

KIC 003558145

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})
003558145-01	OBS	No	0.667037	132.099595	82.2	2.201	13.7	15.2	1.93	7576	2.02	33602.81
003558145-02	OBS	No	0.503509	131.583867	102.9	6.042	9.2	17.6	1.93	7576	2.23	48891.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558145-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003558145-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_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.

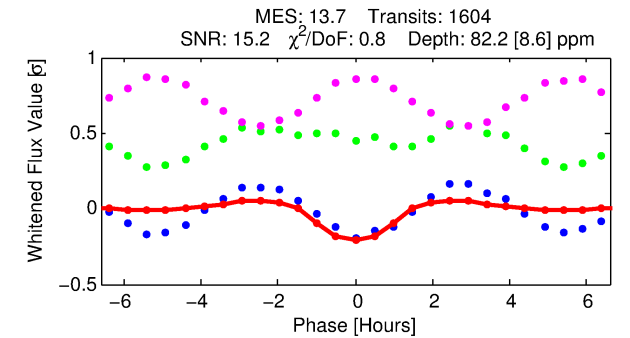
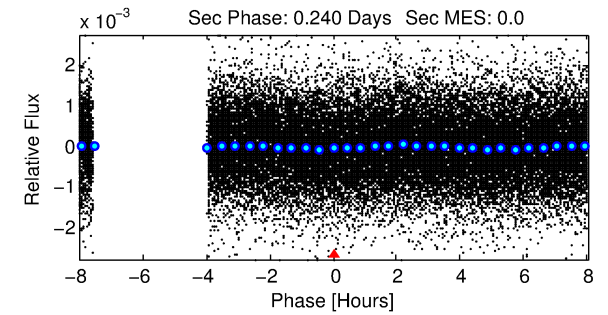
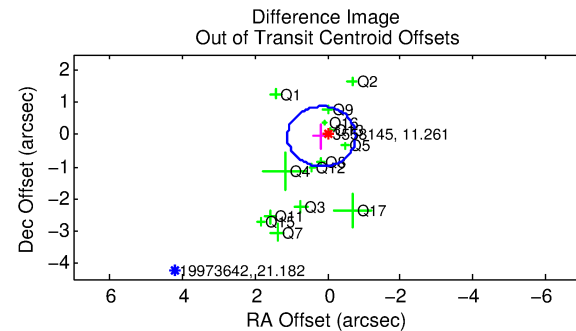
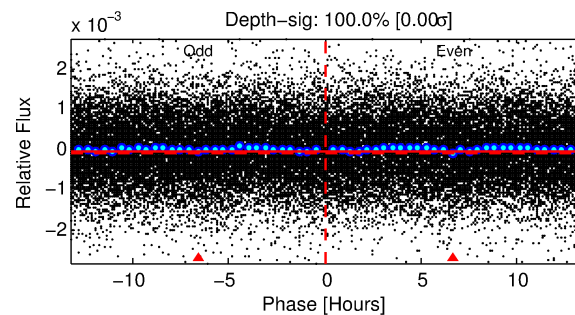
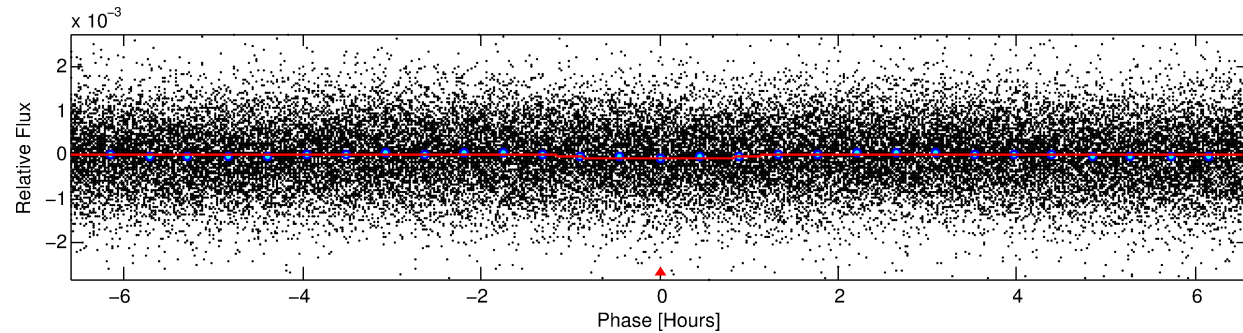
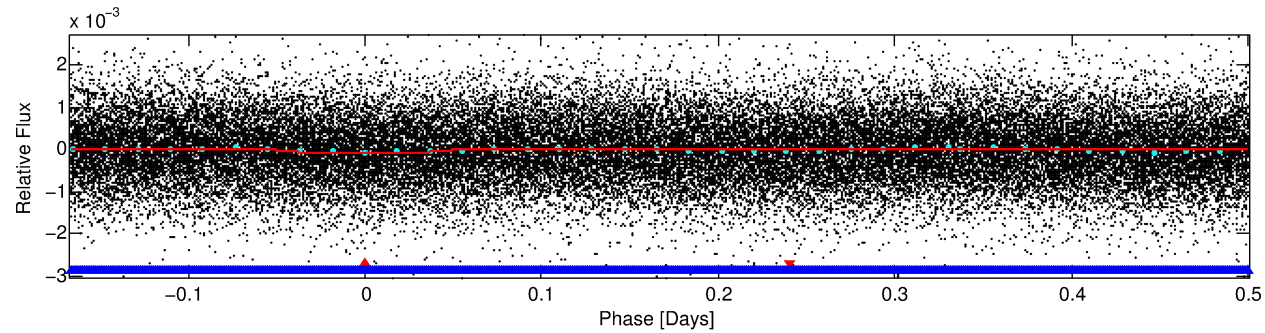
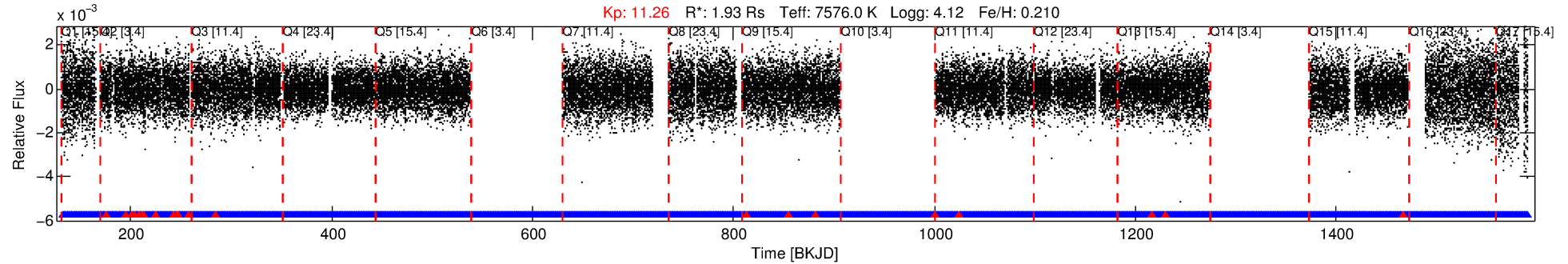
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003558145-01

No Significant Match Found

DV One-Page Summary

KIC: 3558145 Candidate: 1 of 2 Period: 0.667 d



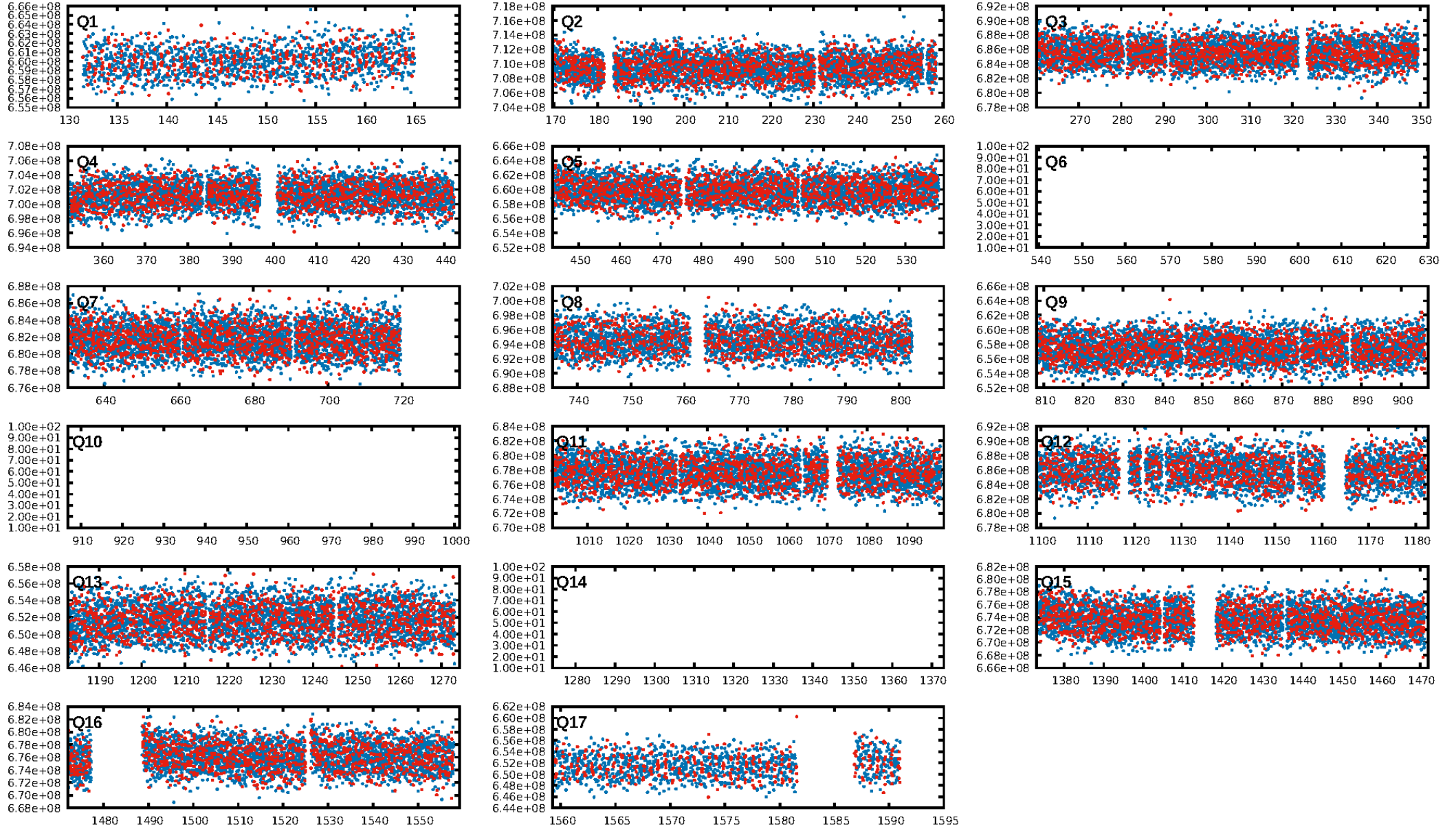
DV Fit Results:

Period = 0.66704 [0.00001] d
Epoch = 132.0996 [0.0022] BKJD
Rp/R* = 0.0096 [0.0063]
a/R* = 1.42 [3.03]
b = 0.90 [0.91]
Seff = 33602.81 [13001.38]
Teq = 3452 [334] K
Rp = 2.02 [1.43] Re
a = 0.0181 [0.0042] AU
Ag = N/A
Teffp = N/A

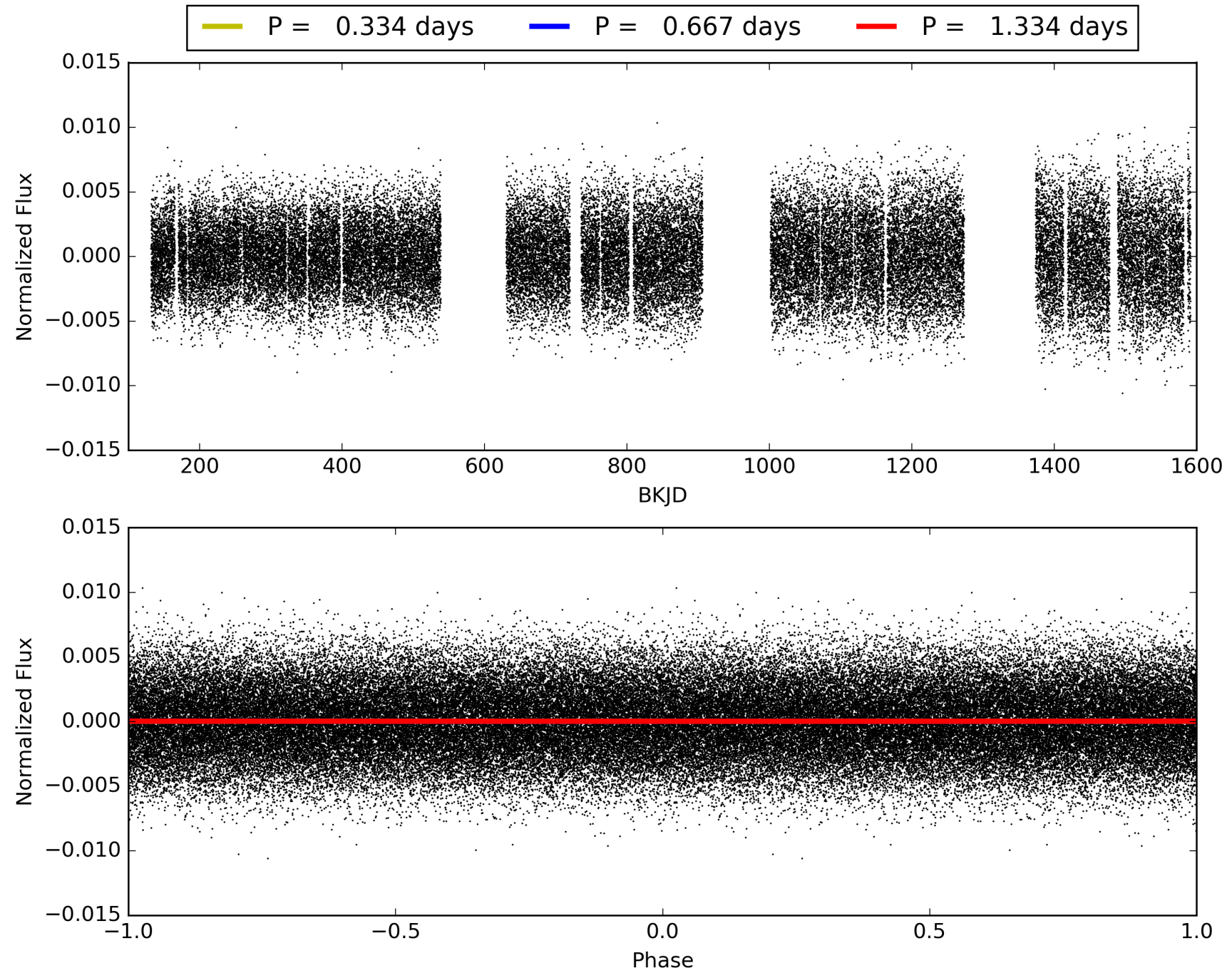
DV Diagnostic Results:

ShortPeriod-sig: 45.8% [0.61 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [1490/1513]
GhostDiagnostic-chr: 1.181
Centroid-sig: 0.0%
Centroid-so: 0.502 arcsec [3.17 σ]
OotOffset-rm: 0.173 arcsec [0.56 σ]
KicOffset-rm: 0.108 arcsec [0.31 σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 003558145-01, PDC Light Curves

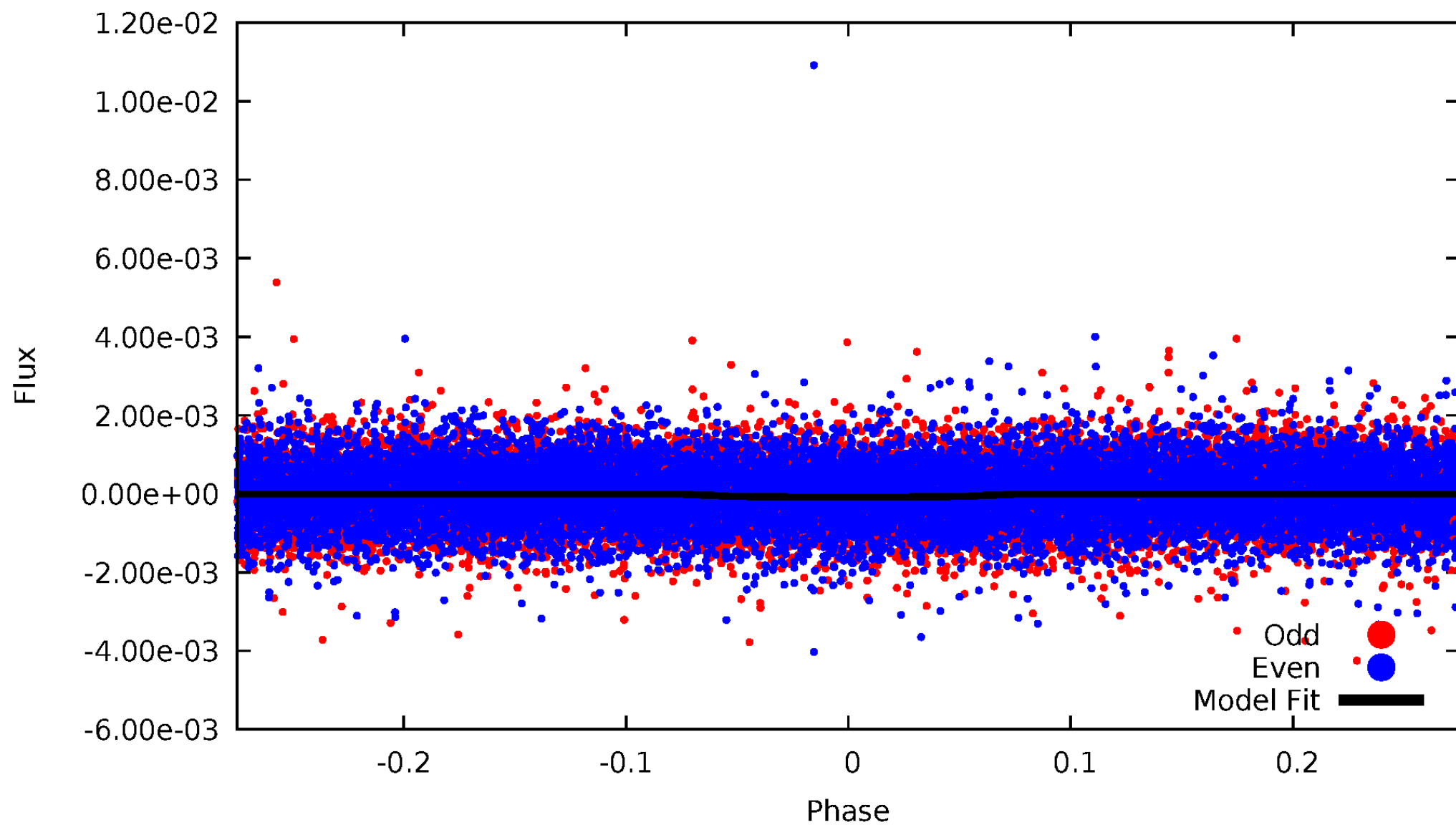


TCE 003558145-01



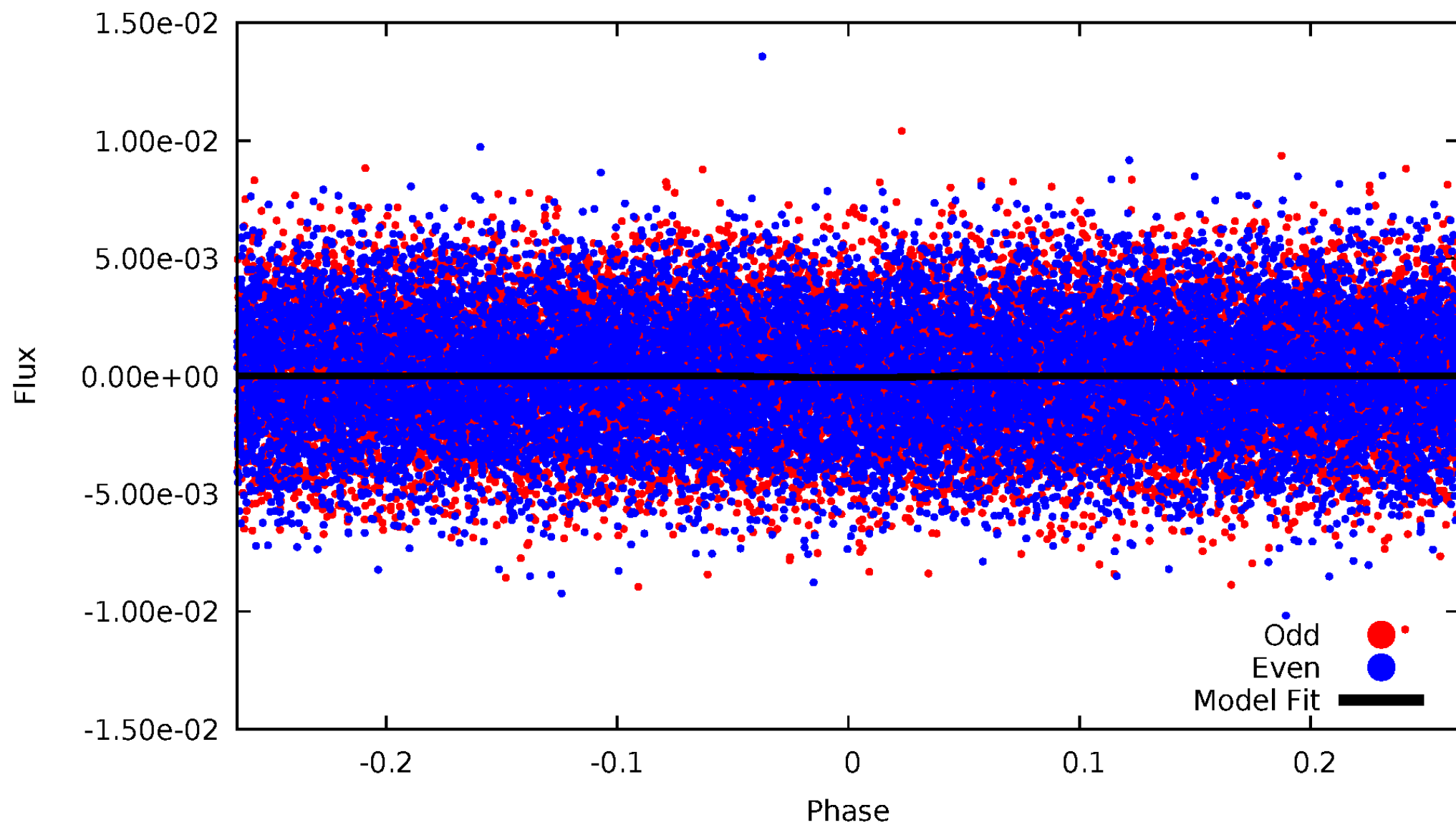
DV Odd/Even

TCE 003558145-01



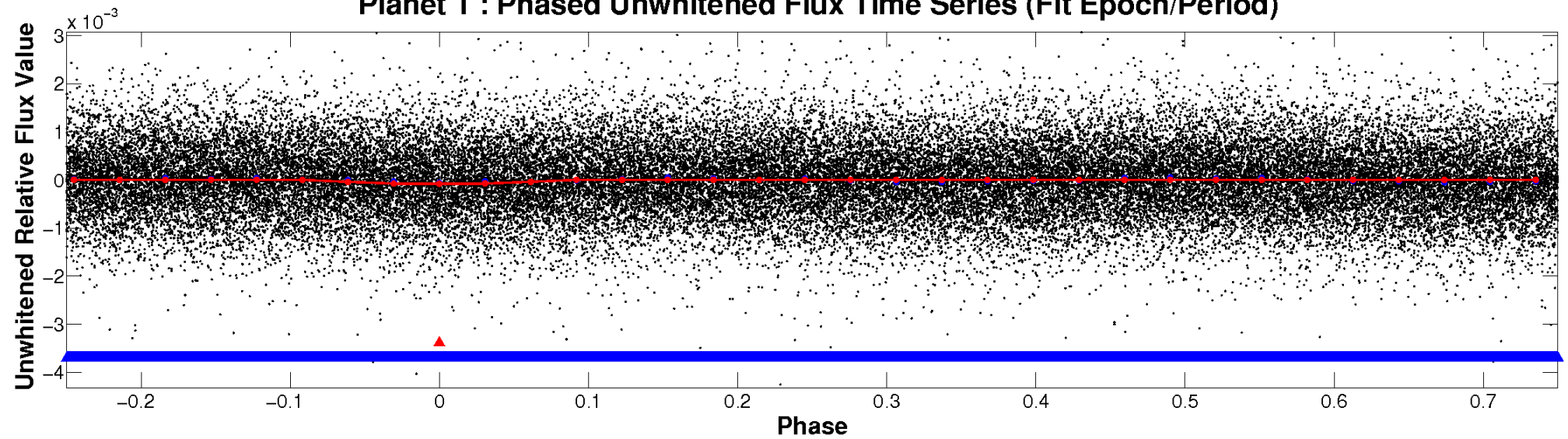
ALT Odd/Even

TCE 003558145-01

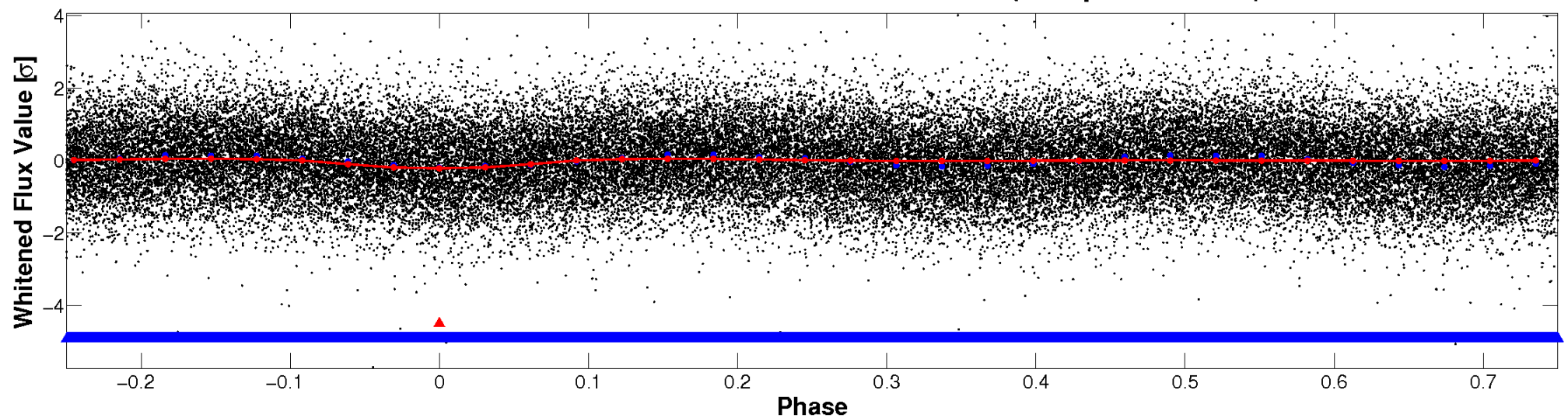


Non-Whitened Vs. Whitened Light Curve

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

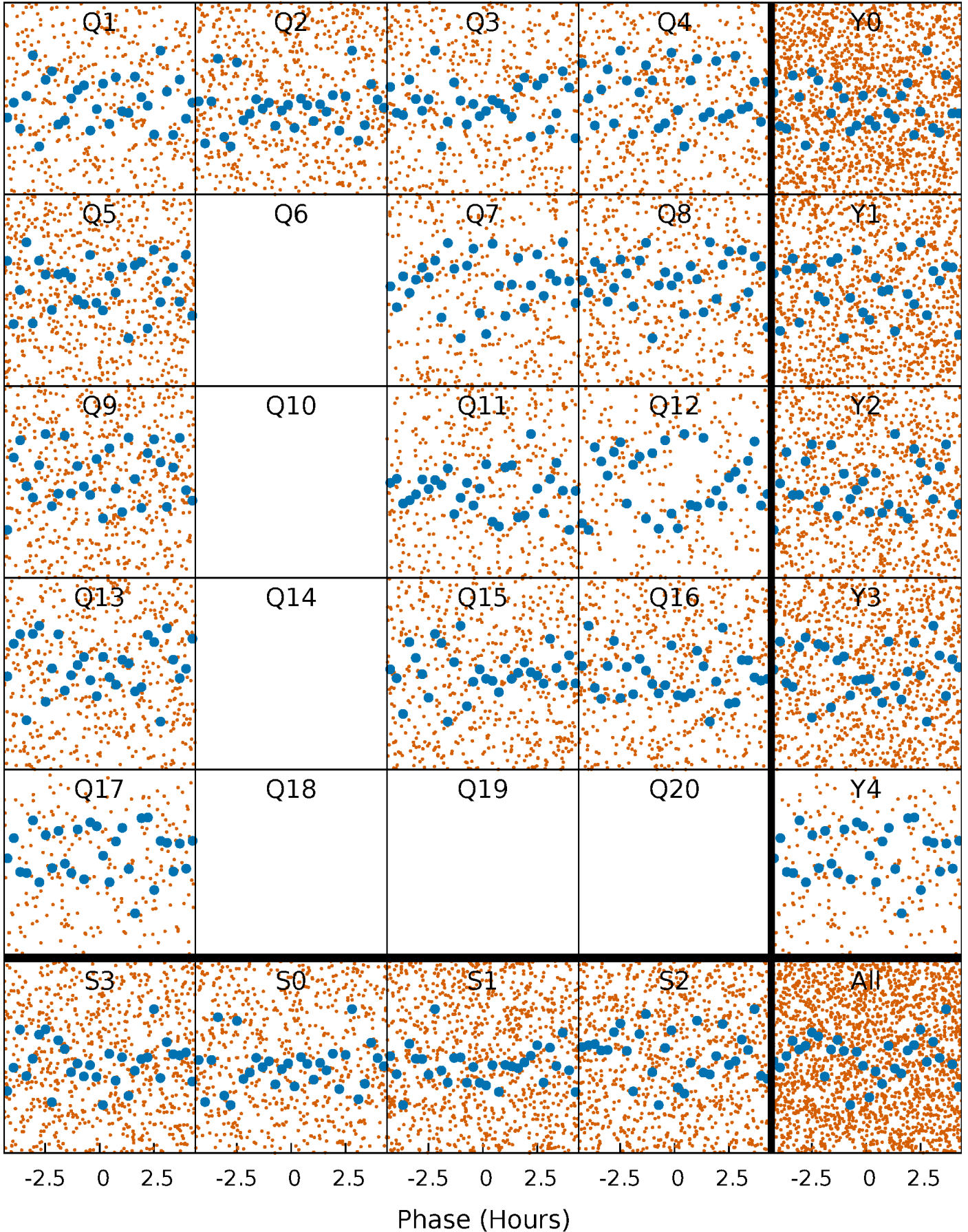


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



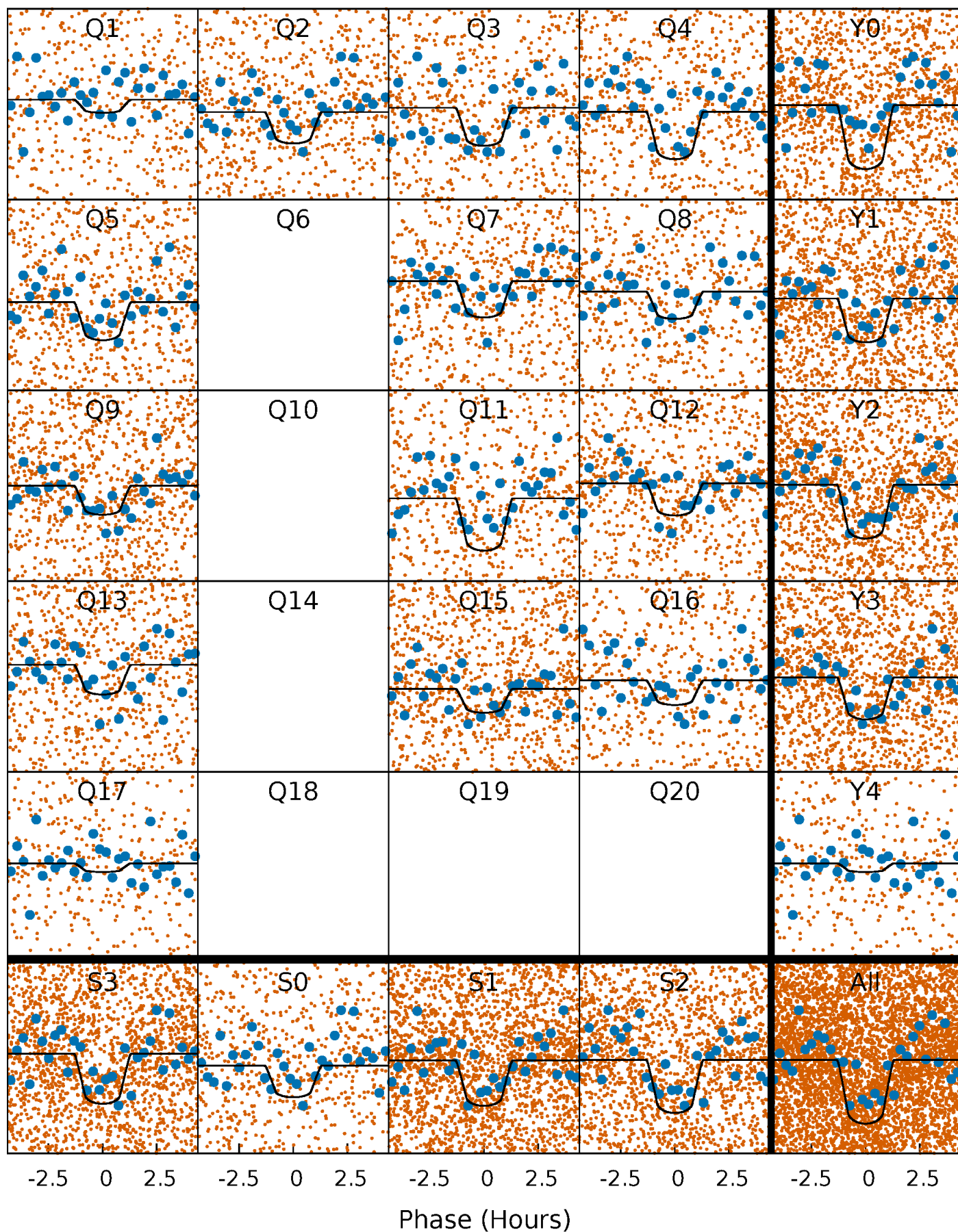
PDC Quarter-Phased Transit Curves

TCE 003558145-01 P= 0.667037 Days $T_0=132.099595$ (BKJD)



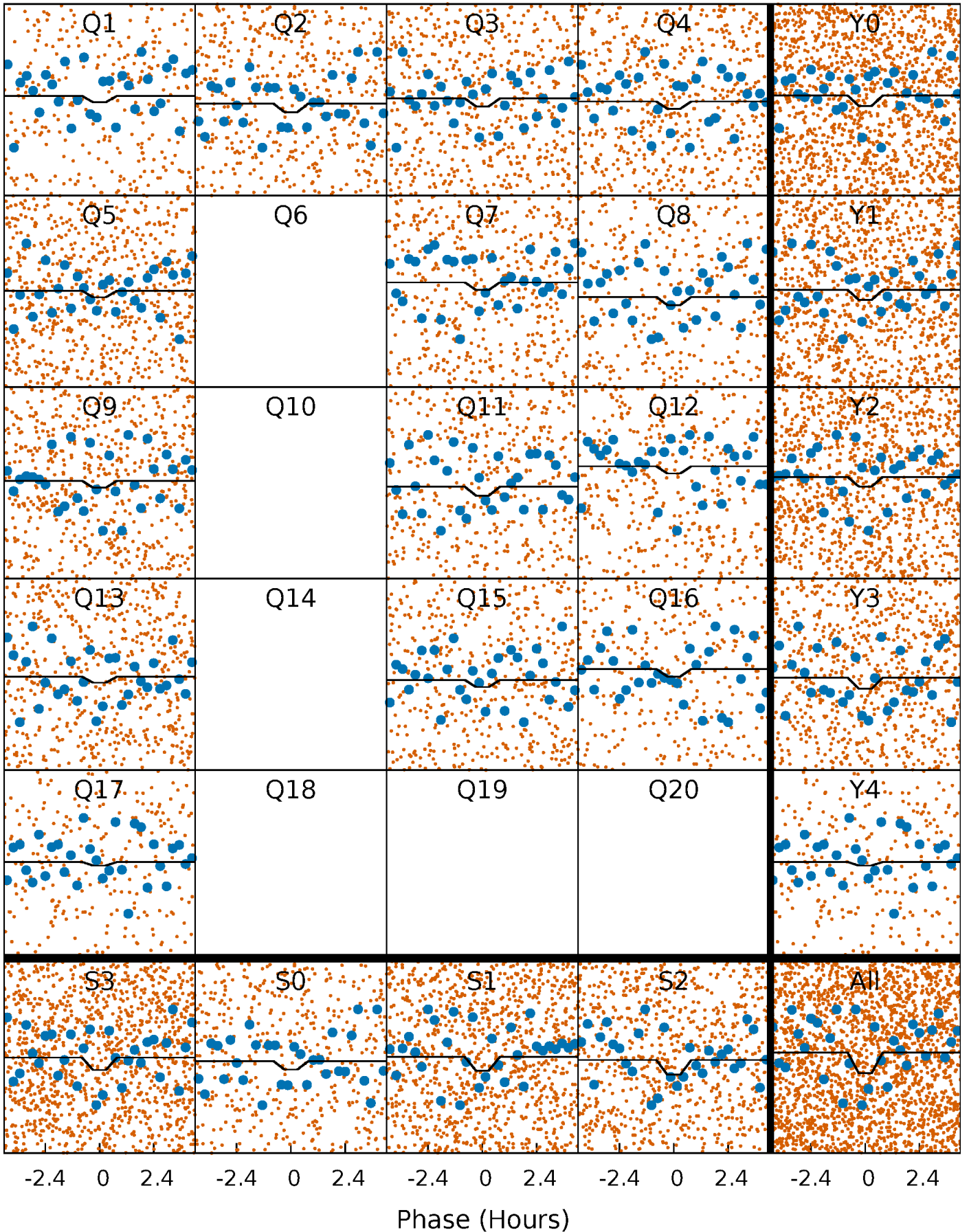
DV Quarter-Phased Transit Curves

TCE 003558145-01 P= 0.667037 Days $T_0=132.099595$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

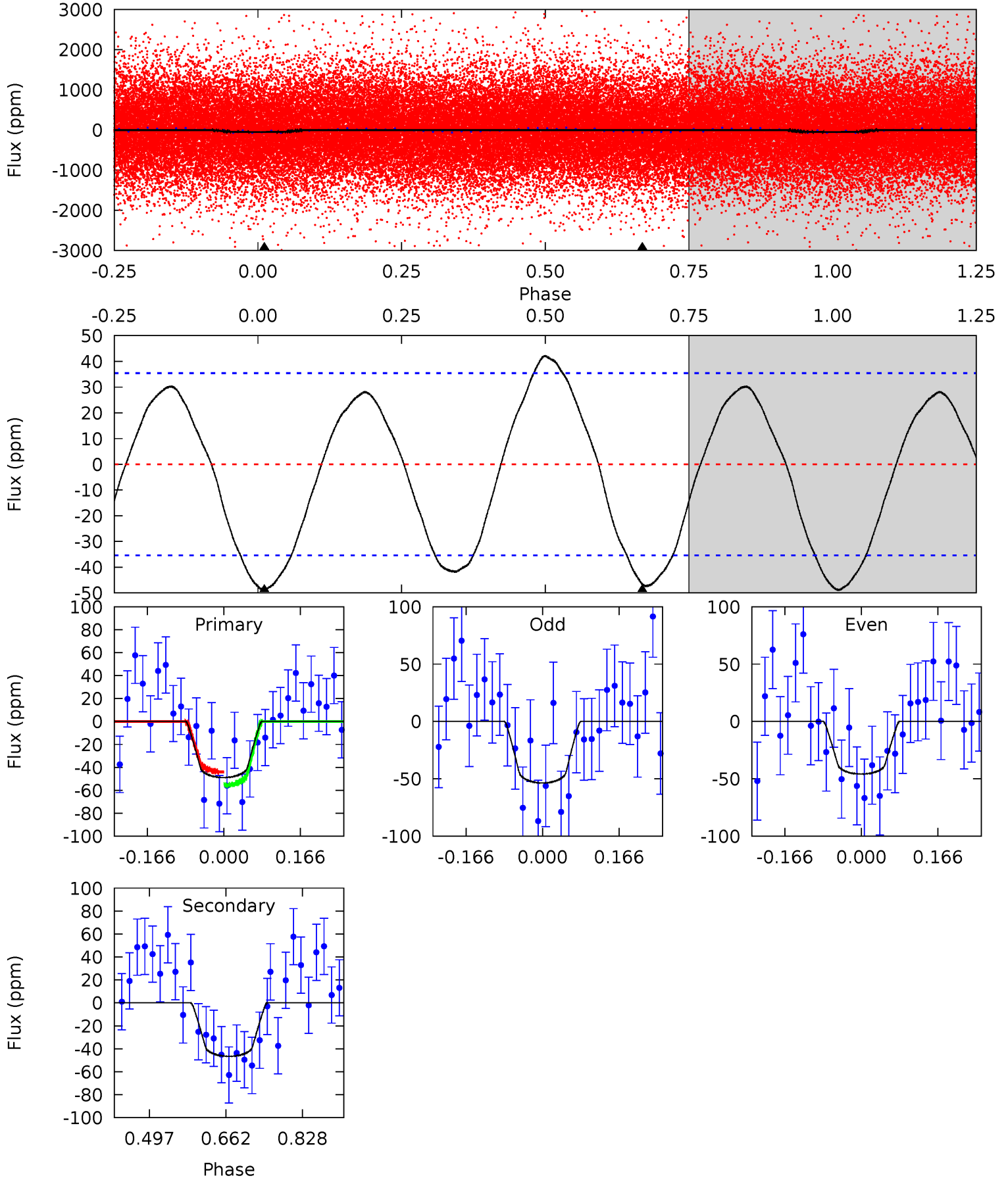
TCE 003558145-01 P= 0.667048 Days $T_0=132.088950$ (BKJD)



DV Model-Shift Uniqueness Test

003558145-01, P = 0.667037 Days, E = 131.432558 Days

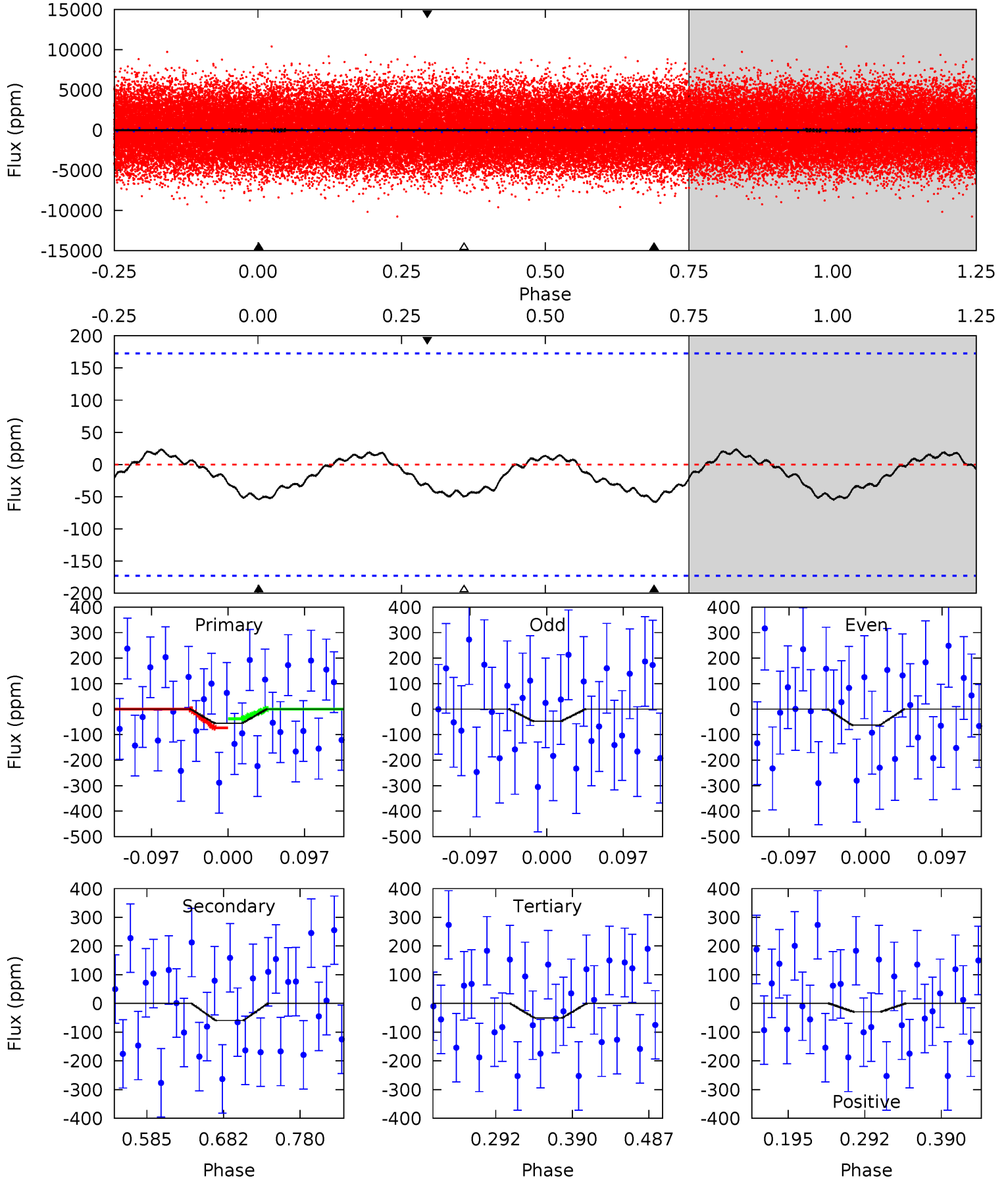
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.15	5.86	0	0	4.46	1.39	3.46	6.15	6.15	5.86	5.86	0.49	0.96	0.46	0.73



Alt Model-Shift Uniqueness Test

003558145-01, P = 0.667048 Days, E = 131.421902 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.46	1.57	1.34	-0.77	4.57	1.66	0.56	0.12	2.23	0.23	2.34	0.20	0.79	0.29	0.47



Stellar Parameters For KIC 003558145

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	7576^{+210}_{-341}	$4.115^{+0.101}_{-0.188}$	$0.210^{+0.150}_{-0.400}$	$1.927^{+0.533}_{-0.355}$	$1.767^{+0.195}_{-0.269}$	$0.348^{+0.190}_{-0.166}$
	+3%/-5%	+2%/-5%	+71%/-190%	+28%/-18%	+11%/-15%	+55%/-48%
Source	KIC0	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 003558145-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-47 ± 8	$2.23^{+1.32}_{-1.15}$	4878^{+326}_{-289}	5747^{+3219}_{-1418}	$1.628^{+5.566}_{-0.965}$
Alt.	-59 ± 38	$1.87^{+1.30}_{-1.15}$	4851^{+382}_{-308}	6613^{+7046}_{-2281}	$2.824^{+17.538}_{-2.151}$

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 $A_{obs} \gg 1.0$

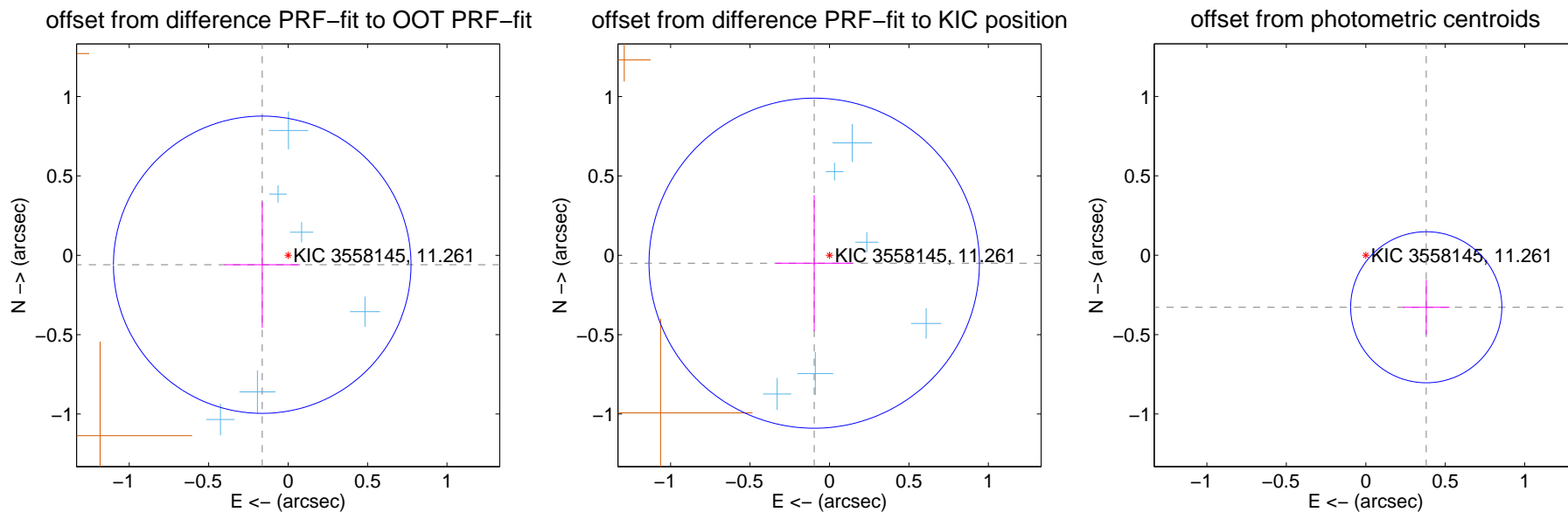
DV Centroid Data

Supplemental centroid analysis for 003558145-01. **Kepler magnitude: 11.26.** Transit SNR 15.20

There are 10 quarters with good PRF difference image offsets

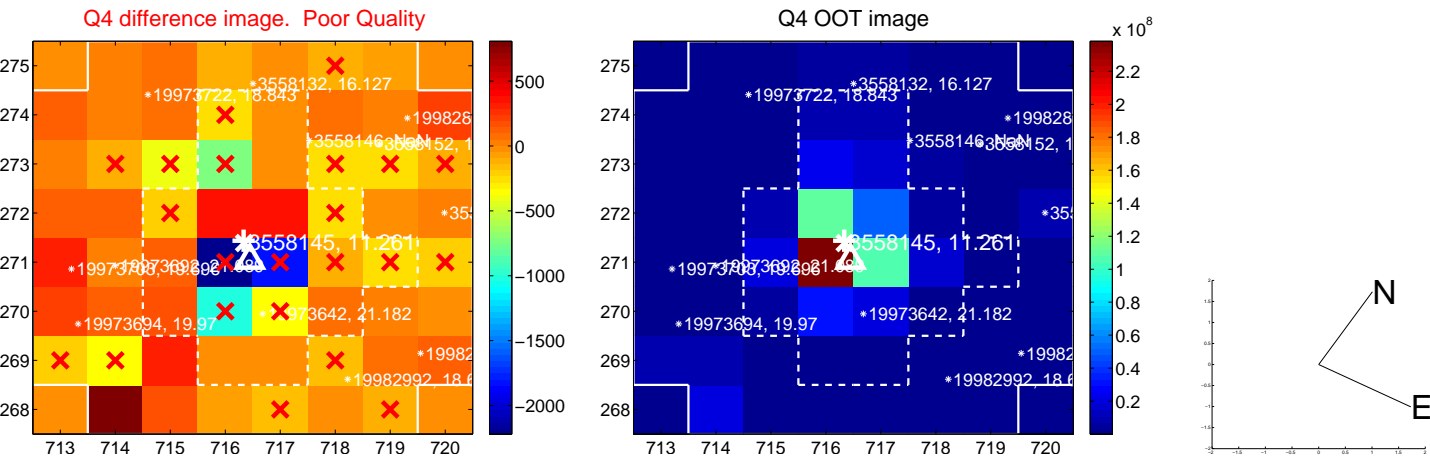
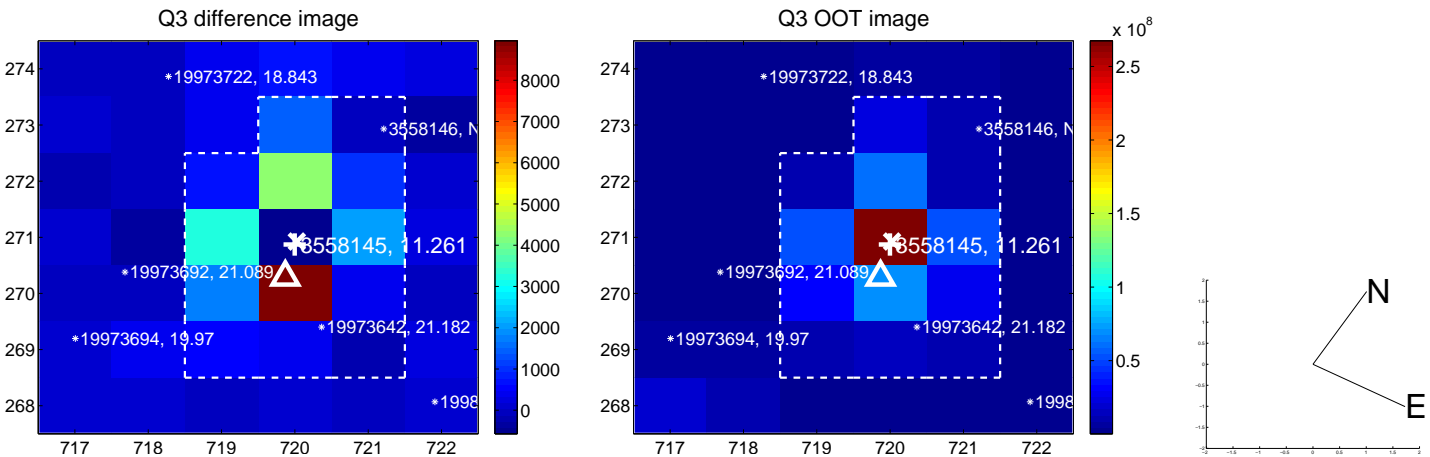
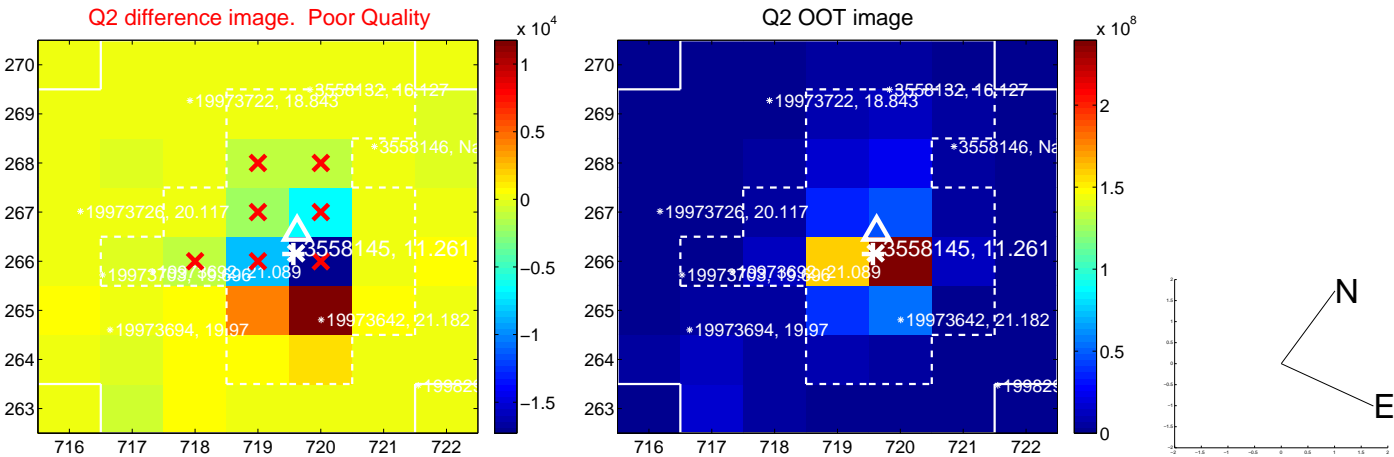
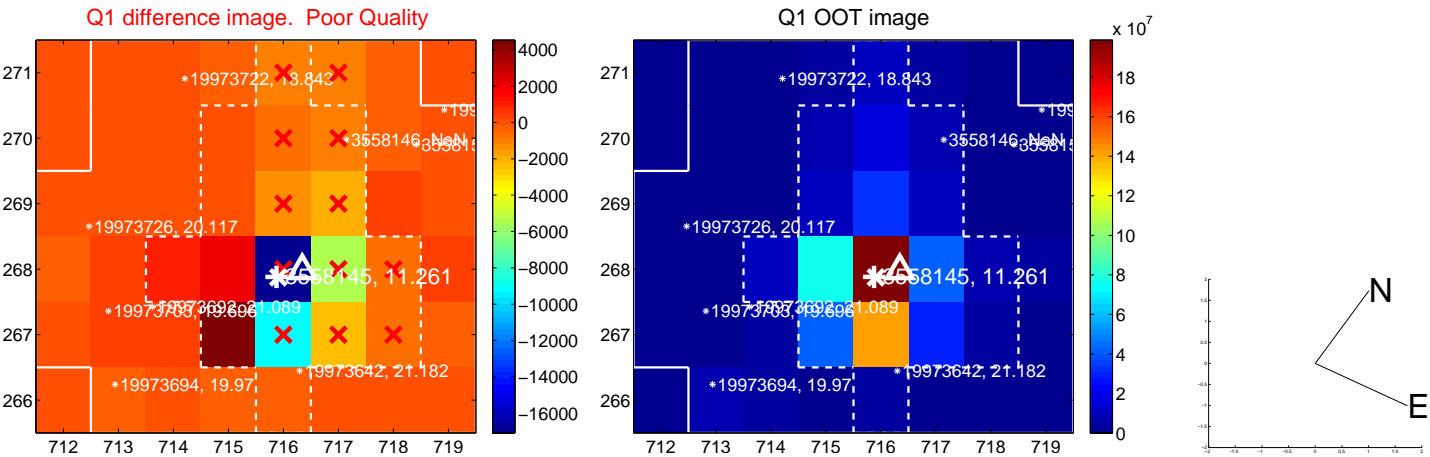
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.173 ± 0.312	0.56	0.163 ± 0.237	-0.060 ± 0.397
PRF-fit source offset from KIC position	0.108 ± 0.347	0.31	0.096 ± 0.242	-0.050 ± 0.428
photometric centroid source offset	0.50 ± 0.16	3.17	-0.38 ± 0.15	-0.33 ± 0.17

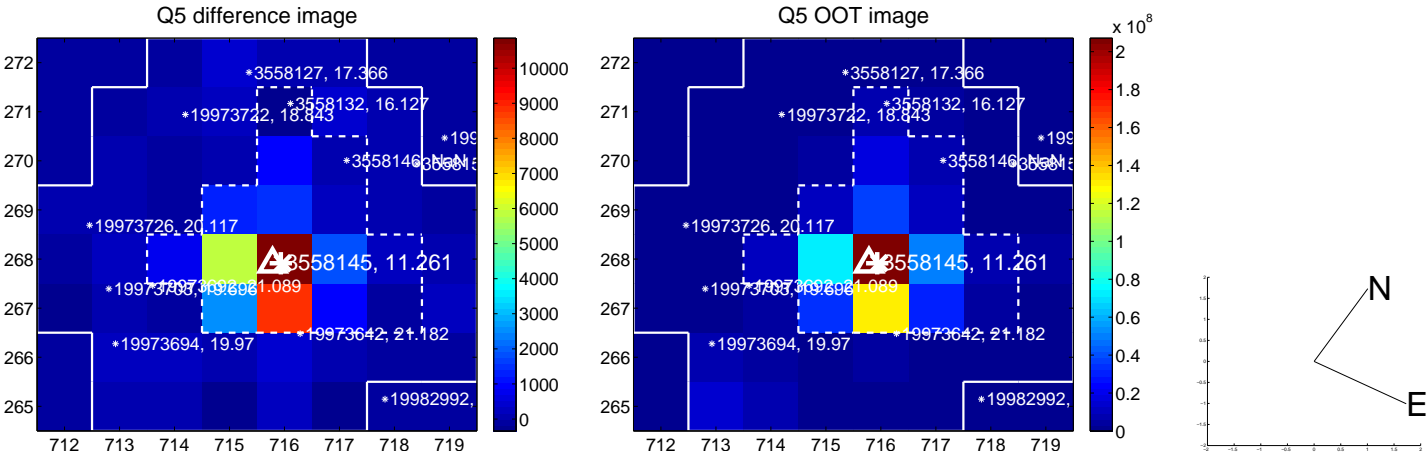


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

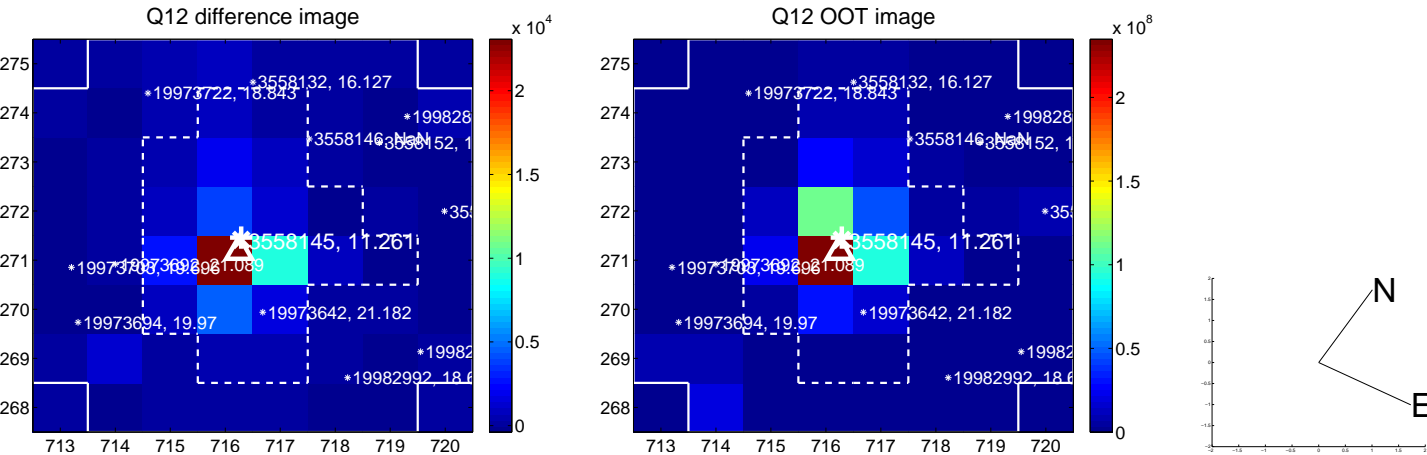
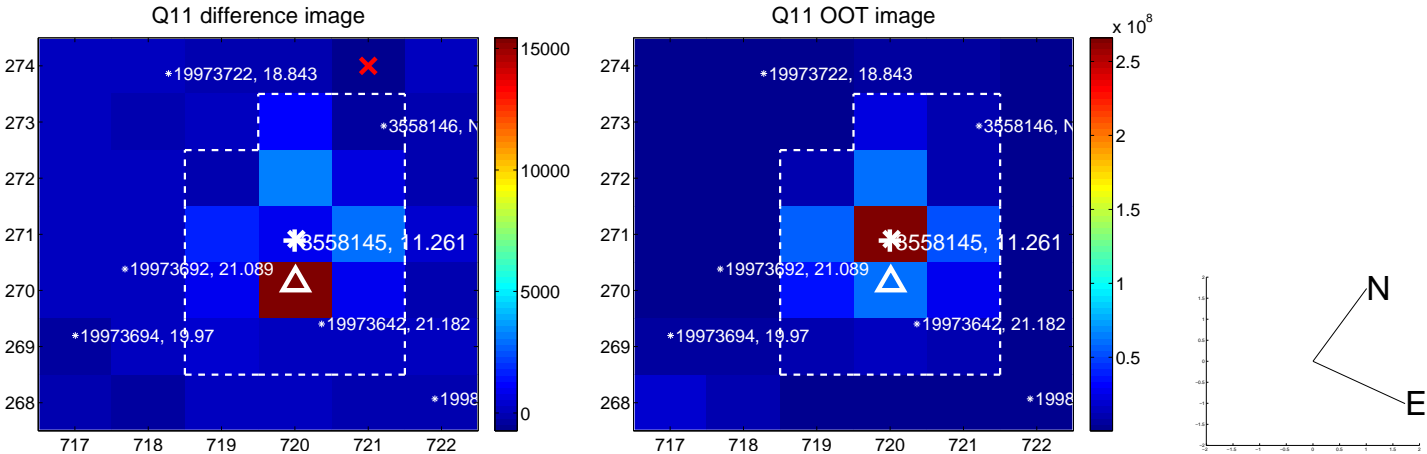
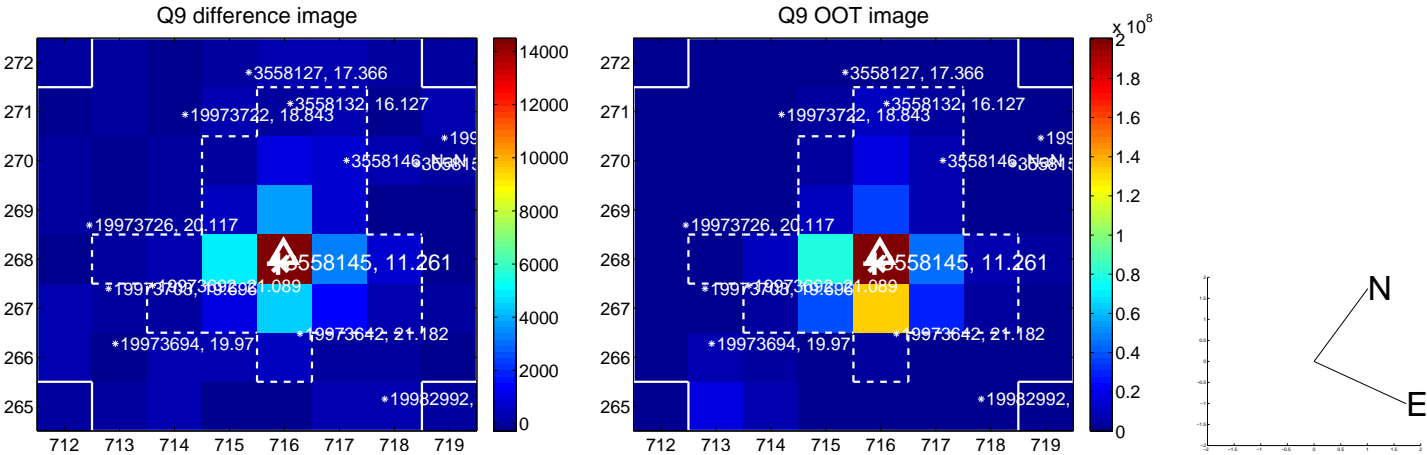
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



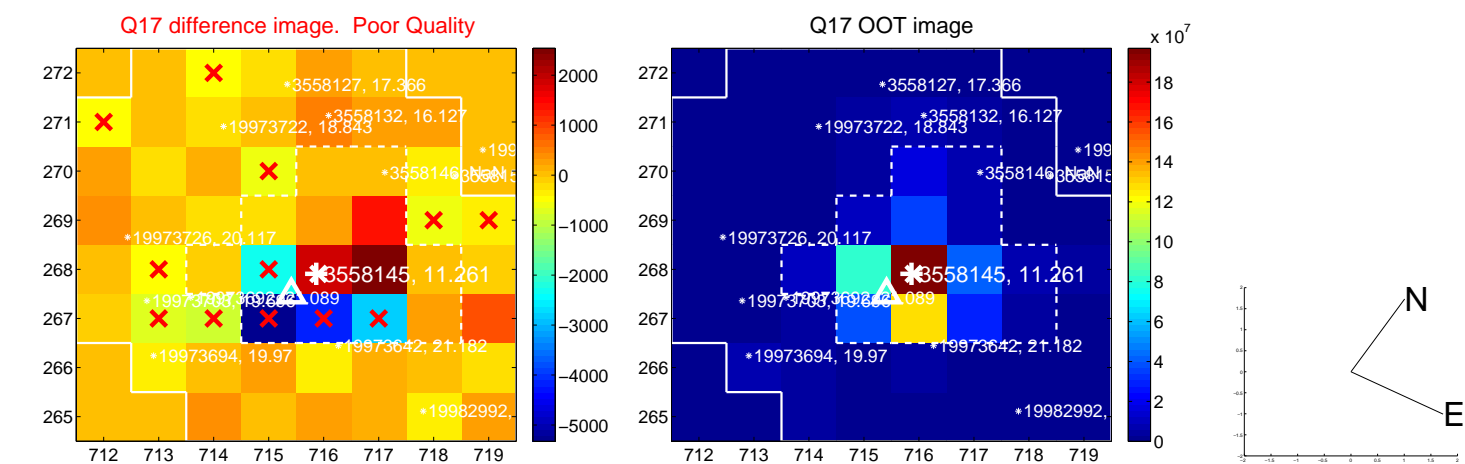
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



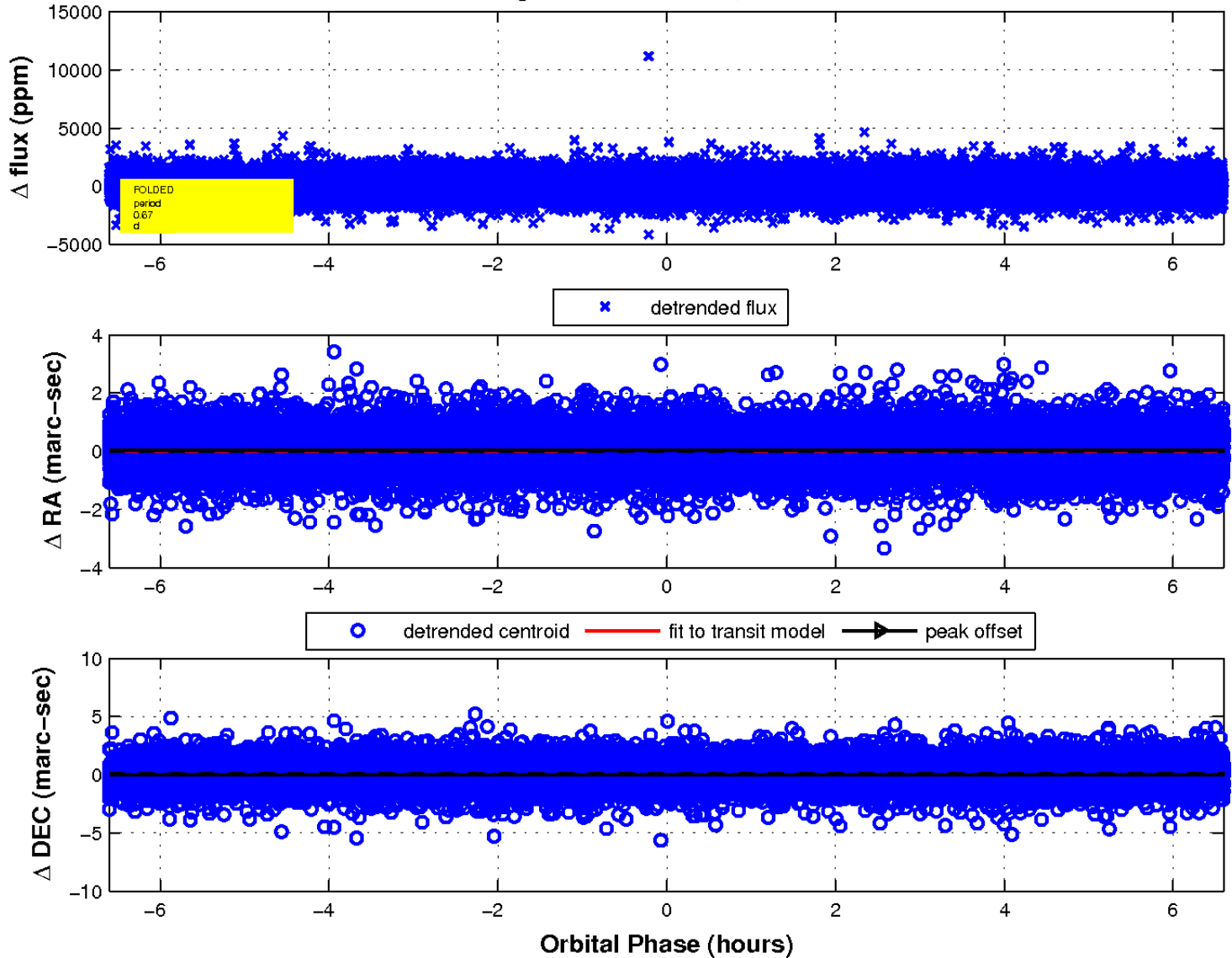
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

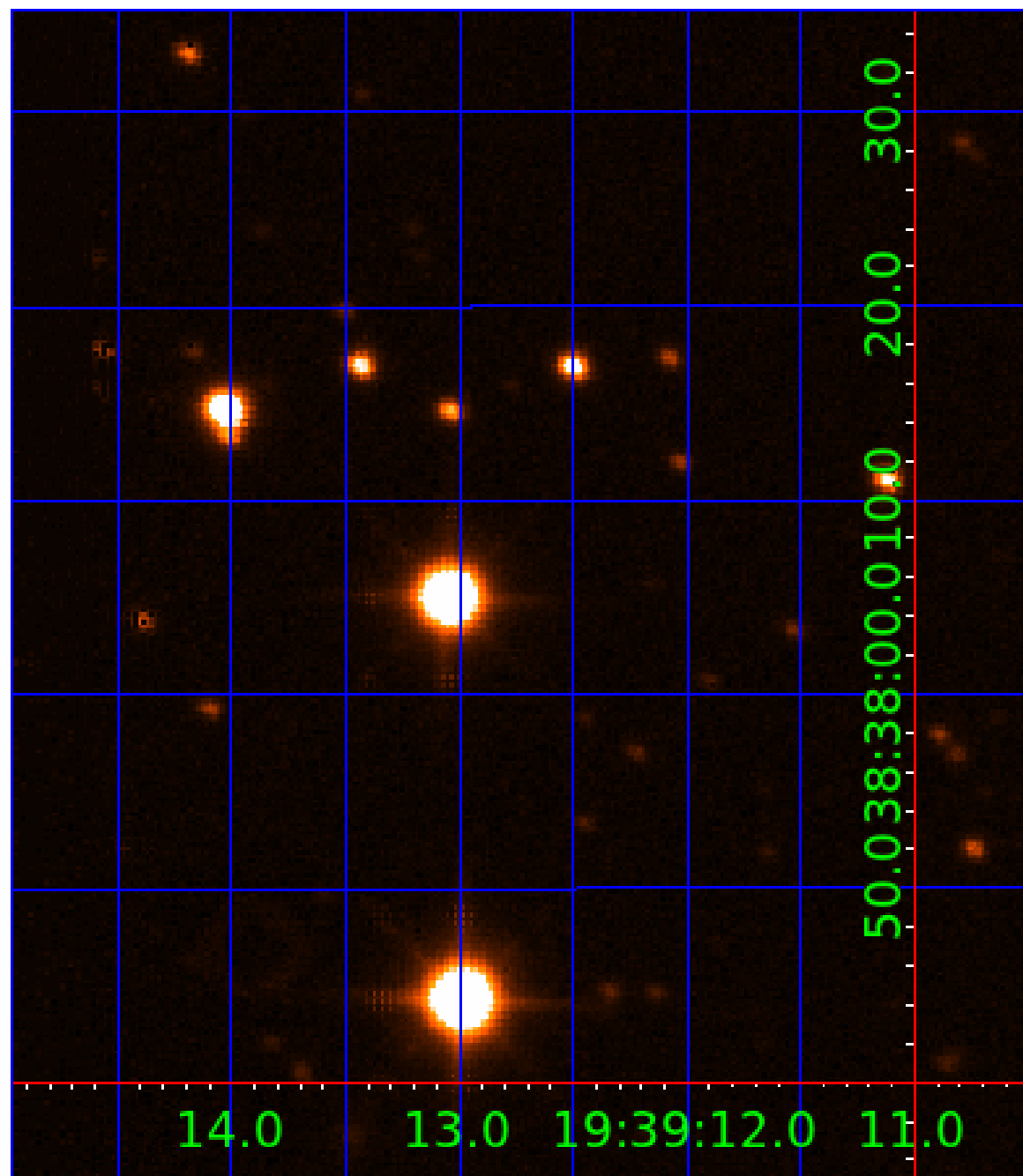


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 003558145

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})
003558145-01	OBS	No	0.667037	132.099595	82.2	2.201	13.7	15.2	1.93	7576	2.02	33602.81
003558145-02	OBS	No	0.503509	131.583867	102.9	6.042	9.2	17.6	1.93	7576	2.23	48891.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003558145-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_SATURATED
003558145-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—LPP_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.

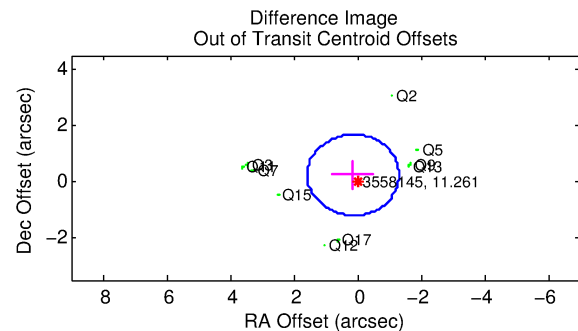
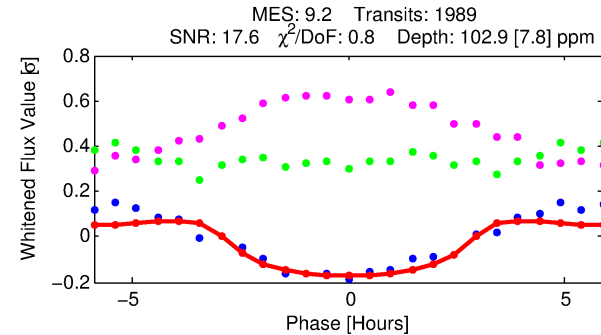
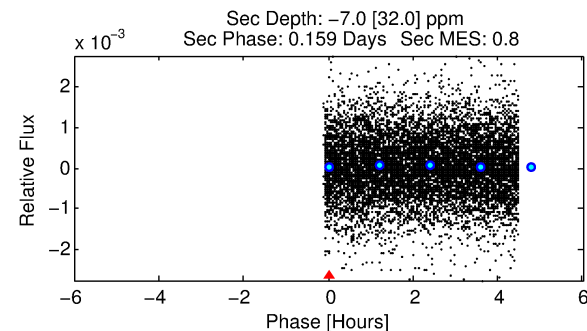
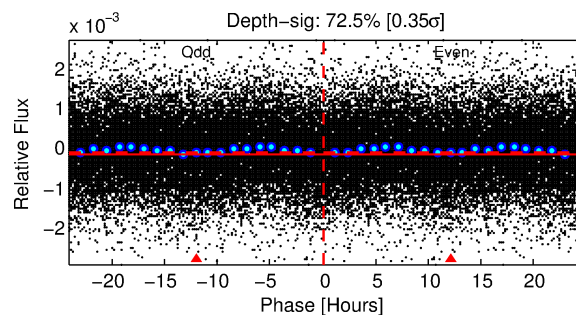
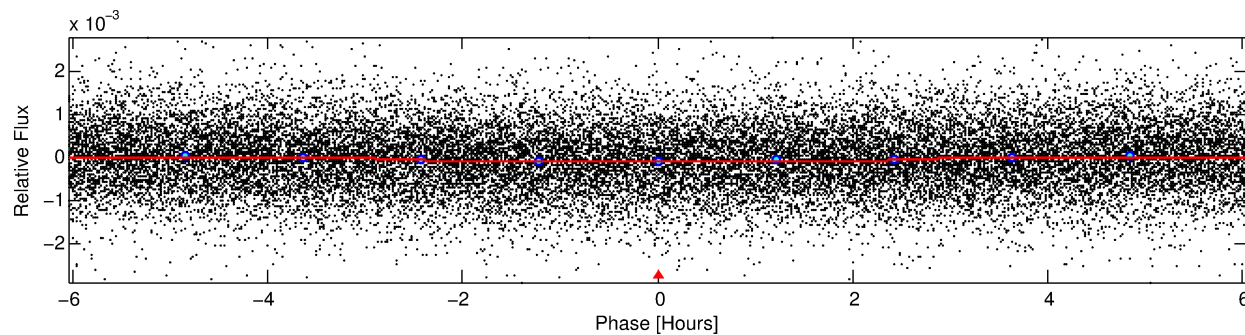
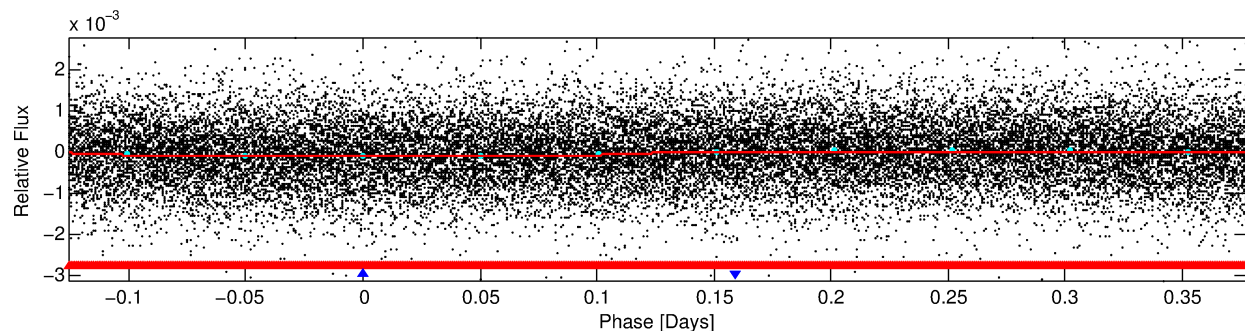
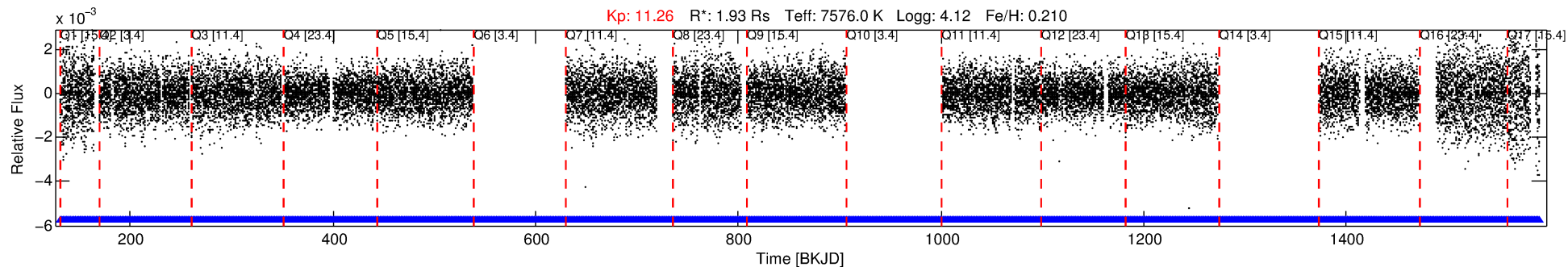
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003558145-02

No Significant Match Found

DV One-Page Summary

KIC: 3558145 Candidate: 2 of 2 Period: 0.504 d



DV Fit Results:

Period = 0.50351 [0.00001] d
Epoch = 131.5839 [0.0037] BKJD
Rp/R* = 0.0106 [0.0021]
a/R* = 1.00 [0.00]
b = 0.88 [0.34]
Seff = 48891.42 [18916.75]
Teq = 3792 [367] K
Rp = 2.23 [0.76] Re
a = 0.0150 [0.0035] AU
Ag = N/A
Teffp = N/A

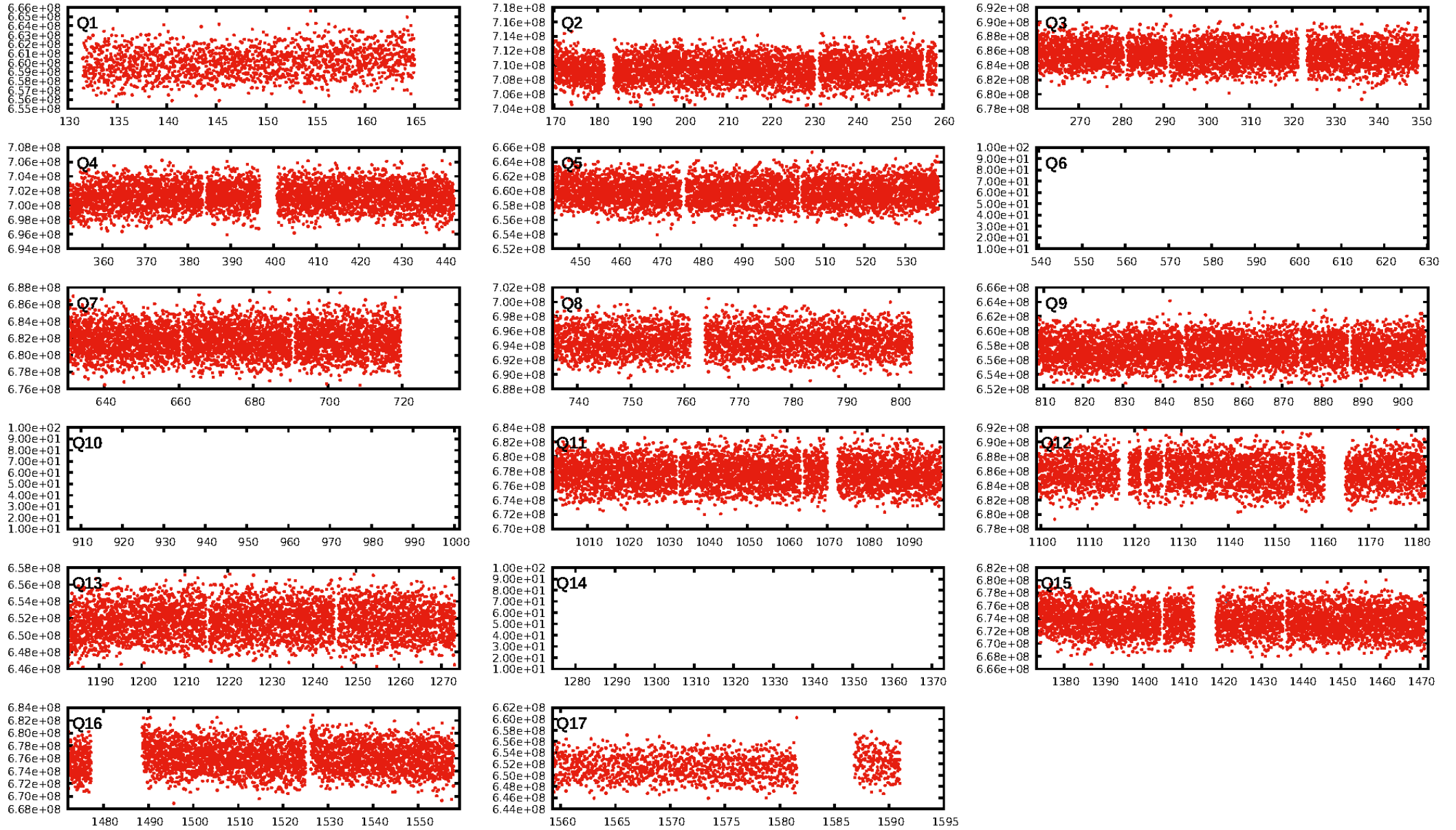
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 45.8% [0.61 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1881/1881]
GhostDiagnostic-chr: 1.83
Centroid-sig: 12.3%
Centroid-so: 0.144 arcsec [2.10 σ]
OotOffset-rm: 0.274 arcsec [0.57 σ]
OotOffset-st: 1/4/1/4 [10]
KicOffset-rm: 0.111 arcsec [0.25 σ]
KicOffset-st: 1/4/1/4 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 0.00 [0/14]

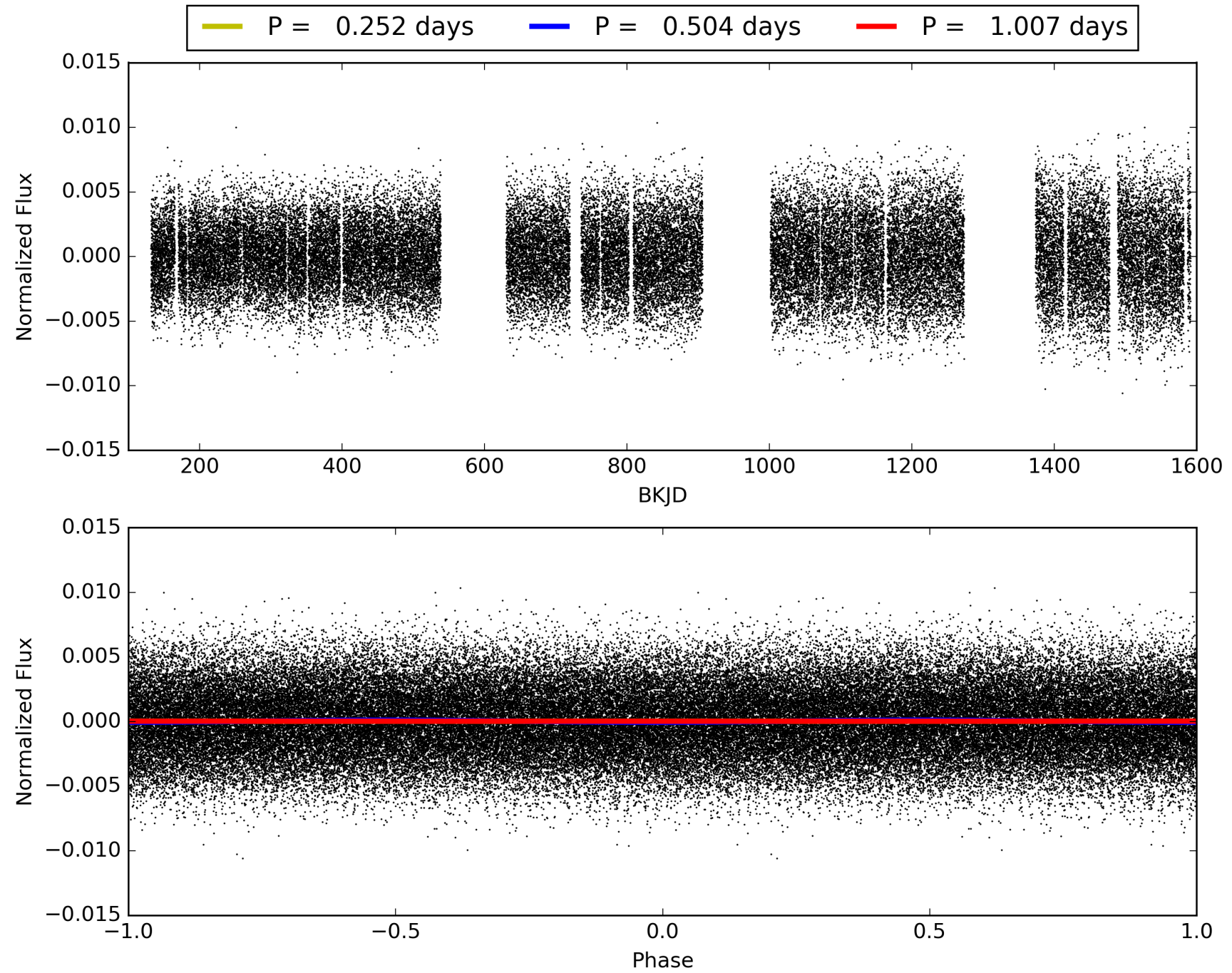
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:16:36 Z

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

TCE 003558145-02, PDC Light Curves

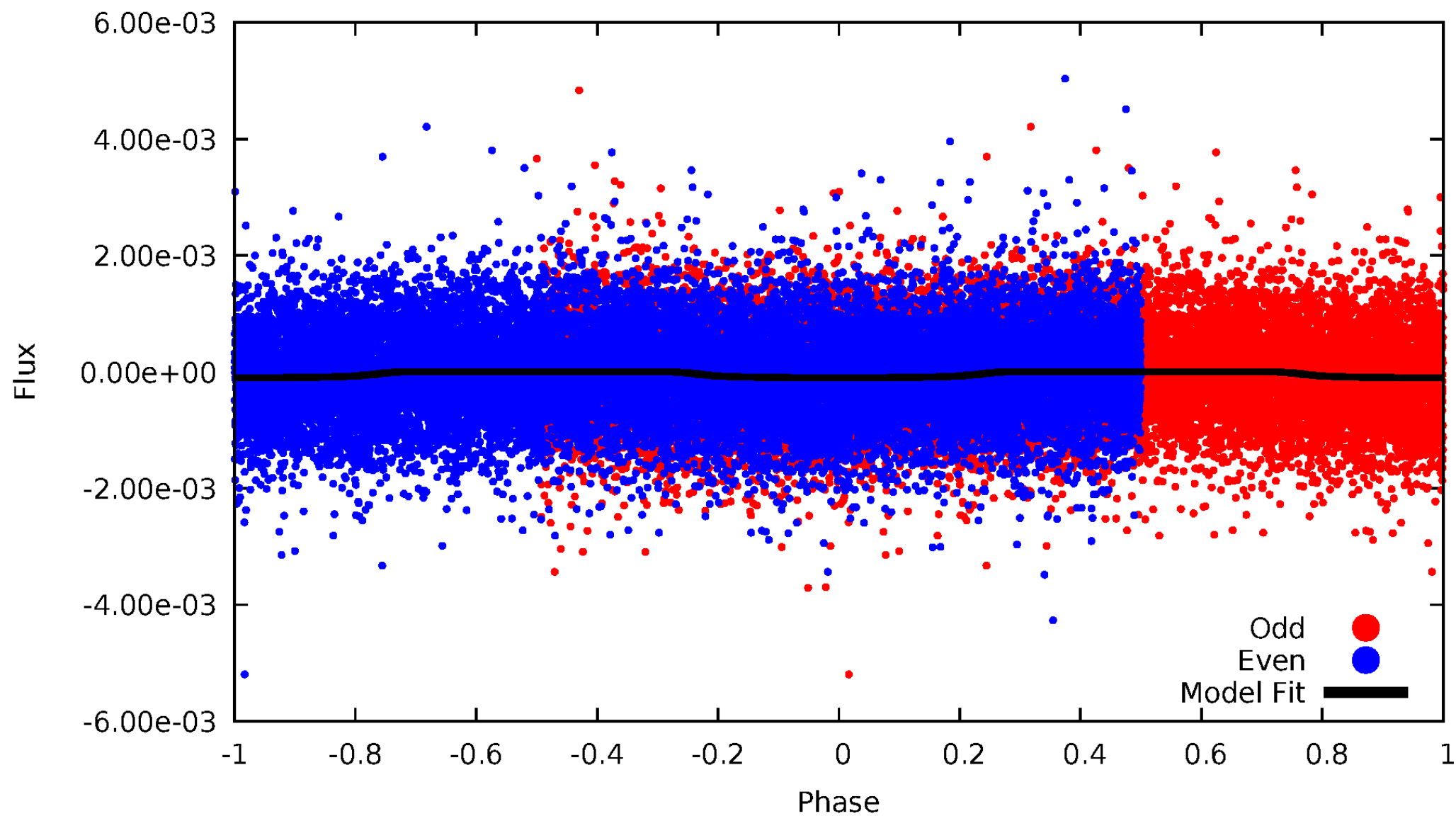


TCE 003558145-02



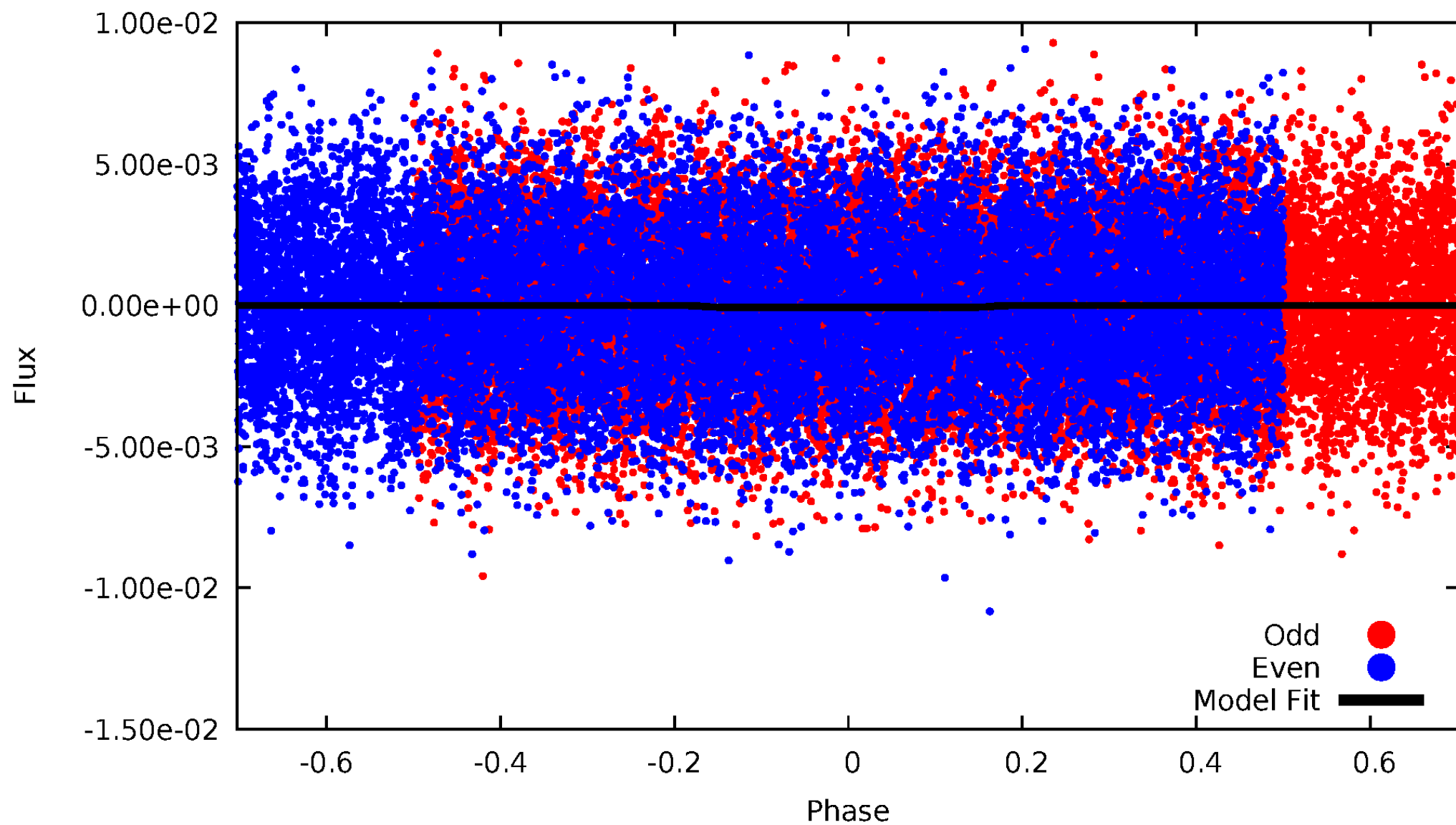
DV Odd/Even

TCE 003558145-02



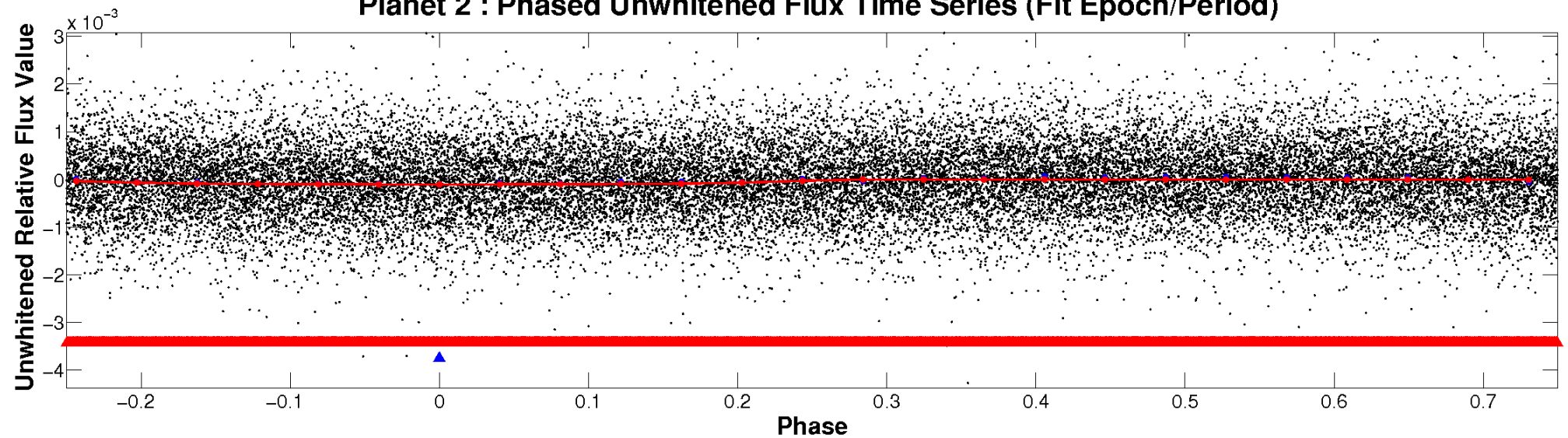
ALT Odd/Even

TCE 003558145-02

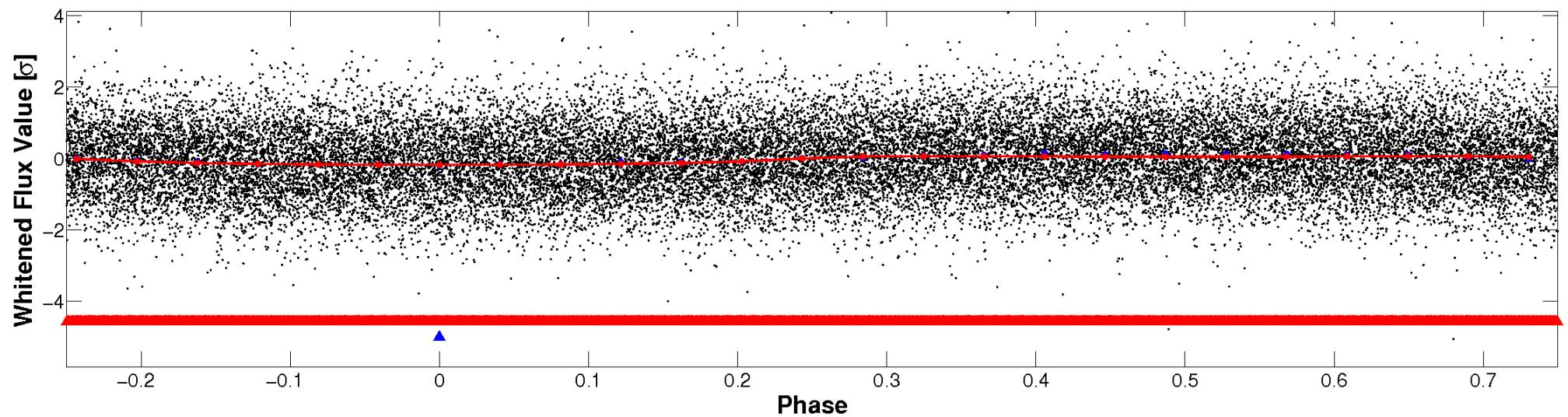


Non-Whitened Vs. Whitened Light Curve

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

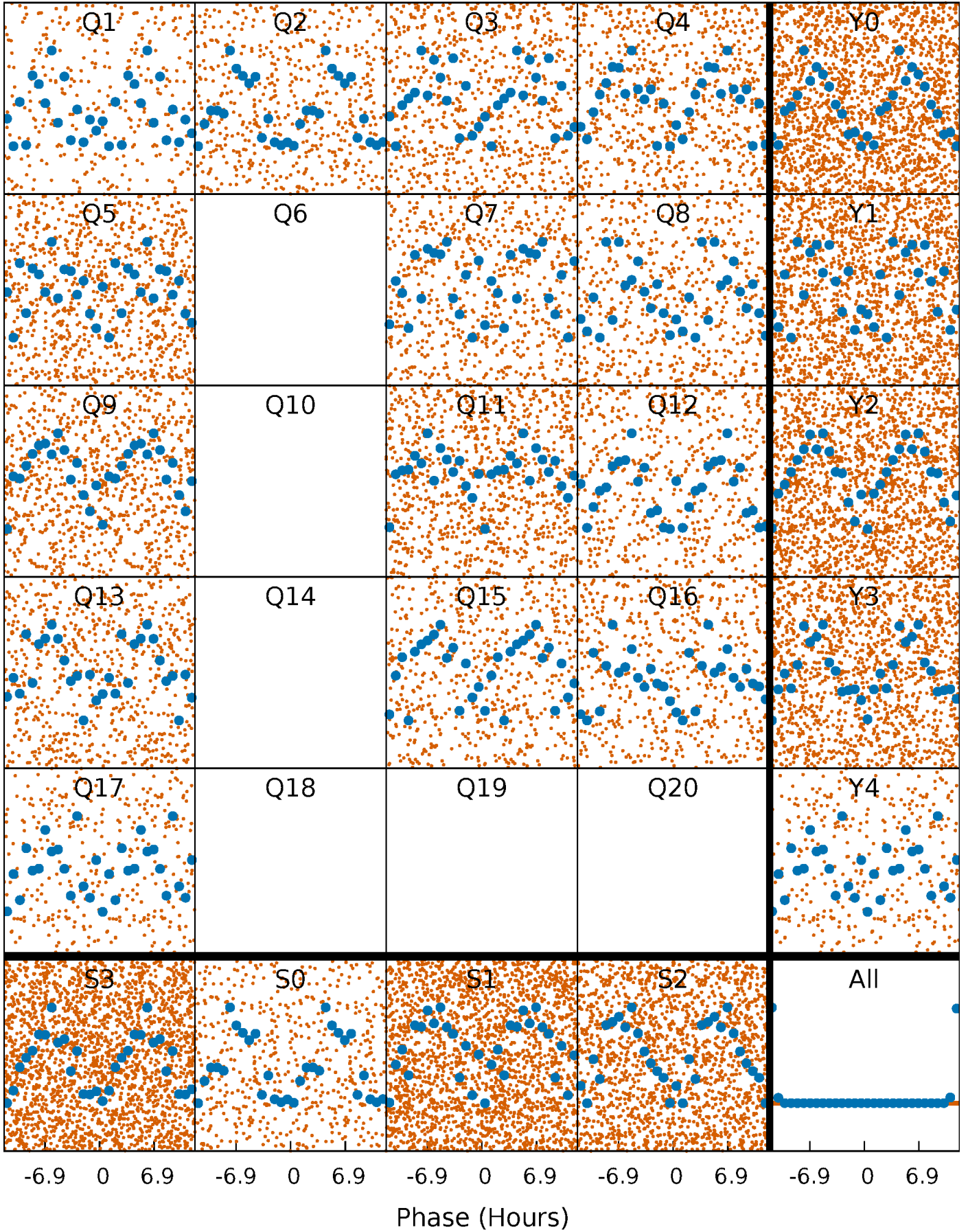


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



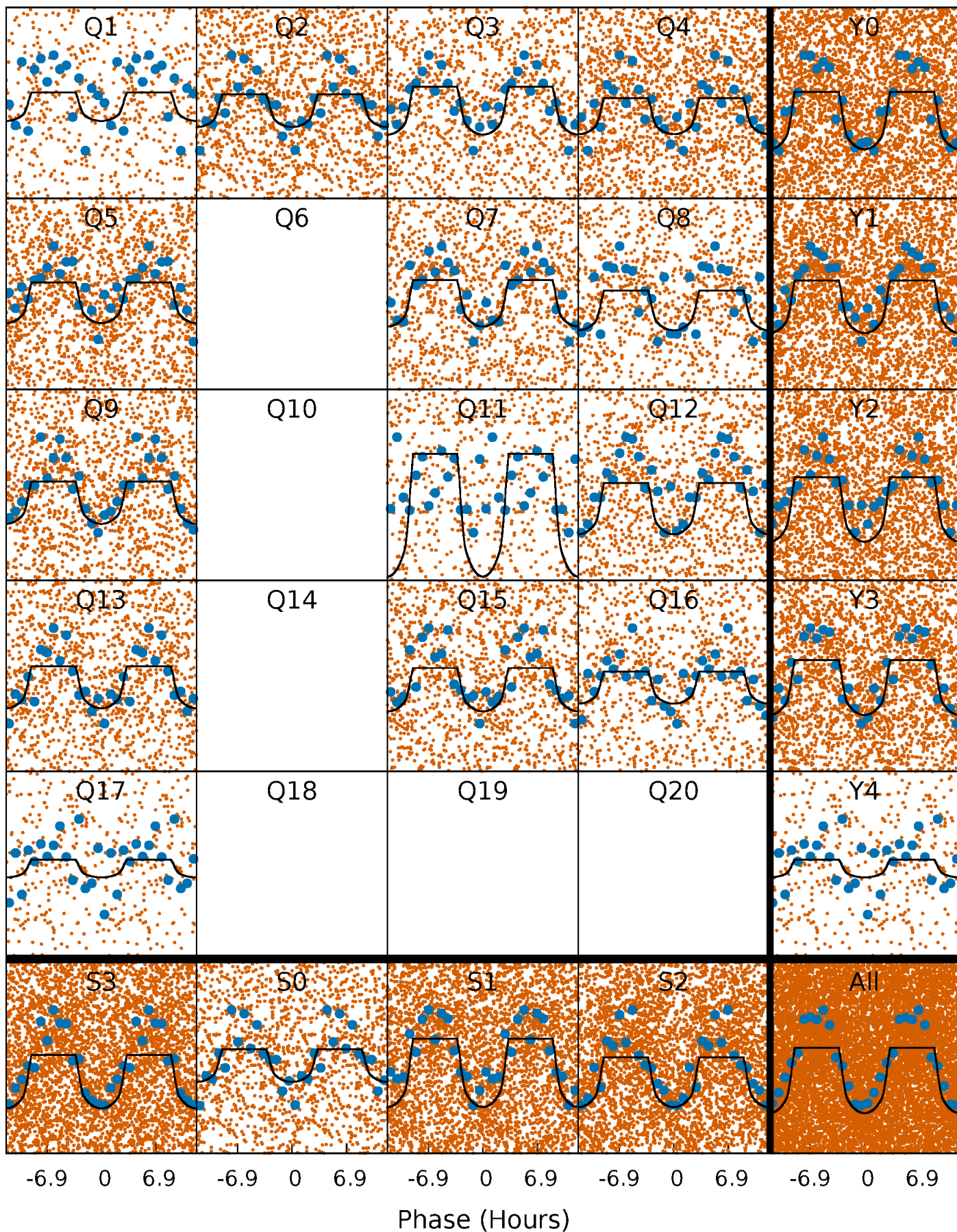
PDC Quarter-Phased Transit Curves

TCE 003558145-02 P= 0.503509 Days $T_0=131.583867$ (BKJD)



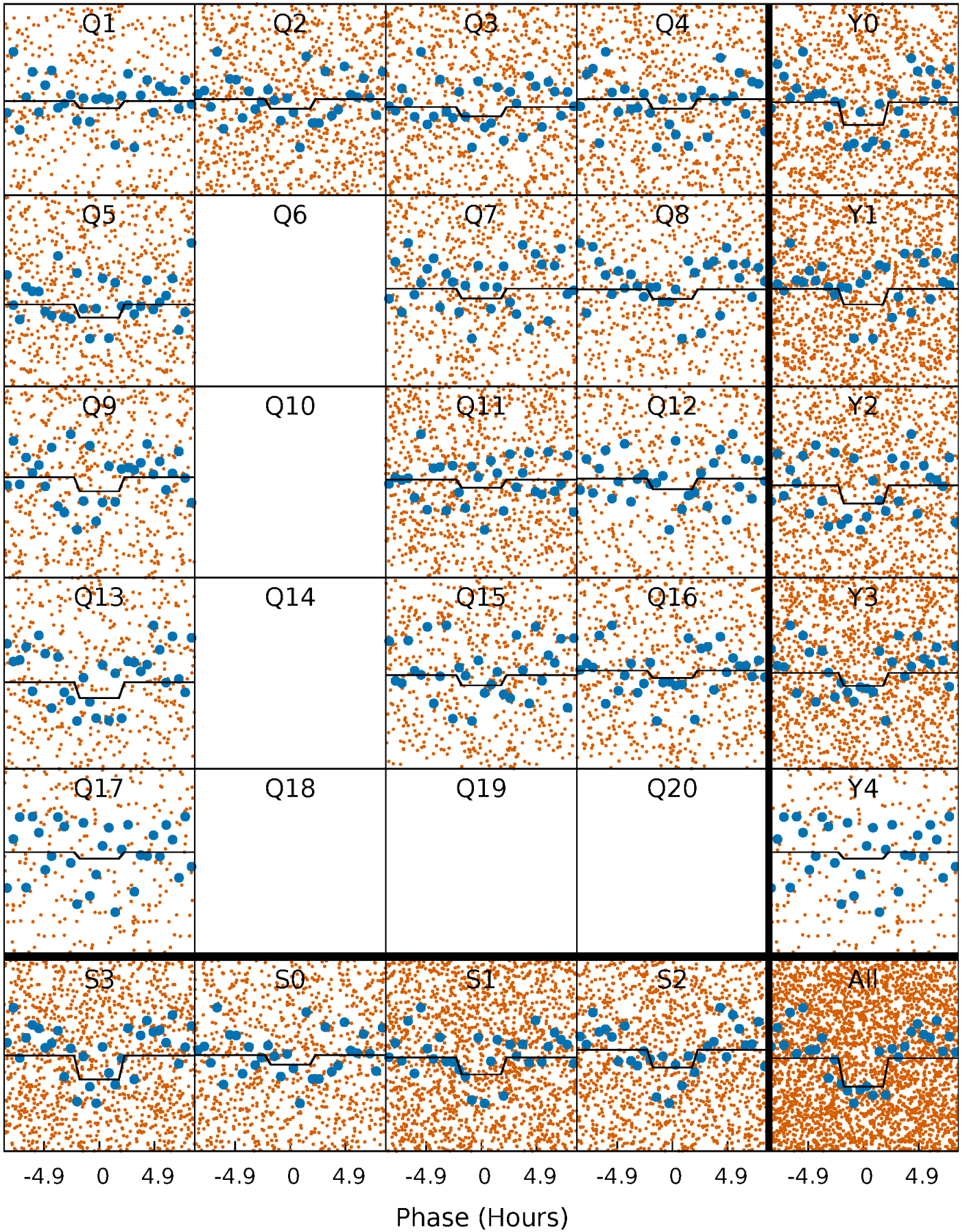
DV Quarter-Phased Transit Curves

TCE 003558145-02 P= 0.503509 Days $T_0=131.583867$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

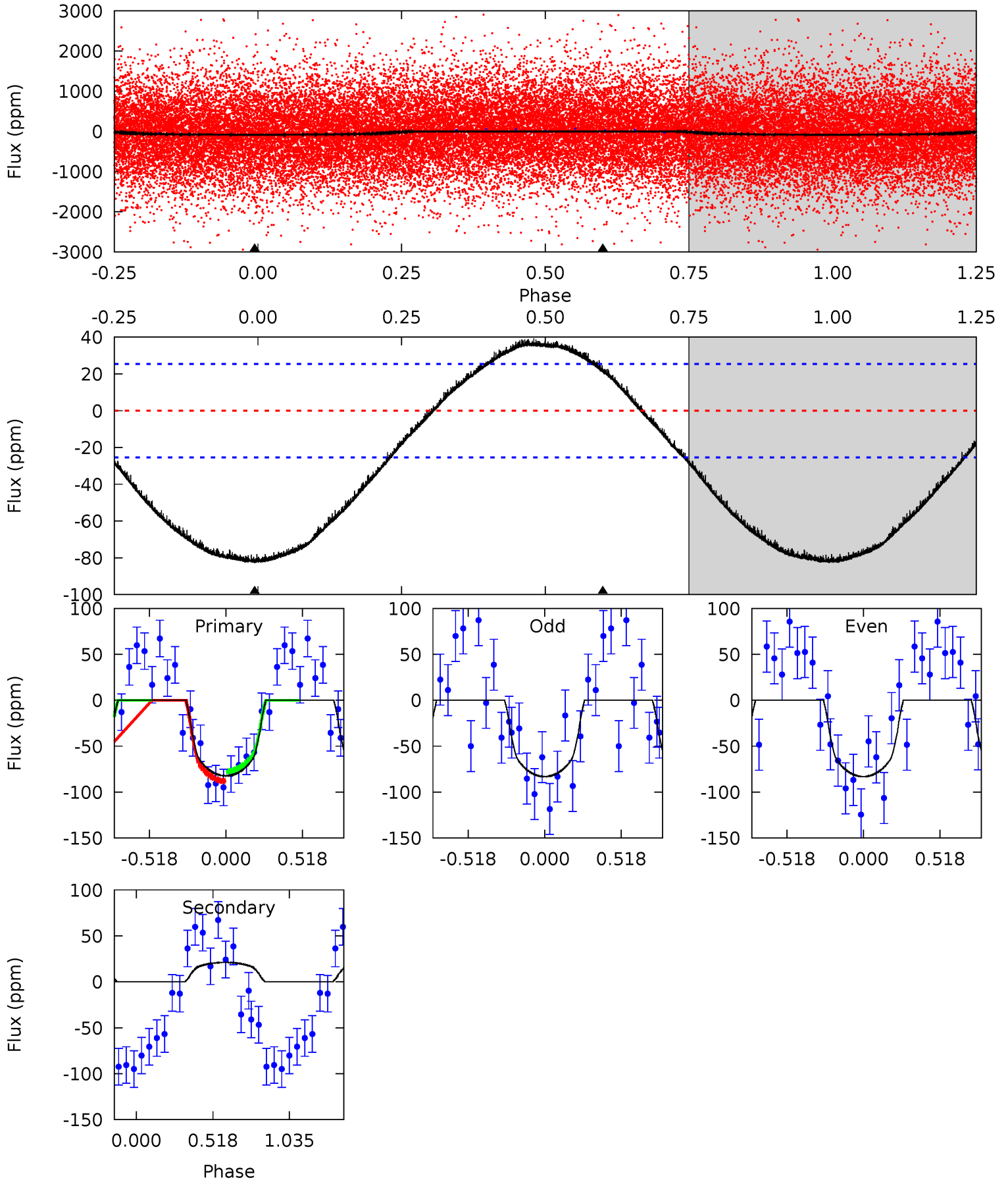
TCE 003558145-02 P= 0.503523 Days $T_0=131.570573$ (BKJD)



DV Model-Shift Uniqueness Test

003558145-02, P = 0.503509 Days, E = 131.583867 Days

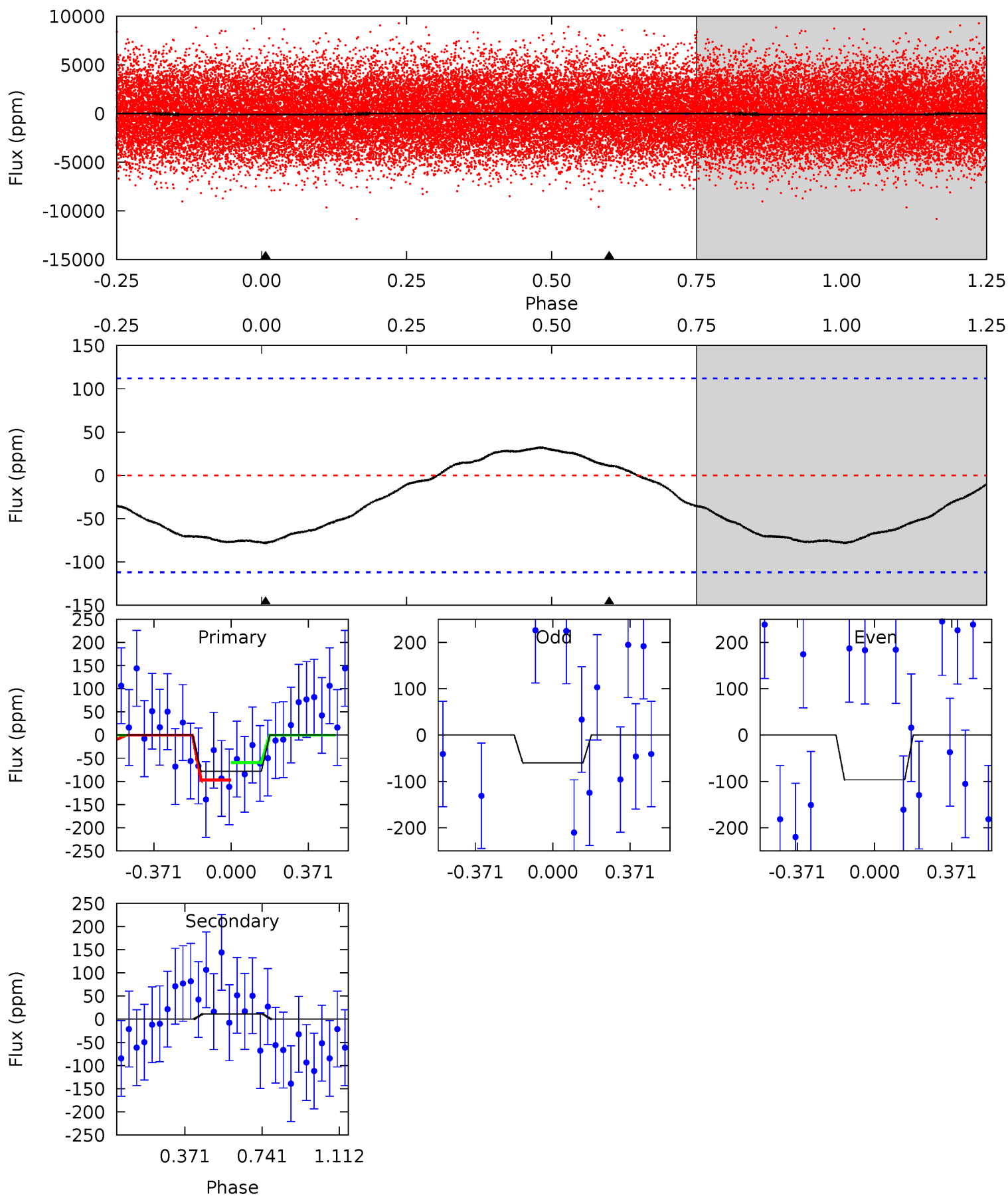
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.6	-3.49	0	0	4.21	0.65	1.57	13.6	13.6	-3.49	-3.49	0.00	0.80	0.32	0.89



Alt Model-Shift Uniqueness Test

003558145-02, P = 0.503523 Days, E = 131.570573 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.99	-0.43	0	0	4.28	0.90	0.32	2.99	2.99	-0.43	-0.43	0.70	1.23	0.29	0.72



Stellar Parameters For KIC 003558145

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7576^{+210}_{-341}	$4.115^{+0.101}_{-0.188}$	$0.210^{+0.150}_{-0.400}$	$1.927^{+0.533}_{-0.355}$	$1.767^{+0.195}_{-0.269}$	$0.348^{+0.190}_{-0.166}$
	+3%/-5%	+2%/-5%	+71%/-190%	+28%/-18%	+11%/-15%	+55%/-48%
Source	KIC0	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 003558145-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	21 ± 6	$2.29^{+0.56}_{-0.48}$	5329^{+388}_{-321}	-5504^{+364}_{-502}	$-0.467^{+0.195}_{-0.377}$
Alt.	11 ± 26	$1.87^{+0.59}_{-0.52}$	5350^{+378}_{-329}	-5397^{+9453}_{-1453}	$-0.360^{+0.850}_{-1.158}$

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

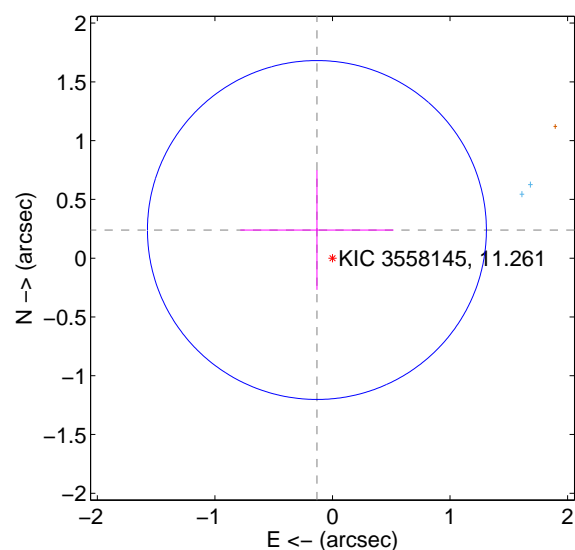
Supplemental centroid analysis for 003558145-02. **Kepler magnitude: 11.26.** Transit SNR 17.62

There are 5 quarters with good PRF difference image offsets

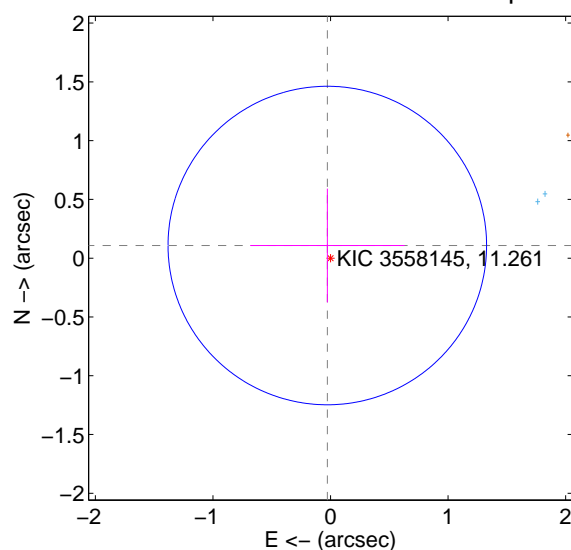
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.274 ± 0.481	0.57	0.132 ± 0.651	0.240 ± 0.509
PRF-fit source offset from KIC position	0.111 ± 0.452	0.25	0.027 ± 0.656	0.108 ± 0.484
photometric centroid source offset	0.14 ± 0.07	2.10	-0.14 ± 0.07	-0.02 ± 0.08

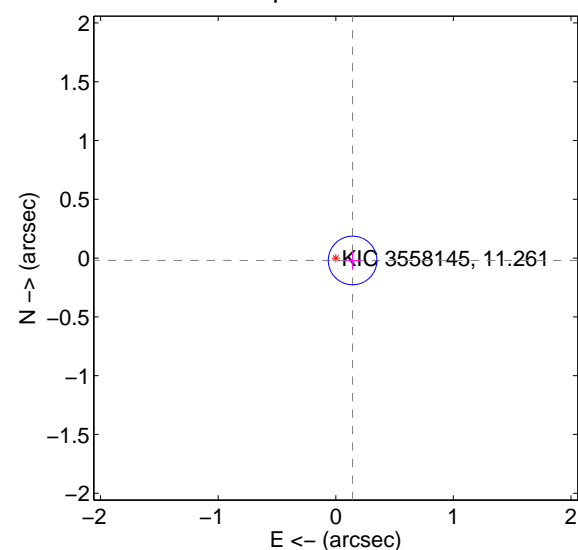
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

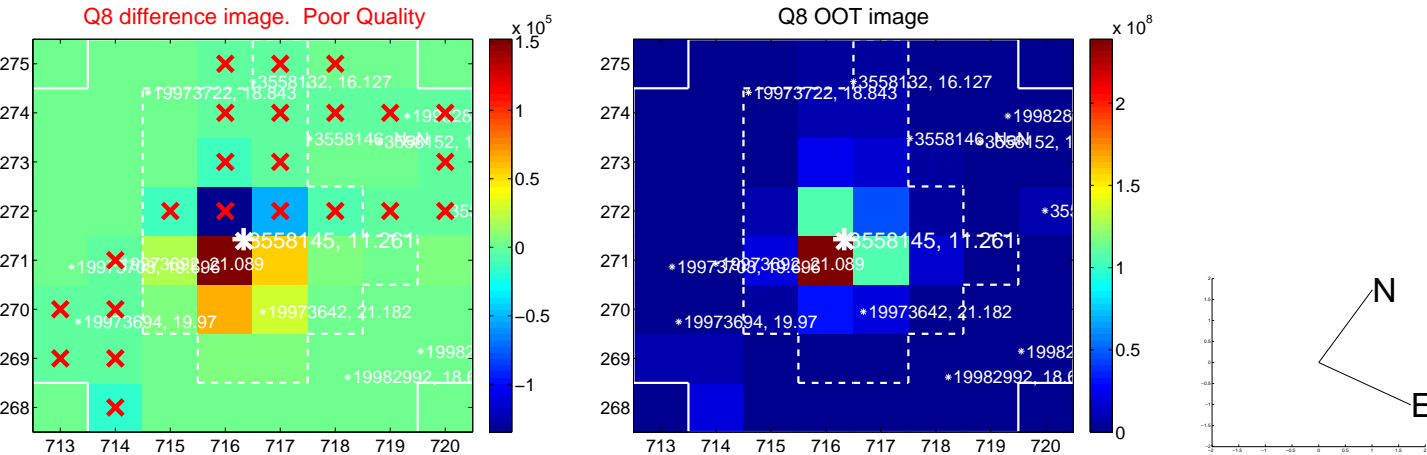
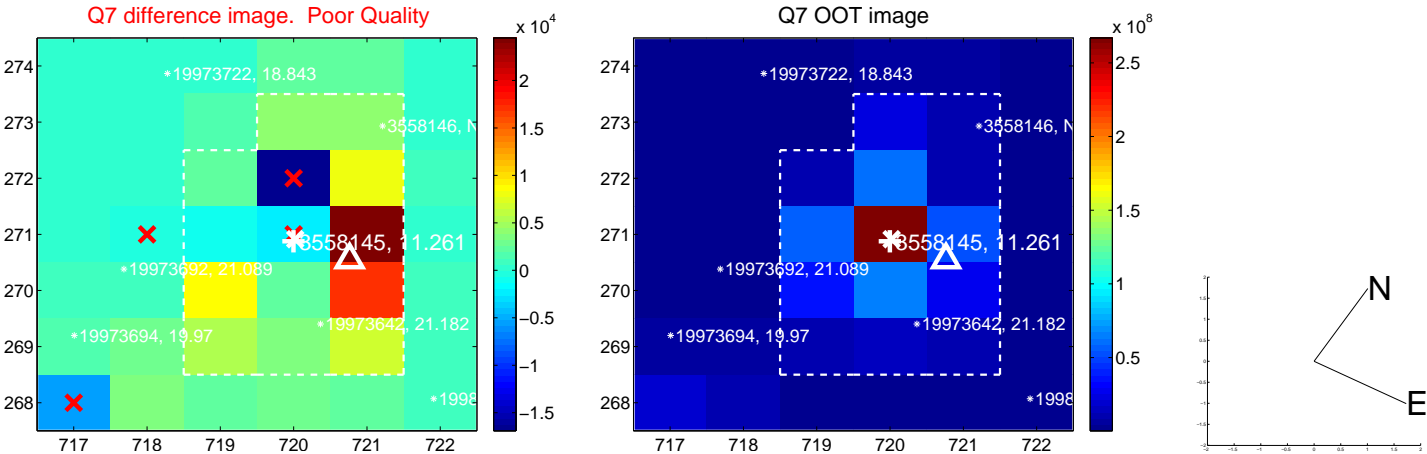
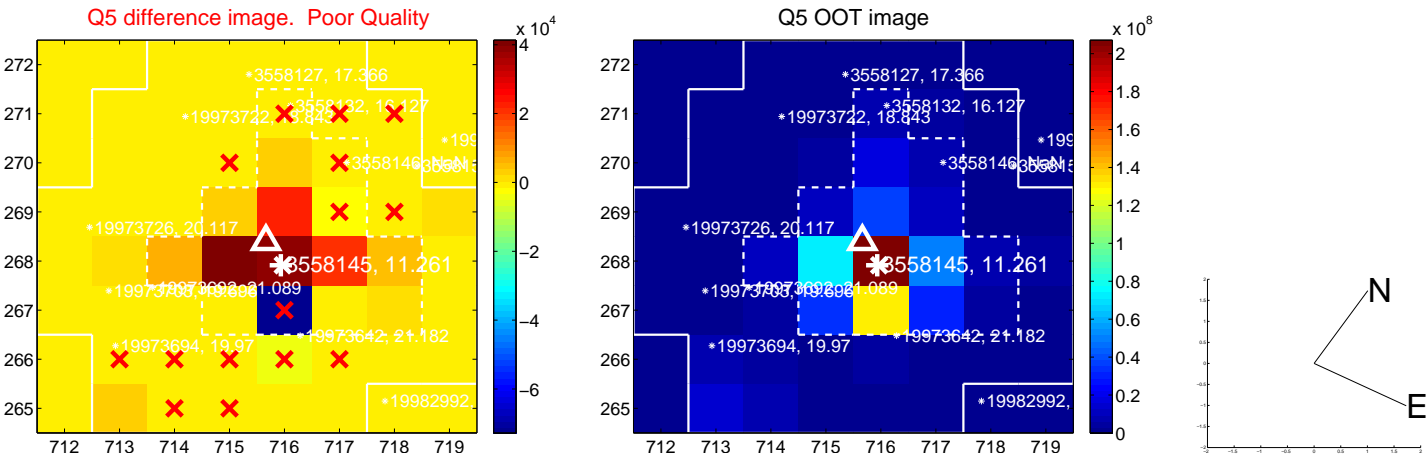


offset from photometric centroids

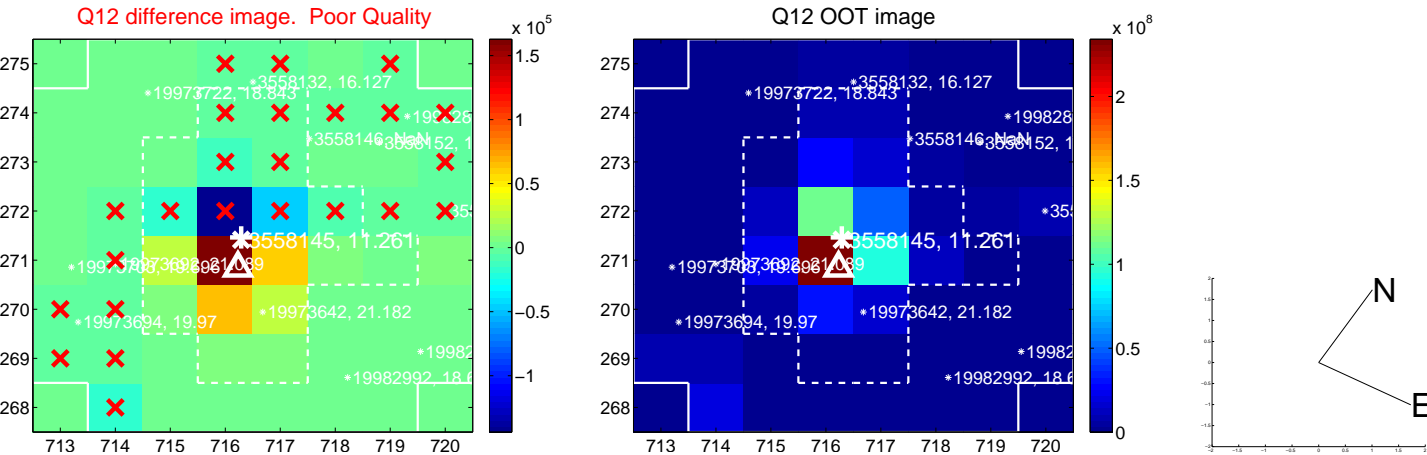
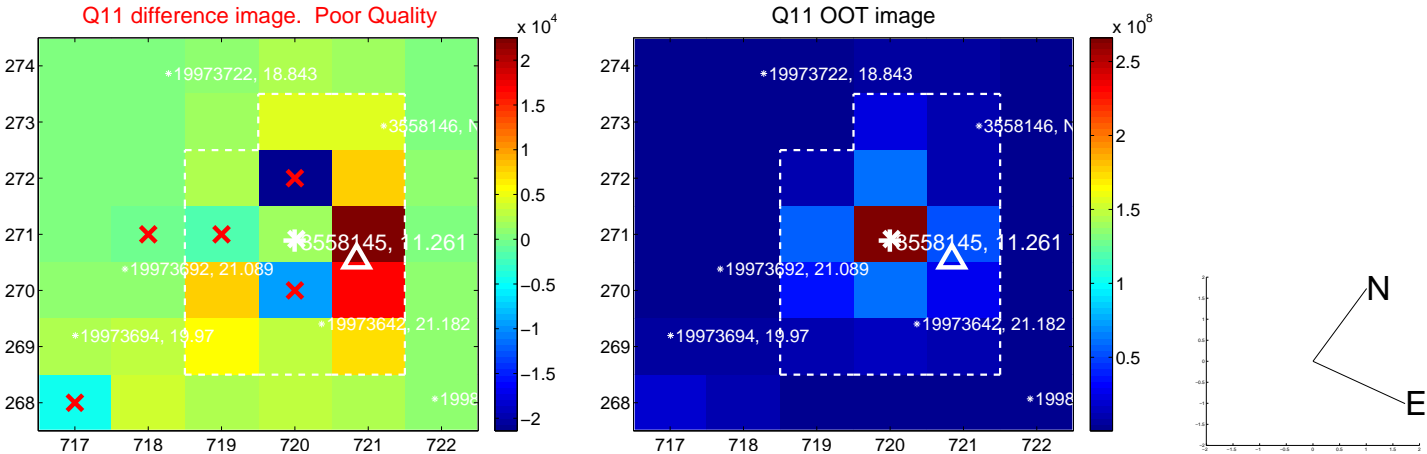
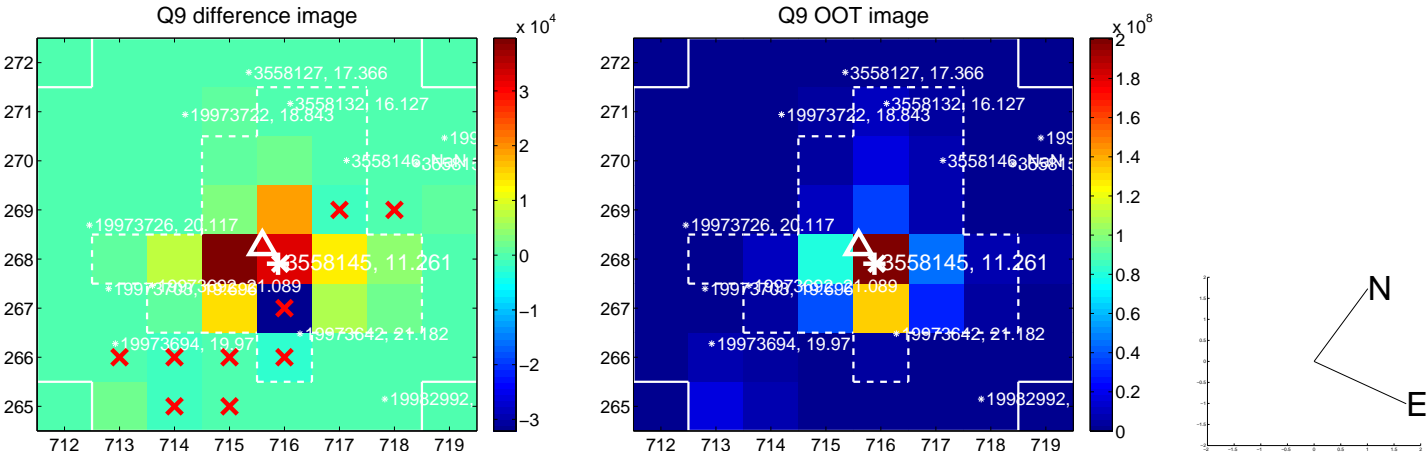


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

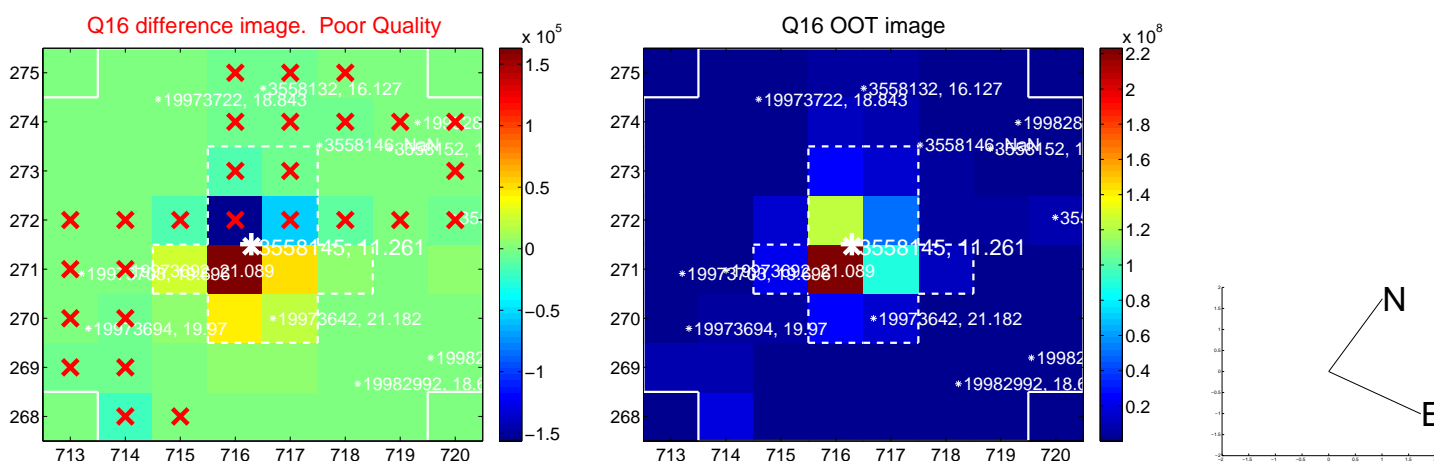
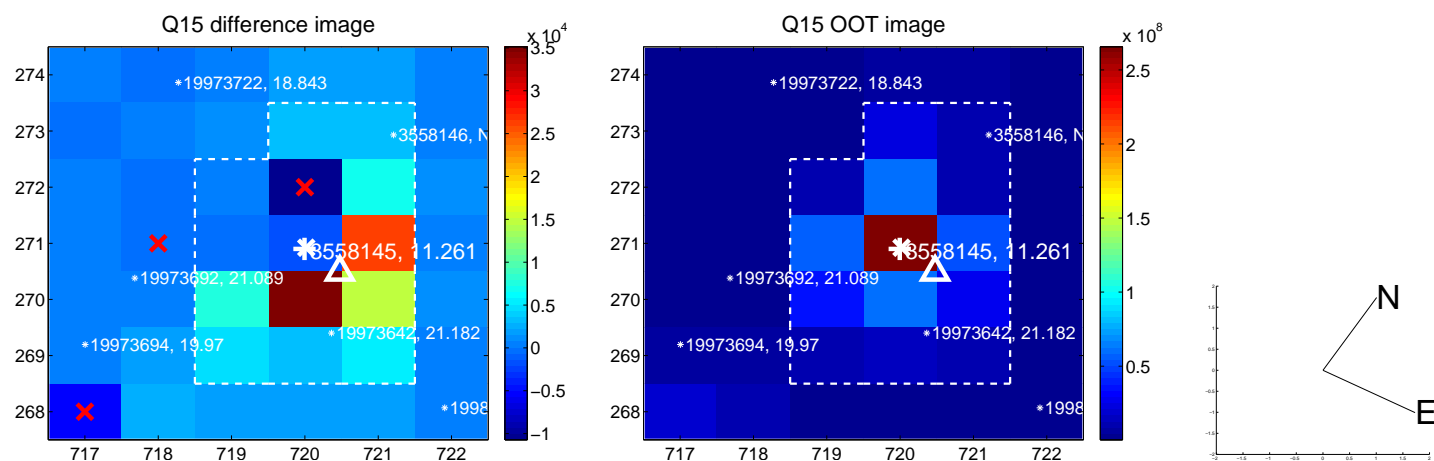
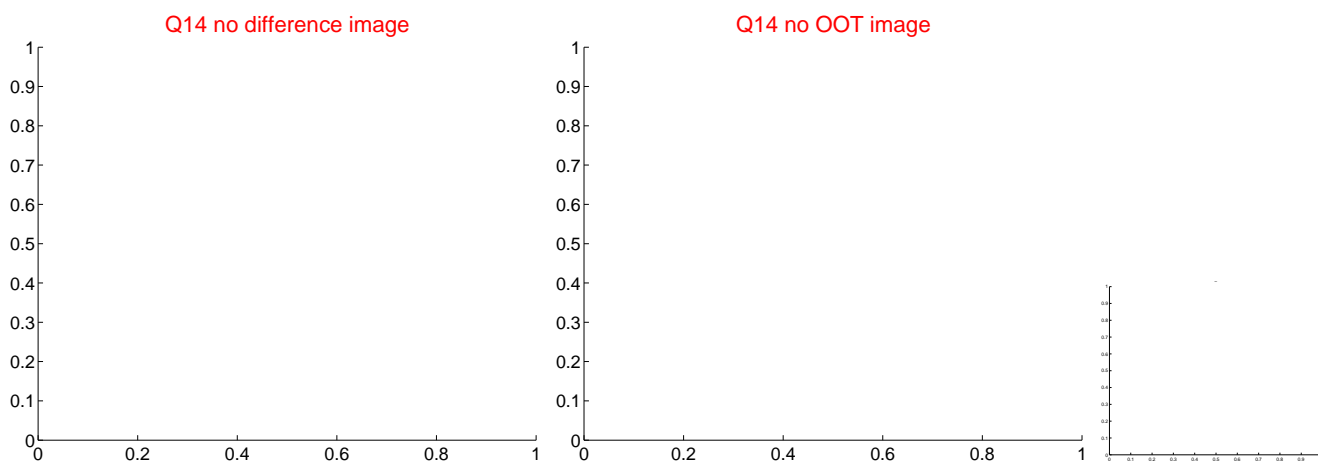
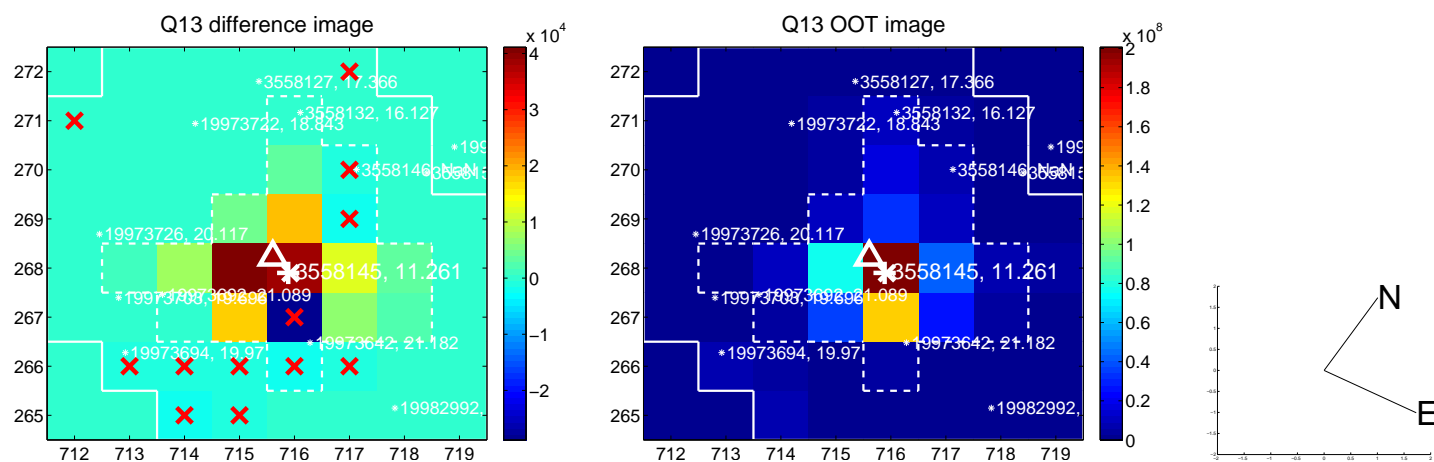
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



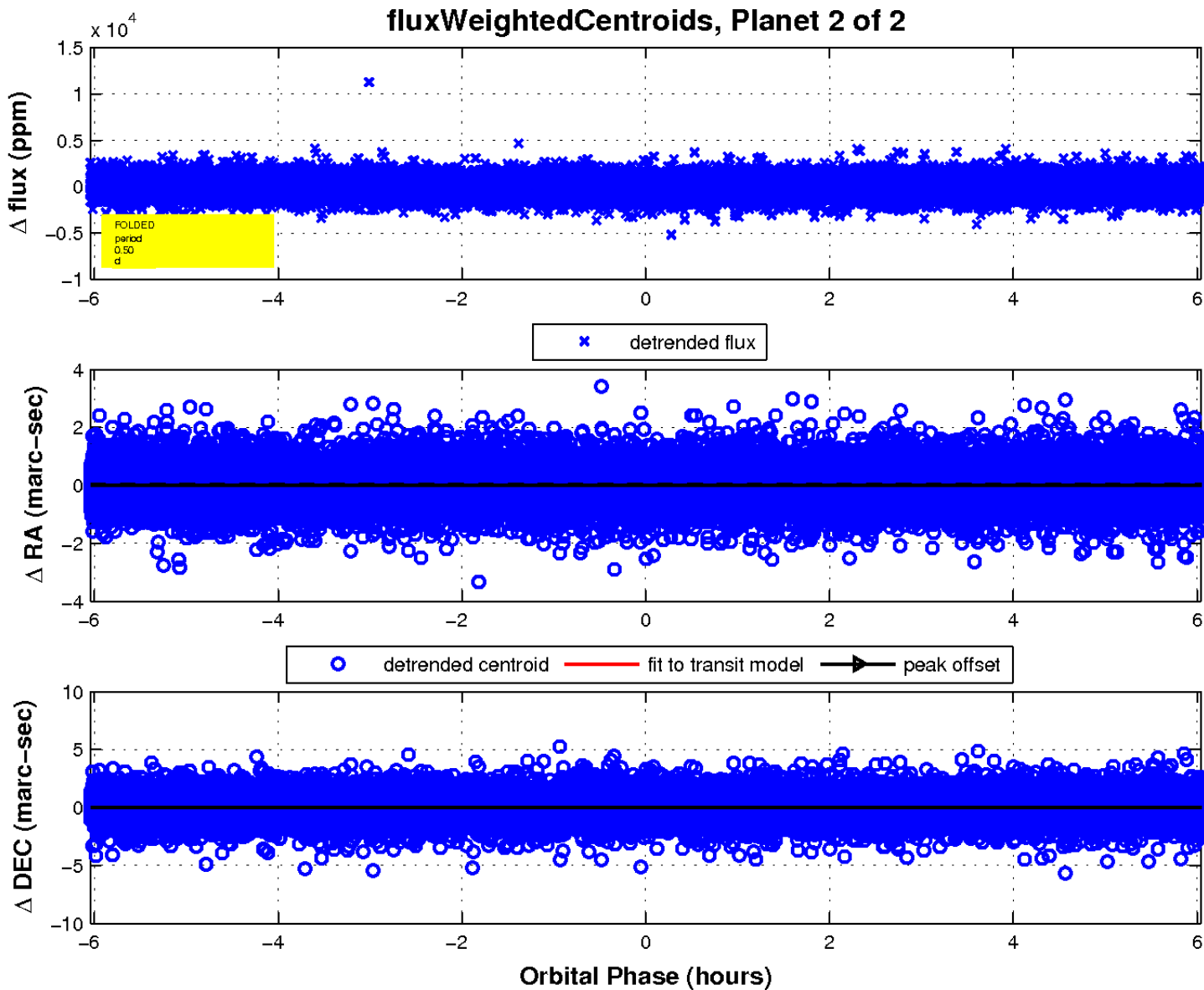
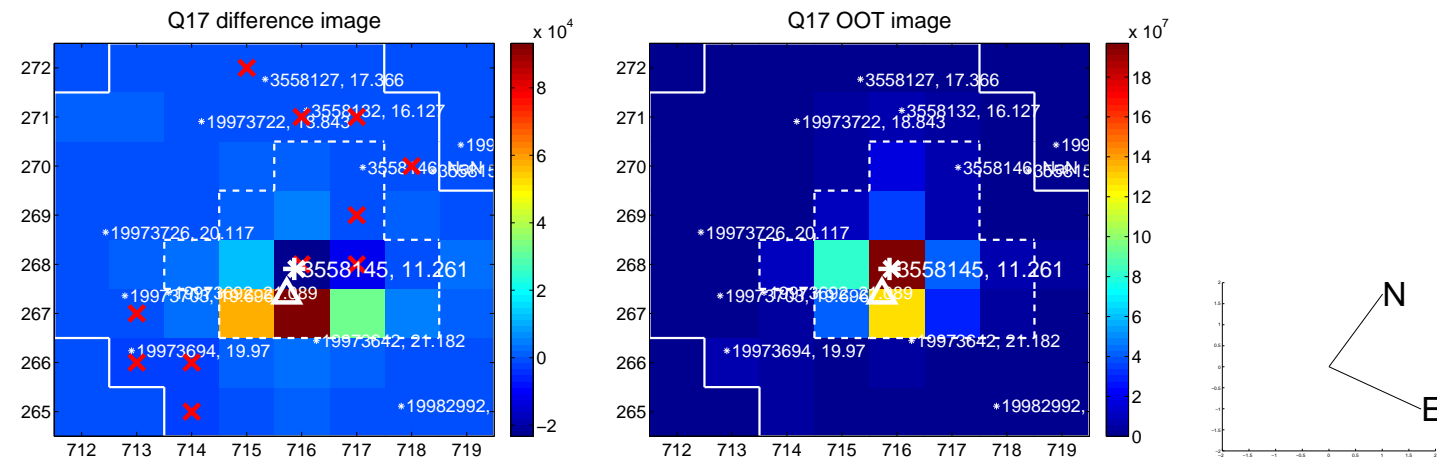
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

