

KIC 008411124

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})
008411124-01	OBS	No	280.827747	161.708961	121.4	2.519	60.9	3.8	140.15	3379	188.94	2450.18
008411124-02	OBS	No	280.581548	162.720807	1576.7	2.069	50.5	22.0	140.15	3379	584.28	2453.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008411124-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008411124-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

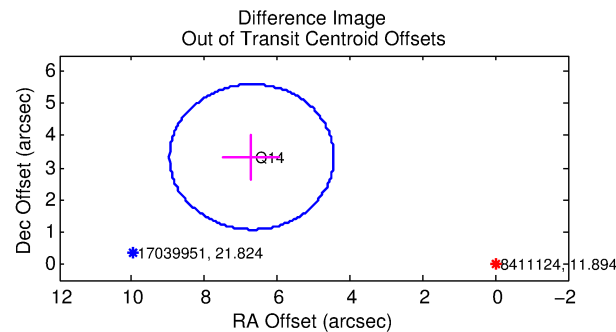
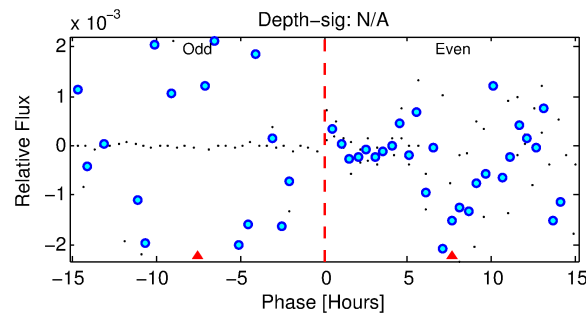
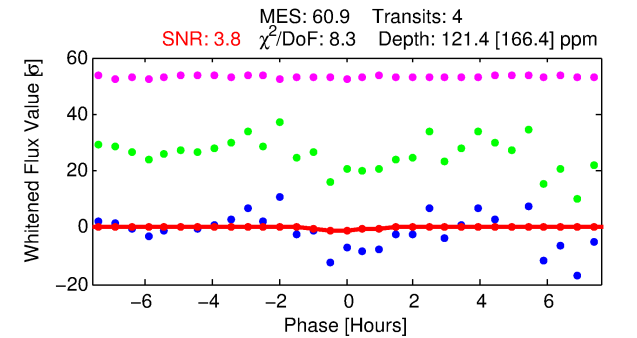
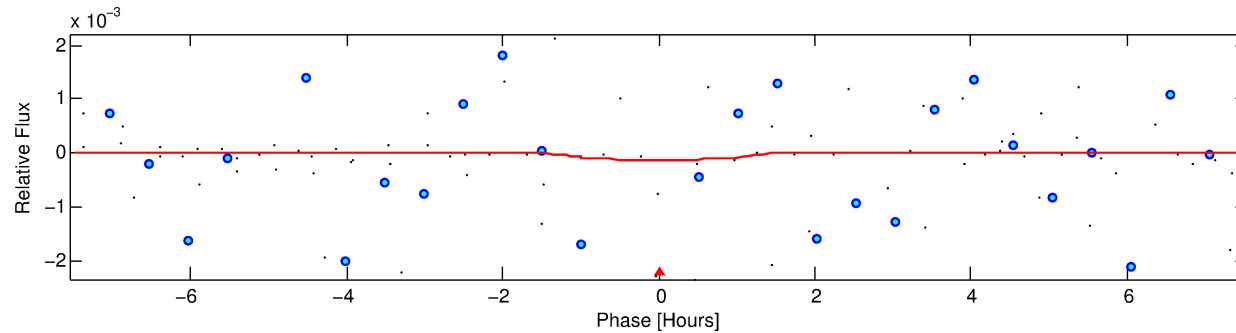
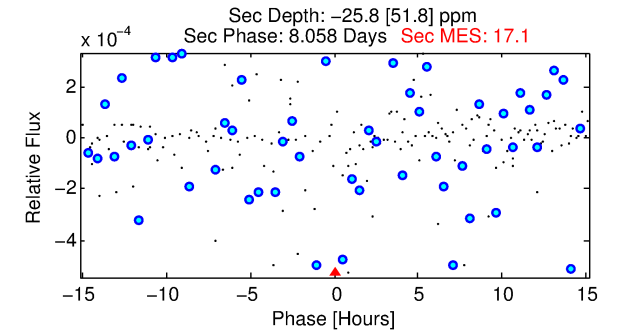
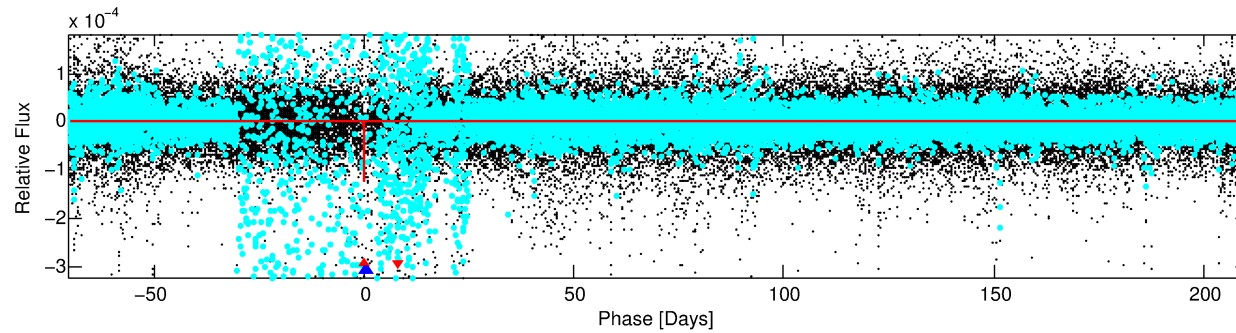
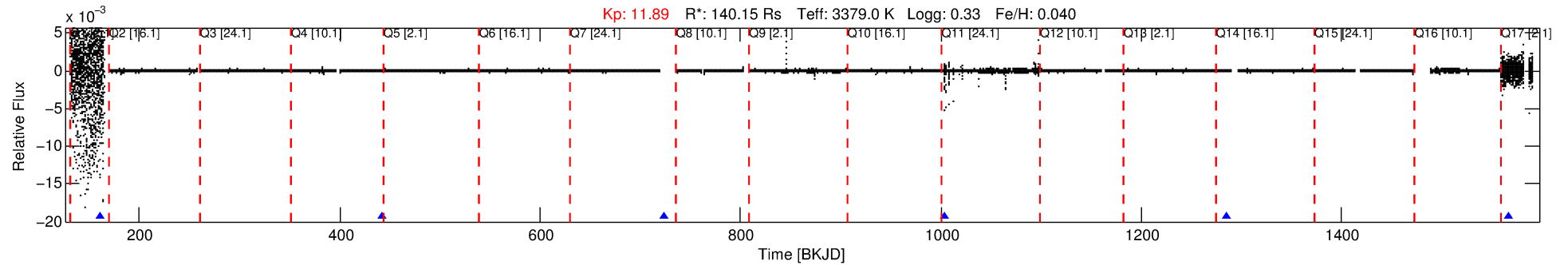
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008411124-01

No Significant Match Found

DV One-Page Summary

KIC: 8411124 Candidate: 1 of 2 Period: 280.828 d



DV Fit Results:

Period = 280.82775 [0.02614] d
Epoch = 161.7090 [0.1166] BKJD
Rp/R* = 0.0124 [0.1243]
a/R* = 451.36 [13177.61]
b = 0.86 [9.04]
Seff = 2450.18 [333.97]
Teq = 1794 [61] K
Rp = 188.94 [1900.91] Re
a = 0.9677 [0.0833] AU
Ag = N/A
Teffp = N/A

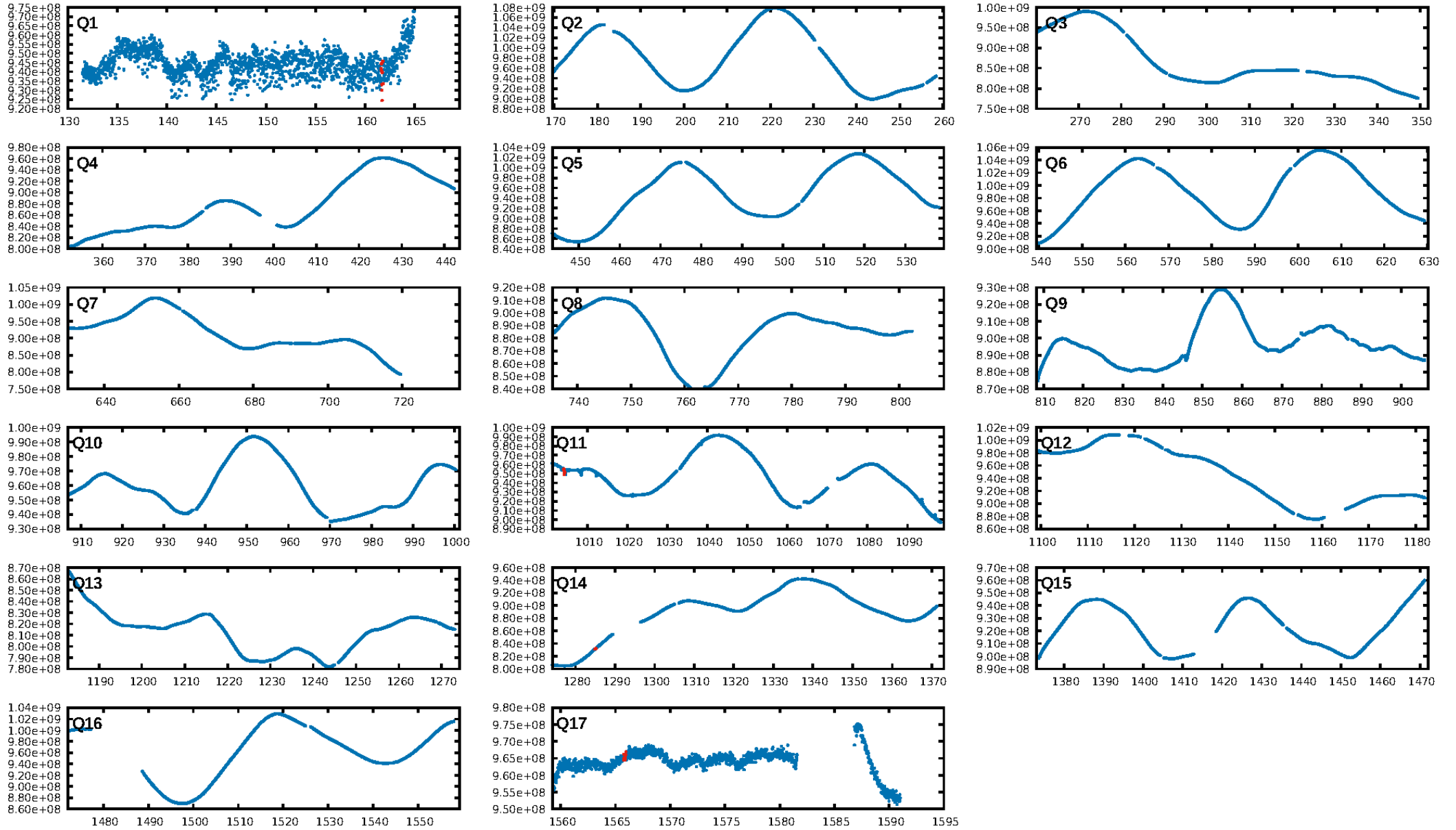
DV Diagnostic Results:

ShortPeriod-sig: 93.0% [1.81 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.5%
Bootstrap-pfa: 1.14e-19
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.9973
Centroid-sig: 52.0%
Centroid-so: 1.963 arcsec [0.81 σ]
OotOffset-rm: 7.488 arcsec [9.93 σ]
KicOffset-rm: 7.512 arcsec [9.94 σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.33 [1/3]

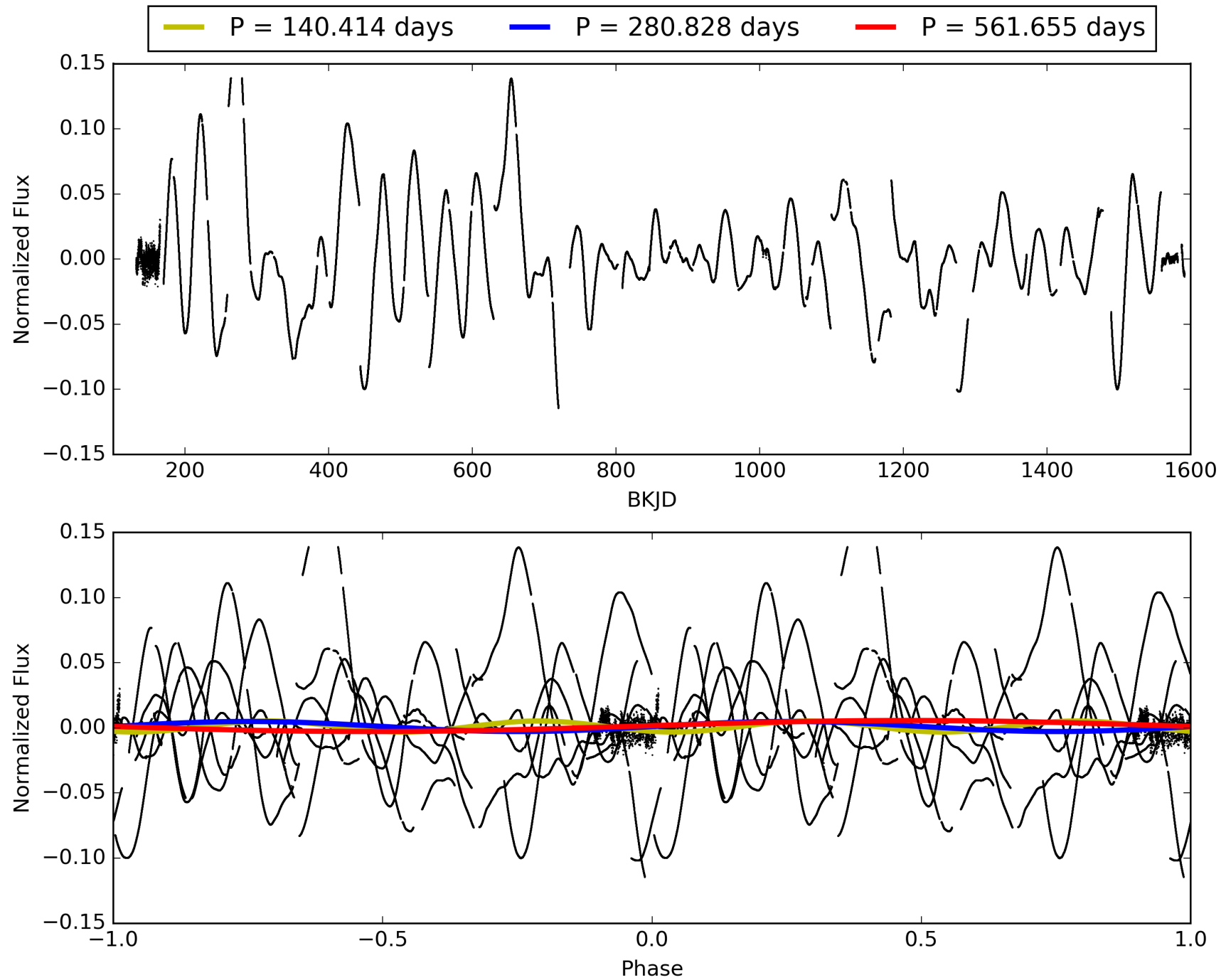
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 06:31:56 Z

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

TCE 008411124-01, PDC Light Curves

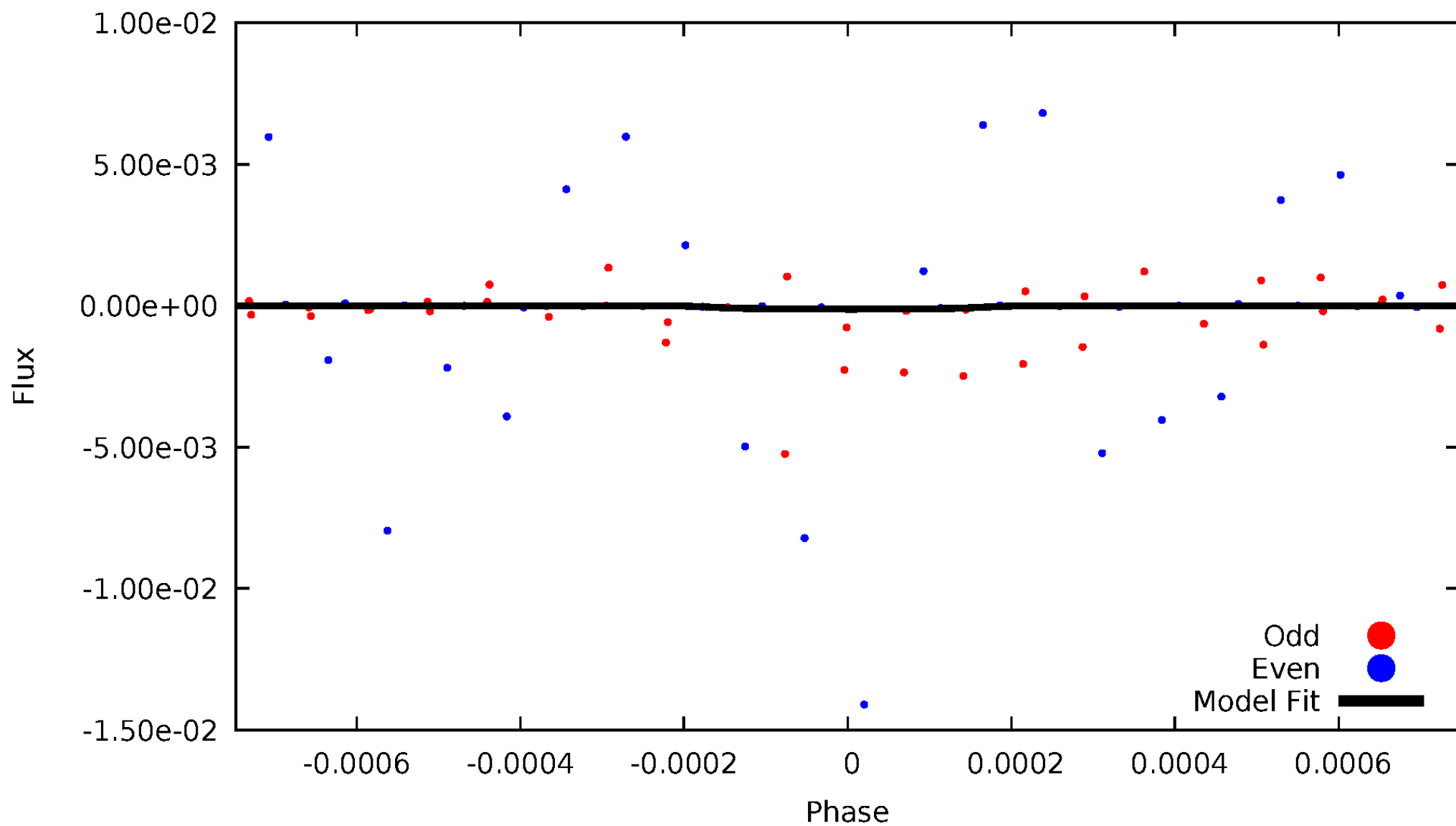


TCE 008411124-01



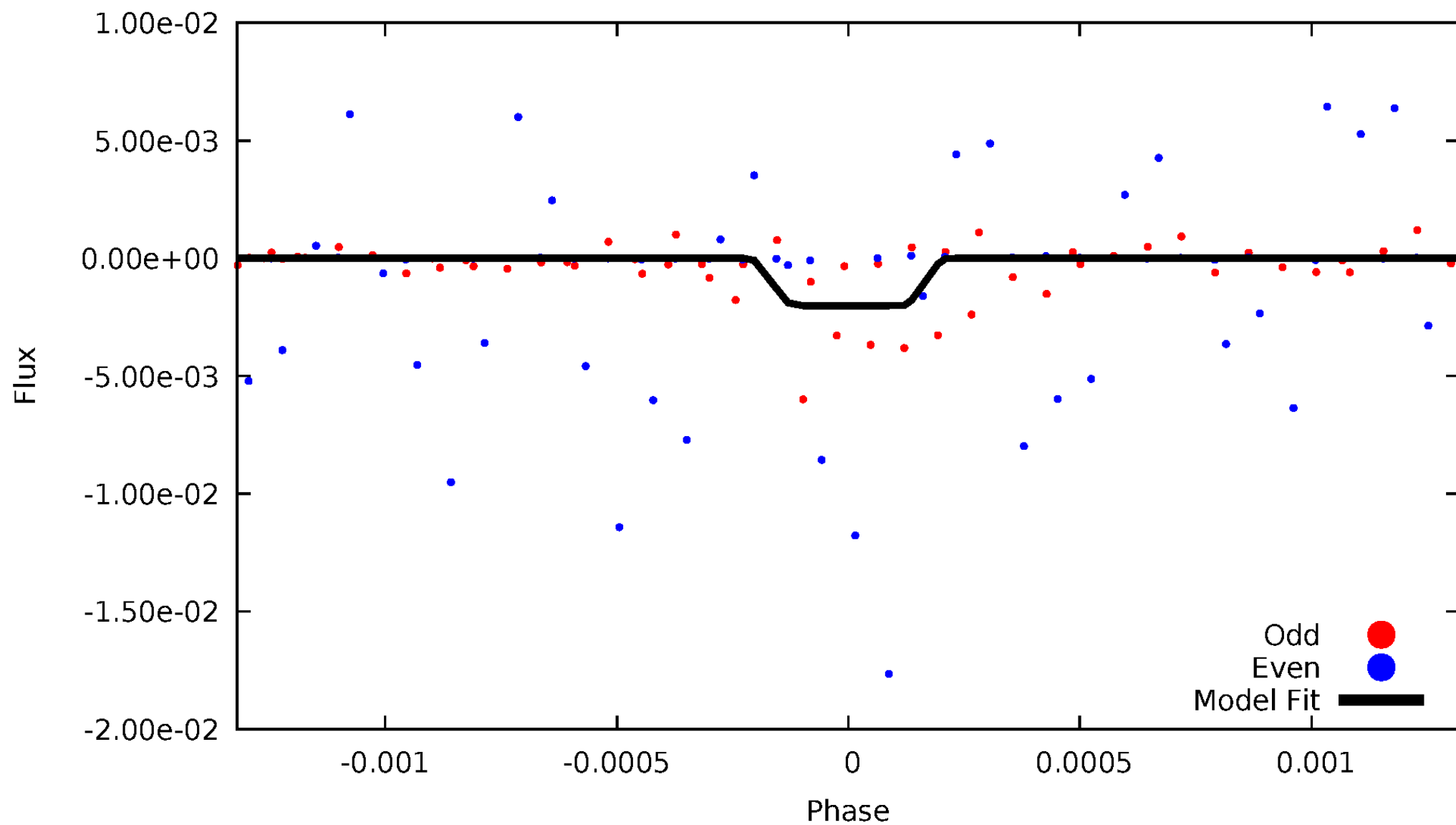
DV Odd/Even

TCE 008411124-01

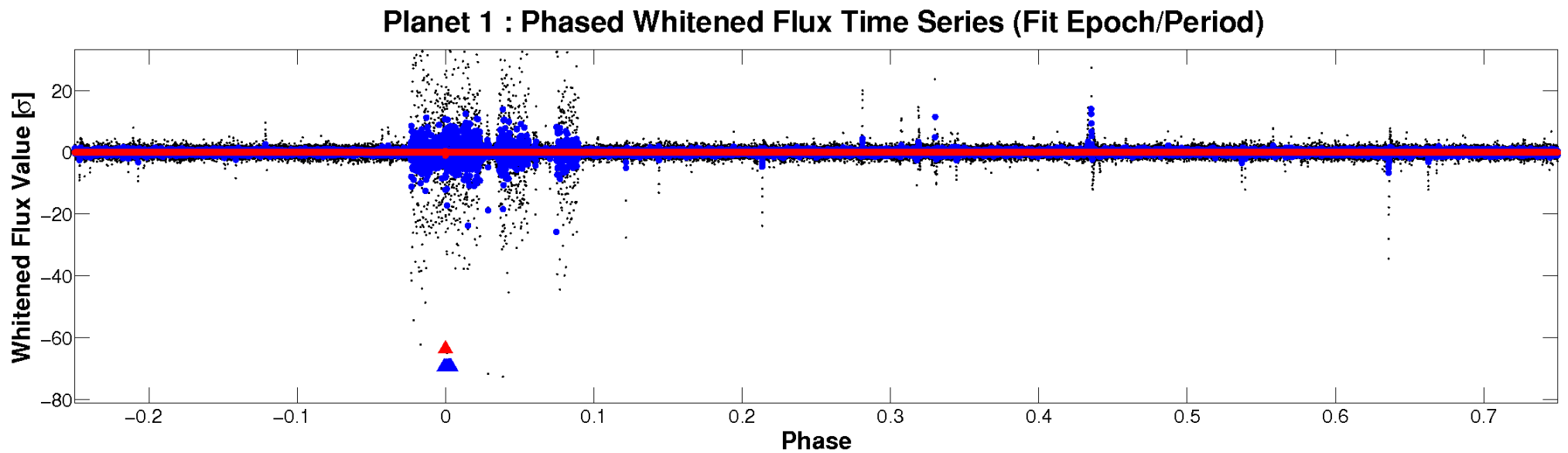
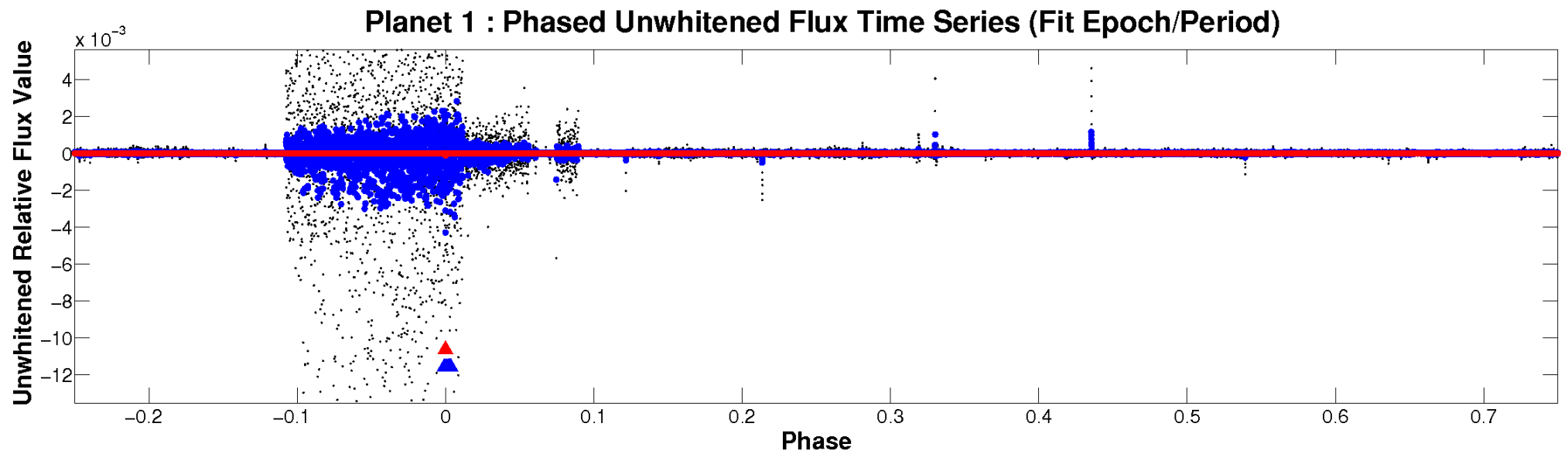


ALT Odd/Even

TCE 008411124-01

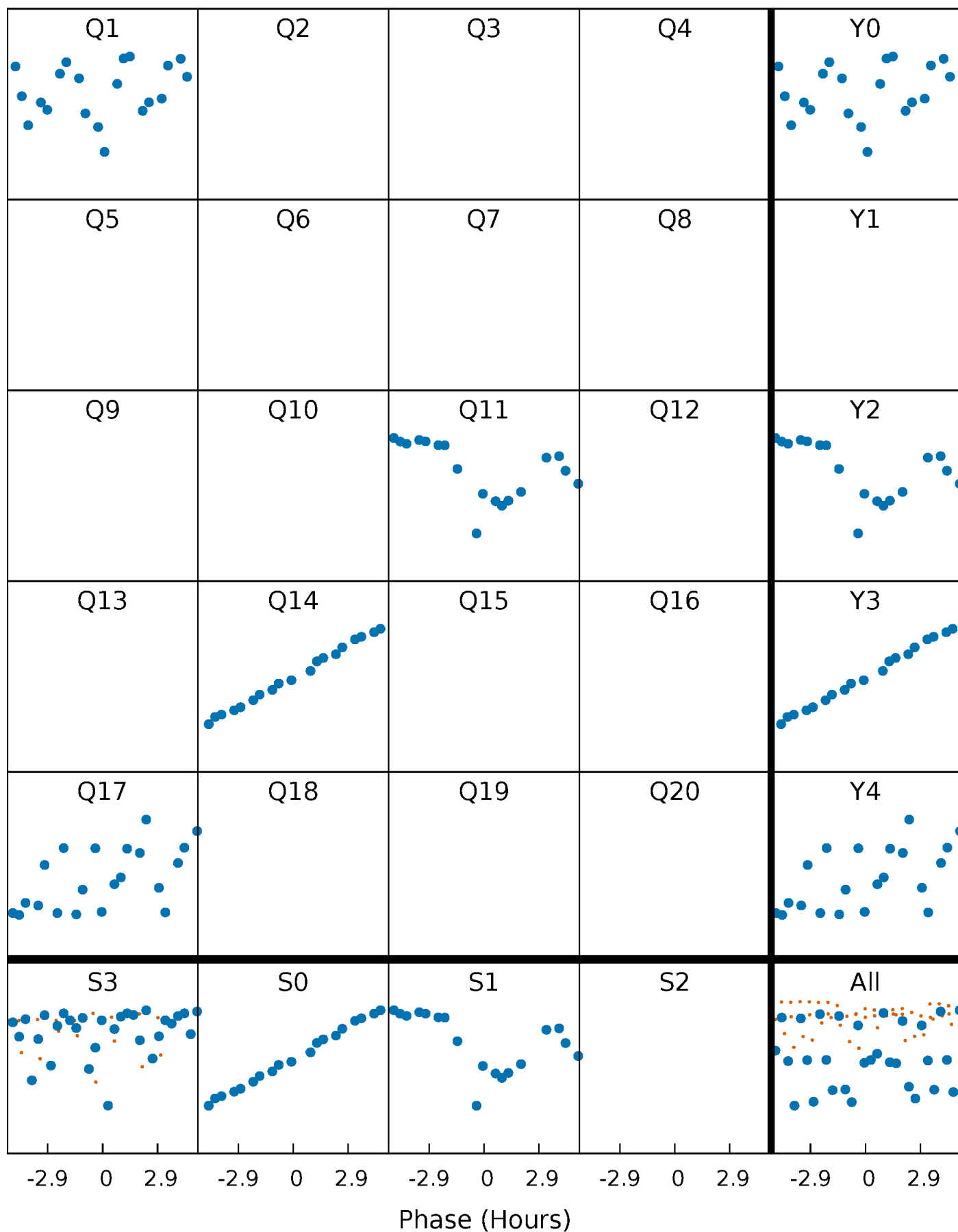


Non-Whitened Vs. Whitened Light Curve



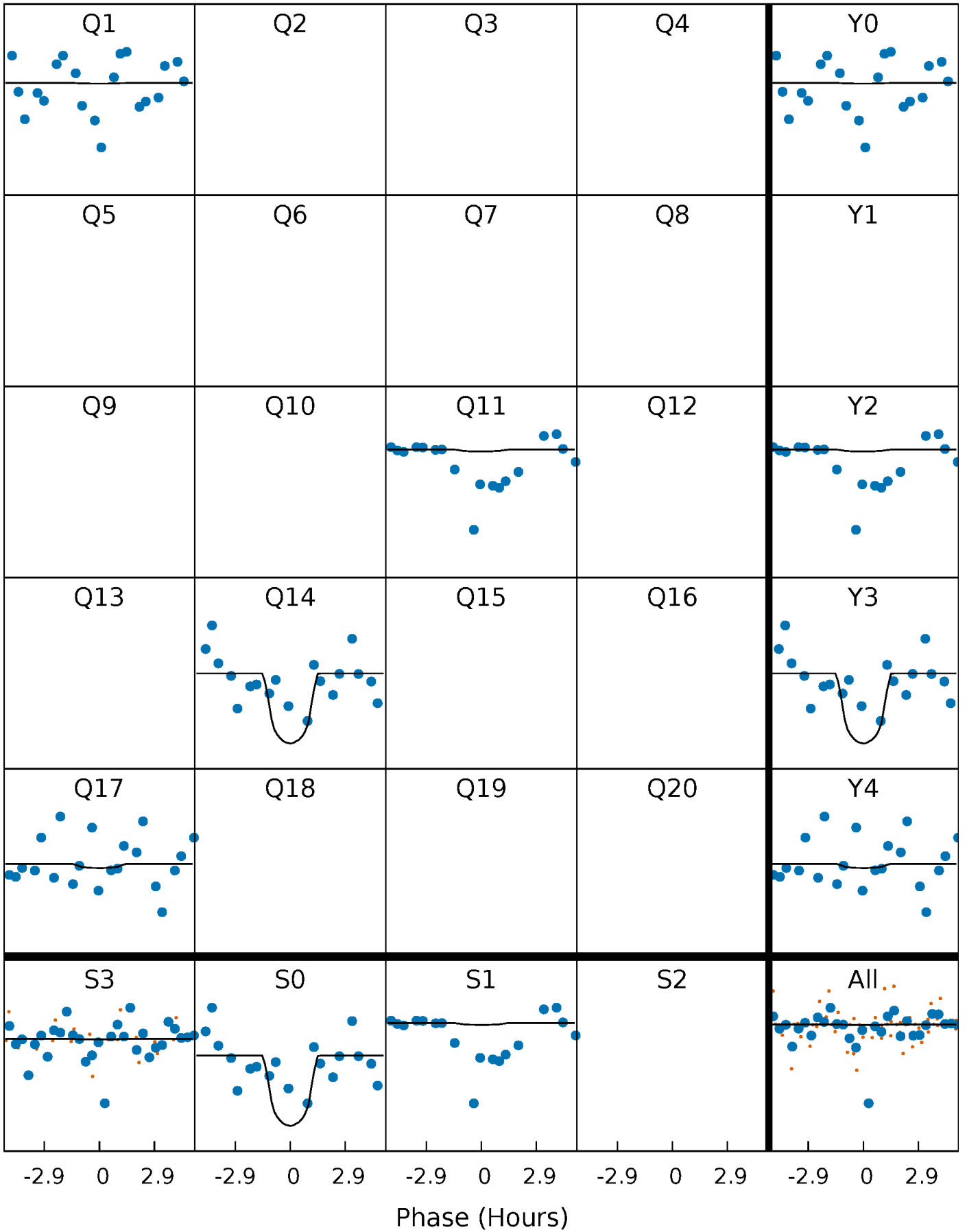
PDC Quarter-Phased Transit Curves

TCE 008411124-01 P=280.827747 Days $T_0=161.708961$ (BKJD)



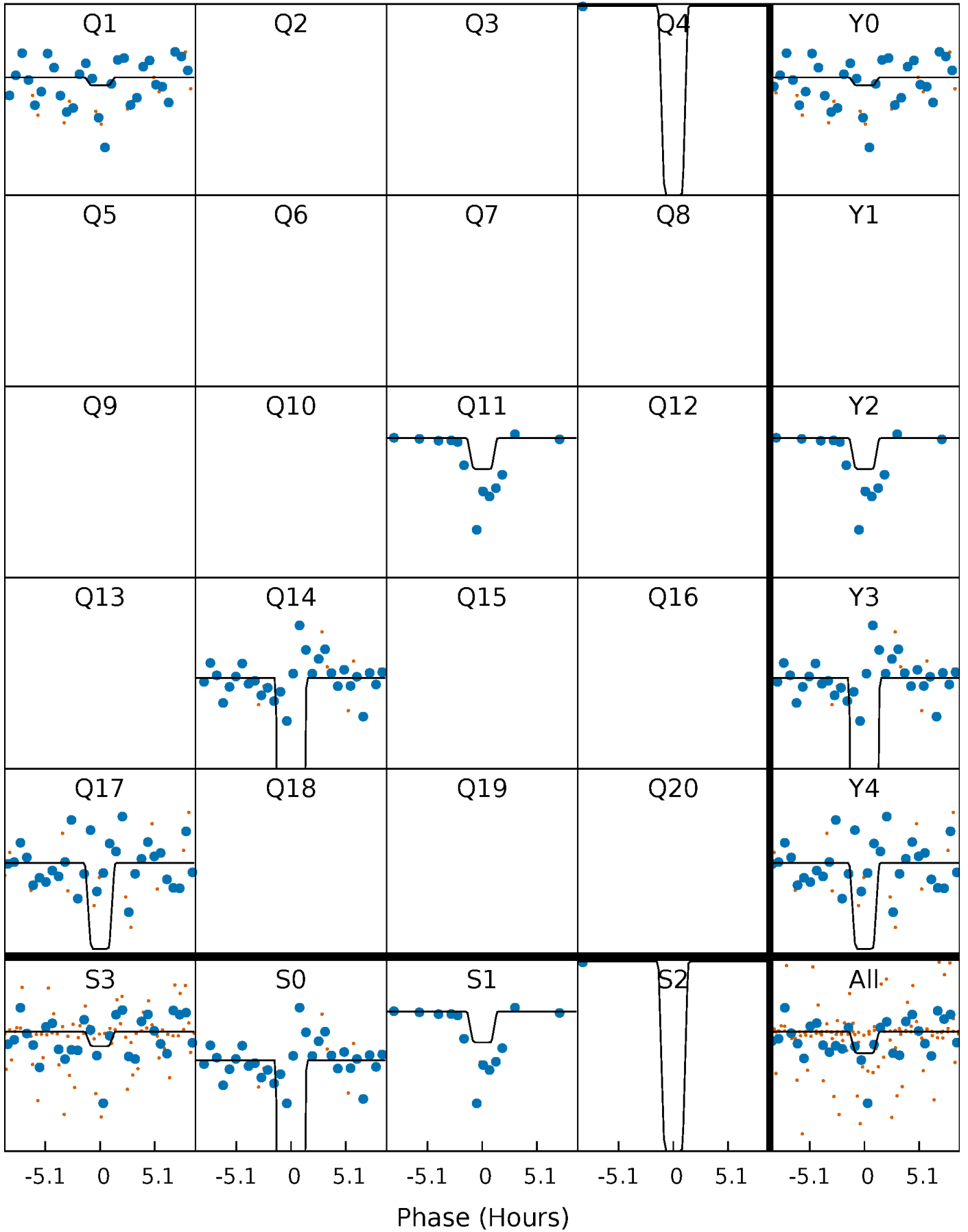
DV Quarter-Phased Transit Curves

TCE 008411124-01 P=280.827747 Days $T_0=161.708961$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

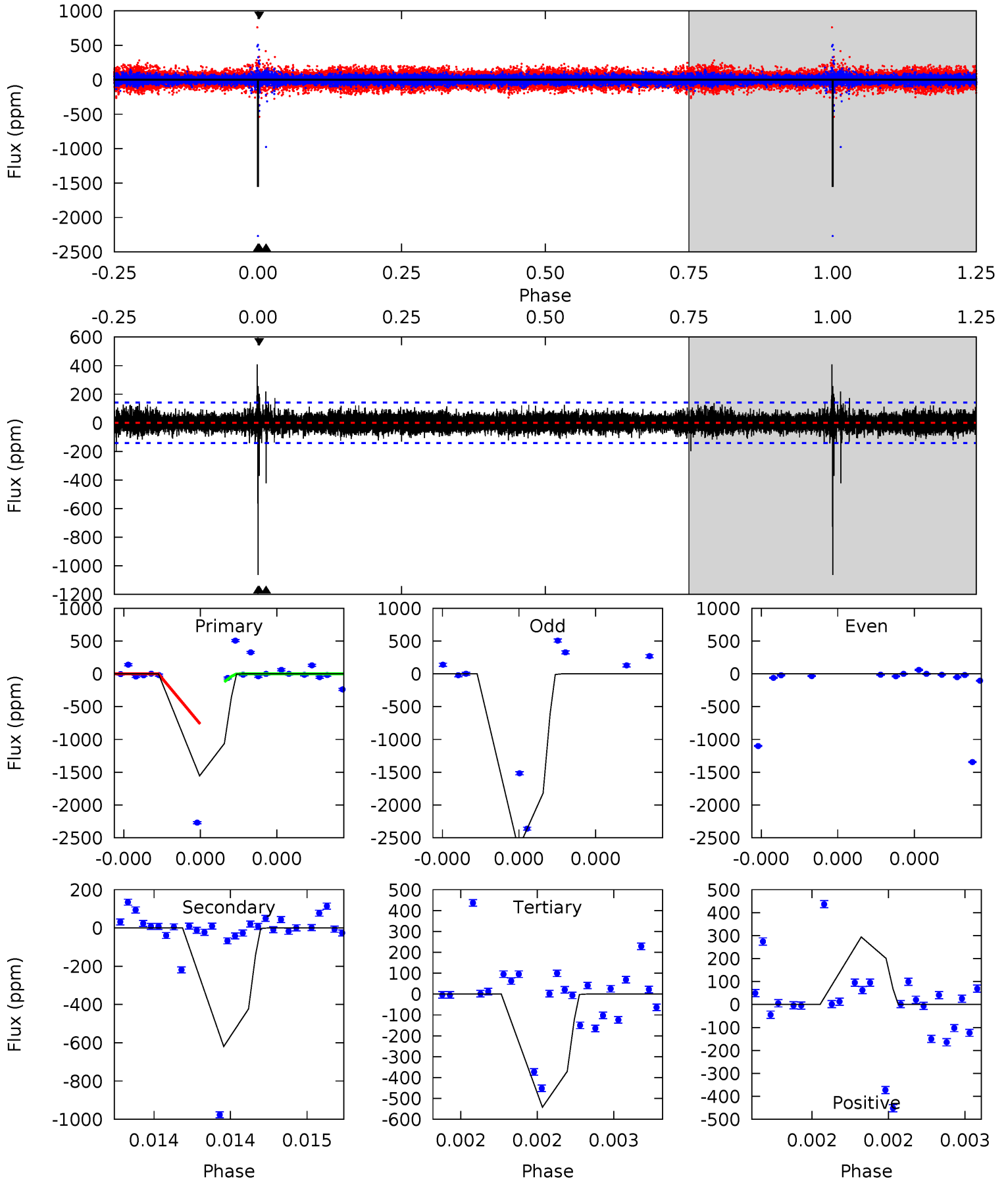
TCE 008411124-01 P=280.836053 Days $T_0=161.689902$ (BKJD)



DV Model-Shift Uniqueness Test

008411124-01, P = 280.827747 Days, E = 161.708961 Days

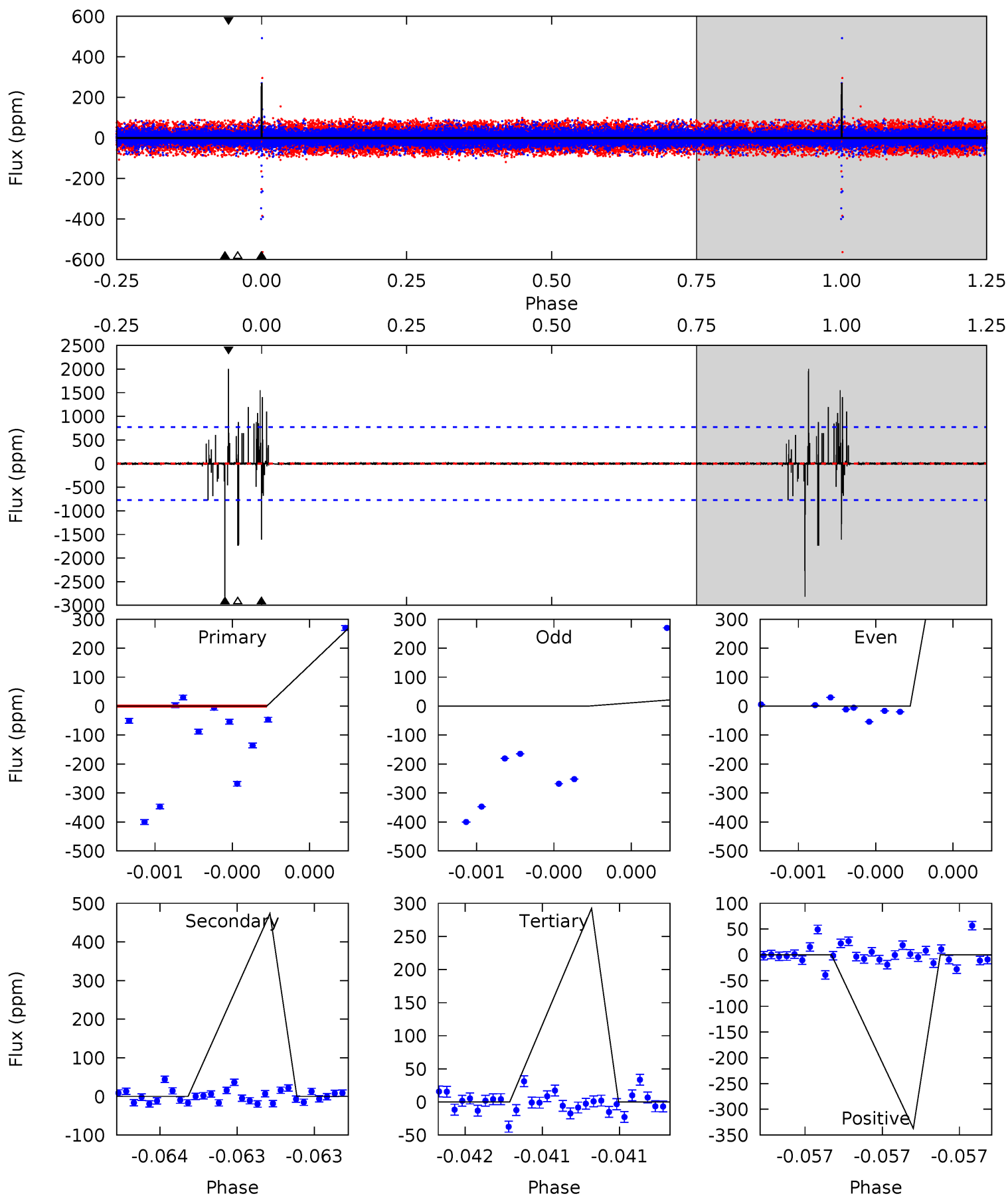
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.9	16.7	14.6	7.91	5.59	3.50	1.12	27.3	33.9	2.07	8.75	0	1.38	0.28	11.2



Alt Model-Shift Uniqueness Test

008411124-01, P = 280.836053 Days, E = 161.689902 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	20.4	12.6	14.6	5.61	3.53	0.27	-0.97	-2.90	7.83	5.89	11.4	1.55	0.42	0



Stellar Parameters For KIC 008411124

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3379^{+84}_{-84}	$0.330^{+0.027}_{-0.027}$	$0.040^{+0.200}_{-0.200}$	$140.154^{+2.926}_{-17.556}$	$1.531^{+0.040}_{-0.357}$	$0.000^{+0.000}_{-0.000}$
	+2%/-2%	+8%/-8%	+500%/-500%	+2%/-13%	+3%/-23%	+18%/-7%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008411124-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-423 ± 25	$1343.70^{+1412.69}_{-930.54}$	2506^{+63}_{-70}	-2387^{+5397}_{-145}	$0.120^{+1.203}_{-0.090}$
Alt.	-474 ± 138	$1500.19^{+1659.43}_{-1048.04}$	2508^{+66}_{-71}	-2414^{+5378}_{-131}	$0.107^{+1.033}_{-0.085}$

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

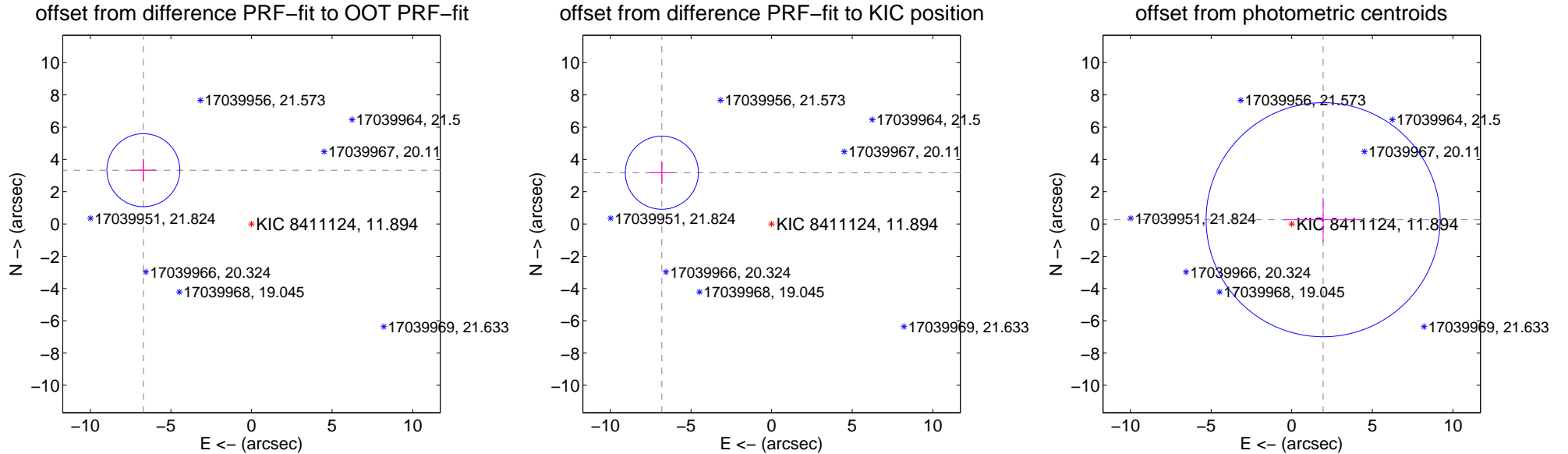
DV Centroid Data

Supplemental centroid analysis for 008411124-01. **Kepler magnitude: 11.89.** Transit SNR 3.78

There are 0 quarters with good PRF difference image offsets

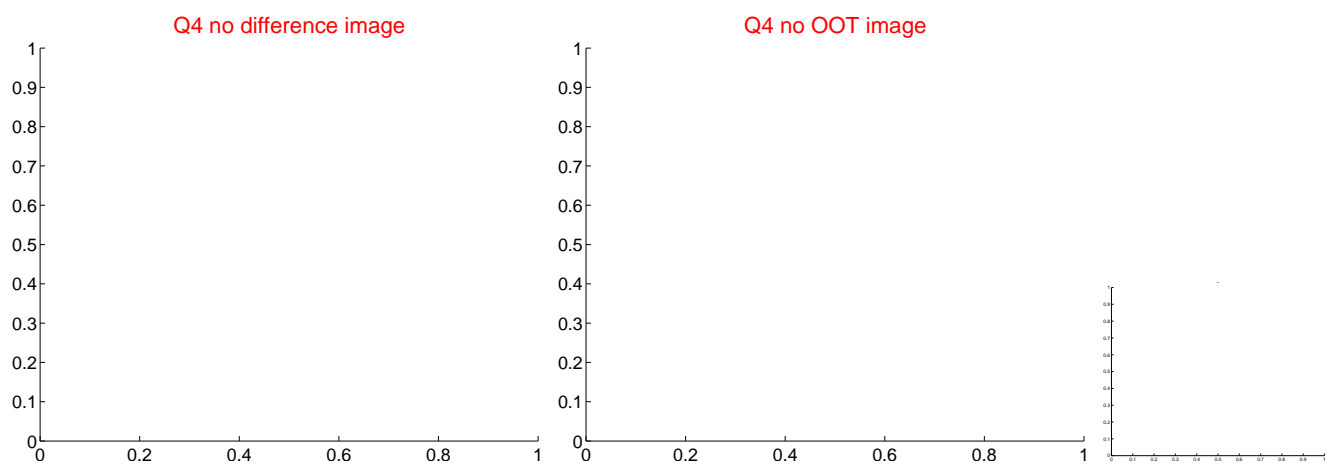
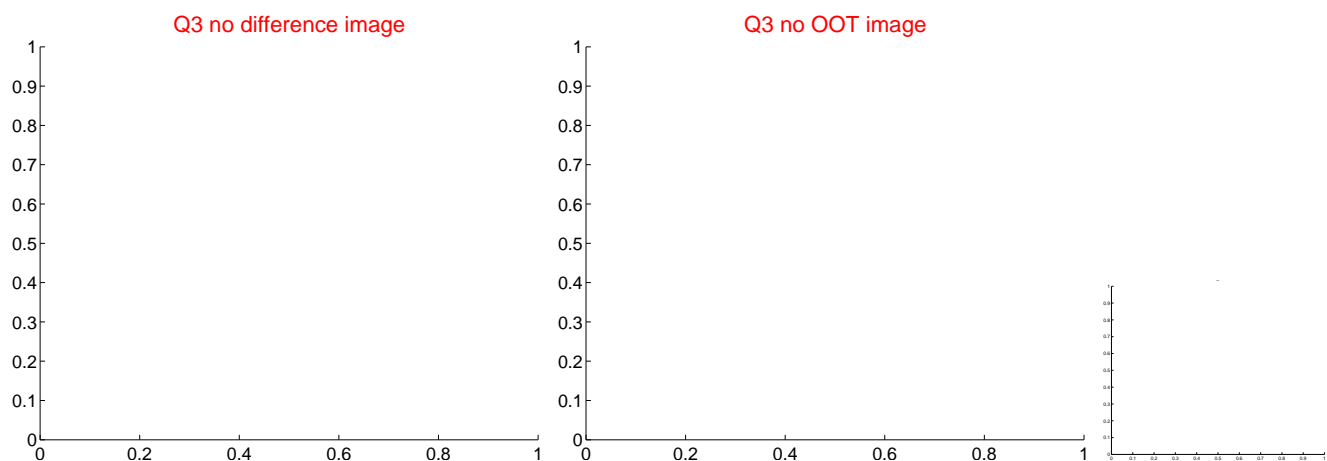
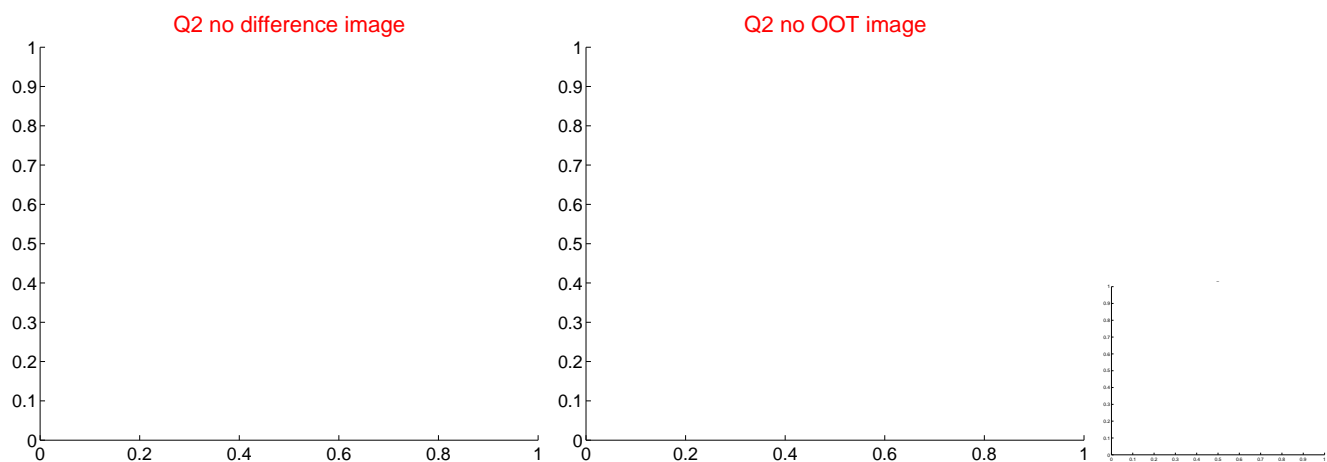
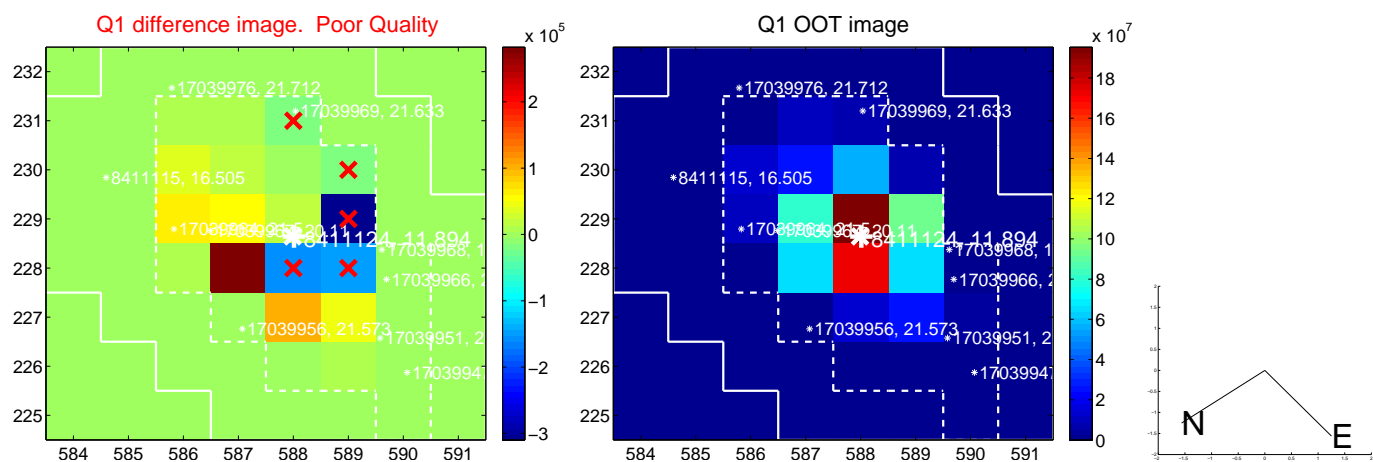
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.488 ± 0.754	9.93	6.706 ± 0.769	3.333 ± 0.692
PRF-fit source offset from KIC position	7.512 ± 0.756	9.94	6.807 ± 0.769	3.177 ± 0.692
photometric centroid source offset	1.96 ± 2.42	0.81	-1.95 ± 2.43	0.26 ± 1.37

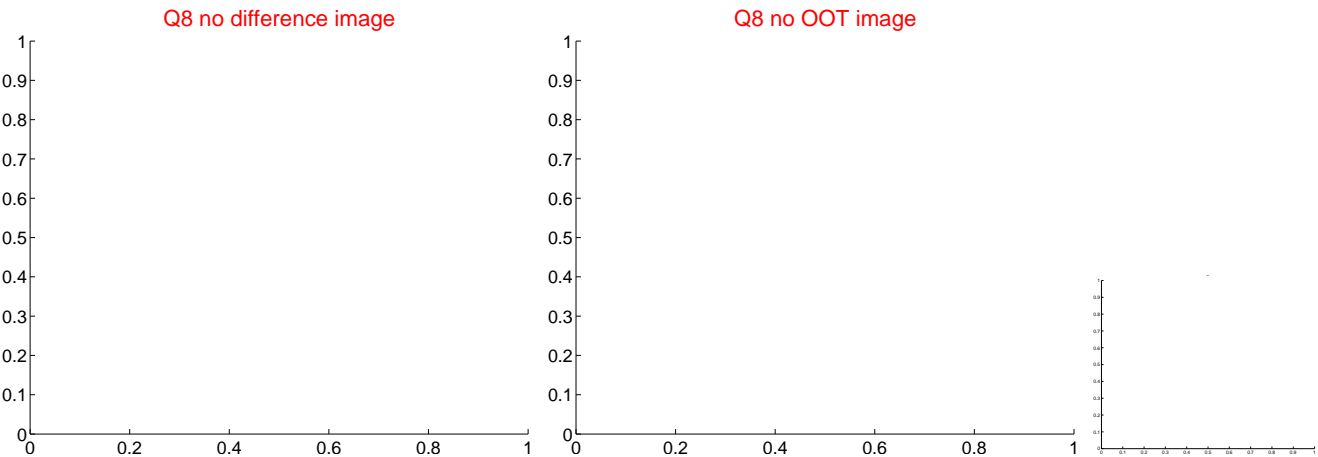
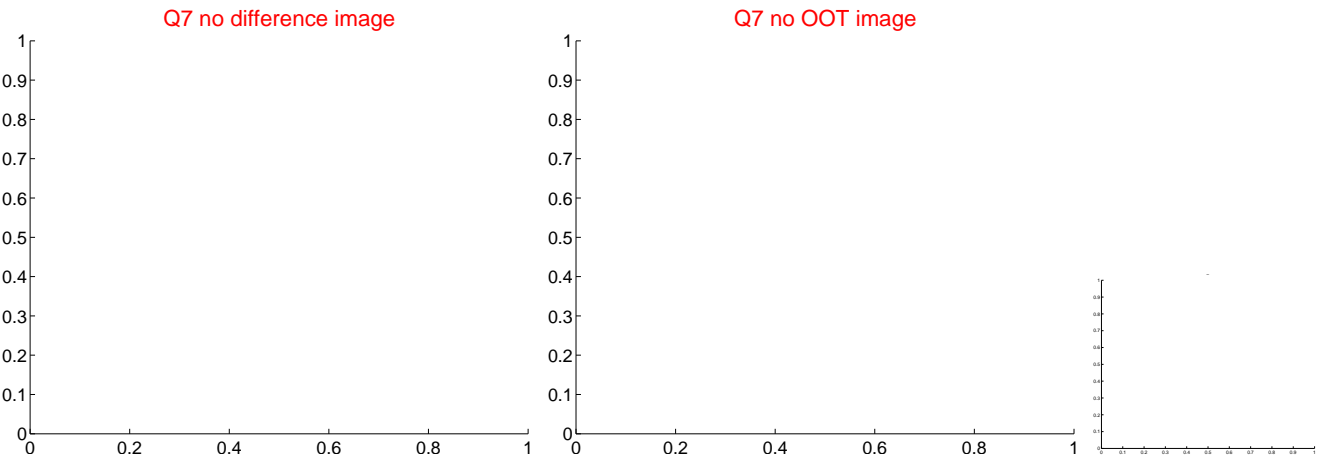
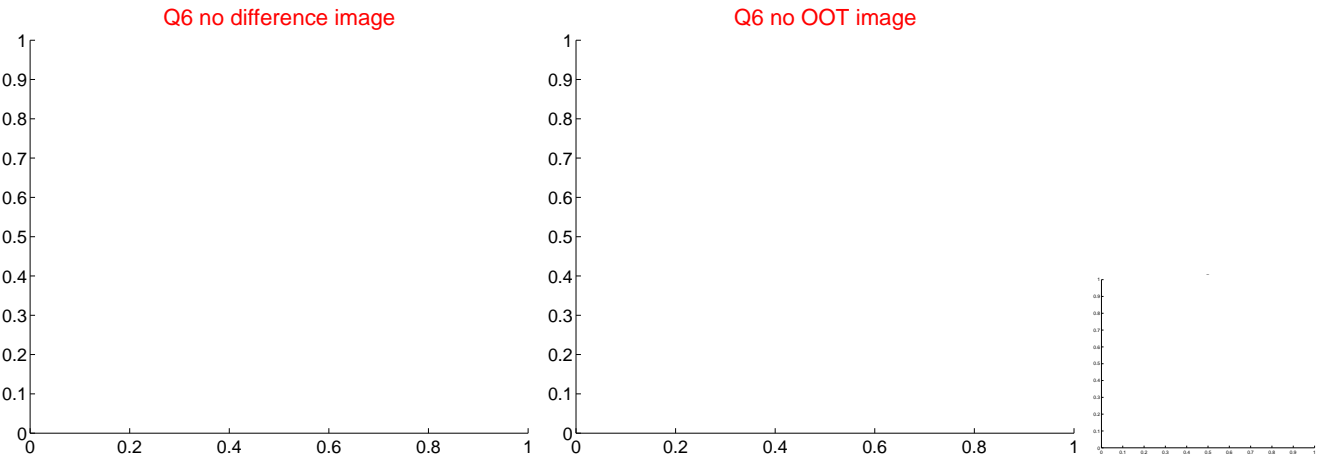
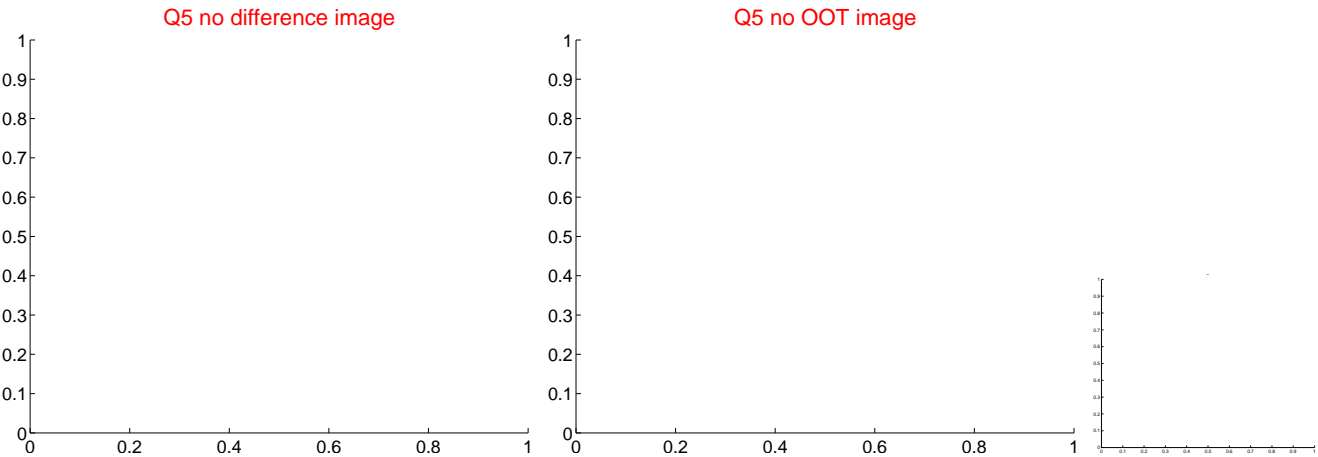


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



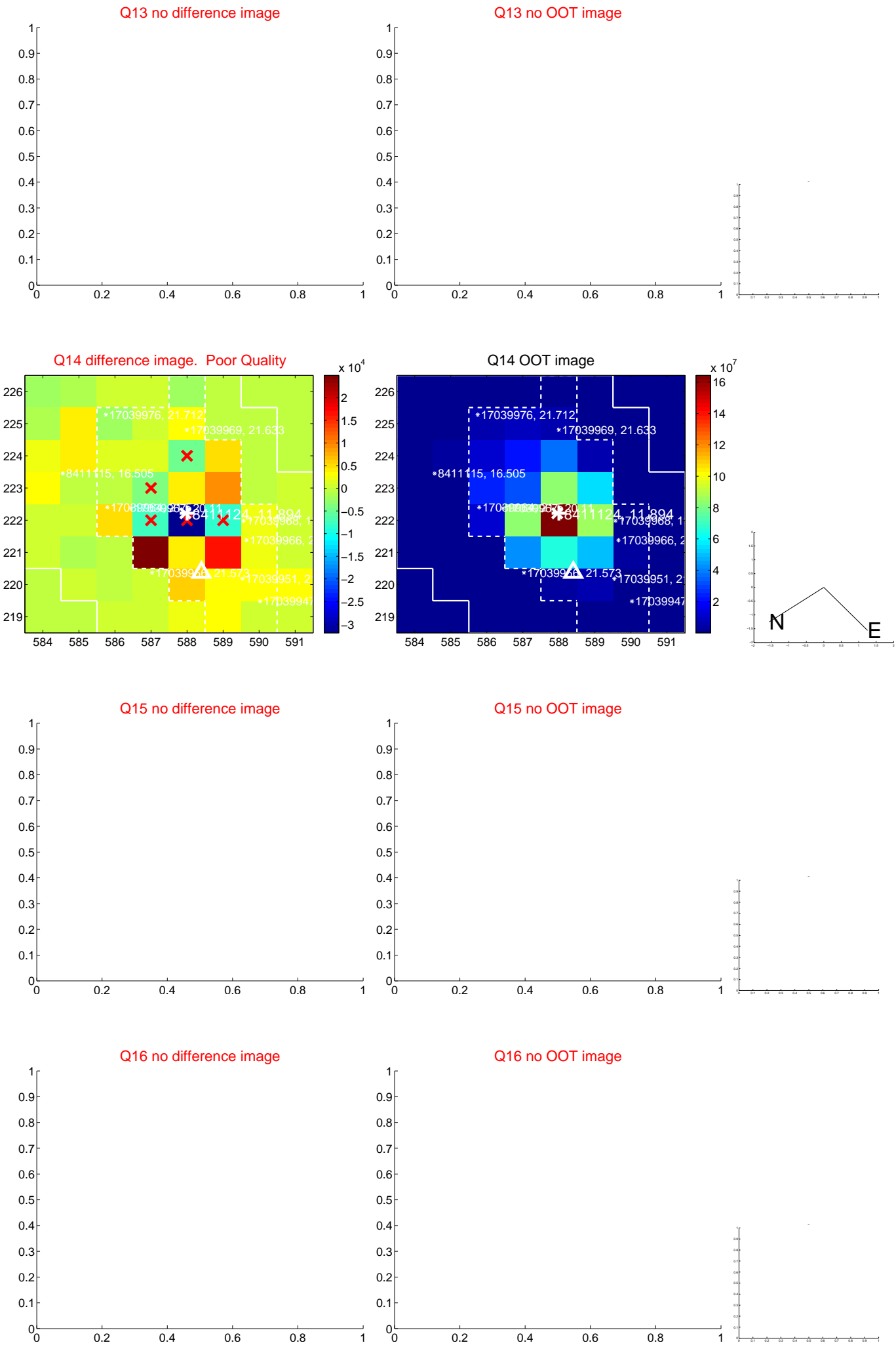
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



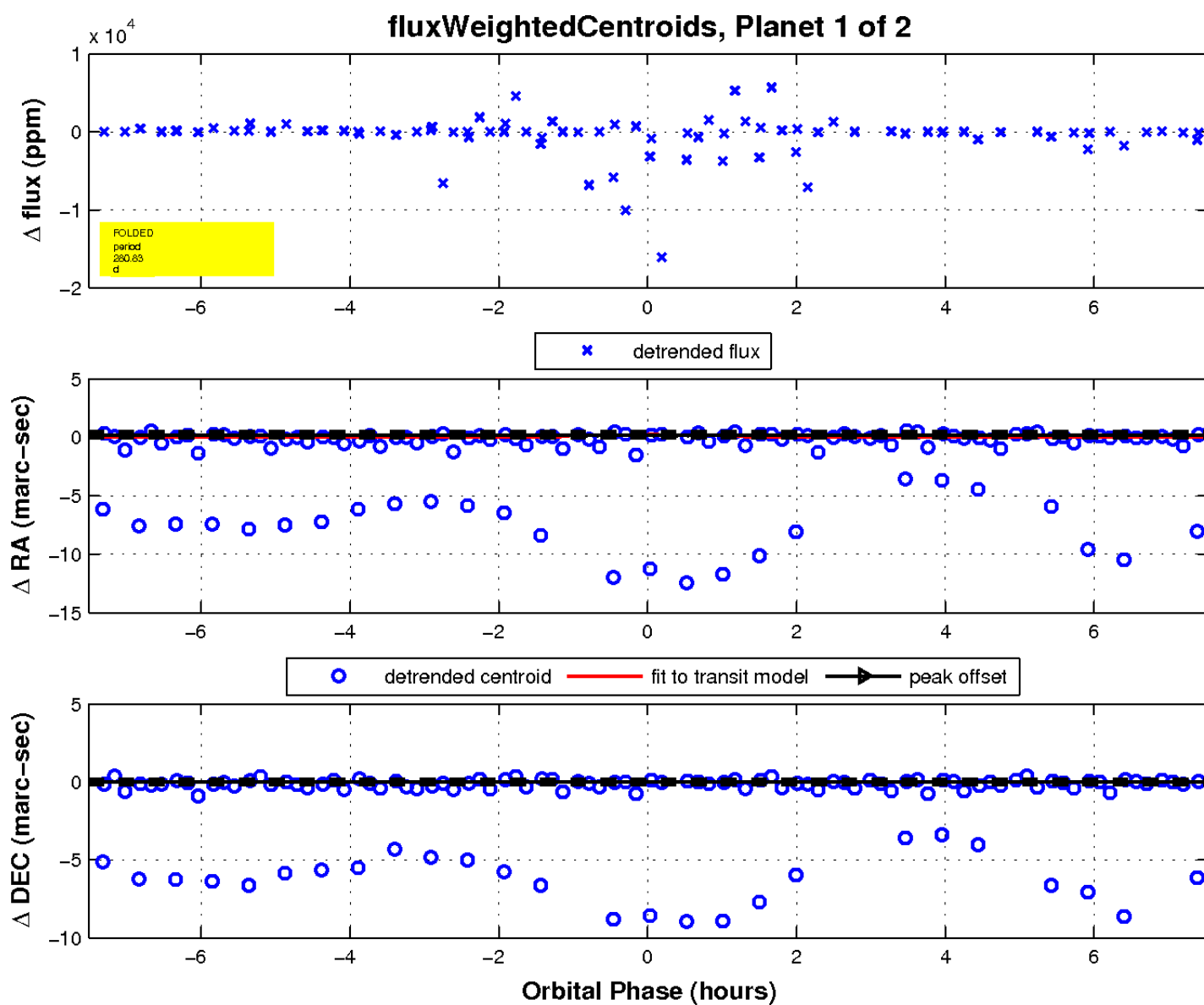
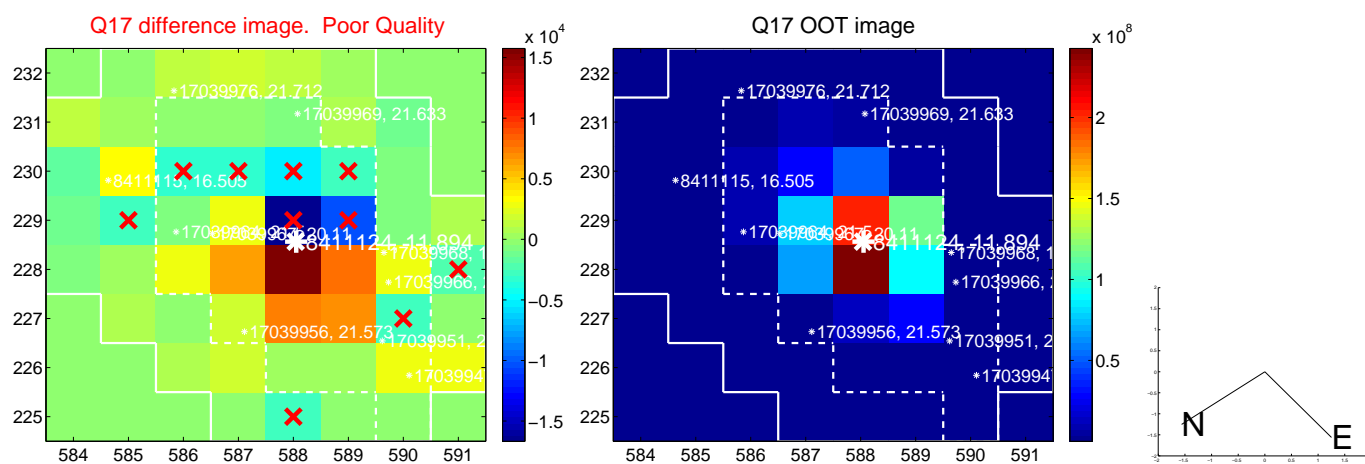
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

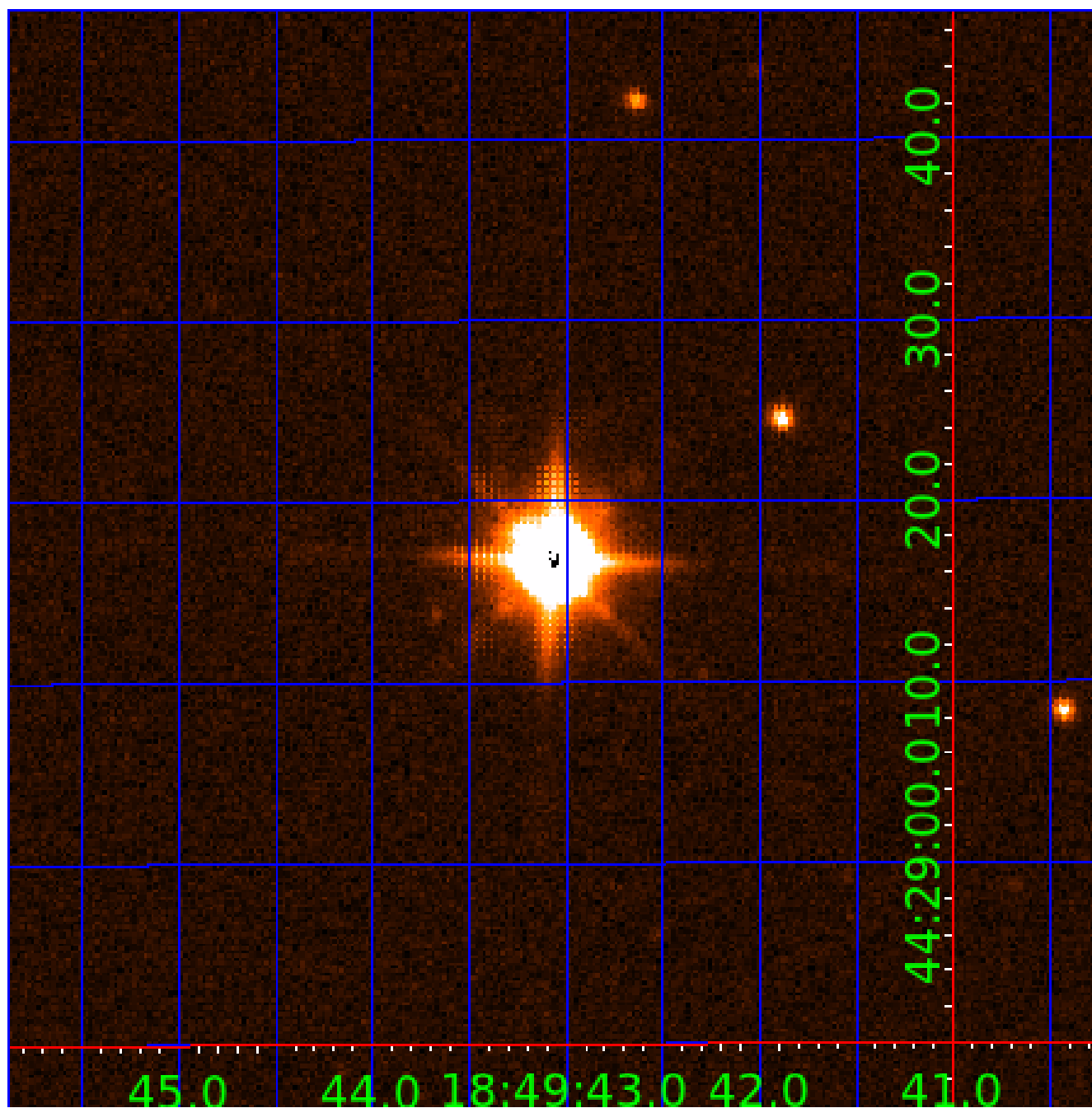


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008411124

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})
008411124-01	OBS	No	280.827747	161.708961	121.4	2.519	60.9	3.8	140.15	3379	188.94	2450.18
008411124-02	OBS	No	280.581548	162.720807	1576.7	2.069	50.5	22.0	140.15	3379	584.28	2453.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008411124-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008411124-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

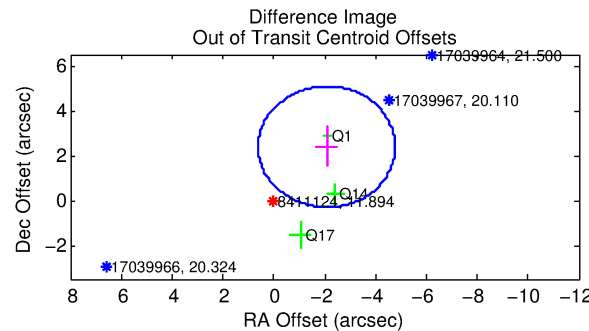
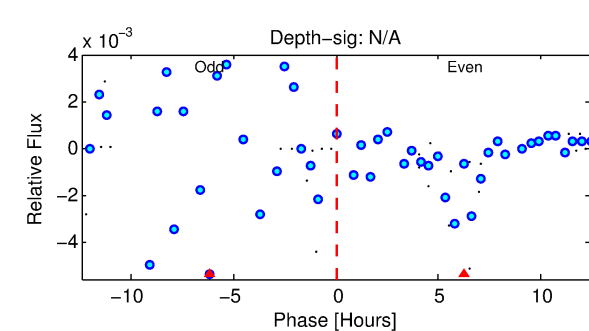
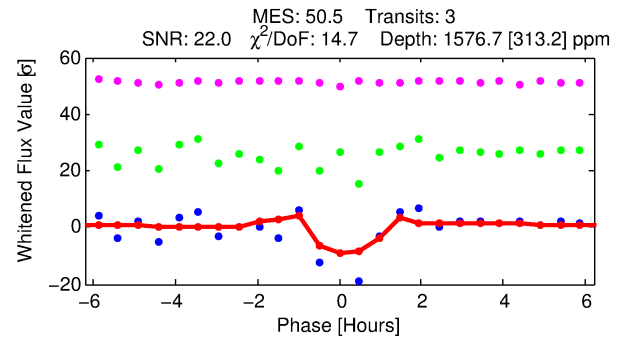
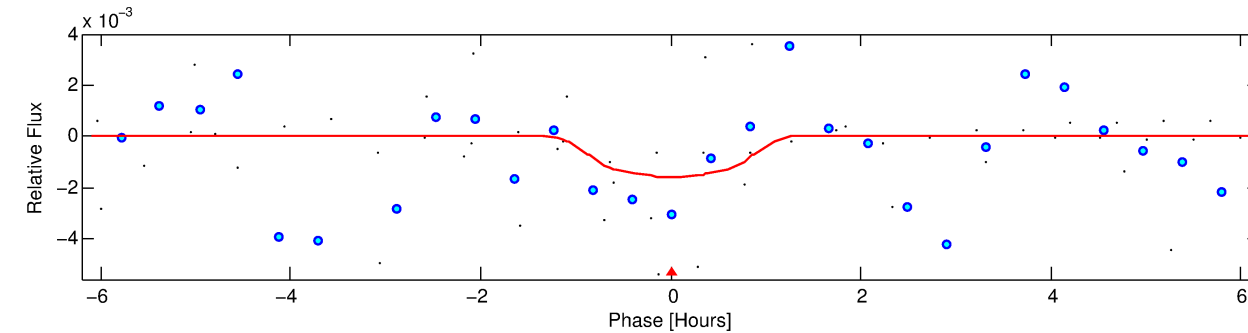
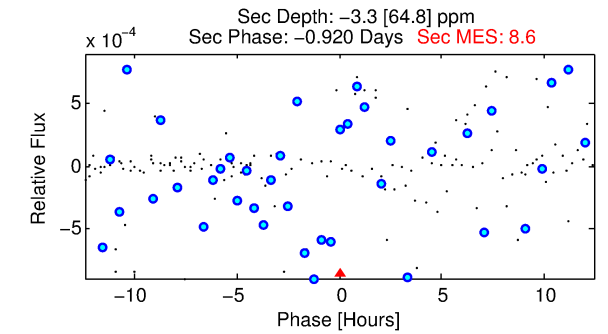
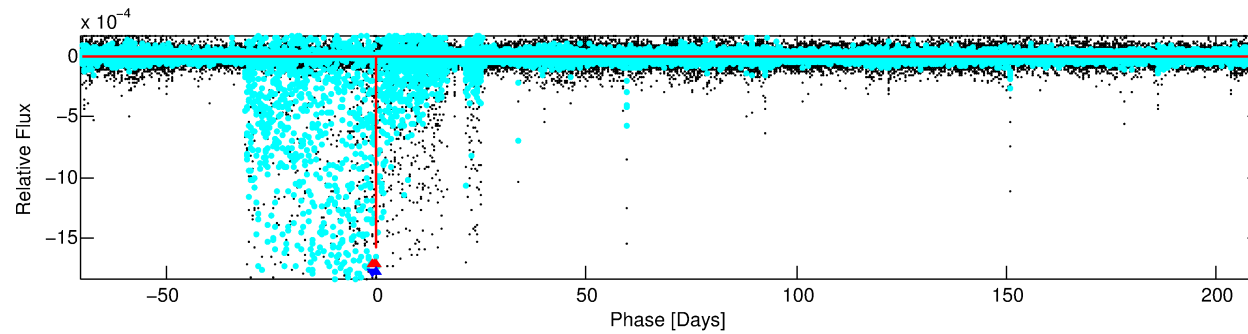
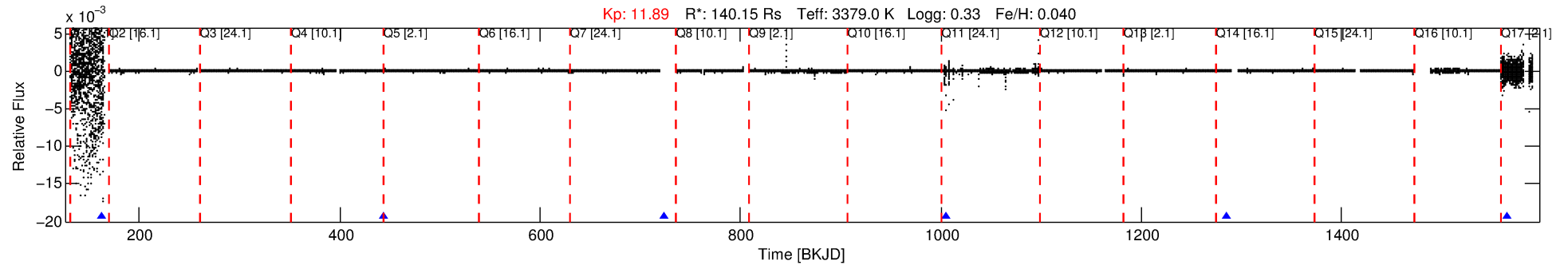
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008411124-02

No Significant Match Found

DV One-Page Summary

KIC: 8411124 Candidate: 2 of 2 Period: 280.582 d



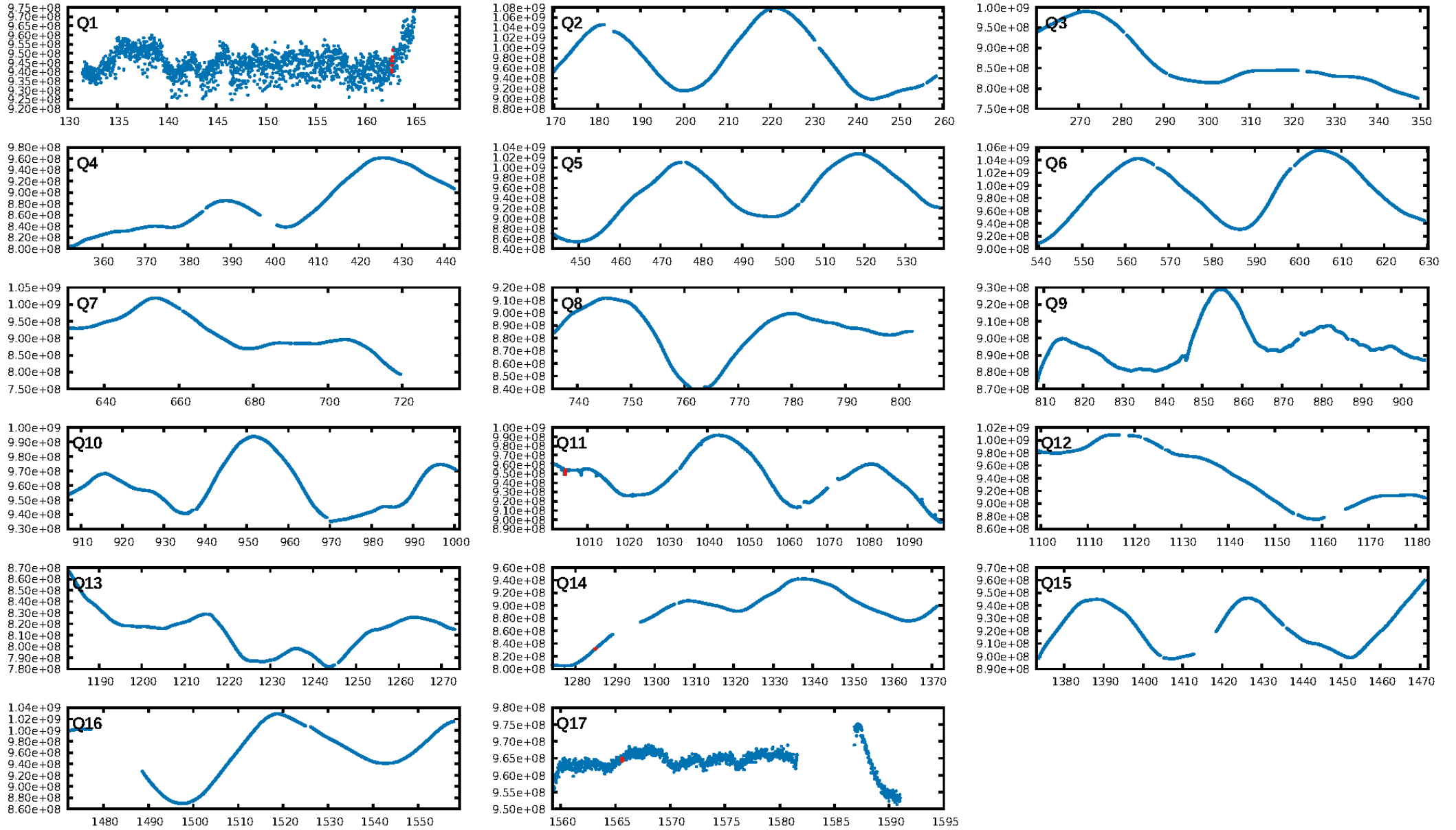
DV Fit Results:

Period = 280.58155 [0.00271] d
Epoch = 162.7208 [0.0110] BKJD
Rp/R* = 0.0382 [0.0828]
a/R* = 837.58 [3947.07]
b = 0.65 [4.48]
Seff = 2453.04 [334.36]
Teq = 1795 [61] K
Rp = 584.28 [1268.79] Re
a = 0.9671 [0.0832] AU
Ag = N/A
Teffp = N/A

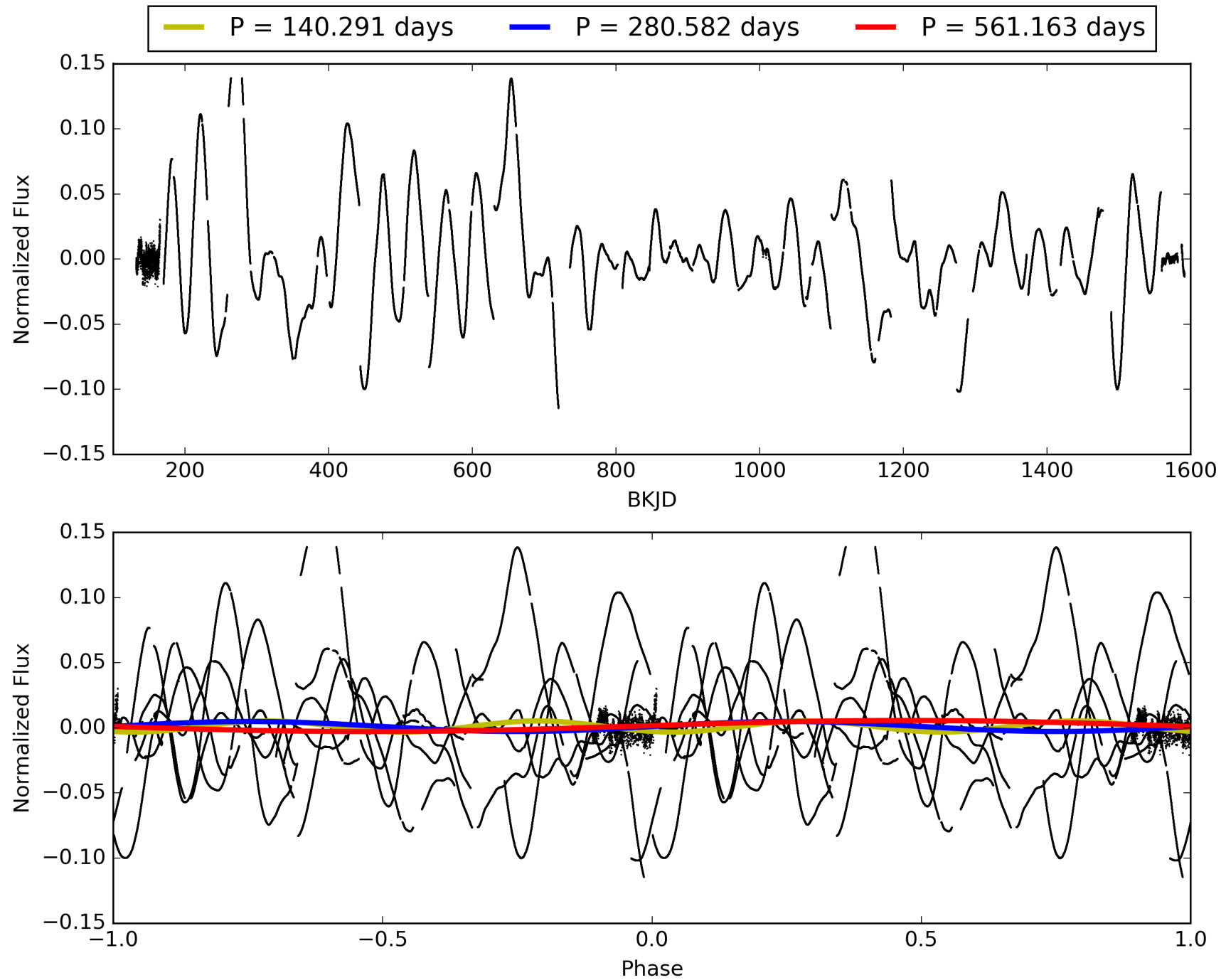
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 93.0% [1.81 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 4.81e-13
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: -1.633
Centroid-sig: 5.7%
Centroid-so: 0.111 arcsec [0.74 σ]
OotOffset-rm: 3.160 arcsec [3.52 σ]
KicOffset-rm: 3.055 arcsec [2.37 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.33 [1/3]

TCE 008411124-02, PDC Light Curves

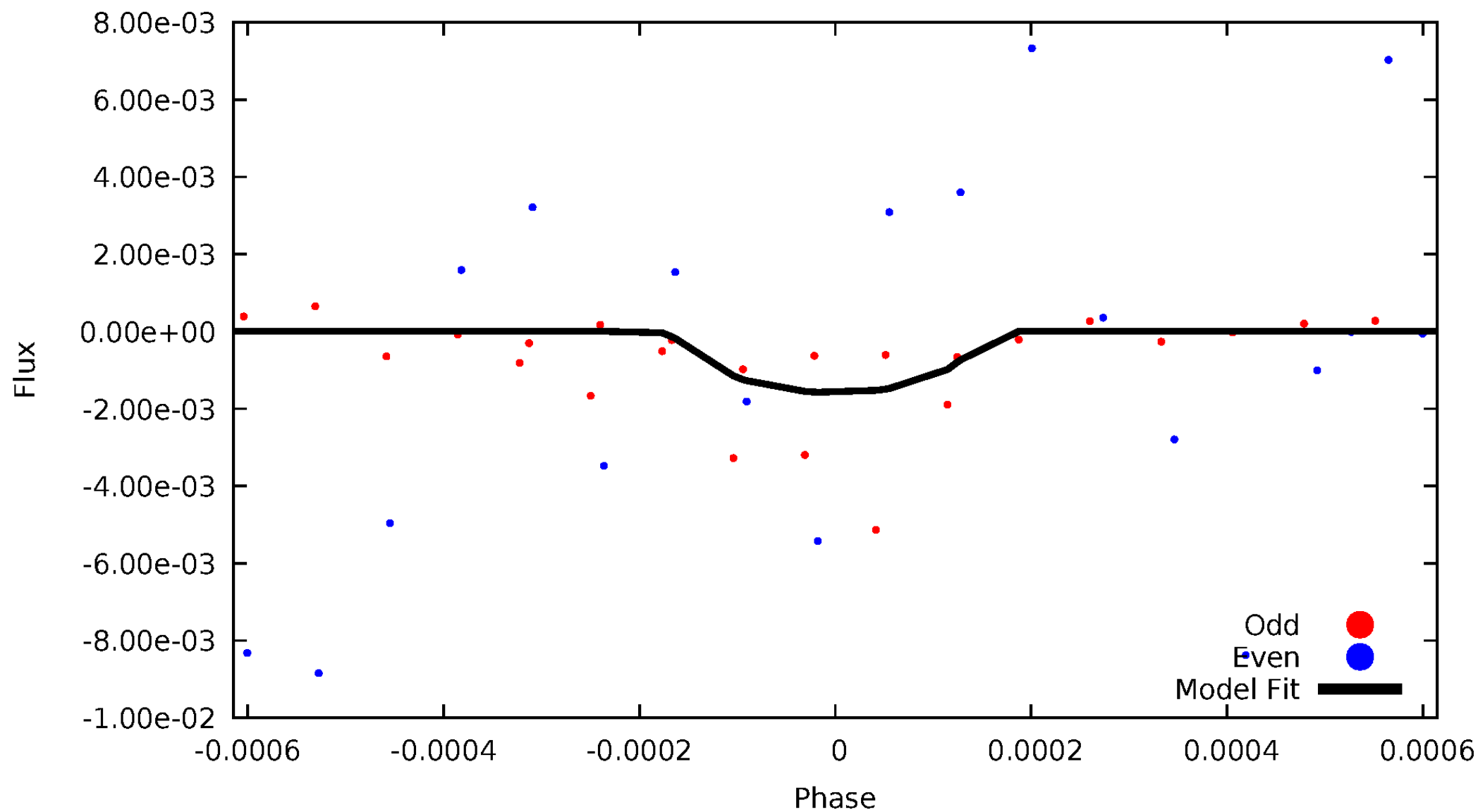


TCE 008411124-02



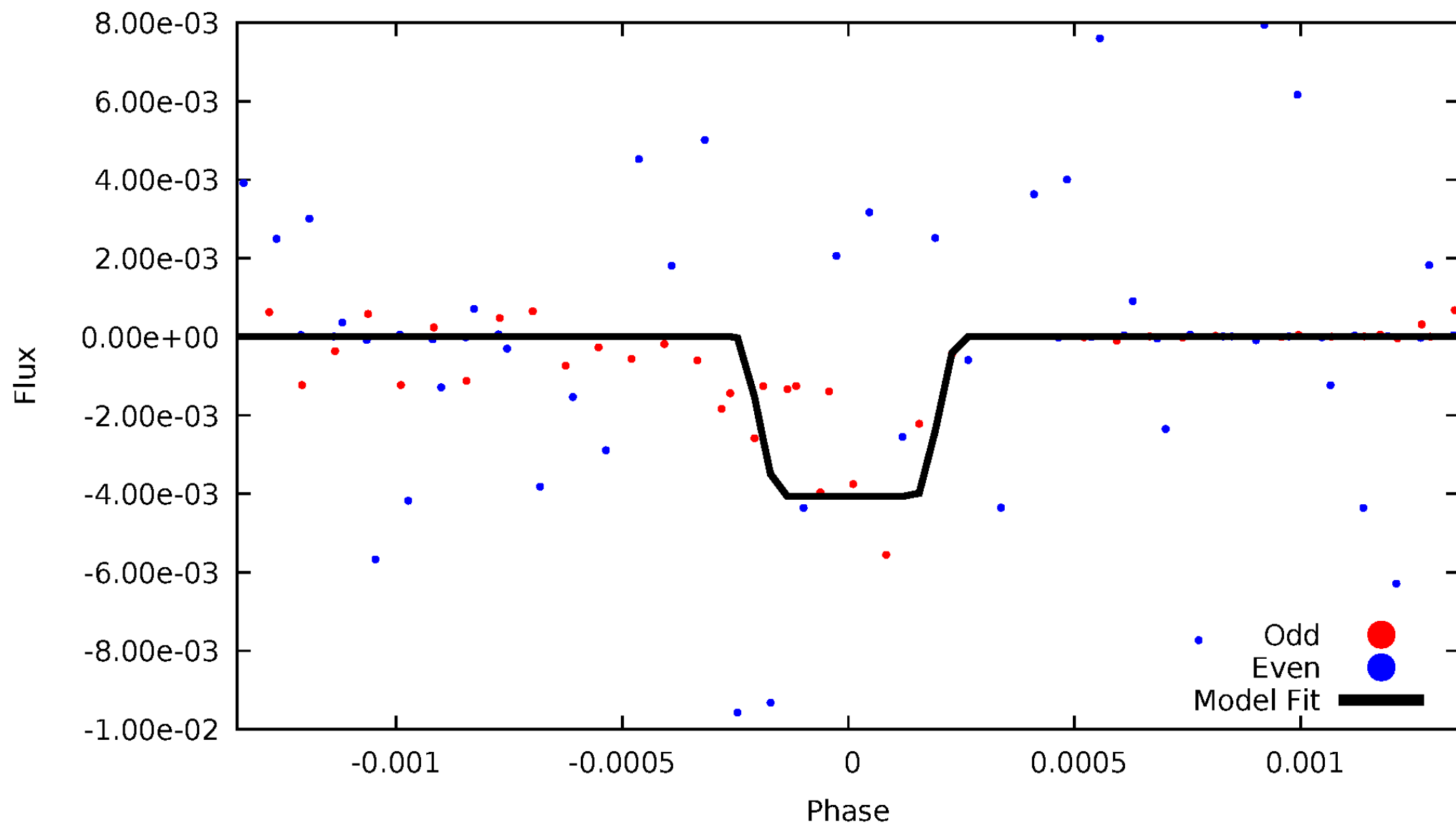
DV Odd/Even

TCE 008411124-02



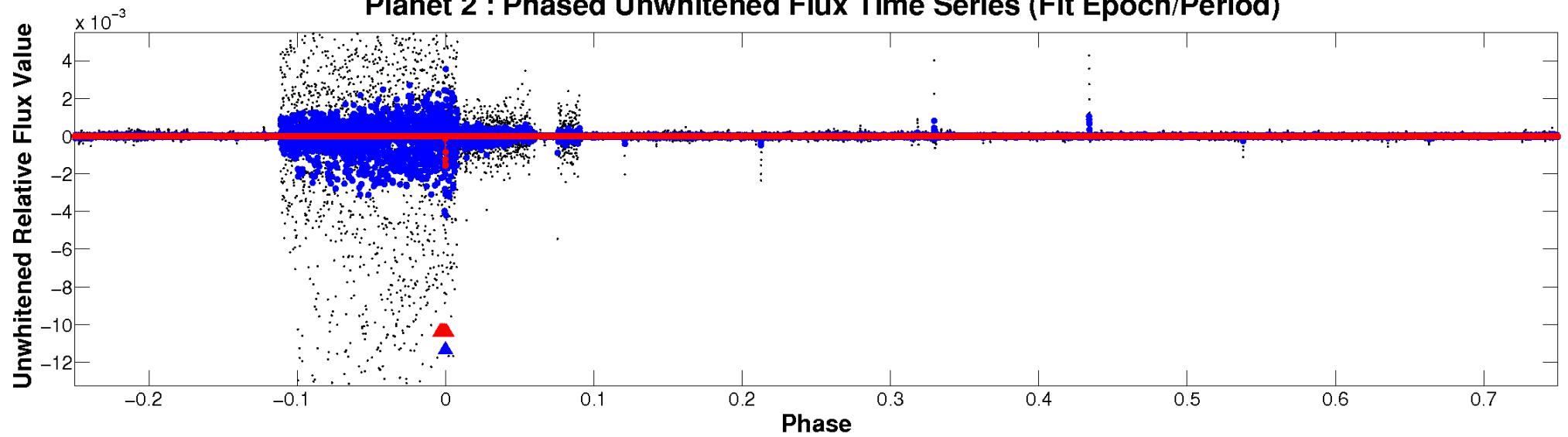
ALT Odd/Even

TCE 008411124-02

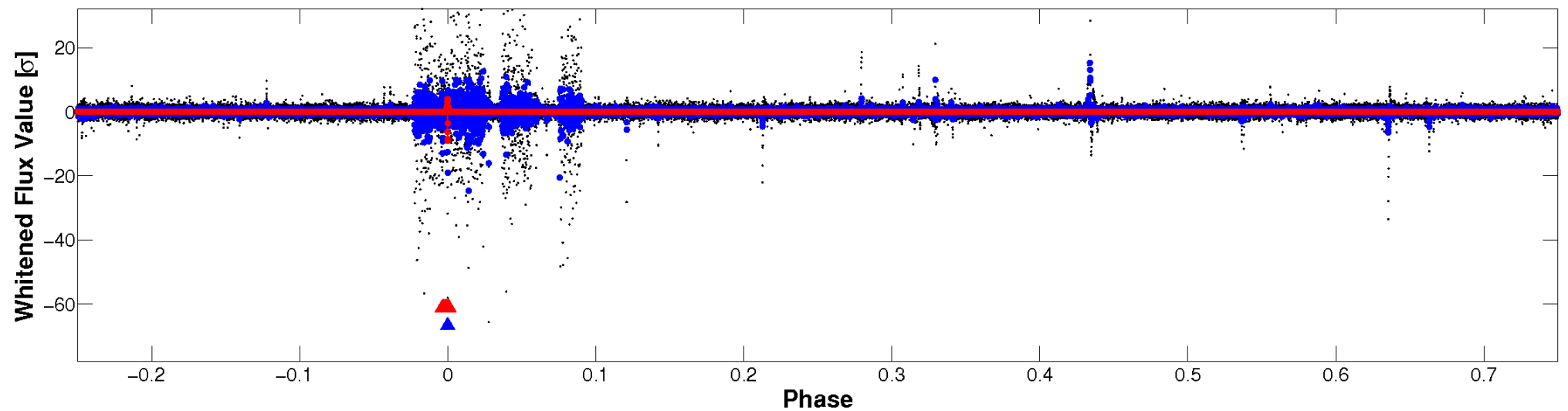


Non-Whitened Vs. Whitened Light Curve

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

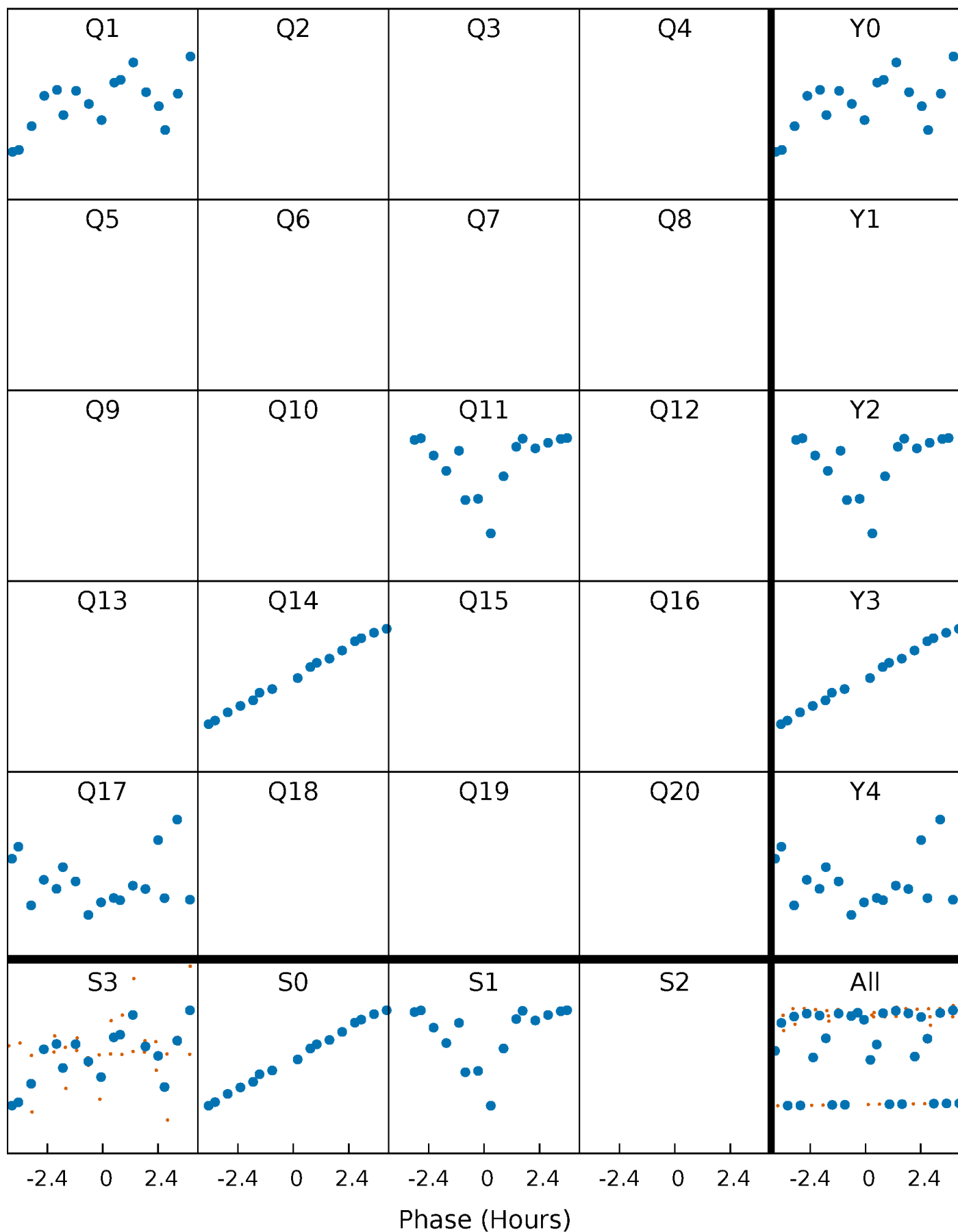


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



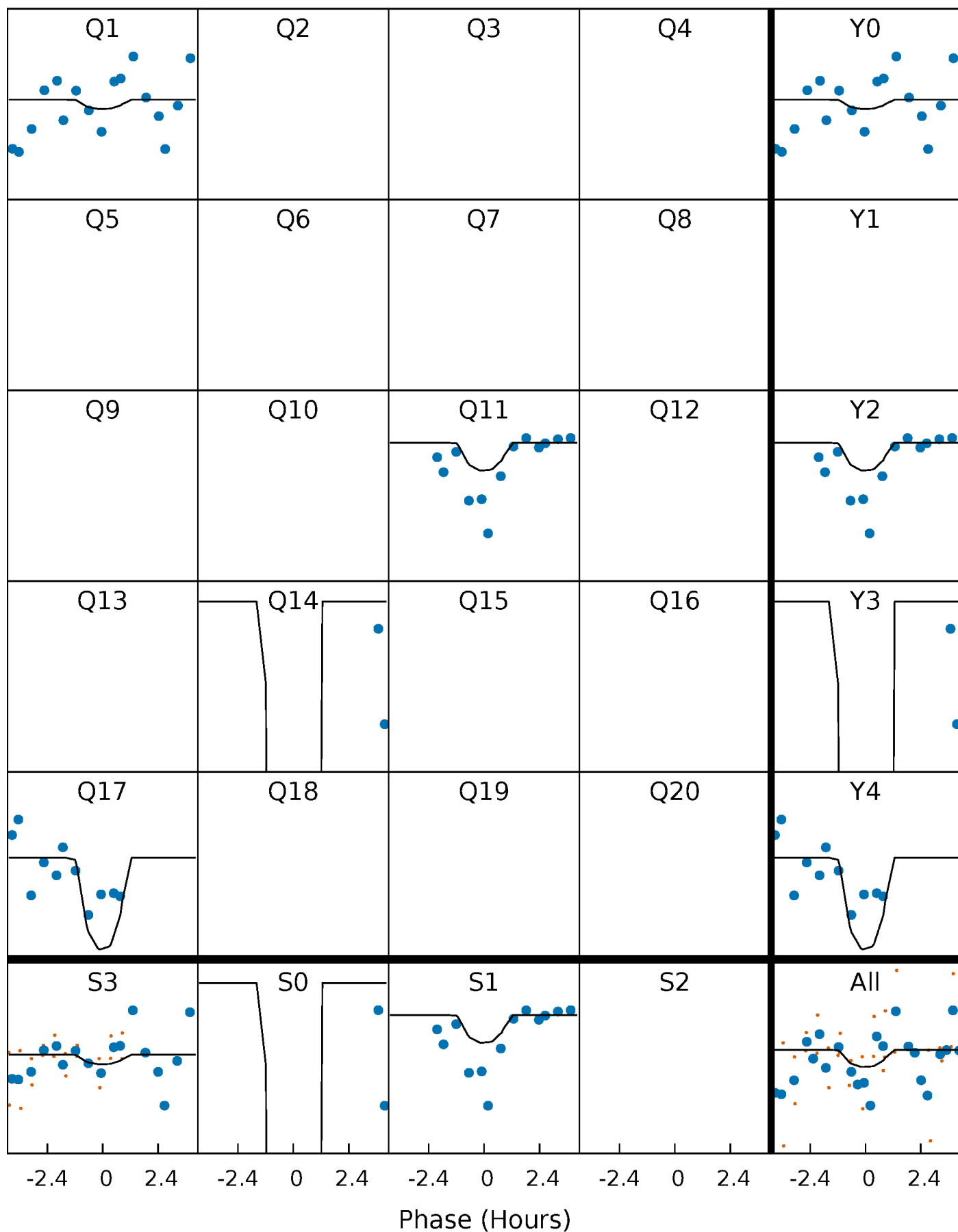
PDC Quarter-Phased Transit Curves

TCE 008411124-02 P=280.581548 Days $T_0=162.720807$ (BKJD)



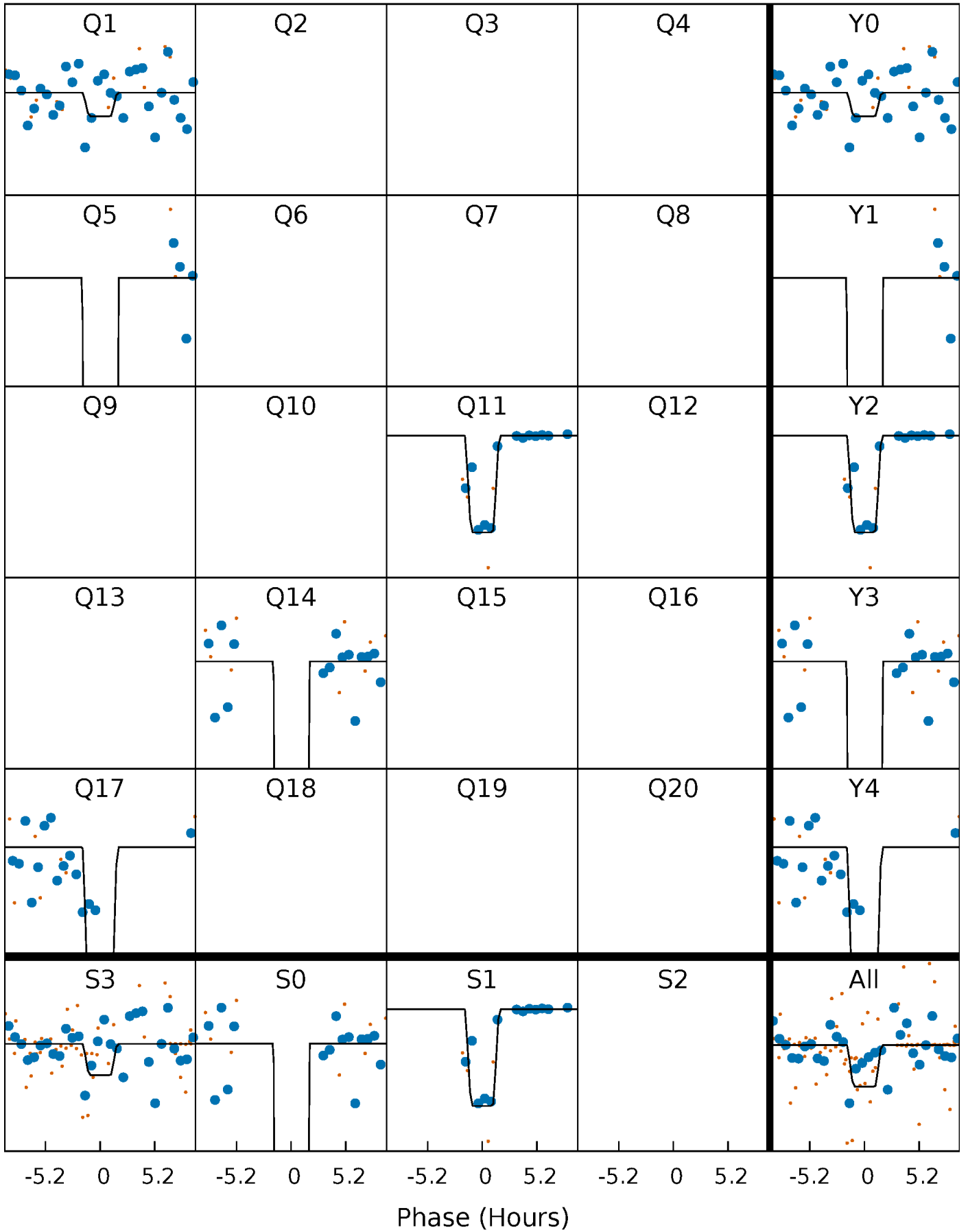
DV Quarter-Phased Transit Curves

TCE 008411124-02 P=280.581548 Days $T_0=162.720807$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

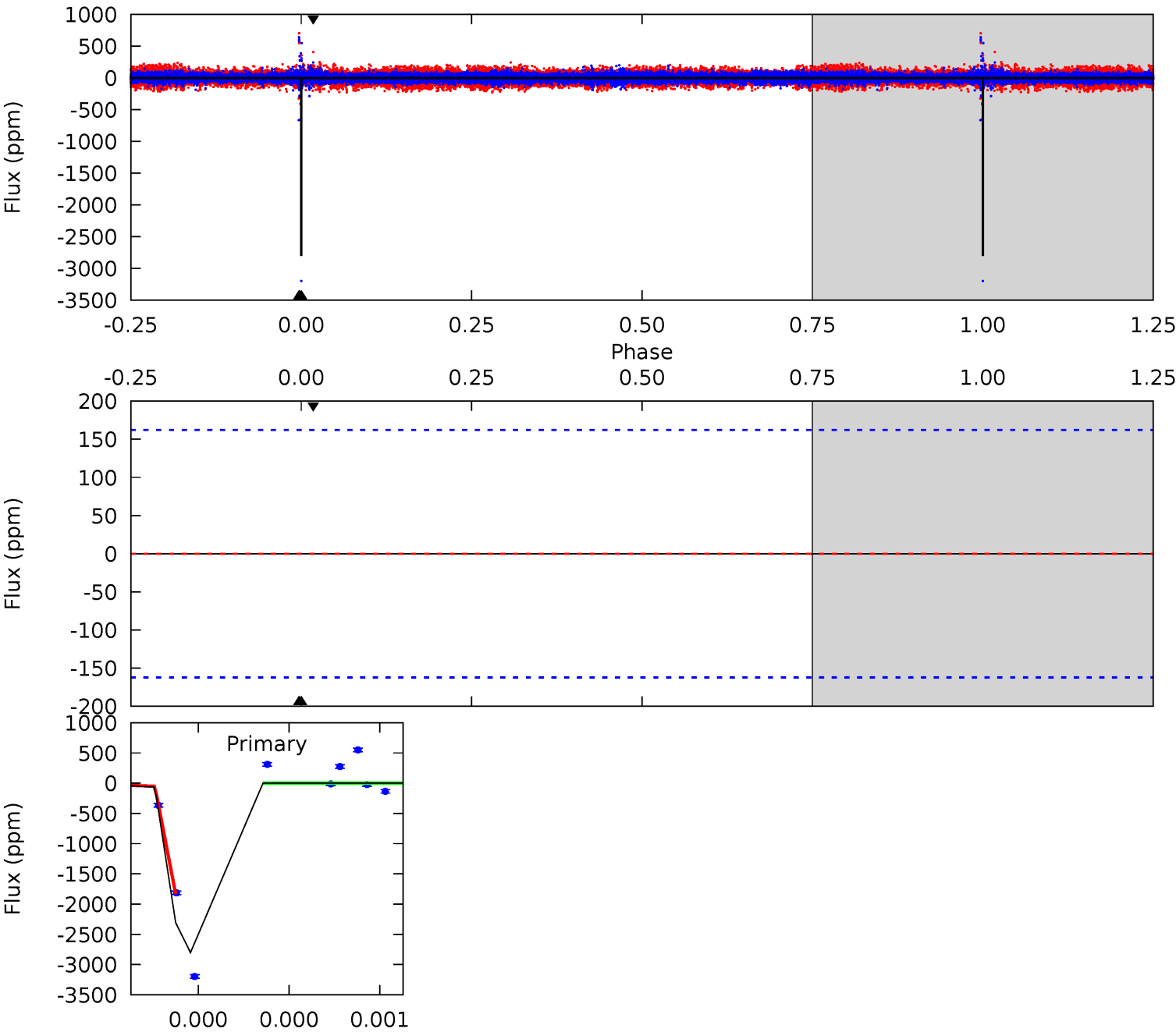
TCE 008411124-02 P=280.610866 Days $T_0=162.621065$ (BKJD)



DV Model-Shift Uniqueness Test

008411124-02, P = 280.581548 Days, E = 162.720807 Days

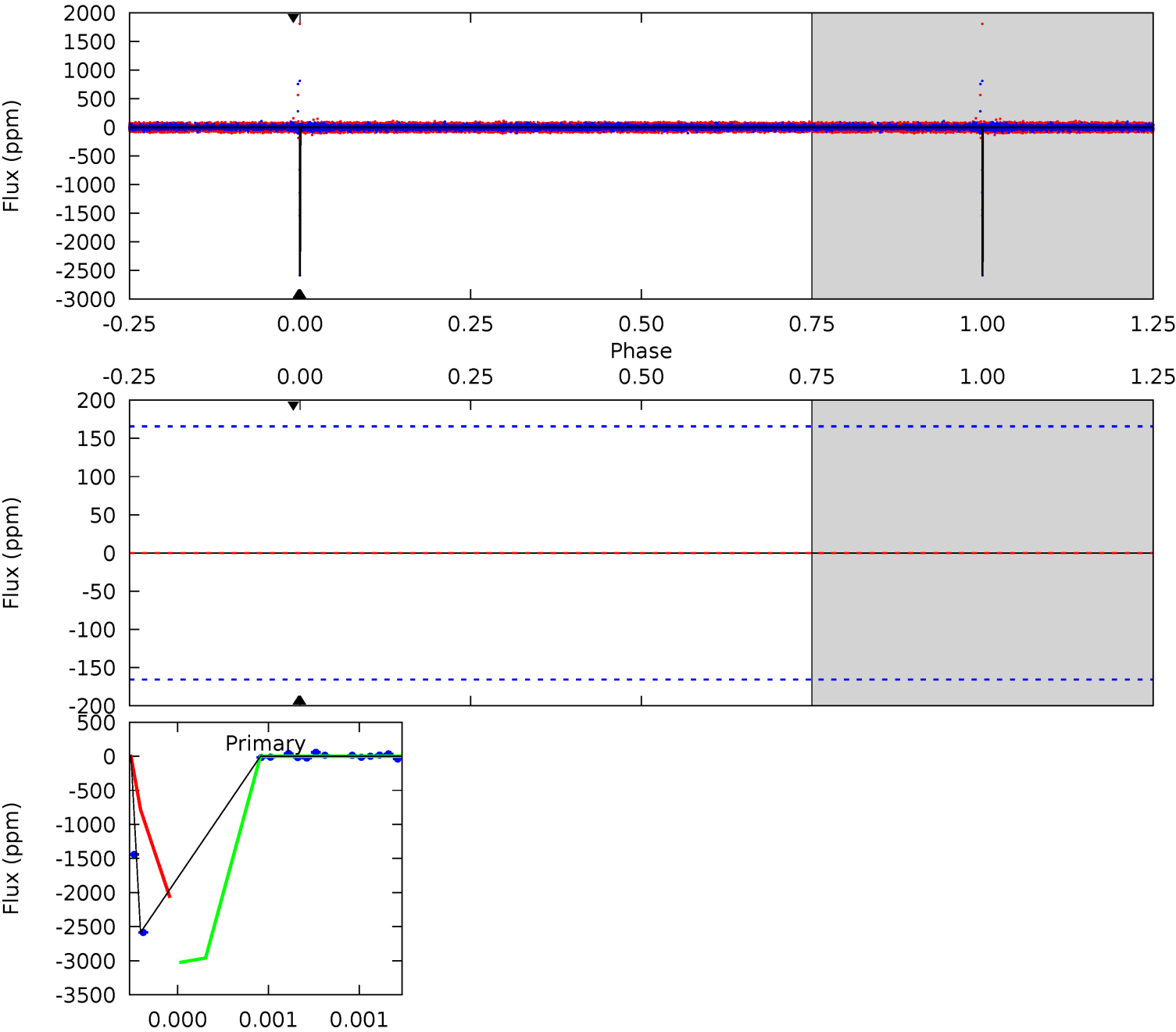
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	5.63	3.56	0	0	0	0	0	5.06	2.28	0	0



Alt Model-Shift Uniqueness Test

008411124-02, P = 280.610866 Days, E = 162.621065 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	5.57	3.48	0	0	0	0	0	0	1.34	0	0



Stellar Parameters For KIC 008411124

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	3379^{+84}_{-84}	$0.330^{+0.027}_{-0.027}$	$0.040^{+0.200}_{-0.200}$	$140.154^{+2.926}_{-17.556}$	$1.531^{+0.040}_{-0.357}$	$0.000^{+0.000}_{-0.000}$
	+2%/-2%	+8%/-8%	+500%/-500%	+2%/-13%	+3%/-23%	+18%/-7%
Source	PHO54	AST54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 008411124-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-0 ± 29	$1076.10^{+1055.38}_{-747.51}$	2512^{+70}_{-69}	-2567^{+75}_{-82}	$-0.000^{+0.019}_{-0.023}$
Alt.	-0 ± 30	$1335.28^{+1083.68}_{-889.43}$	2510^{+68}_{-60}	-2568^{+67}_{-68}	$0.000^{+0.017}_{-0.011}$

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 $A_{obs} \gg 1.0$

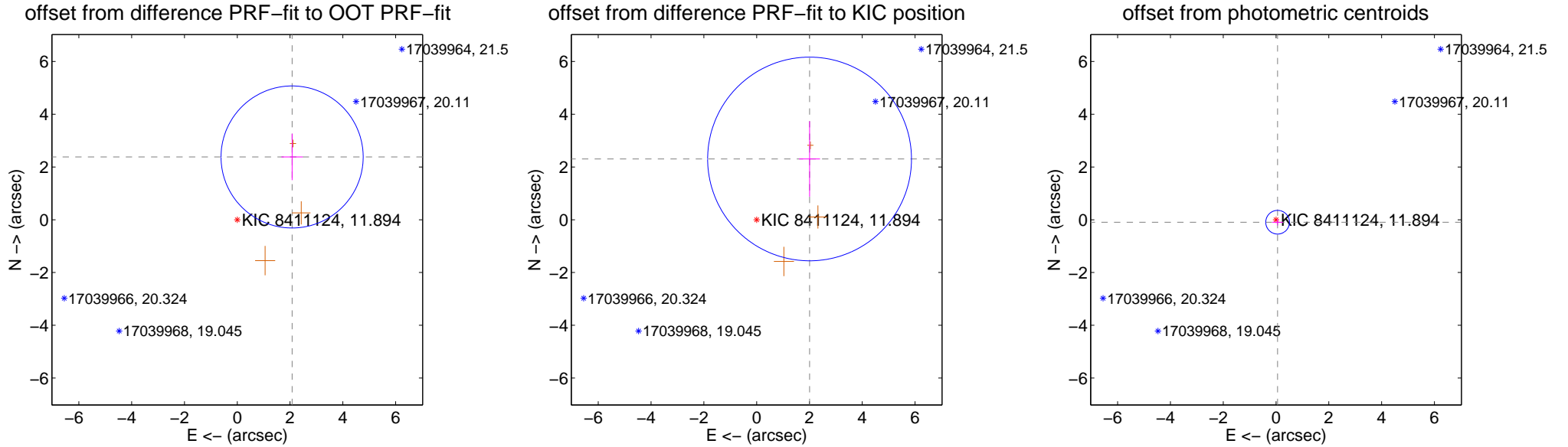
DV Centroid Data

Supplemental centroid analysis for 008411124-02. **Kepler magnitude: 11.89.** Transit SNR 22.00

There are 0 quarters with good PRF difference image offsets

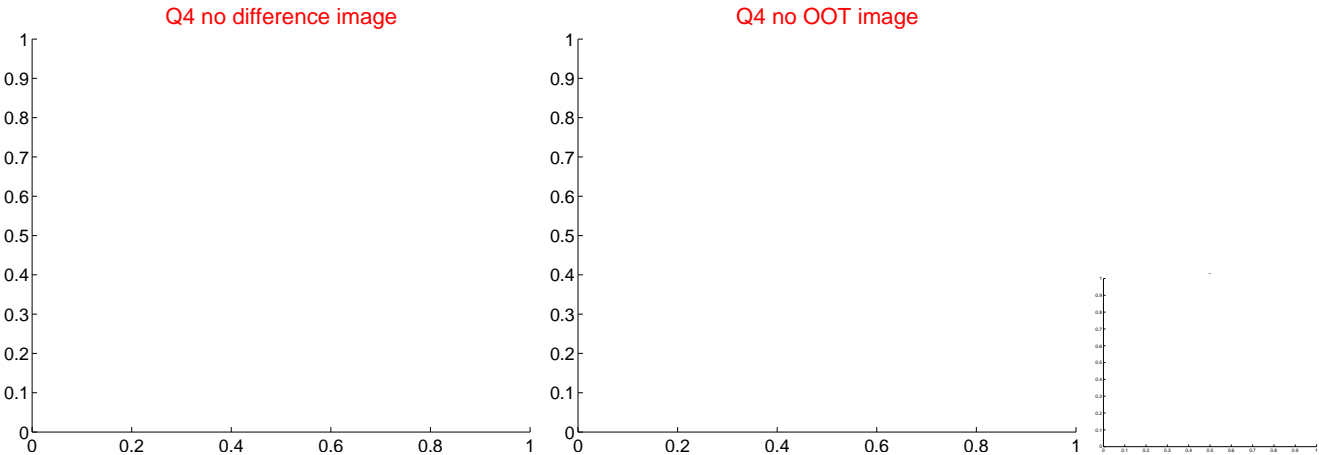
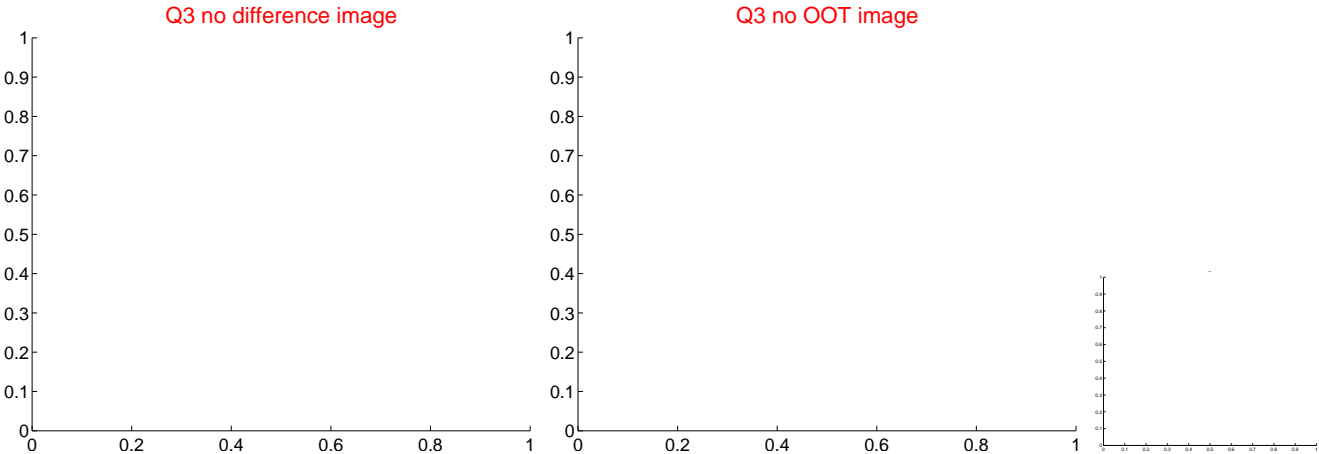
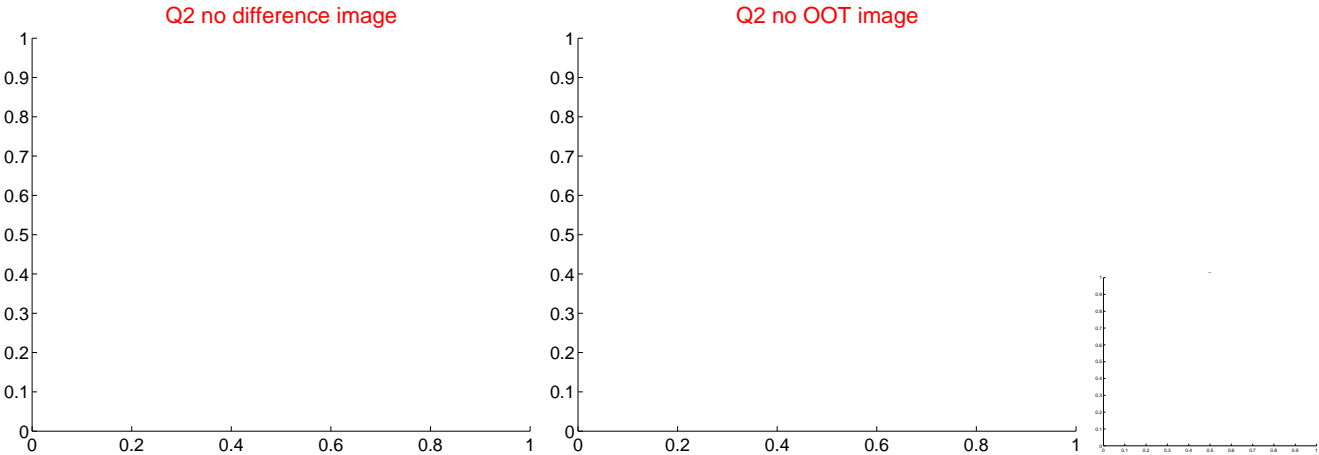
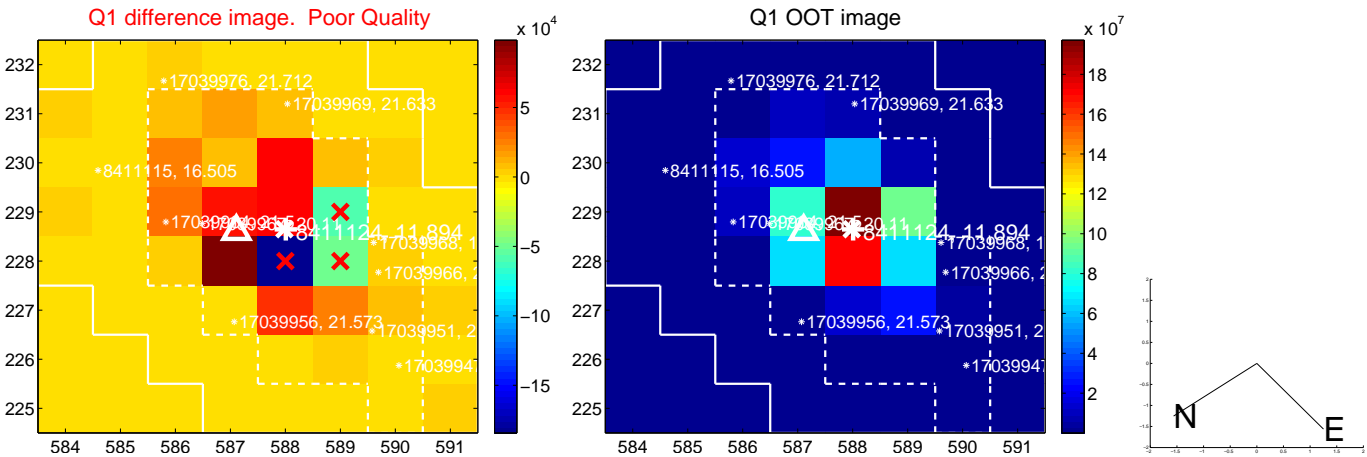
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.160 ± 0.898	3.52	-2.078 ± 0.403	2.381 ± 0.880
PRF-fit source offset from KIC position	3.055 ± 1.287	2.37	-2.005 ± 0.397	2.305 ± 1.430
photometric centroid source offset	0.11 ± 0.15	0.74	-0.06 ± 0.21	-0.09 ± 0.12

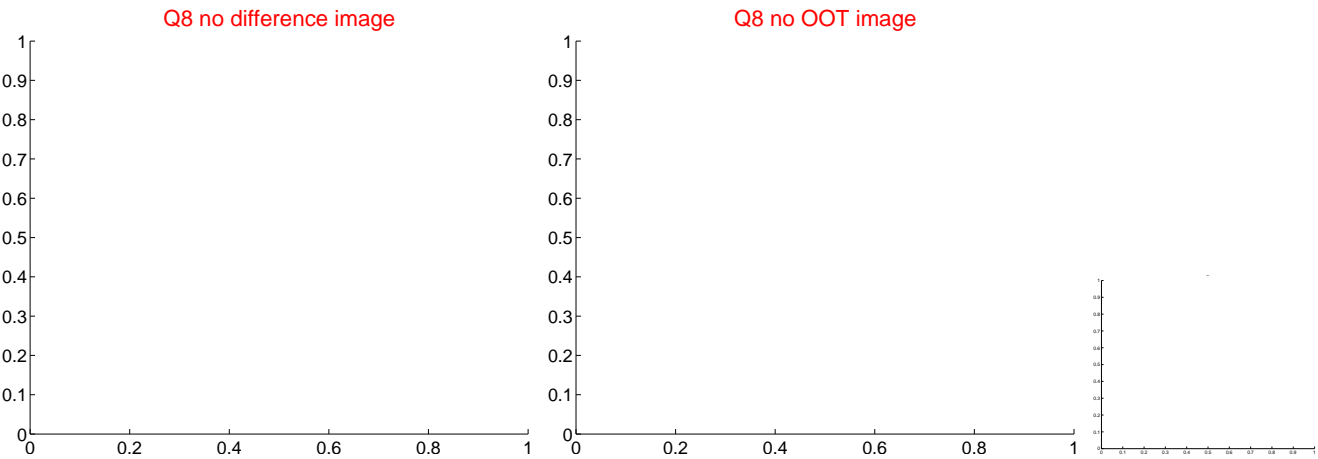
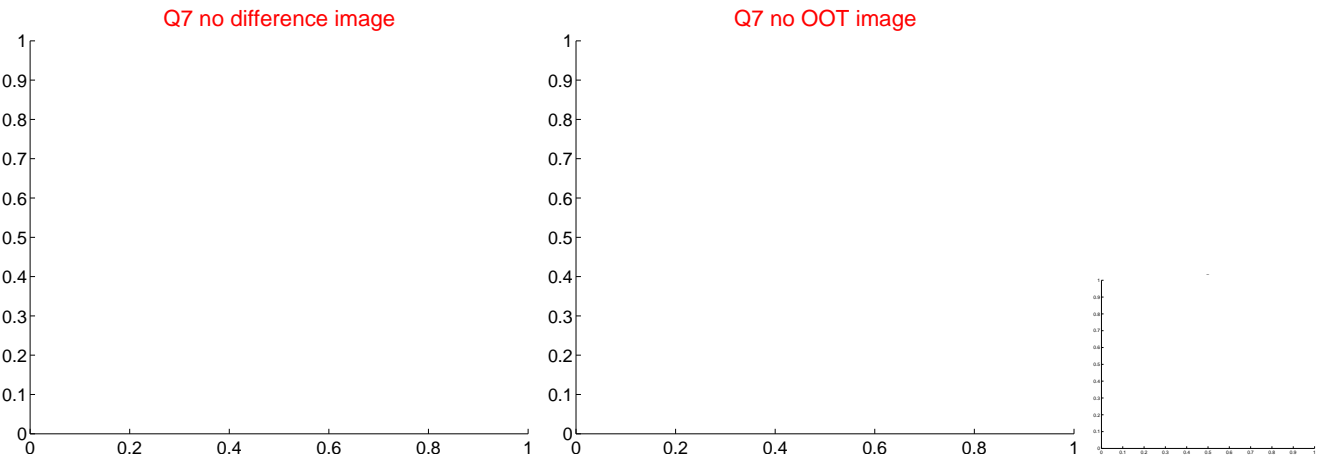
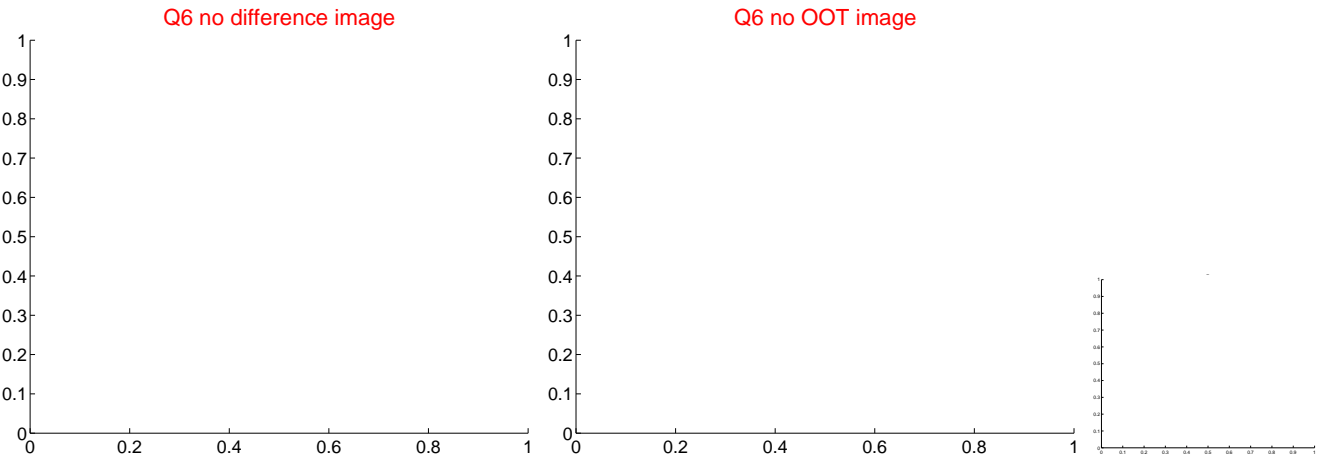
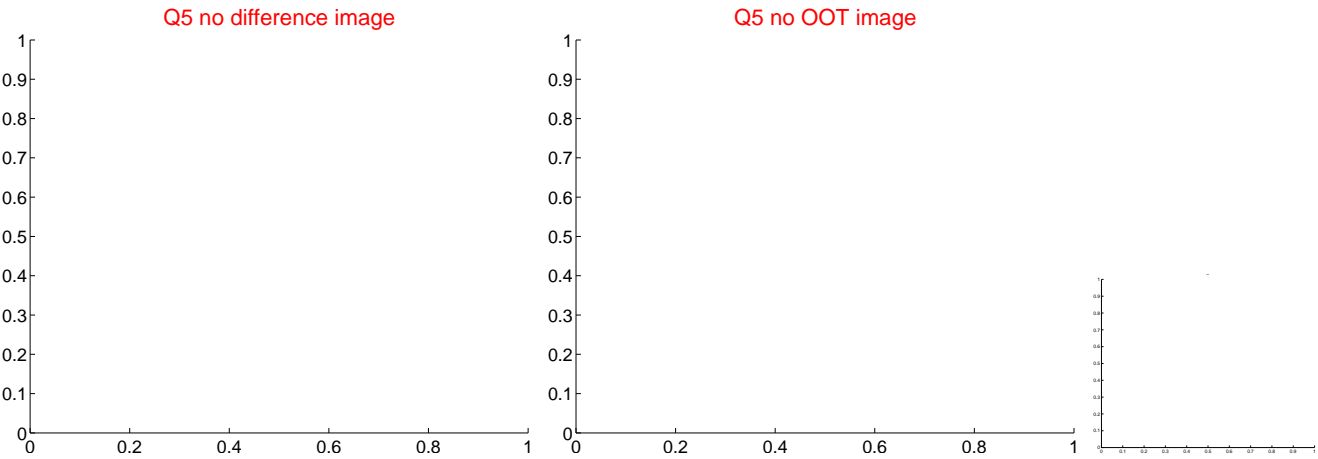


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

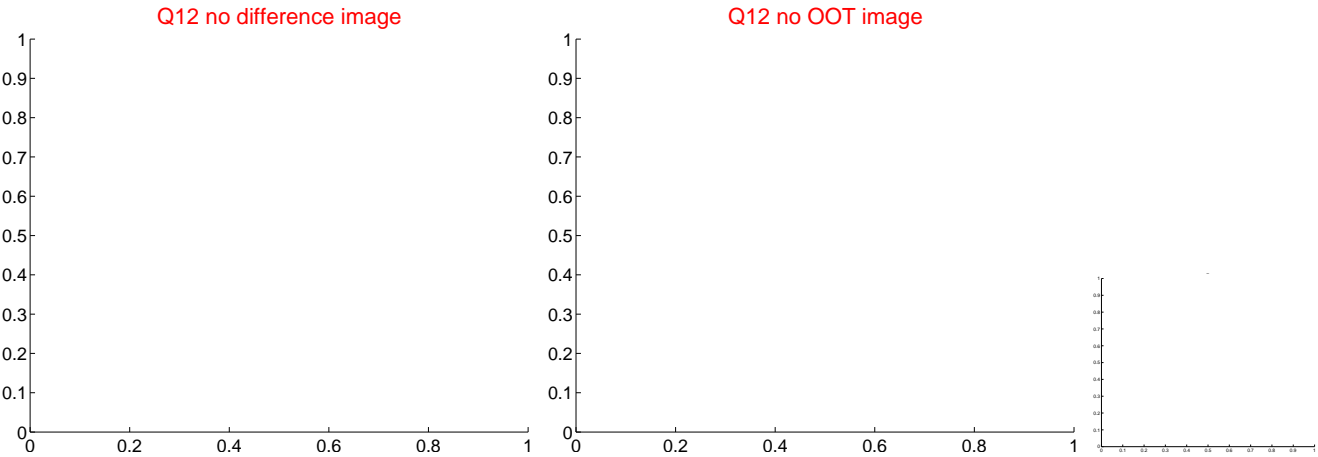
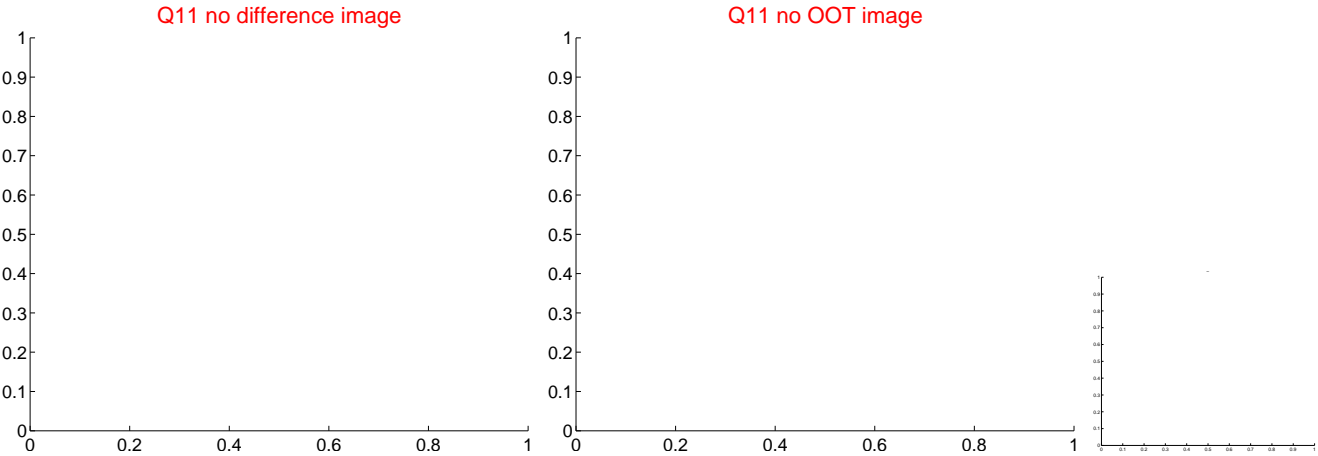
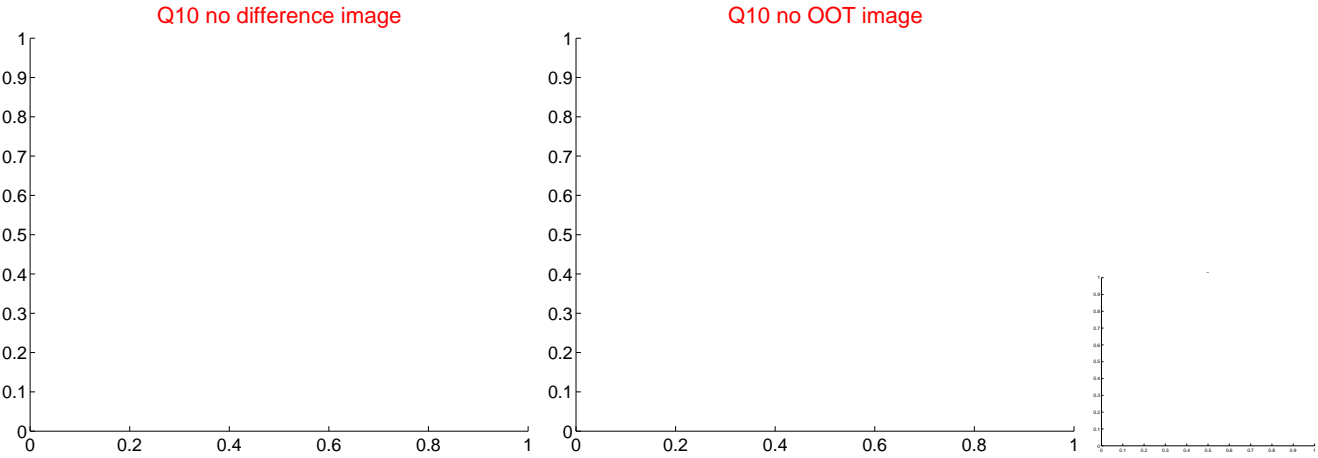
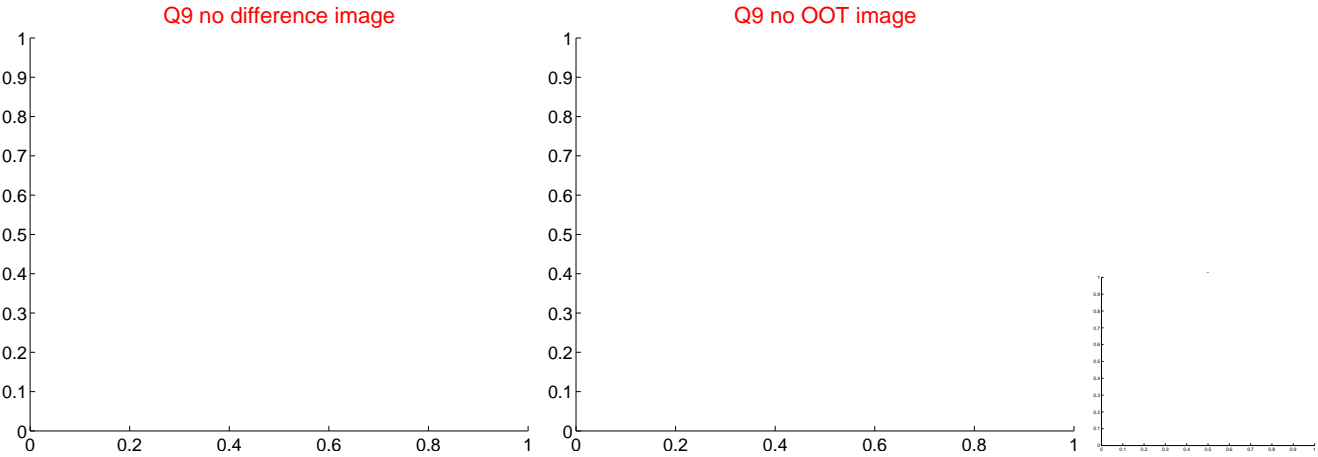
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



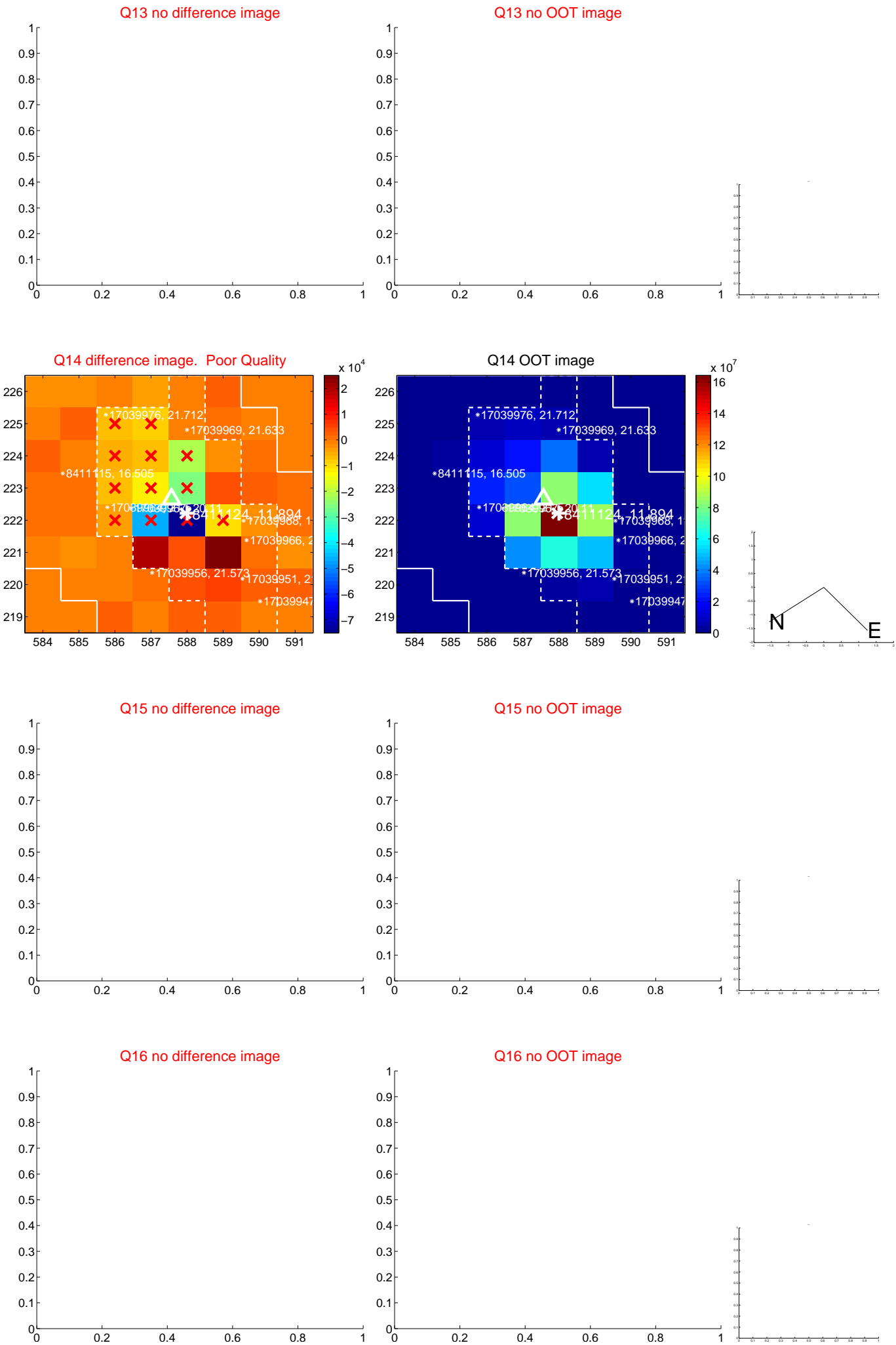
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



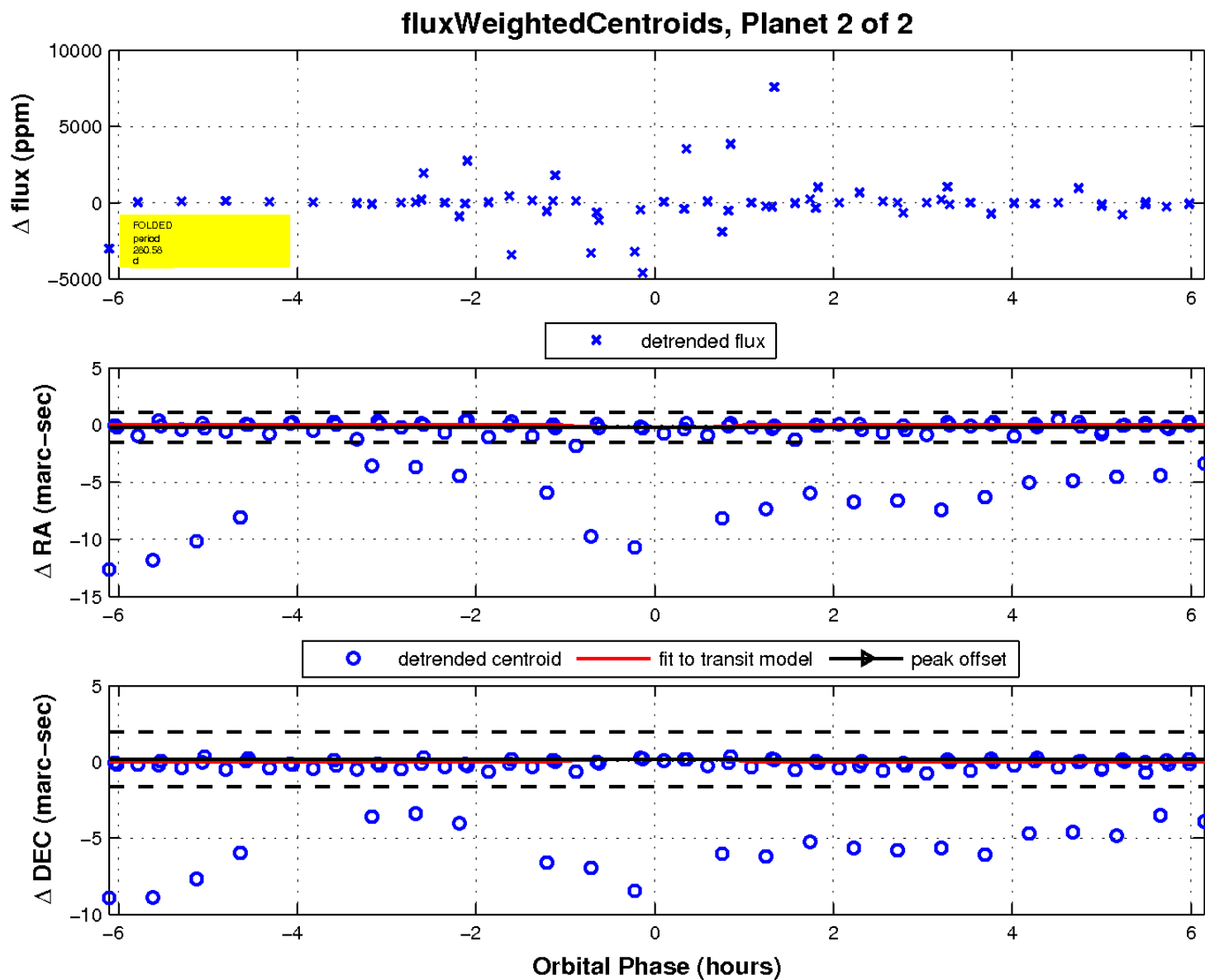
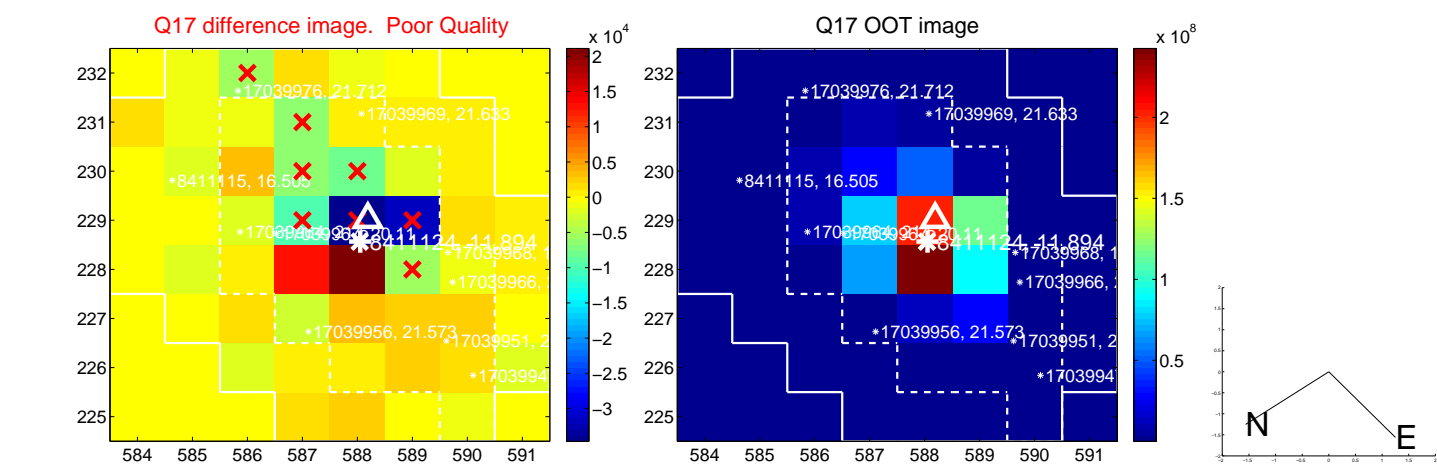
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

