

KIC 011706658

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})
011706658-01	OBS	7473.01	1.407938	132.267244	15050.5	1.500	248.6	-1.0	0.74	4627	8.76	458.35
011706658-02	OBS	No	303.736398	207.042394	6209.1	3.633	14.3	8.8	0.74	4627	5.77	0.35
011706658-03	OBS	No	1.407419	131.821475	225.6	8.995	8.8	4.5	0.74	4627	1.44	458.57
011706658-05	OBS	No	60.347609	172.500834	1759.3	4.104	17.6	3.0	0.74	4627	3.46	3.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011706658-01	OBS	FP	0.05	0	1	0	0	SWEET_EB—MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
011706658-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011706658-03	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
011706658-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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.

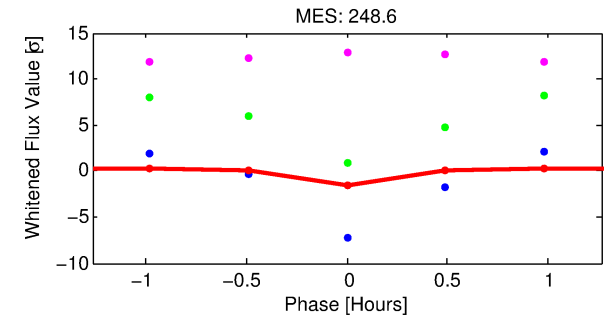
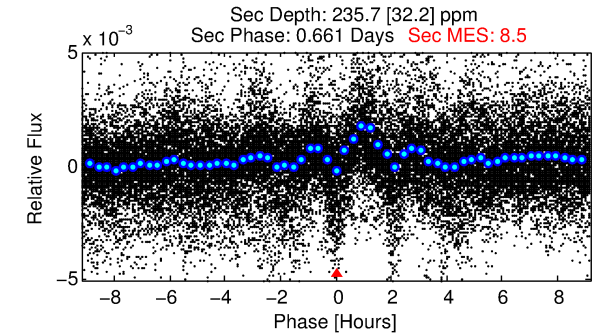
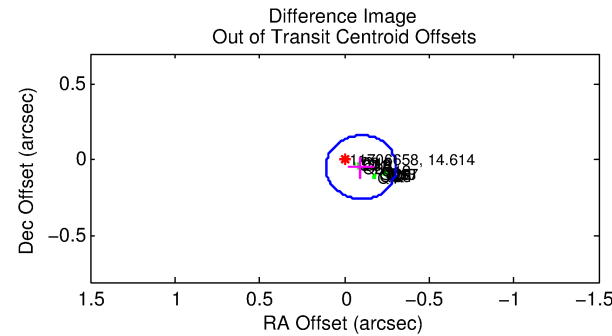
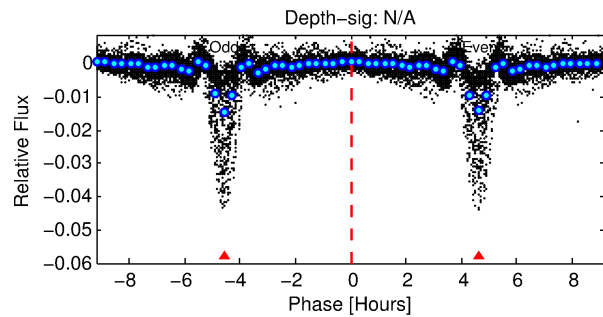
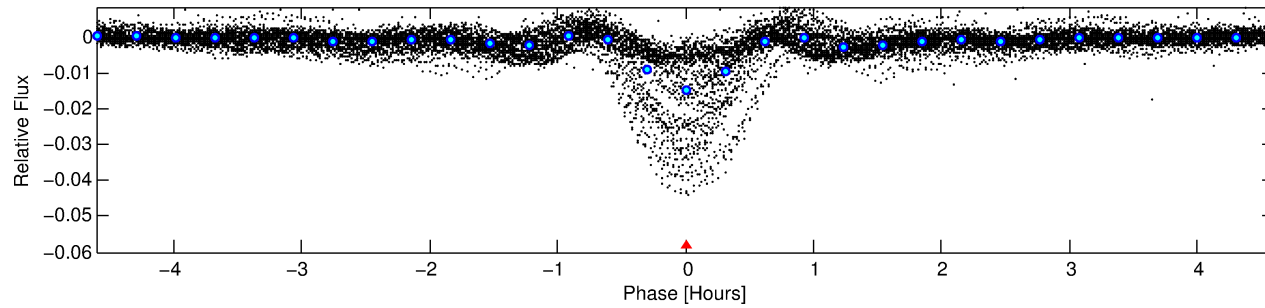
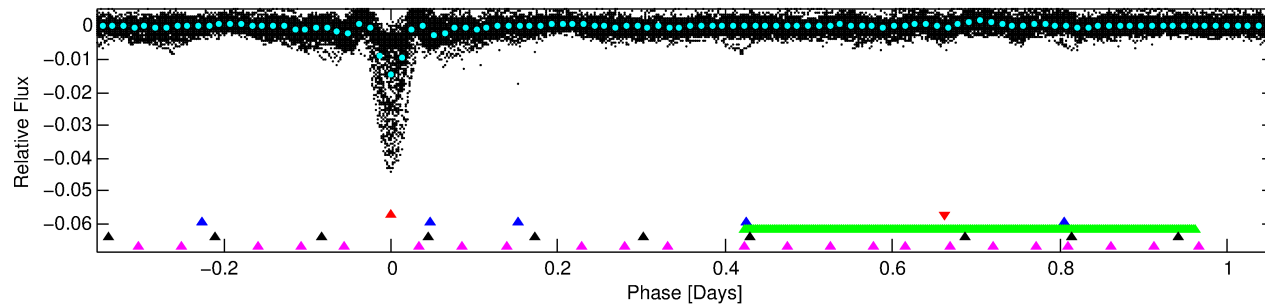
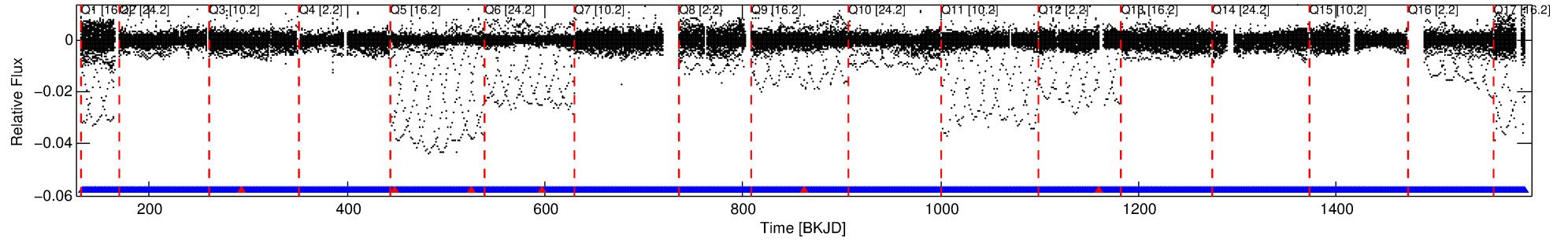
Ephemeris Match Information For 011706658-01

No Significant Match Found

DV One-Page Summary

KIC: 11706658 Candidate: 1 of 5 Period: 1.408 d
KOI: K07473.01 Corr: 0.972

Kp: 14.61 R*: 0.74 Rs Teff: 4627.0 K Logg: 4.56 Fe/H: 0.160



TPS TCE Results:

Period = 1.40794 d
Epoch = 132.2672 BKJD

DV fit results are unavailable

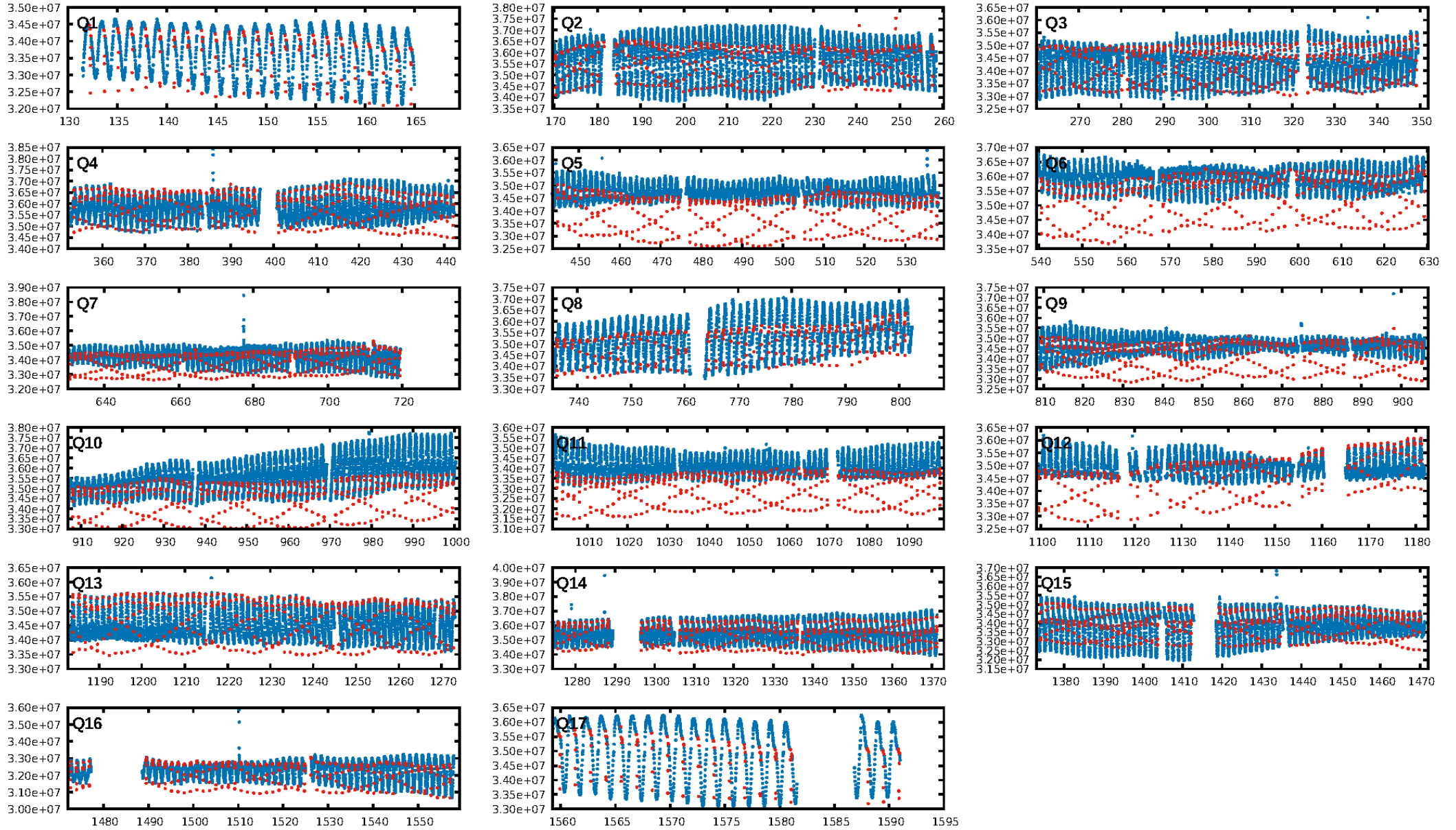
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: 100.0% [323.75σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [903/909]
GhostDiagnostic-chr: 1.574
Centroid-sig: 0.0%
Centroid-so: 0.410 arcsec [146.73σ]
OotOffset-rm: 0.109 arcsec [1.56σ]
KicOffset-rm: 0.482 arcsec [6.97σ]
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]

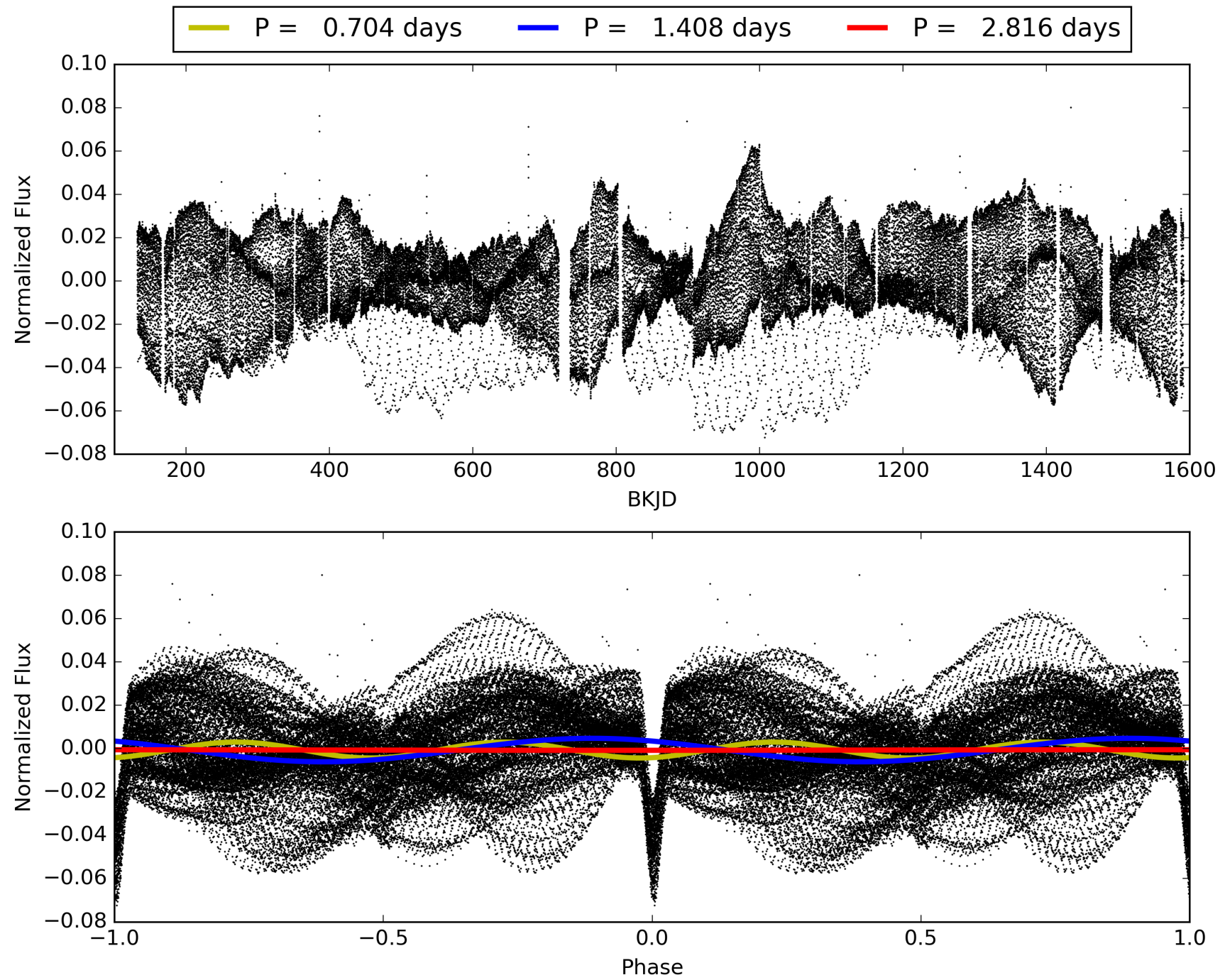
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011706658-01, PDC Light Curves

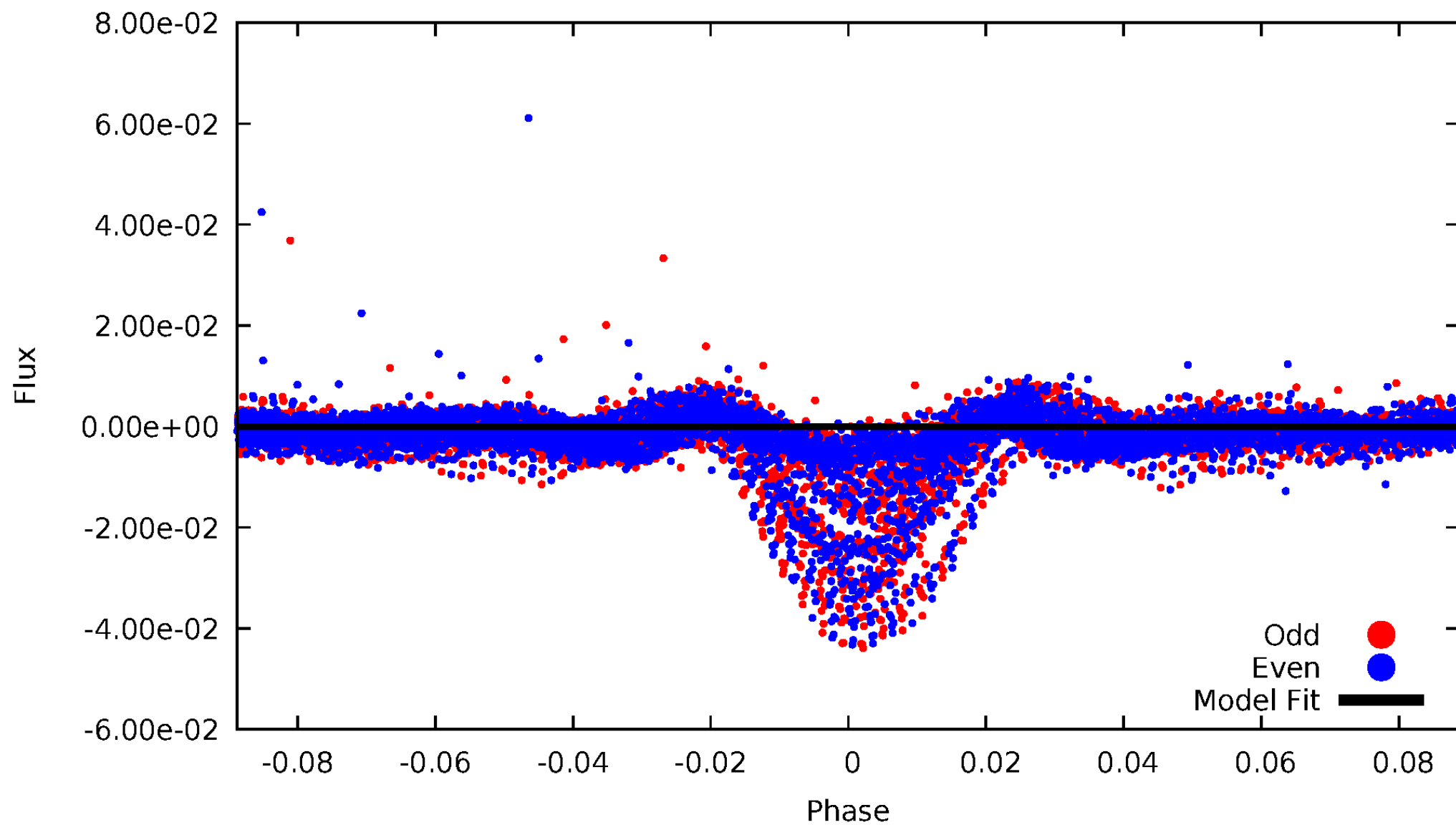


TCE 011706658-01



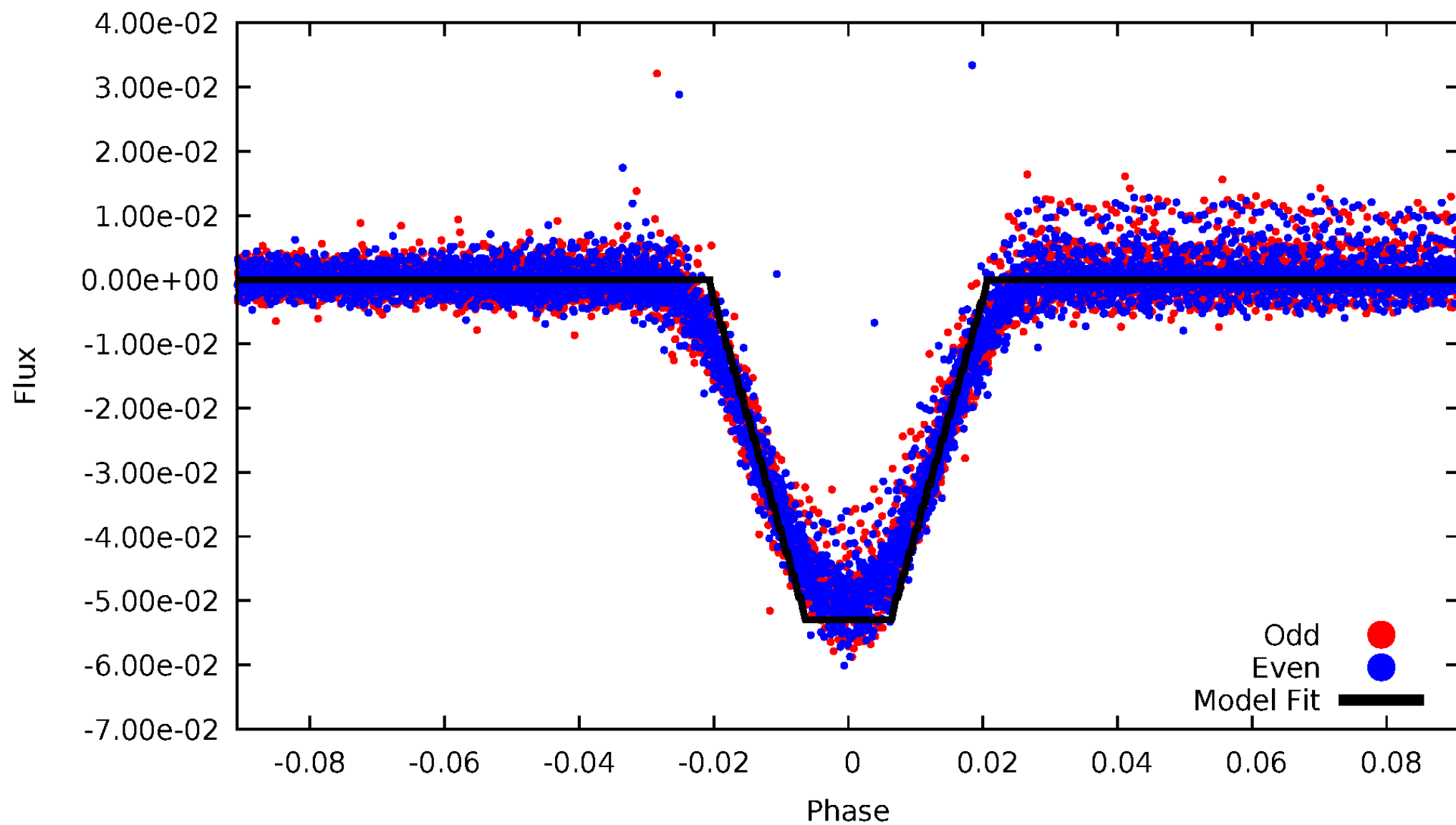
DV Odd/Even

TCE 011706658-01



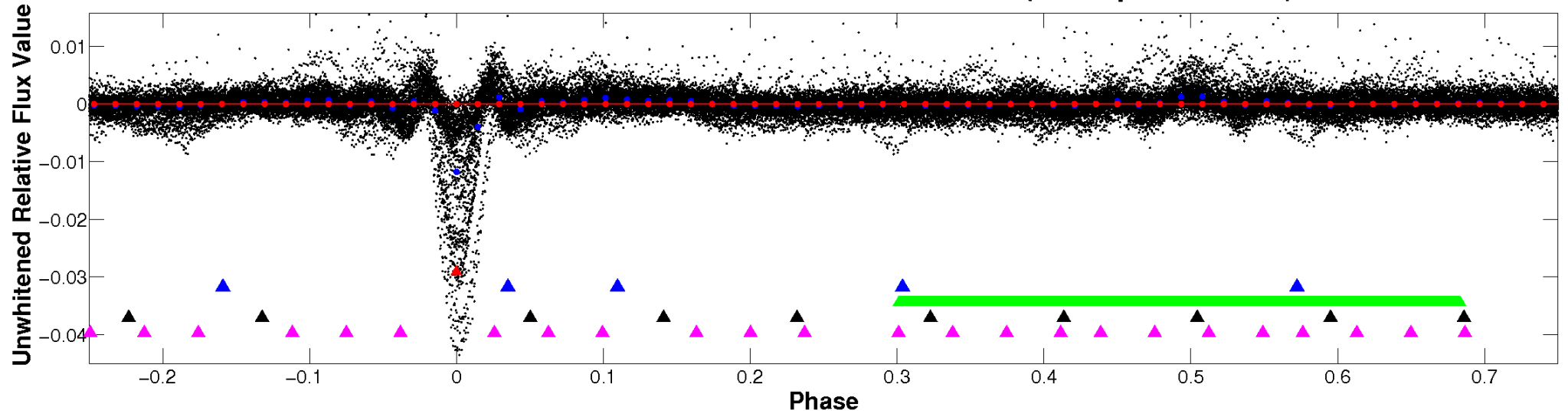
ALT Odd/Even

TCE 011706658-01



Non-Whitened Vs. Whitened Light Curve

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

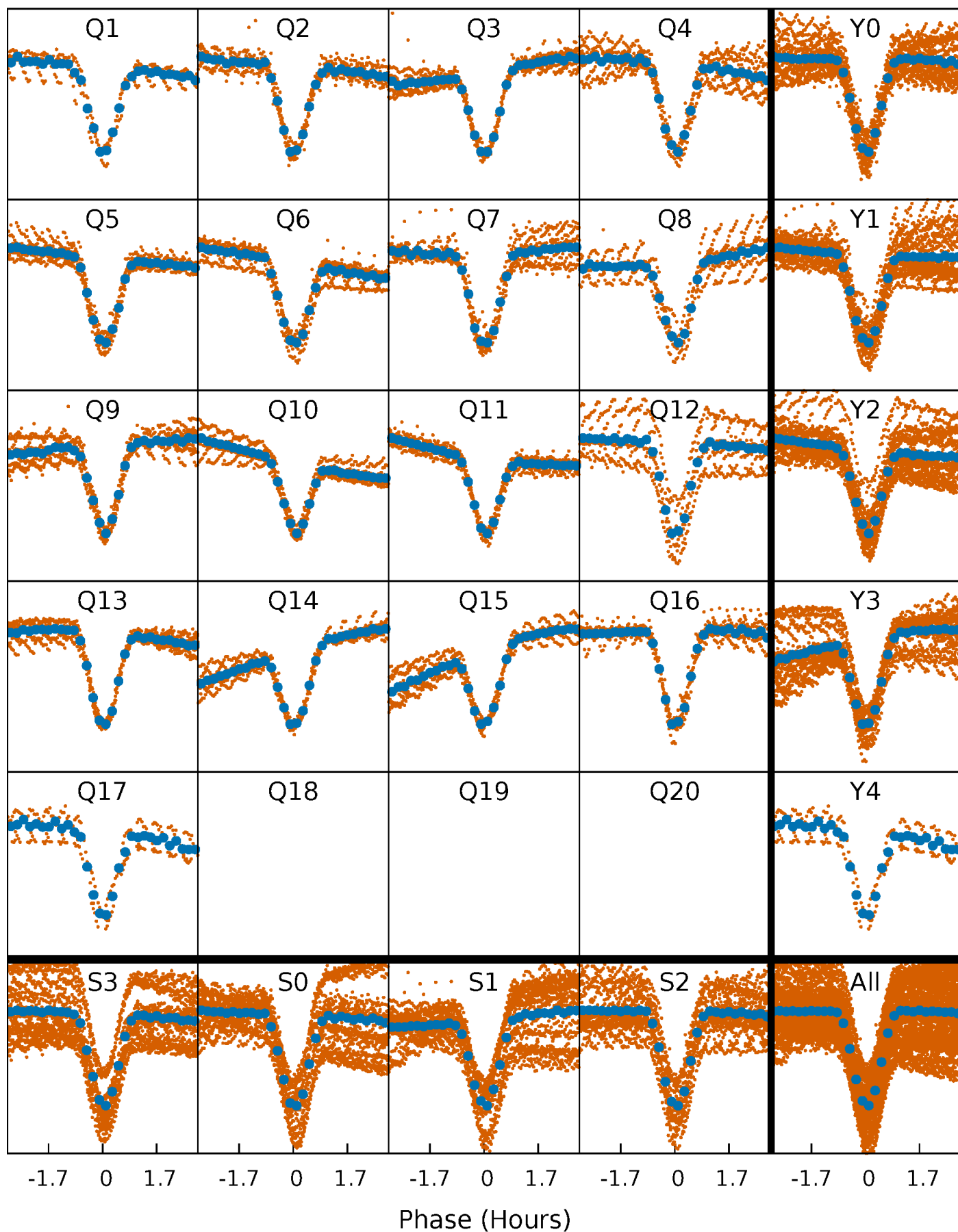


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



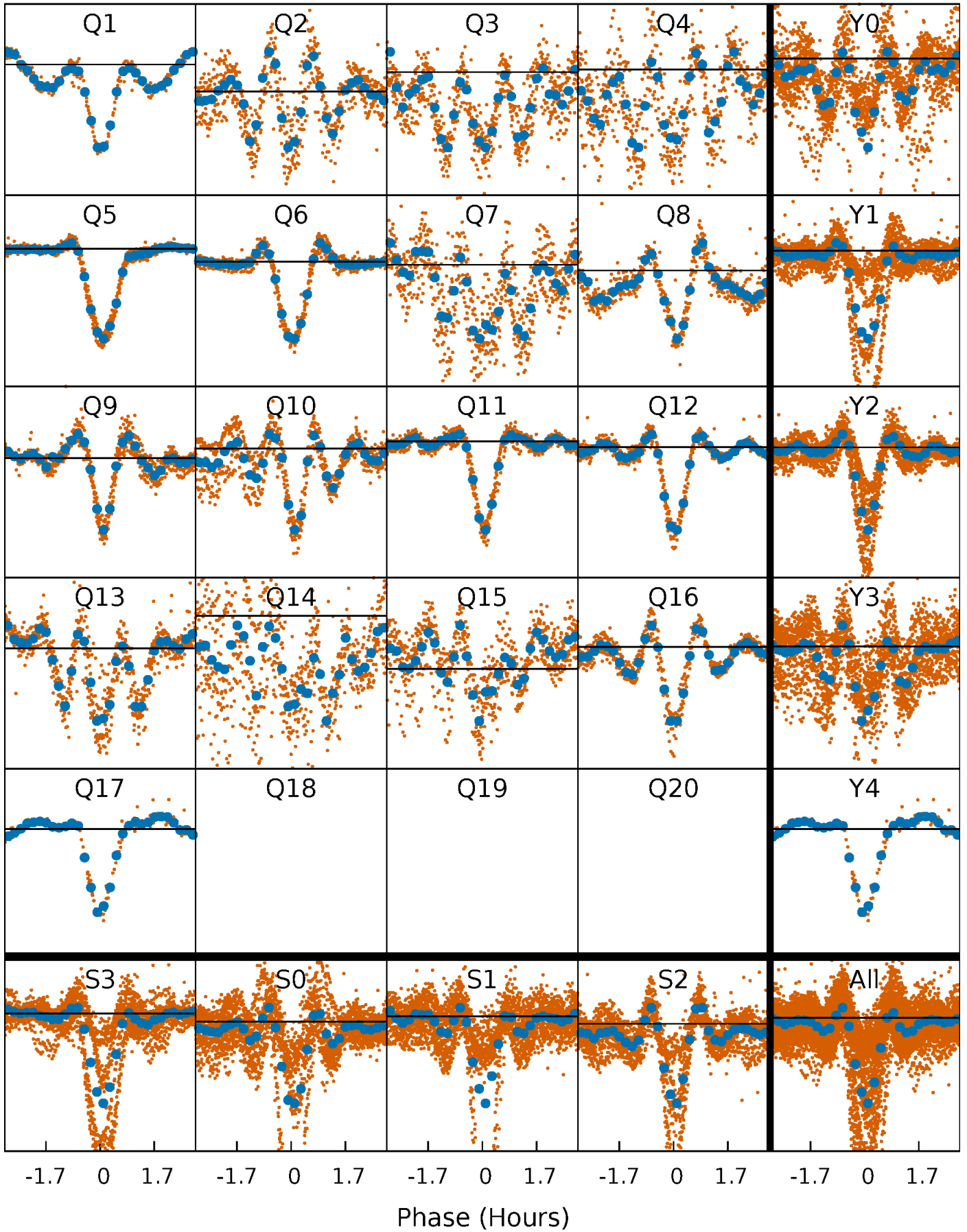
PDC Quarter-Phased Transit Curves

TCE 011706658-01 P= 1.407938 Days $T_0=132.267244$ (BKJD)



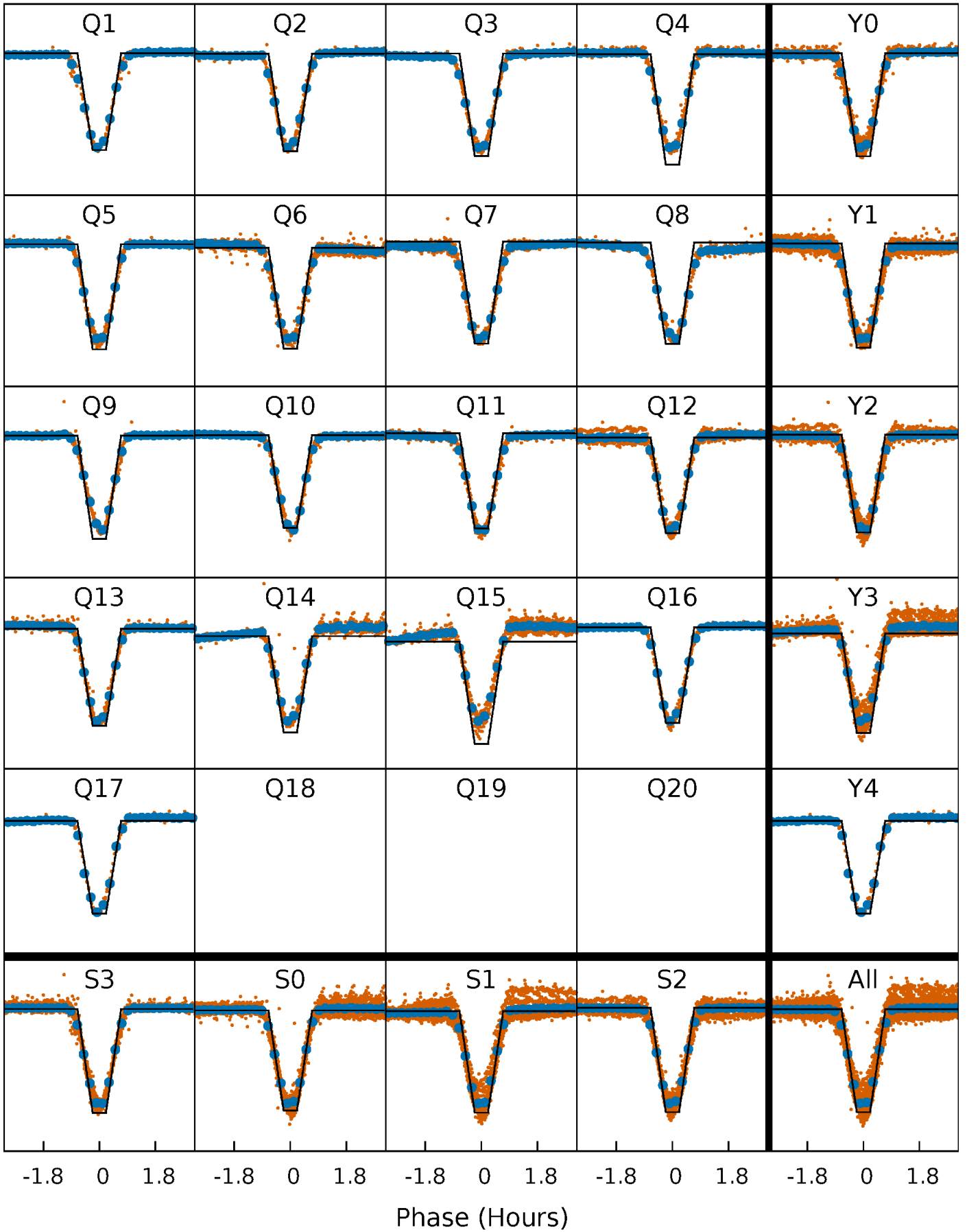
DV Quarter-Phased Transit Curves

TCE 011706658-01 P= 1.407938 Days $T_0=132.267244$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

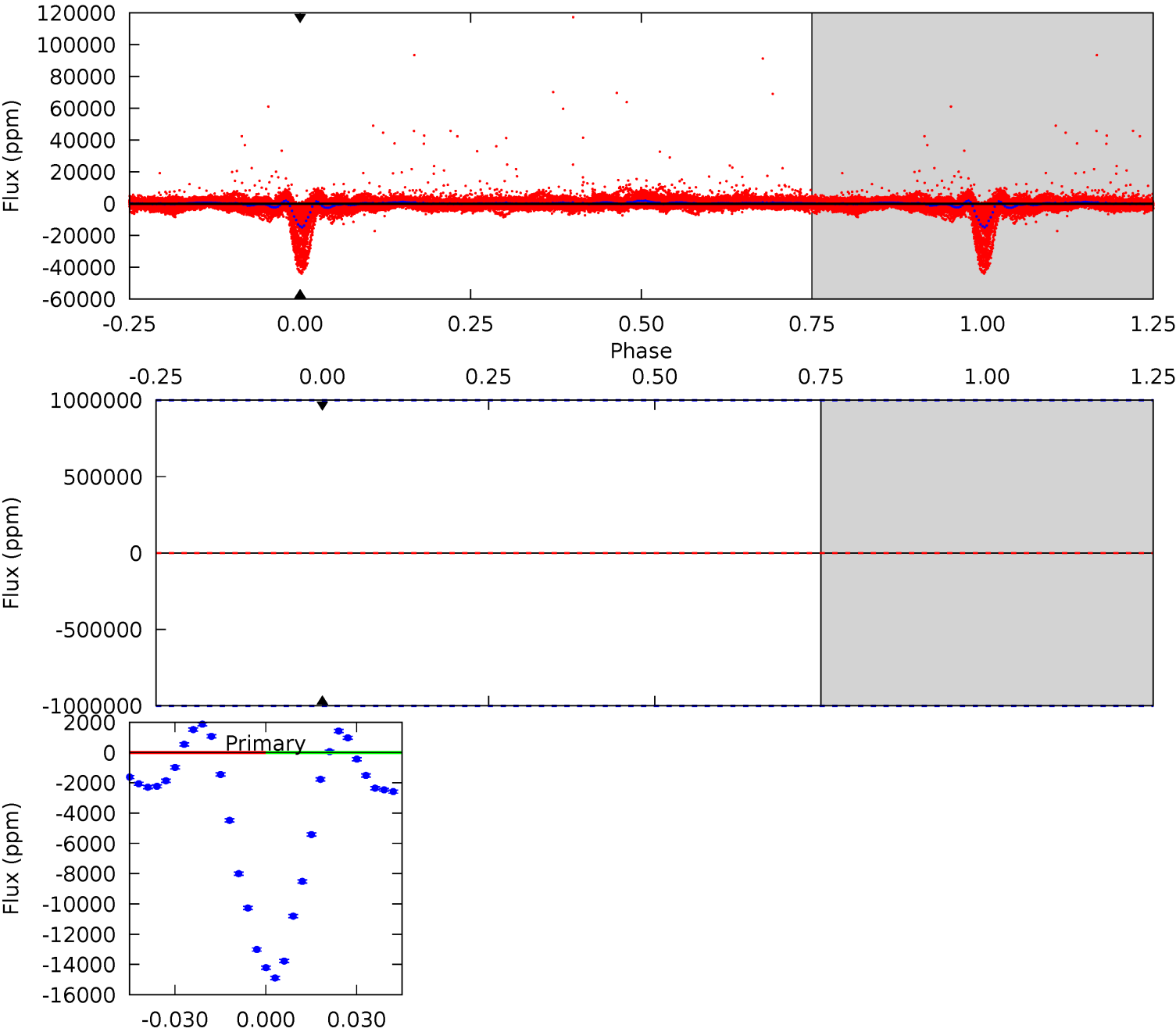
TCE 011706658-01 P= 1.407938 Days $T_0=132.269473$ (BKJD)



DV Model-Shift Uniqueness Test

011706658-01, P = 1.407938 Days, E = 130.859306 Days

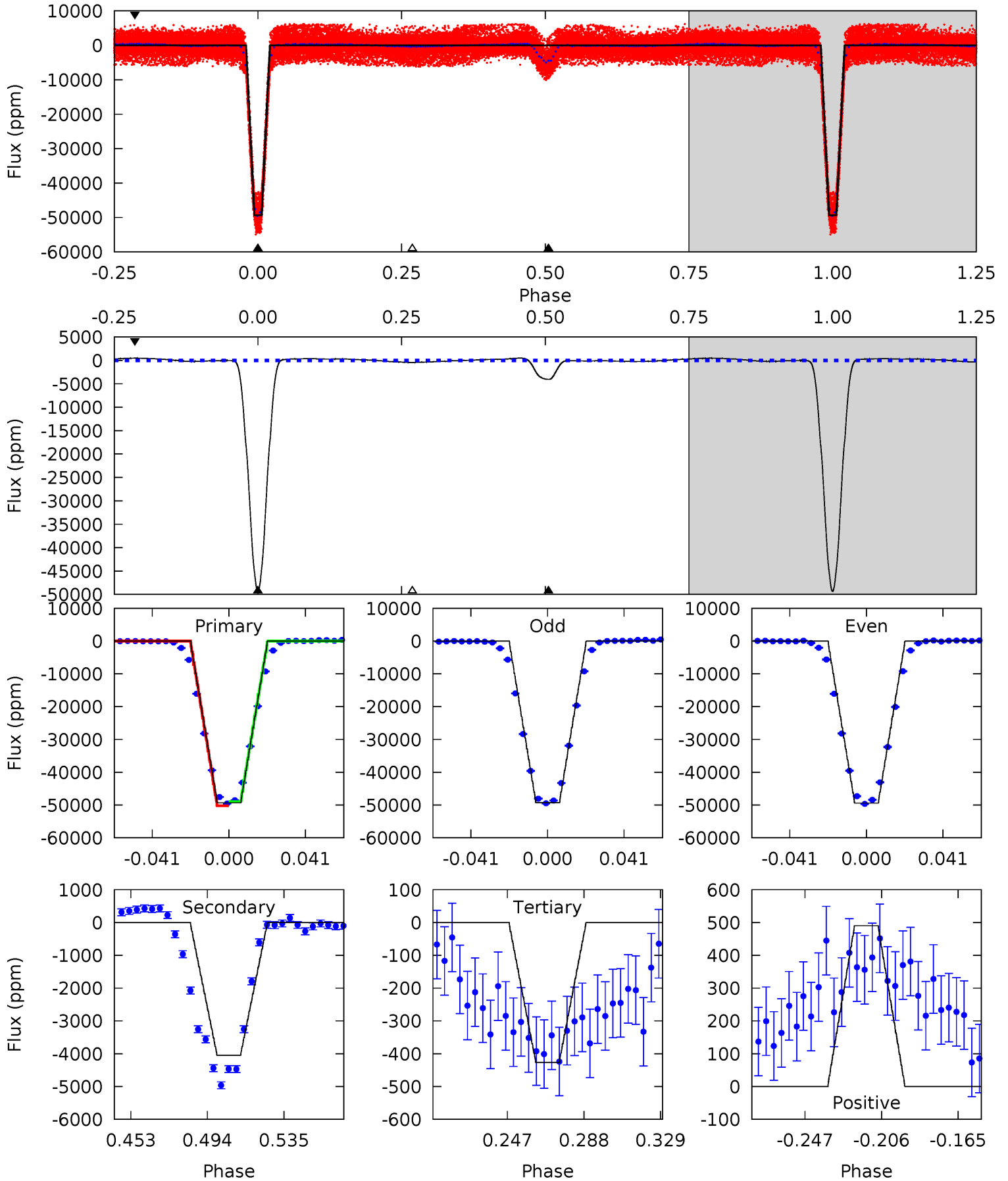
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

011706658-01, P = 1.407938 Days, E = 130.861535 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1375	112.8	11.9	13.7	4.75	2.04	7.01	1363	1361	101.0	99.2	1.48	0.99	0.01	17.2



Stellar Parameters For KIC 011706658

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4627^{+140}_{-140}	$4.564^{+0.060}_{-0.024}$	$0.160^{+0.250}_{-0.300}$	$0.741^{+0.036}_{-0.063}$	$0.734^{+0.054}_{-0.054}$	$2.541^{+0.641}_{-0.233}$
	+3%/-3%	+1%/-1%	+156%/-188%	+5%/-9%	+7%/-7%	+25%/-9%
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 011706658-01 / KOI 7473.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$9.86^{+7.09}_{-6.05}$	1634^{+56}_{-59}	-3104^{+11738}_{-4903}	$-3.843^{+492.870}_{-378.001}$
Alt.	-4050 ± 36	$18.28^{+7.80}_{-7.65}$	1637^{+56}_{-56}	2996^{+541}_{-339}	$3.328^{+6.335}_{-1.683}$

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 $A_{obs} \gg 1.0$

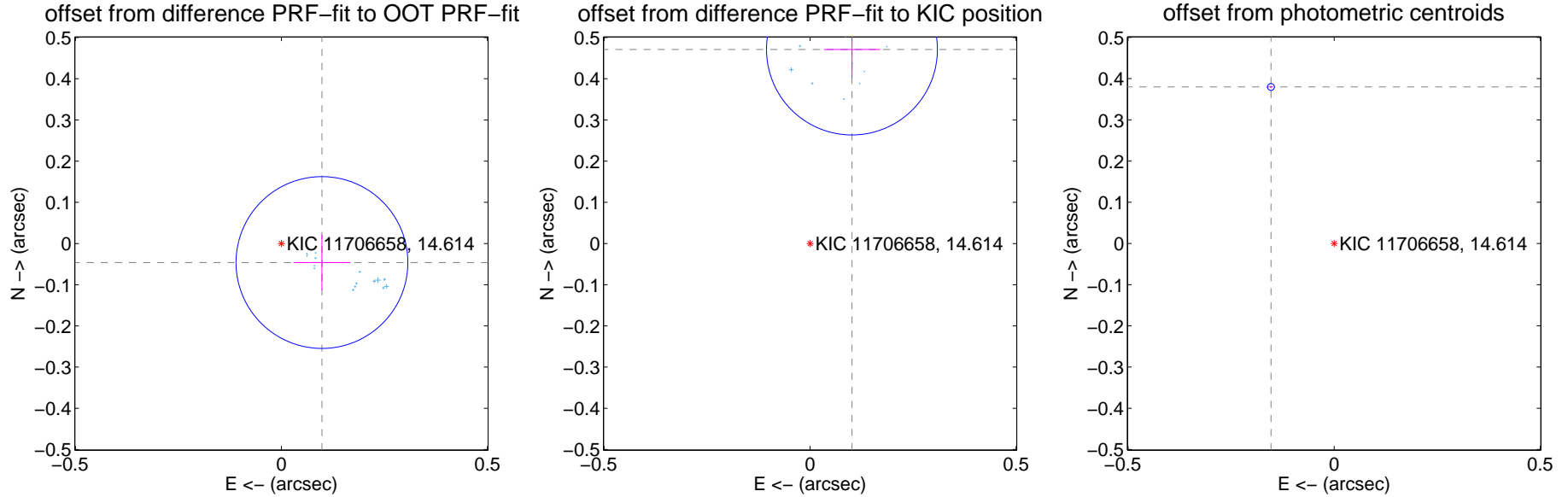
DV Centroid Data

Supplemental centroid analysis for 011706658-01. Kepler magnitude: 14.61. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

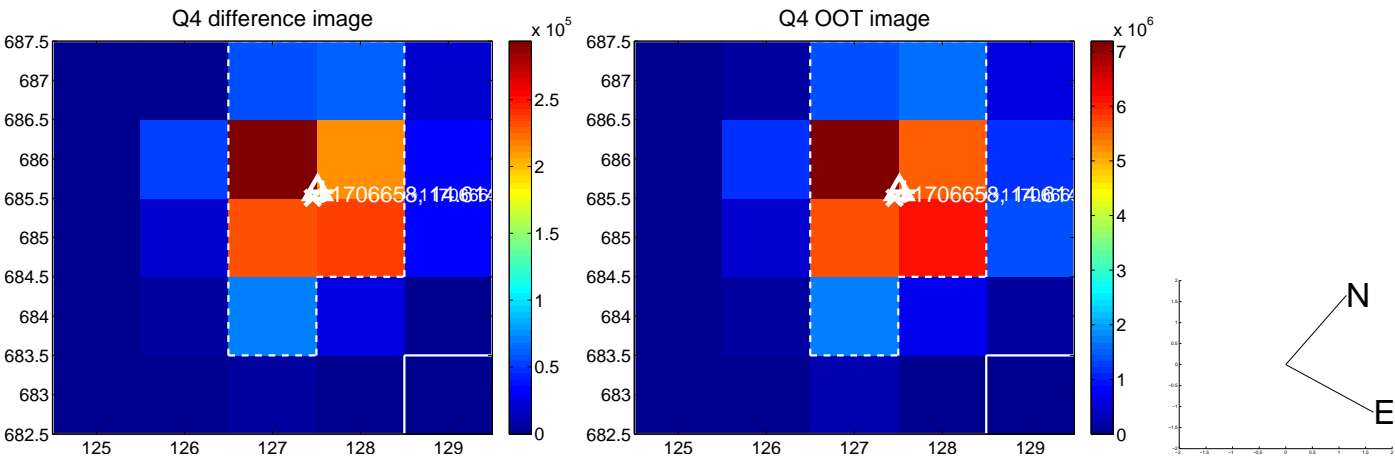
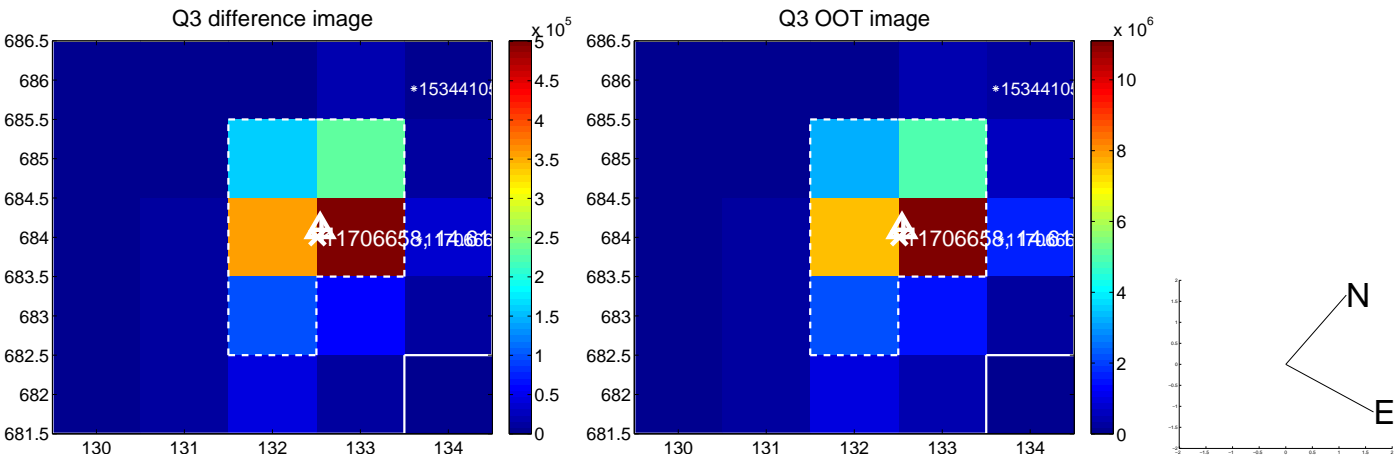
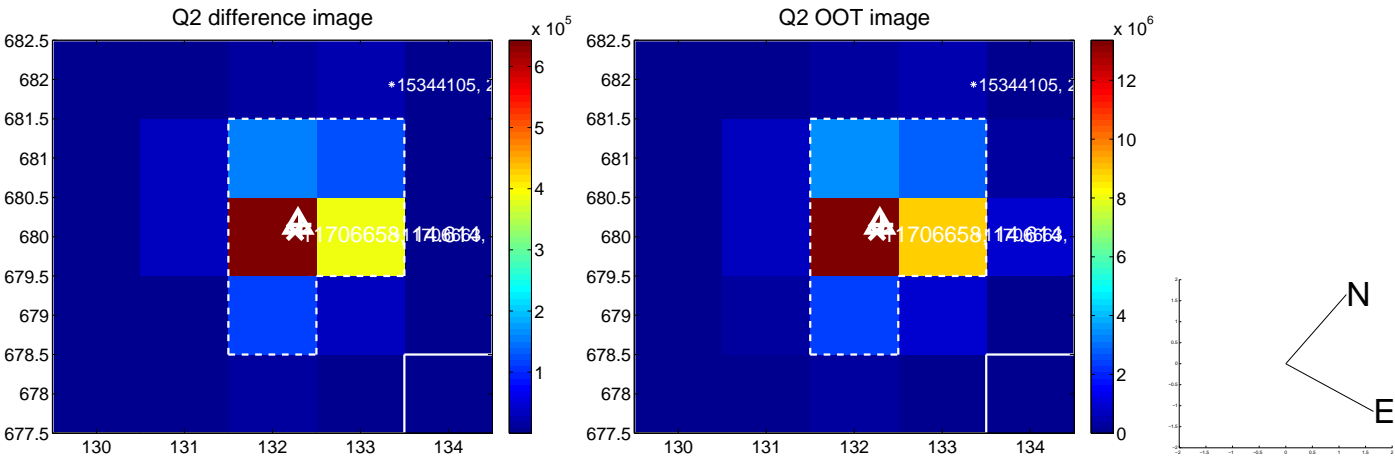
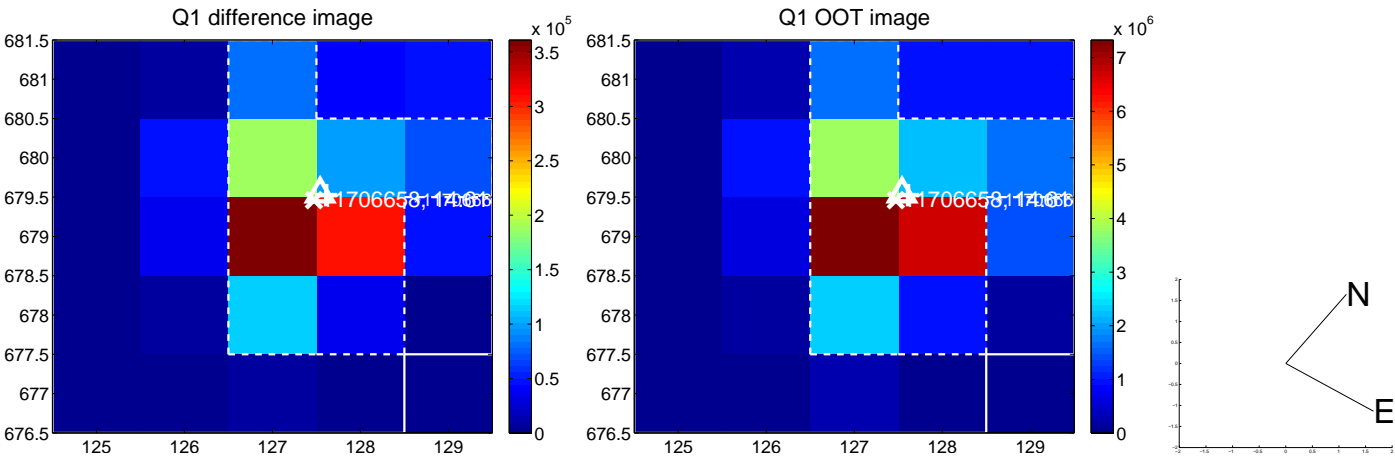
The direct PRF centroid is offset from the target star catalog position by about 0.75 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.109 ± 0.070	1.56	-0.098 ± 0.069	-0.046 ± 0.067
PRF-fit source offset from KIC position	0.482 ± 0.069	6.97	-0.102 ± 0.068	0.471 ± 0.069
photometric centroid source offset	0.41 ± 0.00	146.73	0.15 ± 0.00	0.38 ± 0.00

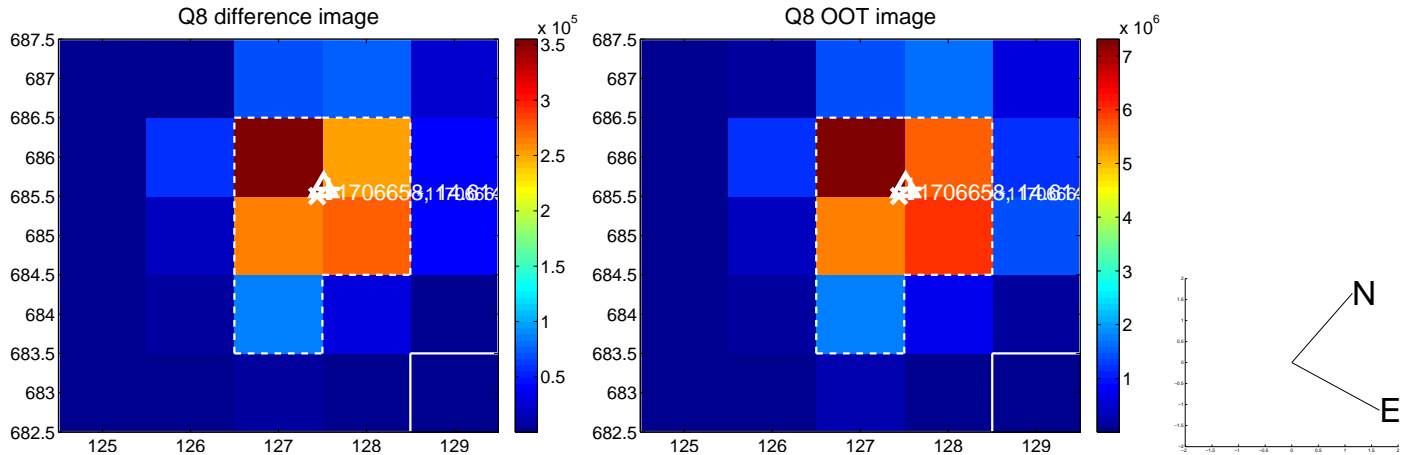
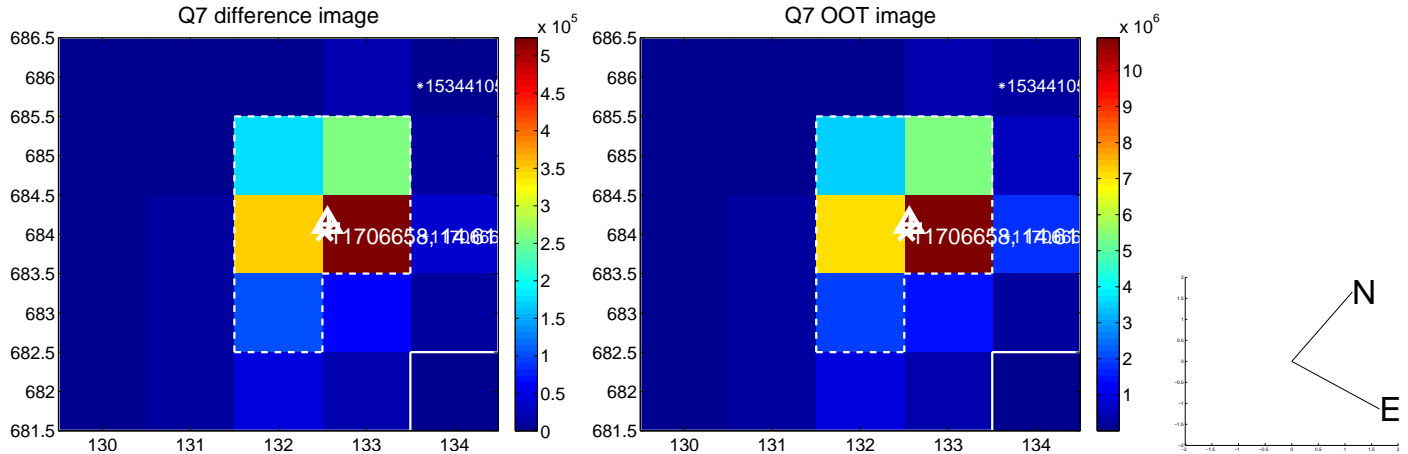
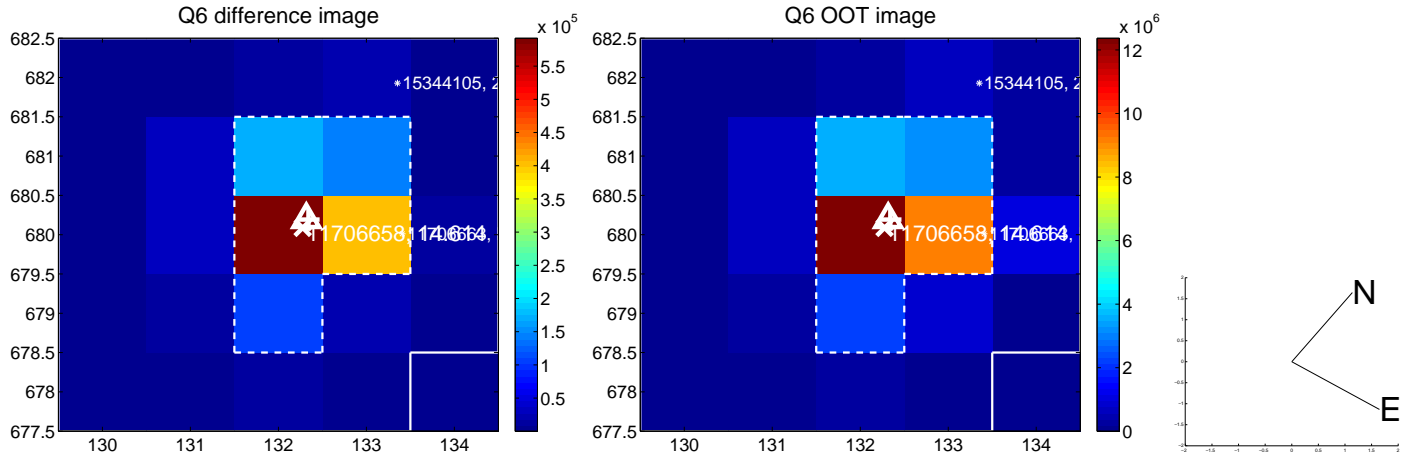
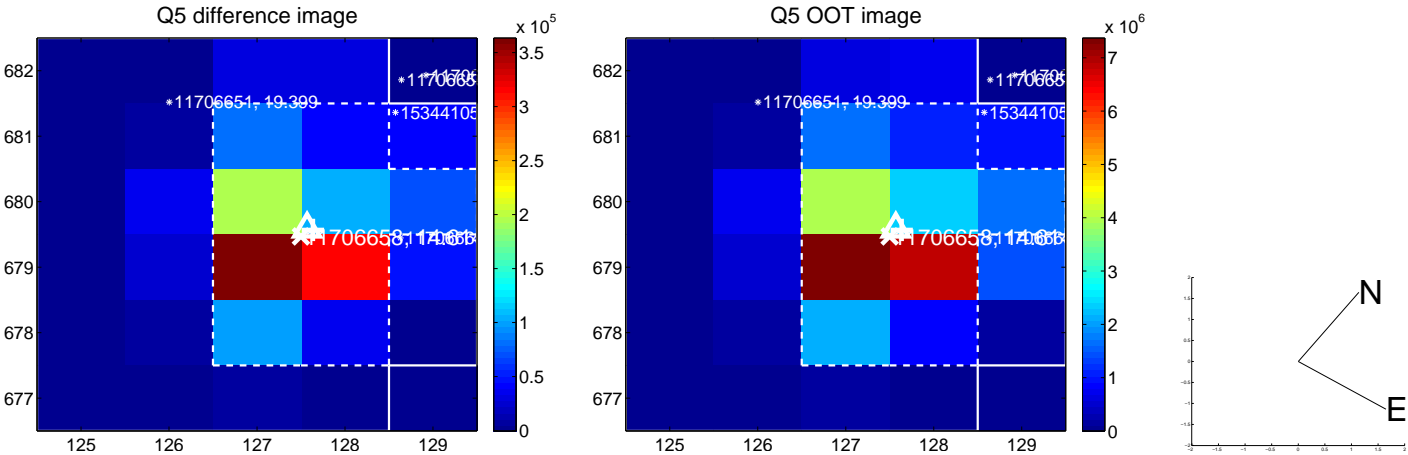


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

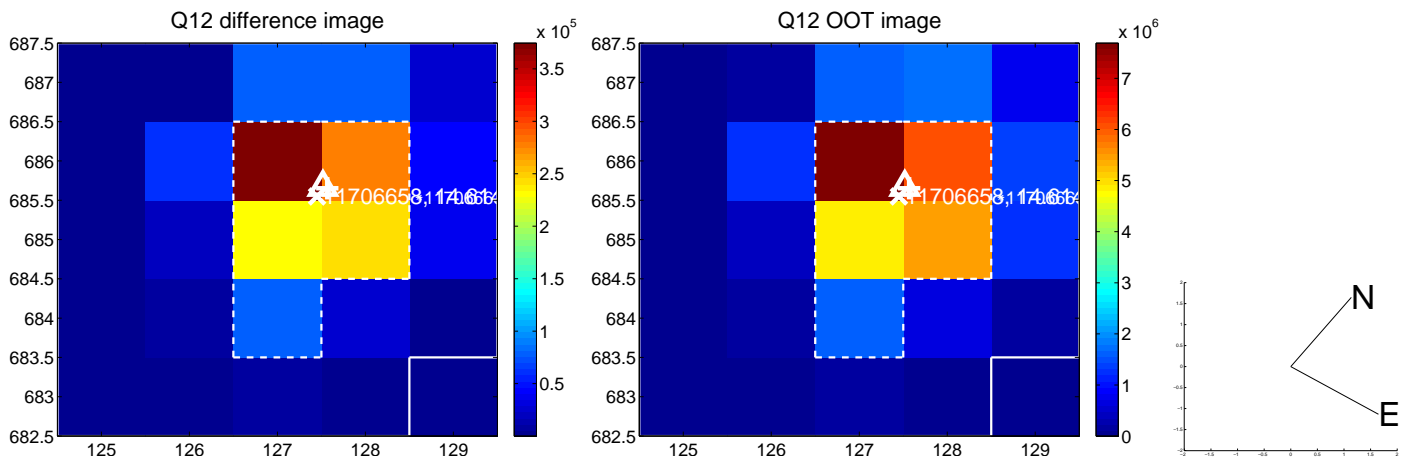
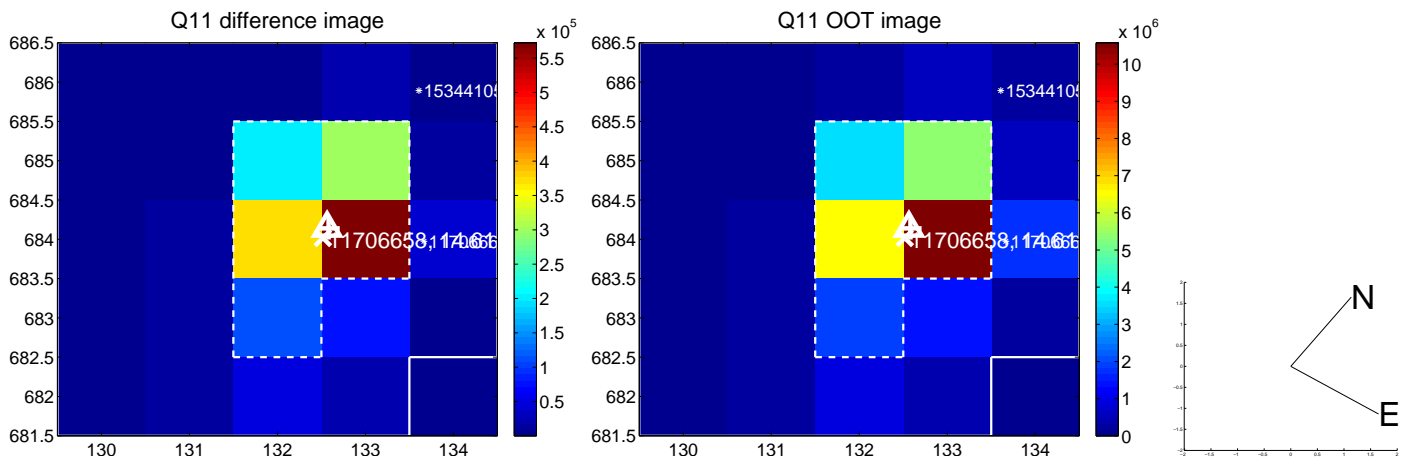
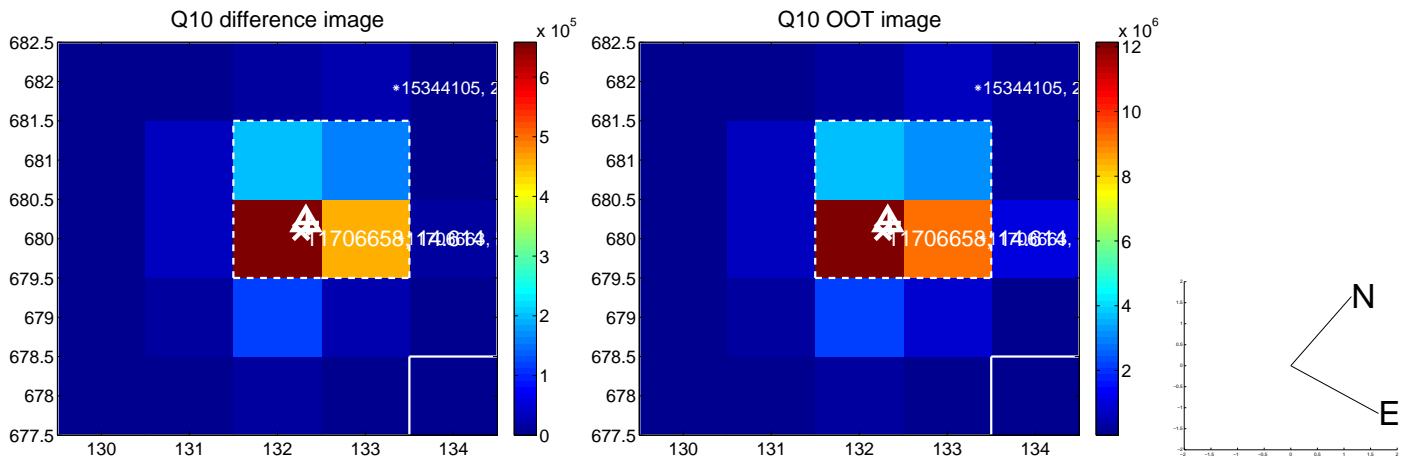
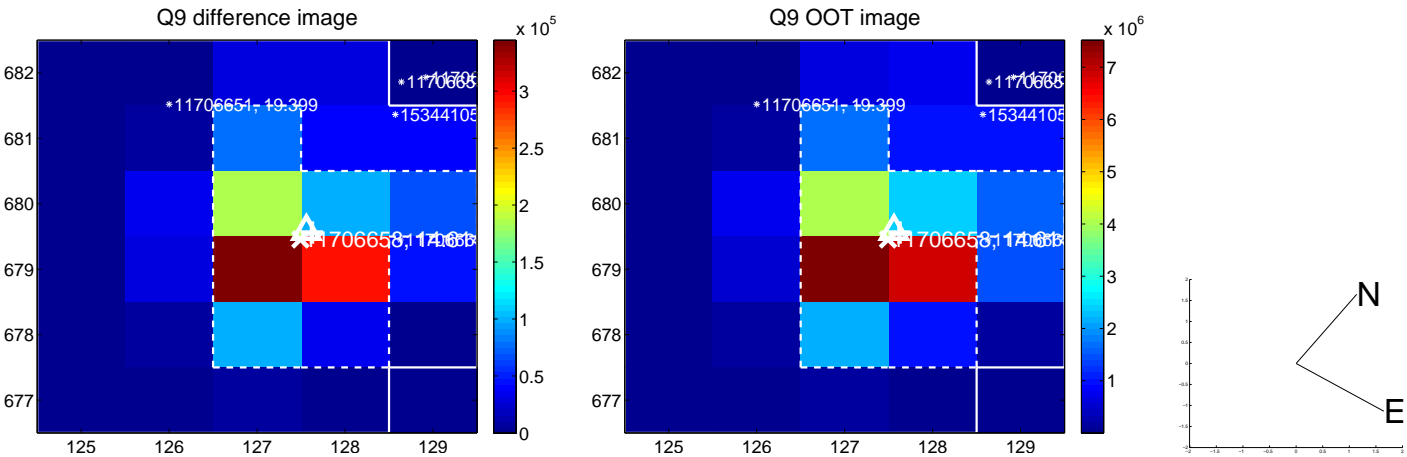
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



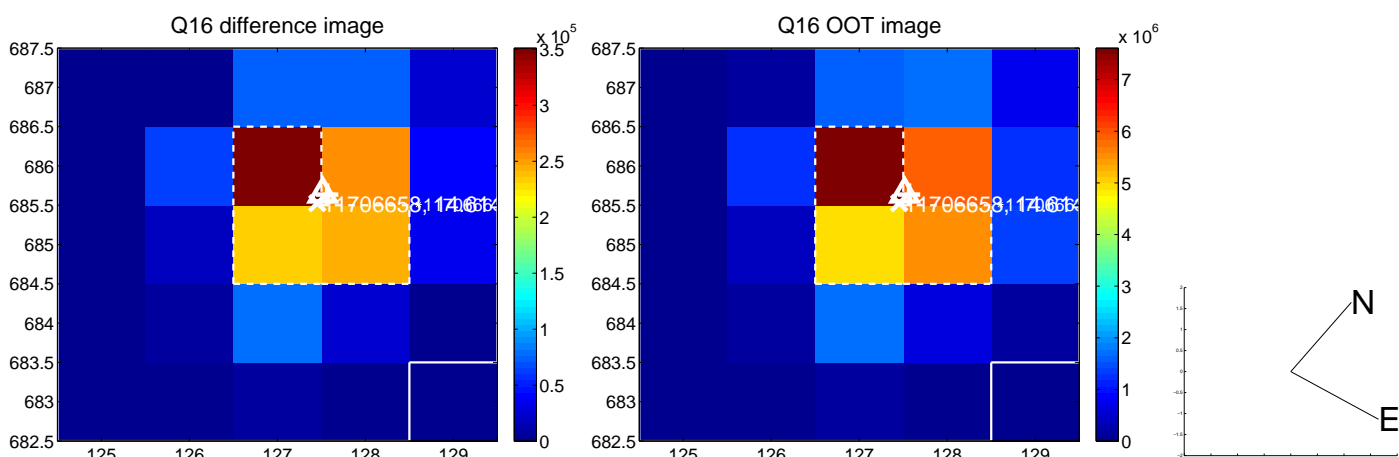
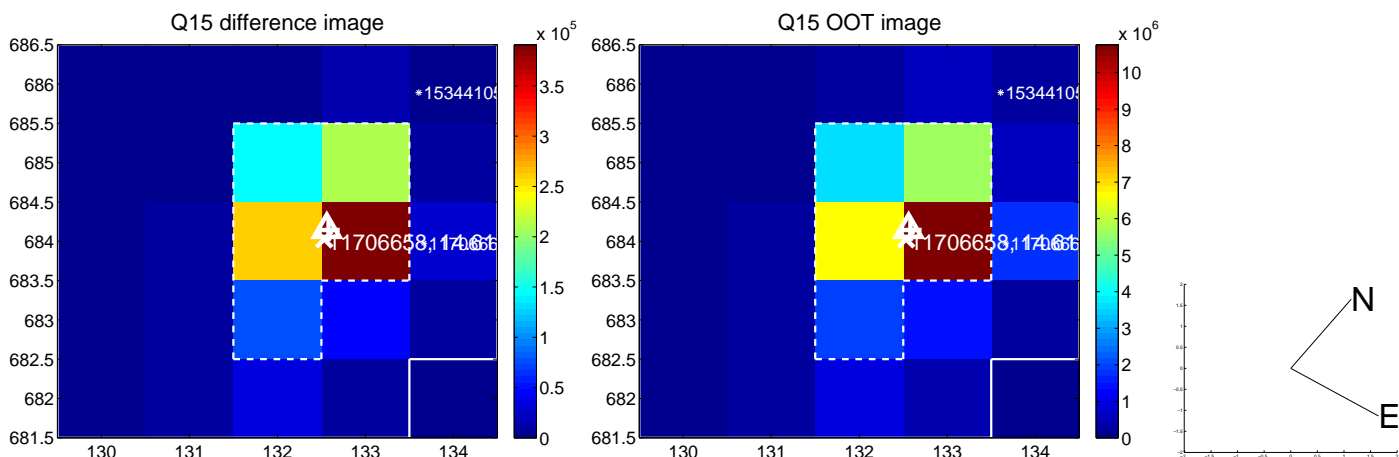
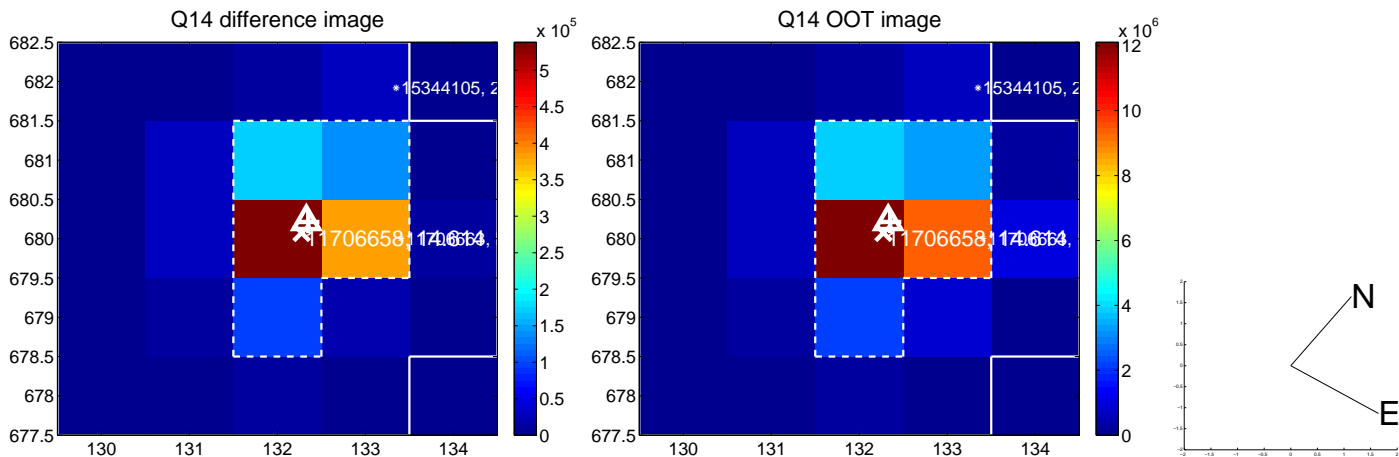
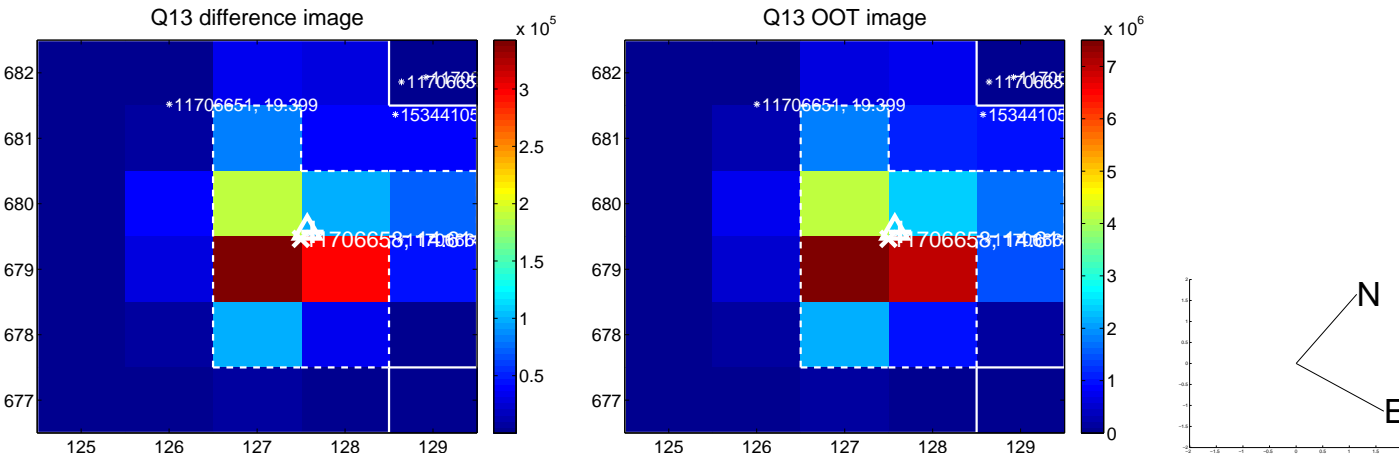
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



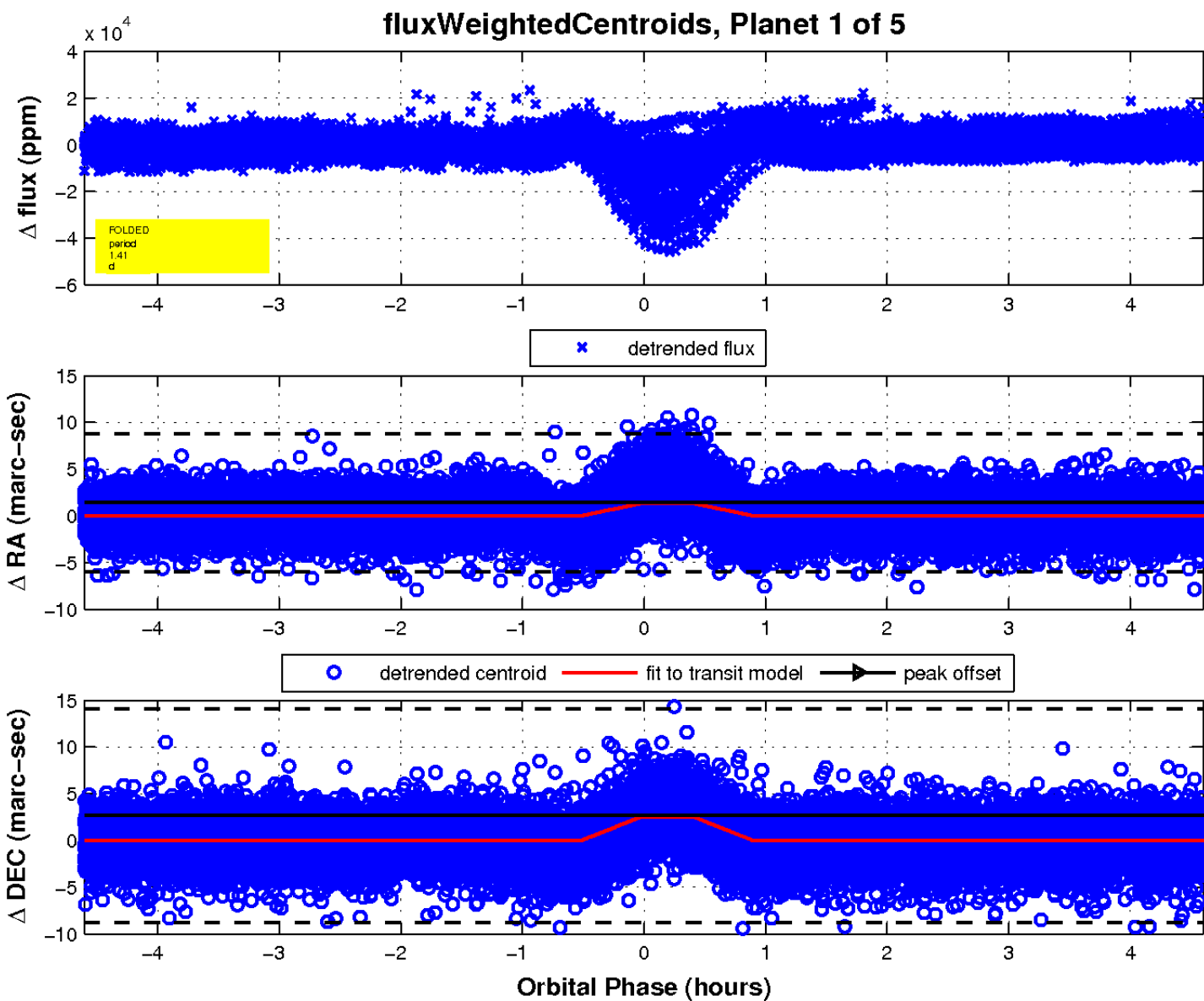
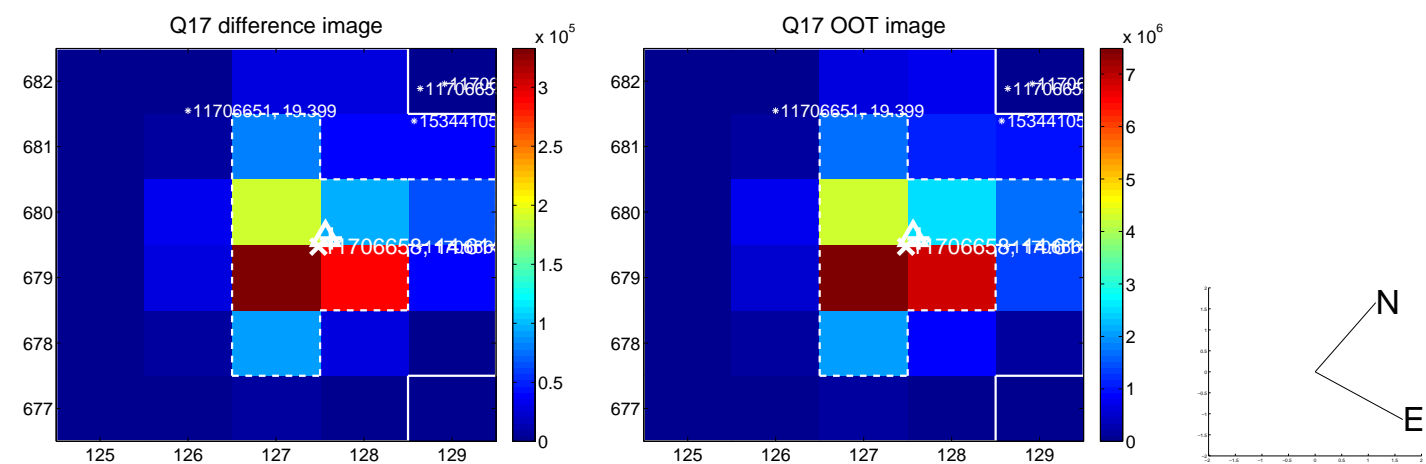
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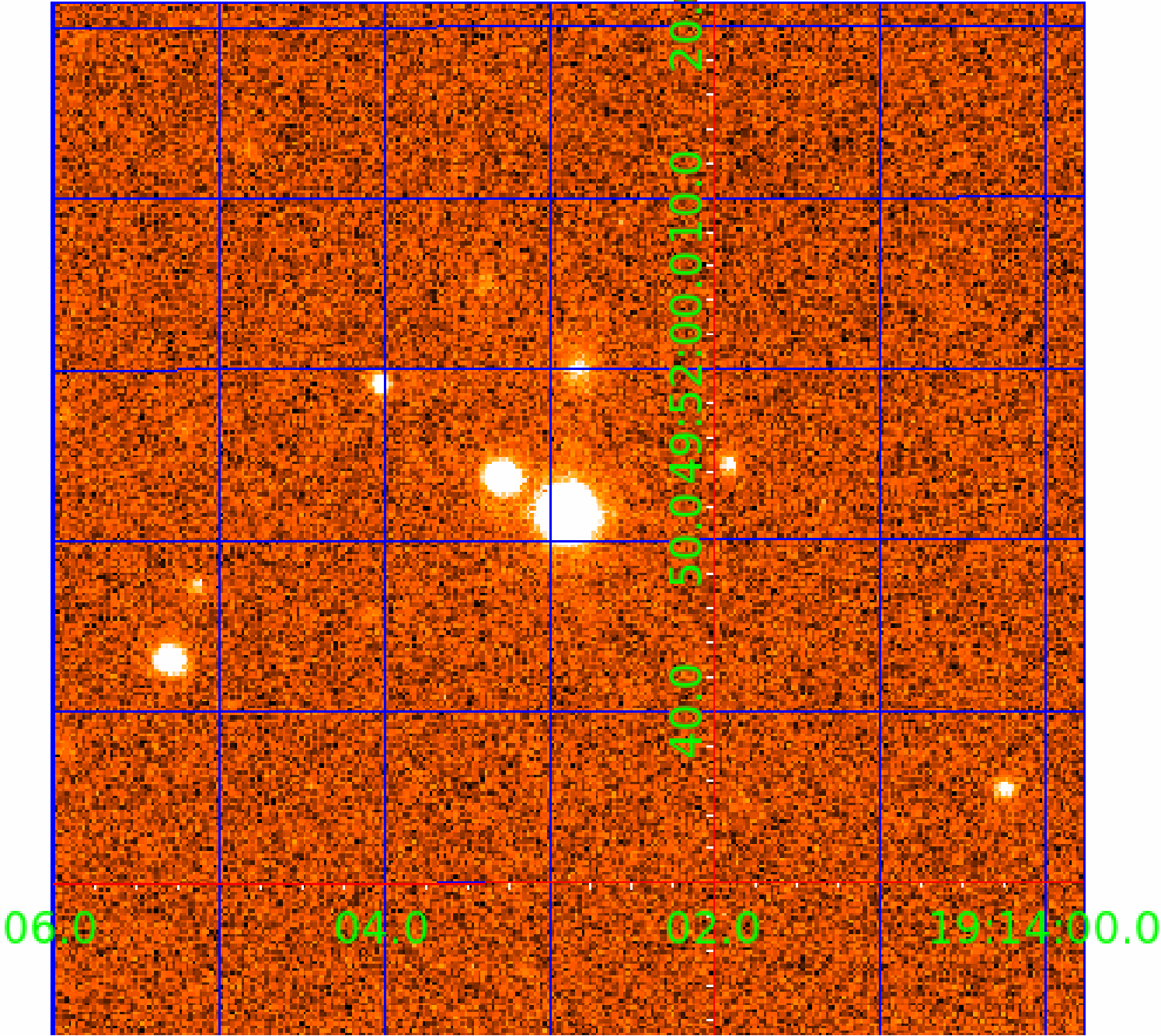


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011706658

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})
011706658-01	OBS	7473.01	1.407938	132.267244	15050.5	1.500	248.6	-1.0	0.74	4627	8.76	458.35
011706658-02	OBS	No	303.736398	207.042394	6209.1	3.633	14.3	8.8	0.74	4627	5.77	0.35
011706658-03	OBS	No	1.407419	131.821475	225.6	8.995	8.8	4.5	0.74	4627	1.44	458.57
011706658-05	OBS	No	60.347609	172.500834	1759.3	4.104	17.6	3.0	0.74	4627	3.46	3.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011706658-01	OBS	FP	0.05	0	1	0	0	SWEET_EB—MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
011706658-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011706658-03	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
011706658-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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 011706658-02

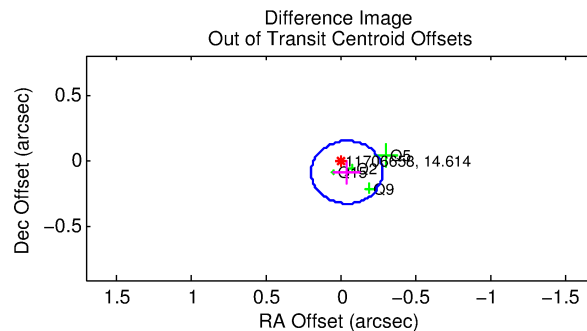
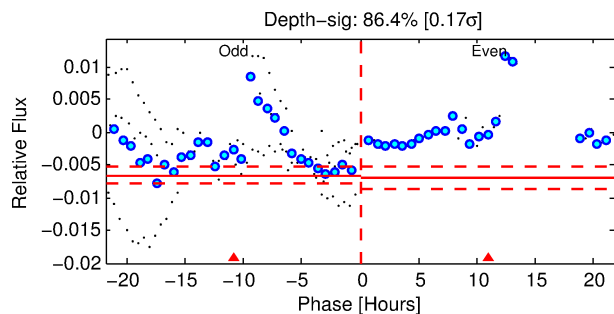
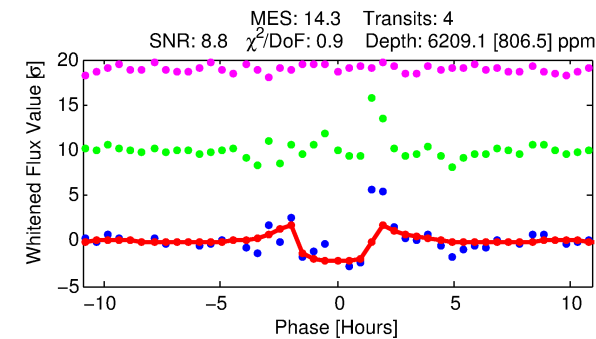
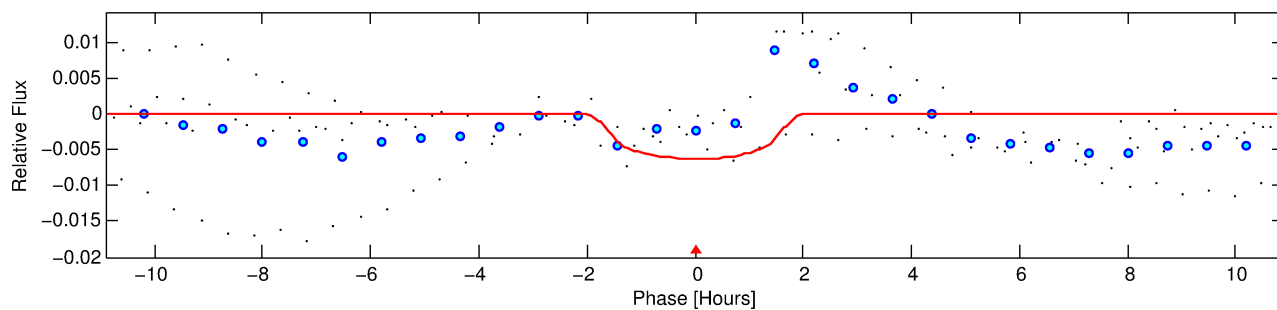
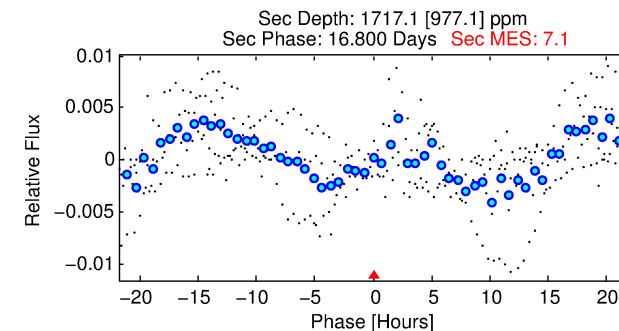
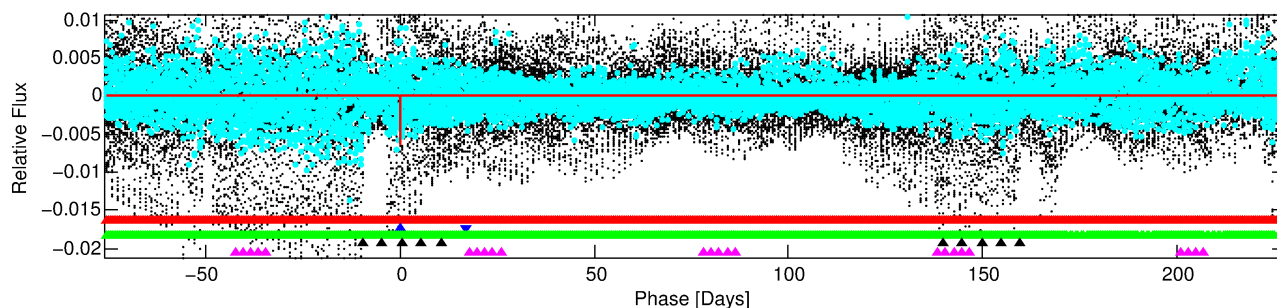
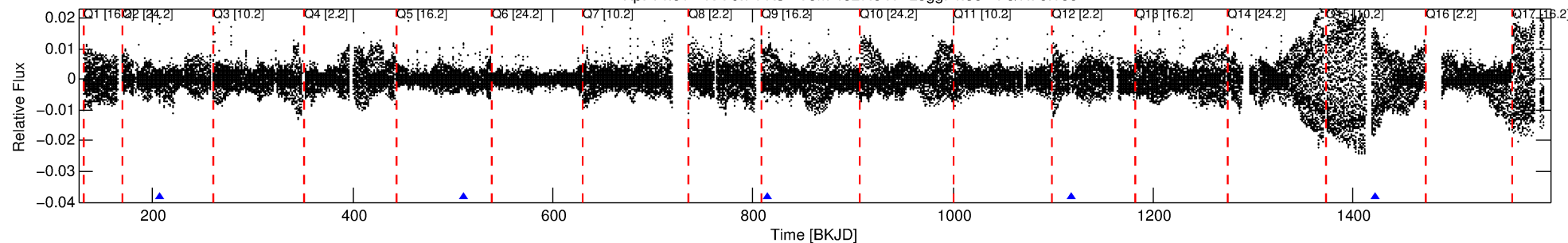
No Significant Match Found

DV One-Page Summary

KIC: 11706658 Candidate: 2 of 5 Period: 303.736 d

KOI: K07473 Corr: No Ephemeris Match

Kp: 14.61 R*: 0.74 Rs Teff: 4627.0 K Logg: 4.56 Fe/H: 0.160



DV Fit Results:

Period = 303.73640 [0.00270] d
Epoch = 207.0424 [0.0050] BKJD
Rp/R* = 0.0713 [0.0478]
a/R* = 628.90 [1193.93]
b = 0.42 [3.77]
Seff = 0.35 [0.06]
Teq = 197 [8] K
Rp = 5.77 [3.90] Re
a = 0.7978 [0.0583] AU
Ag = 18070.63 [26396.29] [0.68σ]
Teff = 3526 [1289] K [2.58σ]

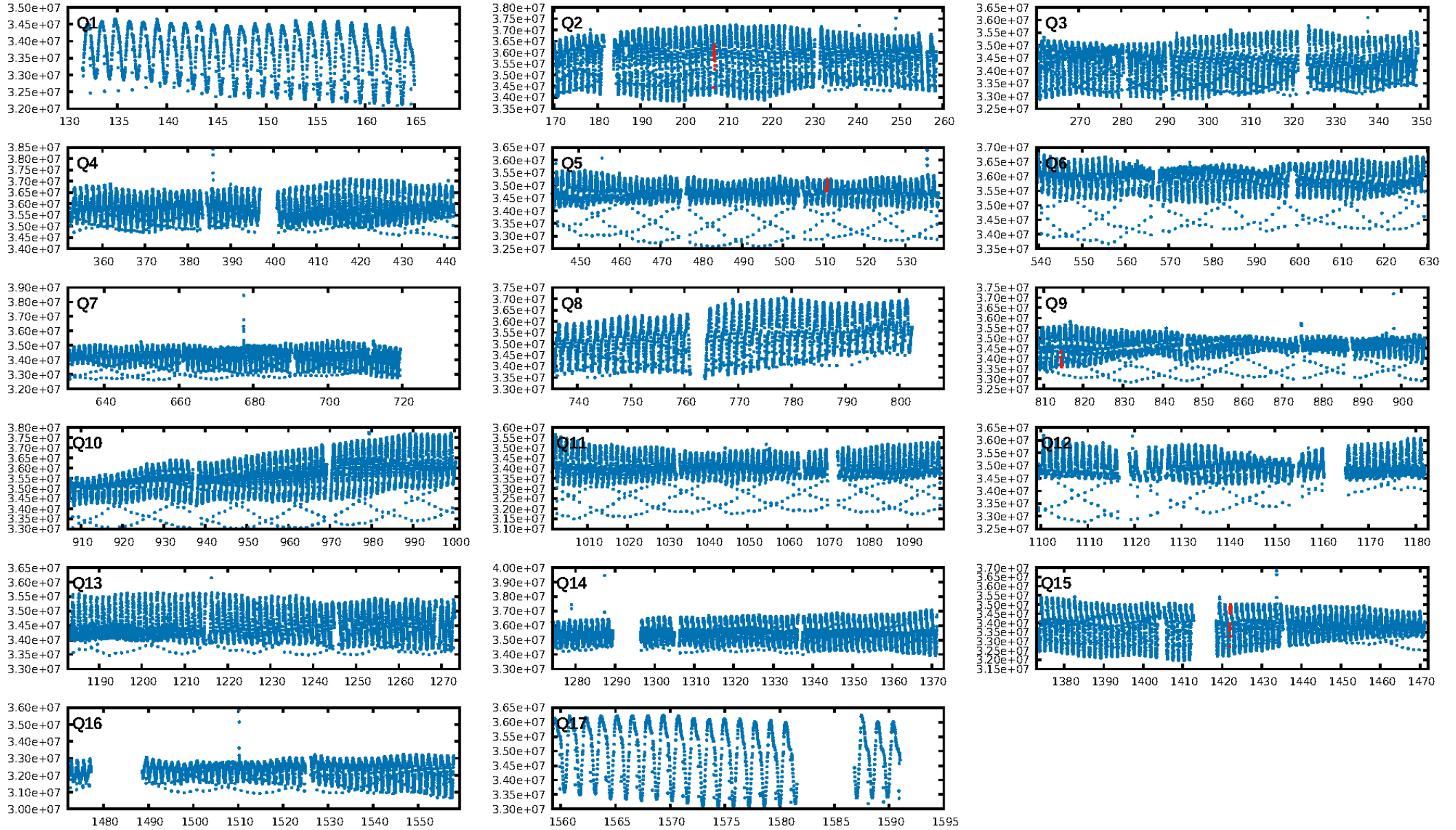
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [333.44σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.0%
ModelChiSquareGof-sig: 99.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.1012
Centroid-sig: 13.6%
Centroid-so: 0.777 arcsec [3.11σ]
OotOffset-rm: 0.096 arcsec [1.21σ]
KicOffset-rm: 0.435 arcsec [4.99σ]
OotOffset-st: 1/1/0/2 [4]
KicOffset-st: 1/1/0/2 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.00 [0/4]

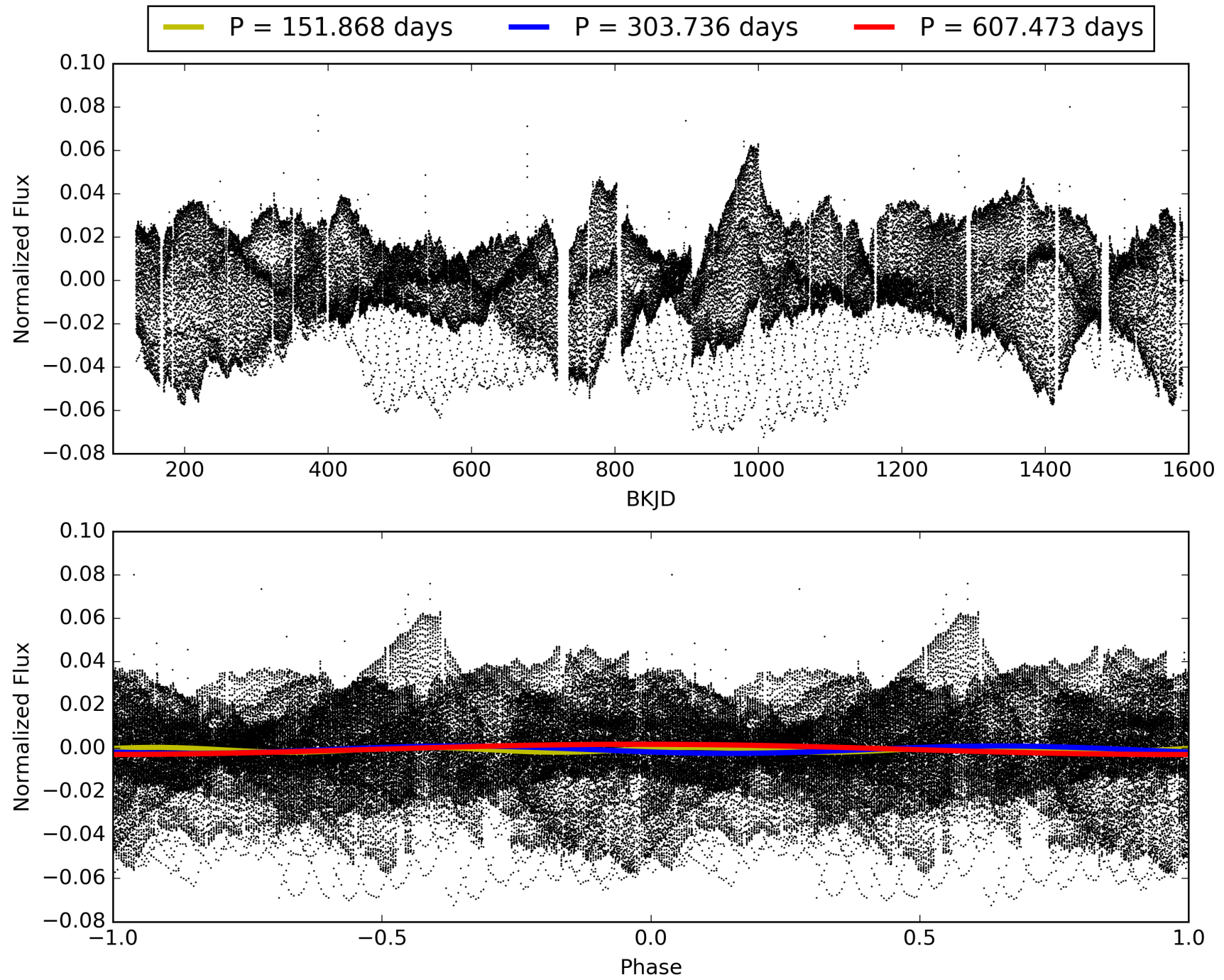
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 011706658-02, PDC Light Curves

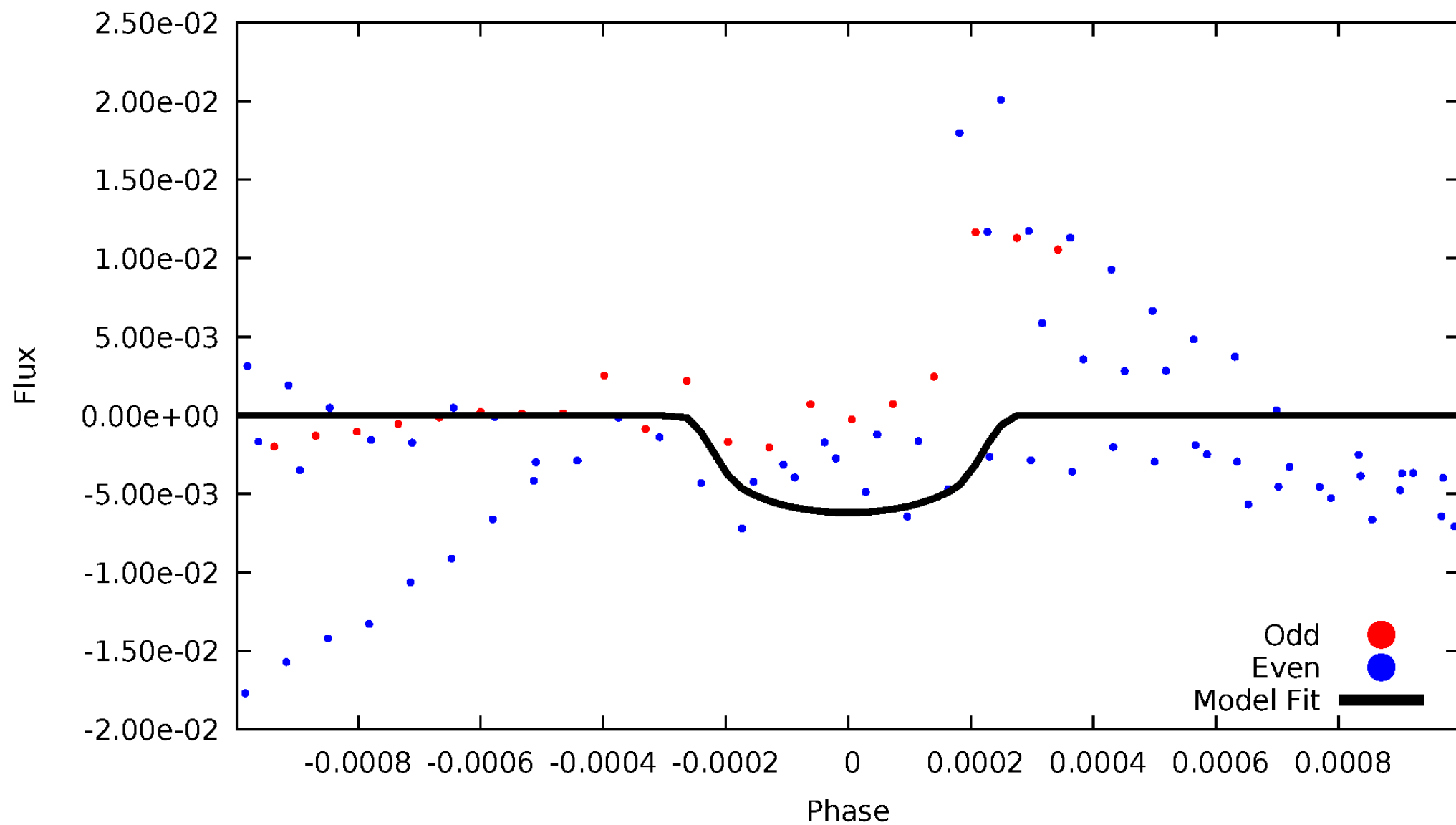


TCE 011706658-02



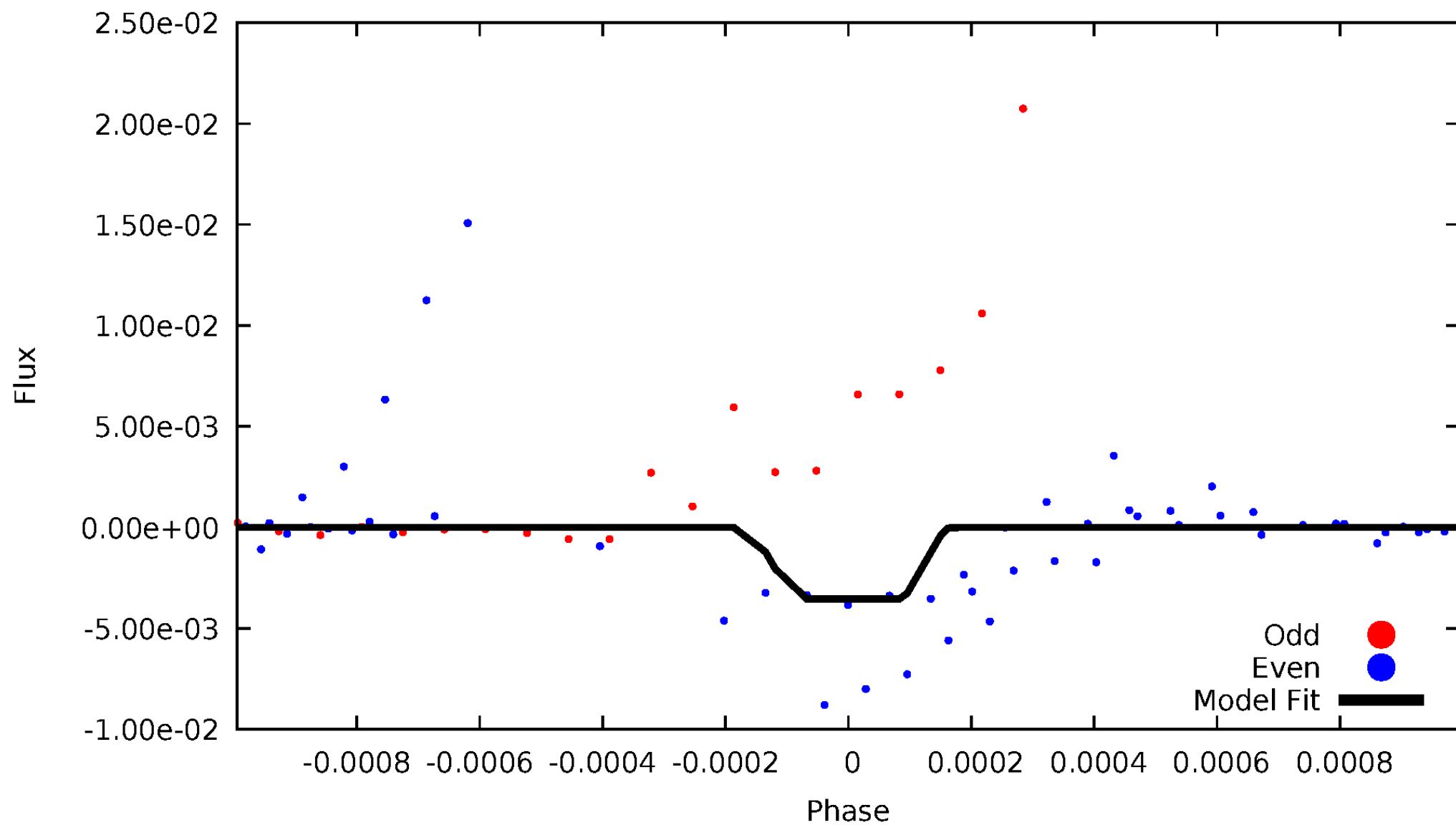
DV Odd/Even

TCE 011706658-02



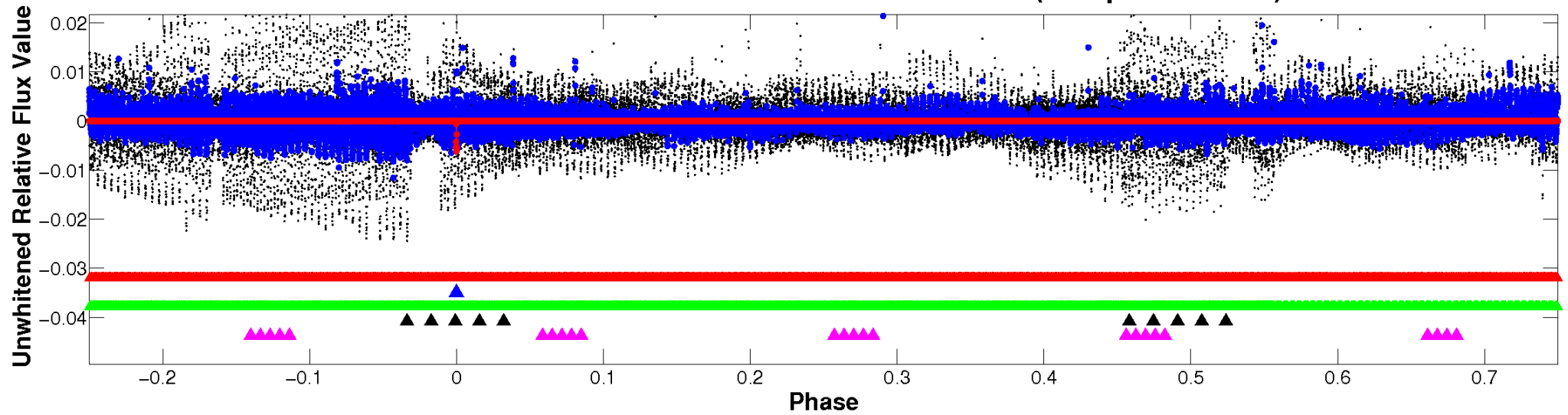
ALT Odd/Even

TCE 011706658-02

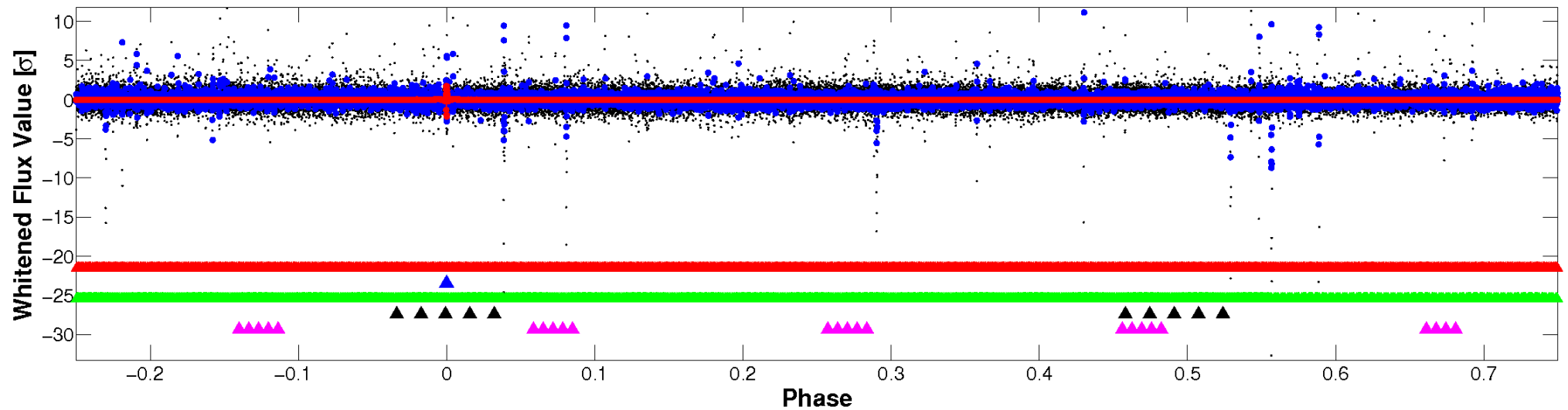


Non-Whitened Vs. Whitened Light Curve

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

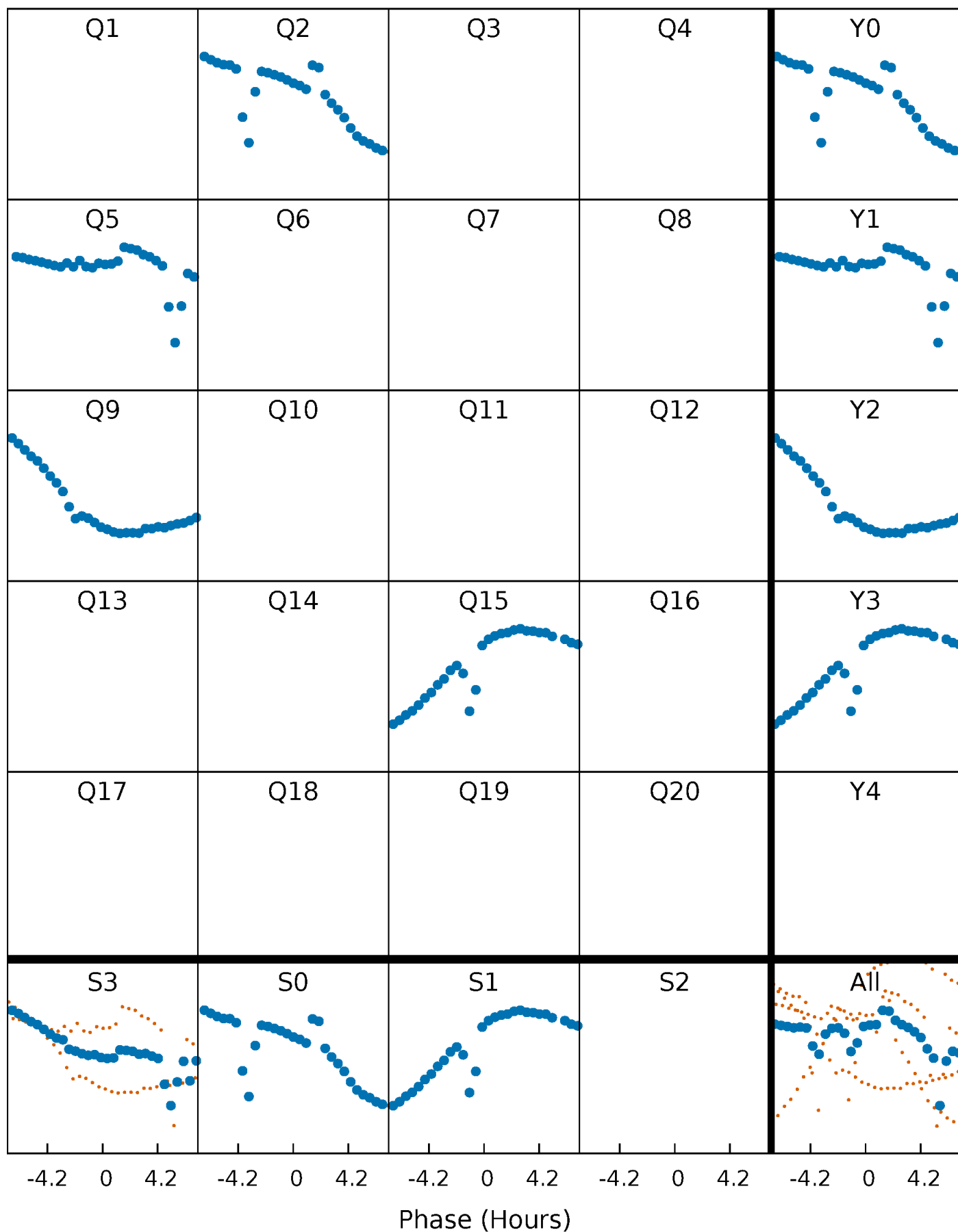


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



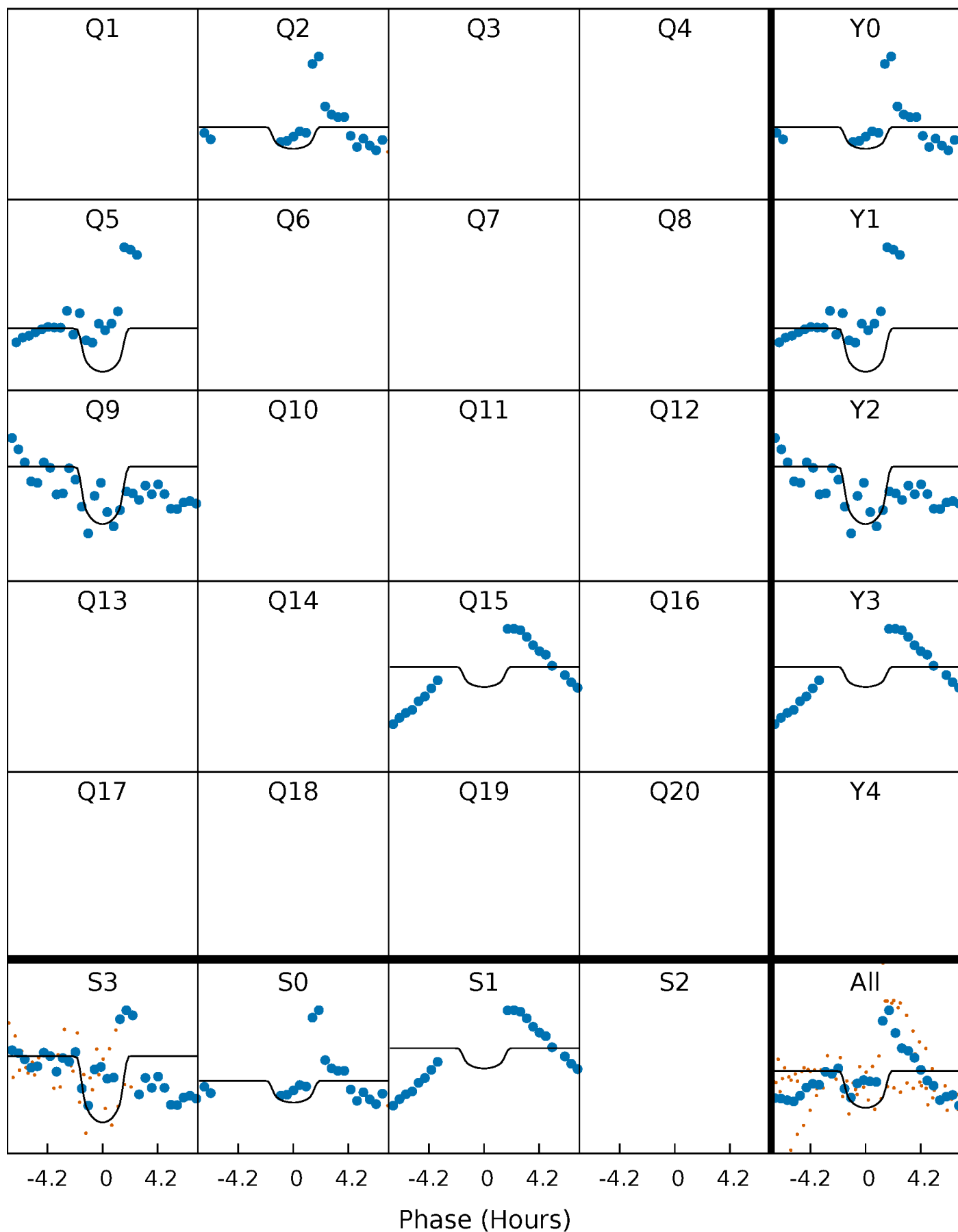
PDC Quarter-Phased Transit Curves

TCE 011706658-02 P=303.736398 Days $T_0=207.042394$ (BKJD)



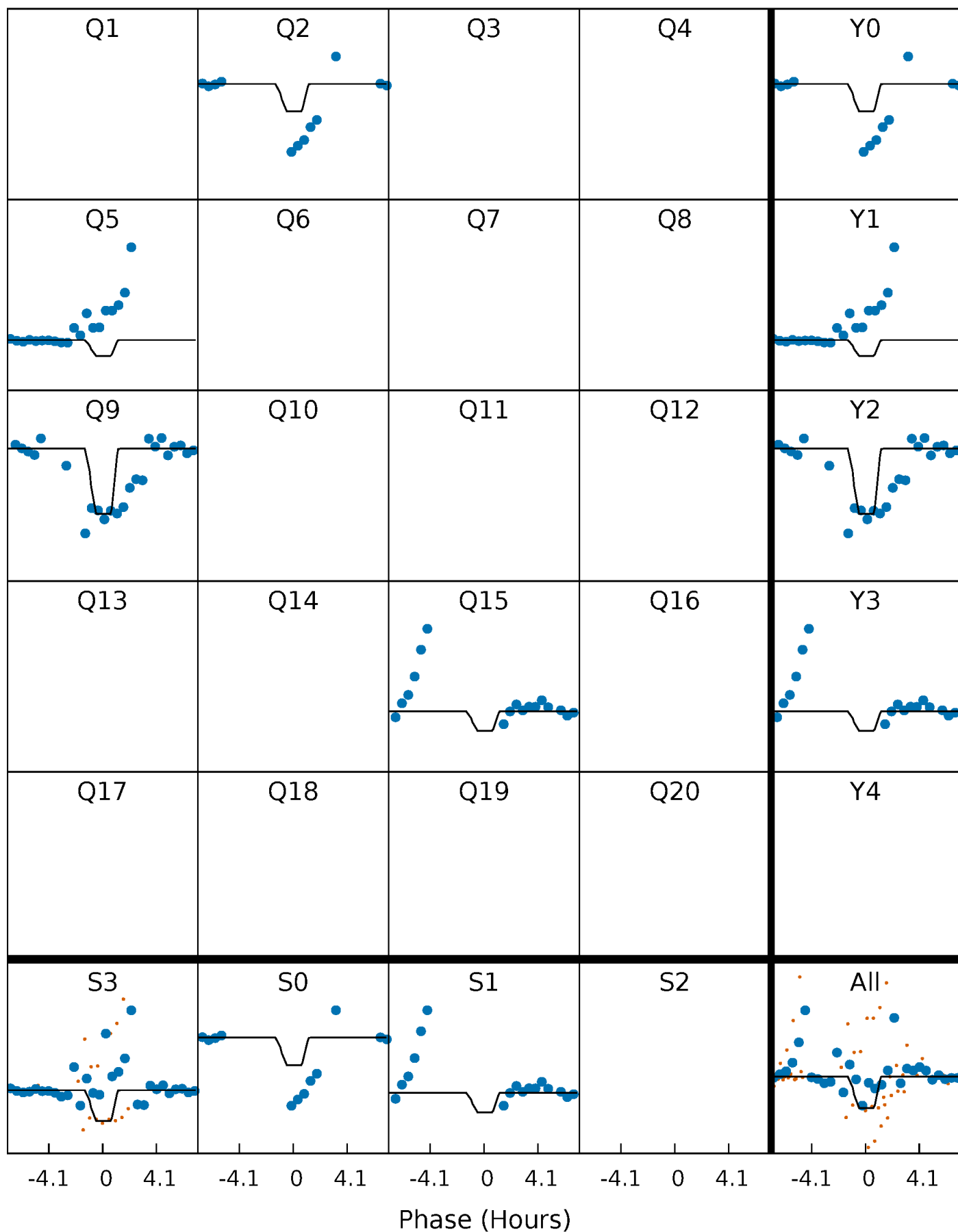
DV Quarter-Phased Transit Curves

TCE 011706658-02 P=303.736398 Days $T_0=207.042394$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

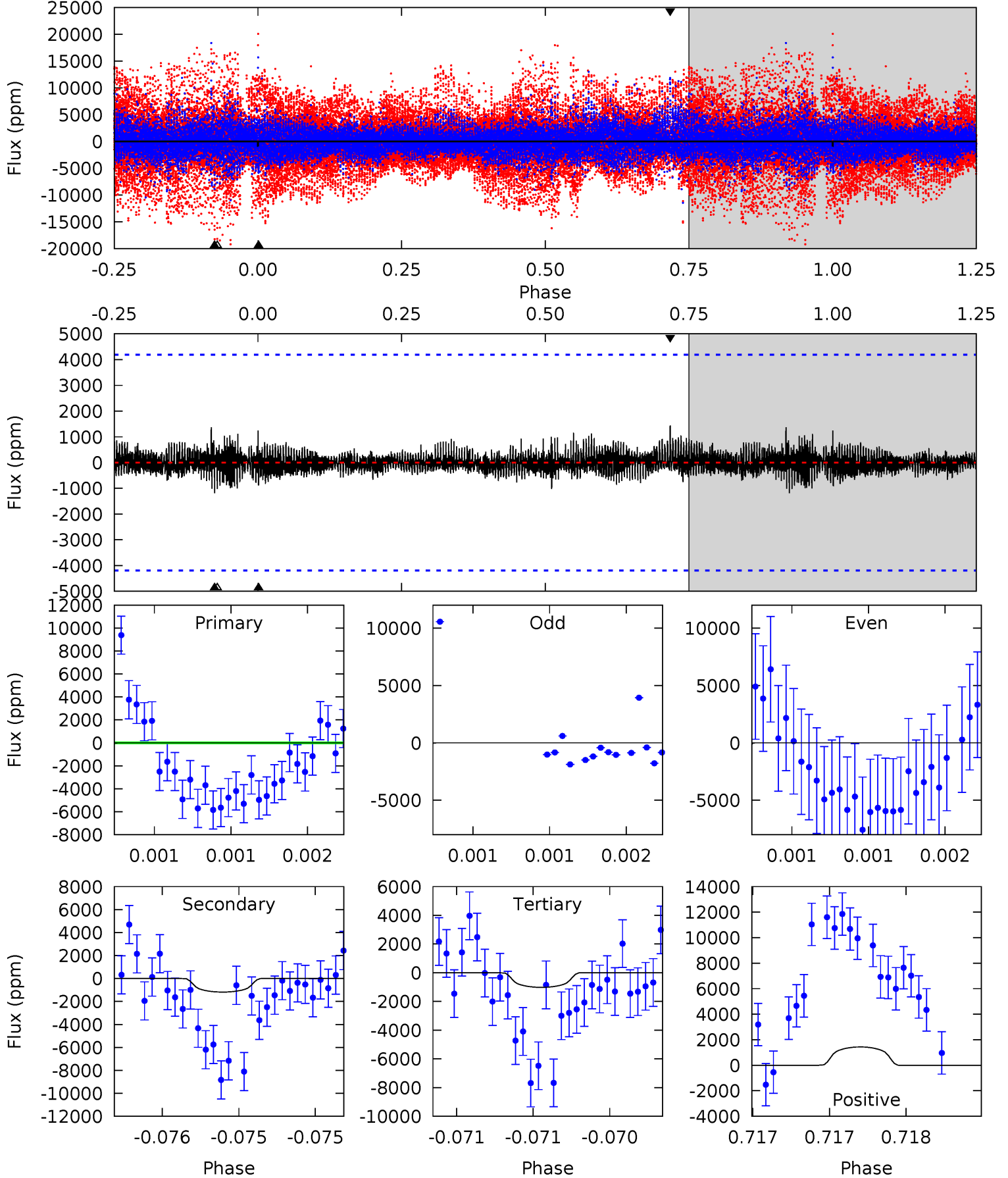
TCE 011706658-02 P=303.748172 Days $T_0=207.007198$ (BKJD)



DV Model-Shift Uniqueness Test

011706658-02, P = 303.736398 Days, E = 207.042394 Days

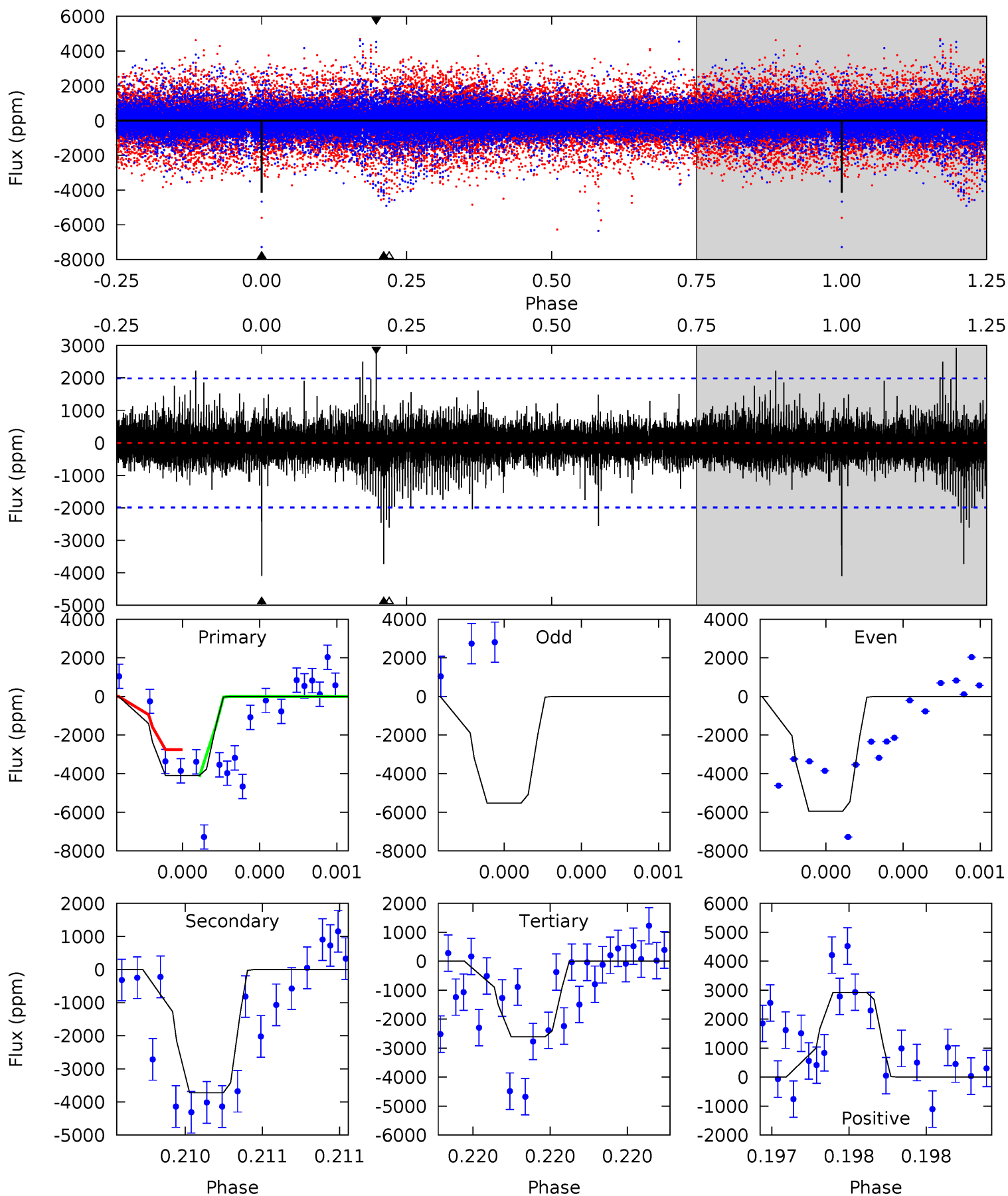
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.18	1.57	1.35	1.90	5.55	3.45	0.39	-0.17	-0.72	0.22	-0.33	1.32	-2.48	0.55	1.74



Alt Model-Shift Uniqueness Test

011706658-02, P = 303.748172 Days, E = 207.007198 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	10.6	7.44	8.33	5.66	3.61	1.11	4.23	3.35	3.16	2.28	0.56	0.56	0.42	1.83



Stellar Parameters For KIC 011706658

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4627^{+140}_{-140}	$4.564^{+0.060}_{-0.024}$	$0.160^{+0.250}_{-0.300}$	$0.741^{+0.036}_{-0.063}$	$0.734^{+0.054}_{-0.054}$	$2.541^{+0.641}_{-0.233}$
	+3%/-3%	+1%/-1%	+156%/-188%	+5%/-9%	+7%/-7%	+25%/-9%
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 011706658-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1184 ± 755	$6.09^{+3.75}_{-3.43}$	273^{+9}_{-9}	3414^{+1112}_{-627}	9585^{+39994}_{-7301}
Alt.	-3722 ± 351	$5.55^{+3.32}_{-3.18}$	273^{+10}_{-9}	4418^{+2091}_{-713}	$43907^{+201518}_{-26968}$

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 $A_{obs} \gg 1.0$

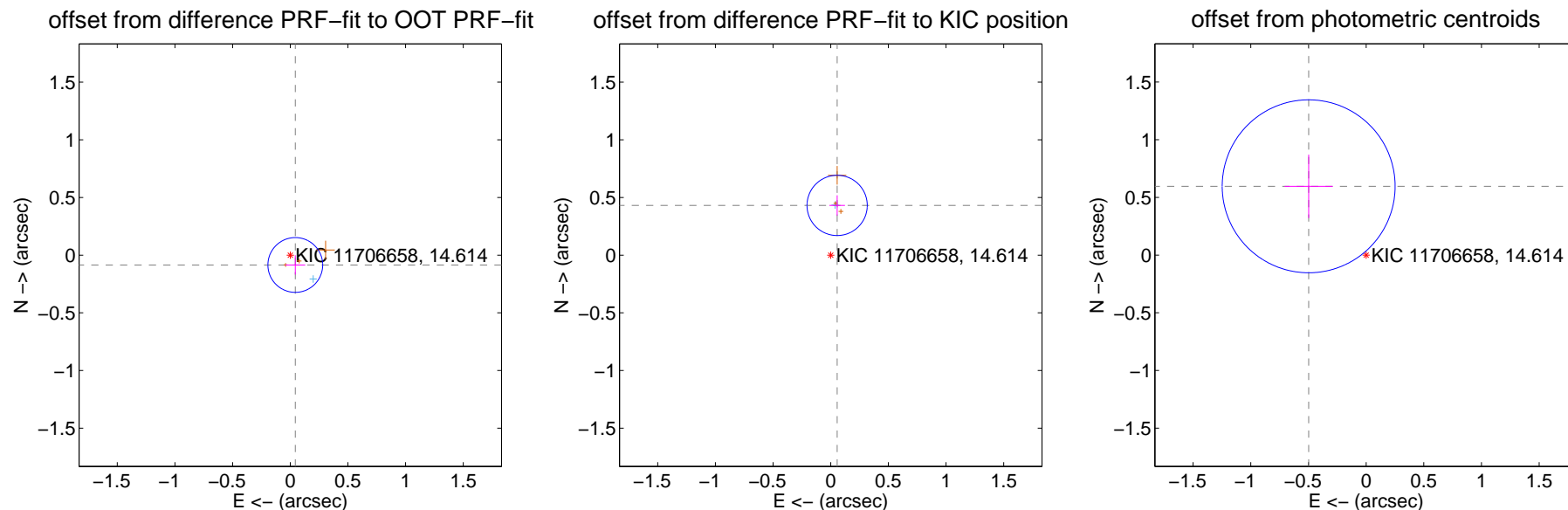
DV Centroid Data

Supplemental centroid analysis for 011706658-02. Kepler magnitude: 14.61. Transit SNR 8.78

There are 1 quarters with good PRF difference image offsets

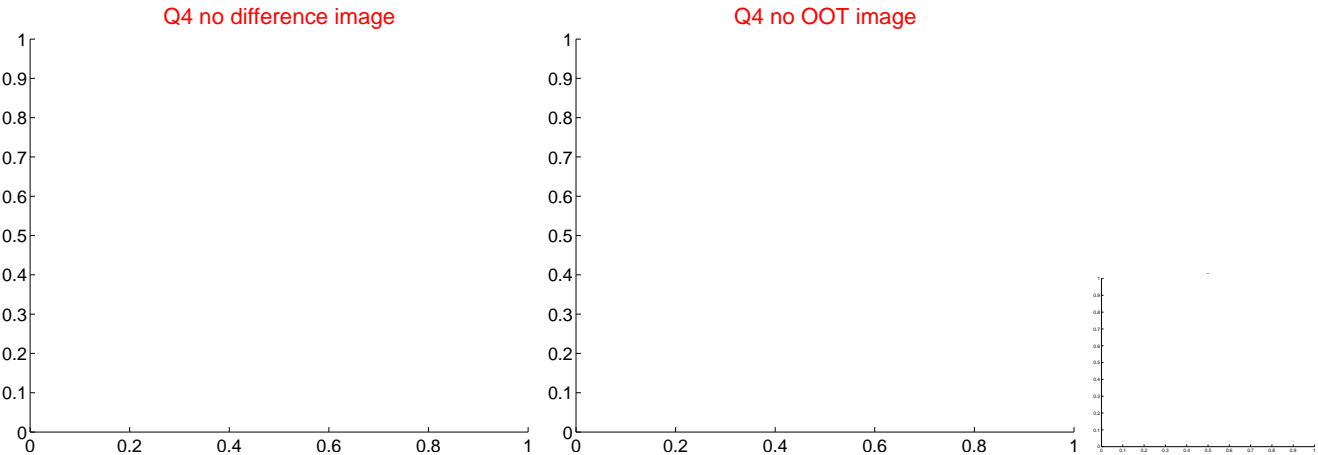
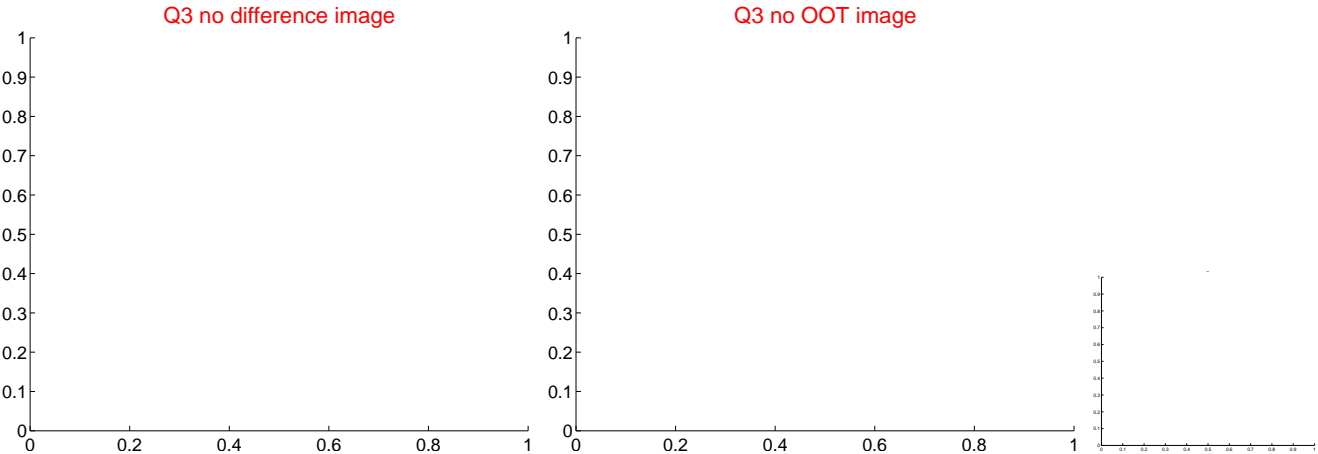
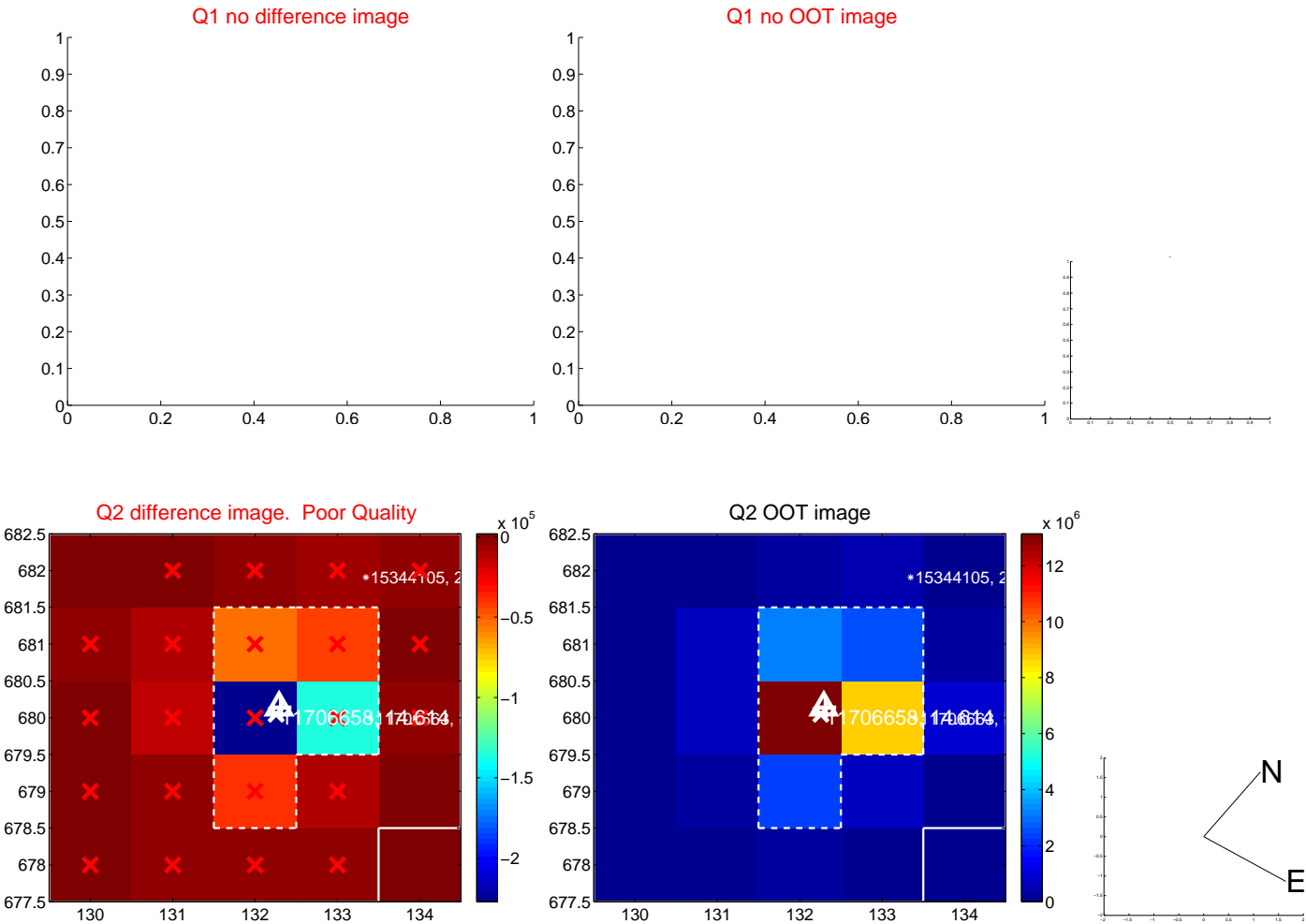
The direct PRF centroid is offset from the target star catalog position by about 0.54 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.096 ± 0.079	1.21	-0.044 ± 0.086	-0.085 ± 0.083
PRF-fit source offset from KIC position	0.435 ± 0.087	4.99	-0.056 ± 0.068	0.431 ± 0.087
photometric centroid source offset	0.78 ± 0.25	3.11	0.50 ± 0.21	0.60 ± 0.27

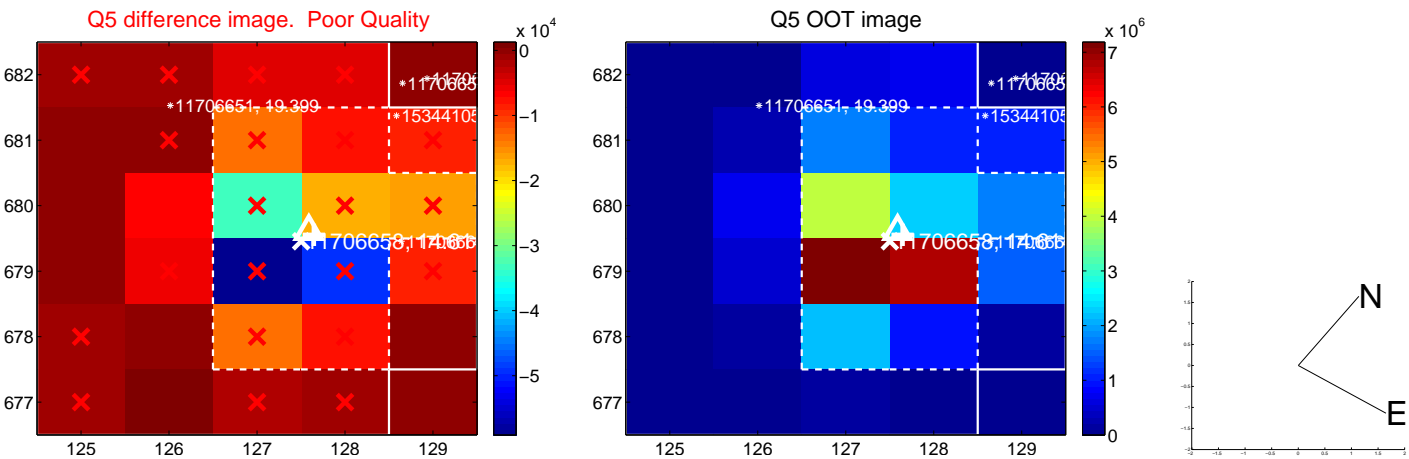


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

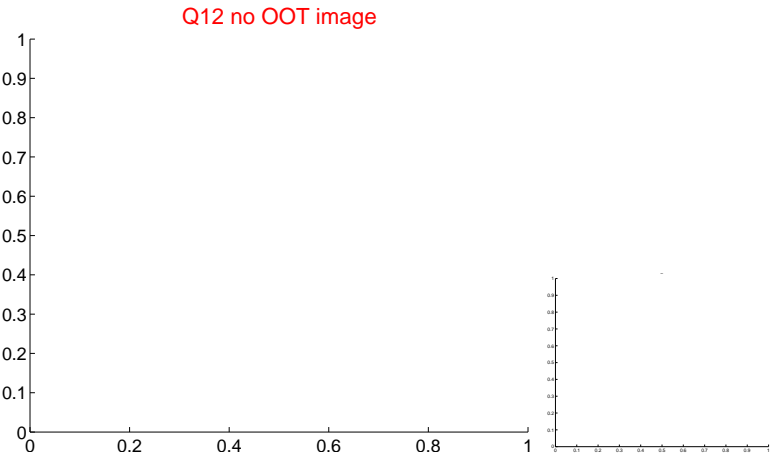
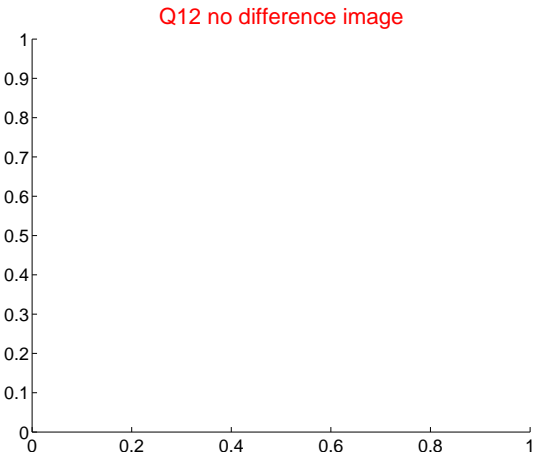
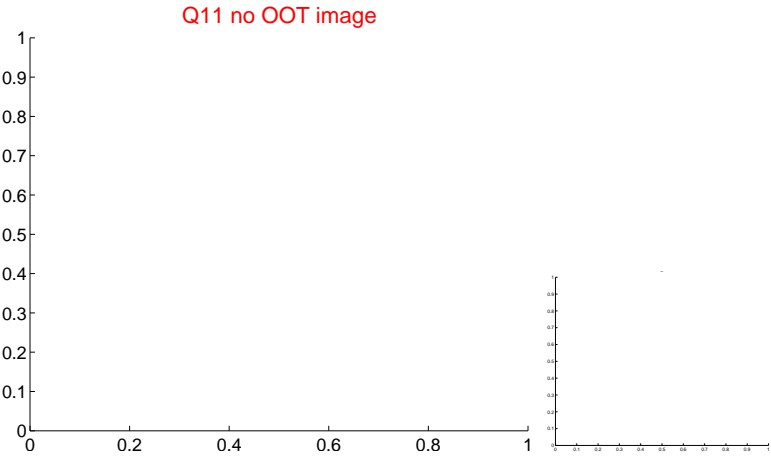
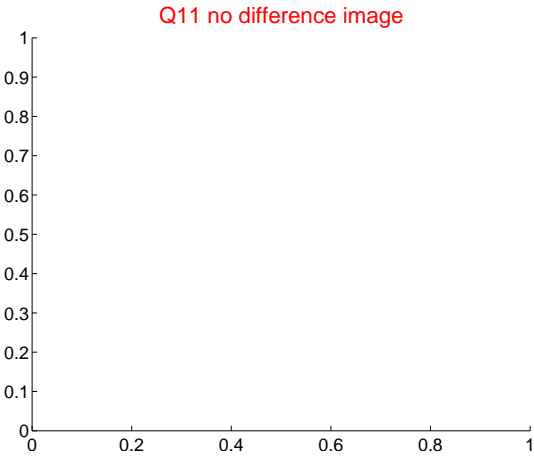
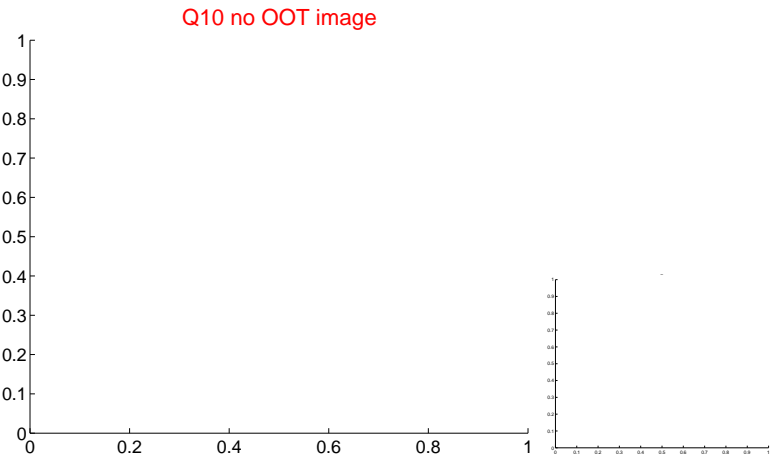
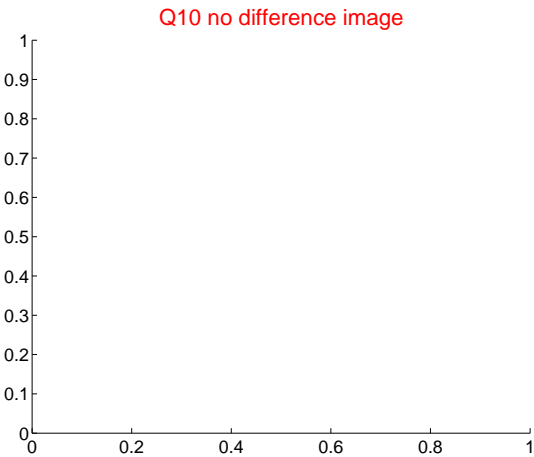
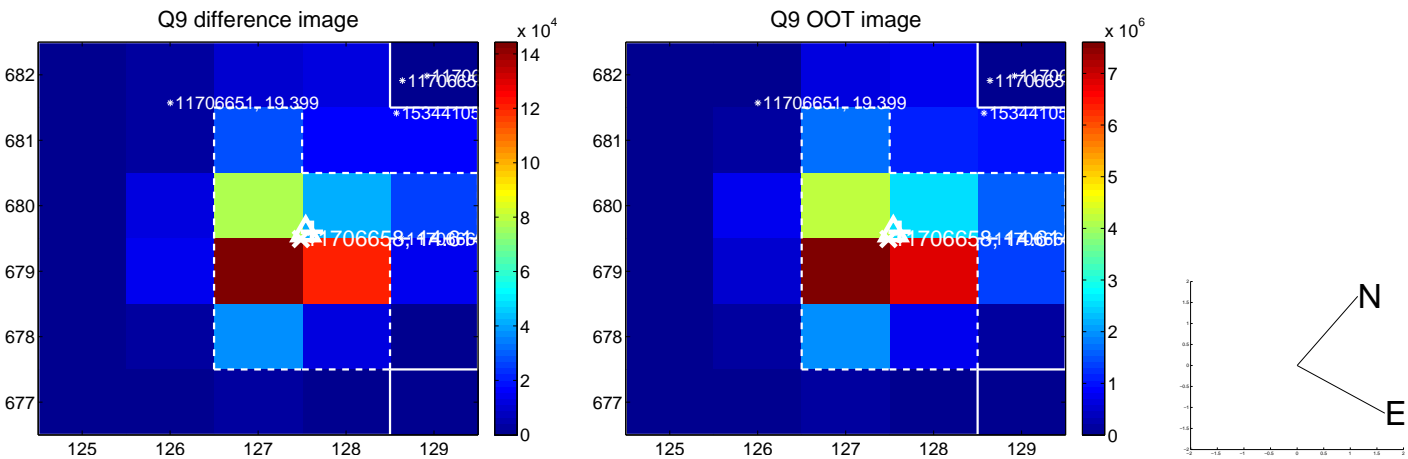
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



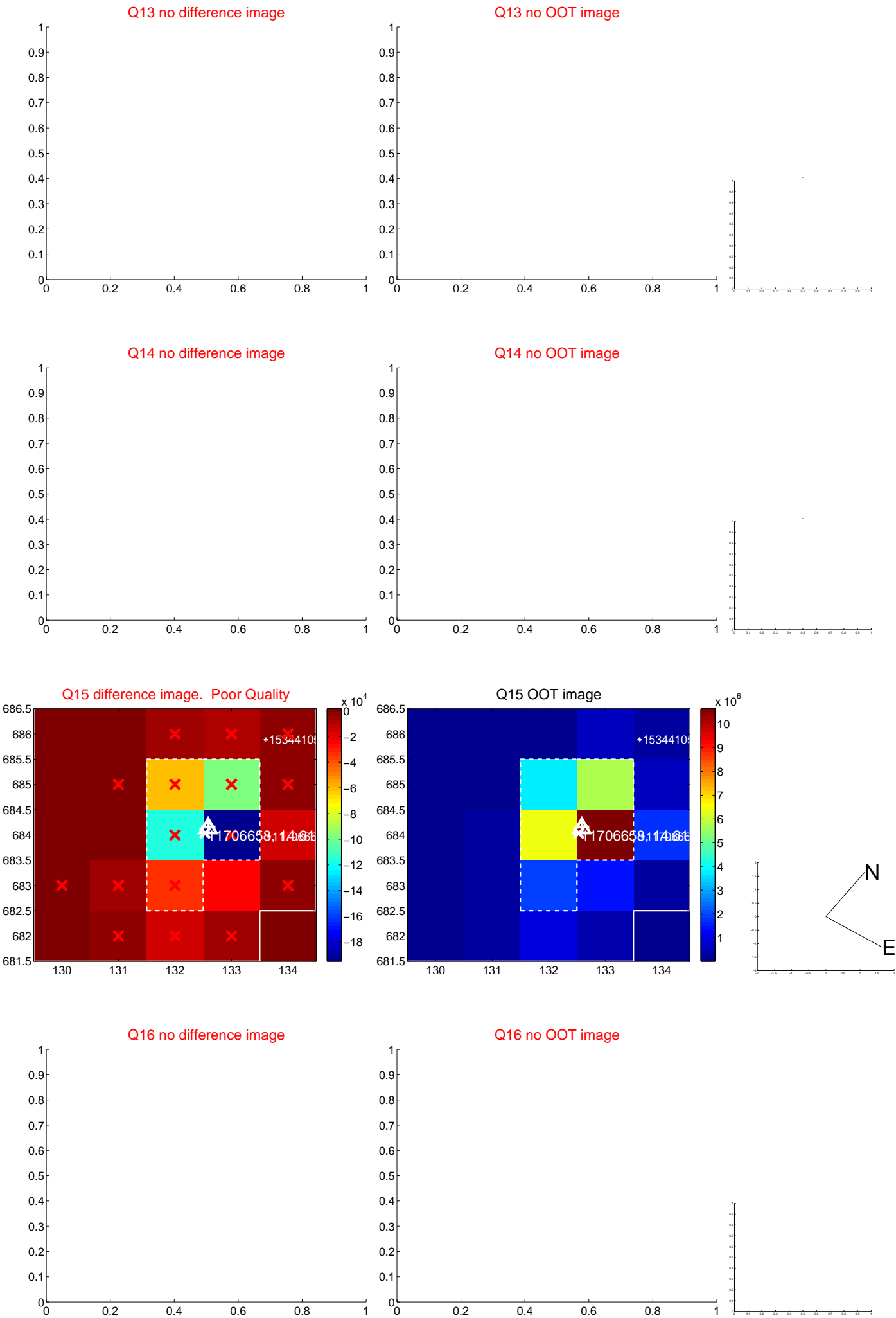
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



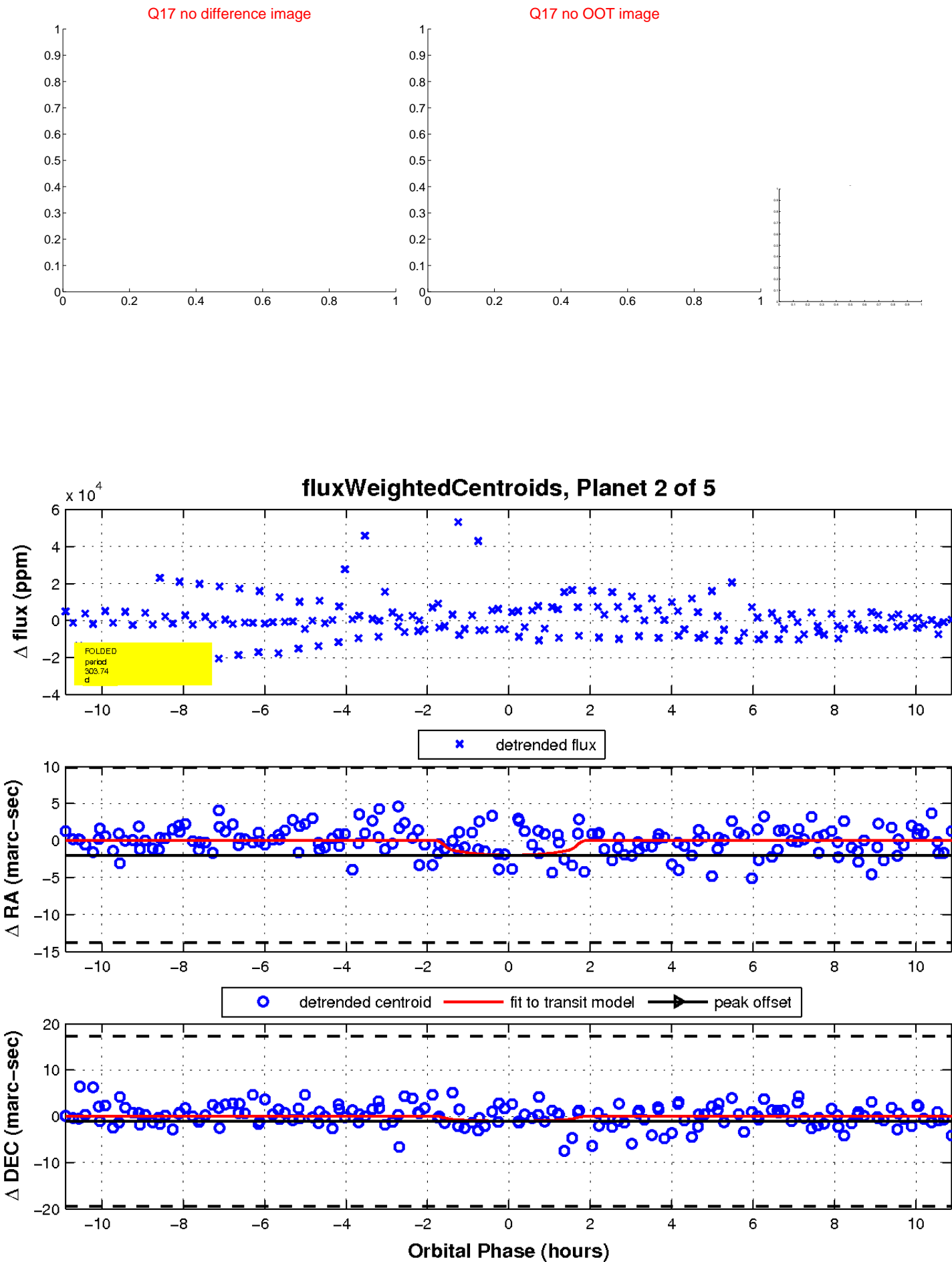
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

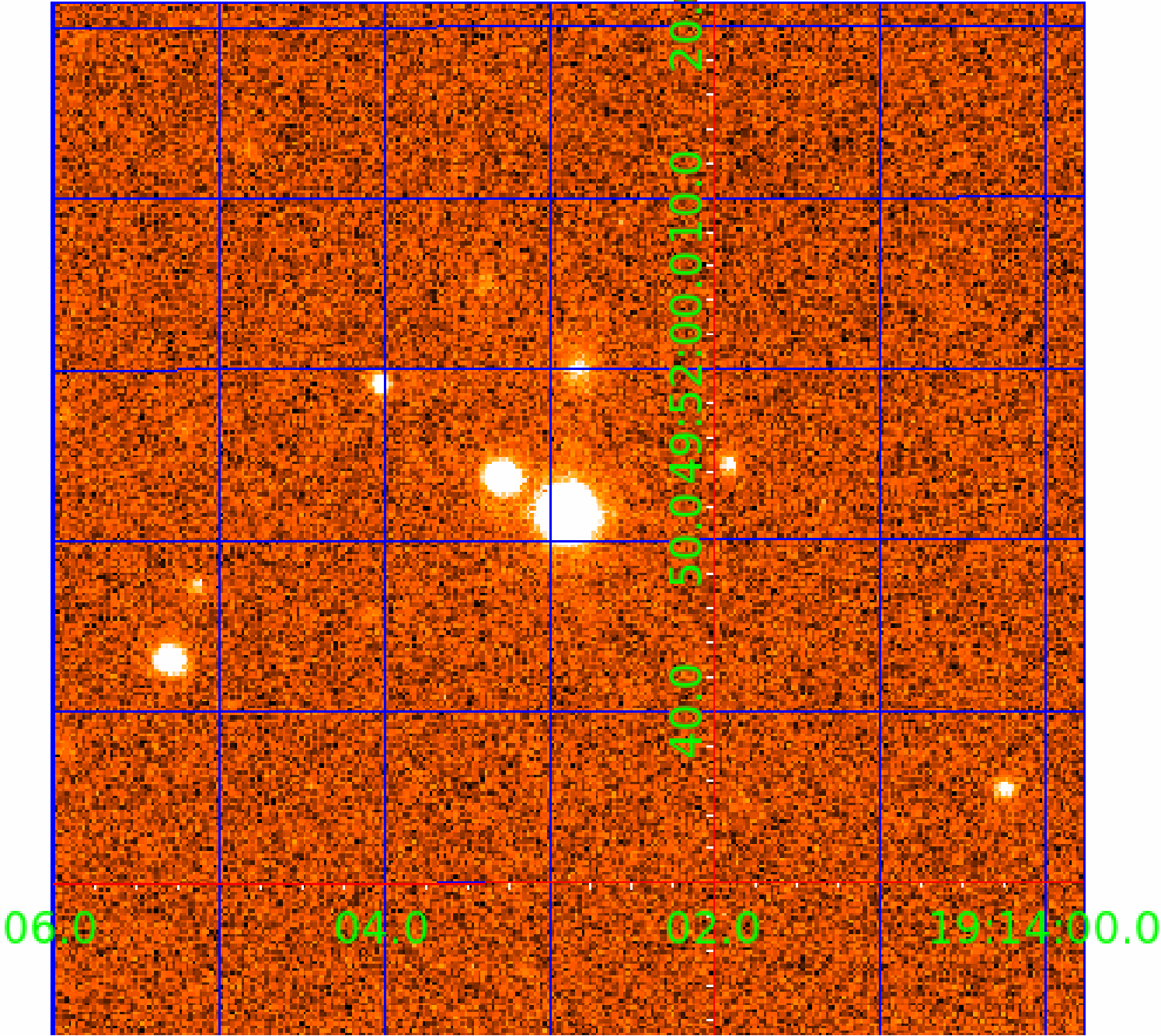


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011706658

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})
011706658-01	OBS	7473.01	1.407938	132.267244	15050.5	1.500	248.6	-1.0	0.74	4627	8.76	458.35
011706658-02	OBS	No	303.736398	207.042394	6209.1	3.633	14.3	8.8	0.74	4627	5.77	0.35
011706658-03	OBS	No	1.407419	131.821475	225.6	8.995	8.8	4.5	0.74	4627	1.44	458.57
011706658-05	OBS	No	60.347609	172.500834	1759.3	4.104	17.6	3.0	0.74	4627	3.46	3.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011706658-01	OBS	FP	0.05	0	1	0	0	SWEET_EB—MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
011706658-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011706658-03	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
011706658-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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.

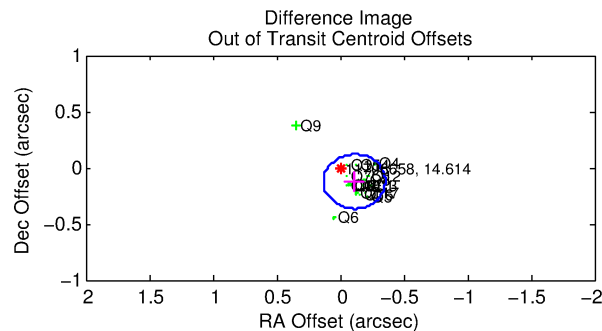
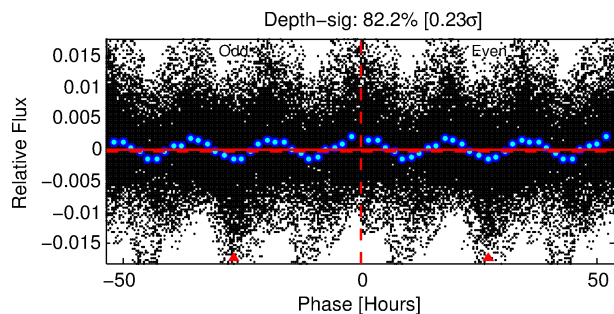
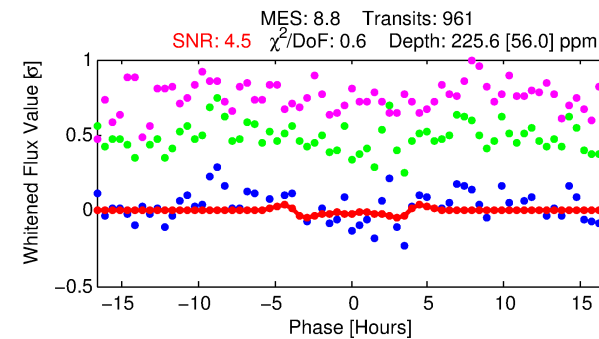
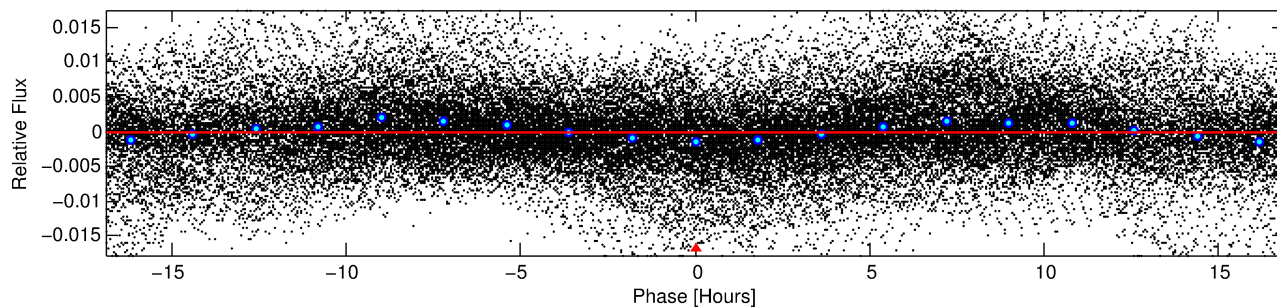
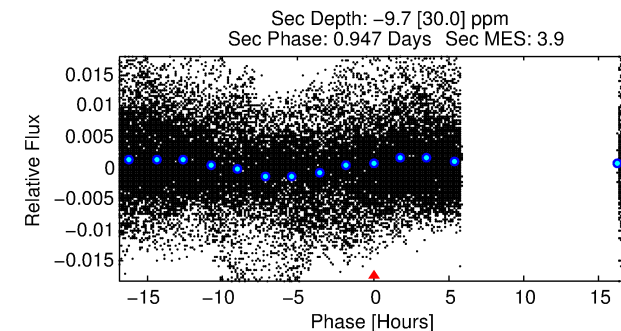
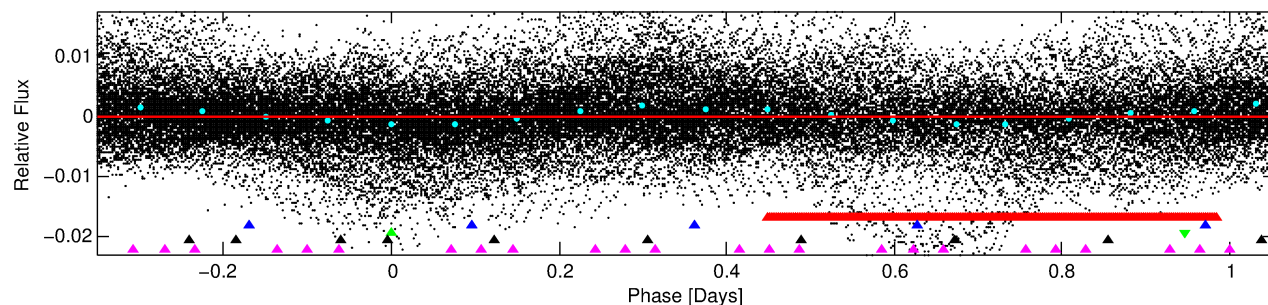
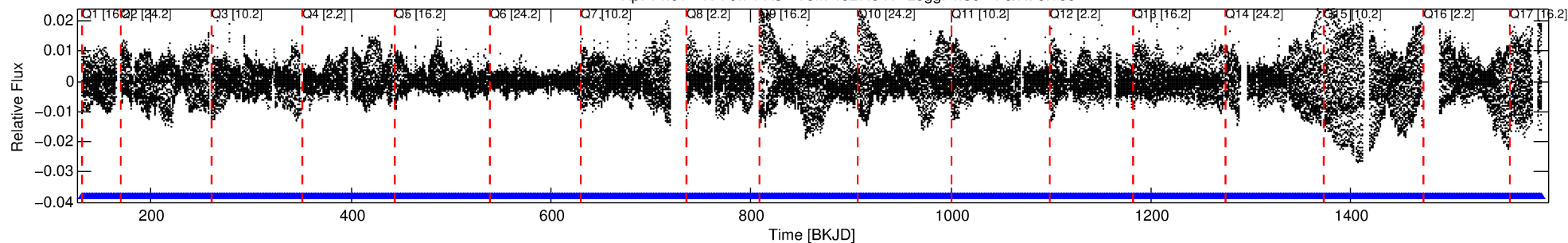
Ephemeris Match Information For 011706658-03

No Significant Match Found

DV One-Page Summary

KIC: 11706658 Candidate: 3 of 5 Period: 1.407 d
KOI: K07473 Corr: No Ephemeris Match

Kp: 14.61 R*: 0.74 Rs Teff: 4627.0 K Logg: 4.56 Fe/H: 0.160



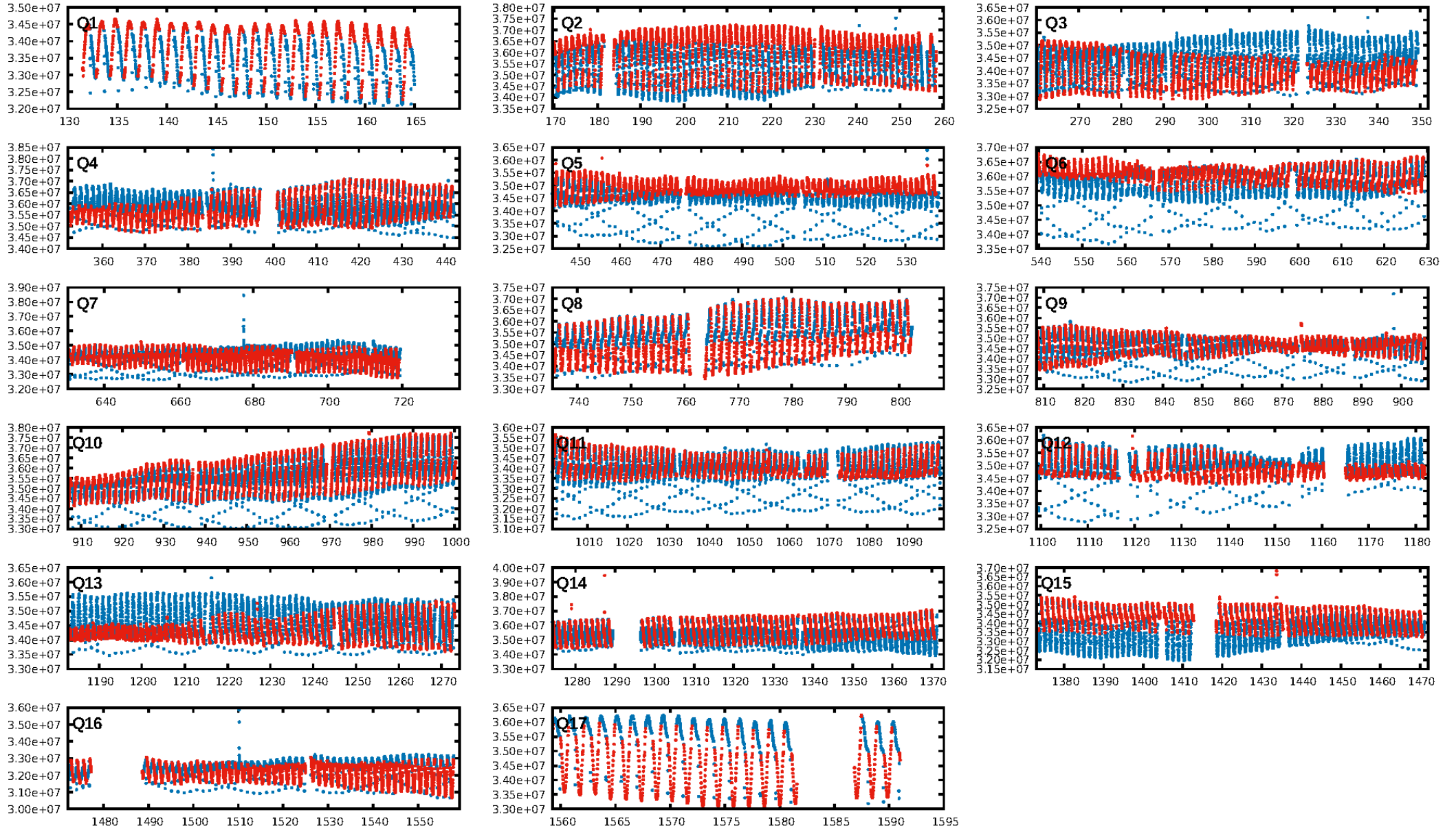
DV Fit Results:

Period = 1.40742 [0.00002] d
Epoch = 131.8215 [0.0054] BKJD
Rp/R* = 0.0178 [0.0024]
a/R* = 1.08 [0.03]
b = 0.93 [0.03]
Seff = 458.57 [74.43]
Teq = 1180 [48] K
Rp = 1.44 [0.23] Re
a = 0.0222 [0.0016] AU
Ag = N/A
Teffp = N/A

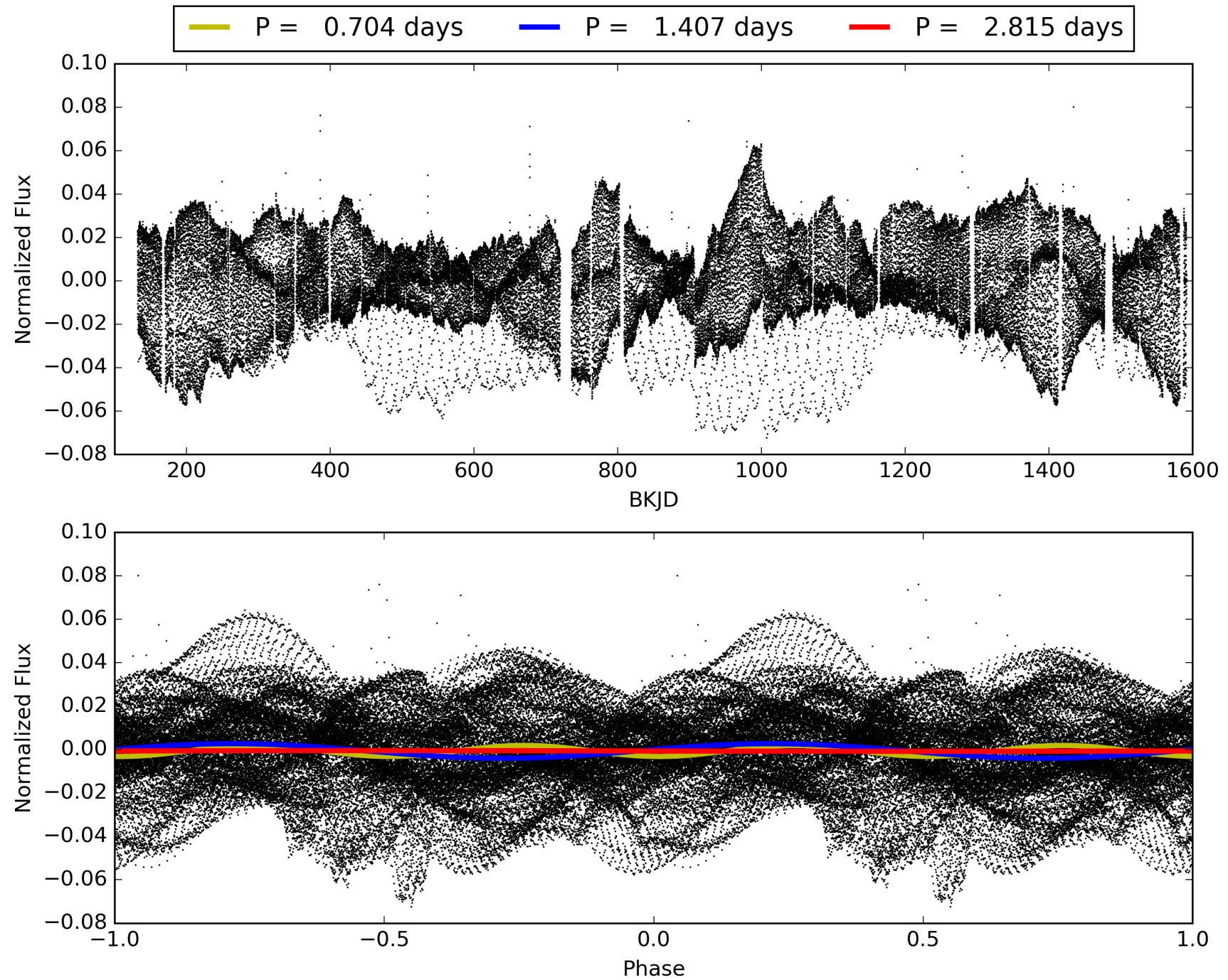
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [918/918]
GhostDiagnostic-chr: 1.873
Centroid-sig: 30.0%
Centroid-so: 0.732 arcsec [2.54σ]
OotOffset-rm: 0.167 arcsec [2.06σ]
KicOffset-rm: 0.406 arcsec [5.12σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.53 [9/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 011706658-03, PDC Light Curves

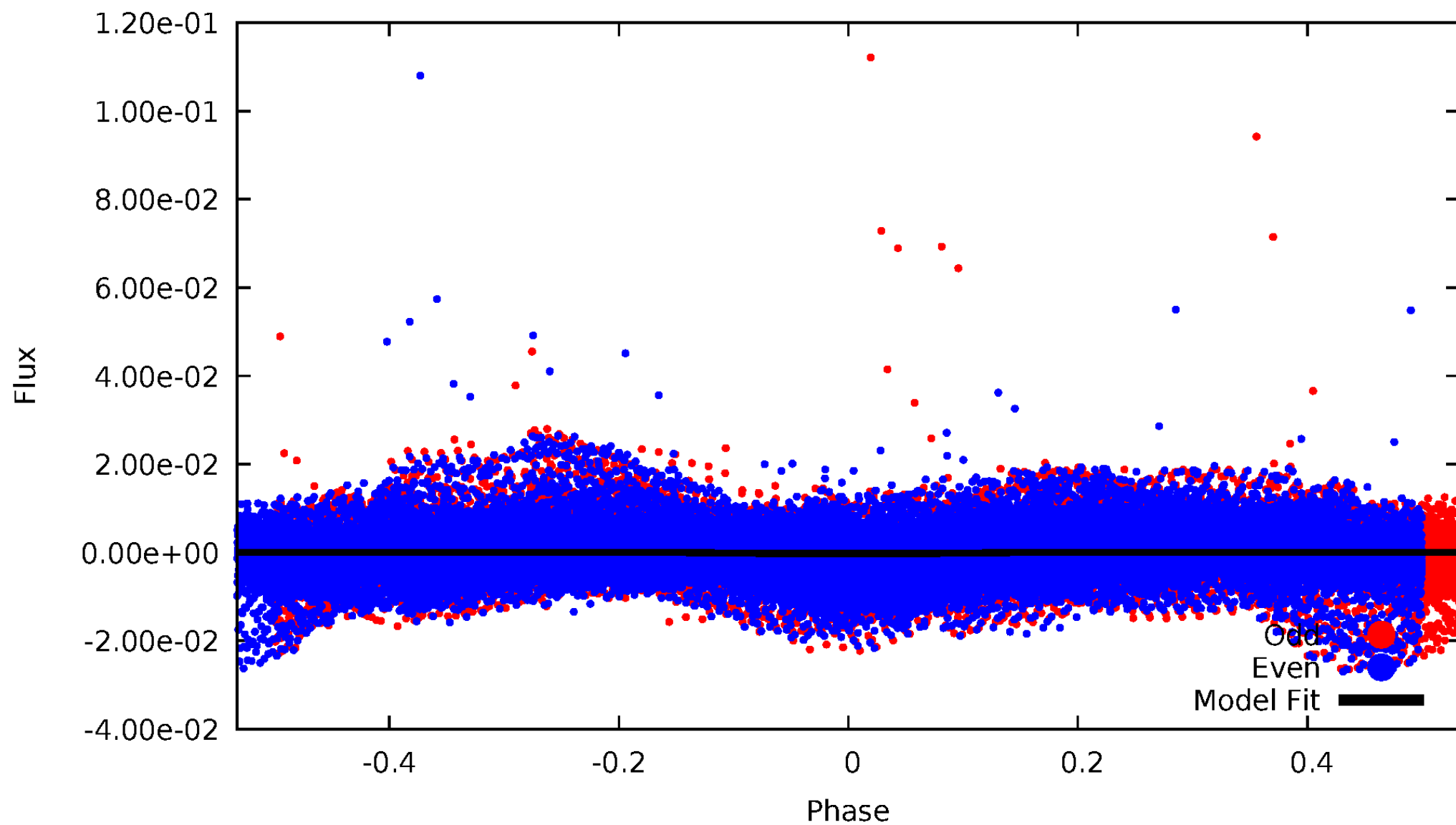


TCE 011706658-03



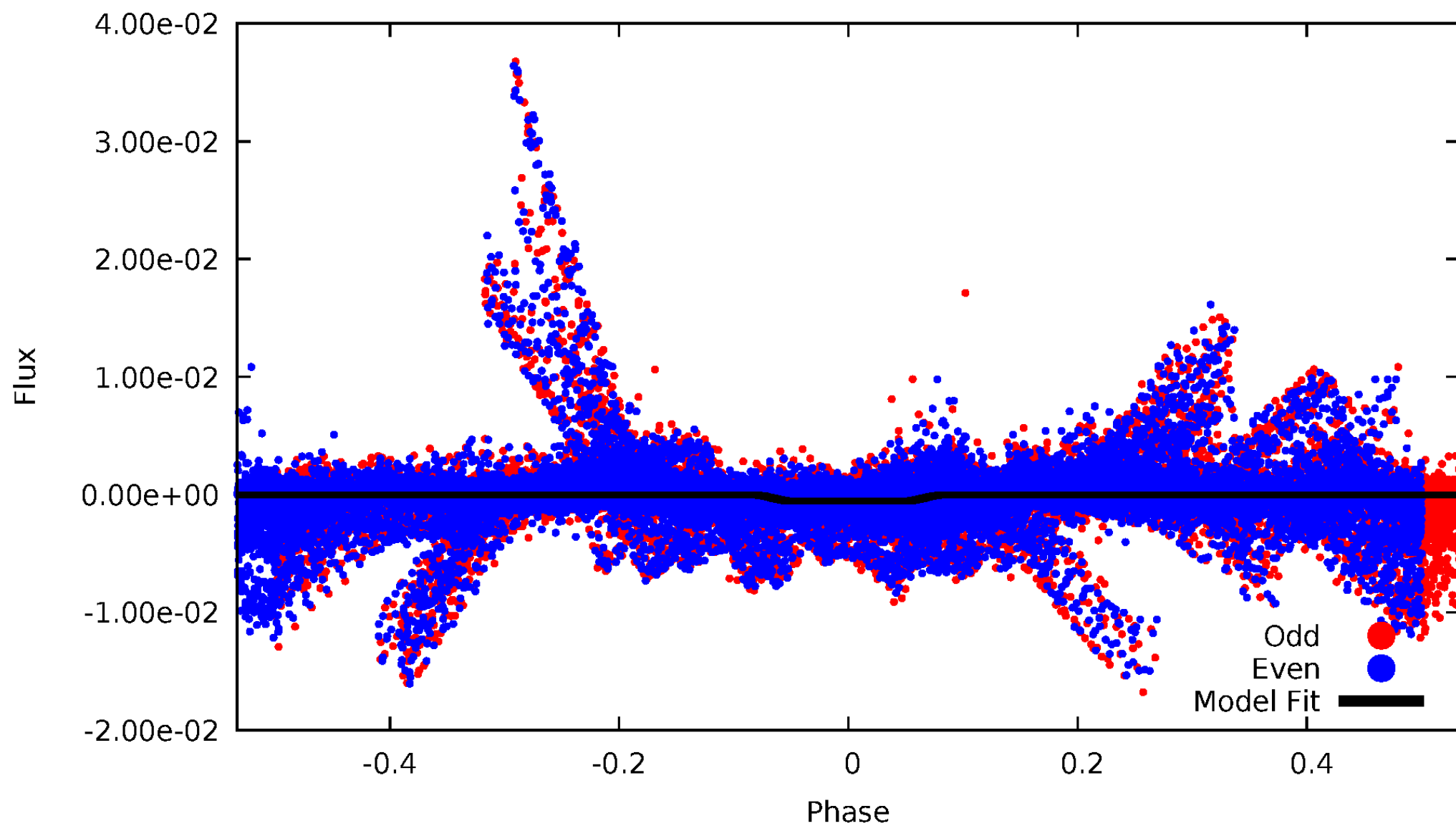
DV Odd/Even

TCE 011706658-03



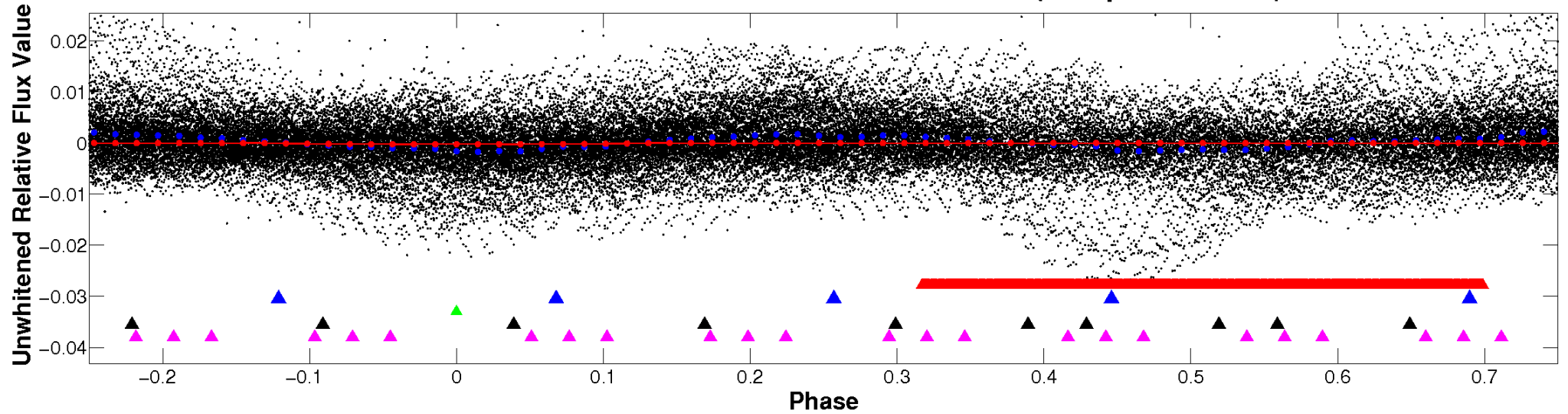
ALT Odd/Even

TCE 011706658-03

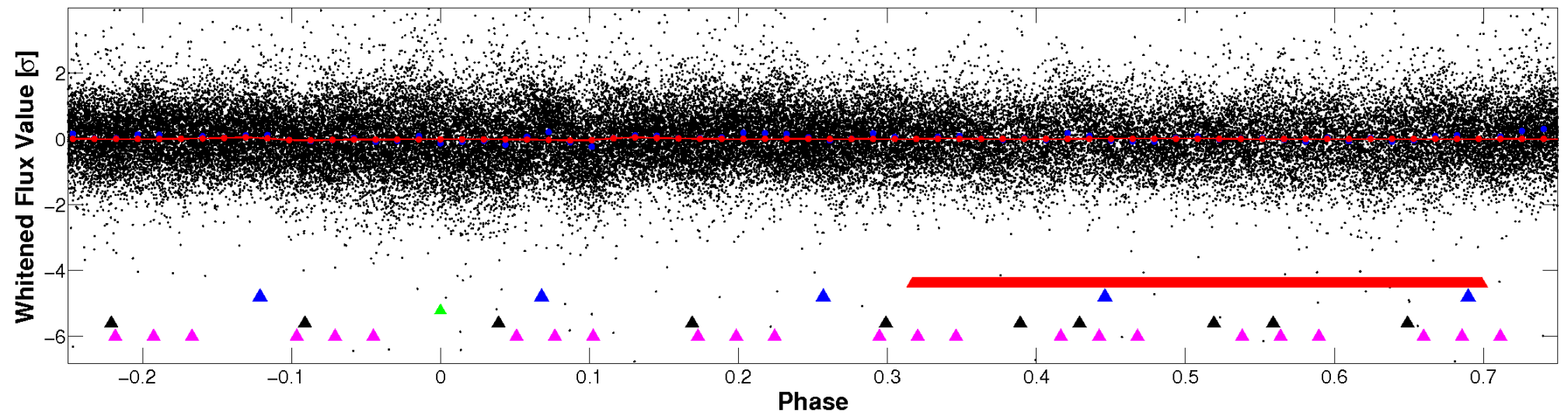


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

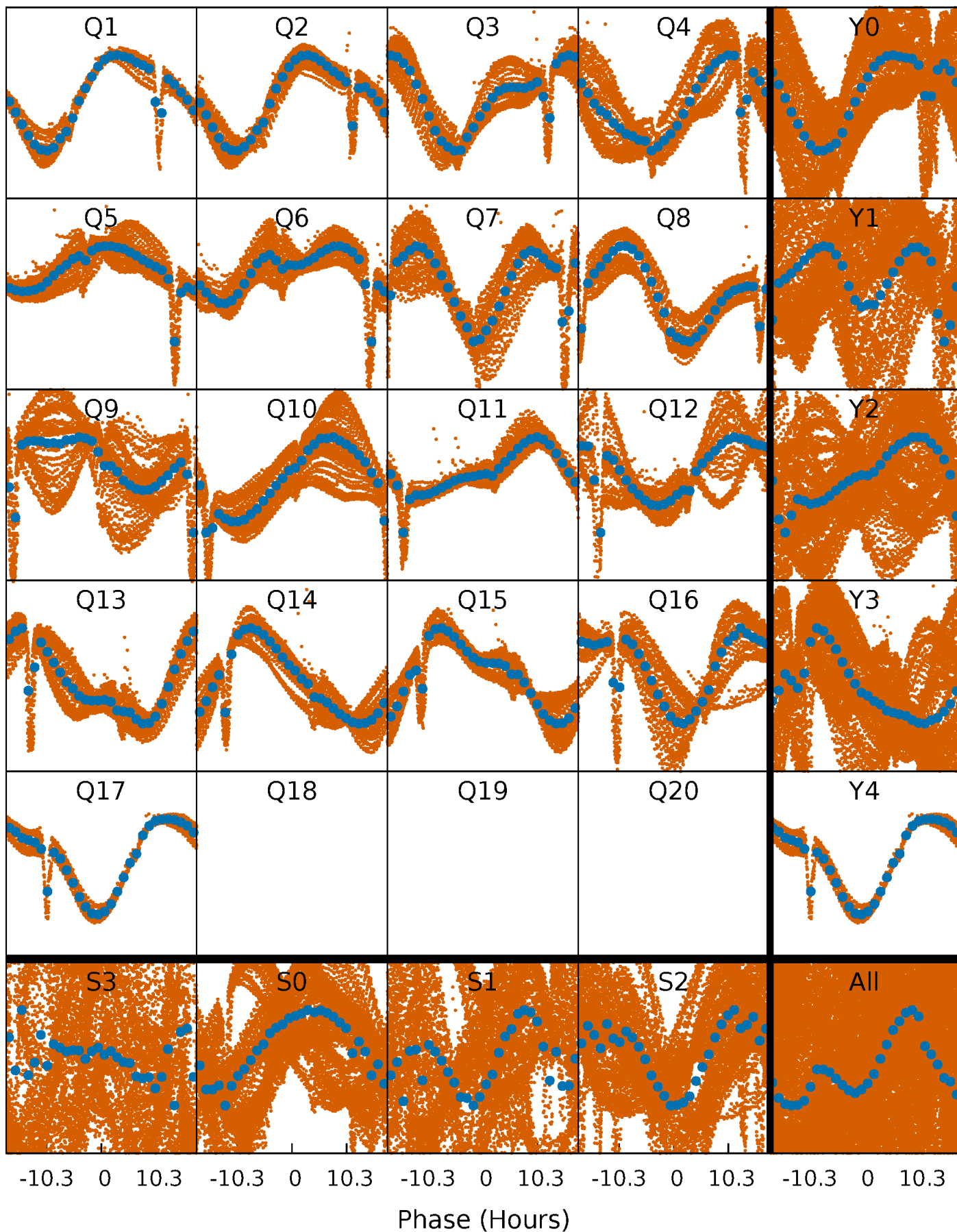


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



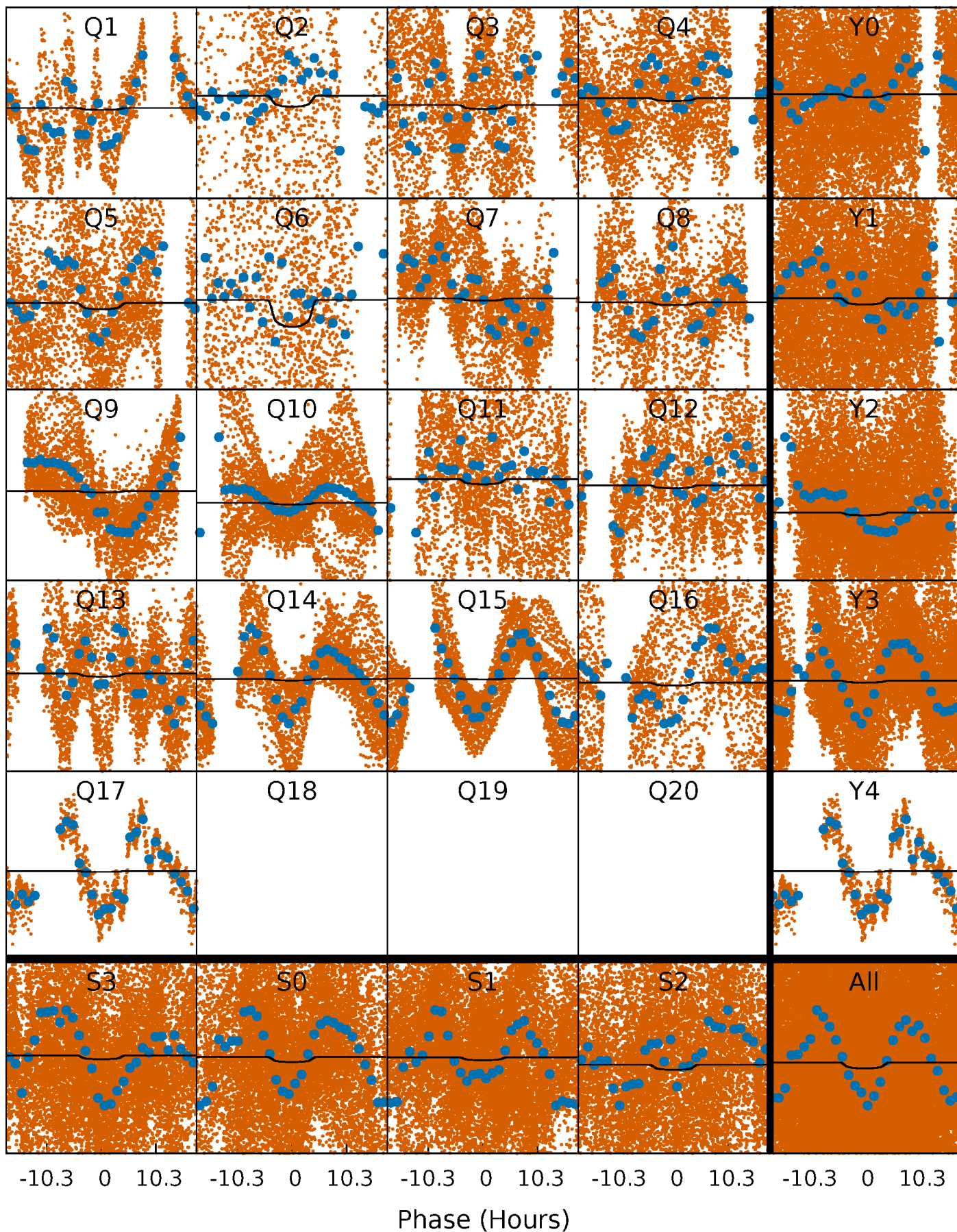
PDC Quarter-Phased Transit Curves

TCE 011706658-03 P= 1.407419 Days $T_0=131.821475$ (BKJD)



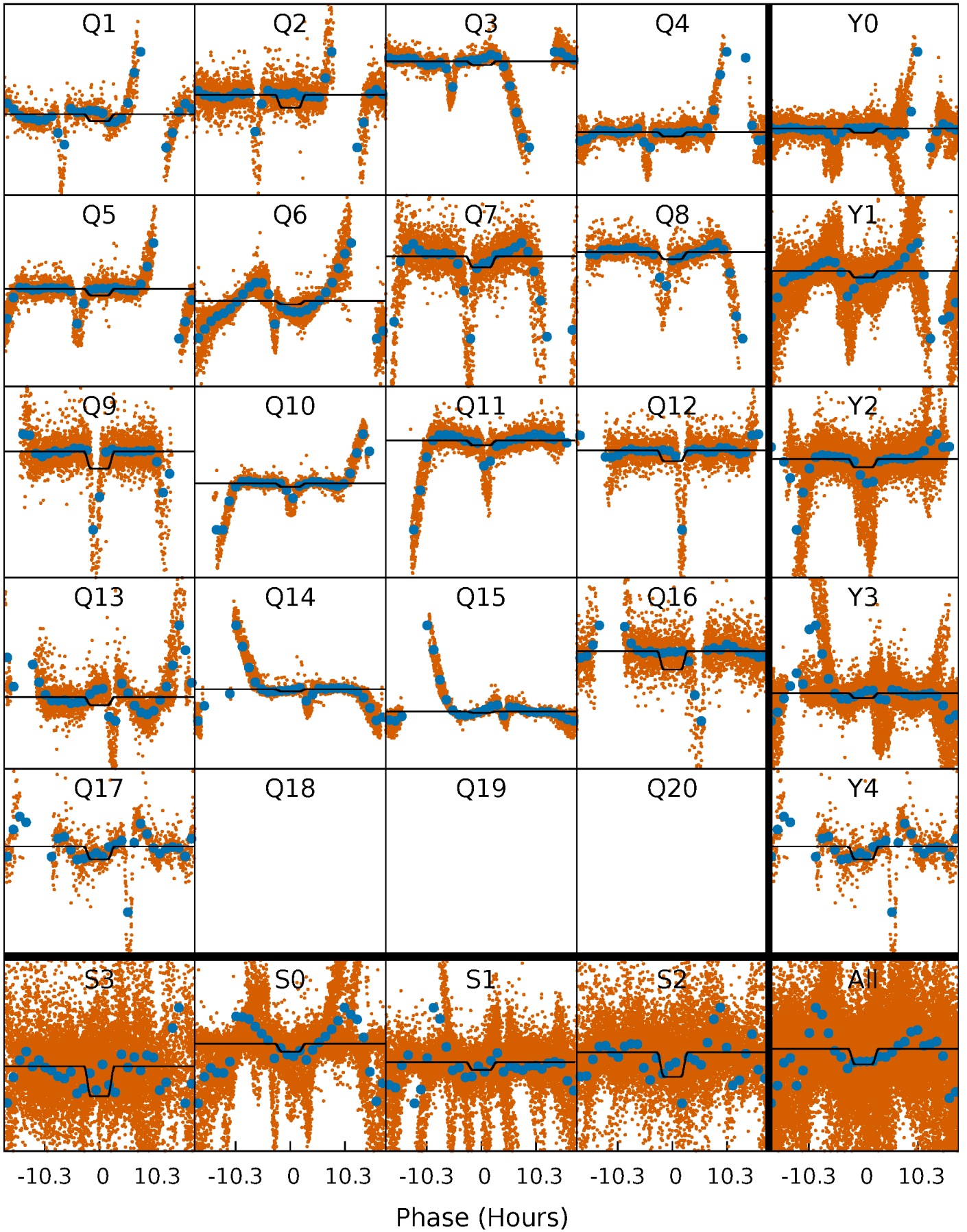
DV Quarter-Phased Transit Curves

TCE 011706658-03 P= 1.407419 Days $T_0=131.821475$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

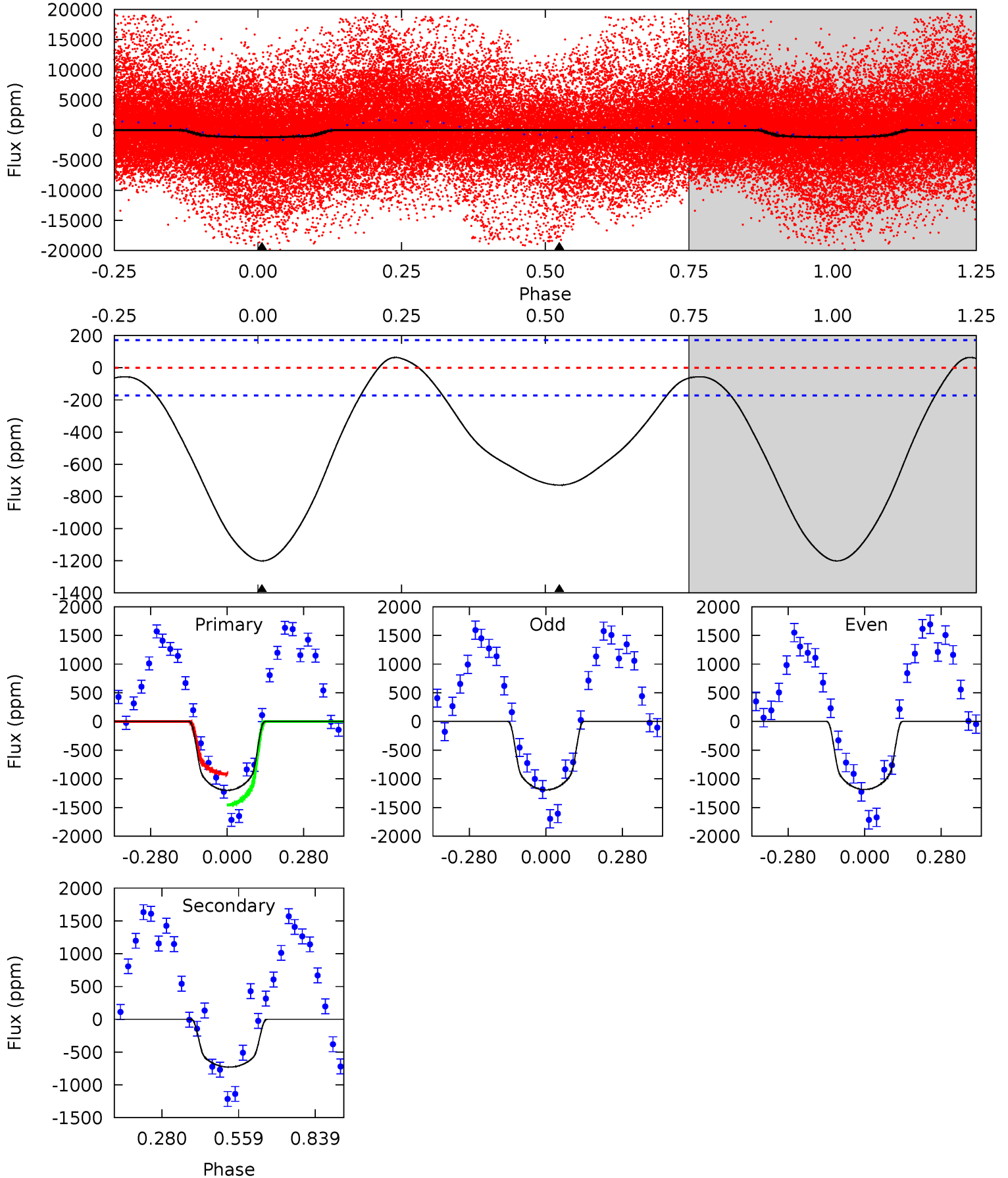
TCE 011706658-03 P= 1.407420 Days $T_0=131.863604$ (BKJD)



DV Model-Shift Uniqueness Test

011706658-03, P = 1.407419 Days, E = 130.414056 Days

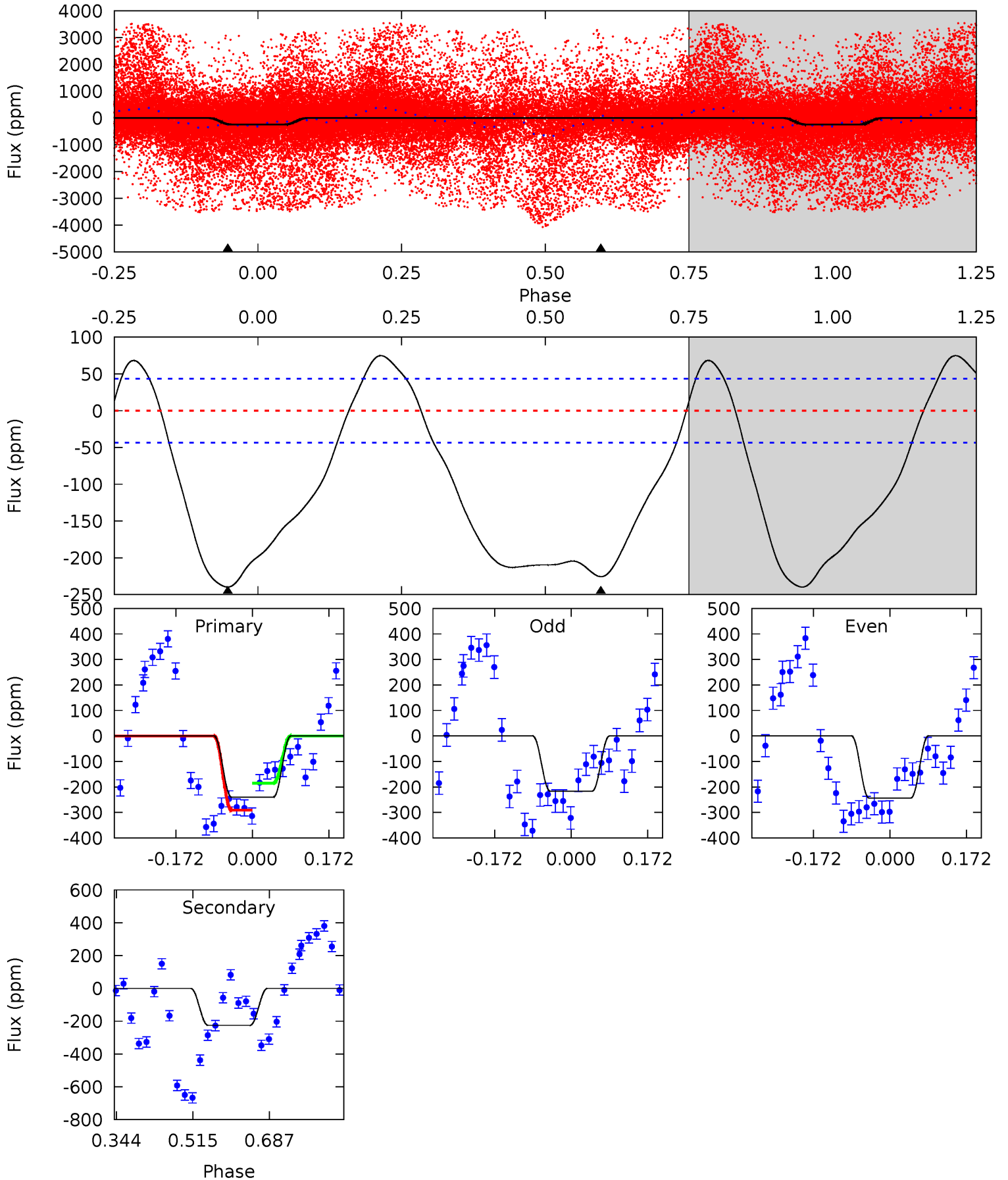
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.3	18.4	0	0	4.34	1.08	1.25	30.3	30.3	18.4	18.4	0.10	1.16	0.05	7.23



Alt Model-Shift Uniqueness Test

011706658-03, P = 1.407420 Days, E = 130.456184 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.5	23.1	0	0	4.45	1.37	8.48	24.5	24.5	23.1	23.1	1.38	1.75	0.24	5.73



Stellar Parameters For KIC 011706658

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4627^{+140}_{-140}	$4.564^{+0.060}_{-0.024}$	$0.160^{+0.250}_{-0.300}$	$0.741^{+0.036}_{-0.063}$	$0.734^{+0.054}_{-0.054}$	$2.541^{+0.641}_{-0.233}$
	+3%/-3%	+1%/-1%	+156%/-188%	+5%/-9%	+7%/-7%	+25%/-9%
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 011706658-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-730 ± 40	$1.40^{+0.22}_{-0.18}$	1635^{+60}_{-57}	5509^{+482}_{-340}	99^{+35}_{-25}
Alt.	-226 ± 10	$1.89^{+0.21}_{-0.19}$	1639^{+55}_{-60}	3895^{+189}_{-171}	17^{+4}_{-3}

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

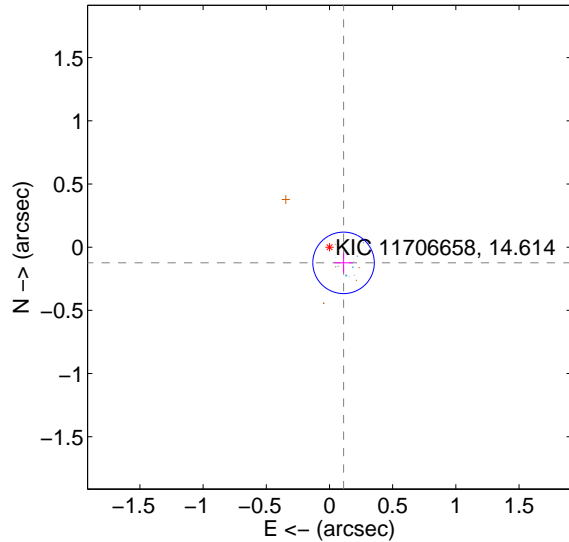
Supplemental centroid analysis for 011706658-03. Kepler magnitude: 14.61. Transit SNR 4.50

There are 9 quarters with good PRF difference image offsets

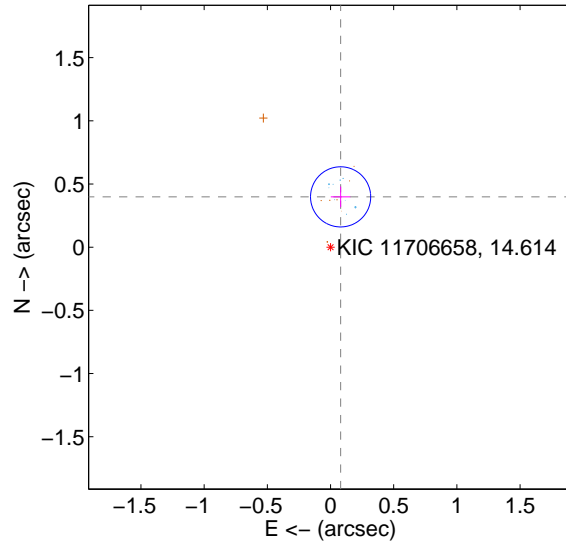
The direct PRF centroid is offset from the target star catalog position by about 0.74 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.167 ± 0.081	2.06	-0.112 ± 0.074	-0.124 ± 0.079
PRF-fit source offset from KIC position	0.406 ± 0.079	5.12	-0.080 ± 0.077	0.398 ± 0.082
photometric centroid source offset	0.73 ± 0.29	2.54	0.44 ± 0.26	0.58 ± 0.30

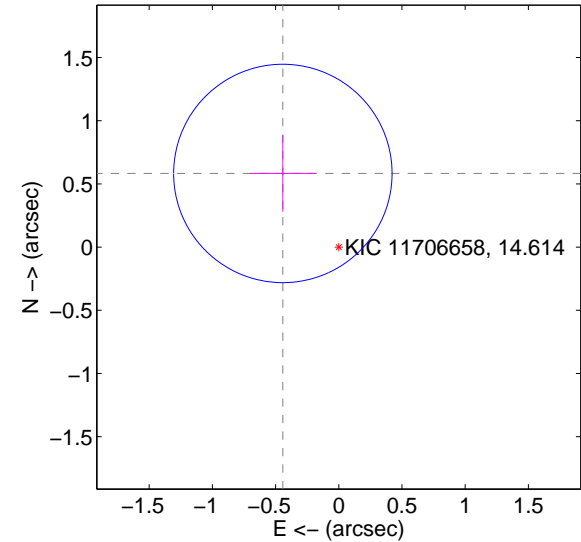
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

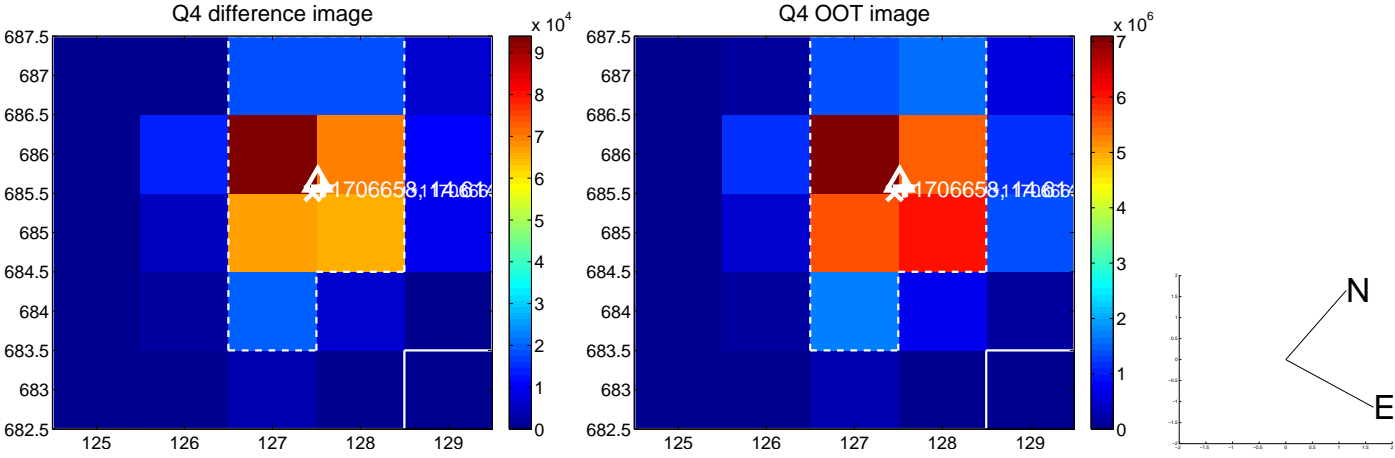
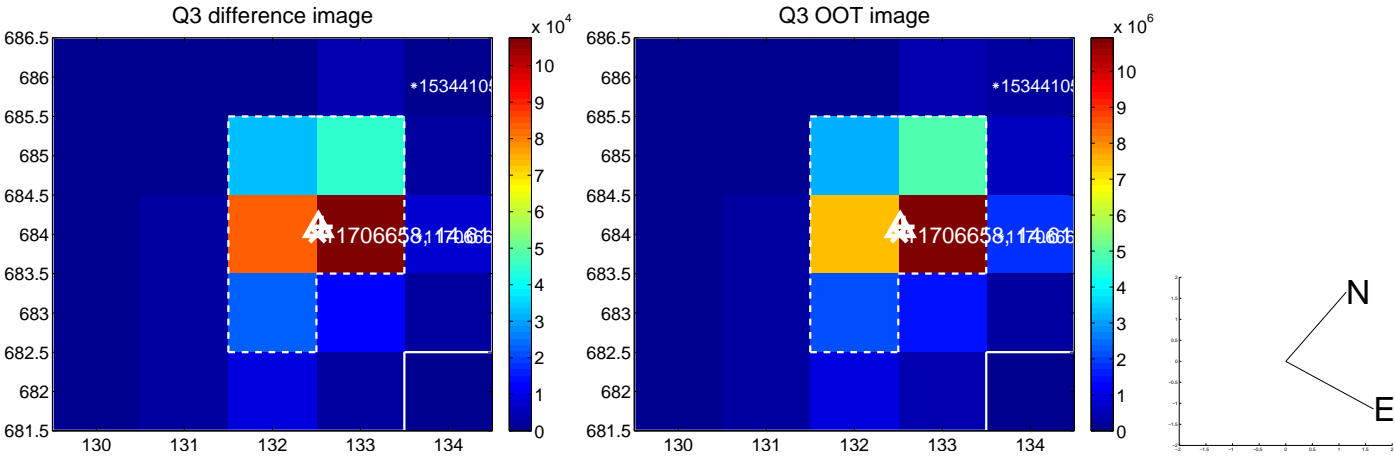
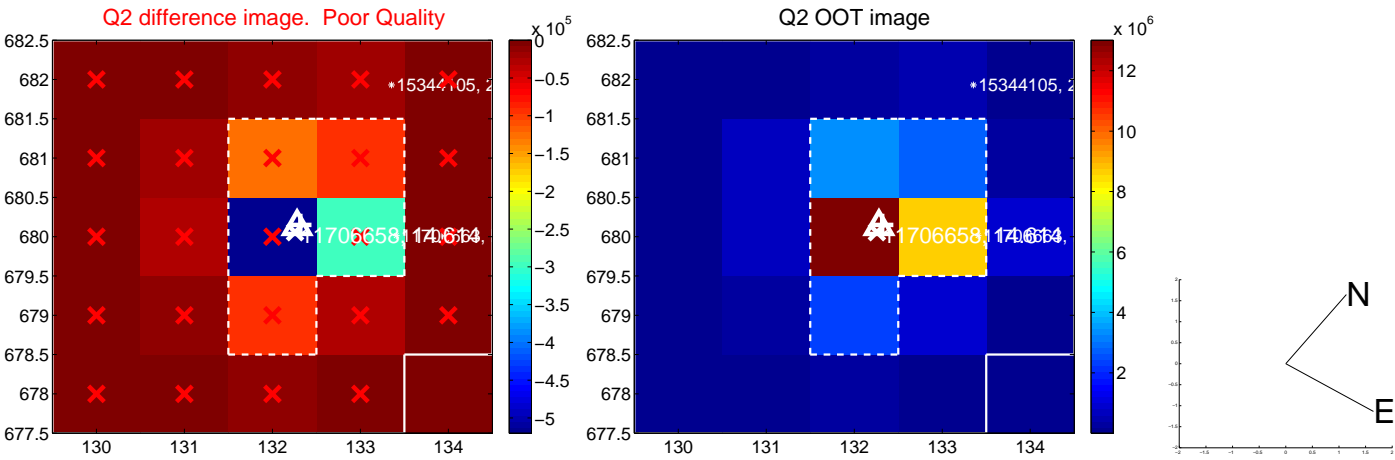
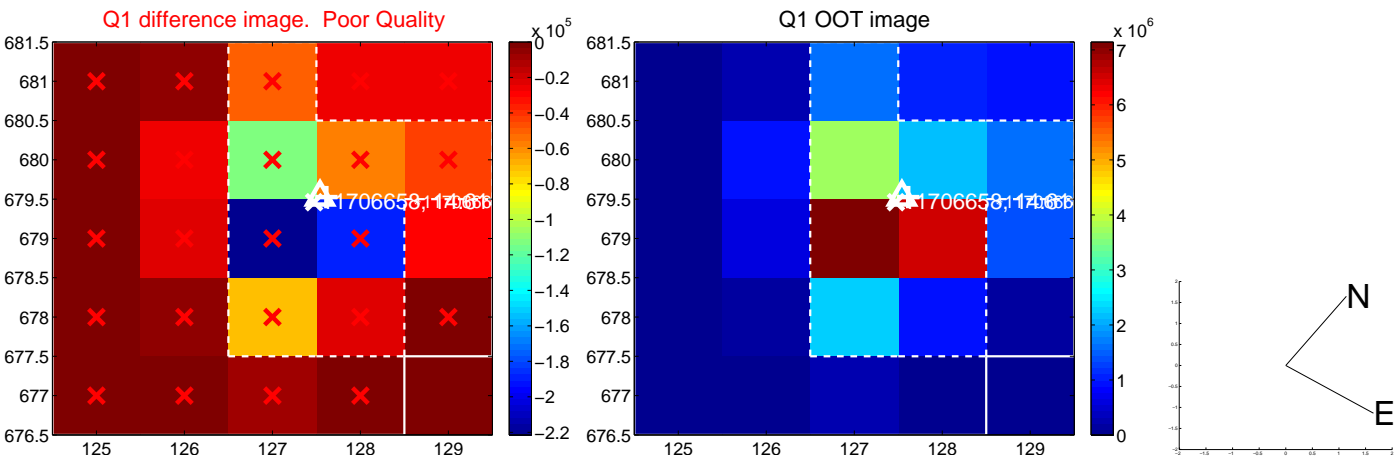


offset from photometric centroids

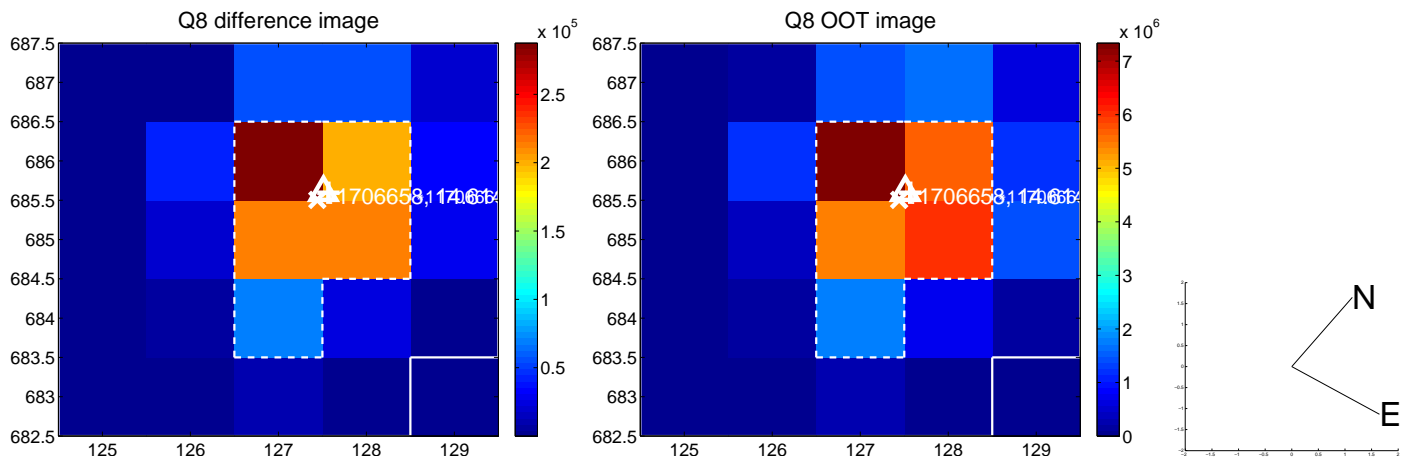
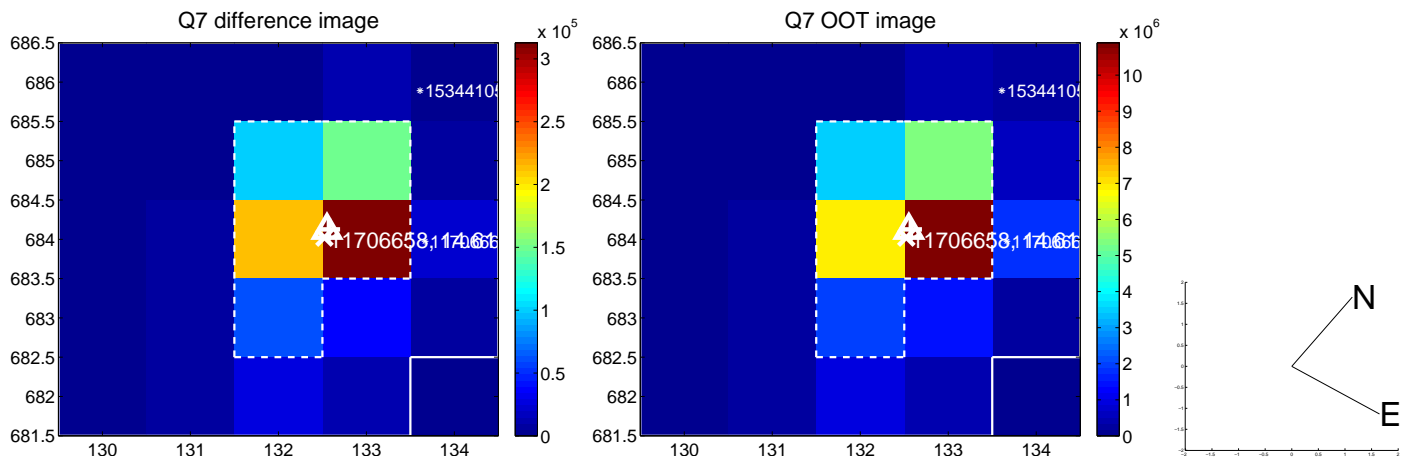
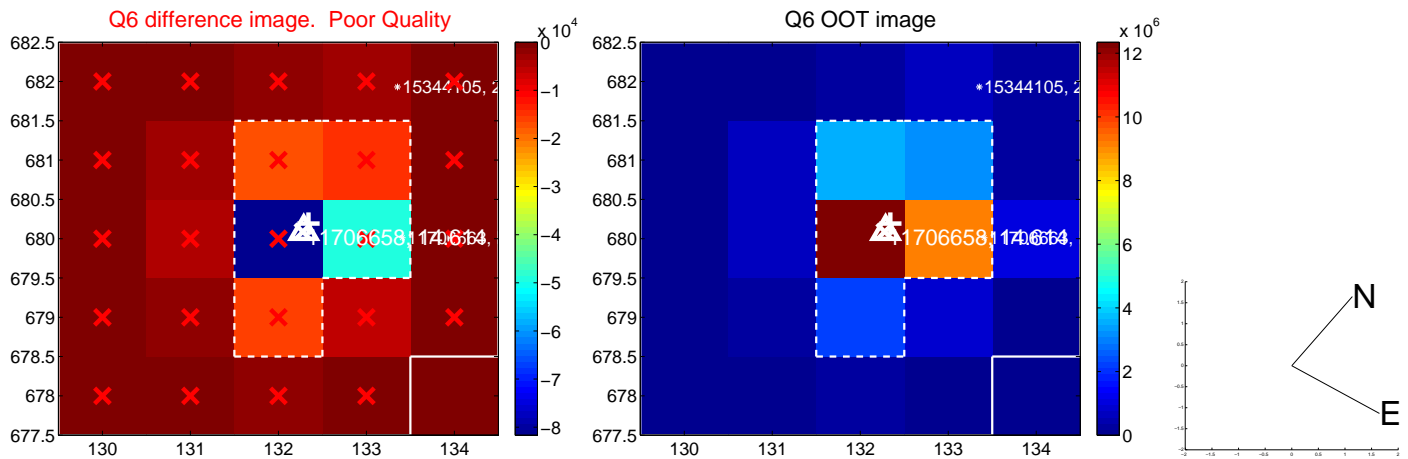
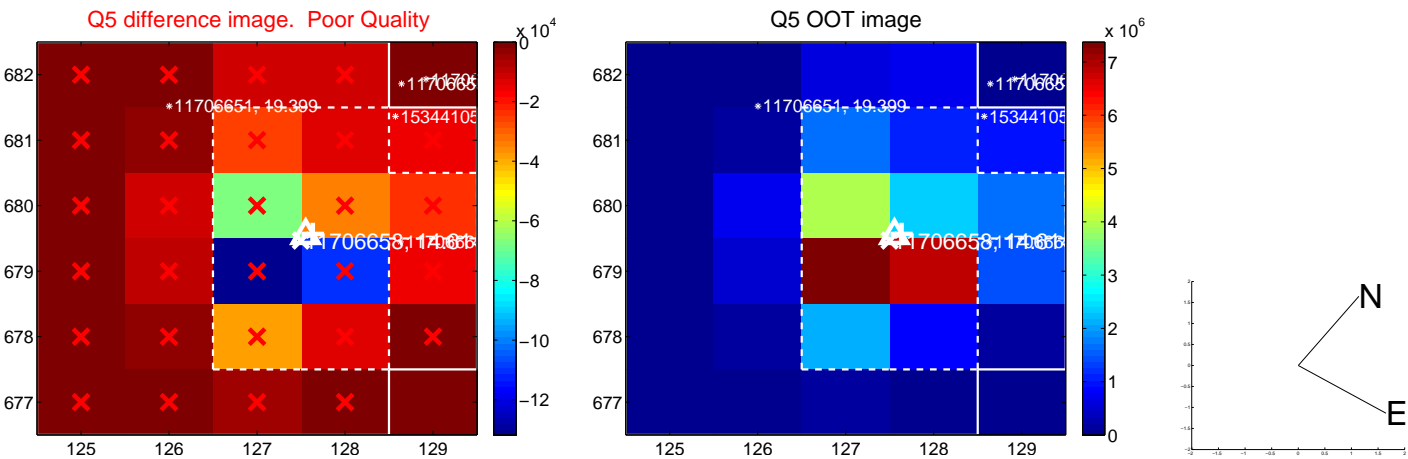


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

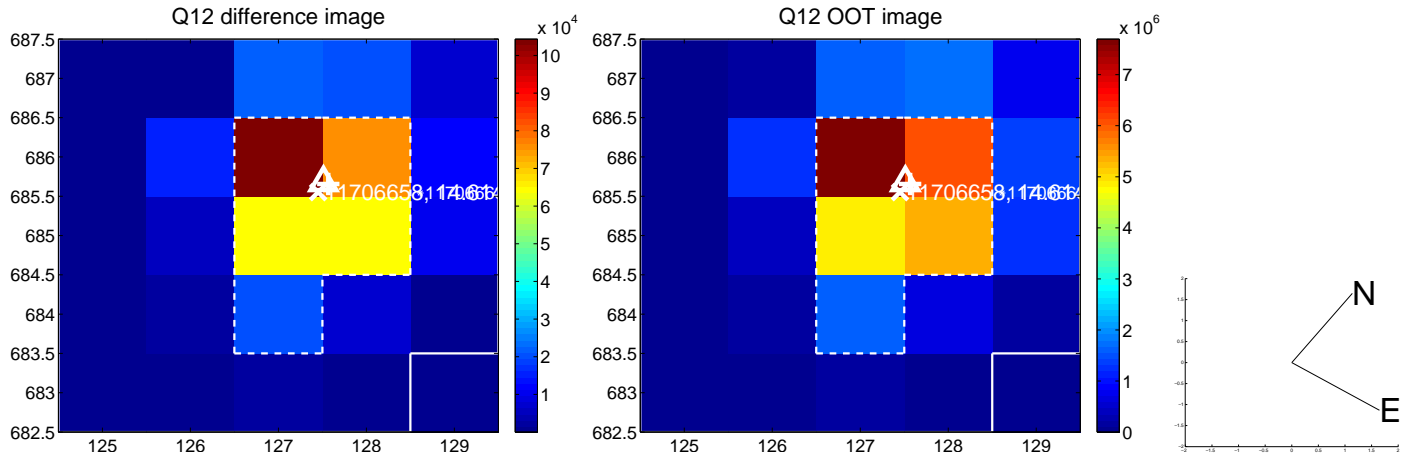
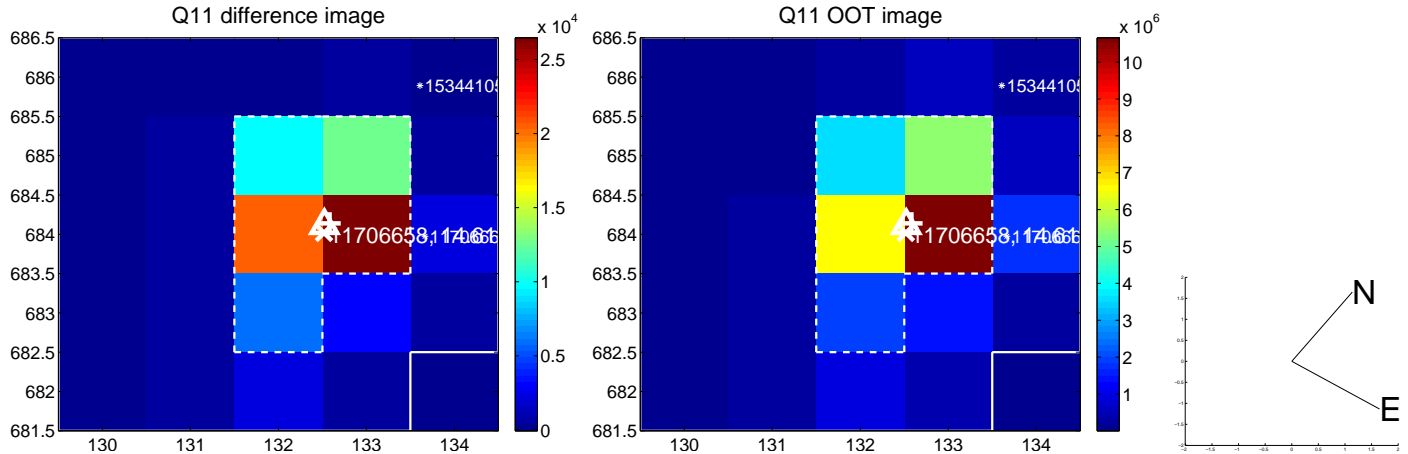
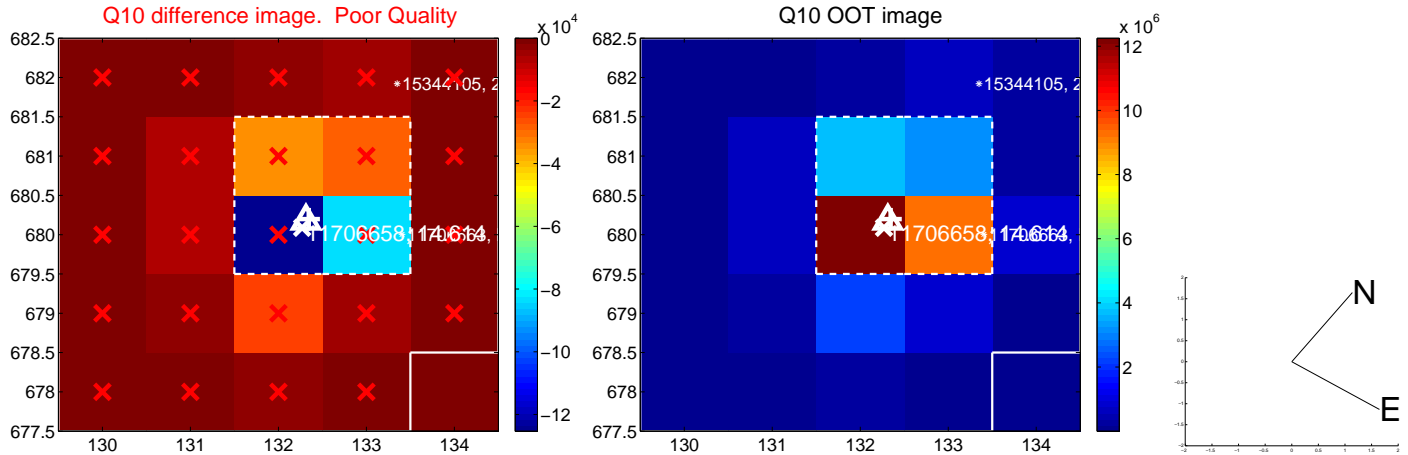
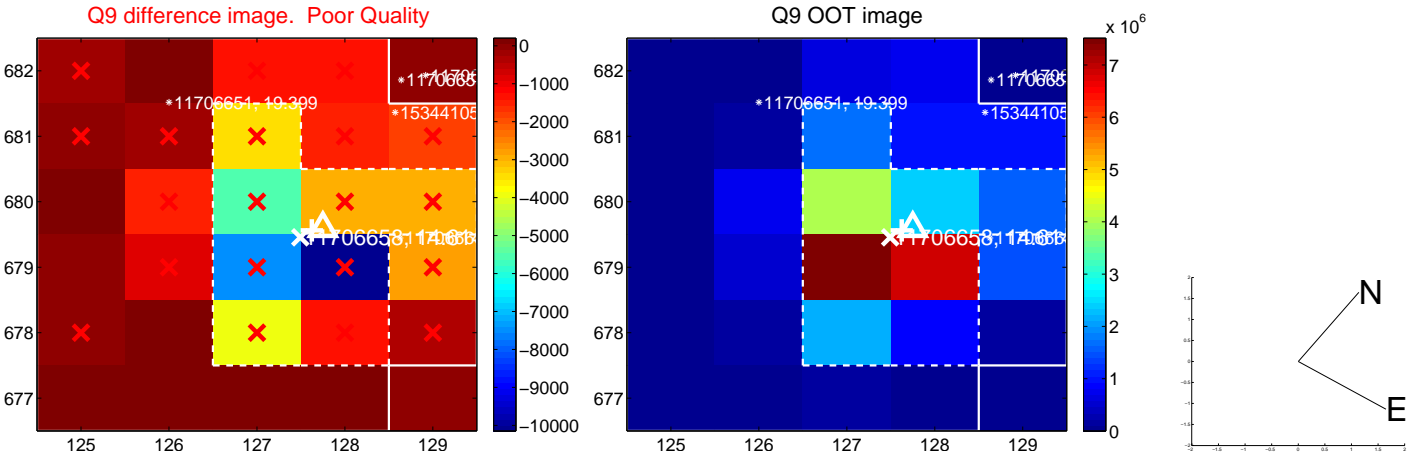
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



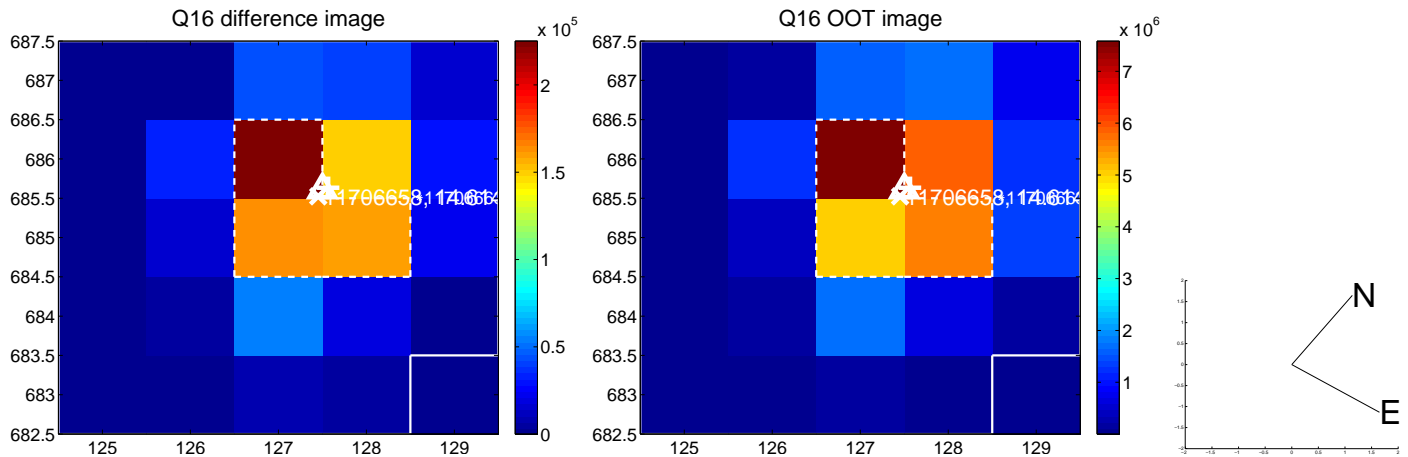
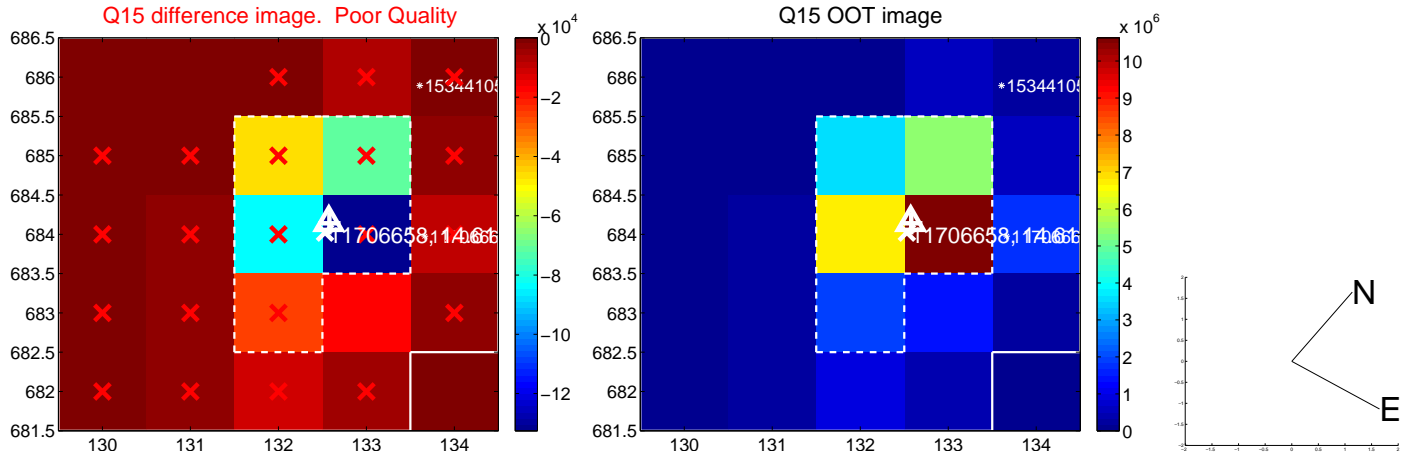
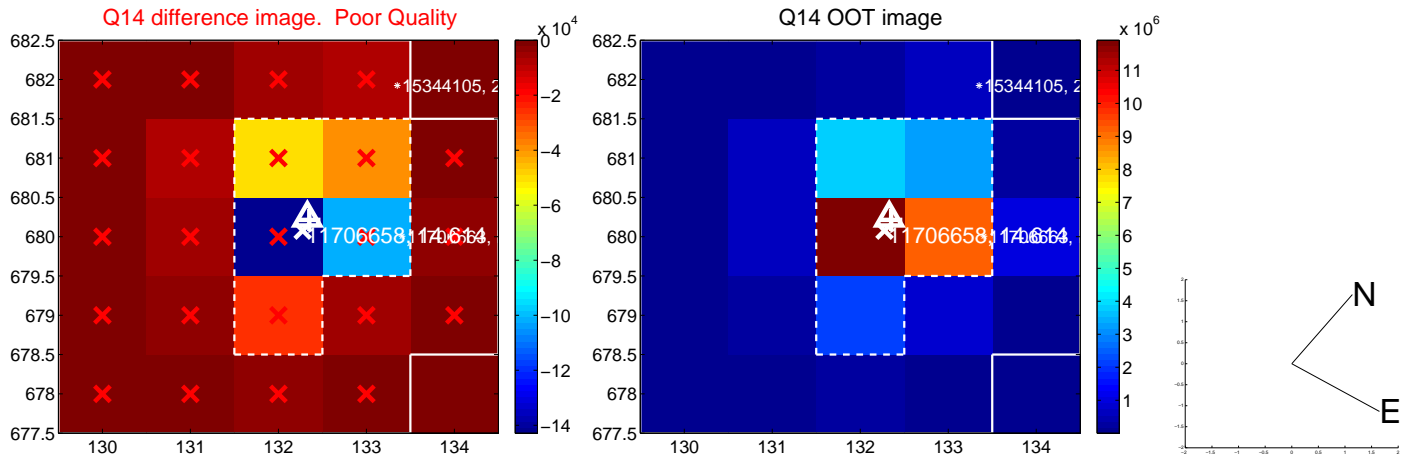
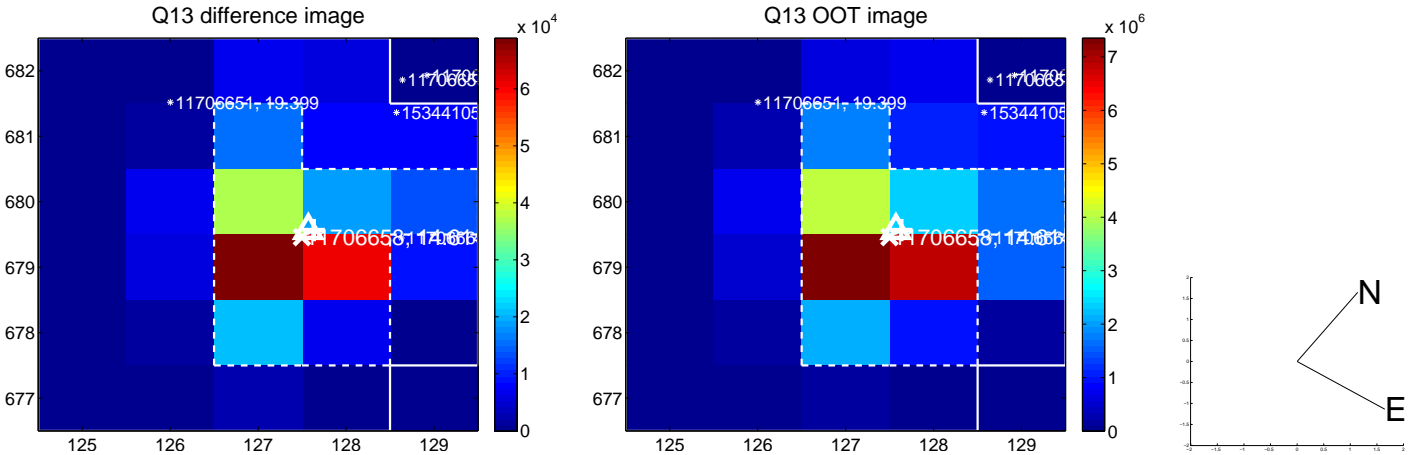
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



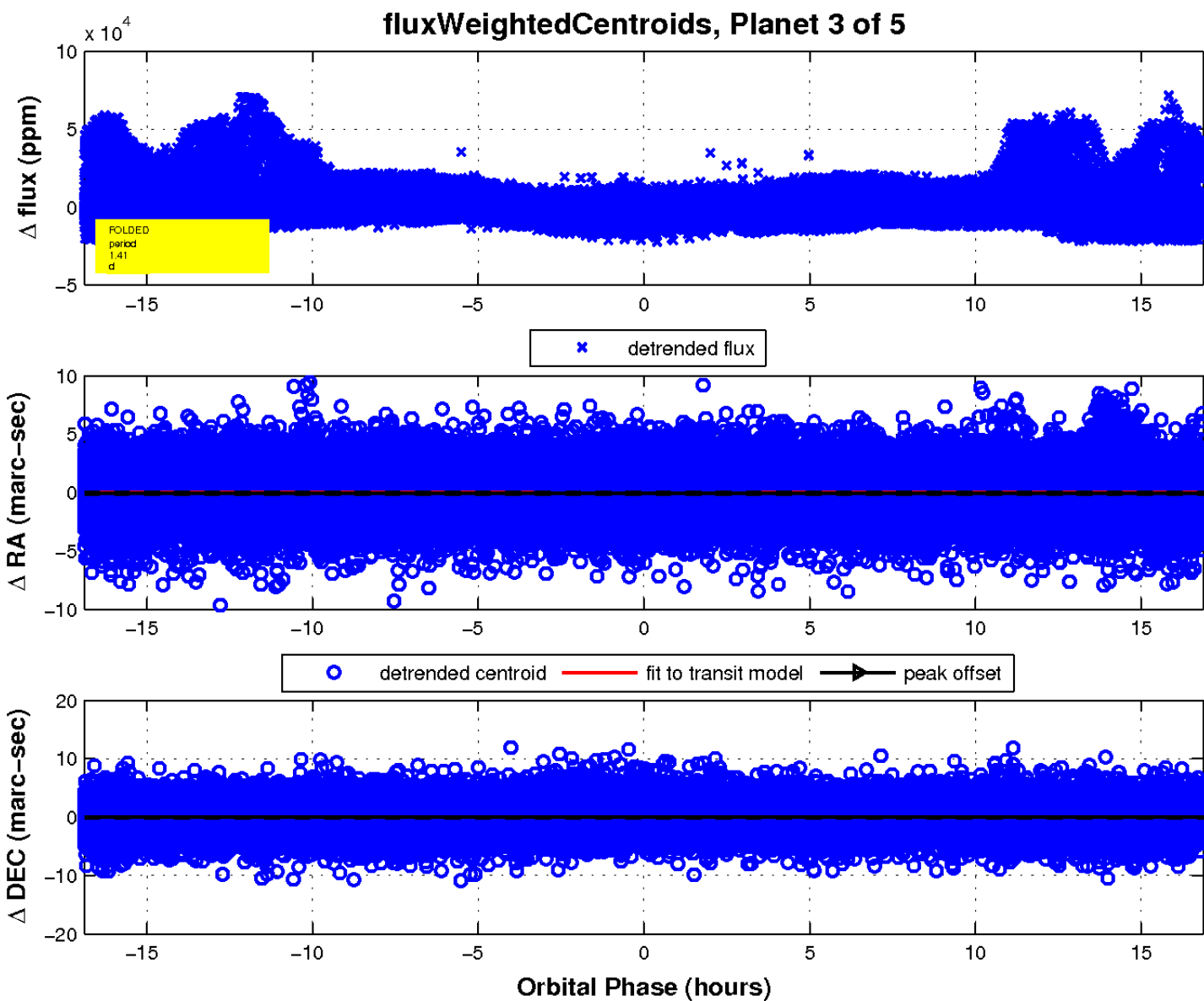
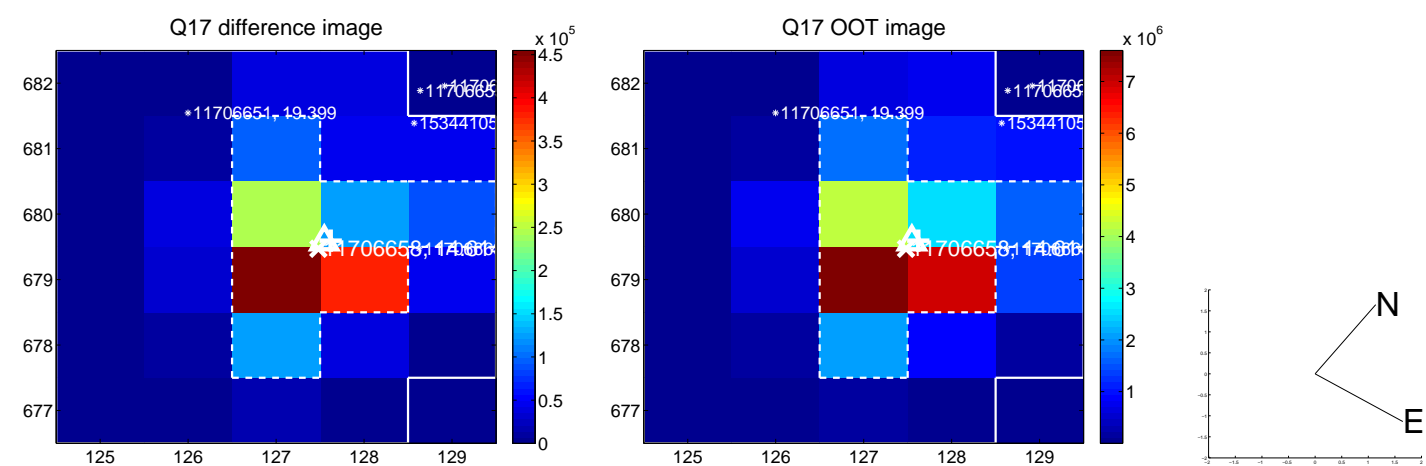
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

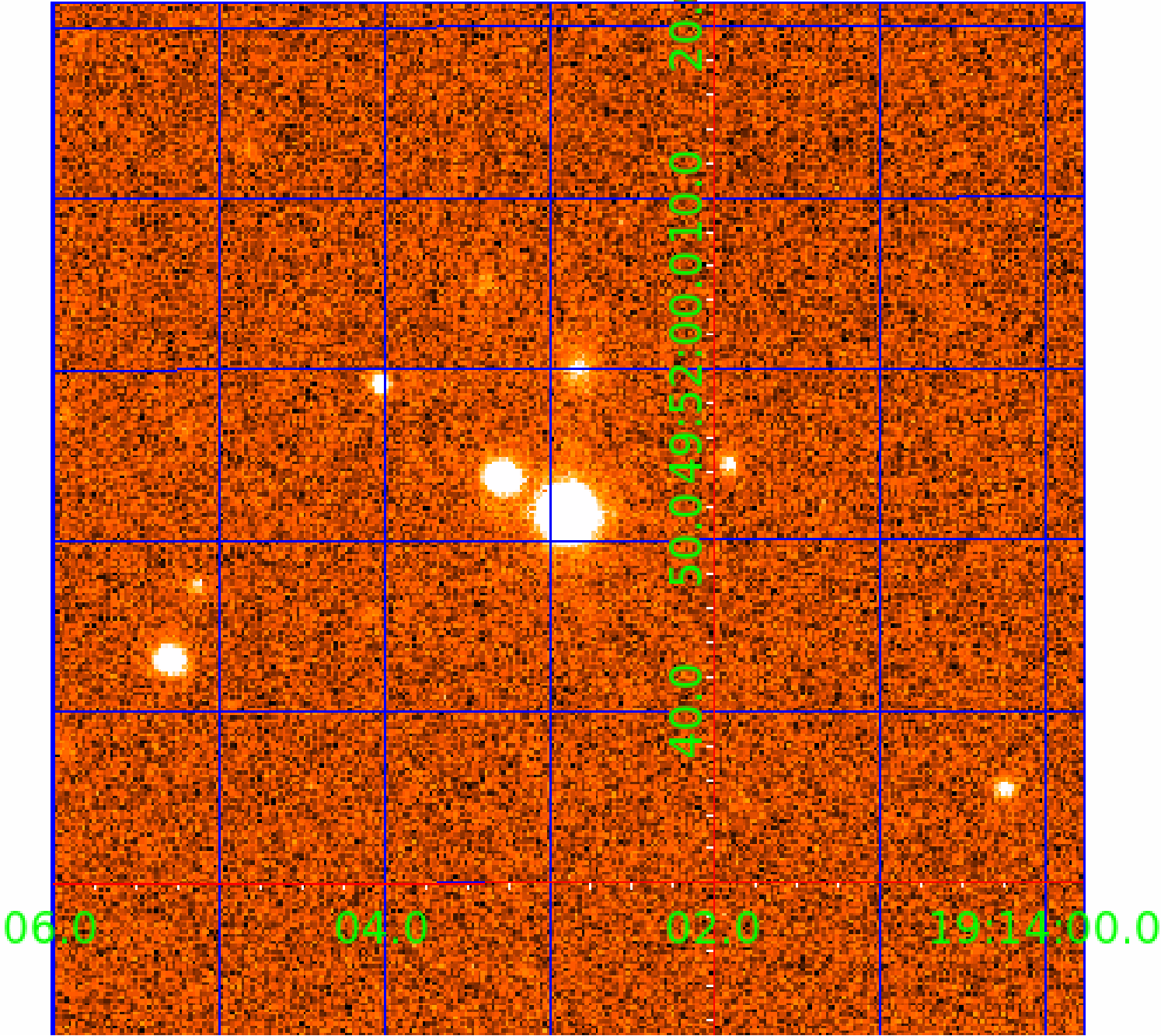


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011706658

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})
011706658-01	OBS	7473.01	1.407938	132.267244	15050.5	1.500	248.6	-1.0	0.74	4627	8.76	458.35
011706658-02	OBS	No	303.736398	207.042394	6209.1	3.633	14.3	8.8	0.74	4627	5.77	0.35
011706658-03	OBS	No	1.407419	131.821475	225.6	8.995	8.8	4.5	0.74	4627	1.44	458.57
011706658-05	OBS	No	60.347609	172.500834	1759.3	4.104	17.6	3.0	0.74	4627	3.46	3.06

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011706658-01	OBS	FP	0.05	0	1	0	0	SWEET_EB—MOD_SEC_ALT—HAS_SEC_TCE—CENT_NOFITS
011706658-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
011706658-03	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE—CENT_KIC_POS
011706658-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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.

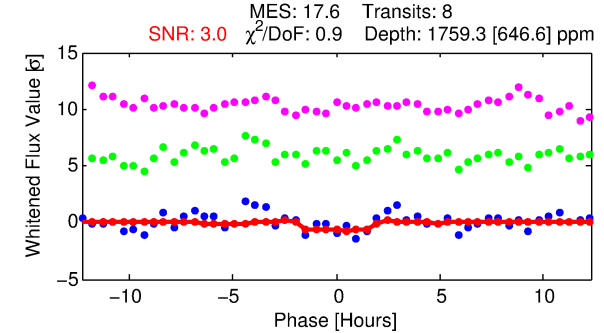
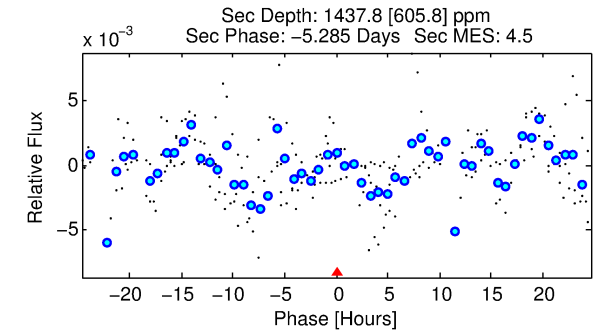
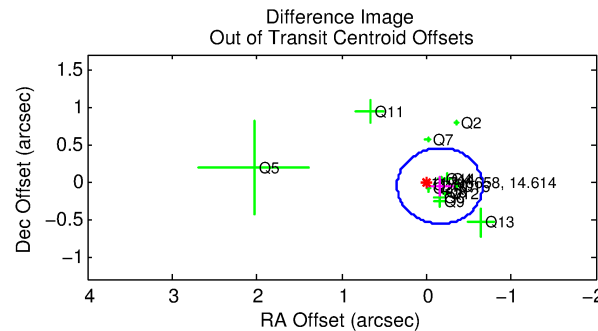
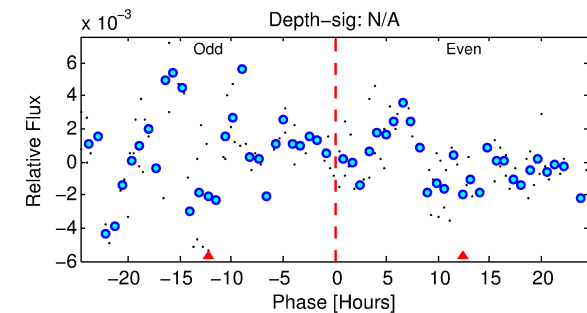
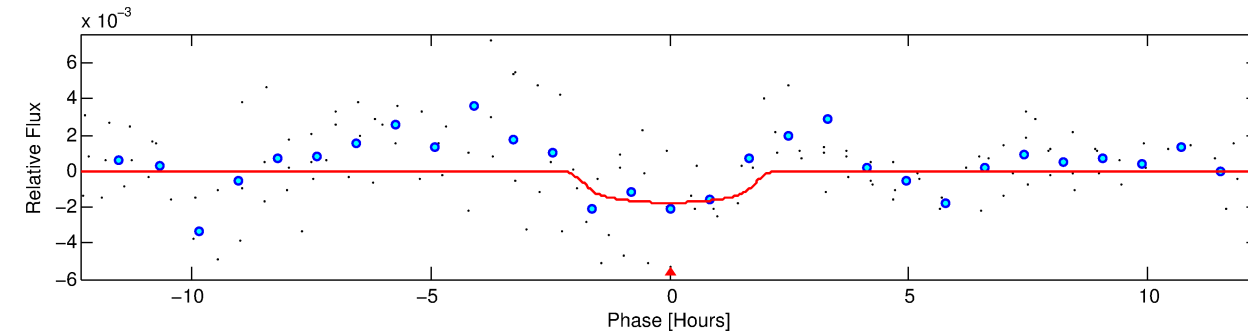
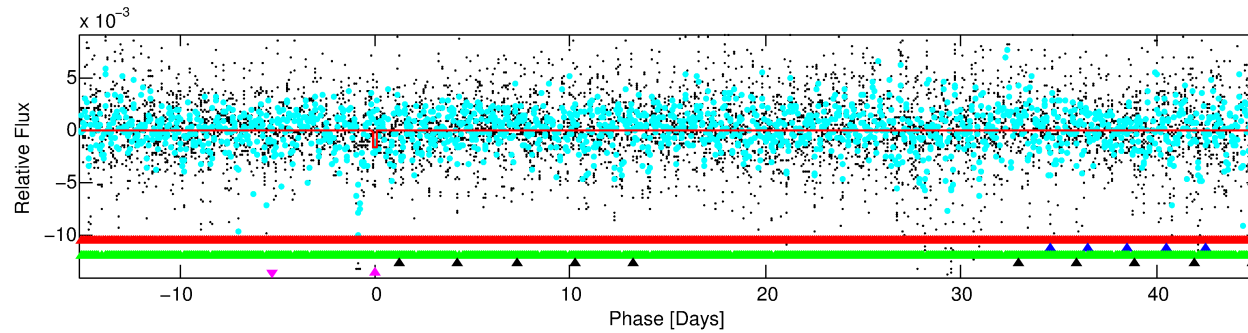
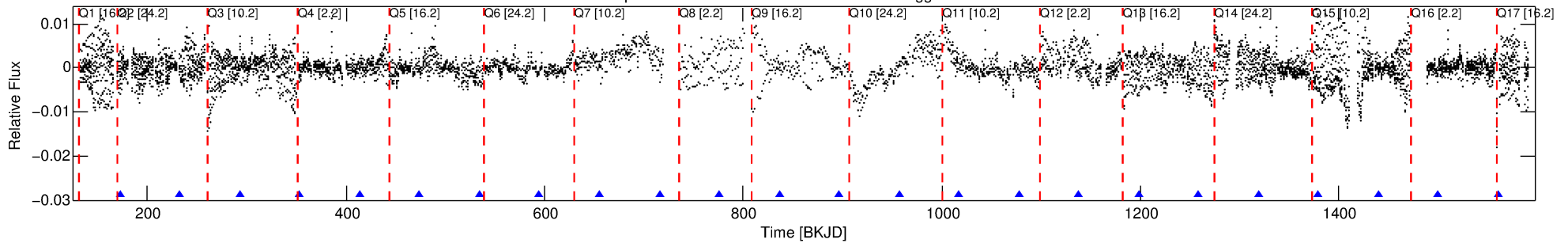
Ephemeris Match Information For 011706658-05

No Significant Match Found

DV One-Page Summary

KIC: 11706658 Candidate: 5 of 5 Period: 60.348 d
KOI: K07473 Corr: No Ephemeris Match

Kp: 14.61 R*: 0.74 Rs Teff: 4627.0 K Logg: 4.56 Fe/H: 0.160



DV Fit Results:

Period = 60.34761 [0.00175] d
Epoch = 172.5008 [0.0227] BKJD
Rp/R* = 0.0428 [0.0628]
a/R* = 77.72 [350.70]
b = 0.78 [2.34]
Seff = 3.06 [0.50]
Teq = 337 [14] K
Rp = 3.46 [5.09] Re
a = 0.2717 [0.0198] AU
Ag = 4877.28 [14472.16] [0.34σ]
Teffp = 4356 [3232] K [1.24σ]

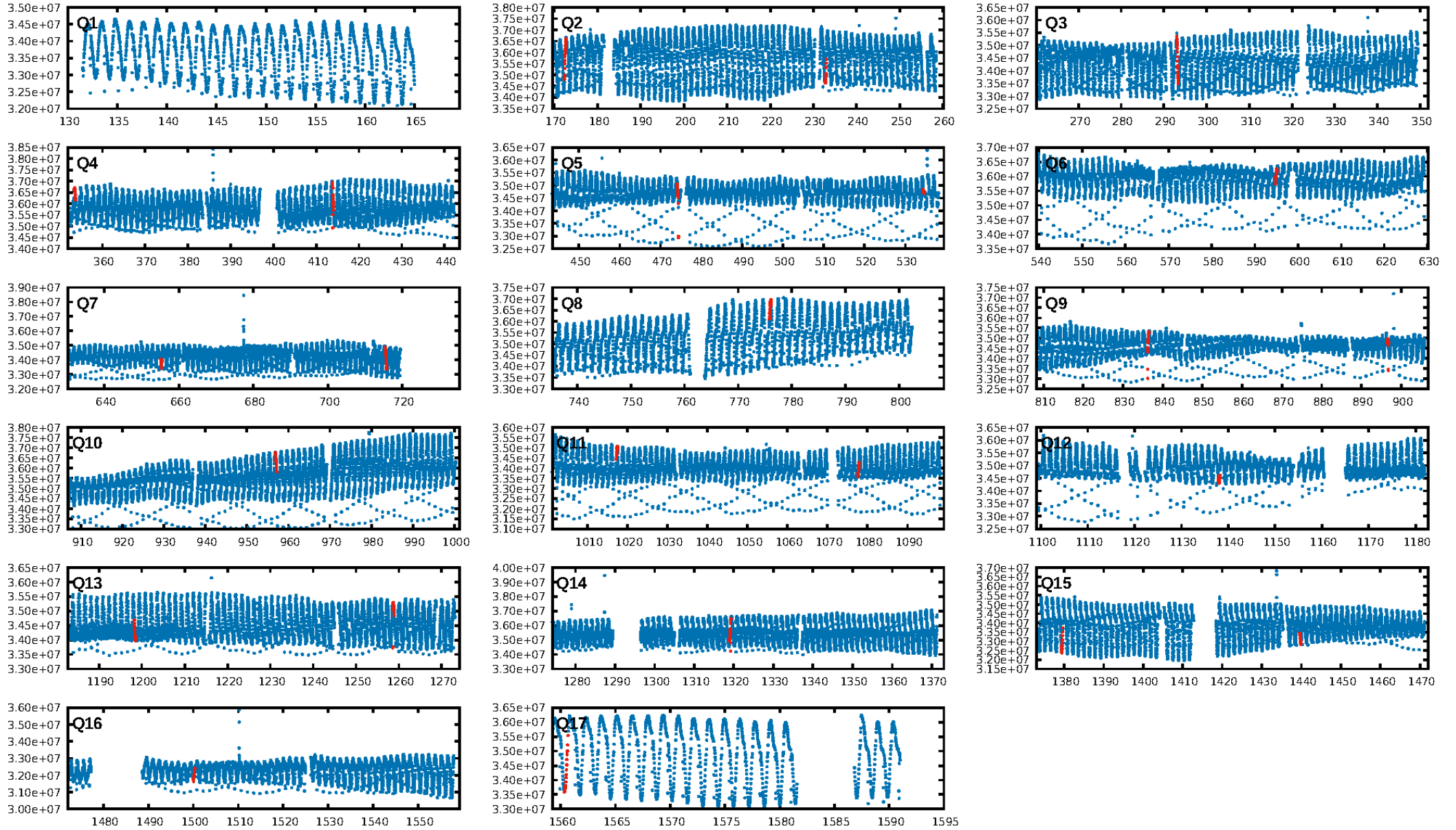
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [323.75σ]
LongPeriod-sig: 100.0% [189.52σ]
ModelChiSquare2-sig: 44.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -2.047
Centroid-sig: 38.4%
Centroid-so: 0.732 arcsec [2.25σ]
OotOffset-rm: 0.170 arcsec [1.01σ]
OotOffset-st: 4/4/4/3 [15]
KicOffset-rm: 0.461 arcsec [4.24σ]
KicOffset-st: 4/4/4/3 [15]
DiffImageQuality-fgm: 0.60 [9/15]
DiffImageOverlap-fno: 0.00 [0/15]

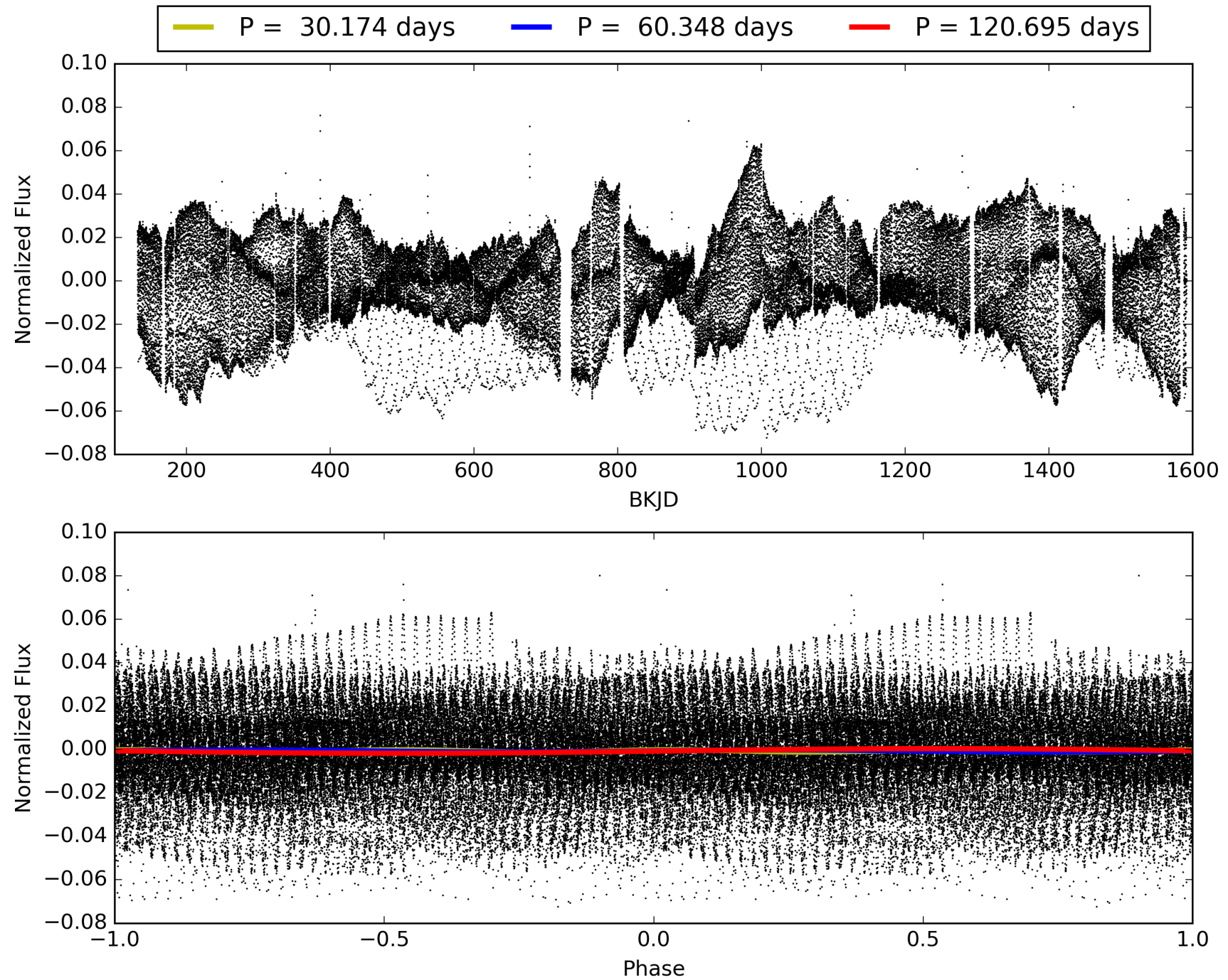
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:23:20 Z

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

TCE 011706658-05, PDC Light Curves

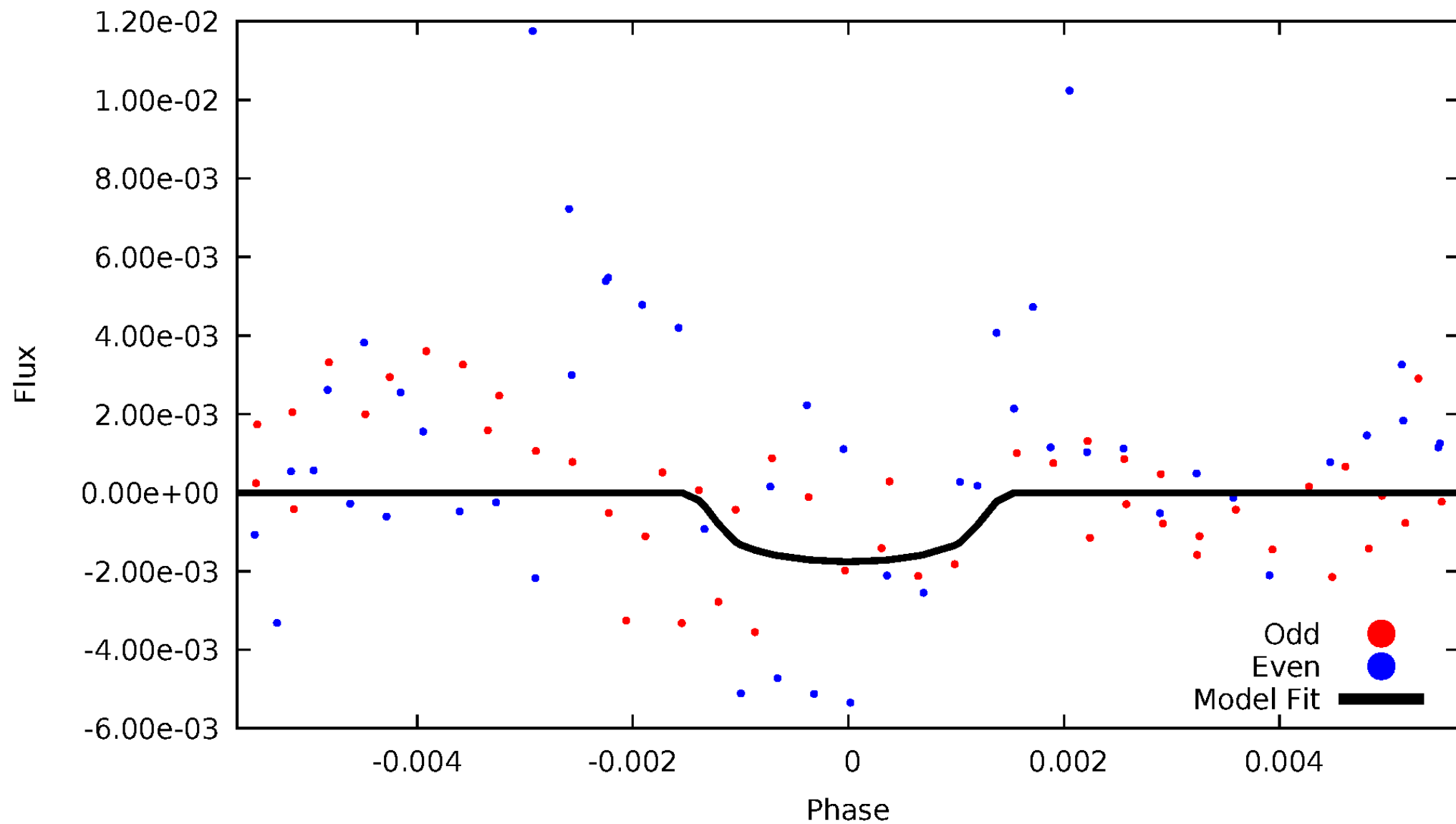


TCE 011706658-05



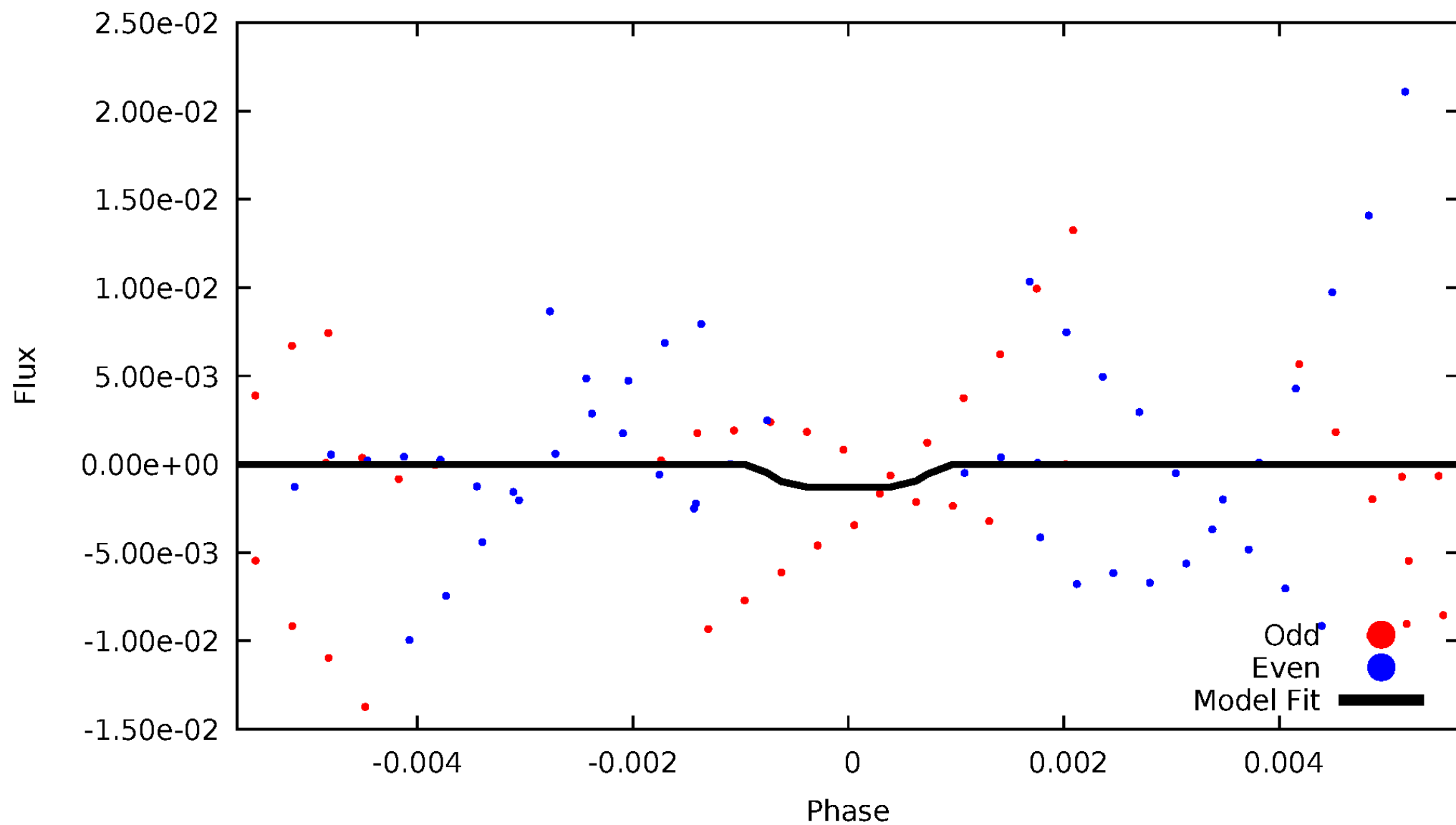
DV Odd/Even

TCE 011706658-05



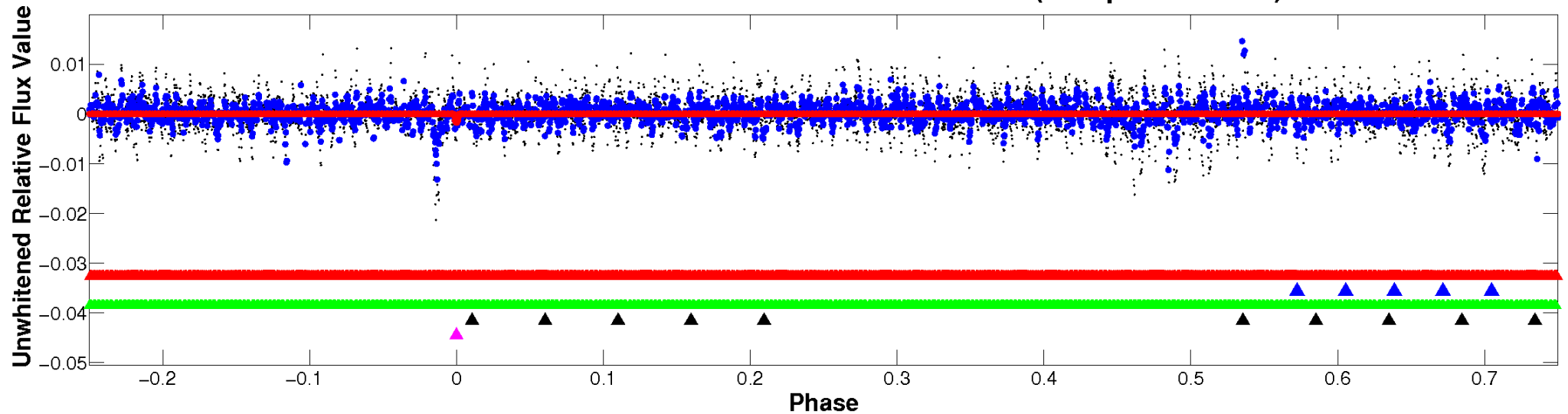
ALT Odd/Even

TCE 011706658-05

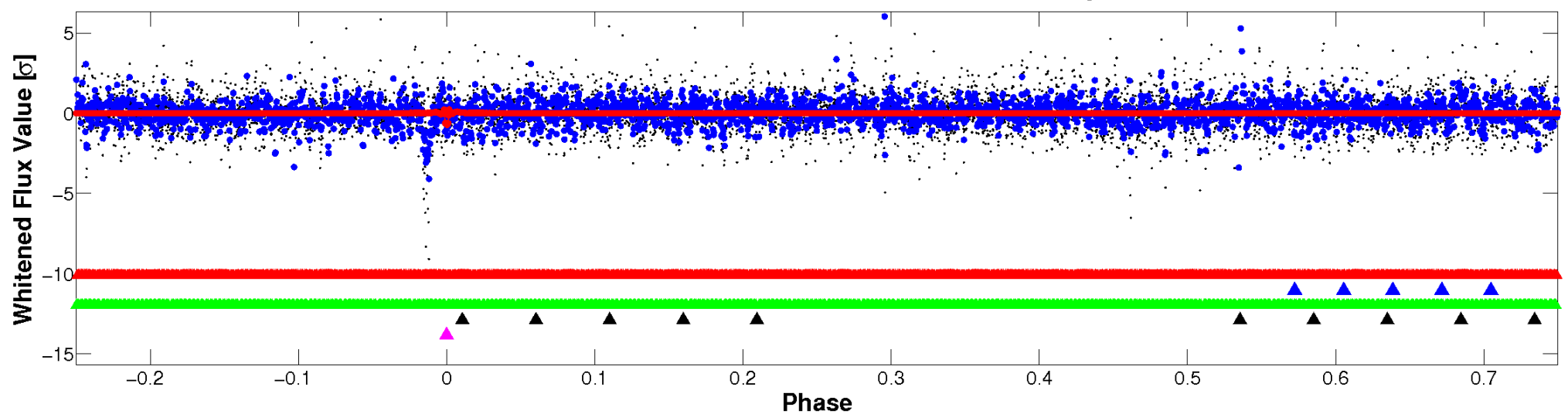


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

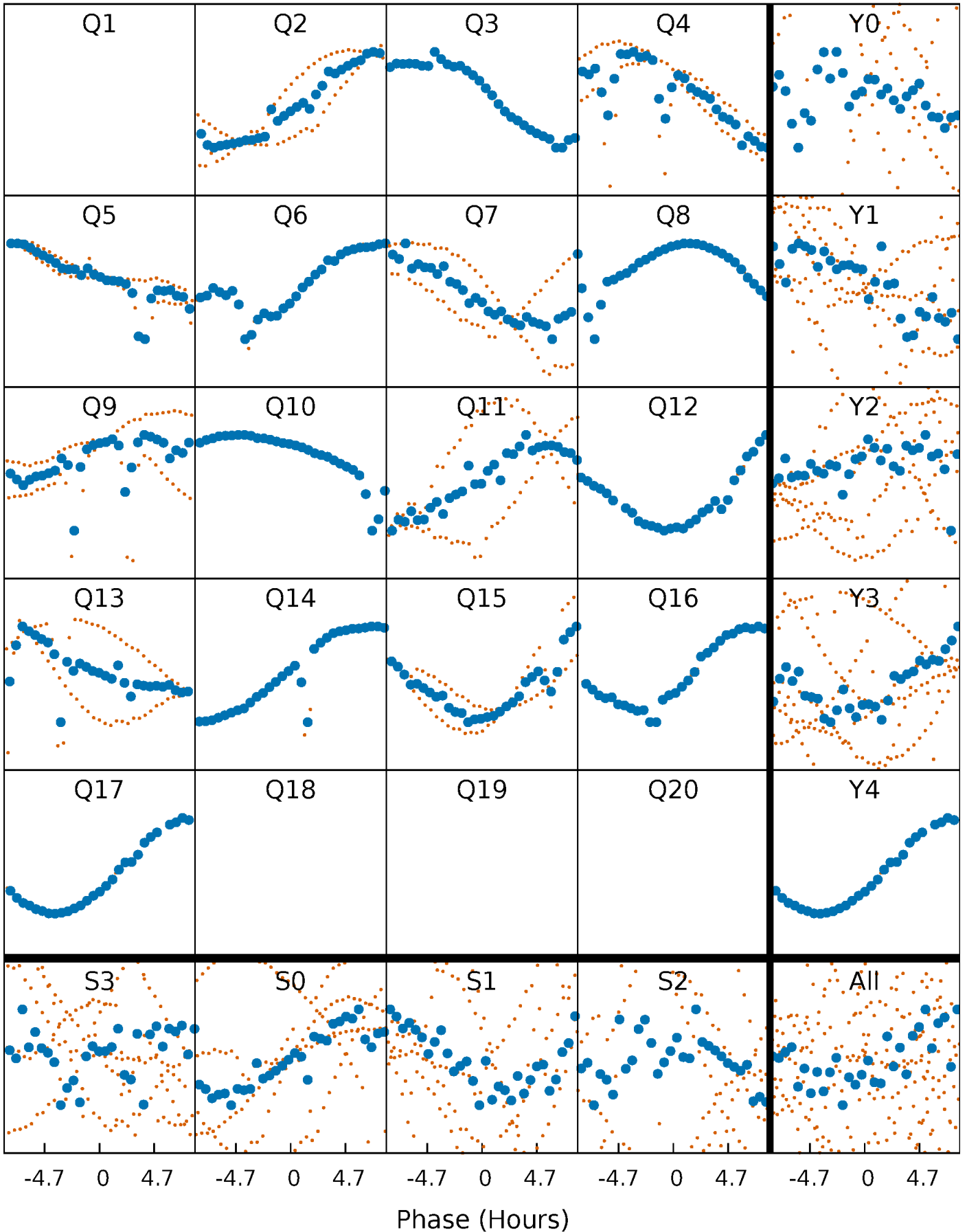


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



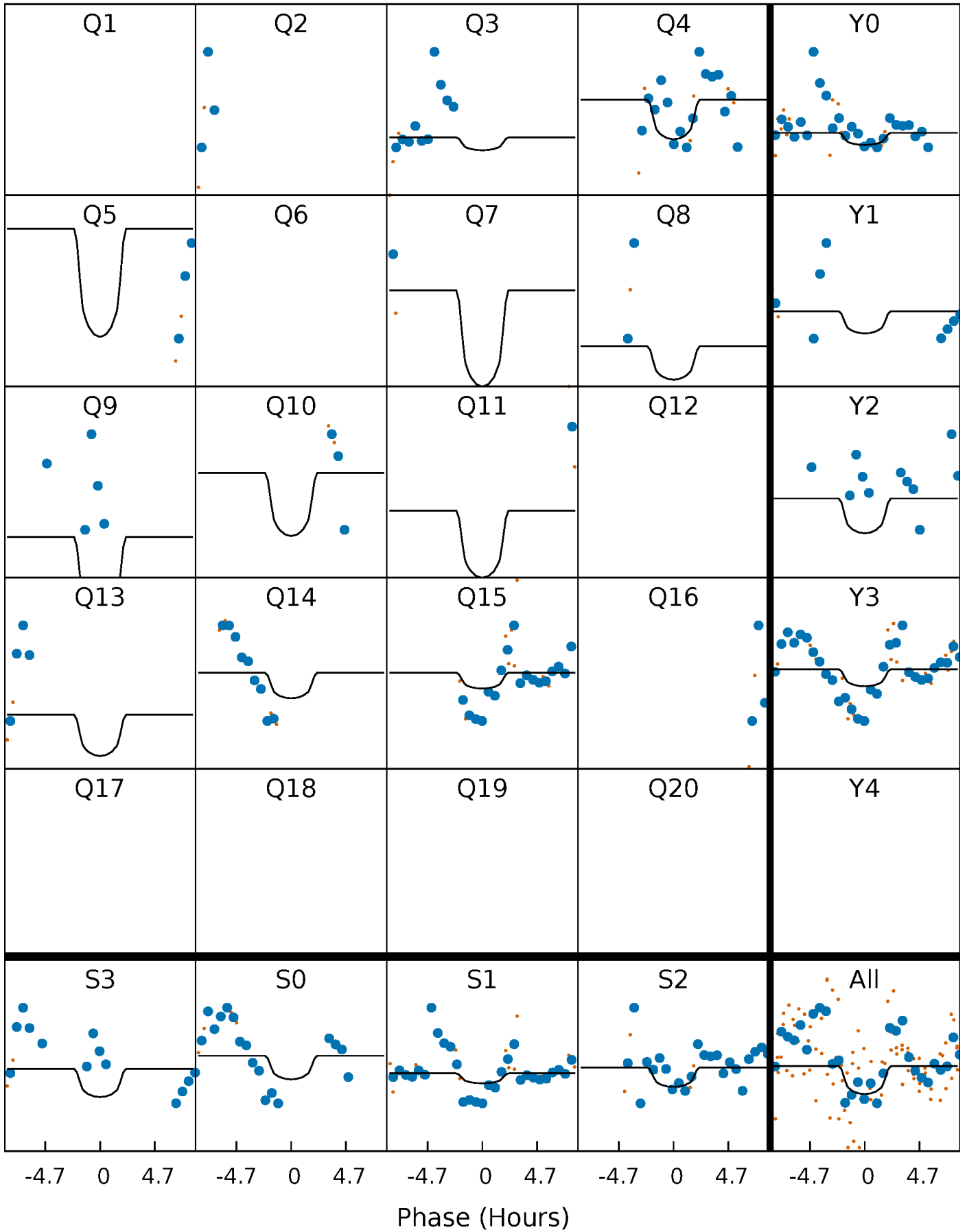
PDC Quarter-Phased Transit Curves

TCE 011706658-05 $P = 60.347609$ Days $T_0 = 172.500834$ (BKJD)



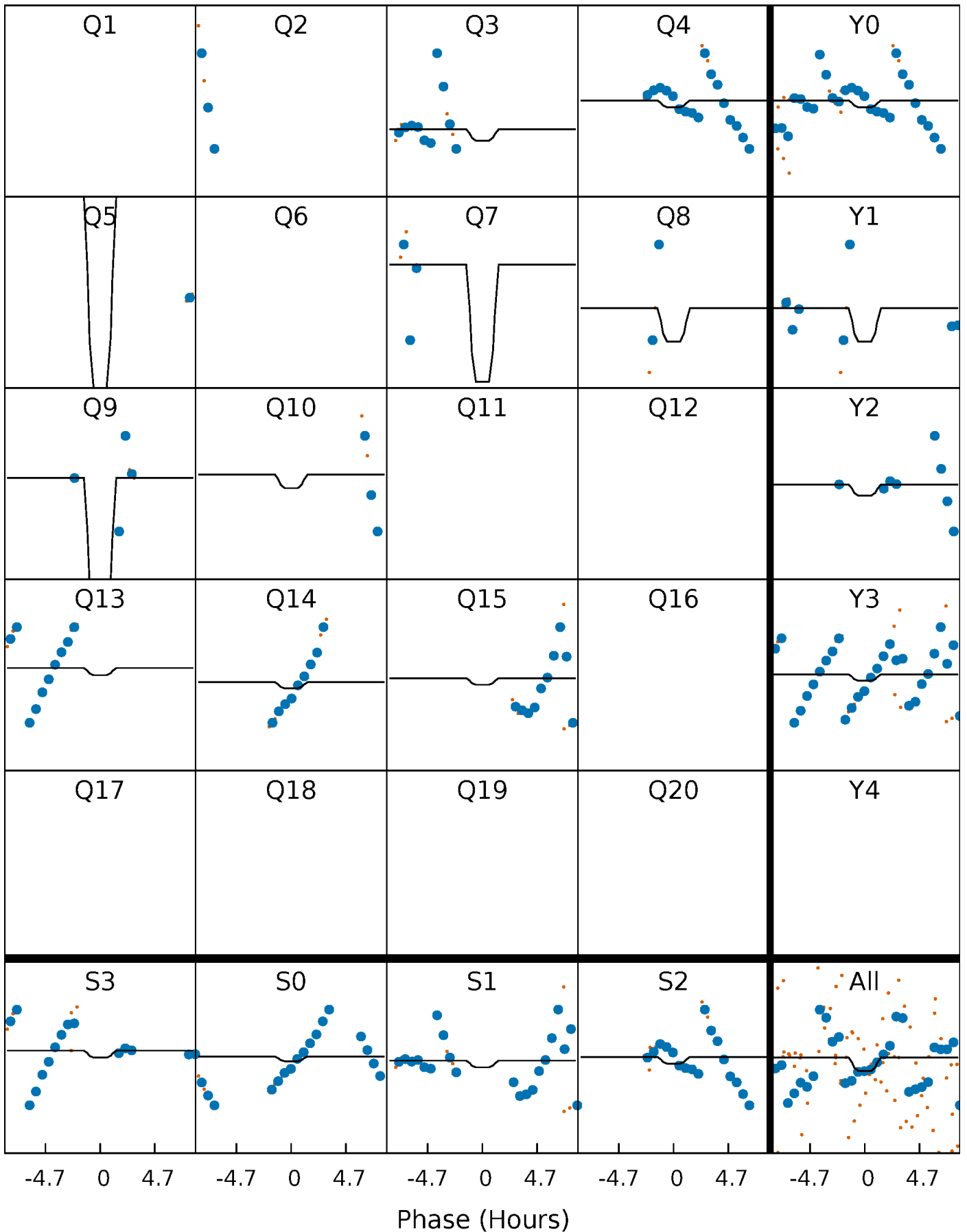
DV Quarter-Phased Transit Curves

TCE 011706658-05 $P = 60.347609$ Days $T_0 = 172.500834$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

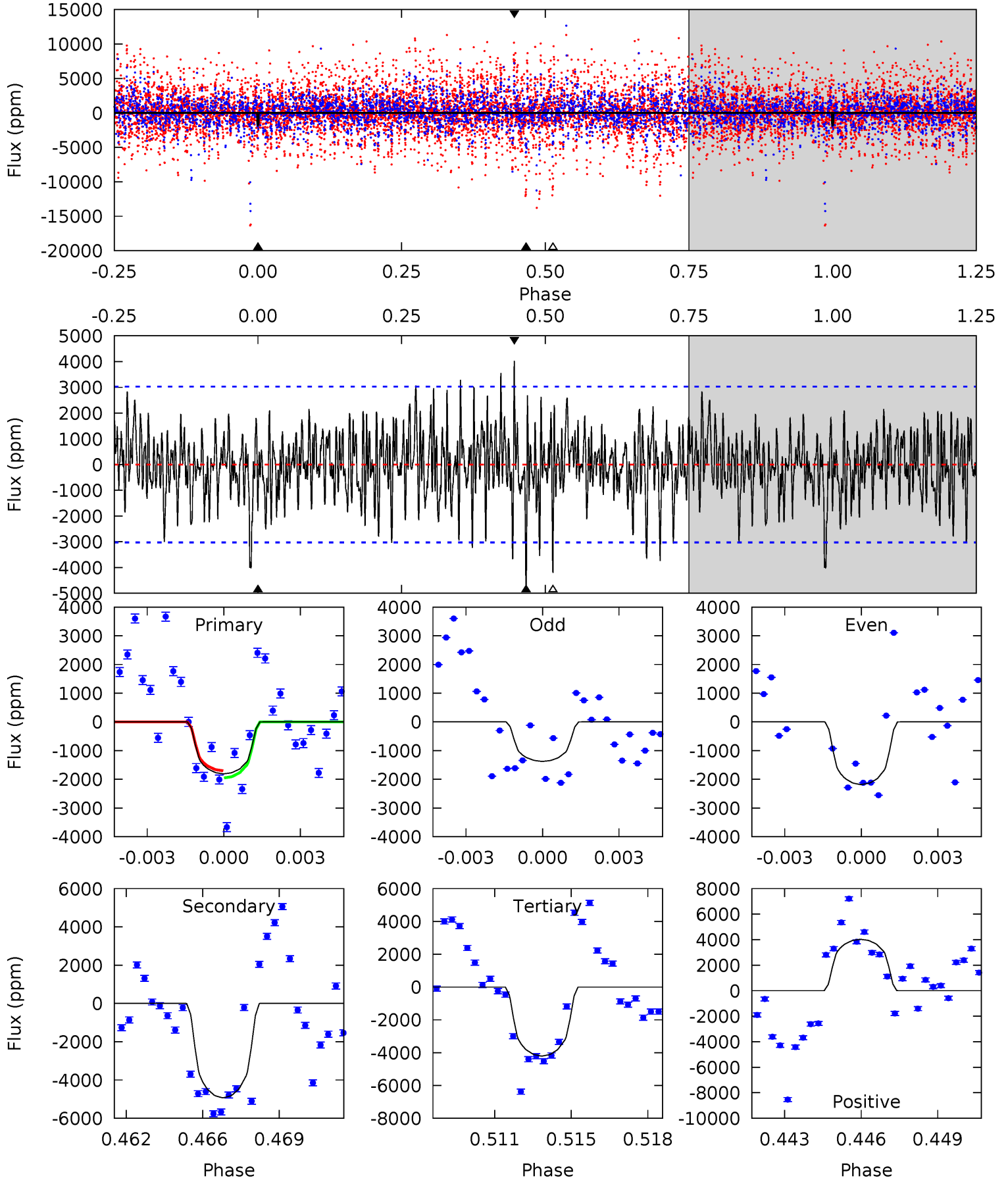
TCE 011706658-05 $P = 60.337688$ Days $T_0 = 172.511151$ (BKJD)



DV Model-Shift Uniqueness Test

011706658-05, P = 60.347609 Days, E = 112.153225 Days

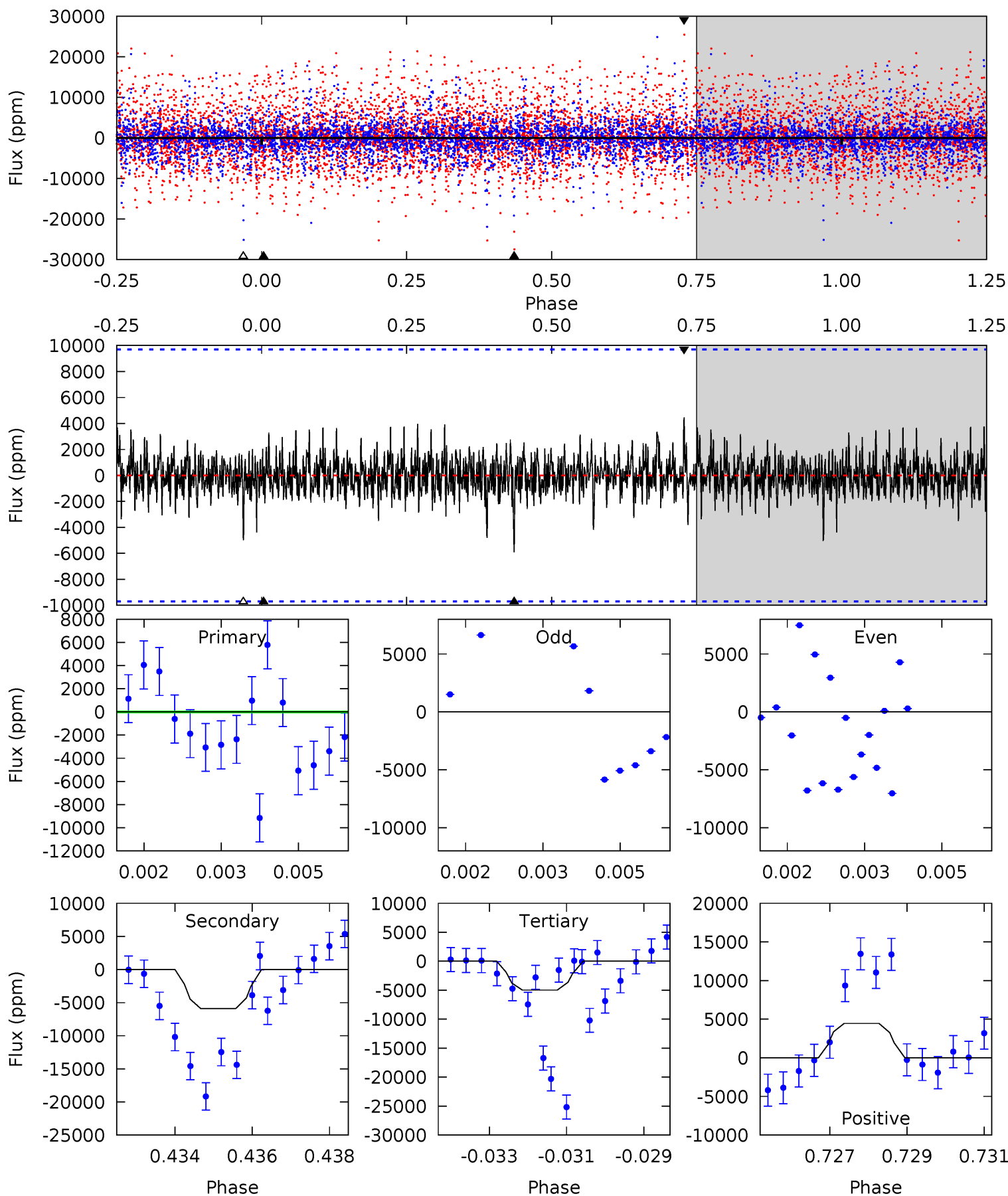
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.13	8.53	7.28	6.96	5.24	2.94	1.94	-4.15	-3.83	1.25	1.57	0.69	1.45	0.45	0.22



Alt Model-Shift Uniqueness Test

011706658-05, P = 60.337688 Days, E = 112.173463 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.82	3.26	2.74	2.46	5.35	3.13	0.66	-1.92	-1.64	0.51	0.80	0.30	1.00	0.43	0.18



Stellar Parameters For KIC 011706658

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4627^{+140}_{-140}	$4.564^{+0.060}_{-0.024}$	$0.160^{+0.250}_{-0.300}$	$0.741^{+0.036}_{-0.063}$	$0.734^{+0.054}_{-0.054}$	$2.541^{+0.641}_{-0.233}$
	+3%/-3%	+1%/-1%	+156%/-188%	+5%/-9%	+7%/-7%	+25%/-9%
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 011706658-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4925 ± 577	$5.35^{+4.23}_{-3.49}$	467^{+16}_{-17}	4723^{+3283}_{-942}	7109^{+52280}_{-4902}
Alt.	-5899 ± 1812	$4.72^{+4.29}_{-3.10}$	468^{+16}_{-16}	5178^{+3978}_{-1239}	10353^{+77482}_{-7512}

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

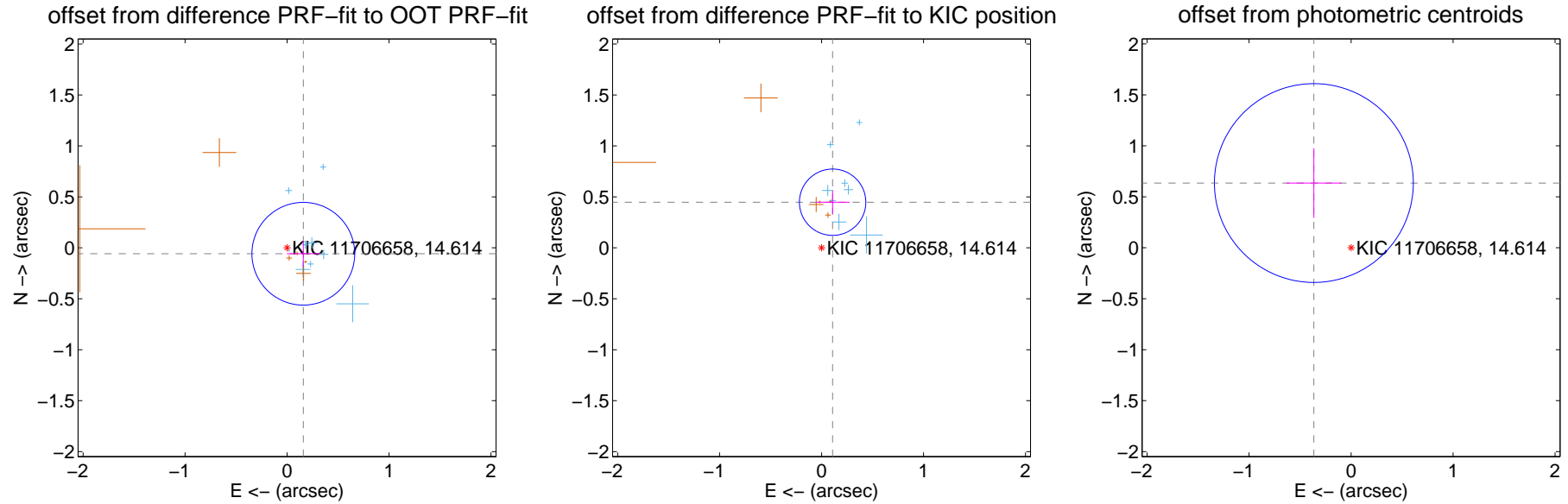
DV Centroid Data

Supplemental centroid analysis for 011706658-05. Kepler magnitude: 14.61. Transit SNR 2.99

There are 9 quarters with good PRF difference image offsets

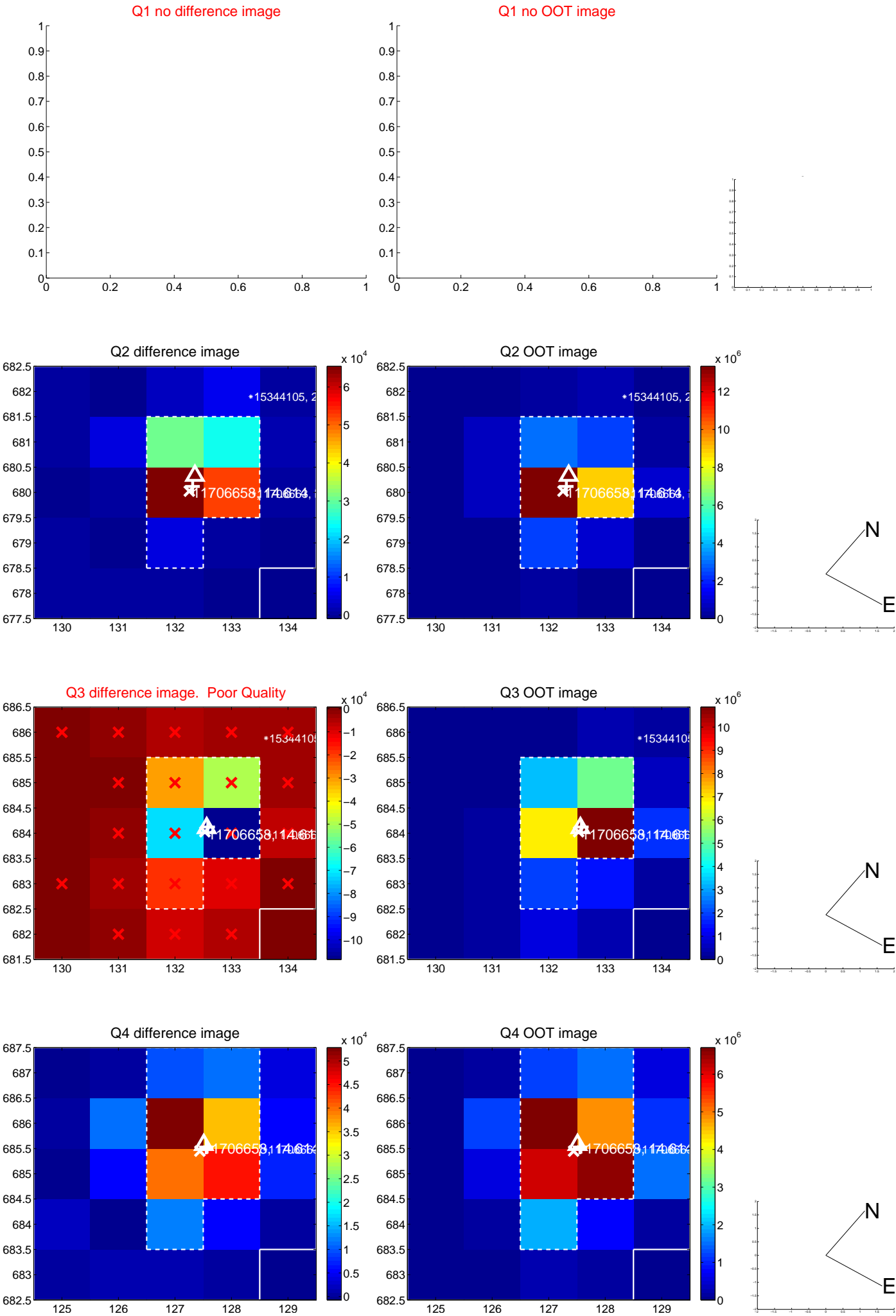
The direct PRF centroid is offset from the target star catalog position by about 0.64 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.170 ± 0.168	1.01	-0.159 ± 0.162	-0.058 ± 0.128
PRF-fit source offset from KIC position	0.461 ± 0.109	4.24	-0.108 ± 0.167	0.448 ± 0.114
photometric centroid source offset	0.73 ± 0.33	2.25	0.36 ± 0.27	0.64 ± 0.34

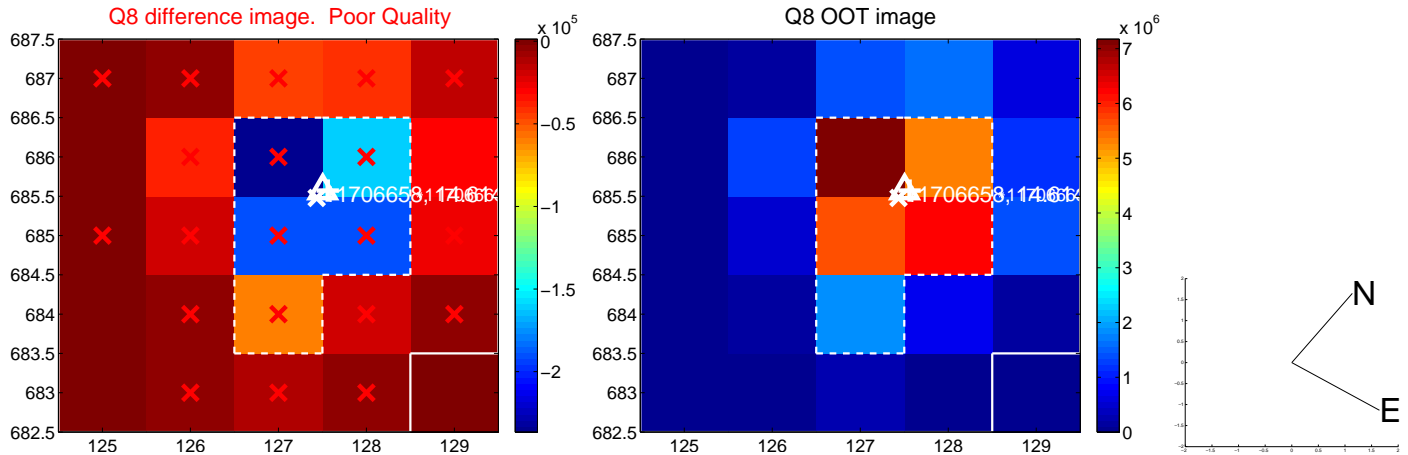
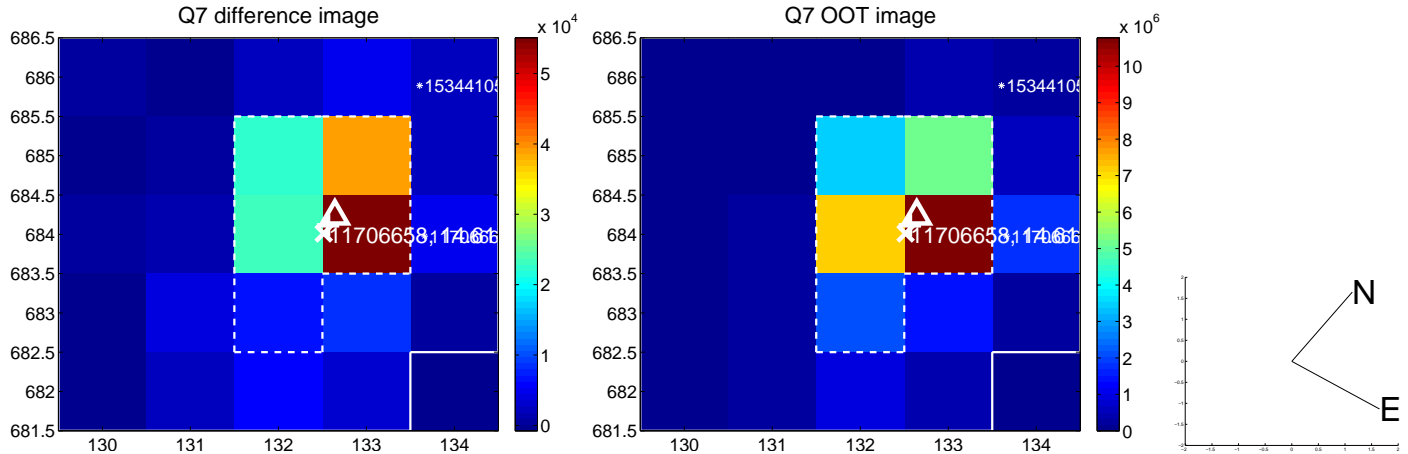
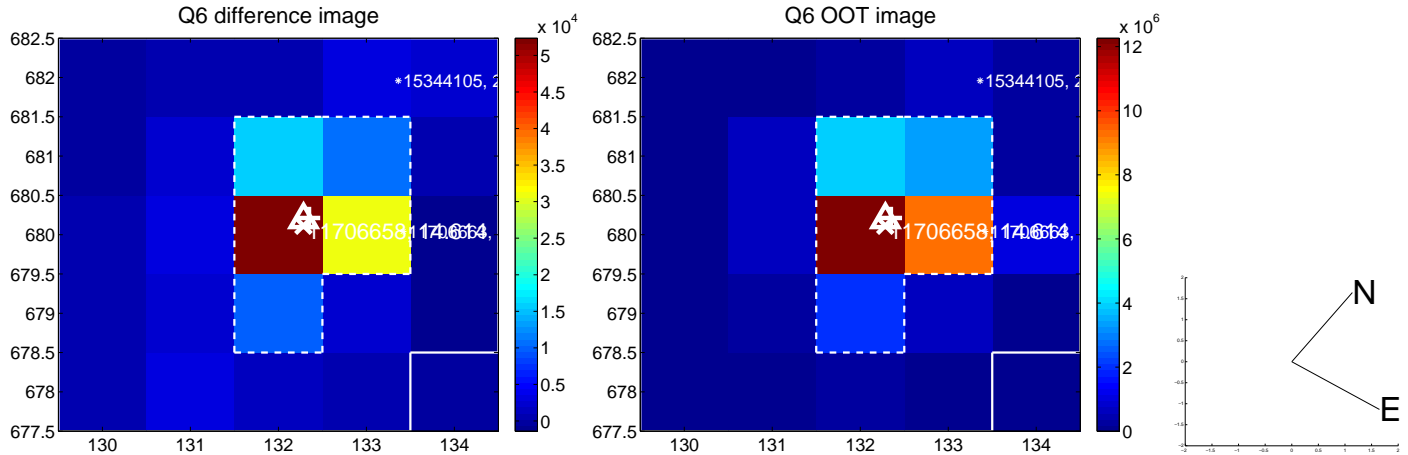
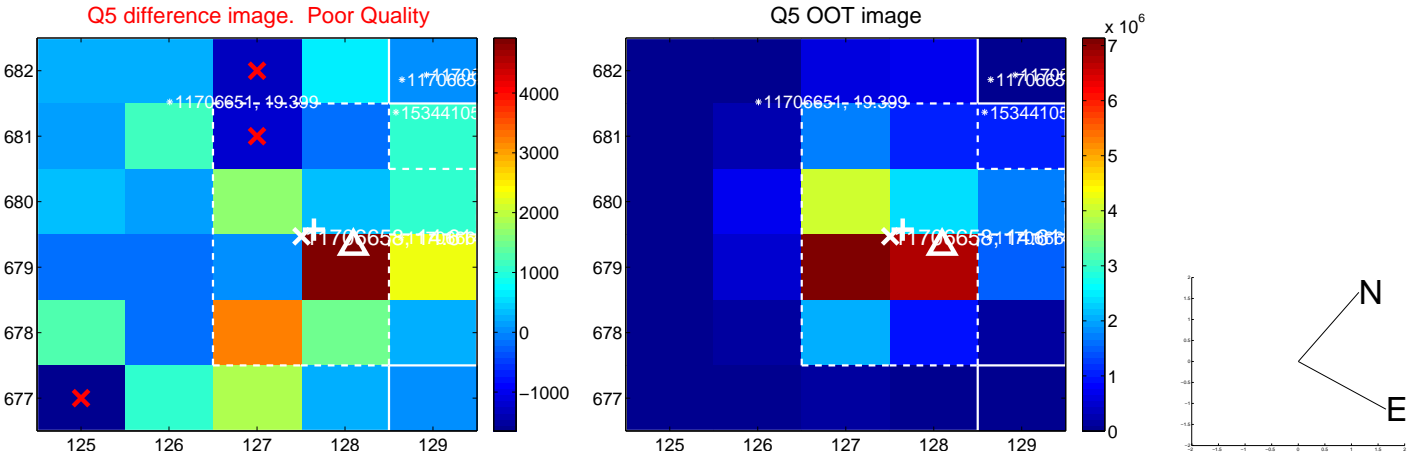


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

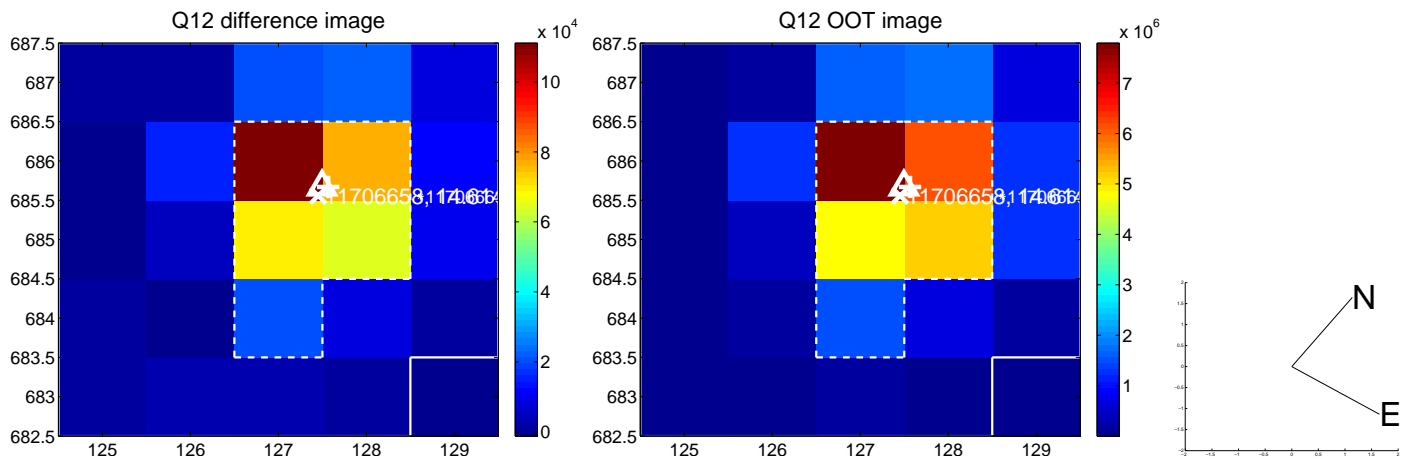
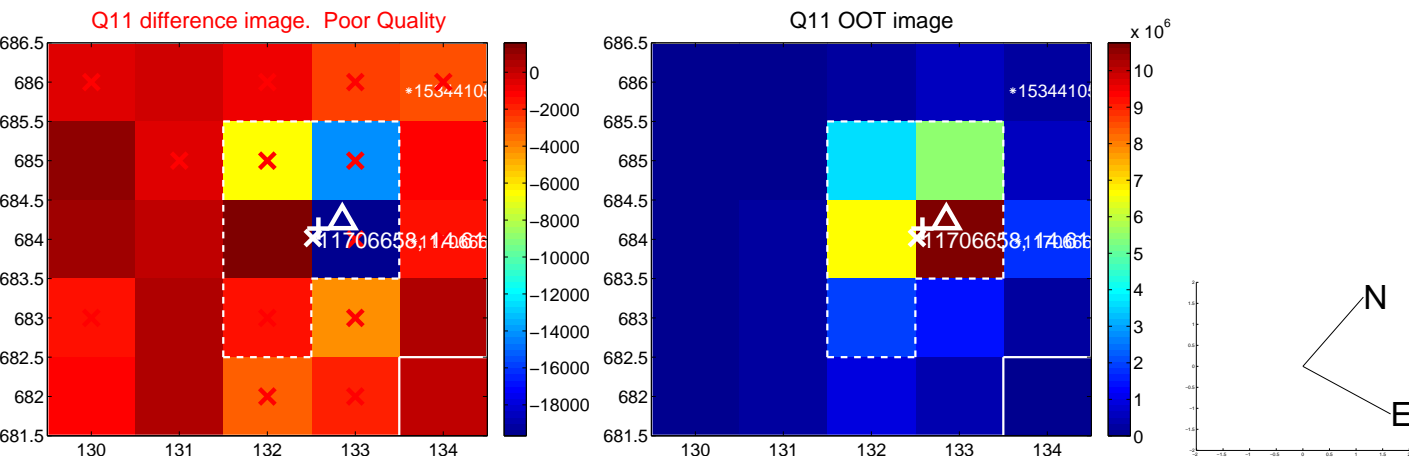
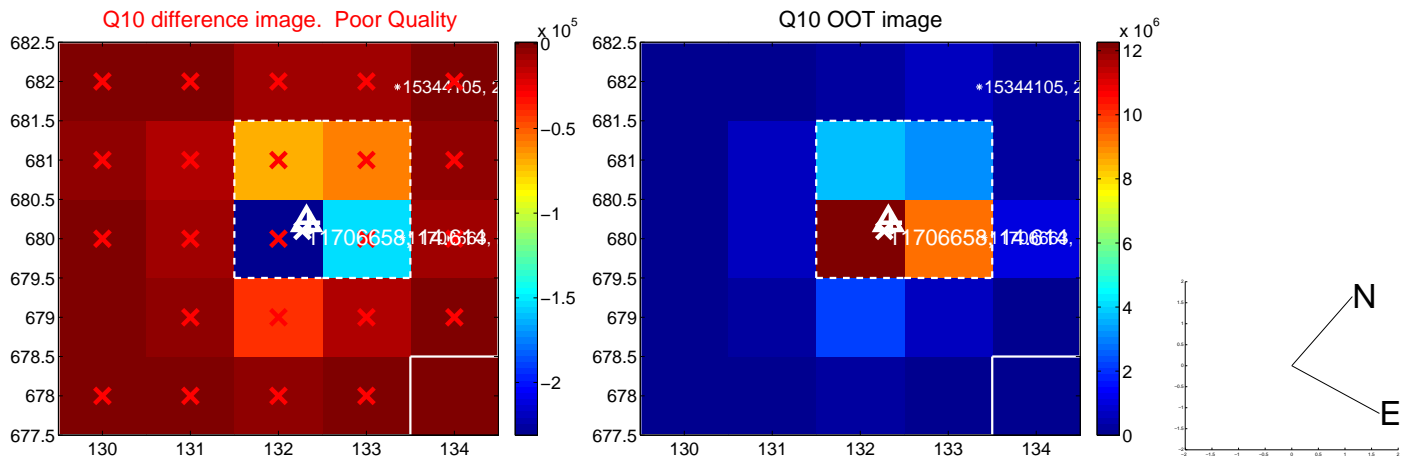
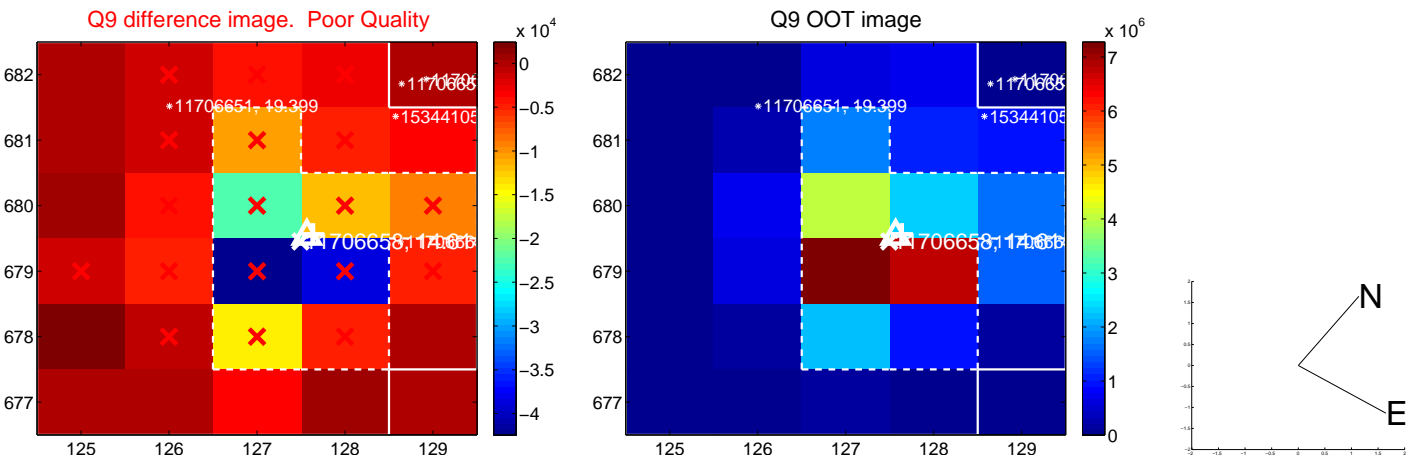
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



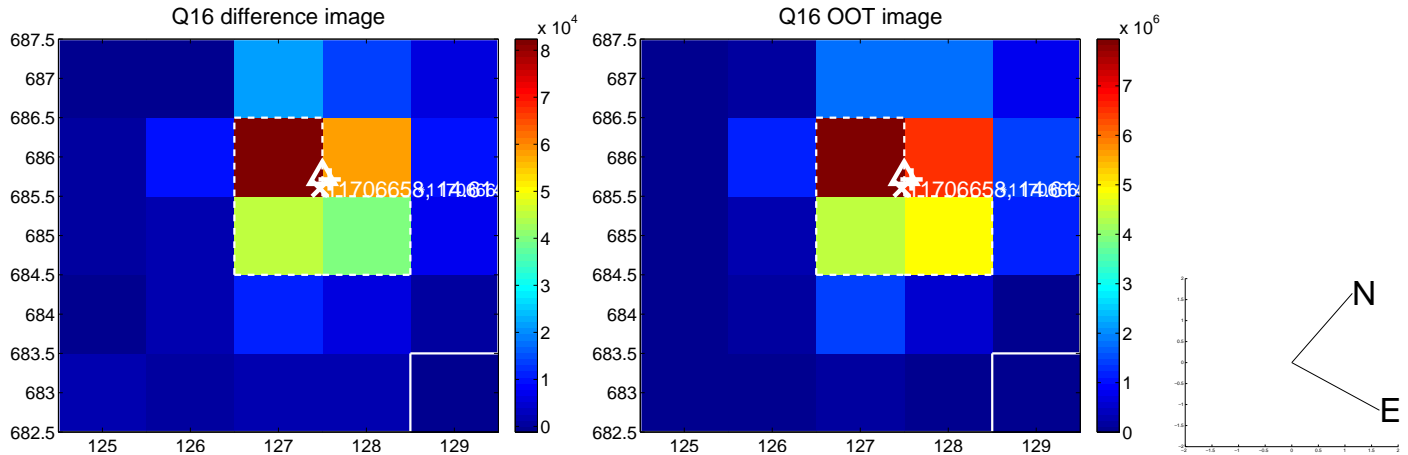
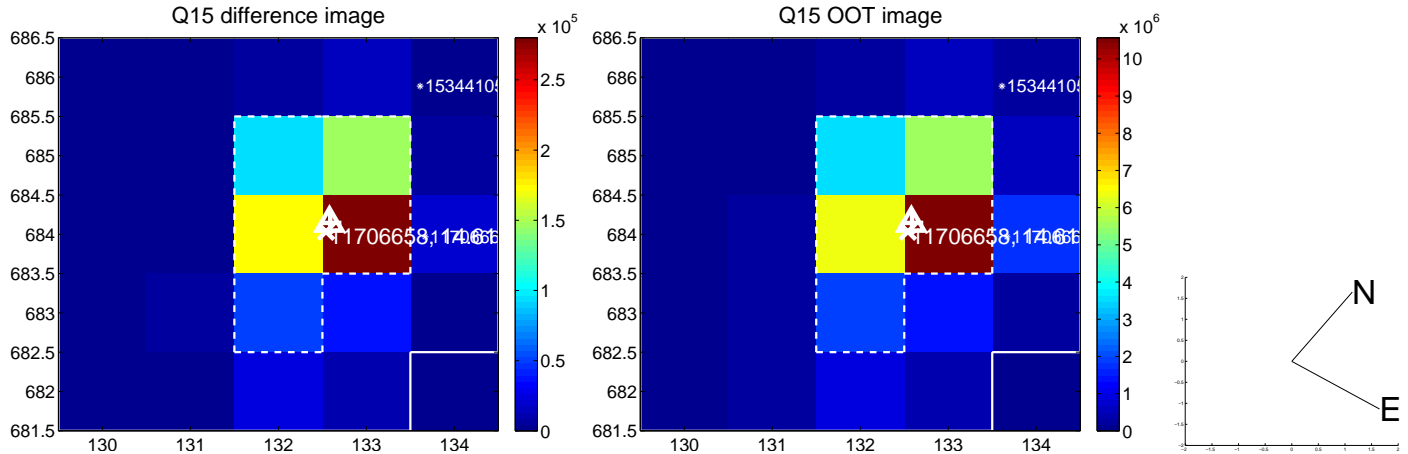
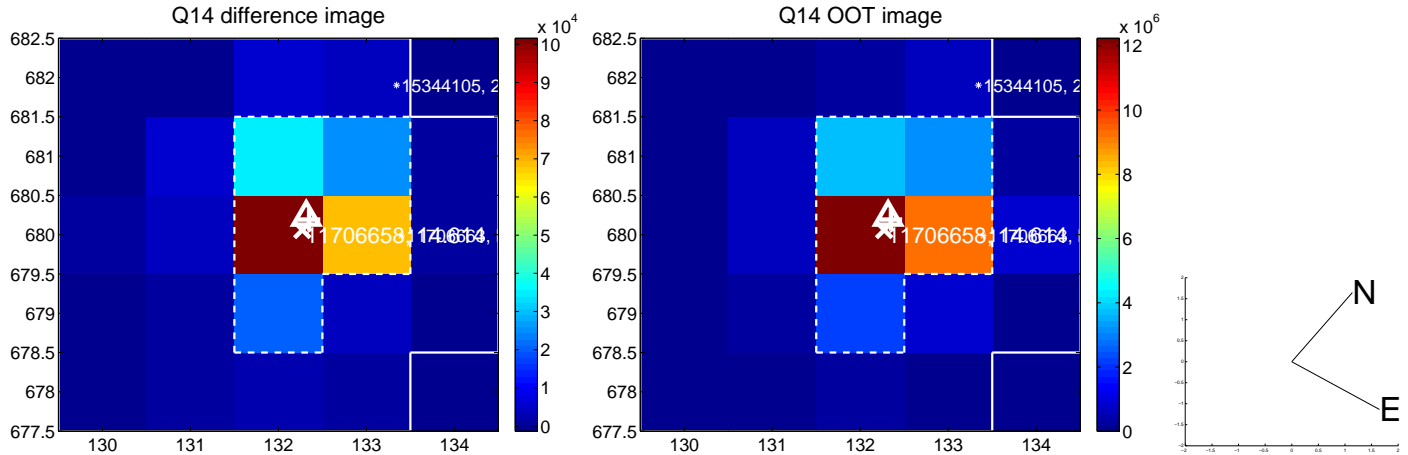
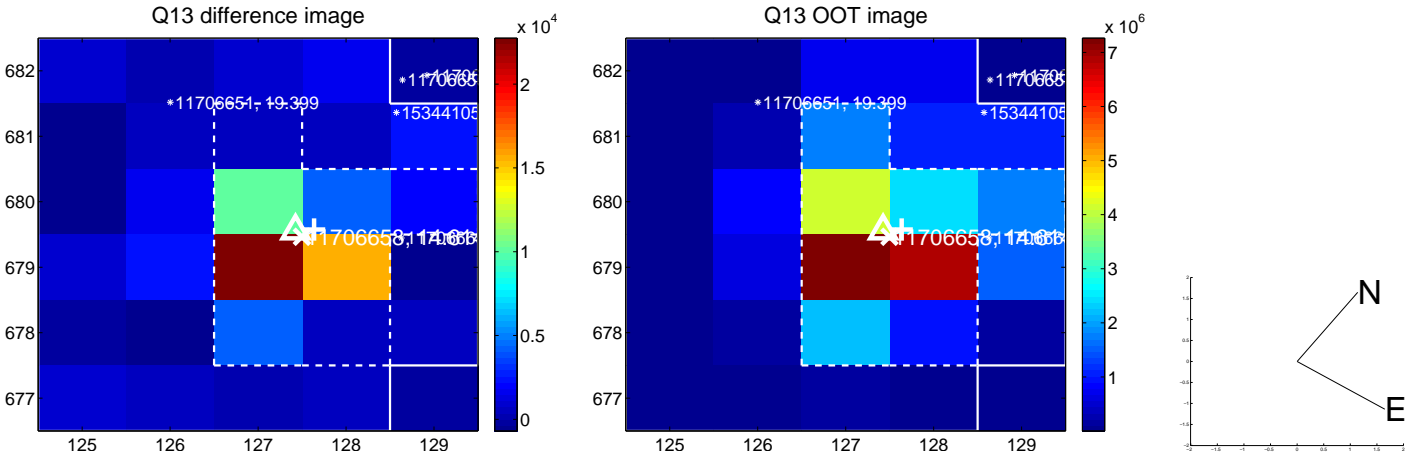
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



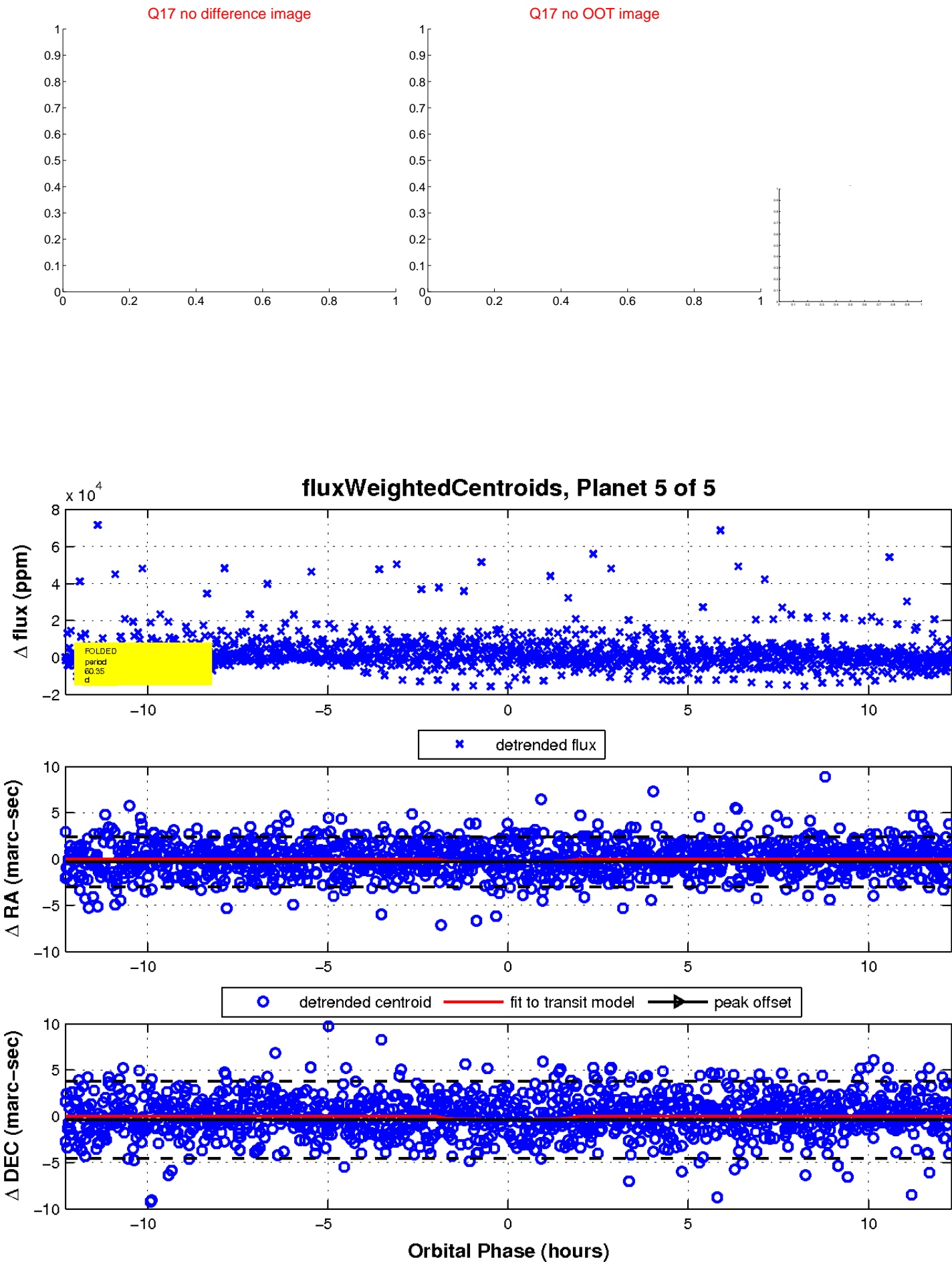
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

