

KIC 005309547

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})
005309547-01	OBS	No	2.190554	132.900476	110.4	7.500	11.2	-1.0	2.06	6831	2.18	5946.33
005309547-02	OBS	No	393.318785	241.603610	612.1	6.000	13.2	-1.0	2.06	6831	5.14	5.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005309547-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
005309547-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

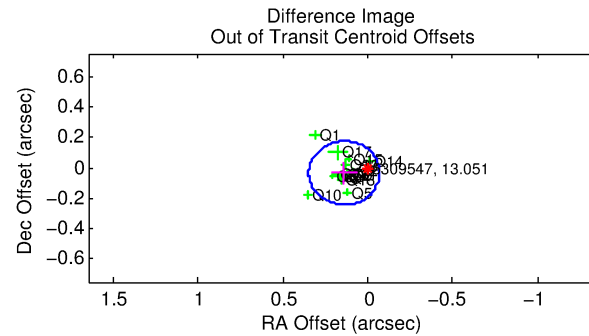
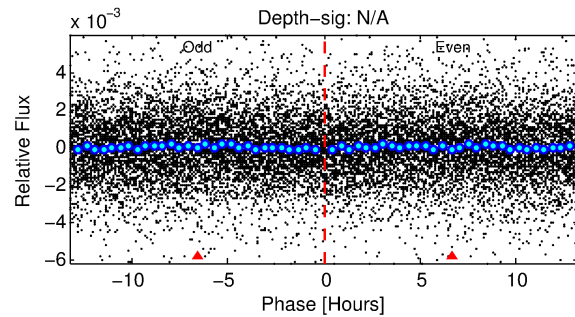
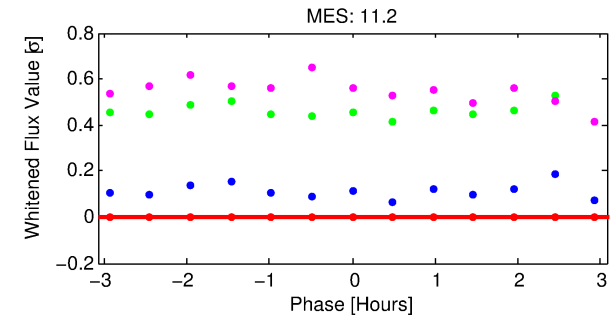
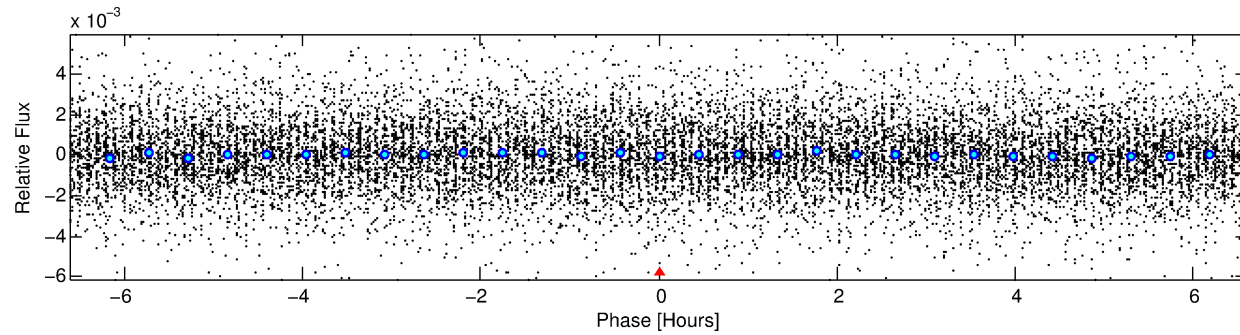
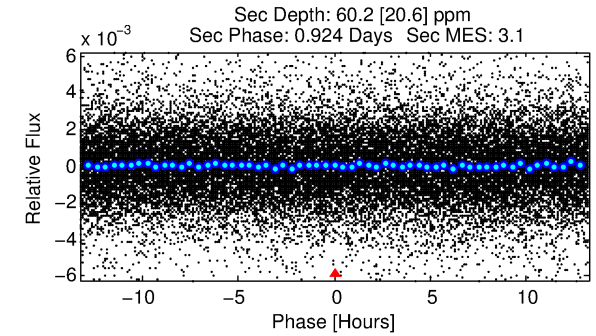
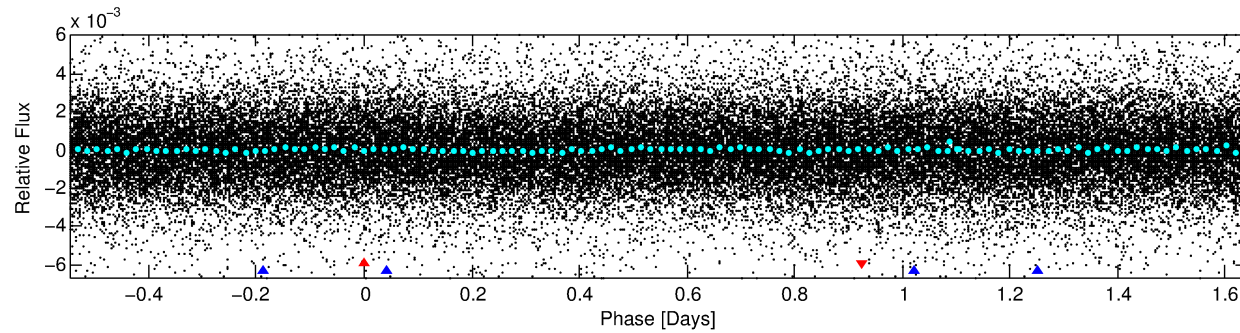
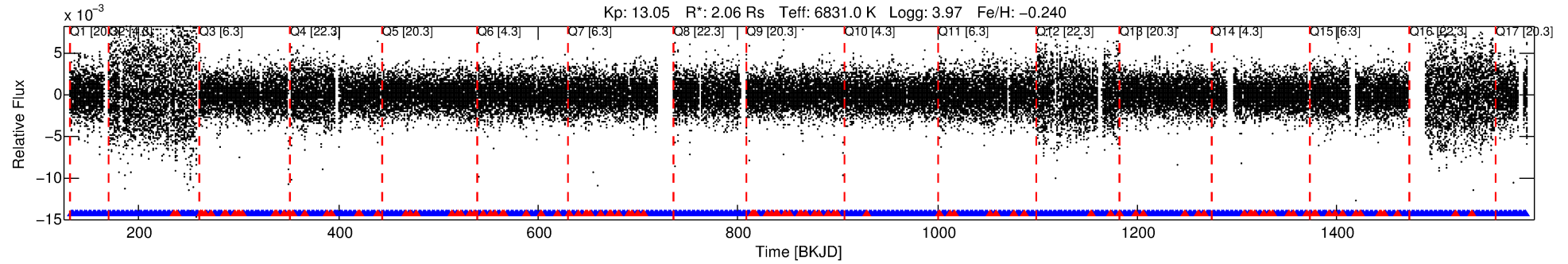
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005309547-01

No Significant Match Found

DV One-Page Summary

KIC: 5309547 Candidate: 1 of 2 Period: 2.191 d



TPS TCE Results:

Period = 2.19055 d
Epoch = 132.9005 BKJD

DV fit results are unavailable

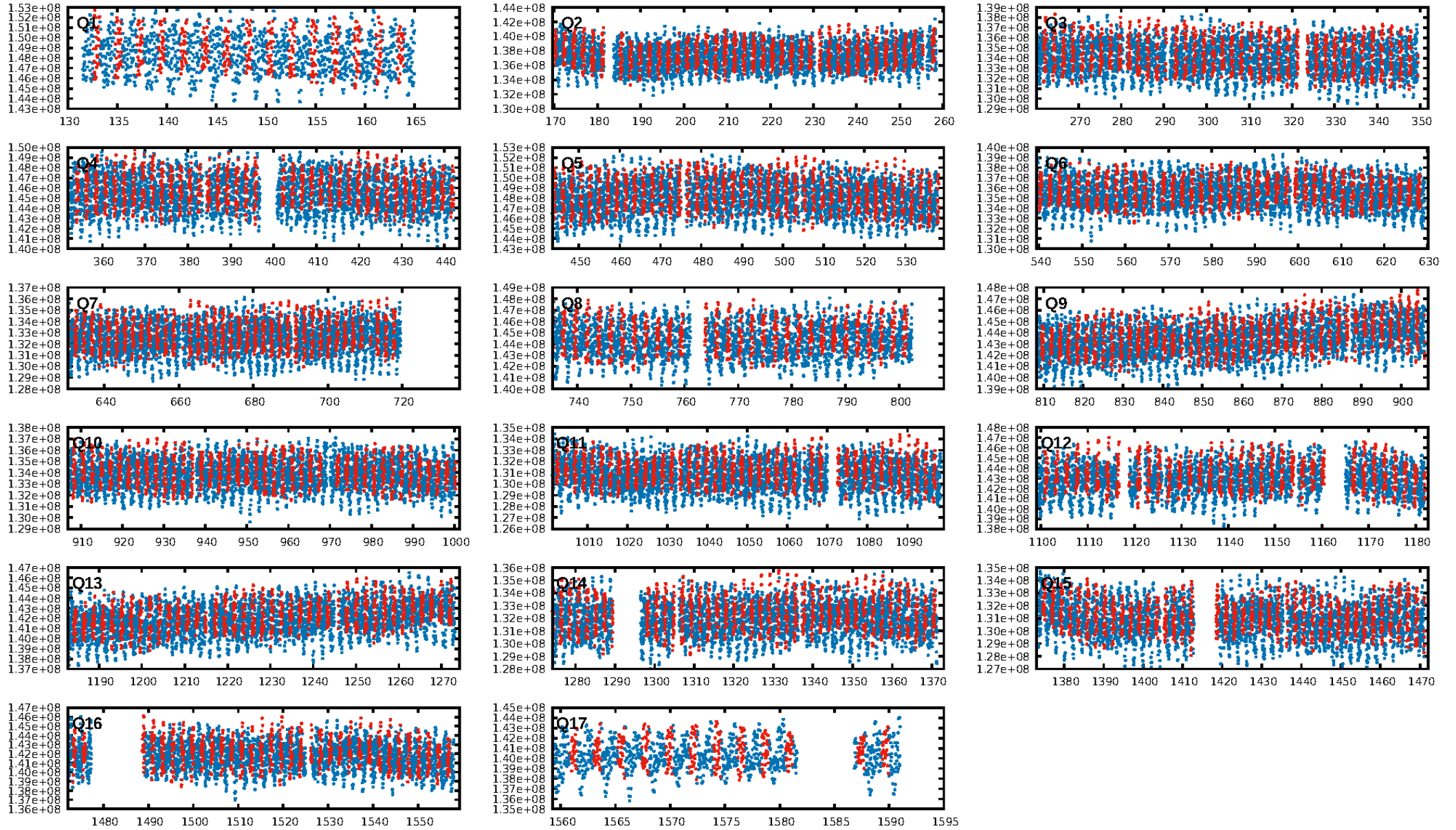
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [977.34σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.20e-29
RollingBand-fgt: 0.82 [477/585]
GhostDiagnostic-chr: 2.111
Centroid-sig: 1.0%
Centroid-so: 0.802 arcsec [1.96σ]
OotOffset-rm: 0.145 arcsec [2.09σ]
KicOffset-rm: 0.115 arcsec [1.53σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

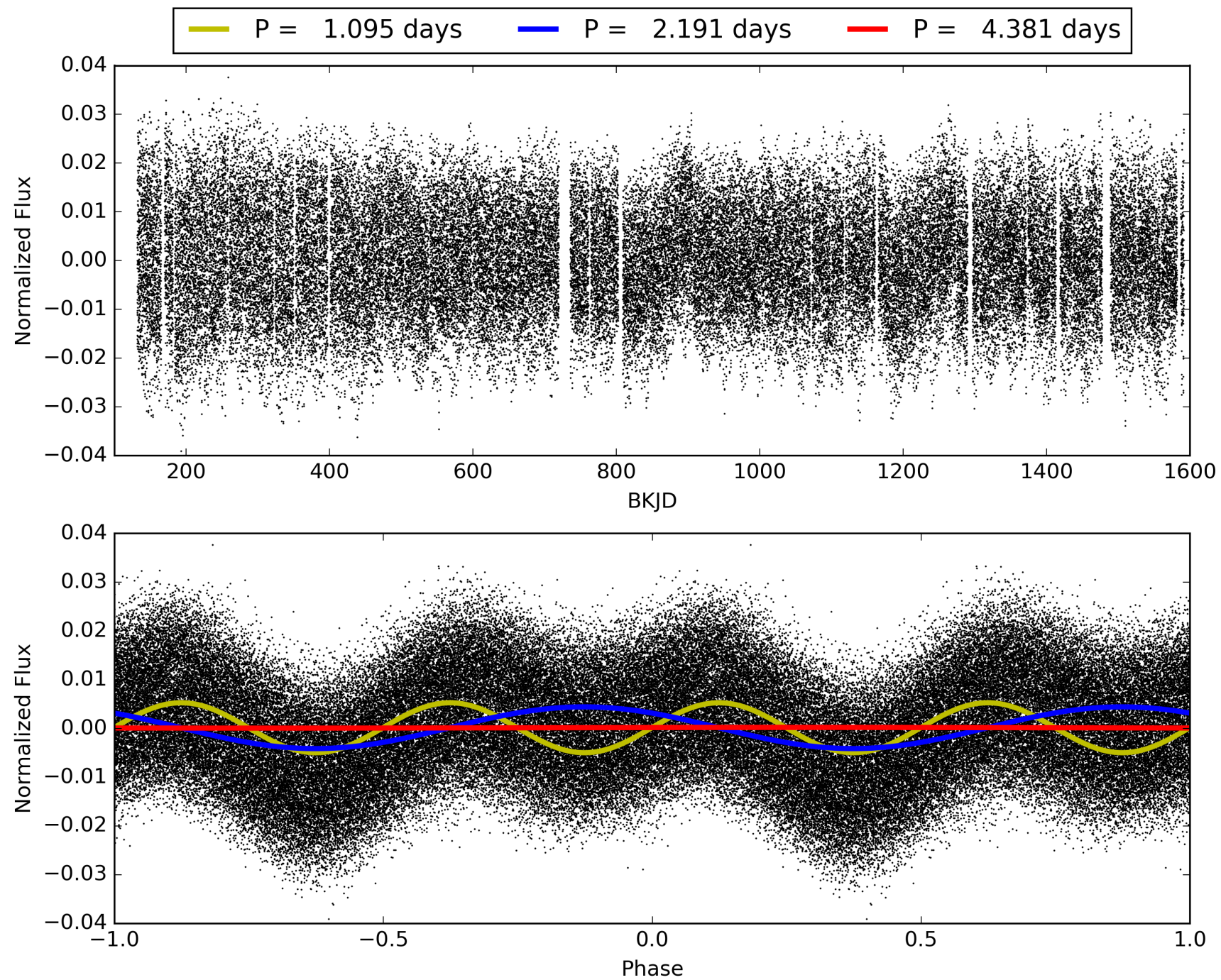
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:31:41 Z

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

TCE 005309547-01, PDC Light Curves

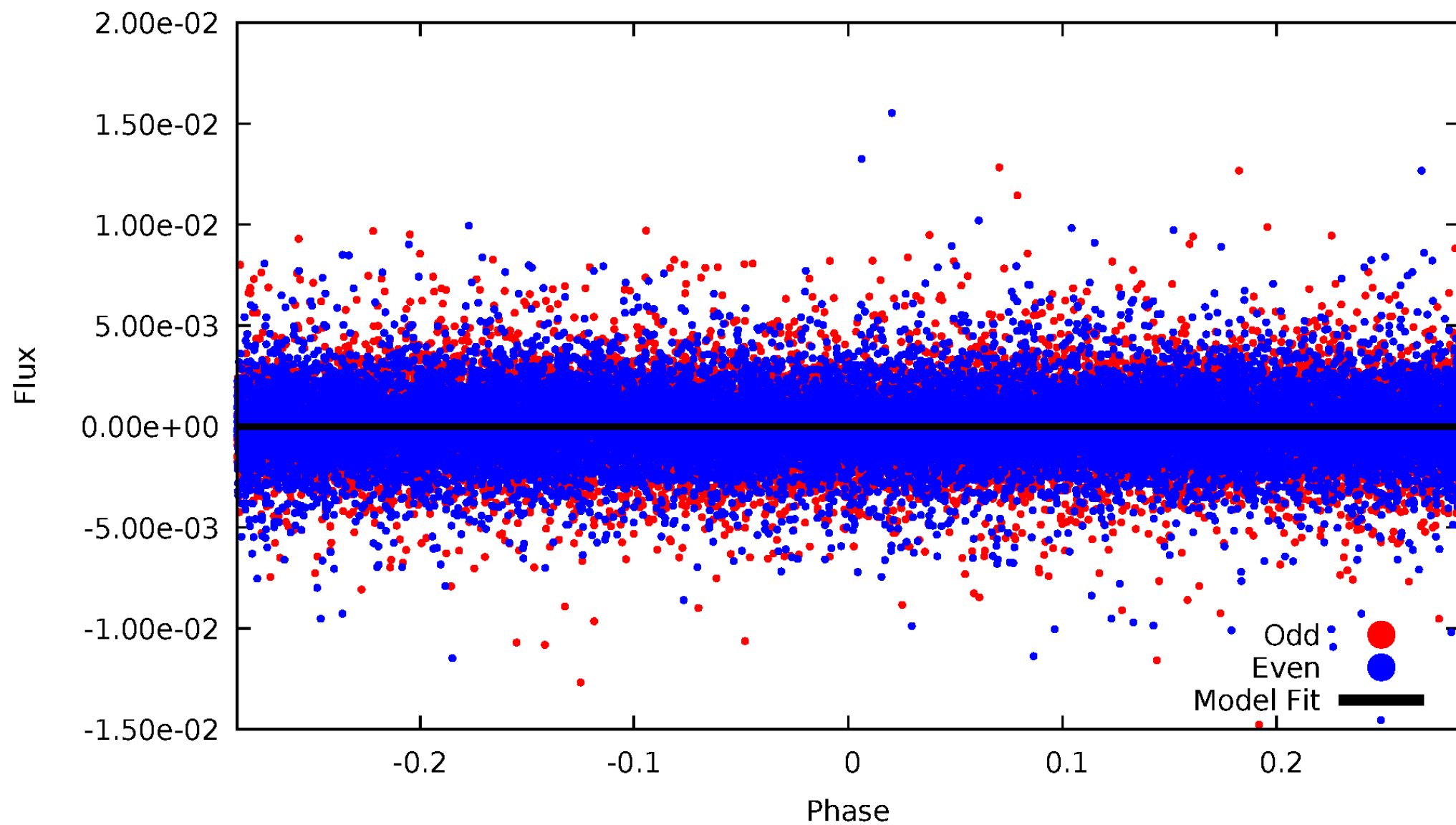


TCE 005309547-01



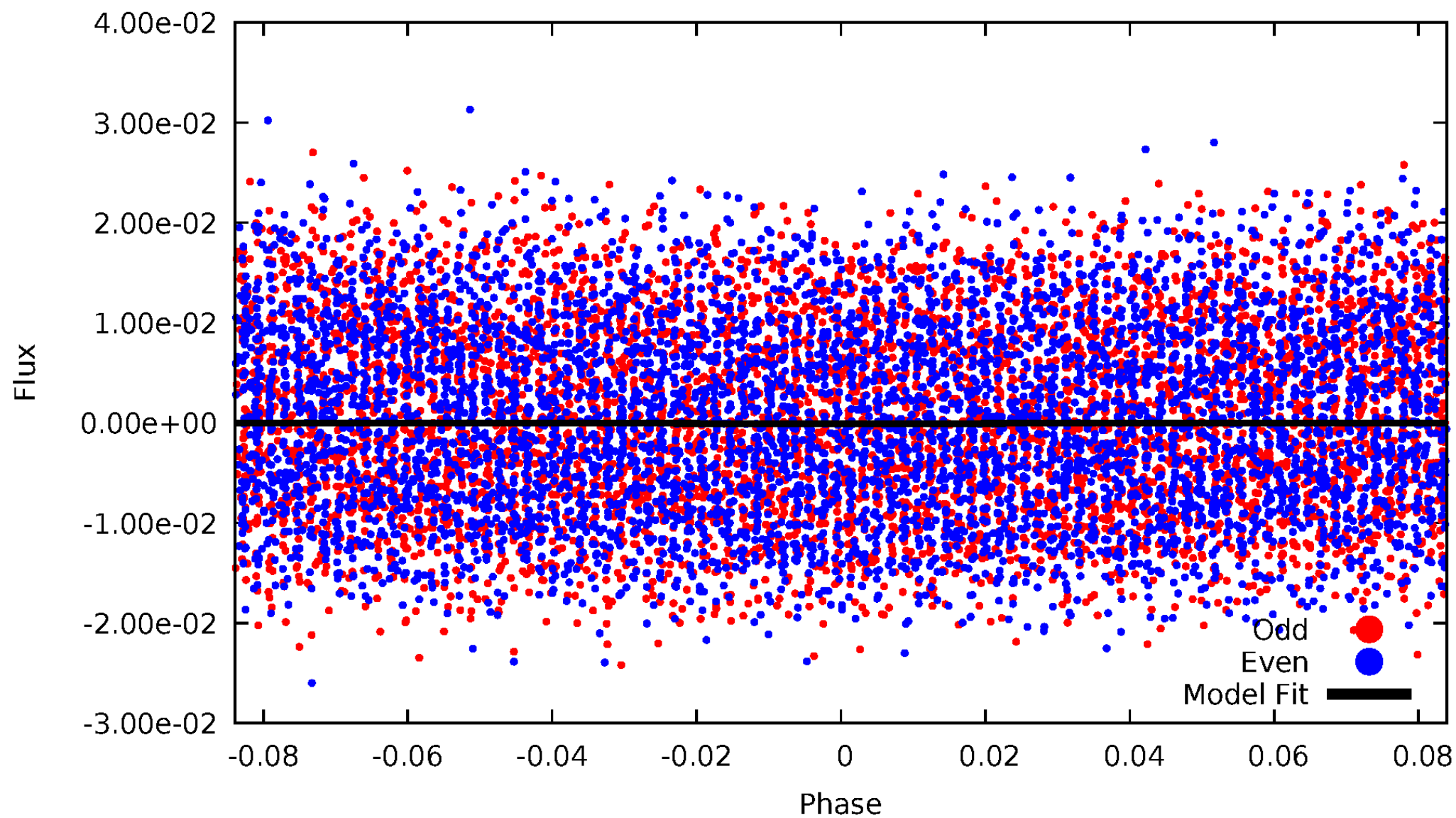
DV Odd/Even

TCE 005309547-01

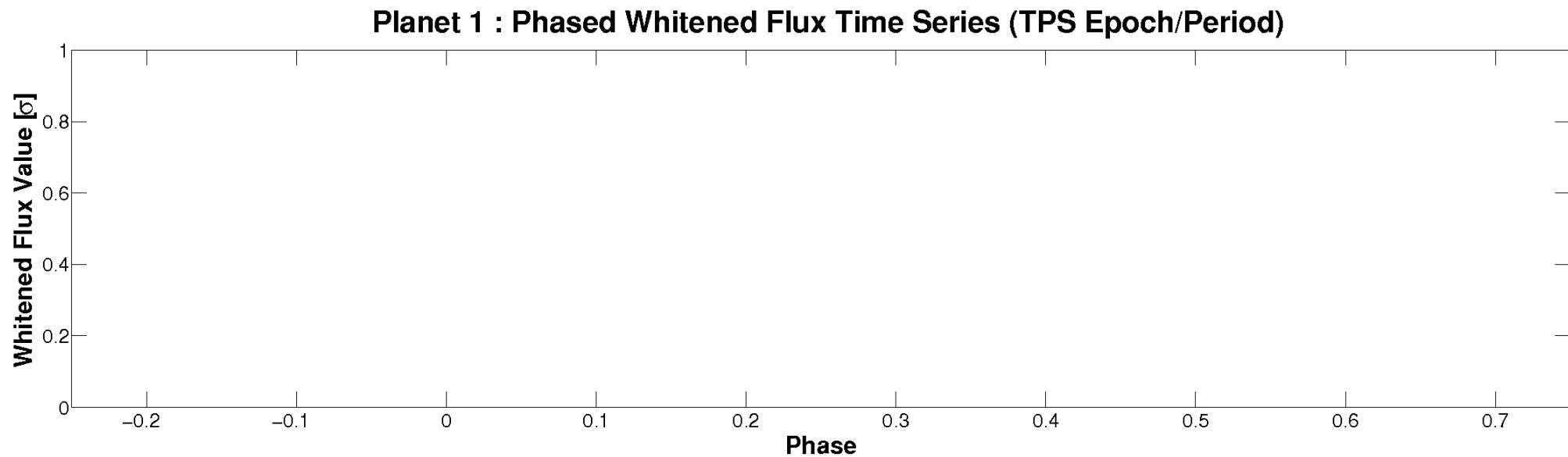
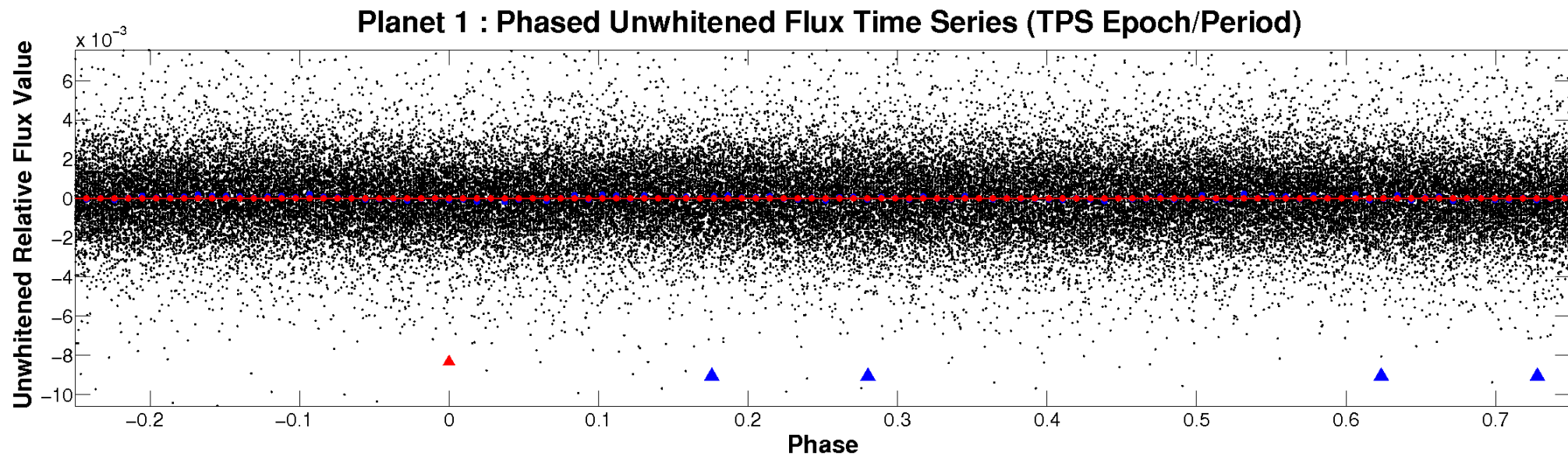


ALT Odd/Even

TCE 005309547-01

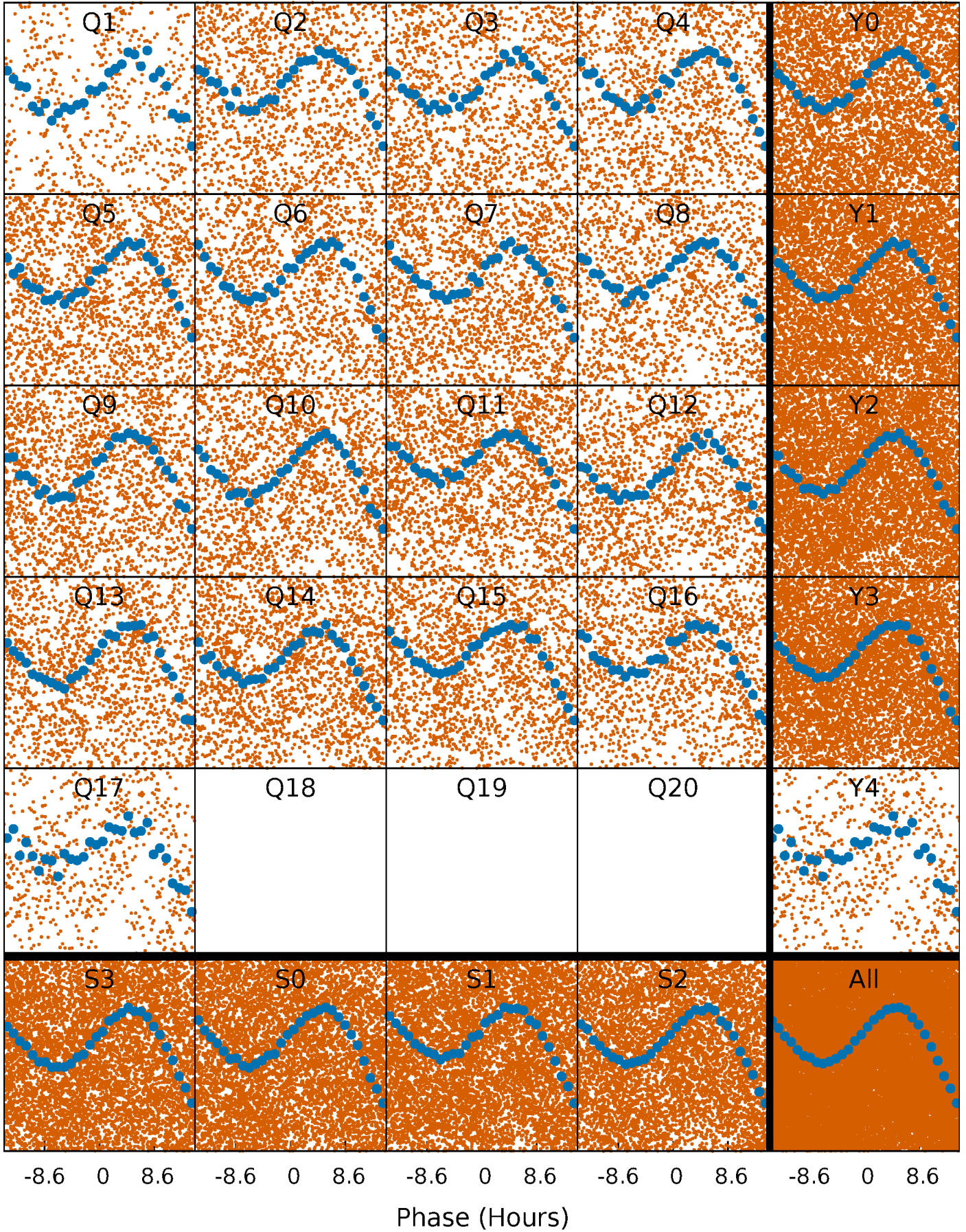


Non-Whitened Vs. Whitened Light Curve



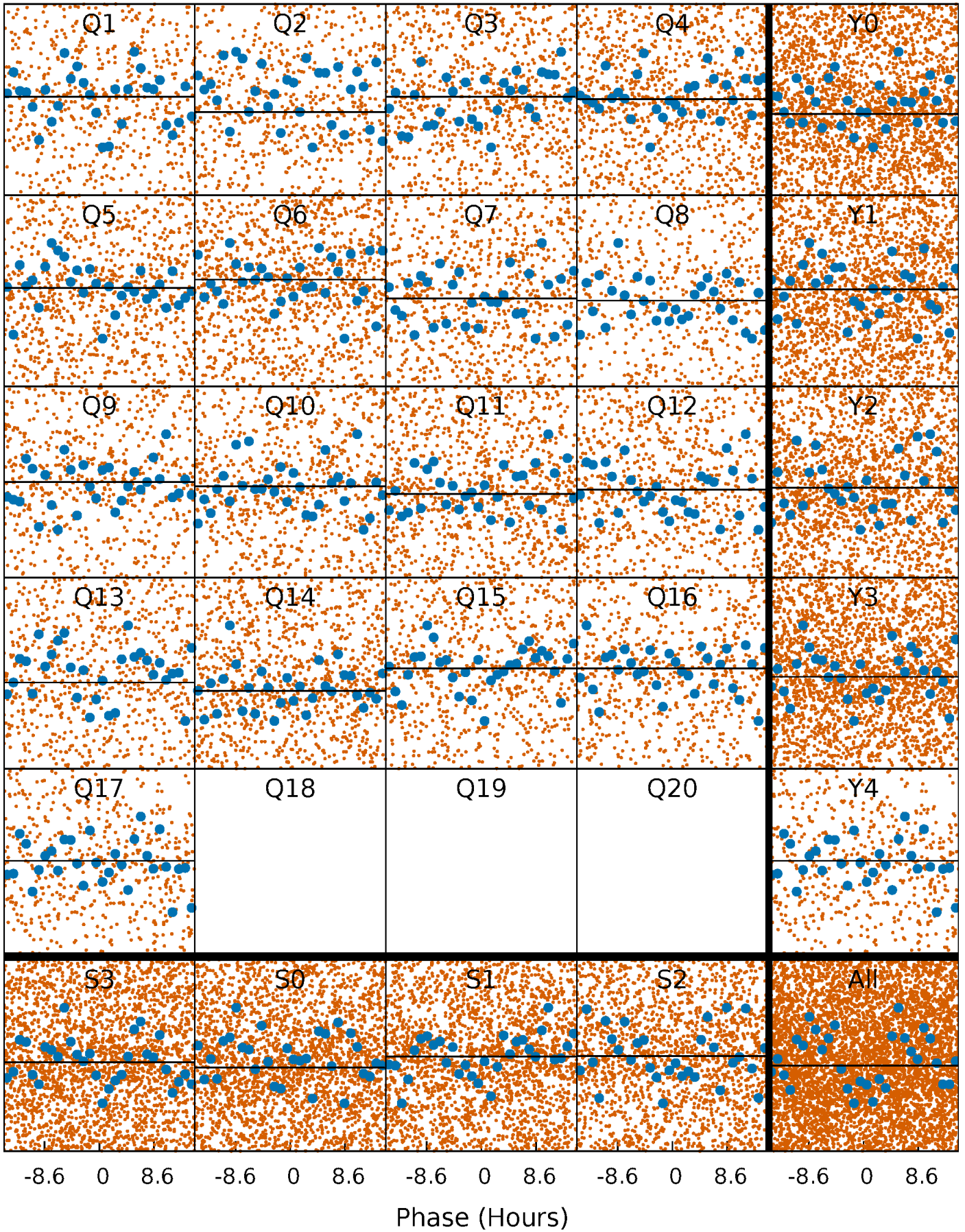
PDC Quarter-Phased Transit Curves

TCE 005309547-01 P= 2.190554 Days $T_0=132.900476$ (BKJD)



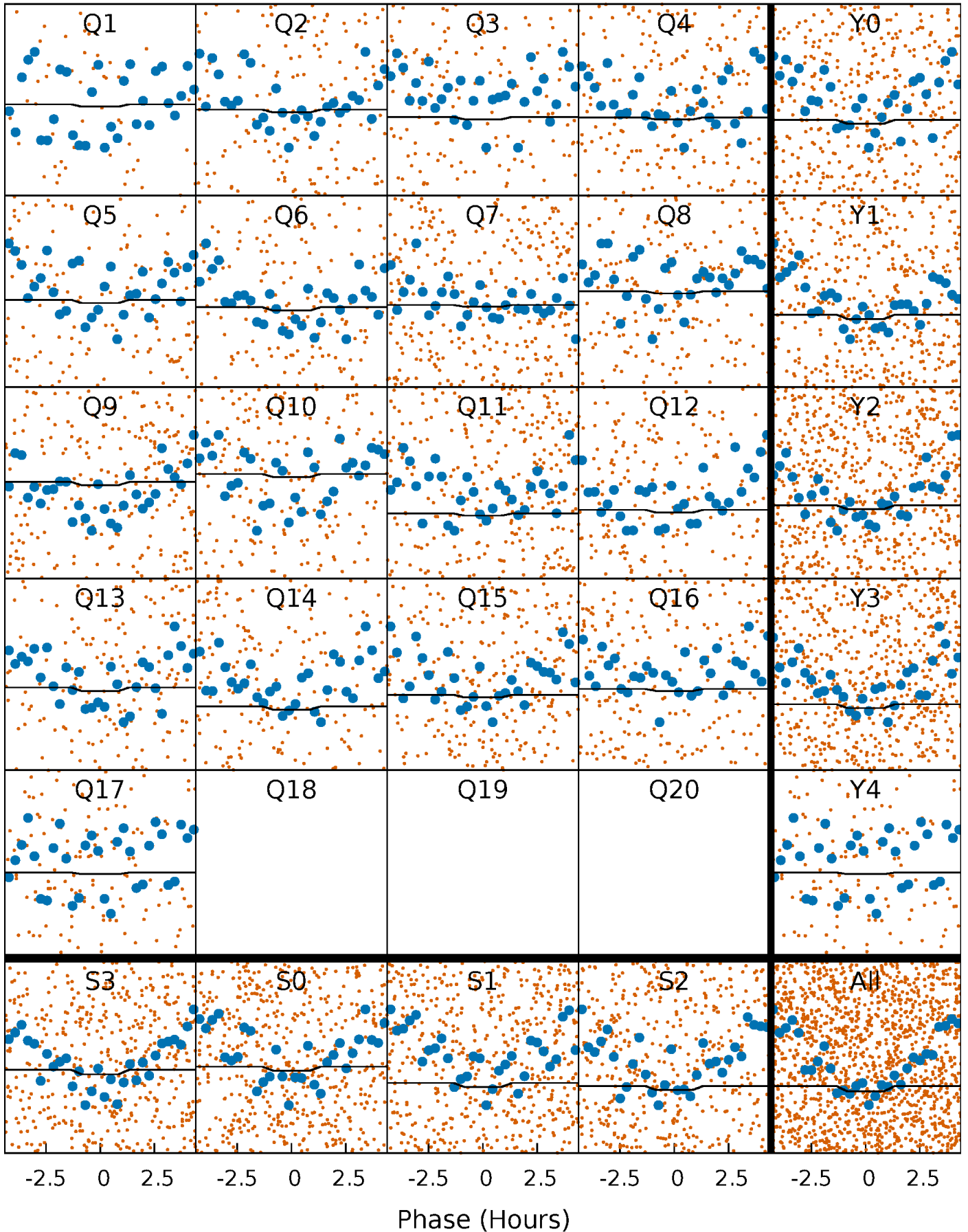
DV Quarter-Phased Transit Curves

TCE 005309547-01 P= 2.190554 Days $T_0=132.900476$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

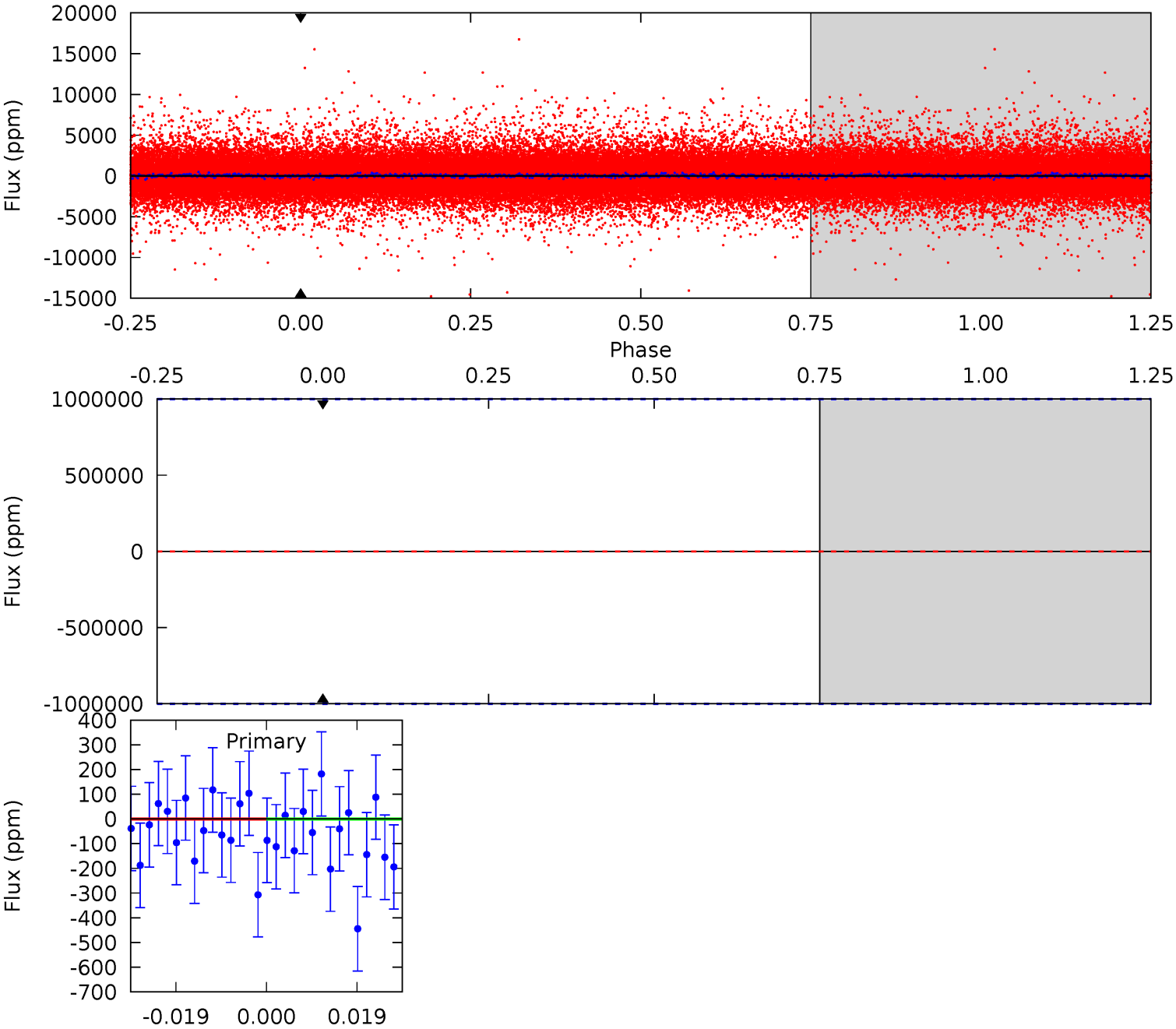
TCE 005309547-01 P= 2.190554 Days $T_0=132.624795$ (BKJD)



DV Model-Shift Uniqueness Test

005309547-01, P = 2.190554 Days, E = 130.709922 Days

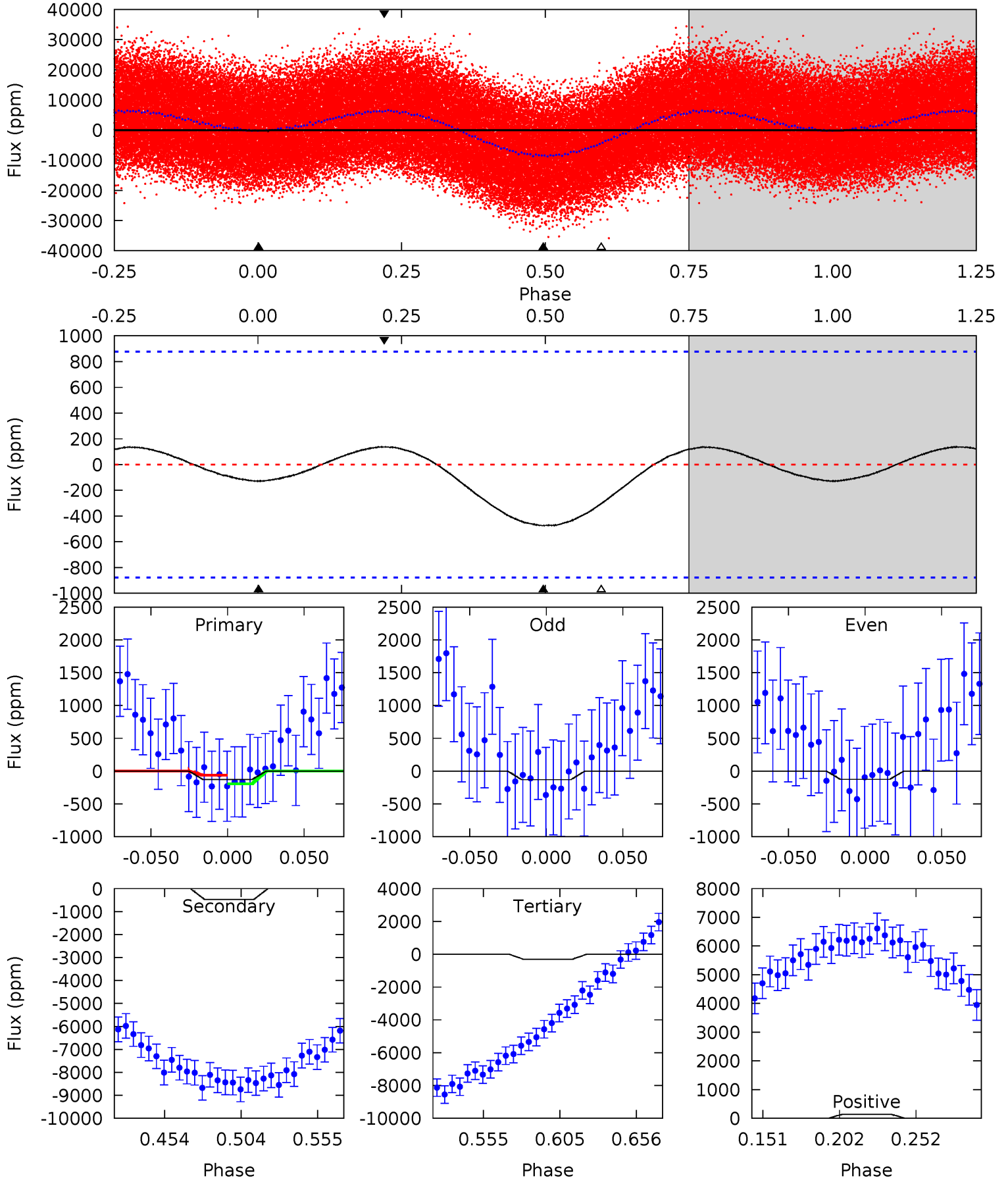
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005309547-01, P = 2.190554 Days, E = 130.434241 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.69	2.54	1.63	0.74	4.71	1.96	0.87	-0.94	-0.05	0.91	1.80	0.01	0.52	0.23	0.35



Stellar Parameters For KIC 005309547

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6831^{+214}_{-285}	$3.969^{+0.299}_{-0.161}$	$-0.240^{+0.250}_{-0.300}$	$2.057^{+0.510}_{-0.765}$	$1.437^{+0.205}_{-0.334}$	$0.232^{+0.496}_{-0.107}$
	+3%/-4%	+8%/-4%	+104%/-125%	+25%/-37%	+14%/-23%	+214%/-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 005309547-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$16.05^{+16.02}_{-11.25}$	3094^{+239}_{-298}	-6840^{+36312}_{-27829}	$-14.917^{+469.024}_{-614.198}$
Alt.	-474 ± 186	$16.12^{+16.22}_{-11.43}$	3090^{+240}_{-312}	3795^{+2836}_{-6051}	$1.373^{+14.275}_{-1.097}$

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

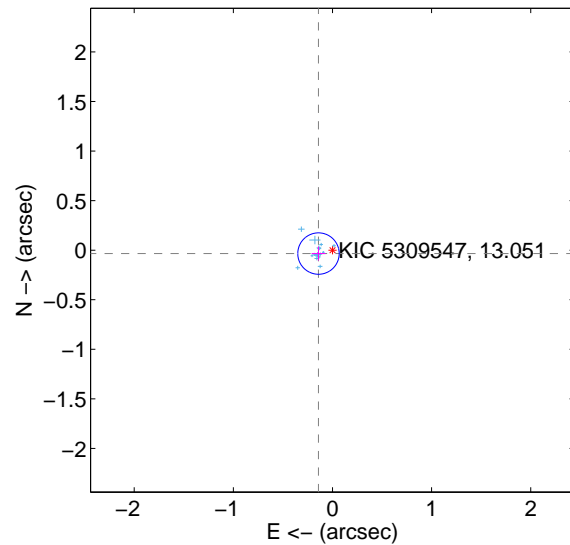
Supplemental centroid analysis for 005309547-01. Kepler magnitude: 13.05. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

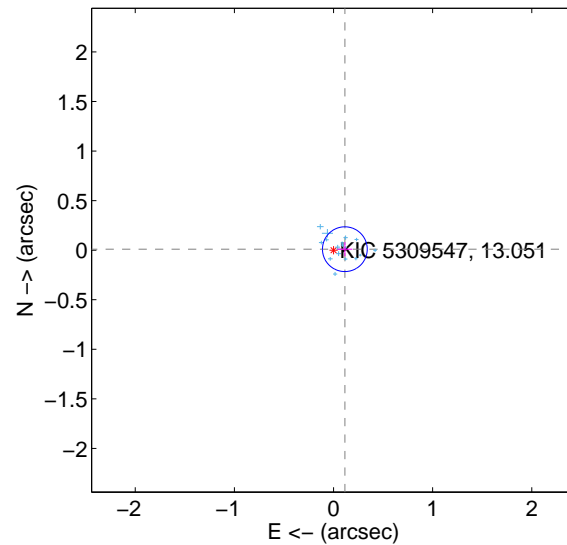
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.145 ± 0.070	2.09	0.141 ± 0.070	-0.034 ± 0.070
PRF-fit source offset from KIC position	0.115 ± 0.075	1.53	-0.114 ± 0.075	0.010 ± 0.071
photometric centroid source offset	0.80 ± 0.41	1.96	-0.32 ± 0.47	-0.73 ± 0.40

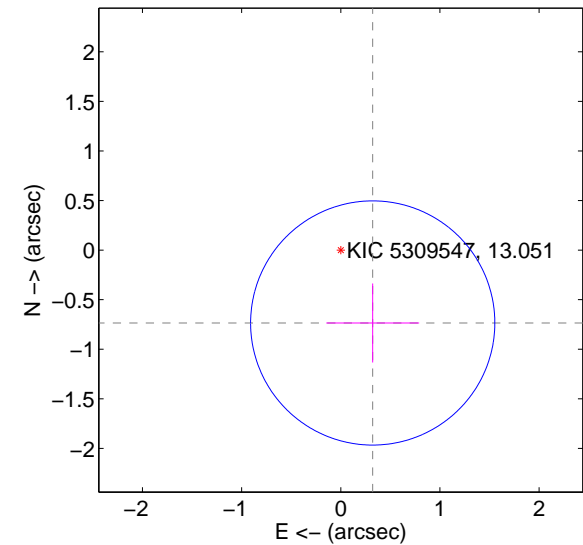
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

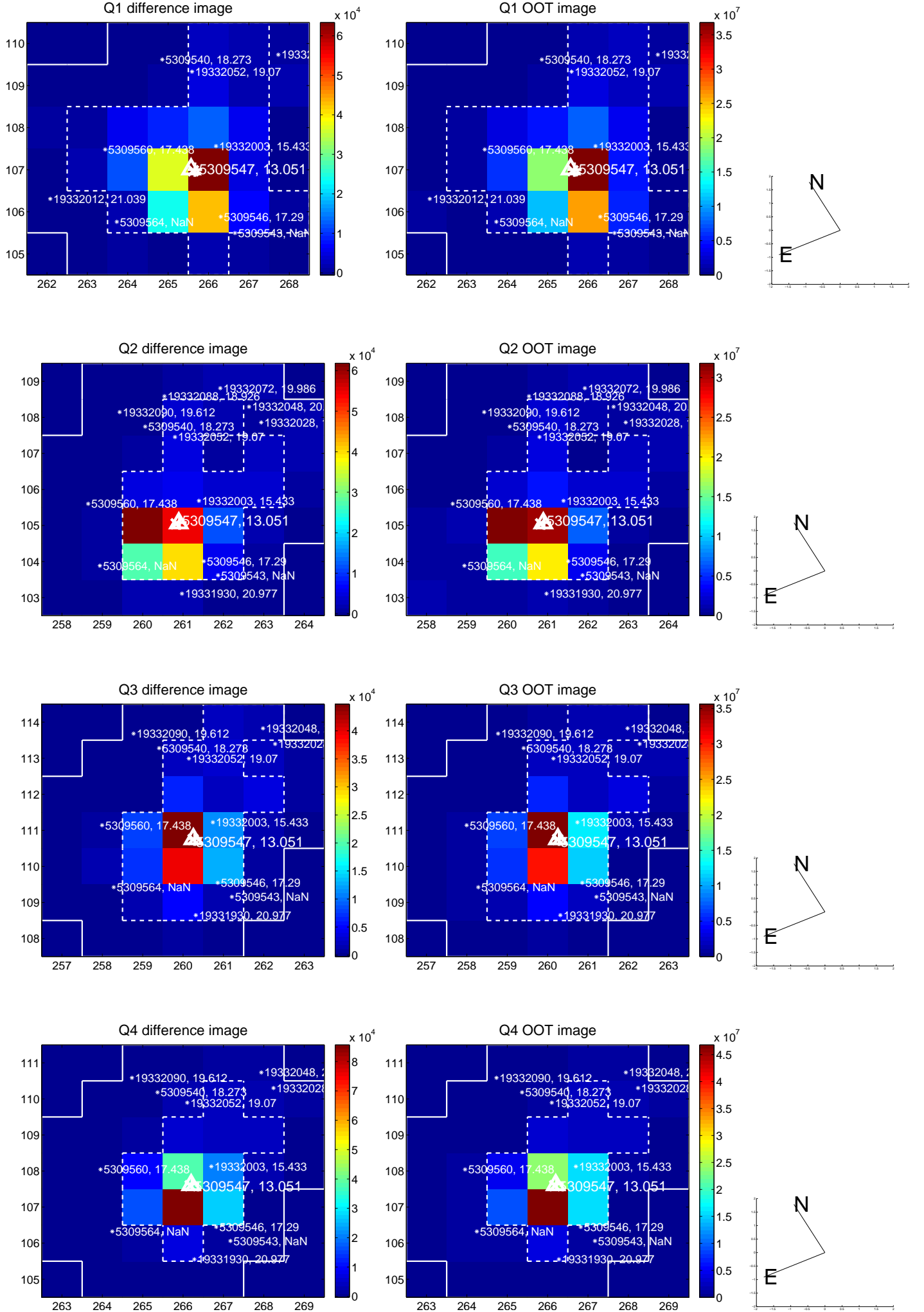


offset from photometric centroids

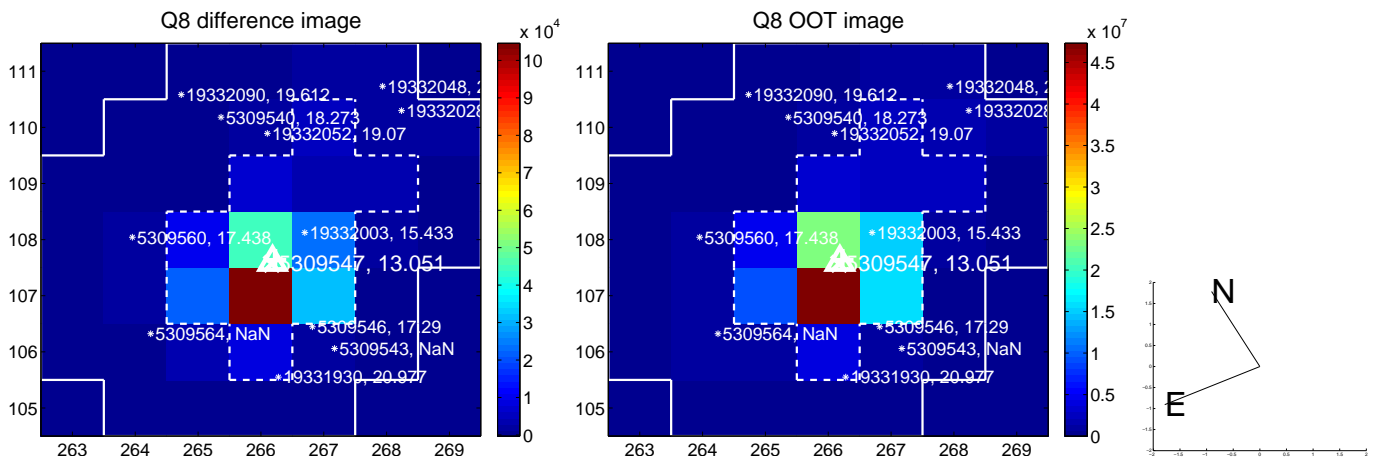
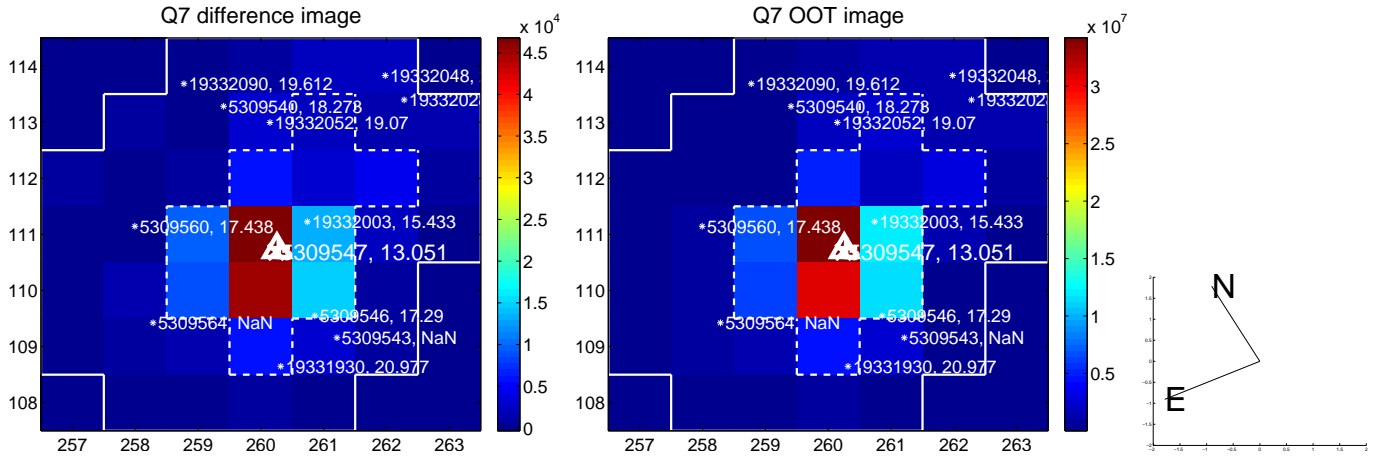
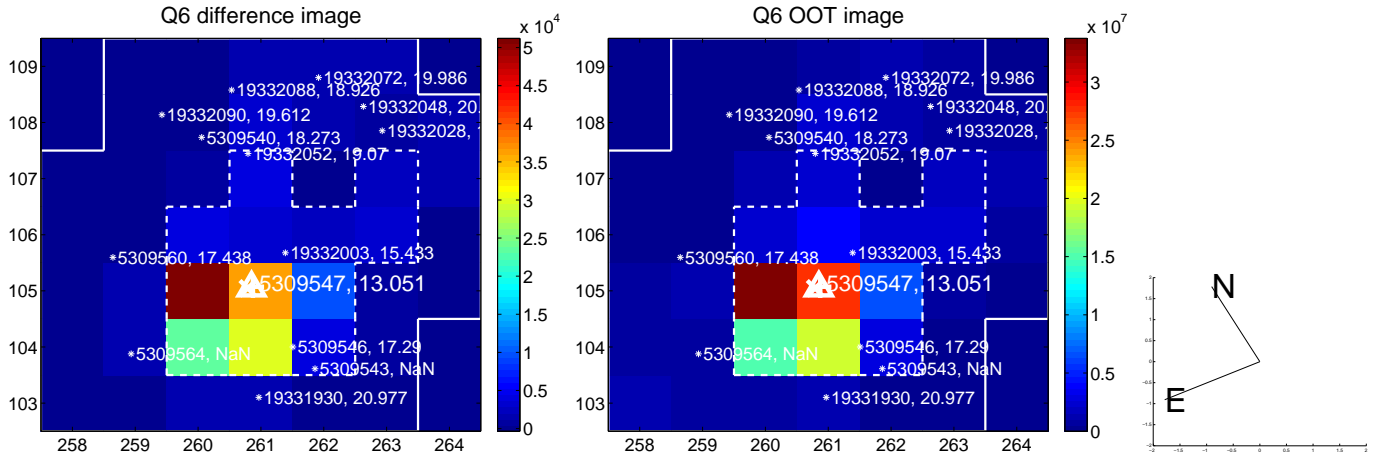
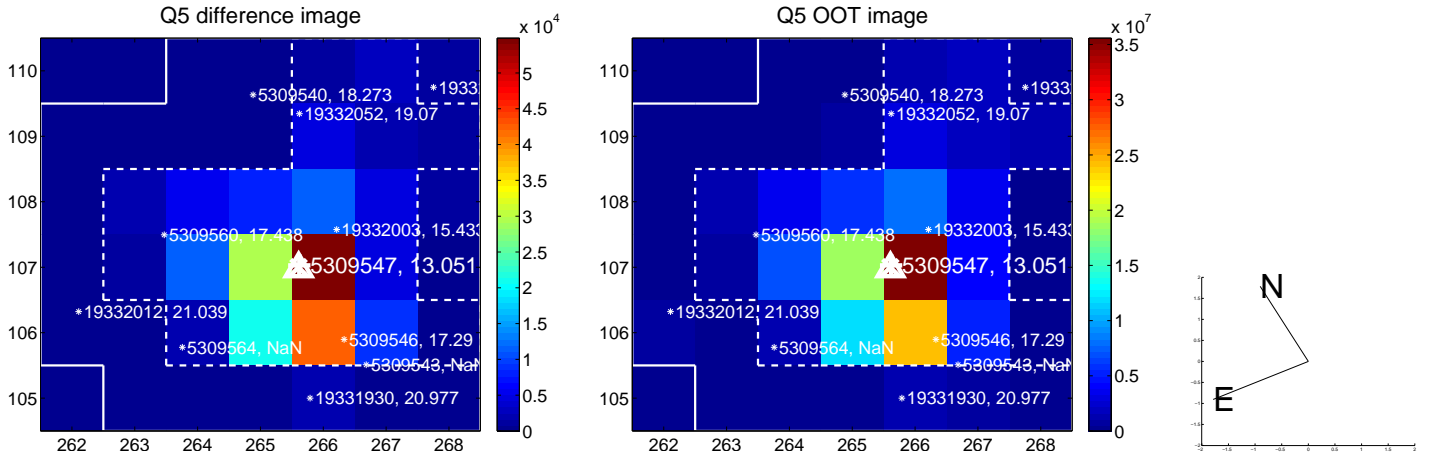


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

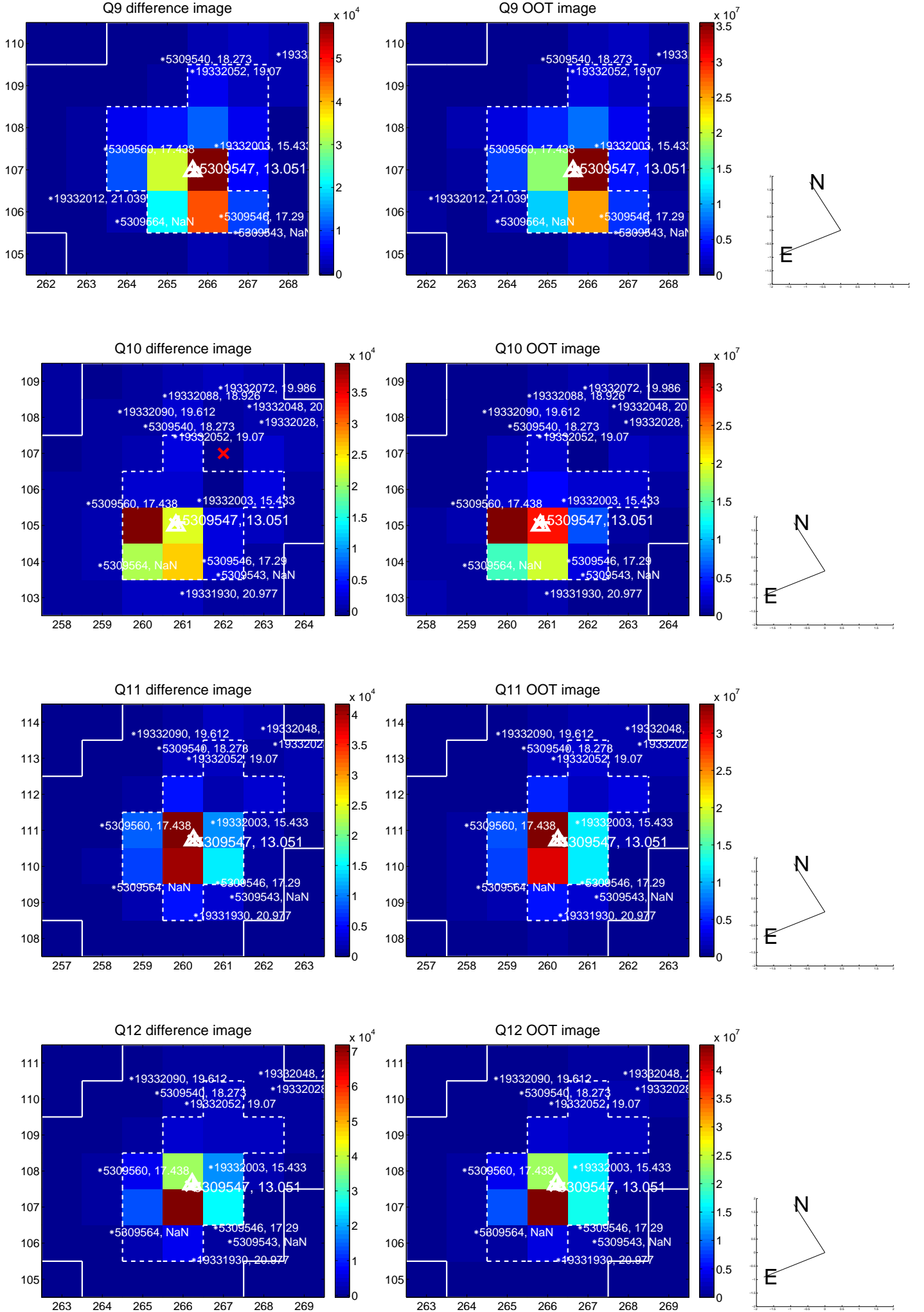
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



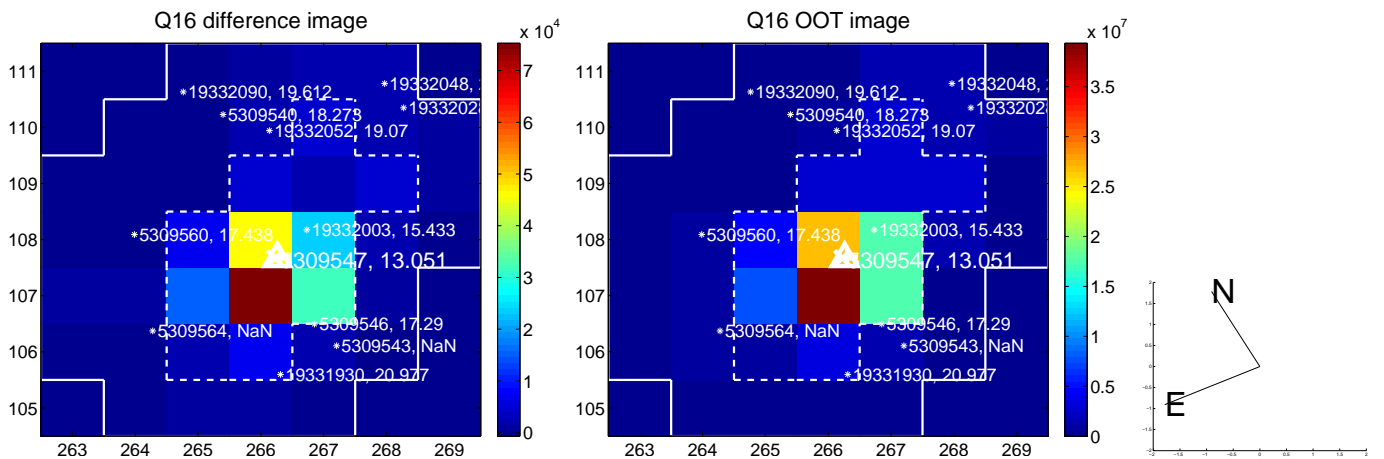
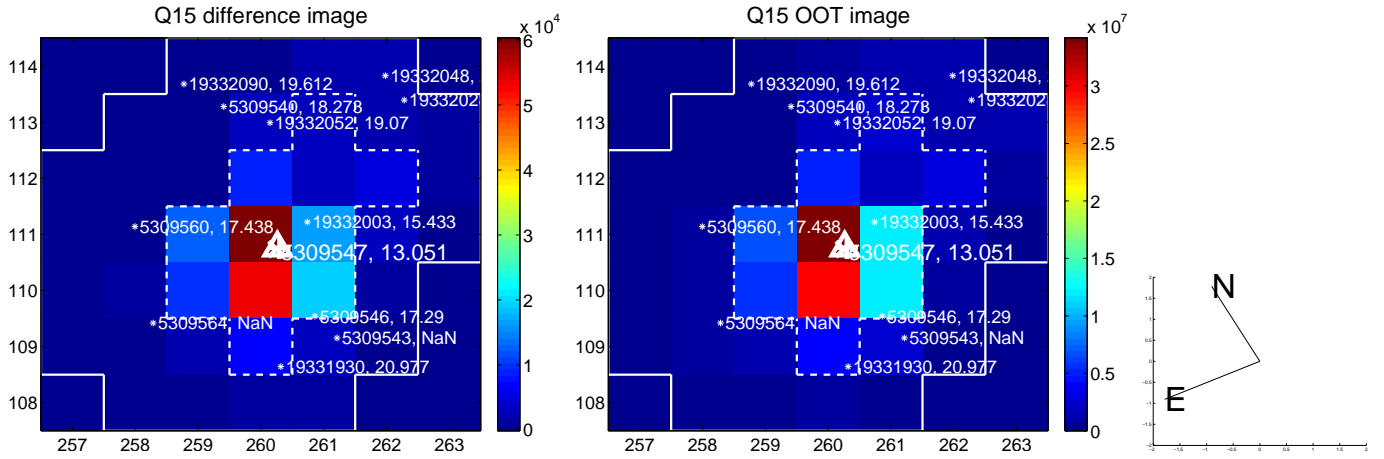
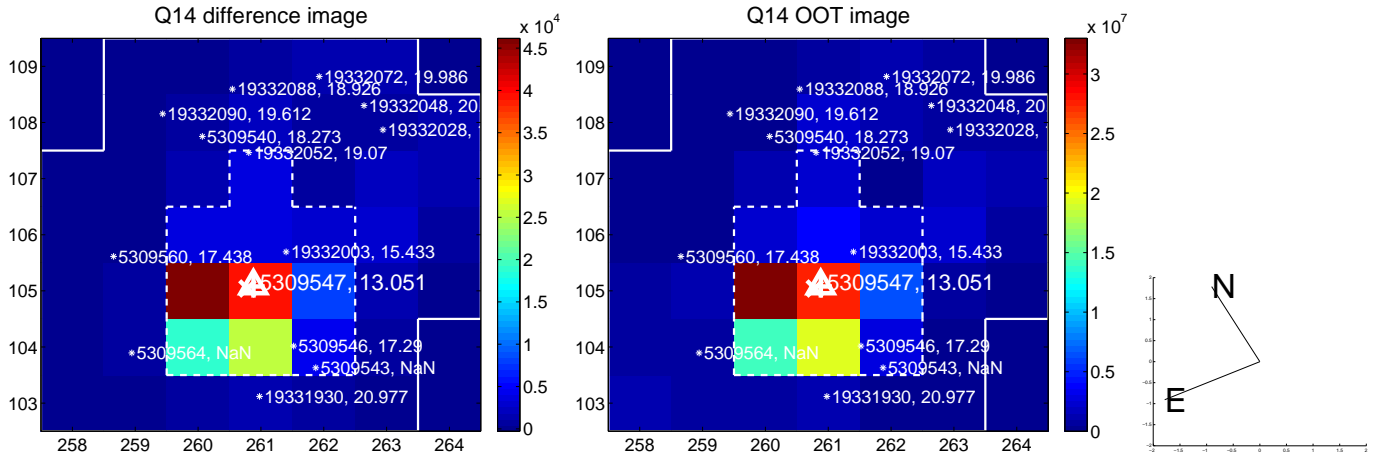
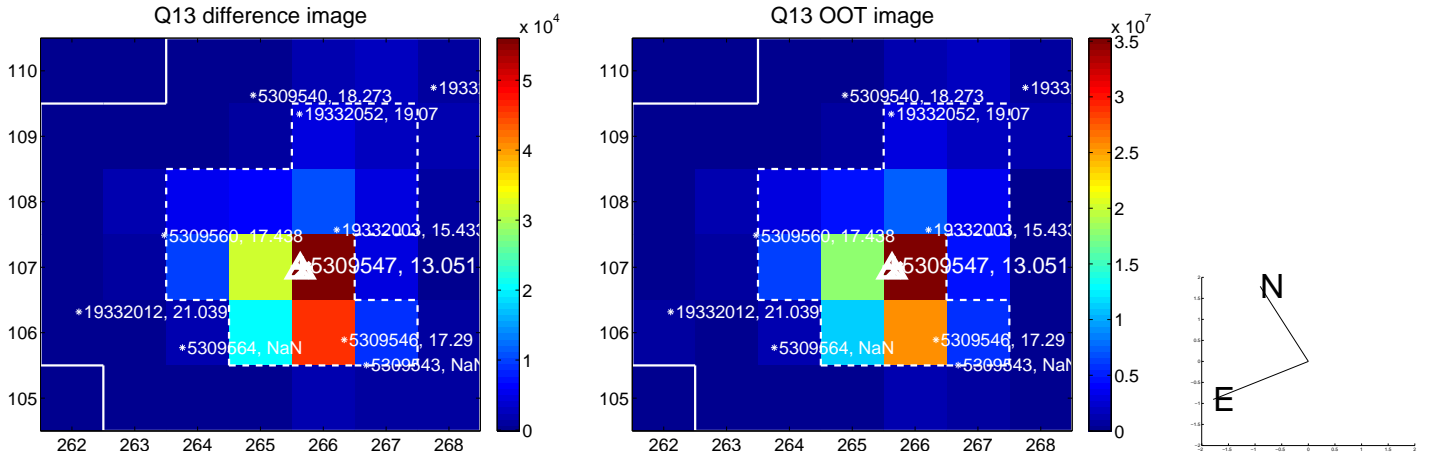
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



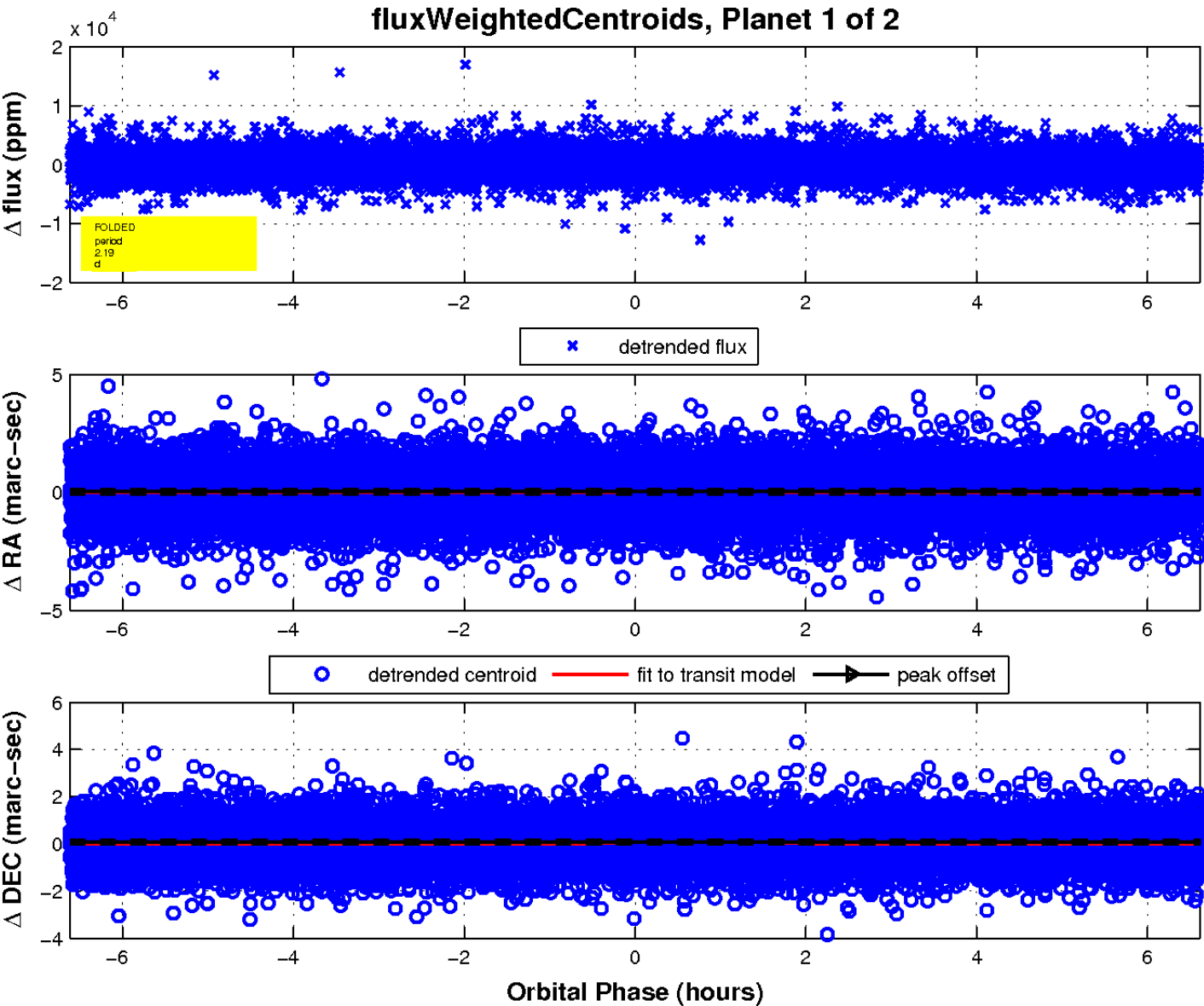
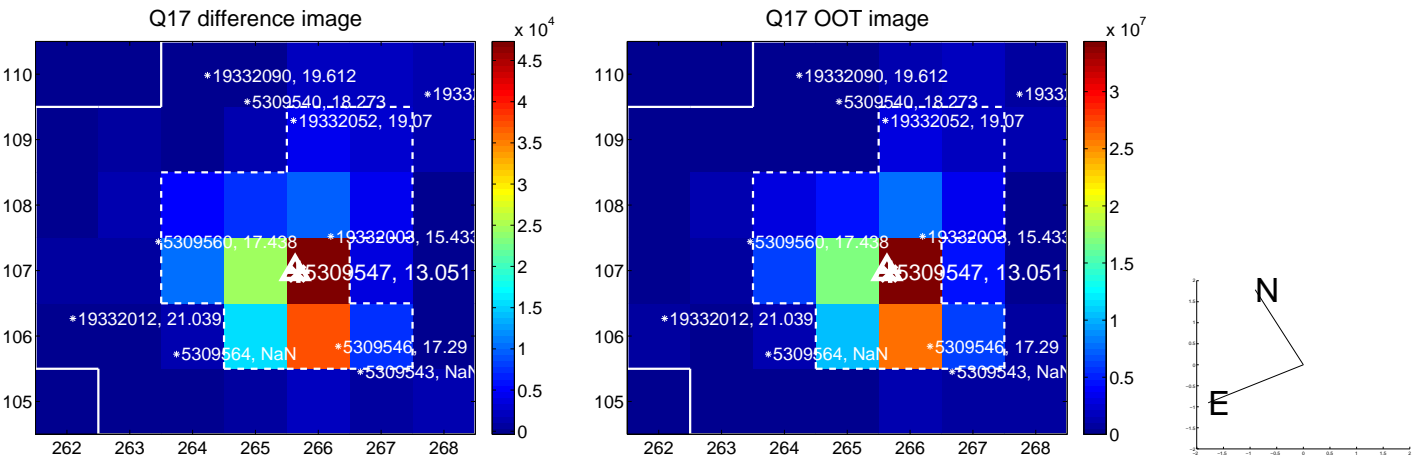
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

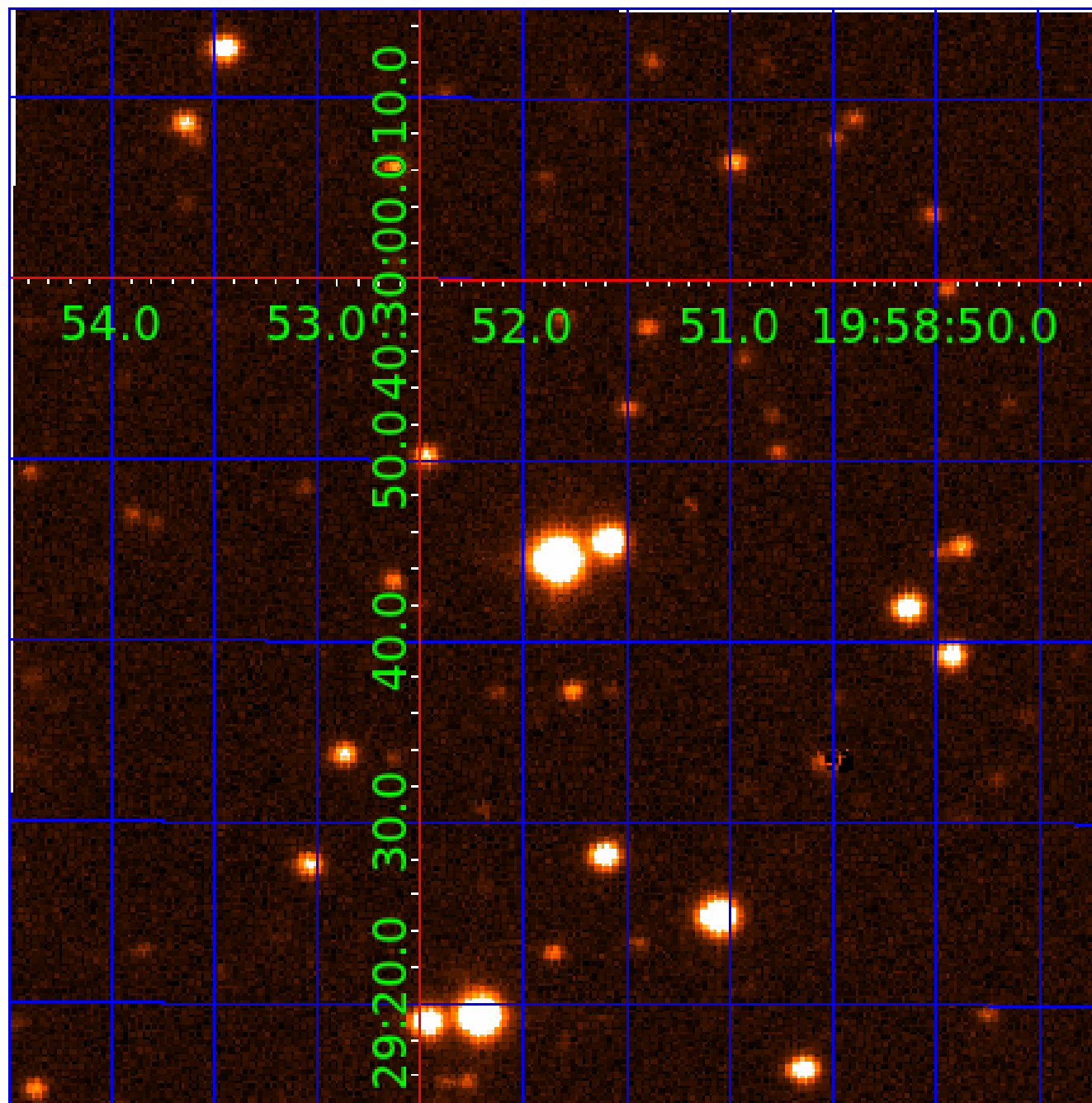


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005309547

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})
005309547-01	OBS	No	2.190554	132.900476	110.4	7.500	11.2	-1.0	2.06	6831	2.18	5946.33
005309547-02	OBS	No	393.318785	241.603610	612.1	6.000	13.2	-1.0	2.06	6831	5.14	5.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005309547-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS
005309547-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

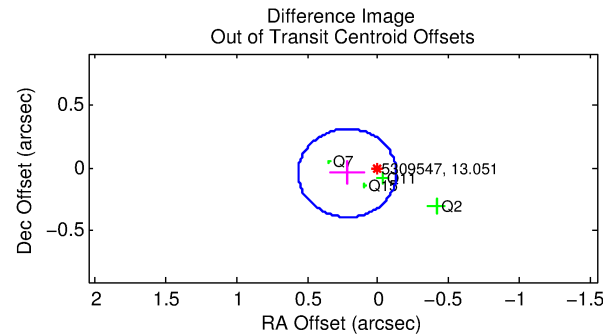
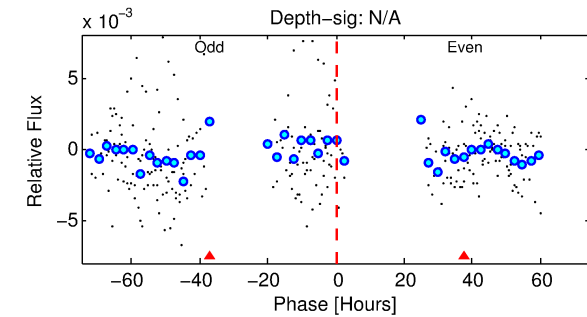
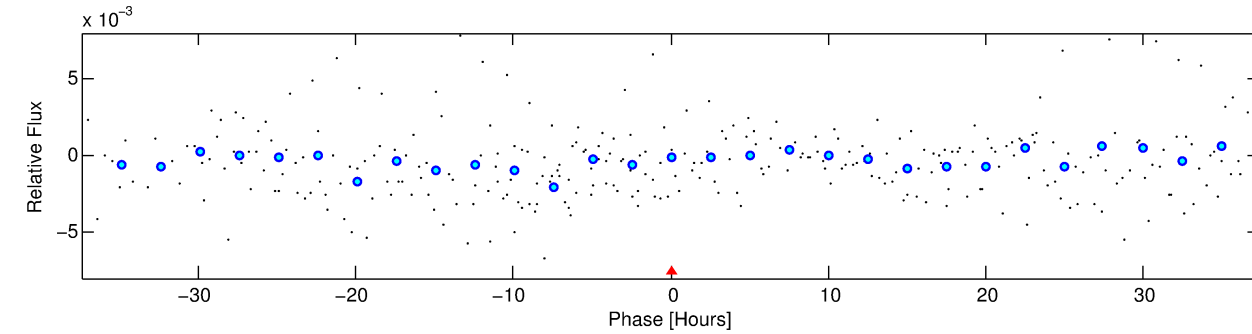
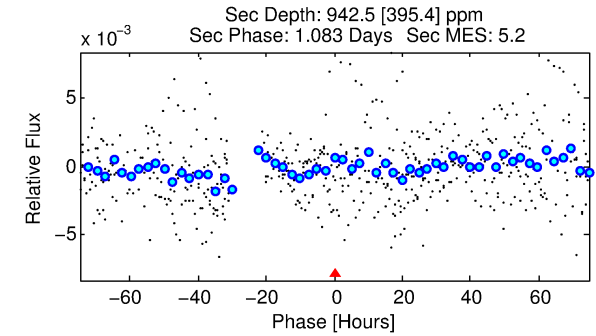
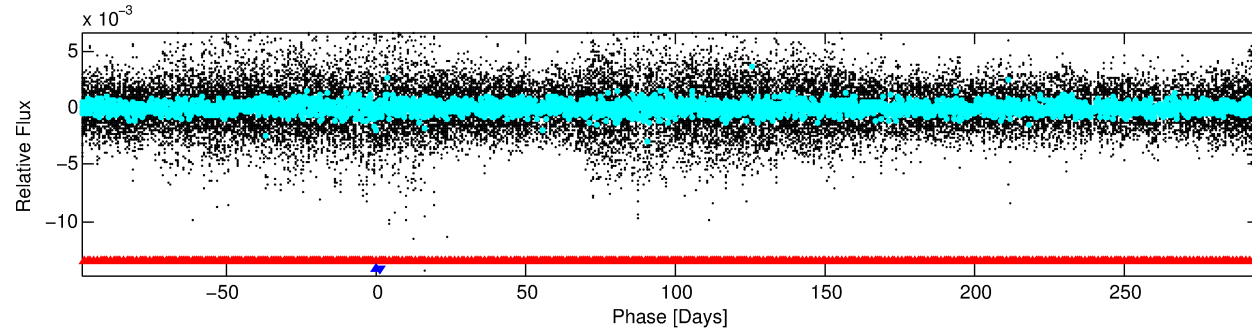
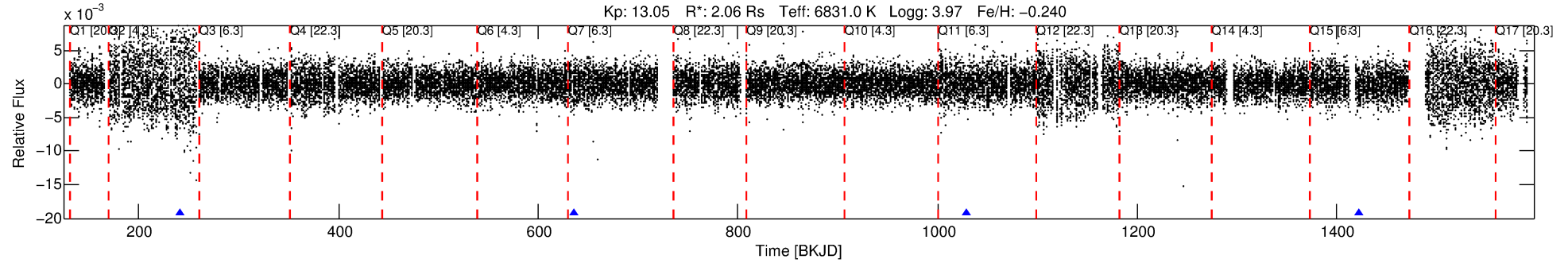
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005309547-02

No Significant Match Found

DV One-Page Summary

KIC: 5309547 Candidate: 2 of 2 Period: 393.319 d



TPS TCE Results:

Period = 393.31879 d
Epoch = 241.6036 BKJD

DV fit results are unavailable

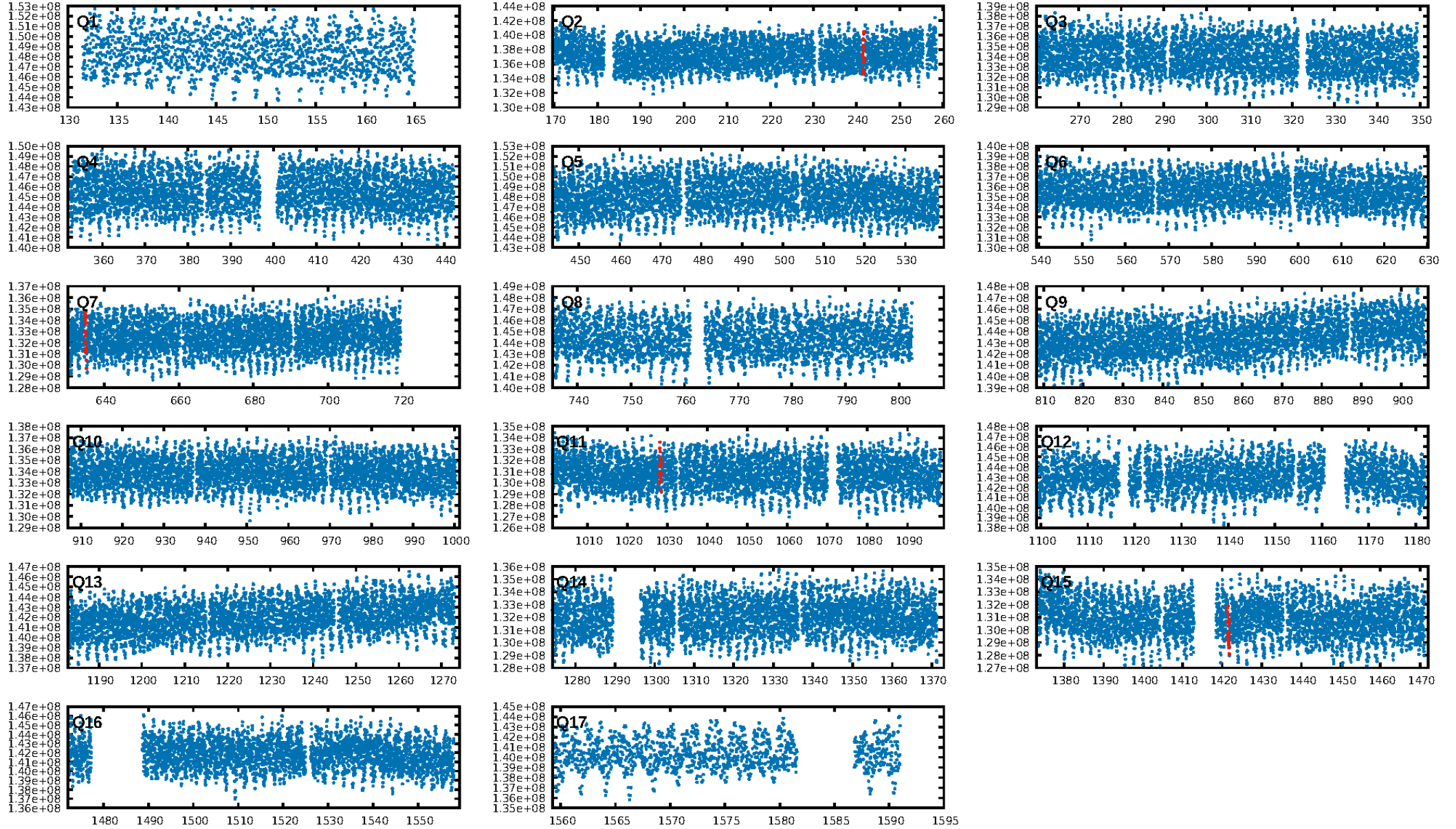
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [977.34σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.11e-21
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.216
Centroid-sig: 58.8%
Centroid-so: 0.220 arcsec [3.44σ]
OotOffset-rm: 0.221 arcsec [1.91σ]
KicOffset-rm: 0.076 arcsec [0.58σ]
OotOffset-st: 1/3/0/0 [4]
KicOffset-st: 1/3/0/0 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.25 [1/4]

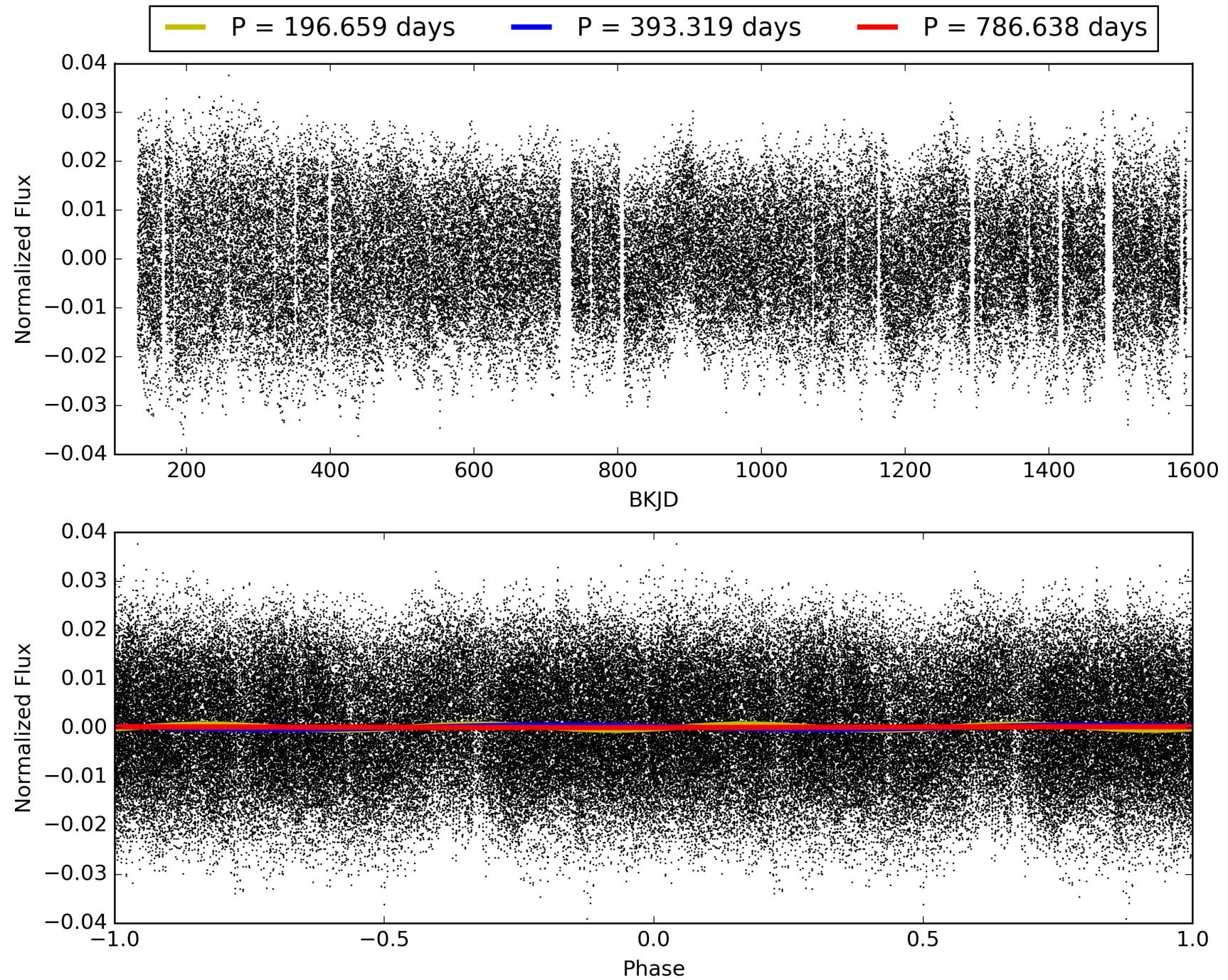
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005309547-02, PDC Light Curves

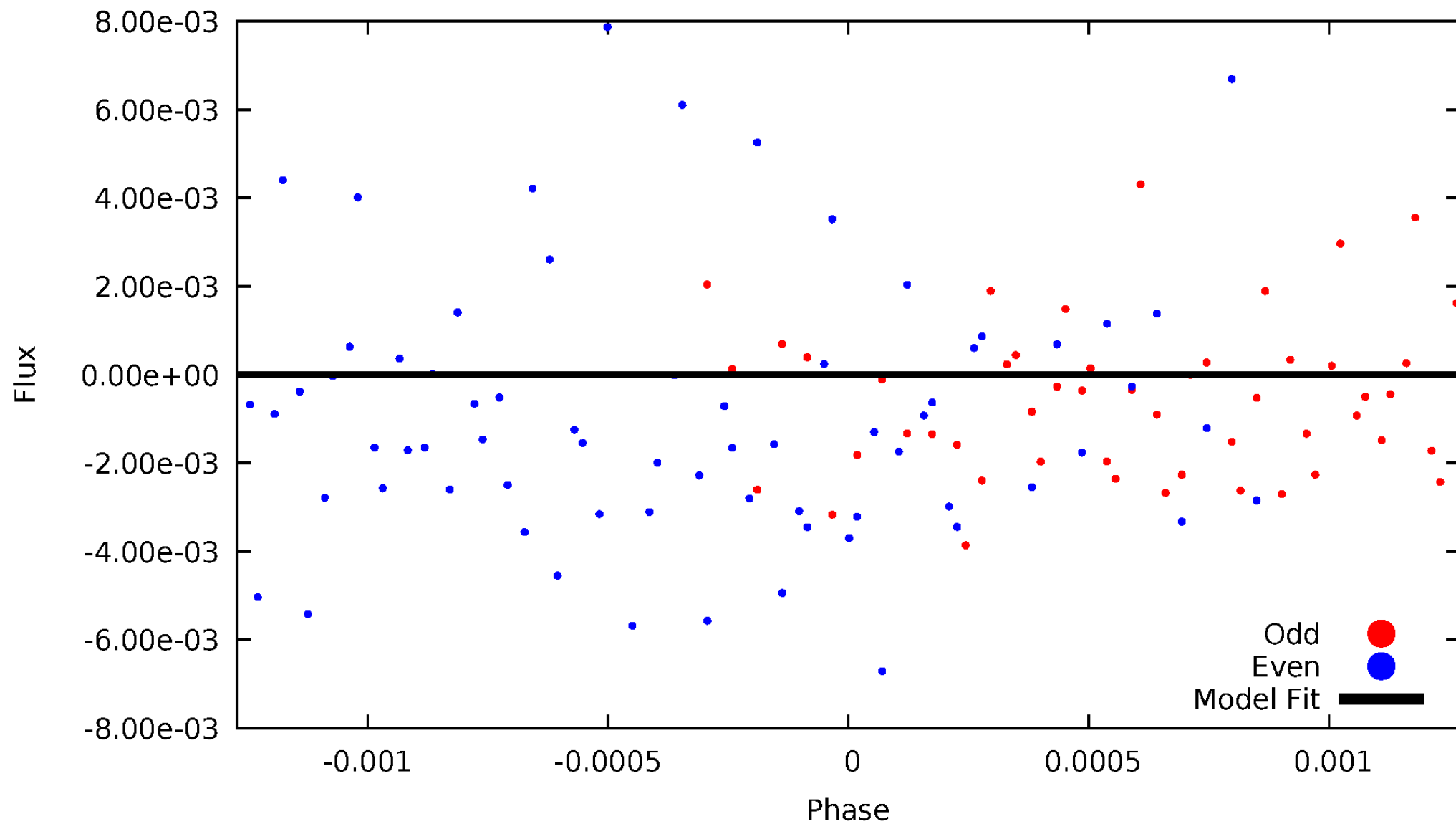


TCE 005309547-02



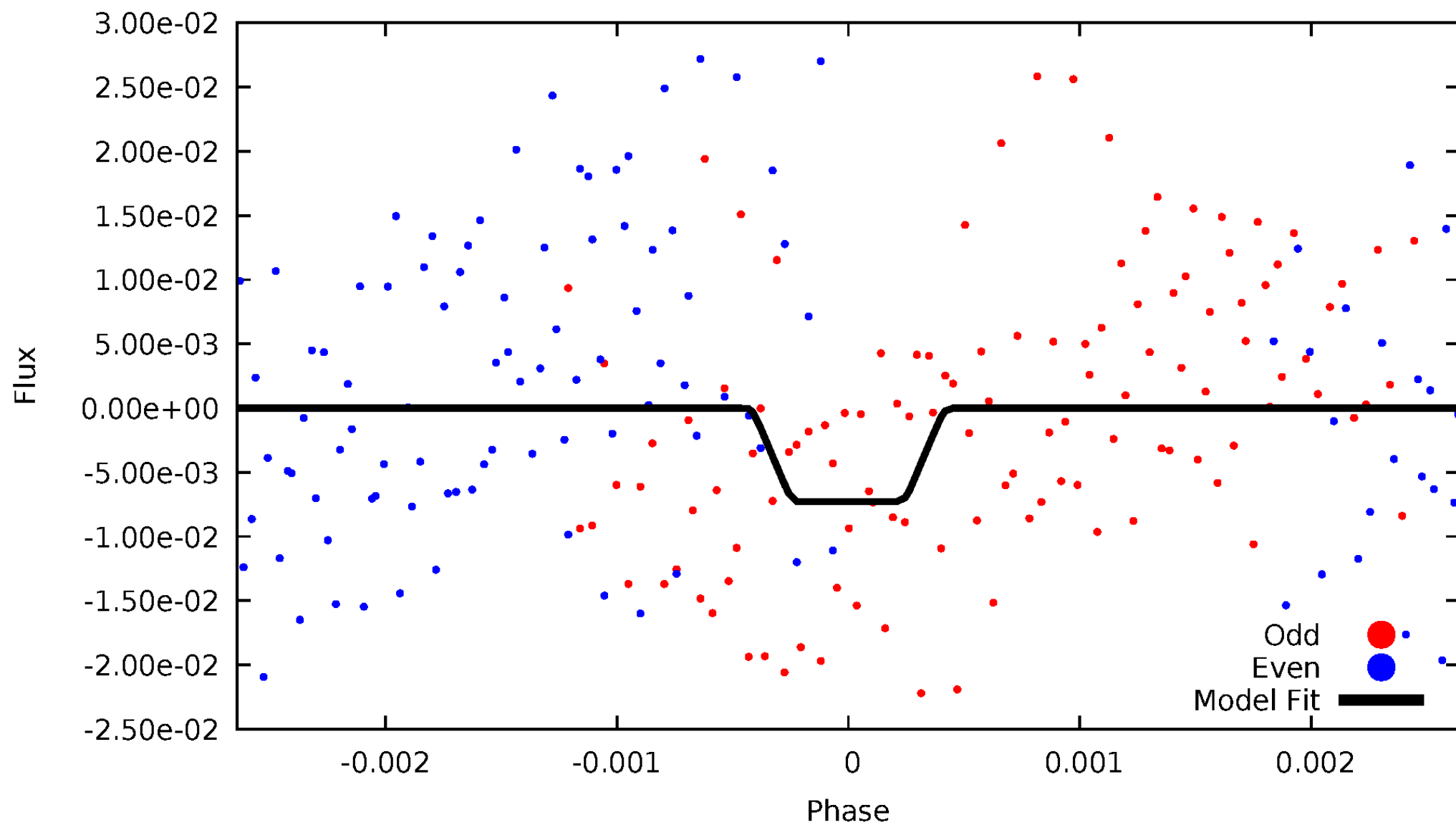
DV Odd/Even

TCE 005309547-02



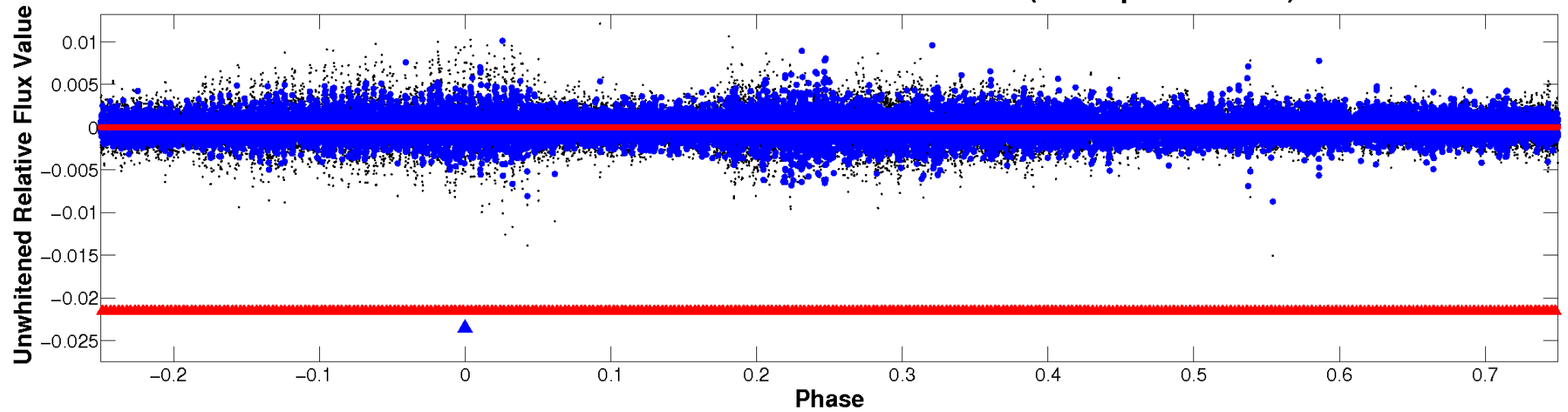
ALT Odd/Even

TCE 005309547-02

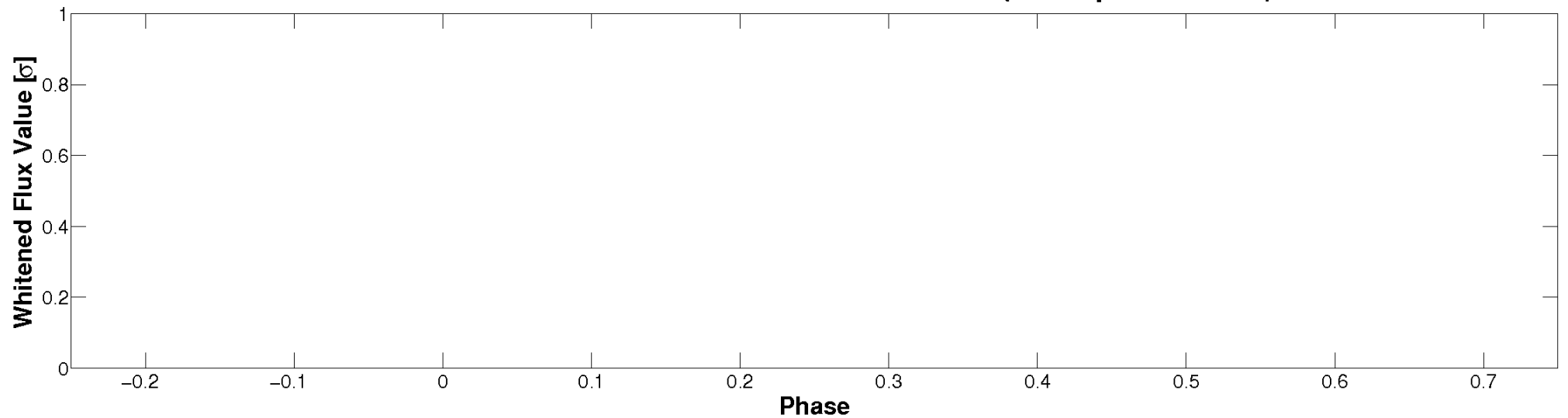


Non-Whitened Vs. Whitened Light Curve

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

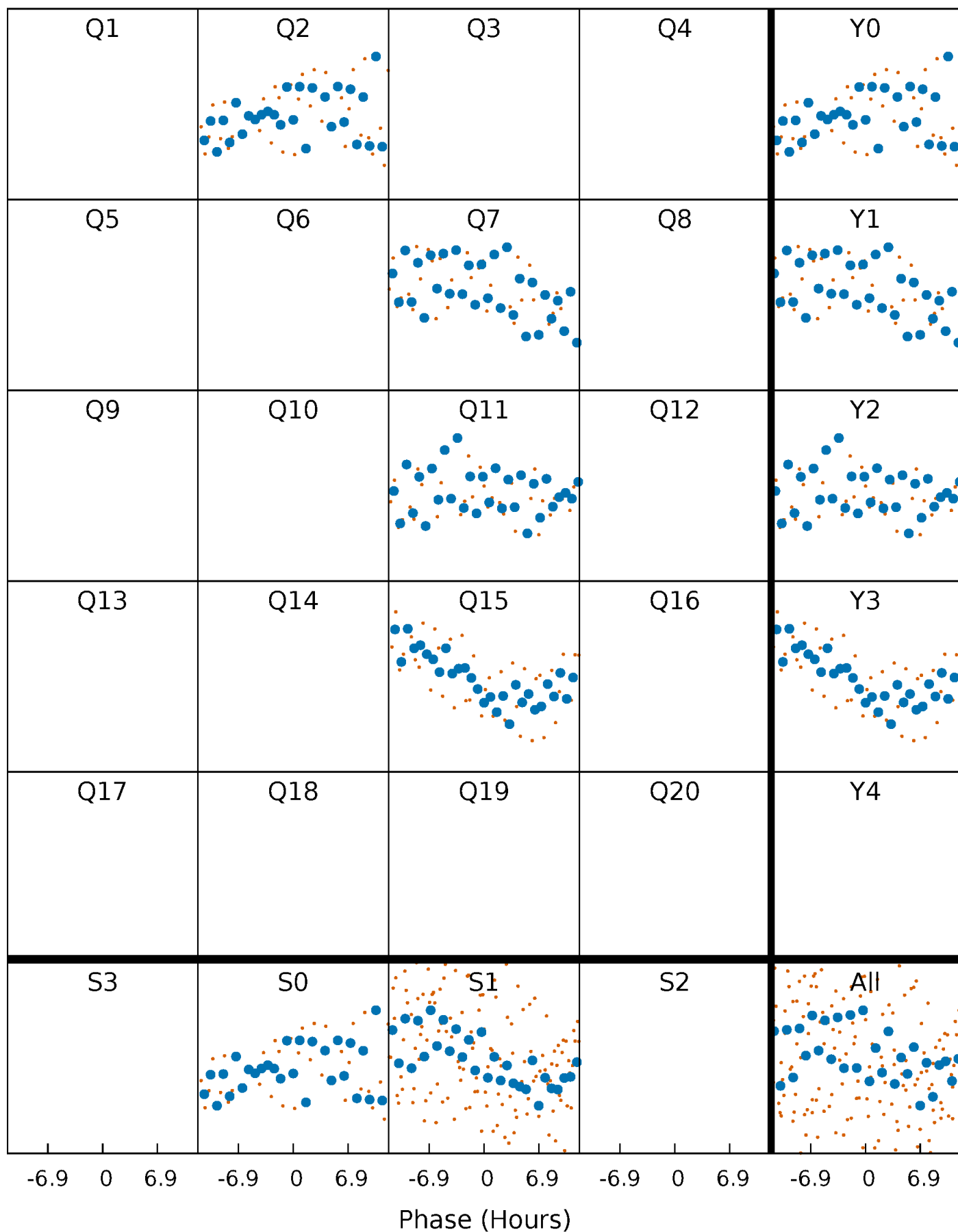


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 005309547-02 $P=393.318785$ Days $T_0=241.603610$ (BKJD)



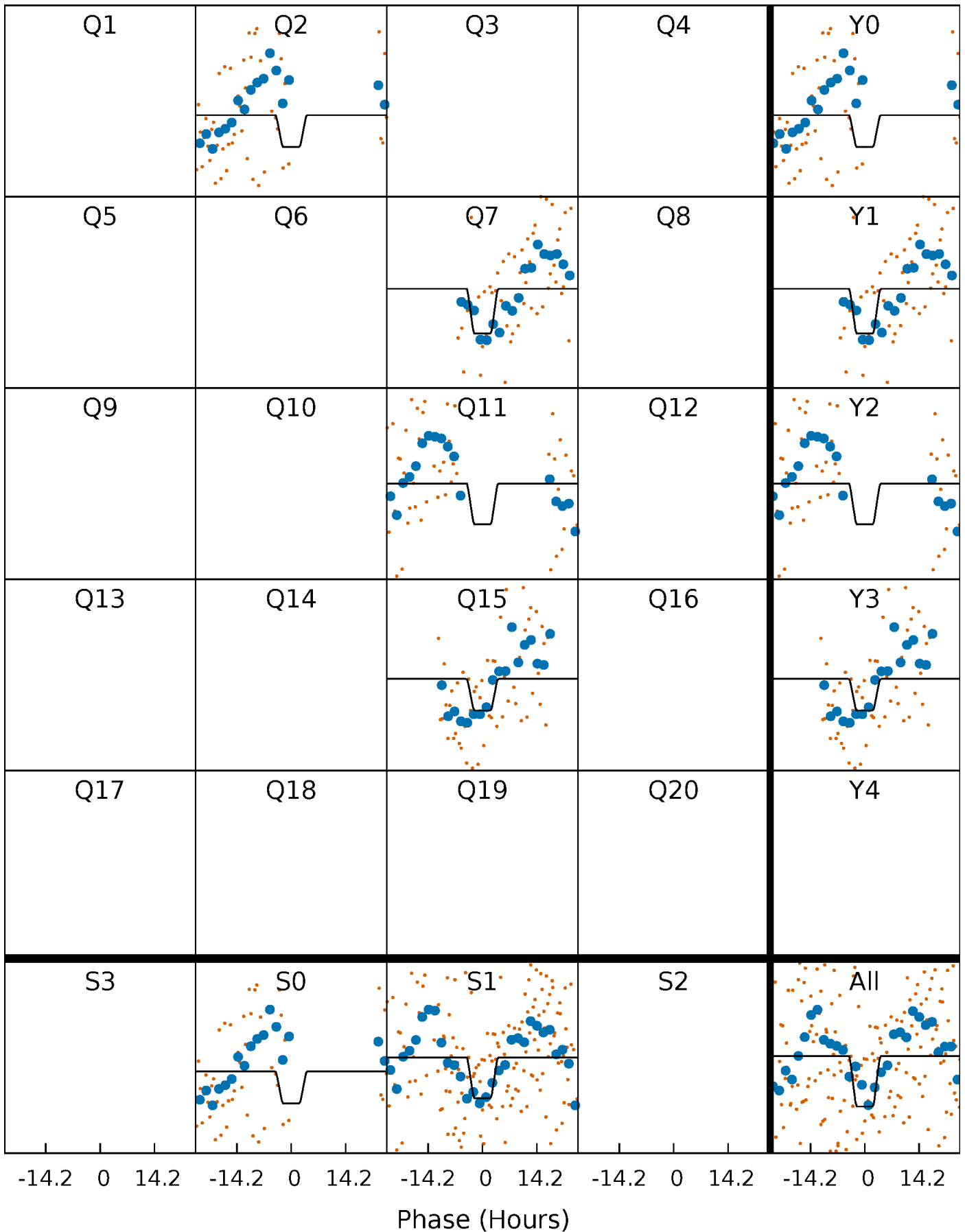
DV Quarter-Phased Transit Curves

TCE 005309547-02 P=393.318785 Days $T_0=241.603610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

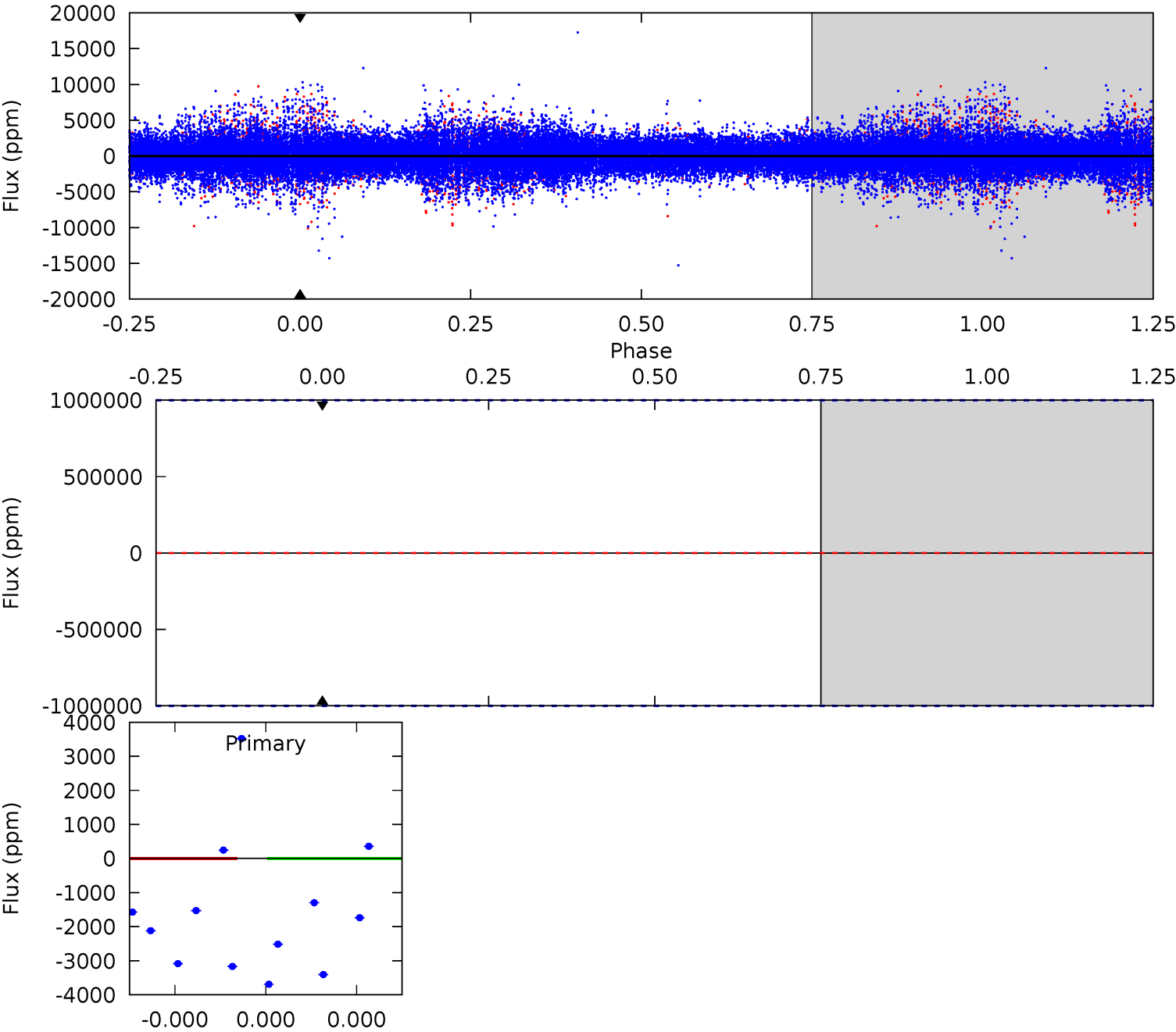
TCE 005309547-02 P=393.318785 Days $T_0=241.964164$ (BKJD)



DV Model-Shift Uniqueness Test

005309547-02, P = 393.318785 Days, E = 241.603610 Days

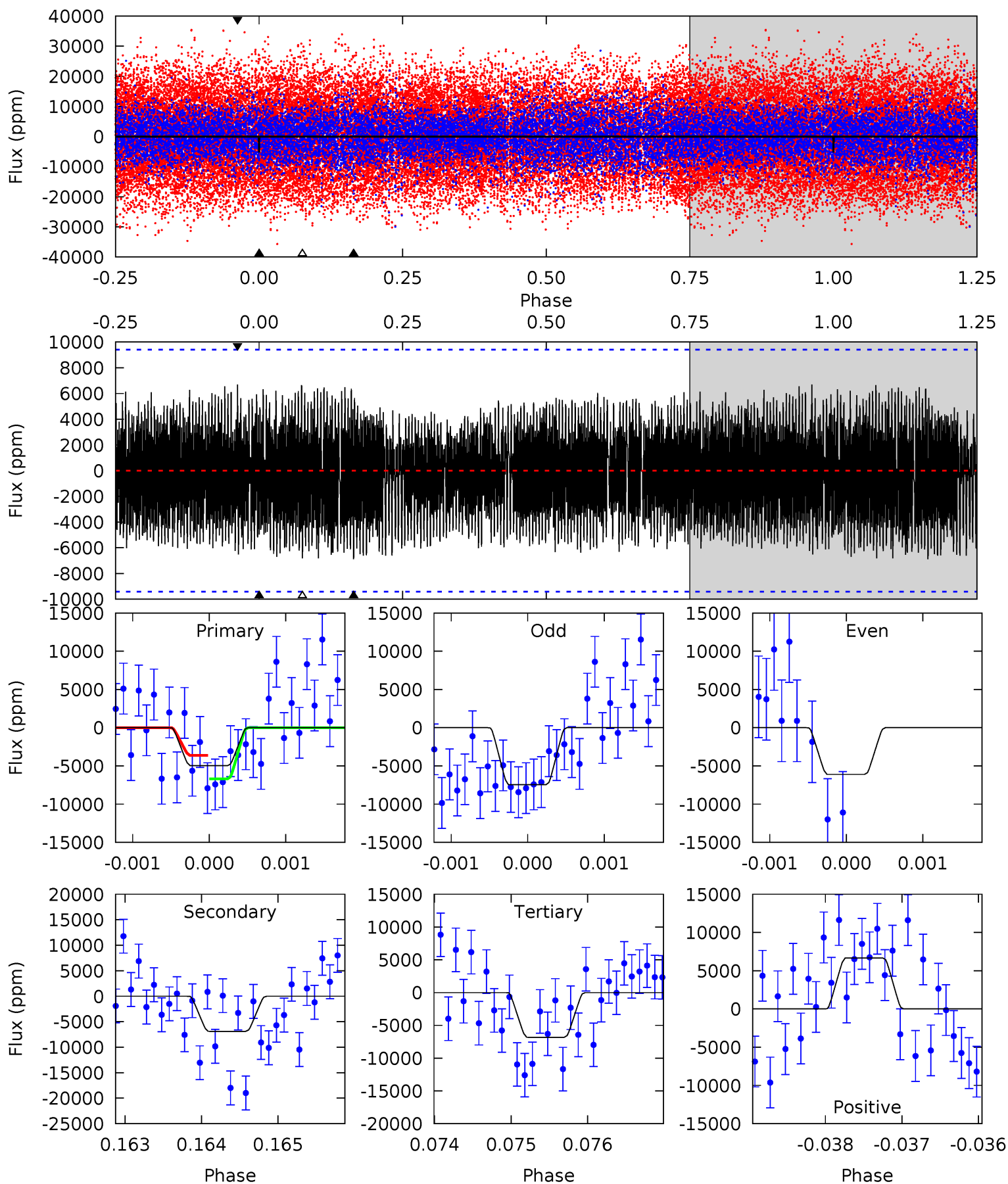
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005309547-02, P = 393.318785 Days, E = 241.964164 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.89	4.00	3.97	3.89	5.47	3.33	1.86	-1.08	-1.00	0.04	0.12	0.31	0.42	0.49	0.88



Stellar Parameters For KIC 005309547

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6831^{+214}_{-285}	$3.969^{+0.299}_{-0.161}$	$-0.240^{+0.250}_{-0.300}$	$2.057^{+0.510}_{-0.765}$	$1.437^{+0.205}_{-0.334}$	$0.232^{+0.496}_{-0.107}$
	+3%/-4%	+8%/-4%	+104%/-125%	+25%/-37%	+14%/-23%	+214%/-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 005309547-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$16.55^{+17.46}_{-11.61}$	550^{+42}_{-51}	-4466^{+32620}_{-24186}	$-3191.596^{+421334.519}_{-467713.227}$
Alt.	-6883 ± 1719	$23.52^{+20.92}_{-14.59}$	546^{+44}_{-51}	5811^{+4806}_{-1331}	9374^{+64461}_{-6673}

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 $A_{\text{obs}} \gg 1.0$

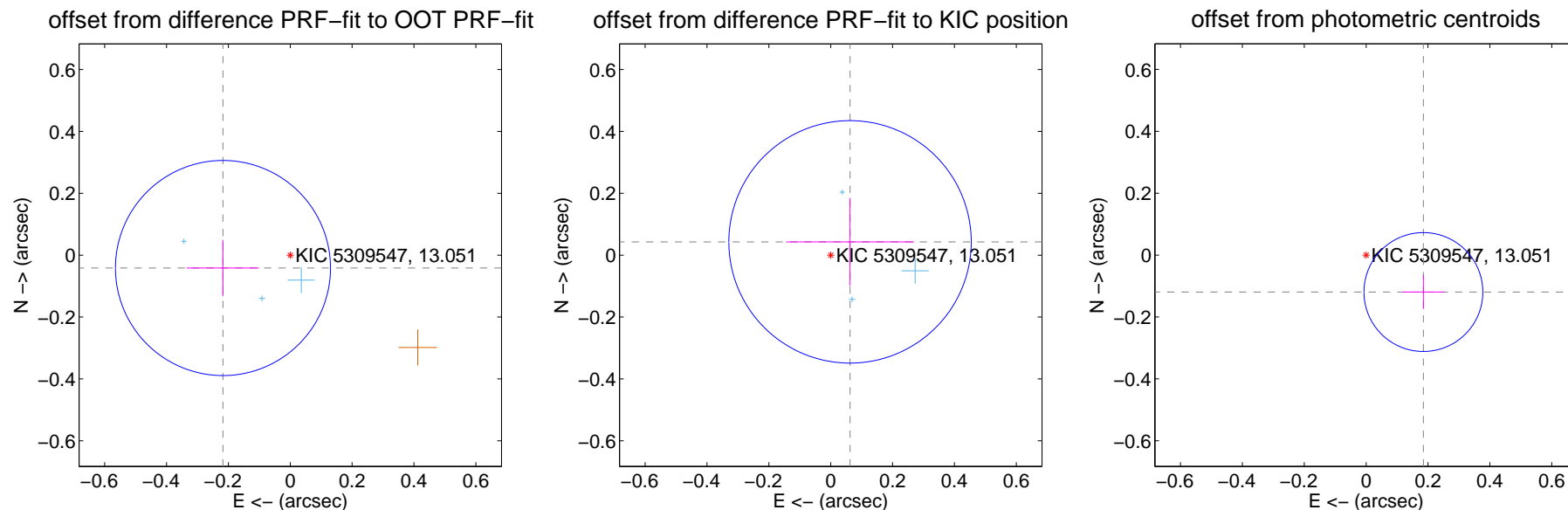
DV Centroid Data

Supplemental centroid analysis for 005309547-02. Kepler magnitude: 13.05. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

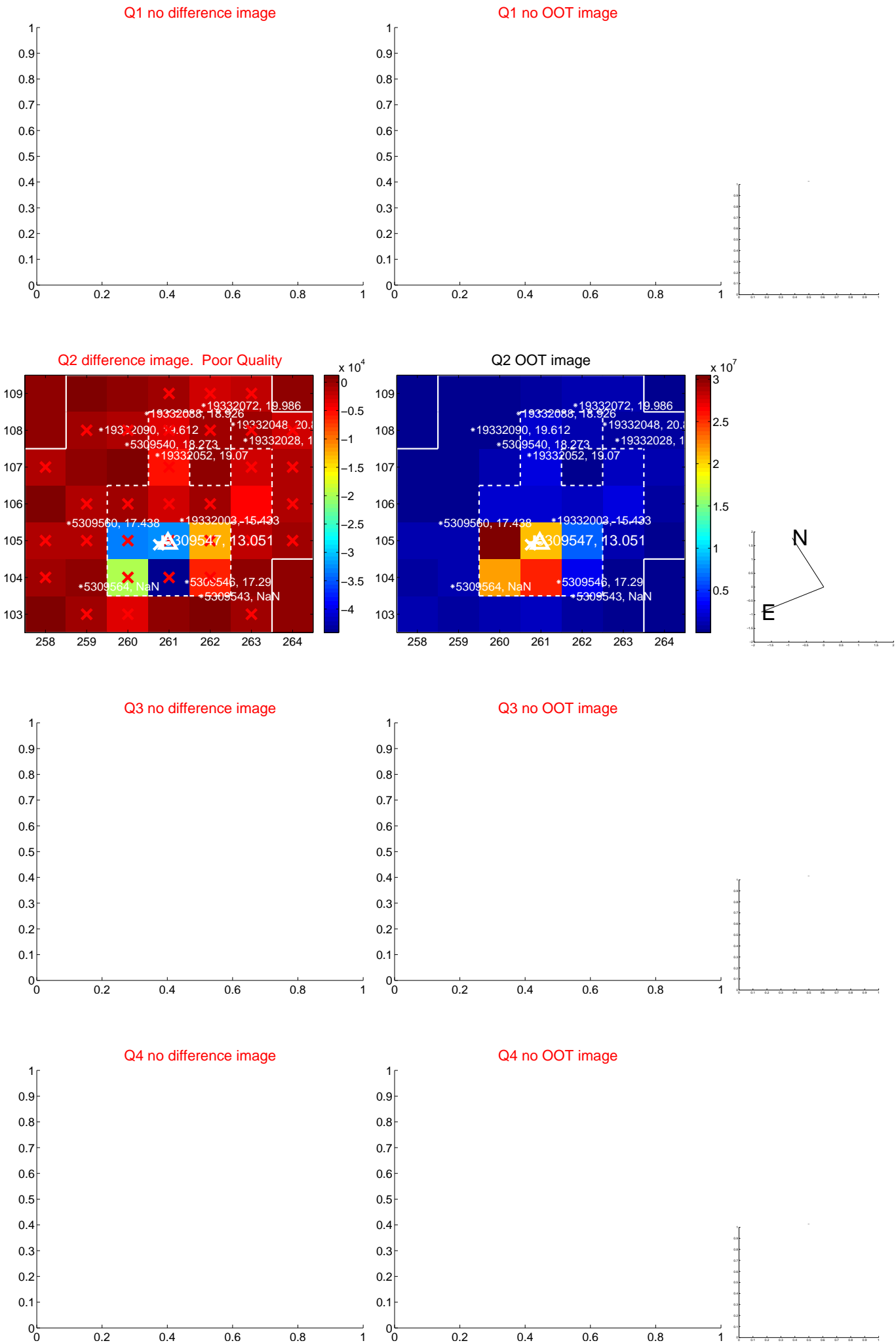
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.221 ± 0.116	1.91	0.218 ± 0.117	-0.042 ± 0.091
PRF-fit source offset from KIC position	0.076 ± 0.131	0.58	-0.062 ± 0.207	0.043 ± 0.142
photometric centroid source offset	0.22 ± 0.06	3.44	-0.19 ± 0.07	-0.12 ± 0.05



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.

Q5 no difference image



Q5 no OOT image



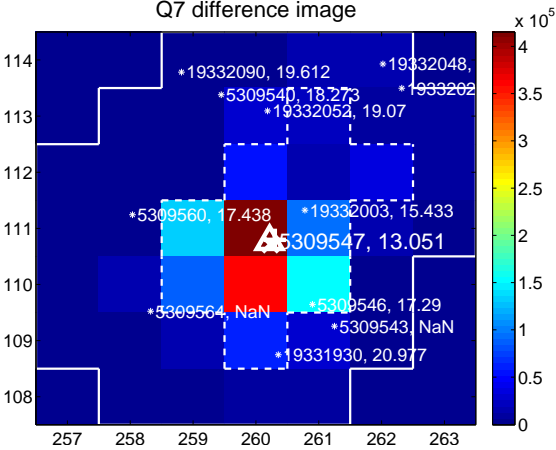
Q6 no difference image



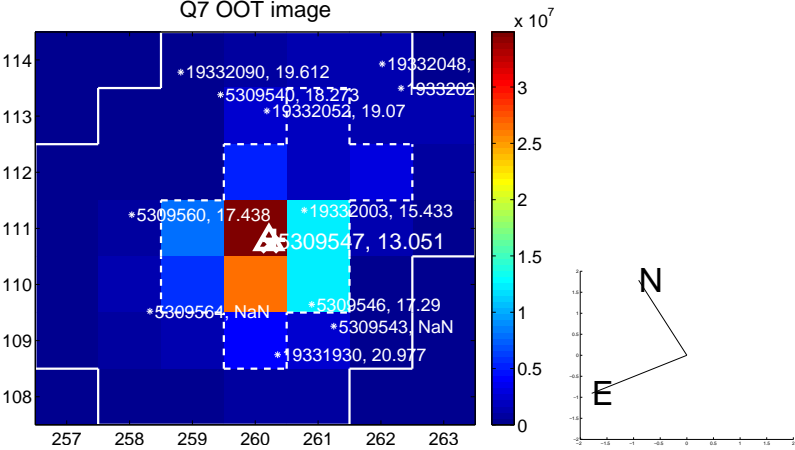
Q6 no OOT image



Q7 difference image



Q7 OOT image



Q8 no difference image



Q8 no OOT image



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

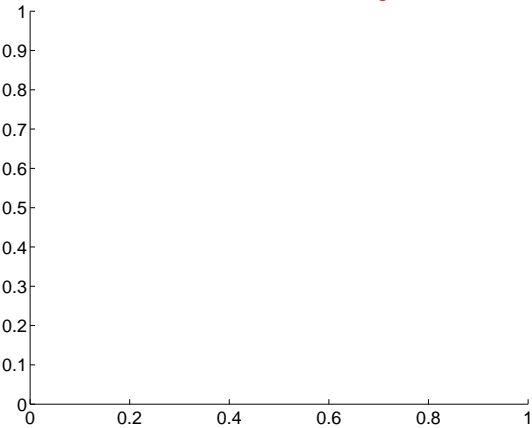
Q9 no difference image



Q9 no OOT image



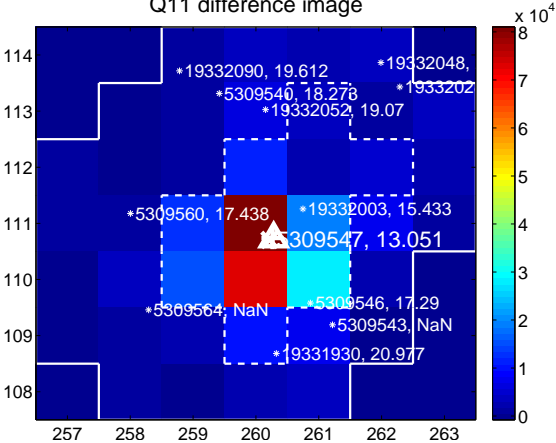
Q10 no difference image



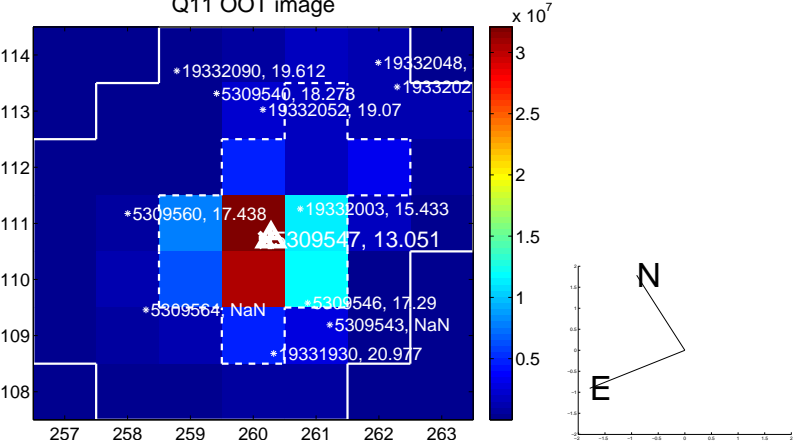
Q10 no OOT image



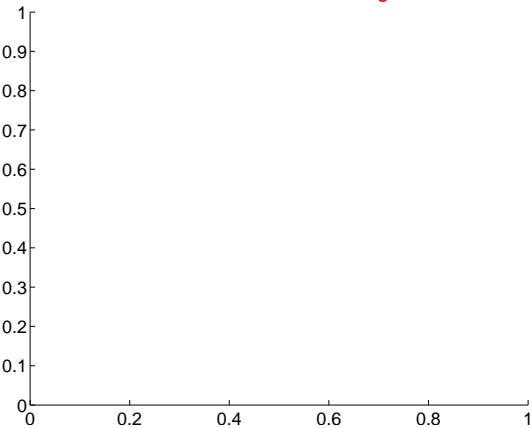
Q11 difference image



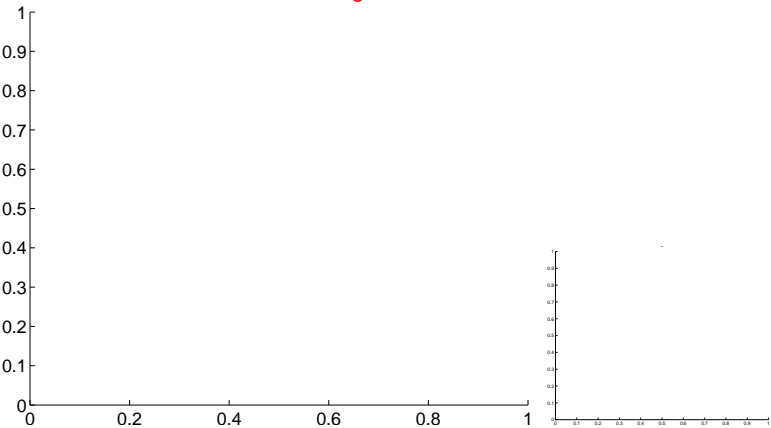
Q11 OOT image



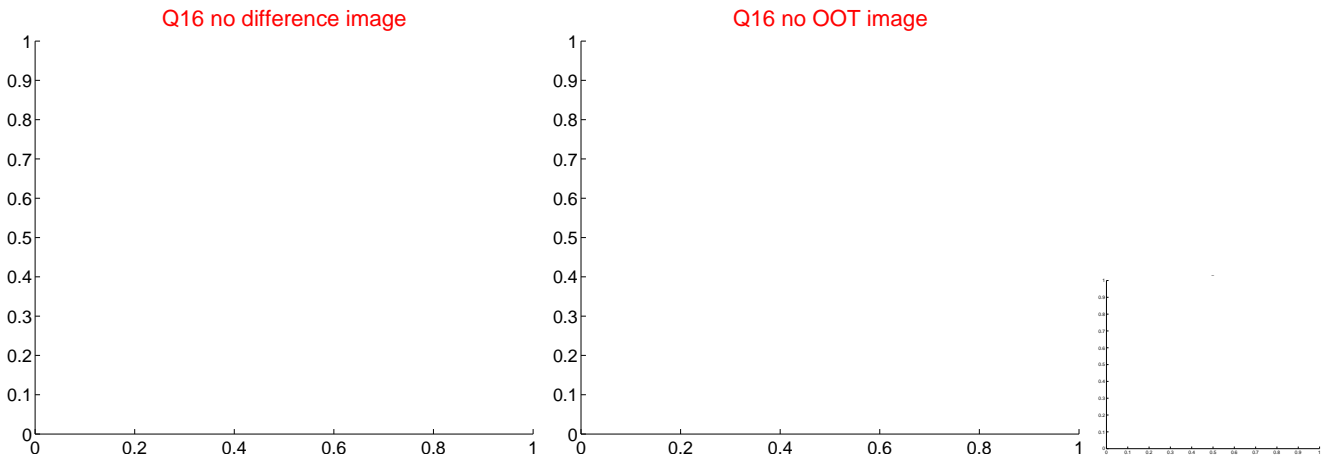
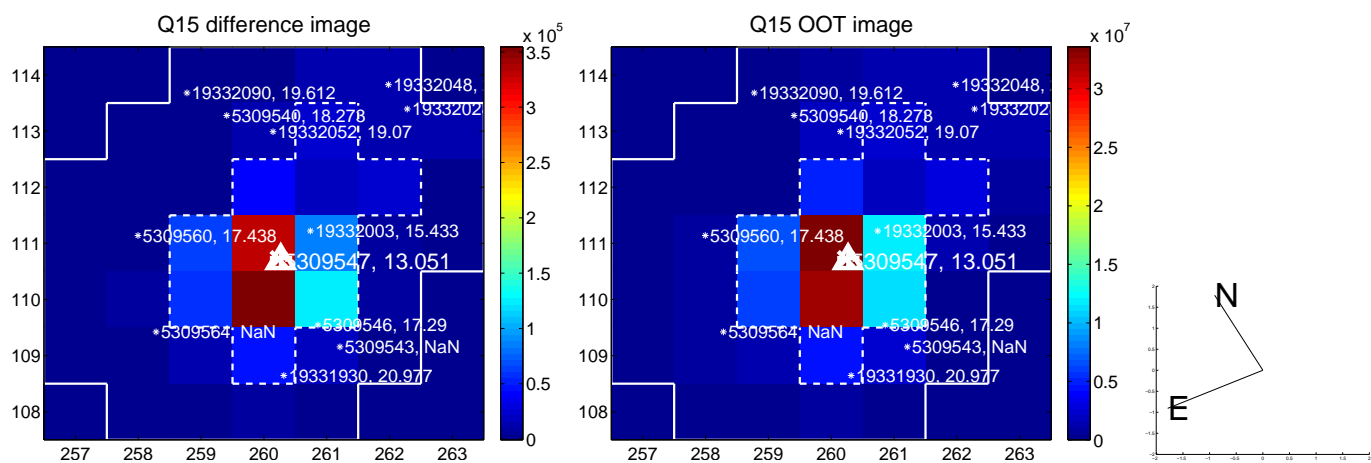
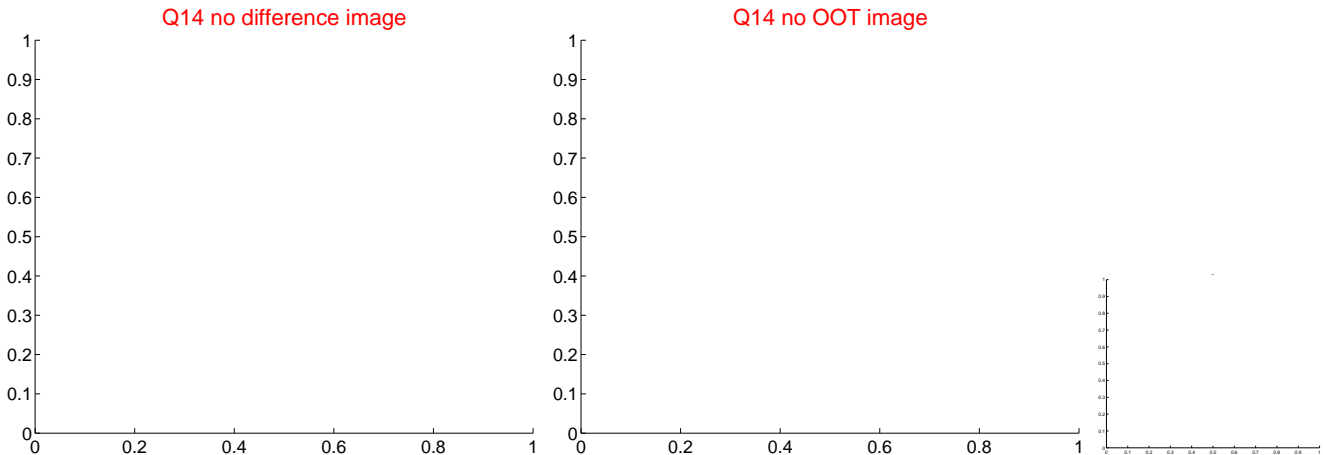
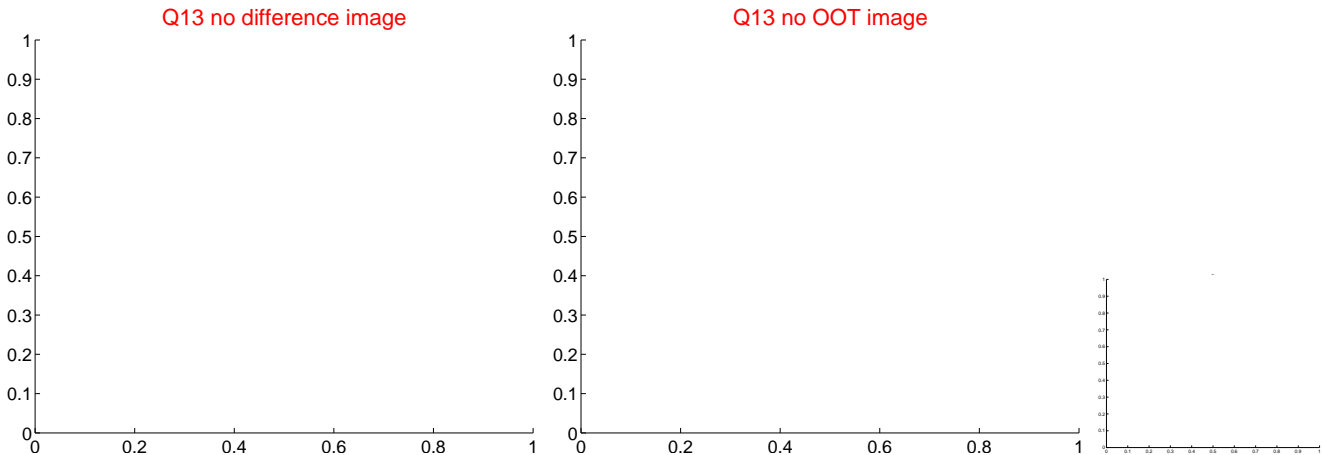
Q12 no difference image



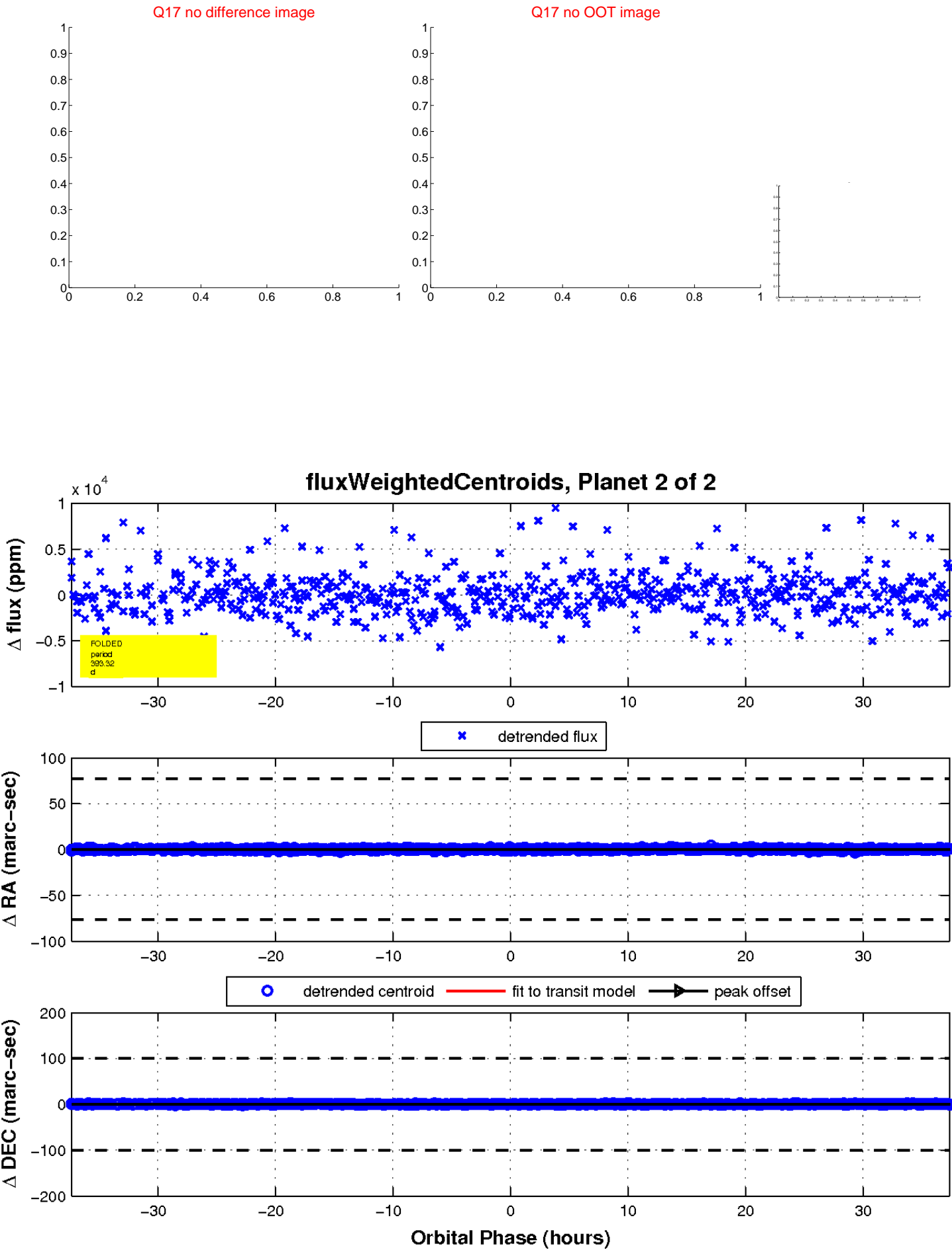
Q12 no OOT image



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

