

# KIC 008257134

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008257134-01	OBS	No	1.197974	132.185991	155.0	4.487	11.9	7.0	0.43	3620	0.75	99.87
008257134-02	OBS	No	237.138871	365.013333	1808.1	3.000	10.8	-1.0	0.43	3620	1.81	0.09
008257134-03	OBS	No	211.161854	286.348540	2527.5	2.305	9.9	7.0	0.43	3620	2.23	0.10
008257134-04	OBS	No	384.442771	164.009664	3578.0	8.878	9.0	7.3	0.43	3620	4.87	0.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008257134-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008257134-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
008257134-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008257134-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

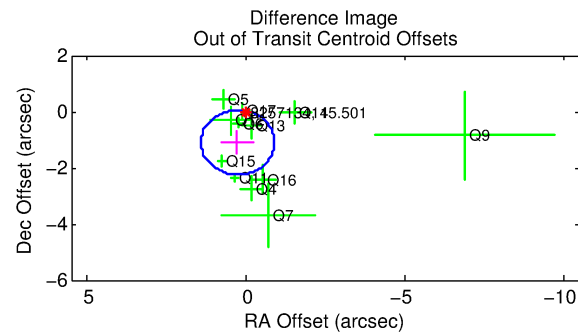
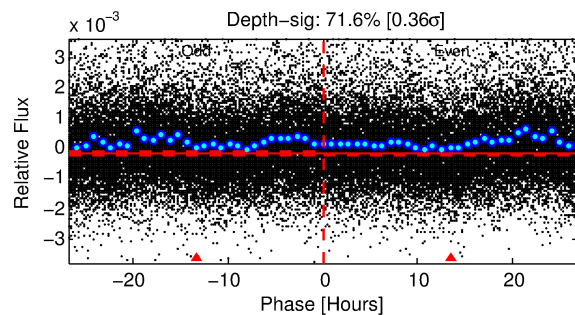
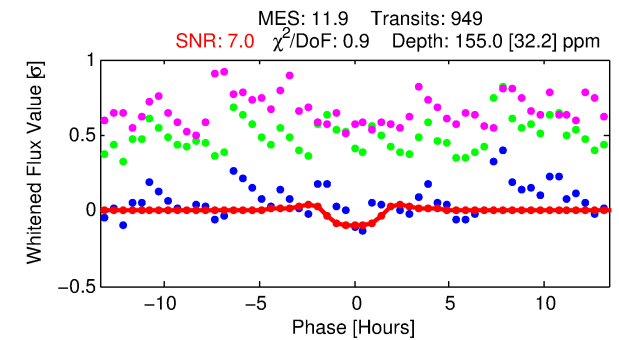
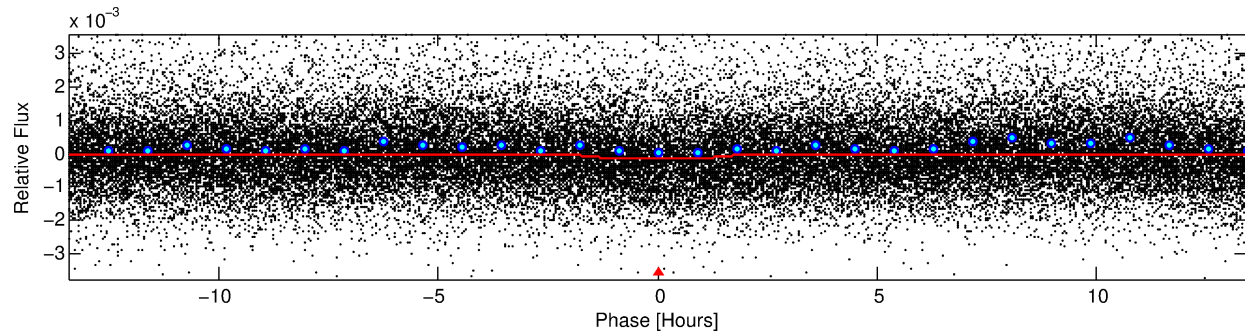
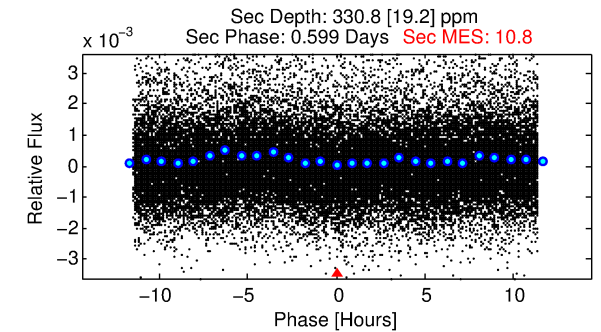
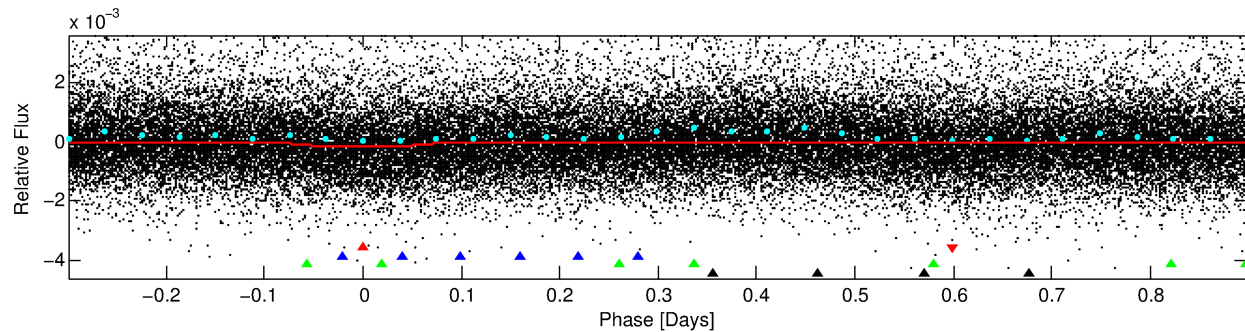
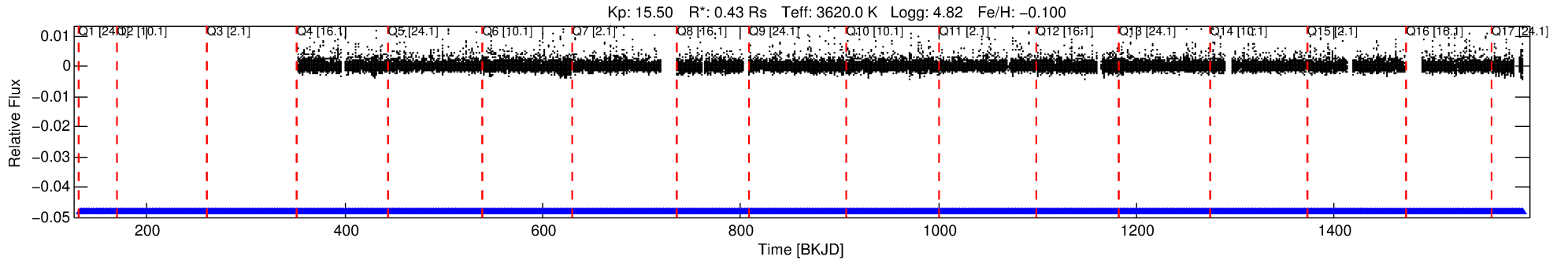
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008257134-01

No Significant Match Found

# DV One-Page Summary

KIC: 8257134 Candidate: 1 of 4 Period: 1.198 d



## DV Fit Results:

Period = 1.19797 [0.00002] d  
Epoch = 132.1860 [0.0063] BKJD  
Rp/R\* = 0.0160 [0.0020]  
a/R\* = 1.14 [0.05]  
b = 0.98 [0.01]  
Seff = 99.87 [10.92]  
Teff = 806 [22] K  
Rp = 0.75 [0.12] Re  
a = 0.0169 [0.0012] AU  
**Ag = 92.37 [24.81] [3.68σ]**  
**Teffp = 3864 [251] K [12.15σ]**

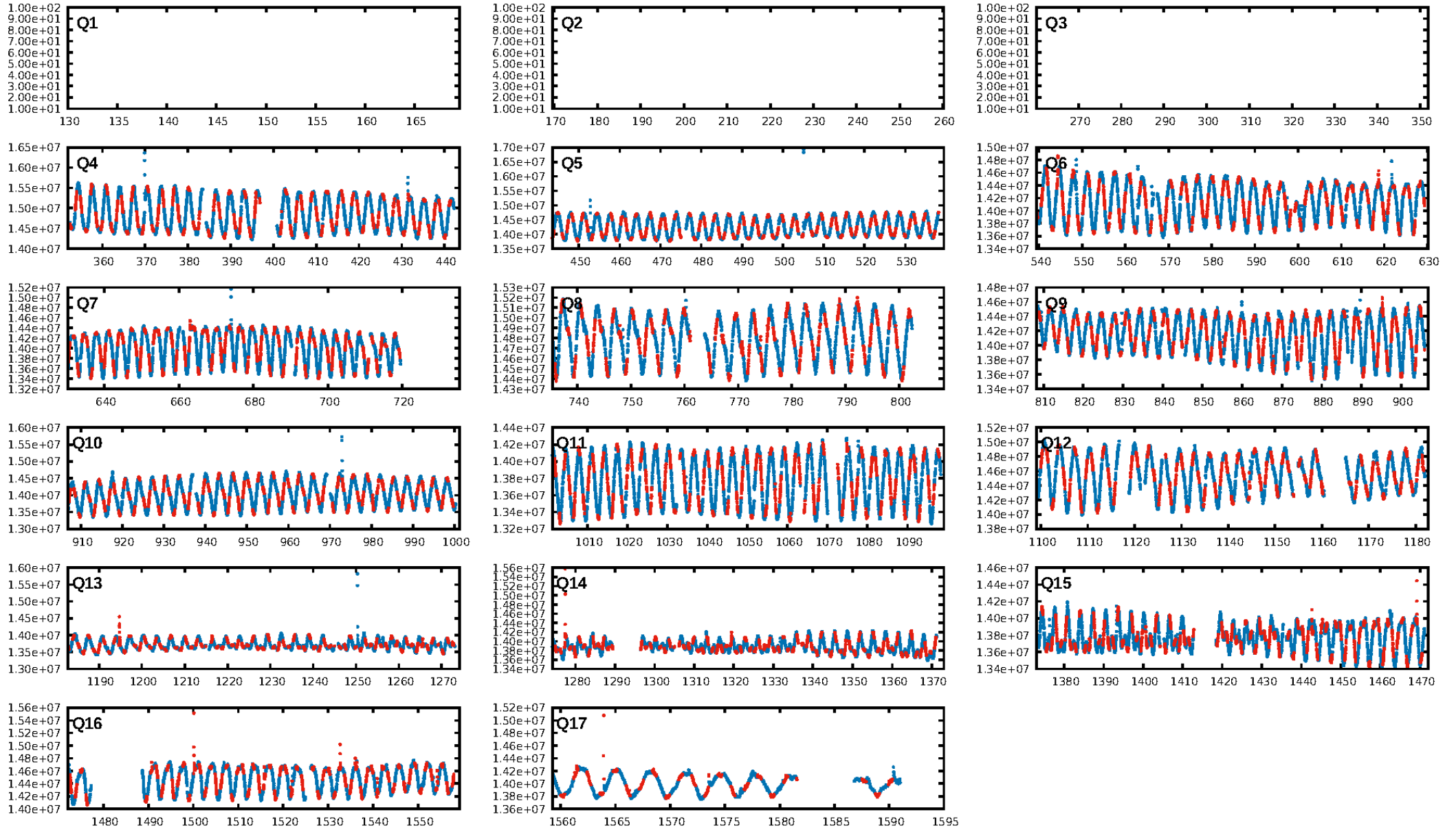
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [998.95σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.63e-22  
RollingBand-fgt: 1.00 [928/928]  
**GhostDiagnostic-chr: 0.7636**  
**Centroid-sig: 0.1%**  
Centroid-so: 1.713 arcsec [1.99σ]  
OotOffset-rm: 1.134 arcsec [2.95σ]  
KicOffset-rm: 0.254 arcsec [0.48σ]  
OotOffset-st: 2/3/3/4 [12]  
KicOffset-st: 2/3/3/4 [12]  
DiffImageQuality-fgm: 0.67 [8/12]  
DiffImageOverlap-fno: 1.00 [14/14]

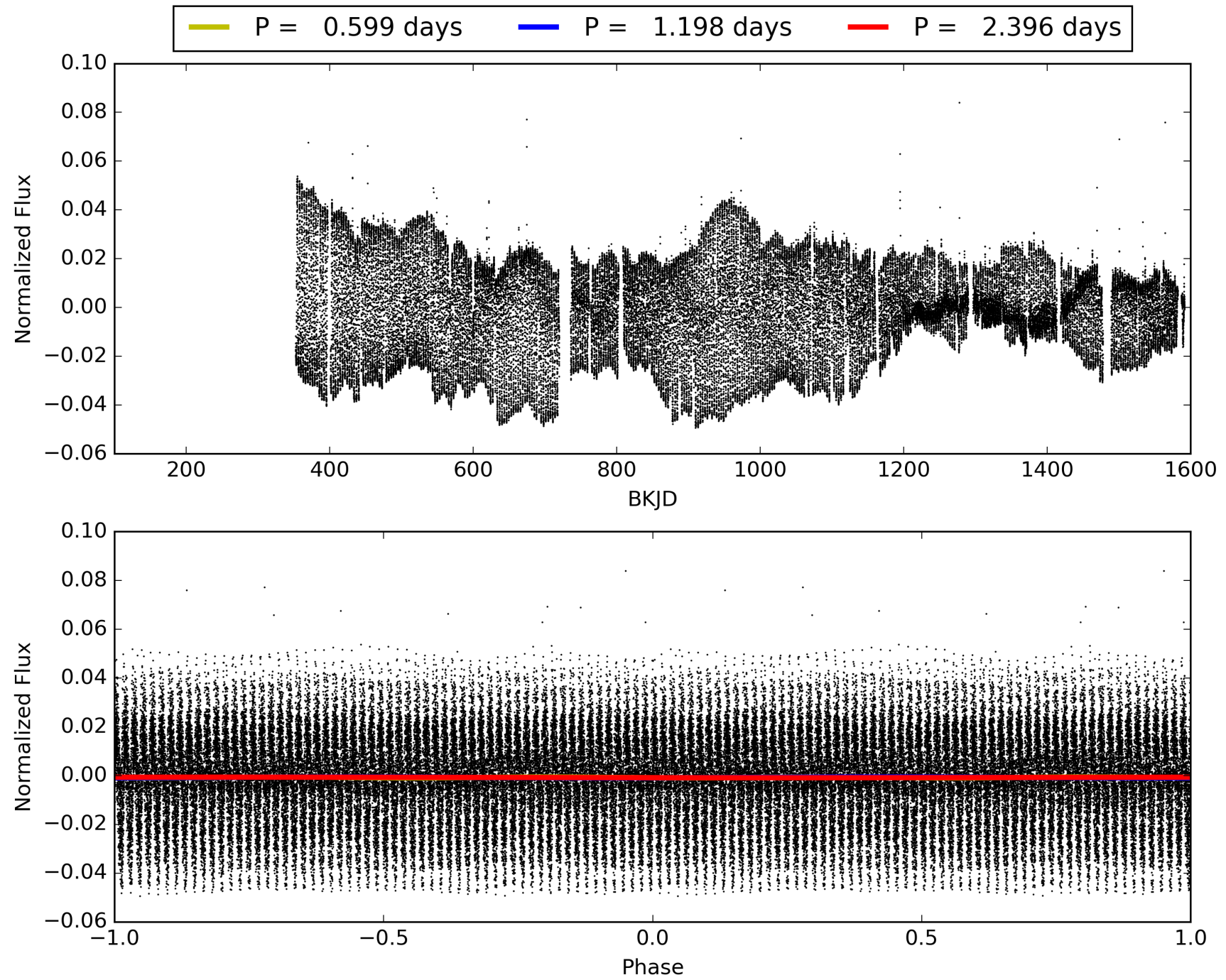
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:01:41 Z

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

# TCE 008257134-01, PDC Light Curves



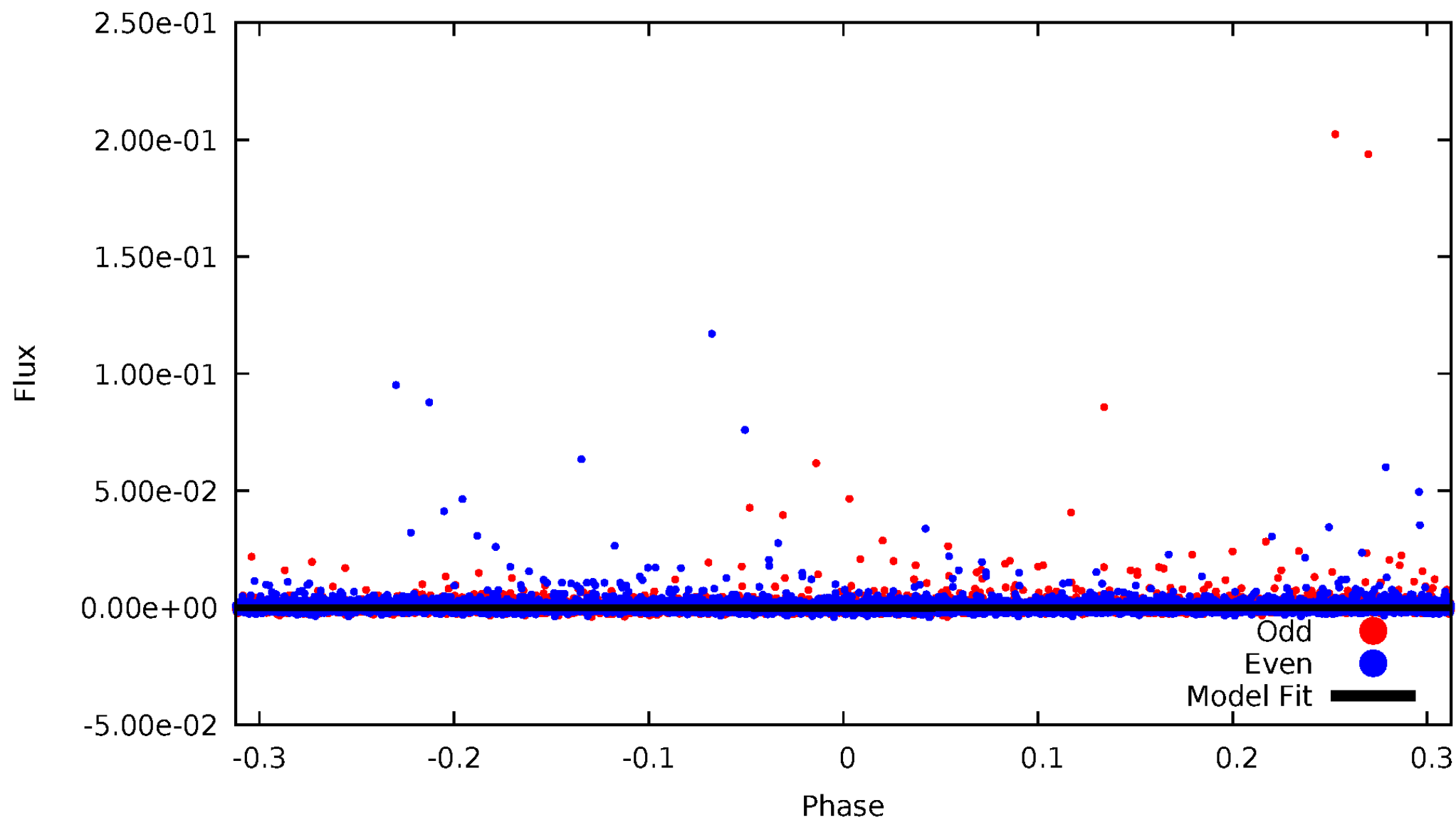
TCE 008257134-01





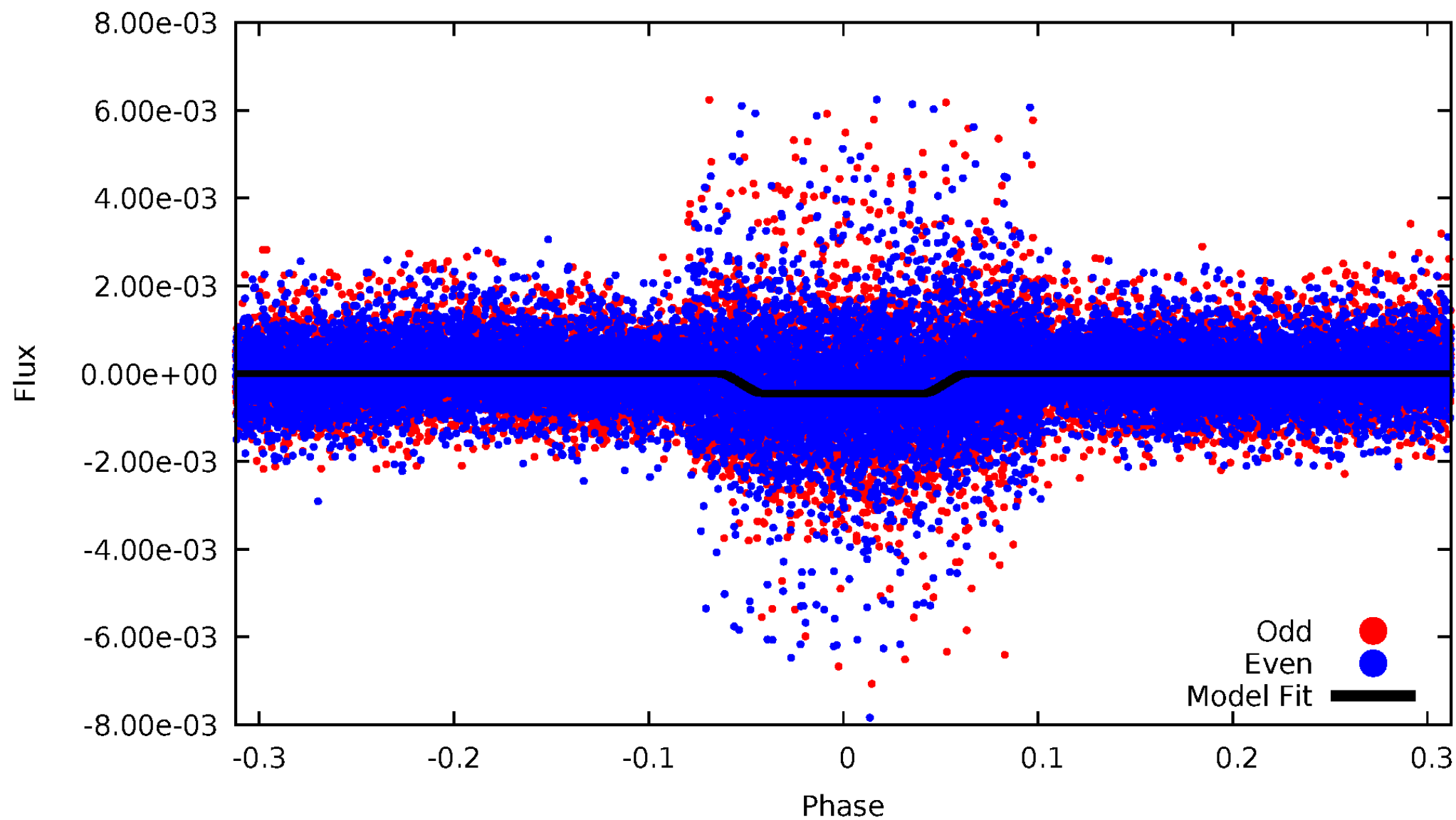
# DV Odd/Even

TCE 008257134-01

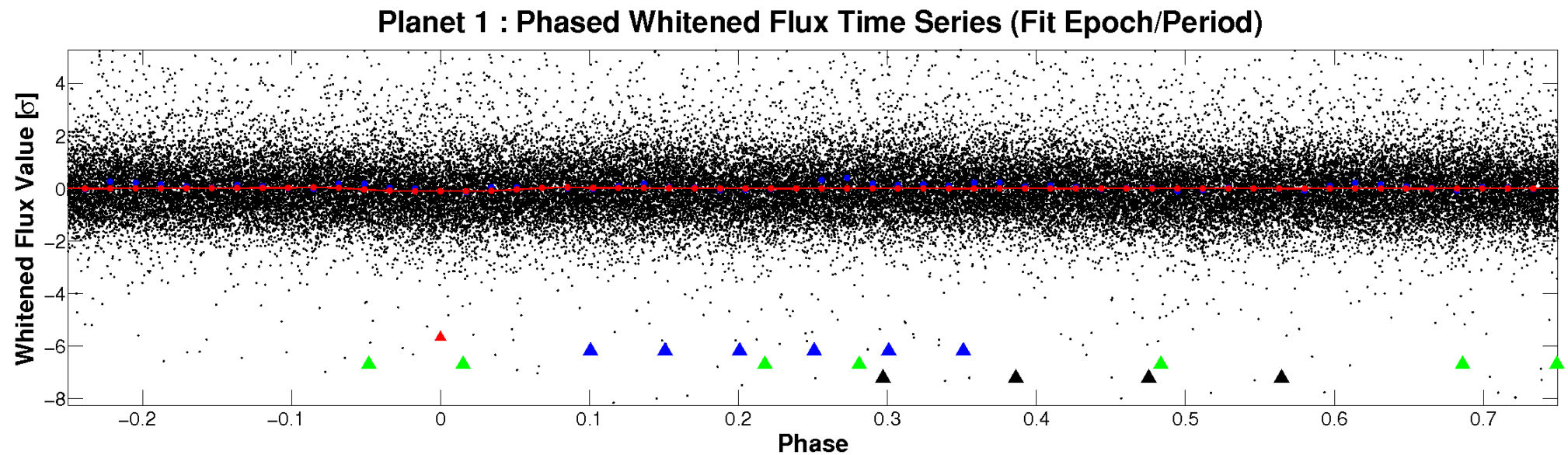
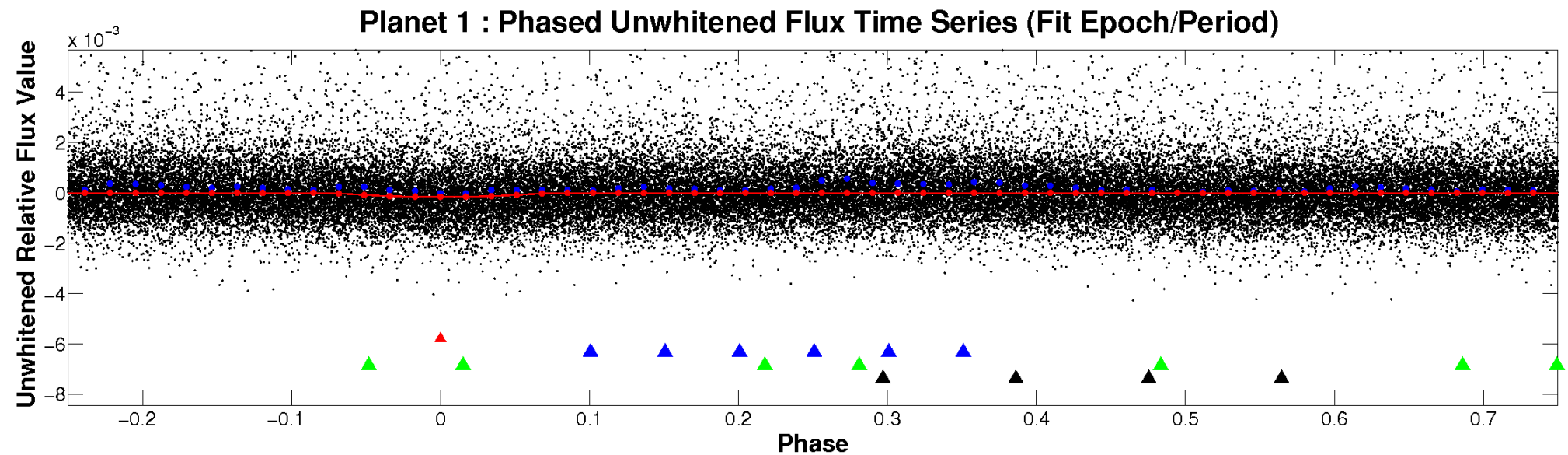


# ALT Odd/Even

TCE 008257134-01

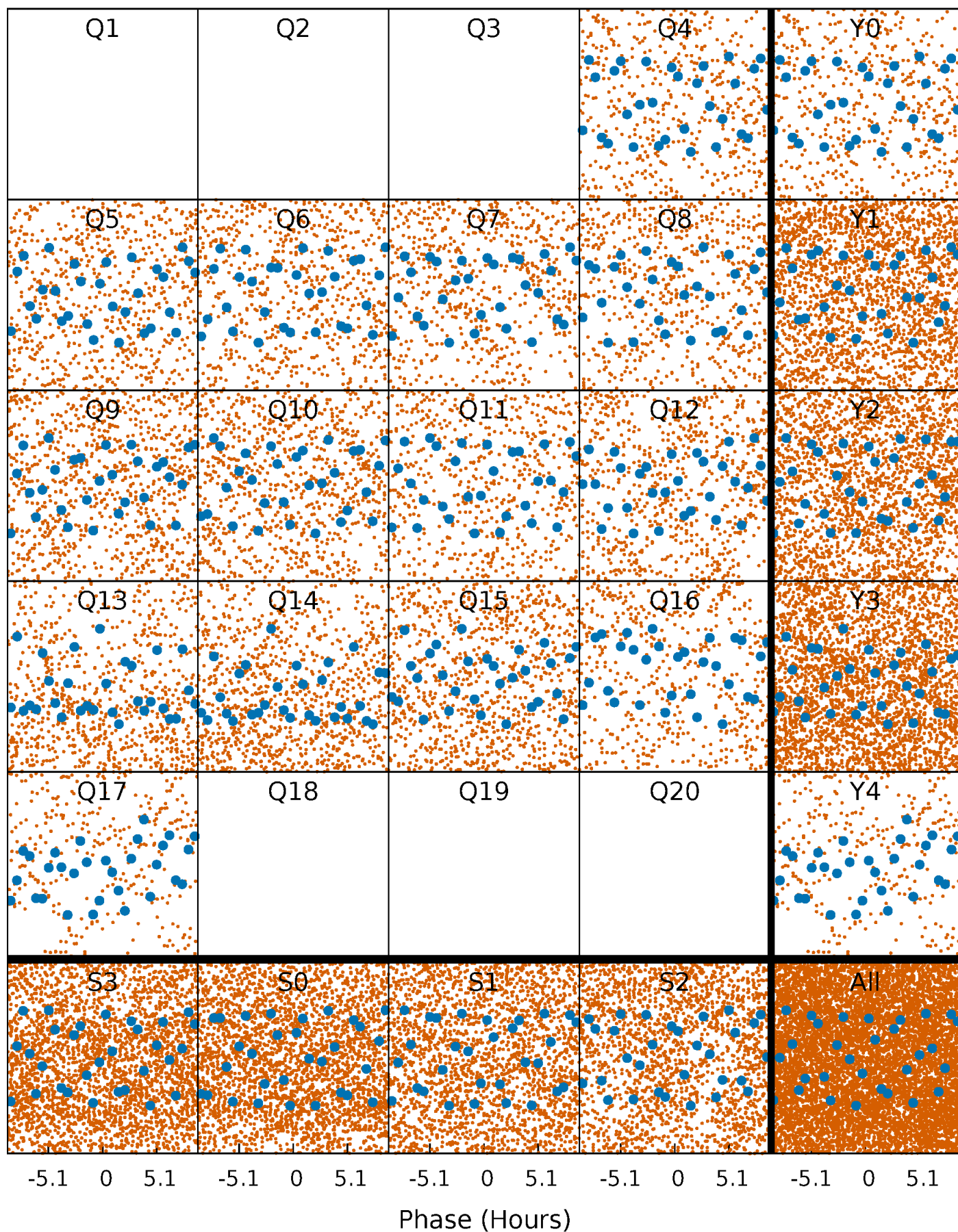


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

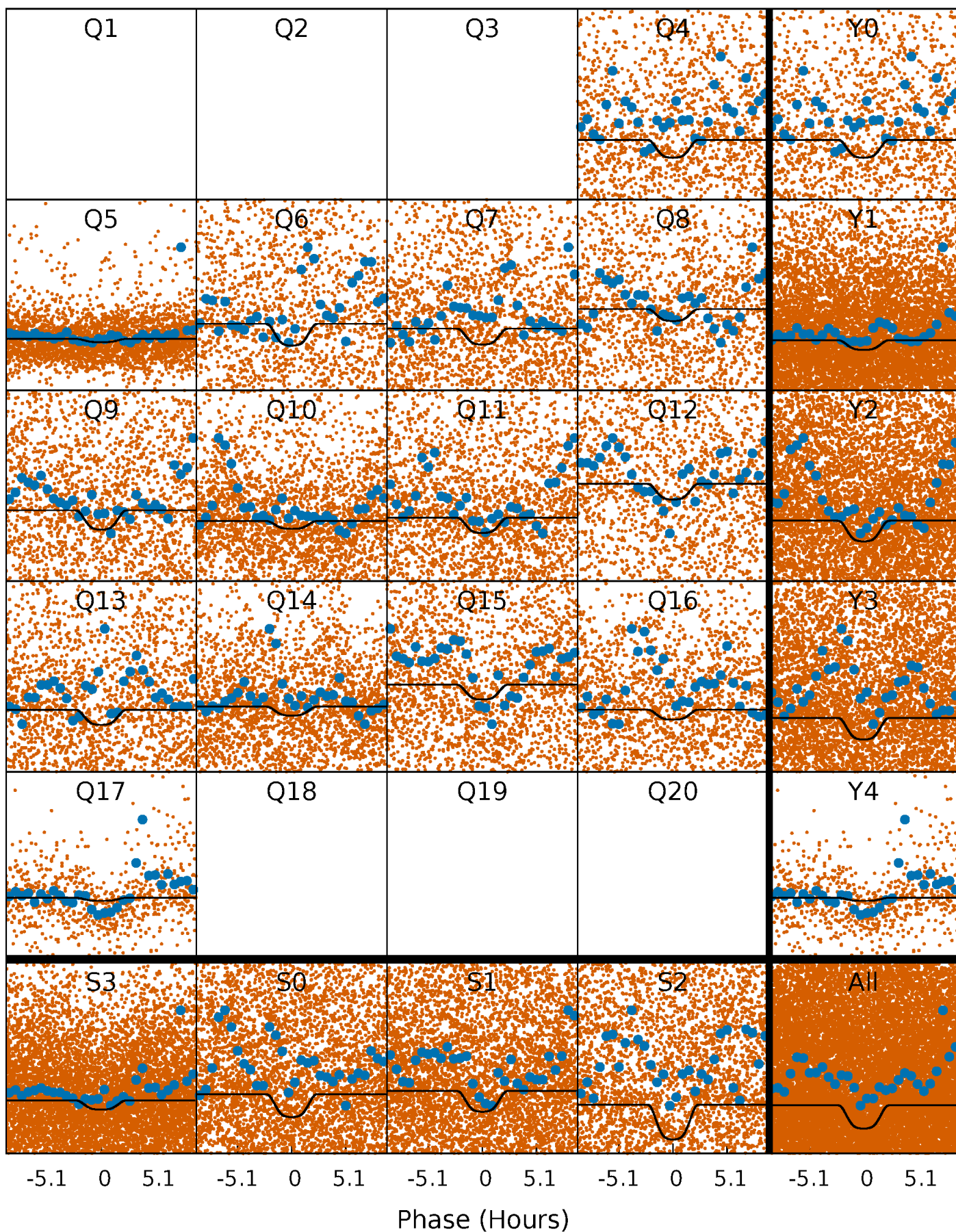
TCE 008257134-01 P= 1.197974 Days  $T_0=132.185991$  (BKJD)





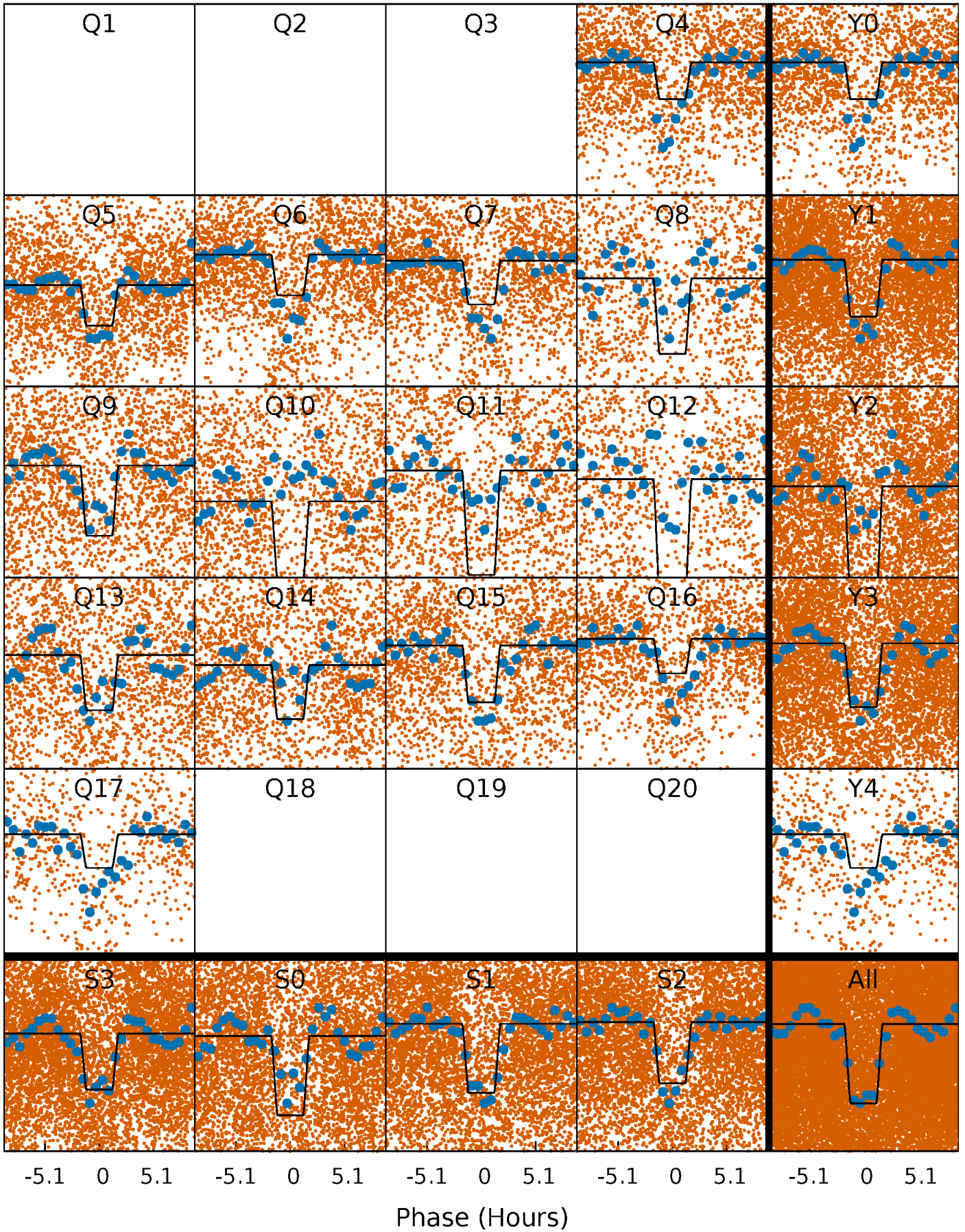
# DV Quarter-Phased Transit Curves

TCE 008257134-01 P= 1.197974 Days  $T_0=132.185991$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008257134-01 P= 1.198091 Days  $T_0=132.091049$  (BKJD)

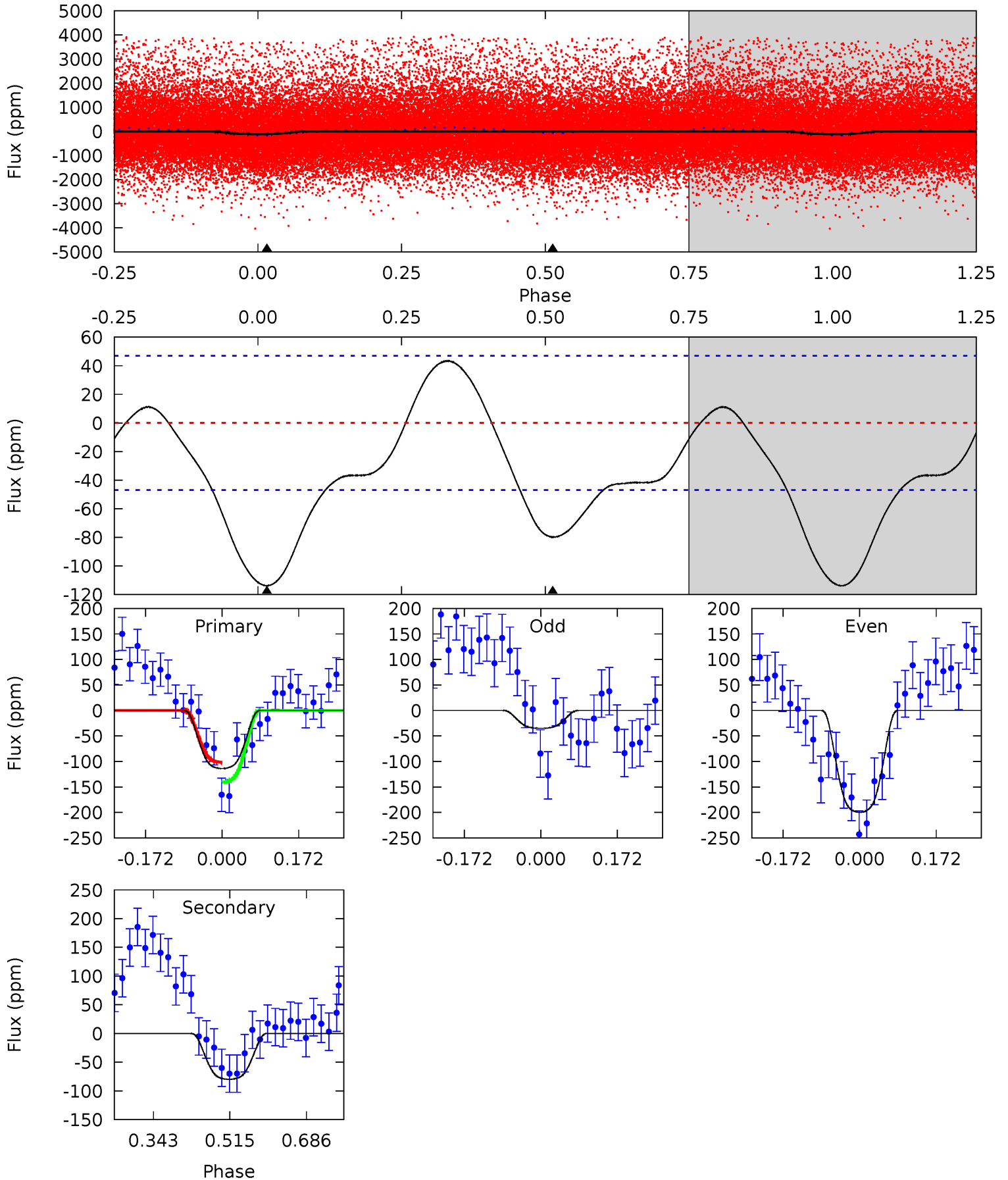




# DV Model-Shift Uniqueness Test

008257134-01, P = 1.197974 Days, E = 132.185991 Days

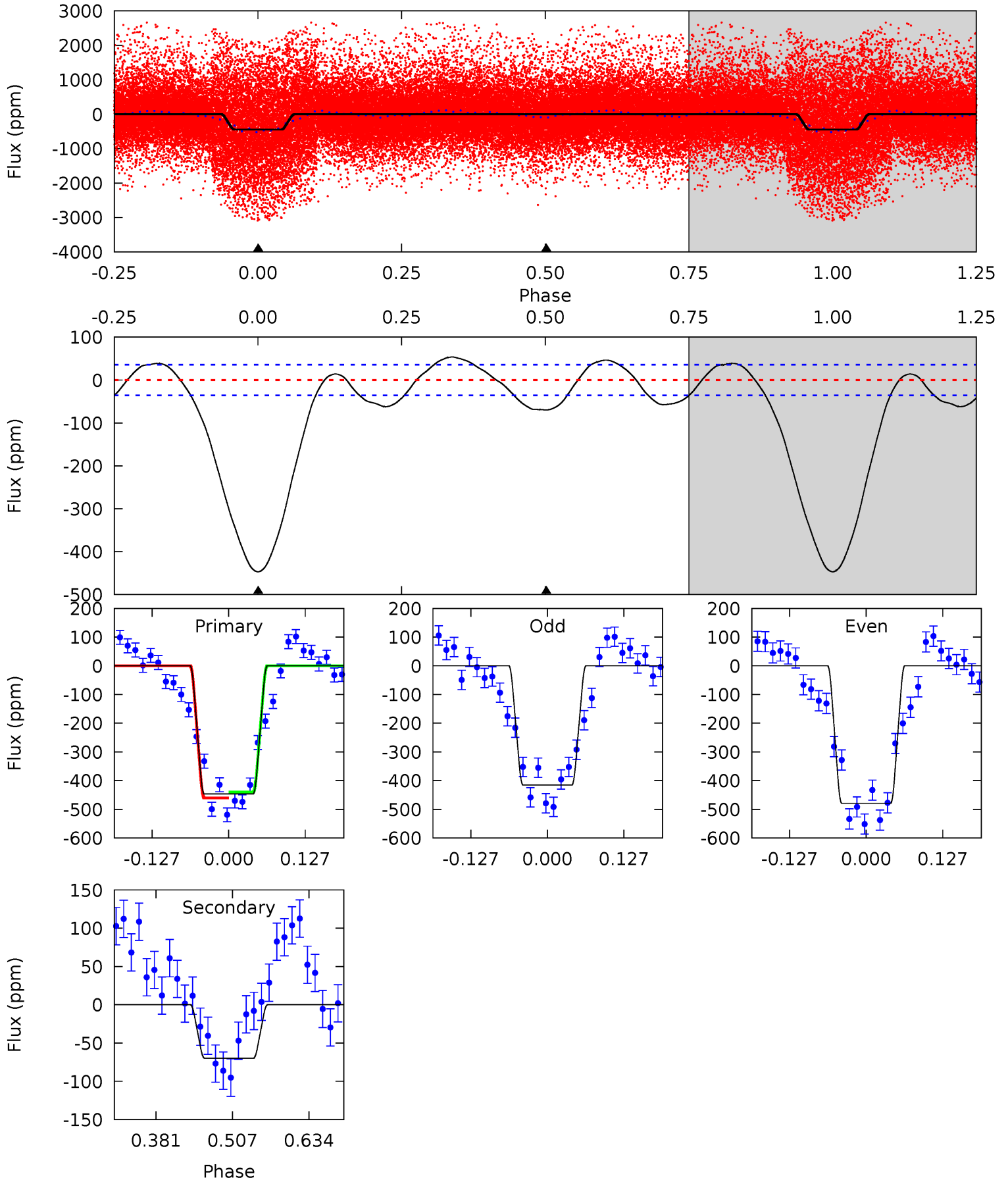
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.8	7.56	0	0	4.45	1.37	2.46	10.8	10.8	7.56	7.56	7.85	-0.70	0.28	1.86



# Alt Model-Shift Uniqueness Test

008257134-01, P = 1.198091 Days, E = 132.091049 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
56.6	8.84	0	0	4.51	1.53	4.77	56.6	56.6	8.84	8.84	4.05	1.08	0.11	1.32





### Stellar Parameters For KIC 008257134

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$3620^{+54}_{-54}$	$4.821^{+0.042}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.430^{+0.030}_{-0.042}$	$0.446^{+0.032}_{-0.040}$	$7.920^{+1.691}_{-1.070}$
	+1%/-1%	+1%/-1%	+100%/-100%	+7%/-10%	+7%/-9%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008257134-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-80 \pm 11$	$0.75^{+0.10}_{-0.10}$	$1124^{+24}_{-25}$	$3017^{+138}_{-115}$	$22^{+8}_{-6}$
Alt.	$-70 \pm 8$	$1.00^{+0.10}_{-0.10}$	$1125^{+23}_{-25}$	$2742^{+91}_{-80}$	$11^{+3}_{-2}$

$T_{\text{max}}$  = 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

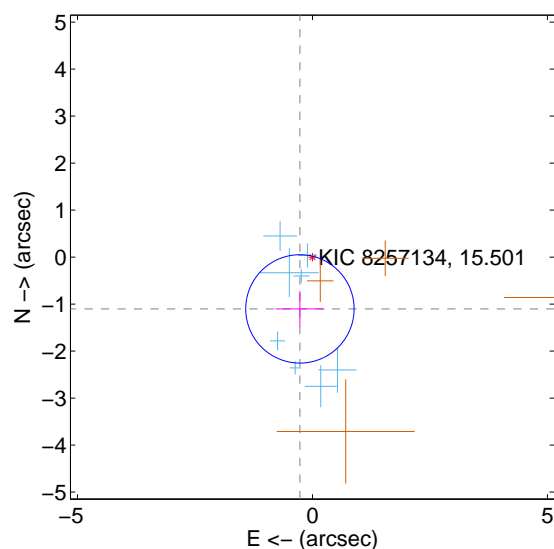
Supplemental centroid analysis for 008257134-01. Kepler magnitude: 15.50. Transit SNR 7.05

There are 8 quarters with good PRF difference image offsets

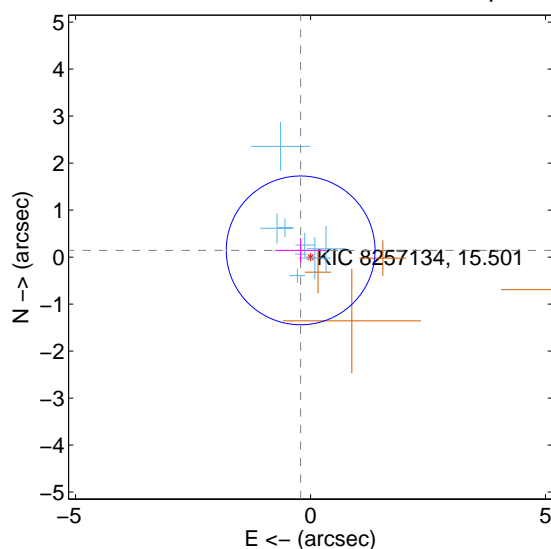
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.134 \pm 0.384$	2.95	$0.267 \pm 0.519$	$-1.102 \pm 0.380$
PRF-fit source offset from KIC position	$0.254 \pm 0.528$	0.48	$0.210 \pm 0.541$	$0.143 \pm 0.264$
photometric centroid source offset	$1.71 \pm 0.86$	1.99	$1.56 \pm 0.73$	$-0.70 \pm 1.31$

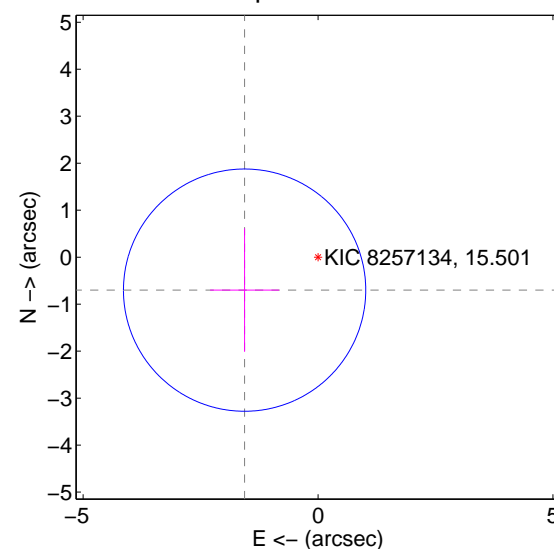
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

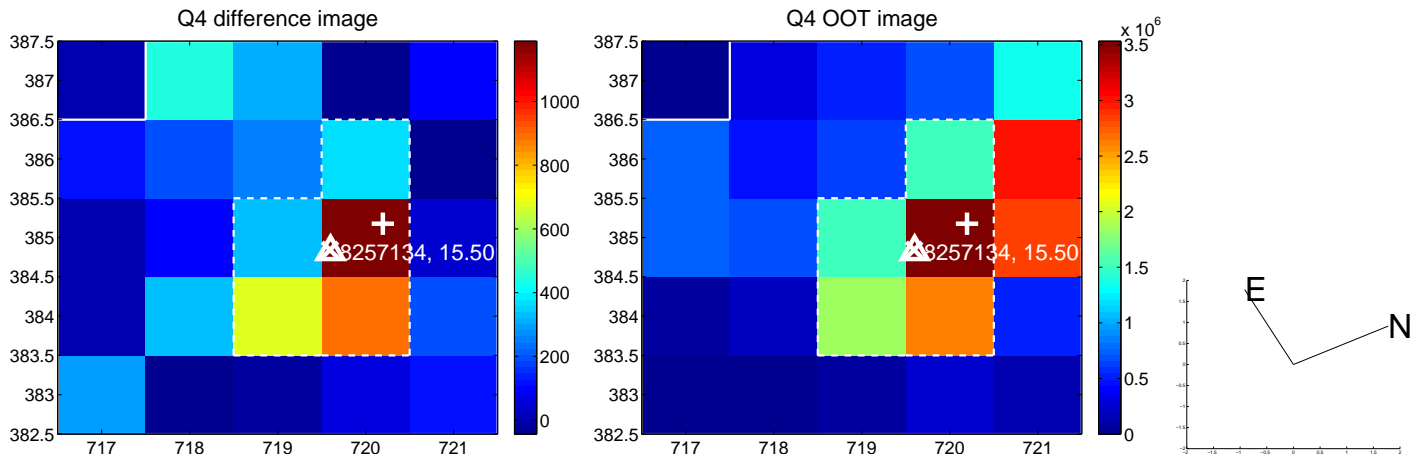
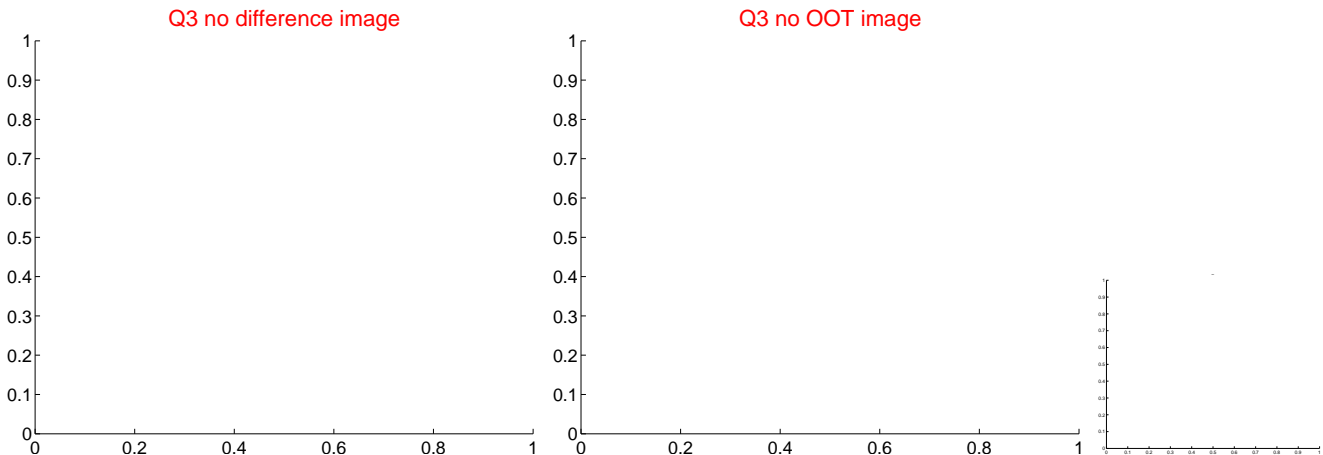
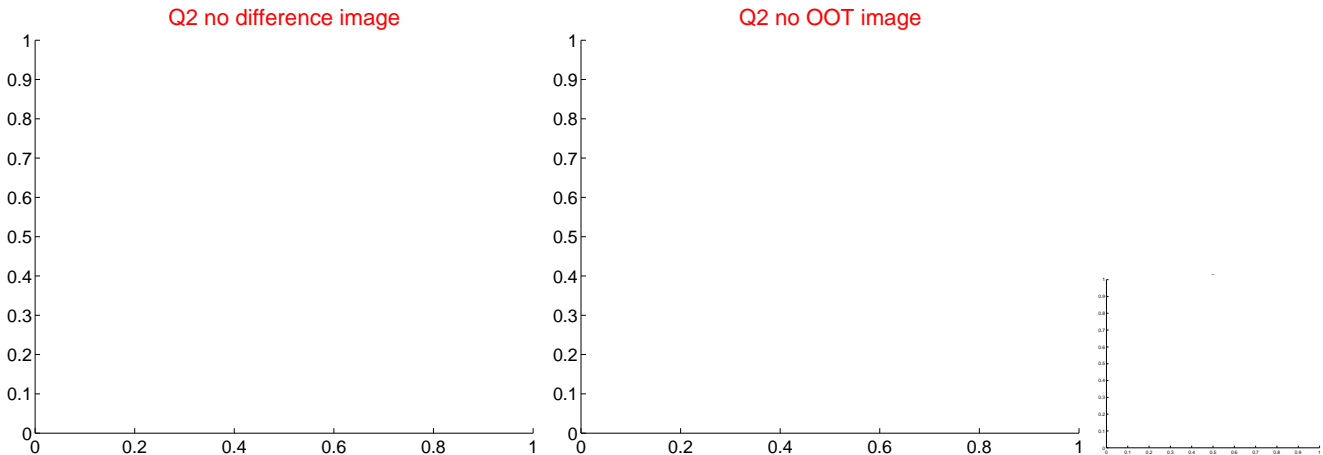
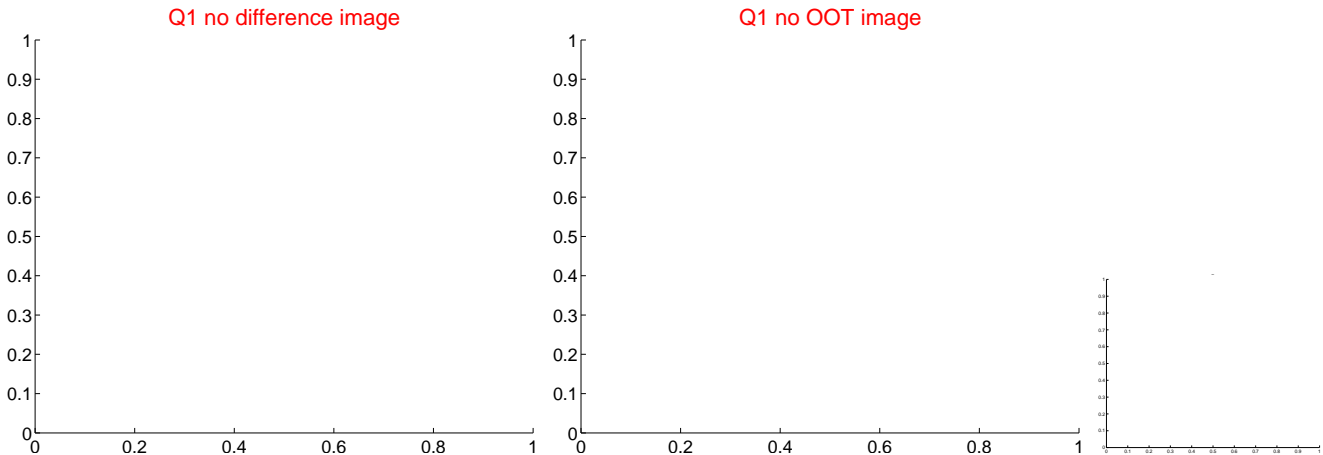


offset from photometric centroids

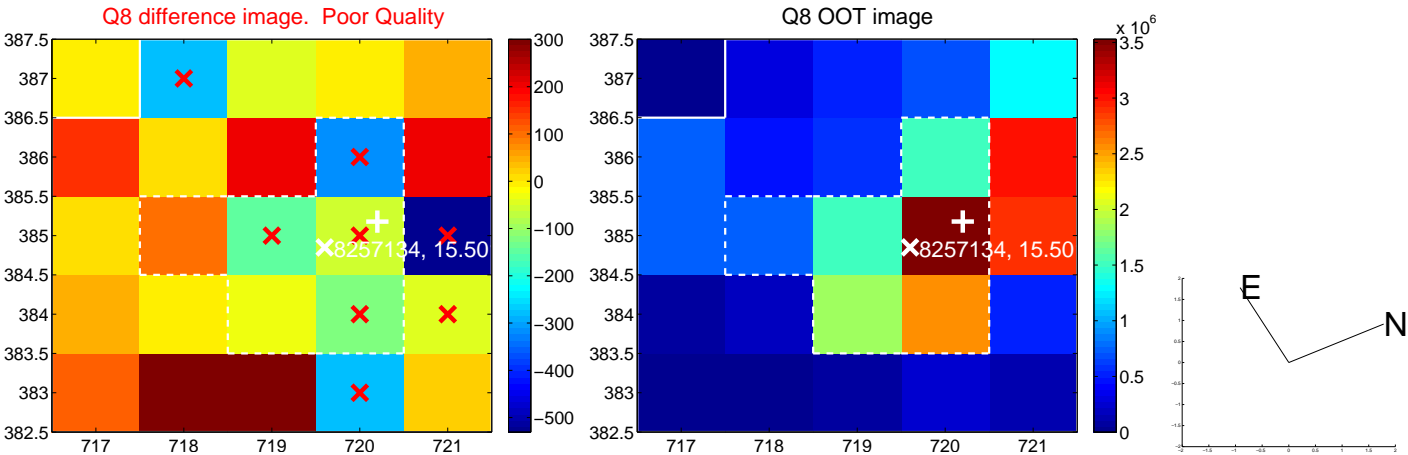
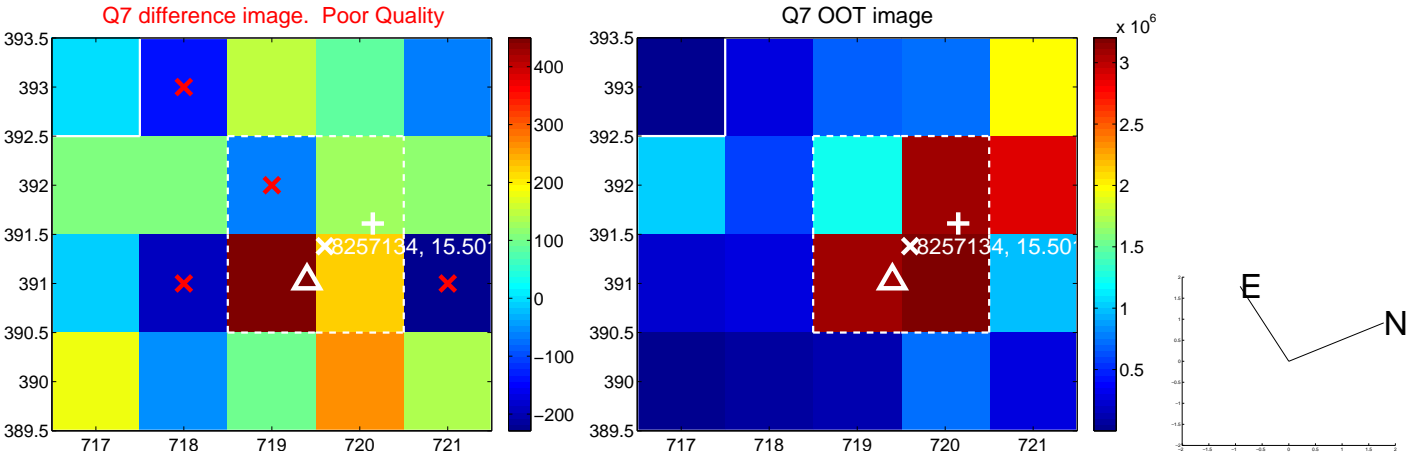
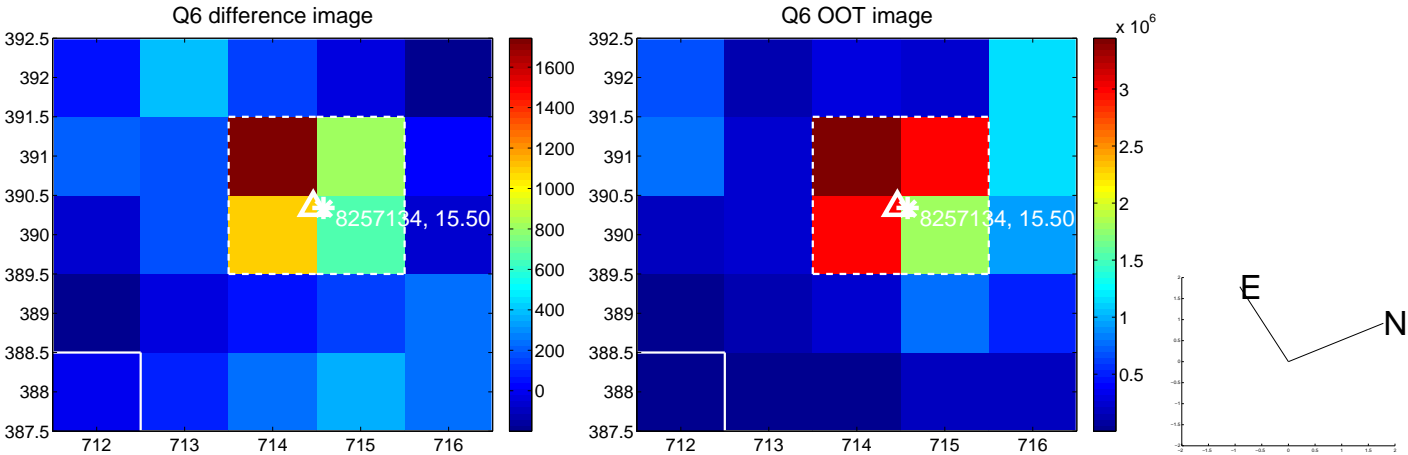
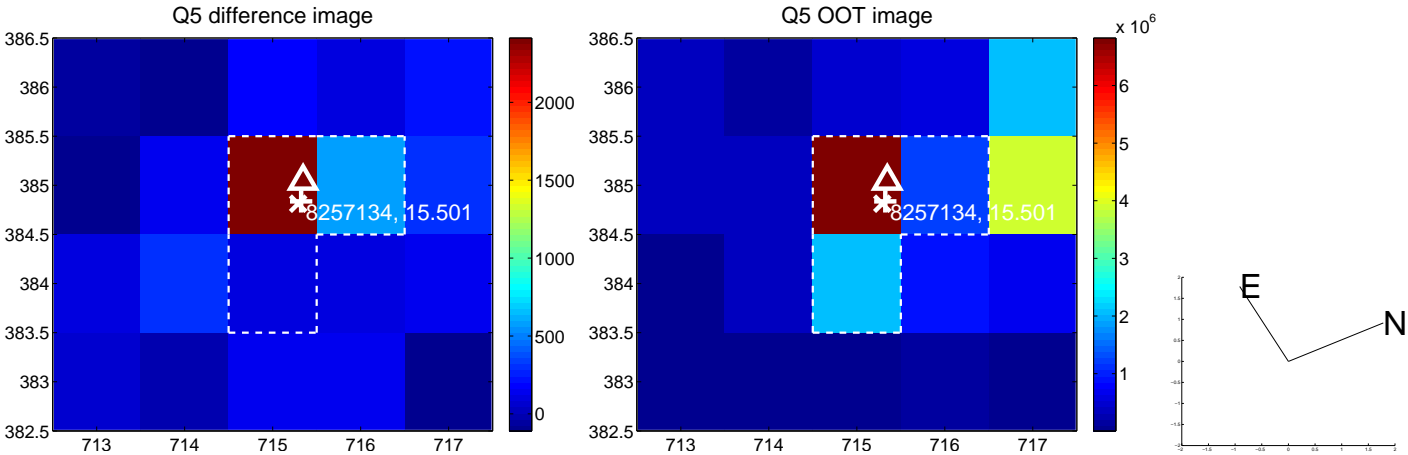


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

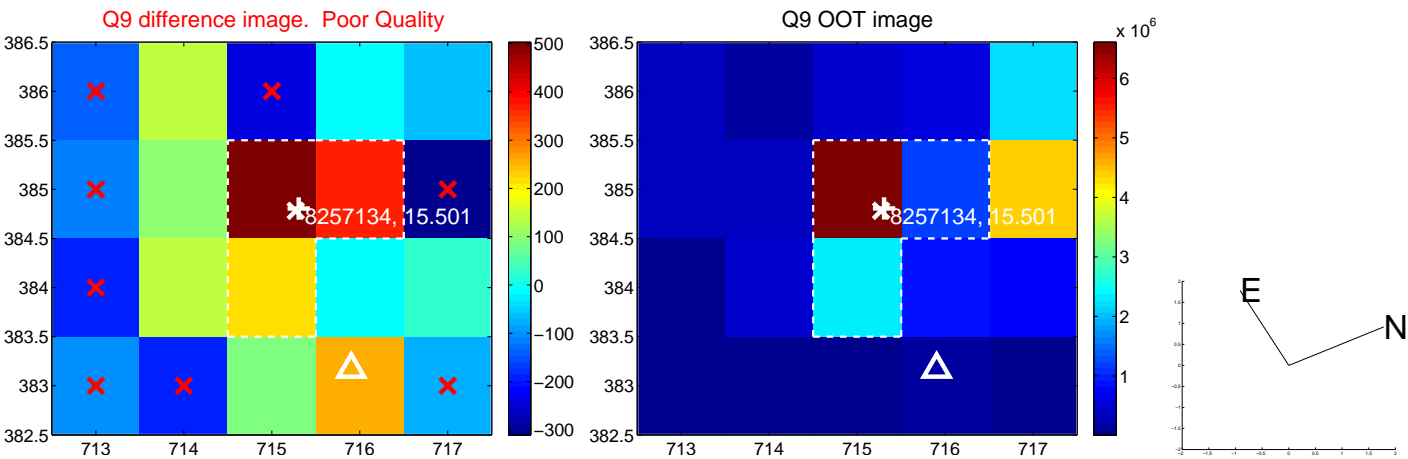


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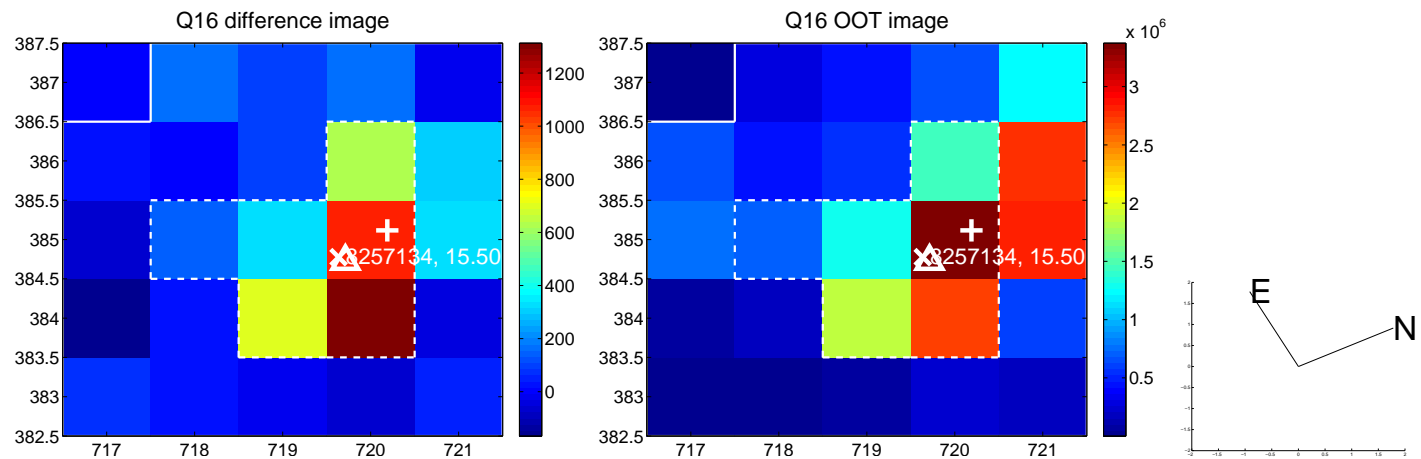
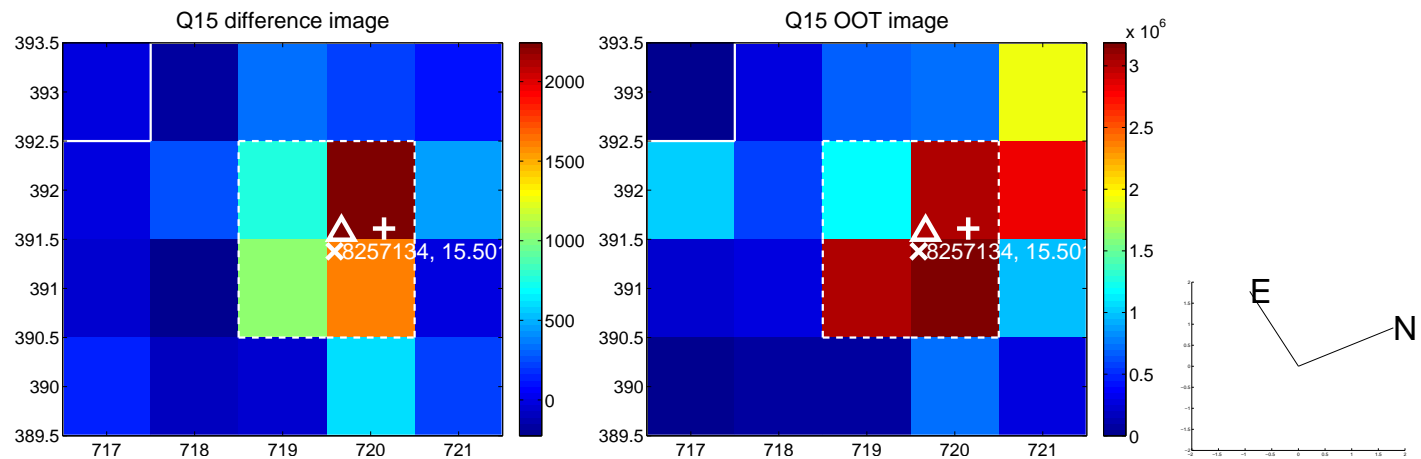
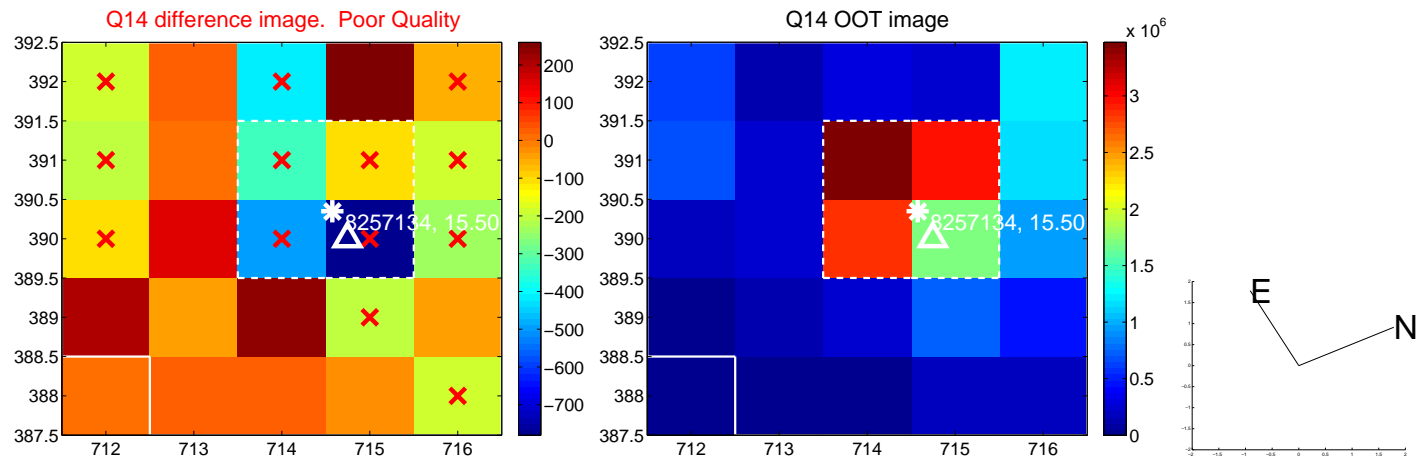
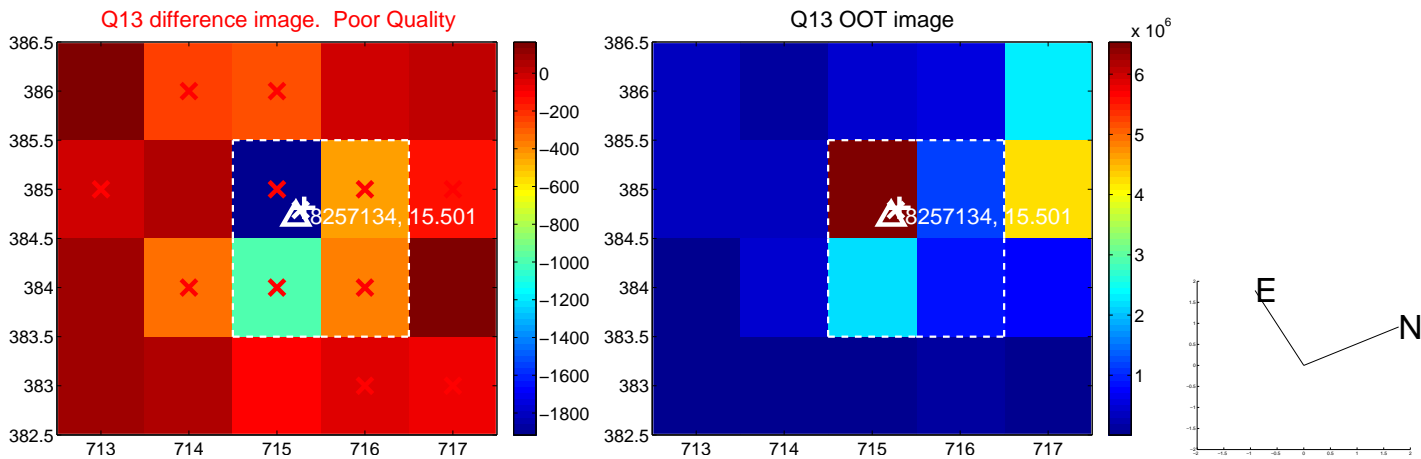




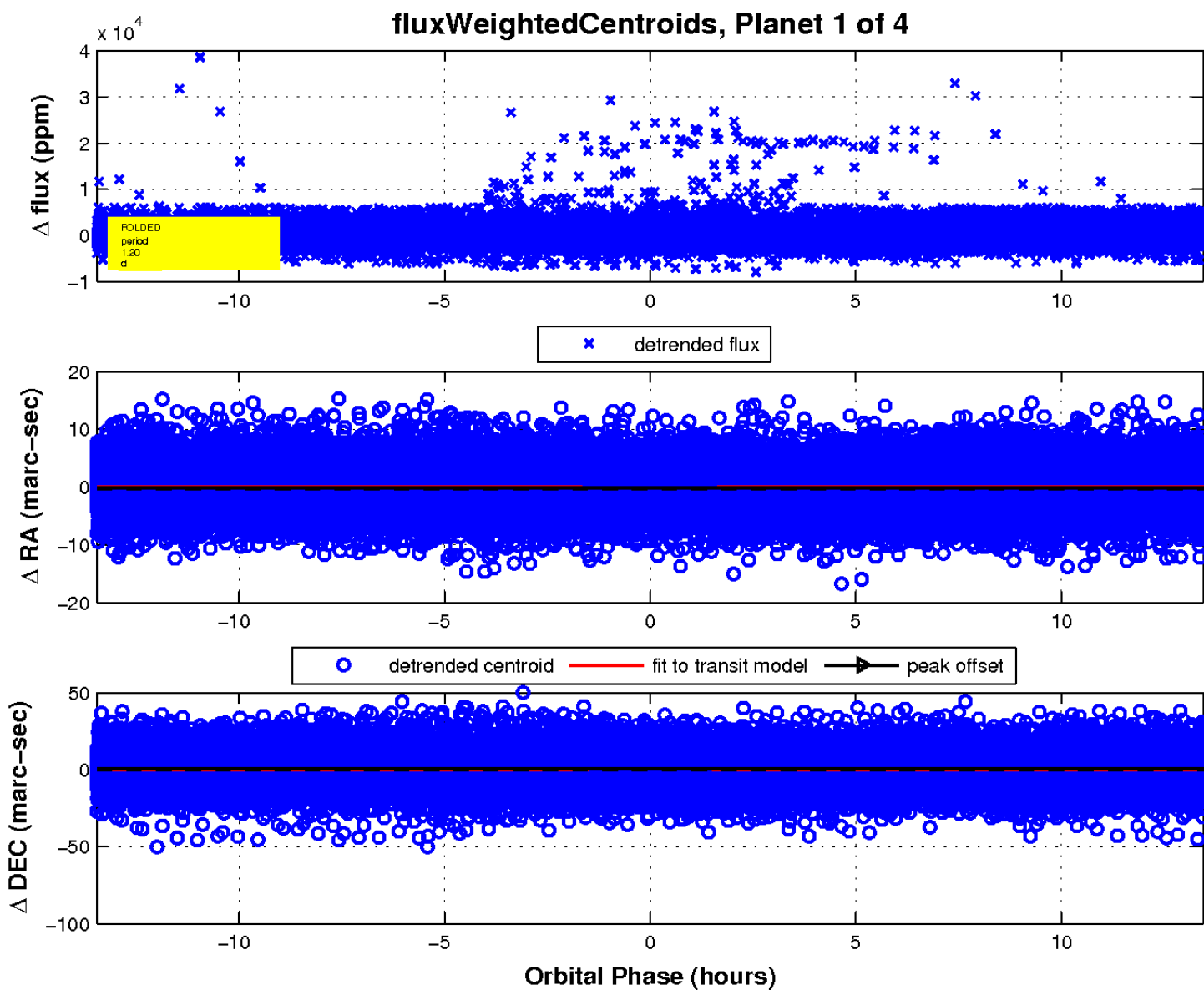
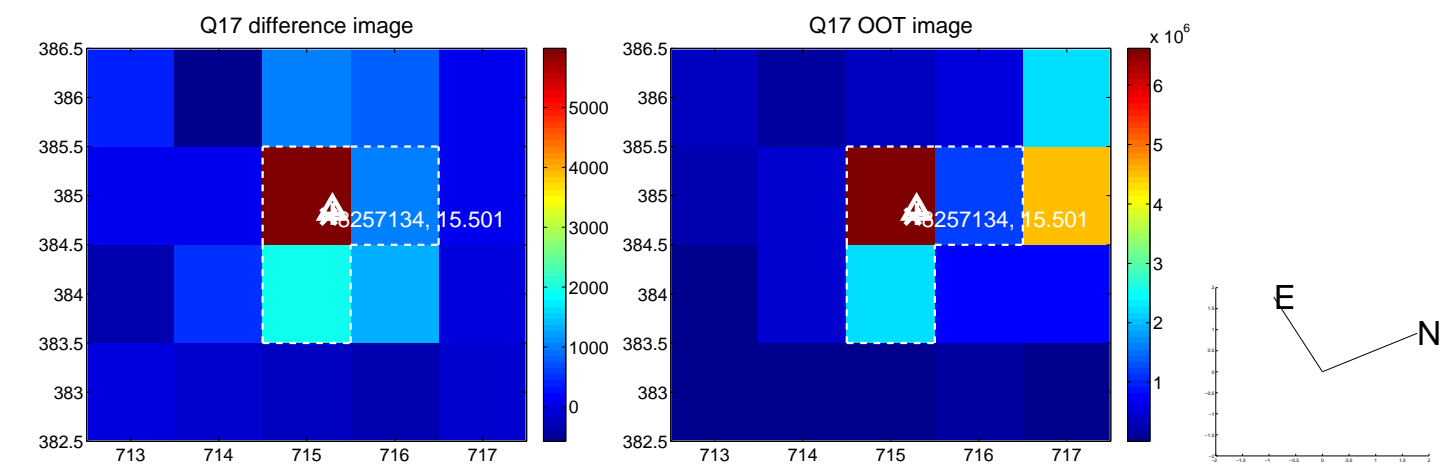
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

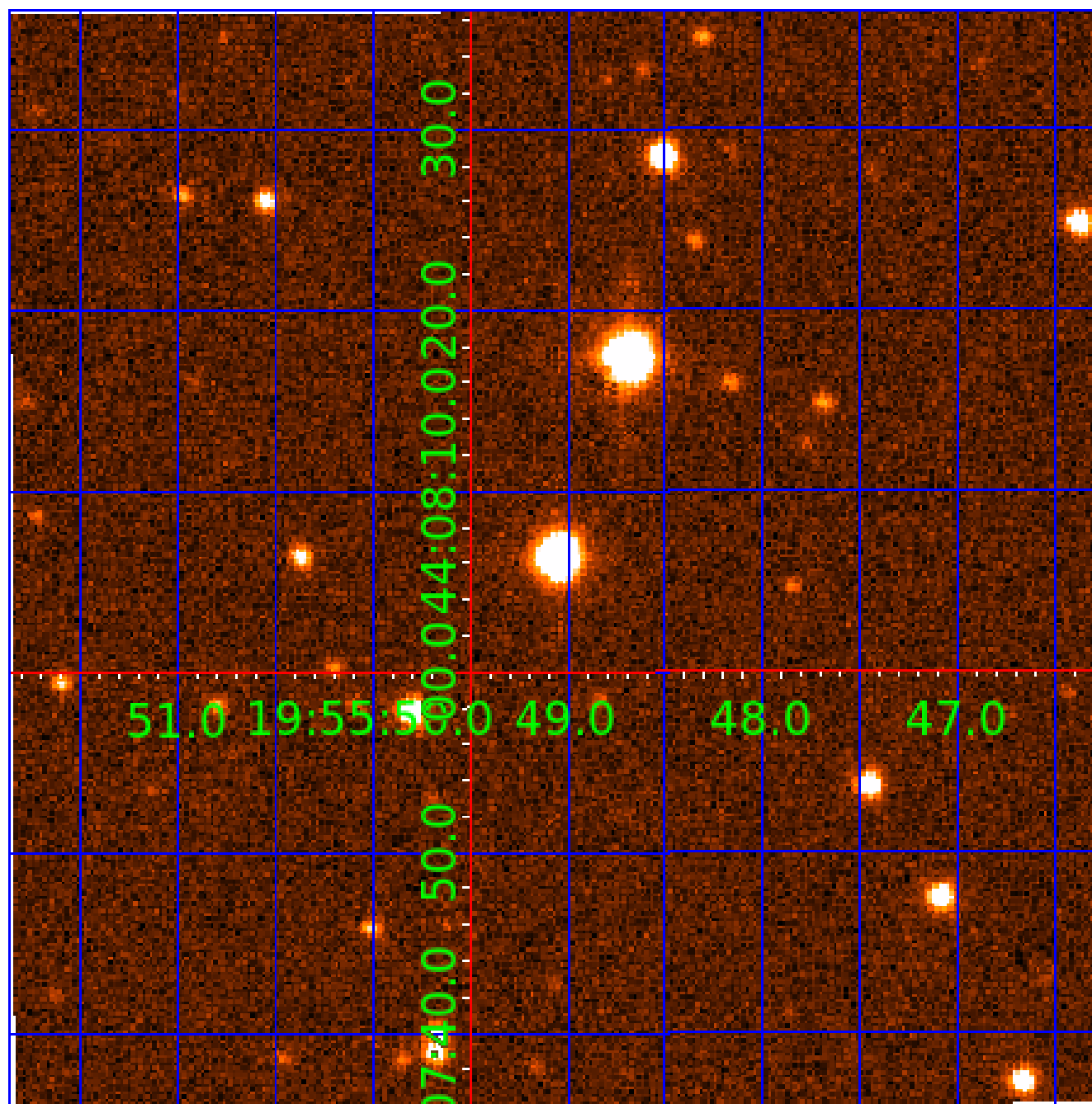


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008257134

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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008257134-04	OBS	No	384.442771	164.009664	3578.0	8.878	9.0	7.3	0.43	3620	4.87	0.04

## Robovetter Results

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008257134-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008257134-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

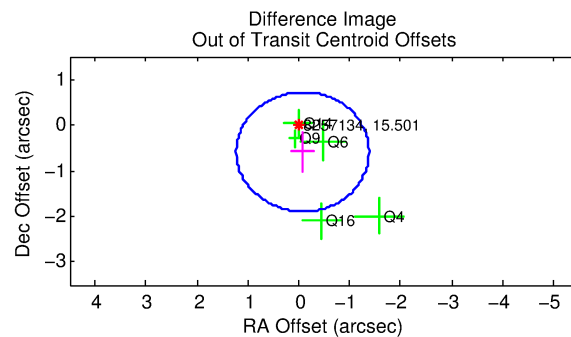
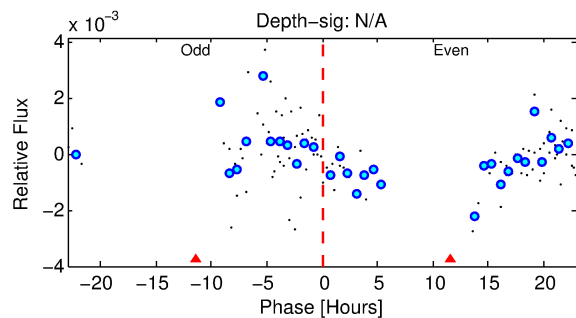
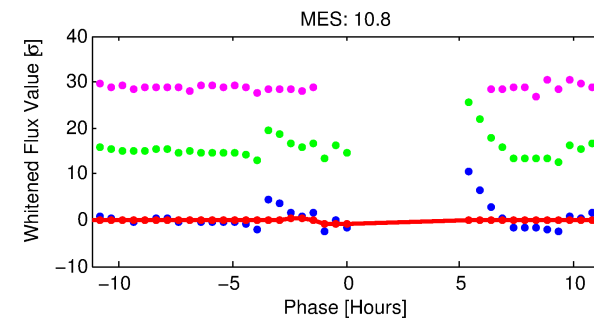
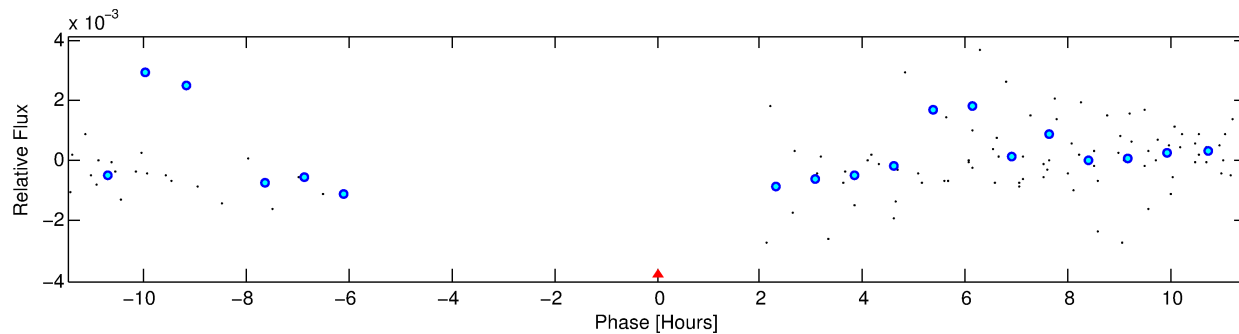
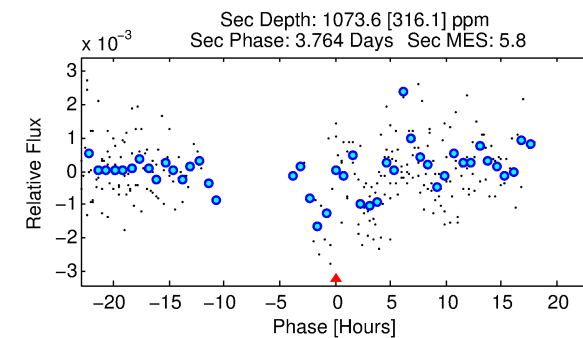
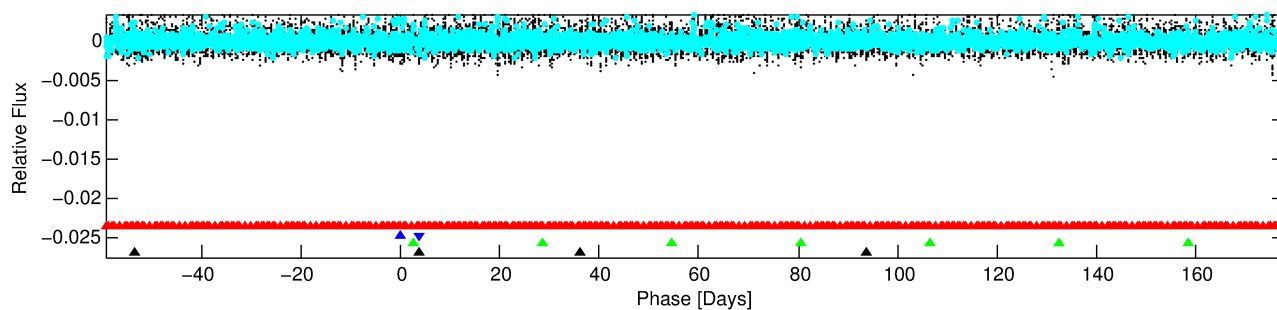
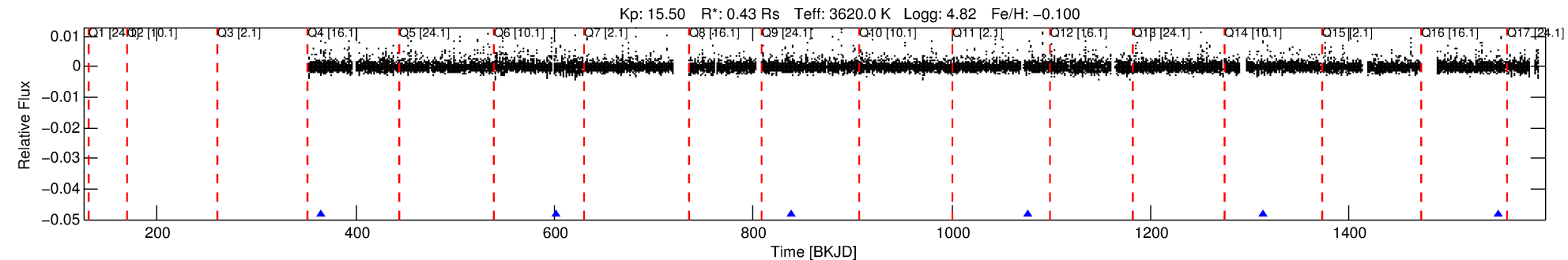
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008257134-02

No Significant Match Found

# DV One-Page Summary

KIC: 8257134 Candidate: 2 of 4 Period: 237.139 d



## TPS TCE Results:

Period = 237.13887 d  
Epoch = 365.0133 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

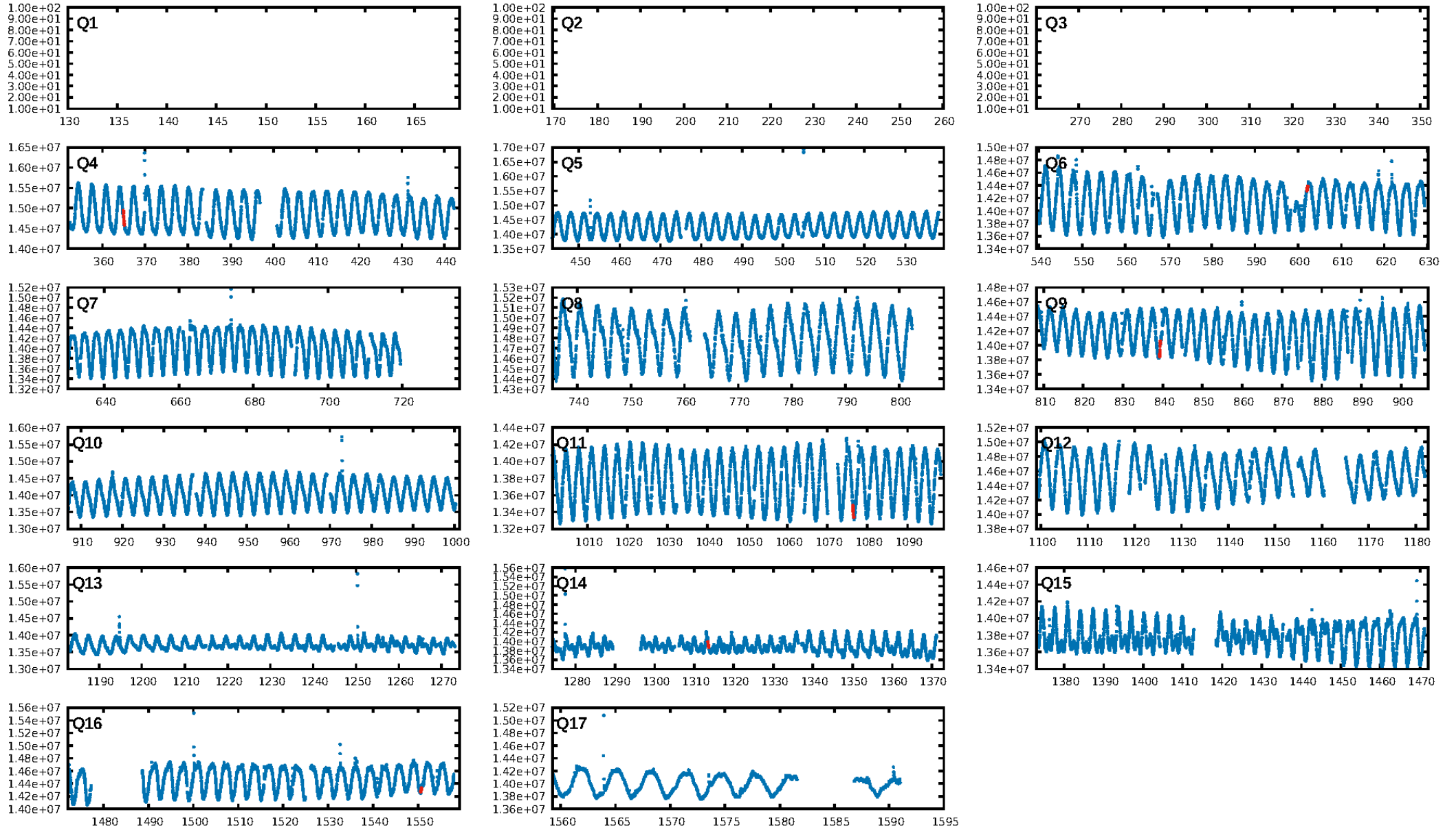
ShortPeriod-sig: 100.0% [164.79σ]  
LongPeriod-sig: 100.0% [377.26σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.34e-13  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 1.035

Centroid-sig: 65.4%  
Centroid-so: 1.732 arcsec [16.36σ]  
OotOffset-rm: 0.590 arcsec [1.36σ]  
KicOffset-rm: 0.083 arcsec [0.25σ]  
OotOffset-st: 2/0/2/1 [5]  
KicOffset-st: 2/0/2/1 [5]  
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DiffImageOverlap-fno: 0.00 [0/6]

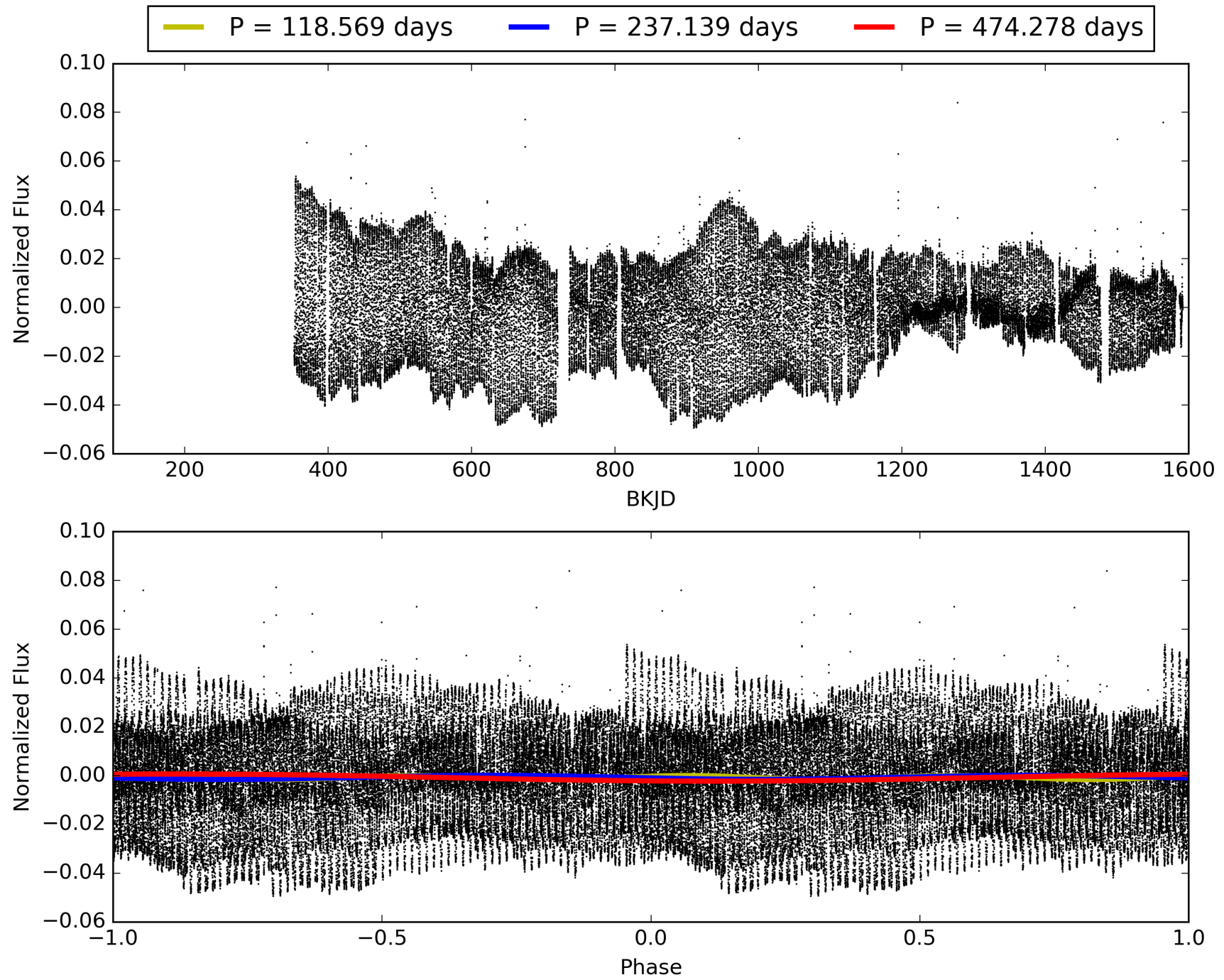
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:01:52 Z

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

# TCE 008257134-02, PDC Light Curves

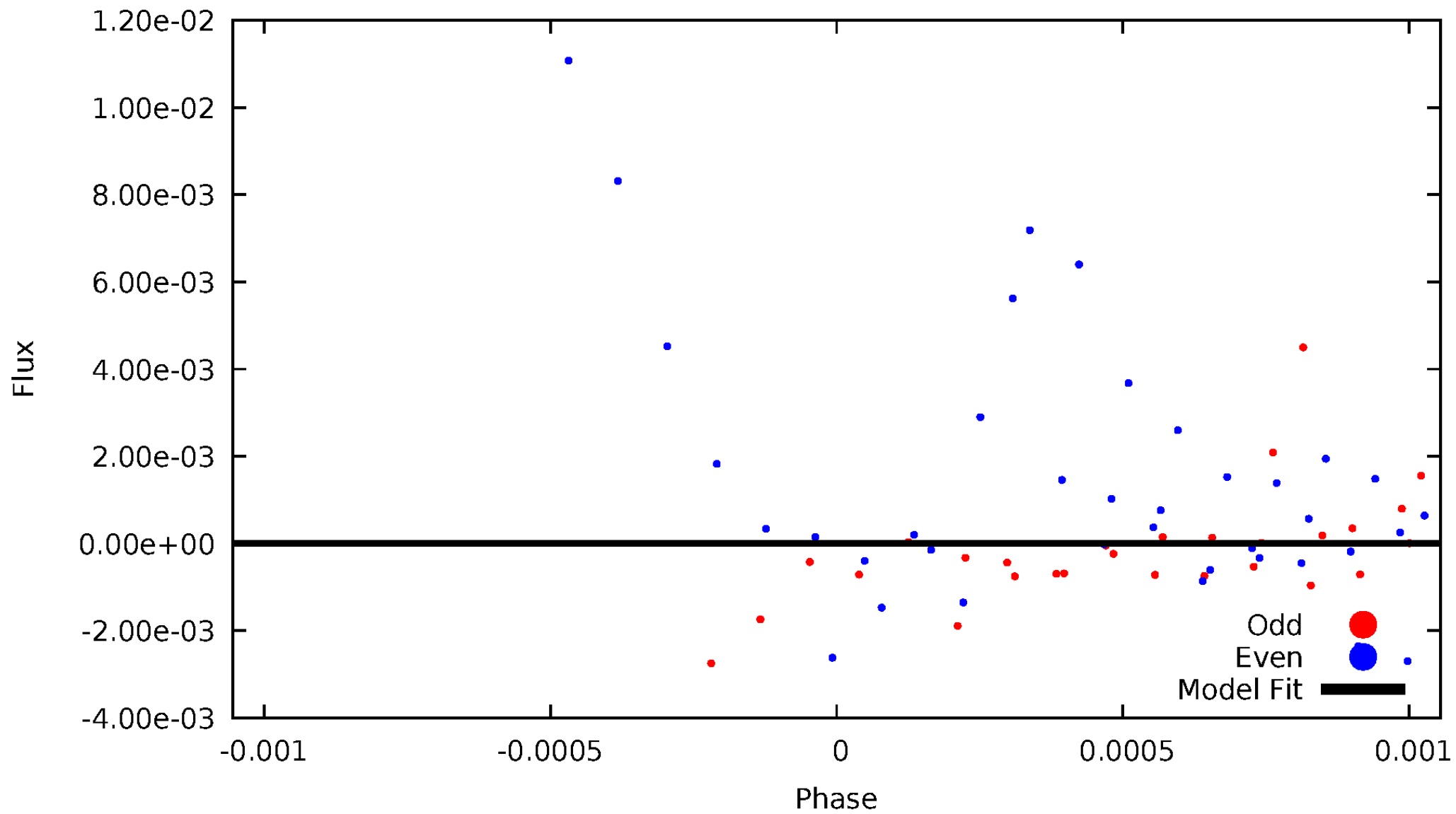


TCE 008257134-02



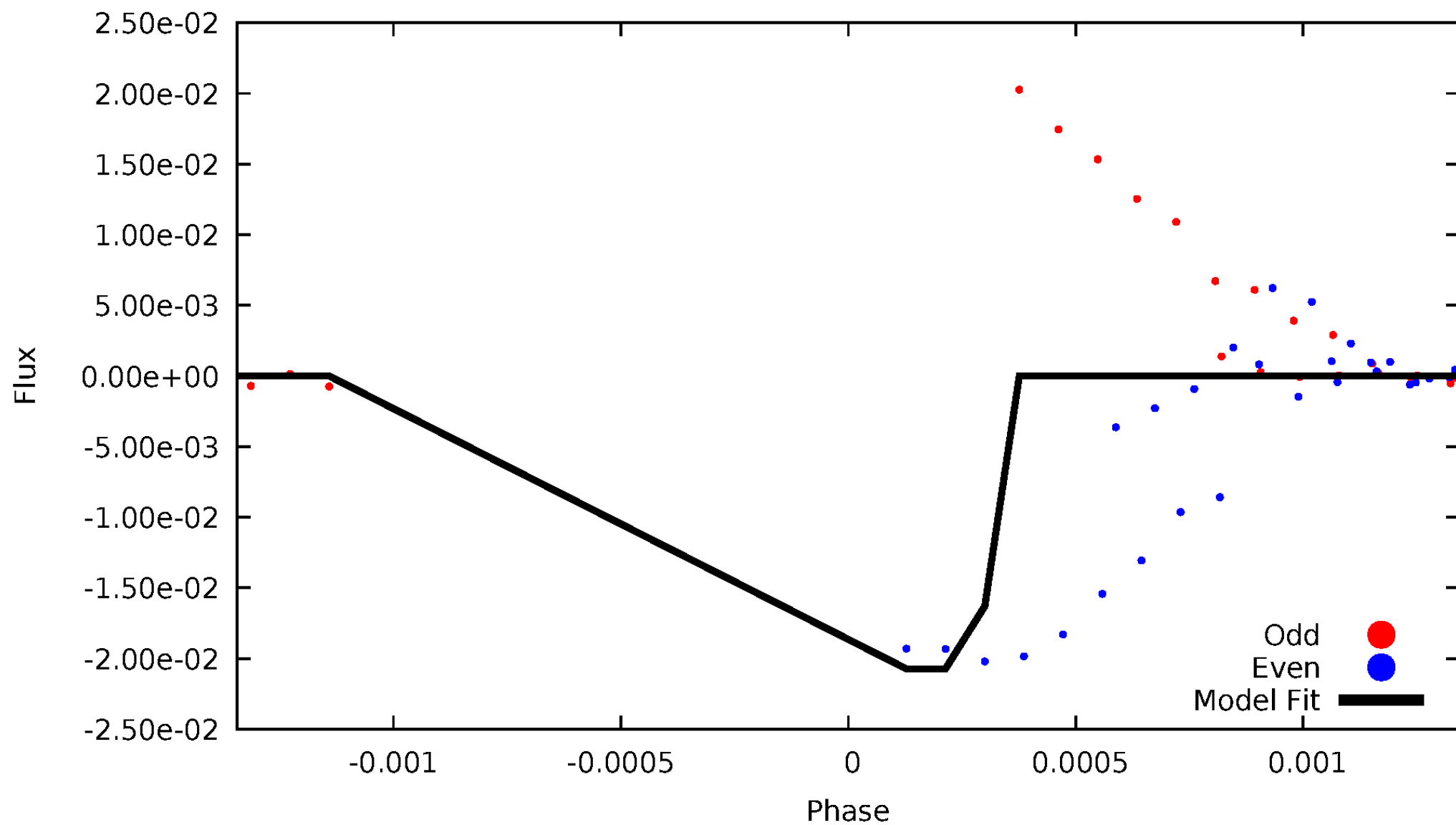
## DV Odd/Even

TCE 008257134-02



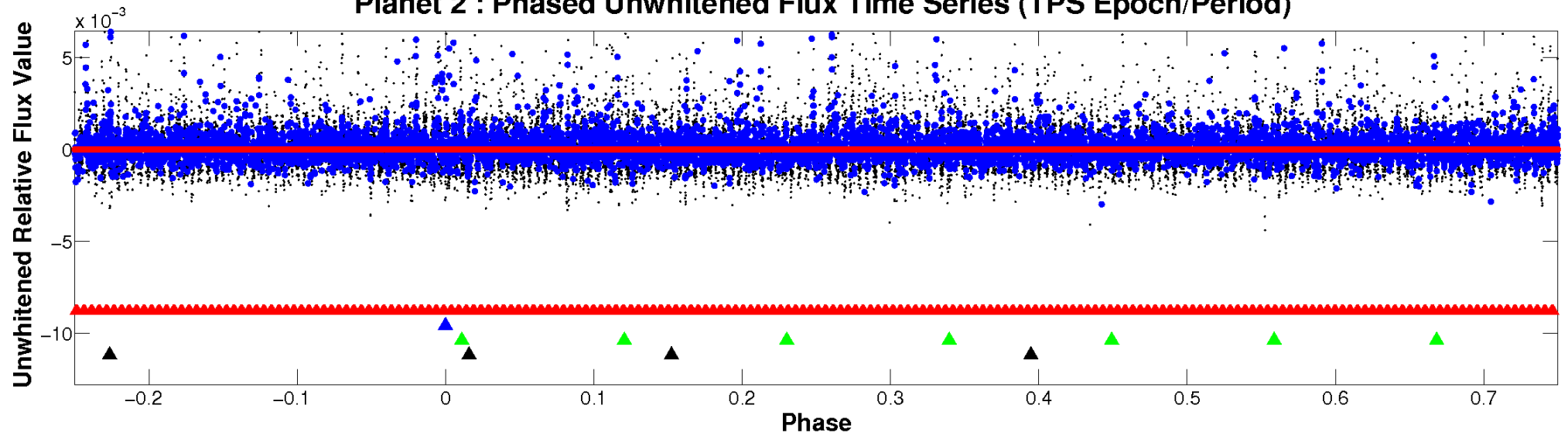
# ALT Odd/Even

TCE 008257134-02

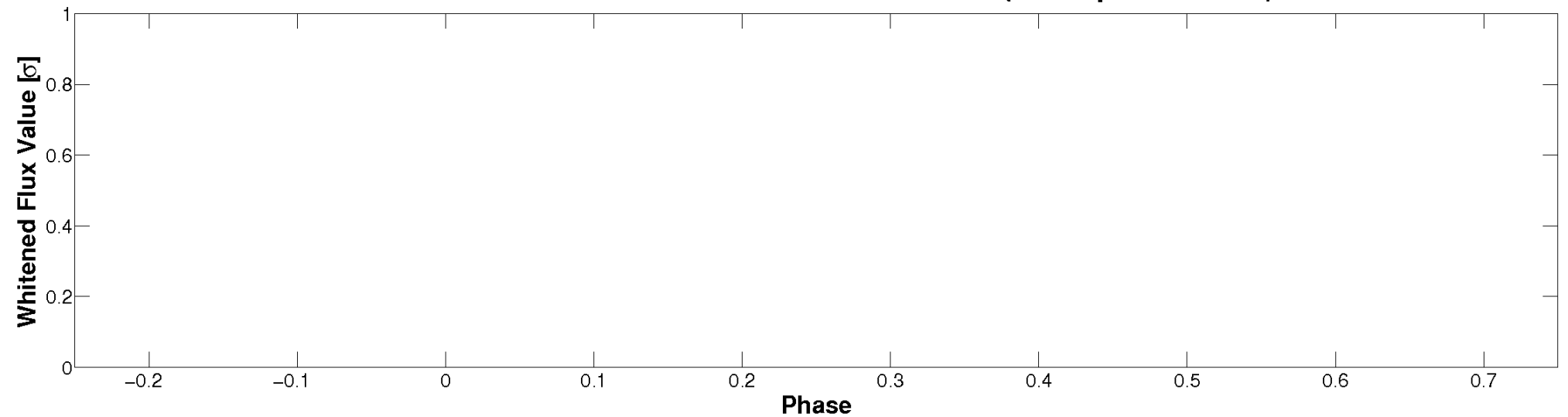


# Non-Whitened Vs. Whitened Light Curve

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



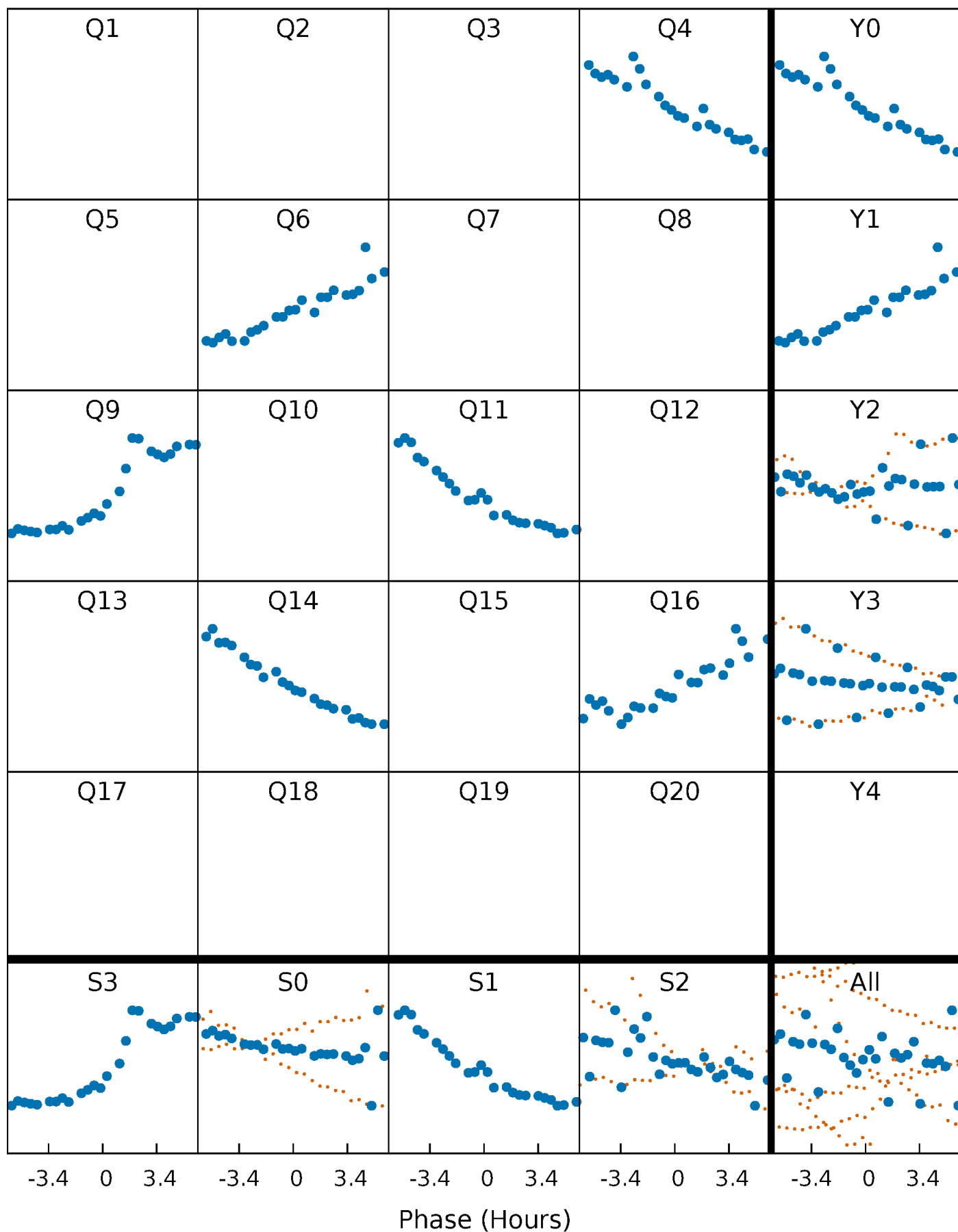
**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**





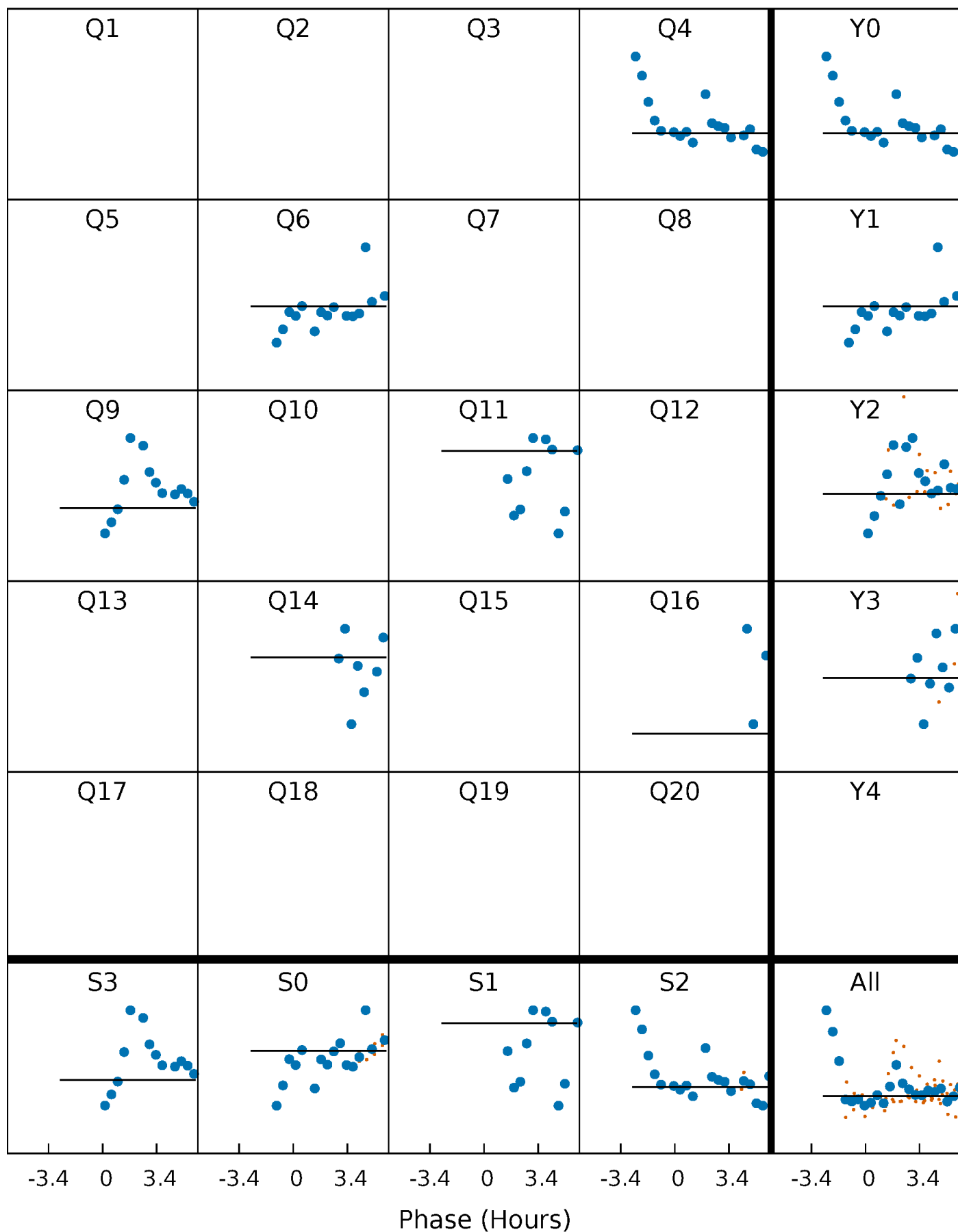
# PDC Quarter-Phased Transit Curves

TCE 008257134-02 P=237.138871 Days  $T_0=365.013333$  (BKJD)



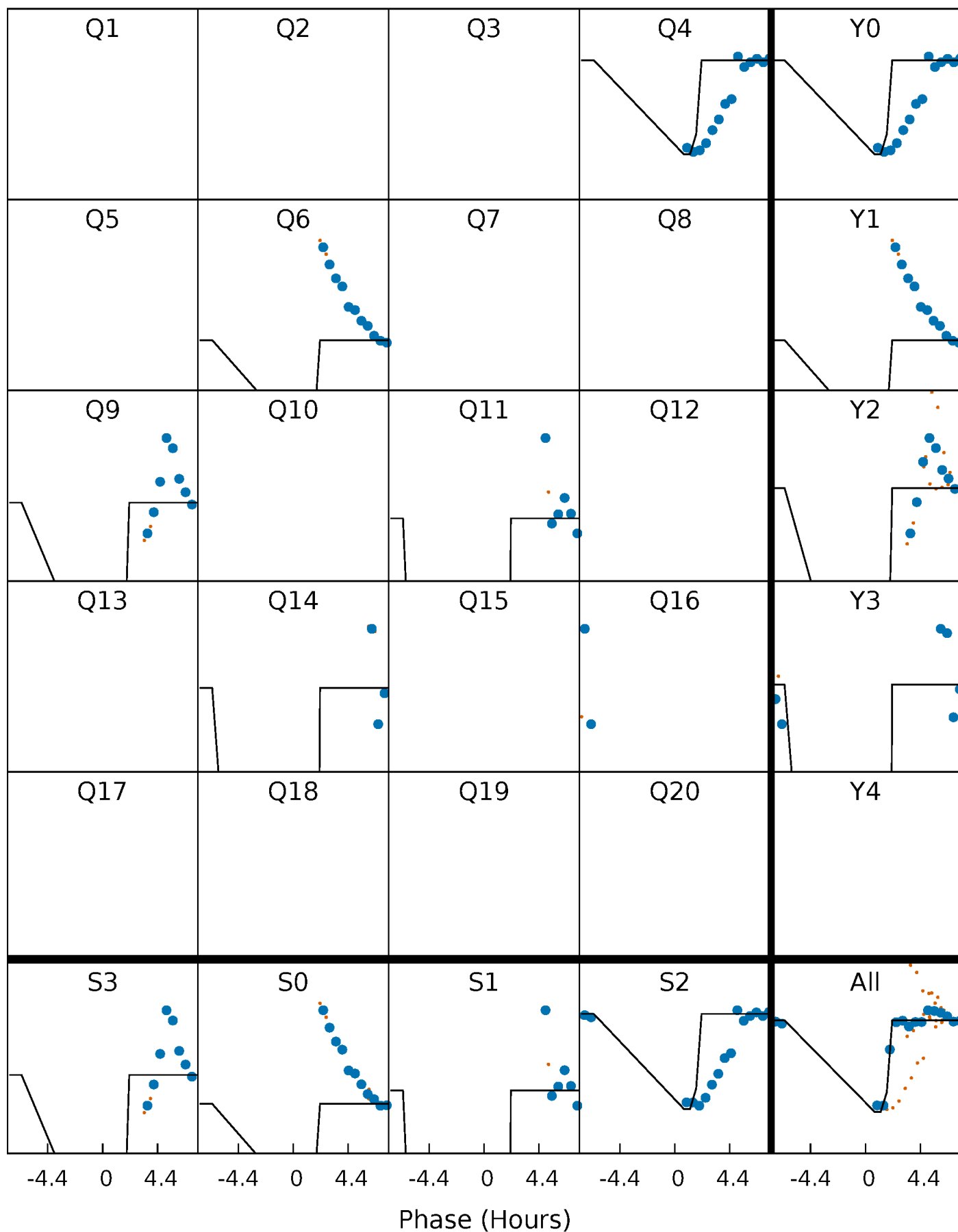
# DV Quarter-Phased Transit Curves

TCE 008257134-02 P=237.138871 Days  $T_0=365.013333$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

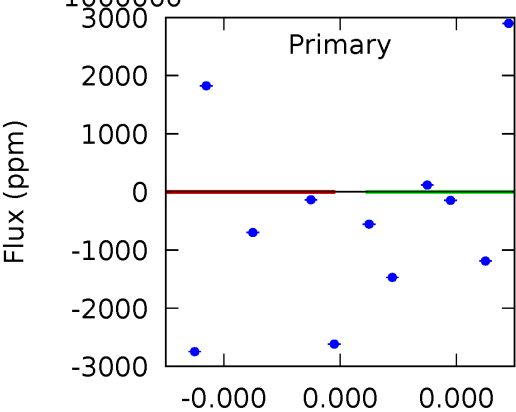
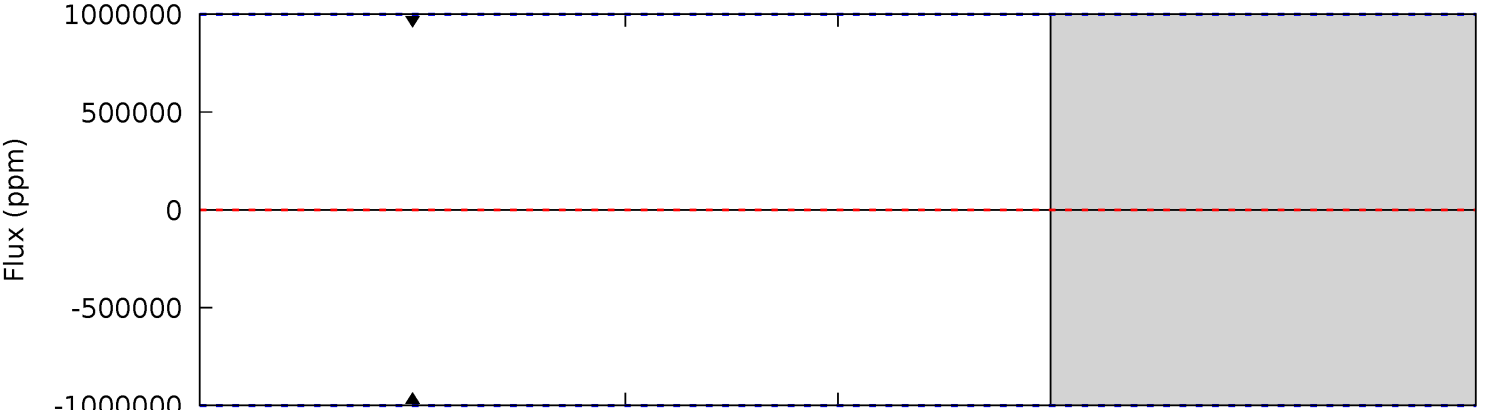
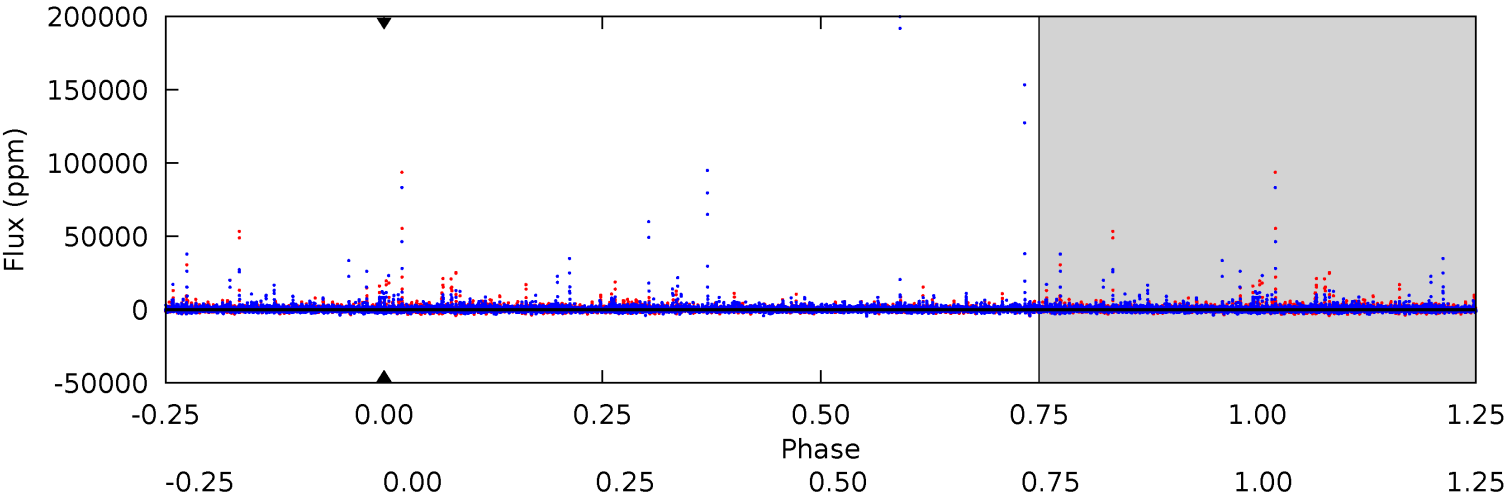
TCE 008257134-02 P=237.138871 Days  $T_0=364.872147$  (BKJD)



# DV Model-Shift Uniqueness Test

008257134-02, P = 237.138871 Days, E = 127.874462 Days

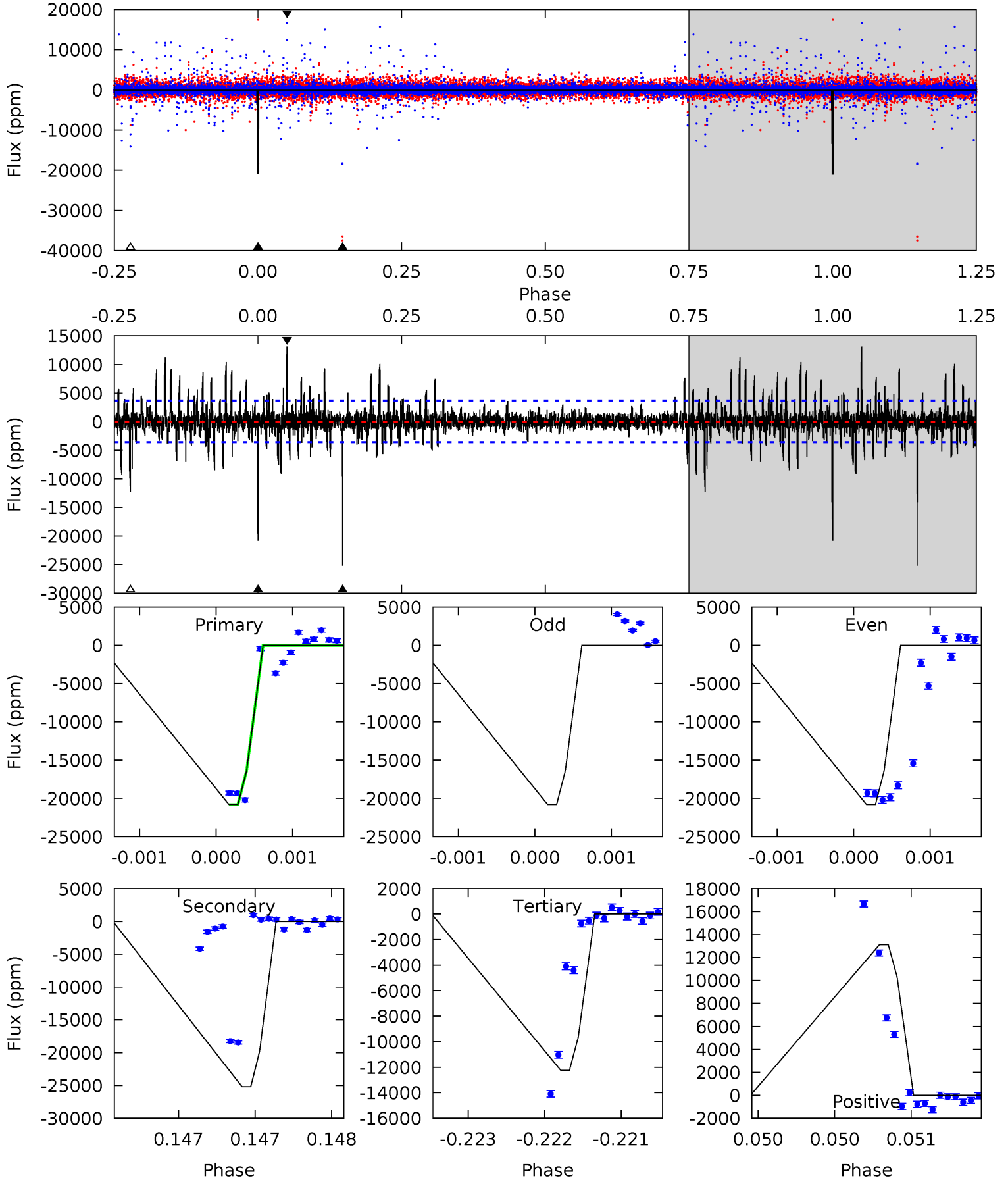
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008257134-02, P = 237.138871 Days, E = 127.733276 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
32.0	38.7	18.8	20.2	5.50	3.37	1.23	13.2	11.8	19.9	18.5	0.00	1.00	0.34	0



### Stellar Parameters For KIC 008257134

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$3620^{+54}_{-54}$	$4.821^{+0.042}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.430^{+0.030}_{-0.042}$	$0.446^{+0.032}_{-0.040}$	$7.920^{+1.691}_{-1.070}$
	+1%/-1%	+1%/-1%	+100%/-100%	+7%/-10%	+7%/-9%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008257134-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$4.08^{+3.80}_{-2.90}$	$193^{+4}_{-4}$	$3137^{+4063}_{-9825}$	$33133^{+2081649}_{-1620363}$
Alt.	$-25175 \pm 651$	$7.48^{+4.21}_{-4.28}$	$193^{+4}_{-4}$	$3631^{+1348}_{-476}$	$83677^{+369874}_{-49271}$

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

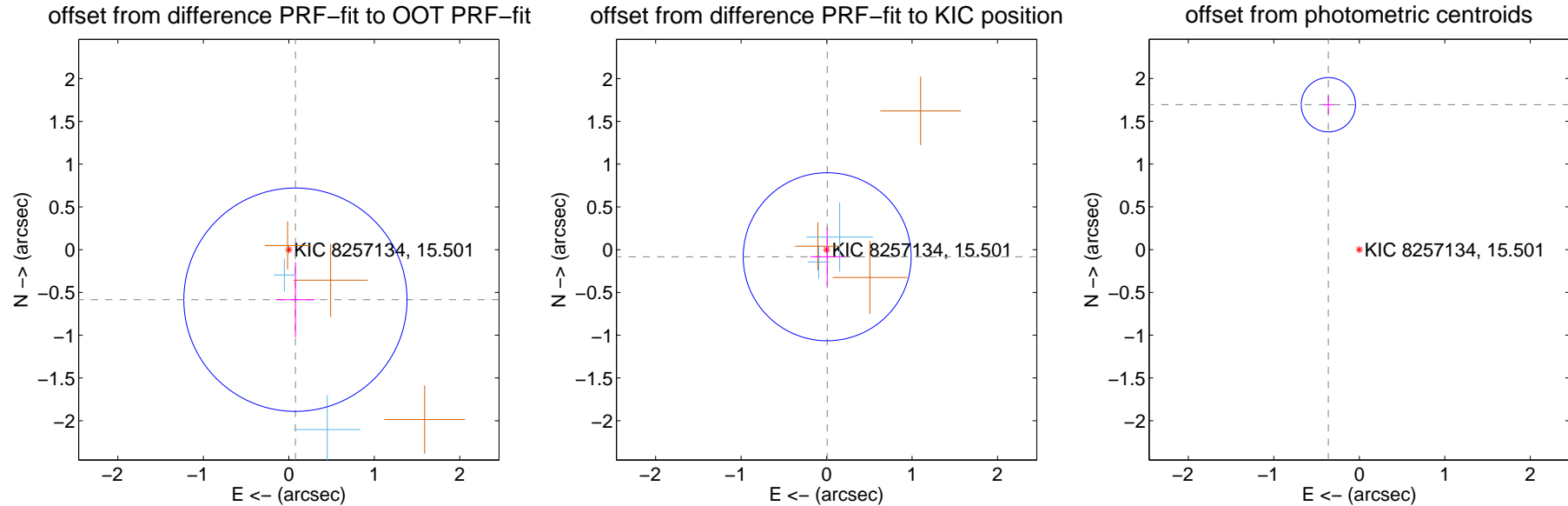
## DV Centroid Data

Supplemental centroid analysis for 008257134-02. Kepler magnitude: 15.50. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 2.27 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

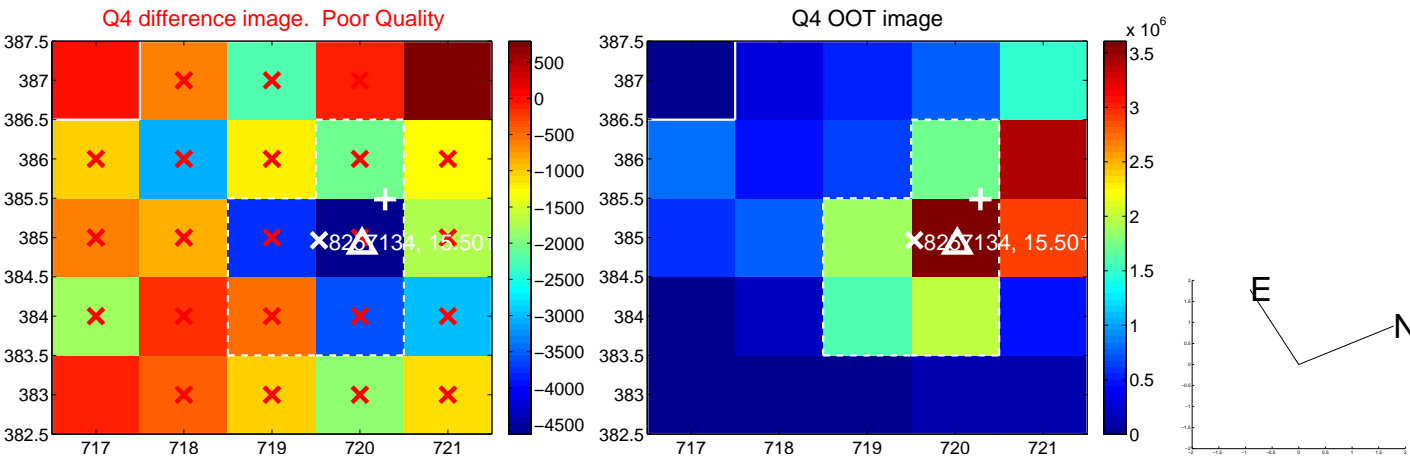
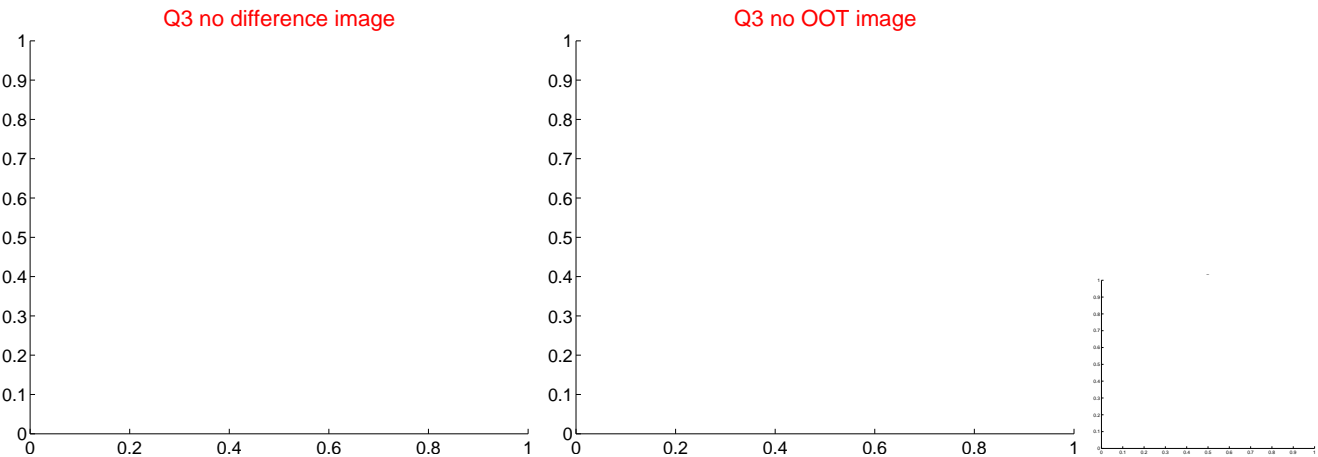
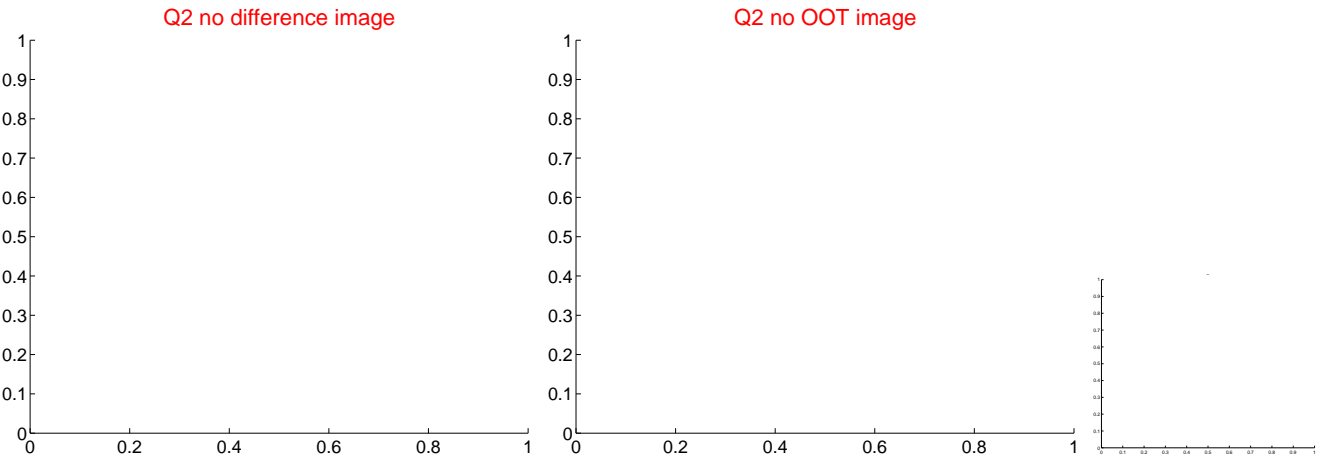
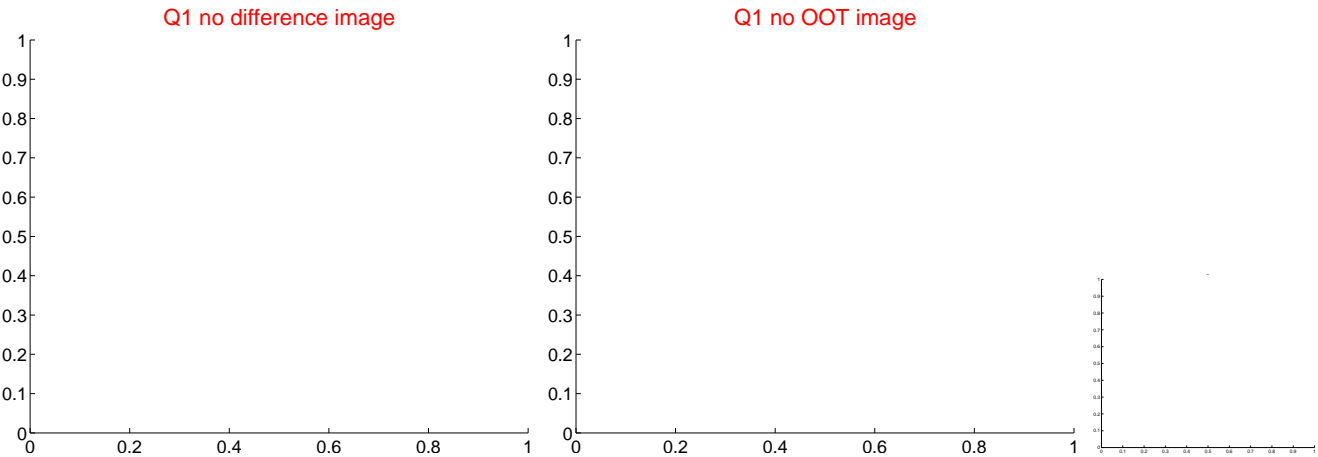
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.590 \pm 0.435$	1.36	$-0.078 \pm 0.230$	$-0.585 \pm 0.438$
PRF-fit source offset from KIC position	$0.083 \pm 0.328$	0.25	$-0.007 \pm 0.197$	$-0.083 \pm 0.342$
photometric centroid source offset	$1.73 \pm 0.11$	16.36	$0.36 \pm 0.06$	$1.69 \pm 0.11$



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.

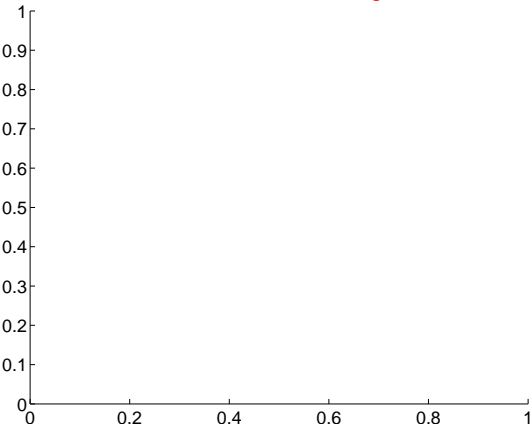


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

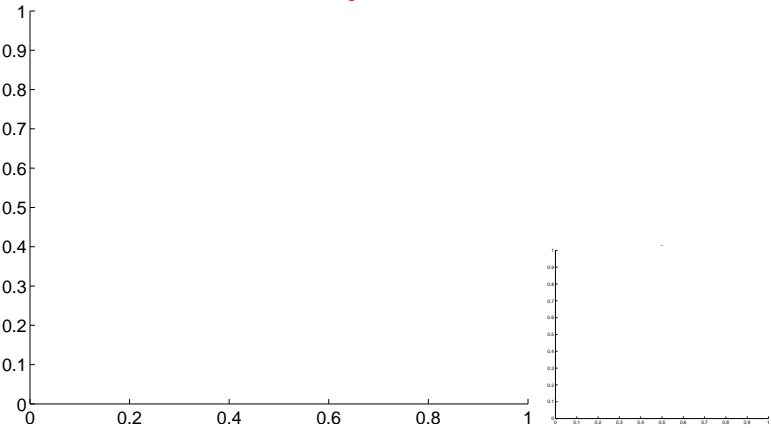


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

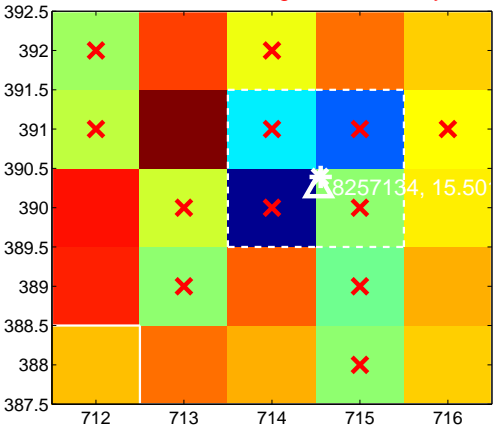
Q5 no difference image



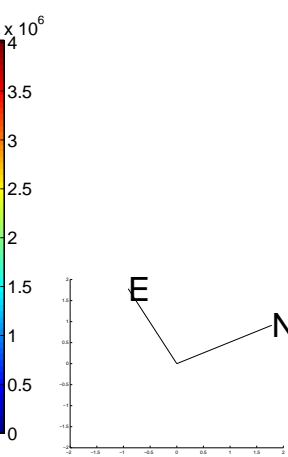
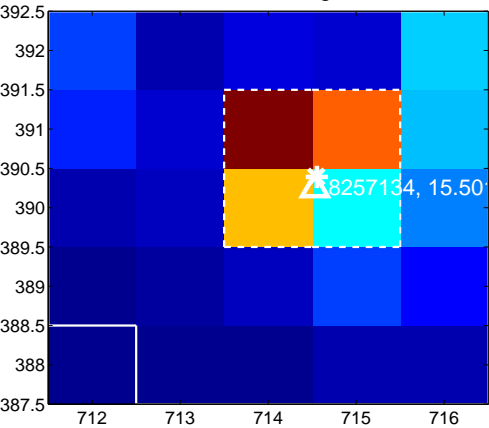
Q5 no OOT image



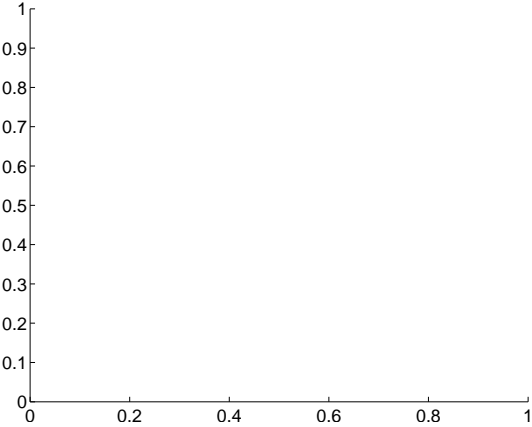
Q6 difference image. Poor Quality



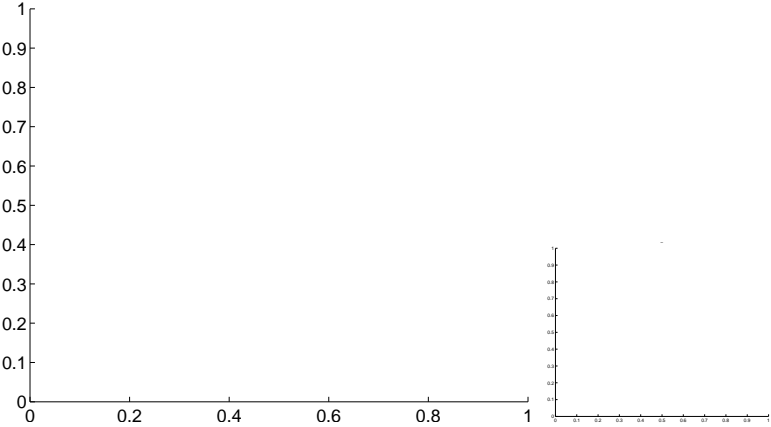
Q6 OOT image



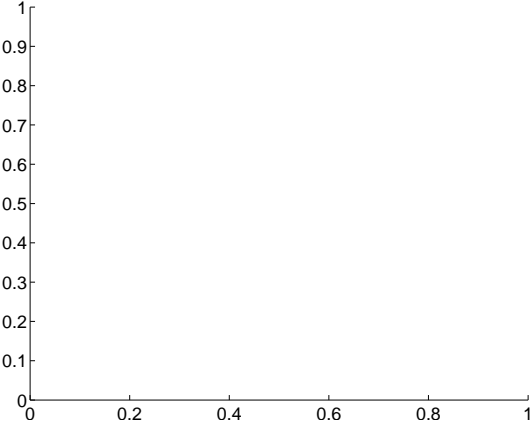
Q7 no difference image



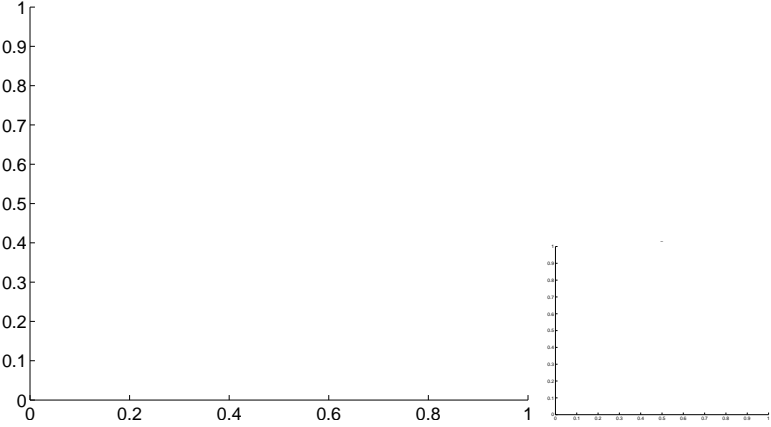
Q7 no OOT image



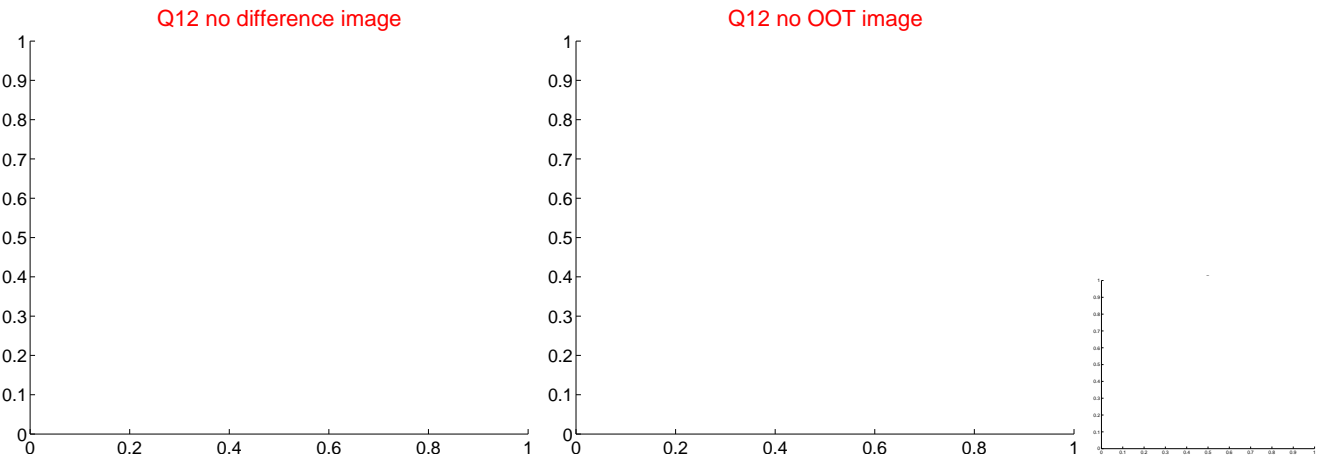
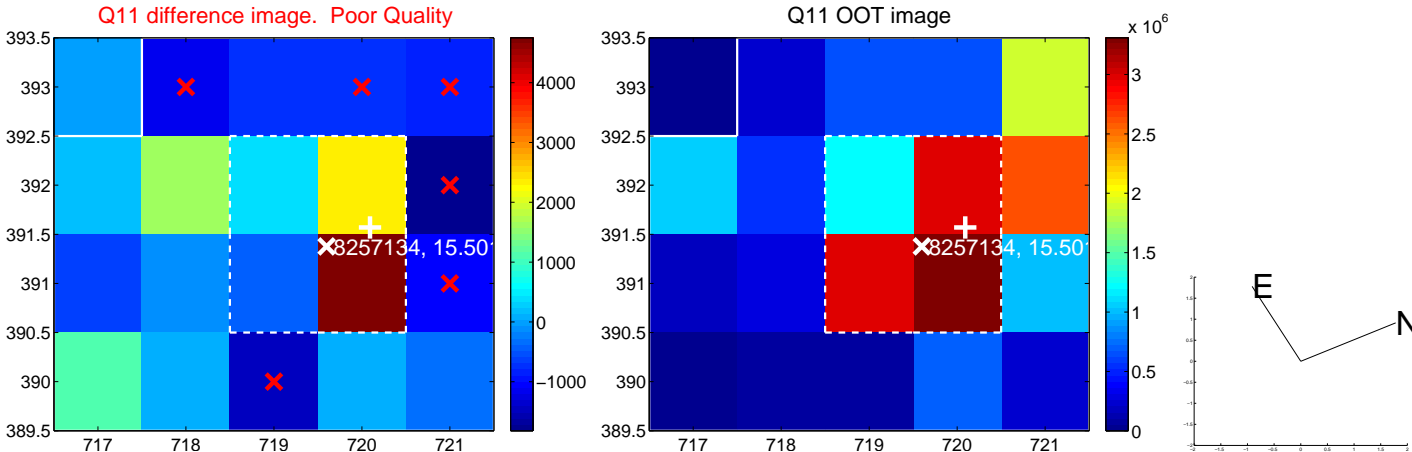
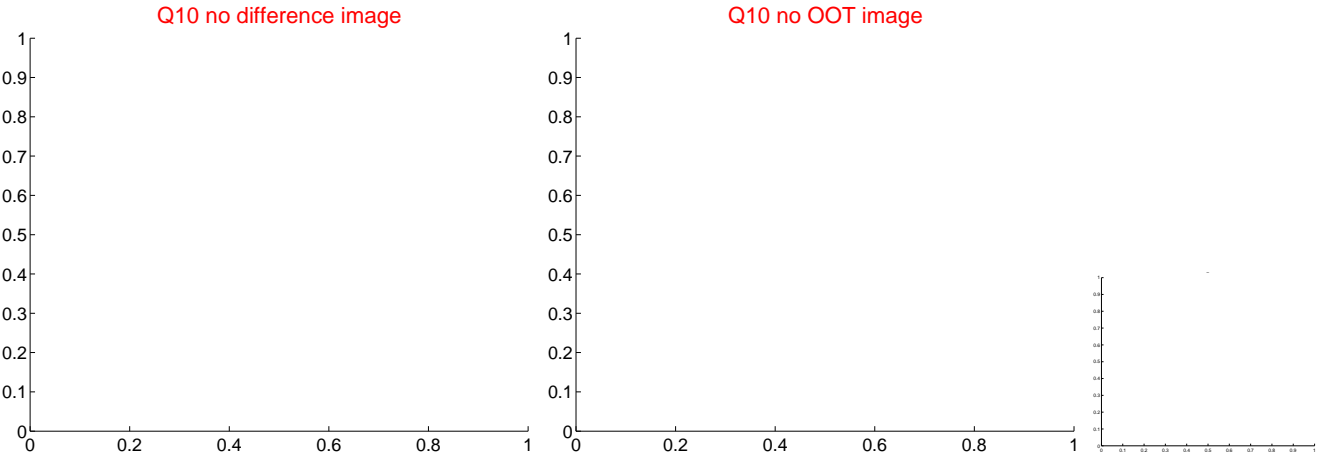
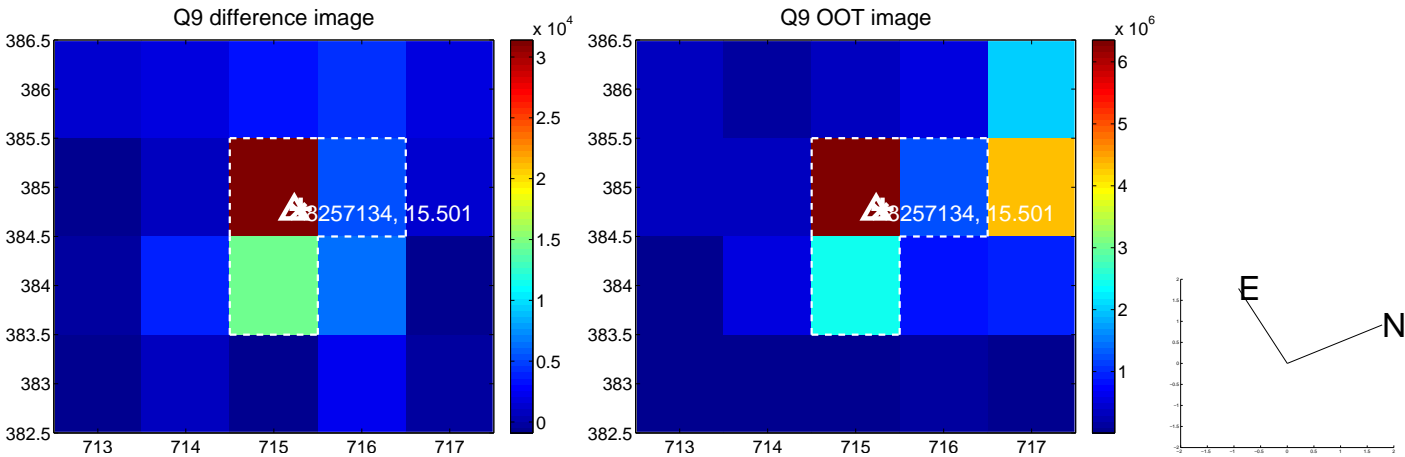
Q8 no difference image



Q8 no OOT image

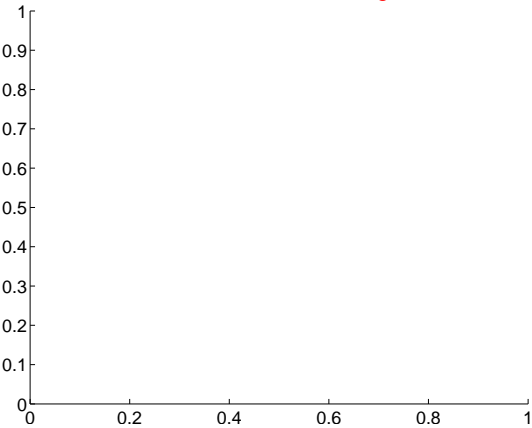


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

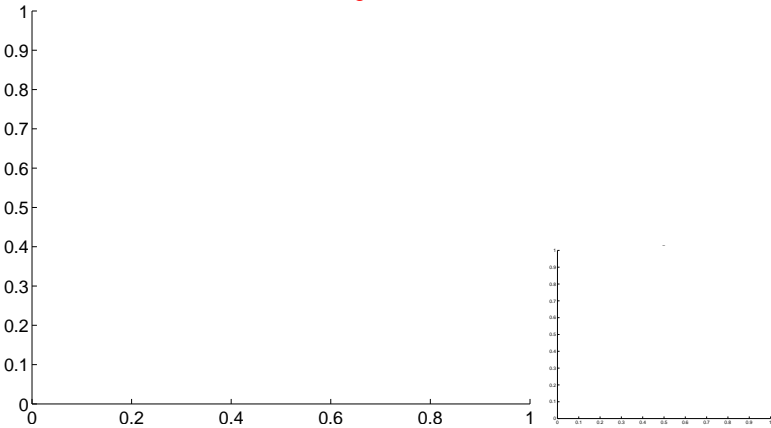


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

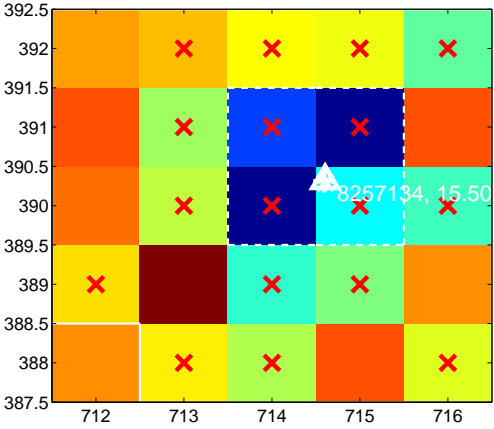
Q13 no difference image



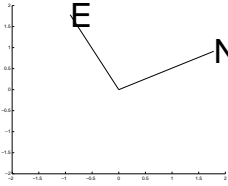
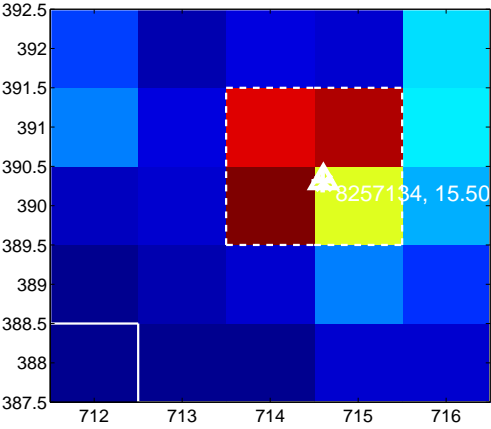
Q13 no OOT image



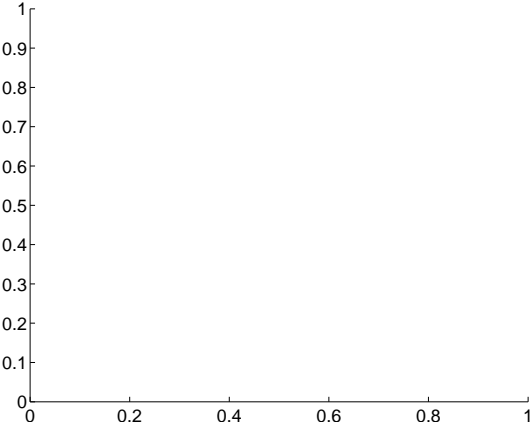
Q14 difference image. Poor Quality



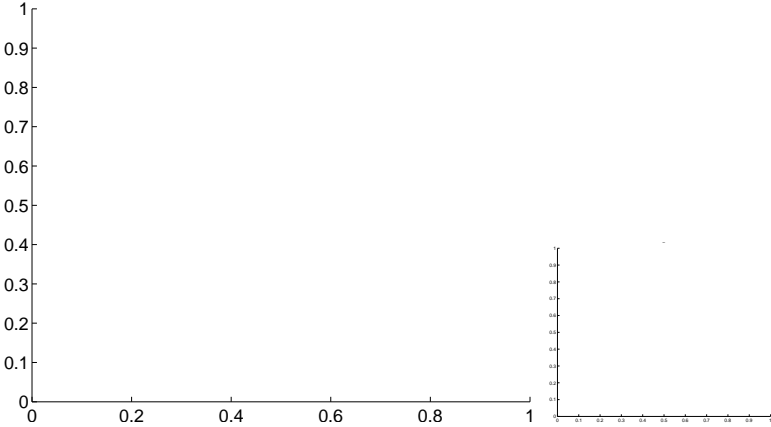
Q14 OOT image



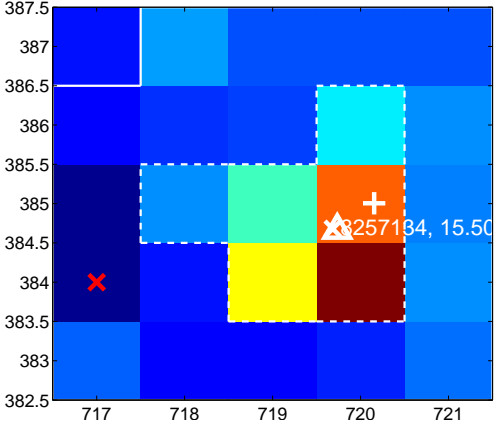
Q15 no difference image



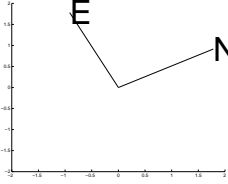
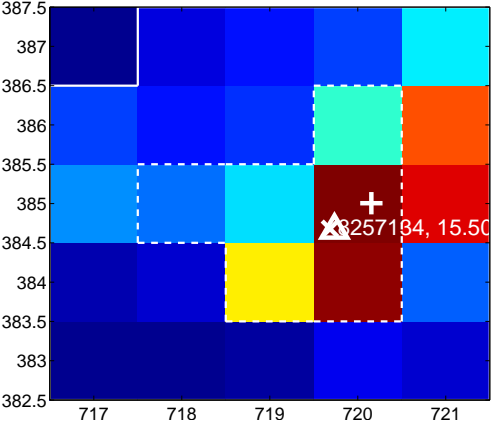
Q15 no OOT image



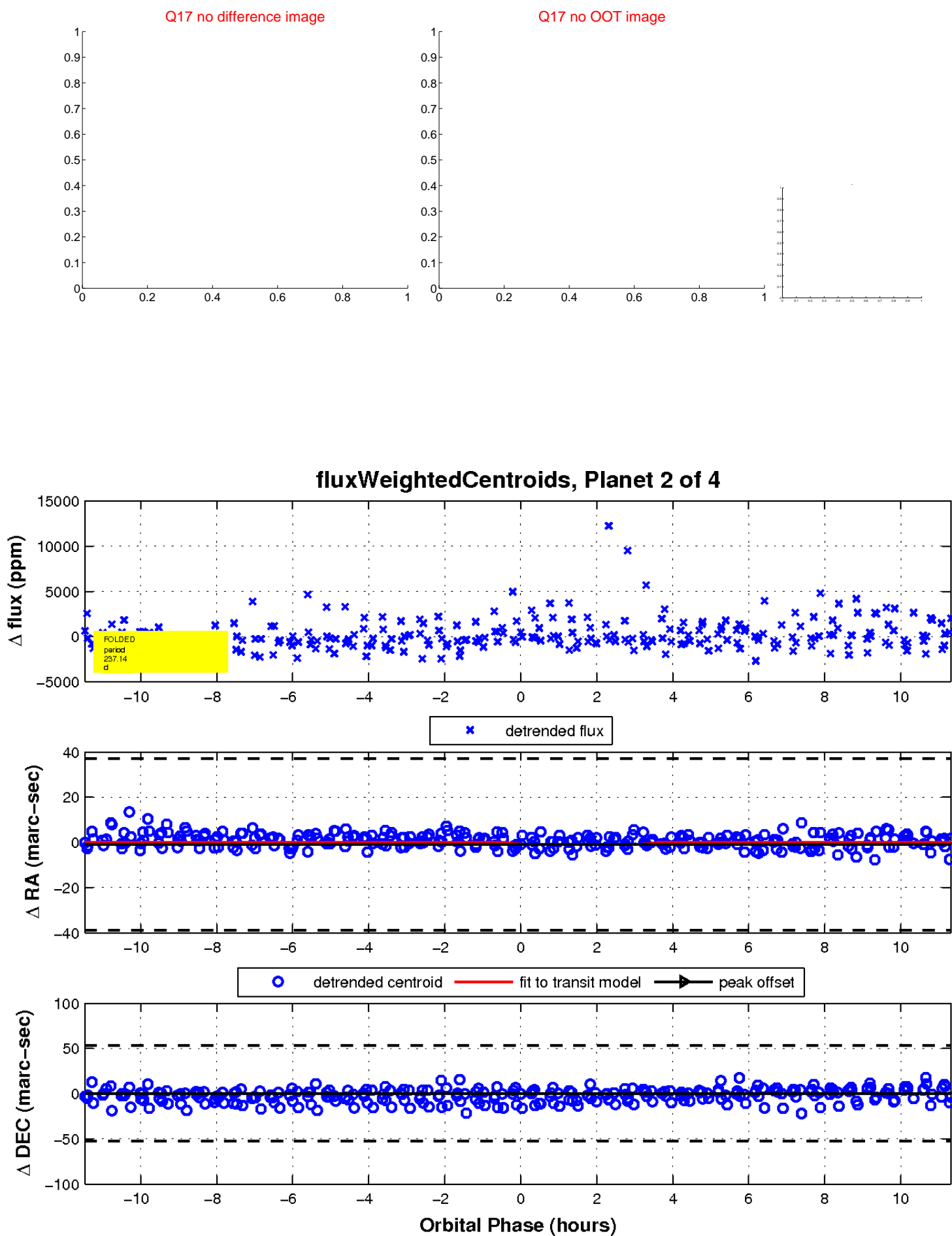
Q16 difference image



Q16 OOT image

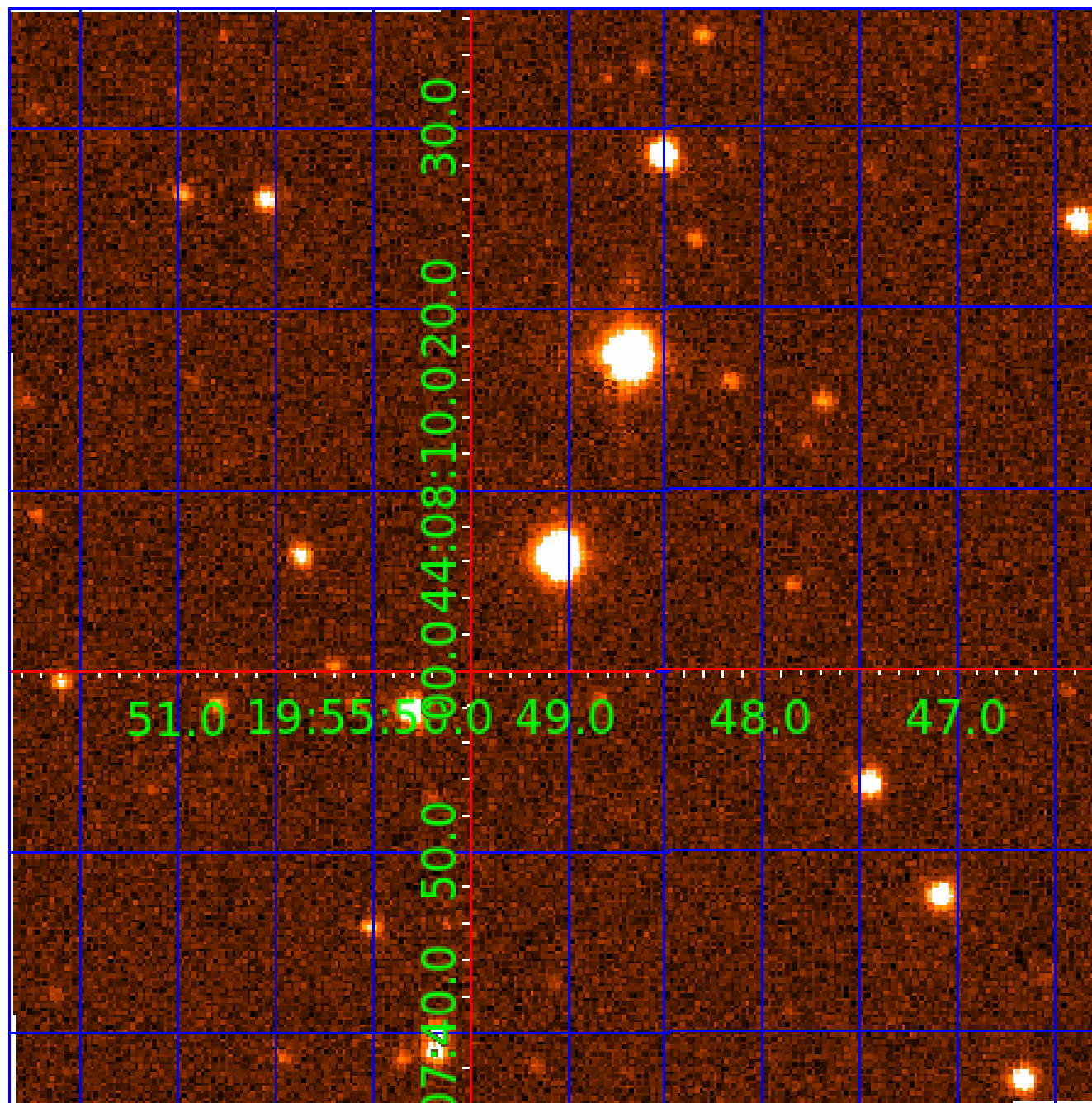


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008257134

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008257134-01	OBS	No	1.197974	132.185991	155.0	4.487	11.9	7.0	0.43	3620	0.75	99.87
008257134-02	OBS	No	237.138871	365.013333	1808.1	3.000	10.8	-1.0	0.43	3620	1.81	0.09
008257134-03	OBS	No	211.161854	286.348540	2527.5	2.305	9.9	7.0	0.43	3620	2.23	0.10
008257134-04	OBS	No	384.442771	164.009664	3578.0	8.878	9.0	7.3	0.43	3620	4.87	0.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008257134-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008257134-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
008257134-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008257134-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

**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.

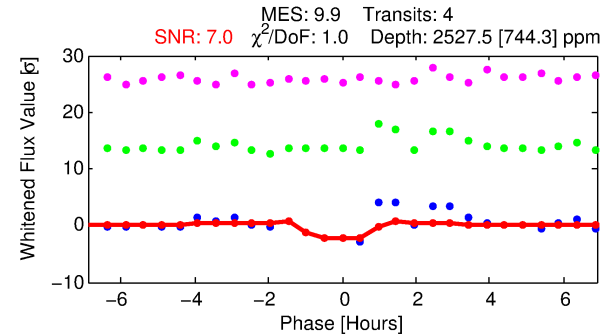
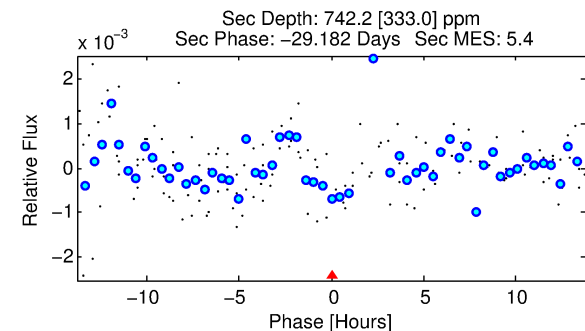
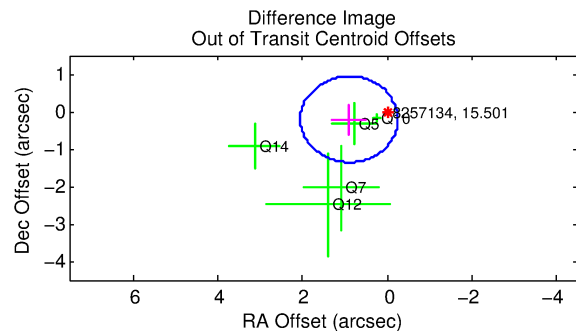
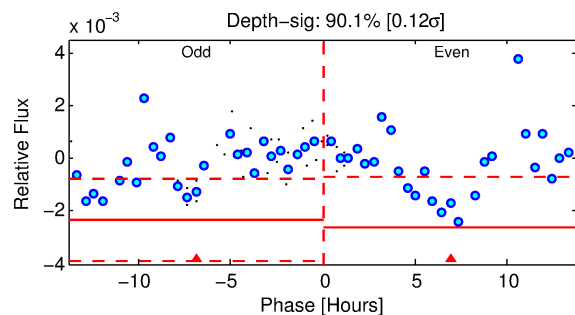
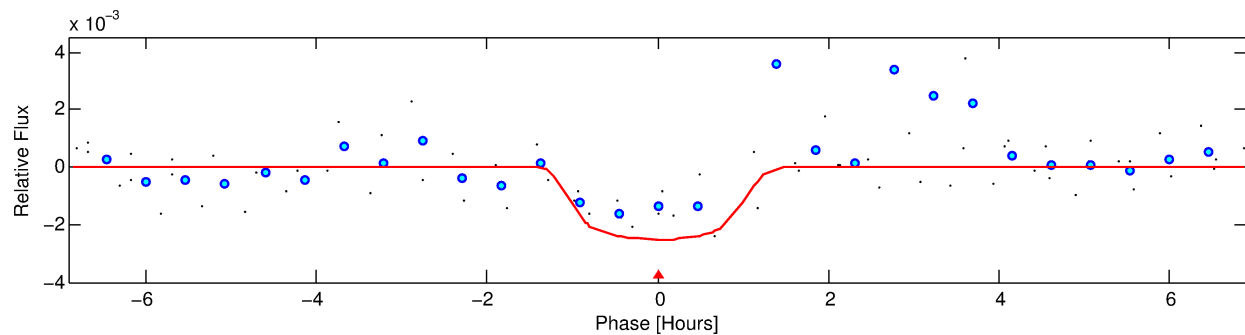
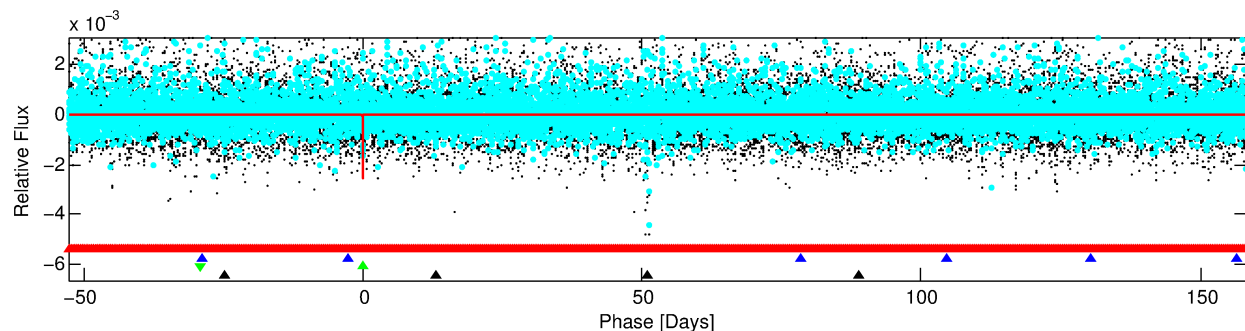
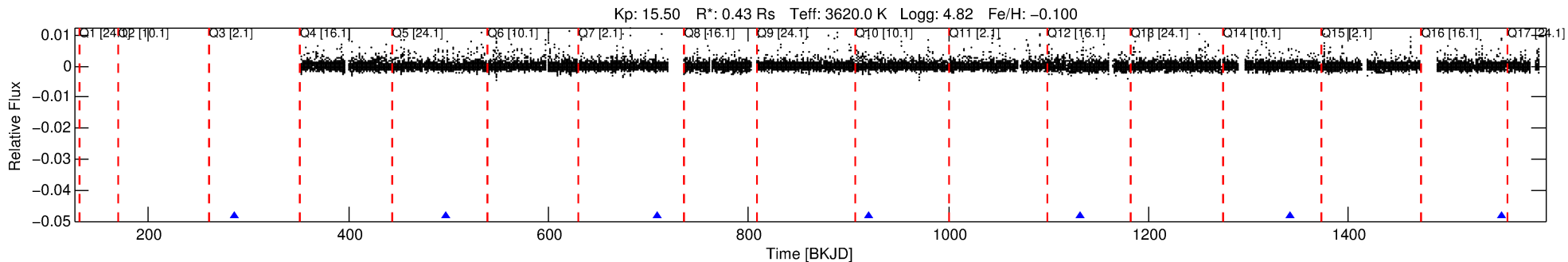
## Ephemeris Match Information For 008257134-03

No Significant Match Found



# DV One-Page Summary

KIC: 8257134 Candidate: 3 of 4 Period: 211.162 d



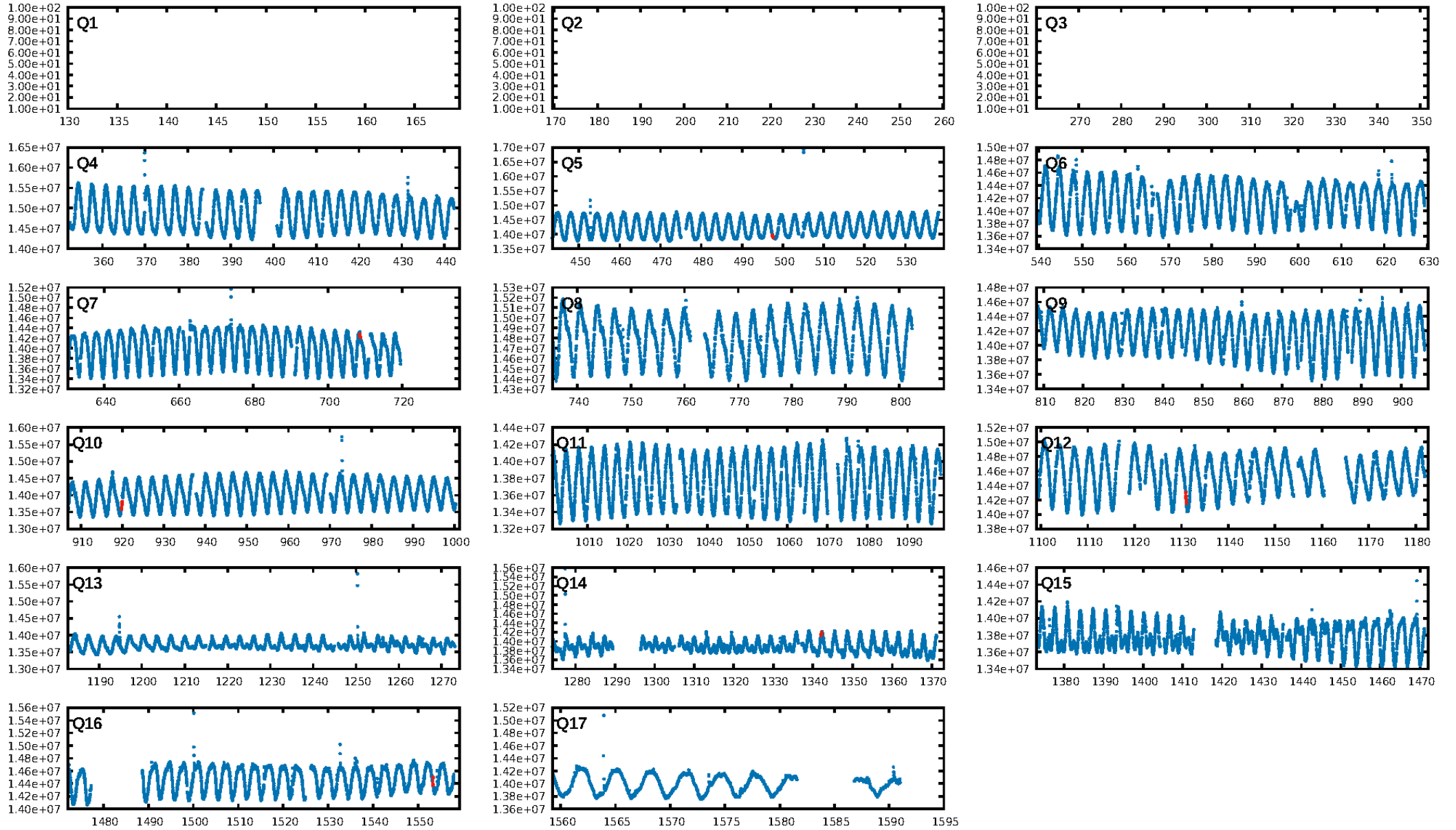
## DV Fit Results:

Period = 211.16185 [0.00384] d  
Epoch = 286.3485 [0.0178] BKJD  
Rp/R\* = 0.0474 [0.1291]  
a/R\* = 625.69 [7421.73]  
b = 0.55 [15.32]  
Seff = 0.10 [0.01]  
Teq = 144 [4] K  
Rp = 2.23 [6.06] Re  
a = 0.5306 [0.0386] AU  
Ag = 23196.72 [126668.02] [0.18 $\sigma$ ]  
Teffp = 2743 [3745] K [0.69 $\sigma$ ]

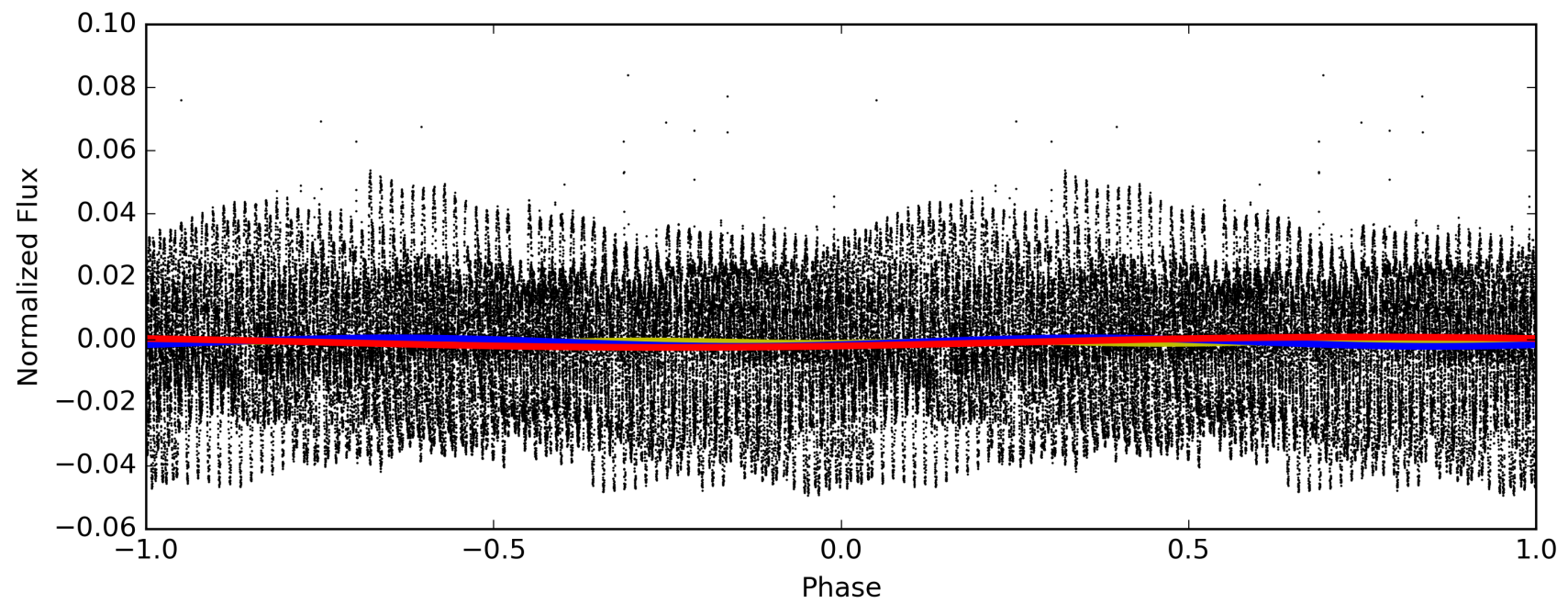
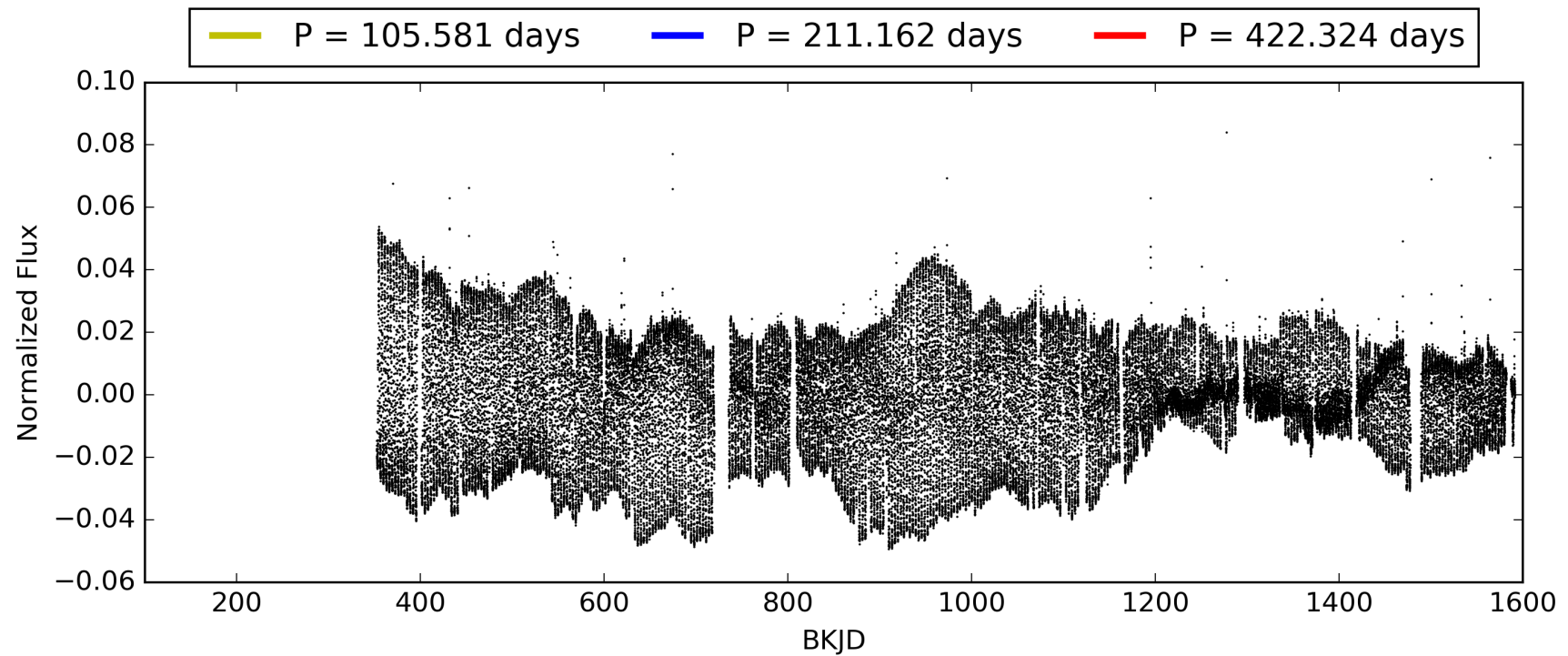
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [998.95 $\sigma$ ]  
LongPeriod-sig: 100.0% [164.79 $\sigma$ ]  
ModelChiSquare2-sig: 55.7%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 1.37e-12**  
RollingBand-fgt: 1.00 [4/4]  
**GhostDiagnostic-chr: -3.309**  
Centroid-sig: 14.3%  
Centroid-so: 2.813 arcsec [2.86 $\sigma$ ]  
OotOffset-rm: 0.922 arcsec [2.41 $\sigma$ ]  
OotOffset-st: 2/1/1/1 [5]  
KicOffset-rm: 0.500 arcsec [0.99 $\sigma$ ]  
KicOffset-st: 2/1/1/1 [5]  
DiffImageQuality-fgm: 0.40 [2/5]  
DiffImageOverlap-fno: 0.17 [1/6]

# TCE 008257134-03, PDC Light Curves

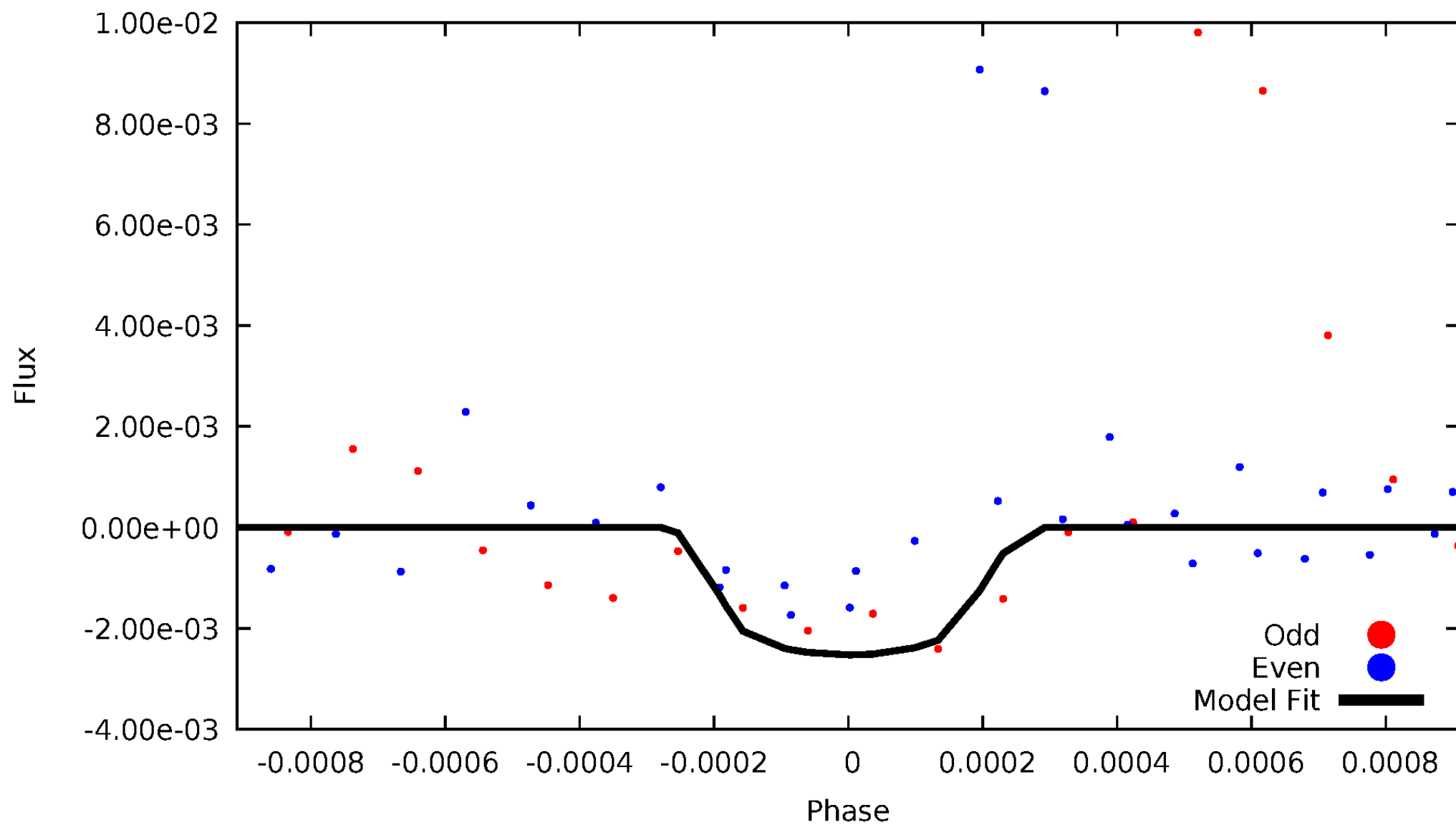


TCE 008257134-03



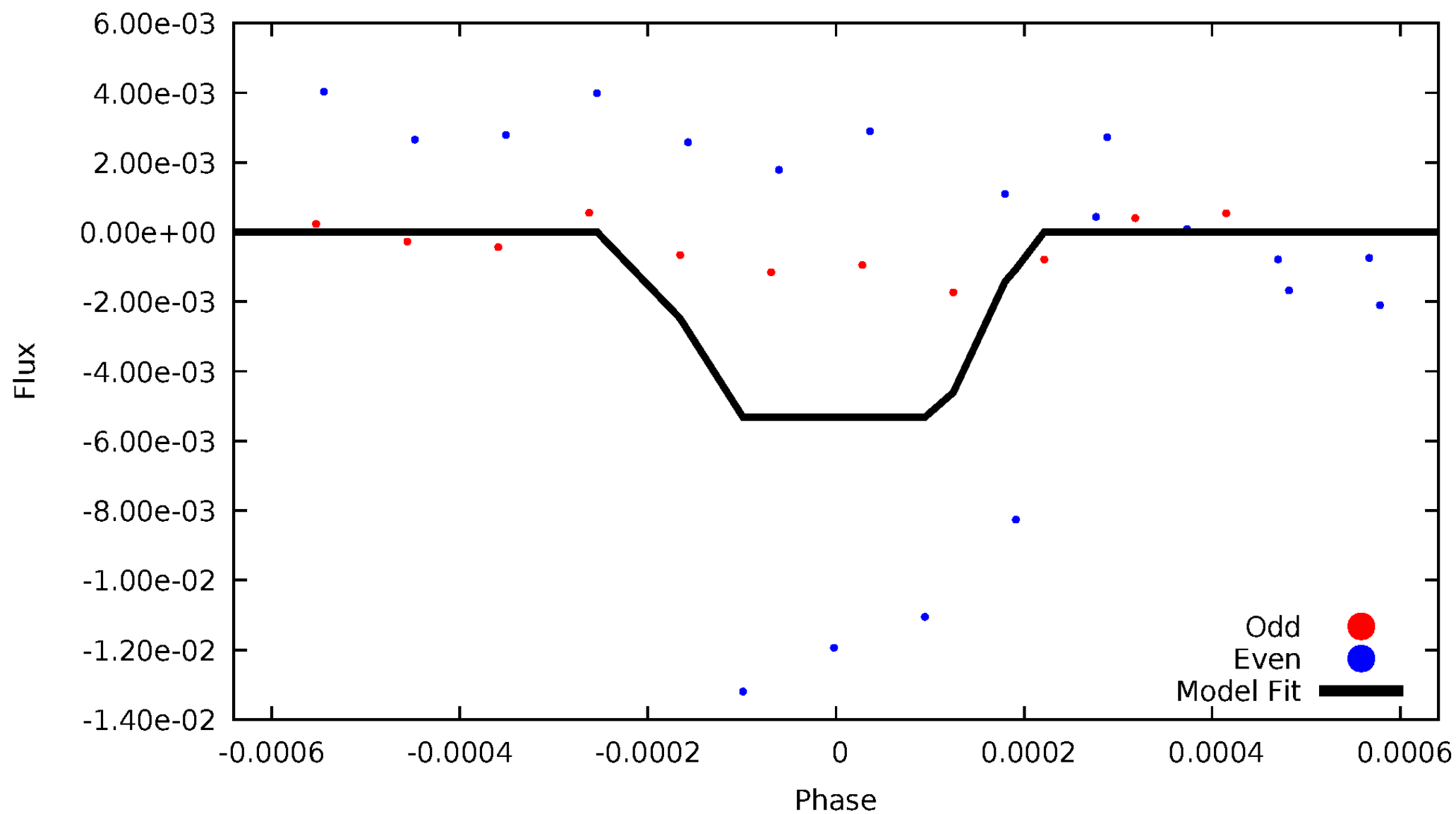
# DV Odd/Even

TCE 008257134-03



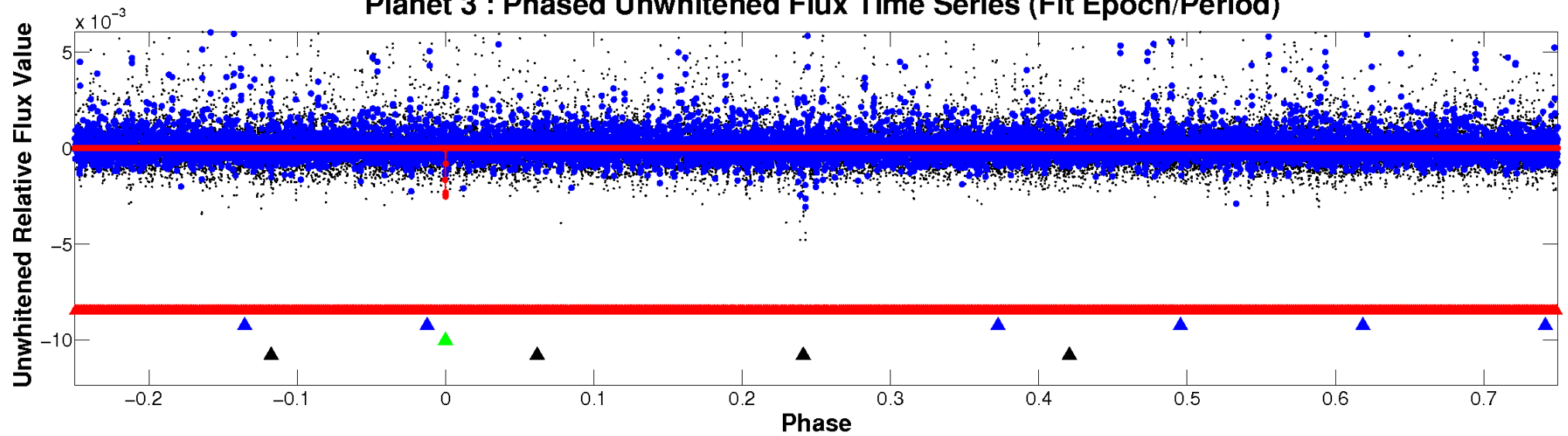
# ALT Odd/Even

TCE 008257134-03

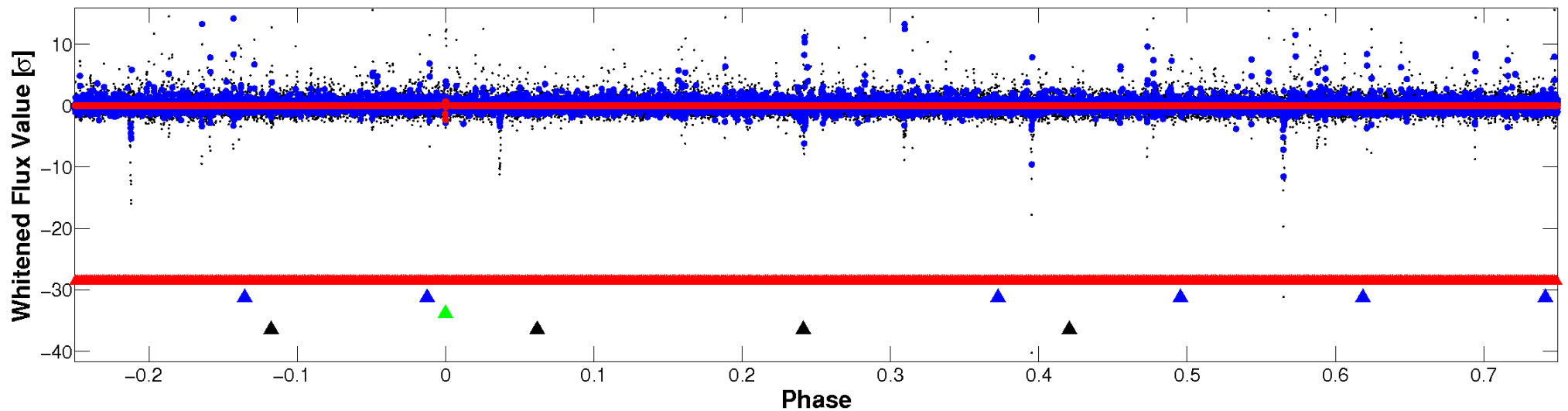


# Non-Whitened Vs. Whitened Light Curve

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



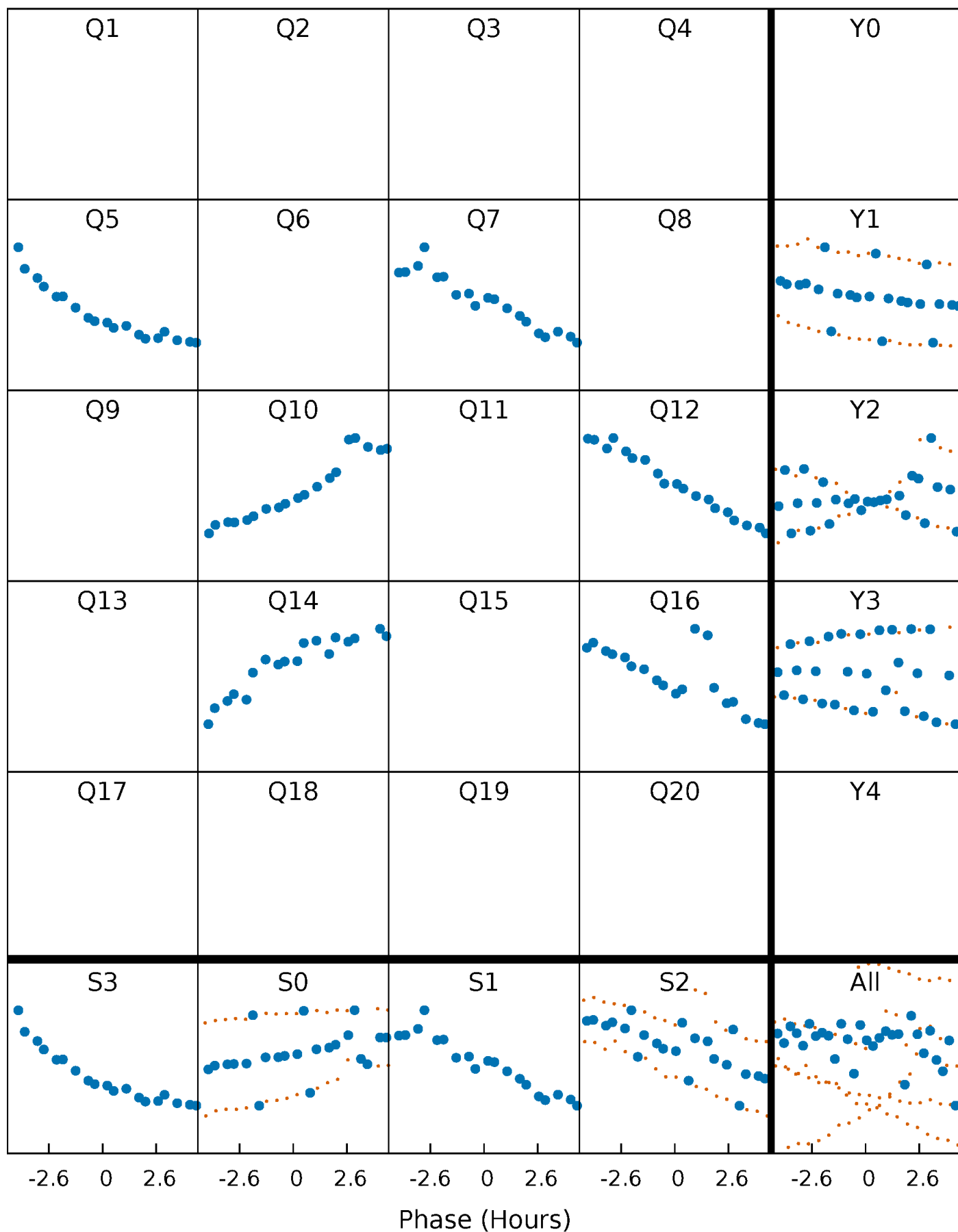
**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





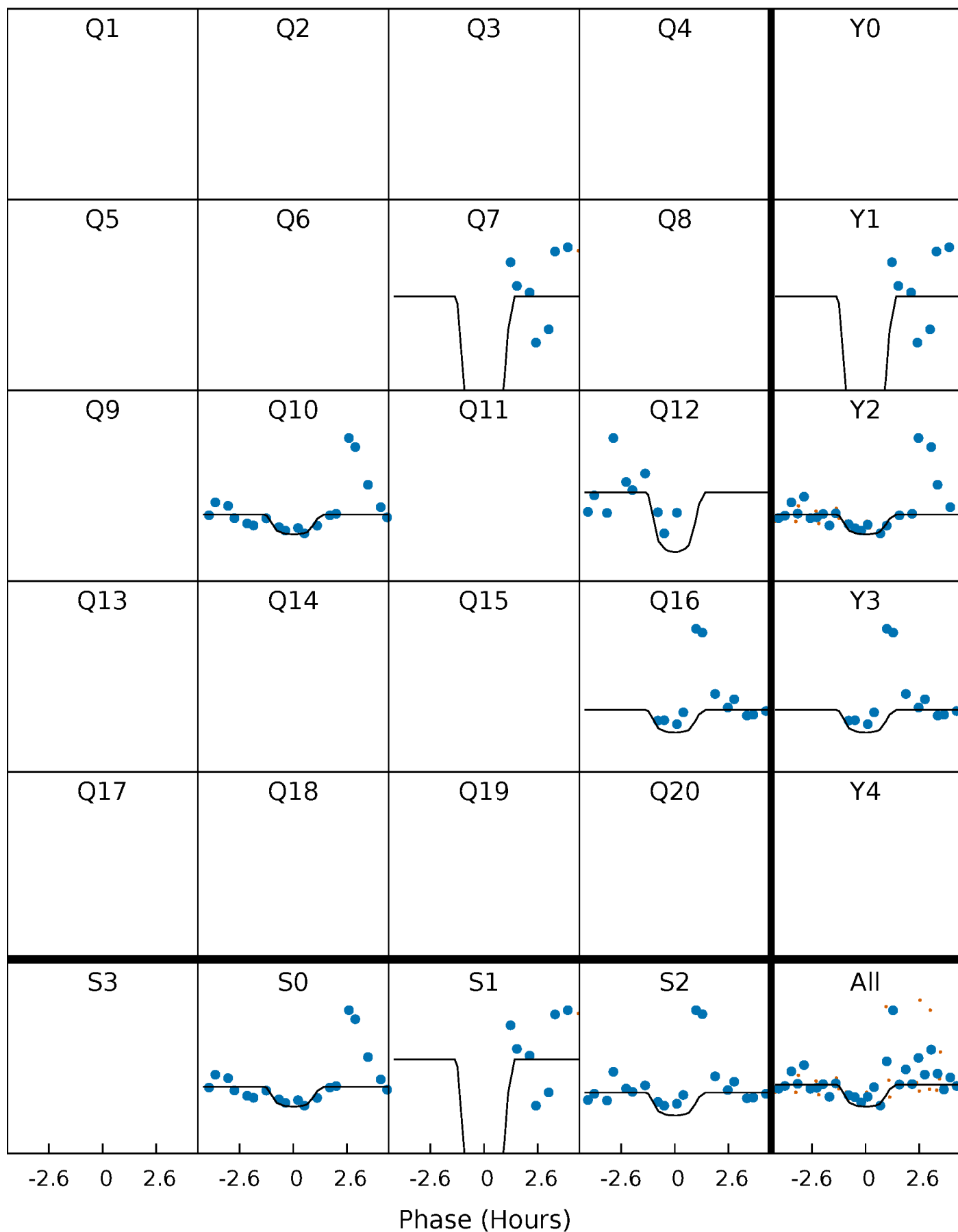
# PDC Quarter-Phased Transit Curves

TCE 008257134-03     $P=211.161854$  Days     $T_0=286.348540$  (BKJD)



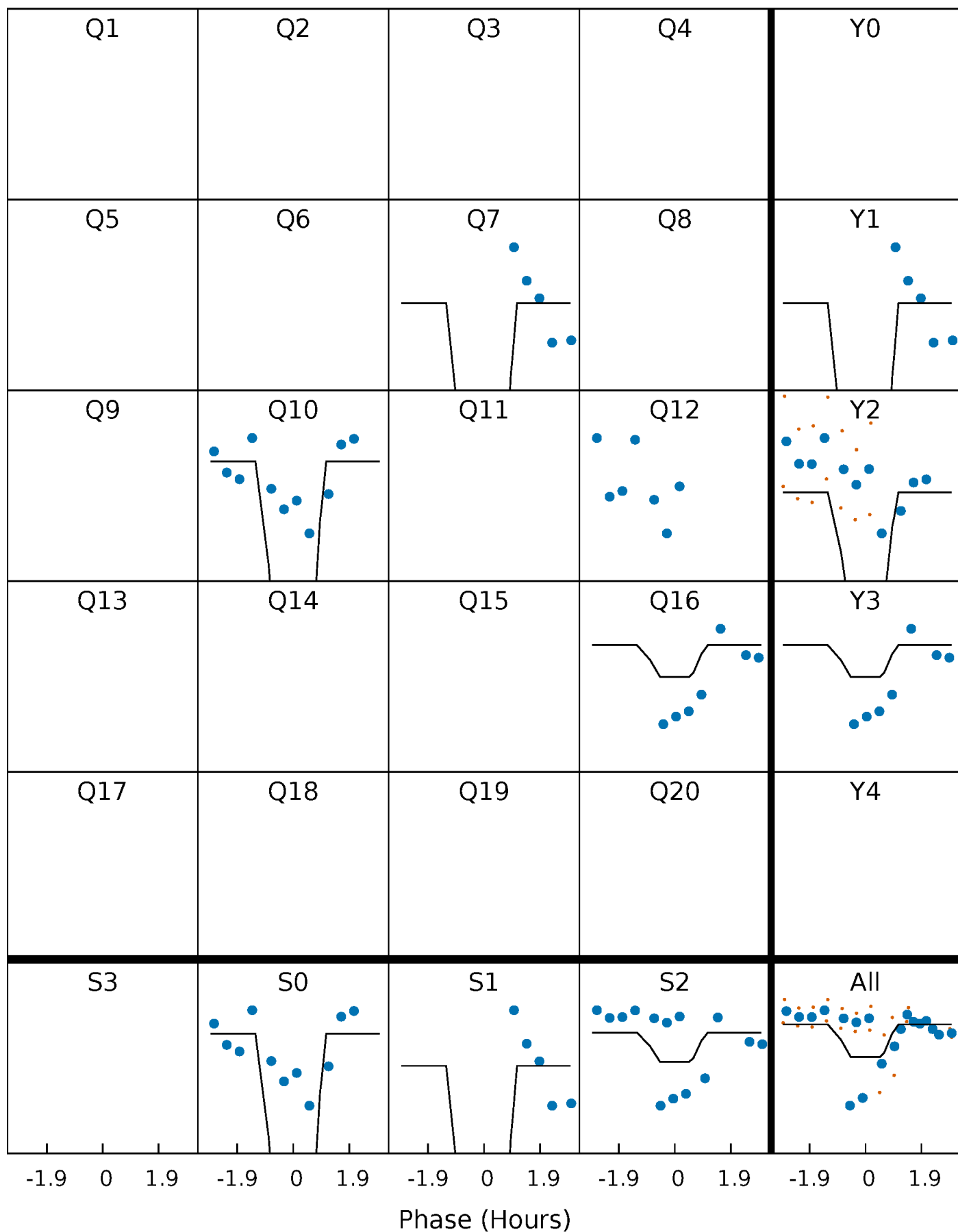
# DV Quarter-Phased Transit Curves

TCE 008257134-03 P=211.161854 Days  $T_0=286.348540$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

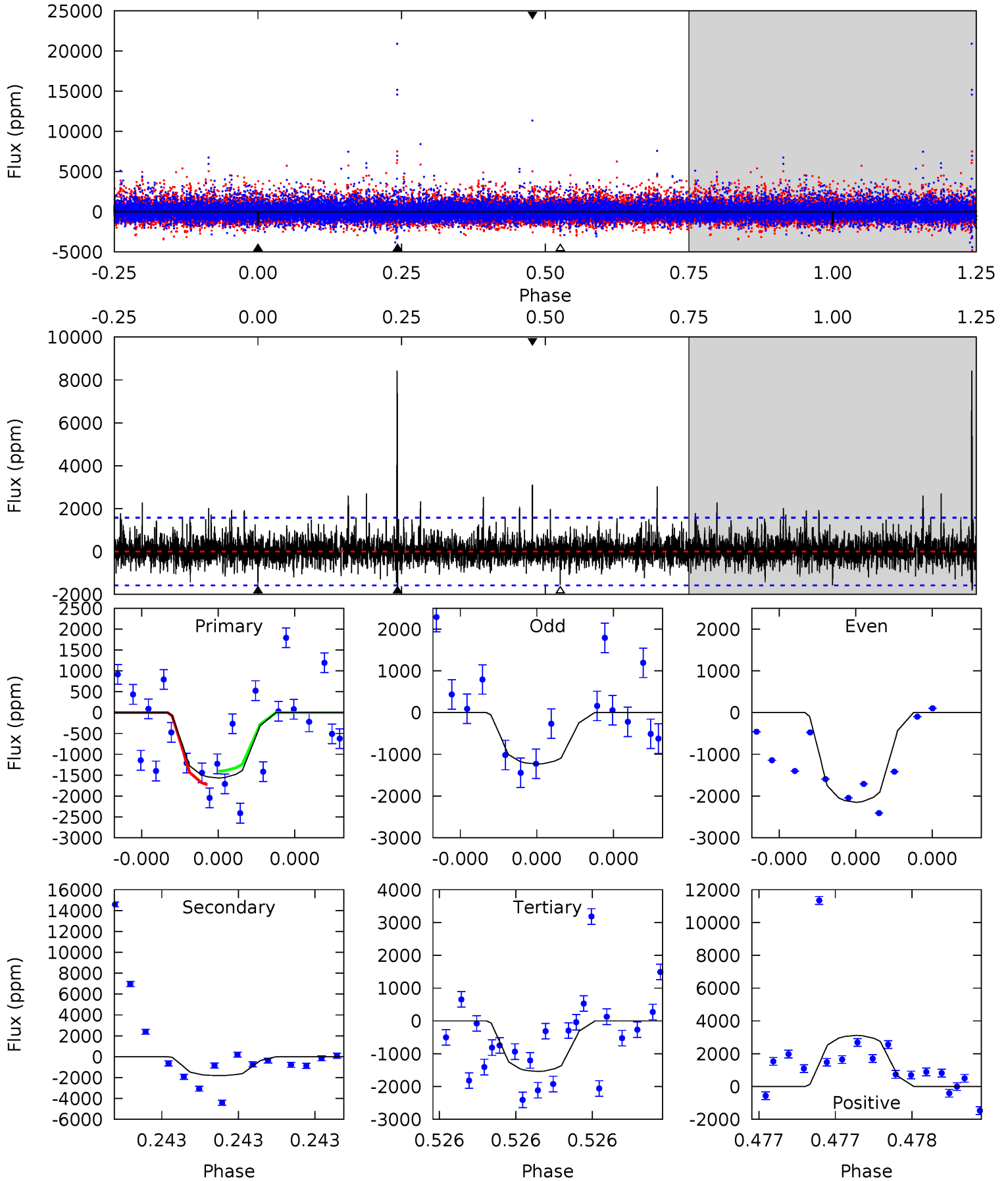
TCE 008257134-03 P=211.154717 Days  $T_0=286.371817$  (BKJD)



# DV Model-Shift Uniqueness Test

008257134-03, P = 211.161854 Days, E = 286.348540 Days

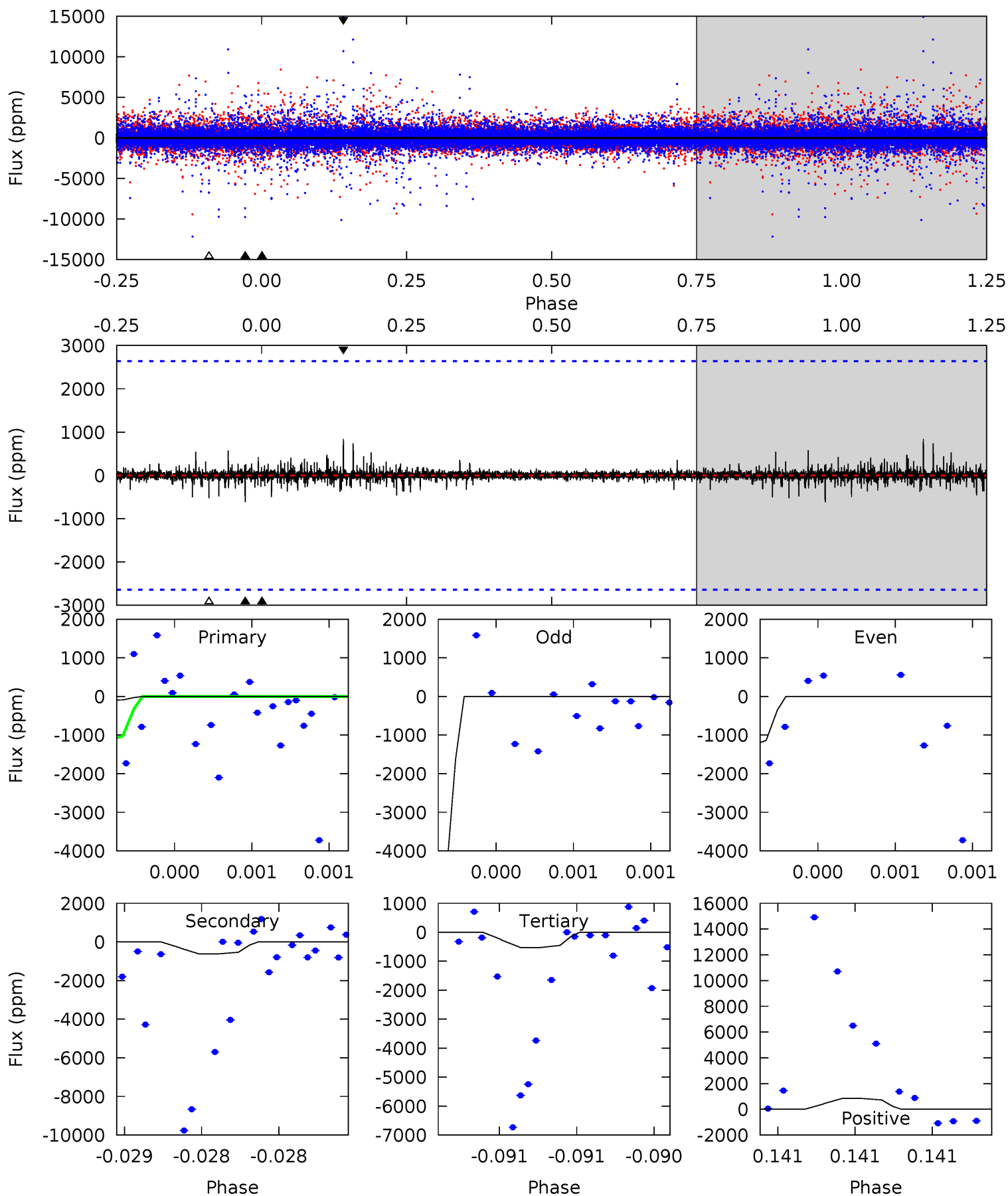
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.56	6.42	5.46	11.0	5.60	3.53	1.55	0.10	-5.48	0.96	-4.61	1.43	0.81	0.82	0.58



# Alt Model-Shift Uniqueness Test

008257134-03, P = 211.154717 Days, E = 286.371817 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.22	1.31	1.12	1.79	5.62	3.55	0.14	-0.90	-1.57	0.20	-0.48	4.48	2.81	0.58	0



### Stellar Parameters For KIC 008257134

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$3620^{+54}_{-54}$	$4.821^{+0.042}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.430^{+0.030}_{-0.042}$	$0.446^{+0.032}_{-0.040}$	$7.920^{+1.691}_{-1.070}$
	+1%/-1%	+1%/-1%	+100%/-100%	+7%/-10%	+7%/-9%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008257134-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-1812±282	$5.04^{+4.63}_{-3.51}$	$201^{+4}_{-4}$	$2750^{+1253}_{-410}$	$10952^{+110771}_{-8018}$
Alt.	-617±470	$5.45^{+5.15}_{-3.72}$	$200^{+4}_{-4}$	$2313^{+858}_{-450}$	$2724^{+27194}_{-2396}$

$T_{max}$  = 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

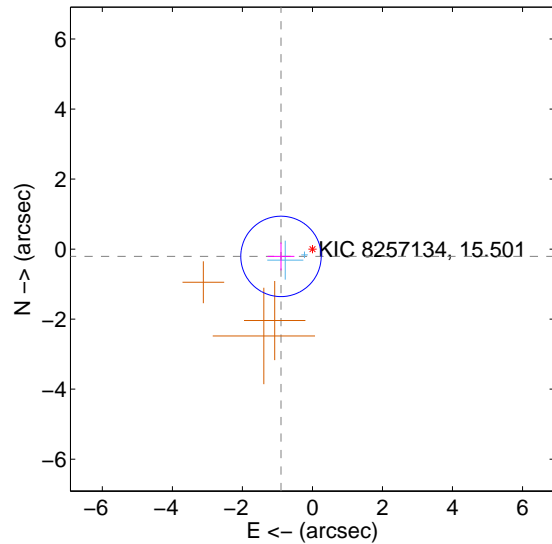
Supplemental centroid analysis for 008257134-03. Kepler magnitude: 15.50. Transit SNR 7.04

There are 2 quarters with good PRF difference image offsets

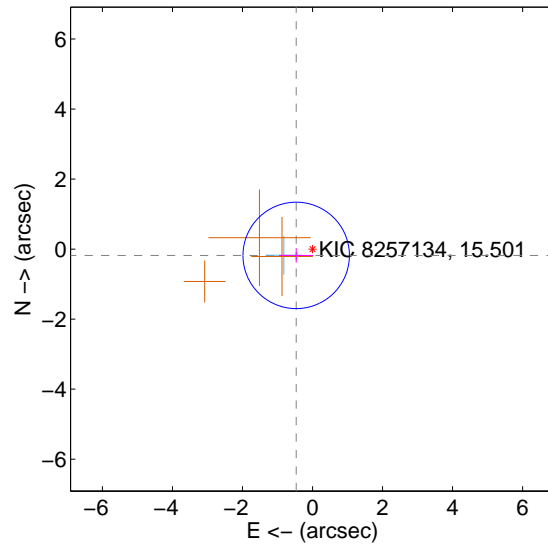
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.922 \pm 0.383$	2.41	$0.899 \pm 0.382$	$-0.209 \pm 0.398$
PRF-fit source offset from KIC position	$0.500 \pm 0.507$	0.99	$0.466 \pm 0.491$	$-0.180 \pm 0.209$
photometric centroid source offset	$2.81 \pm 0.98$	2.86	$0.22 \pm 0.70$	$2.80 \pm 0.98$

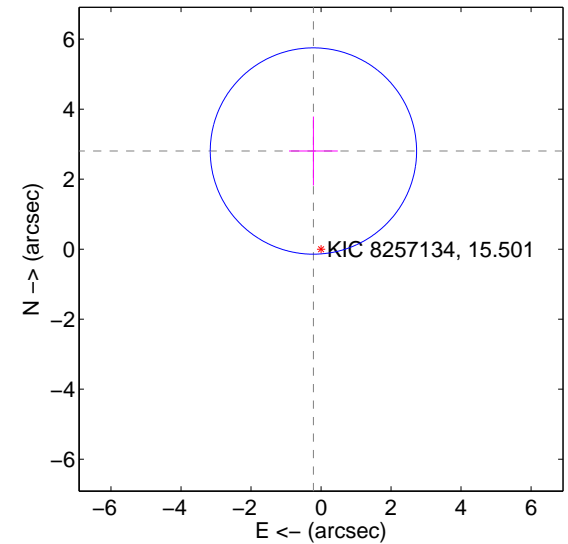
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

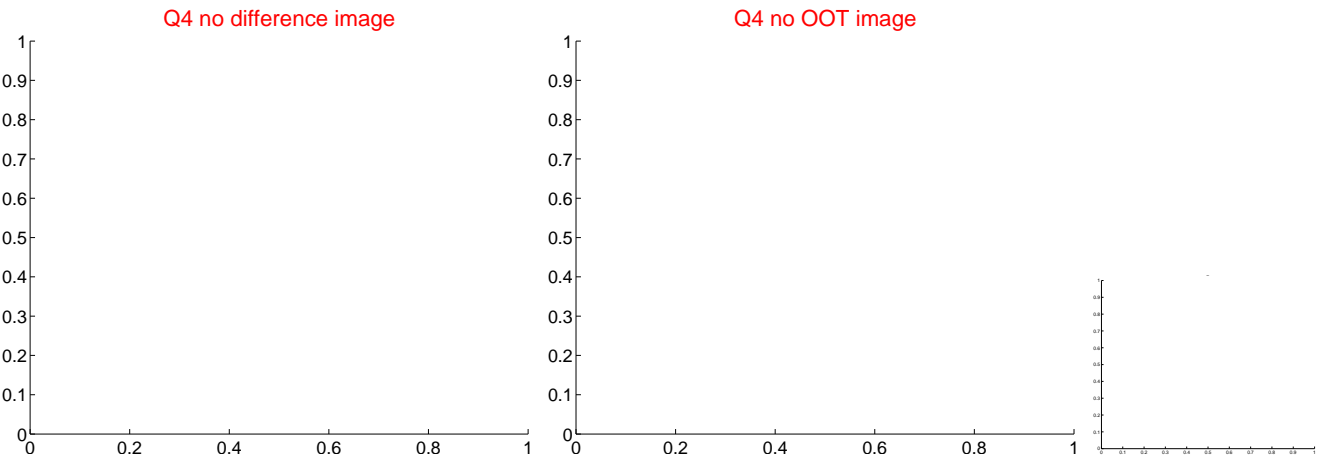
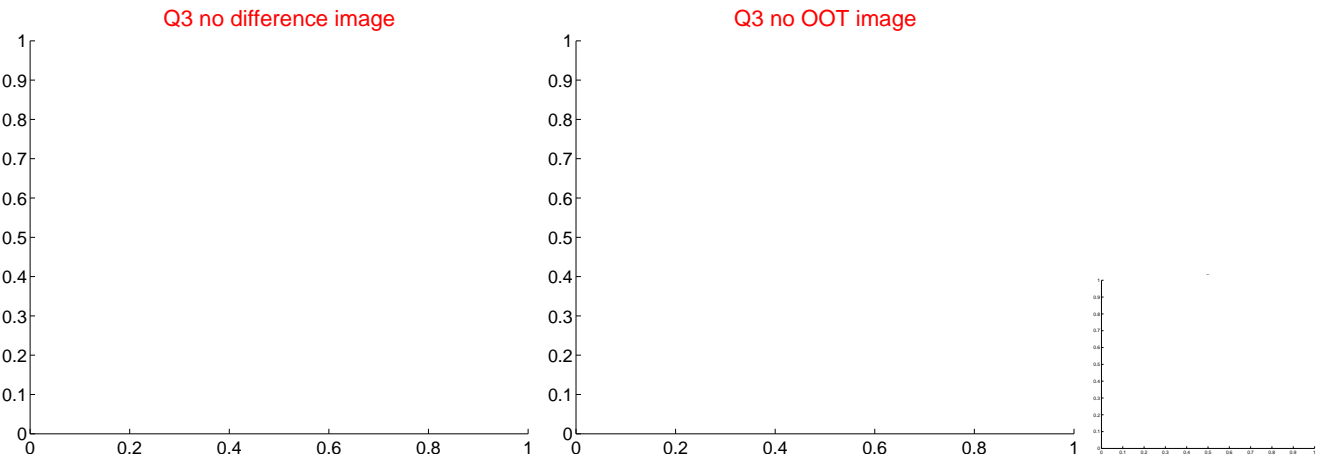
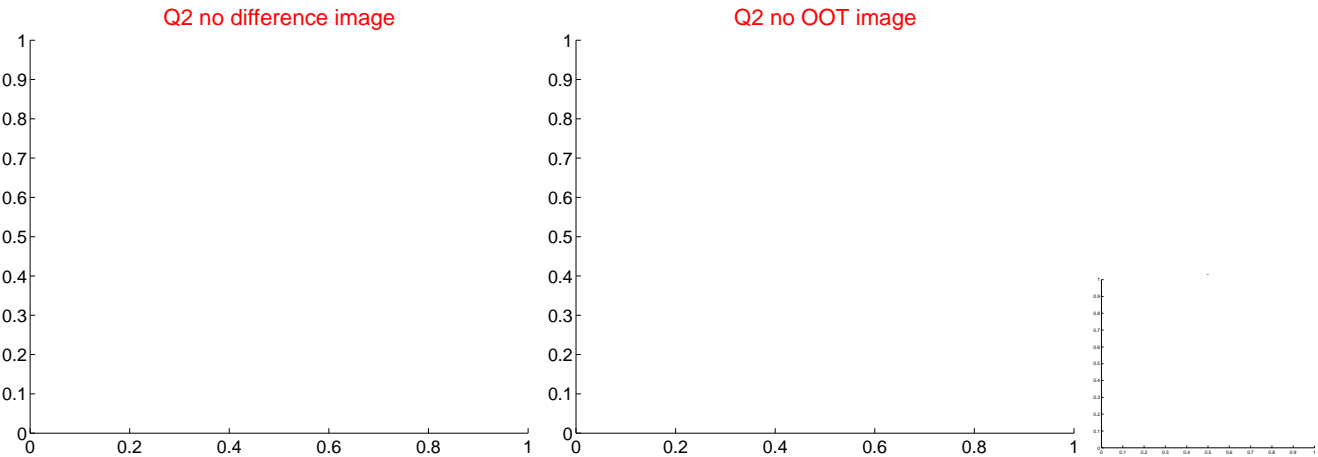
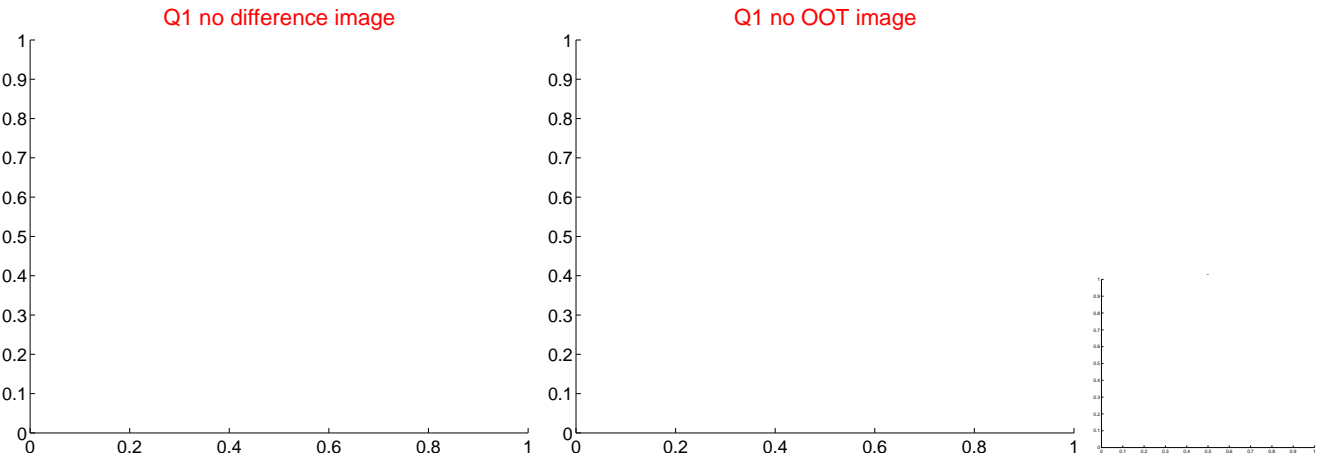


offset from photometric centroids



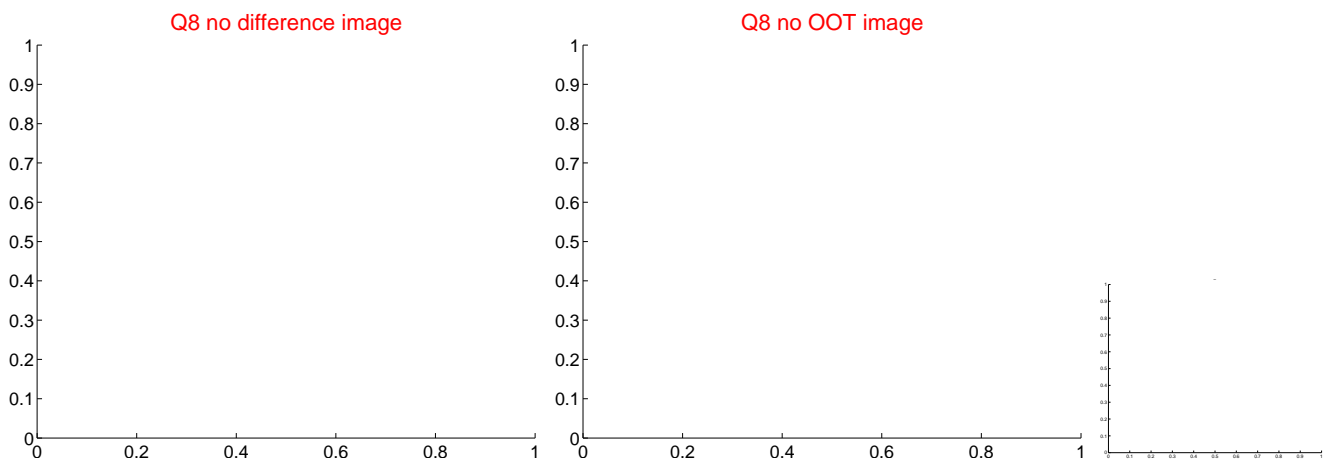
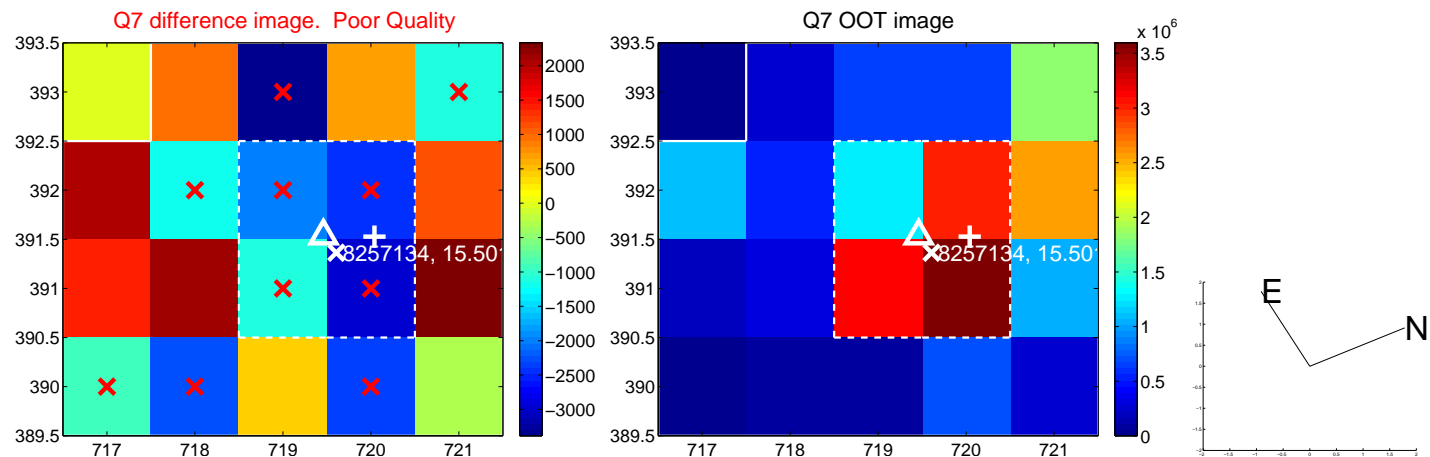
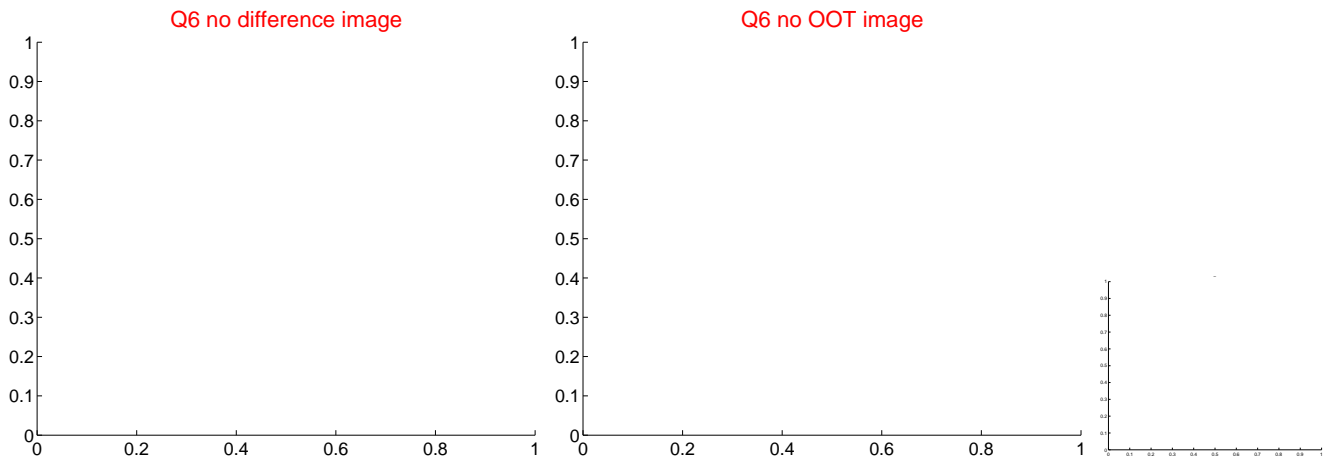
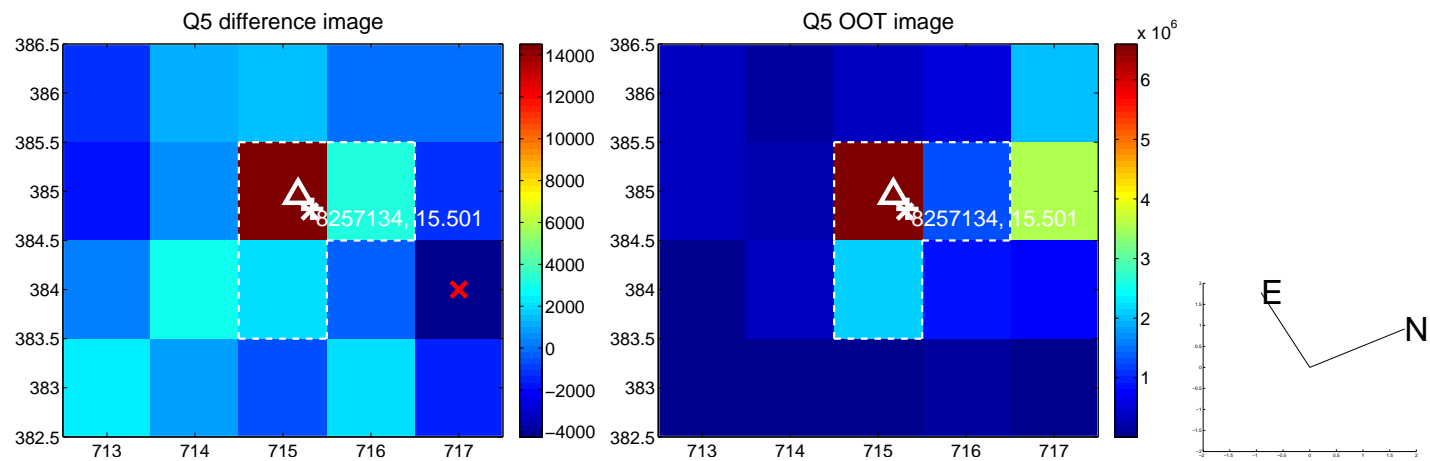
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



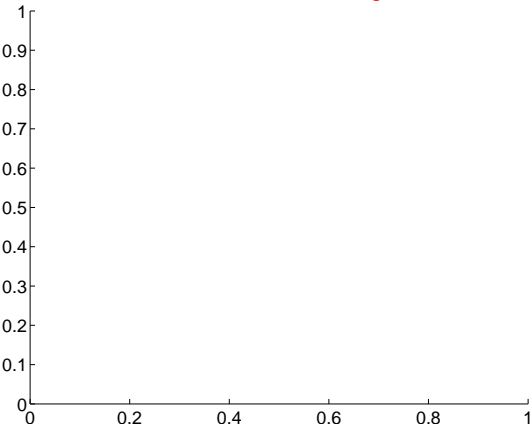


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

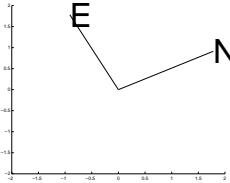
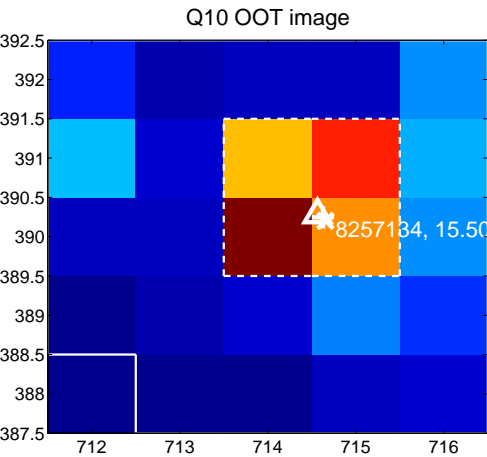
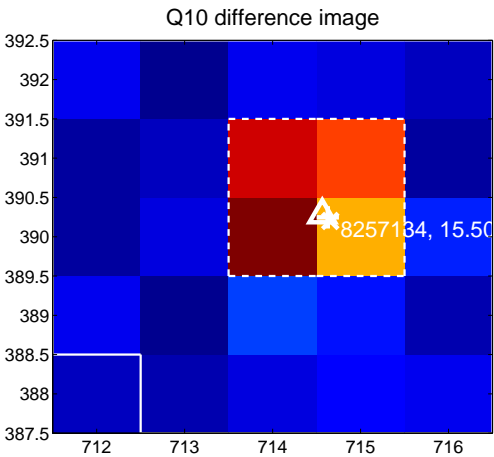
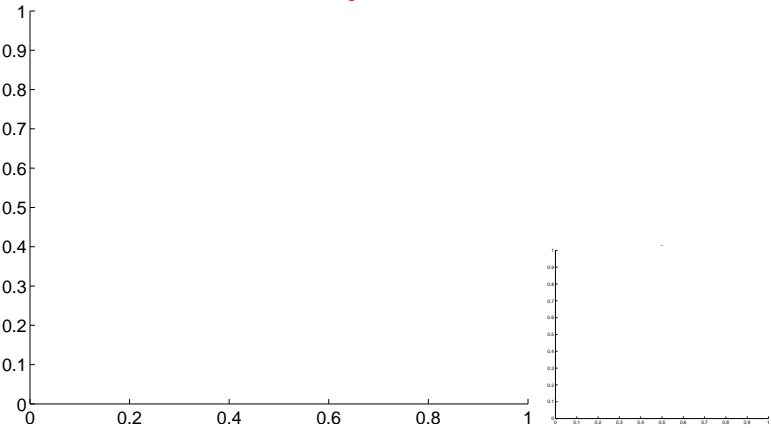


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

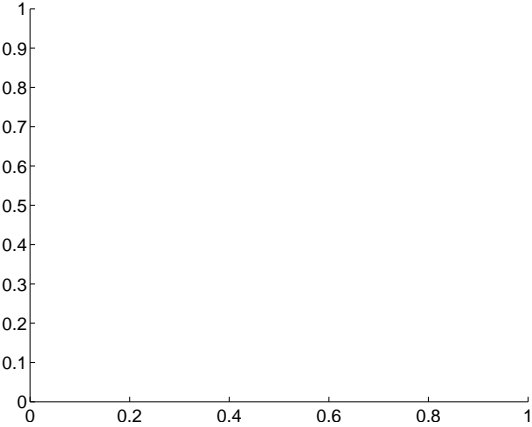
Q9 no difference image



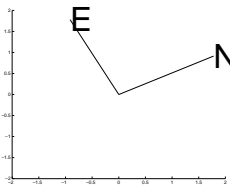
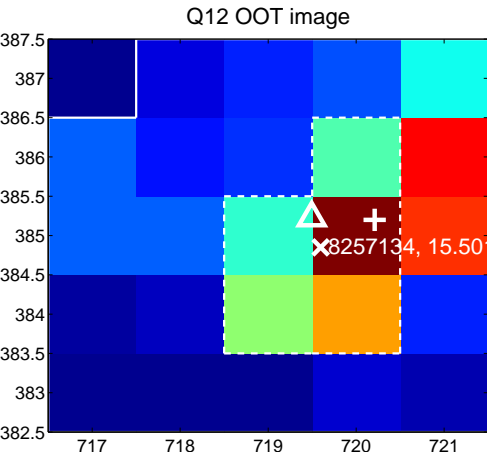
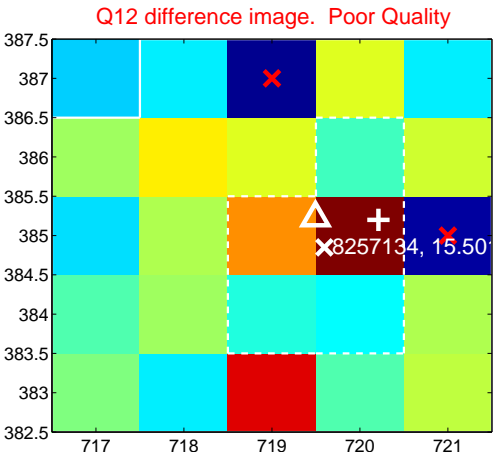
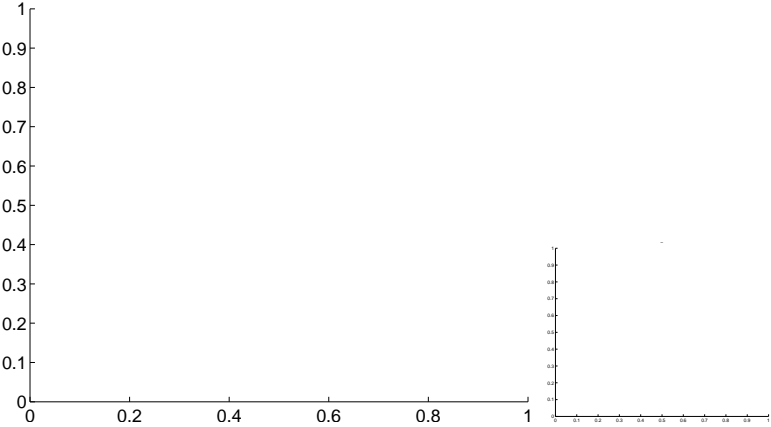
Q9 no OOT image



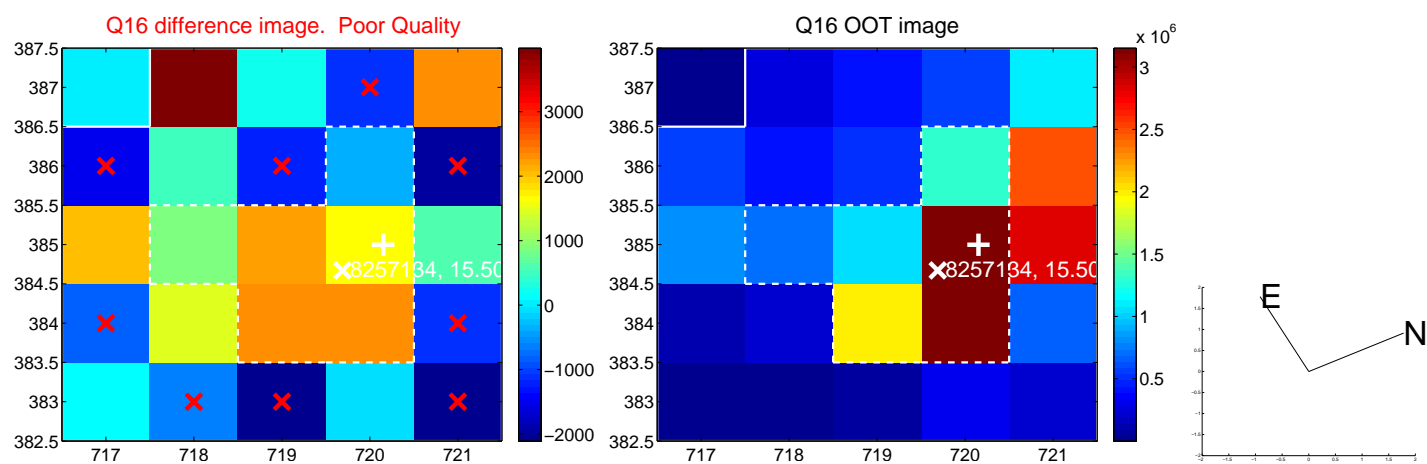
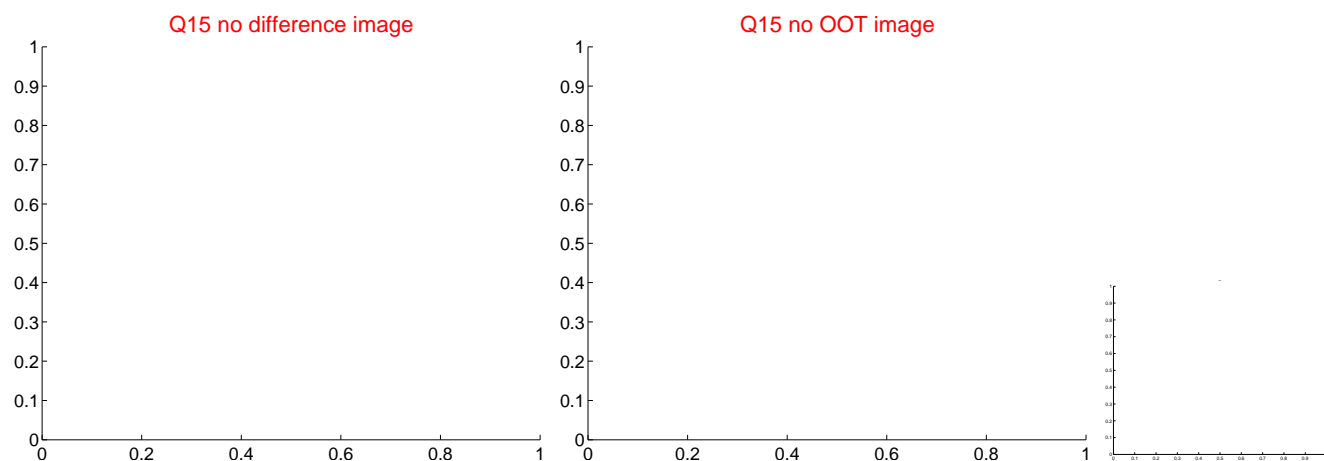
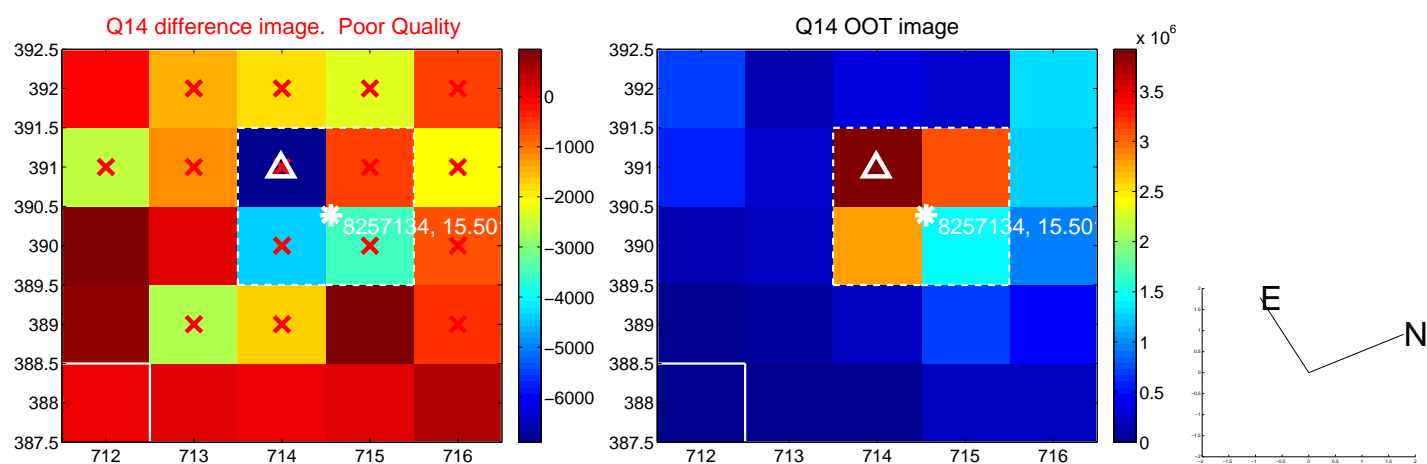
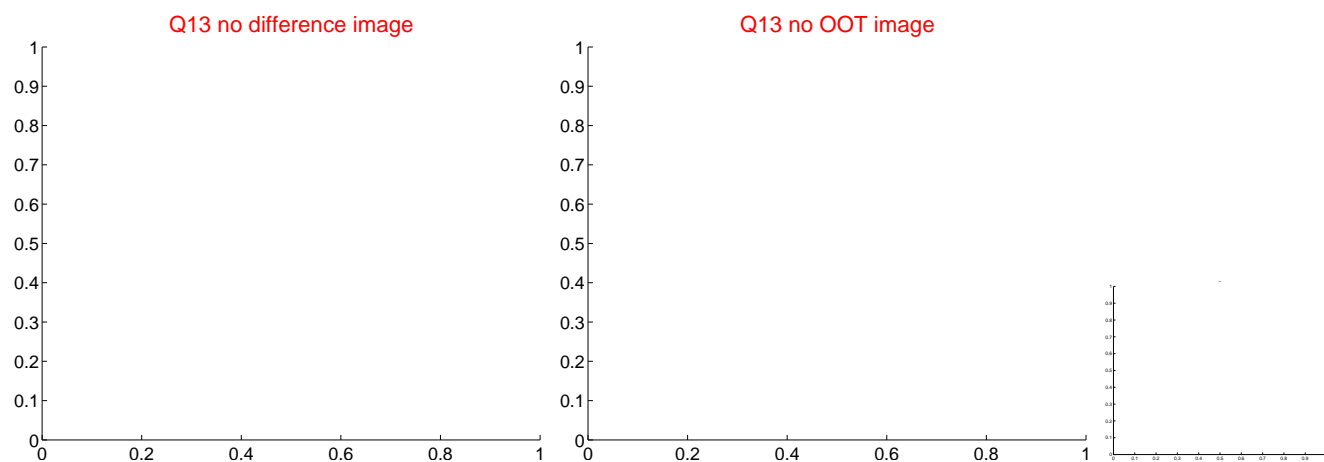
Q11 no difference image



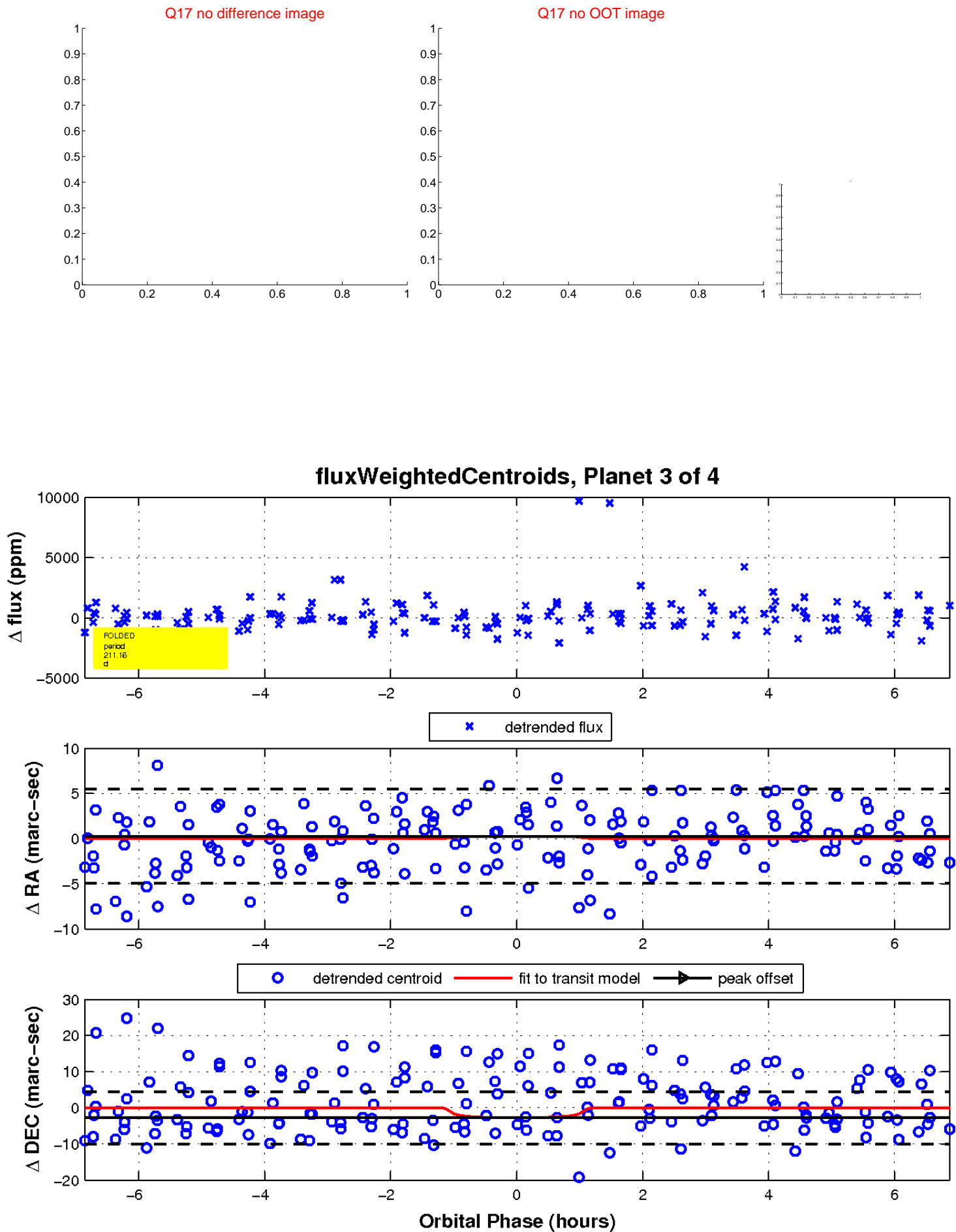
Q11 no OOT image



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

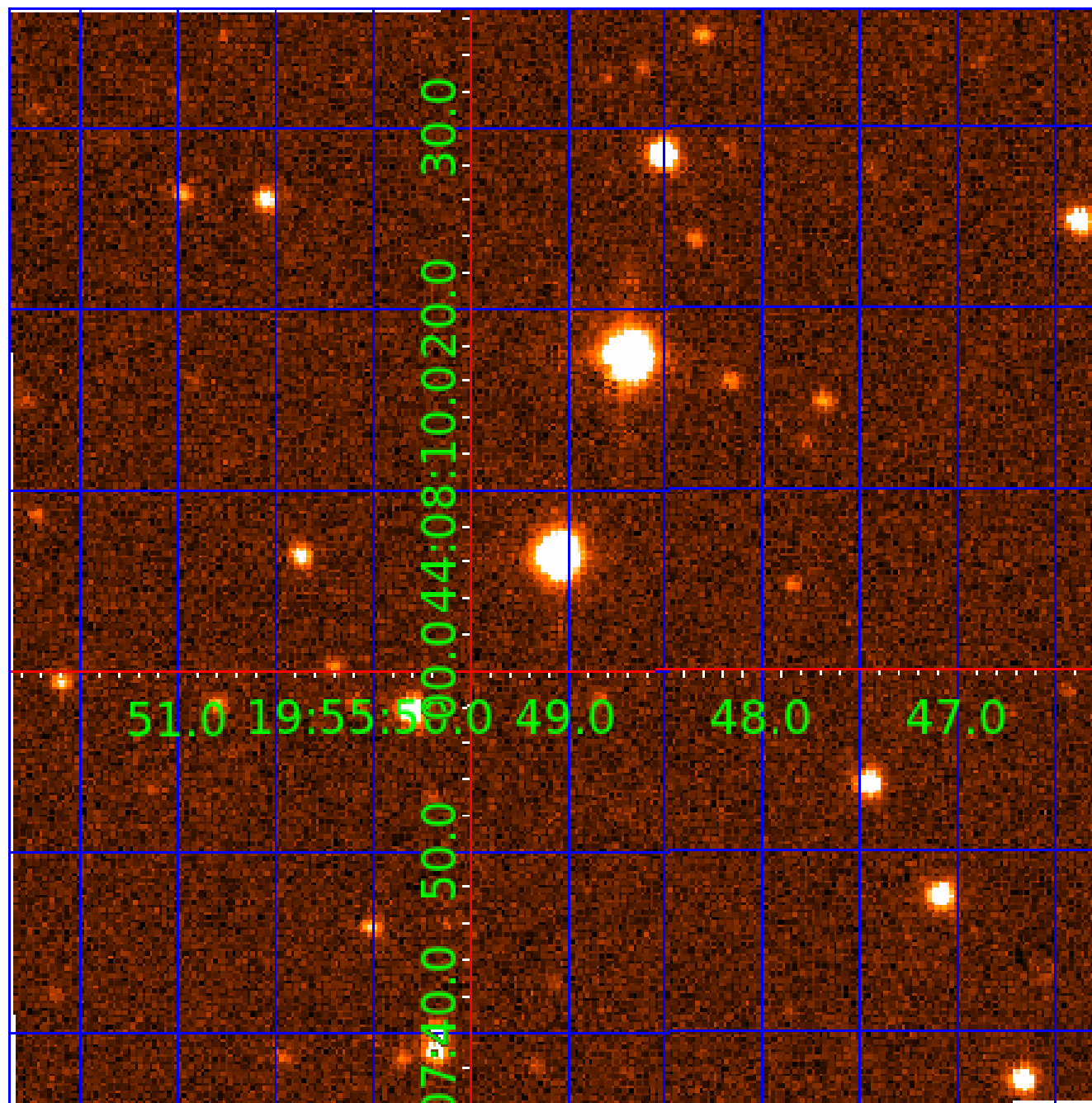


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008257134

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008257134-01	OBS	No	1.197974	132.185991	155.0	4.487	11.9	7.0	0.43	3620	0.75	99.87
008257134-02	OBS	No	237.138871	365.013333	1808.1	3.000	10.8	-1.0	0.43	3620	1.81	0.09
008257134-03	OBS	No	211.161854	286.348540	2527.5	2.305	9.9	7.0	0.43	3620	2.23	0.10
008257134-04	OBS	No	384.442771	164.009664	3578.0	8.878	9.0	7.3	0.43	3620	4.87	0.04

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008257134-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
008257134-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—CENT_NOFITS
008257134-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
008257134-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

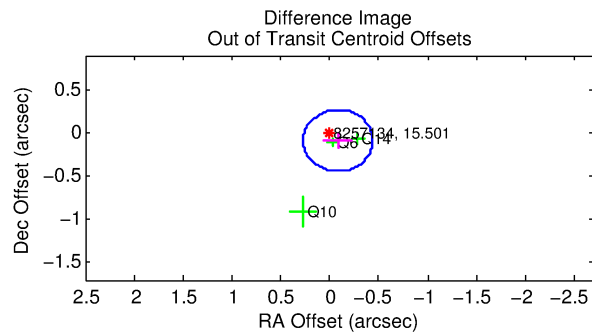
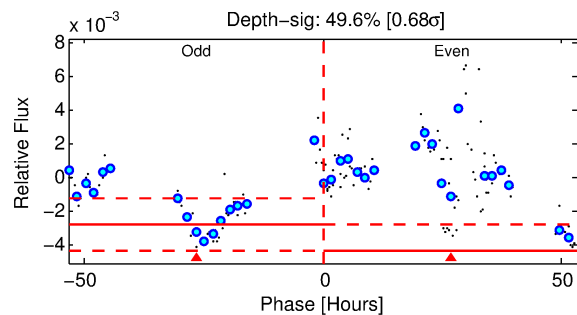
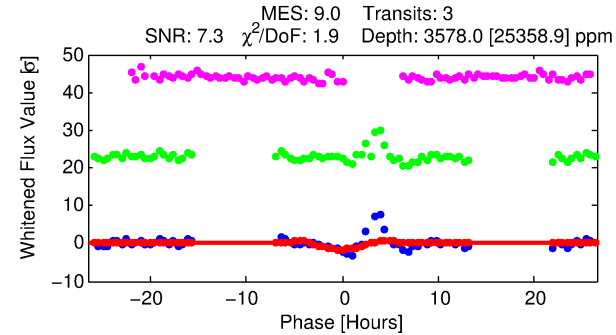
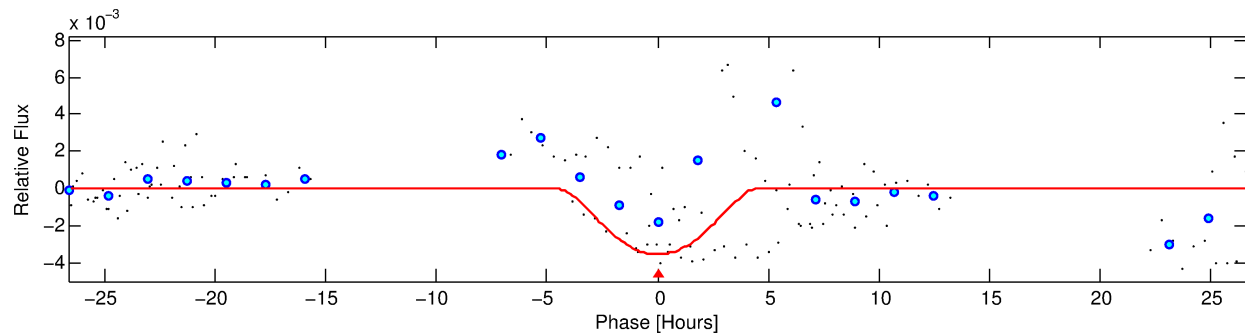
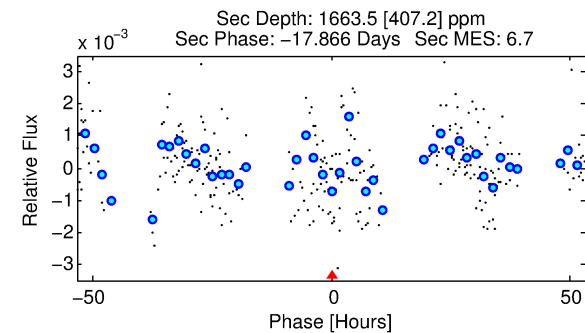
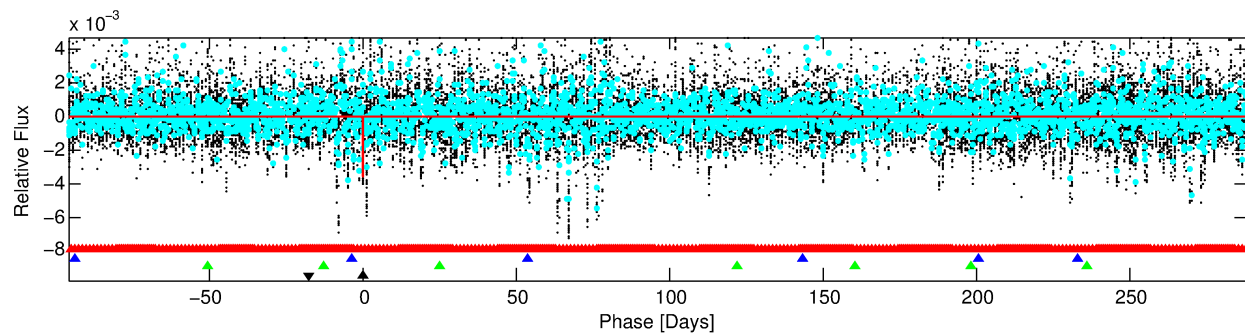
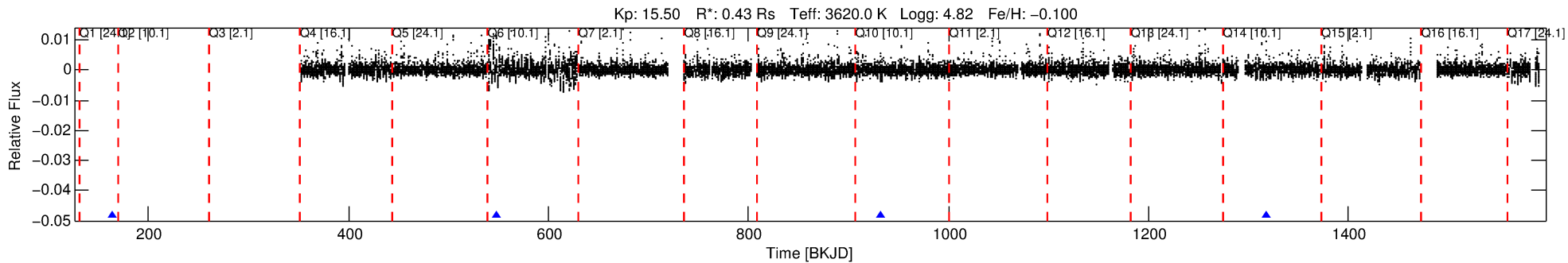
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008257134-04

No Significant Match Found

# DV One-Page Summary

KIC: 8257134 Candidate: 4 of 4 Period: 384.443 d



## DV Fit Results:

Period = 384.44277 [0.03609] d  
Epoch = 164.0097 [0.0771] BKJD  
Rp/R\* = 0.1037 [0.7613]  
a/R\* = 154.50 [215.80]  
b = 1.00 [0.59]  
Seff = 0.05 [0.00]  
Teq = 118 [3] K  
Rp = 4.86 [35.72] Re  
a = 0.7911 [0.0575] AU  
Ag = 24200.09 [355440.55] [0.07σ]  
Teffp = 2270 [8337] K [0.26σ]

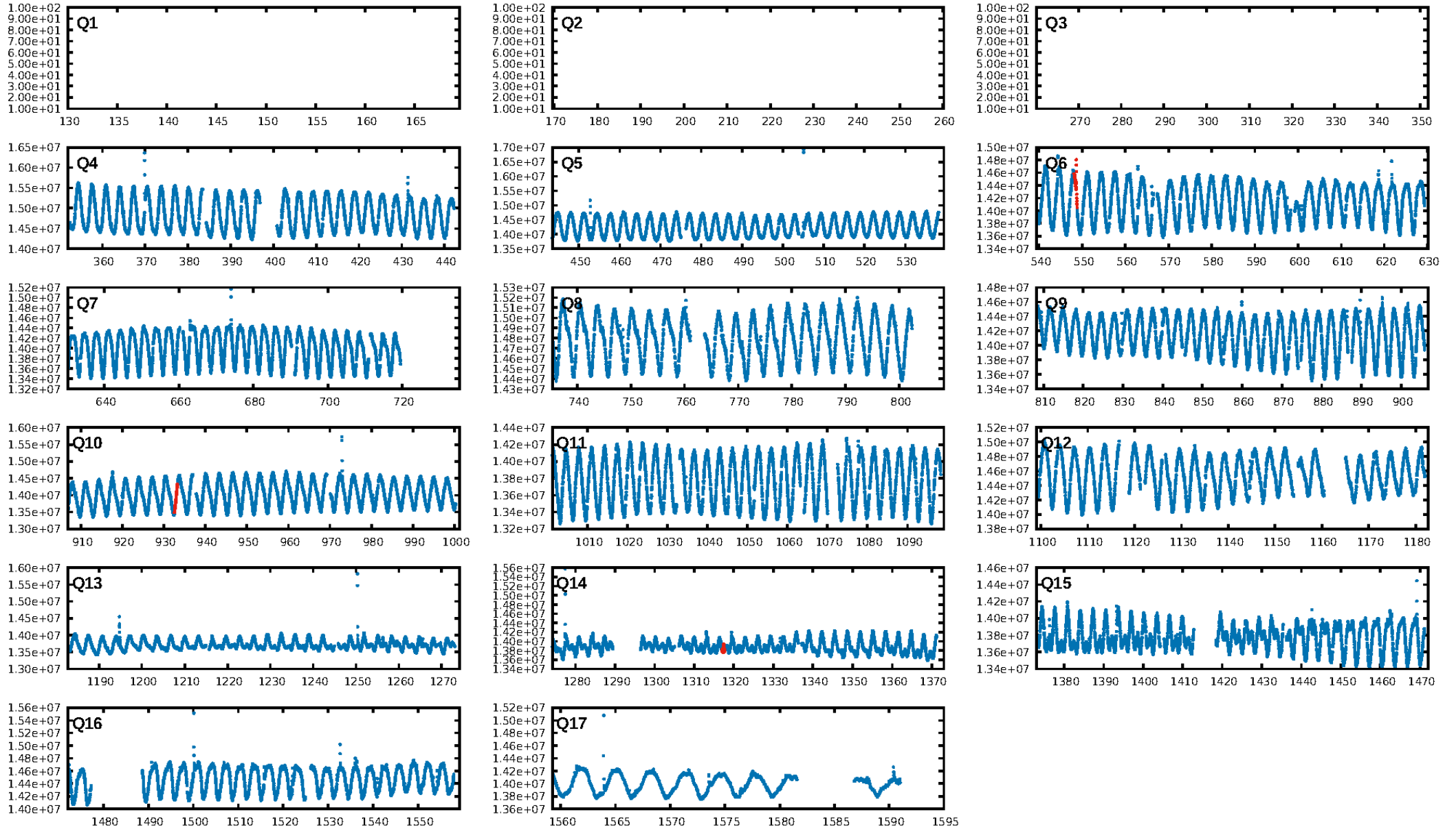
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [377.26σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 2.0%  
ModelChiSquareGof-sig: 97.6%  
**Bootstrap-pfa: 4.02e-09**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.167**  
Centroid-sig: 35.0%  
Centroid-so: 1.166 arcsec [1.28σ]  
OotOffset-rm: 0.119 arcsec [1.00σ]  
KicOffset-rm: 0.145 arcsec [0.61σ]  
OotOffset-st: 3/0/0/0 [3]  
KicOffset-st: 3/0/0/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.00 [0/3]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 09:02:07 Z

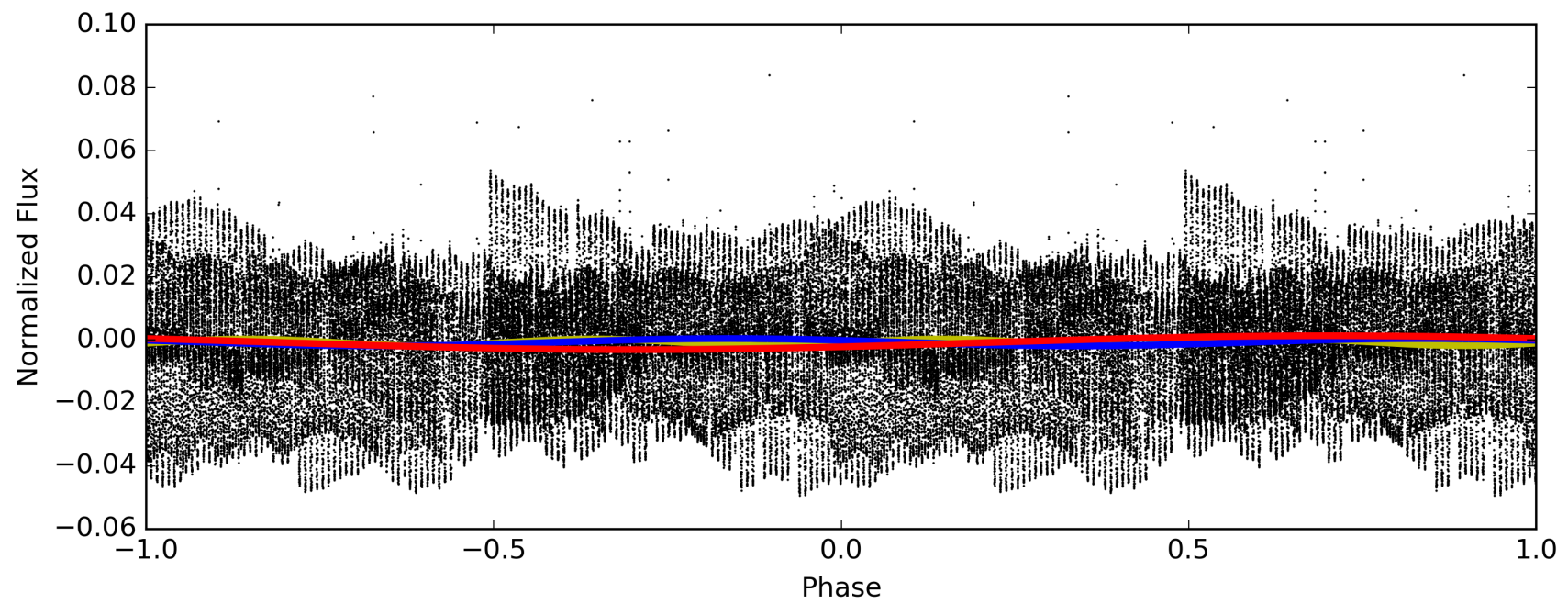
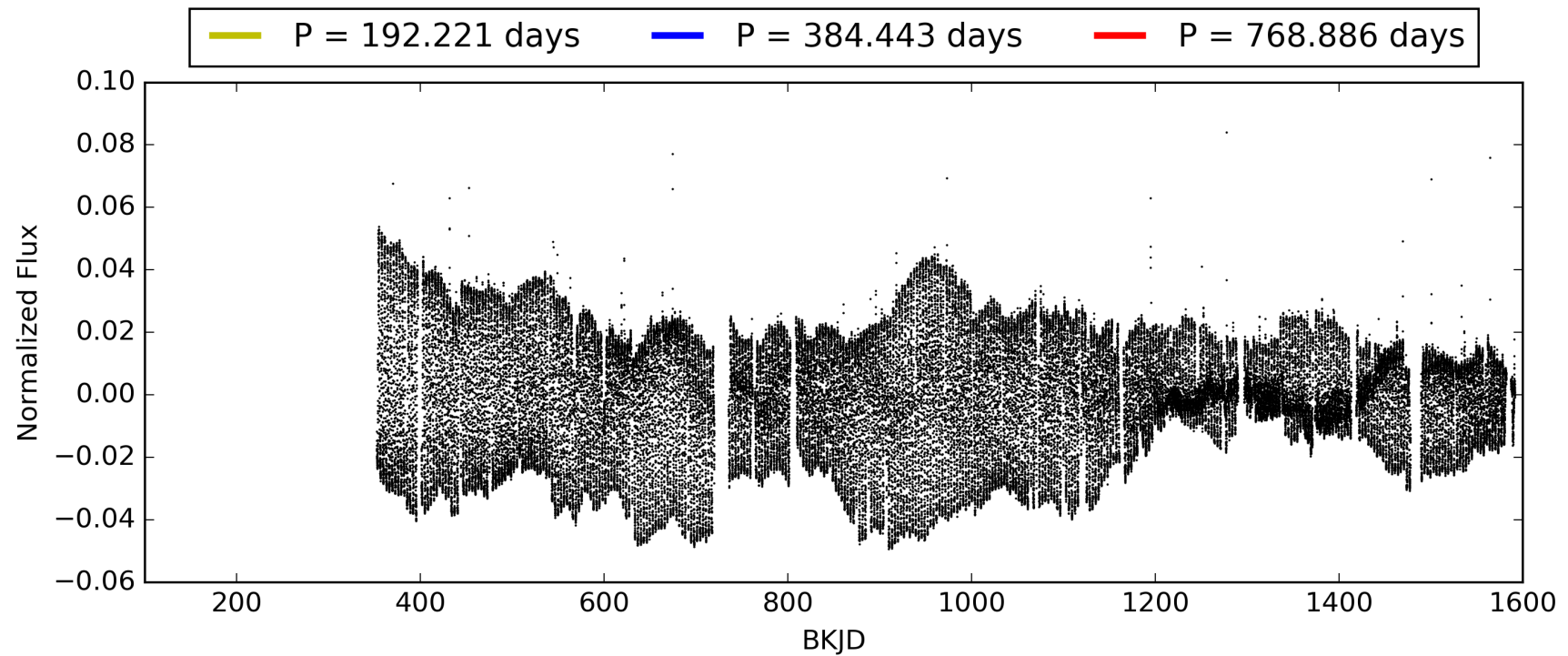
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008257134-04, PDC Light Curves



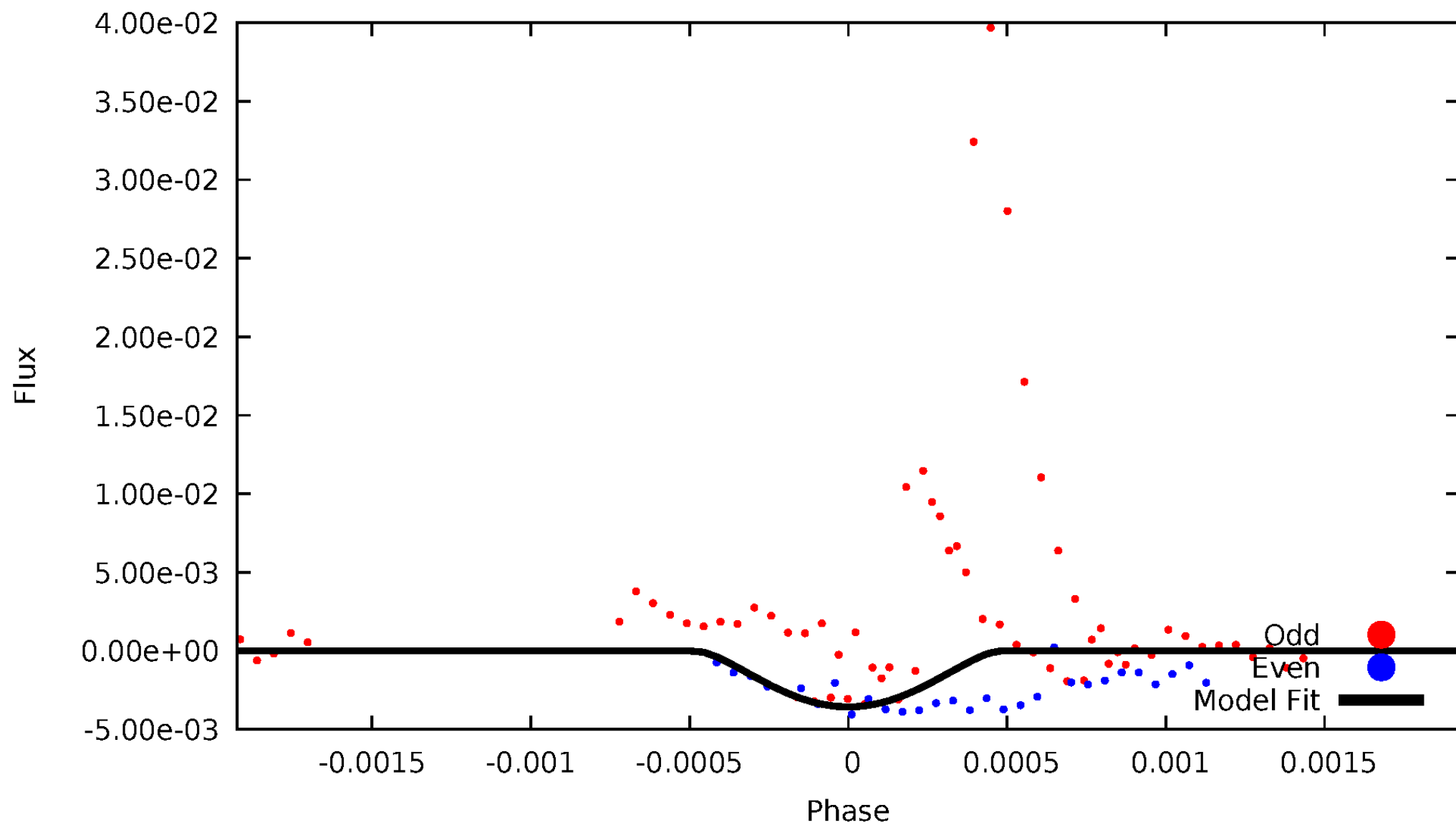


TCE 008257134-04



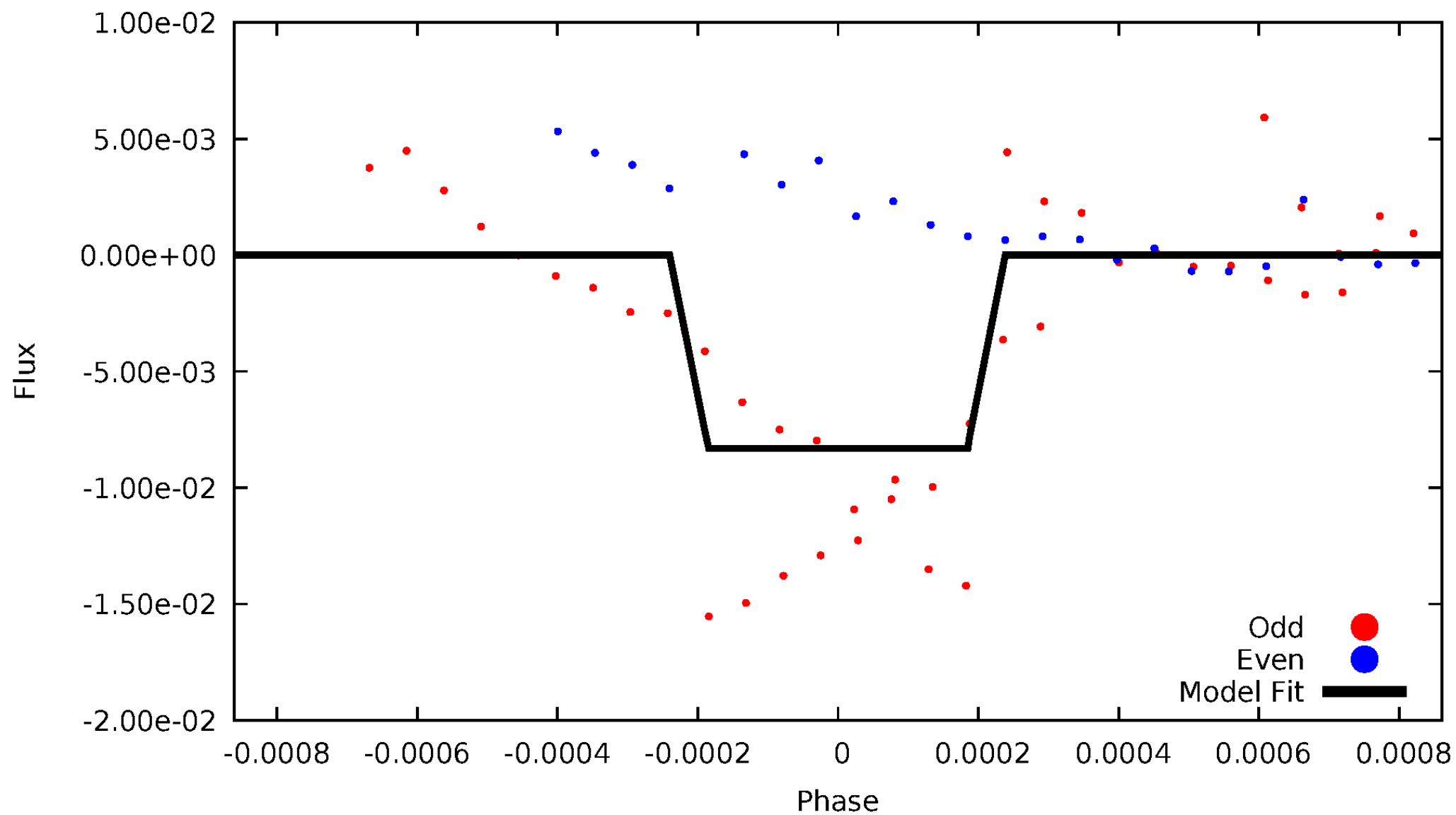
# DV Odd/Even

TCE 008257134-04



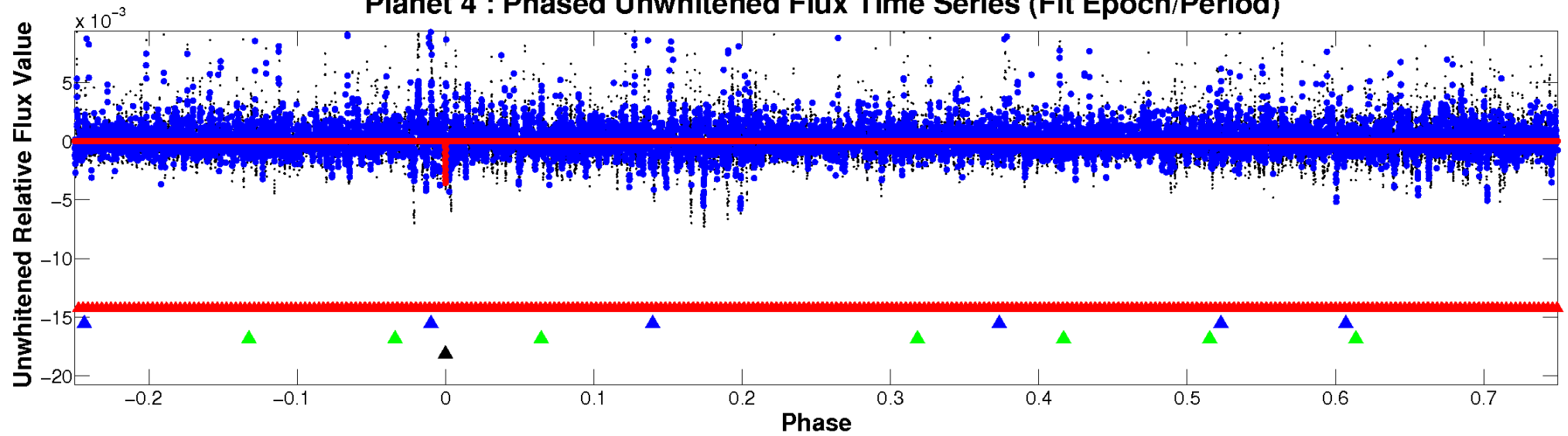
# ALT Odd/Even

TCE 008257134-04

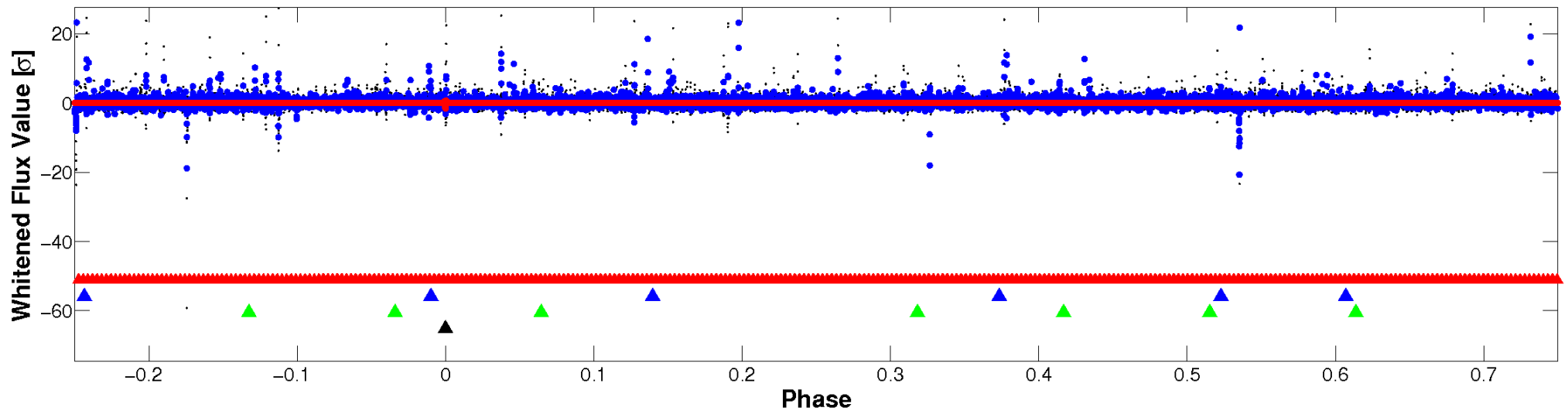


# Non-Whitened Vs. Whitened Light Curve

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

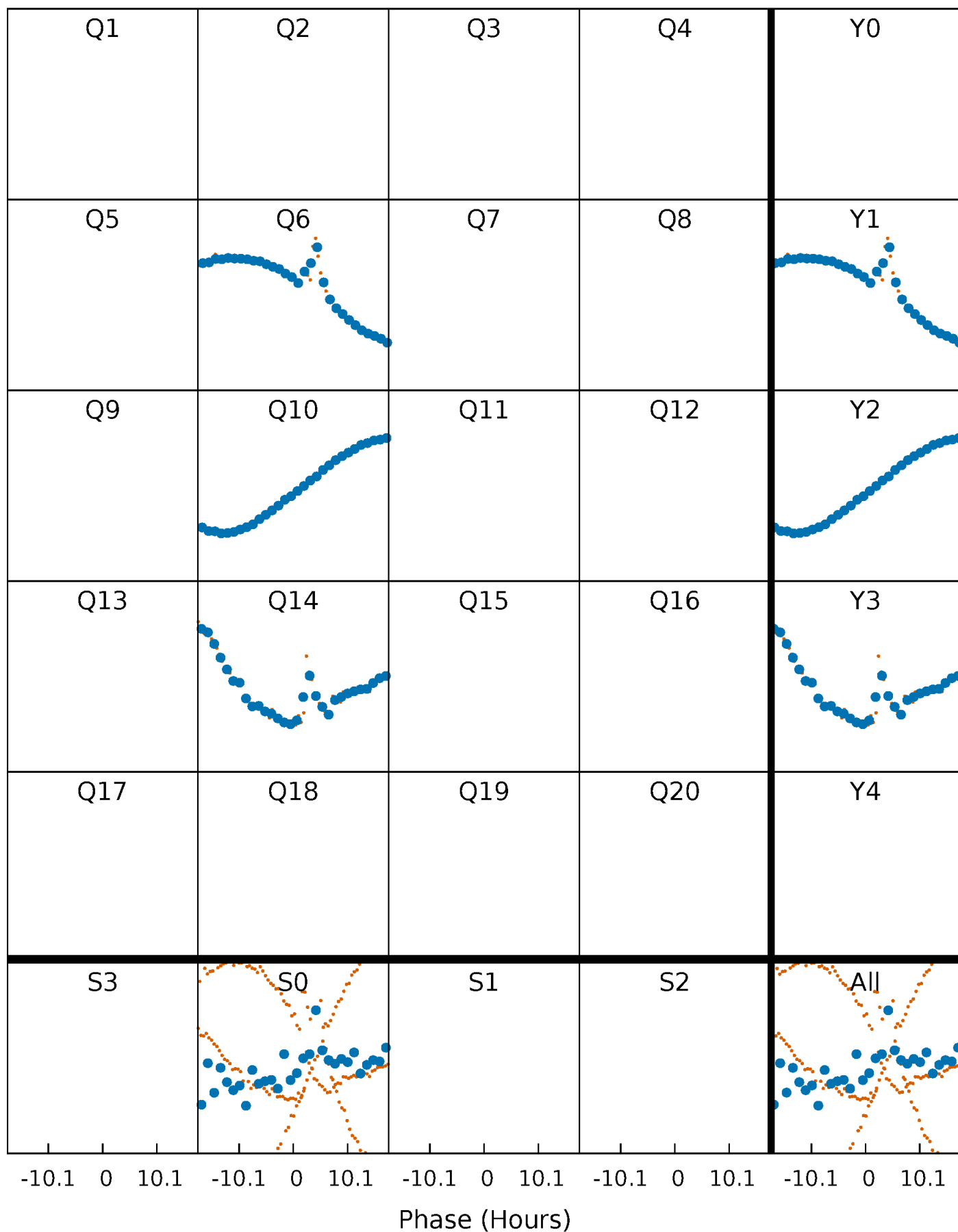


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



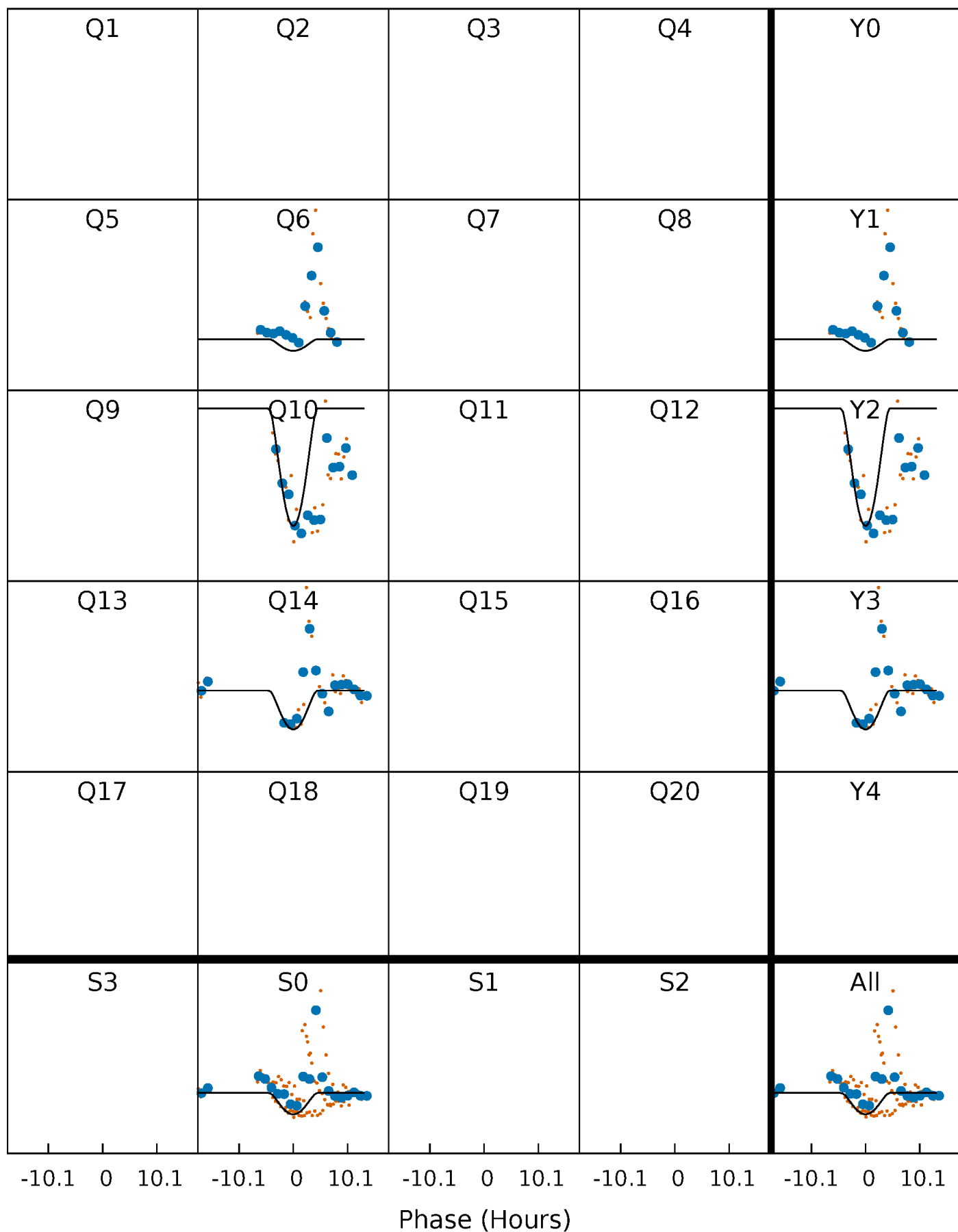
# PDC Quarter-Phased Transit Curves

TCE 008257134-04 P=384.442771 Days  $T_0=164.009664$  (BKJD)



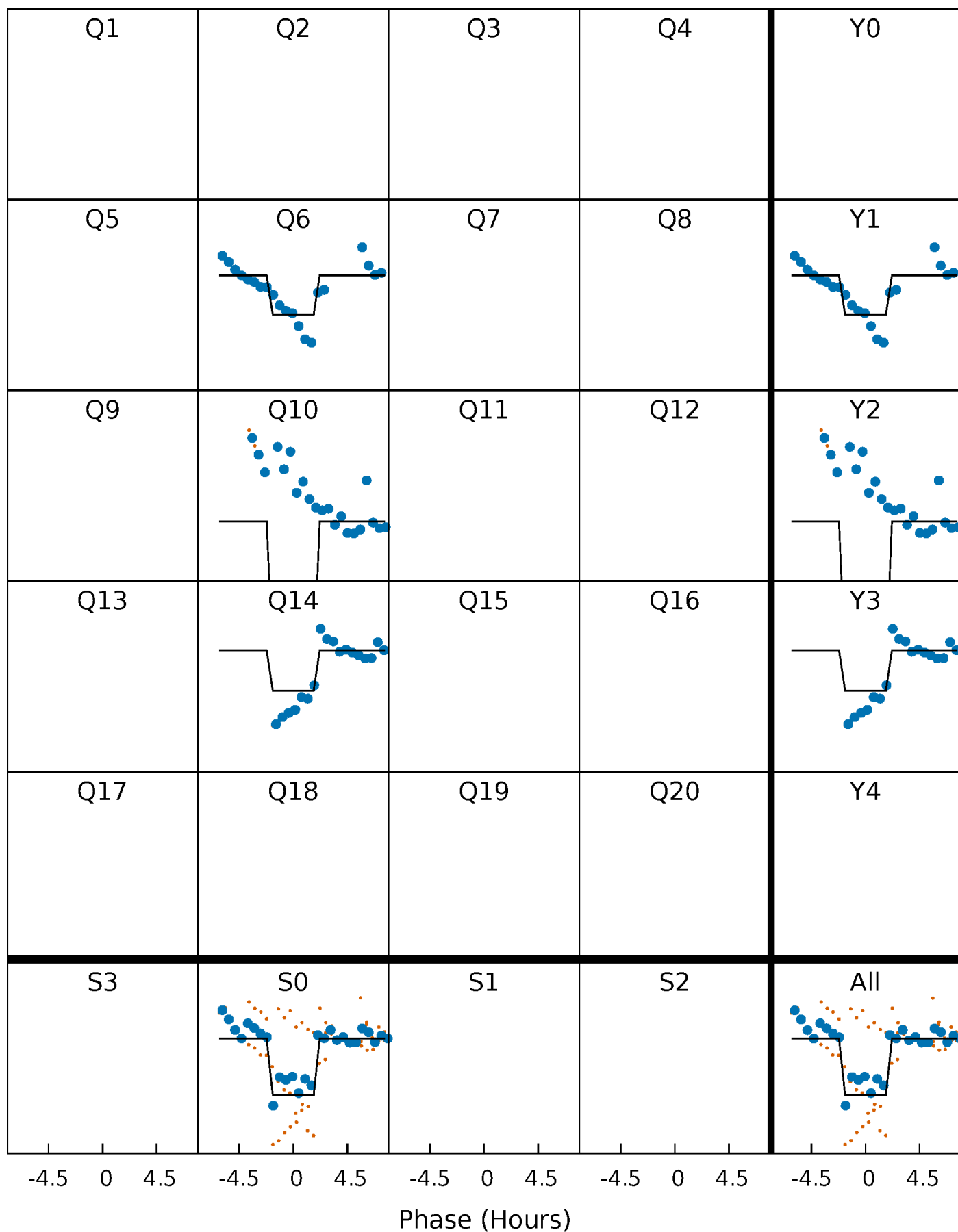
# DV Quarter-Phased Transit Curves

TCE 008257134-04 P=384.442771 Days  $T_0=164.009664$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

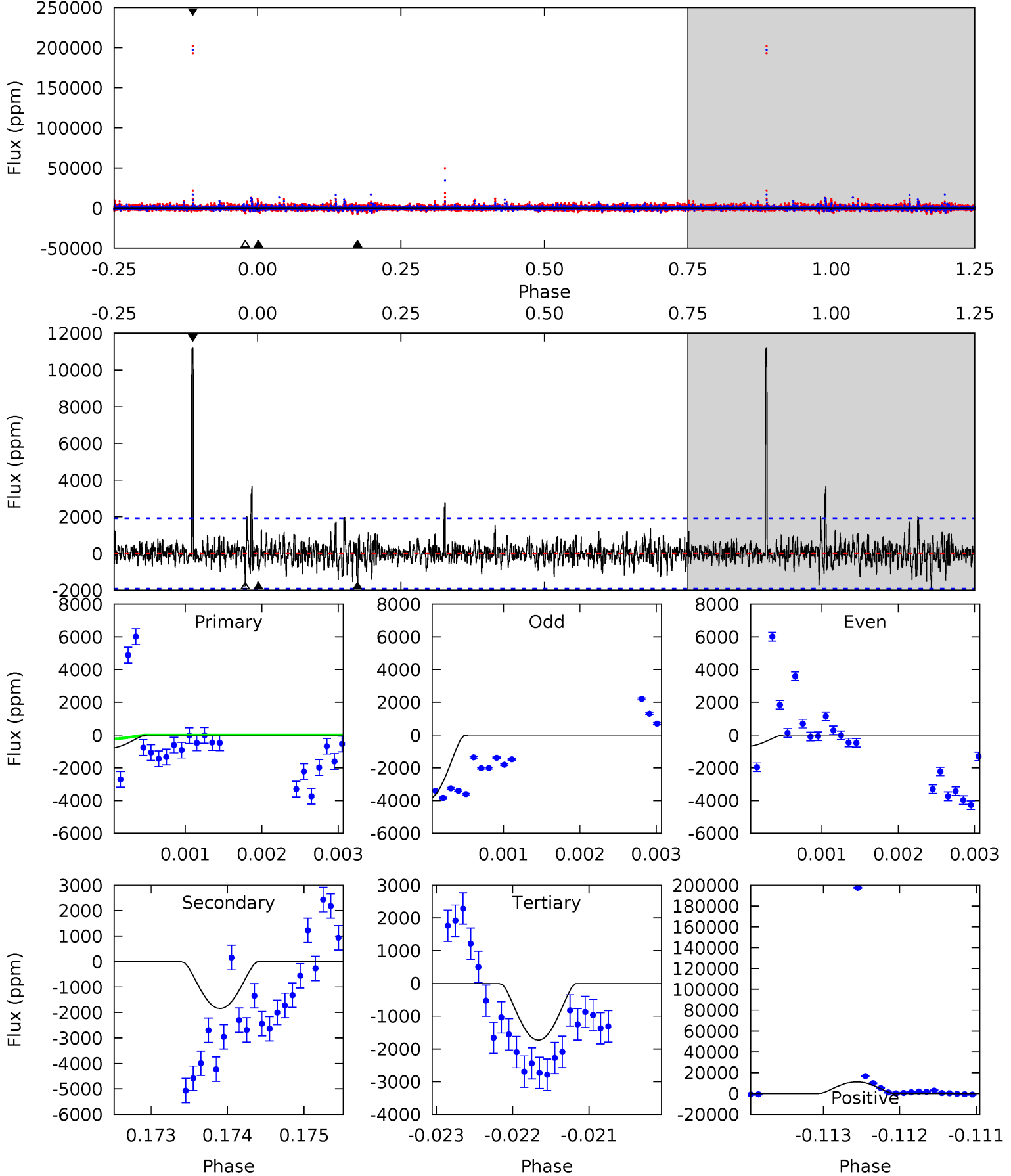
TCE 008257134-04 P=384.457431 Days  $T_0=163.974538$  (BKJD)



# DV Model-Shift Uniqueness Test

008257134-04, P = 384.442771 Days, E = 164.009664 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
2.27	5.23	4.91	31.8	5.45	3.29	1.51	-2.64	-29.5	0.32	-26.5	6.27	0.26	0.86	1.58

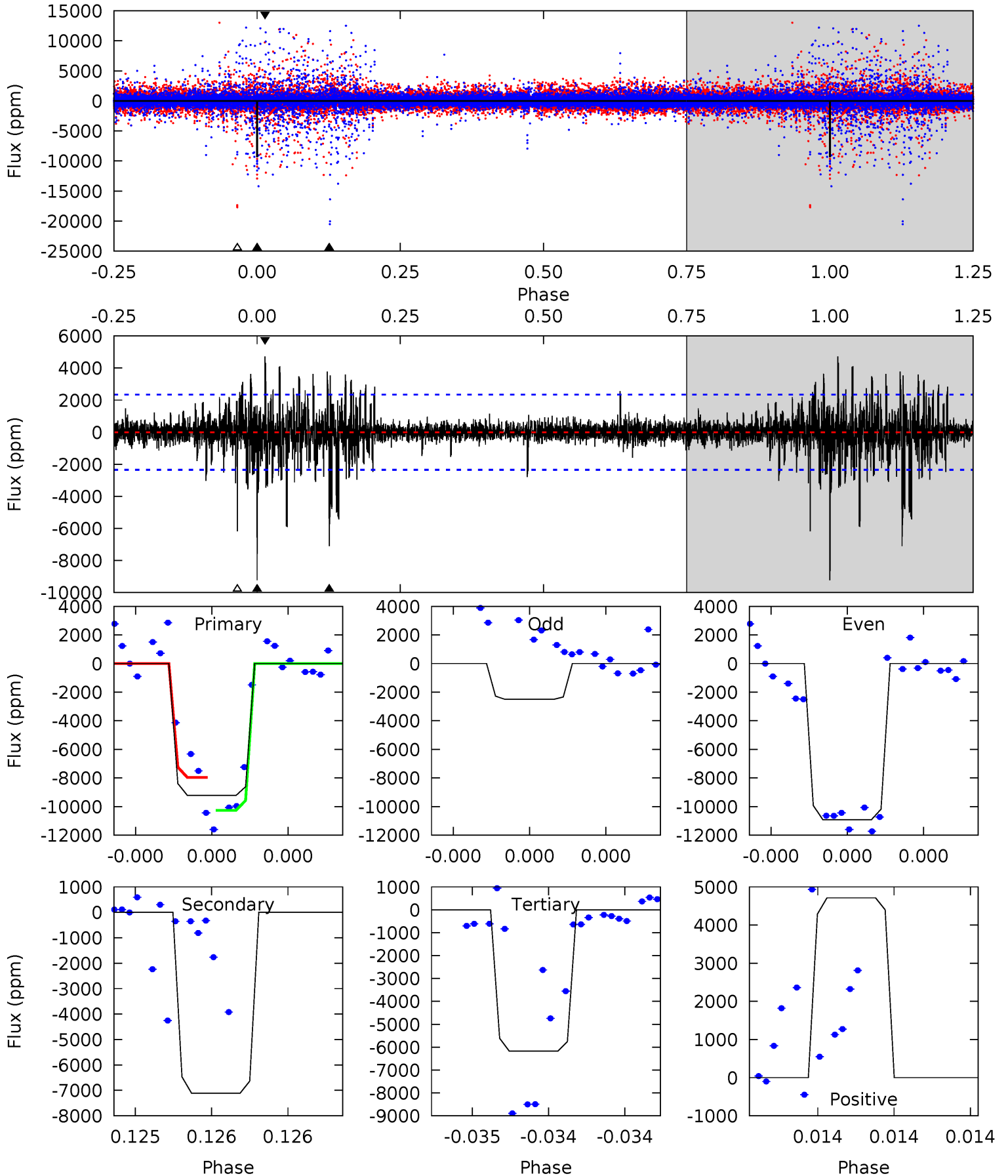




# Alt Model-Shift Uniqueness Test

008257134-04, P = 384.457431 Days, E = 163.974538 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
22.0	17.0	14.7	11.2	5.60	3.52	1.34	7.28	10.8	2.24	5.71	10.2	0.67	0.34	2.78



### Stellar Parameters For KIC 008257134

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$3620^{+54}_{-54}$	$4.821^{+0.042}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.430^{+0.030}_{-0.042}$	$0.446^{+0.032}_{-0.040}$	$7.920^{+1.691}_{-1.070}$
	+1%/-1%	+1%/-1%	+100%/-100%	+7%/-10%	+7%/-9%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 008257134-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1846 \pm 353$	$26.75^{+26.10}_{-18.07}$	$164^{+4}_{-3}$	$1899^{+510}_{-234}$	$900^{+7262}_{-681}$
Alt.	$-7109 \pm 419$	$25.19^{+26.31}_{-16.03}$	$164^{+4}_{-4}$	$2203^{+632}_{-296}$	$3784^{+27744}_{-2847}$

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

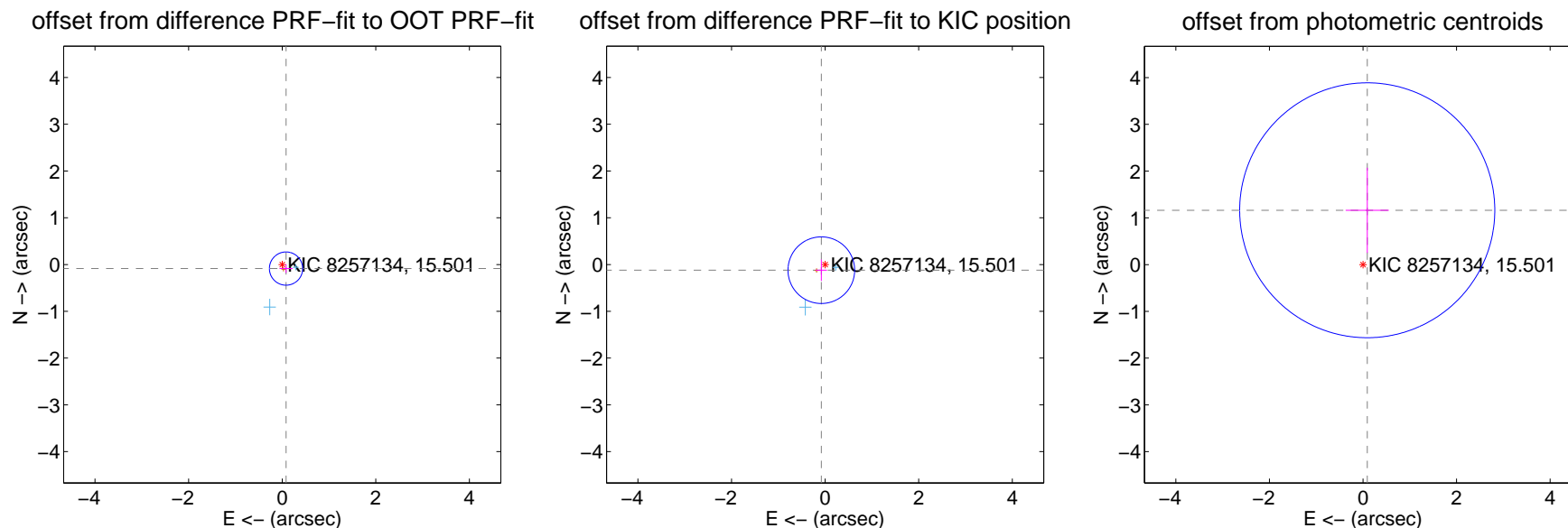
## DV Centroid Data

Supplemental centroid analysis for 008257134-04. Kepler magnitude: 15.50. Transit SNR 7.28

There are 2 quarters with good PRF difference image offsets

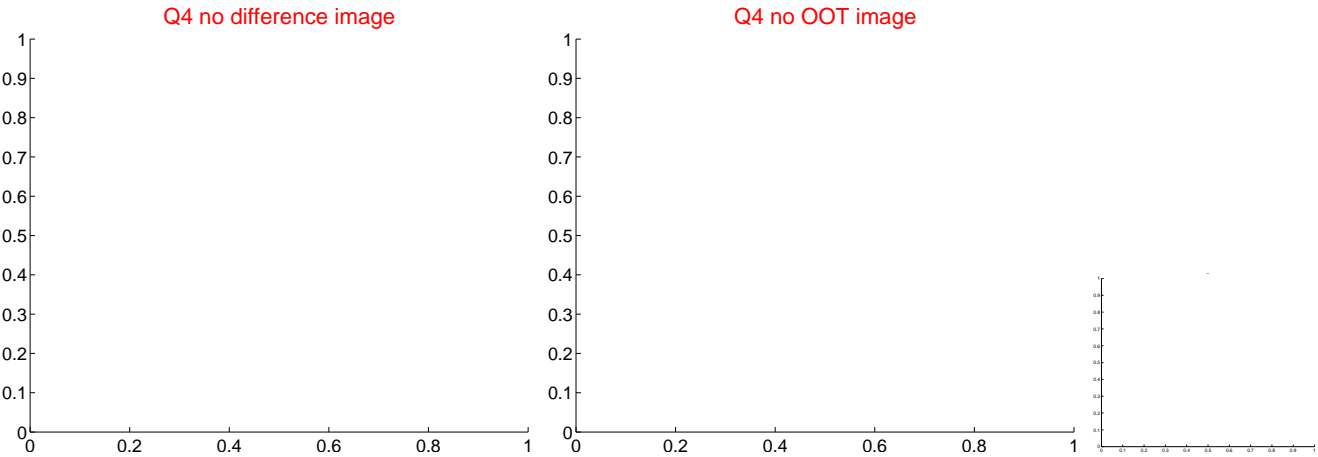
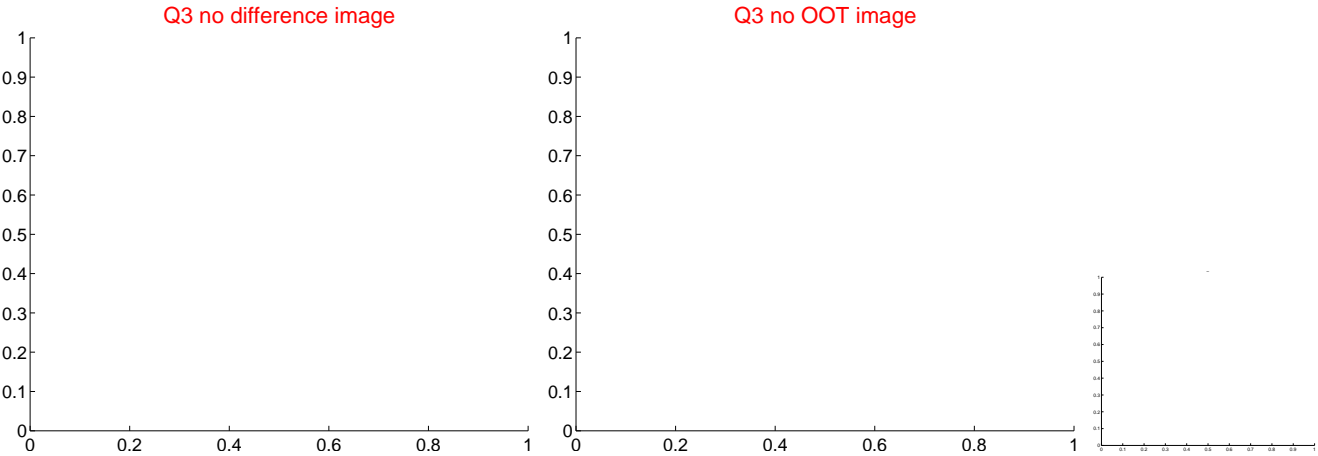
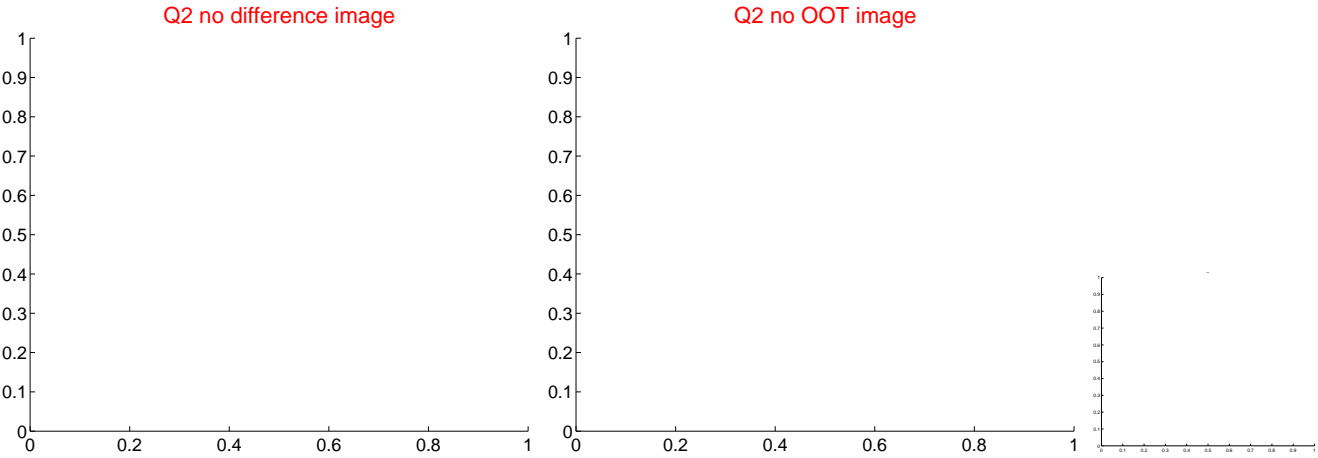
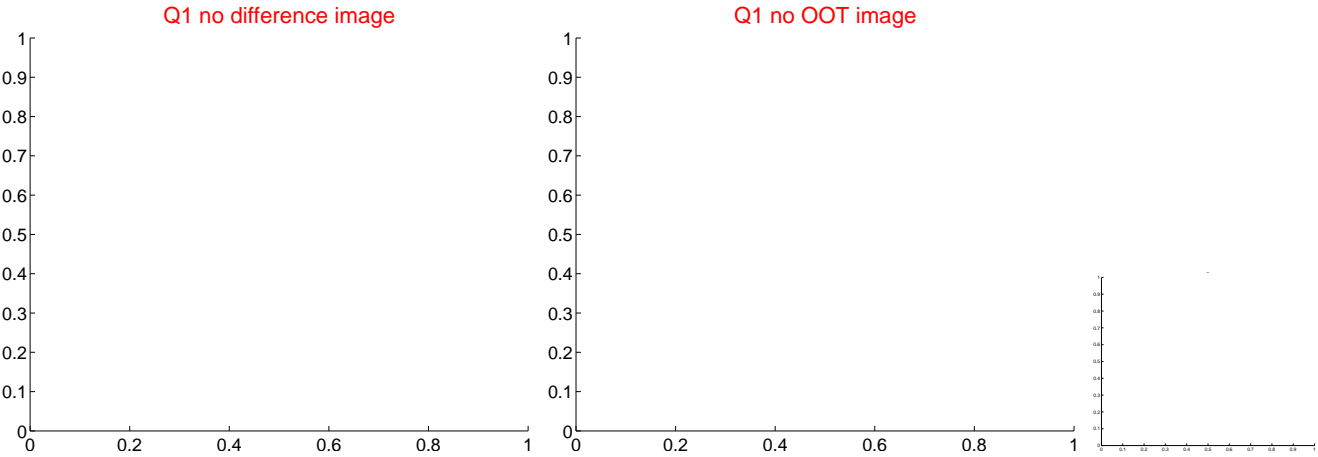
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.119 \pm 0.119$	1.00	$-0.082 \pm 0.142$	$-0.086 \pm 0.093$
PRF-fit source offset from KIC position	$0.145 \pm 0.237$	0.61	$0.081 \pm 0.120$	$-0.120 \pm 0.229$
photometric centroid source offset	$1.17 \pm 0.91$	1.28	$-0.09 \pm 0.46$	$1.16 \pm 0.91$

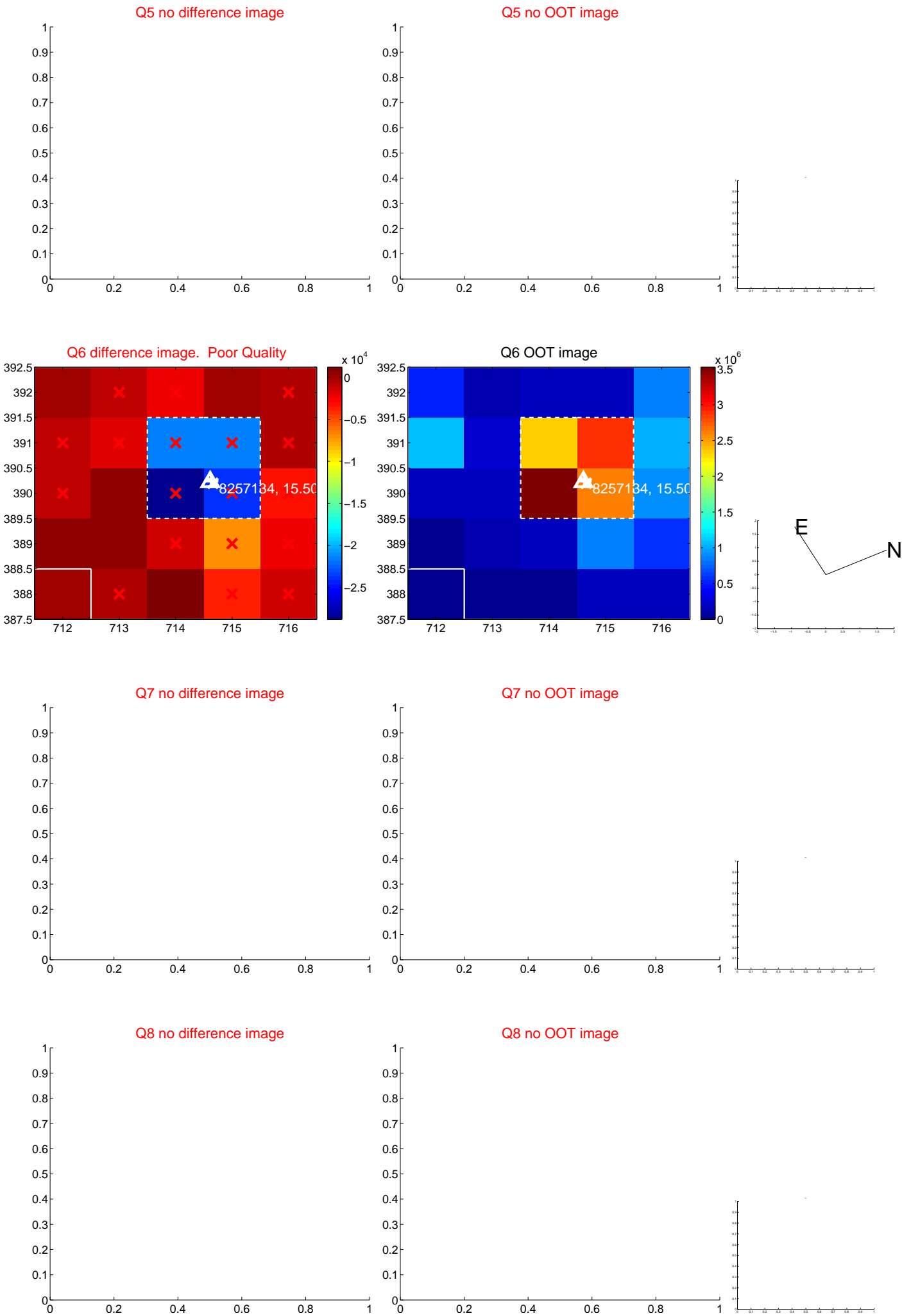


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

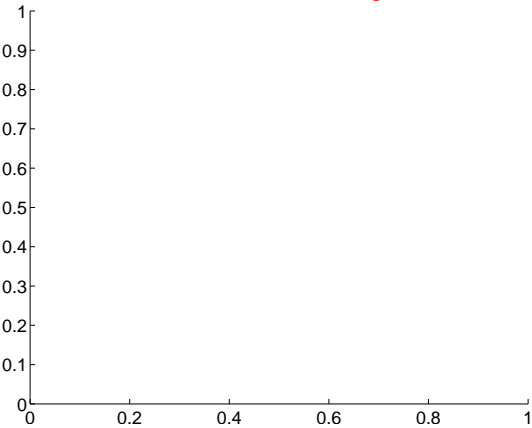


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

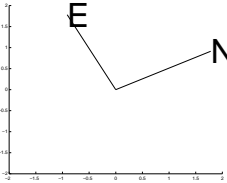
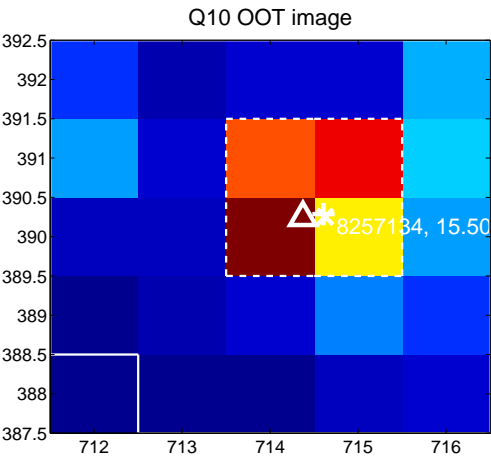
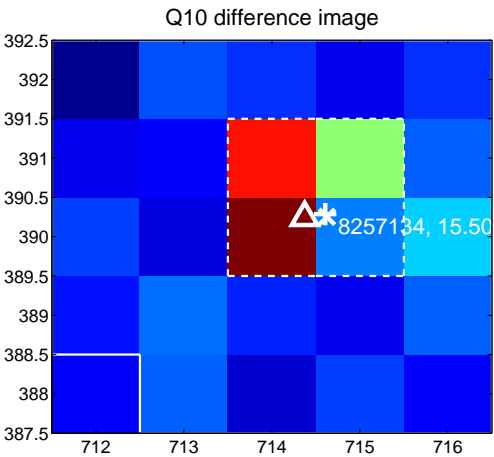
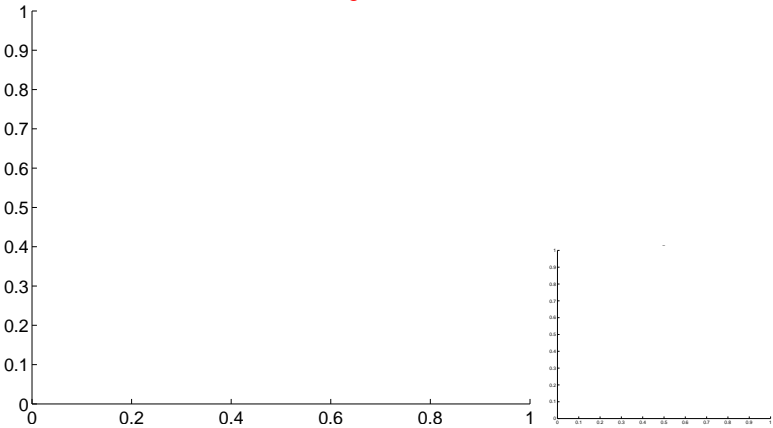


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

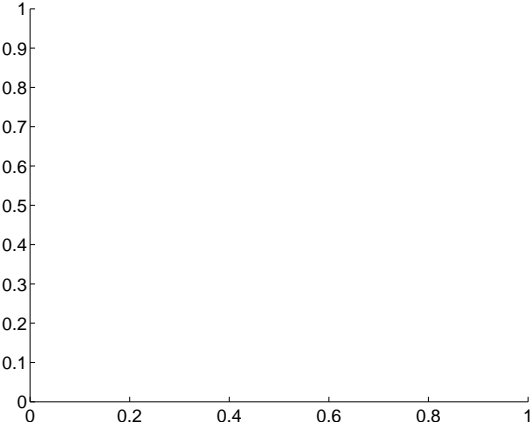
Q9 no difference image



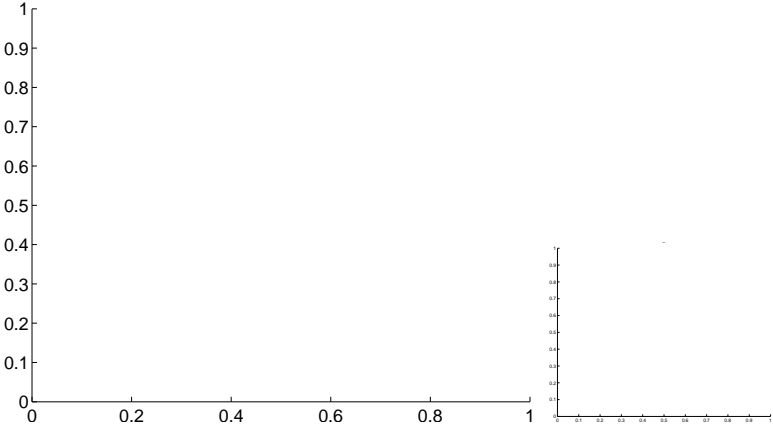
Q9 no OOT image



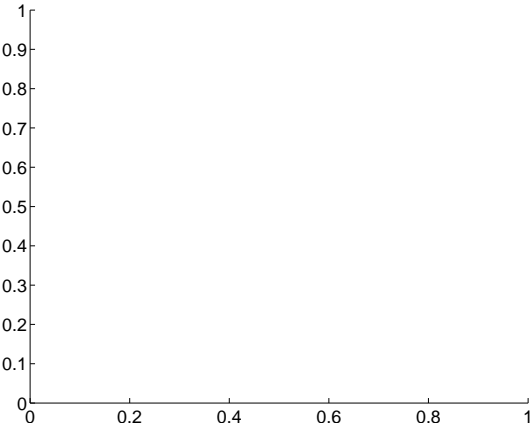
Q11 no difference image



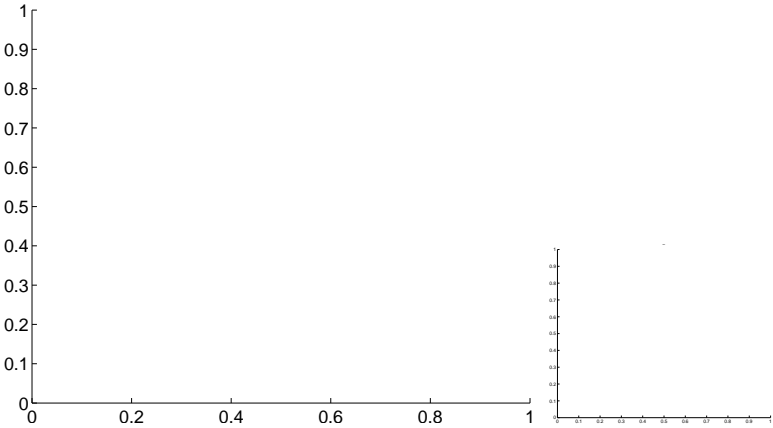
Q11 no OOT image



Q12 no difference image

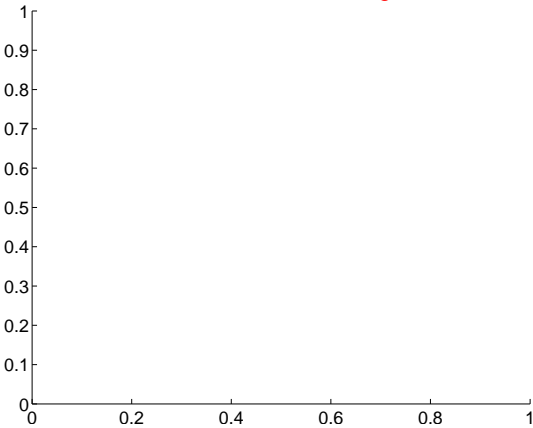


Q12 no OOT image

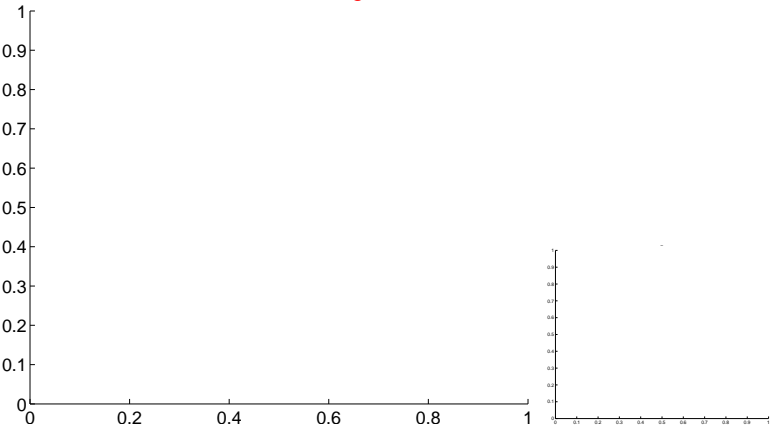


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

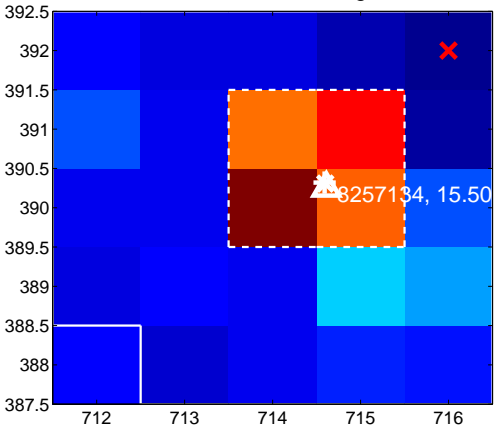
Q13 no difference image



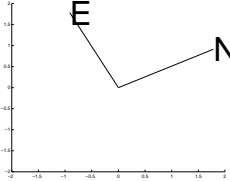
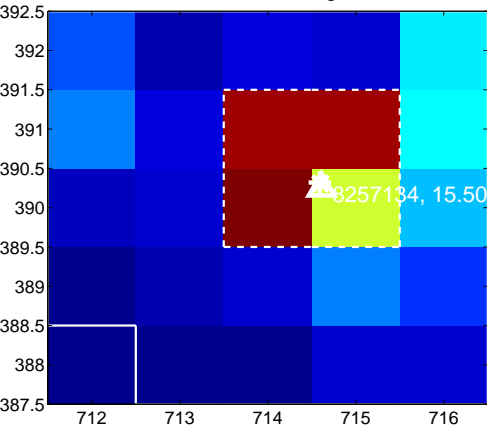
Q13 no OOT image



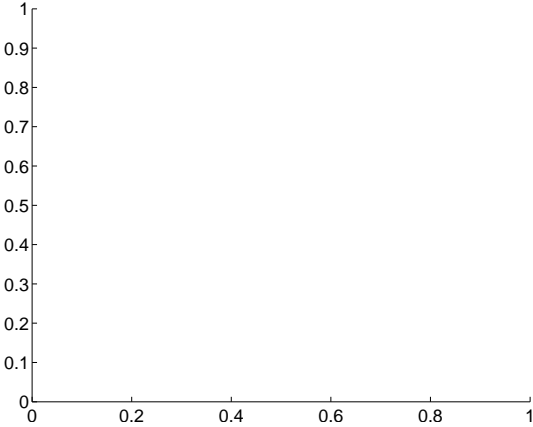
Q14 difference image



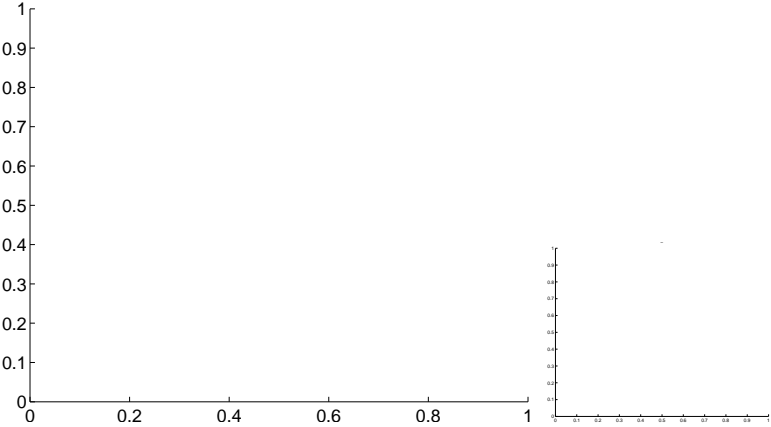
Q14 OOT image



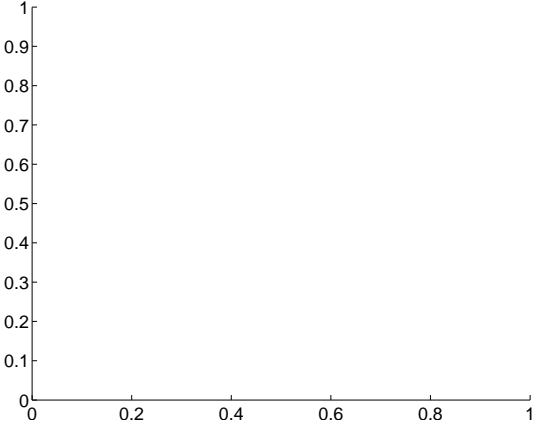
Q15 no difference image



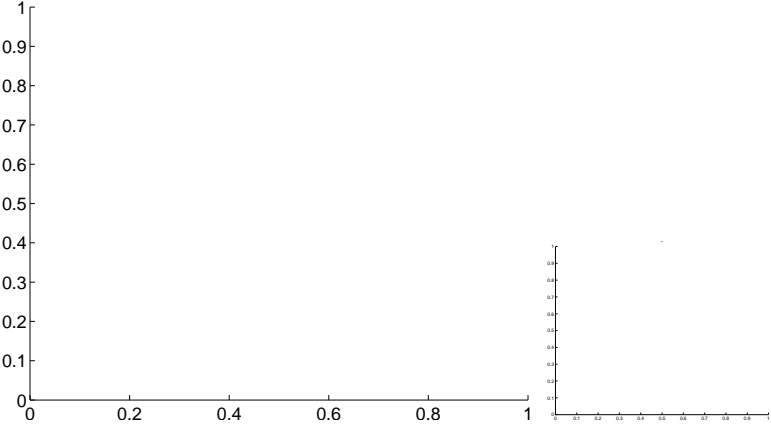
Q15 no OOT image



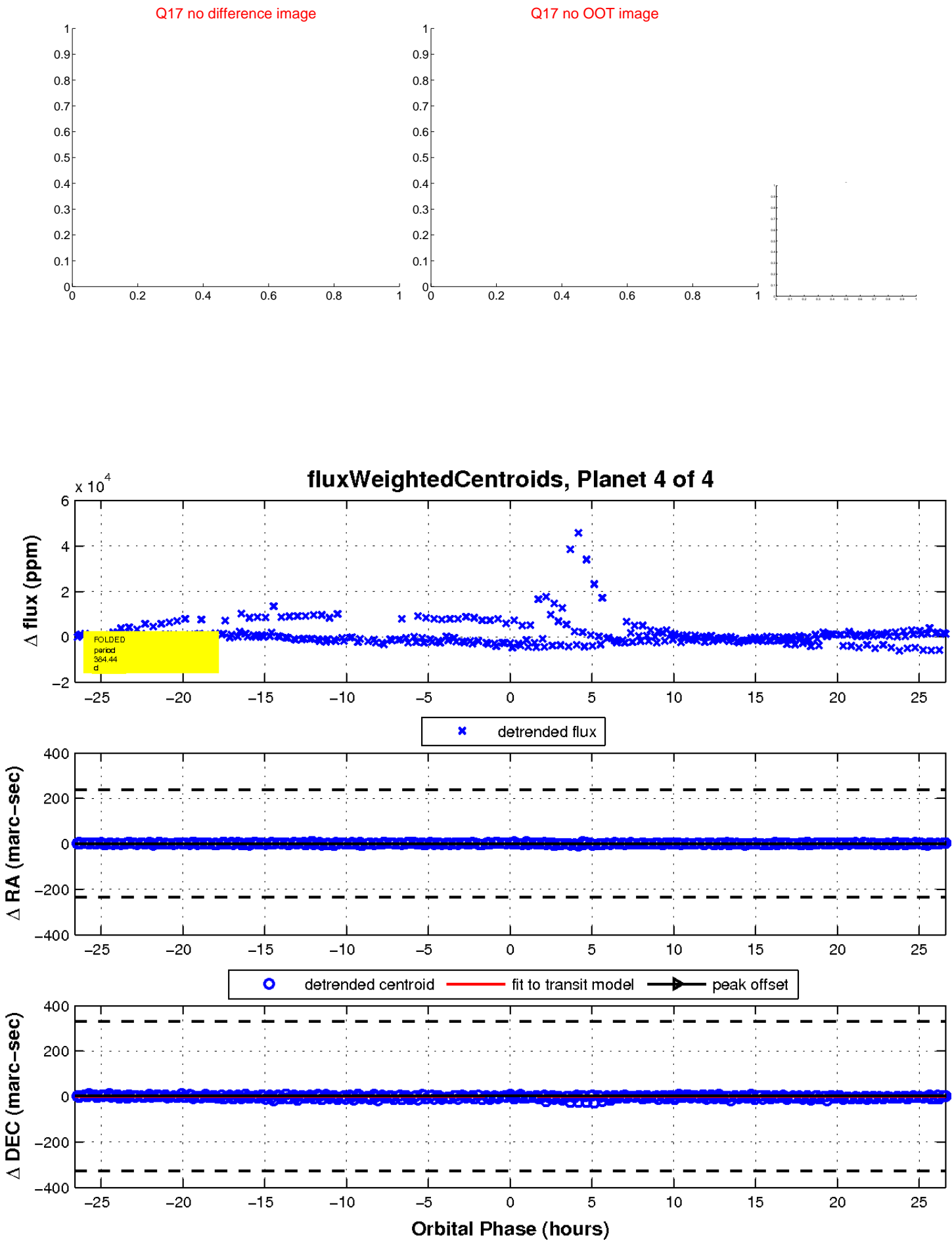
Q16 no difference image



Q16 no OOT image



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





UKIRT Image

Declination

