

KIC 008655458

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})
008655458-01	OBS	6060.01	1.594149	132.640509	9761.7	4.479	776.9	503.7	0.89	5388	10.42	959.10
008655458-02	OBS	No	1.594164	131.832027	3318.7	3.000	184.5	-1.0	0.89	5388	5.01	959.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008655458-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
008655458-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_NOFITS—HALO_GHOST

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 008655458-01

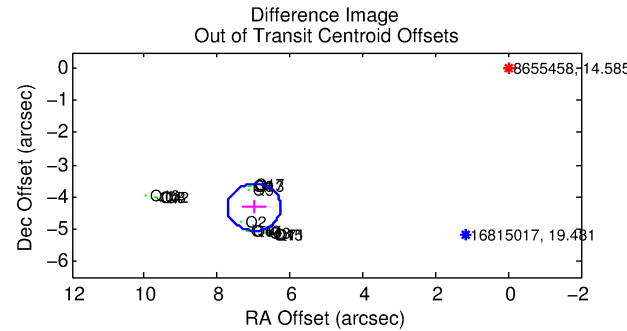
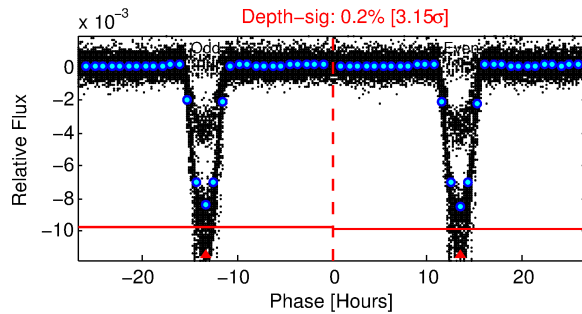
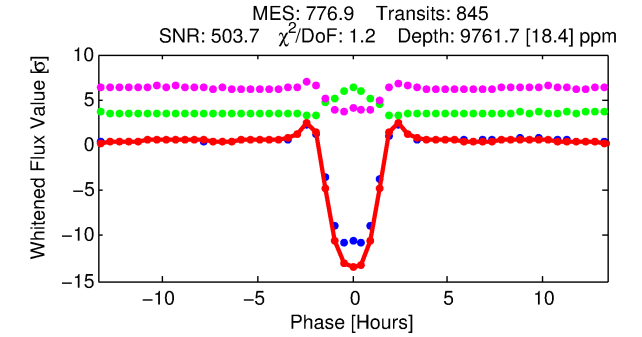
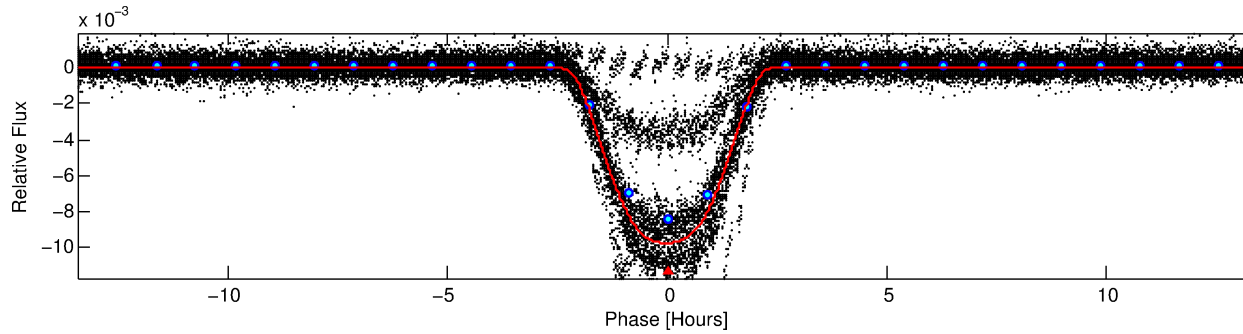
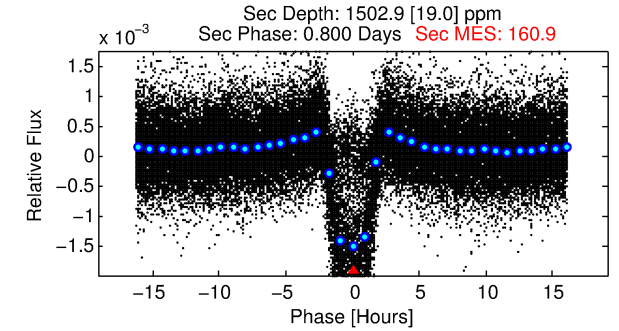
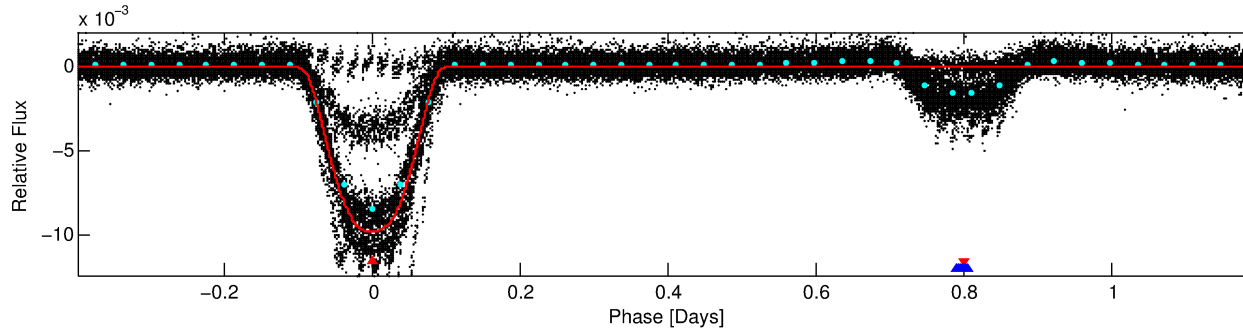
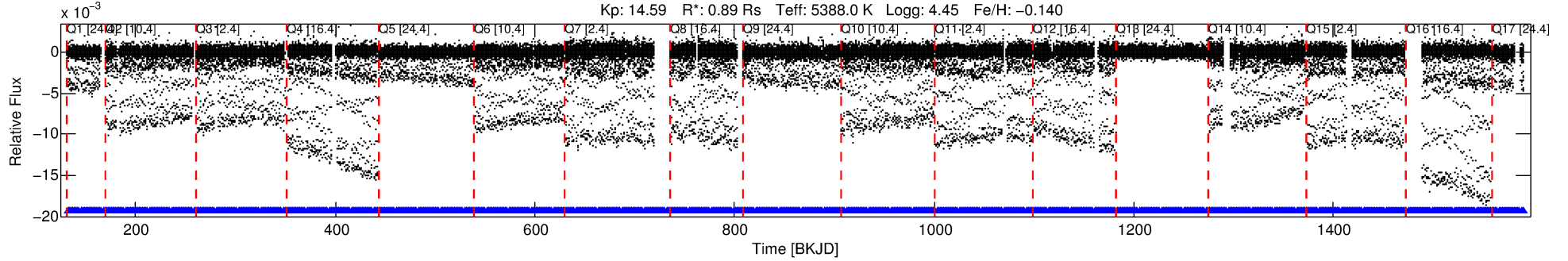
No Significant Match Found

DV One-Page Summary

KIC: 8655458 Candidate: 1 of 2 Period: 1.594 d

KOI: K06060.01 Corr: 0.901

Kp: 14.59 R*: 0.89 Rs Teff: 5388.0 K Logg: 4.45 Fe/H: -0.140



DV Fit Results:

Period = 1.59415 [0.00000] d
Epoch = 132.6405 [0.0001] BKJD
Rp/R* = 0.1079 [0.0001]
a/R* = 2.07 [0.00]
b = 0.88 [0.00]
Seff = 959.10 [277.52]
Teq = 1419 [103] K
Rp = 10.42 [2.11] Re
a = 0.0248 [0.0044] AU
Ag = 4.69 [1.24] [2.97σ]
Teff = 3229 [96] K [12.89σ]

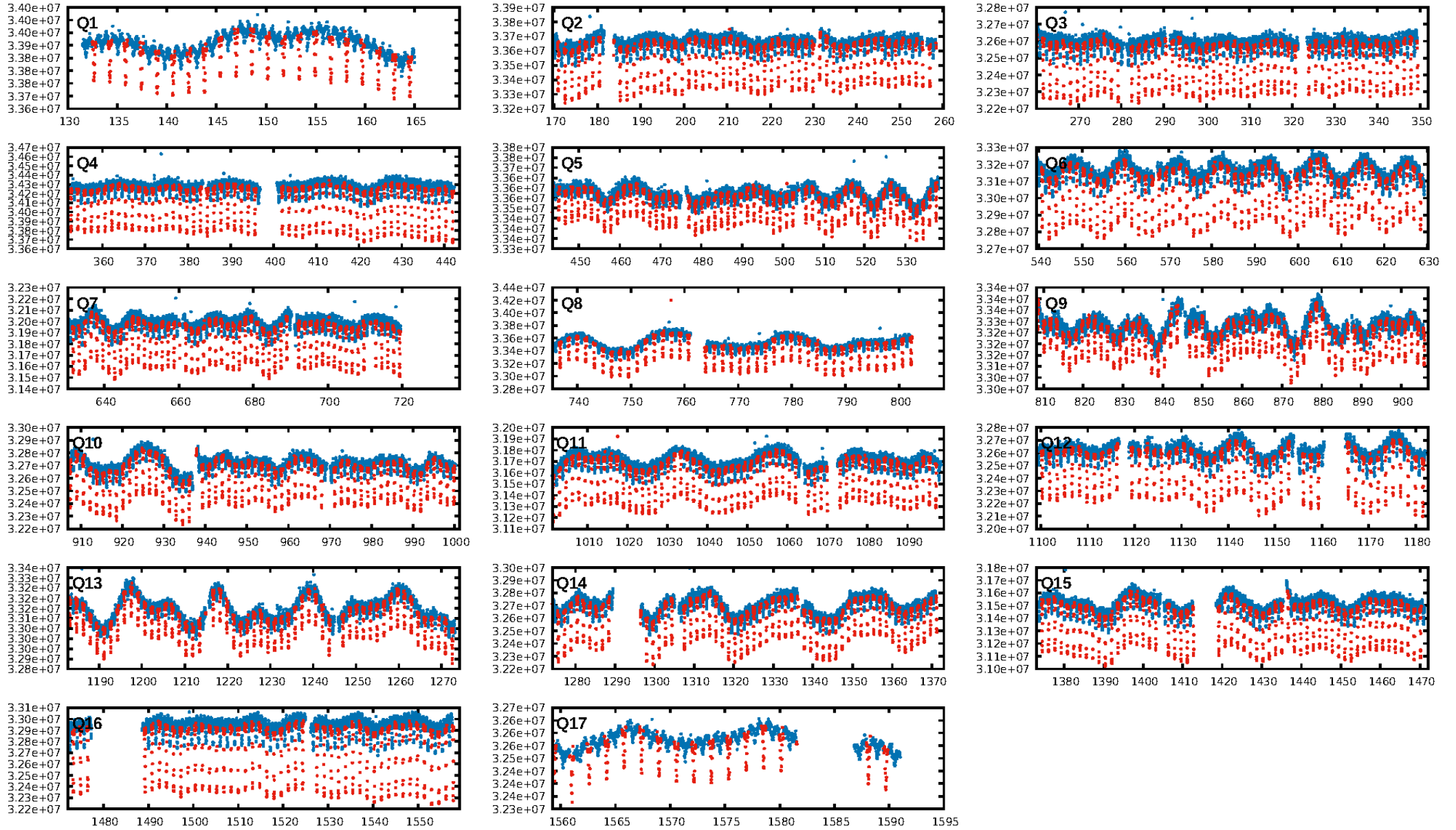
DV Diagnostic Results:

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 [808/808]
GhostDiagnostic-chr: 0.03598
Centroid-sig: 0.0%
Centroid-so: 7.365 arcsec [605.02σ]
OotOffset-rm: 8.219 arcsec [33.53σ]
KicOffset-rm: 8.347 arcsec [33.11σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.59 [10/17]
DiffImageOverlap-fno: 1.00 [17/17]

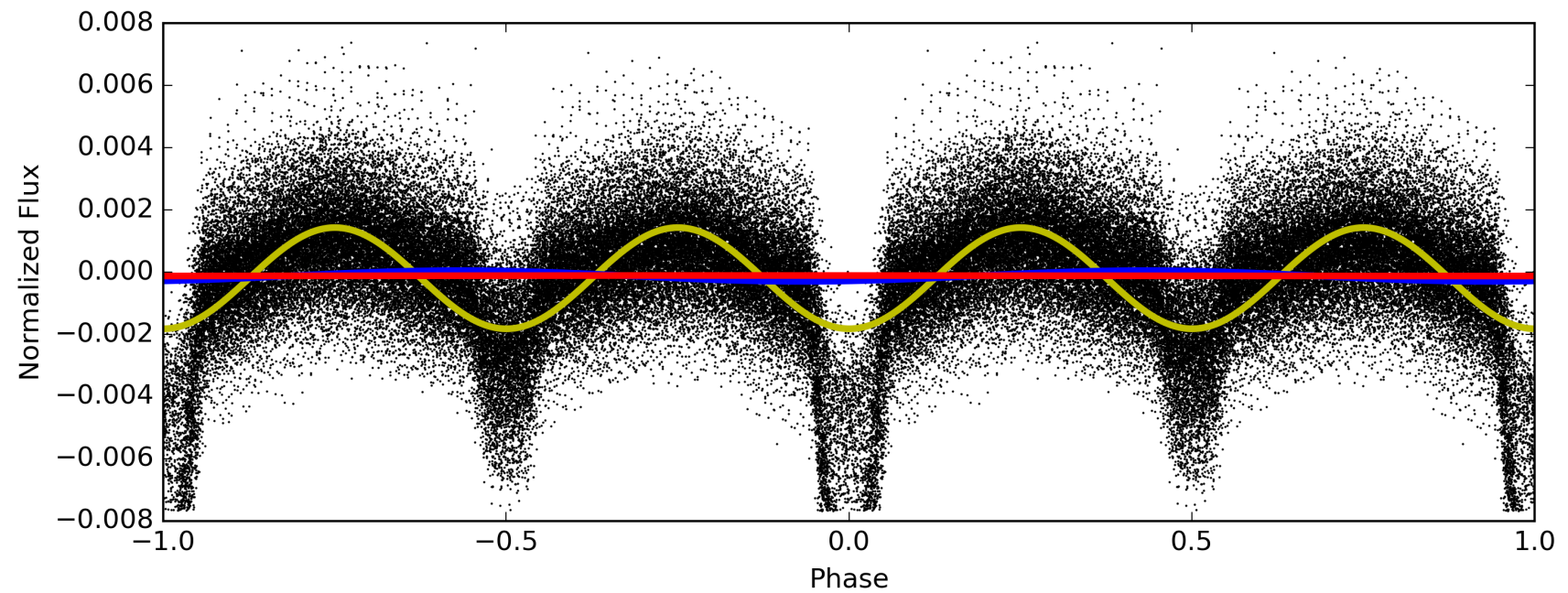
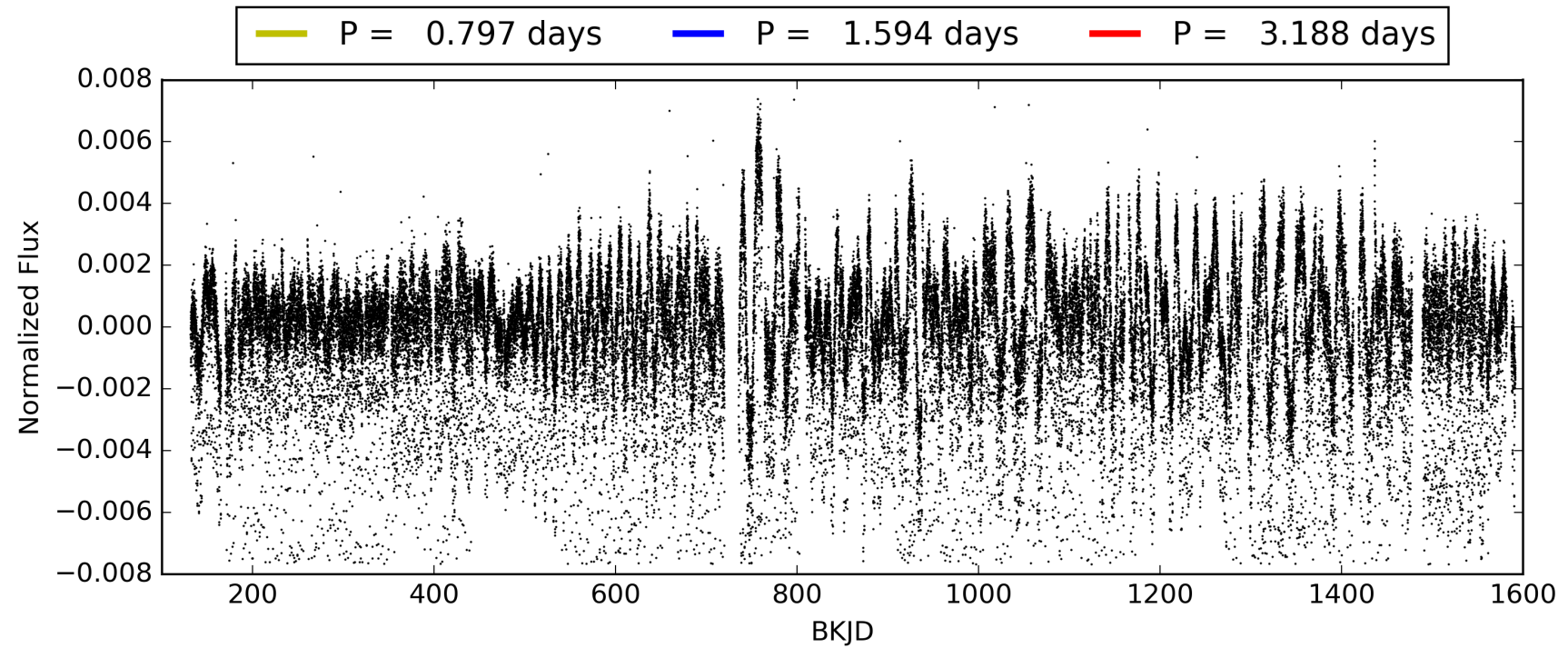
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008655458-01, PDC Light Curves

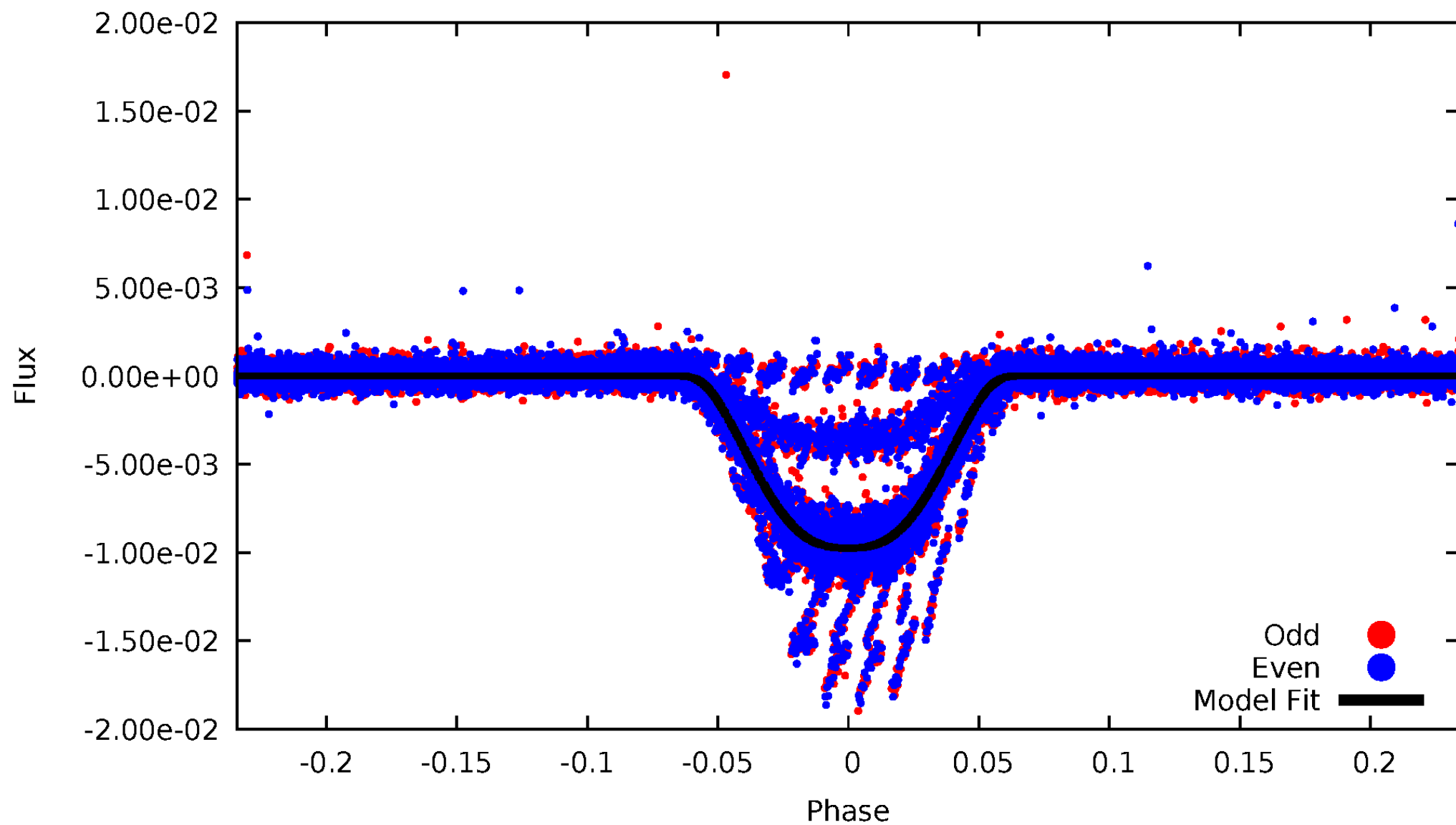


TCE 008655458-01



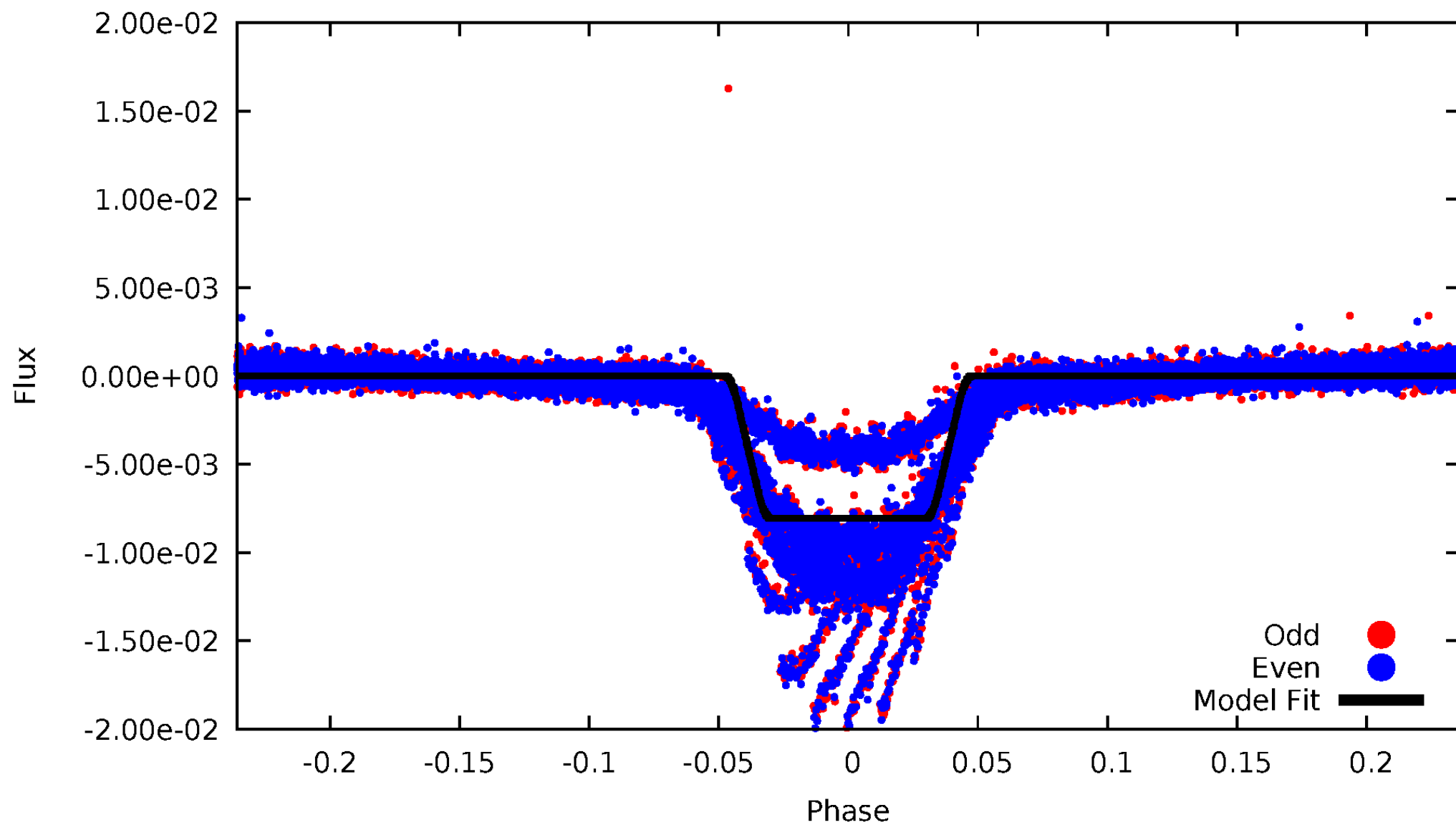
DV Odd/Even

TCE 008655458-01



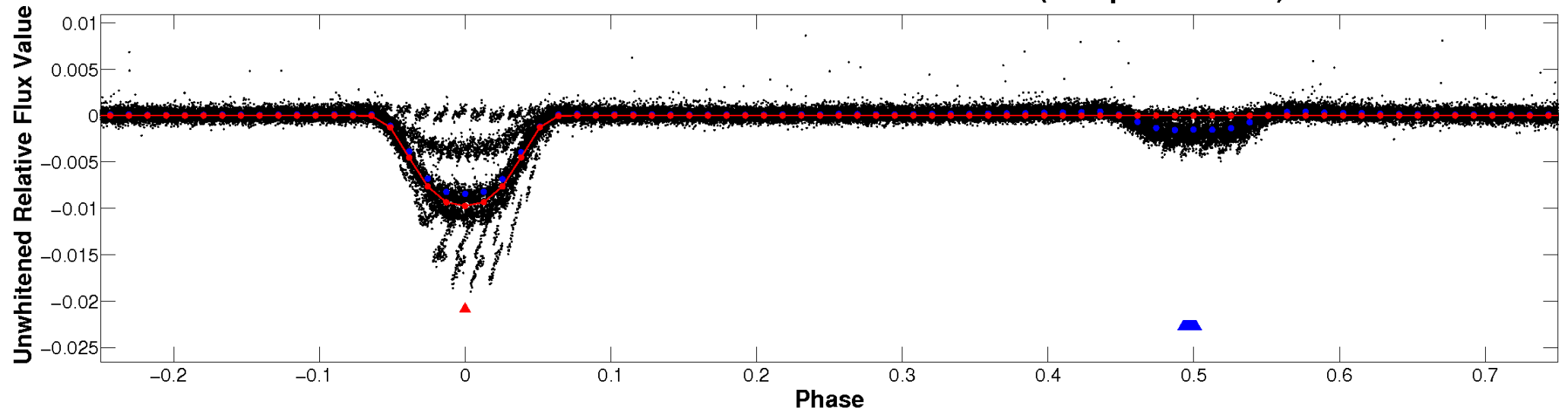
ALT Odd/Even

TCE 008655458-01

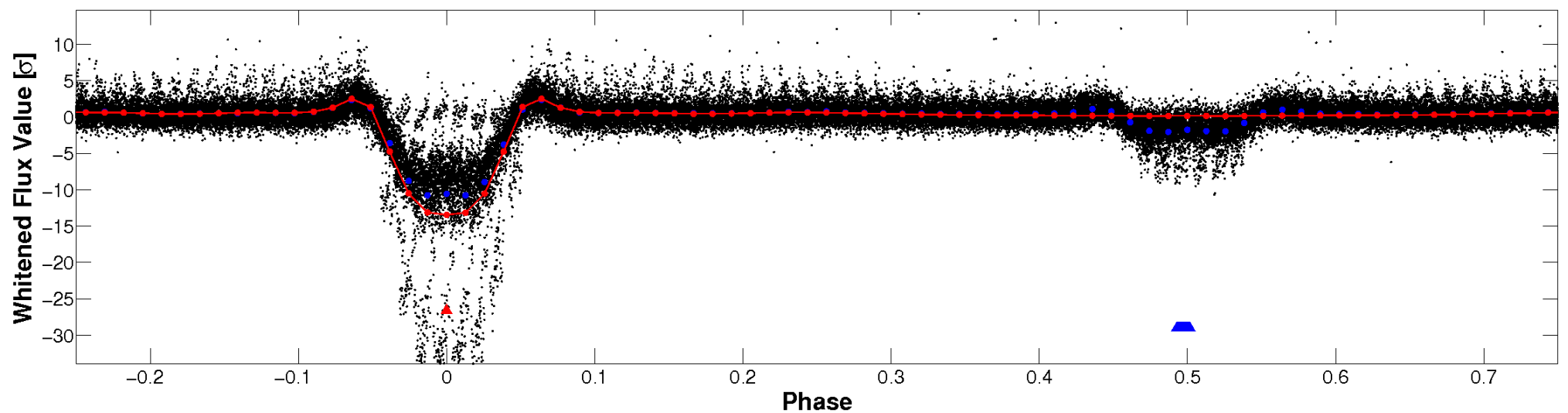


Non-Whitened Vs. Whitened Light Curve

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

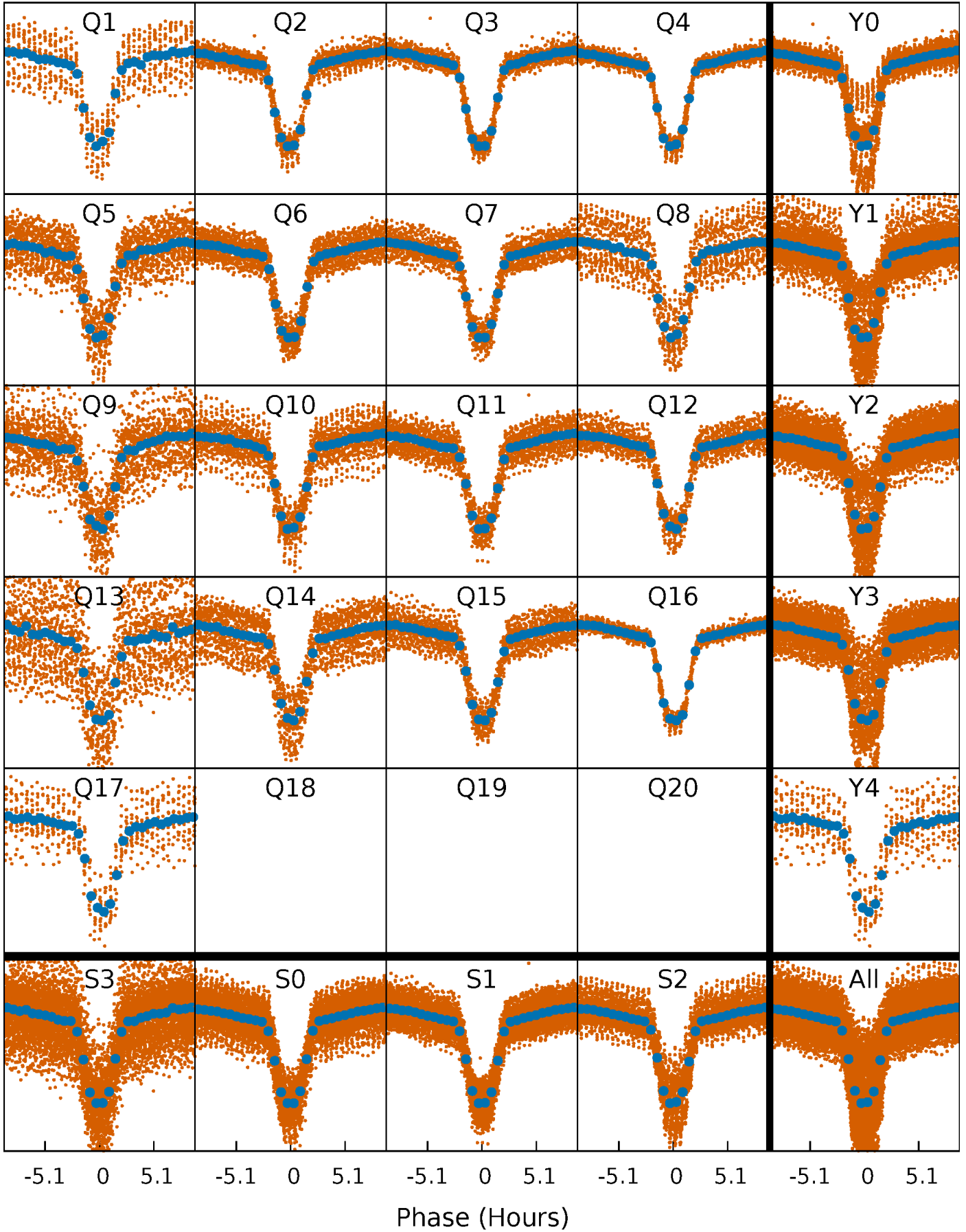


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



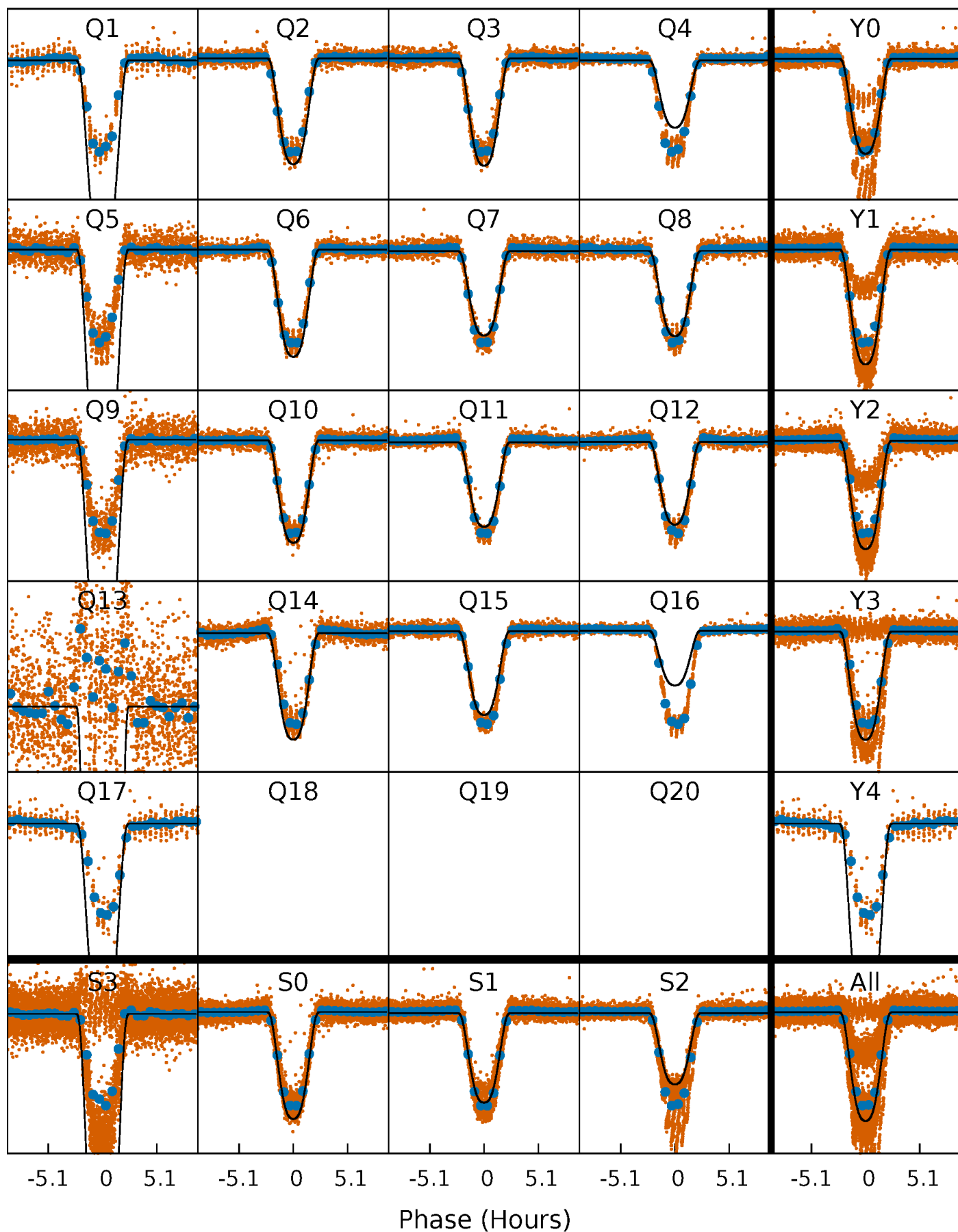
PDC Quarter-Phased Transit Curves

TCE 008655458-01 P= 1.594149 Days $T_0=132.640509$ (BKJD)



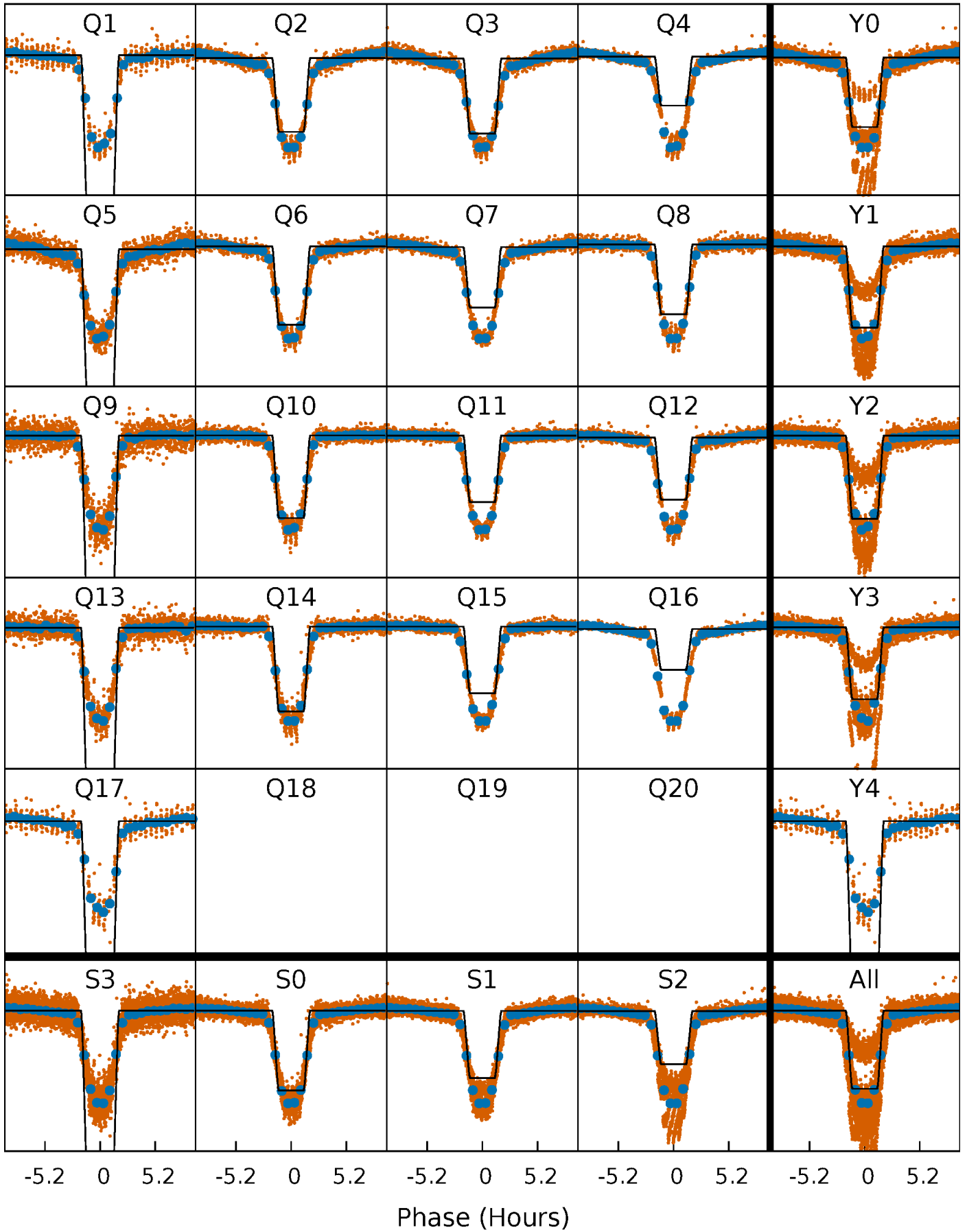
DV Quarter-Phased Transit Curves

TCE 008655458-01 P= 1.594149 Days $T_0=132.640509$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

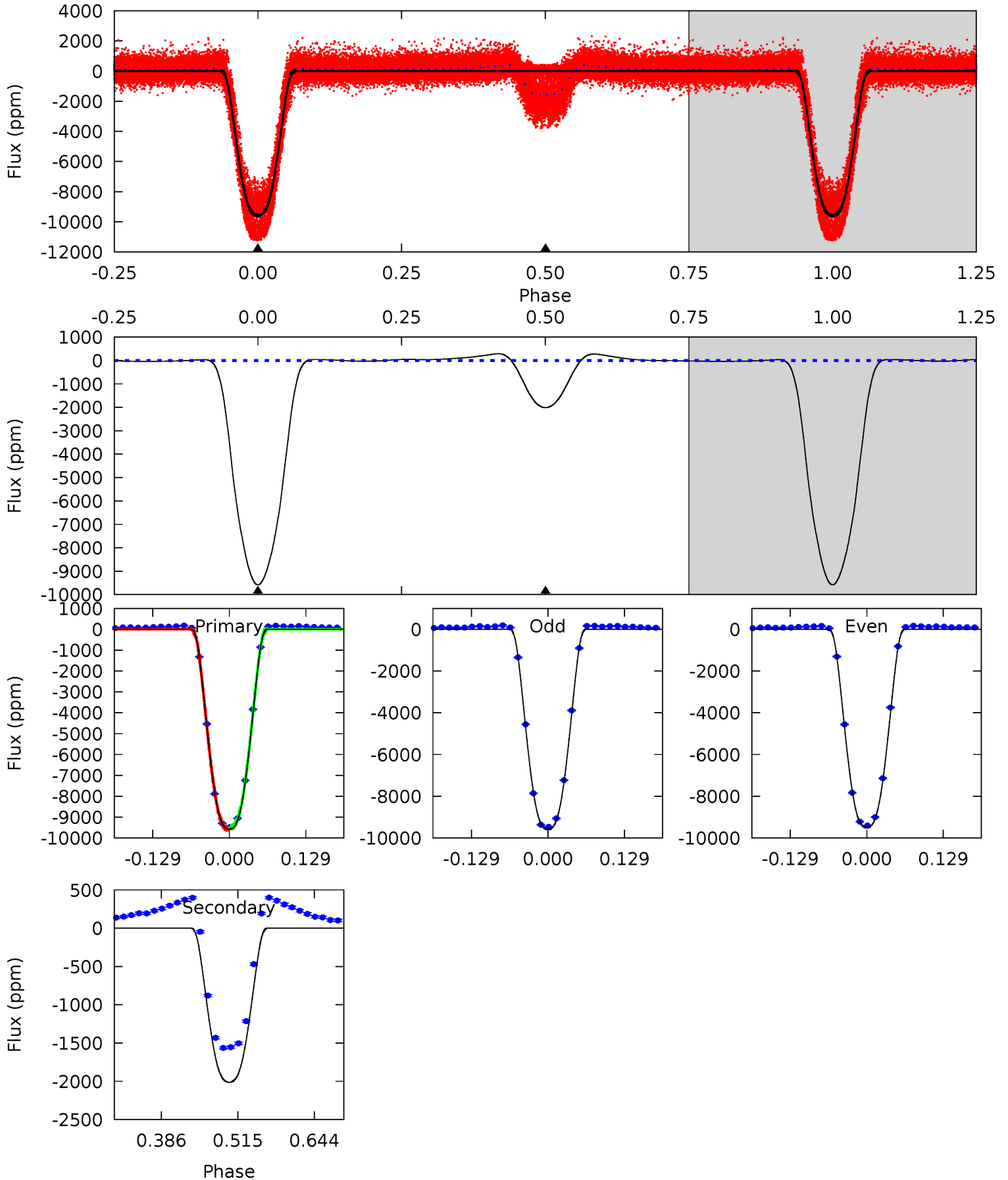
TCE 008655458-01 P= 1.594164 Days $T_0=132.633851$ (BKJD)



DV Model-Shift Uniqueness Test

008655458-01, P = 1.594149 Days, E = 131.046360 Days

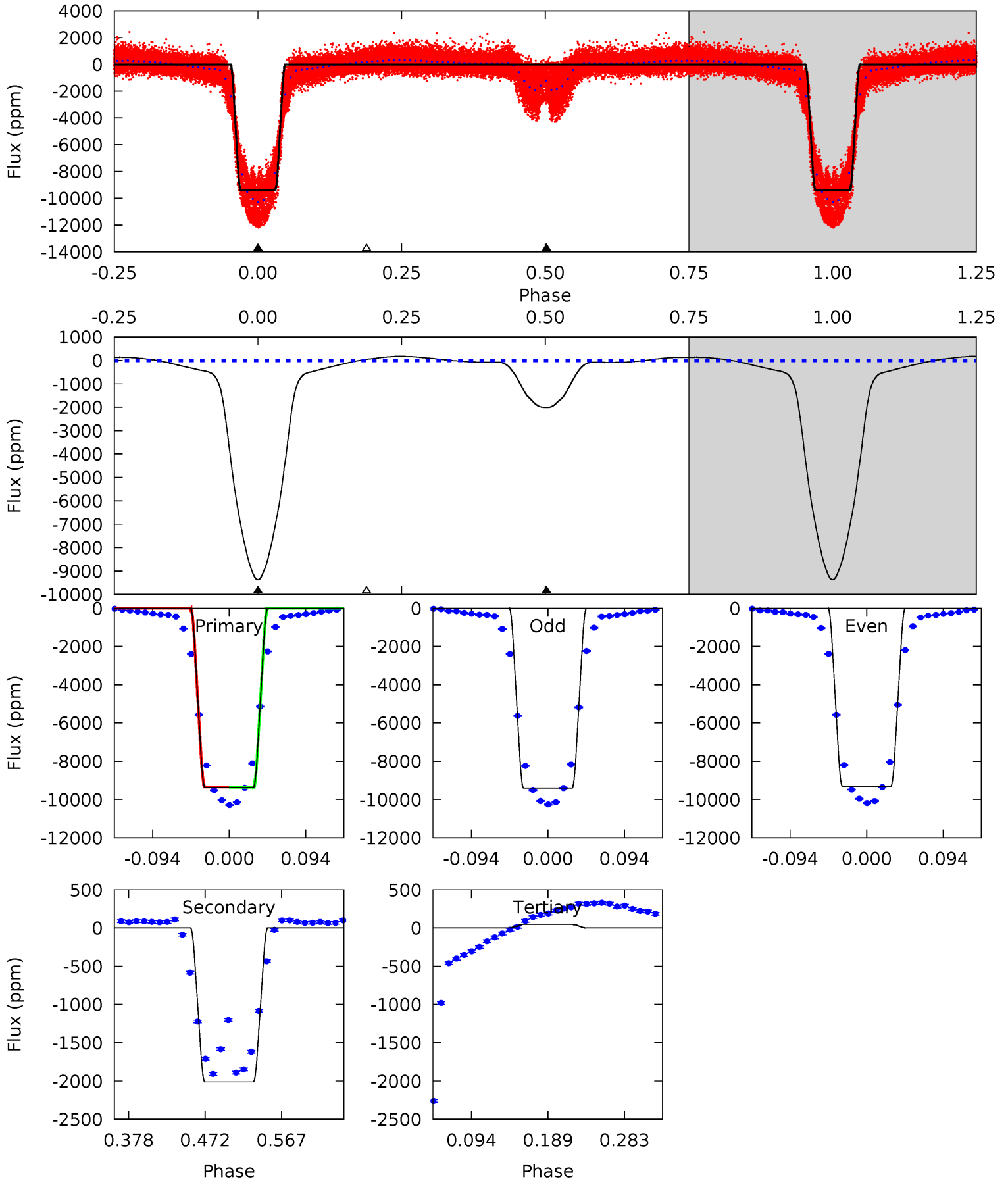
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1727	362.8	0	0	4.51	1.52	7.95	1727	1727	362.8	362.8	7.87	0.93	0.03	5.48



Alt Model-Shift Uniqueness Test

008655458-01, P = 1.594164 Days, E = 131.039687 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1297	278.5	-6.32	0	4.58	1.67	21.7	1304	1297	284.8	278.5	6.34	0.97	0.02	0



Stellar Parameters For KIC 008655458

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5388^{+159}_{-159}	$4.449^{+0.121}_{-0.148}$	$-0.140^{+0.300}_{-0.300}$	$0.885^{+0.179}_{-0.119}$	$0.802^{+0.113}_{-0.061}$	$1.630^{+0.855}_{-0.654}$
	+3%/-3%	+3%/-3%	+214%/-214%	+20%/-13%	+14%/-8%	+52%/-40%
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 008655458-01 / KOI 6060.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2013 ± 6	$10.47^{+1.26}_{-0.92}$	1987^{+112}_{-99}	3795^{+85}_{-87}	$6.189^{+1.295}_{-1.003}$
Alt.	-2011 ± 7	$8.74^{+1.12}_{-0.74}$	1989^{+116}_{-101}	4049^{+103}_{-95}	$8.977^{+1.690}_{-1.774}$

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 $A_{obs} \gg 1.0$

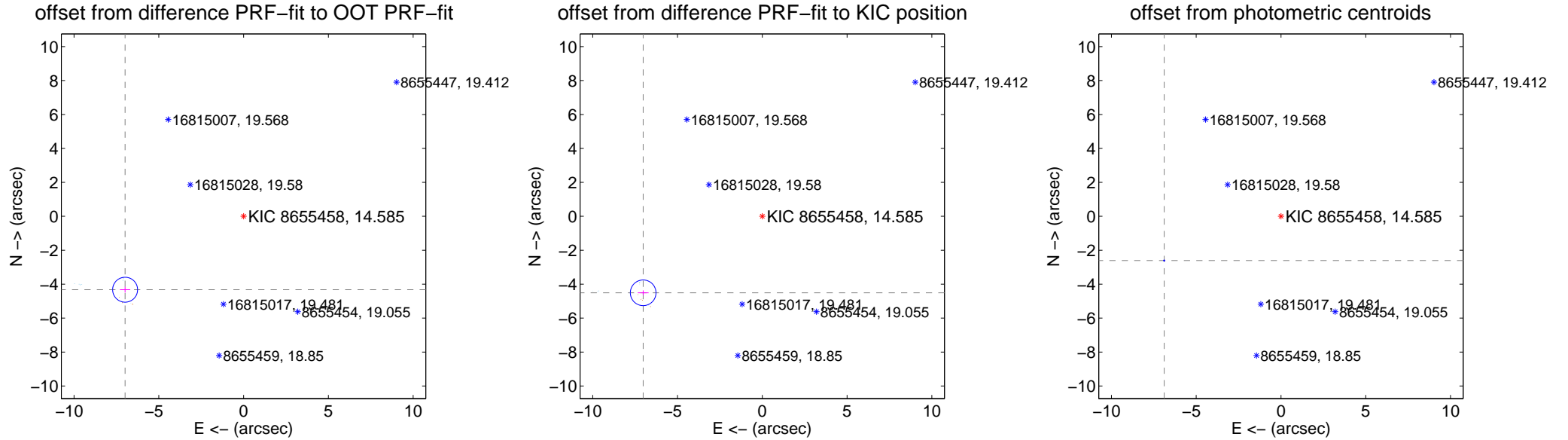
DV Centroid Data

Supplemental centroid analysis for 008655458-01. Kepler magnitude: 14.59. Transit SNR 503.71

There are 10 quarters with good PRF difference image offsets

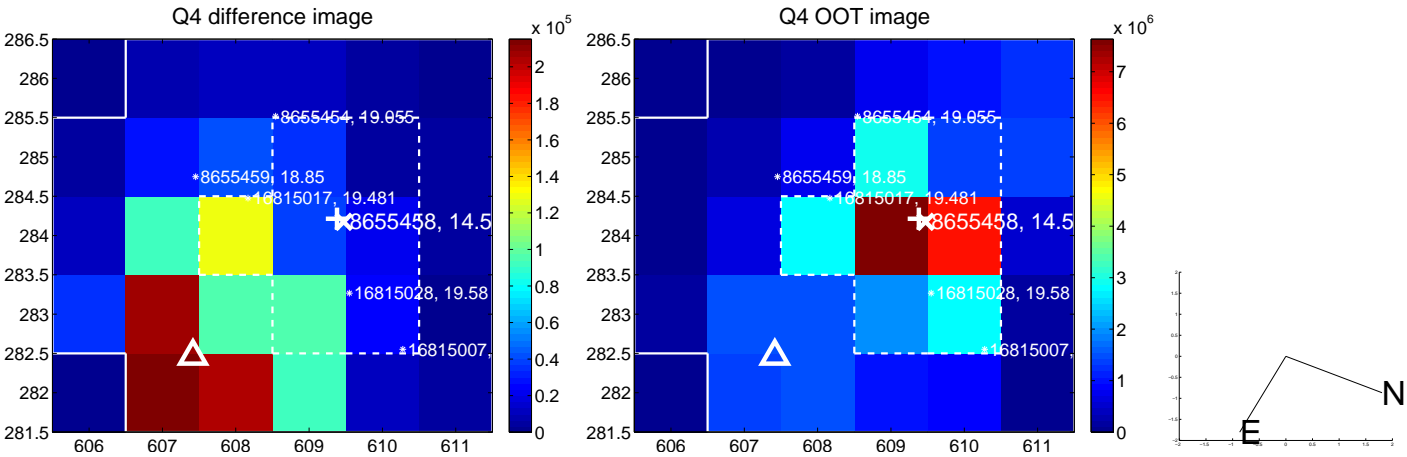
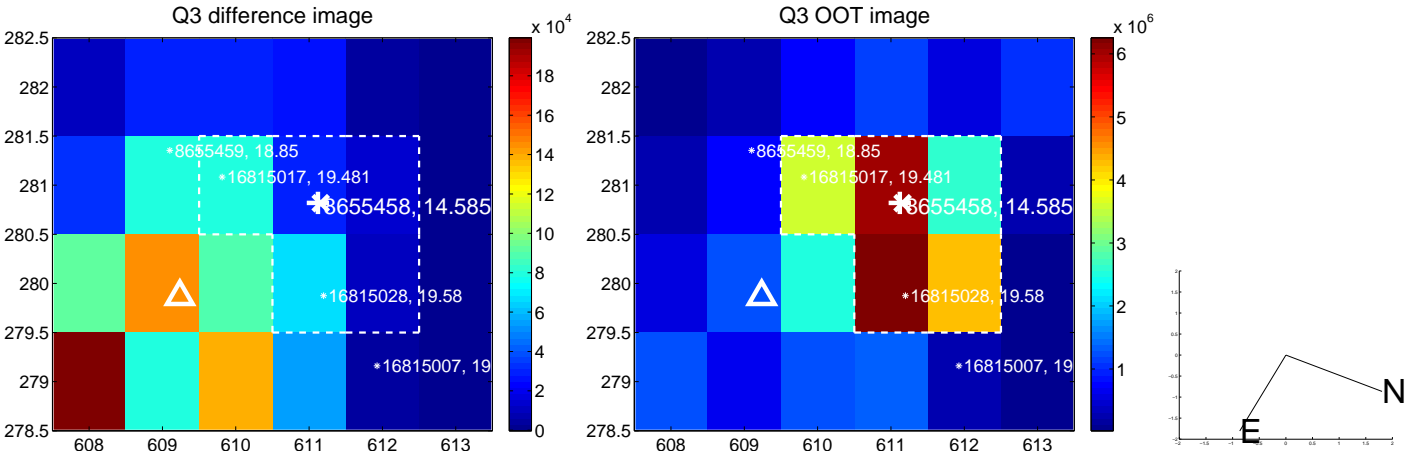
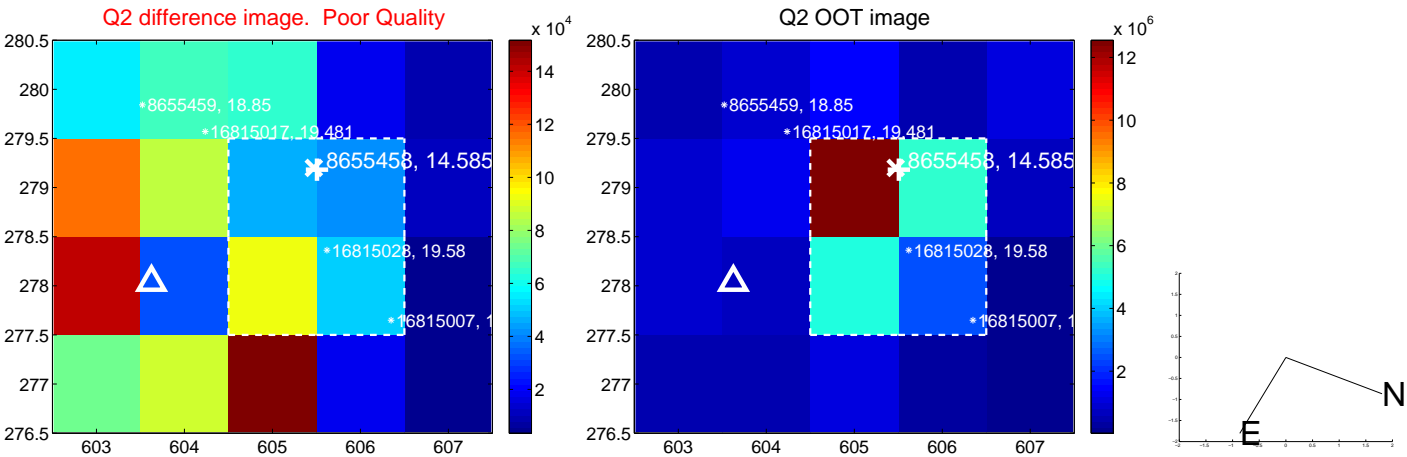
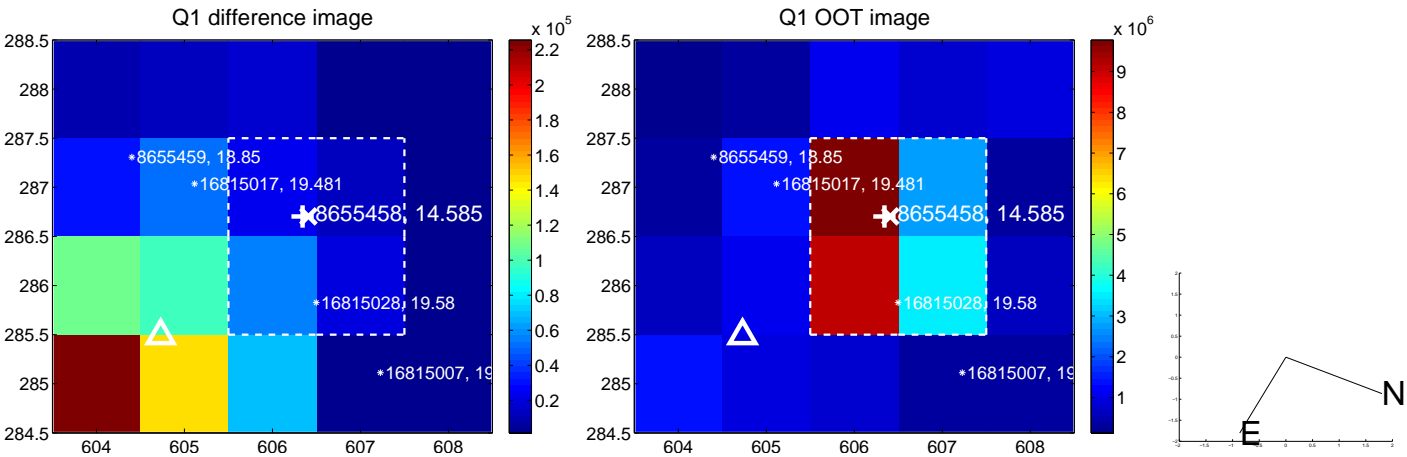
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.219 ± 0.245	33.53	6.988 ± 0.306	-4.325 ± 0.172
PRF-fit source offset from KIC position	8.347 ± 0.252	33.11	7.026 ± 0.320	-4.508 ± 0.144
photometric centroid source offset	7.37 ± 0.01	605.02	6.89 ± 0.01	-2.61 ± 0.01

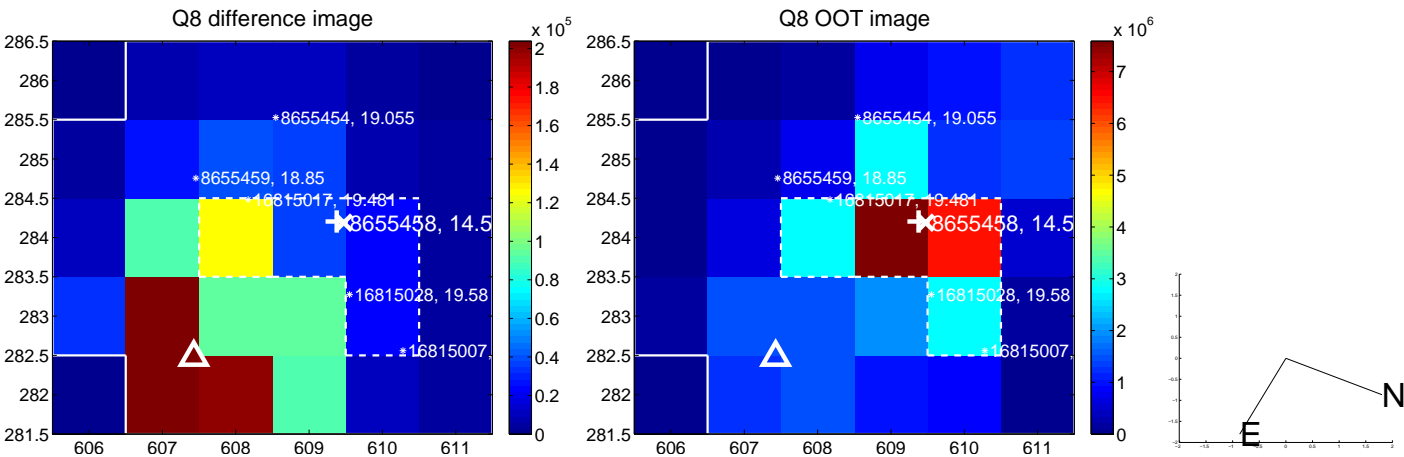
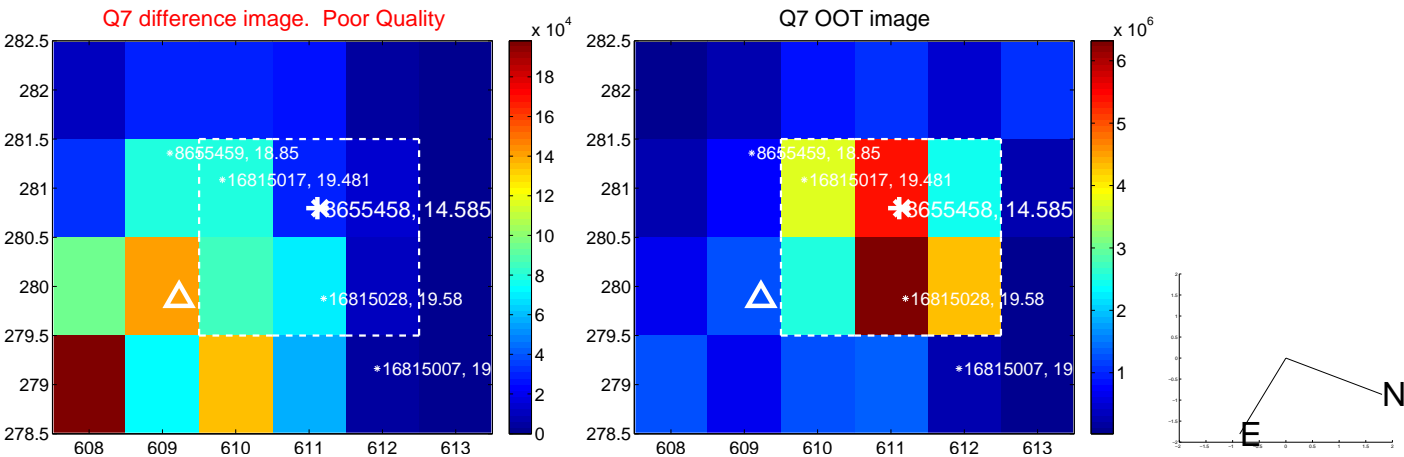
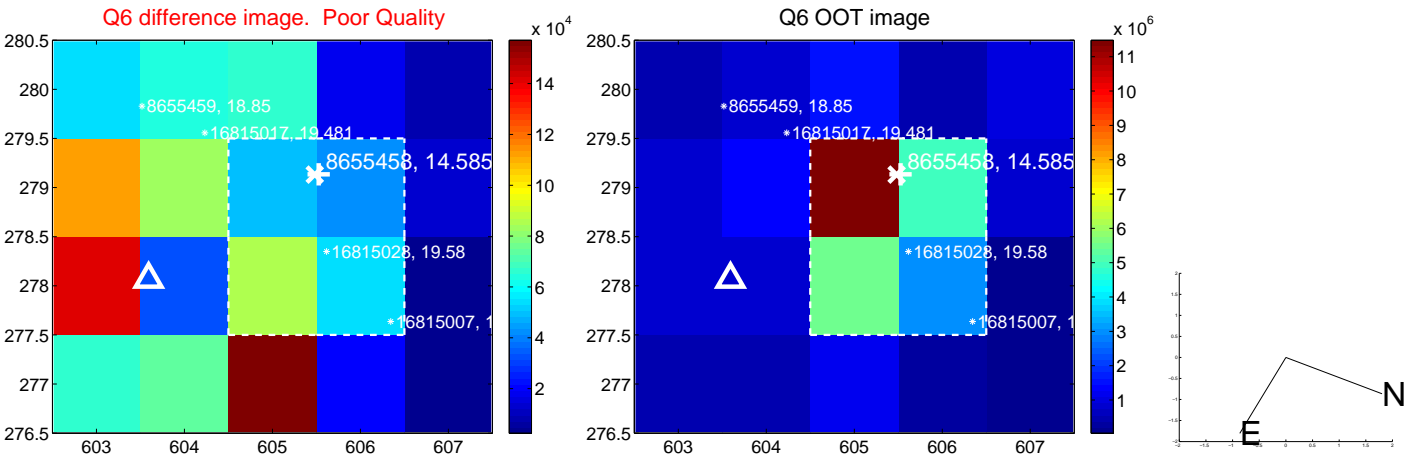
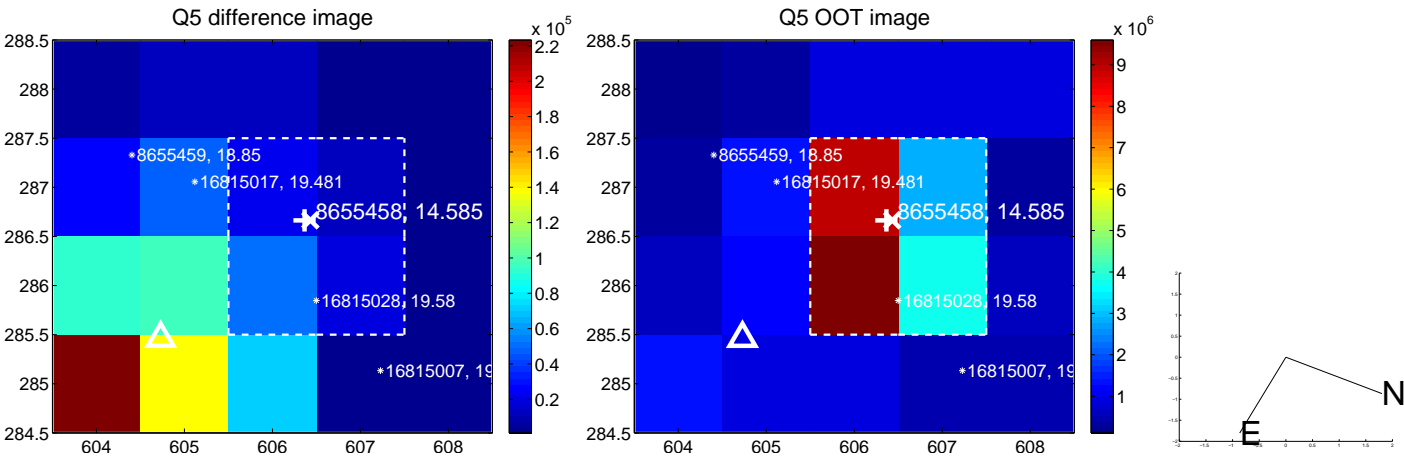


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

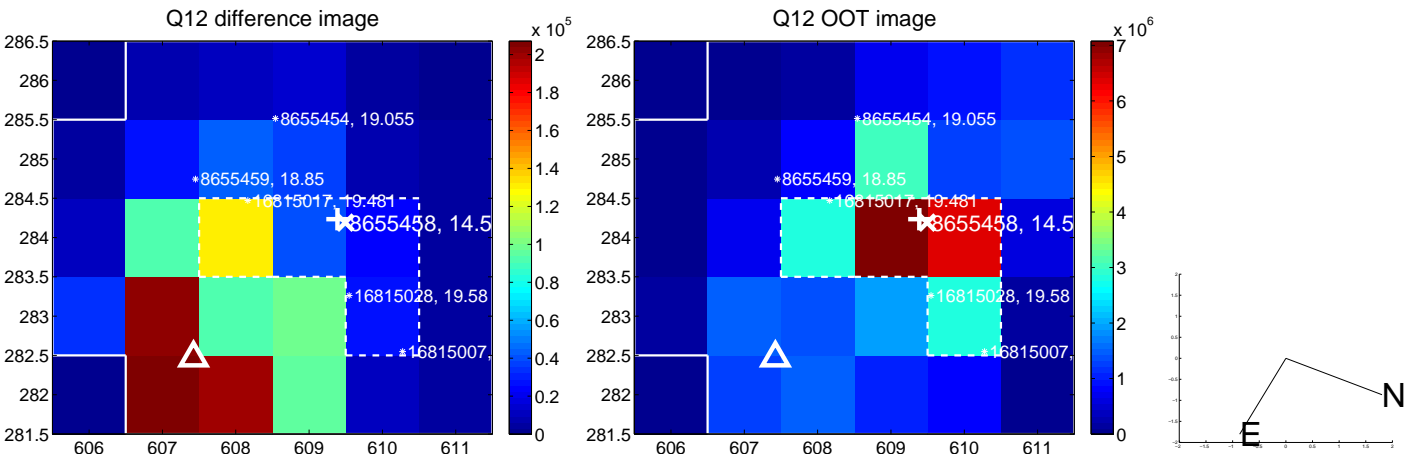
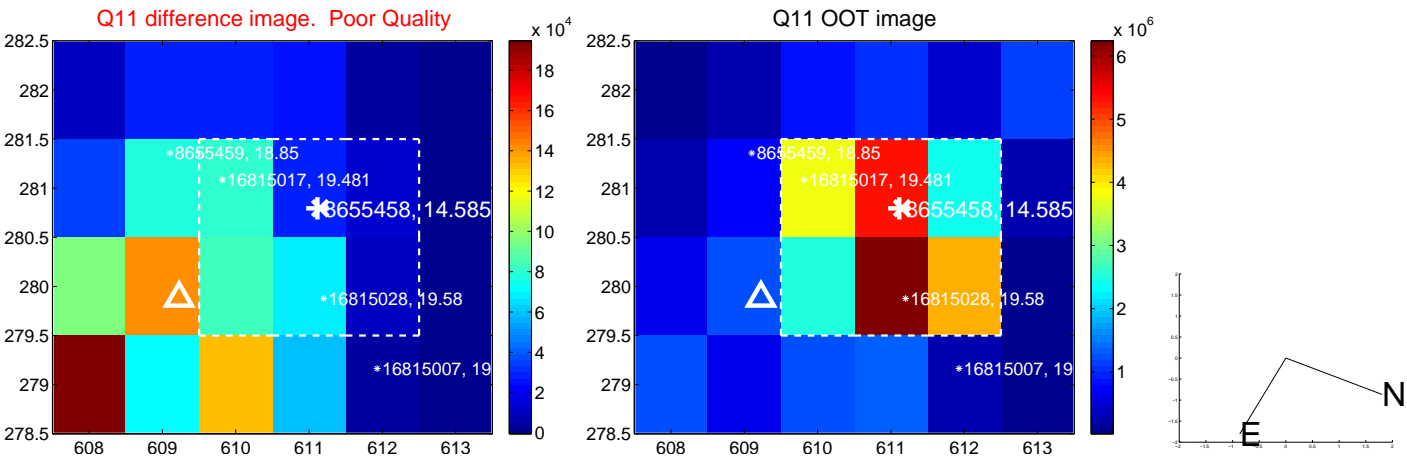
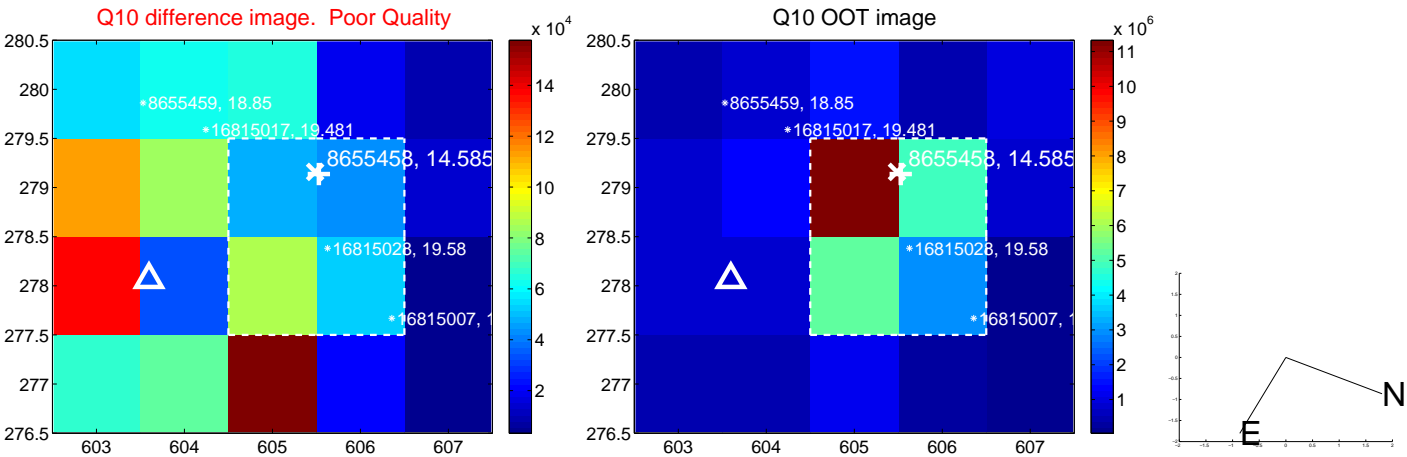
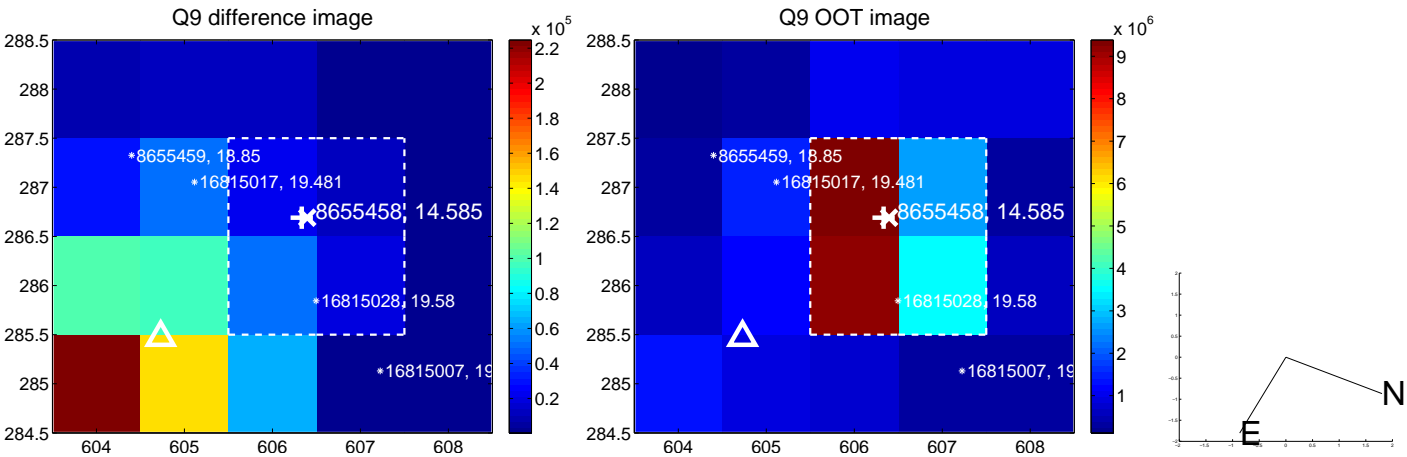
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



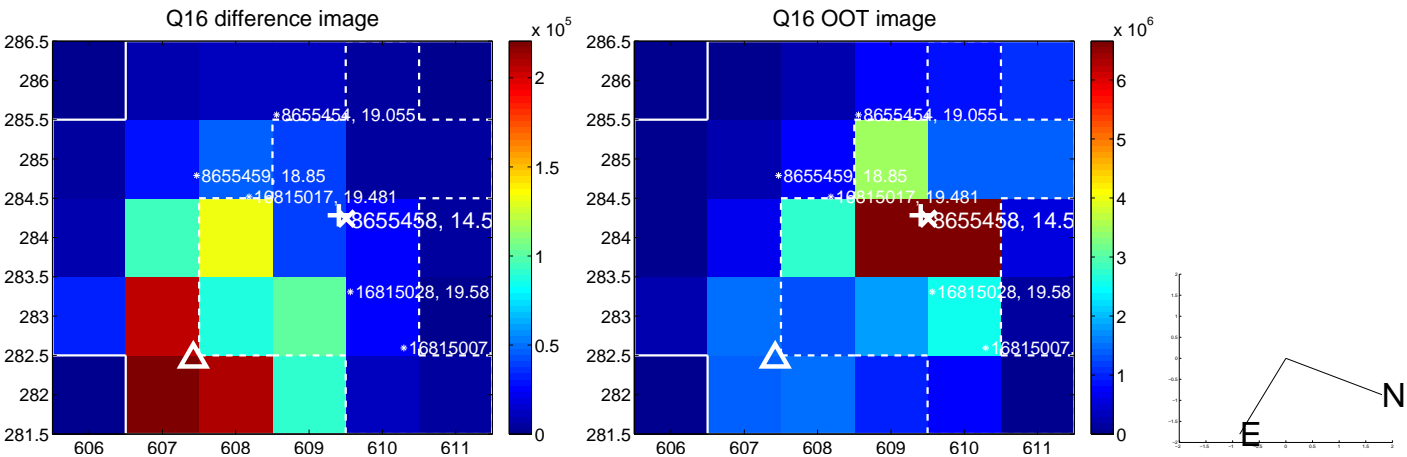
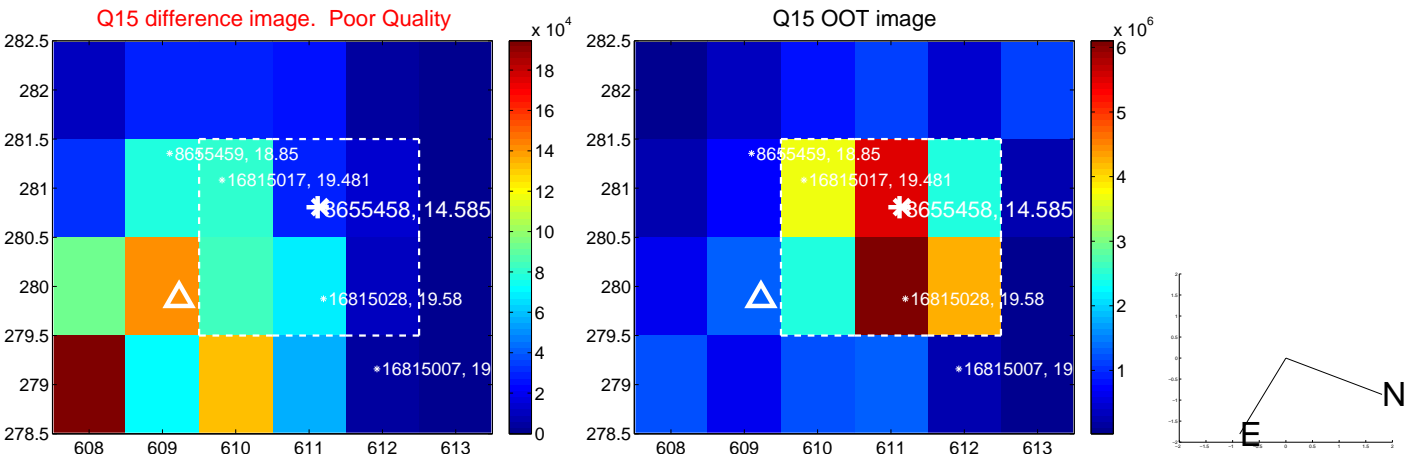
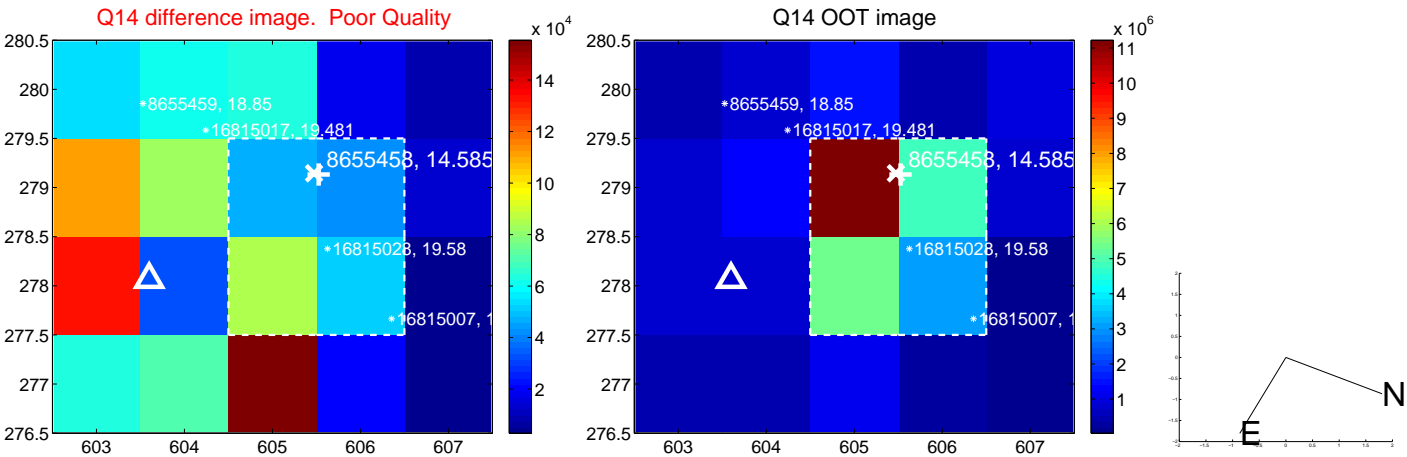
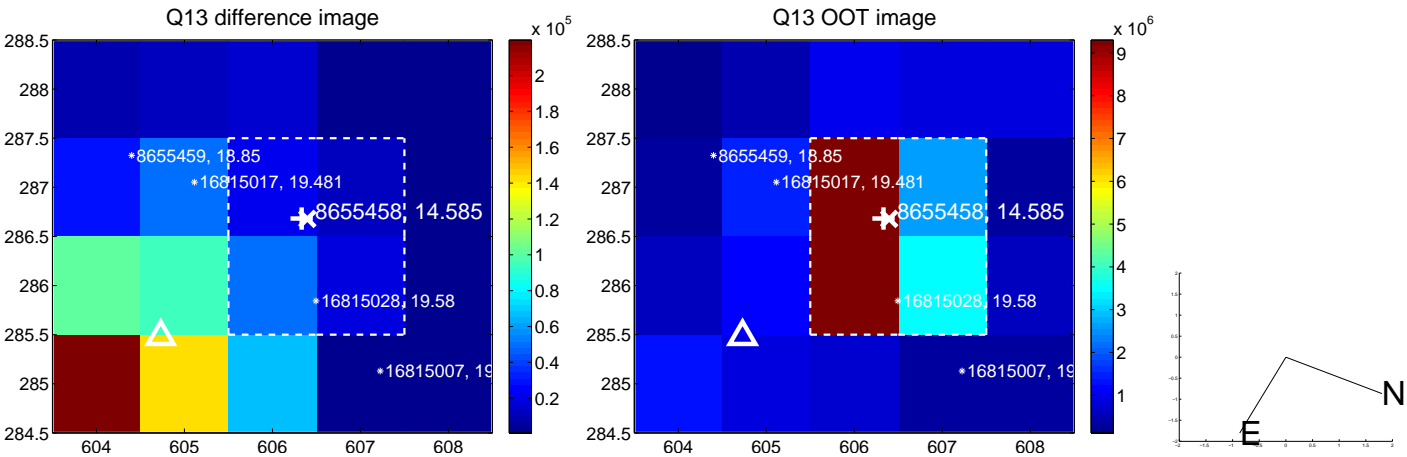
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



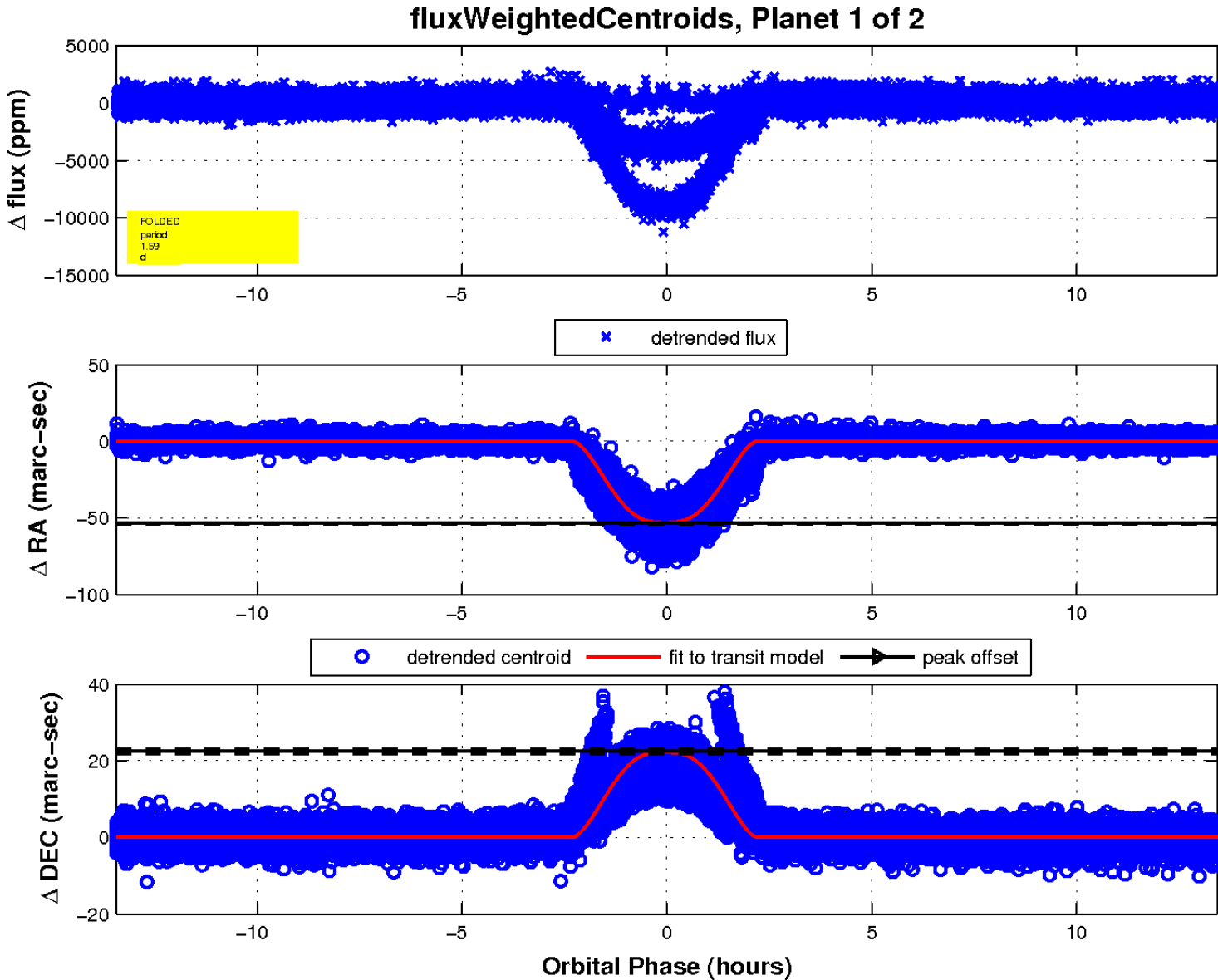
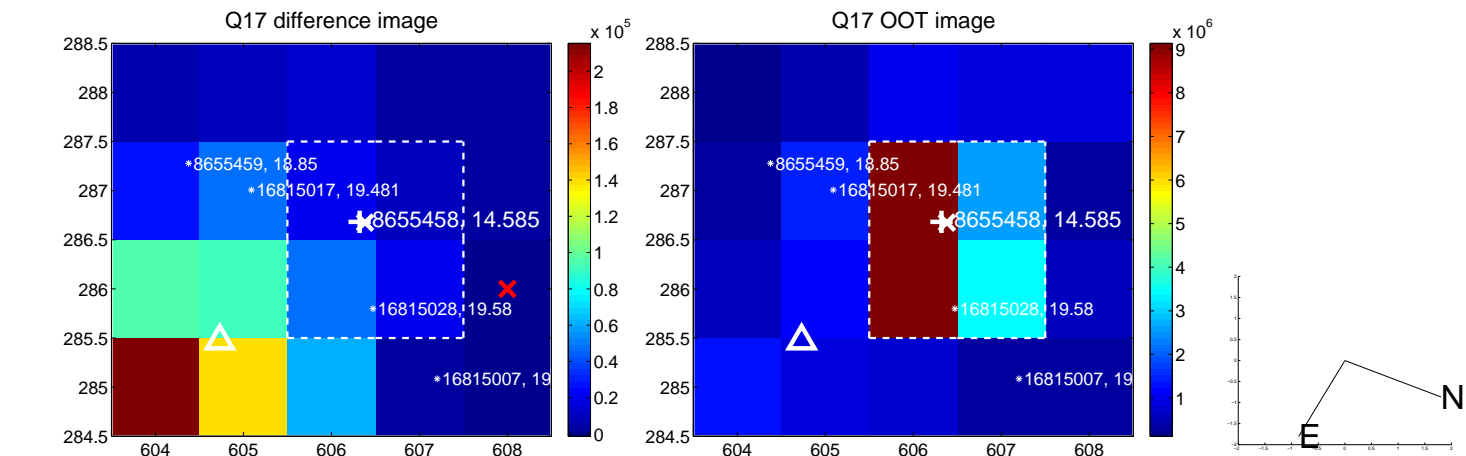
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

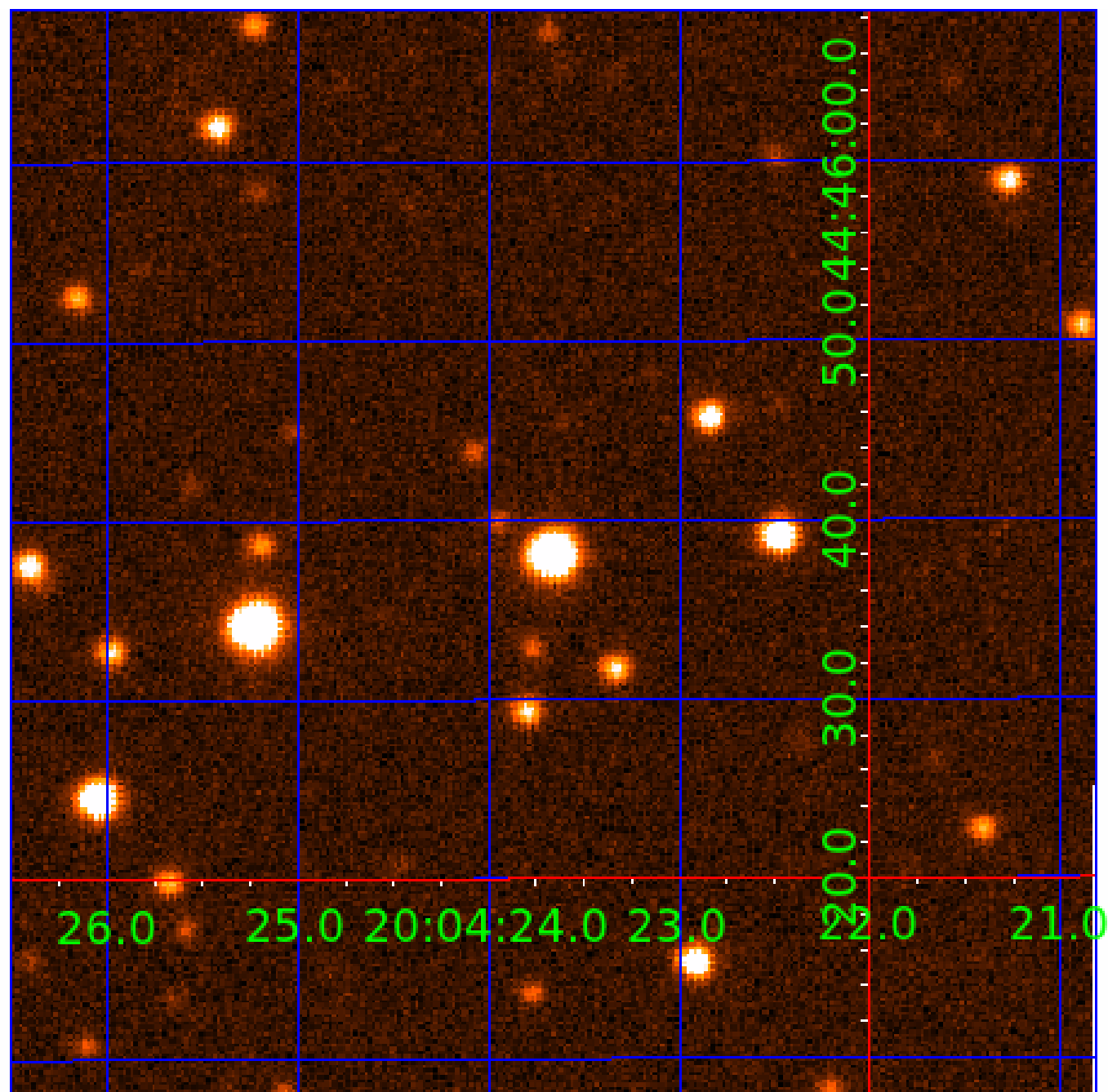


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008655458

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})
008655458-01	OBS	6060.01	1.594149	132.640509	9761.7	4.479	776.9	503.7	0.89	5388	10.42	959.10
008655458-02	OBS	No	1.594164	131.832027	3318.7	3.000	184.5	-1.0	0.89	5388	5.01	959.08

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008655458-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST
008655458-02	OBS	FP	0.00	1	1	1	0	IS_SEC_TCE—CENT_NOFITS—HALO_GHOST

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.

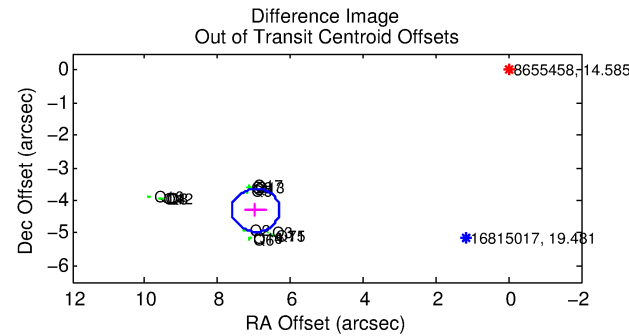
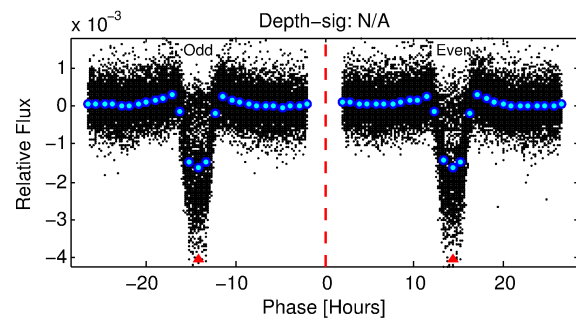
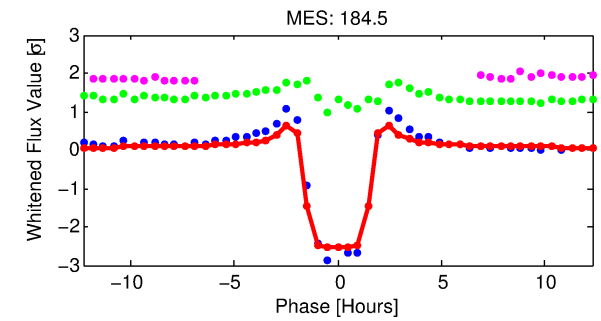
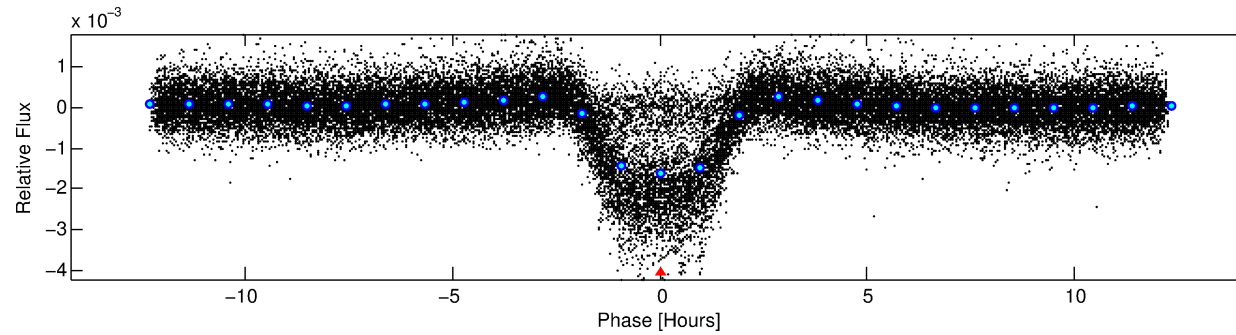
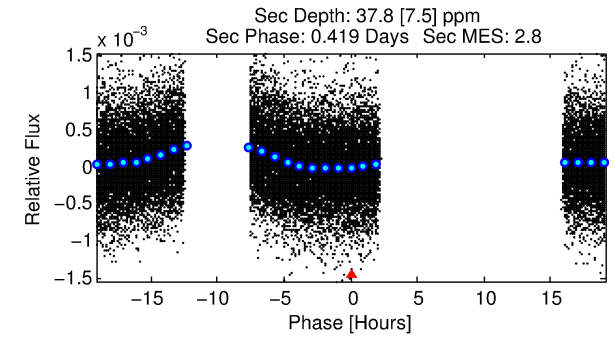
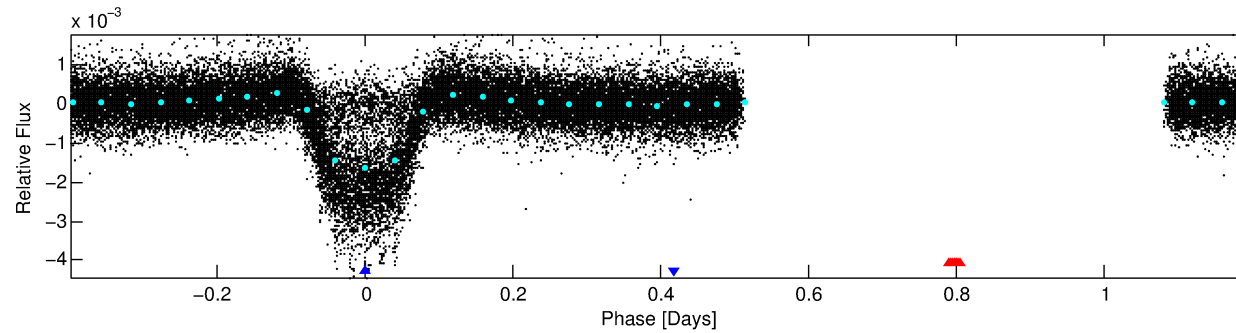
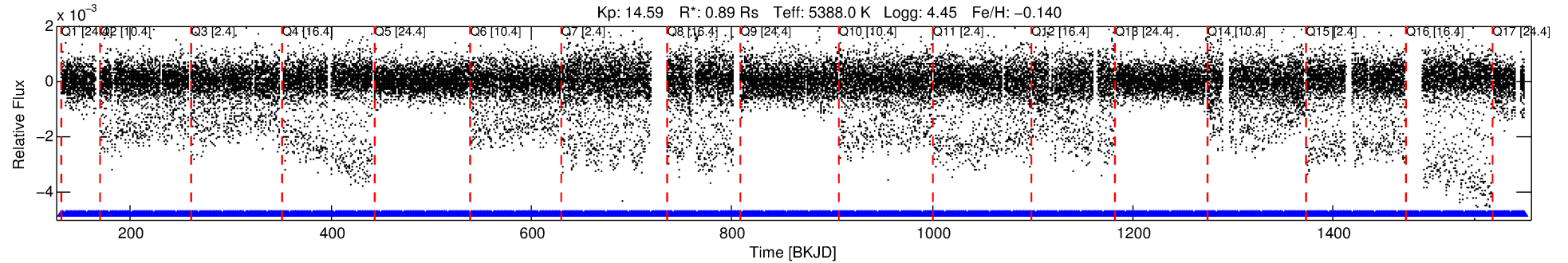
Ephemeris Match Information For 008655458-02

No Significant Match Found

DV One-Page Summary

KIC: 8655458 Candidate: 2 of 2 Period: 1.594 d
KOI: K06060 Corr: No Ephemeris Match

Kp: 14.59 R*: 0.89 Rs Teff: 5388.0 K Logg: 4.45 Fe/H: -0.140



TPS TCE Results:

Period = 1.59416 d
Epoch = 131.8320 BKJD

DV fit results are unavailable

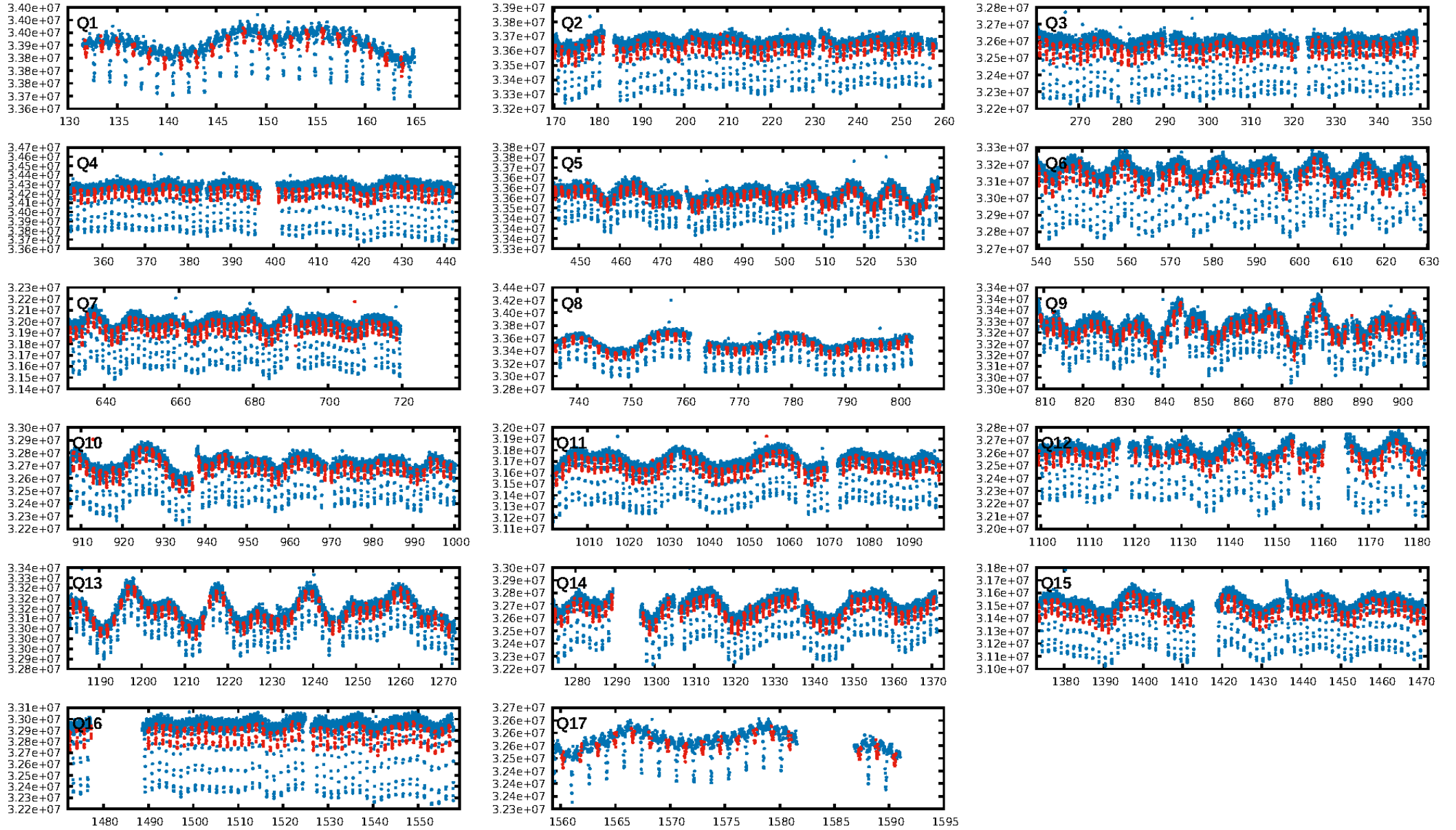
DV Diagnostic Results:

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 [801/801]
GhostDiagnostic-chr: -0.007857
Centroid-sig: 0.0%
Centroid-so: 6.520 arcsec [156.59σ]
OotOffset-rm: 8.181 arcsec [37.27σ]
KicOffset-rm: 8.311 arcsec [35.50σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.76 [13/17]
DiffImageOverlap-fno: 1.00 [17/17]

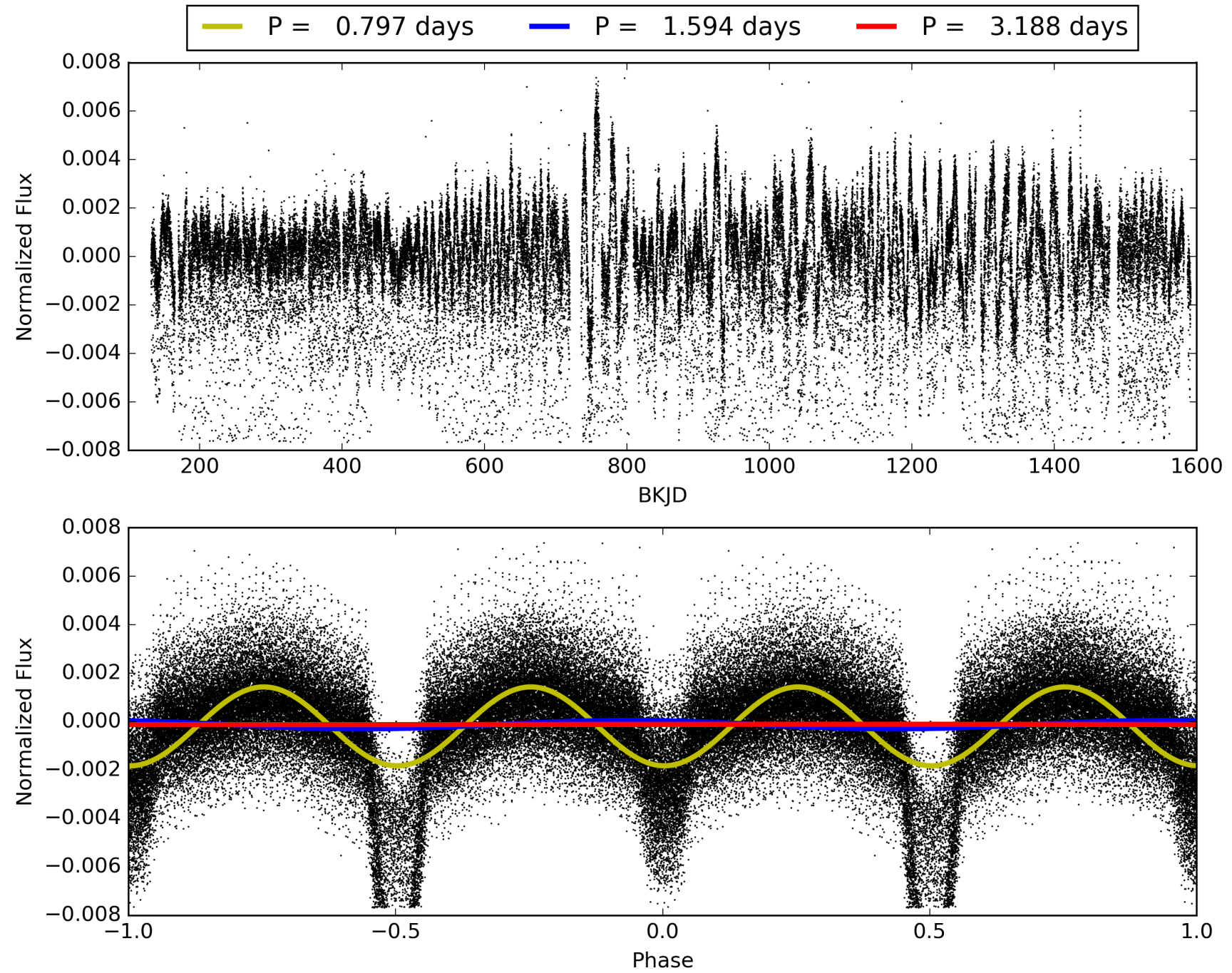
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:27:13 Z

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

TCE 008655458-02, PDC Light Curves

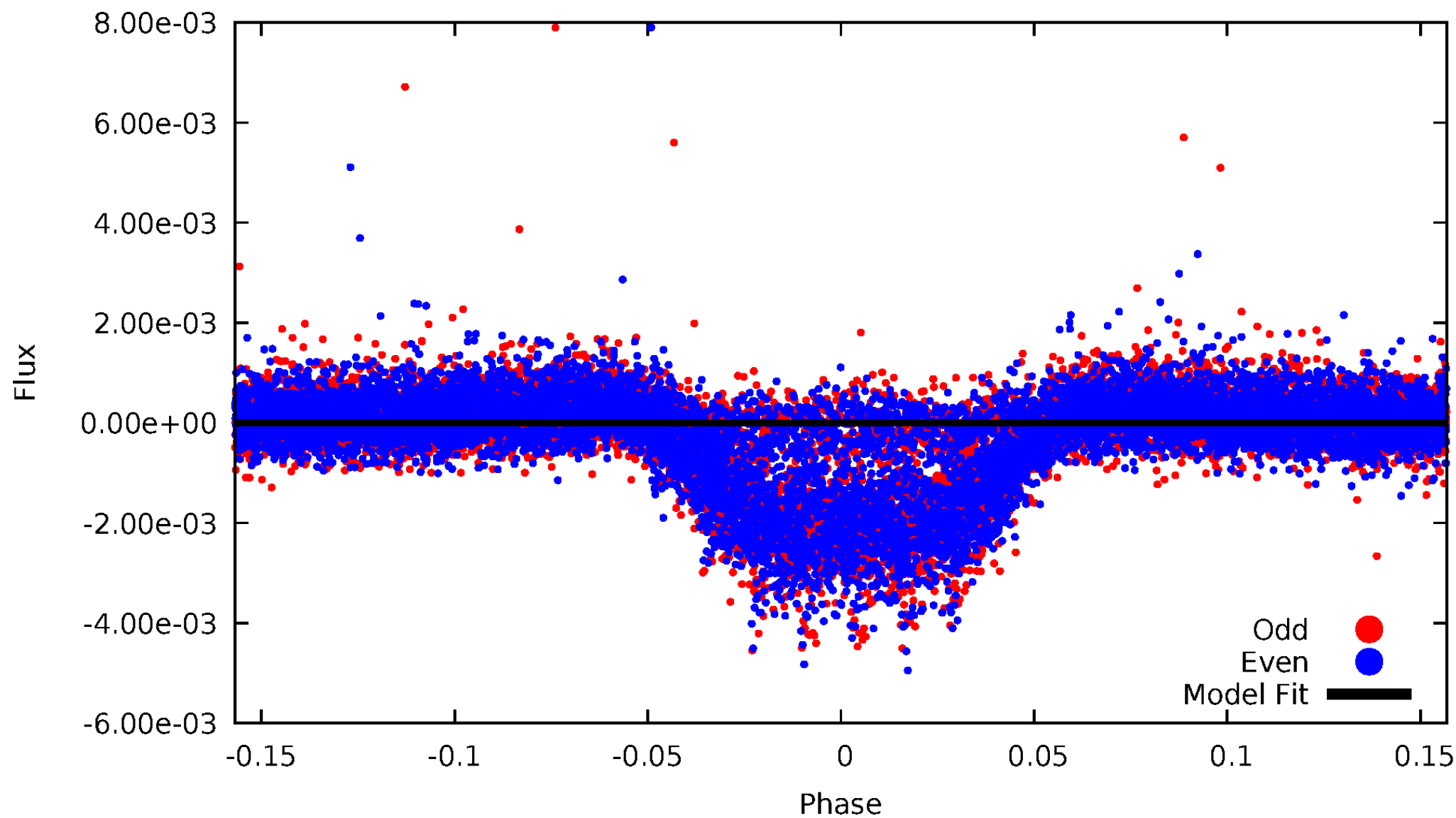


TCE 008655458-02



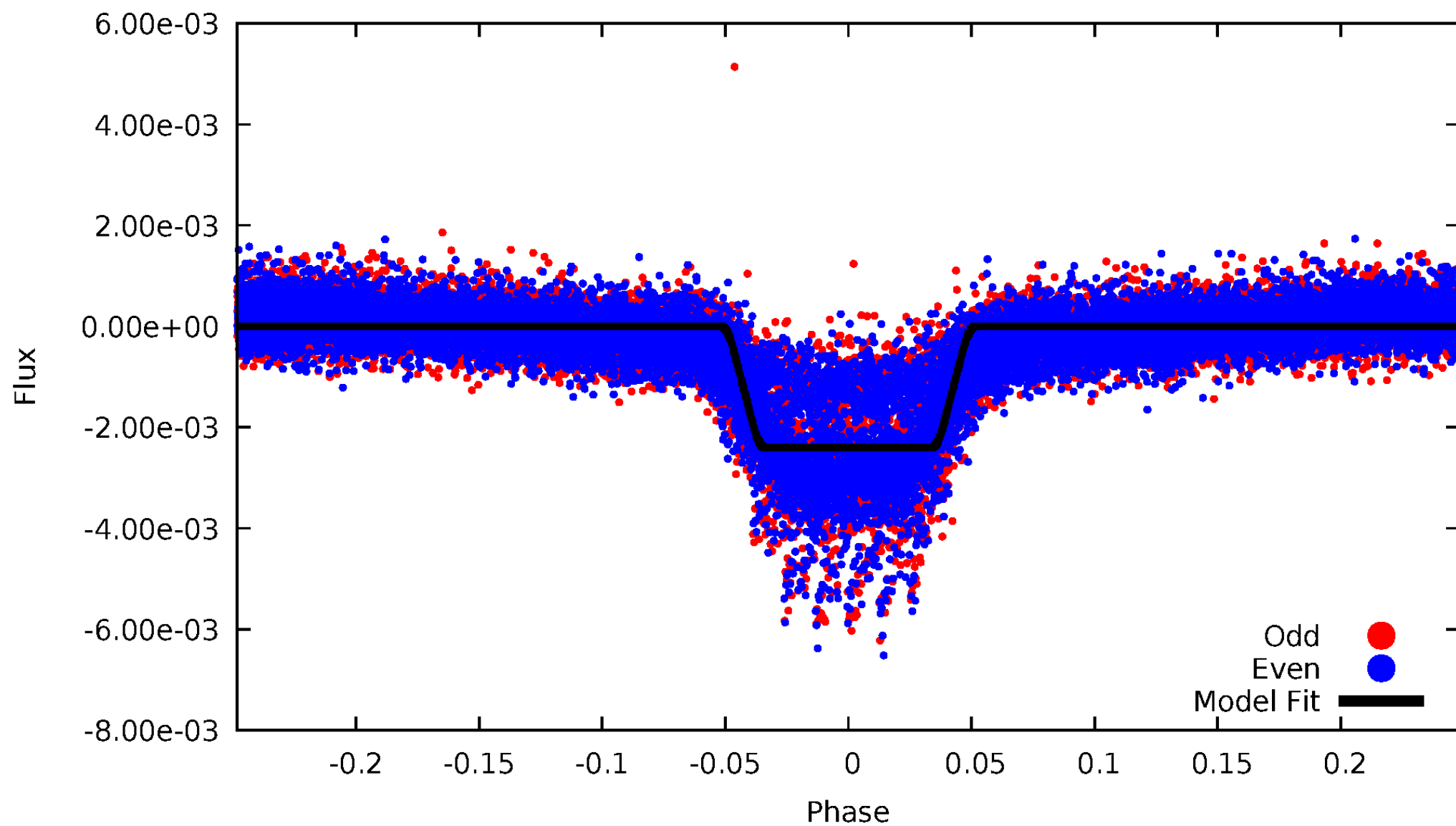
DV Odd/Even

TCE 008655458-02



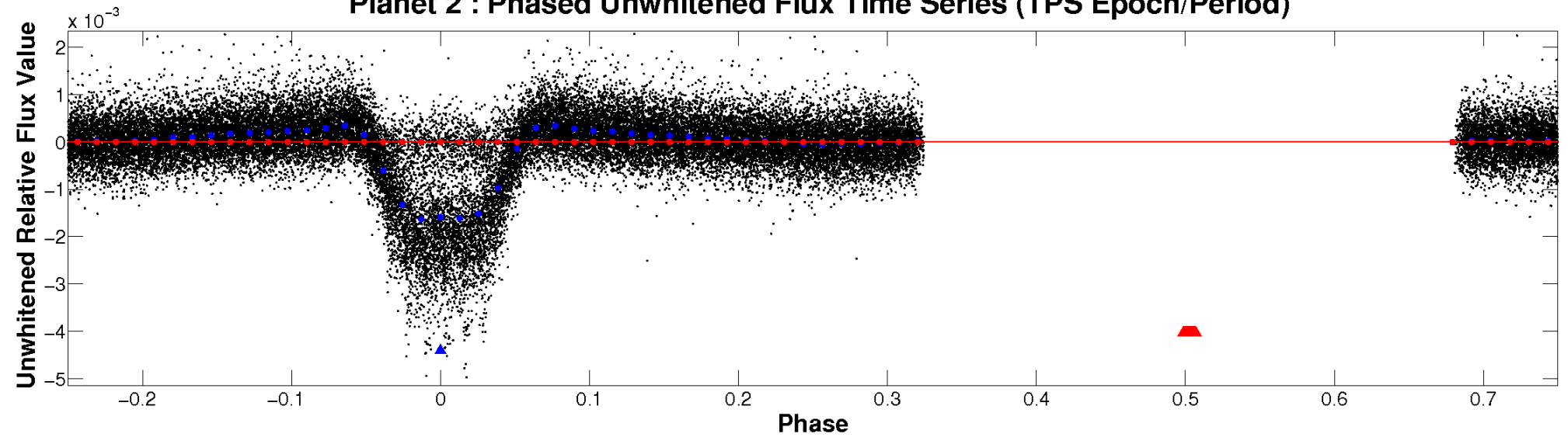
ALT Odd/Even

TCE 008655458-02



Non-Whitened Vs. Whitened Light Curve

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

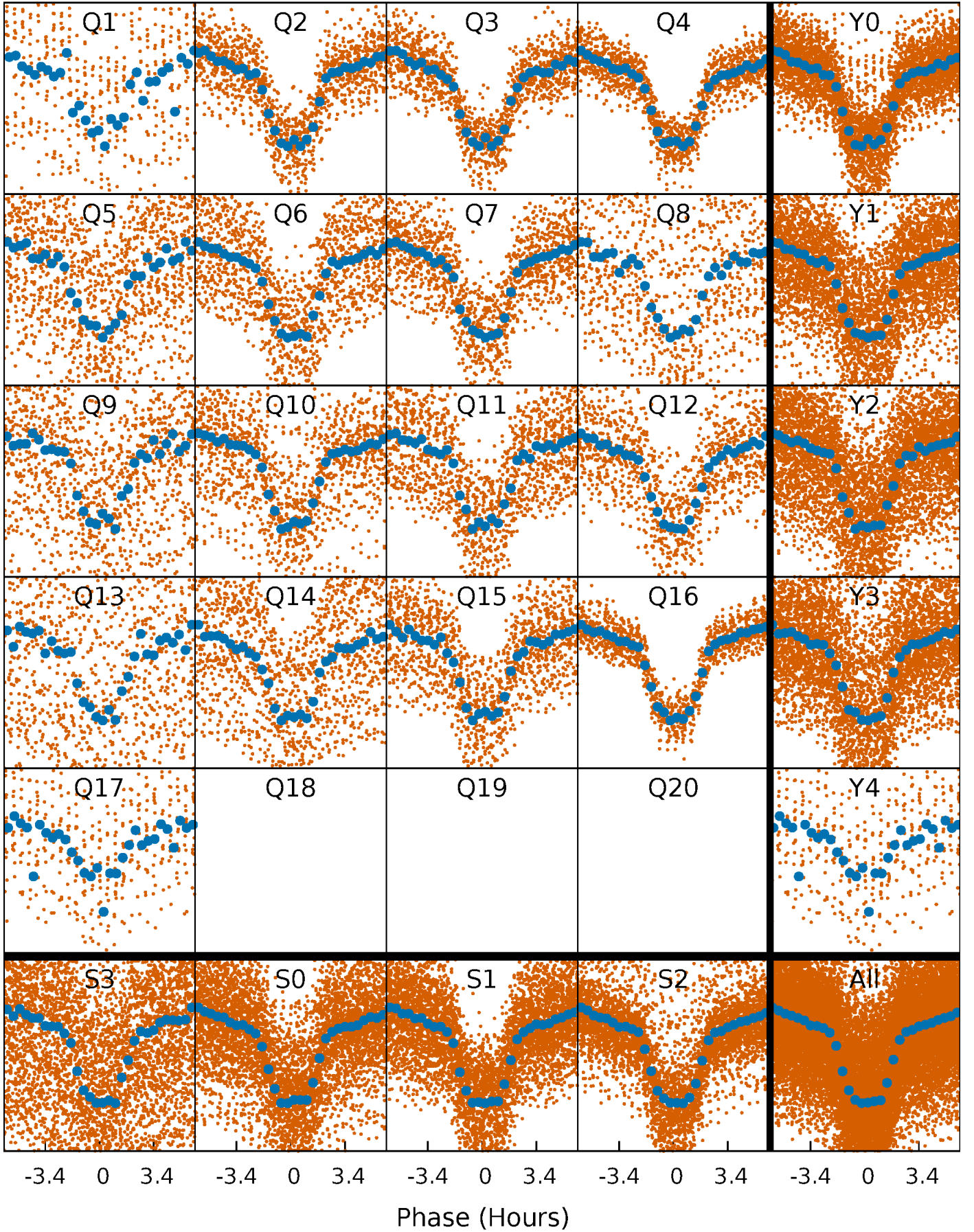


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



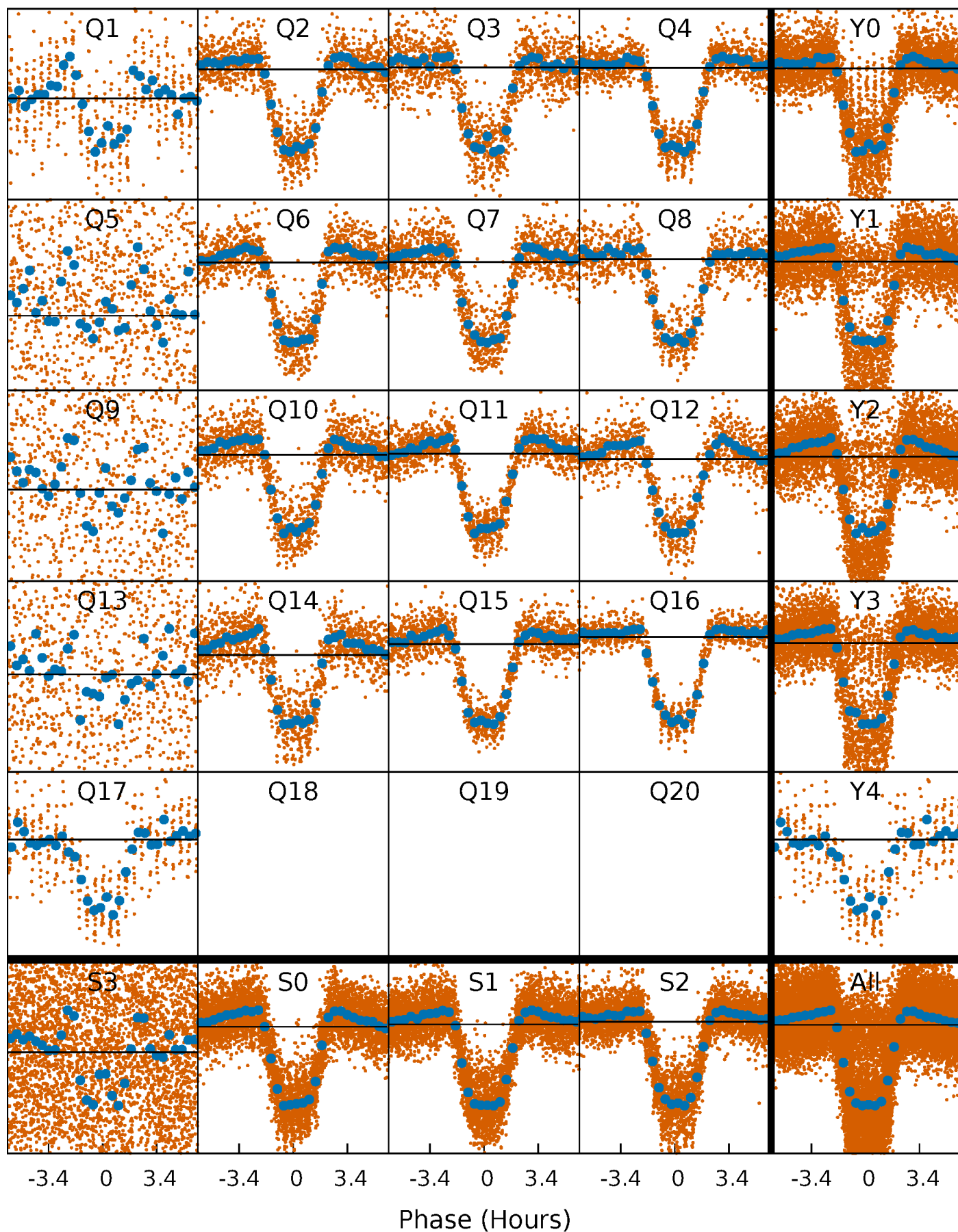
PDC Quarter-Phased Transit Curves

TCE 008655458-02 P= 1.594164 Days $T_0=131.832027$ (BKJD)



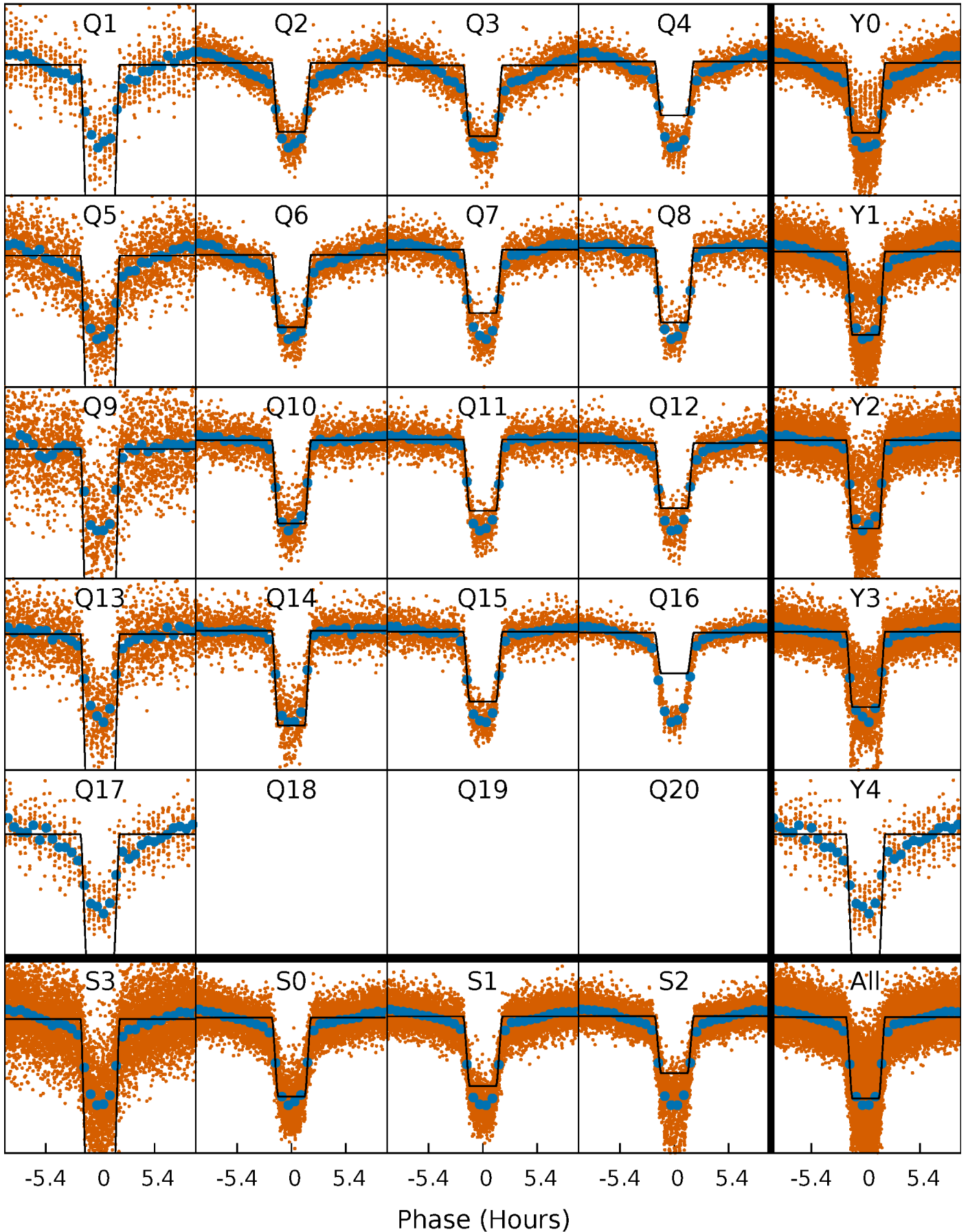
DV Quarter-Phased Transit Curves

TCE 008655458-02 P= 1.594164 Days $T_0=131.832027$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

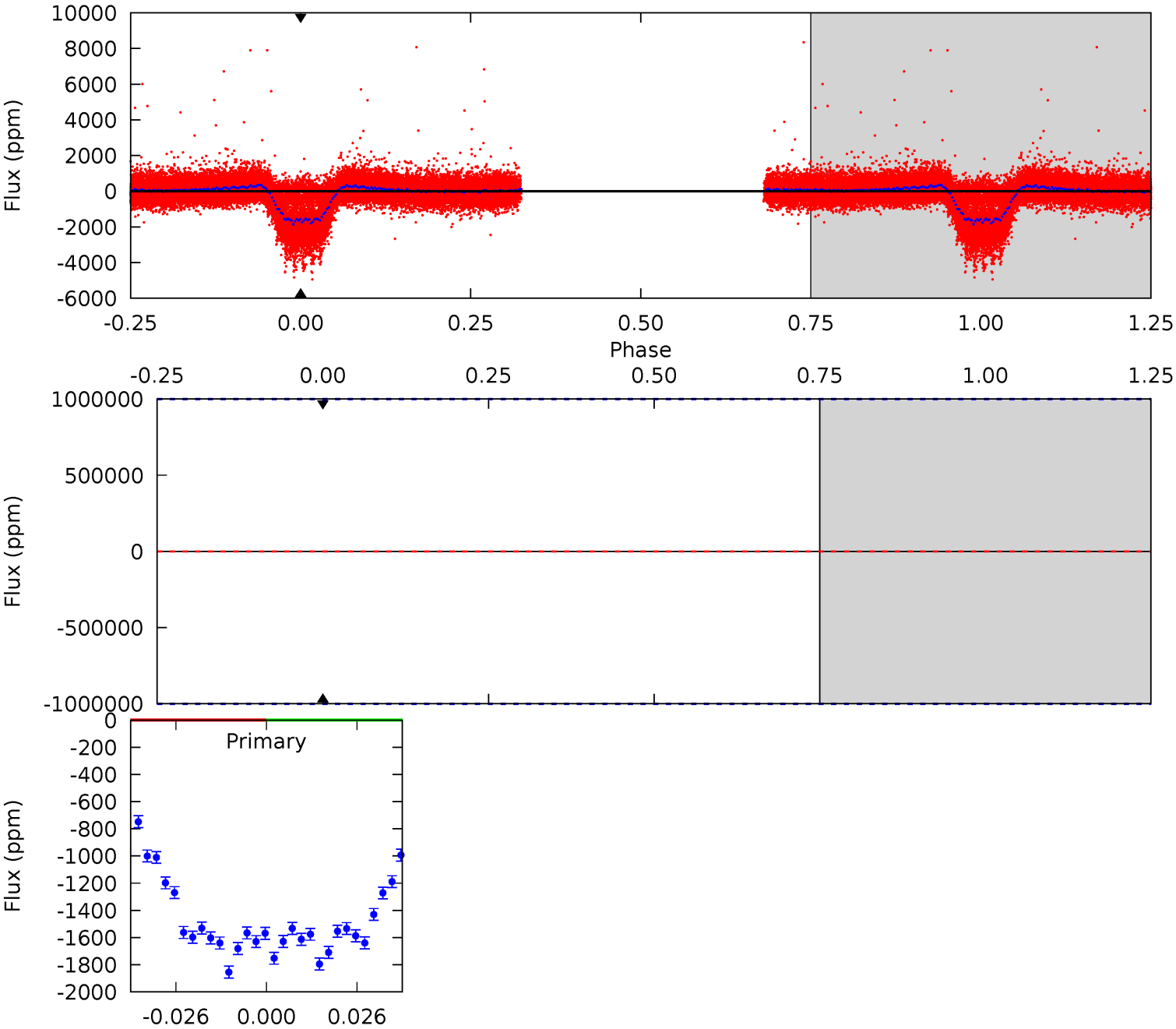
TCE 008655458-02 P= 1.594164 Days $T_0=131.836795$ (BKJD)



DV Model-Shift Uniqueness Test

008655458-02, P = 1.594164 Days, E = 130.237863 Days

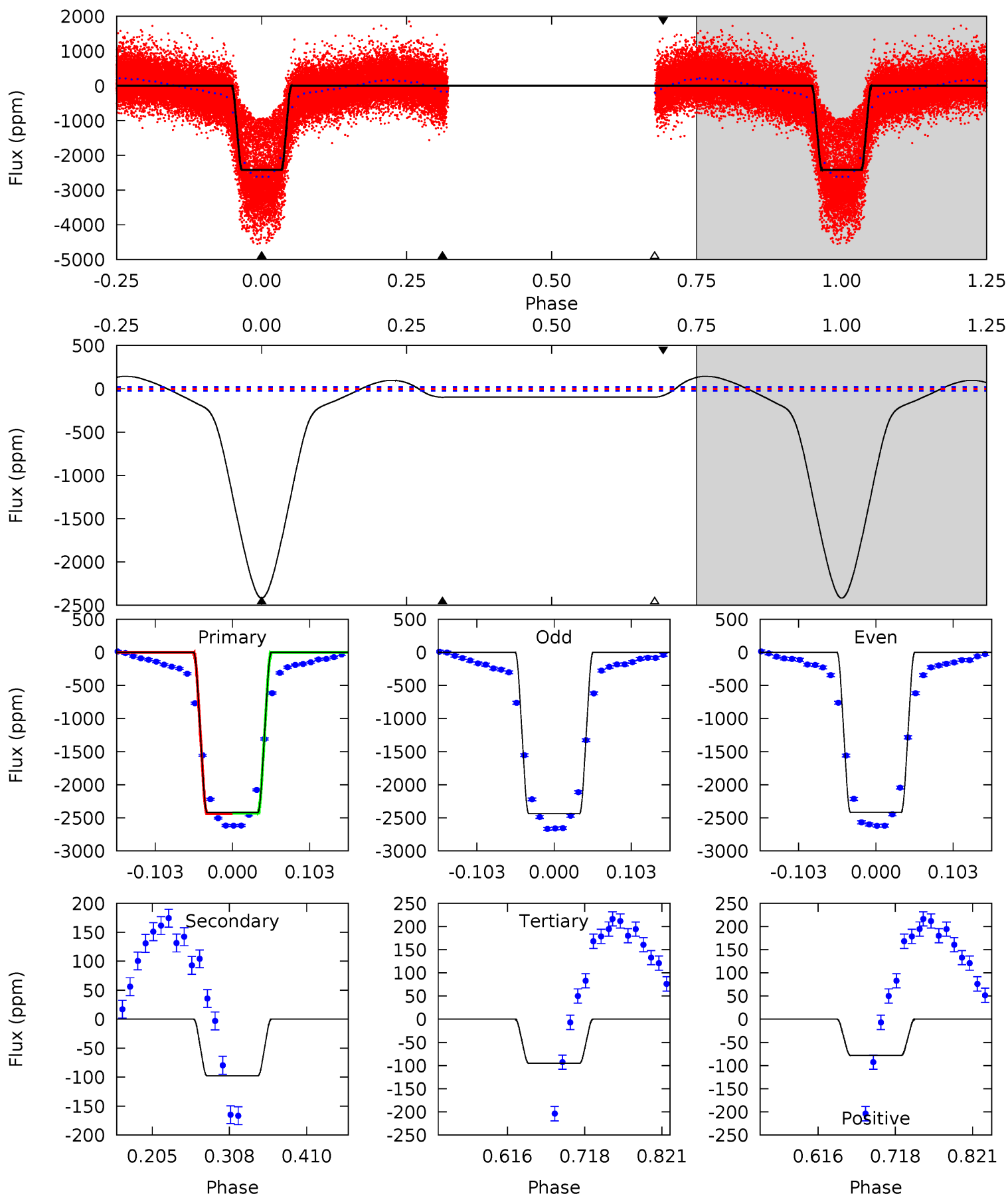
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008655458-02, P = 1.594164 Days, E = 130.242631 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
487.5	19.7	19.2	-15.8	4.56	1.63	20.6	468.3	503.2	0.53	35.5	2.23	0.94	0.06	0.51



Stellar Parameters For KIC 008655458

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5388^{+159}_{-159}	$4.449^{+0.121}_{-0.148}$	$-0.140^{+0.300}_{-0.300}$	$0.885^{+0.179}_{-0.119}$	$0.802^{+0.113}_{-0.061}$	$1.630^{+0.855}_{-0.654}$
	+3%/-3%	+3%/-3%	+214%/-214%	+20%/-13%	+14%/-8%	+52%/-40%
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 008655458-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$8.74^{+8.70}_{-6.16}$	1986^{+108}_{-97}	-3890^{+21724}_{-8821}	$-7.058^{+1117.239}_{-588.848}$
Alt.	-98 ± 5	$8.42^{+8.71}_{-5.69}$	1984^{+119}_{-106}	2317^{+1258}_{-4658}	$0.481^{+3.977}_{-0.364}$

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 $A_{obs} \gg 1.0$

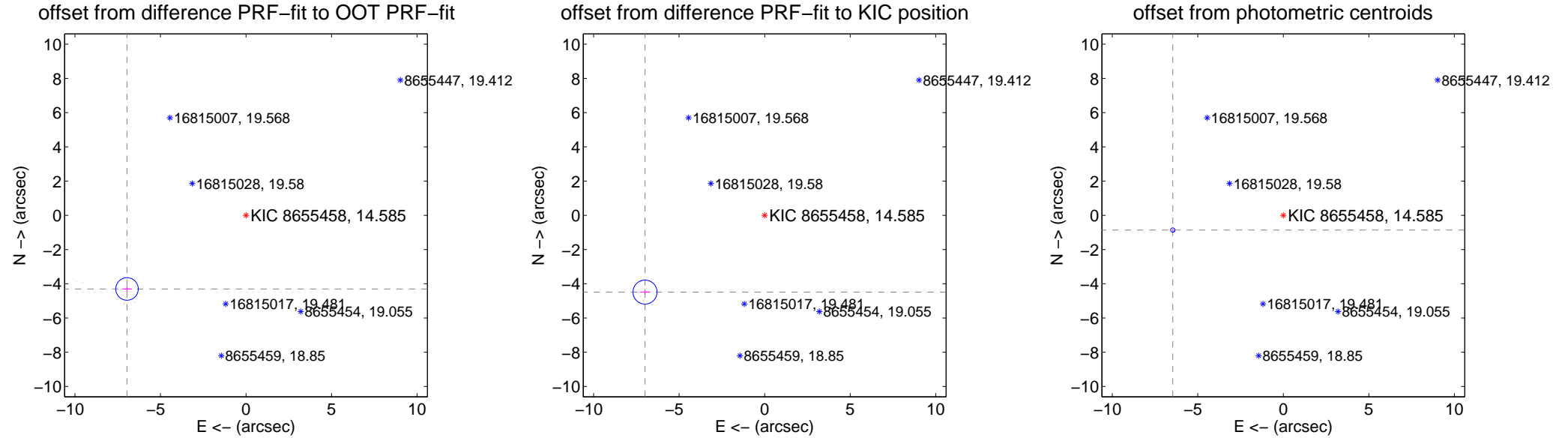
DV Centroid Data

Supplemental centroid analysis for 008655458-02. Kepler magnitude: 14.59. Transit SNR -1.00

There are 13 quarters with good PRF difference image offsets

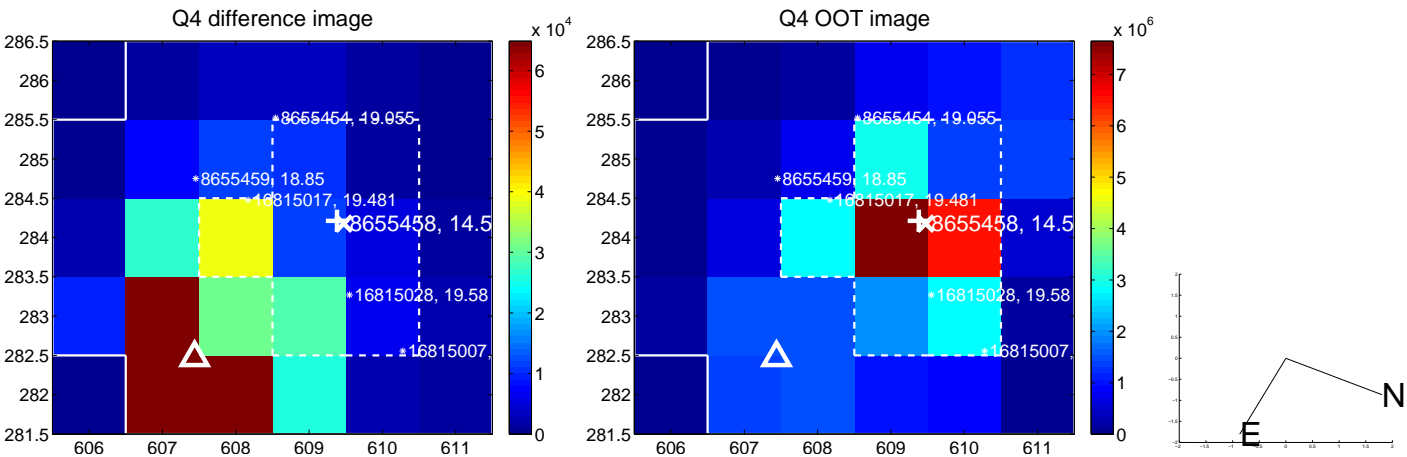
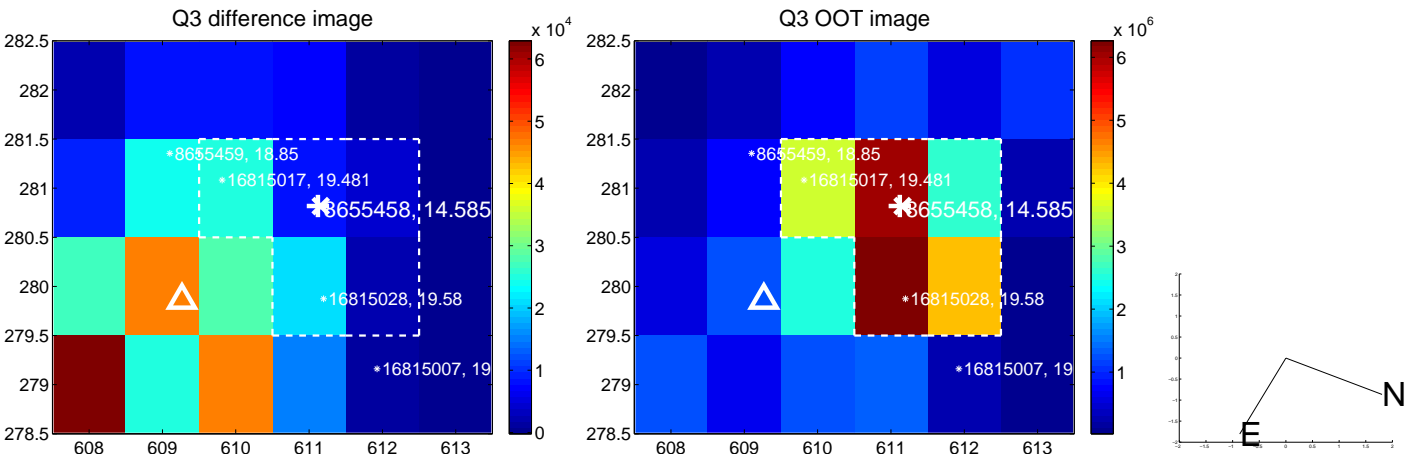
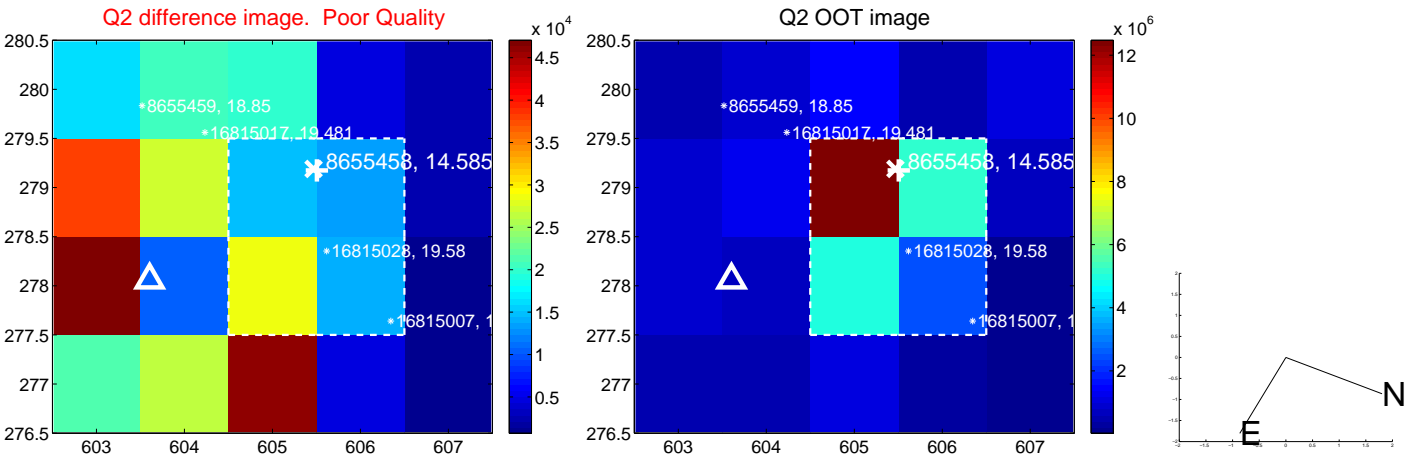
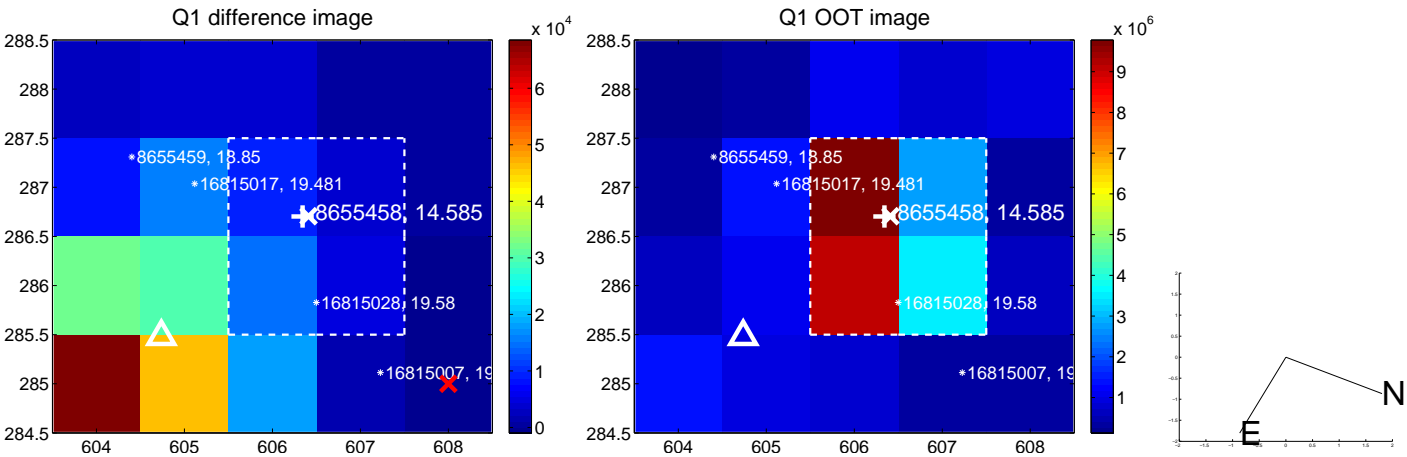
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.181 \pm 0.220	37.27	6.958 \pm 0.292	-4.303 \pm 0.176
PRF-fit source offset from KIC position	8.311 \pm 0.234	35.50	6.996 \pm 0.294	-4.486 \pm 0.141
photometric centroid source offset	6.52 \pm 0.04	156.59	6.46 \pm 0.04	-0.86 \pm 0.04

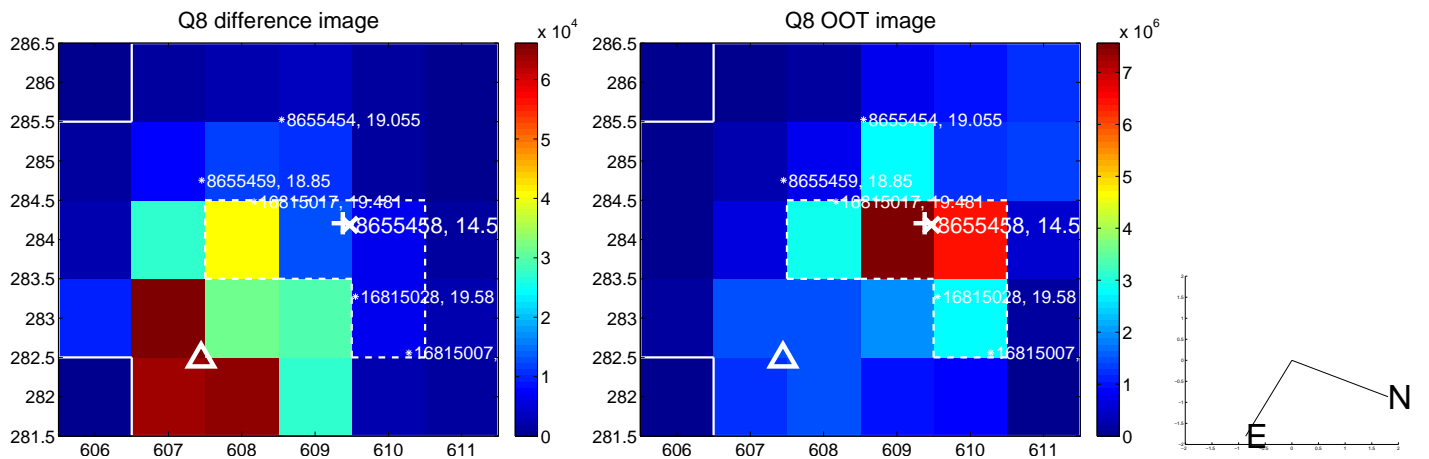
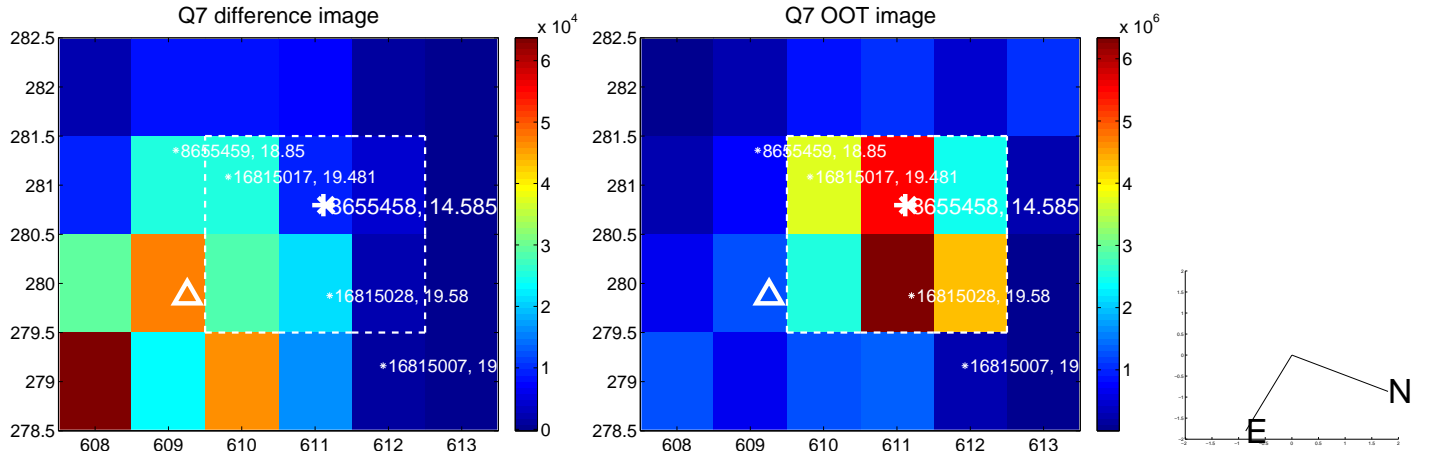
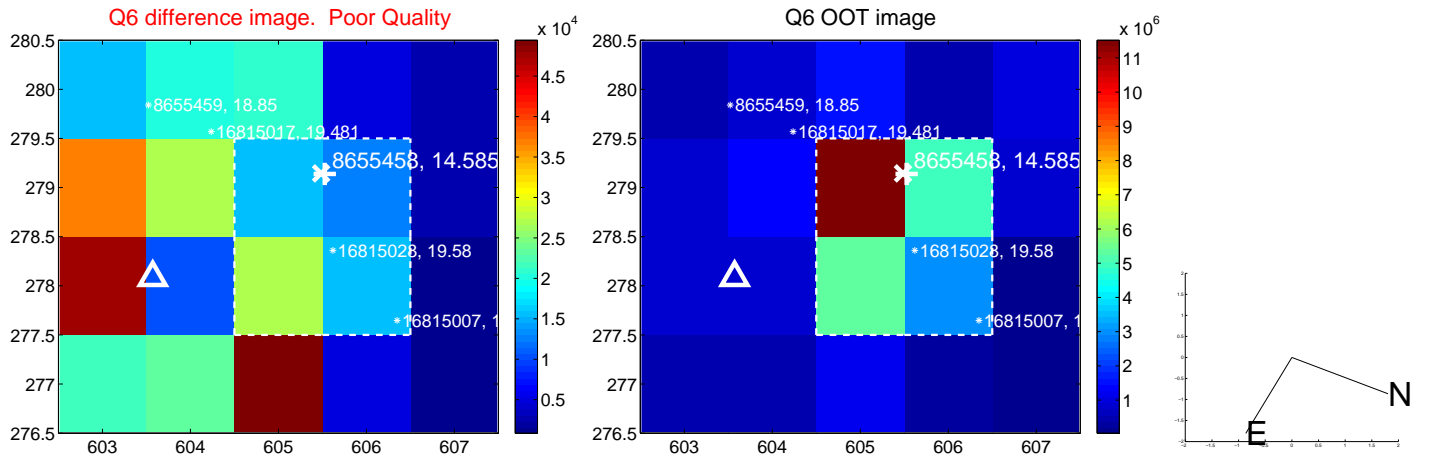
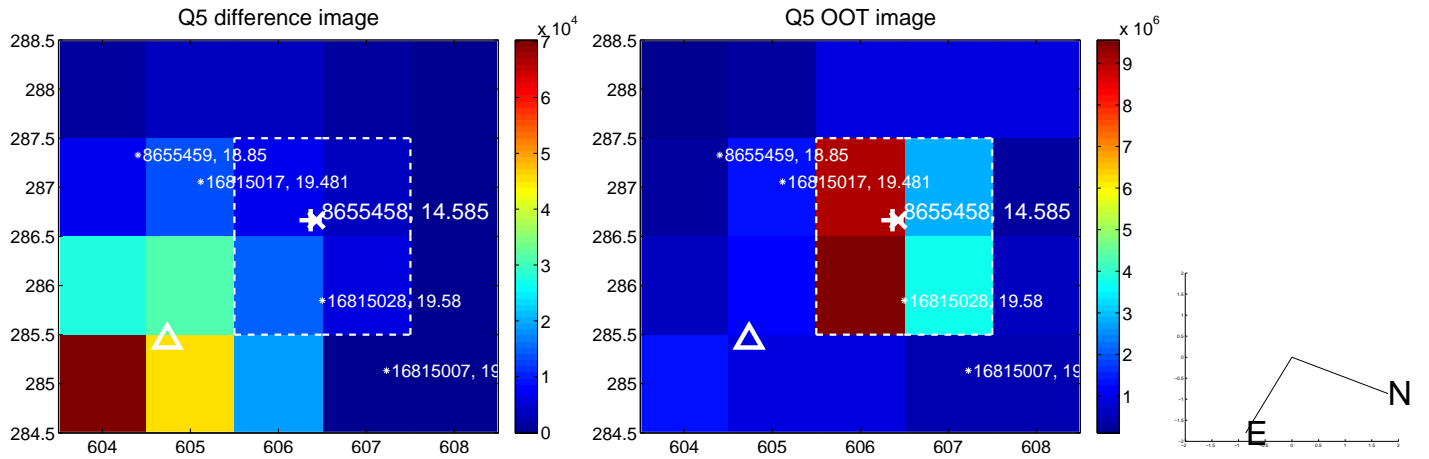


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

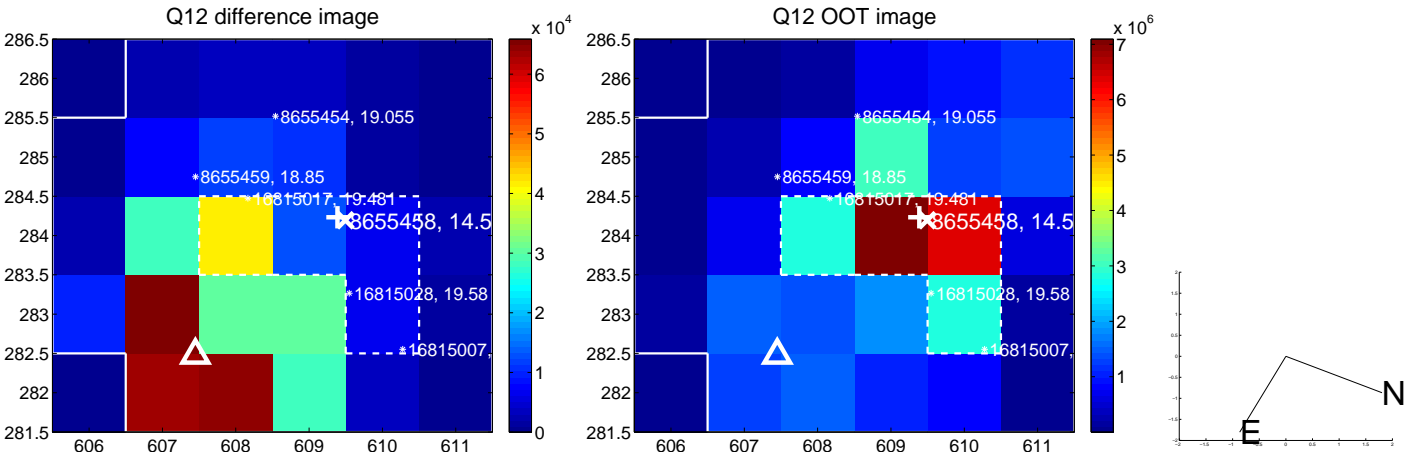
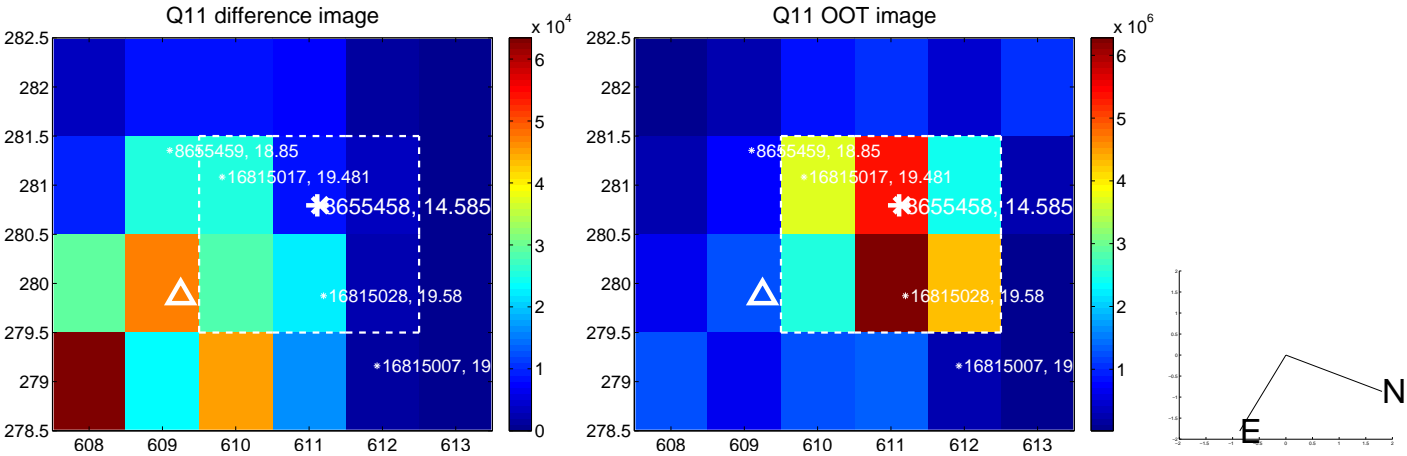
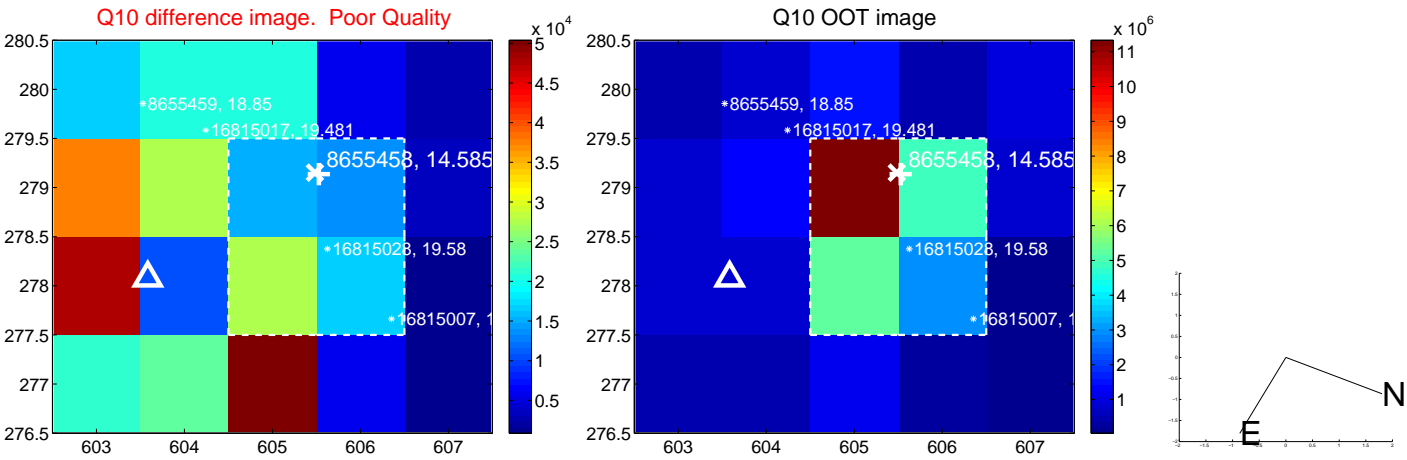
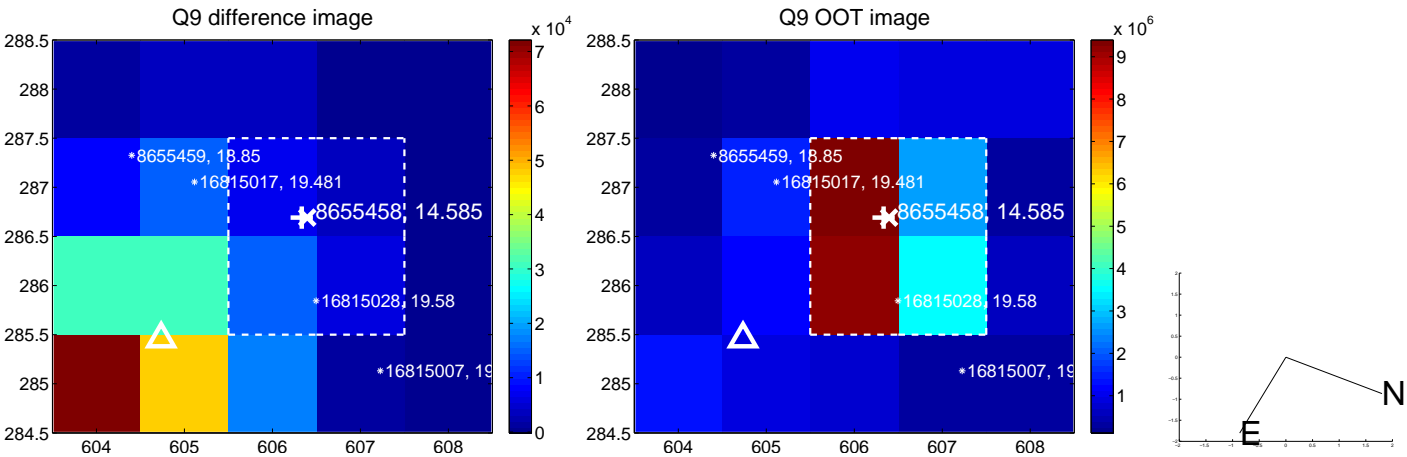
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



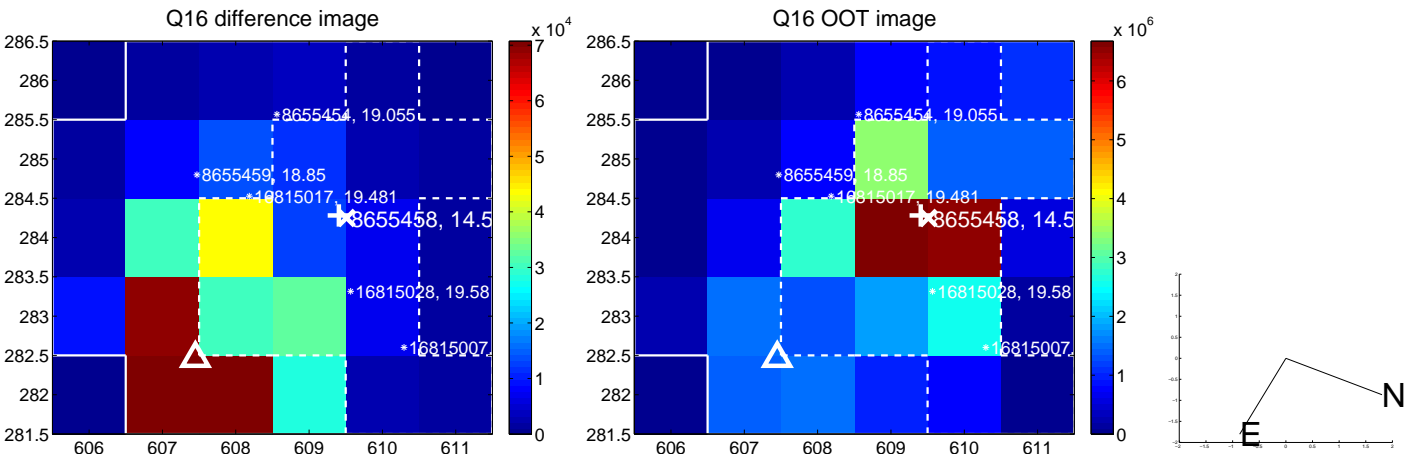
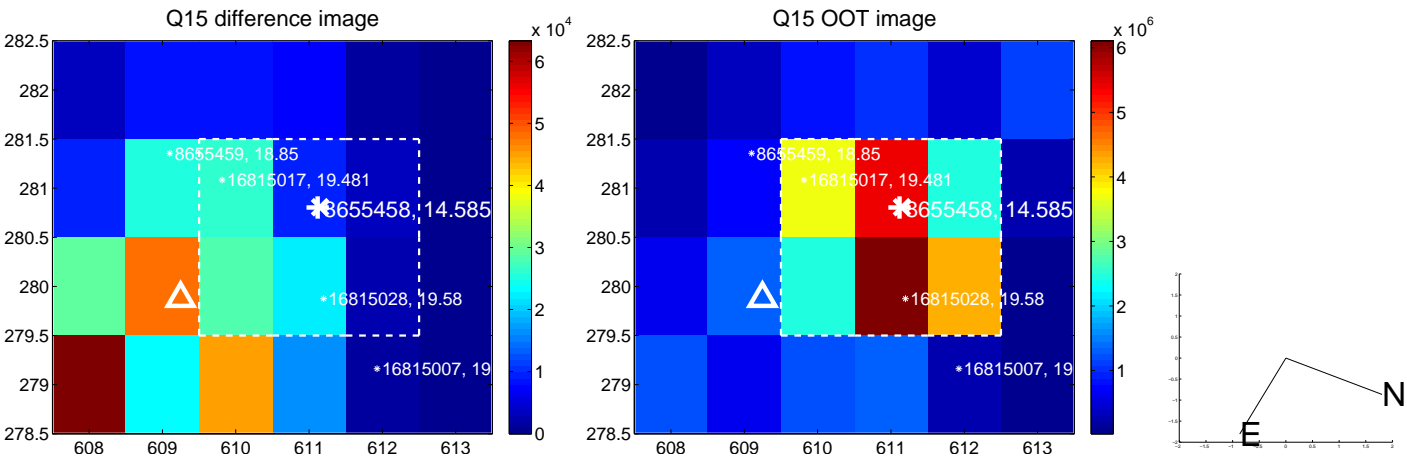
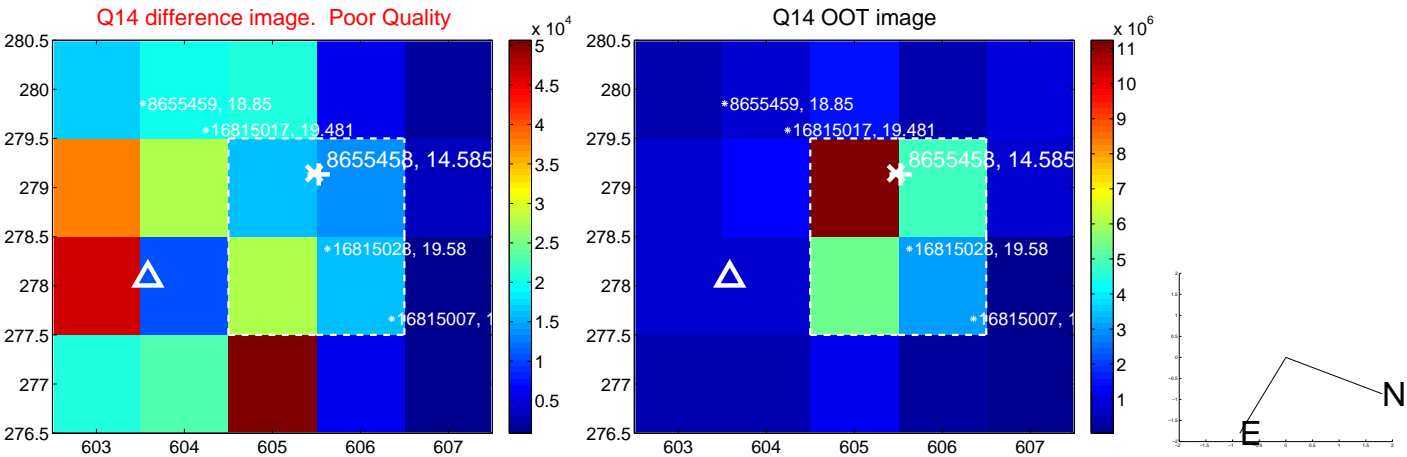
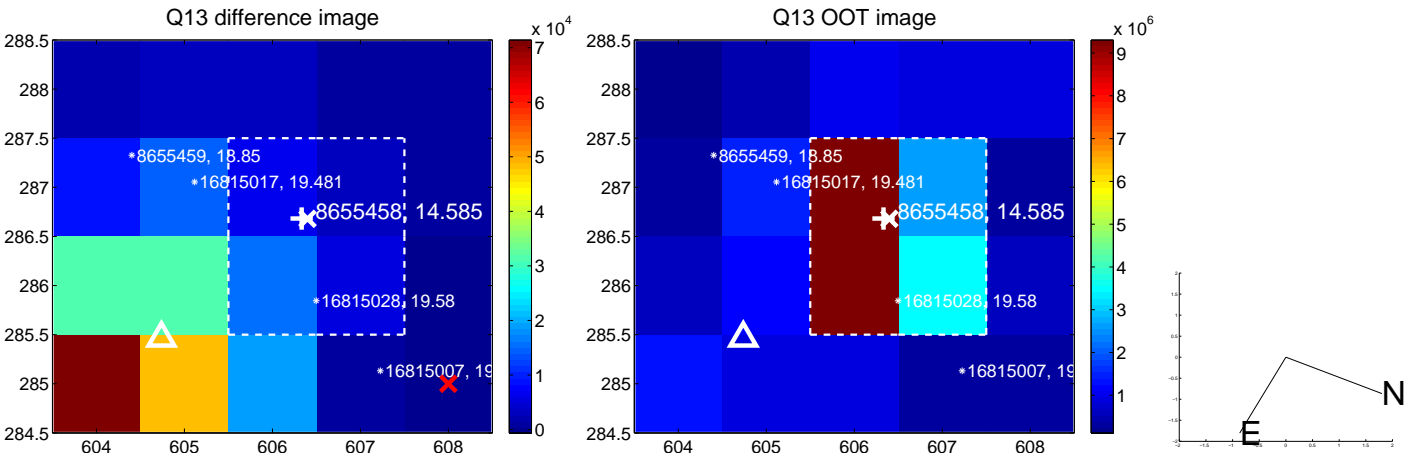
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



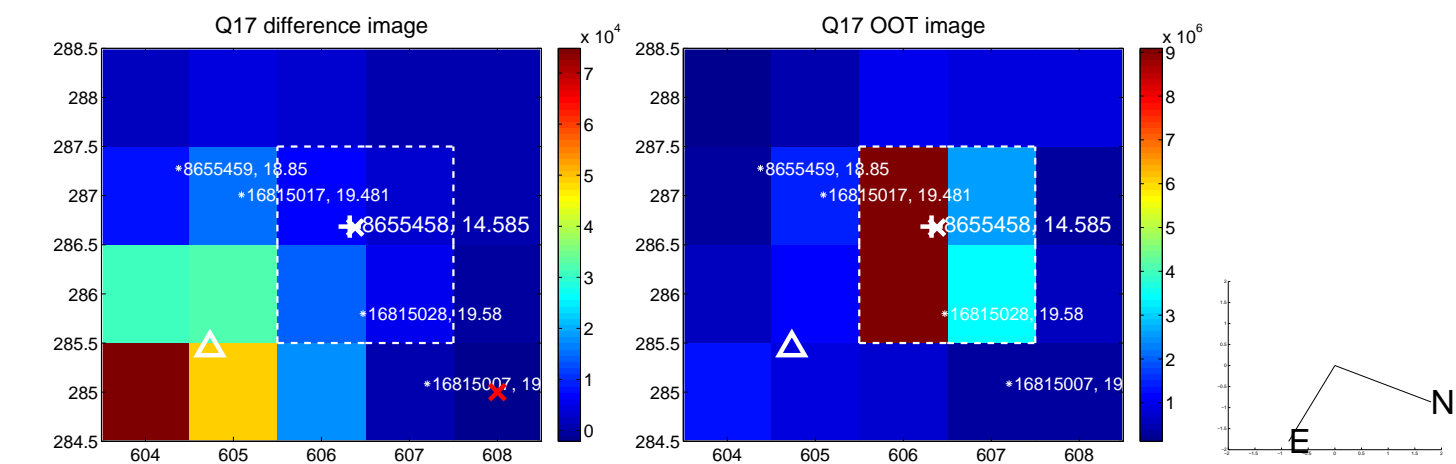
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



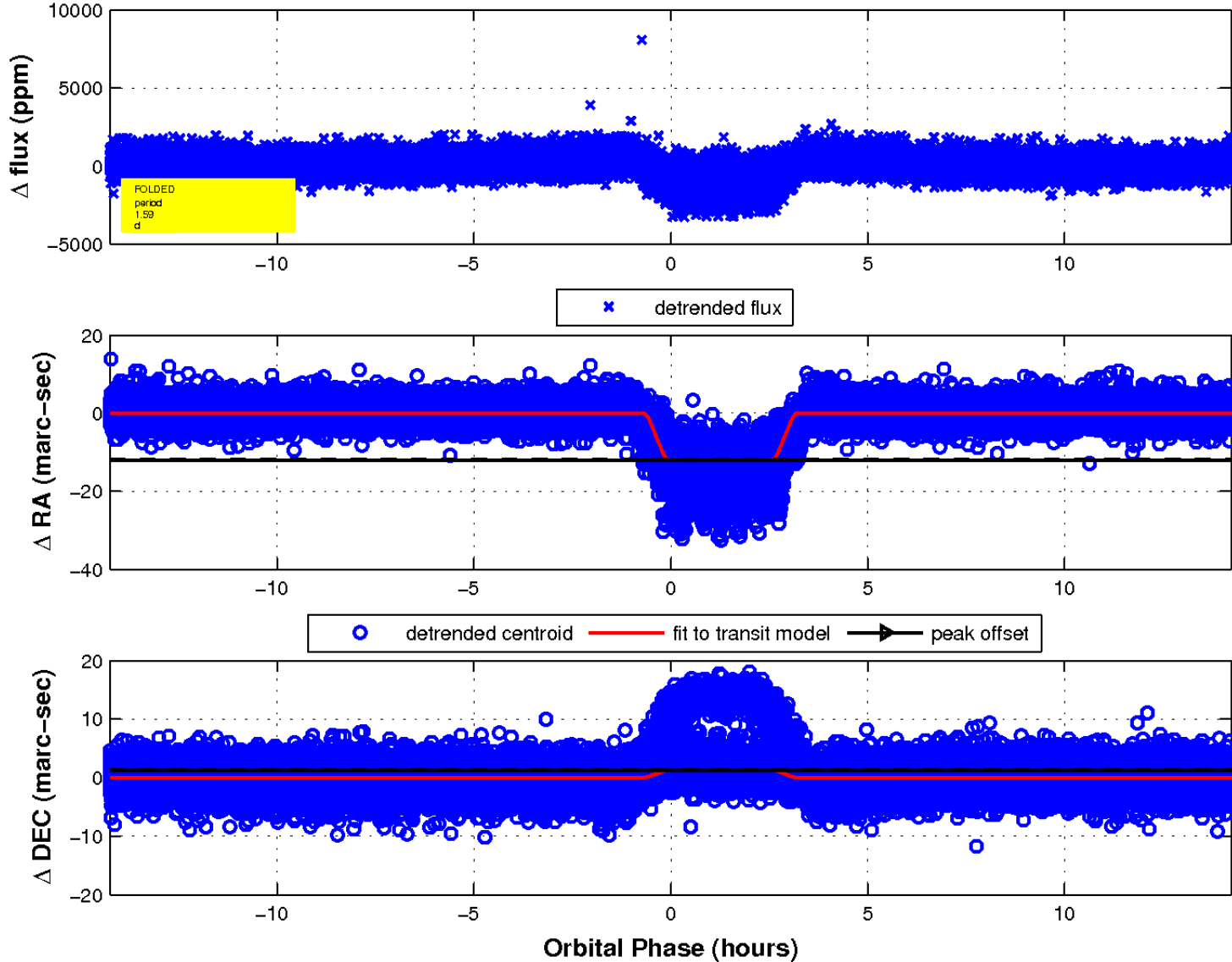
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

