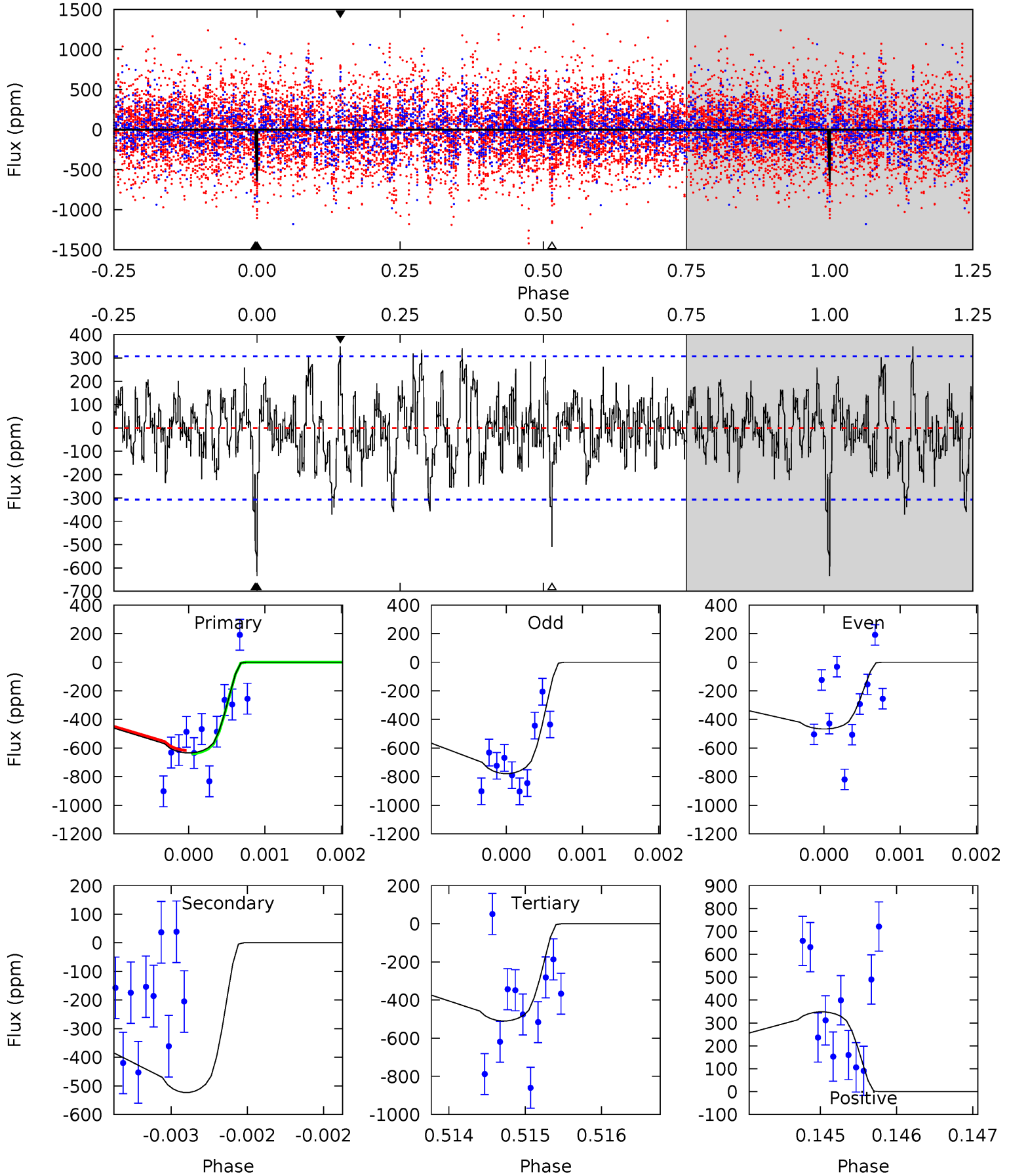
TCE 007518797-03 P=349.420269 Days  $T_0=330.427414$  (BKJD)



# DV Model-Shift Uniqueness Test

007518797-03, P = 349.436253 Days, E = 330.644208 Days

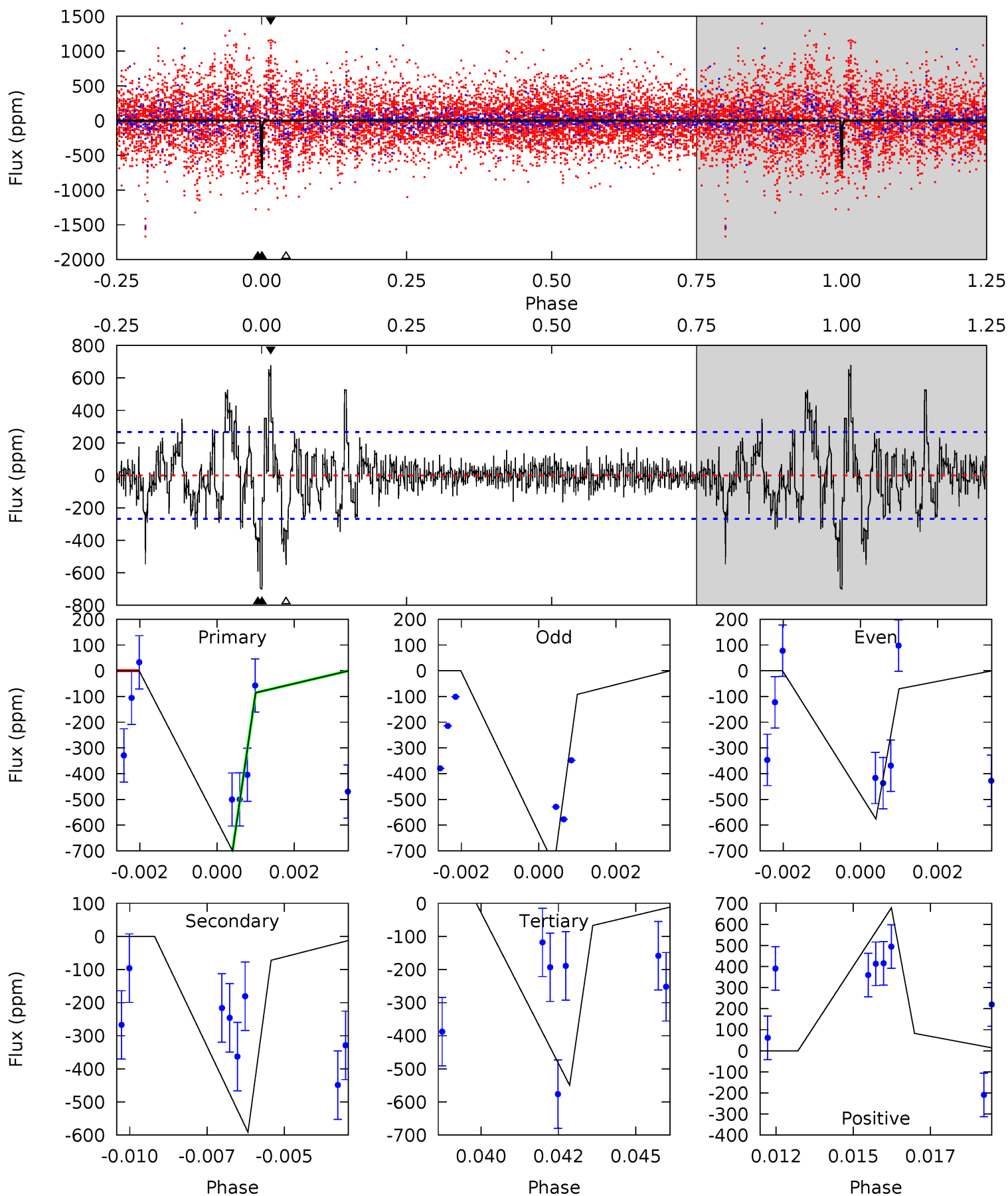
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	9.33	9.08	6.21	5.49	3.35	2.06	2.22	5.09	0.24	3.12	2.78	0.95	0.35	0.19



# Alt Model-Shift Uniqueness Test

007518797-03, P = 349.420269 Days, E = 330.427414 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	11.7	10.9	13.4	5.29	3.03	2.55	2.97	0.42	0.82	-1.73	1.76	1.00	0.49	0



### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-523 \pm 56$	$3.88^{+0.97}_{-0.85}$	$367^{+28}_{-23}$	$4795^{+439}_{-328}$	$18015^{+11024}_{-6552}$
Alt.	$-591 \pm 51$	$3.72^{+0.95}_{-0.77}$	$368^{+27}_{-24}$	$5025^{+515}_{-399}$	$22037^{+13029}_{-8060}$

$T_{max}$  = 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

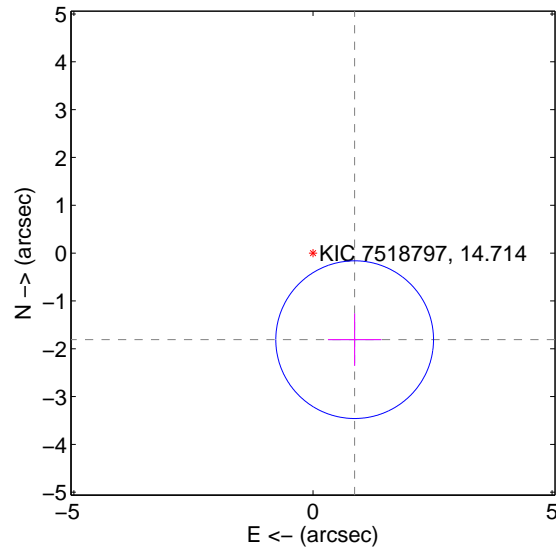
Supplemental centroid analysis for 007518797-03. Kepler magnitude: 14.71. Transit SNR 10.58

There are 1 quarters with good PRF difference image offsets

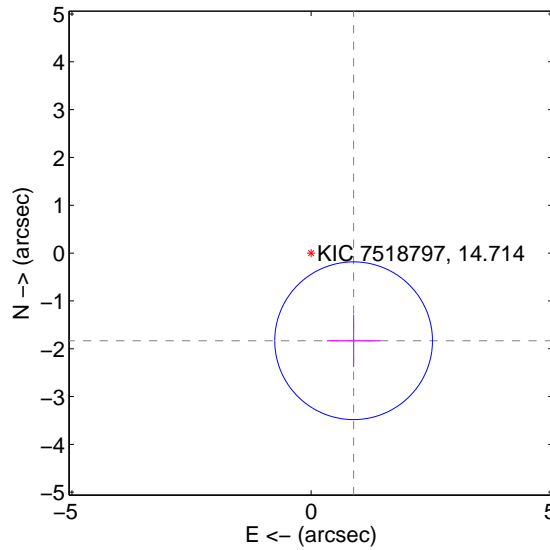
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.009 \pm 0.550$	3.66	$-0.872 \pm 0.558$	$-1.810 \pm 0.548$
PRF-fit source offset from KIC position	$2.037 \pm 0.550$	3.71	$-0.890 \pm 0.558$	$-1.832 \pm 0.548$
photometric centroid source offset	$0.99 \pm 1.07$	0.92	$0.94 \pm 1.09$	$0.33 \pm 0.93$

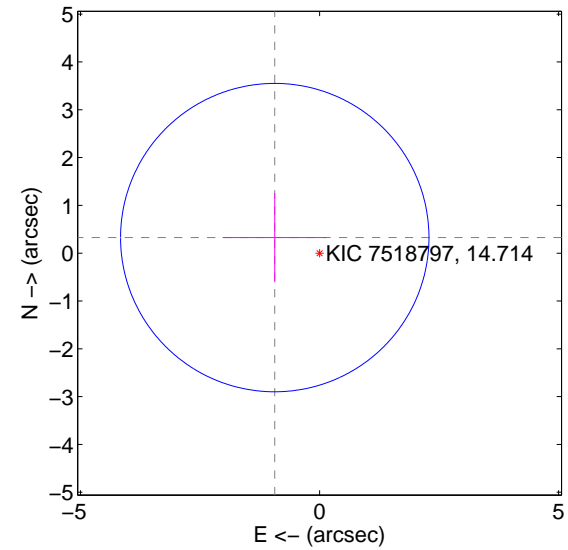
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



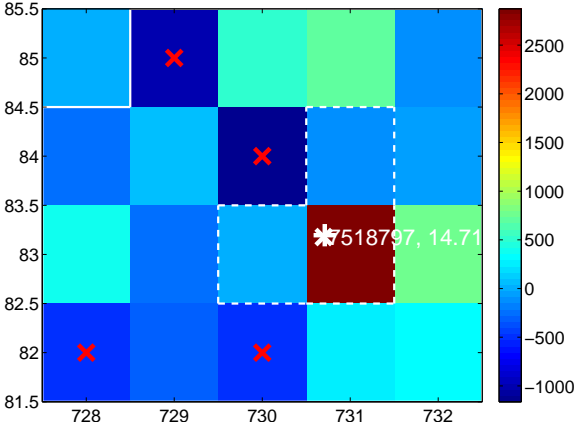
Q2 no difference image



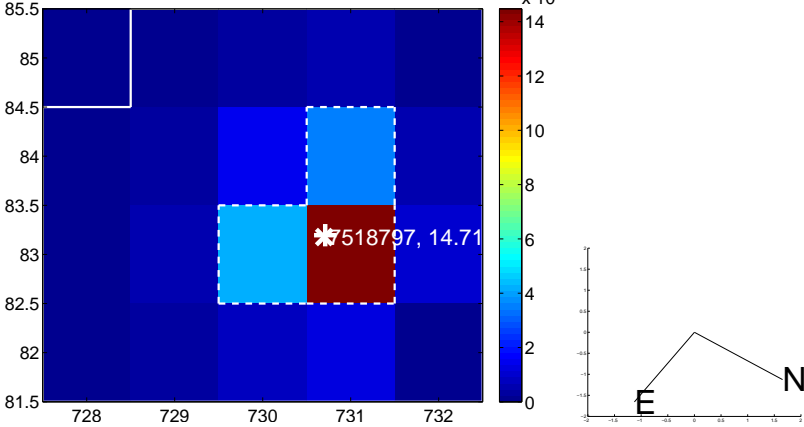
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



Q4 no difference image



Q4 no OOT image



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

Q5 no difference image



Q5 no OOT image



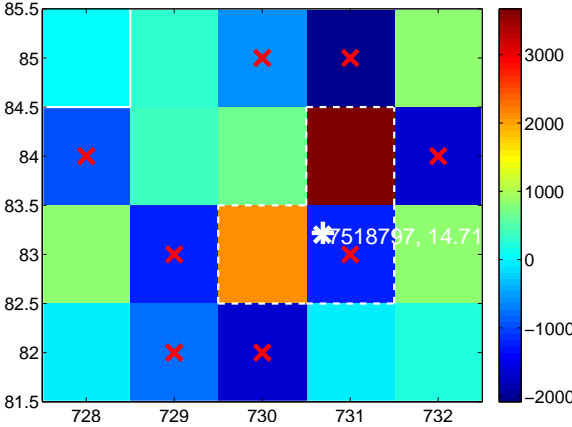
Q6 no difference image



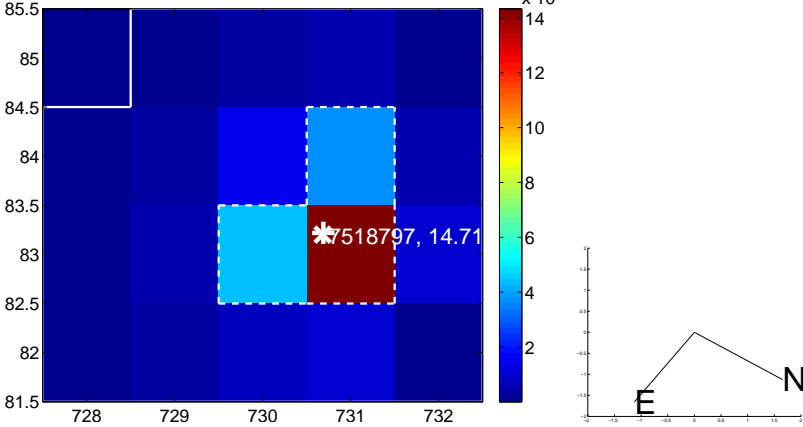
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



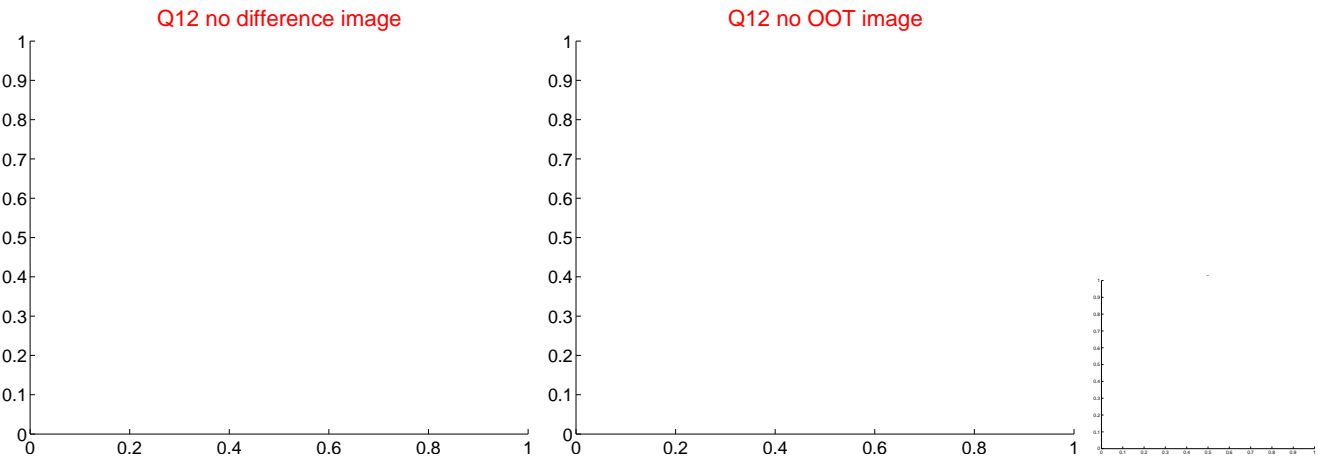
Q8 no difference image



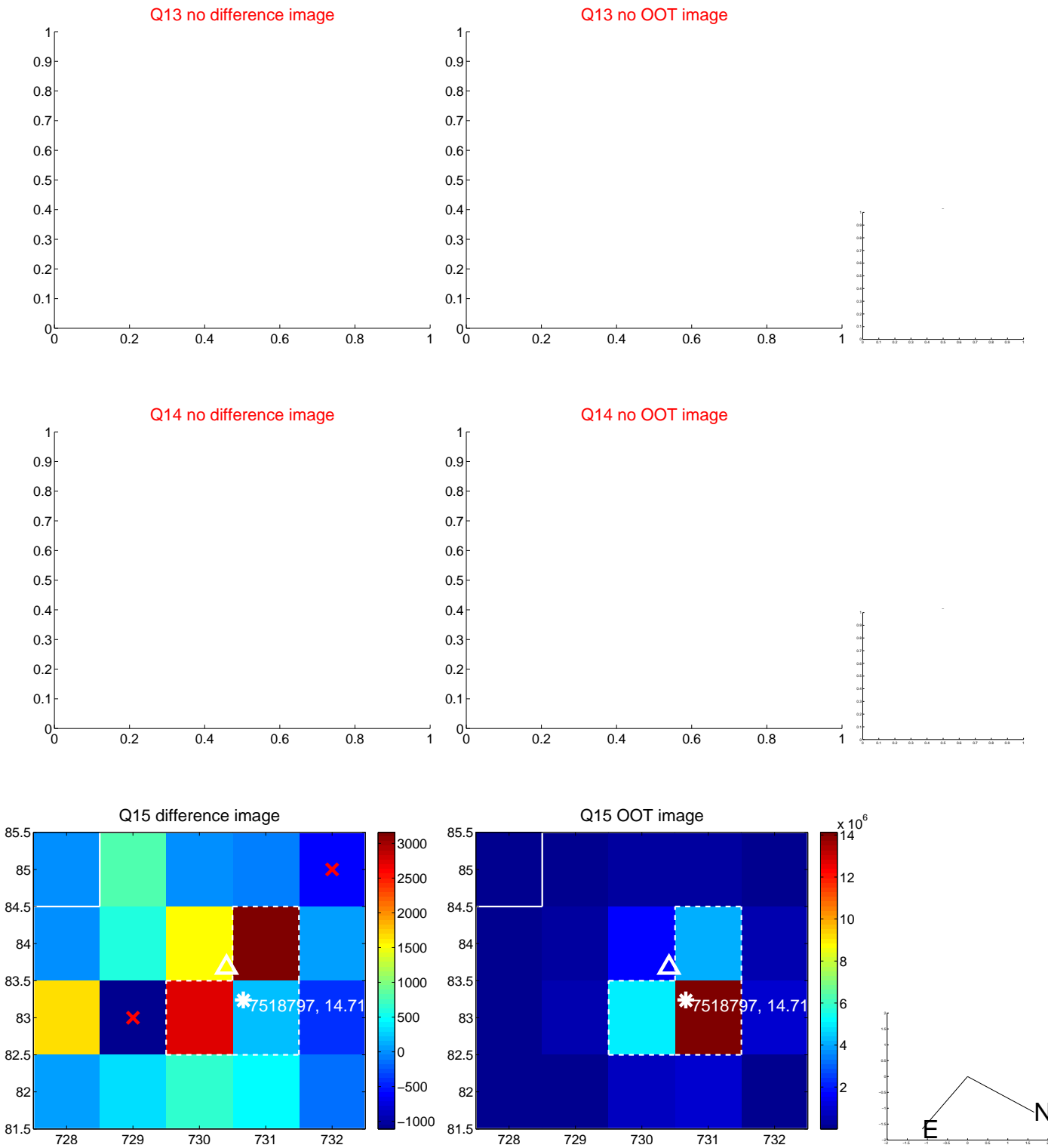
Q8 no OOT image



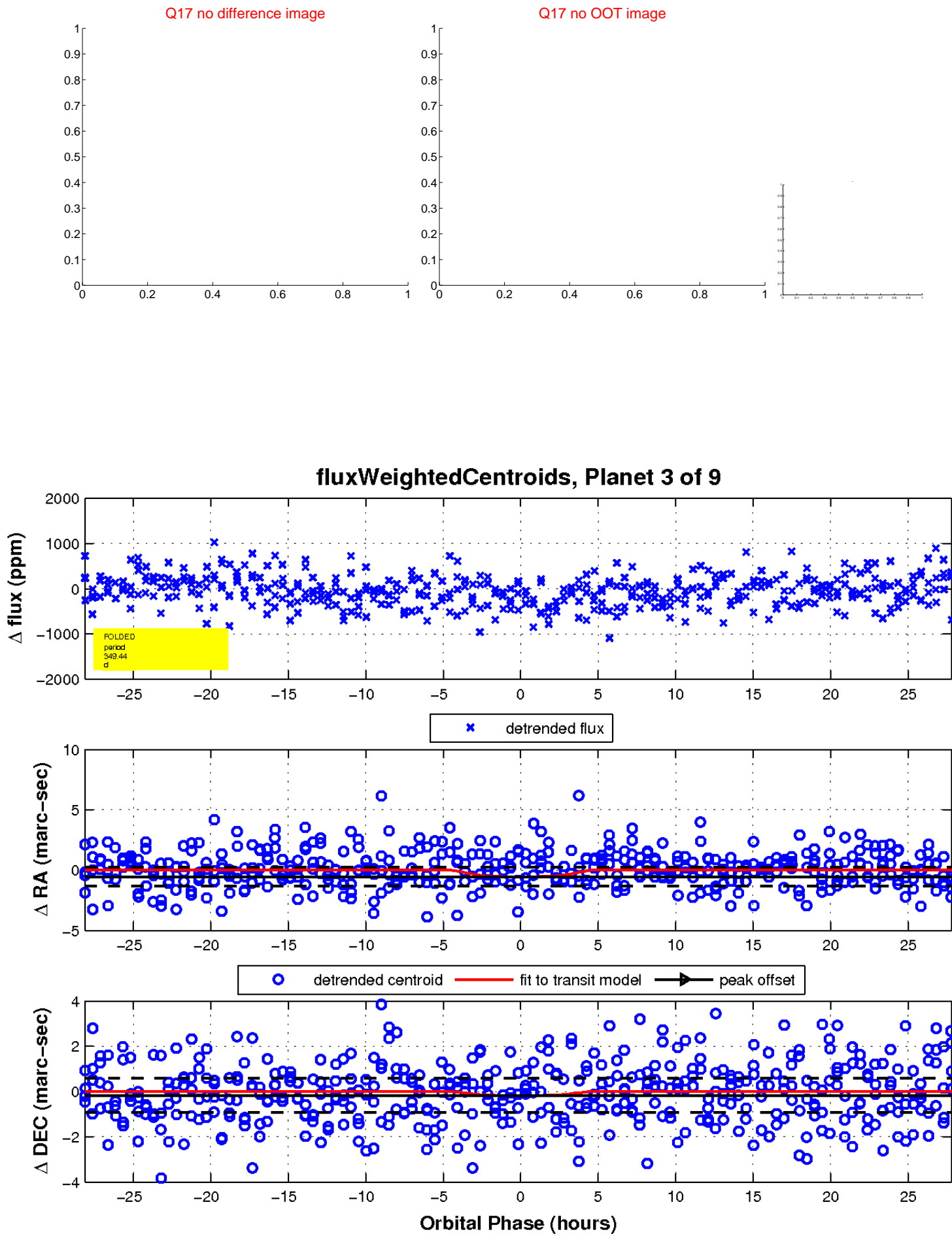
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

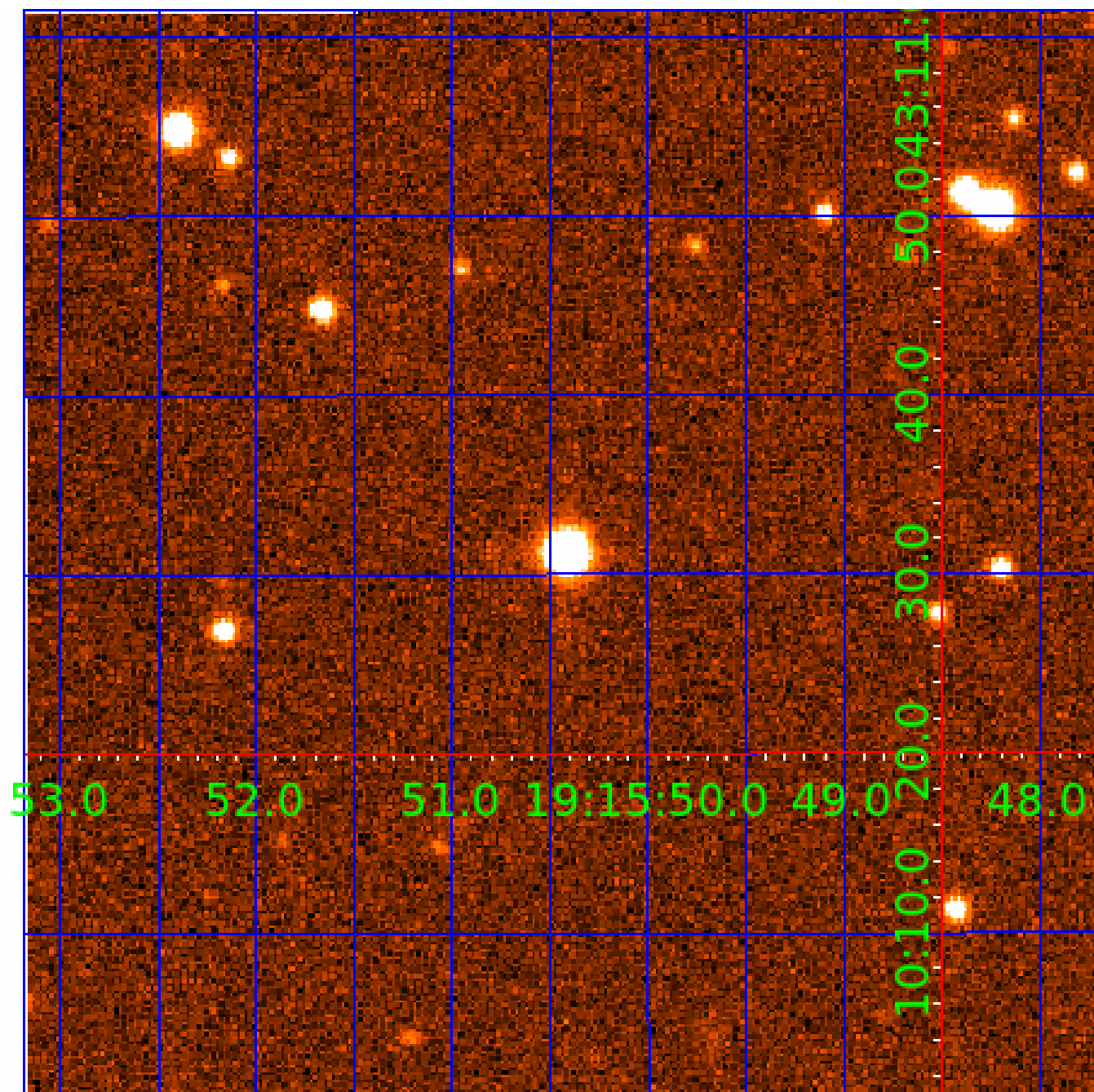


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 007518797

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007518797-01	OBS	No	1.303697	131.960422	31.9	8.704	9.0	9.0	1.16	5468	0.64	1971.04
007518797-02	OBS	No	160.371067	210.838038	303.0	7.494	12.8	7.2	1.16	5468	1.97	3.22
007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
007518797-05	OBS	No	56.420658	152.191015	398.1	3.455	9.9	9.0	1.16	5468	2.61	12.97
007518797-06	OBS	No	47.291833	132.854028	492.2	3.929	9.0	9.1	1.16	5468	2.93	16.41
007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007518797-01	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

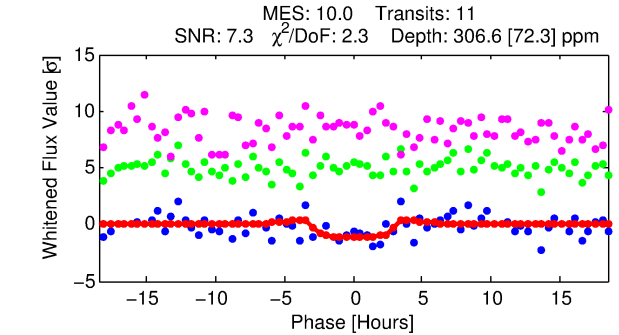
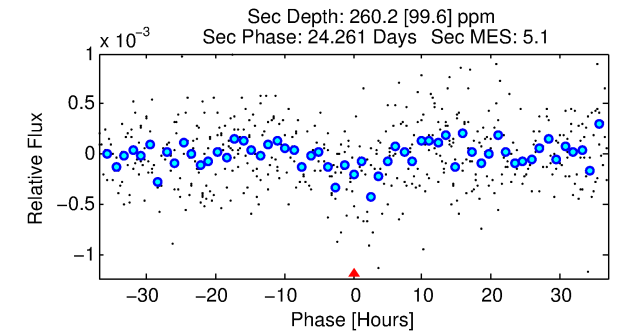
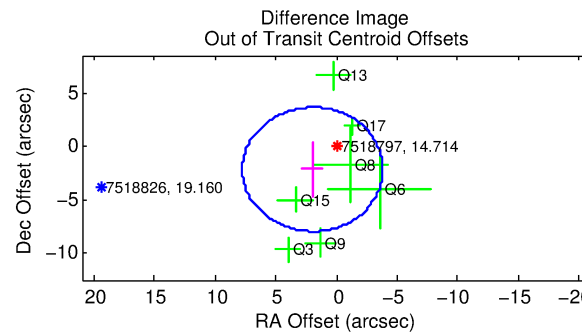
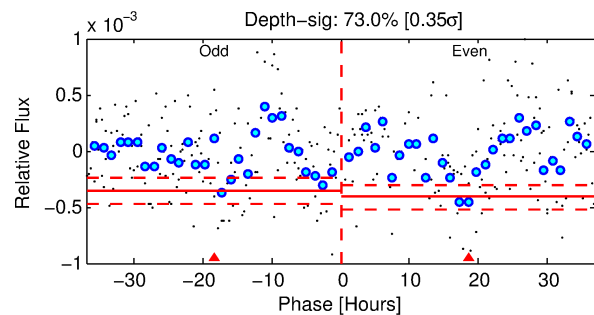
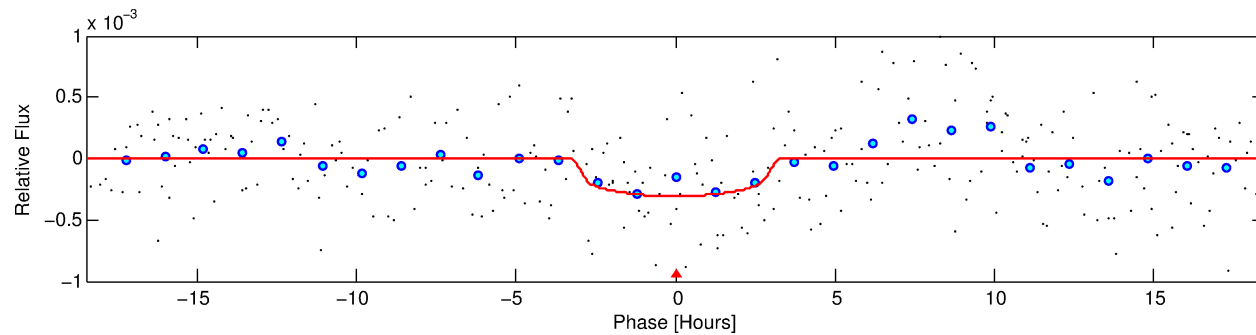
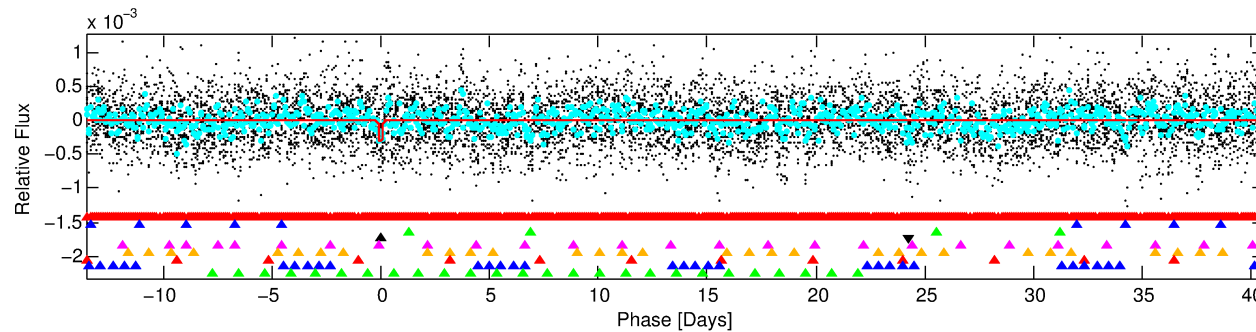
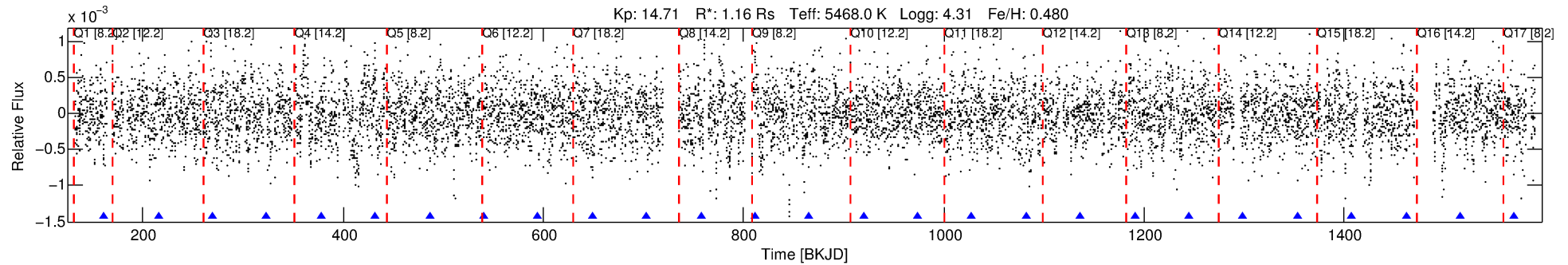
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-04

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 4 of 9 Period: 54.192 d



## DV Fit Results:

Period = 54.19193 [0.00142] d  
Epoch = 161.1699 [0.0214] BKJD  
Rp/R\* = 0.0165 [0.0349]  
a/R\* = 55.70 [438.76]  
b = 0.59 [8.97]  
Seff = 13.69 [4.64]  
Teff = 490 [42] K  
Rp = 2.09 [4.44] Re  
a = 0.2804 [0.0604] AU  
Ag = 2569.79 [10908.06] [0.24 $\sigma$ ]  
Teffp = 5399 [5716] K [0.86 $\sigma$ ]

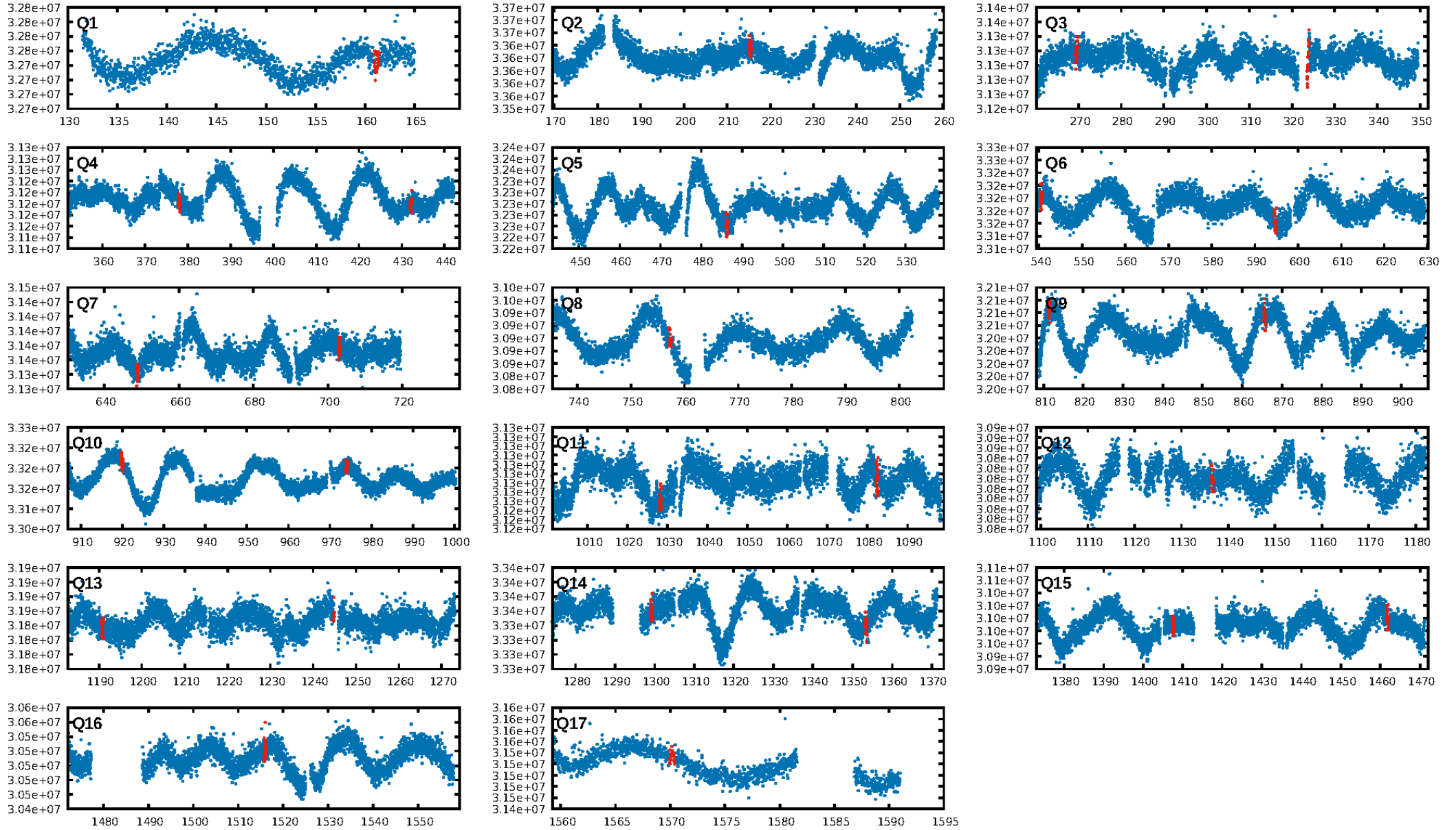
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.62 $\sigma$ ]  
LongPeriod-sig: 100.0% [4.38 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 3.22e-42  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: 4.217  
Centroid-sig: 74.2%  
Centroid-so: 0.529 arcsec [0.57 $\sigma$ ]  
OotOffset-rm: 2.930 arcsec [1.52 $\sigma$ ]  
KicOffset-rm: 2.941 arcsec [1.53 $\sigma$ ]  
OotOffset-st: 1/2/1/3 [7]  
KicOffset-st: 1/2/1/3 [7]  
DiffImageQuality-fgm: 0.00 [0/7]  
DiffImageOverlap-fno: 0.00 [0/16]

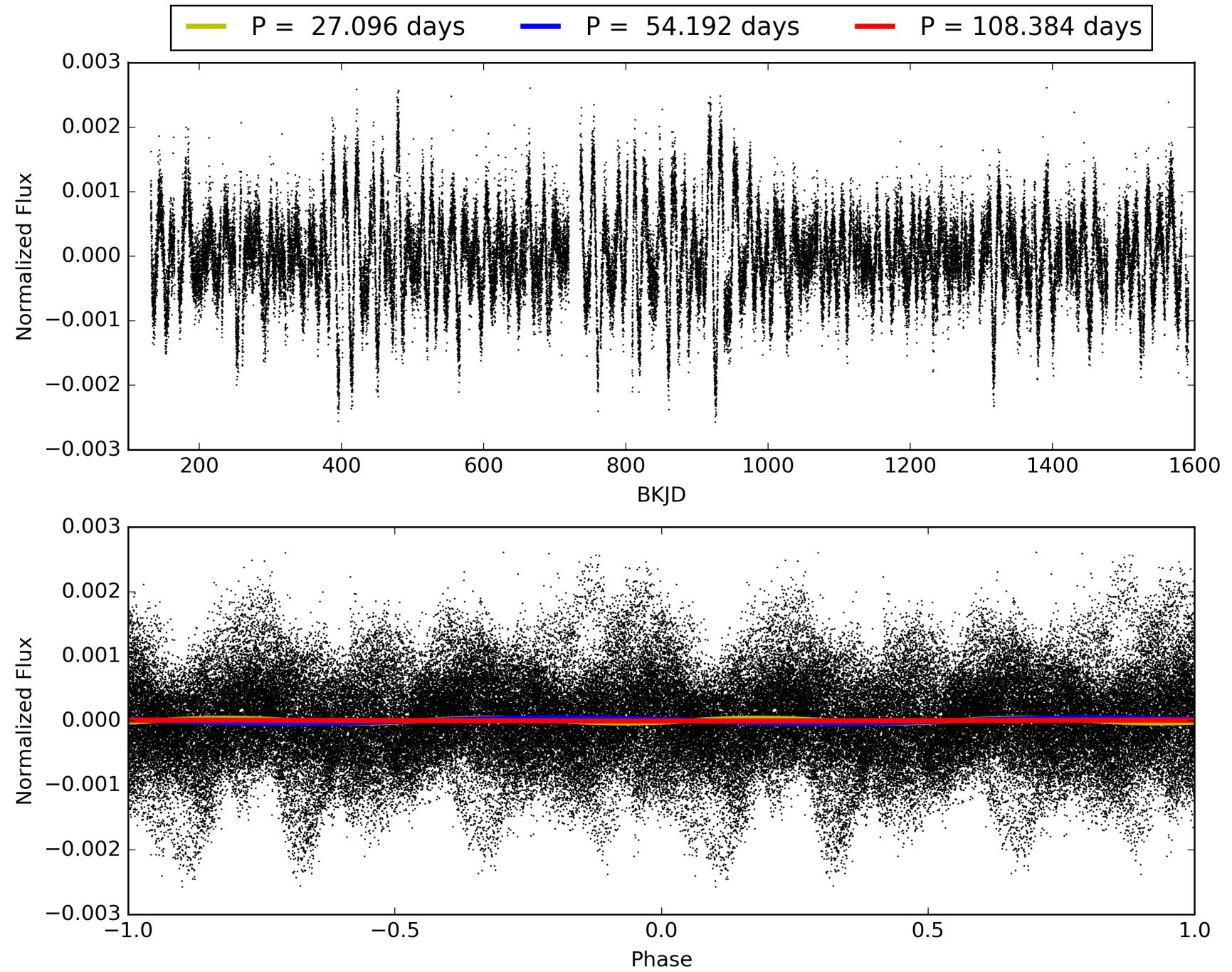
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:21:48 Z

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

# TCE 007518797-04, PDC Light Curves

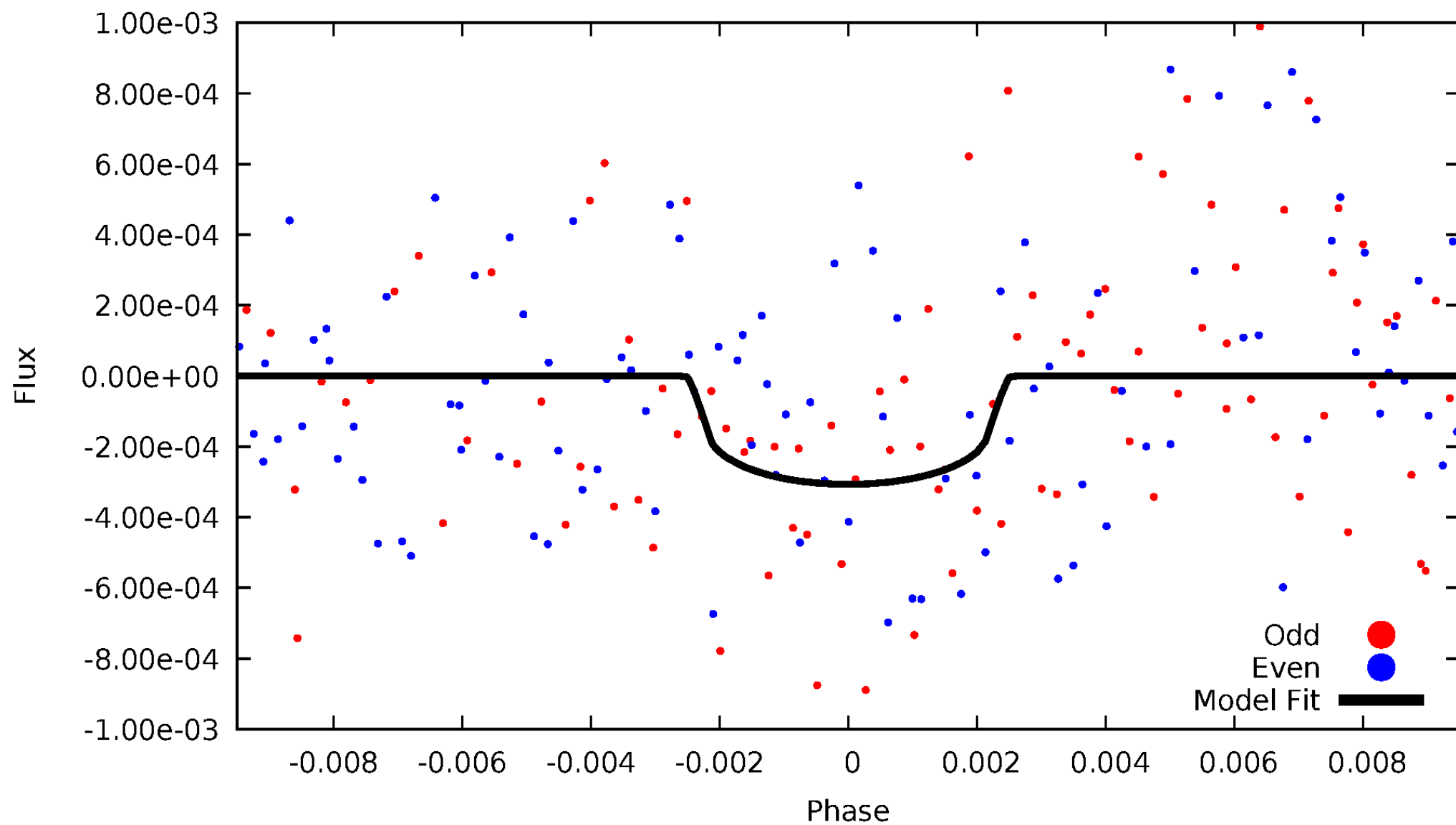


# TCE 007518797-04



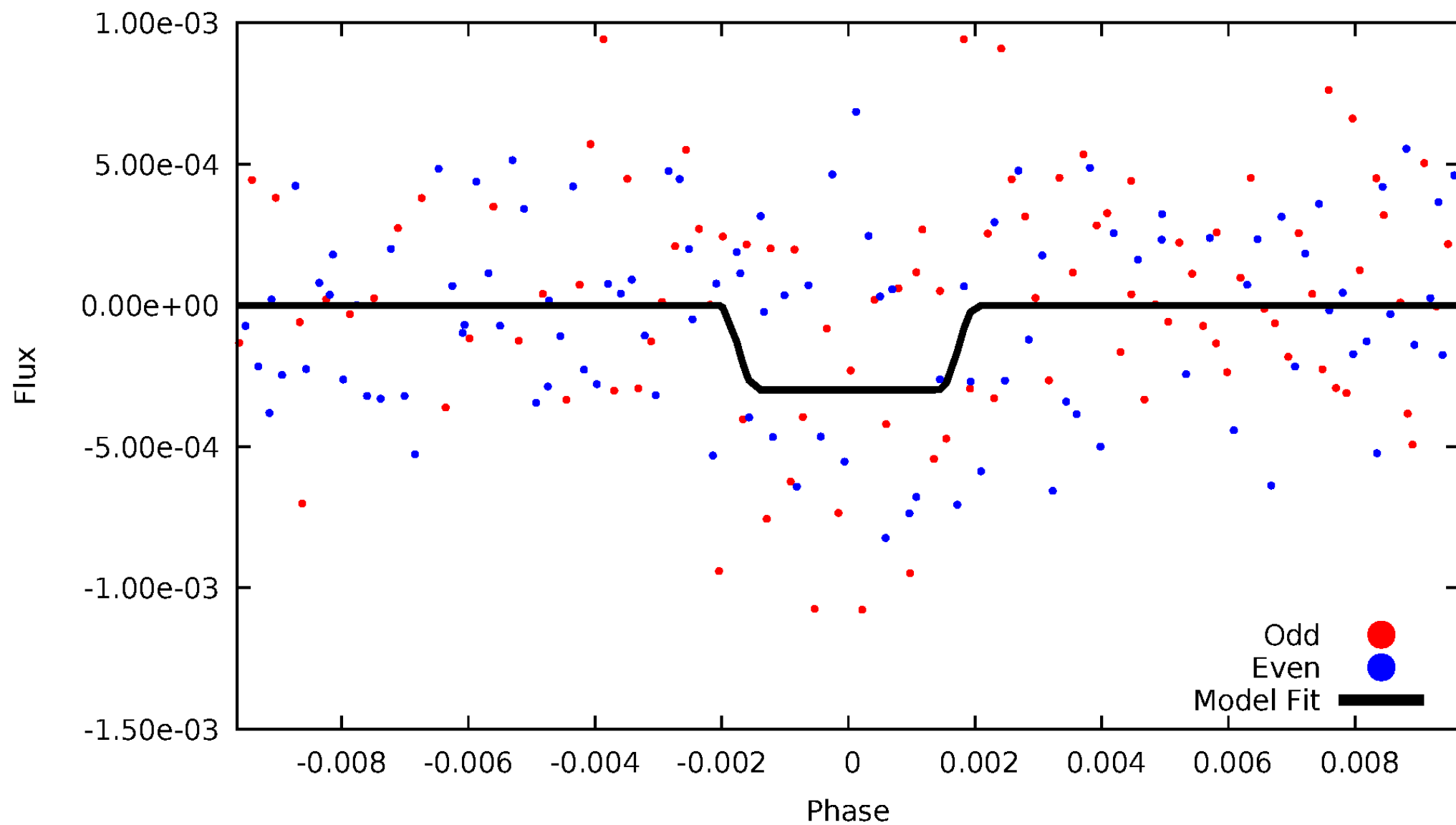
# DV Odd/Even

TCE 007518797-04



# ALT Odd/Even

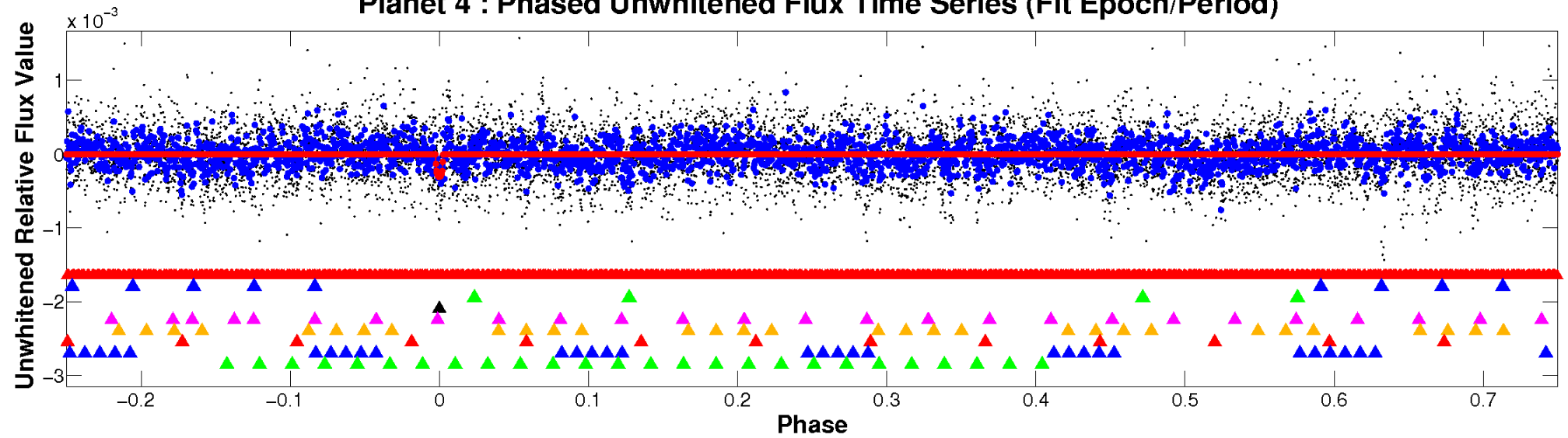
TCE 007518797-04



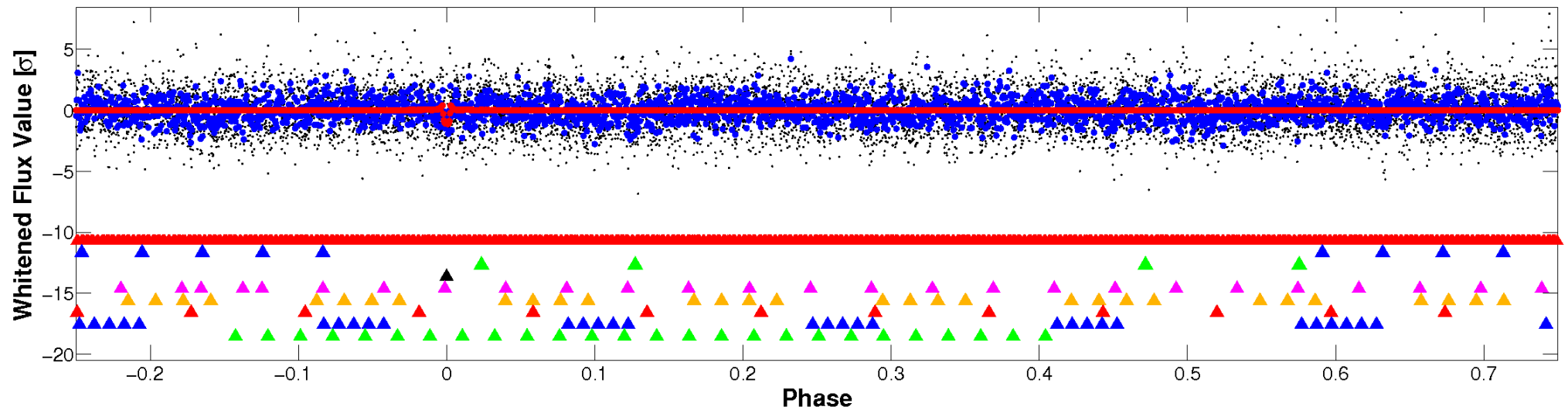


# Non-Whitened Vs. Whitened Light Curve

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



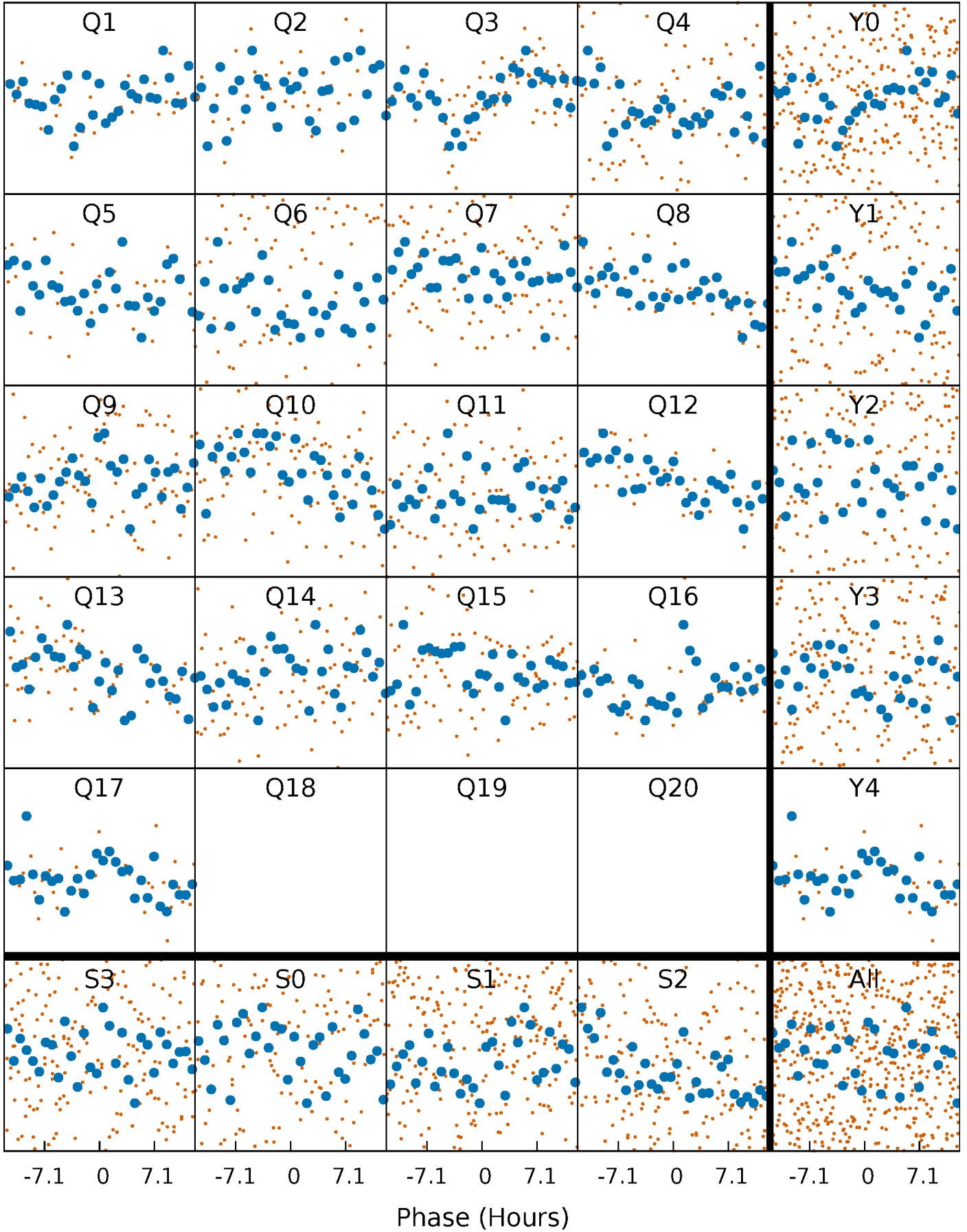
## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)





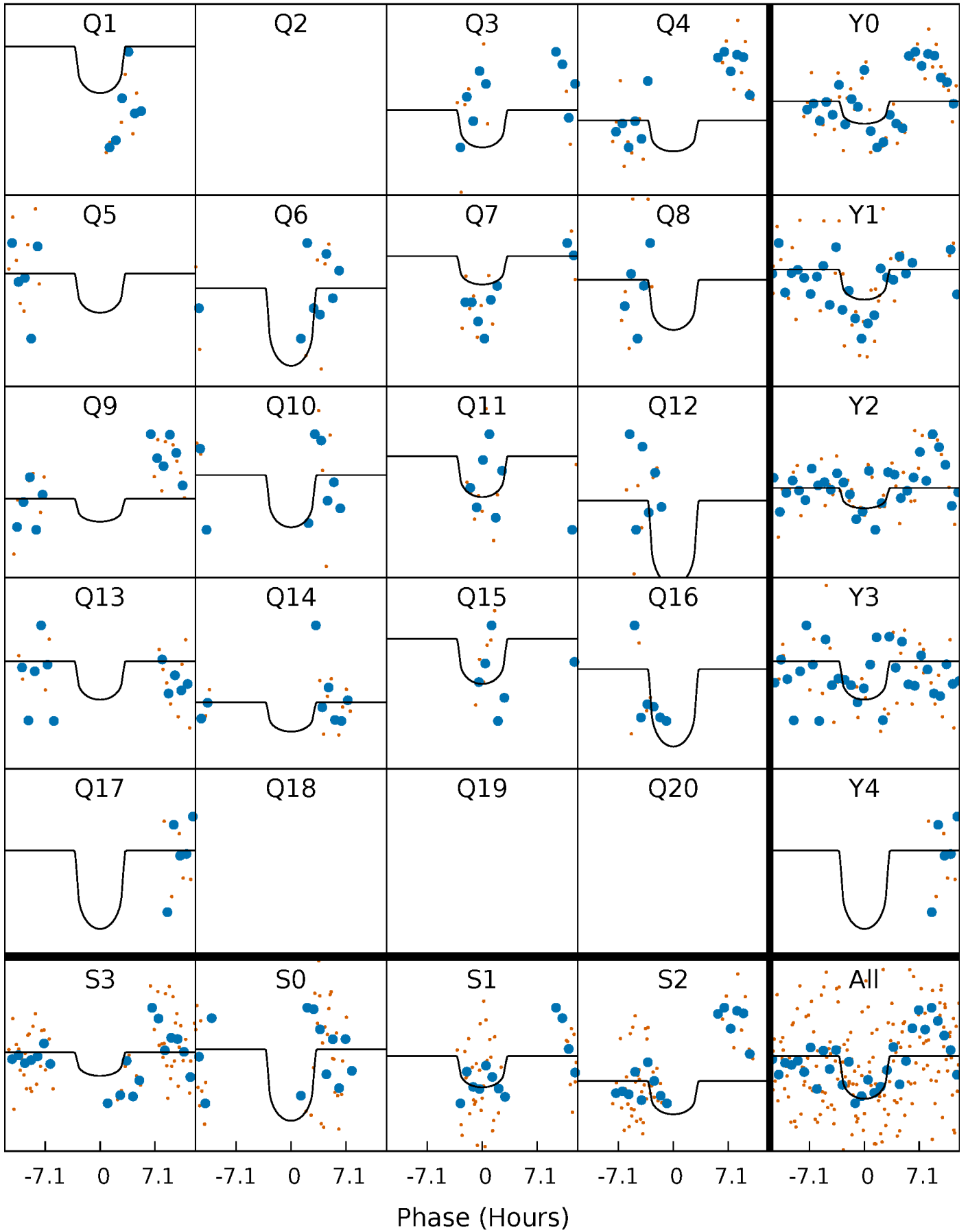
# PDC Quarter-Phased Transit Curves

TCE 007518797-04   P= 54.191930 Days    $T_0=161.169929$  (BKJD)



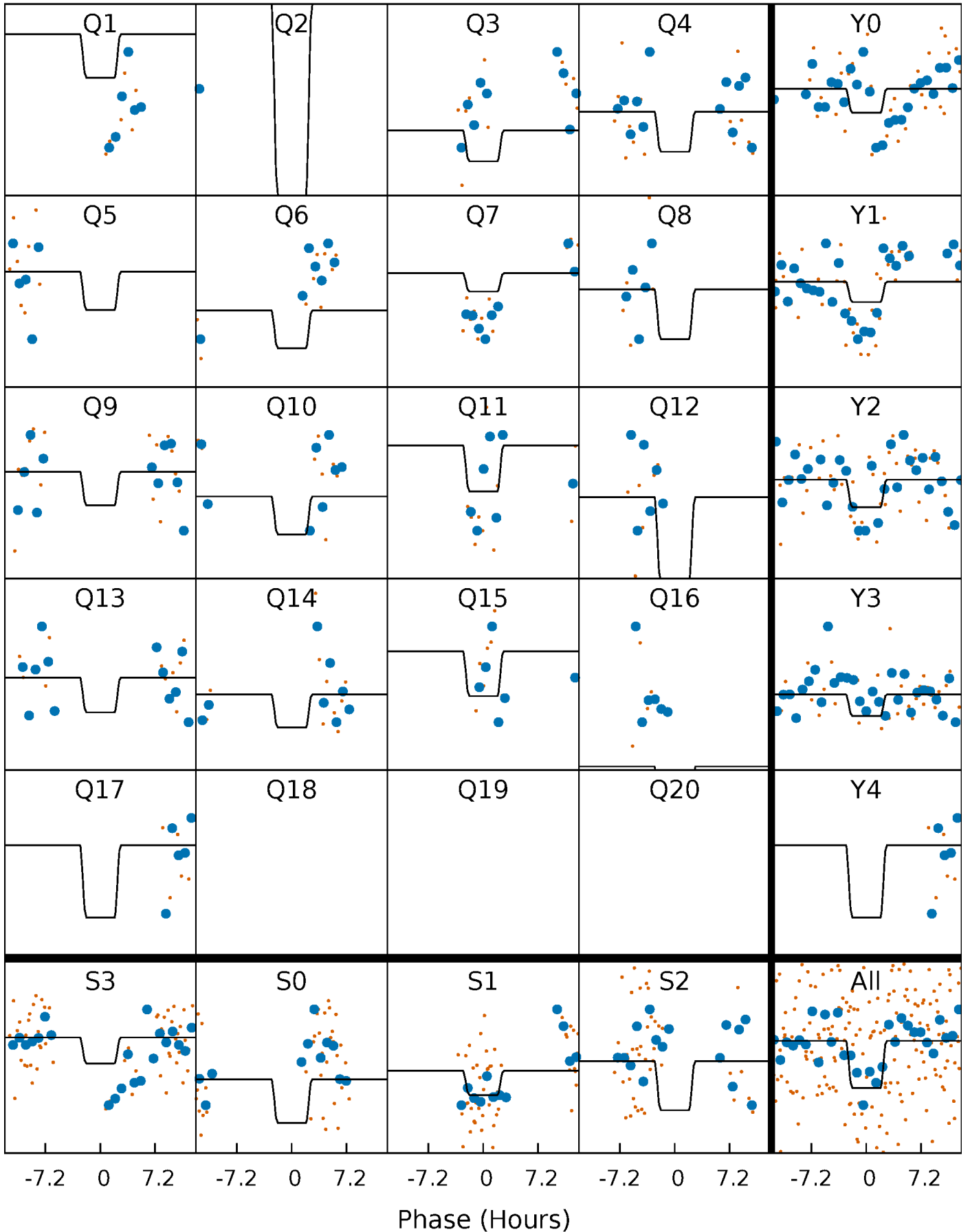
# DV Quarter-Phased Transit Curves

TCE 007518797-04 P= 54.191930 Days  $T_0=161.169929$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

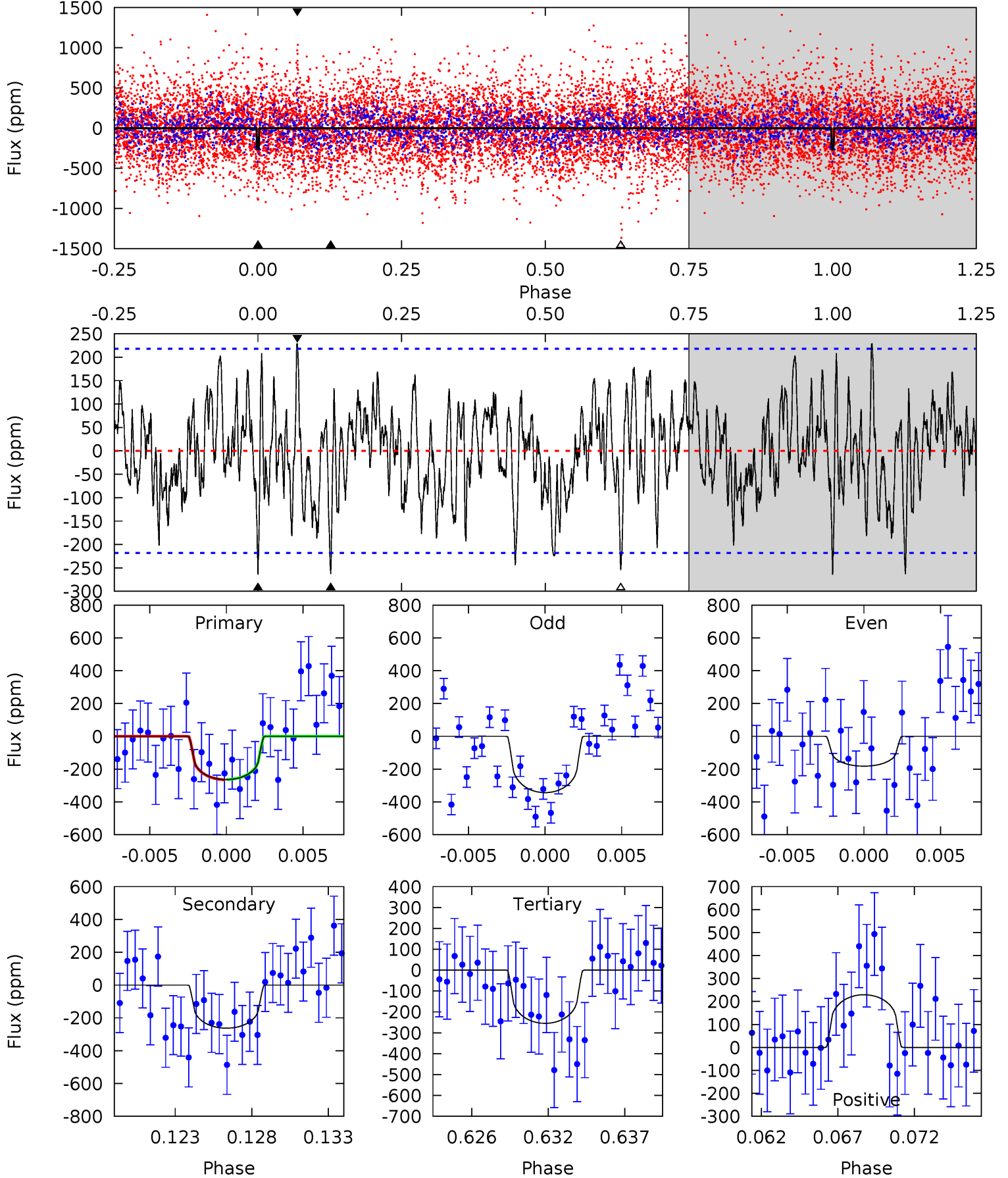
TCE 007518797-04   P= 54.192031 Days    $T_0=161.171750$  (BKJD)



# DV Model-Shift Uniqueness Test

007518797-04, P = 54.191930 Days, E = 106.977999 Days

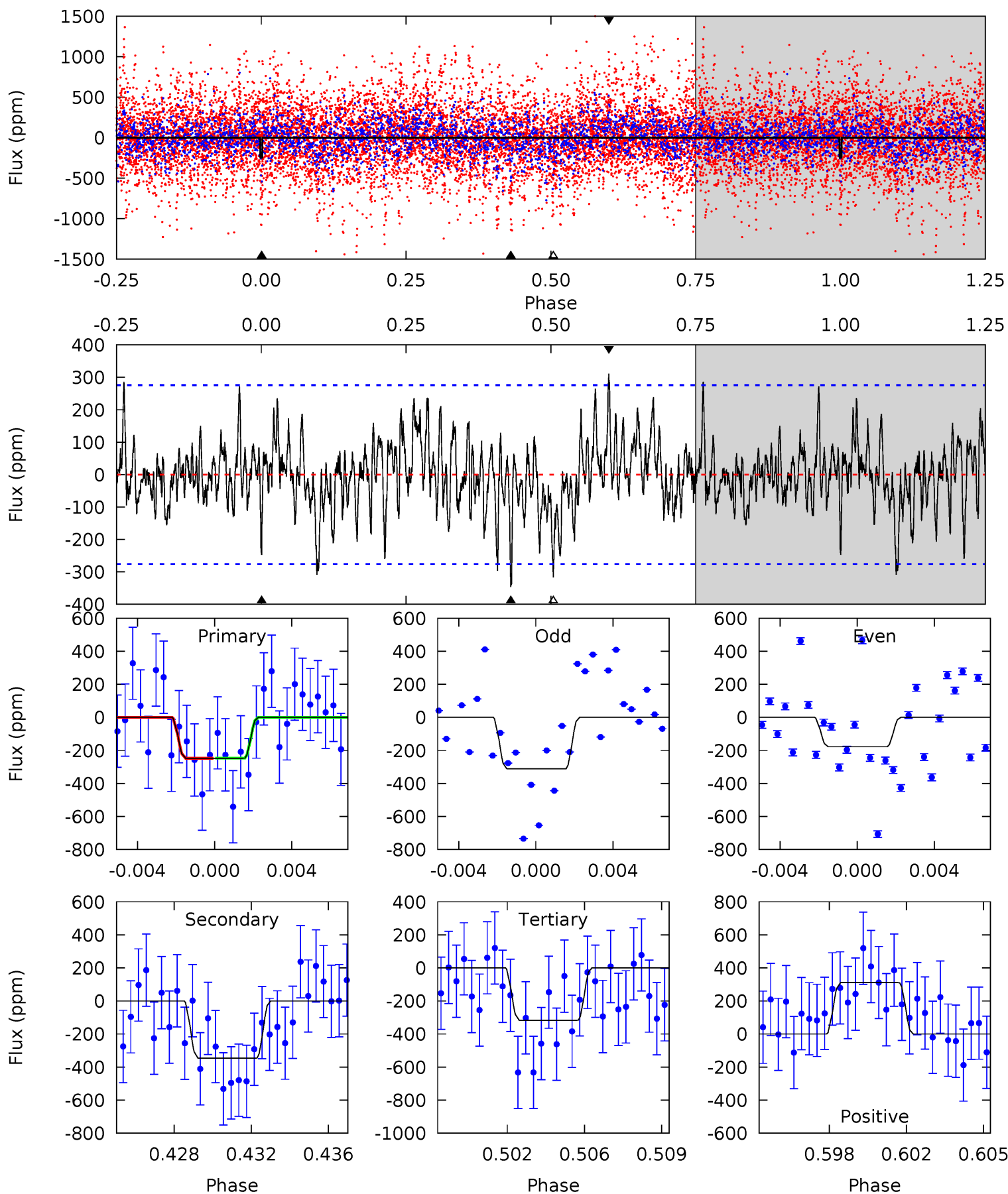
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.24	6.21	6.02	5.41	5.15	2.80	1.99	0.22	0.83	0.19	0.80	1.91	1.01	0.46	0.02



# Alt Model-Shift Uniqueness Test

007518797-04, P = 54.192031 Days, E = 106.979719 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
4.68	6.55	6.00	5.87	5.21	2.90	1.78	-1.31	-1.19	0.55	0.68	1.27	3.85	0.47	0.00



### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-263 \pm 42$	$3.70^{+4.25}_{-2.50}$	$684^{+51}_{-46}$	$4260^{+2792}_{-912}$	$833^{+7126}_{-656}$
Alt.	$-346 \pm 53$	$3.84^{+3.92}_{-2.57}$	$684^{+46}_{-47}$	$4415^{+2918}_{-911}$	$1009^{+8014}_{-767}$

$T_{\text{max}}$  = 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

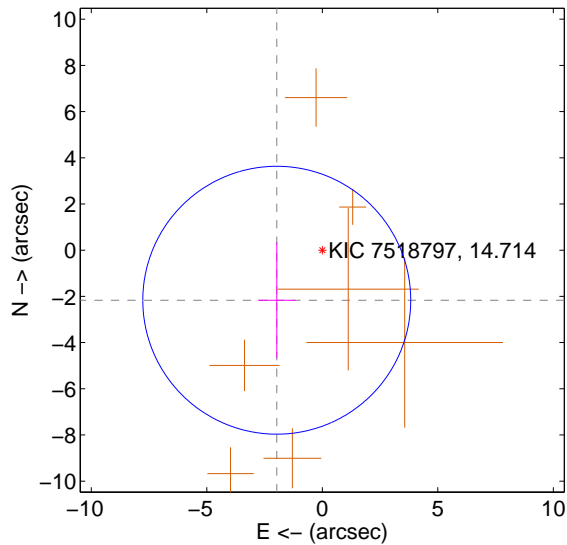
Supplemental centroid analysis for 007518797-04. Kepler magnitude: 14.71. Transit SNR 7.29

There are 0 quarters with good PRF difference image offsets

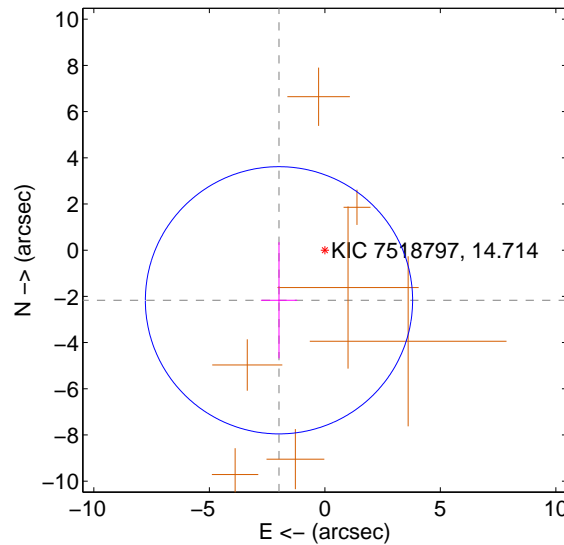
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.930 \pm 1.933$	1.52	$1.972 \pm 0.810$	$-2.167 \pm 2.507$
PRF-fit source offset from KIC position	$2.941 \pm 1.928$	1.53	$1.985 \pm 0.783$	$-2.170 \pm 2.514$
photometric centroid source offset	$0.53 \pm 0.93$	0.57	$0.50 \pm 0.95$	$-0.19 \pm 0.85$

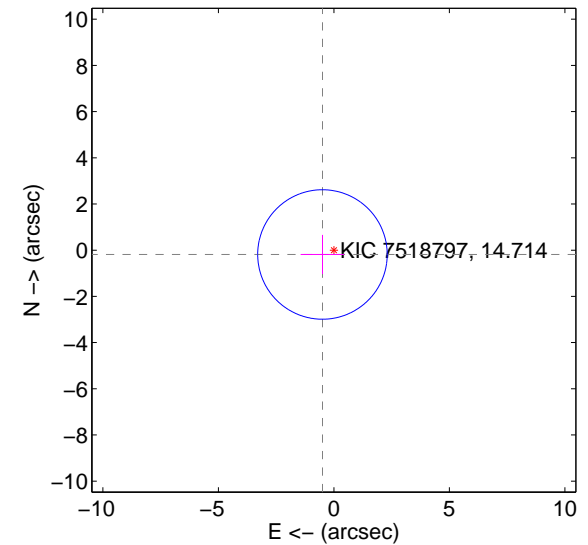
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



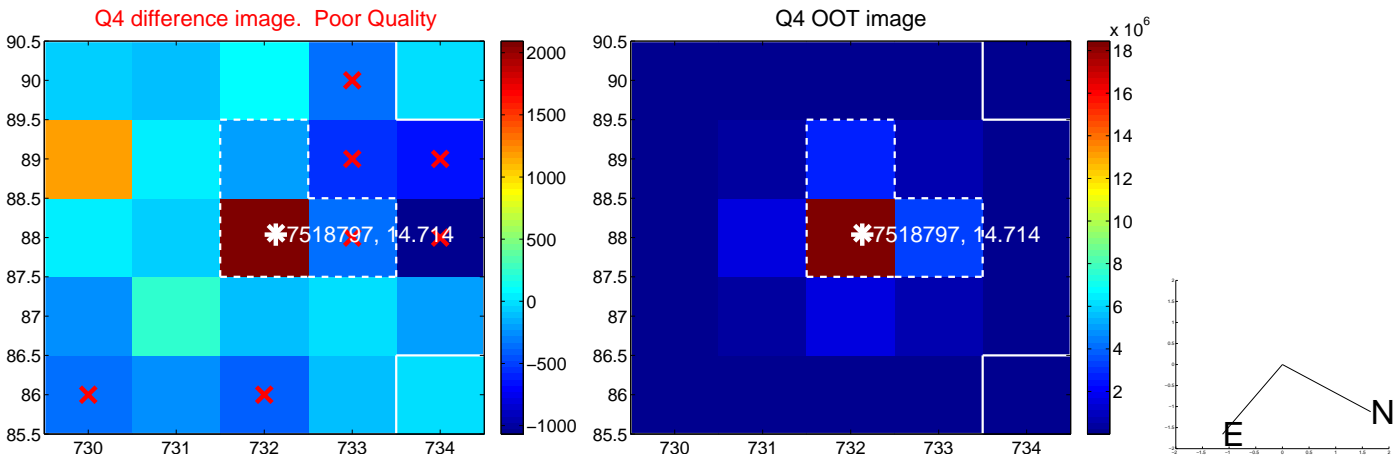
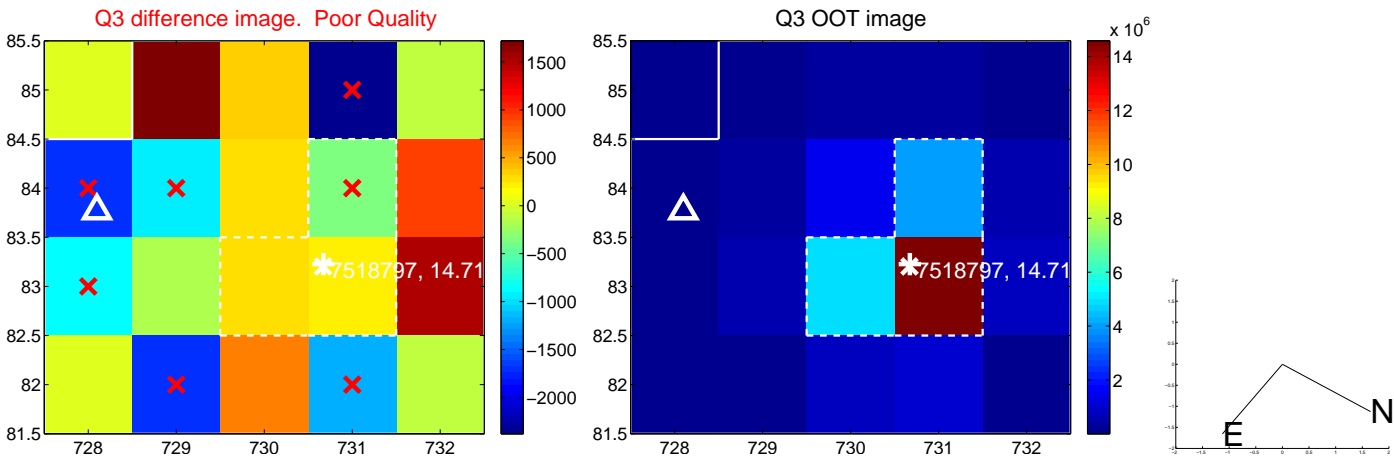
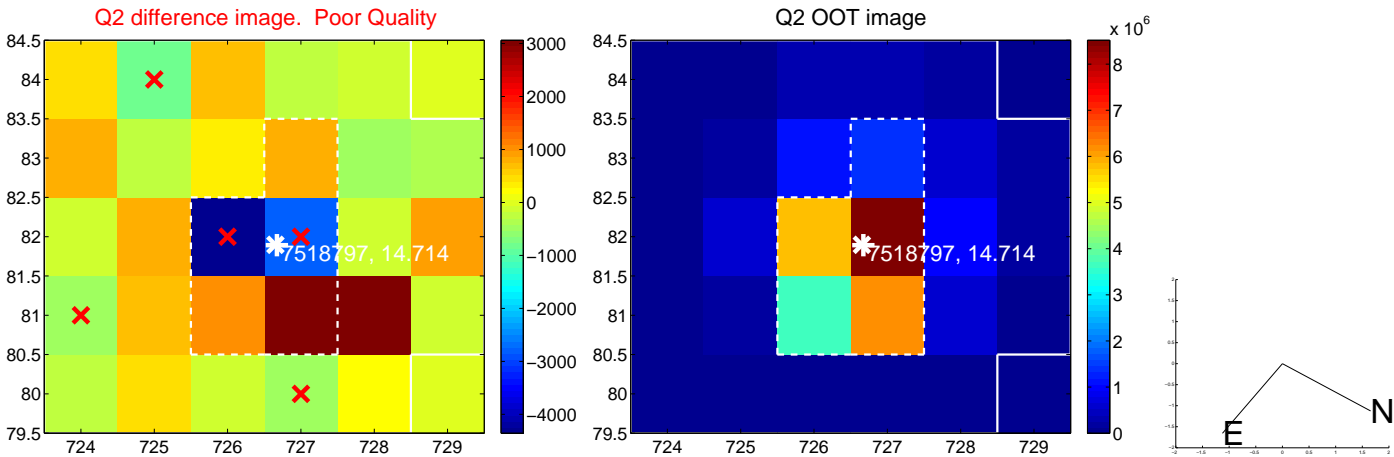
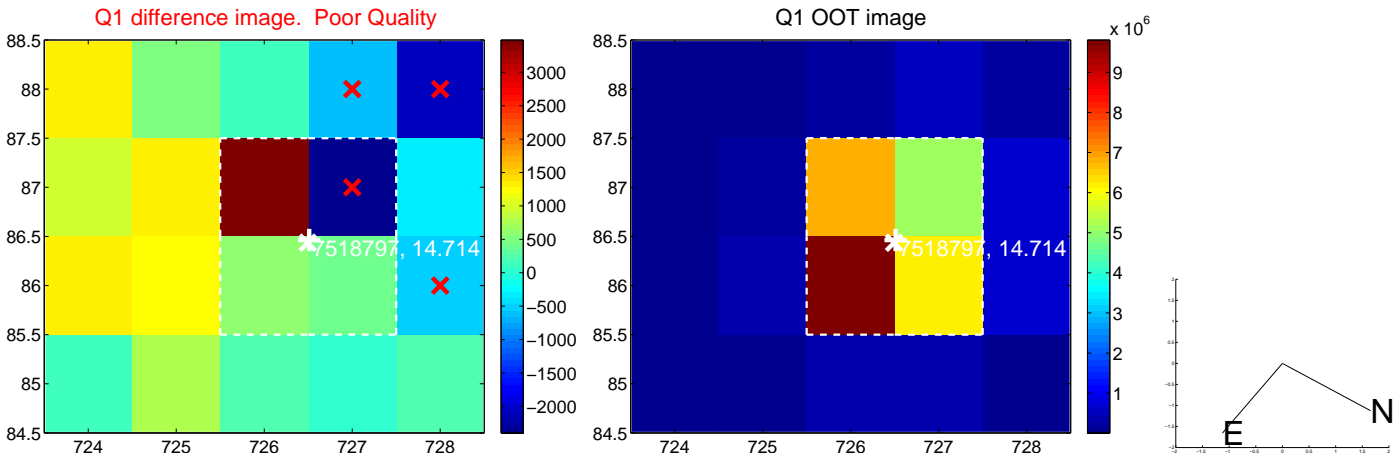
offset from photometric centroids



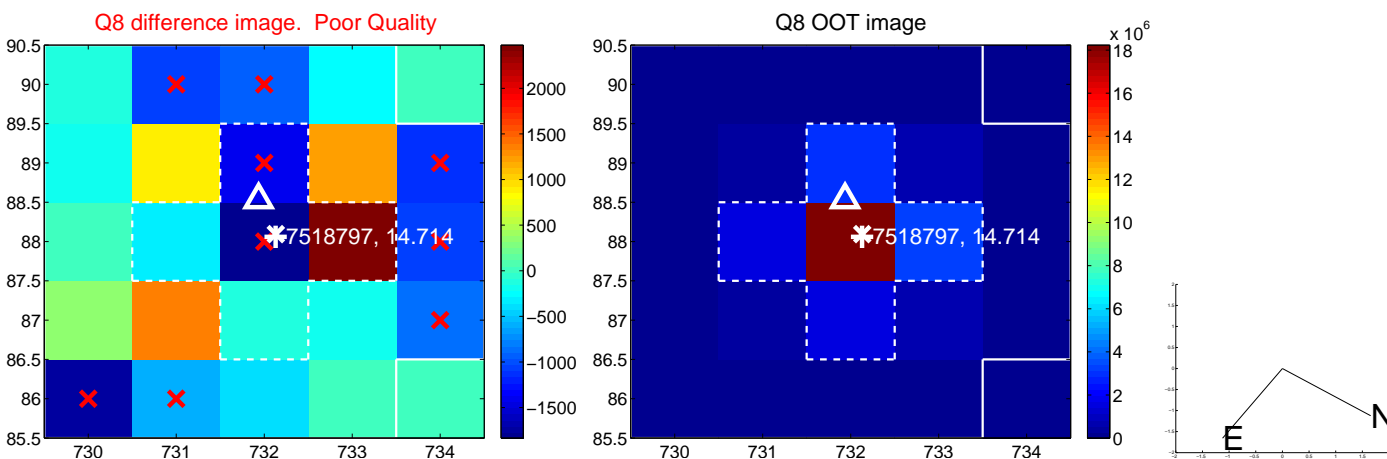
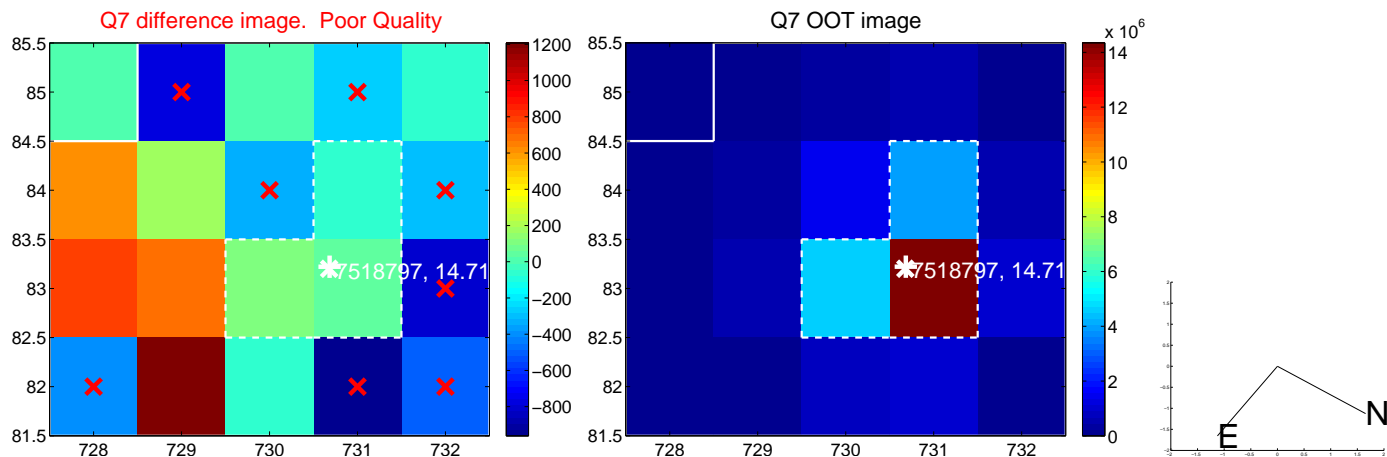
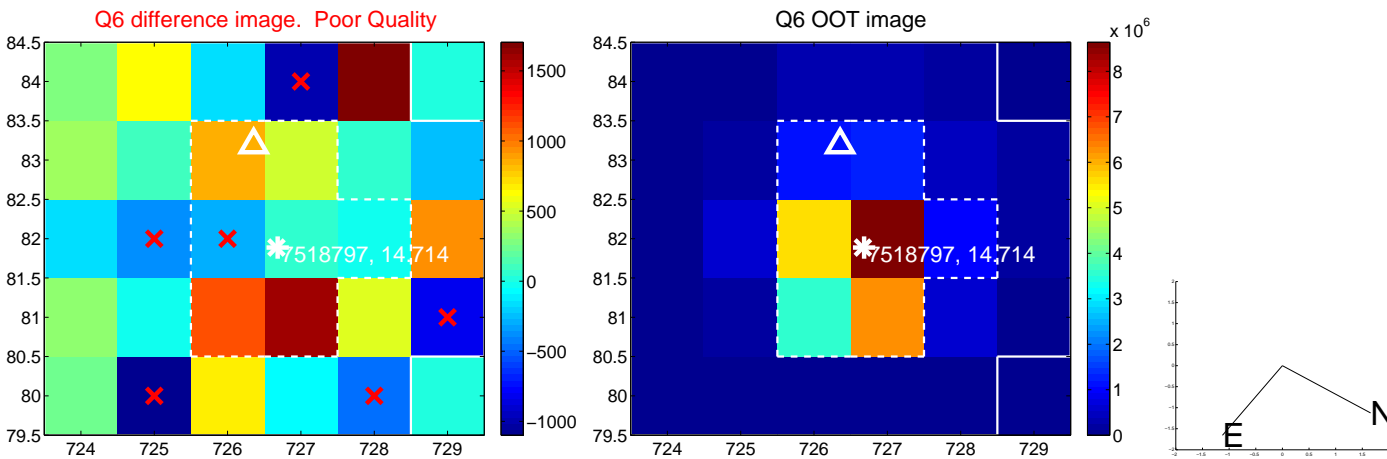
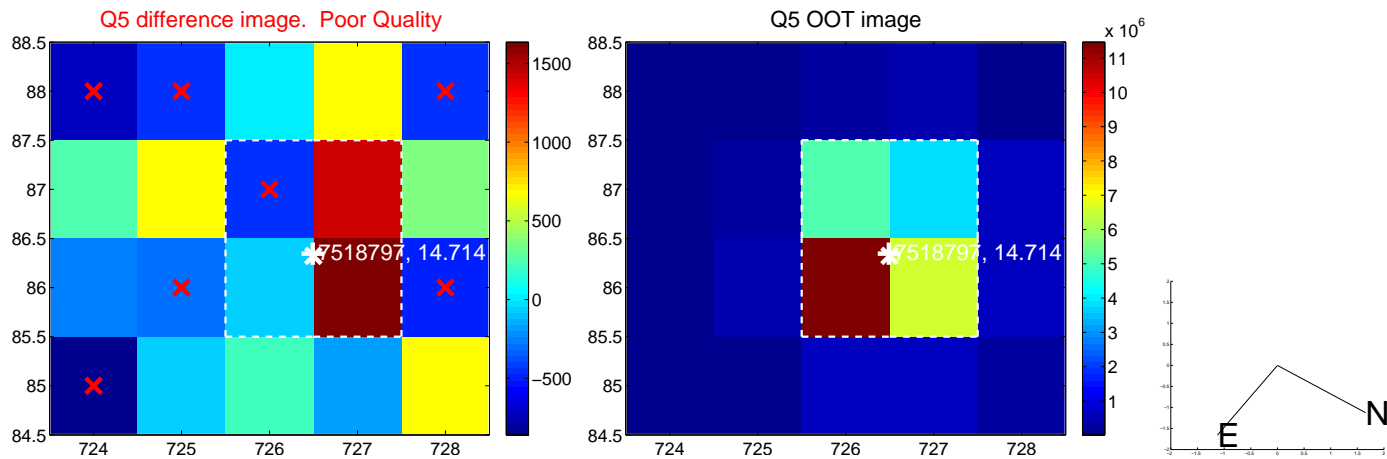
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



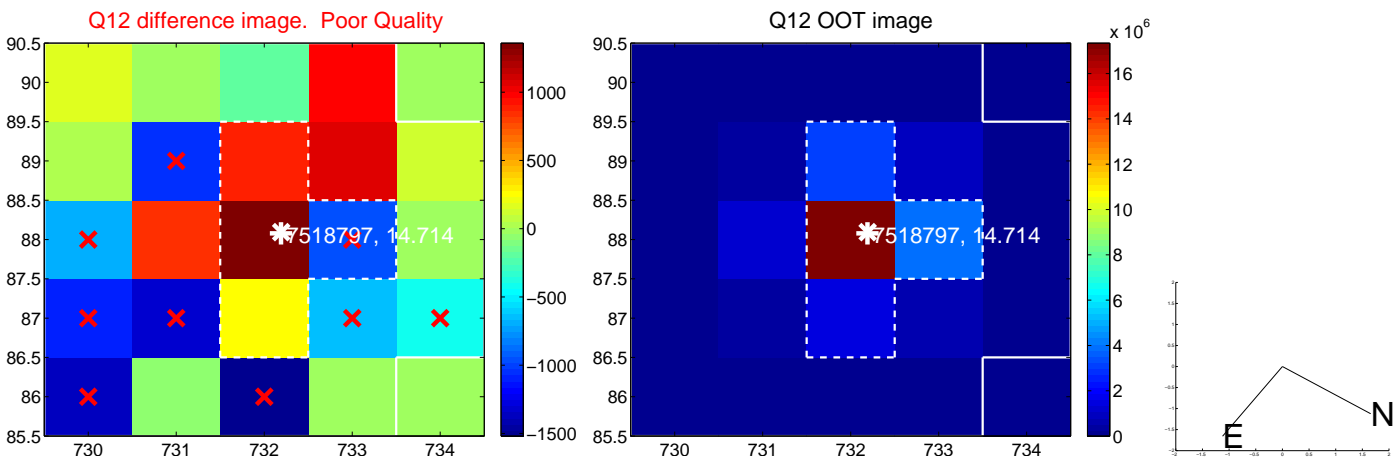
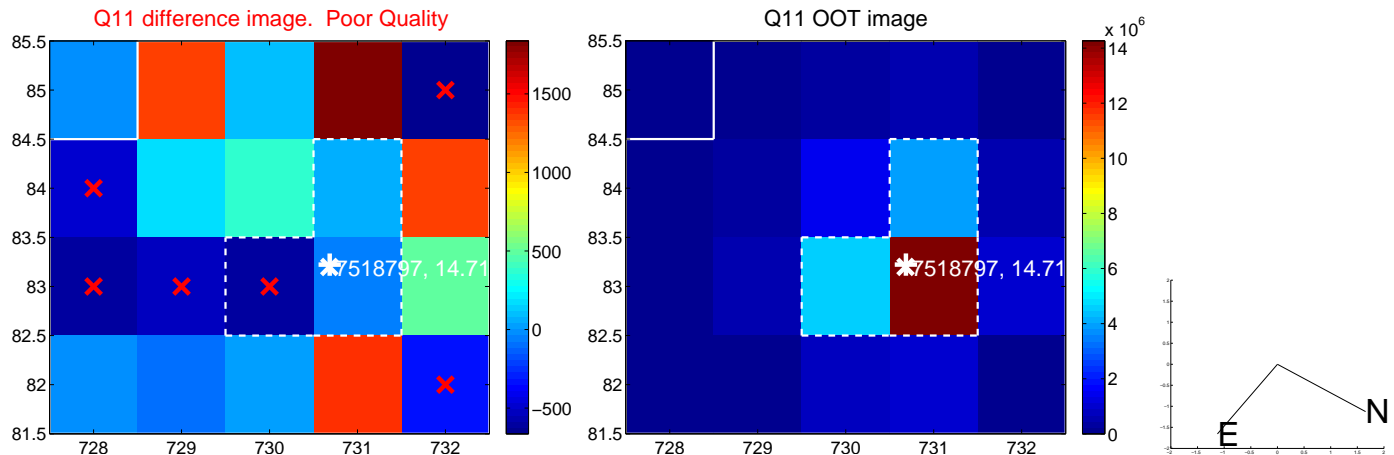
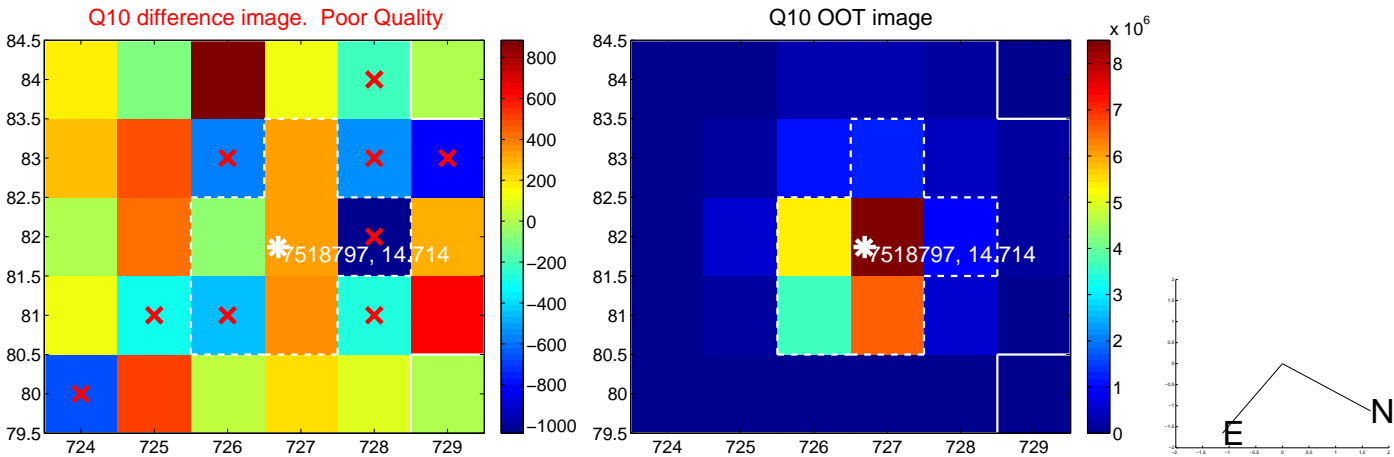
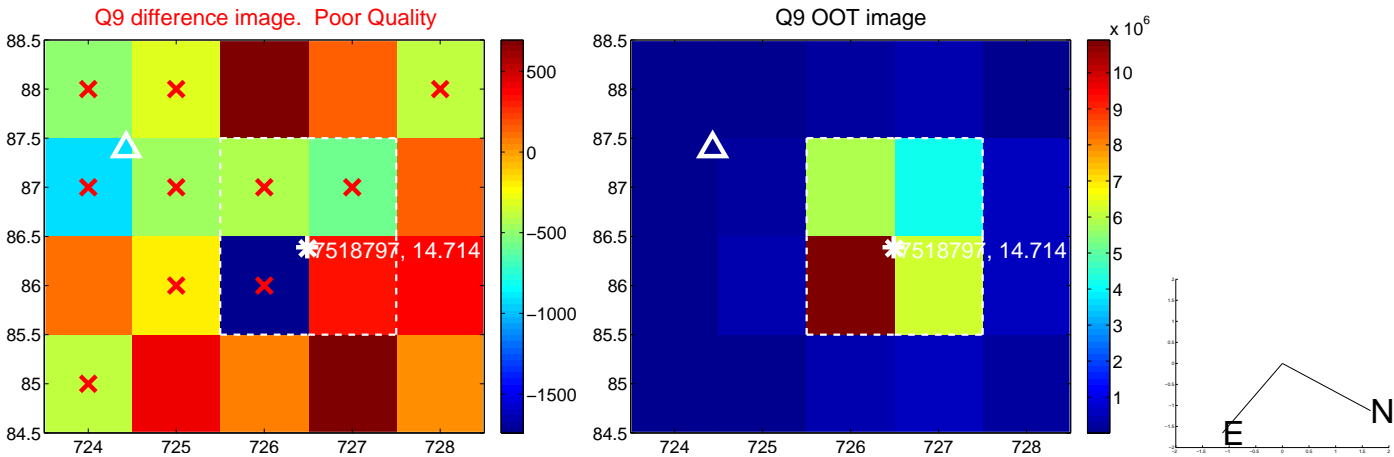
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



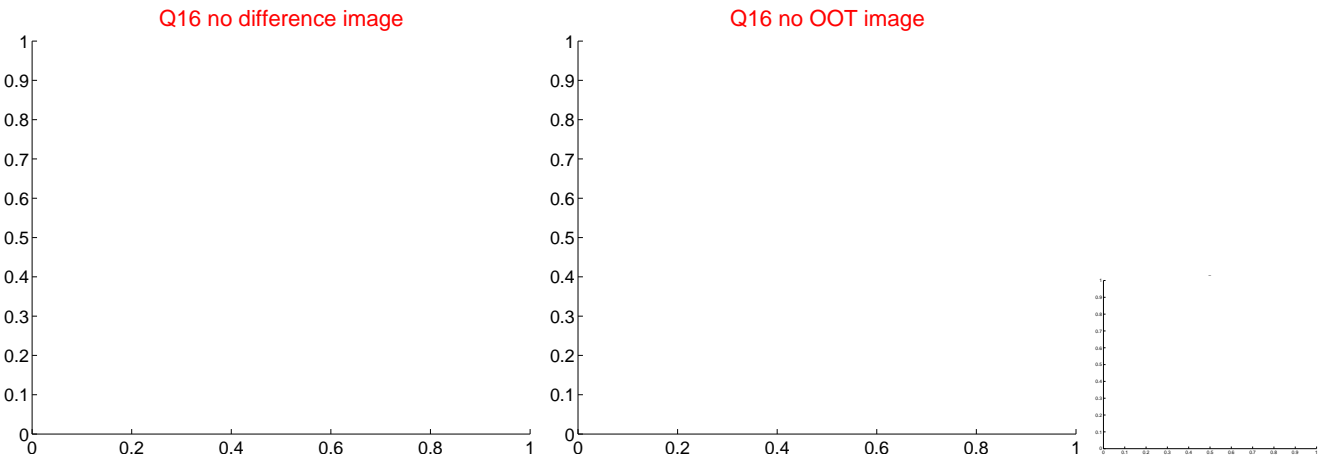
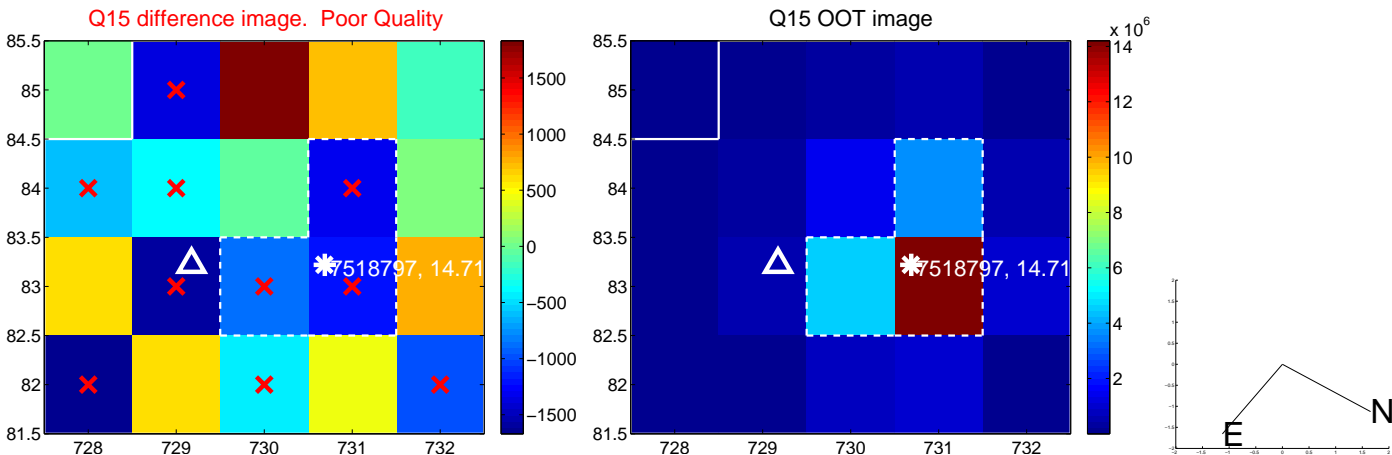
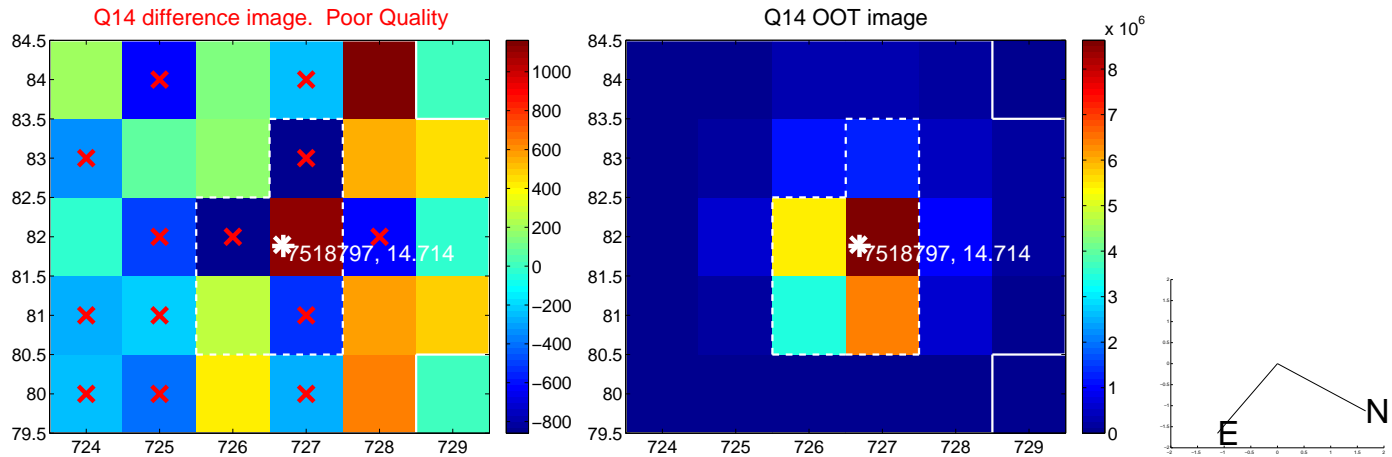
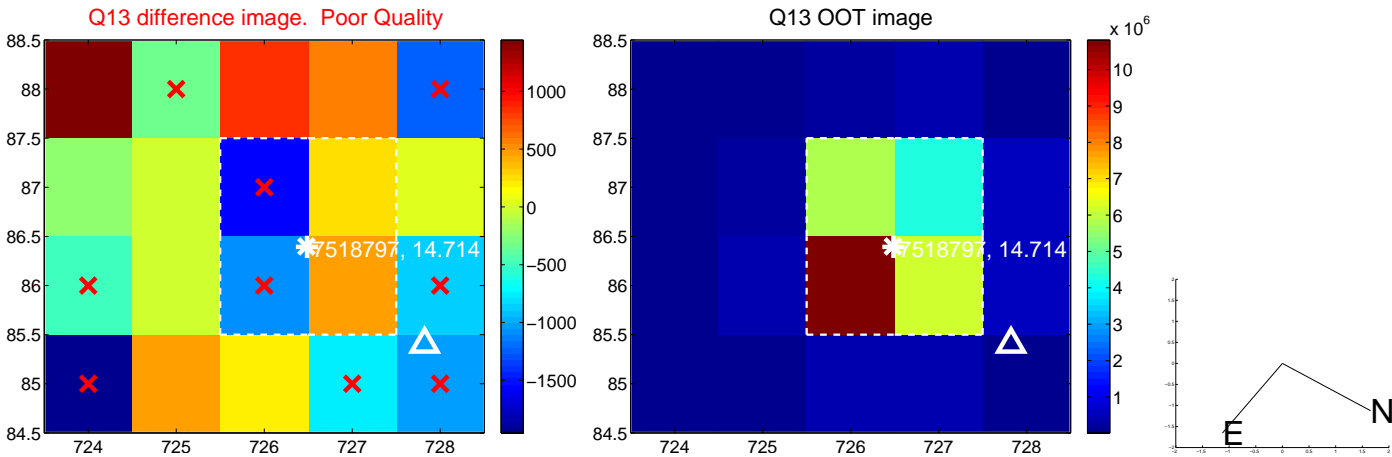
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



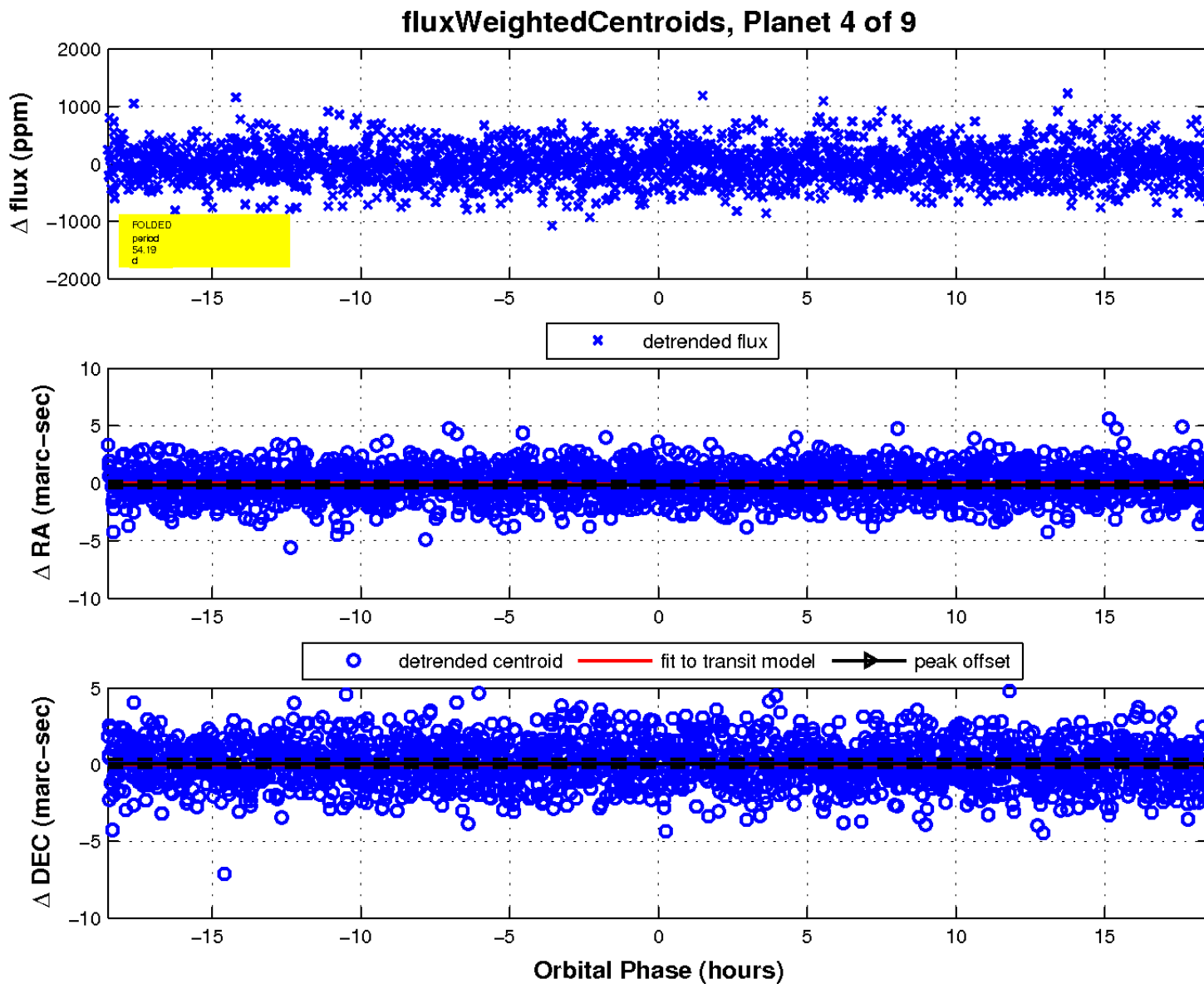
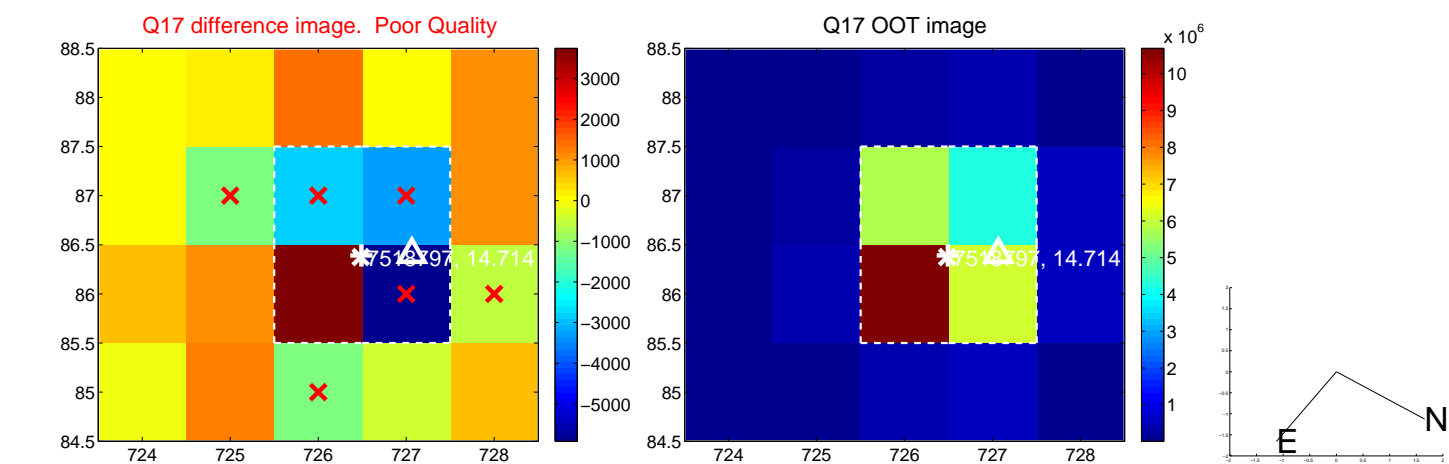
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

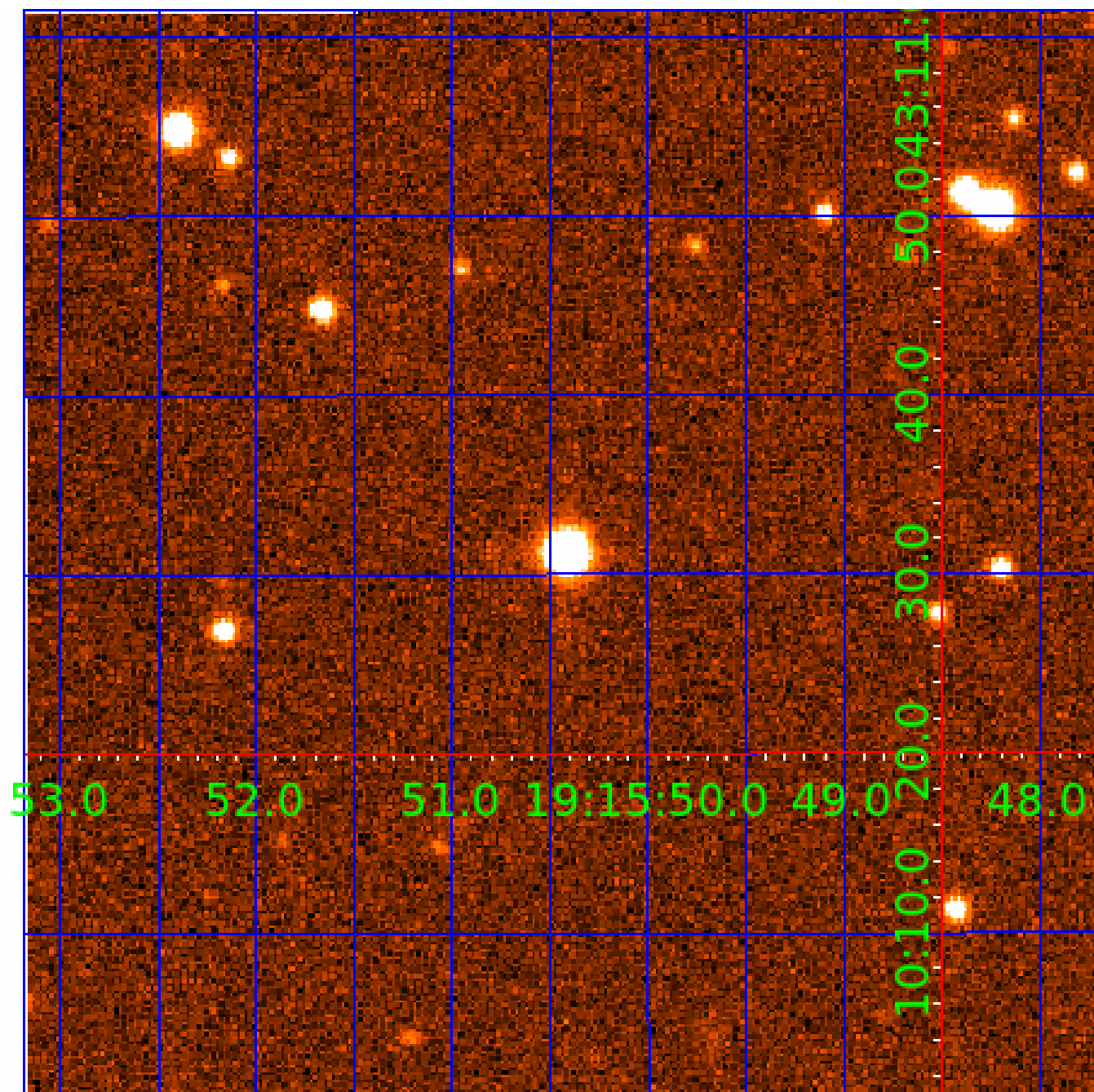


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



## KIC 007518797

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007518797-01	OBS	No	1.303697	131.960422	31.9	8.704	9.0	9.0	1.16	5468	0.64	1971.04
007518797-02	OBS	No	160.371067	210.838038	303.0	7.494	12.8	7.2	1.16	5468	1.97	3.22
007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
007518797-05	OBS	No	56.420658	152.191015	398.1	3.455	9.9	9.0	1.16	5468	2.61	12.97
007518797-06	OBS	No	47.291833	132.854028	492.2	3.929	9.0	9.1	1.16	5468	2.93	16.41
007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007518797-01	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

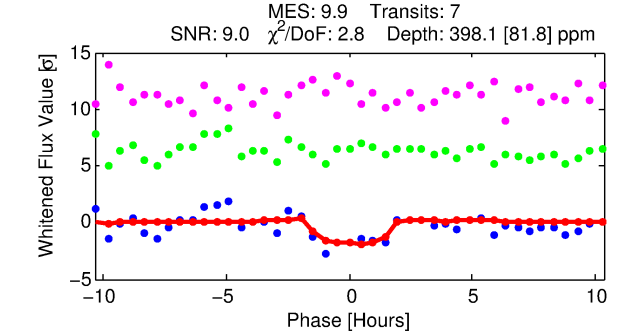
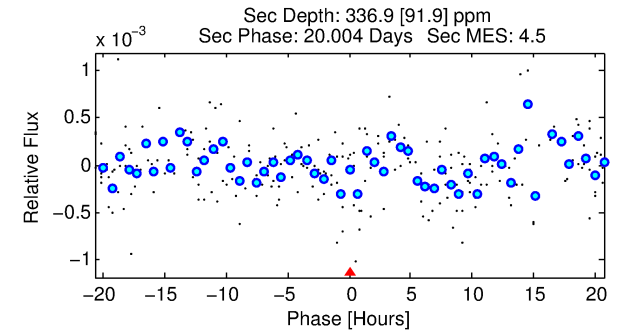
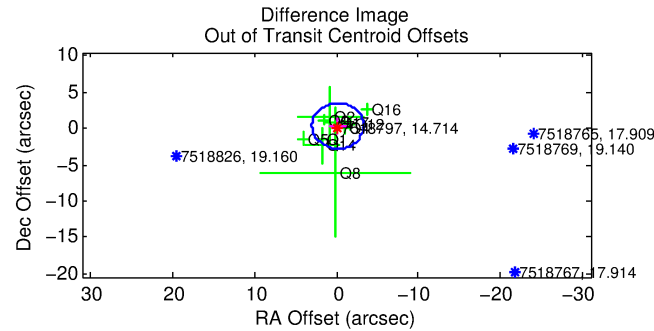
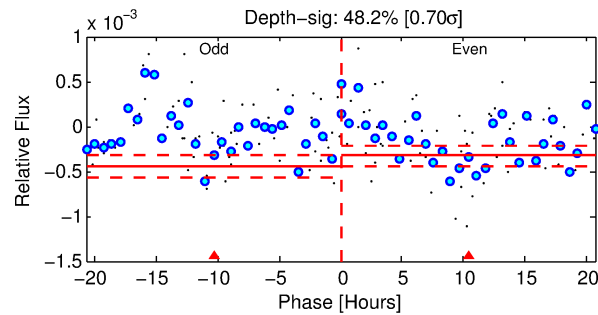
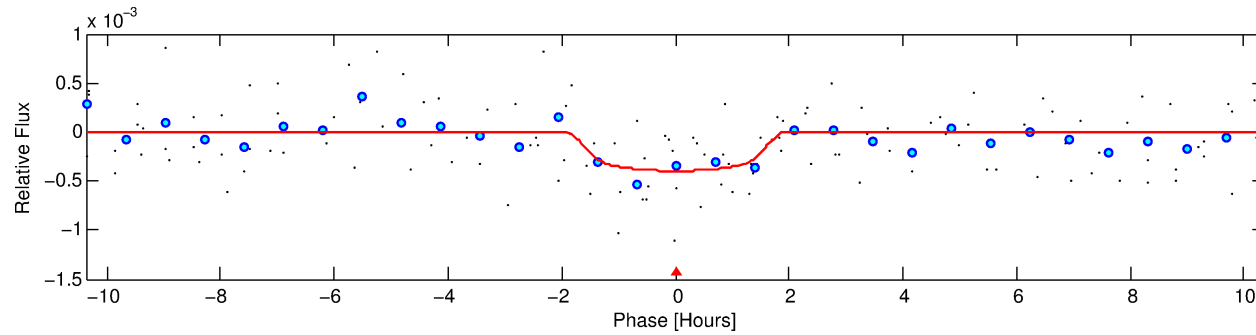
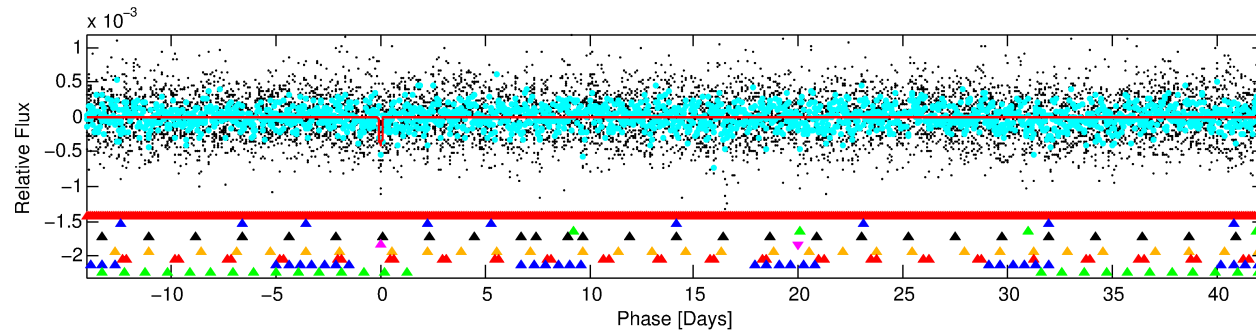
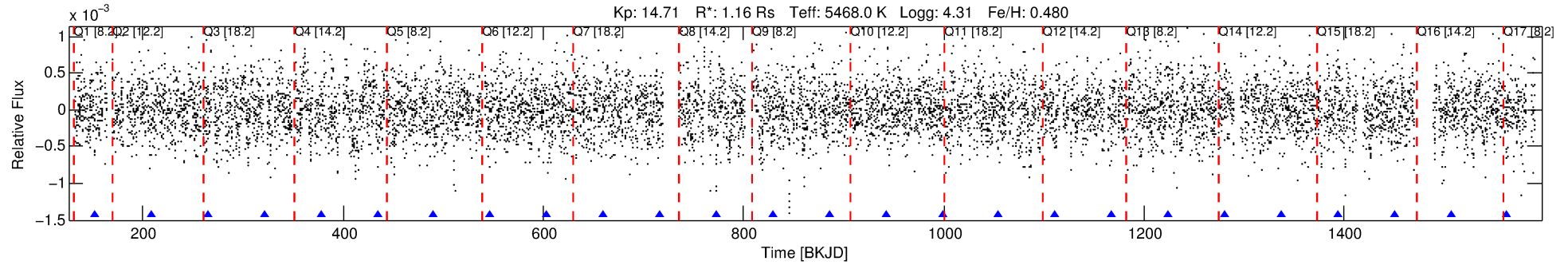
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-05

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 5 of 9 Period: 56.421 d



## DV Fit Results:

Period = 56.42066 [0.00099] d  
Epoch = 152.1910 [0.0136] BKJD  
Rp/R\* = 0.0207 [0.0439]  
a/R\* = 75.77 [628.09]  
b = 0.82 [3.38]  
Seff = 12.97 [4.40]  
Teff = 484 [41] K  
Rp = 2.61 [5.59] Re  
a = 0.2880 [0.0621] AU  
Ag = 2249.76 [9598.28] [0.23 $\sigma$ ]  
Teffp = 5153 [5483] K [0.85 $\sigma$ ]

## DV Diagnostic Results:

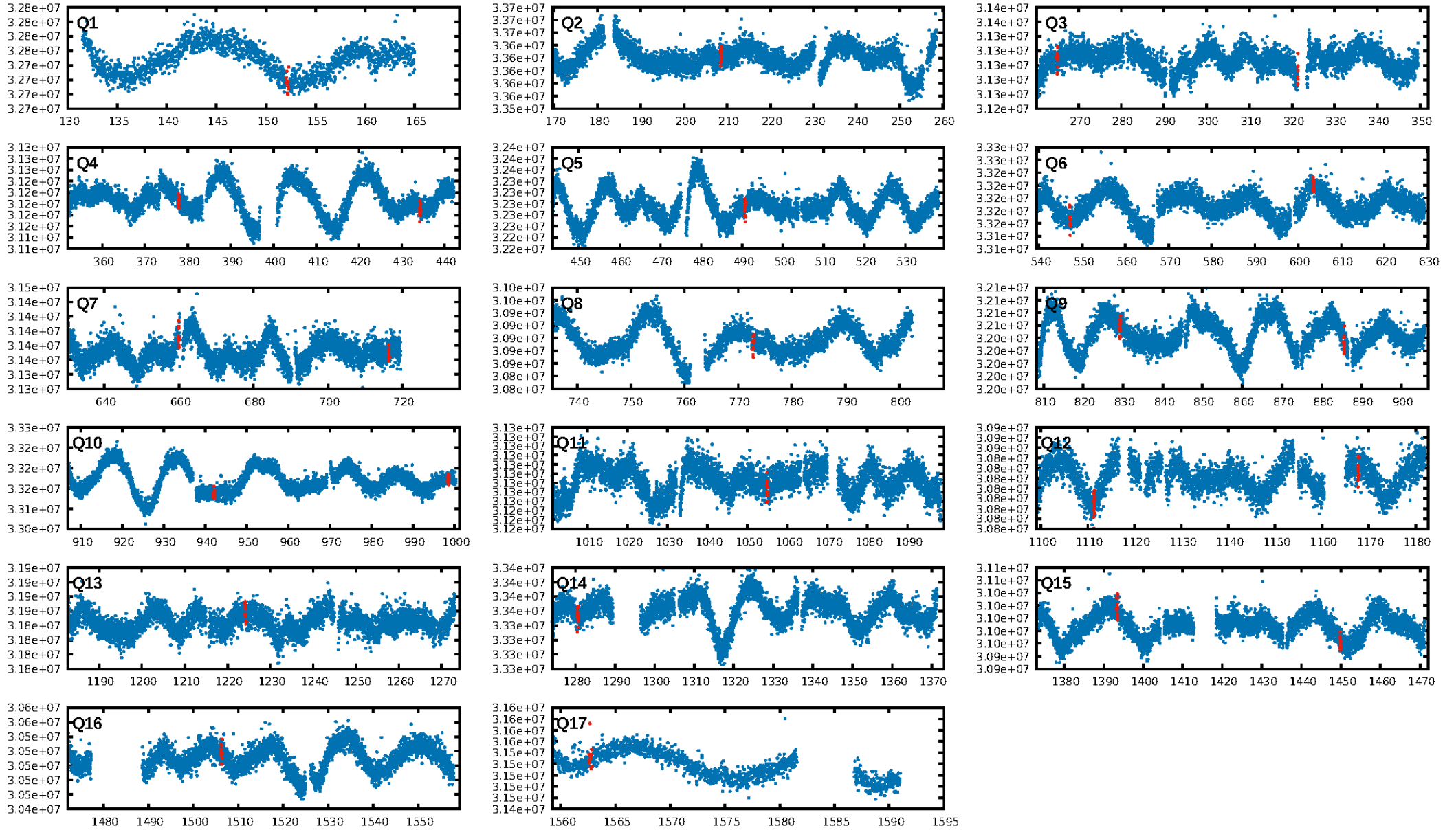
ShortPeriod-sig: 100.0% [6.26 $\sigma$ ]  
LongPeriod-sig: 100.0% [302.34 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 10.8%  
Bootstrap-pfa: 4.82e-11  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 1.538  
Centroid-sig: 12.0%  
Centroid-so: 1.119 arcsec [1.20 $\sigma$ ]  
OotOffset-rm: 0.373 arcsec [0.36 $\sigma$ ]  
KicOffset-rm: 0.384 arcsec [0.37 $\sigma$ ]  
OotOffset-st: 2/0/4/4 [10]  
KicOffset-st: 2/0/4/4 [10]  
DiffImageQuality-fgm: 0.10 [1/10]  
DiffImageOverlap-fno: 0.29 [5/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:21:51 Z

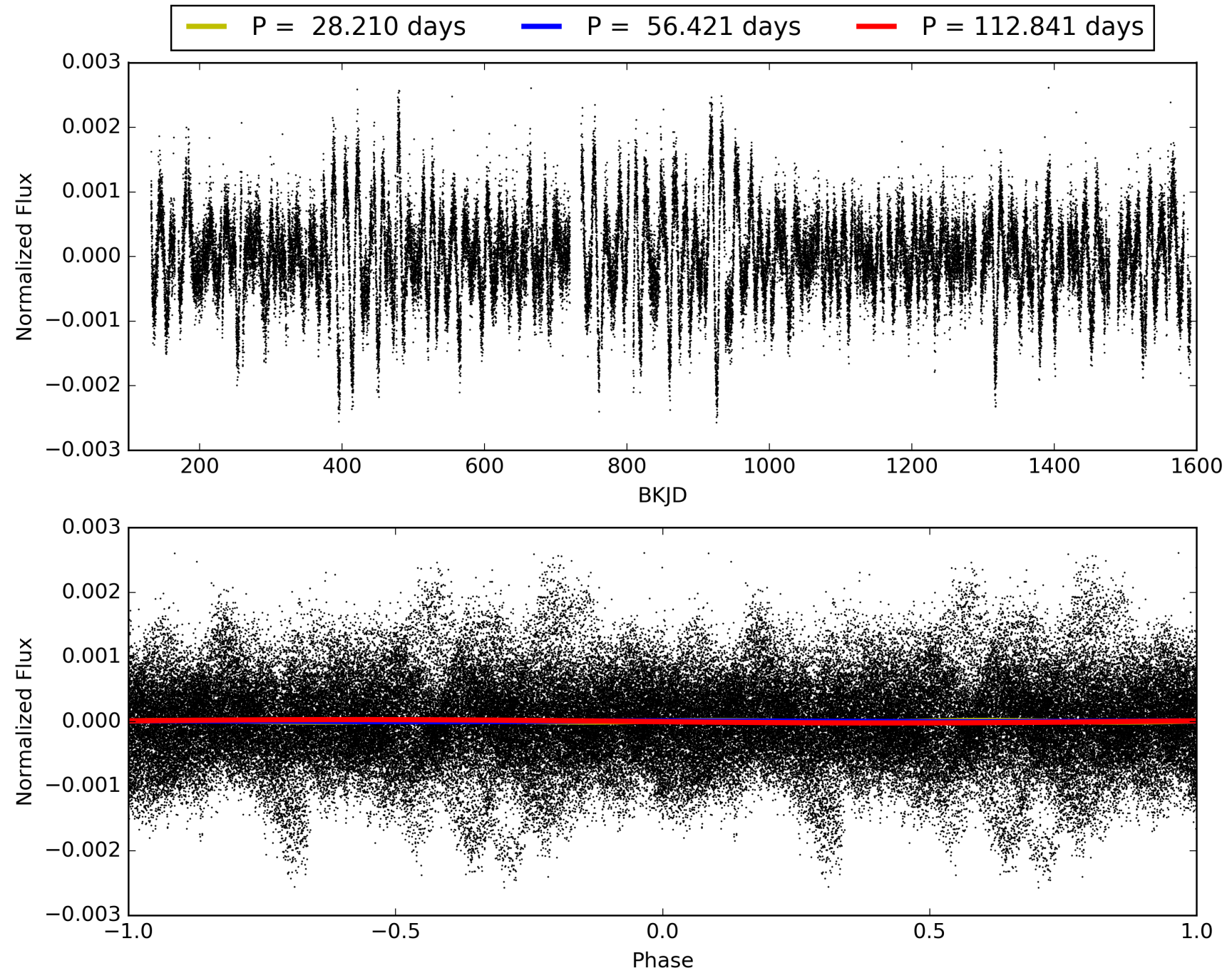
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 007518797-05, PDC Light Curves

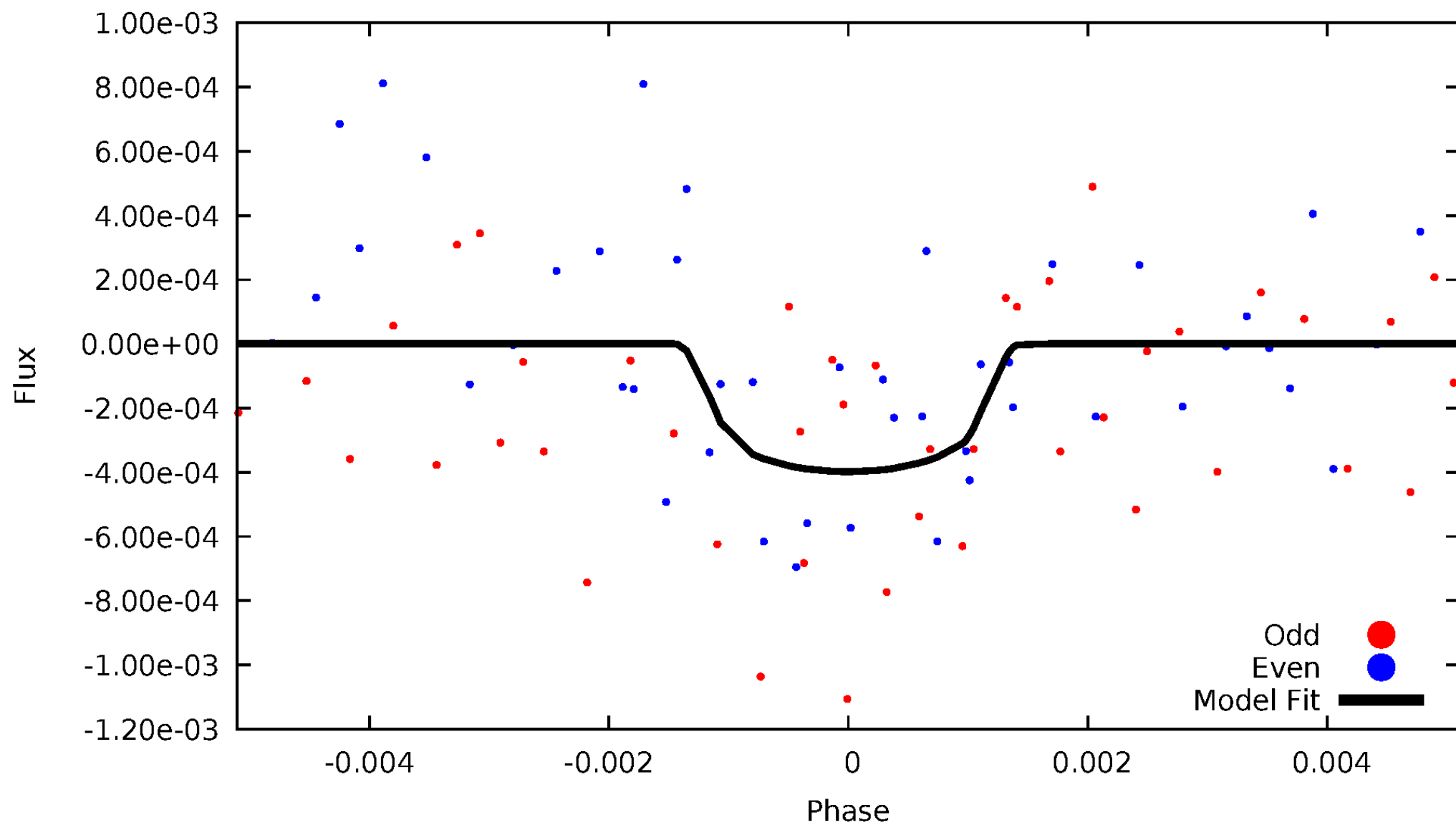


TCE 007518797-05



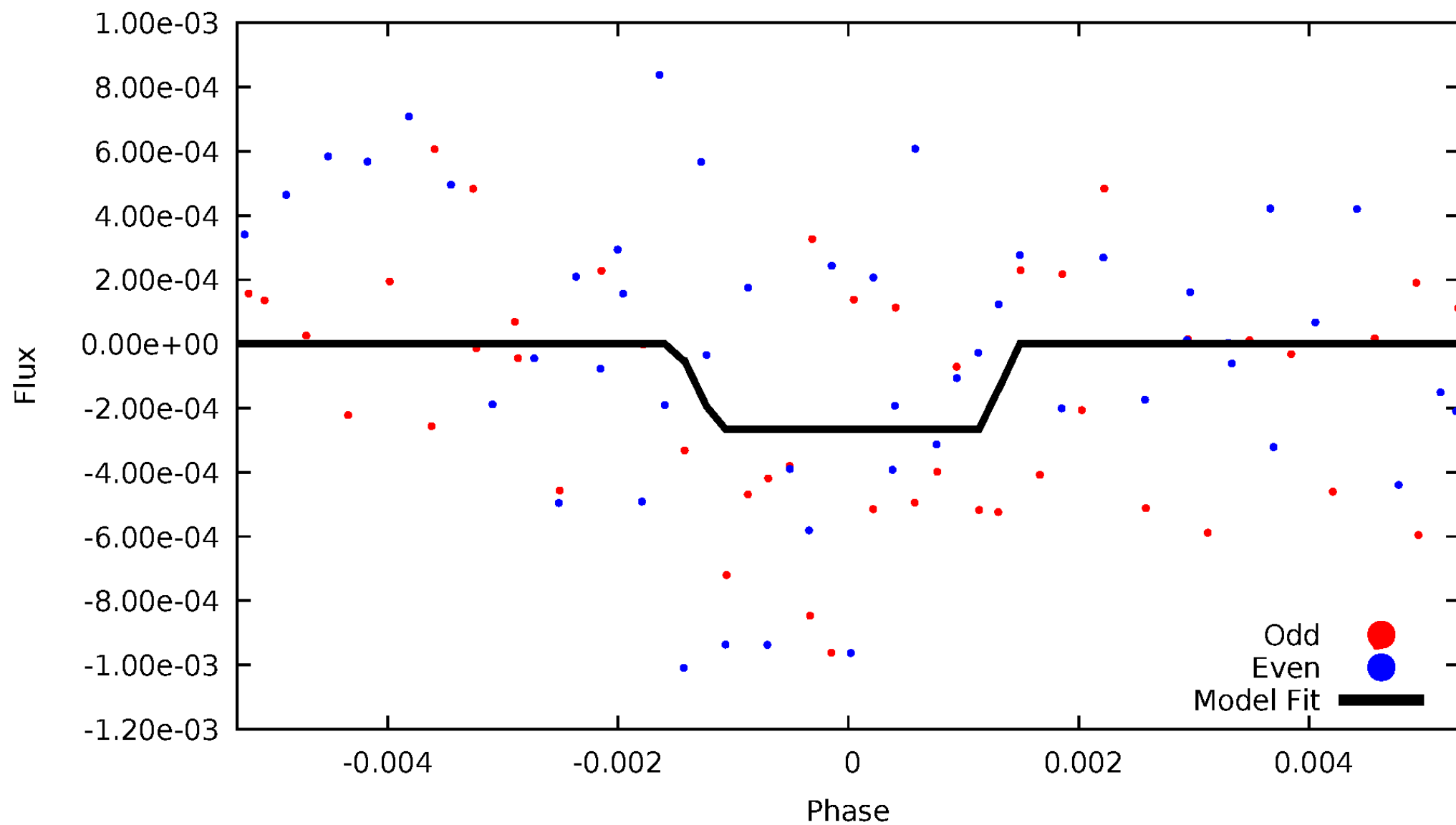
# DV Odd/Even

TCE 007518797-05



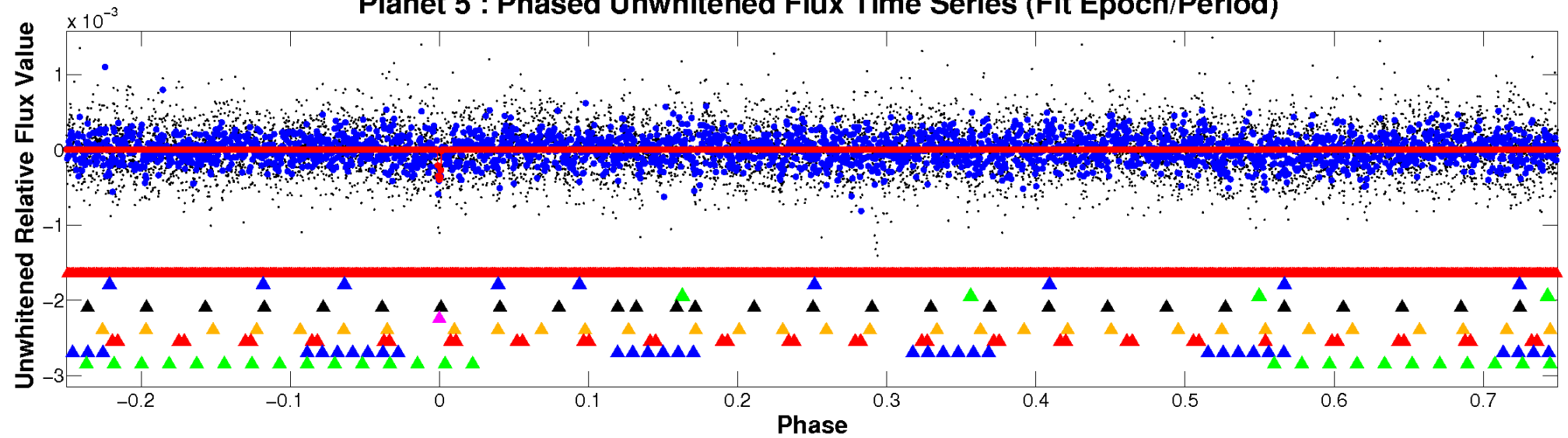
# ALT Odd/Even

TCE 007518797-05

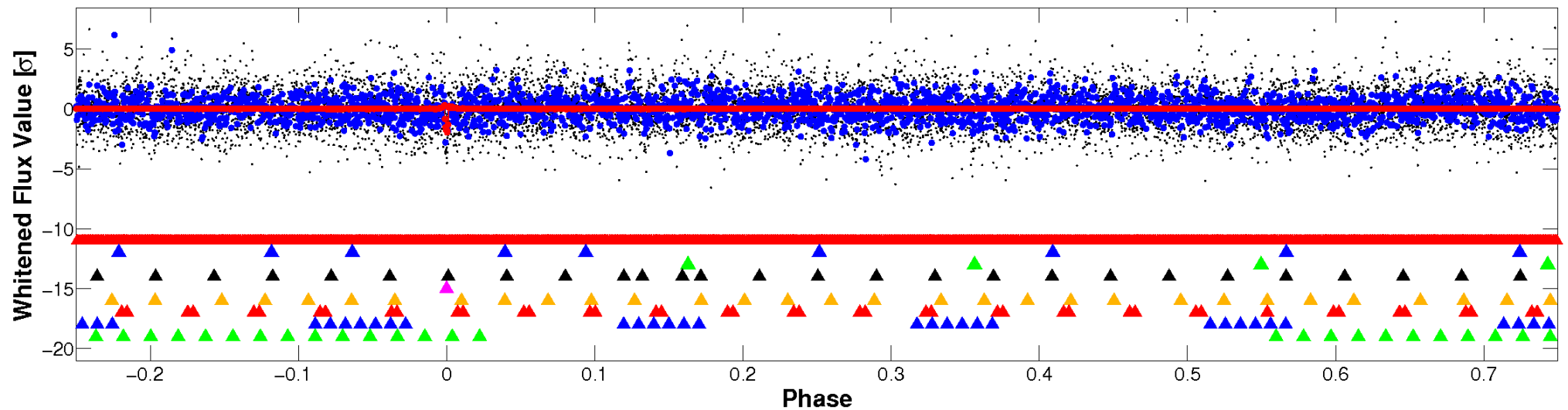


# Non-Whitened Vs. Whitened Light Curve

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

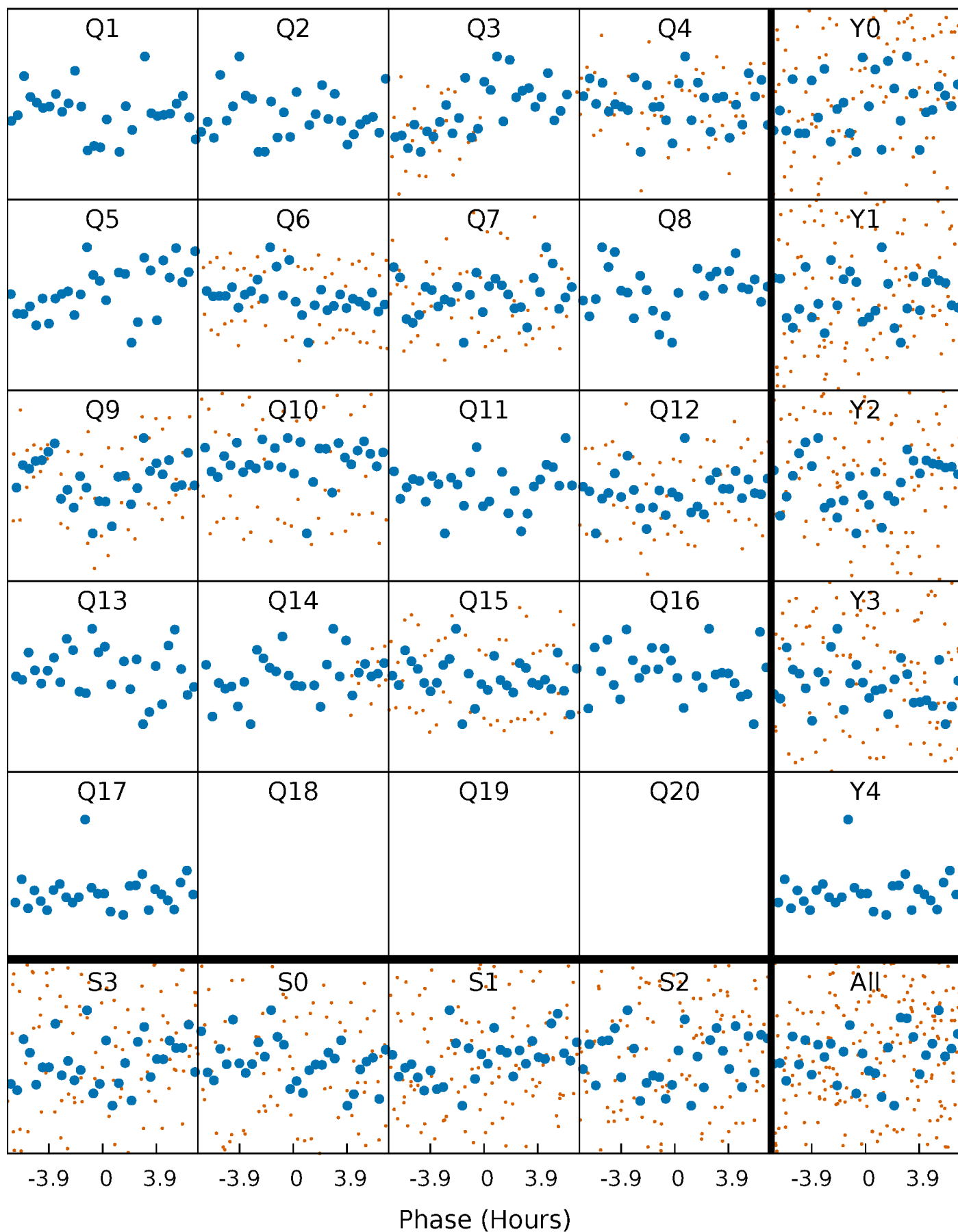


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



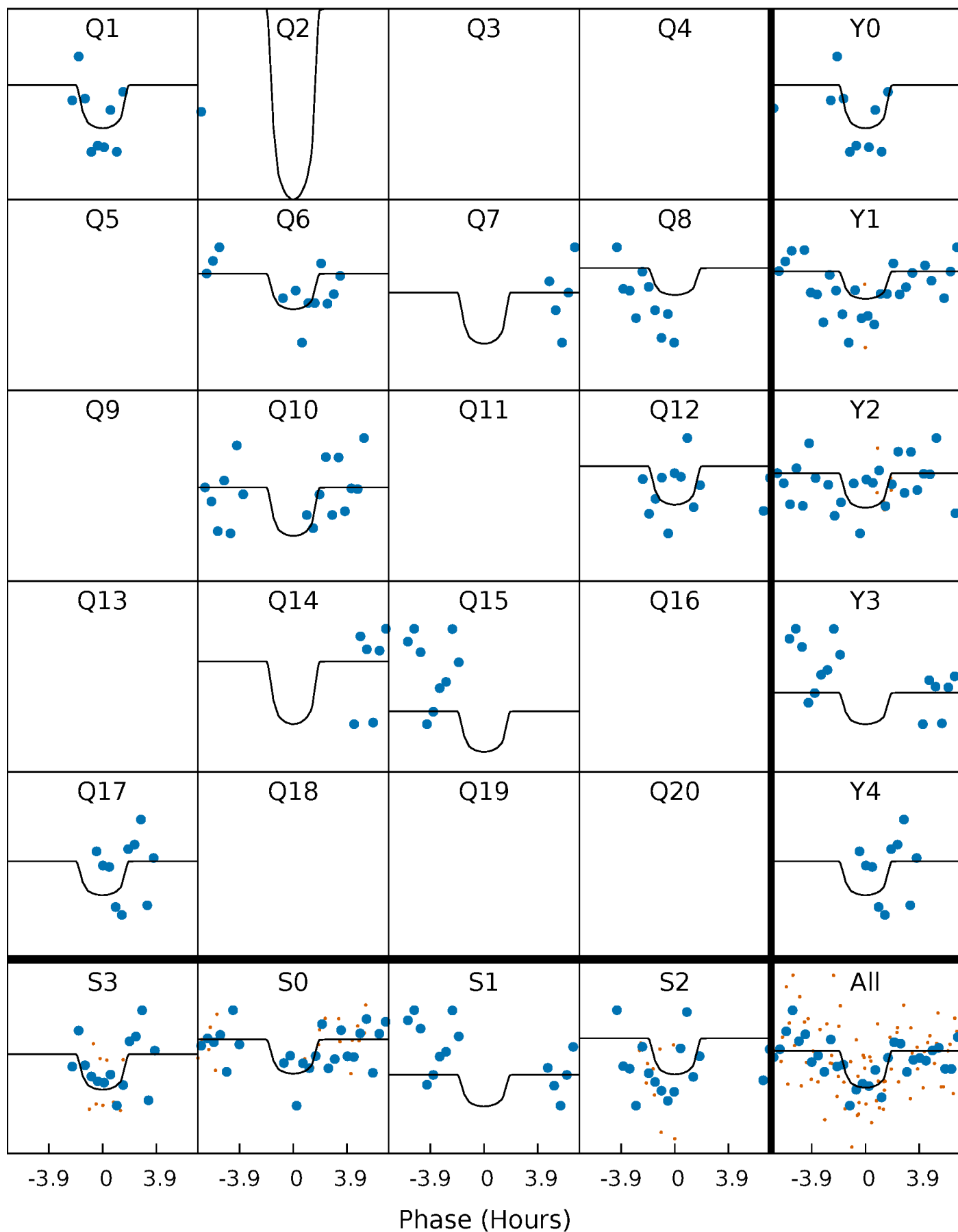
# PDC Quarter-Phased Transit Curves

TCE 007518797-05     $P = 56.420658$  Days     $T_0 = 152.191015$  (BKJD)



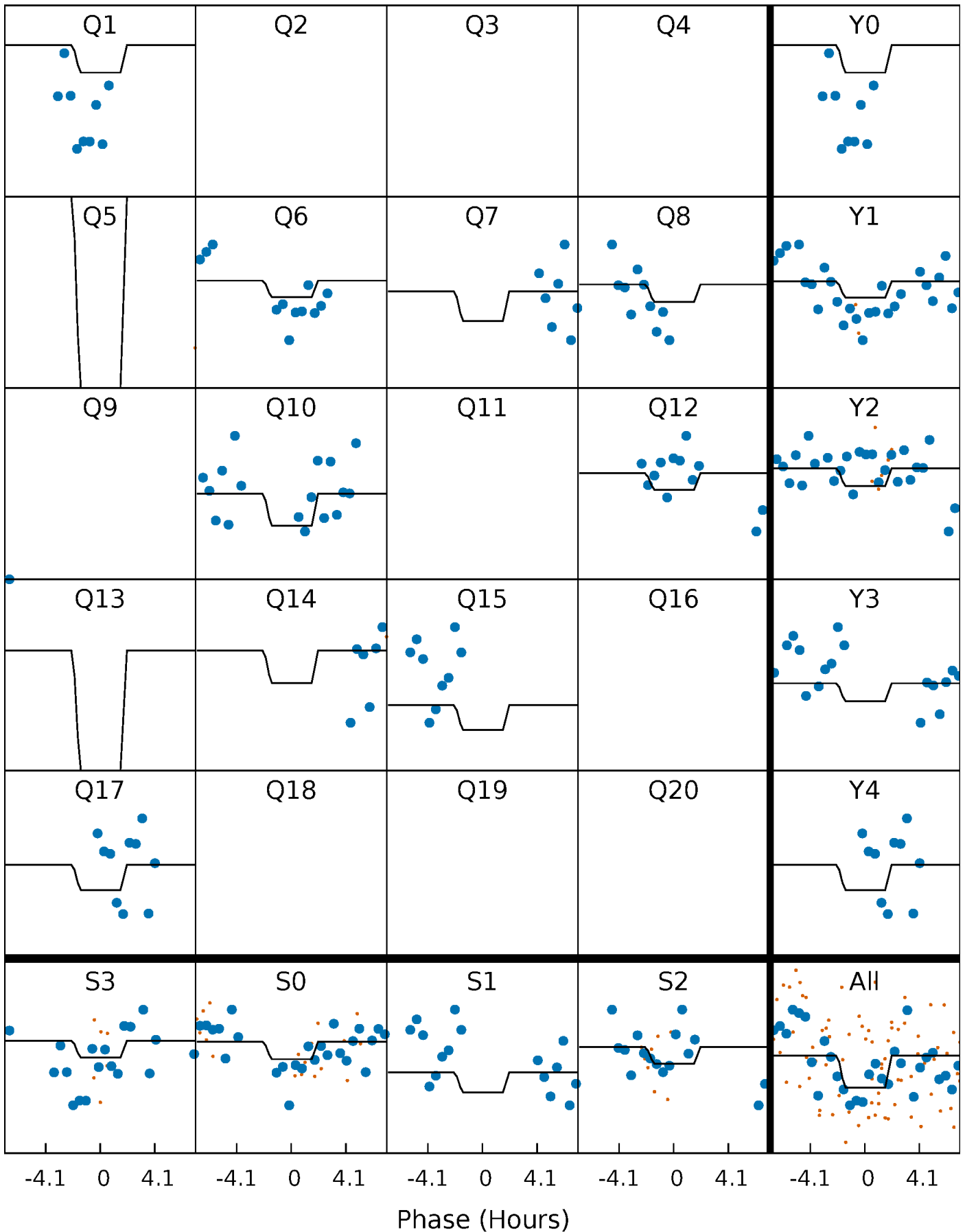
# DV Quarter-Phased Transit Curves

TCE 007518797-05   P= 56.420658 Days    $T_0=152.191015$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007518797-05     $P = 56.418619$  Days     $T_0 = 152.231758$  (BKJD)

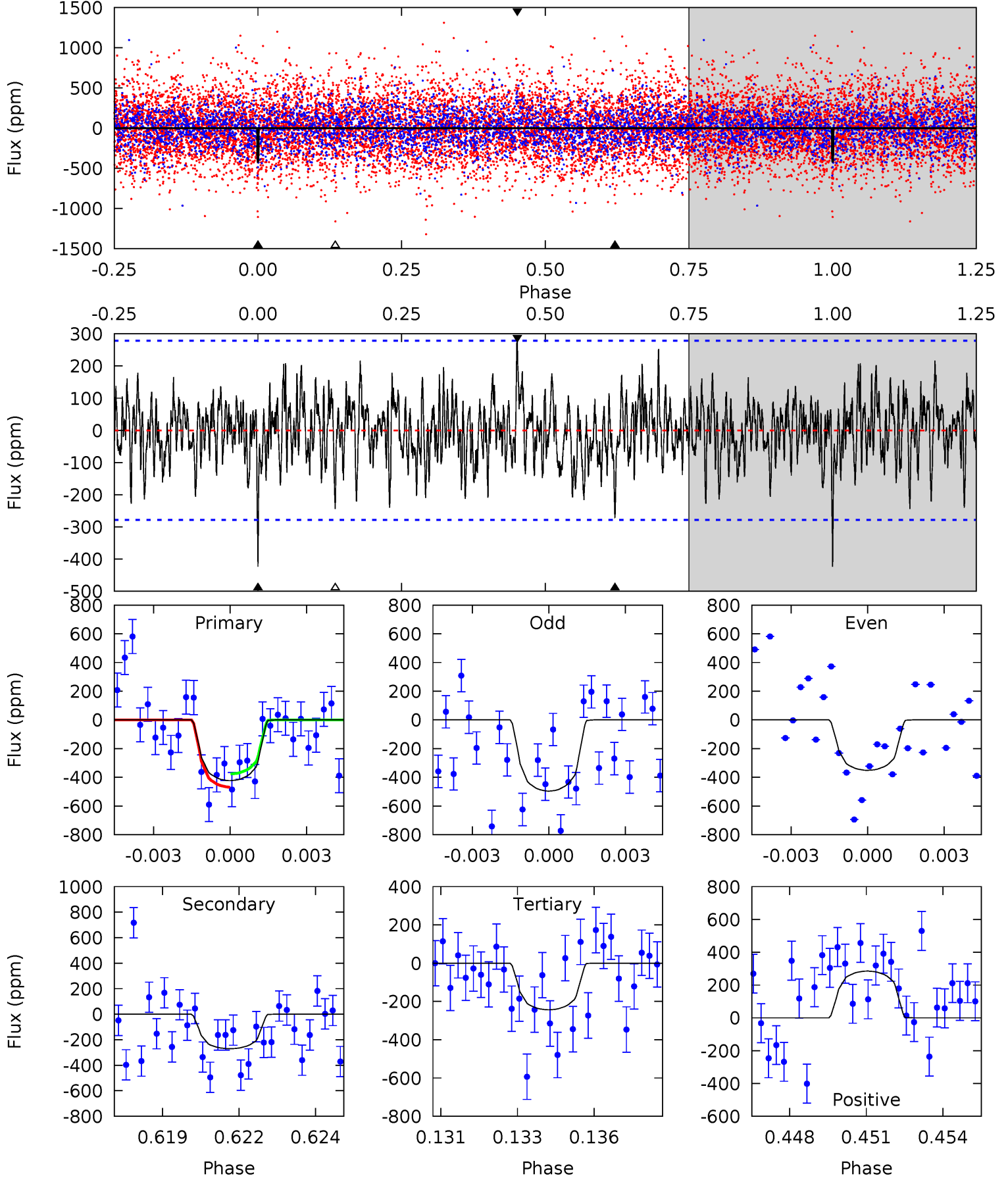




# DV Model-Shift Uniqueness Test

007518797-05, P = 56.420658 Days, E = 95.770357 Days

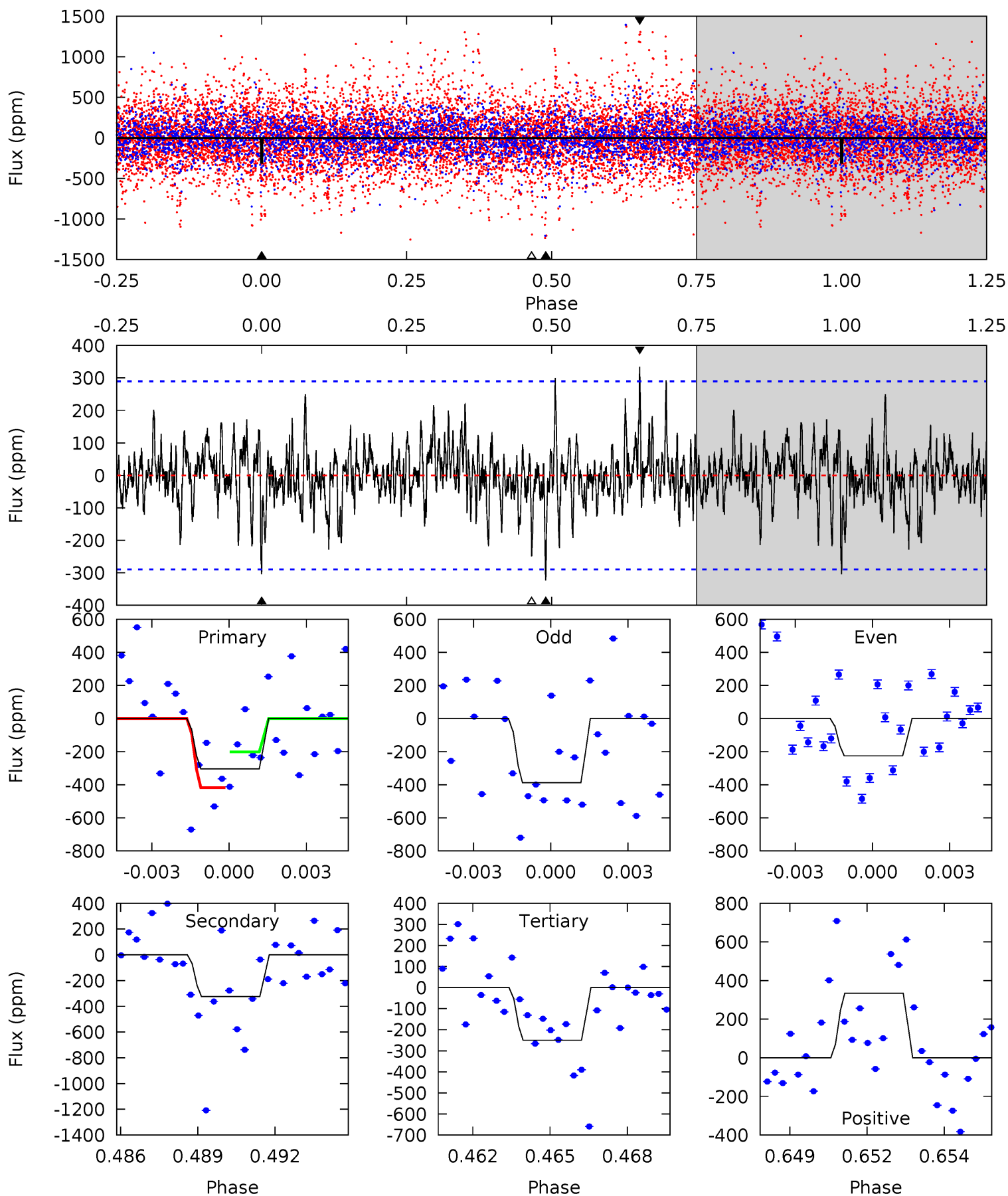
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.00	5.11	4.60	5.39	5.26	2.98	1.53	3.40	2.61	0.51	-0.28	1.37	1.21	0.40	0.87



# Alt Model-Shift Uniqueness Test

007518797-05, P = 56.418619 Days, E = 95.813139 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
5.52	5.87	4.53	6.07	5.26	2.98	1.36	0.99	-0.55	1.34	-0.20	1.45	1.03	0.51	1.97



### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-270 \pm 53$	$4.67^{+4.49}_{-3.19}$	$674^{+50}_{-43}$	$3943^{+2351}_{-798}$	$565^{+4773}_{-431}$
Alt.	$-324 \pm 55$	$4.69^{+4.62}_{-3.30}$	$679^{+51}_{-44}$	$4054^{+2969}_{-782}$	$654^{+6554}_{-494}$

$T_{max}$  = 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

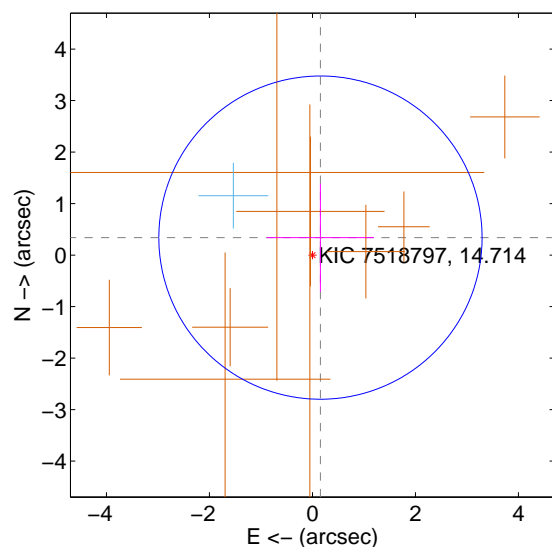
Supplemental centroid analysis for 007518797-05. Kepler magnitude: 14.71. Transit SNR 9.02

There are 1 quarters with good PRF difference image offsets

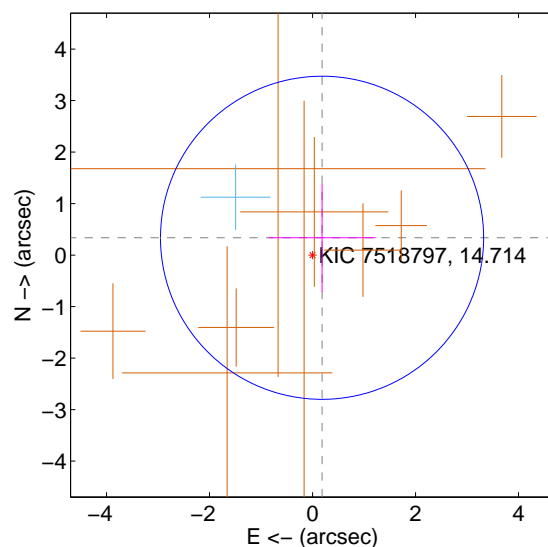
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.373 \pm 1.046$	0.36	$-0.156 \pm 1.041$	$0.339 \pm 1.047$
PRF-fit source offset from KIC position	$0.384 \pm 1.046$	0.37	$-0.185 \pm 1.041$	$0.336 \pm 1.047$
photometric centroid source offset	$1.12 \pm 0.93$	1.20	$0.33 \pm 1.02$	$1.07 \pm 0.92$

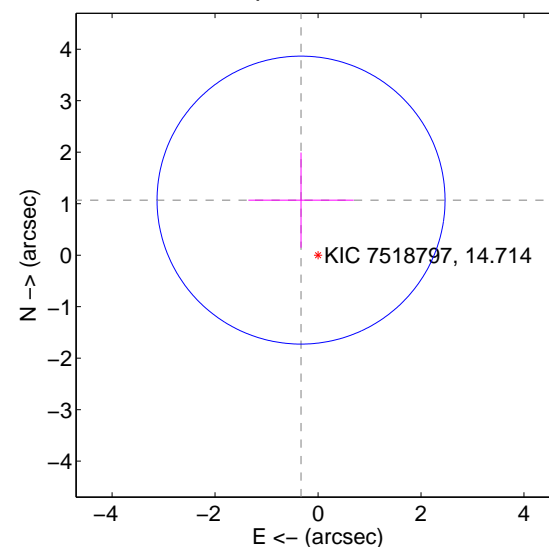
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

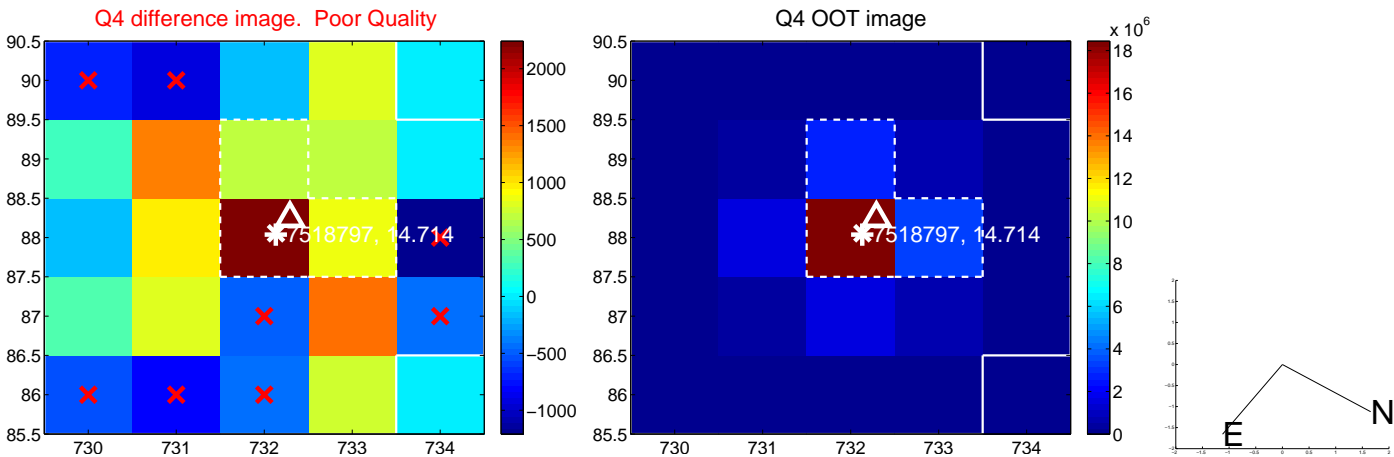
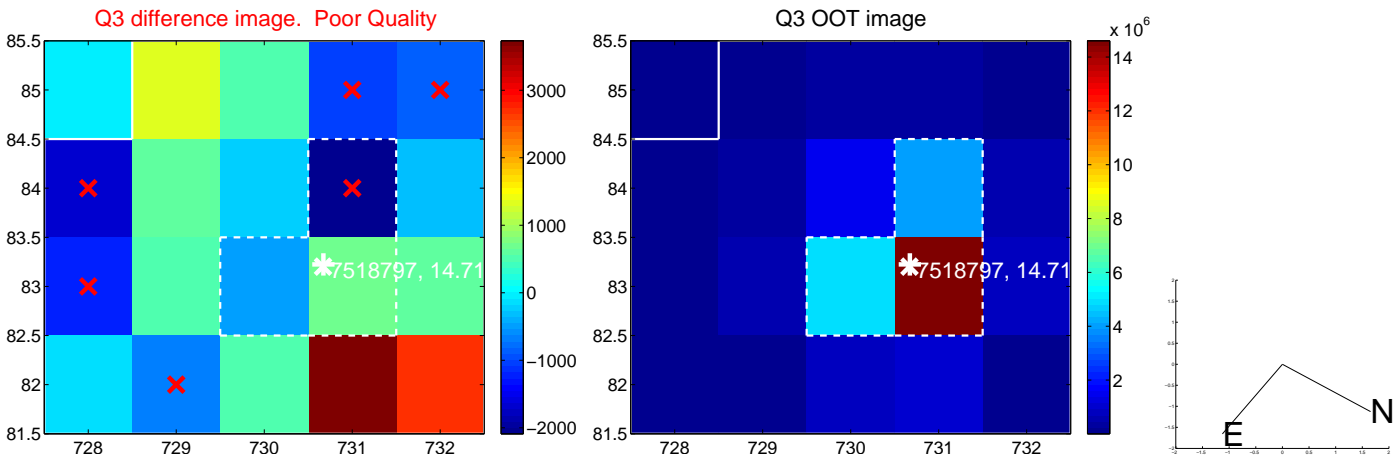
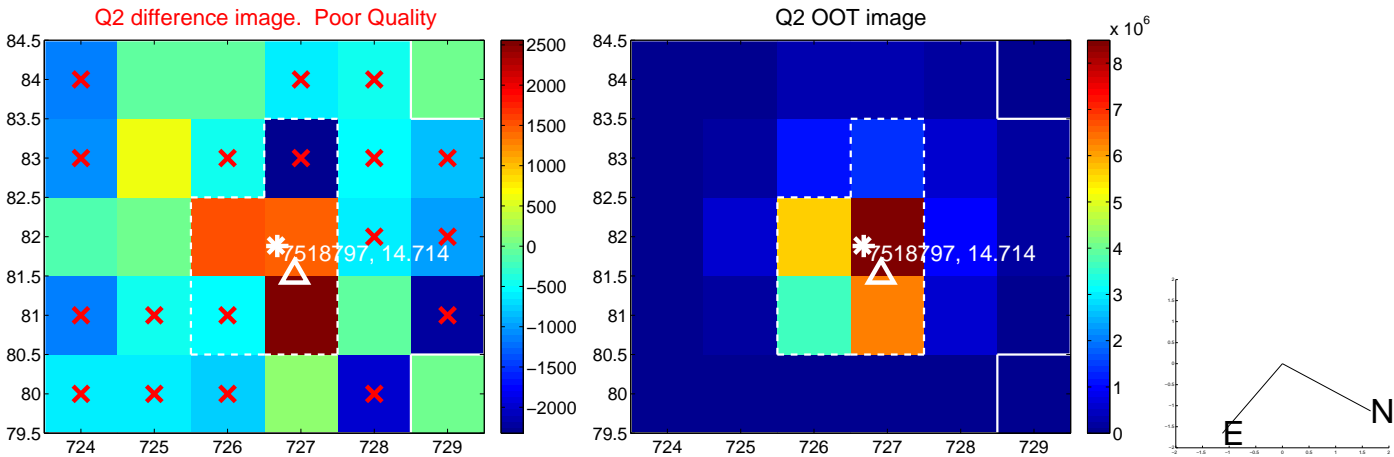
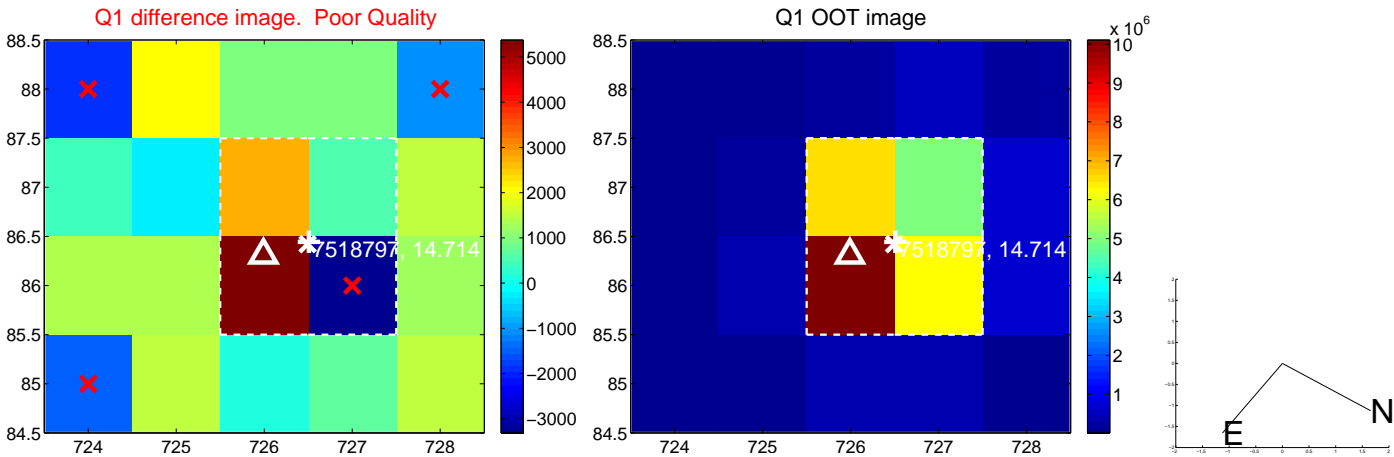


offset from photometric centroids

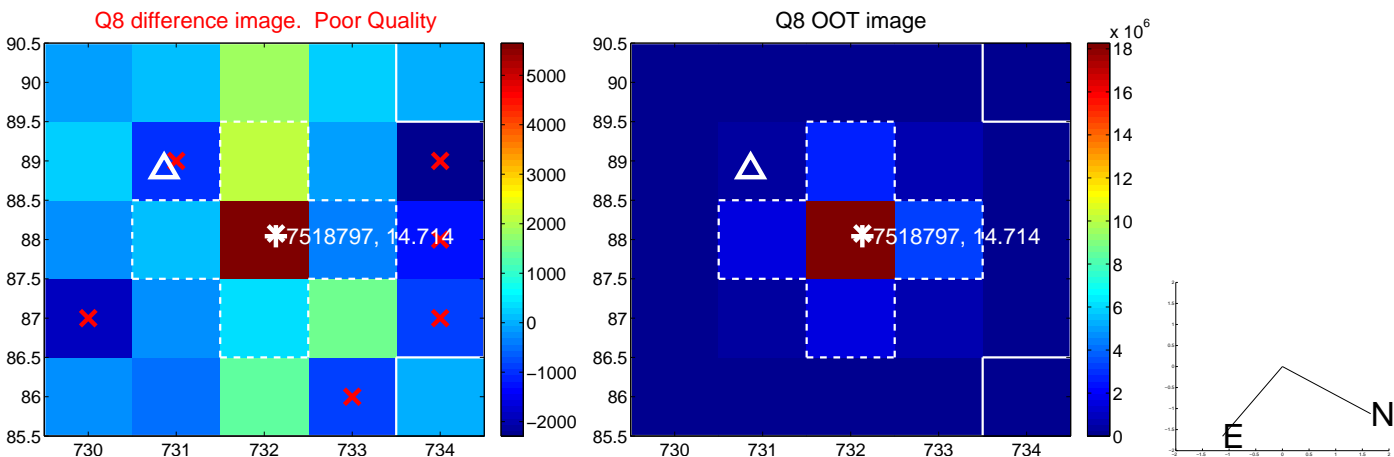
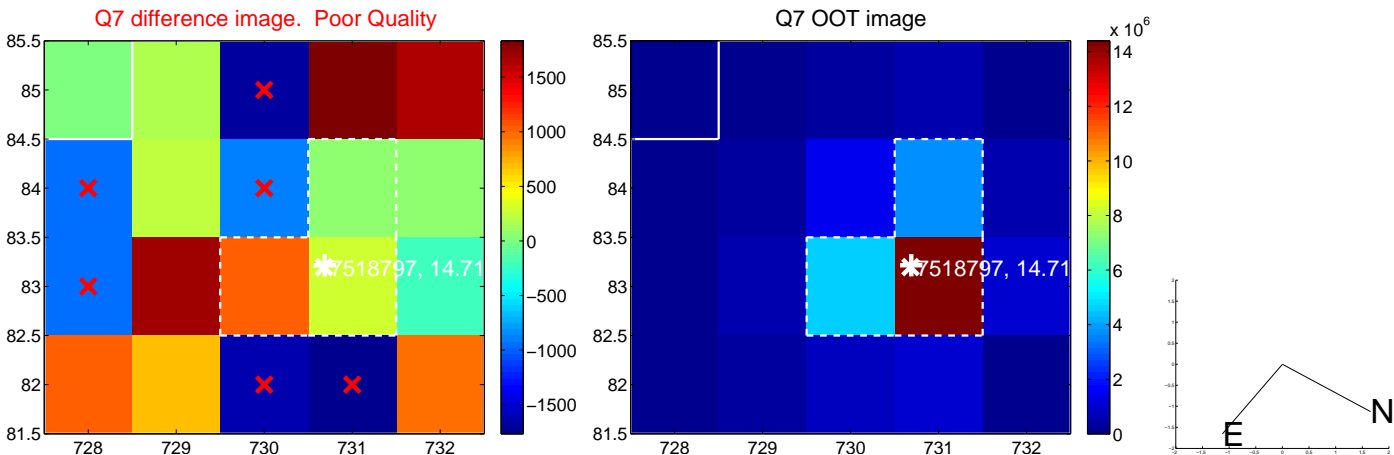
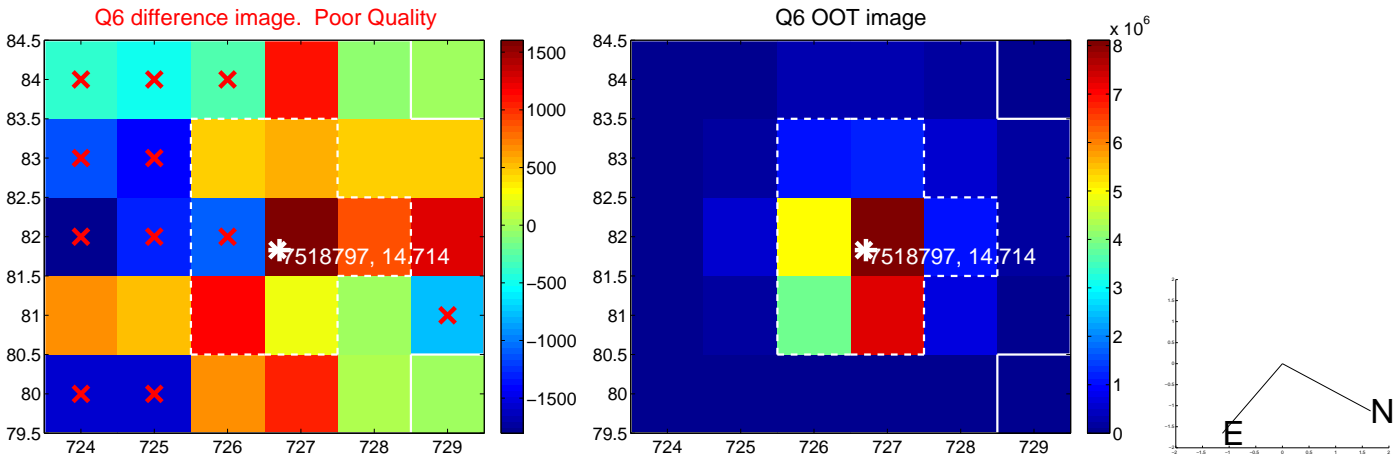
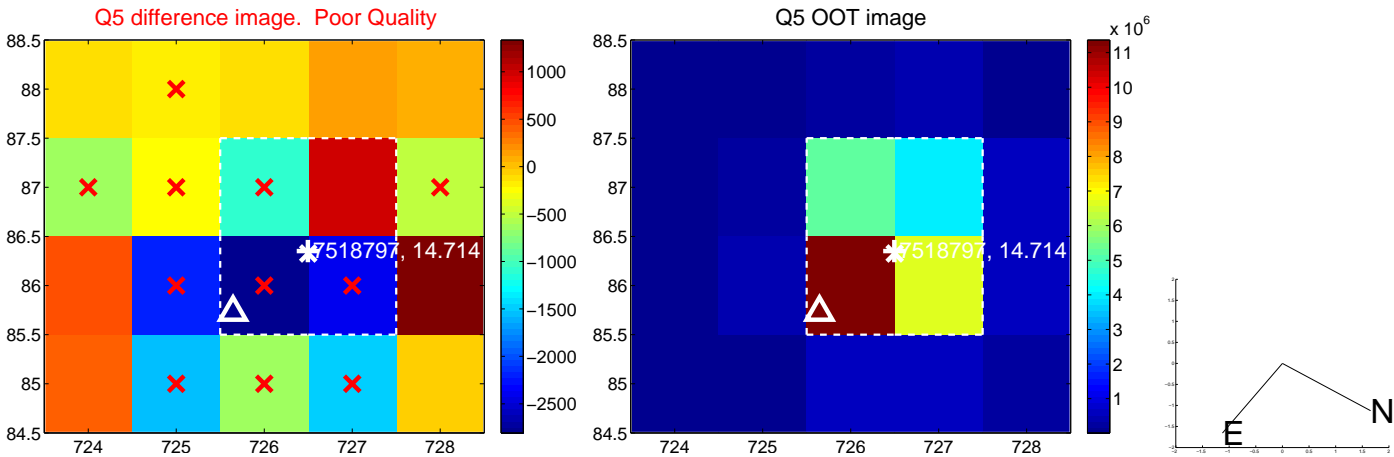


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

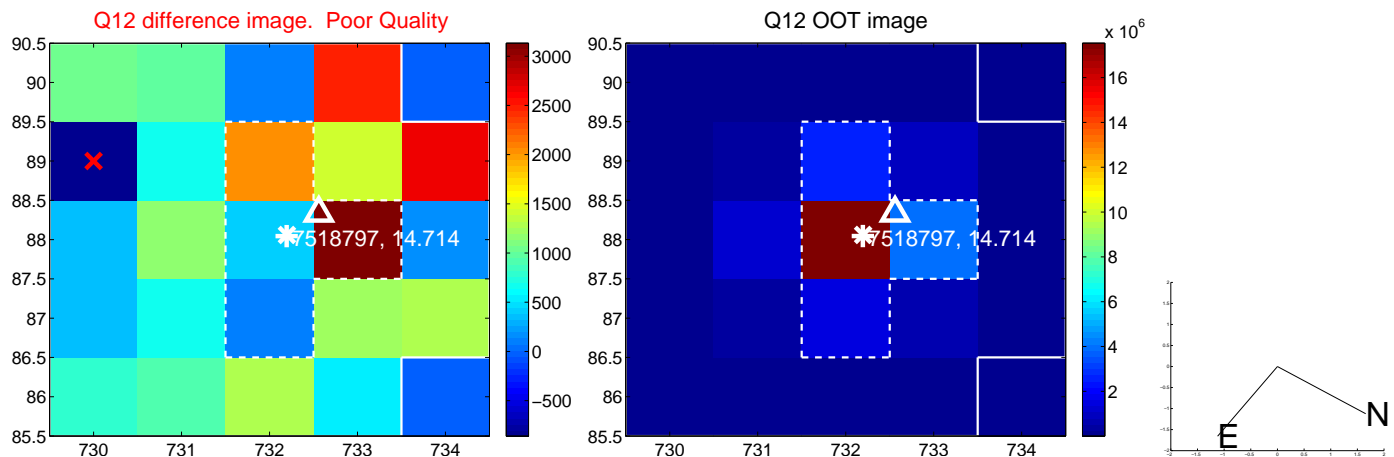
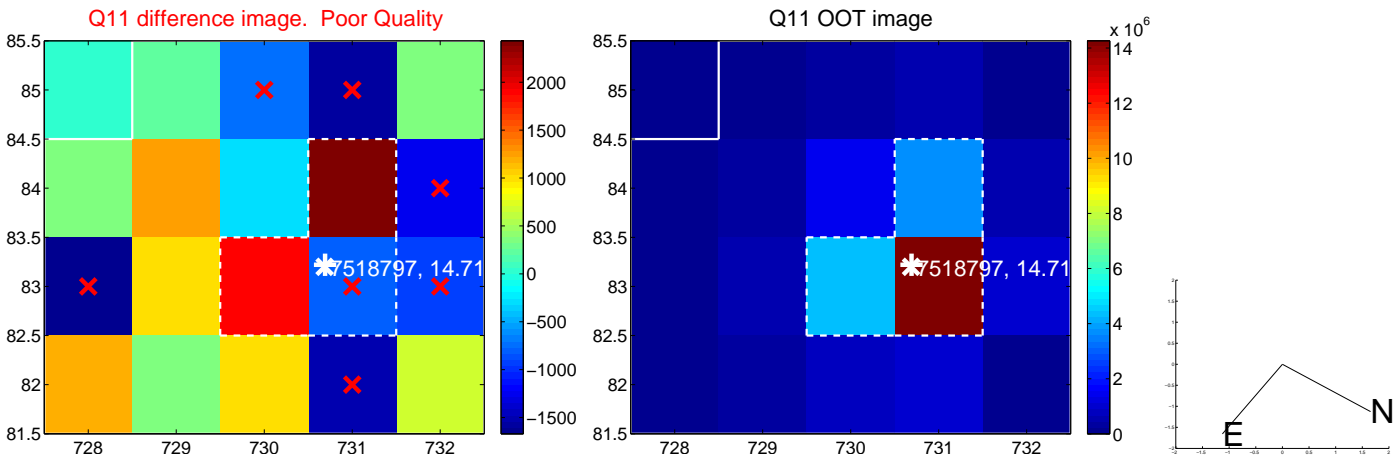
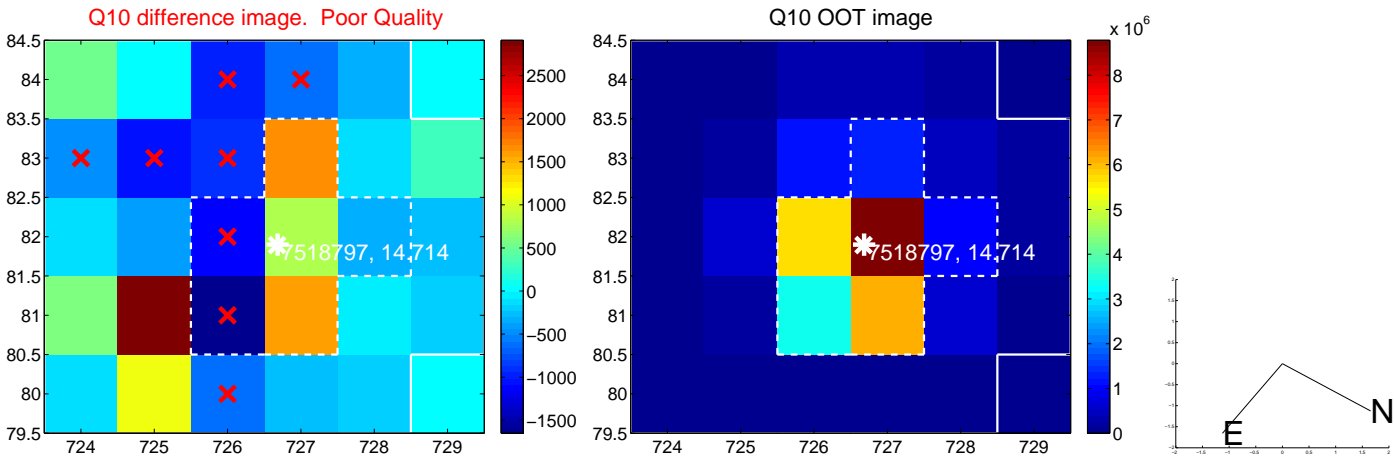
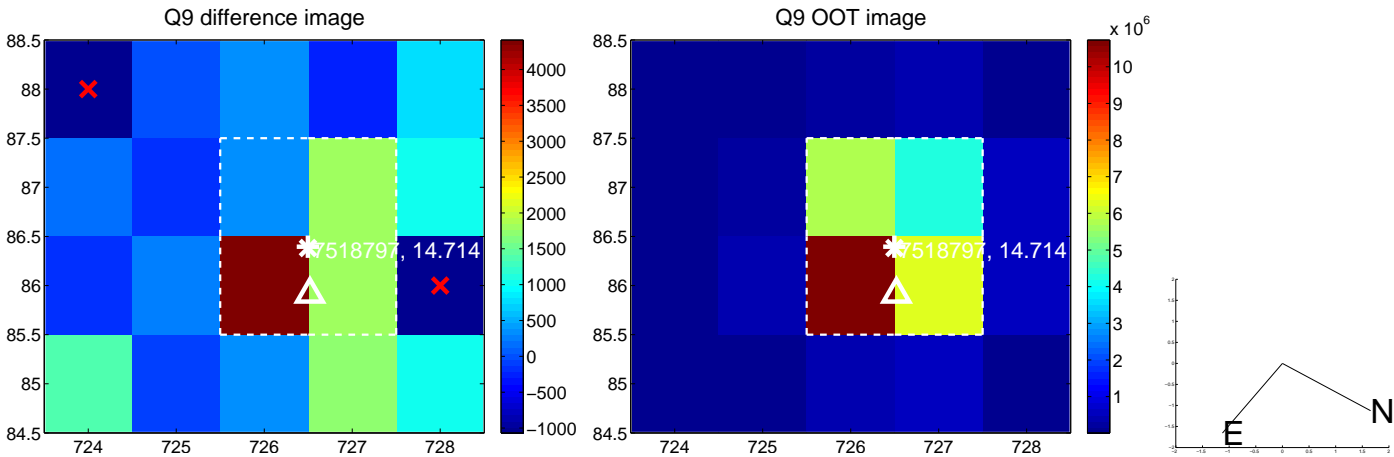
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

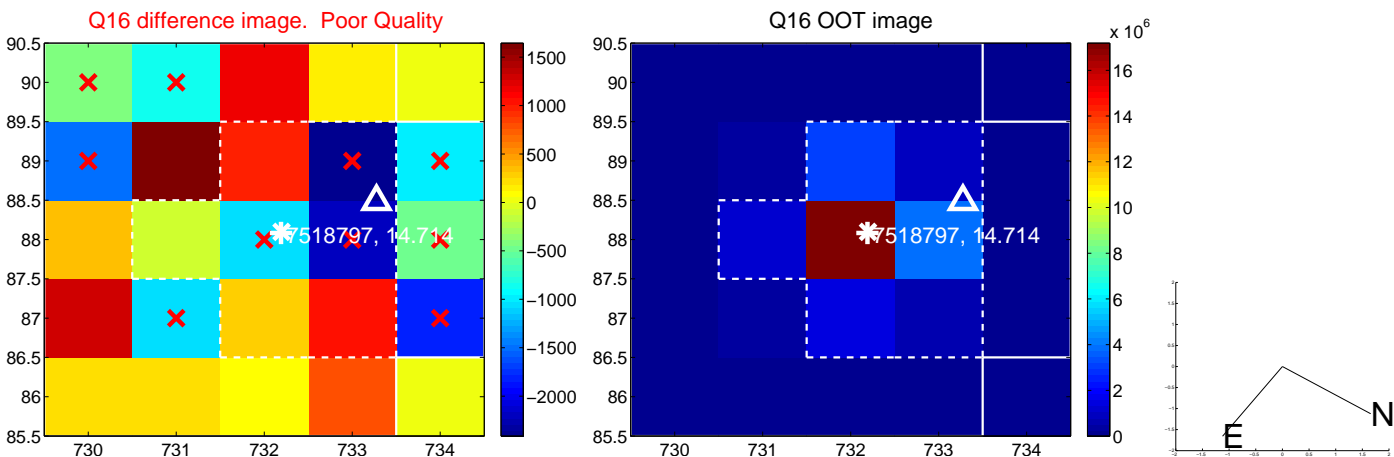
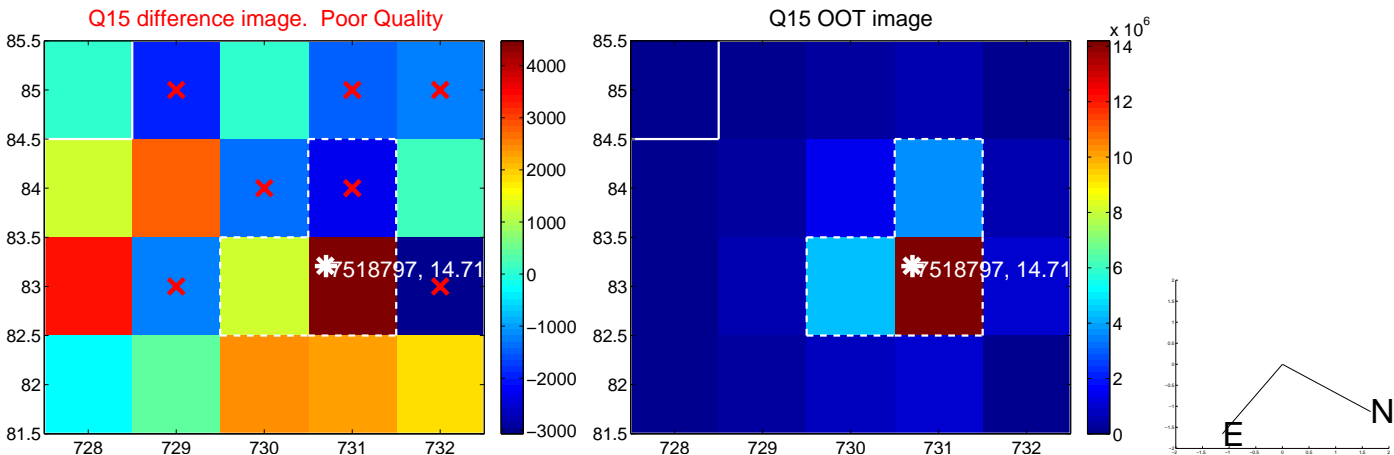
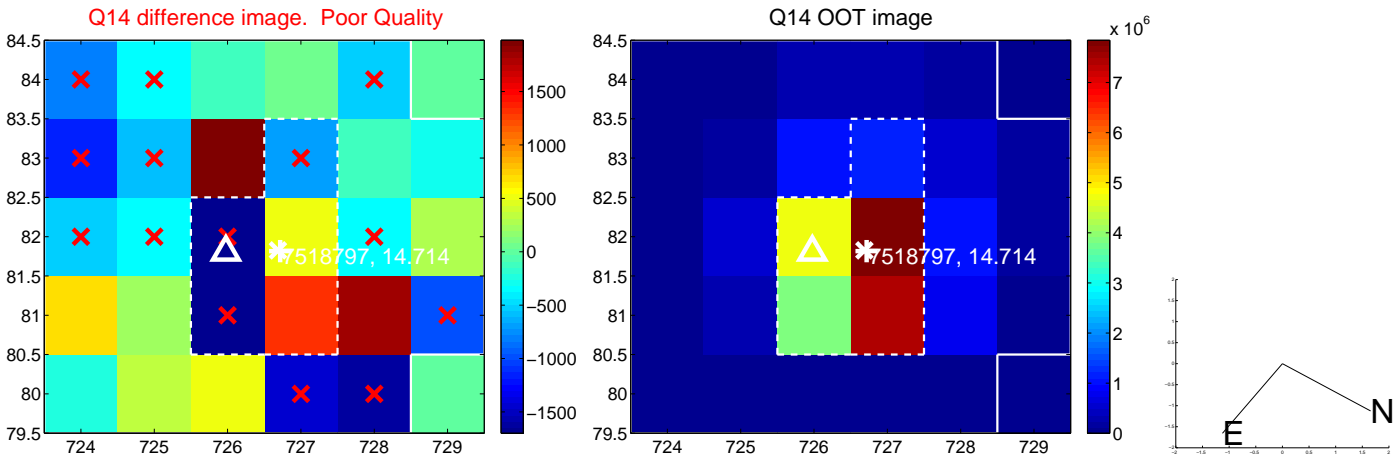
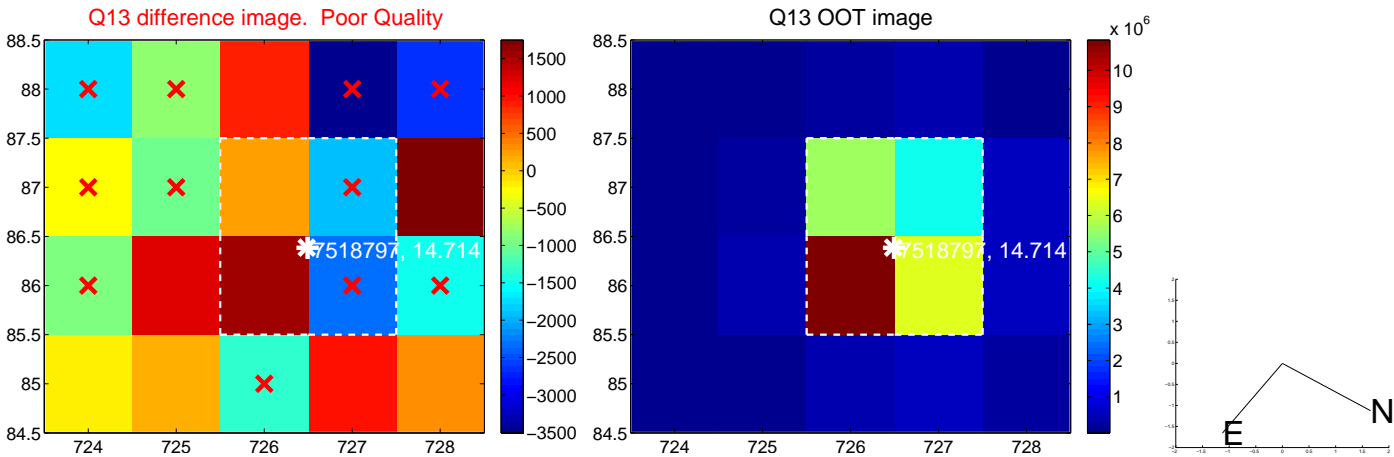


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

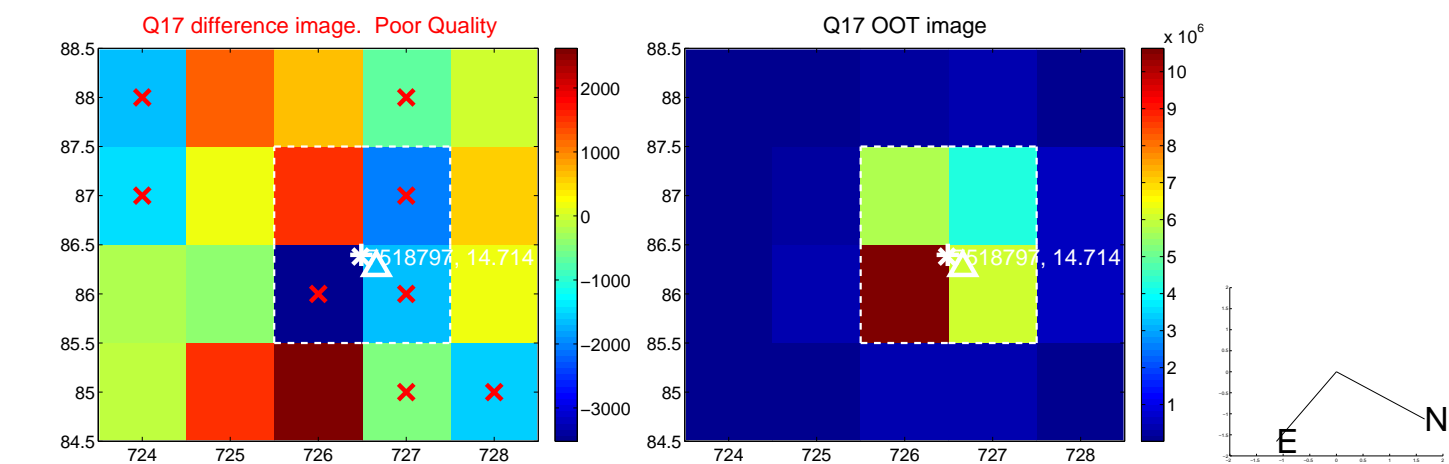




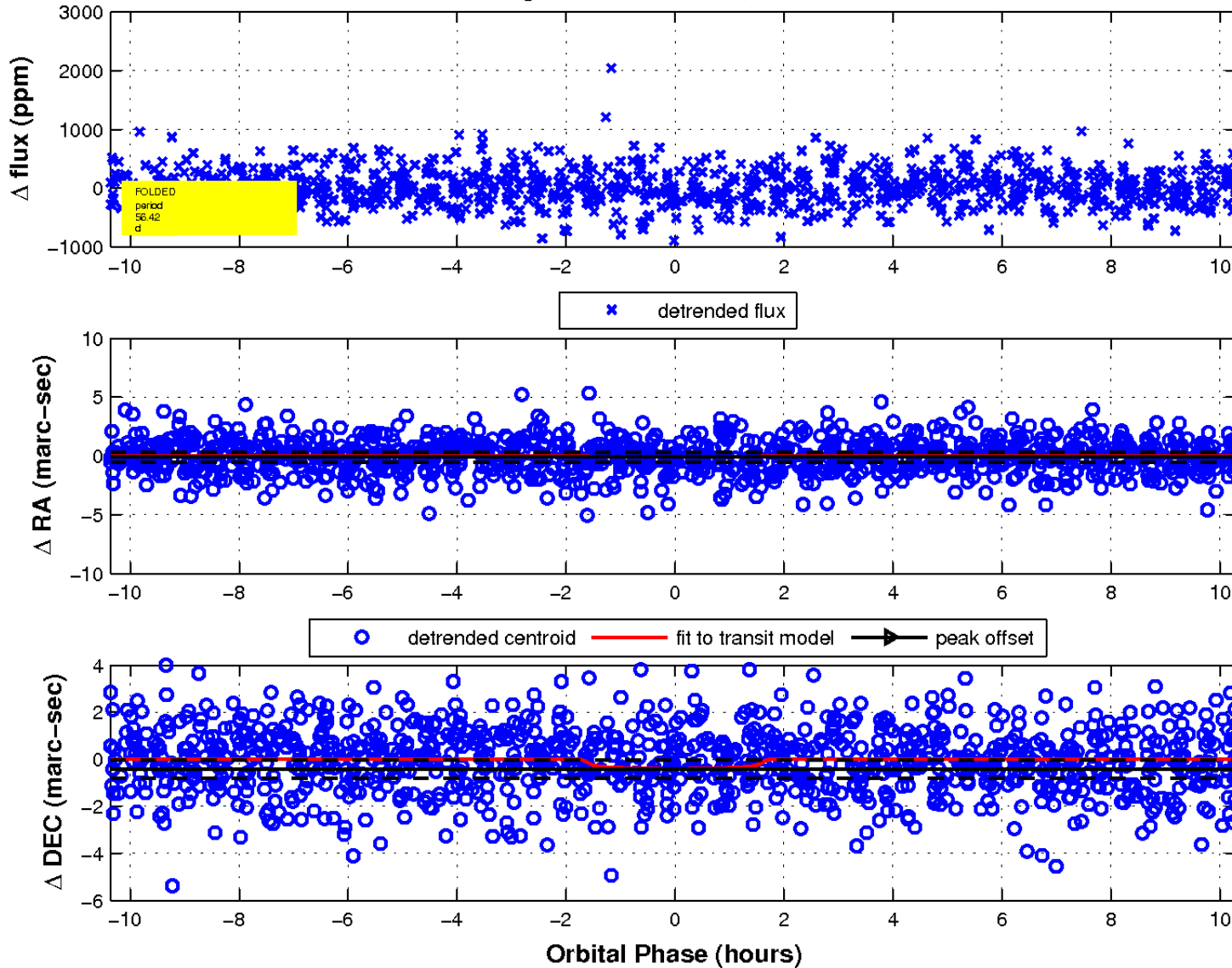
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

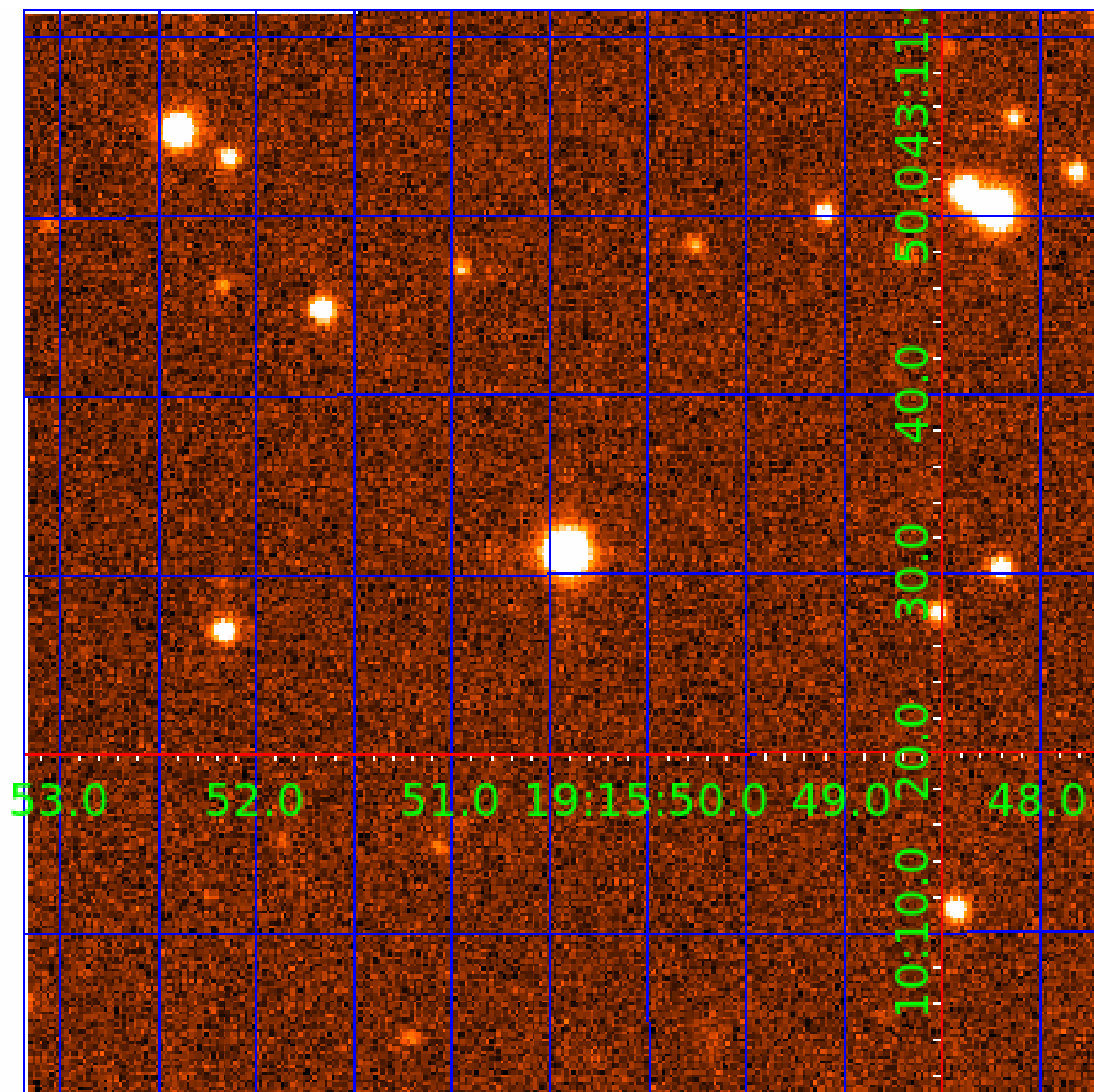


fluxWeightedCentroids, Planet 5 of 9



UKIRT Image

Declination



## KIC 007518797

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007518797-01	OBS	No	1.303697	131.960422	31.9	8.704	9.0	9.0	1.16	5468	0.64	1971.04
007518797-02	OBS	No	160.371067	210.838038	303.0	7.494	12.8	7.2	1.16	5468	1.97	3.22
007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
007518797-05	OBS	No	56.420658	152.191015	398.1	3.455	9.9	9.0	1.16	5468	2.61	12.97
007518797-06	OBS	No	47.291833	132.854028	492.2	3.929	9.0	9.1	1.16	5468	2.93	16.41
007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007518797-01	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

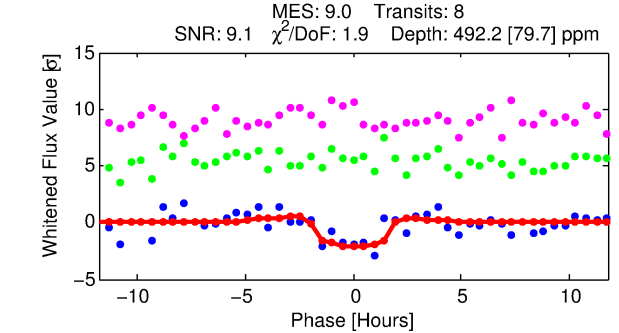
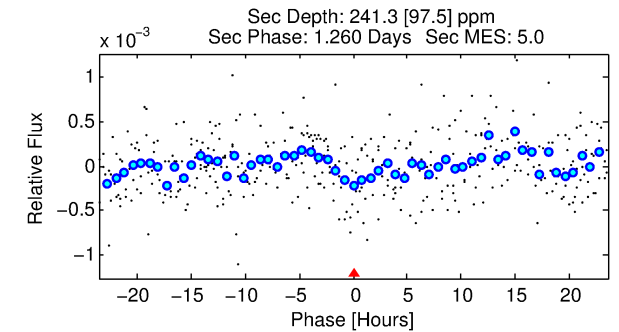
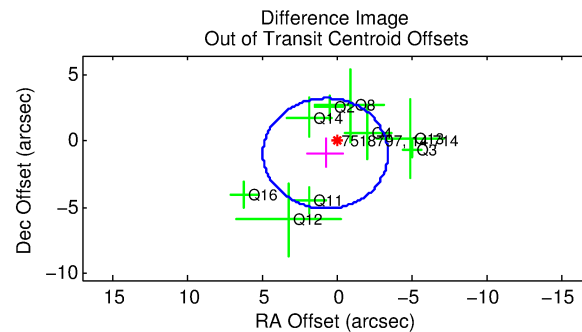
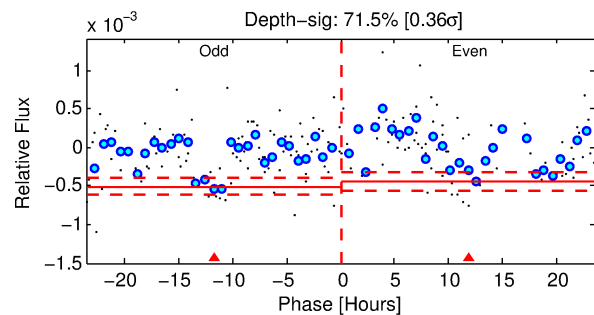
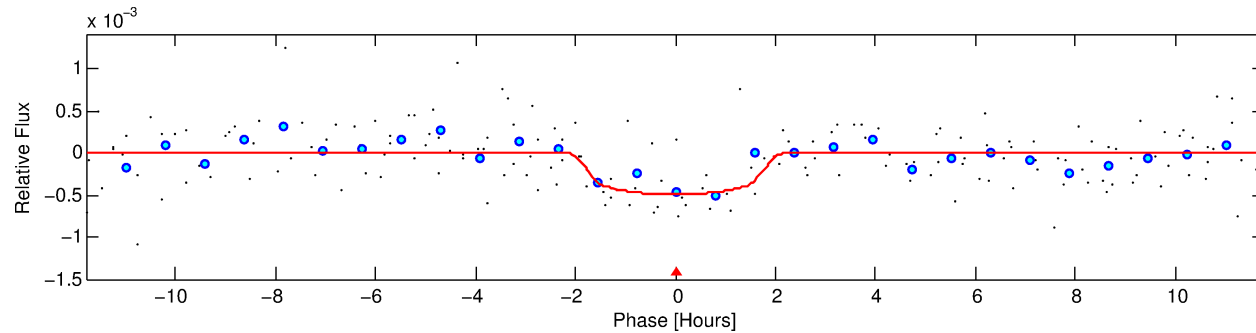
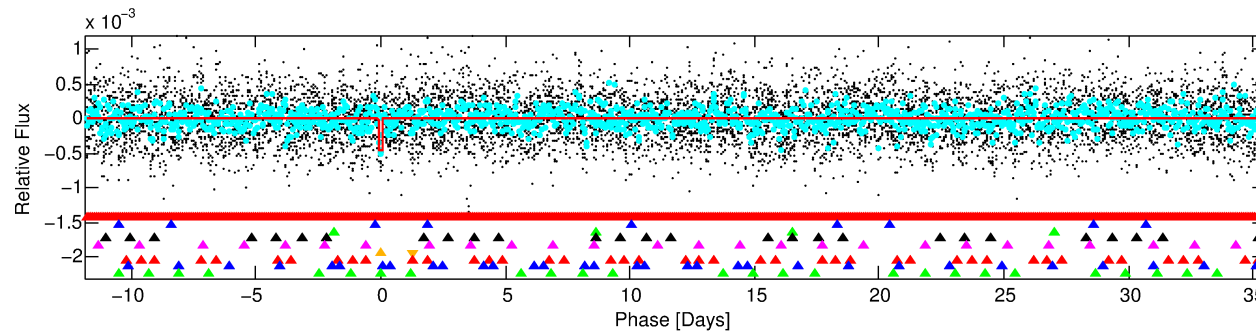
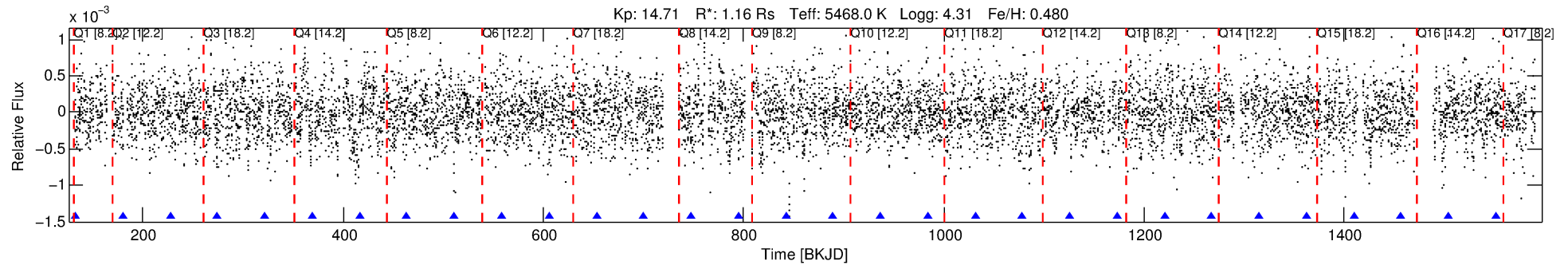
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-06

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 6 of 9 Period: 47.292 d



## DV Fit Results:

Period = 47.29183 [0.00077] d  
Epoch = 132.8540 [0.0149] BKJD  
Rp/R\* = 0.0232 [0.0208]  
a/R\* = 54.44 [191.70]  
b = 0.83 [1.31]  
Seff = 16.41 [5.57]  
Teff = 513 [44] K  
Rp = 2.93 [2.74] Re  
a = 0.2560 [0.0552] AU  
Ag = 1010.88 [1889.45] [0.53 $\sigma$ ]  
Teffp = 4475 [2065] K [1.92 $\sigma$ ]

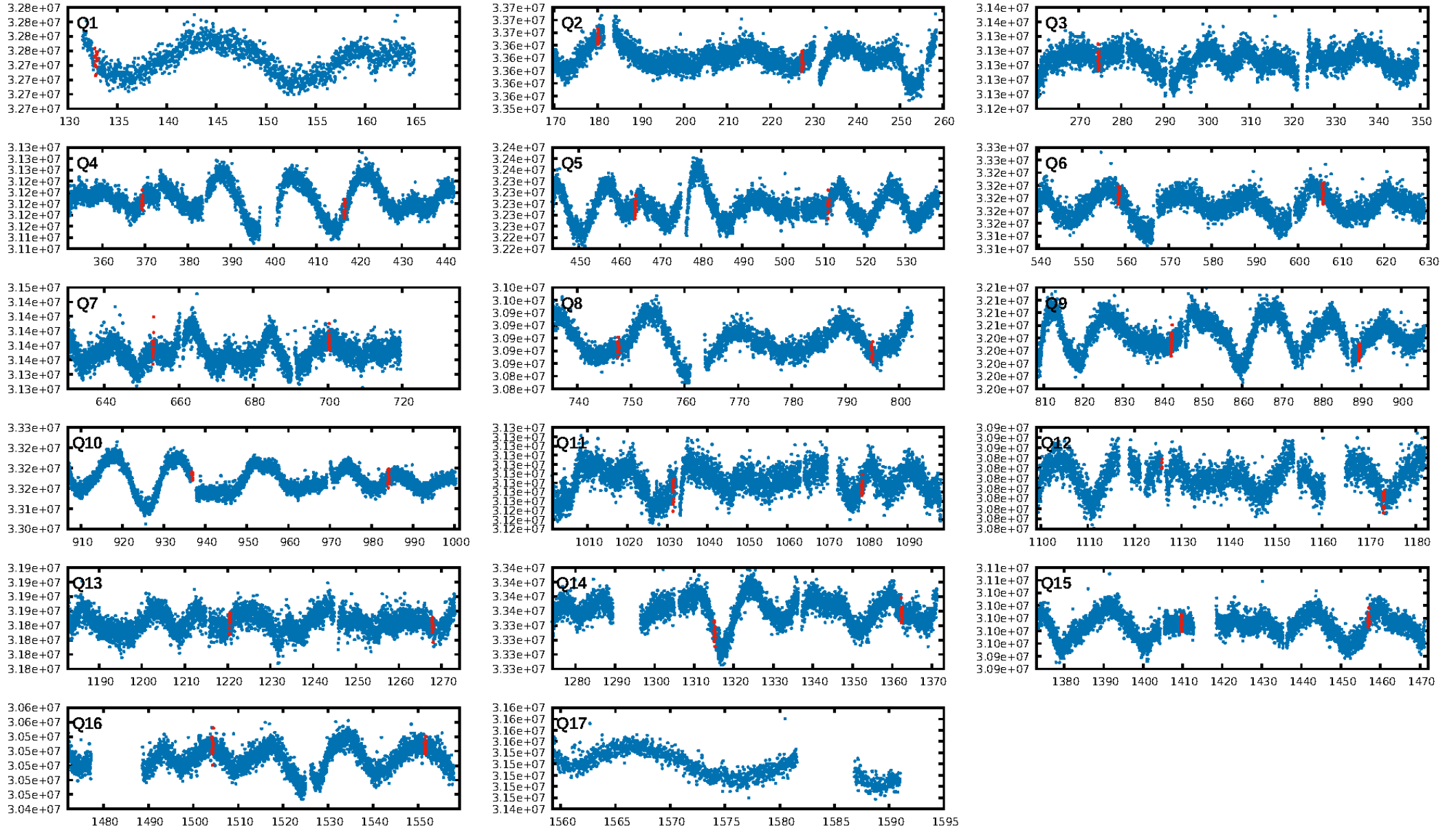
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.16 $\sigma$ ]  
LongPeriod-sig: 100.0% [22.62 $\sigma$ ]  
ModelChiSquare2-sig: 0.3%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.65e-10**  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: -4.947  
Centroid-sig: 45.3%  
Centroid-so: 0.523 arcsec [0.74 $\sigma$ ]  
OotOffset-rm: 1.178 arcsec [0.85 $\sigma$ ]  
OotOffset-st: 2/2/4/1 [9]  
KicOffset-rm: 1.126 arcsec [0.81 $\sigma$ ]  
KicOffset-st: 2/2/4/1 [9]  
DiffImageQuality-fgm: 0.00 [0/9]  
DiffImageOverlap-fno: 0.25 [4/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:21:54 Z

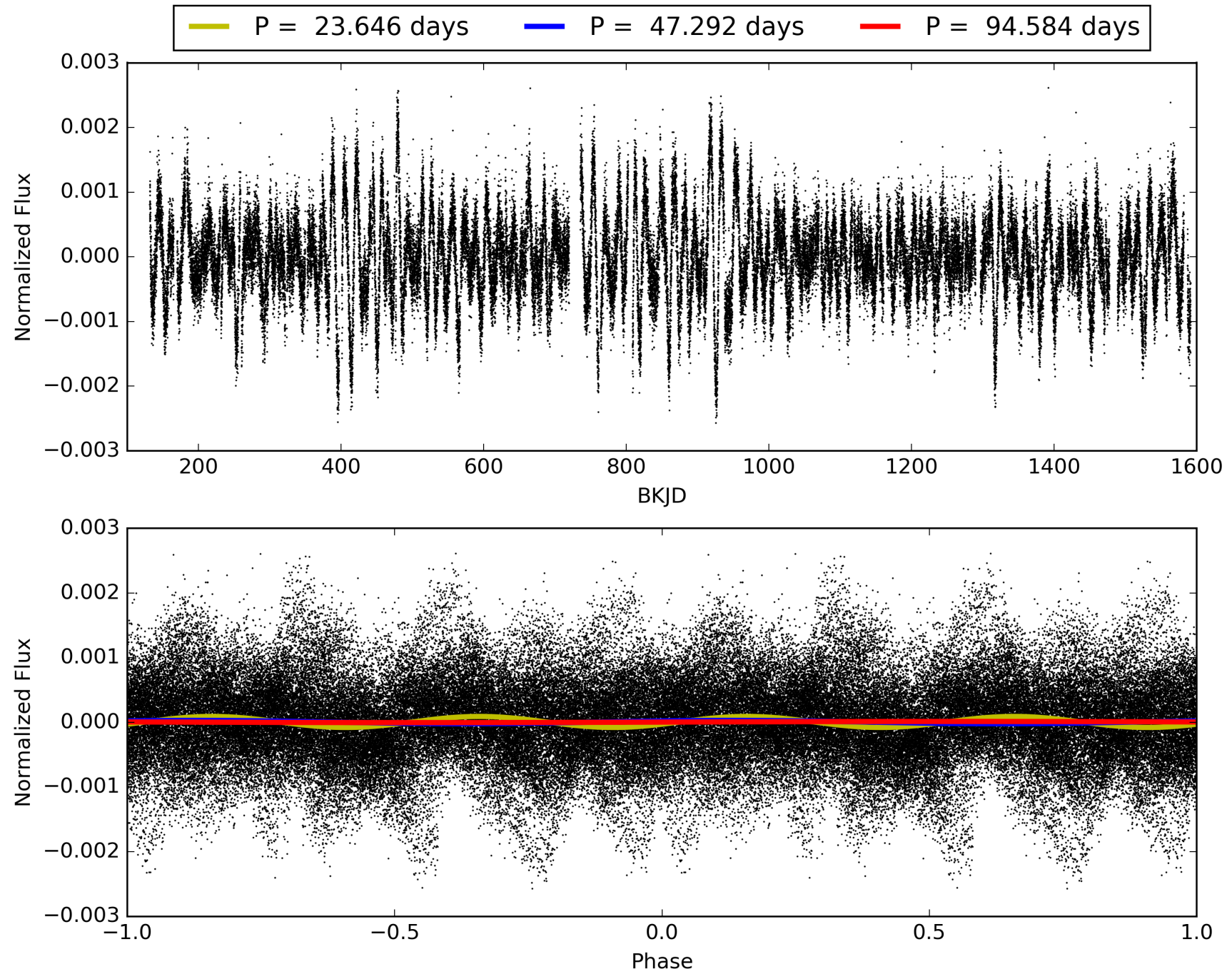
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007518797-06, PDC Light Curves



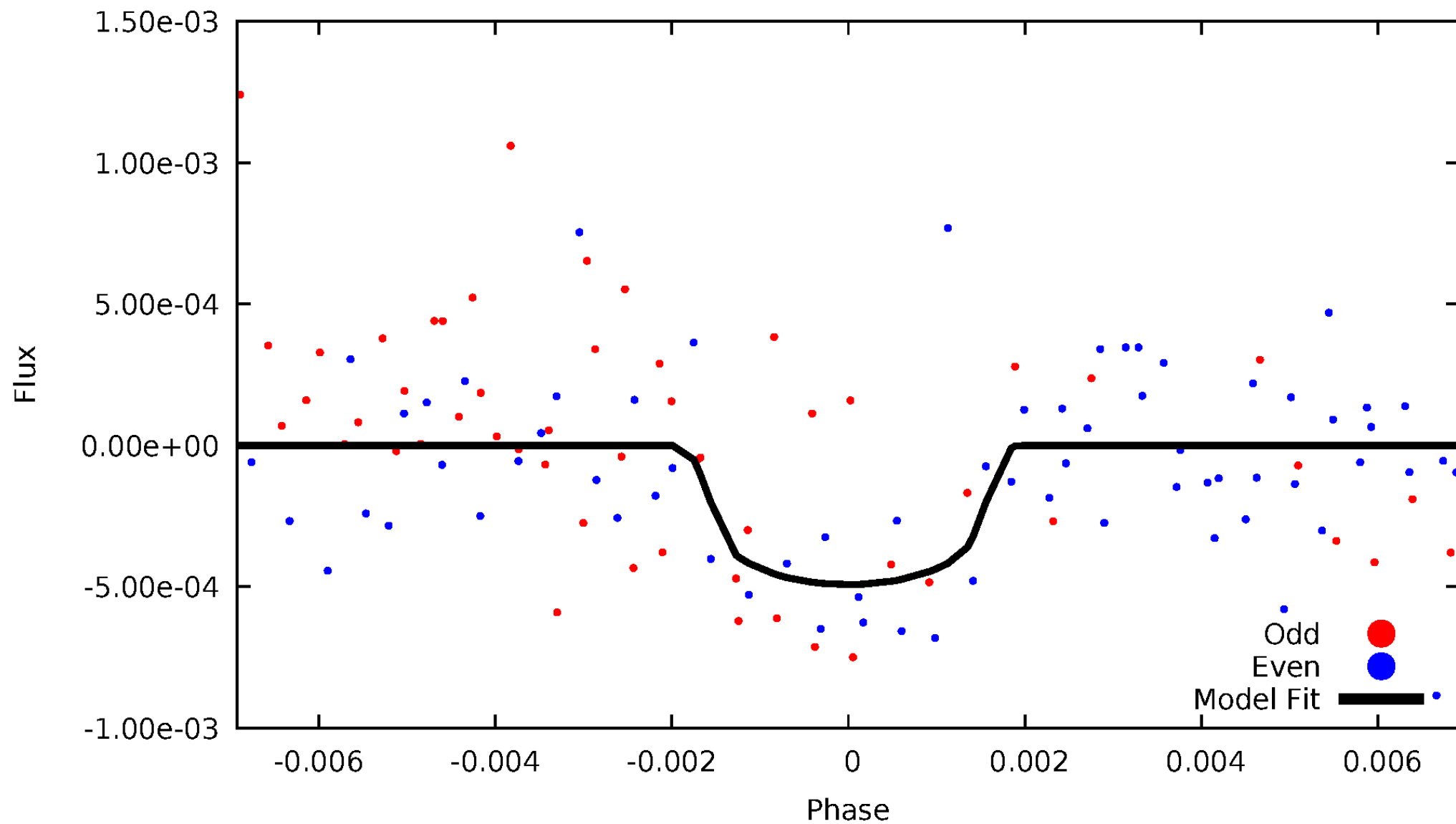


TCE 007518797-06



# DV Odd/Even

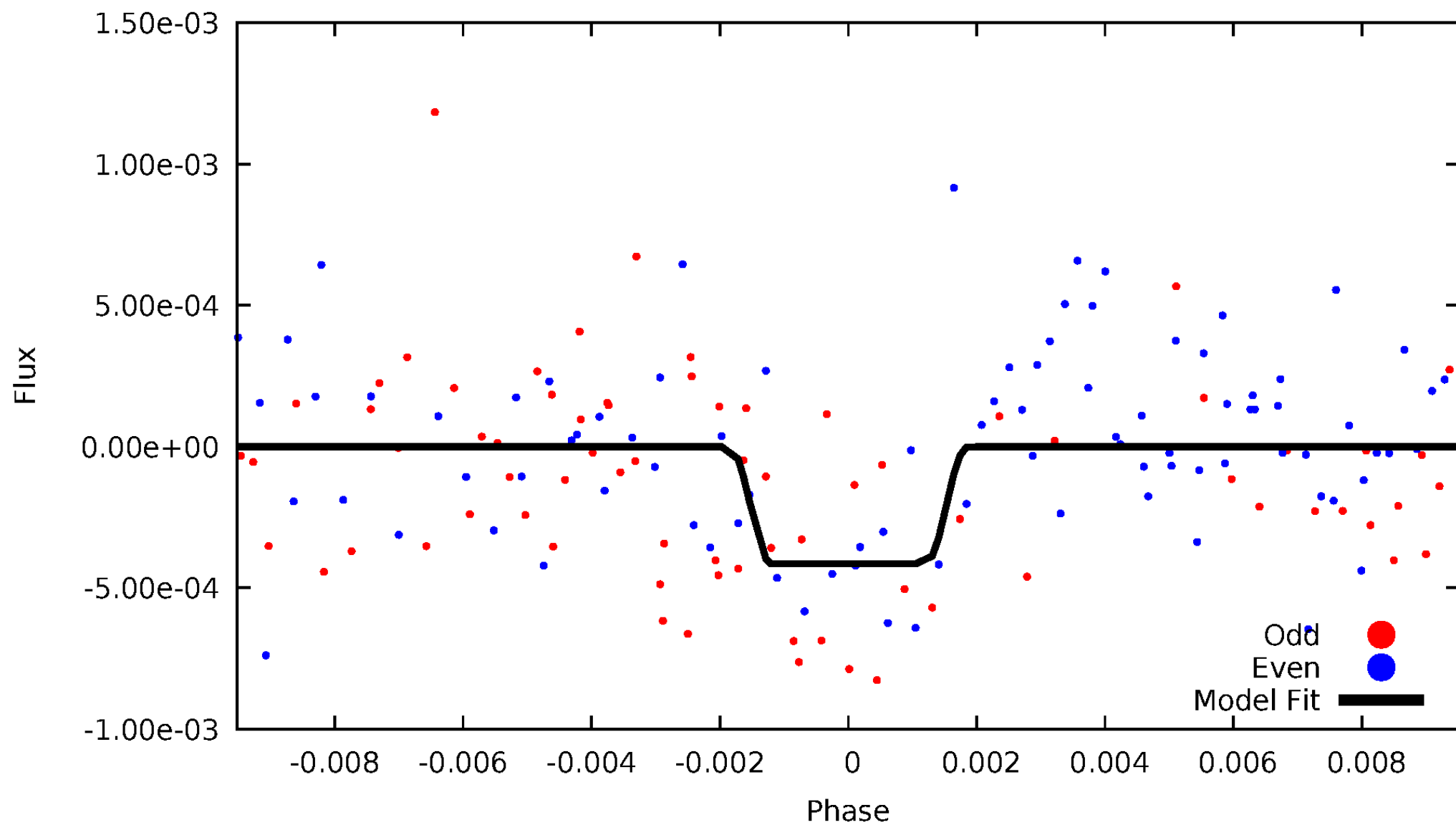
TCE 007518797-06





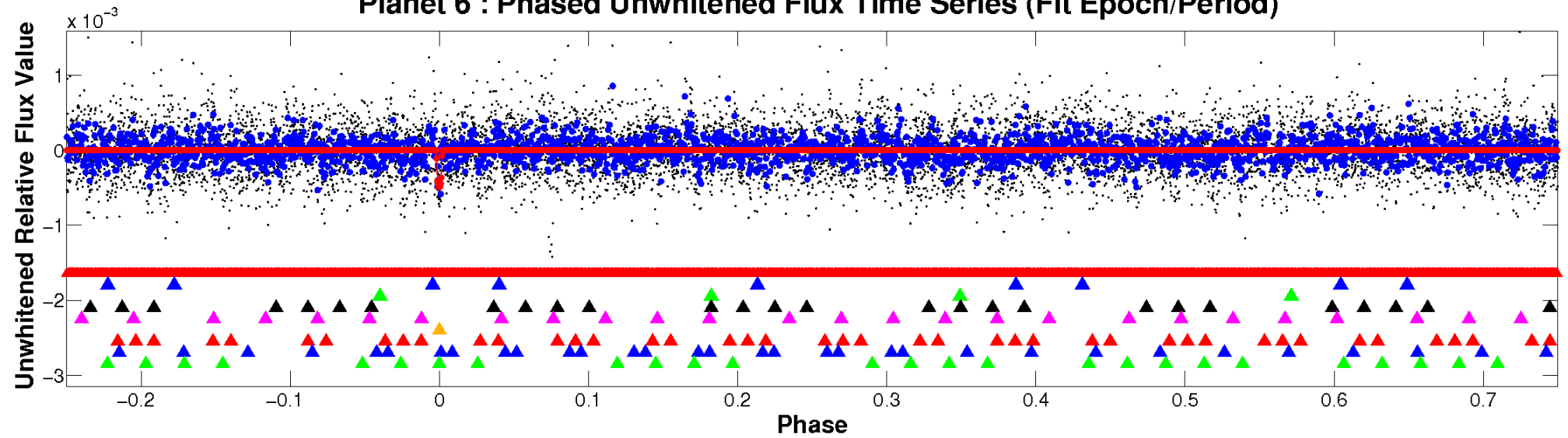
# ALT Odd/Even

TCE 007518797-06

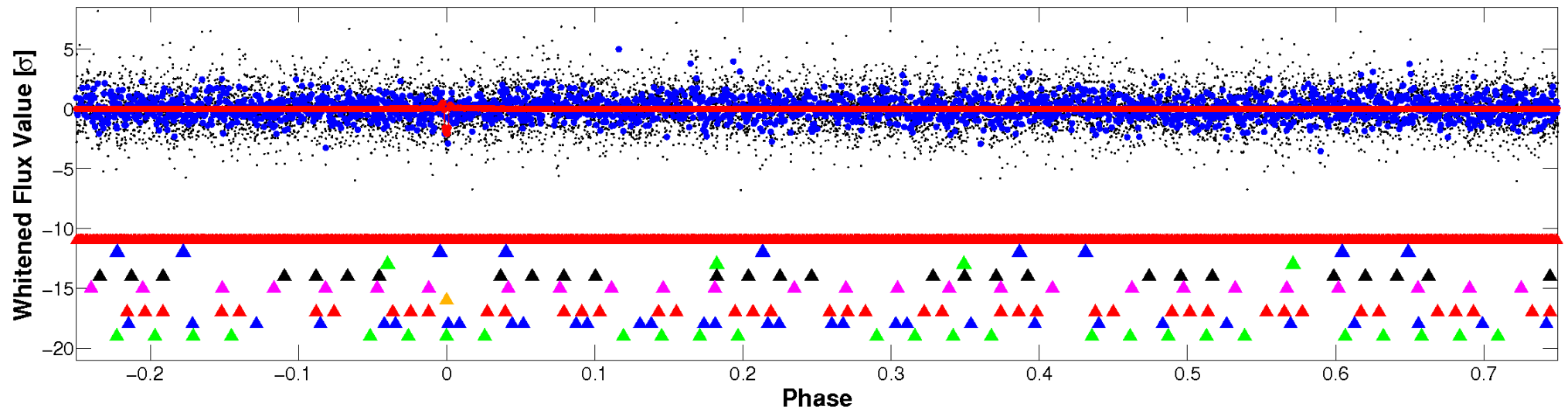


# Non-Whitened Vs. Whitened Light Curve

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

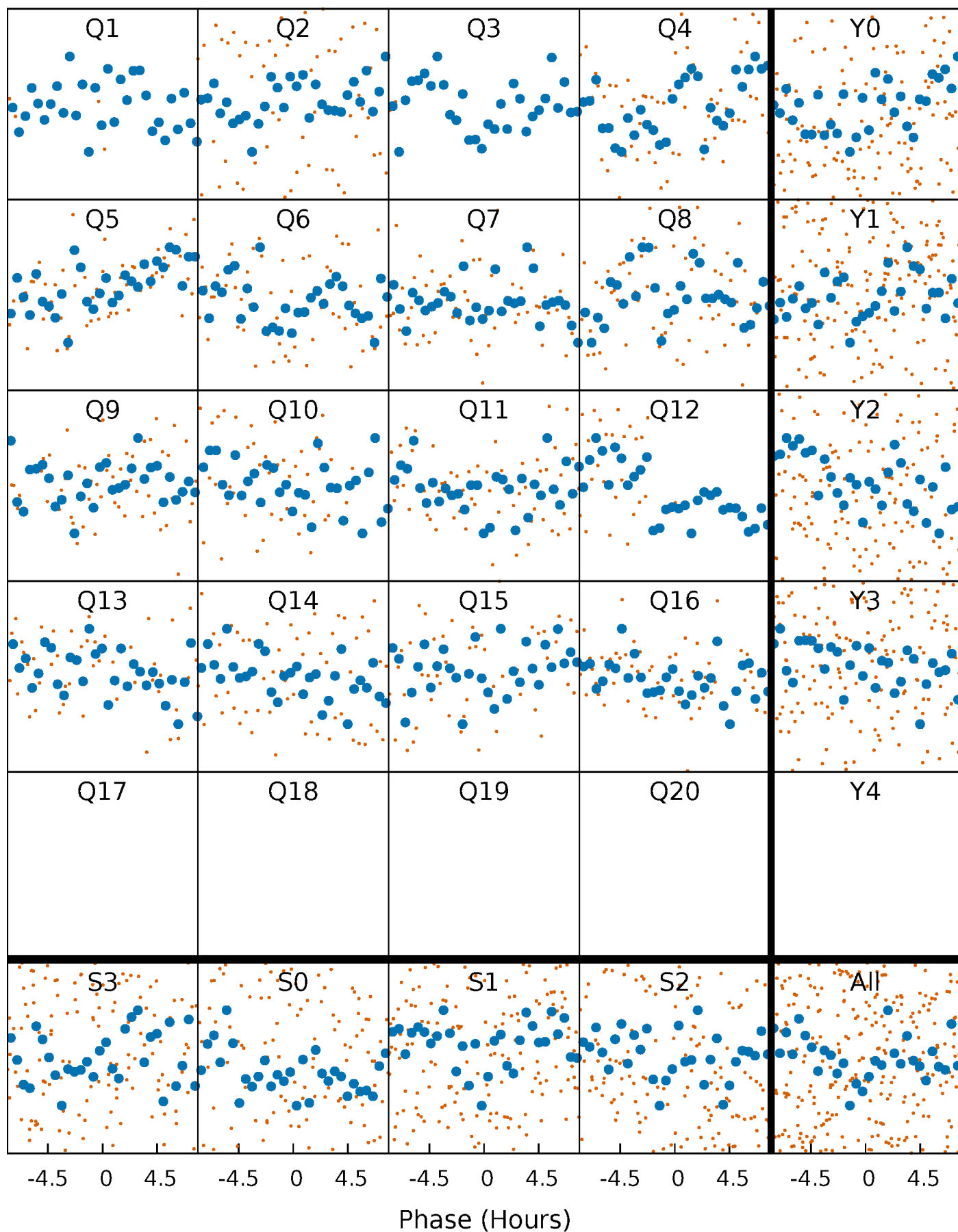


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



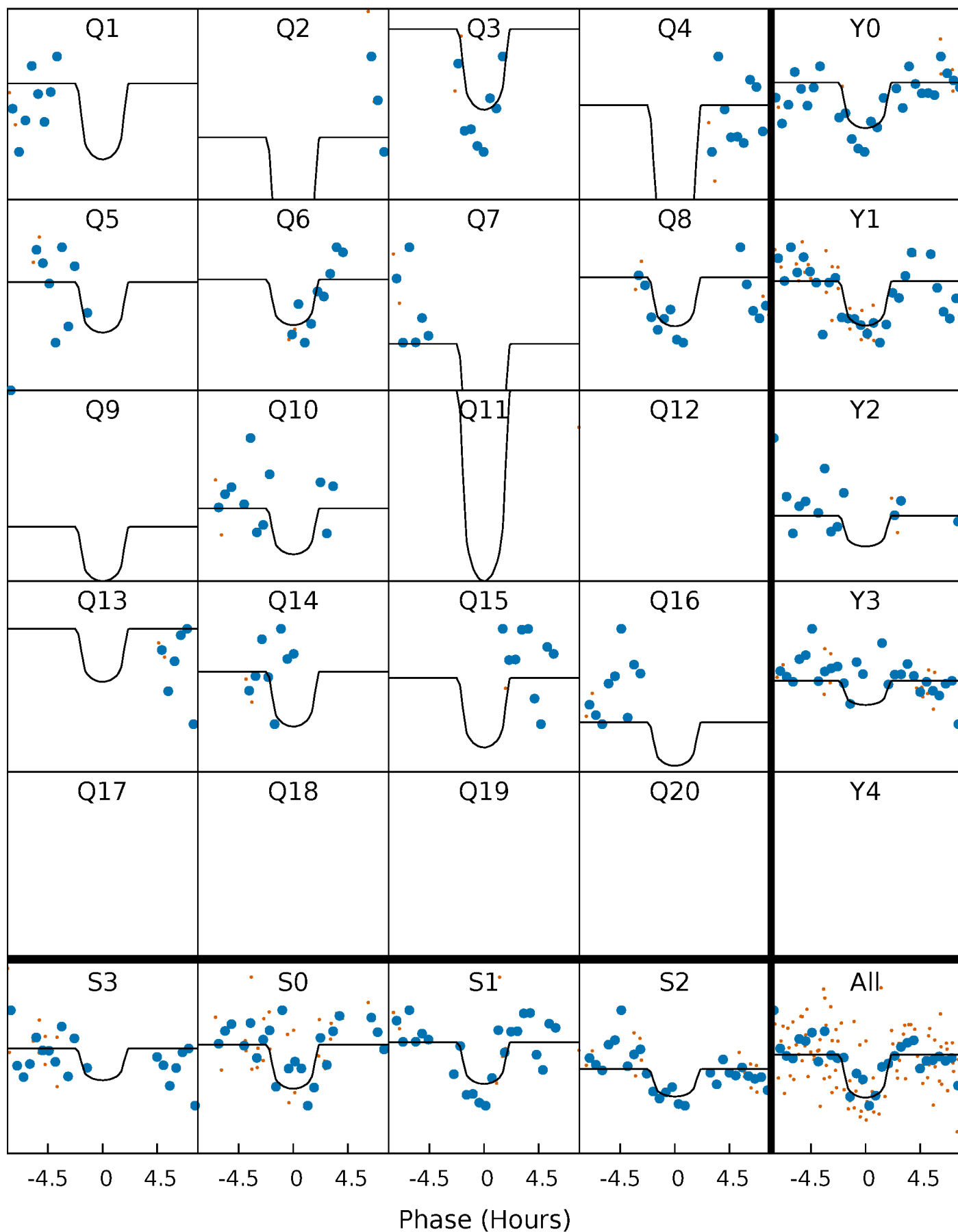
# PDC Quarter-Phased Transit Curves

TCE 007518797-06 P= 47.291833 Days  $T_0=132.854028$  (BKJD)



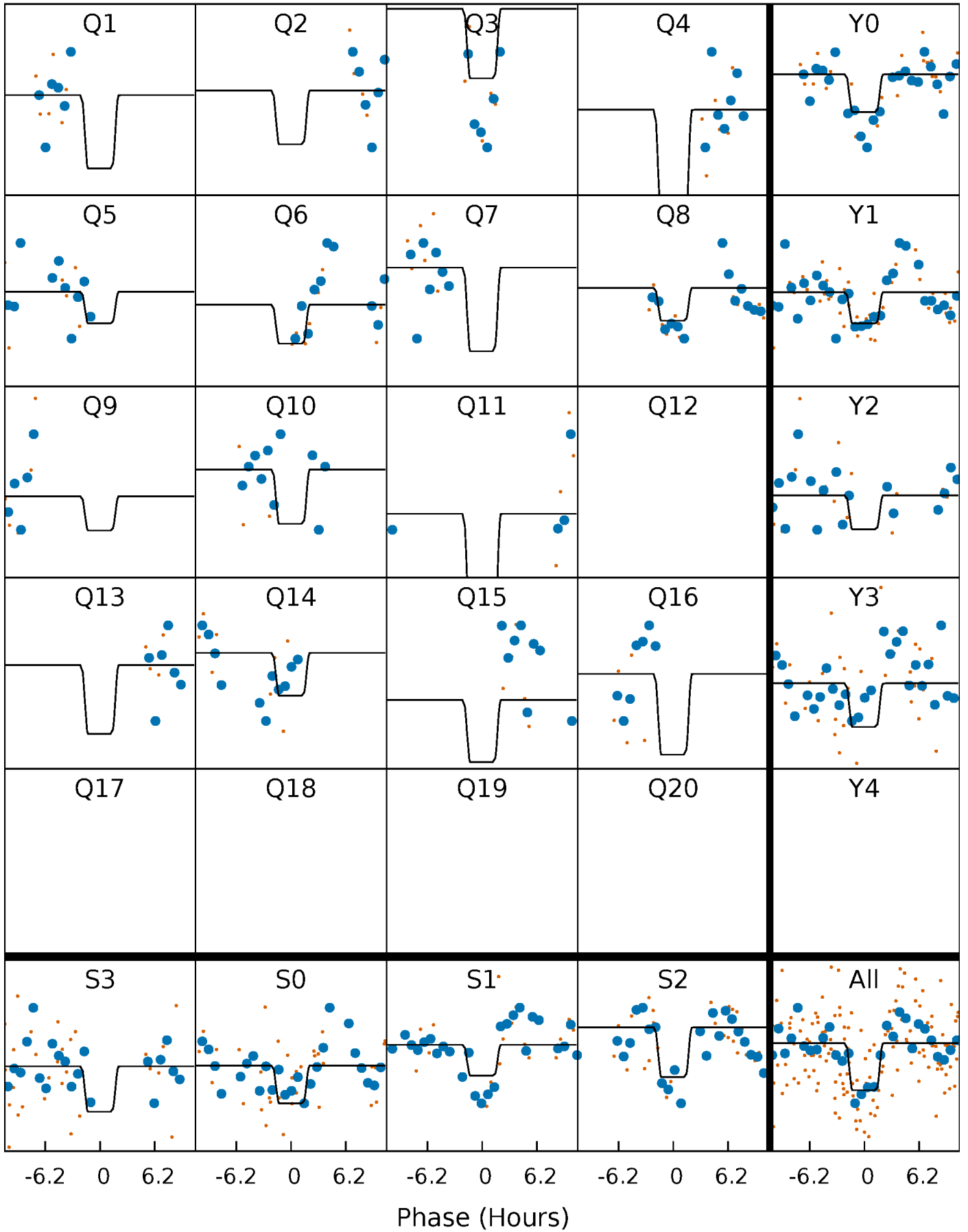
# DV Quarter-Phased Transit Curves

TCE 007518797-06   P= 47.291833 Days    $T_0=132.854028$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

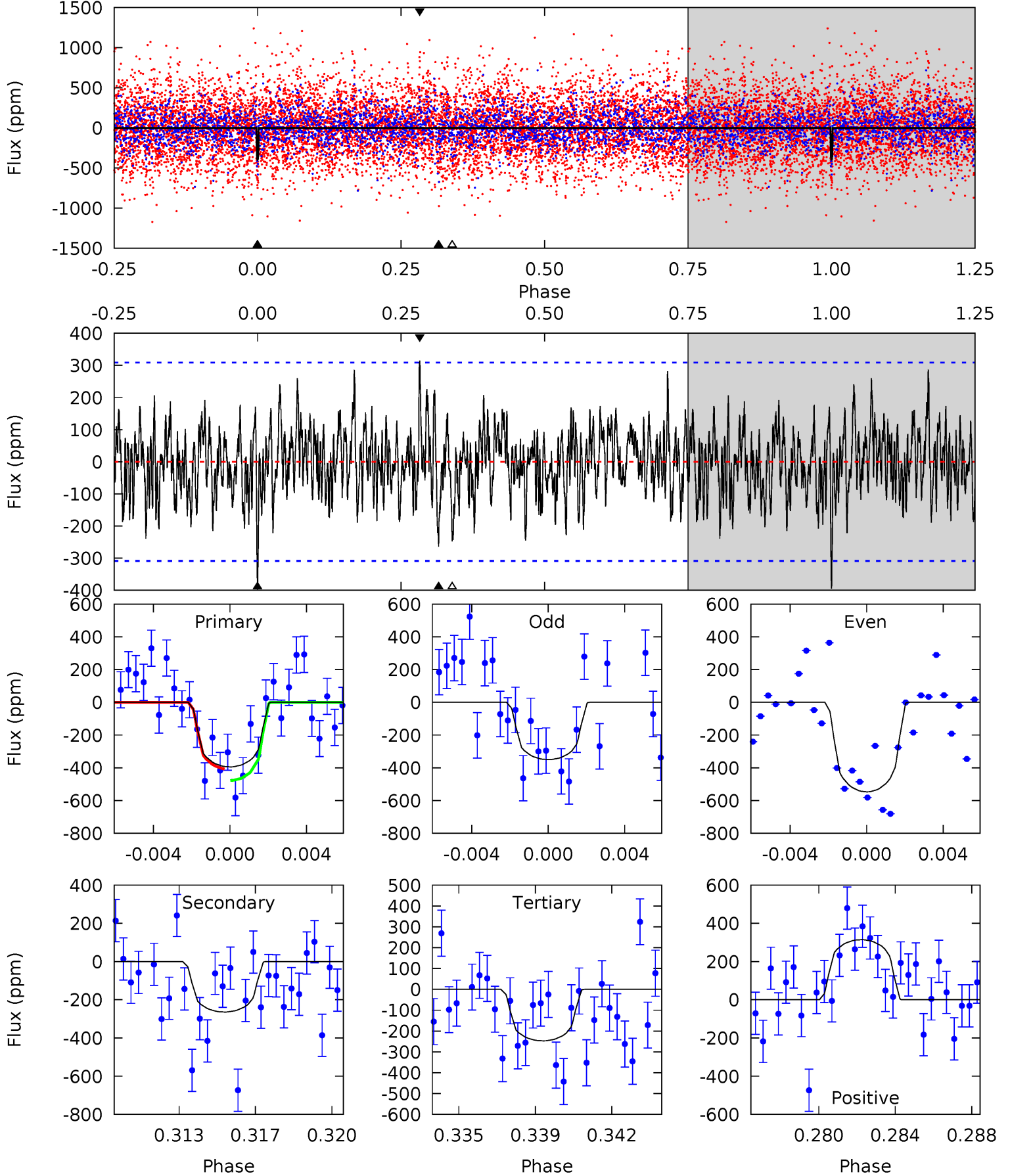
TCE 007518797-06 P= 47.291591 Days  $T_0=132.836272$  (BKJD)



# DV Model-Shift Uniqueness Test

007518797-06, P = 47.291833 Days, E = 85.562195 Days

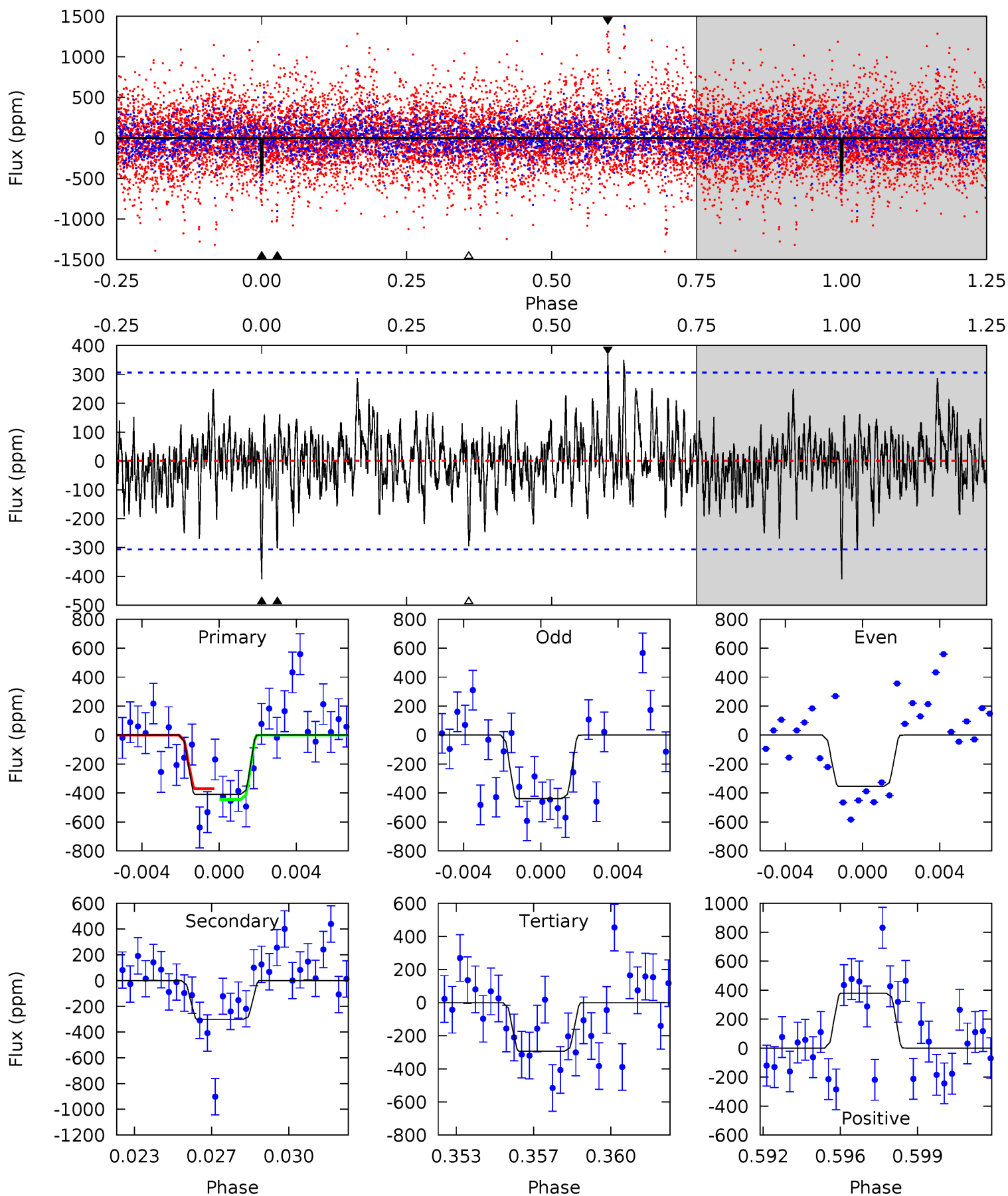
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.67	4.47	4.18	5.31	5.22	2.91	1.50	2.49	1.36	0.29	-0.85	1.64	0.34	0.44	0.59



# Alt Model-Shift Uniqueness Test

007518797-06, P = 47.291591 Days, E = 85.544681 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
6.97	5.16	5.00	6.46	5.21	2.89	1.44	1.98	0.51	0.16	-1.31	0.73	1.02	0.48	0.63



### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-264 \pm 59$	$3.44^{+2.60}_{-2.09}$	$717^{+48}_{-43}$	$4410^{+2202}_{-818}$	$821^{+4365}_{-583}$
Alt.	$-303 \pm 59$	$3.26^{+2.43}_{-1.97}$	$716^{+51}_{-44}$	$4657^{+2535}_{-895}$	$1052^{+5157}_{-730}$

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



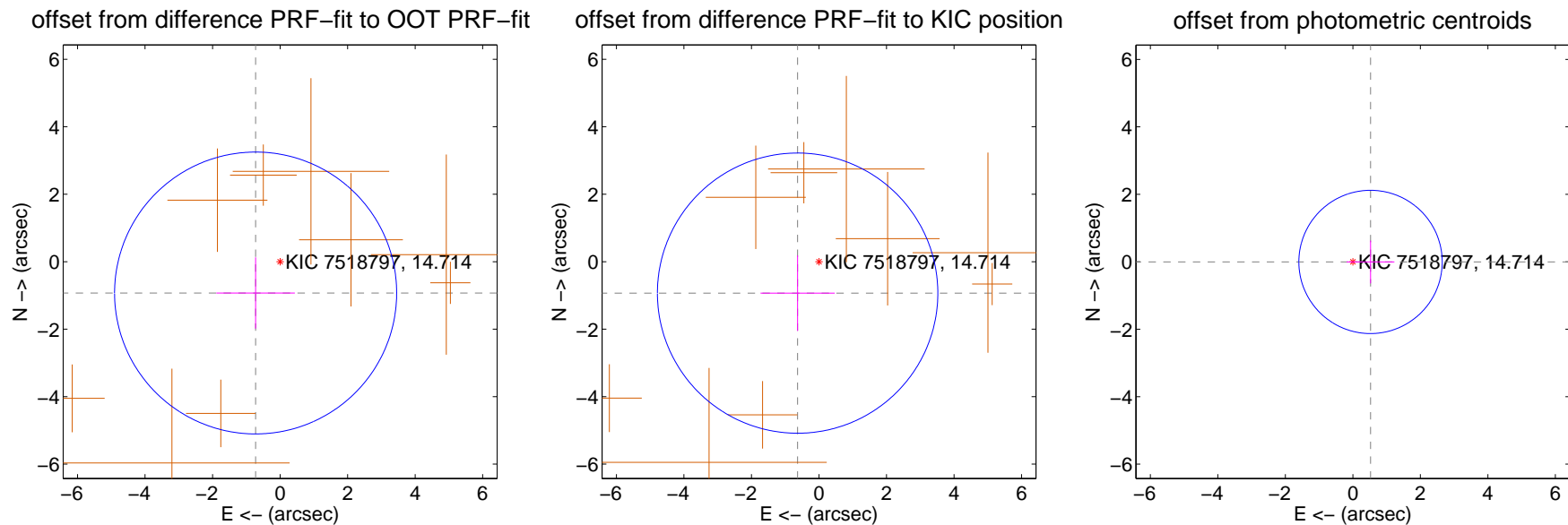
## DV Centroid Data

Supplemental centroid analysis for 007518797-06. Kepler magnitude: 14.71. Transit SNR 9.11

There are 0 quarters with good PRF difference image offsets

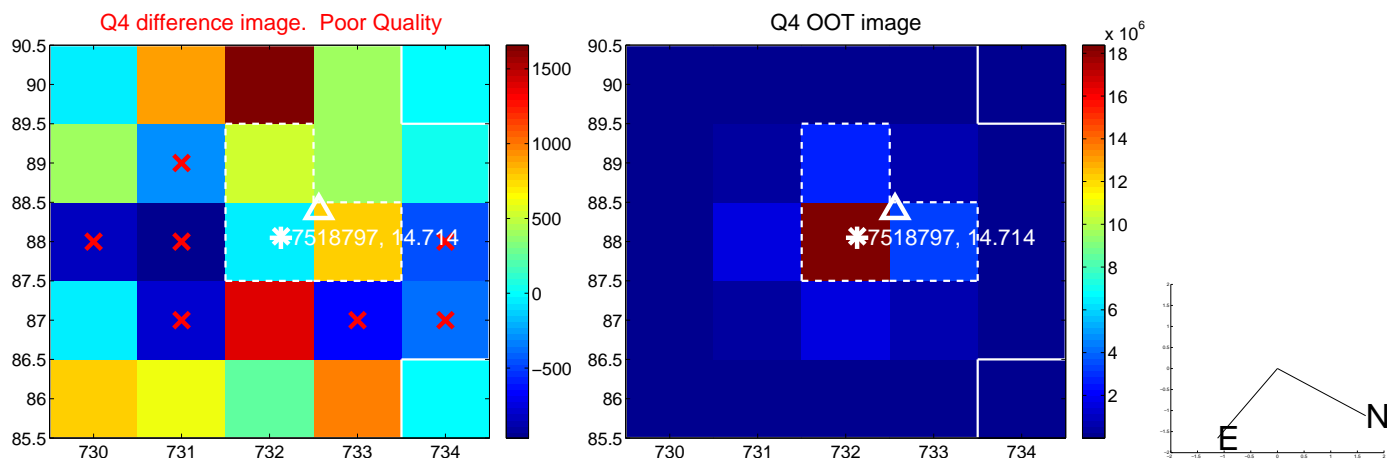
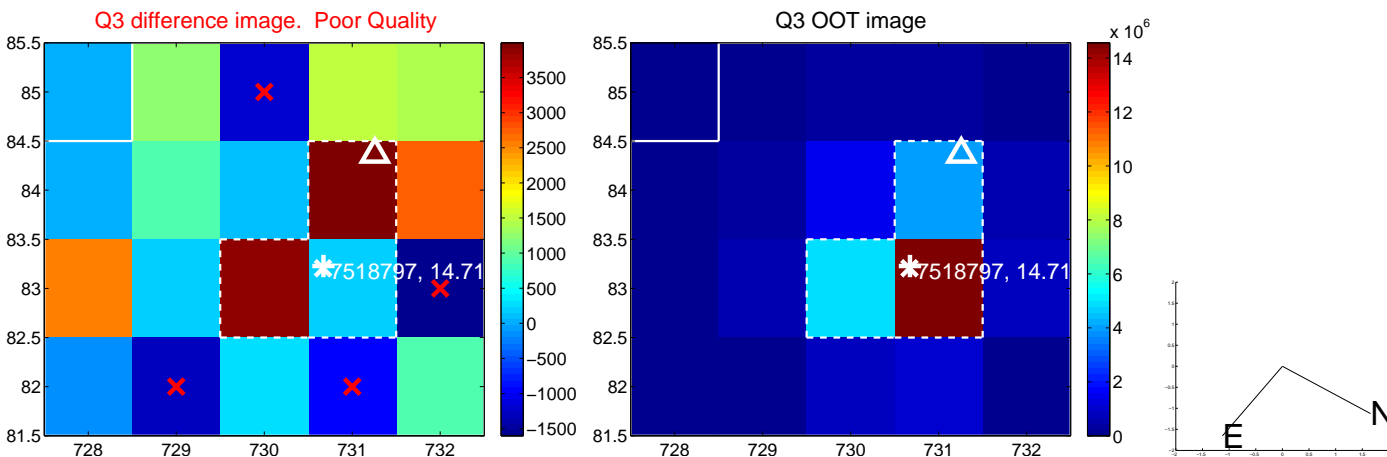
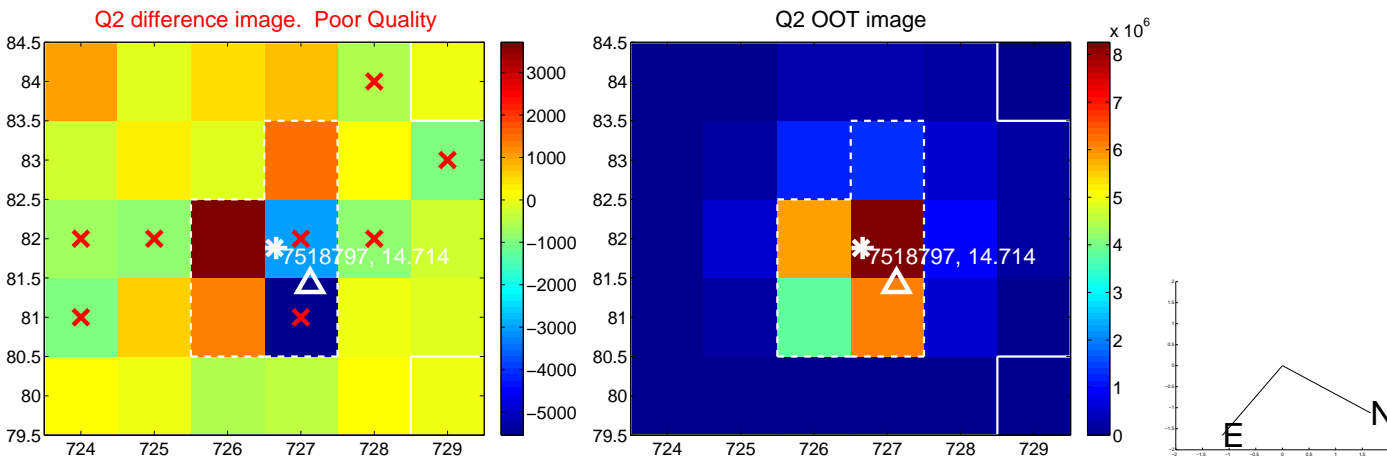
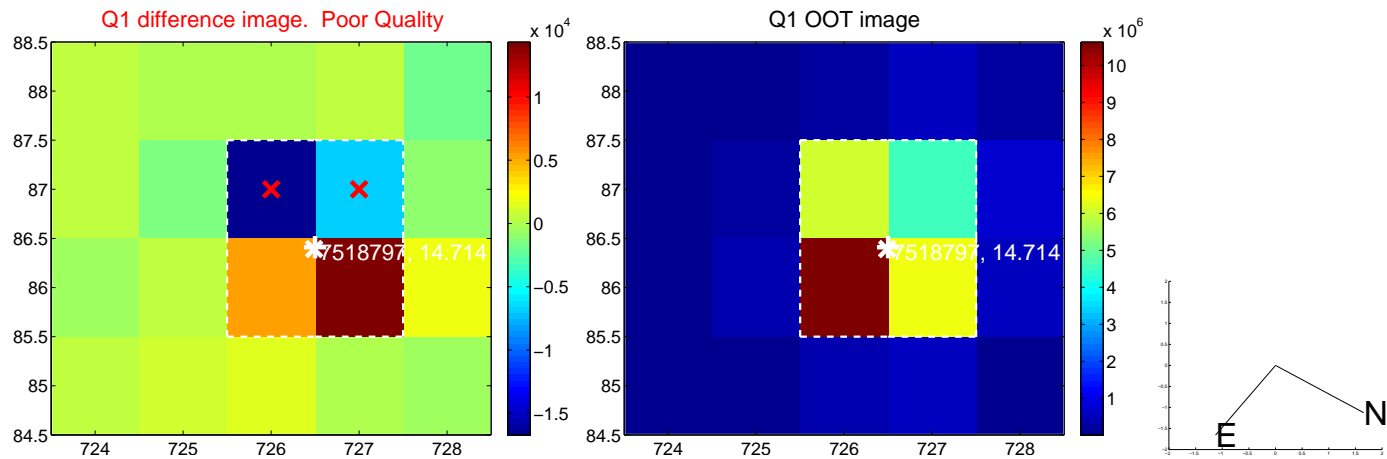
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.178 \pm 1.392$	0.85	$0.725 \pm 1.162$	$-0.928 \pm 1.057$
PRF-fit source offset from KIC position	$1.126 \pm 1.384$	0.81	$0.633 \pm 1.100$	$-0.932 \pm 1.118$
photometric centroid source offset	$0.52 \pm 0.71$	0.74	$-0.52 \pm 0.71$	$-0.00 \pm 0.63$

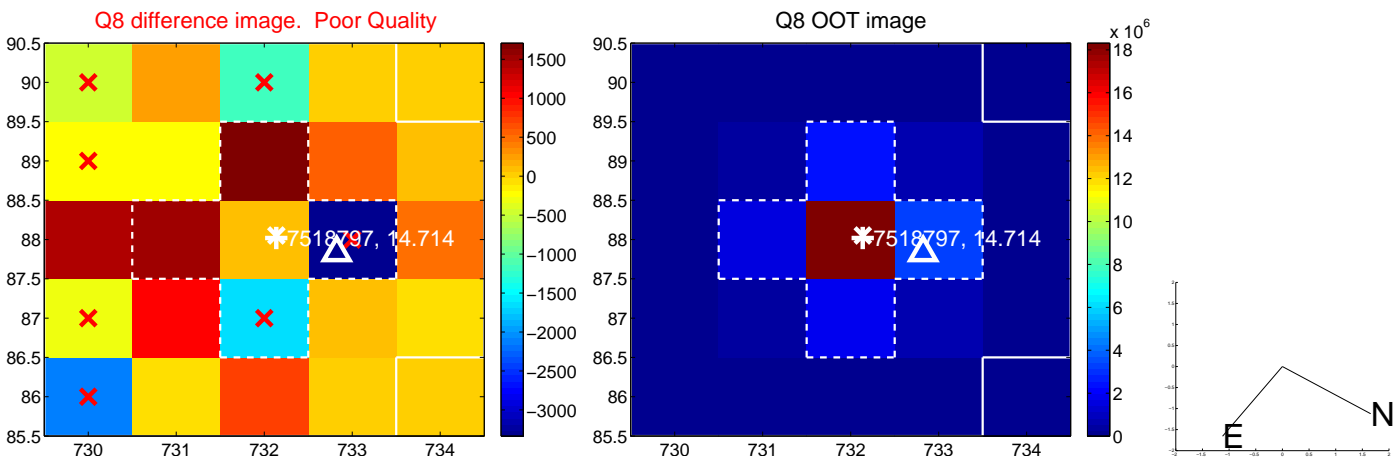
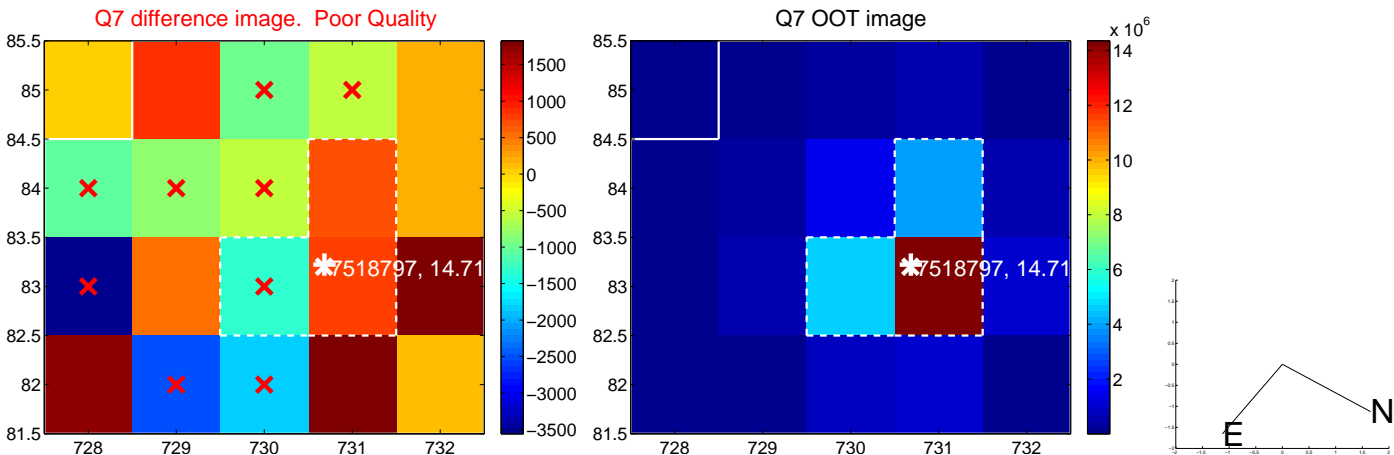
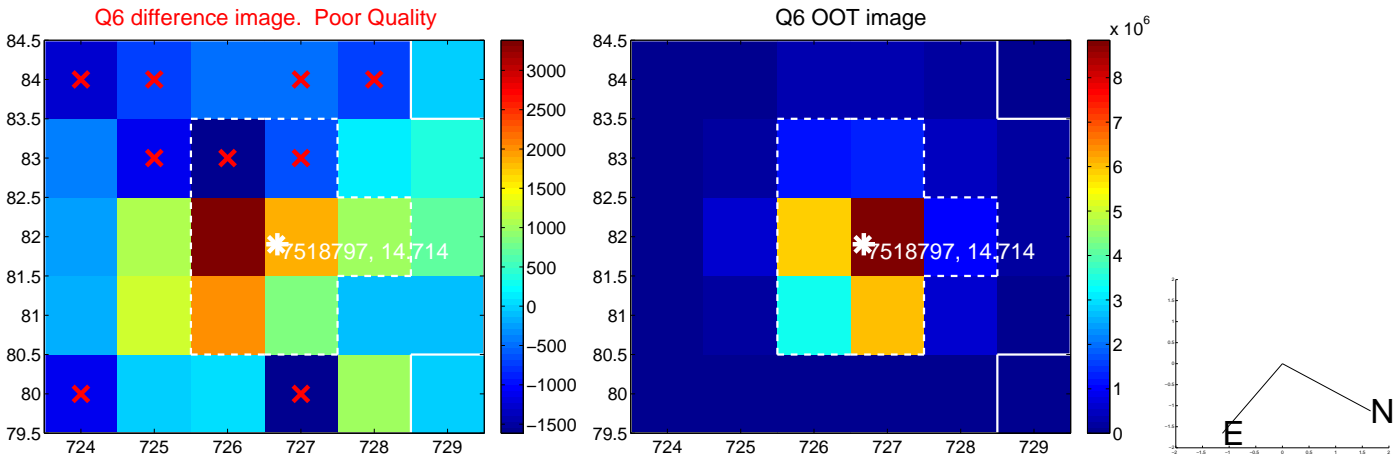
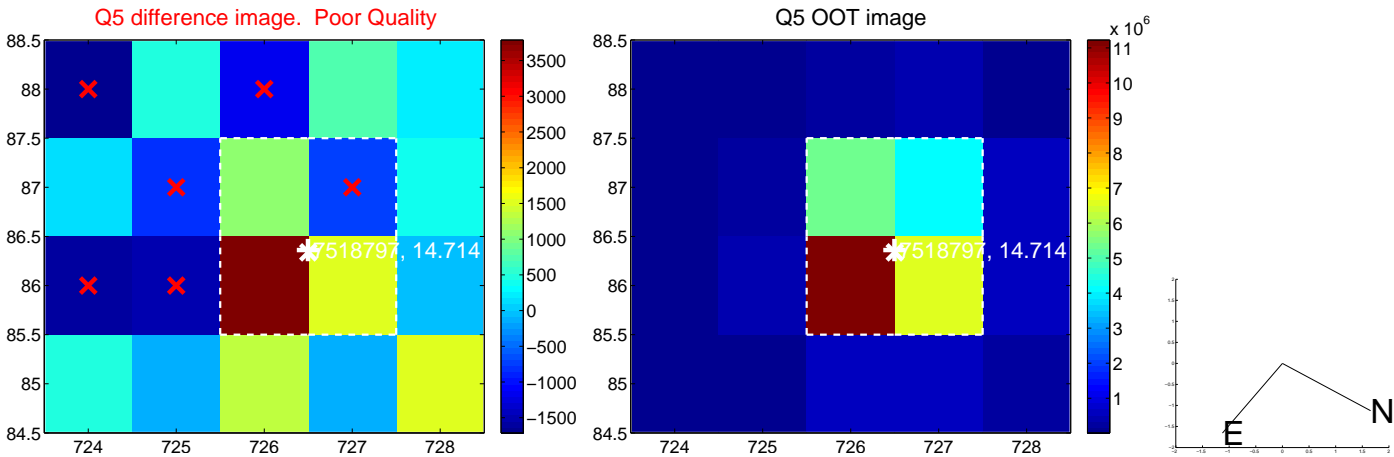


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

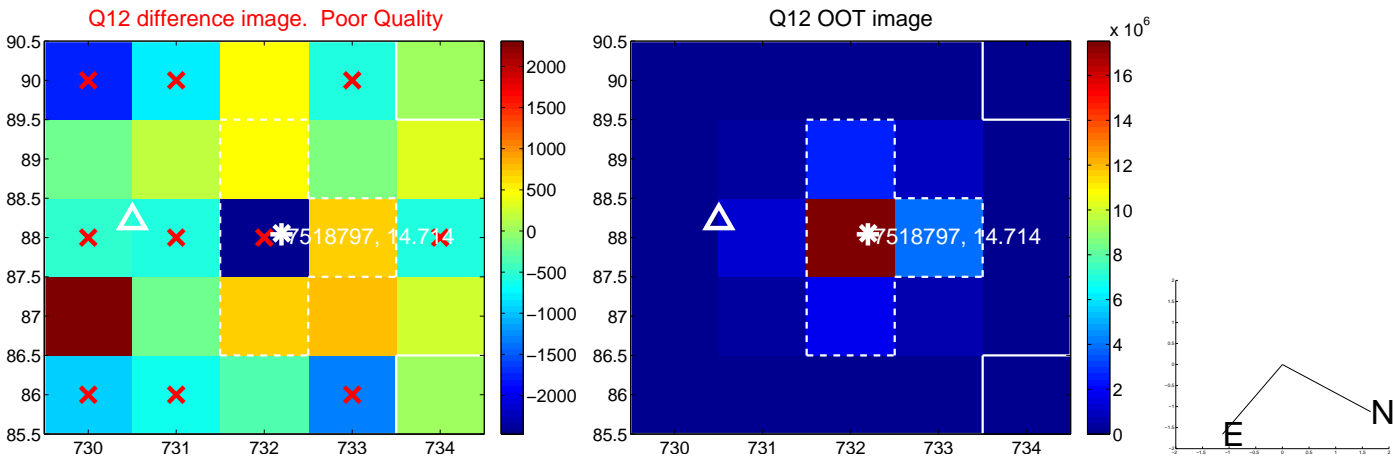
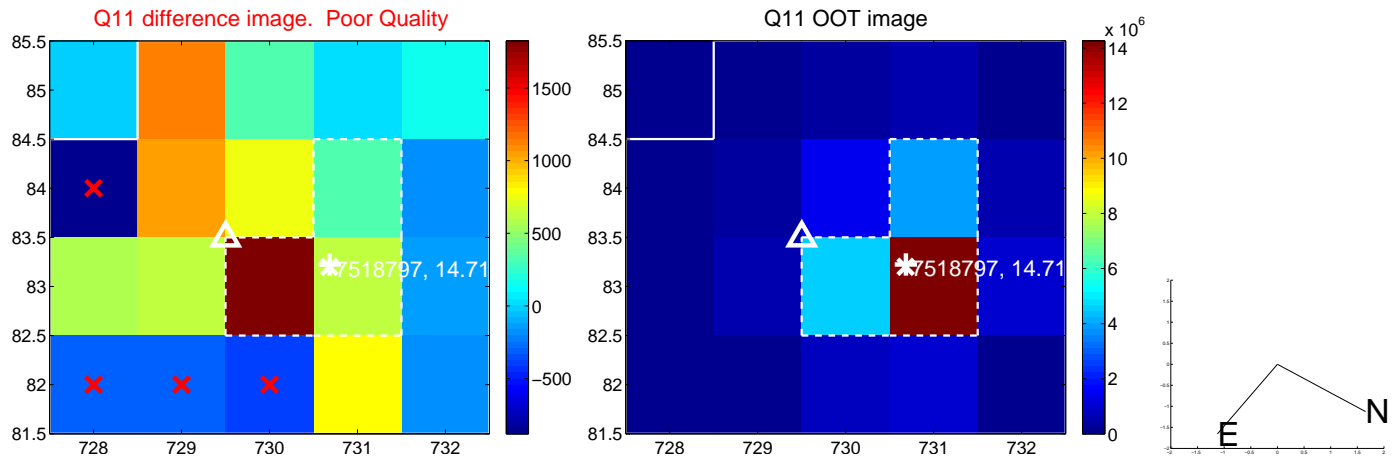
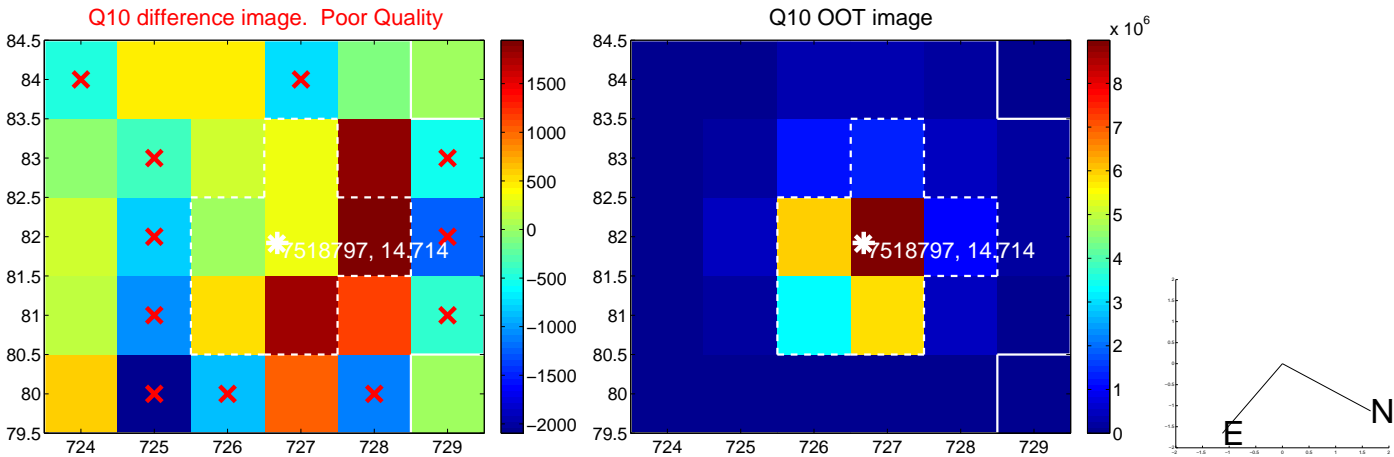
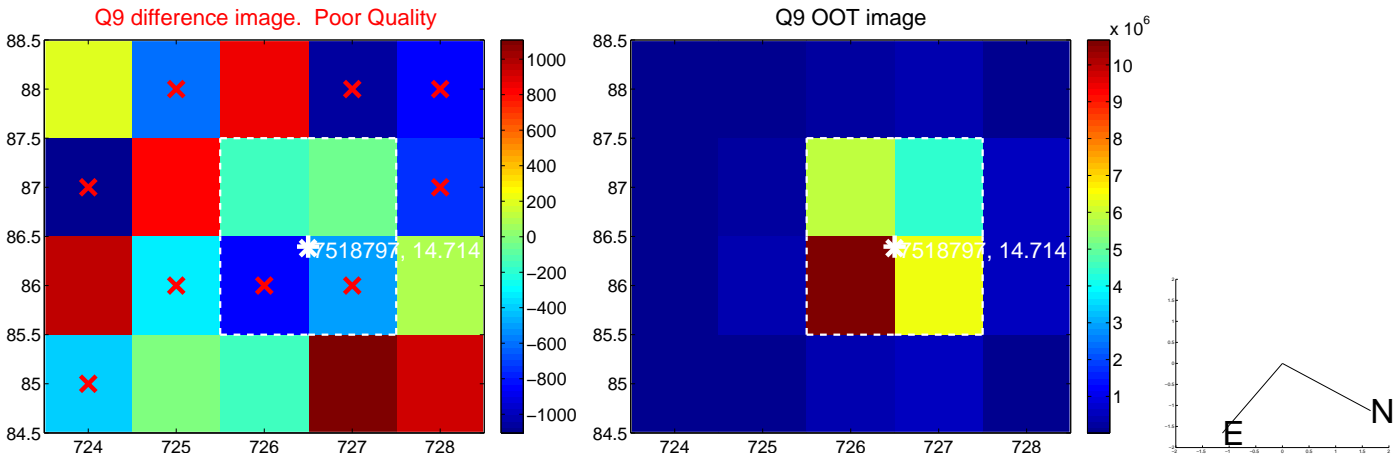
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



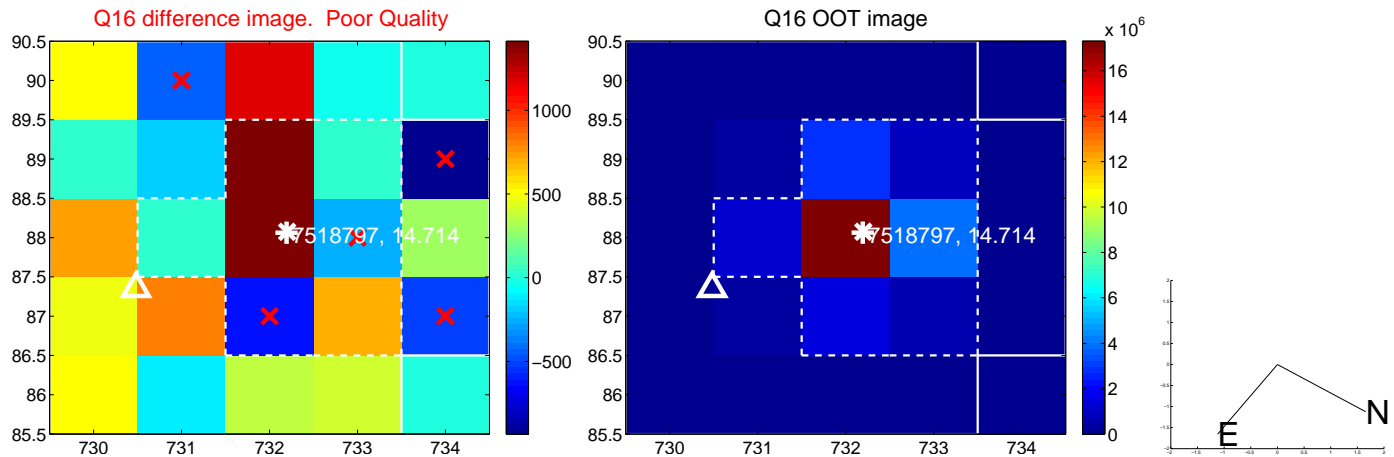
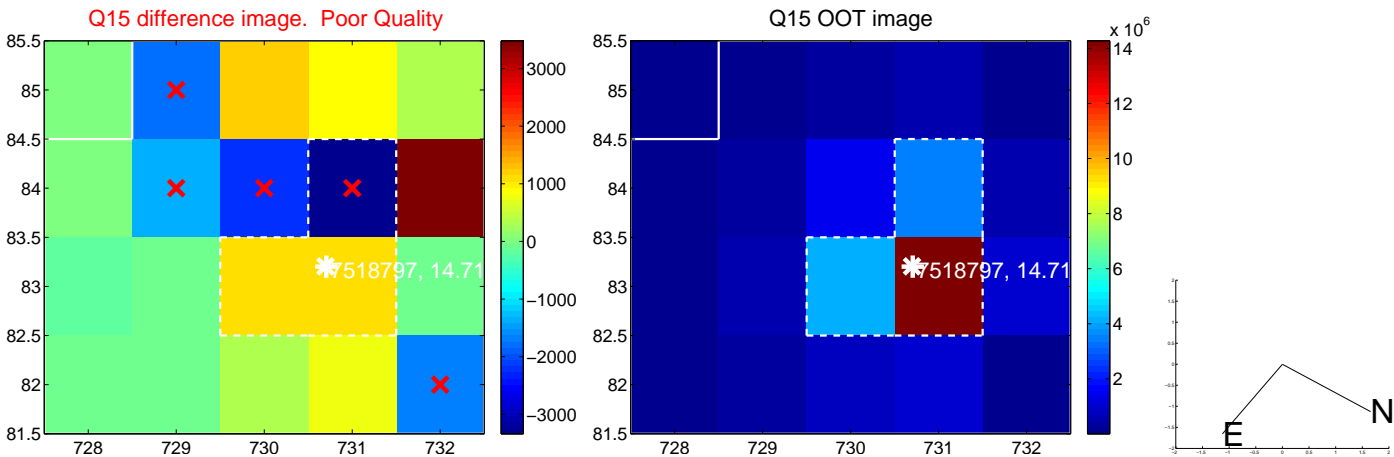
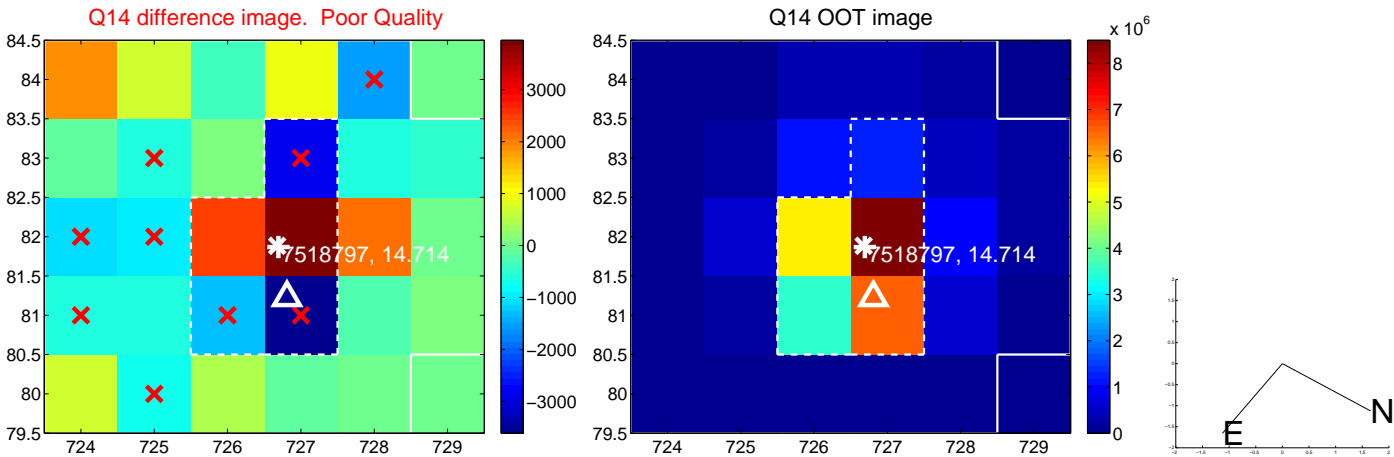
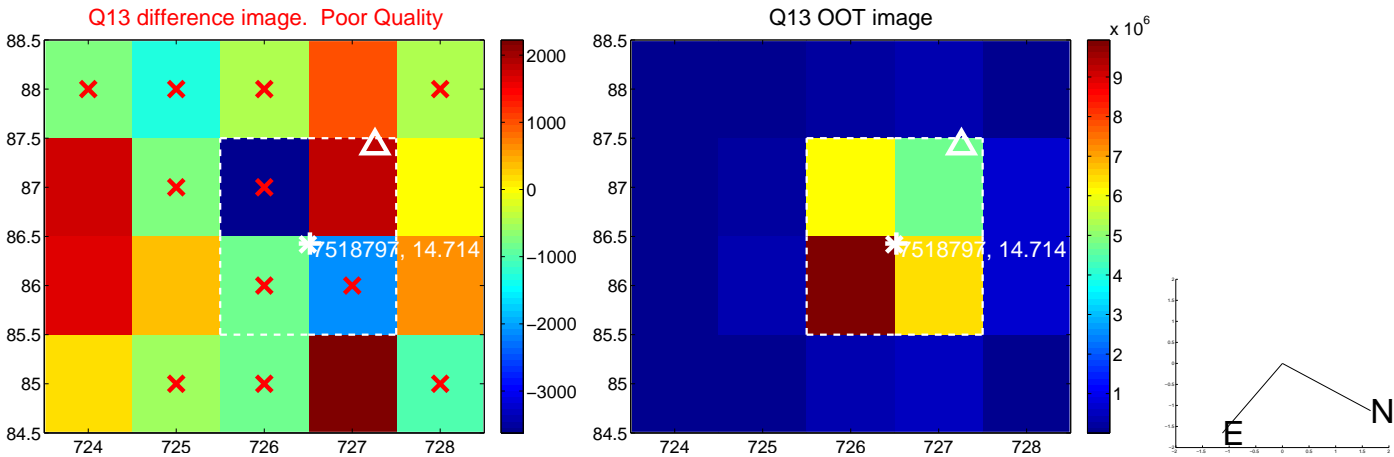
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



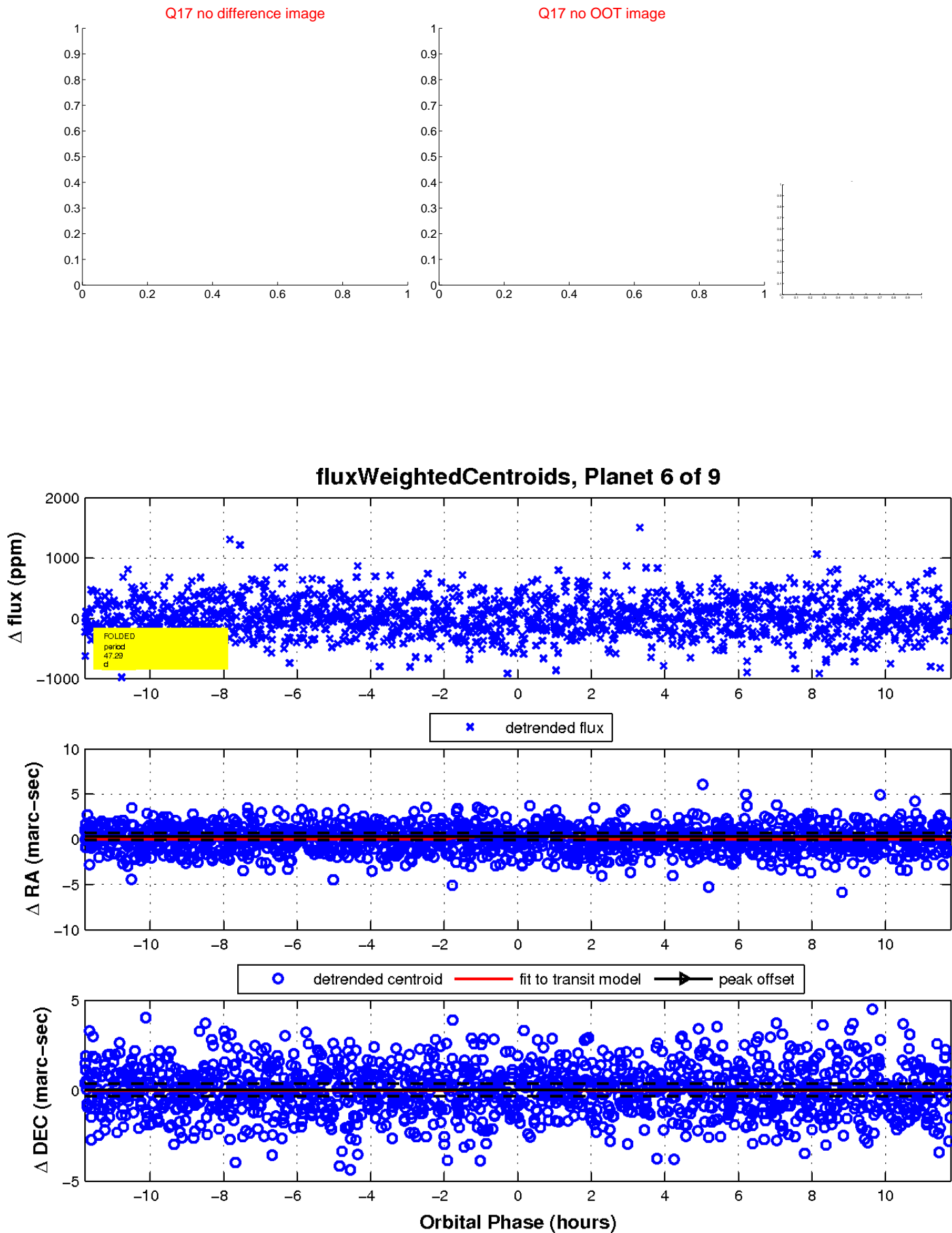
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

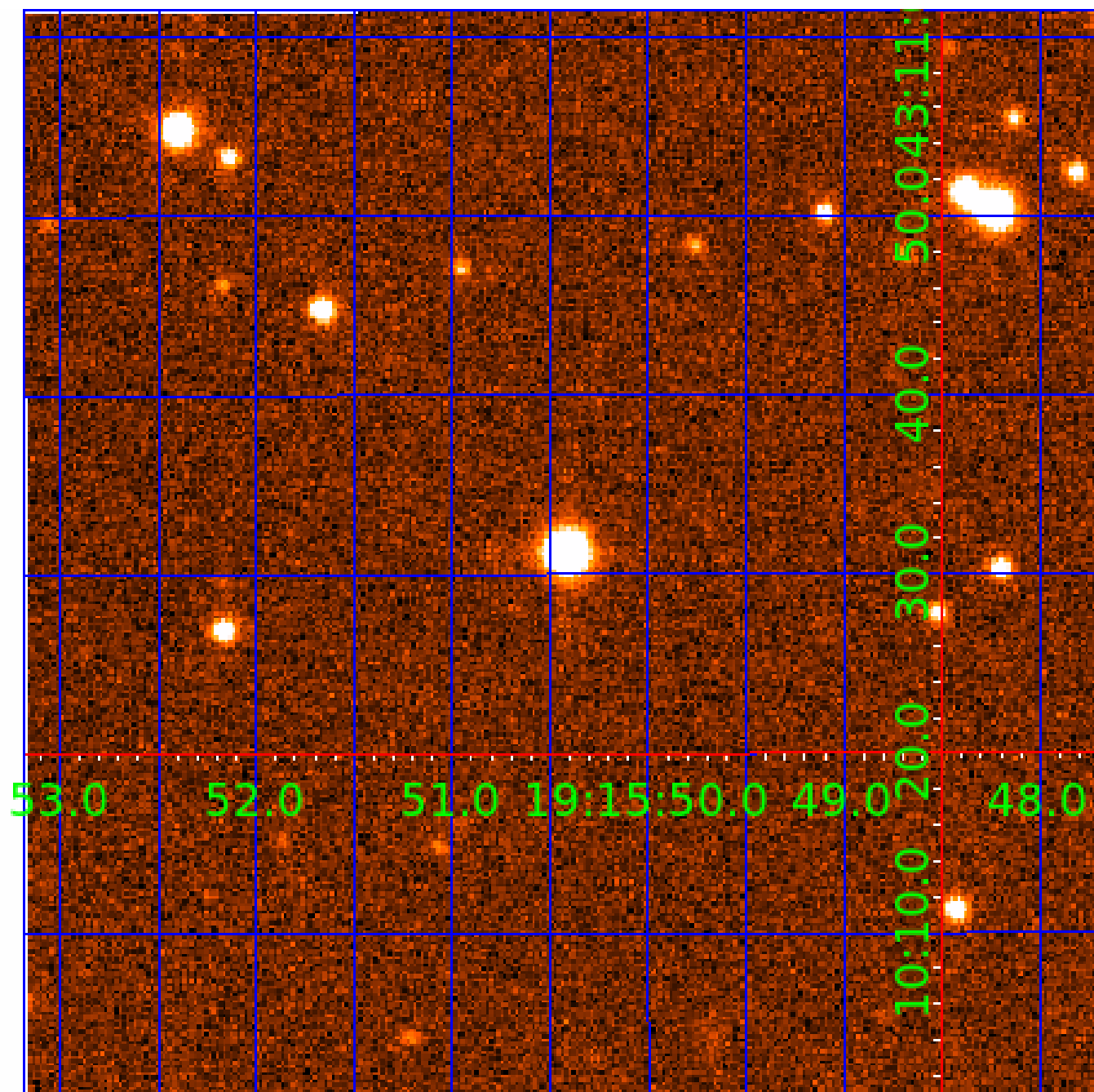


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



## KIC 007518797

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007518797-01	OBS	No	1.303697	131.960422	31.9	8.704	9.0	9.0	1.16	5468	0.64	1971.04
007518797-02	OBS	No	160.371067	210.838038	303.0	7.494	12.8	7.2	1.16	5468	1.97	3.22
007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
007518797-05	OBS	No	56.420658	152.191015	398.1	3.455	9.9	9.0	1.16	5468	2.61	12.97
007518797-06	OBS	No	47.291833	132.854028	492.2	3.929	9.0	9.1	1.16	5468	2.93	16.41
007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007518797-01	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

**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.

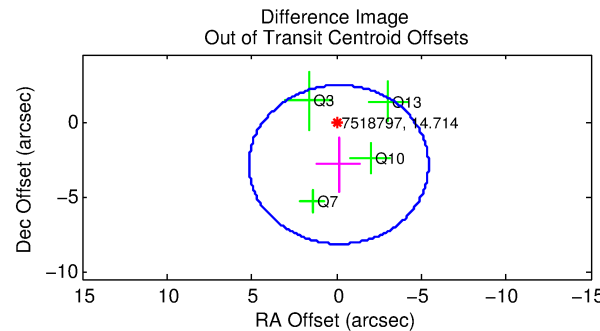
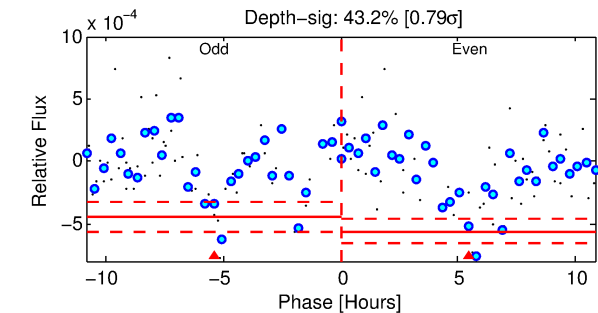
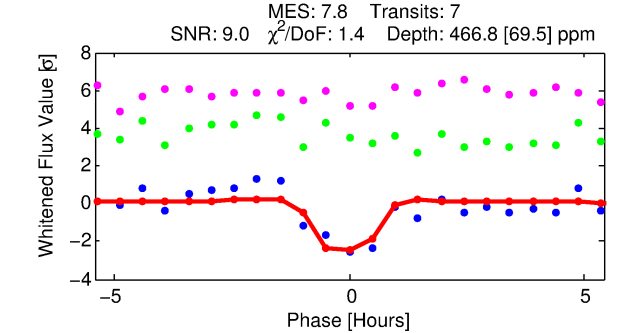
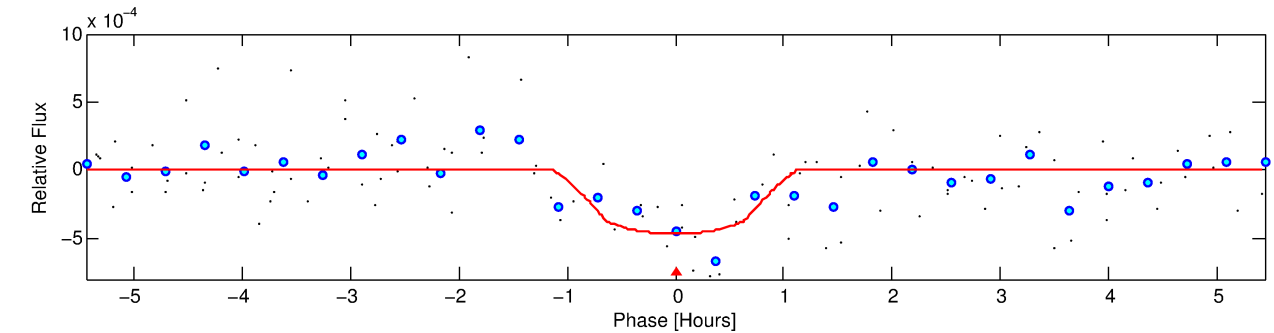
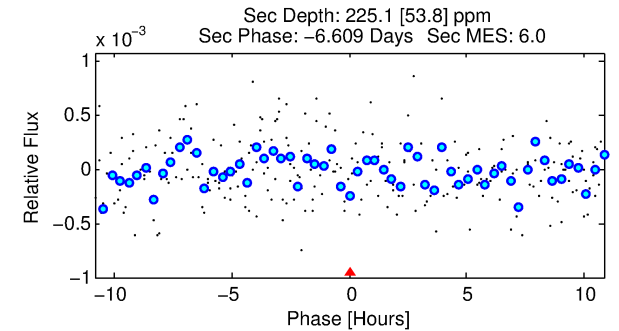
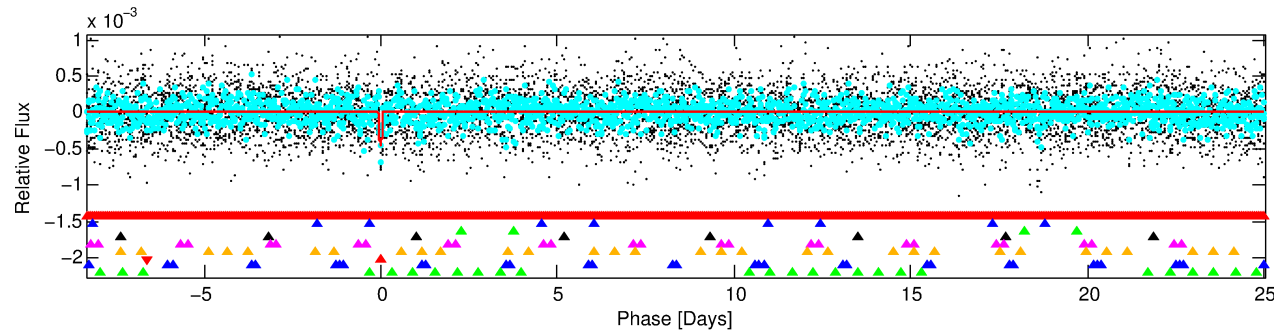
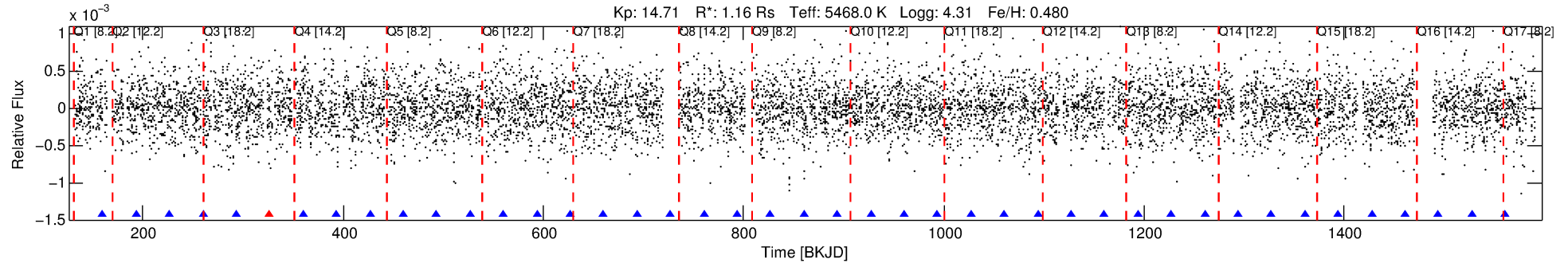
Ephemeris Match Information For 007518797-07

No Significant Match Found



# DV One-Page Summary

KIC: 7518797 Candidate: 7 of 9 Period: 33.349 d



## DV Fit Results:

Period = 33.34885 [0.00035] d  
Epoch = 160.1660 [0.0086] BKJD  
Rp/R\* = 0.0199 [0.0458]  
a/R\* = 129.65 [1092.85]  
b = 0.43 [16.03]  
Seff = 26.15 [8.87]  
Teff = 577 [49] K  
Rp = 2.52 [5.83] Re  
a = 0.2028 [0.0437] AU  
Ag = 803.41 [3711.13] [0.22 $\sigma$ ]  
Teffp = 4747 [5470] K [0.76 $\sigma$ ]

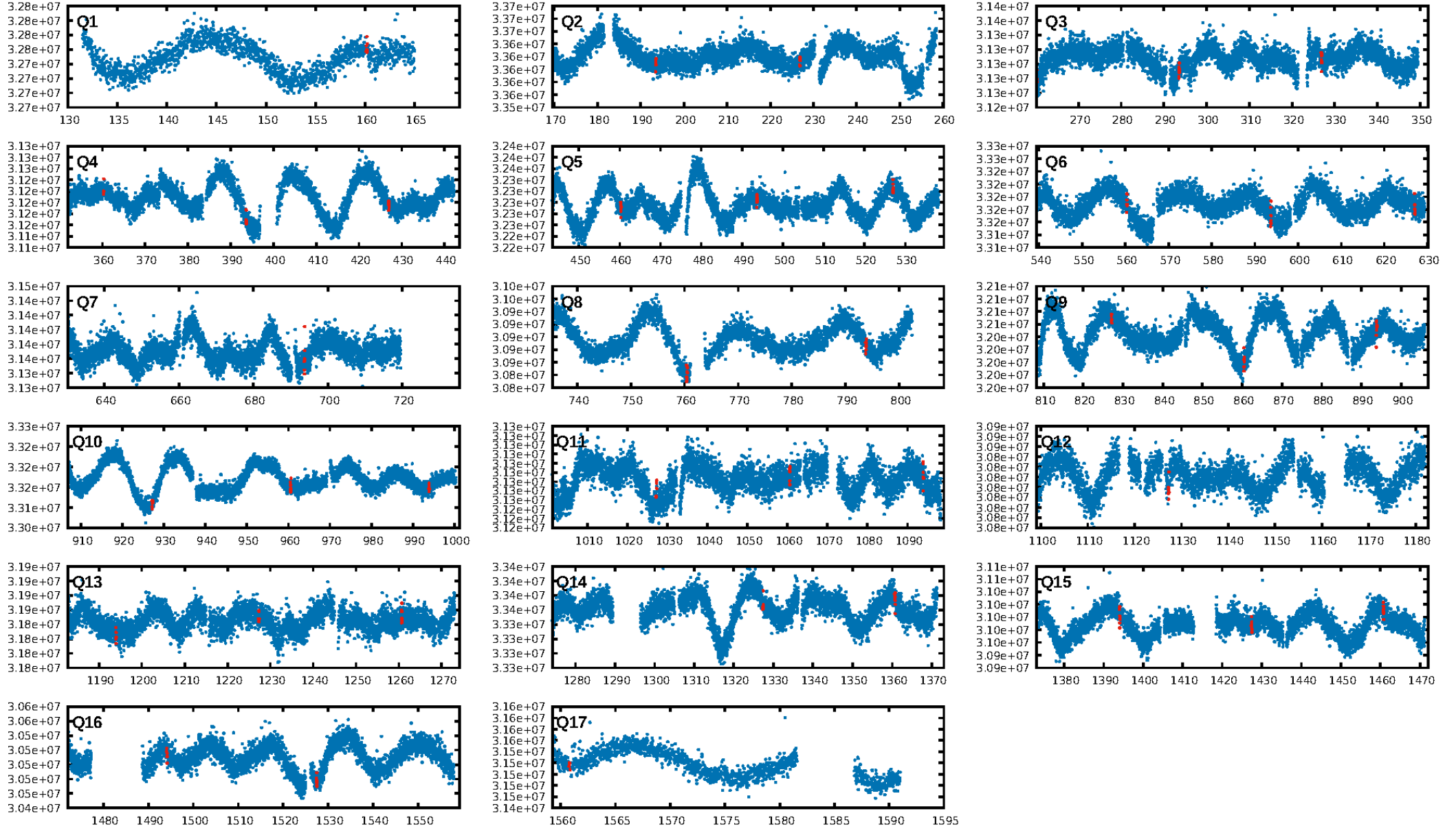
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [86.51 $\sigma$ ]  
LongPeriod-sig: 100.0% [107.10 $\sigma$ ]  
ModelChiSquare2-sig: 53.0%  
ModelChiSquareGof-sig: 96.7%  
**Bootstrap-pfa: 3.03e-07**  
RollingBand-fgt: 0.86 [6/7]  
**GhostDiagnostic-chr: -1.259**  
Centroid-sig: 11.2%  
Centroid-so: 1.233 arcsec [1.36 $\sigma$ ]  
OotOffset-rm: 2.864 arcsec [1.62 $\sigma$ ]  
KicOffset-rm: 2.859 arcsec [1.61 $\sigma$ ]  
OotOffset-st: 1/2/0/1 [4]  
KicOffset-st: 1/2/0/1 [4]  
DiffImageQuality-fgm: 0.00 [0/4]  
DiffImageOverlap-fno: 0.60 [9/15]

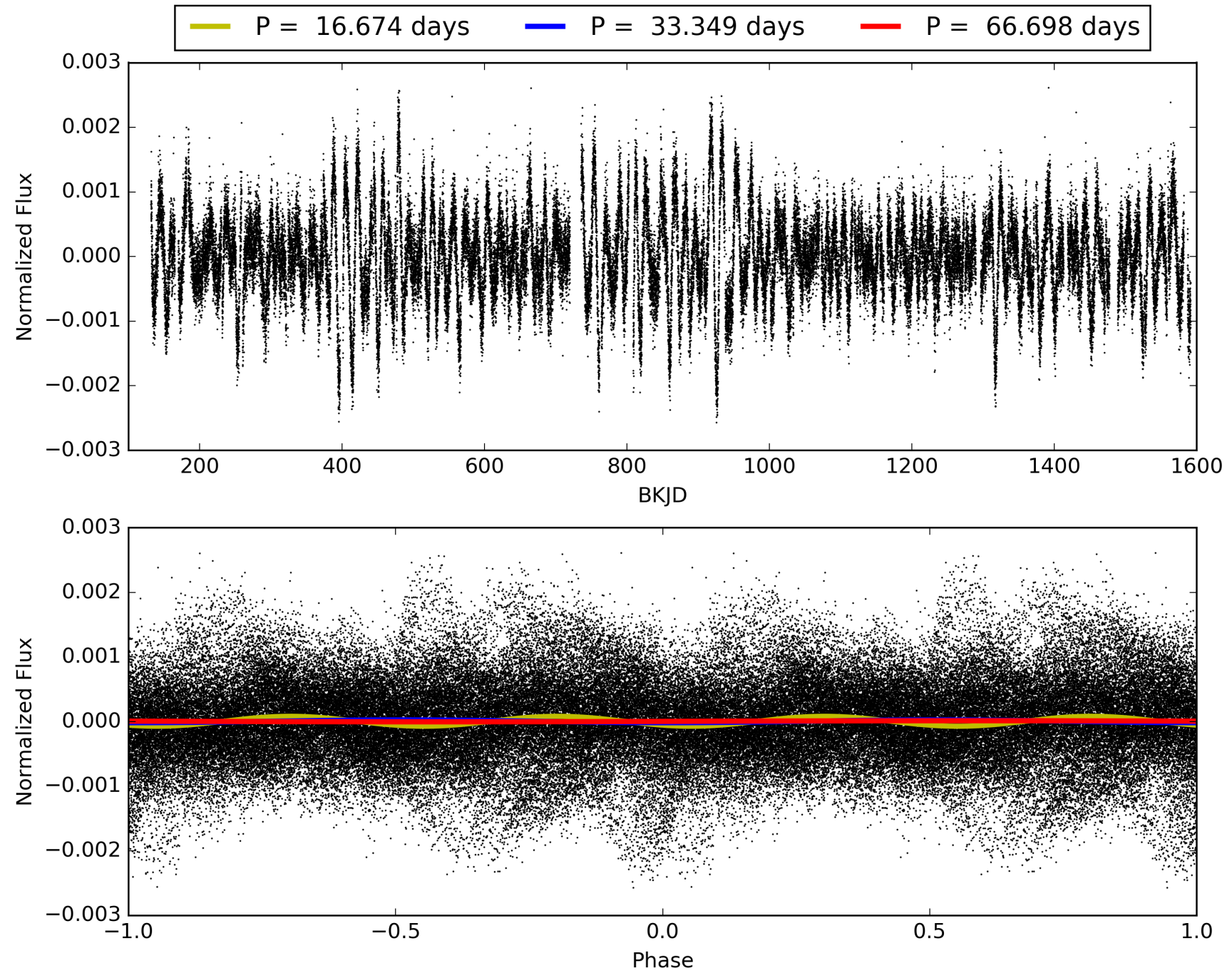
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:21:58 Z

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

# TCE 007518797-07, PDC Light Curves

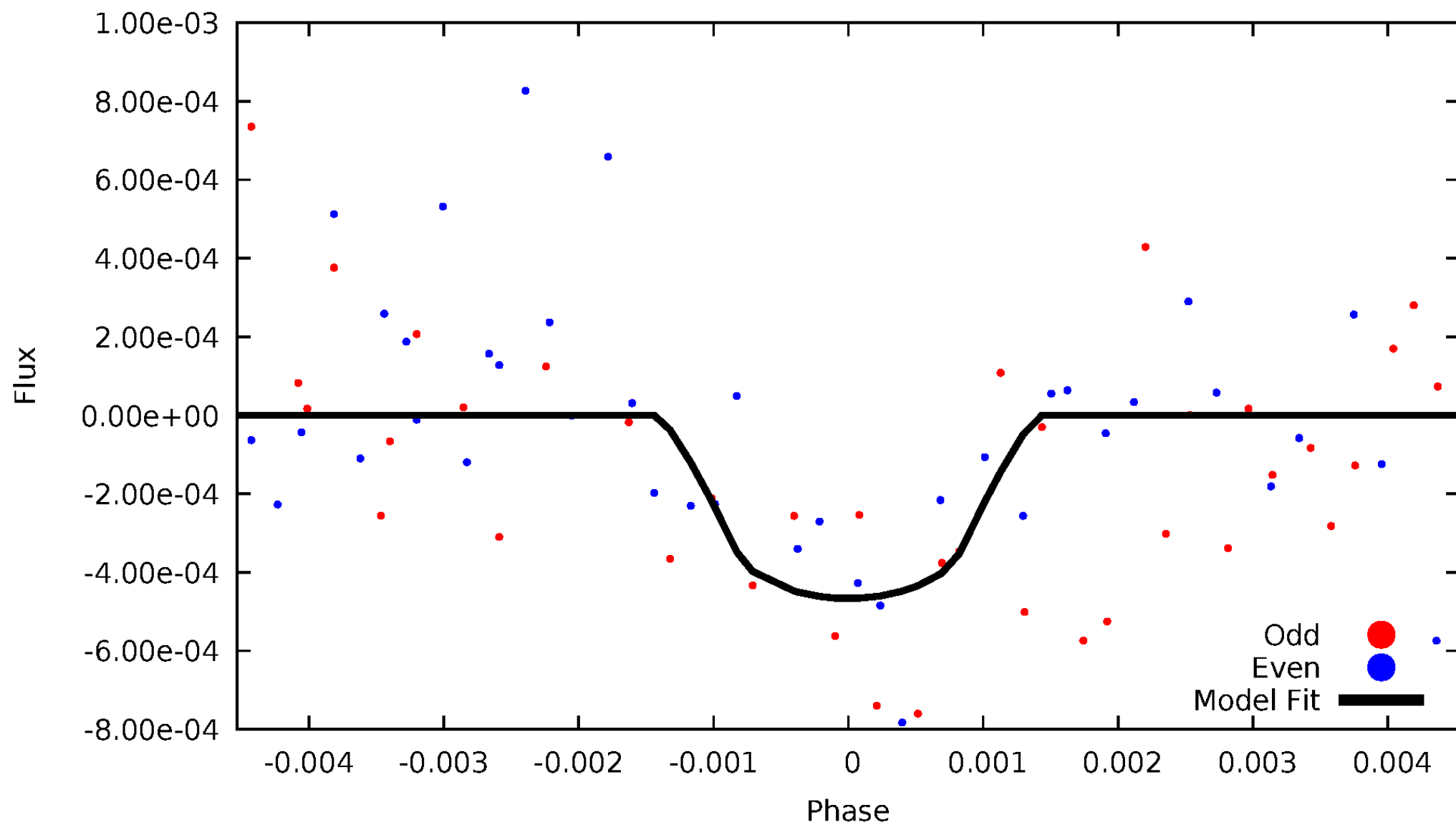


TCE 007518797-07



# DV Odd/Even

TCE 007518797-07



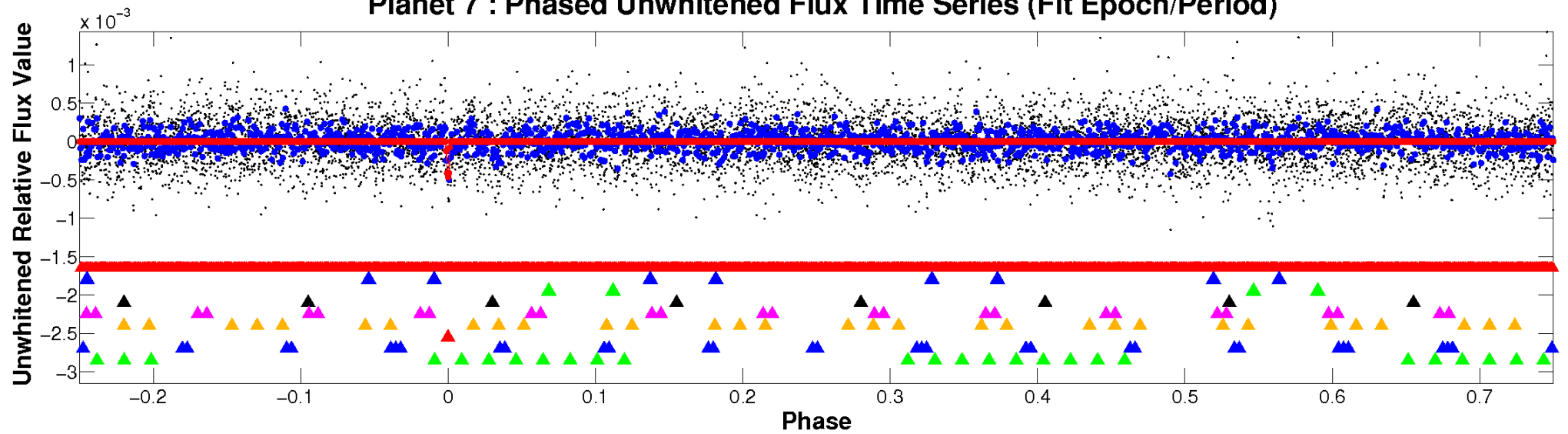


ALT Odd/Even

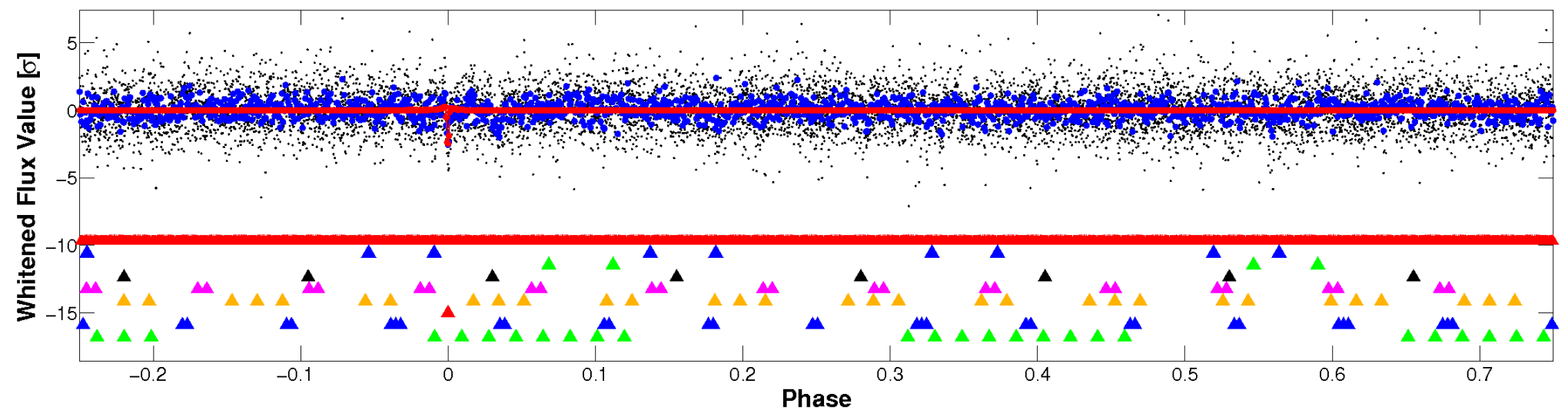
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

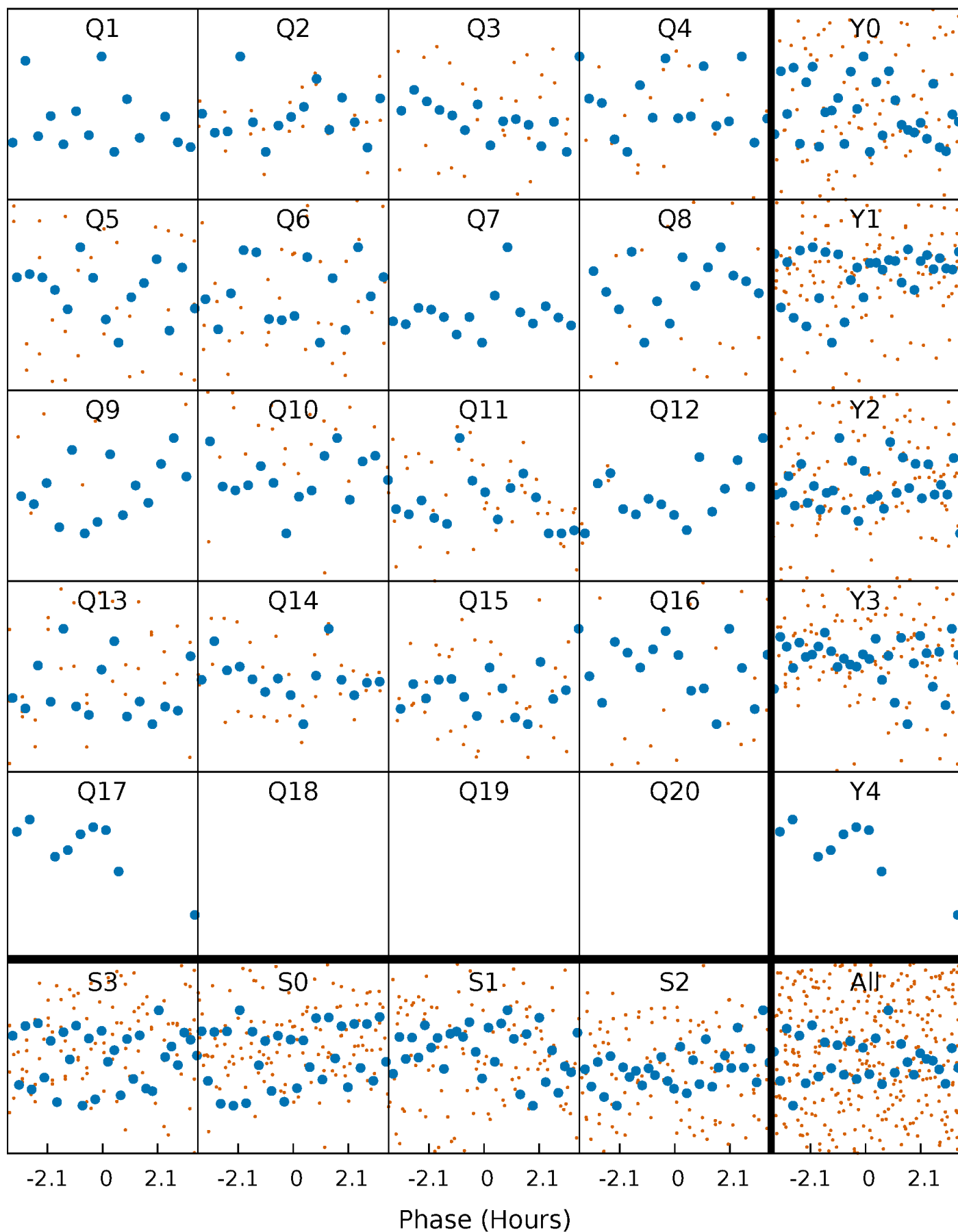


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

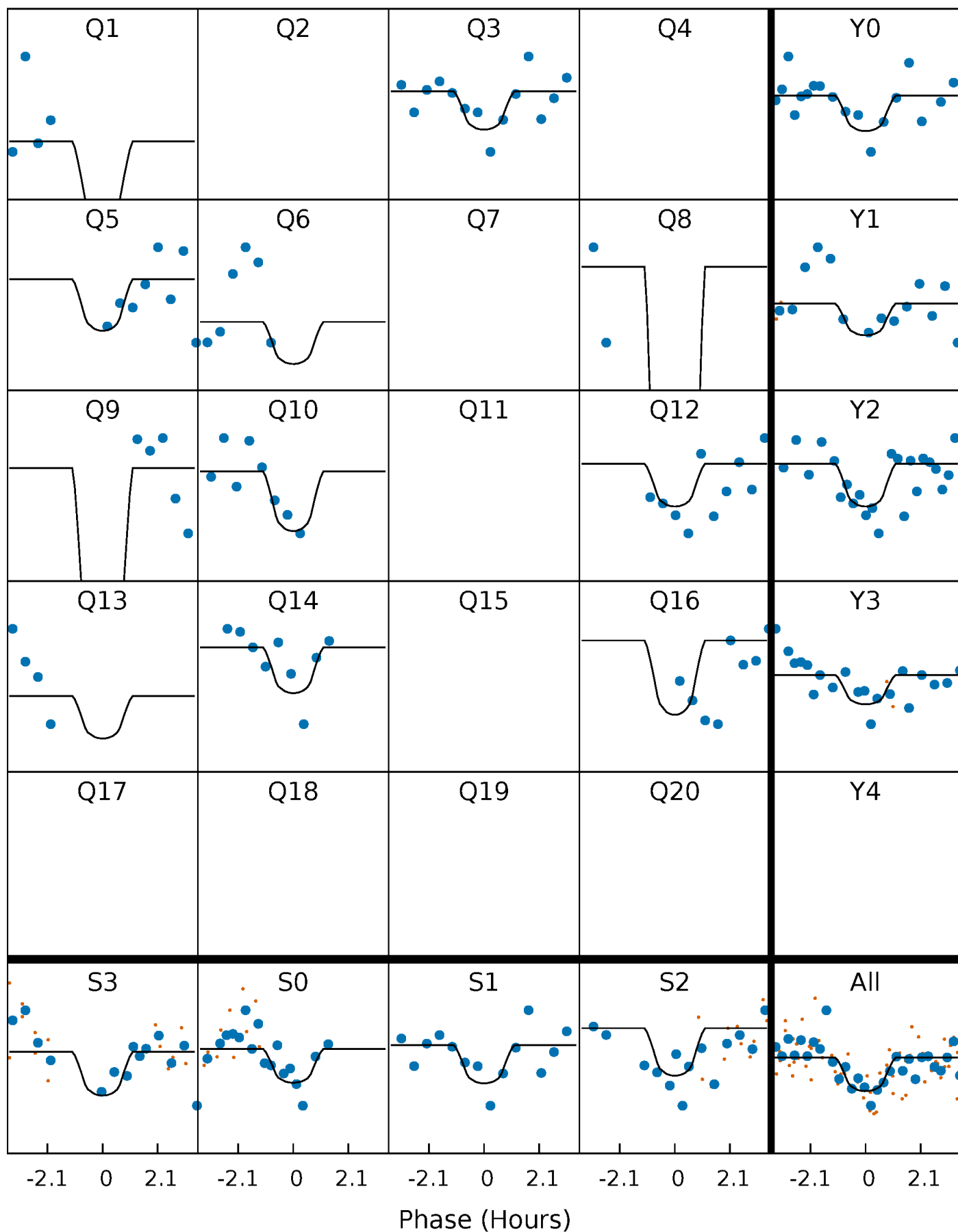
TCE 007518797-07     $P = 33.348850$  Days     $T_0 = 160.165987$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 007518797-07     $P = 33.348850$  Days     $T_0 = 160.165987$  (BKJD)

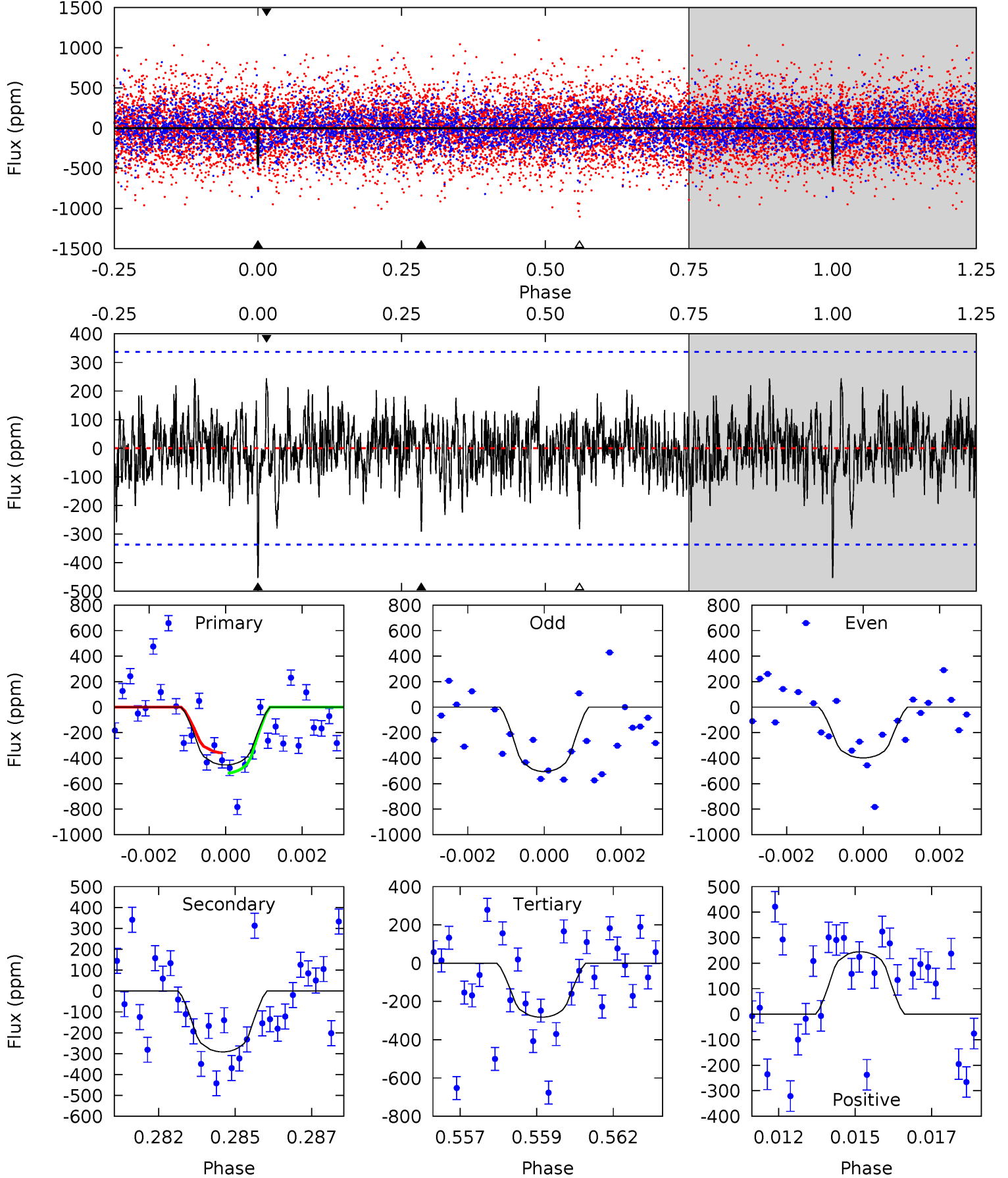


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

007518797-07, P = 33.348850 Days, E = 126.817137 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
7.12	4.58	4.43	3.84	5.29	3.03	1.23	2.68	3.27	0.14	0.73	0.84	1.08	0.35	1.22



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-291 \pm 64$	$5.23^{+4.92}_{-3.65}$	$807^{+57}_{-53}$	$3834^{+2387}_{-715}$	$238^{+2244}_{-173}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

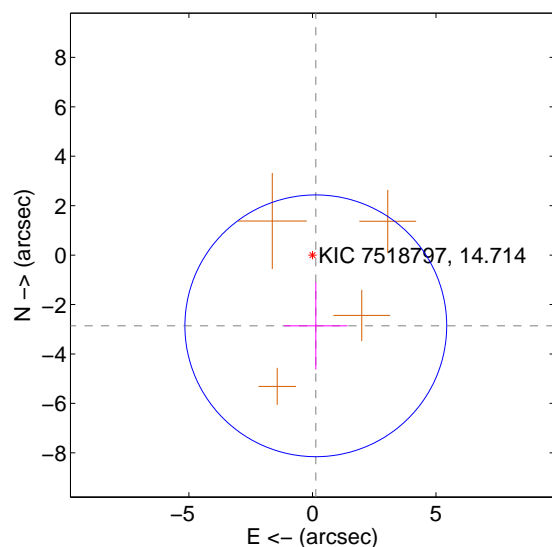
Supplemental centroid analysis for 007518797-07. Kepler magnitude: 14.71. Transit SNR 9.03

There are 0 quarters with good PRF difference image offsets

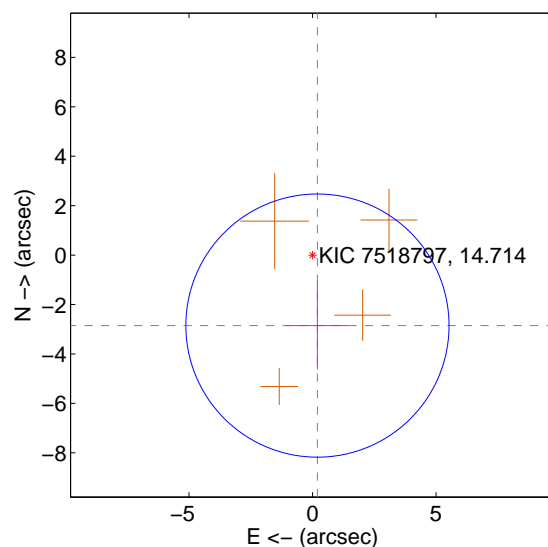
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.864 \pm 1.765$	1.62	$-0.136 \pm 1.282$	$-2.861 \pm 1.766$
PRF-fit source offset from KIC position	$2.859 \pm 1.775$	1.61	$-0.199 \pm 1.270$	$-2.852 \pm 1.777$
photometric centroid source offset	$1.23 \pm 0.91$	1.36	$0.90 \pm 0.95$	$0.84 \pm 0.86$

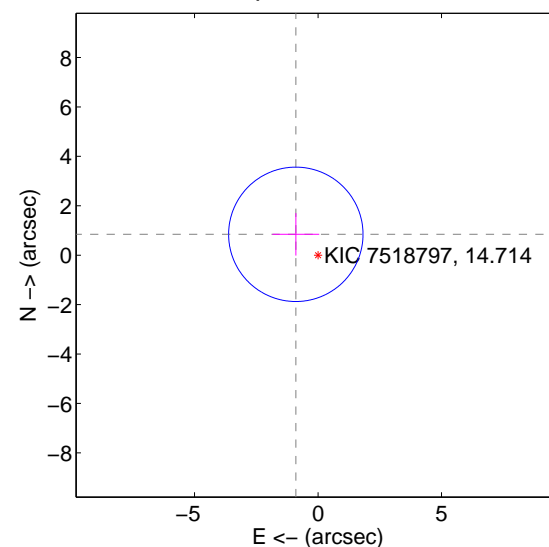
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

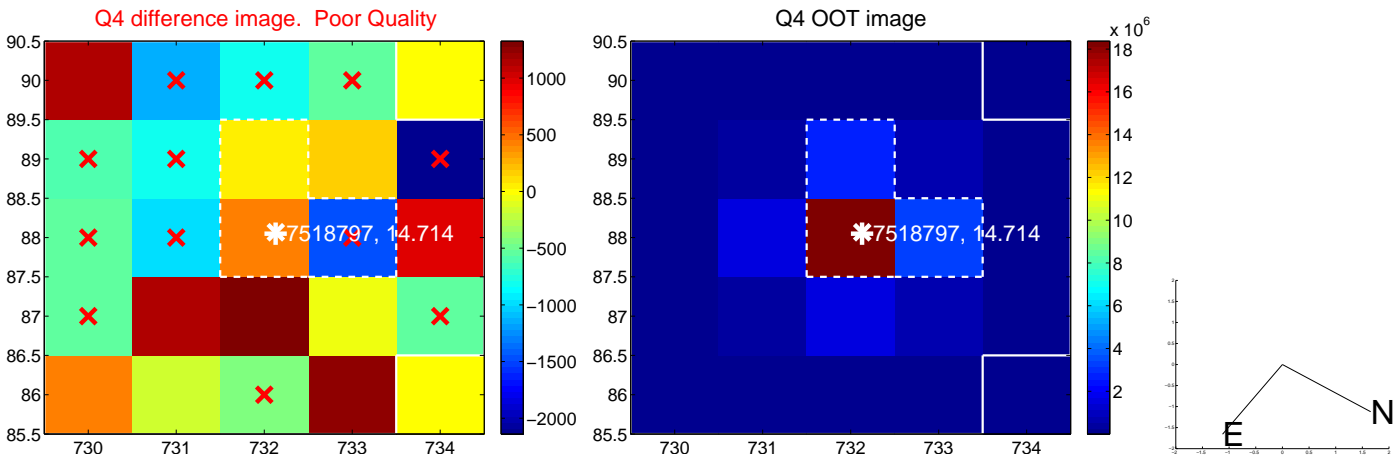
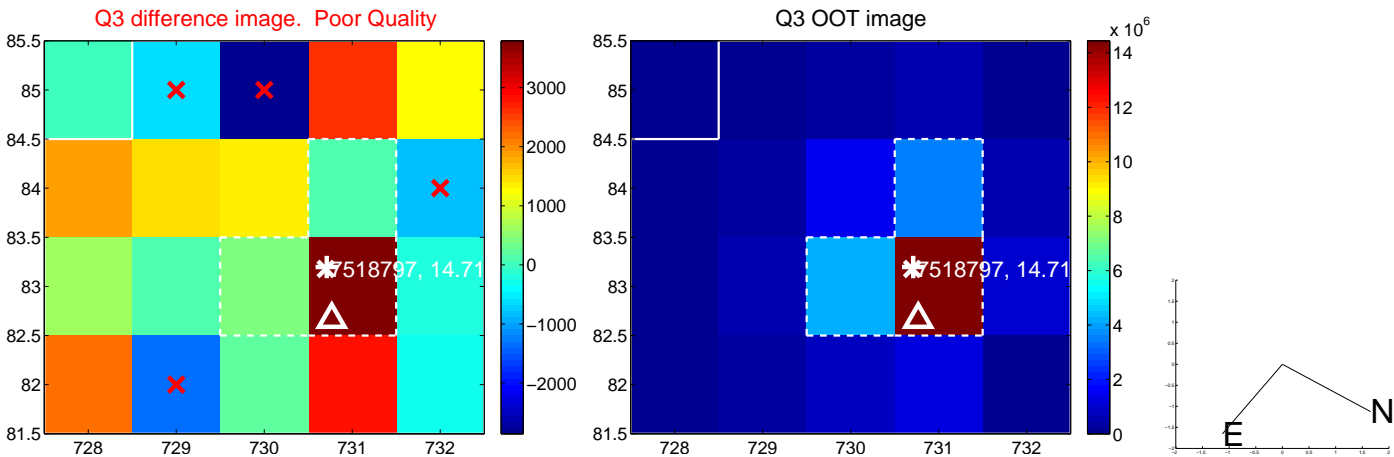
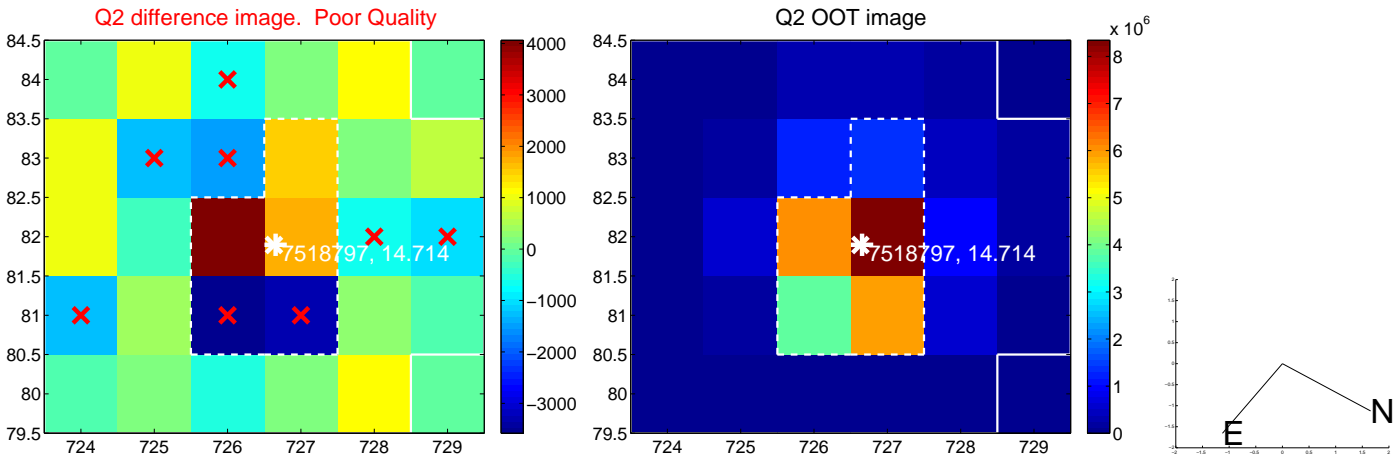
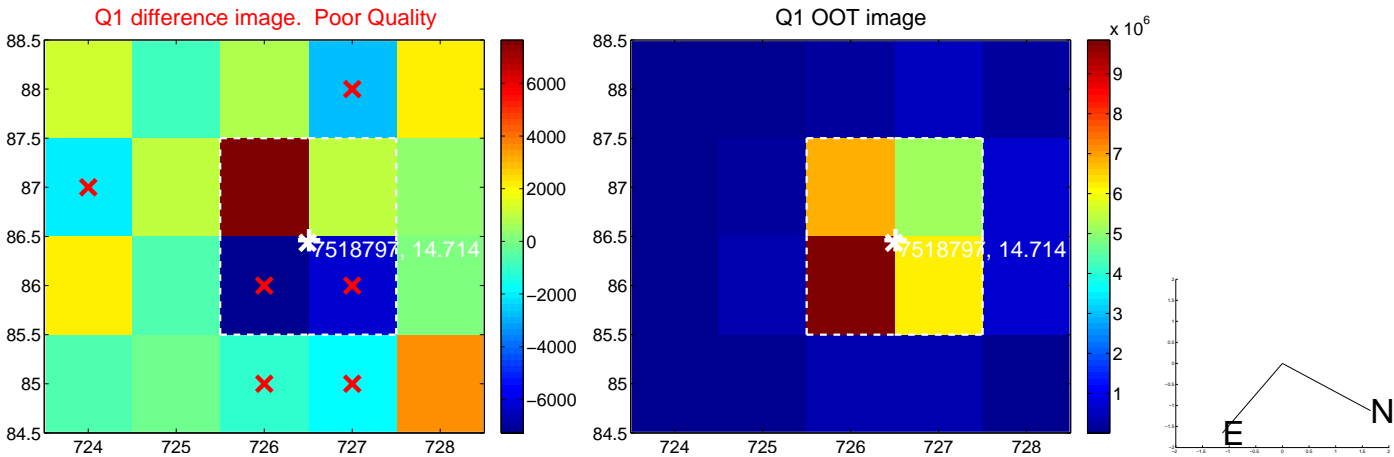


offset from photometric centroids

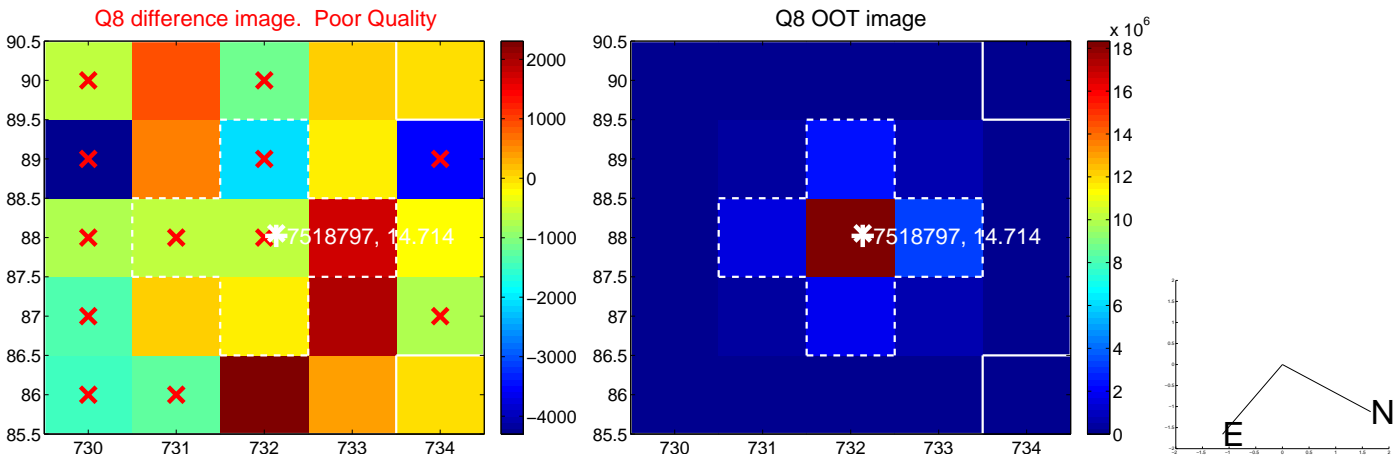
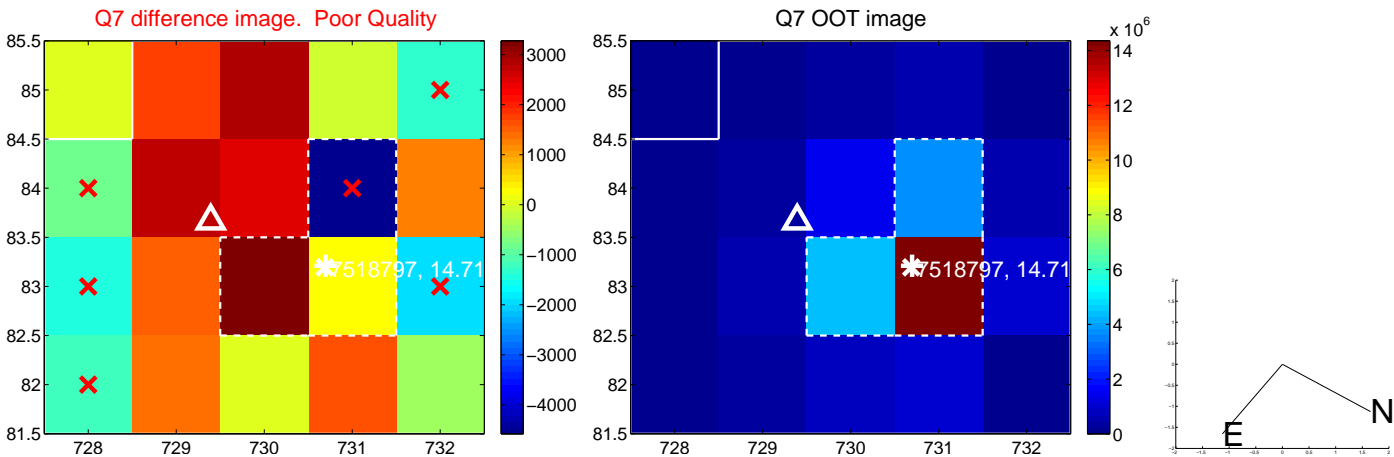
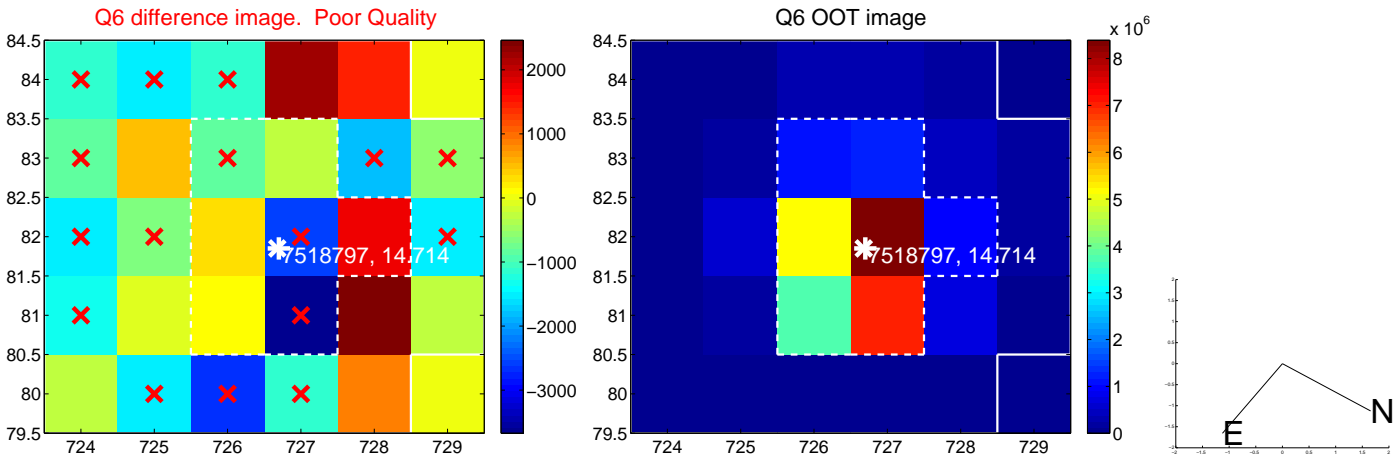
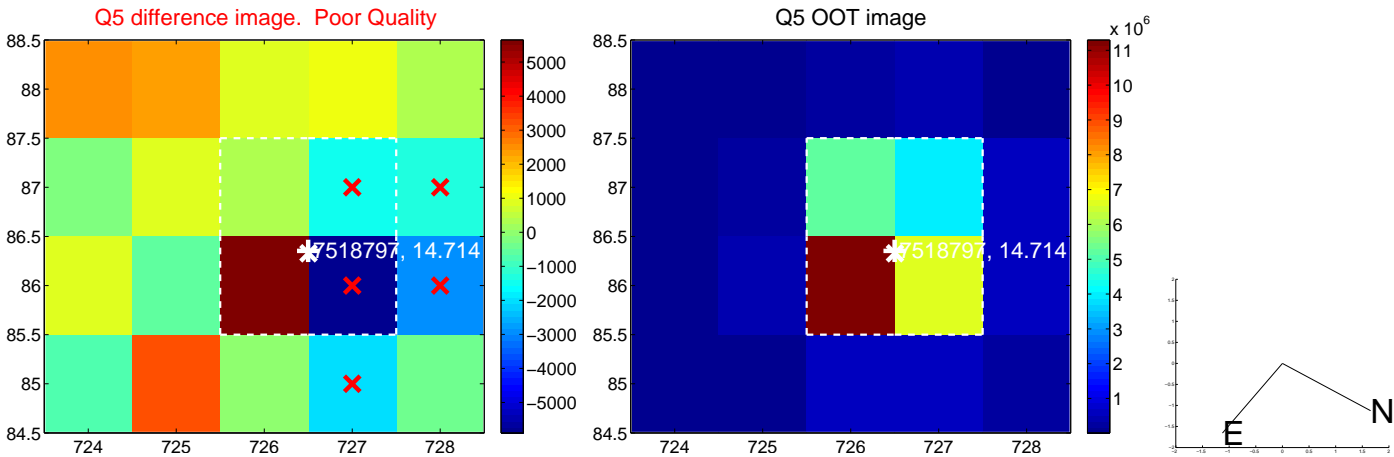


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

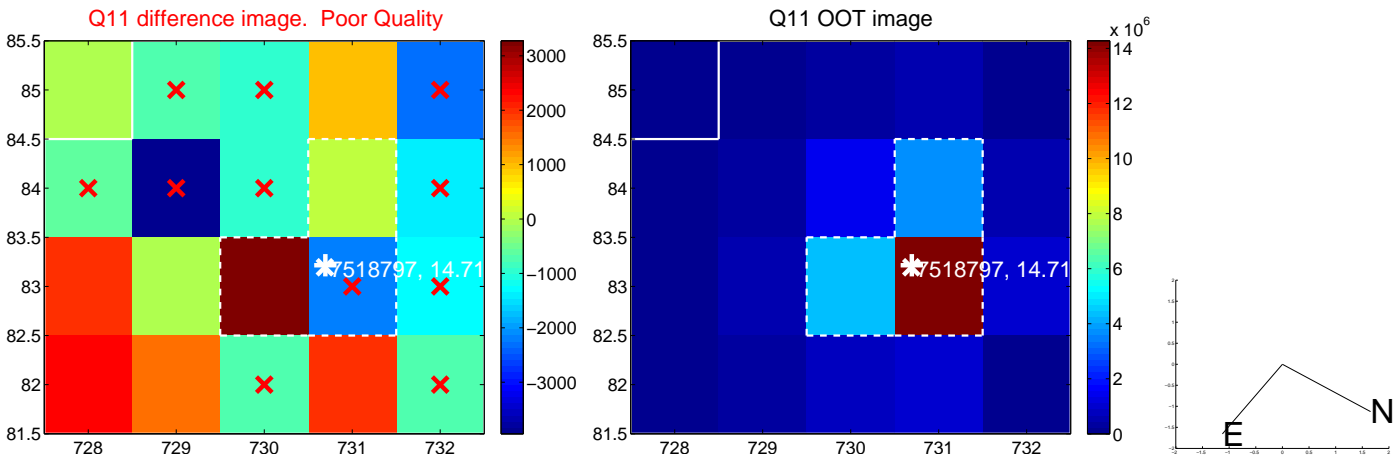
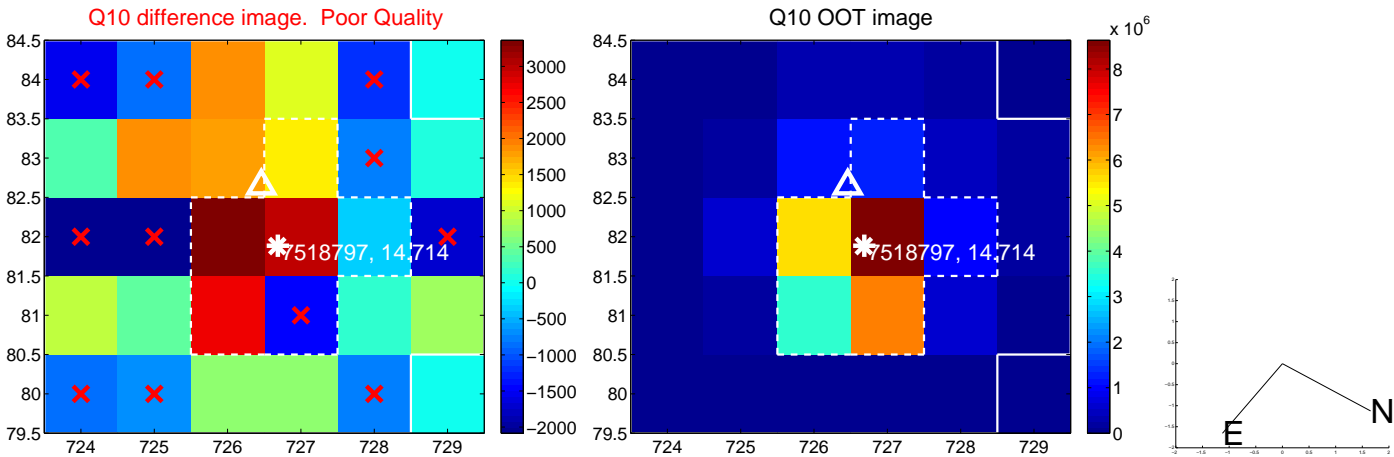
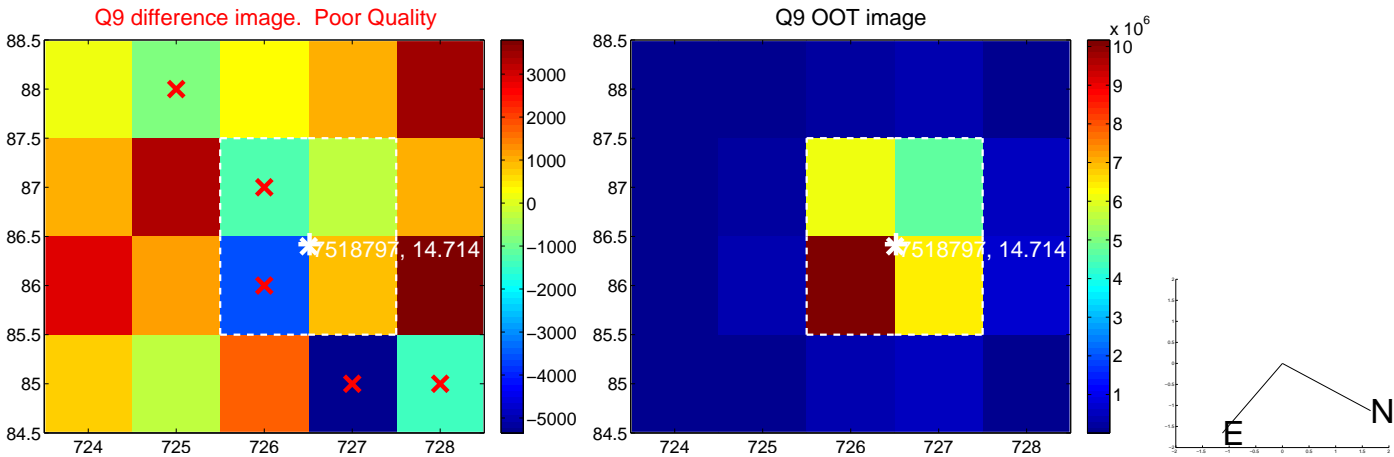


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

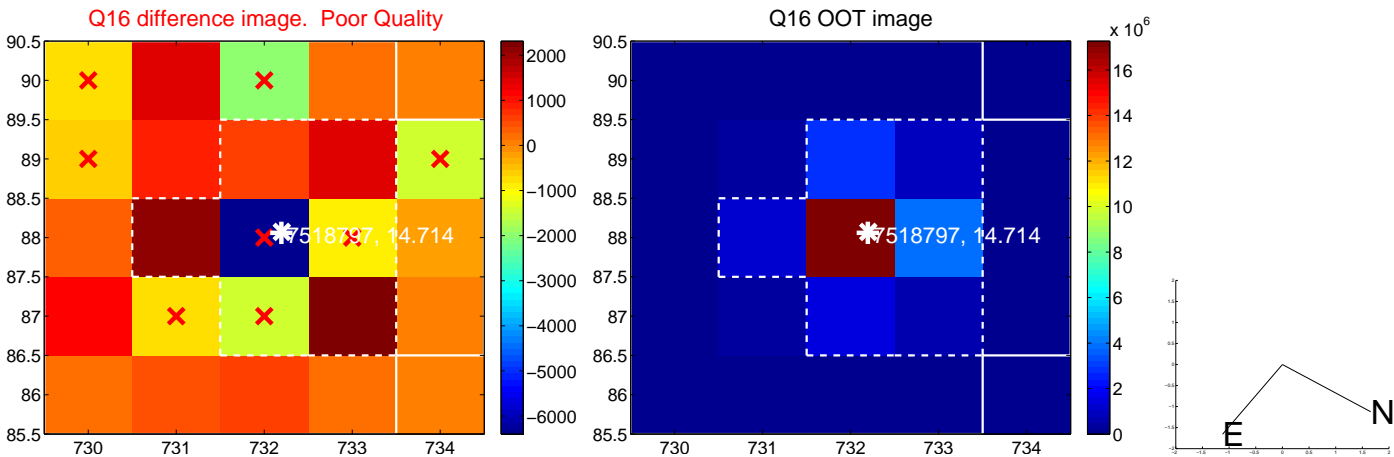
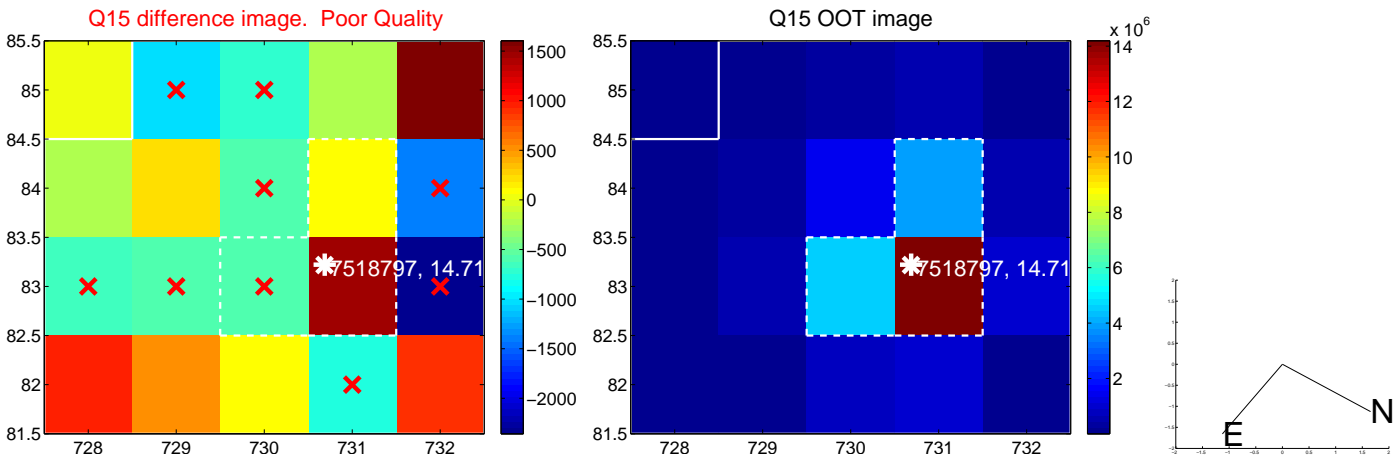
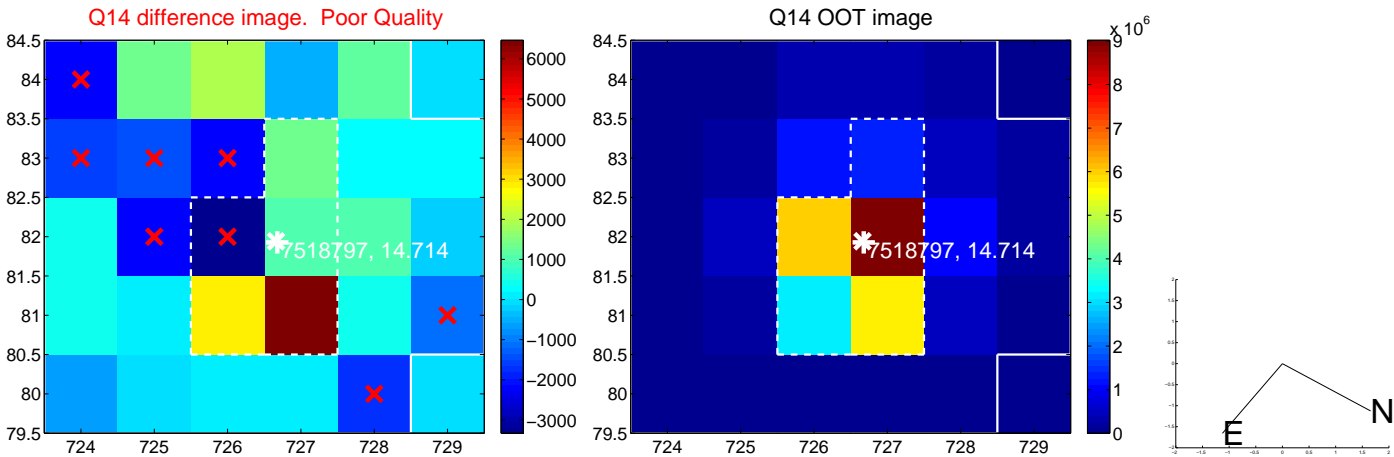
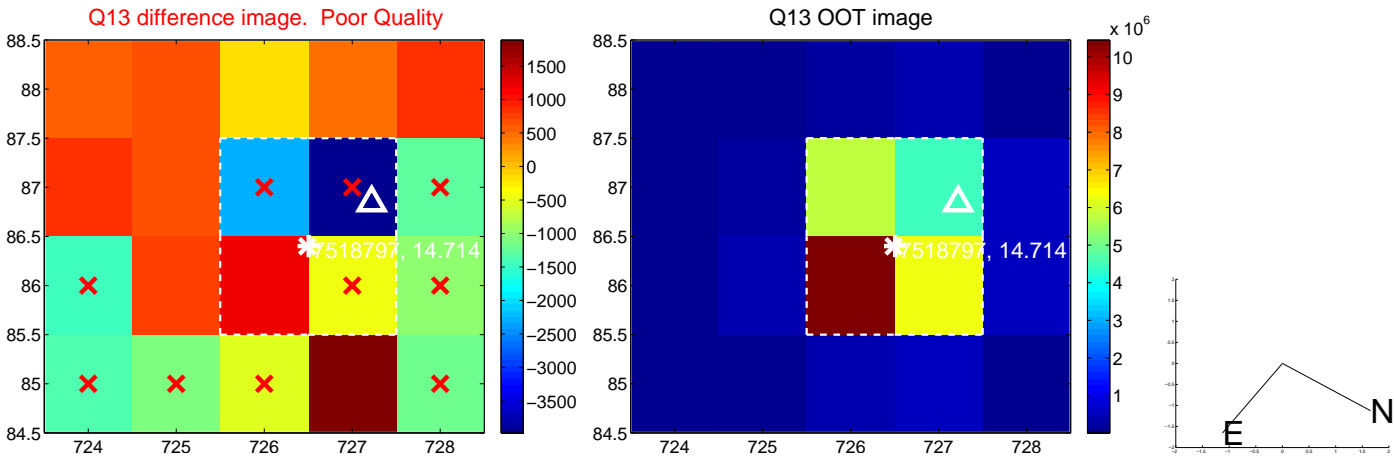




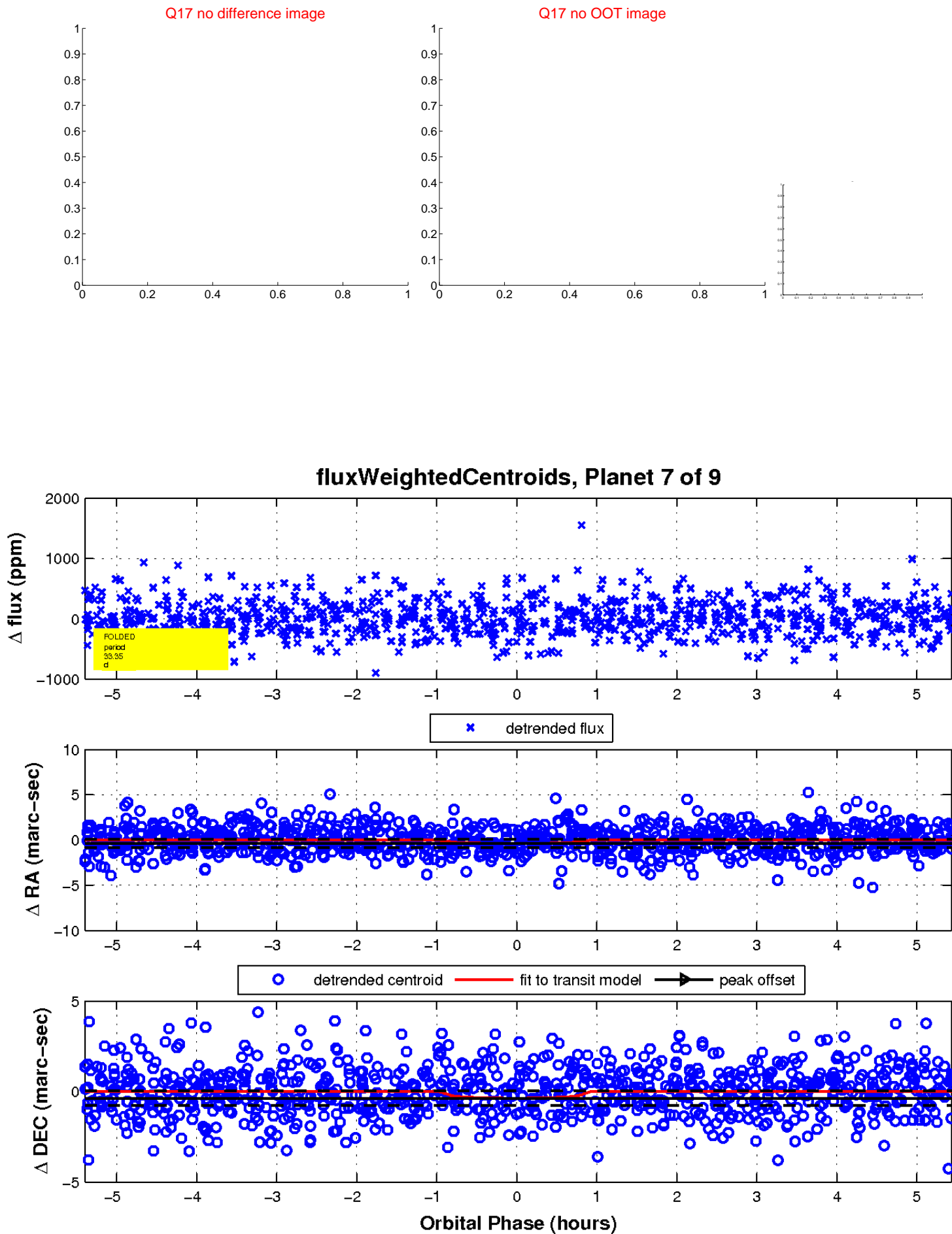
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

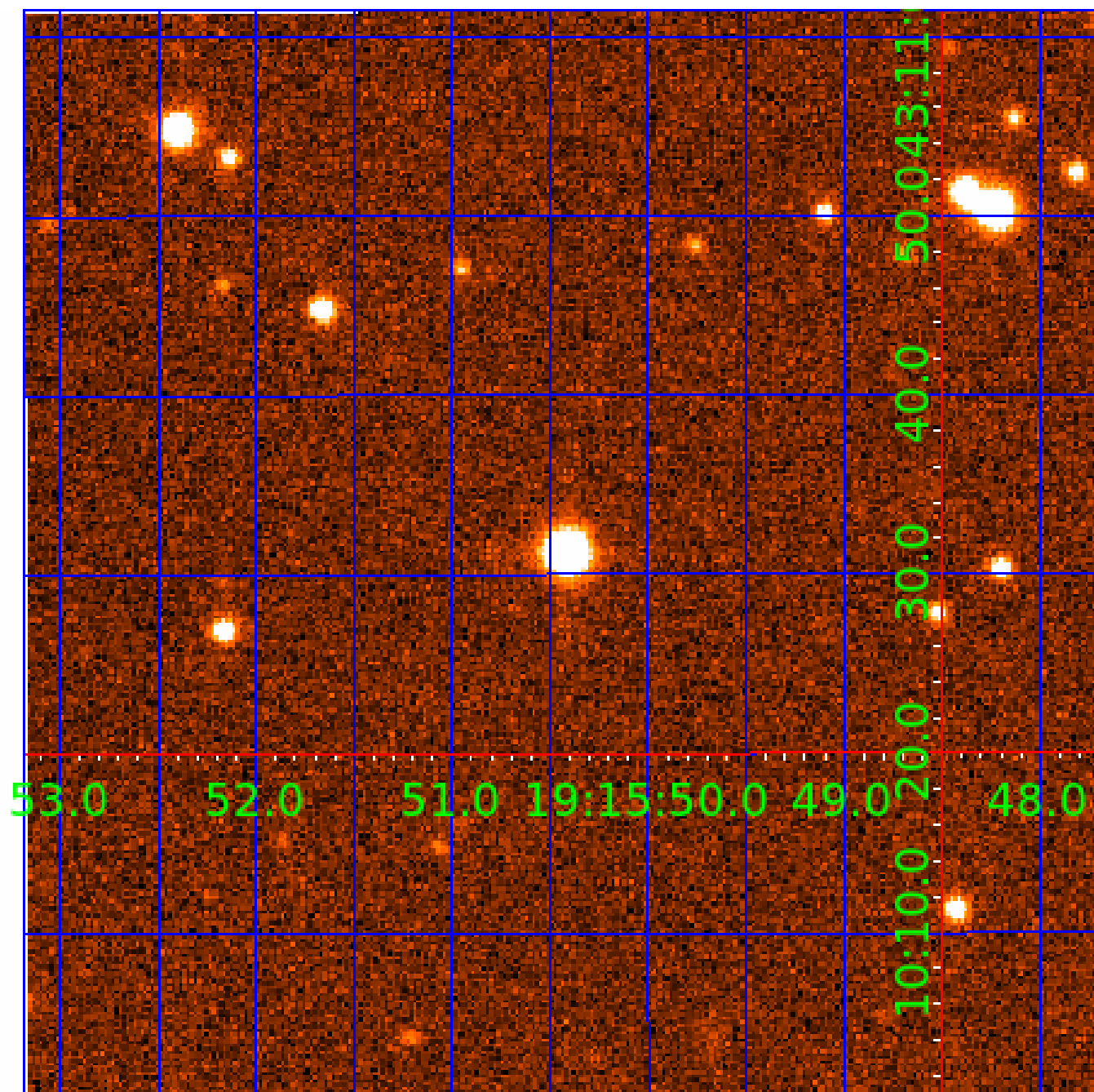


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 007518797

## Q1-17 DR25 TCE Parameters

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007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
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007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

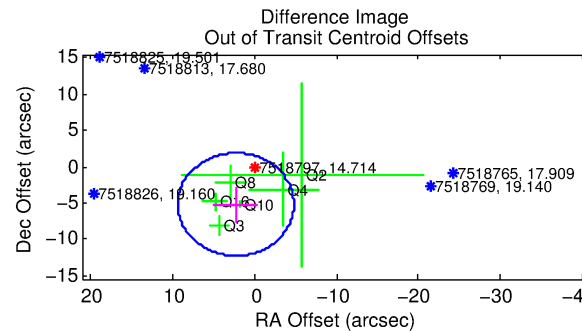
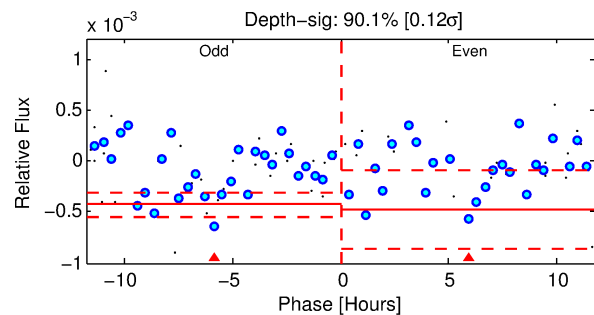
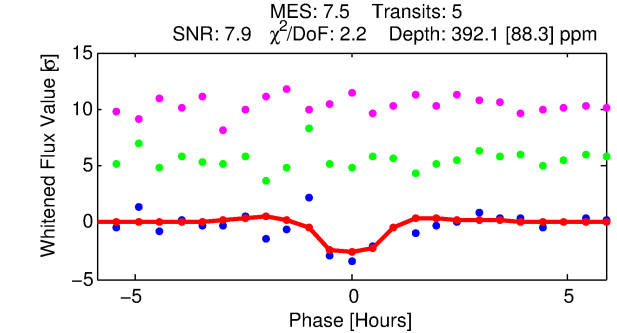
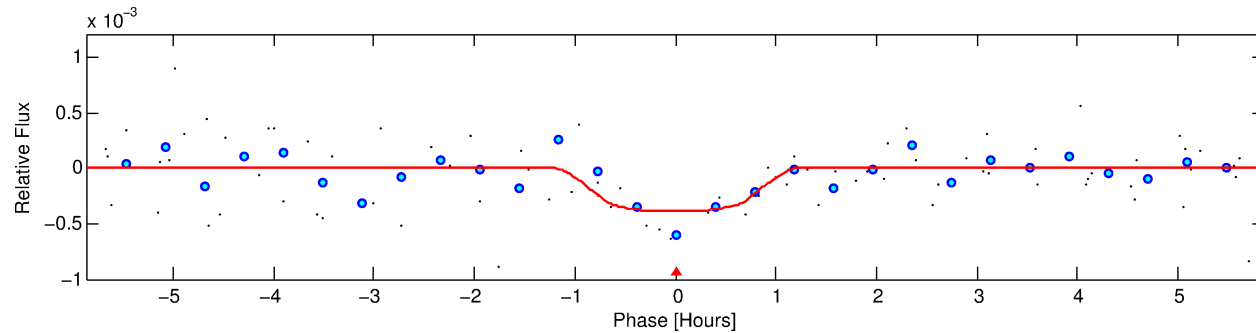
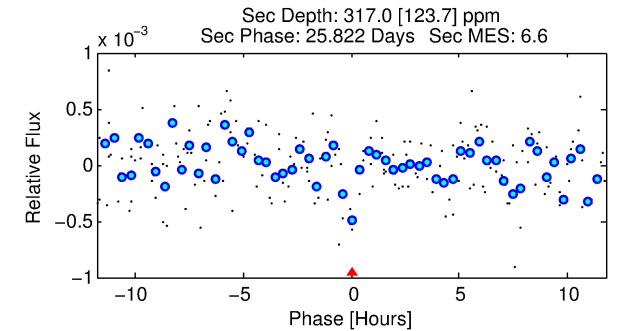
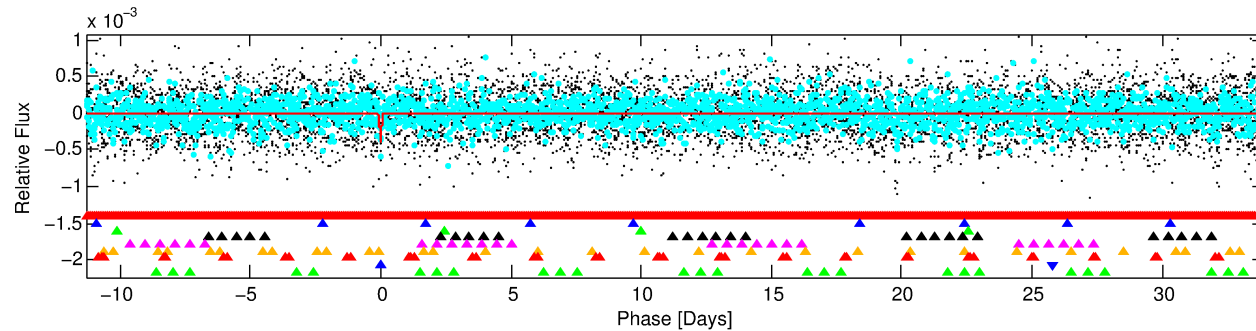
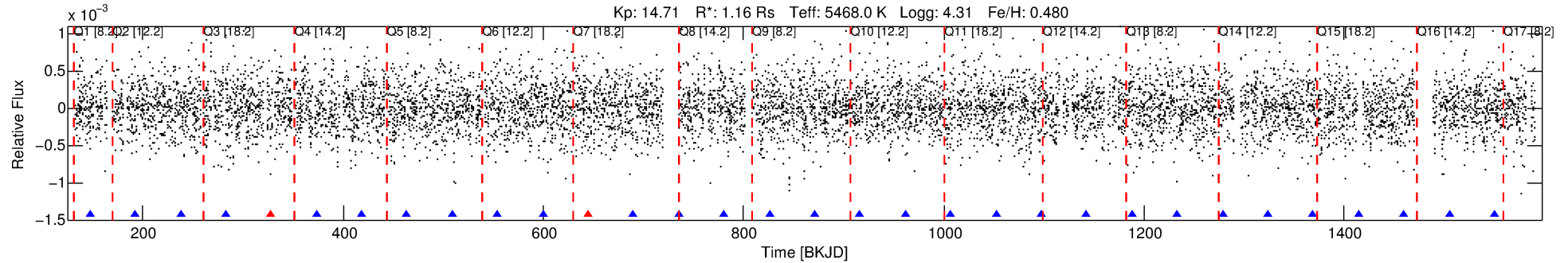
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-08

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 8 of 9 Period: 45.251 d



## DV Fit Results:

Period = 45.25123 [0.00082] d  
Epoch = 147.1910 [0.0126] BKJD  
Rp/R\* = 0.0207 [0.0478]  
a/R\* = 104.14 [950.59]  
b = 0.83 [3.43]  
Seff = 17.41 [5.90]  
Teff = 521 [44] K  
Rp = 2.62 [6.09] Re  
a = 0.2486 [0.0536] AU  
Ag = 1567.19 [7273.00] [0.22 $\sigma$ ]  
Teffp = 5067 [5867] K [0.77 $\sigma$ ]

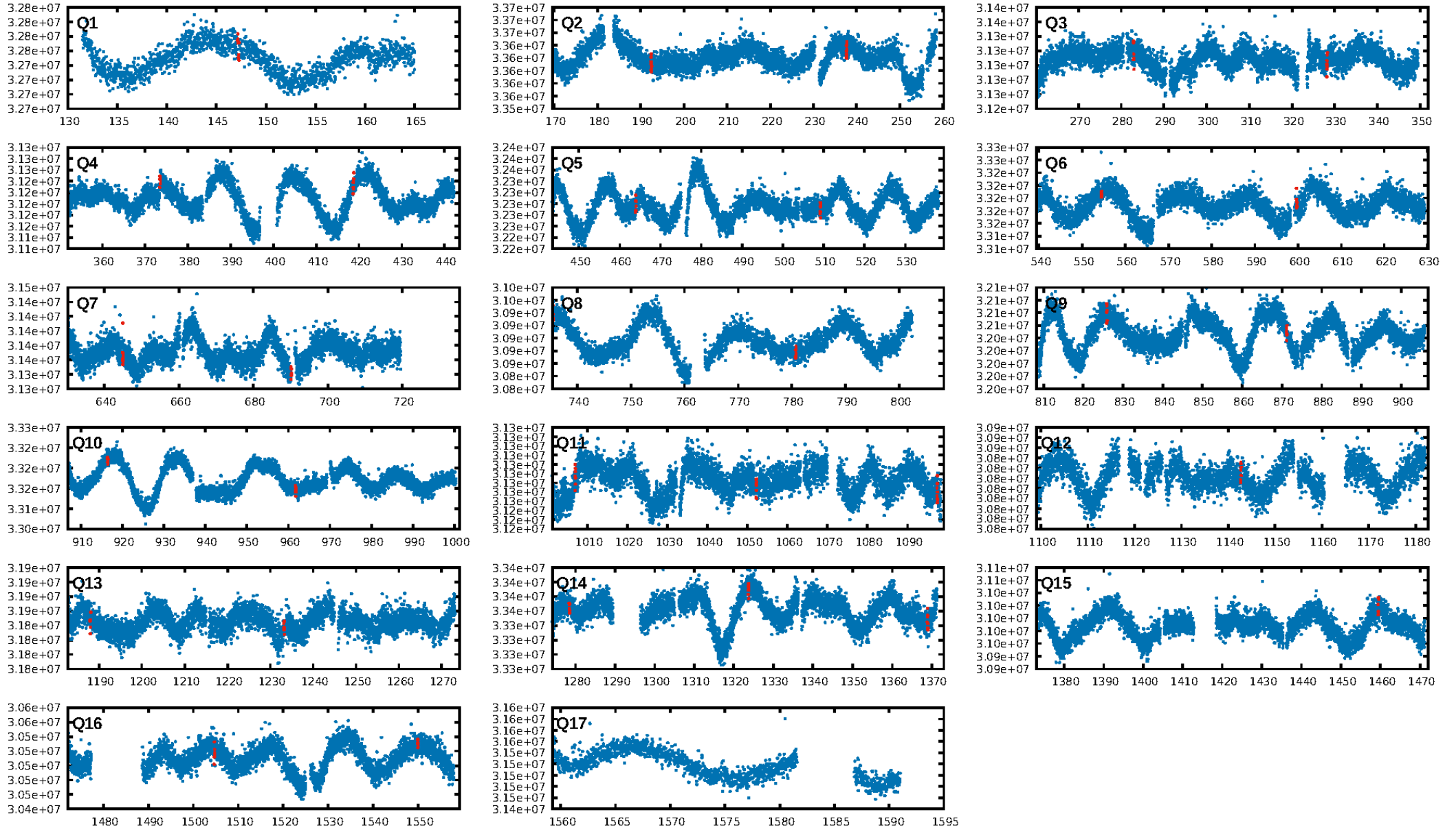
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [107.10 $\sigma$ ]  
LongPeriod-sig: 100.0% [11.16 $\sigma$ ]  
ModelChiSquare2-sig: 7.6%  
ModelChiSquareGof-sig: 89.5%  
Bootstrap-pfa: 9.37e-07  
RollingBand-fgt: 0.60 [3/5]  
GhostDiagnostic-chr: -0.9385  
Centroid-sig: 3.8%  
Centroid-so: 1.680 arcsec [1.53 $\sigma$ ]  
OotOffset-rm: 5.677 arcsec [2.40 $\sigma$ ]  
KicOffset-rm: 5.659 arcsec [2.40 $\sigma$ ]  
OotOffset-st: 2/1/3/0 [6]  
KicOffset-st: 2/1/3/0 [6]  
DiffImageQuality-fgm: 0.17 [1/6]  
DiffImageOverlap-fno: 0.44 [7/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:22:02 Z

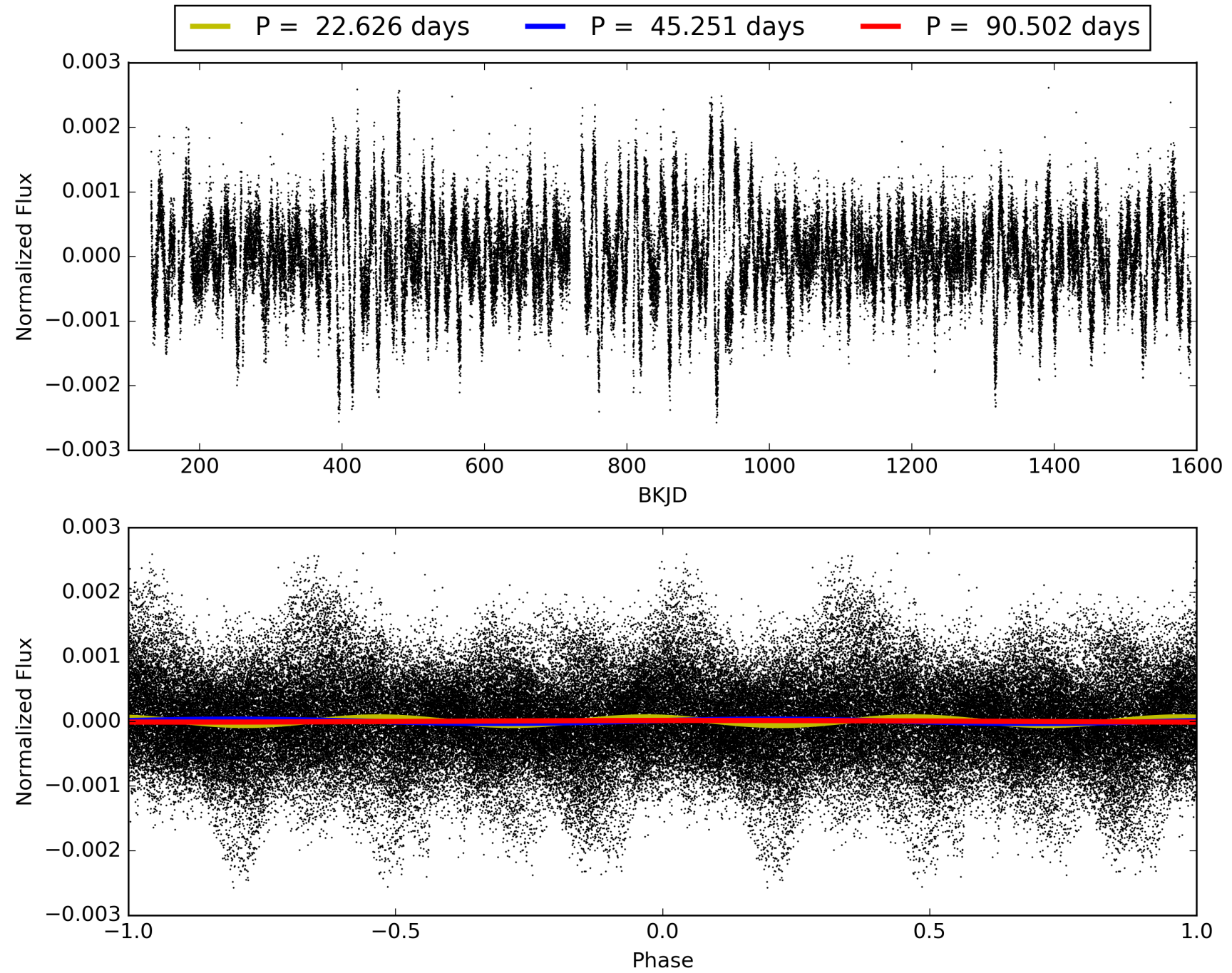
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007518797-08, PDC Light Curves





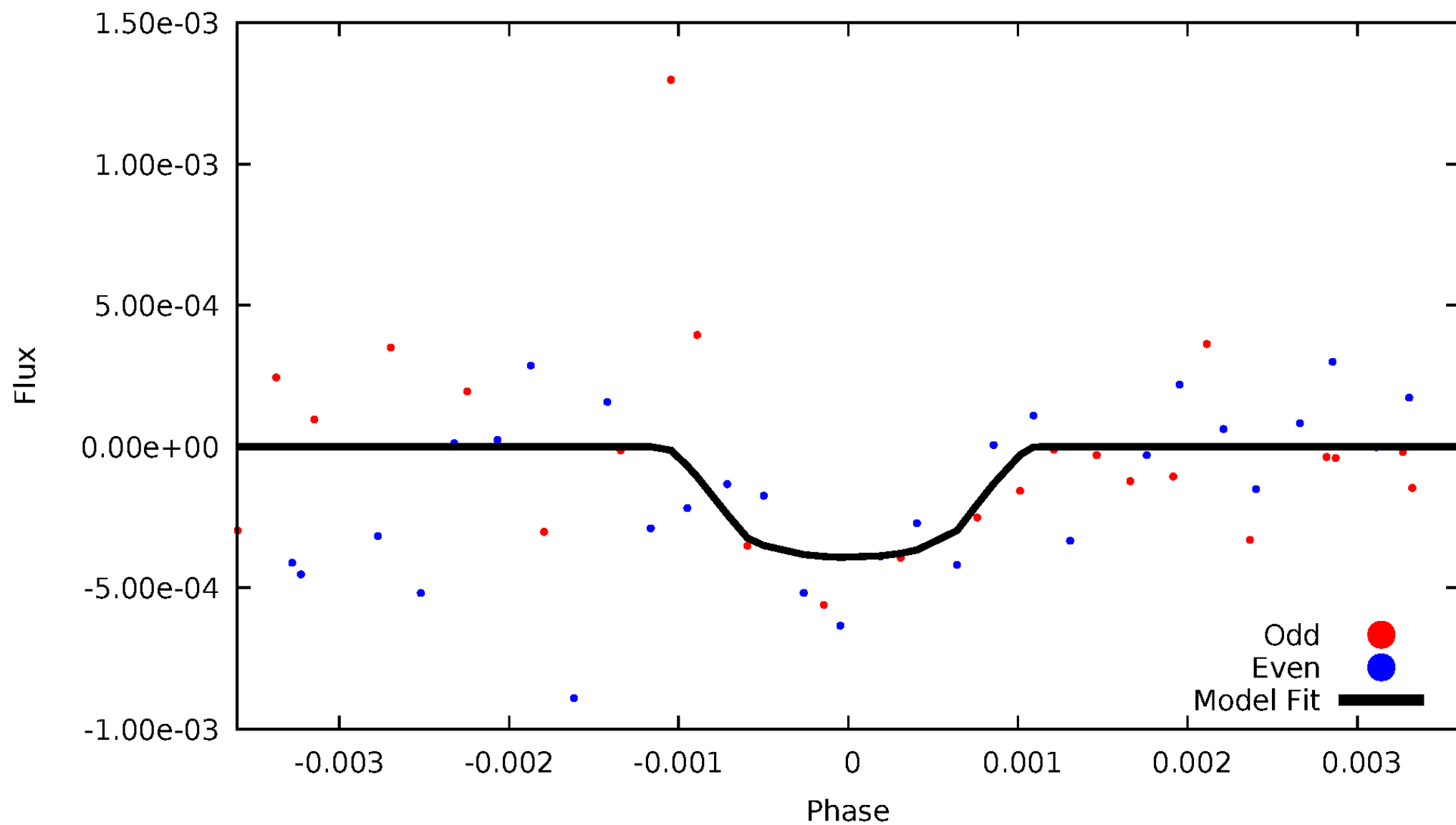
TCE 007518797-08





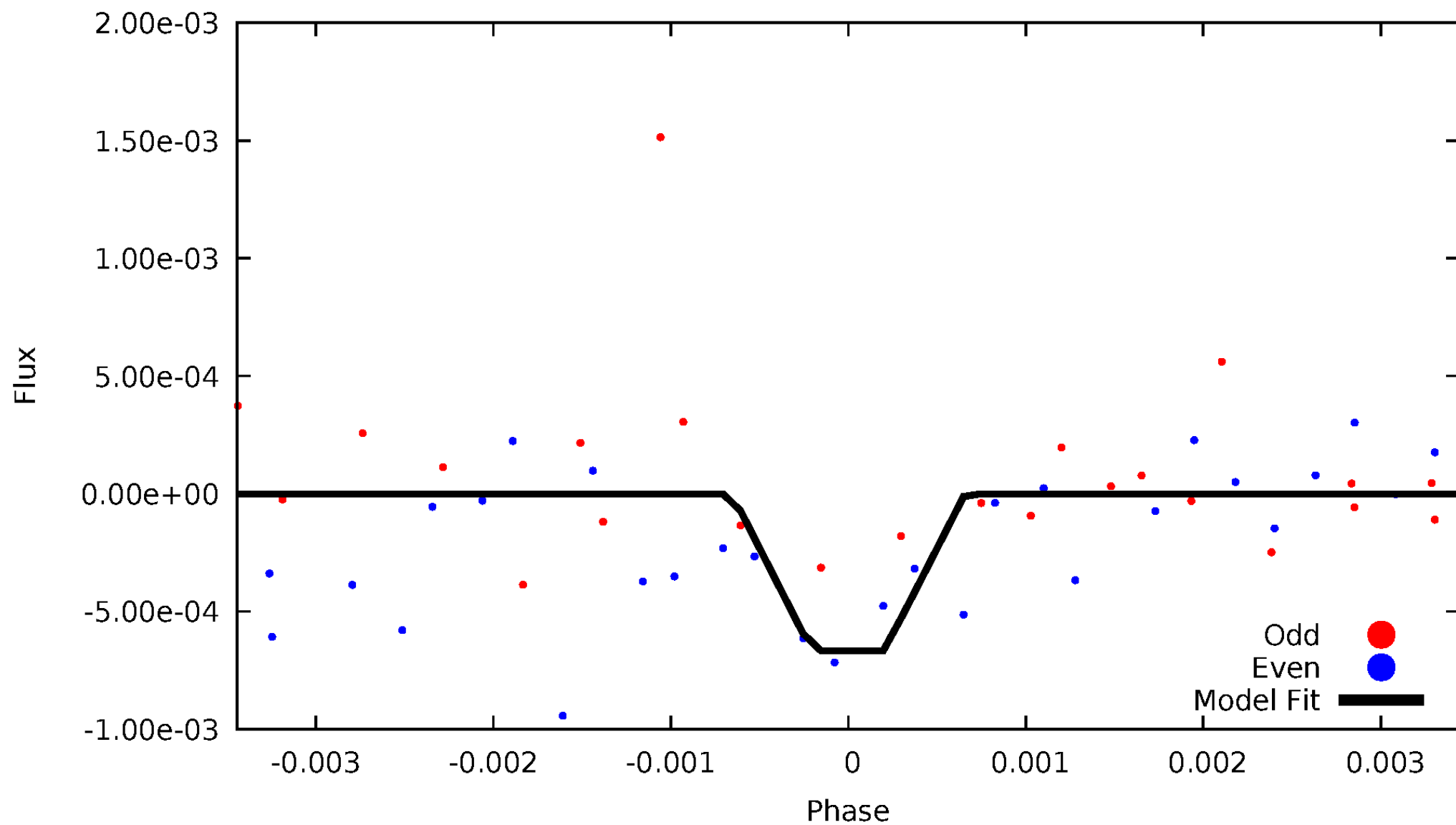
# DV Odd/Even

TCE 007518797-08



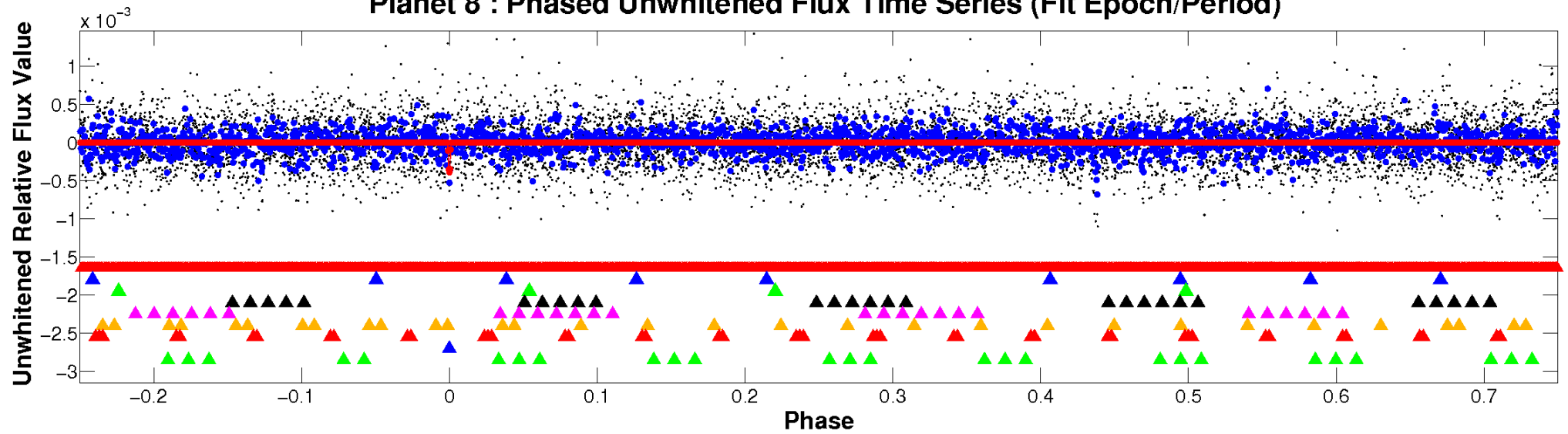
# ALT Odd/Even

TCE 007518797-08

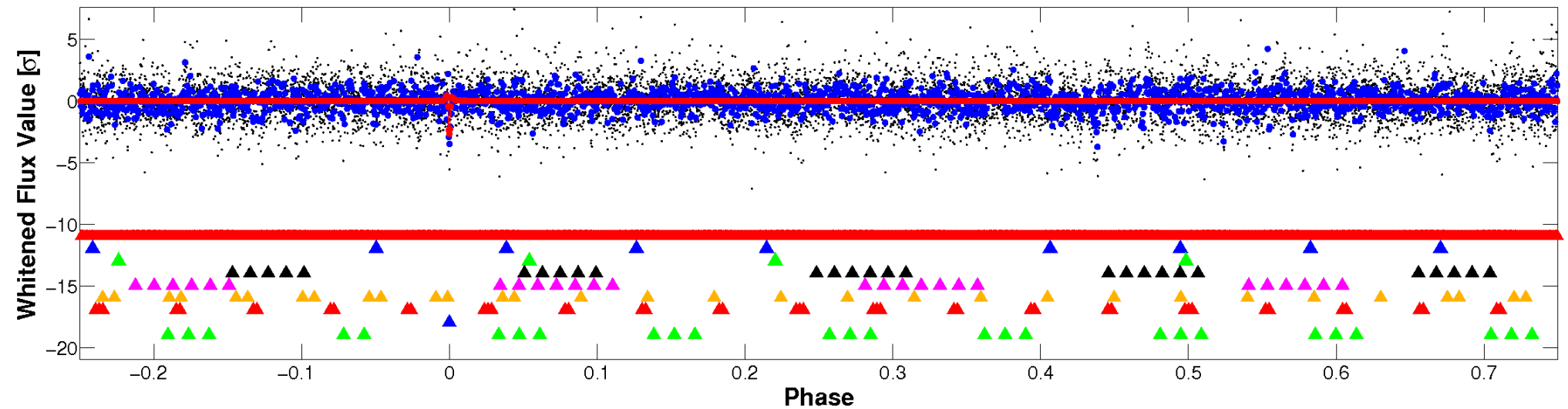


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

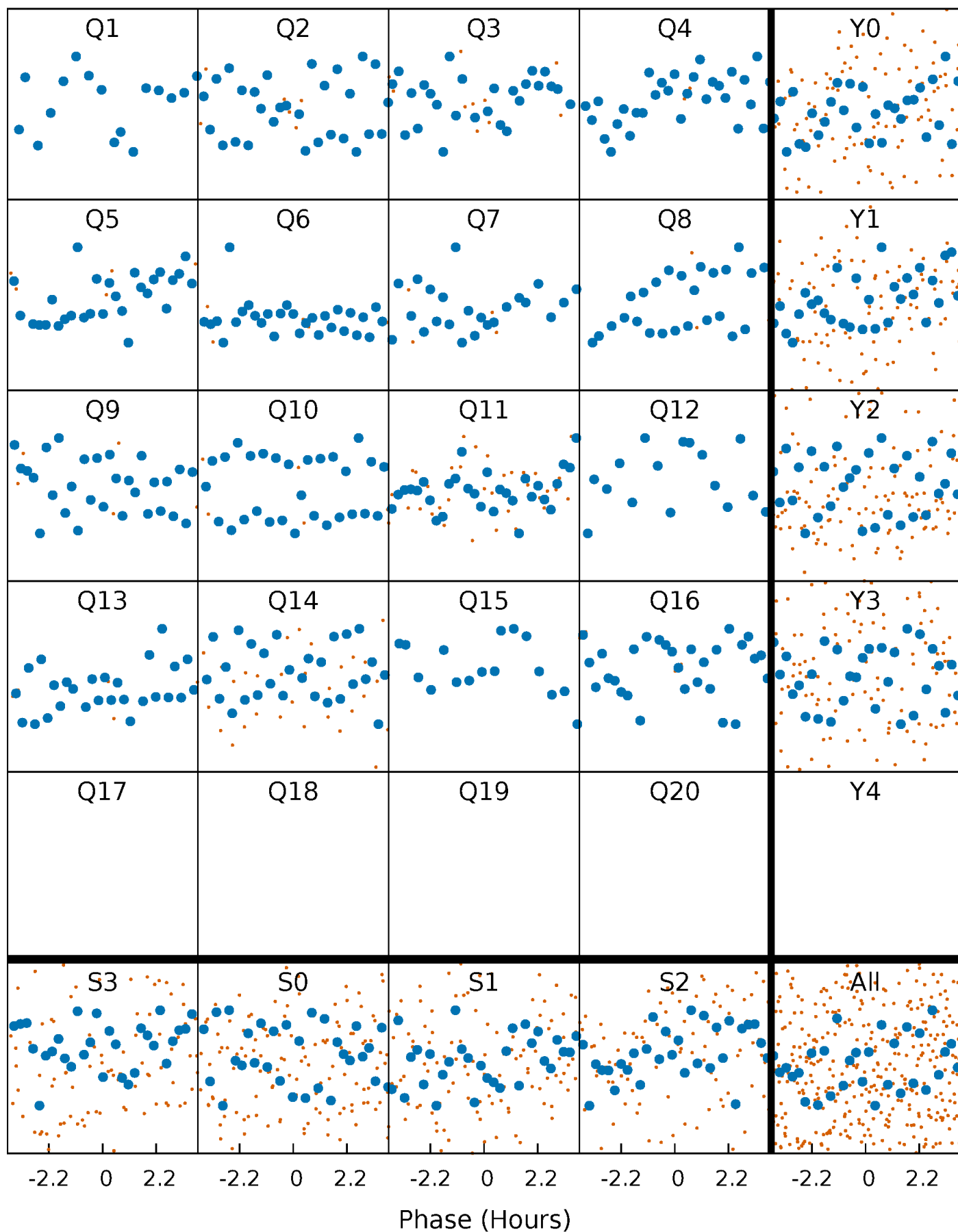


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



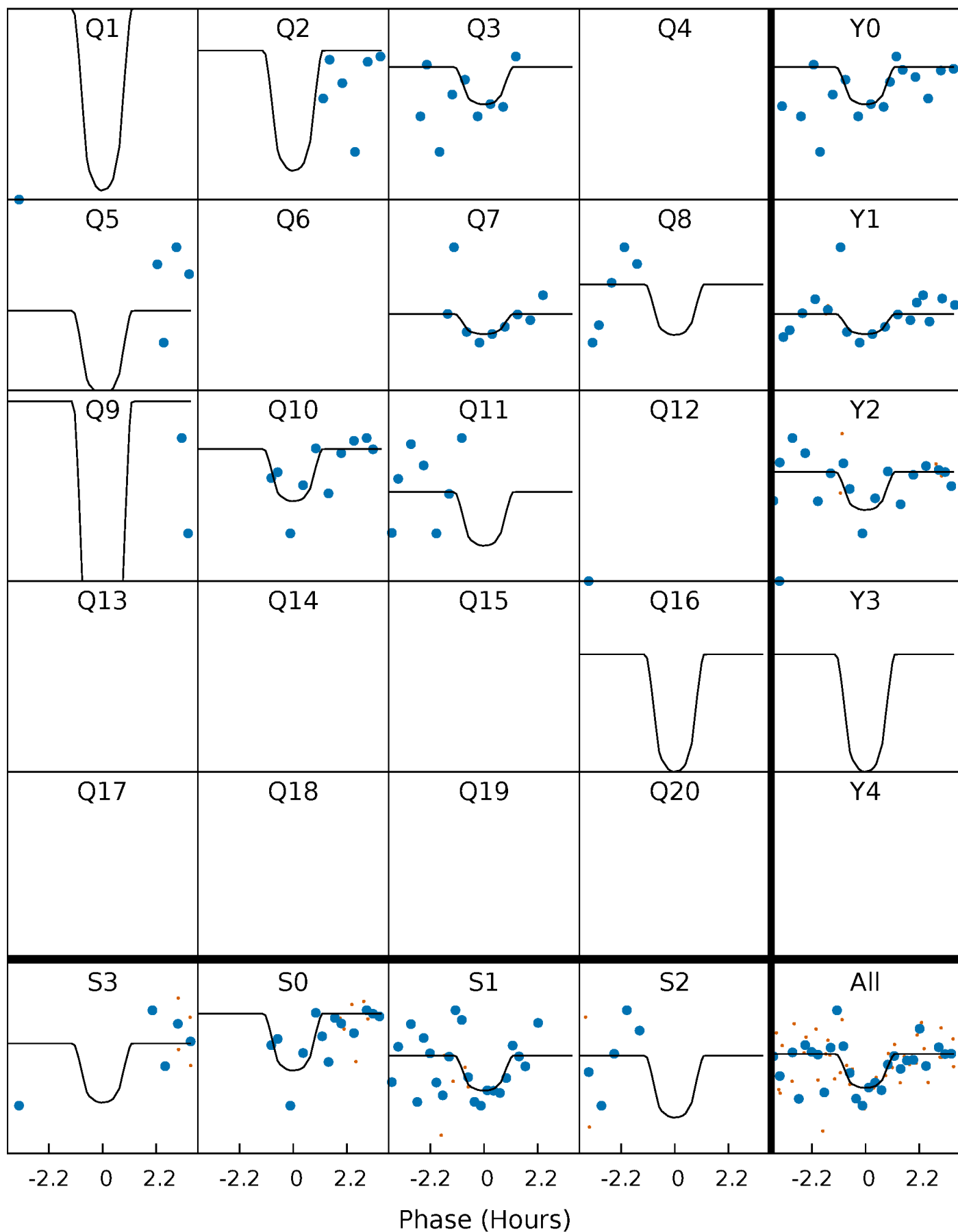
# PDC Quarter-Phased Transit Curves

TCE 007518797-08 P= 45.251225 Days  $T_0=147.191038$  (BKJD)



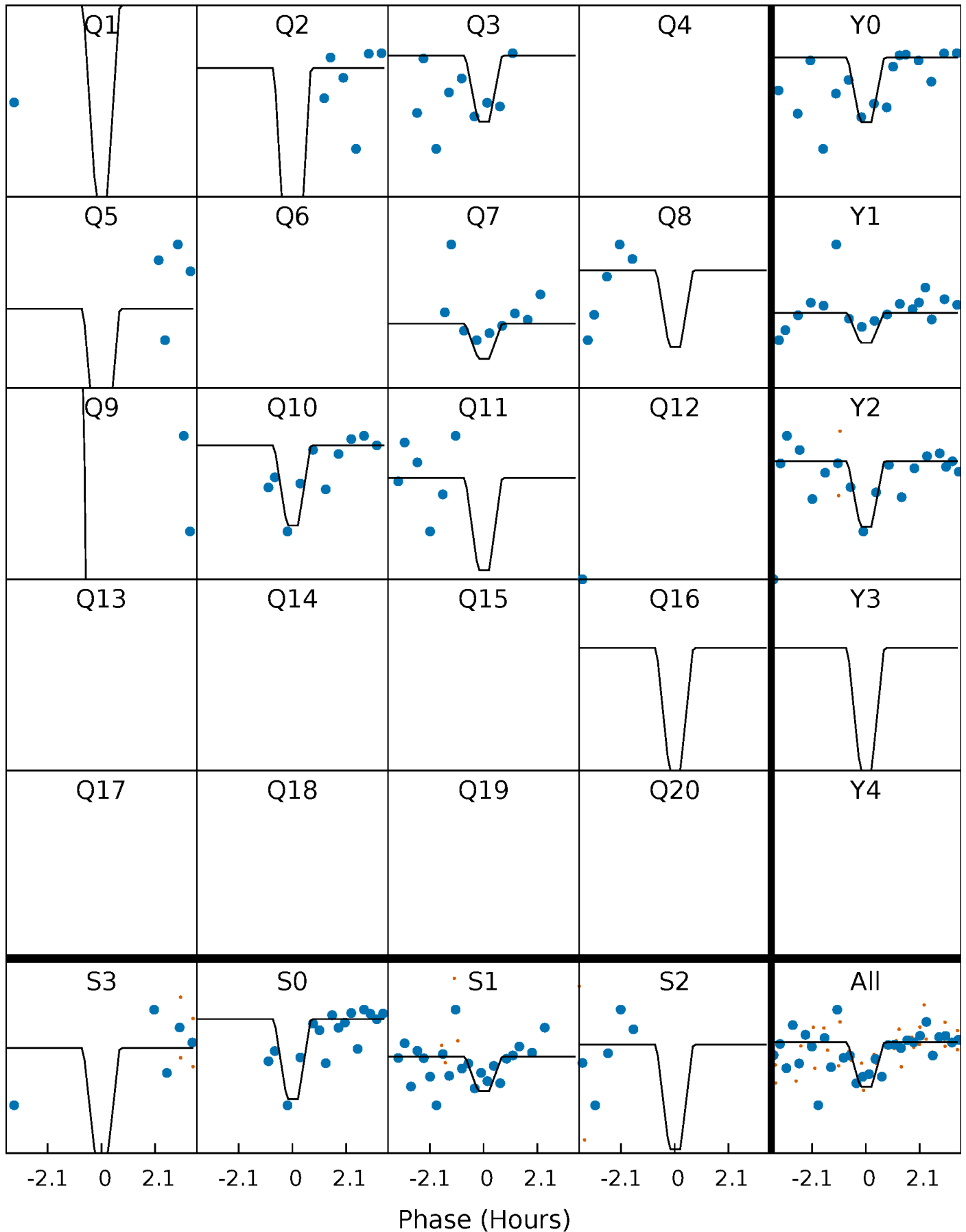
# DV Quarter-Phased Transit Curves

TCE 007518797-08 P= 45.251225 Days  $T_0=147.191038$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

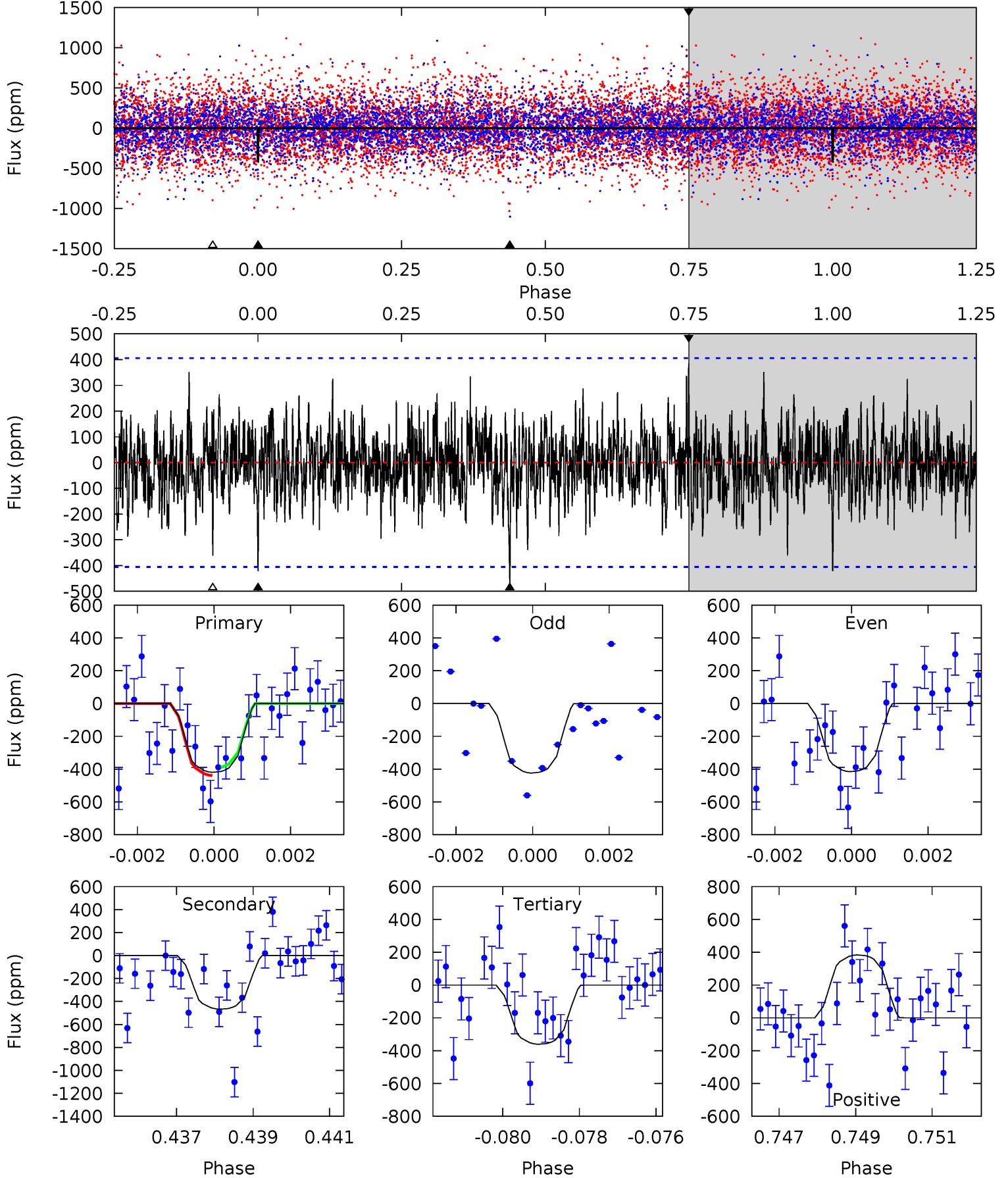
TCE 007518797-08     $P = 45.251348$  Days     $T_0 = 147.190188$  (BKJD)



# DV Model-Shift Uniqueness Test

007518797-08, P = 45.251225 Days, E = 101.939813 Days

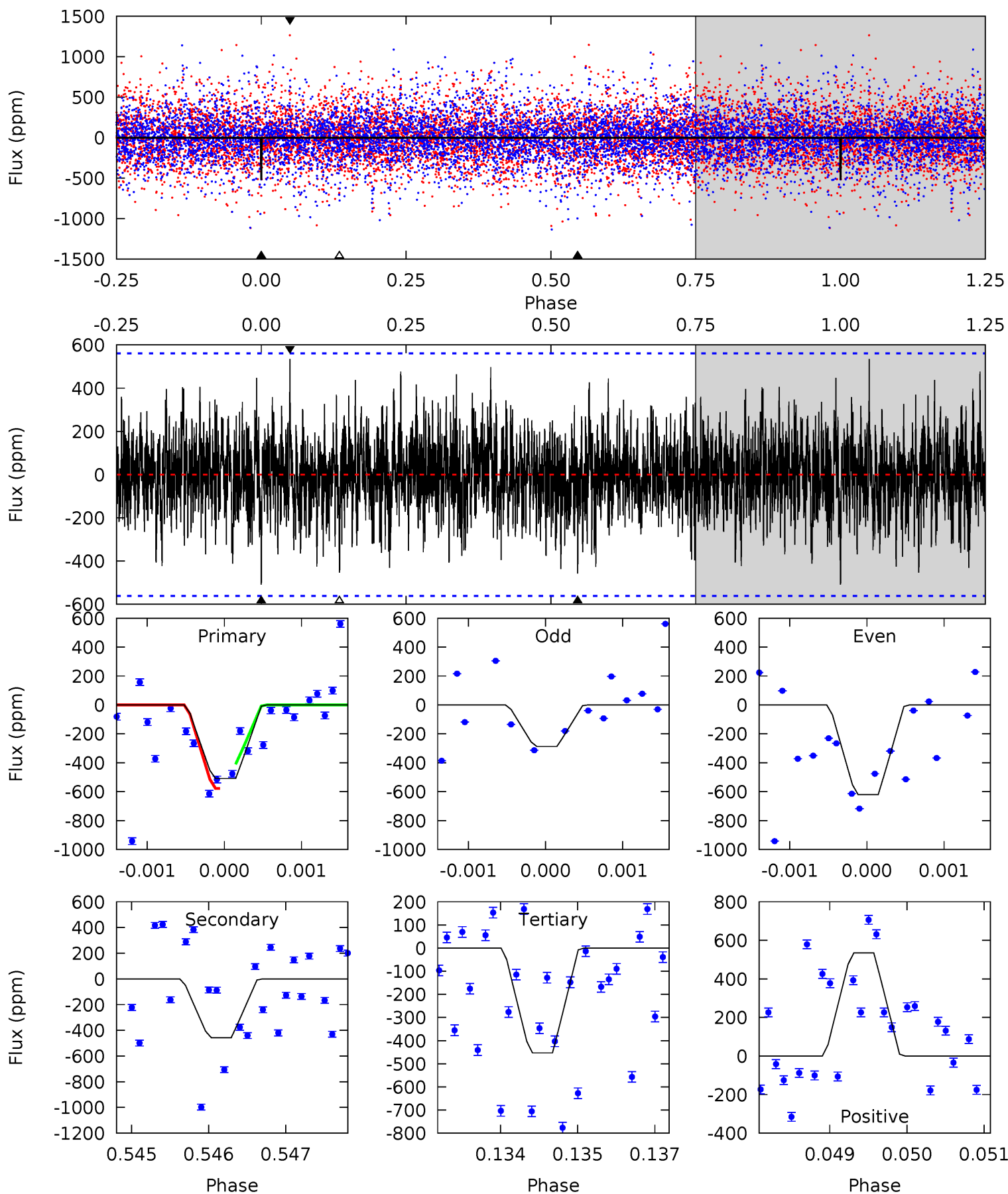
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.51	6.14	4.74	5.04	5.32	3.08	1.35	0.77	0.47	1.40	1.10	0.06	0.96	0.45	0.33



# Alt Model-Shift Uniqueness Test

007518797-08, P = 45.251348 Days, E = 101.938840 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
4.89	4.39	4.36	5.14	5.40	3.20	1.34	0.54	-0.25	0.04	-0.75	1.38	0.89	0.51	0.81





### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-08 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-468 \pm 76$	$4.89^{+5.27}_{-3.32}$	$729^{+51}_{-45}$	$4276^{+2892}_{-930}$	$649^{+5499}_{-498}$
Alt.	$-457 \pm 104$	$5.86^{+5.18}_{-3.77}$	$731^{+51}_{-48}$	$4034^{+2123}_{-804}$	$457^{+3052}_{-335}$

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

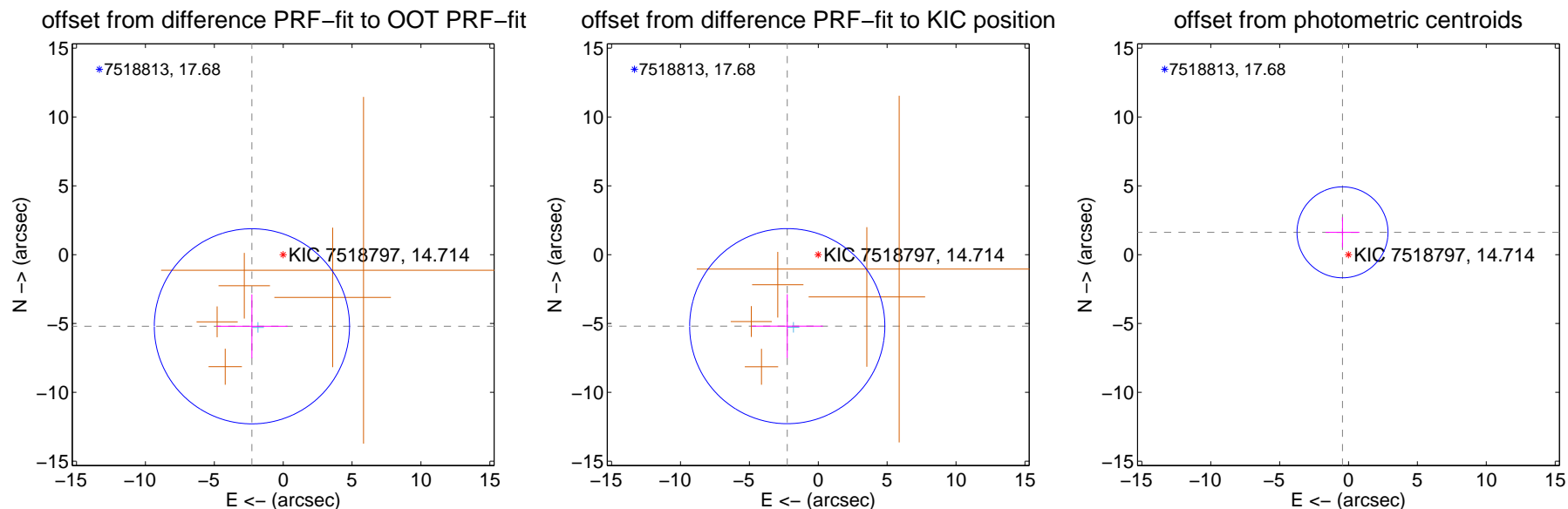
## DV Centroid Data

Supplemental centroid analysis for 007518797-08. Kepler magnitude: 14.71. Transit SNR 7.95

There are 1 quarters with good PRF difference image offsets

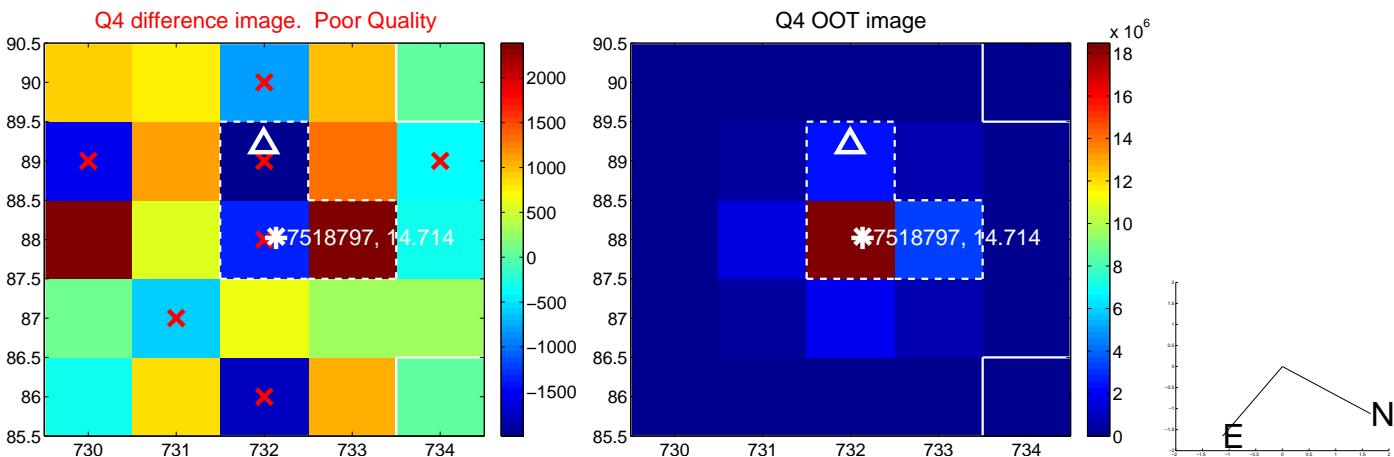
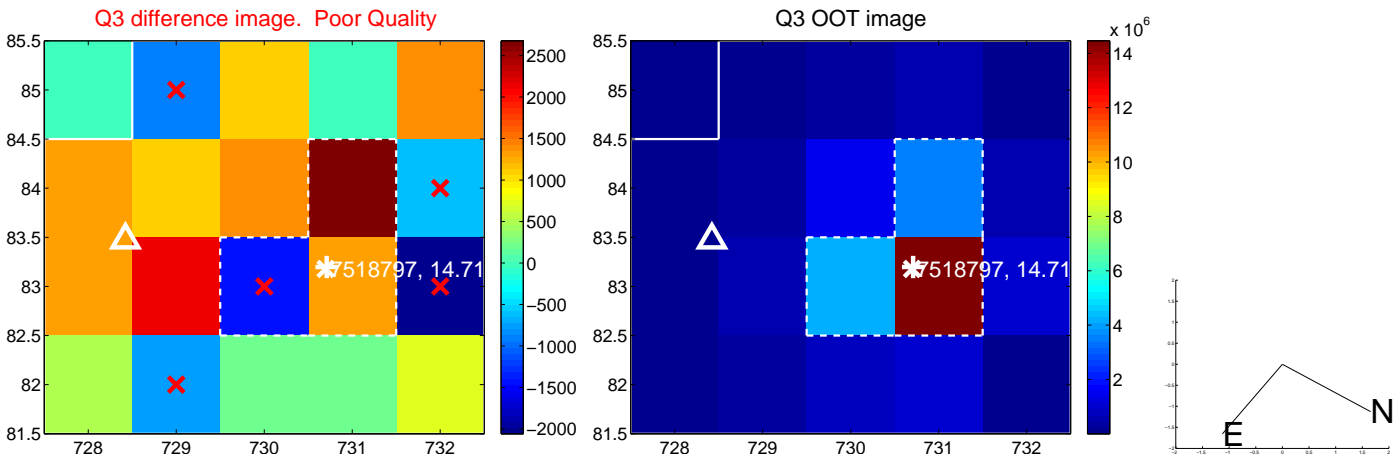
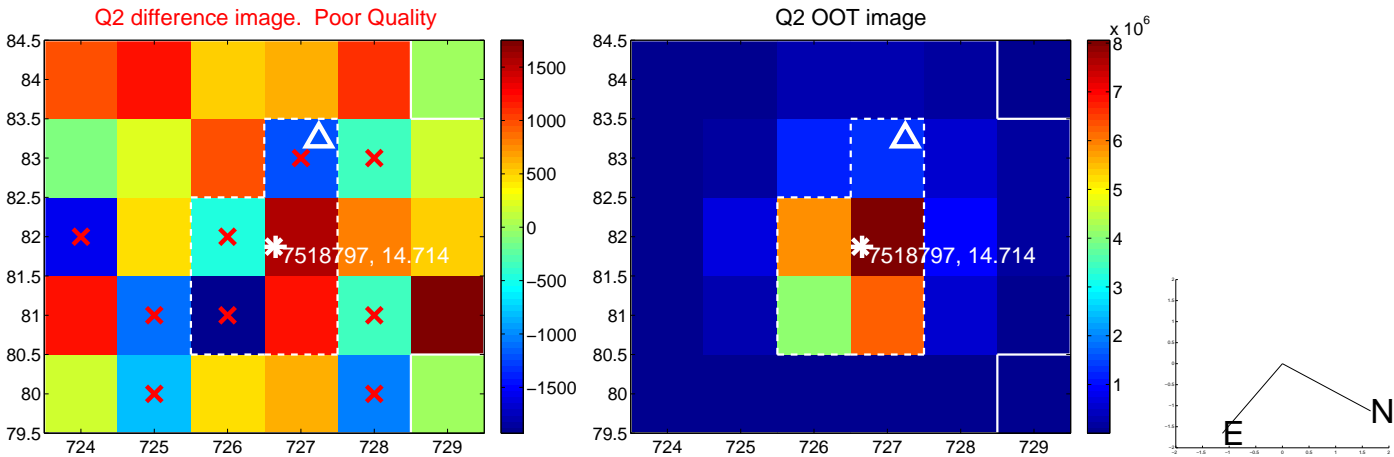
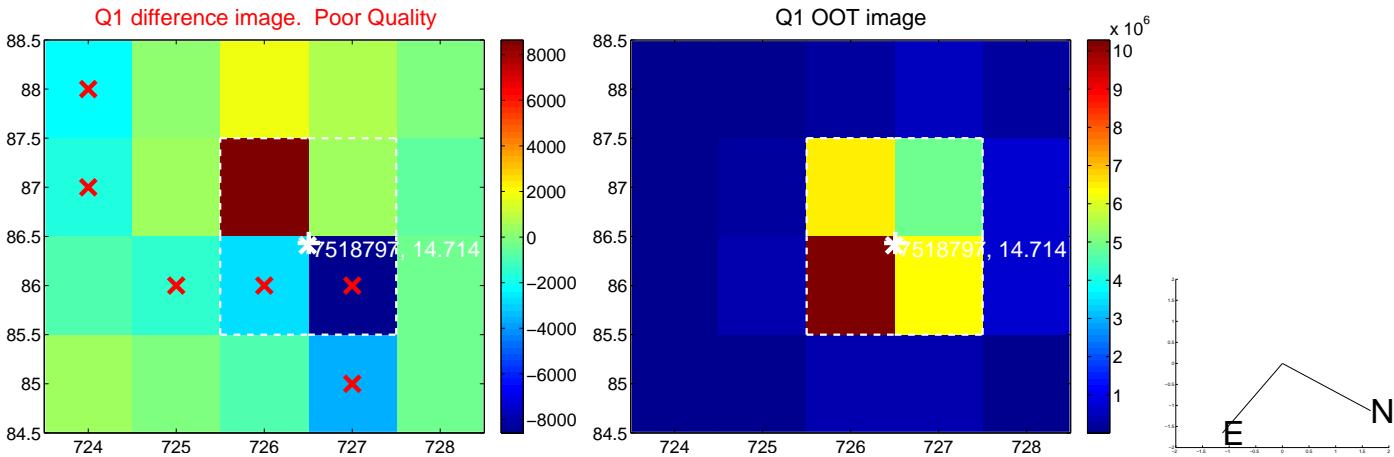
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.677 \pm 2.362$	2.40	$2.270 \pm 2.588$	$-5.203 \pm 2.316$
PRF-fit source offset from KIC position	$5.659 \pm 2.361$	2.40	$2.251 \pm 2.588$	$-5.192 \pm 2.316$
photometric centroid source offset	$1.68 \pm 1.10$	1.53	$0.44 \pm 1.23$	$1.62 \pm 1.09$

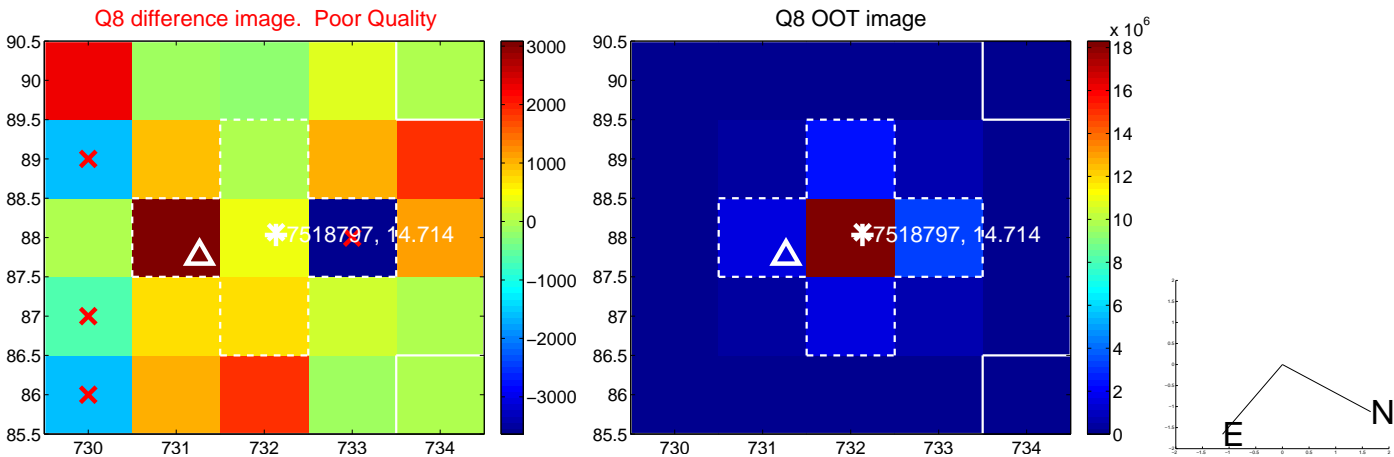
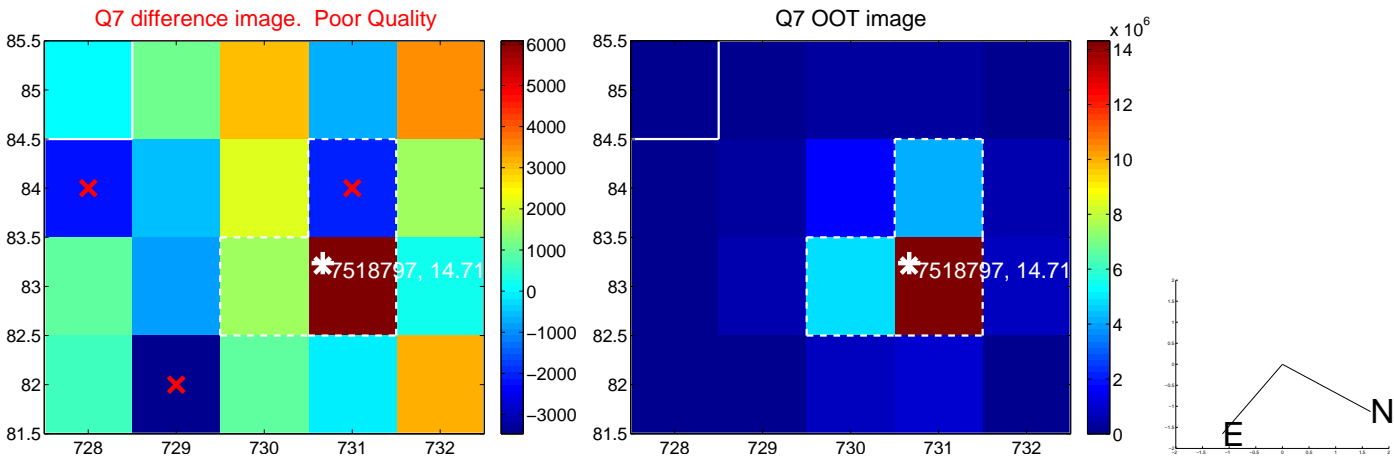
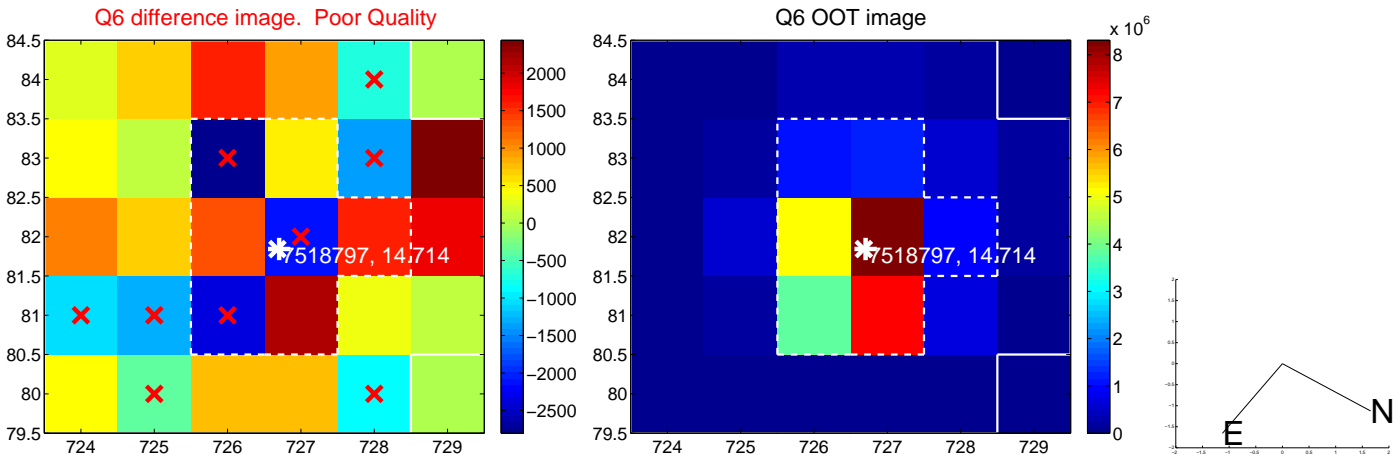
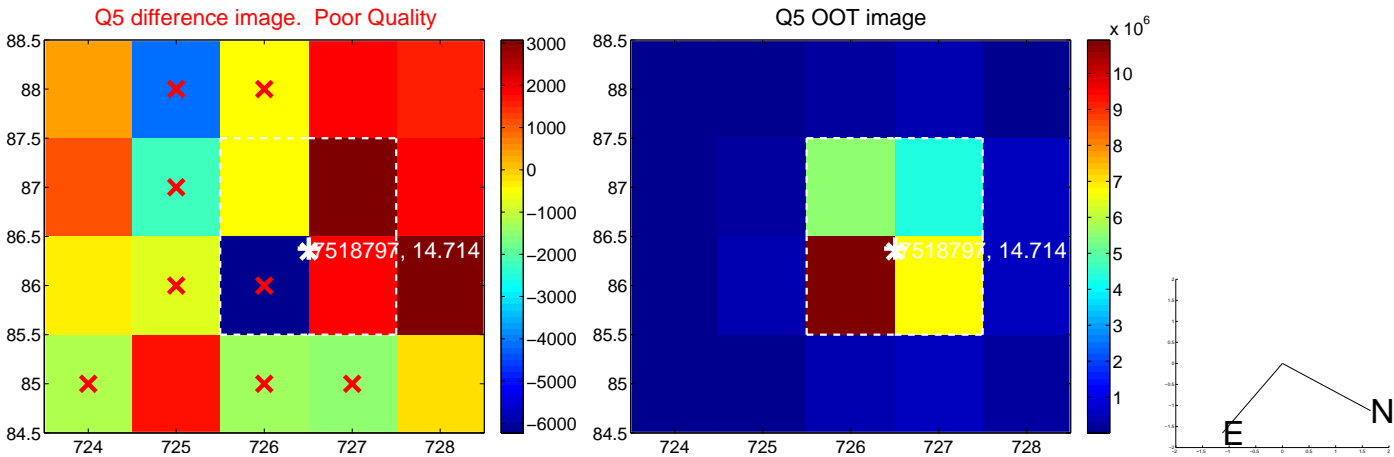


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

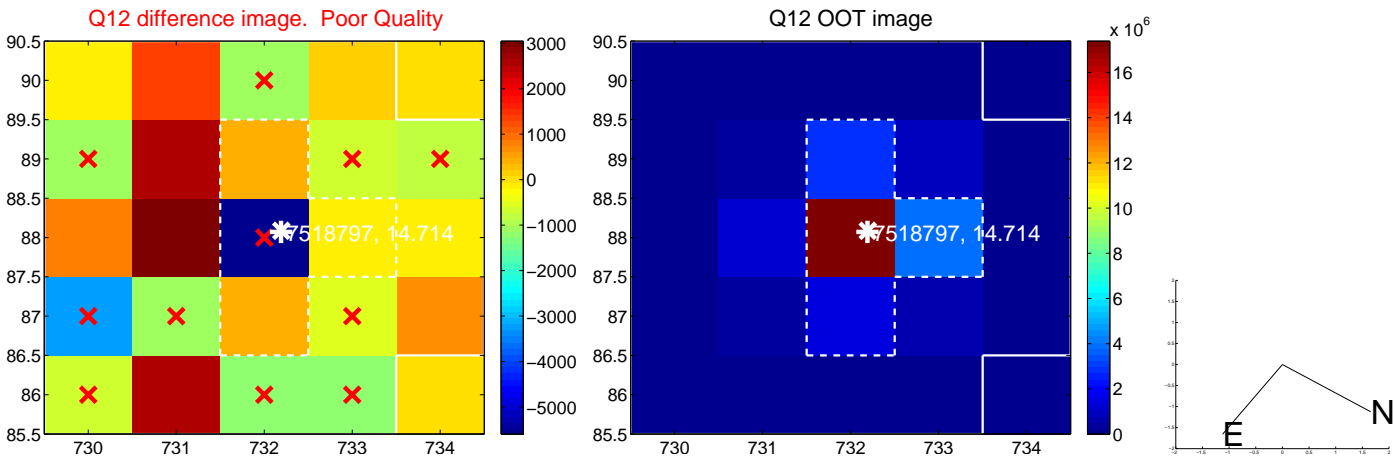
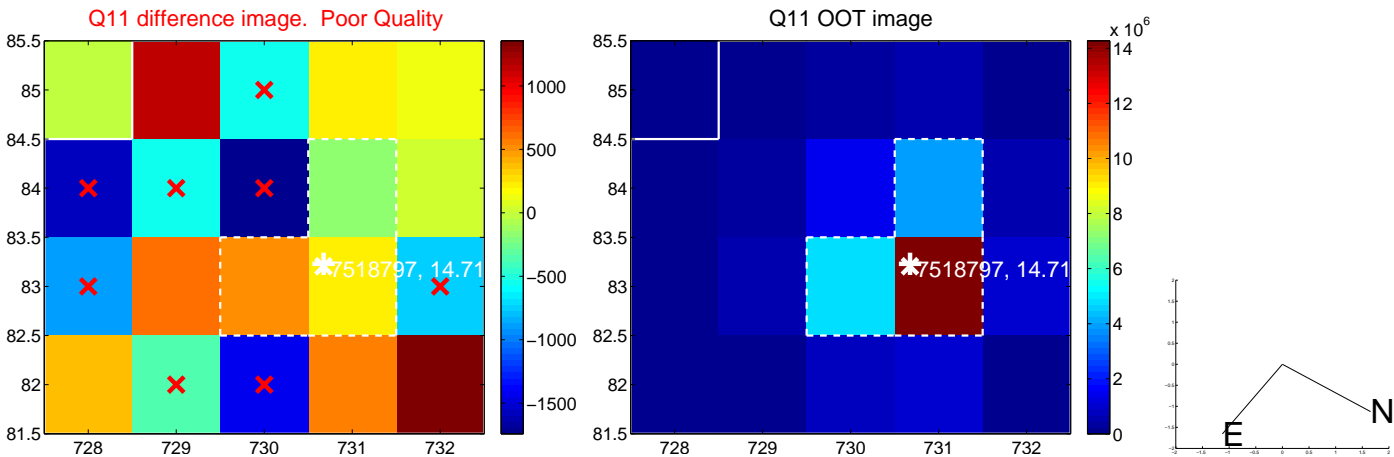
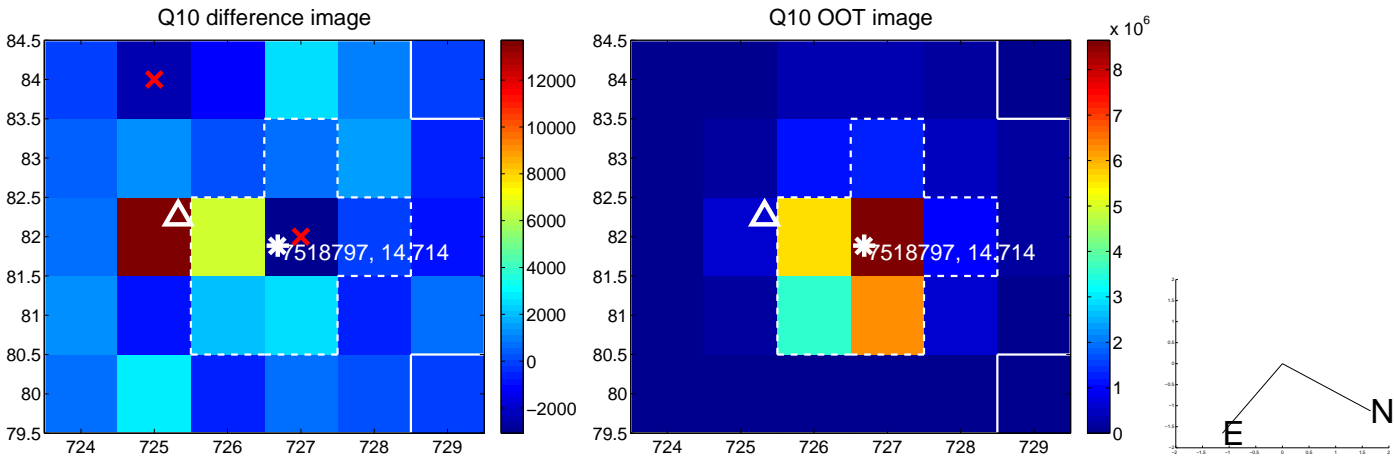
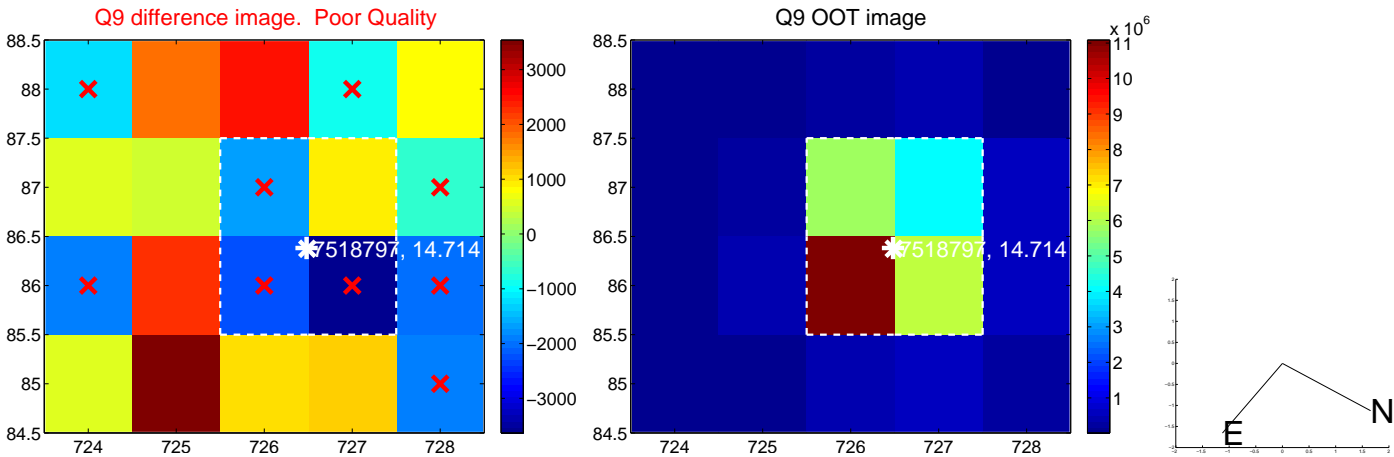
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



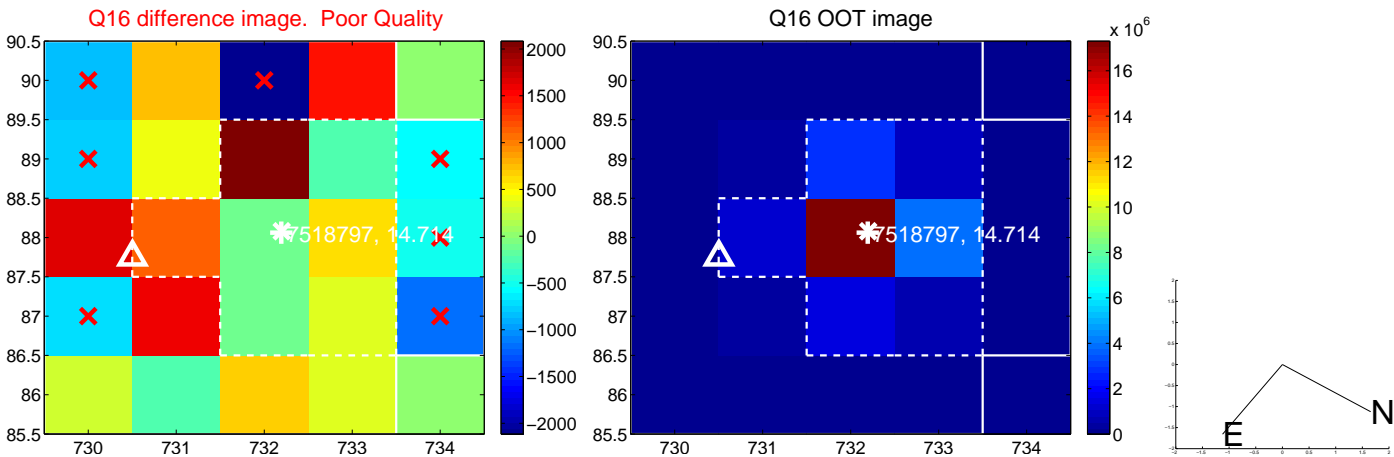
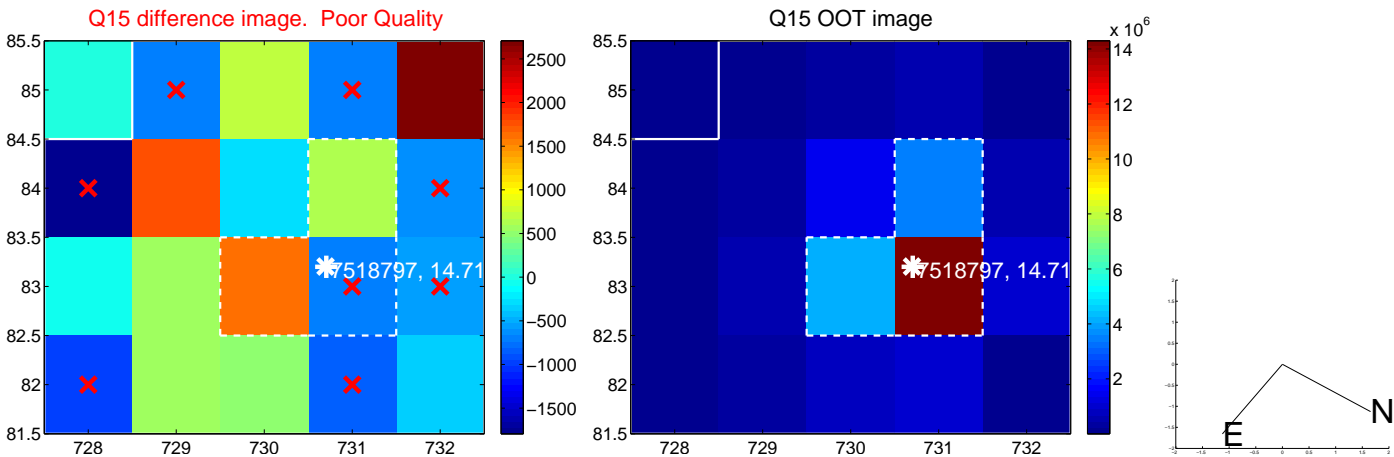
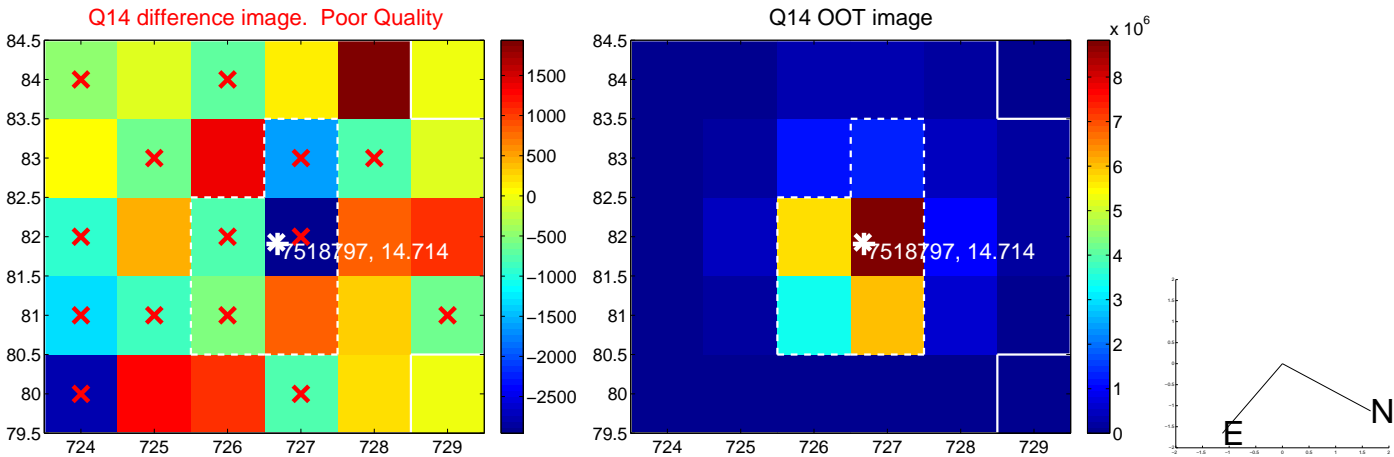
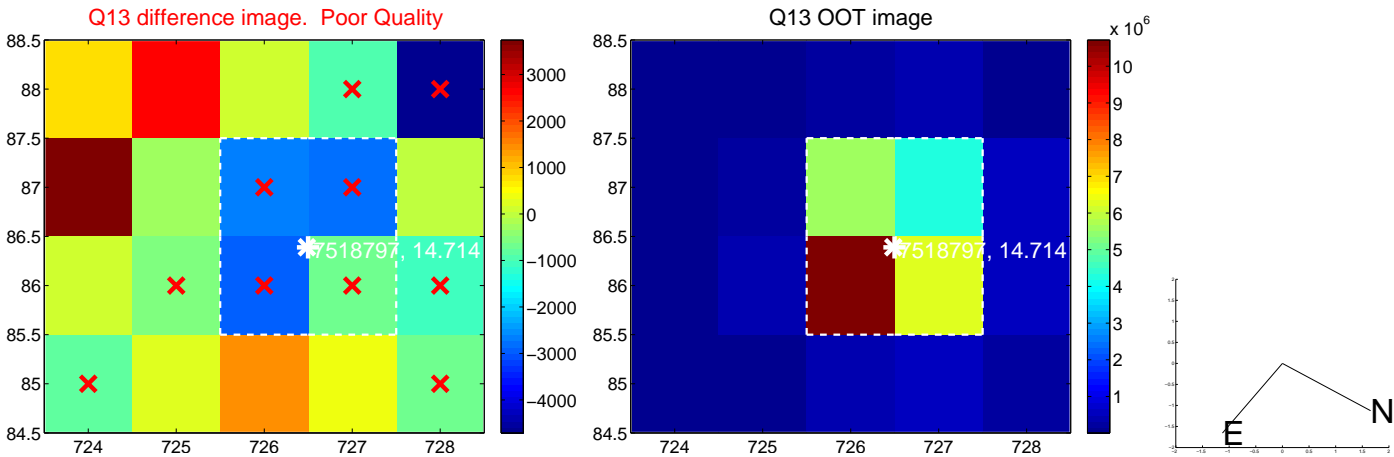
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



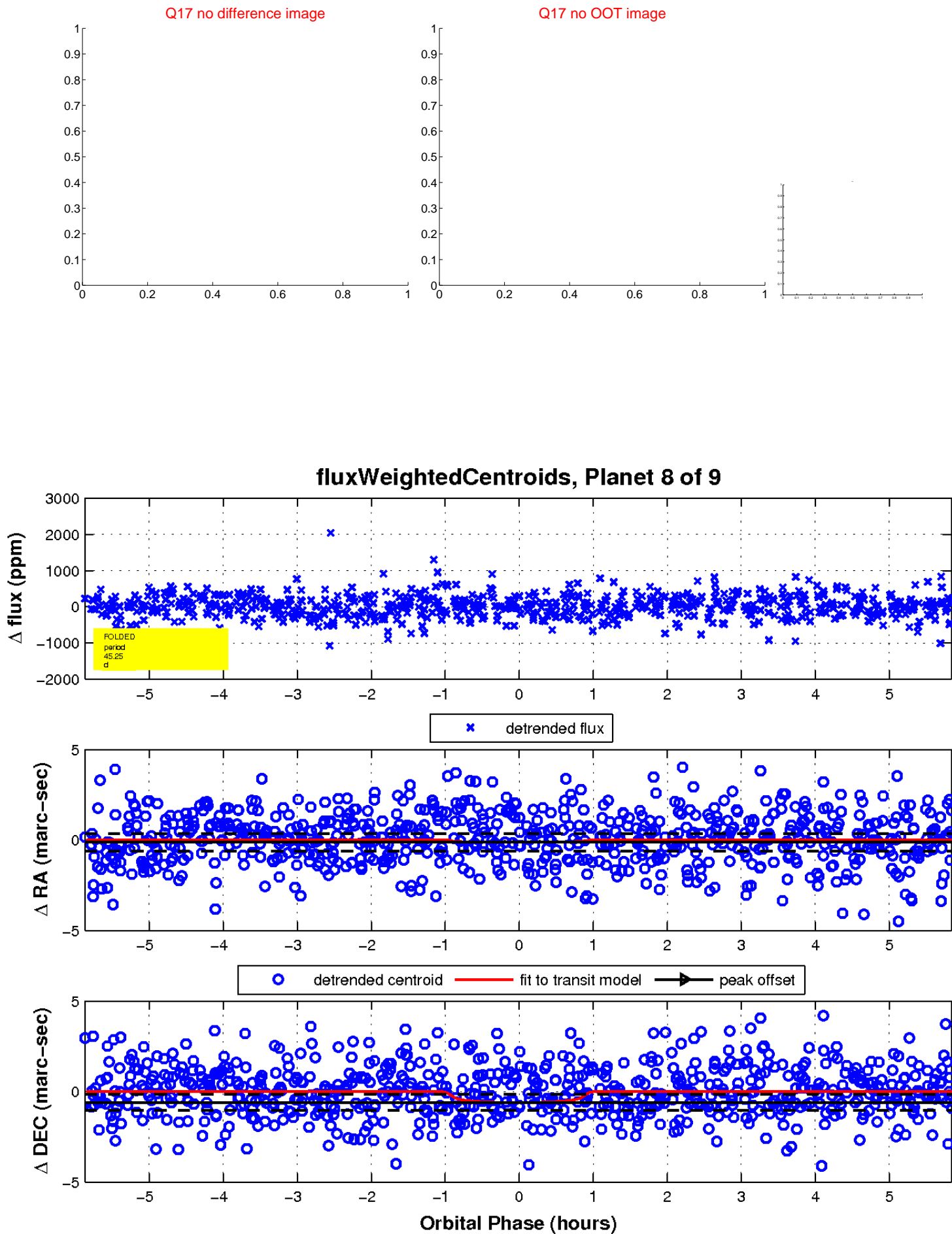
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

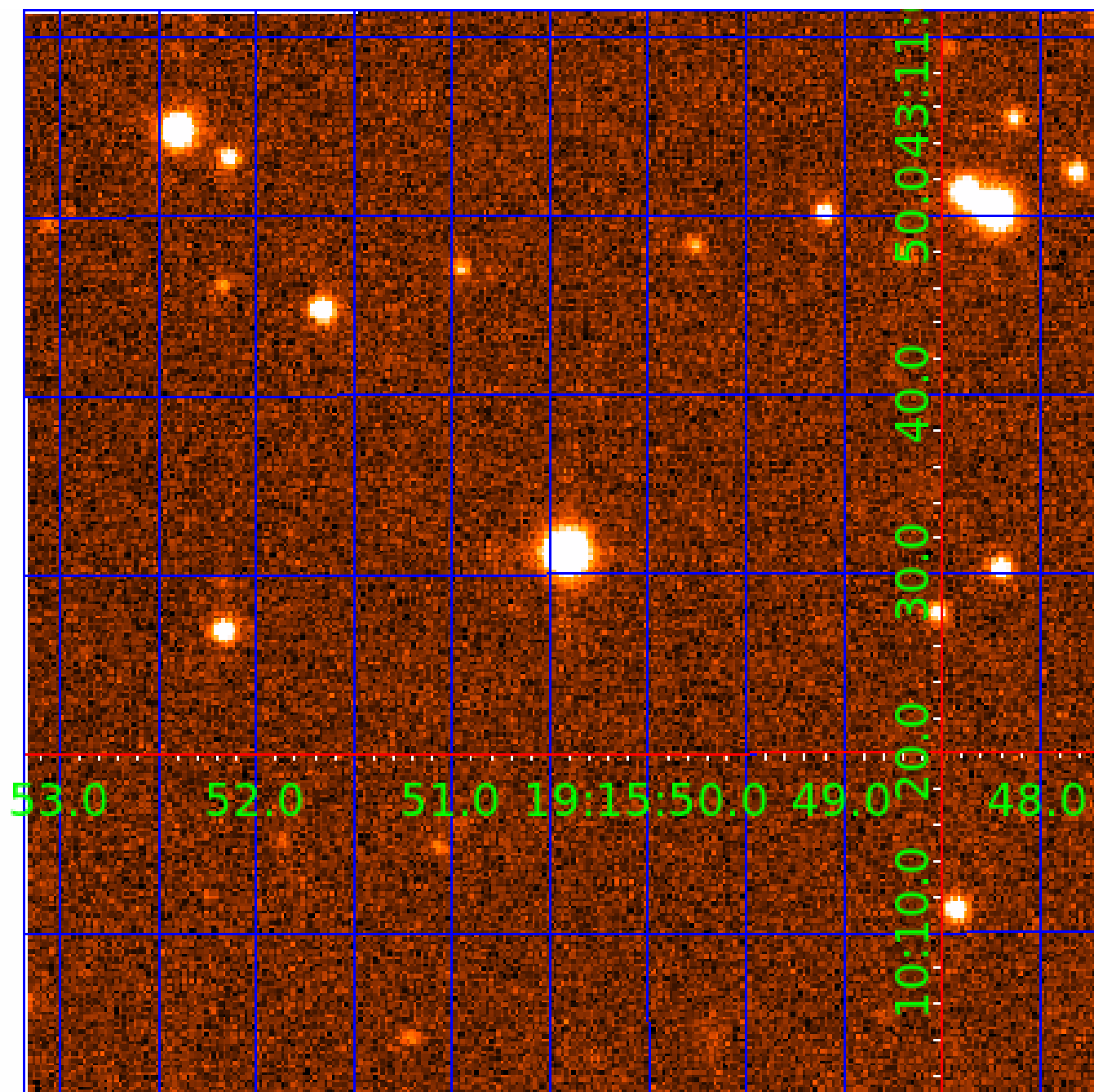


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007518797

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007518797-01	OBS	No	1.303697	131.960422	31.9	8.704	9.0	9.0	1.16	5468	0.64	1971.04
007518797-02	OBS	No	160.371067	210.838038	303.0	7.494	12.8	7.2	1.16	5468	1.97	3.22
007518797-03	OBS	No	349.436253	330.644208	663.5	9.411	10.9	10.6	1.16	5468	3.91	1.14
007518797-04	OBS	No	54.191930	161.169929	306.6	6.176	10.0	7.3	1.16	5468	2.09	13.69
007518797-05	OBS	No	56.420658	152.191015	398.1	3.455	9.9	9.0	1.16	5468	2.61	12.97
007518797-06	OBS	No	47.291833	132.854028	492.2	3.929	9.0	9.1	1.16	5468	2.93	16.41
007518797-07	OBS	No	33.348850	160.165987	466.8	1.813	7.8	9.0	1.16	5468	2.52	26.15
007518797-08	OBS	No	45.251225	147.191038	392.1	1.956	7.5	7.9	1.16	5468	2.62	17.41
007518797-09	OBS	No	55.376944	153.450303	476.8	2.019	8.9	9.3	1.16	5468	3.06	13.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007518797-01	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
007518797-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007518797-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007518797-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
007518797-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
007518797-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS

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

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

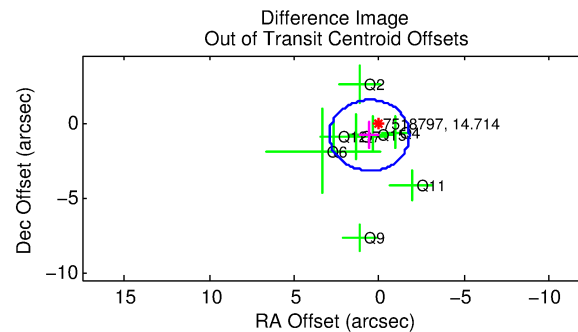
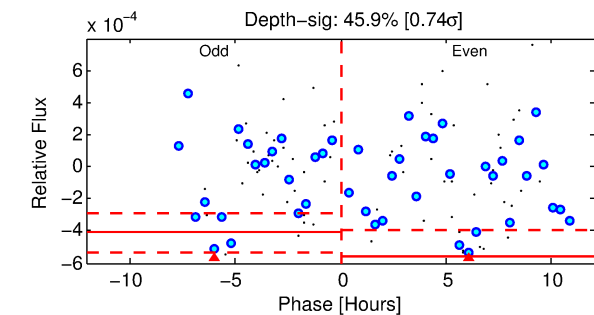
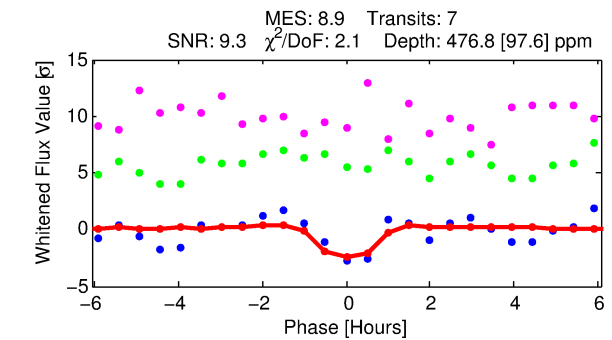
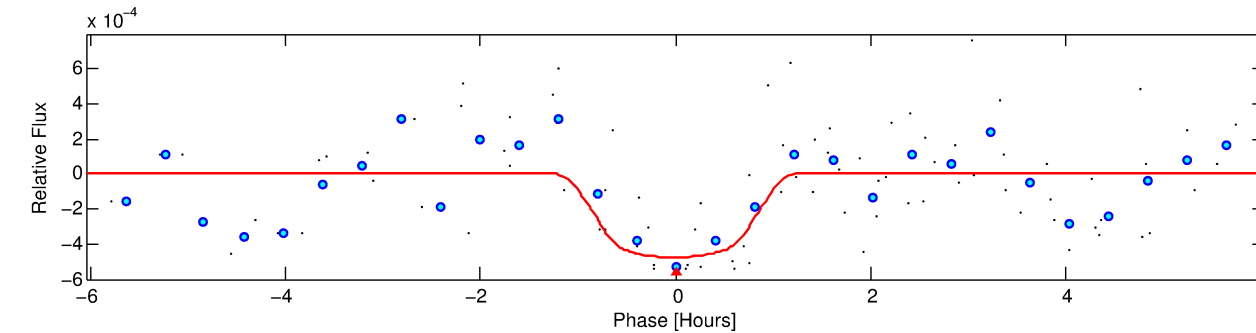
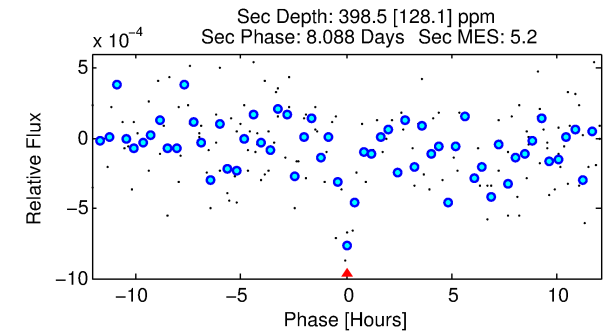
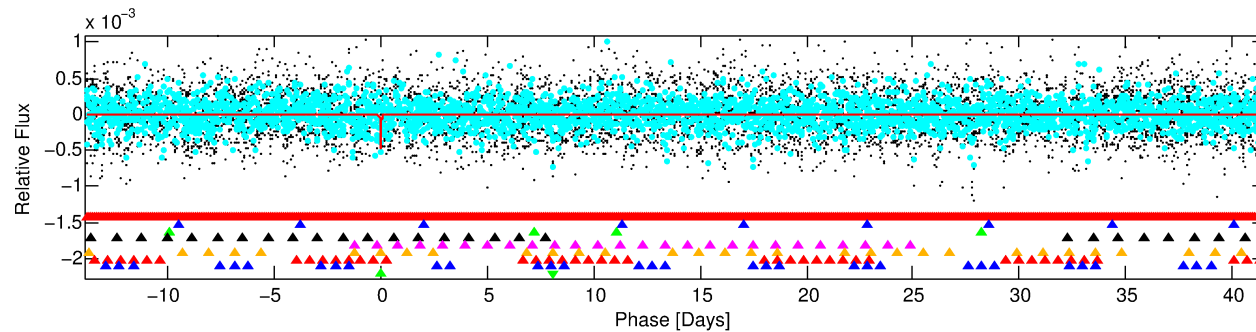
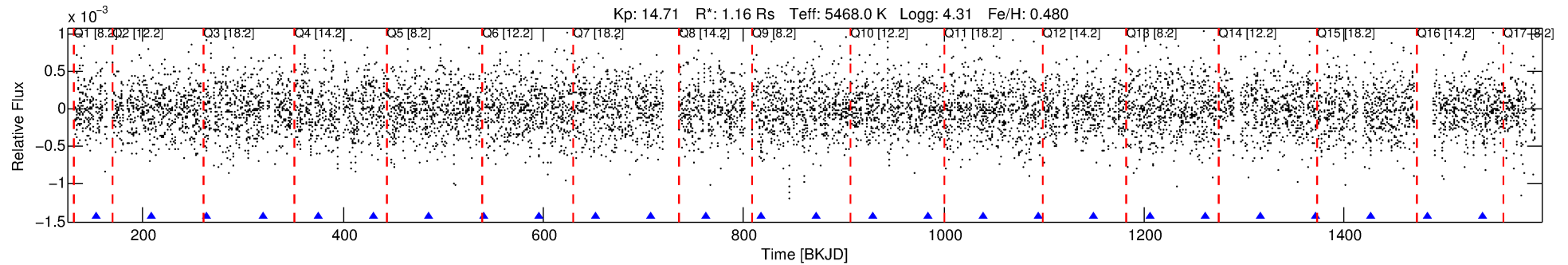
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007518797-09

No Significant Match Found

# DV One-Page Summary

KIC: 7518797 Candidate: 9 of 9 Period: 55.377 d



## DV Fit Results:

Period = 55.37694 [0.00046] d  
Epoch = 153.4503 [0.0072] BKJD  
Rp/R\* = 0.0242 [0.0241]  
a/R\* = 102.66 [412.54]  
b = 0.90 [0.88]  
Seff = 13.30 [4.51]  
Teff = 487 [41] K  
Rp = 3.06 [3.15] Re  
a = 0.2844 [0.0613] AU  
Ag = 1892.47 [3867.41] [0.49 $\sigma$ ]  
Teffp = 4966 [2511] K [1.78 $\sigma$ ]

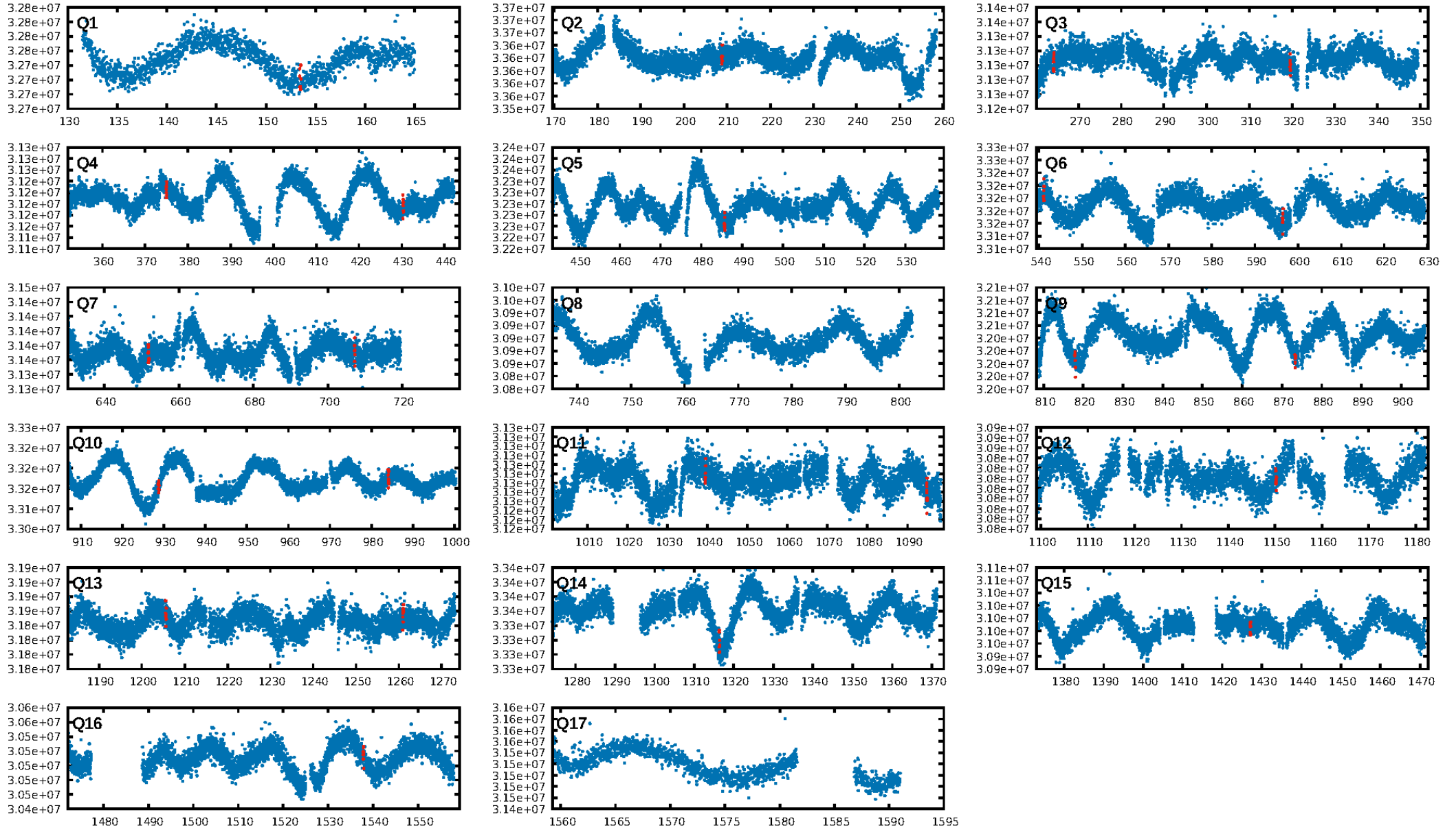
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.38 $\sigma$ ]  
LongPeriod-sig: 100.0% [6.26 $\sigma$ ]  
ModelChiSquare2-sig: 2.5%  
ModelChiSquareGoF-sig: 46.1%  
**Bootstrap-pfa: 8.30e-09**  
RollingBand-fgt: 1.00 [6/6]  
**GhostDiagnostic-chr: 0.6235**  
Centroid-sig: 33.2%  
Centroid-so: 1.265 arcsec [1.08 $\sigma$ ]  
OotOffset-rm: 1.010 arcsec [1.28 $\sigma$ ]  
KicOffset-rm: 0.958 arcsec [1.14 $\sigma$ ]  
OotOffset-st: 2/3/2/1 [8]  
KicOffset-st: 2/3/2/1 [8]  
DiffImageQuality-fgm: 0.12 [1/8]  
DiffImageOverlap-fno: 0.60 [9/15]

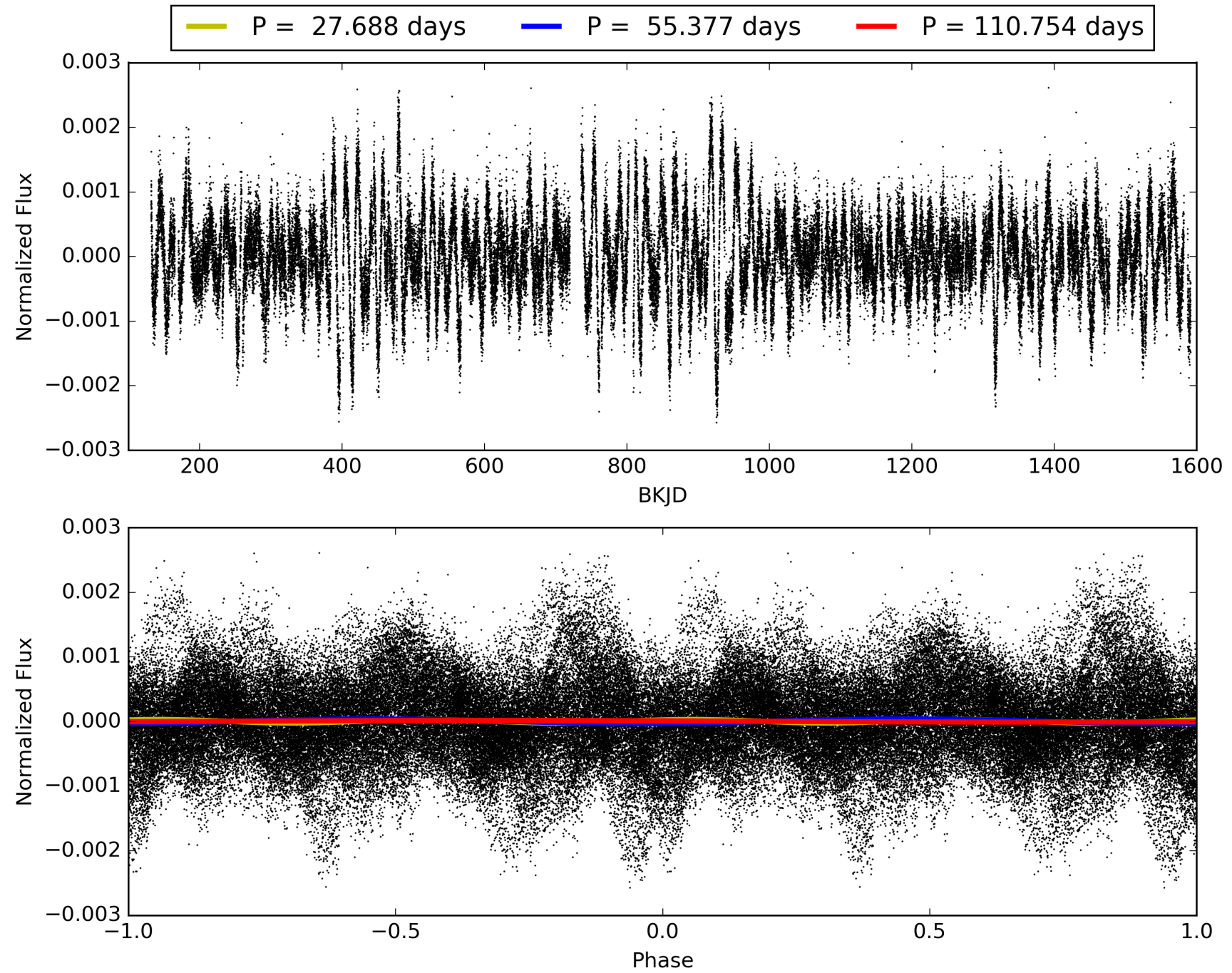
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:22:06 Z

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

# TCE 007518797-09, PDC Light Curves

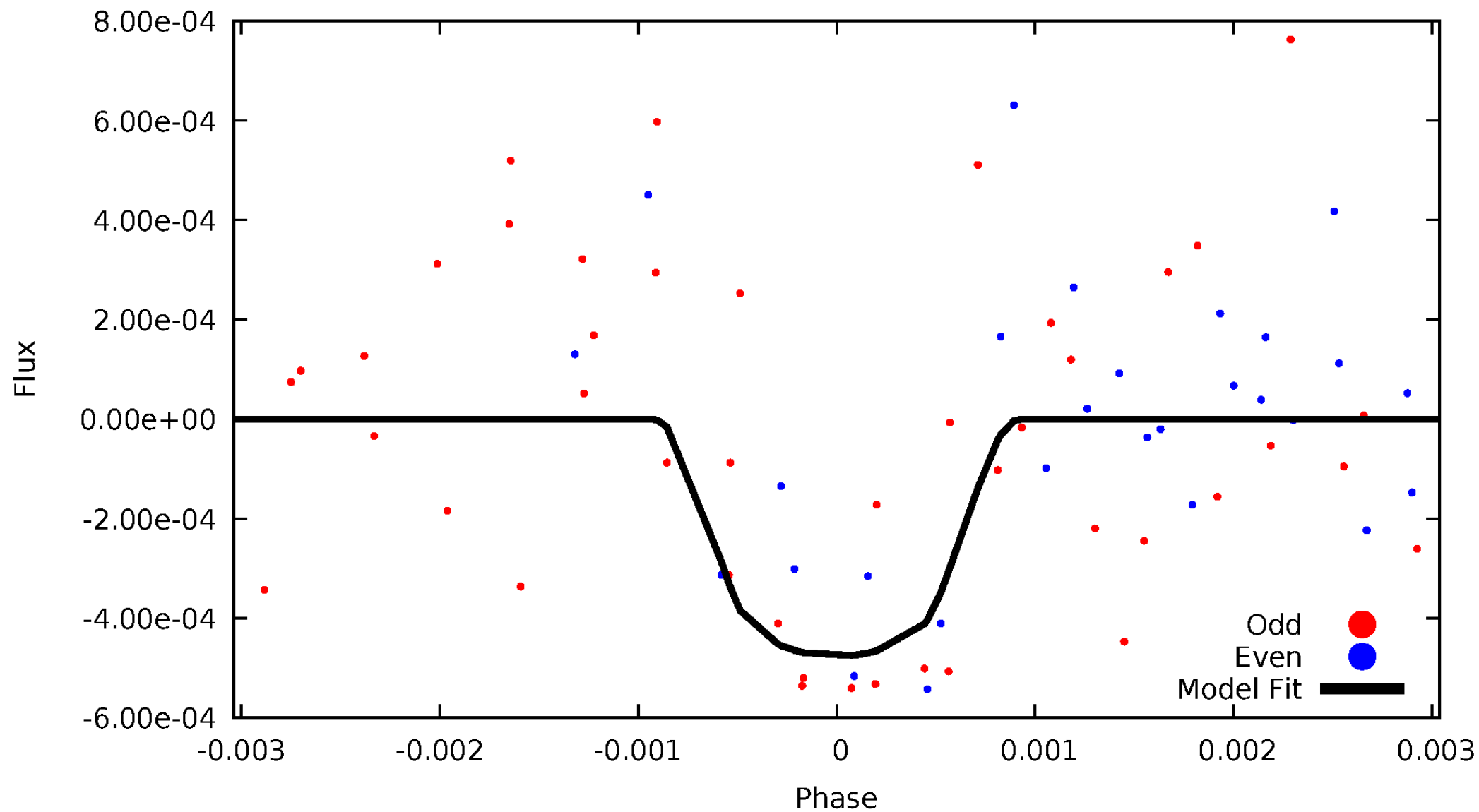


TCE 007518797-09



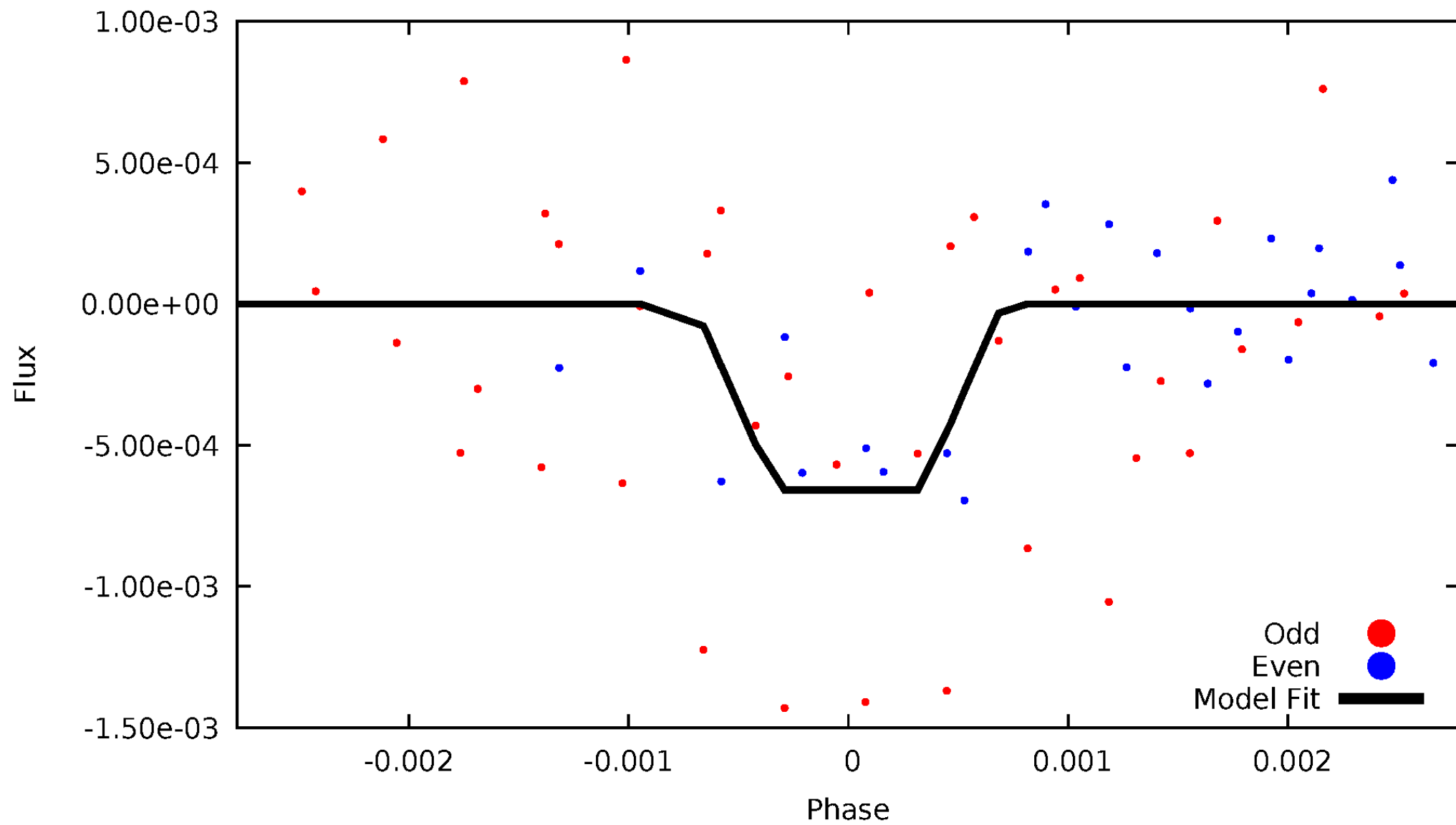
# DV Odd/Even

TCE 007518797-09



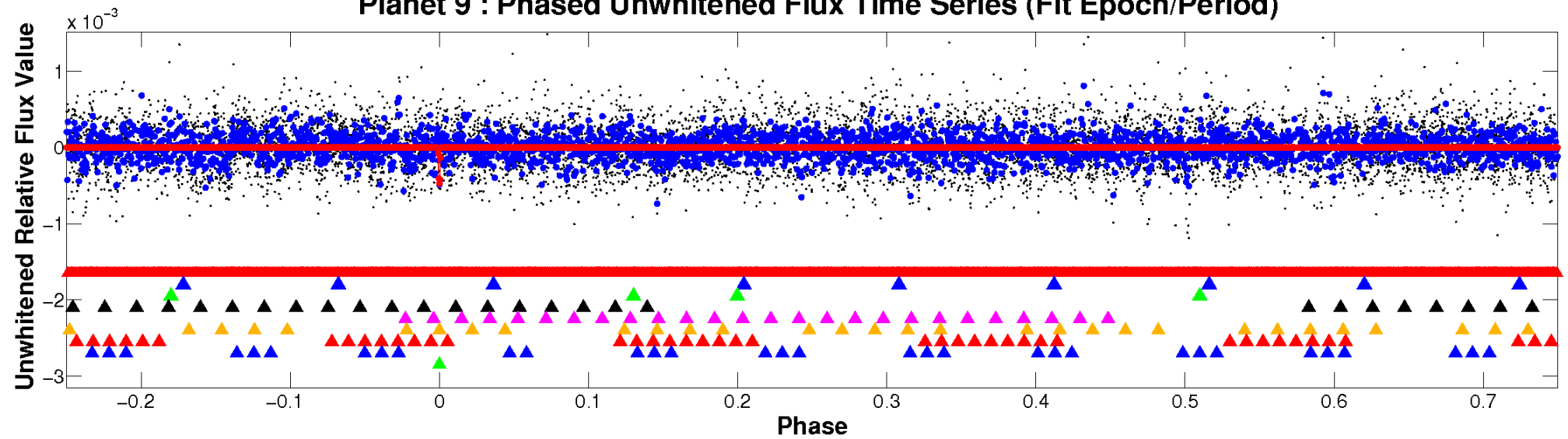
# ALT Odd/Even

TCE 007518797-09

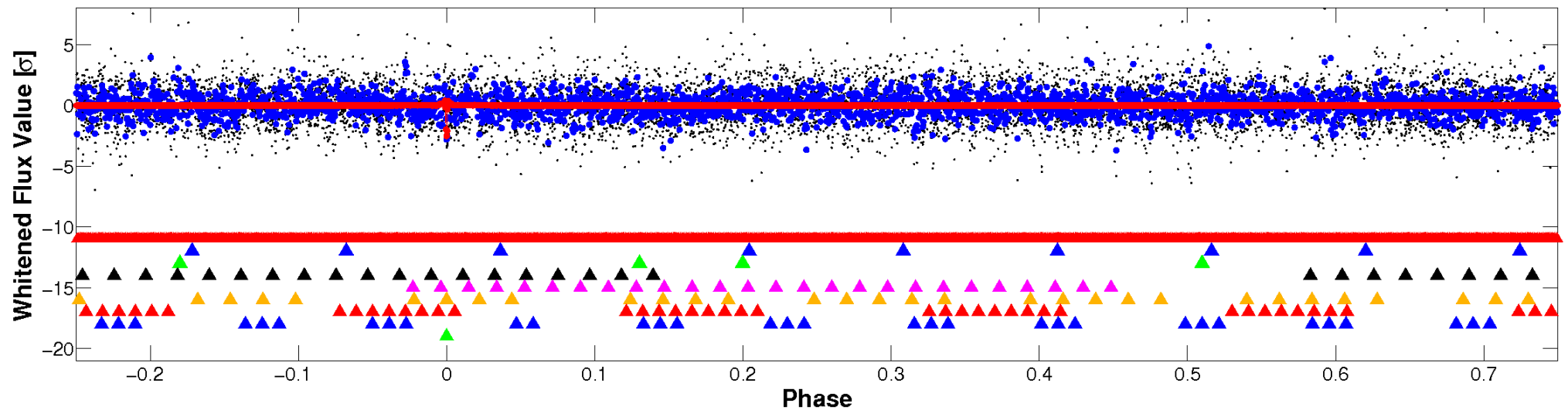


# Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



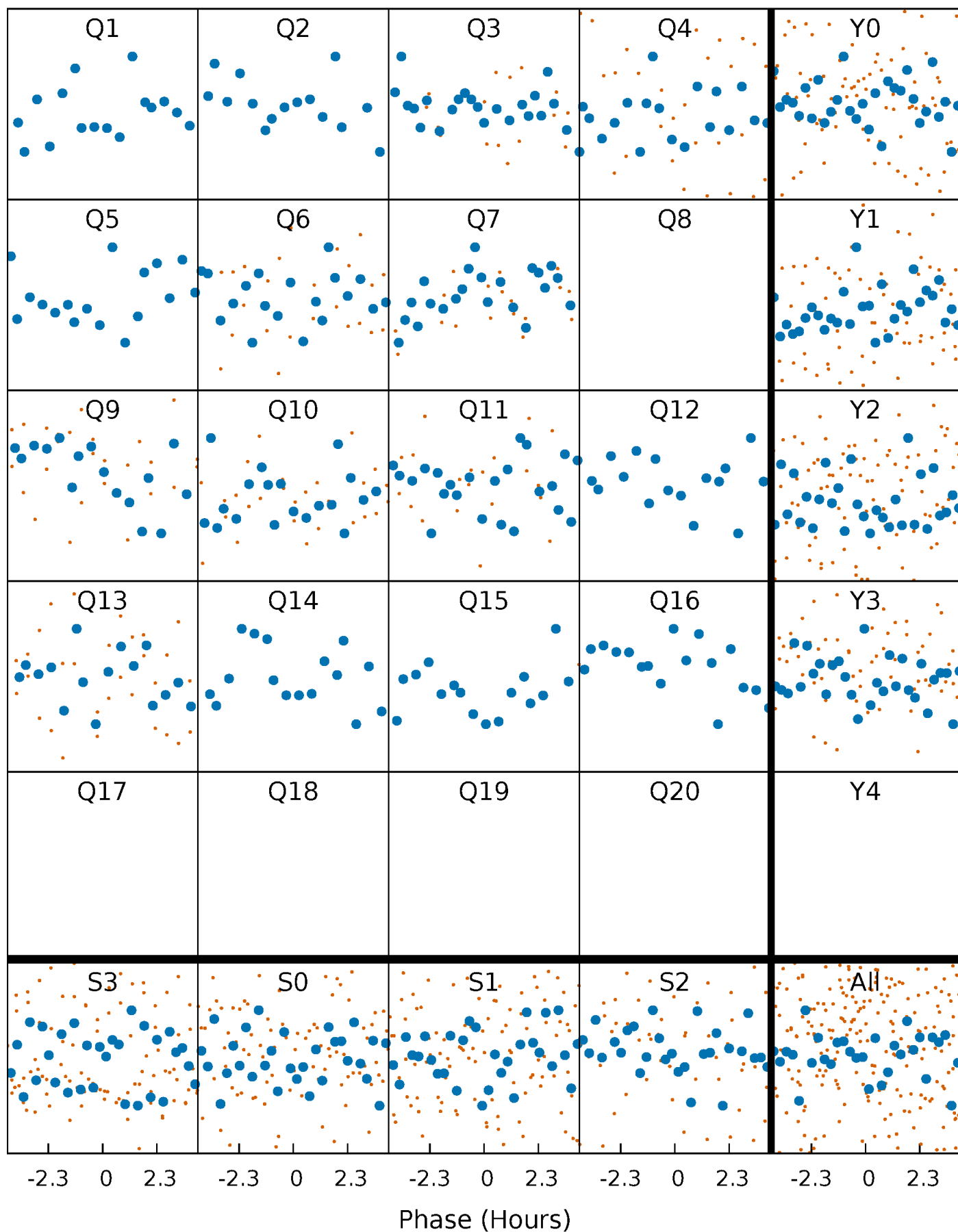
Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

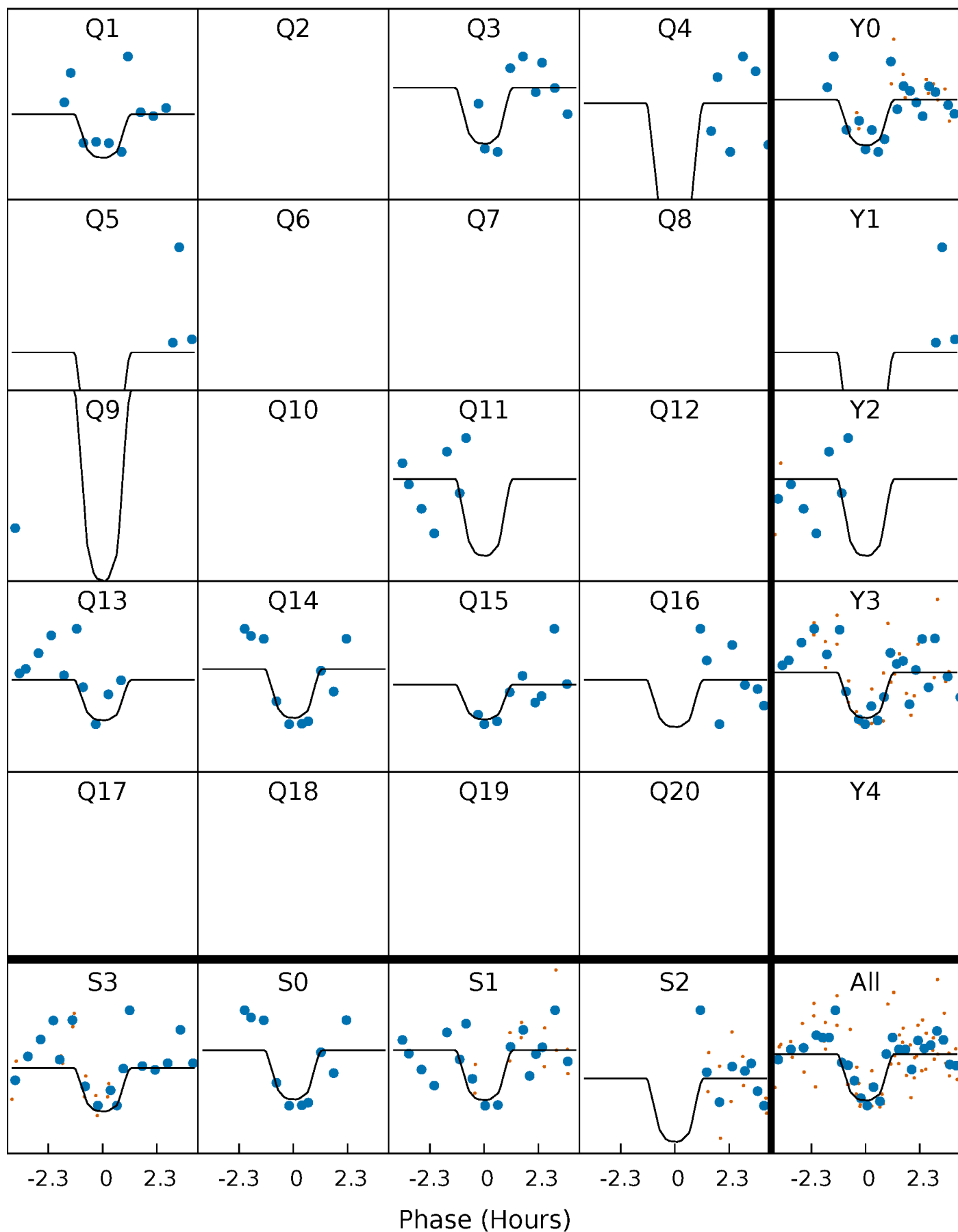
TCE 007518797-09   P= 55.376944 Days    $T_0=153.450303$  (BKJD)





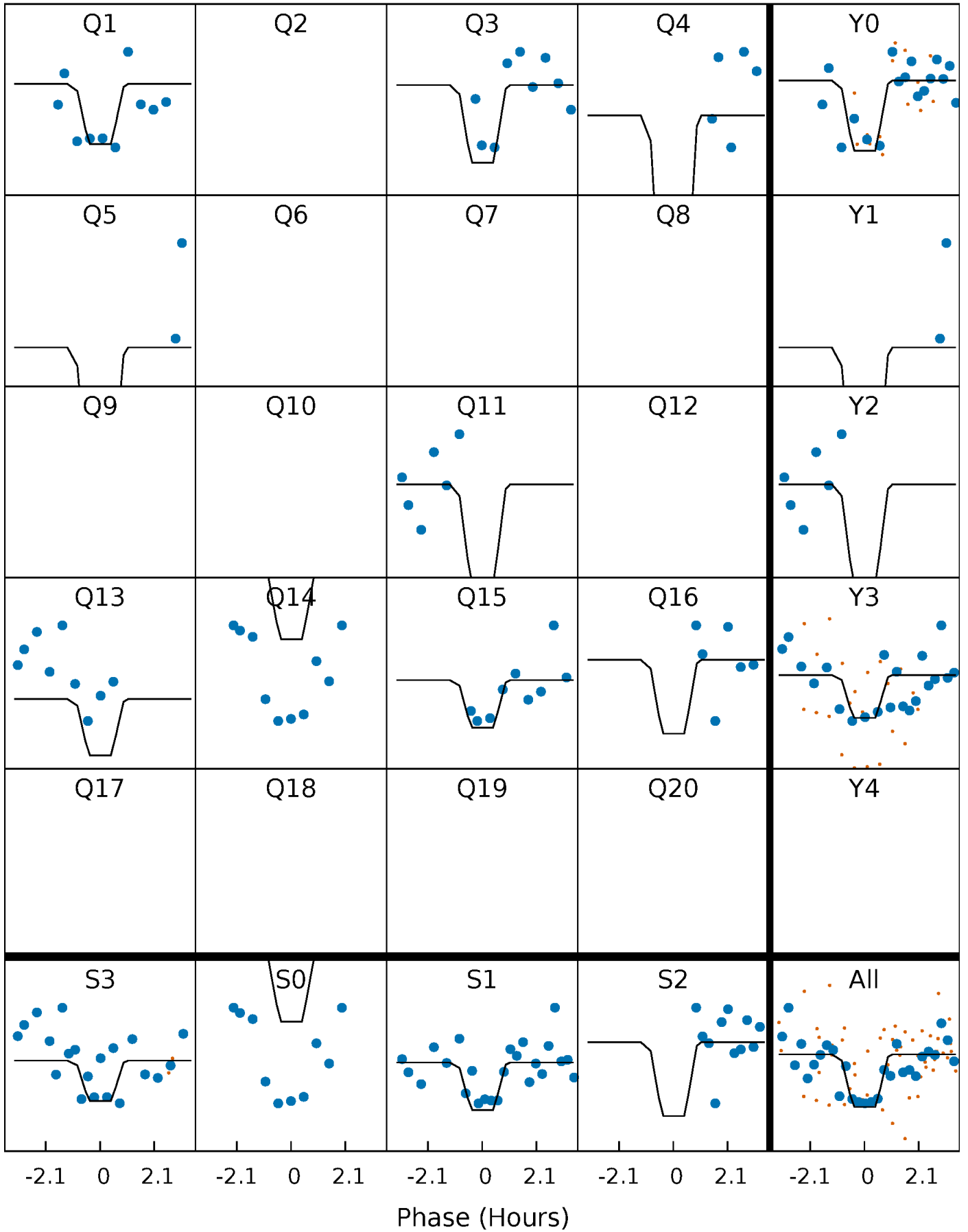
# DV Quarter-Phased Transit Curves

TCE 007518797-09 P= 55.376944 Days  $T_0=153.450303$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

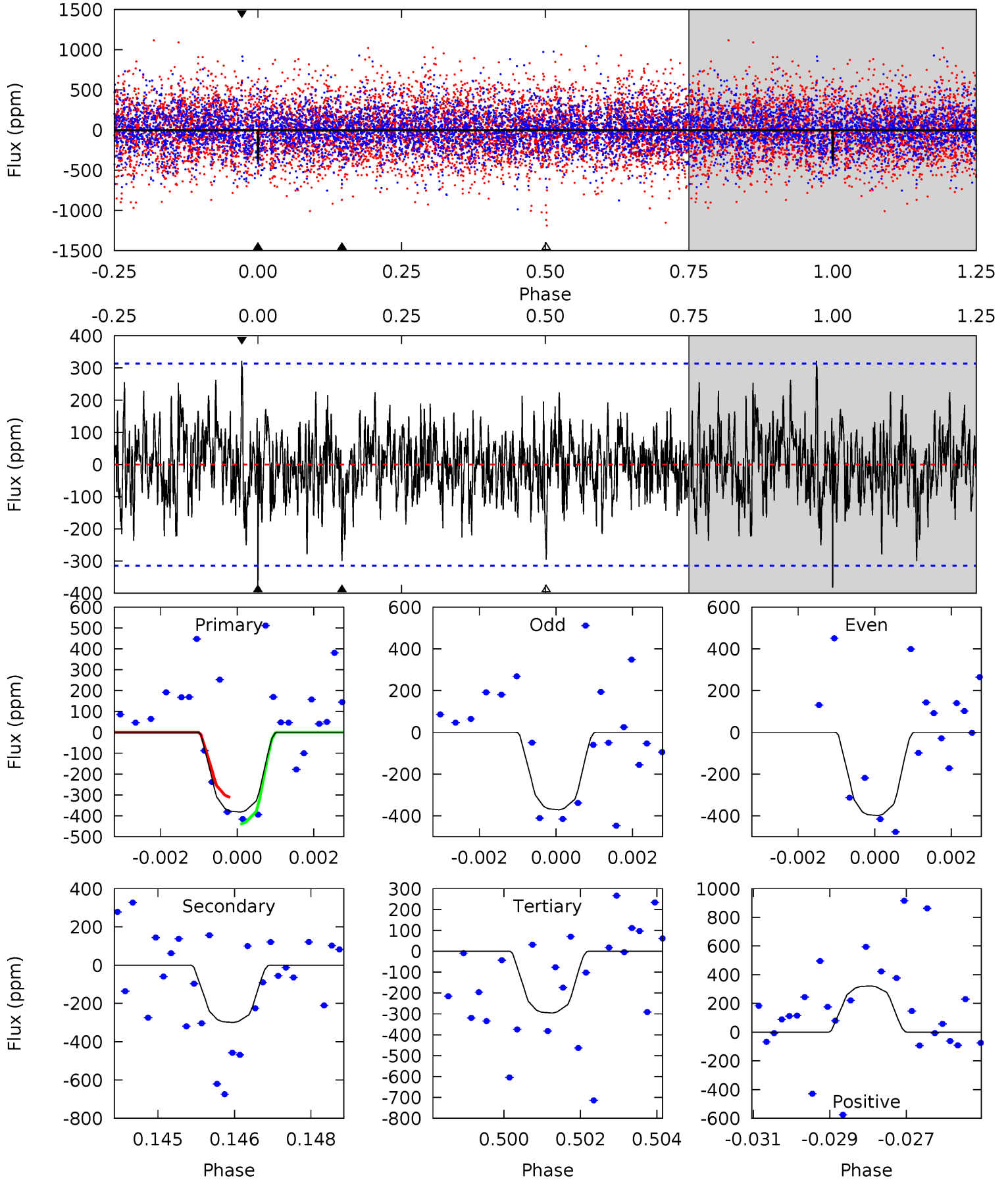
TCE 007518797-09 P= 55.377258 Days  $T_0=153.450175$  (BKJD)



# DV Model-Shift Uniqueness Test

007518797-09, P = 55.376944 Days, E = 98.073359 Days

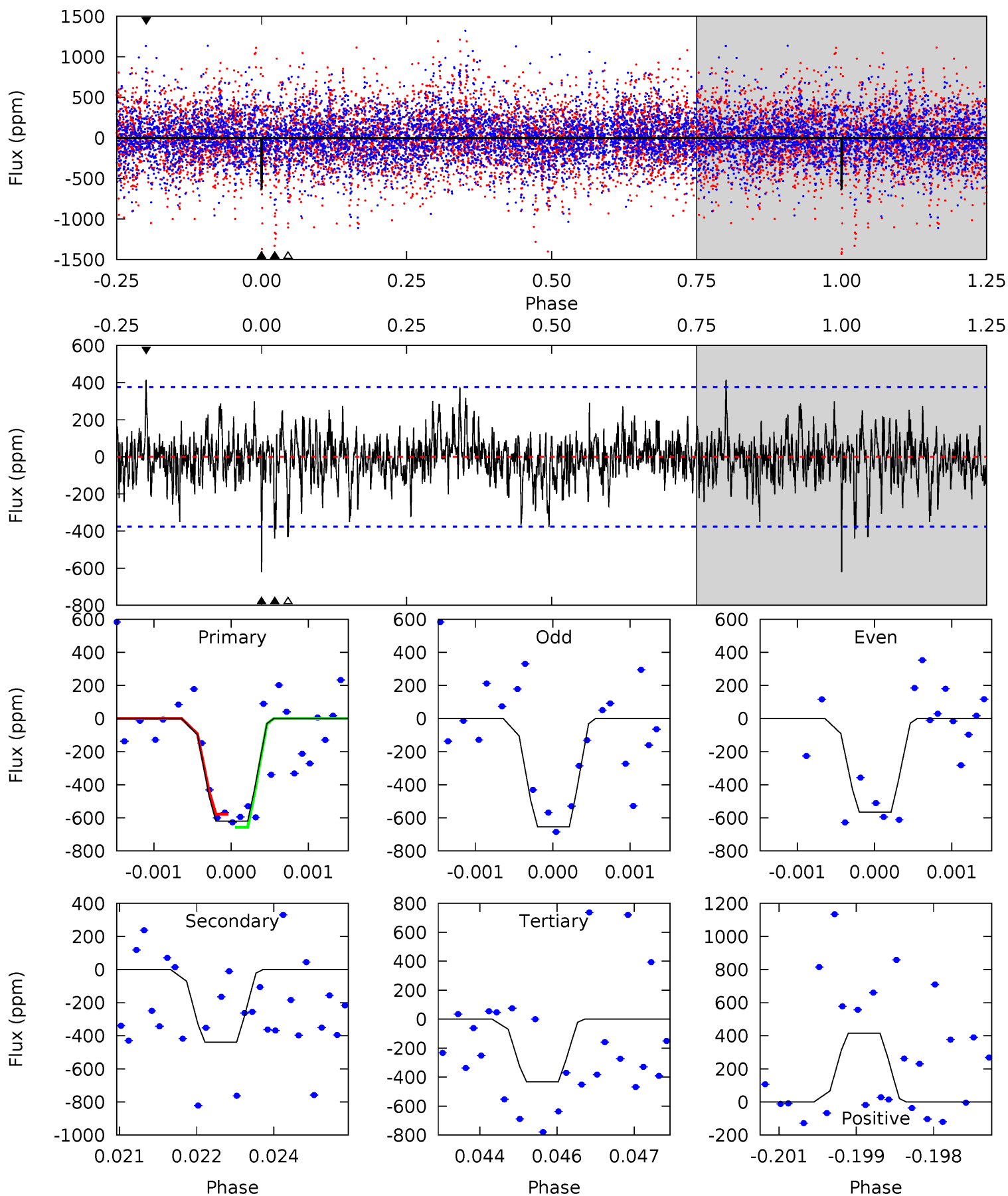
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.50	5.10	5.04	5.48	5.35	3.12	1.43	1.47	1.02	0.06	-0.39	0.23	0.76	0.46	1.09



# Alt Model-Shift Uniqueness Test

007518797-09, P = 55.377258 Days, E = 98.072917 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
8.88	6.28	6.20	5.94	5.38	3.18	1.55	2.69	2.94	0.08	0.34	0.61	1.19	0.40	0.56



### Stellar Parameters For KIC 007518797

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5468^{+164}_{-164}$	$4.310^{+0.175}_{-0.175}$	$0.480^{+0.050}_{-0.300}$	$1.159^{+0.293}_{-0.240}$	$1.002^{+0.083}_{-0.092}$	$0.905^{+0.803}_{-0.426}$
	+3%/-3%	+4%/-4%	+10%/-62%	+25%/-21%	+8%/-9%	+89%/-47%
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 007518797-09 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-299 \pm 59$	$3.50^{+2.97}_{-2.18}$	$680^{+50}_{-42}$	$4470^{+2530}_{-852}$	$1051^{+6368}_{-744}$
Alt.	$-439 \pm 70$	$3.80^{+3.07}_{-2.32}$	$686^{+46}_{-47}$	$4693^{+2814}_{-878}$	$1346^{+7424}_{-934}$

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

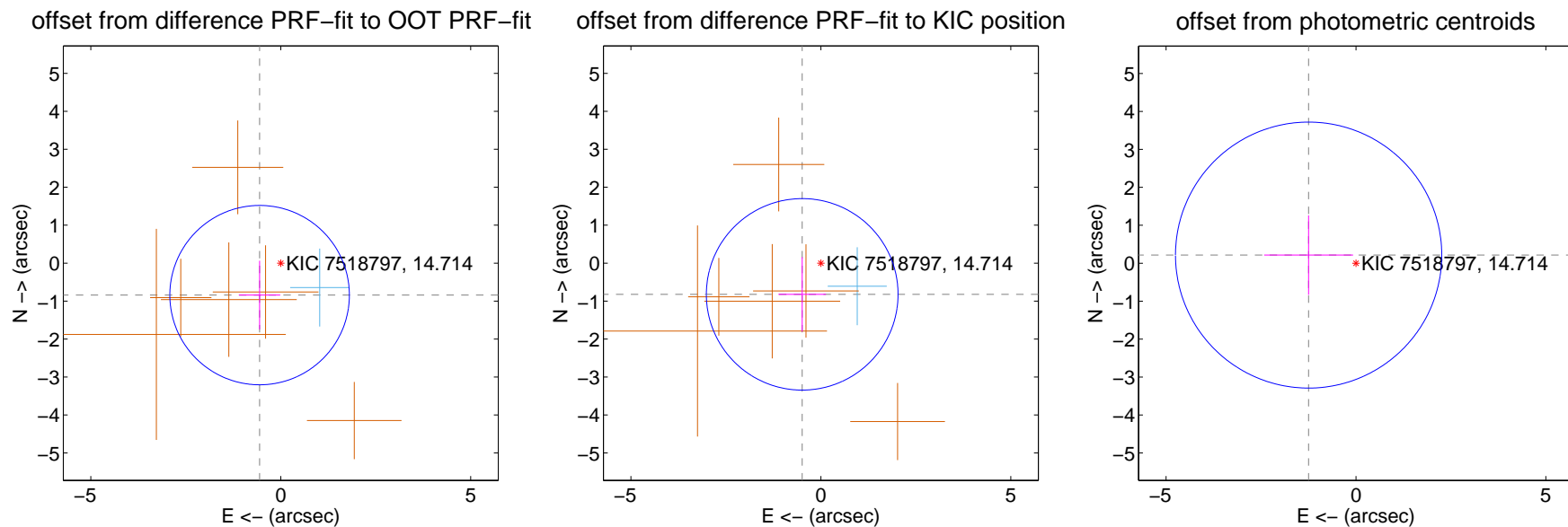
## DV Centroid Data

Supplemental centroid analysis for 007518797-09. Kepler magnitude: 14.71. Transit SNR 9.32

There are 1 quarters with good PRF difference image offsets

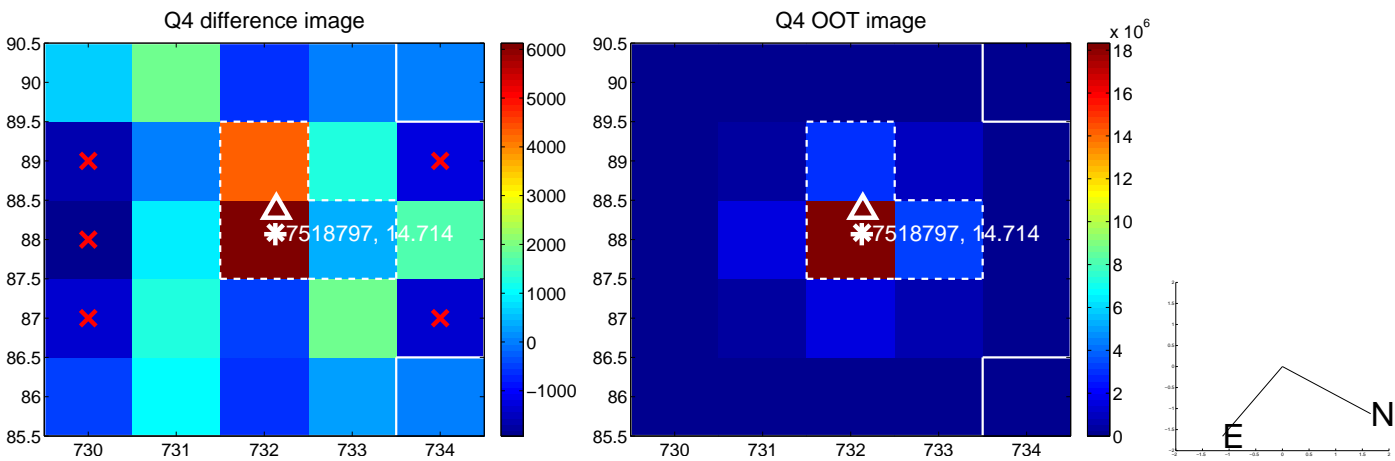
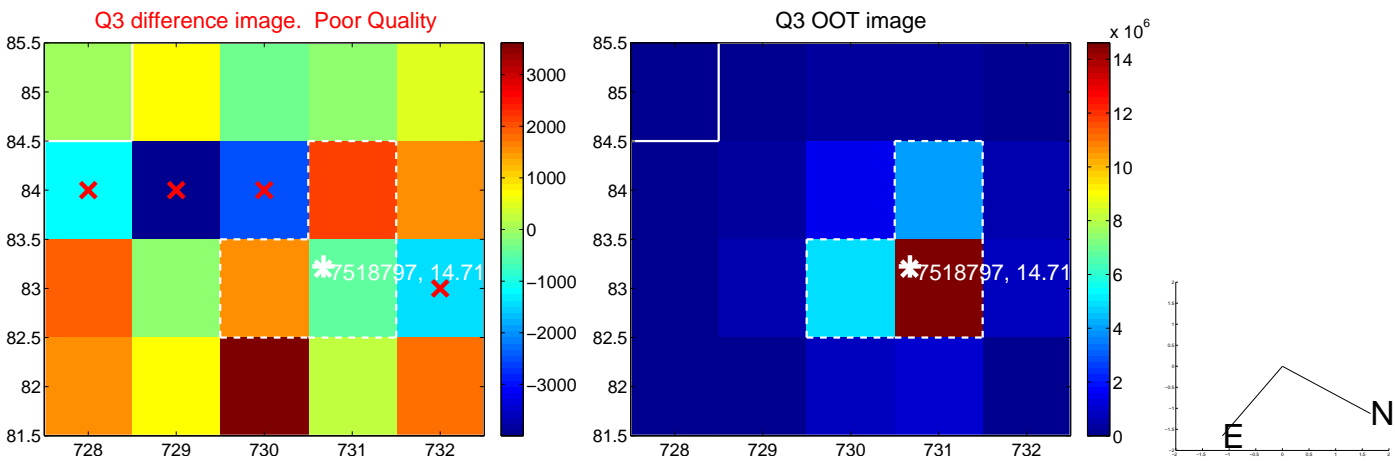
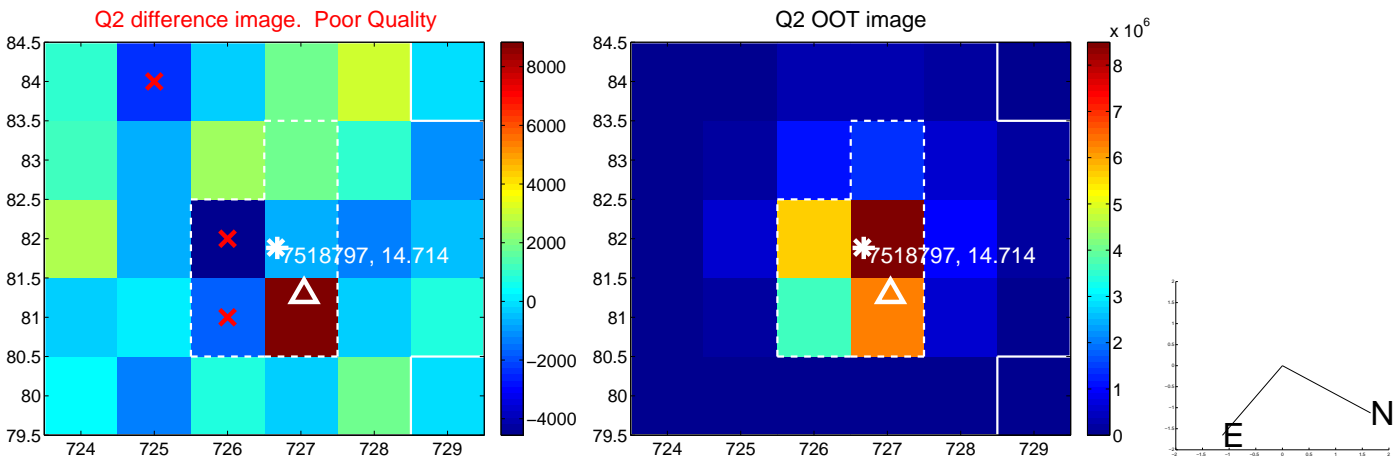
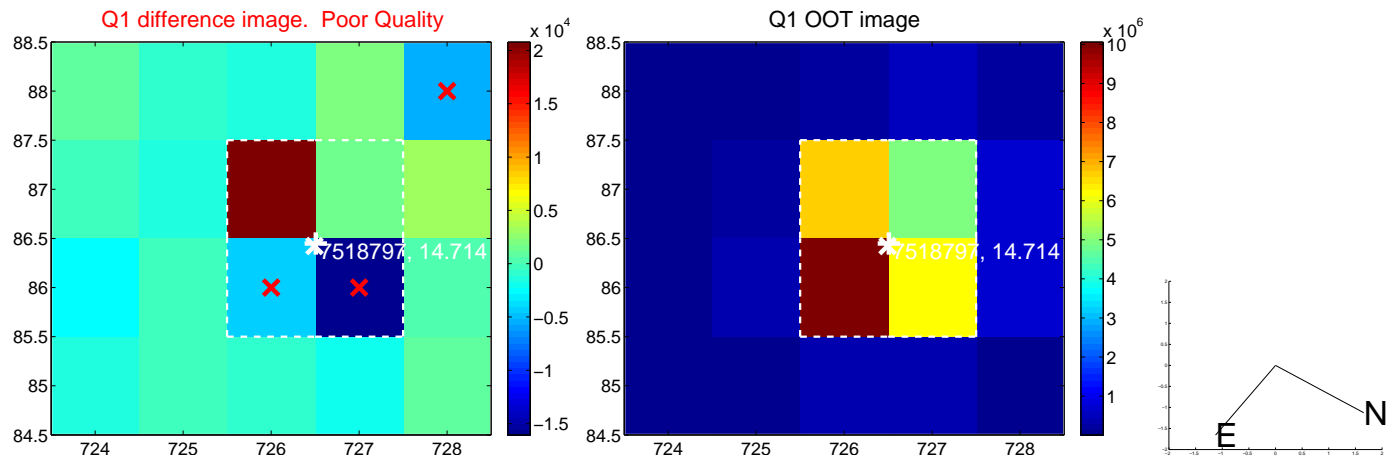
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.010 \pm 0.788$	1.28	$0.557 \pm 0.545$	$-0.843 \pm 0.905$
PRF-fit source offset from KIC position	$0.958 \pm 0.841$	1.14	$0.491 \pm 0.626$	$-0.822 \pm 0.981$
photometric centroid source offset	$1.27 \pm 1.17$	1.08	$1.25 \pm 1.17$	$0.21 \pm 1.05$

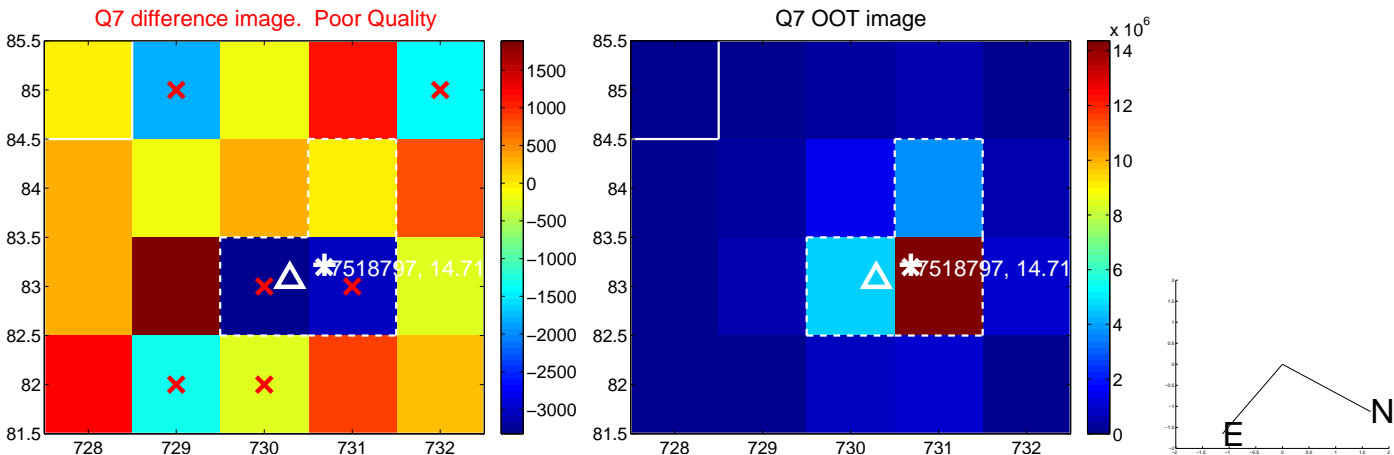
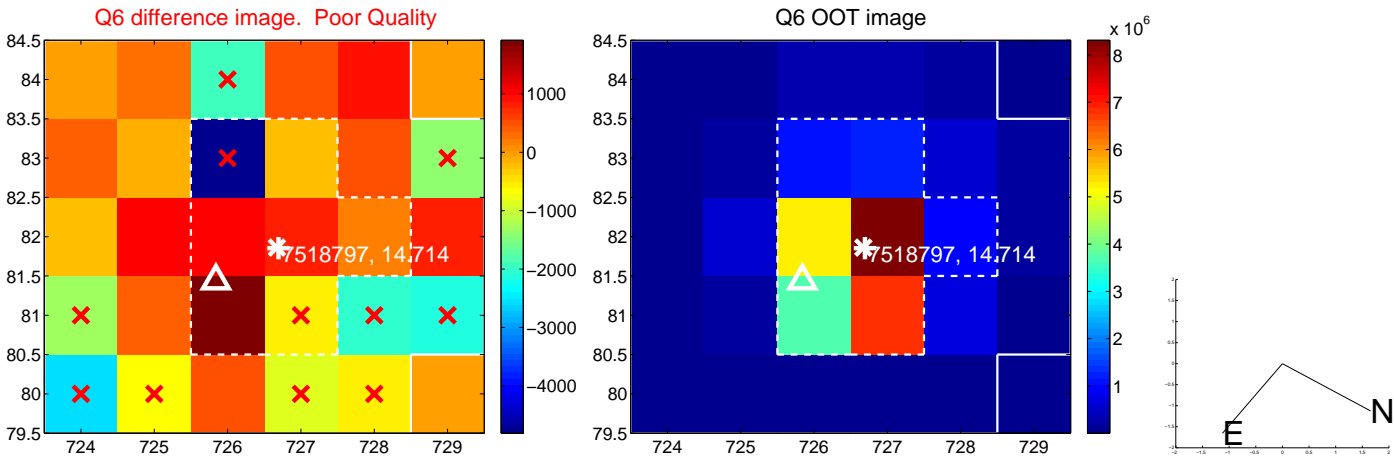
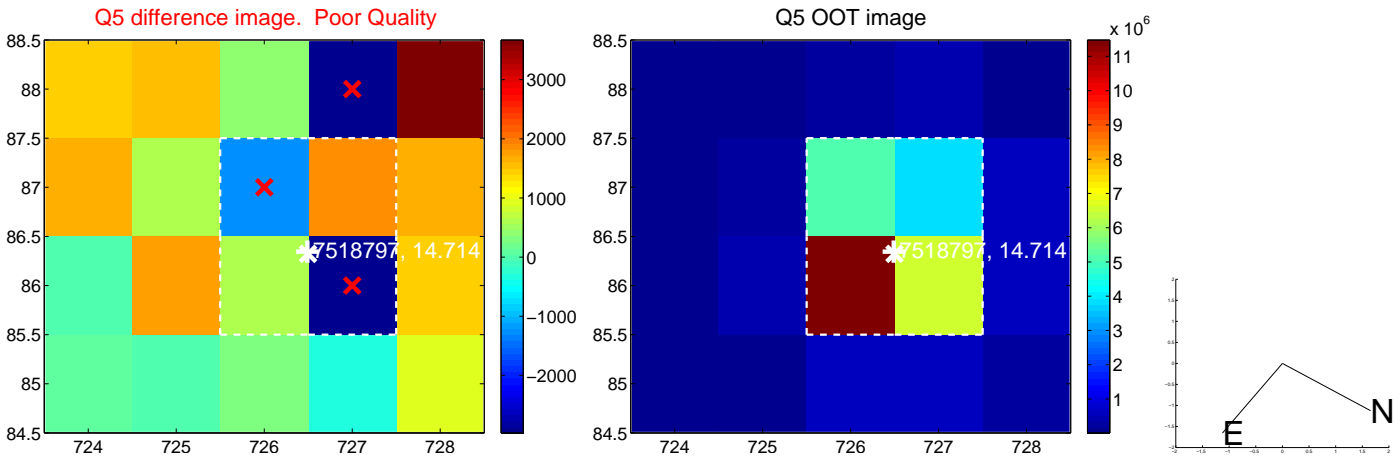


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

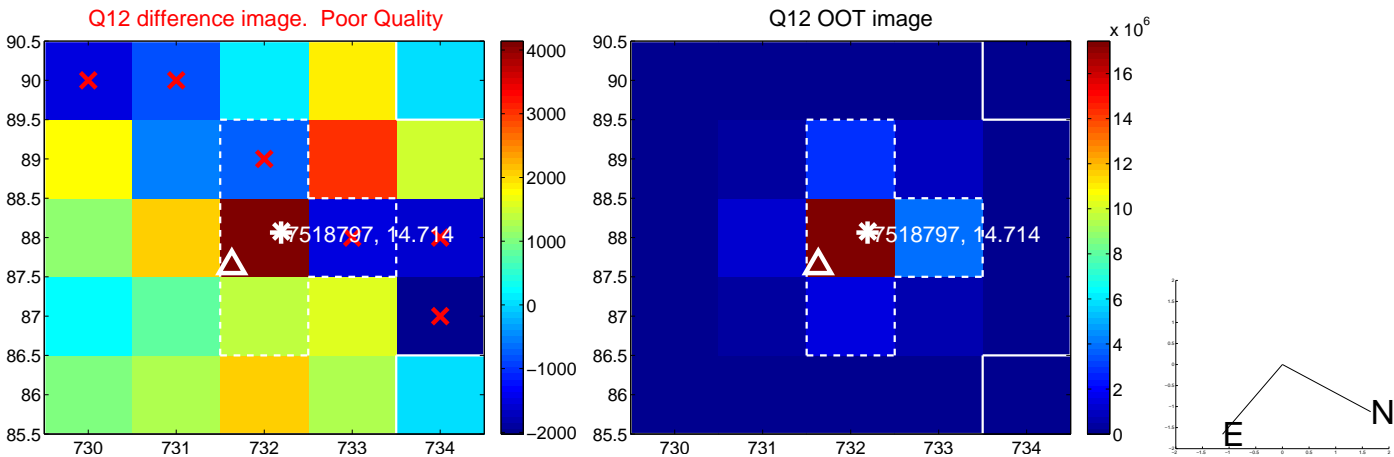
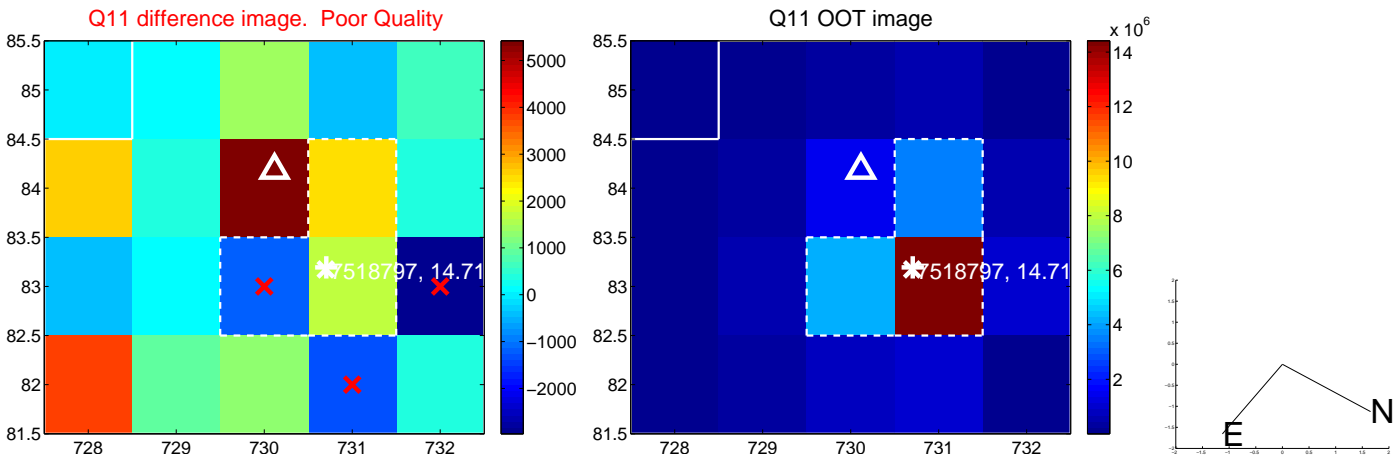
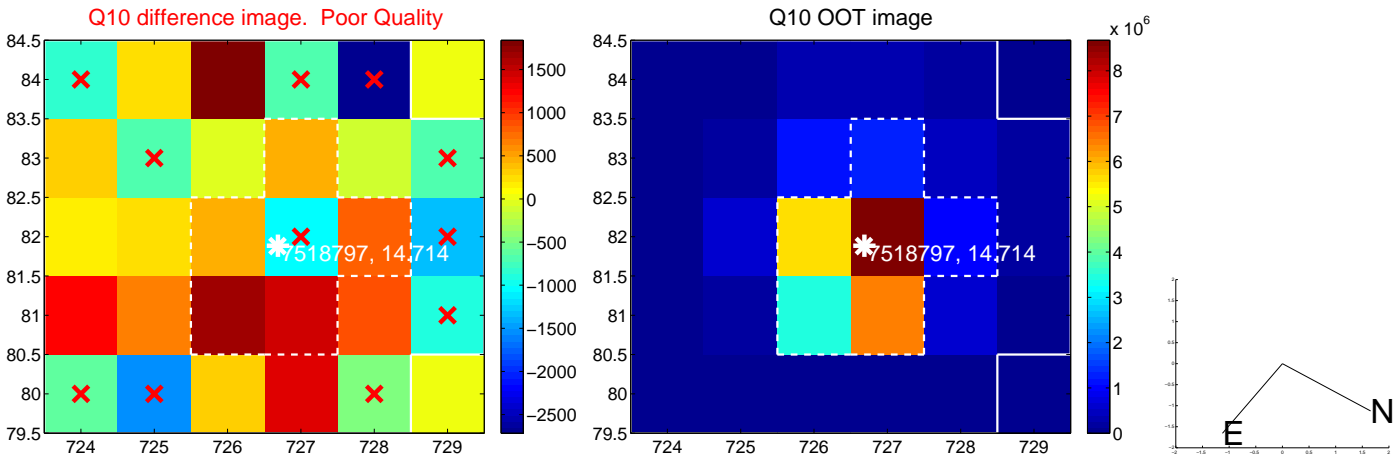
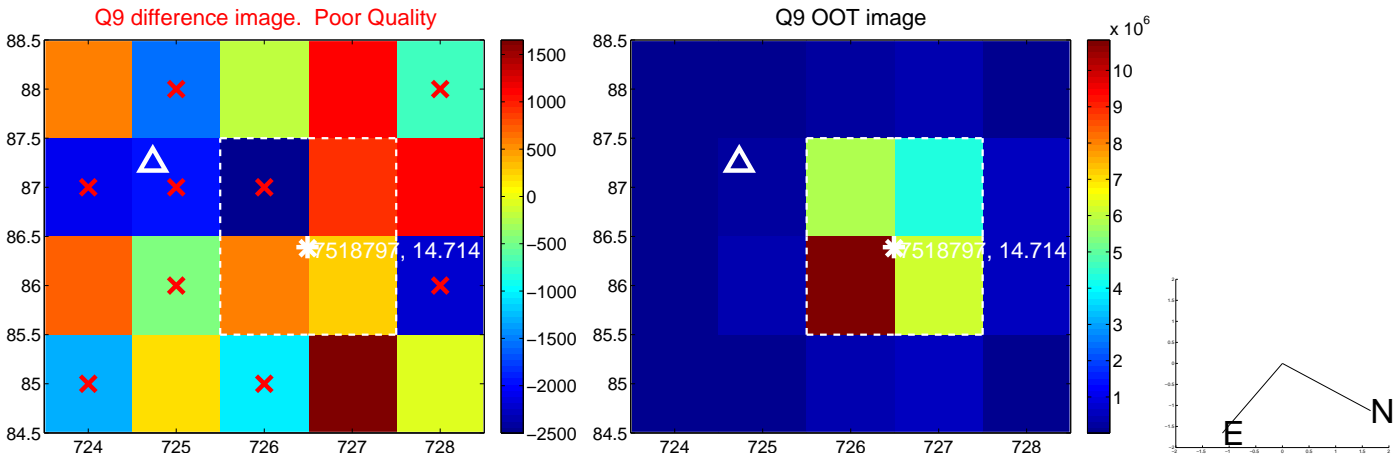


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

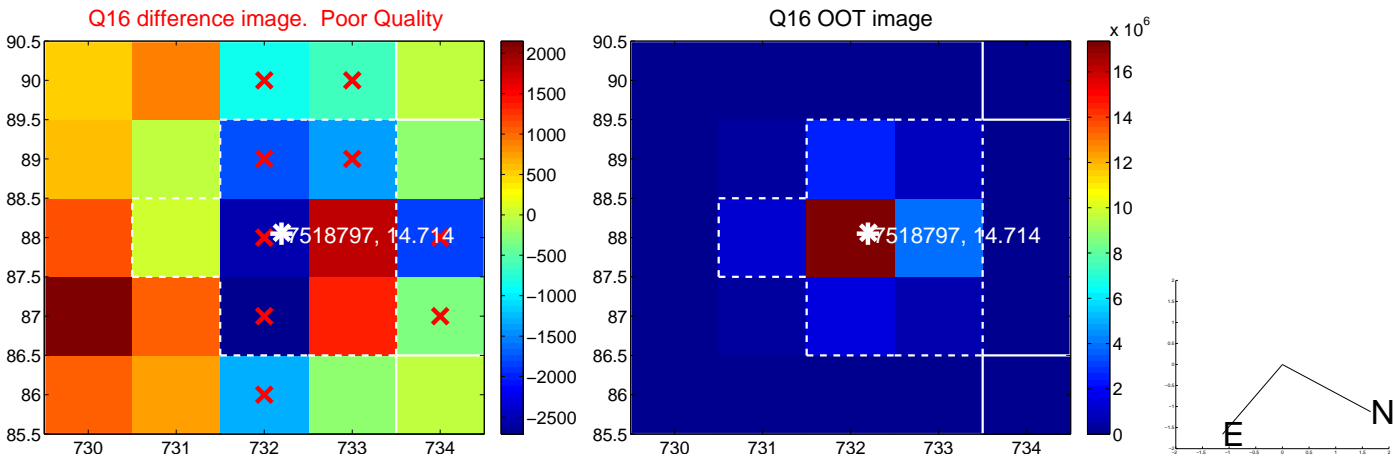
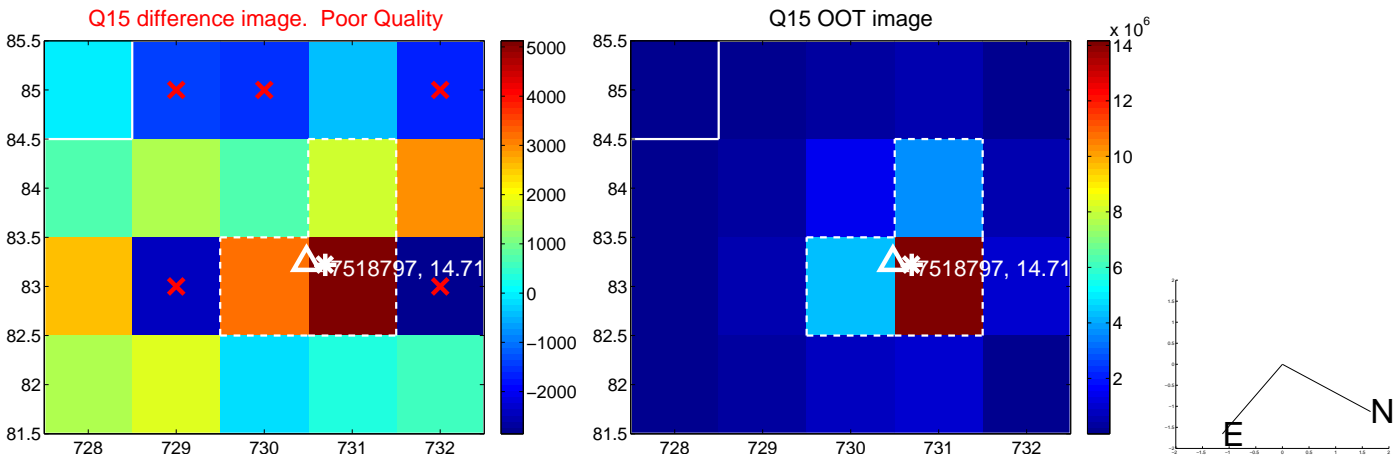
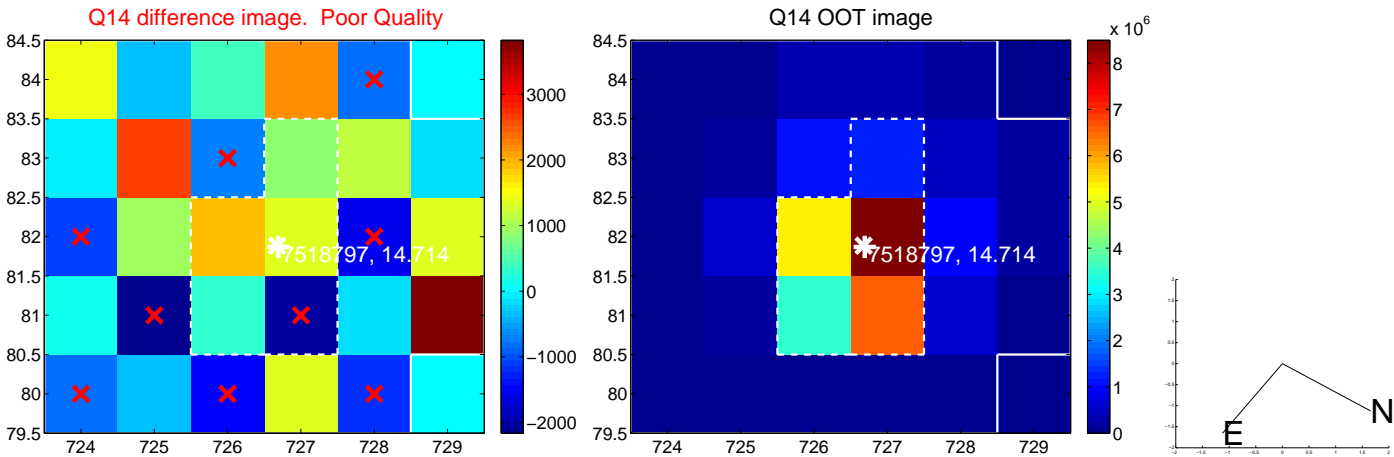
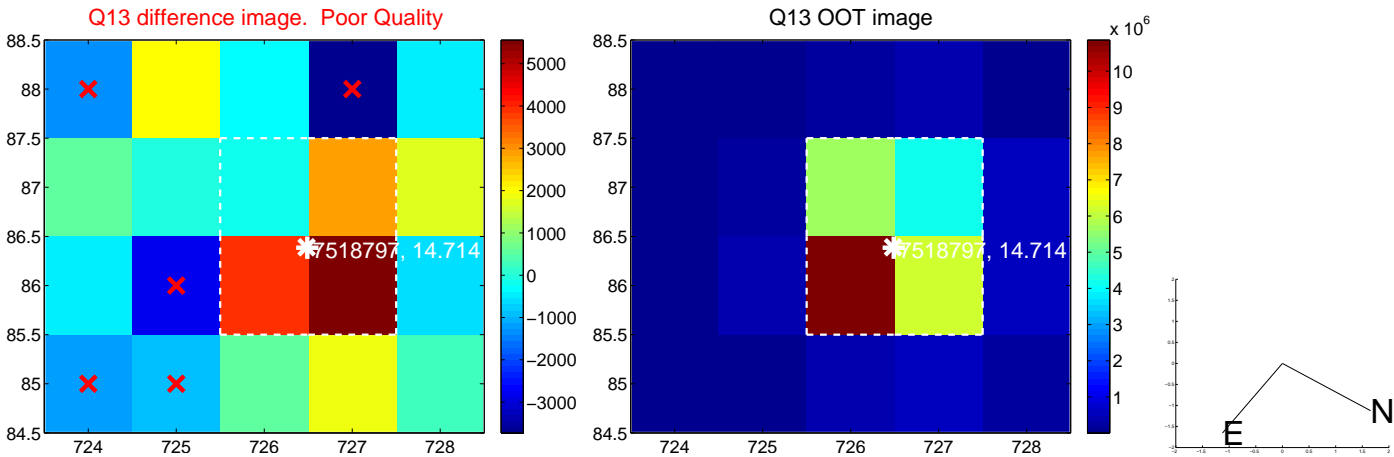




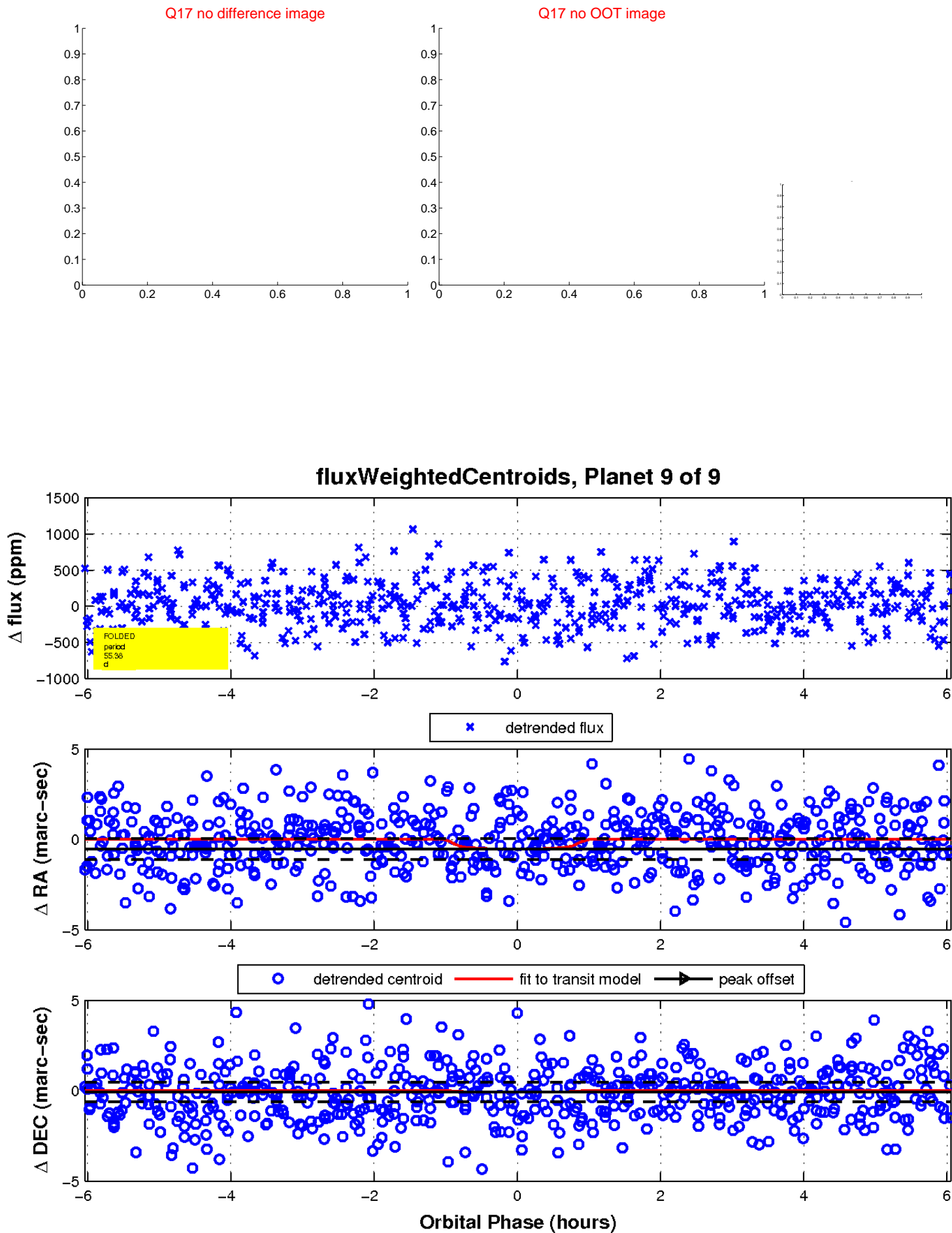
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

Declination

