

KIC 004658336

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})
004658336-01	OBS	No	1.450245	131.817295	352.7	5.438	11.3	11.0	1.76	7281	3.65	9431.50
004658336-02	OBS	No	1.450221	132.307949	522.2	5.703	12.5	14.7	1.76	7281	5.38	9431.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004658336-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004658336-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

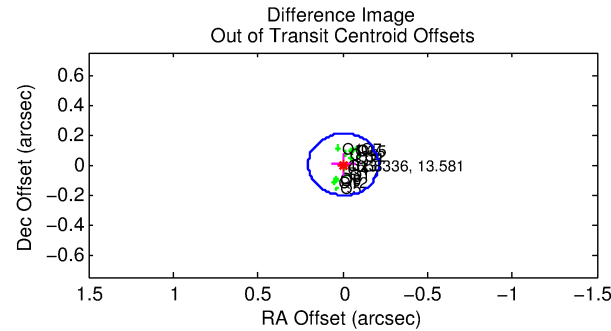
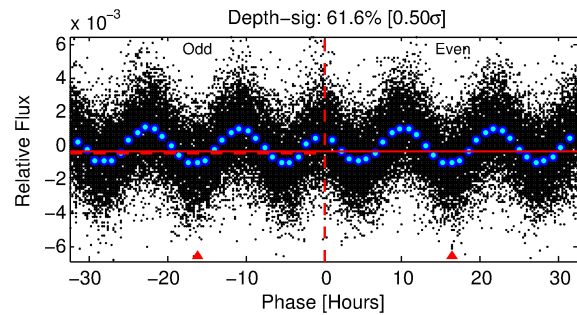
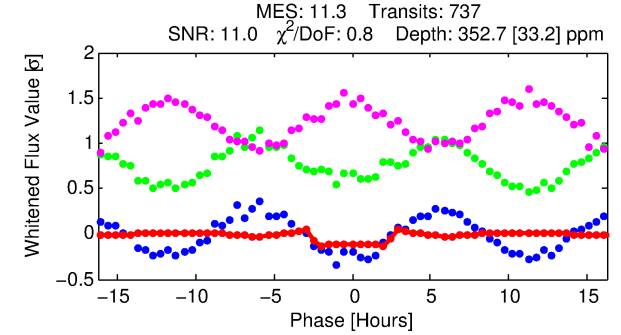
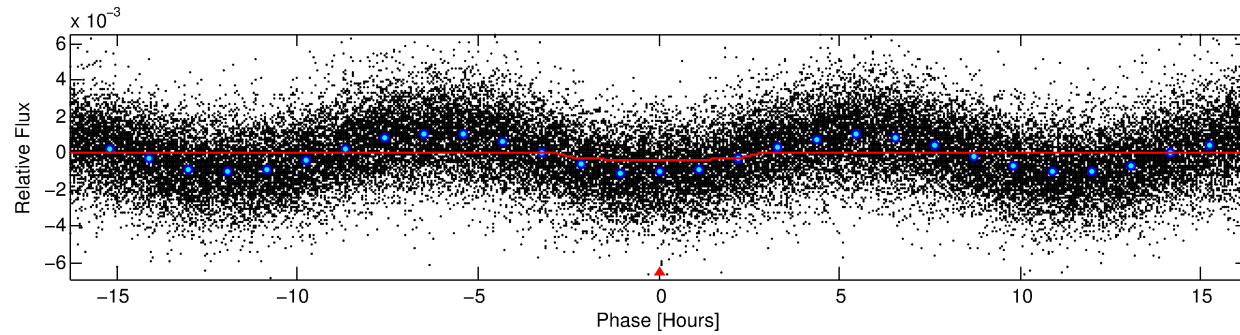
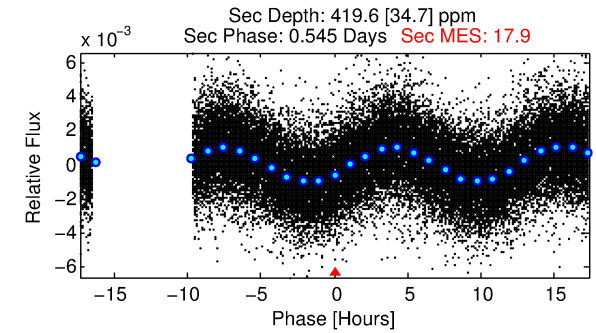
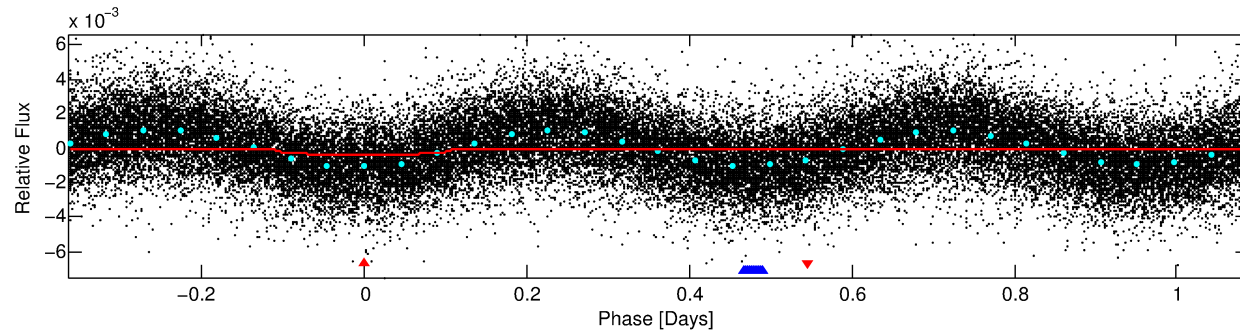
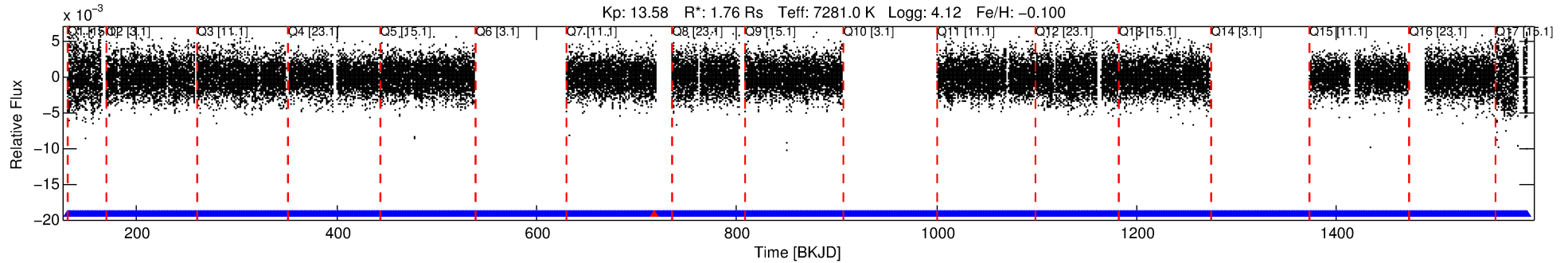
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004658336-01

No Significant Match Found

DV One-Page Summary

KIC: 4658336 Candidate: 1 of 2 Period: 1.450 d



DV Fit Results:

Period = 1.45024 [0.00001] d
Epoch = 131.8173 [0.0028] BKJD
Rp/R* = 0.0190 [0.0031]
a/R* = 1.55 [0.87]
b = 0.80 [0.42]
Seff = 9431.50 [3698.64]
Teq = 2513 [246] K
Rp = 3.64 [1.30] Re
a = 0.0287 [0.0072] AU
Ag = 14.35 [6.93] [1.93σ]
Teffp = 7562 [738] K [6.49σ]

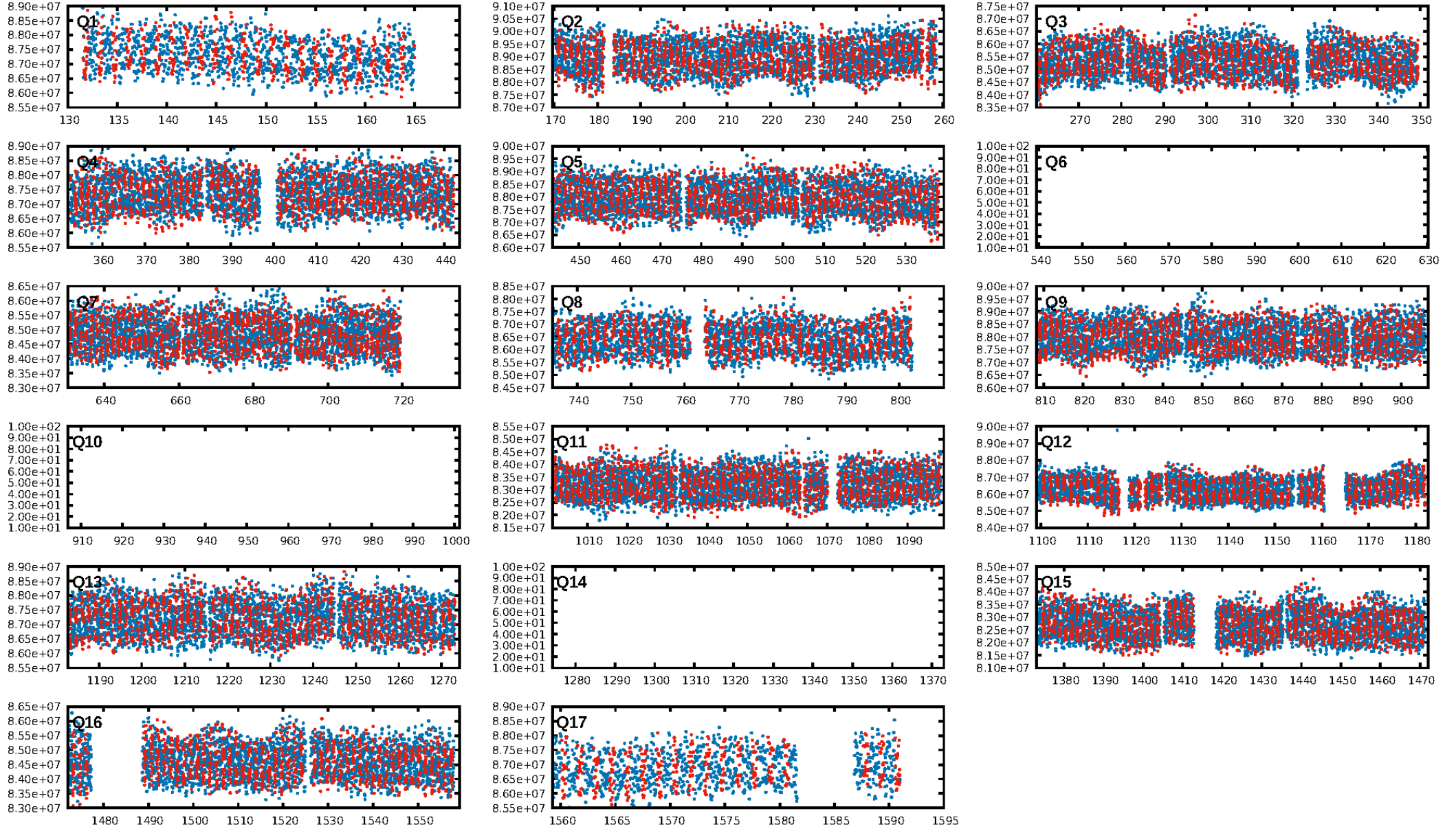
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [695/696]
GhostDiagnostic-chr: 9.515
Centroid-sig: 0.2%
Centroid-so: 0.082 arcsec [0.87σ]
OotOffset-rm: 0.005 arcsec [0.07σ]
KicOffset-rm: 0.159 arcsec [2.16σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

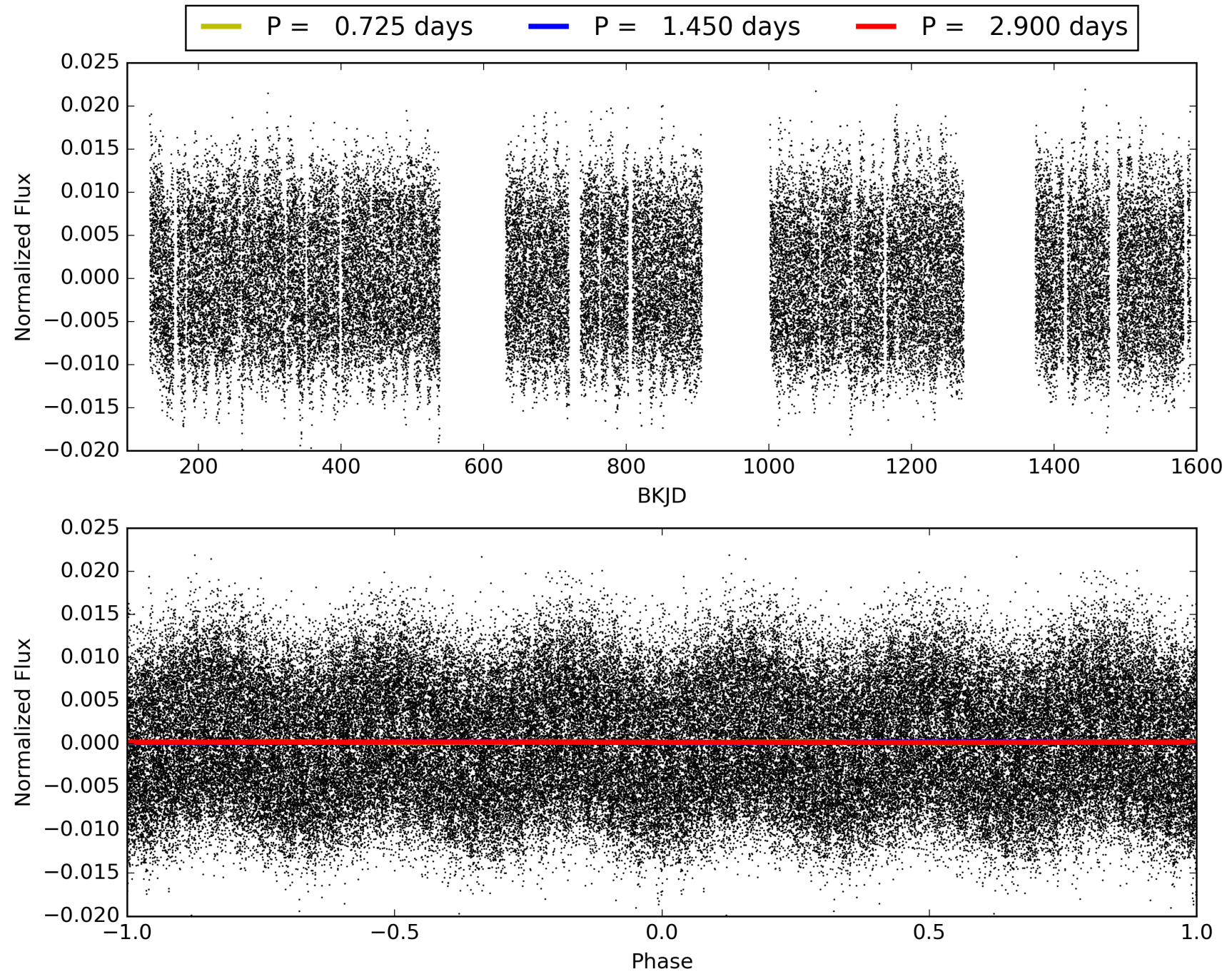
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:34:29 Z

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

TCE 004658336-01, PDC Light Curves

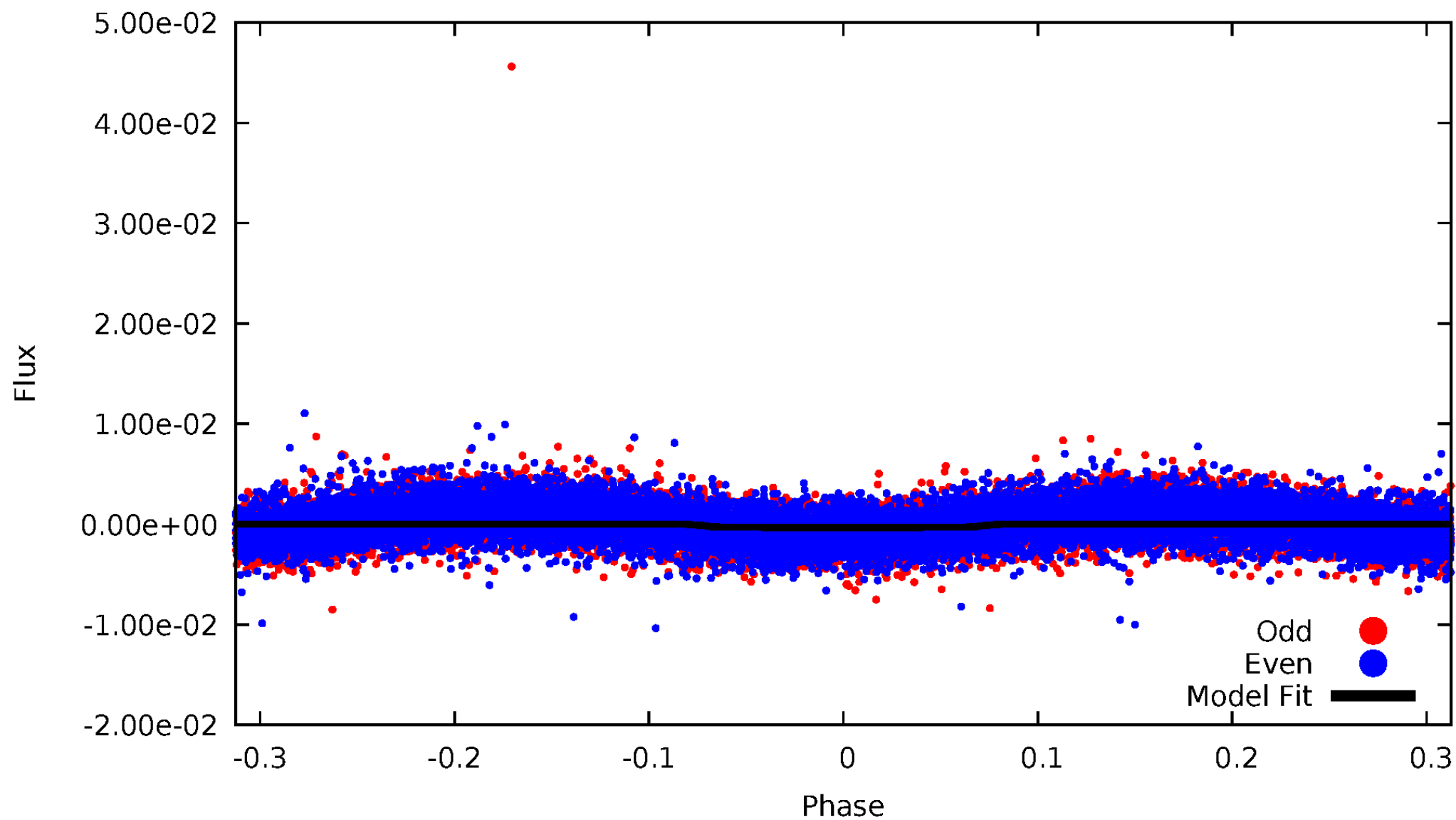


TCE 004658336-01



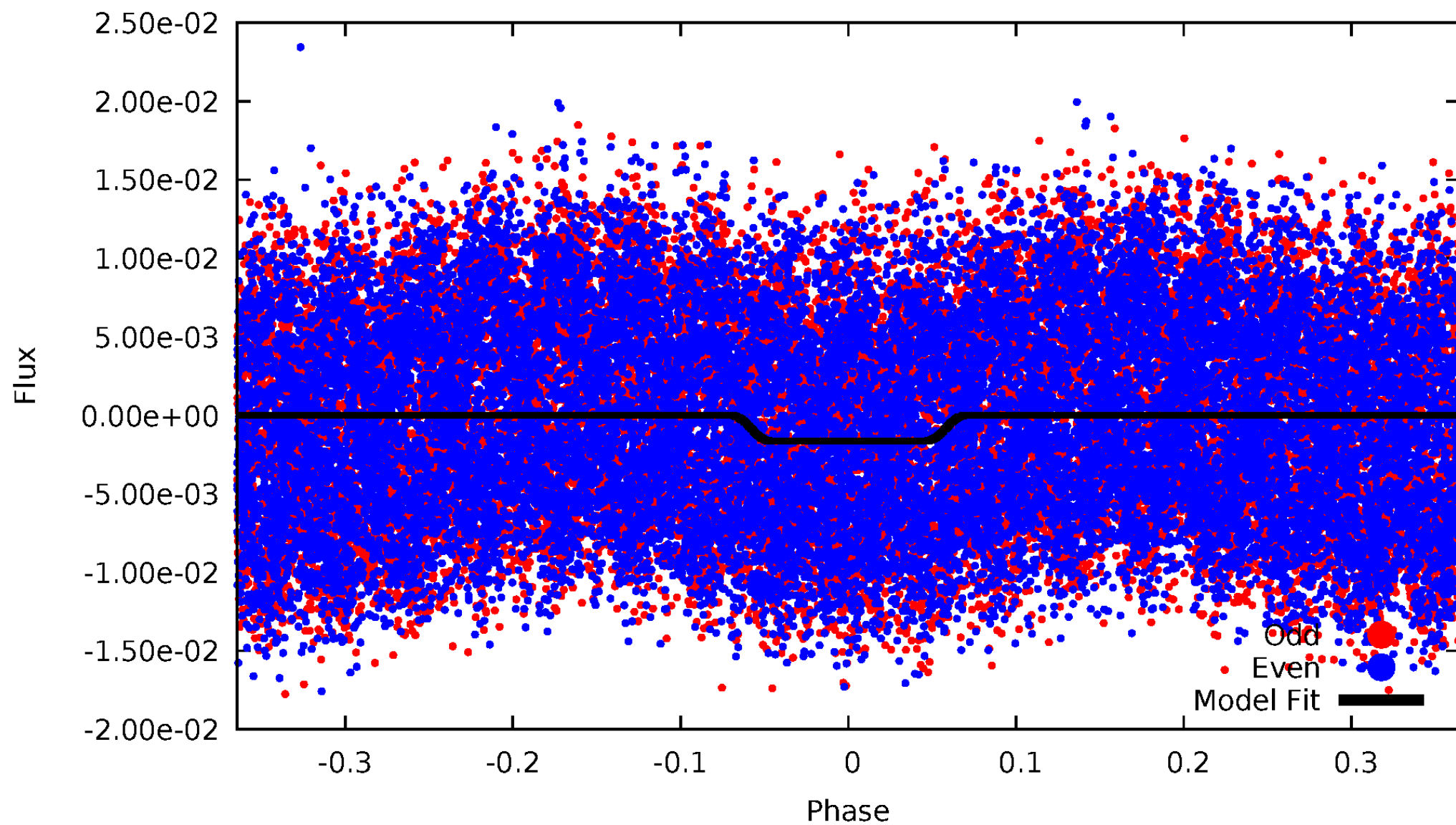
DV Odd/Even

TCE 004658336-01

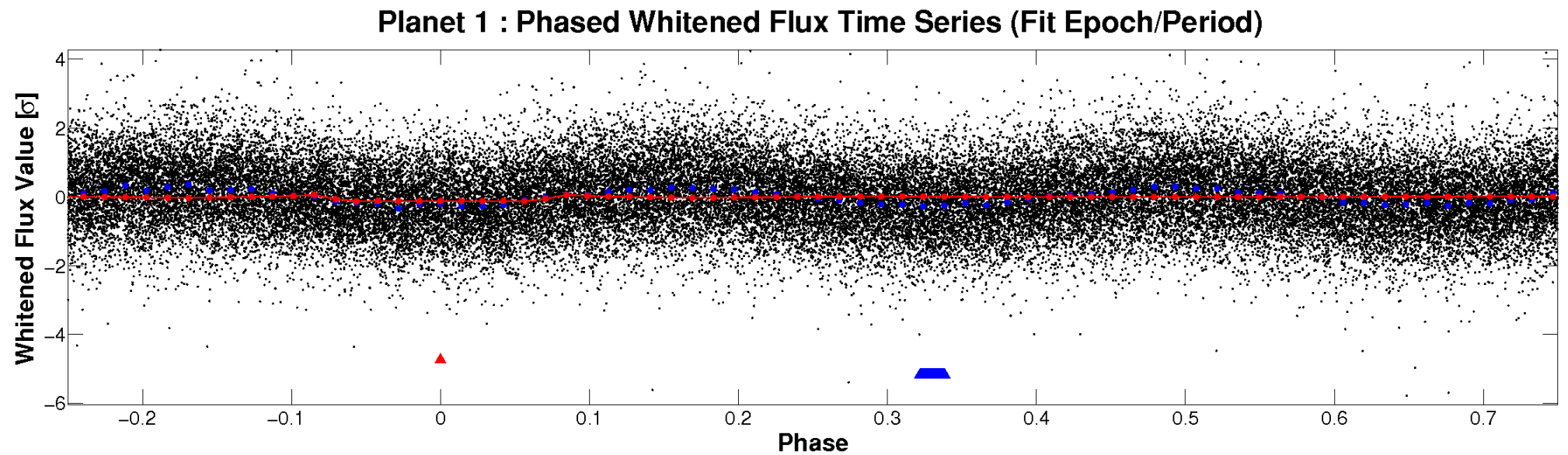
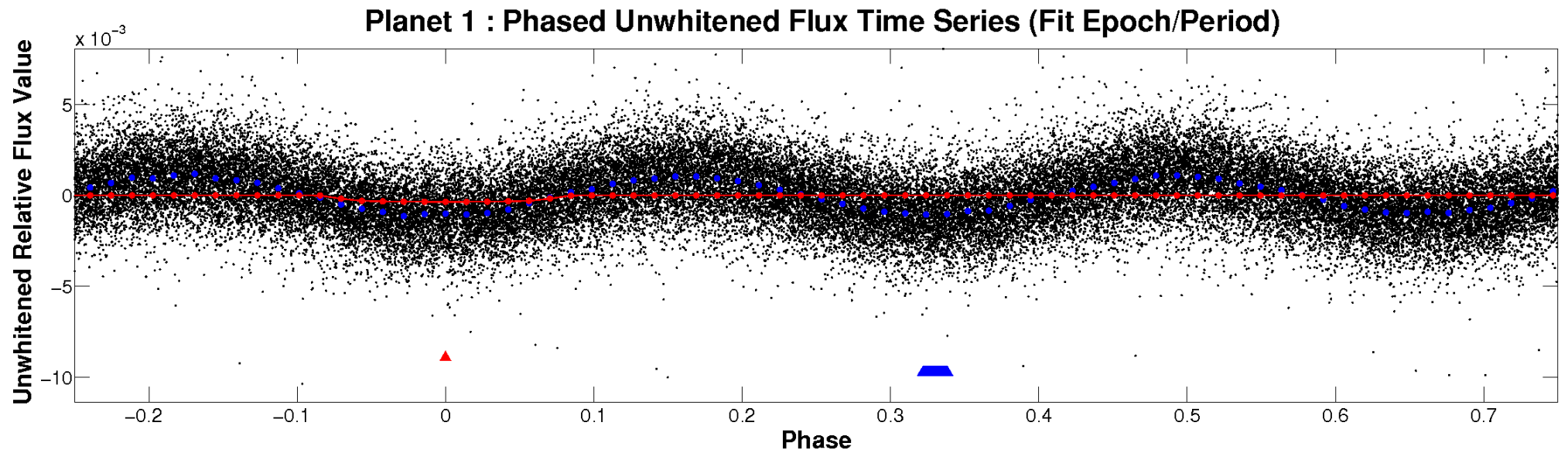


ALT Odd/Even

TCE 004658336-01

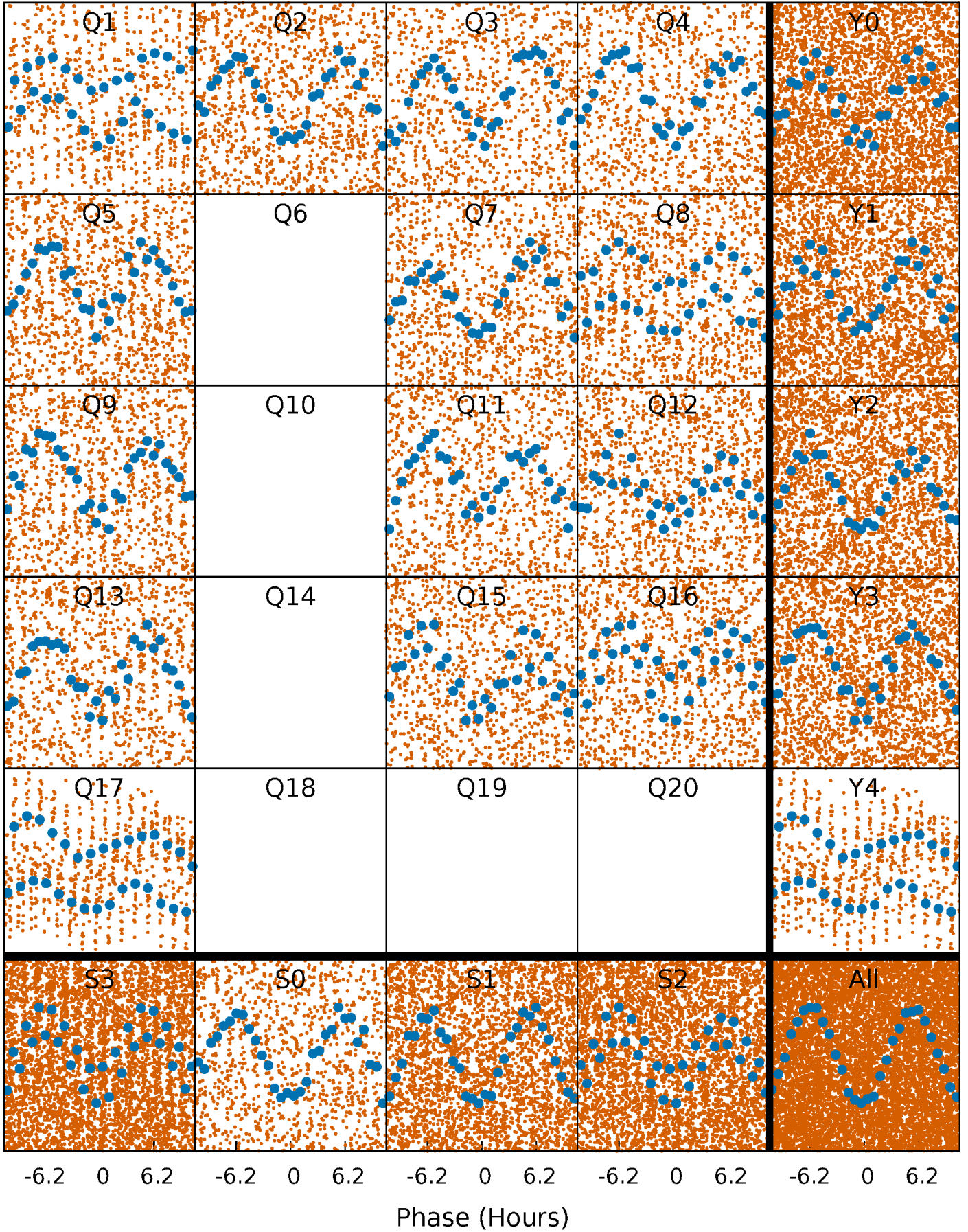


Non-Whitened Vs. Whitened Light Curve



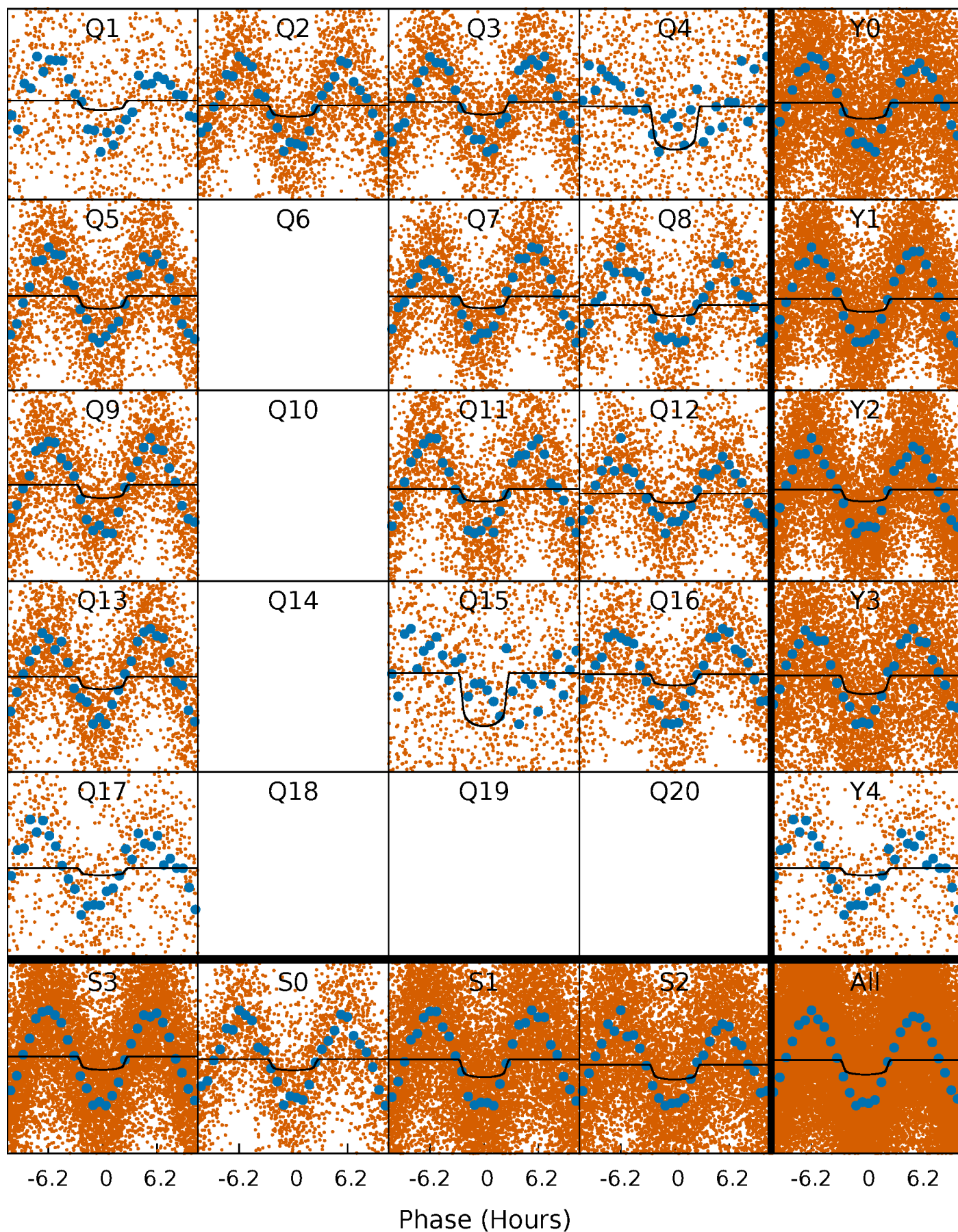
PDC Quarter-Phased Transit Curves

TCE 004658336-01 P= 1.450245 Days $T_0=131.817295$ (BKJD)



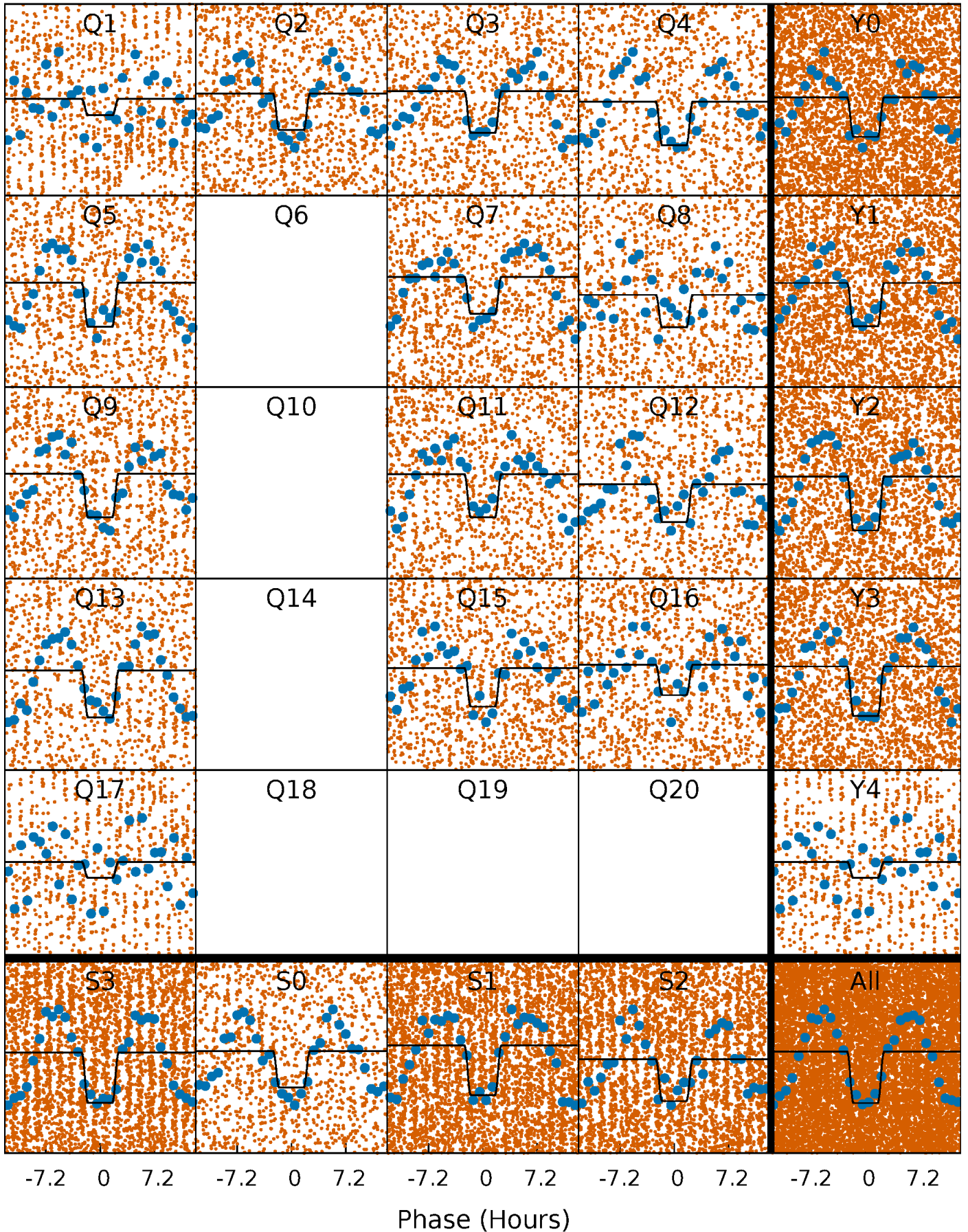
DV Quarter-Phased Transit Curves

TCE 004658336-01 P= 1.450245 Days $T_0=131.817295$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

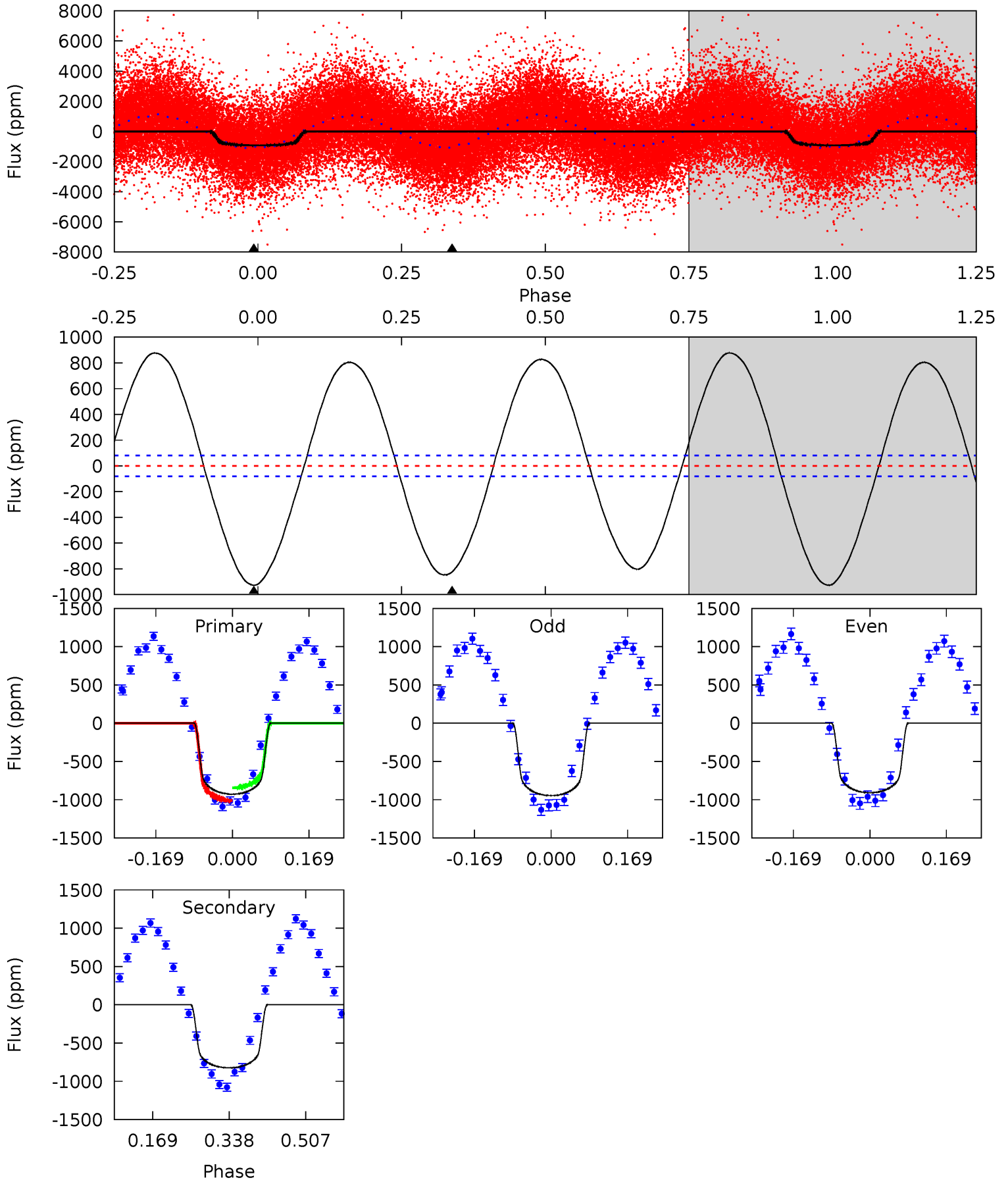
TCE 004658336-01 P= 1.450216 Days $T_0=131.820216$ (BKJD)



DV Model-Shift Uniqueness Test

004658336-01, P = 1.450245 Days, E = 130.367050 Days

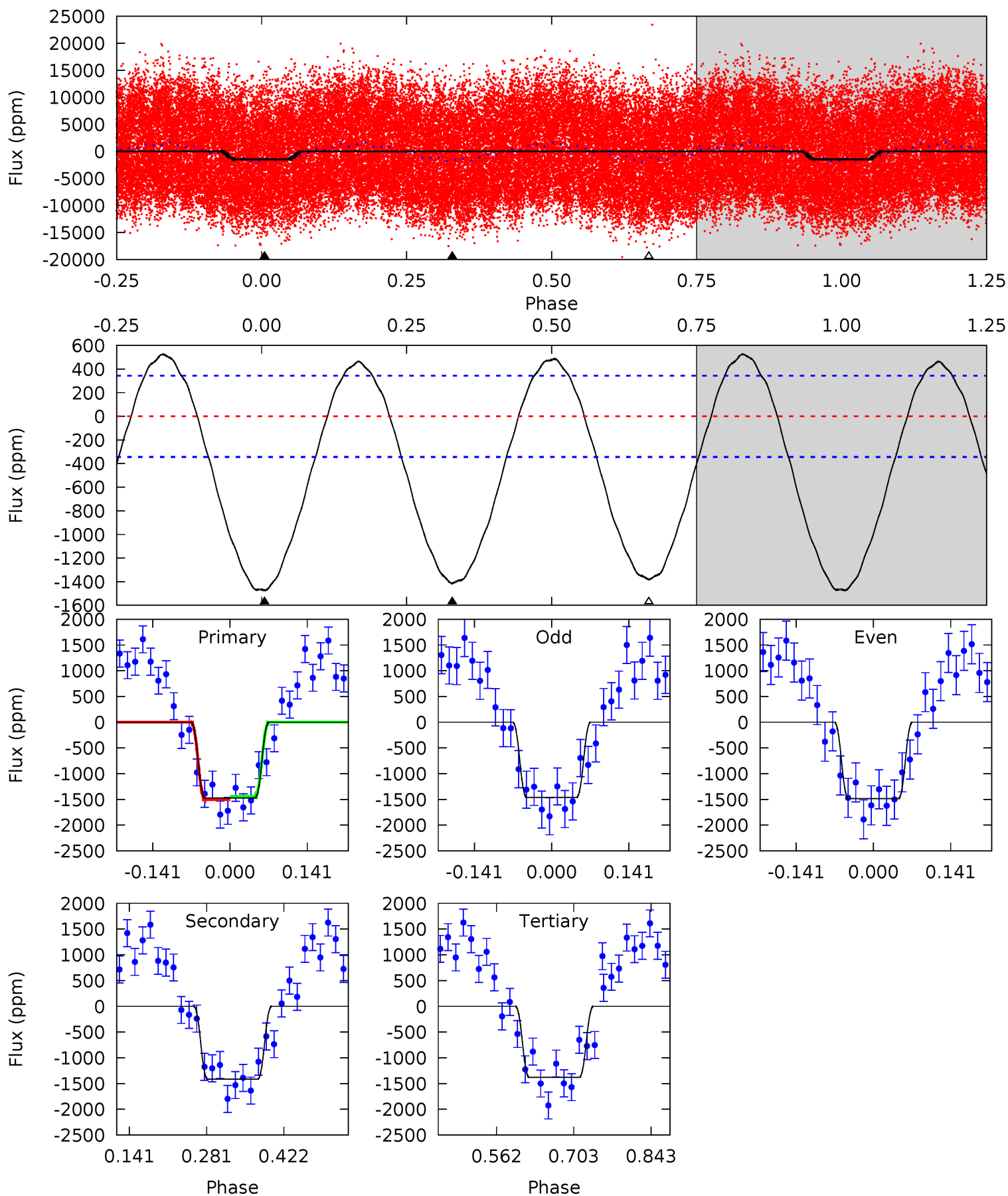
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.1	45.4	0	0	4.45	1.38	31.9	51.1	51.1	45.4	45.4	1.05	1.07	0.49	5.11



Alt Model-Shift Uniqueness Test

004658336-01, P = 1.450216 Days, E = 130.370000 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	18.5	18.0	0	4.49	1.47	9.01	1.21	19.3	0.44	18.5	0.18	0.94	0.26	0.41



Stellar Parameters For KIC 004658336

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7281^{+232}_{-348}	$4.125^{+0.144}_{-0.176}$	$-0.100^{+0.250}_{-0.350}$	$1.759^{+0.555}_{-0.370}$	$1.505^{+0.211}_{-0.234}$	$0.389^{+0.297}_{-0.194}$
	+3%/-5%	+3%/-4%	+250%/-350%	+32%/-21%	+14%/-16%	+76%/-50%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004658336-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-824±18	$3.68^{+0.80}_{-0.72}$	3517^{+262}_{-261}	9342^{+1355}_{-1030}	27^{+15}_{-8}
Alt.	-1414±77	$7.84^{+1.37}_{-1.12}$	3511^{+292}_{-241}	6893^{+418}_{-413}	10^{+3}_{-3}

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 $A_{obs} \gg 1.0$

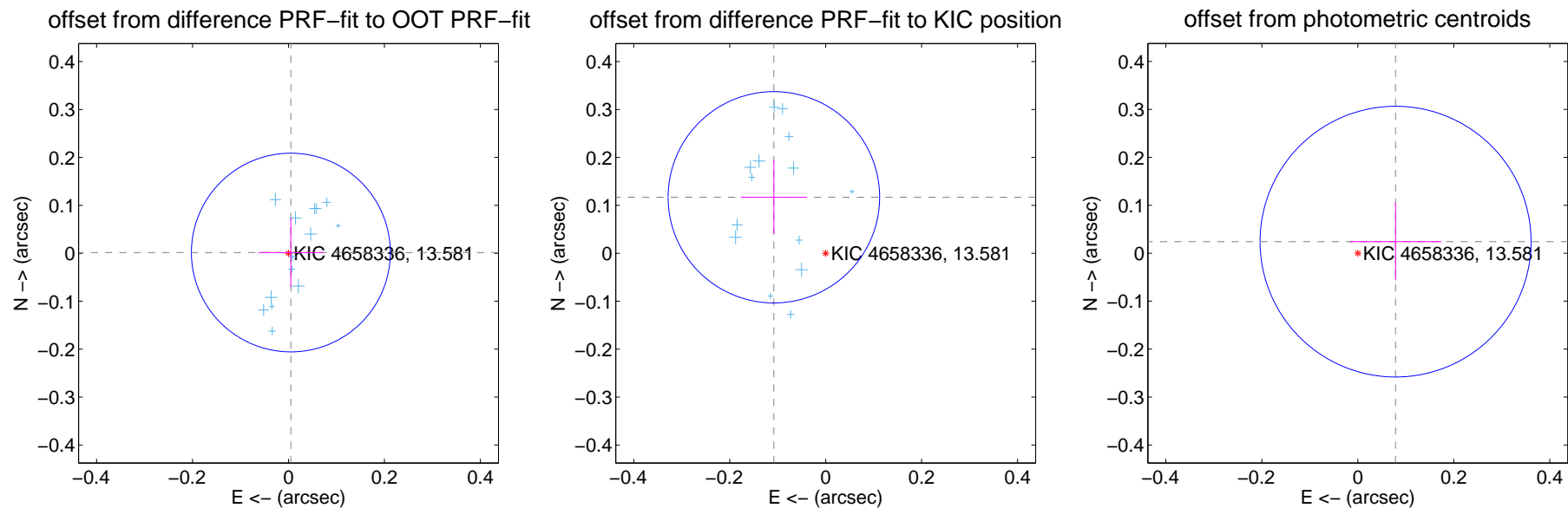
DV Centroid Data

Supplemental centroid analysis for 004658336-01. Kepler magnitude: 13.58. Transit SNR 10.96

There are 14 quarters with good PRF difference image offsets

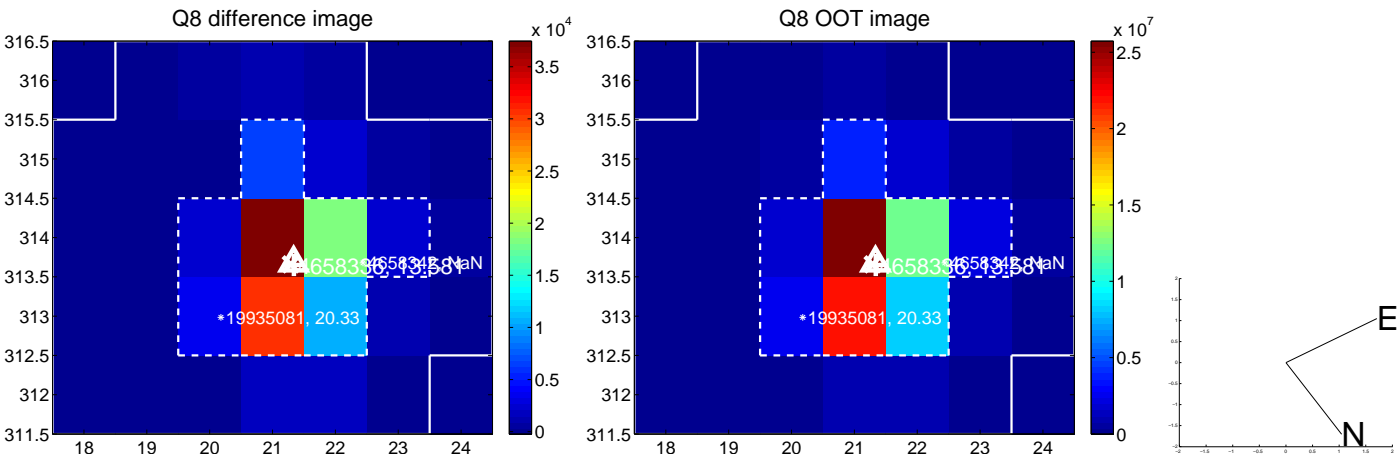
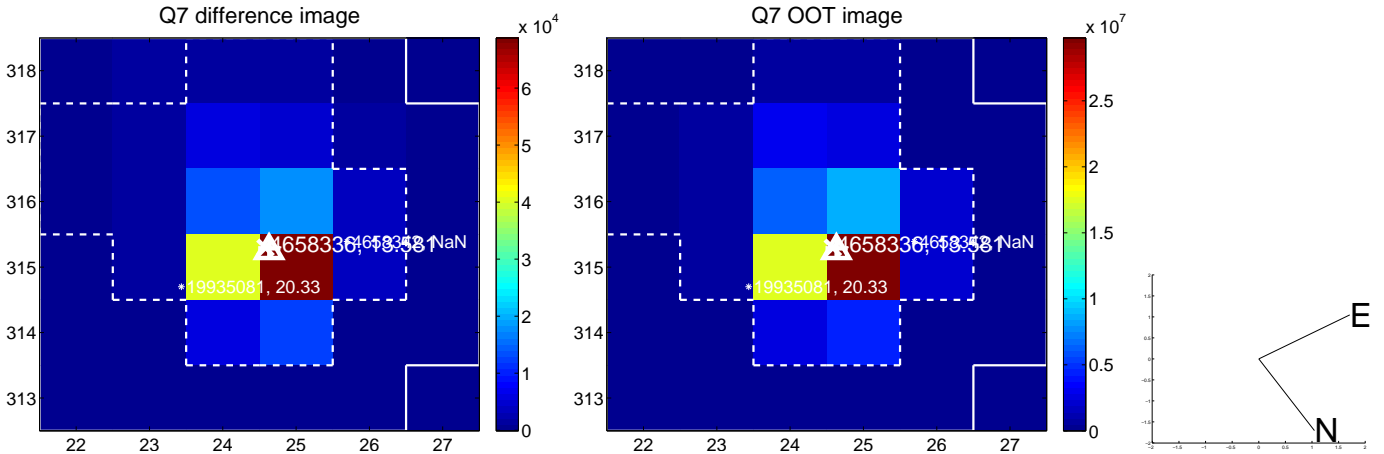
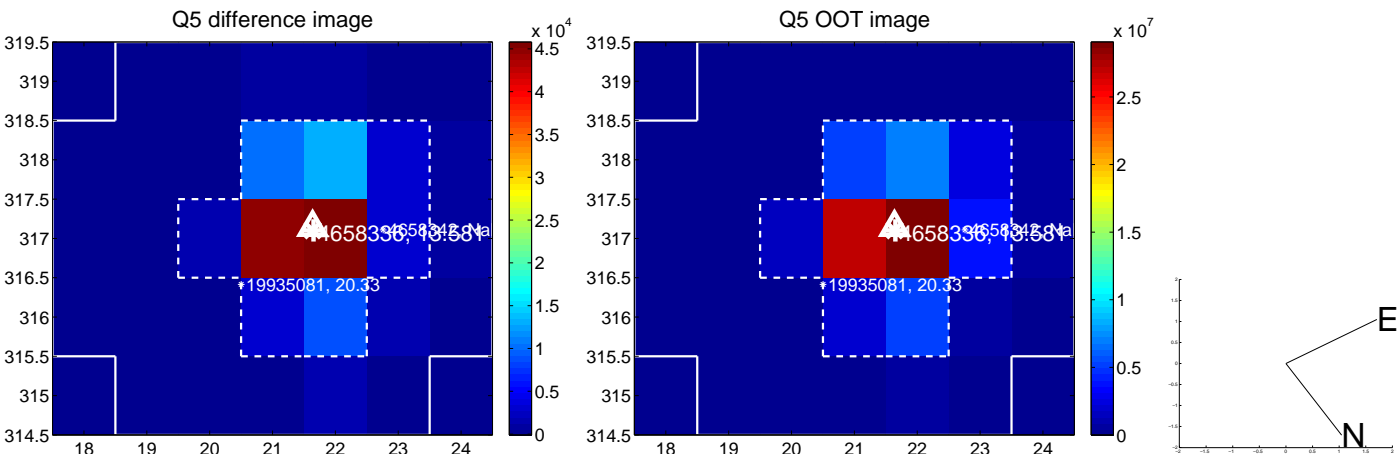
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.005 ± 0.069	0.07	-0.005 ± 0.068	0.002 ± 0.071
PRF-fit source offset from KIC position	0.159 ± 0.073	2.16	0.108 ± 0.069	0.117 ± 0.077
photometric centroid source offset	0.08 ± 0.09	0.87	-0.08 ± 0.10	0.02 ± 0.08

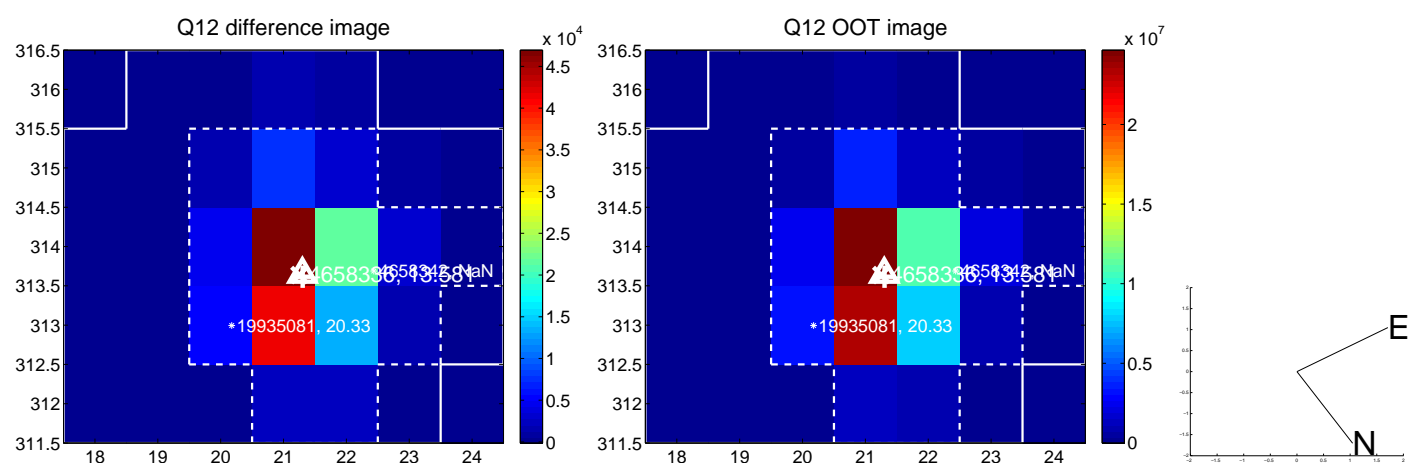
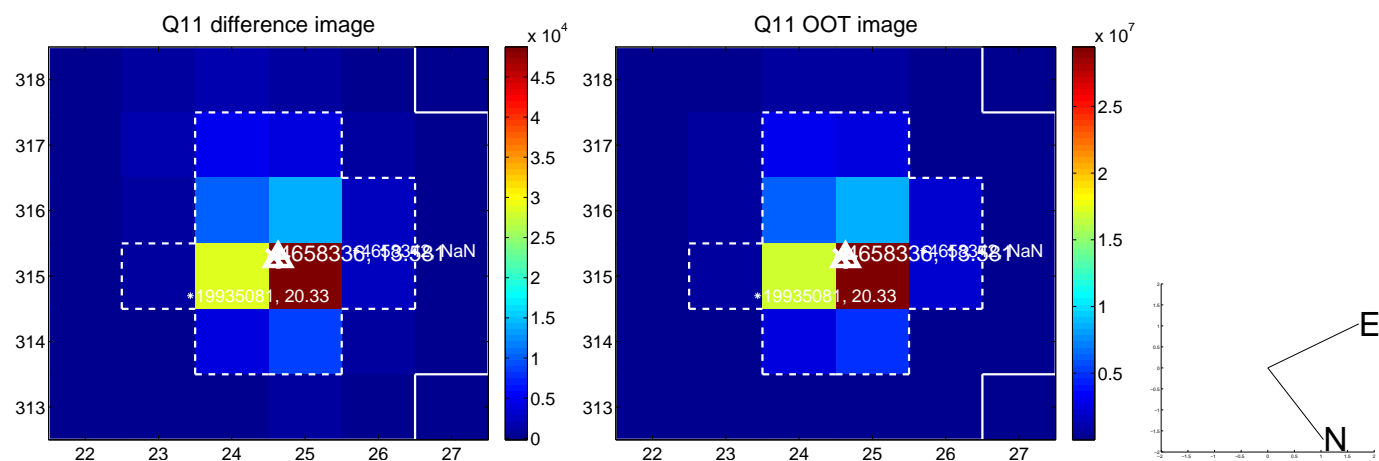
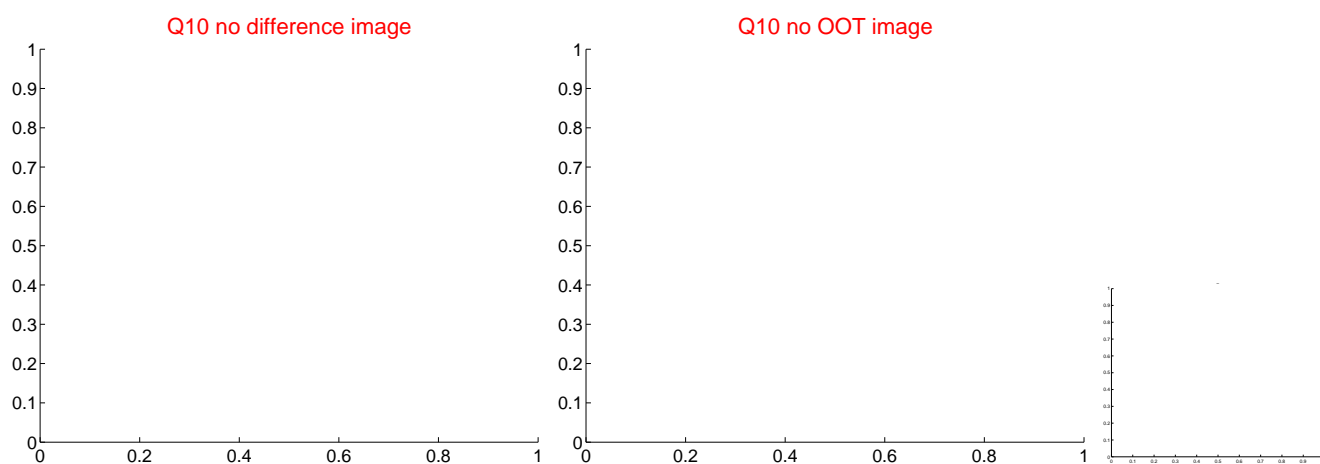
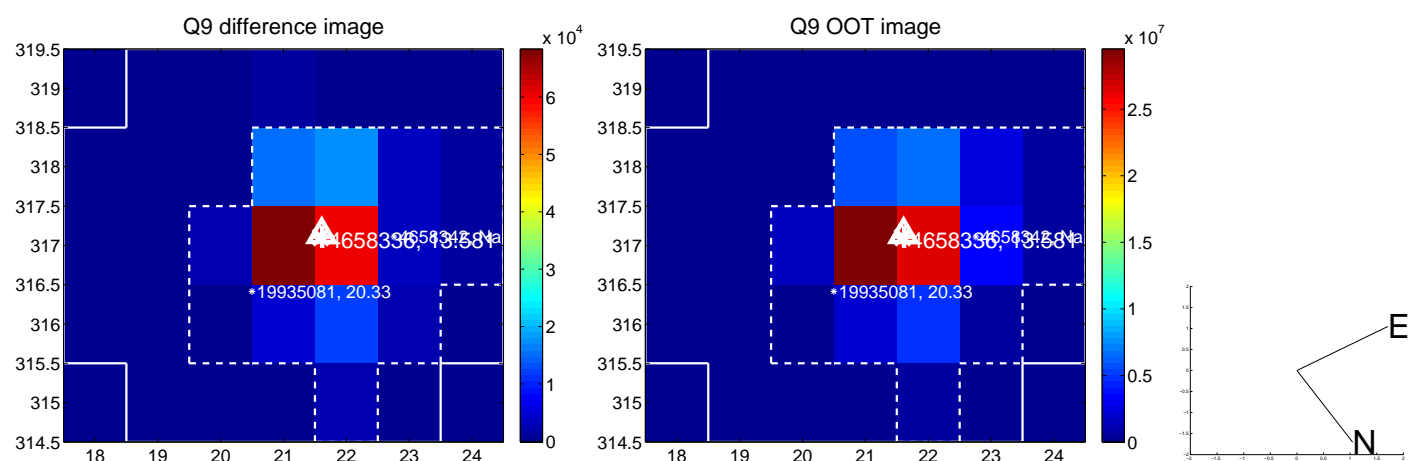


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

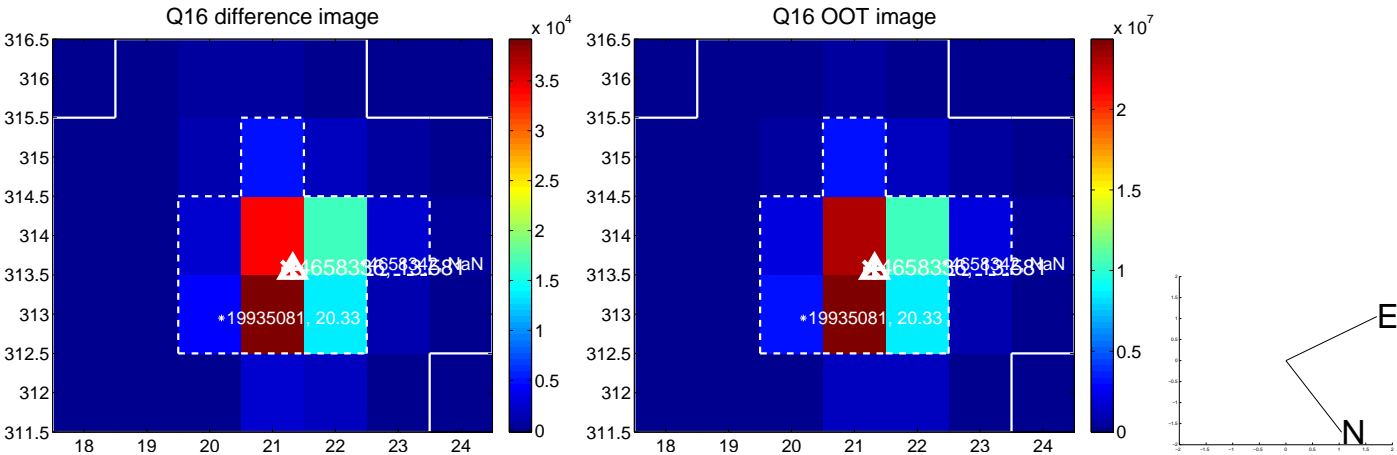
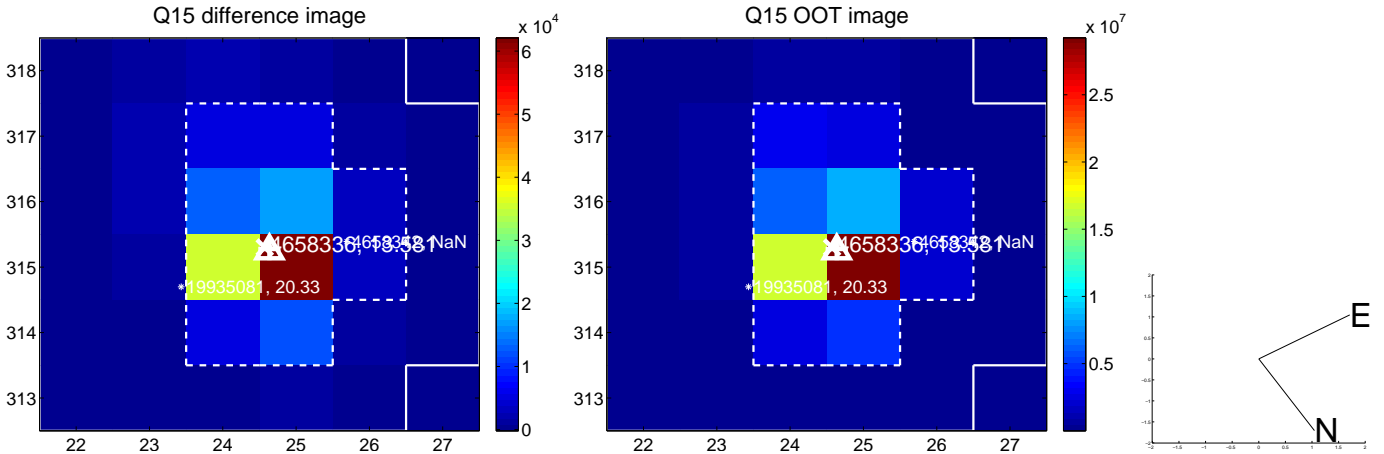
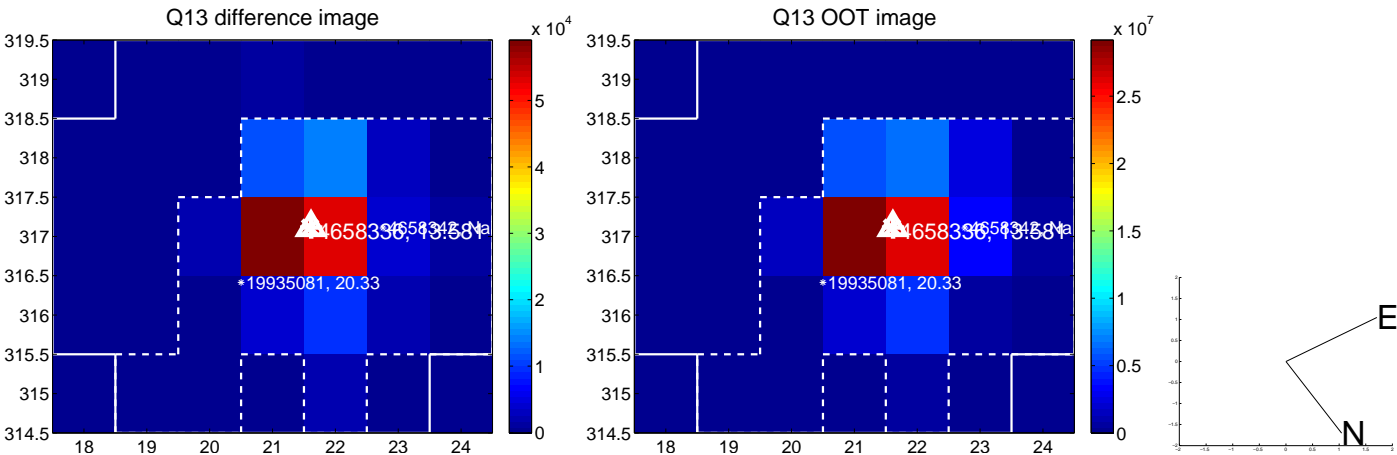
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



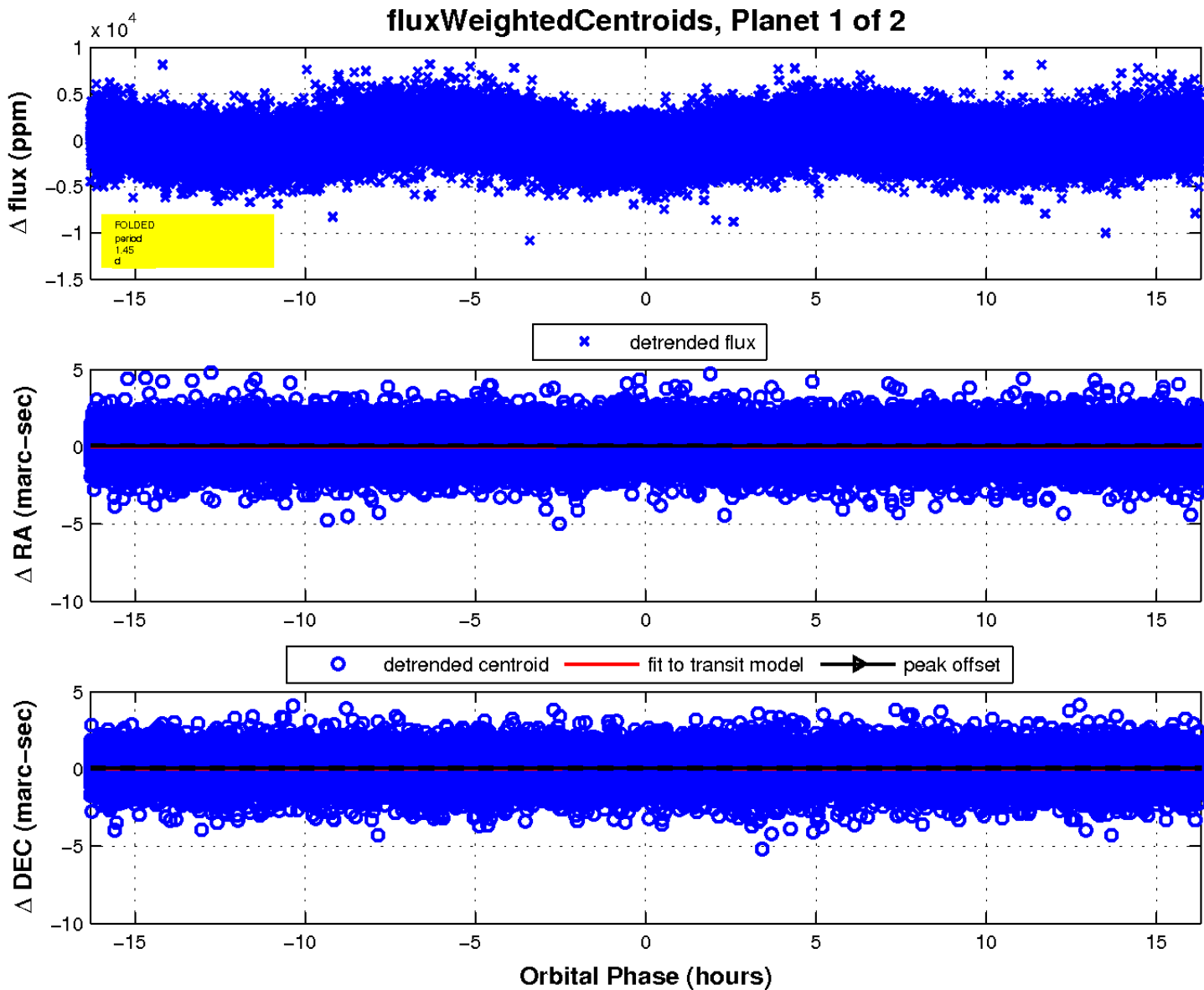
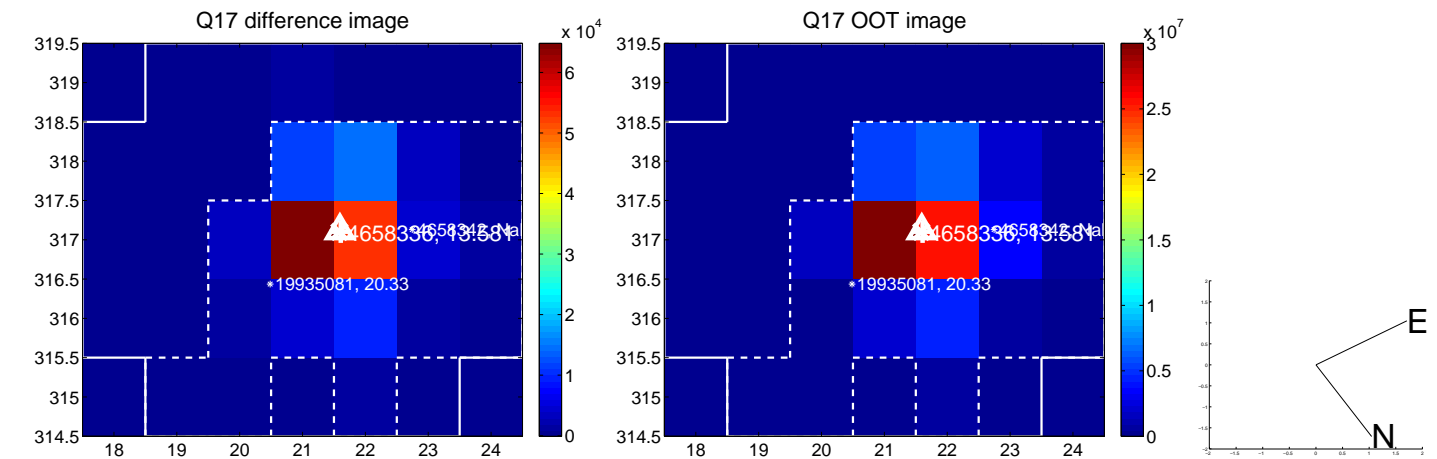
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

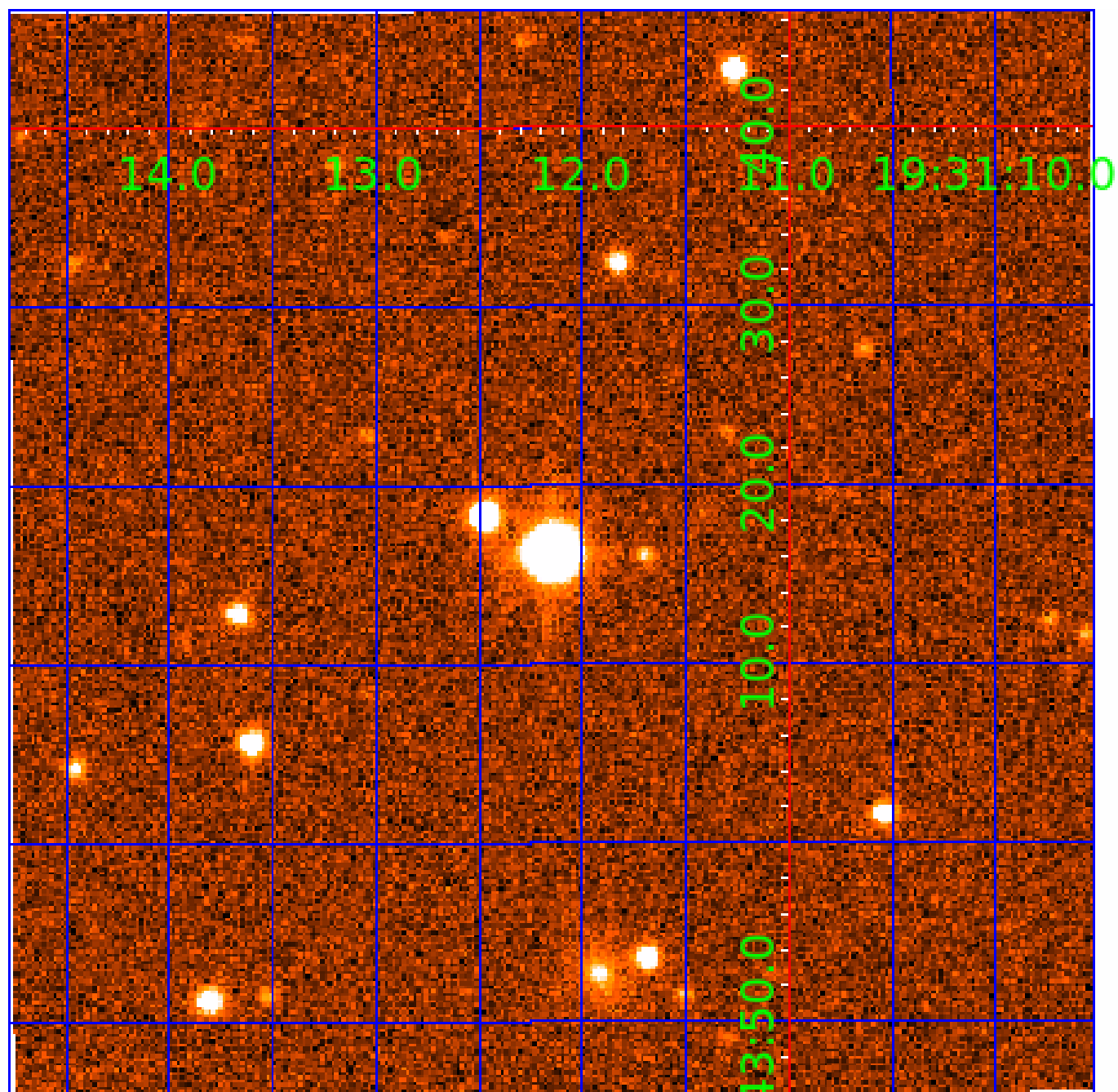


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004658336

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})
004658336-01	OBS	No	1.450245	131.817295	352.7	5.438	11.3	11.0	1.76	7281	3.65	9431.50
004658336-02	OBS	No	1.450221	132.307949	522.2	5.703	12.5	14.7	1.76	7281	5.38	9431.70

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004658336-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
004658336-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD

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

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

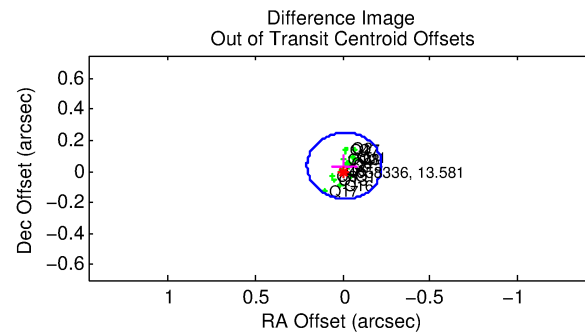
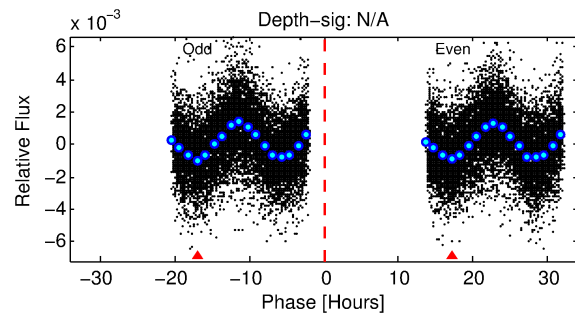
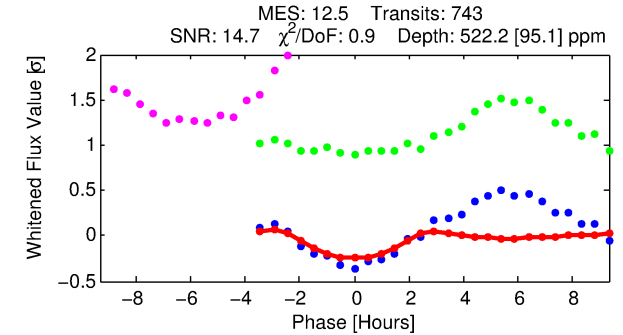
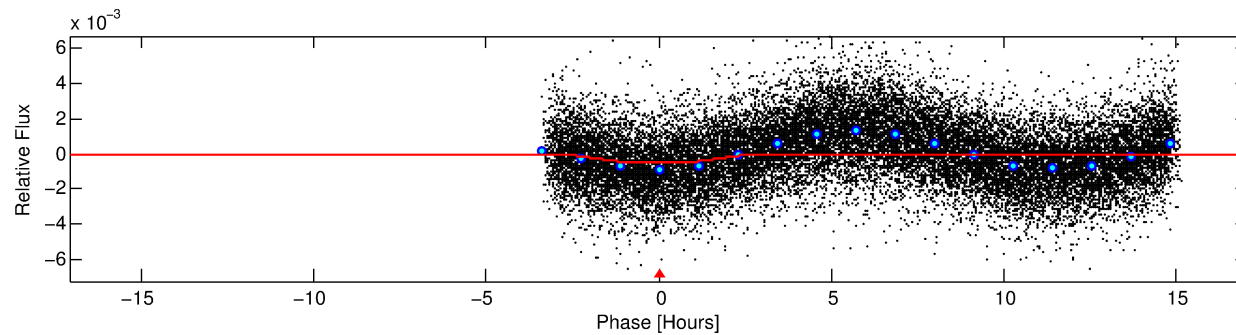
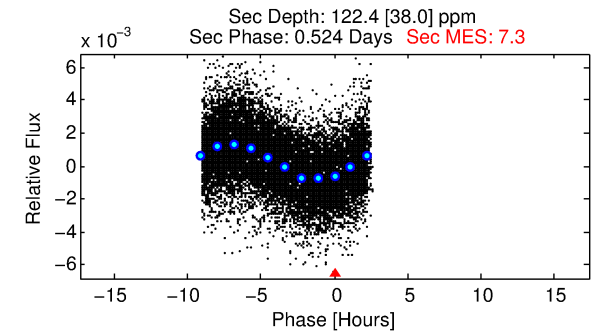
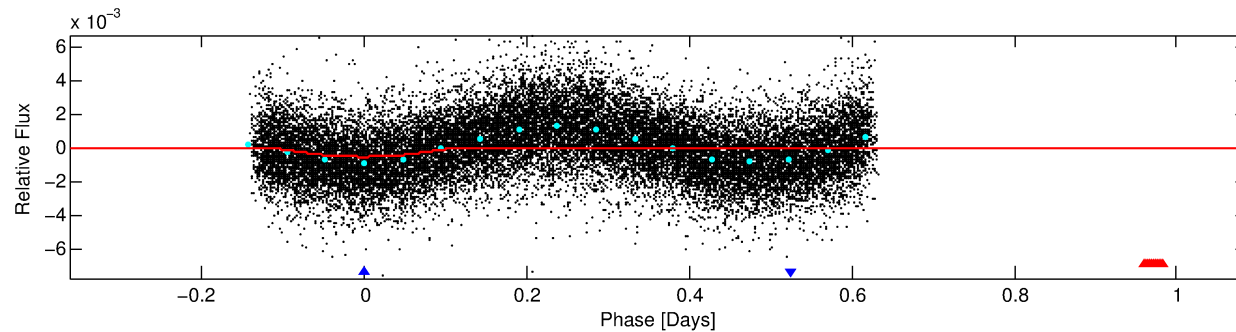
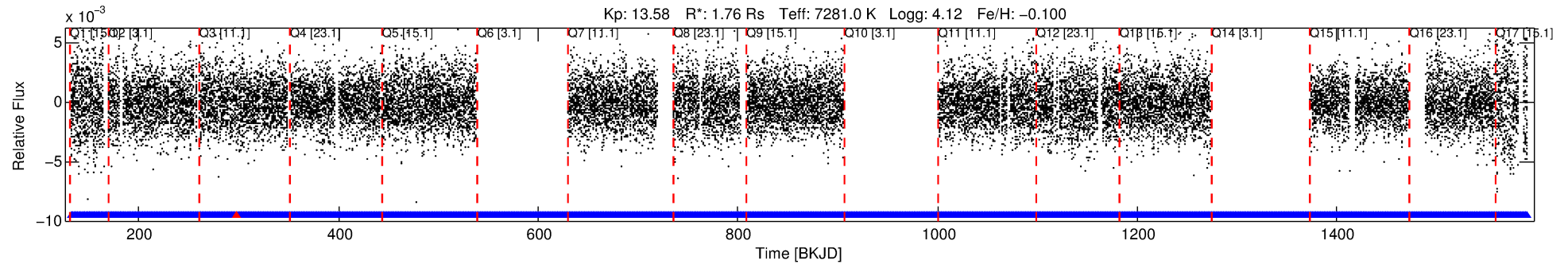
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004658336-02

No Significant Match Found

DV One-Page Summary

KIC: 4658336 Candidate: 2 of 2 Period: 1.450 d



DV Fit Results:

Period = 1.45022 [0.00001] d
Epoch = 132.3079 [0.0048] BKJD
Rp/R* = 0.0280 [0.0063]
a/R* = 1.17 [0.04]
b = 0.98 [0.02]
Seff = 9431.70 [3698.72]
Teq = 2513 [246] K
Rp = 5.38 [2.08] Re
a = 0.0287 [0.0072] AU
Ag = 1.92 [1.23] [0.75σ]
Teffp = 4574 [659] K [2.93σ]

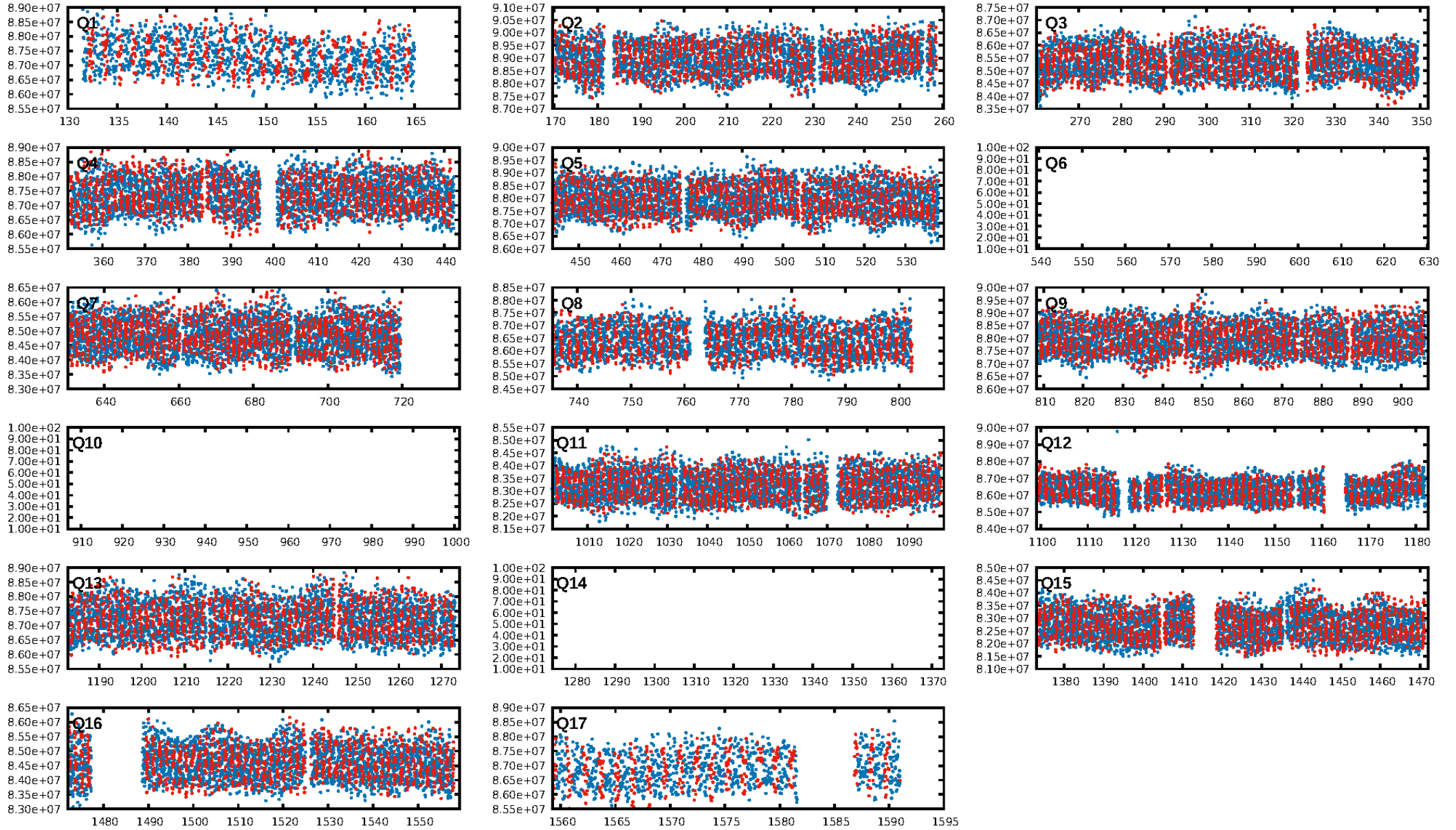
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [700/701]
GhostDiagnostic-chr: 5.534
Centroid-sig: 65.3%
Centroid-so: 0.130 arcsec [1.70σ]
OotOffset-rm: 0.038 arcsec [0.53σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.165 arcsec [2.21σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

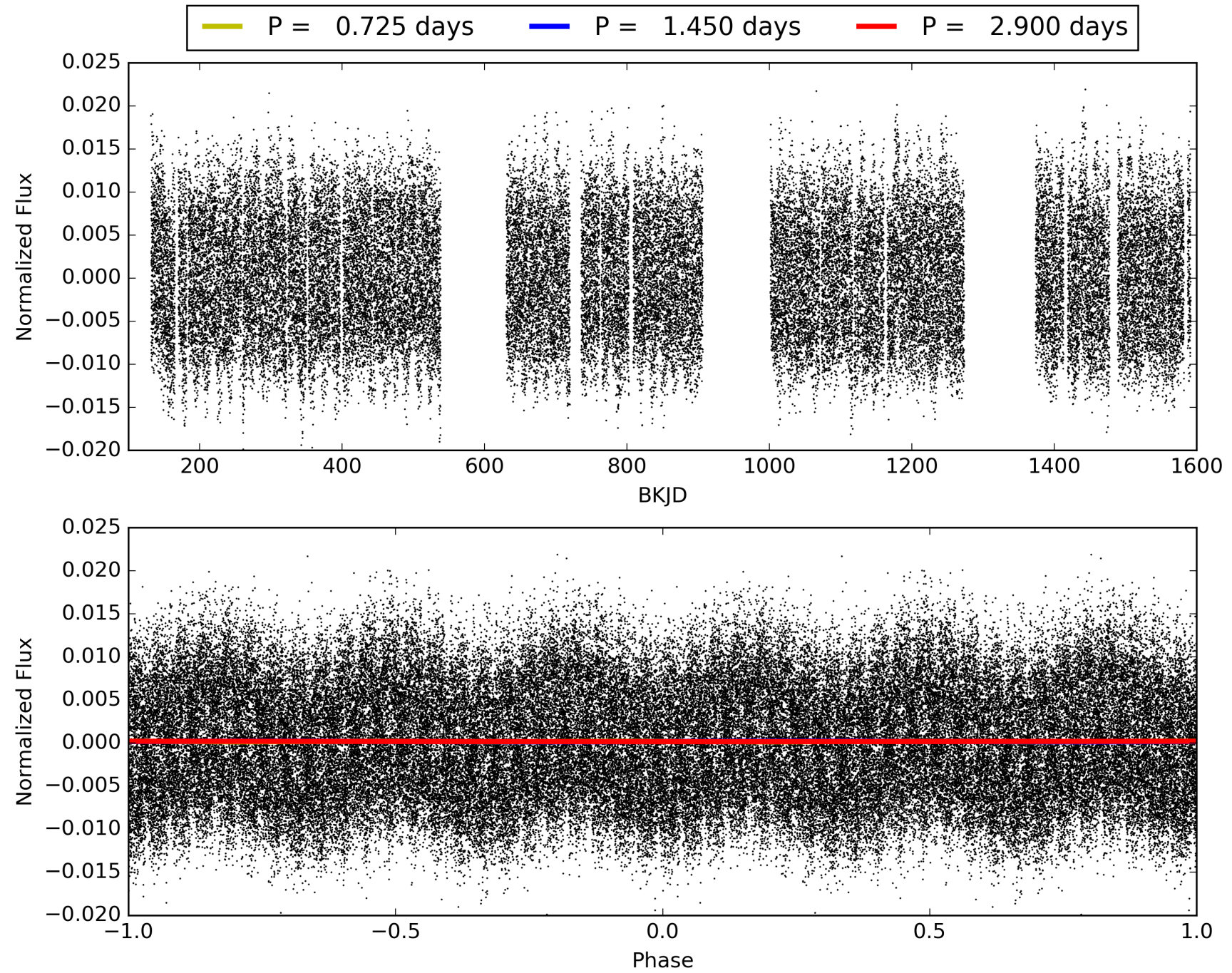
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:34:40 Z

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

TCE 004658336-02, PDC Light Curves

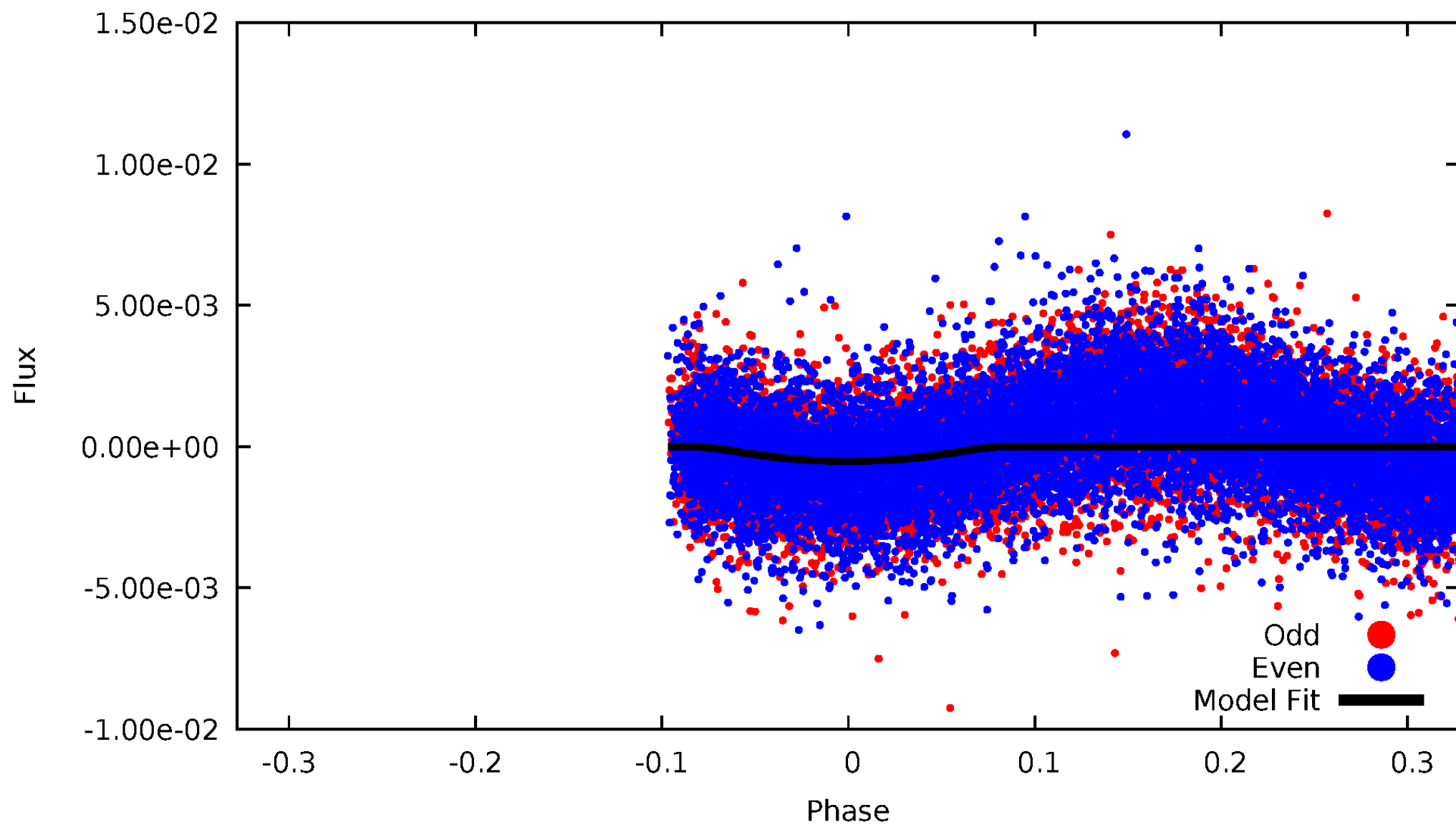


TCE 004658336-02



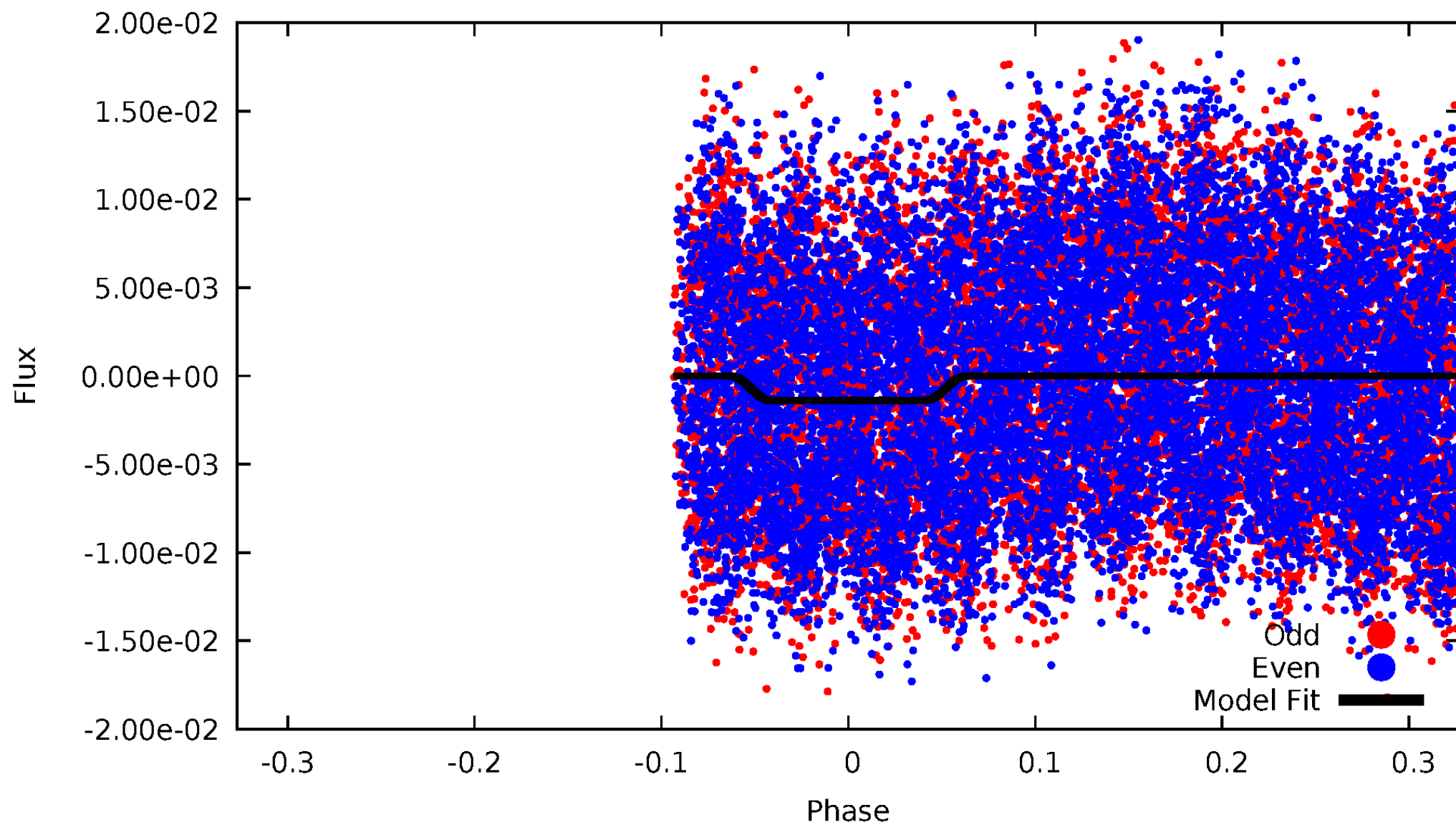
DV Odd/Even

TCE 004658336-02



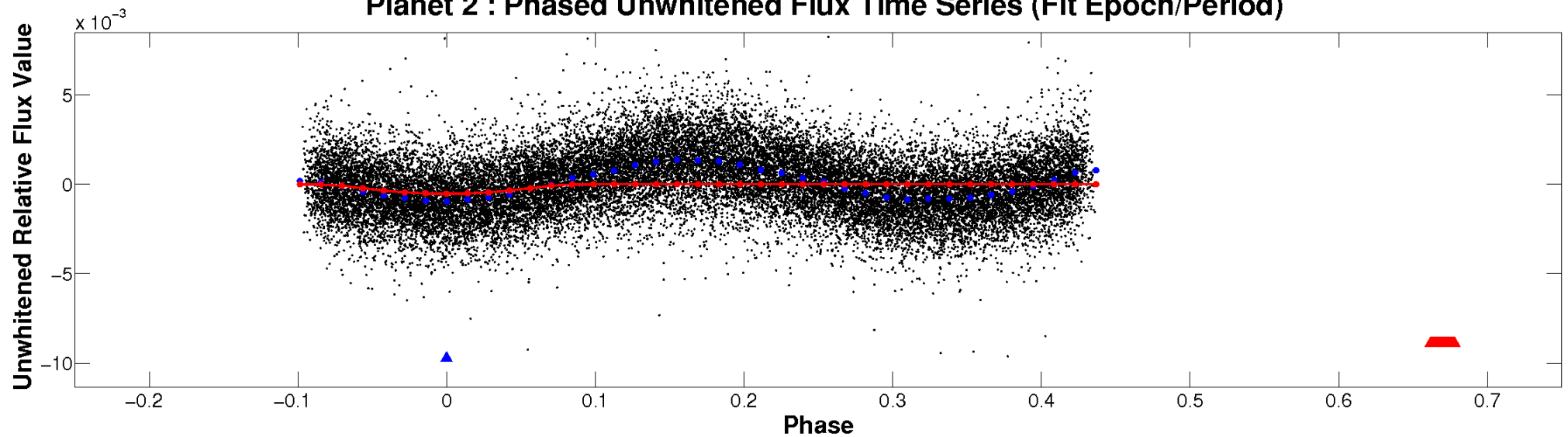
ALT Odd/Even

TCE 004658336-02

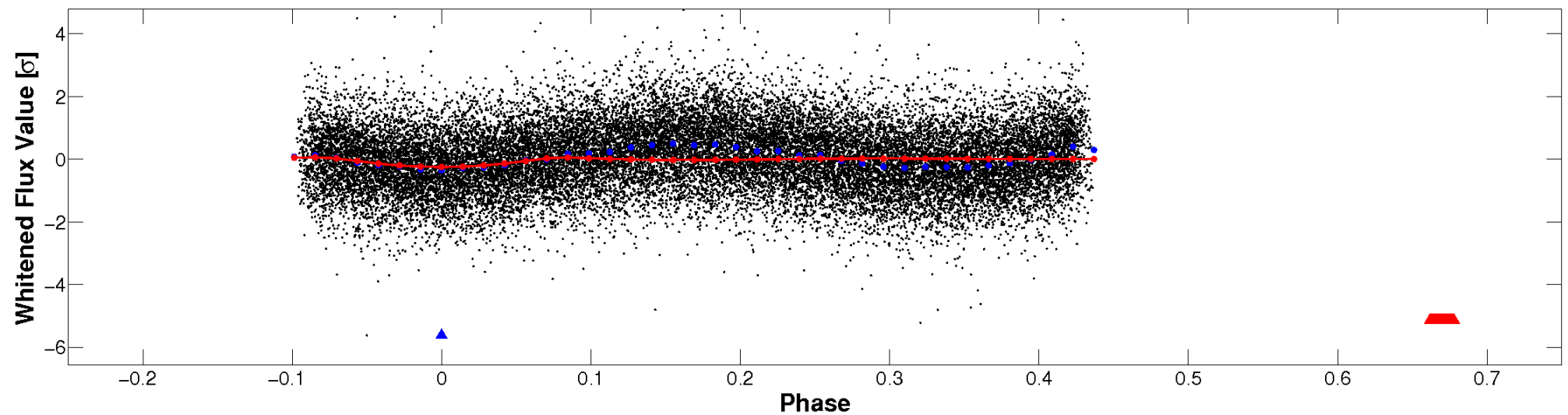


Non-Whitened Vs. Whitened Light Curve

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

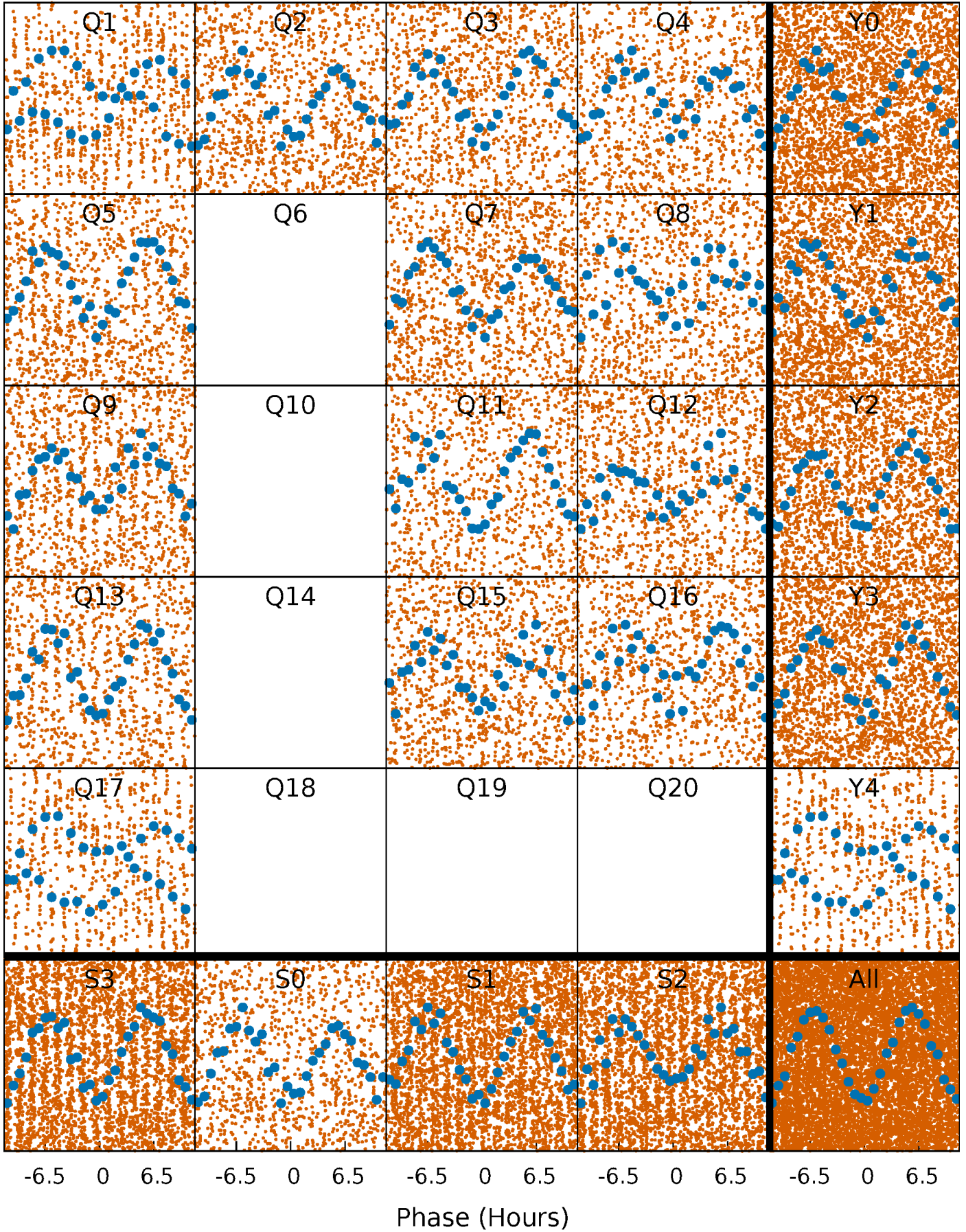


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



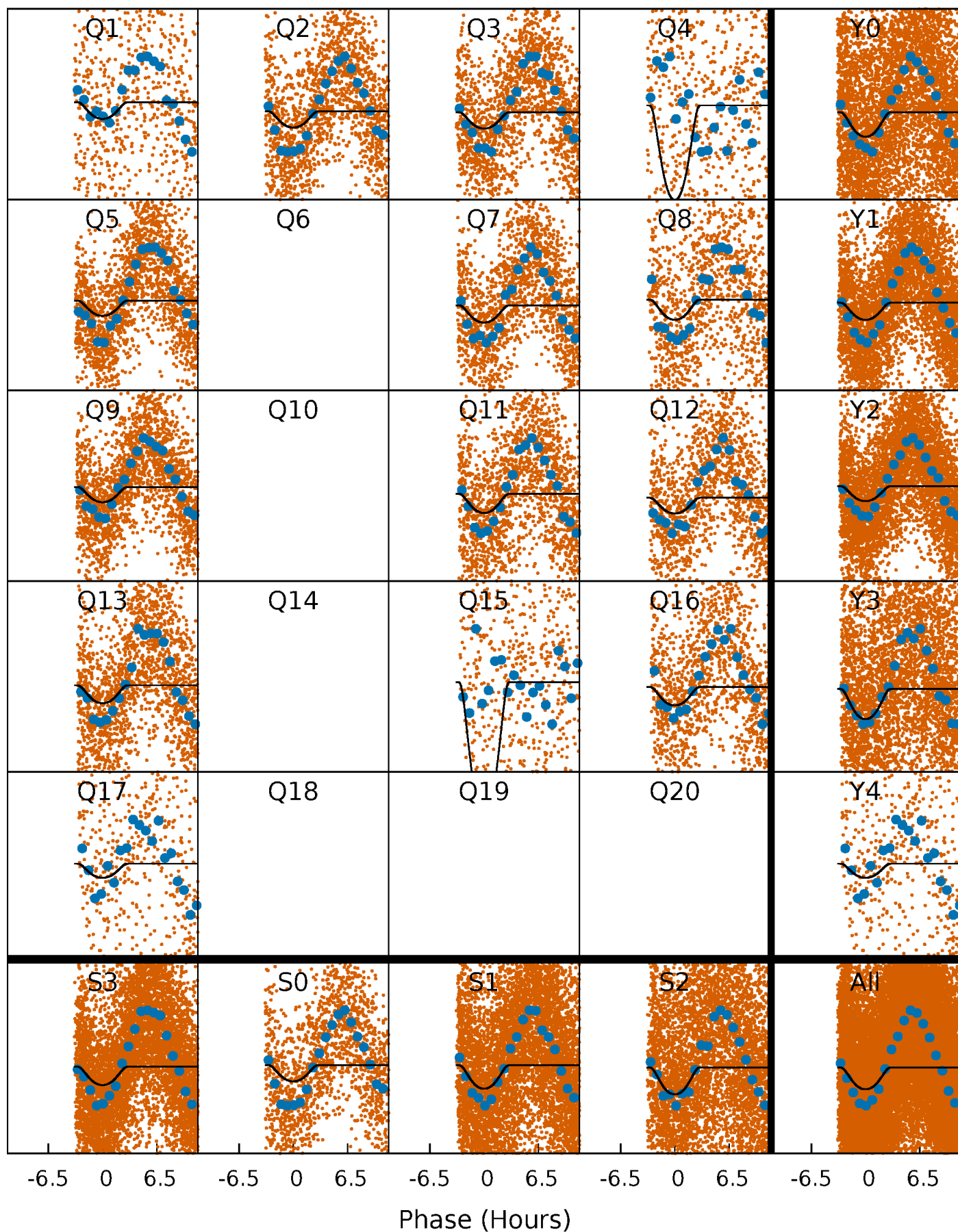
PDC Quarter-Phased Transit Curves

TCE 004658336-02 P= 1.450221 Days $T_0=132.307949$ (BKJD)



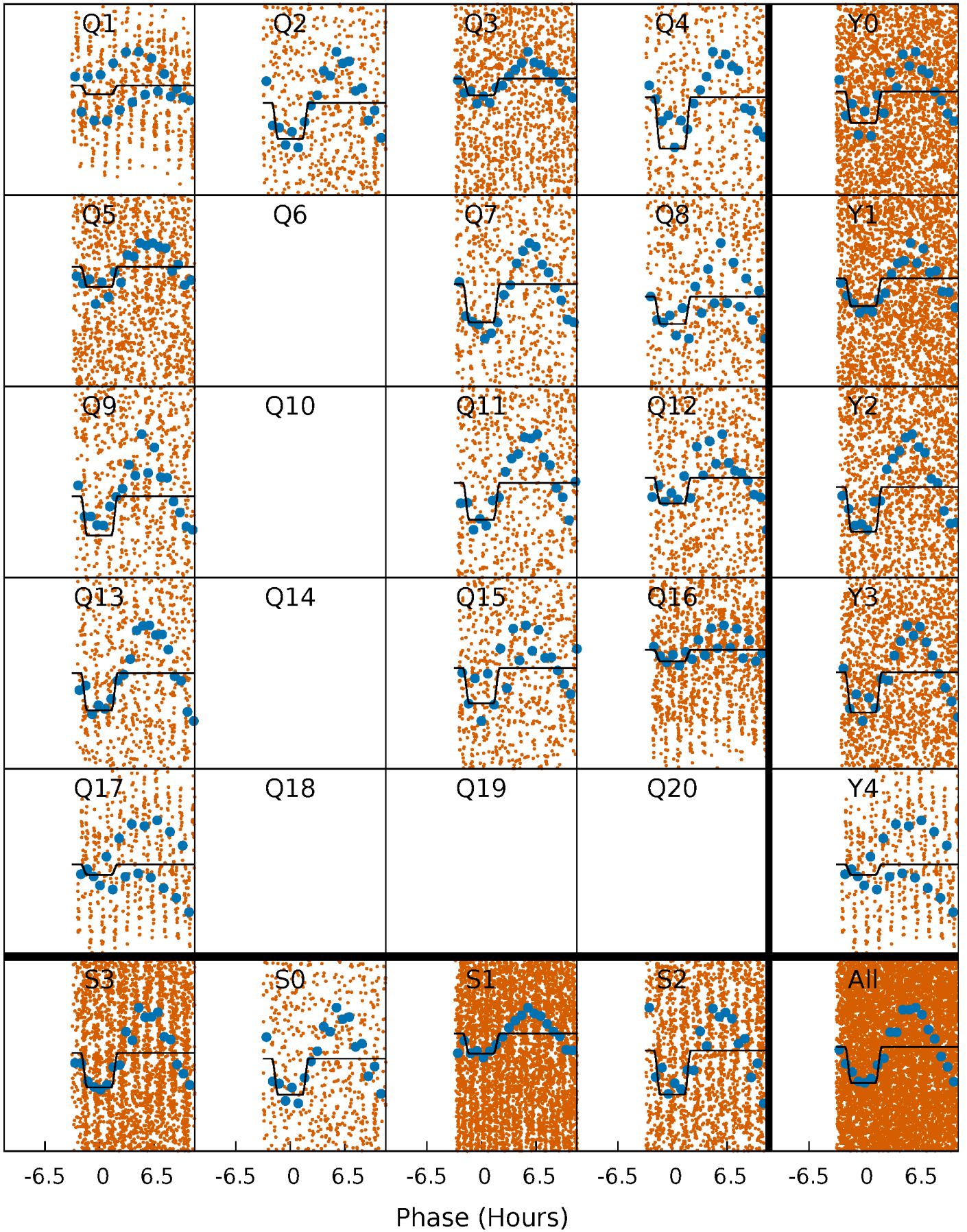
DV Quarter-Phased Transit Curves

TCE 004658336-02 P= 1.450221 Days $T_0=132.307949$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

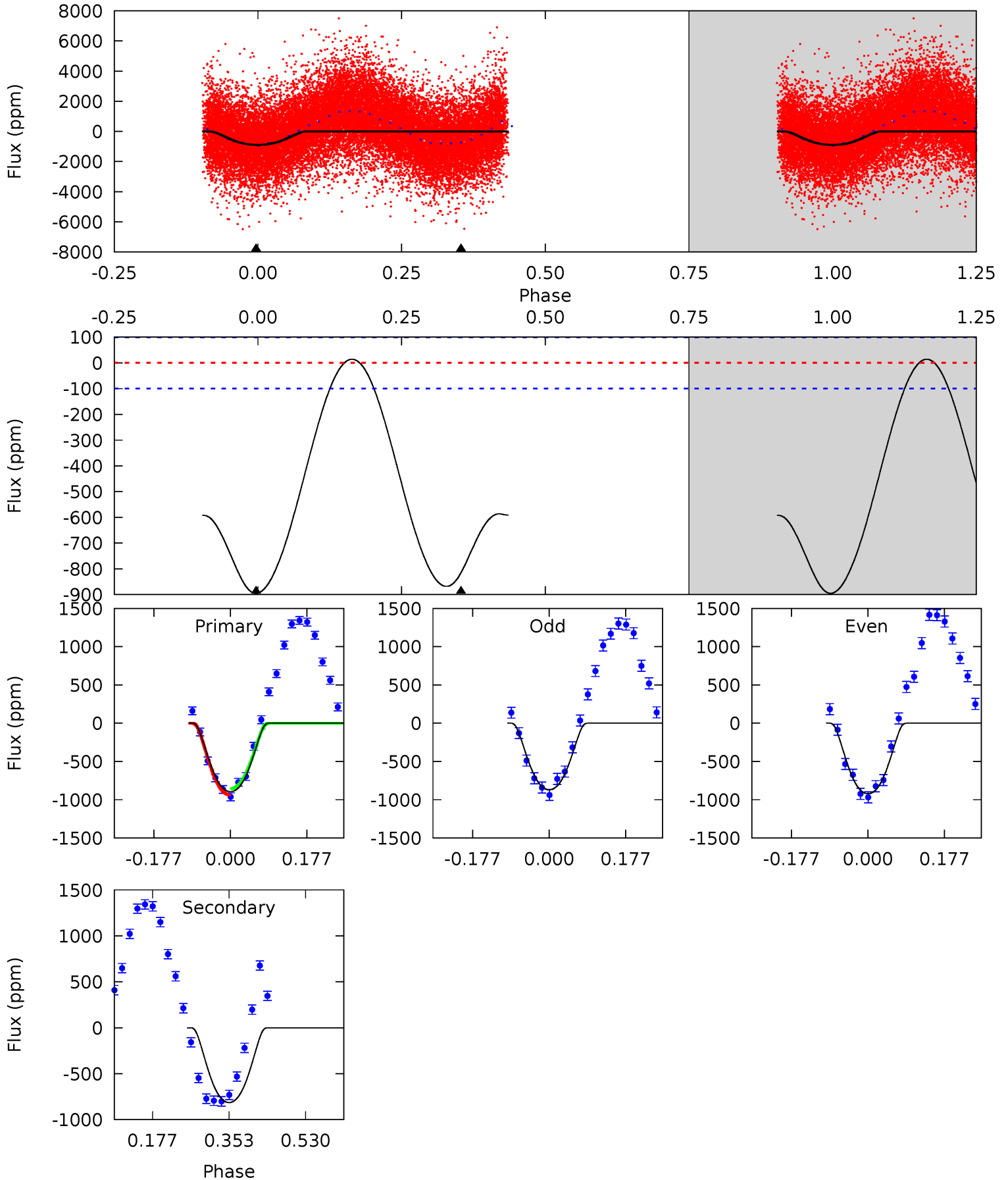
TCE 004658336-02 P= 1.450216 Days $T_0=132.303424$ (BKJD)



DV Model-Shift Uniqueness Test

004658336-02, P = 1.450221 Days, E = 130.857728 Days

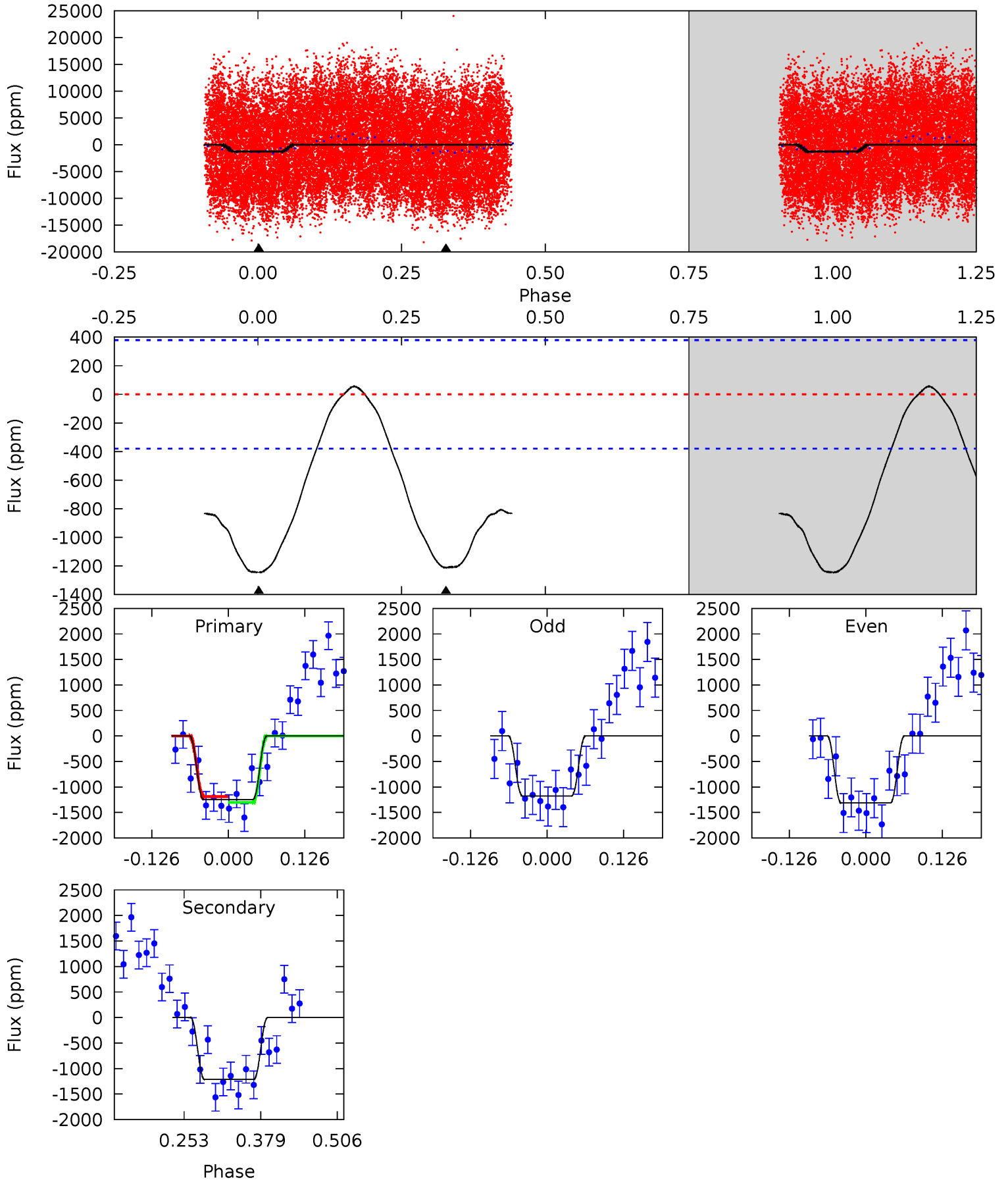
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.0	36.4	0	0	4.44	1.35	1.43	40.0	40.0	36.4	36.4	1.19	1.01	0.02	2.64



Alt Model-Shift Uniqueness Test

004658336-02, P = 1.450216 Days, E = 130.853208 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	14.4	0	0	4.52	1.53	0.55	14.8	14.8	14.4	14.4	0.84	0.94	0.04	0.71



Stellar Parameters For KIC 004658336

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7281^{+232}_{-348}	$4.125^{+0.144}_{-0.176}$	$-0.100^{+0.250}_{-0.350}$	$1.759^{+0.555}_{-0.370}$	$1.505^{+0.211}_{-0.234}$	$0.389^{+0.297}_{-0.194}$
	+3%/-5%	+3%/-4%	+250%/-350%	+32%/-21%	+14%/-16%	+76%/-50%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004658336-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-815 ± 22	$5.34^{+1.60}_{-1.28}$	3497^{+265}_{-243}	7263^{+1273}_{-884}	13^{+10}_{-5}
Alt.	-1212 ± 84	$7.15^{+1.76}_{-1.46}$	3530^{+251}_{-272}	6946^{+900}_{-692}	11^{+6}_{-4}

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 $A_{obs} \gg 1.0$

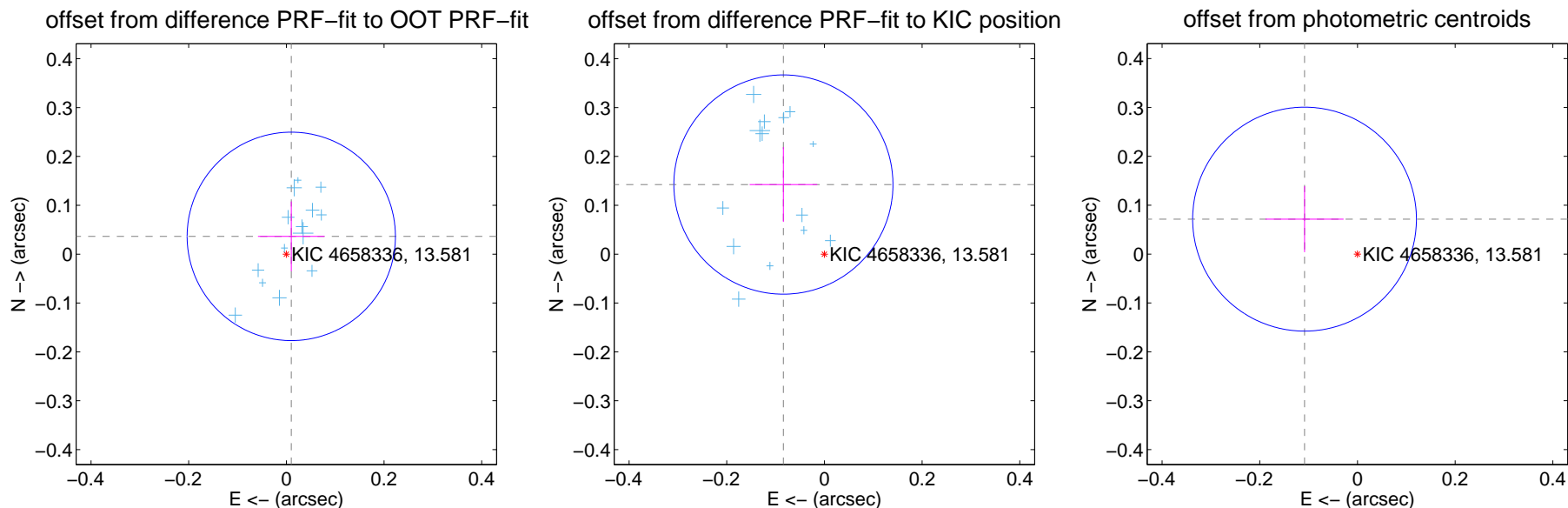
DV Centroid Data

Supplemental centroid analysis for 004658336-02. Kepler magnitude: 13.58. Transit SNR 14.73

There are 14 quarters with good PRF difference image offsets

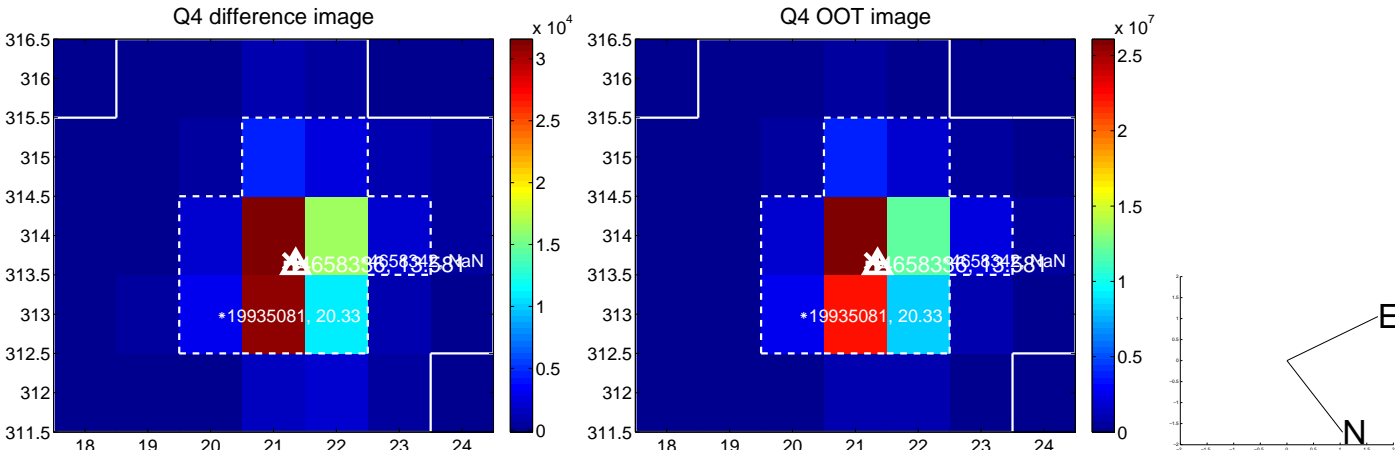
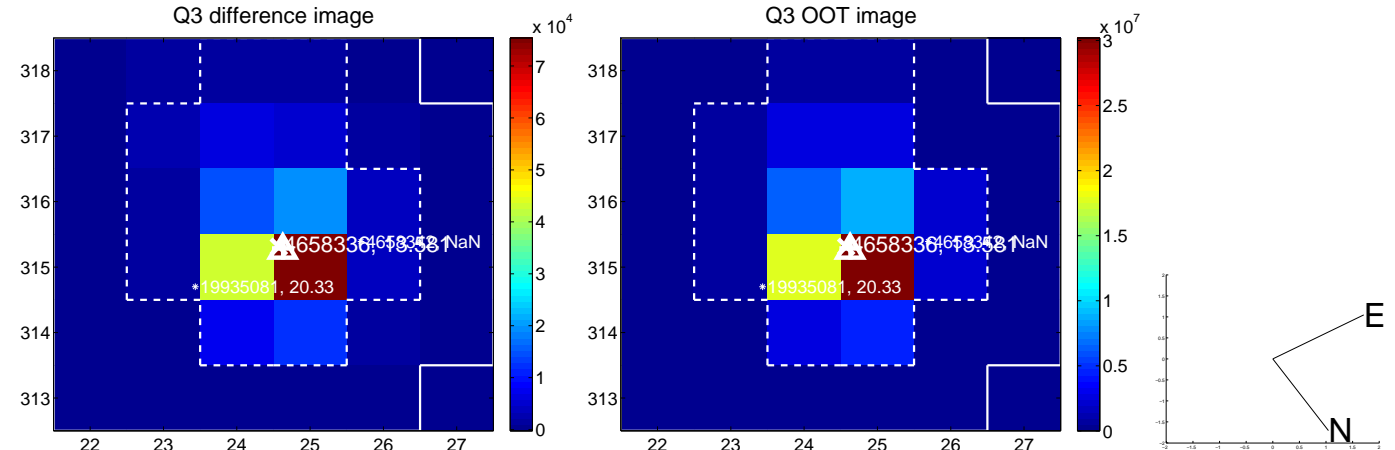
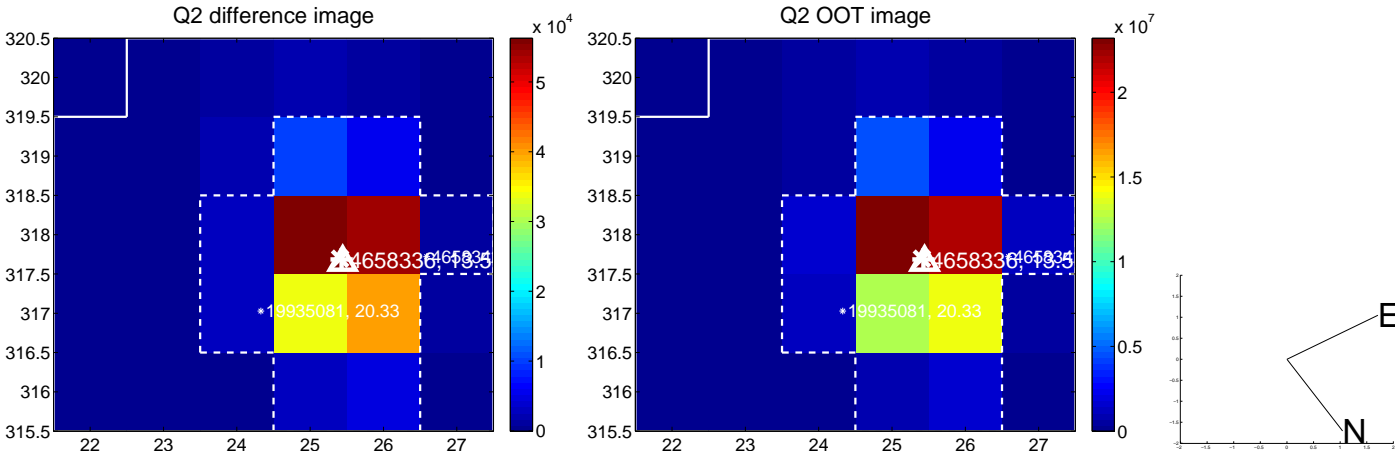
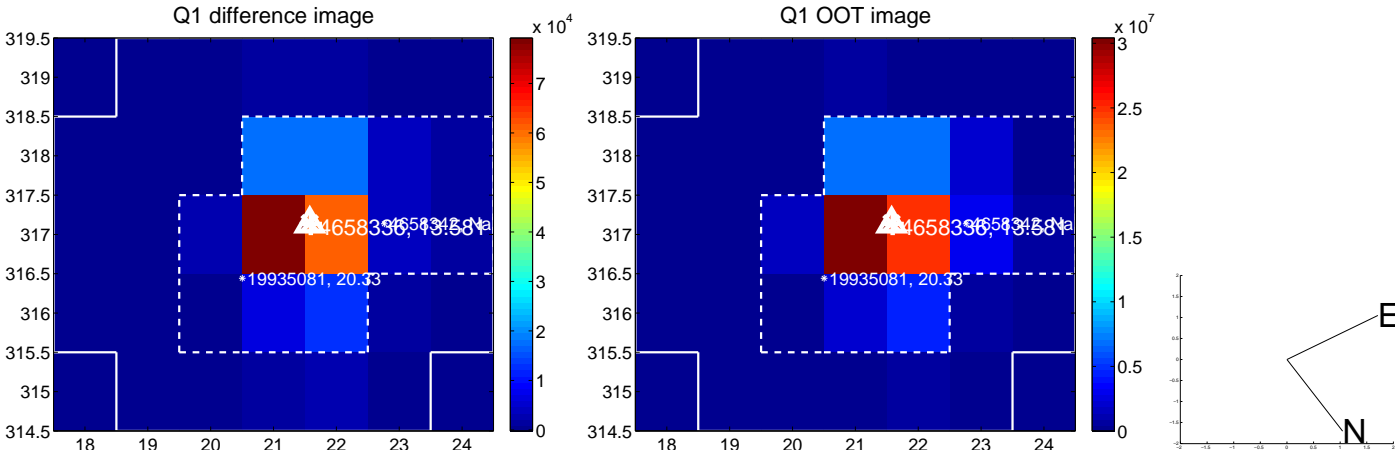
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.038 ± 0.071	0.53	-0.010 ± 0.068	0.036 ± 0.071
PRF-fit source offset from KIC position	0.165 ± 0.075	2.21	0.084 ± 0.069	0.142 ± 0.077
photometric centroid source offset	0.13 ± 0.08	1.70	0.11 ± 0.08	0.07 ± 0.07

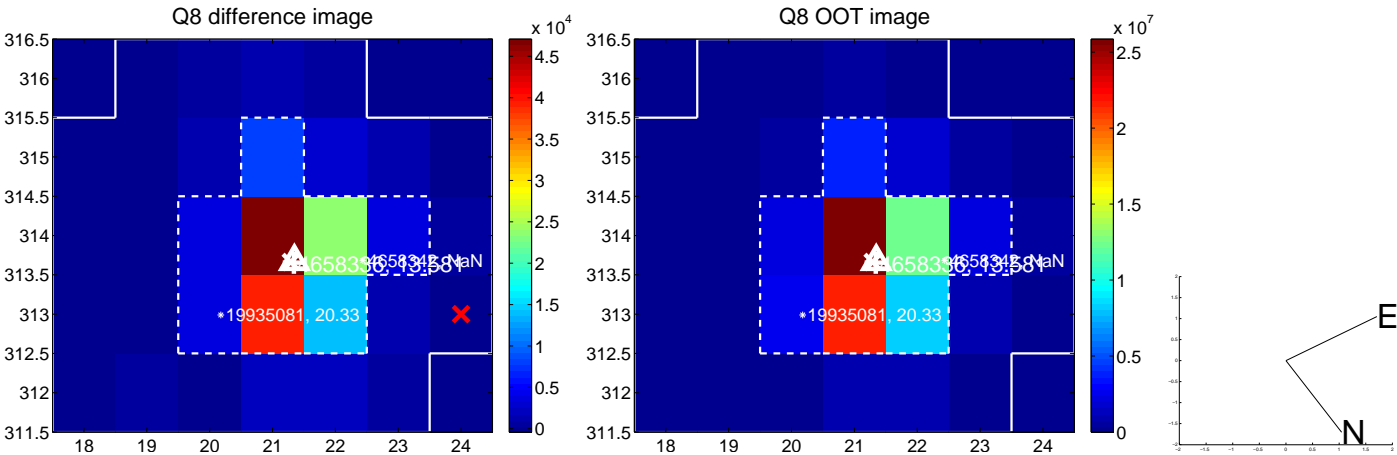
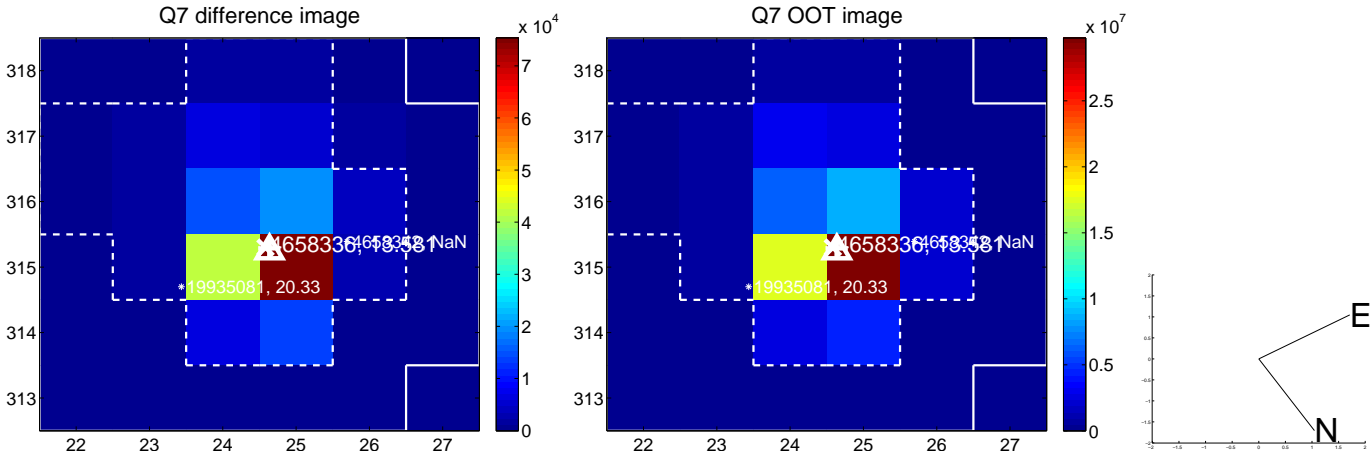
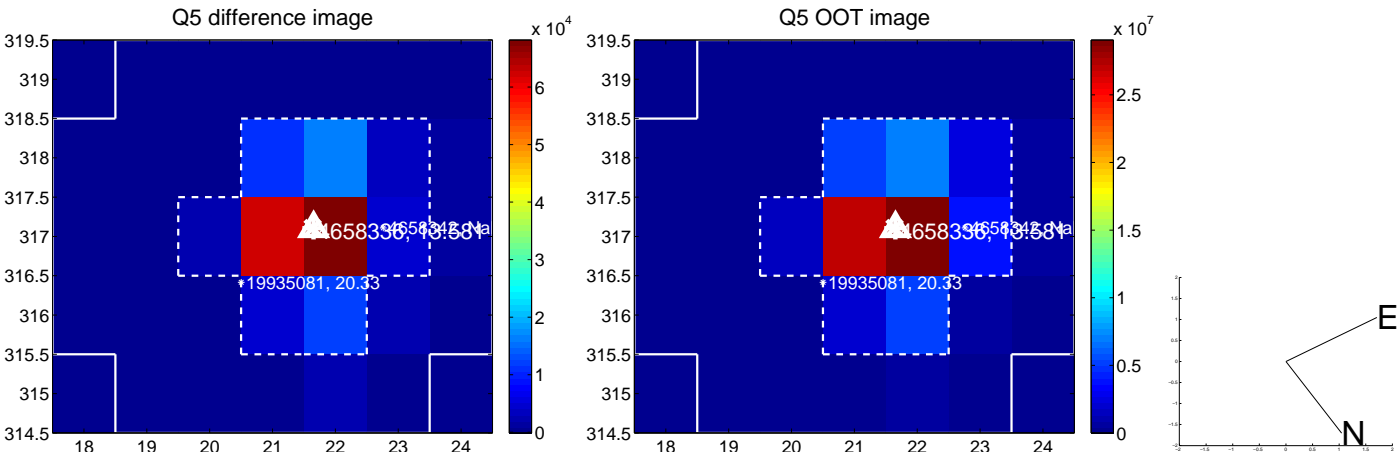


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

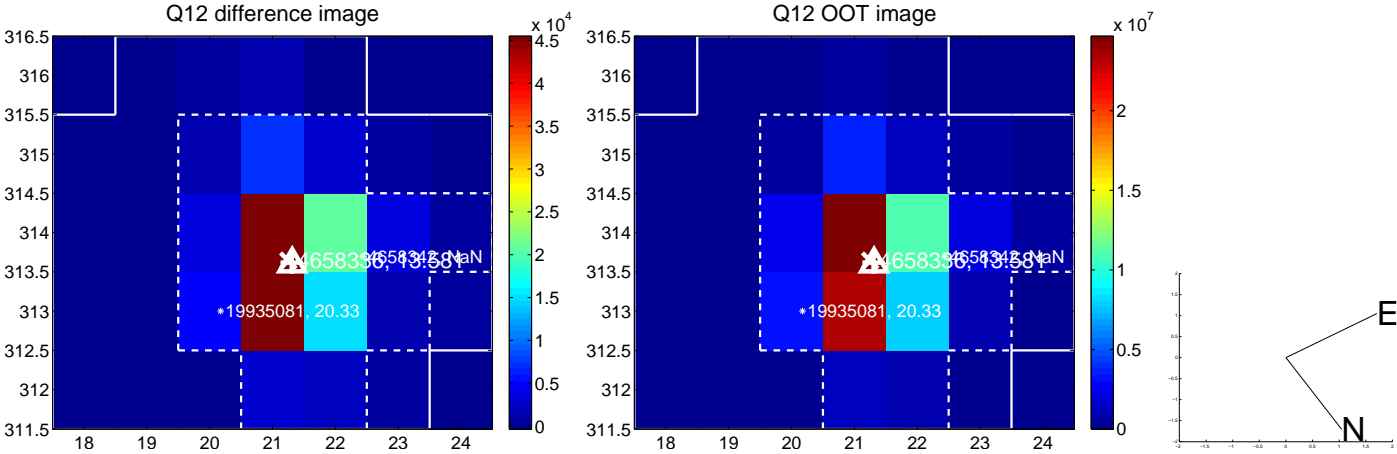
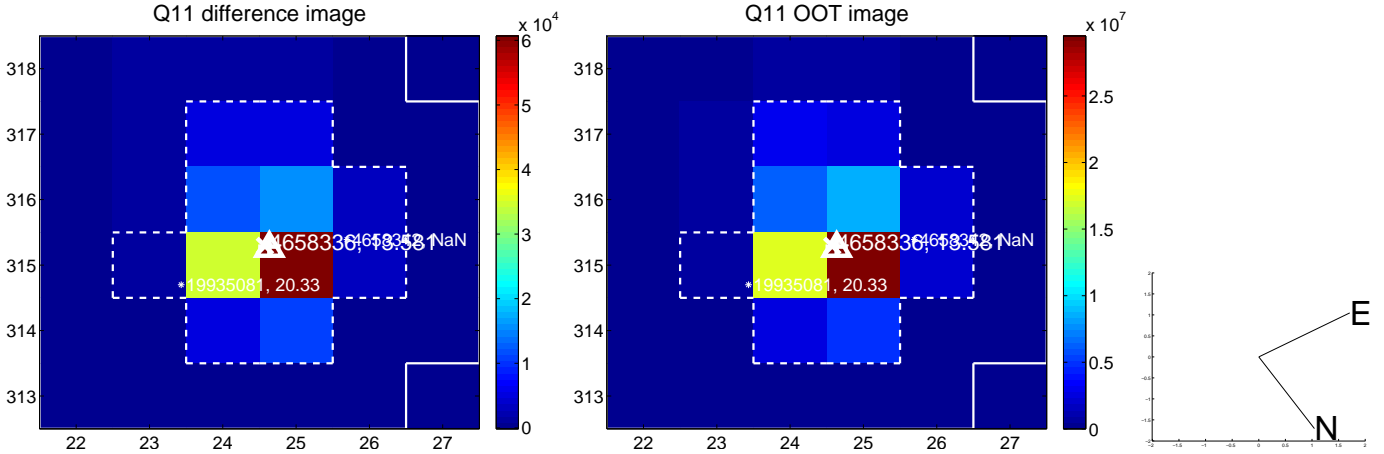
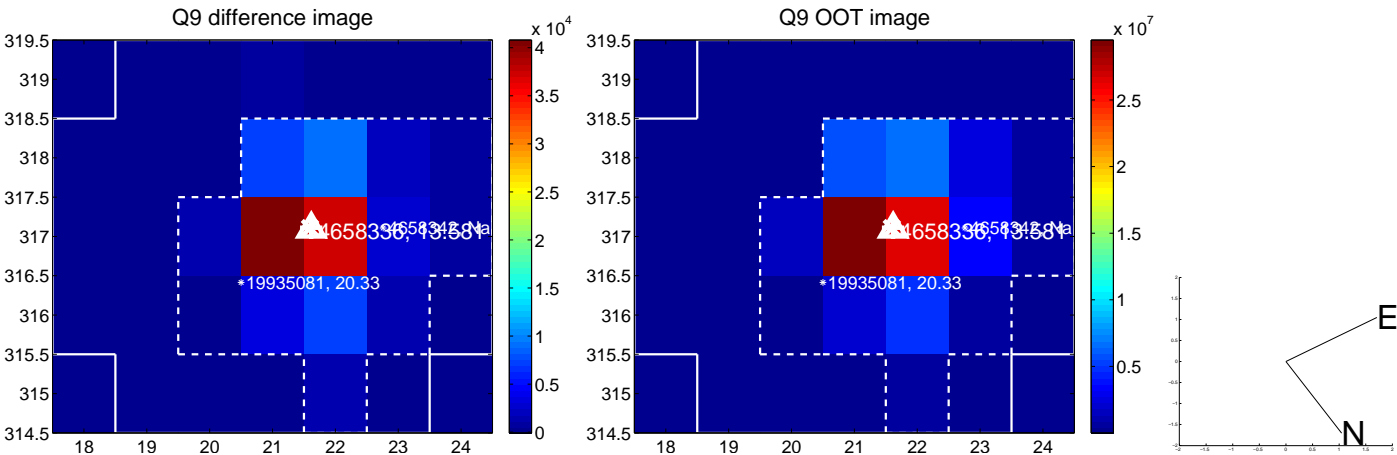
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



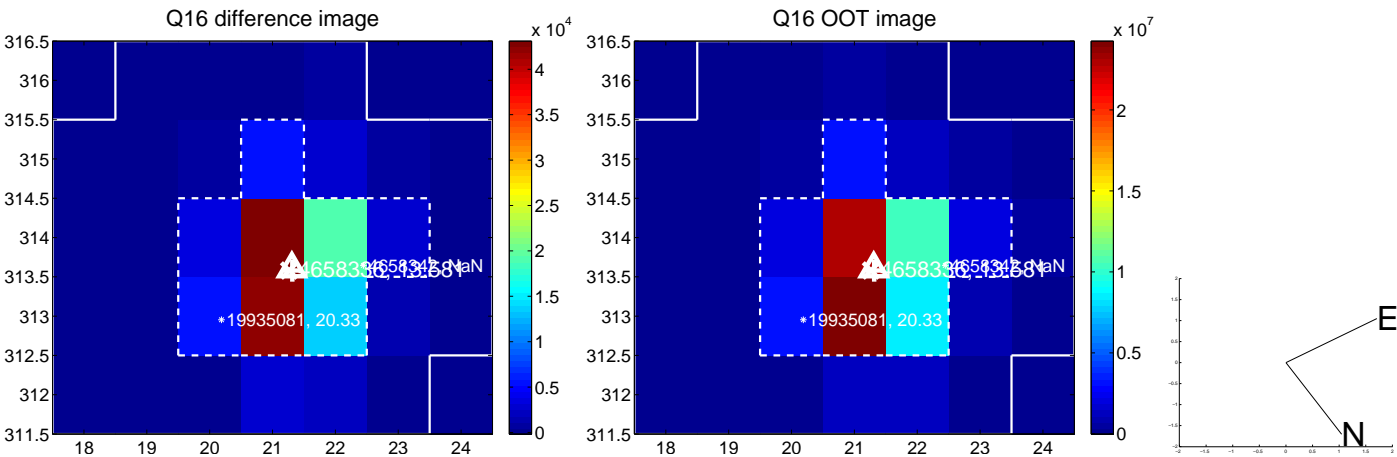
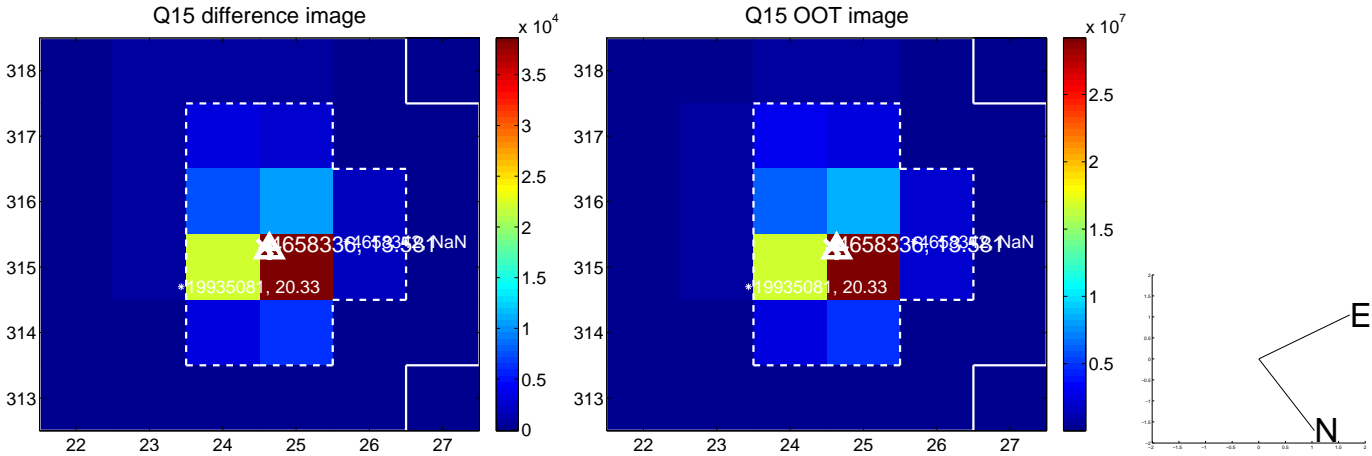
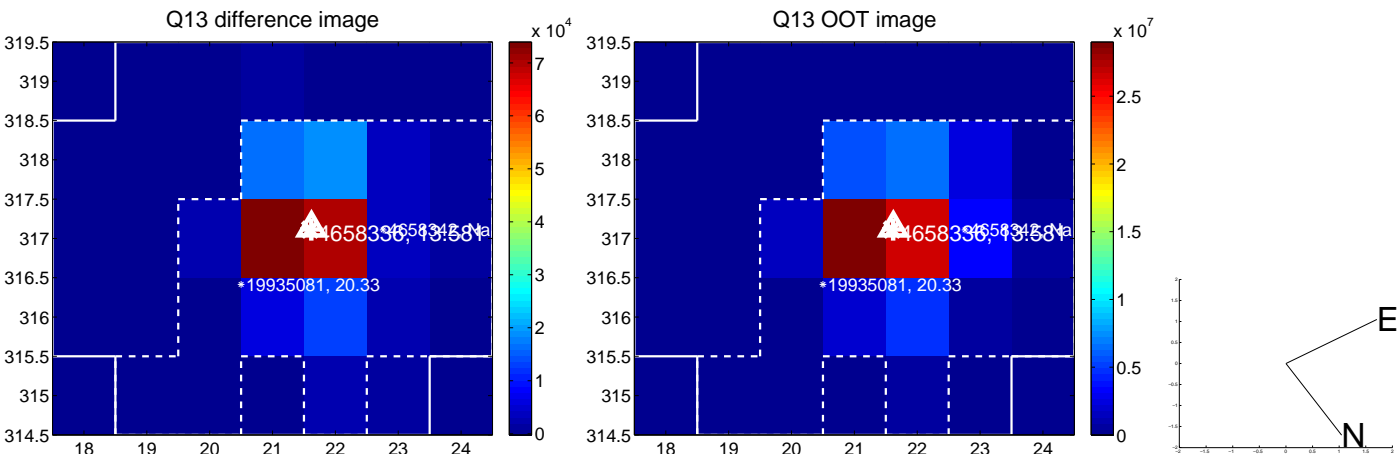
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

