

KIC 007222086

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})
007222086-01	OBS	1701.01	2.439013	133.588123	78.5	1.193	39.6	51.0	2.78	6546	2.91	6713.66
007222086-02	OBS	No	1.060844	132.106494	4.3	8.931	8.7	6.6	2.78	6546	0.59	20372.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007222086-01	OBS	PC	0.98	0	0	0	0	CENT_SATURATED
007222086-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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 for comment definitions.

Ephemeris Match Information For 007222086-01

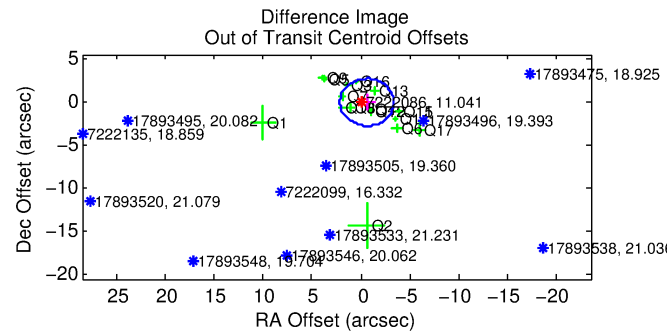
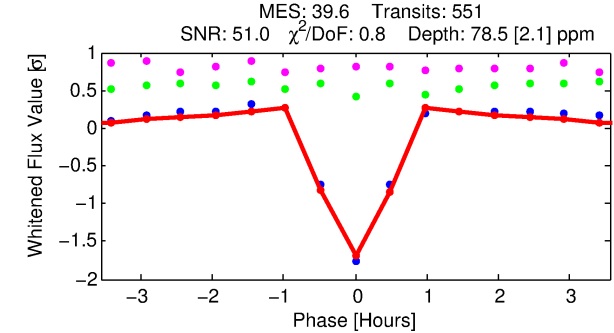
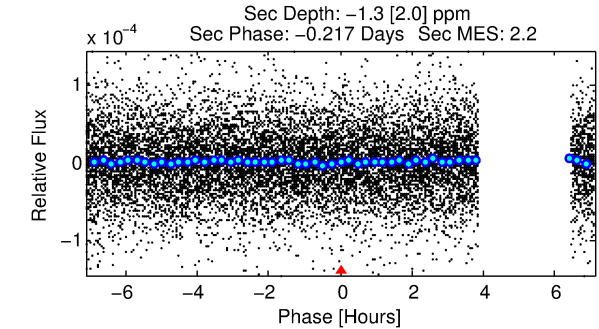
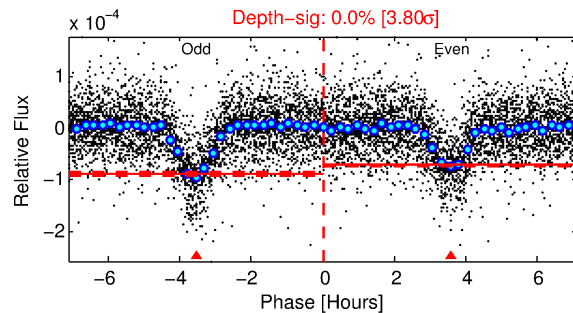
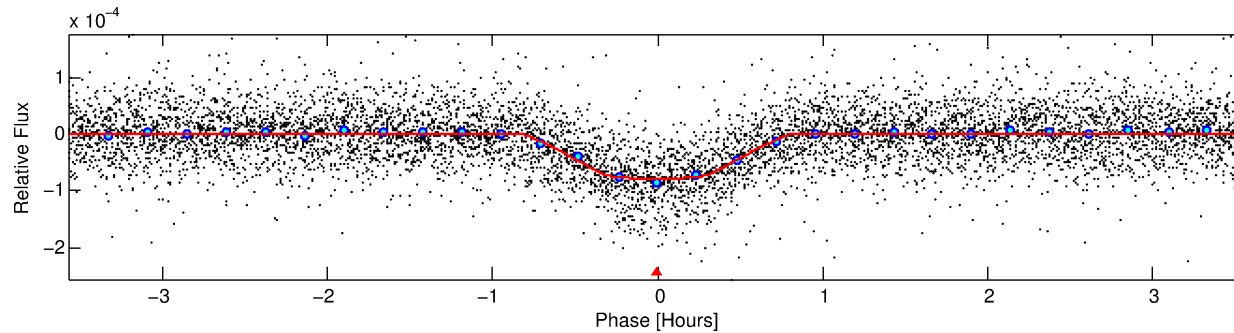
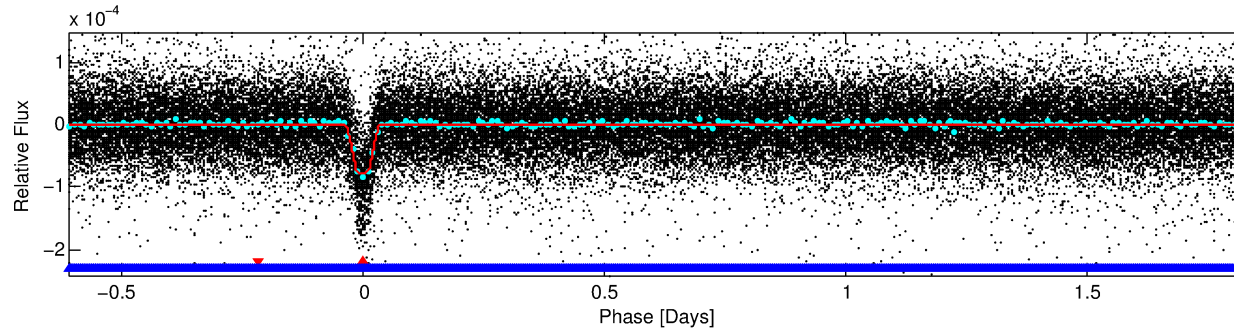
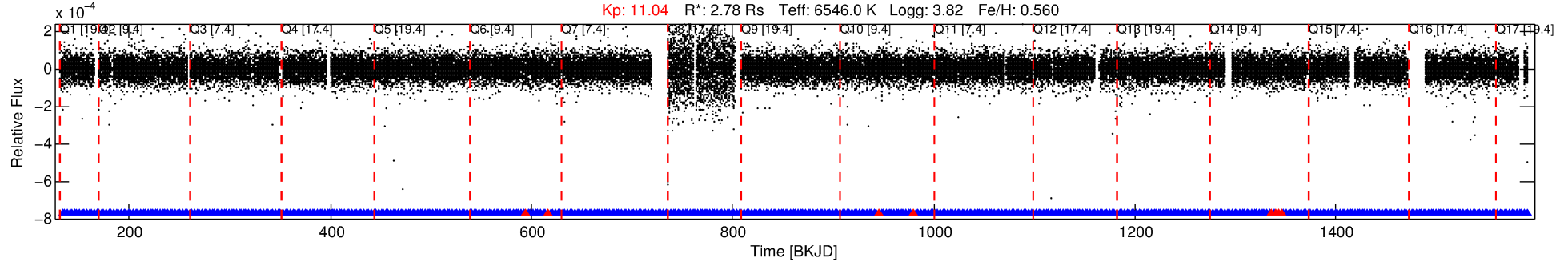
No Significant Match Found

DV One-Page Summary

KIC: 7222086 Candidate: 1 of 2 Period: 2.439 d

KOI: K01701.01 Corr: 0.953

Kp: 11.04 R*: 2.78 Rs Teff: 6546.0 K Logg: 3.82 Fe/H: 0.560



DV Fit Results:

Period = 2.43901 [0.00000] d
Epoch = 133.5881 [0.0004] BKJD
Rp/R* = 0.0096 [0.0010]
a/R* = 7.21 [4.10]
b = 0.90 [0.12]
Seff = 6713.66 [1973.24]
Teq = 2308 [170] K
Rp = 2.91 [0.69] Re
a = 0.0436 [0.0083] AU
Ag = N/A
Teffp = N/A

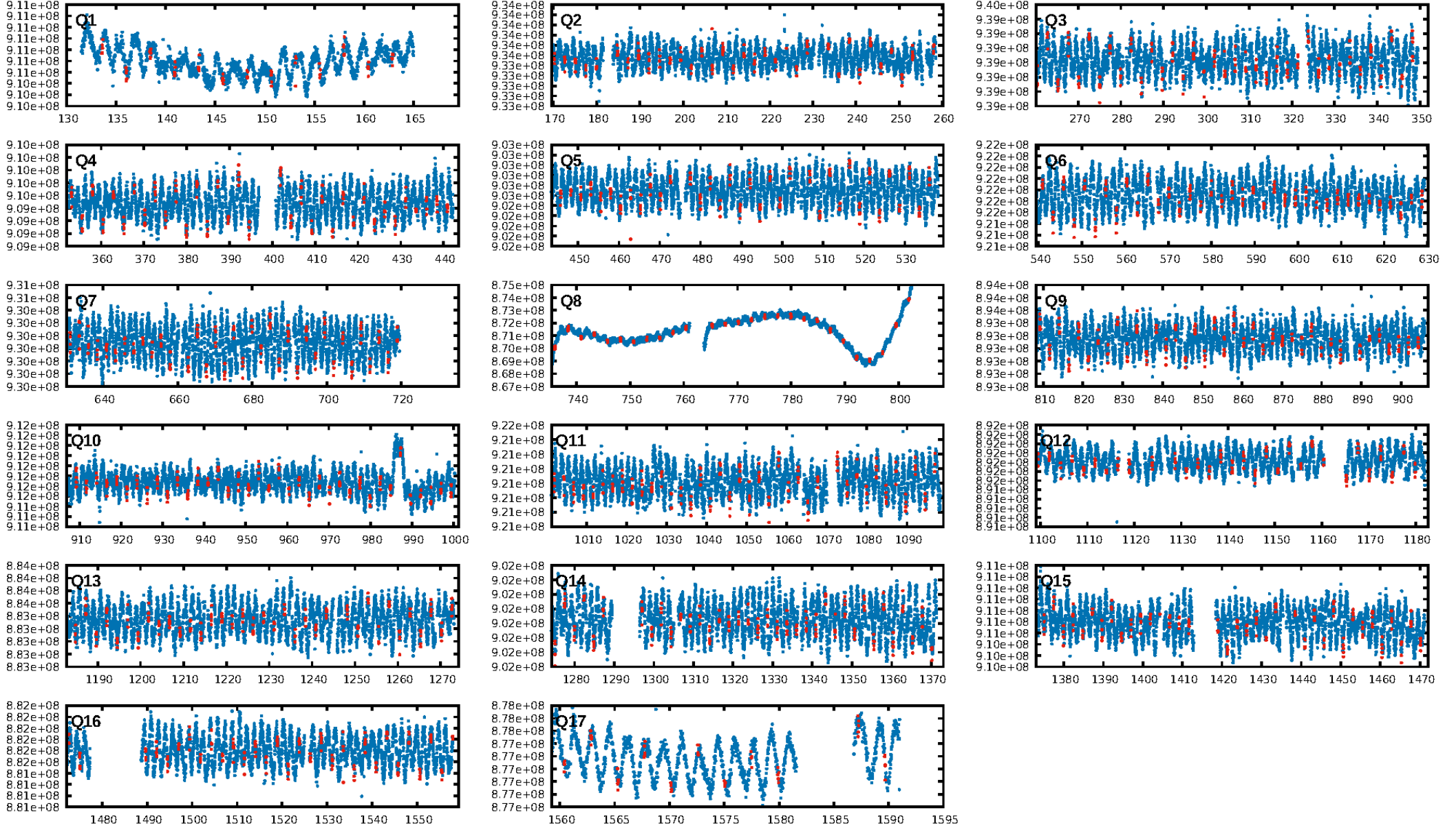
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.67σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [519/527]
GhostDiagnostic-chr: -172.9
Centroid-sig: 0.1%
Centroid-so: 0.678 arcsec [2.10σ]
OotOffset-rm: 0.595 arcsec [0.65σ]
KicOffset-rm: 0.504 arcsec [0.60σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.82 [14/17]
DiffImageOverlap-fno: 1.00 [17/17]

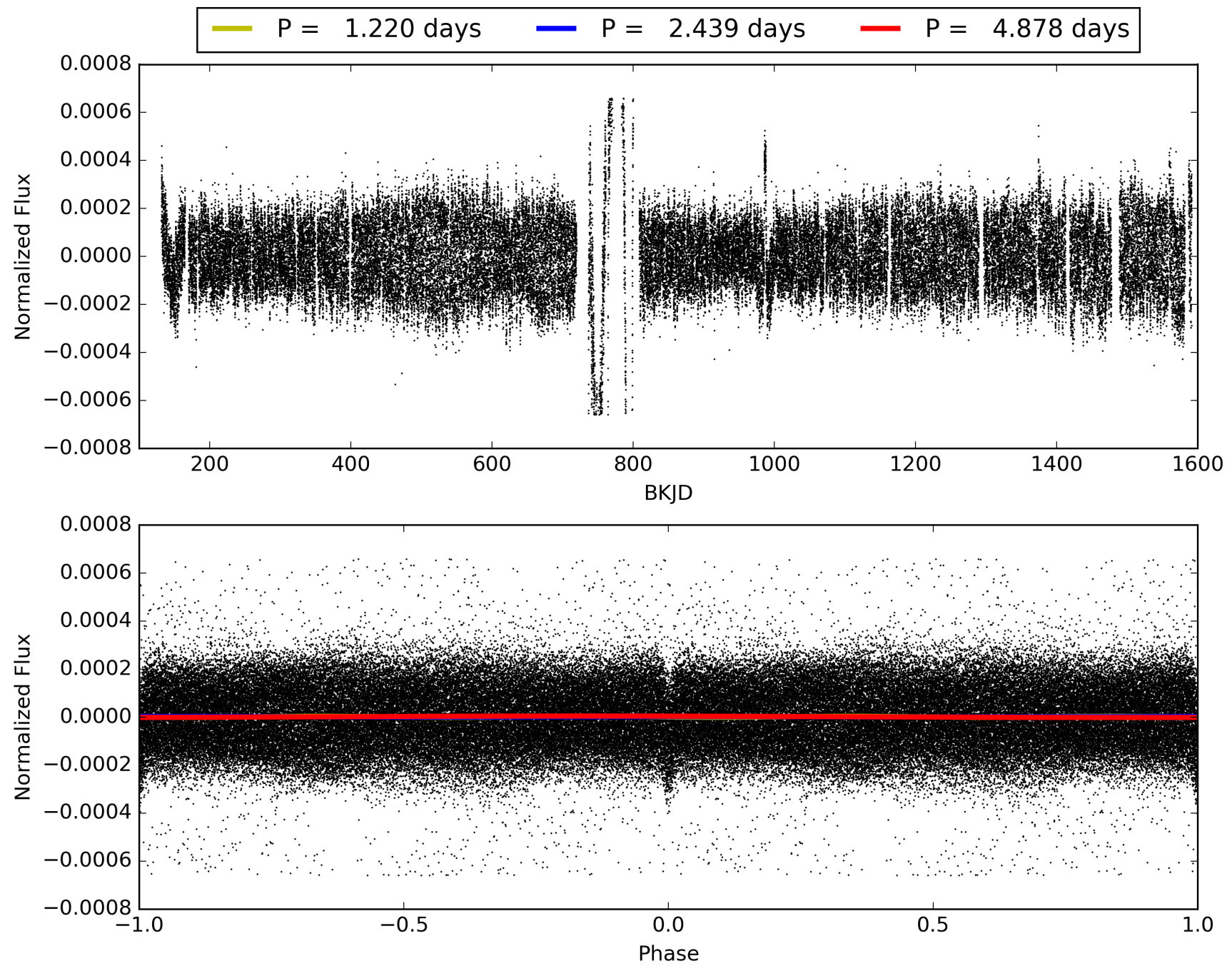
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:47:25 Z

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

TCE 007222086-01, PDC Light Curves

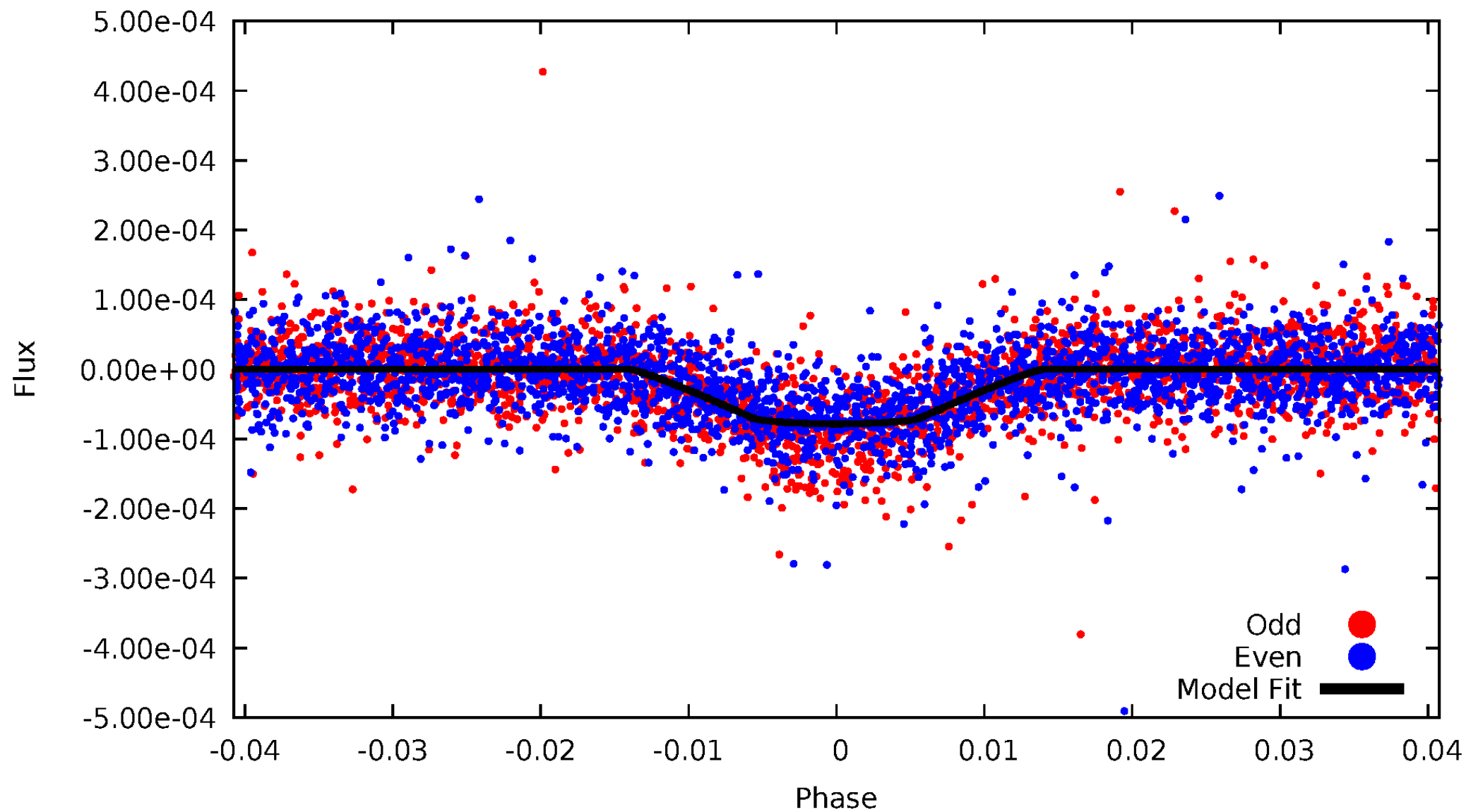


TCE 007222086-01



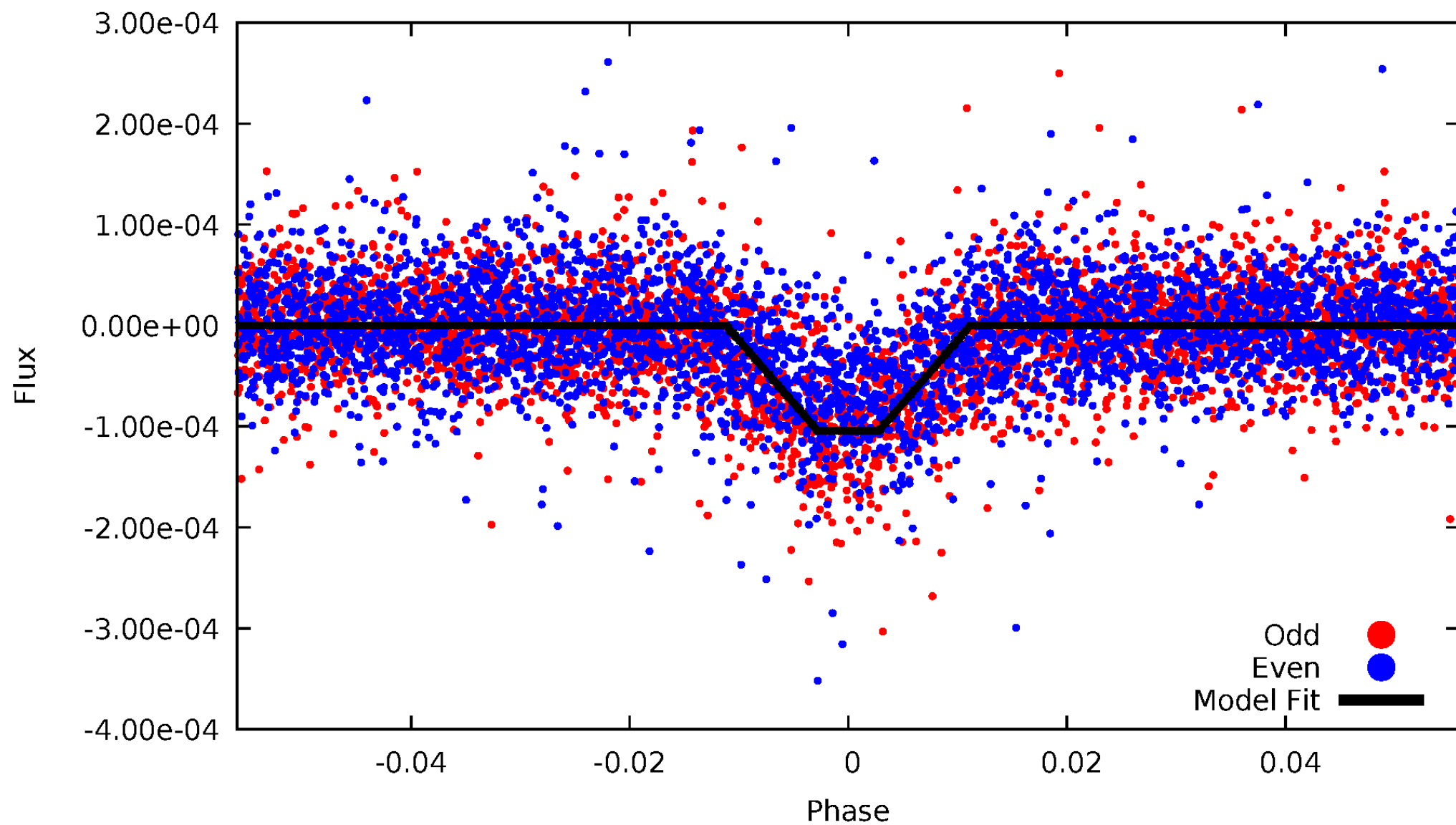
DV Odd/Even

TCE 007222086-01



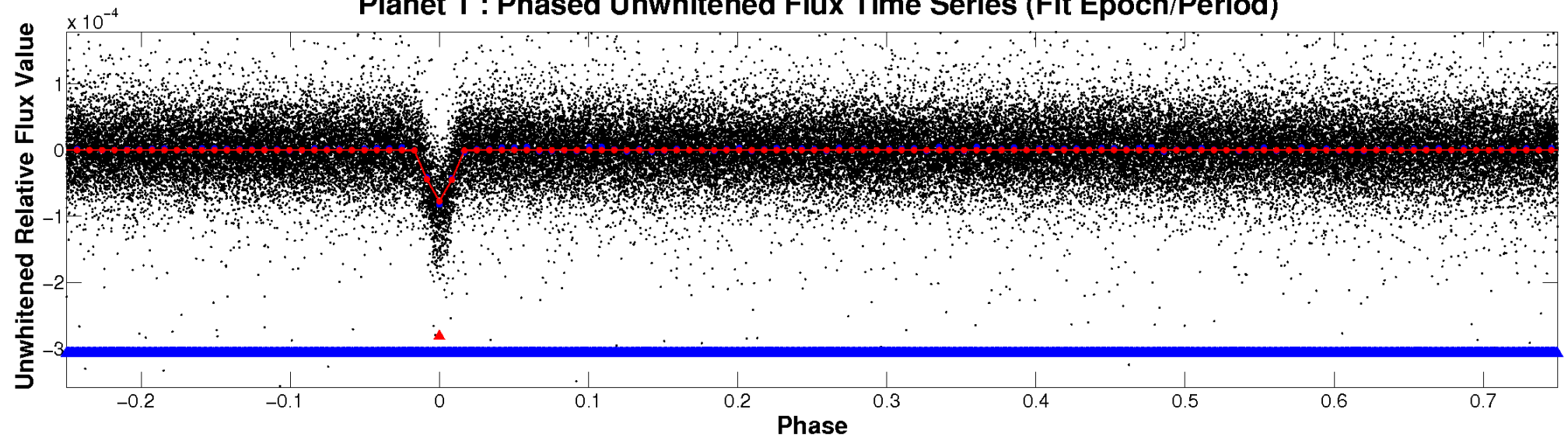
ALT Odd/Even

TCE 007222086-01

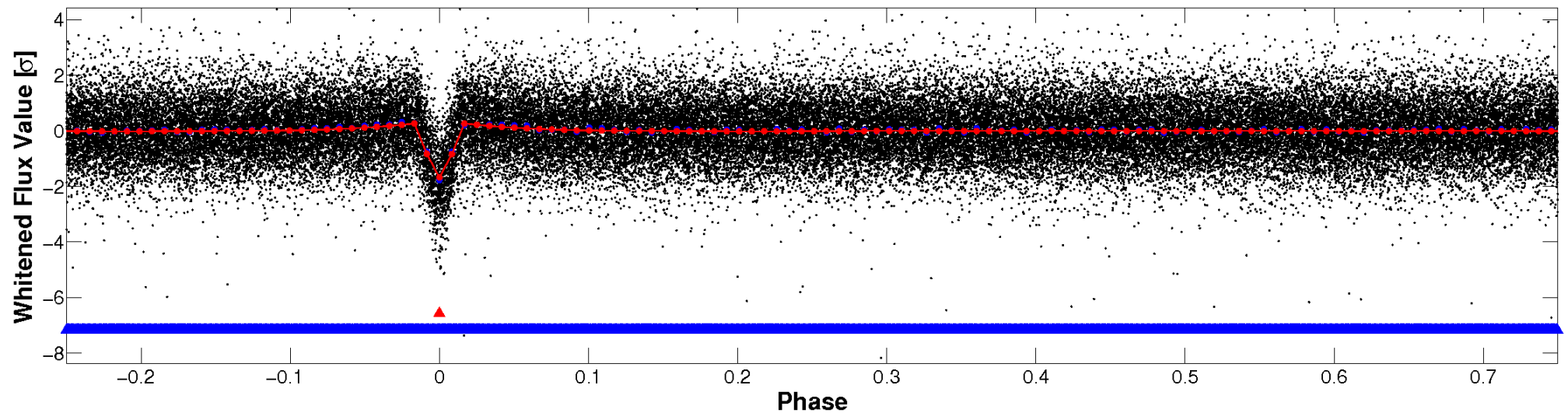


Non-Whitened Vs. Whitened Light Curve

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

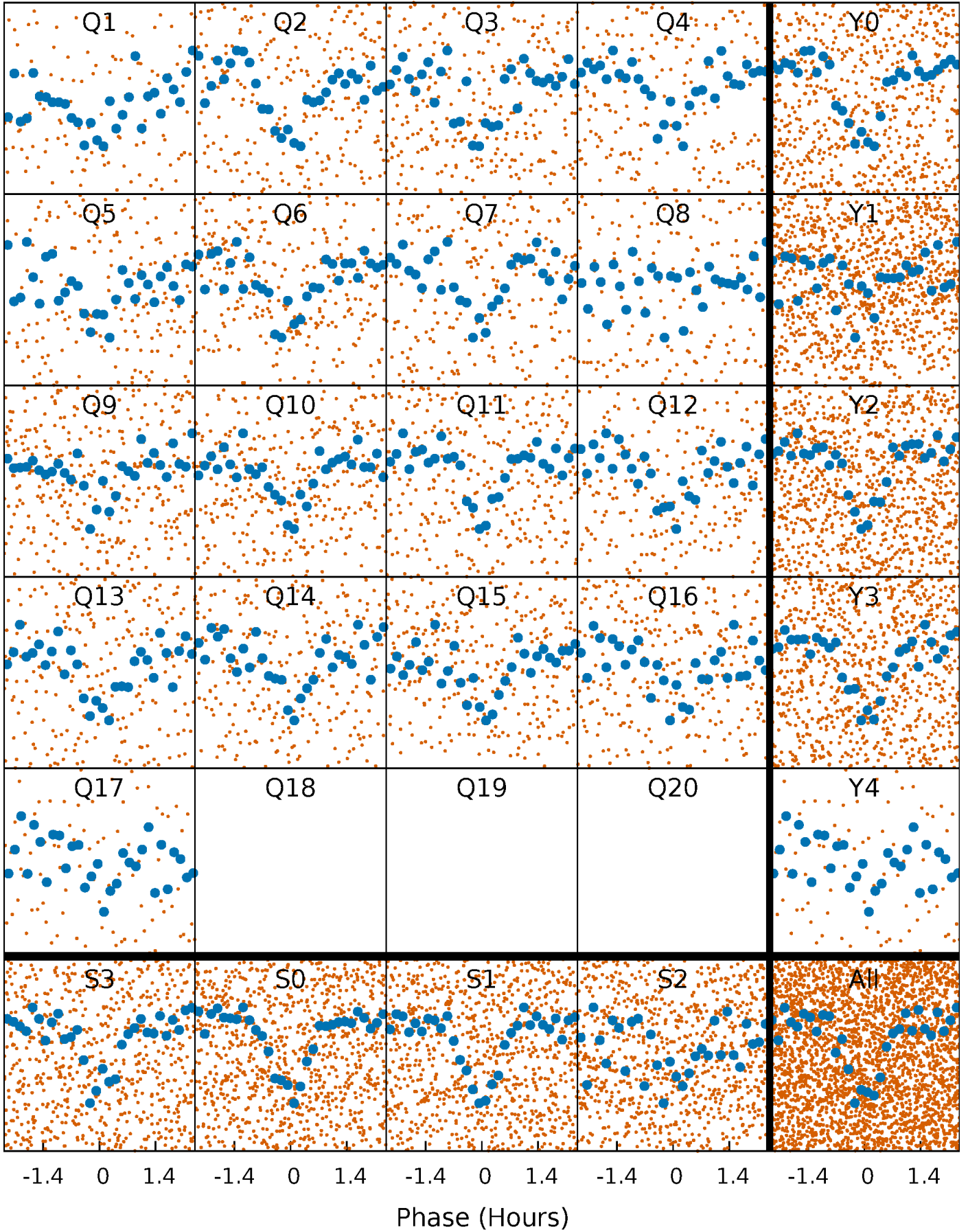


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



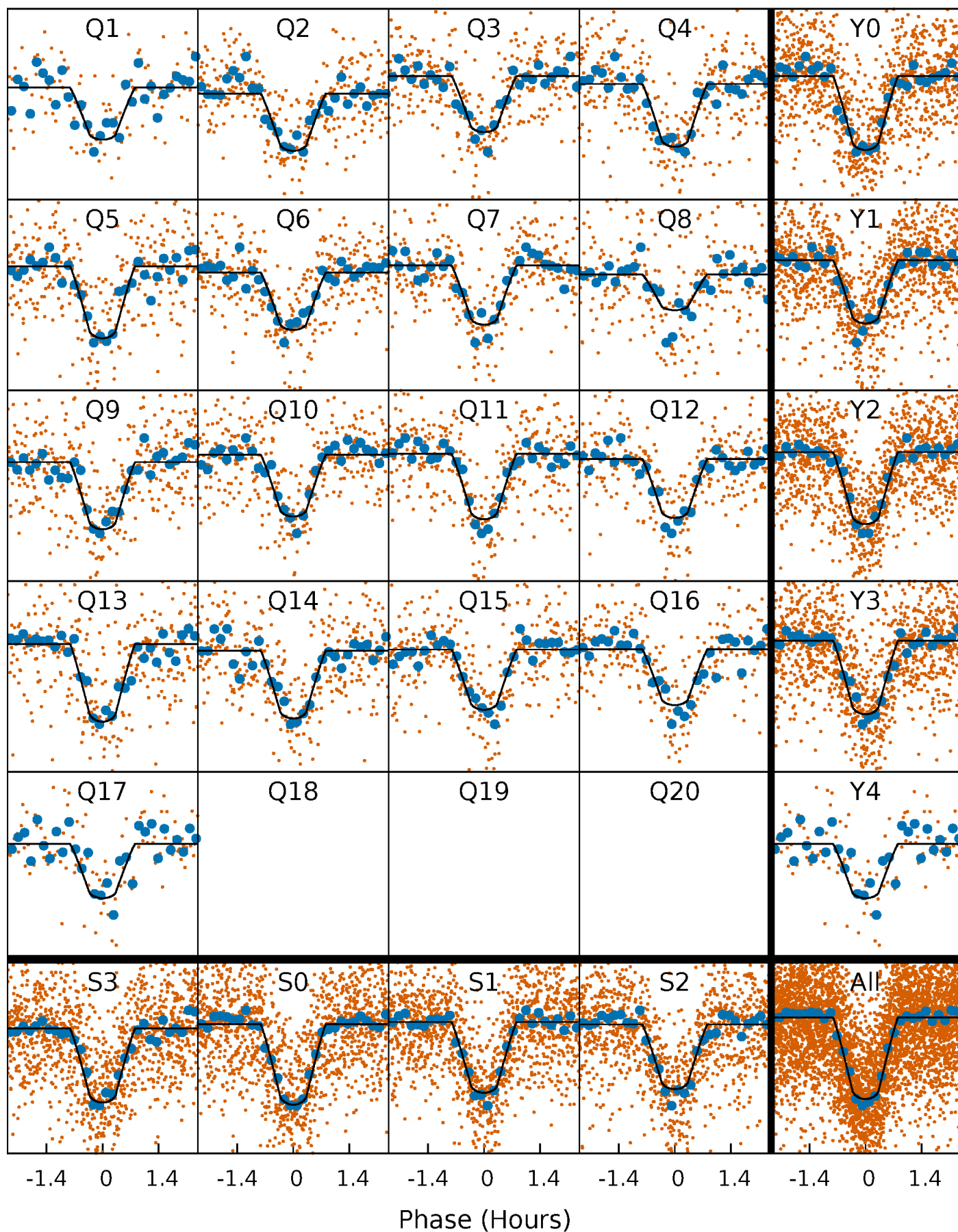
PDC Quarter-Phased Transit Curves

TCE 007222086-01 P= 2.439013 Days $T_0=133.588123$ (BKJD)



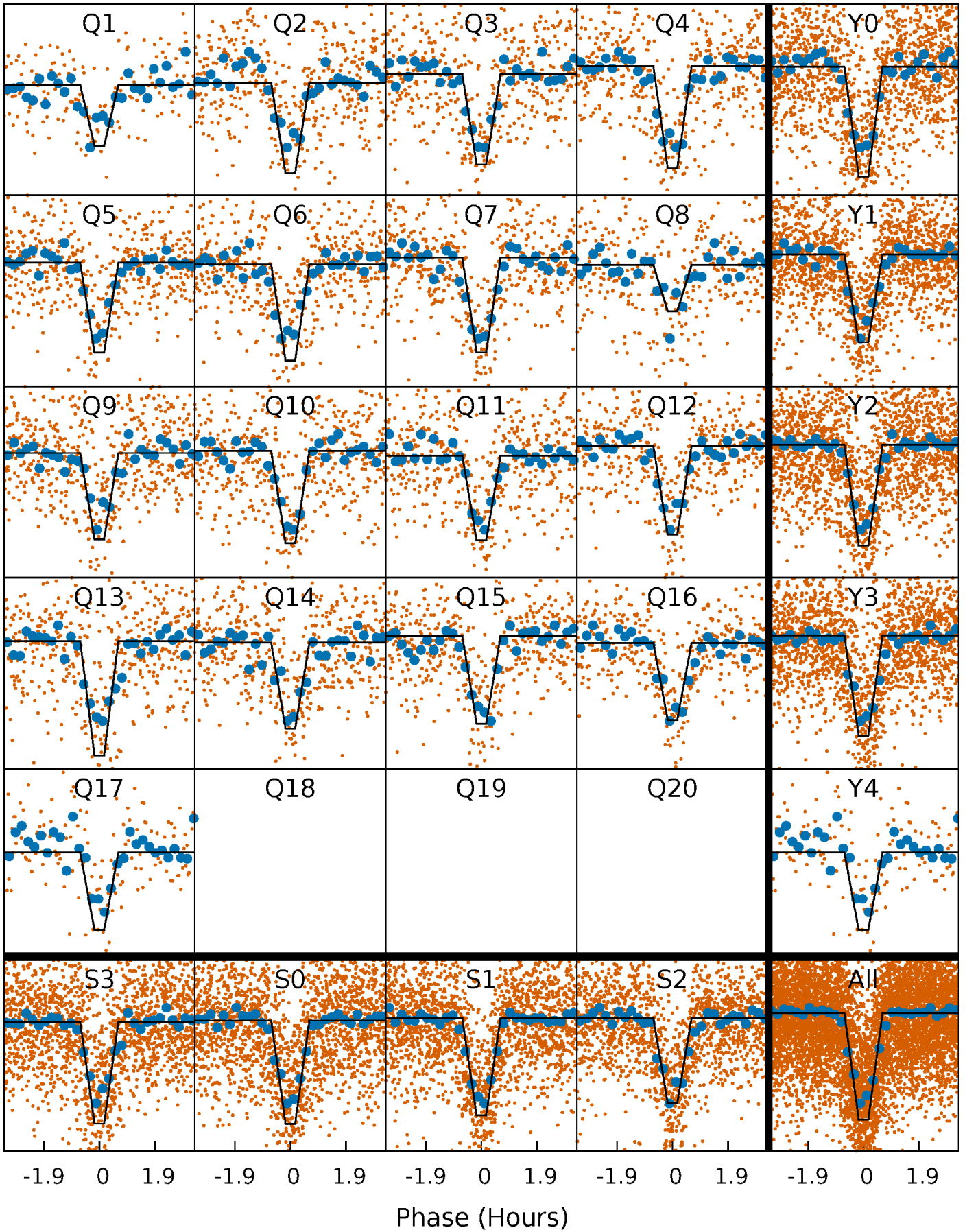
DV Quarter-Phased Transit Curves

TCE 007222086-01 P= 2.439013 Days $T_0=133.588123$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

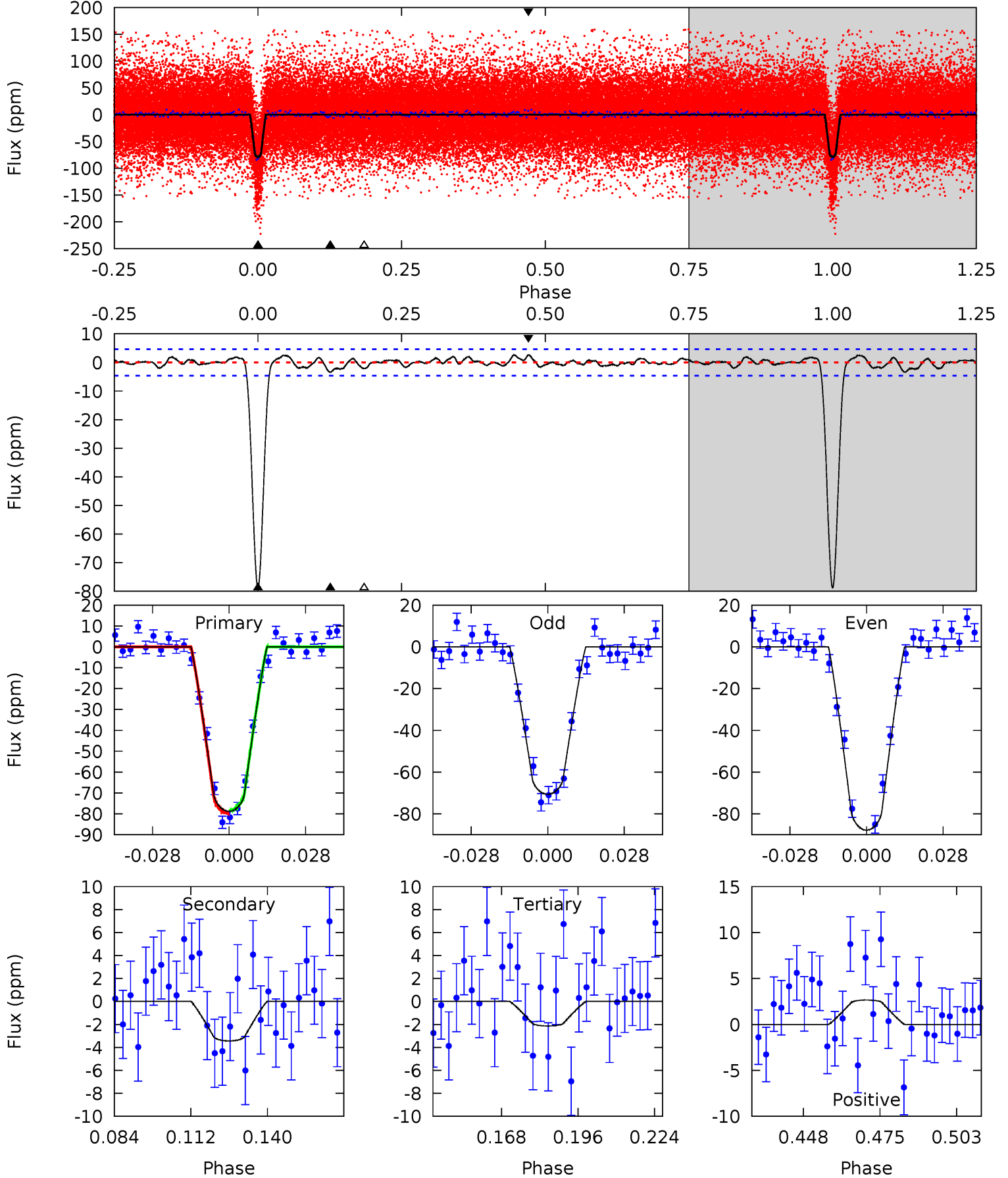
TCE 007222086-01 P= 2.439014 Days $T_0=133.587511$ (BKJD)



DV Model-Shift Uniqueness Test

007222086-01, P = 2.439013 Days, E = 131.149110 Days

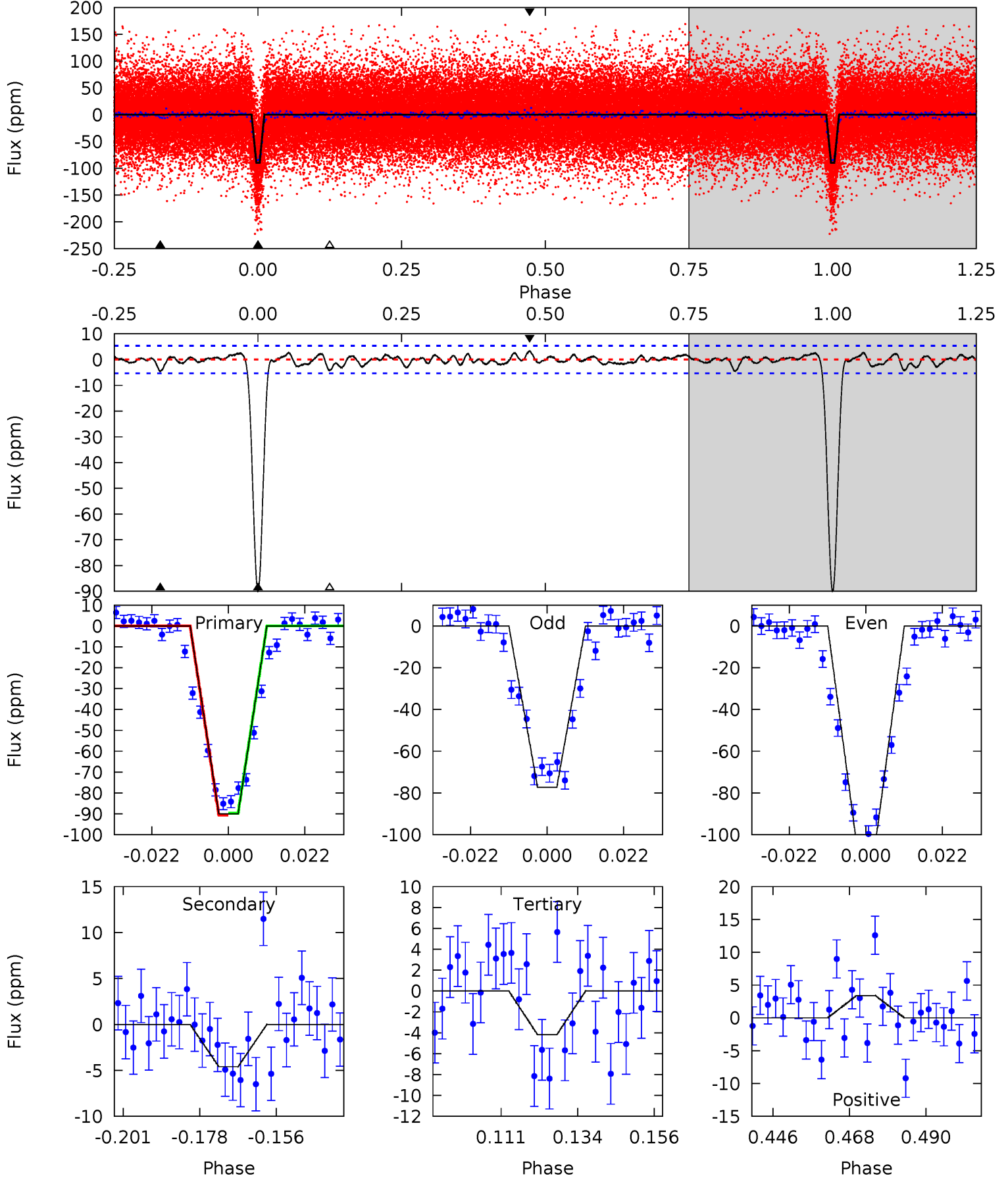
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.3	3.60	2.23	2.78	4.83	2.20	1.03	80.0	79.5	1.36	0.82	9.05	0.99	0.03	0.73



Alt Model-Shift Uniqueness Test

007222086-01, P = 2.439014 Days, E = 131.148497 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
82.1	4.20	3.82	3.08	4.87	2.29	1.19	78.2	79.0	0.38	1.12	12.0	0.99	0.04	0.40



Stellar Parameters For KIC 007222086

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6546^{+78}_{-78}	$3.817^{+0.165}_{-0.135}$	$0.560^{+0.050}_{-0.150}$	$2.784^{+0.590}_{-0.590}$	$1.852^{+0.103}_{-0.190}$	$0.121^{+0.105}_{-0.049}$
	+1%/-1%	+4%/-4%	+9%/-27%	+21%/-21%	+6%/-10%	+87%/-40%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 007222086-01 / KOI 1701.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3 ± 1	$2.89^{+0.46}_{-0.46}$	3218^{+202}_{-184}	2794^{+423}_{-5247}	$0.409^{+0.227}_{-0.142}$
Alt.	-5 ± 1	$3.06^{+0.47}_{-0.46}$	3215^{+181}_{-164}	3033^{+339}_{-551}	$0.500^{+0.241}_{-0.161}$

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 $A_{obs} \gg 1.0$

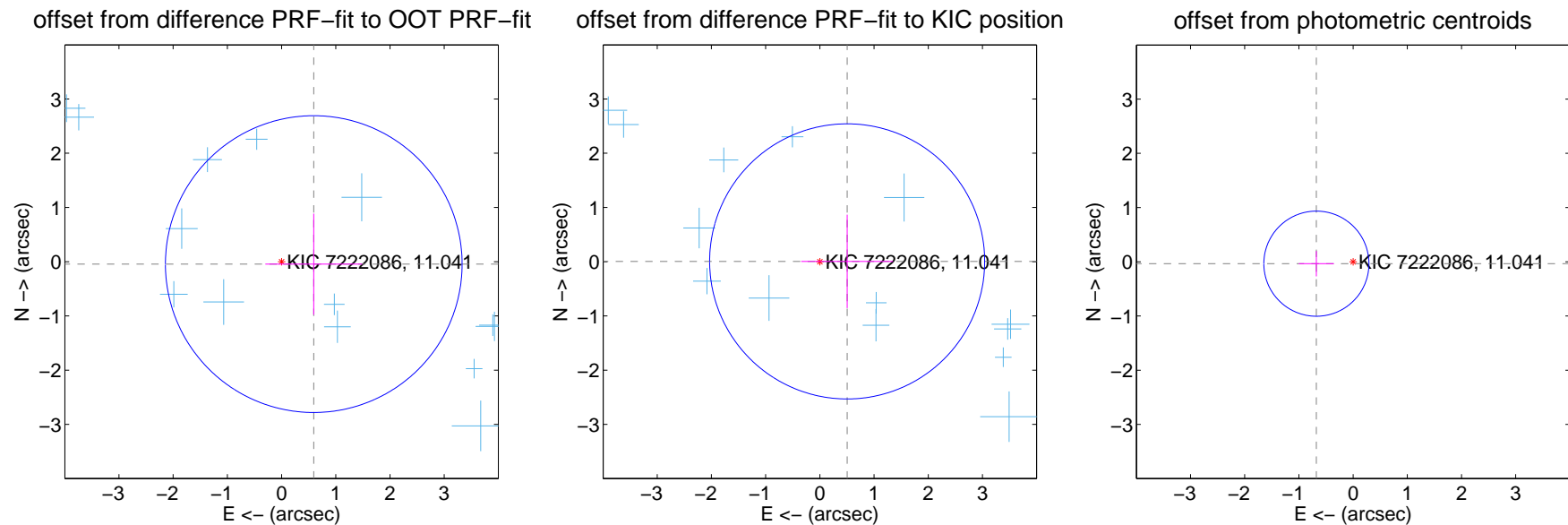
DV Centroid Data

Supplemental centroid analysis for 007222086-01. **Kepler magnitude: 11.04.** Transit SNR 51.03

There are 14 quarters with good PRF difference image offsets

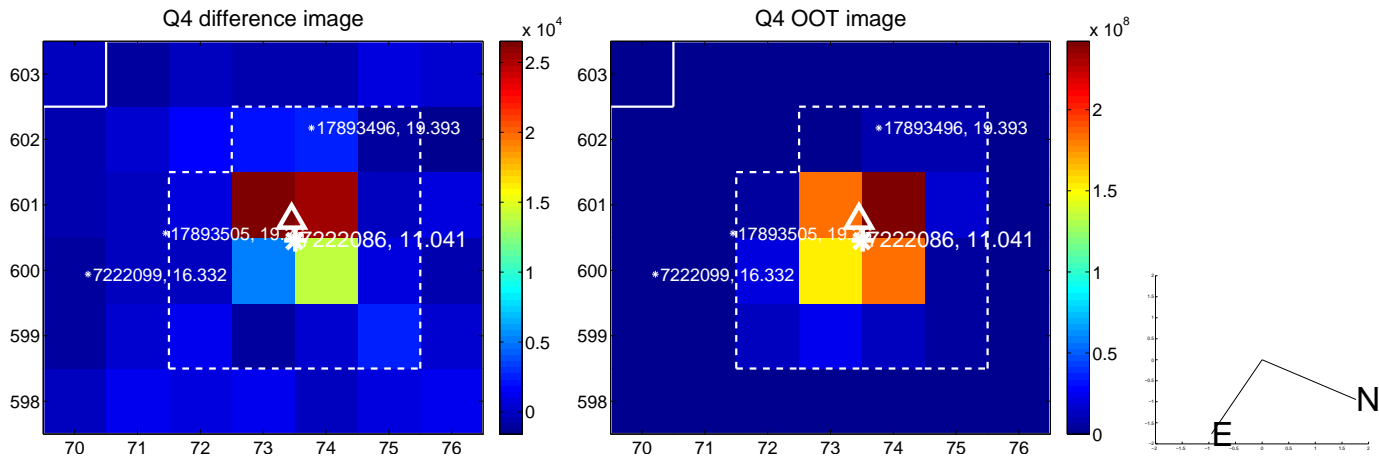
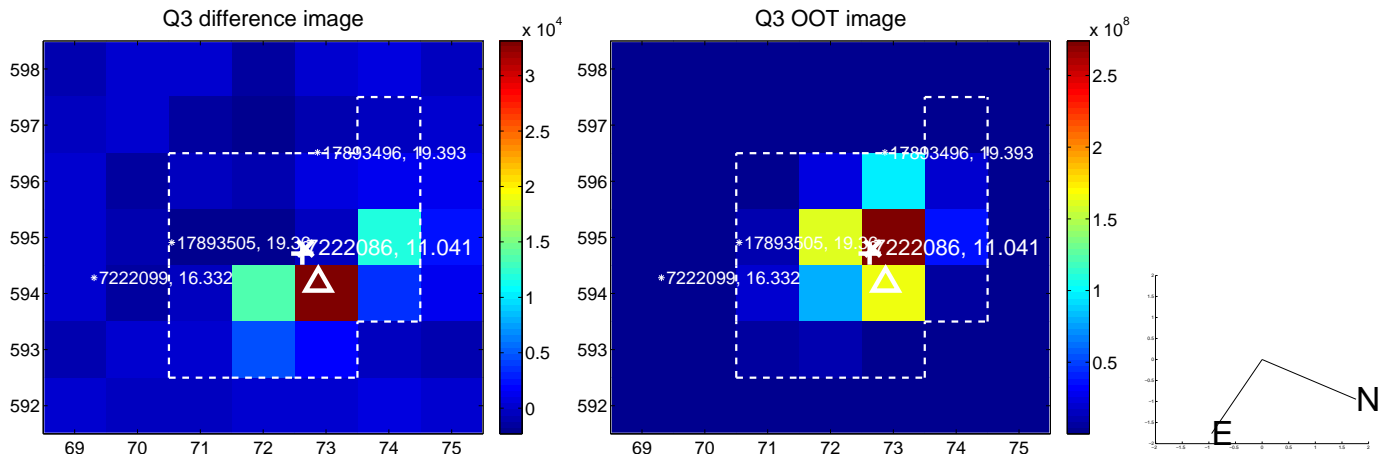
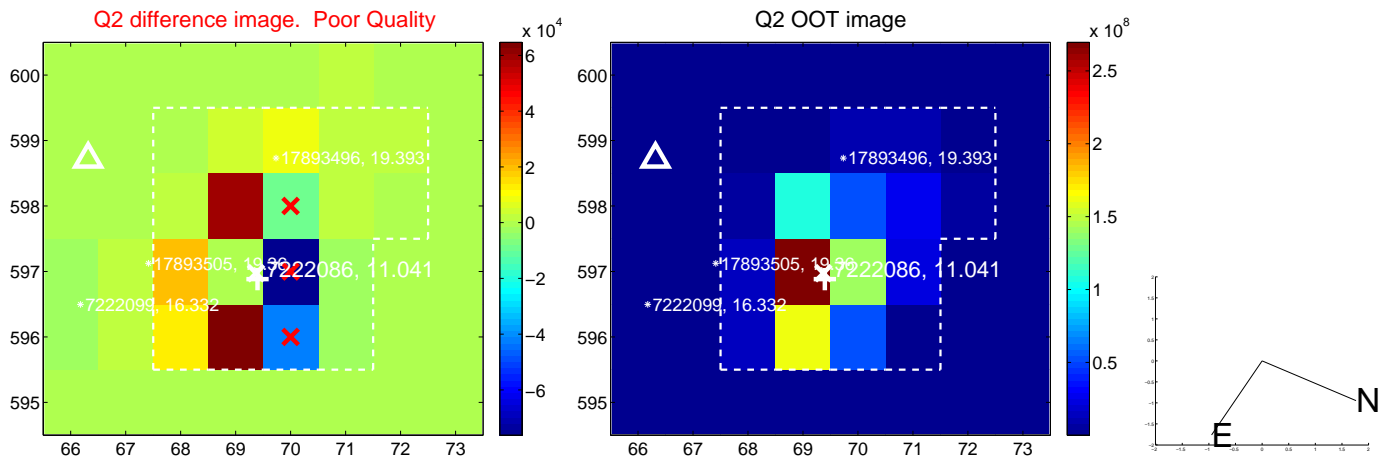
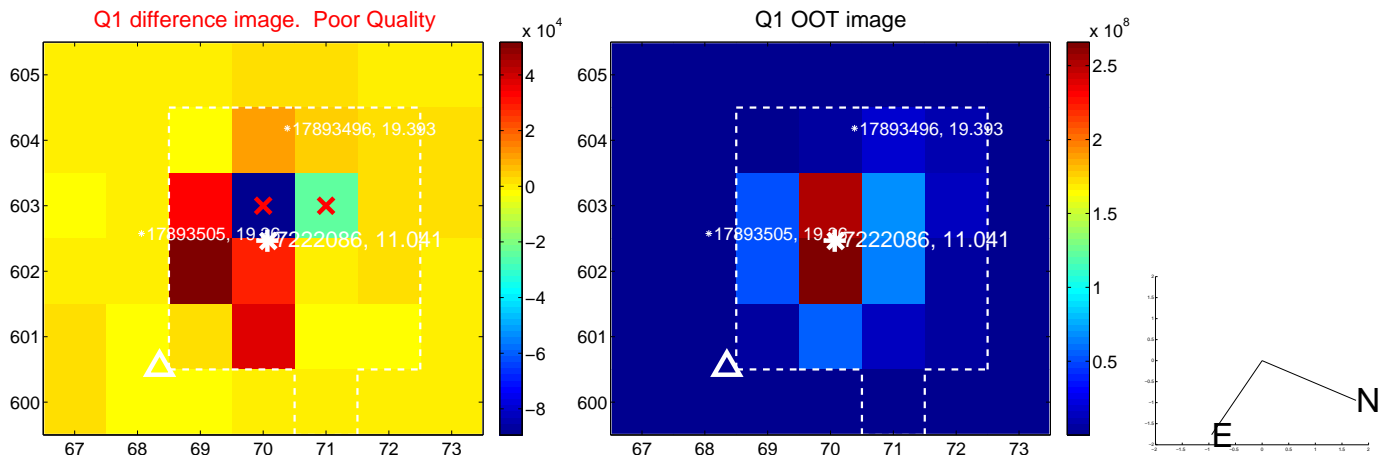
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.595 ± 0.912	0.65	-0.593 ± 0.893	-0.044 ± 0.932
PRF-fit source offset from KIC position	0.504 ± 0.845	0.60	-0.504 ± 0.846	0.005 ± 0.862
photometric centroid source offset	0.68 ± 0.32	2.10	0.68 ± 0.32	-0.04 ± 0.23

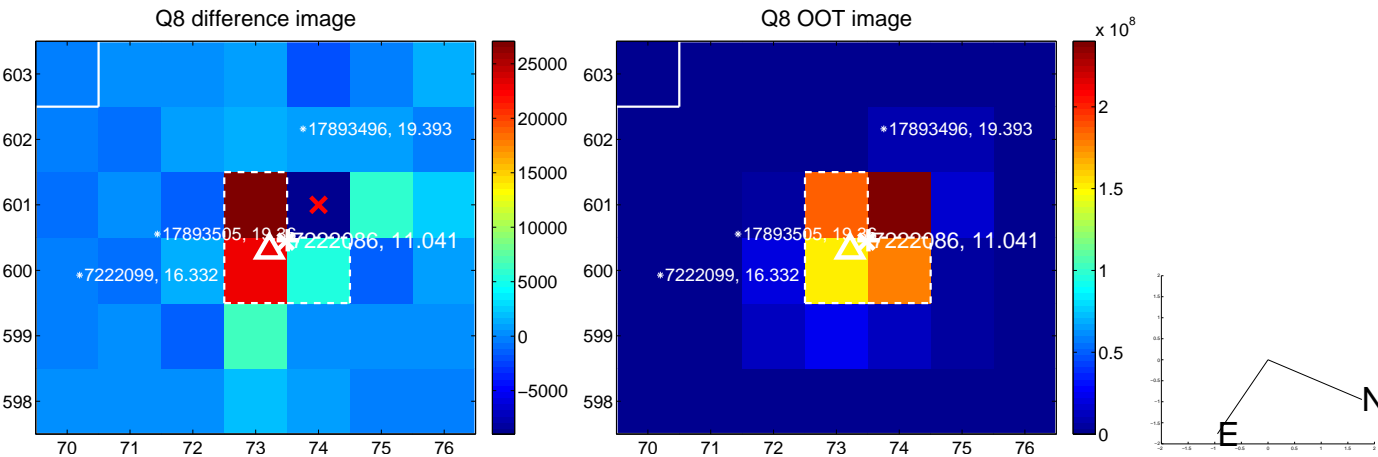
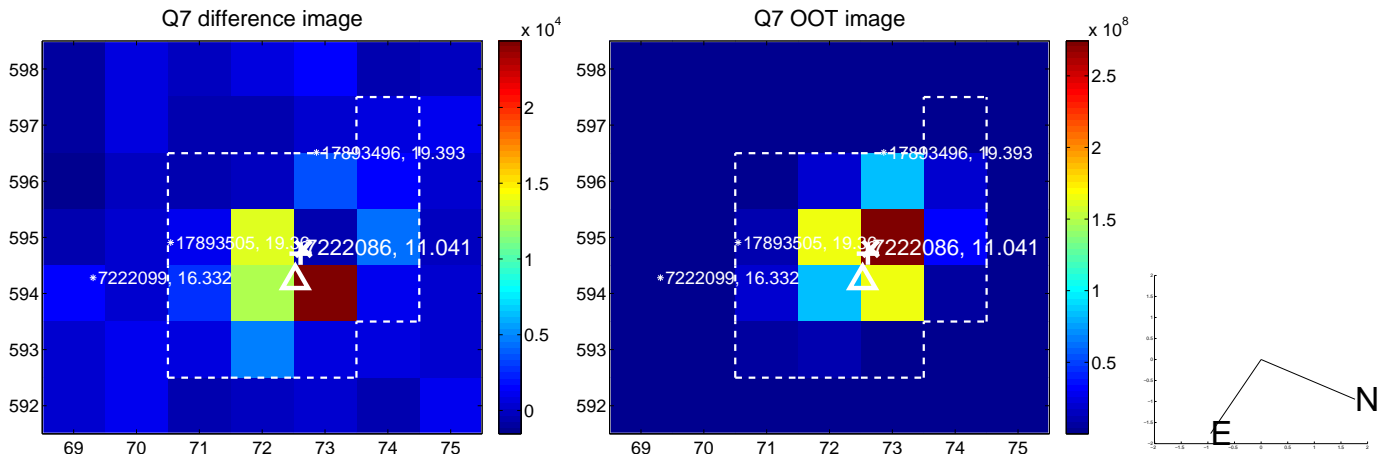
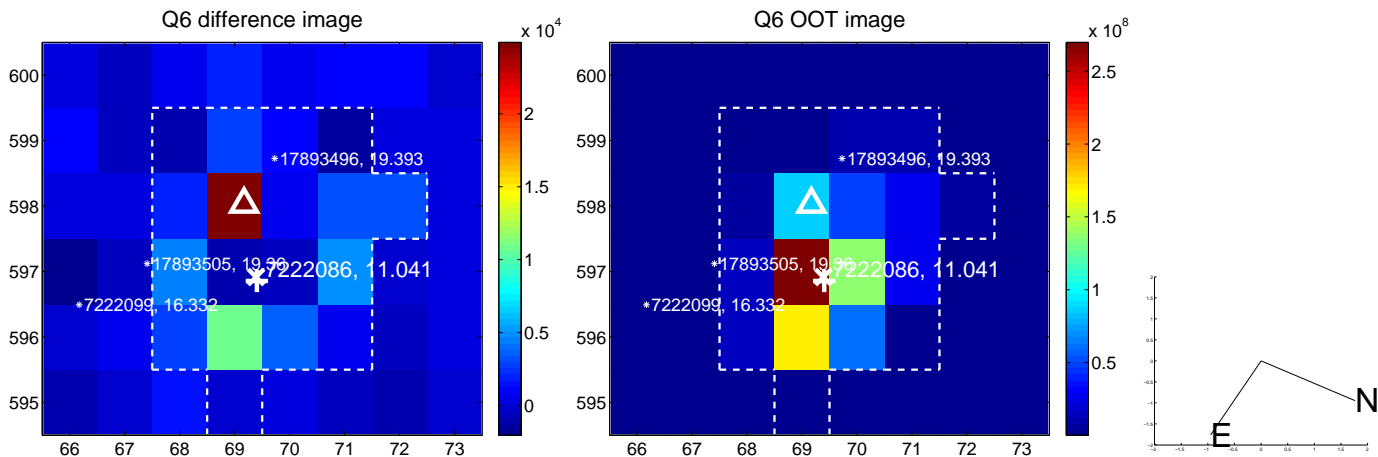
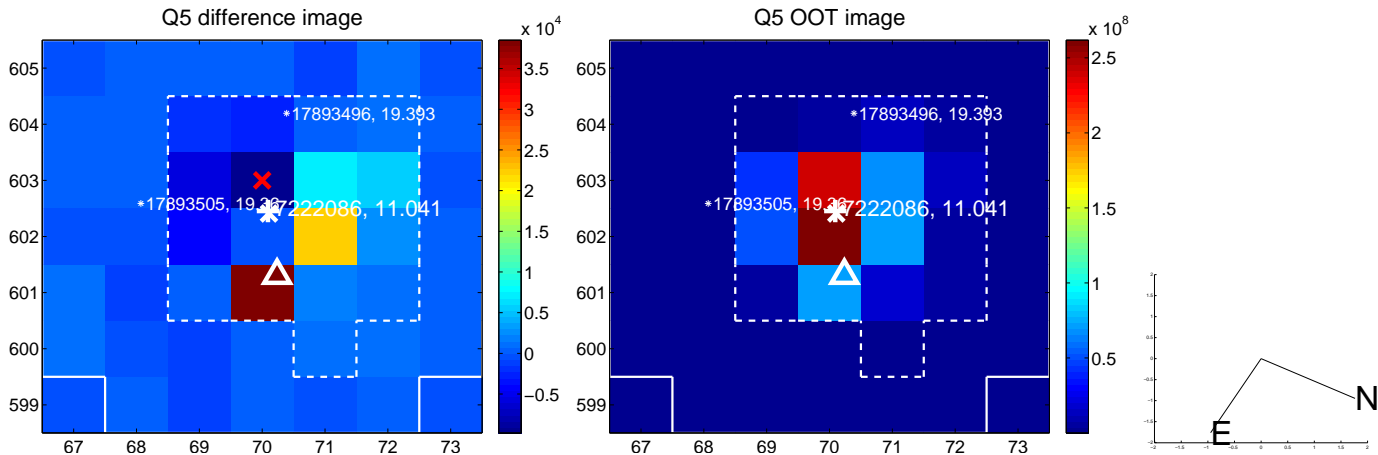


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

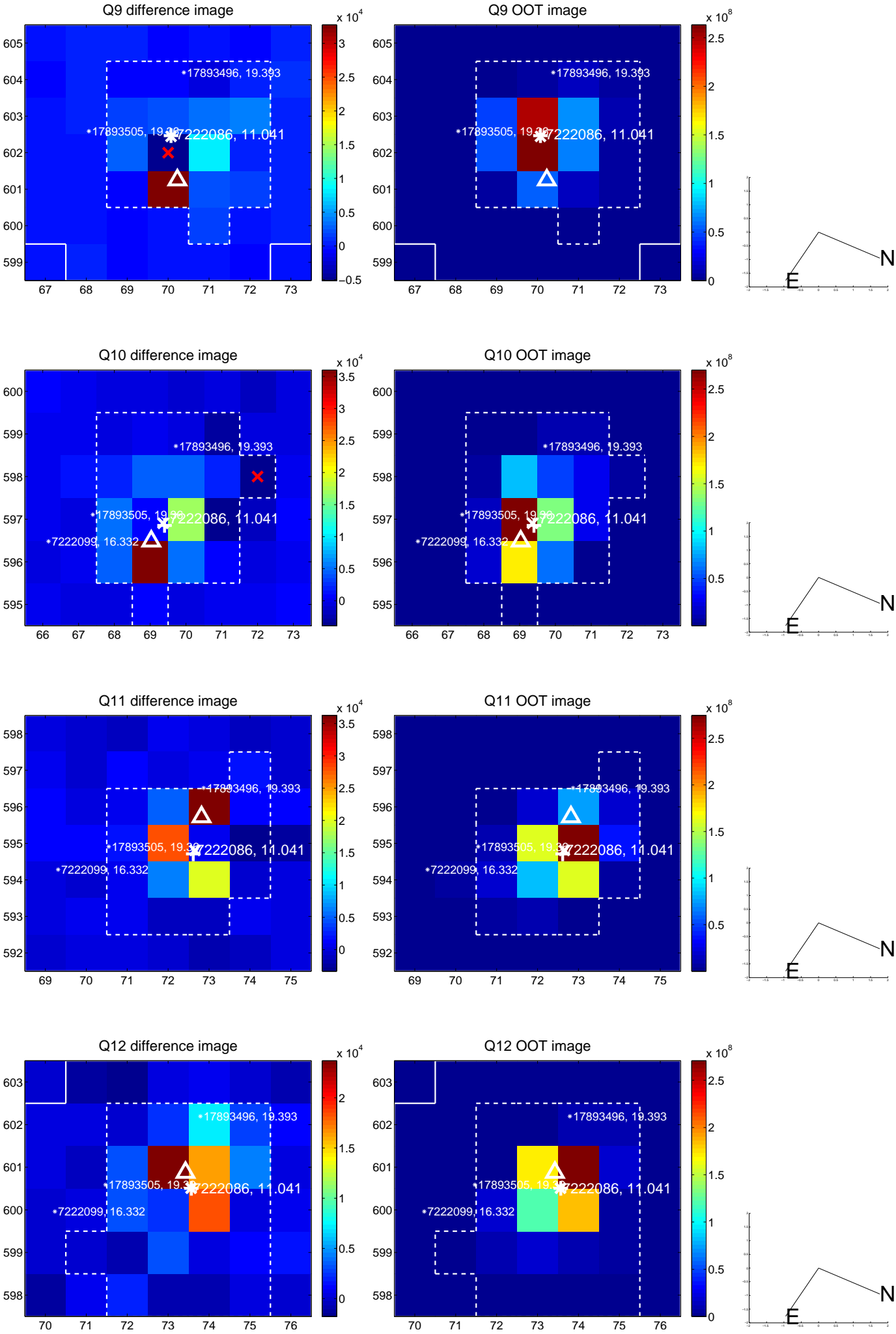
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



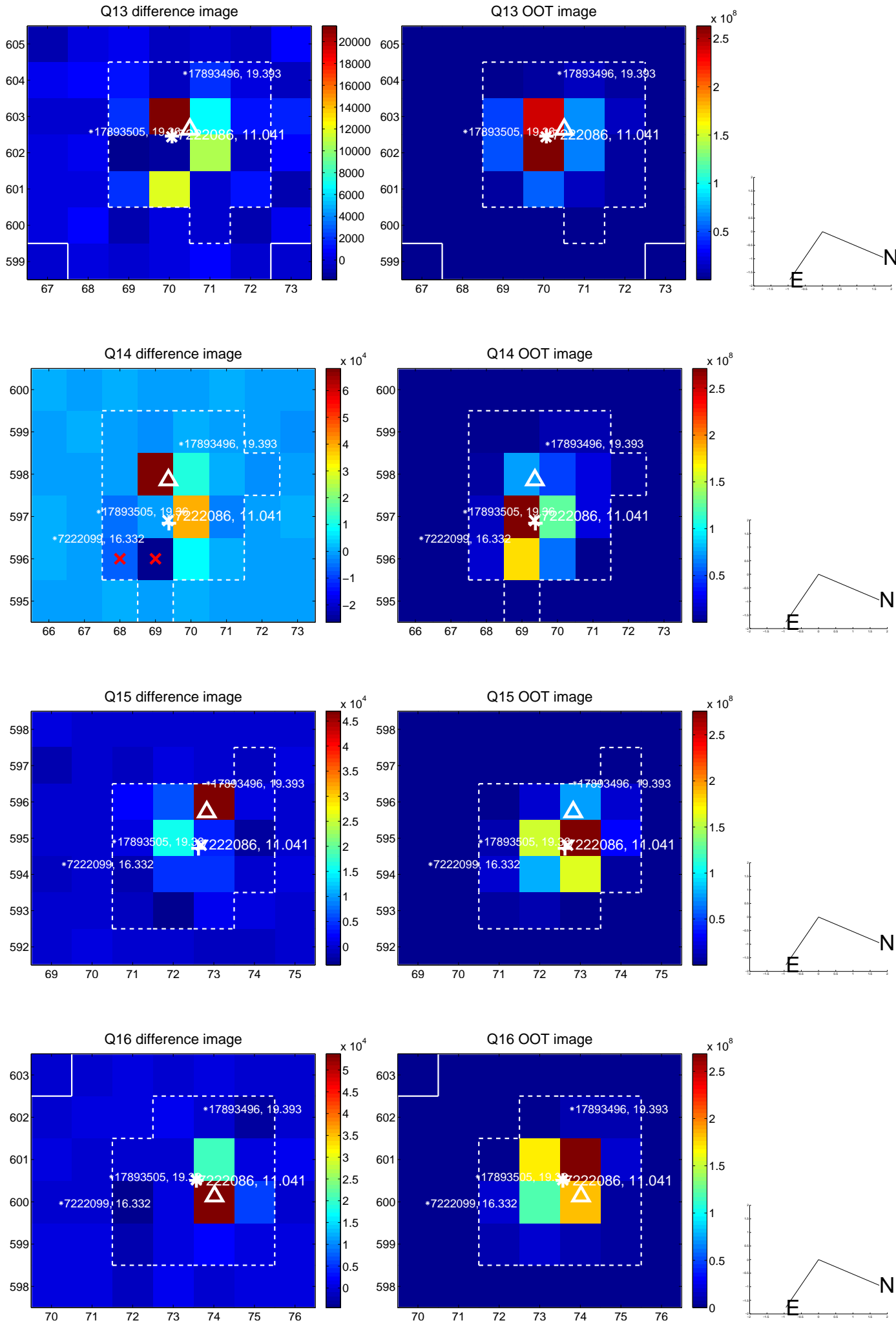
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



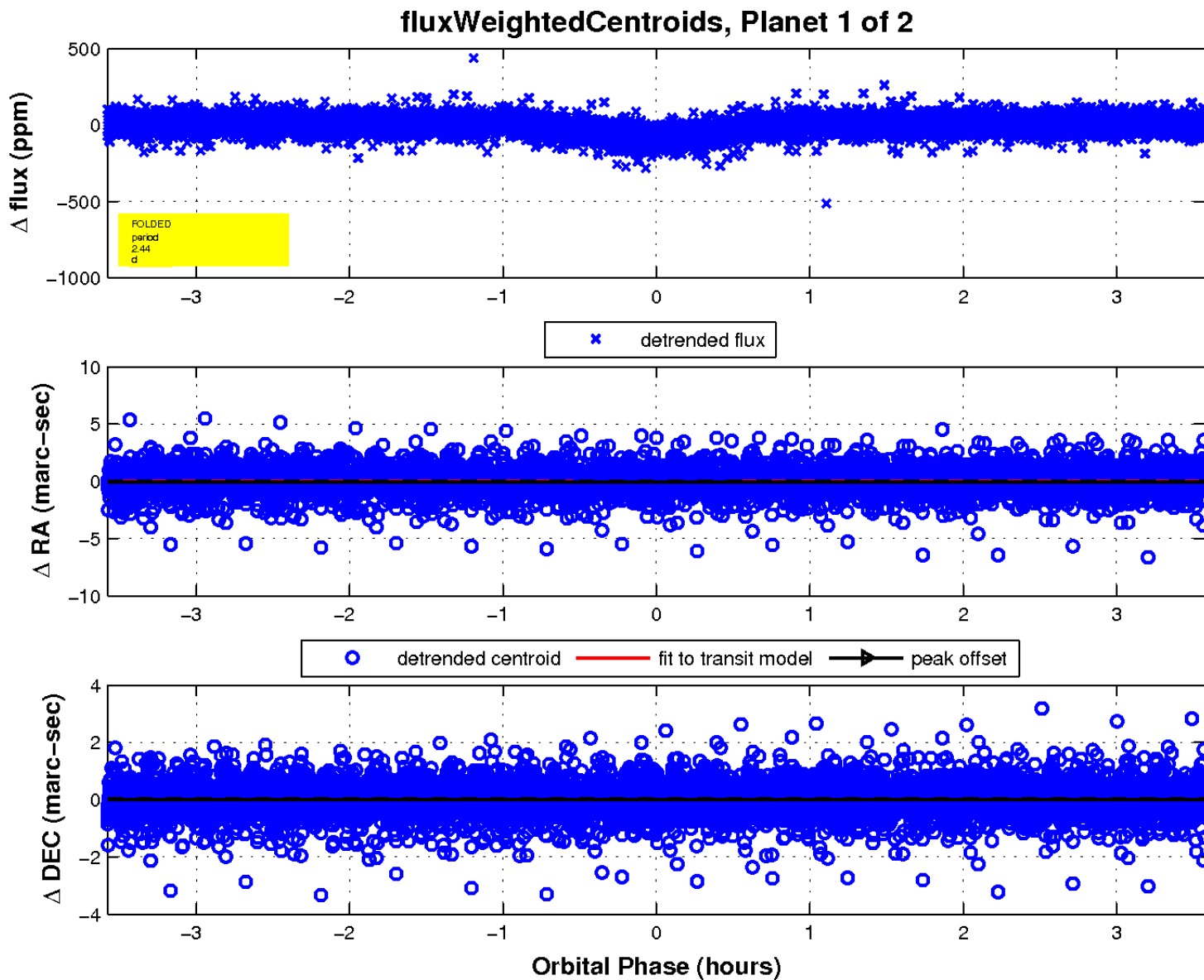
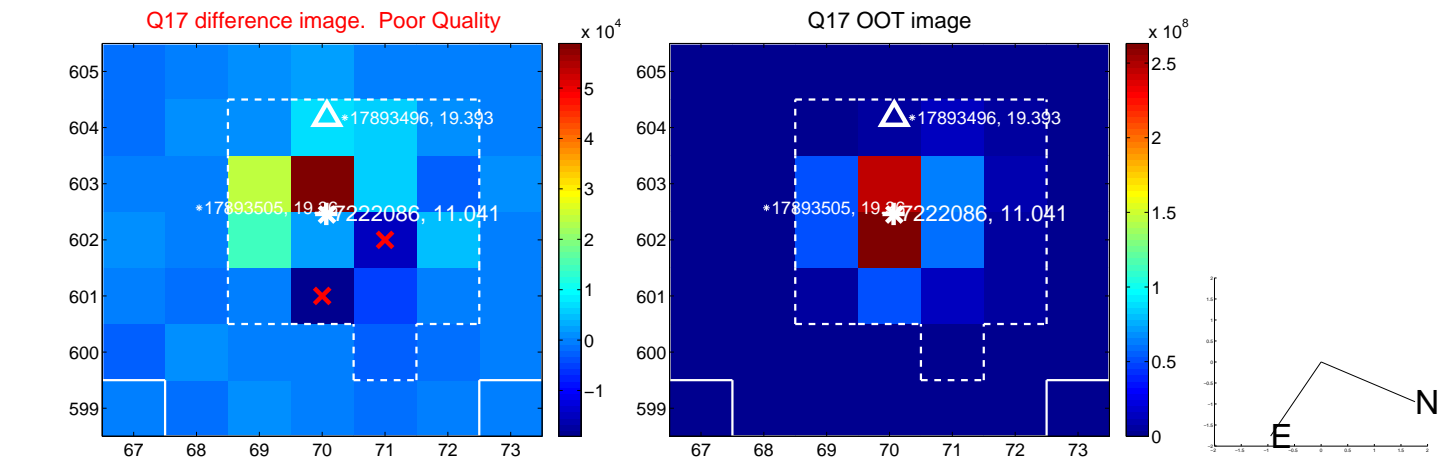
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

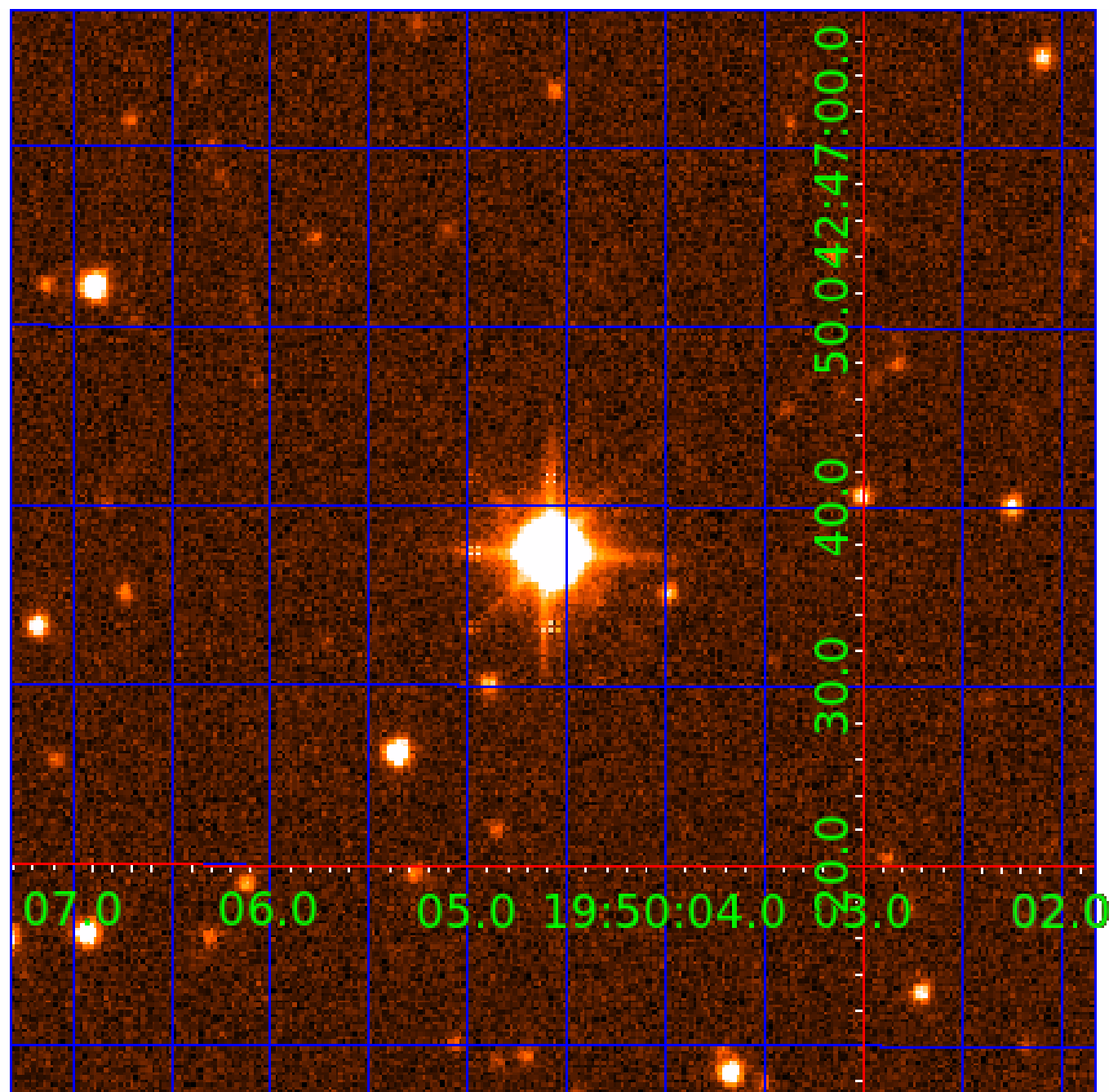


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007222086

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})
007222086-01	OBS	1701.01	2.439013	133.588123	78.5	1.193	39.6	51.0	2.78	6546	2.91	6713.66
007222086-02	OBS	No	1.060844	132.106494	4.3	8.931	8.7	6.6	2.78	6546	0.59	20372.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007222086-01	OBS	PC	0.98	0	0	0	0	CENT_SATURATED
007222086-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED

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 for comment definitions.

Ephemeris Match Information For 007222086-02

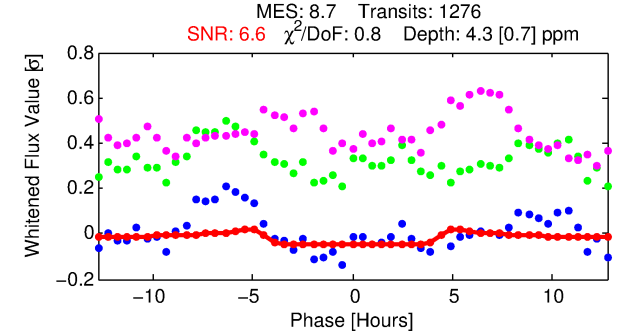
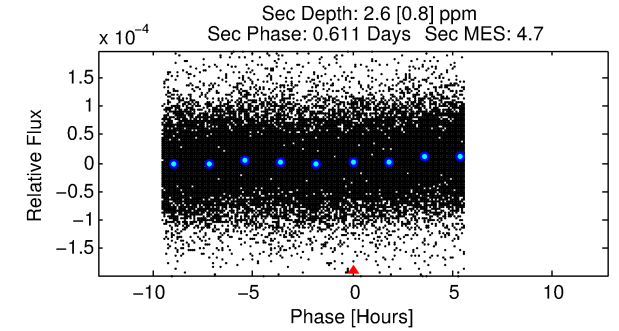
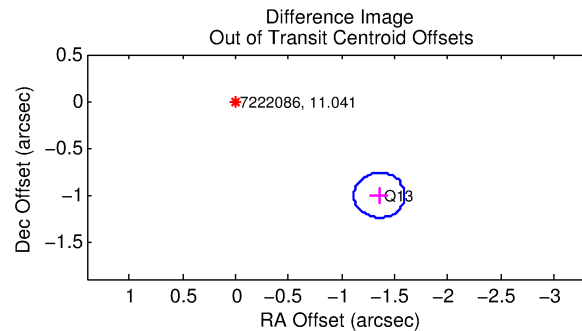
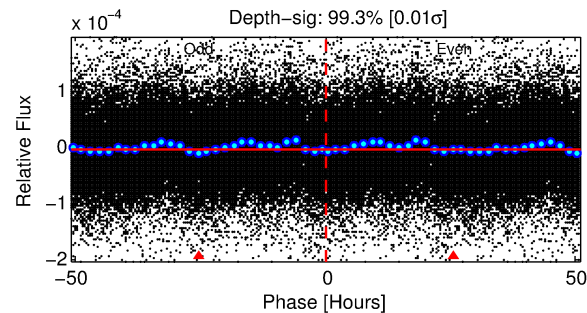
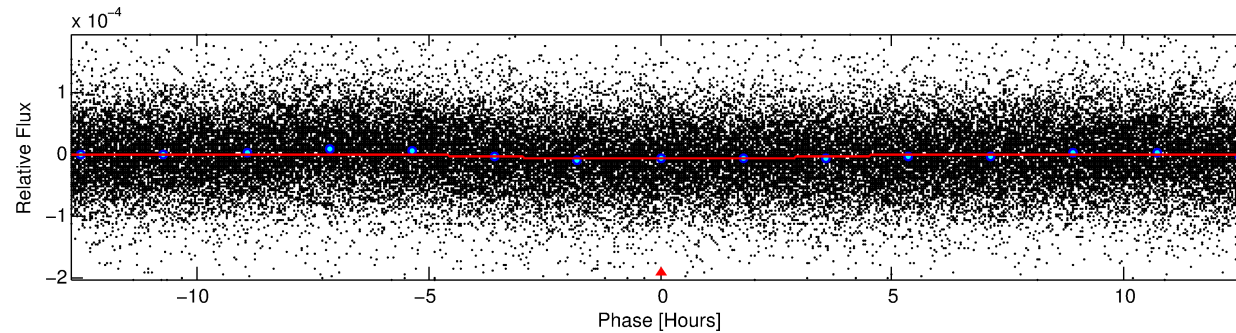
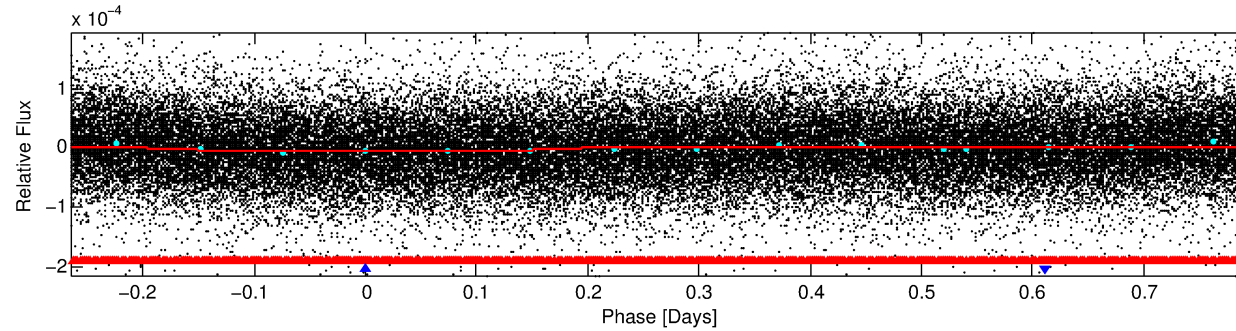
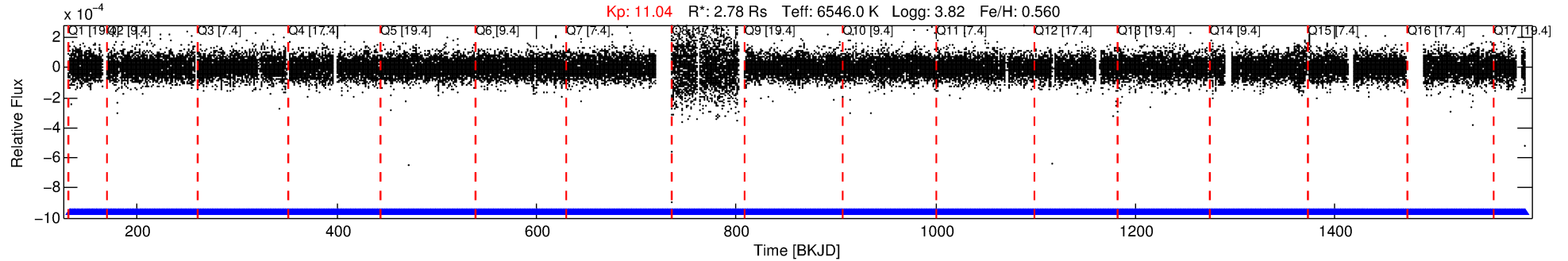
No Significant Match Found

DV One-Page Summary

KIC: 7222086 Candidate: 2 of 2 Period: 1.061 d

KOI: K01701 Corr: No Ephemeris Match

Kp: 11.04 R*: 2.78 Rs Teff: 6546.0 K Logg: 3.82 Fe/H: 0.560



DV Fit Results:

Period = 1.06084 [0.00002] d
Epoch = 132.1065 [0.0076] BKJD
Rp/R* = 0.0019 [0.0017]
a/R* = 1.10 [0.85]
b = 0.45 [7.99]
Seff = 20372.41 [5987.75]
Teq = 3046 [224] K
Rp = 0.59 [0.53] Re
a = 0.0250 [0.0047] AU
Ag = 2.60 [4.67] [0.34σ]
Teffp = 5981 [2650] K [1.10σ]

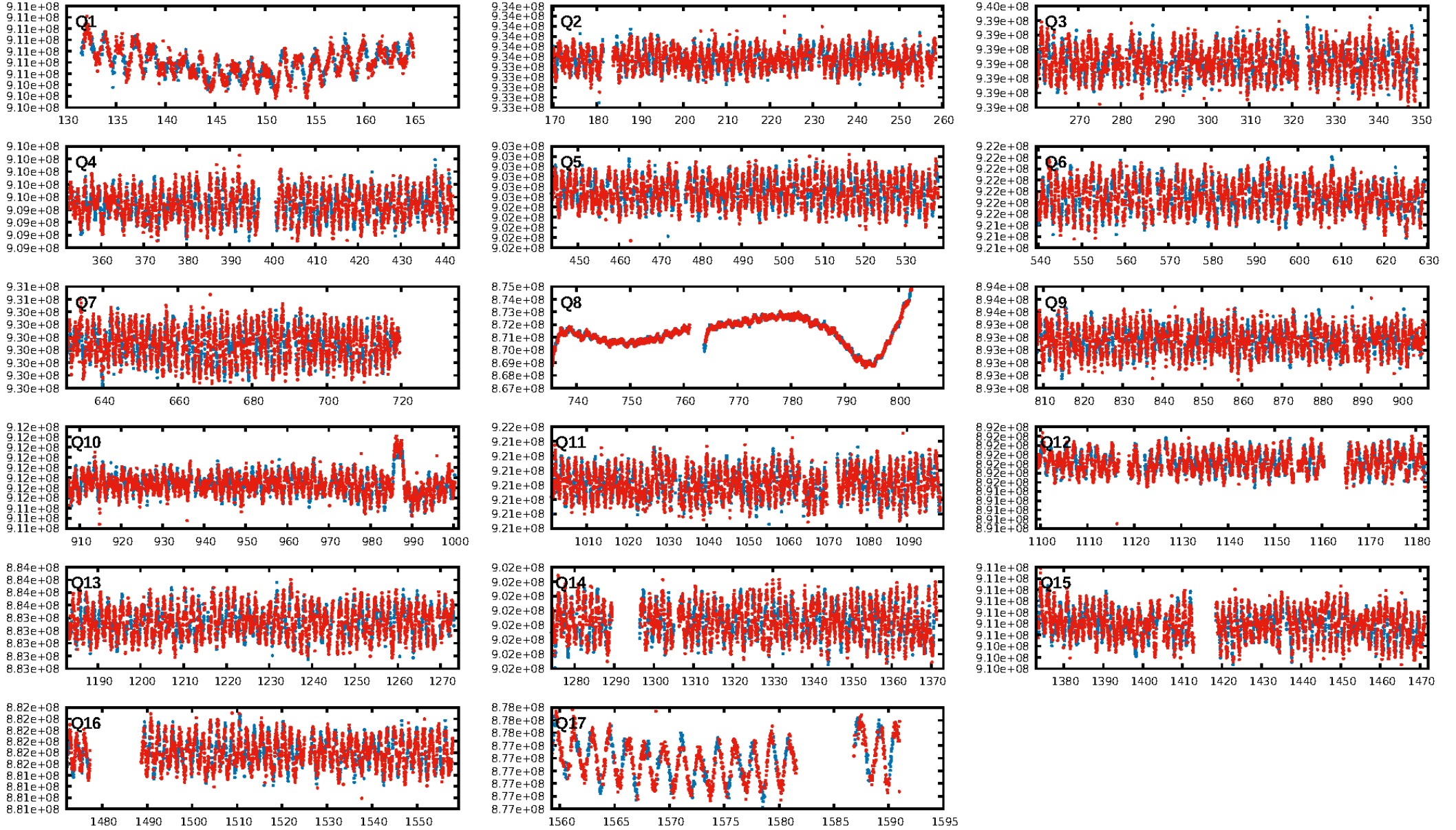
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [3.67σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1219/1219]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.687 arcsec [21.10σ]
KicOffset-rm: 1.745 arcsec [21.81σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 1.00 [17/17]

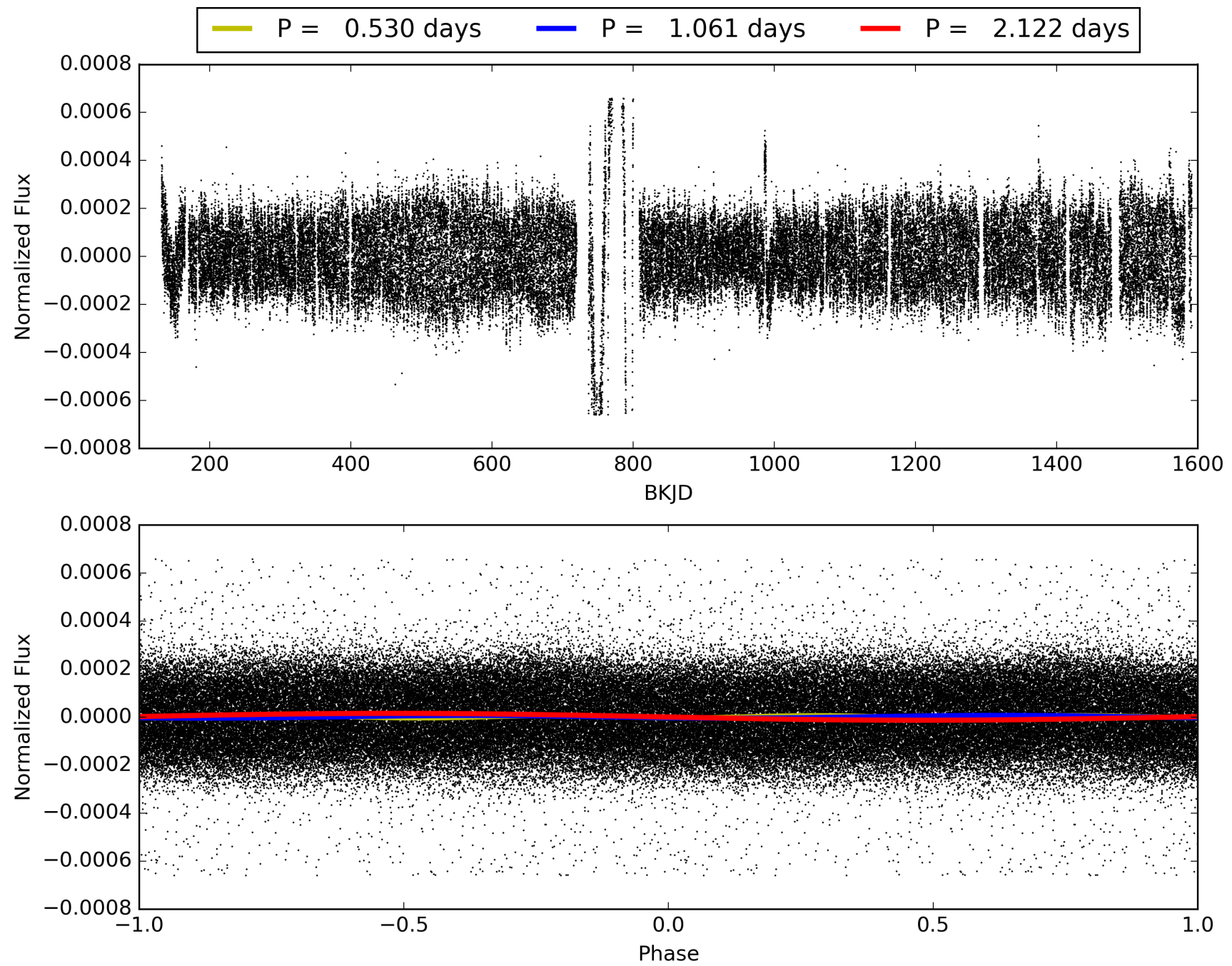
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:47:36 Z

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TCE 007222086-02, PDC Light Curves

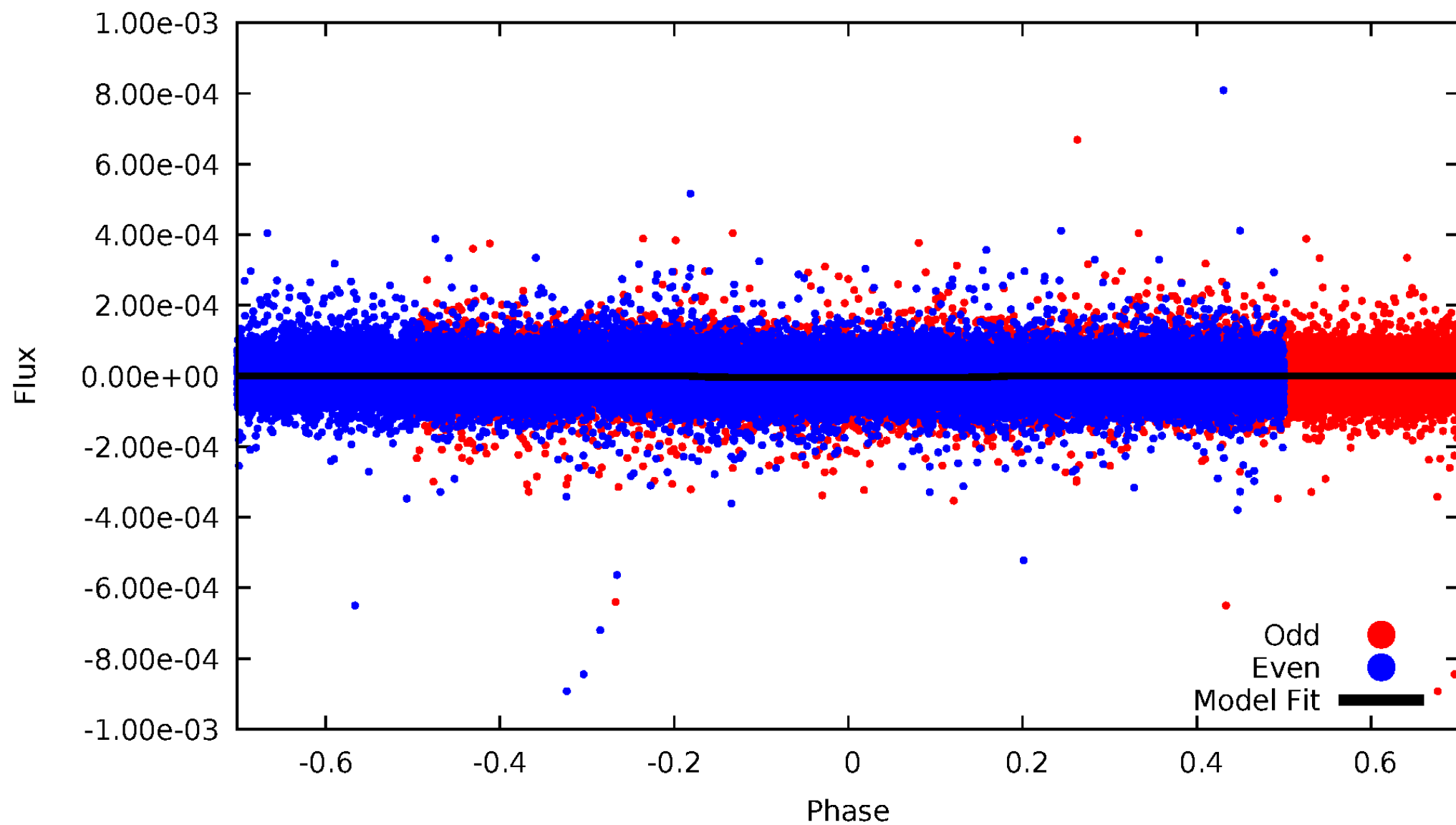


TCE 007222086-02



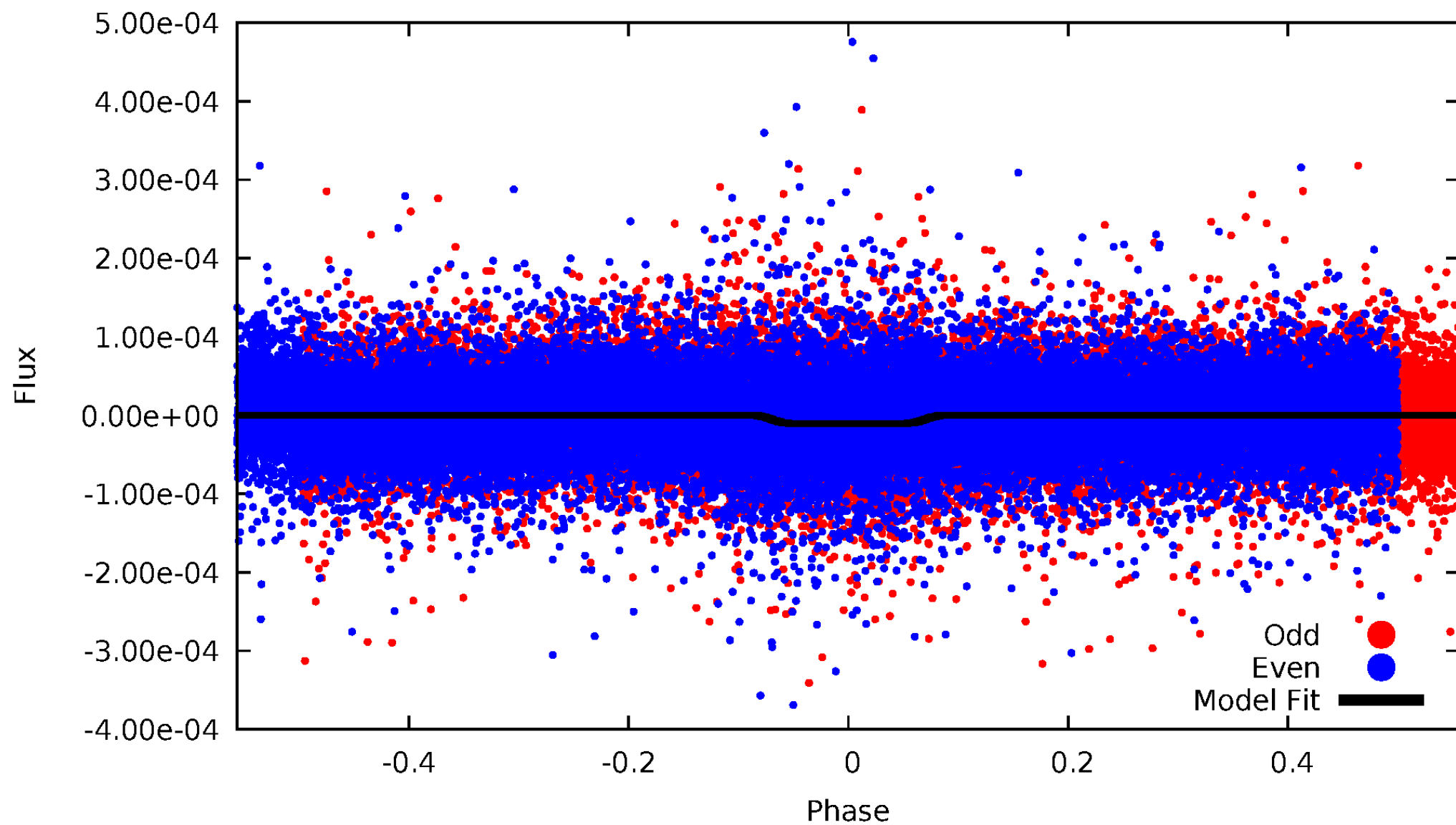
DV Odd/Even

TCE 007222086-02



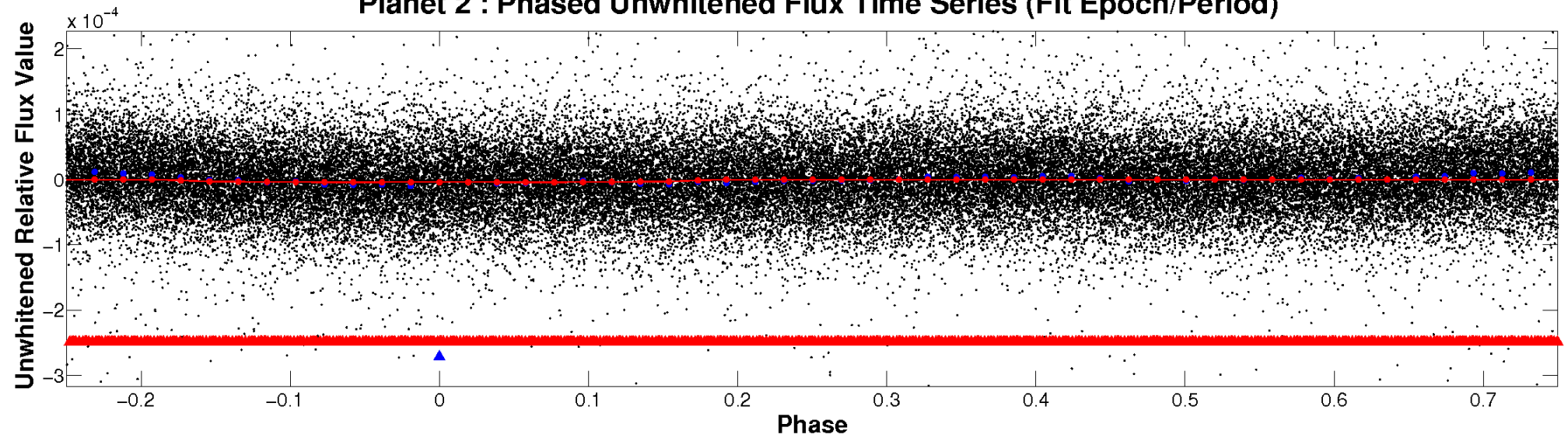
ALT Odd/Even

TCE 007222086-02

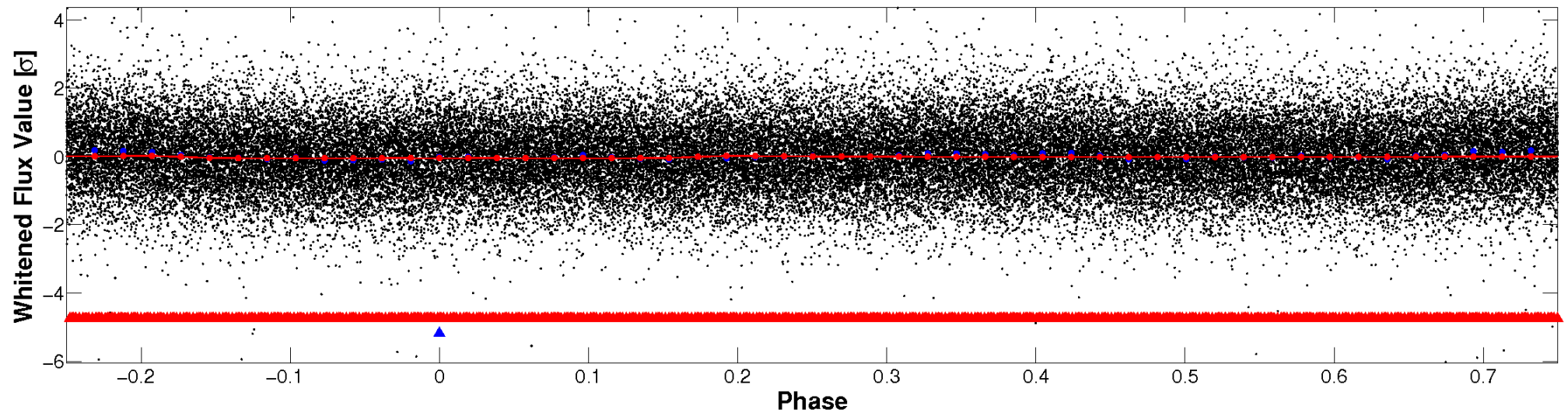


Non-Whitened Vs. Whitened Light Curve

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

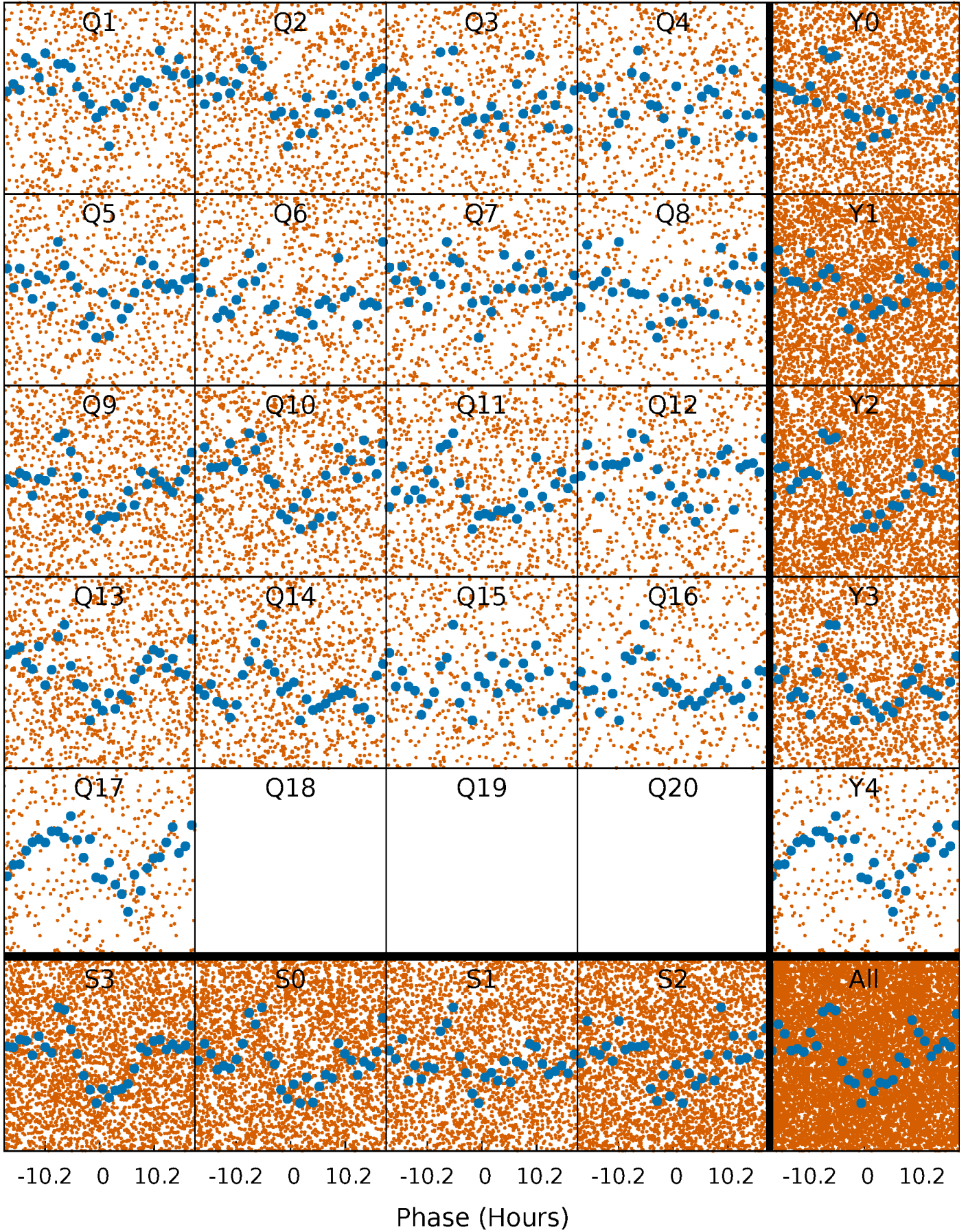


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



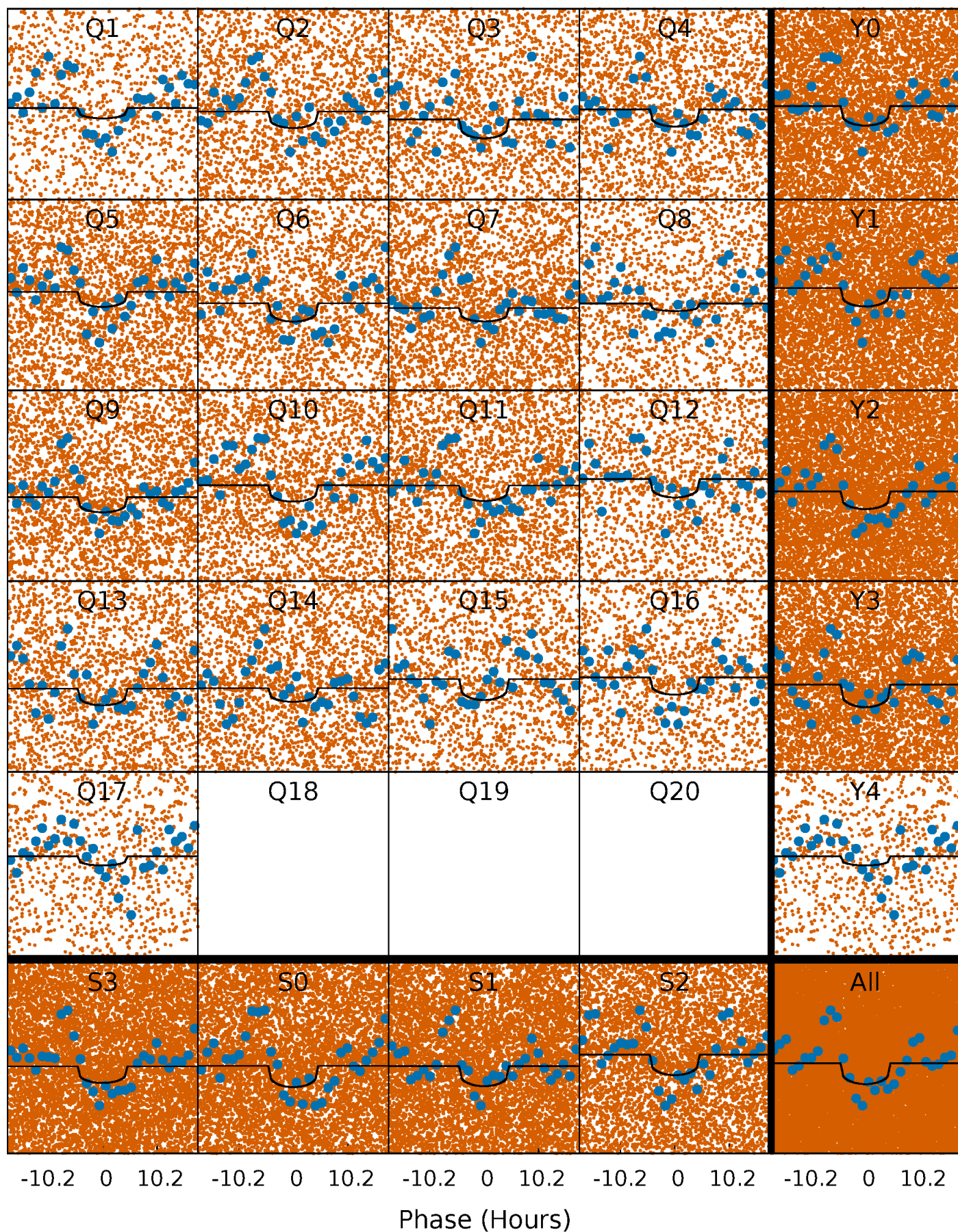
PDC Quarter-Phased Transit Curves

TCE 007222086-02 P= 1.060844 Days $T_0=132.106494$ (BKJD)



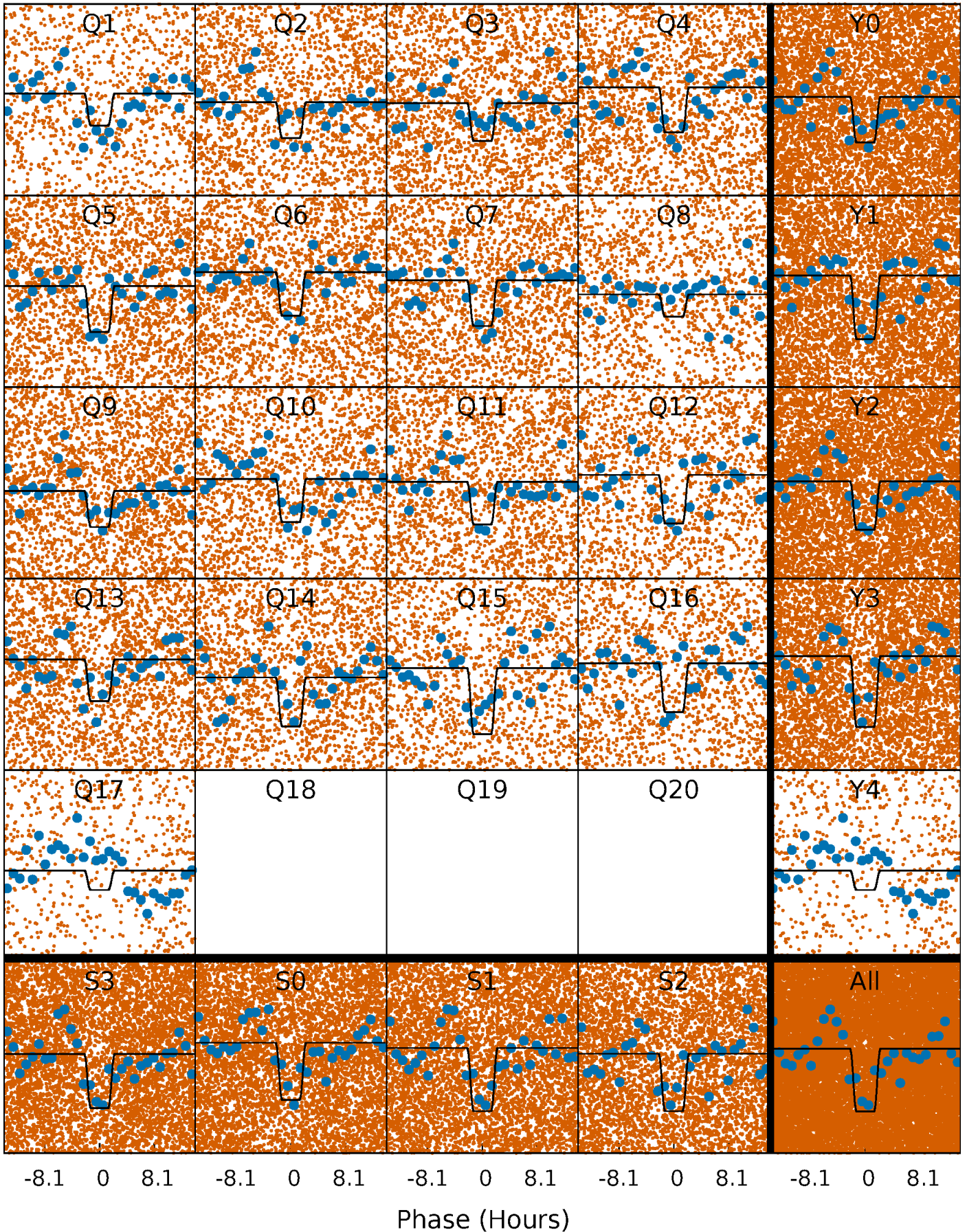
DV Quarter-Phased Transit Curves

TCE 007222086-02 P= 1.060844 Days $T_0=132.106494$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

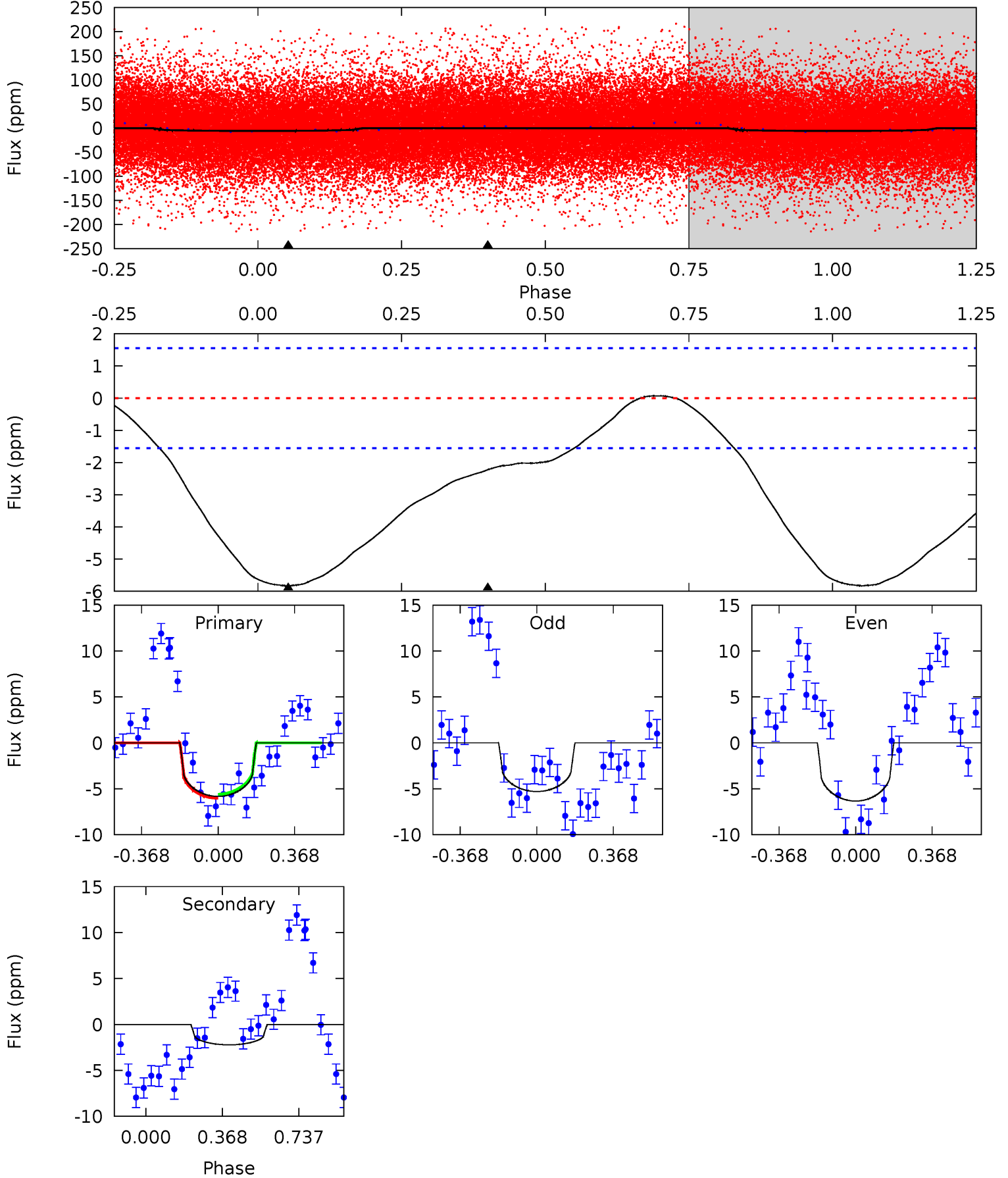
TCE 007222086-02 P= 1.060813 Days $T_0=132.066931$ (BKJD)



DV Model-Shift Uniqueness Test

007222086-02, P = 1.060844 Days, E = 131.045650 Days

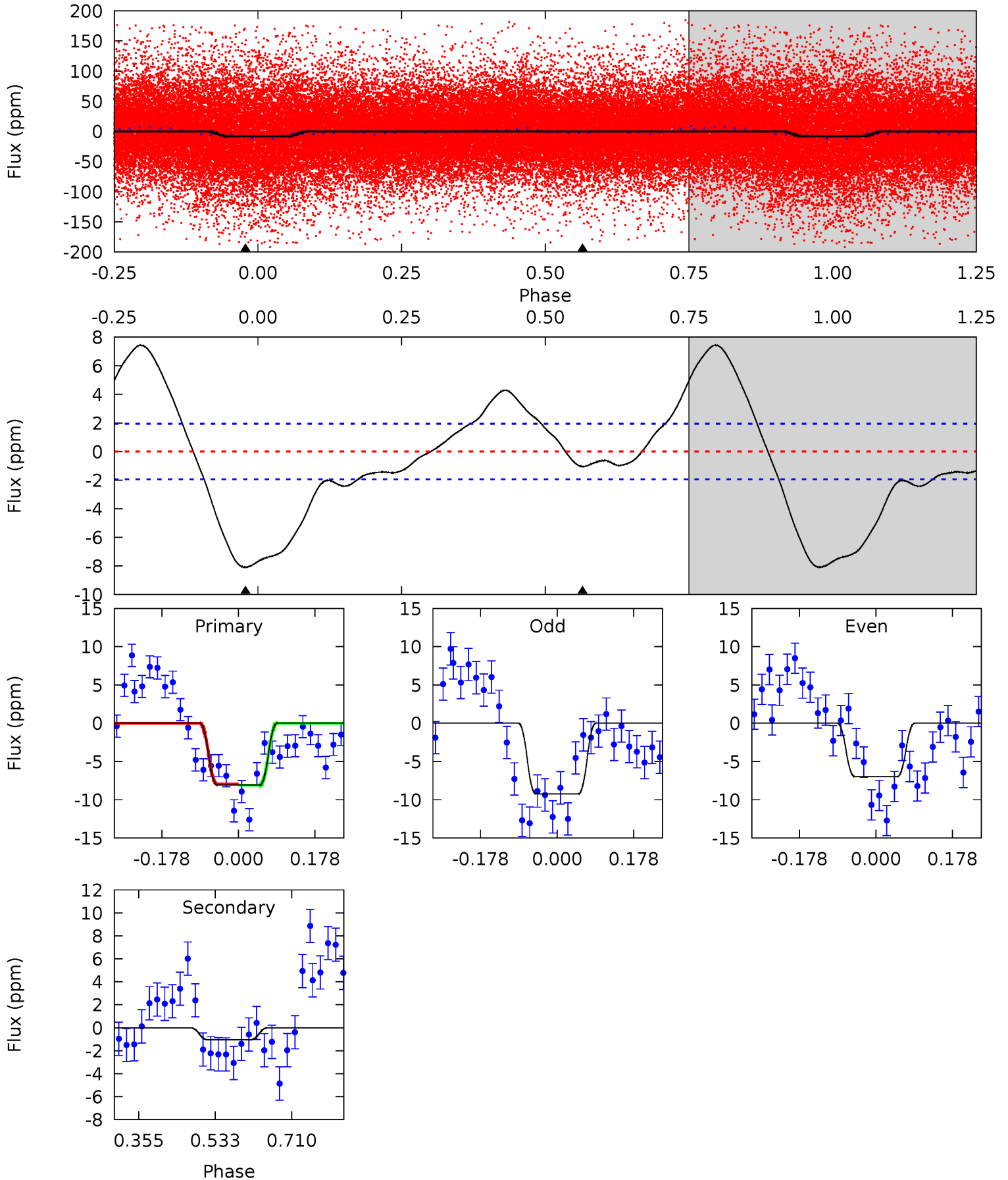
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	6.12	0	0	4.28	0.90	0.55	16.1	16.1	6.12	6.12	1.45	0.97	0.01	0.59



Alt Model-Shift Uniqueness Test

007222086-02, P = 1.060813 Days, E = 131.006118 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	2.40	0	0	4.44	1.35	6.84	18.6	18.6	2.40	2.40	2.58	0.73	0.48	0.18



Stellar Parameters For KIC 007222086

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6546^{+78}_{-78}	$3.817^{+0.165}_{-0.135}$	$0.560^{+0.050}_{-0.150}$	$2.784^{+0.590}_{-0.590}$	$1.852^{+0.103}_{-0.190}$	$0.121^{+0.105}_{-0.049}$
	+1%/-1%	+4%/-4%	+9%/-27%	+21%/-21%	+6%/-10%	+87%/-40%
Source	SPE90	SPE90	SPE90	DSEP		

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

Secondary Eclipse Parameters for KIC 007222086-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2 ± 0	$0.63^{+0.48}_{-0.41}$	4252^{+222}_{-249}	5286^{+4422}_{-1416}	$1.909^{+13.855}_{-1.308}$
Alt.	-1 ± 0	$0.98^{+0.53}_{-0.47}$	4256^{+225}_{-223}	2946^{+1928}_{-6480}	$0.349^{+0.980}_{-0.225}$

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

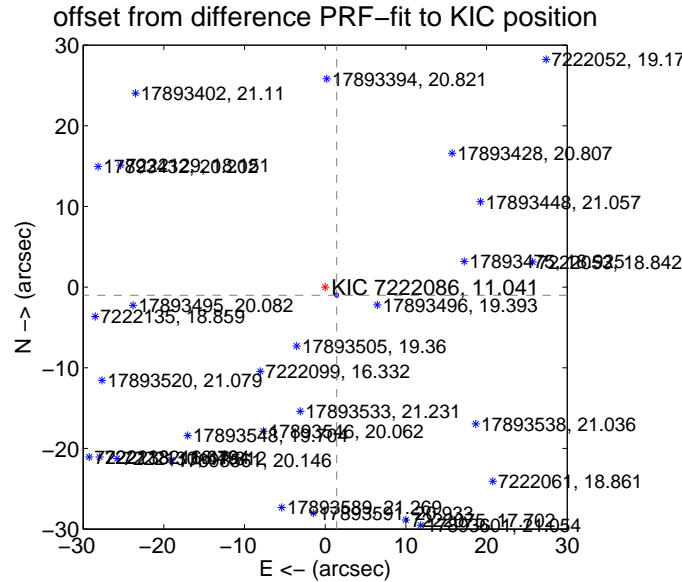
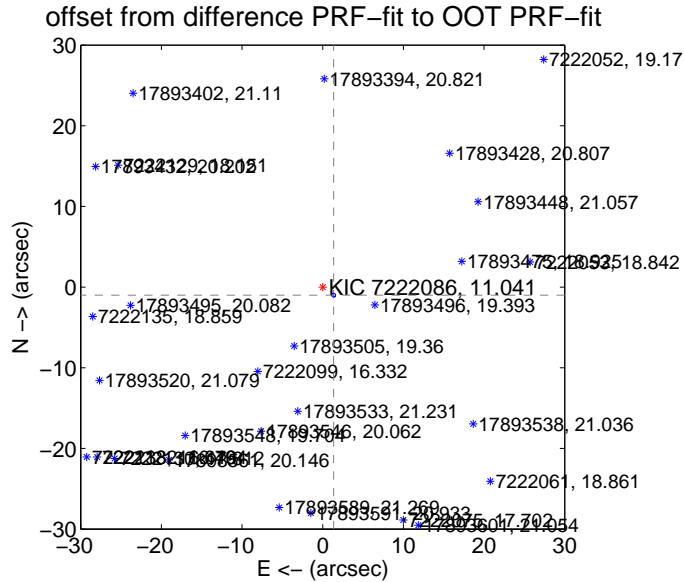
DV Centroid Data

Supplemental centroid analysis for 007222086-02. **Kepler magnitude: 11.04.** Transit SNR 6.61

There are 1 quarters with good PRF difference image offsets

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

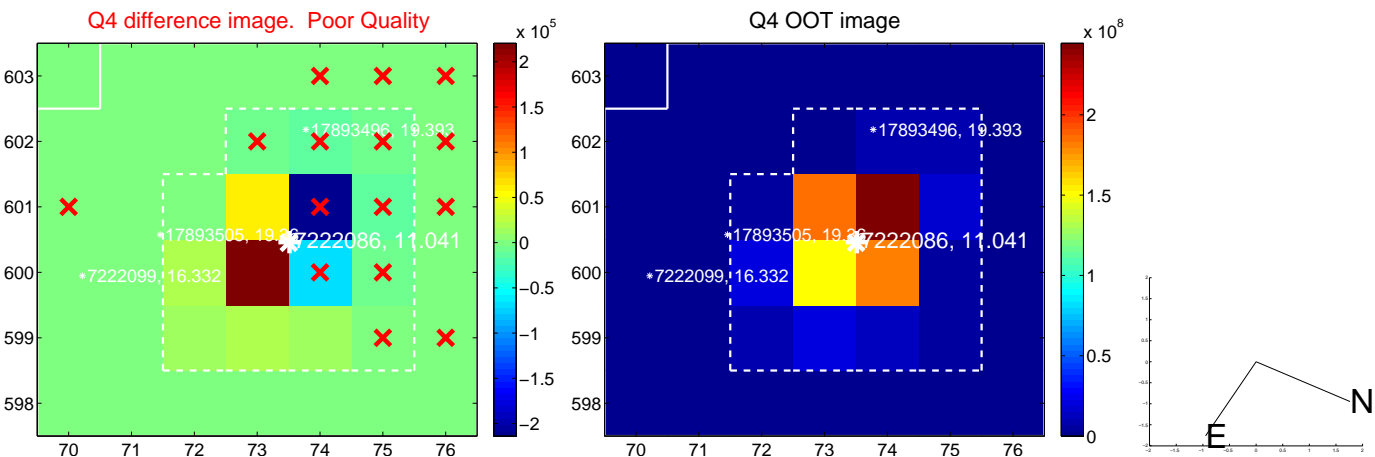
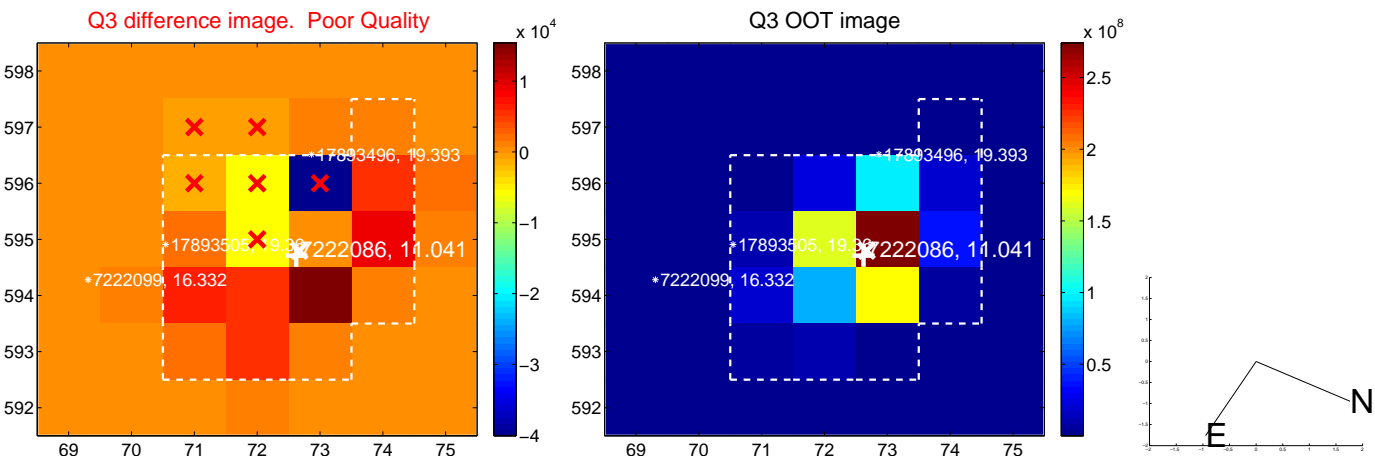
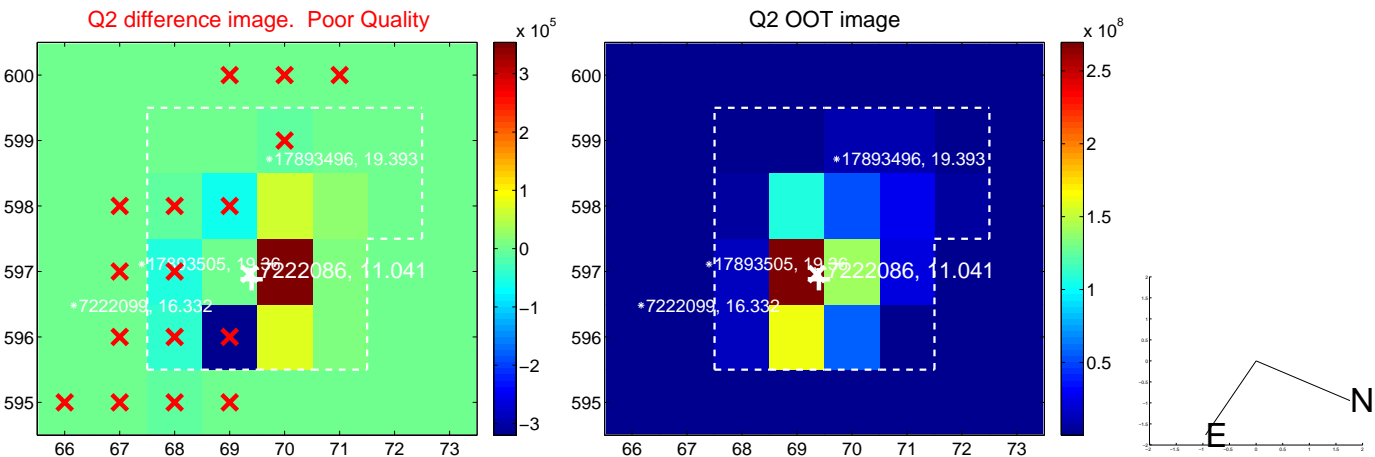
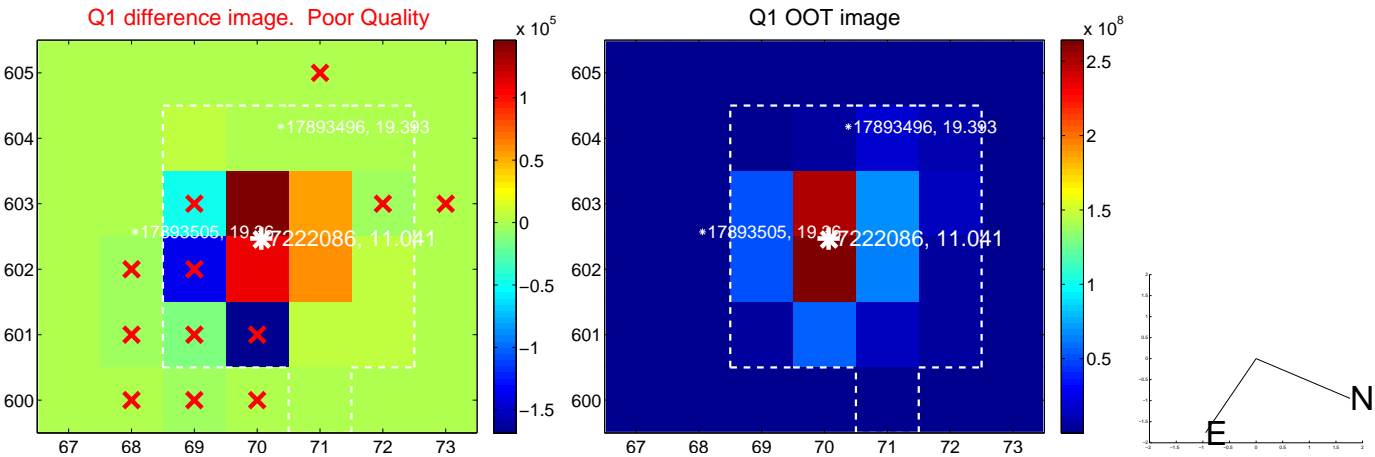
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.687 ± 0.080	21.10	-1.356 ± 0.081	-1.004 ± 0.078
PRF-fit source offset from KIC position	1.745 ± 0.080	21.81	-1.424 ± 0.081	-1.009 ± 0.078
photometric centroid source offset	—	—	—	—



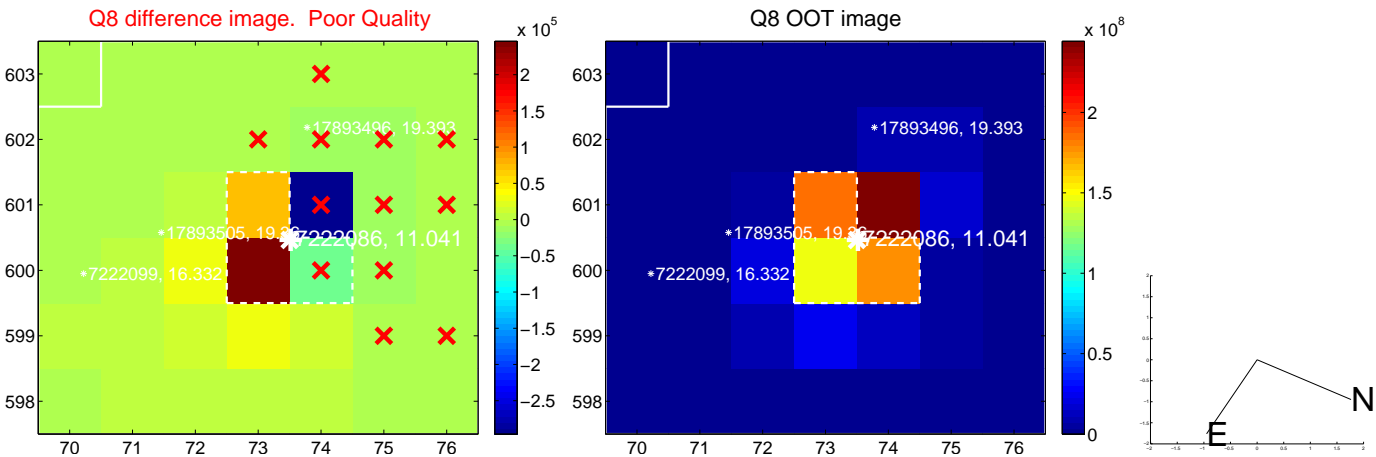
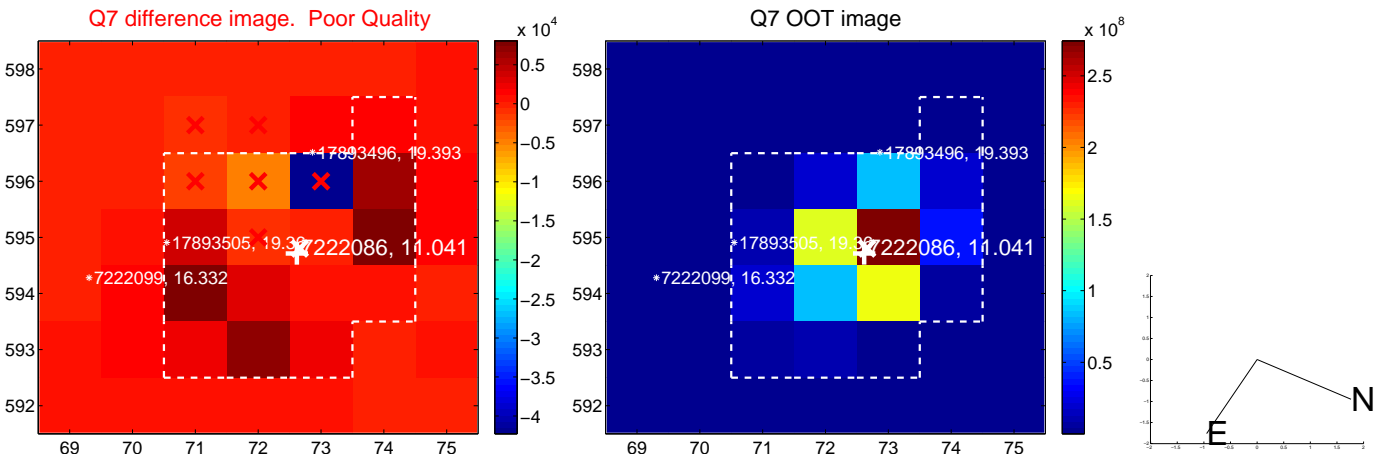
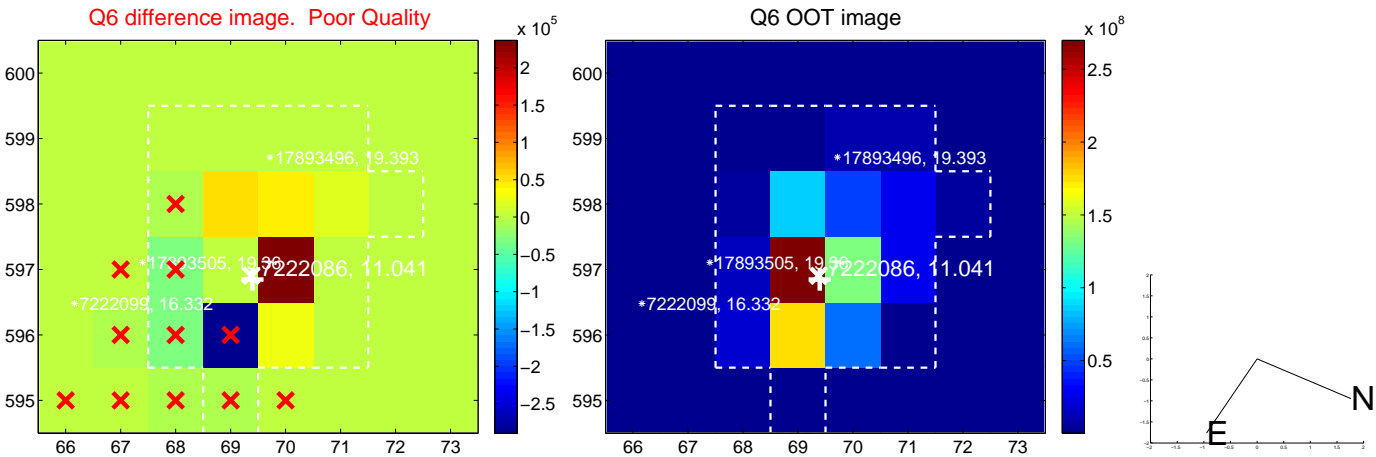
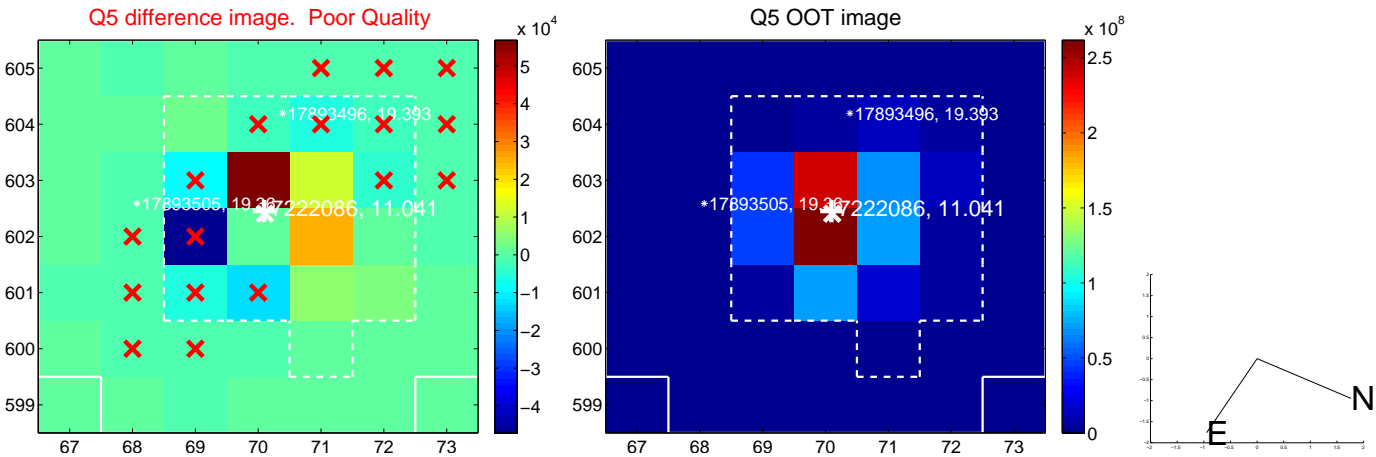
There are no photometric centroids

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- σ uncertainty. Blue circle: three- σ . 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.

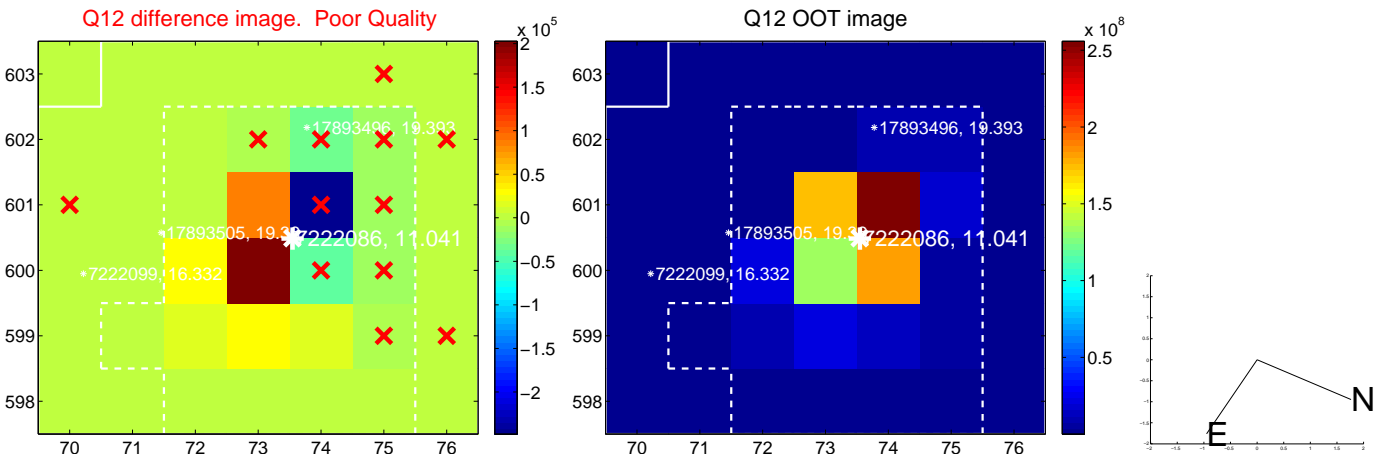
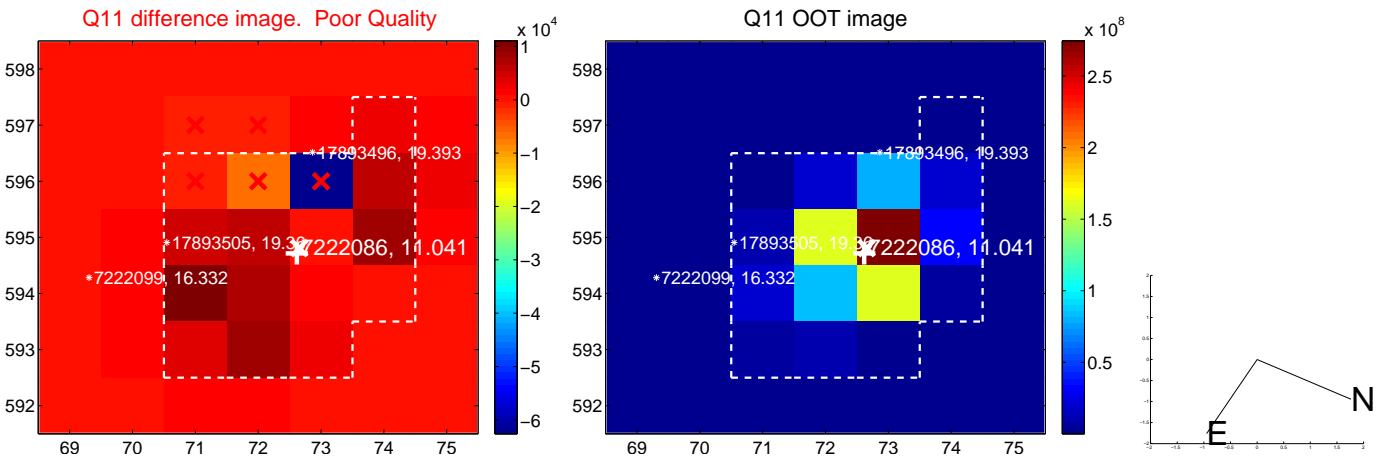
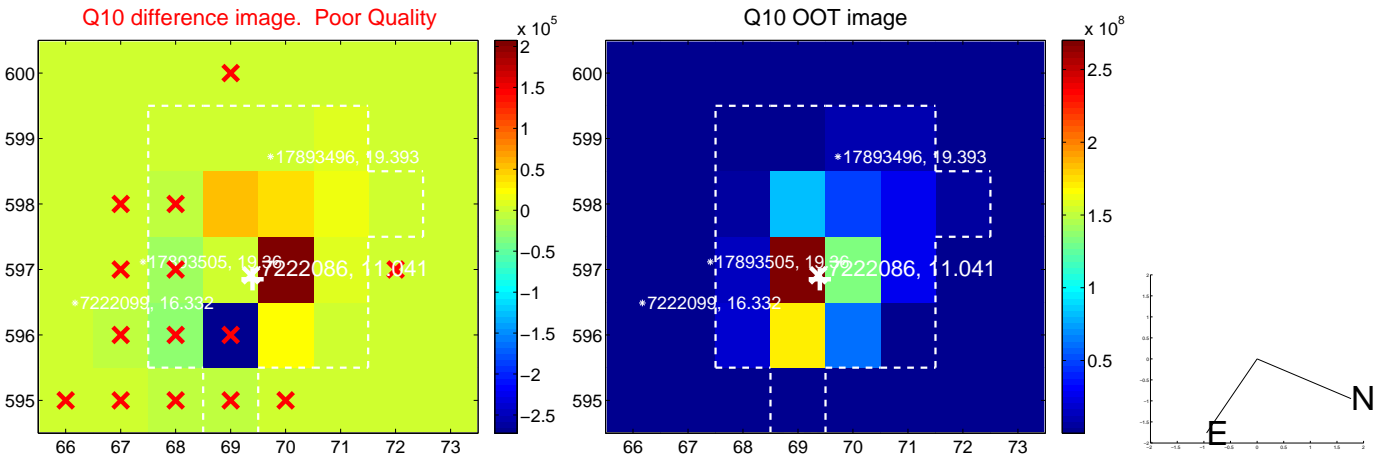
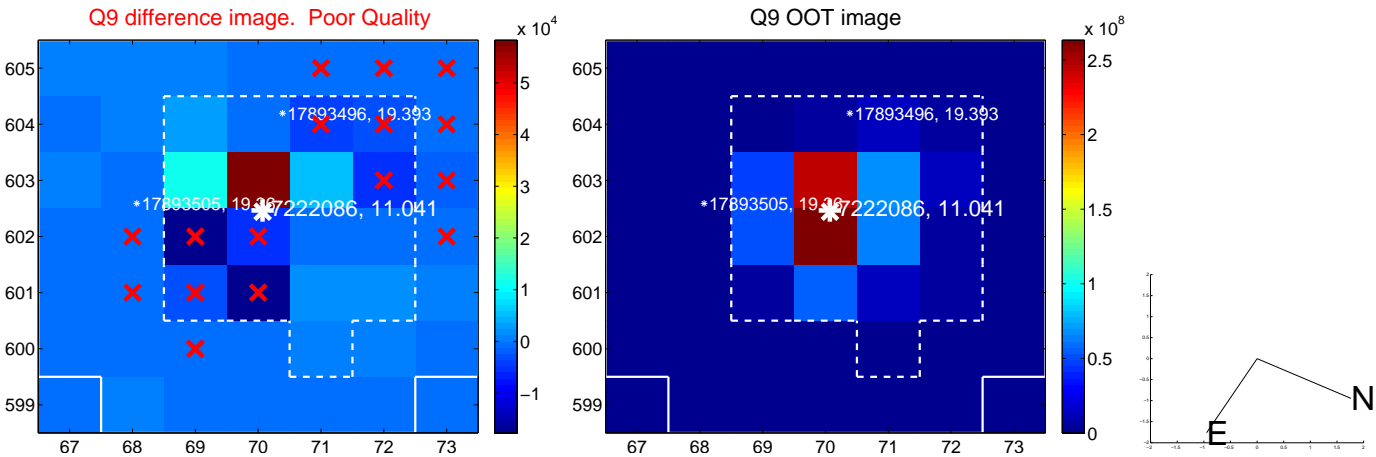
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



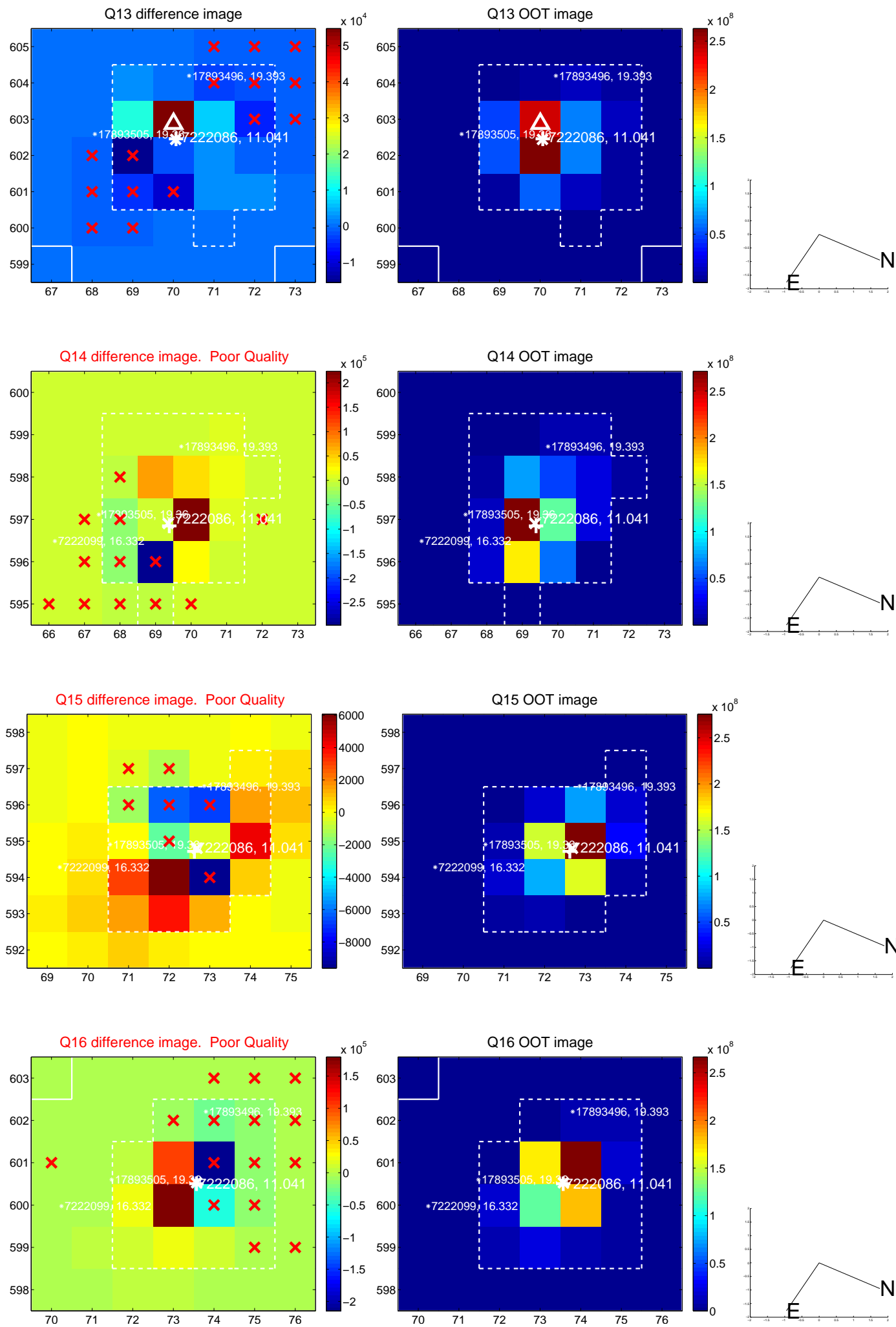
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



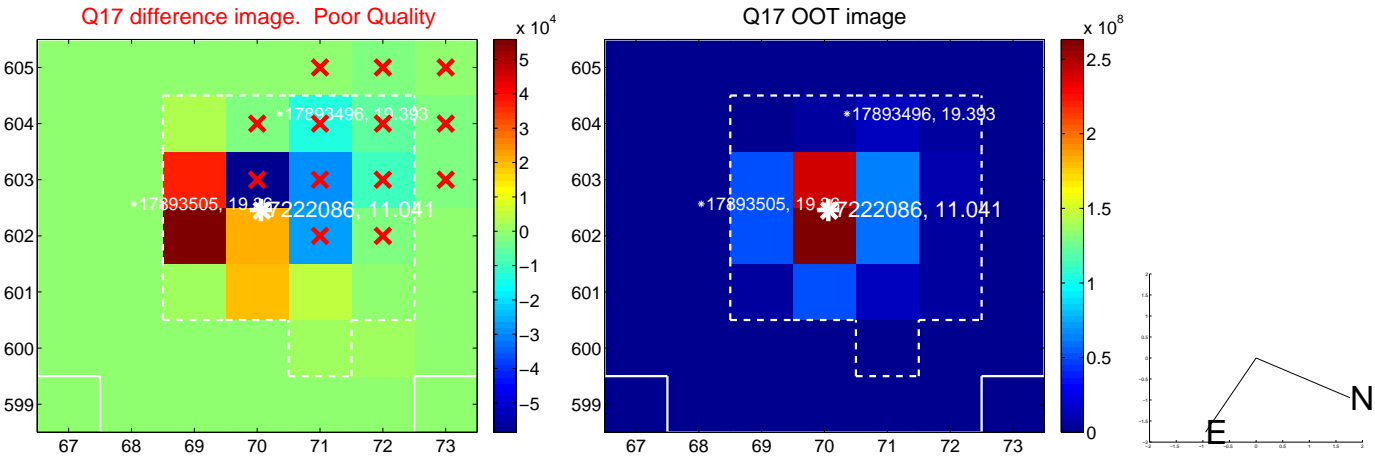
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



folded centroid time series figure for this object.

UKIRT Image

Declination

