

KIC 008674581

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})
008674581-01	OBS	No	355.932242	197.927718	1312.4	14.649	15.4	8.8	15.43	4684	69.03	65.12
008674581-02	OBS	No	115.315690	137.586316	25.1	4.804	11.1	6.4	15.43	4684	9.58	292.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008674581-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_SATURATED
008674581-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

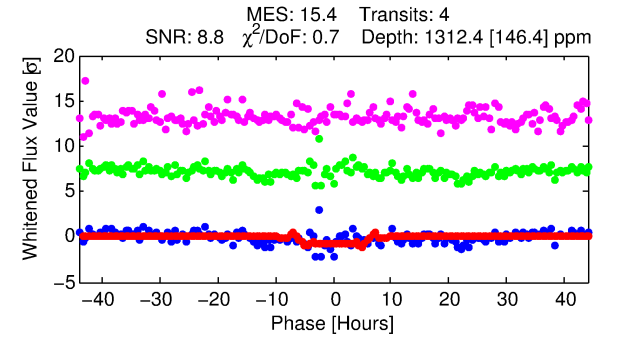
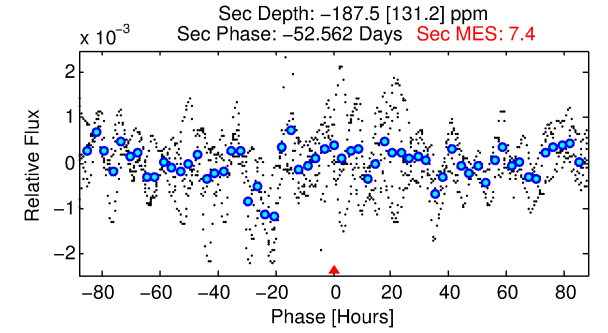
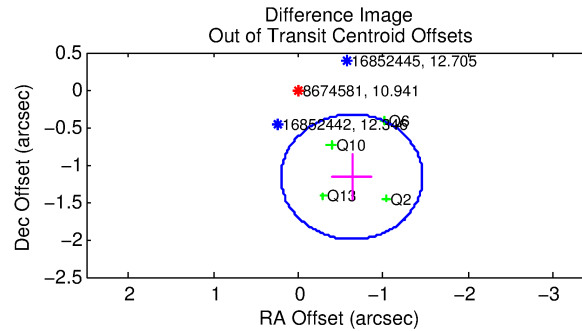
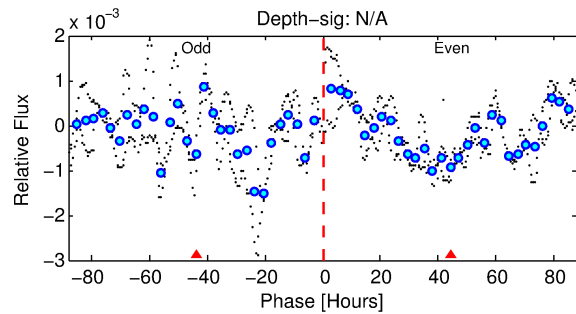
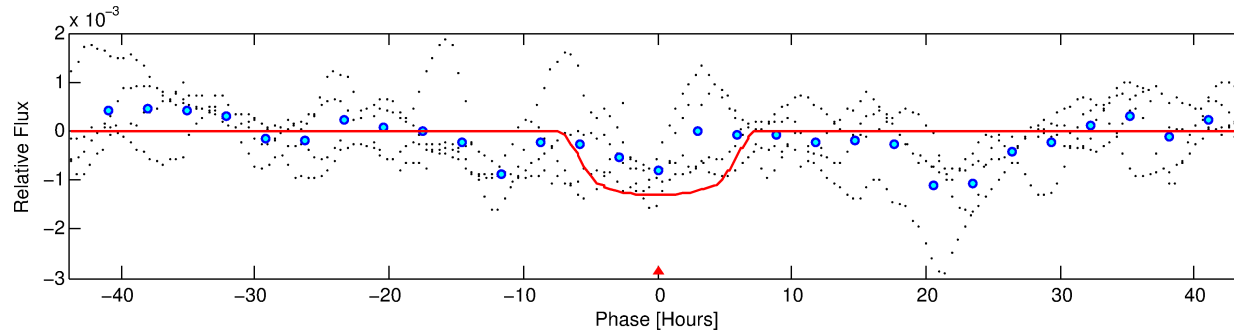
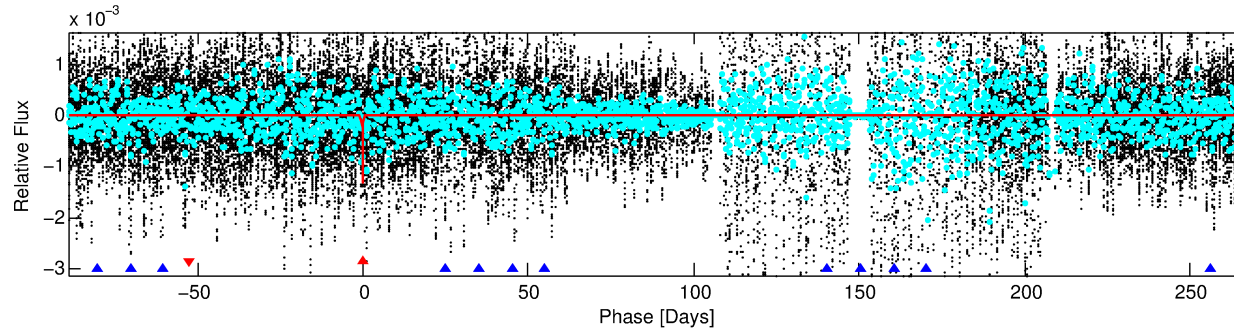
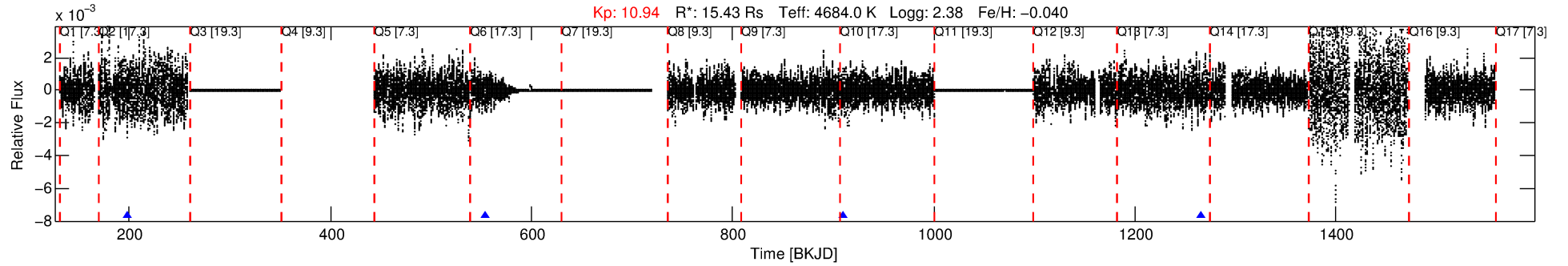
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008674581-01

No Significant Match Found

DV One-Page Summary

KIC: 8674581 Candidate: 1 of 2 Period: 355.932 d



DV Fit Results:

Period = 355.93224 [0.00631] d
Epoch = 197.9277 [0.0131] BKJD
 $R_p/R^* = 0.0410 [0.0023]$
 $a/R^* = 95.92 [5.16]$
 $b = 0.90 [0.01]$
 $\text{Seff} = 65.12 [11.53]$
 $T_{\text{eq}} = 724 [32] \text{ K}$
 $R_p = 69.03 [15.97] R_e$
 $a = 1.2555 [0.1900] \text{ AU}$
 $\text{Ag} = \text{N/A}$
 $T_{\text{eff}} = \text{N/A}$

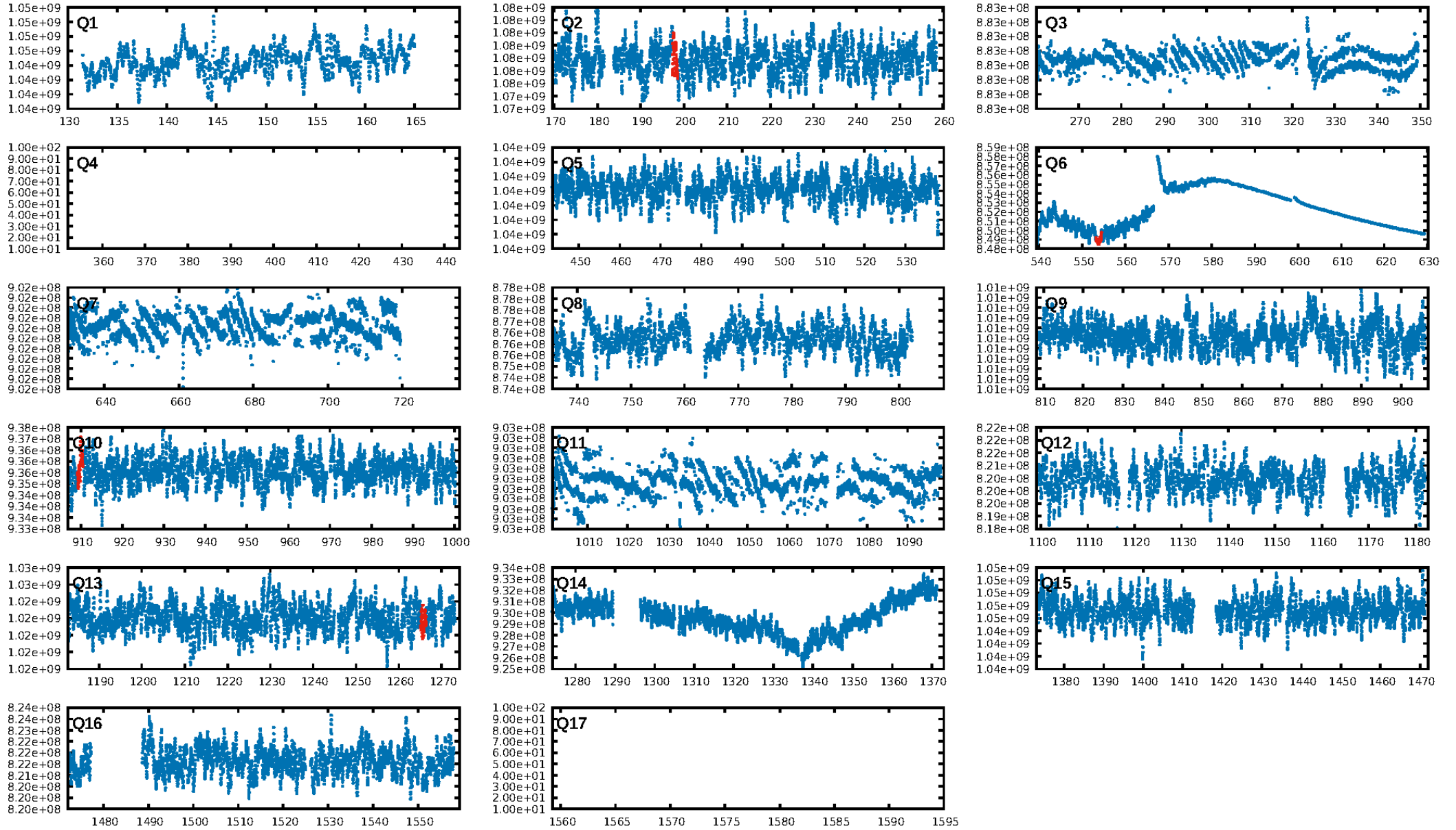
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [374.58σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.42e-26
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 18.58
Centroid-sig: 0.3%
Centroid-so: 0.399 arcsec [1.87σ]
OotOffset-rm: 1.325 arcsec [4.76σ]
KicOffset-rm: 1.502 arcsec [6.04σ]
OotOffset-st: 3/0/0/1 [4]
KicOffset-st: 3/0/0/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

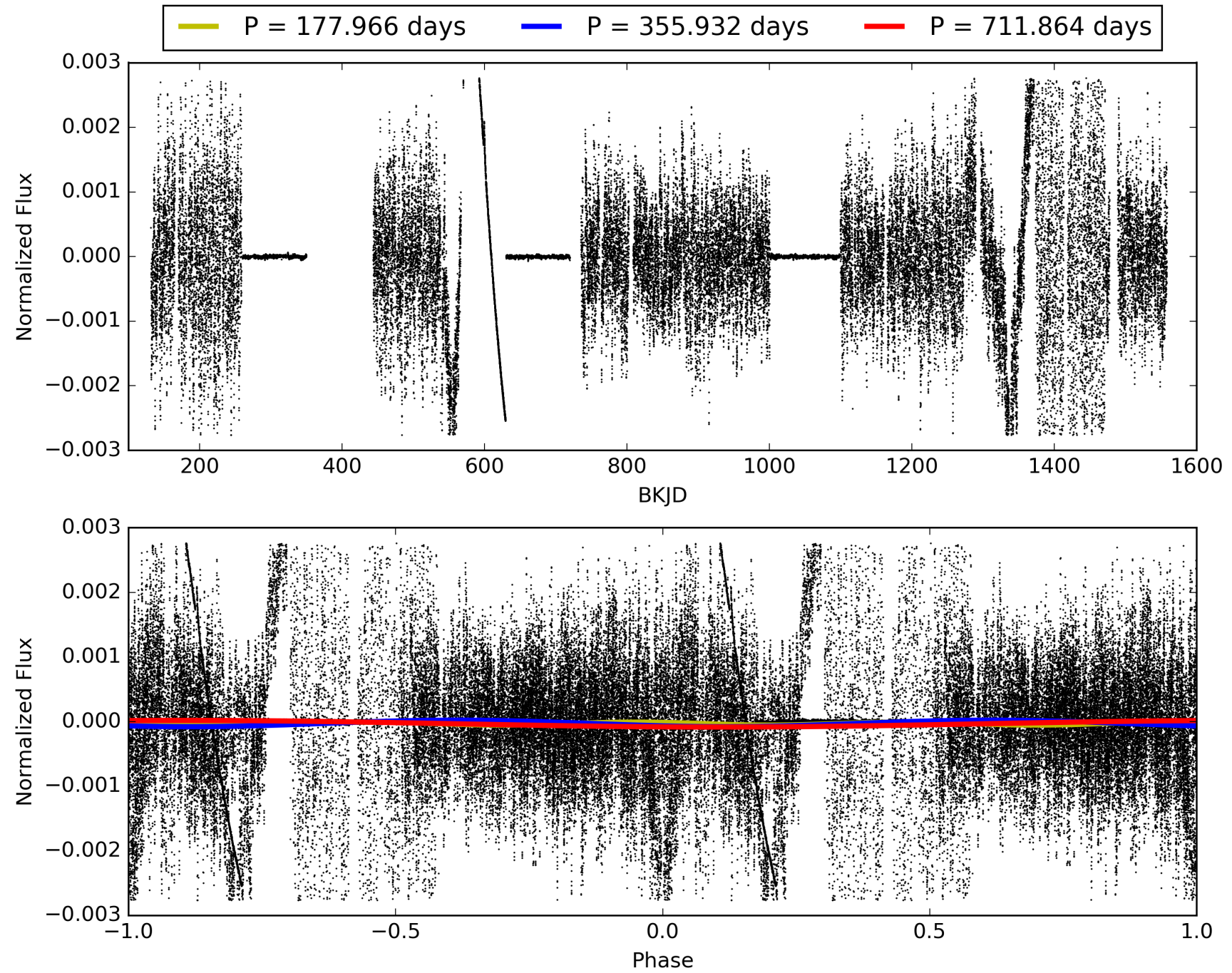
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:36:38 Z

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

TCE 008674581-01, PDC Light Curves

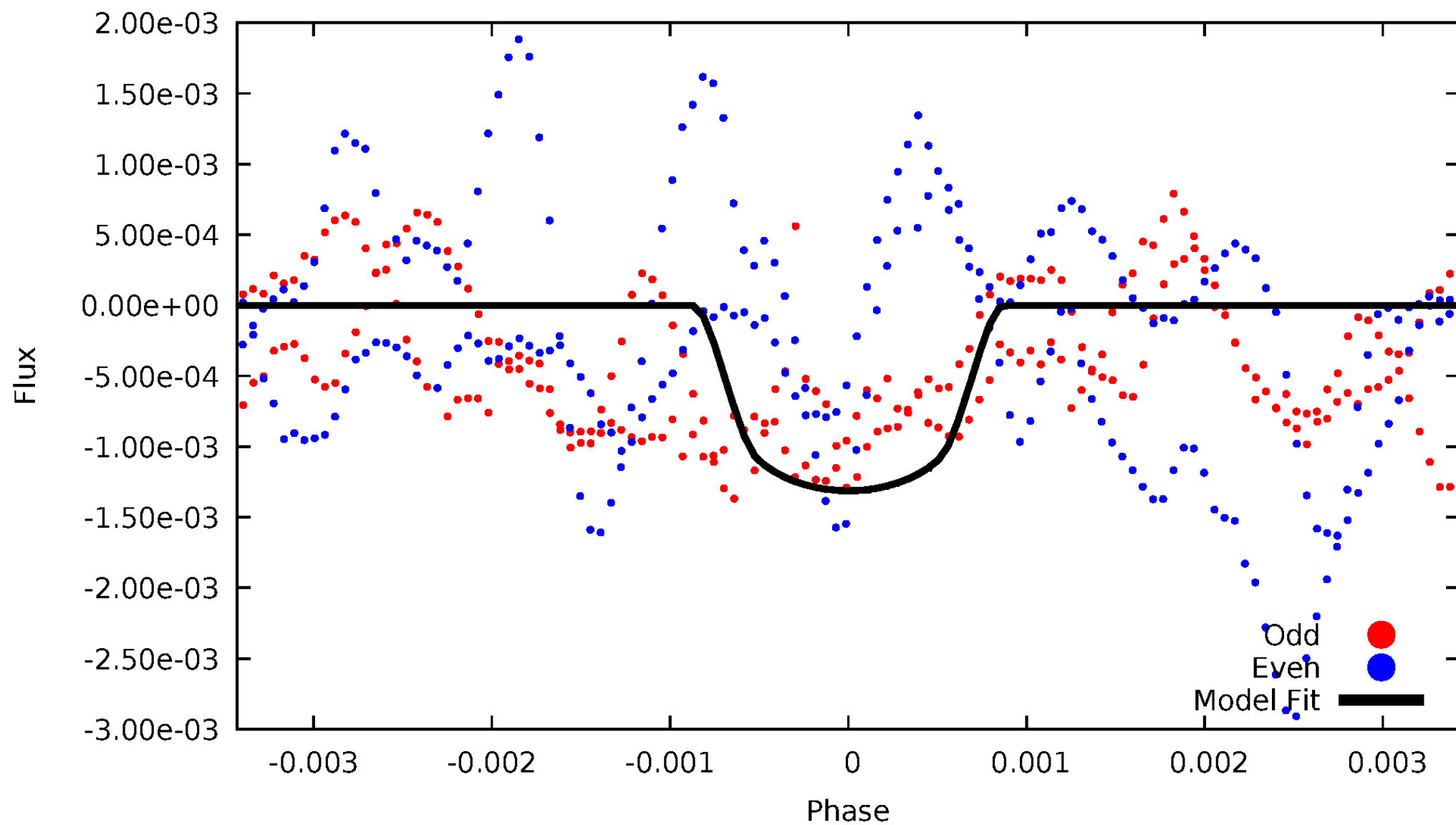


TCE 008674581-01



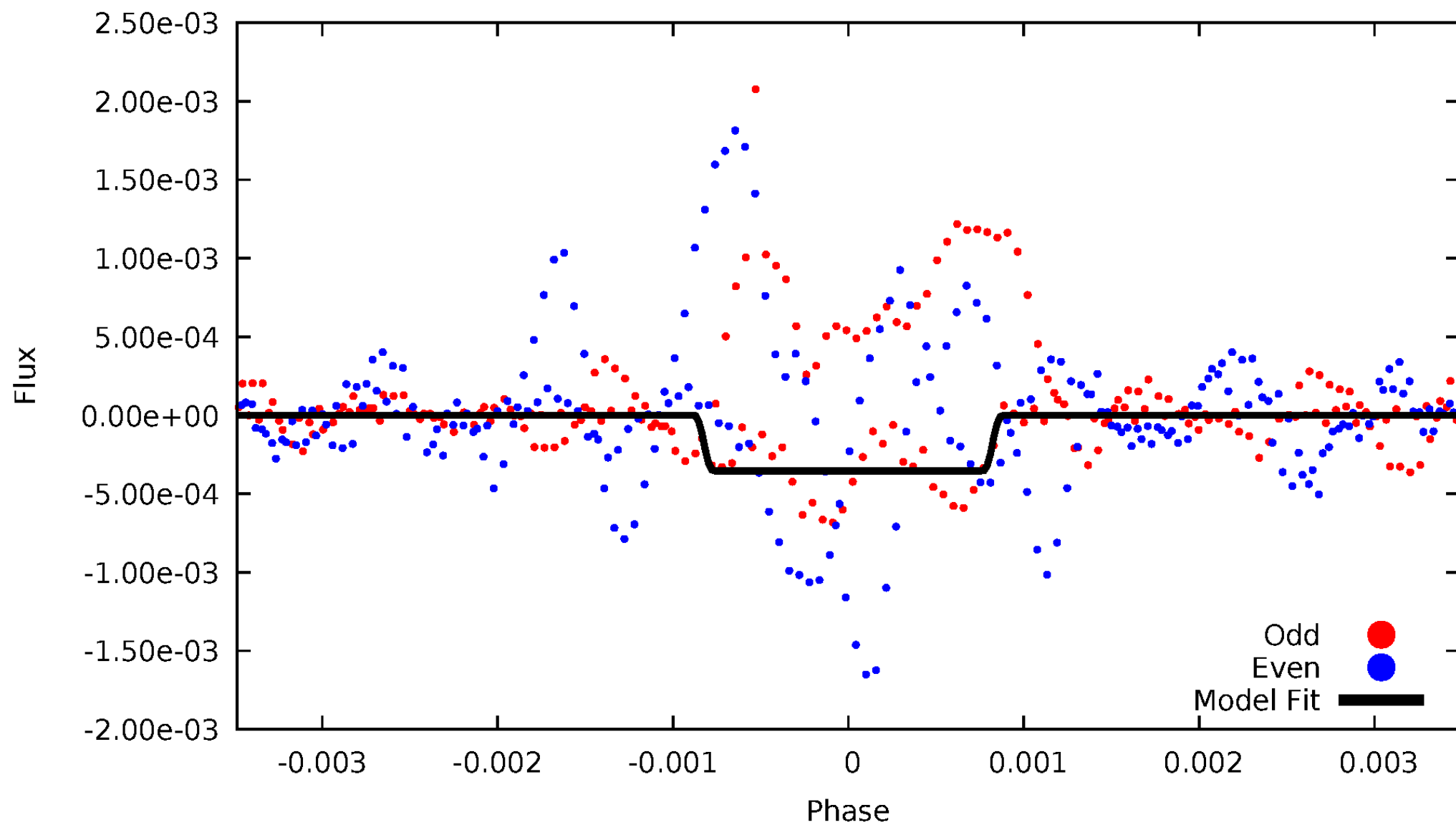
DV Odd/Even

TCE 008674581-01



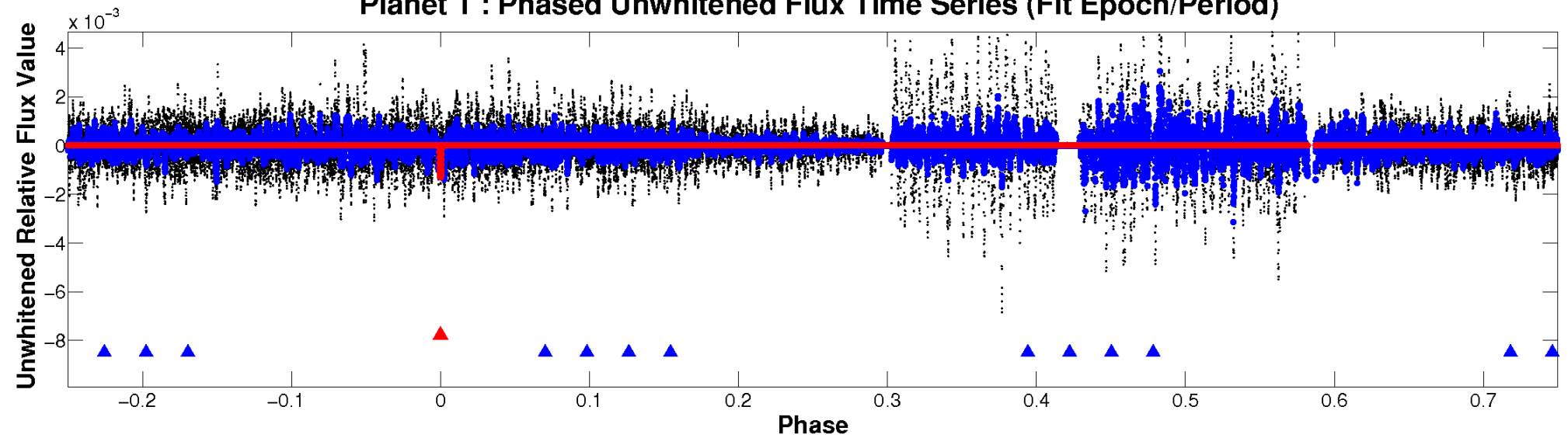
ALT Odd/Even

TCE 008674581-01

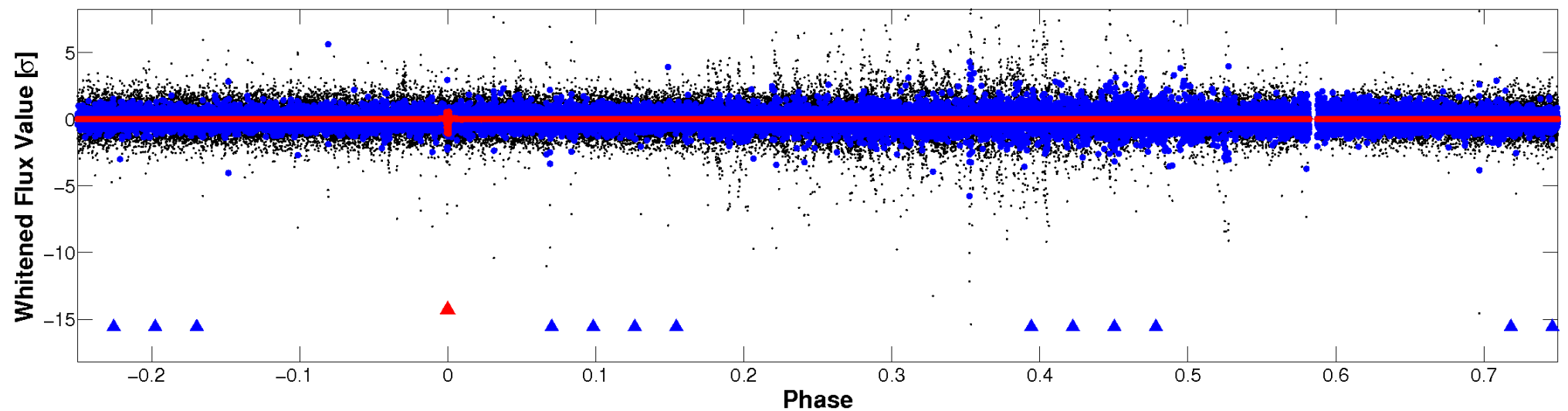


Non-Whitened Vs. Whitened Light Curve

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

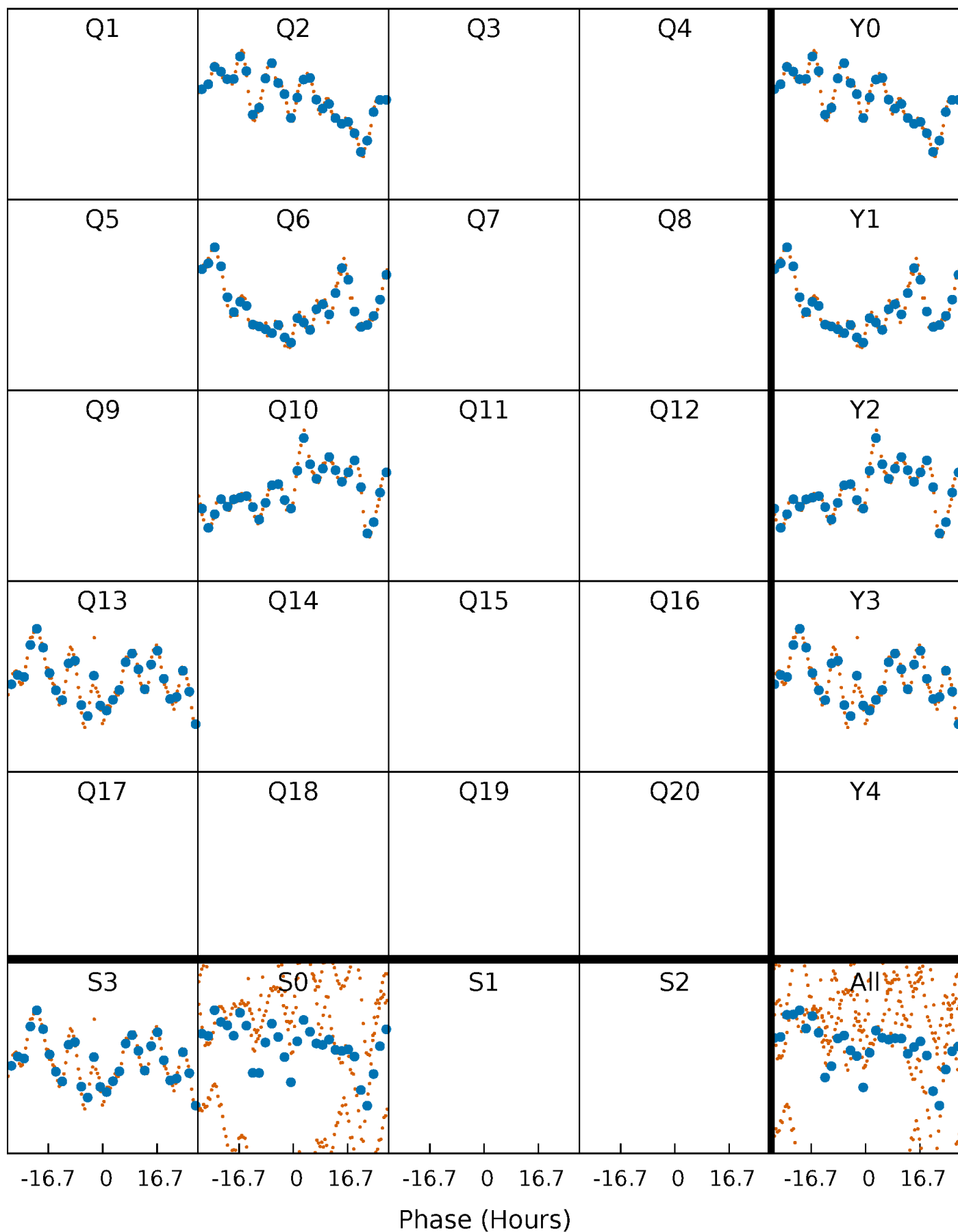


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



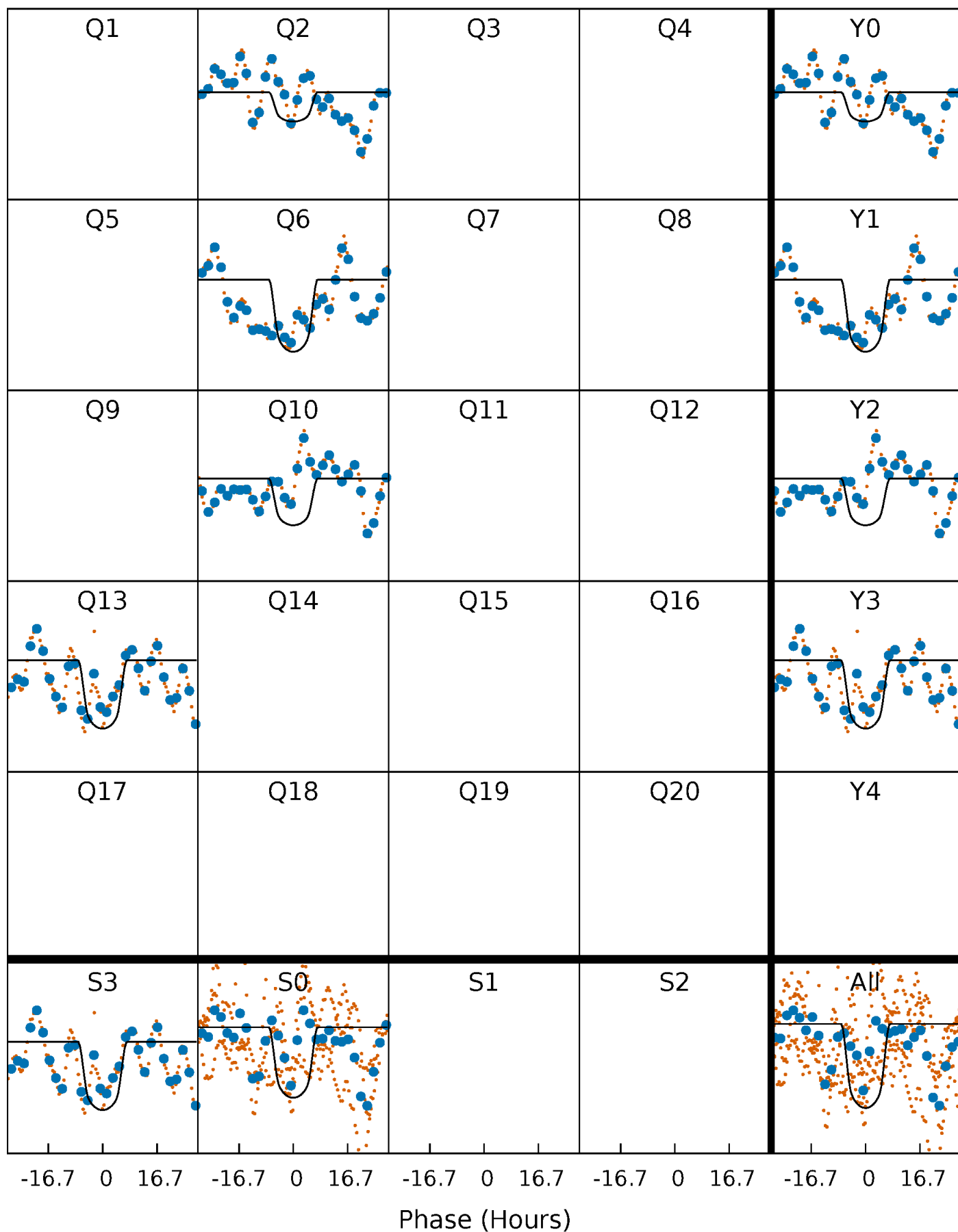
PDC Quarter-Phased Transit Curves

TCE 008674581-01 P=355.932242 Days $T_0=197.927718$ (BKJD)



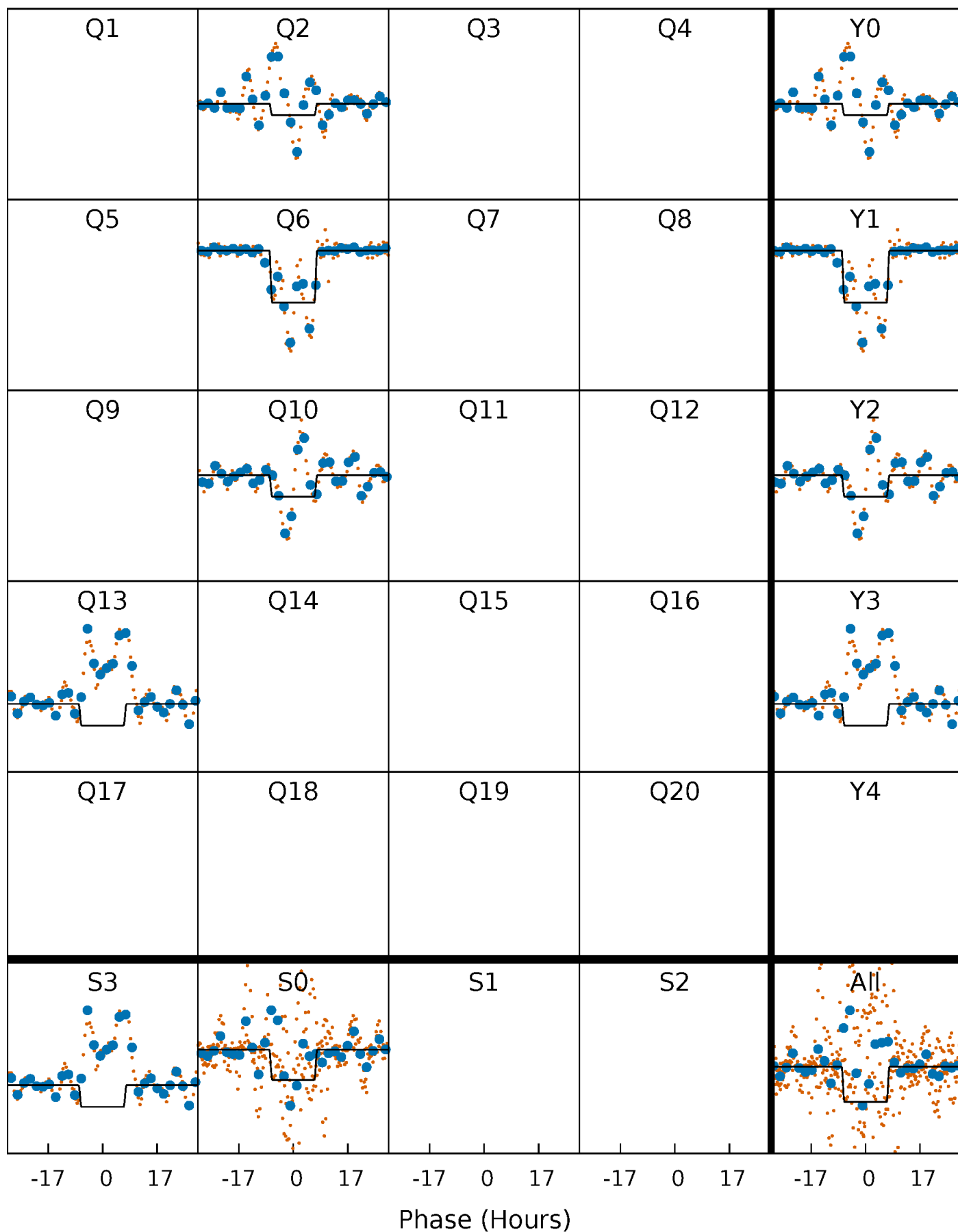
DV Quarter-Phased Transit Curves

TCE 008674581-01 P=355.932242 Days $T_0=197.927718$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

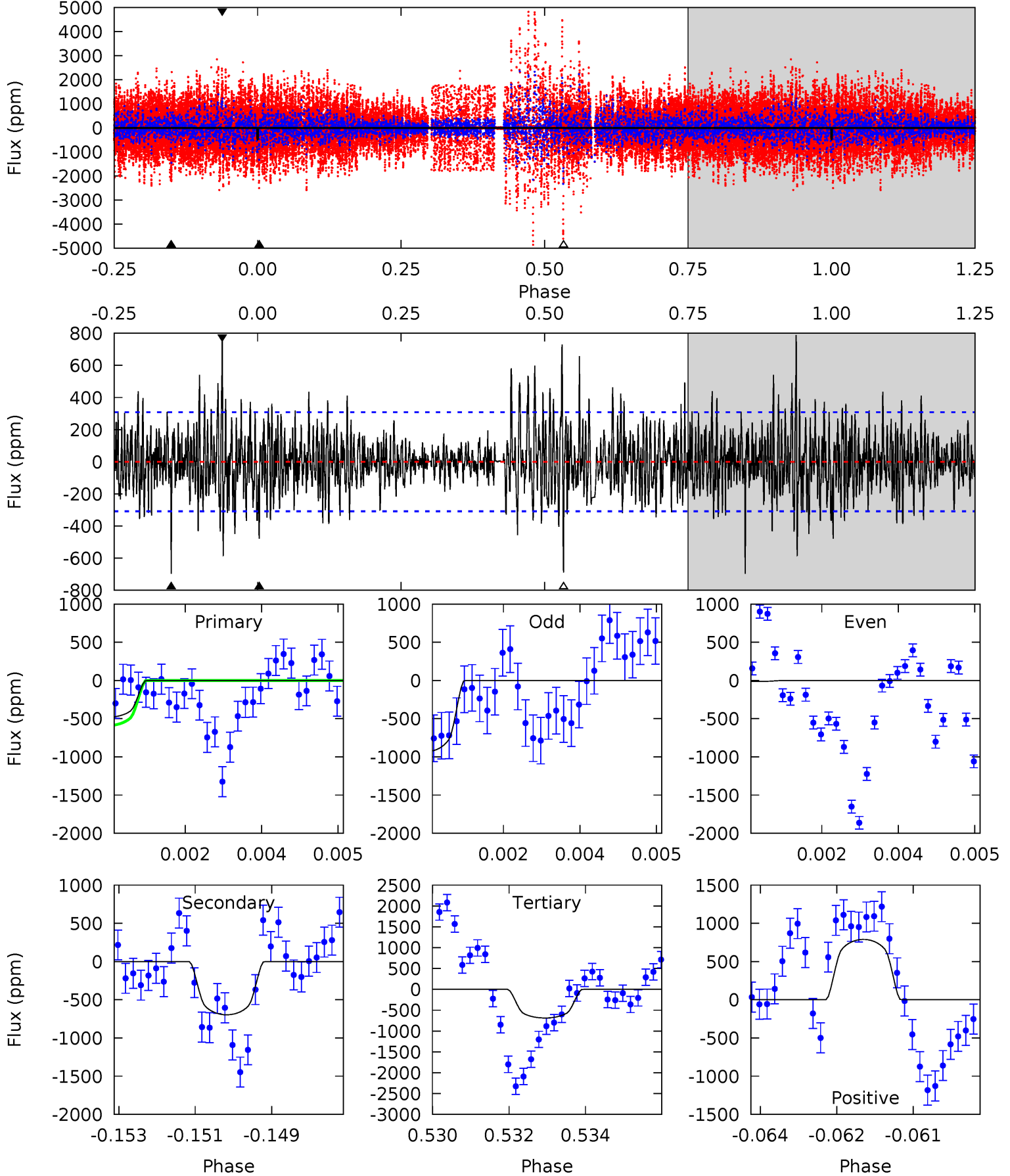
TCE 008674581-01 P=355.979860 Days $T_0=197.867078$ (BKJD)



DV Model-Shift Uniqueness Test

008674581-01, P = 355.932242 Days, E = 197.927718 Days

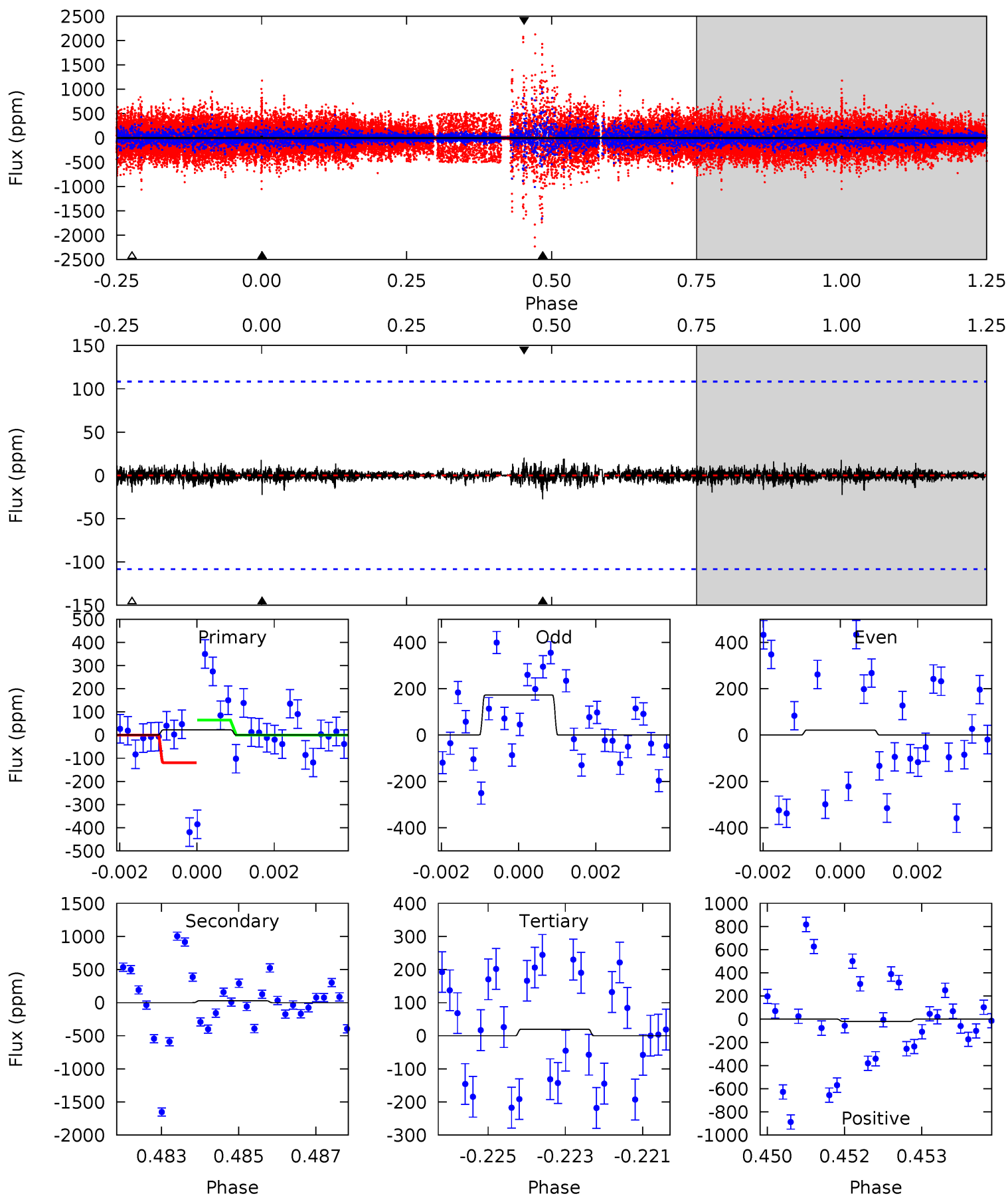
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.32	12.1	11.9	13.7	5.35	3.12	2.66	-3.62	-5.39	0.15	-1.61	6.84	1.02	0.53	1.32



Alt Model-Shift Uniqueness Test

008674581-01, P = 355.979860 Days, E = 197.867078 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.11	1.36	0.97	0.96	5.35	3.13	0.19	0.14	0.15	0.39	0.40	3.46	30.8	0.41	0



Stellar Parameters For KIC 008674581

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4684^{+34}_{-97}	$2.380^{+0.030}_{-0.030}$	$-0.040^{+0.100}_{-0.200}$	$15.428^{+2.833}_{-3.462}$	$2.082^{+0.939}_{-0.854}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+1%/-1%	+250%/-500%	+18%/-22%	+45%/-41%	+34%/-9%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 008674581-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-697 ± 58	$71.38^{+10.29}_{-10.49}$	1011^{+29}_{-30}	3953^{+109}_{-106}	125^{+23}_{-20}
Alt.	-28 ± 20	$32.60^{+5.75}_{-6.02}$	1012^{+29}_{-33}	3009^{+291}_{-466}	23^{+19}_{-16}

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

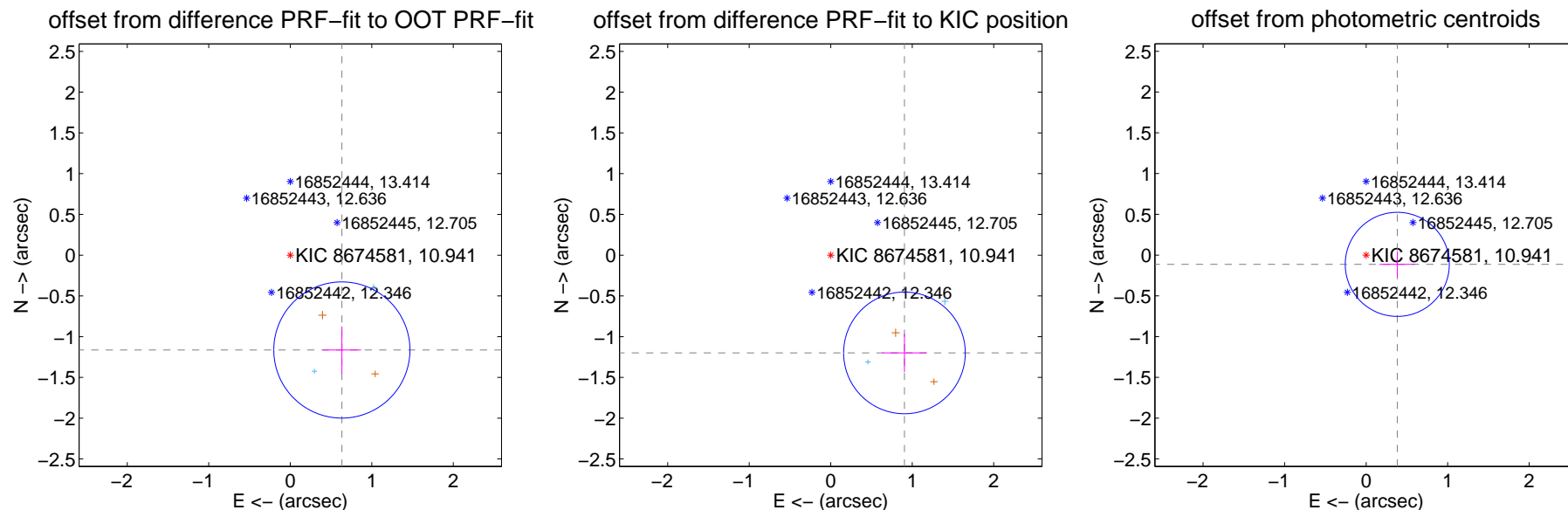
DV Centroid Data

Supplemental centroid analysis for 008674581-01. **Kepler magnitude: 10.94.** Transit SNR 8.78

There are 2 quarters with good PRF difference image offsets

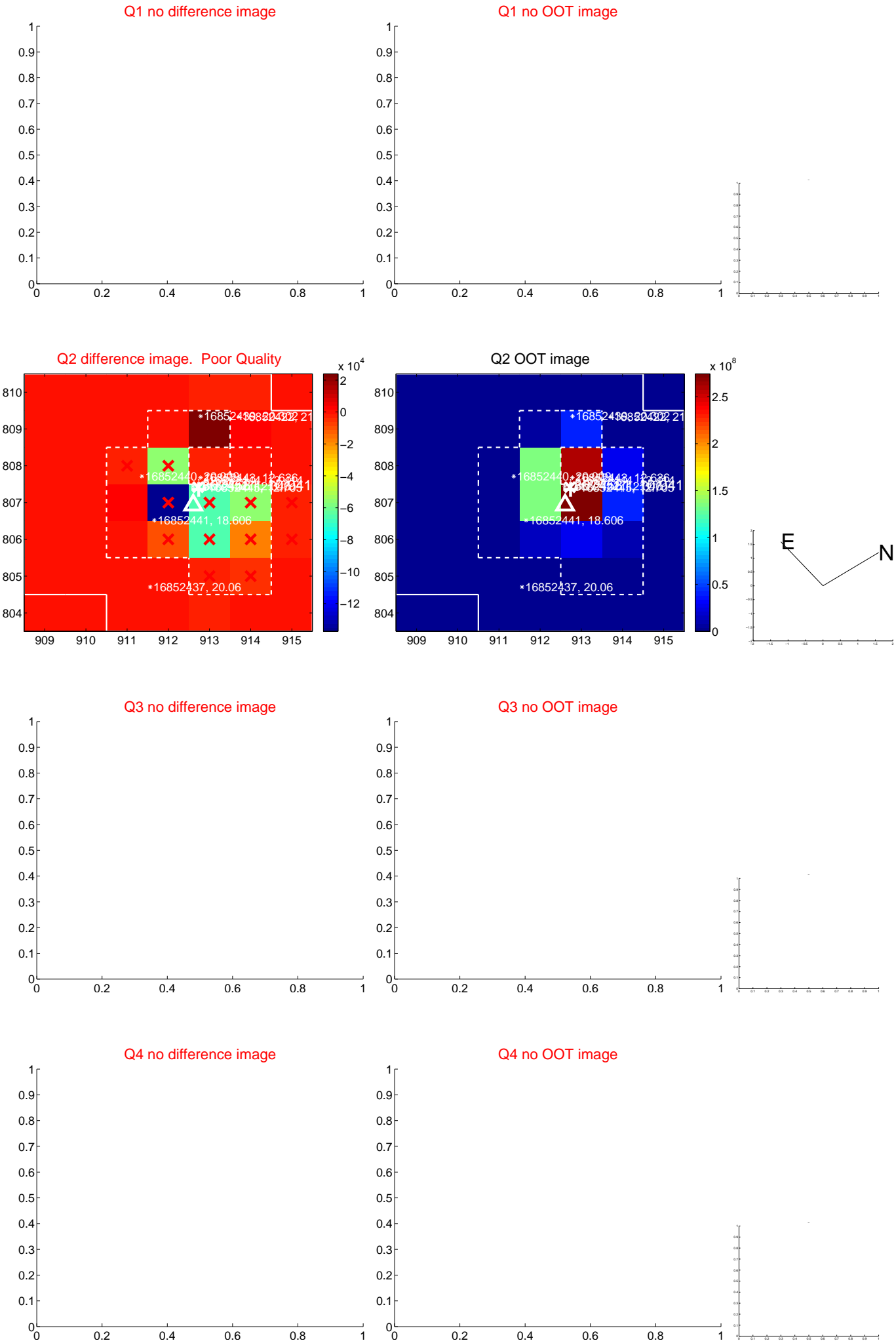
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.325 ± 0.278	4.76	-0.633 ± 0.236	-1.164 ± 0.290
PRF-fit source offset from KIC position	1.502 ± 0.249	6.04	-0.905 ± 0.272	-1.199 ± 0.235
photometric centroid source offset	0.40 ± 0.21	1.87	-0.38 ± 0.22	-0.11 ± 0.16

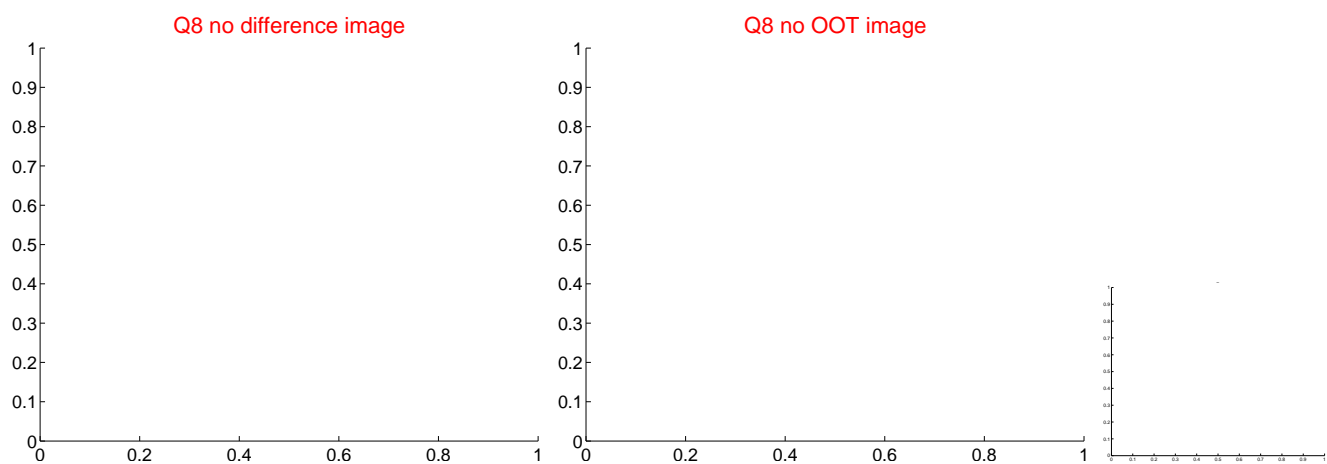
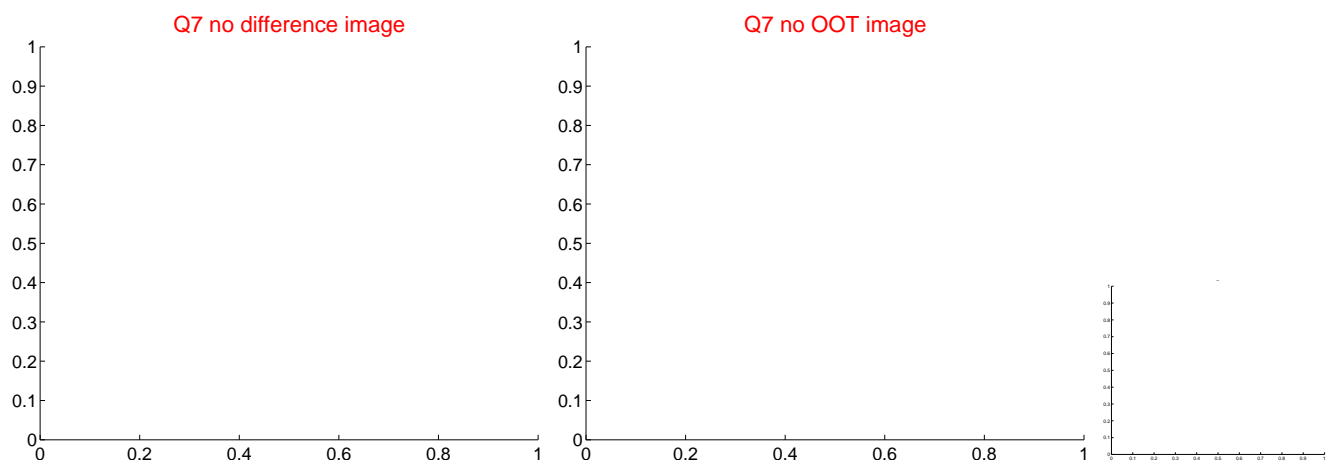
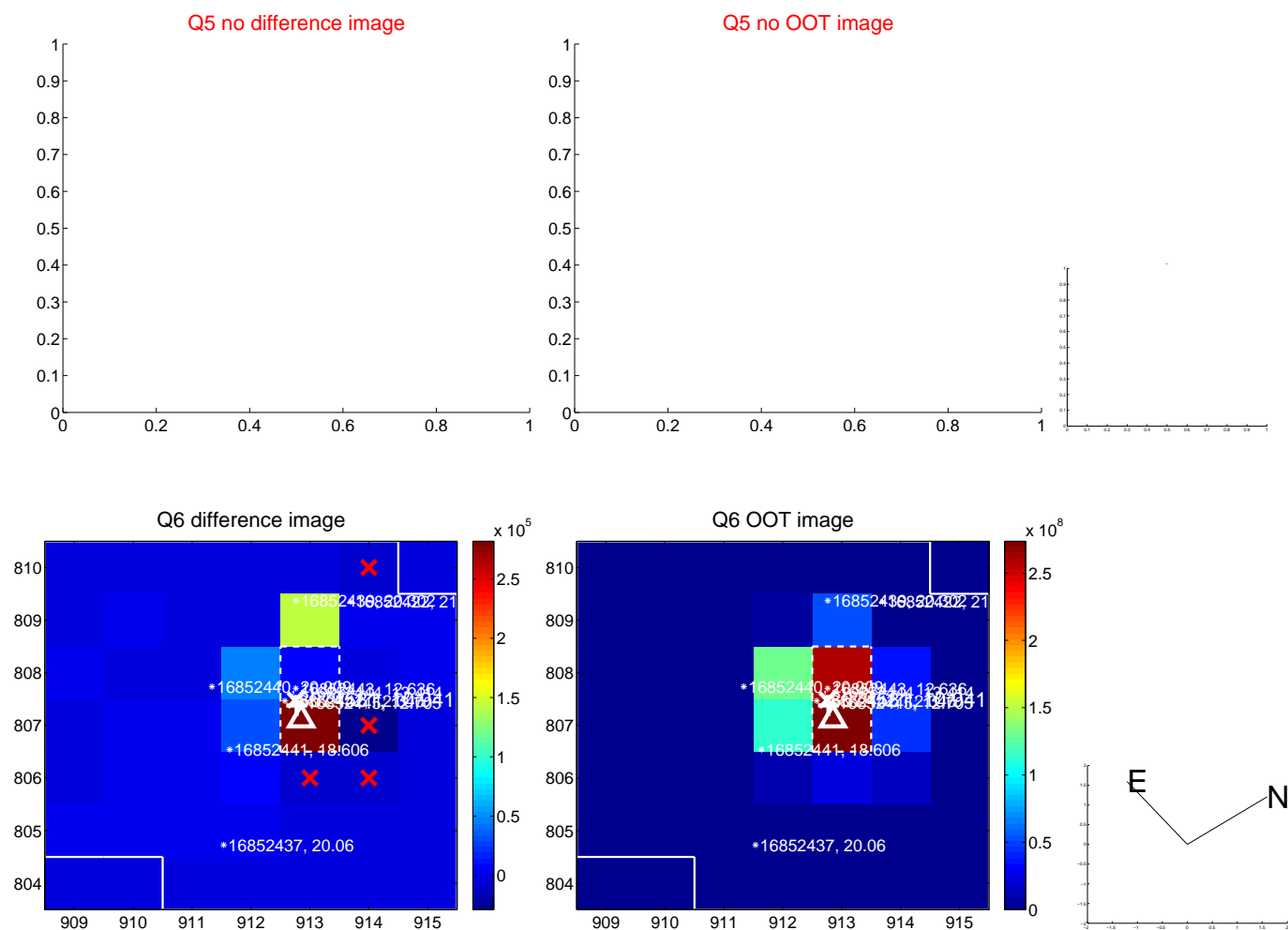


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

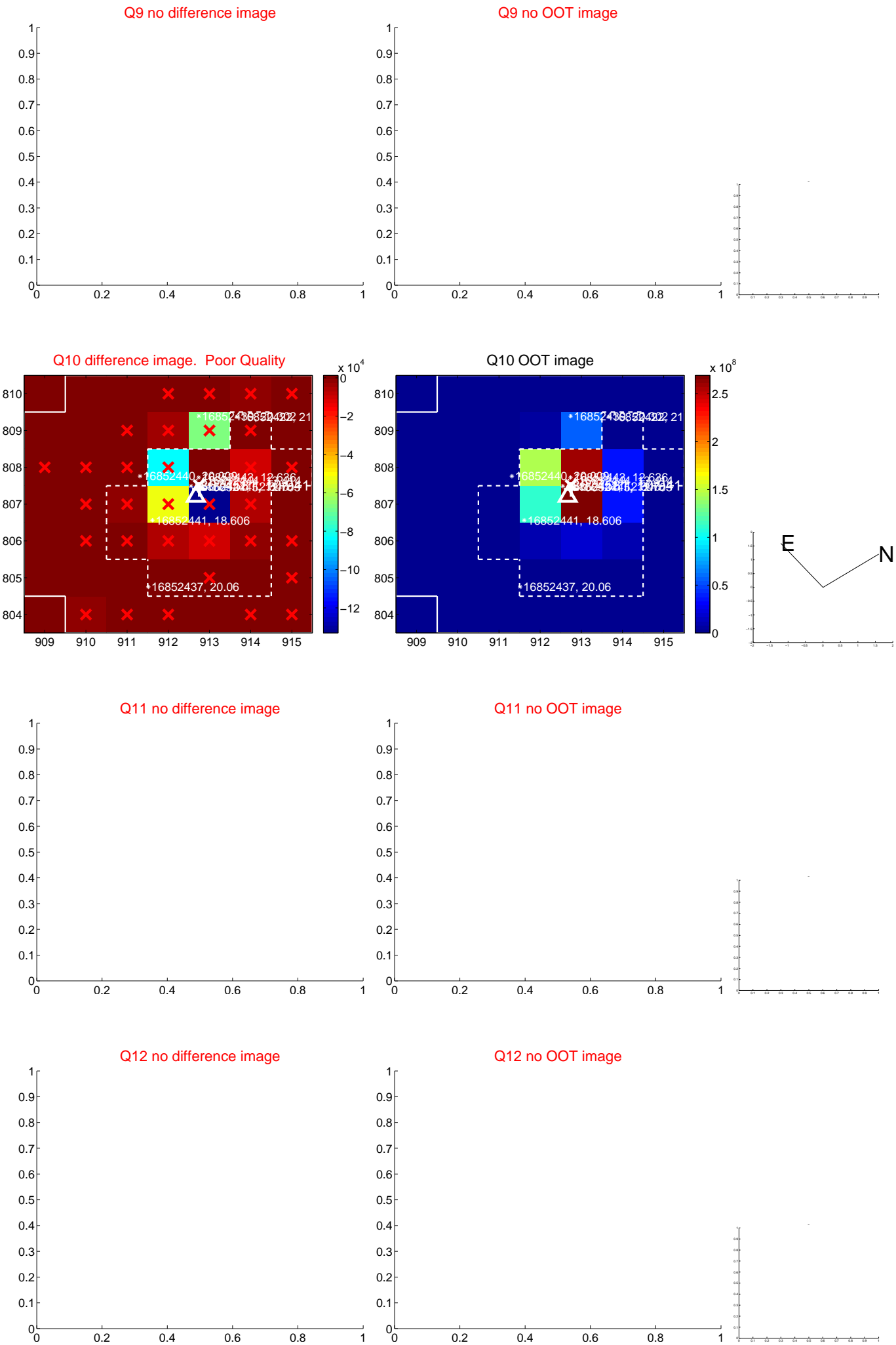
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



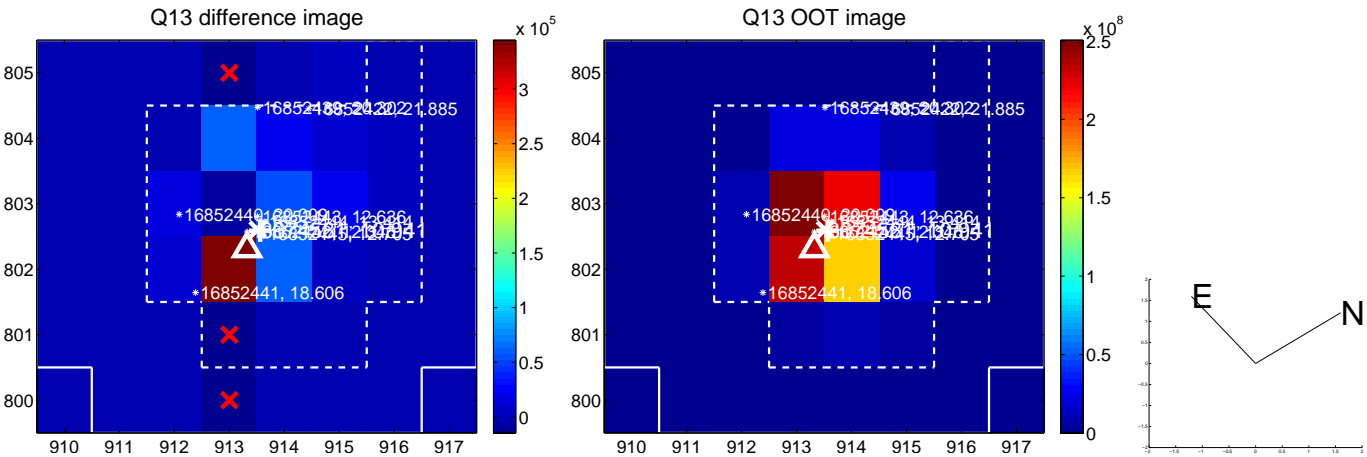
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



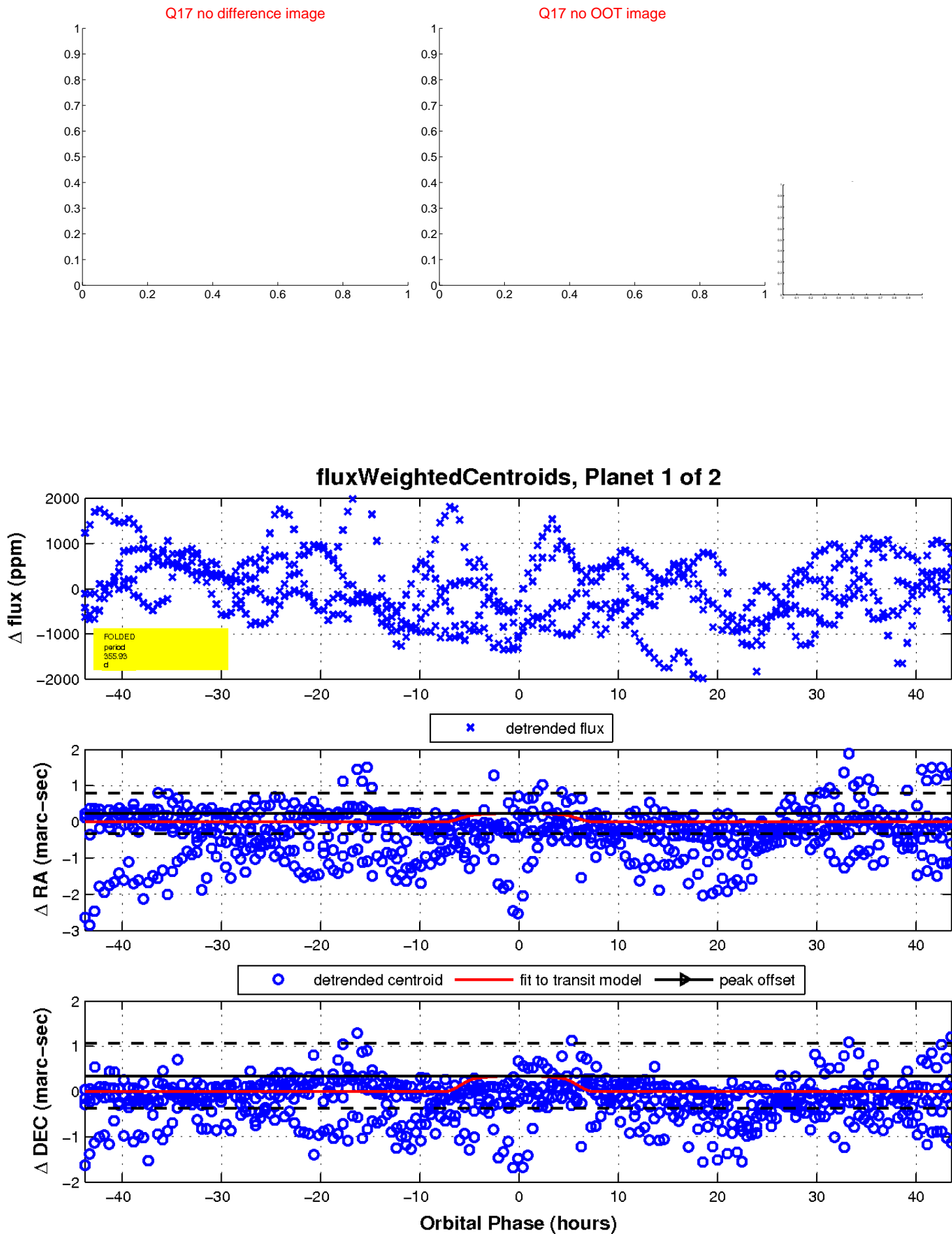
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



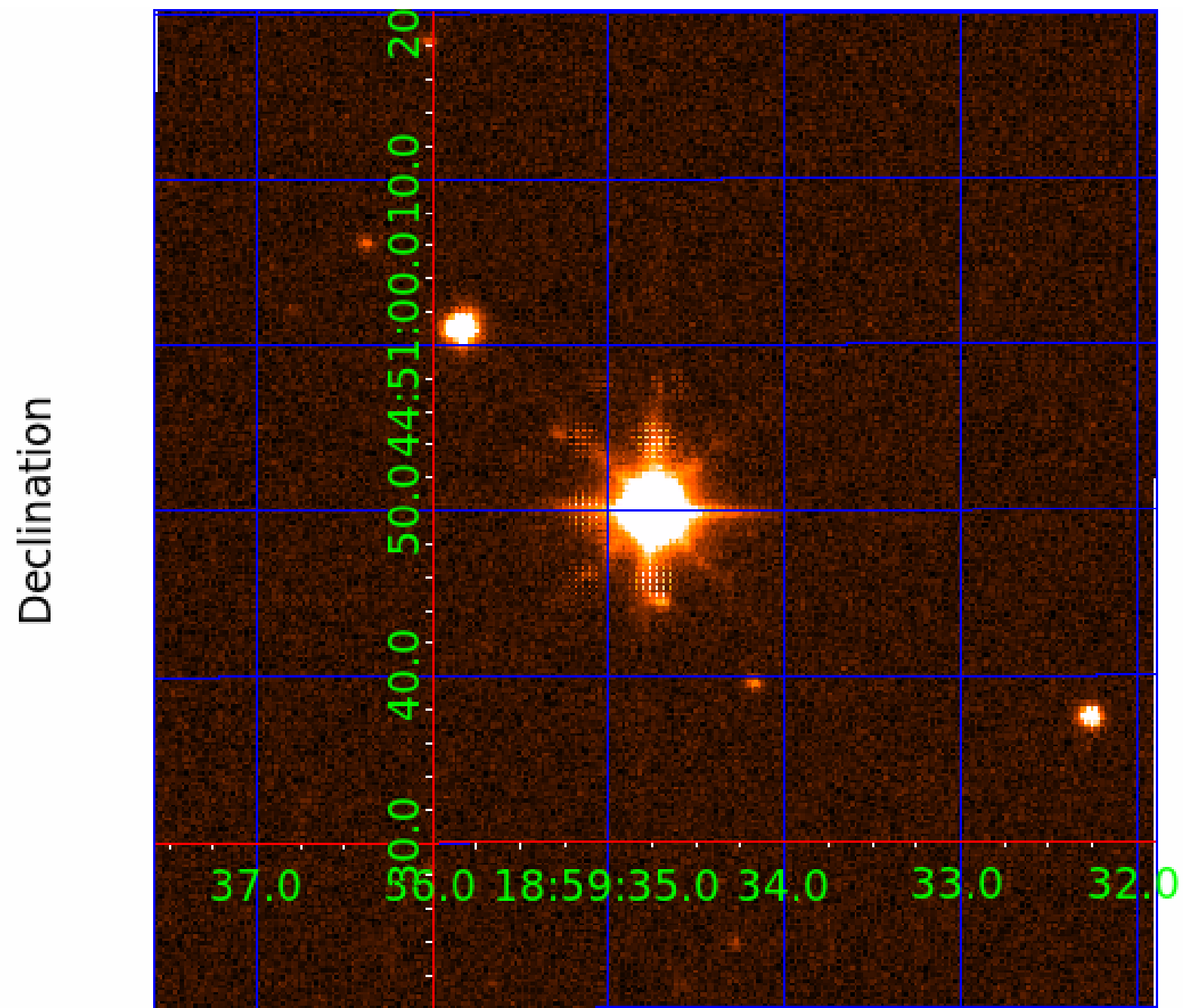
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 008674581

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})
008674581-01	OBS	No	355.932242	197.927718	1312.4	14.649	15.4	8.8	15.43	4684	69.03	65.12
008674581-02	OBS	No	115.315690	137.586316	25.1	4.804	11.1	6.4	15.43	4684	9.58	292.67

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008674581-01	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_SATURATED
008674581-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

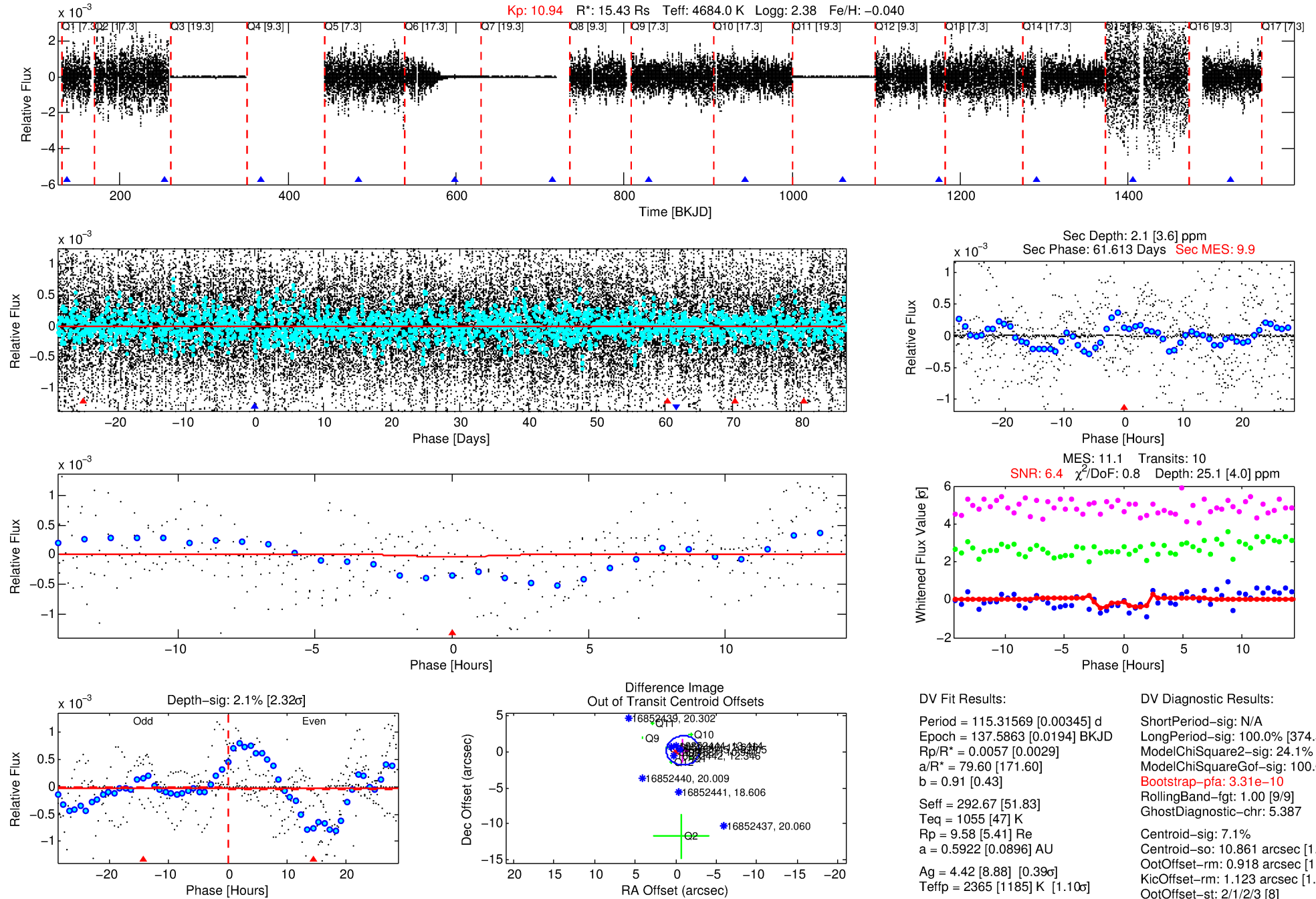
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008674581-02

No Significant Match Found

DV One-Page Summary

KIC: 8674581 Candidate: 2 of 2 Period: 115.316 d



DV Fit Results:

Period = 115.31569 [0.00345] d
Epoch = 137.5863 [0.0194] BKJD
Rp/R* = 0.0057 [0.0029]
a/R* = 79.60 [171.60]
b = 0.91 [0.43]
Seff = 292.67 [51.83]
Teff = 1055 [47] K
Rp = 9.58 [5.41] Re
a = 0.5922 [0.0896] AU
Ag = 4.42 [8.88] [0.39 σ]
Teffp = 2365 [1185] K [1.10 σ]

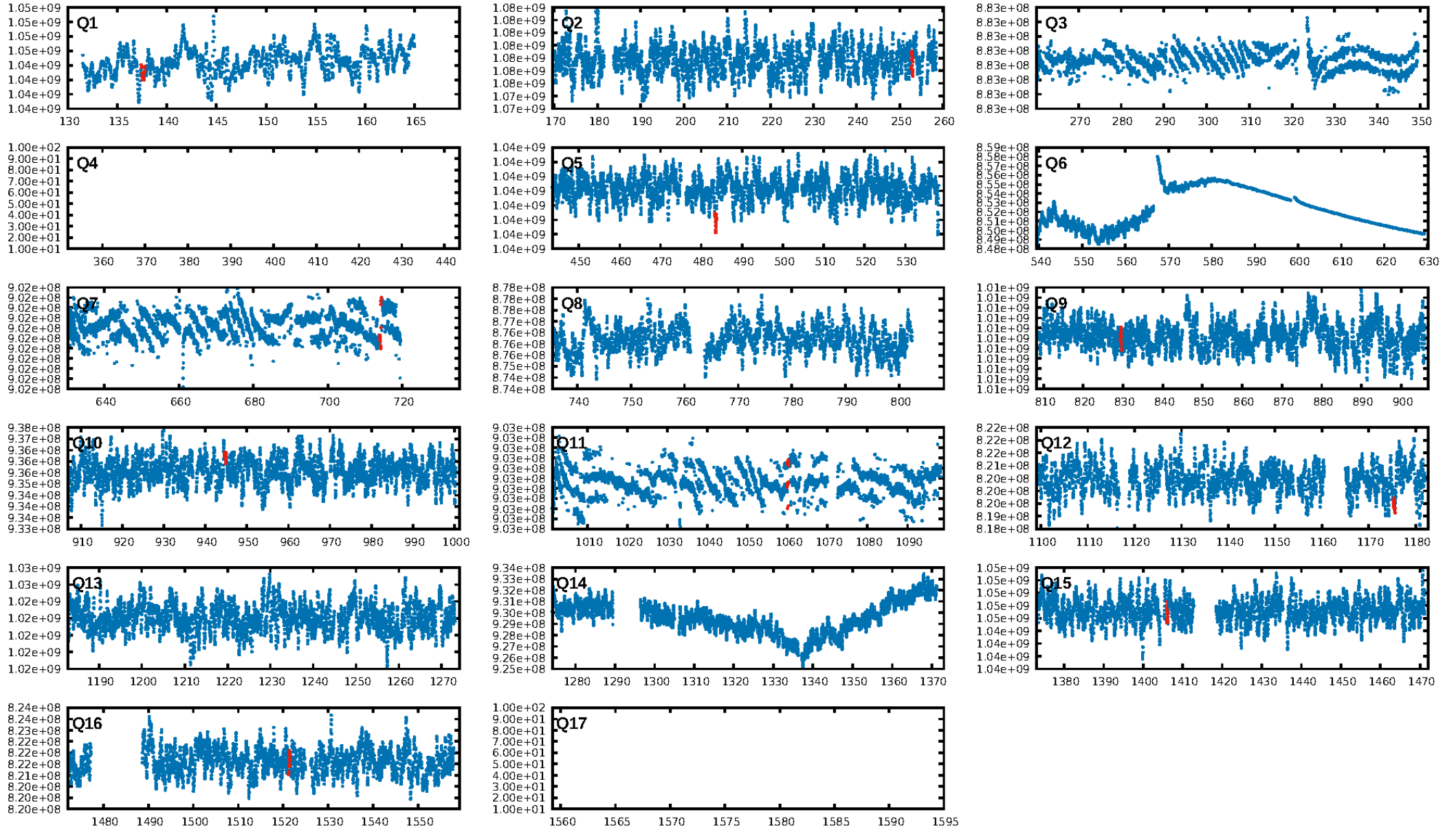
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [374.58 σ]
ModelChiSquare2-sig: 24.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.31e-10
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 5.387
Centroid-sig: 7.1%
Centroid-so: 10.861 arcsec [1.50 σ]
OotOffset-rm: 0.918 arcsec [1.35 σ]
KicOffset-rm: 1.123 arcsec [1.44 σ]
OotOffset-st: 2/1/2/3 [8]
KicOffset-st: 2/1/2/3 [8]
DiffImageQuality-fgm: 0.25 [2/8]
DiffImageOverlap-fno: 1.00 [8/8]

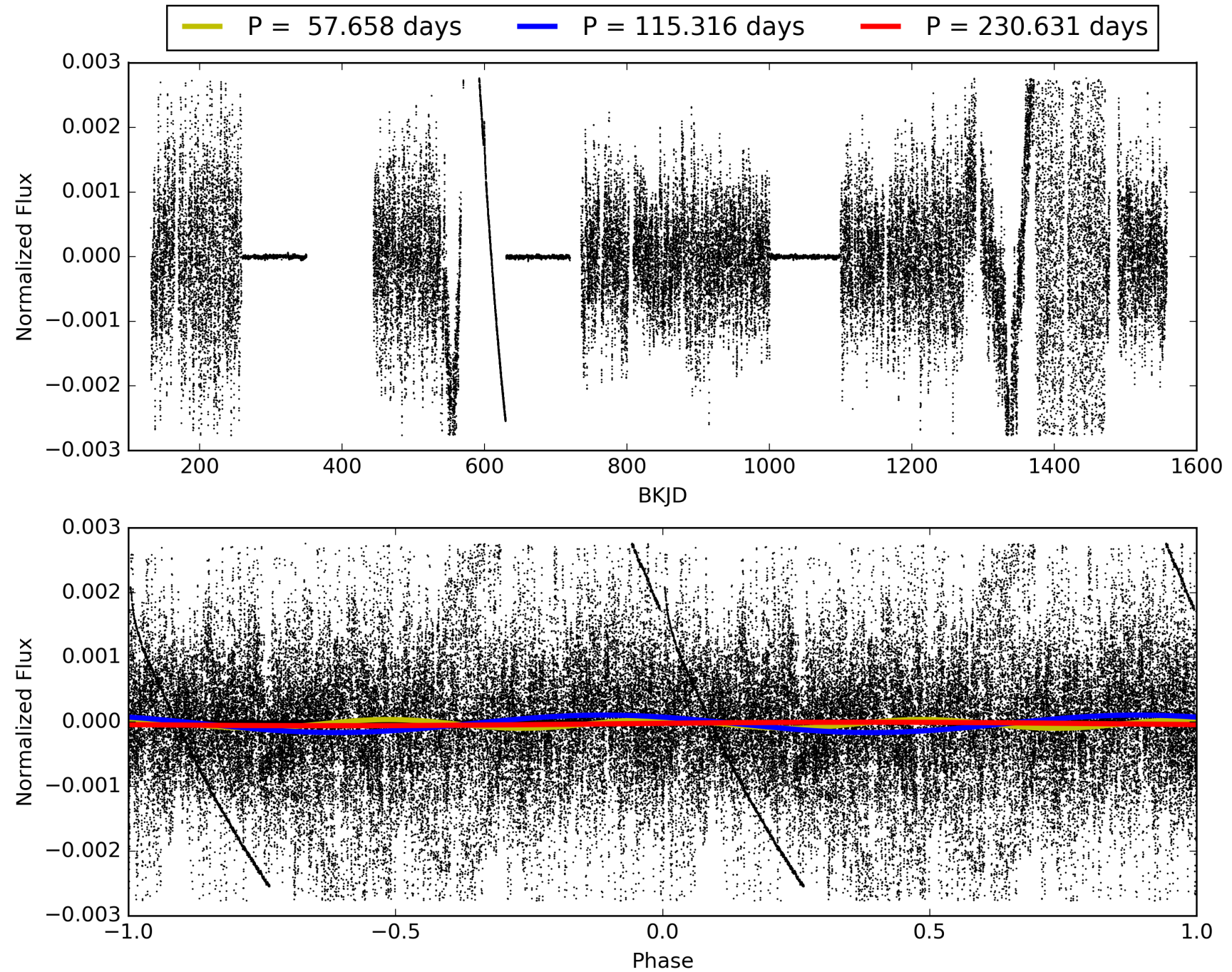
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:36:45 Z

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

TCE 008674581-02, PDC Light Curves

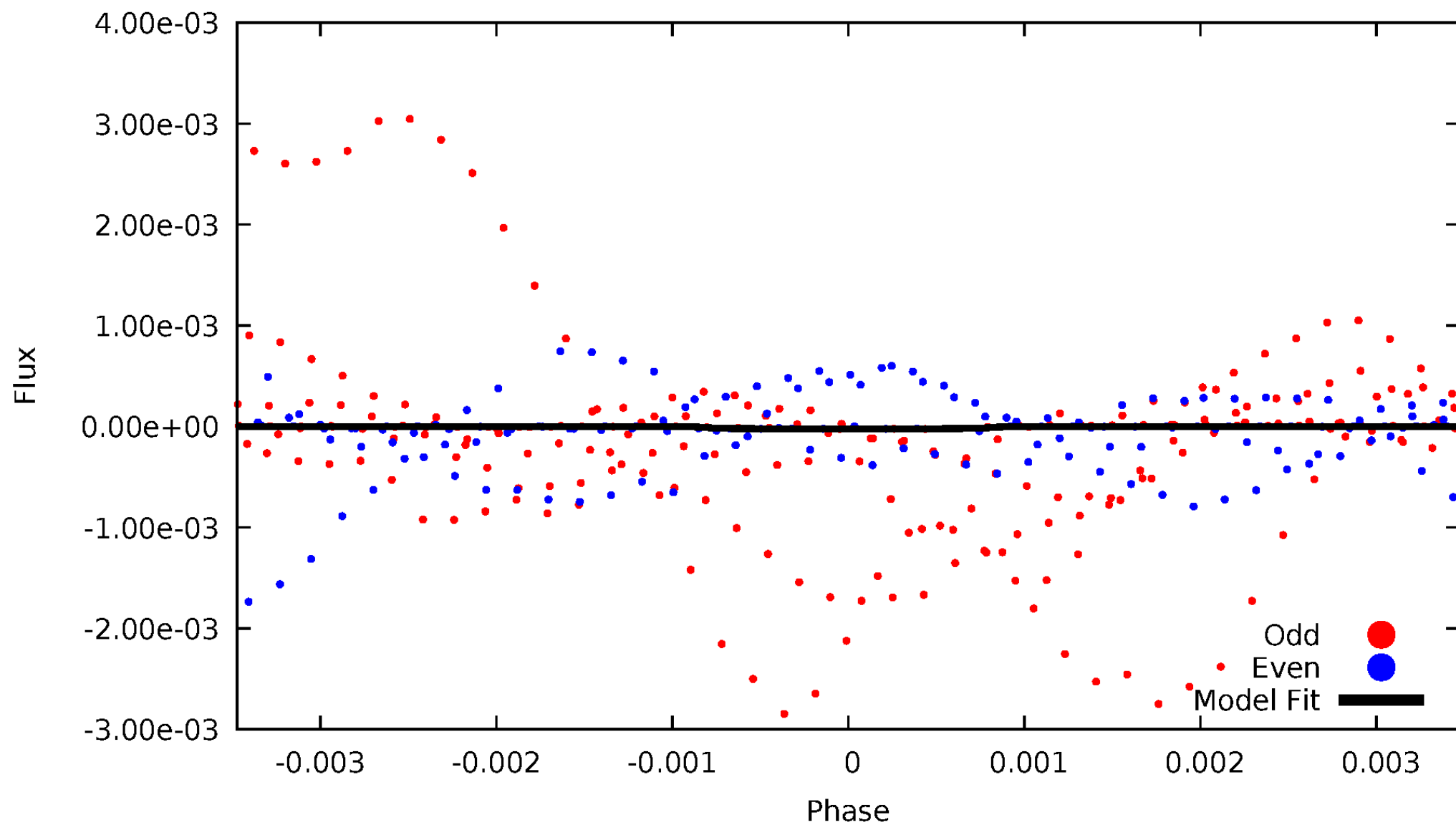


TCE 008674581-02



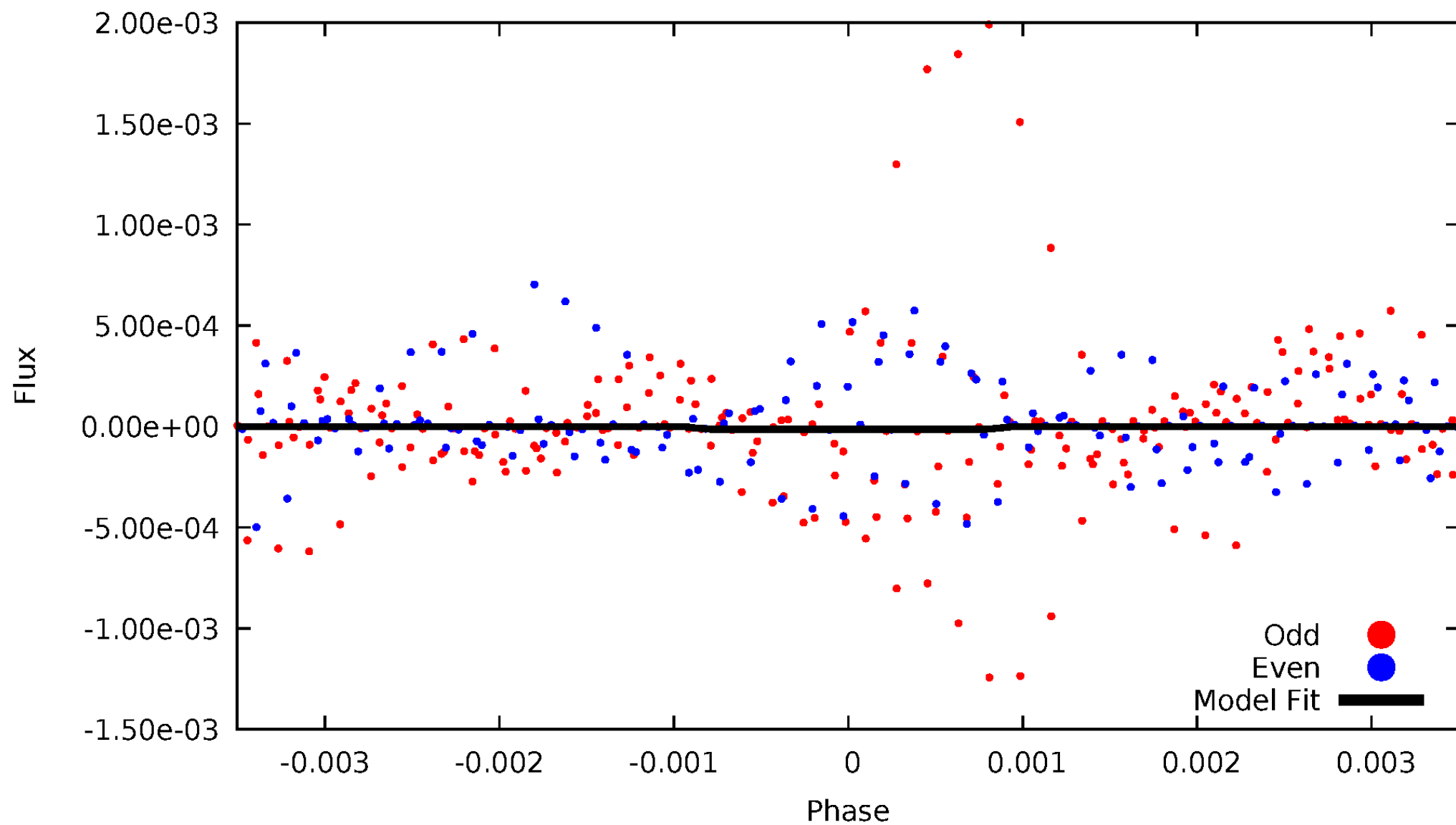
DV Odd/Even

TCE 008674581-02



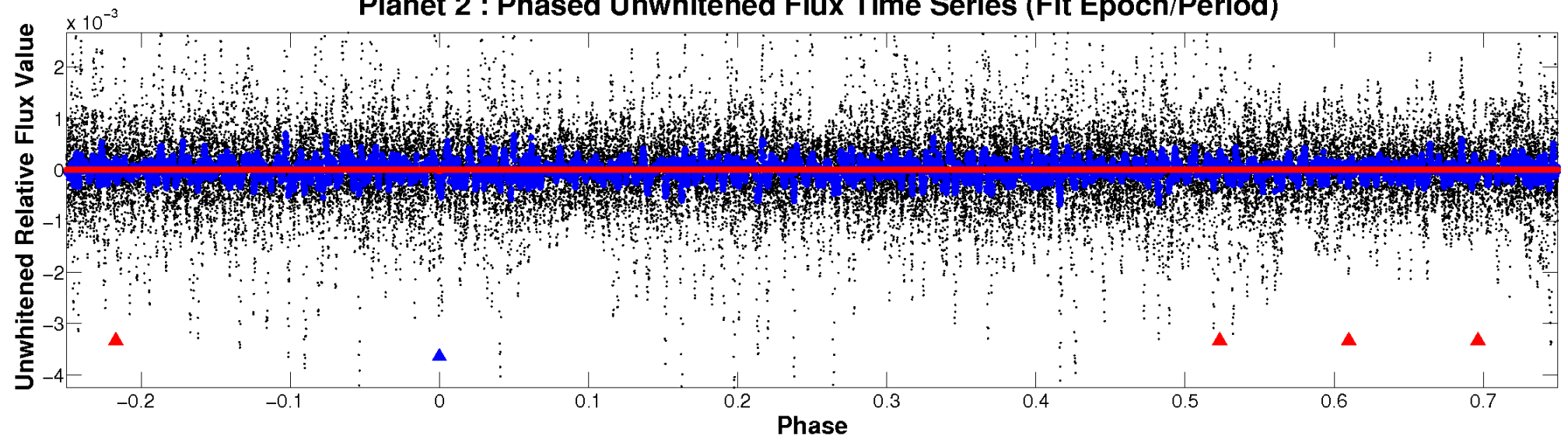
ALT Odd/Even

TCE 008674581-02

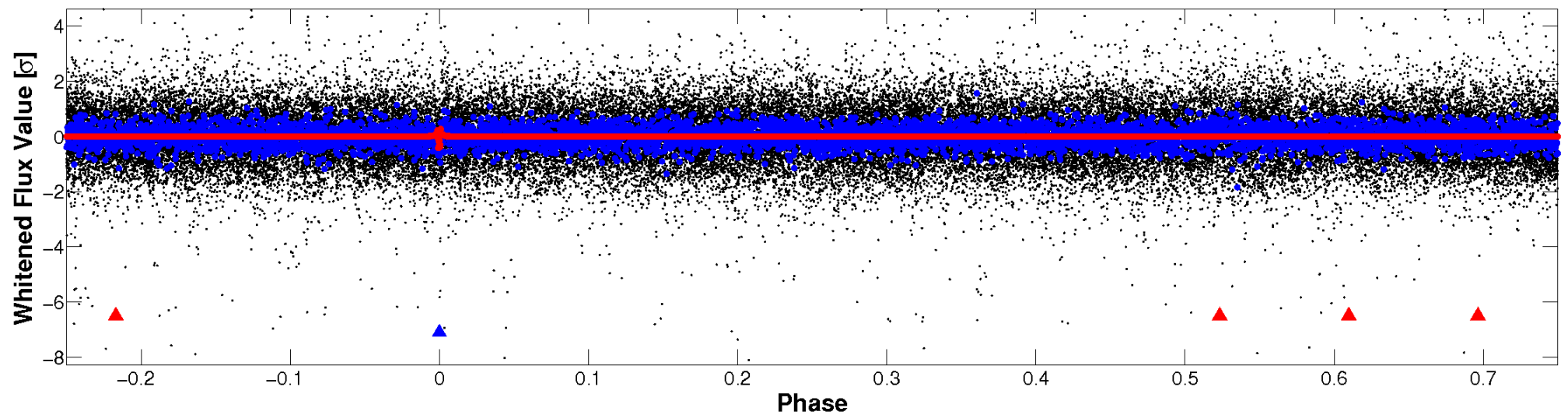


Non-Whitened Vs. Whitened Light Curve

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

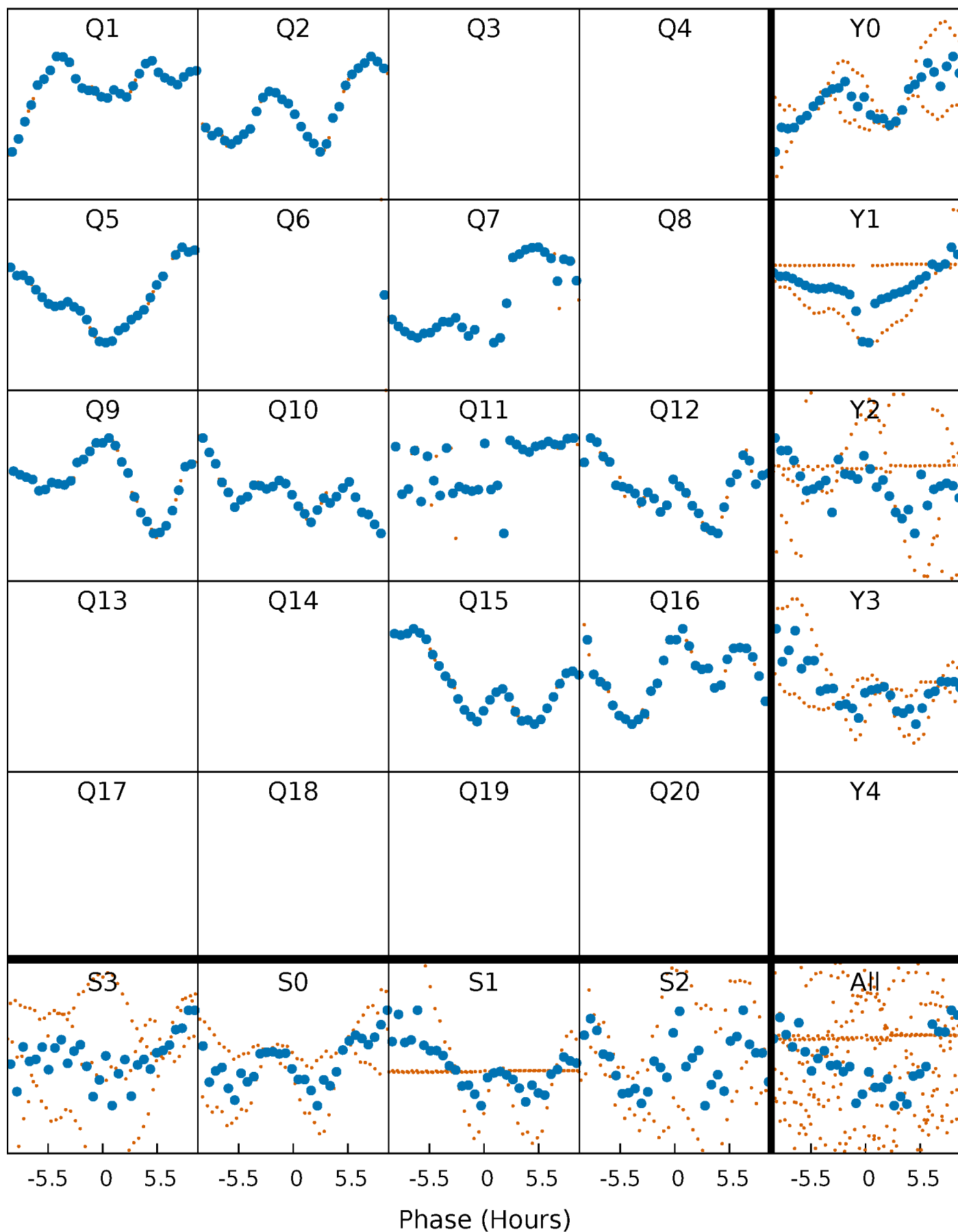


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



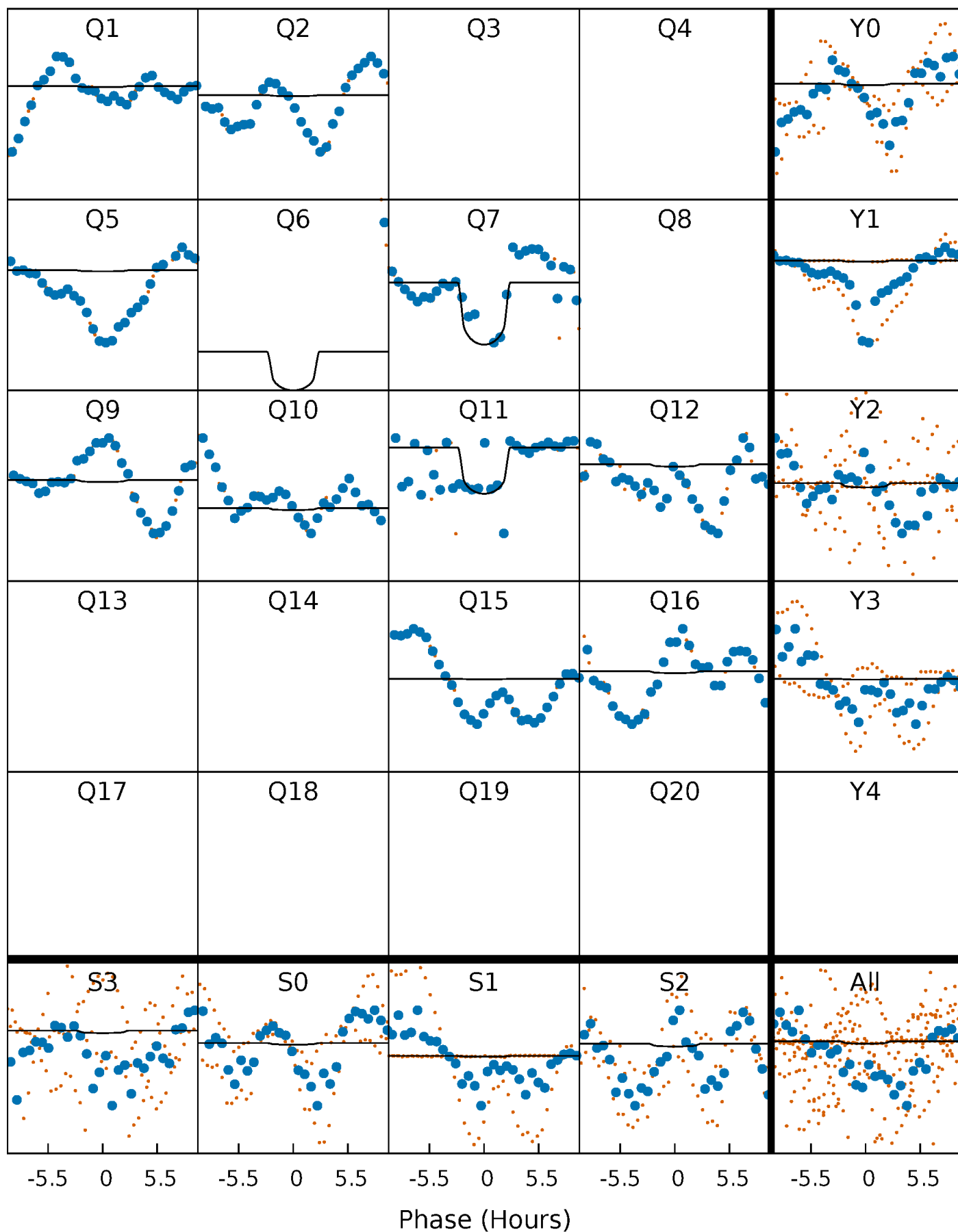
PDC Quarter-Phased Transit Curves

TCE 008674581-02 P=115.315690 Days $T_0=137.586316$ (BKJD)



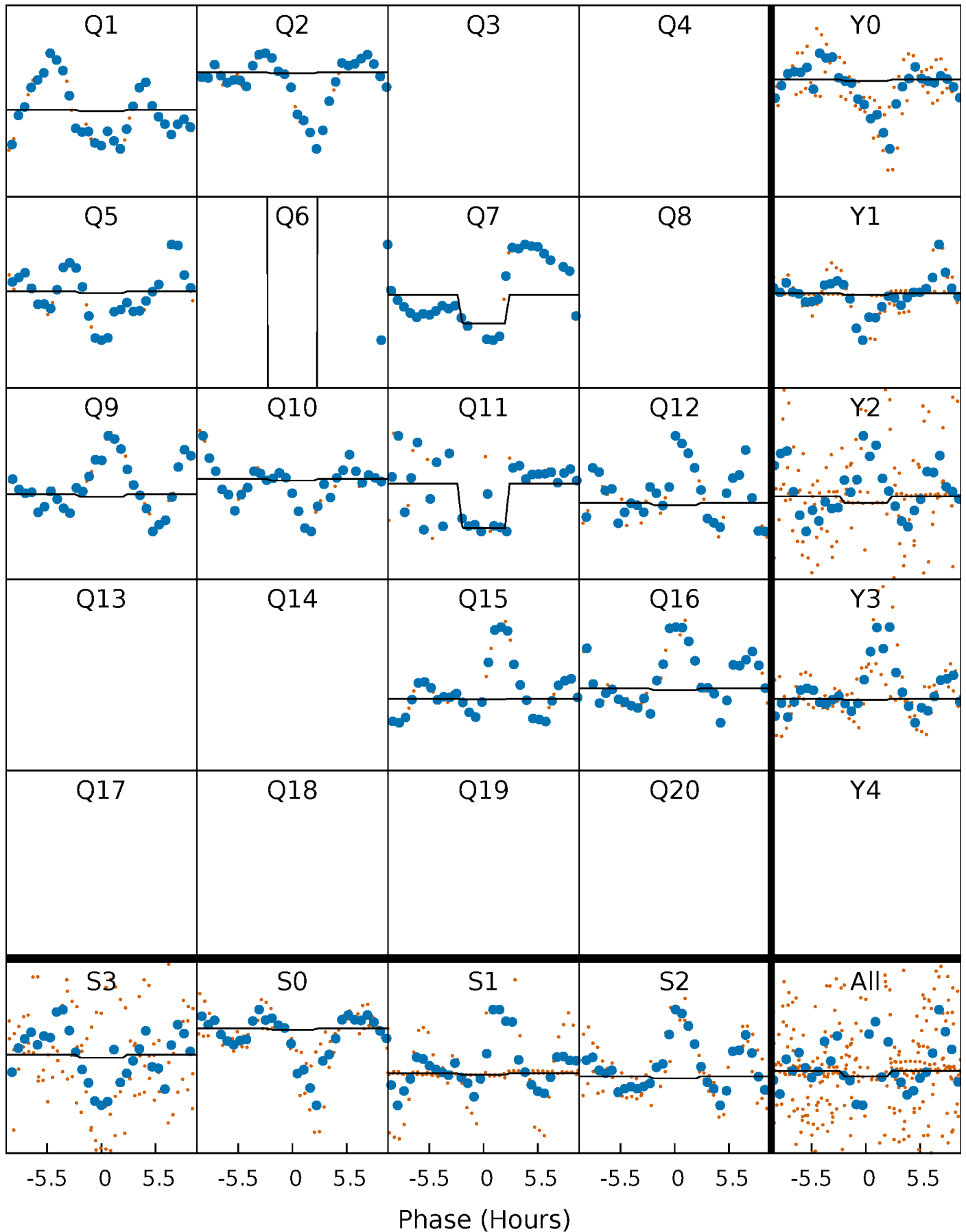
DV Quarter-Phased Transit Curves

TCE 008674581-02 P=115.315690 Days $T_0=137.586316$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

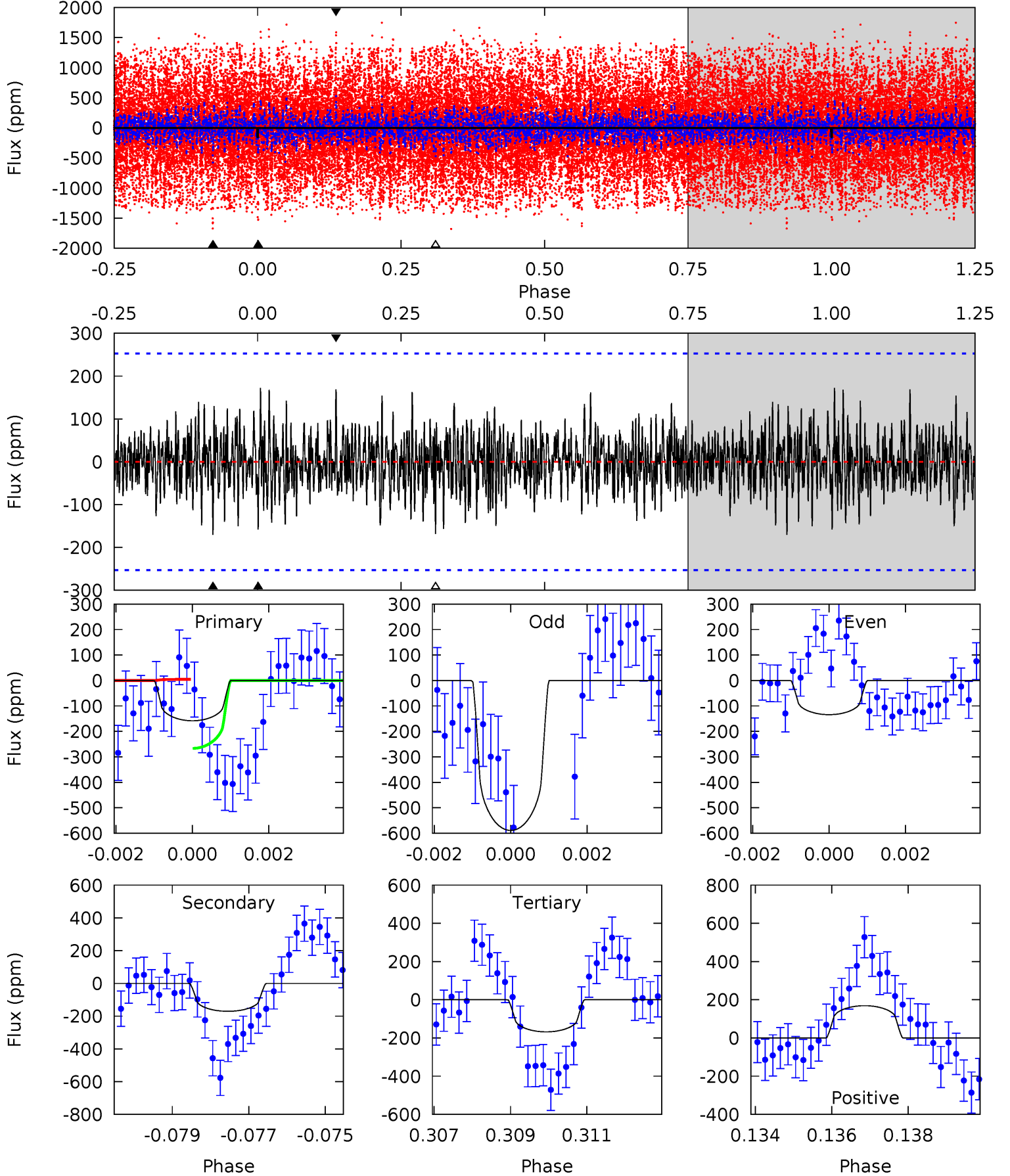
TCE 008674581-02 P=115.312830 Days $T_0=137.605357$ (BKJD)



DV Model-Shift Uniqueness Test

008674581-02, $P = 115.315690$ Days, $E = 22.270626$ Days

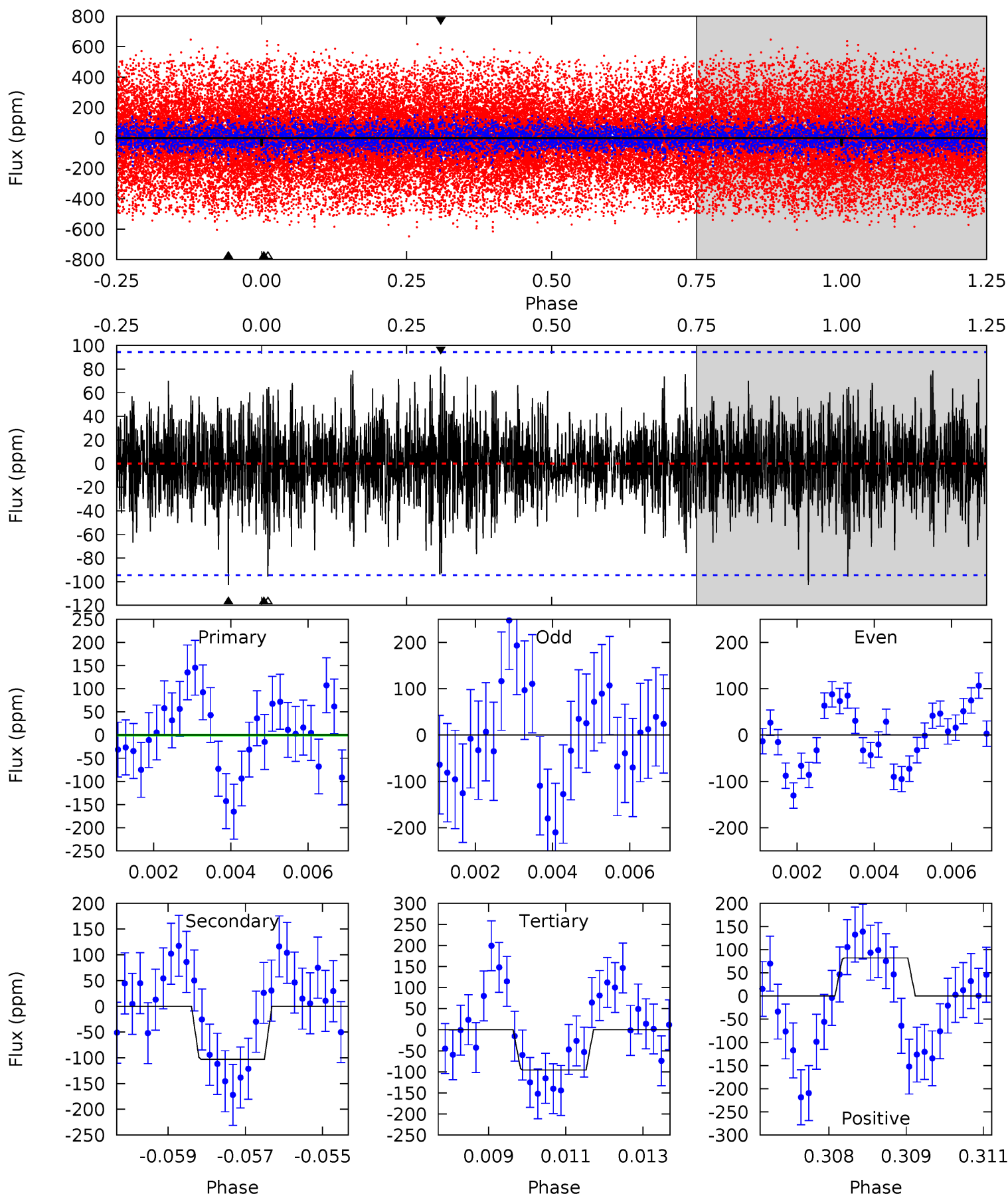
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.34	3.60	3.55	3.57	5.34	3.11	1.13	-0.21	-0.23	0.05	0.03	4.94	2.81	0.50	0



Alt Model-Shift Uniqueness Test

008674581-02, P = 115.312830 Days, E = 22.292527 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.56	5.81	5.41	4.64	5.34	3.11	1.44	-2.85	-2.08	0.40	1.16	0.01	-0.67	0.44	0.95



Stellar Parameters For KIC 008674581

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4684^{+34}_{-97}	$2.380^{+0.030}_{-0.030}$	$-0.040^{+0.100}_{-0.200}$	$15.428^{+2.833}_{-3.462}$	$2.082^{+0.939}_{-0.854}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+1%/-1%	+250%/-500%	+18%/-22%	+45%/-41%	+34%/-9%
Source	SPE74	AST9	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 008674581-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-171 ± 47	$9.41^{+5.42}_{-4.59}$	1470^{+39}_{-43}	6840^{+3698}_{-1361}	362^{+1020}_{-217}
Alt.	-103 ± 18	$7.05^{+4.64}_{-3.82}$	1470^{+42}_{-43}	6984^{+5525}_{-1452}	390^{+1559}_{-239}

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

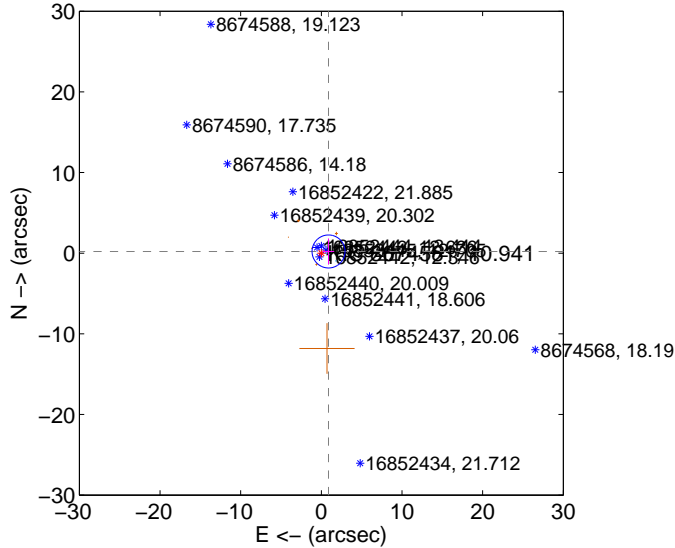
Supplemental centroid analysis for 008674581-02. **Kepler magnitude: 10.94.** Transit SNR 6.44

There are 2 quarters with good PRF difference image offsets

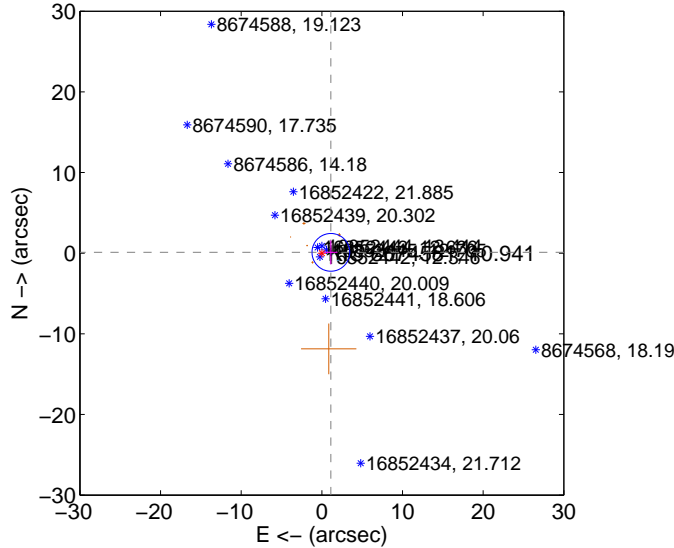
The direct PRF centroid is offset from the target star catalog position by about 0.76 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.918 ± 0.682	1.35	-0.894 ± 0.698	0.210 ± 1.609
PRF-fit source offset from KIC position	1.123 ± 0.780	1.44	-1.118 ± 0.813	0.101 ± 1.488
photometric centroid source offset	10.86 ± 7.24	1.50	-9.59 ± 7.39	5.09 ± 6.66

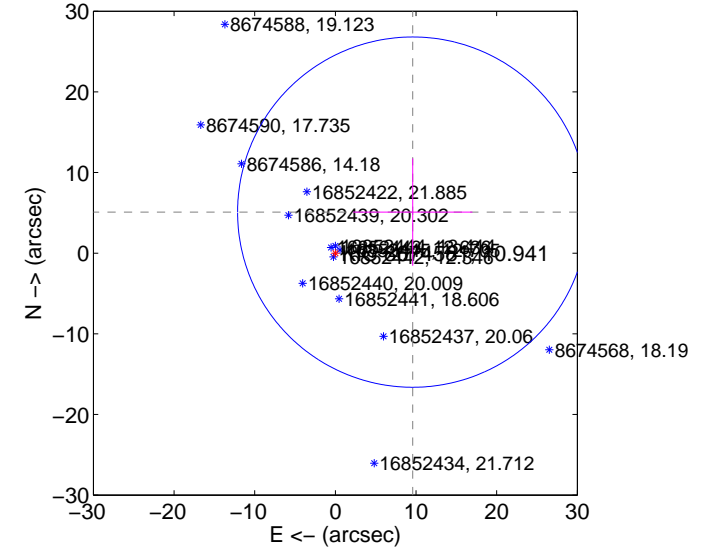
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

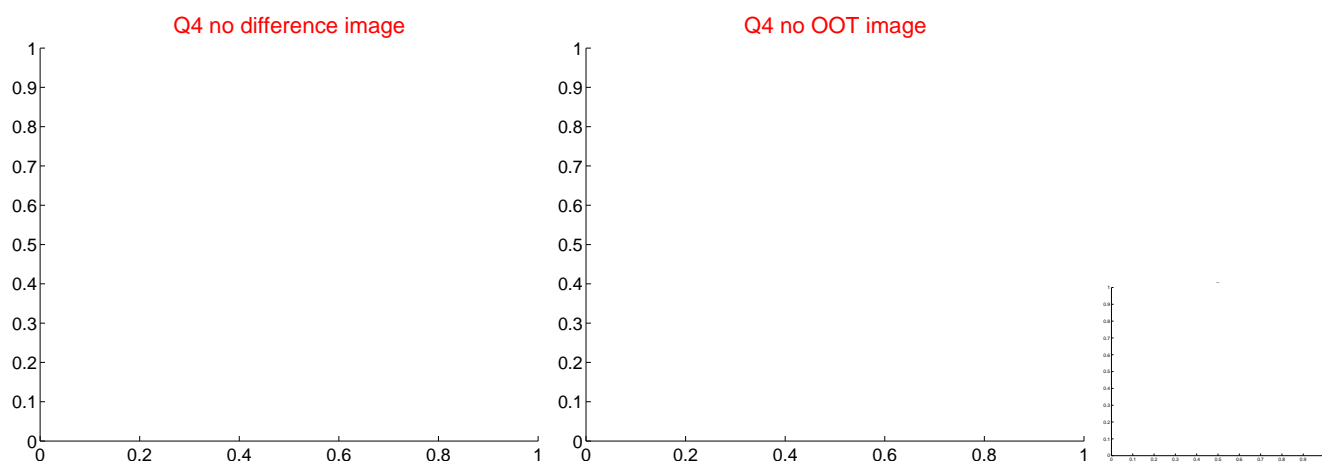
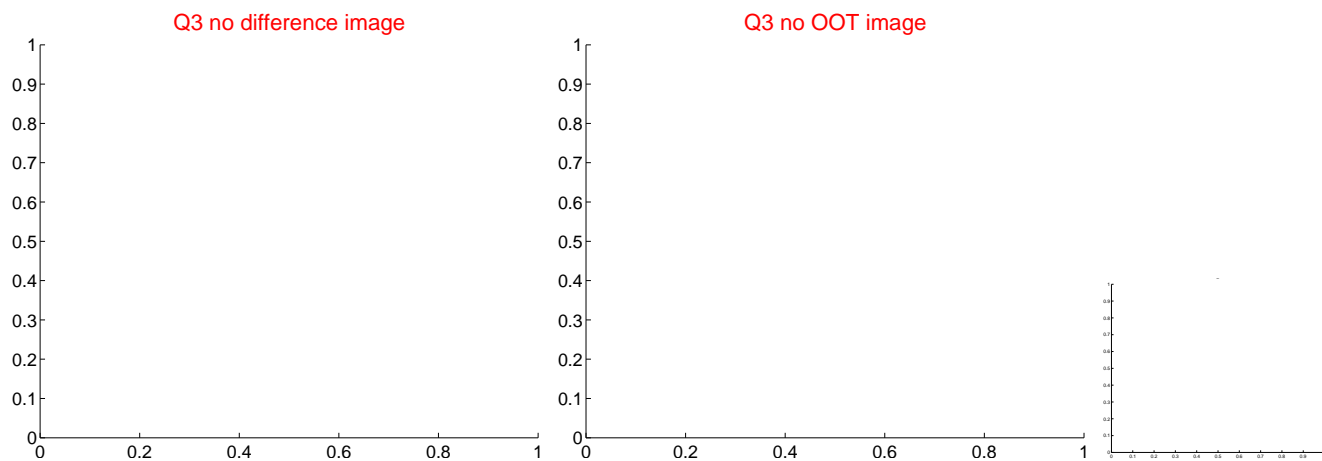
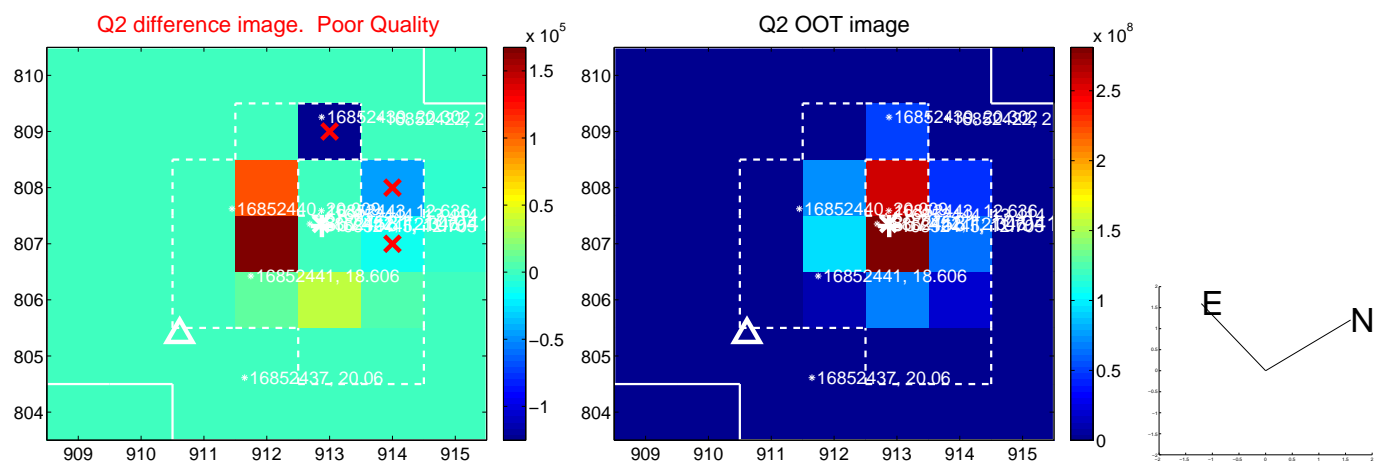
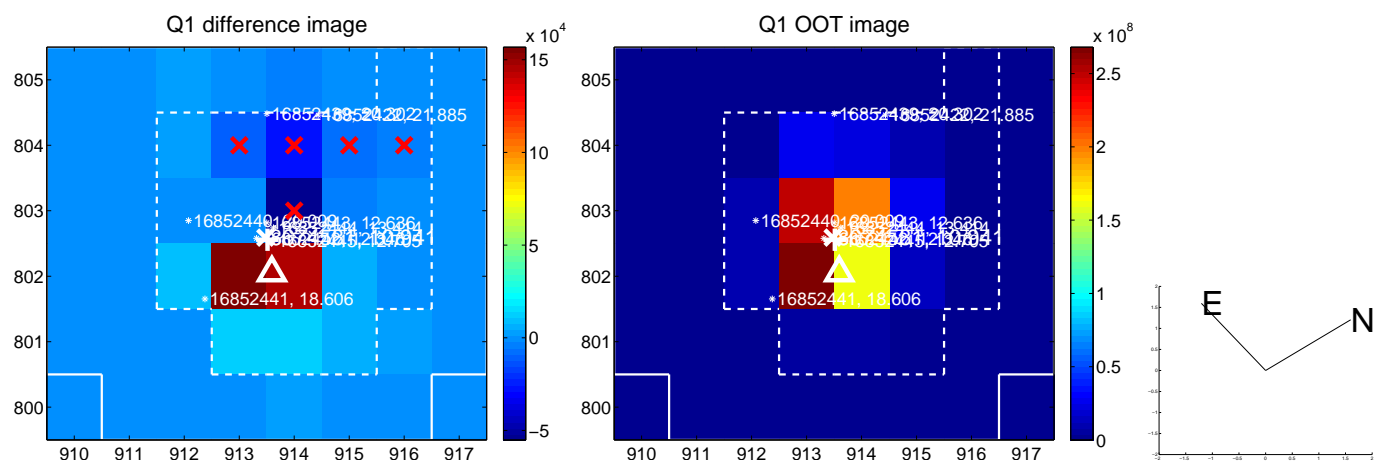


offset from photometric centroids

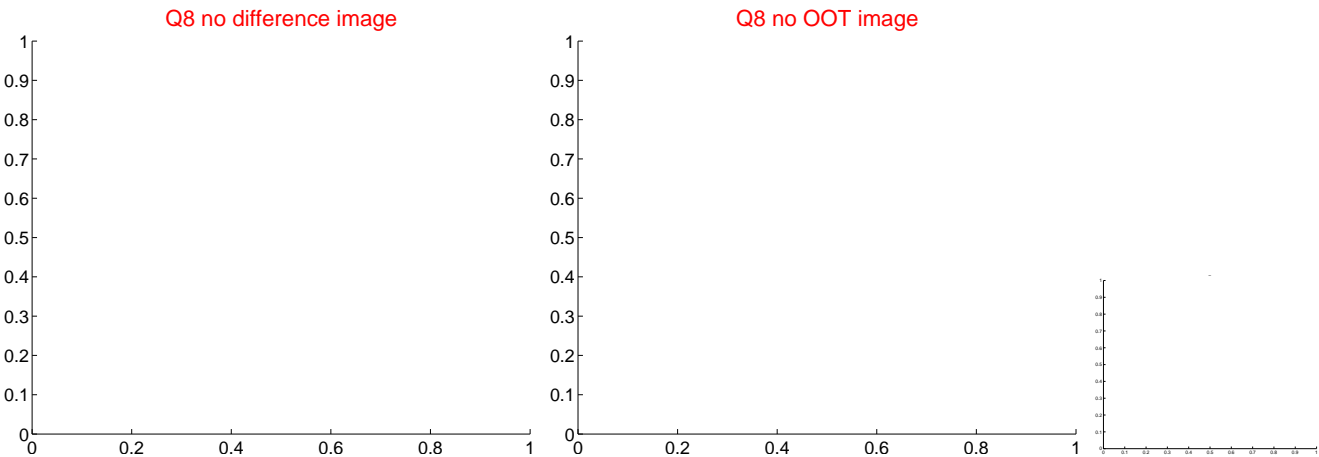
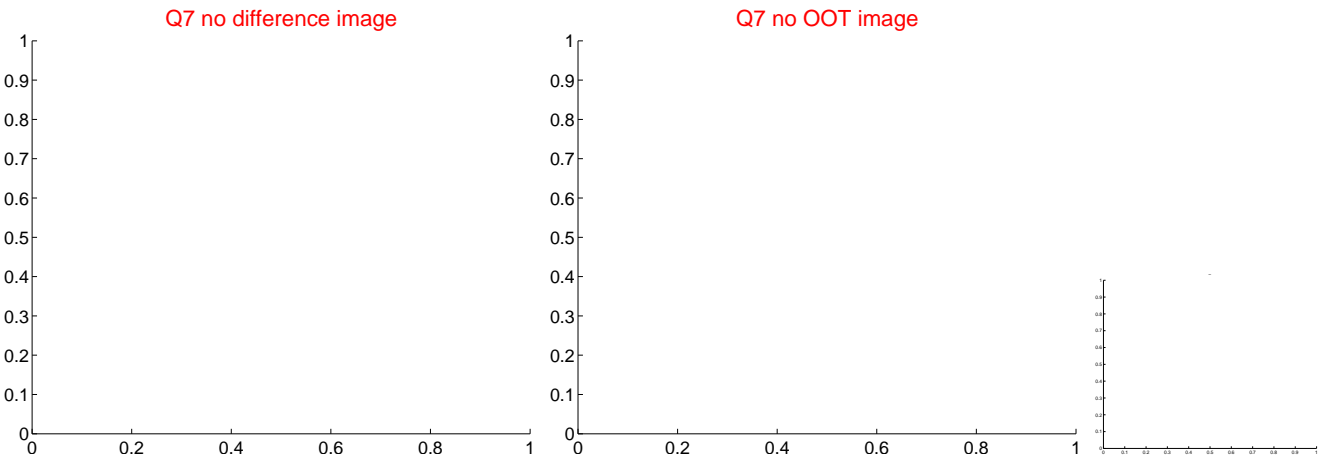
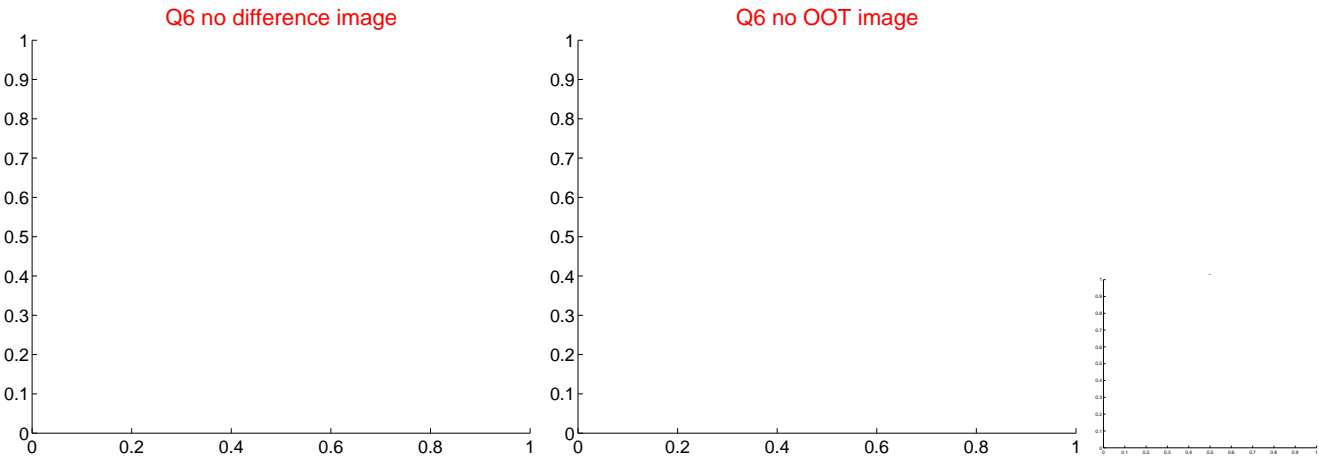
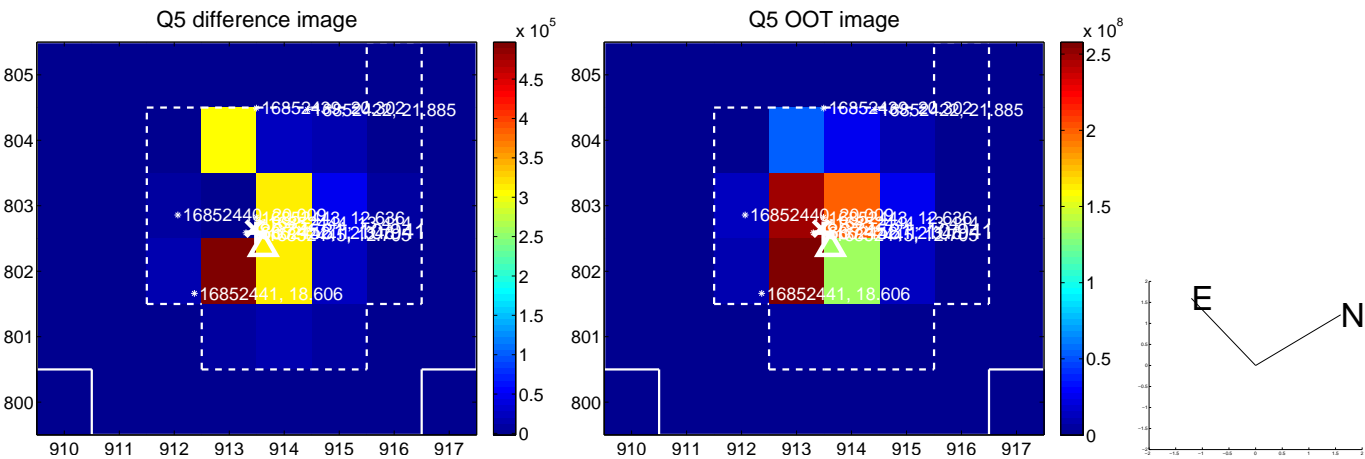


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

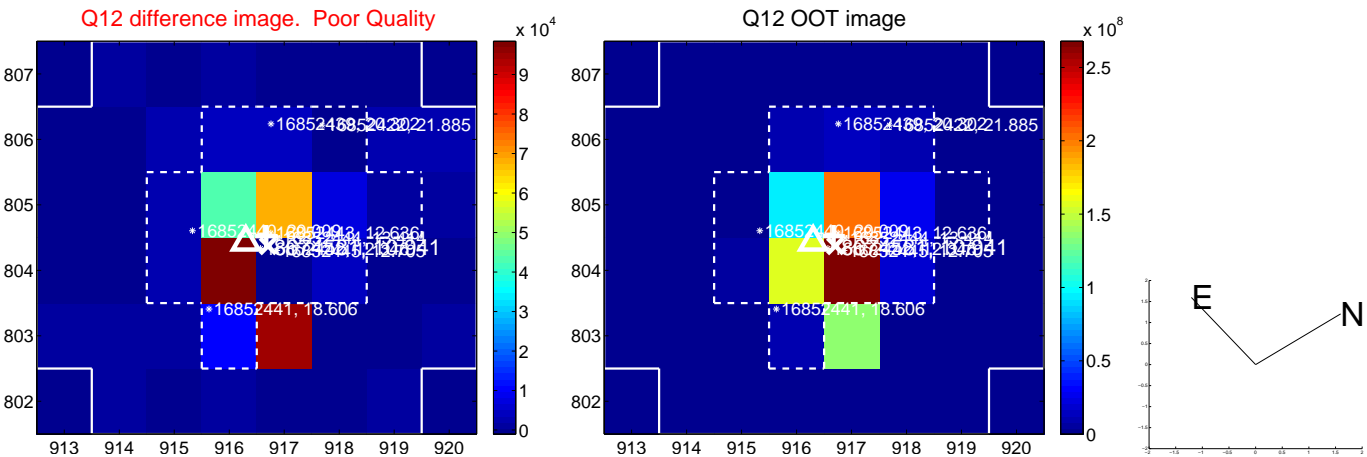
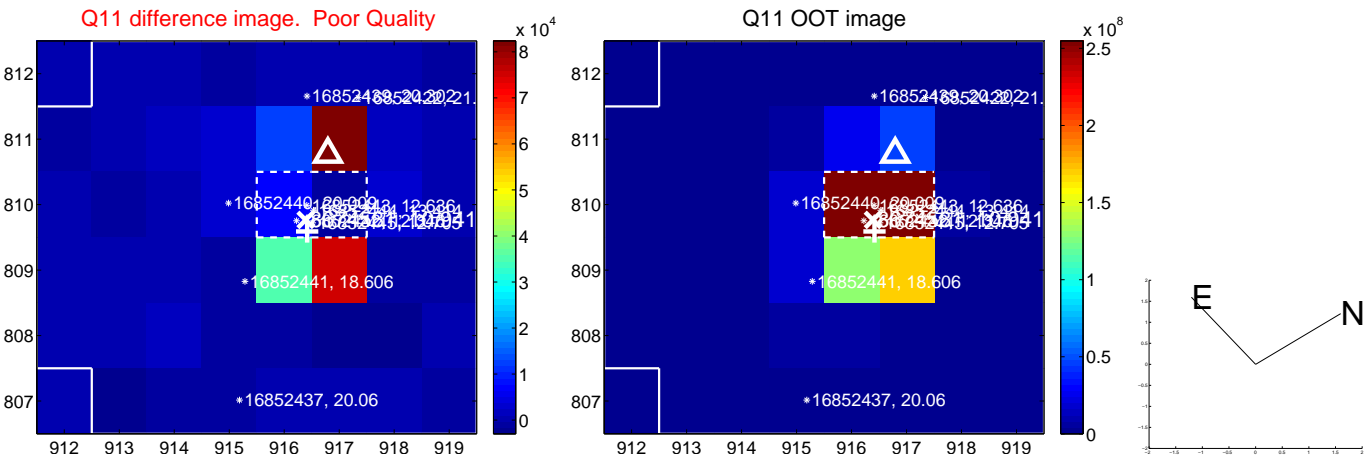
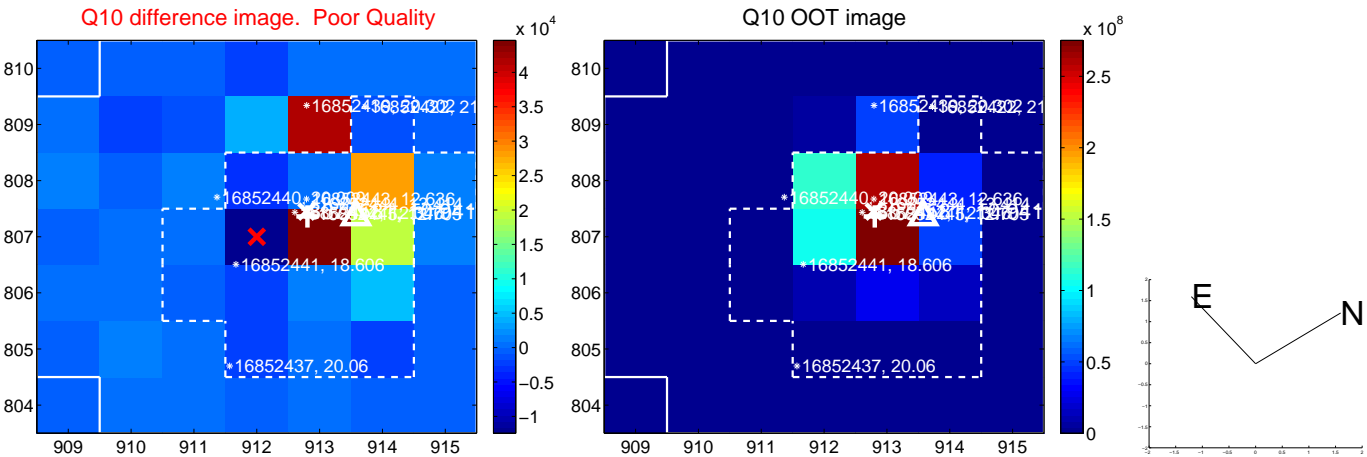
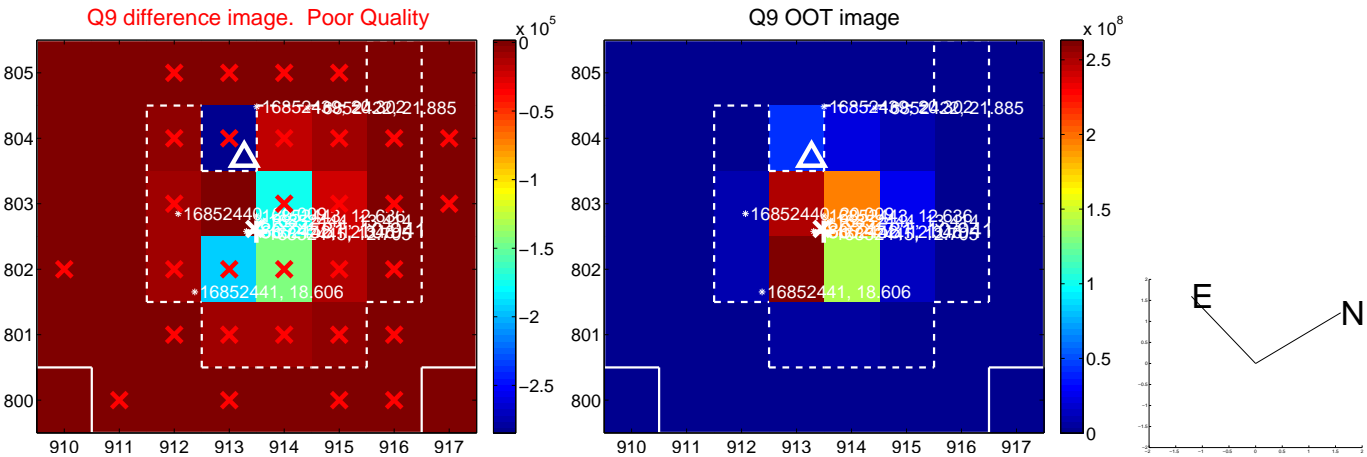
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



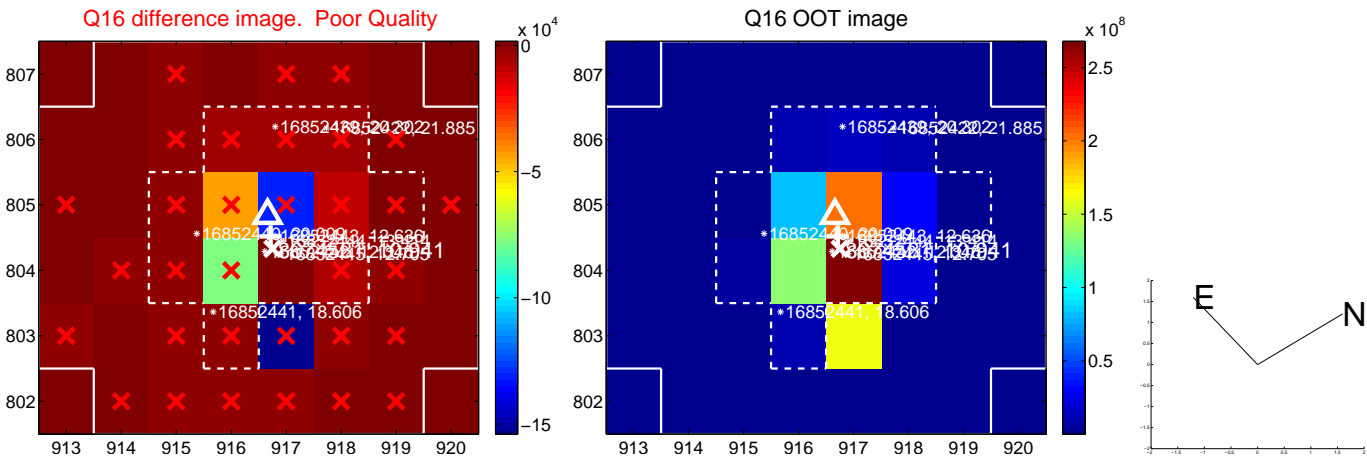
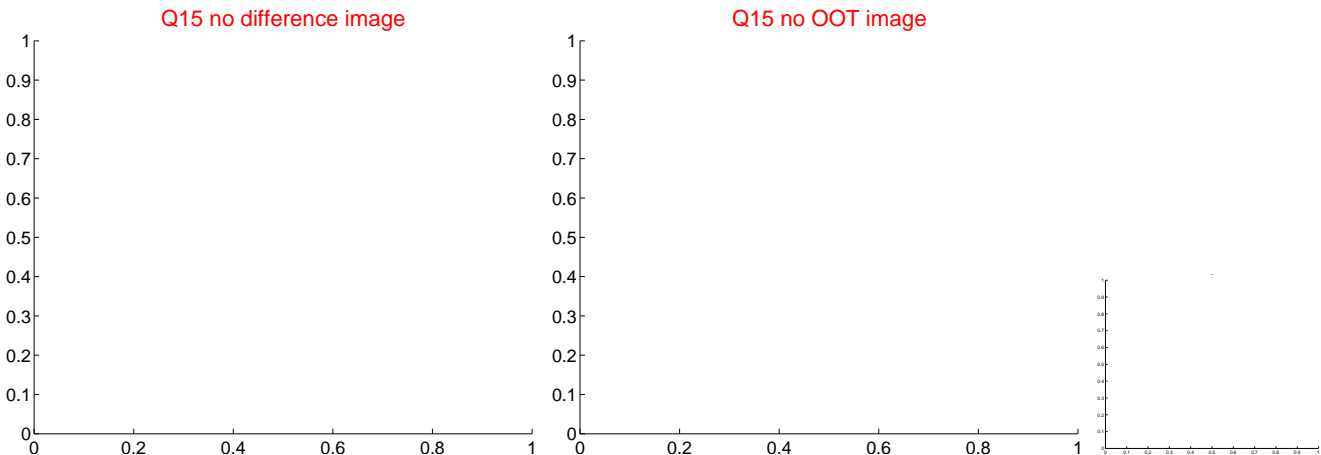
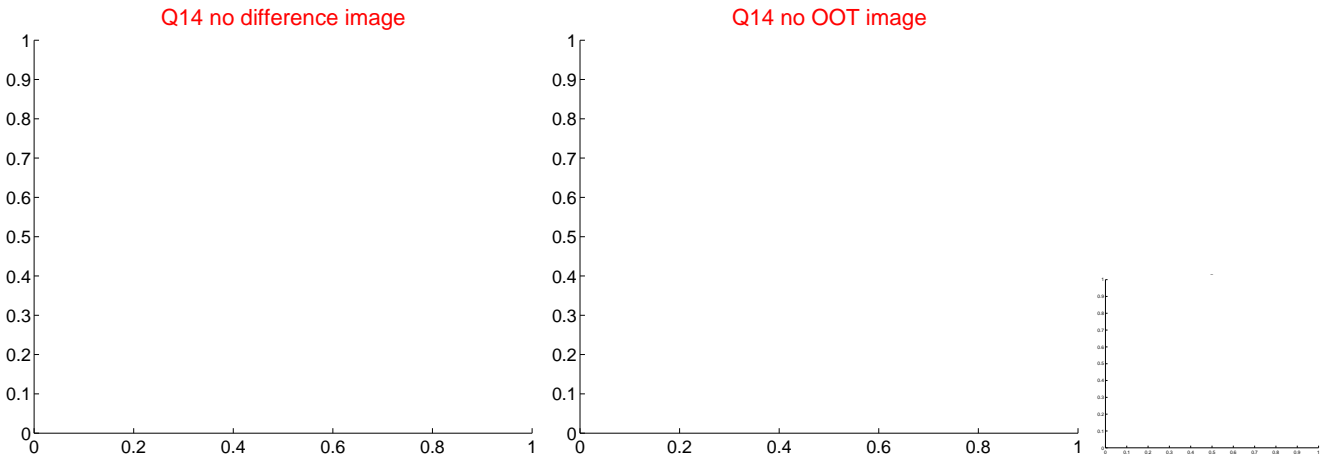
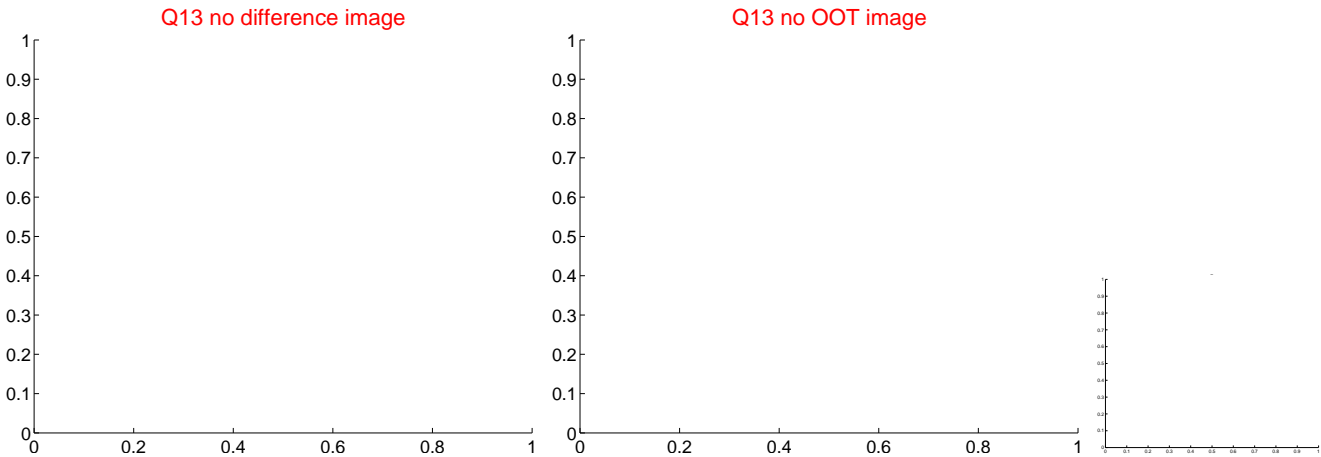
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



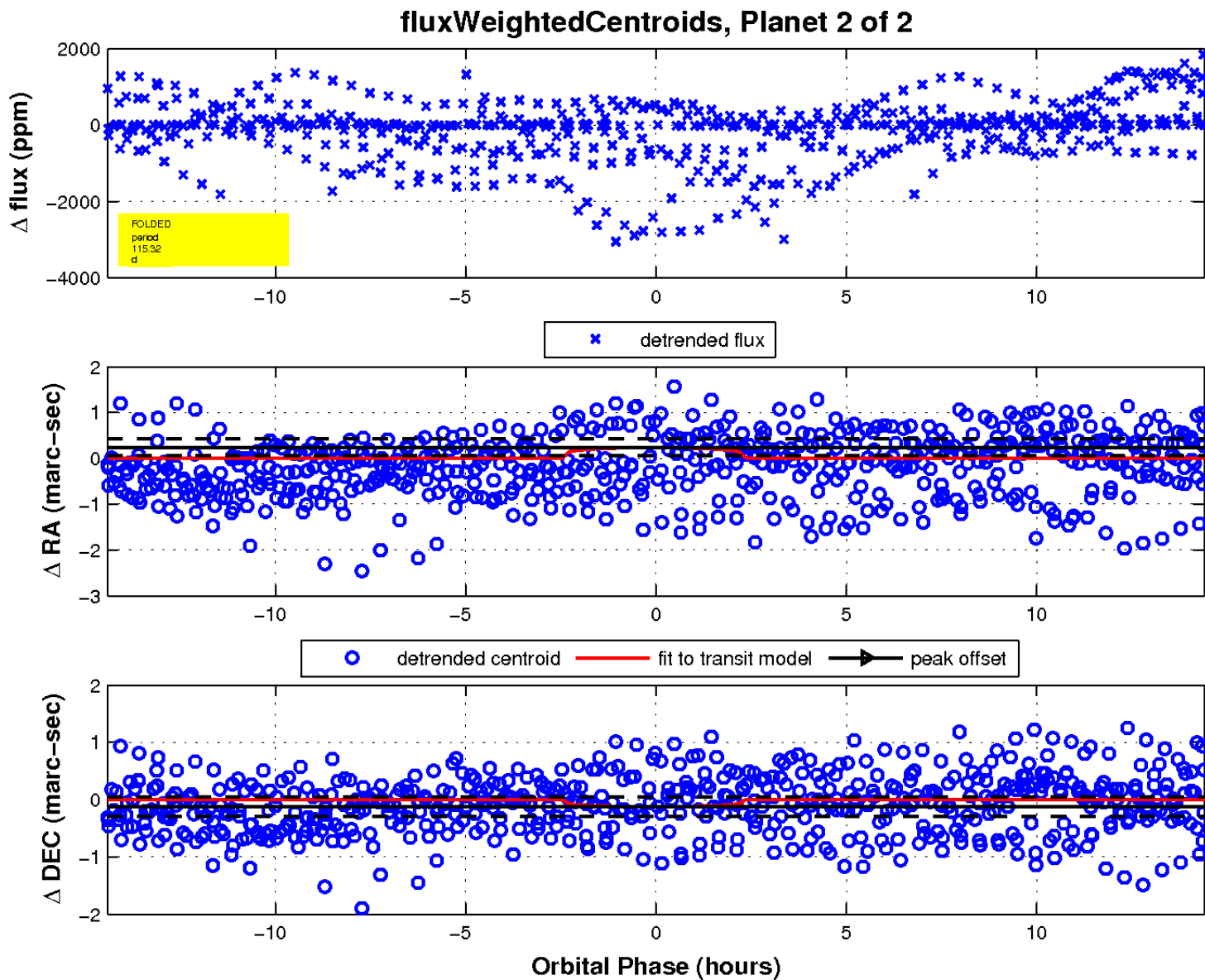
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

