

KIC 008508981

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})
008508981-01	OBS	No	2.075712	132.933888	6.3	10.781	9.5	2.4	2.15	6889	0.57	6943.54
008508981-02	OBS	No	2.075931	131.586047	9.9	15.731	11.2	4.5	2.15	6889	0.78	6942.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008508981-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008508981-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—HALO_GHOST

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

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

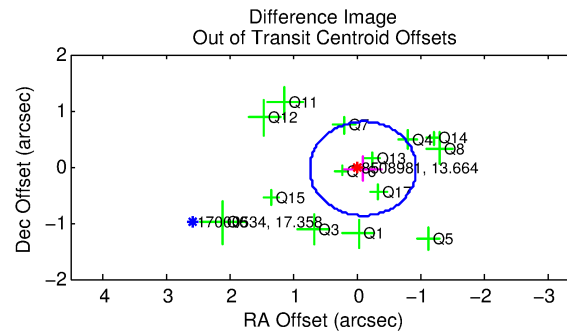
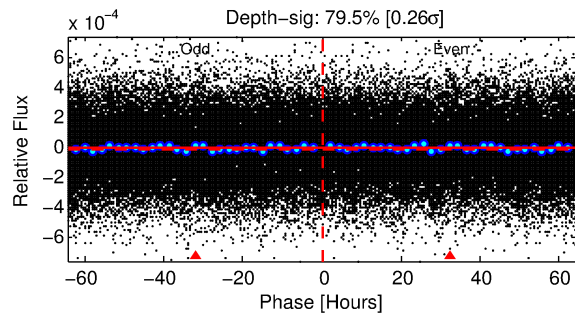
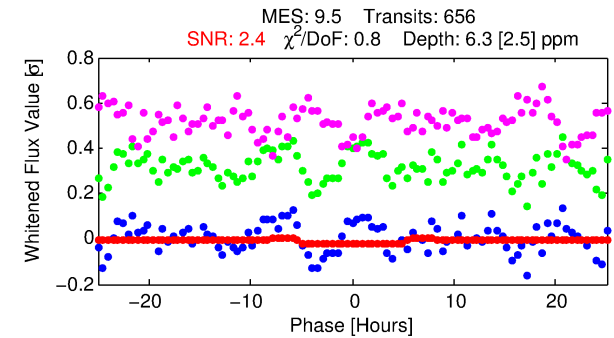
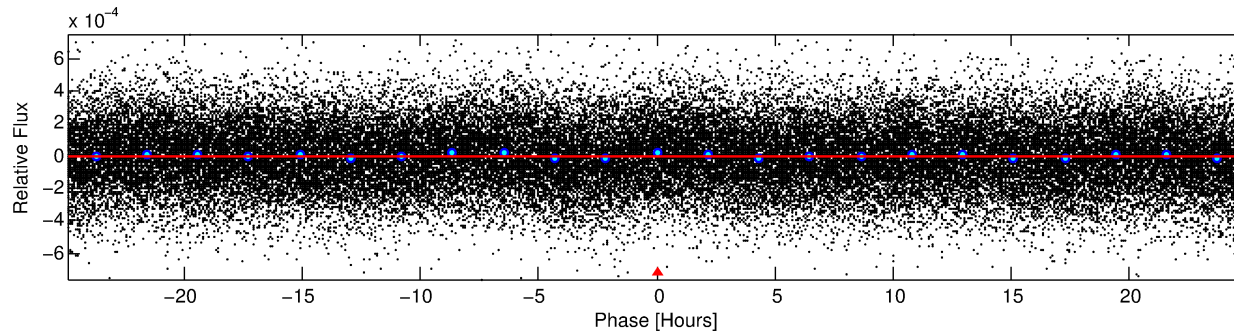
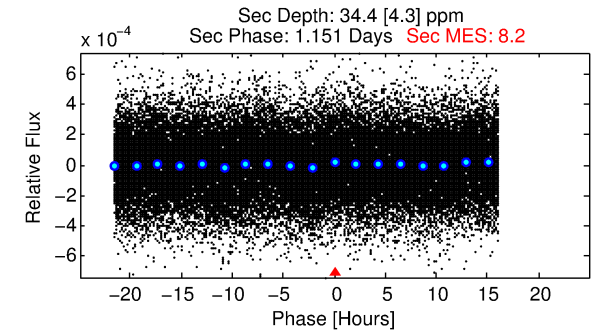
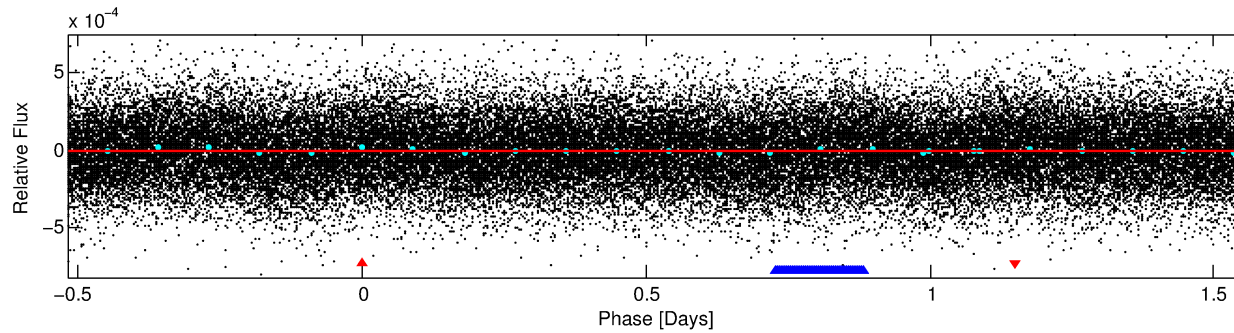
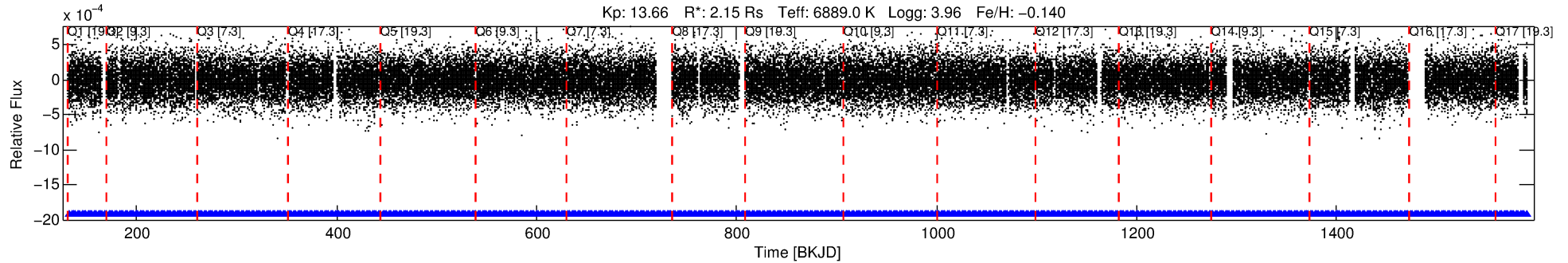
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008508981-01

No Significant Match Found

DV One-Page Summary

KIC: 8508981 Candidate: 1 of 2 Period: 2.076 d



DV Fit Results:

Period = 2.07571 [0.00012] d
Epoch = 132.9339 [0.0273] BKJD
Rp/R* = 0.0024 [0.0019]
a/R* = 1.37 [2.83]
b = 0.66 [3.82]
Seff = 6943.54 [3734.34]
Teq = 2328 [313] K
Rp = 0.57 [0.49] Re
a = 0.0366 [0.0121] AU
Ag = 77.55 [126.80] [0.60σ]
Teffp = 10680 [4170] K [2.00σ]

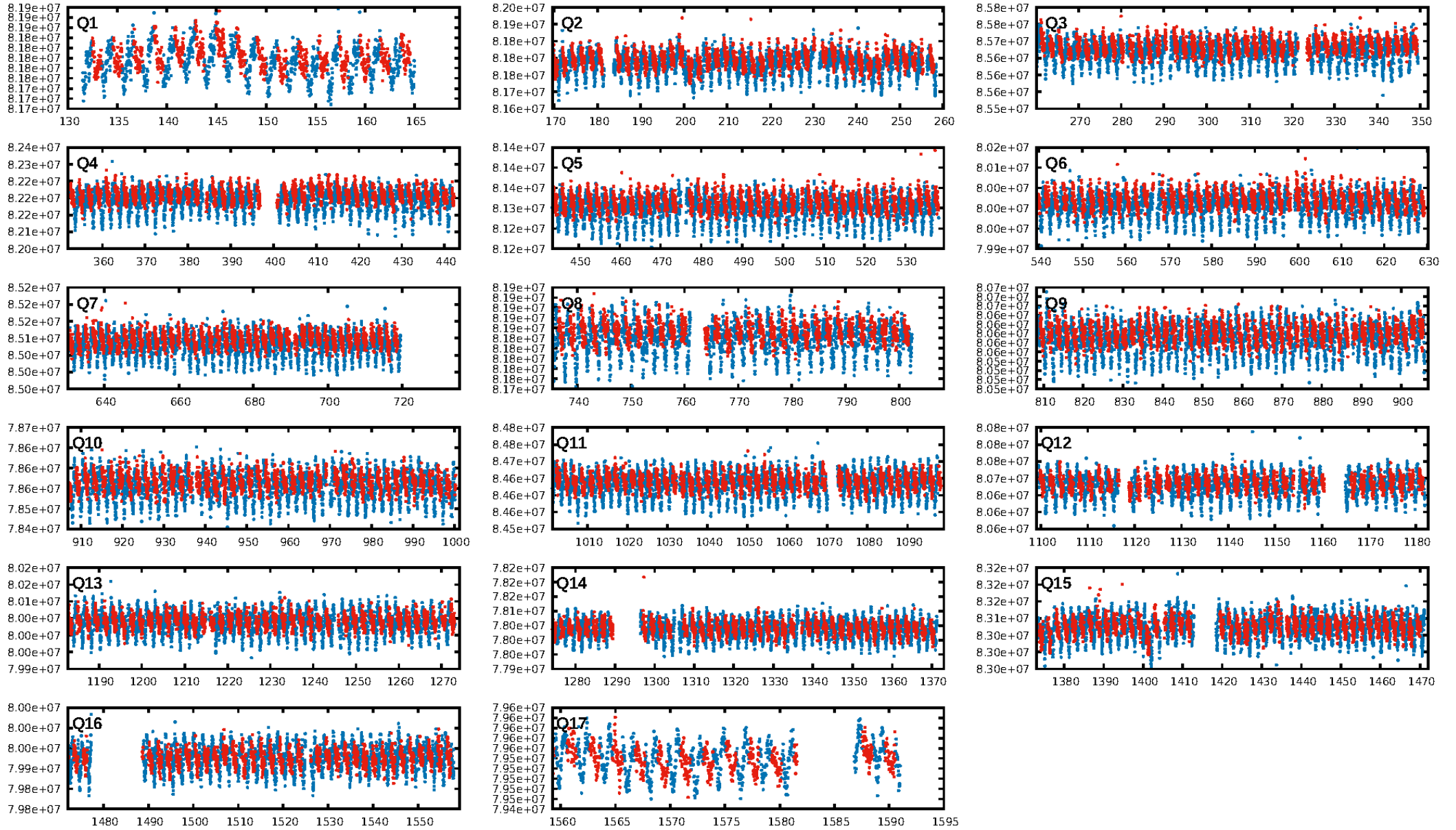
DV Diagnostic Results:

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 [627/627]
GhostDiagnostic-chr: 0.2555
Centroid-sig: 10.5%
Centroid-so: 4.538 arcsec [1.54σ]
OotOffset-rm: 0.108 arcsec [0.39σ]
OotOffset-st: 2/4/4/4 [14]
KicOffset-rm: 0.109 arcsec [0.42σ]
KicOffset-st: 2/4/4/4 [14]
DiffImageQuality-fgm: 0.57 [8/14]
DiffImageOverlap-fno: 0.00 [0/17]

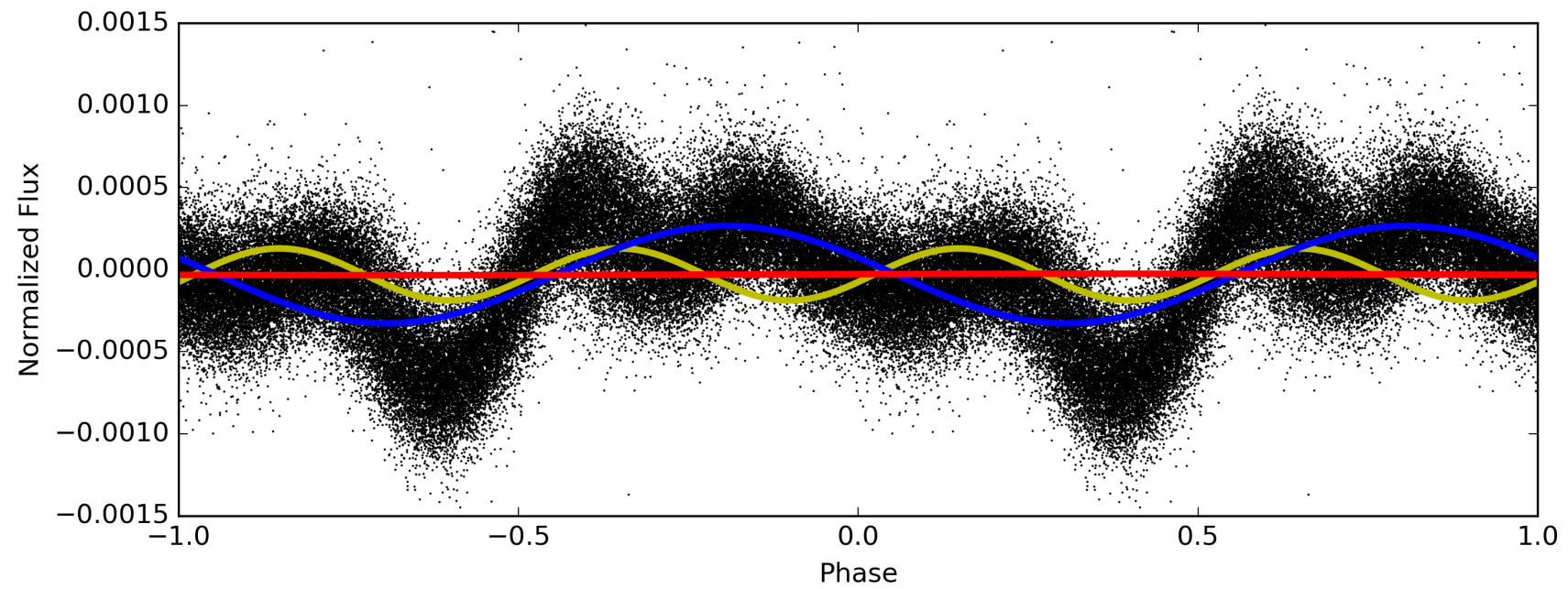
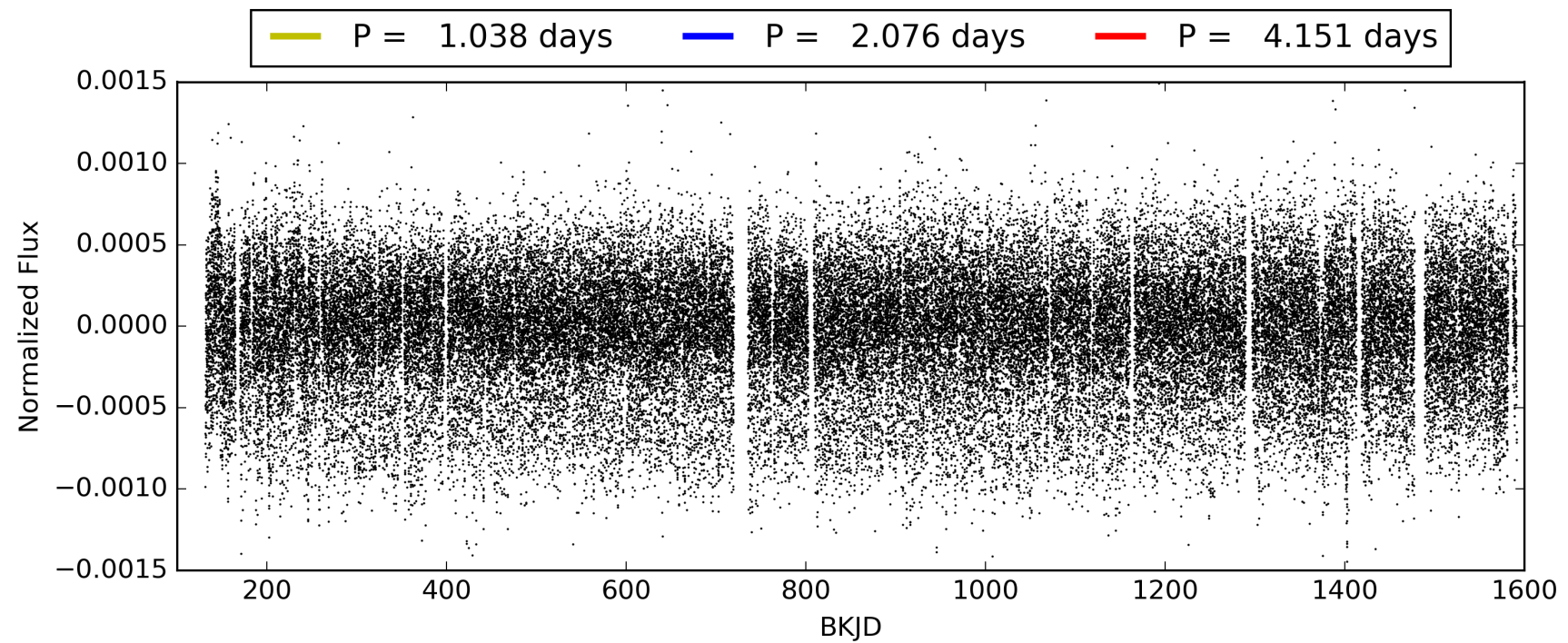
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:34:34 Z

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

TCE 008508981-01, PDC Light Curves

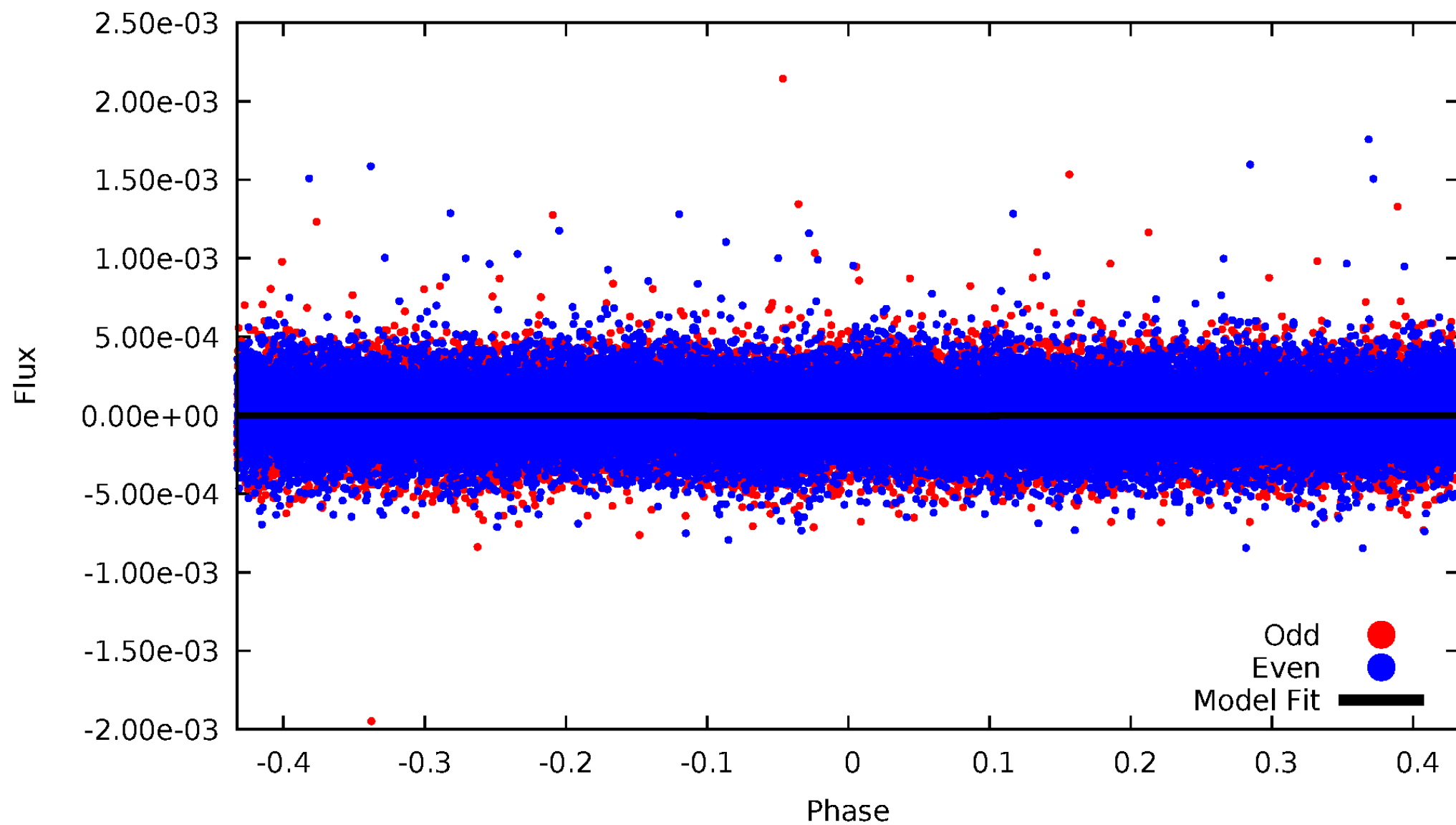


TCE 008508981-01



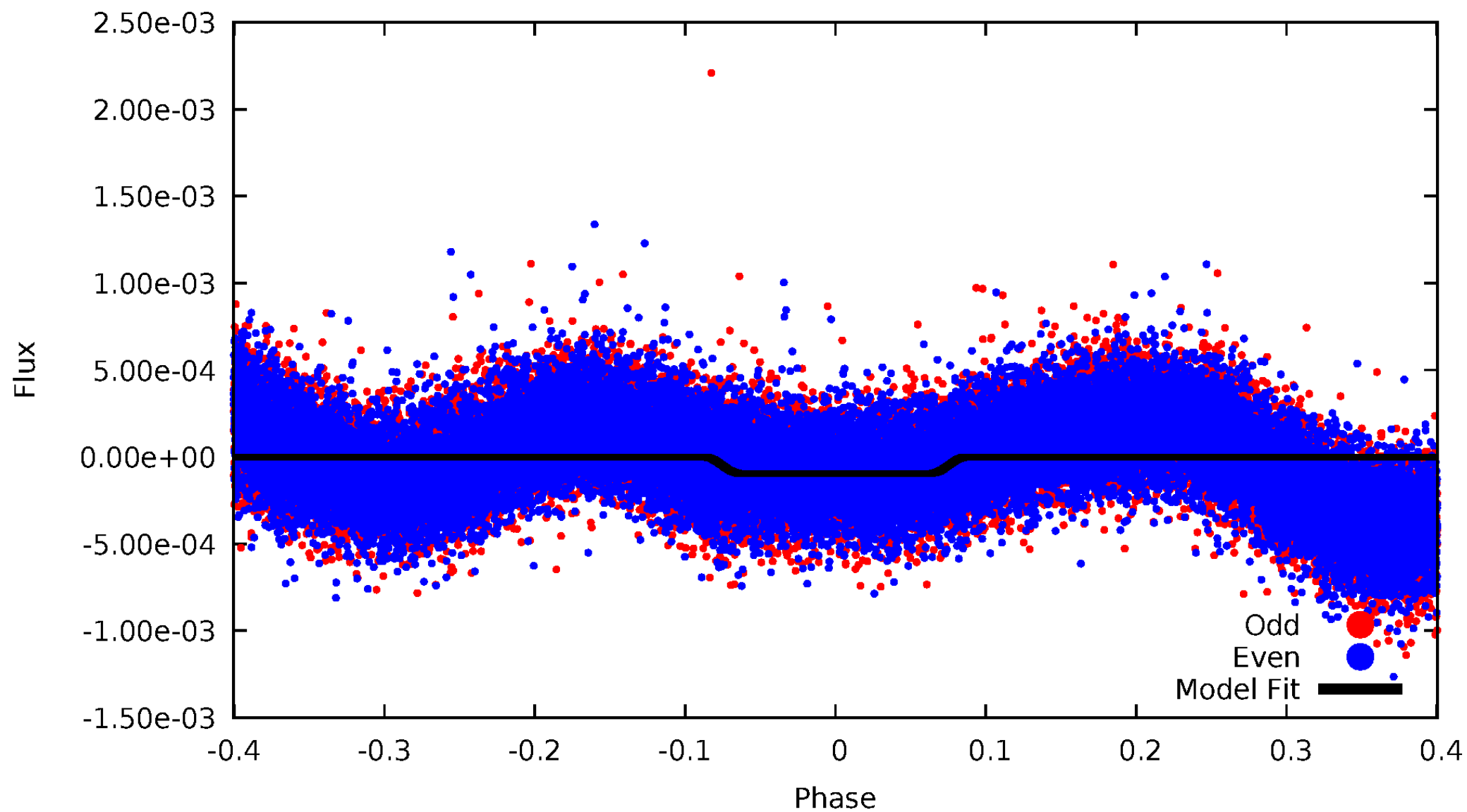
DV Odd/Even

TCE 008508981-01

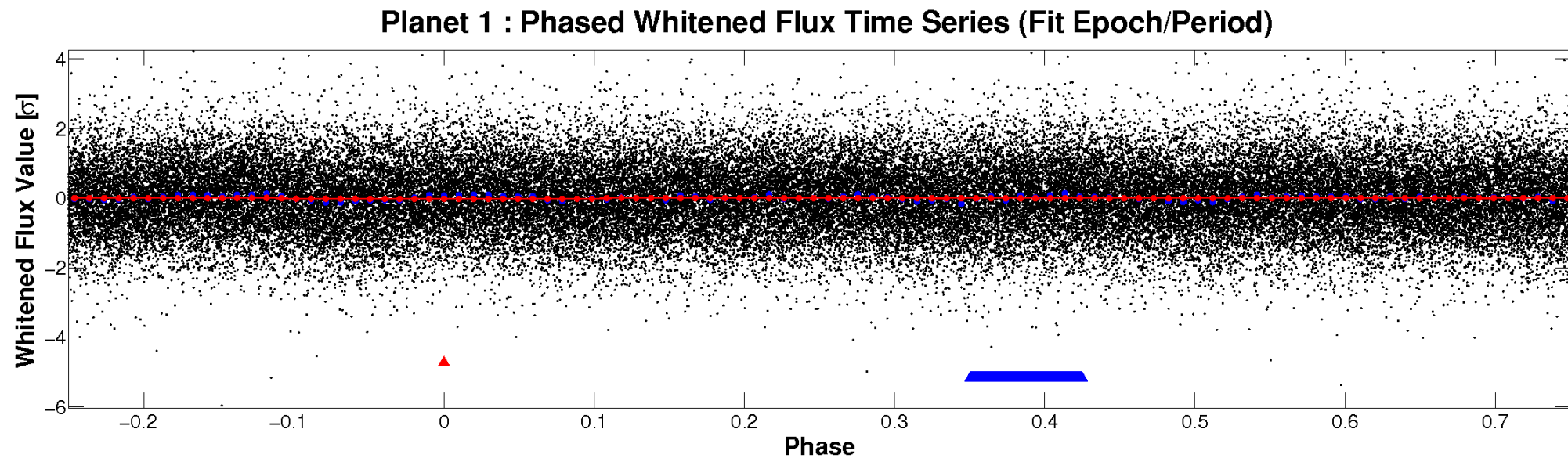
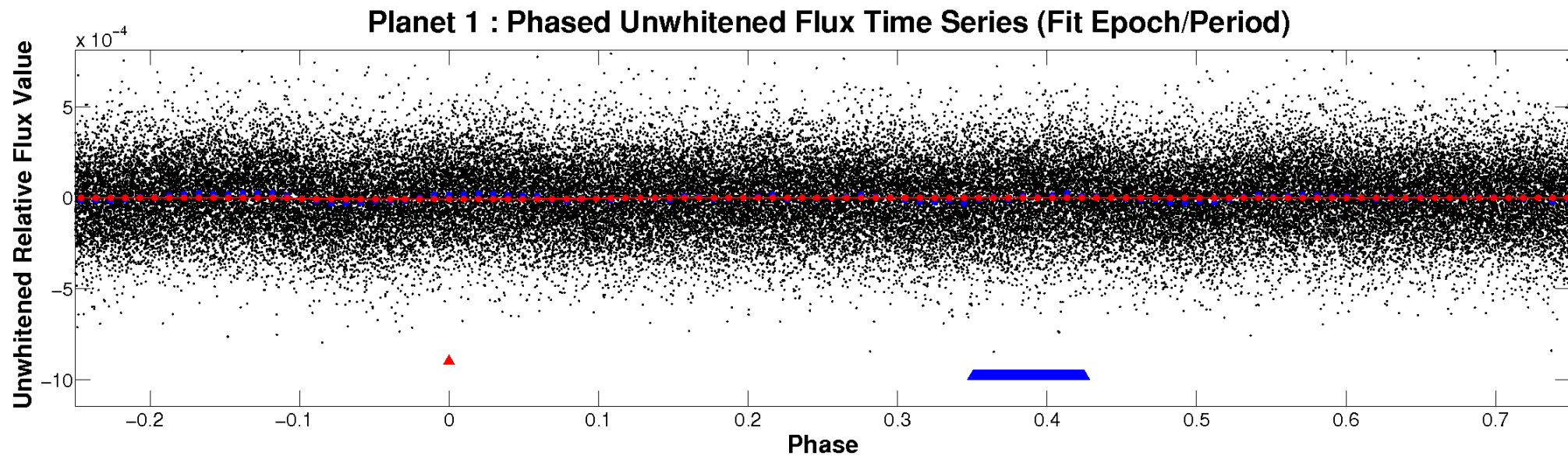


ALT Odd/Even

TCE 008508981-01

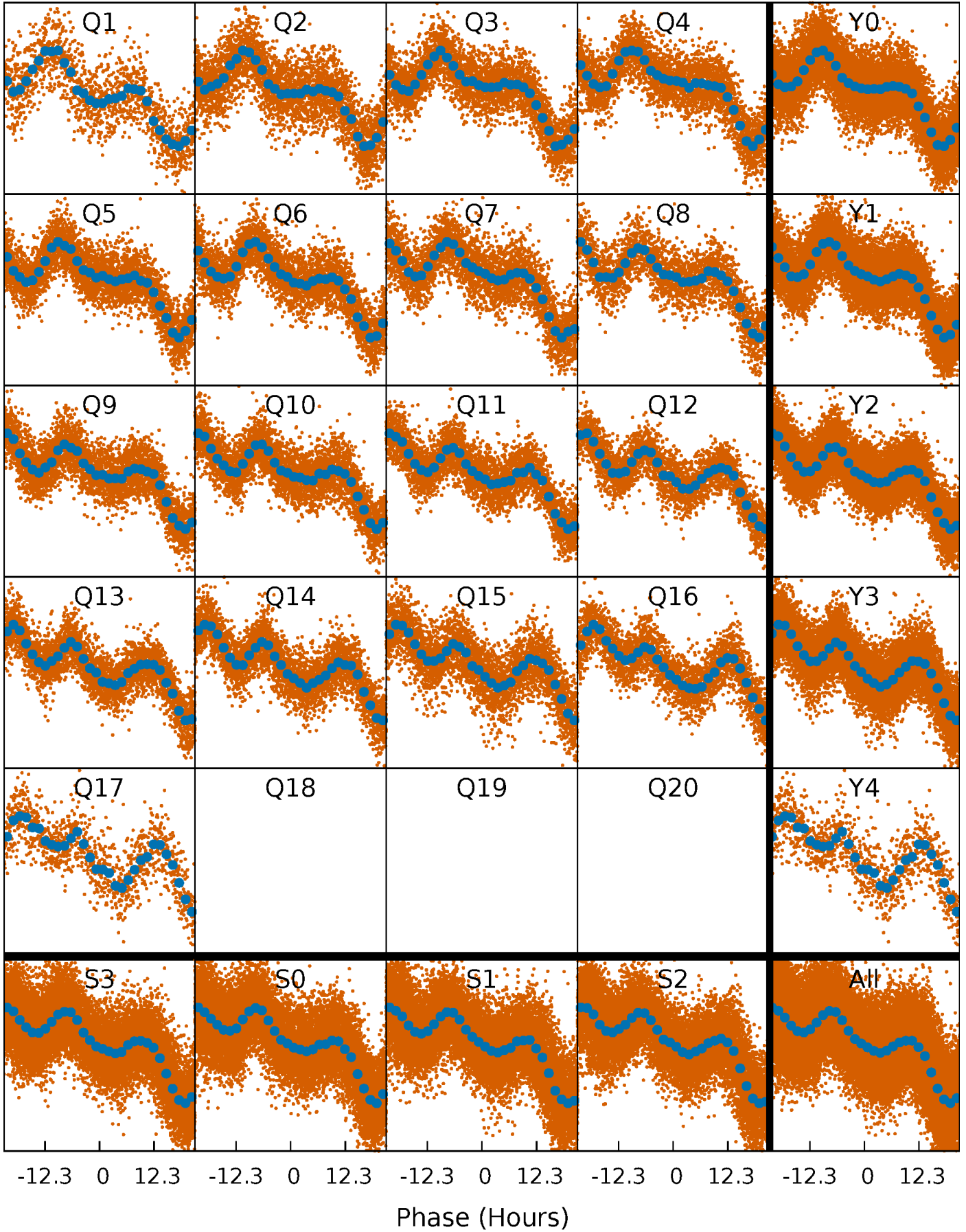


Non-Whitened Vs. Whitened Light Curve



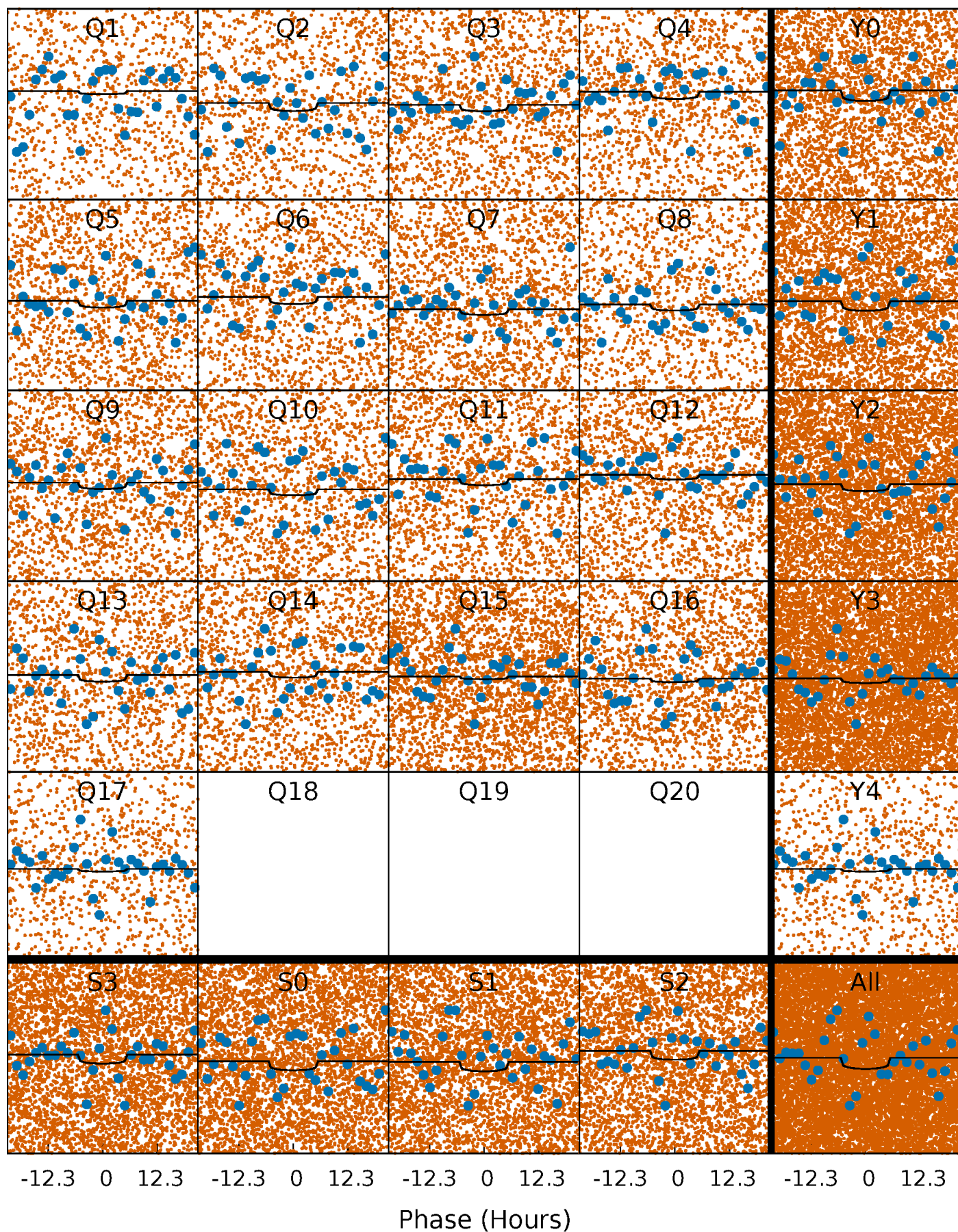
PDC Quarter-Phased Transit Curves

TCE 008508981-01 P= 2.075712 Days $T_0=132.933888$ (BKJD)



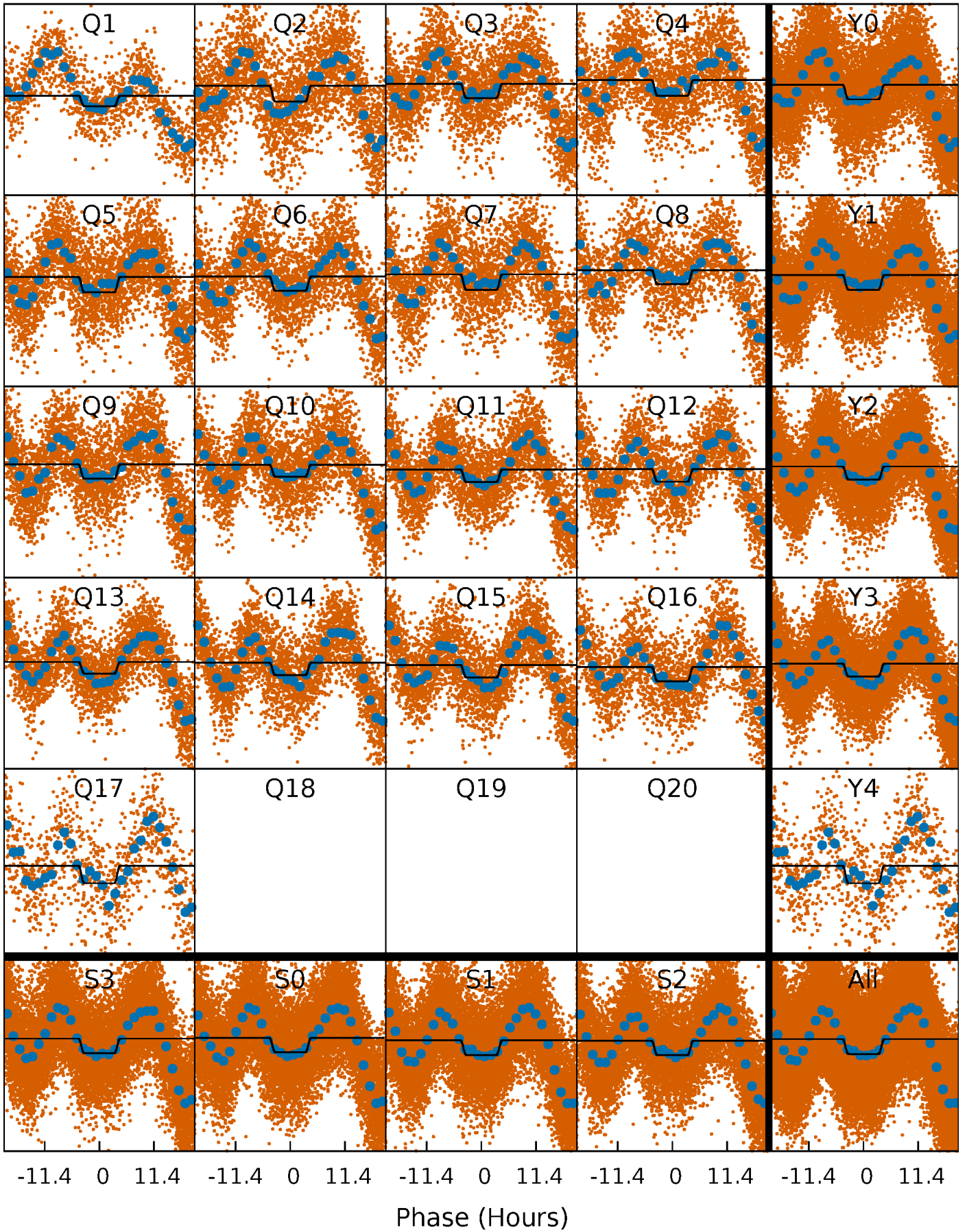
DV Quarter-Phased Transit Curves

TCE 008508981-01 P= 2.075712 Days $T_0=132.933888$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

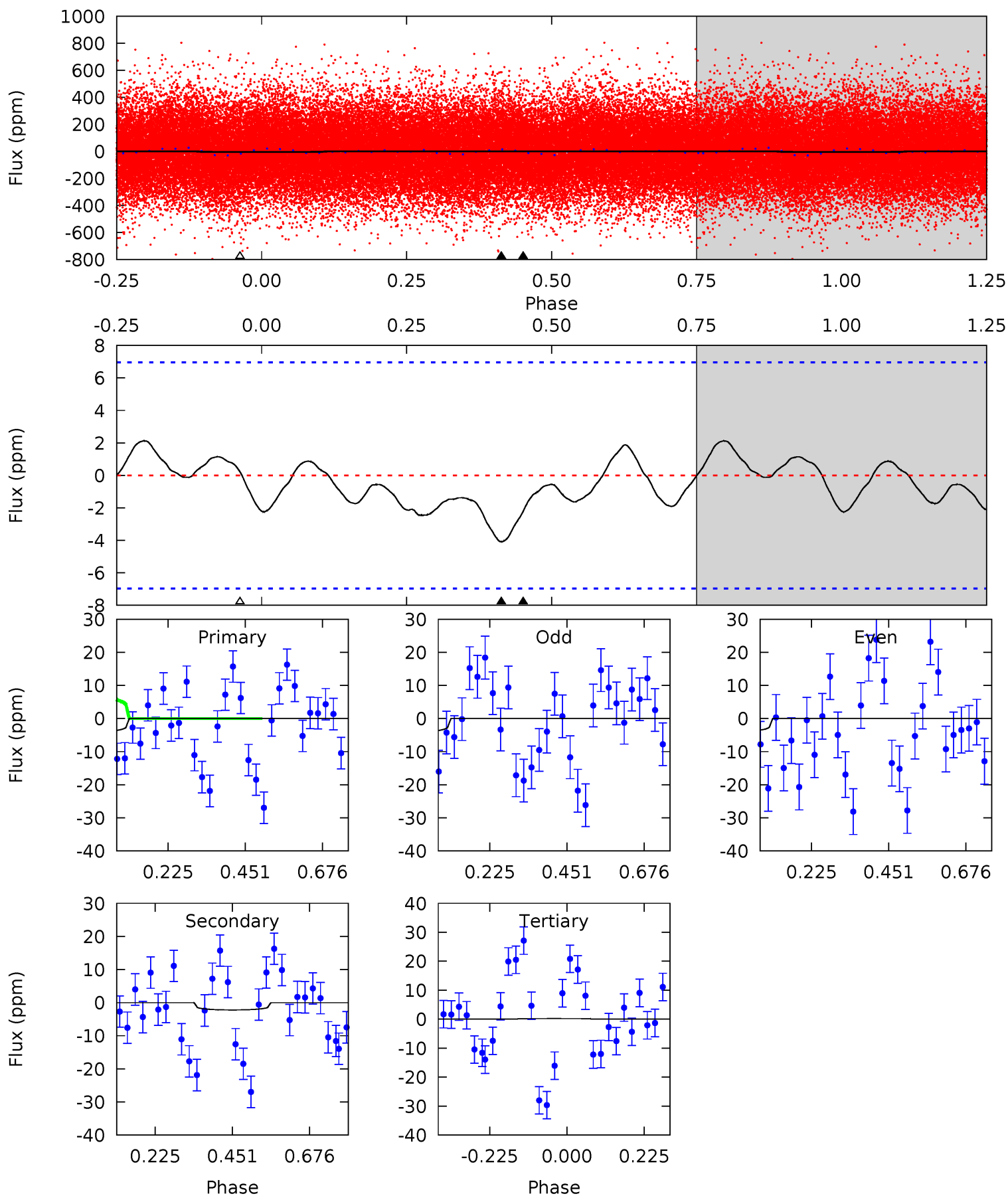
TCE 008508981-01 P= 2.075906 Days $T_0=132.900028$ (BKJD)



DV Model-Shift Uniqueness Test

008508981-01, P = 2.075712 Days, E = 130.858176 Days

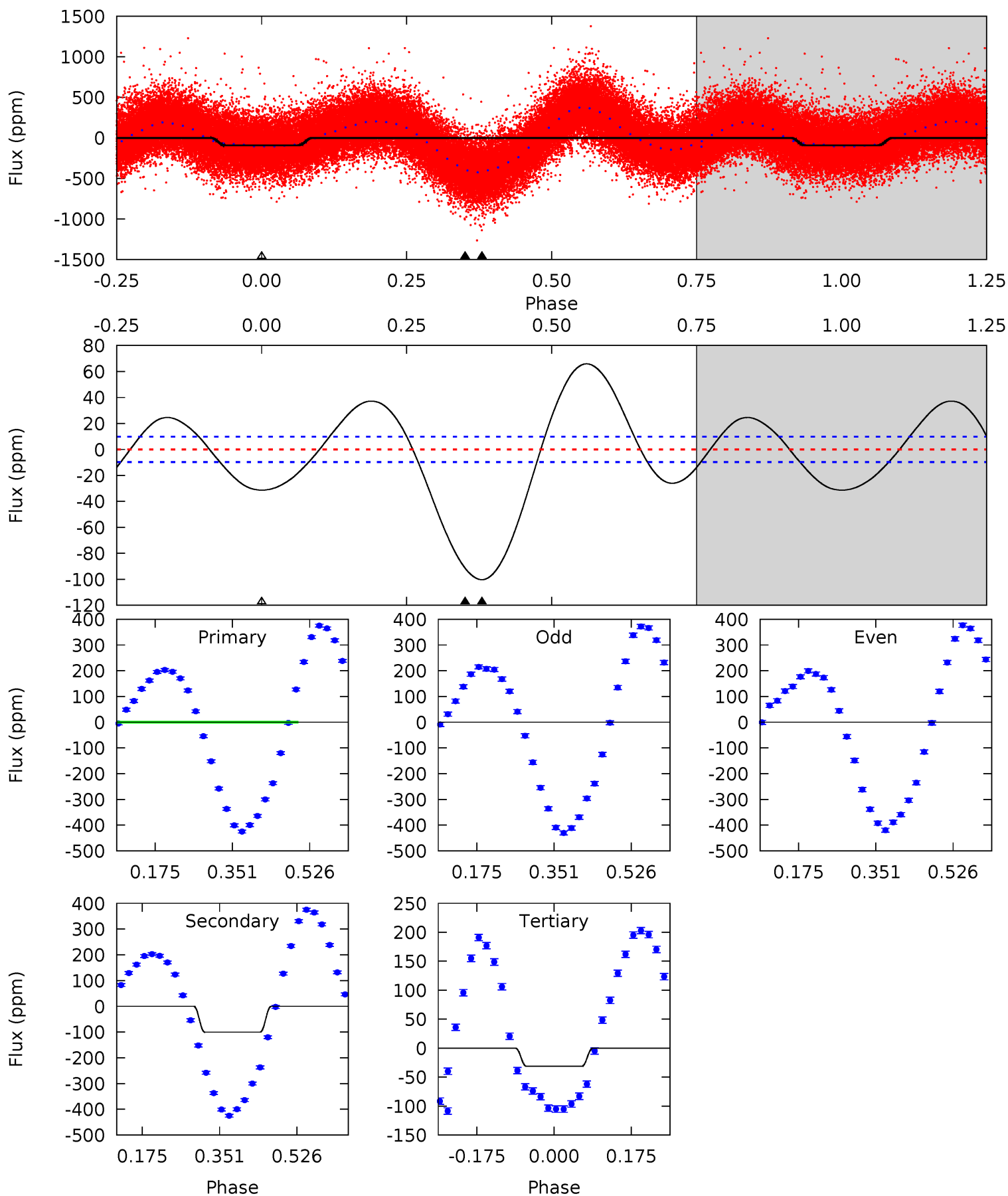
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.58	1.40	-0.14	0	4.39	1.21	0.74	2.72	2.58	1.54	1.40	0.04	1.25	0.34	2.62



Alt Model-Shift Uniqueness Test

008508981-01, P = 2.075906 Days, E = 130.824122 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.8	45.9	14.3	0	4.45	1.36	12.0	27.5	41.8	31.5	45.9	0.86	1.01	0.40	2.80



Stellar Parameters For KIC 008508981

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6889^{+190}_{-286}	$3.955^{+0.293}_{-0.158}$	$-0.140^{+0.250}_{-0.300}$	$2.145^{+0.588}_{-0.784}$	$1.510^{+0.217}_{-0.326}$	$0.216^{+0.447}_{-0.099}$
	+3%/-4%	+7%/-4%	+179%/-214%	+27%/-37%	+14%/-22%	+208%/-46%
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 008508981-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2 ± 2	$0.58^{+0.47}_{-0.36}$	3224^{+262}_{-333}	4882^{+3325}_{-1626}	$3.919^{+22.592}_{-3.288}$
Alt.	-100 ± 2	$2.19^{+0.58}_{-0.61}$	3196^{+276}_{-299}	6946^{+1032}_{-739}	15^{+13}_{-6}

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

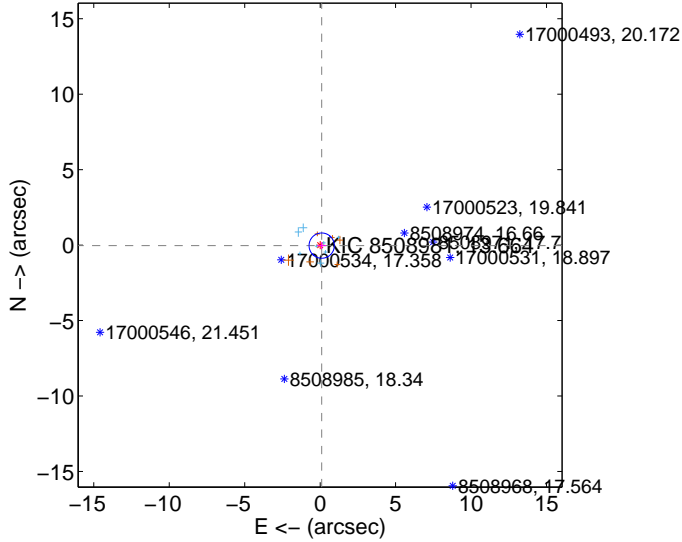
Supplemental centroid analysis for 008508981-01. Kepler magnitude: 13.66. Transit SNR 2.43

There are 8 quarters with good PRF difference image offsets

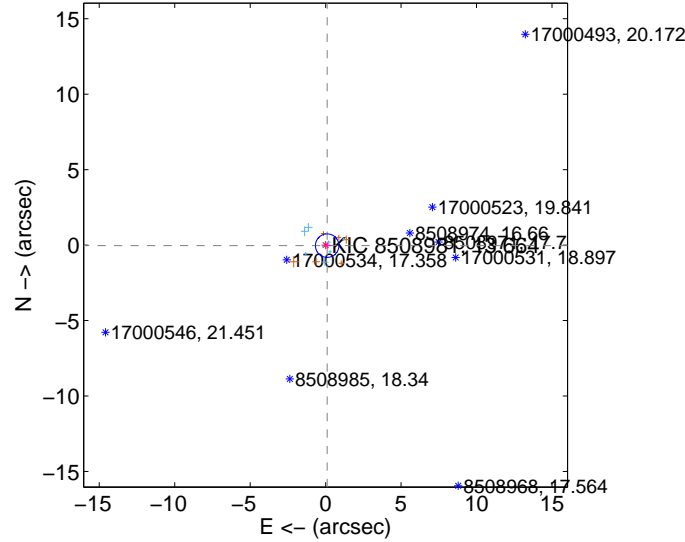
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.108 ± 0.279	0.39	-0.103 ± 0.288	-0.034 ± 0.227
PRF-fit source offset from KIC position	0.109 ± 0.259	0.42	-0.103 ± 0.267	-0.036 ± 0.189
photometric centroid source offset	4.54 ± 2.94	1.54	4.49 ± 2.94	-0.64 ± 3.09

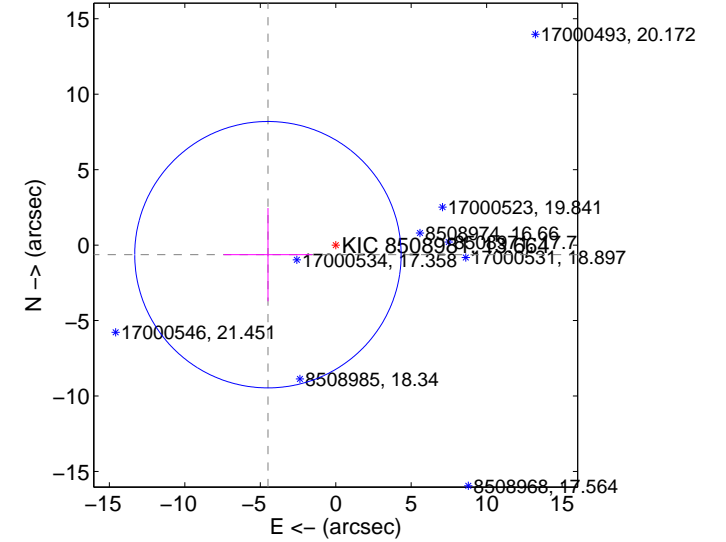
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

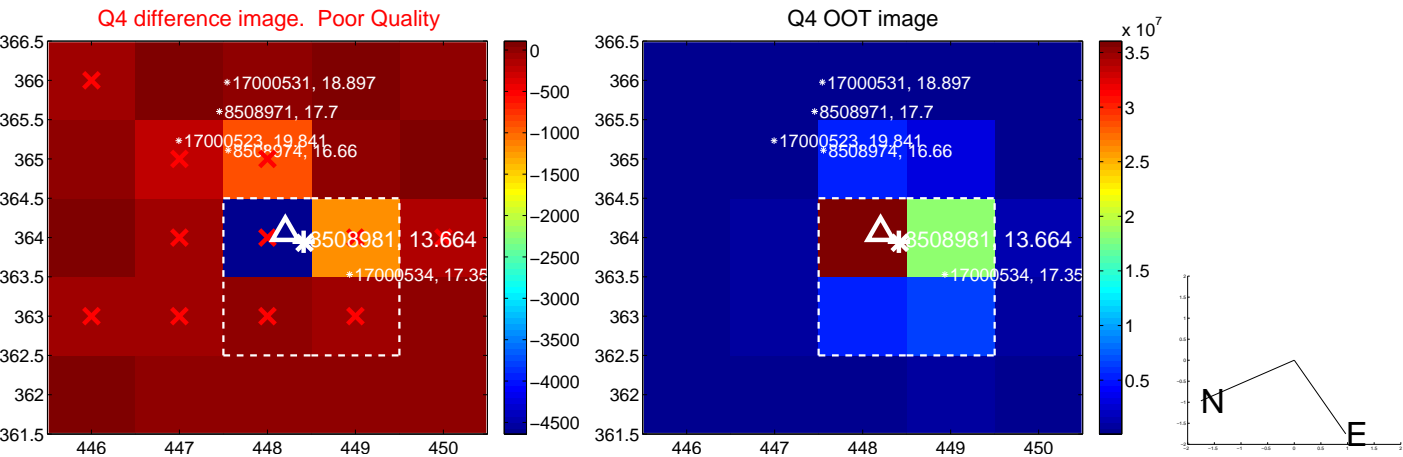
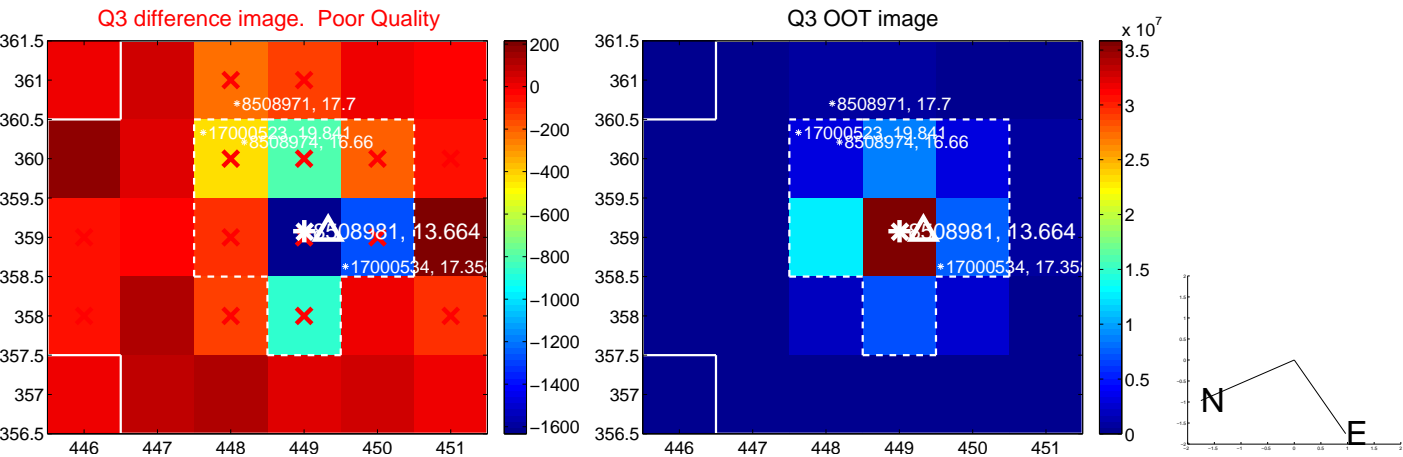
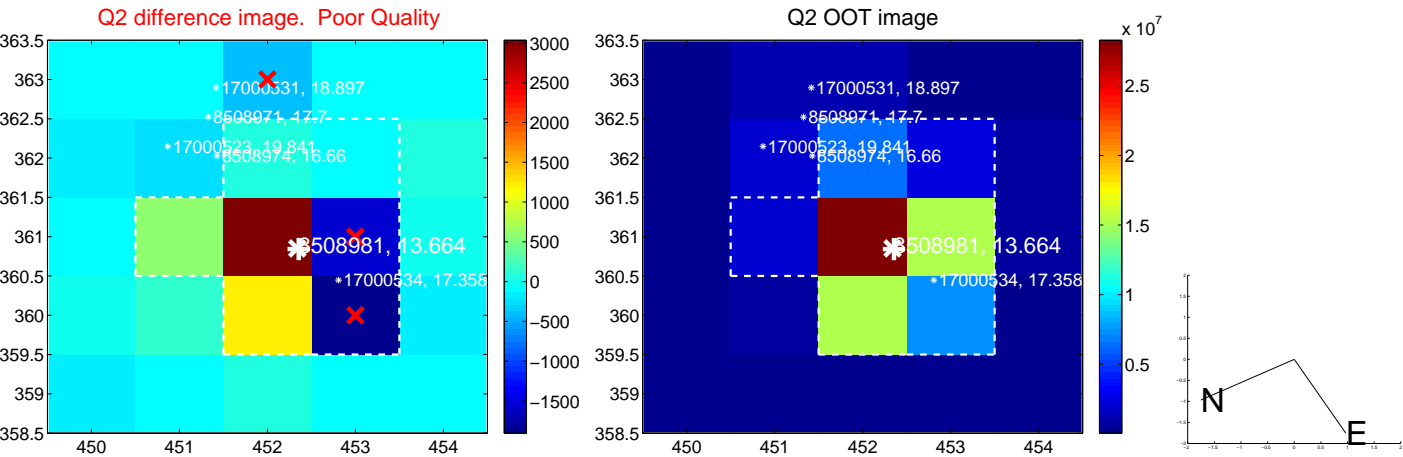
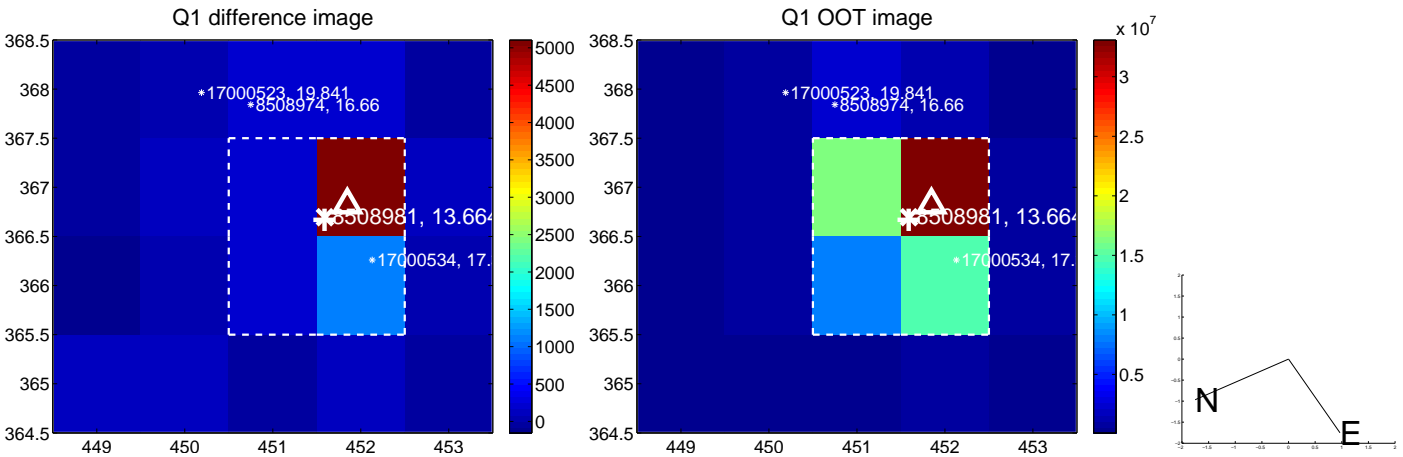


offset from photometric centroids

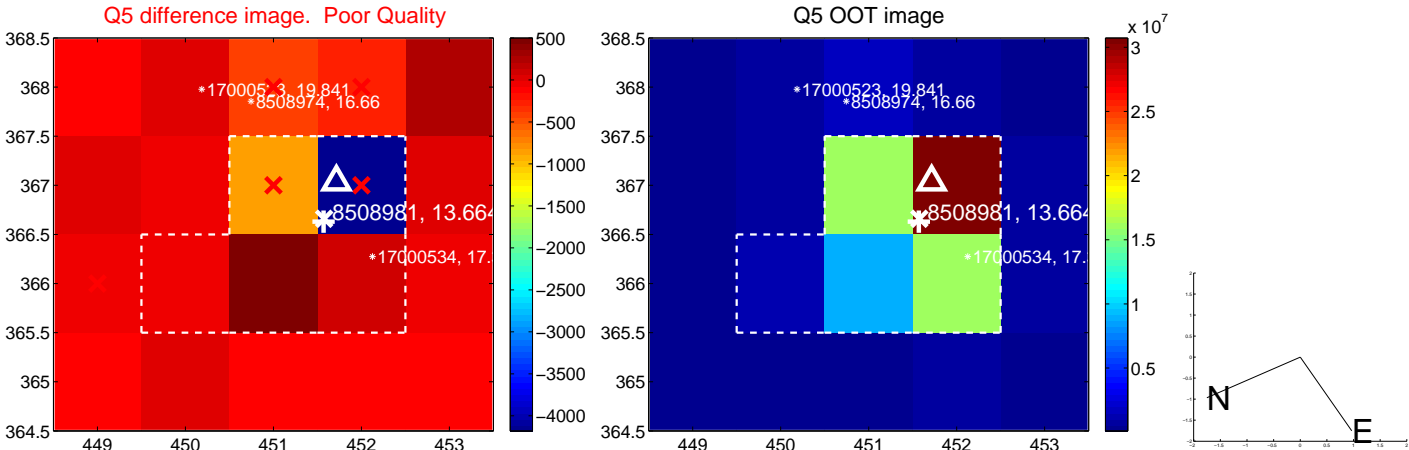


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

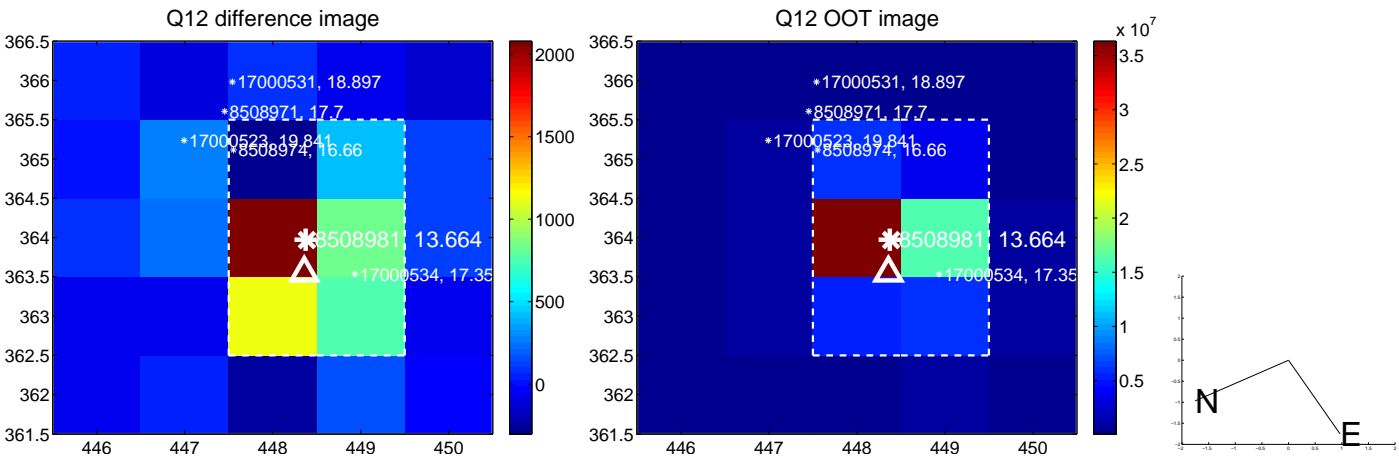
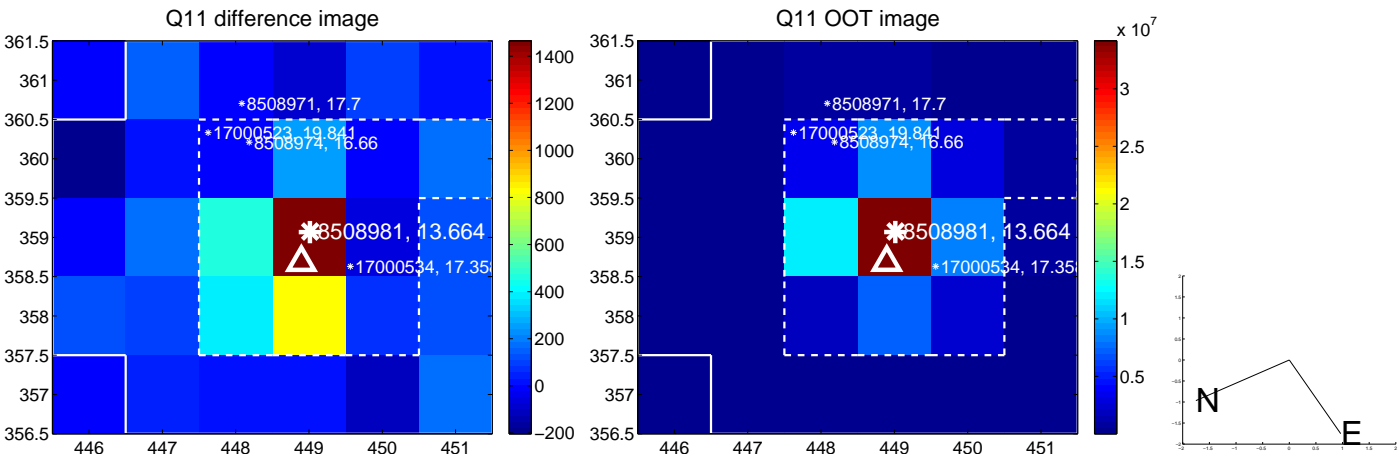
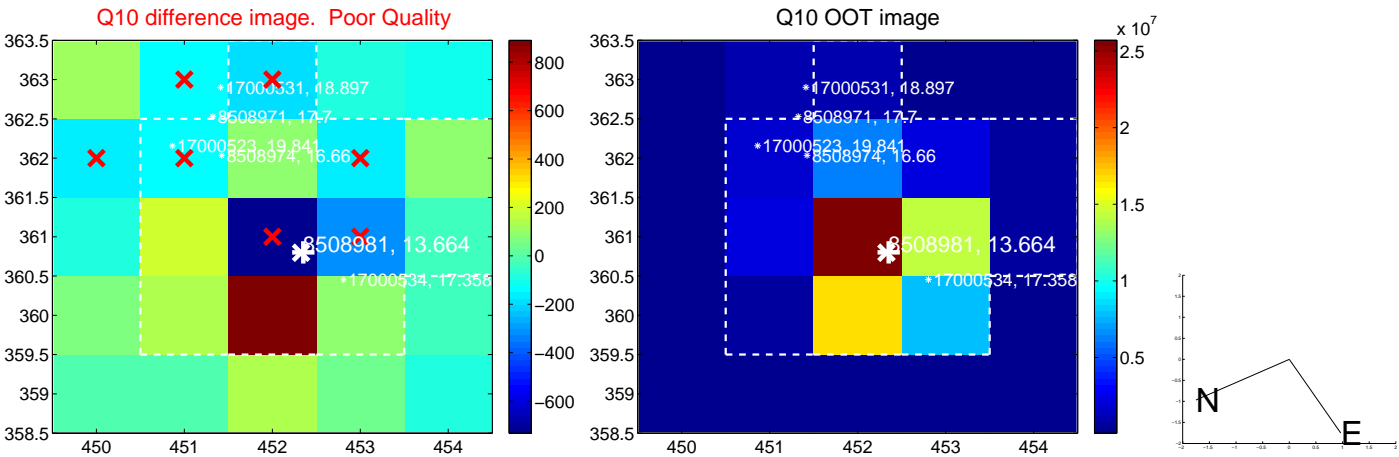
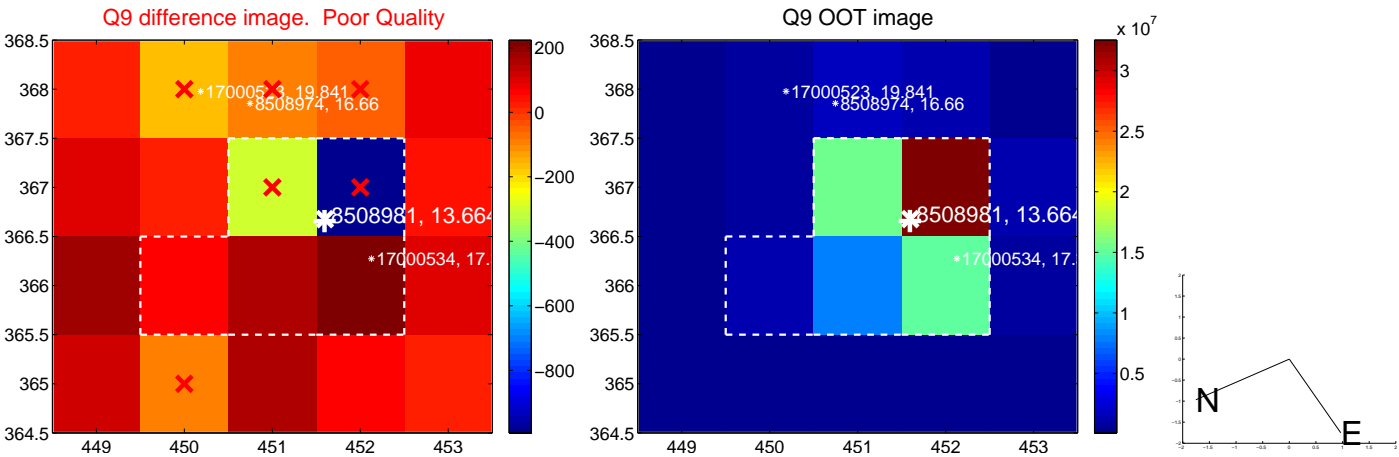
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



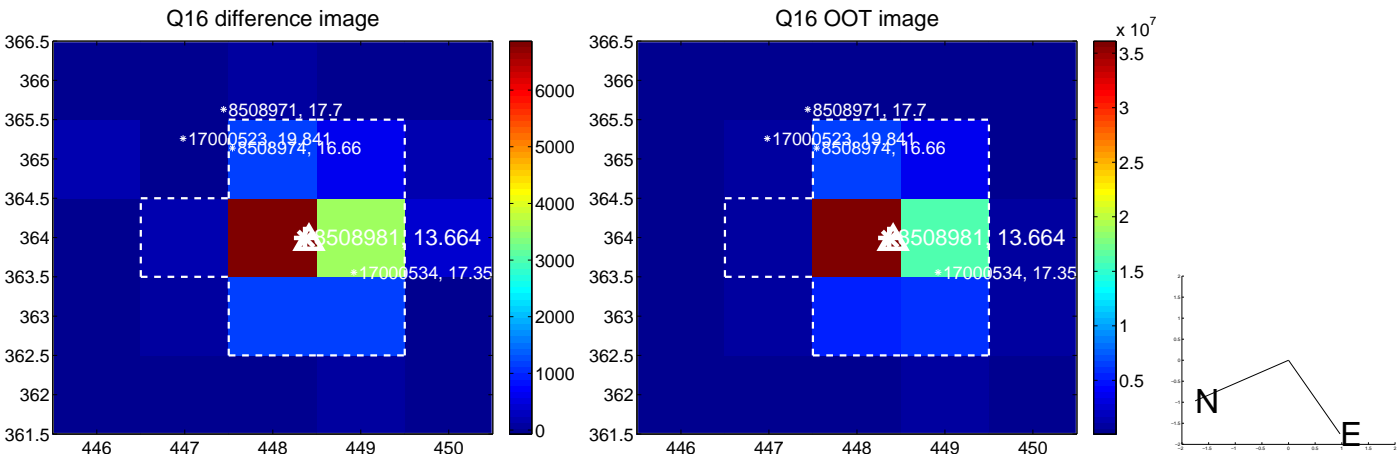
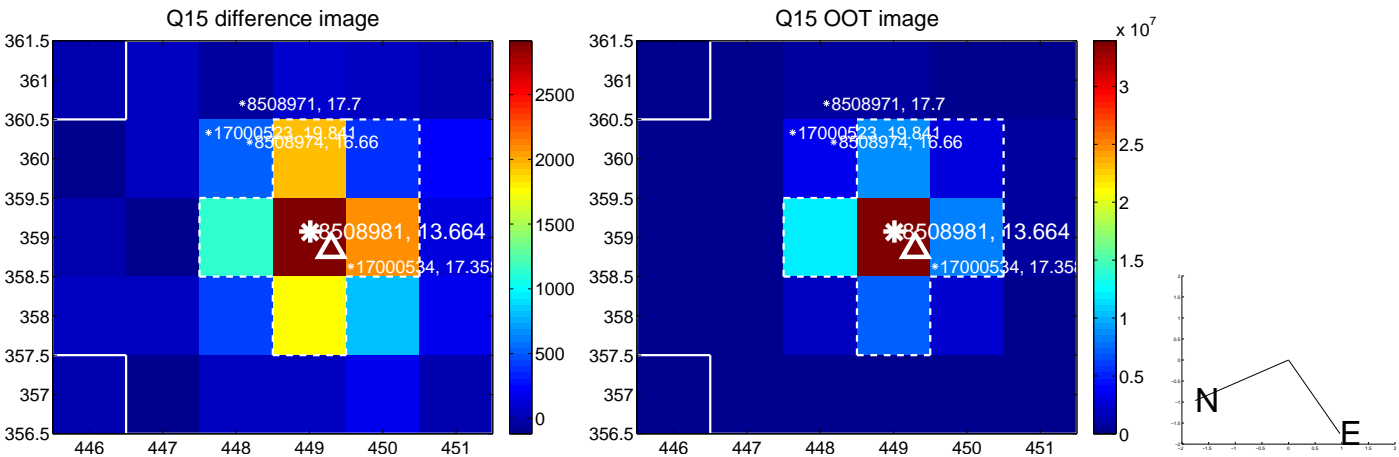
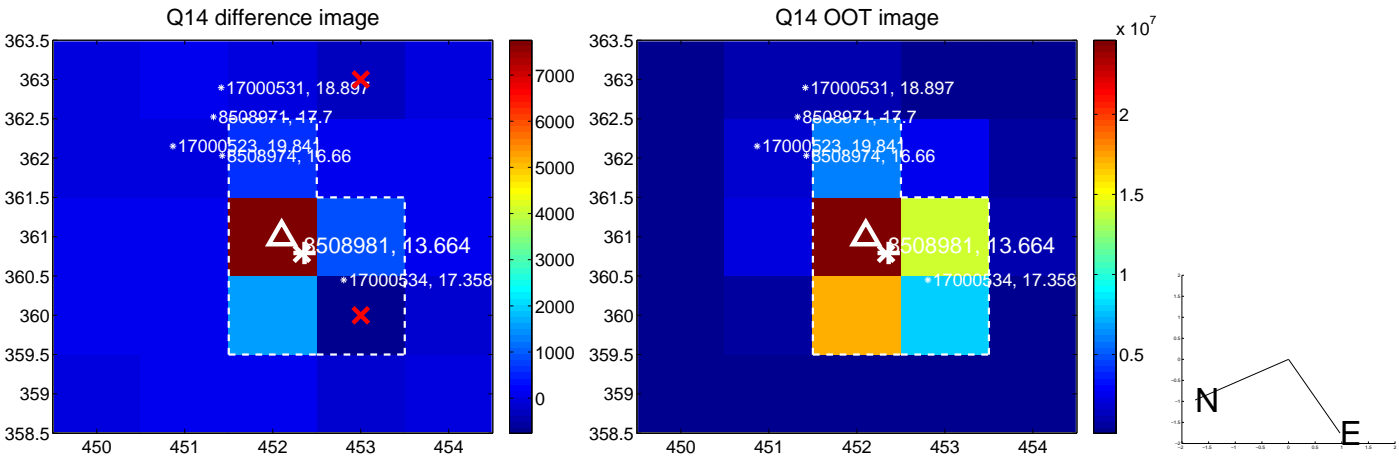
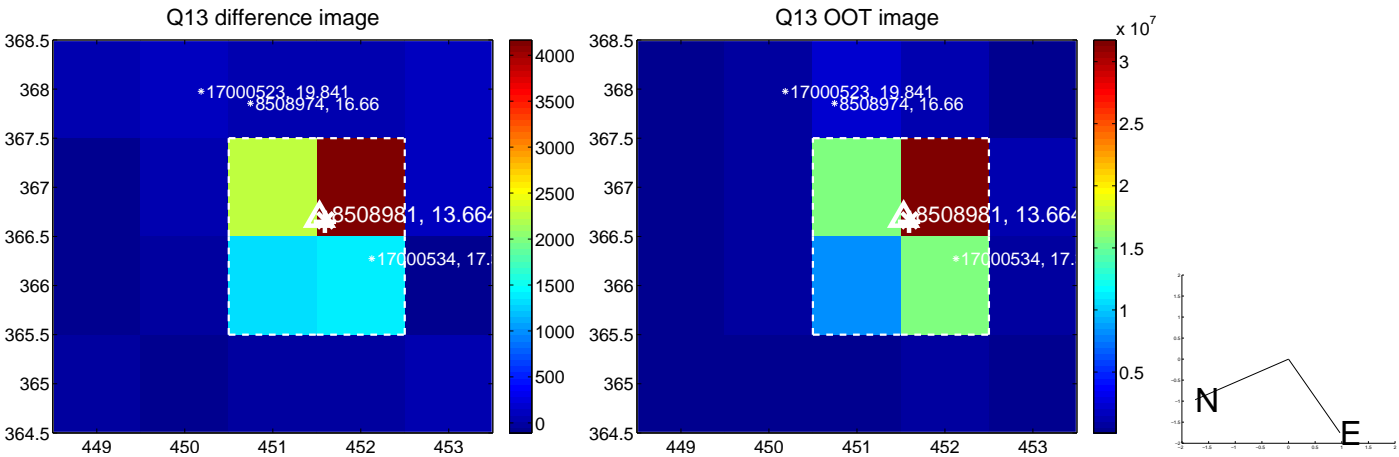
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



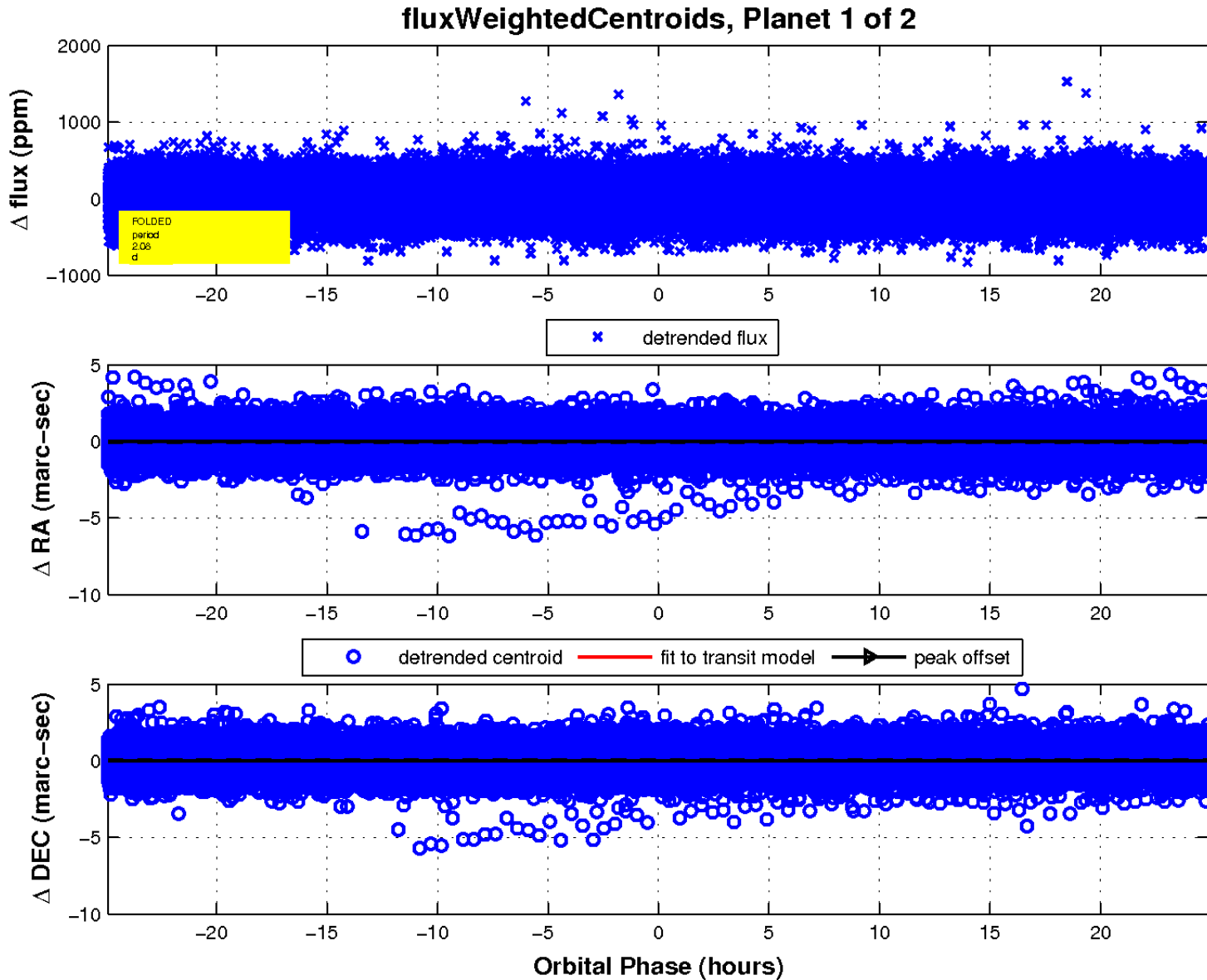
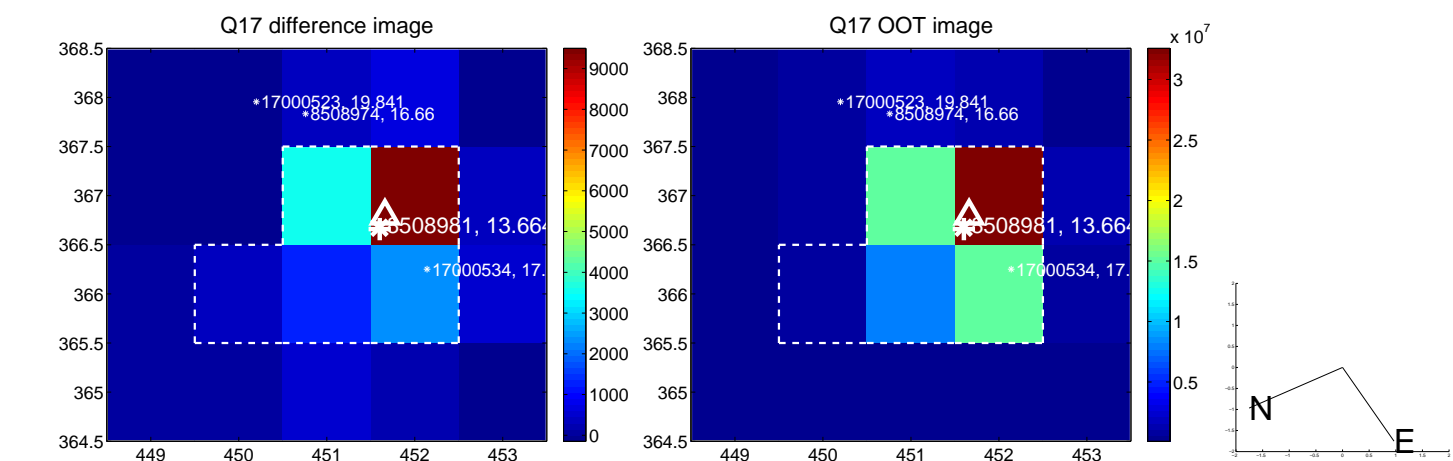
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

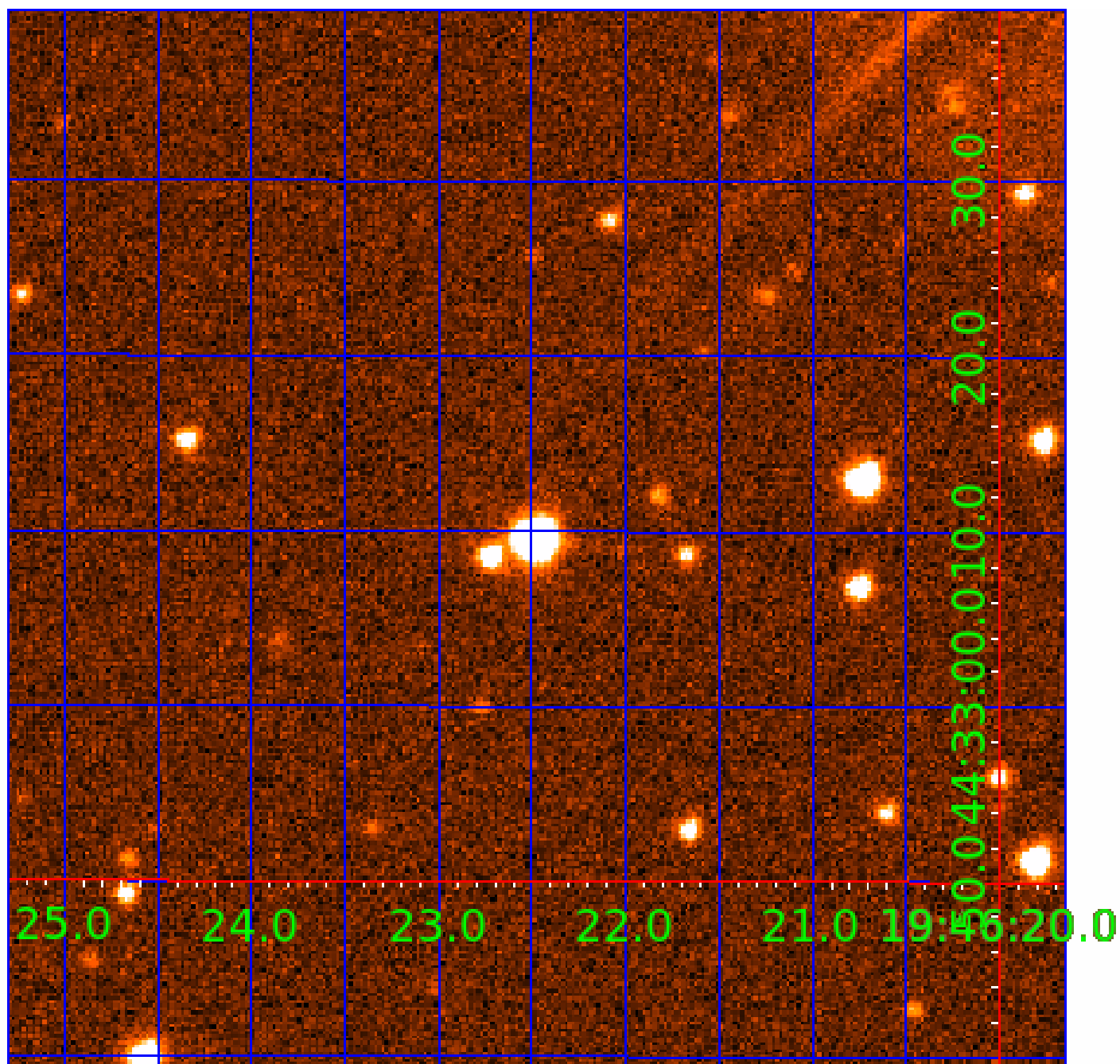


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008508981

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})
008508981-01	OBS	No	2.075712	132.933888	6.3	10.781	9.5	2.4	2.15	6889	0.57	6943.54
008508981-02	OBS	No	2.075931	131.586047	9.9	15.731	11.2	4.5	2.15	6889	0.78	6942.57

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008508981-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
008508981-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—LPP_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—HALO_GHOST

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

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

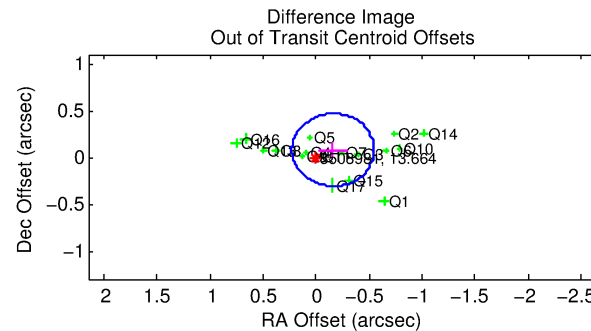
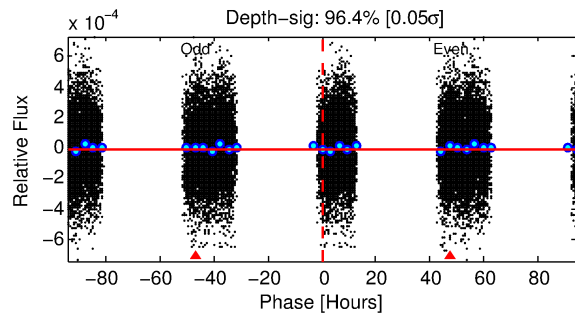
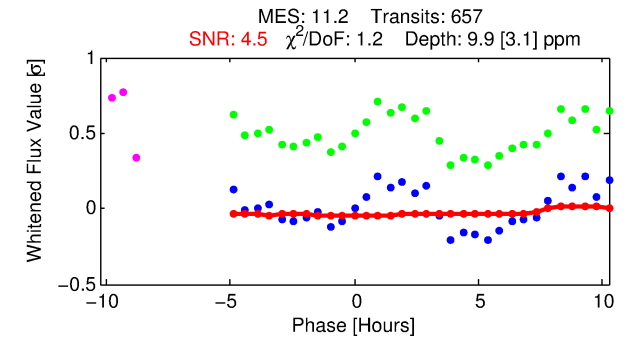
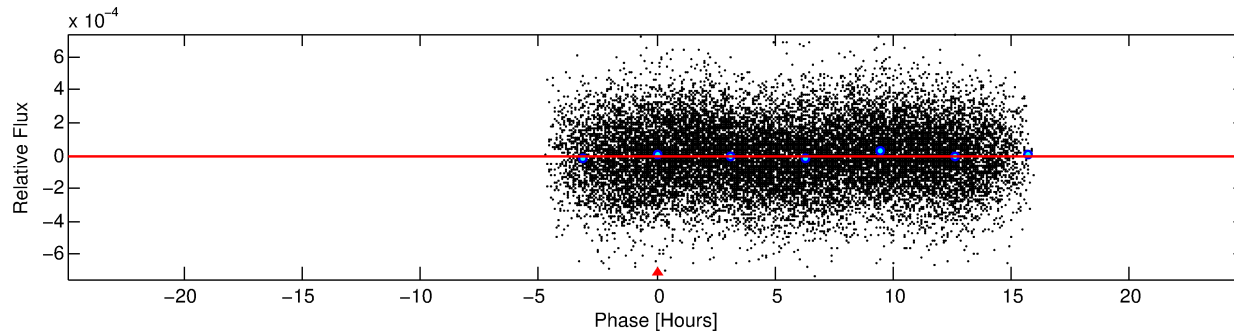
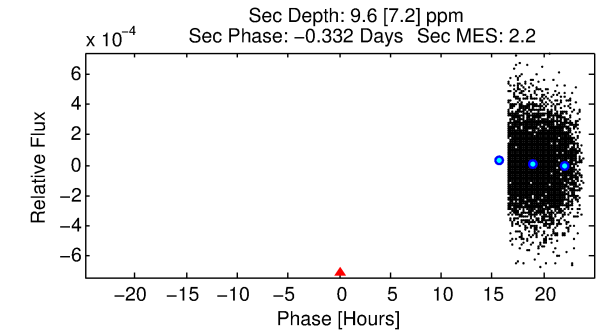
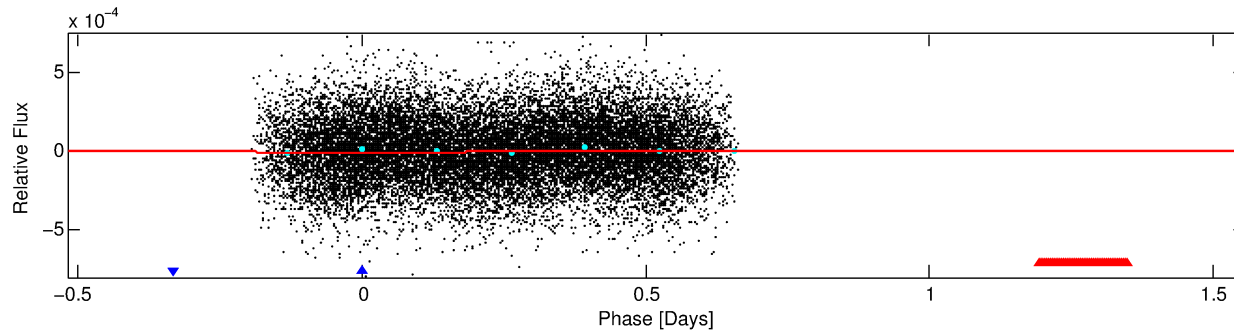
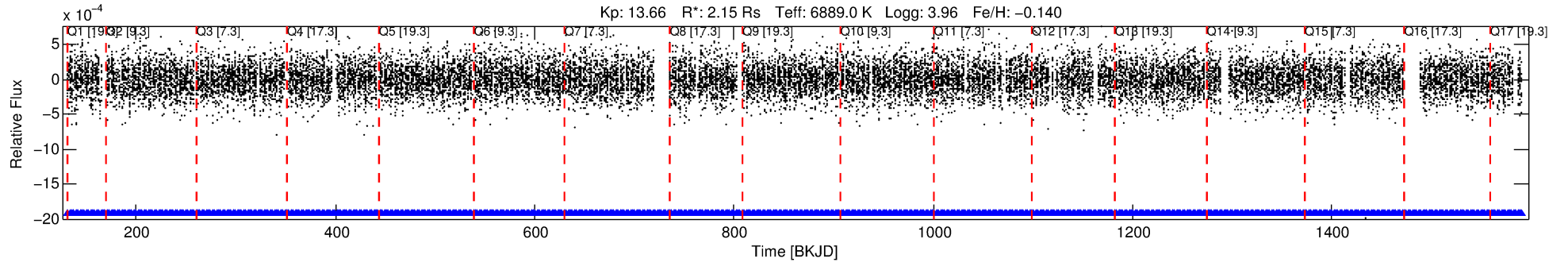
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008508981-02

No Significant Match Found

DV One-Page Summary

KIC: 8508981 Candidate: 2 of 2 Period: 2.076 d



DV Fit Results:

Period = 2.07593 [0.00012] d
Epoch = 131.5860 [0.2480] BKJD
Rp/R* = 0.0033 [0.0047]
a/R* = 1.04 [0.84]
b = 0.90 [1.79]
Seff = 6942.57 [3733.82]
Teq = 2328 [313] K
Rp = 0.78 [1.13] Re
a = 0.0366 [0.0121] AU
Ag = 11.56 [34.00] [0.31σ]
Teffp = 6635 [4813] K [0.89σ]

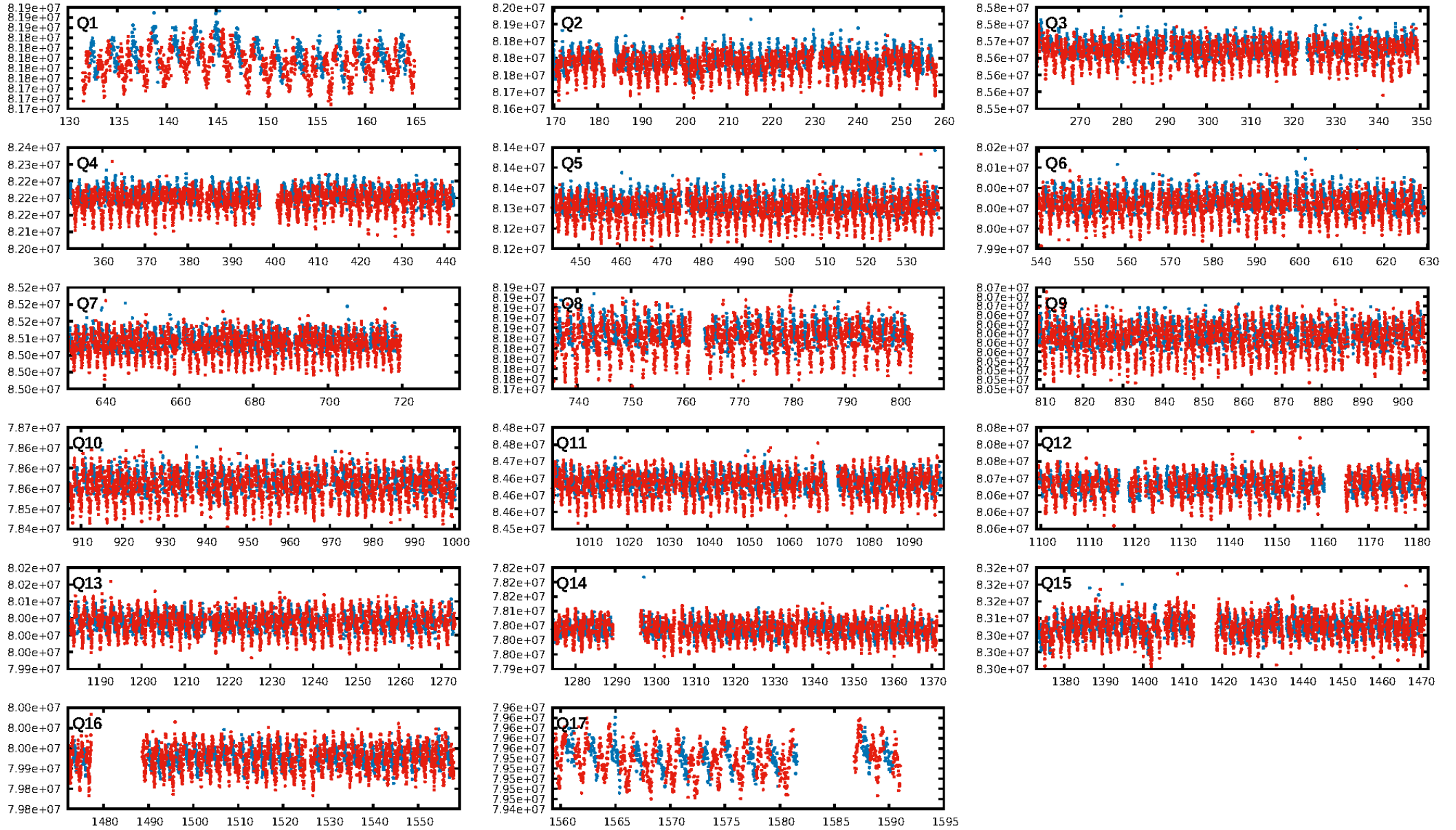
DV Diagnostic Results:

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 [626/626]
GhostDiagnostic-chr: -0.0724
Centroid-sig: 0.0%
Centroid-so: 3.838 arcsec [2.30σ]
OotOffset-rm: 0.179 arcsec [1.38σ]
KicOffset-rm: 0.158 arcsec [1.21σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

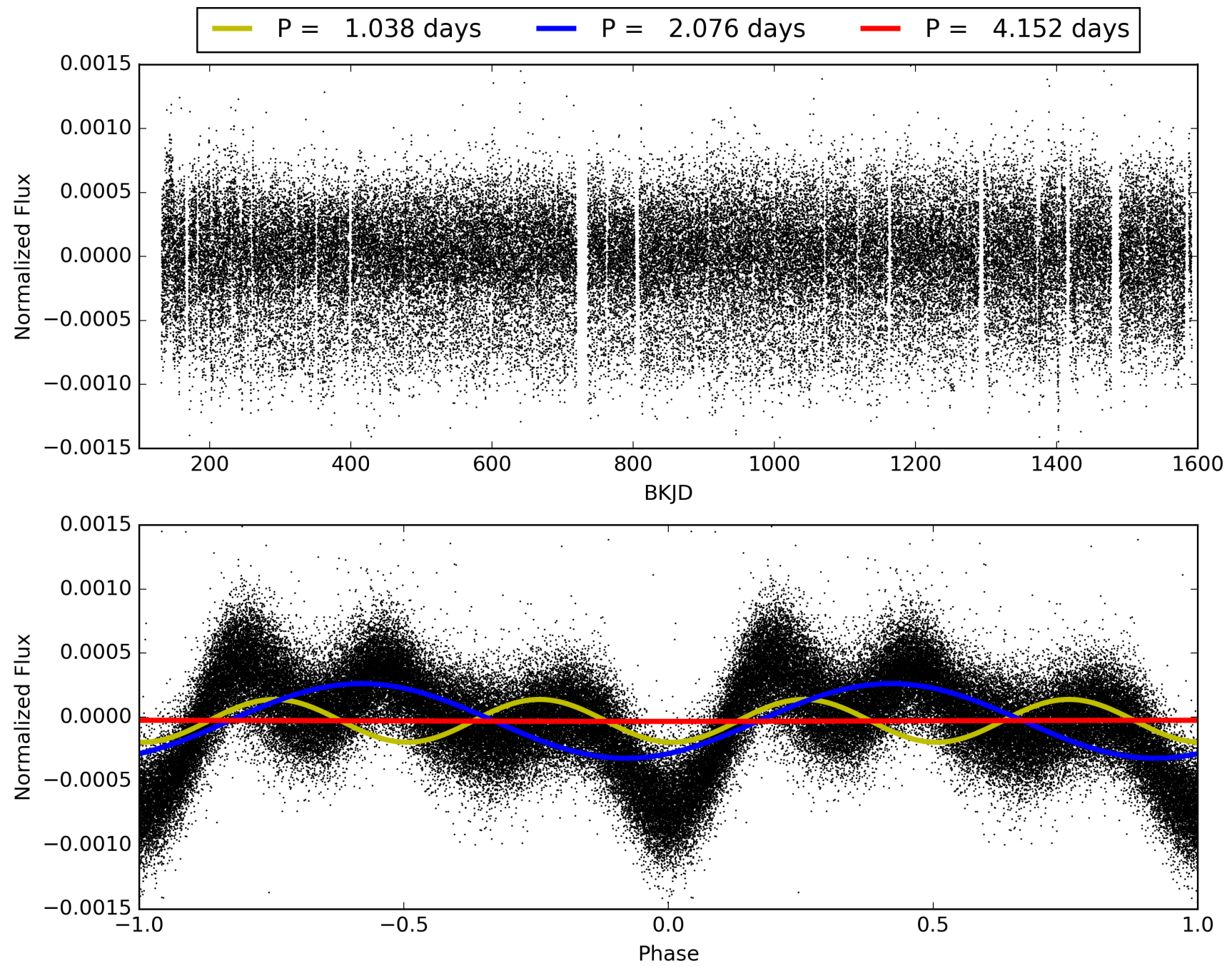
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:35:05 Z

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

TCE 008508981-02, PDC Light Curves

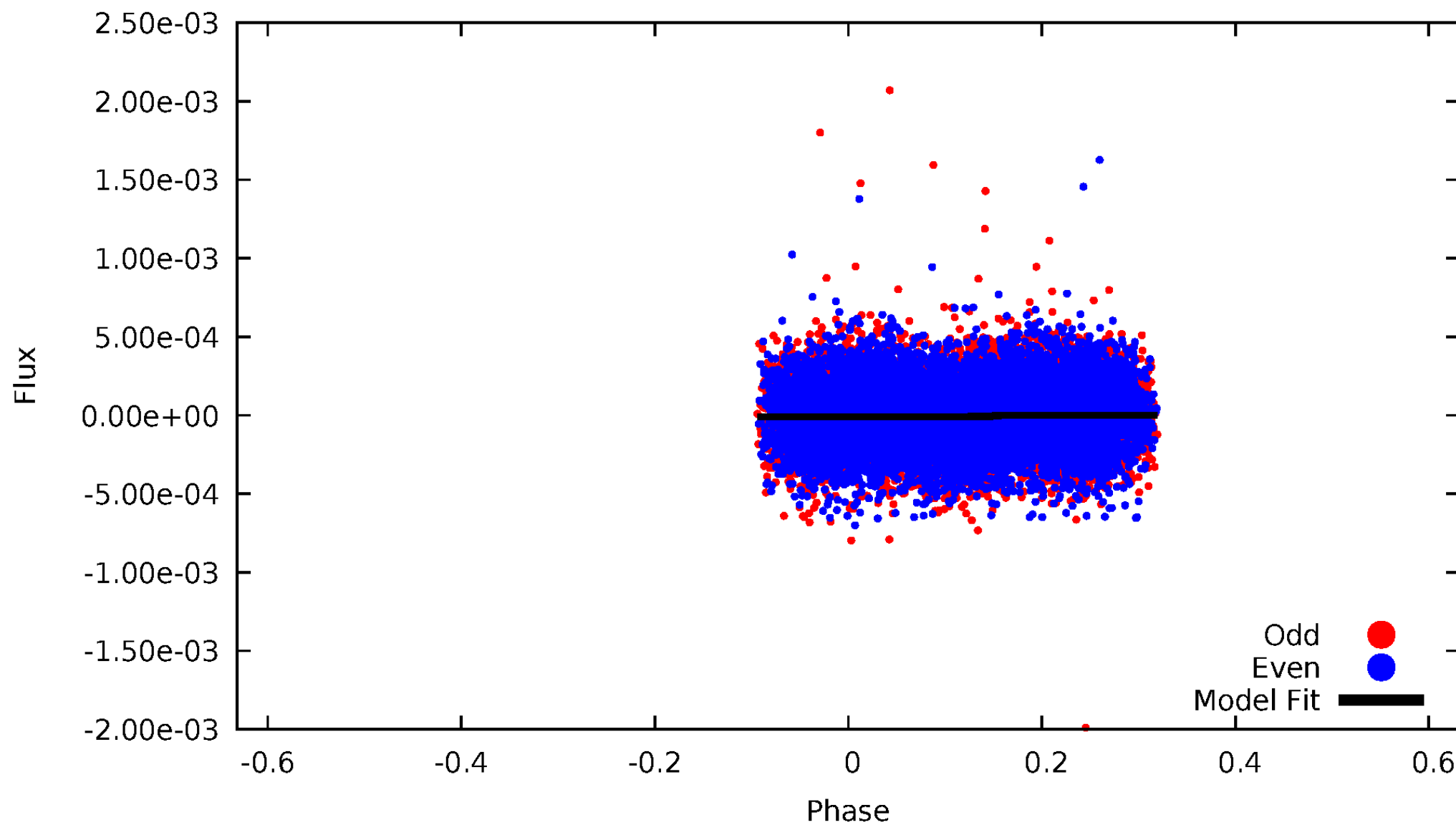


TCE 008508981-02



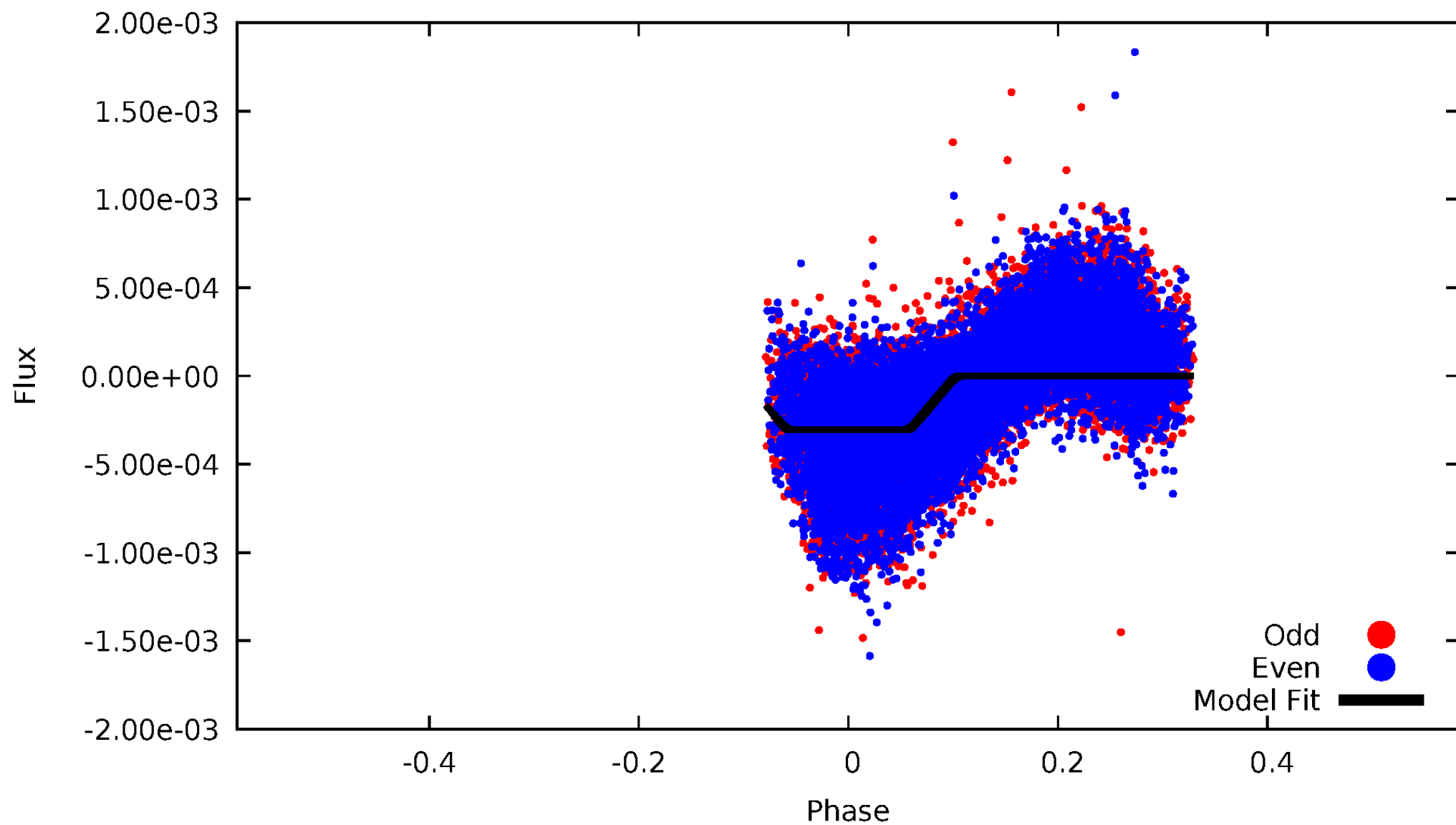
DV Odd/Even

TCE 008508981-02



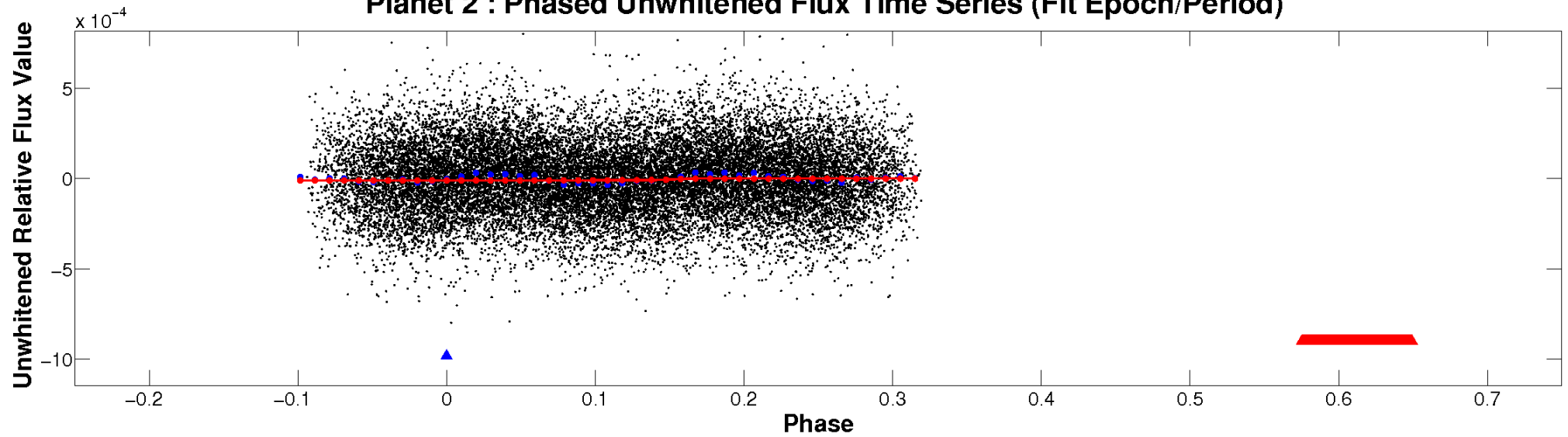
ALT Odd/Even

TCE 008508981-02

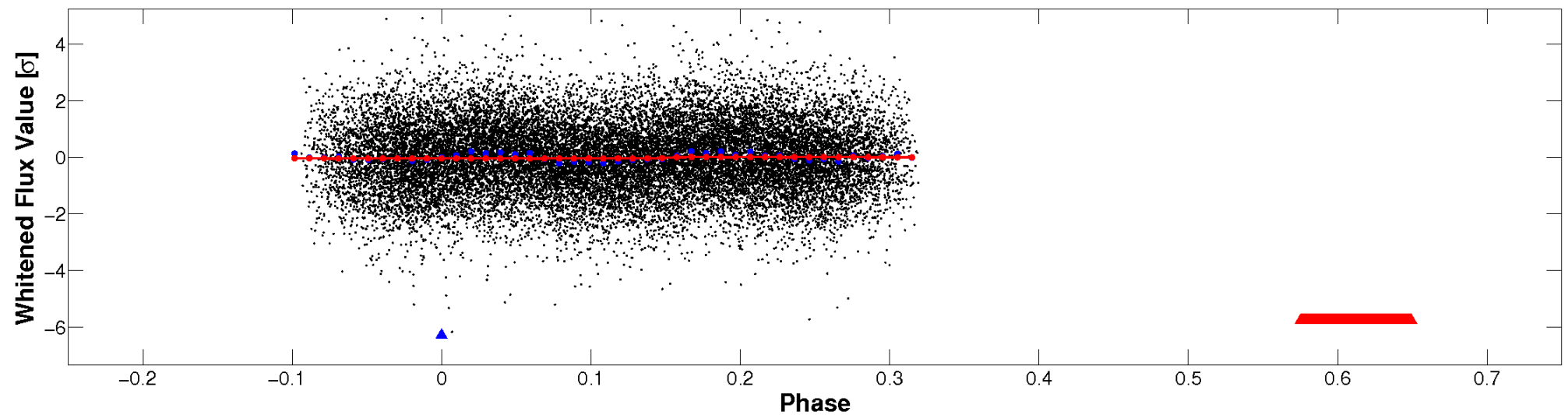


Non-Whitened Vs. Whitened Light Curve

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

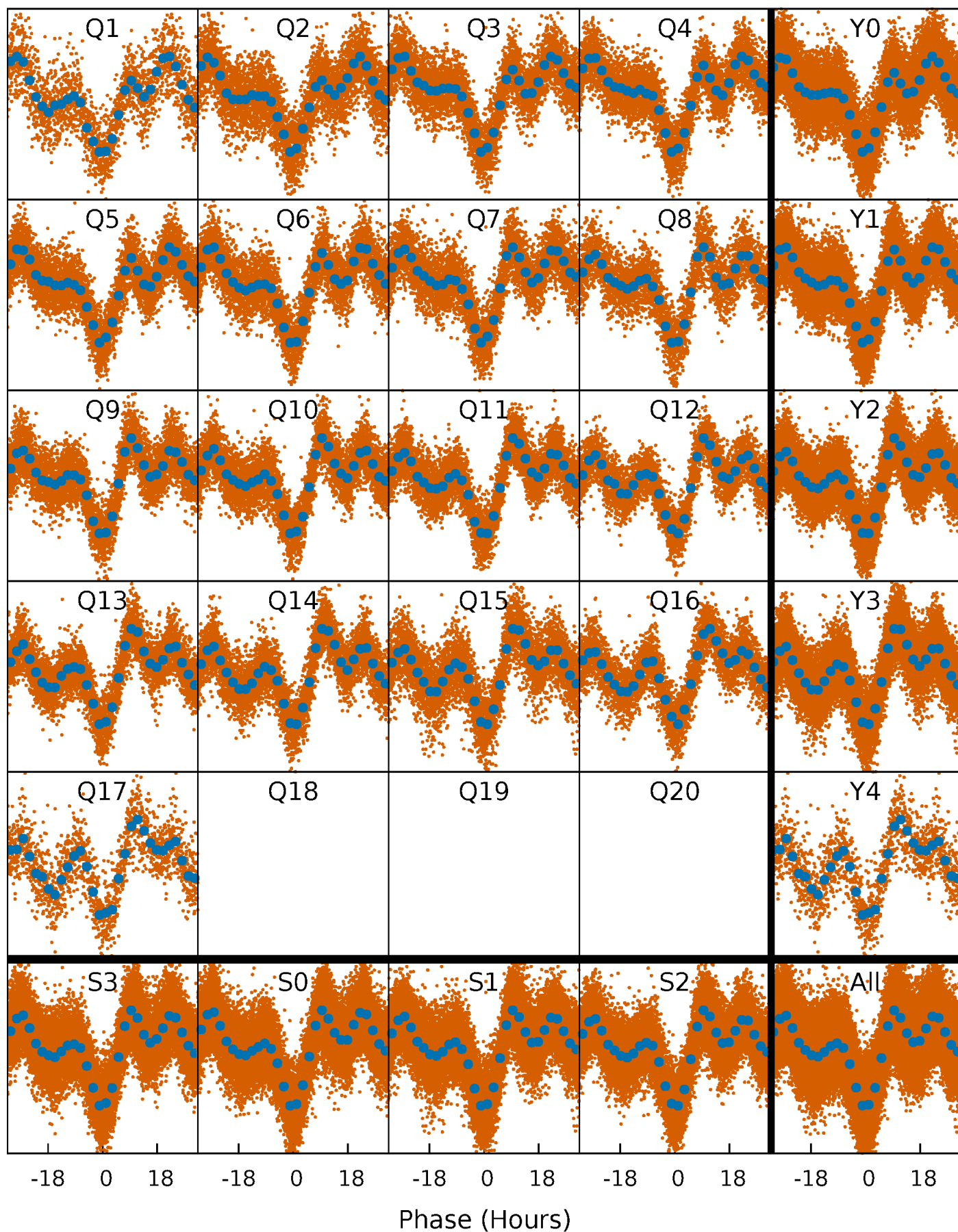


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



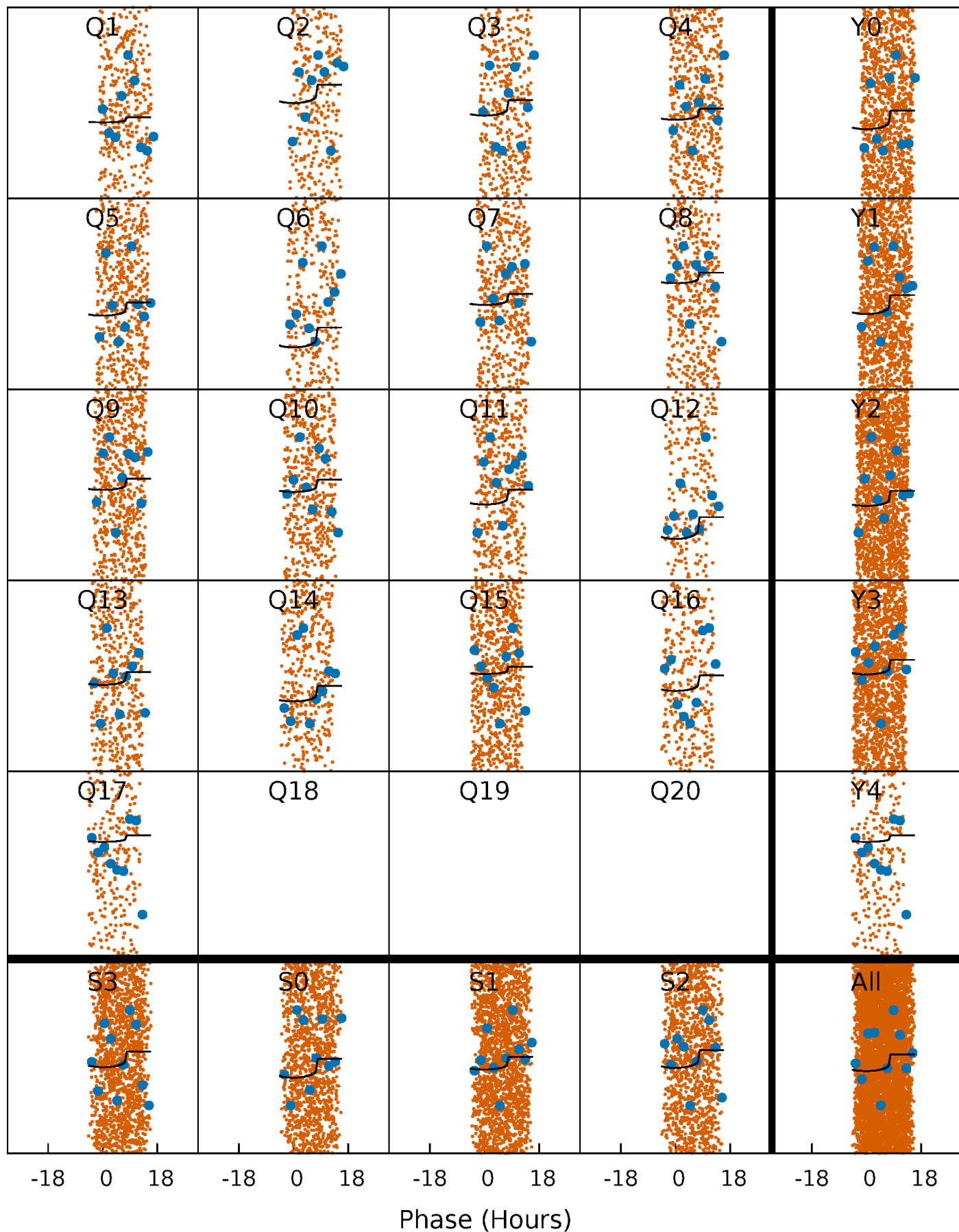
PDC Quarter-Phased Transit Curves

TCE 008508981-02 P= 2.075931 Days $T_0=131.586047$ (BKJD)



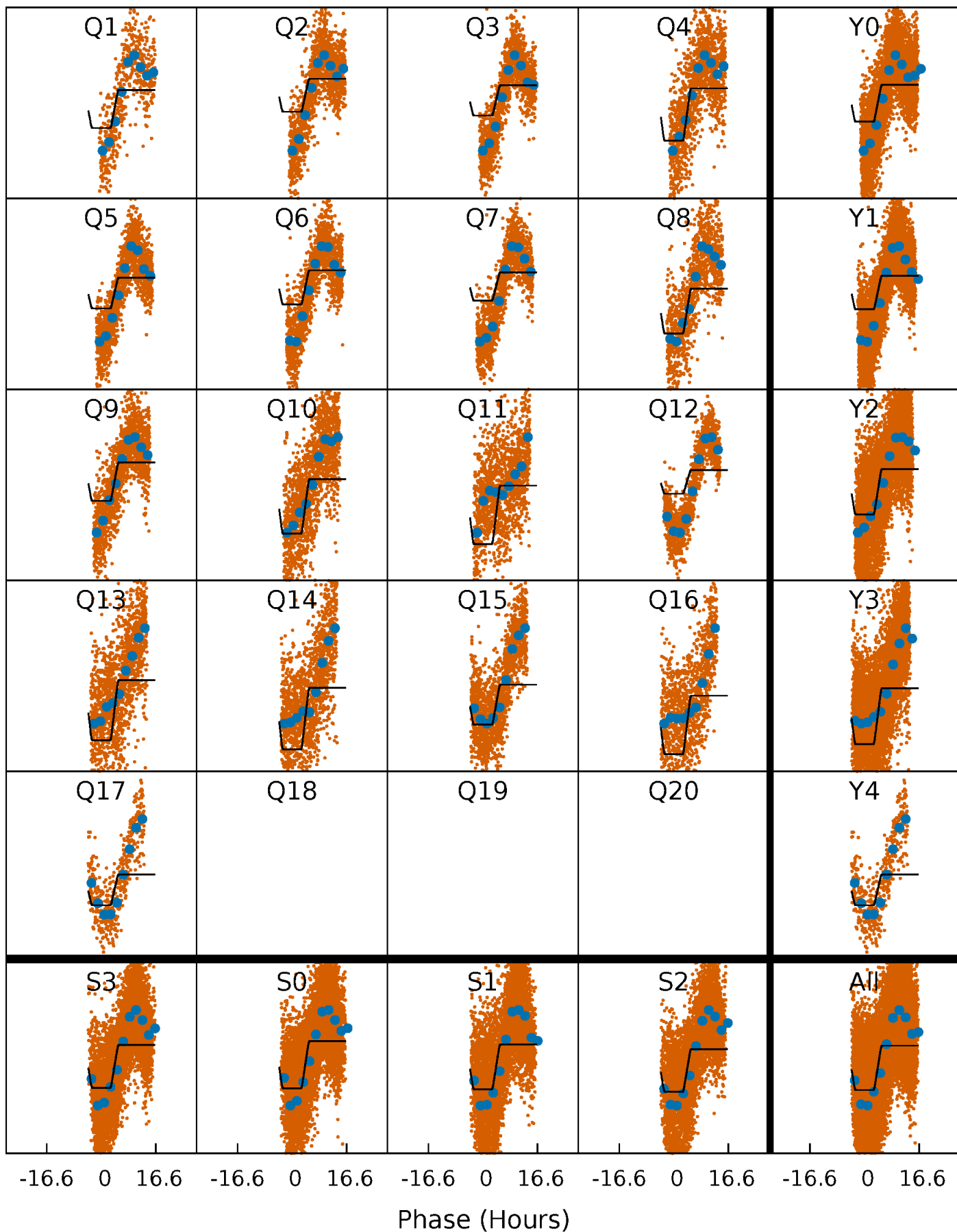
DV Quarter-Phased Transit Curves

TCE 008508981-02 P= 2.075931 Days $T_0=131.586047$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

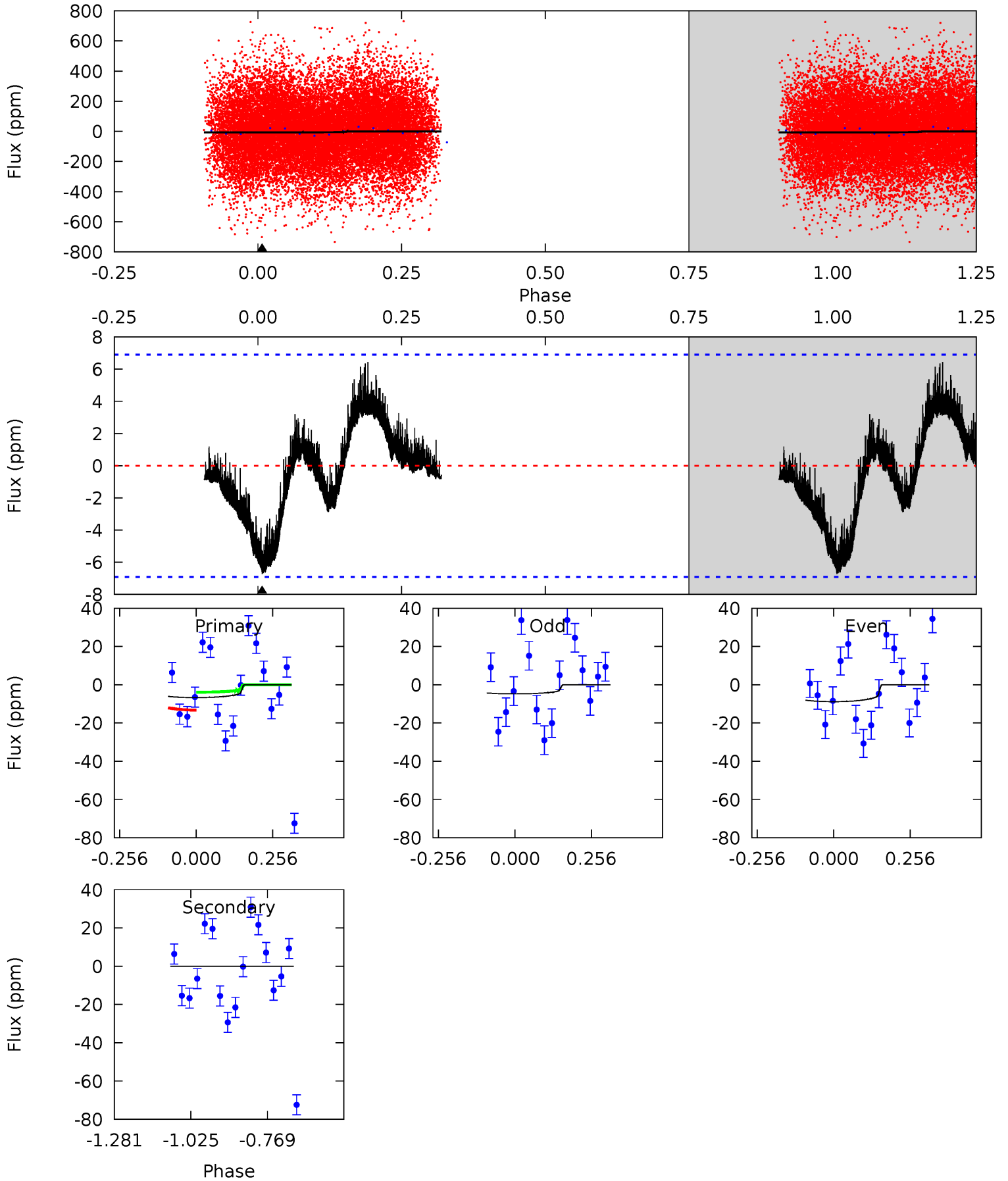
TCE 008508981-02 P= 2.075915 Days $T_0=131.565167$ (BKJD)



DV Model-Shift Uniqueness Test

008508981-02, P = 2.075931 Days, E = 129.510116 Days

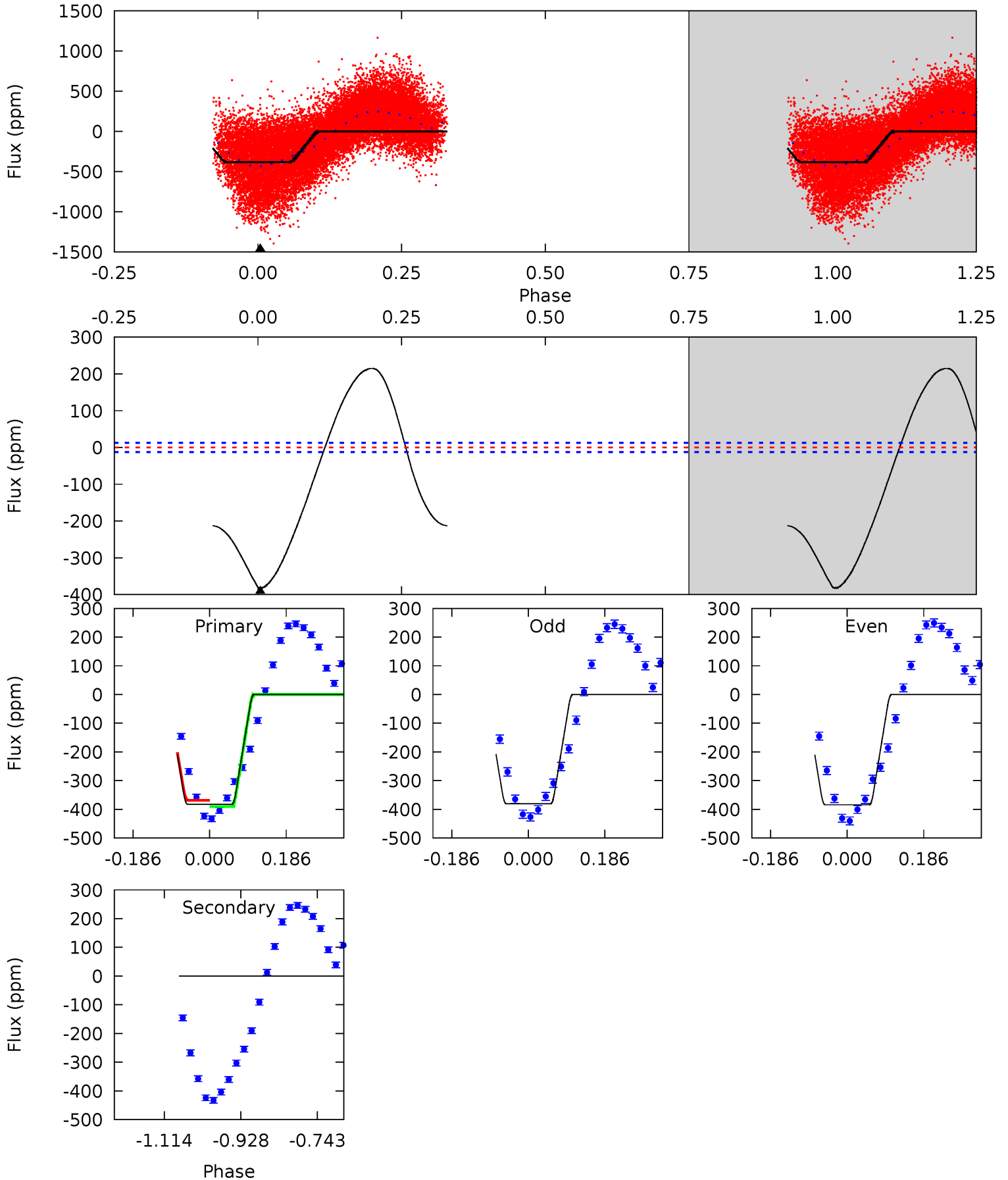
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.24	0	0	0	4.36	1.14	0.26	4.24	4.24	0	0	1.31	1.27	0.49	2.55



Alt Model-Shift Uniqueness Test

008508981-02, P = 2.075915 Days, E = 129.489252 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
136.9	0	0	0	4.43	1.32	43.4	136.9	136.9	0	0	0.58	1.17	0.36	3.74



Stellar Parameters For KIC 008508981

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6889^{+190}_{-286}	$3.955^{+0.293}_{-0.158}$	$-0.140^{+0.250}_{-0.300}$	$2.145^{+0.588}_{-0.784}$	$1.510^{+0.217}_{-0.326}$	$0.216^{+0.447}_{-0.099}$
	+3%/-4%	+7%/-4%	+179%/-214%	+27%/-37%	+14%/-22%	+208%/-46%
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 008508981-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 2	$1.09^{+1.04}_{-0.69}$	3248^{+244}_{-282}	-3249^{+7228}_{-1050}	$0.007^{+1.469}_{-1.576}$
Alt.	0 ± 3	$3.92^{+1.38}_{-1.20}$	3204^{+273}_{-294}	-3222^{+334}_{-245}	$-0.006^{+0.135}_{-0.163}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

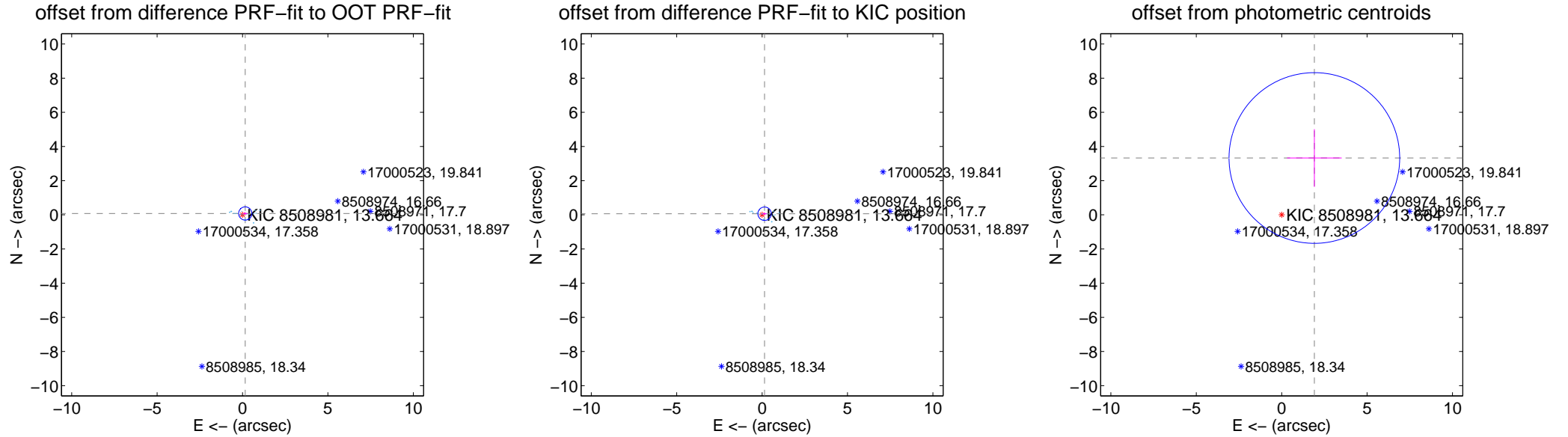
DV Centroid Data

Supplemental centroid analysis for 008508981-02. Kepler magnitude: 13.66. Transit SNR 4.51

There are 17 quarters with good PRF difference image offsets

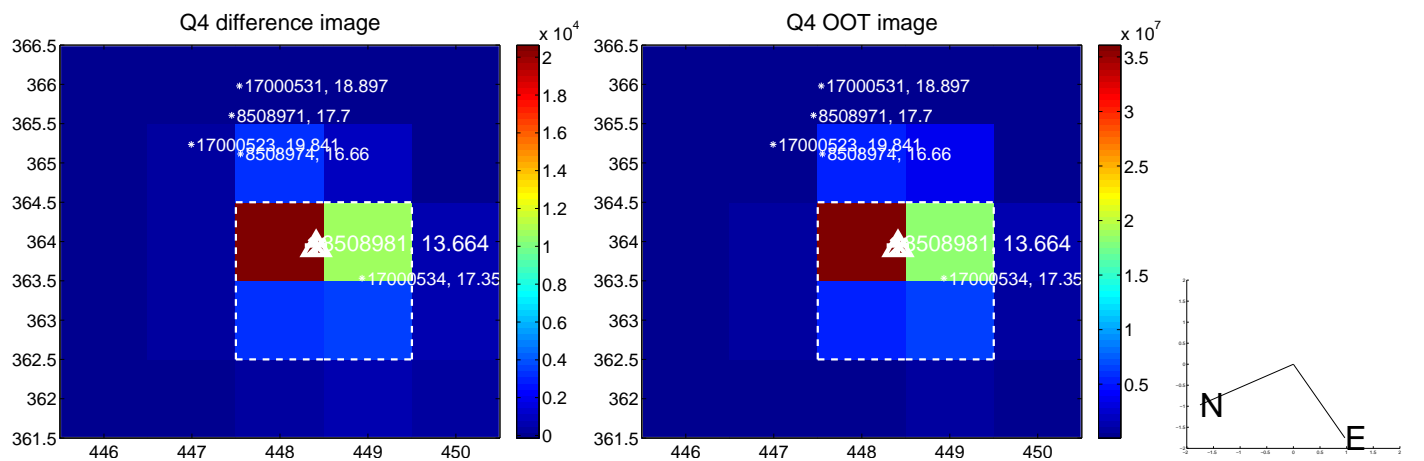
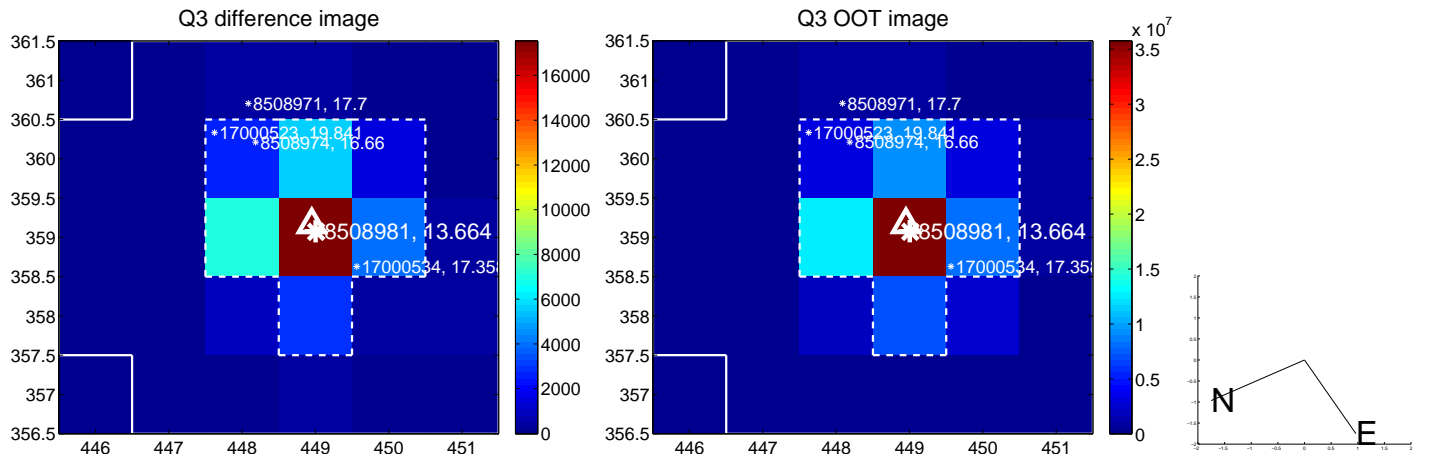
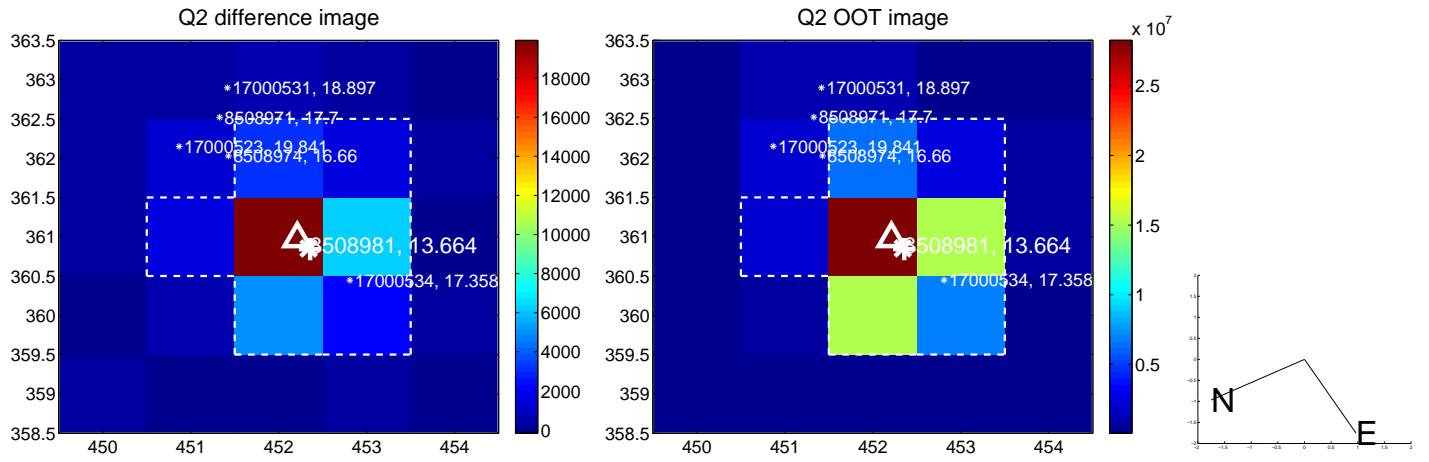
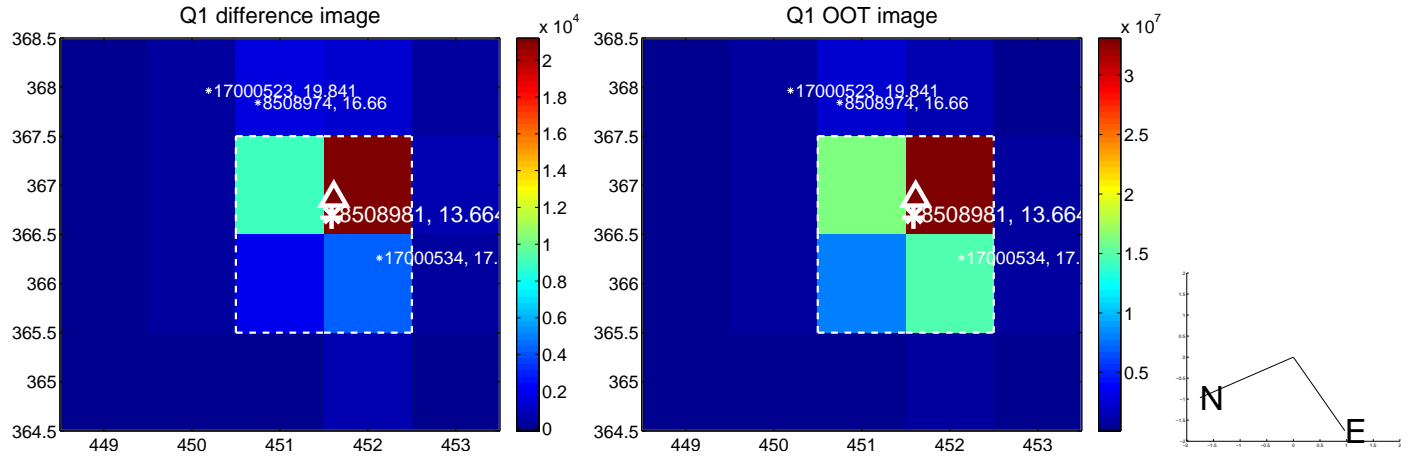
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.179 ± 0.129	1.38	-0.160 ± 0.139	0.079 ± 0.075
PRF-fit source offset from KIC position	0.158 ± 0.131	1.21	-0.145 ± 0.139	0.065 ± 0.075
photometric centroid source offset	3.84 ± 1.67	2.30	-1.91 ± 1.60	3.33 ± 1.69

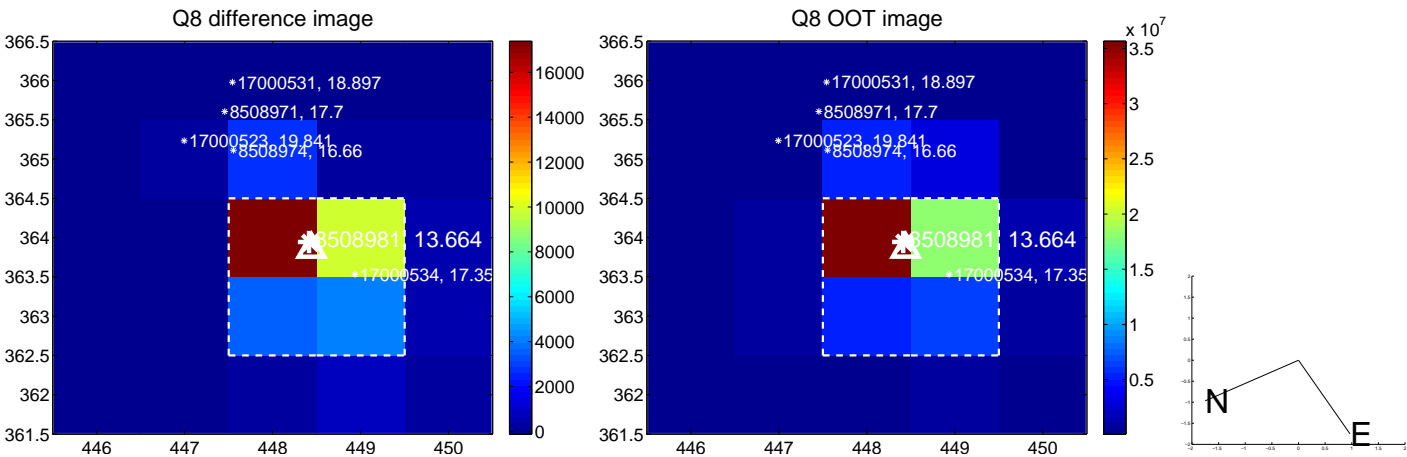
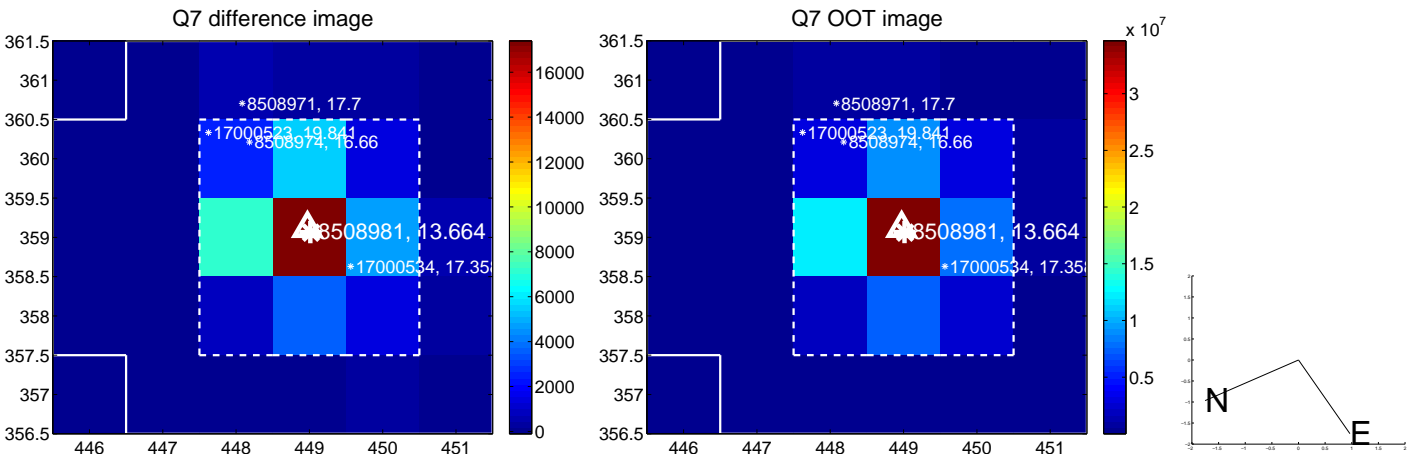
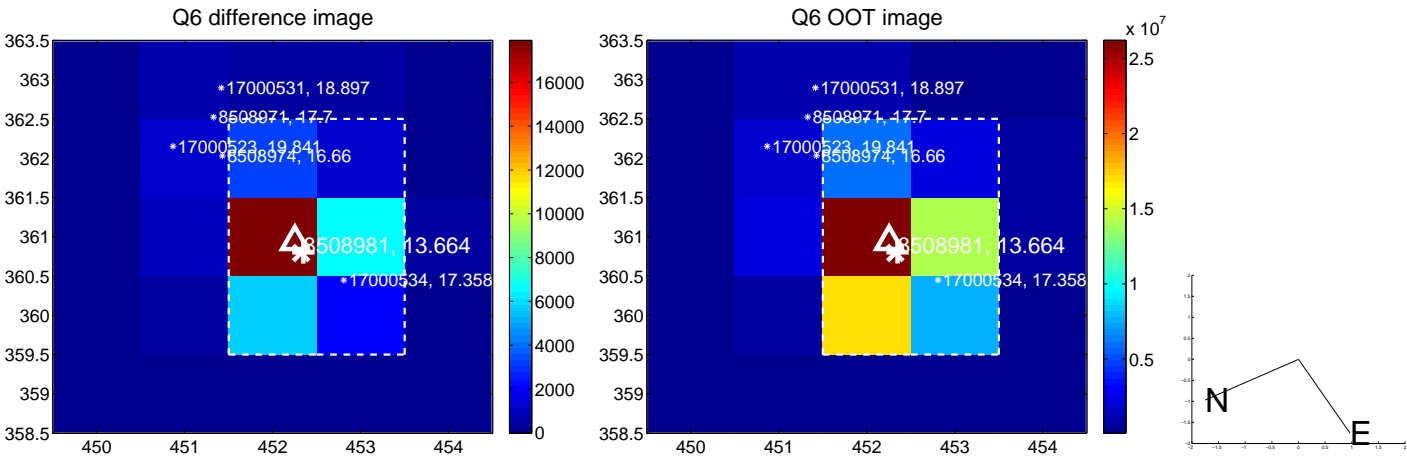
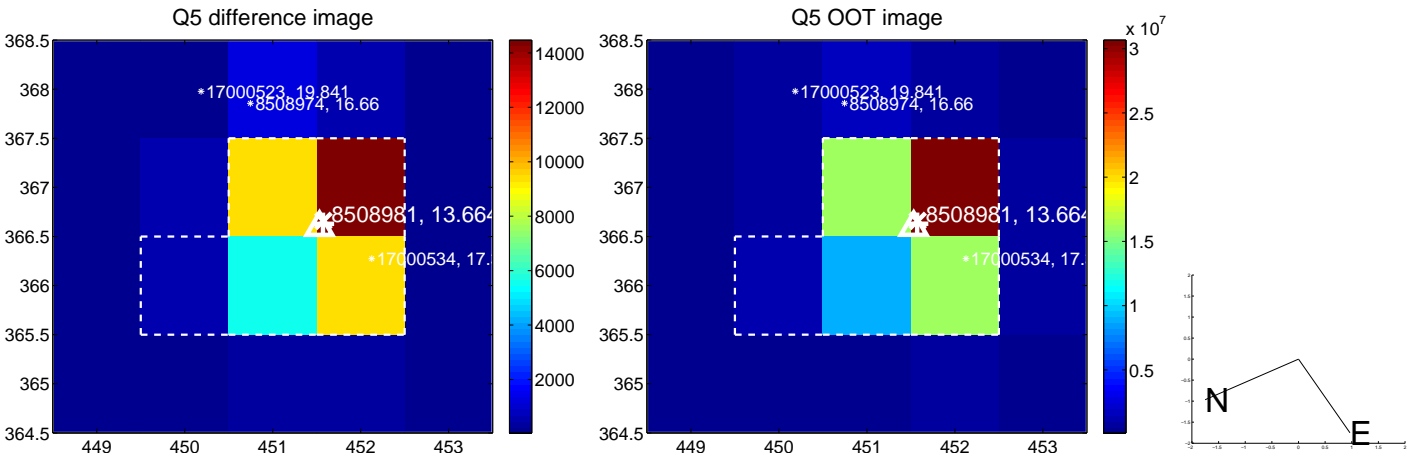


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

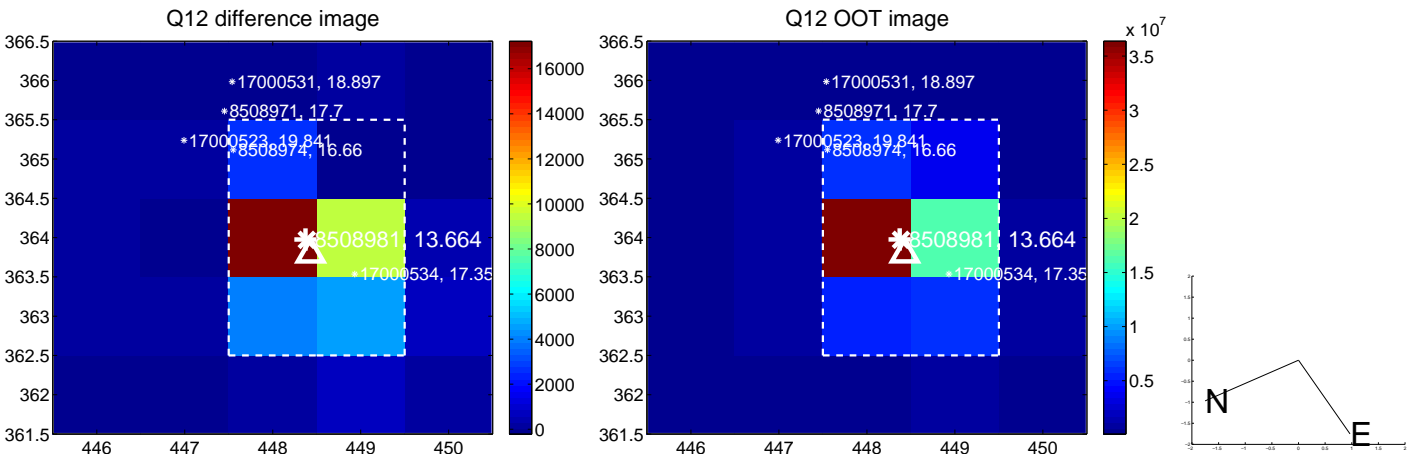
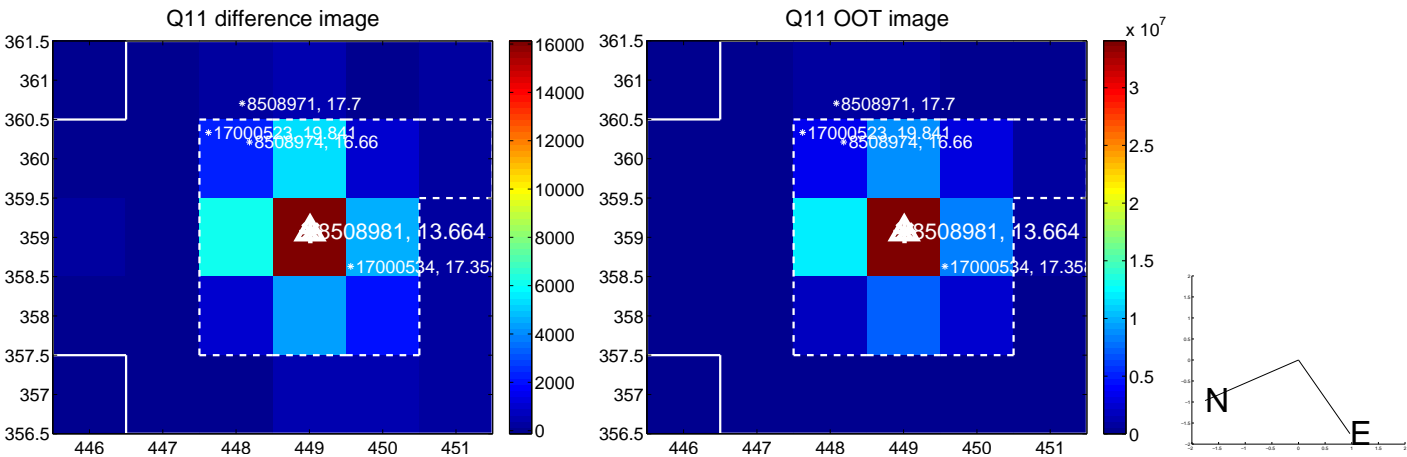
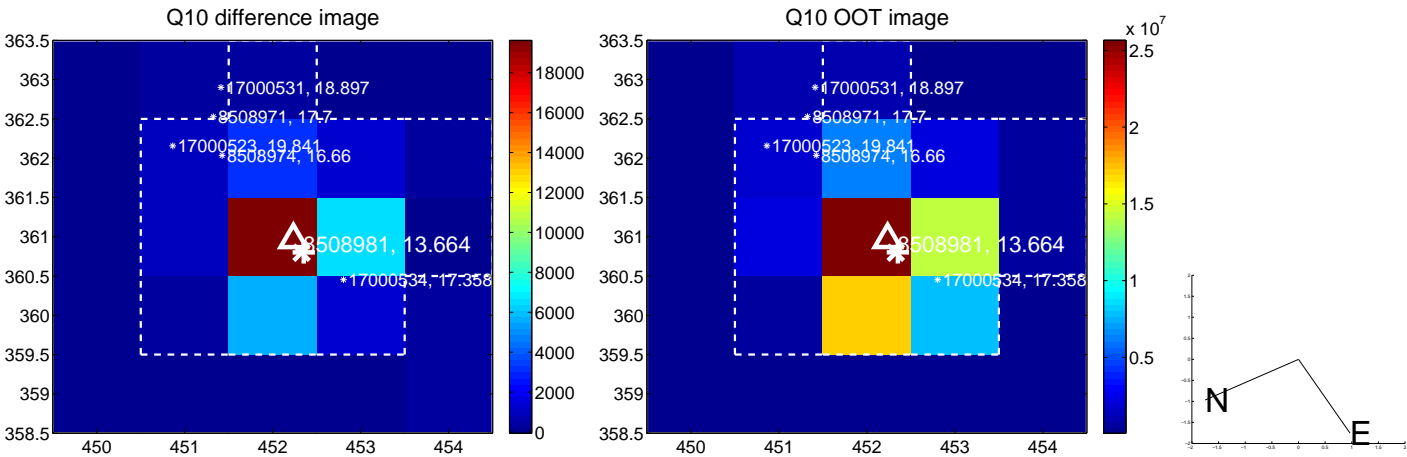
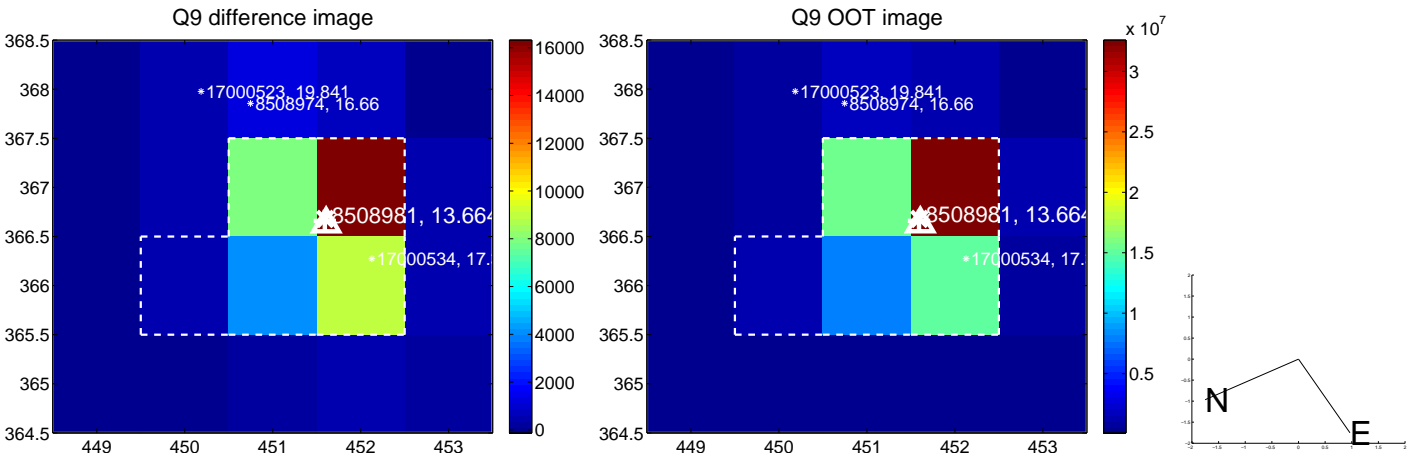
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



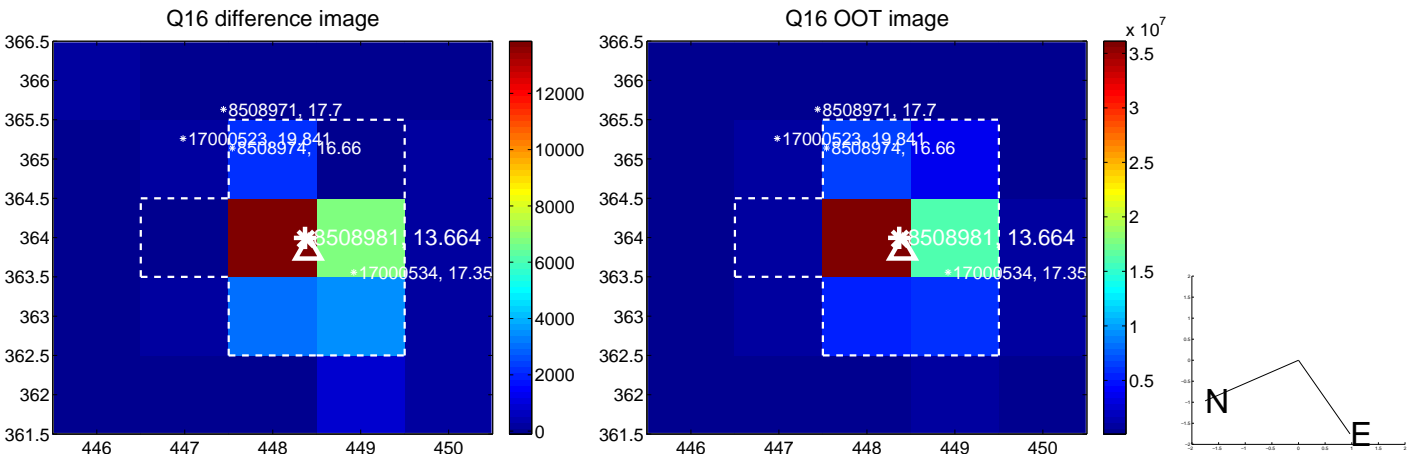
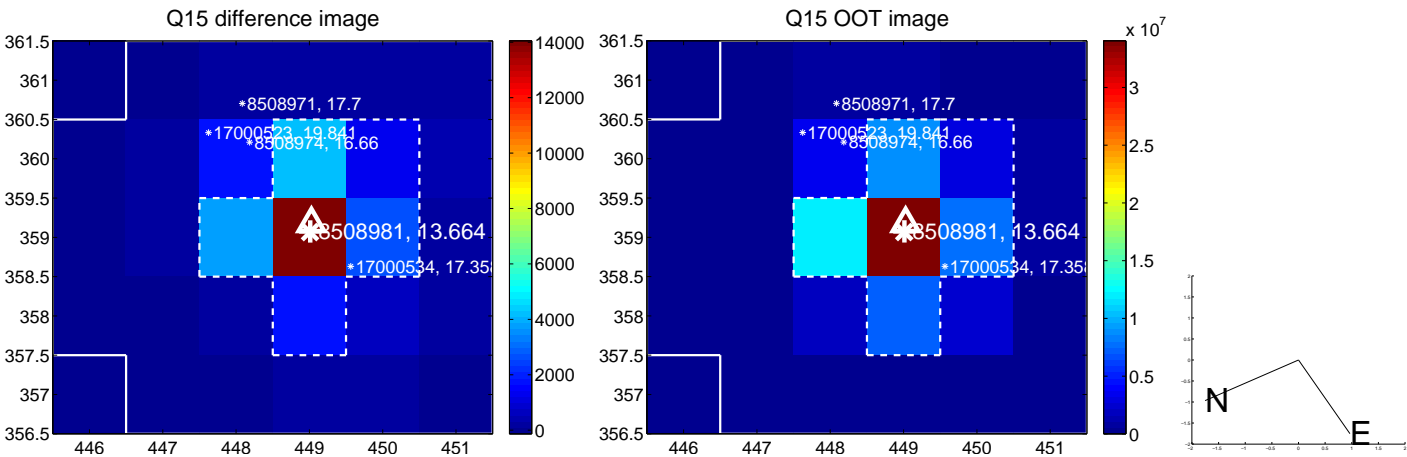
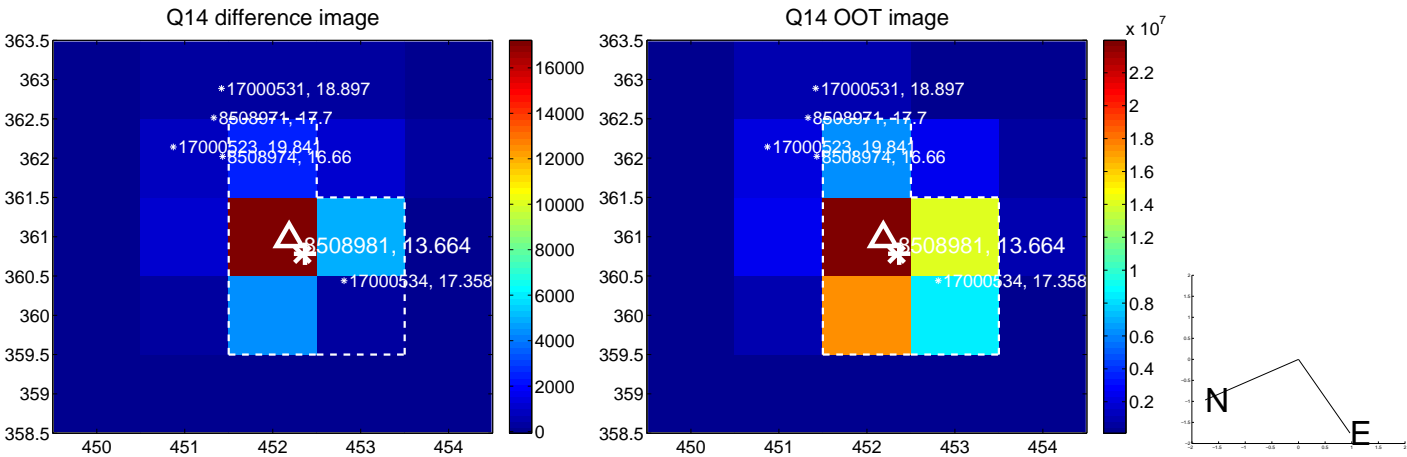
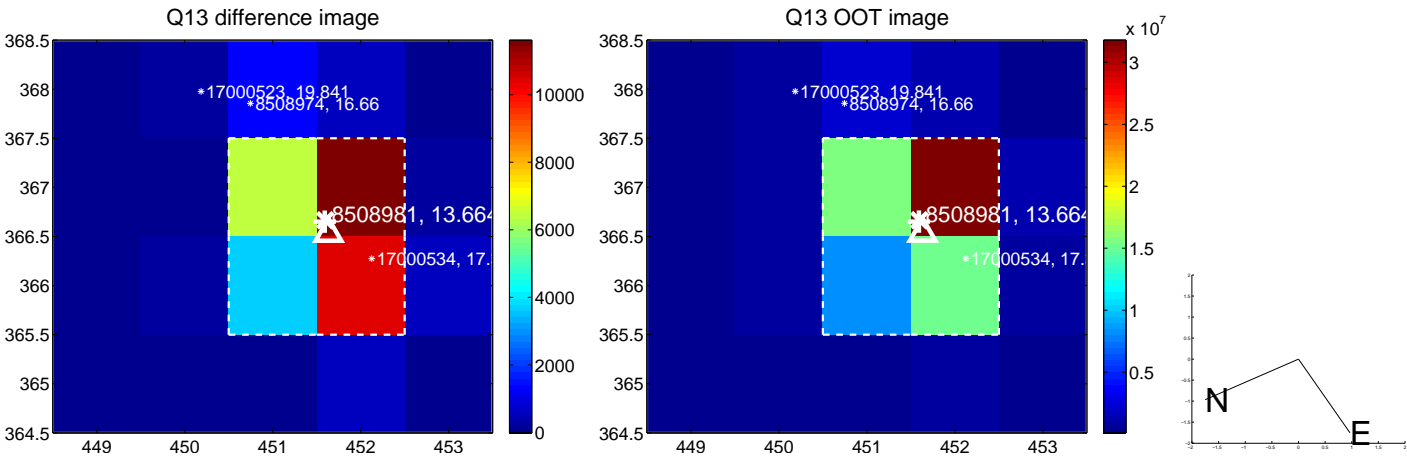
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



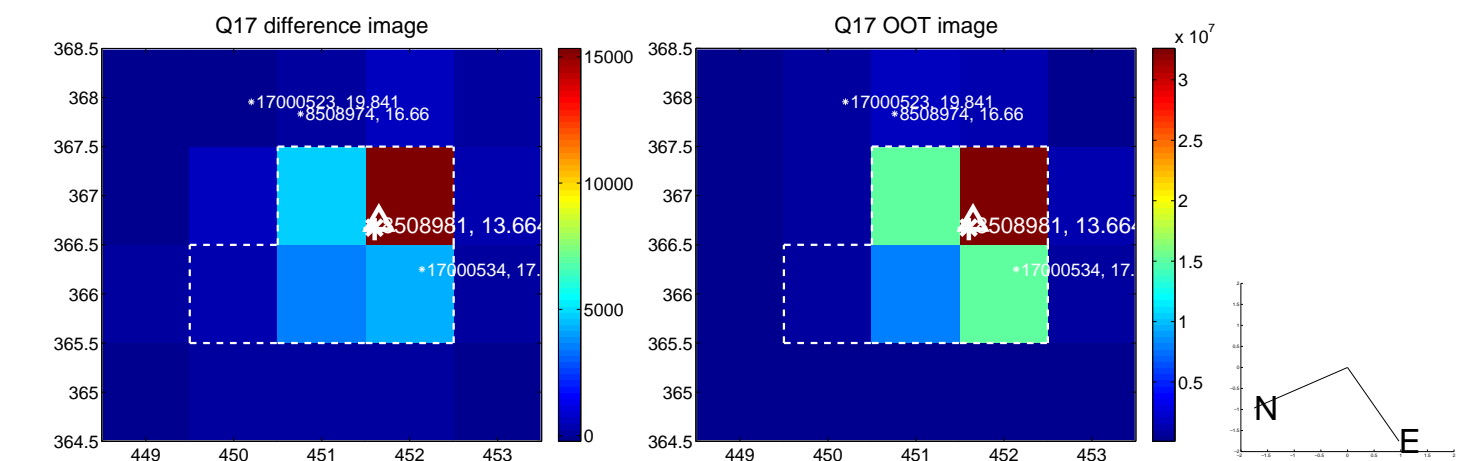
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



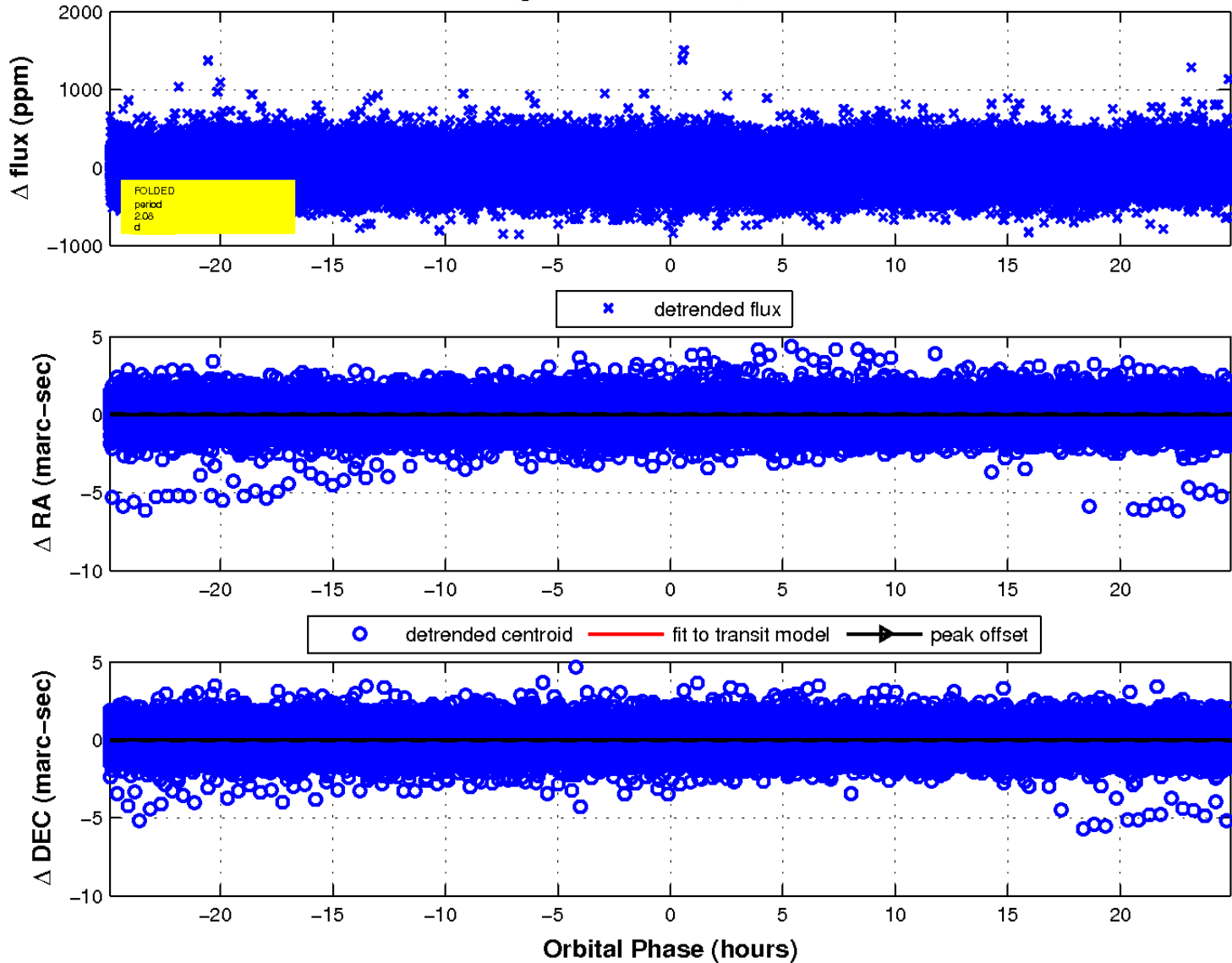
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

