

KIC 007812594

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})
007812594-01	OBS	No	1.557853	131.612212	0.0	8.441	9.9	0.0	1.51	7076	0.02	5719.11
007812594-02	OBS	No	1.558005	132.133200	7.9	10.710	16.2	7.0	1.51	7076	0.44	5718.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007812594-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
007812594-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

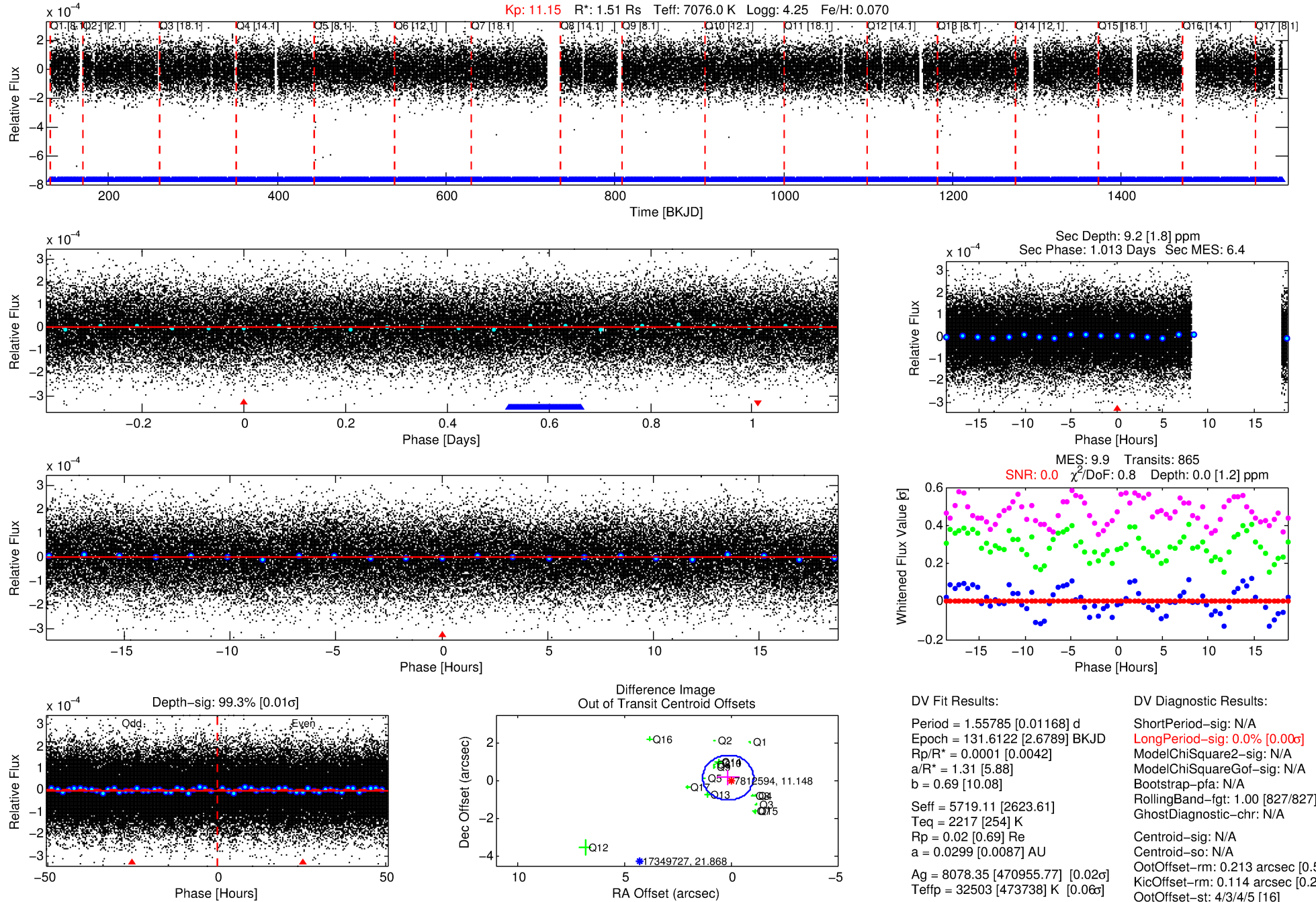
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007812594-01

No Significant Match Found

DV One-Page Summary

KIC: 7812594 Candidate: 1 of 2 Period: 1.558 d



DV Fit Results:

Period = 1.55785 [0.01168] d
Epoch = 131.6122 [2.6789] BKJD
Rp/R* = 0.0001 [0.0042]
a/R* = 1.31 [5.88]
b = 0.69 [10.08]
Seff = 5719.11 [2623.61]
Teq = 2217 [254] K
Rp = 0.02 [0.69] Re
a = 0.0299 [0.0087] AU
Ag = 8078.35 [470955.77] [0.02 σ]
Teffp = 32503 [473738] K [0.06 σ]

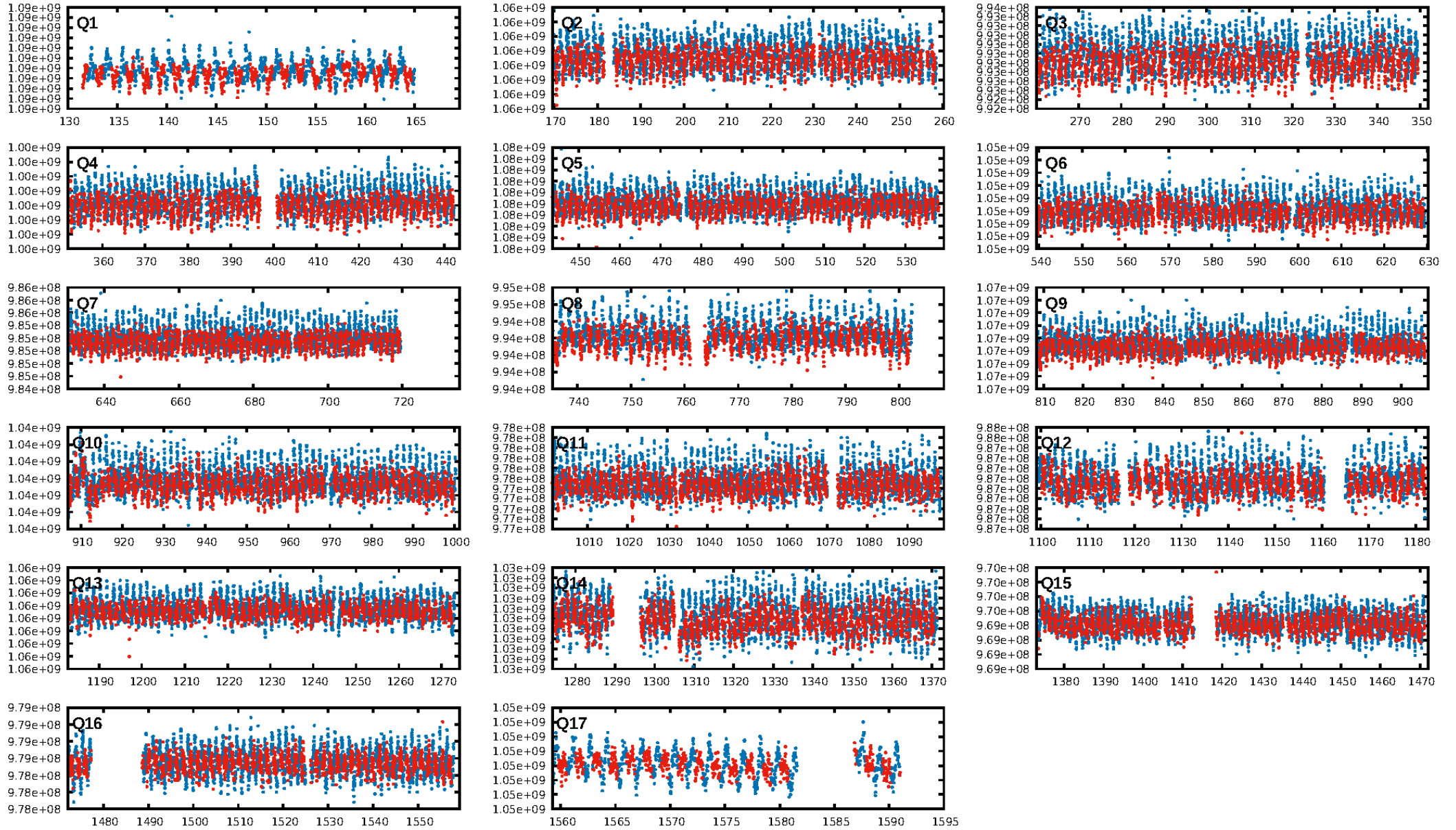
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [827/827]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 0.213 arcsec [0.53 σ]
KicOffset-rm: 0.114 arcsec [0.23 σ]
OotOffset-st: 4/3/4/5 [16]
KicOffset-st: 4/3/4/5 [16]
DiffImageQuality-fgm: 0.44 [7/16]
DiffImageOverlap-fno: 0.00 [0/17]

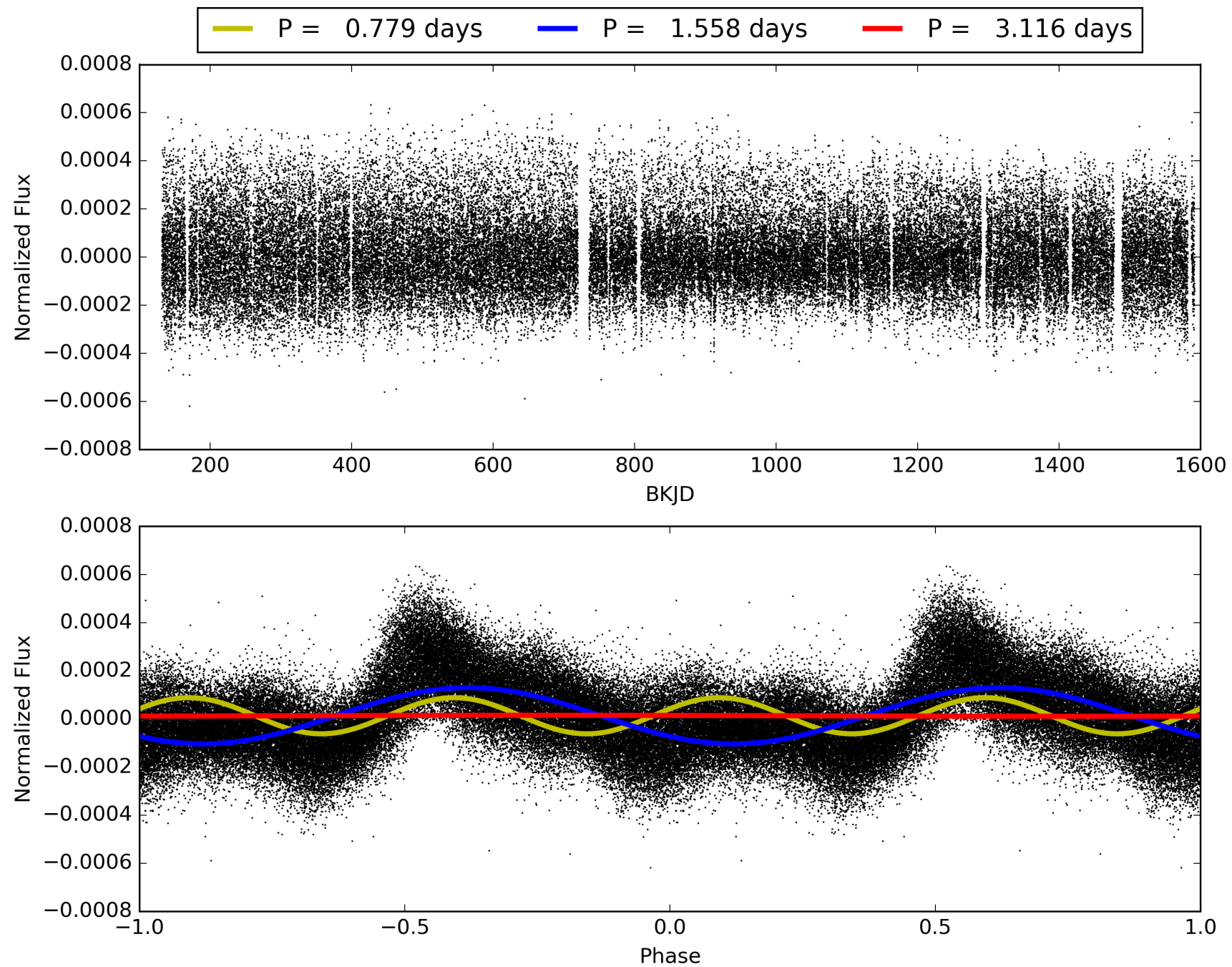
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:42:01 Z

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

TCE 007812594-01, PDC Light Curves

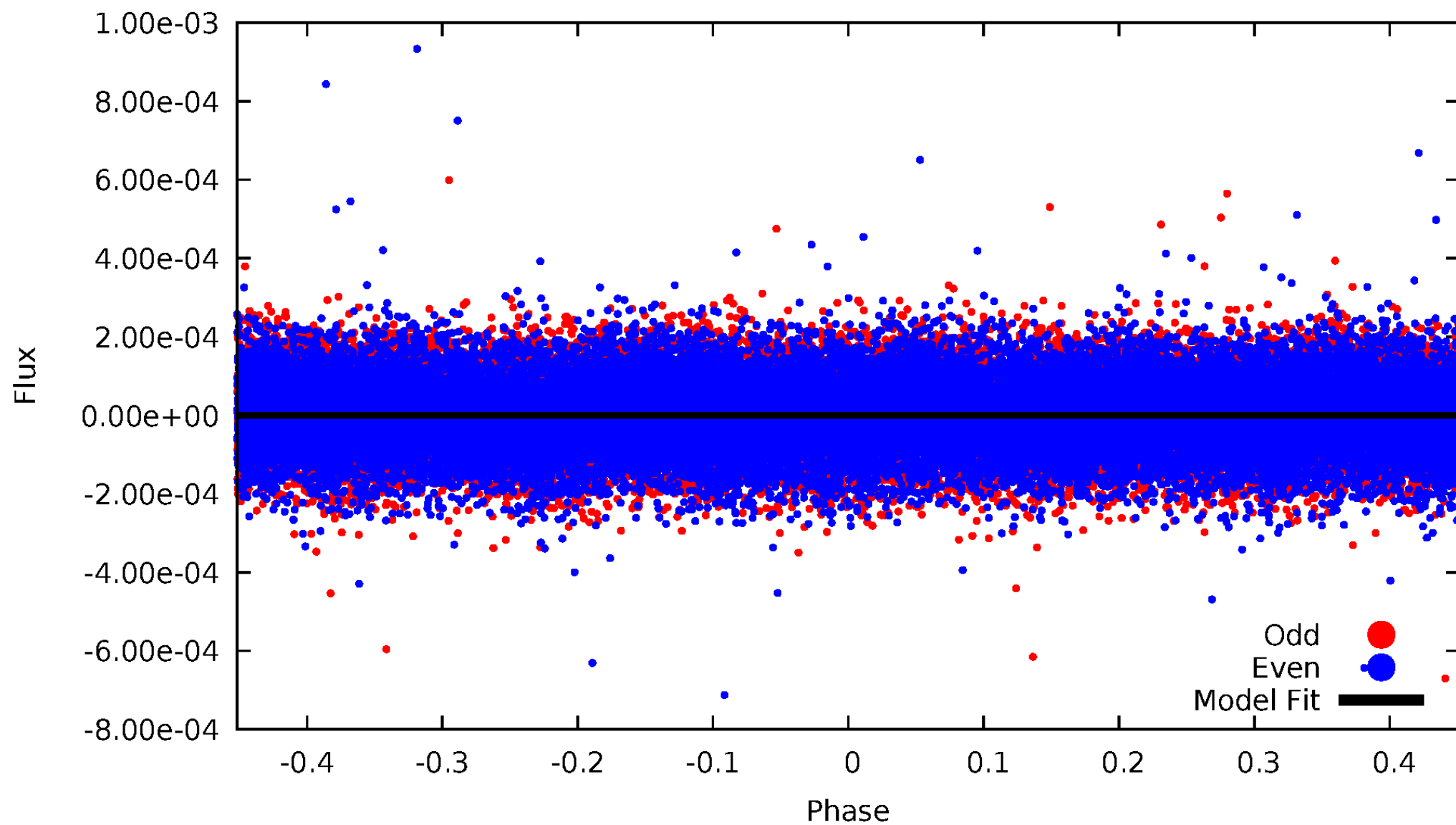


TCE 007812594-01



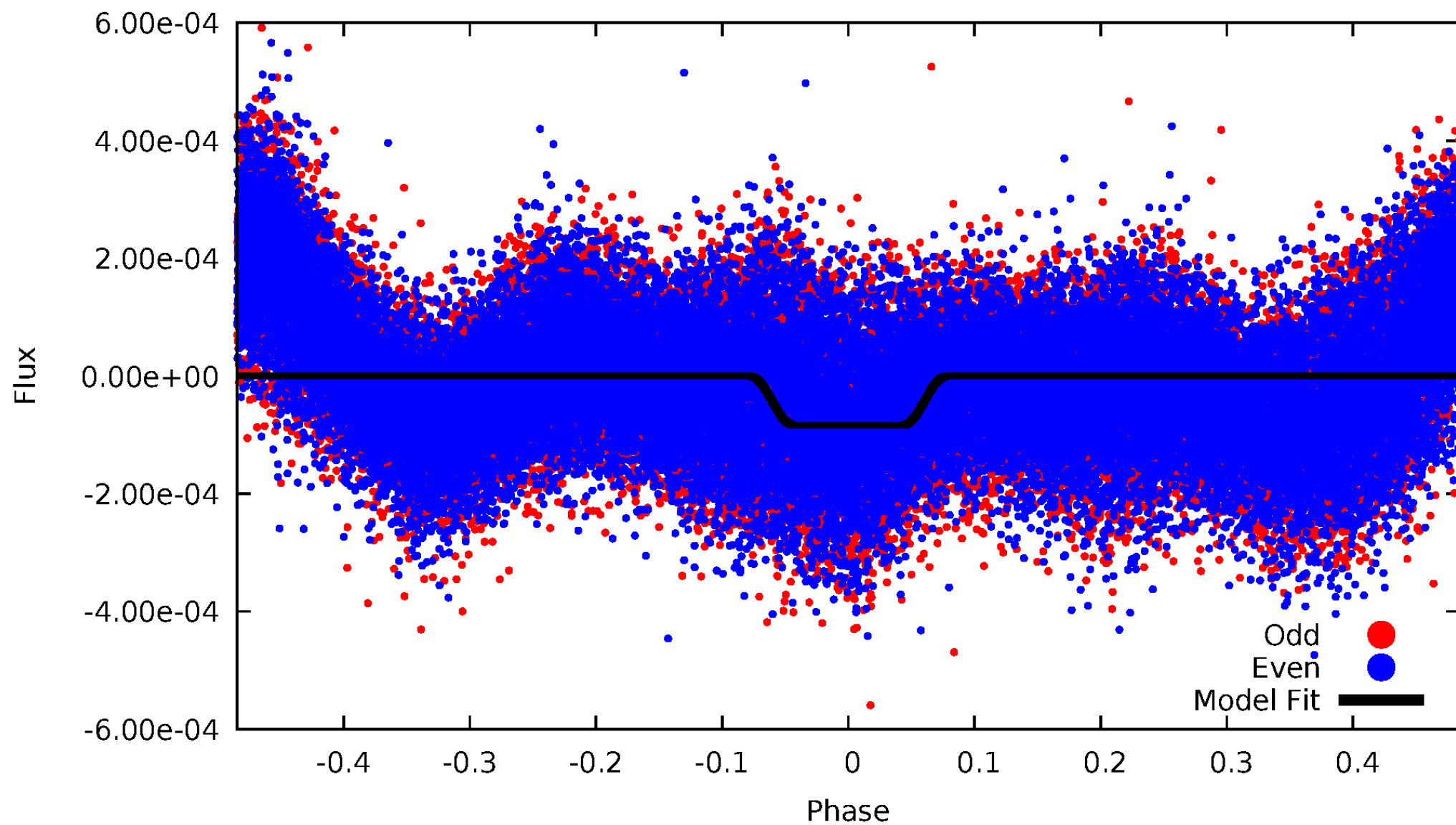
DV Odd/Even

TCE 007812594-01



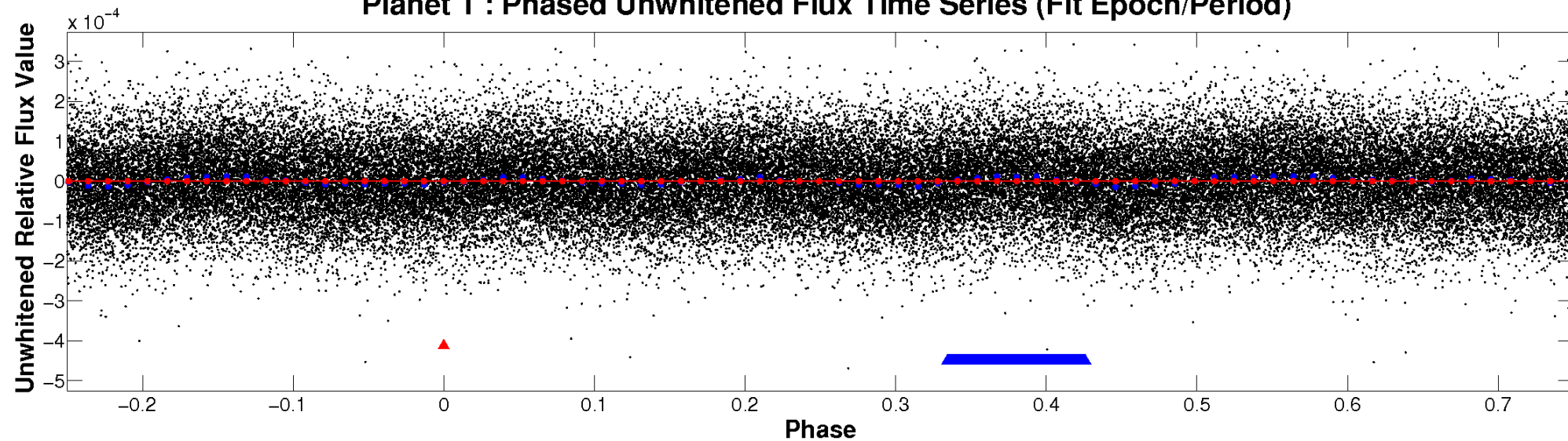
ALT Odd/Even

TCE 007812594-01

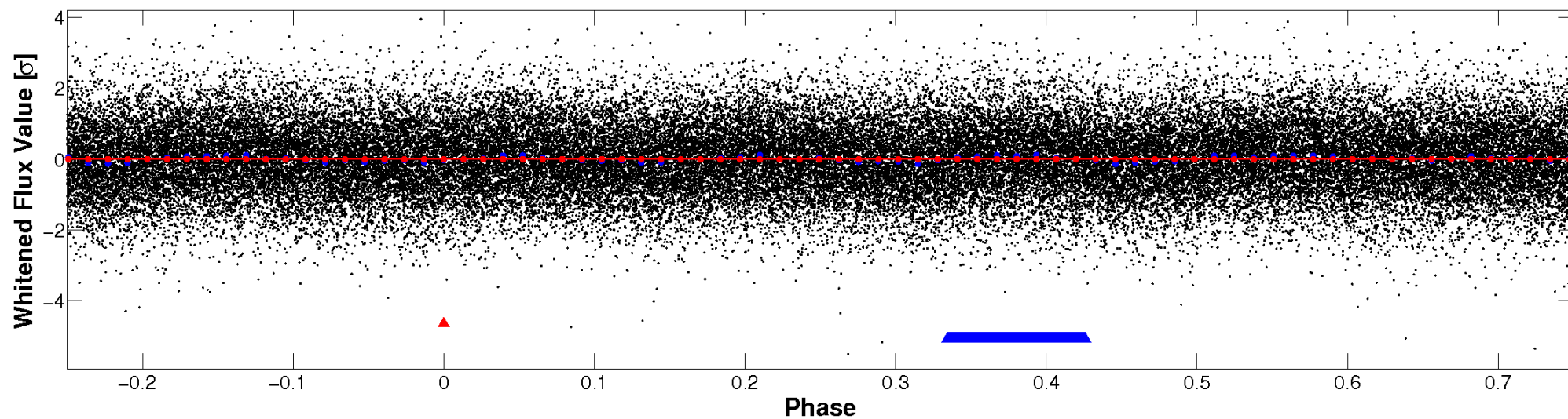


Non-Whitened Vs. Whitened Light Curve

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

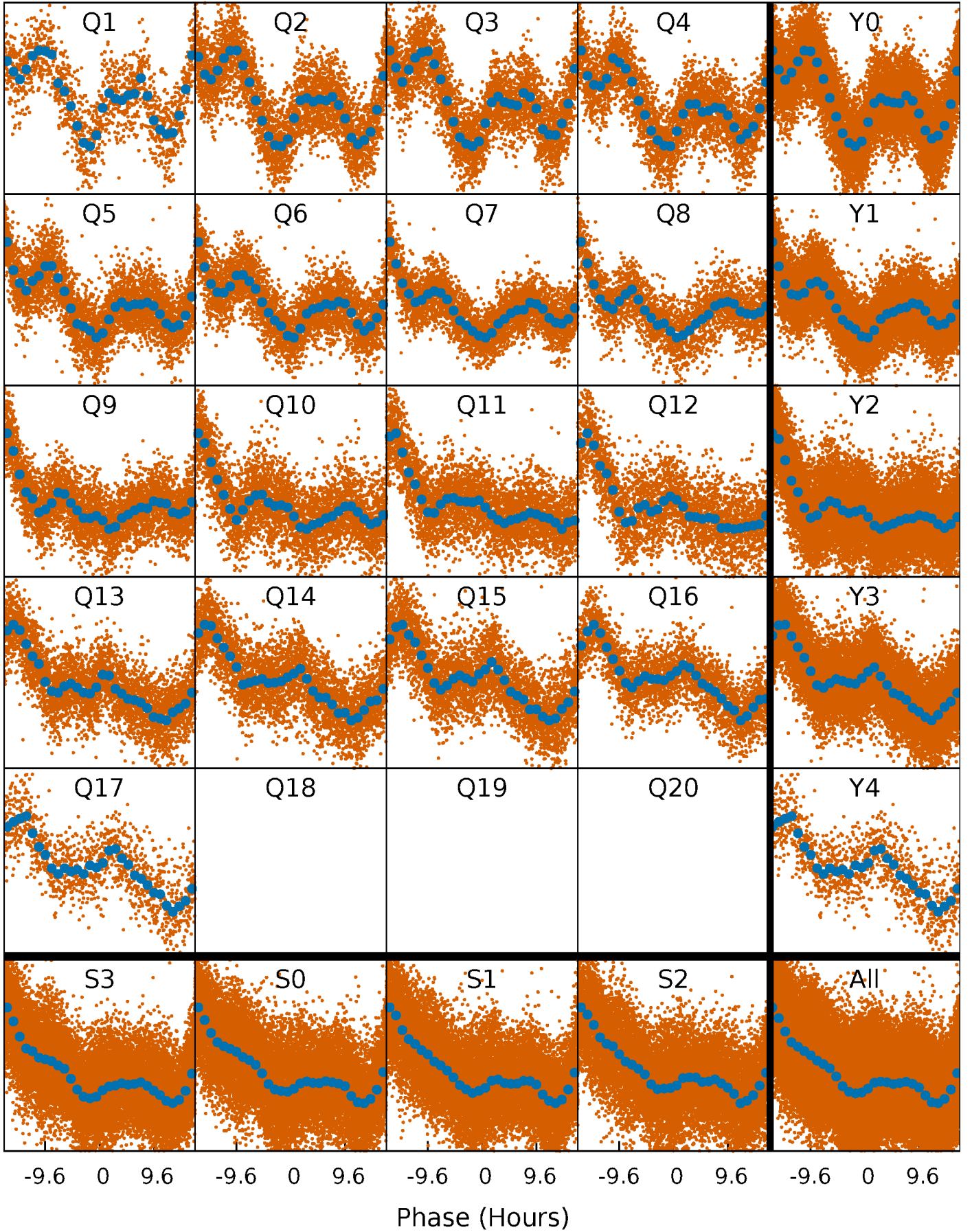


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



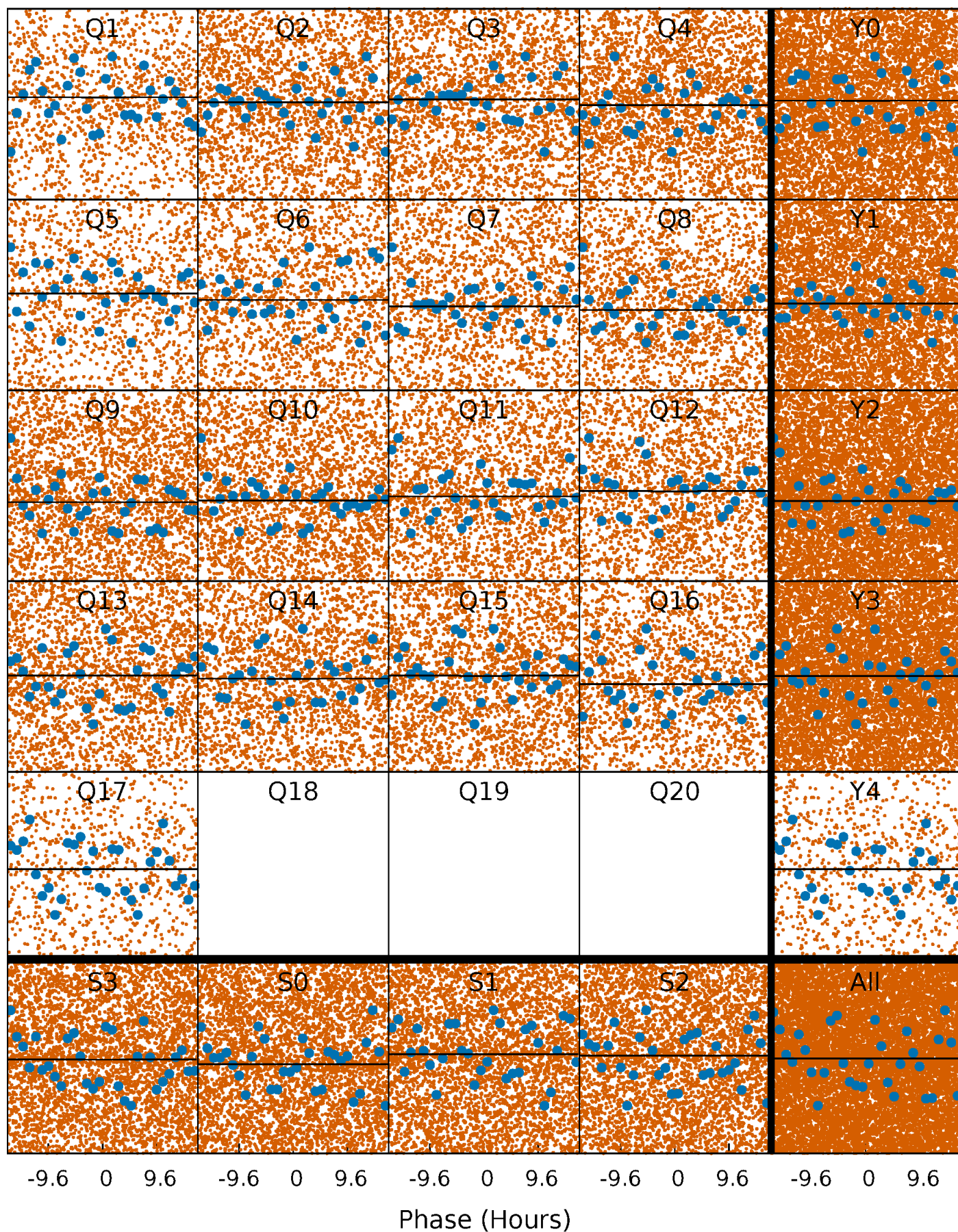
PDC Quarter-Phased Transit Curves

TCE 007812594-01 P= 1.557853 Days $T_0=131.612212$ (BKJD)



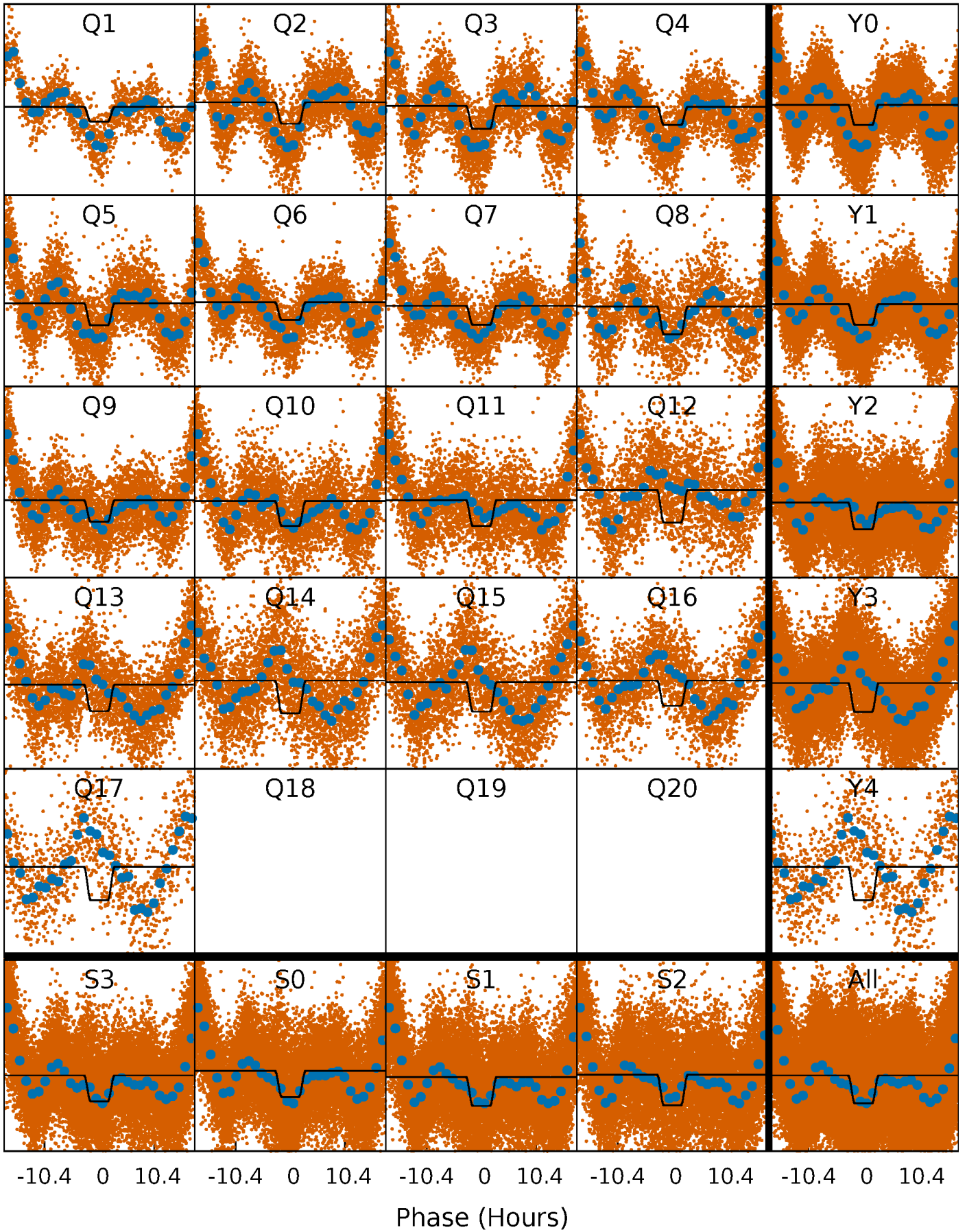
DV Quarter-Phased Transit Curves

TCE 007812594-01 P= 1.557853 Days $T_0=131.612212$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

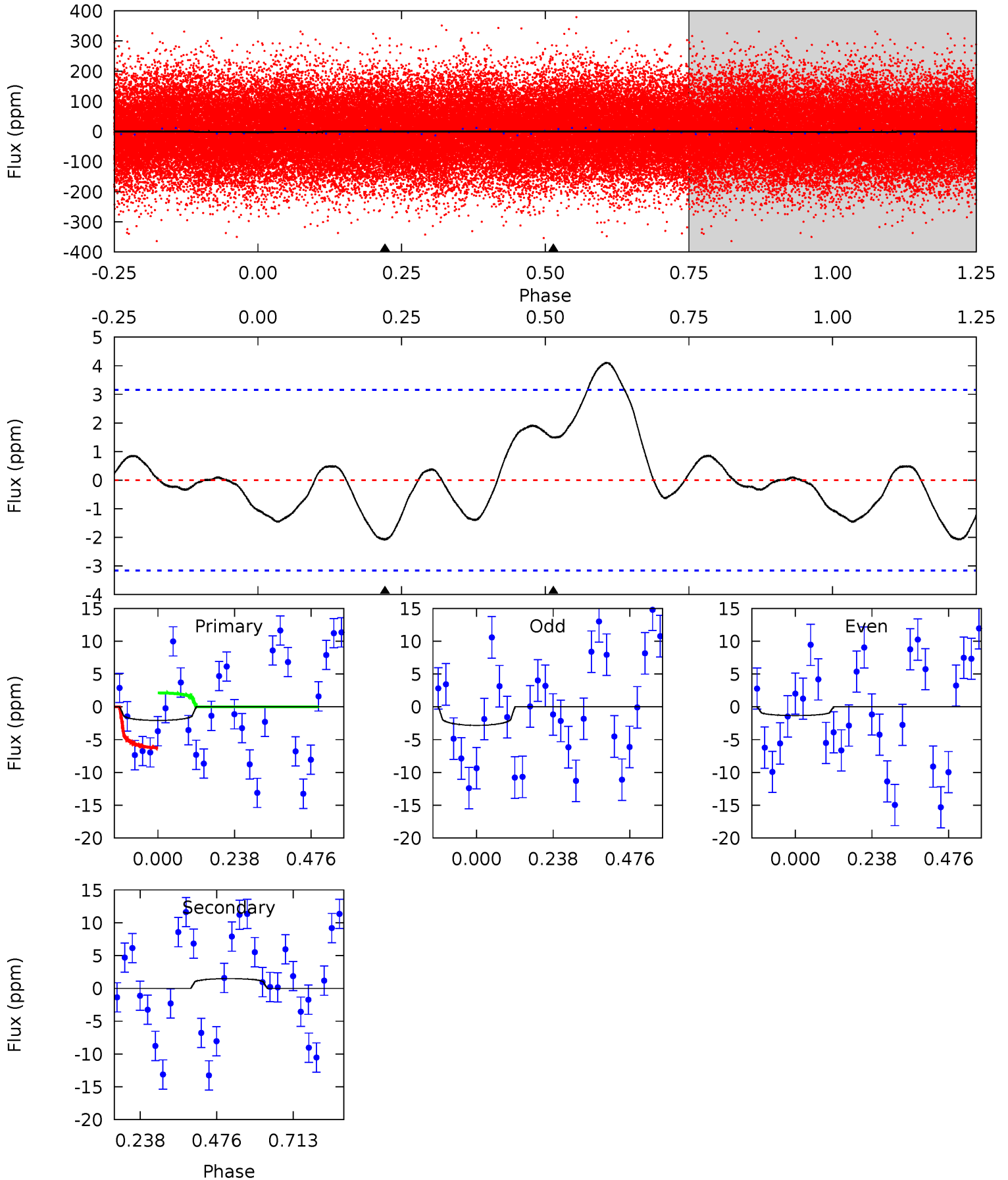
TCE 007812594-01 P= 1.558196 Days $T_0=131.518821$ (BKJD)



DV Model-Shift Uniqueness Test

007812594-01, $P = 1.557853$ Days, $E = 130.054359$ Days

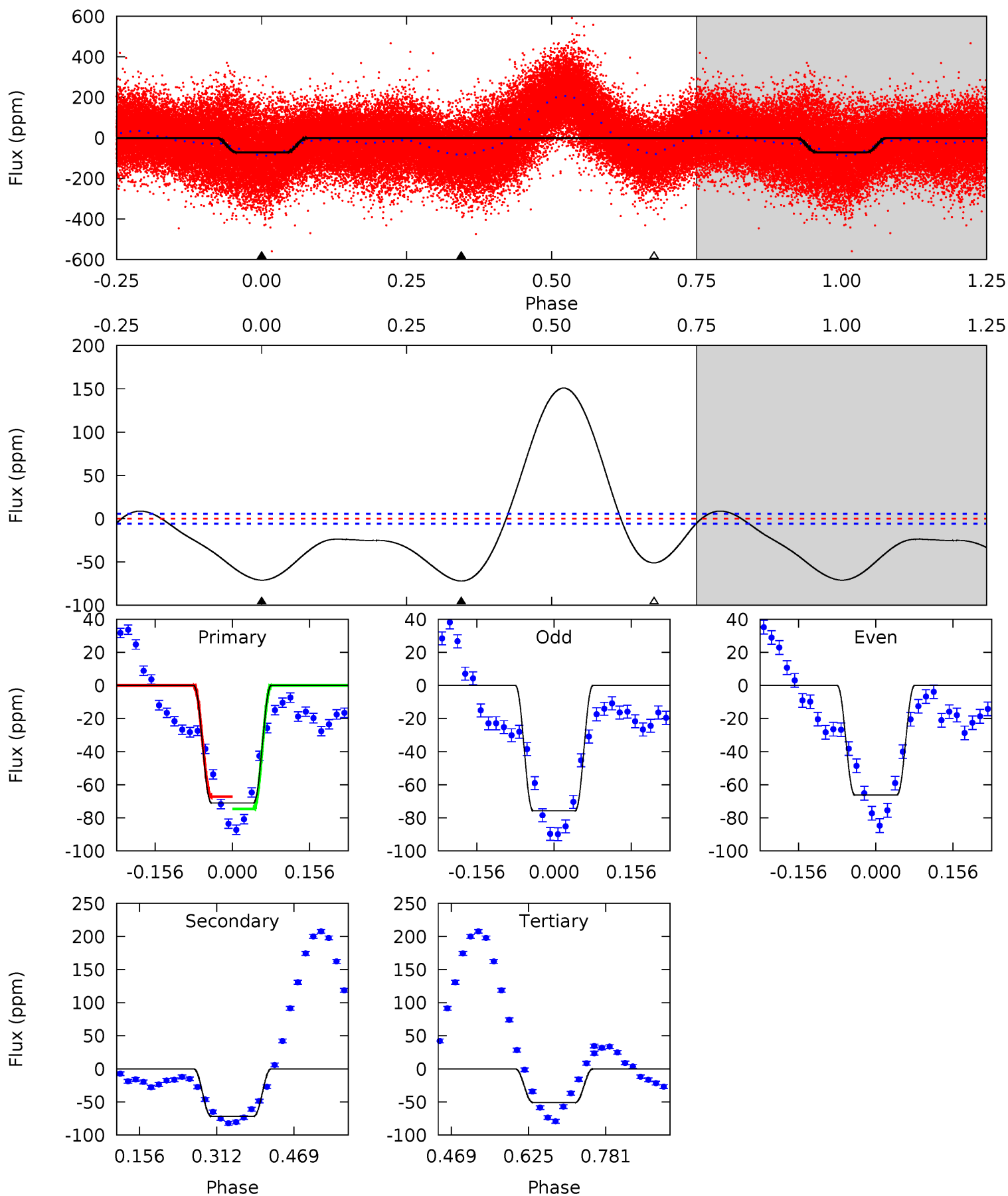
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.88	-2.06	0	0	4.38	1.18	0.53	2.88	2.88	-2.06	-2.06	1.05	1.86	0.66	2.92



Alt Model-Shift Uniqueness Test

007812594-01, P = 1.558196 Days, E = 129.960625 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.0	56.7	40.2	0	4.47	1.42	50.7	15.8	56.0	16.5	56.7	3.76	0.94	0.68	3.24



Stellar Parameters For KIC 007812594

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7076^{+197}_{-338}	$4.248^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.510^{+0.529}_{-0.227}$	$1.473^{+0.214}_{-0.214}$	$0.603^{+0.248}_{-0.332}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+15%/-15%	+41%/-55%
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 007812594-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	1 ± 1	$0.54^{+0.50}_{-0.38}$	3137^{+248}_{-170}	-4622^{+902}_{-3664}	$-2.425^{+1.912}_{-24.531}$
Alt.	-72 ± 1	$1.55^{+0.84}_{-0.72}$	3148^{+246}_{-192}	6755^{+3313}_{-1299}	15^{+35}_{-8}

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 $A_{\text{obs}} \gg 1.0$

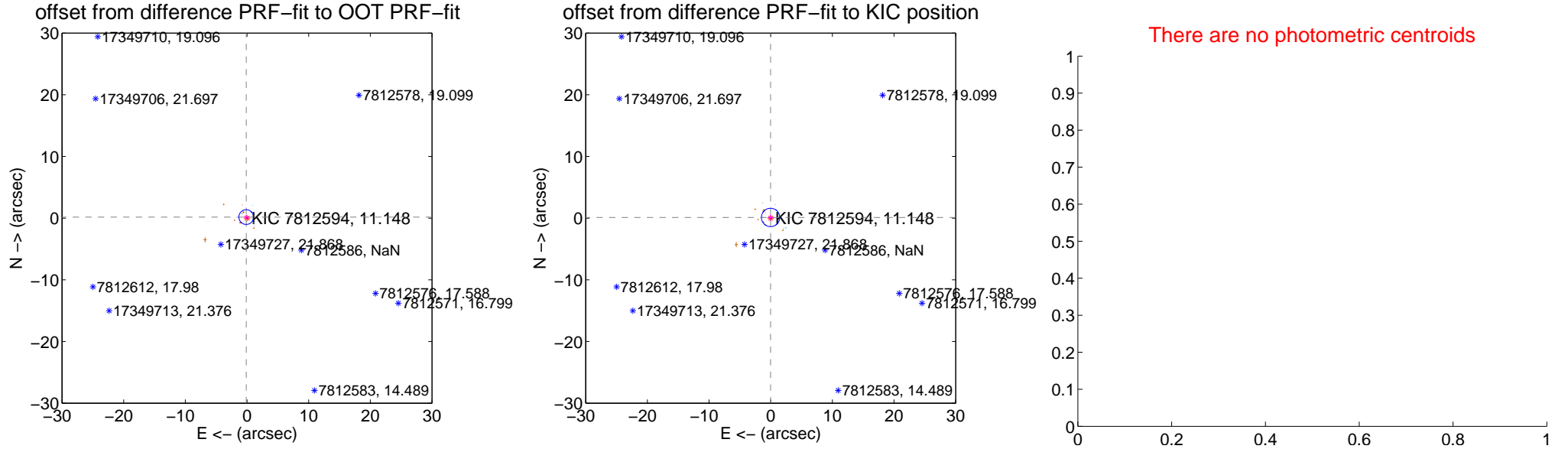
DV Centroid Data

Supplemental centroid analysis for 007812594-01. **Kepler magnitude: 11.15**. Transit SNR 0.02

There are 7 quarters with good PRF difference image offsets

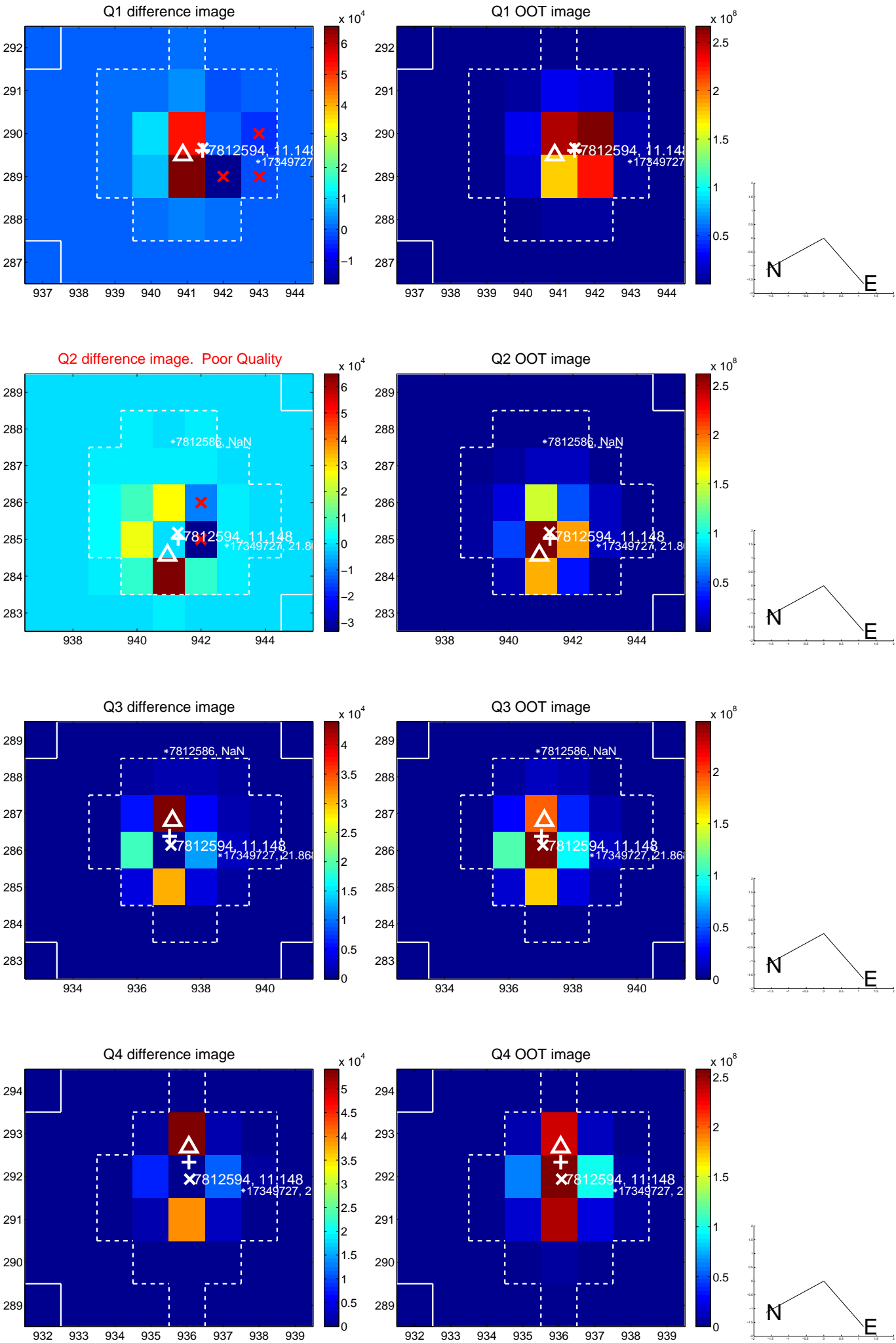
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.213 ± 0.398	0.53	0.127 ± 0.492	0.170 ± 0.391
PRF-fit source offset from KIC position	0.114 ± 0.495	0.23	0.022 ± 0.492	0.112 ± 0.485
photometric centroid source offset	—	—	—	—

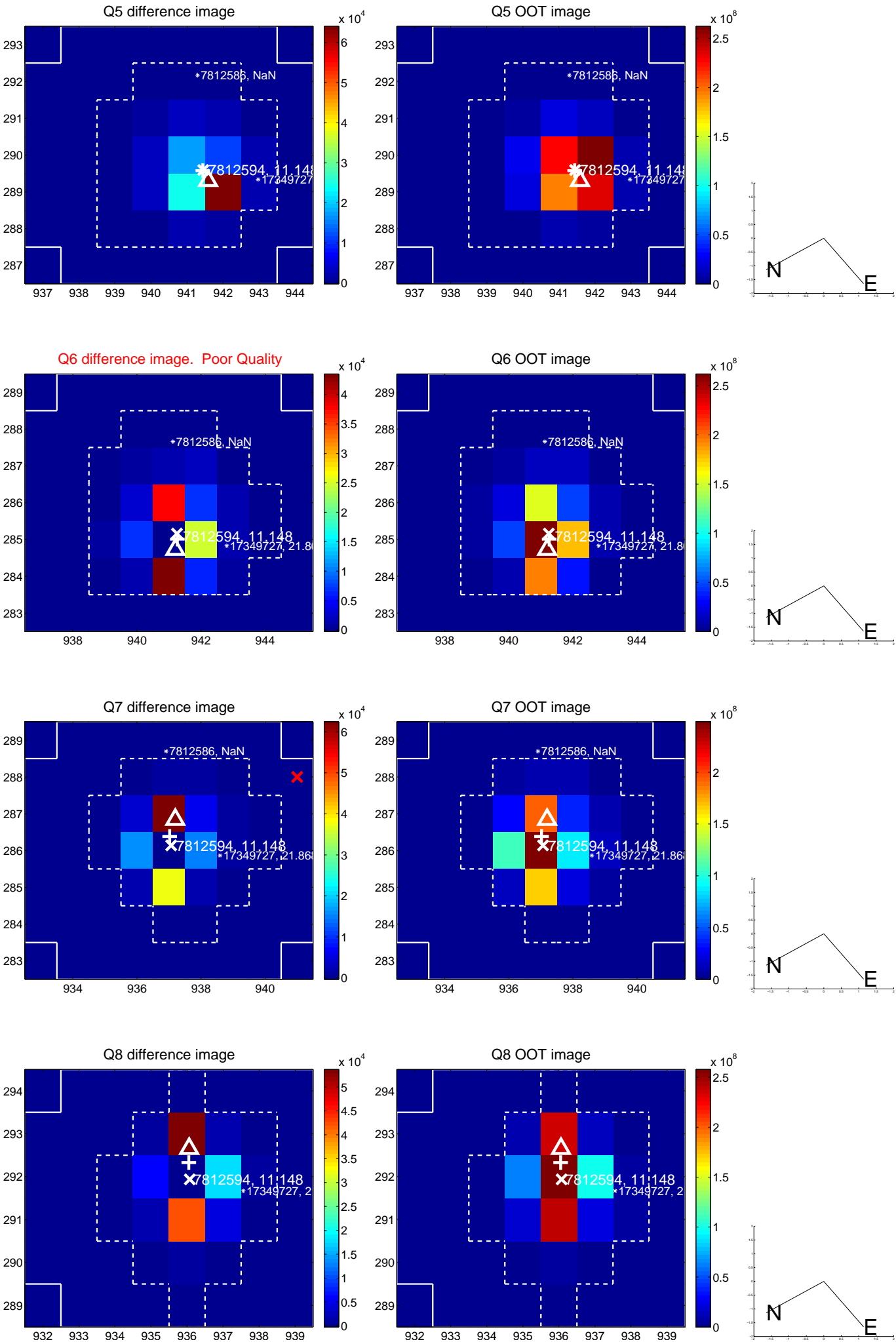


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

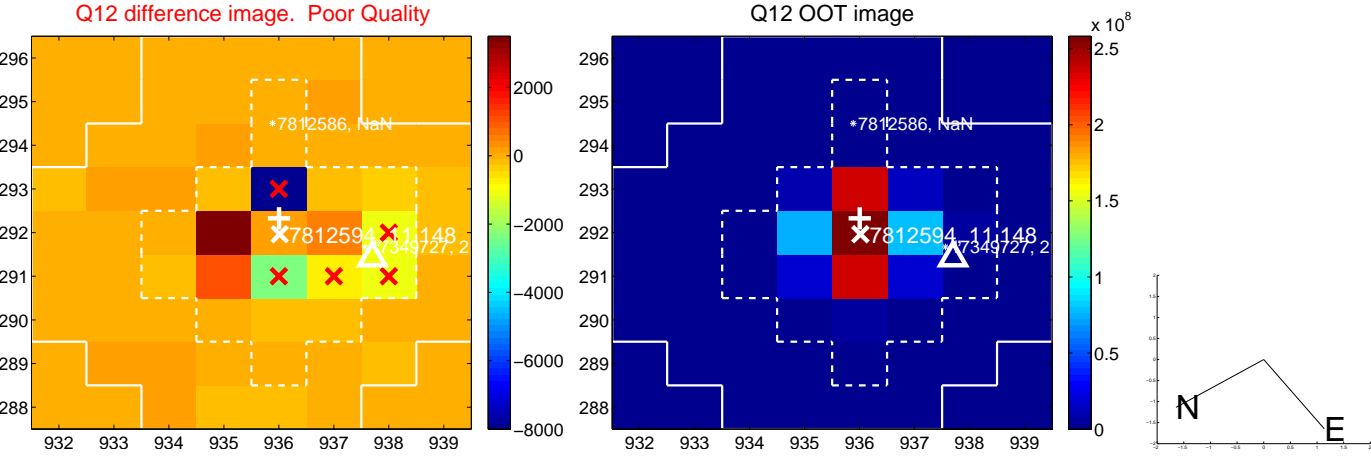
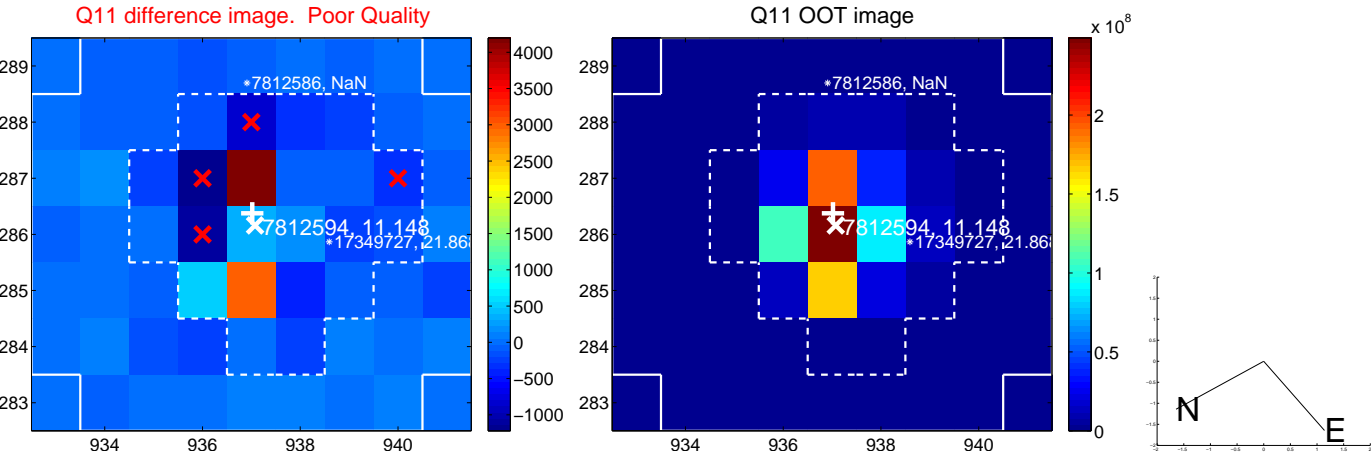
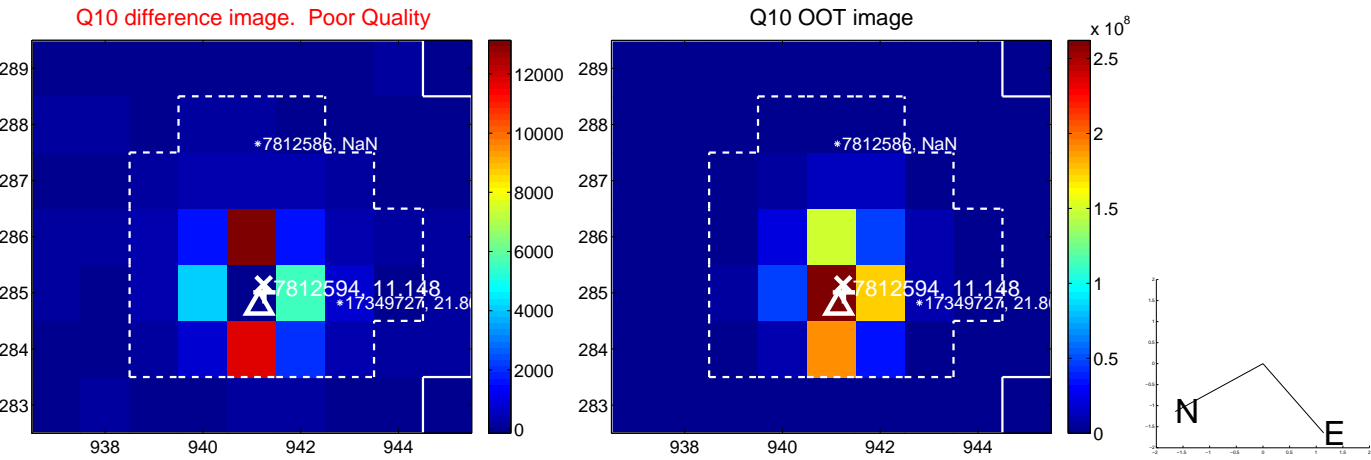
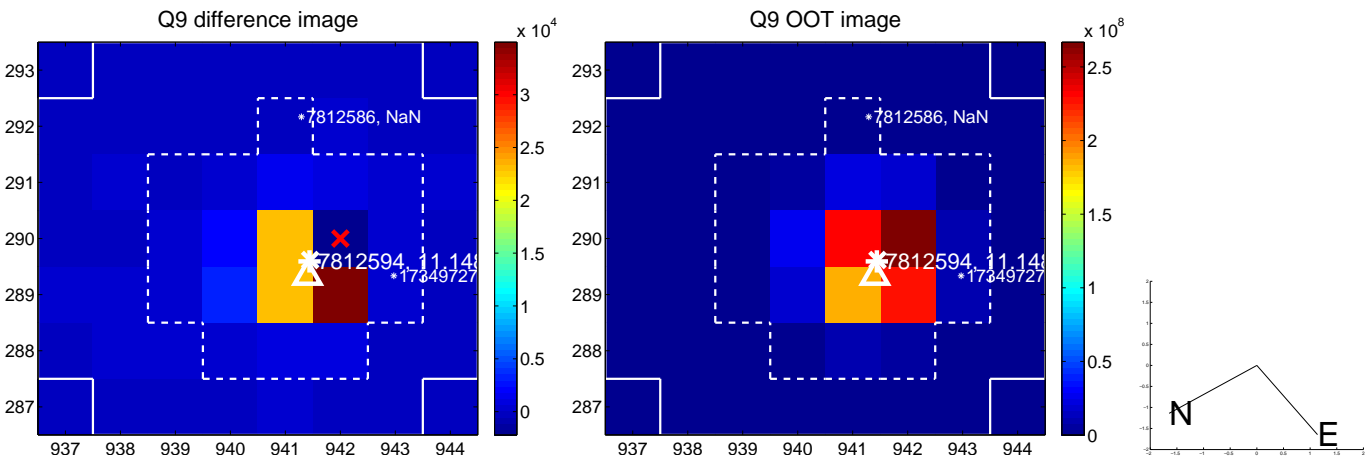
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



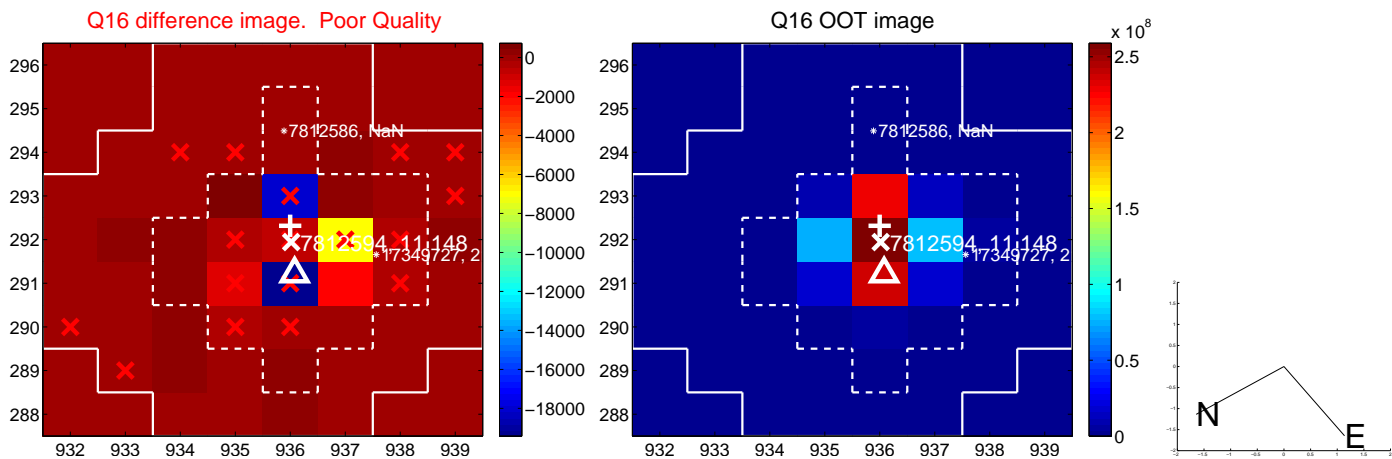
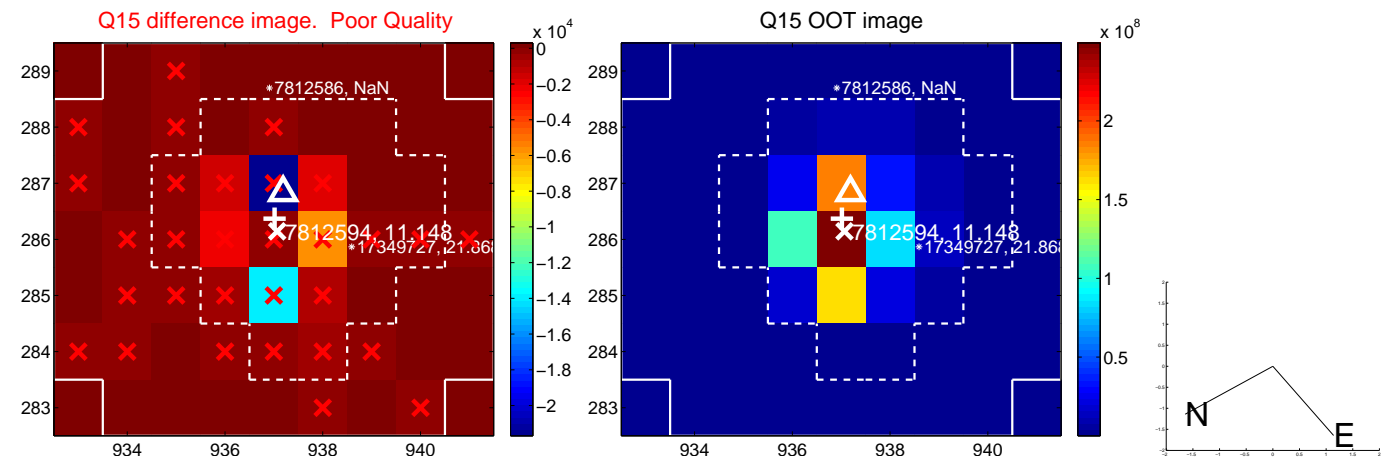
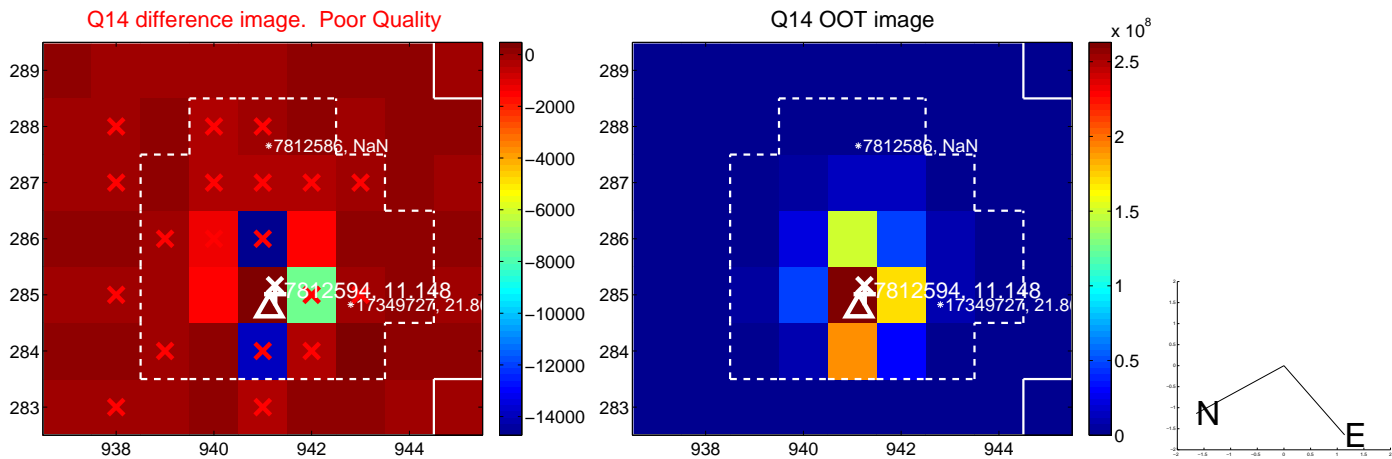
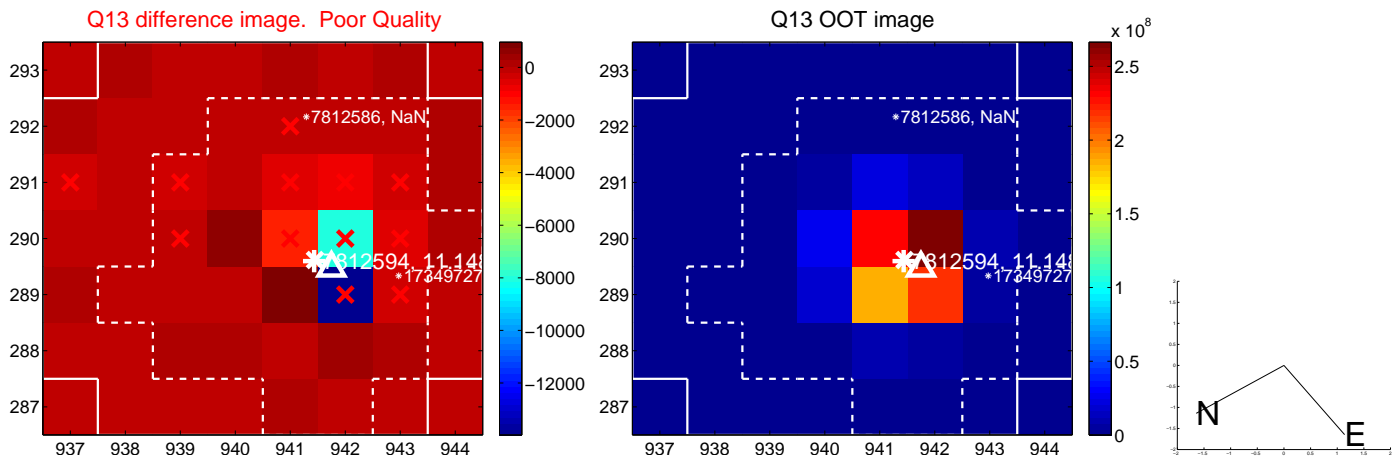
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



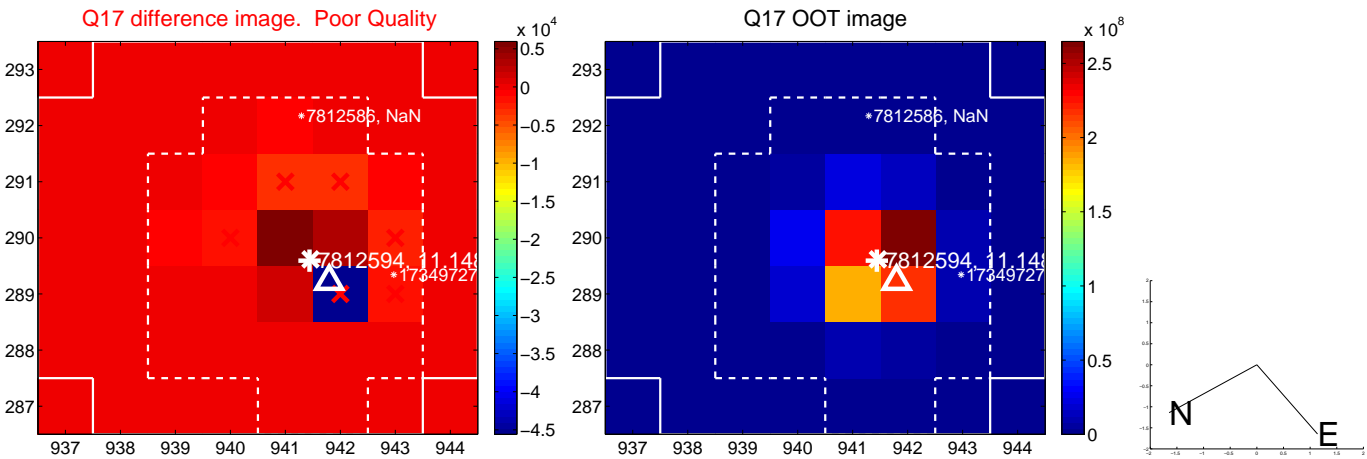
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



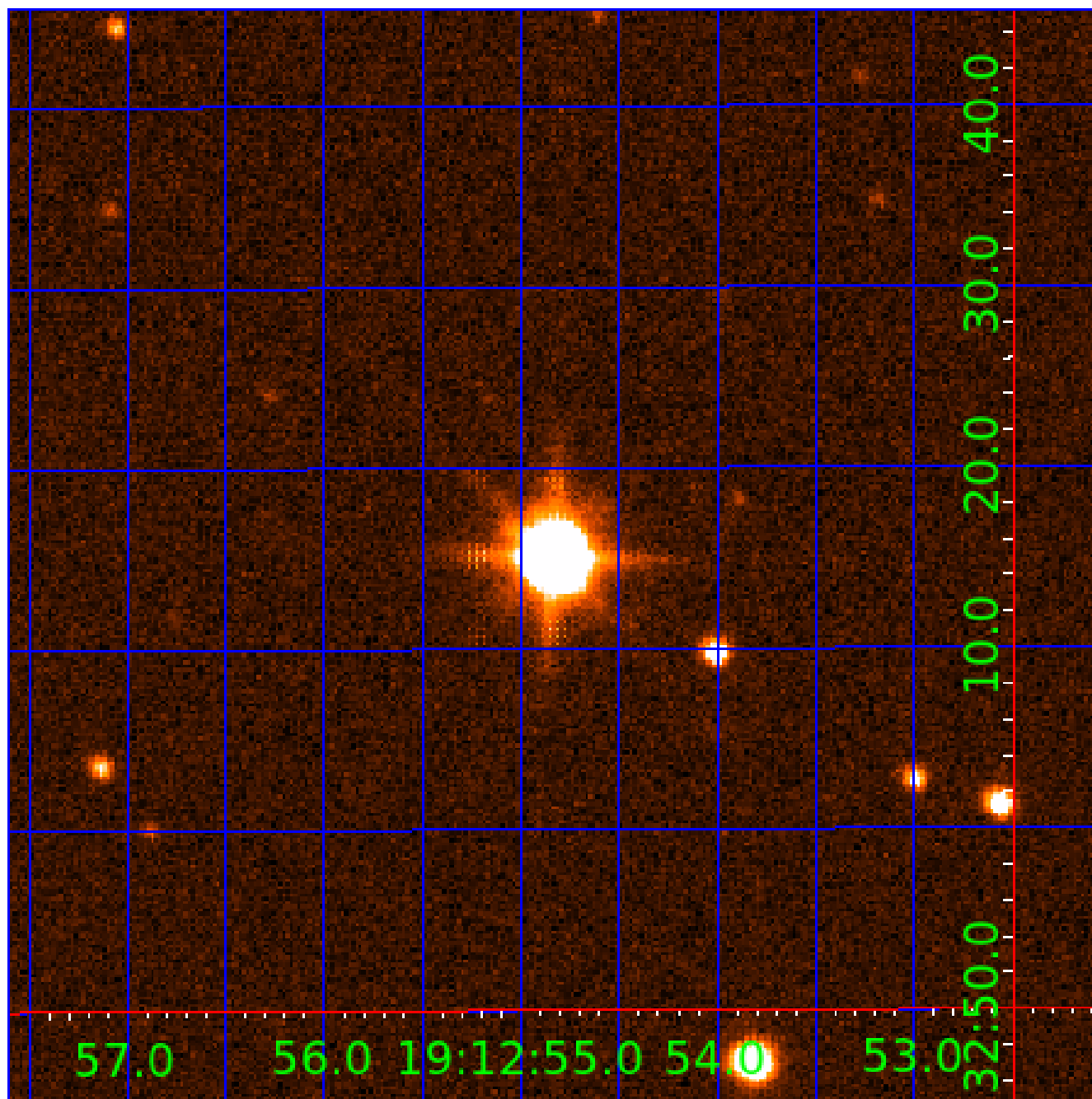
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 007812594

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})
007812594-01	OBS	No	1.557853	131.612212	0.0	8.441	9.9	0.0	1.51	7076	0.02	5719.11
007812594-02	OBS	No	1.558005	132.133200	7.9	10.710	16.2	7.0	1.51	7076	0.44	5718.36

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007812594-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_SATURATED
007812594-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED

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

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

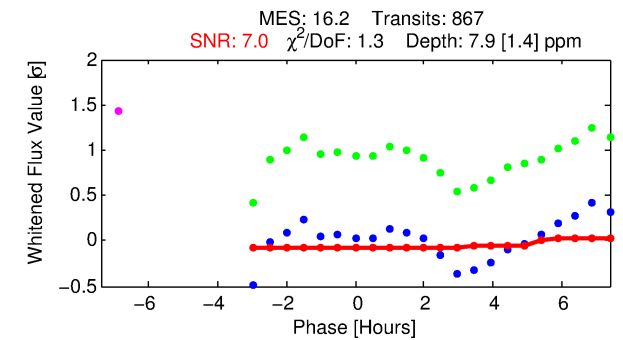
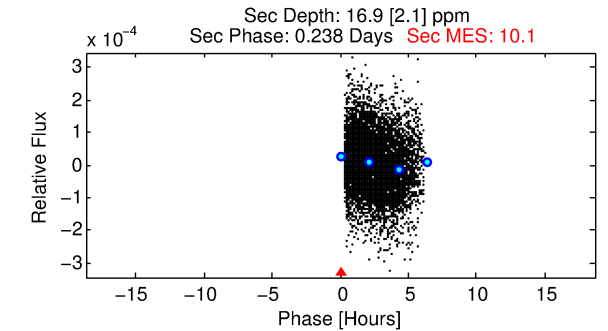
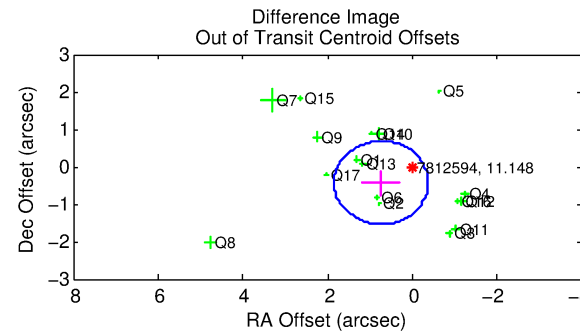
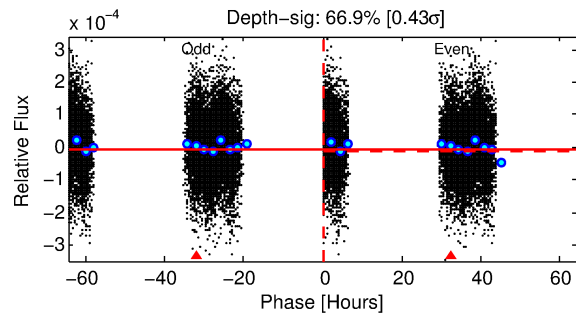
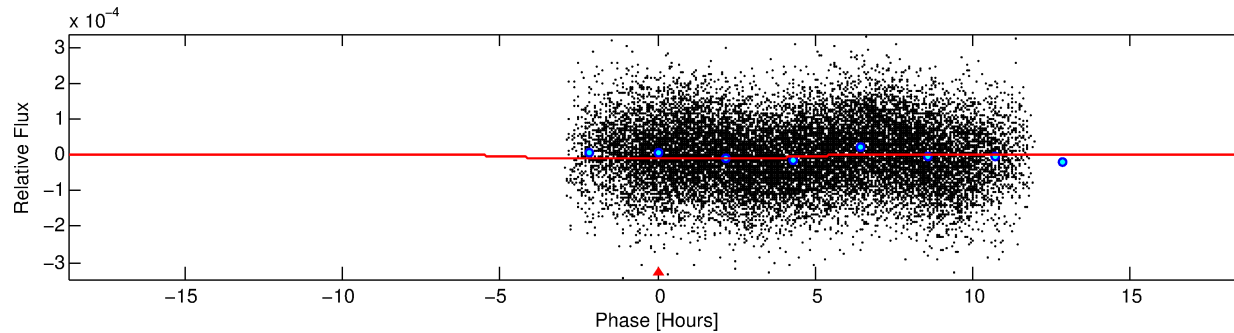
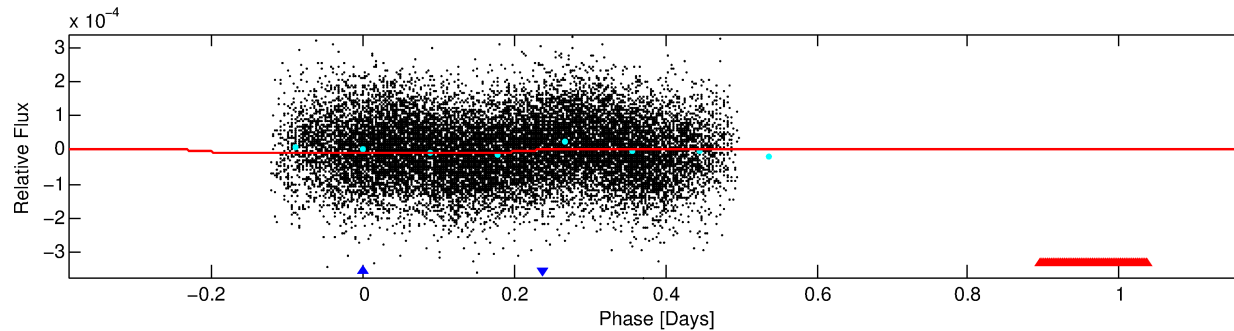
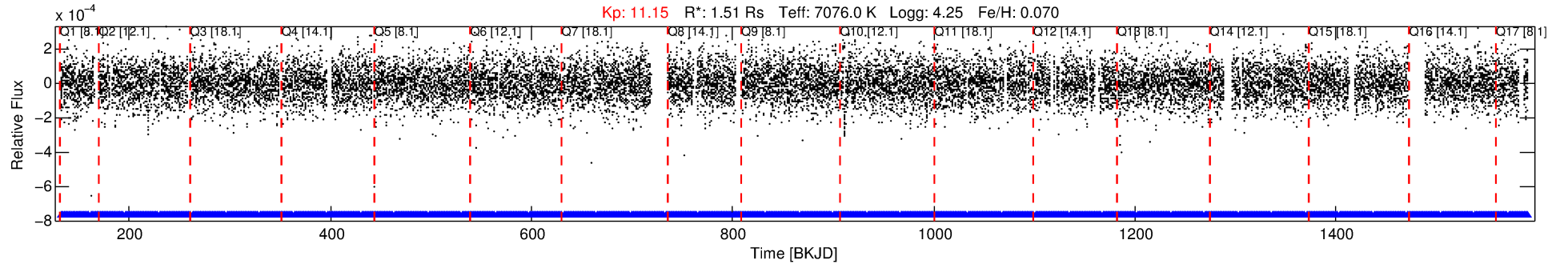
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007812594-02

No Significant Match Found

DV One-Page Summary

KIC: 7812594 Candidate: 2 of 2 Period: 1.558 d



DV Fit Results:

Period = 1.55800 [0.00004] d
Epoch = 132.1332 [0.0329] BKJD
Rp/R* = 0.0027 [0.0025]
a/R* = 1.21 [2.13]
b = 0.53 [7.65]
Seff = 5718.36 [2622.65]
Teq = 2217 [254] K
Rp = 0.44 [0.44] Re
a = 0.0299 [0.0087] AU
Ag = 42.74 [82.96] [0.50 σ]
Teffp = 8766 [4176] K [1.57 σ]

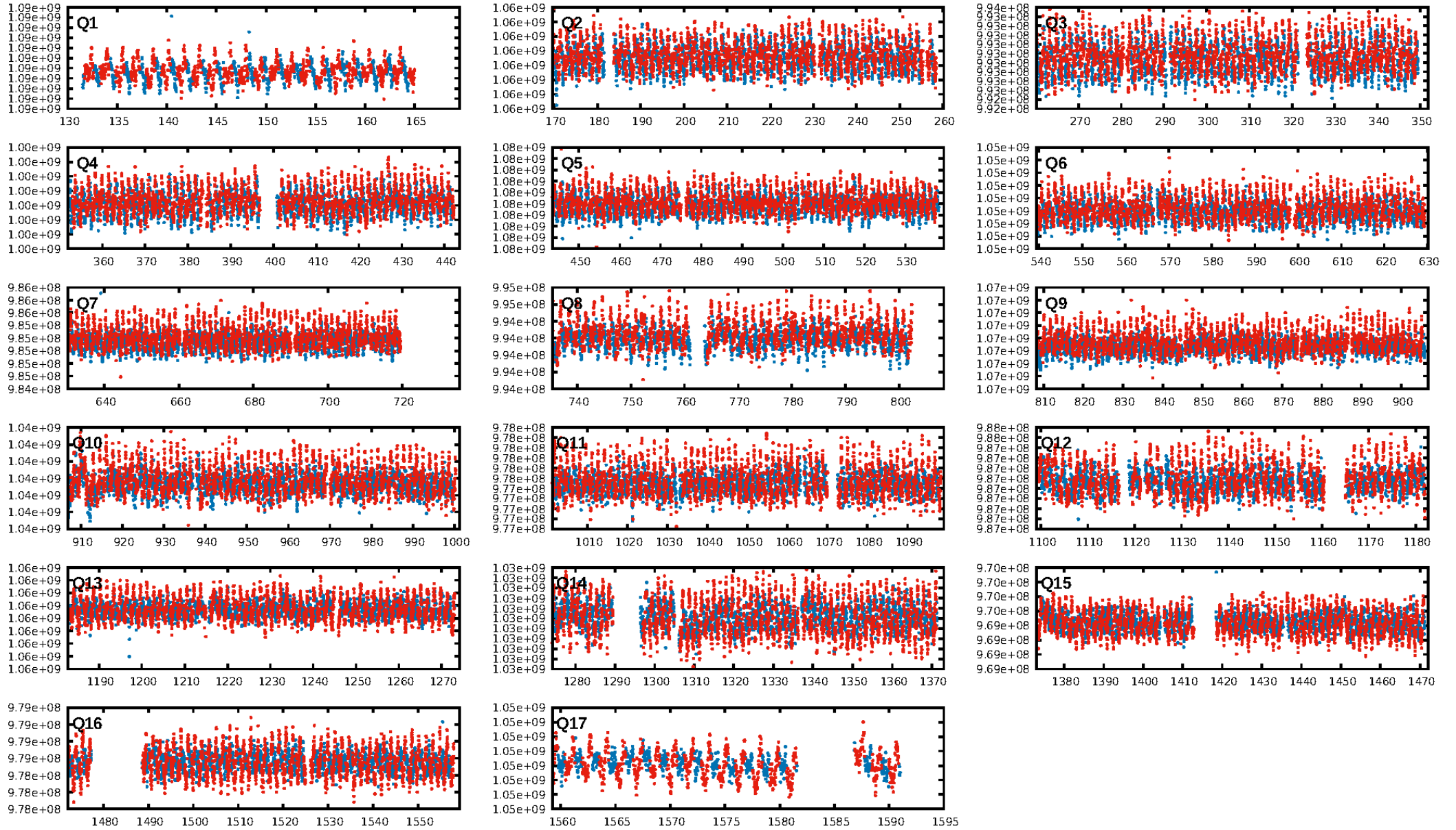
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [827/827]
GhostDiagnostic-chr: 6.284
Centroid-sig: 0.0%
Centroid-so: 2.679 arcsec [3.36 σ]
OotOffset-rm: 0.851 arcsec [2.30 σ]
KicOffset-rm: 0.766 arcsec [1.78 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.71 [12/17]
DiffImageOverlap-fno: 0.00 [0/17]

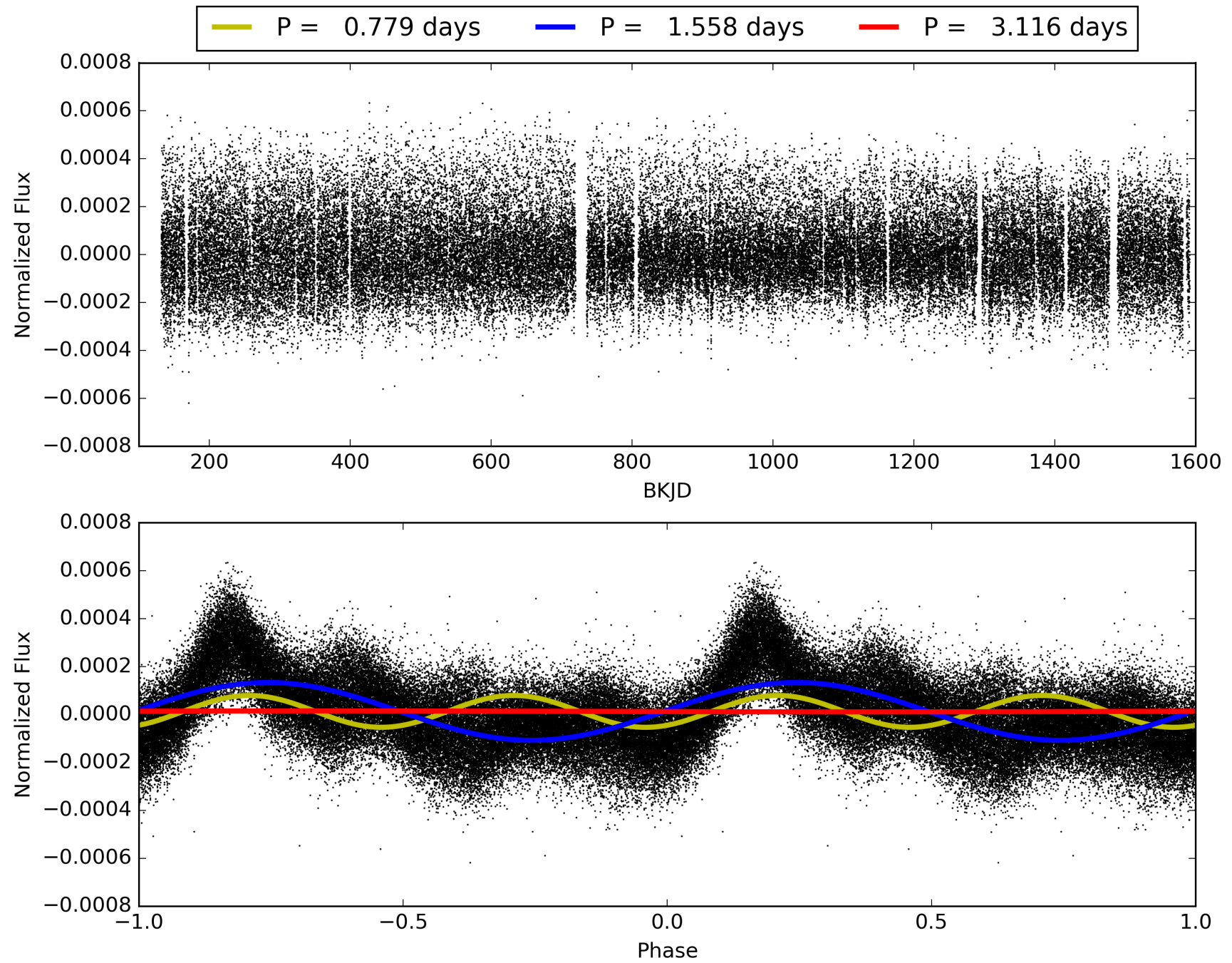
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 07:42:15 Z

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

TCE 007812594-02, PDC Light Curves

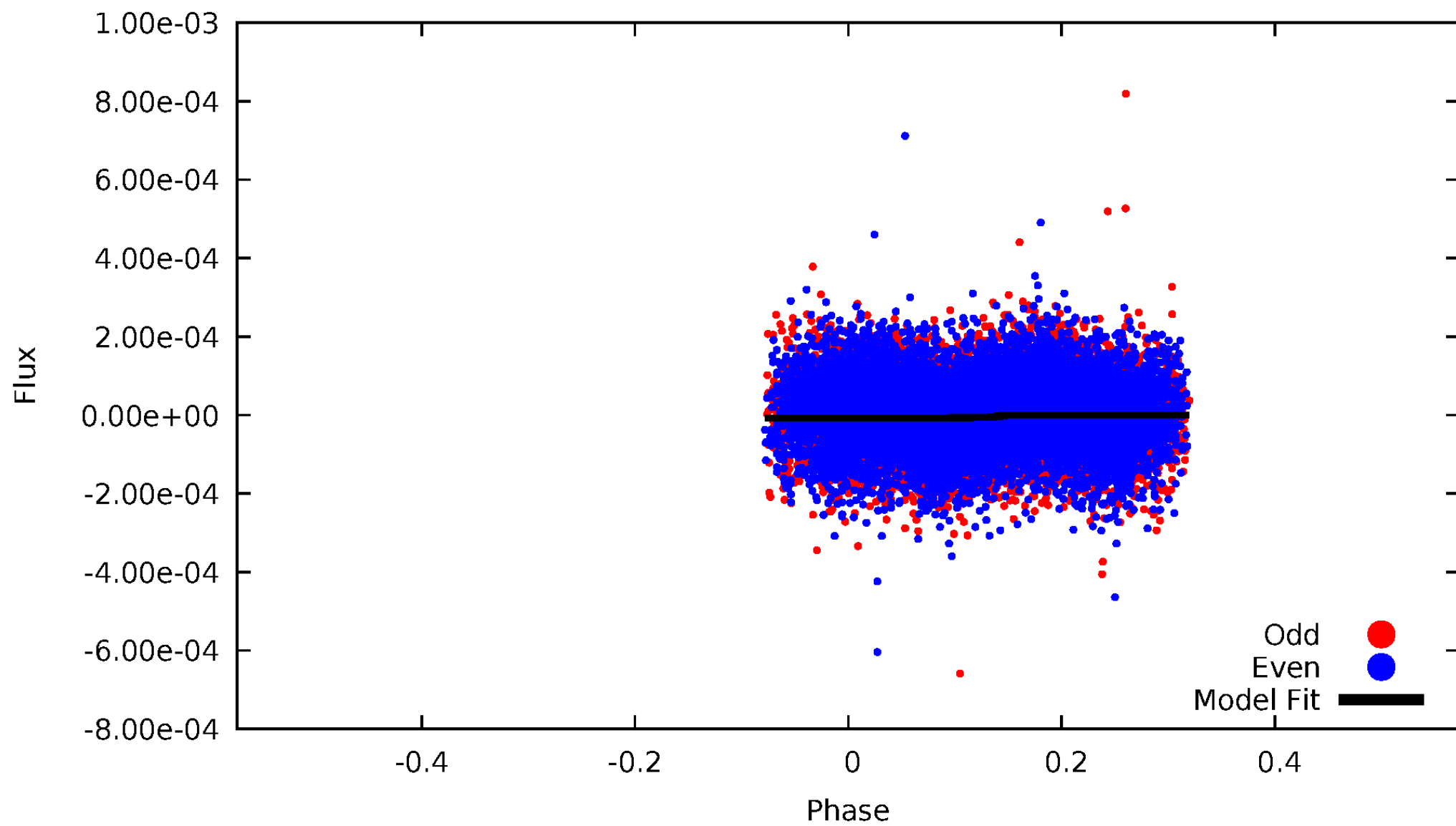


TCE 007812594-02



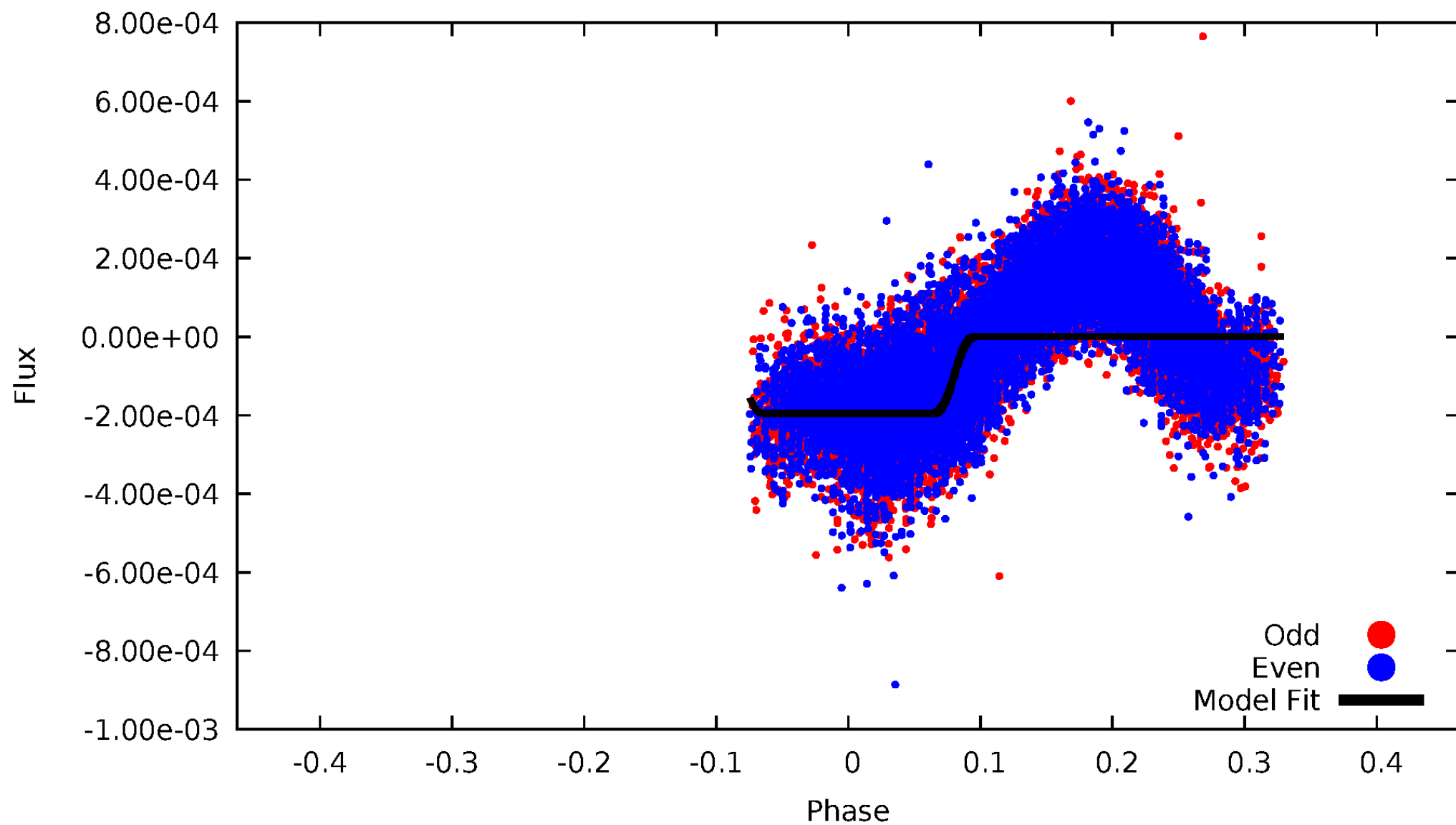
DV Odd/Even

TCE 007812594-02



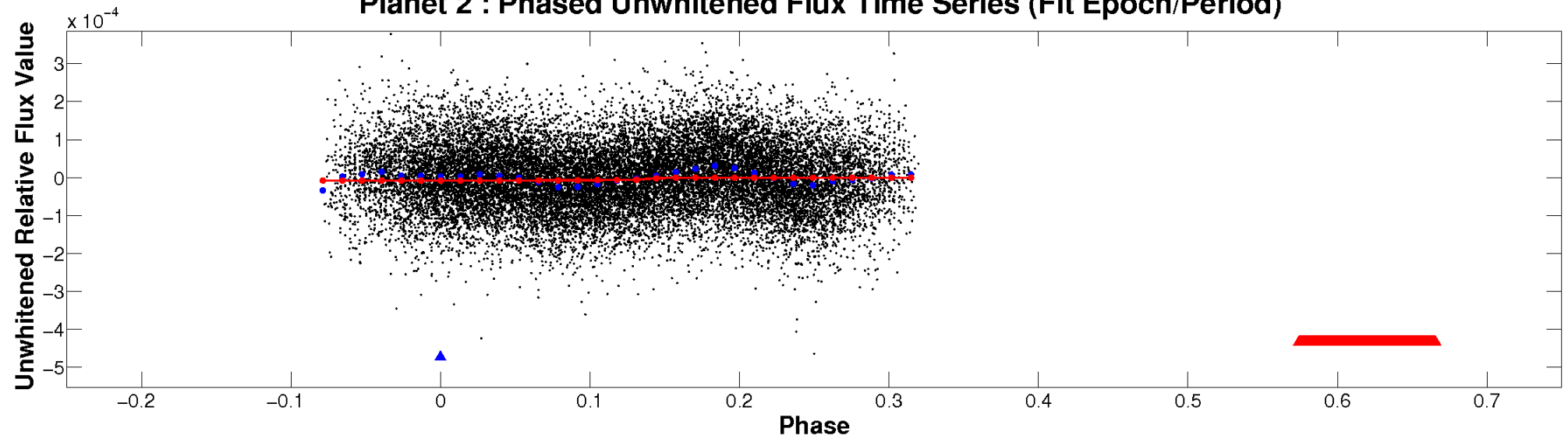
ALT Odd/Even

TCE 007812594-02

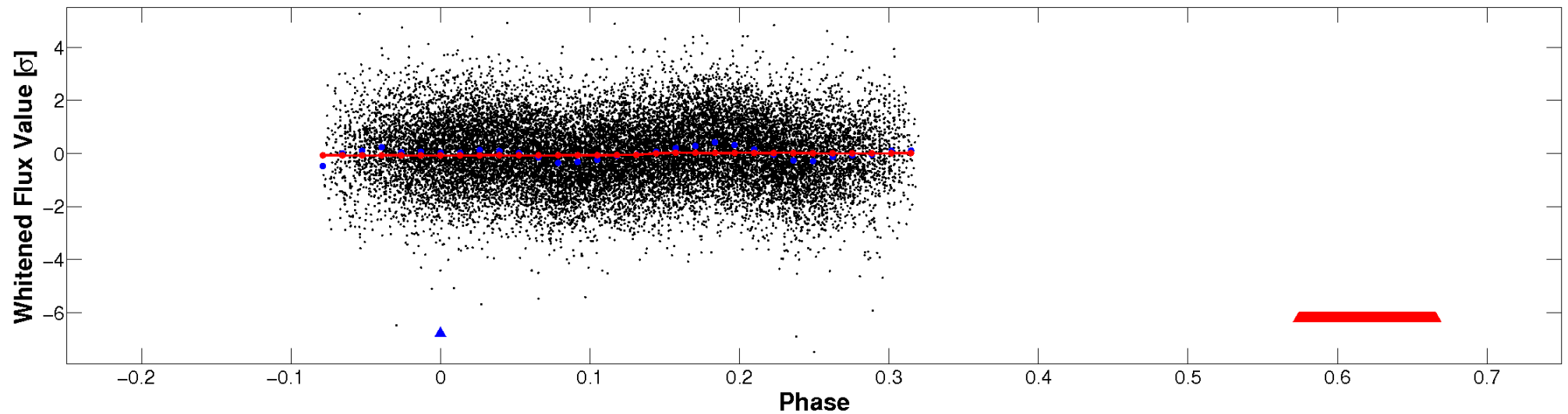


Non-Whitened Vs. Whitened Light Curve

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

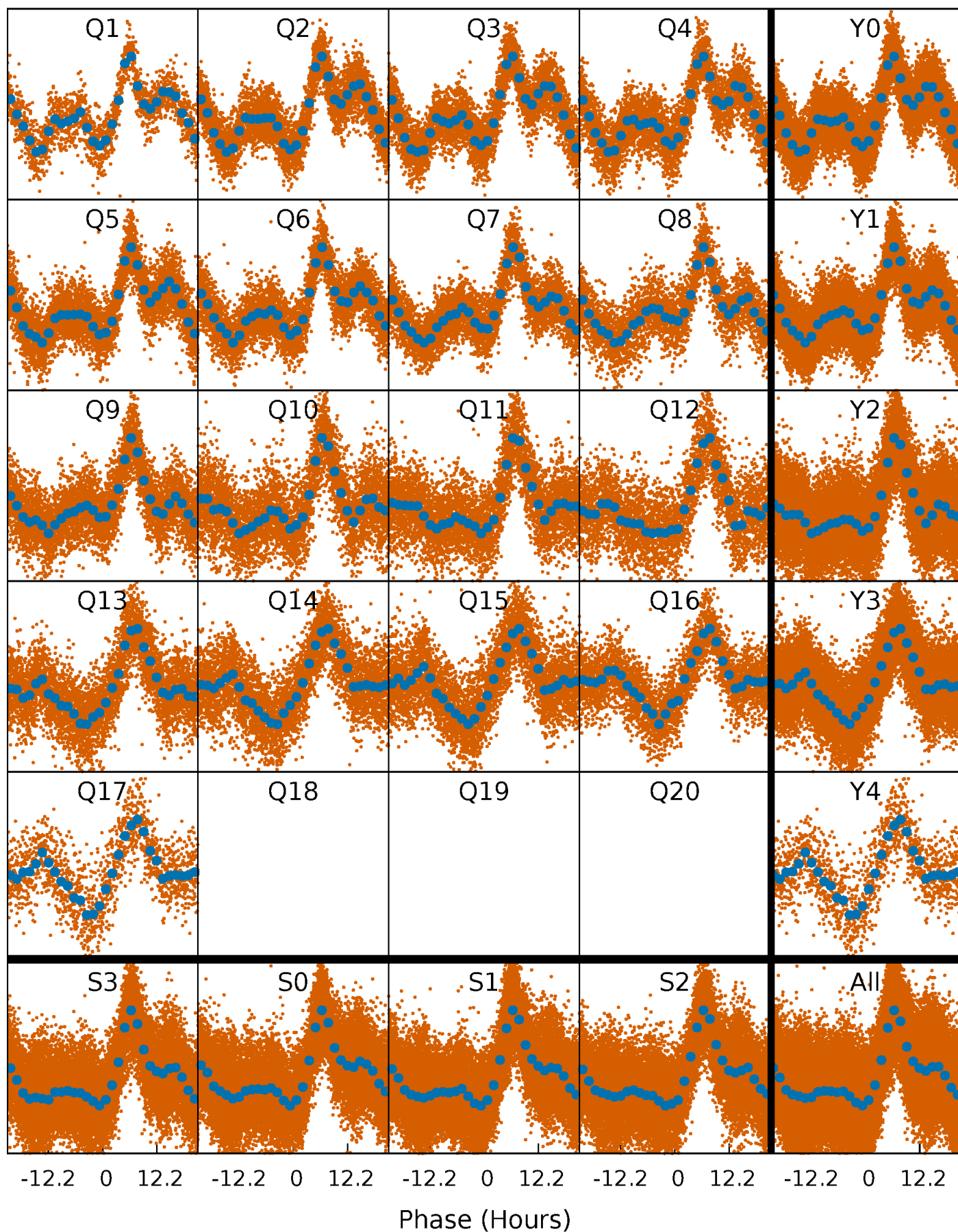


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



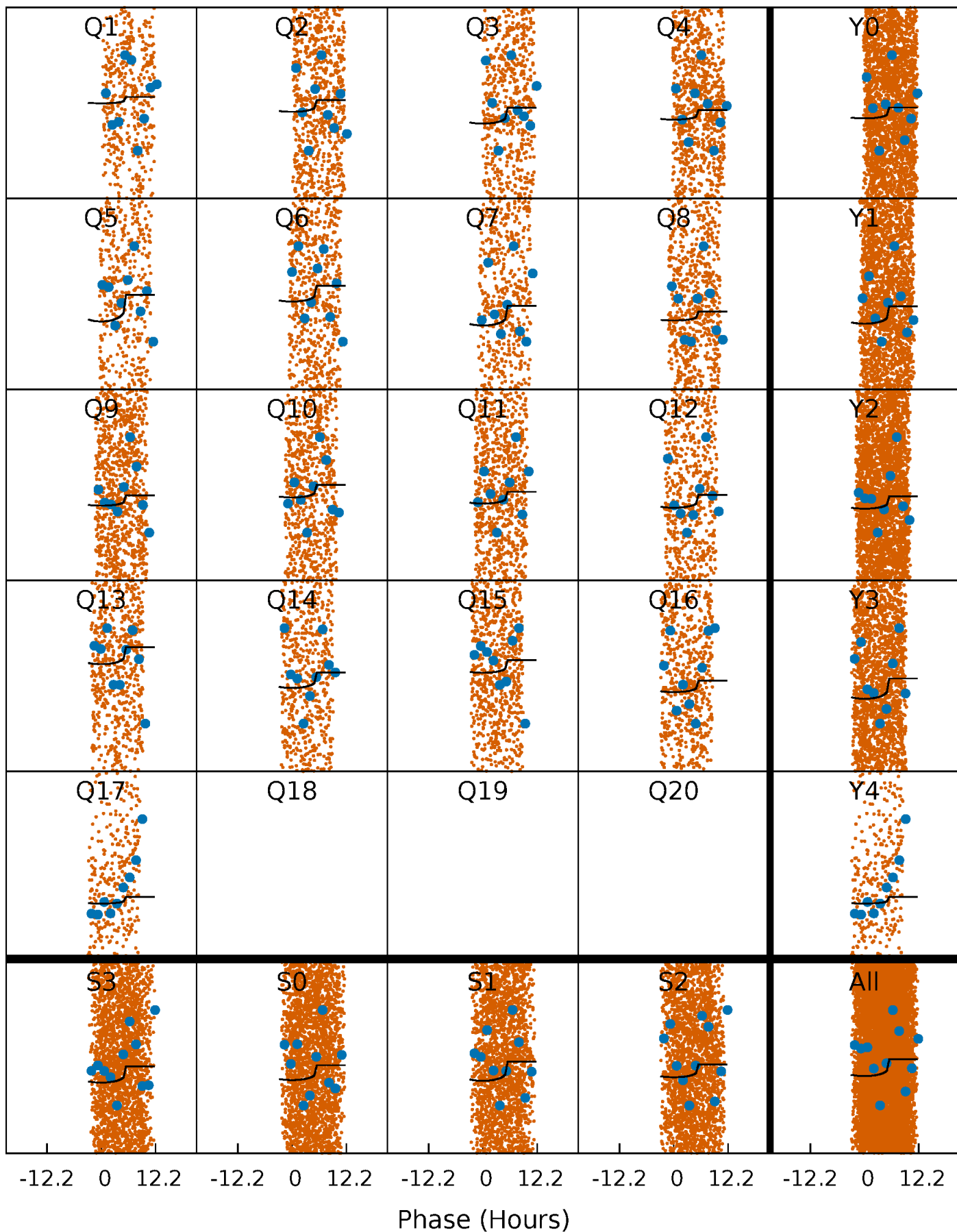
PDC Quarter-Phased Transit Curves

TCE 007812594-02 P= 1.558005 Days $T_0=132.133200$ (BKJD)



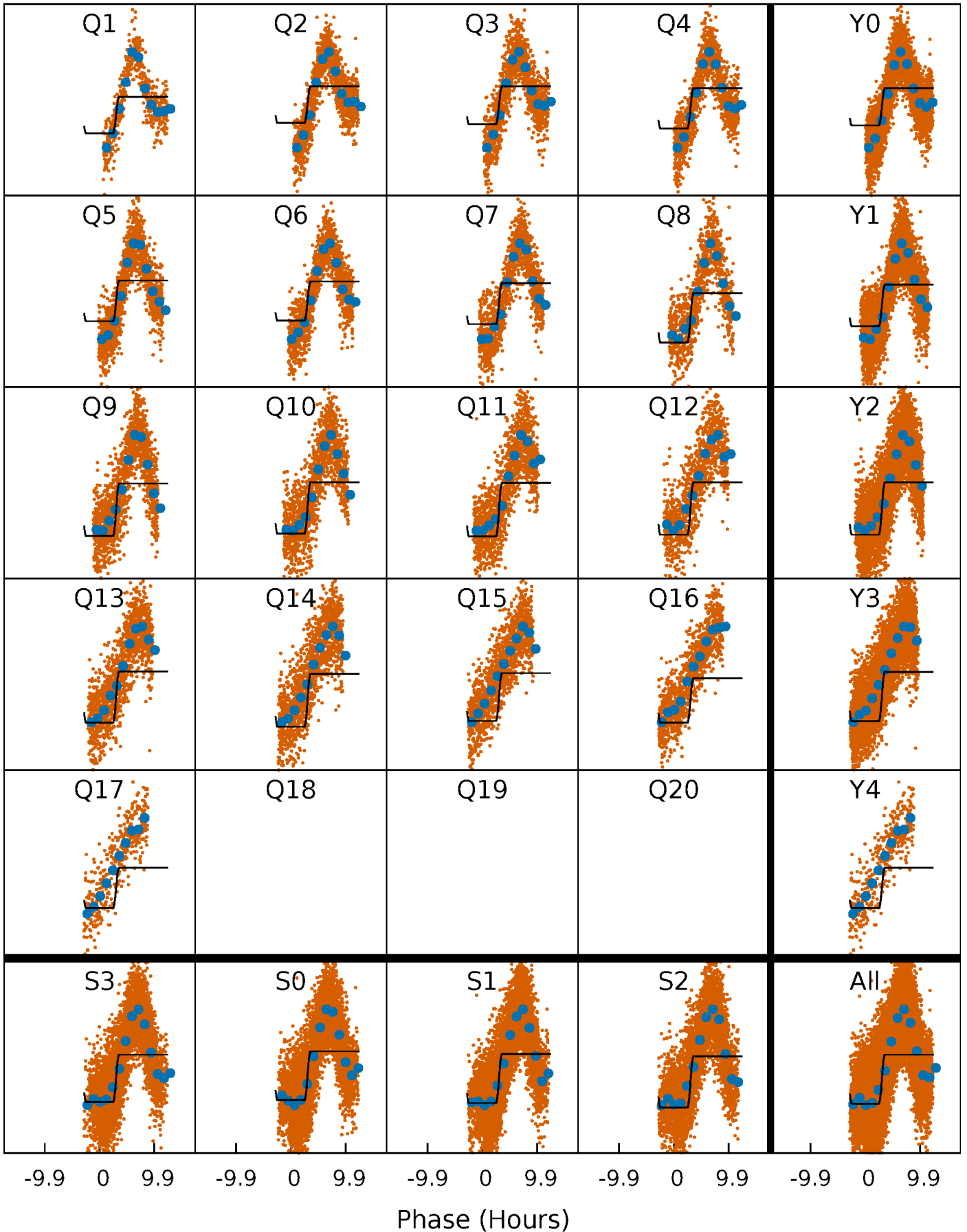
DV Quarter-Phased Transit Curves

TCE 007812594-02 P= 1.558005 Days $T_0=132.133200$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

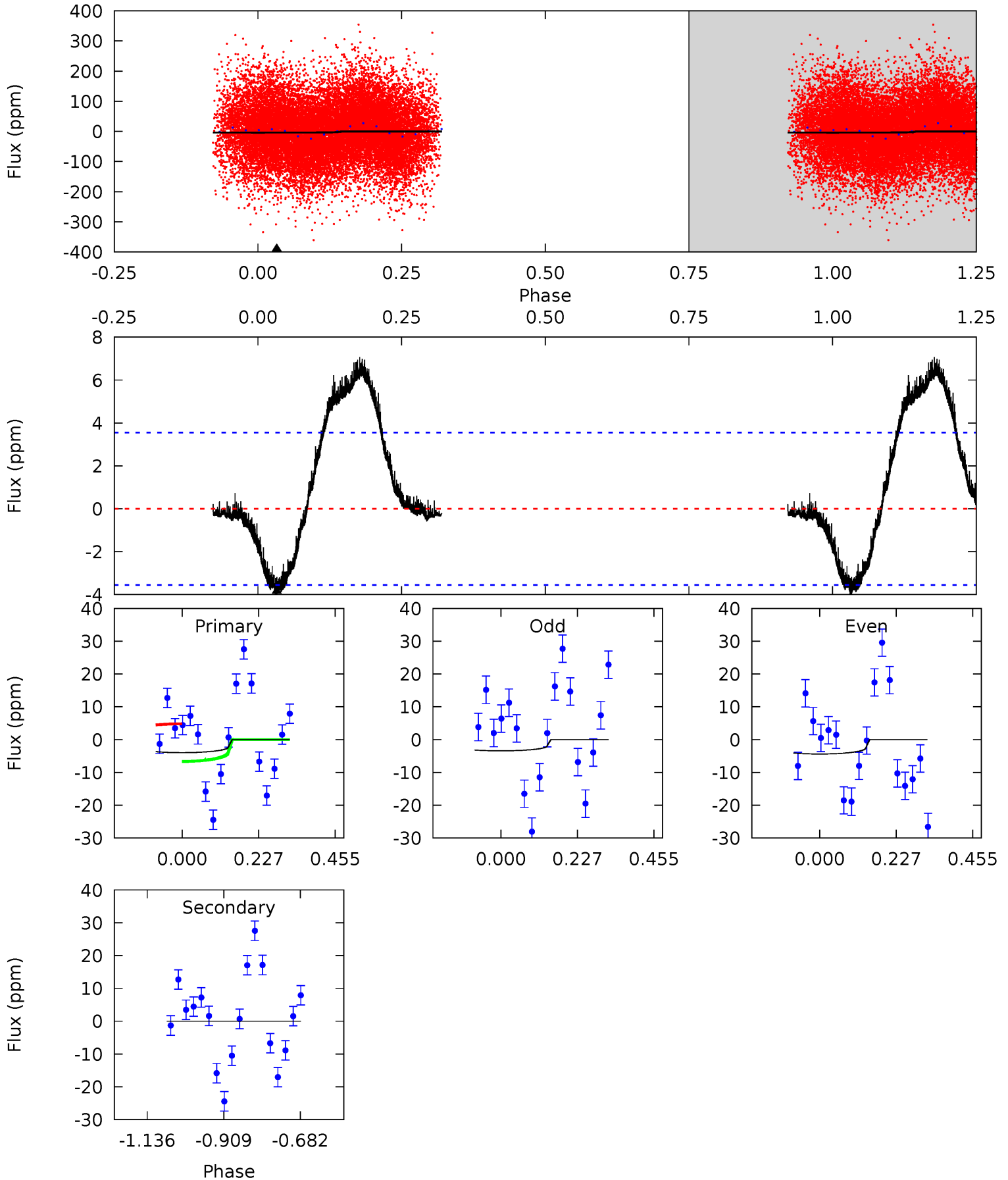
TCE 007812594-02 P= 1.558015 Days $T_0=132.118088$ (BKJD)



DV Model-Shift Uniqueness Test

007812594-02, P = 1.558005 Days, E = 132.133200 Days

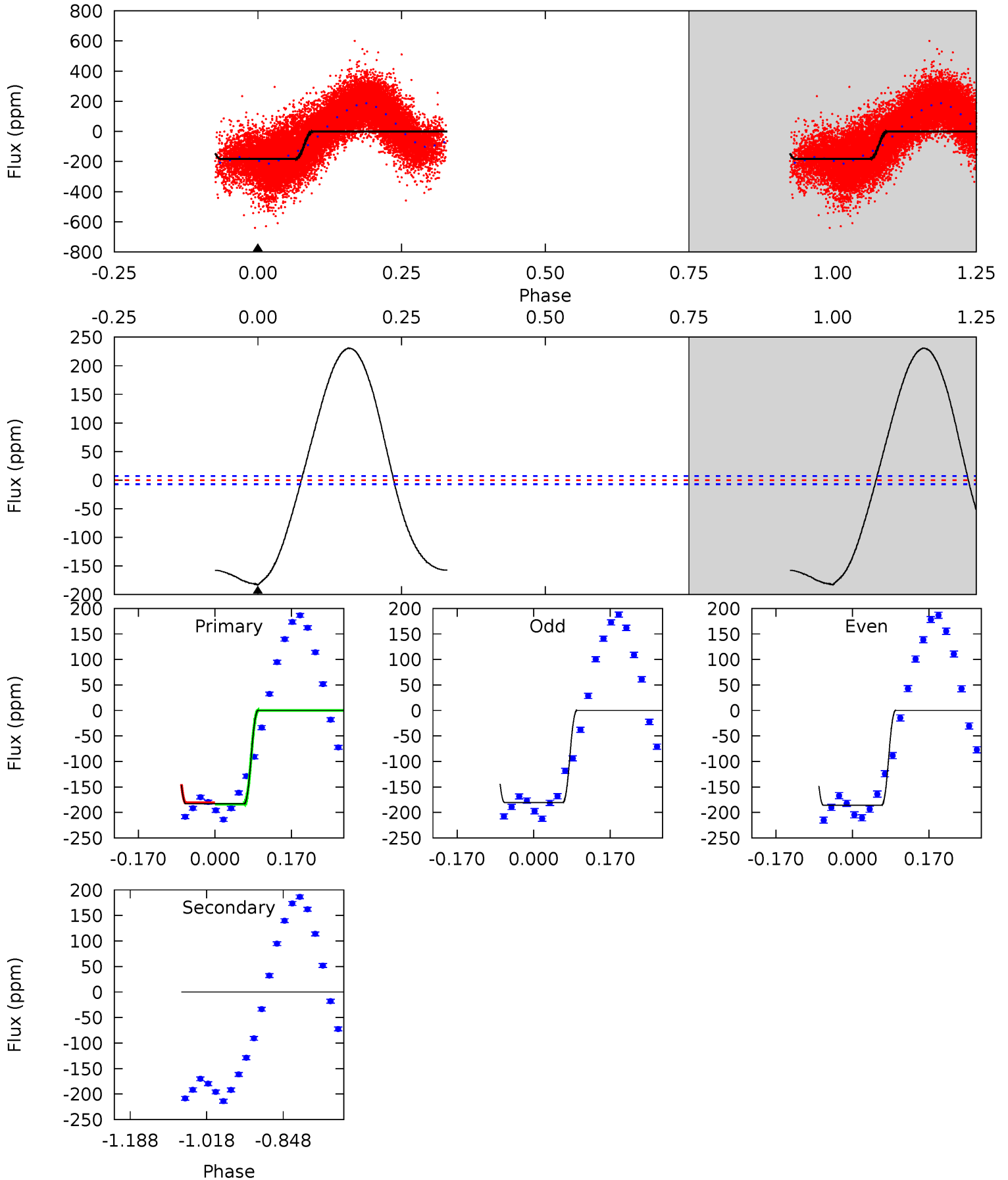
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.92	0	0	0	4.39	1.21	0.34	4.92	4.92	0	0	0.61	1.07	0.64	0.87



Alt Model-Shift Uniqueness Test

007812594-02, P = 1.558015 Days, E = 132.118088 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
112.0	0	0	0	4.45	1.37	64.9	112.0	112.0	0	0	1.60	1.07	0.56	0.83



Stellar Parameters For KIC 007812594

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7076^{+197}_{-338}	$4.248^{+0.075}_{-0.225}$	$0.070^{+0.200}_{-0.350}$	$1.510^{+0.529}_{-0.227}$	$1.473^{+0.214}_{-0.214}$	$0.603^{+0.248}_{-0.332}$
	+3%/-5%	+2%/-5%	+286%/-500%	+35%/-15%	+15%/-15%	+41%/-55%
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 007812594-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1	$0.56^{+0.41}_{-0.35}$	3145^{+247}_{-186}	-3069^{+7339}_{-1214}	$0.060^{+2.119}_{-1.520}$
Alt.	0 ± 2	$2.41^{+0.60}_{-0.49}$	3150^{+268}_{-182}	-3190^{+311}_{-253}	$-0.002^{+0.141}_{-0.145}$

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 $A_{obs} \gg 1.0$

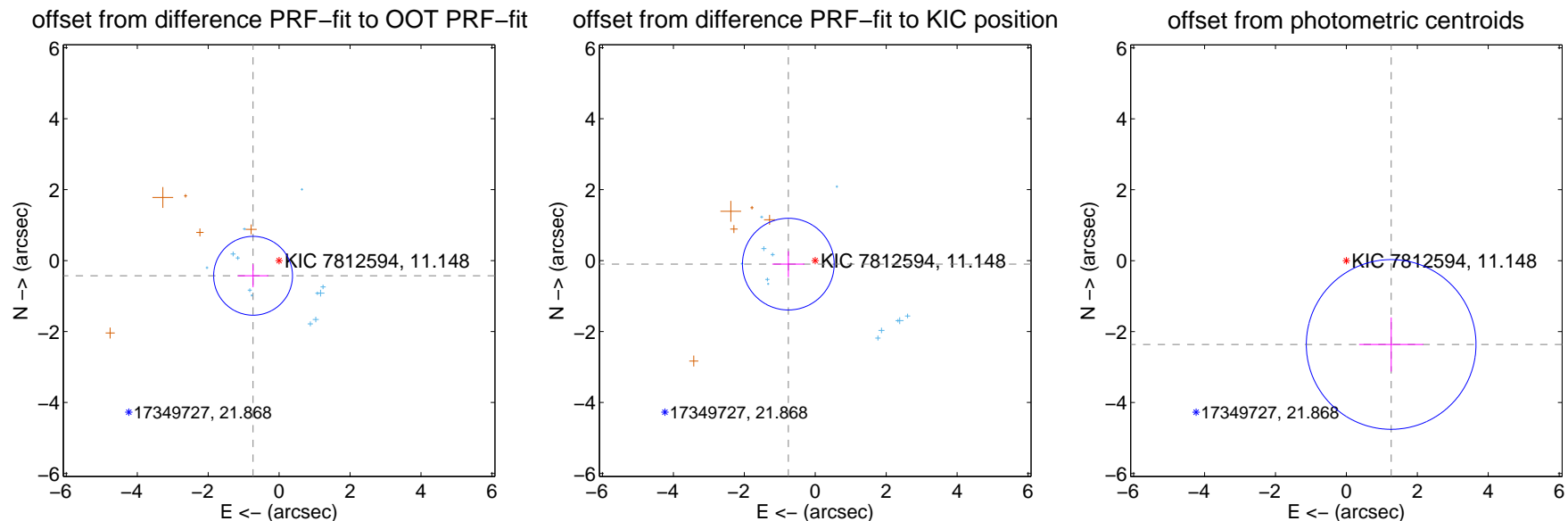
DV Centroid Data

Supplemental centroid analysis for 007812594-02. **Kepler magnitude: 11.15.** Transit SNR 6.96

There are 12 quarters with good PRF difference image offsets

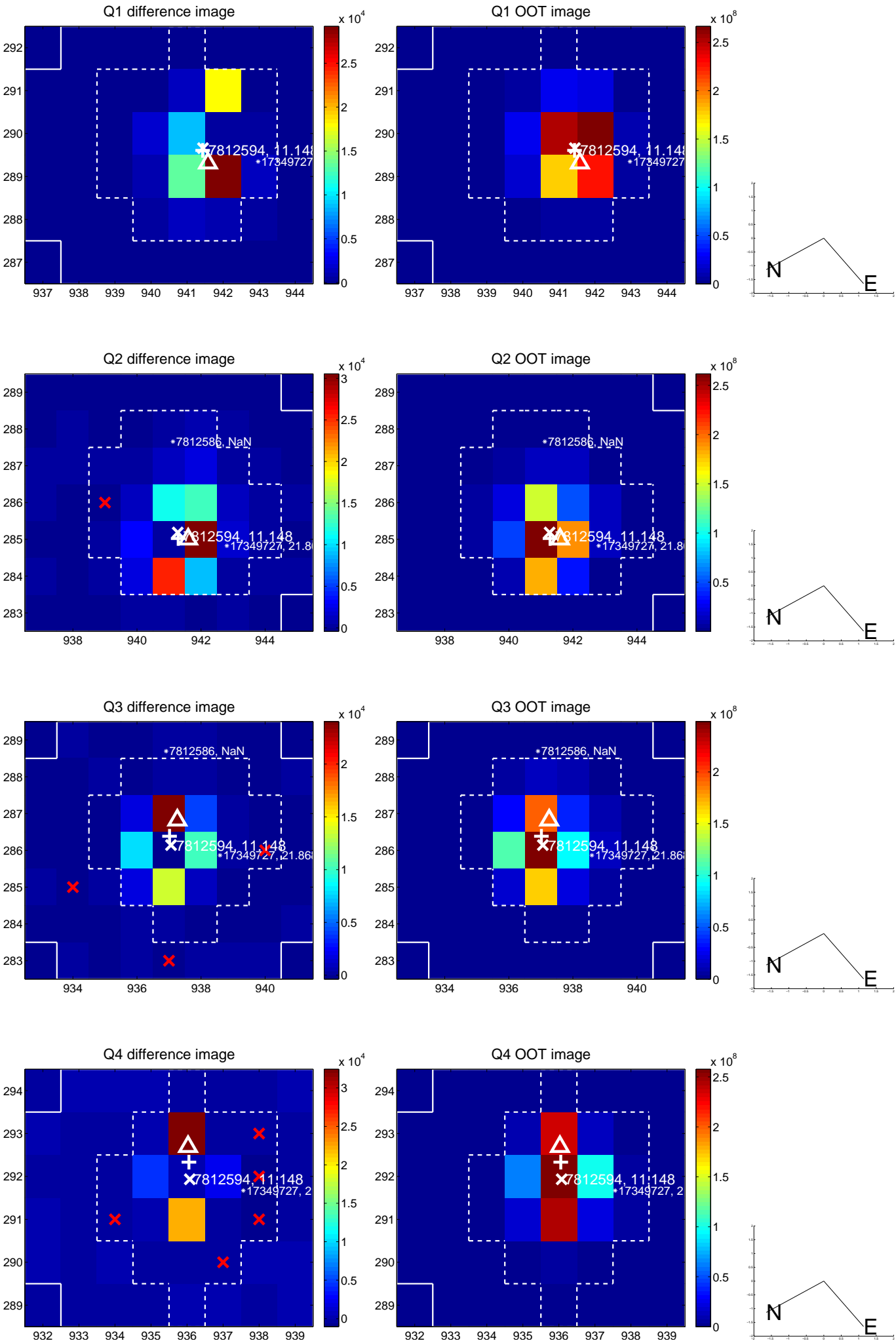
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.851 ± 0.370	2.30	0.735 ± 0.431	-0.428 ± 0.322
PRF-fit source offset from KIC position	0.766 ± 0.431	1.78	0.760 ± 0.452	-0.100 ± 0.364
photometric centroid source offset	2.68 ± 0.80	3.36	-1.26 ± 0.90	-2.36 ± 0.76

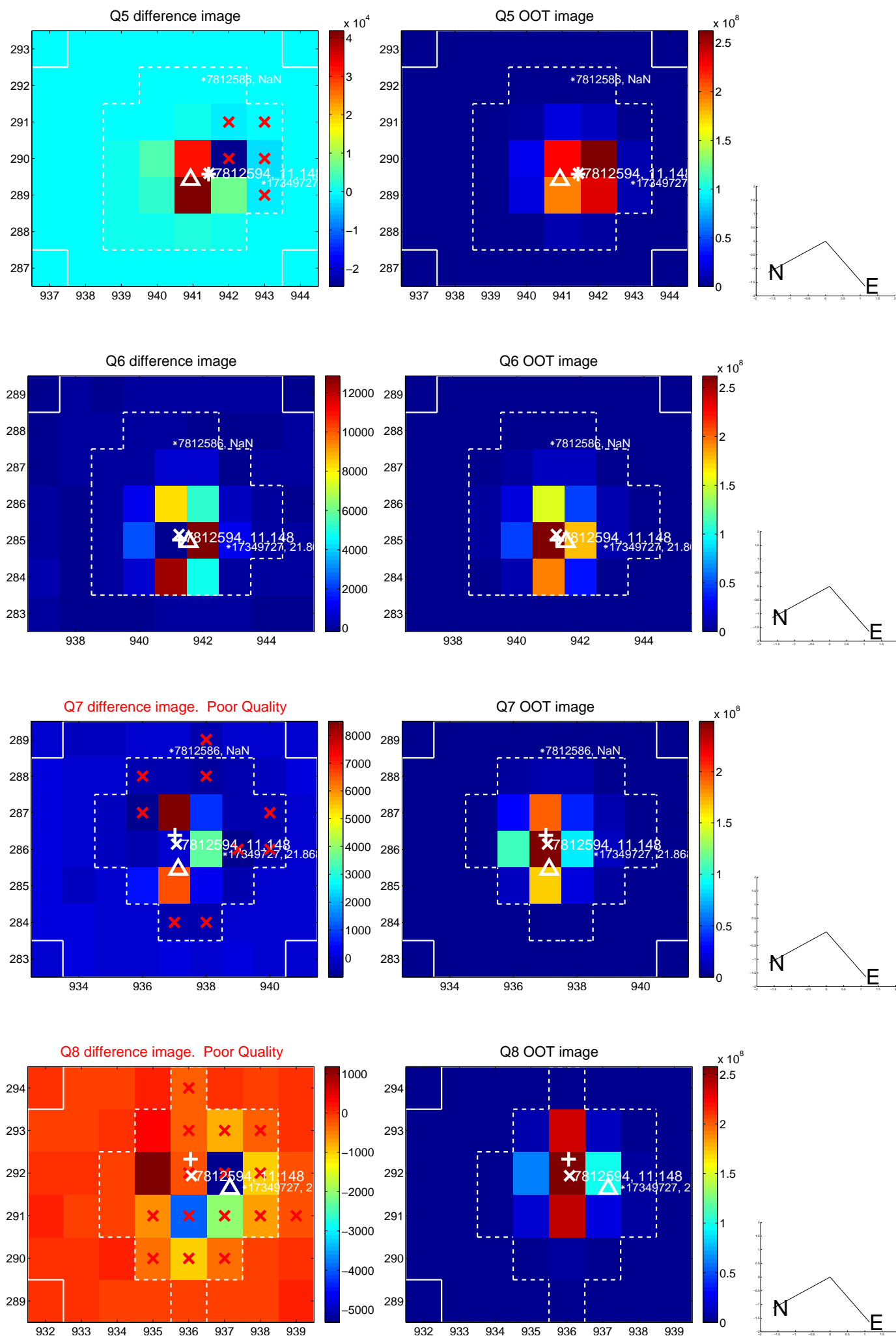


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

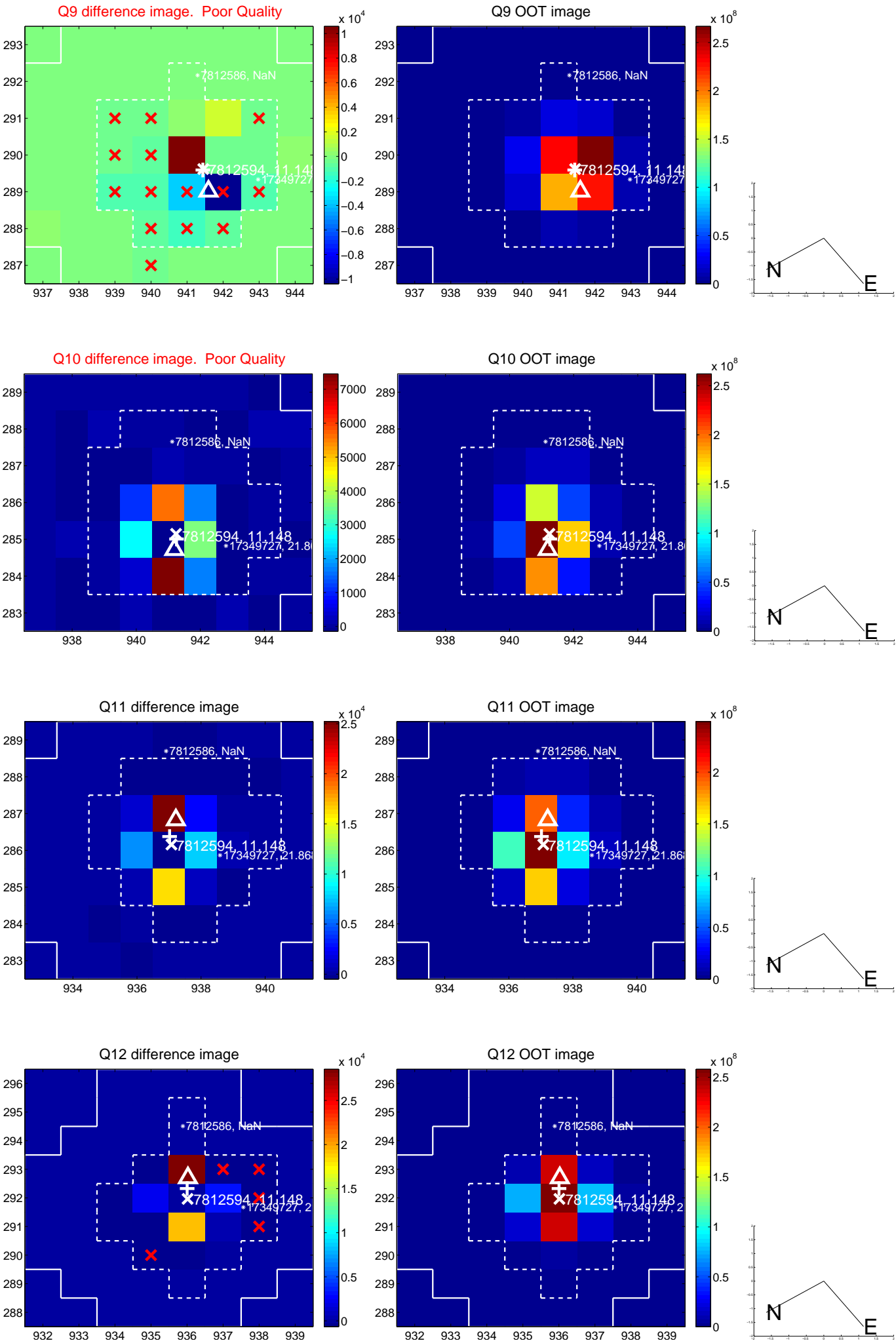
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



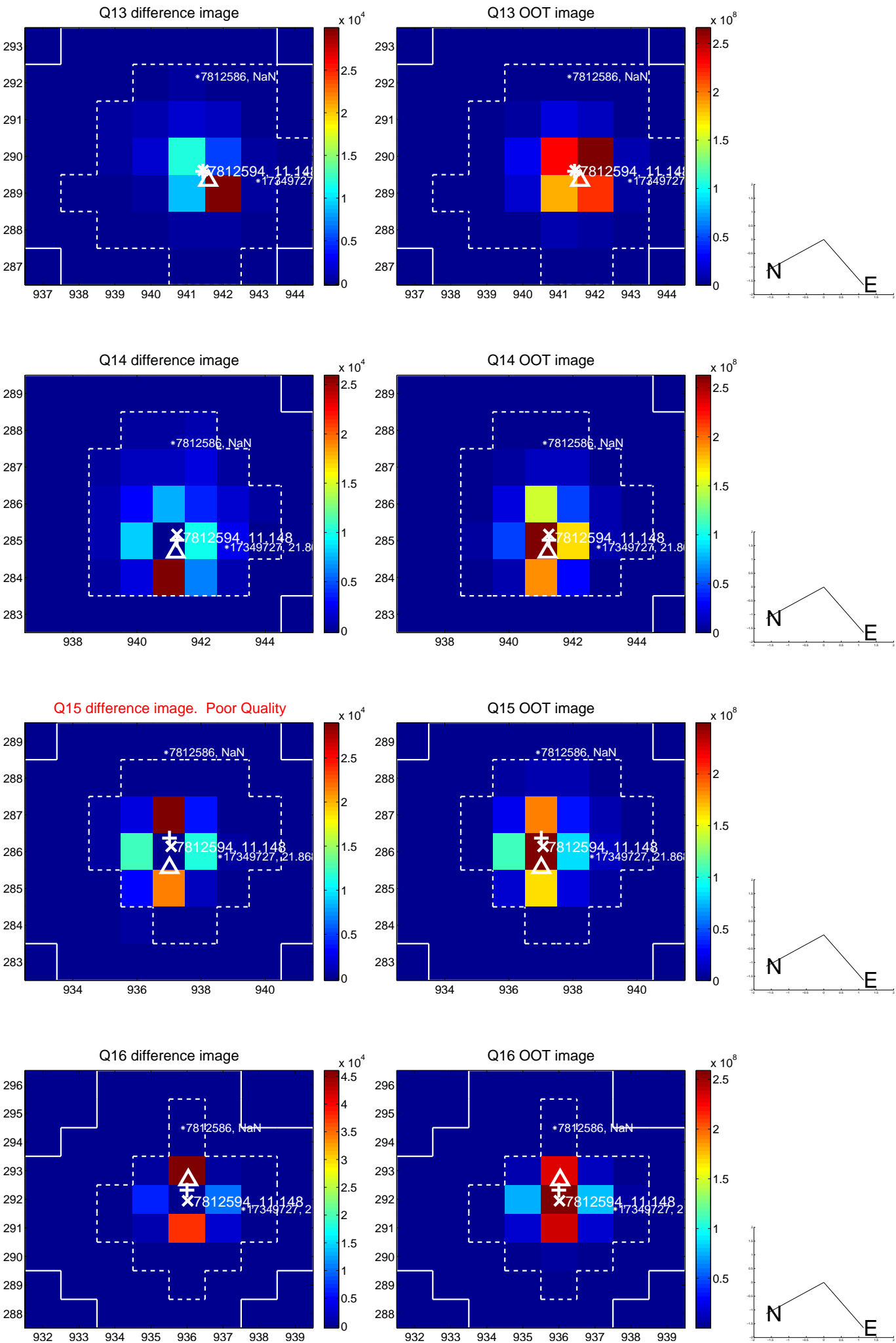
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



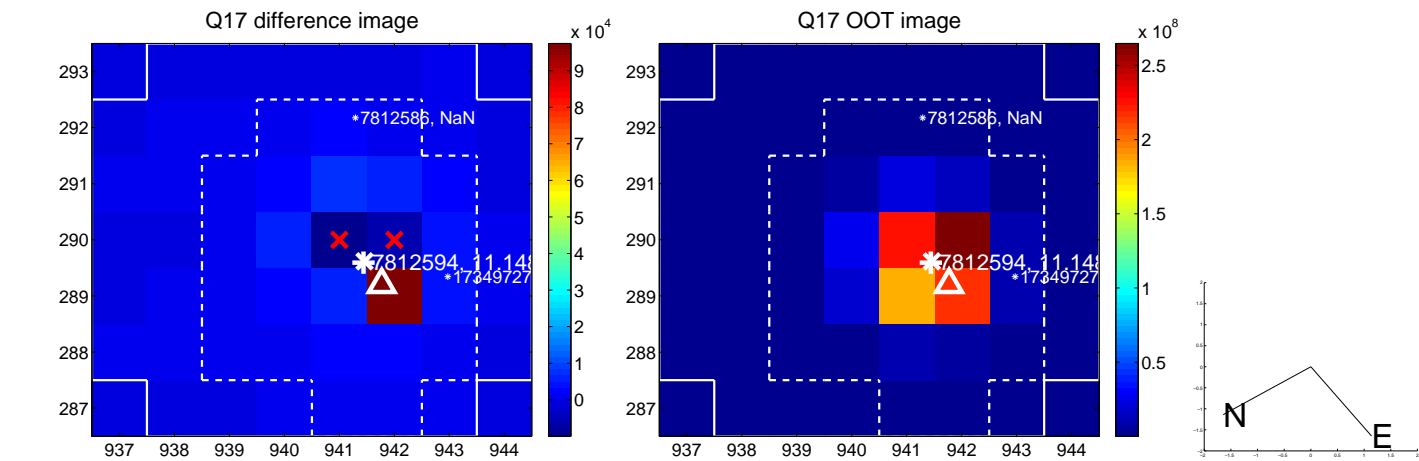
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



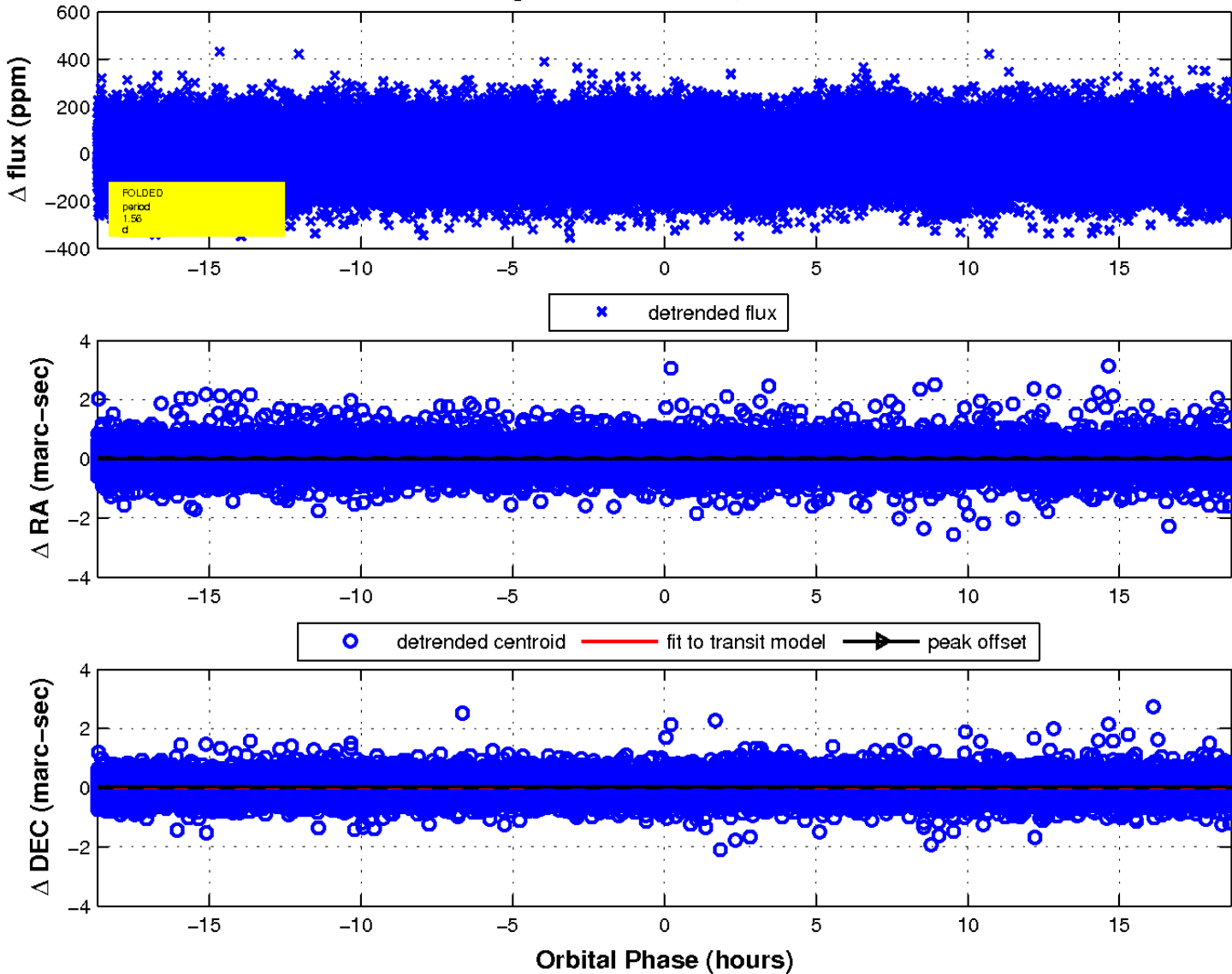
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

