

# KIC 005597644

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005597644-01	OBS	No	1.622889	131.642472	44.5	11.975	10.2	12.4	0.67	4608	0.49	329.39
005597644-02	OBS	No	23.410825	149.563980	388.9	2.890	11.7	9.9	0.67	4608	1.69	9.38
005597644-03	OBS	No	38.894409	142.512147	701.9	0.878	12.6	10.1	0.67	4608	1.74	4.77
005597644-04	OBS	No	18.323547	149.547879	606.3	1.485	12.1	12.9	0.67	4608	1.75	13.00
005597644-05	OBS	No	8.641613	137.357345	428.3	2.730	10.9	11.7	0.67	4608	1.62	35.42
005597644-06	OBS	No	12.665253	139.311048	497.8	1.338	11.7	11.8	0.67	4608	1.47	21.28
005597644-07	OBS	No	22.061501	137.726267	457.6	0.945	9.4	10.2	0.67	4608	1.40	10.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005597644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
005597644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005597644-03	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_POS_ALT—CENT_FEW_MEAS
005597644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
005597644-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
005597644-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005597644-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—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.

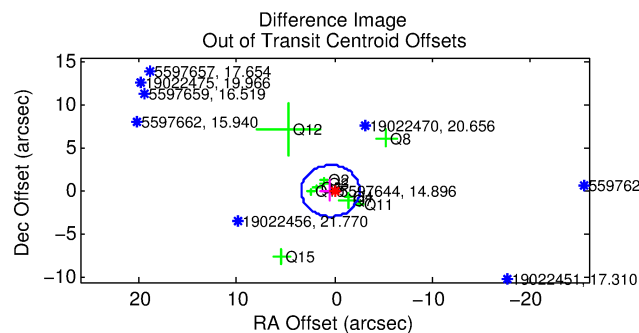
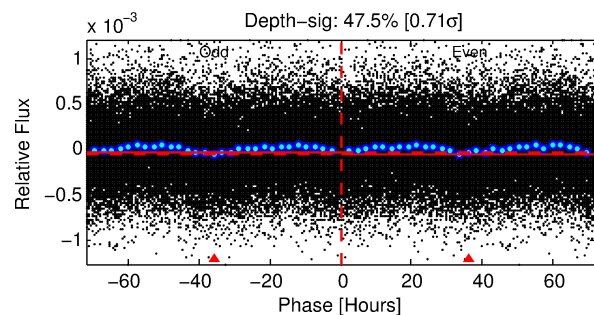
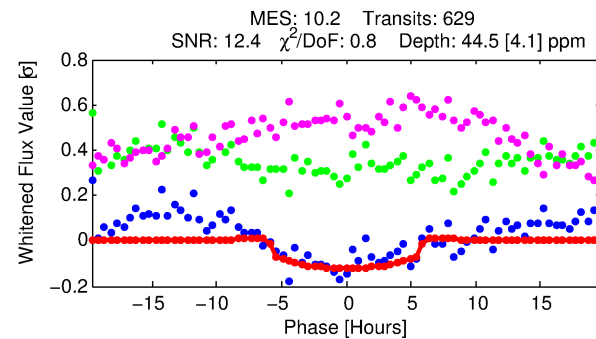
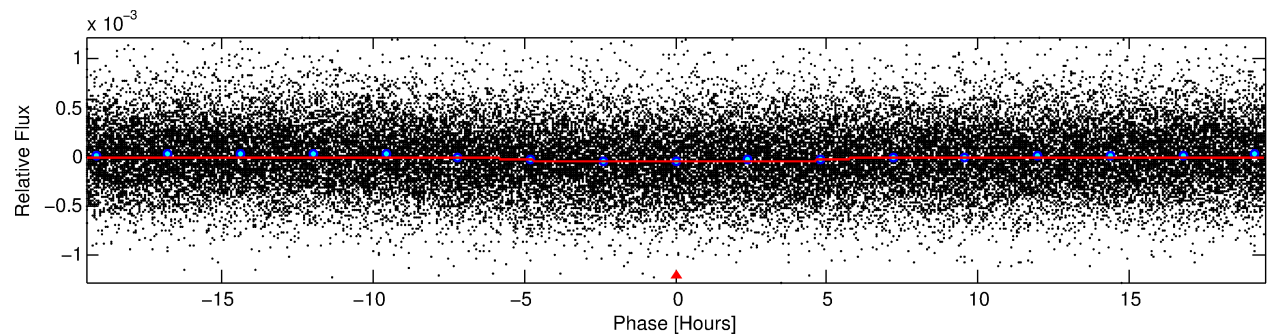
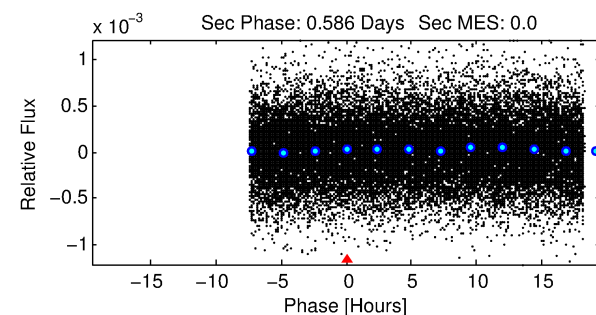
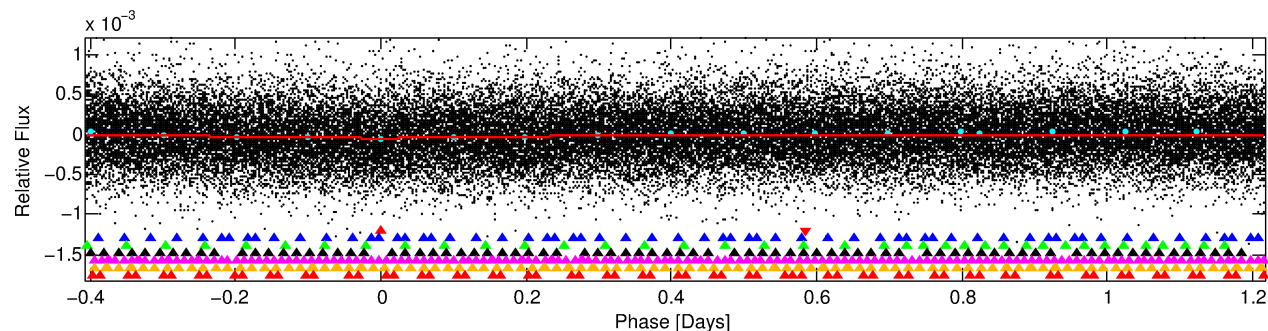
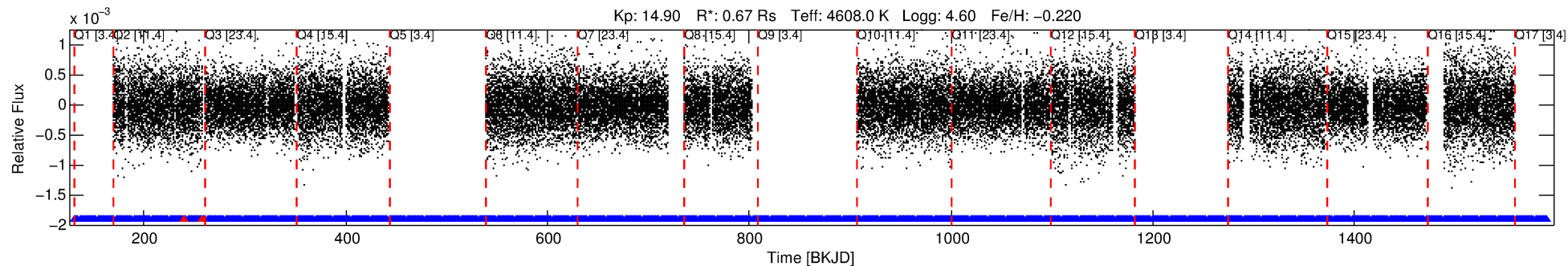
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005597644-01

No Significant Match Found

# DV One-Page Summary

KIC: 5597644 Candidate: 1 of 7 Period: 1.623 d



## DV Fit Results:

Period = 1.62289 [0.00003] d  
Epoch = 131.6425 [0.0096] BKJD  
Rp/R\* = 0.0067 [0.0029]  
a/R\* = 1.10 [0.28]  
b = 0.77 [0.80]  
Seff = 329.39 [59.06]  
Teff = 1086 [49] K  
Rp = 0.49 [0.22] Re  
a = 0.0235 [0.0017] AU  
Ag = N/A  
Teffp = N/A

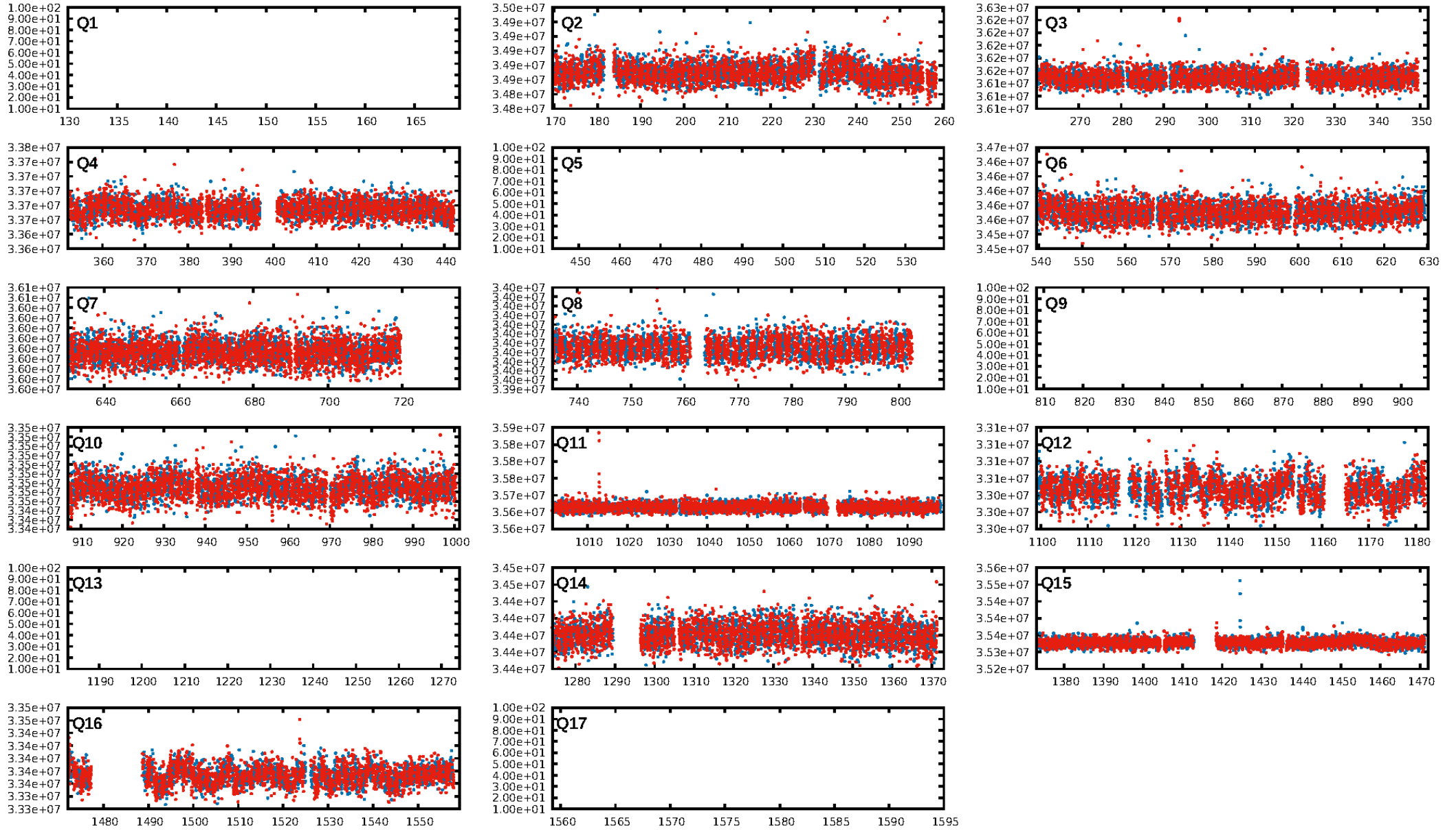
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [13.72 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.62e-61  
RollingBand-fgt: 1.00 [627/629]  
GhostDiagnostic-chr: 4.36  
Centroid-sig: 63.9%  
Centroid-so: 2.156 arcsec [1.75 $\sigma$ ]  
OotOffset-rm: 0.424 arcsec [0.43 $\sigma$ ]  
KicOffset-rm: 1.465 arcsec [1.60 $\sigma$ ]  
OotOffset-st: 3/4/3/0 [10]  
KicOffset-st: 3/4/3/0 [10]  
DiffImageQuality-fgm: 0.60 [6/10]  
DiffImageOverlap-fno: 1.00 [12/12]

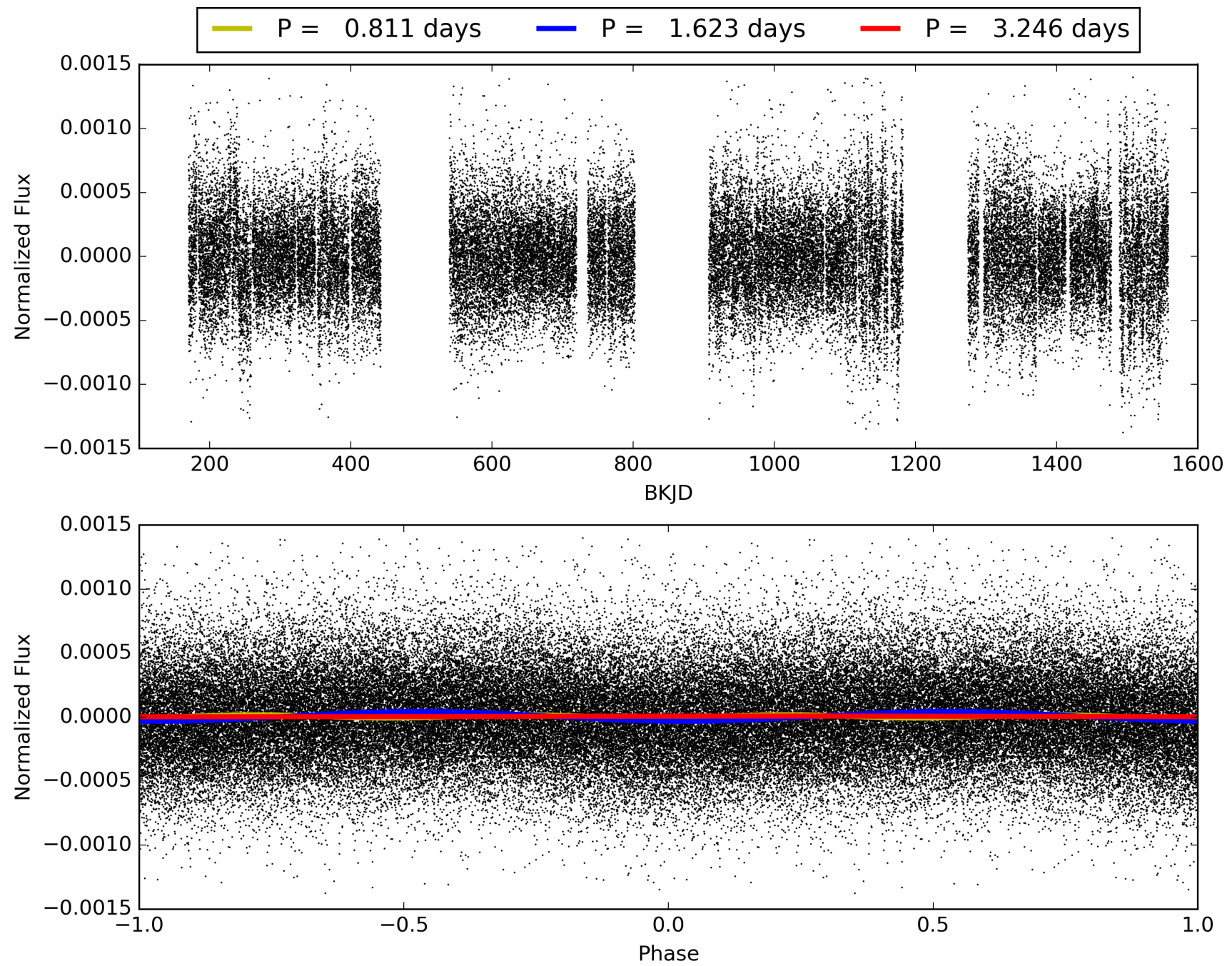
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:57:04 Z

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

# TCE 005597644-01, PDC Light Curves



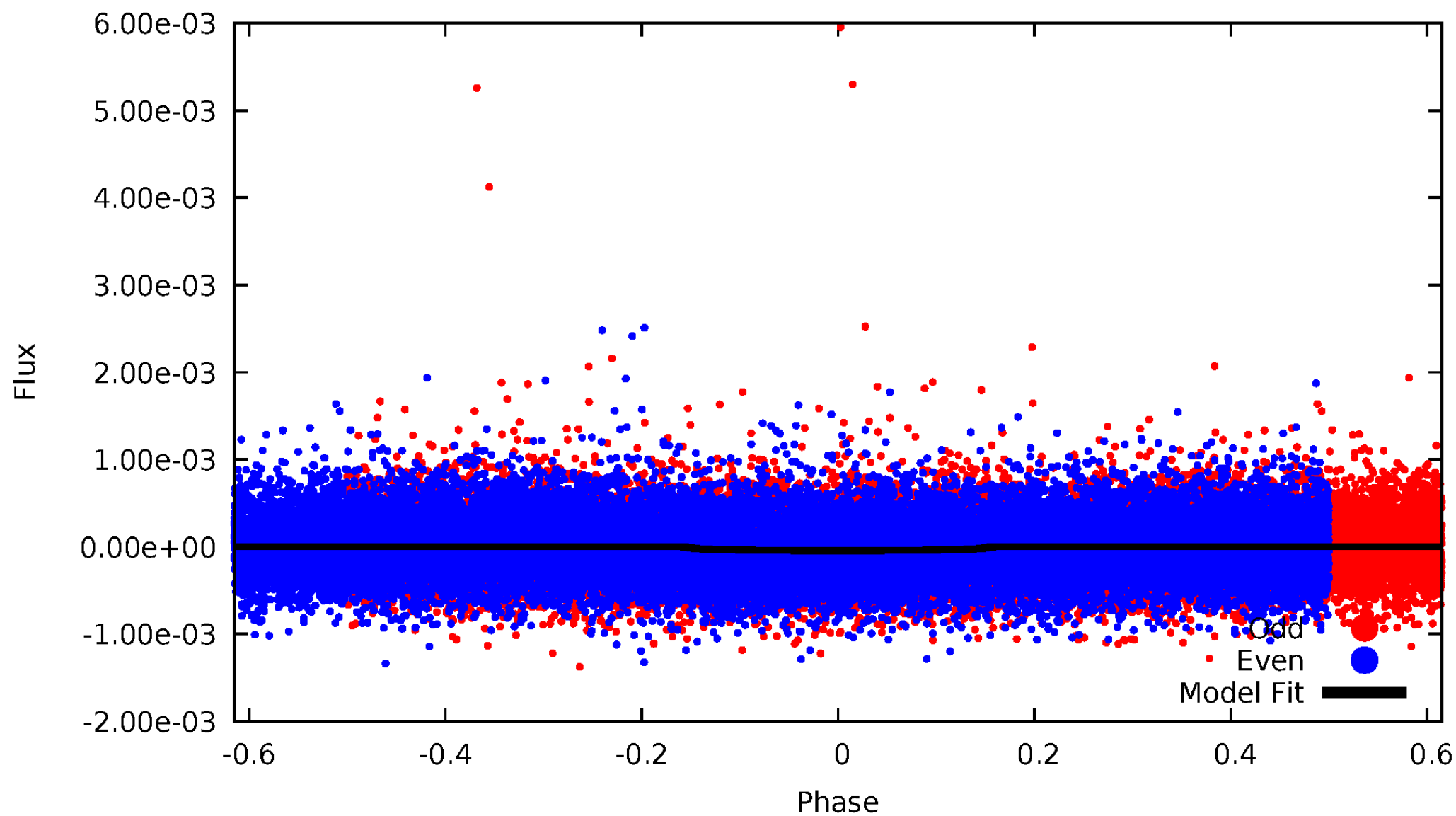
TCE 005597644-01





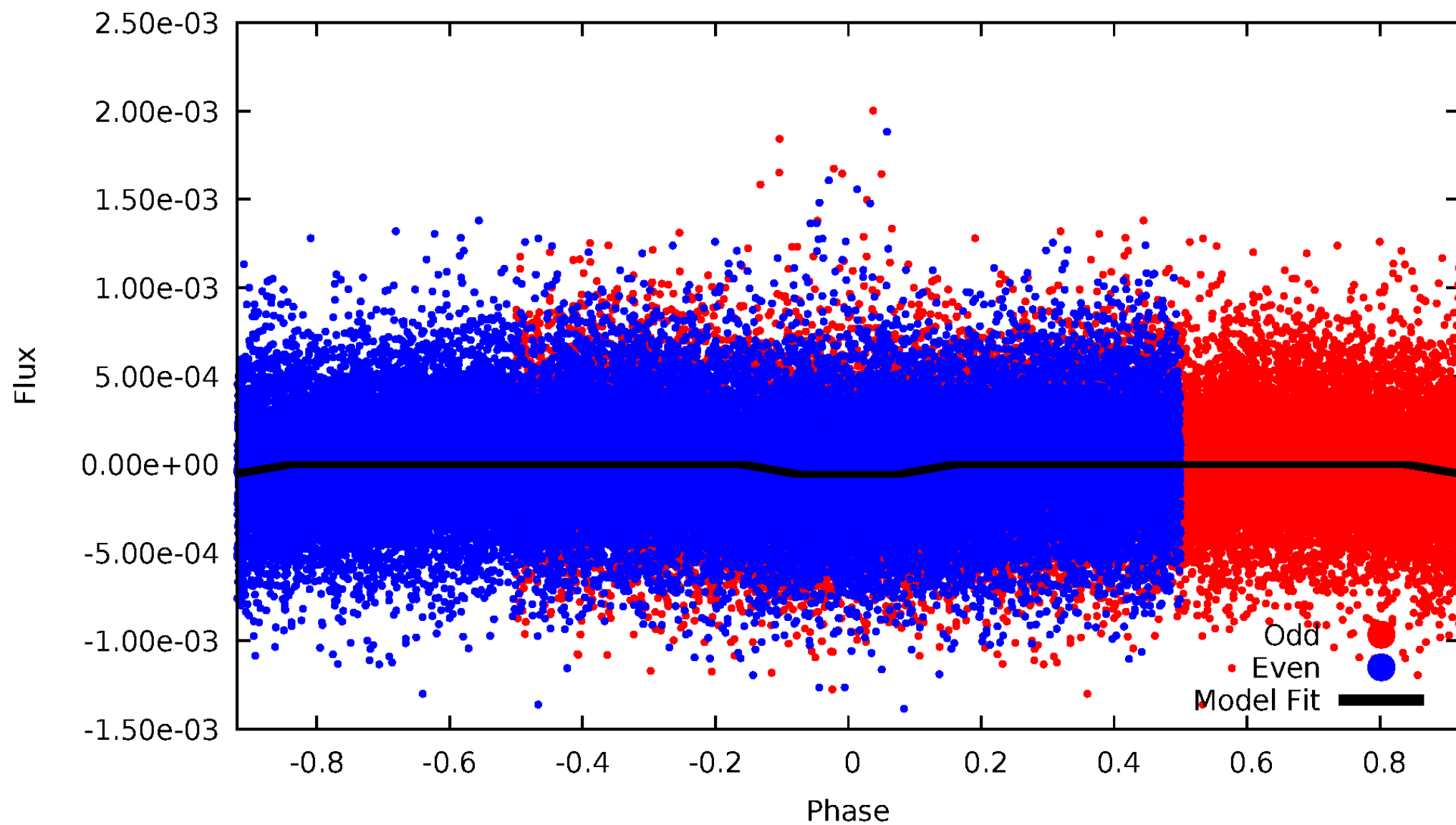
# DV Odd/Even

TCE 005597644-01

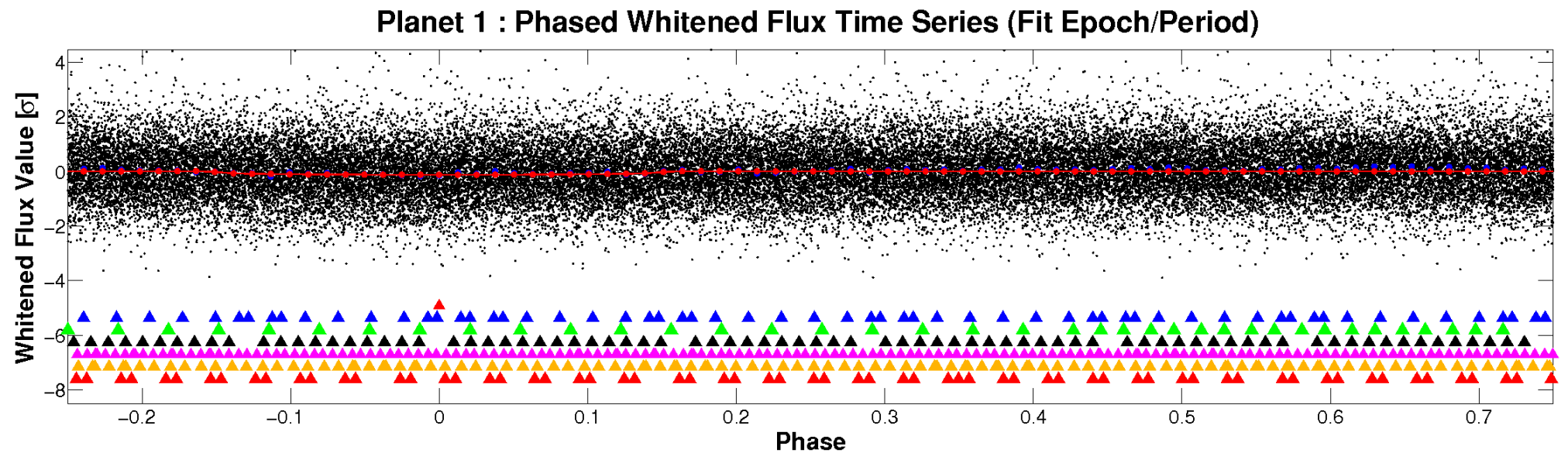
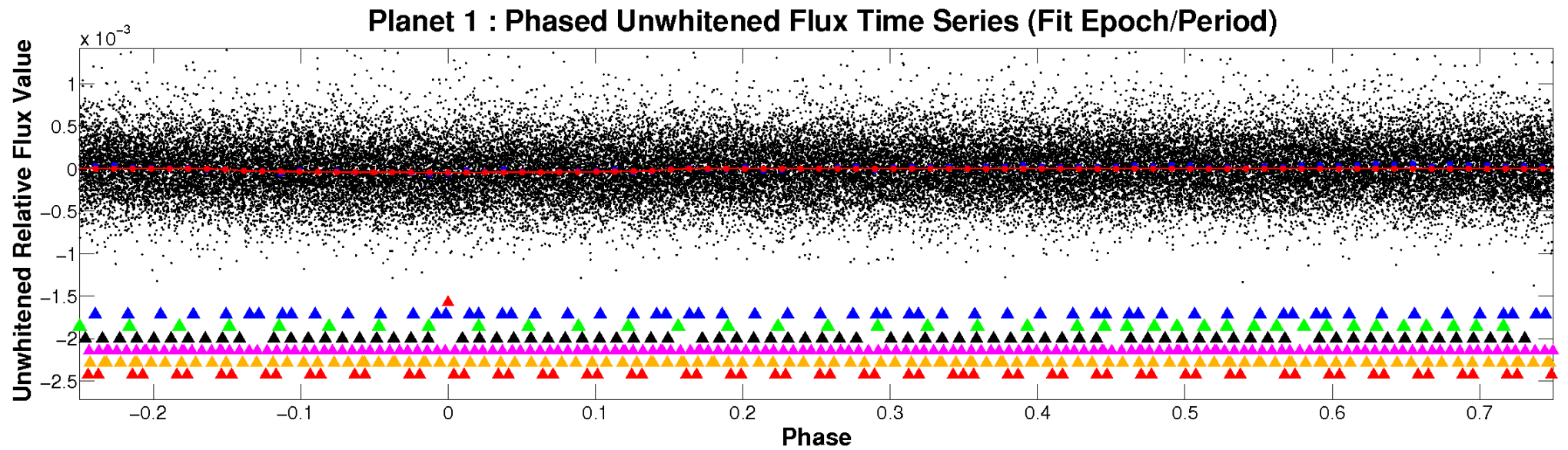


# ALT Odd/Even

TCE 005597644-01

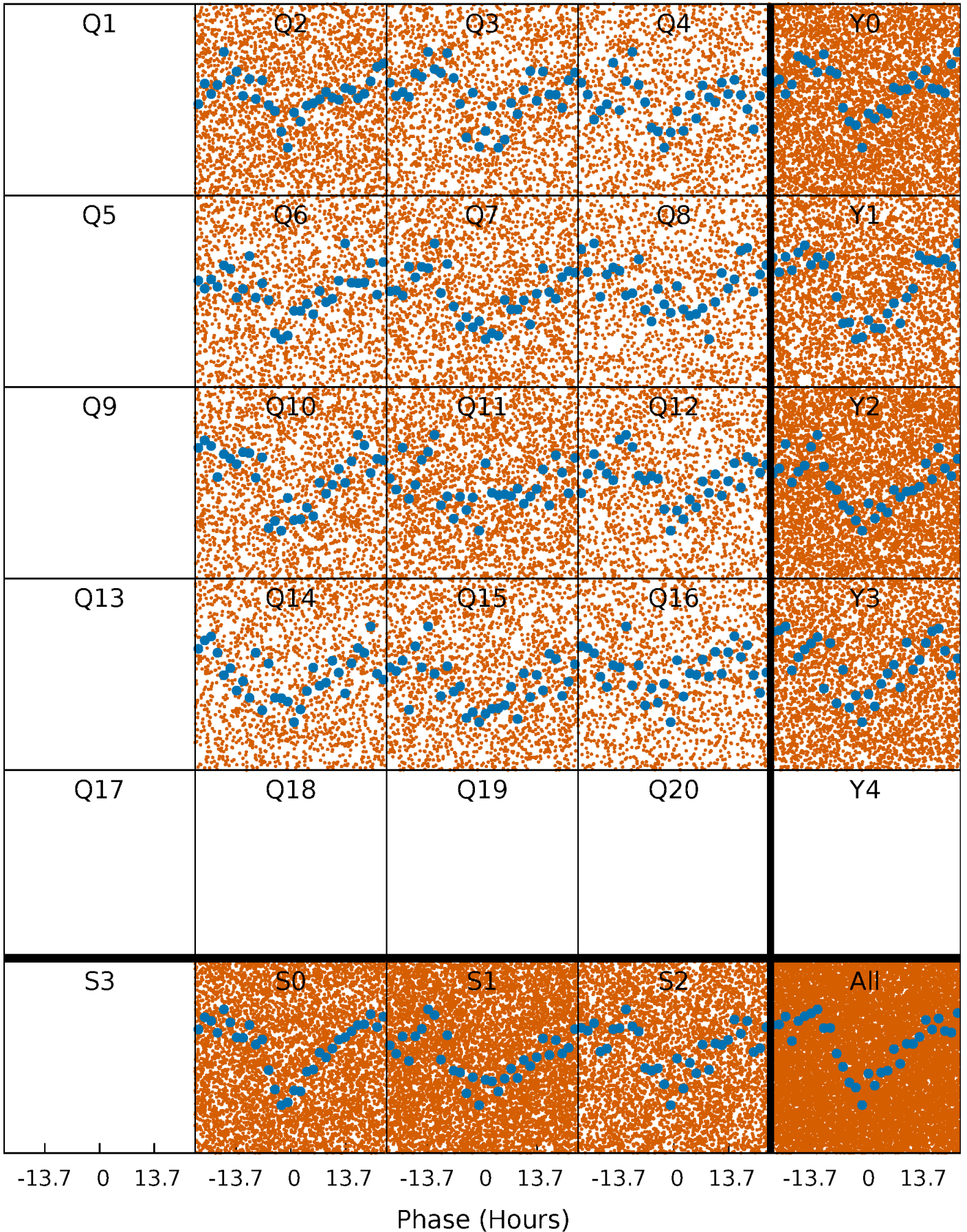


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

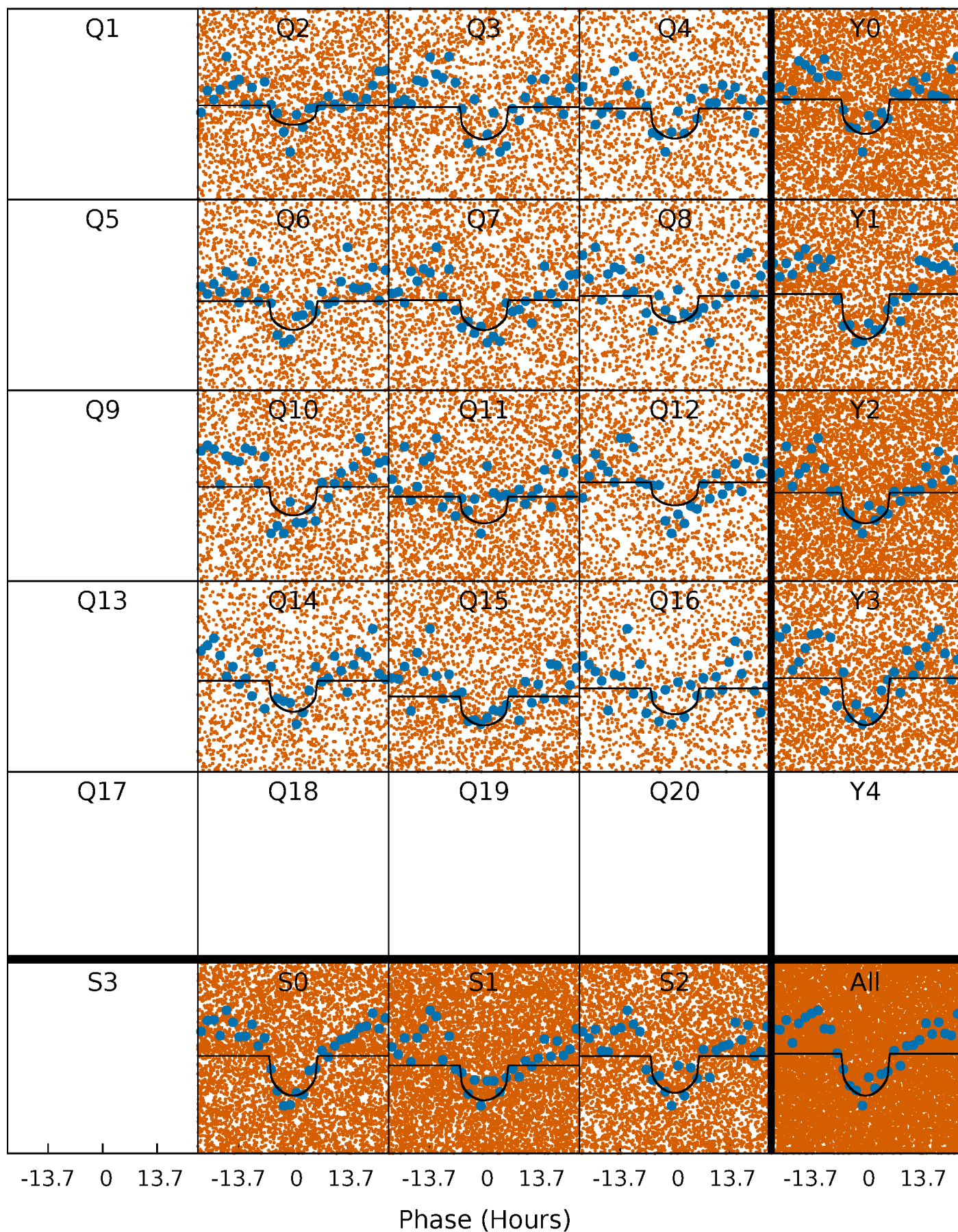
TCE 005597644-01 P= 1.622889 Days  $T_0=131.642472$  (BKJD)





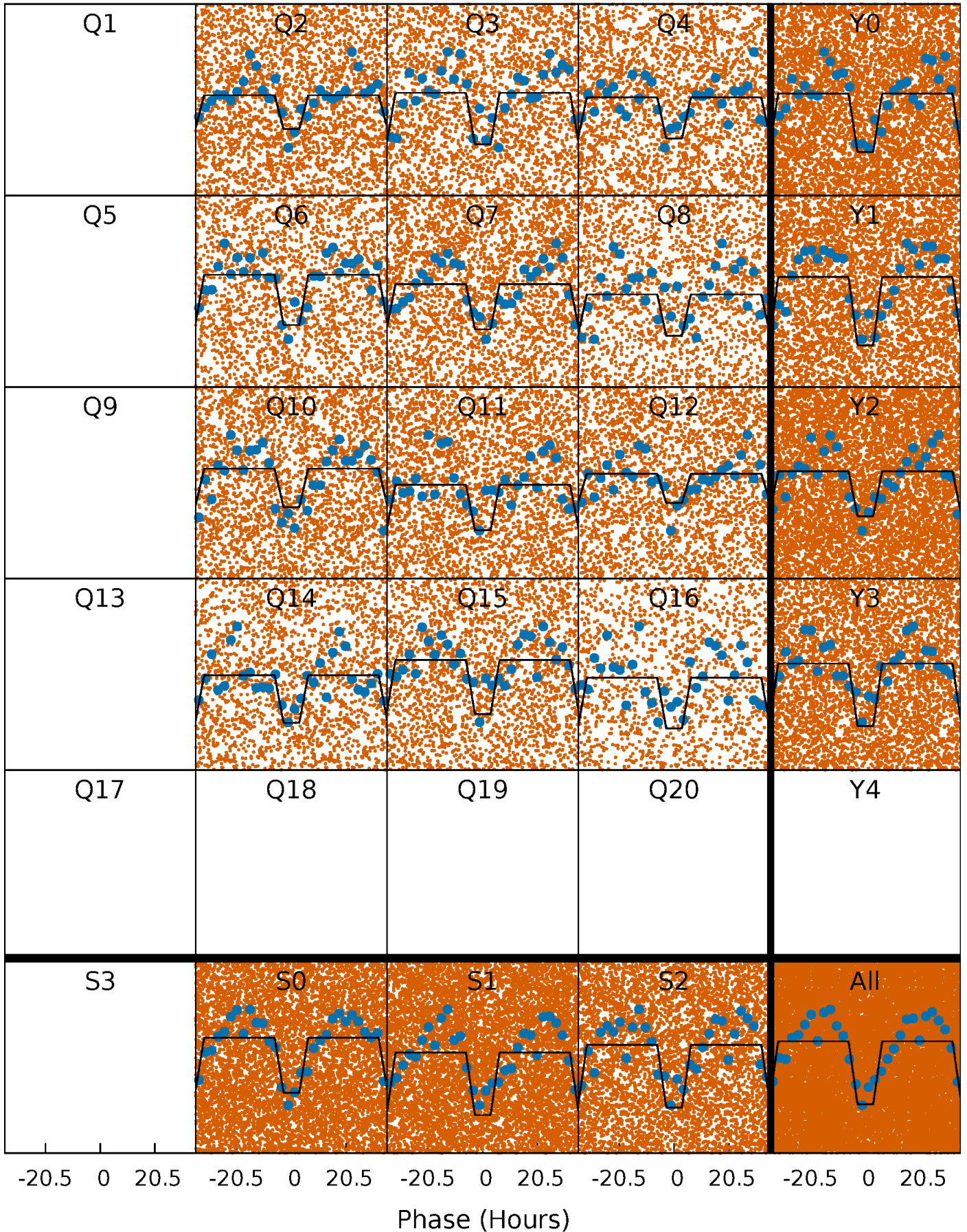
# DV Quarter-Phased Transit Curves

TCE 005597644-01 P= 1.622889 Days  $T_0=131.642472$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005597644-01 P= 1.622971 Days  $T_0=131.602679$  (BKJD)

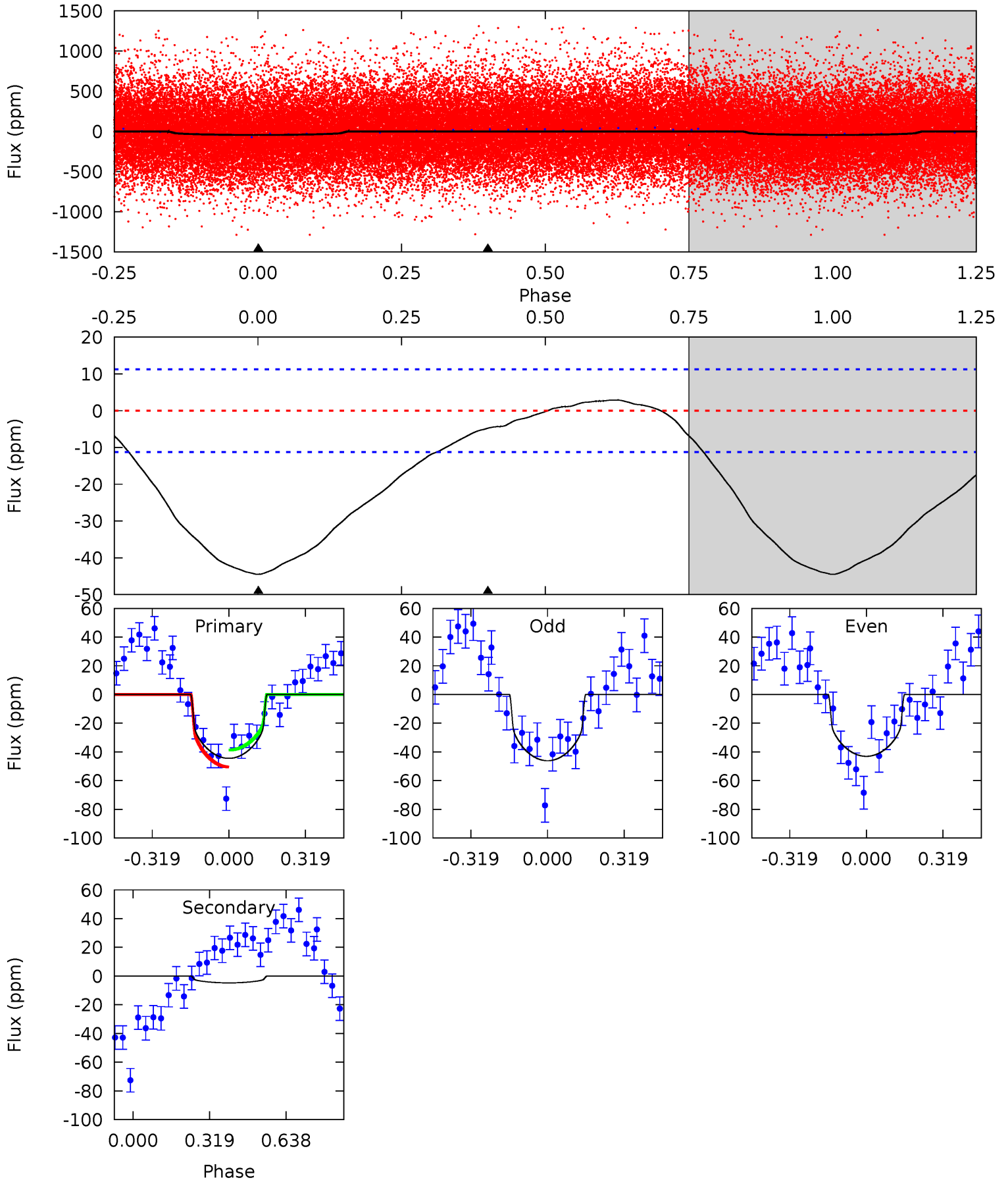




# DV Model-Shift Uniqueness Test

005597644-01, P = 1.622889 Days, E = 131.642472 Days

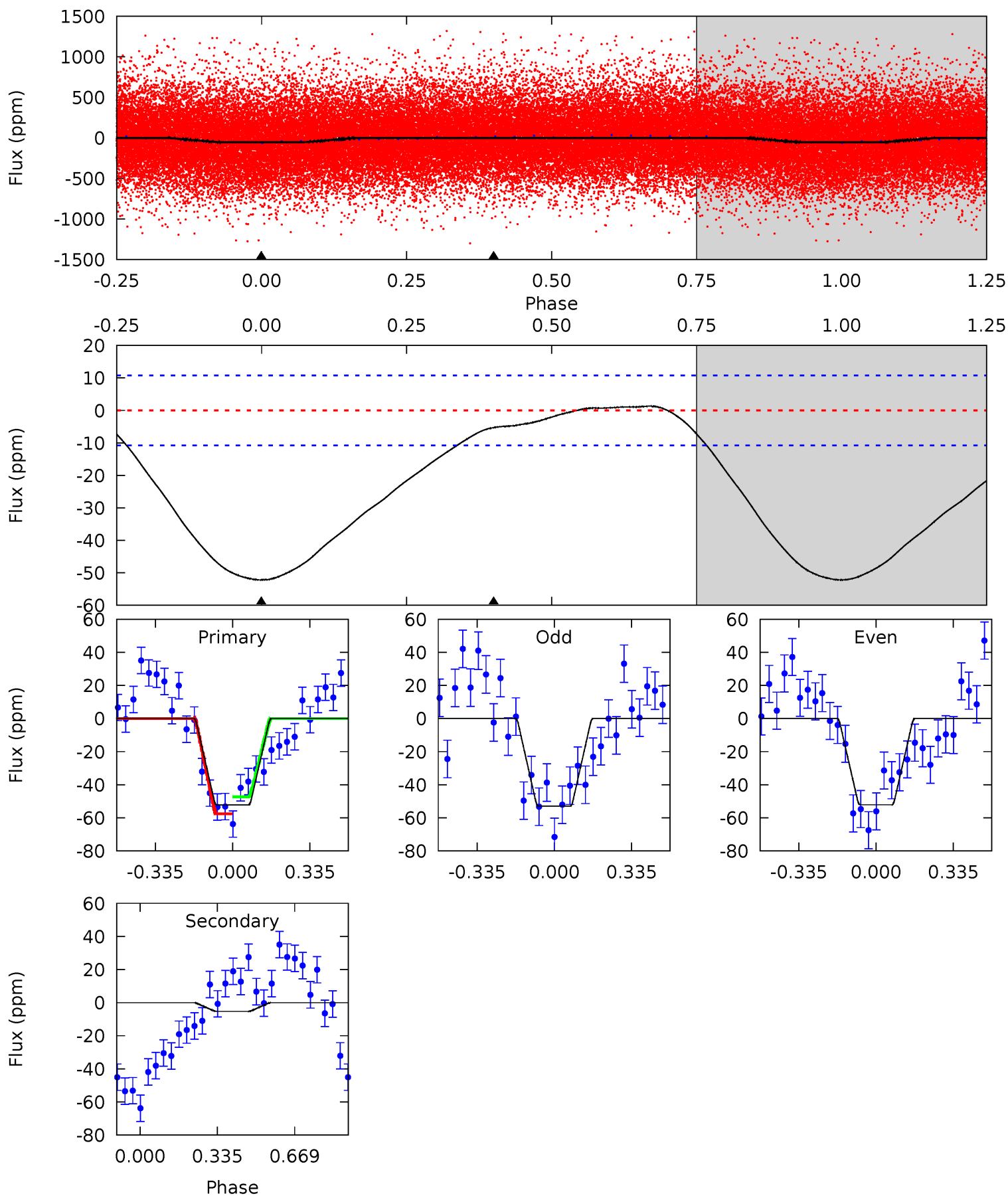
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	1.83	0	0	4.32	1.00	1.03	17.0	17.0	1.83	1.83	0.59	0.95	0.06	2.27



# Alt Model-Shift Uniqueness Test

005597644-01, P = 1.622971 Days, E = 131.602679 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
20.9	2.12	0	0	4.30	0.96	1.03	20.9	20.9	2.12	2.12	0.17	0.97	0.02	2.03





### Stellar Parameters For KIC 005597644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4608^{+165}_{-165}$	$4.602^{+0.059}_{-0.027}$	$-0.220^{+0.300}_{-0.300}$	$0.671^{+0.054}_{-0.059}$	$0.656^{+0.081}_{-0.048}$	$3.064^{+0.754}_{-0.369}$
	+4%/-4%	+1%/-1%	+136%/-136%	+8%/-9%	+12%/-7%	+25%/-12%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005597644-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5 \pm 3$	$0.48^{+0.20}_{-0.20}$	$1508^{+59}_{-55}$	$3113^{+685}_{-484}$	$5.910^{+15.139}_{-3.900}$
Alt.	$-5 \pm 3$	$0.55^{+0.21}_{-0.21}$	$1506^{+67}_{-62}$	$3027^{+608}_{-369}$	$4.986^{+9.638}_{-2.896}$

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

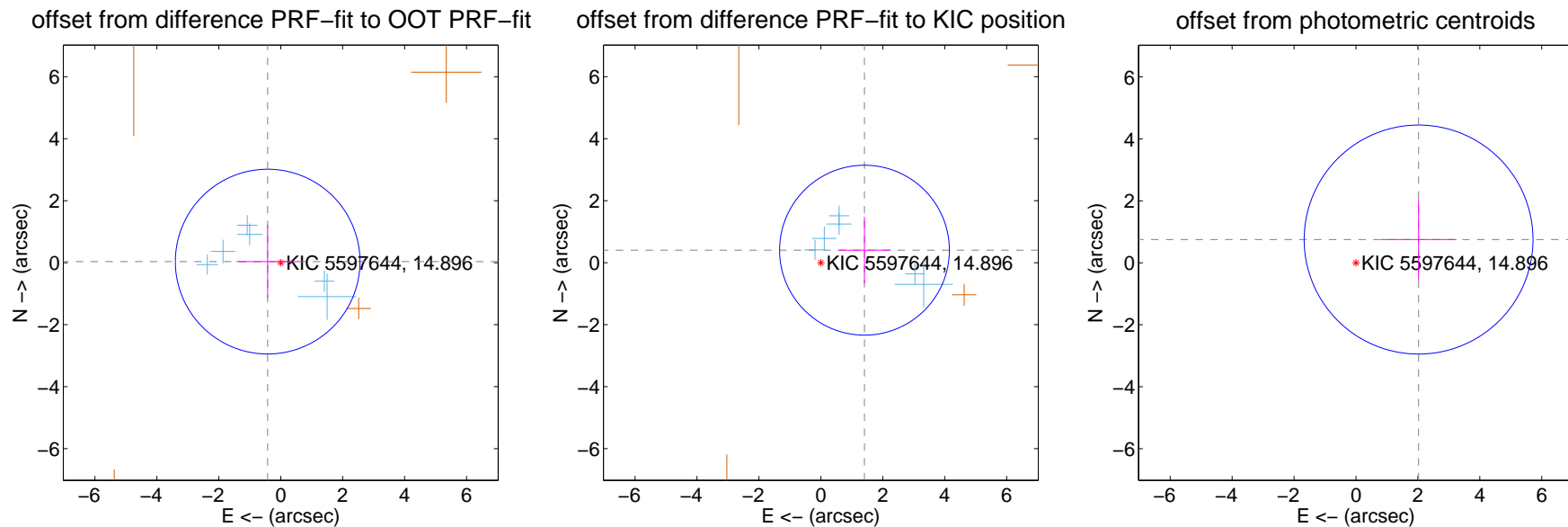
## DV Centroid Data

Supplemental centroid analysis for 005597644-01. Kepler magnitude: 14.90. Transit SNR 12.41

There are 6 quarters with good PRF difference image offsets

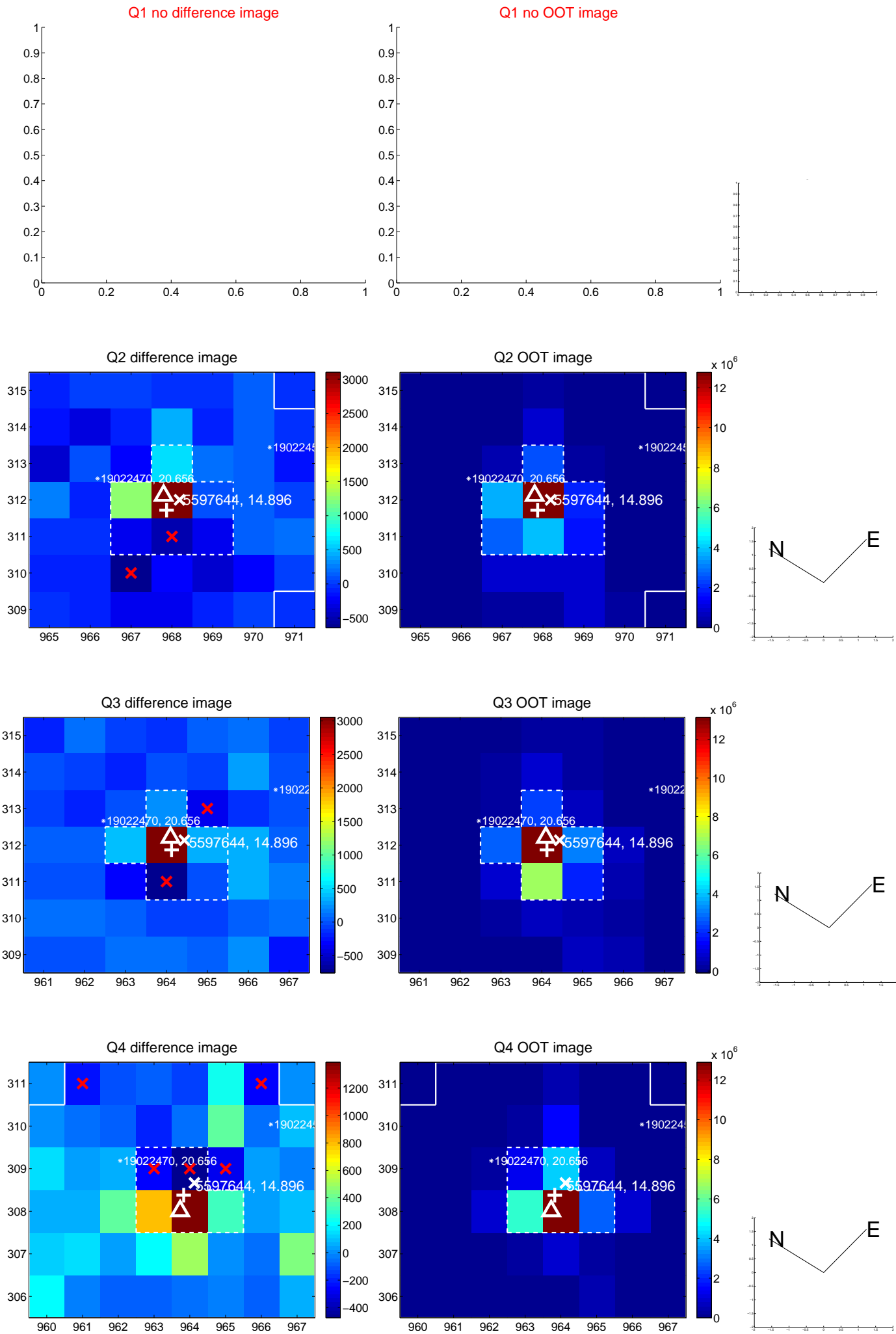
The OOT PRF centroid is offset from the target star catalog position by about 2.39 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.424 \pm 0.993$	0.43	$0.422 \pm 1.004$	$0.035 \pm 1.181$
PRF-fit source offset from KIC position	$1.465 \pm 0.914$	1.60	$-1.408 \pm 0.851$	$0.404 \pm 1.080$
photometric centroid source offset	$2.16 \pm 1.23$	1.75	$-2.02 \pm 1.22$	$0.75 \pm 1.32$

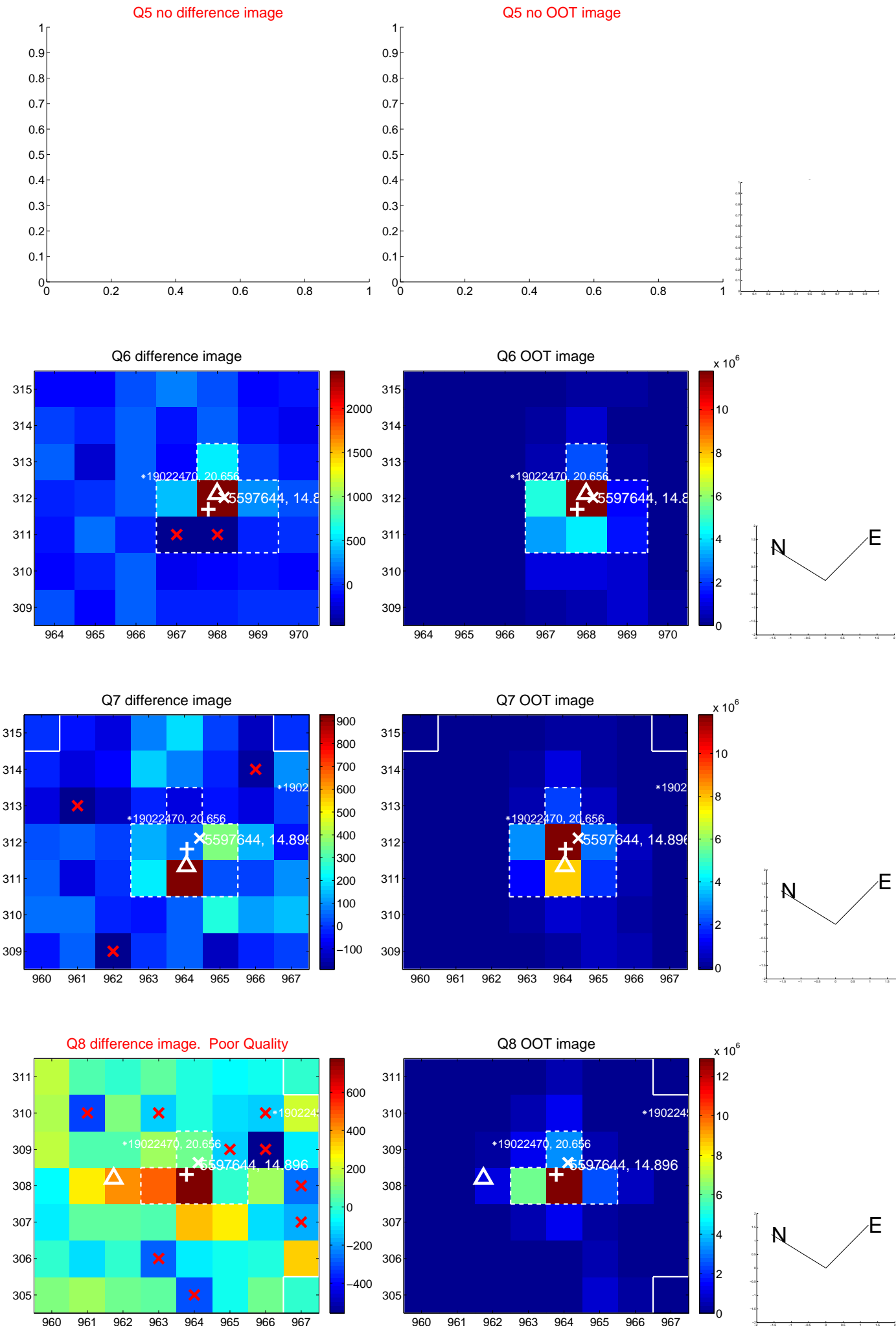


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

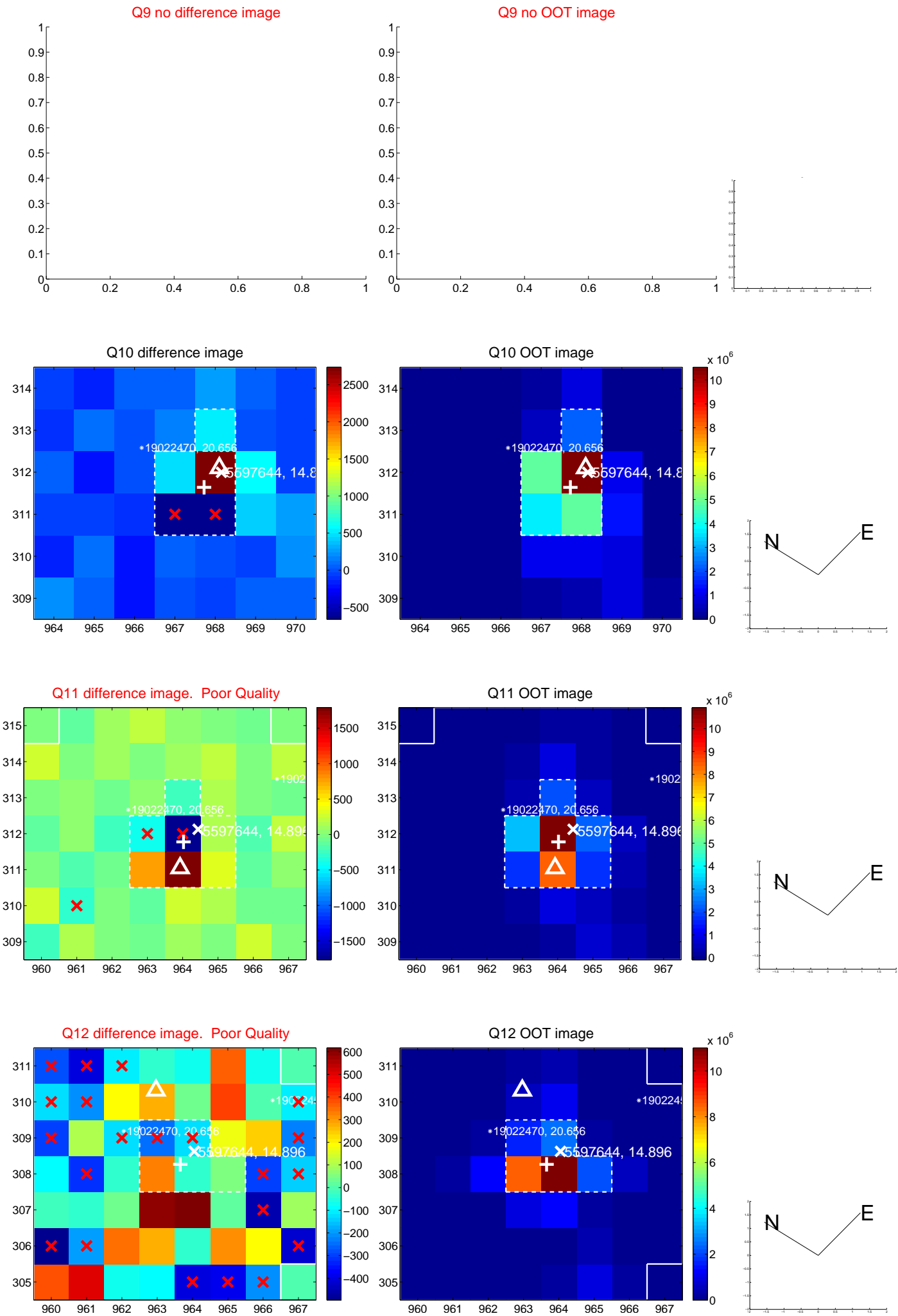


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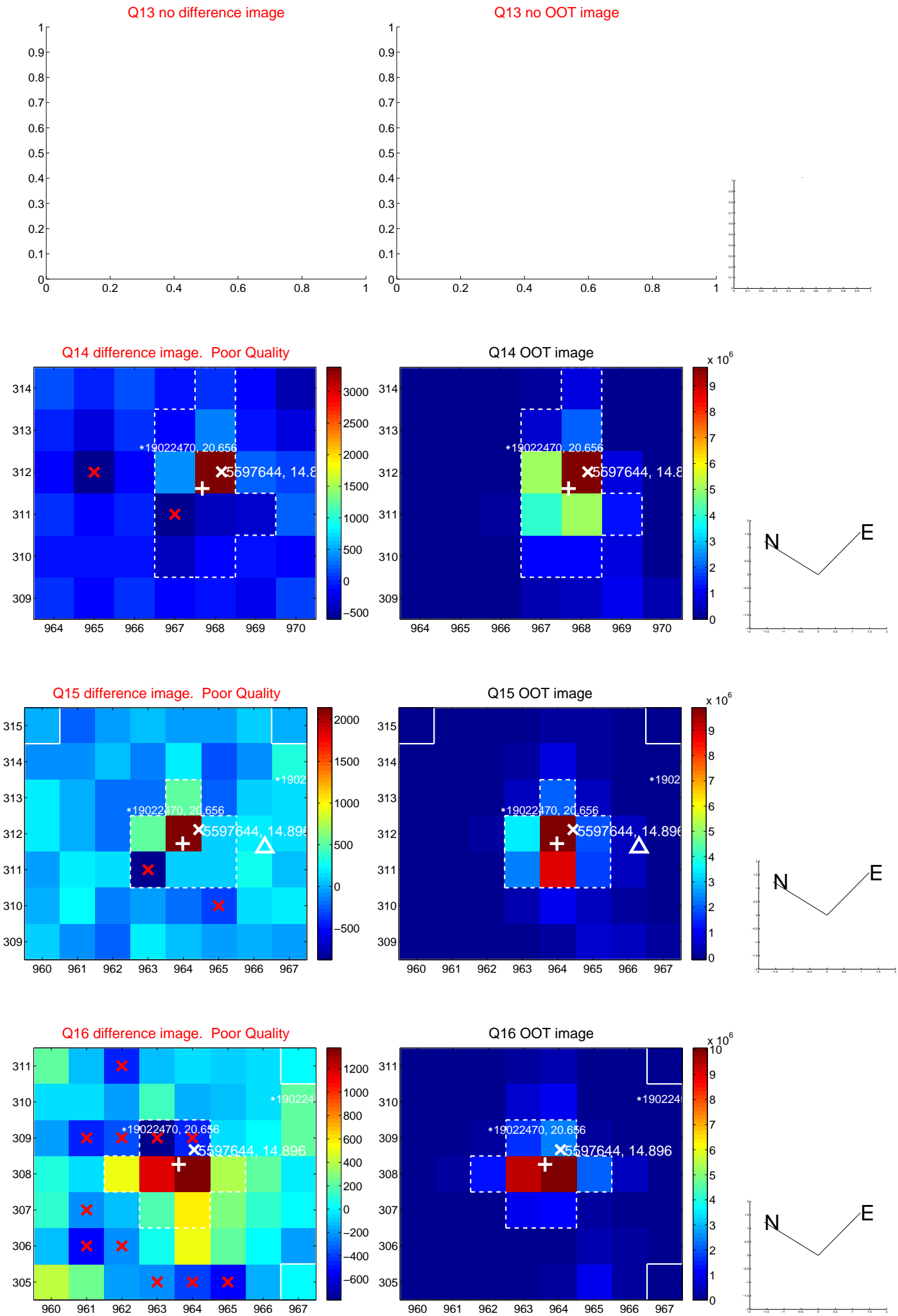




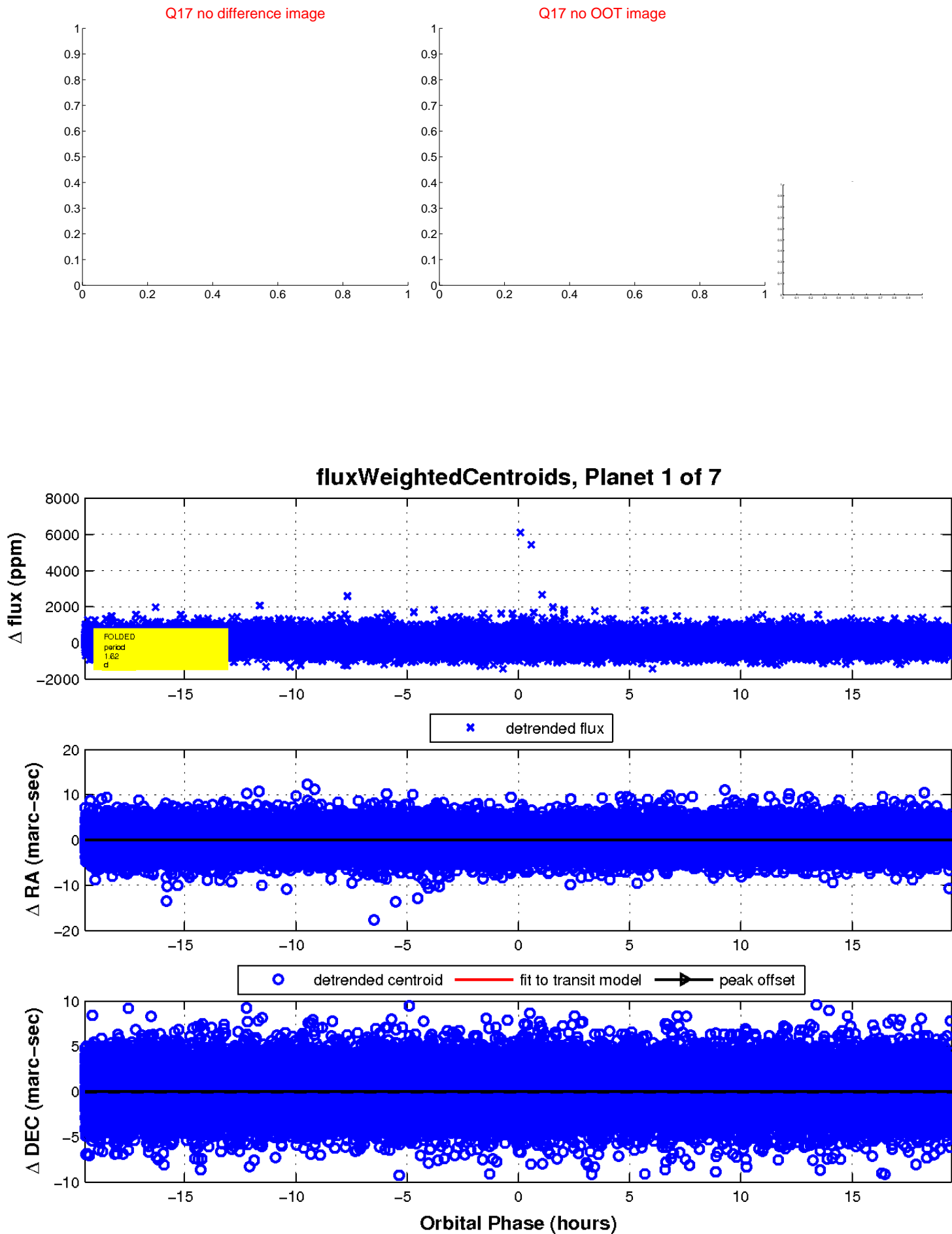
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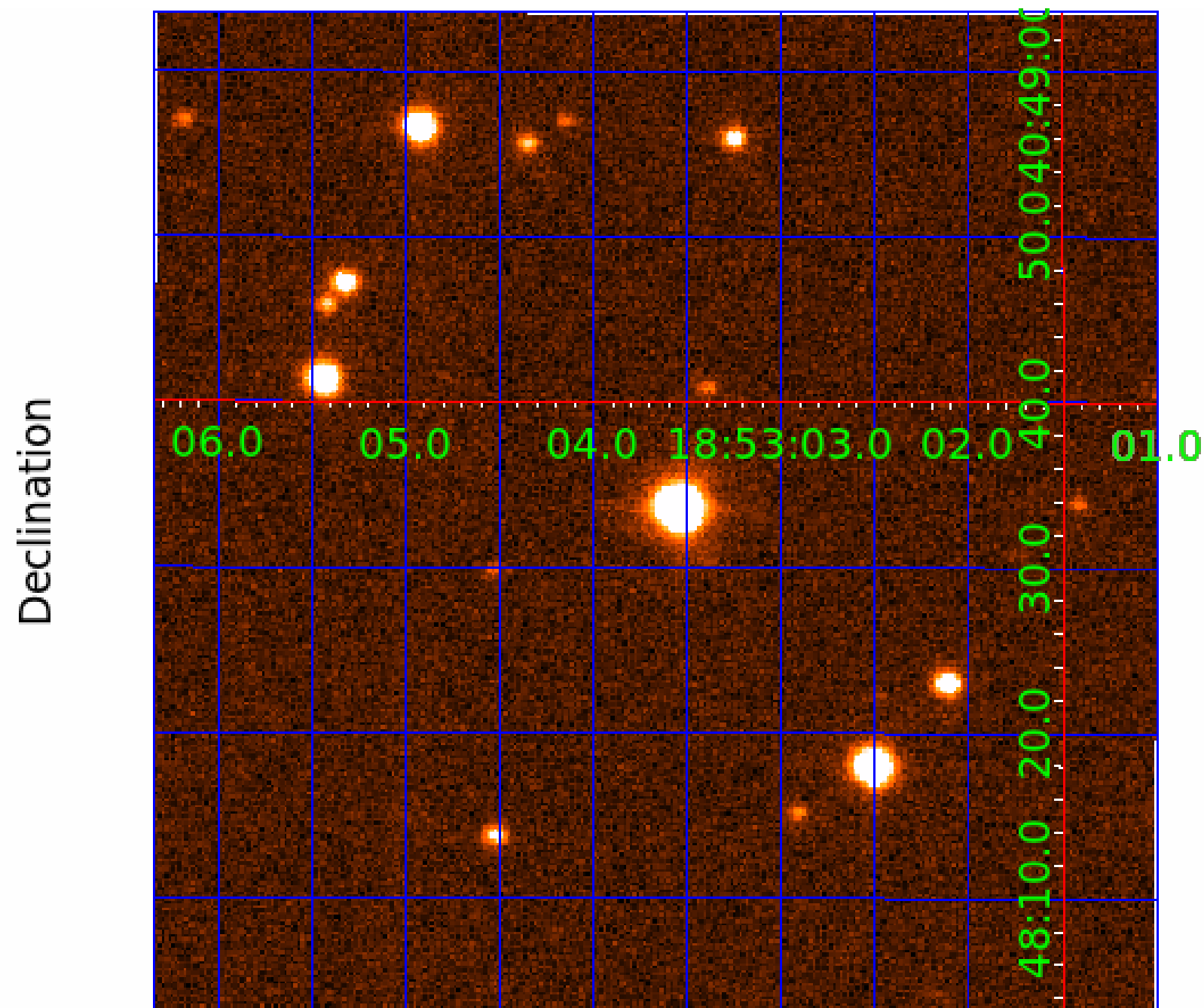
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image





# KIC 005597644

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005597644-01	OBS	No	1.622889	131.642472	44.5	11.975	10.2	12.4	0.67	4608	0.49	329.39
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005597644-06	OBS	No	12.665253	139.311048	497.8	1.338	11.7	11.8	0.67	4608	1.47	21.28
005597644-07	OBS	No	22.061501	137.726267	457.6	0.945	9.4	10.2	0.67	4608	1.40	10.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005597644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
005597644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005597644-03	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_POS_ALT—CENT_FEW_MEAS
005597644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
005597644-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
005597644-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005597644-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—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.

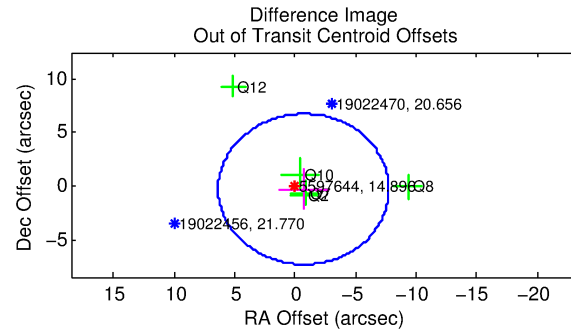
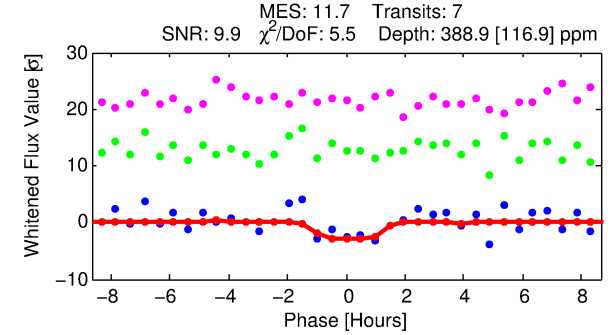
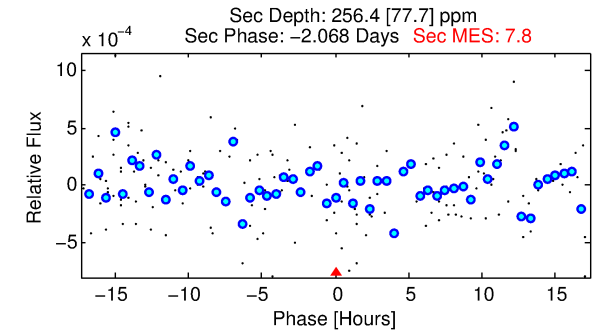
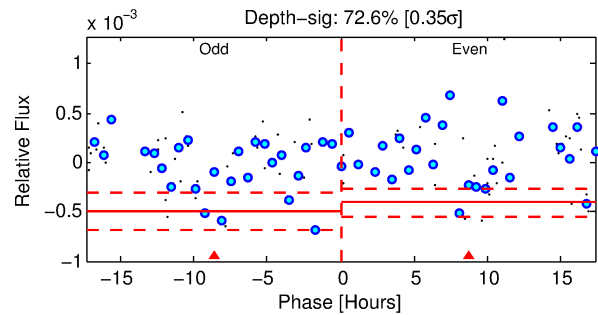
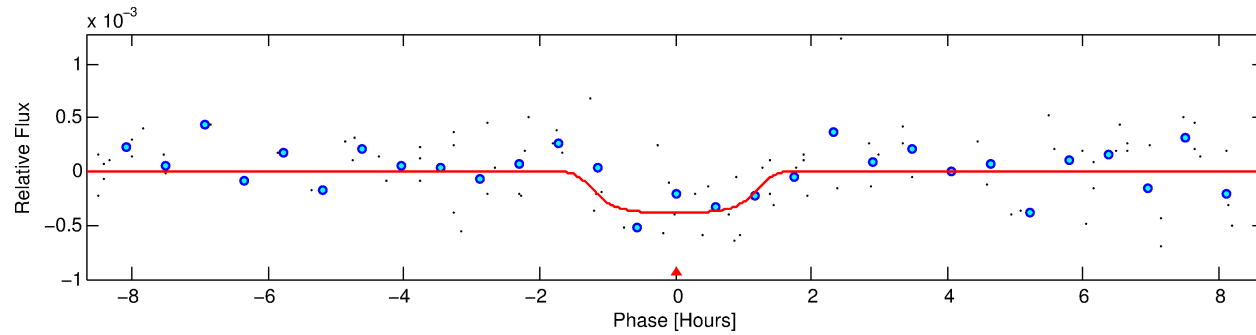
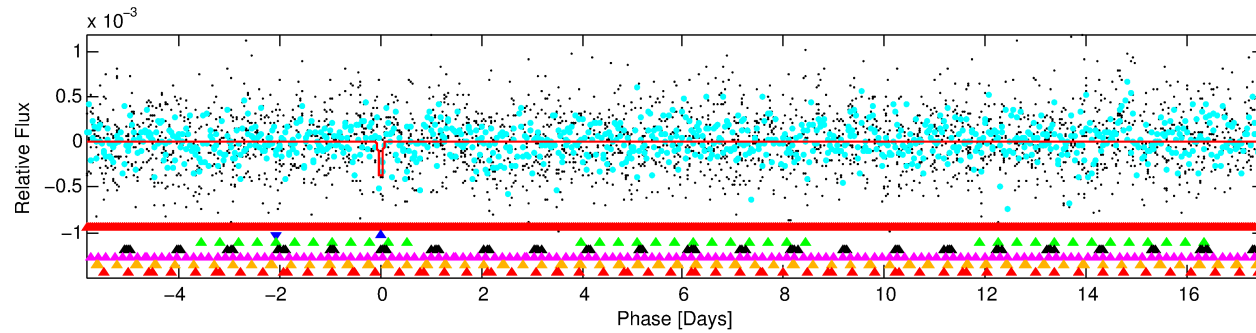
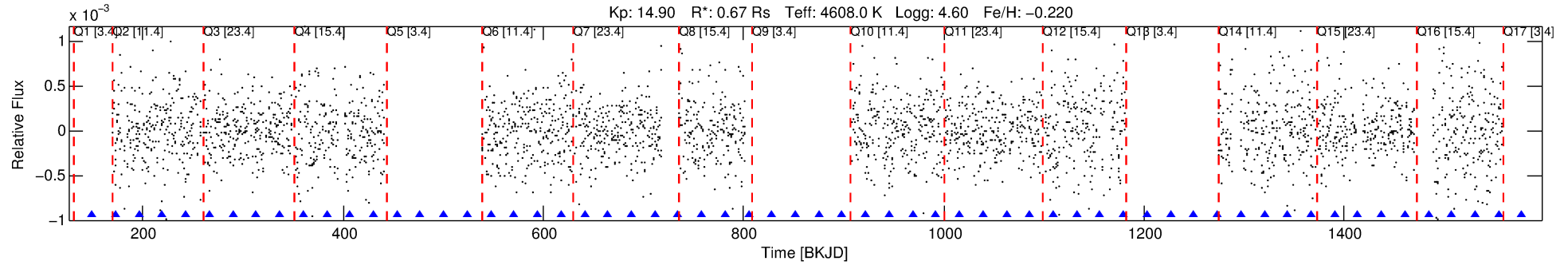
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005597644-02

No Significant Match Found

# DV One-Page Summary

KIC: 5597644 Candidate: 2 of 7 Period: 23.411 d



## DV Fit Results:

Period = 23.41083 [0.00050] d  
Epoch = 149.5640 [0.0163] BKJD  
Rp/R\* = 0.0230 [0.0223]  
a/R\* = 27.07 [95.75]  
b = 0.92 [0.58]  
Seff = 9.38 [1.68]  
Teq = 446 [20] K  
Rp = 1.69 [1.64] Re  
a = 0.1392 [0.0103] AU  
Ag = 961.26 [1884.78] [0.51 $\sigma$ ]  
Teffp = 3842 [1885] K [1.80 $\sigma$ ]

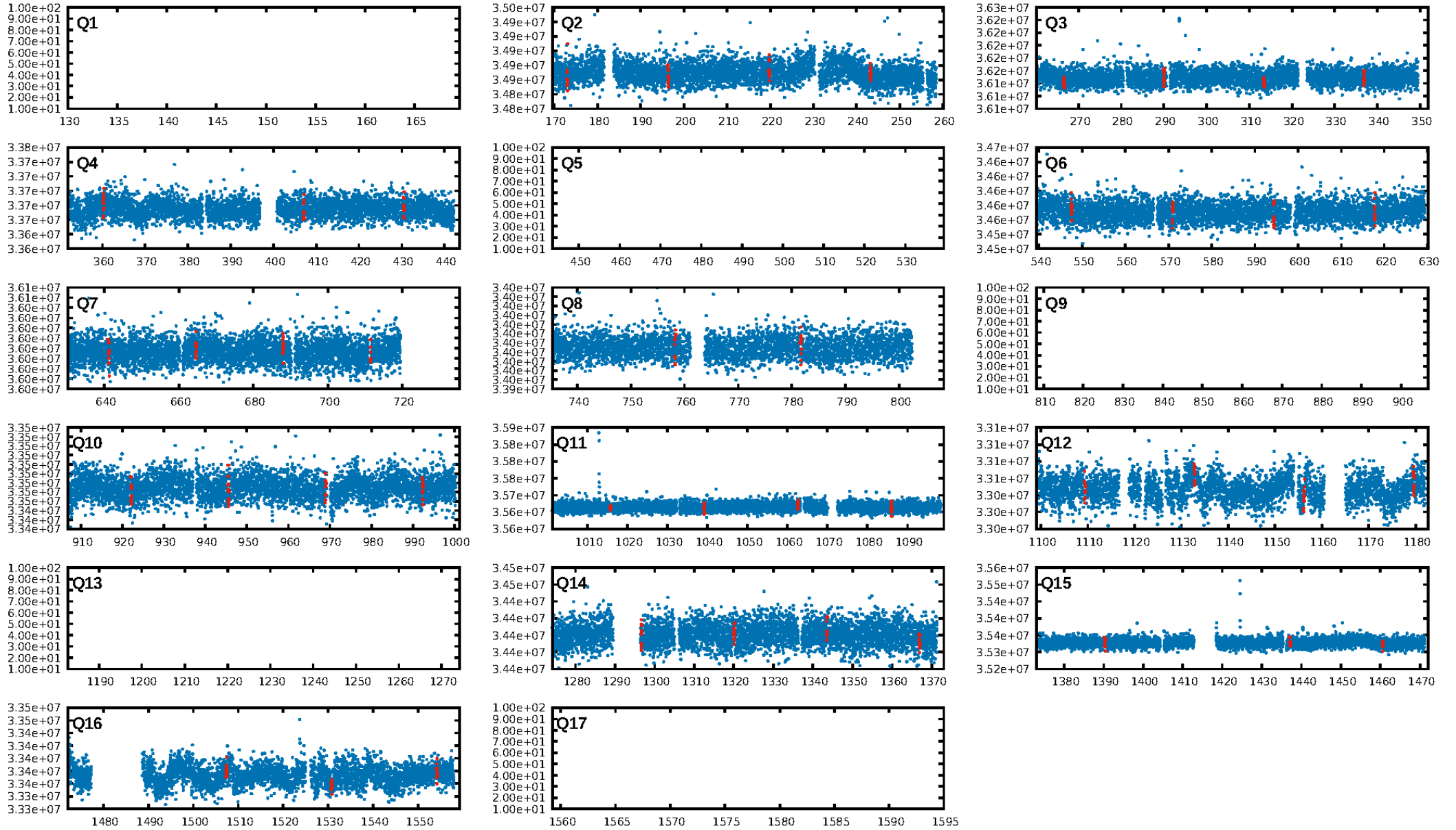
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.65 $\sigma$ ]  
LongPeriod-sig: 100.0% [123.02 $\sigma$ ]  
ModelChiSquare2-sig: 2.4%  
ModelChiSquareGof-sig: 10.4%  
**Bootstrap-pfa: 2.15e-12**  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -1.84  
Centroid-sig: 14.4%  
Centroid-so: 2.225 arcsec [1.94 $\sigma$ ]  
OotOffset-rm: 0.751 arcsec [0.32 $\sigma$ ]  
KicOffset-rm: 2.479 arcsec [1.20 $\sigma$ ]  
OotOffset-st: 2/1/2/0 [5]  
KicOffset-st: 2/1/2/0 [5]  
DiffImageQuality-fgm: 0.00 [0/5]  
DiffImageOverlap-fno: 0.58 [7/12]

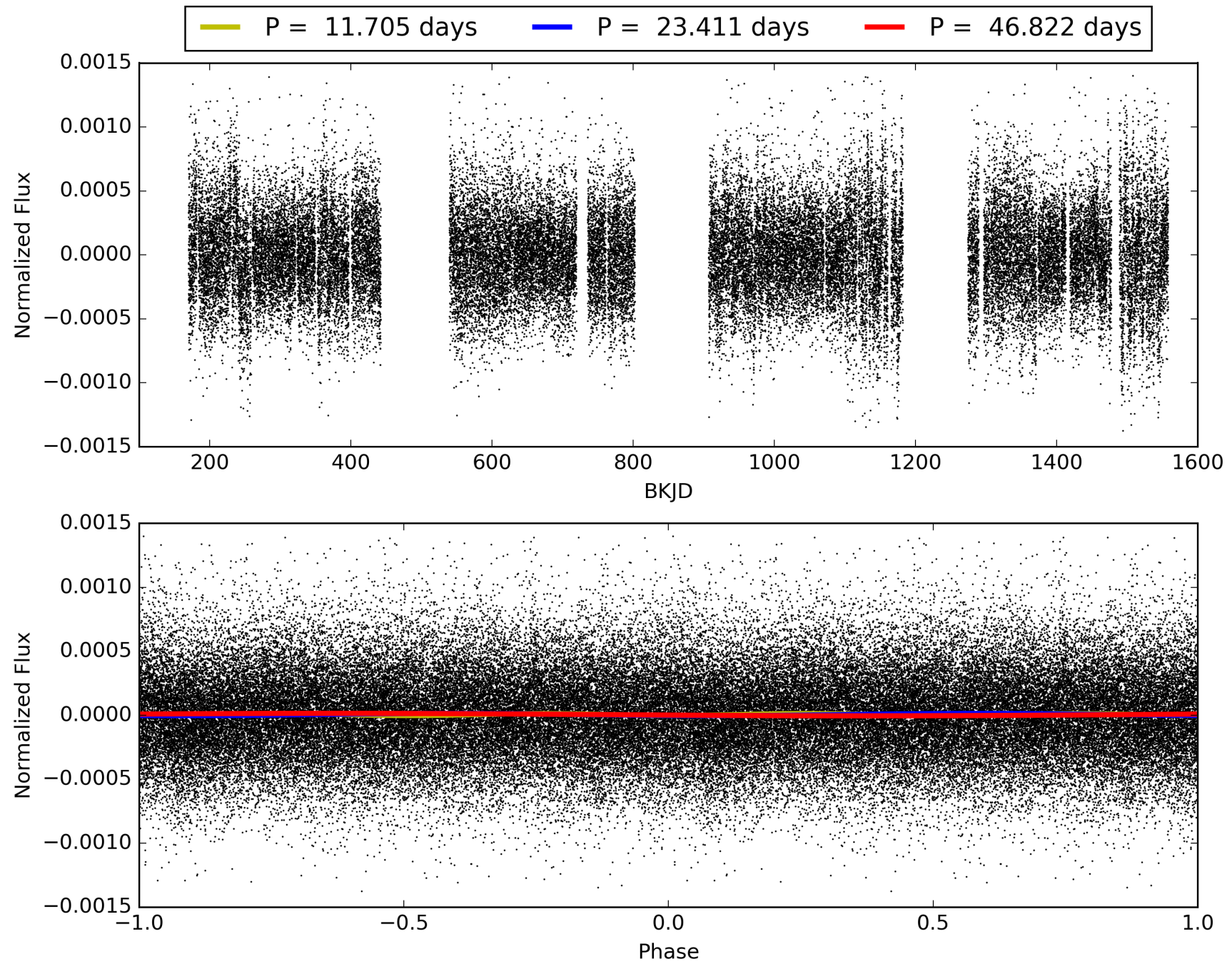
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:57:14 Z

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

# TCE 005597644-02, PDC Light Curves

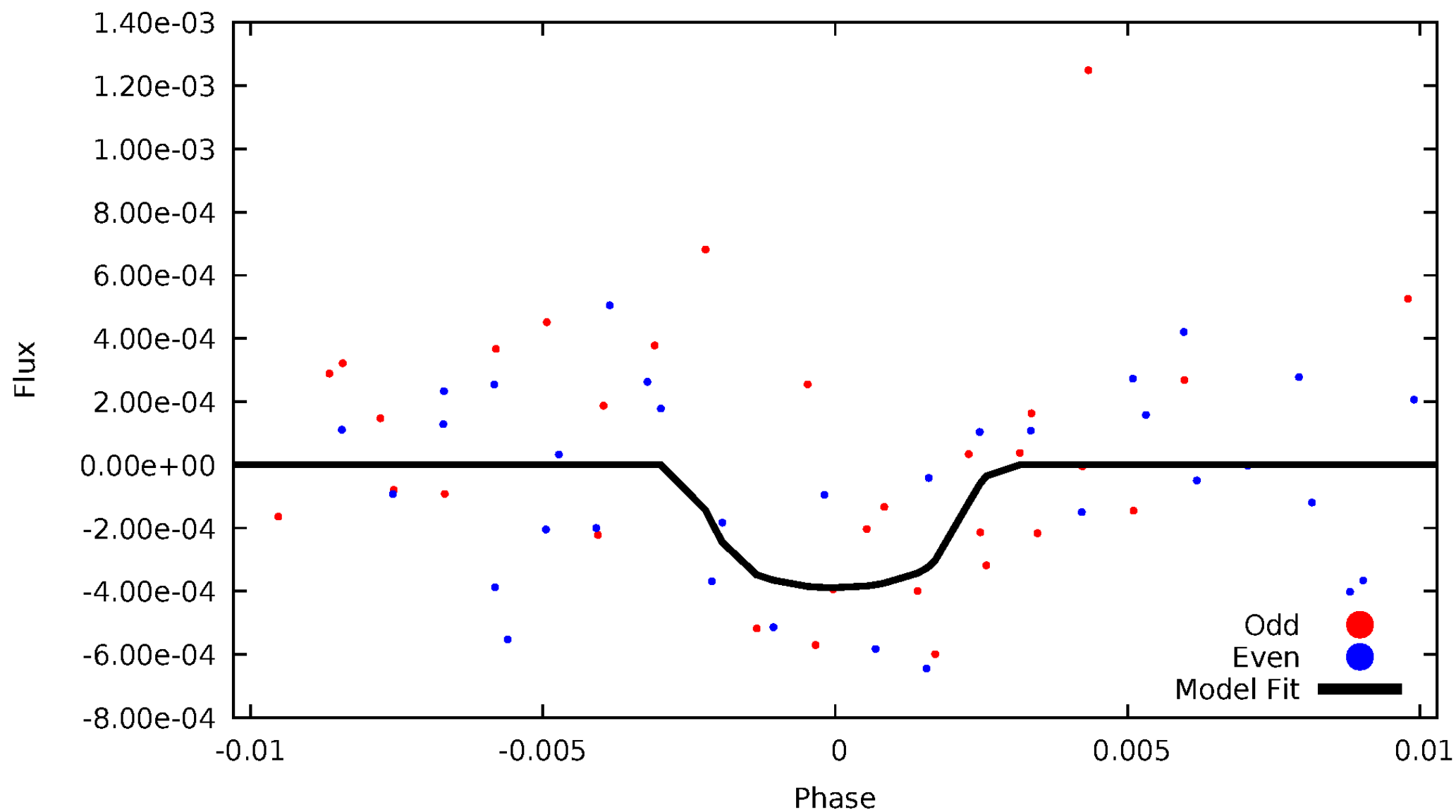


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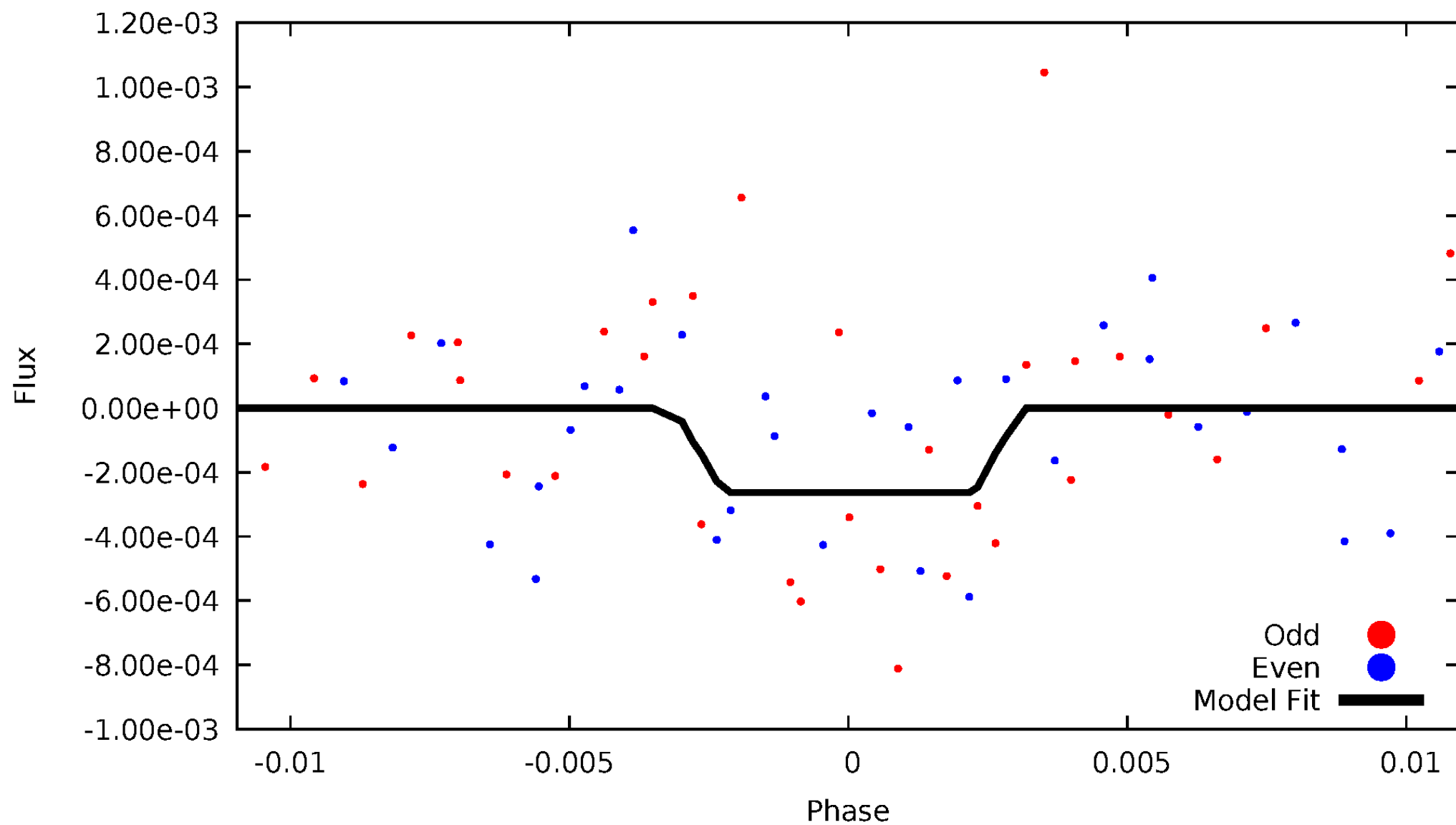
# DV Odd/Even

TCE 005597644-02



# ALT Odd/Even

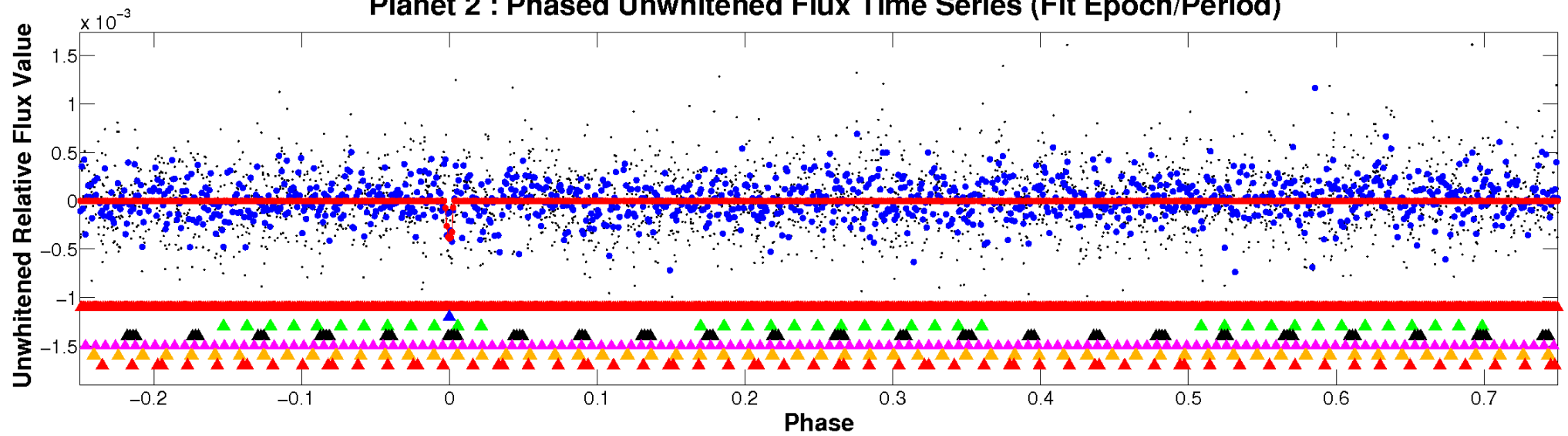
TCE 005597644-02



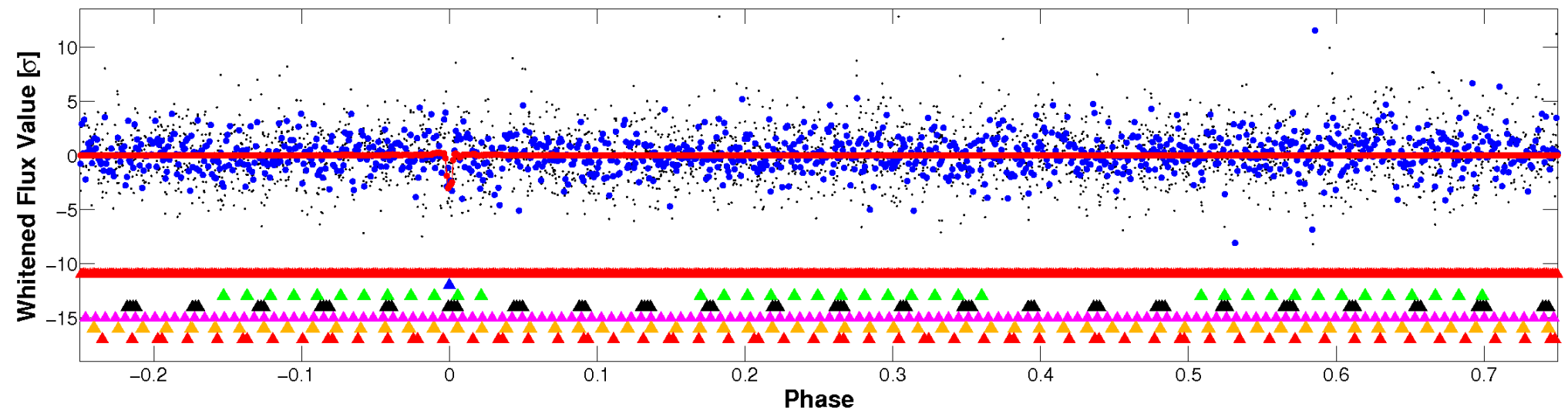


# Non-Whitened Vs. Whitened Light Curve

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

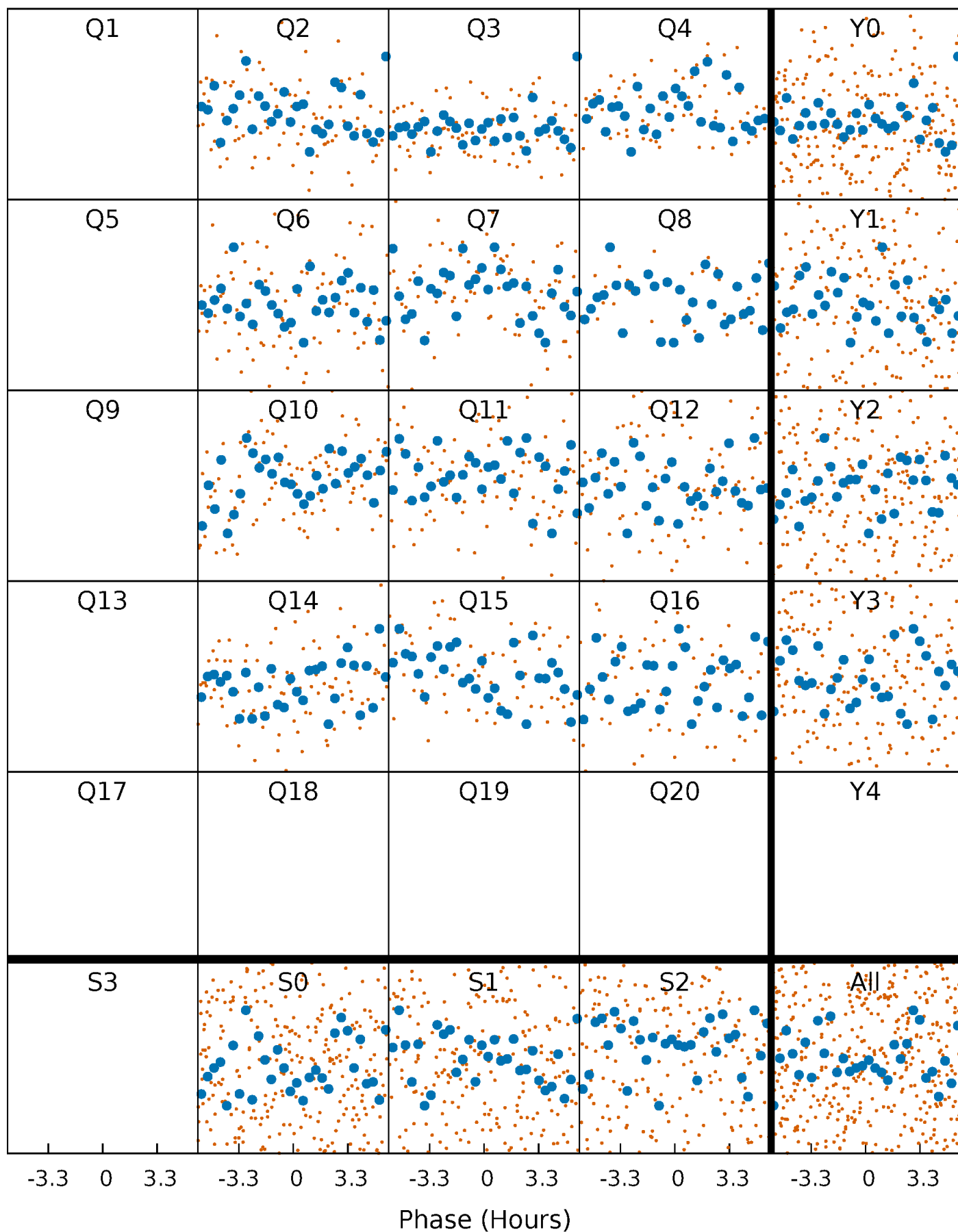


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



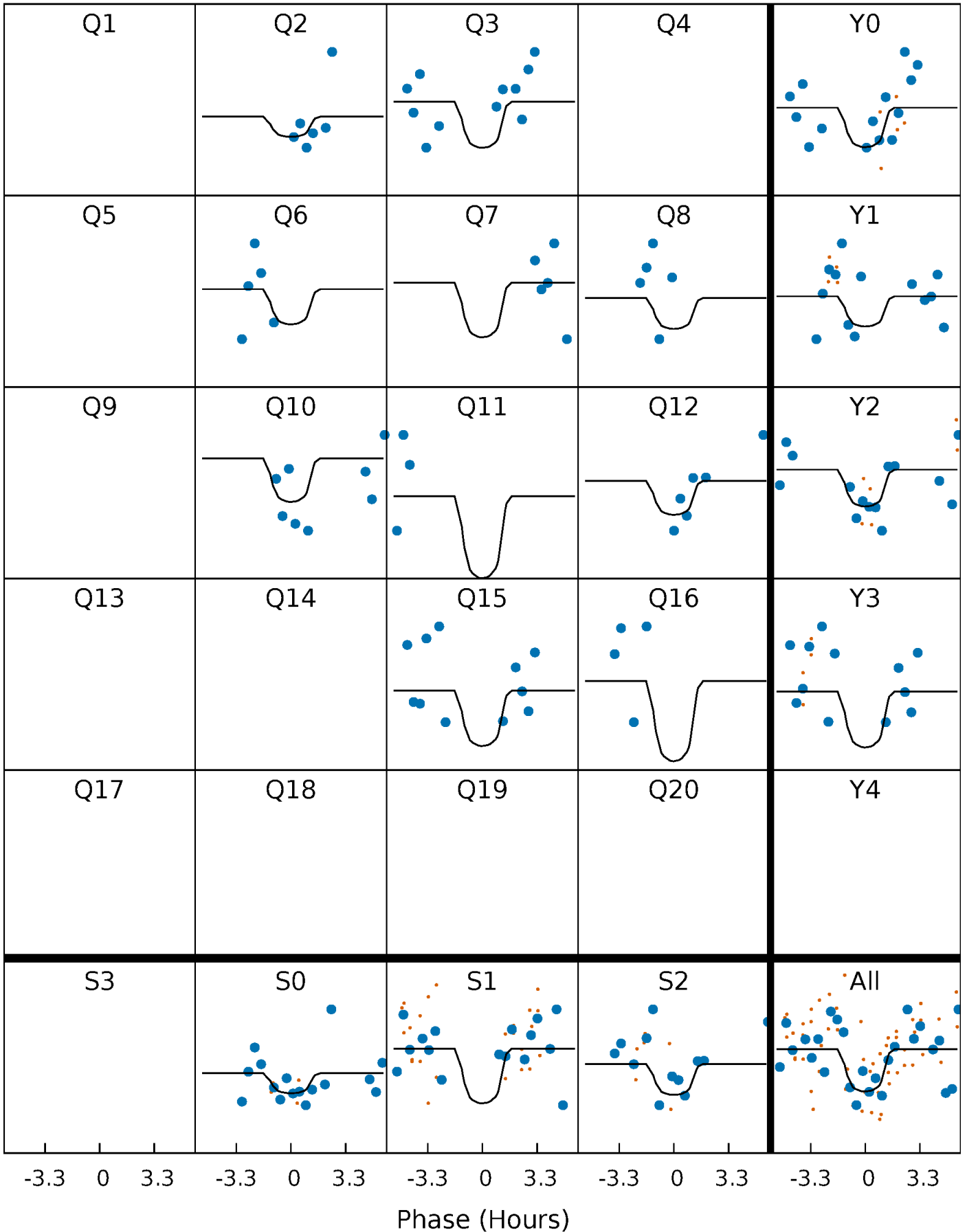
# PDC Quarter-Phased Transit Curves

TCE 005597644-02 P= 23.410825 Days  $T_0=149.563980$  (BKJD)



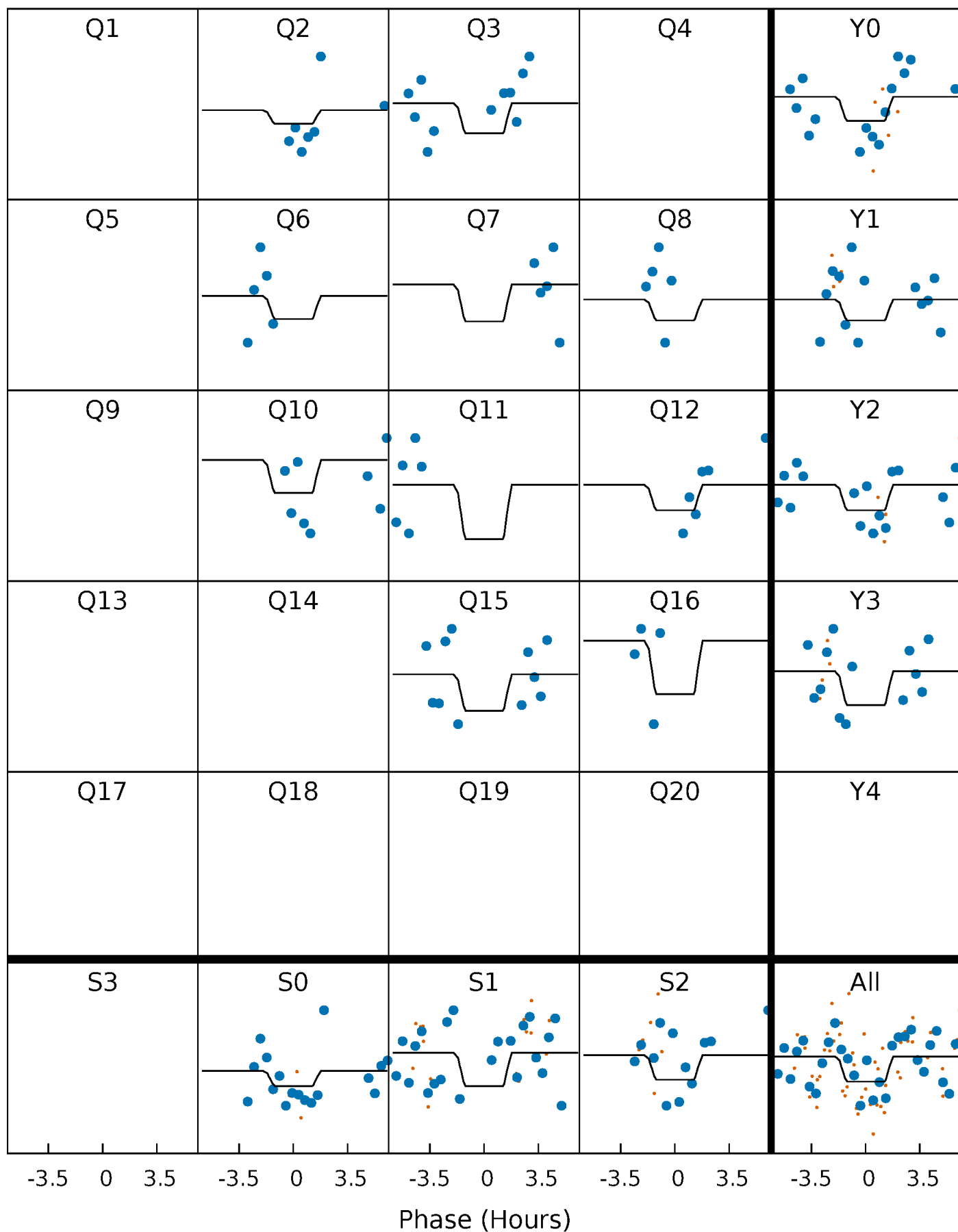
# DV Quarter-Phased Transit Curves

TCE 005597644-02   P= 23.410825 Days    $T_0=149.563980$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

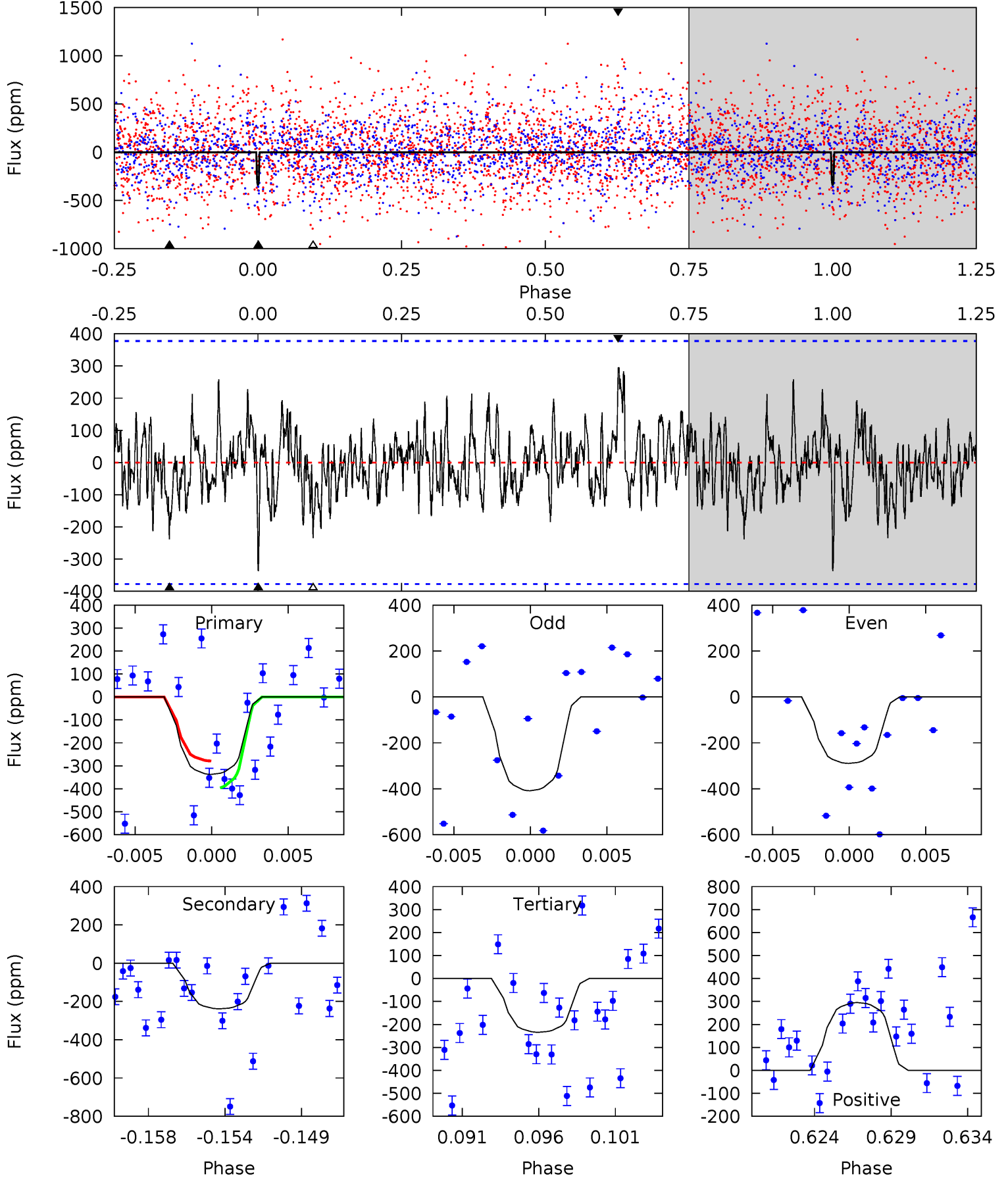
TCE 005597644-02 P= 23.409815 Days  $T_0=149.584166$  (BKJD)



# DV Model-Shift Uniqueness Test

005597644-02, P = 23.410825 Days, E = 149.563980 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
4.62	3.26	3.20	4.04	5.17	2.82	1.18	1.41	0.58	0.06	-0.78	0.82	0.64	0.47	0.80

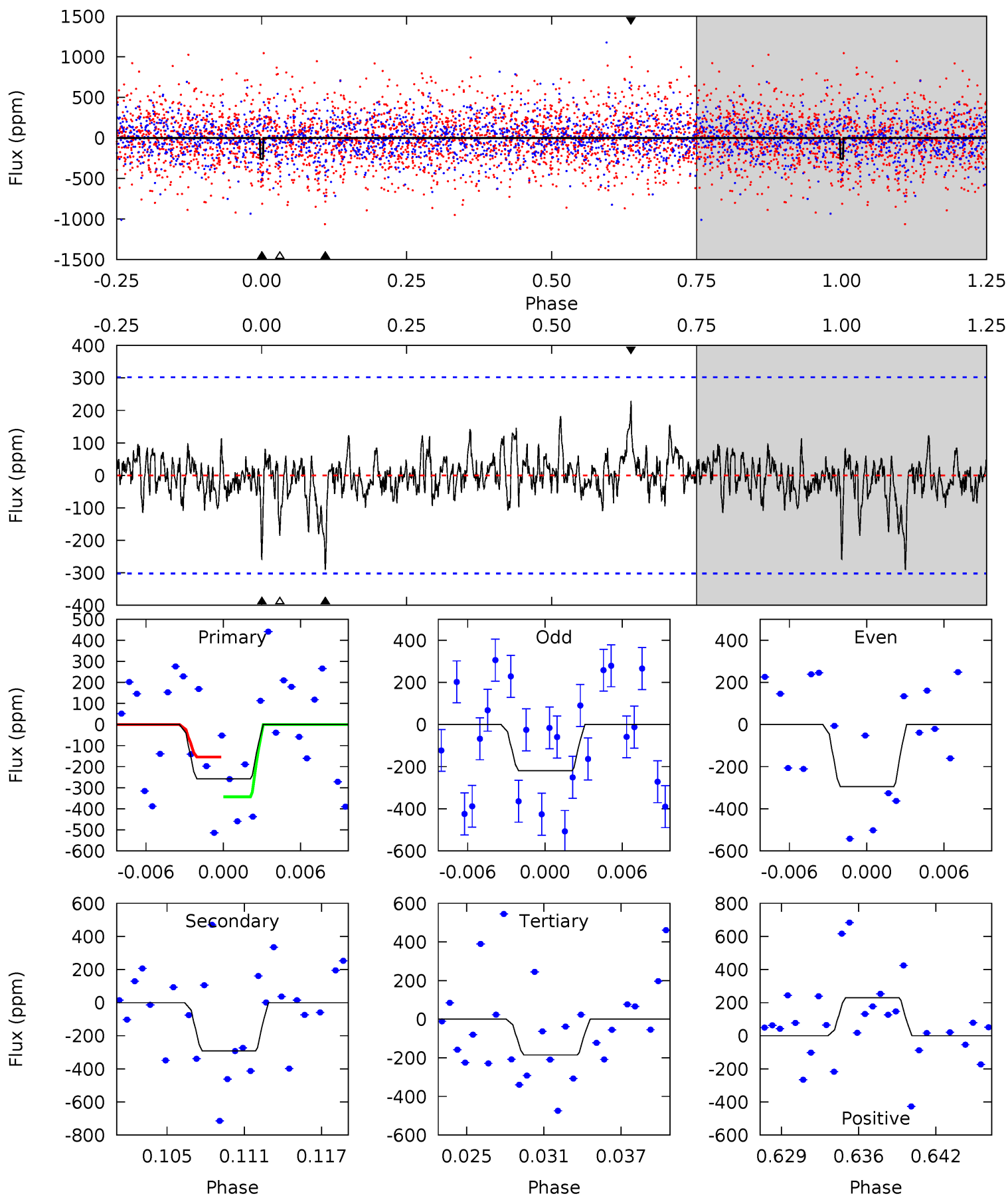




# Alt Model-Shift Uniqueness Test

005597644-02, P = 23.409815 Days, E = 149.584166 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
4.38	4.93	3.14	3.88	5.12	2.74	0.89	1.23	0.50	1.79	1.05	0.64	0.78	0.44	1.62



### Stellar Parameters For KIC 005597644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4608^{+165}_{-165}$	$4.602^{+0.059}_{-0.027}$	$-0.220^{+0.300}_{-0.300}$	$0.671^{+0.054}_{-0.059}$	$0.656^{+0.081}_{-0.048}$	$3.064^{+0.754}_{-0.369}$
	+4%/-4%	+1%/-1%	+136%/-136%	+8%/-9%	+12%/-7%	+25%/-12%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005597644-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-238 \pm 73$	$1.97^{+1.50}_{-1.18}$	$620^{+24}_{-25}$	$3758^{+1652}_{-680}$	$670^{+3636}_{-482}$
Alt.	$-291 \pm 59$	$1.61^{+1.40}_{-1.06}$	$619^{+26}_{-26}$	$4141^{+2342}_{-767}$	$1220^{+8951}_{-889}$

$T_{max}$  = 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

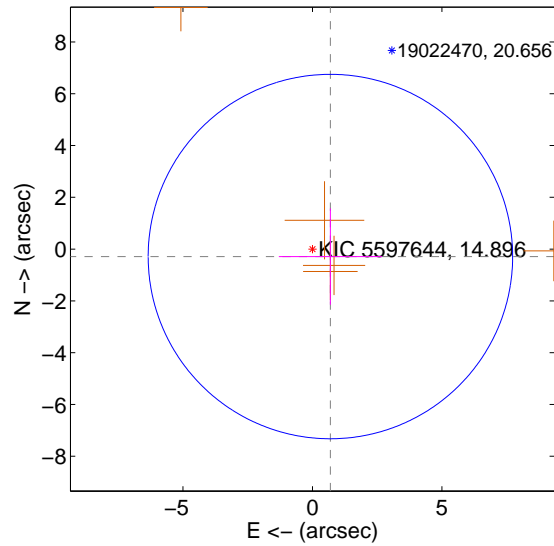
Supplemental centroid analysis for 005597644-02. Kepler magnitude: 14.90. Transit SNR 9.88

There are 0 quarters with good PRF difference image offsets

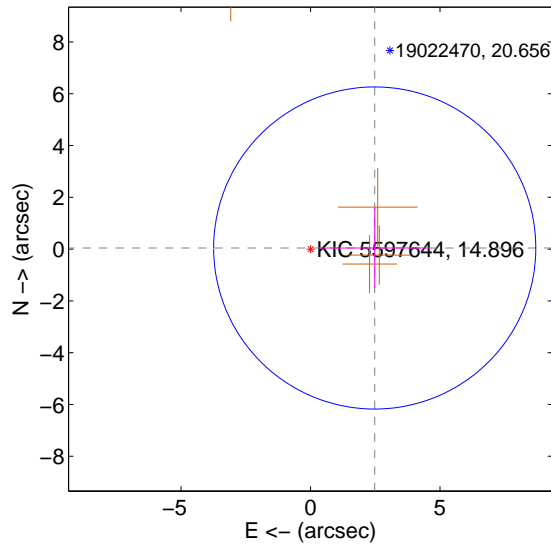
The OOT PRF centroid is offset from the target star catalog position by about 2.04 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.751 \pm 2.346$	0.32	$-0.694 \pm 1.991$	$-0.288 \pm 1.858$
PRF-fit source offset from KIC position	$2.479 \pm 2.073$	1.20	$-2.479 \pm 2.089$	$0.043 \pm 1.551$
photometric centroid source offset	$2.23 \pm 1.15$	1.94	$-1.85 \pm 1.13$	$1.24 \pm 1.20$

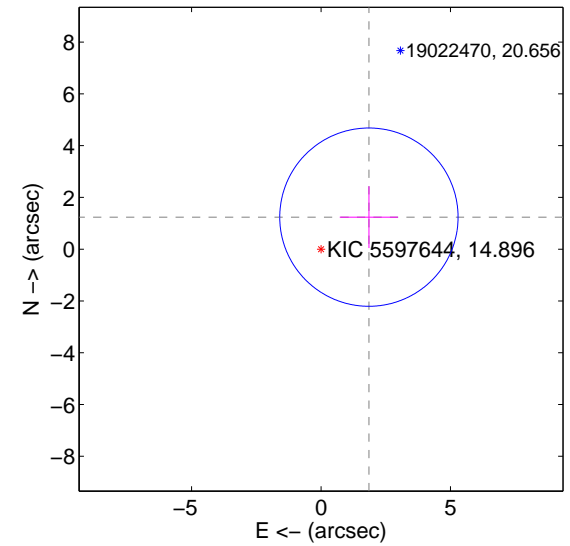
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

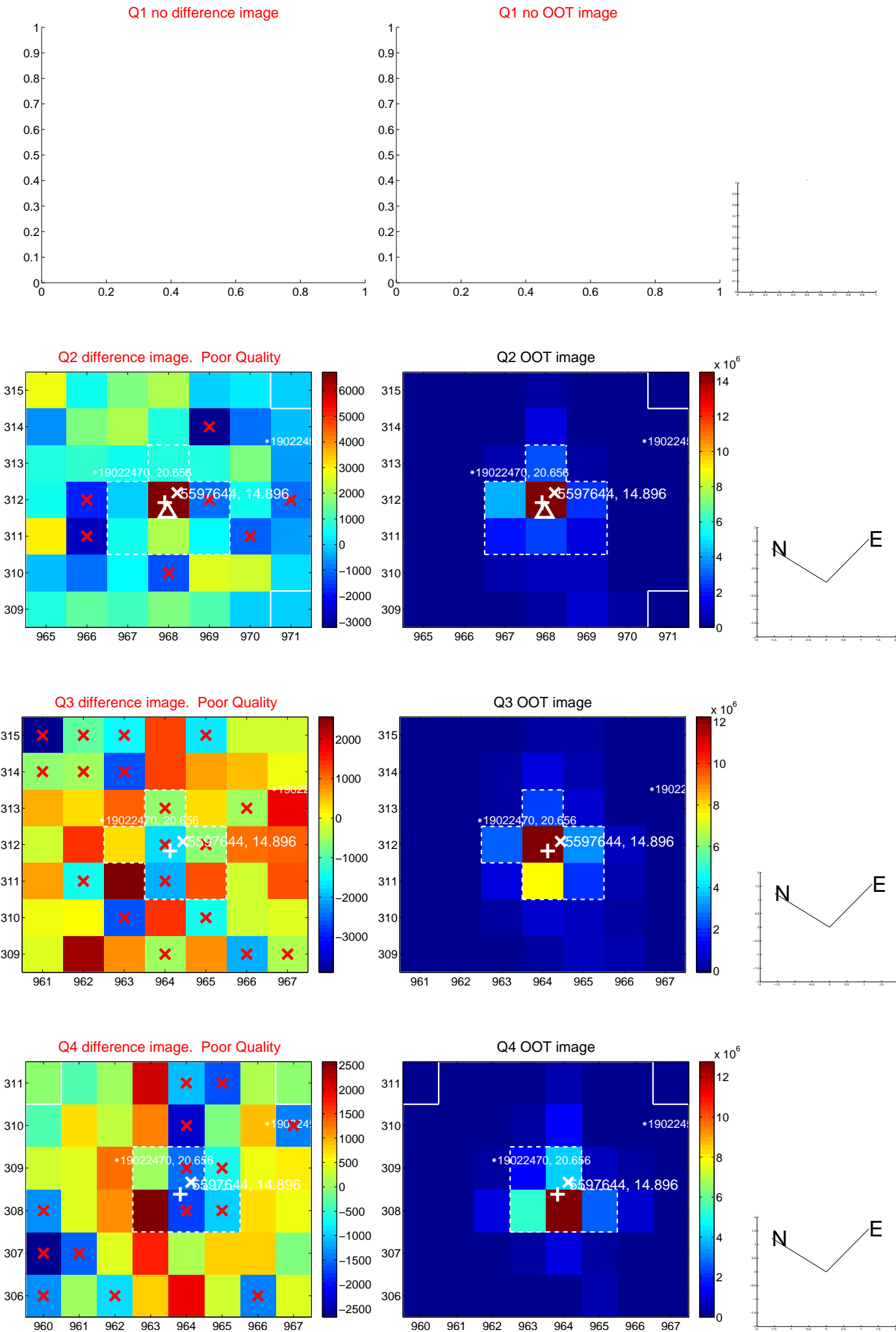


offset from photometric centroids

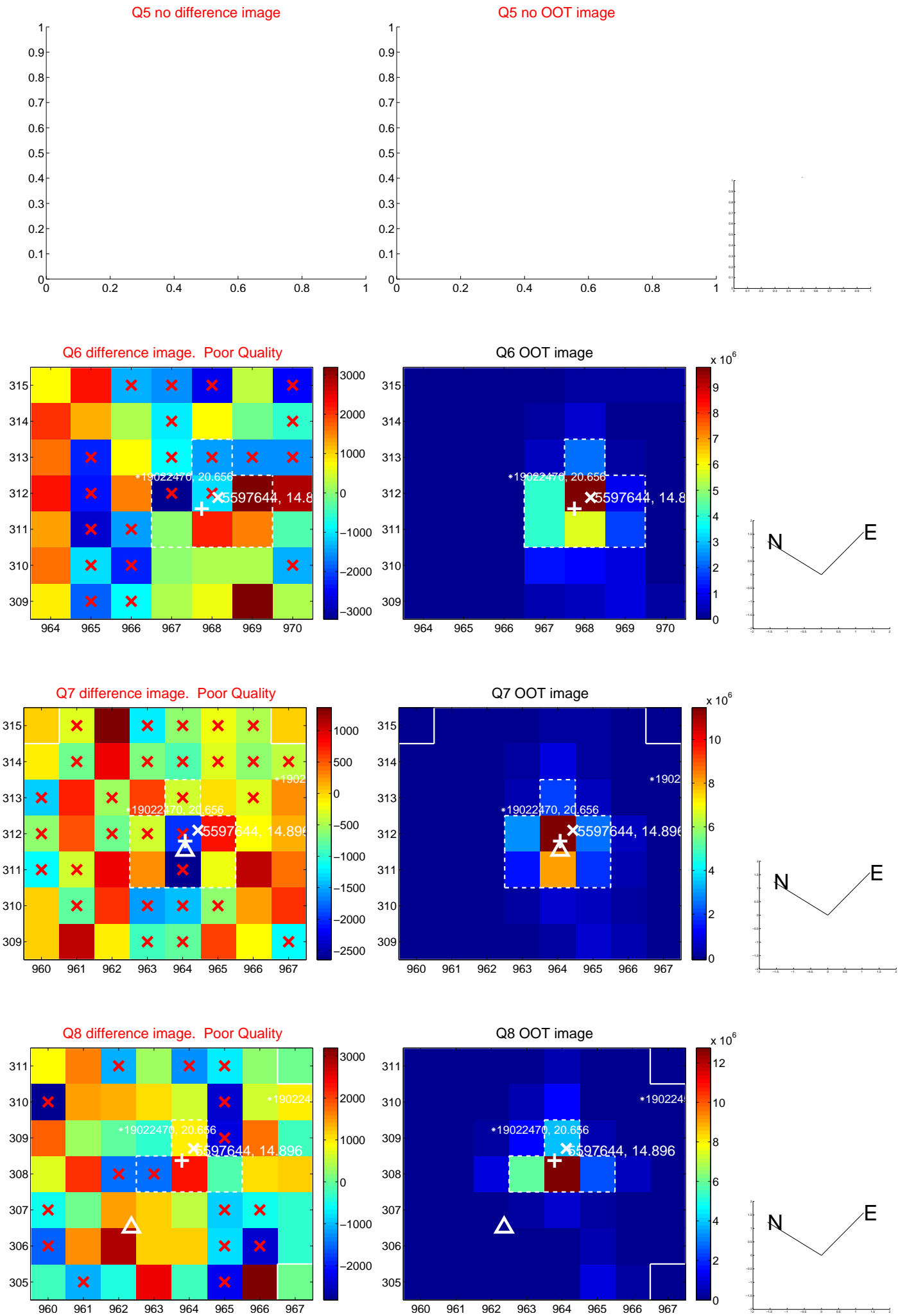


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

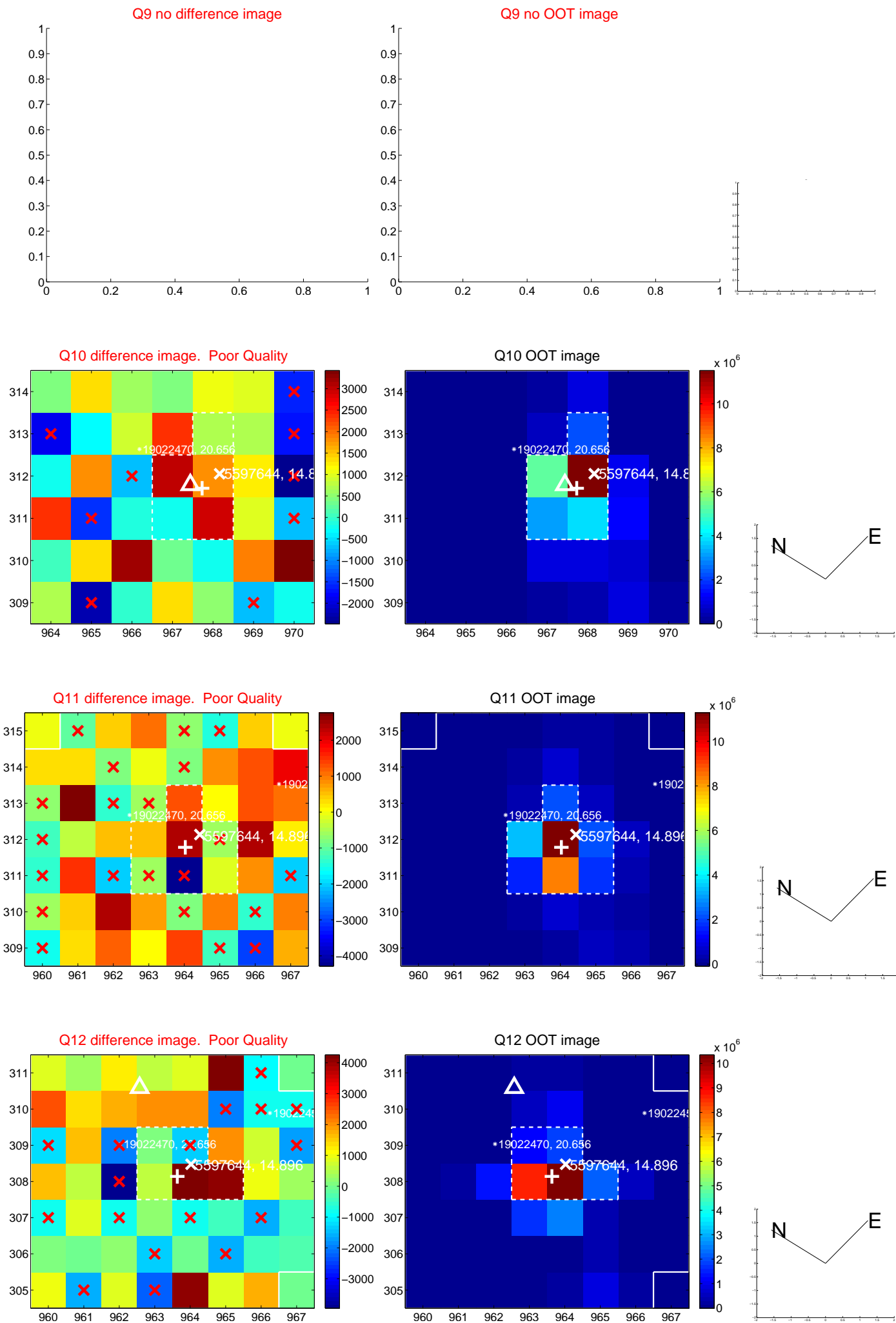
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

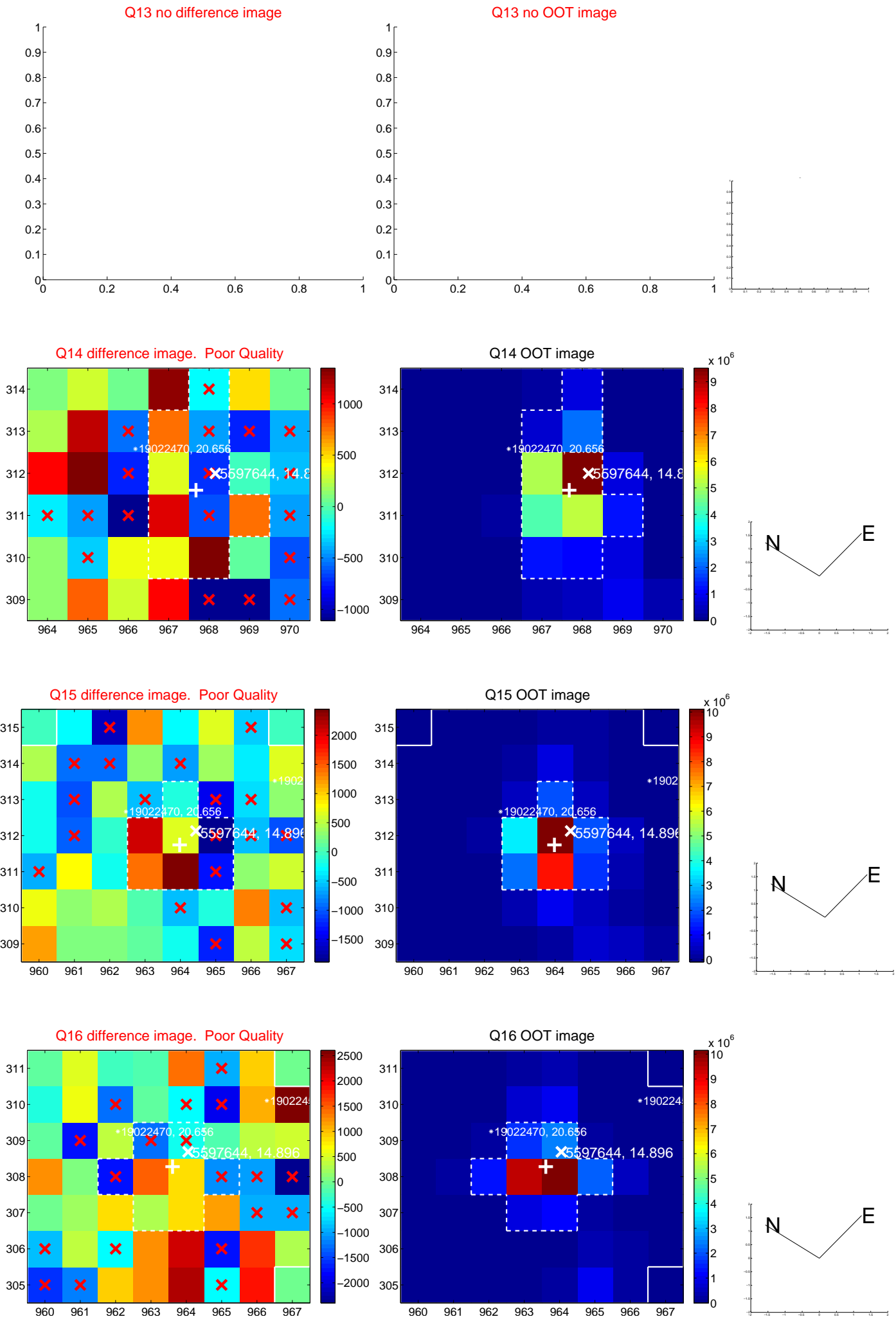


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

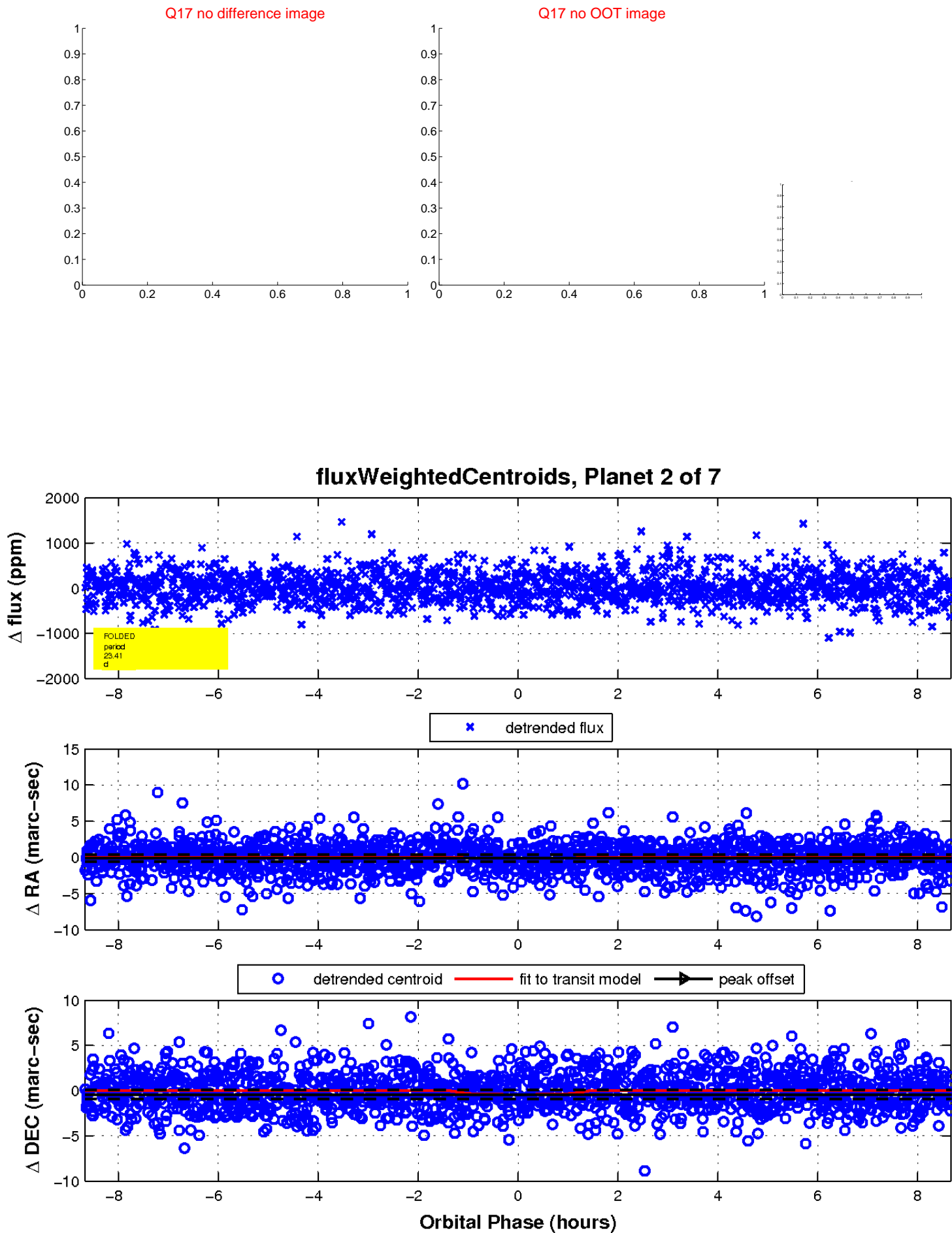




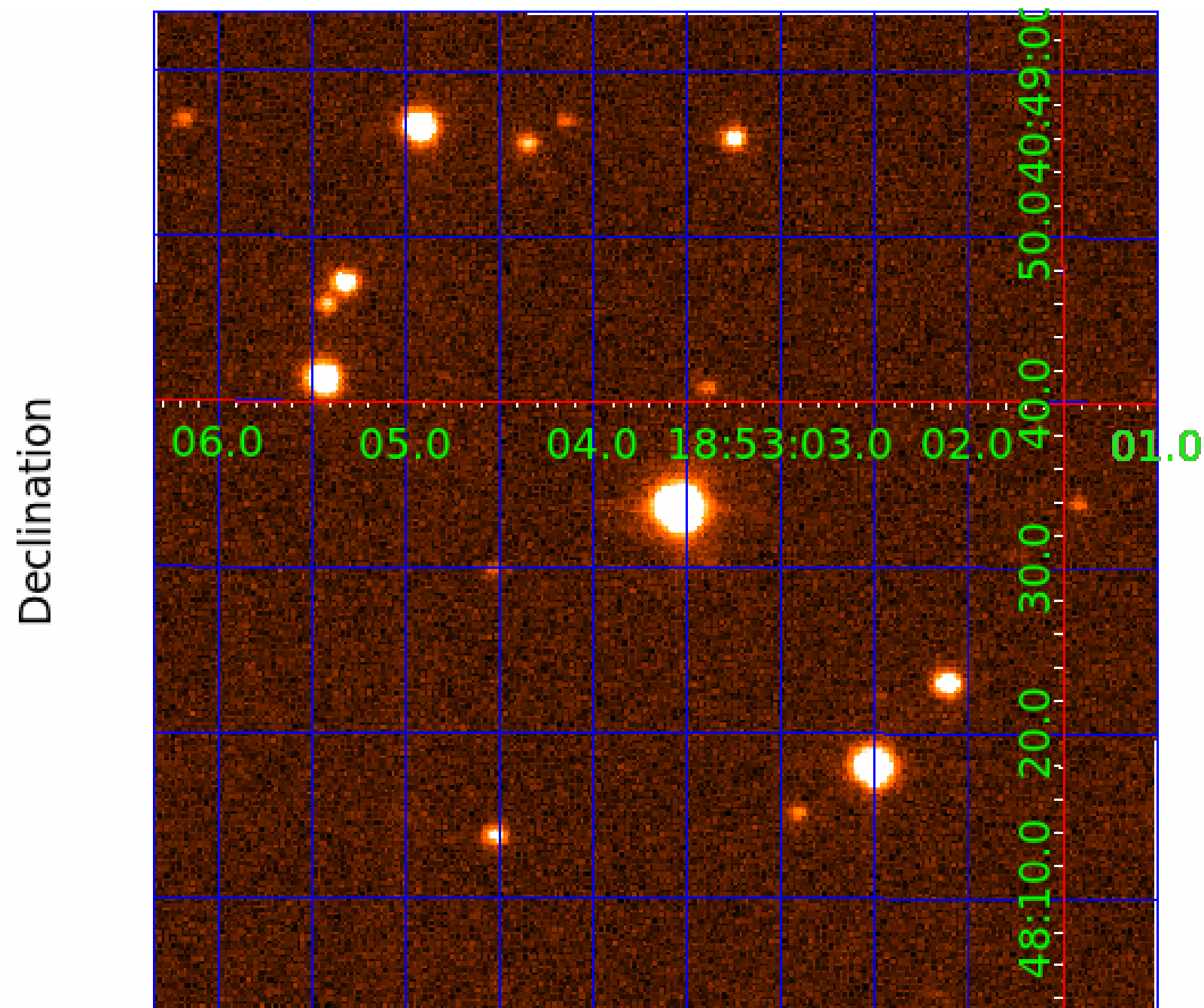
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 005597644

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005597644-01	OBS	No	1.622889	131.642472	44.5	11.975	10.2	12.4	0.67	4608	0.49	329.39
005597644-02	OBS	No	23.410825	149.563980	388.9	2.890	11.7	9.9	0.67	4608	1.69	9.38
005597644-03	OBS	No	38.894409	142.512147	701.9	0.878	12.6	10.1	0.67	4608	1.74	4.77
005597644-04	OBS	No	18.323547	149.547879	606.3	1.485	12.1	12.9	0.67	4608	1.75	13.00
005597644-05	OBS	No	8.641613	137.357345	428.3	2.730	10.9	11.7	0.67	4608	1.62	35.42
005597644-06	OBS	No	12.665253	139.311048	497.8	1.338	11.7	11.8	0.67	4608	1.47	21.28
005597644-07	OBS	No	22.061501	137.726267	457.6	0.945	9.4	10.2	0.67	4608	1.40	10.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005597644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
005597644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005597644-03	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_POS_ALT—CENT_FEW_MEAS
005597644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
005597644-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
005597644-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005597644-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—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.

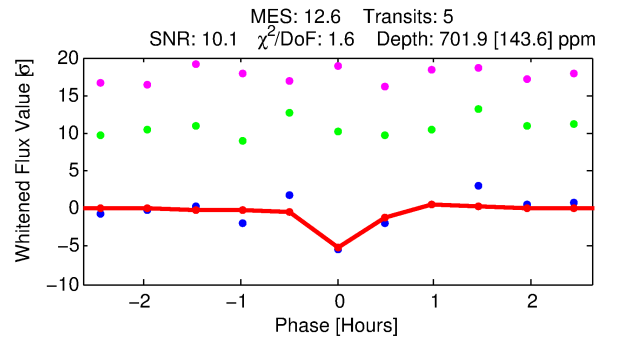
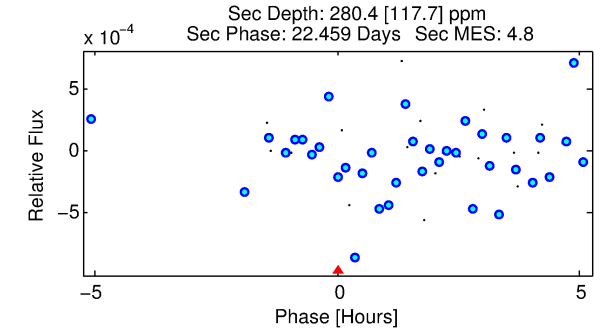
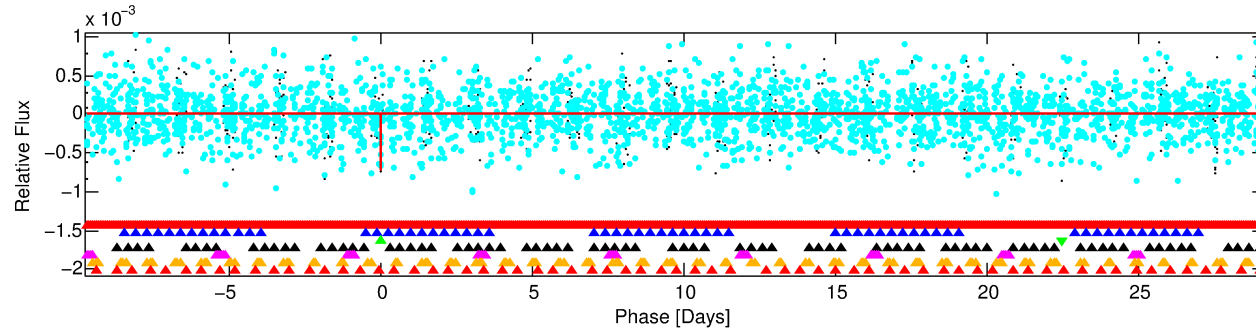
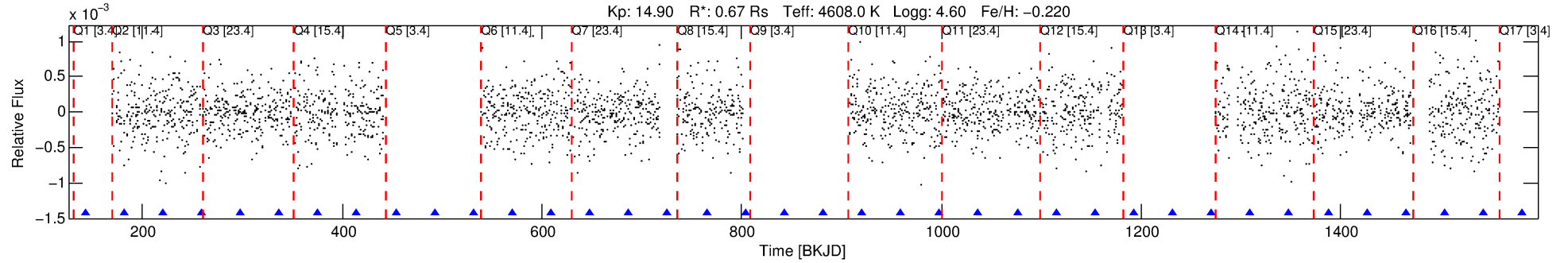
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005597644-03

No Significant Match Found

# DV One-Page Summary

KIC: 5597644 Candidate: 3 of 7 Period: 38.894 d

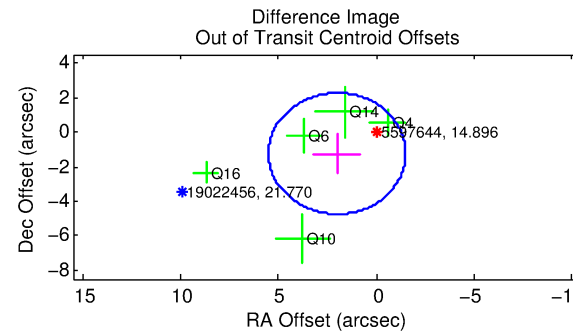
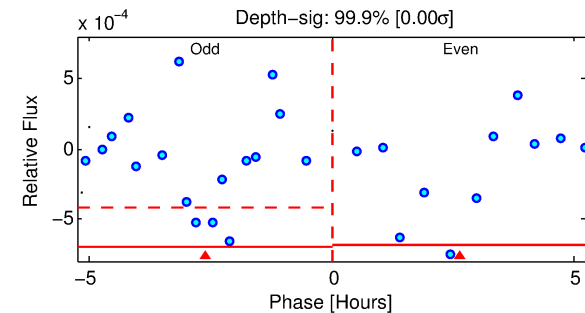
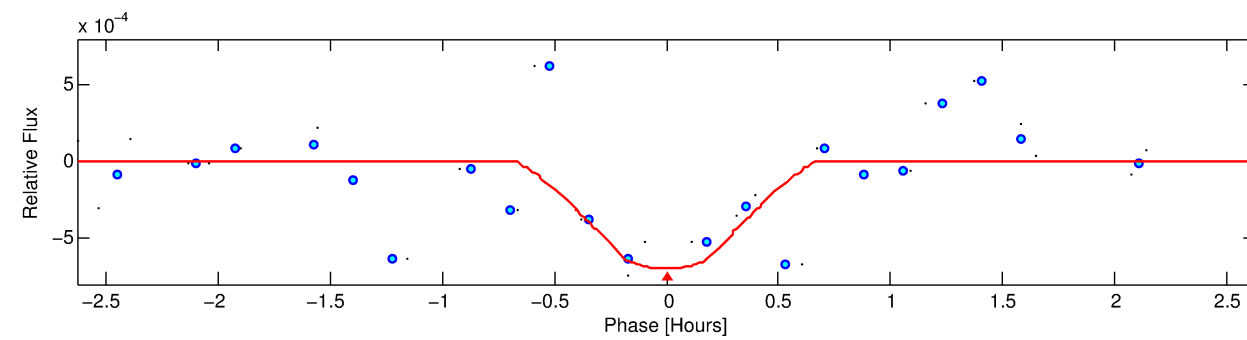


## DV Fit Results:

Period = 38.89441 [0.00022] d  
Epoch = 142.5121 [0.0054] BKJD  
Rp/R\* = 0.0237 [0.0767]  
a/R\* = 346.51 [3451.80]  
b = 0.00 [3287.76]  
Seff = 4.77 [0.85]  
Teff = 377 [17] K  
Rp = 1.73 [5.62] Re  
a = 0.1953 [0.0145] AU  
Ag = 1955.47 [12694.16] [0.15σ]  
Teffp = 3874 [6288] K [0.56σ]

## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [123.02σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 87.8%  
ModelChiSquareGof-sig: 98.3%  
**Bootstrap-pfa: 6.16e-11**  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: 0.819**  
Centroid-sig: 2.7%  
Centroid-so: 3.326 arcsec [2.26σ]  
OotOffset-rm: 2.369 arcsec [2.03σ]  
OotOffset-st: 3/0/2/0 [5]  
KicOffset-rm: 0.874 arcsec [0.63σ]  
KicOffset-st: 3/0/2/0 [5]  
DiffImageQuality-fgm: 0.20 [1/5]  
DiffImageOverlap-fno: 0.64 [7/11]

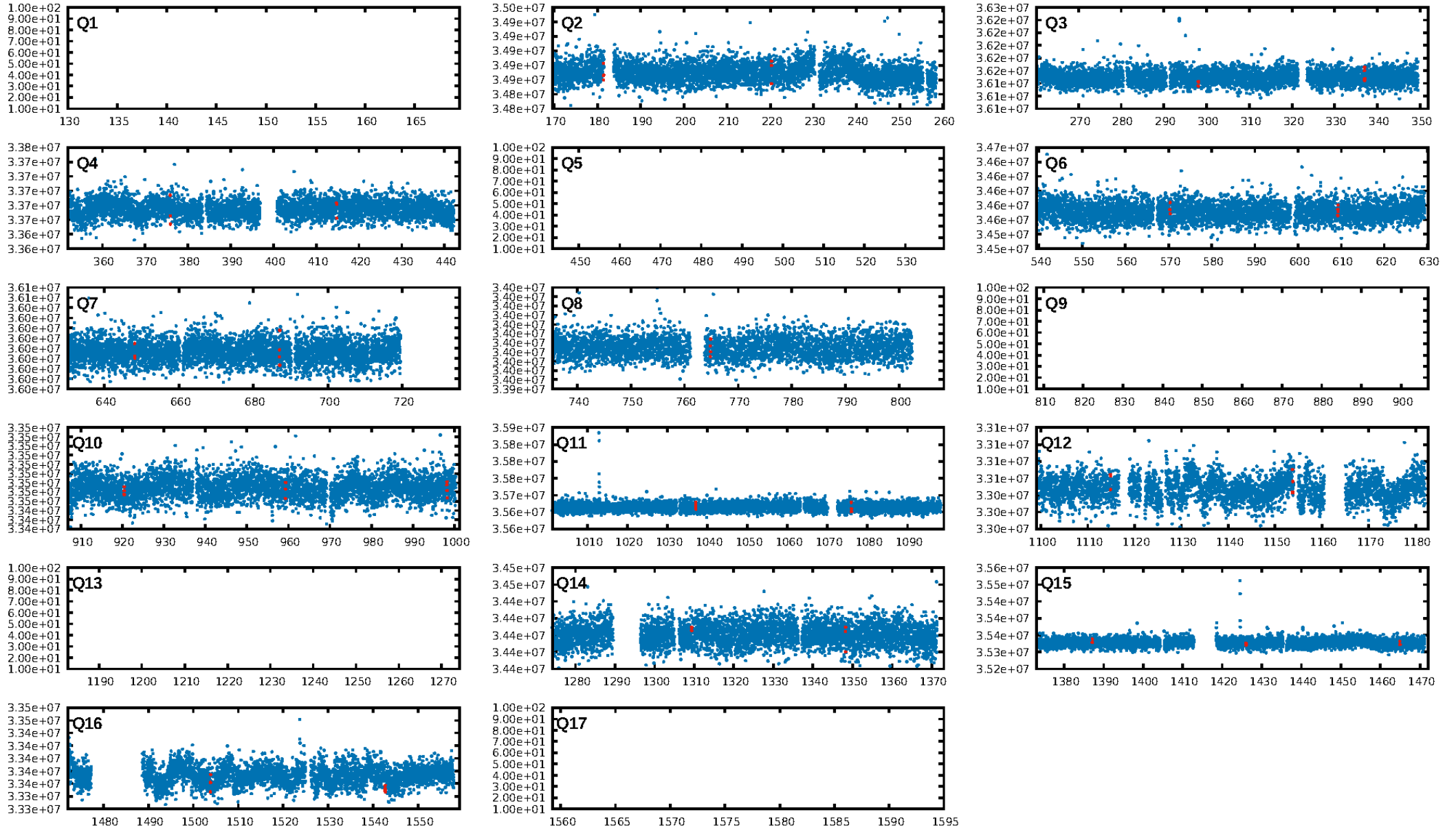


Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:57:17 Z

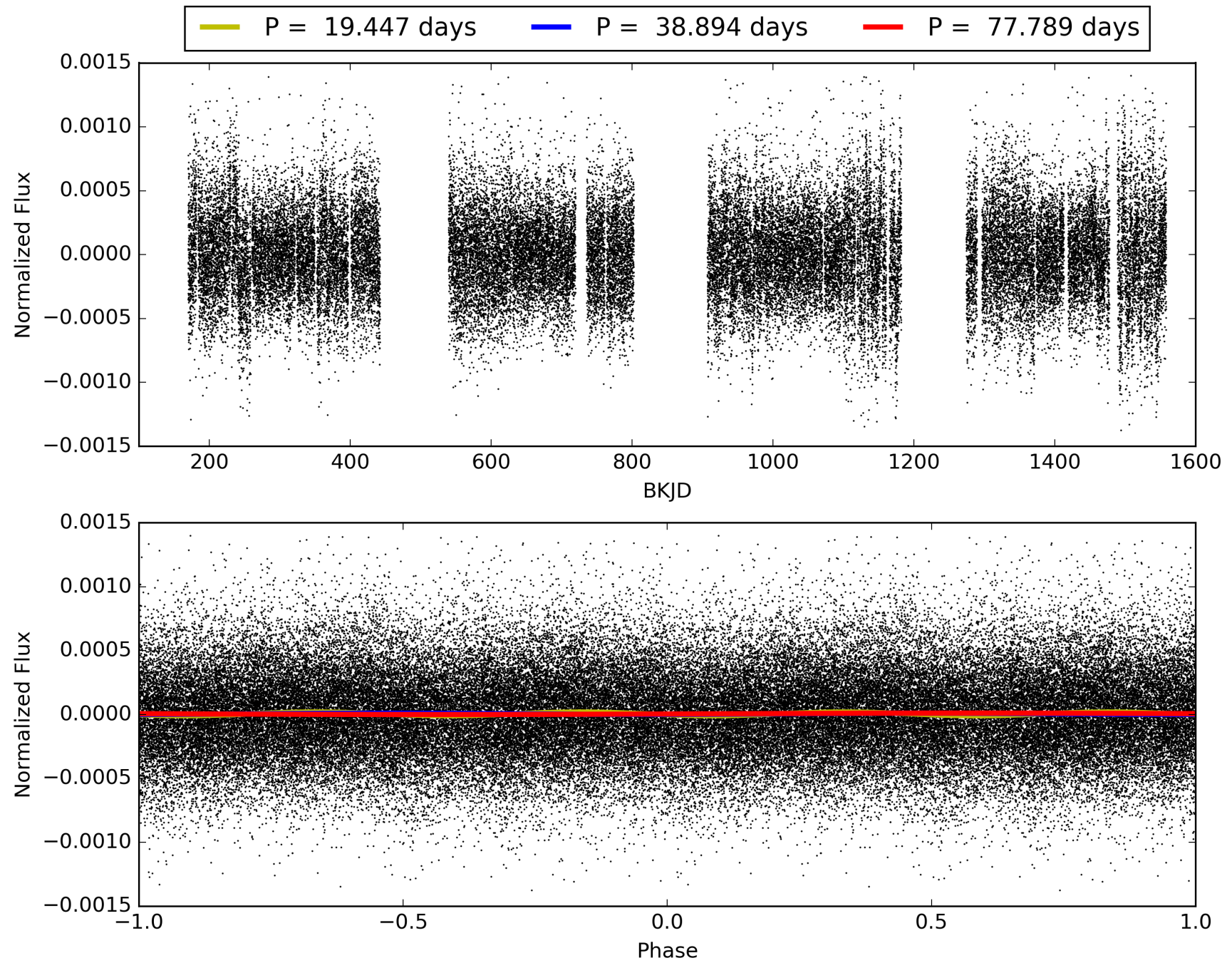
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005597644-03, PDC Light Curves

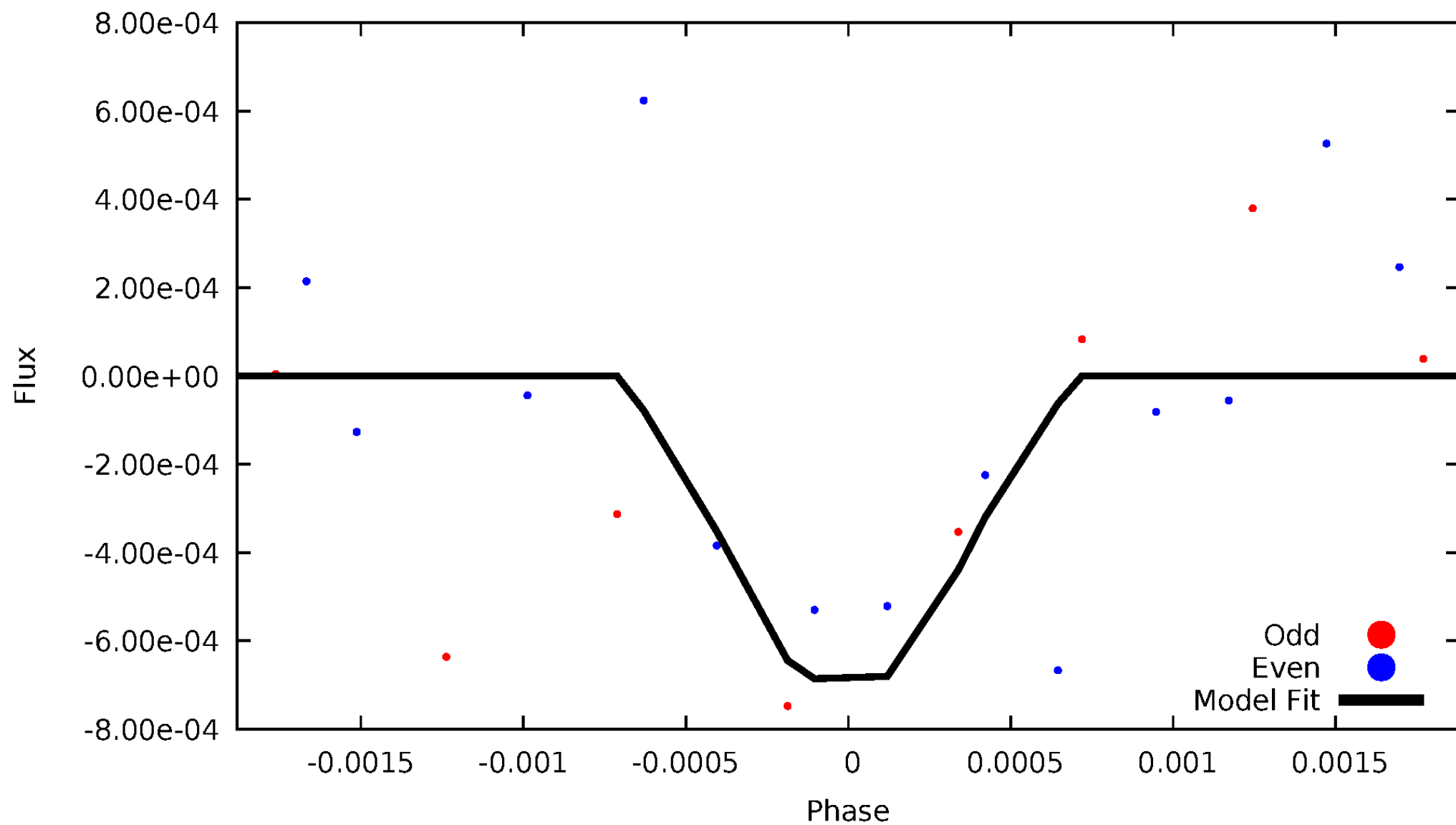


TCE 005597644-03



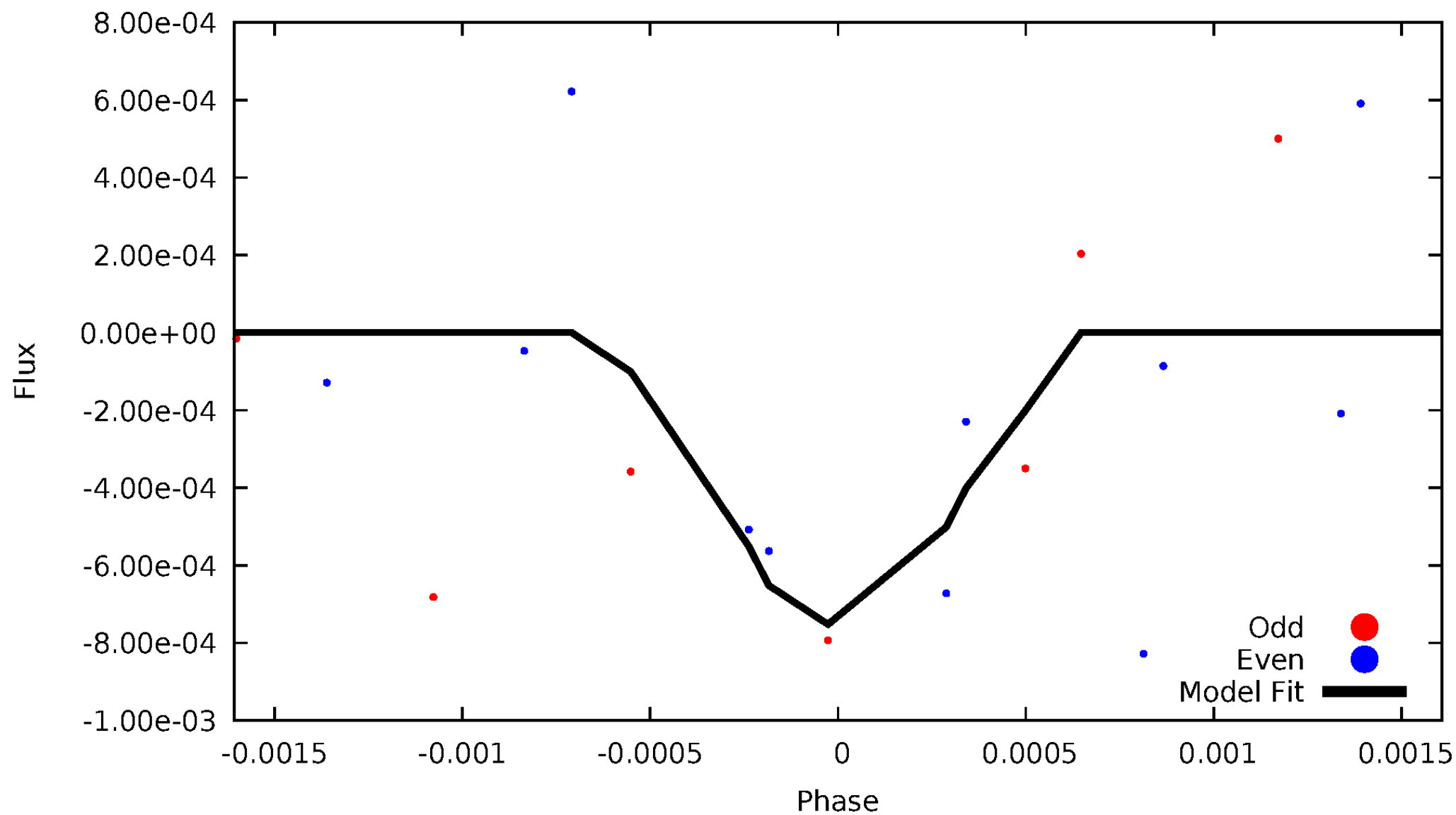
# DV Odd/Even

TCE 005597644-03



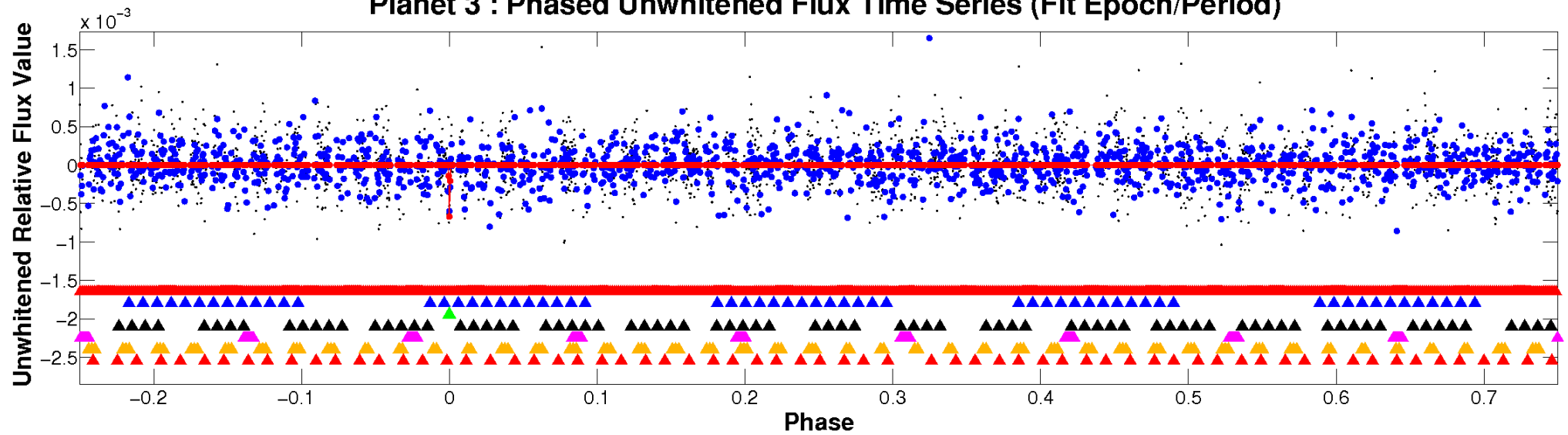
# ALT Odd/Even

TCE 005597644-03

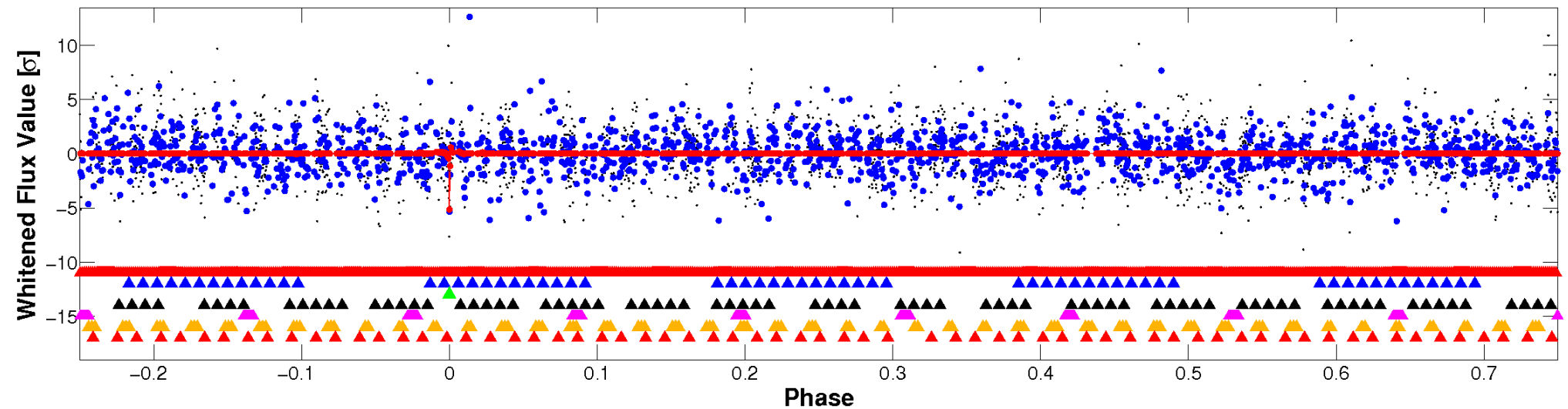


# Non-Whitened Vs. Whitened Light Curve

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



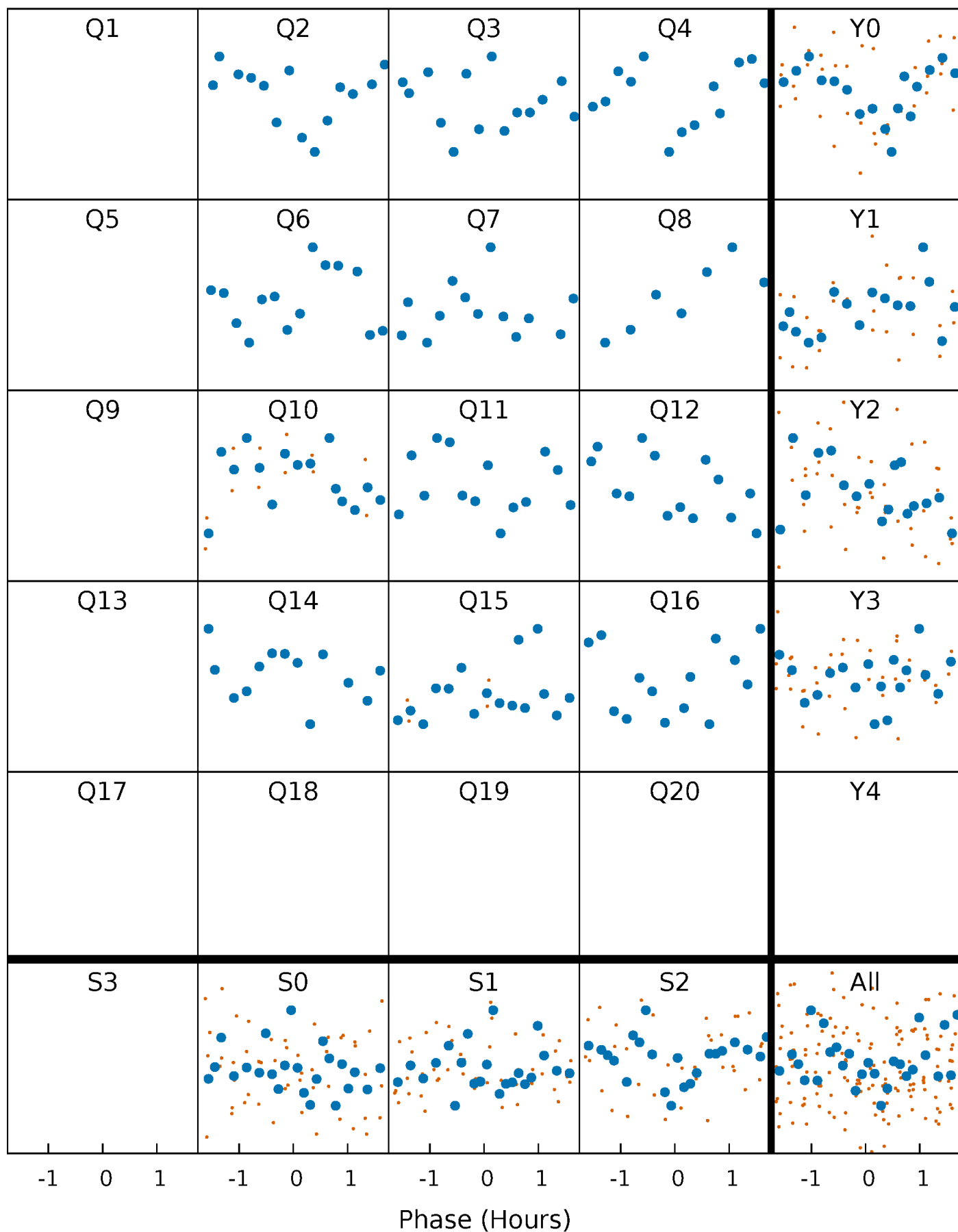
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





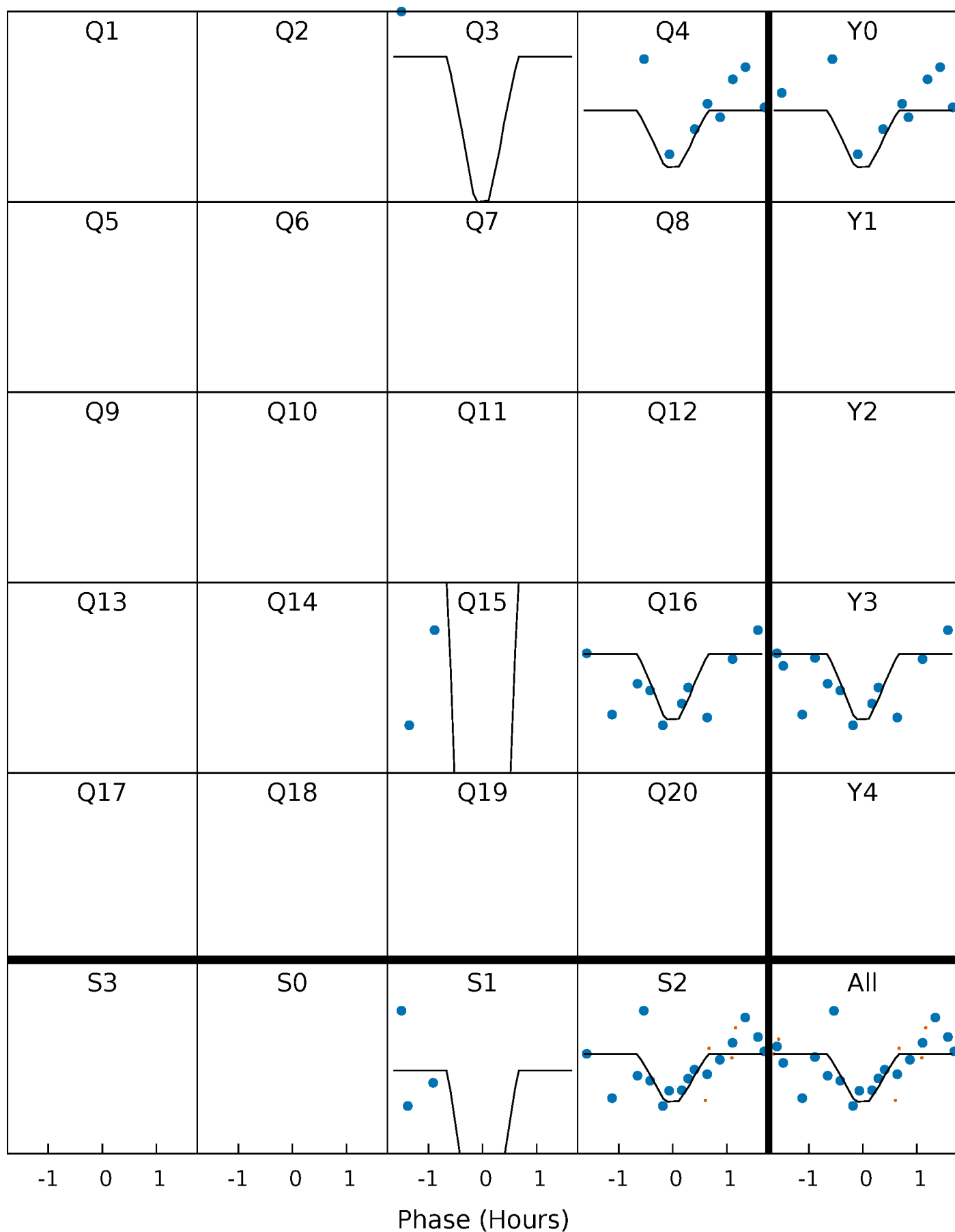
# PDC Quarter-Phased Transit Curves

TCE 005597644-03   P= 38.894409 Days    $T_0=142.512147$  (BKJD)



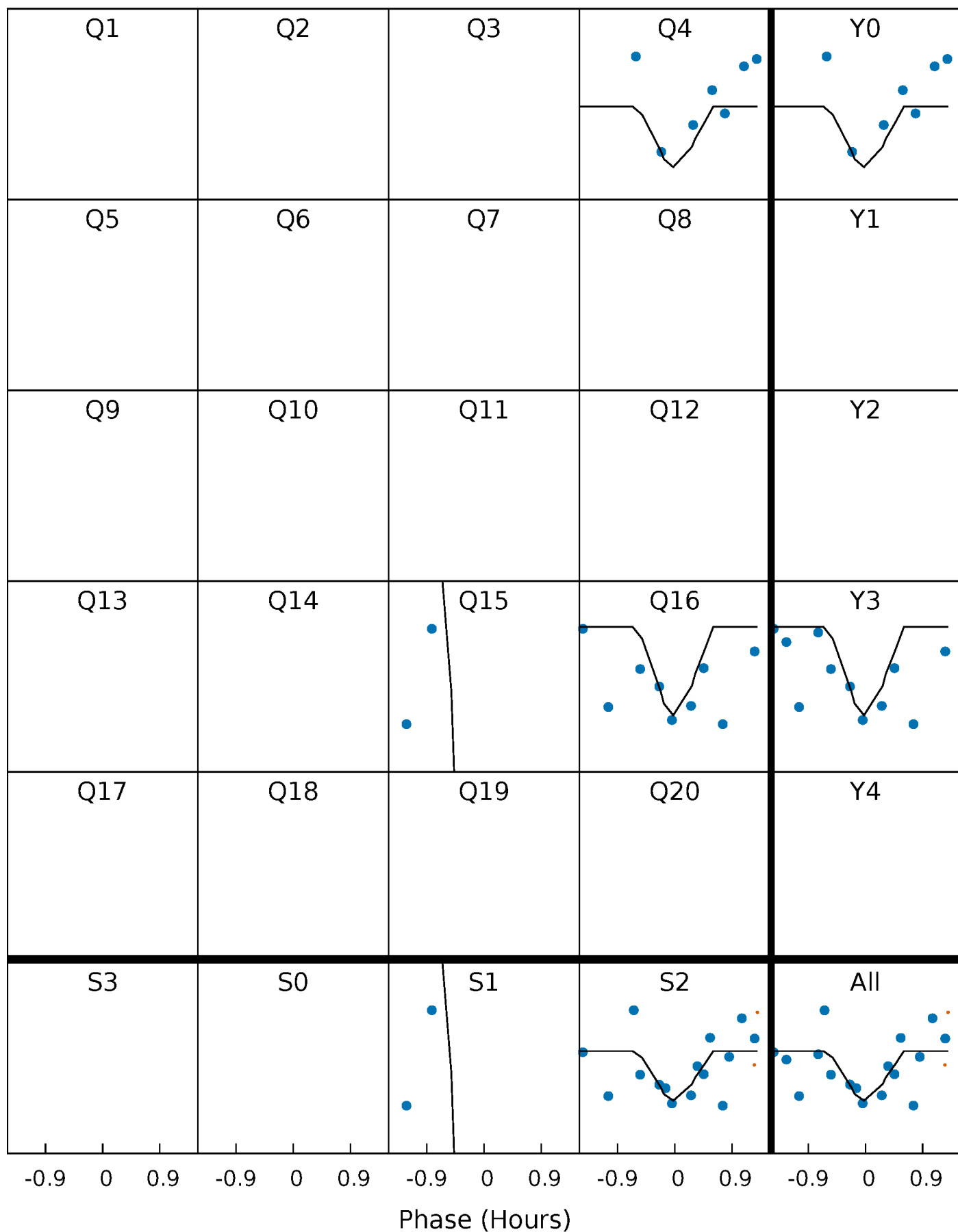
# DV Quarter-Phased Transit Curves

TCE 005597644-03 P= 38.894409 Days  $T_0=142.512147$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

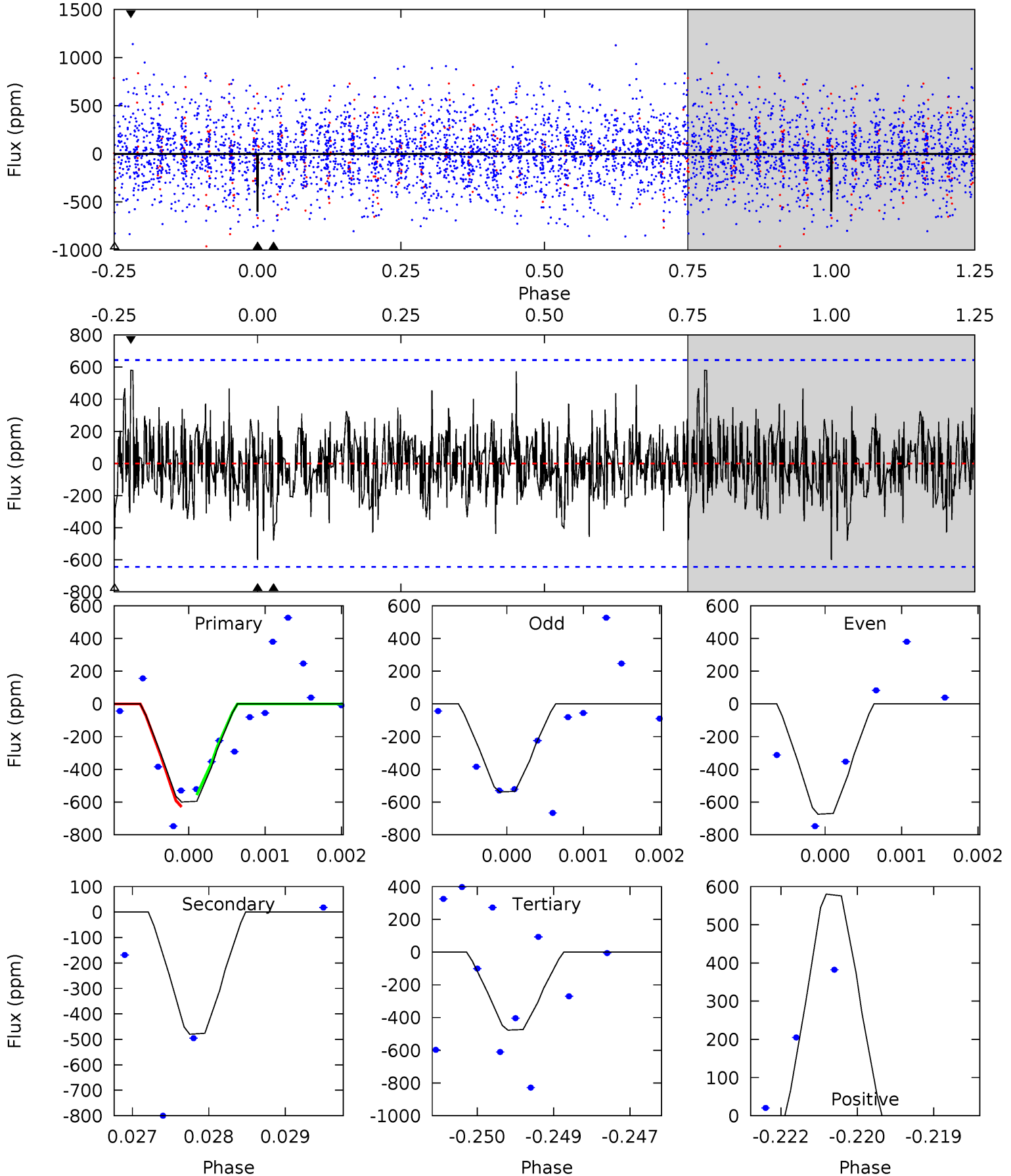
TCE 005597644-03 P= 38.894086 Days  $T_0=142.517203$  (BKJD)



# DV Model-Shift Uniqueness Test

005597644-03, P = 38.894409 Days, E = 142.512147 Days

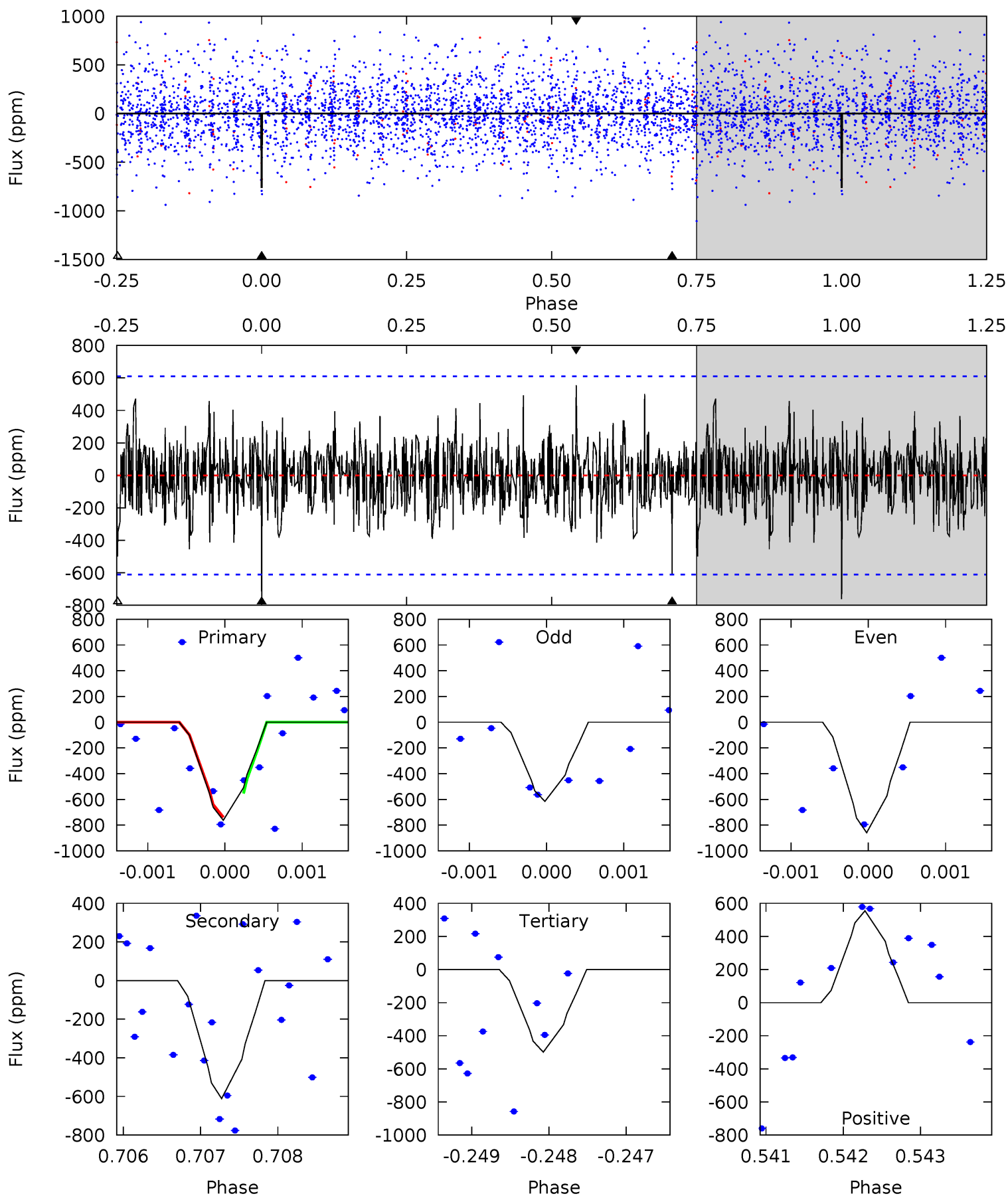
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.06	4.05	4.02	4.90	5.43	3.26	1.22	1.04	0.17	0.03	-0.85	0.54	0.97	0.49	0.29



# Alt Model-Shift Uniqueness Test

005597644-03, P = 38.894086 Days, E = 142.517203 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
6.76	5.42	4.43	4.93	5.42	3.24	1.26	2.33	1.83	1.00	0.50	1.02	0.91	0.42	0.82



### Stellar Parameters For KIC 005597644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4608^{+165}_{-165}$	$4.602^{+0.059}_{-0.027}$	$-0.220^{+0.300}_{-0.300}$	$0.671^{+0.054}_{-0.059}$	$0.656^{+0.081}_{-0.048}$	$3.064^{+0.754}_{-0.369}$
	+4%/-4%	+1%/-1%	+136%/-136%	+8%/-9%	+12%/-7%	+25%/-12%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005597644-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-480 \pm 119$	$4.74^{+4.05}_{-3.36}$	$523^{+22}_{-23}$	$3142^{+1656}_{-481}$	$444^{+4421}_{-321}$
Alt.	$-611 \pm 113$	$4.52^{+4.44}_{-3.18}$	$522^{+21}_{-21}$	$3321^{+1905}_{-577}$	$622^{+6552}_{-463}$

$T_{max}$  = 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

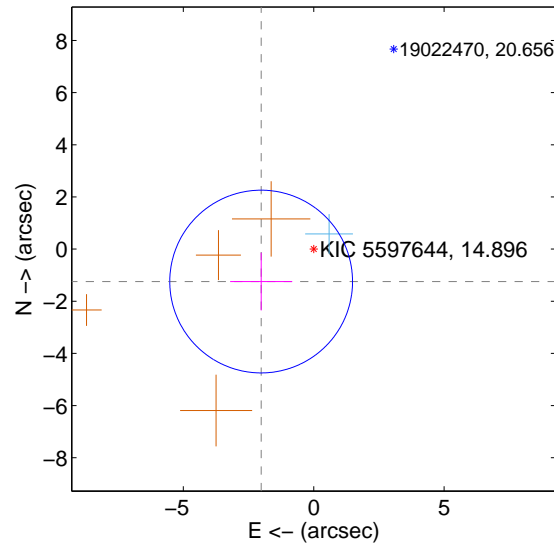
Supplemental centroid analysis for 005597644-03. Kepler magnitude: 14.90. Transit SNR 10.08

There are 1 quarters with good PRF difference image offsets

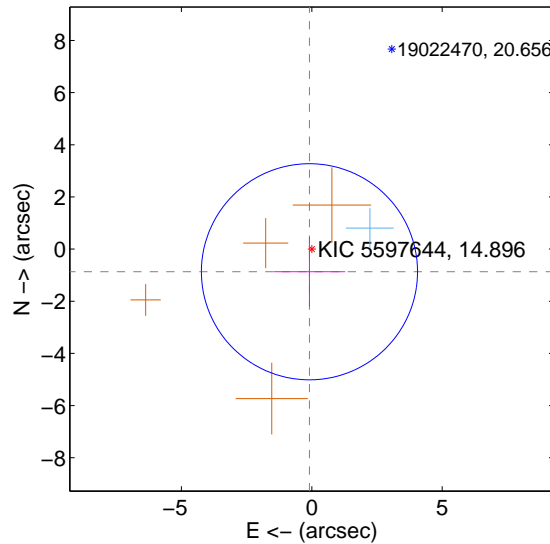
The OOT PRF centroid is offset from the target star catalog position by about 2.37 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.369 \pm 1.168$	2.03	$2.015 \pm 1.190$	$-1.245 \pm 1.108$
PRF-fit source offset from KIC position	$0.874 \pm 1.381$	0.63	$0.090 \pm 1.370$	$-0.869 \pm 1.333$
photometric centroid source offset	$3.33 \pm 1.47$	2.26	$-2.51 \pm 1.44$	$2.19 \pm 1.51$

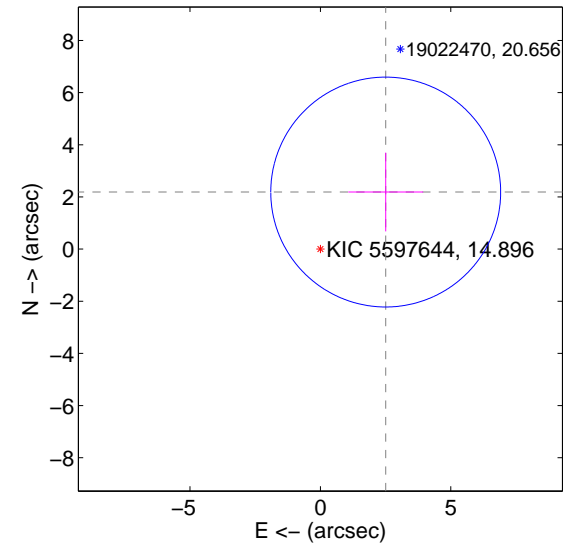
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

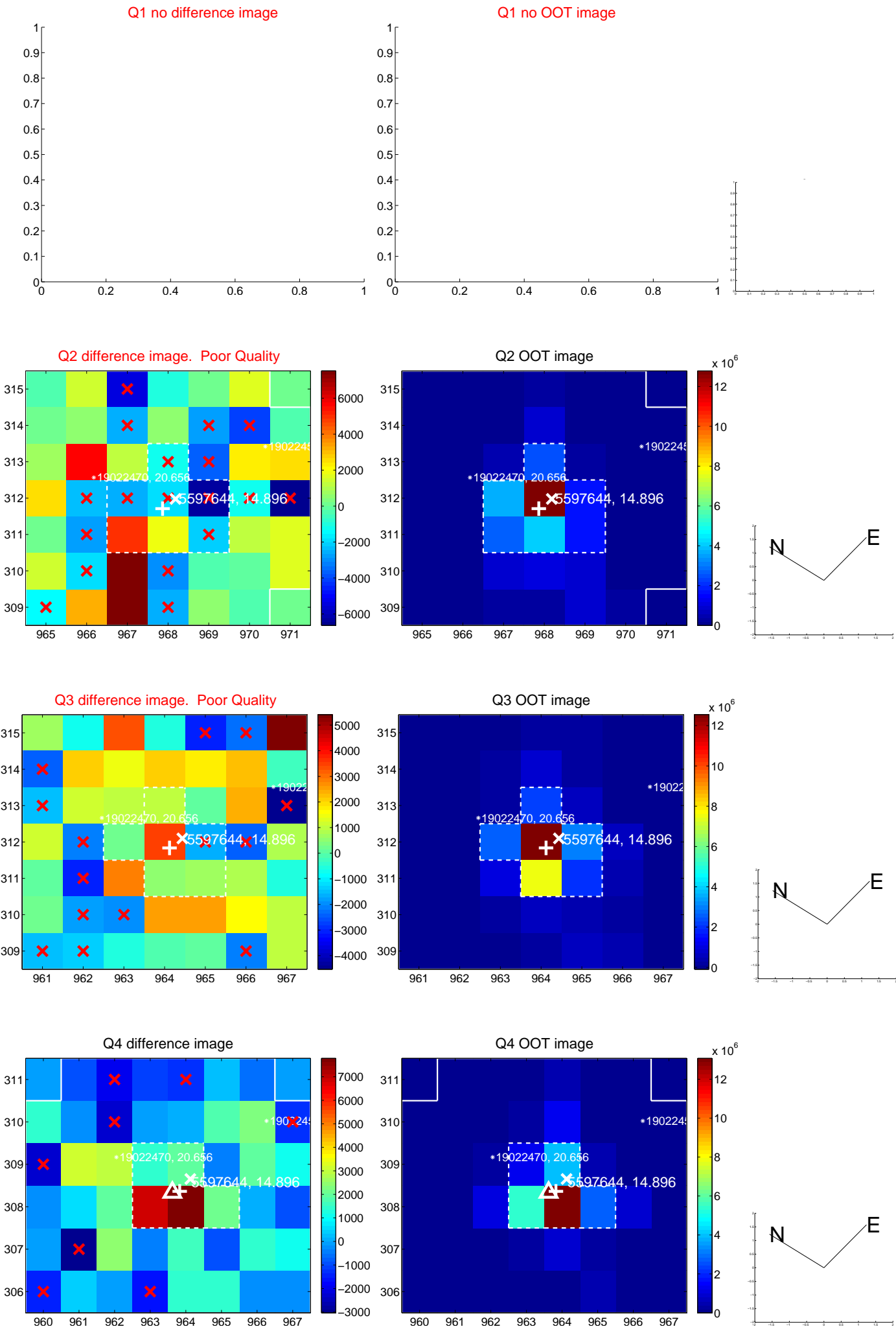


offset from photometric centroids



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.

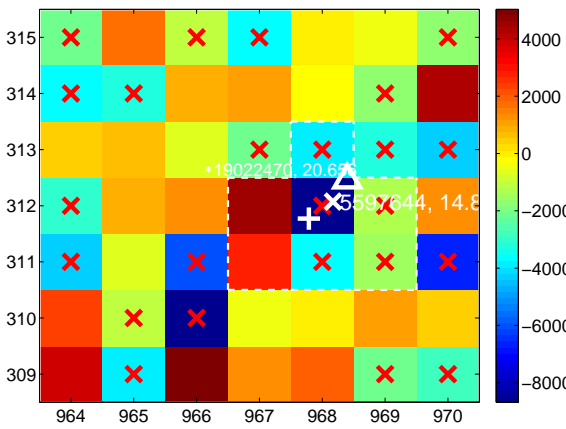
Q5 no difference image



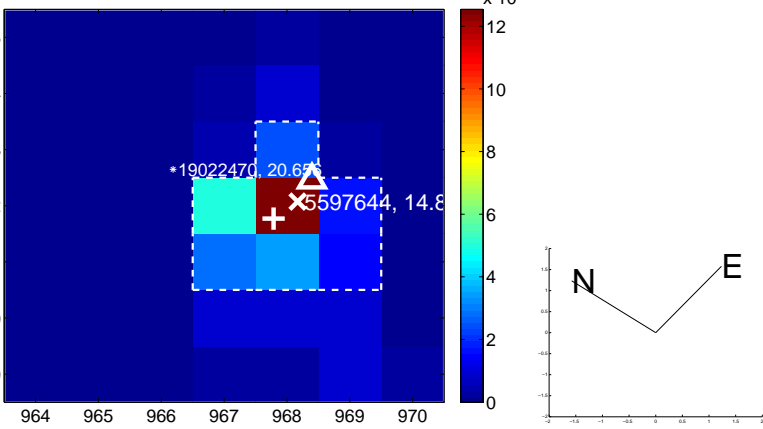
Q5 no OOT image



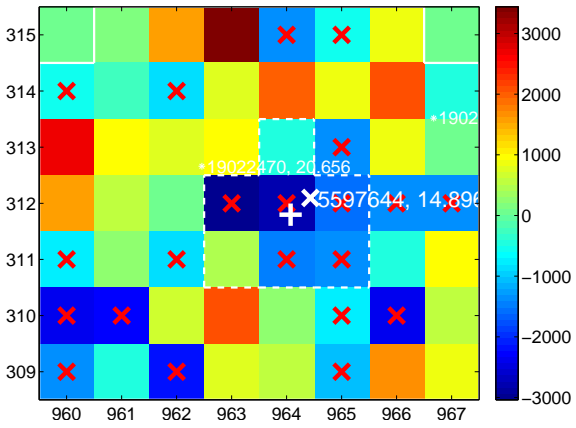
Q6 difference image. Poor Quality



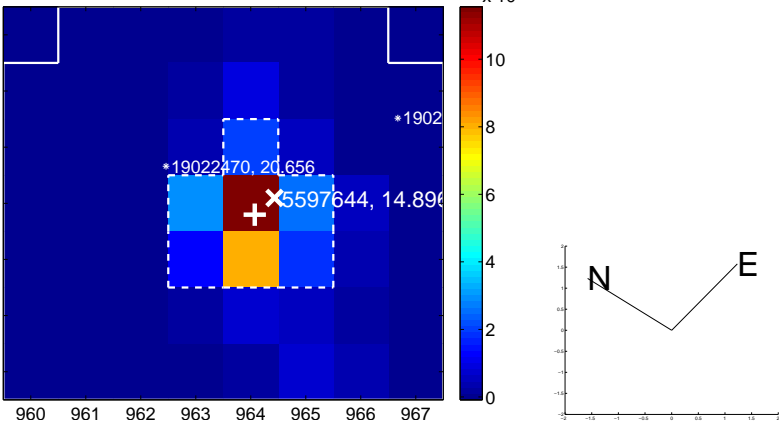
Q6 OOT image



Q7 difference image. Poor Quality



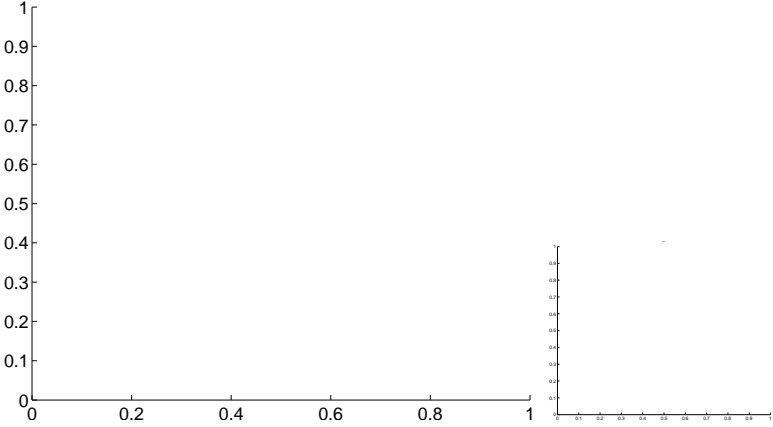
Q7 OOT image



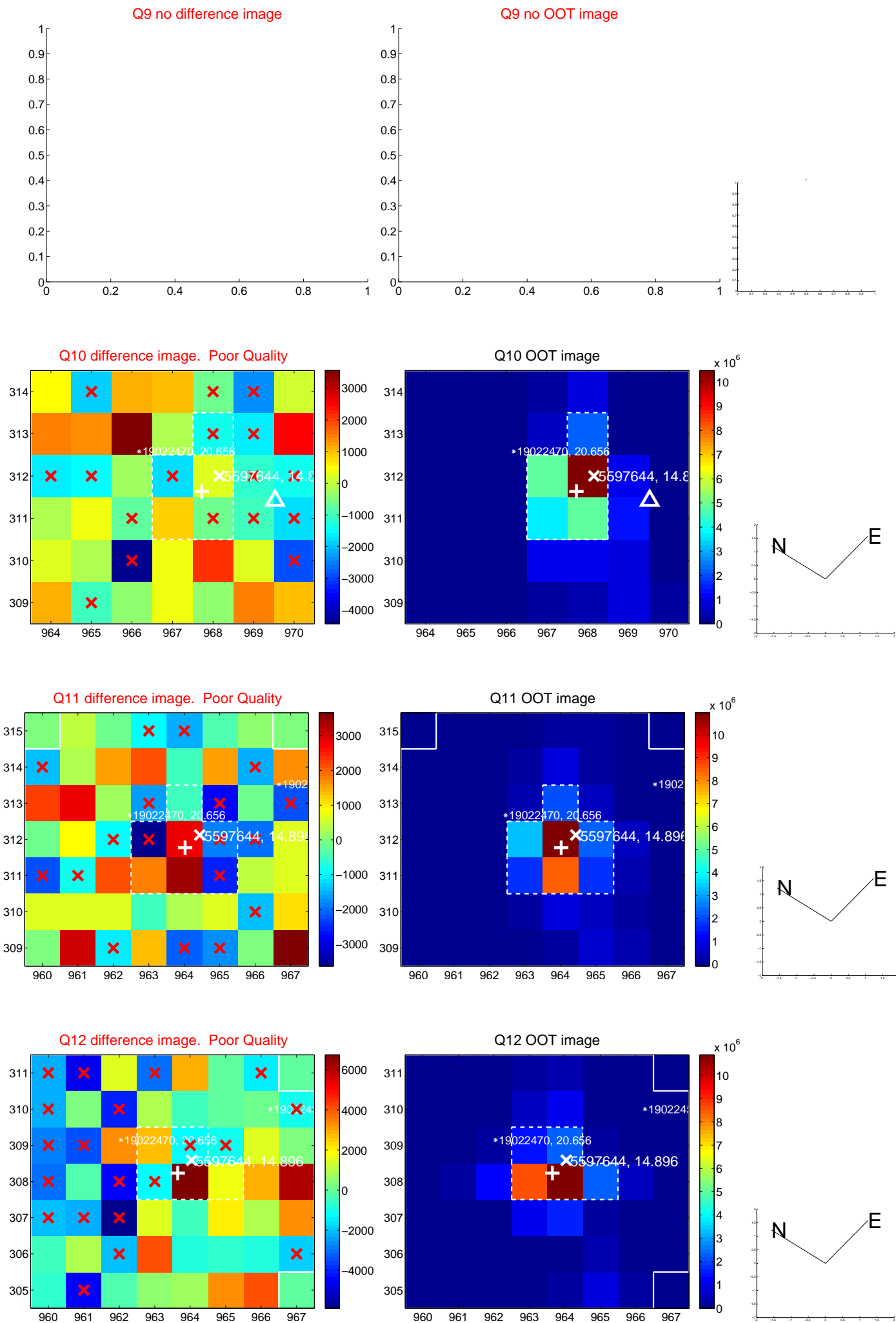
Q8 no difference image



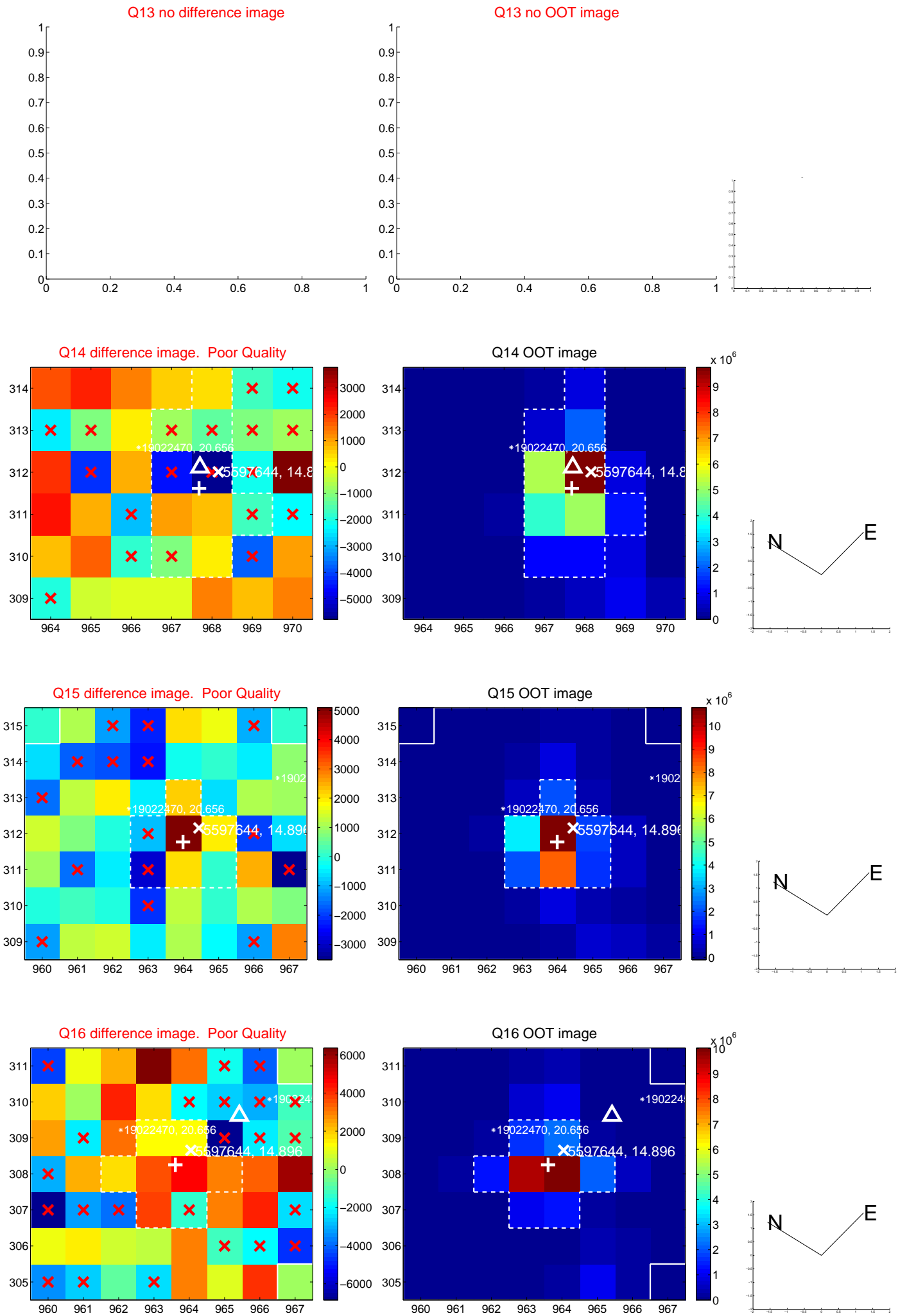
Q8 no OOT image



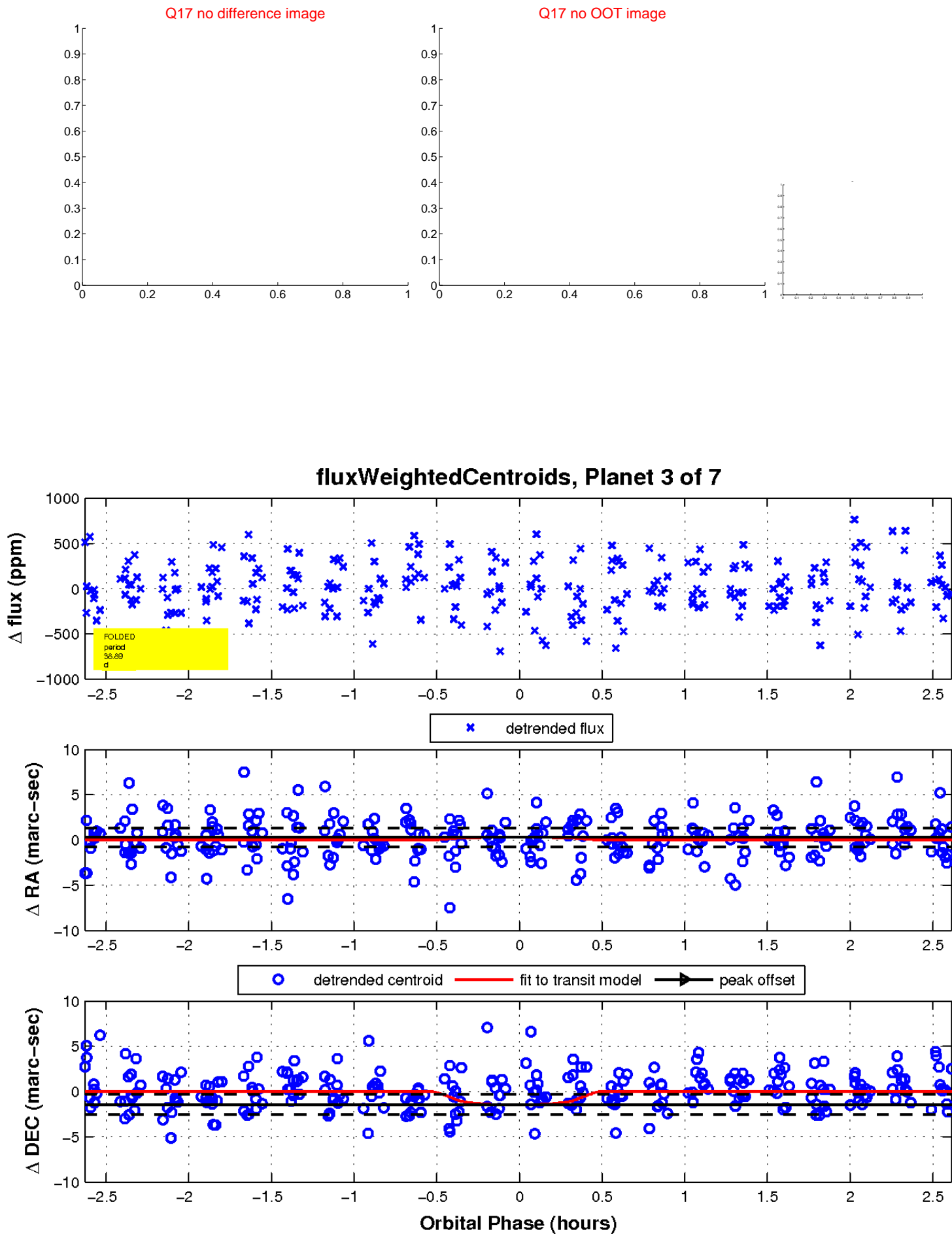
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



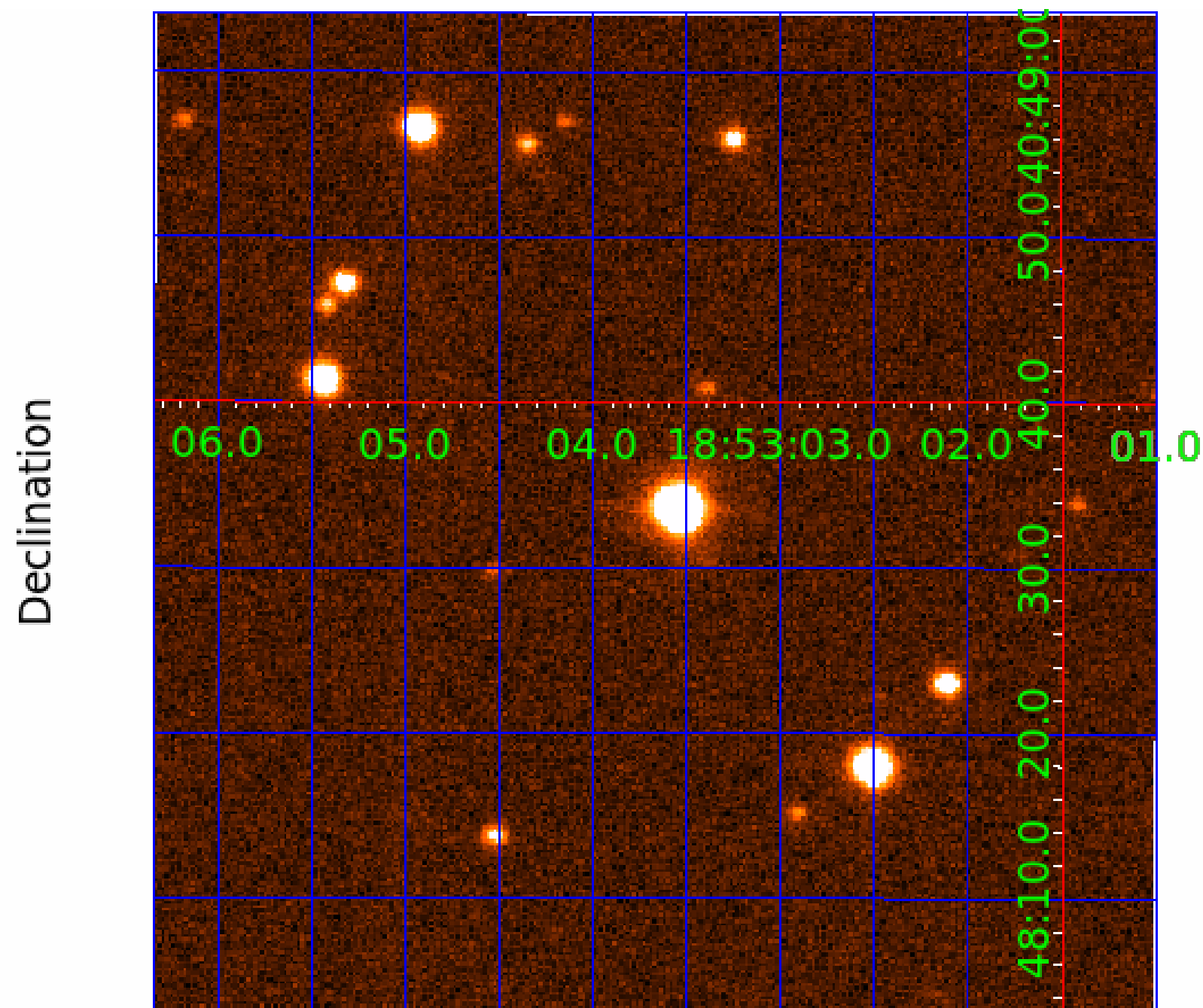
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 005597644

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005597644-01	OBS	No	1.622889	131.642472	44.5	11.975	10.2	12.4	0.67	4608	0.49	329.39
005597644-02	OBS	No	23.410825	149.563980	388.9	2.890	11.7	9.9	0.67	4608	1.69	9.38
005597644-03	OBS	No	38.894409	142.512147	701.9	0.878	12.6	10.1	0.67	4608	1.74	4.77
005597644-04	OBS	No	18.323547	149.547879	606.3	1.485	12.1	12.9	0.67	4608	1.75	13.00
005597644-05	OBS	No	8.641613	137.357345	428.3	2.730	10.9	11.7	0.67	4608	1.62	35.42
005597644-06	OBS	No	12.665253	139.311048	497.8	1.338	11.7	11.8	0.67	4608	1.47	21.28
005597644-07	OBS	No	22.061501	137.726267	457.6	0.945	9.4	10.2	0.67	4608	1.40	10.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005597644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
005597644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005597644-03	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_POS_ALT—CENT_FEW_MEAS
005597644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
005597644-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
005597644-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005597644-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—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.

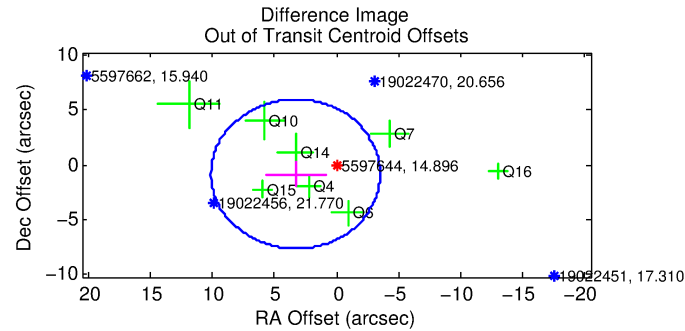
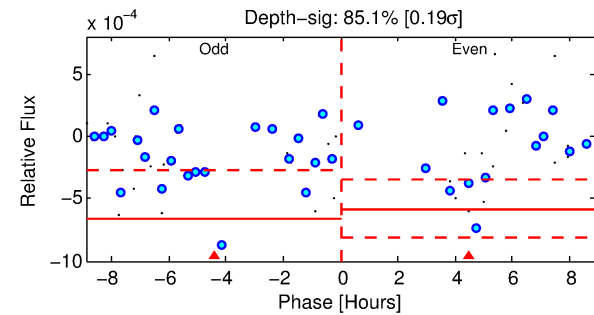
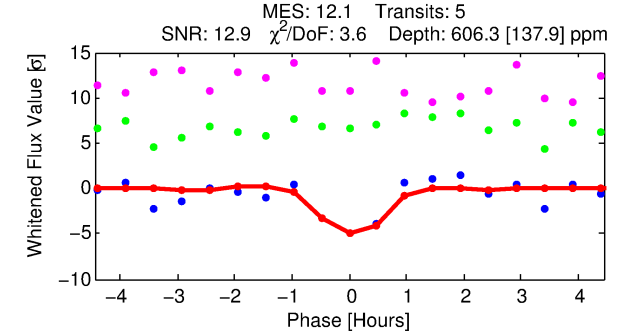
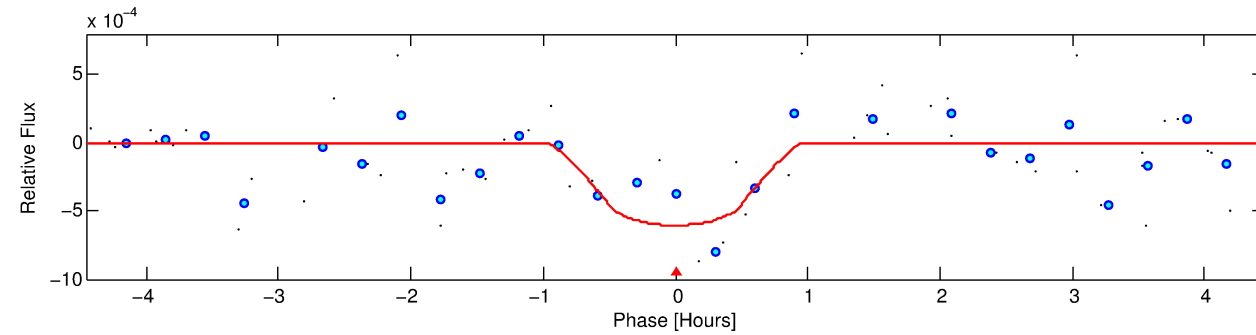
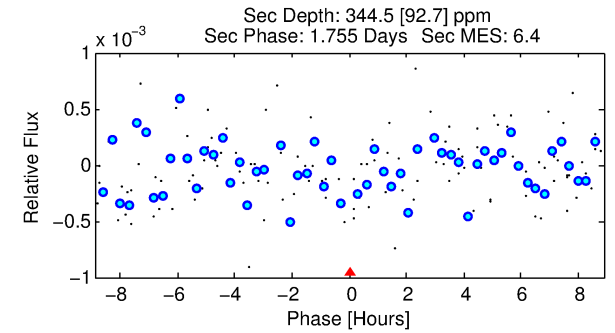
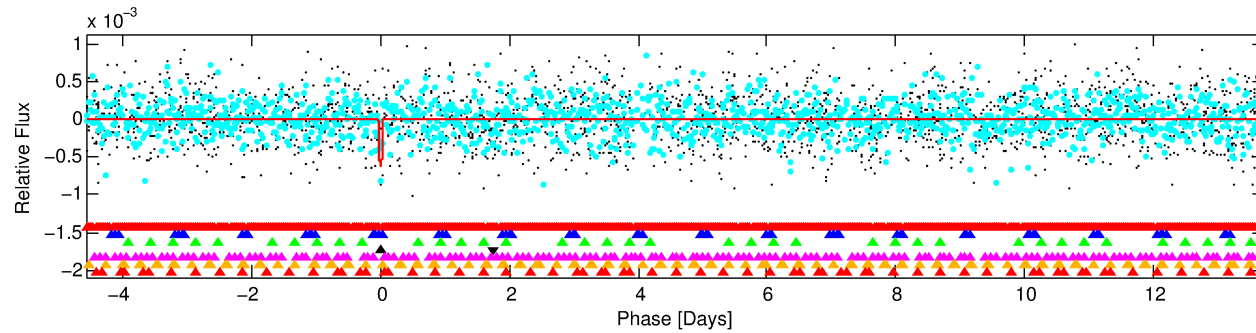
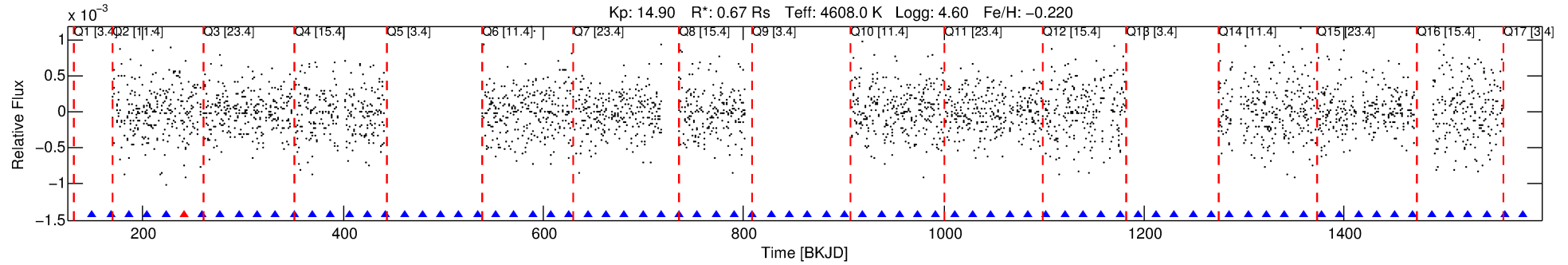
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005597644-04

No Significant Match Found

# DV One-Page Summary

KIC: 5597644 Candidate: 4 of 7 Period: 18.324 d



## DV Fit Results:

Period = 18.32355 [0.00020] d  
Epoch = 149.5479 [0.0085] BKJD  
Rp/R\* = 0.0240 [0.1176]  
a/R\* = 72.69 [1105.74]  
b = 0.67 [12.82]  
Seff = 13.00 [2.33]  
Teff = 484 [22] K  
Rp = 1.75 [8.61] Re  
a = 0.1183 [0.0088] AU  
Ag = 861.79 [8463.60] [0.10σ]  
Teffp = 4056 [9960] K [0.36σ]

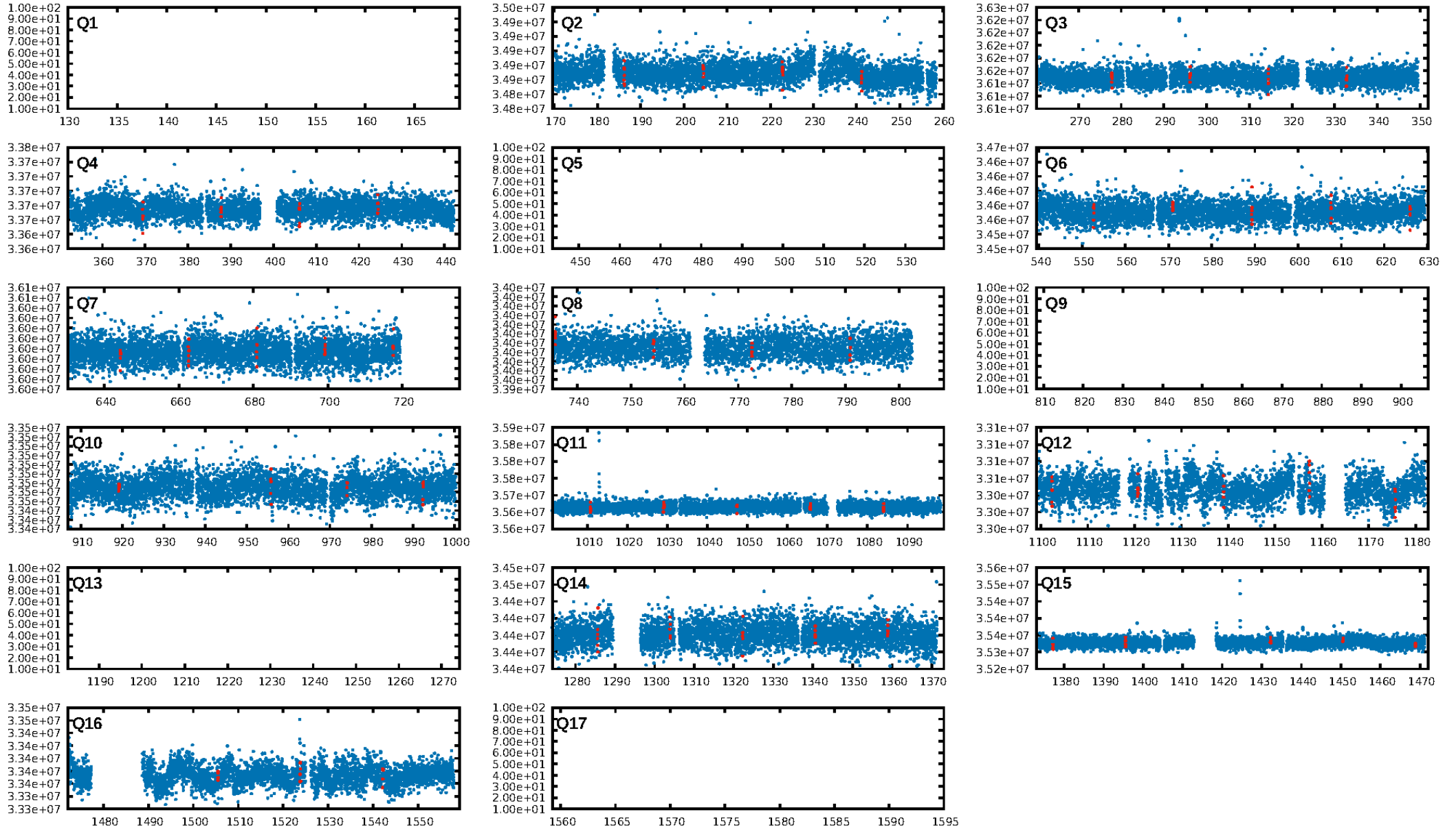
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [67.93σ]  
LongPeriod-sig: 100.0% [50.96σ]  
ModelChiSquare2-sig: 13.4%  
ModelChiSquareGof-sig: 19.2%  
**Bootstrap-pfa: 7.01e-11**  
RollingBand-fgt: 0.80 [4/5]  
GhostDiagnostic-chr: -0.1874  
Centroid-sig: 85.8%  
Centroid-so: 1.884 arcsec [2.14σ]  
OotOffset-rm: 3.404 arcsec [1.50σ]  
KicOffset-rm: 1.303 arcsec [0.70σ]  
OotOffset-st: 3/3/2/0 [8]  
KicOffset-st: 3/3/2/0 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 0.83 [10/12]

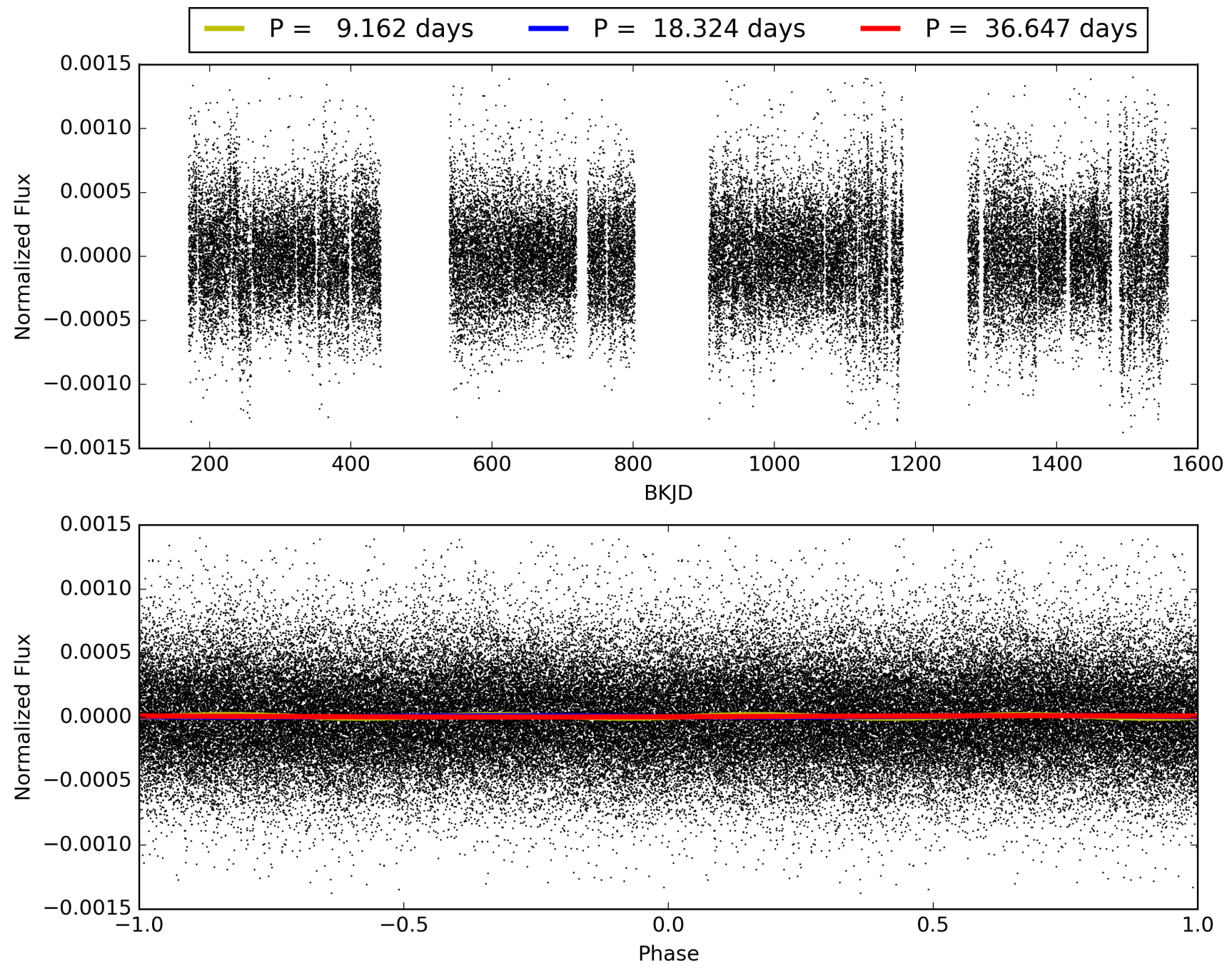
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:57:20 Z

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

# TCE 005597644-04, PDC Light Curves

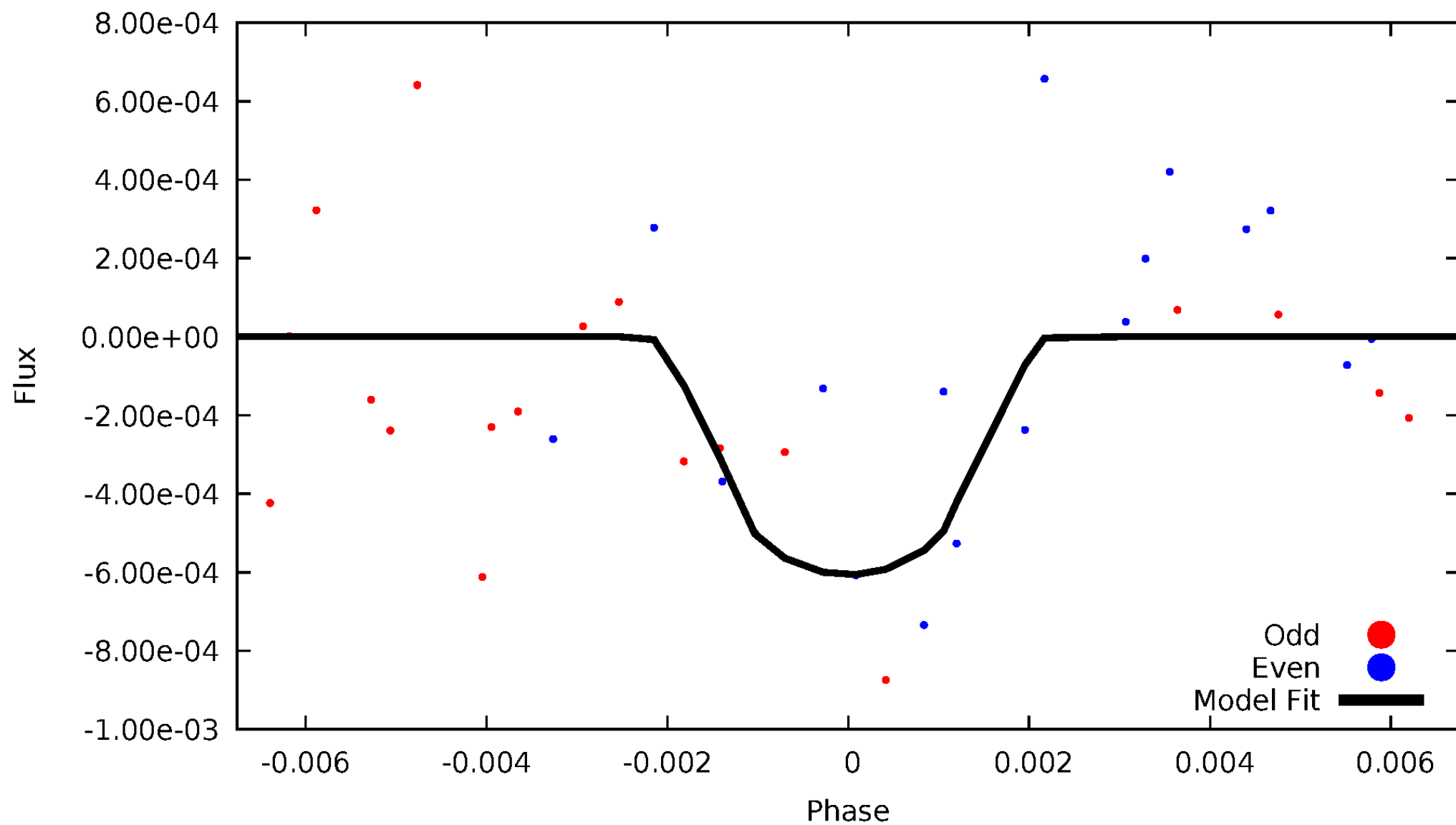


TCE 005597644-04



# DV Odd/Even

TCE 005597644-04





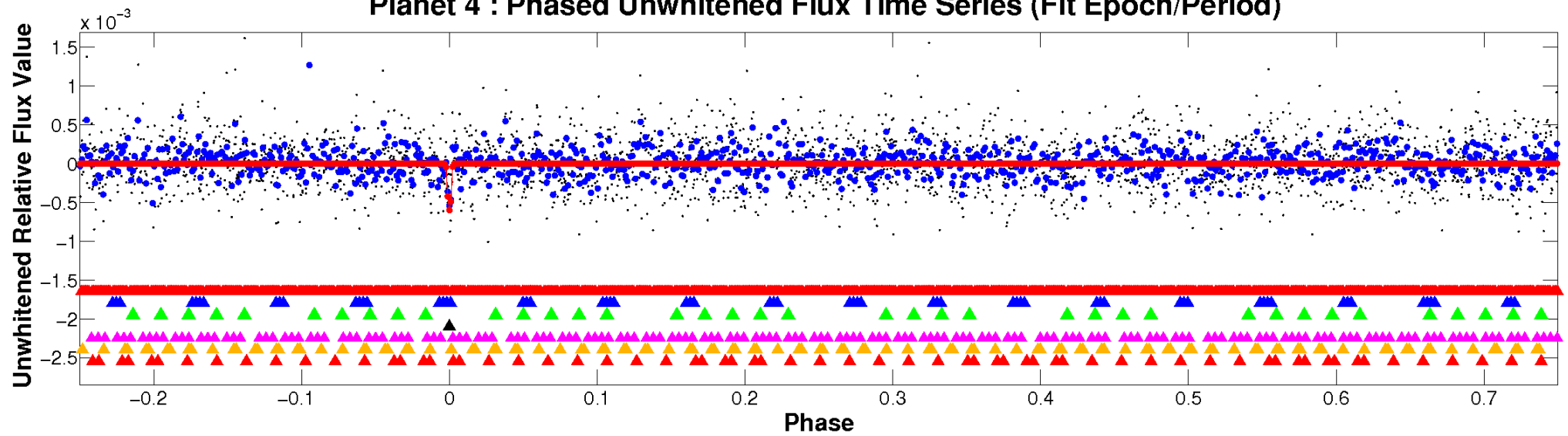
ALT Odd/Even

This plot does not exist for this TCE.

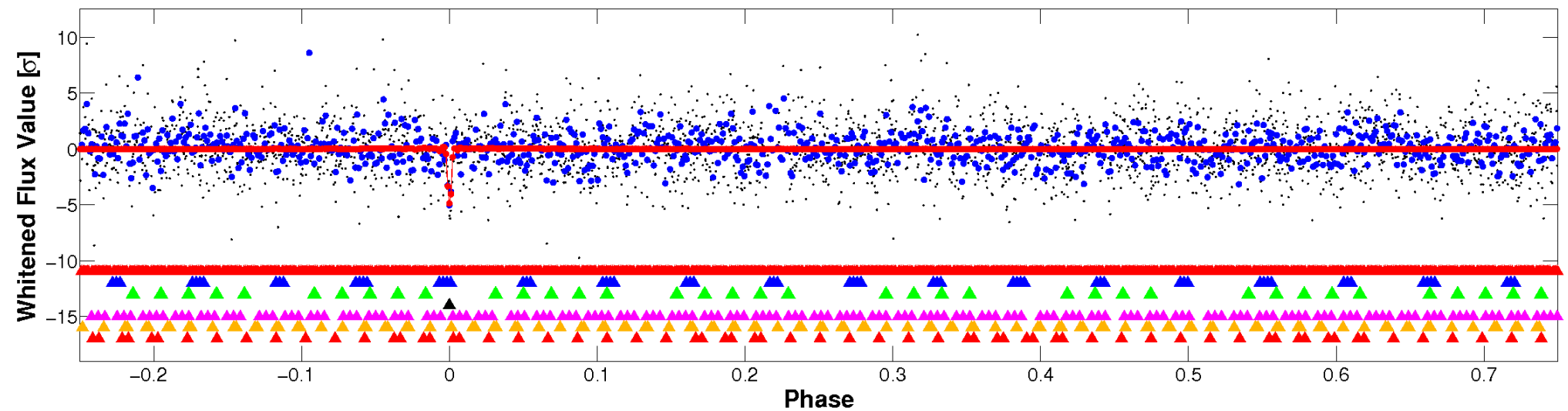


# Non-Whitened Vs. Whitened Light Curve

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

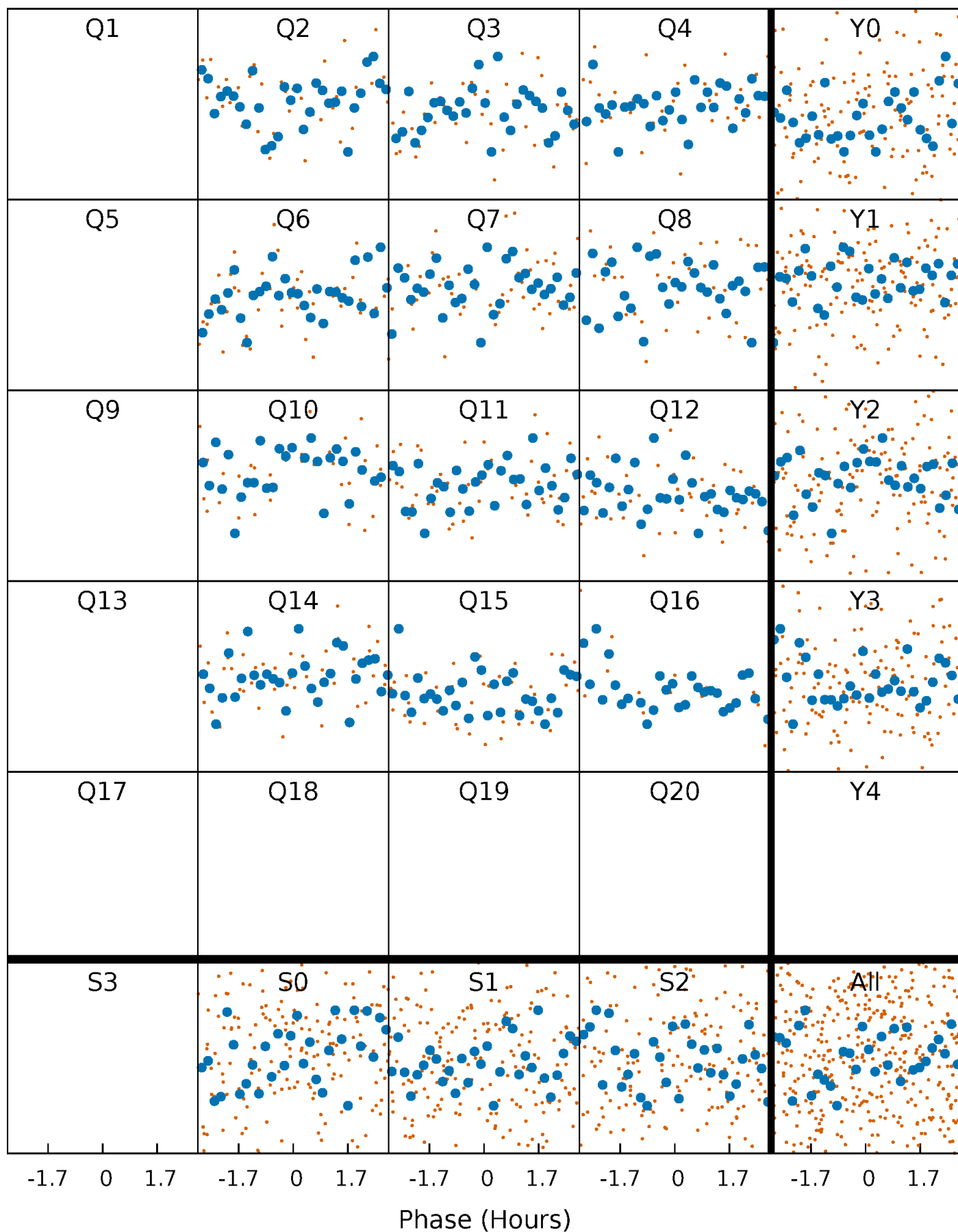


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



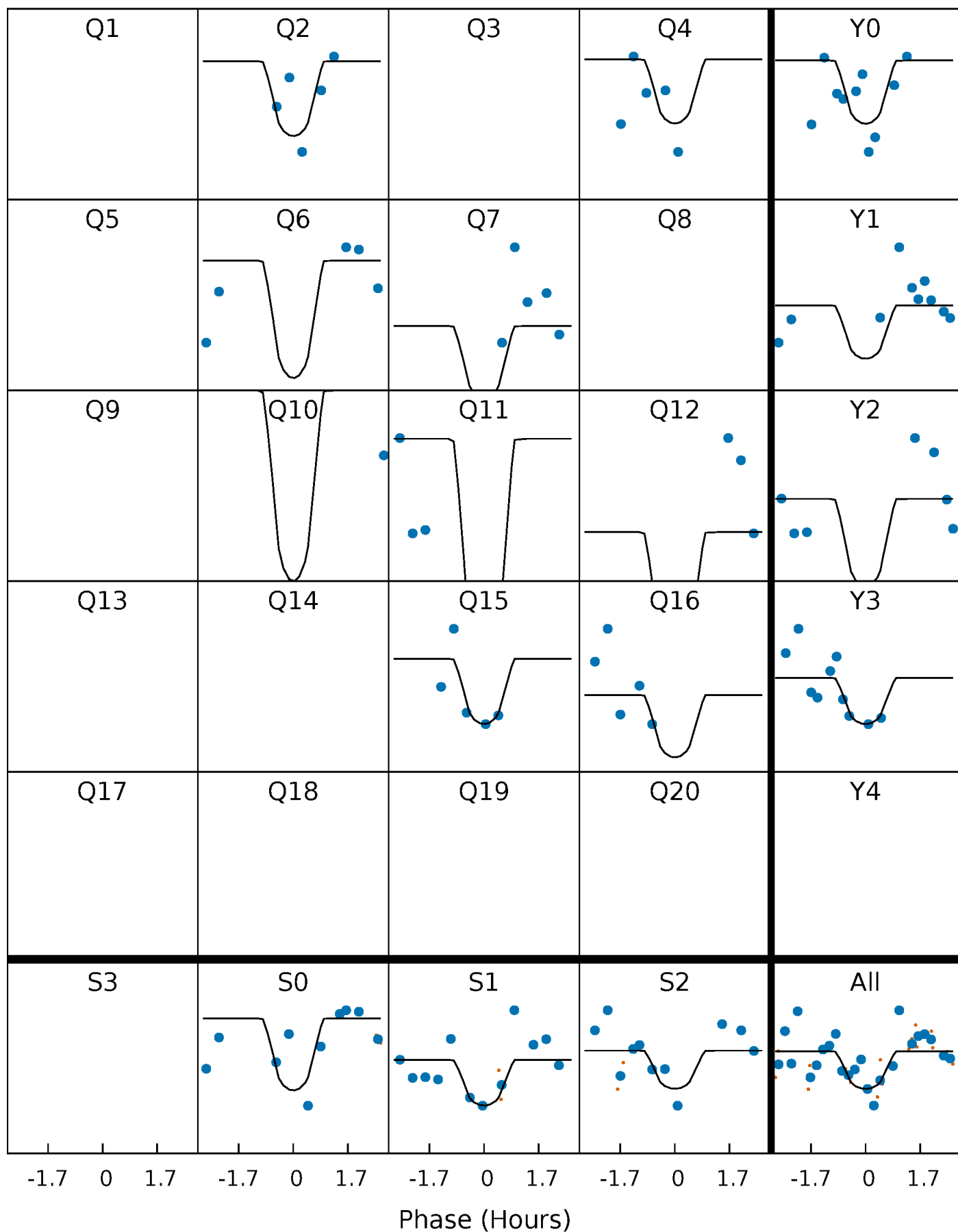
# PDC Quarter-Phased Transit Curves

TCE 005597644-04 P= 18.323547 Days  $T_0=149.547879$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 005597644-04 P= 18.323547 Days  $T_0=149.547879$  (BKJD)

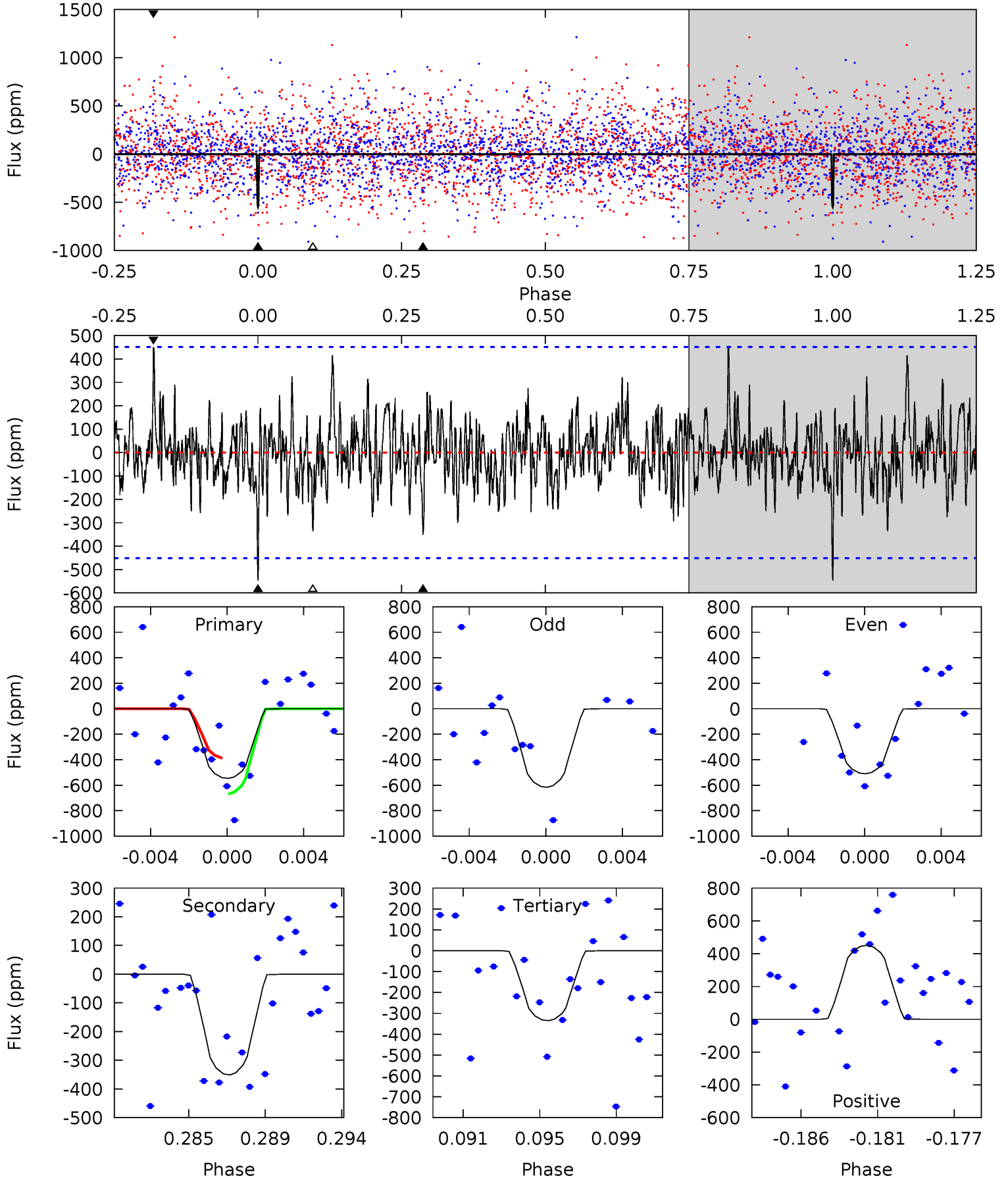


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

005597644-04, P = 18.323547 Days, E = 149.547879 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
6.28	4.03	3.85	5.18	5.19	2.85	1.32	2.43	1.10	0.18	-1.14	0.57	0.86	0.45	1.62



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 005597644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} \text{ (g}\cdot\text{cm}^{-3}\text{)}$
	$4608^{+165}_{-165}$	$4.602^{+0.059}_{-0.027}$	$-0.220^{+0.300}_{-0.300}$	$0.671^{+0.054}_{-0.059}$	$0.656^{+0.081}_{-0.048}$	$3.064^{+0.754}_{-0.369}$
	+4%/-4%	+1%/-1%	+136%/-136%	+8%/-9%	+12%/-7%	+25%/-12%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005597644-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-351 \pm 87$	$6.35^{+6.65}_{-4.53}$	$673^{+28}_{-28}$	$2793^{+1289}_{-467}$	$65^{+735}_{-50}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{\text{max}}$  = 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

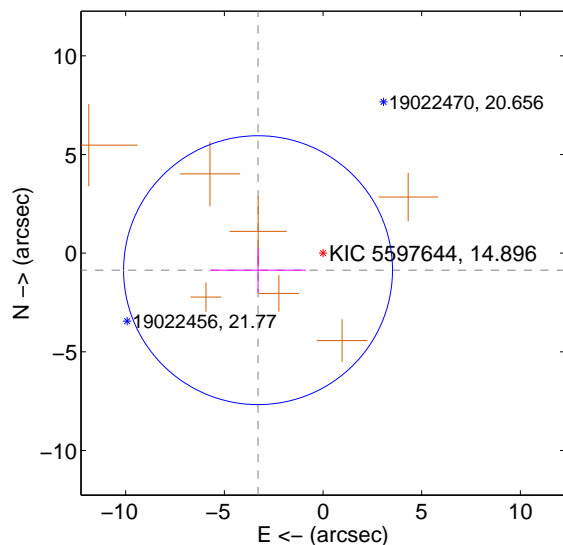
Supplemental centroid analysis for 005597644-04. Kepler magnitude: 14.90. Transit SNR 12.91

There are 0 quarters with good PRF difference image offsets

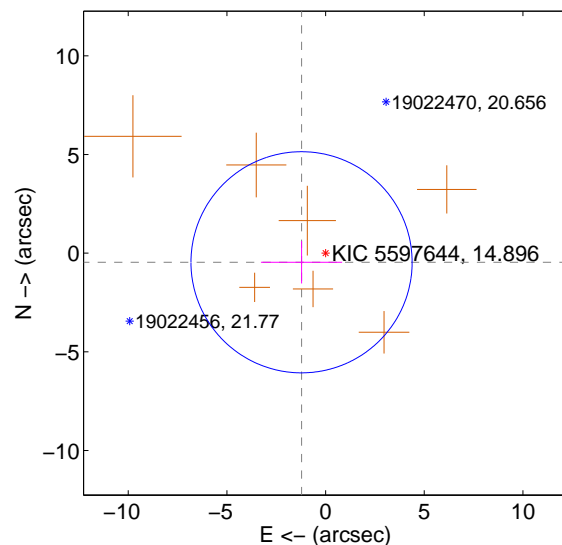
The OOT PRF centroid is offset from the target star catalog position by about 2.37 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.404 \pm 2.271$	1.50	$3.294 \pm 2.418$	$-0.861 \pm 1.143$
PRF-fit source offset from KIC position	$1.303 \pm 1.868$	0.70	$1.218 \pm 2.055$	$-0.461 \pm 1.075$
photometric centroid source offset	$1.88 \pm 0.88$	2.14	$-1.88 \pm 0.88$	$-0.05 \pm 0.93$

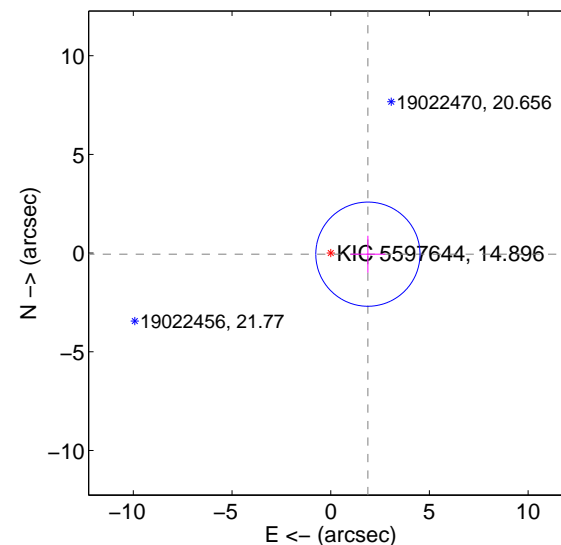
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

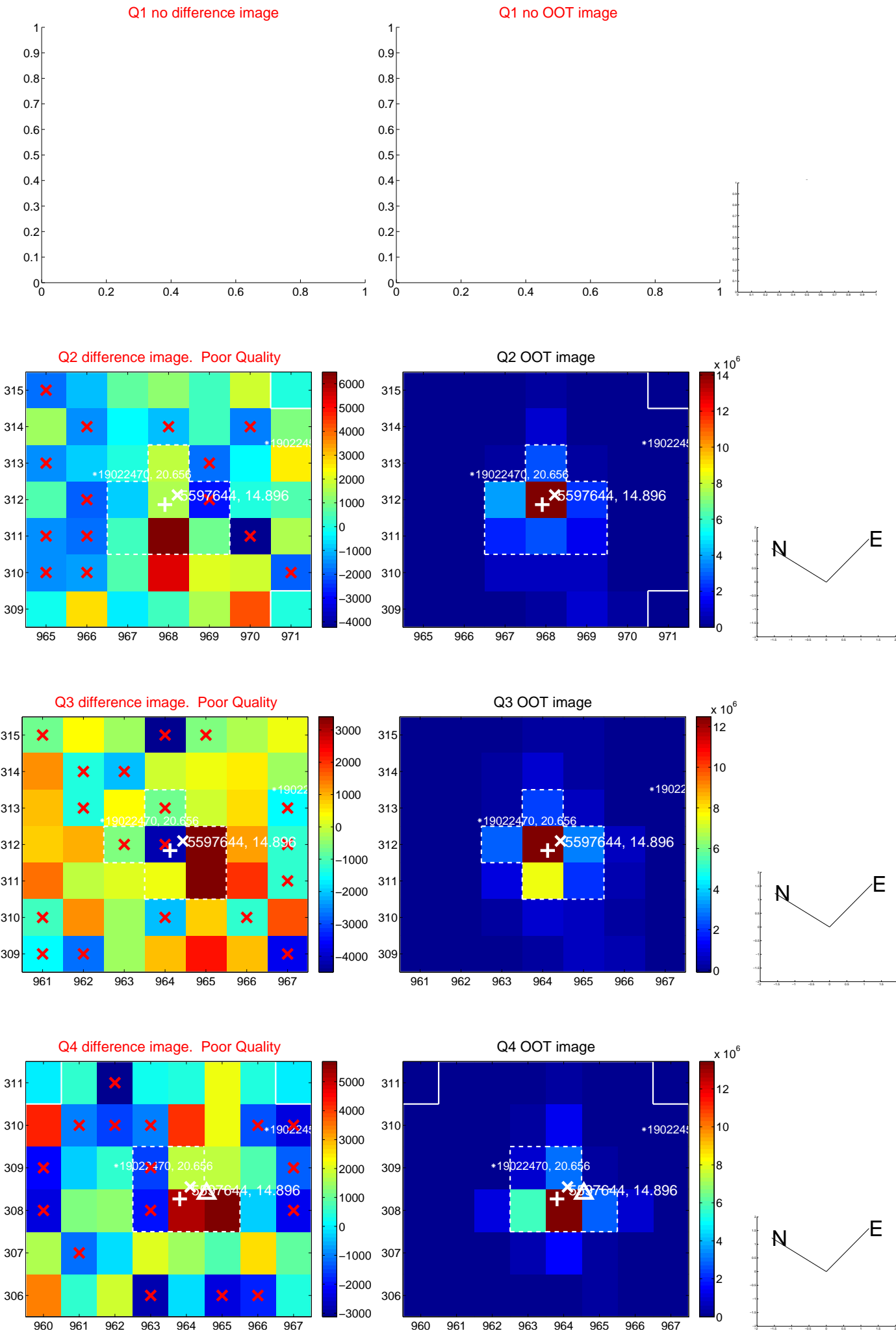


offset from photometric centroids

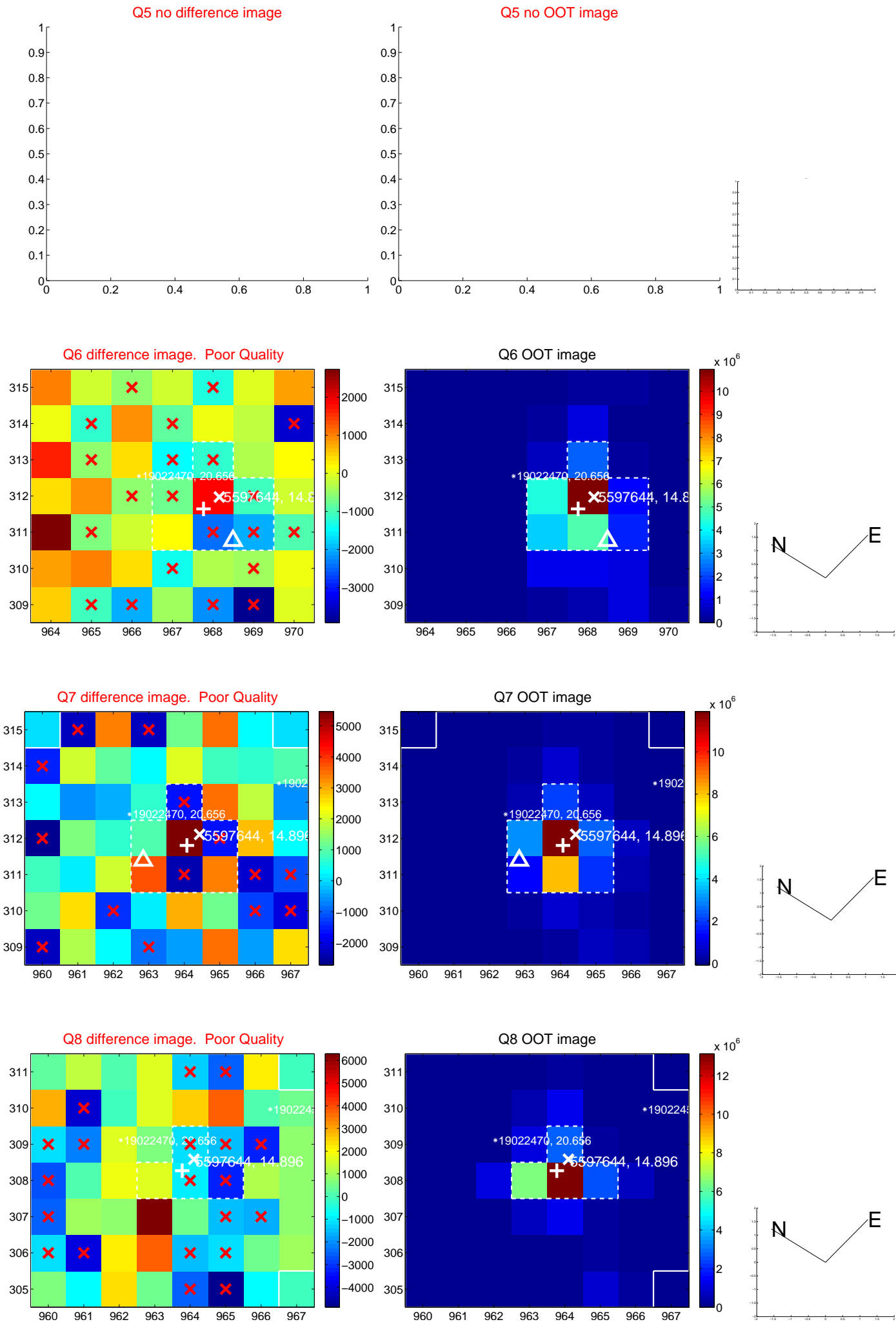


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

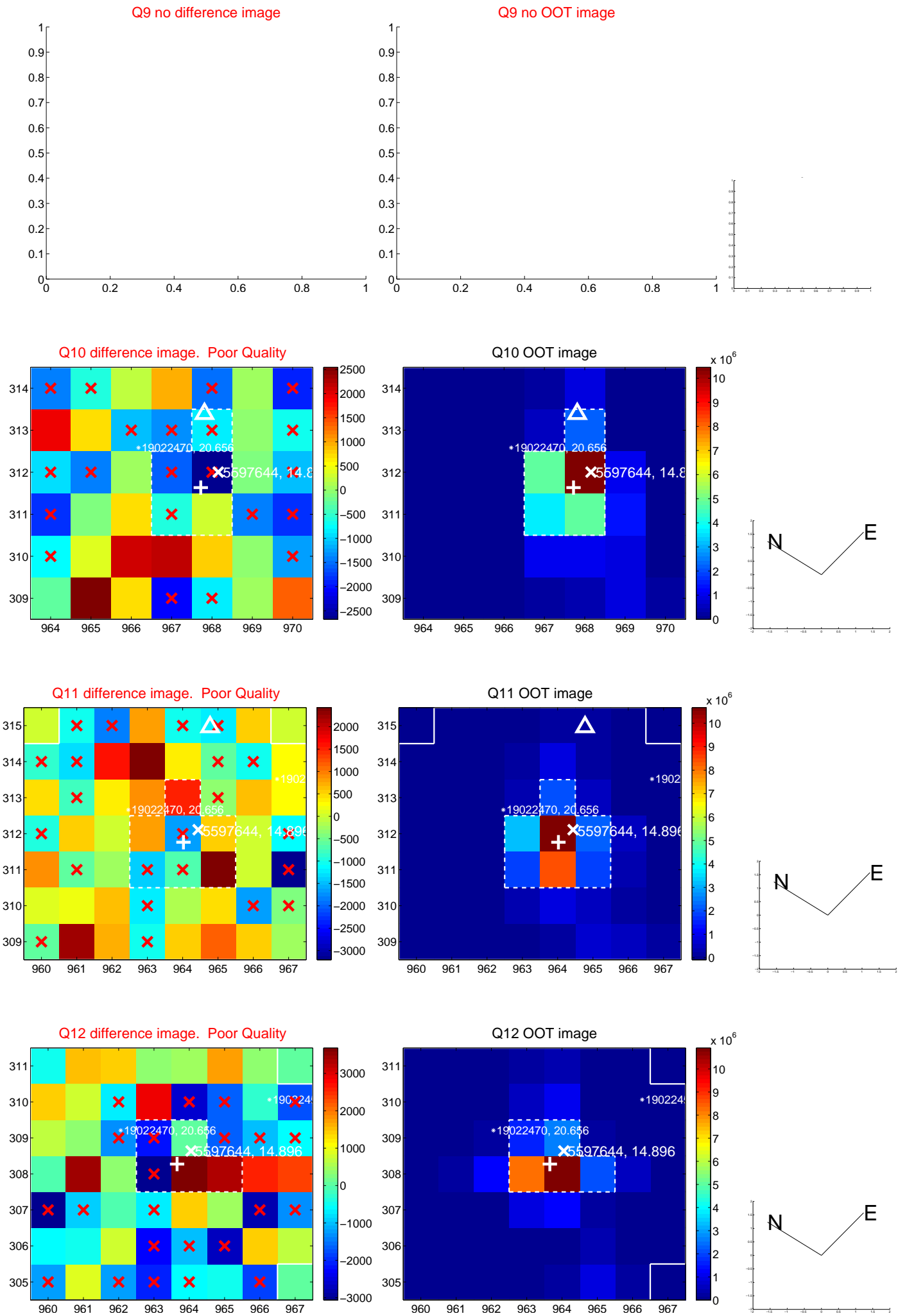
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



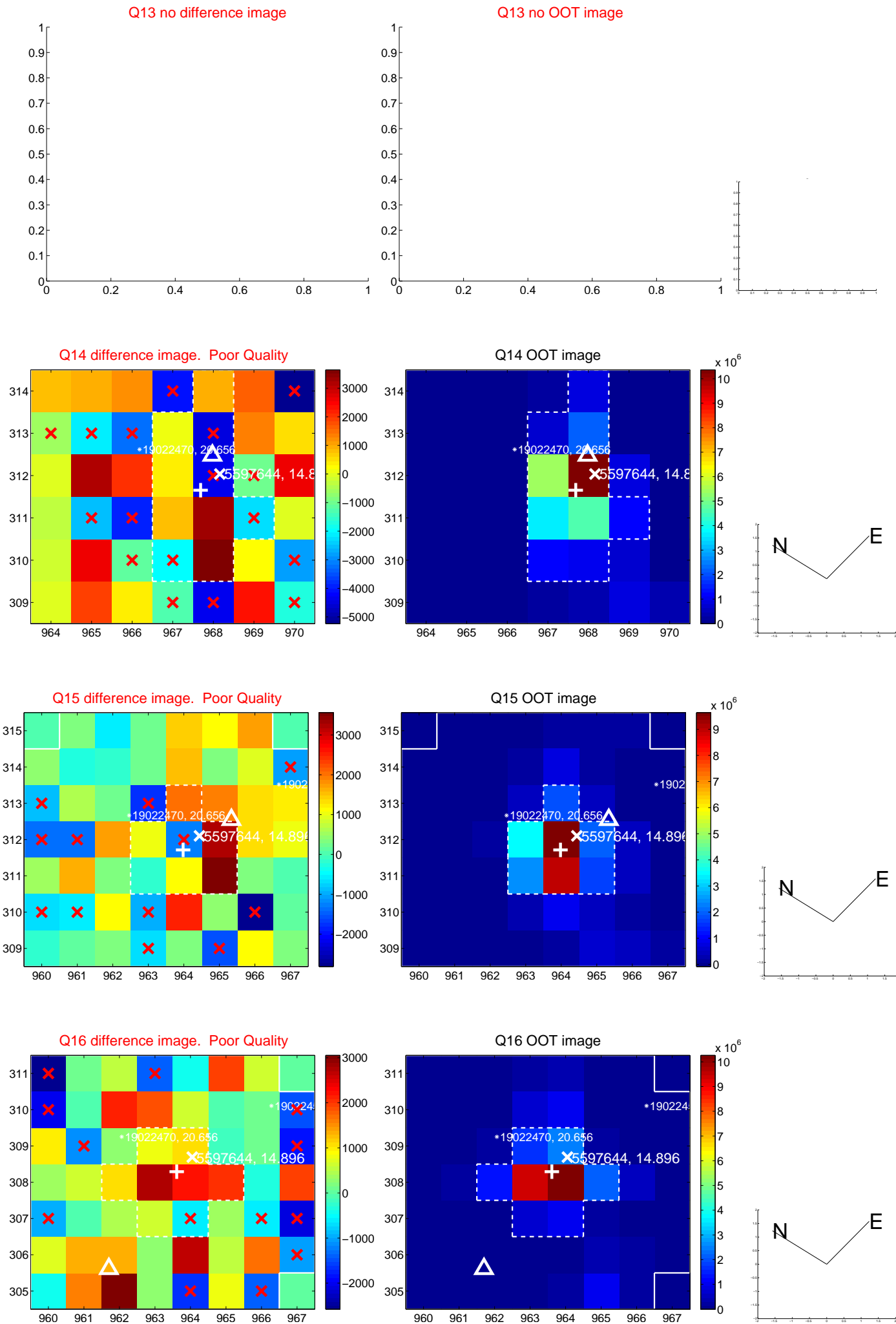
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



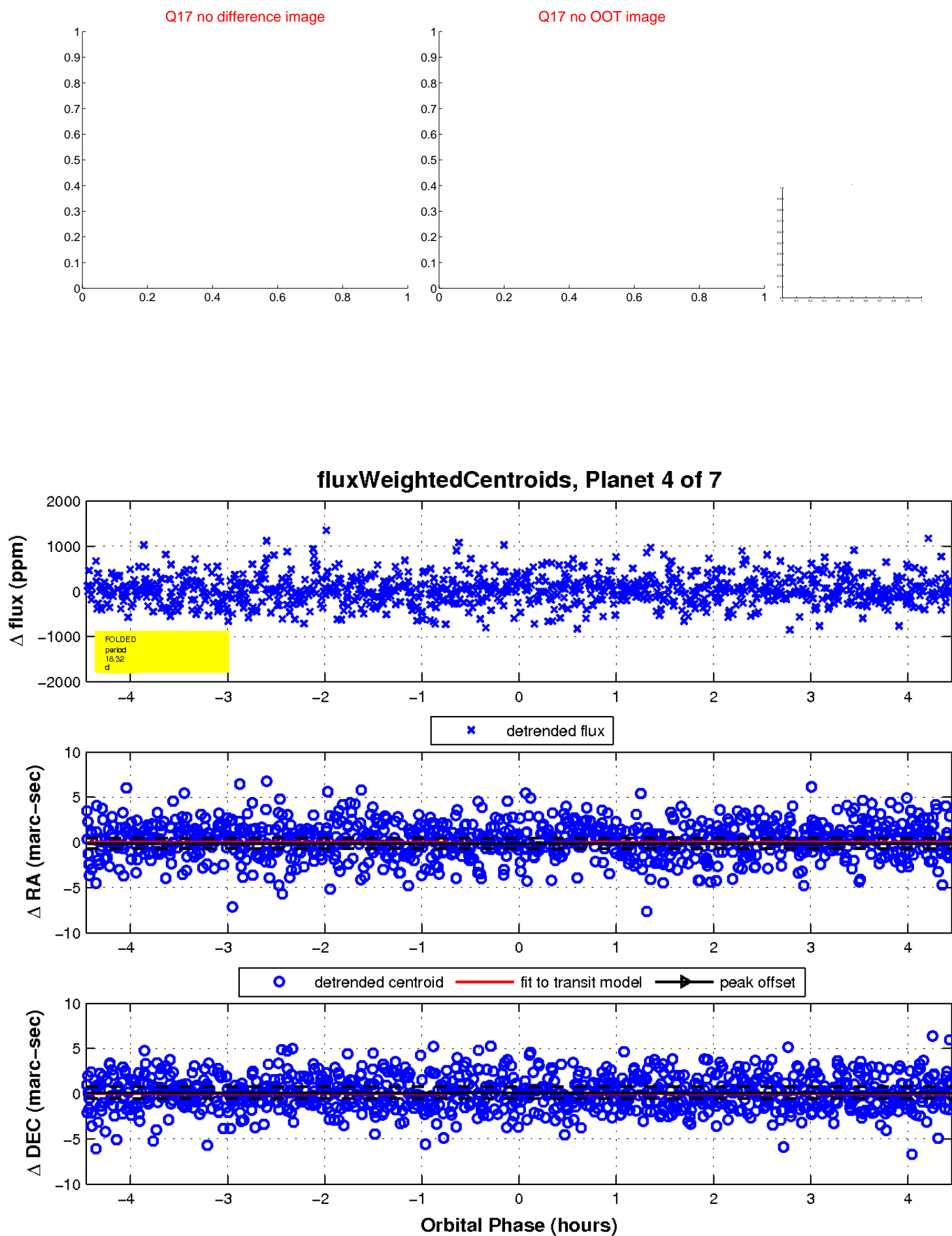
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



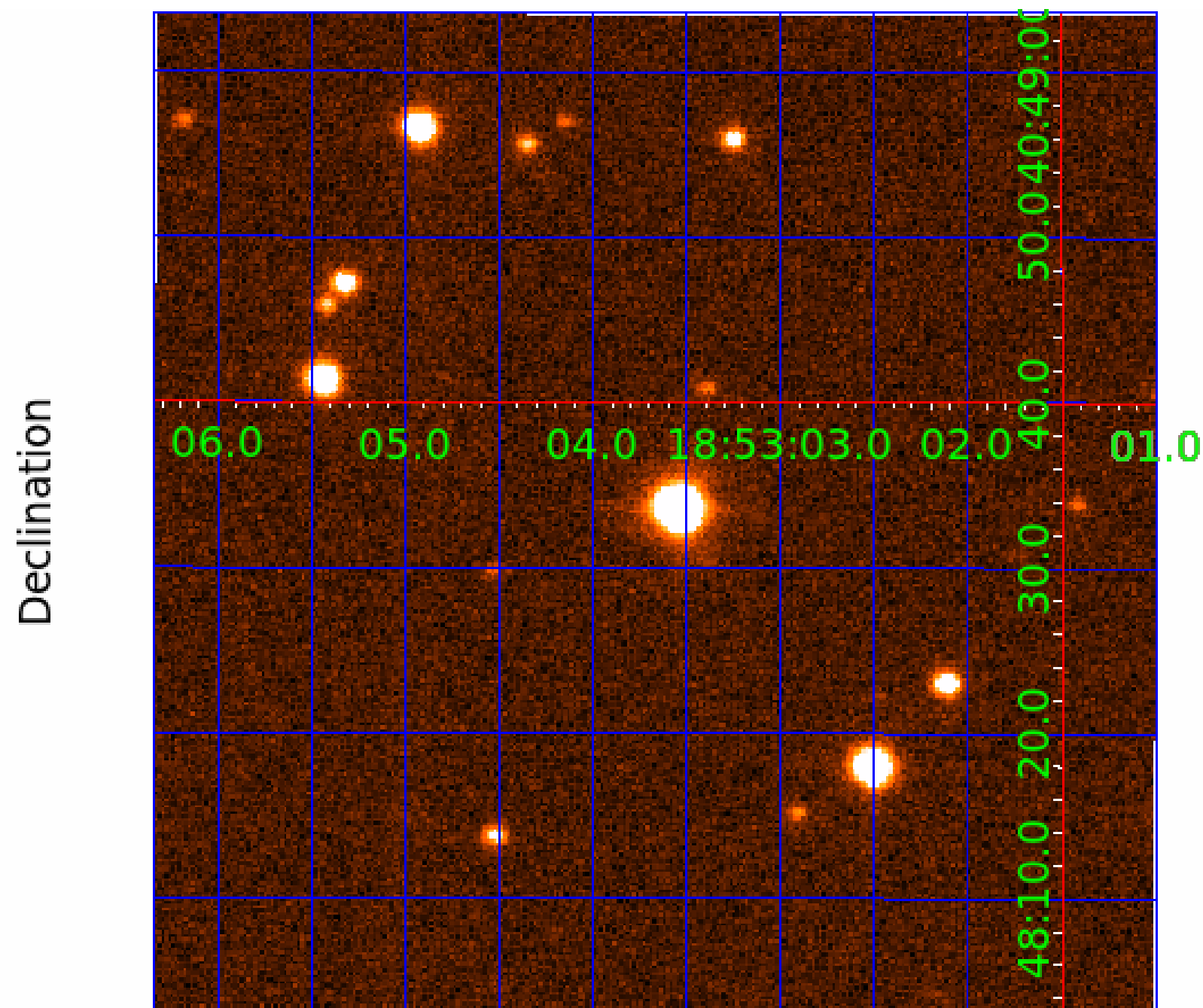
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 005597644

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005597644-01	OBS	No	1.622889	131.642472	44.5	11.975	10.2	12.4	0.67	4608	0.49	329.39
005597644-02	OBS	No	23.410825	149.563980	388.9	2.890	11.7	9.9	0.67	4608	1.69	9.38
005597644-03	OBS	No	38.894409	142.512147	701.9	0.878	12.6	10.1	0.67	4608	1.74	4.77
005597644-04	OBS	No	18.323547	149.547879	606.3	1.485	12.1	12.9	0.67	4608	1.75	13.00
005597644-05	OBS	No	8.641613	137.357345	428.3	2.730	10.9	11.7	0.67	4608	1.62	35.42
005597644-06	OBS	No	12.665253	139.311048	497.8	1.338	11.7	11.8	0.67	4608	1.47	21.28
005597644-07	OBS	No	22.061501	137.726267	457.6	0.945	9.4	10.2	0.67	4608	1.40	10.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005597644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
005597644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005597644-03	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_POS_ALT—CENT_FEW_MEAS
005597644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
005597644-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
005597644-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005597644-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—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.

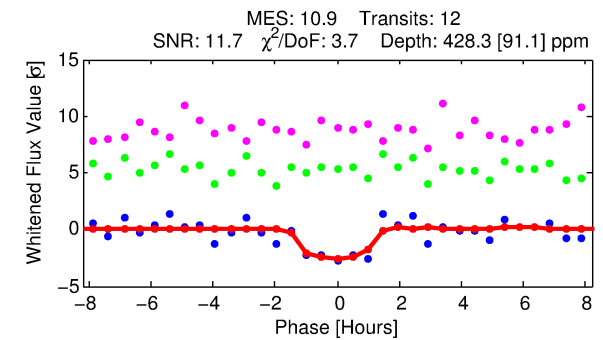
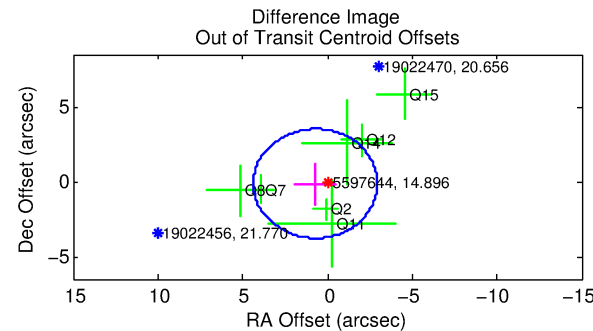
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005597644-05

No Significant Match Found



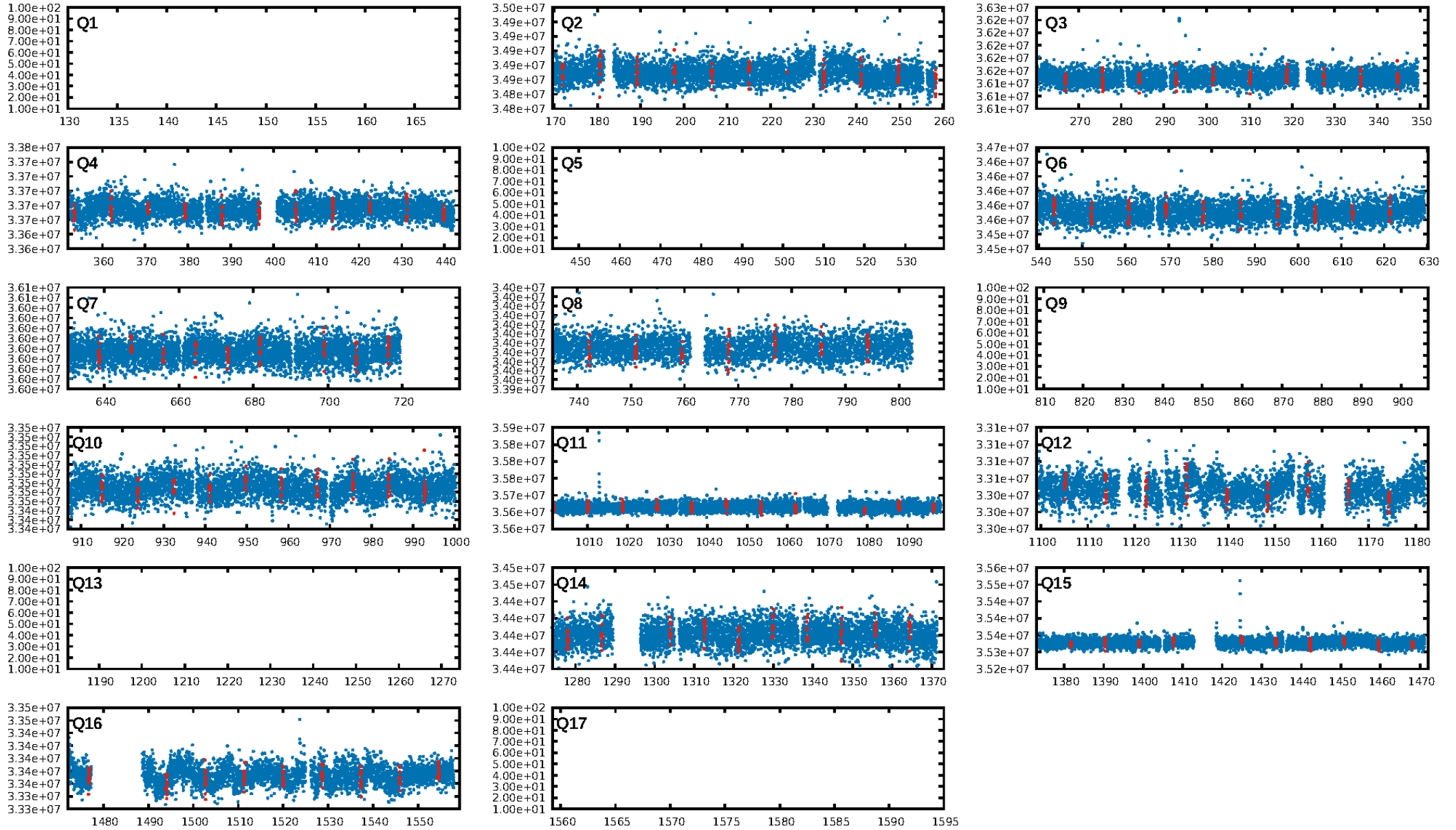
## KIC: 5597644    Candidate: 5 of 7    Period: 8.642 d



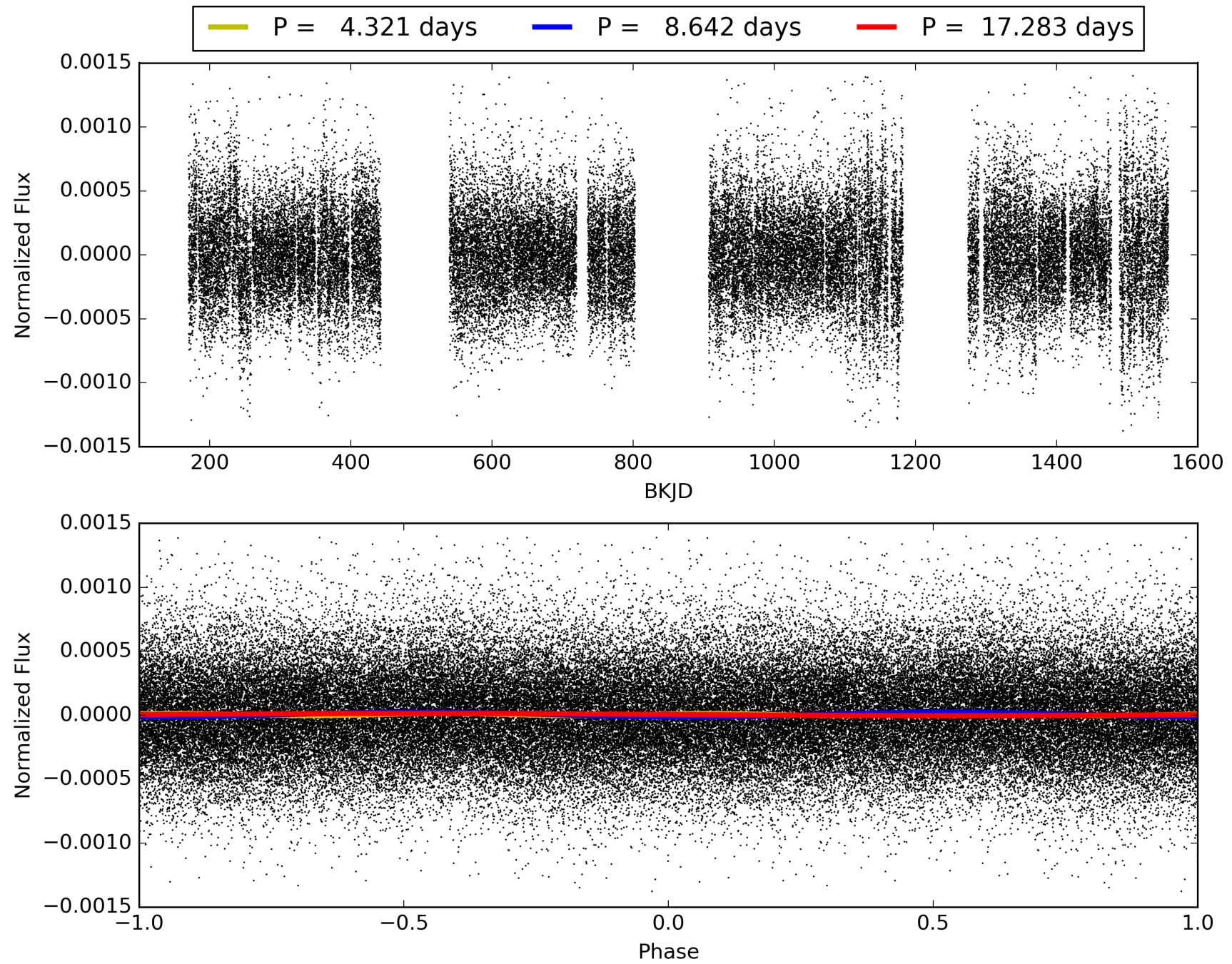
ShortPeriod-sig: 100.0% [13.72σ]  
 LongPeriod-sig: 100.0% [31.76σ]  
 ModelChiSquare2-sig: 0.0%  
 ModelChiSquareGof-sig: 42.1%  
 Bootstrap-pfa: 1.19e-10  
 RollingBand-fgt: 1.00 [12/12]  
 GhostDiagnostic-chr: -0.6981

Centroid-sig: 0.0%  
 Centroid-so: 0.828 arcsec [1.28σ]  
 OotOffset-rm: 0.727 arcsec [0.60σ]  
 KicOffset-rm: 1.114 arcsec [0.80σ]  
 OotOffset-st: 2/3/2/0 [7]  
 KicOffset-st: 2/3/2/0 [7]  
 DiffImageQuality-fgm: 0.00 [0/7]  
 DiffImageOverlap-fno: 1.00 [12/12]

# TCE 005597644-05, PDC Light Curves

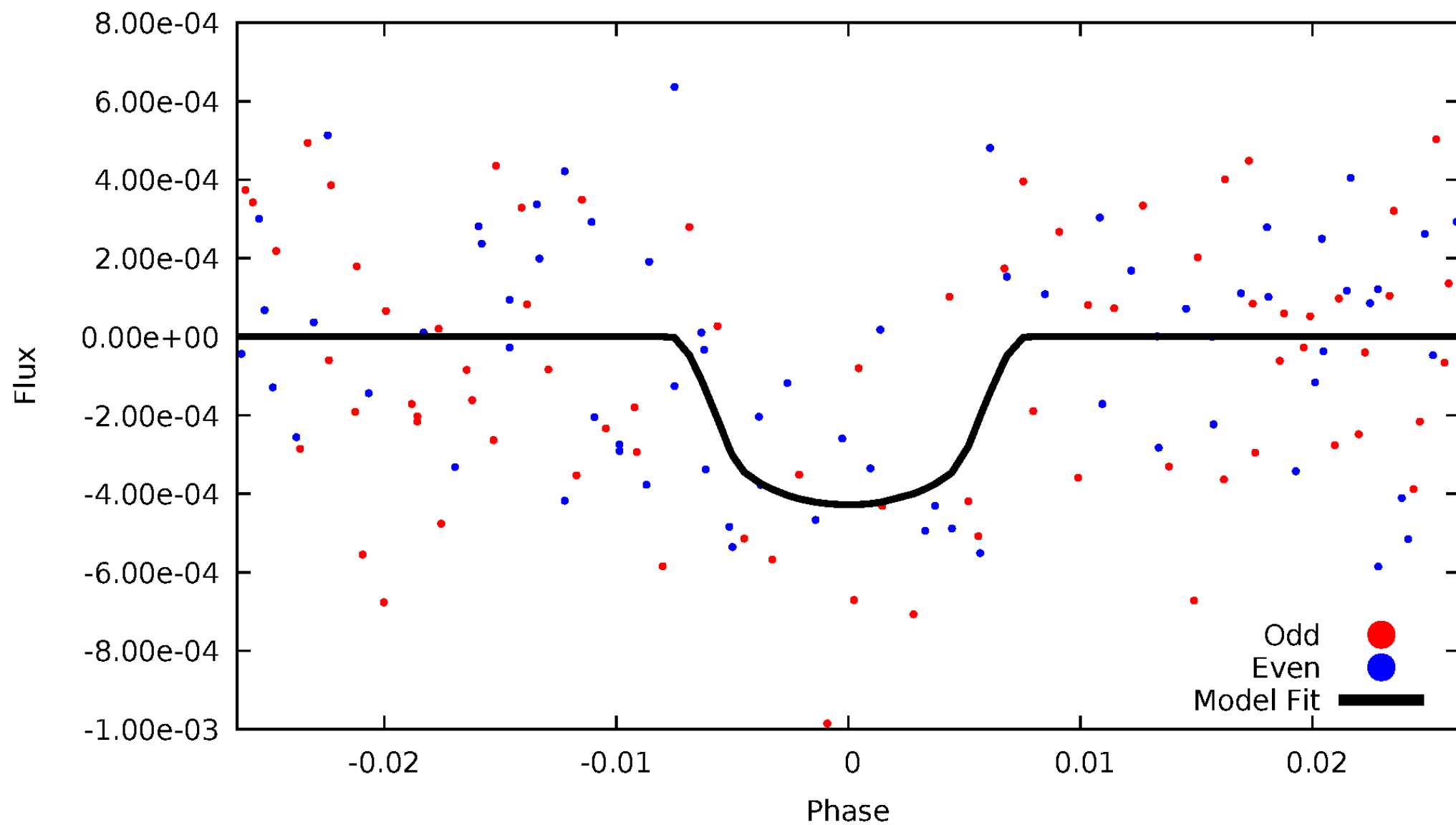


TCE 005597644-05



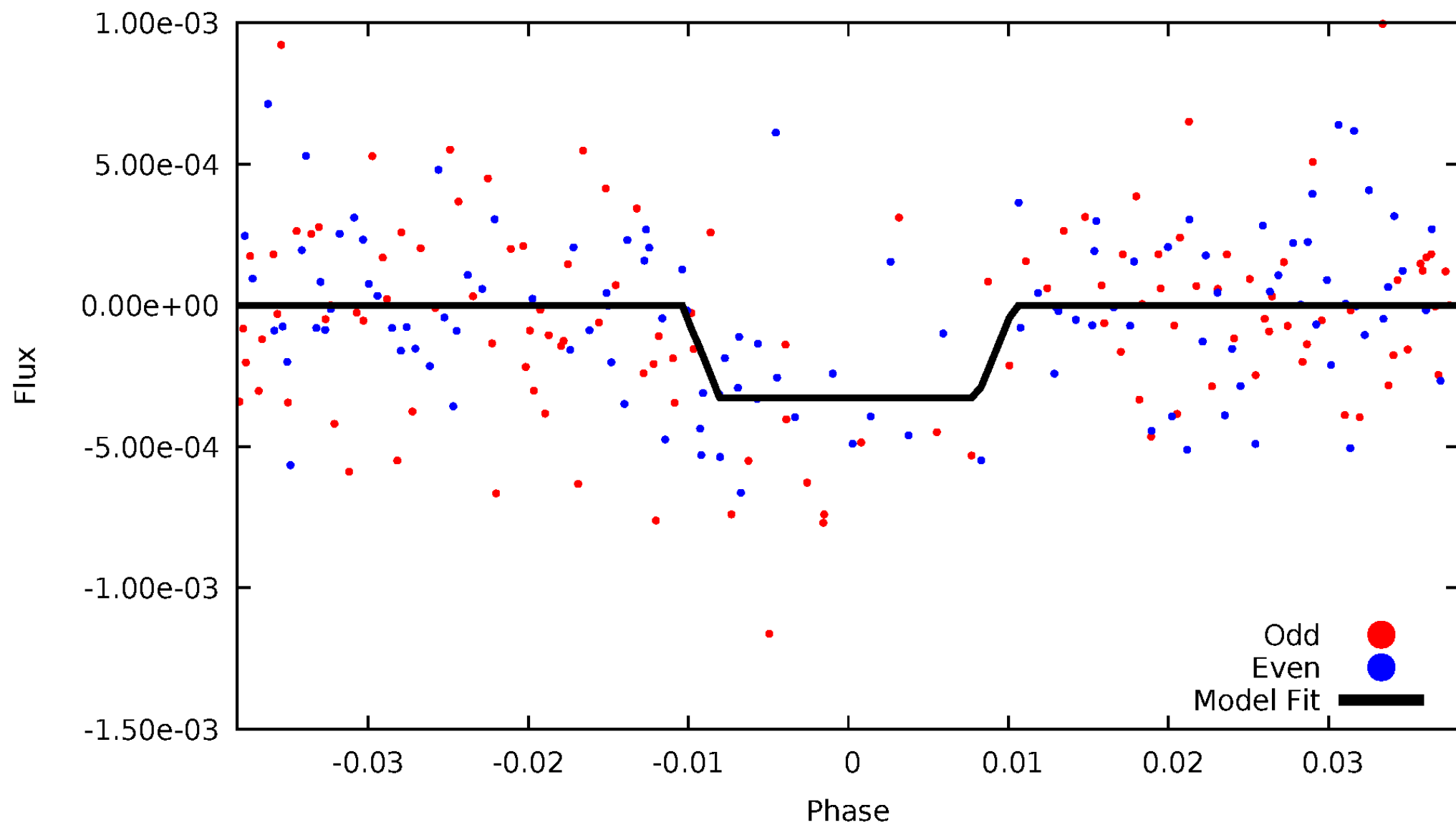
# DV Odd/Even

TCE 005597644-05



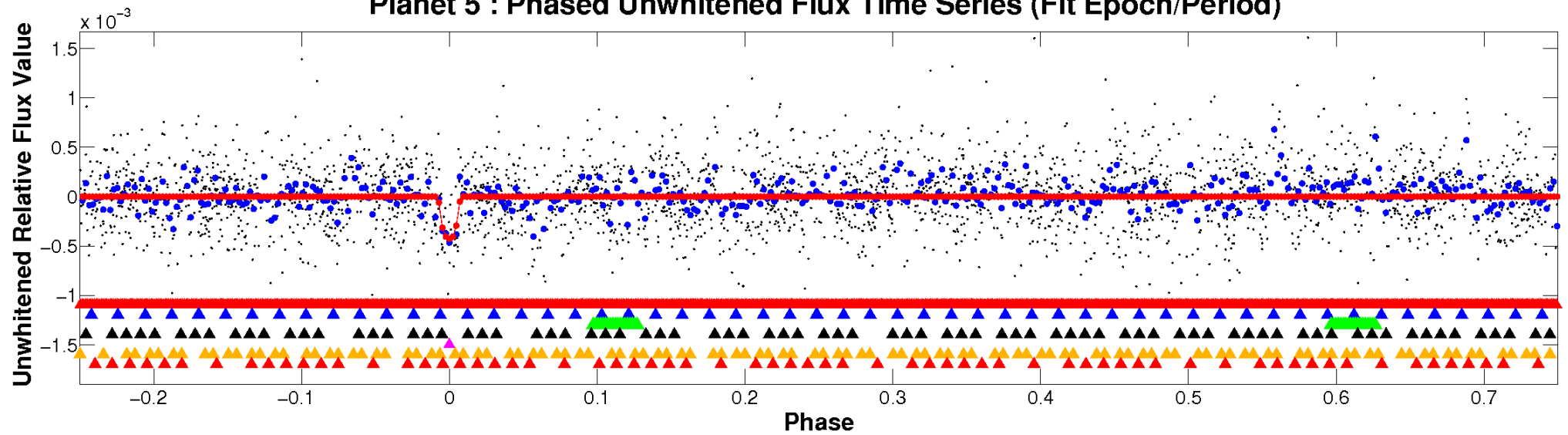
# ALT Odd/Even

TCE 005597644-05

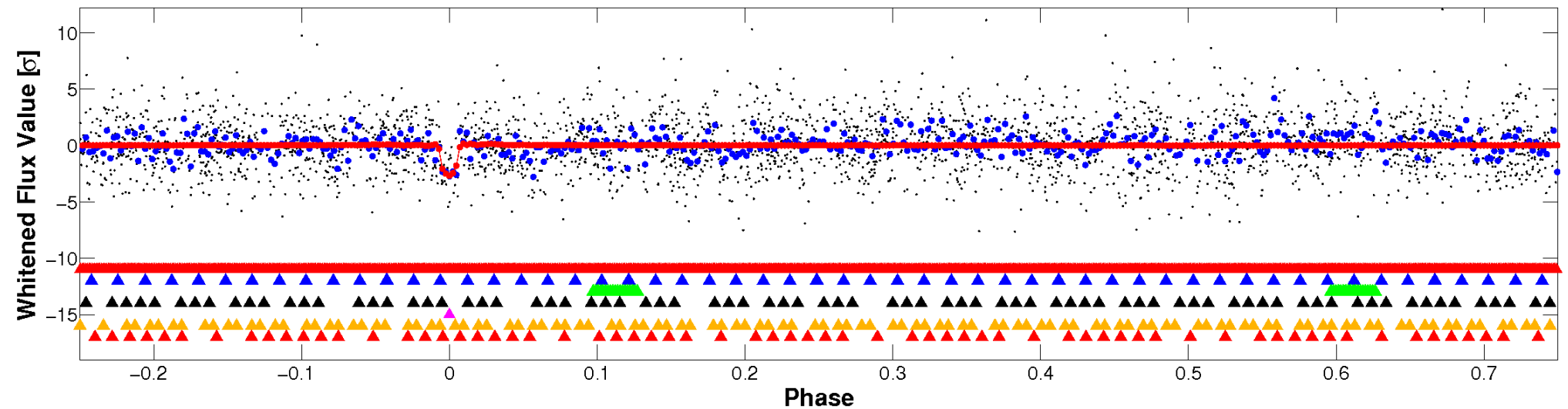


# Non-Whitened Vs. Whitened Light Curve

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



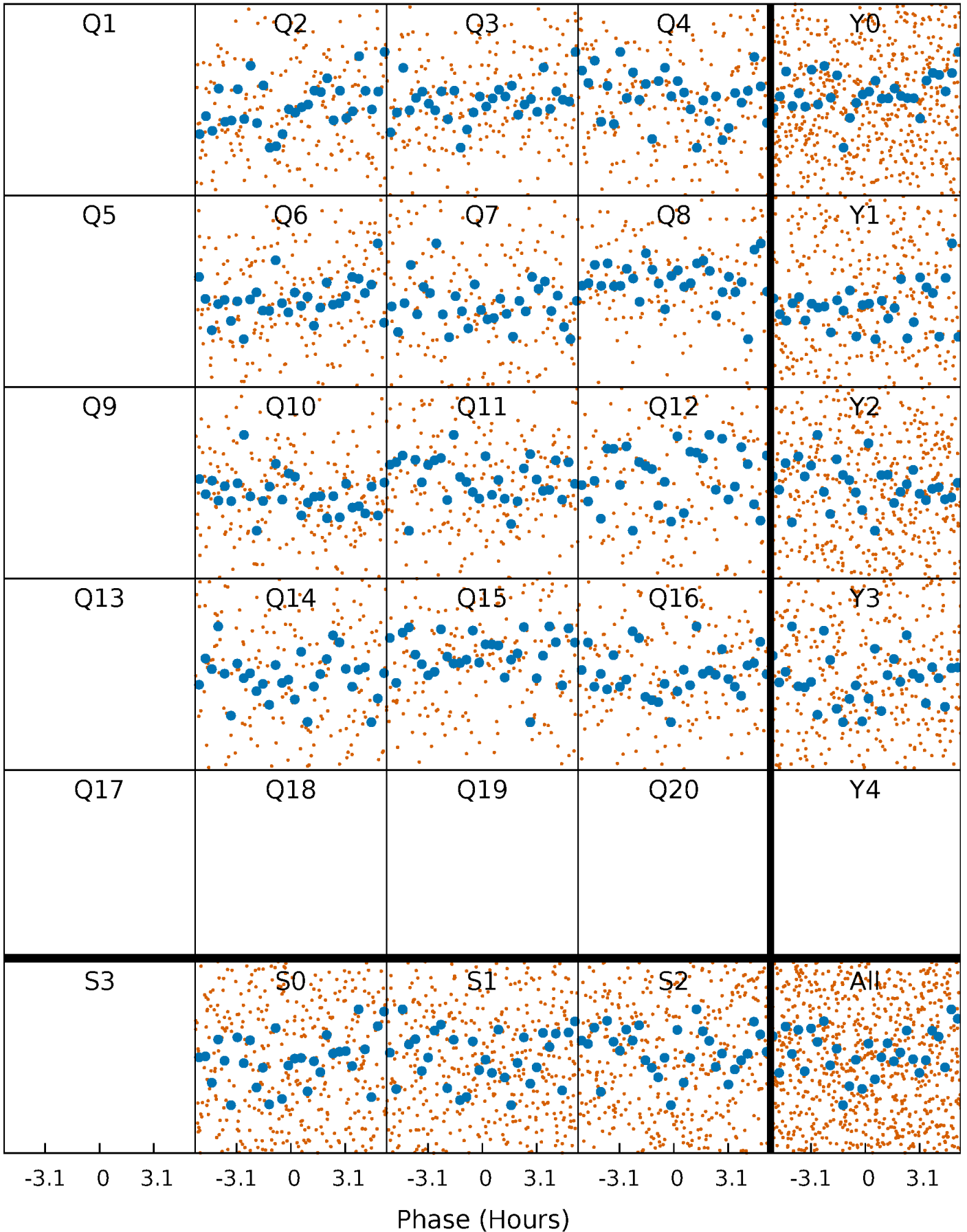
## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





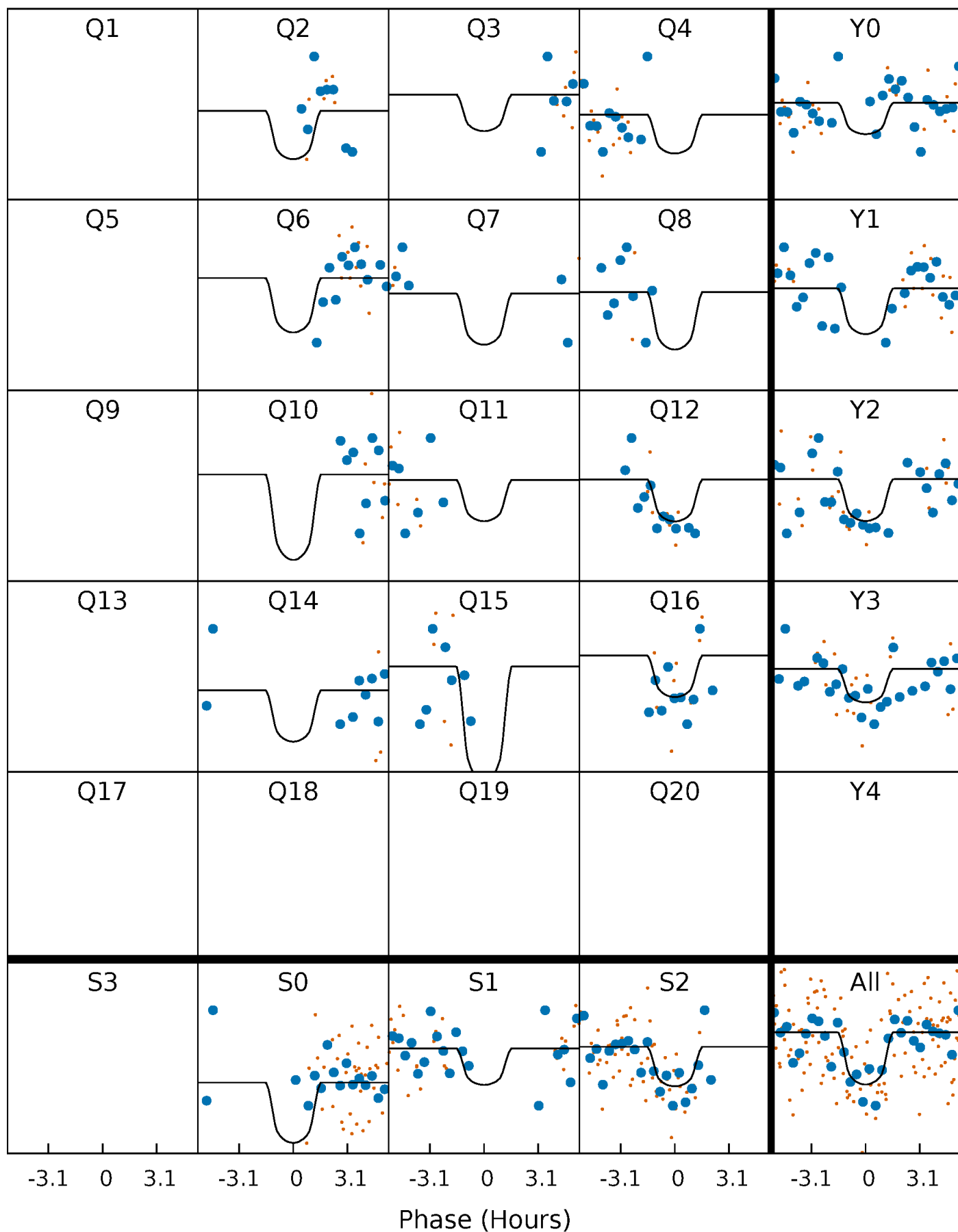
# PDC Quarter-Phased Transit Curves

TCE 005597644-05   P= 8.641613 Days    $T_0=137.357345$  (BKJD)



# DV Quarter-Phased Transit Curves

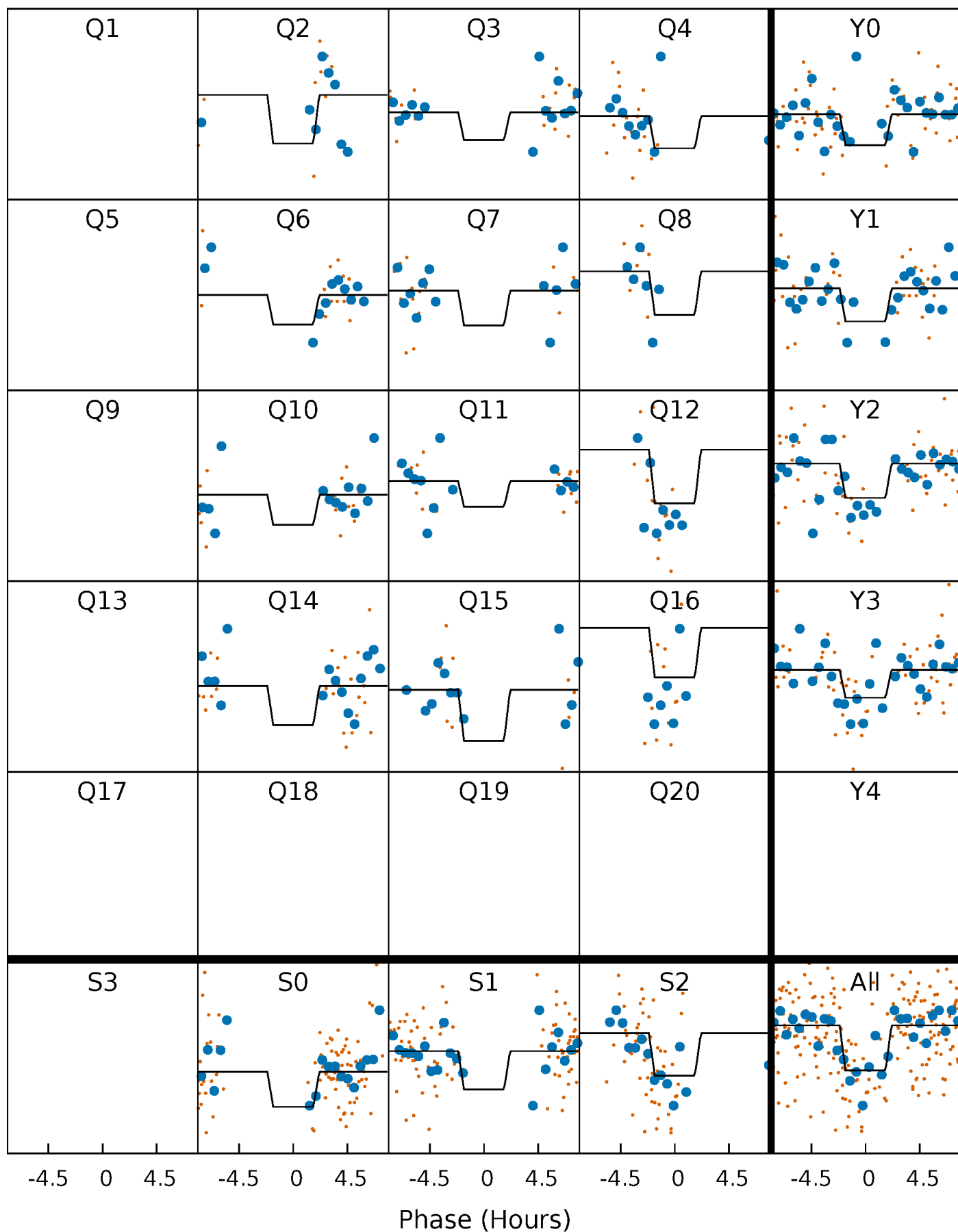
TCE 005597644-05   P= 8.641613 Days    $T_0=137.357345$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

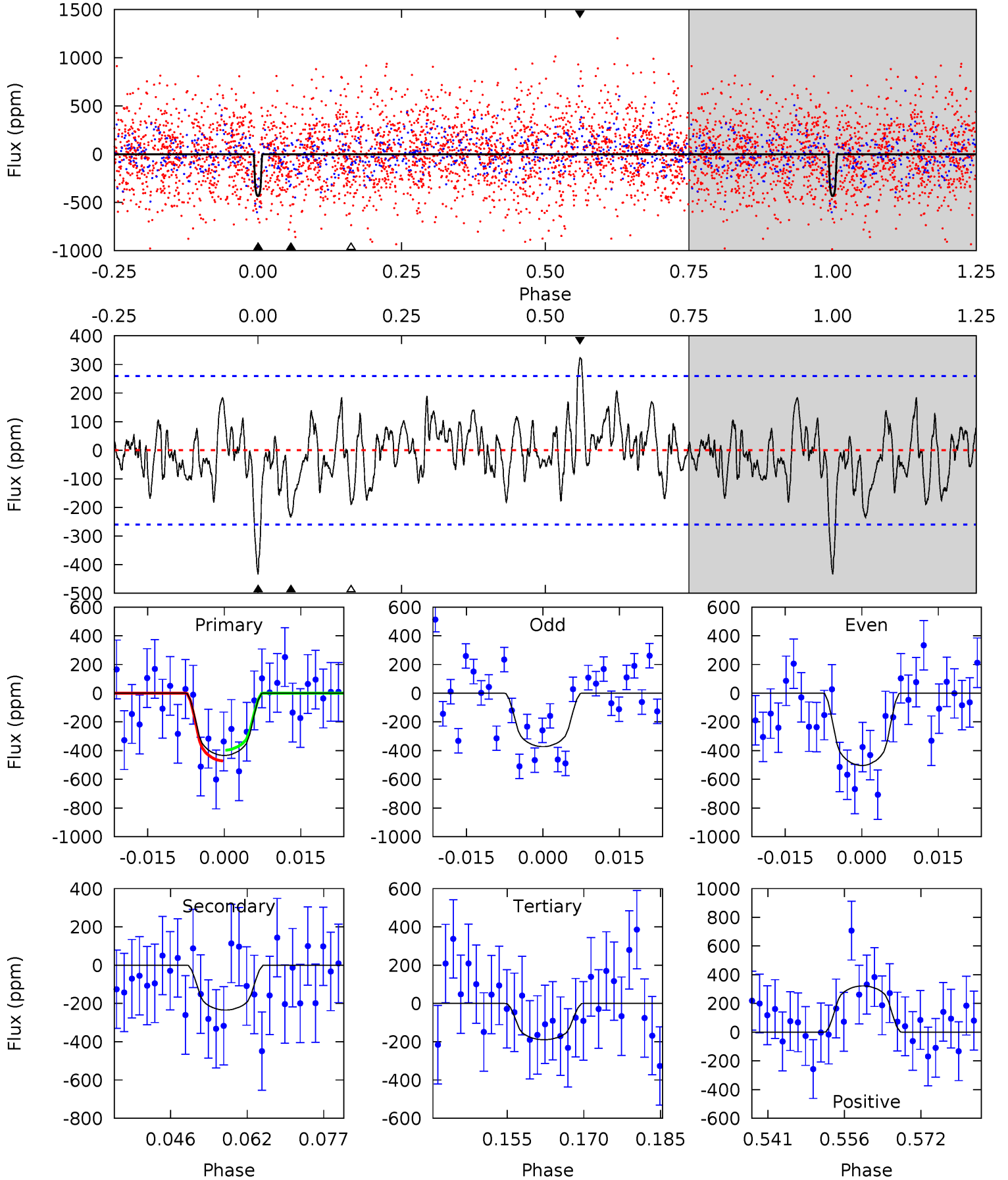
TCE 005597644-05   P= 8.642104 Days    $T_0=137.315120$  (BKJD)



# DV Model-Shift Uniqueness Test

005597644-05, P = 8.641613 Days, E = 137.357345 Days

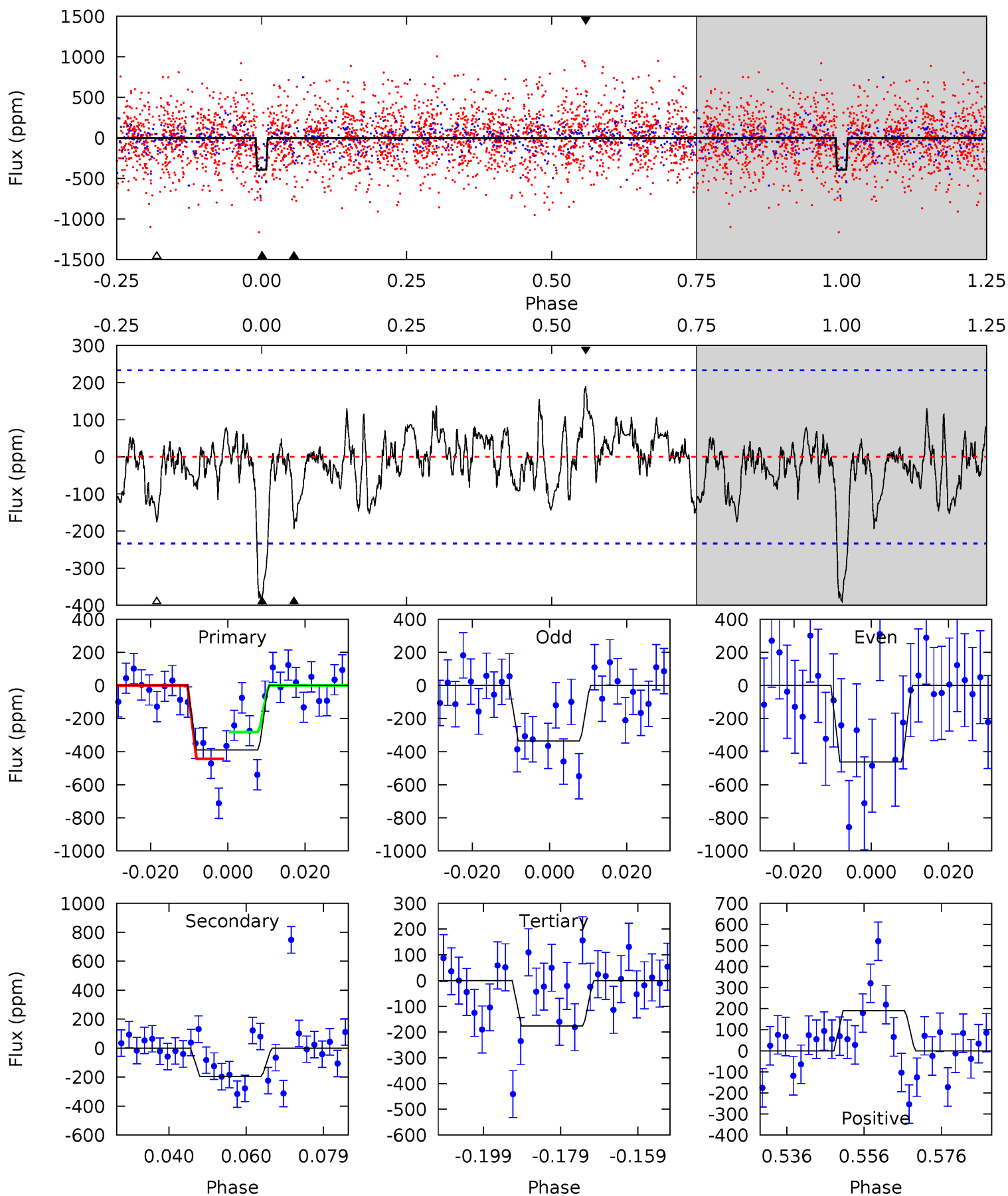
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.26	4.46	3.60	6.14	4.94	2.42	1.49	4.65	2.12	0.86	-1.67	1.25	0.85	0.43	0.72



# Alt Model-Shift Uniqueness Test

005597644-05, P = 8.642104 Days, E = 137.315120 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
8.17	4.08	3.69	4.00	4.89	2.33	1.14	4.48	4.17	0.39	0.08	1.35	1.12	0.33	1.59



### Stellar Parameters For KIC 005597644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4608^{+165}_{-165}$	$4.602^{+0.059}_{-0.027}$	$-0.220^{+0.300}_{-0.300}$	$0.671^{+0.054}_{-0.059}$	$0.656^{+0.081}_{-0.048}$	$3.064^{+0.754}_{-0.369}$
	+4%/-4%	+1%/-1%	+136%/-136%	+8%/-9%	+12%/-7%	+25%/-12%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005597644-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-234 \pm 53$	$2.85^{+2.52}_{-2.00}$	$866^{+34}_{-34}$	$3310^{+1835}_{-549}$	$82^{+823}_{-60}$
Alt.	$-195 \pm 48$	$2.68^{+2.50}_{-1.88}$	$862^{+35}_{-35}$	$3313^{+1677}_{-586}$	$80^{+766}_{-59}$

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

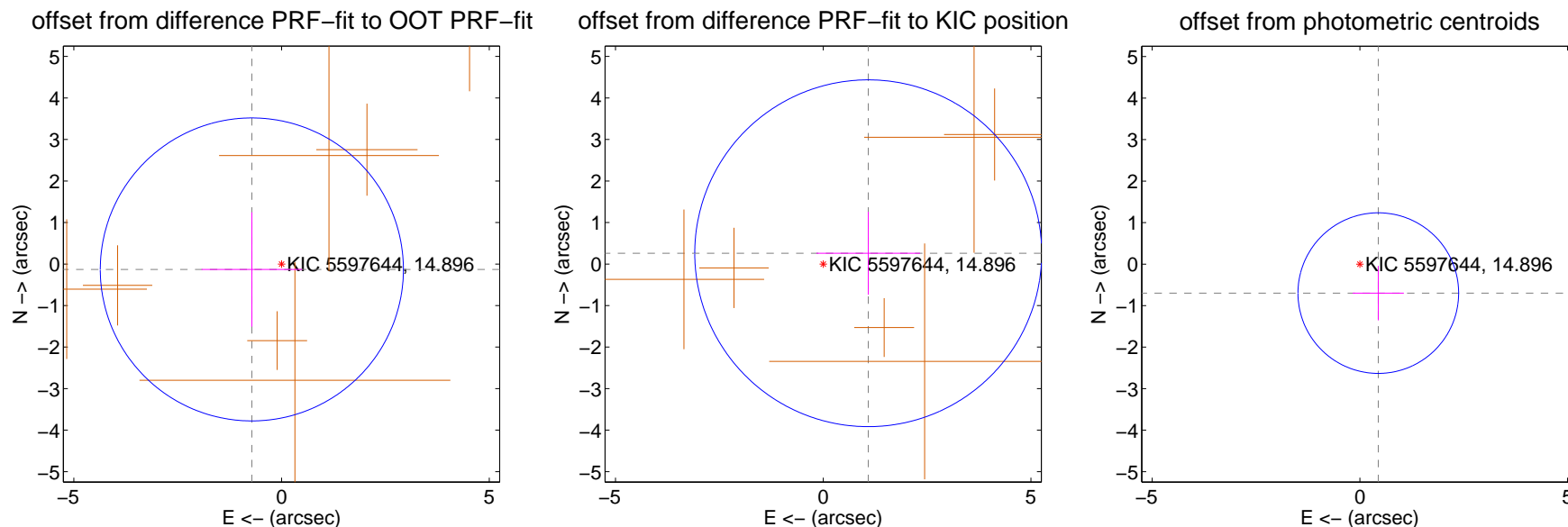
## DV Centroid Data

Supplemental centroid analysis for 005597644-05. Kepler magnitude: 14.90. Transit SNR 11.66

There are 0 quarters with good PRF difference image offsets

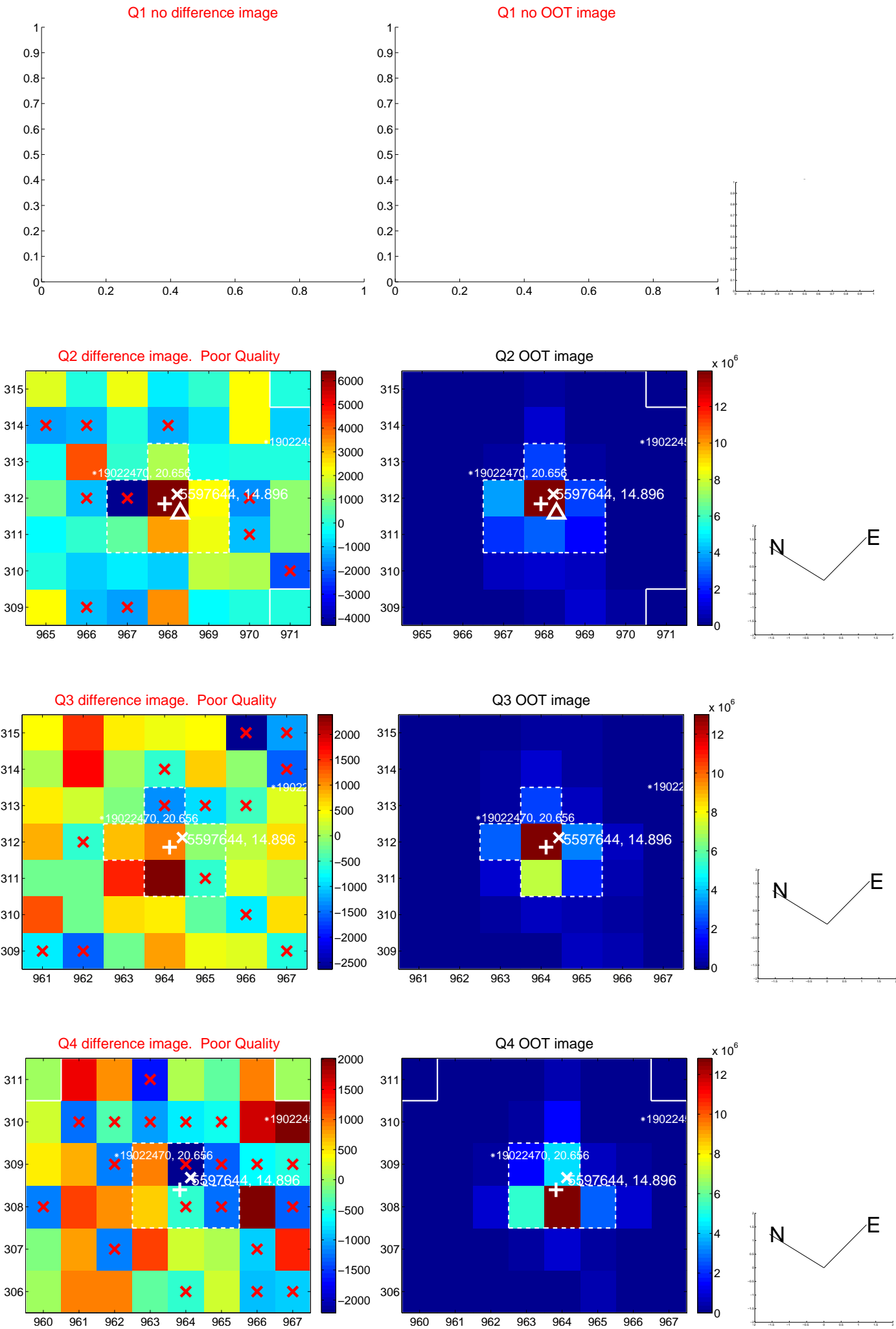
The OOT PRF centroid is offset from the target star catalog position by about 2.37 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.727 \pm 1.216$	0.60	$0.715 \pm 1.211$	$-0.130 \pm 1.377$
PRF-fit source offset from KIC position	$1.114 \pm 1.392$	0.80	$-1.084 \pm 1.250$	$0.260 \pm 1.000$
photometric centroid source offset	$0.83 \pm 0.64$	1.28	$-0.44 \pm 0.62$	$-0.70 \pm 0.66$

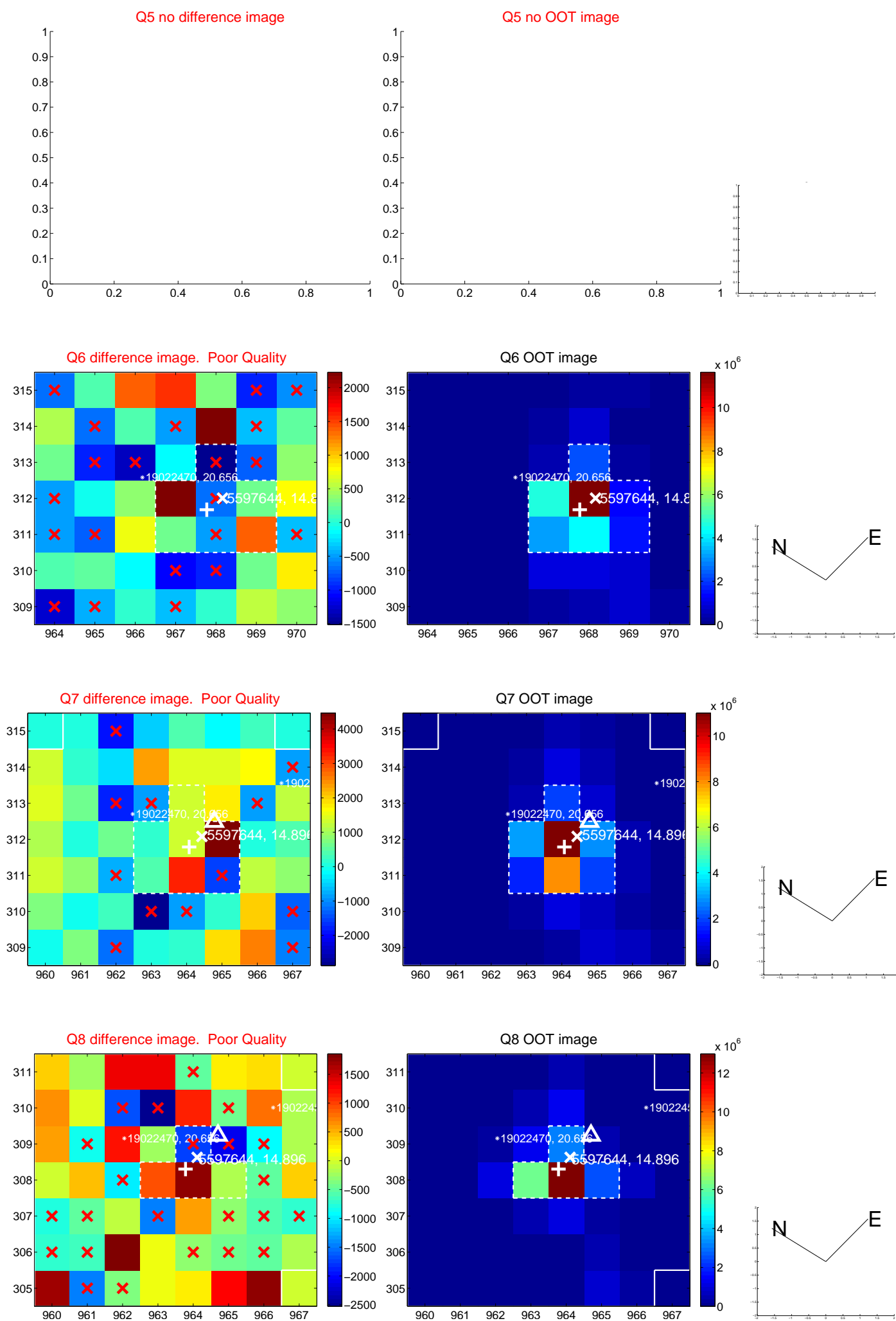


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

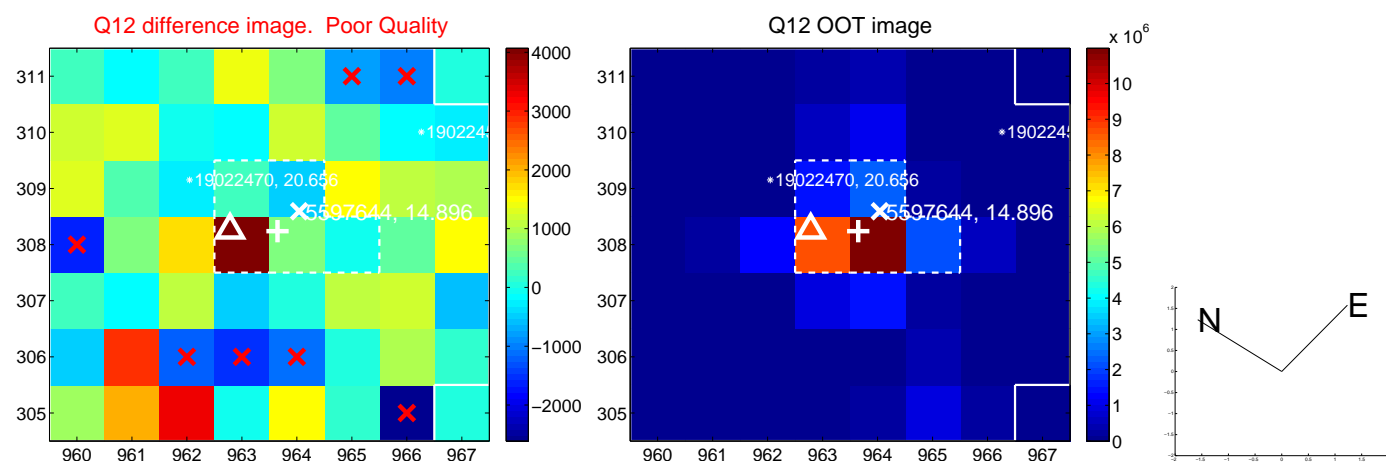
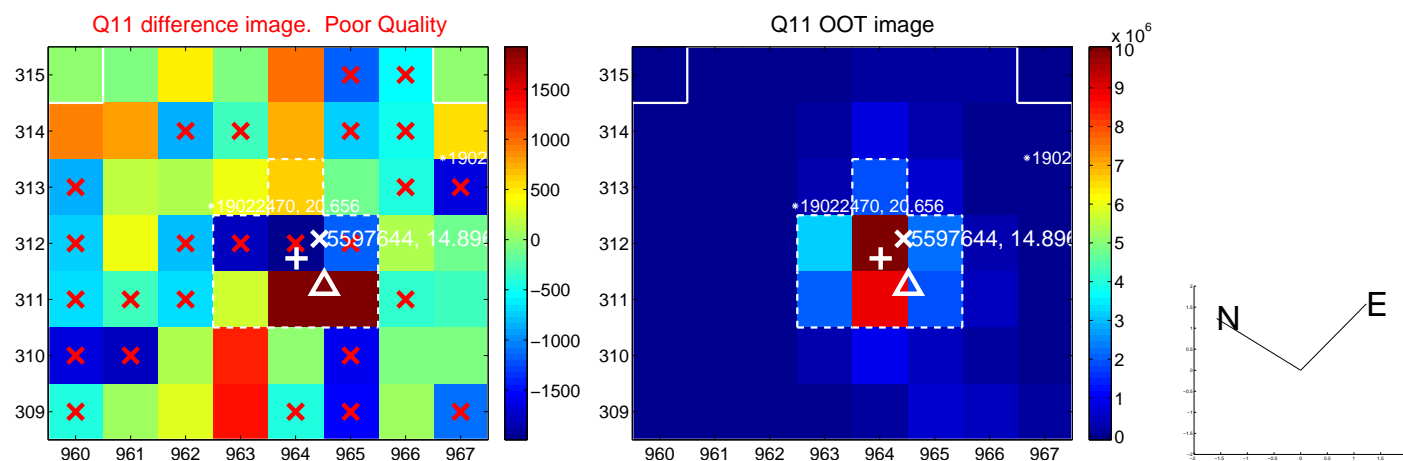
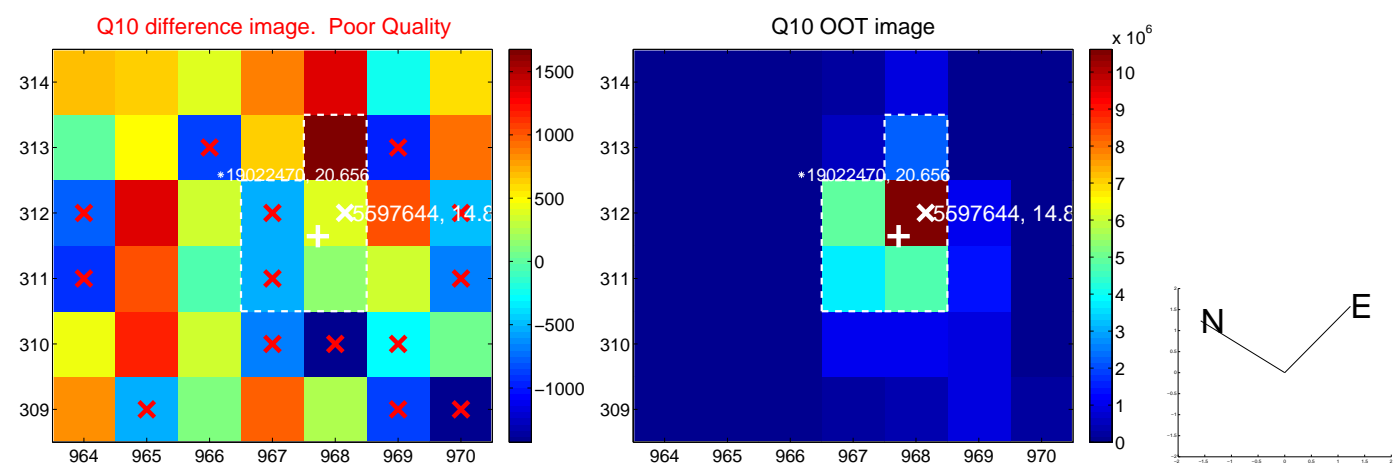
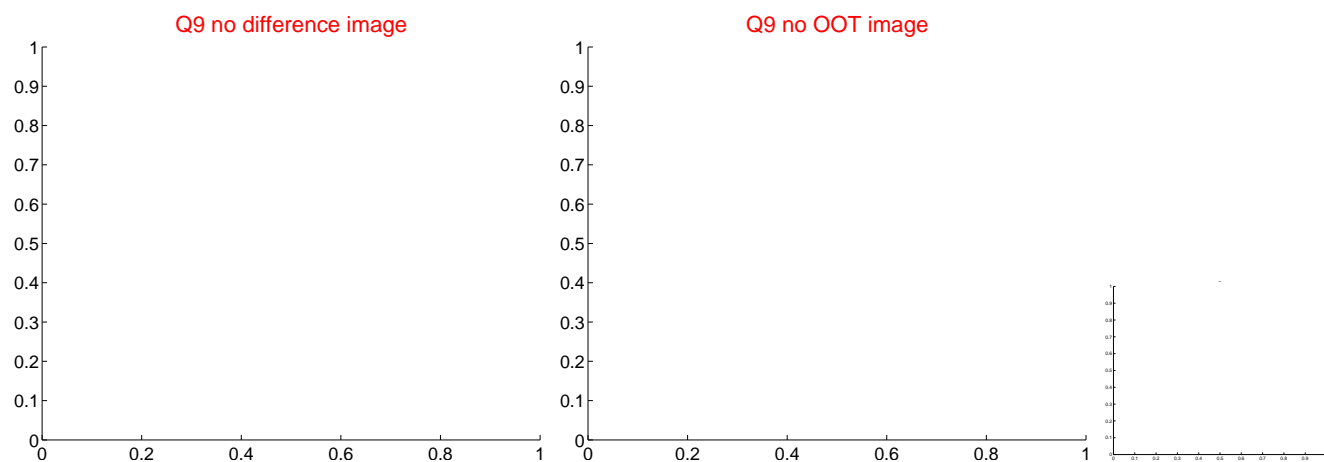
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

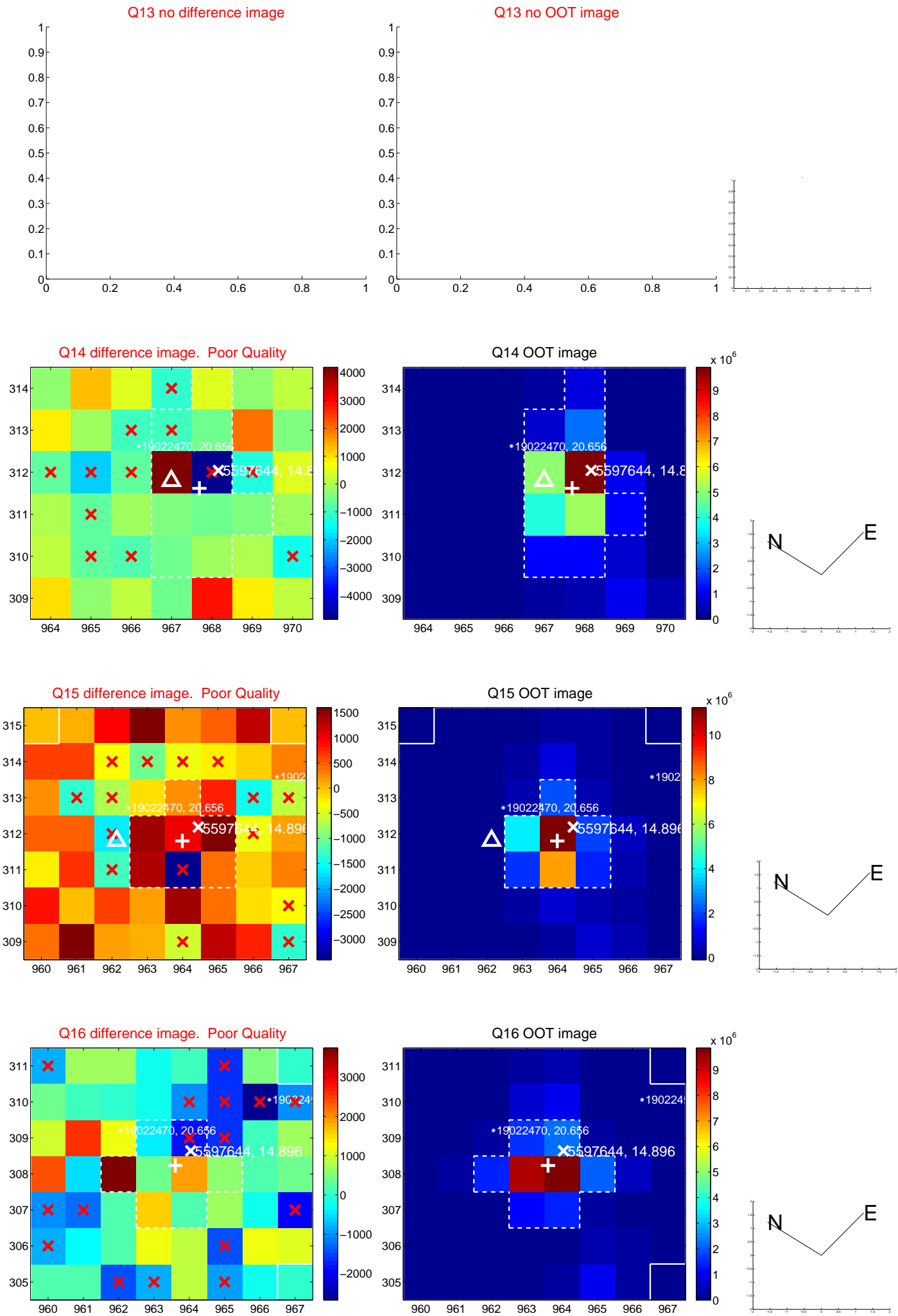


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value

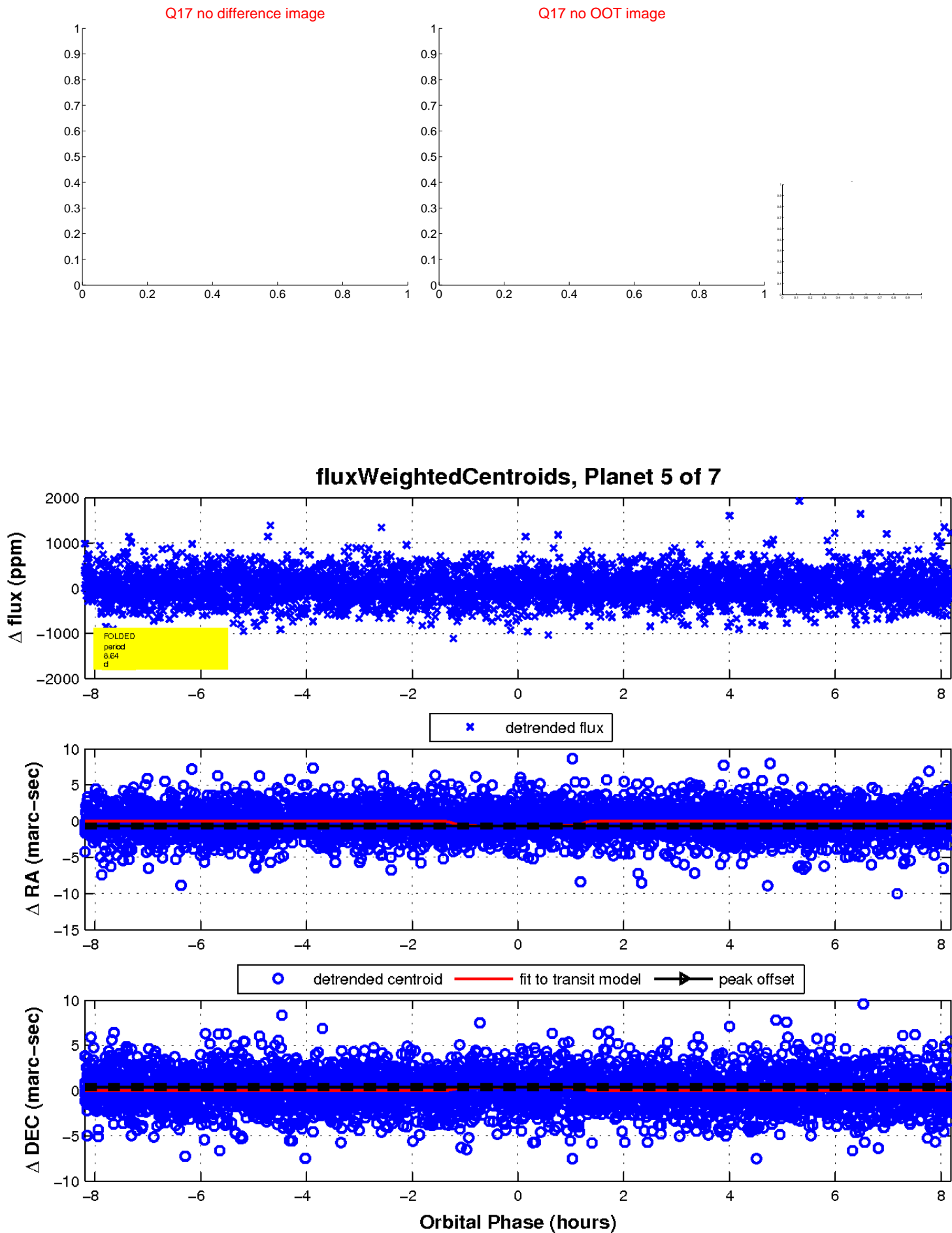




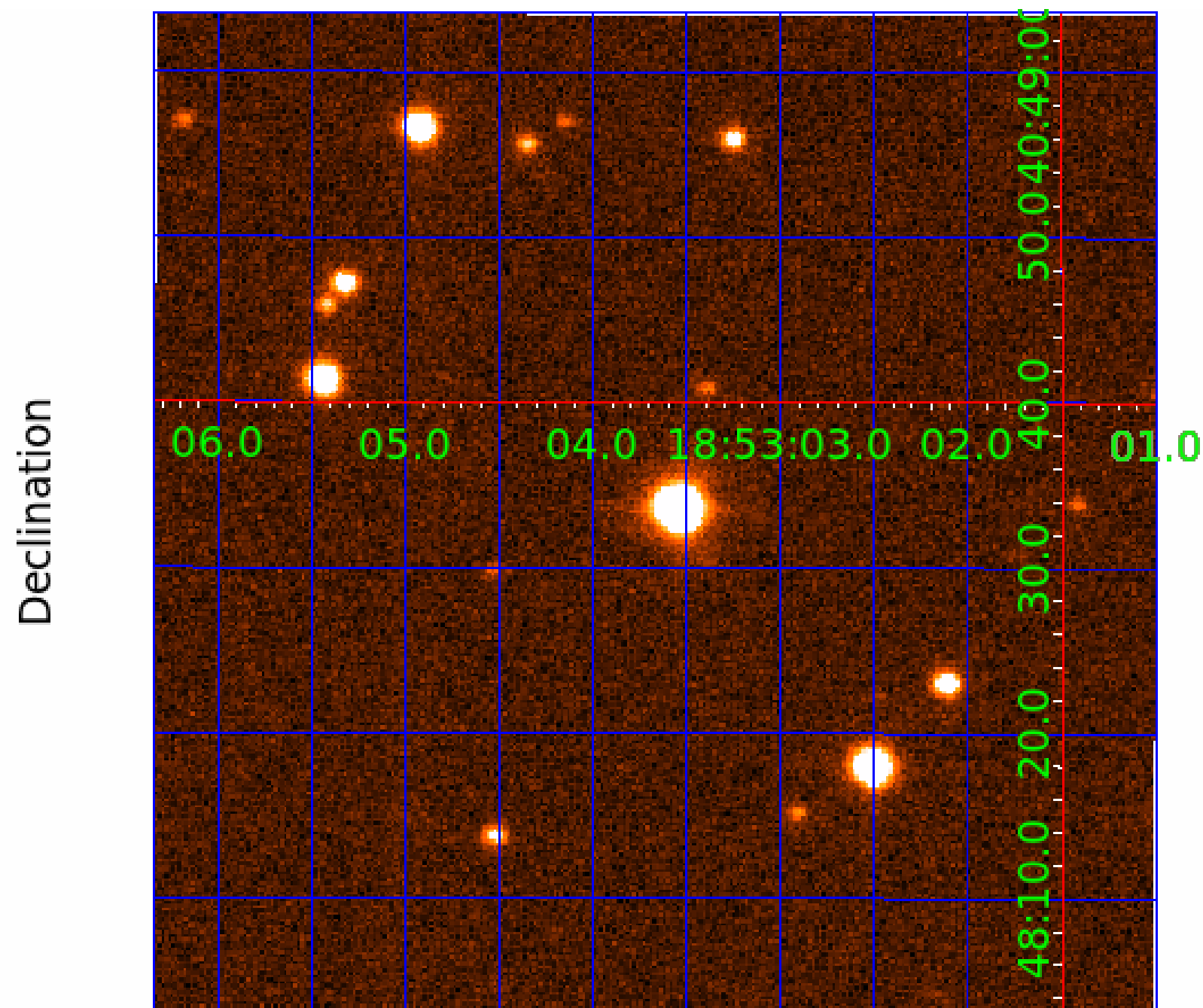
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 005597644

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005597644-01	OBS	No	1.622889	131.642472	44.5	11.975	10.2	12.4	0.67	4608	0.49	329.39
005597644-02	OBS	No	23.410825	149.563980	388.9	2.890	11.7	9.9	0.67	4608	1.69	9.38
005597644-03	OBS	No	38.894409	142.512147	701.9	0.878	12.6	10.1	0.67	4608	1.74	4.77
005597644-04	OBS	No	18.323547	149.547879	606.3	1.485	12.1	12.9	0.67	4608	1.75	13.00
005597644-05	OBS	No	8.641613	137.357345	428.3	2.730	10.9	11.7	0.67	4608	1.62	35.42
005597644-06	OBS	No	12.665253	139.311048	497.8	1.338	11.7	11.8	0.67	4608	1.47	21.28
005597644-07	OBS	No	22.061501	137.726267	457.6	0.945	9.4	10.2	0.67	4608	1.40	10.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005597644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
005597644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005597644-03	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_POS_ALT—CENT_FEW_MEAS
005597644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
005597644-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
005597644-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005597644-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—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.

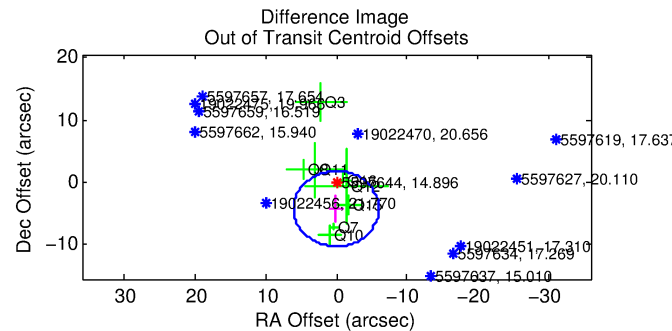
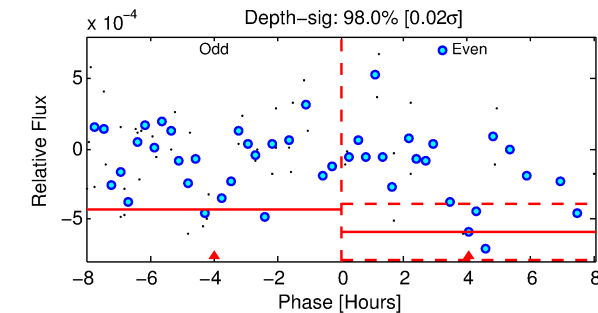
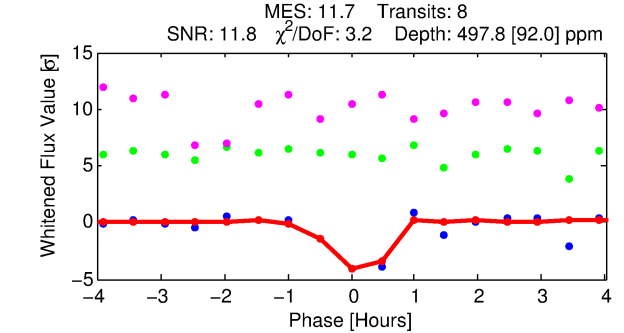
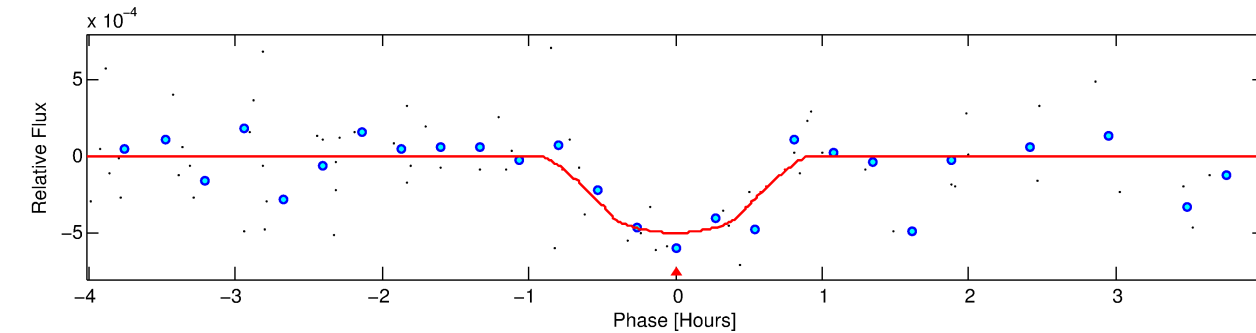
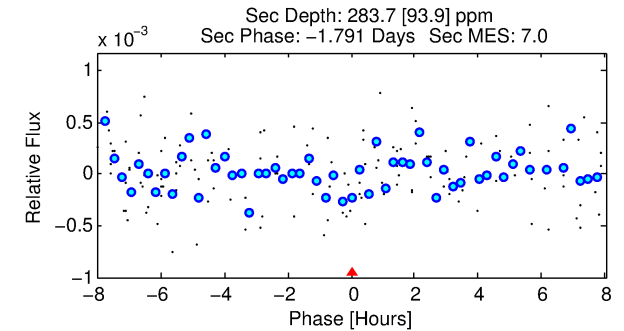
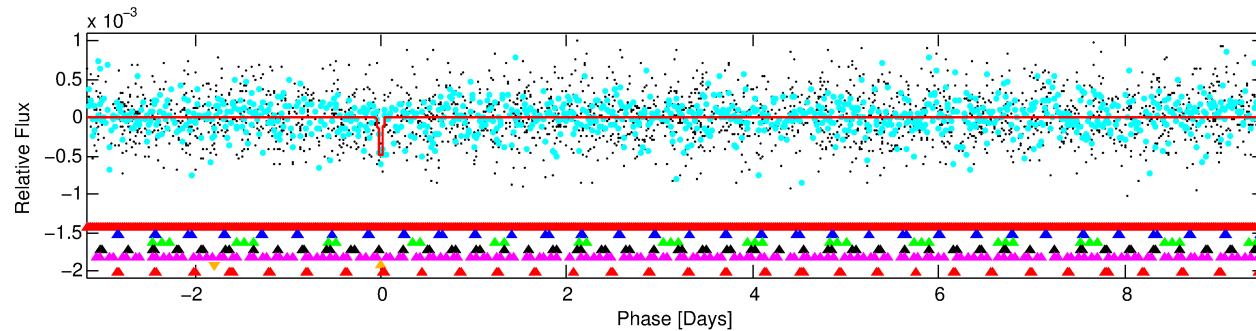
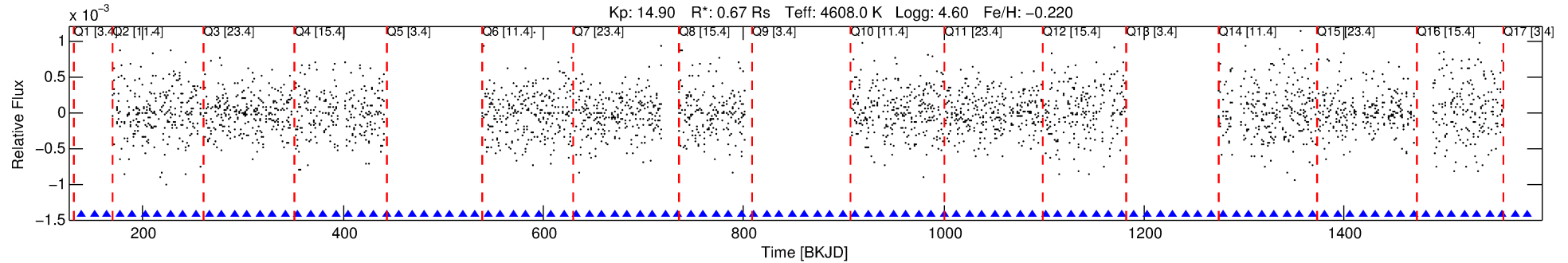
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005597644-06

No Significant Match Found

# DV One-Page Summary

KIC: 5597644 Candidate: 6 of 7 Period: 12.665 d



## DV Fit Results:

Period = 12.66525 [0.00016] d  
Epoch = 139.3110 [0.0093] BKJD  
Rp/R\* = 0.0200 [0.0697]  
a/R\* = 70.50 [729.53]  
b = 0.30 [32.58]  
Seff = 21.28 [3.82]  
Teff = 548 [25] K  
Rp = 1.47 [5.11] Re  
a = 0.0925 [0.0068] AU  
Ag = 620.07 [4320.75] [0.14 $\sigma$ ]  
Teffp = 4225 [7361] K [0.50 $\sigma$ ]

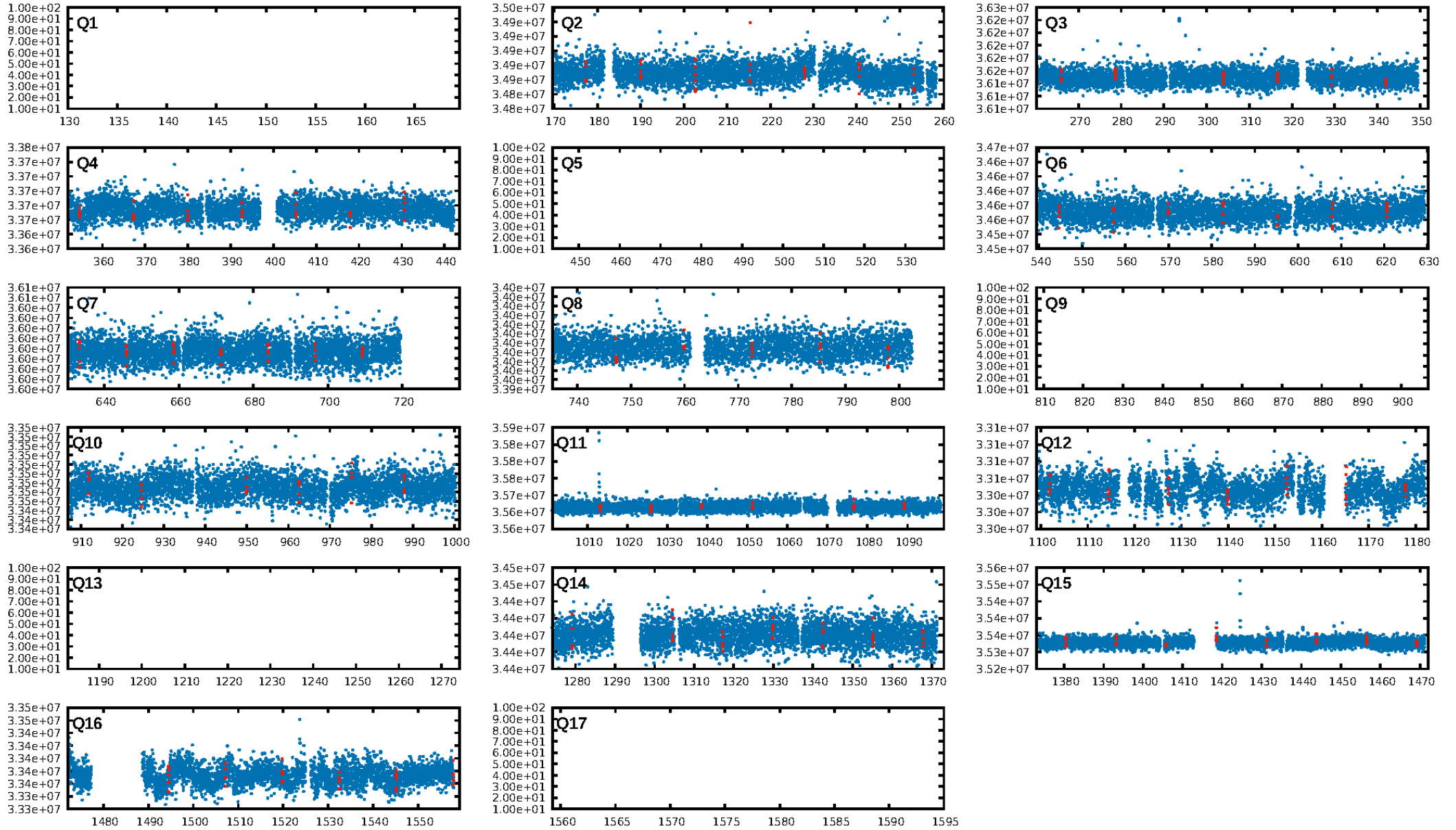
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [31.76 $\sigma$ ]  
LongPeriod-sig: 100.0% [67.93 $\sigma$ ]  
ModelChiSquare2-sig: 0.2%  
ModelChiSquareGof-sig: 31.9%  
Bootstrap-pfa: 8.48e-11  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: -3.206  
Centroid-sig: 12.1%  
Centroid-so: 3.325 arcsec [3.61 $\sigma$ ]  
OotOffset-rm: 4.253 arcsec [2.11 $\sigma$ ]  
KicOffset-rm: 4.298 arcsec [2.18 $\sigma$ ]  
OotOffset-st: 1/4/3/0 [8]  
KicOffset-st: 1/4/3/0 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 0.92 [11/12]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:57:25 Z

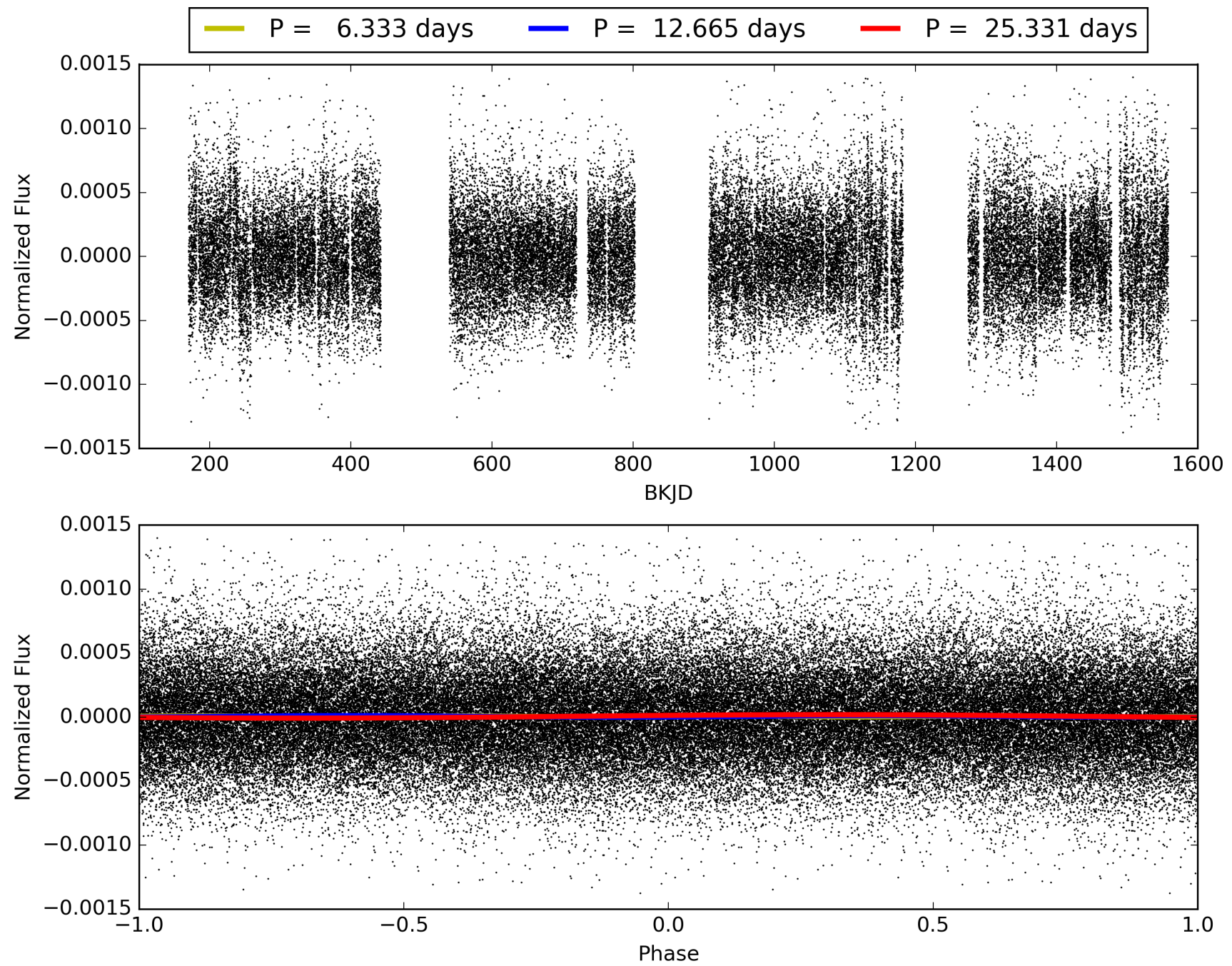
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005597644-06, PDC Light Curves



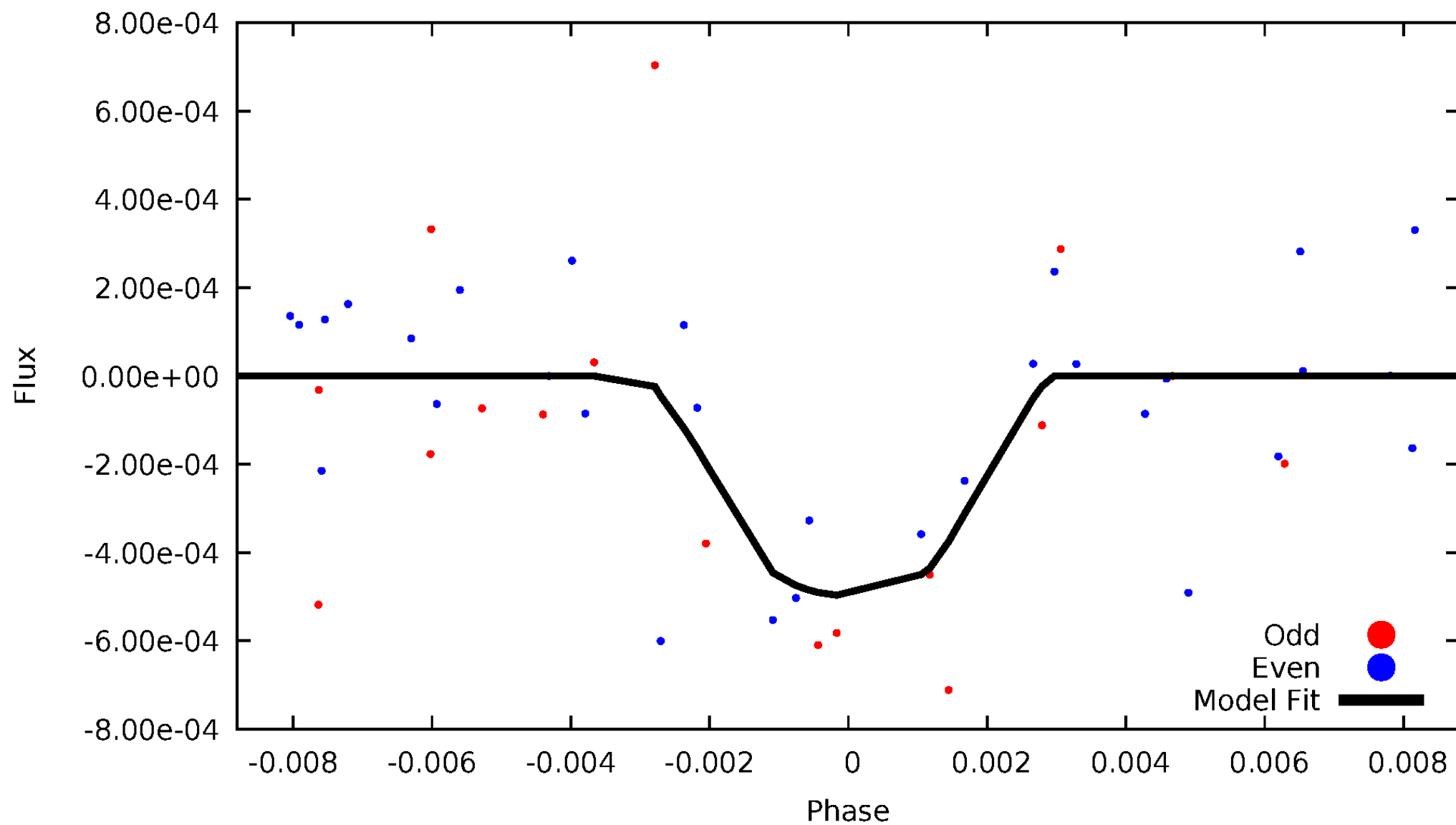


TCE 005597644-06



# DV Odd/Even

TCE 005597644-06





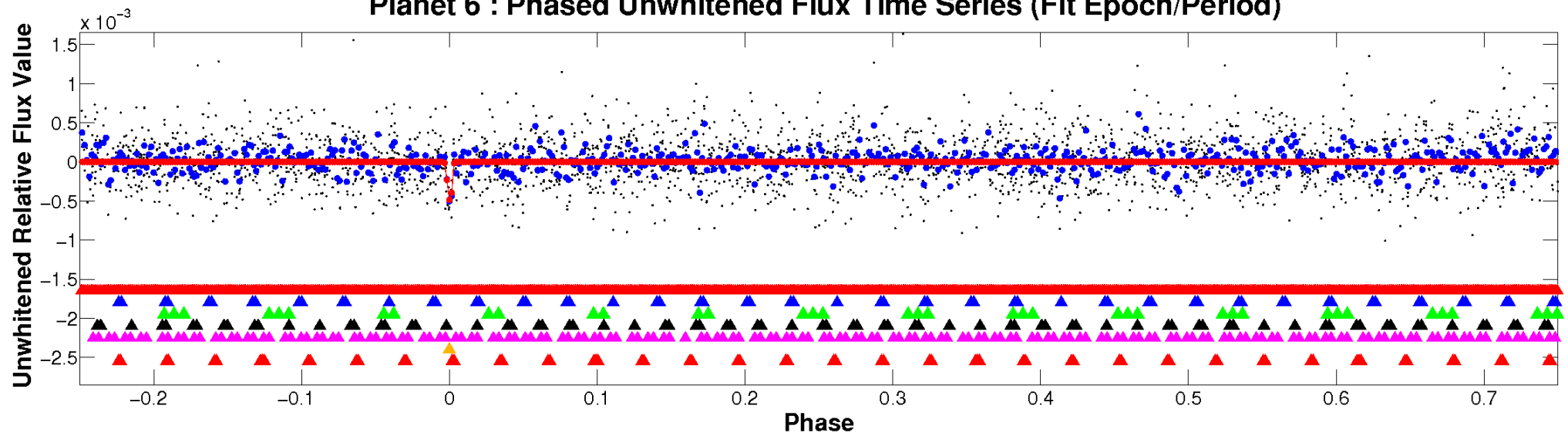


ALT Odd/Even

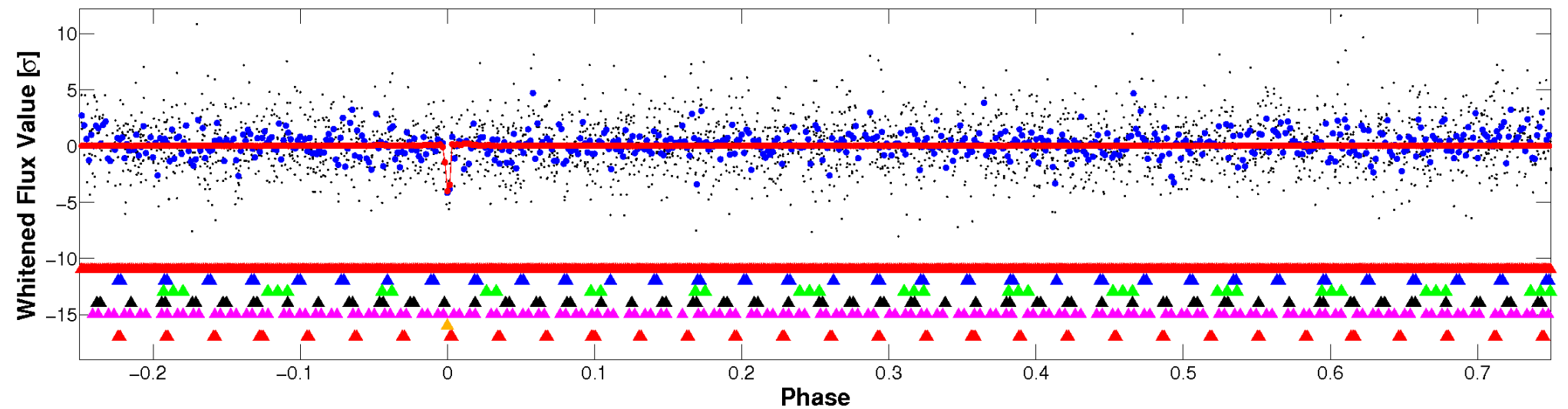
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

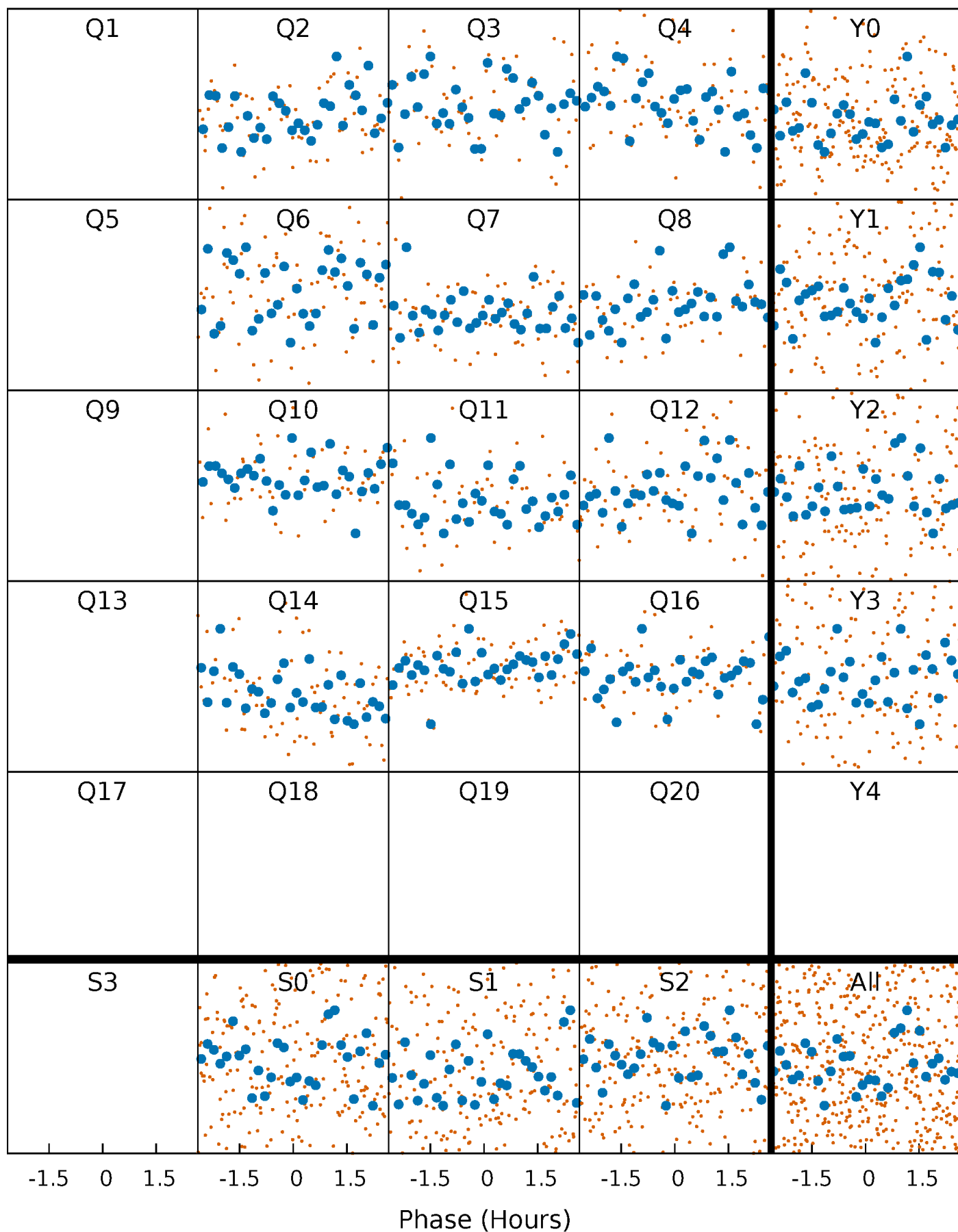


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



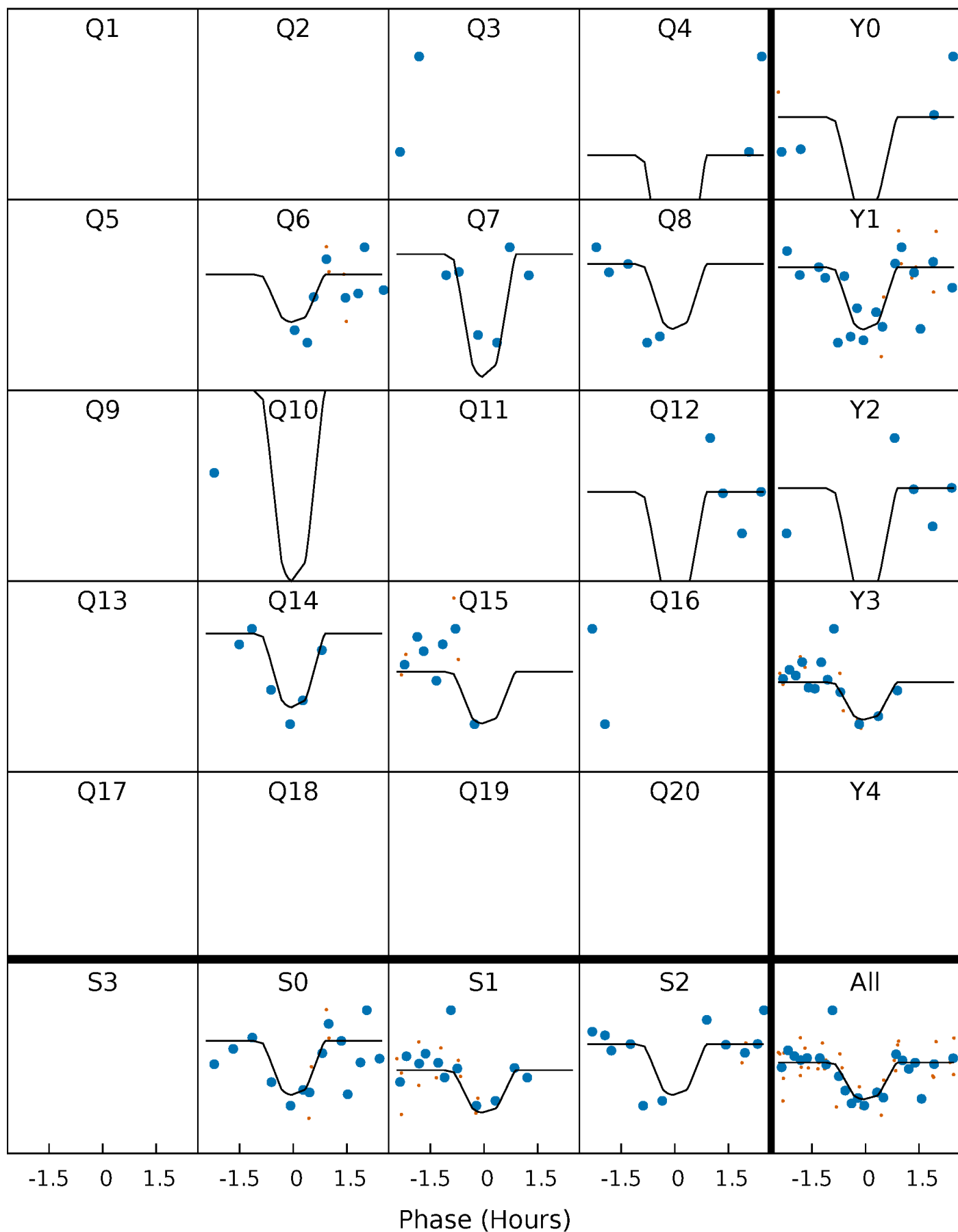
# PDC Quarter-Phased Transit Curves

TCE 005597644-06 P= 12.665253 Days  $T_0=139.311048$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 005597644-06 P= 12.665253 Days  $T_0=139.311048$  (BKJD)

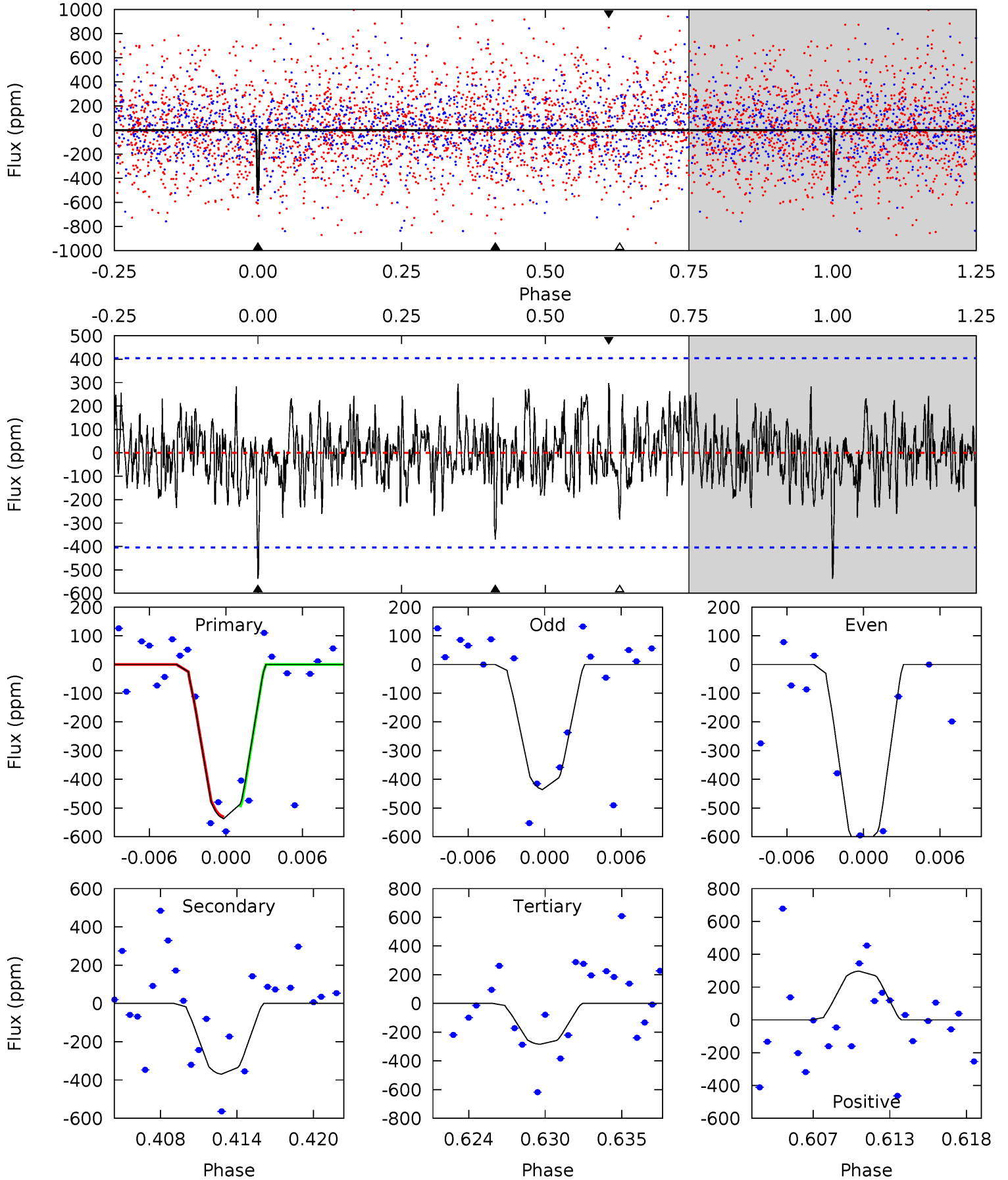


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

005597644-06, P = 12.665253 Days, E = 139.311048 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
6.83	4.70	3.62	3.78	5.13	2.77	1.29	3.21	3.05	1.08	0.92	1.31	0.93	0.36	0.22



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.



### Stellar Parameters For KIC 005597644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4608^{+165}_{-165}$	$4.602^{+0.059}_{-0.027}$	$-0.220^{+0.300}_{-0.300}$	$0.671^{+0.054}_{-0.059}$	$0.656^{+0.081}_{-0.048}$	$3.064^{+0.754}_{-0.369}$
	+4%/-4%	+1%/-1%	+136%/-136%	+8%/-9%	+12%/-7%	+25%/-12%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005597644-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-370 \pm 79$	$3.88^{+4.04}_{-2.72}$	$761^{+30}_{-30}$	$3241^{+1672}_{-588}$	$115^{+1117}_{-88}$
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

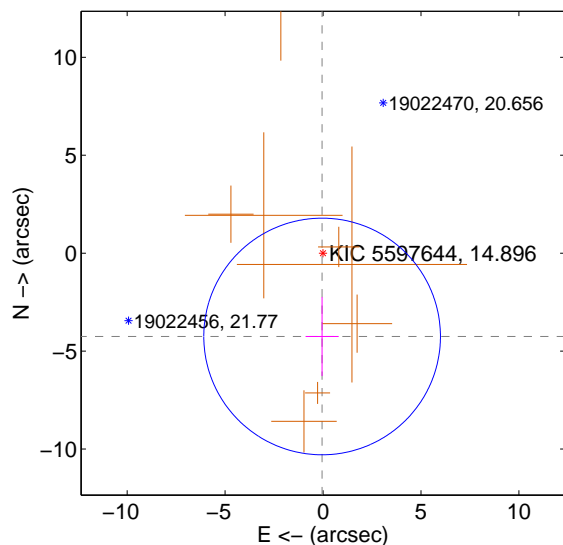
Supplemental centroid analysis for 005597644-06. Kepler magnitude: 14.90. Transit SNR 11.84

There are 0 quarters with good PRF difference image offsets

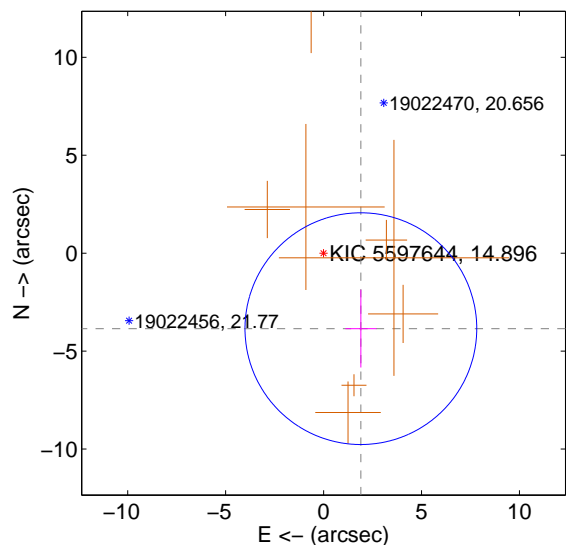
The OOT PRF centroid is offset from the target star catalog position by about 2.43 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.253 \pm 2.013$	2.11	$0.047 \pm 0.846$	$-4.252 \pm 2.018$
PRF-fit source offset from KIC position	$4.298 \pm 1.972$	2.18	$-1.904 \pm 0.792$	$-3.853 \pm 1.984$
photometric centroid source offset	$3.33 \pm 0.92$	3.61	$-3.31 \pm 0.92$	$-0.33 \pm 0.98$

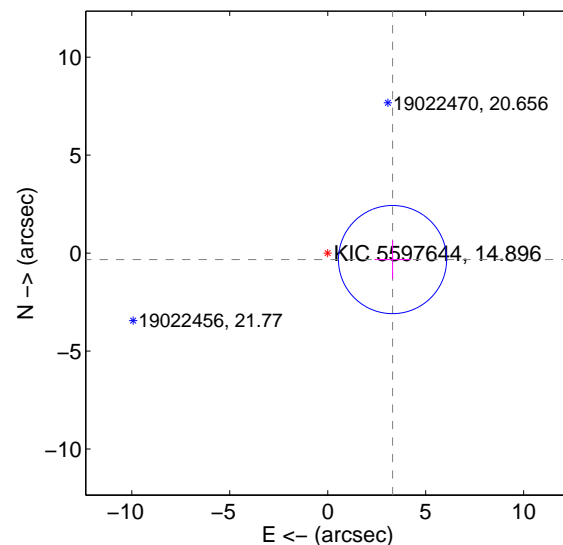
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

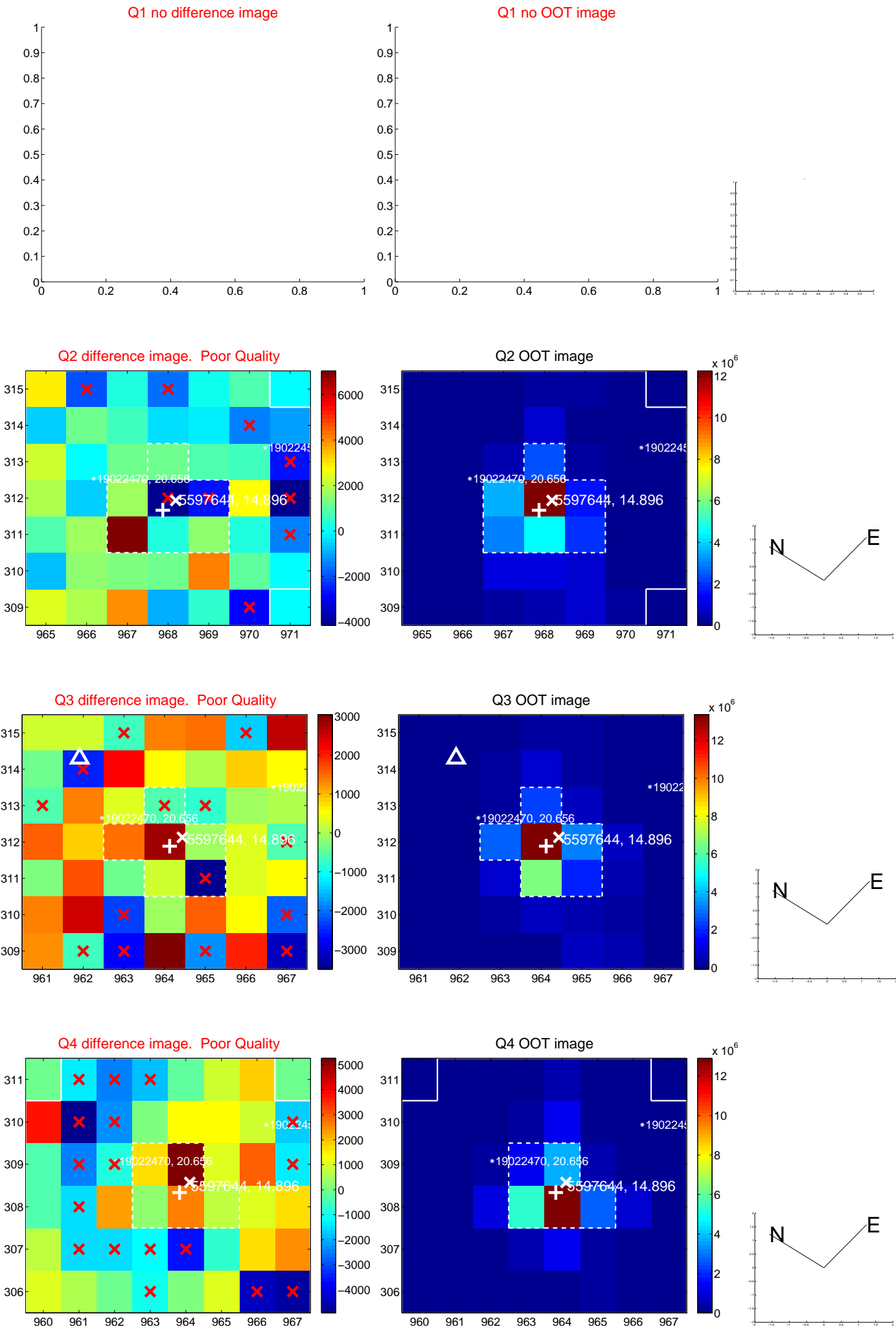


offset from photometric centroids

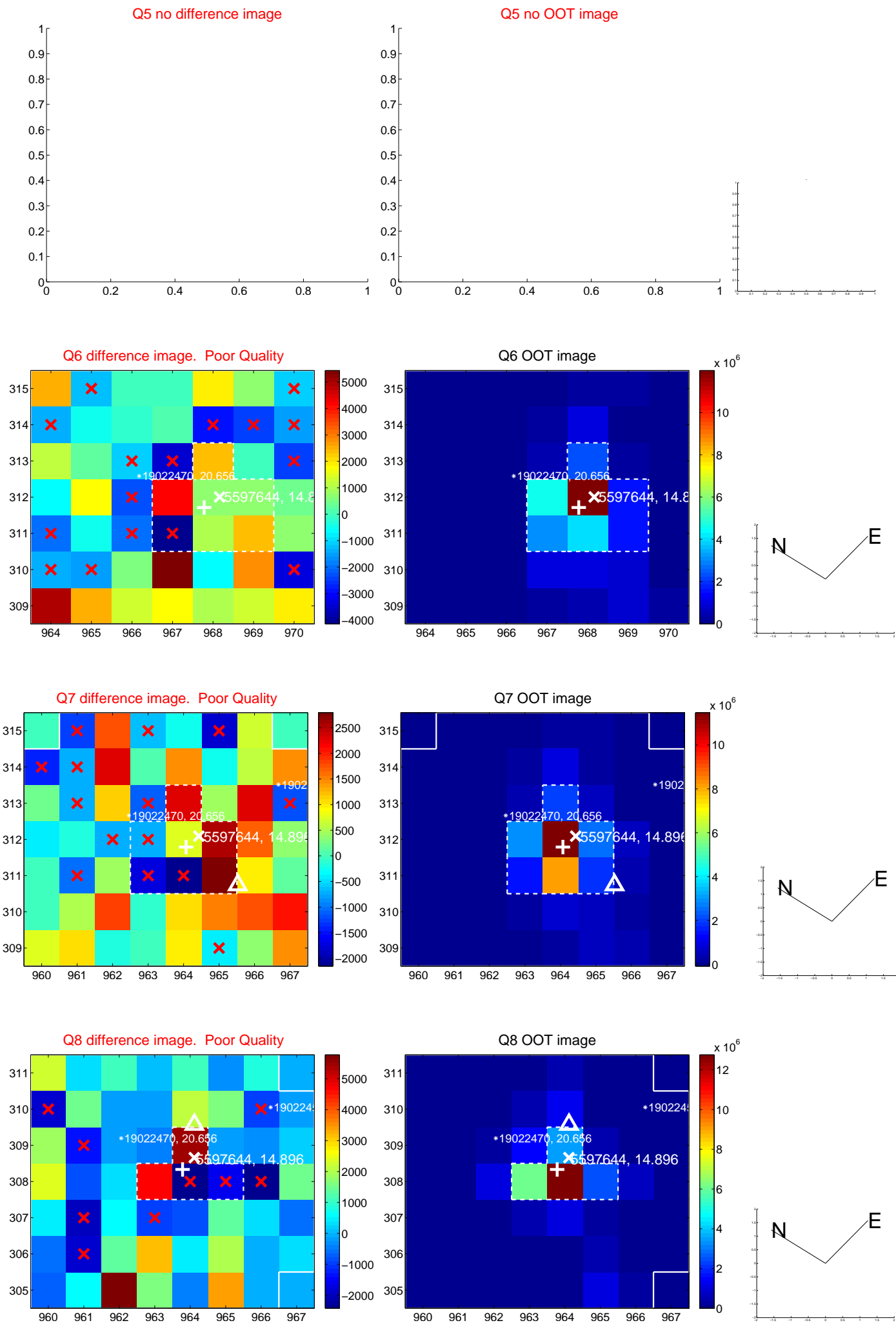


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

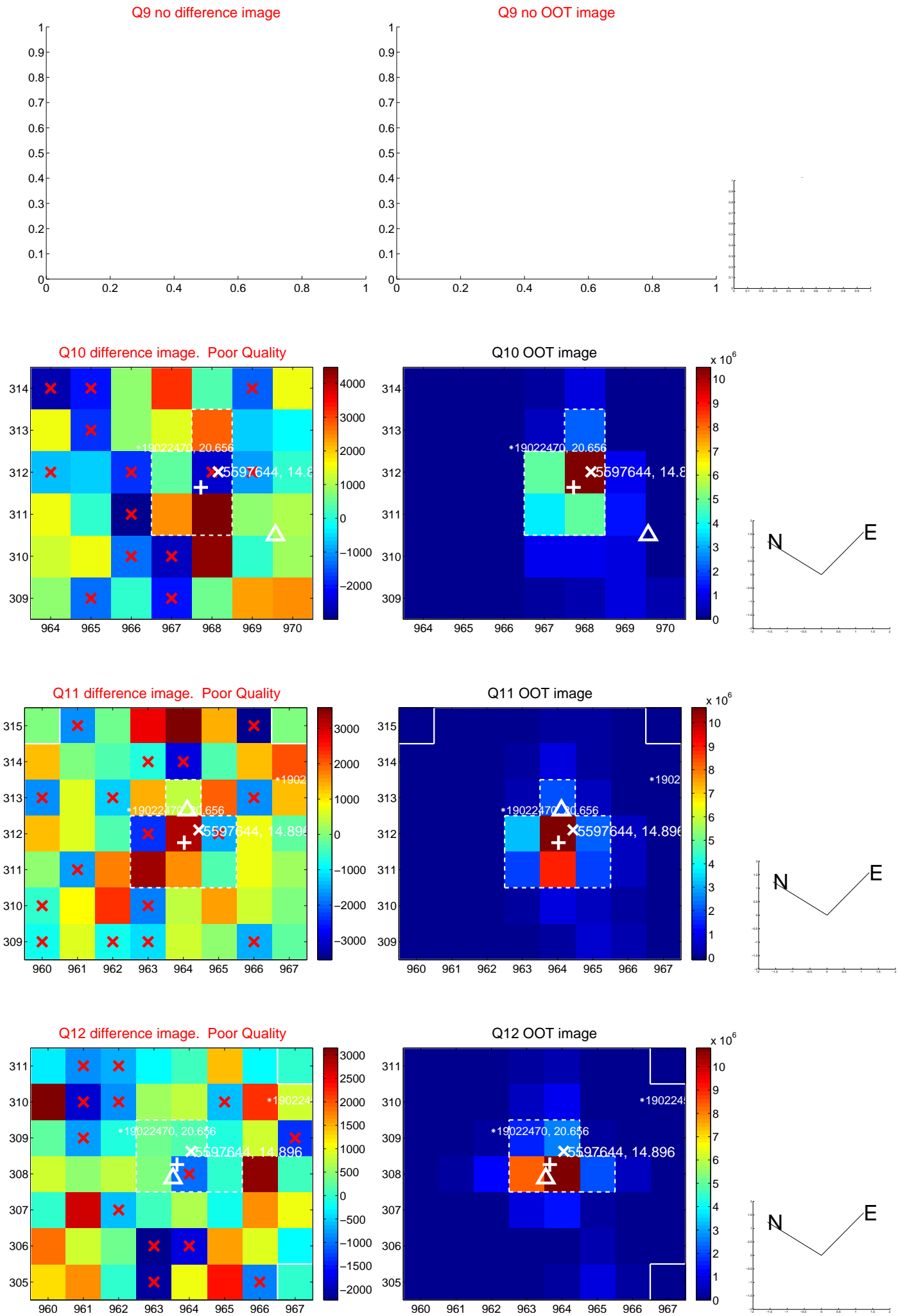
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



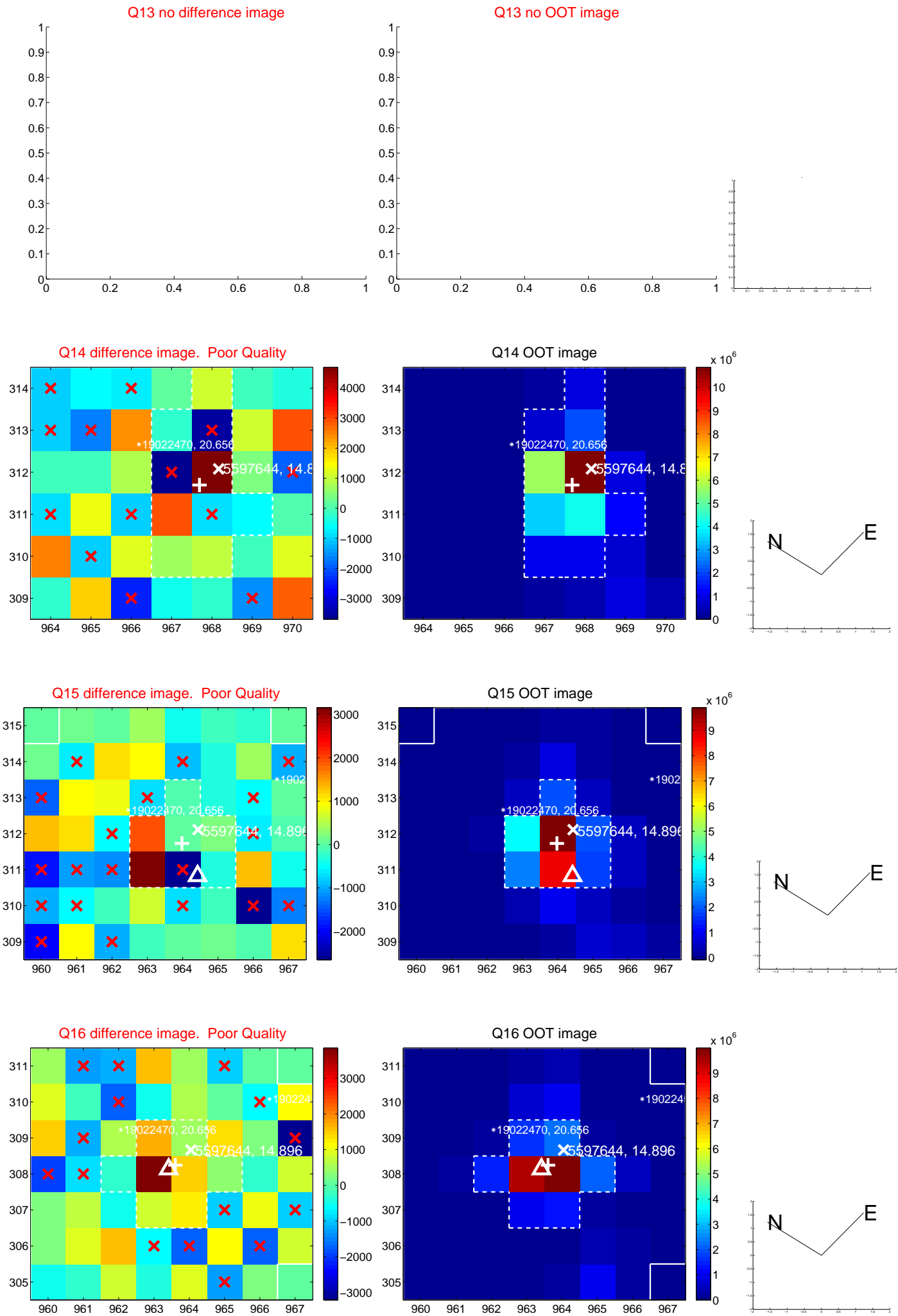
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



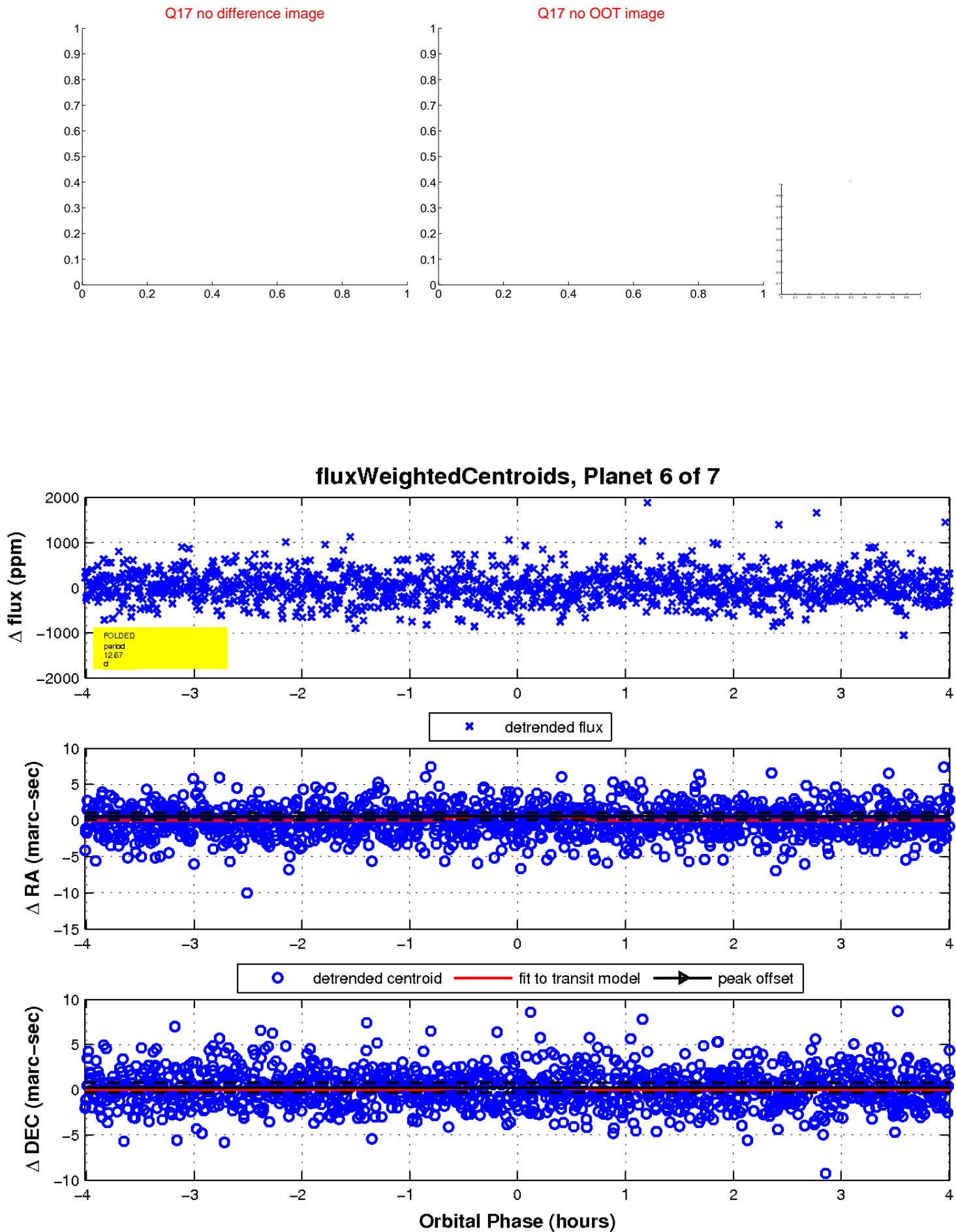
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



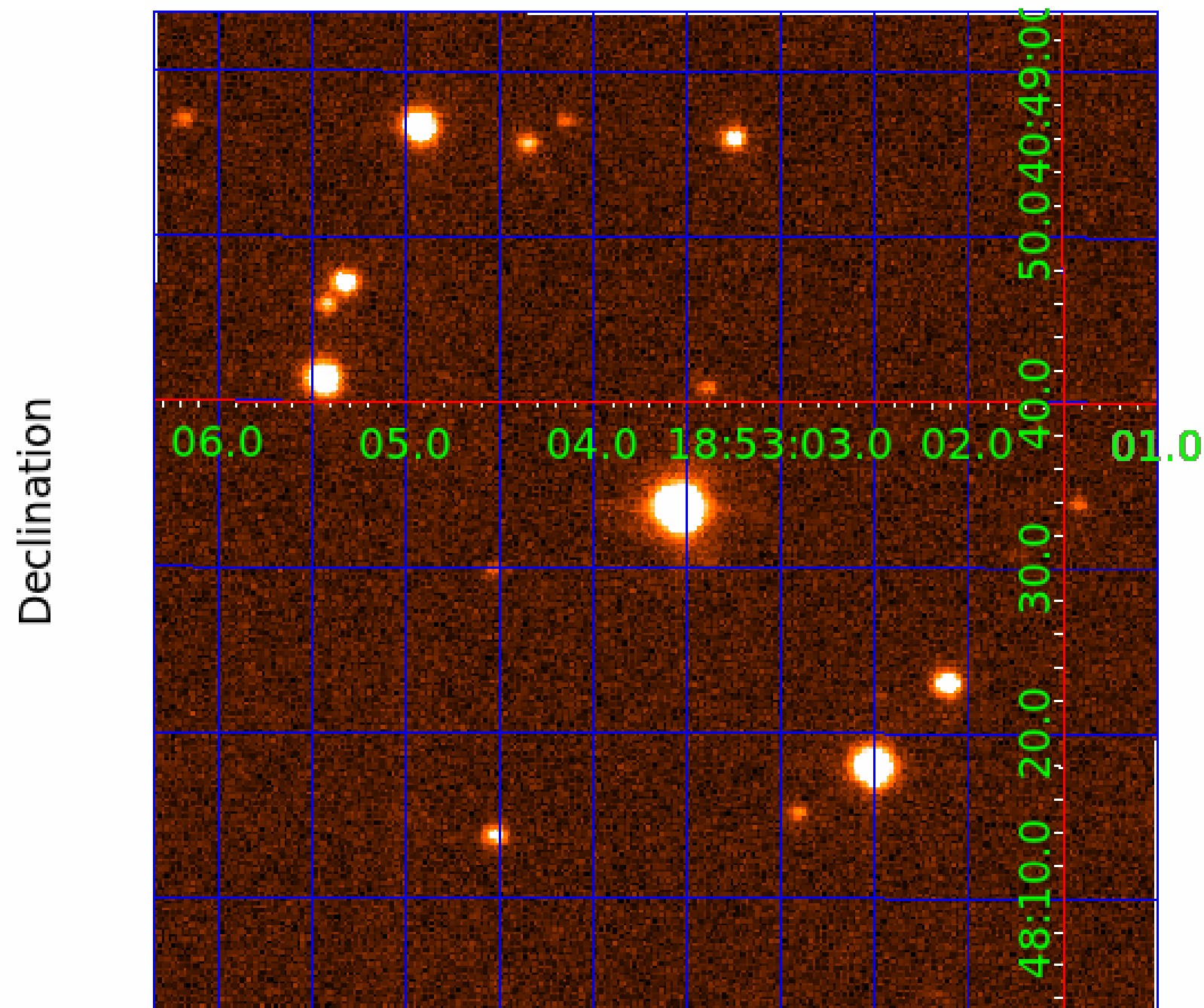
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 005597644

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005597644-01	OBS	No	1.622889	131.642472	44.5	11.975	10.2	12.4	0.67	4608	0.49	329.39
005597644-02	OBS	No	23.410825	149.563980	388.9	2.890	11.7	9.9	0.67	4608	1.69	9.38
005597644-03	OBS	No	38.894409	142.512147	701.9	0.878	12.6	10.1	0.67	4608	1.74	4.77
005597644-04	OBS	No	18.323547	149.547879	606.3	1.485	12.1	12.9	0.67	4608	1.75	13.00
005597644-05	OBS	No	8.641613	137.357345	428.3	2.730	10.9	11.7	0.67	4608	1.62	35.42
005597644-06	OBS	No	12.665253	139.311048	497.8	1.338	11.7	11.8	0.67	4608	1.47	21.28
005597644-07	OBS	No	22.061501	137.726267	457.6	0.945	9.4	10.2	0.67	4608	1.40	10.15

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005597644-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
005597644-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
005597644-03	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_POS_ALT—CENT_FEW_MEAS
005597644-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
005597644-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
005597644-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005597644-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—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.

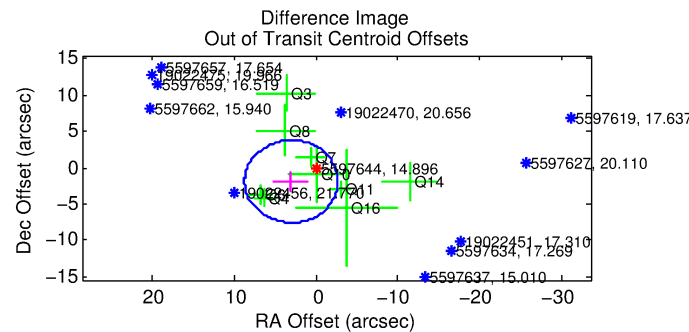
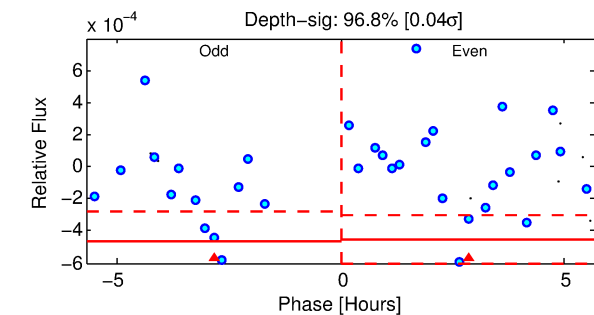
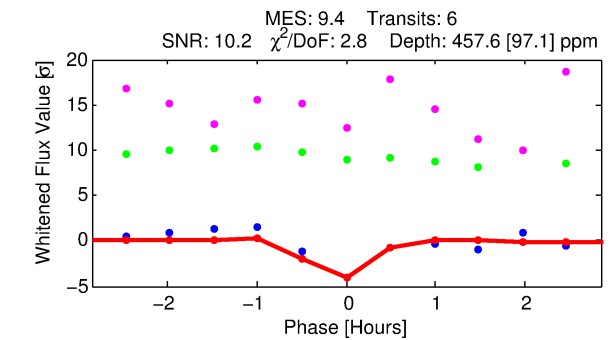
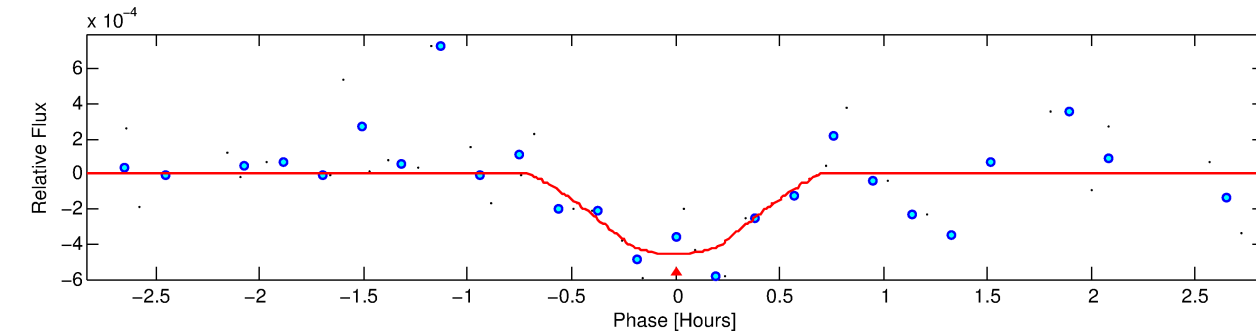
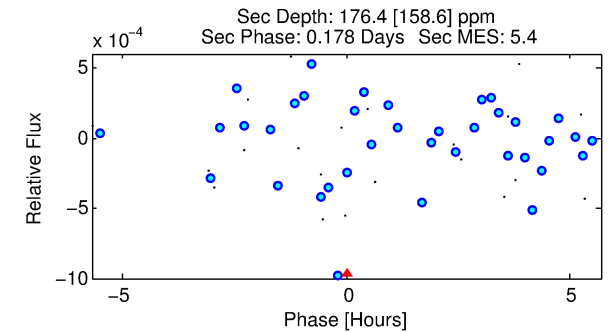
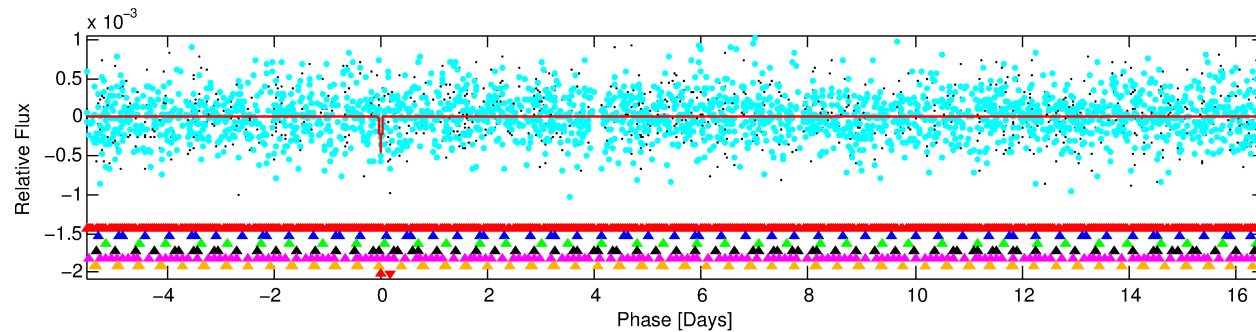
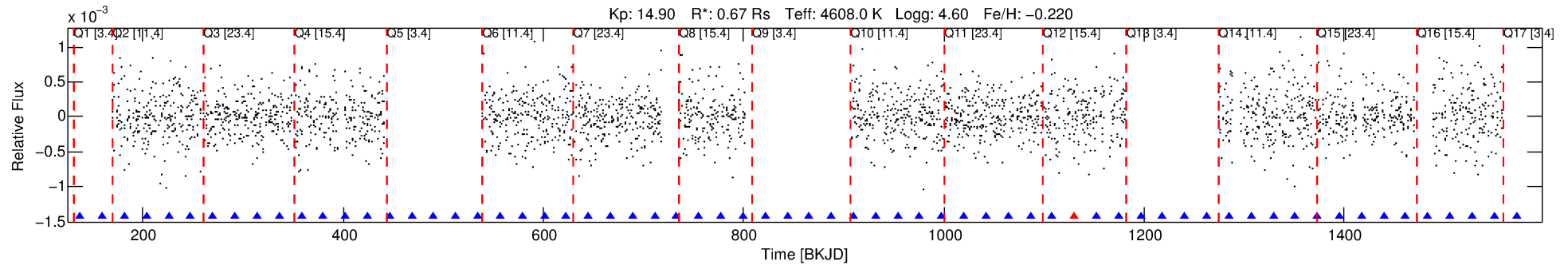
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005597644-07

No Significant Match Found

# DV One-Page Summary

KIC: 5597644 Candidate: 7 of 7 Period: 22.062 d



## DV Fit Results:

Period = 22.06150 [0.00021] d  
Epoch = 137.7263 [0.0067] BKJD  
Rp/R\* = 0.0191 [0.0645]  
a/R\* = 180.35 [1862.57]  
b = 0.13 [81.92]  
Seff = 10.15 [1.82]  
Teff = 455 [20] K  
Rp = 1.40 [4.72] Re  
a = 0.1338 [0.0099] AU  
Ag = 886.81 [6035.73] [0.15 $\sigma$ ]  
Teffp = 3840 [6535] K [0.52 $\sigma$ ]

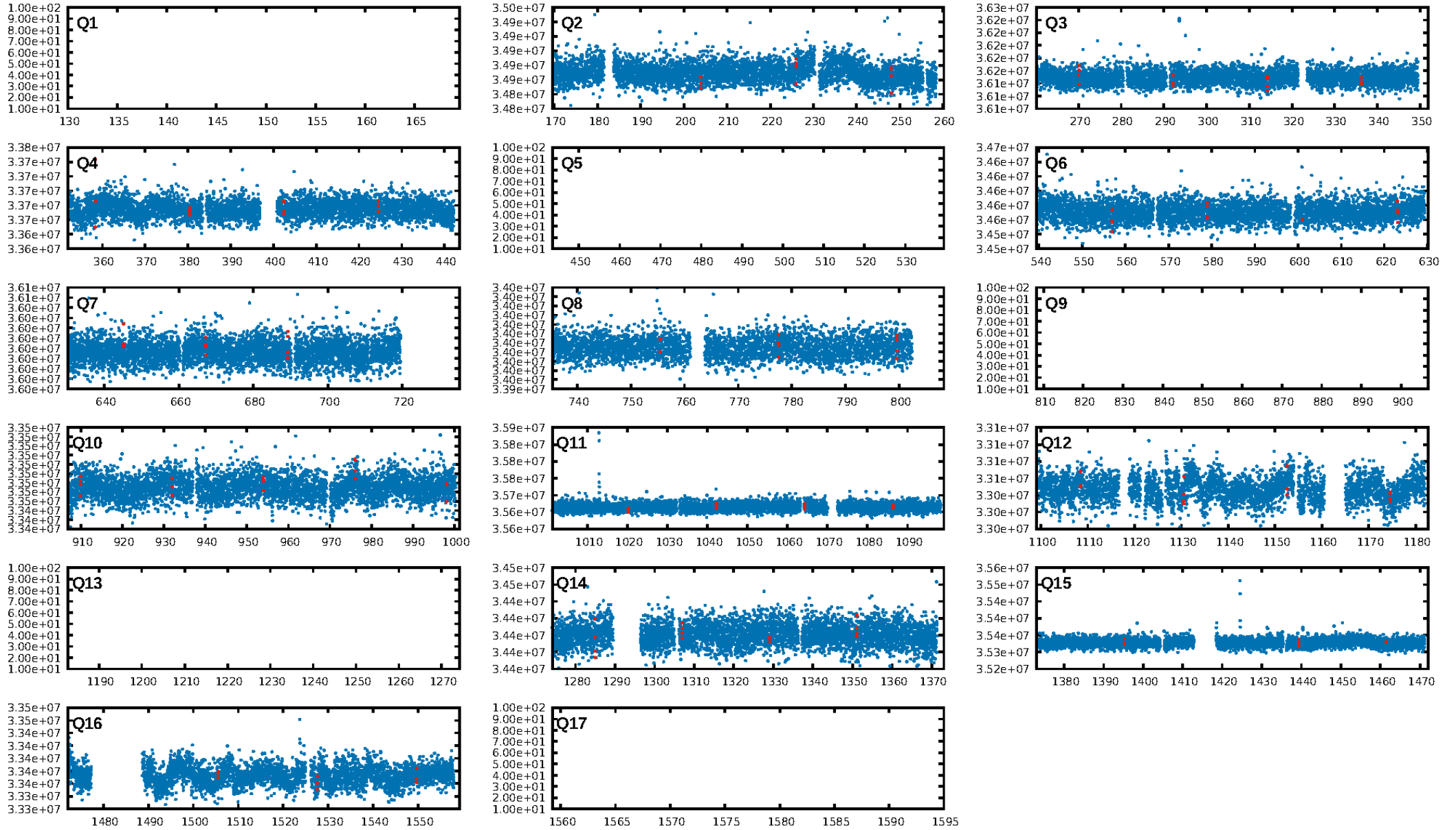
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [50.96 $\sigma$ ]  
LongPeriod-sig: 100.0% [10.65 $\sigma$ ]  
ModelChiSquare2-sig: 2.2%  
ModelChiSquareGof-sig: 67.8%  
**Bootstrap-pfa: 1.71e-07**  
RollingBand-fgt: 0.83 [5/6]  
**GhostDiagnostic-chr: -0.4331**  
Centroid-sig: 38.7%  
Centroid-so: 0.865 arcsec [0.54 $\sigma$ ]  
OotOffset-rm: 3.561 arcsec [1.88 $\sigma$ ]  
KicOffset-rm: 2.000 arcsec [1.17 $\sigma$ ]  
OotOffset-st: 3/3/3/0 [9]  
KicOffset-st: 3/3/3/0 [9]  
DiffImageQuality-fgm: 0.00 [0/9]  
DiffImageOverlap-fno: 0.92 [11/12]

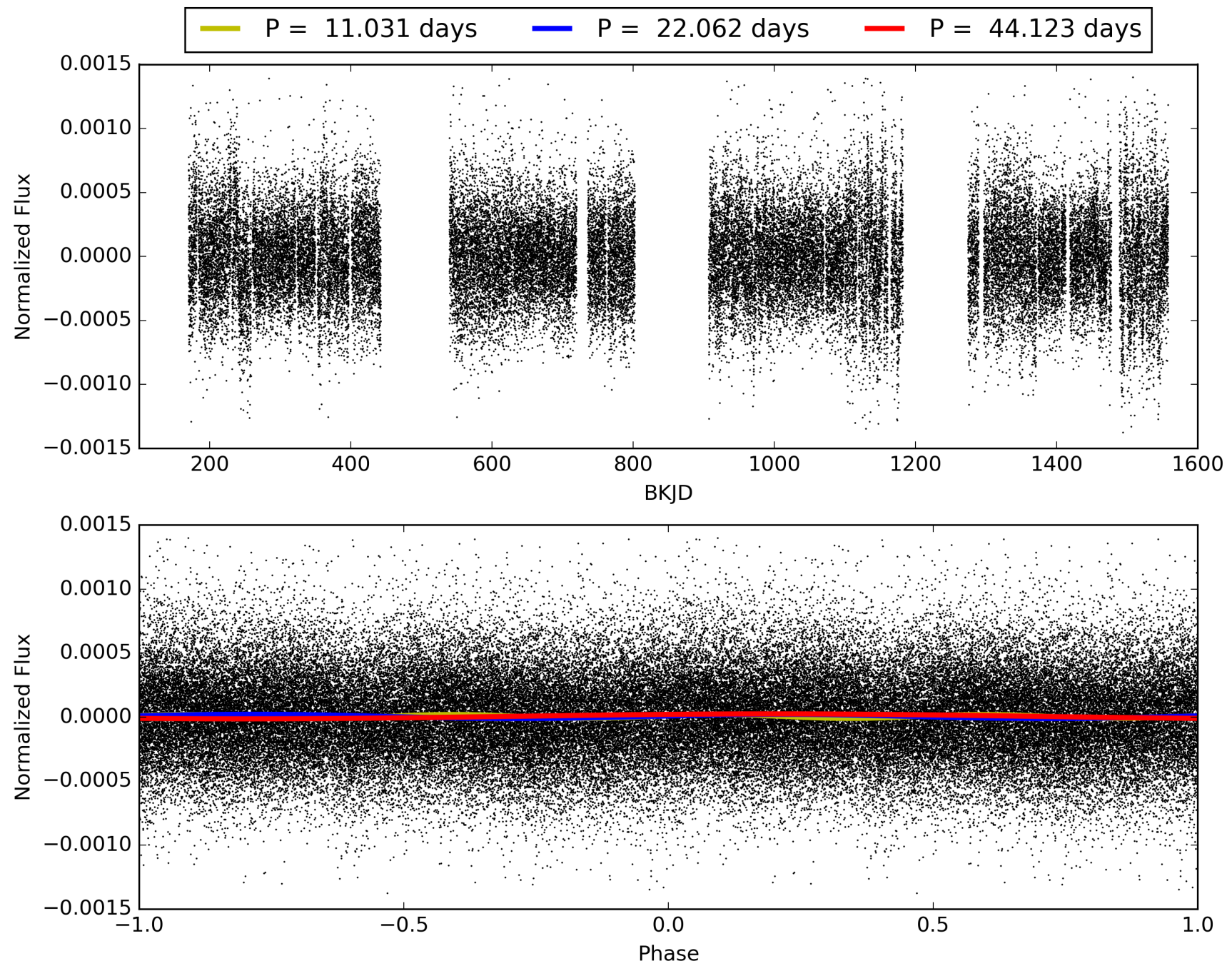
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:57:28 Z

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

# TCE 005597644-07, PDC Light Curves

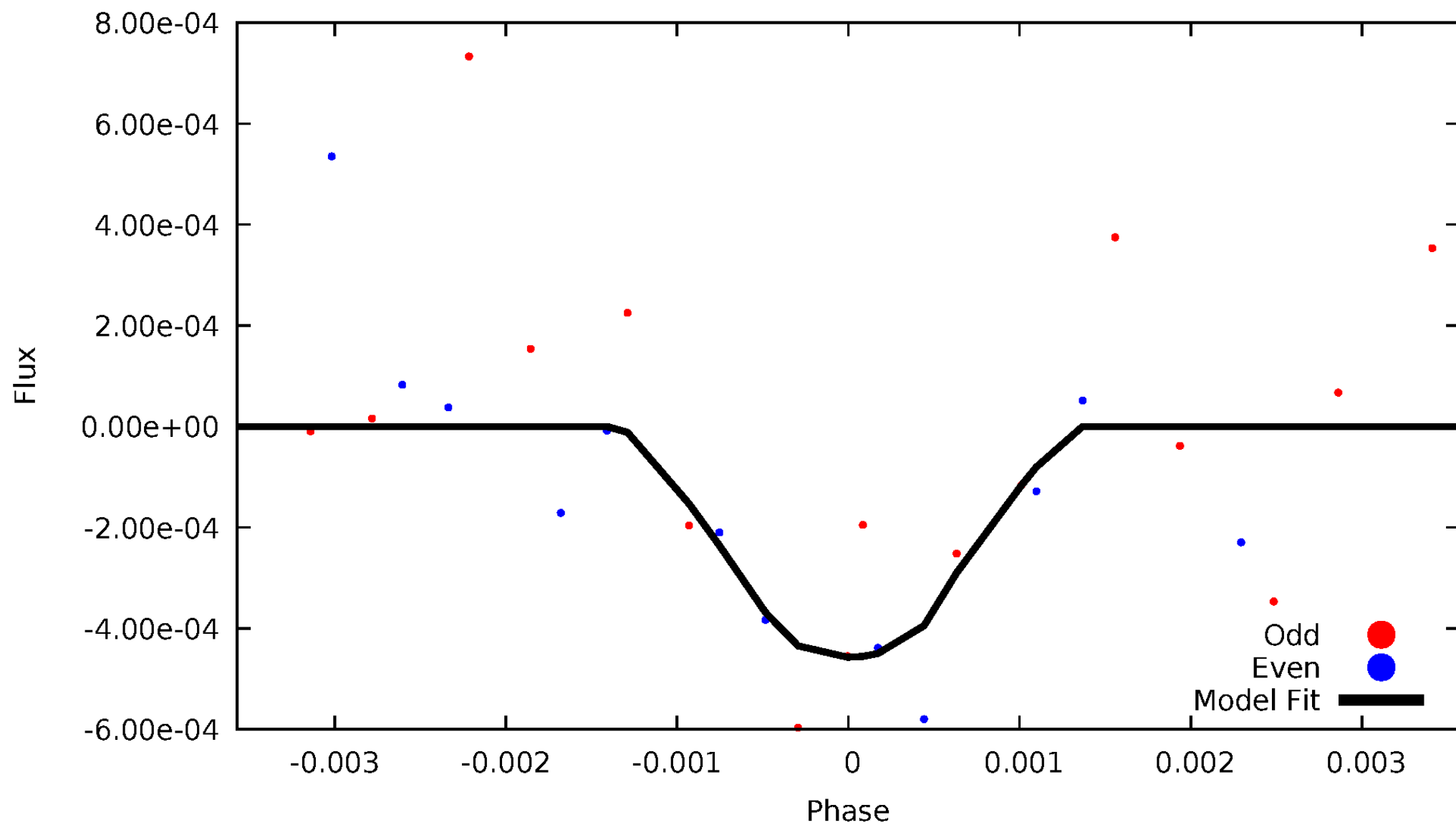


TCE 005597644-07



# DV Odd/Even

TCE 005597644-07



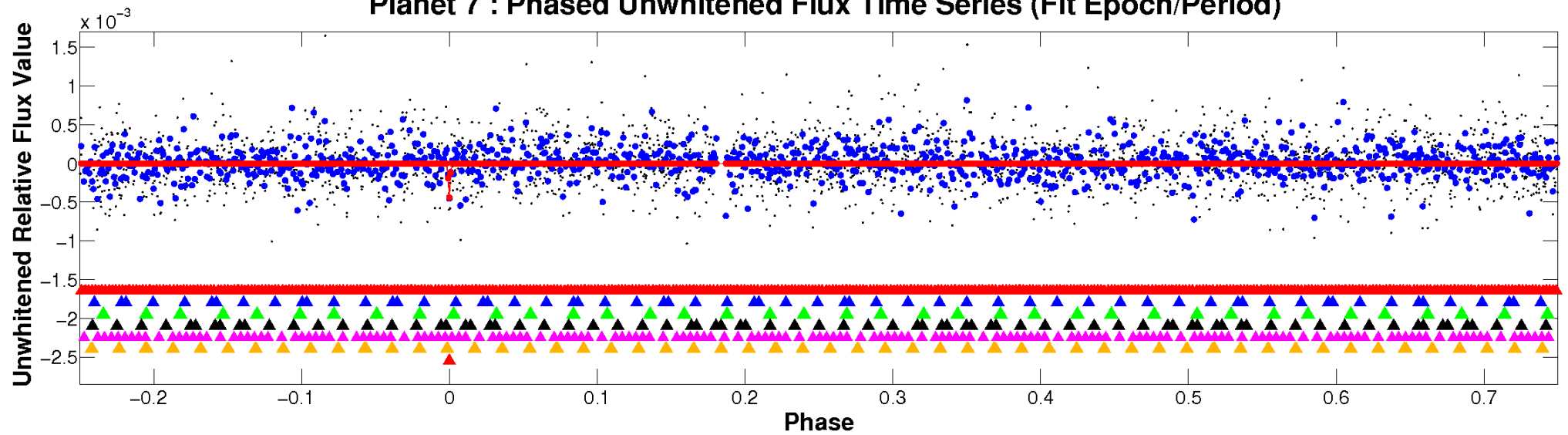


ALT Odd/Even

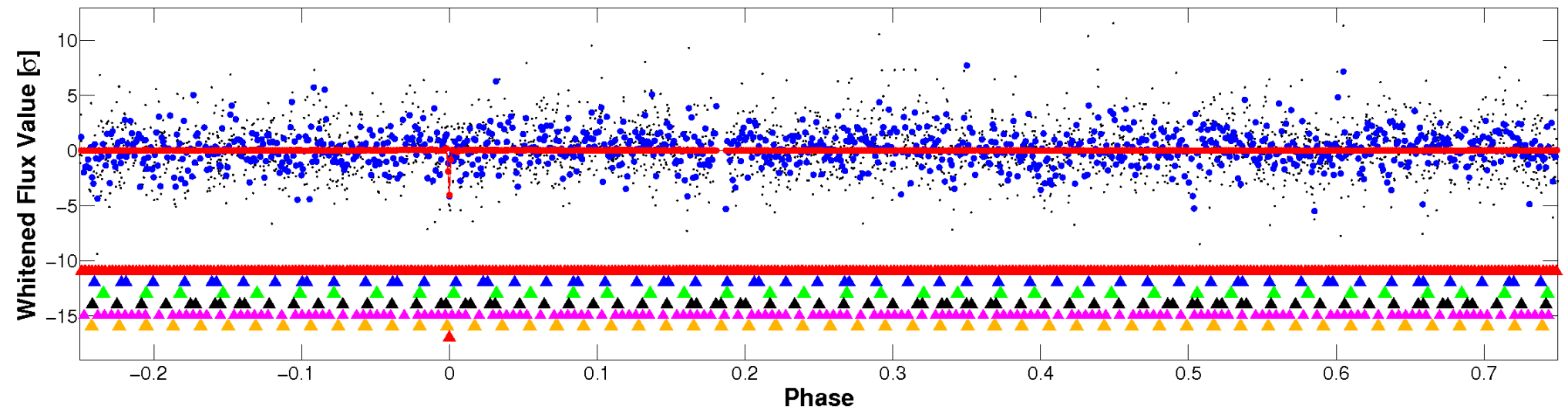
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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



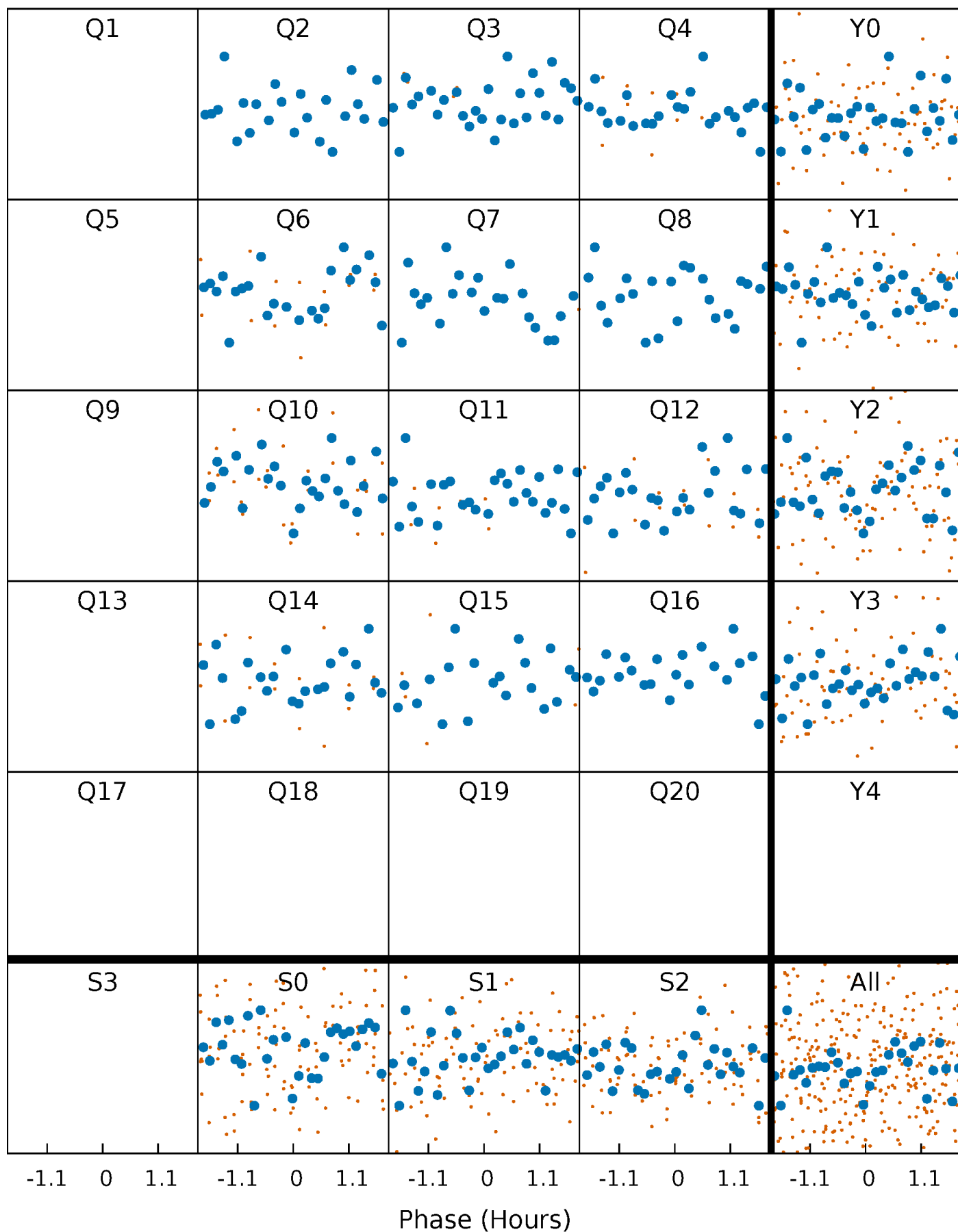
## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)





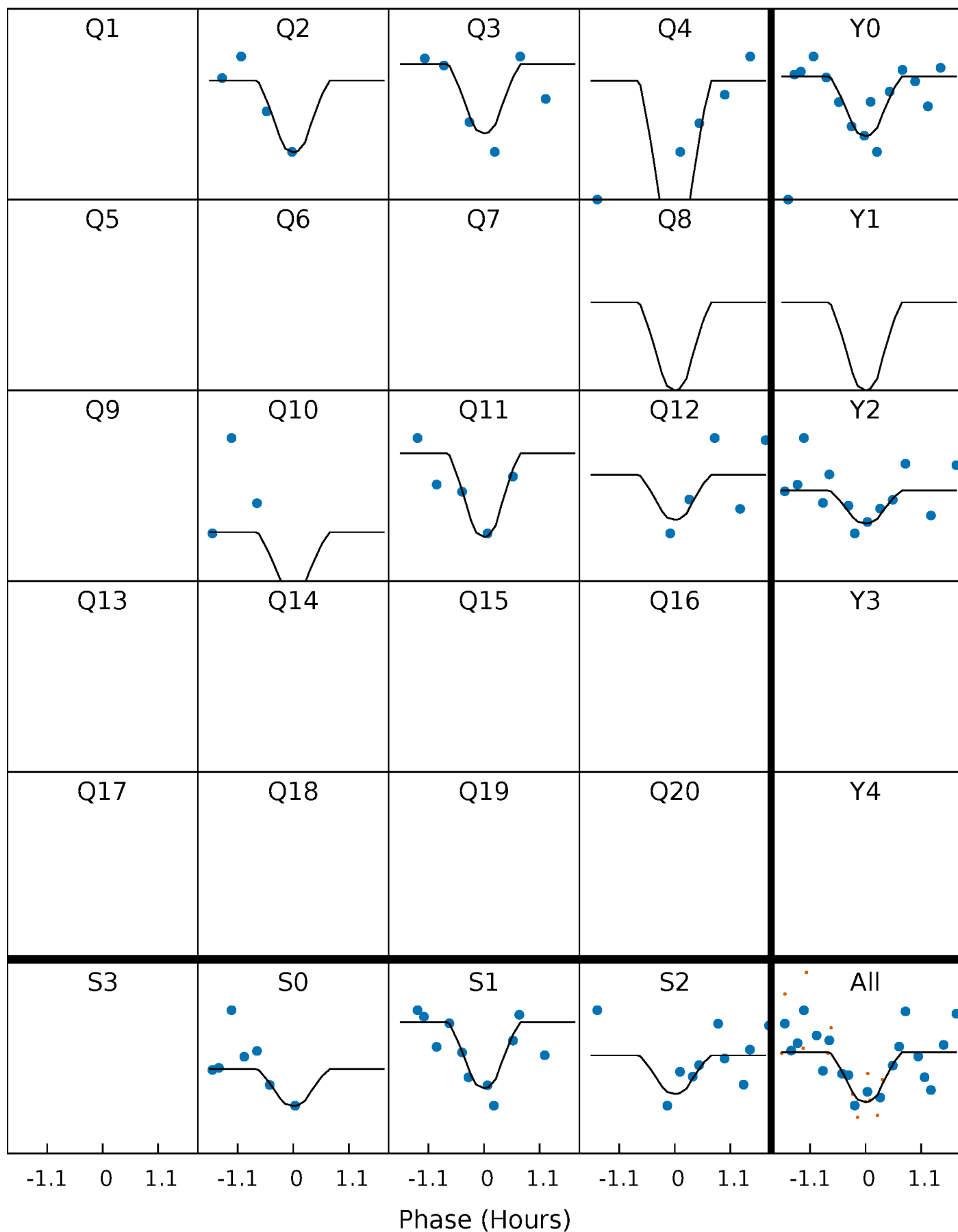
# PDC Quarter-Phased Transit Curves

TCE 005597644-07     $P = 22.061501$  Days     $T_0 = 137.726267$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 005597644-07 P= 22.061501 Days  $T_0=137.726267$  (BKJD)

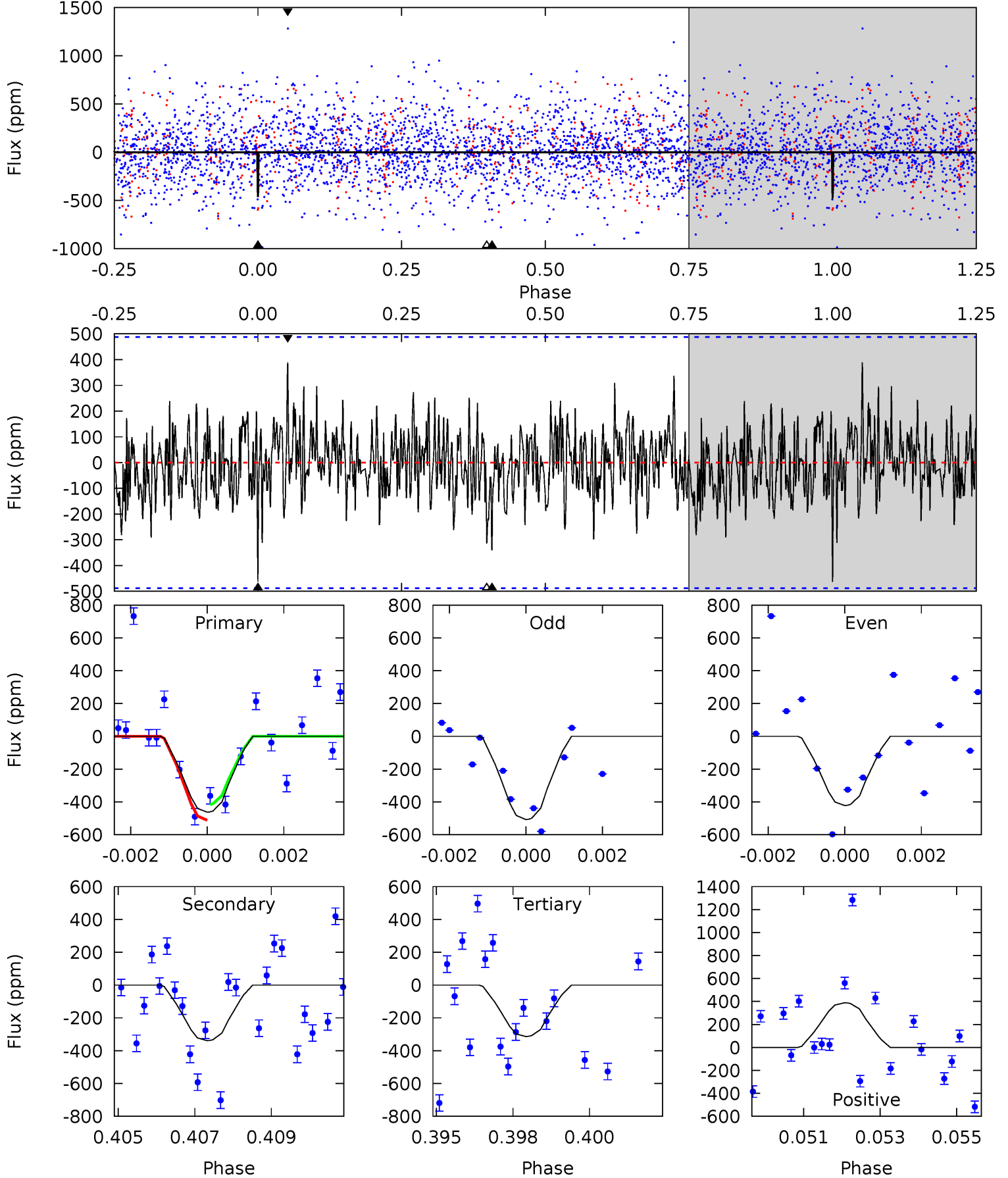


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

005597644-07, P = 22.061501 Days, E = 137.726267 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
5.03	3.68	3.41	4.22	5.30	3.05	1.16	1.62	0.81	0.28	-0.54	0.47	0.97	0.46	0.52



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 005597644

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4608^{+165}_{-165}$	$4.602^{+0.059}_{-0.027}$	$-0.220^{+0.300}_{-0.300}$	$0.671^{+0.054}_{-0.059}$	$0.656^{+0.081}_{-0.048}$	$3.064^{+0.754}_{-0.369}$
	+4%/-4%	+1%/-1%	+136%/-136%	+8%/-9%	+12%/-7%	+25%/-12%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005597644-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-339 \pm 92$	$3.55^{+3.70}_{-2.46}$	$633^{+26}_{-27}$	$3273^{+1680}_{-593}$	$255^{+2454}_{-194}$
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

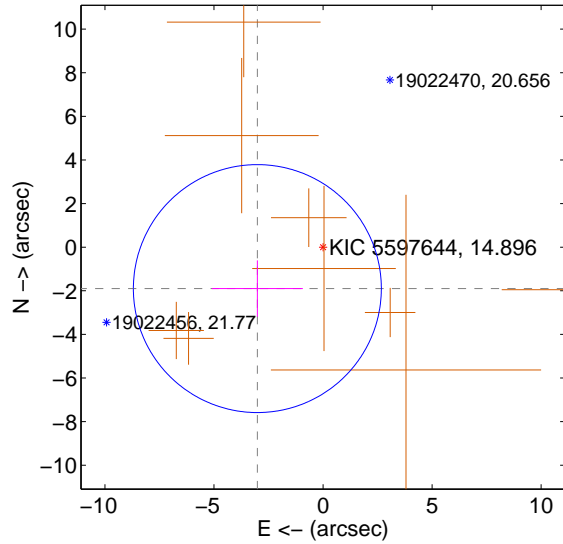
Supplemental centroid analysis for 005597644-07. Kepler magnitude: 14.90. Transit SNR 10.20

There are 0 quarters with good PRF difference image offsets

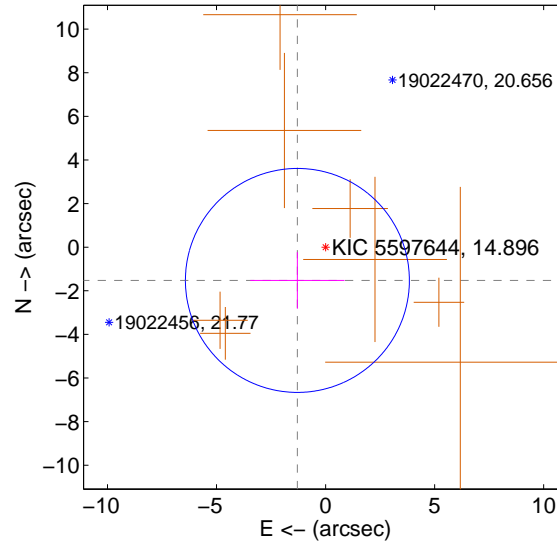
The OOT PRF centroid is offset from the target star catalog position by about 2.40 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.561 \pm 1.895$	1.88	$3.012 \pm 2.087$	$-1.900 \pm 1.293$
PRF-fit source offset from KIC position	$2.000 \pm 1.712$	1.17	$1.293 \pm 2.160$	$-1.526 \pm 1.297$
photometric centroid source offset	$0.87 \pm 1.61$	0.54	$-0.83 \pm 1.61$	$-0.26 \pm 1.70$

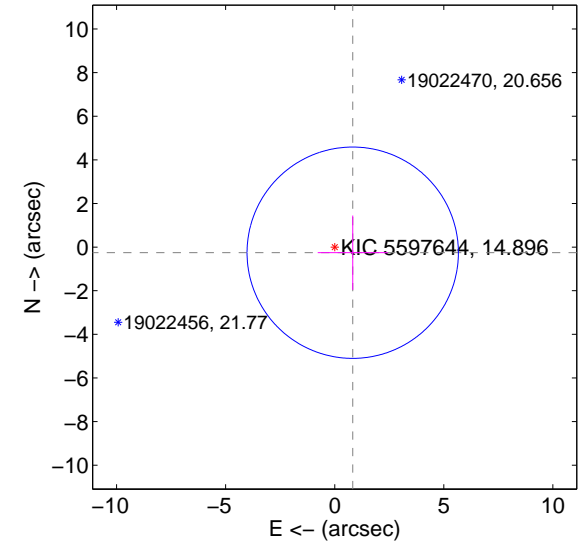
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

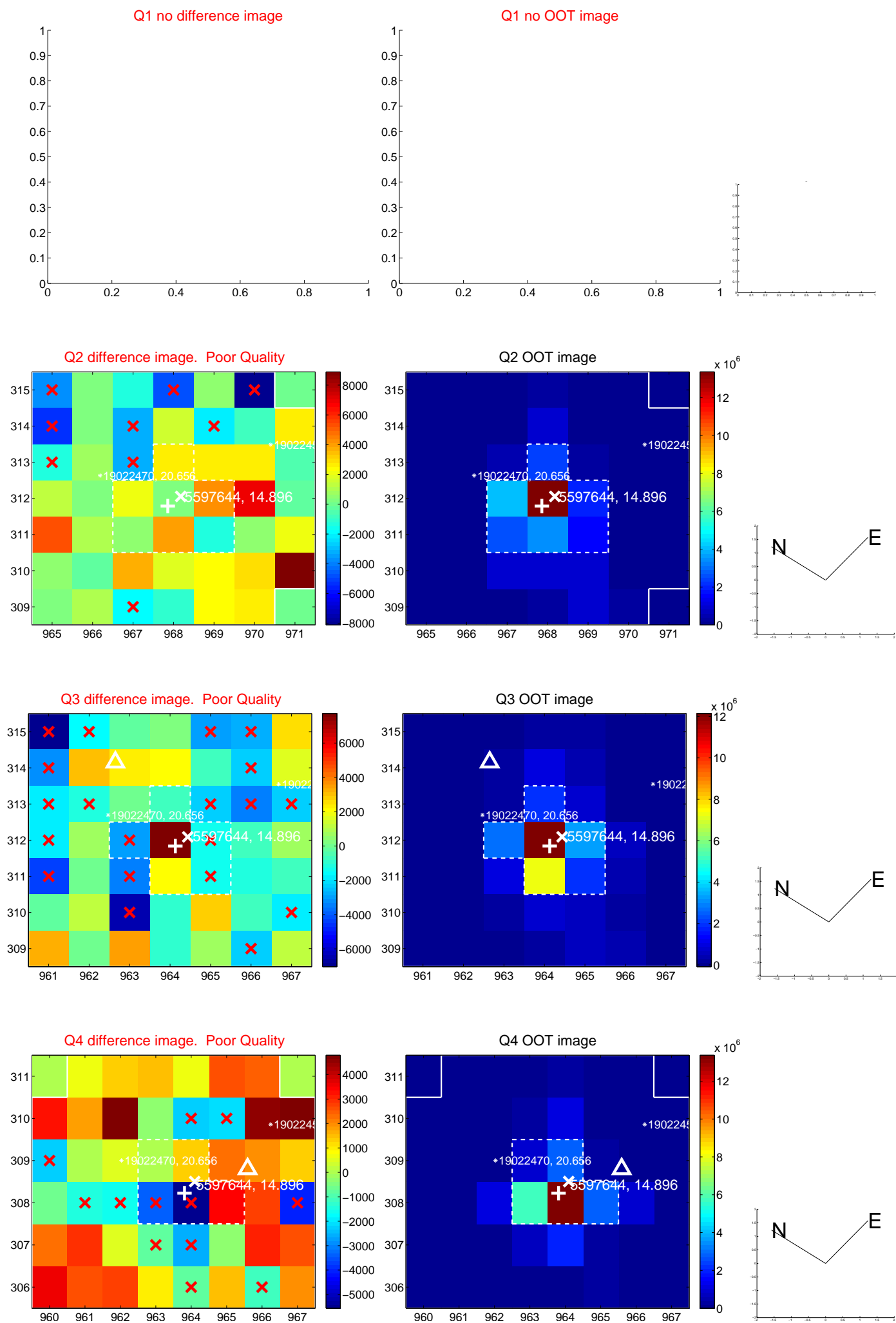


offset from photometric centroids



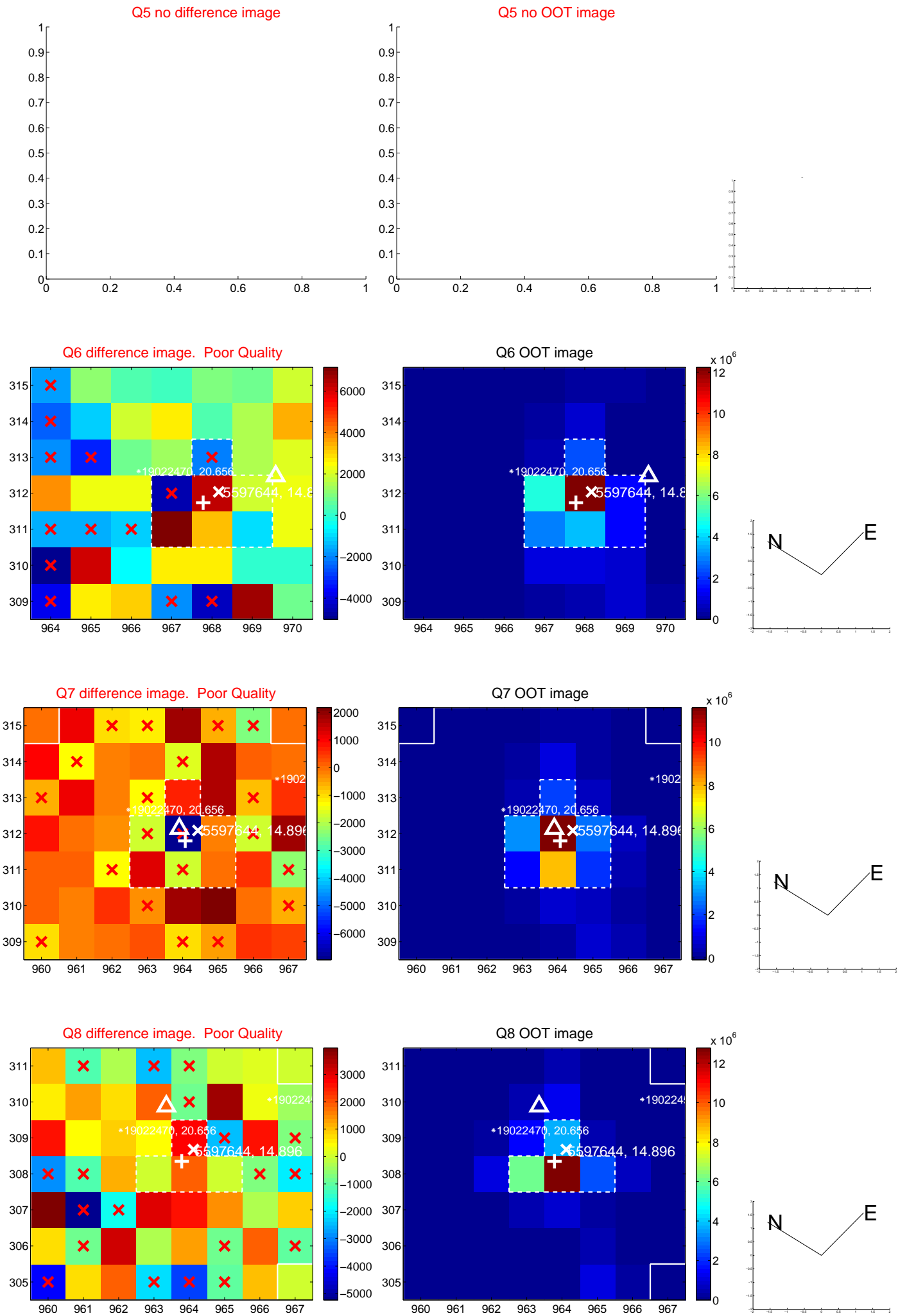
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

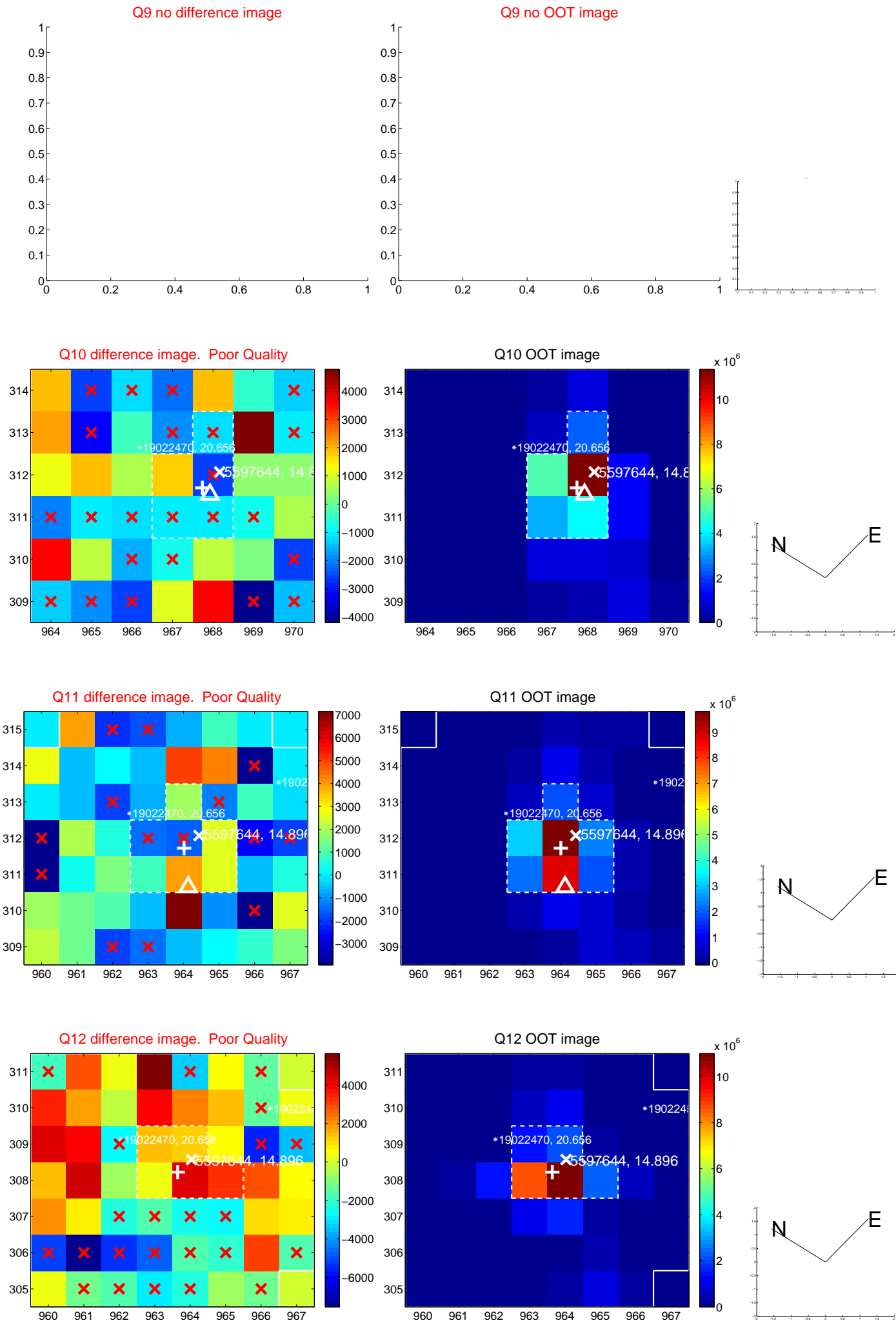




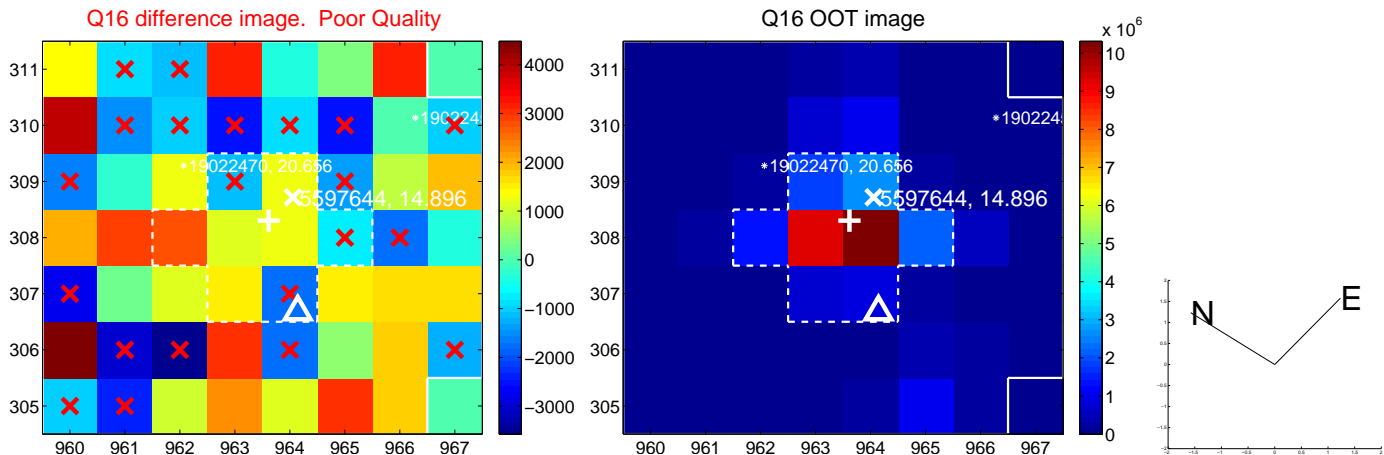
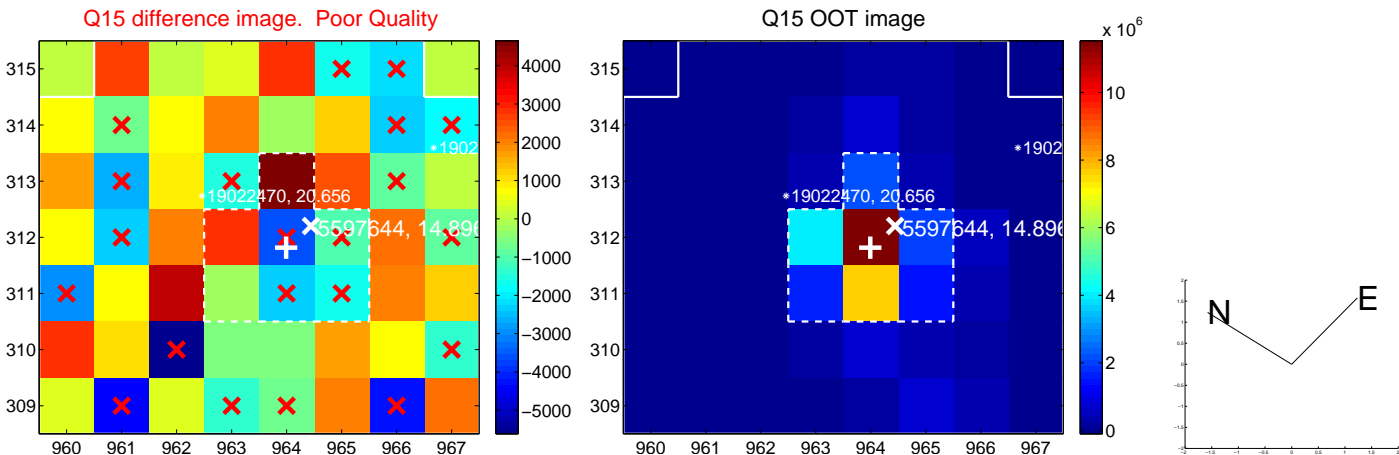
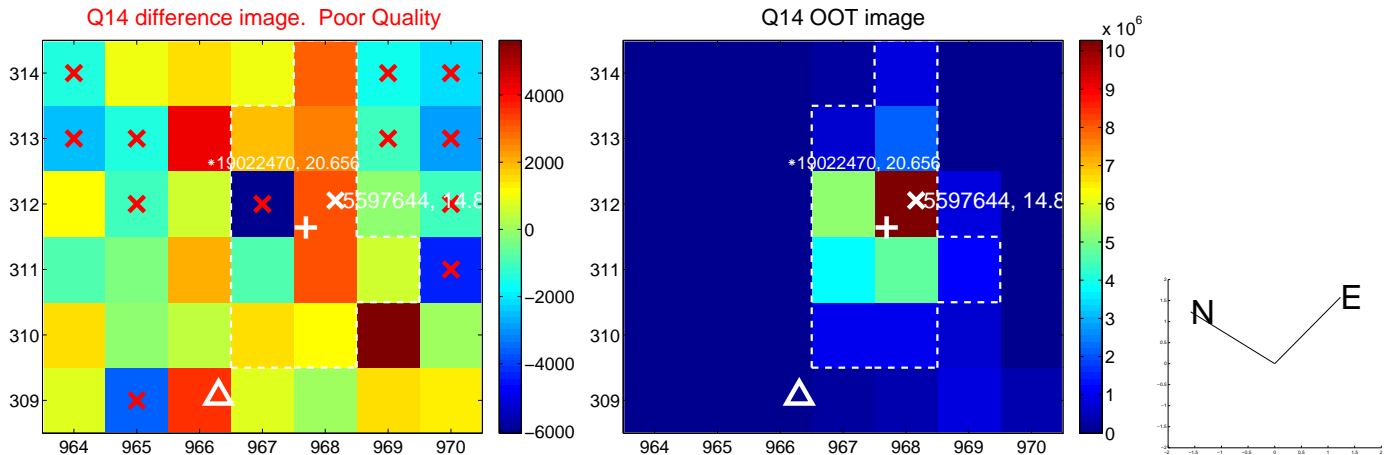
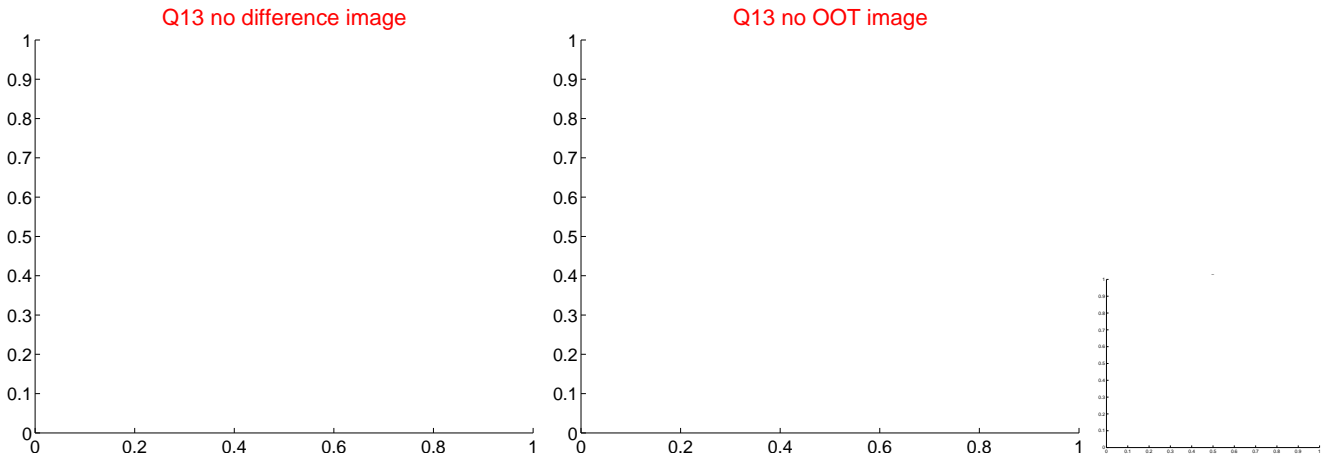
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



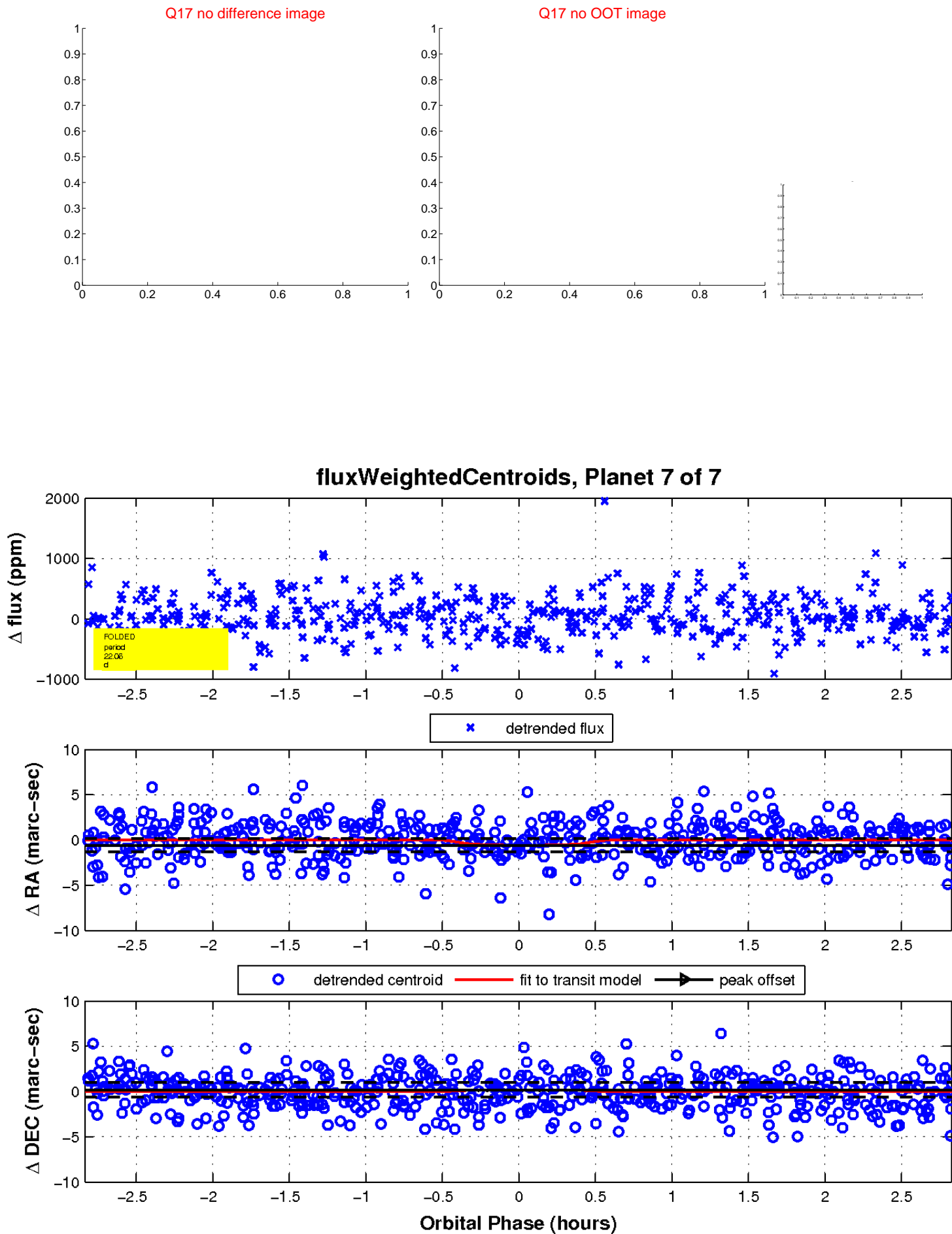
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UKIRT Image

