

KIC 008495616

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})
008495616-01	OBS	No	1.389456	131.962836	19.9	5.037	8.9	7.1	1.43	6531	0.65	5201.31
008495616-02	OBS	No	258.717820	279.944220	370.3	15.040	9.5	9.3	1.43	6531	3.58	4.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008495616-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
008495616-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

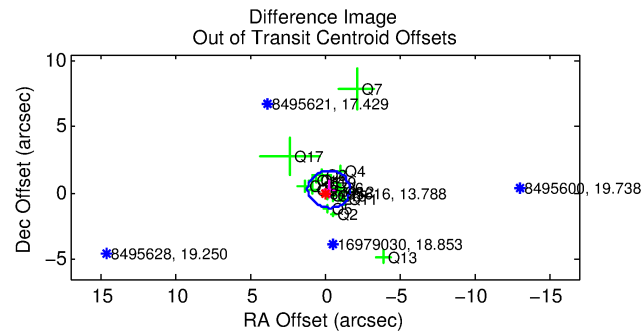
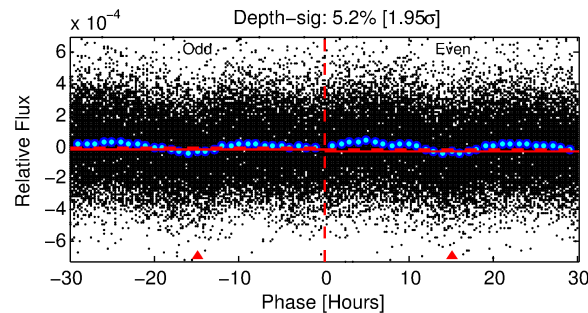
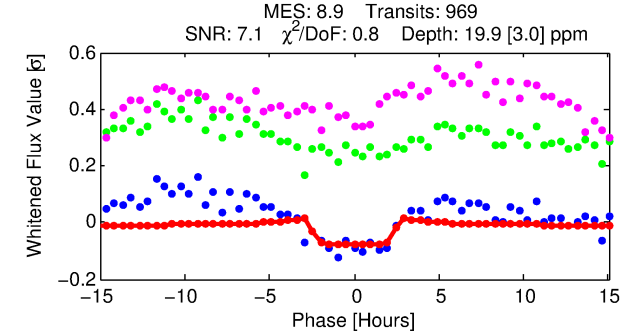
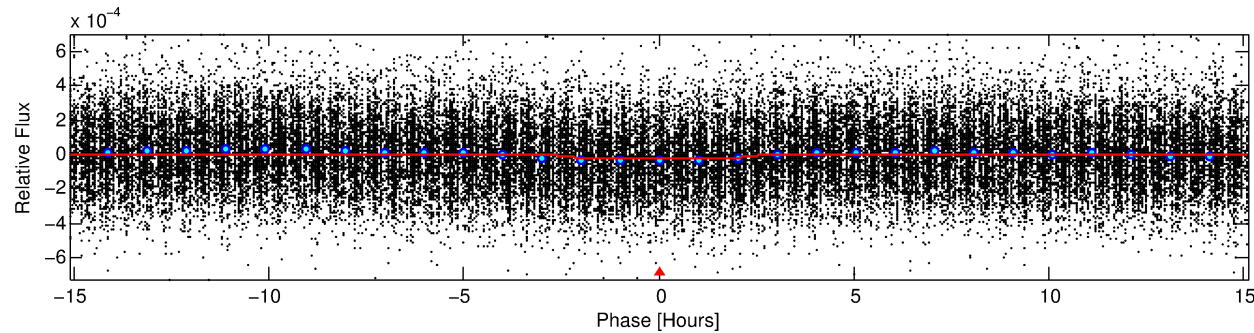
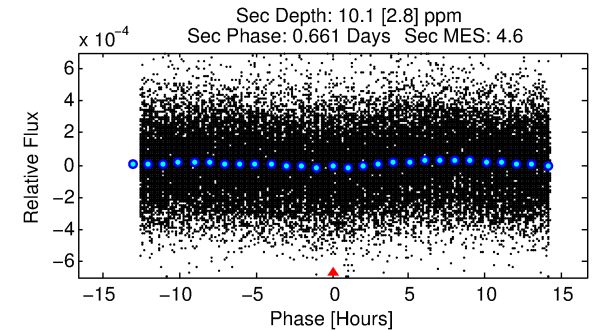
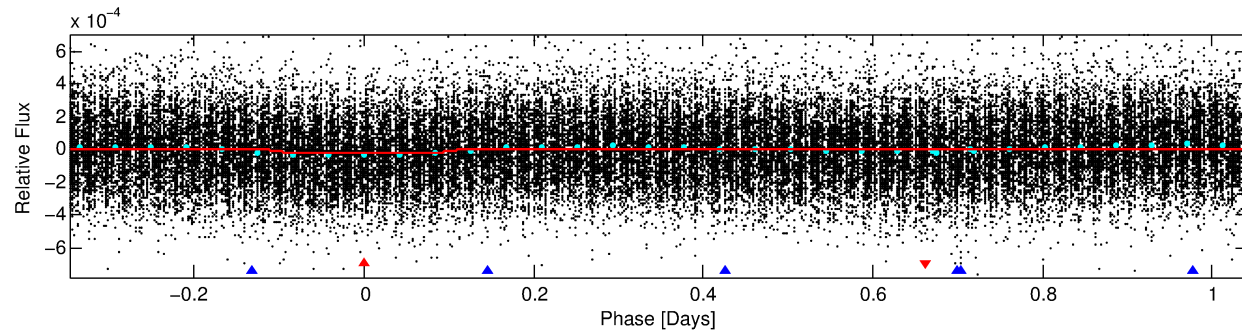
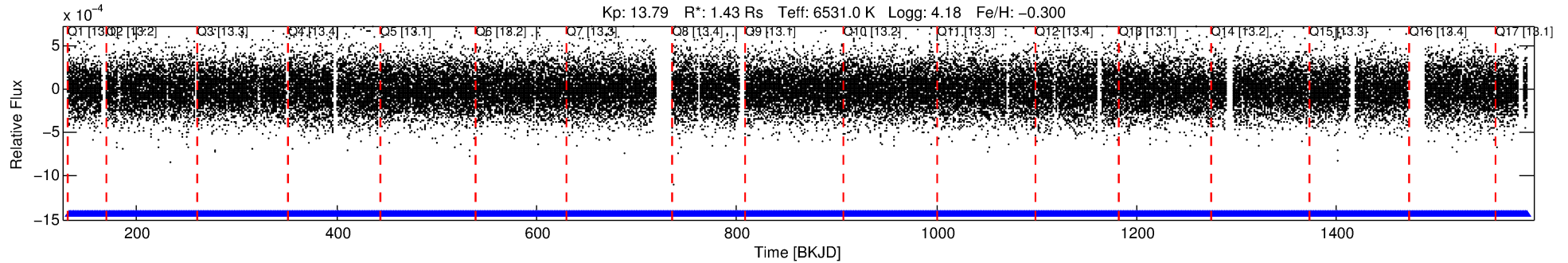
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008495616-01

No Significant Match Found

DV One-Page Summary

KIC: 8495616 Candidate: 1 of 2 Period: 1.389 d



DV Fit Results:

Period = 1.38946 [0.00002] d
Epoch = 131.9628 [0.0062] BKJD
Rp/R* = 0.0041 [0.0036]
a/R* = 2.14 [7.89]
b = 0.25 [17.42]
Seff = 5201.31 [1967.21]
Teq = 2165 [205] K
Rp = 0.65 [0.60] Re
a = 0.0253 [0.0062] AU
Ag = 8.55 [15.47] [0.49σ]
Teffp = 5725 [2548] K [1.39σ]

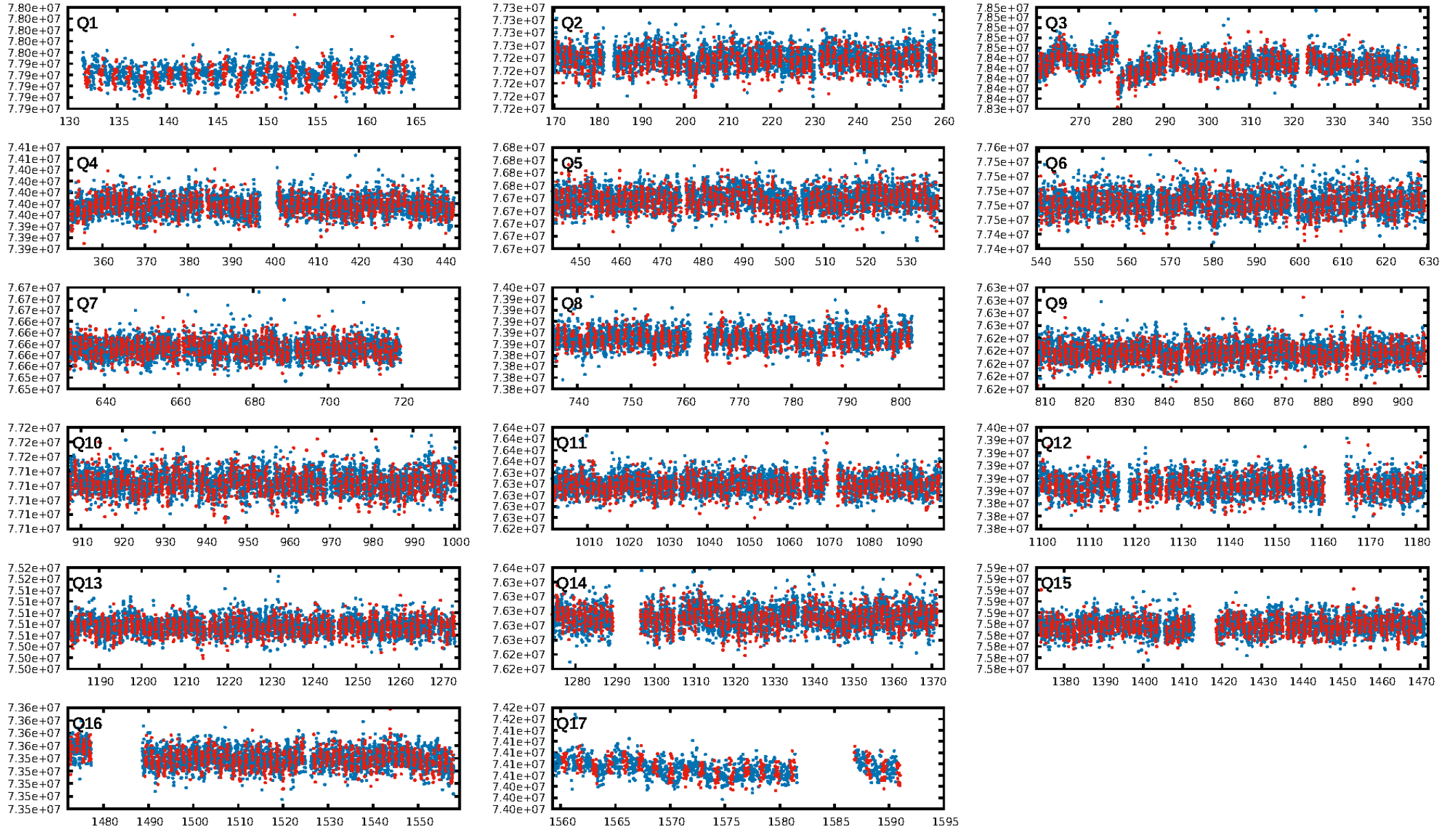
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [389.36σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.17e-16
RollingBand-fgt: 1.00 [925/925]
GhostDiagnostic-chr: 1.868
Centroid-sig: 8.9%
Centroid-so: 1.886 arcsec [1.38σ]
OotOffset-rm: 0.403 arcsec [0.85σ]
KicOffset-rm: 0.332 arcsec [0.88σ]
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]

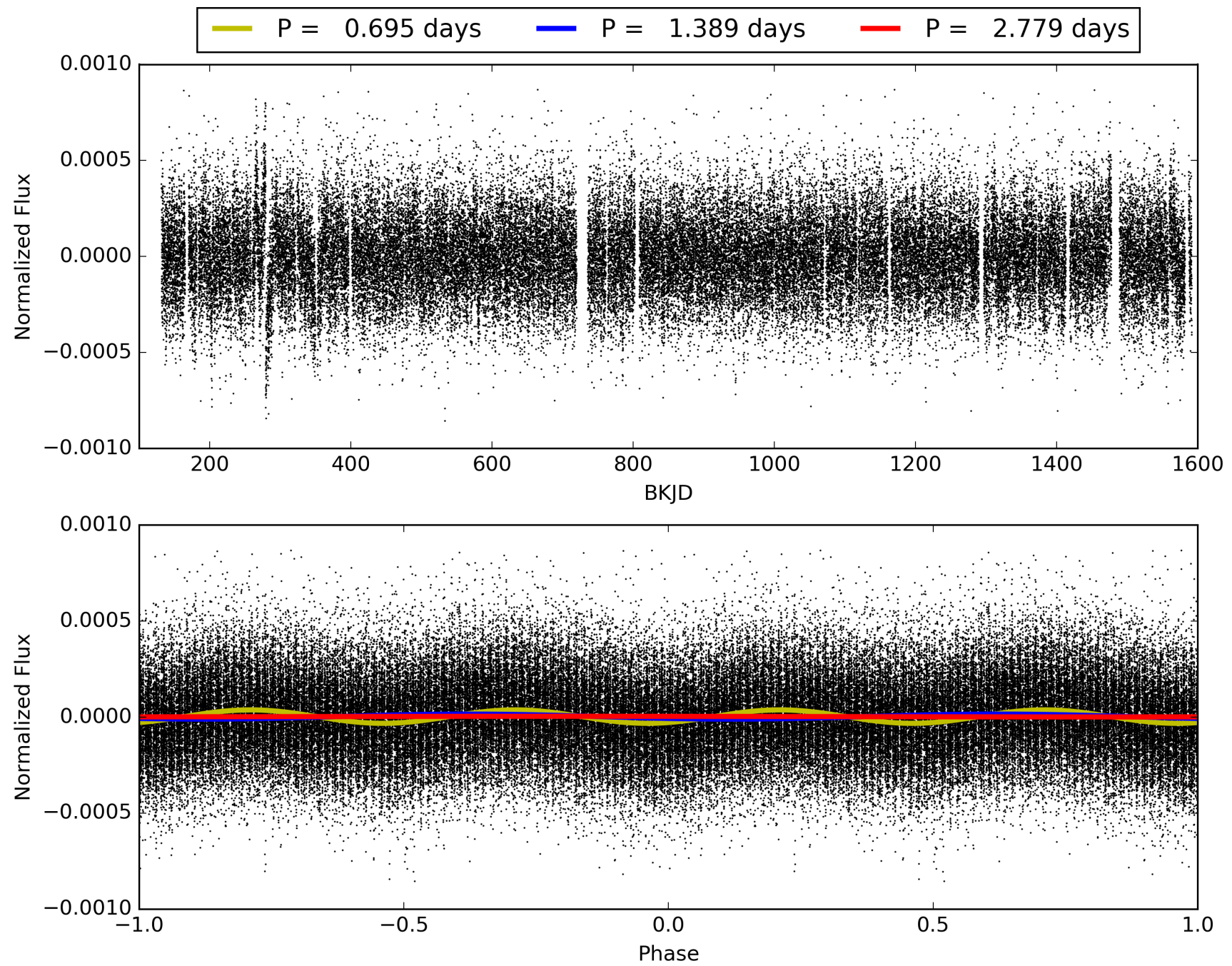
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008495616-01, PDC Light Curves

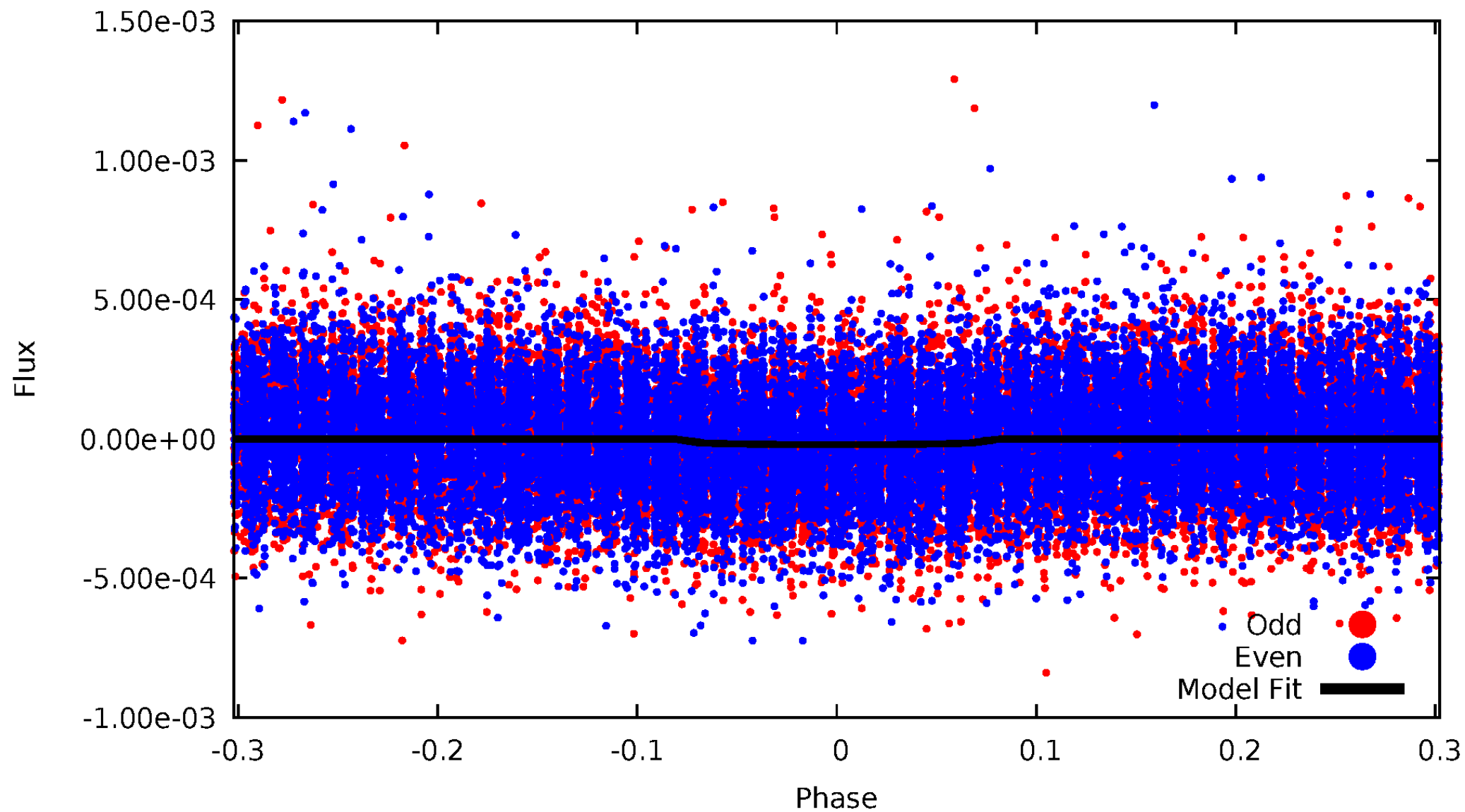


TCE 008495616-01



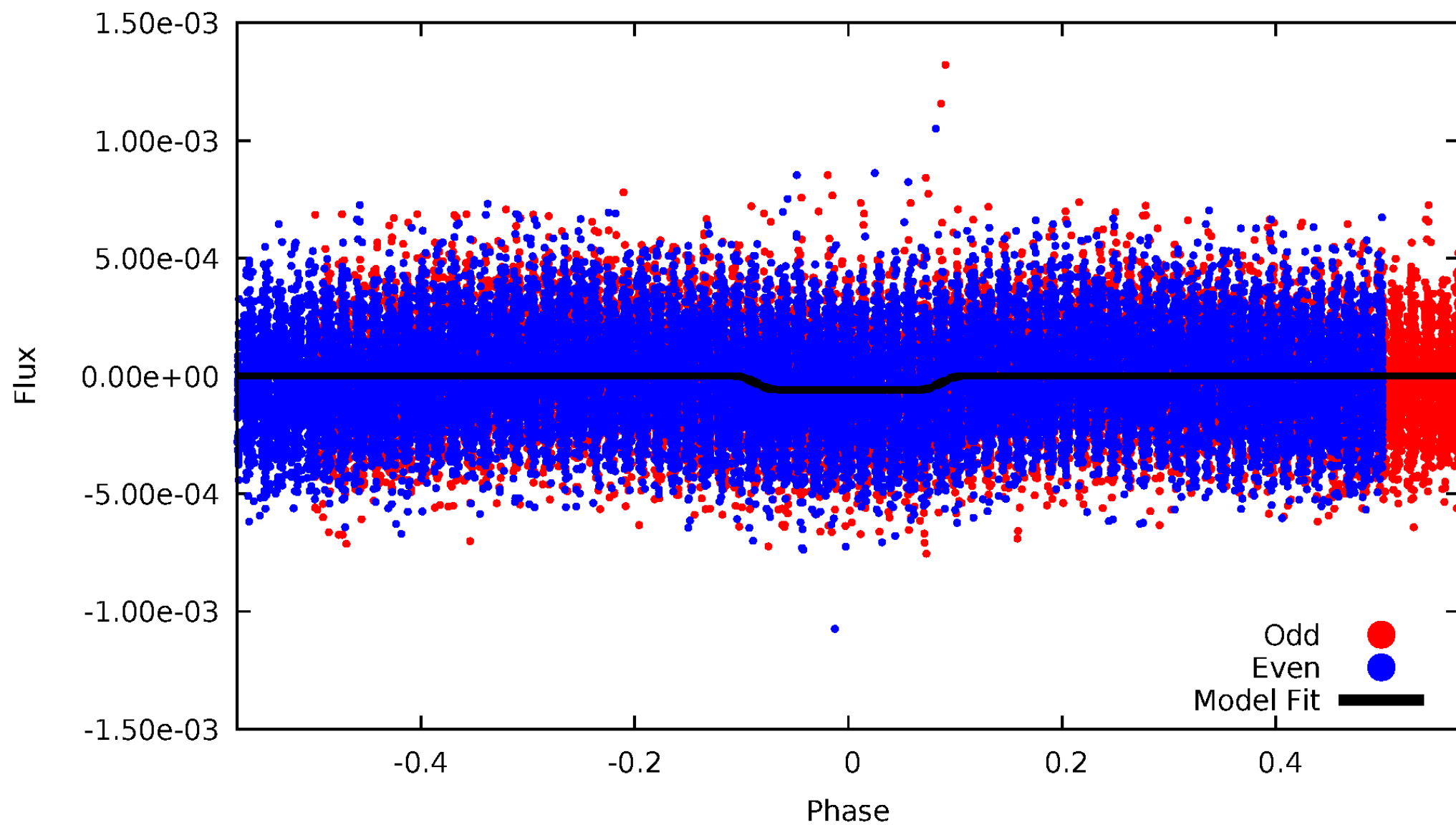
DV Odd/Even

TCE 008495616-01

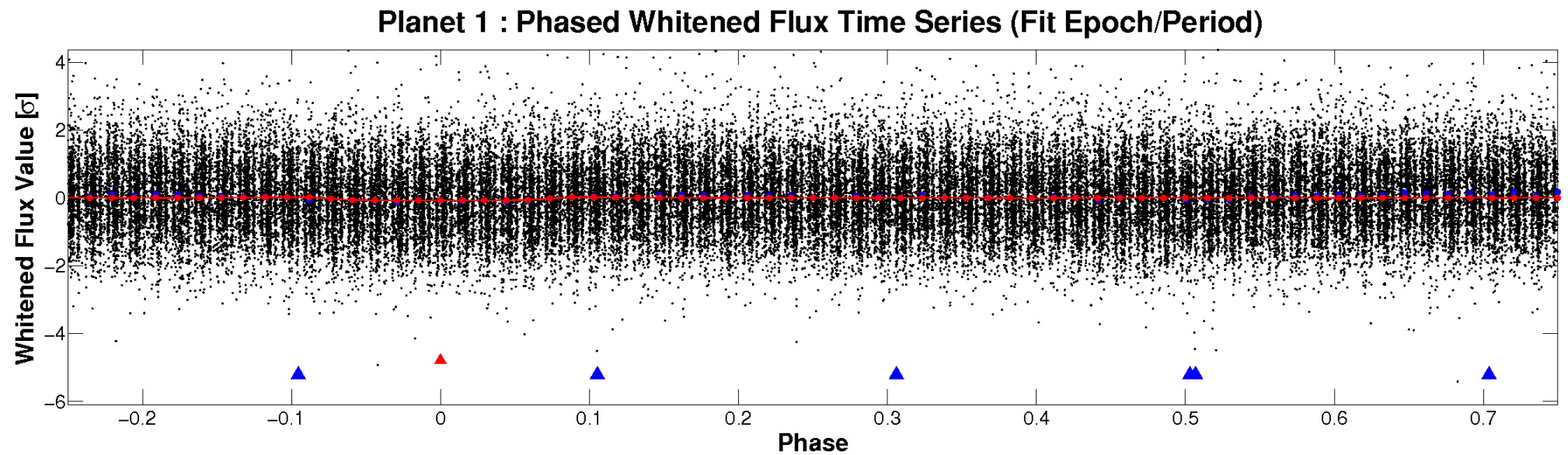
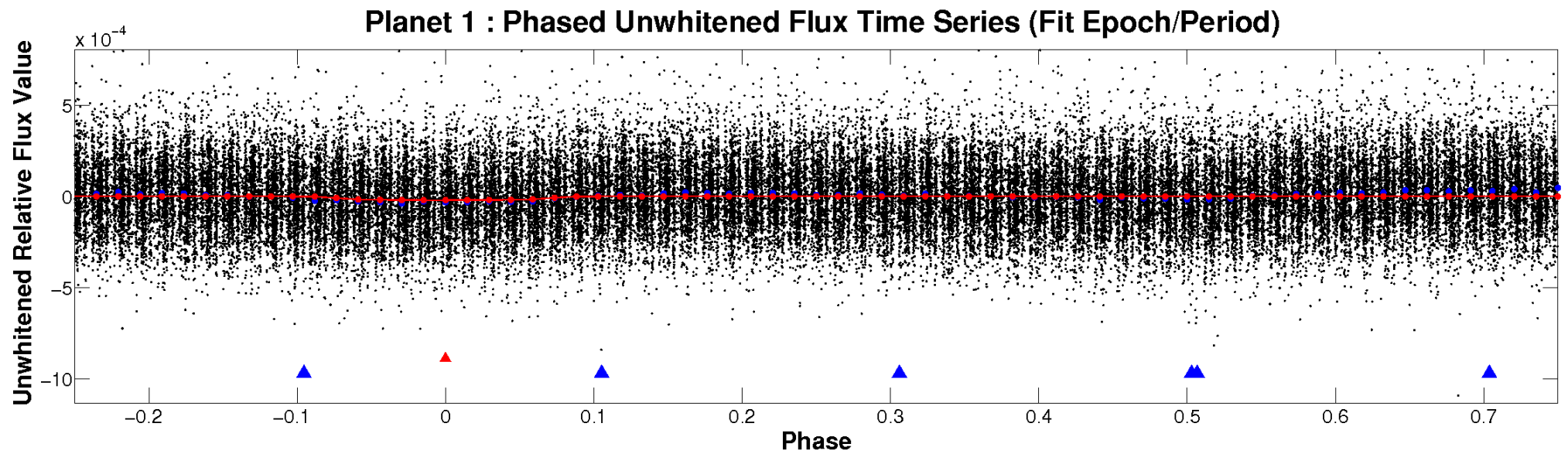


ALT Odd/Even

TCE 008495616-01

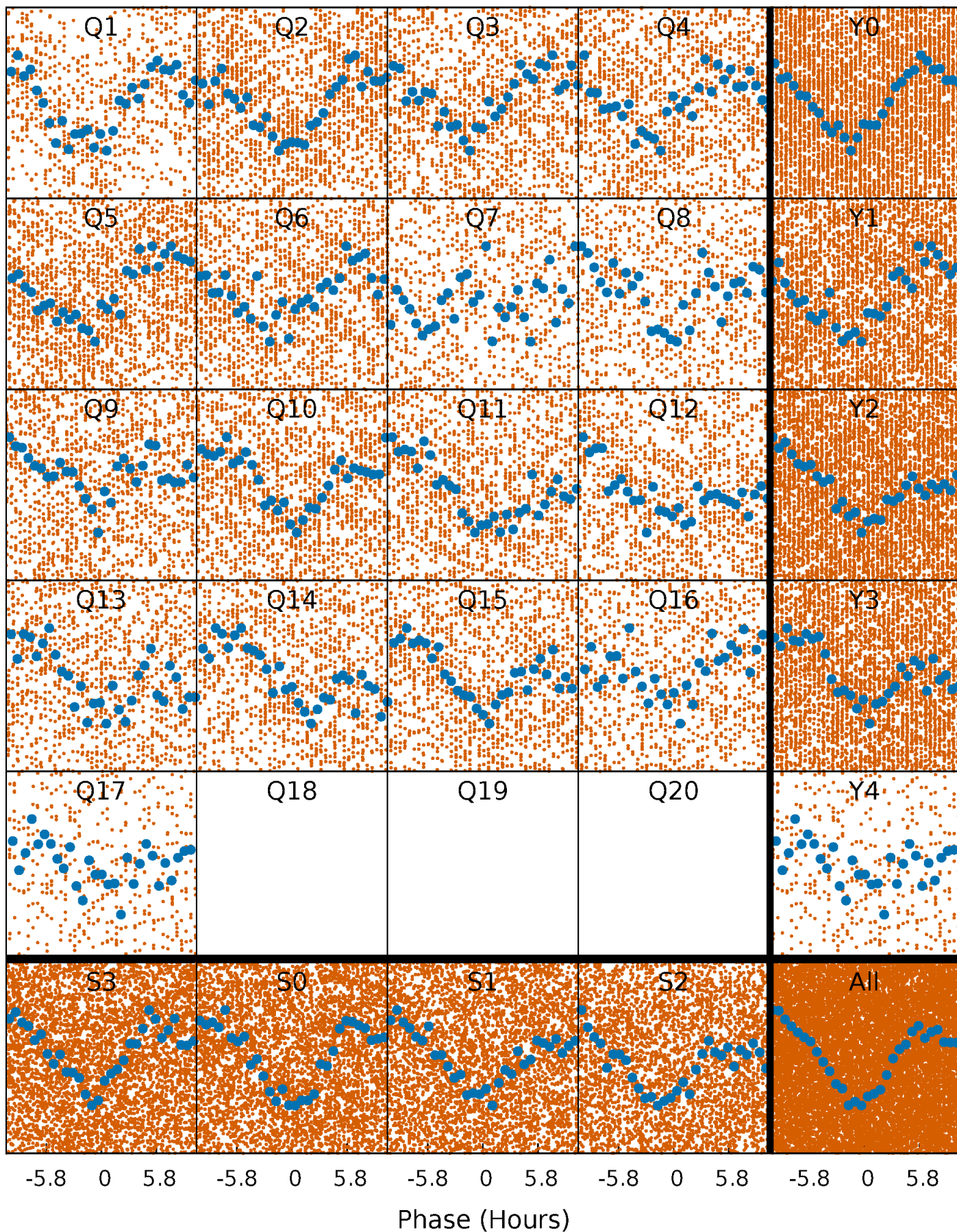


Non-Whitened Vs. Whitened Light Curve



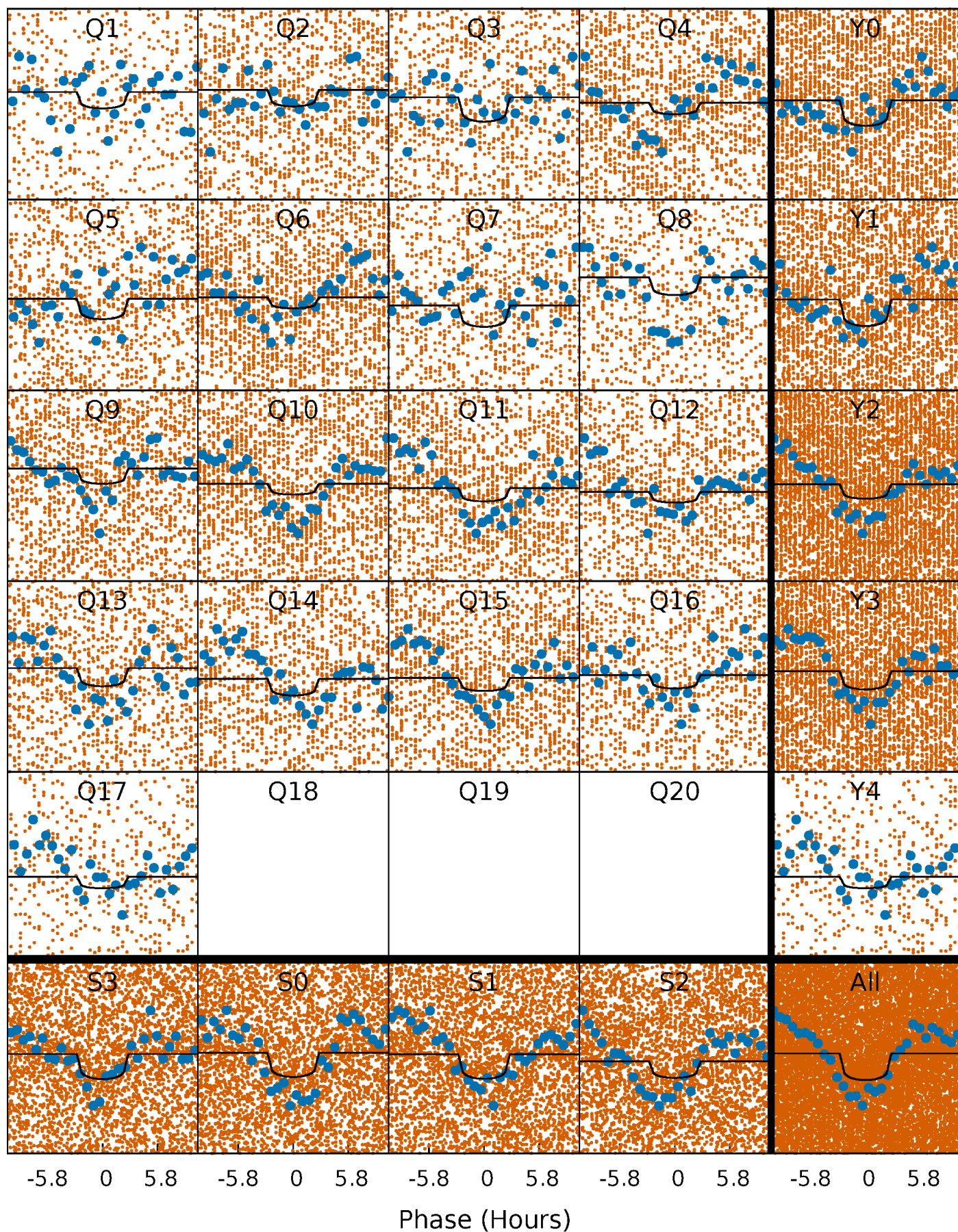
PDC Quarter-Phased Transit Curves

TCE 008495616-01 P= 1.389456 Days $T_0=131.962836$ (BKJD)



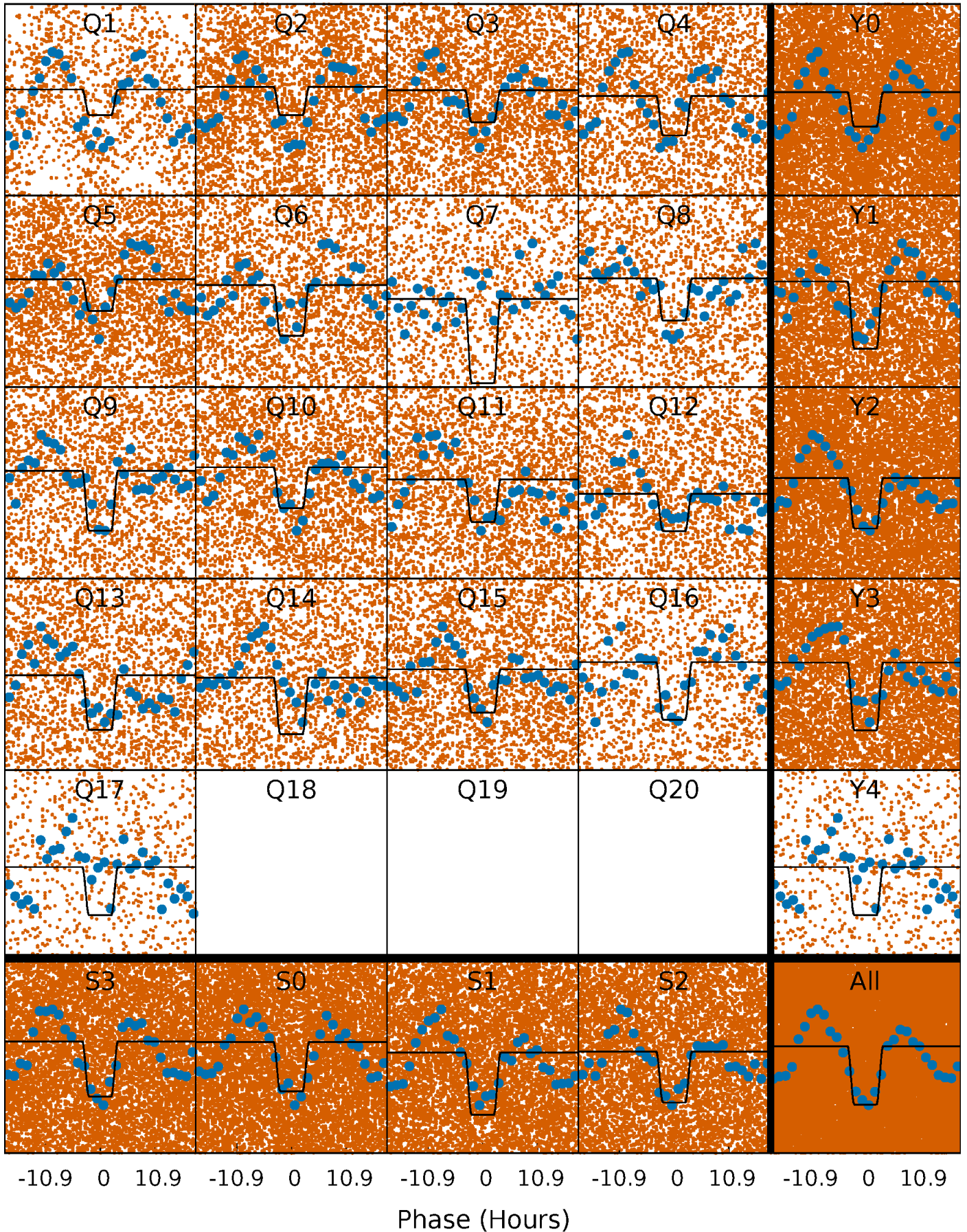
DV Quarter-Phased Transit Curves

TCE 008495616-01 P= 1.389456 Days $T_0=131.962836$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

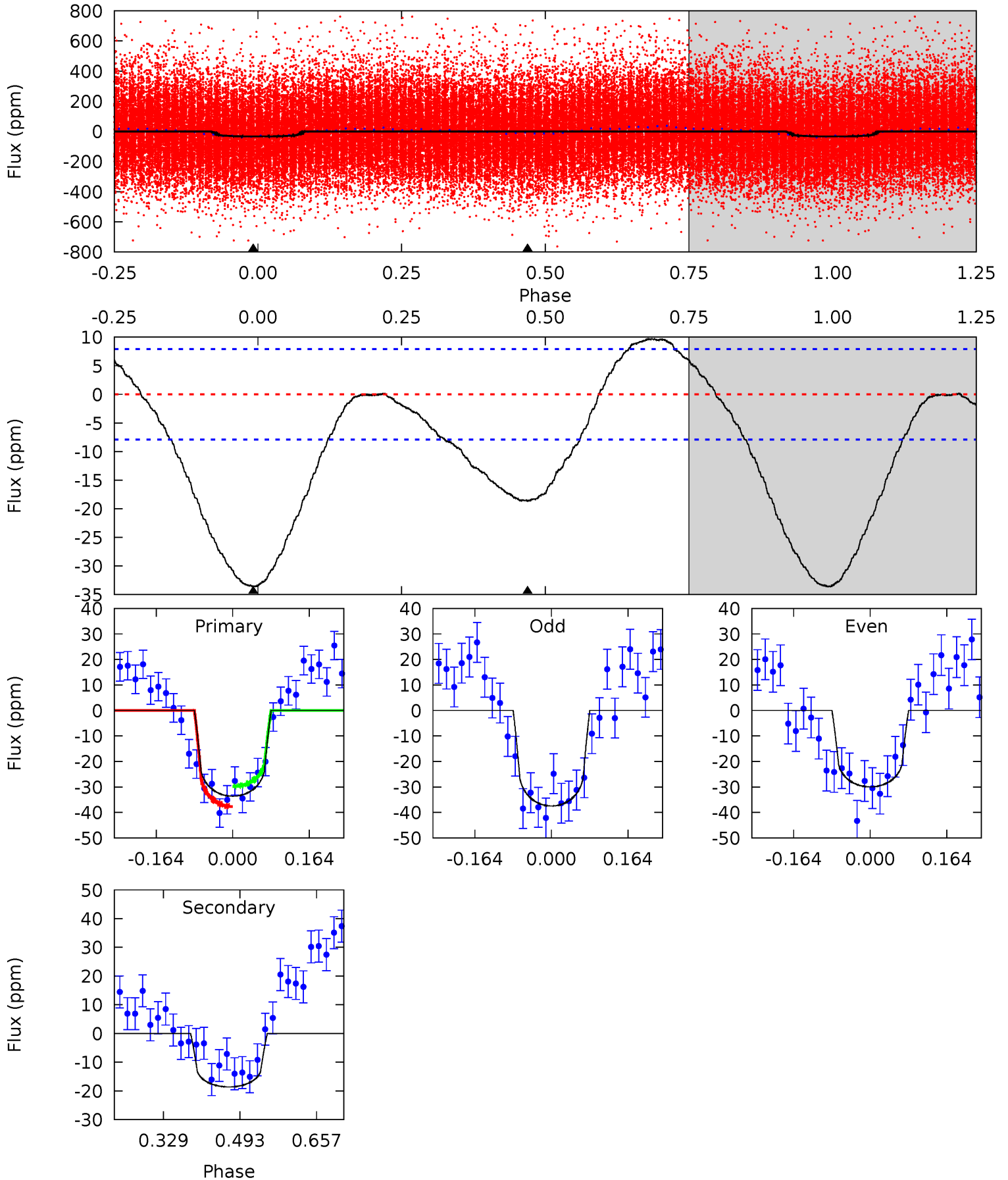
TCE 008495616-01 P= 1.389494 Days $T_0=131.917831$ (BKJD)



DV Model-Shift Uniqueness Test

008495616-01, P = 1.389456 Days, E = 130.573380 Days

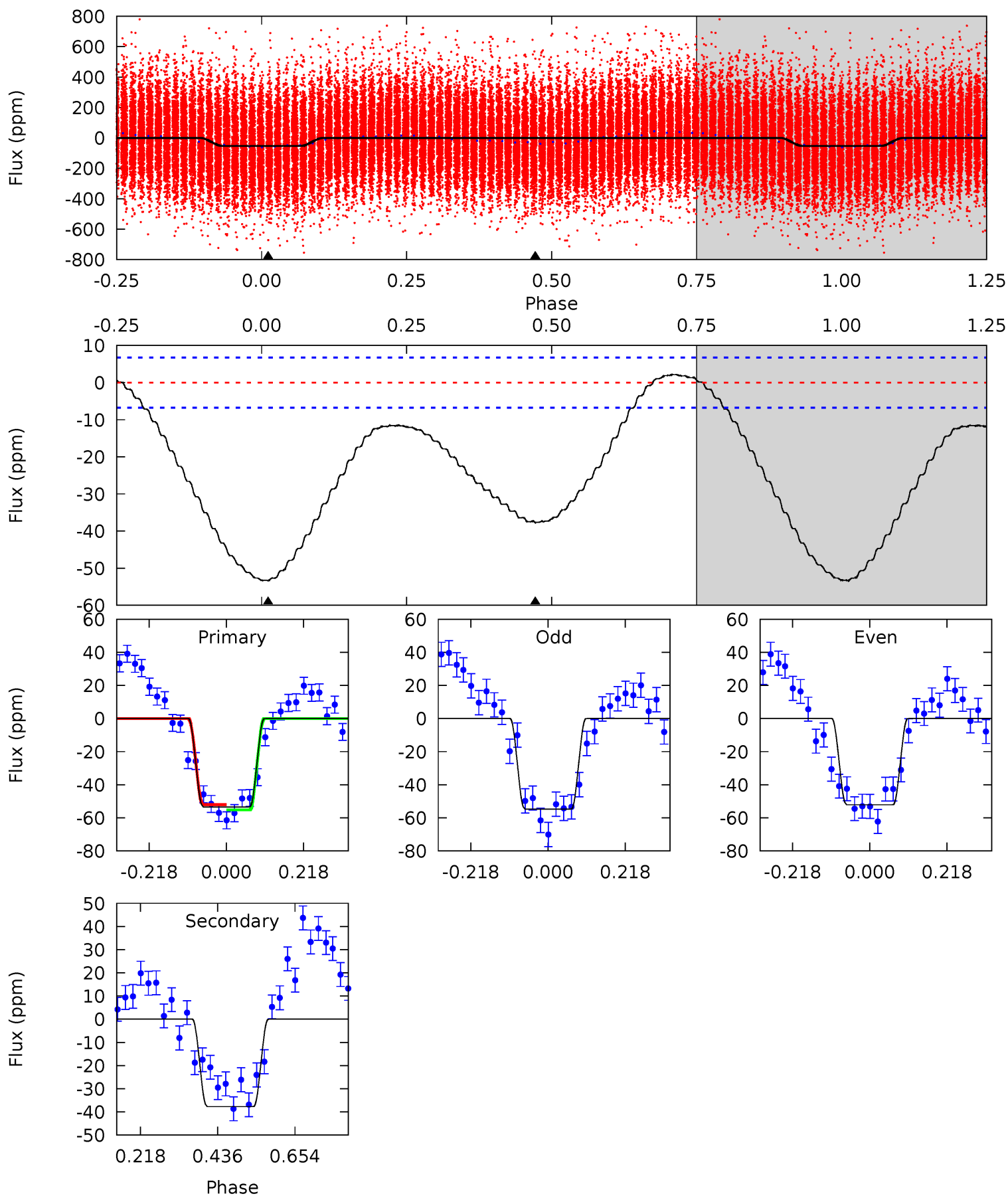
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	10.5	0	0	4.46	1.39	2.77	19.0	19.0	10.5	10.5	2.12	1.12	0.22	2.23



Alt Model-Shift Uniqueness Test

008495616-01, P = 1.389494 Days, E = 130.528337 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.9	24.6	0	0	4.40	1.23	3.27	34.9	34.9	24.6	24.6	0.85	0.94	0.04	1.05



Stellar Parameters For KIC 008495616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6531^{+181}_{-227}	$4.177^{+0.190}_{-0.171}$	$-0.300^{+0.250}_{-0.300}$	$1.431^{+0.422}_{-0.346}$	$1.121^{+0.192}_{-0.157}$	$0.539^{+0.612}_{-0.249}$
	+3%/-3%	+5%/-4%	+83%/-100%	+29%/-24%	+17%/-14%	+113%/-46%
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 008495616-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-19 ± 2	$0.70^{+0.55}_{-0.44}$	3008^{+220}_{-209}	6207^{+5633}_{-1424}	13^{+80}_{-9}
Alt.	-38 ± 2	$1.23^{+0.66}_{-0.62}$	3027^{+219}_{-216}	5730^{+2559}_{-954}	$8.796^{+26.203}_{-4.909}$

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 $A_{obs} \gg 1.0$

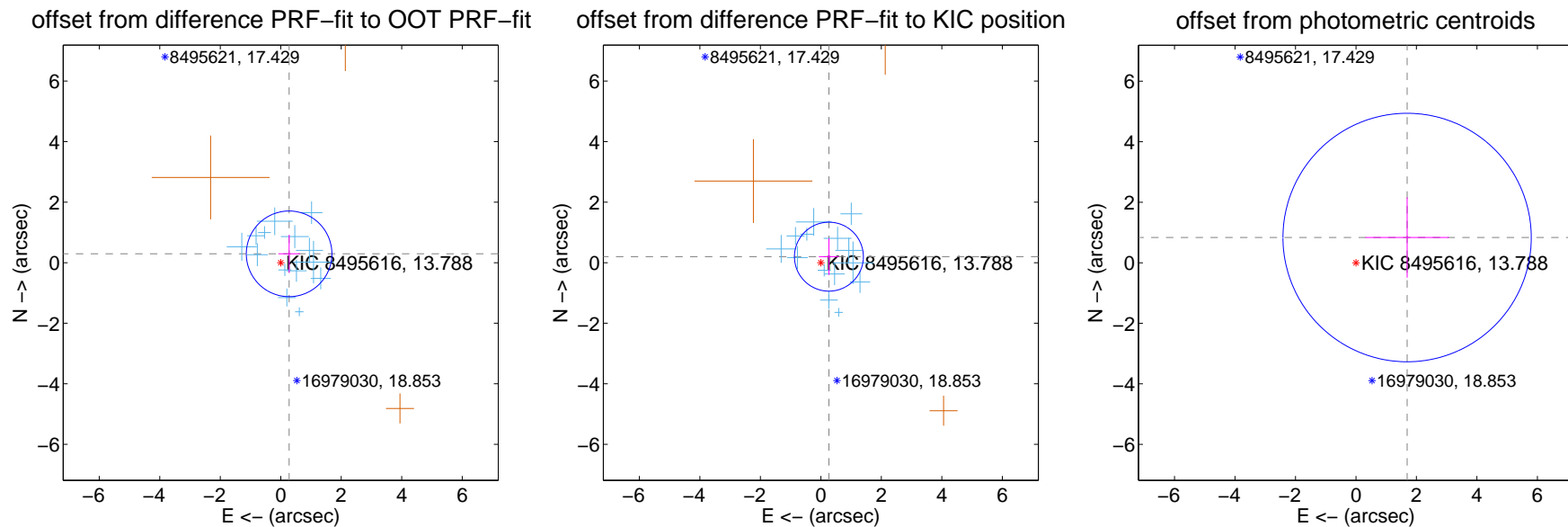
DV Centroid Data

Supplemental centroid analysis for 008495616-01. Kepler magnitude: 13.79. Transit SNR 7.13

There are 14 quarters with good PRF difference image offsets

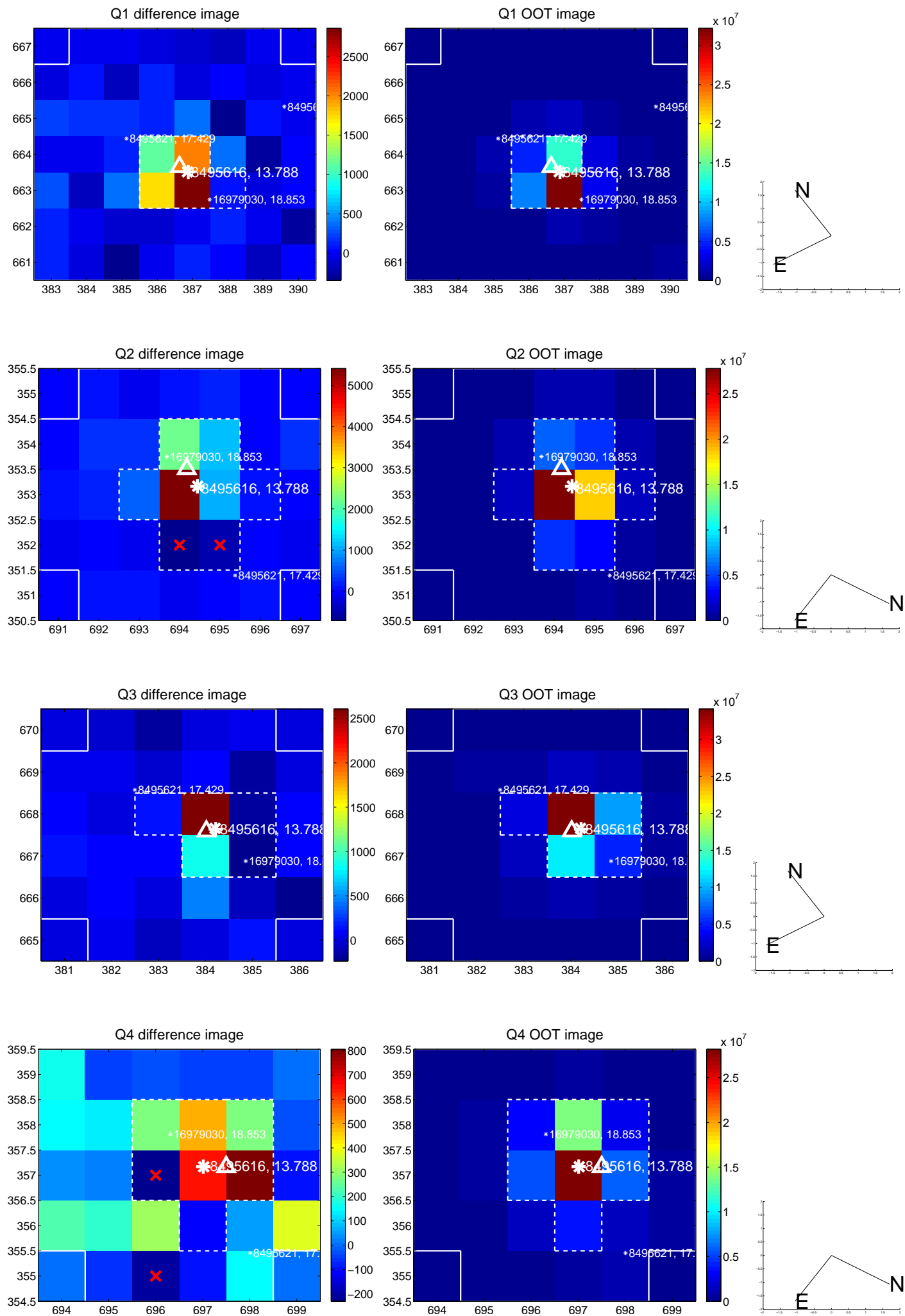
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.403 ± 0.472	0.85	-0.276 ± 0.357	0.293 ± 0.627
PRF-fit source offset from KIC position	0.332 ± 0.380	0.88	-0.266 ± 0.333	0.199 ± 0.607
photometric centroid source offset	1.89 ± 1.37	1.38	-1.69 ± 1.38	0.83 ± 1.33

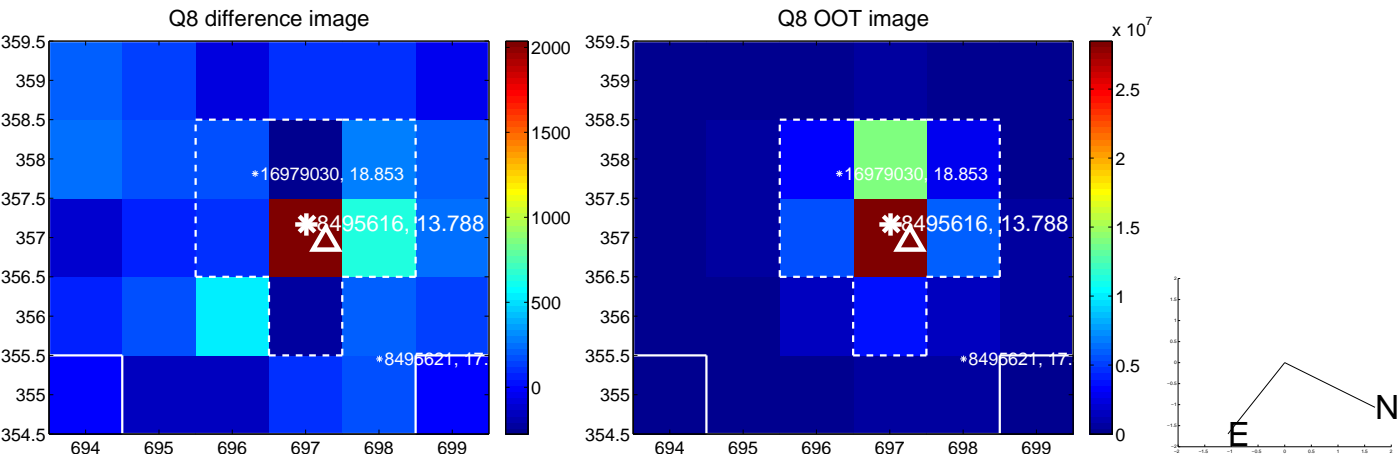
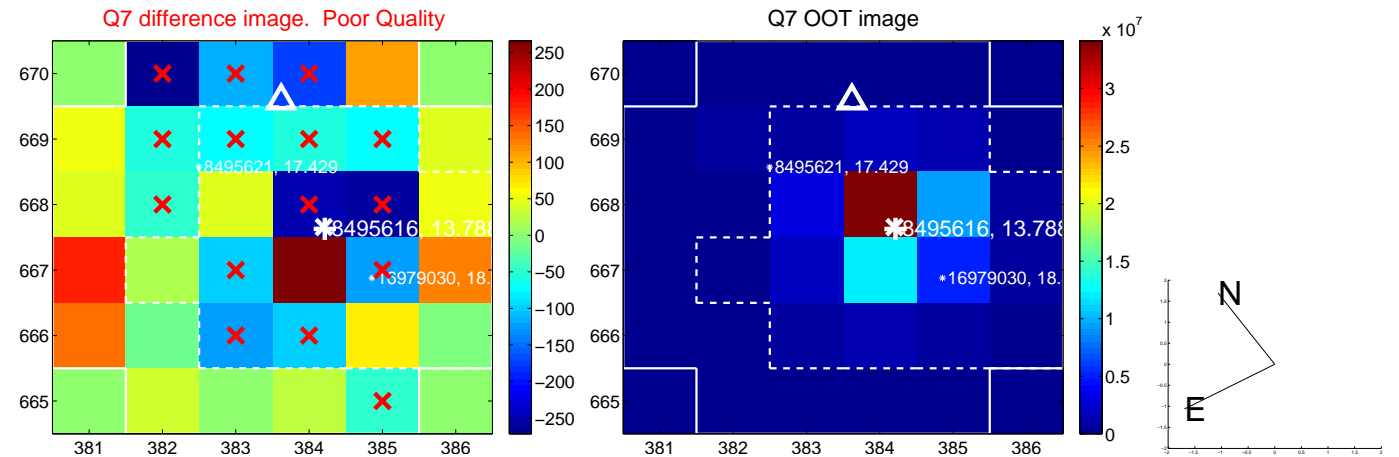
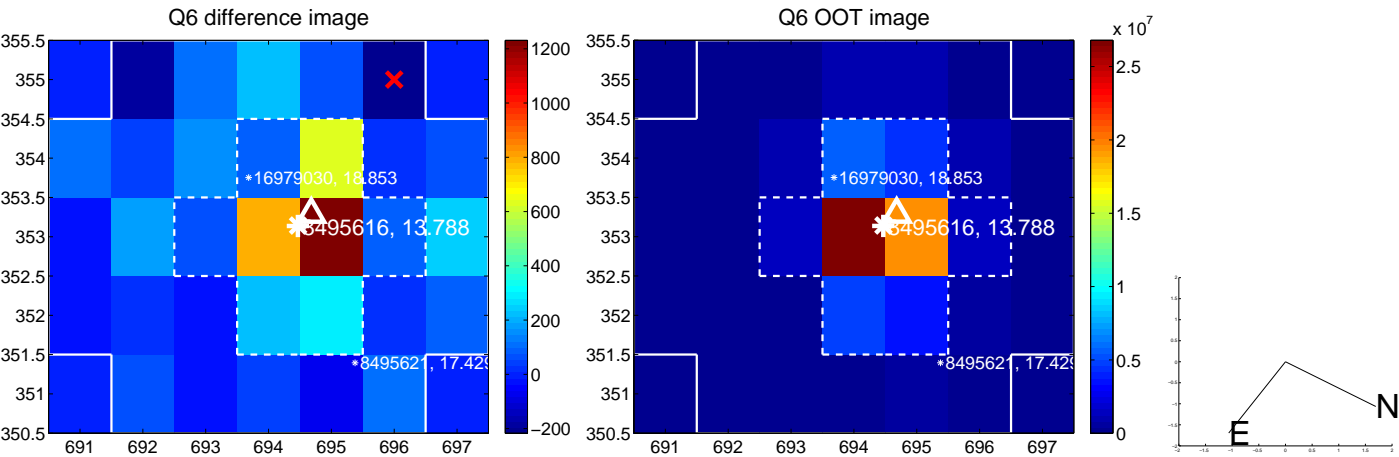
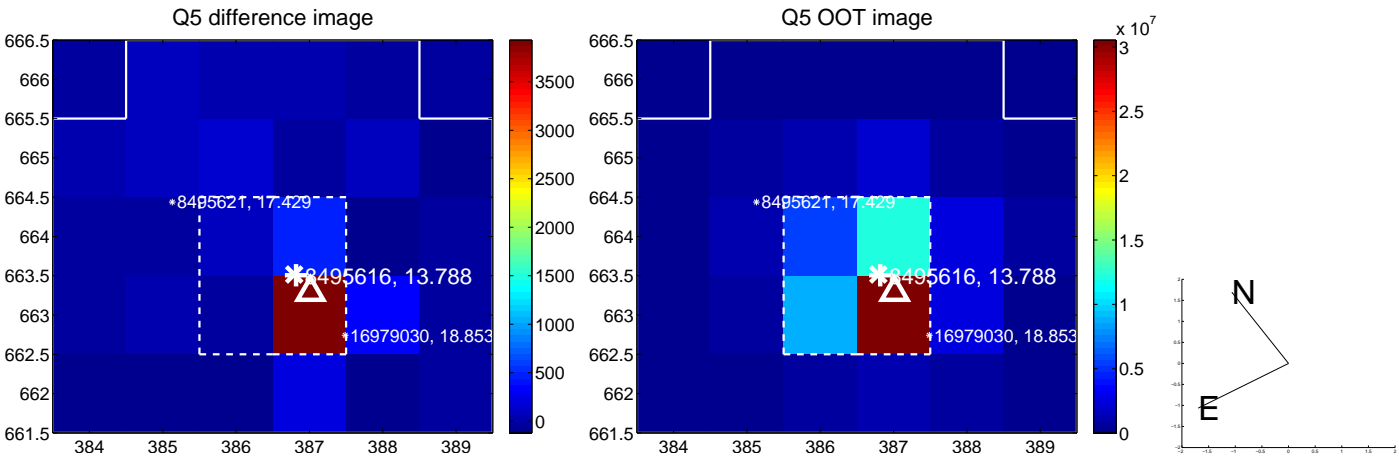


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

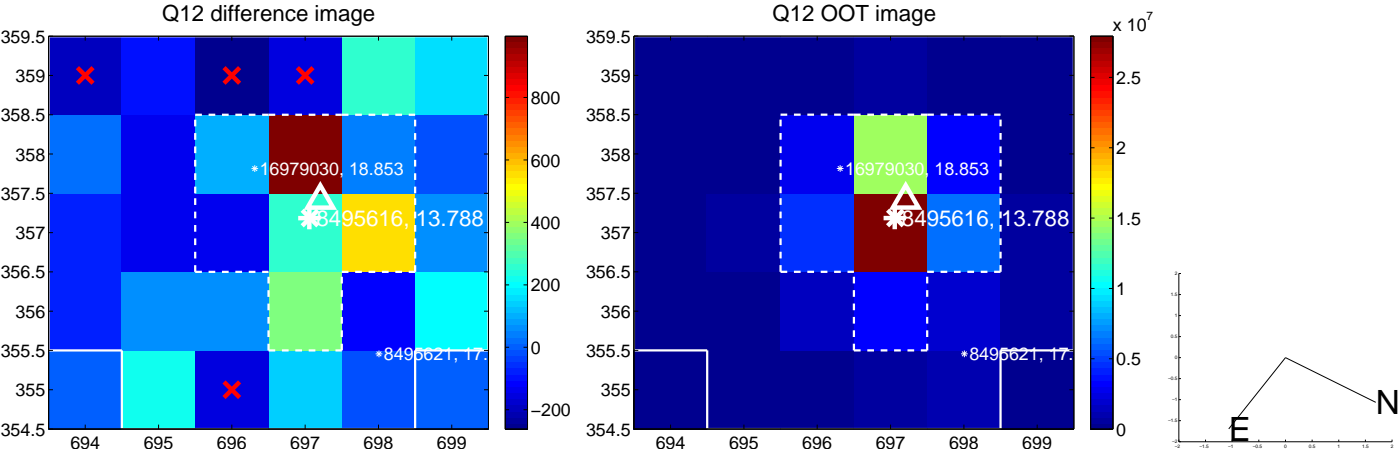
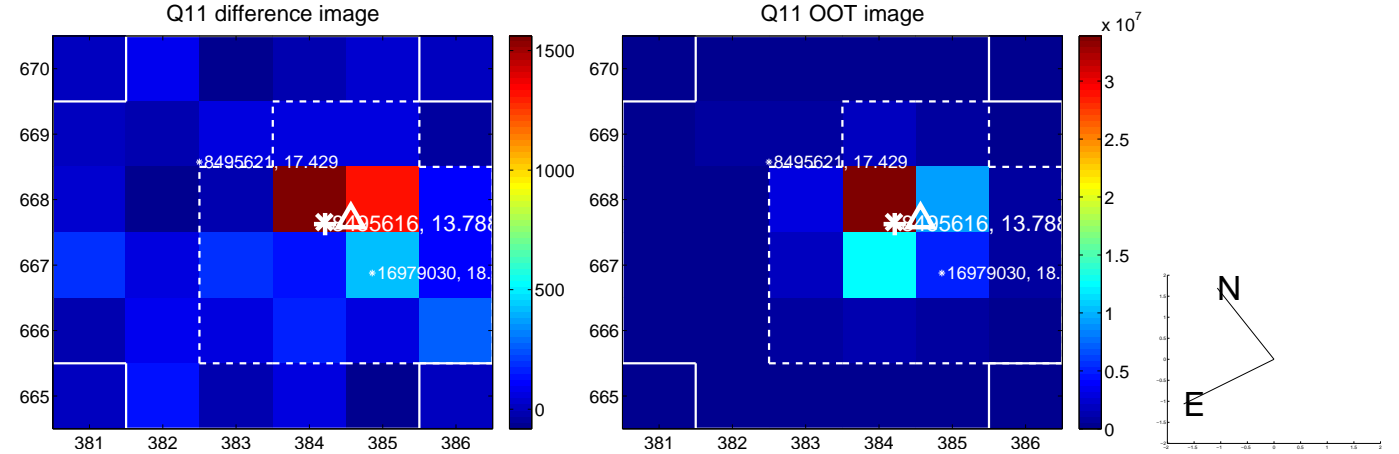
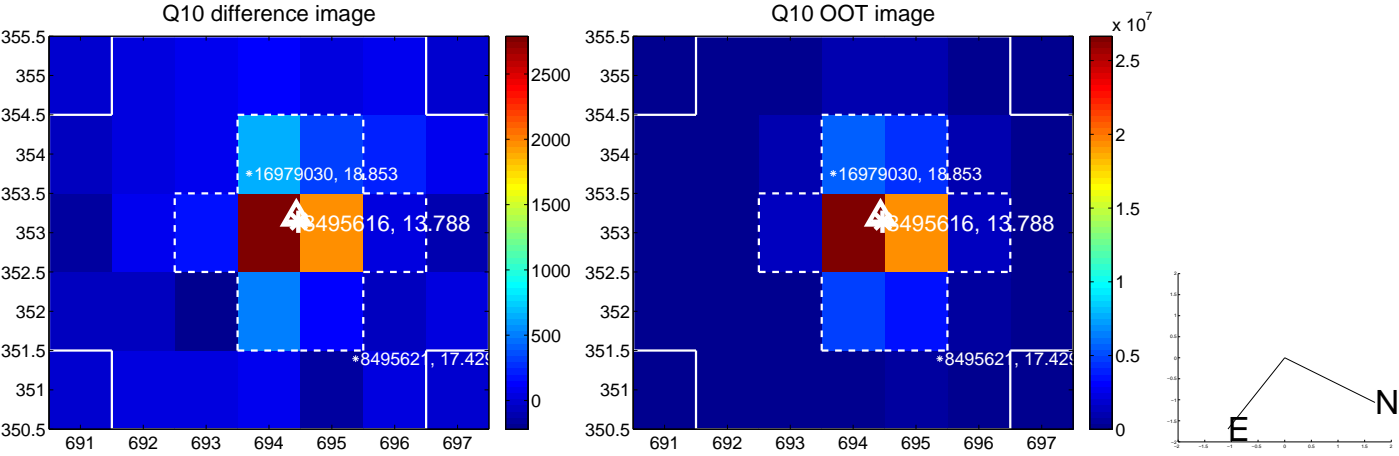
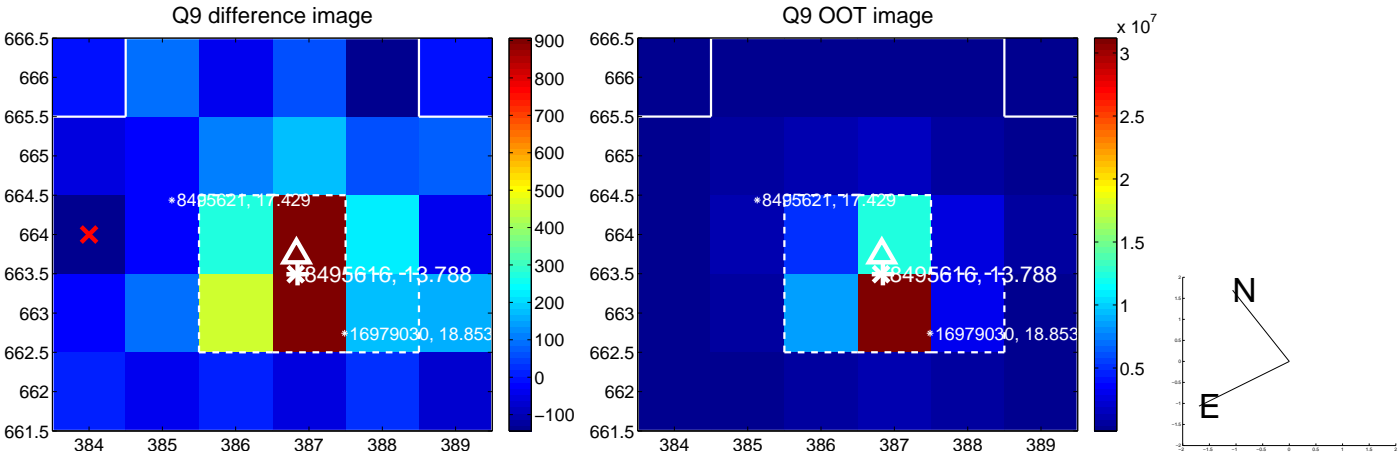
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



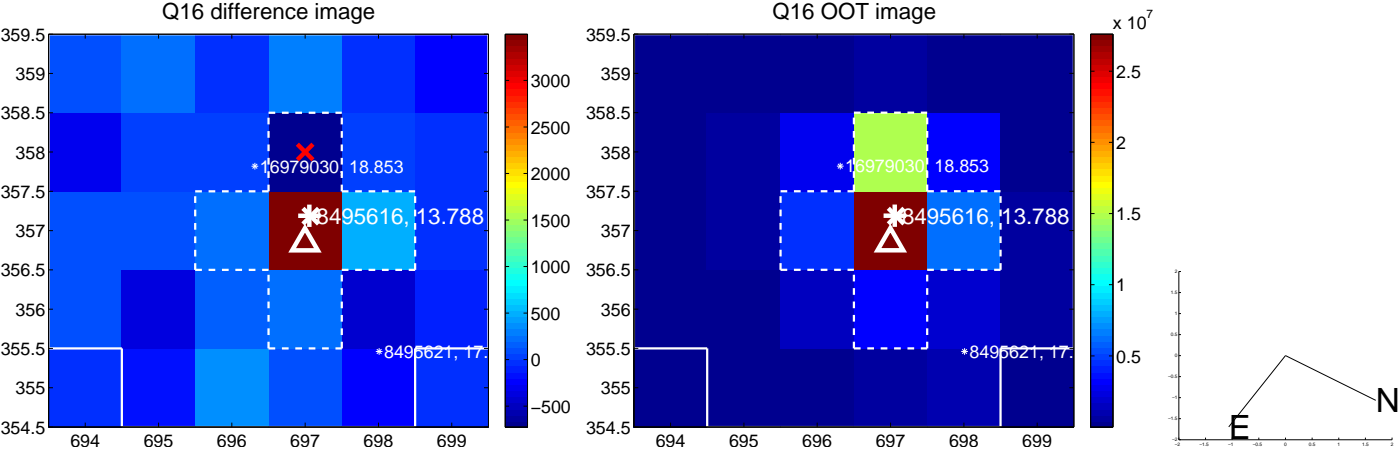
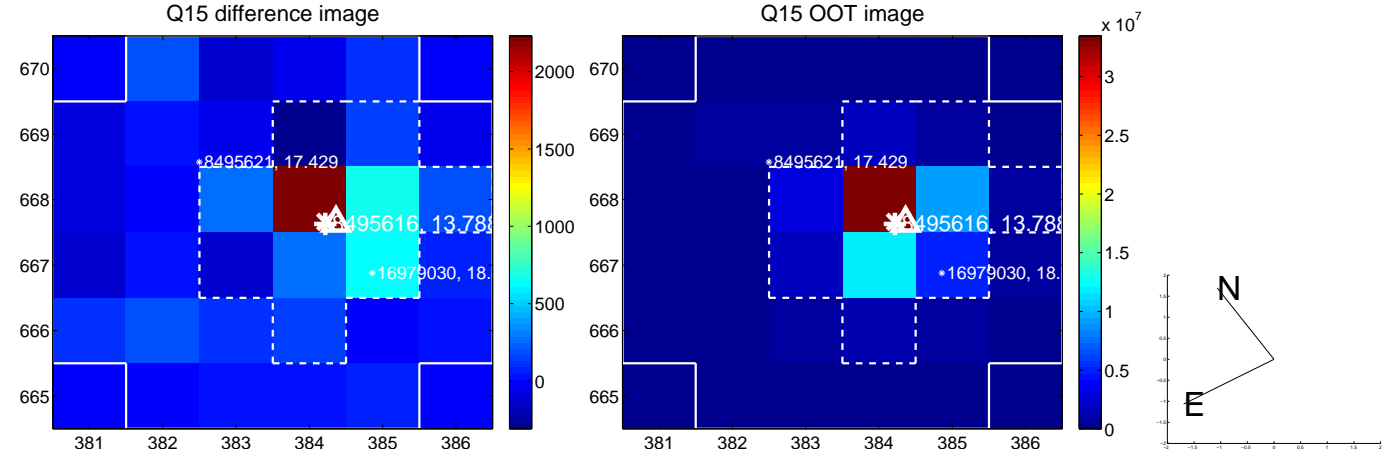
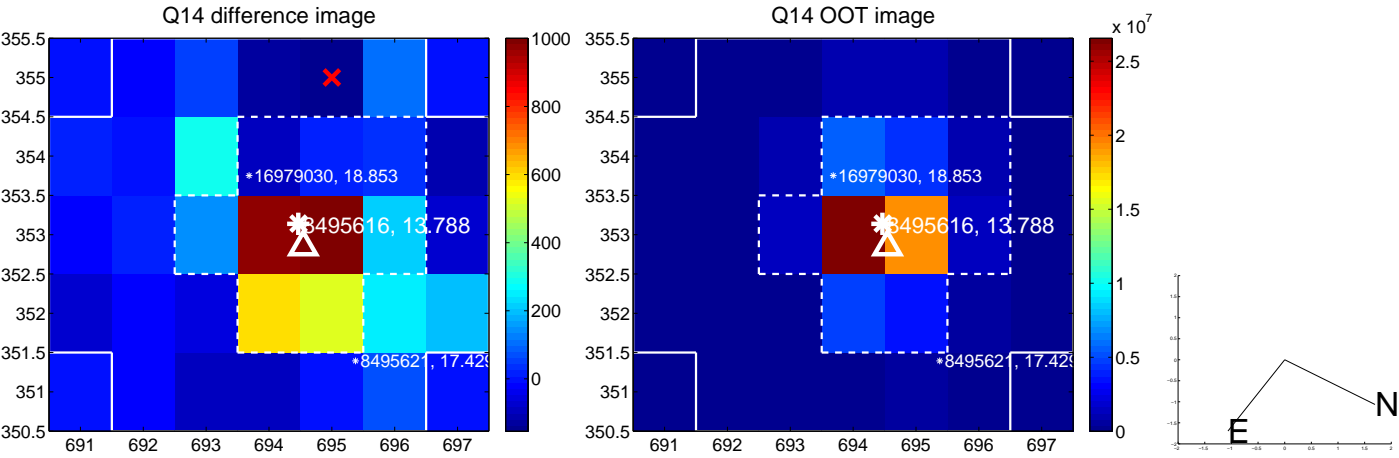
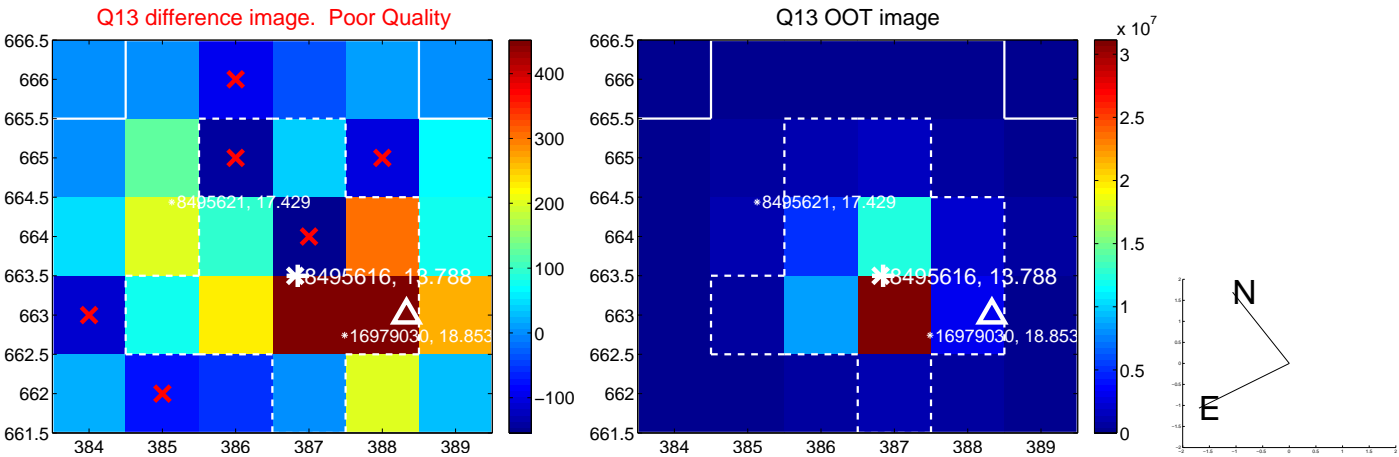
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



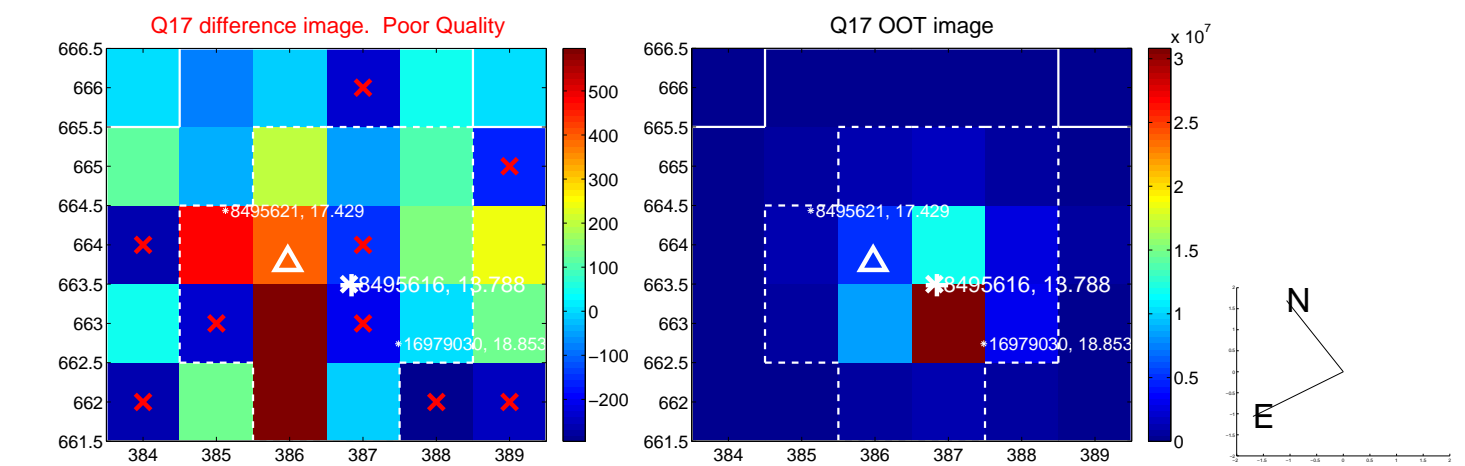
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



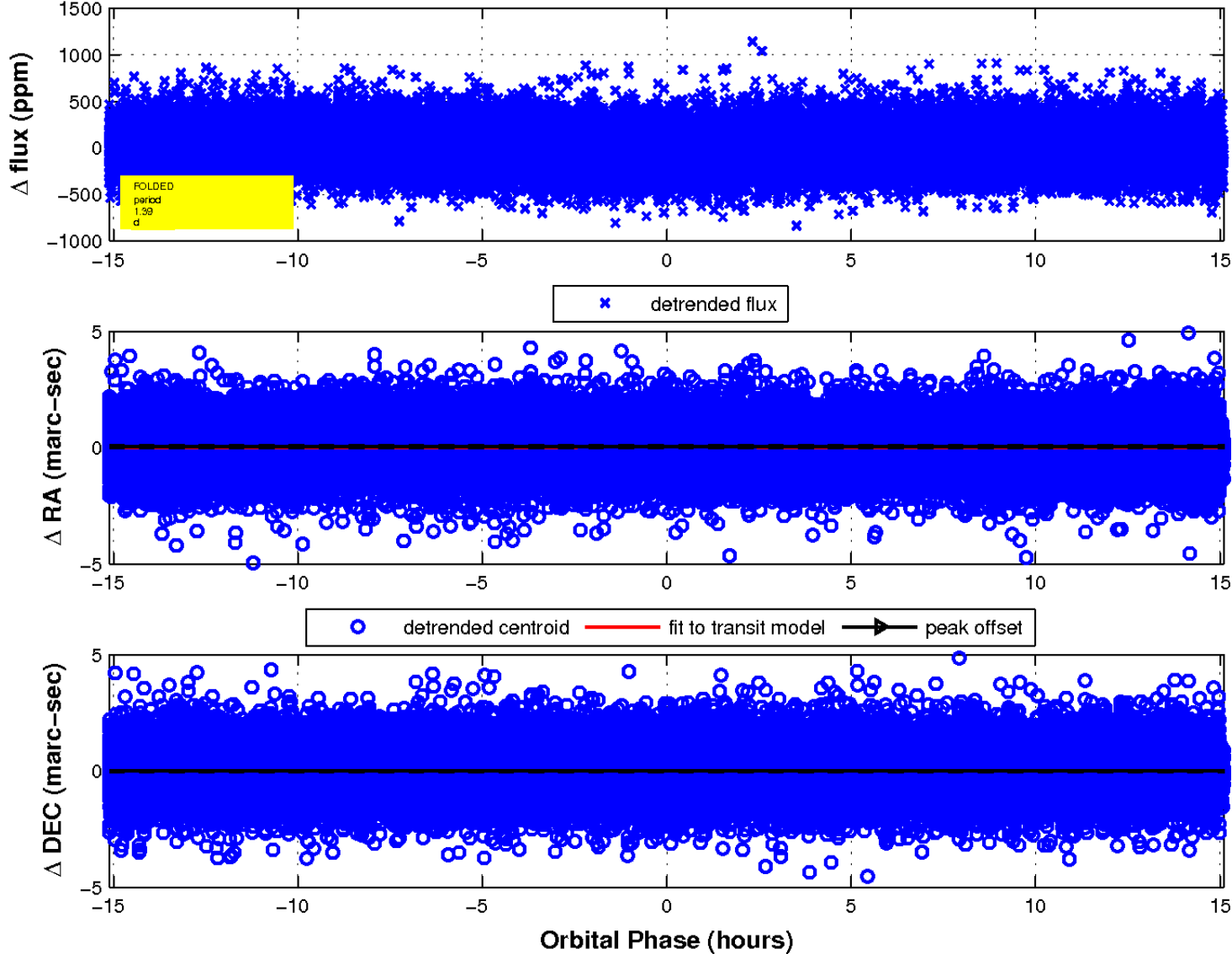
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

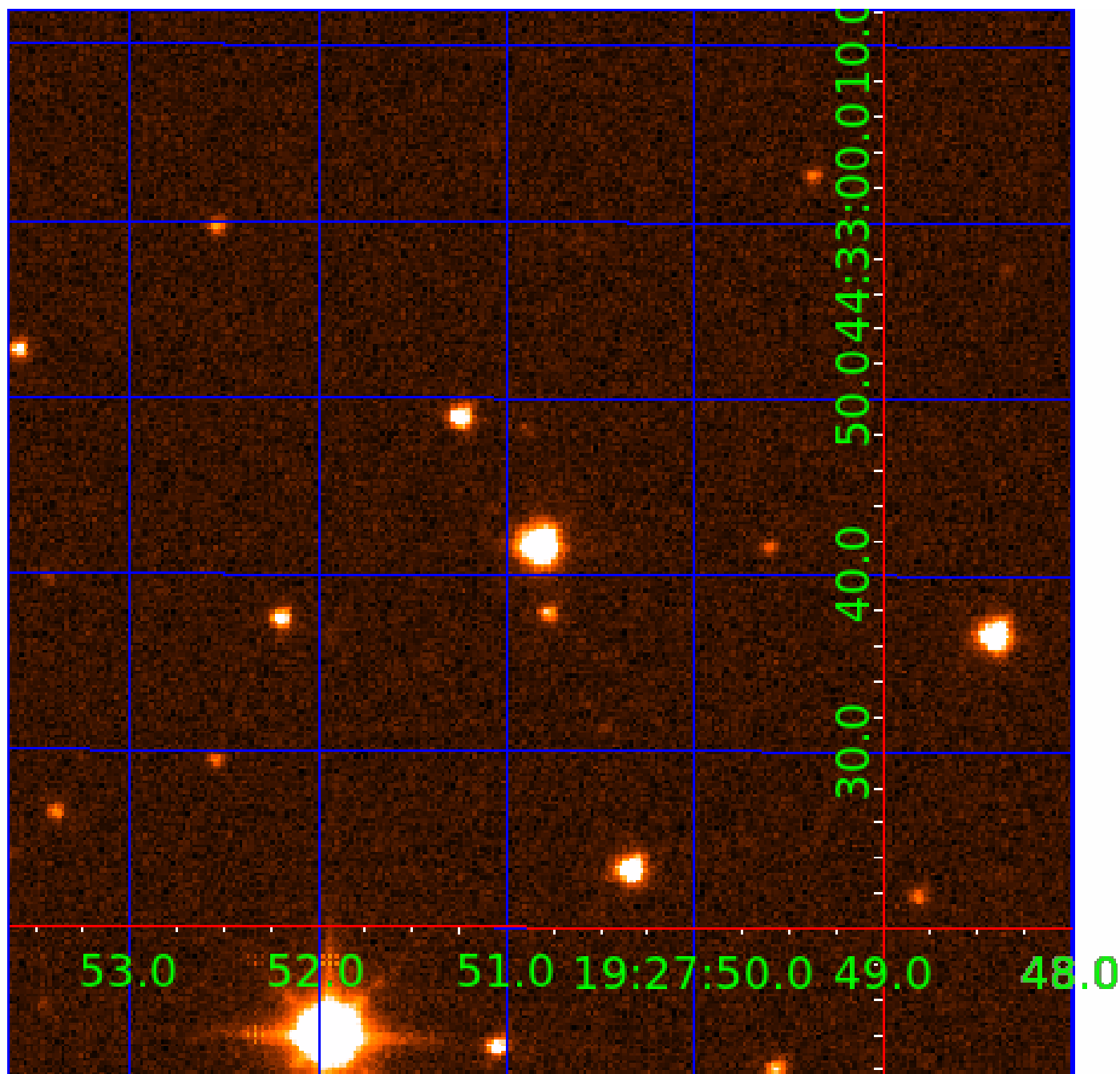


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008495616

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})
008495616-01	OBS	No	1.389456	131.962836	19.9	5.037	8.9	7.1	1.43	6531	0.65	5201.31
008495616-02	OBS	No	258.717820	279.944220	370.3	15.040	9.5	9.3	1.43	6531	3.58	4.89

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008495616-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
008495616-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—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.

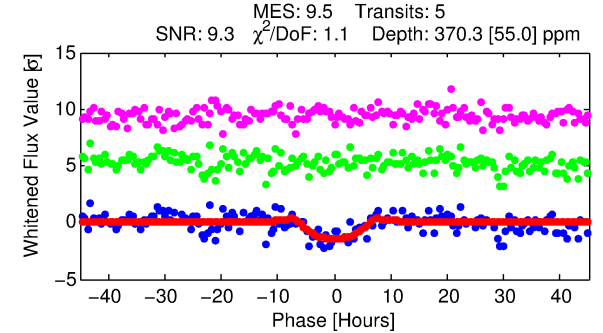
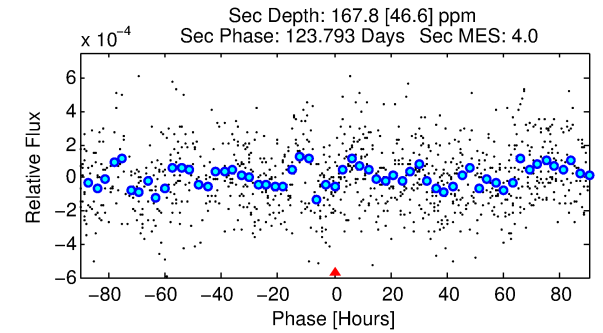
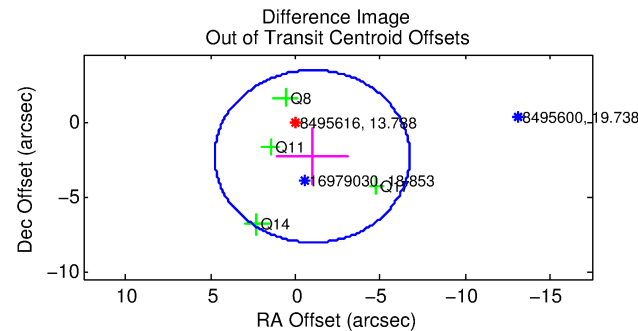
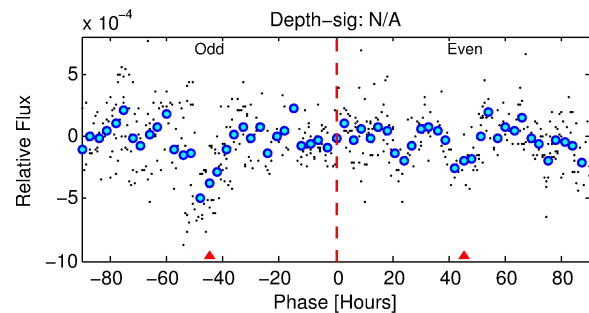
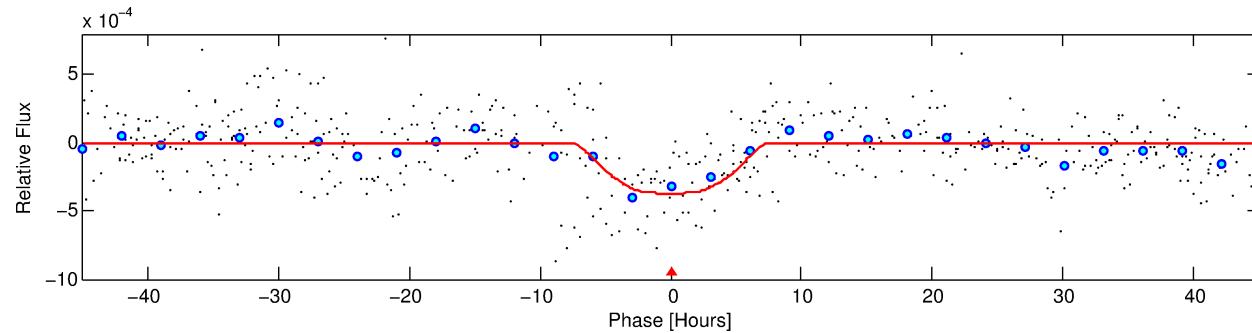
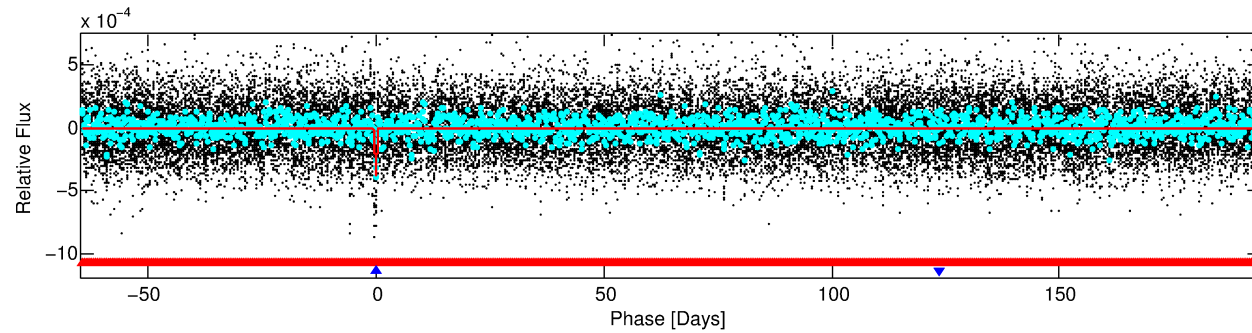
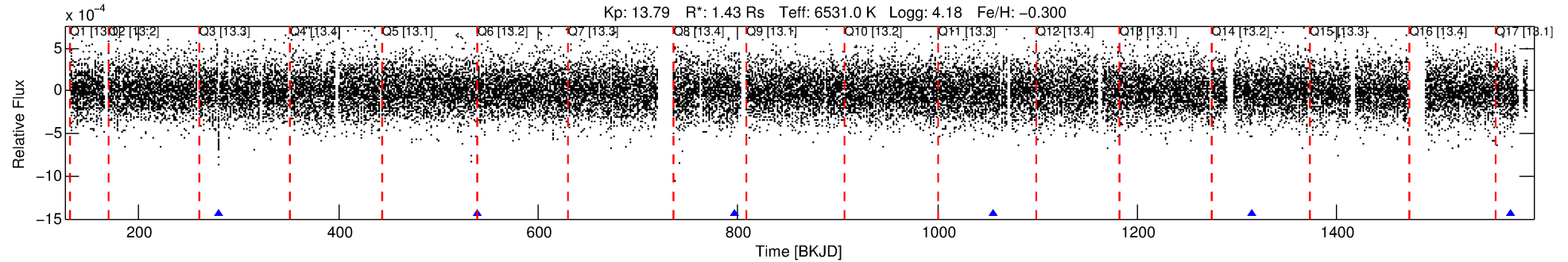
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008495616-02

No Significant Match Found

DV One-Page Summary

KIC: 8495616 Candidate: 2 of 2 Period: 258.718 d



DV Fit Results:

Period = 258.71782 [0.00886] d
Epoch = 279.9442 [0.0323] BKJD
Rp/R* = 0.0230 [0.0022]
a/R* = 41.08 [7.15]
b = 0.97 [0.01]
Seff = 4.89 [1.85]
Teq = 379 [36] K
Rp = 3.58 [1.11] Re
a = 0.8261 [0.2022] AU
Ag = 4902.31 [2390.80] [2.05σ]
Teffp = 4906 [448] K [10.07σ]

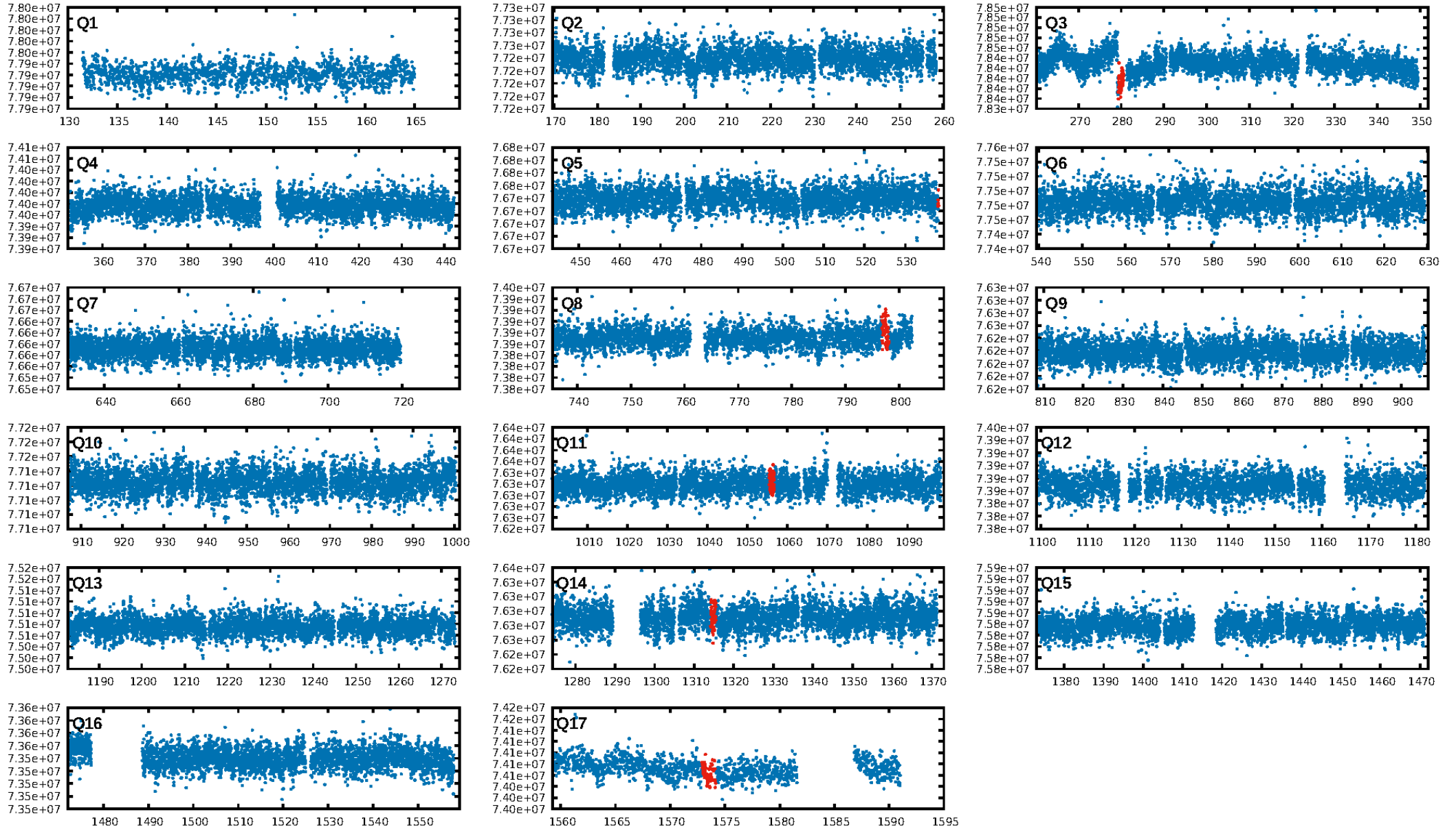
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [389.36σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 10.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.03e-15
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -7.944
Centroid-sig: 0.8%
Centroid-so: 1.248 arcsec [1.71σ]
OotOffset-rm: 2.519 arcsec [1.31σ]
KicOffset-rm: 2.601 arcsec [1.35σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.00 [0/4]

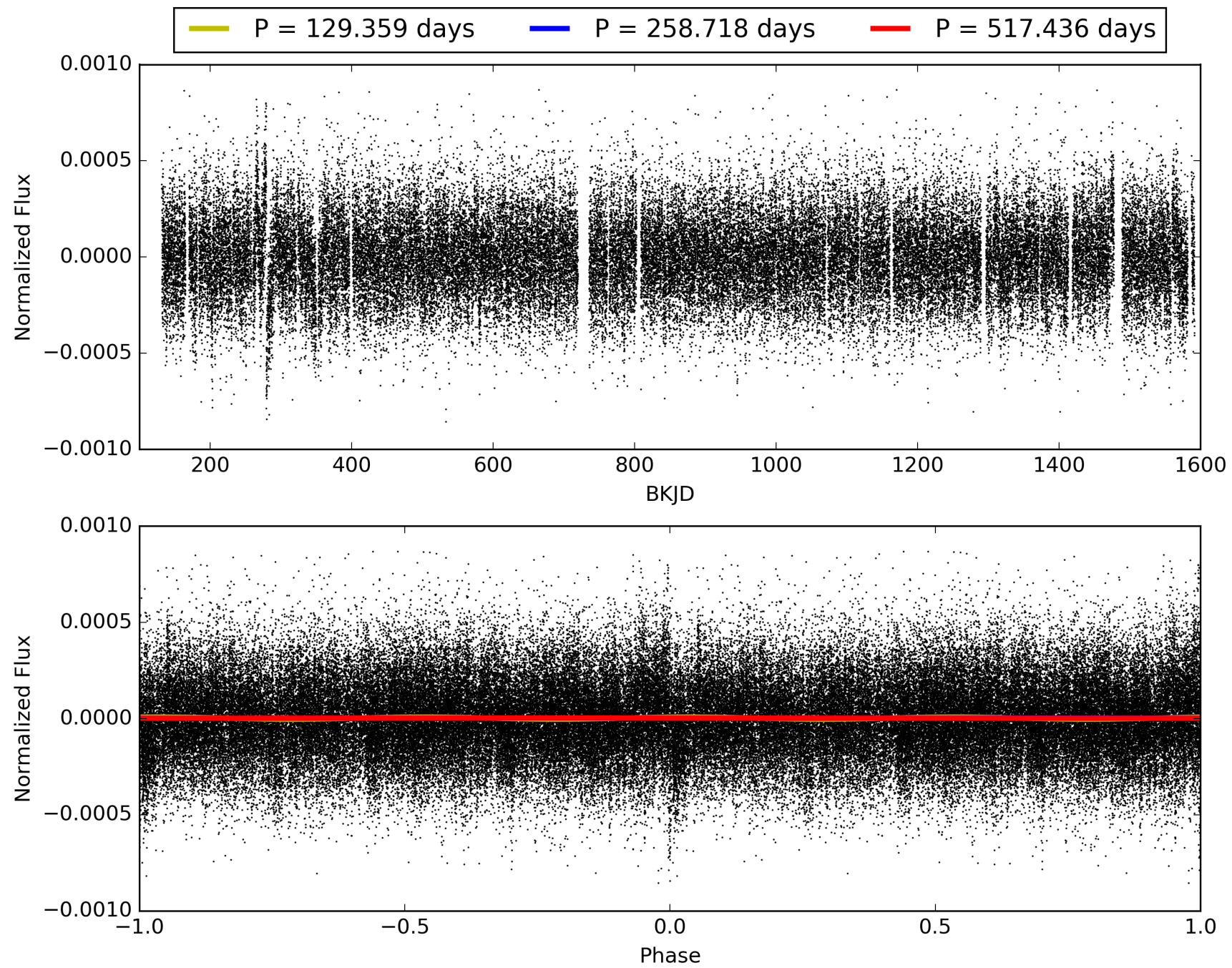
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 15:54:56 Z

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

TCE 008495616-02, PDC Light Curves

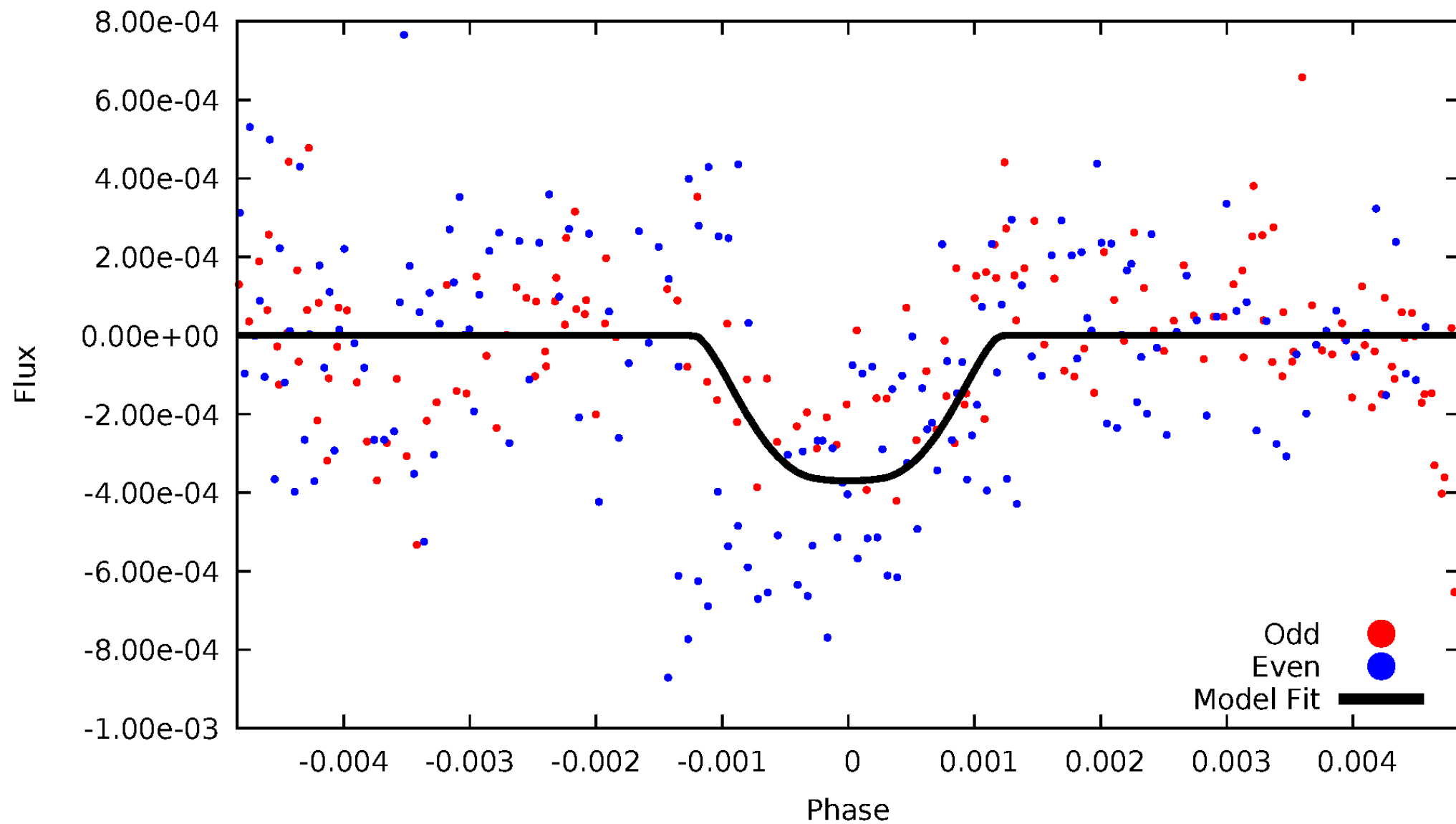


TCE 008495616-02



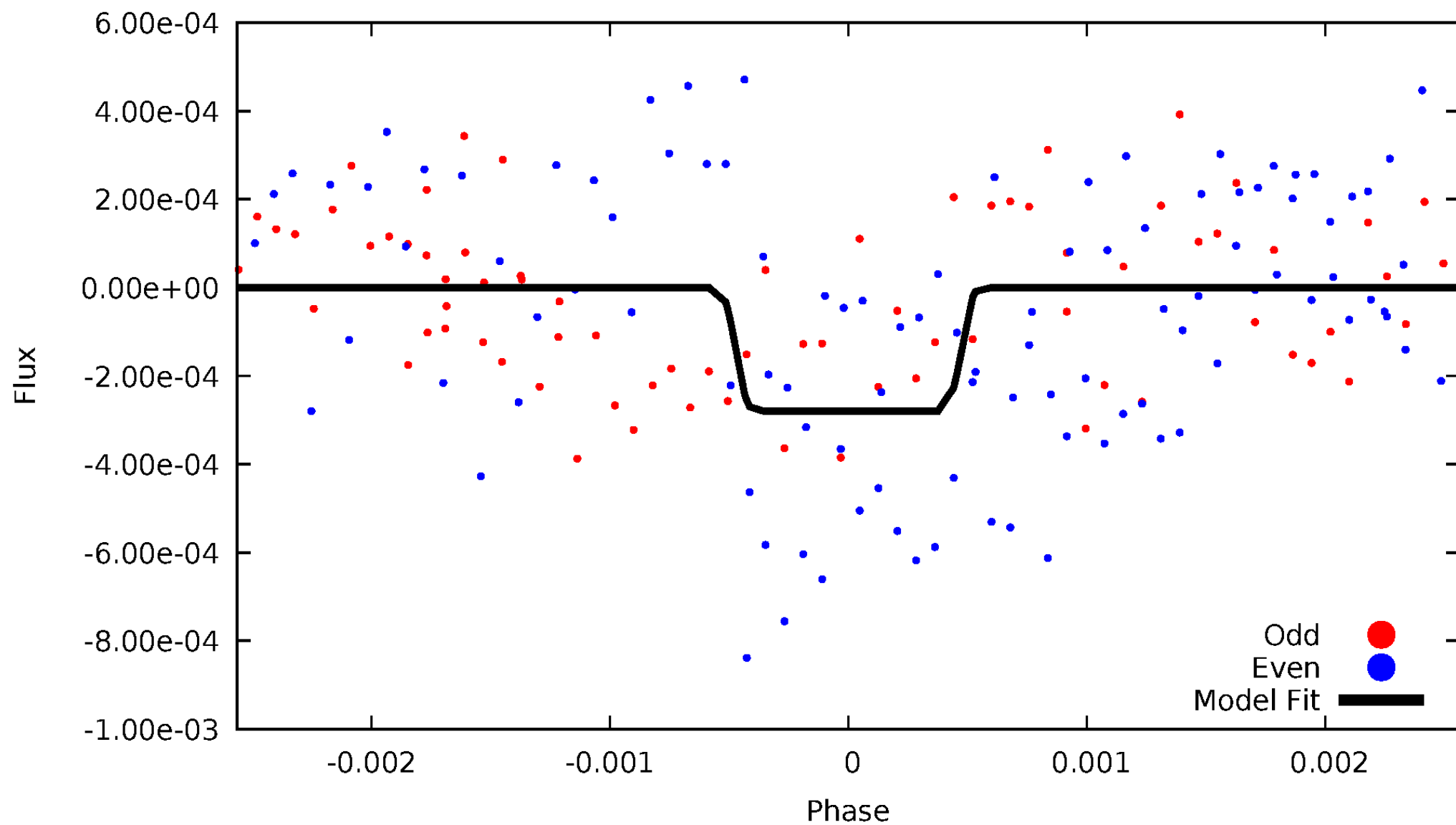
DV Odd/Even

TCE 008495616-02



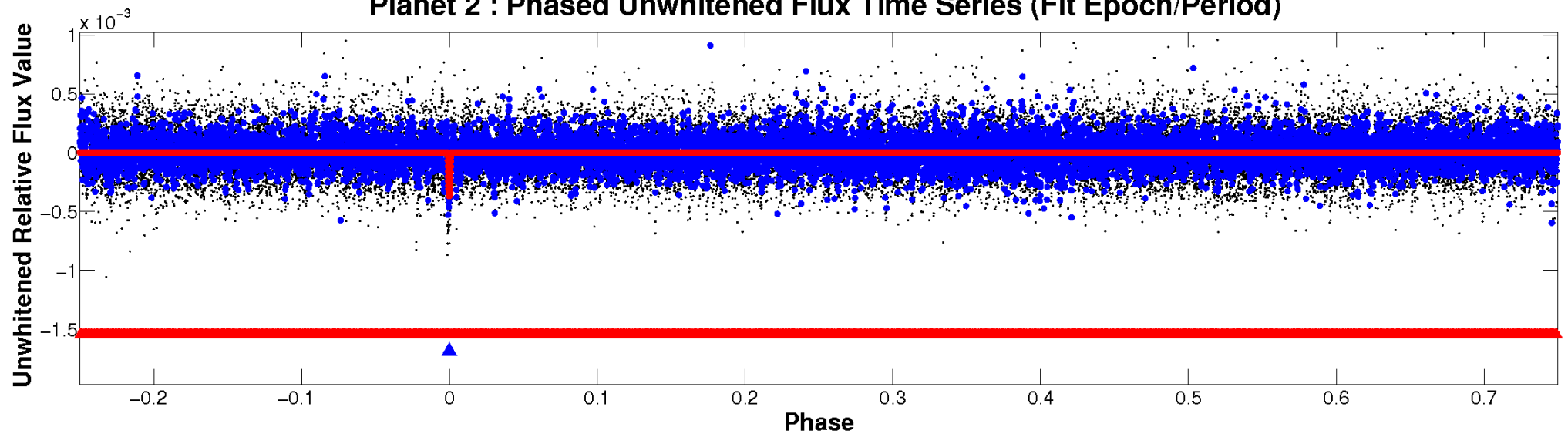
ALT Odd/Even

TCE 008495616-02

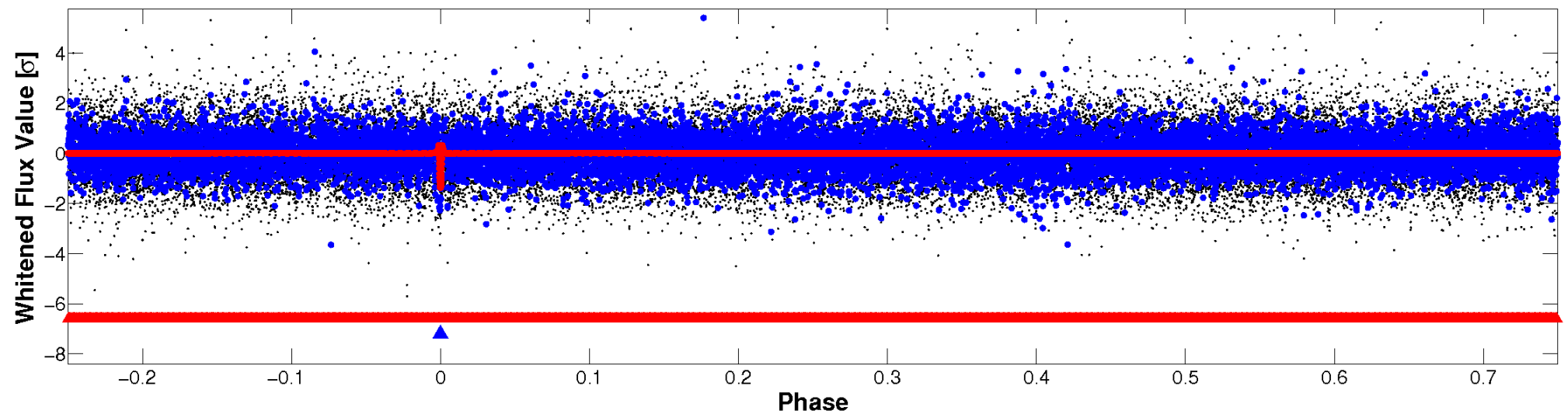


Non-Whitened Vs. Whitened Light Curve

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

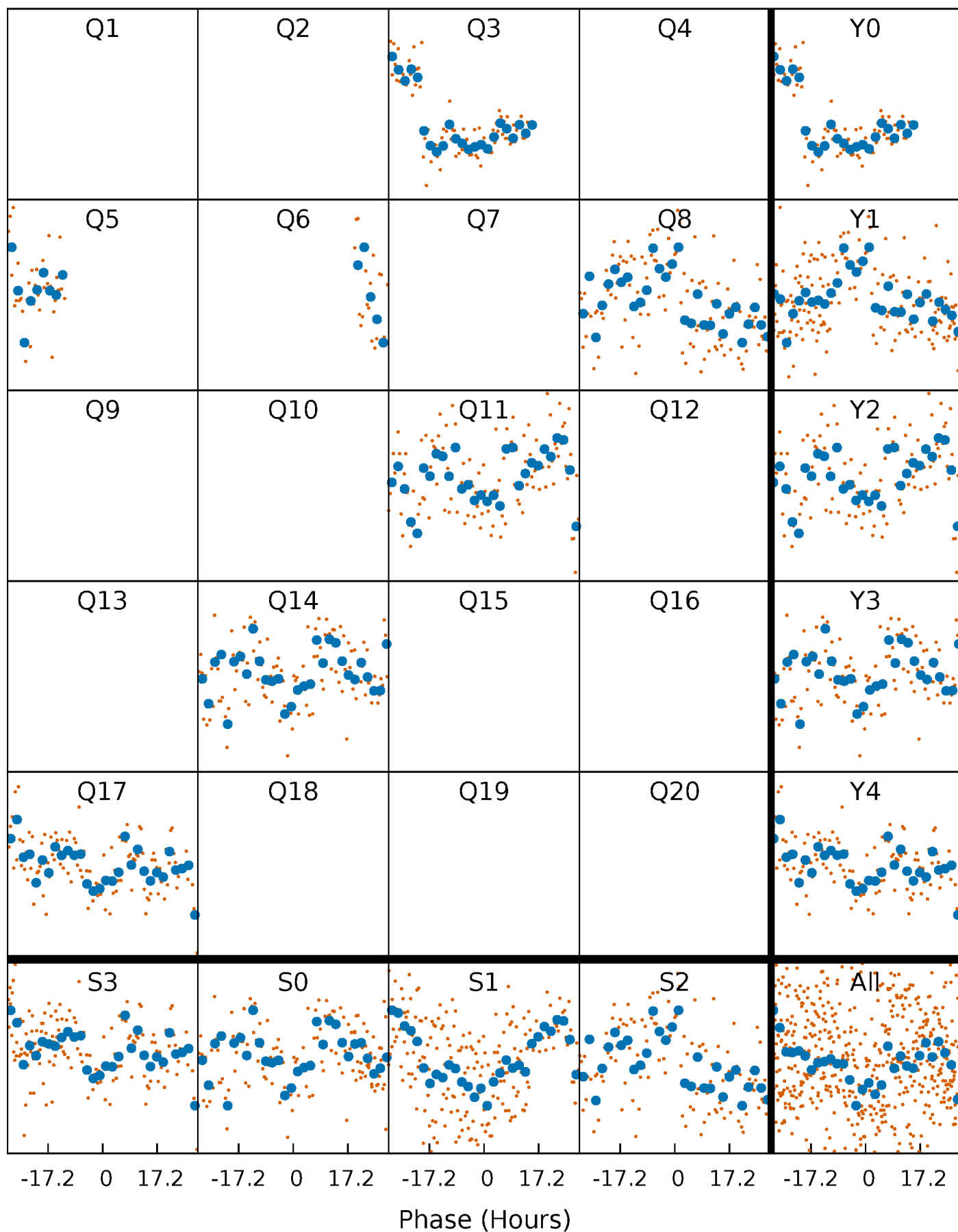


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



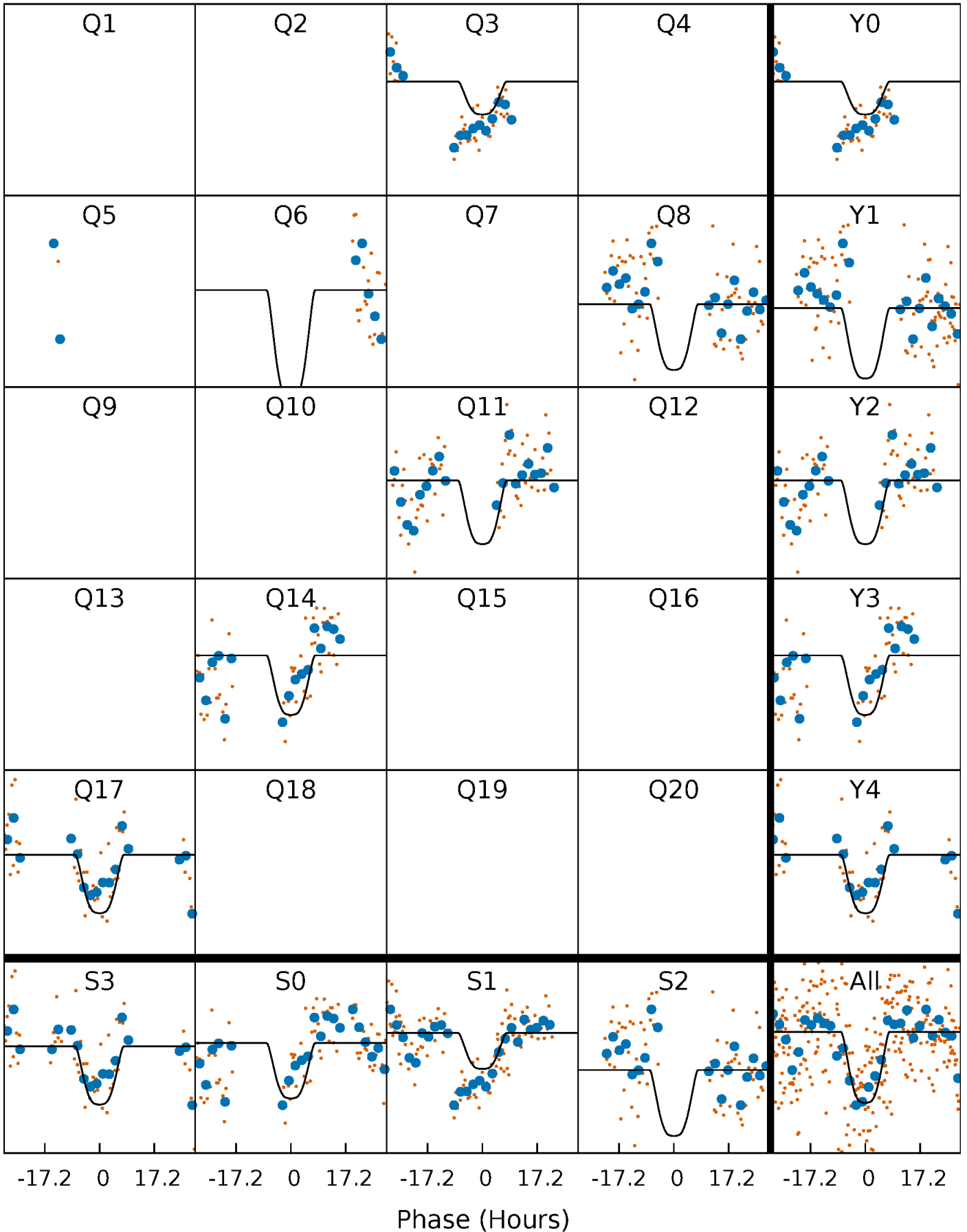
PDC Quarter-Phased Transit Curves

TCE 008495616-02 P=258.717820 Days $T_0=279.944220$ (BKJD)



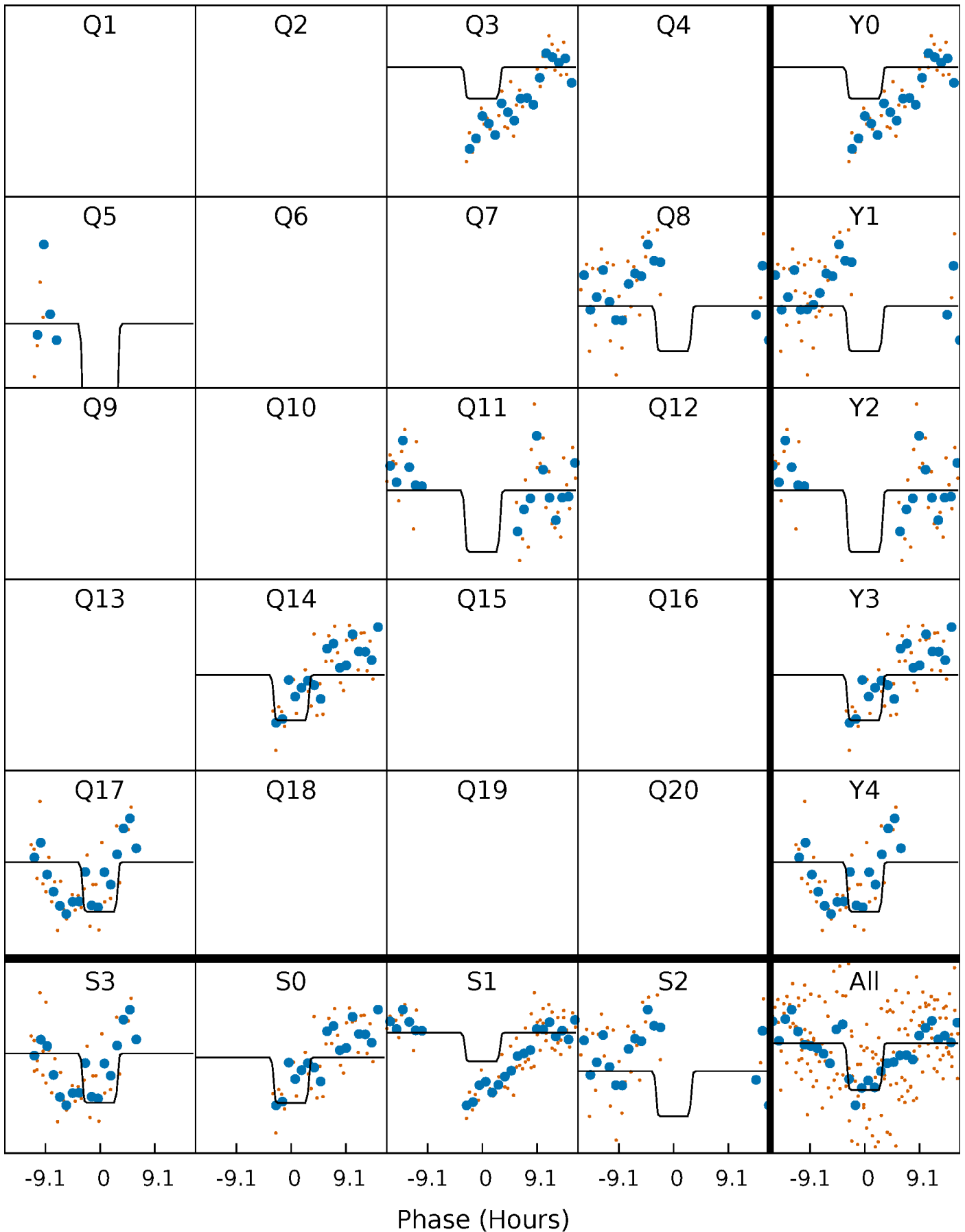
DV Quarter-Phased Transit Curves

TCE 008495616-02 P=258.717820 Days $T_0=279.944220$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

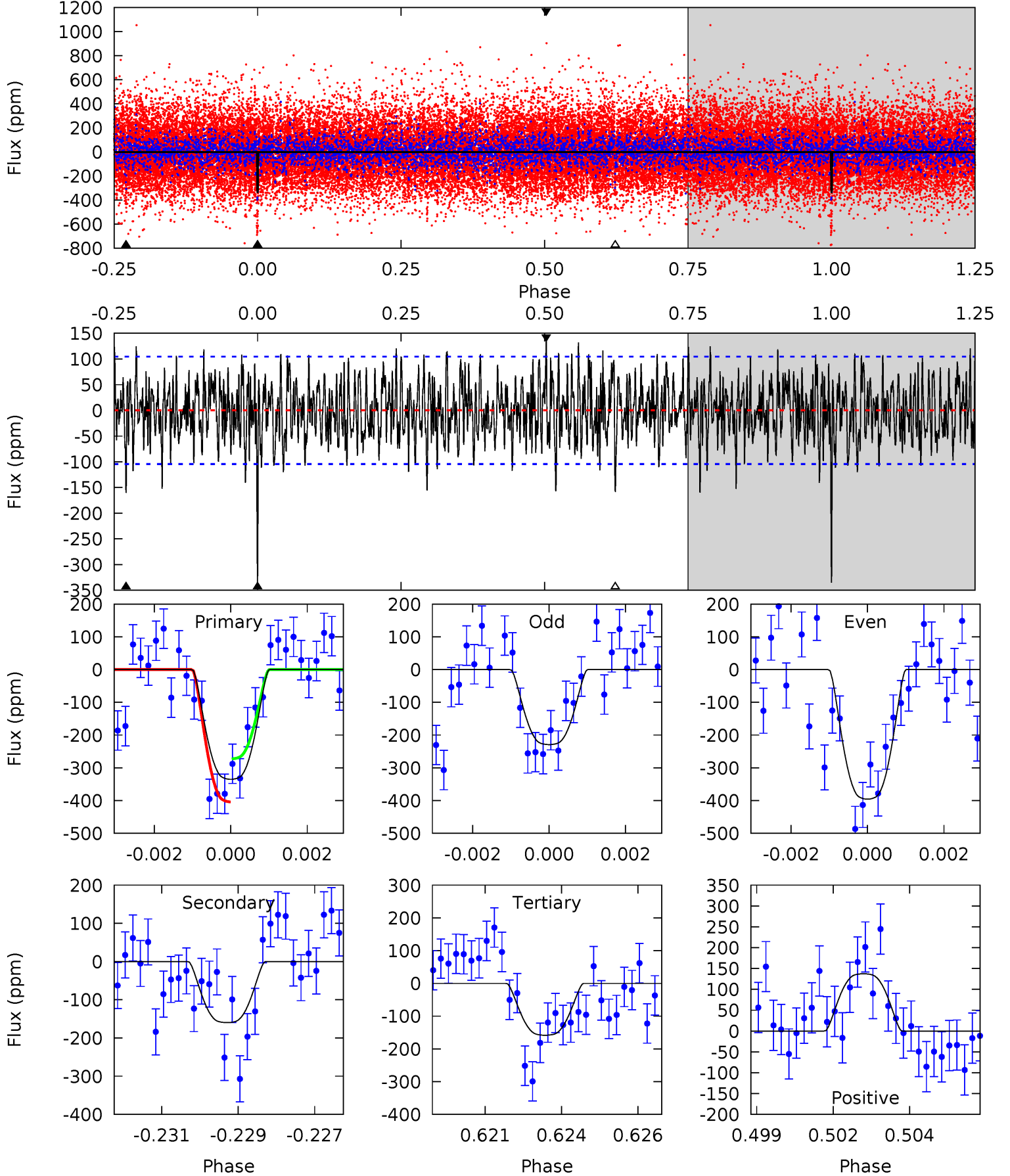
TCE 008495616-02 P=258.791037 Days $T_0=279.685118$ (BKJD)



DV Model-Shift Uniqueness Test

008495616-02, $P = 258.717820$ Days, $E = 21.226400$ Days

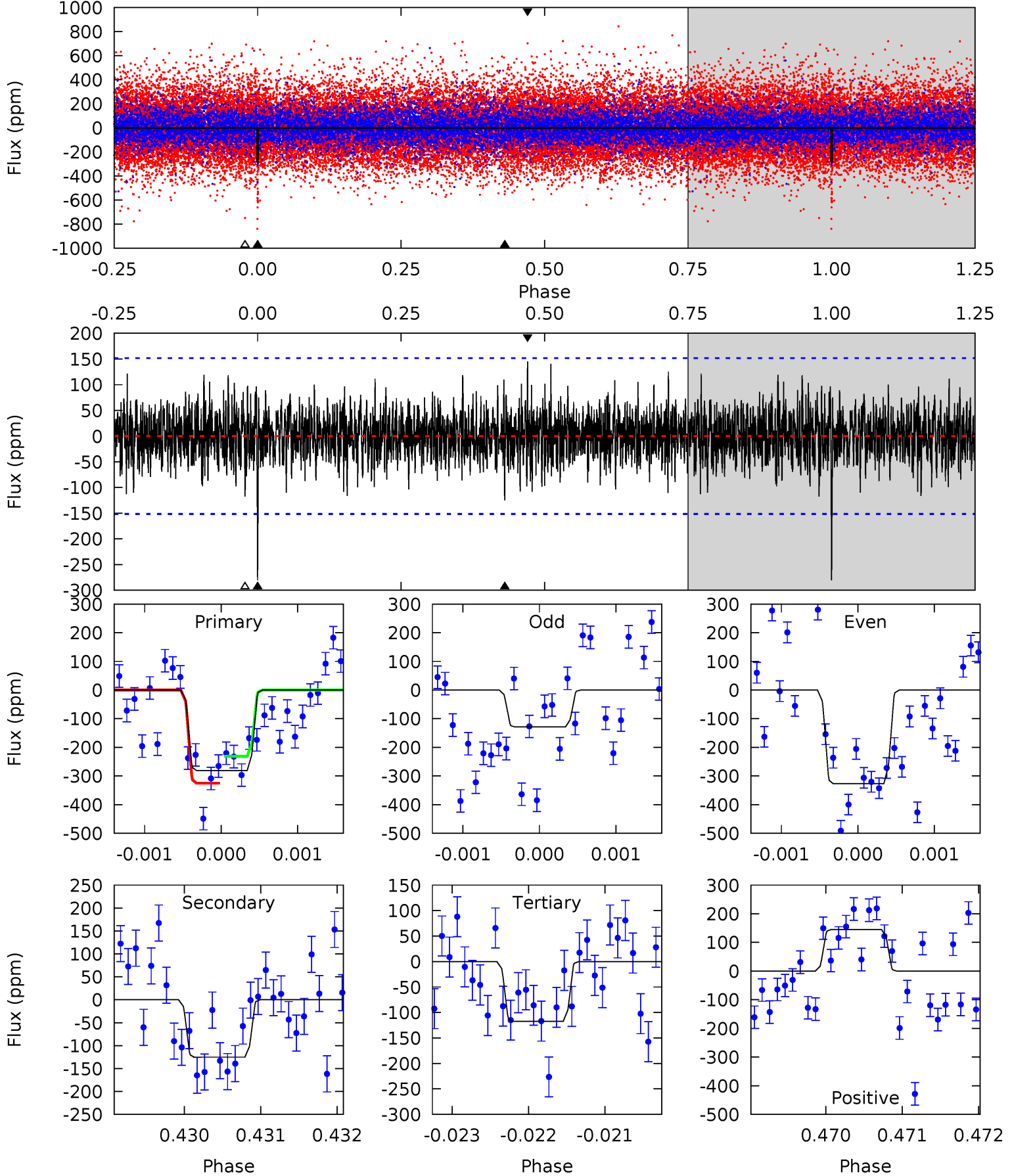
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.0	8.09	8.01	6.95	5.29	3.03	2.46	8.95	10.0	0.08	1.14	4.09	0.60	0.29	3.31



Alt Model-Shift Uniqueness Test

008495616-02, $P = 258.791037$ Days, $E = 20.894081$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	4.48	4.20	5.19	5.43	3.26	1.29	5.86	4.87	0.28	-0.71	3.33	1.03	0.34	1.68



Stellar Parameters For KIC 008495616

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6531^{+181}_{-227}	$4.177^{+0.190}_{-0.171}$	$-0.300^{+0.250}_{-0.300}$	$1.431^{+0.422}_{-0.346}$	$1.121^{+0.192}_{-0.157}$	$0.539^{+0.612}_{-0.249}$
	+3%/-3%	+5%/-4%	+83%/-100%	+29%/-24%	+17%/-14%	+113%/-46%
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 008495616-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-160 ± 20	$3.60^{+0.70}_{-0.62}$	527^{+45}_{-35}	4926^{+281}_{-256}	4680^{+1976}_{-1396}
Alt.	-125 ± 28	$2.59^{+0.60}_{-0.46}$	530^{+38}_{-36}	5345^{+478}_{-411}	6842^{+3843}_{-2579}

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

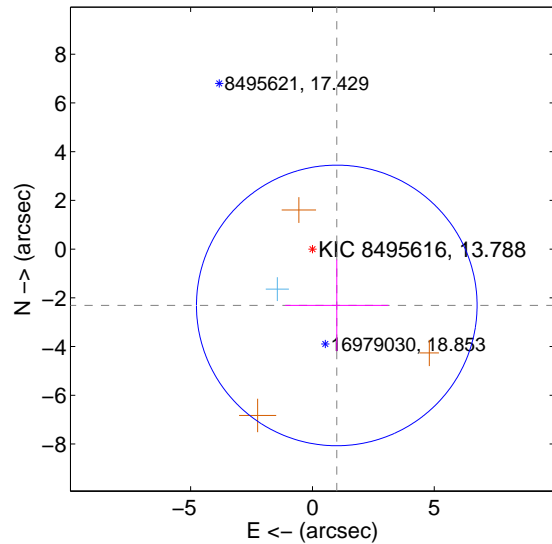
Supplemental centroid analysis for 008495616-02. Kepler magnitude: 13.79. Transit SNR 9.28

There are 1 quarters with good PRF difference image offsets

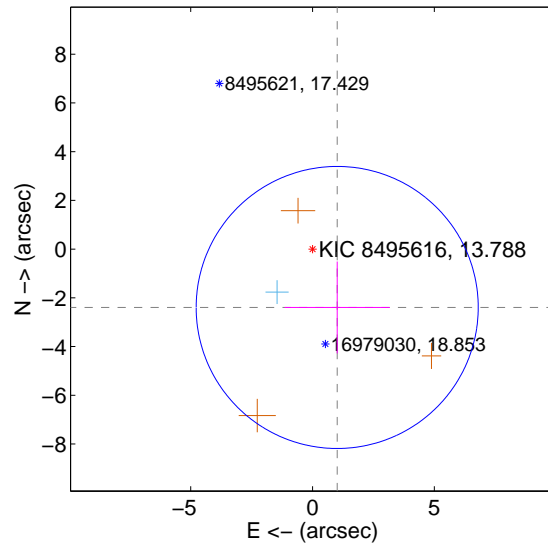
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.519 ± 1.919	1.31	-0.999 ± 2.117	-2.313 ± 1.880
PRF-fit source offset from KIC position	2.601 ± 1.929	1.35	-1.012 ± 2.157	-2.396 ± 1.886
photometric centroid source offset	1.25 ± 0.73	1.71	0.42 ± 0.78	-1.17 ± 0.73

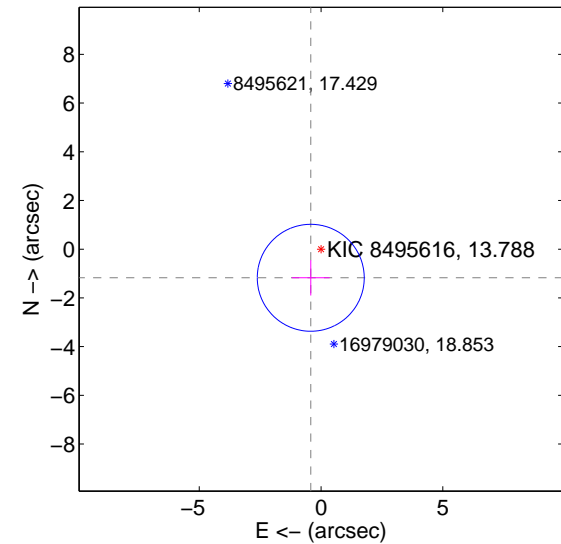
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

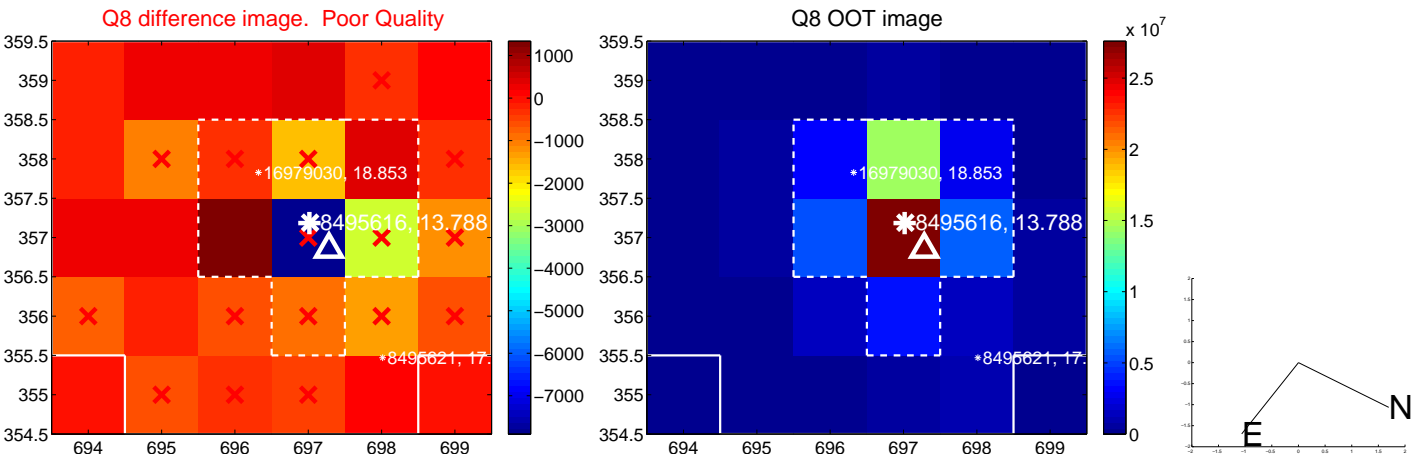


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

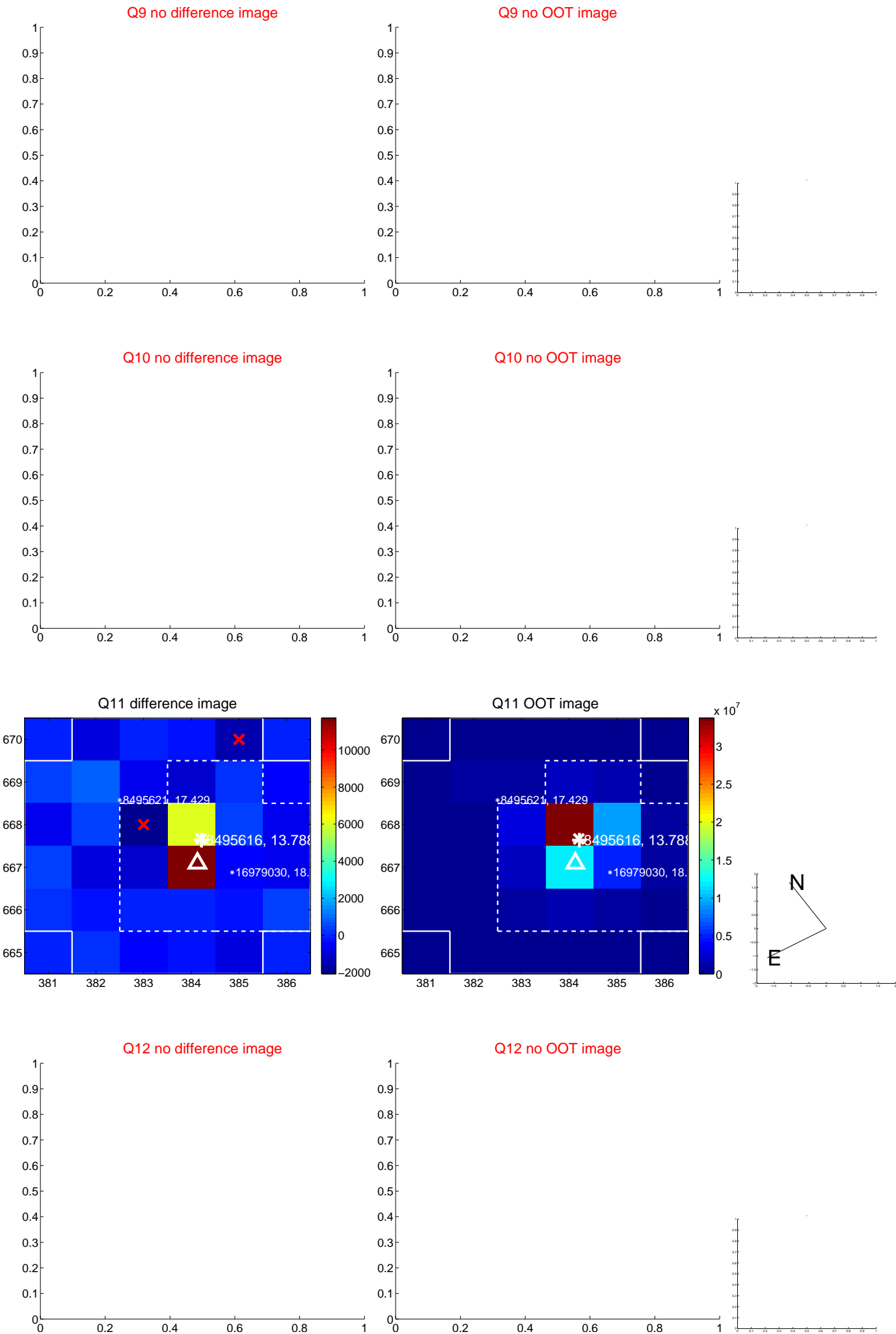
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

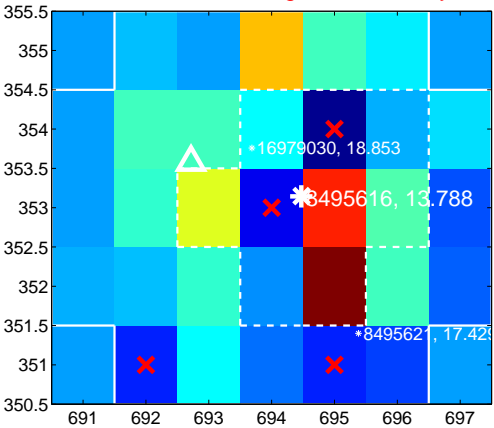
Q13 no difference image



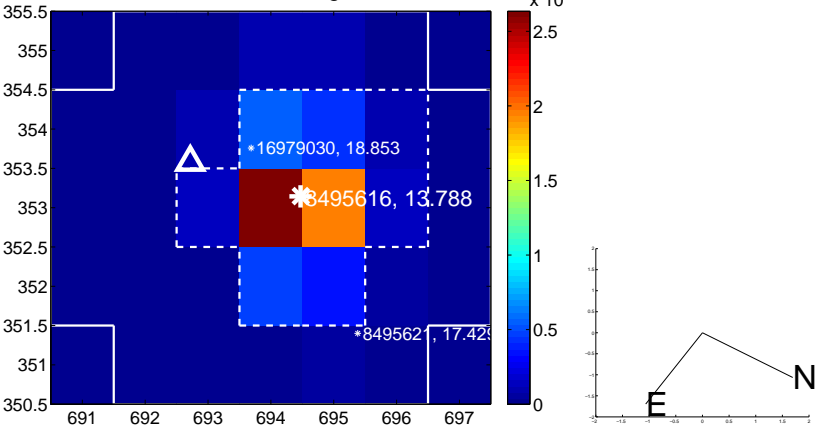
Q13 no OOT image



Q14 difference image. Poor Quality



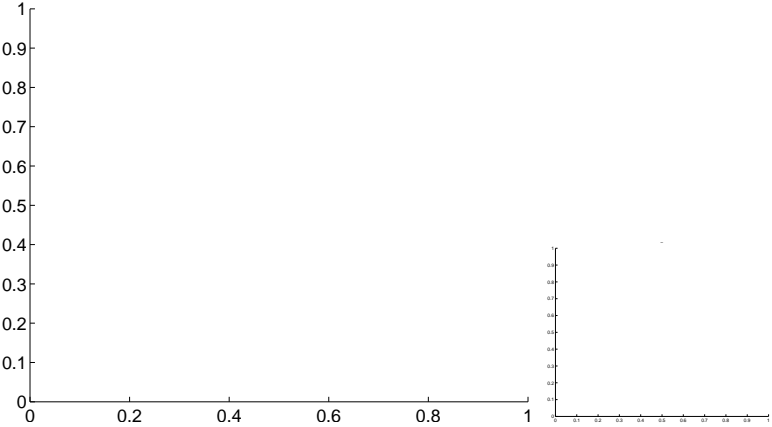
Q14 OOT image



Q15 no difference image



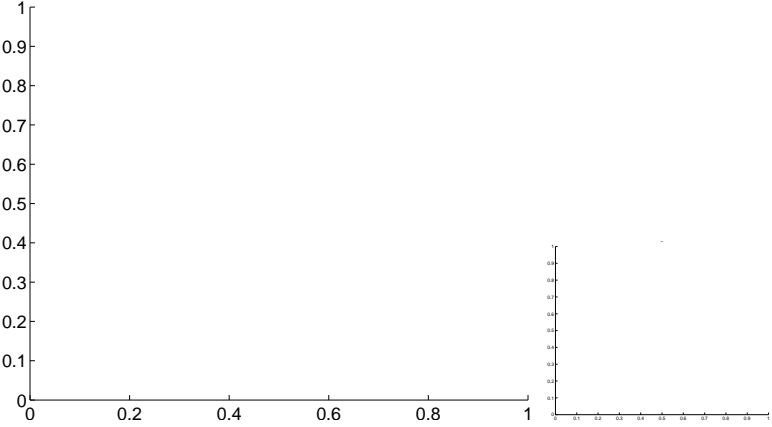
Q15 no OOT image



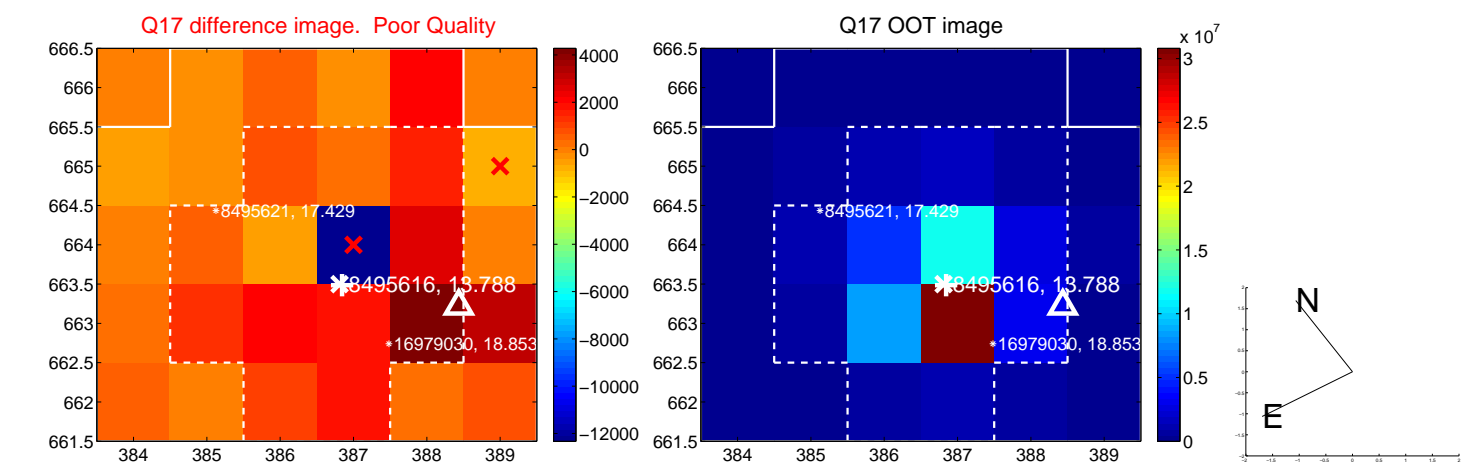
Q16 no difference image



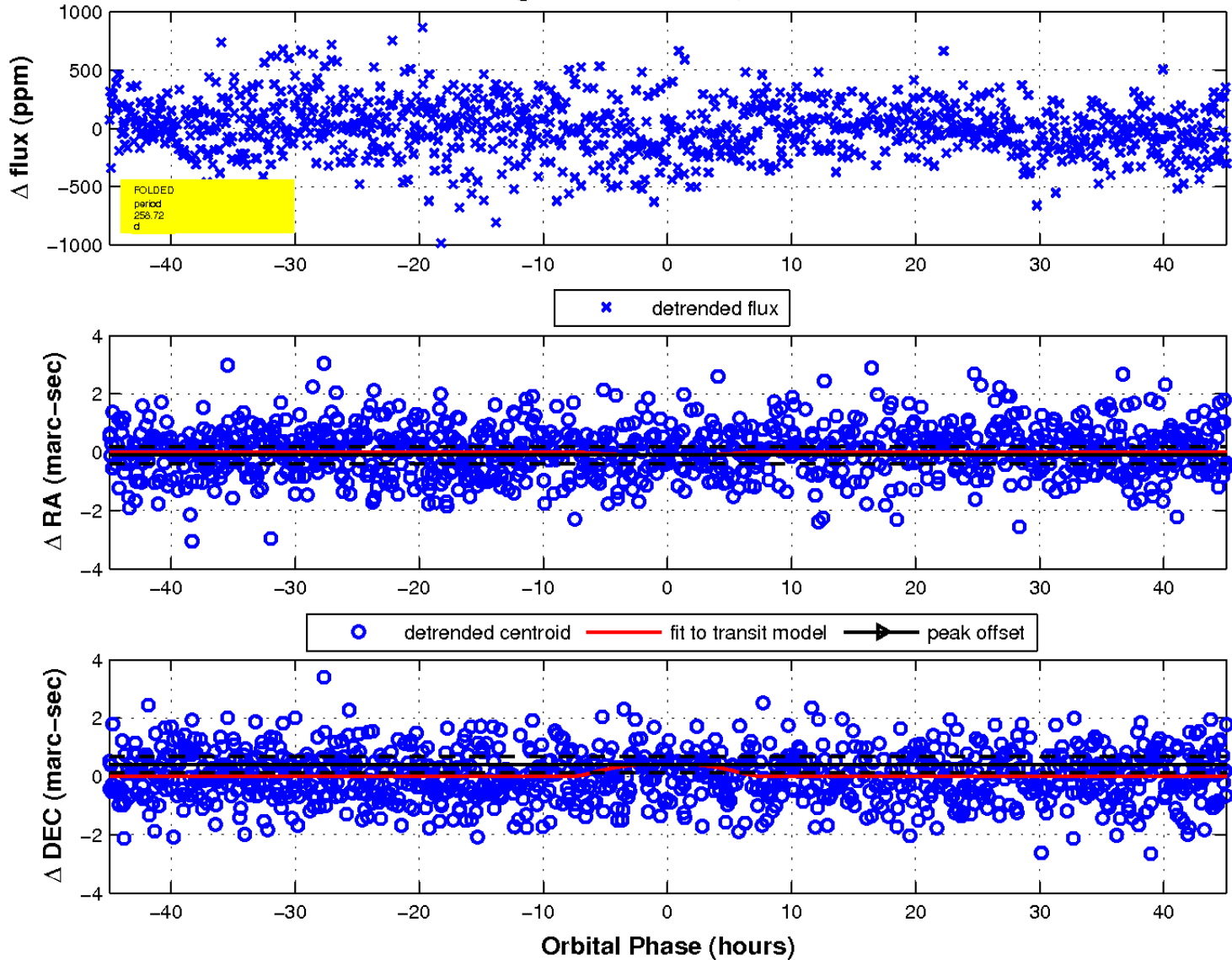
Q16 no OOT image



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

