

KIC 010681550

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})
010681550-01	OBS	No	4.530037	135.102778	45.4	13.320	12.5	13.2	1.08	6483	1.01	647.26
010681550-02	OBS	No	4.530013	132.877820	24.3	10.268	11.4	10.7	1.08	6483	0.62	647.27
010681550-03	OBS	No	123.937528	228.533374	71.3	13.003	16.8	3.5	1.08	6483	1.03	7.85
010681550-04	OBS	No	677.313799	219.694001	175.6	6.903	12.0	9.2	1.08	6483	1.65	0.82
010681550-05	OBS	No	271.622286	243.090279	121.8	12.040	8.6	6.1	1.08	6483	1.33	2.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010681550-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
010681550-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
010681550-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—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
010681550-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010681550-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_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.

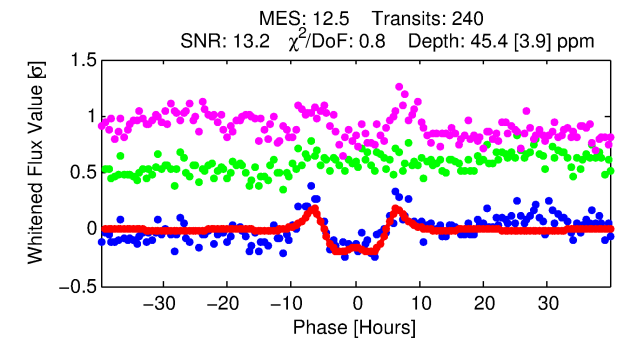
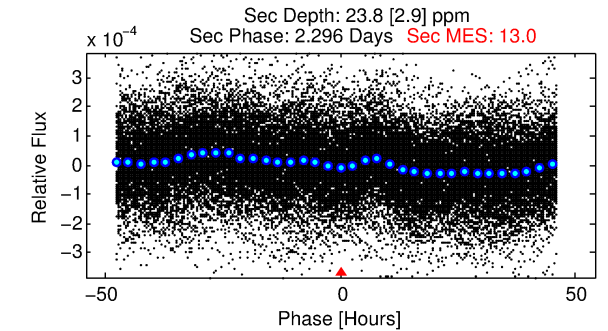
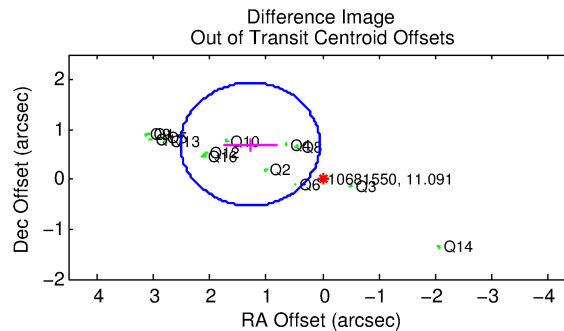
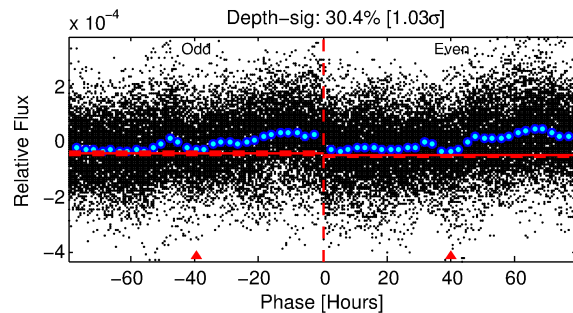
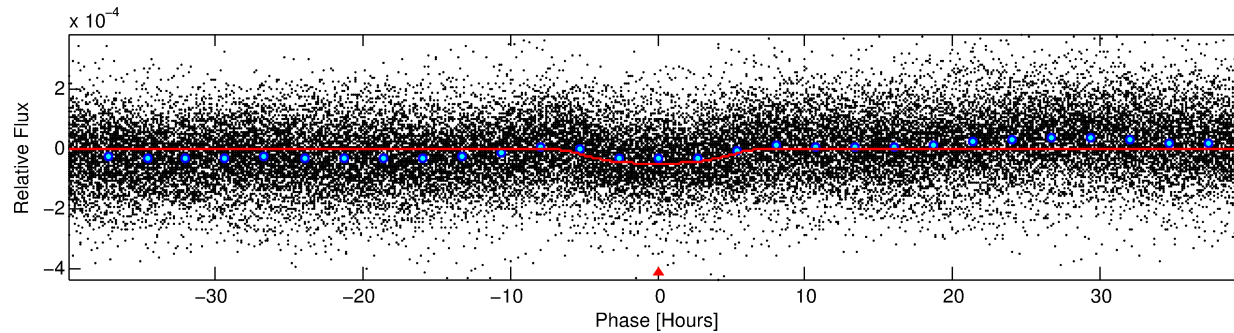
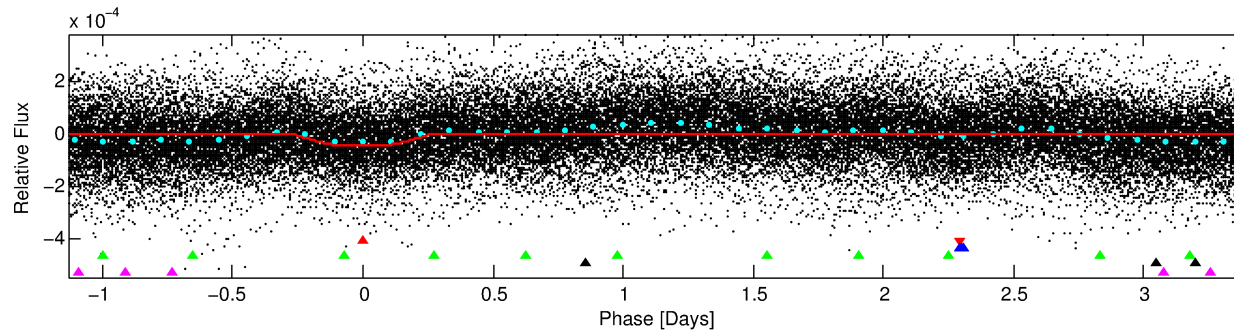
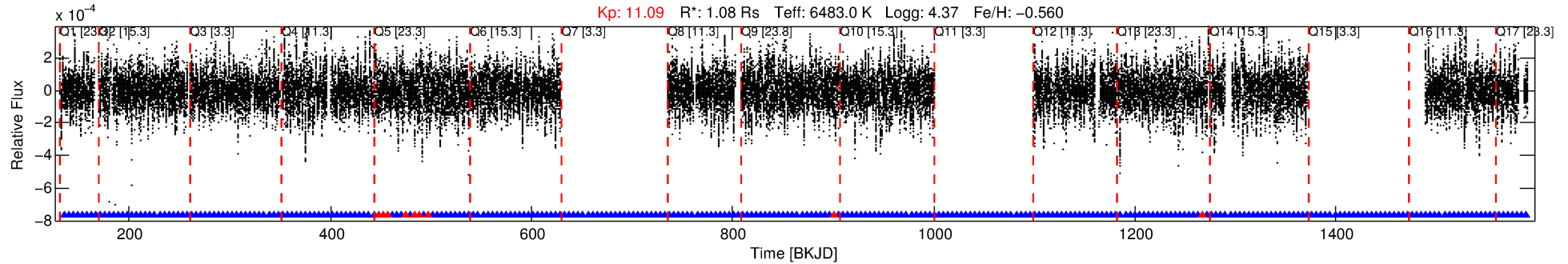
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010681550-01

No Significant Match Found

DV One-Page Summary

KIC: 10681550 Candidate: 1 of 5 Period: 4.530 d



DV Fit Results:

Period = 4.53004 [0.00006] d
Epoch = 135.1028 [0.0099] BKJD
Rp/R* = 0.0086 [0.0004]
a/R* = 1.11 [0.01]
b = 0.99 [0.00]
Seff = 647.26 [178.60]
Teq = 1286 [89] K
Rp = 1.01 [0.20] Re
a = 0.0535 [0.0090] AU
Ag = 36.43 [10.63] [3.33 σ]
Teffp = 4886 [237] K [14.23 σ]

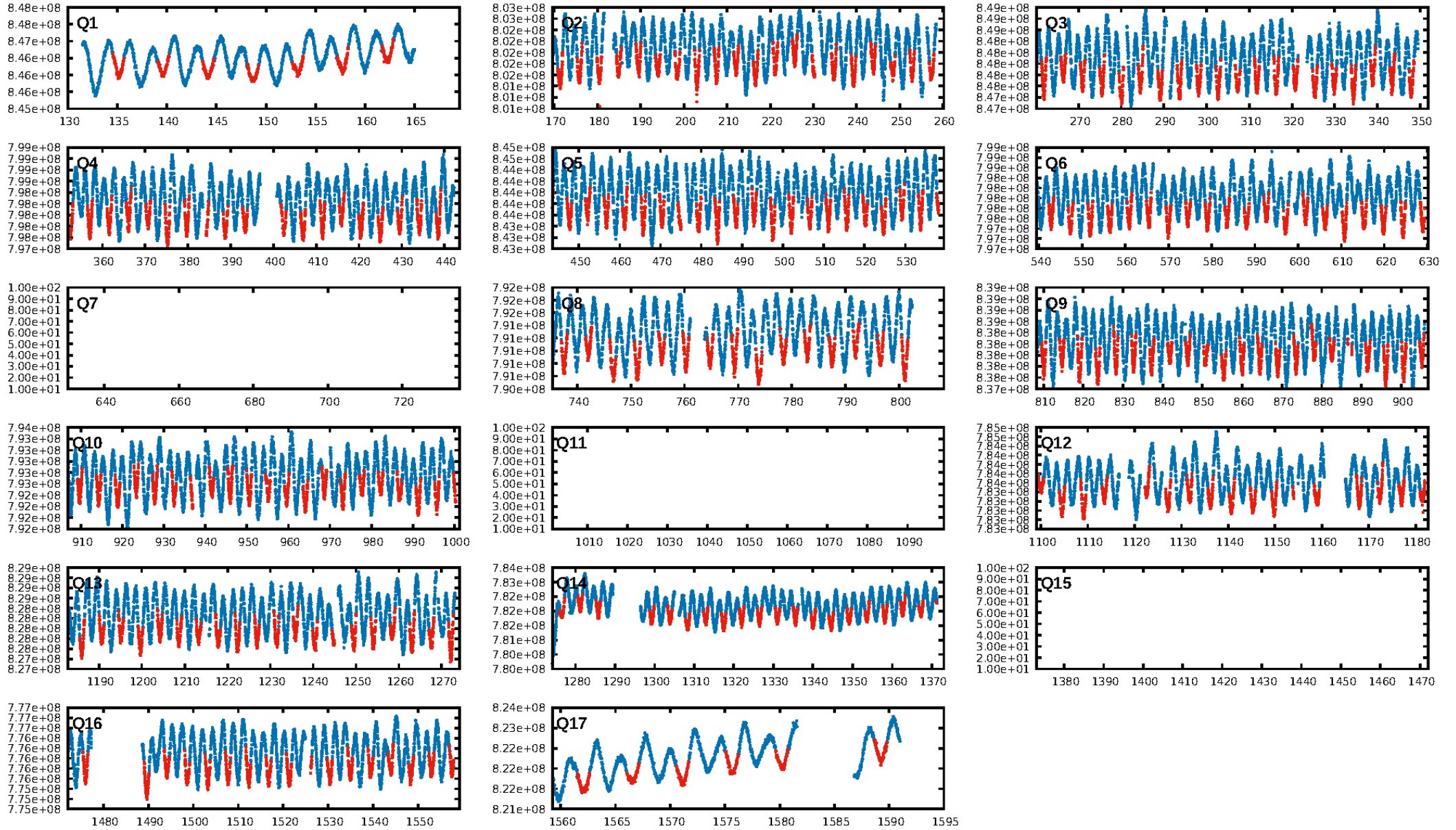
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [153.96 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.46e-21
RollingBand-fgt: 0.96 [218/227]
GhostDiagnostic-chr: 1.295
Centroid-sig: 0.0%
Centroid-so: 2.257 arcsec [2.90 σ]
OotOffset-rm: 1.457 arcsec [3.55 σ]
KicOffset-rm: 1.832 arcsec [4.49 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [14/14]

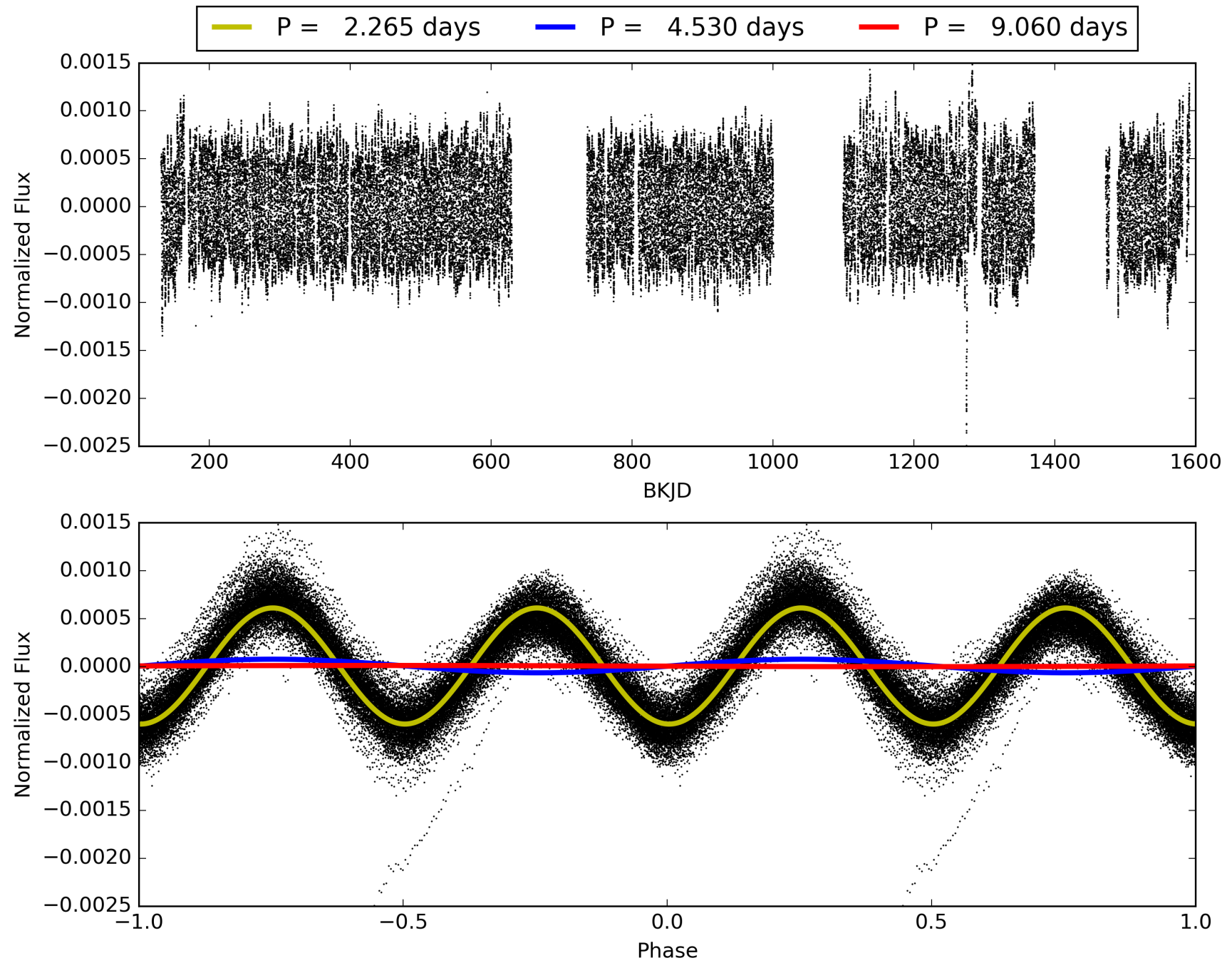
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:16:45 Z

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

TCE 010681550-01, PDC Light Curves

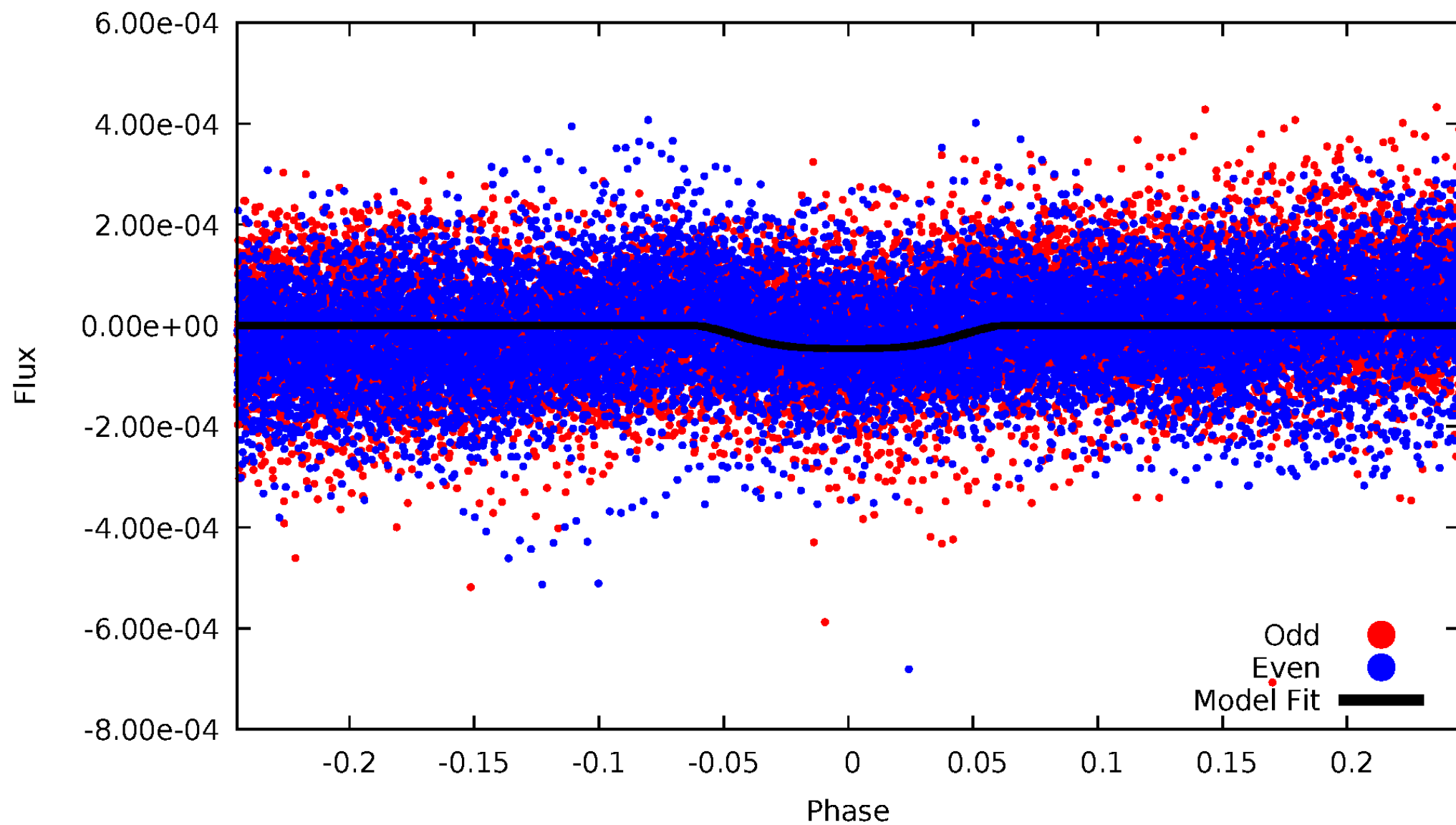


TCE 010681550-01



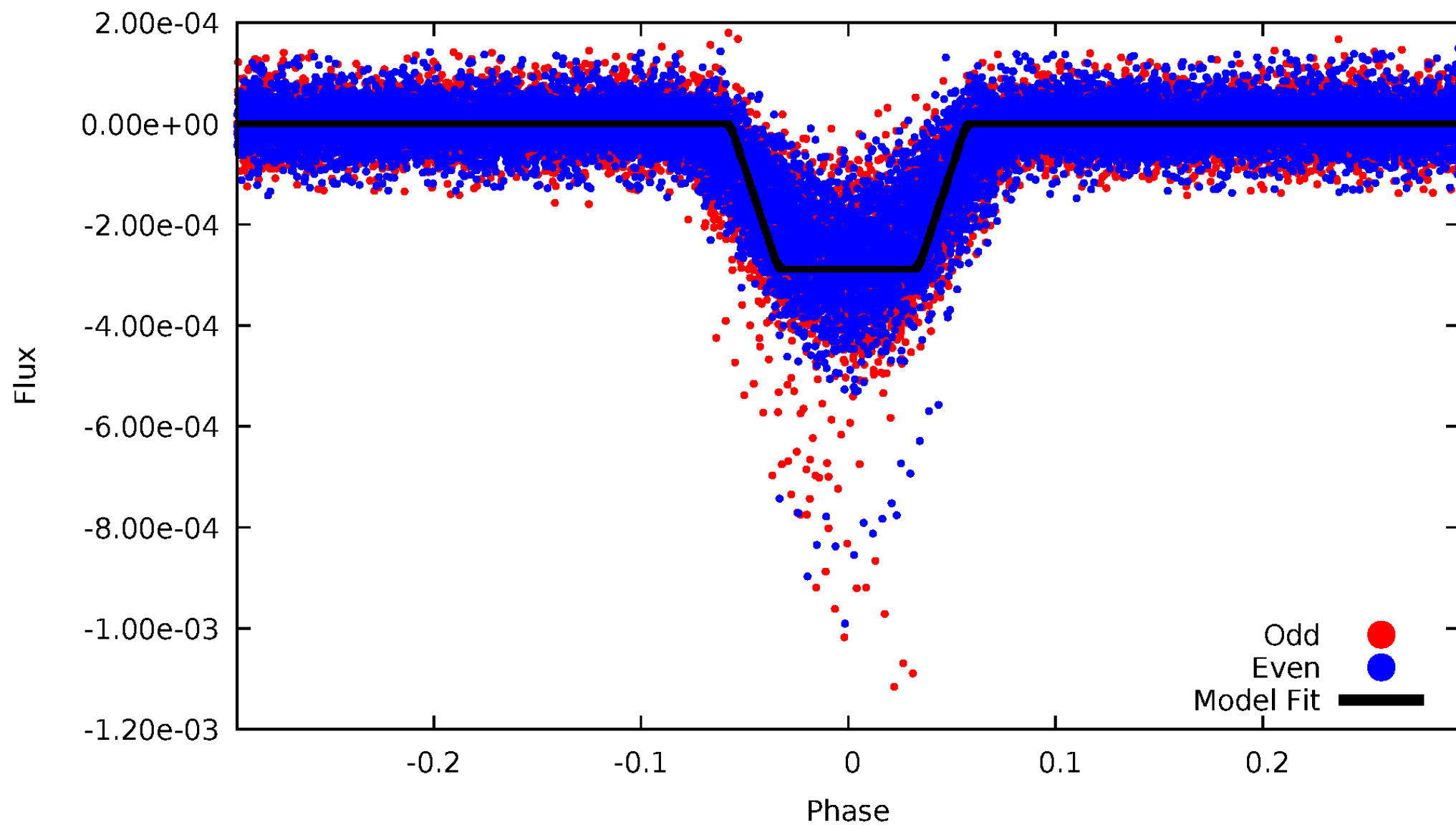
DV Odd/Even

TCE 010681550-01



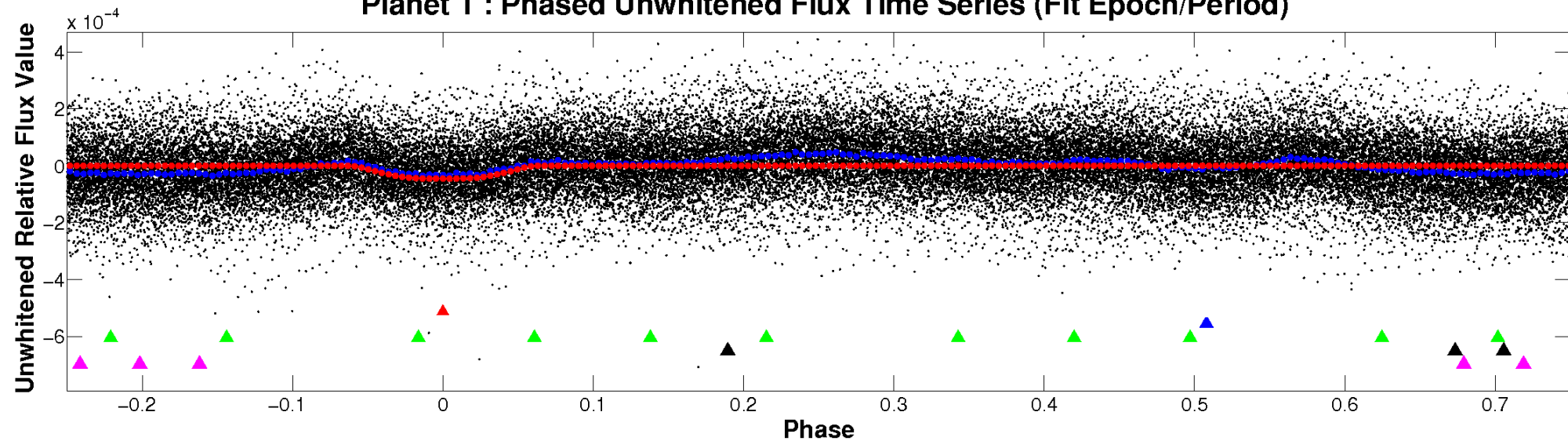
ALT Odd/Even

TCE 010681550-01

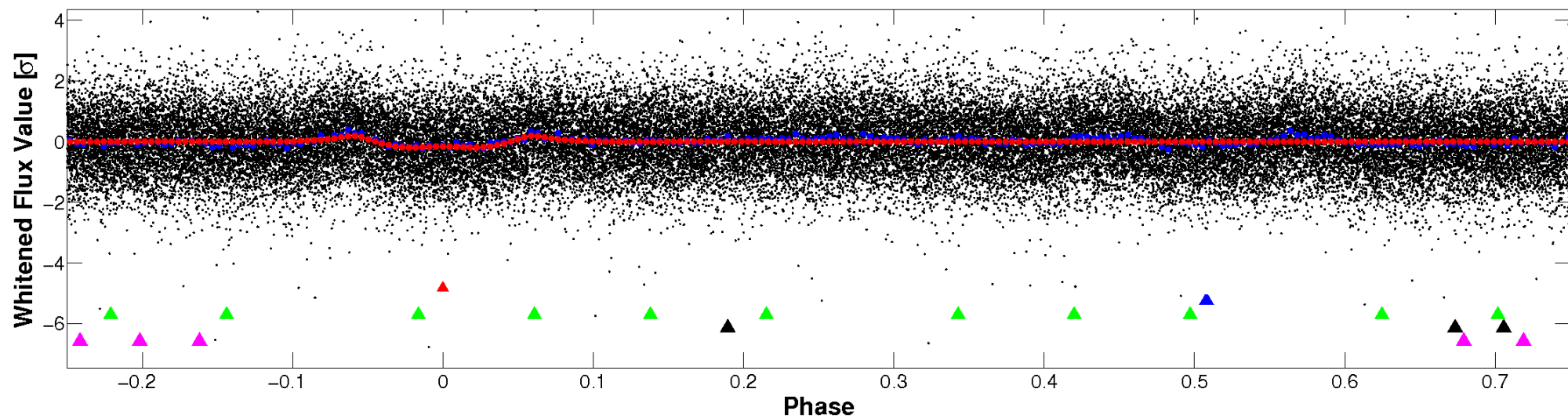


Non-Whitened Vs. Whitened Light Curve

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

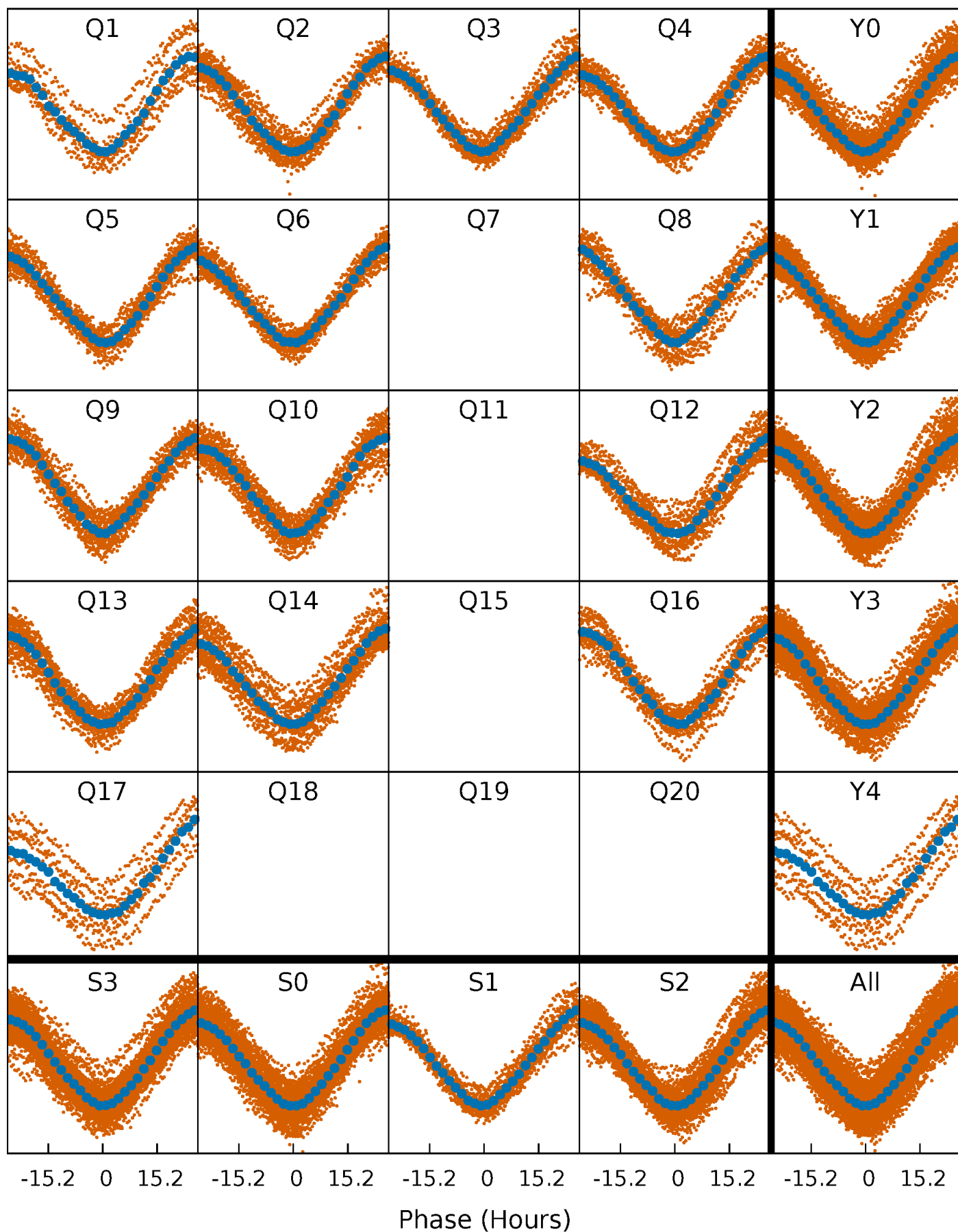


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



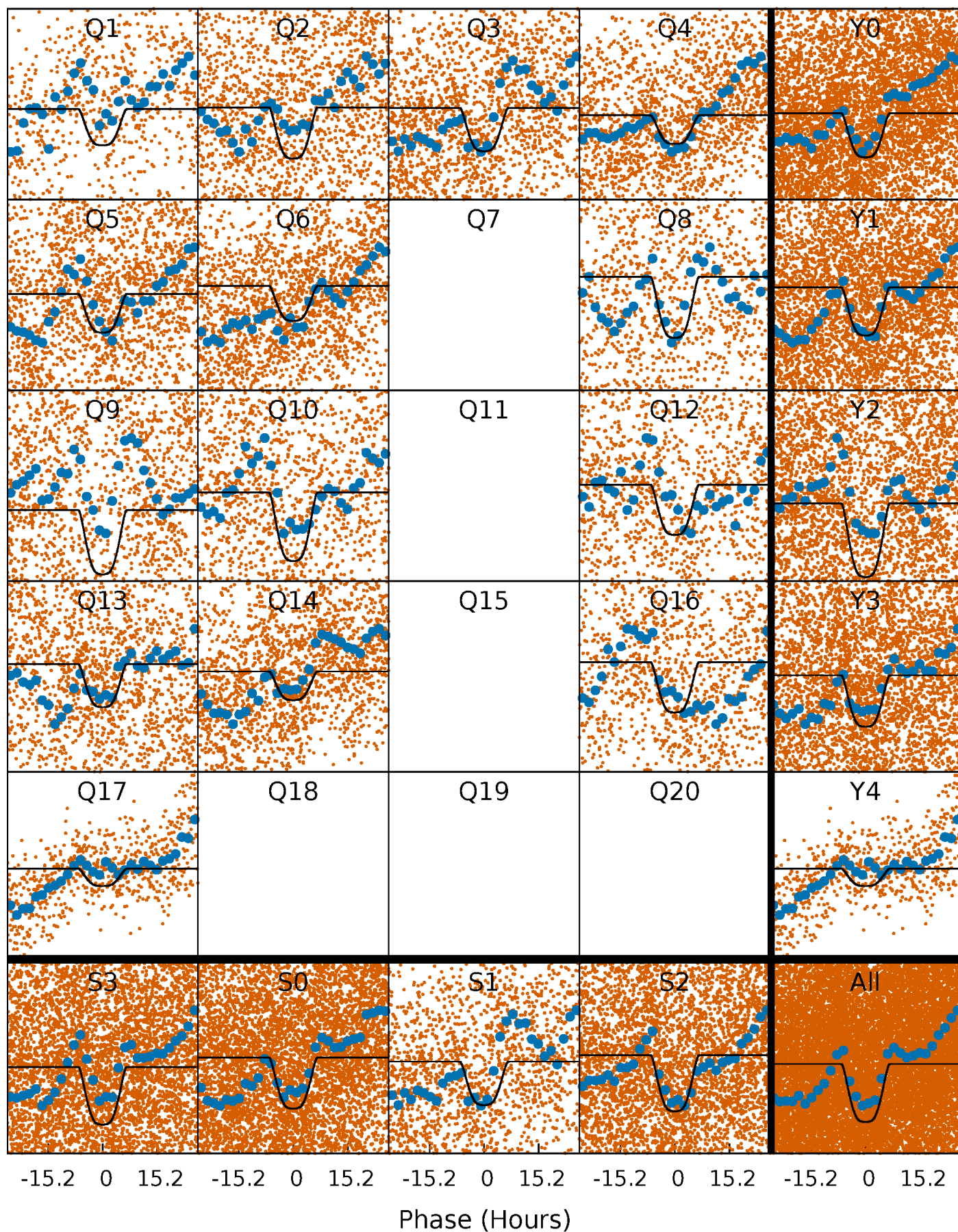
PDC Quarter-Phased Transit Curves

TCE 010681550-01 P= 4.530037 Days $T_0=135.102778$ (BKJD)



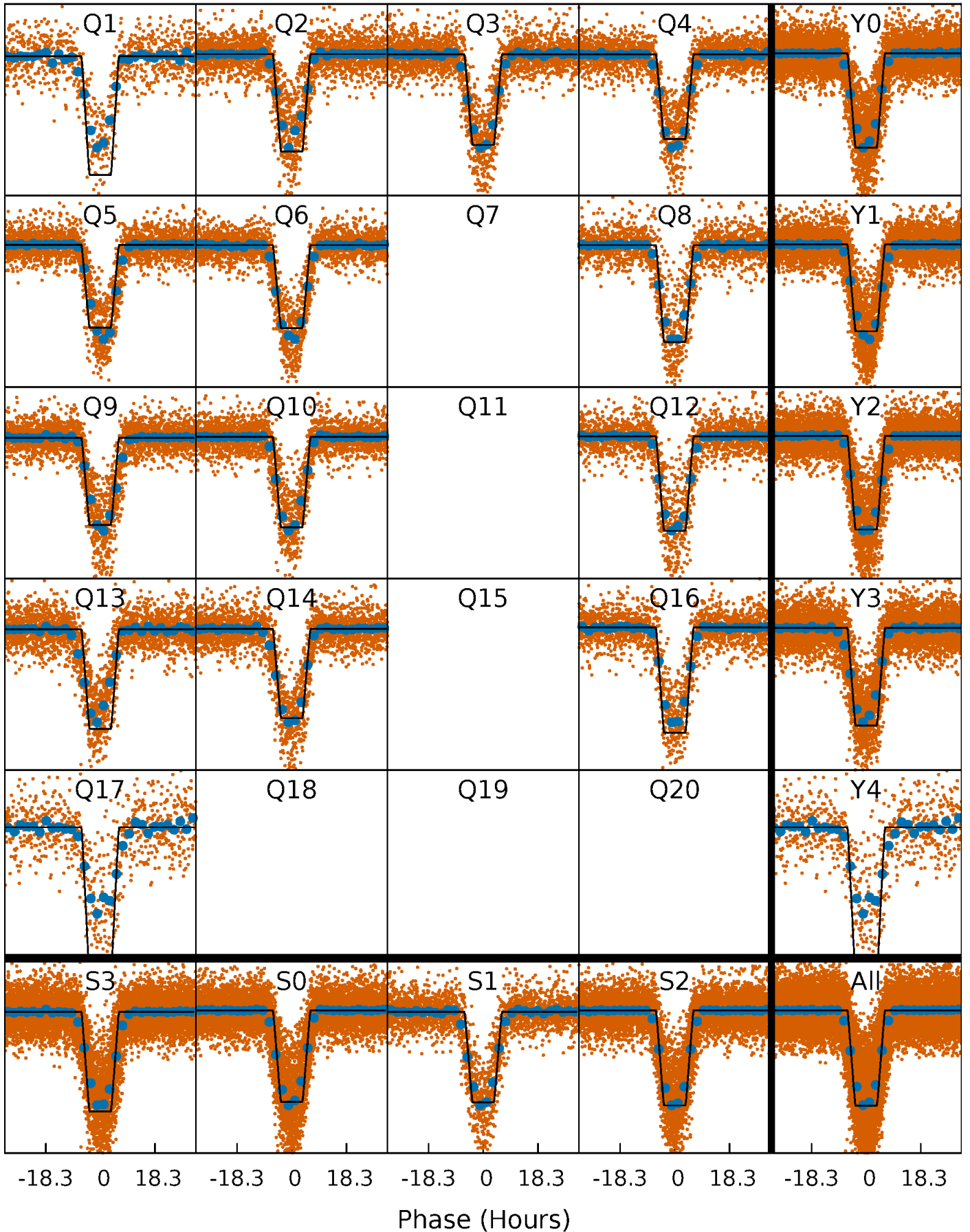
DV Quarter-Phased Transit Curves

TCE 010681550-01 P= 4.530037 Days $T_0=135.102778$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

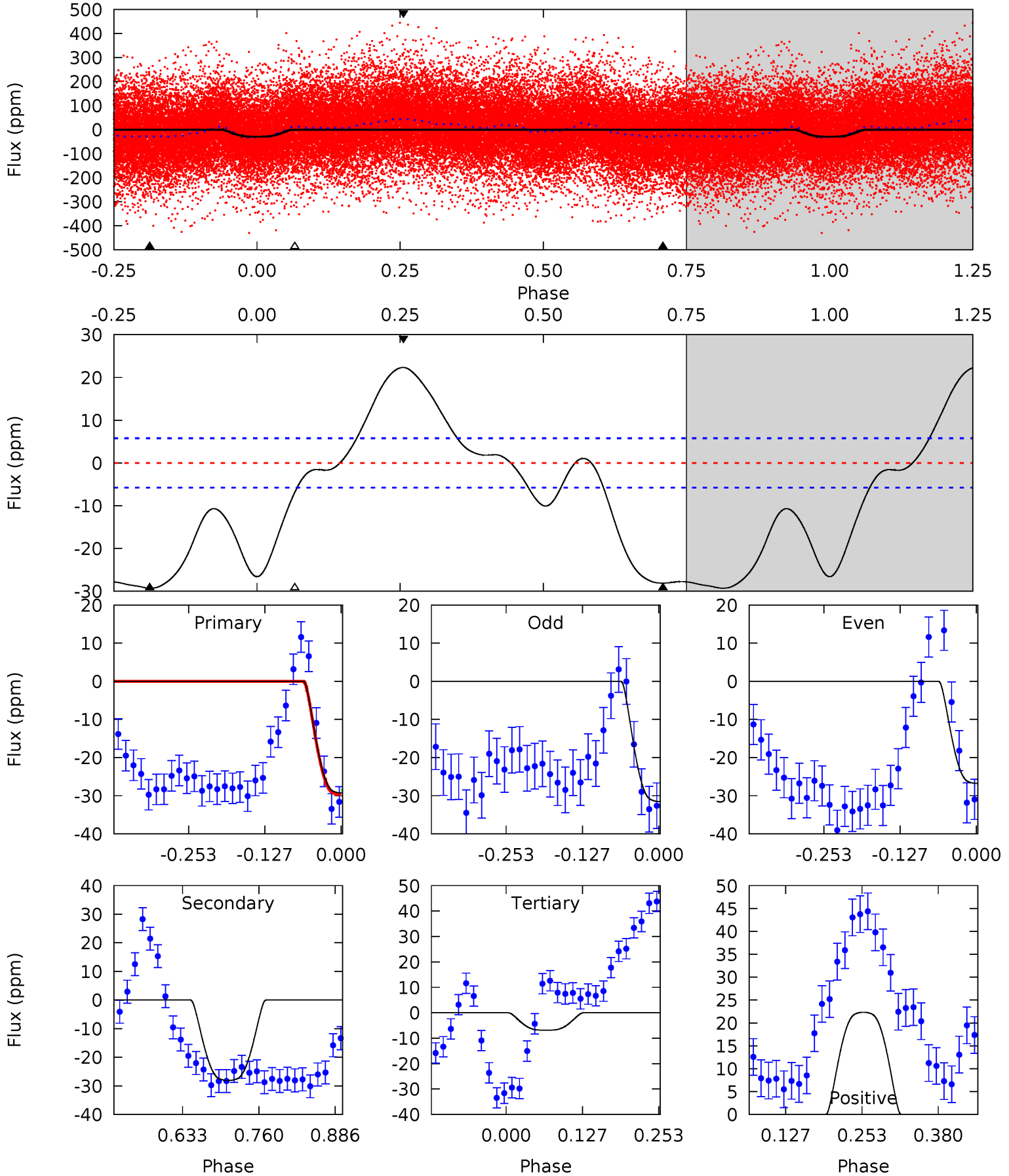
TCE 010681550-01 P= 4.530016 Days $T_0=135.107421$ (BKJD)



DV Model-Shift Uniqueness Test

010681550-01, P = 4.530037 Days, E = 130.572741 Days

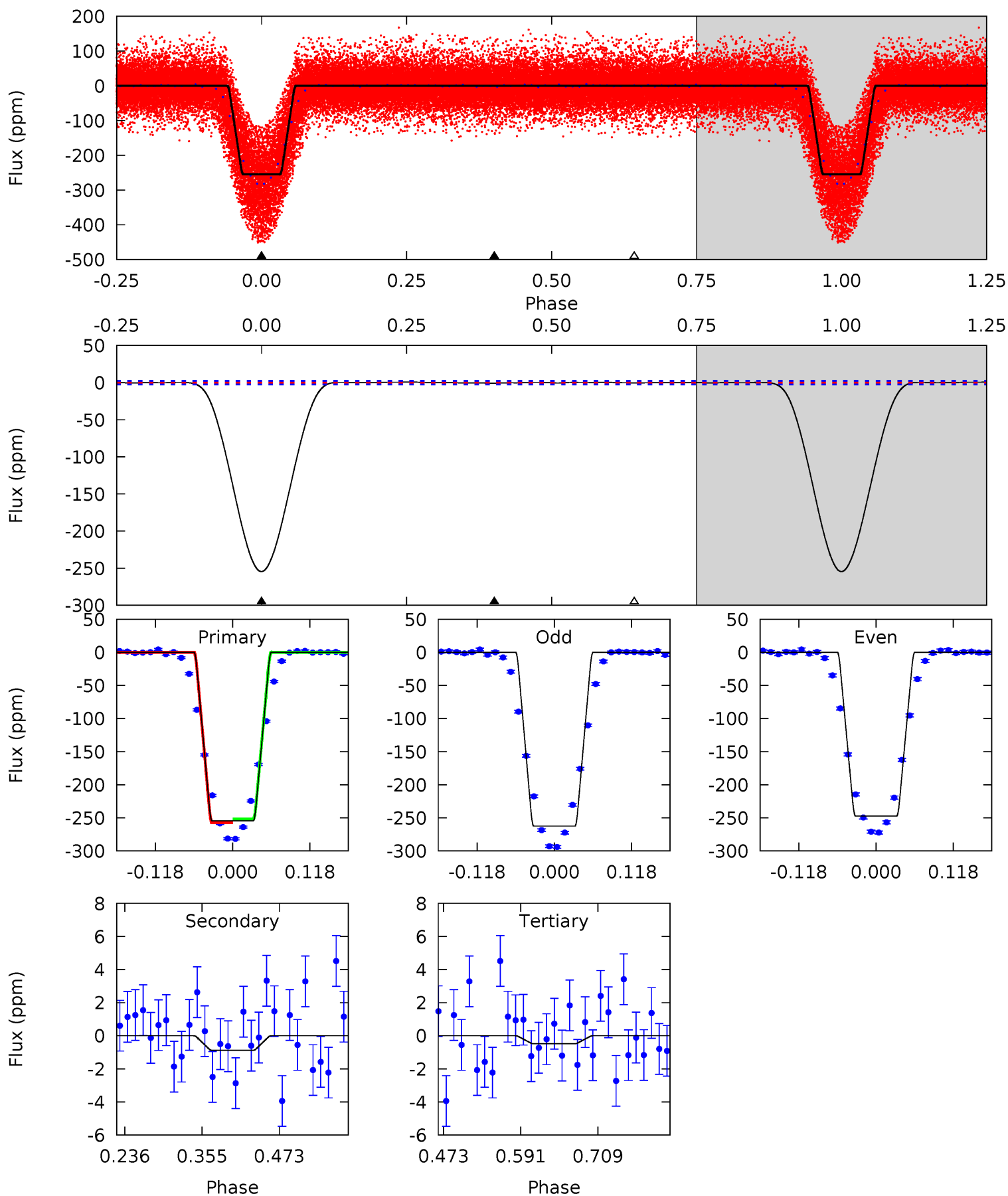
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	22.0	5.37	17.5	4.52	1.53	9.88	17.5	5.42	16.6	4.50	1.85	1.00	0.43	0.44



Alt Model-Shift Uniqueness Test

010681550-01, P = 4.530016 Days, E = 130.577405 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
491.6	1.70	0.94	0	4.53	1.56	0.59	490.7	491.6	0.77	1.70	14.7	1.06	0.00	5.82



Stellar Parameters For KIC 010681550

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6483^{+145}_{-194}	$4.367^{+0.092}_{-0.138}$	$-0.560^{+0.300}_{-0.300}$	$1.081^{+0.211}_{-0.141}$	$0.992^{+0.124}_{-0.112}$	$1.105^{+0.515}_{-0.412}$
	+2%/-3%	+2%/-3%	+54%/-54%	+20%/-13%	+12%/-11%	+47%/-37%
Source	PHO1	FLK73	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 010681550-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-28 ± 1	$1.04^{+0.12}_{-0.10}$	1806^{+98}_{-87}	5135^{+157}_{-149}	41^{+9}_{-8}
Alt.	-1 ± 1	$2.02^{+0.24}_{-0.16}$	1802^{+101}_{-81}	1856^{+457}_{-4095}	$0.330^{+0.219}_{-0.195}$

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

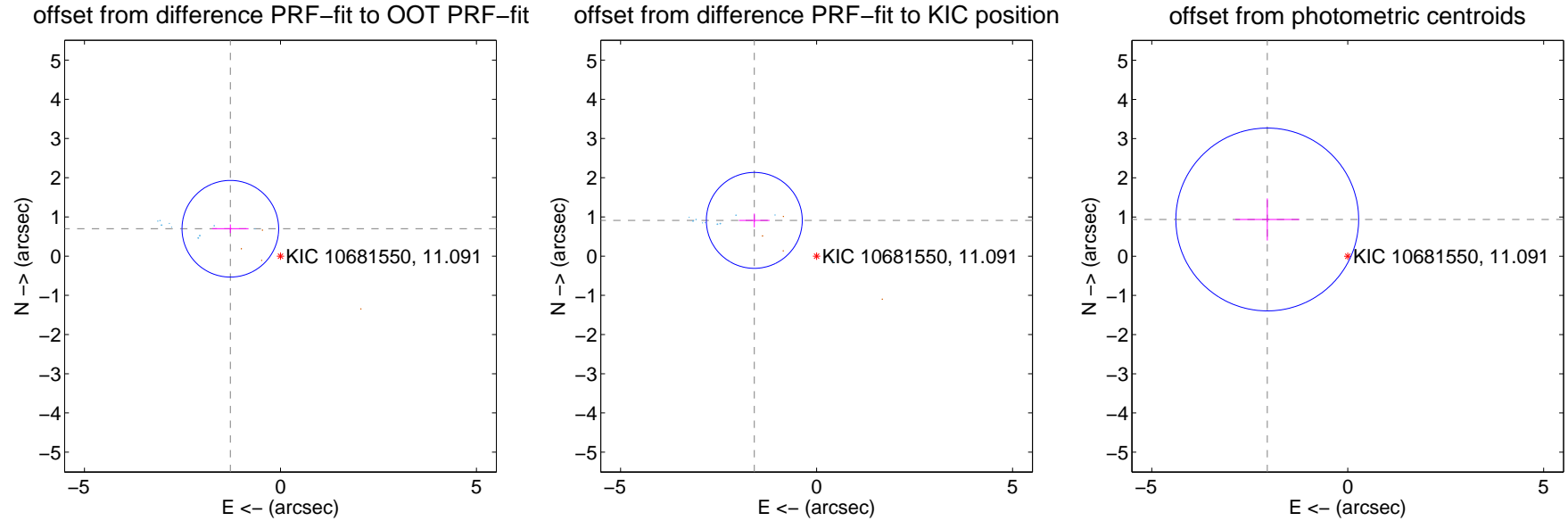
DV Centroid Data

Supplemental centroid analysis for 010681550-01. **Kepler magnitude: 11.09.** Transit SNR 13.20

There are 10 quarters with good PRF difference image offsets

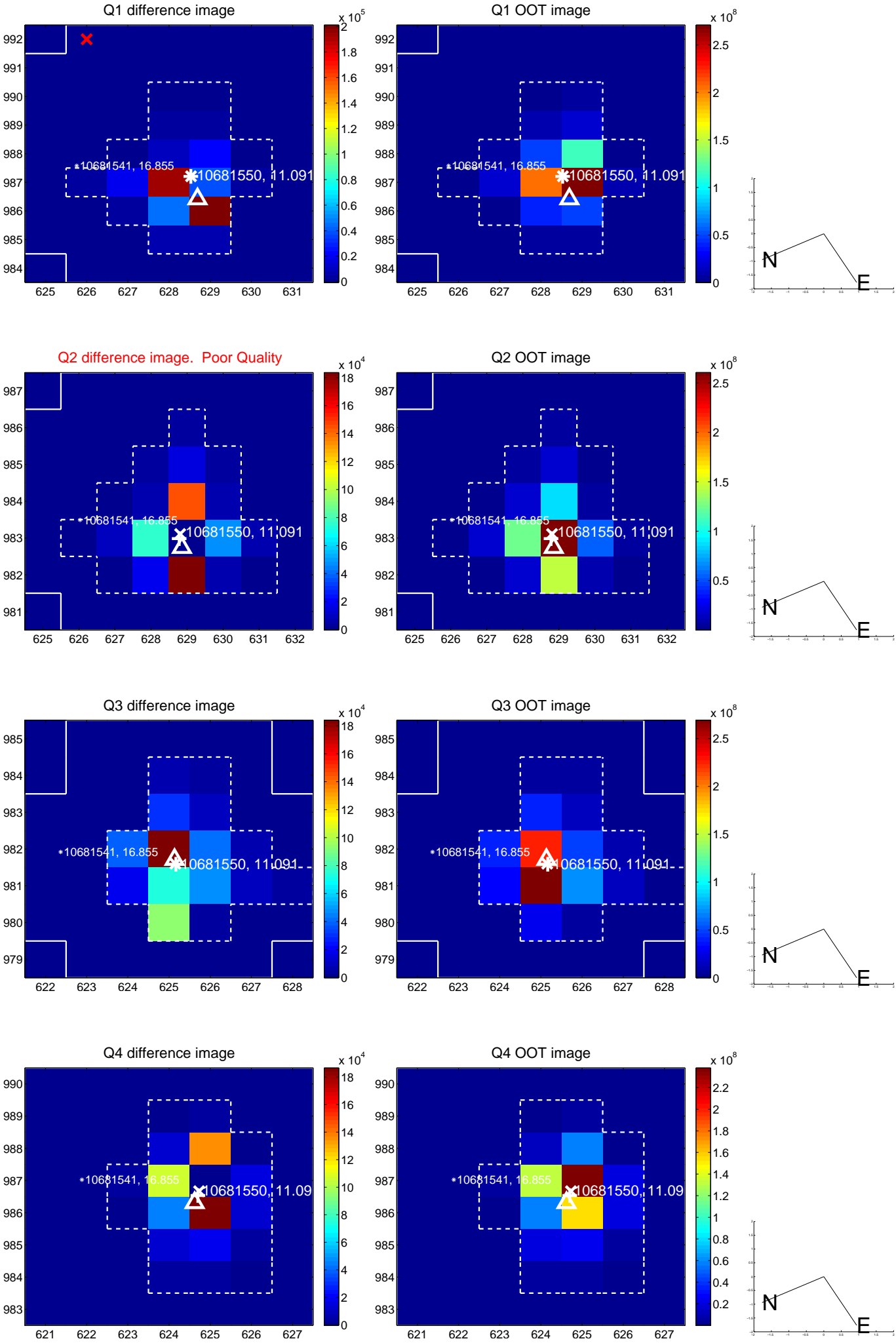
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.457 \pm 0.411	3.55	1.278 \pm 0.464	0.698 \pm 0.112
PRF-fit source offset from KIC position	1.832 \pm 0.408	4.49	1.588 \pm 0.390	0.912 \pm 0.174
photometric centroid source offset	2.26 \pm 0.78	2.90	2.05 \pm 0.82	0.94 \pm 0.54

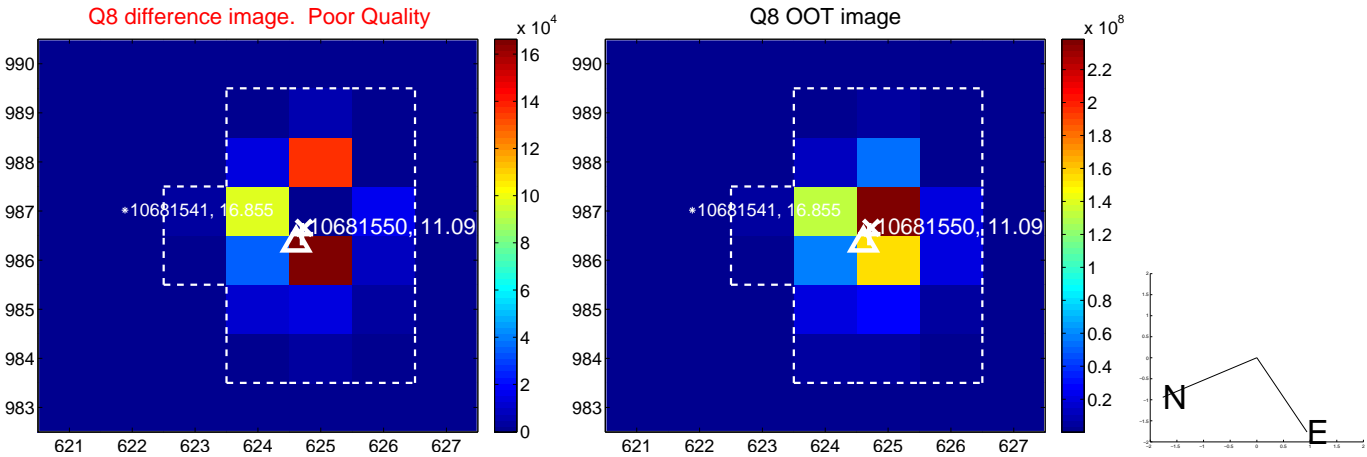
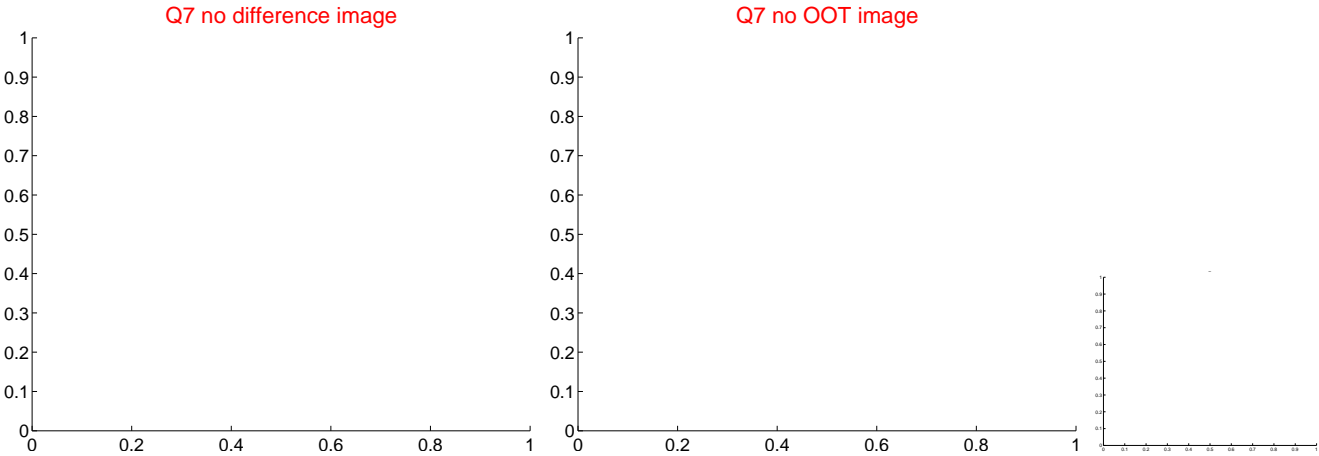
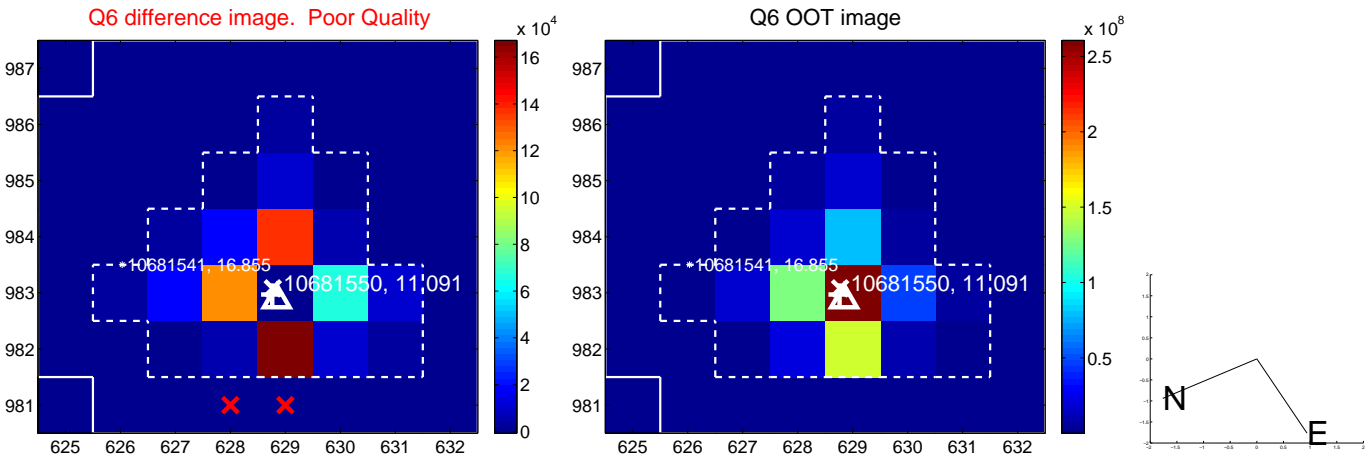
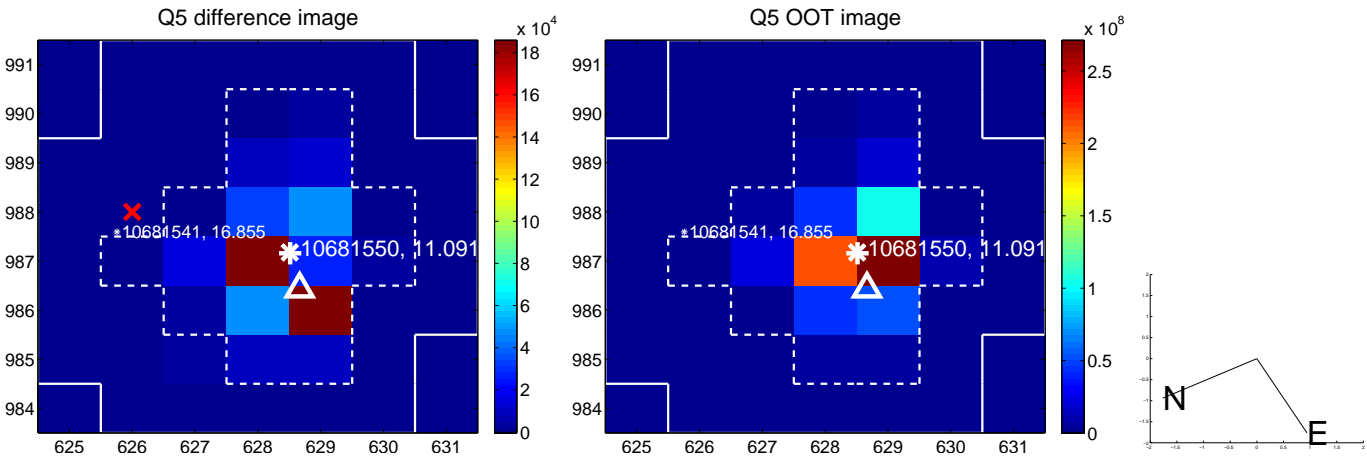


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

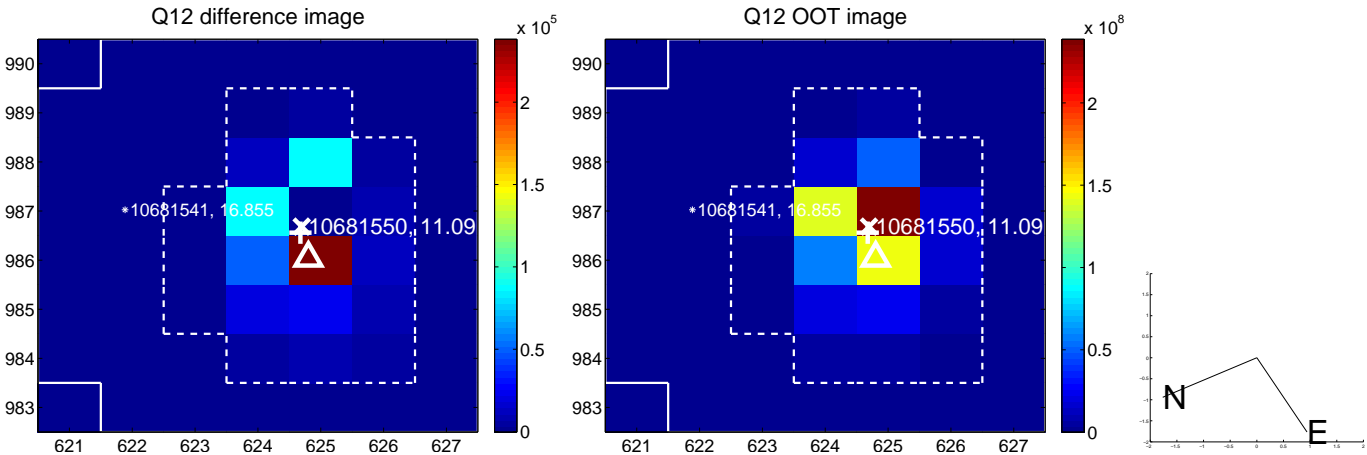
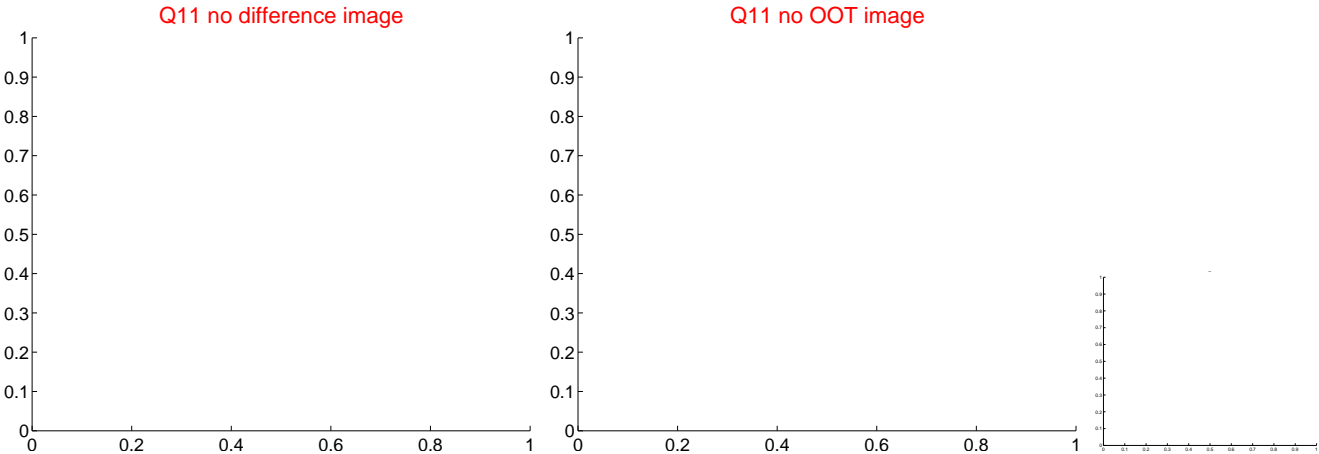
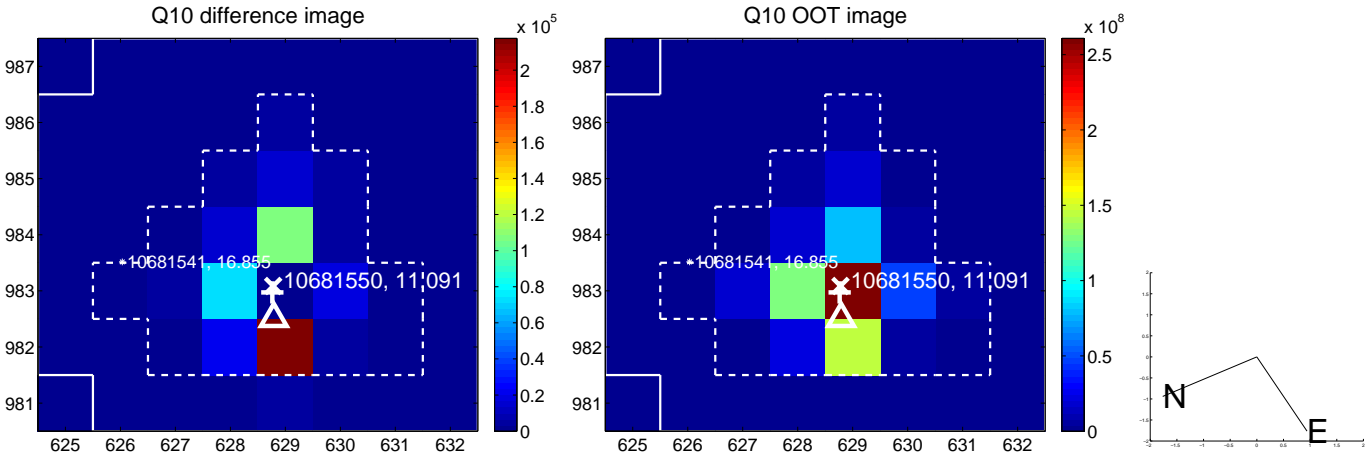
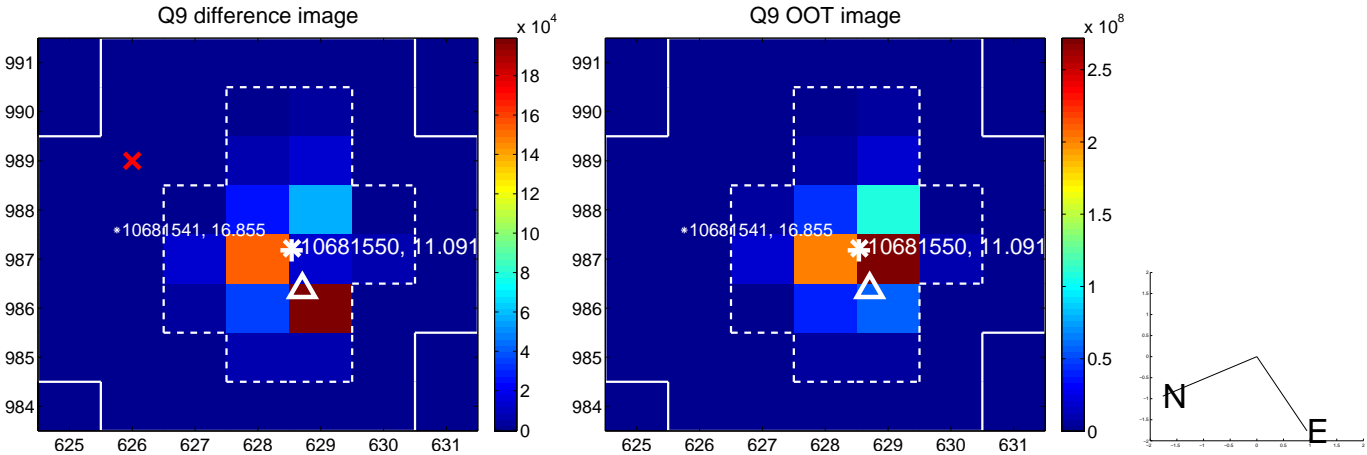
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



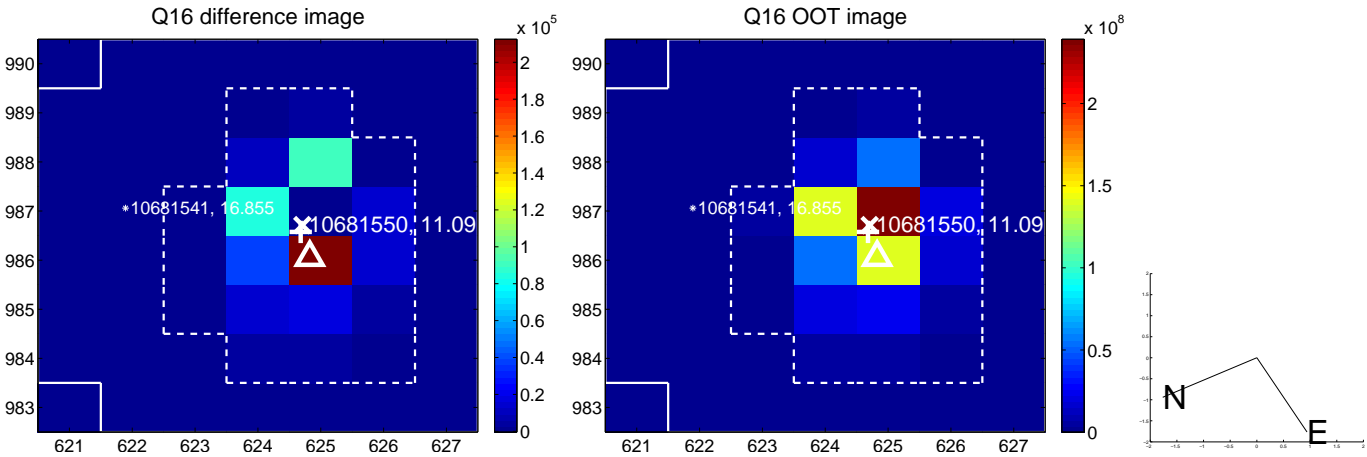
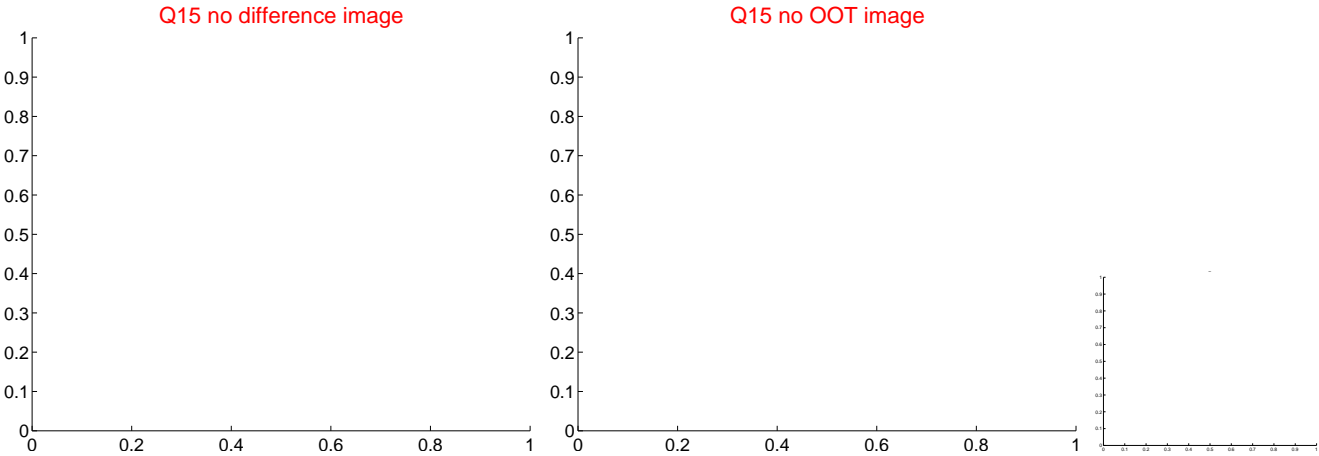
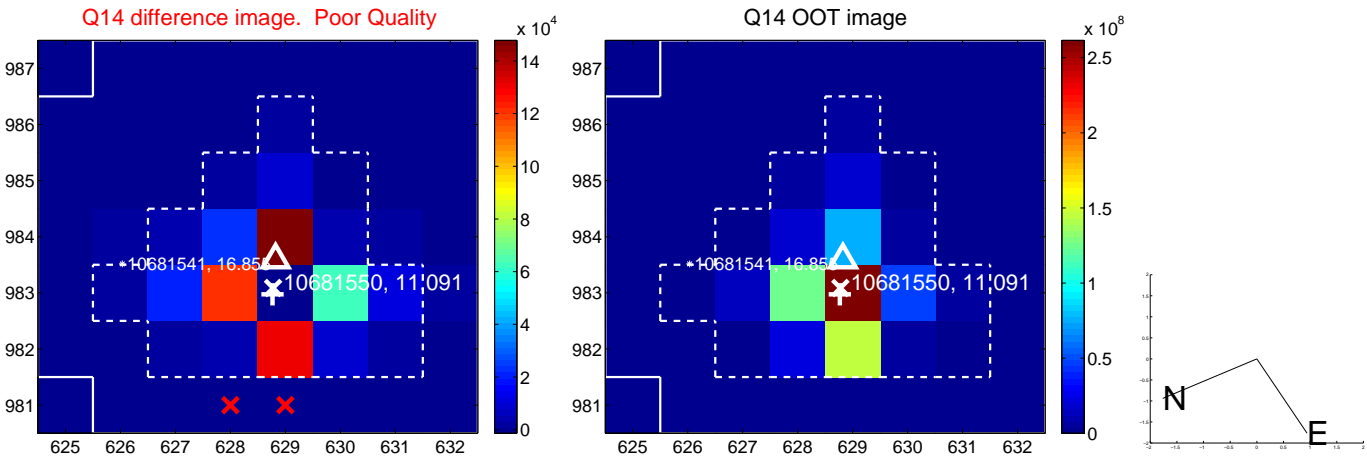
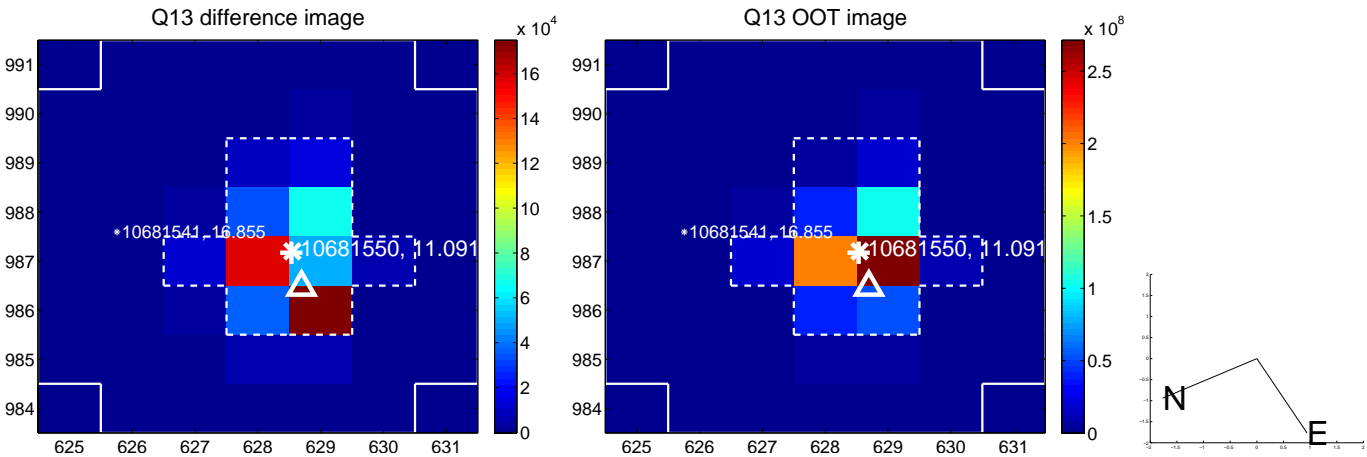
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



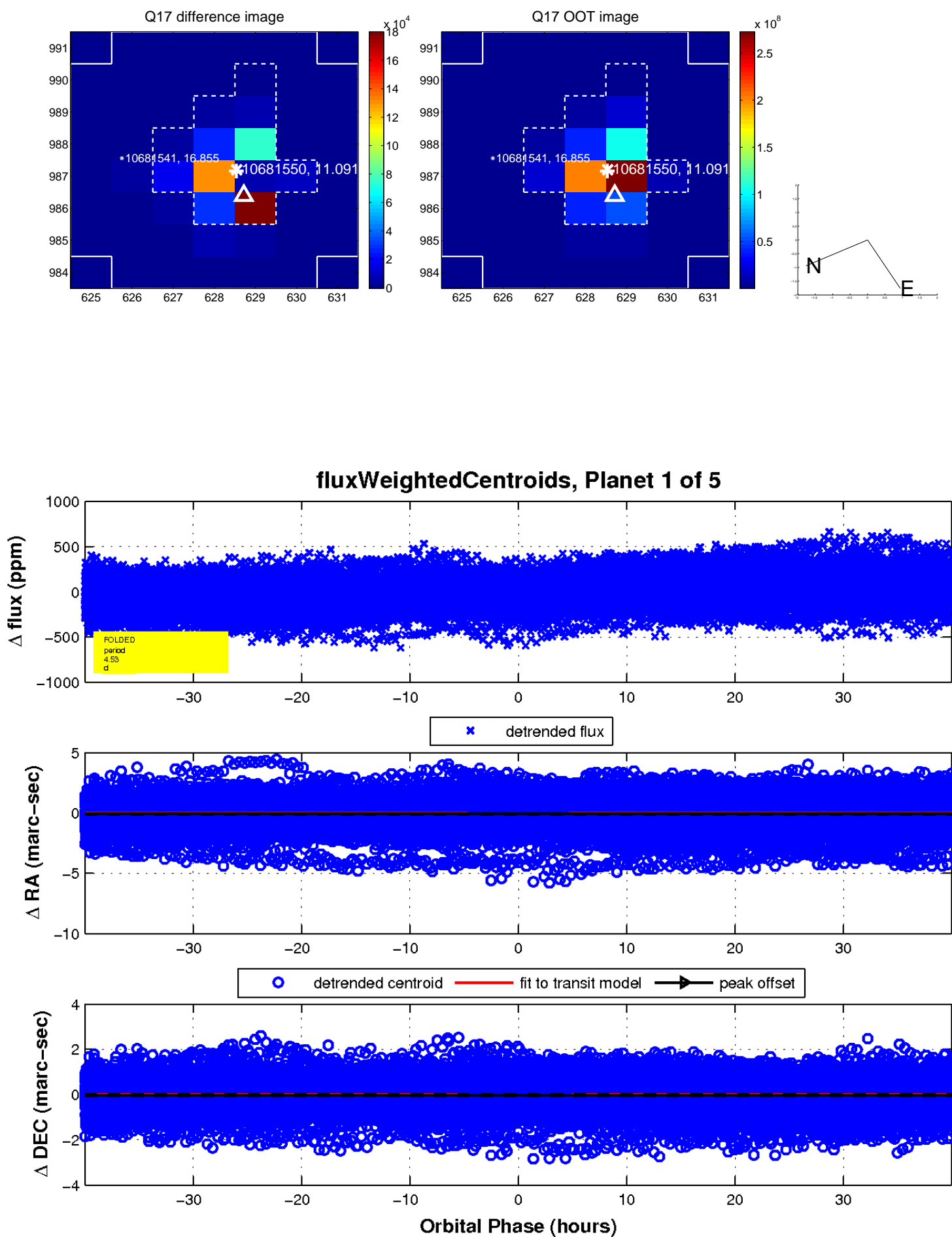
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

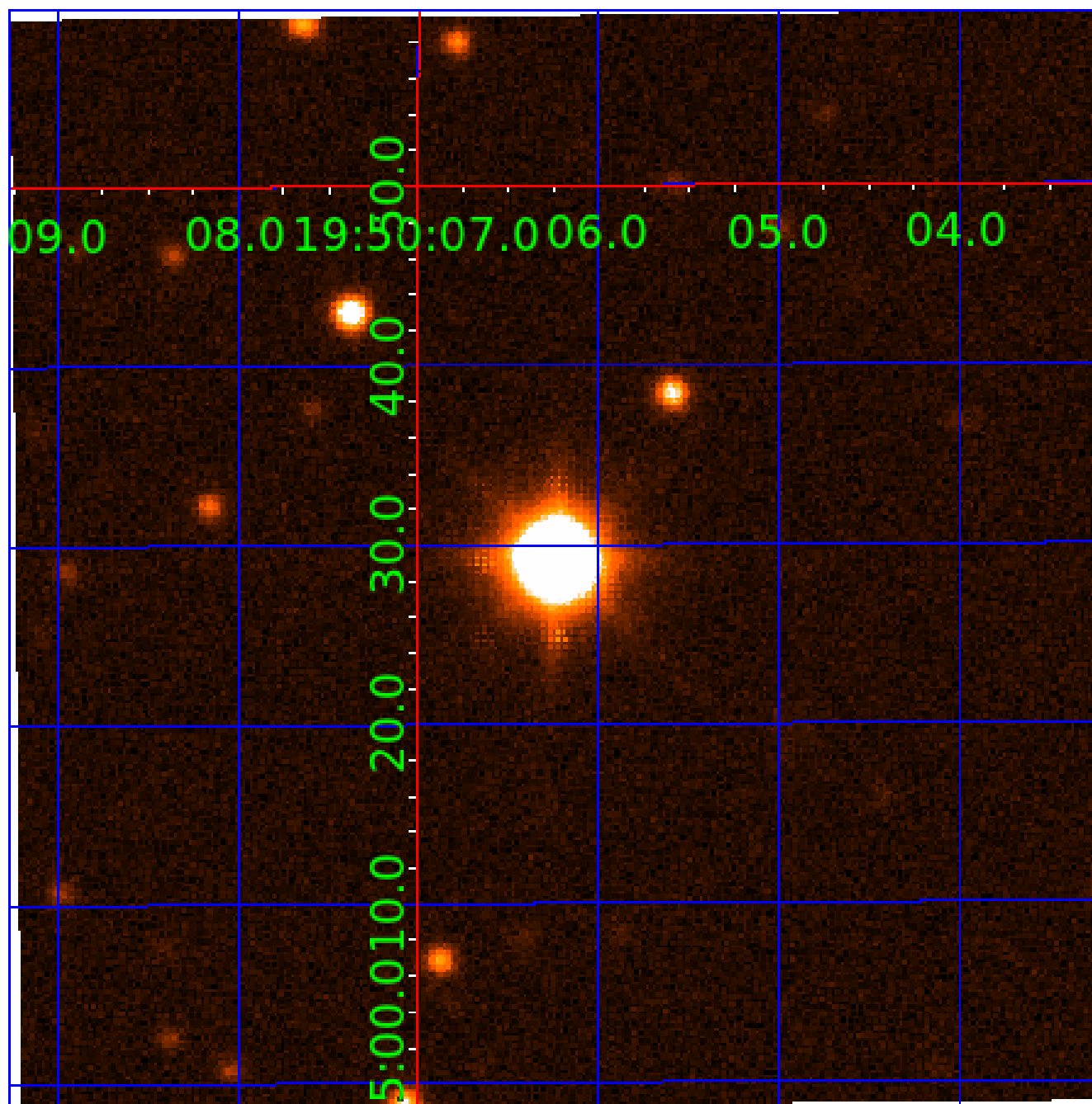


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010681550

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})
010681550-01	OBS	No	4.530037	135.102778	45.4	13.320	12.5	13.2	1.08	6483	1.01	647.26
010681550-02	OBS	No	4.530013	132.877820	24.3	10.268	11.4	10.7	1.08	6483	0.62	647.27
010681550-03	OBS	No	123.937528	228.533374	71.3	13.003	16.8	3.5	1.08	6483	1.03	7.85
010681550-04	OBS	No	677.313799	219.694001	175.6	6.903	12.0	9.2	1.08	6483	1.65	0.82
010681550-05	OBS	No	271.622286	243.090279	121.8	12.040	8.6	6.1	1.08	6483	1.33	2.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010681550-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
010681550-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
010681550-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—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
010681550-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010681550-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_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.

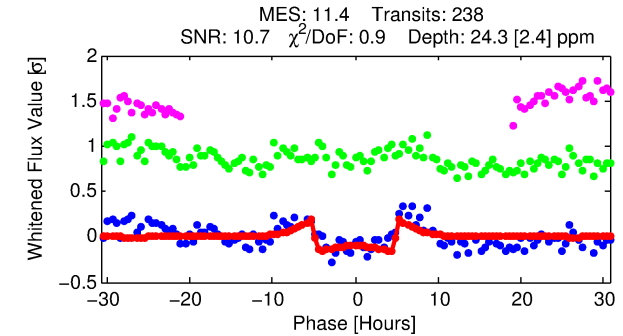
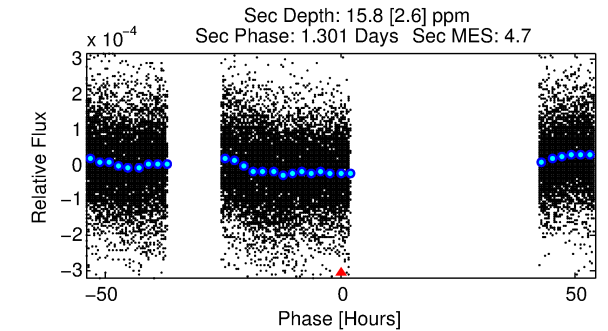
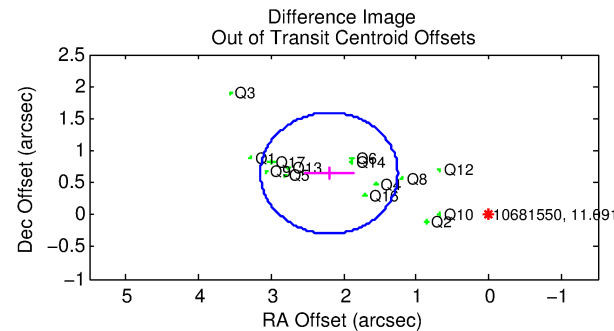
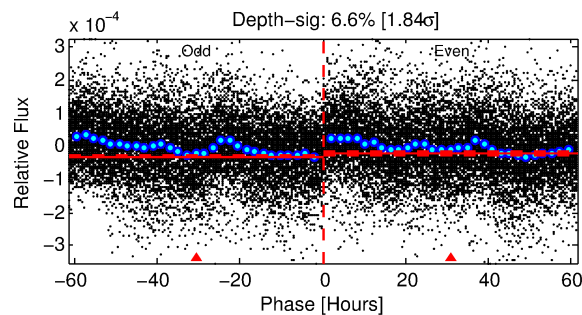
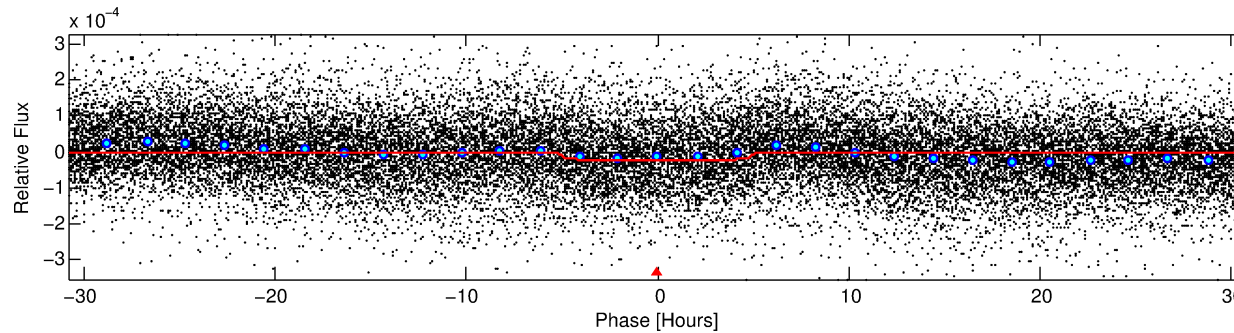
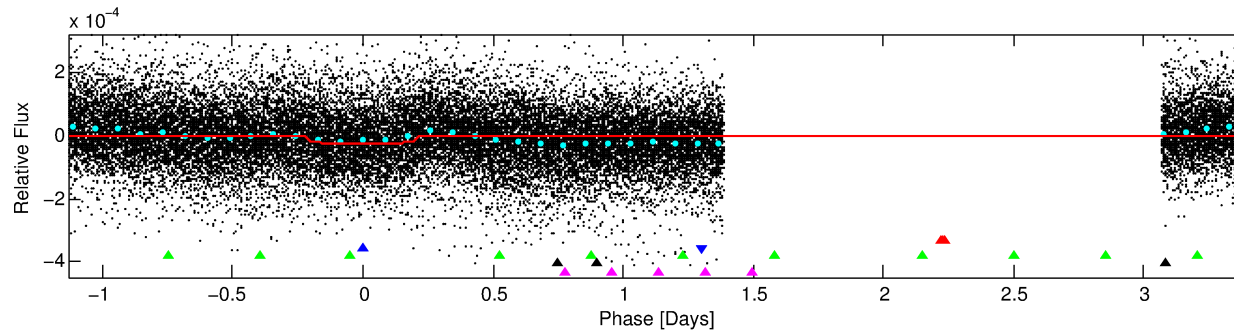
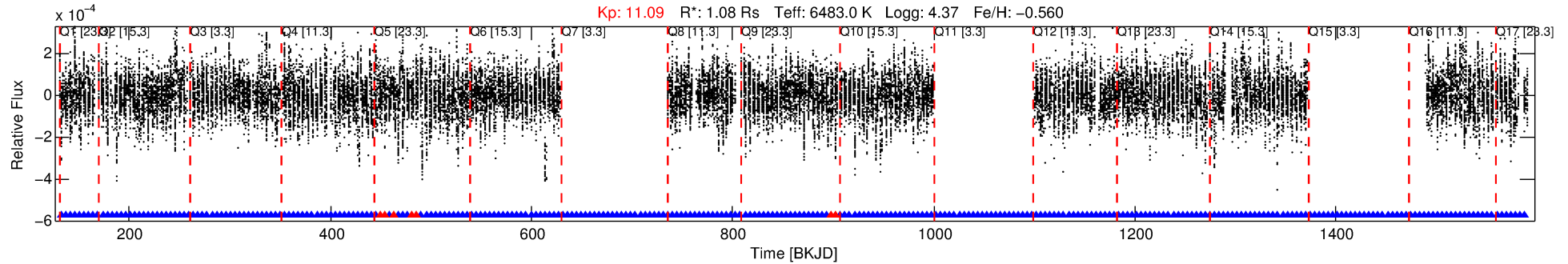
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010681550-02

No Significant Match Found

DV One-Page Summary

KIC: 10681550 Candidate: 2 of 5 Period: 4.530 d



DV Fit Results:

Period = 4.53001 [0.00003] d
Epoch = 132.8778 [0.0042] BKJD
Rp/R* = 0.0053 [0.0005]
a/R* = 1.77 [0.62]
b = 0.90 [0.11]
Seff = 647.27 [178.60]
Teq = 1286 [89] K
Rp = 0.62 [0.14] Re
a = 0.0535 [0.0090] AU
Ag = 63.99 [23.21] [2.71 σ]
Teffp = 5624 [408] K [10.40 σ]

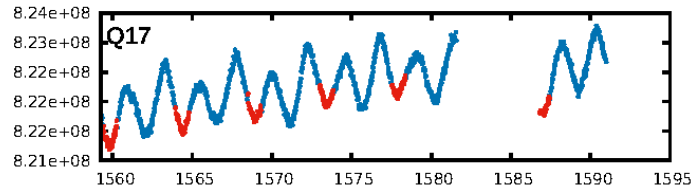
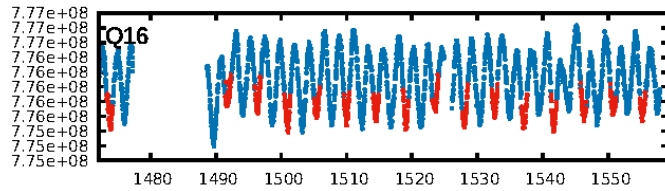
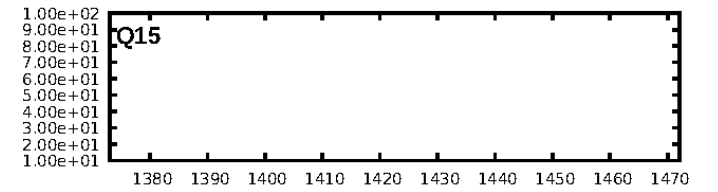
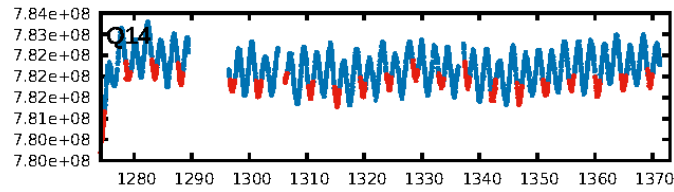
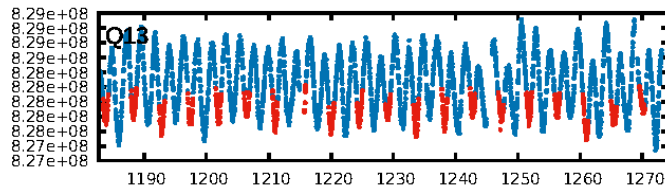
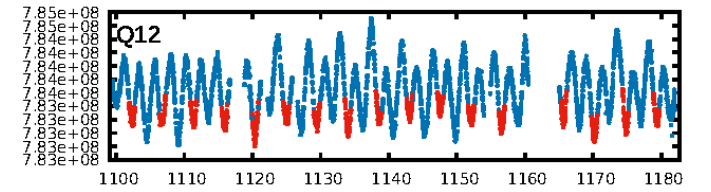
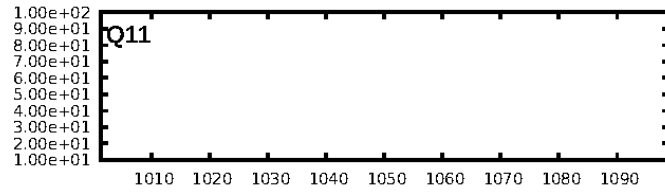
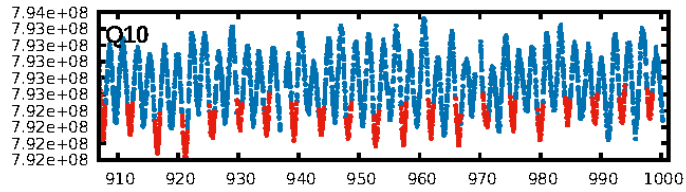
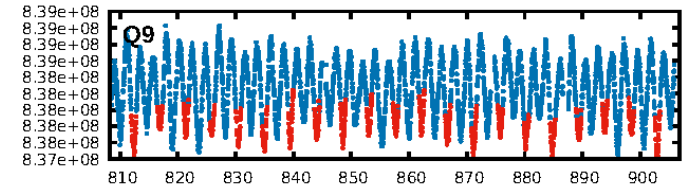
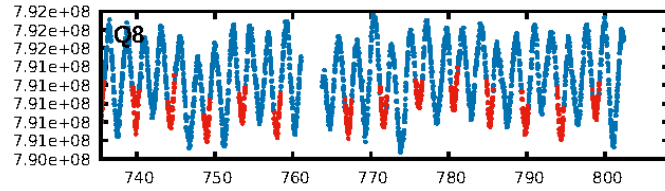
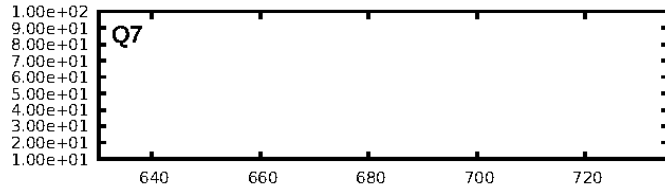
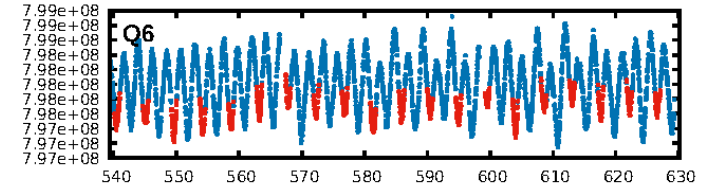
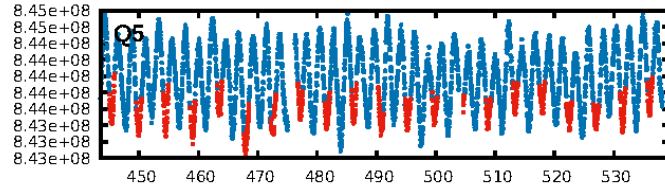
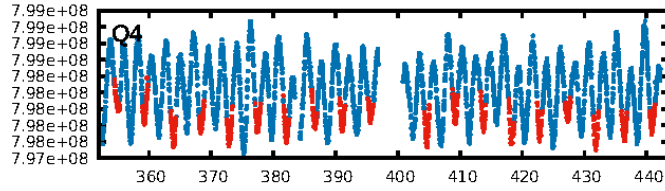
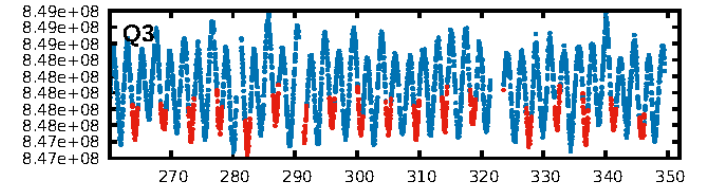
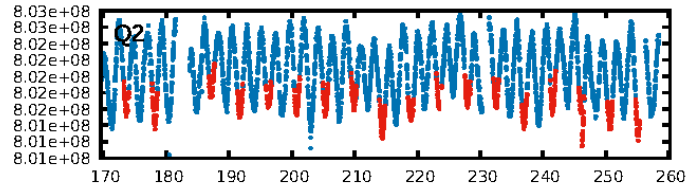
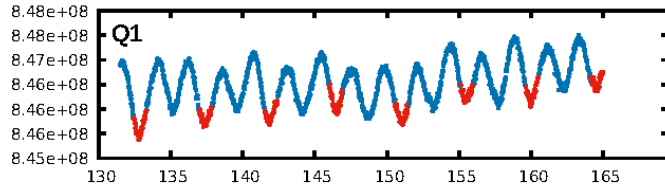
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.55e-18
RollingBand-fgt: 0.97 [217/224]
GhostDiagnostic-chr: 1.794
Centroid-sig: 1.0%
Centroid-so: 2.602 arcsec [2.12 σ]
OotOffset-rm: 2.290 arcsec [7.27 σ]
KicOffset-rm: 2.549 arcsec [9.35 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.71 [10/14]
DiffImageOverlap-fno: 1.00 [14/14]

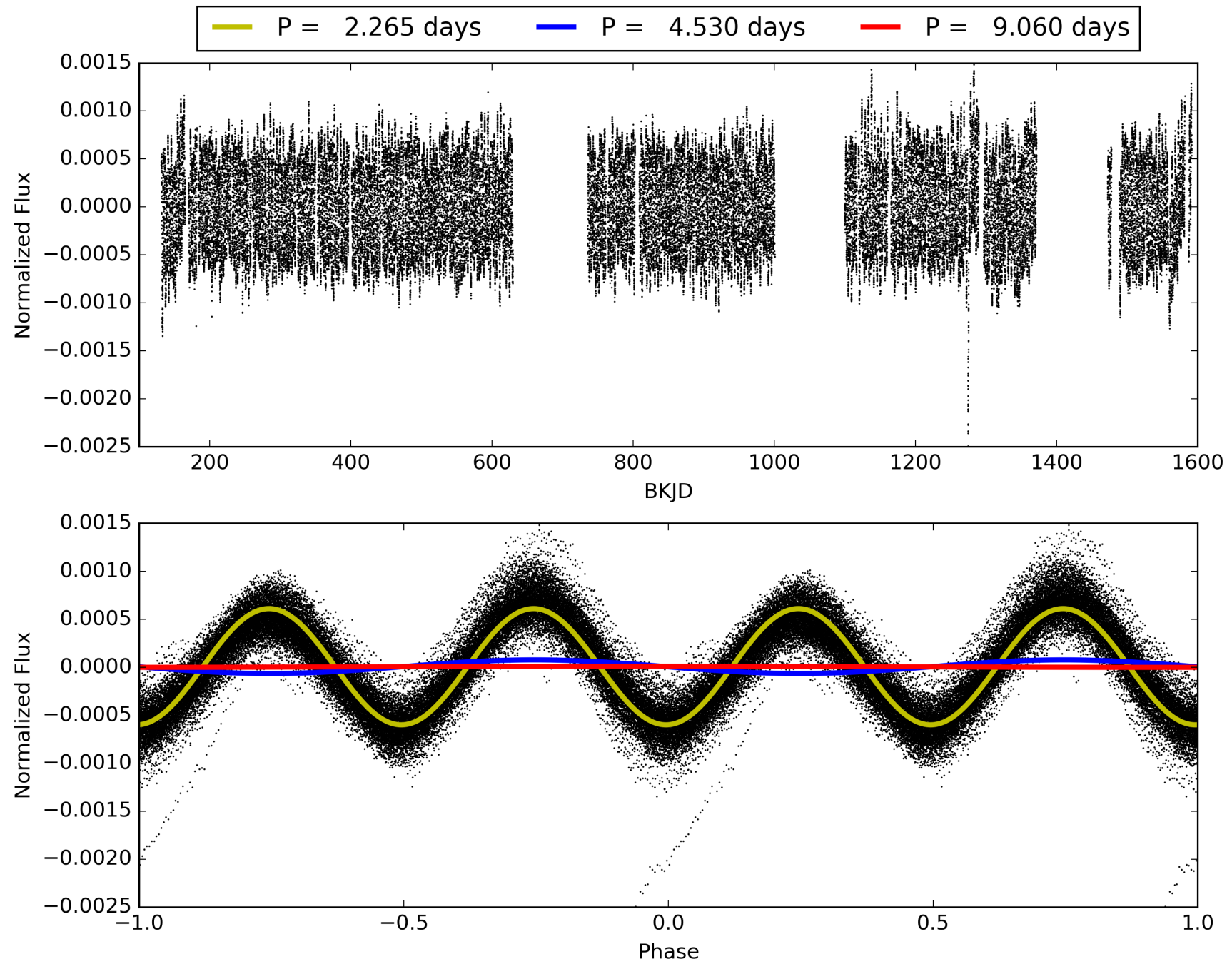
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:16:55 Z

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

TCE 010681550-02, PDC Light Curves

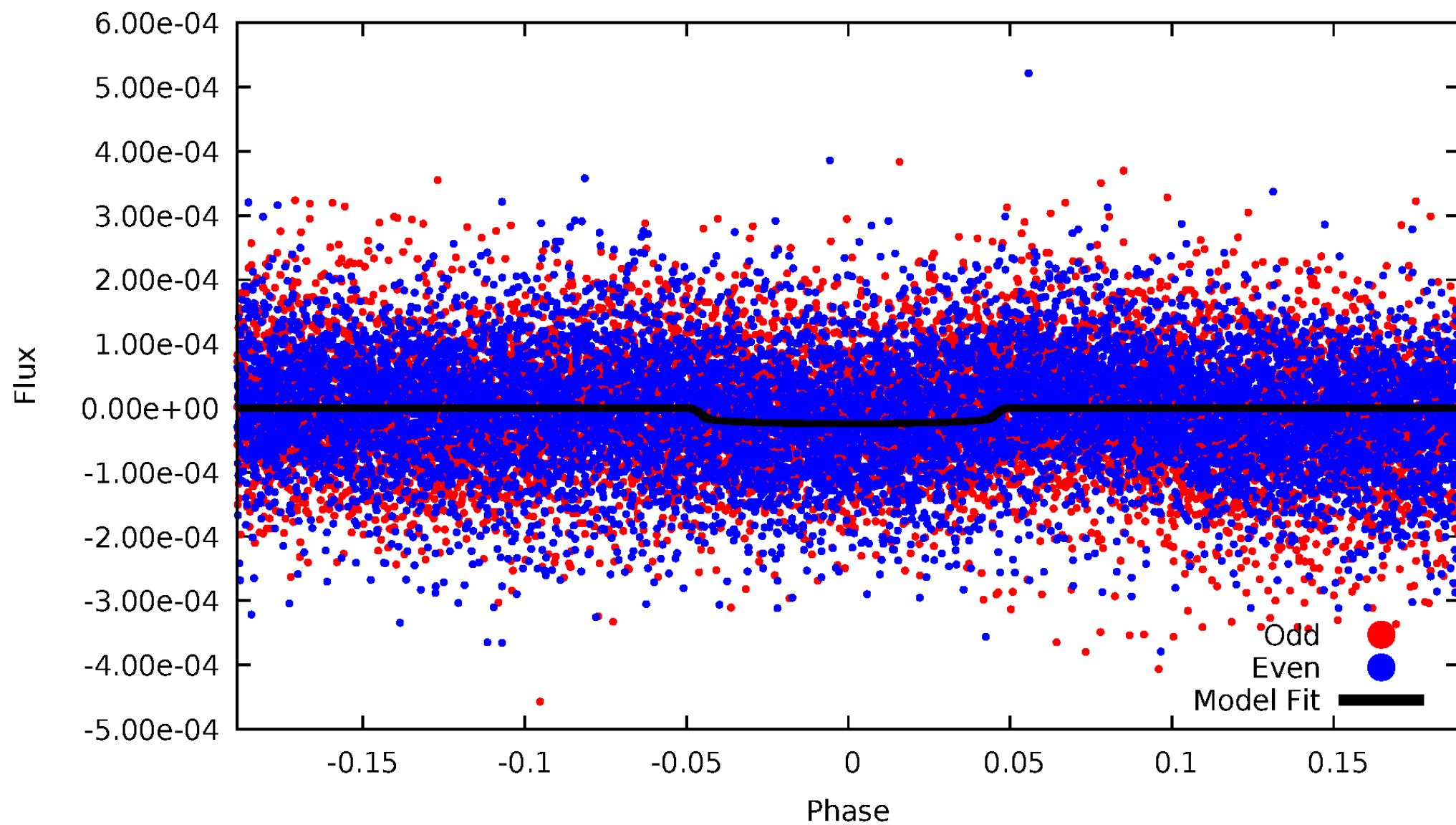


TCE 010681550-02



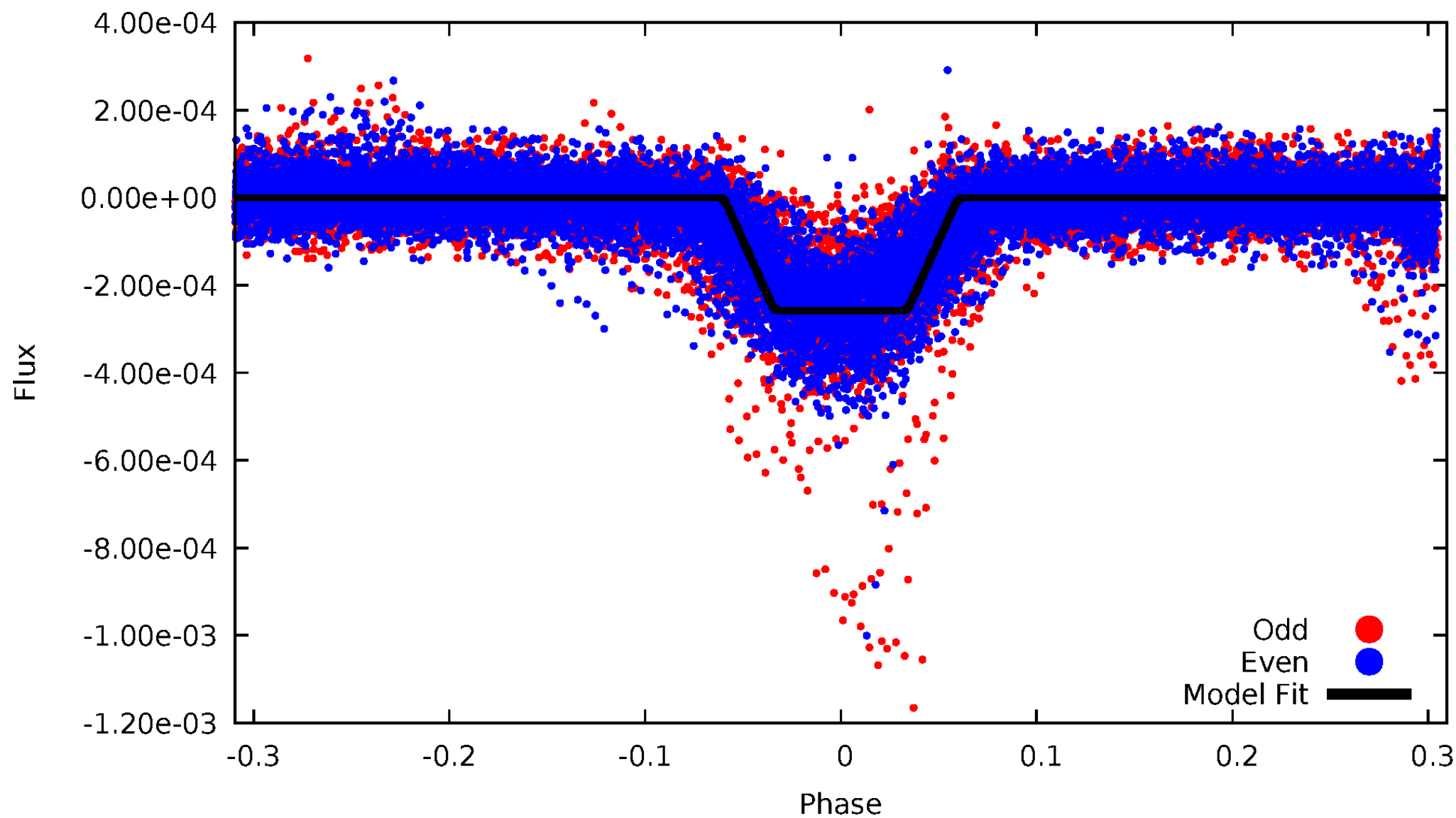
DV Odd/Even

TCE 010681550-02



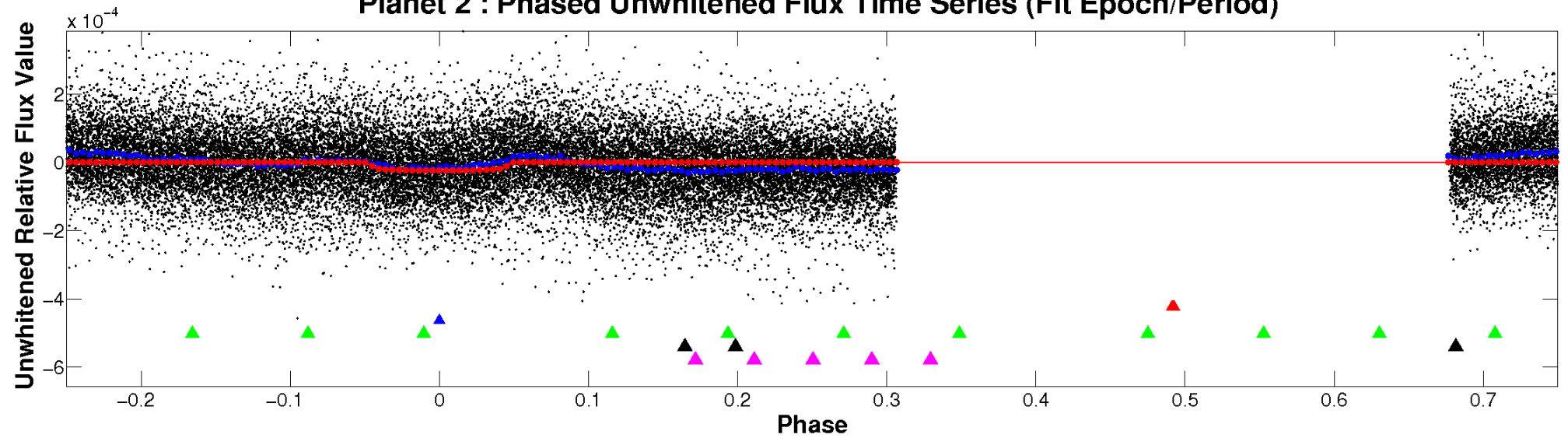
ALT Odd/Even

TCE 010681550-02

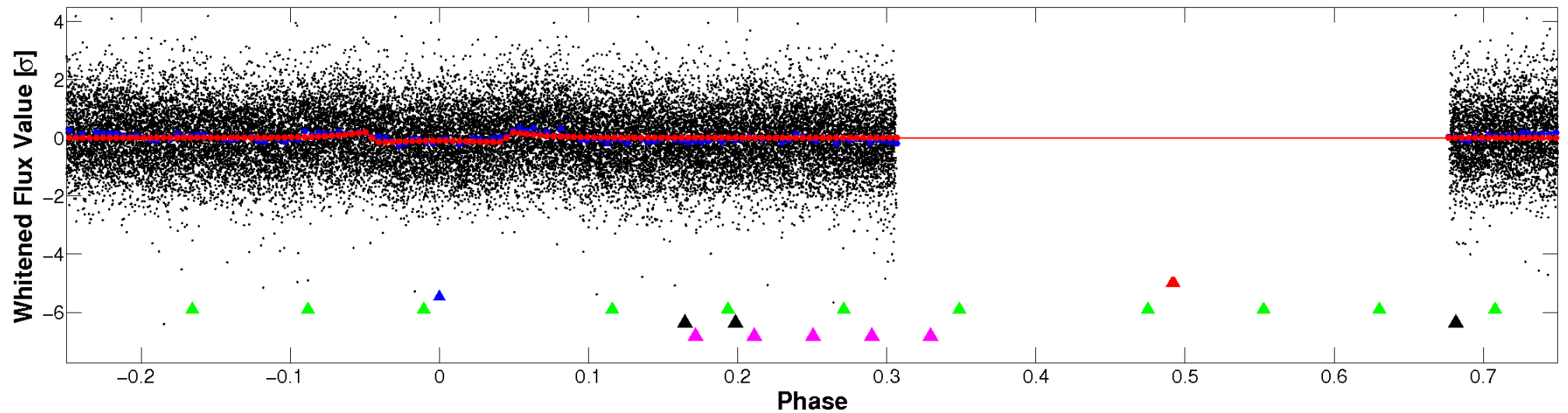


Non-Whitened Vs. Whitened Light Curve

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

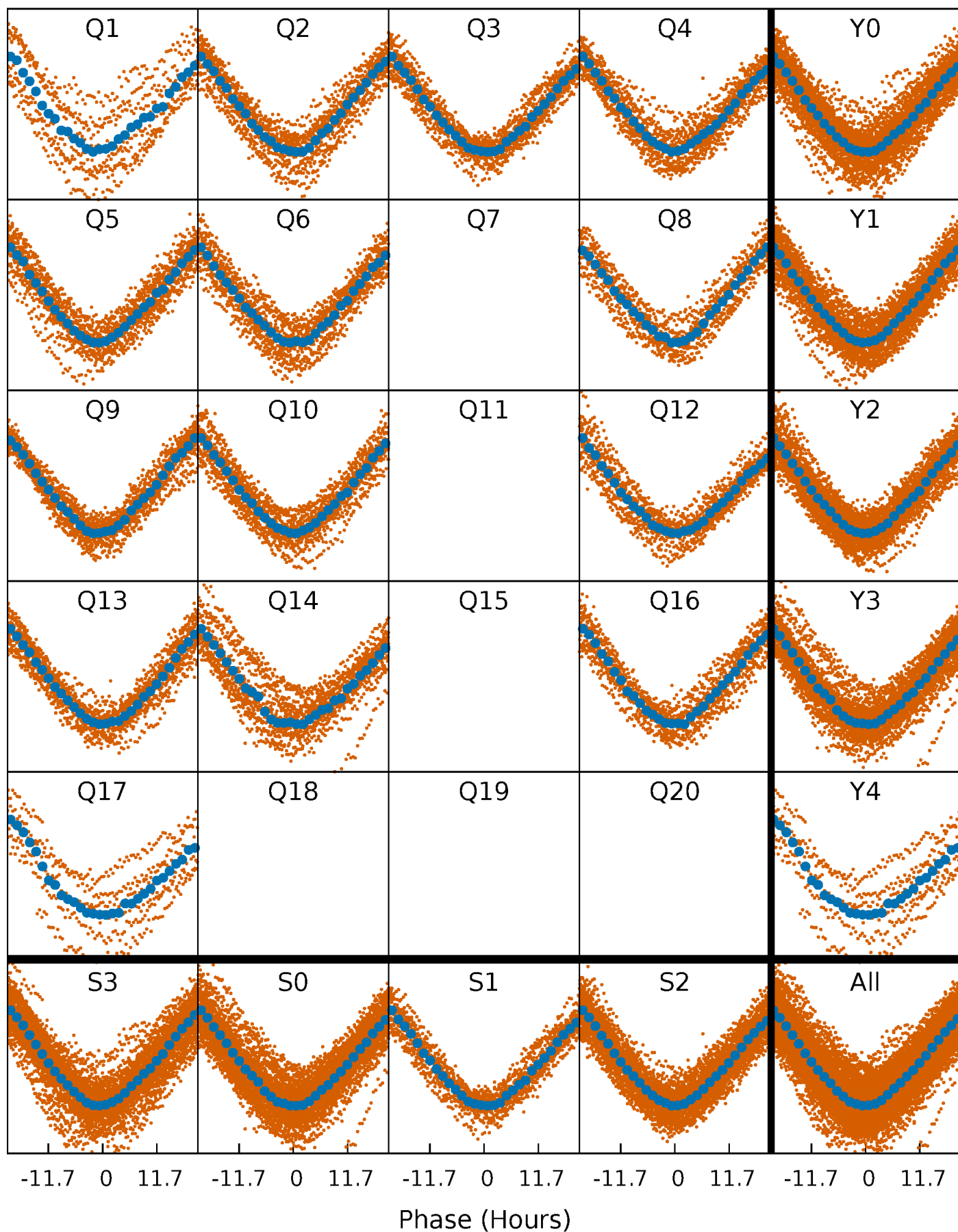


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



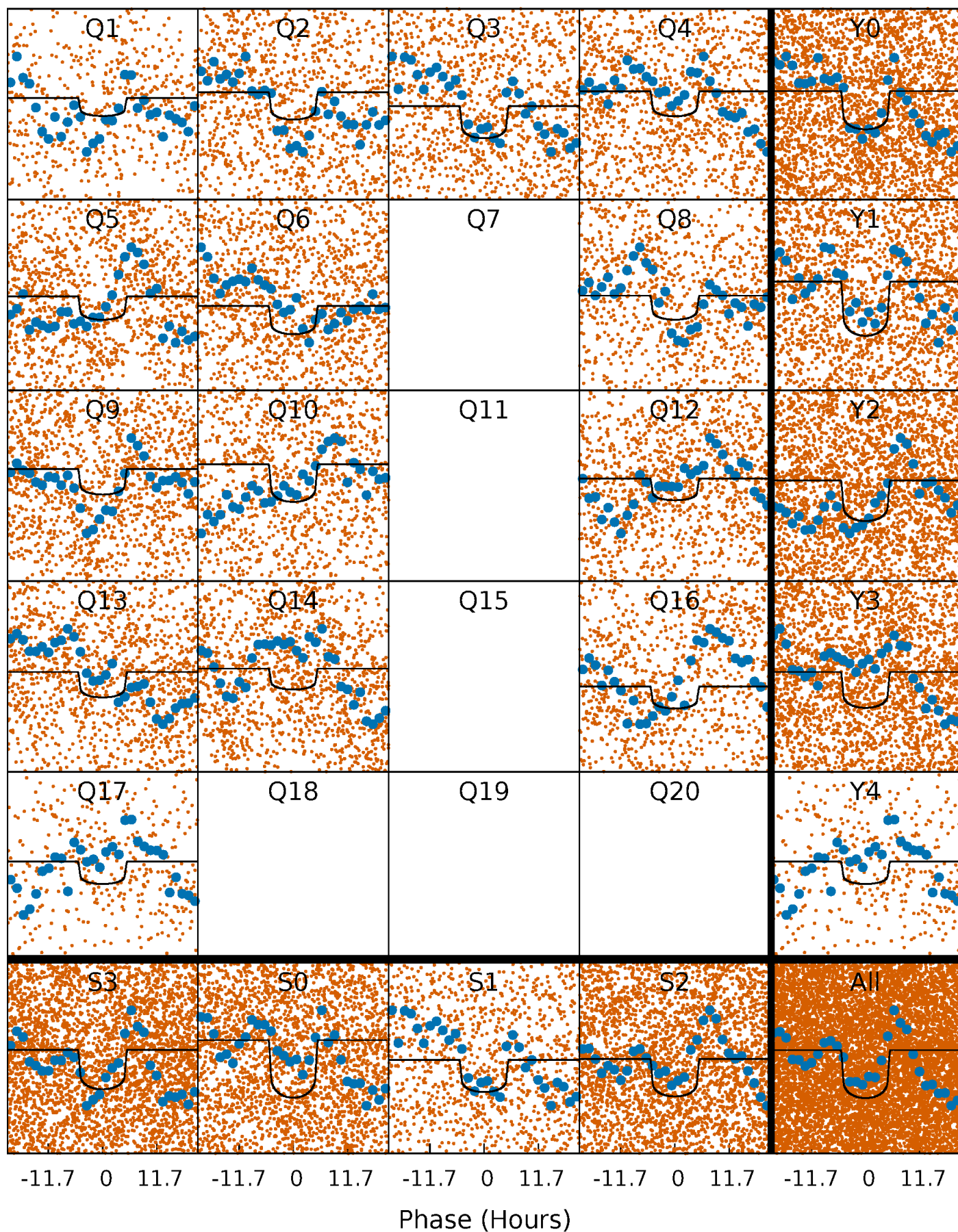
PDC Quarter-Phased Transit Curves

TCE 010681550-02 P= 4.530013 Days $T_0=132.877820$ (BKJD)



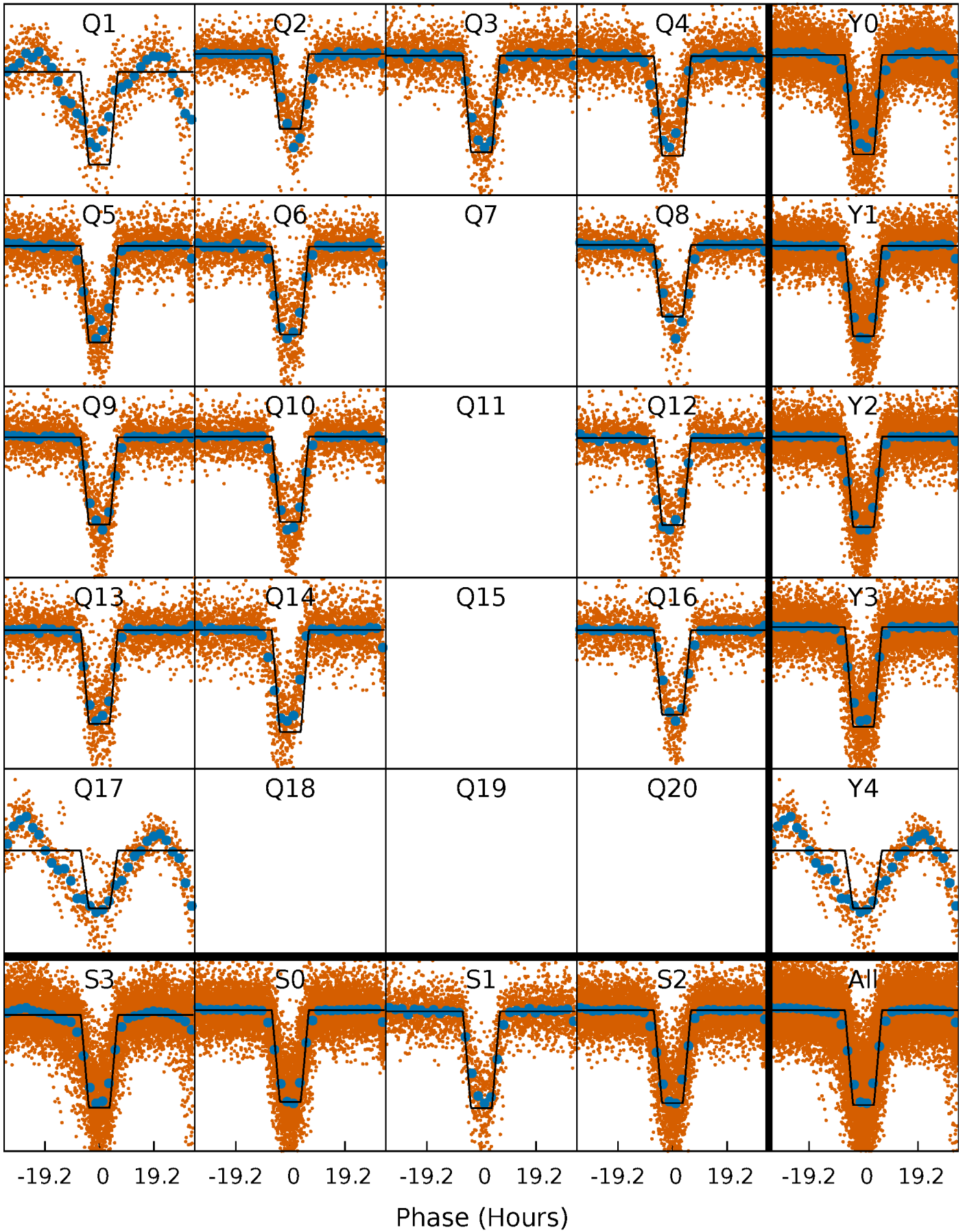
DV Quarter-Phased Transit Curves

TCE 010681550-02 P= 4.530013 Days $T_0=132.877820$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

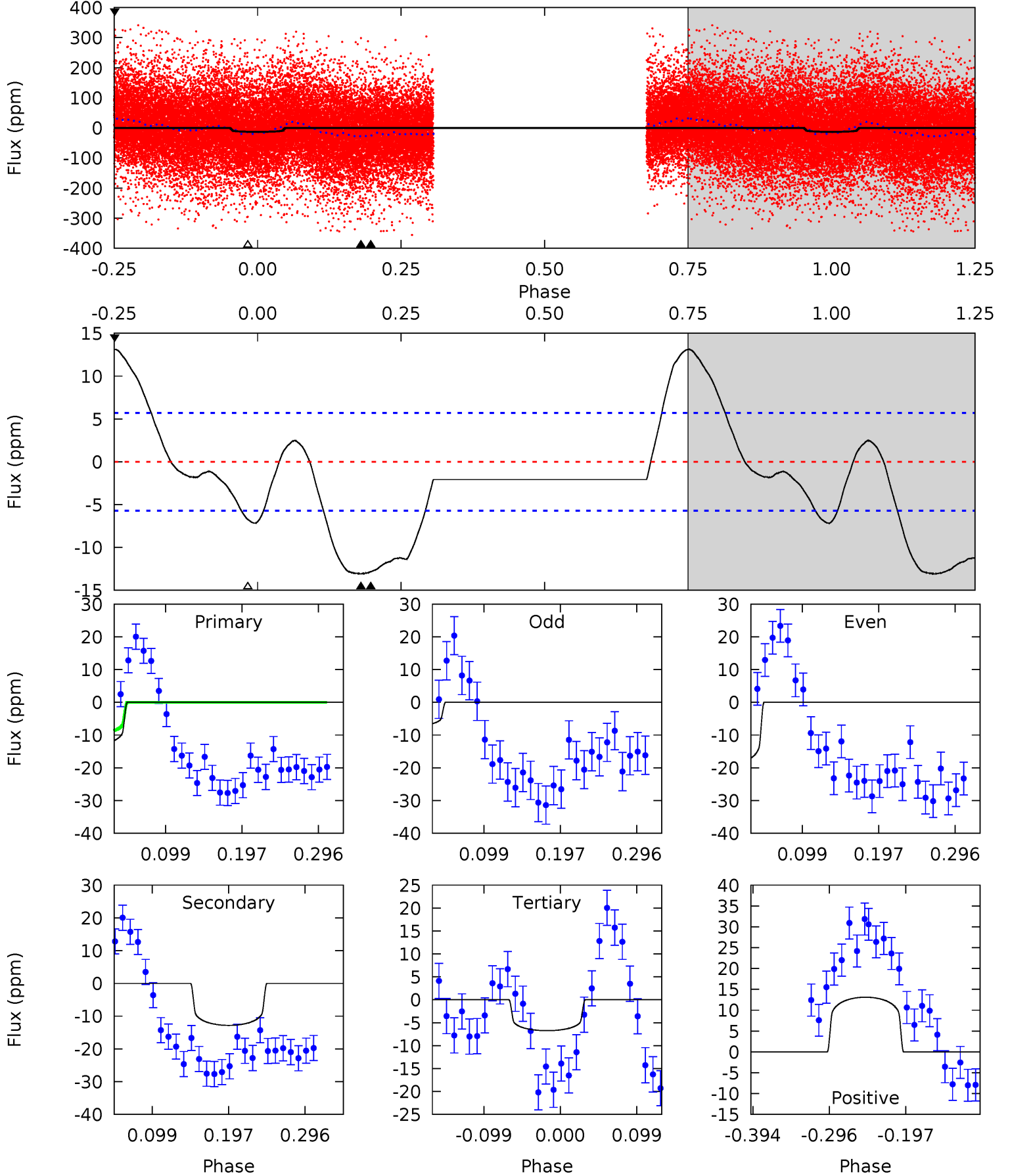
TCE 010681550-02 $P = 4.530016$ Days $T_0 = 132.883286$ (BKJD)



DV Model-Shift Uniqueness Test

010681550-02, P = 4.530013 Days, E = 128.347807 Days

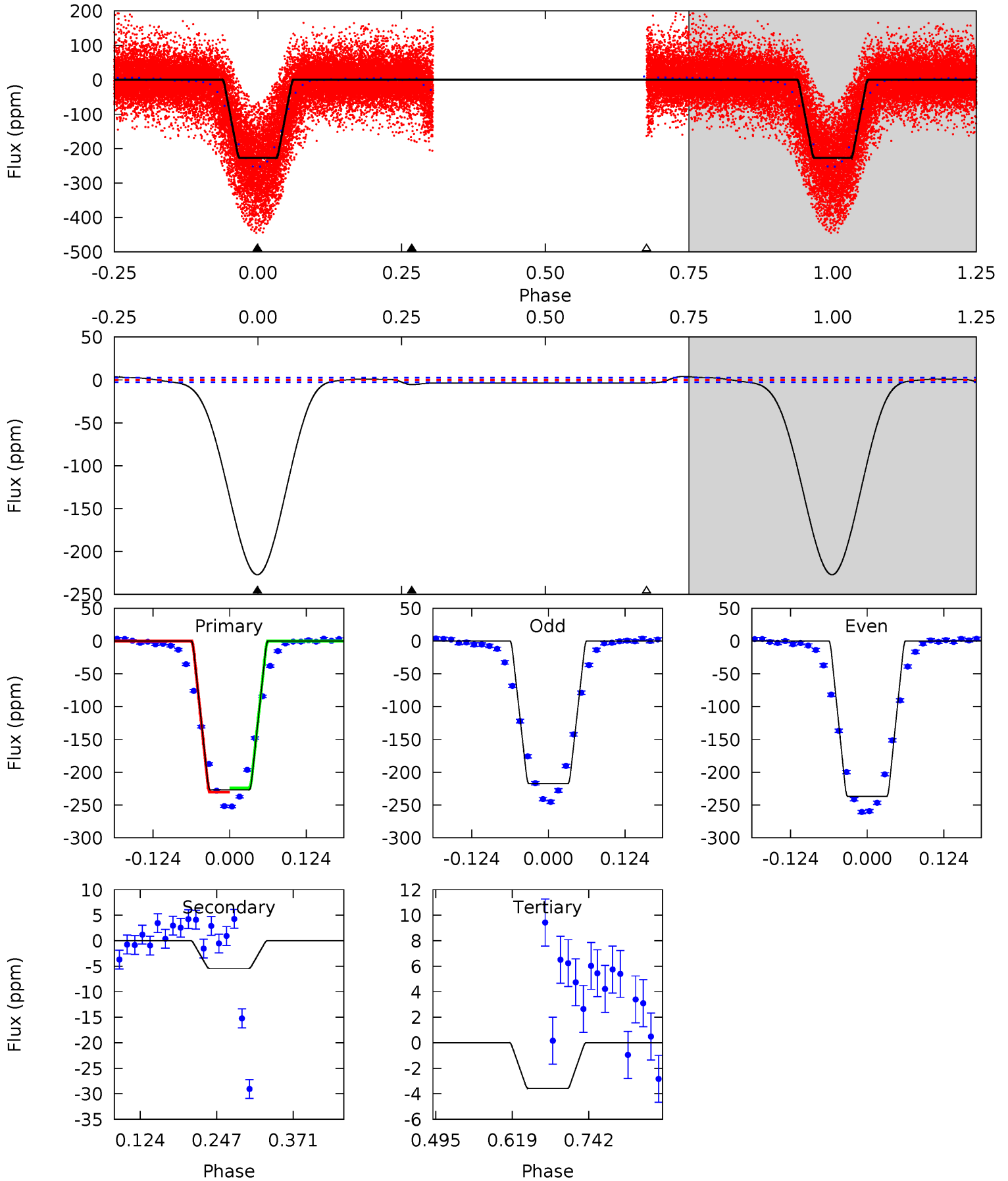
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	10.3	5.40	10.5	4.57	1.65	4.78	5.09	-0.02	4.88	-0.23	4.76	0.93	0.50	2.74



Alt Model-Shift Uniqueness Test

010681550-02, P = 4.530016 Days, E = 128.353270 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
391.0	9.38	6.17	0	4.52	1.54	4.71	384.8	391.0	3.22	9.38	16.8	1.06	0.02	5.41



Stellar Parameters For KIC 010681550

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6483^{+145}_{-194}	$4.367^{+0.092}_{-0.138}$	$-0.560^{+0.300}_{-0.300}$	$1.081^{+0.211}_{-0.141}$	$0.992^{+0.124}_{-0.112}$	$1.105^{+0.515}_{-0.412}$
	+2%/-3%	+2%/-3%	+54%/-54%	+20%/-13%	+12%/-11%	+47%/-37%
Source	PHO1	FLK73	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 010681550-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-13 ± 1	$0.63^{+0.10}_{-0.08}$	1809^{+92}_{-82}	5340^{+334}_{-264}	50^{+17}_{-12}
Alt.	-5 ± 1	$1.92^{+0.21}_{-0.18}$	1803^{+95}_{-88}	3039^{+72}_{-85}	$2.328^{+0.526}_{-0.487}$

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

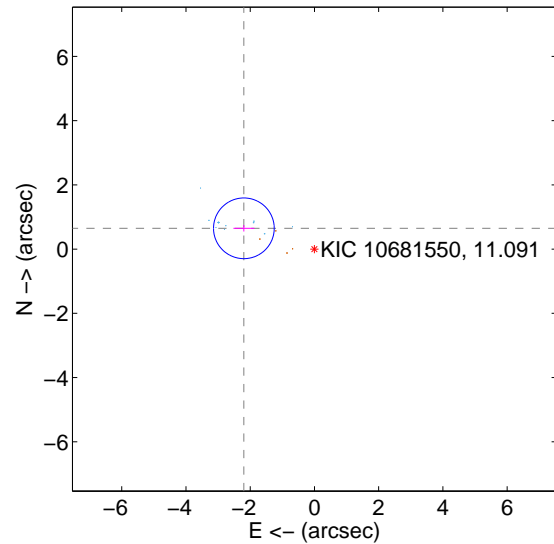
Supplemental centroid analysis for 010681550-02. **Kepler magnitude: 11.09.** Transit SNR 10.67

There are 10 quarters with good PRF difference image offsets

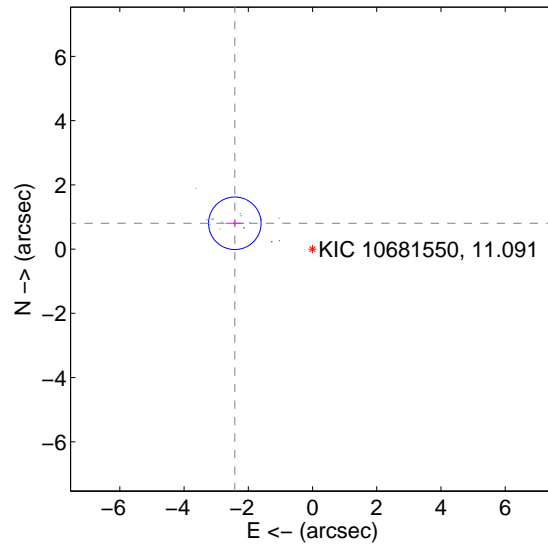
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.290 ± 0.315	7.27	2.197 ± 0.327	0.647 ± 0.100
PRF-fit source offset from KIC position	2.549 ± 0.272	9.35	2.419 ± 0.285	0.803 ± 0.095
photometric centroid source offset	2.60 ± 1.23	2.12	2.37 ± 1.29	1.08 ± 0.87

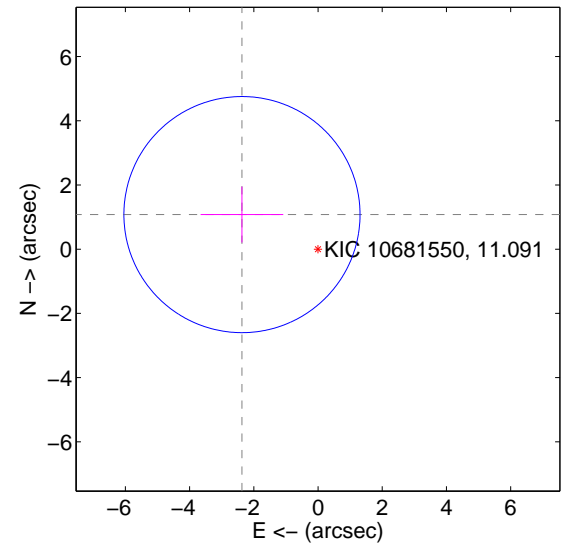
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

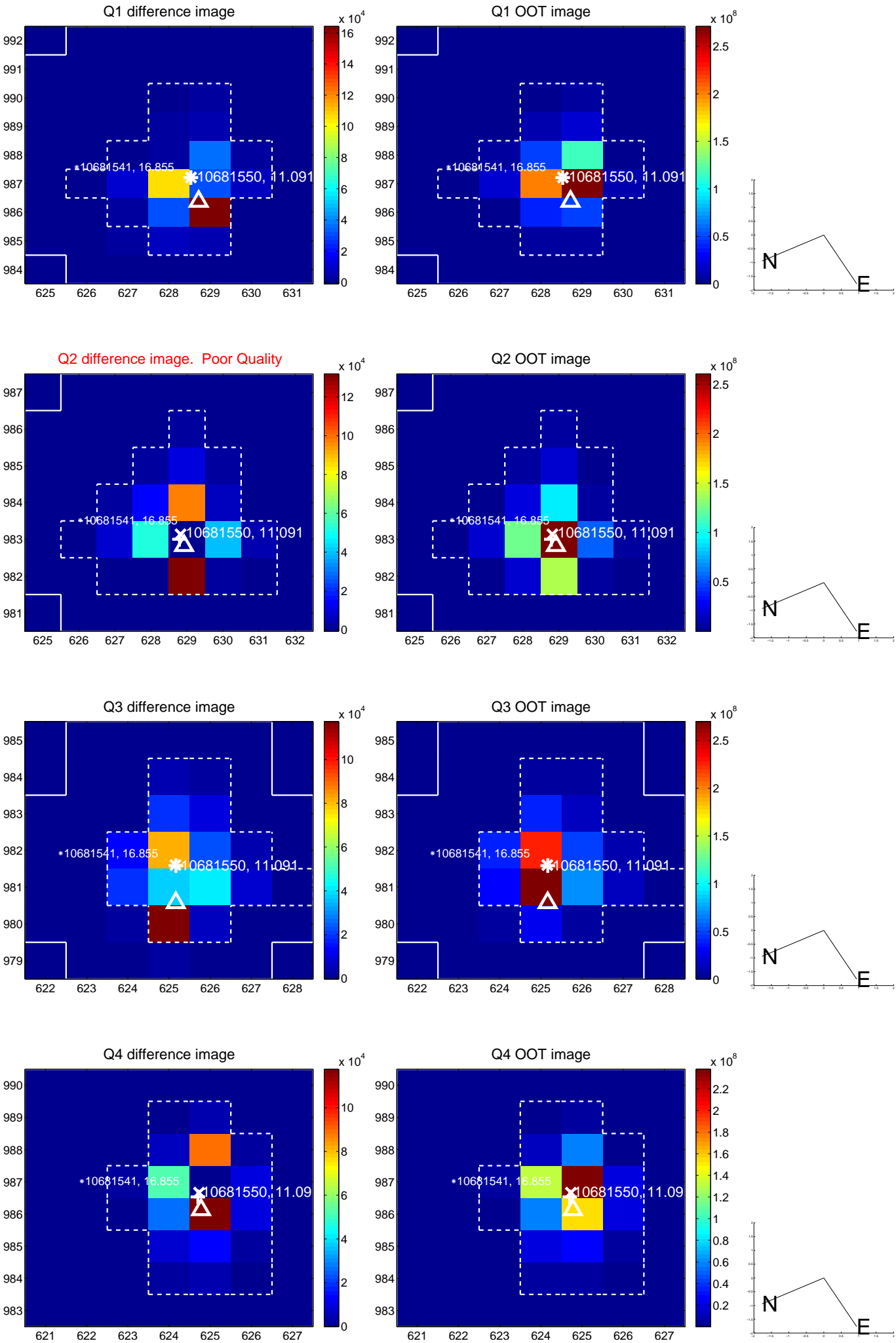


offset from photometric centroids

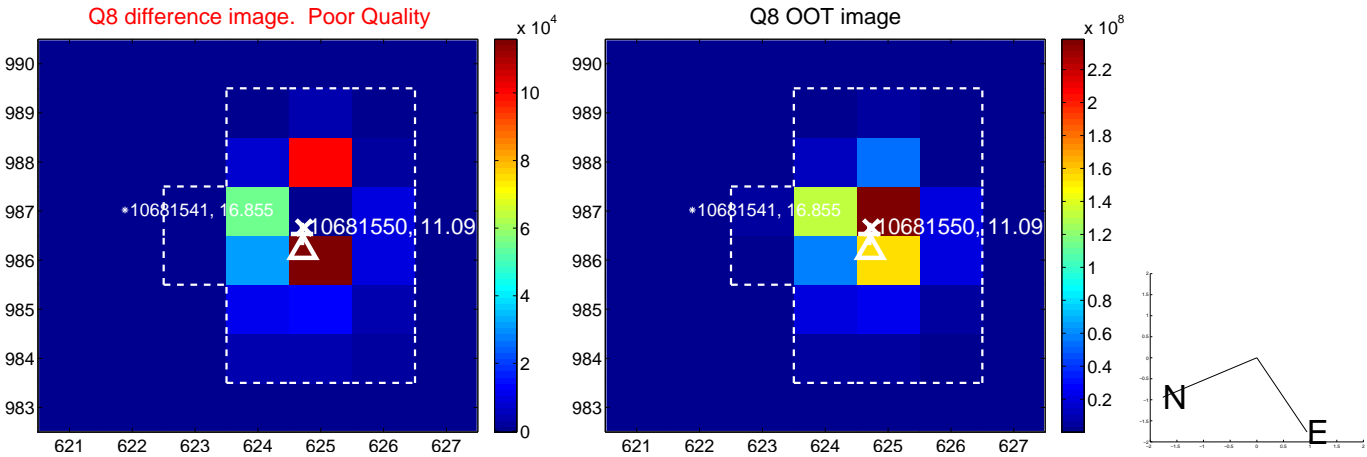
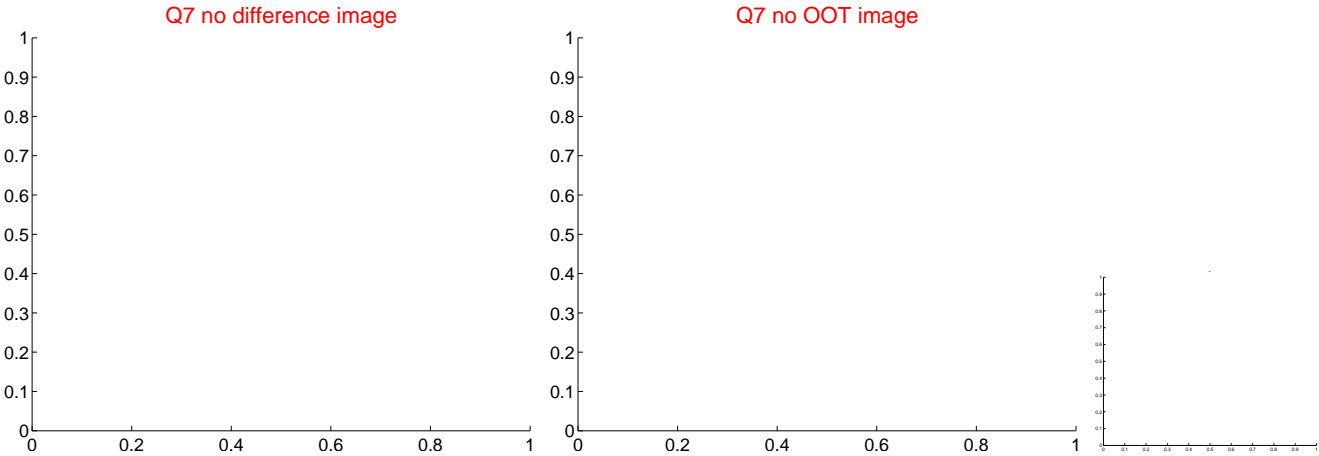
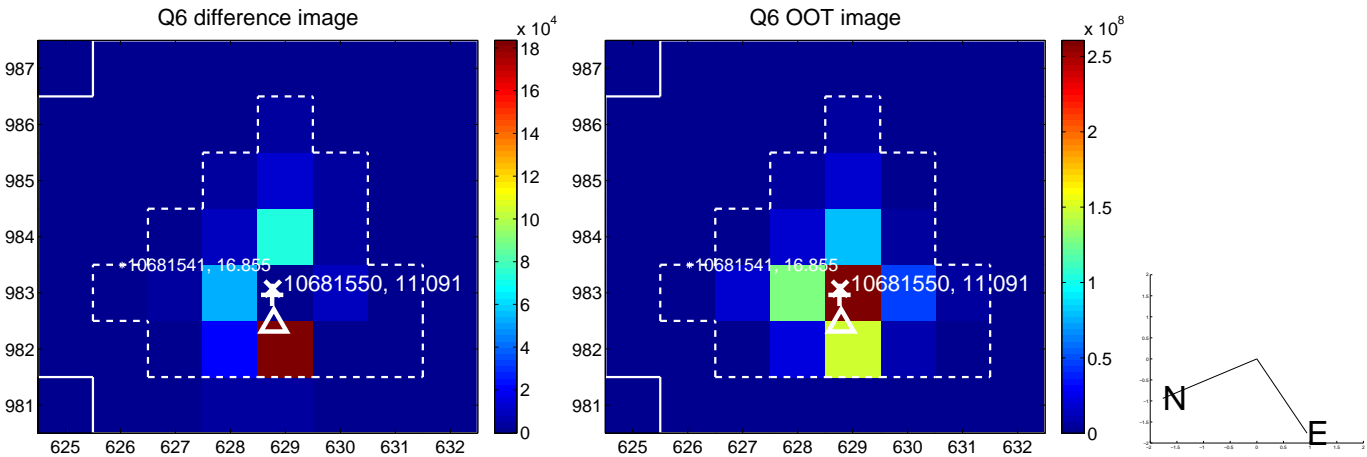
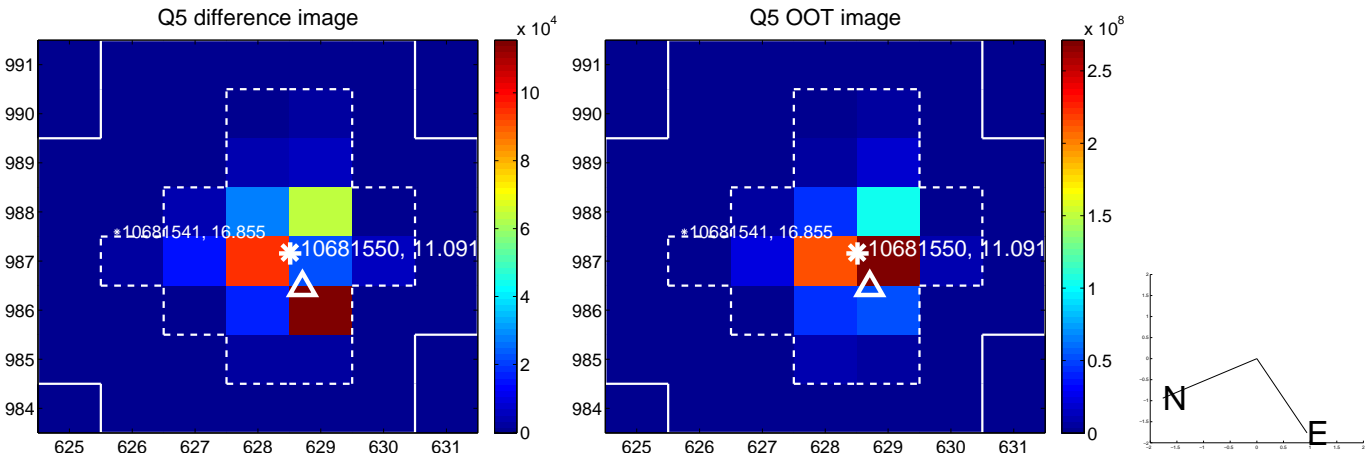


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

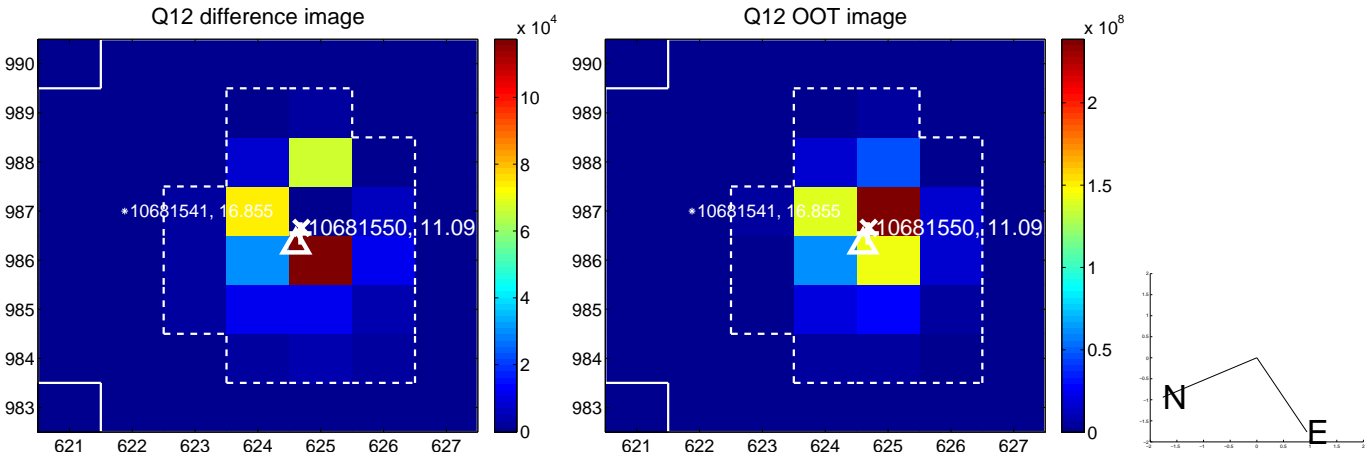
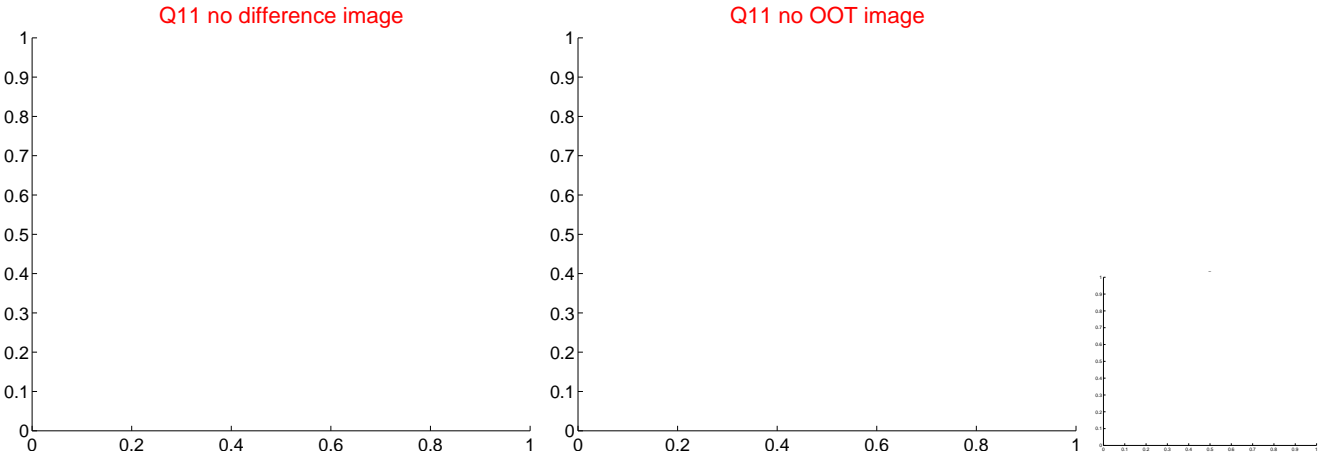
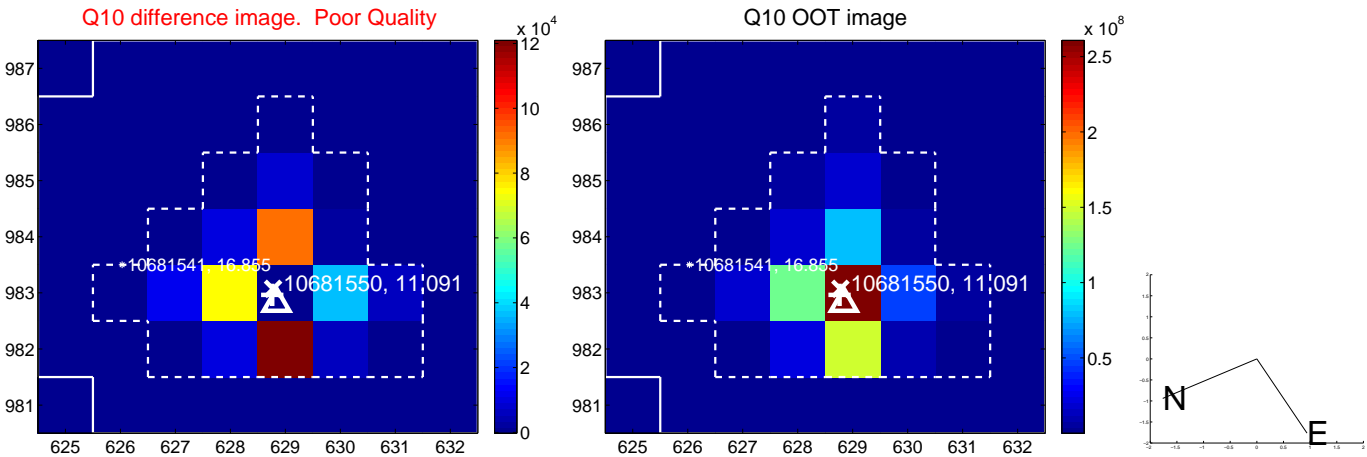
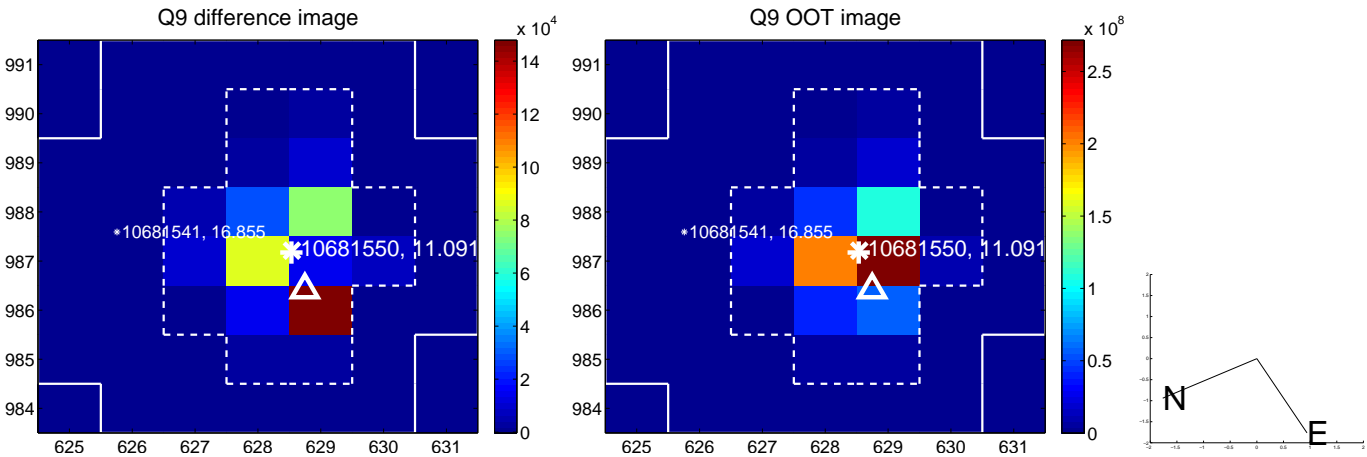
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



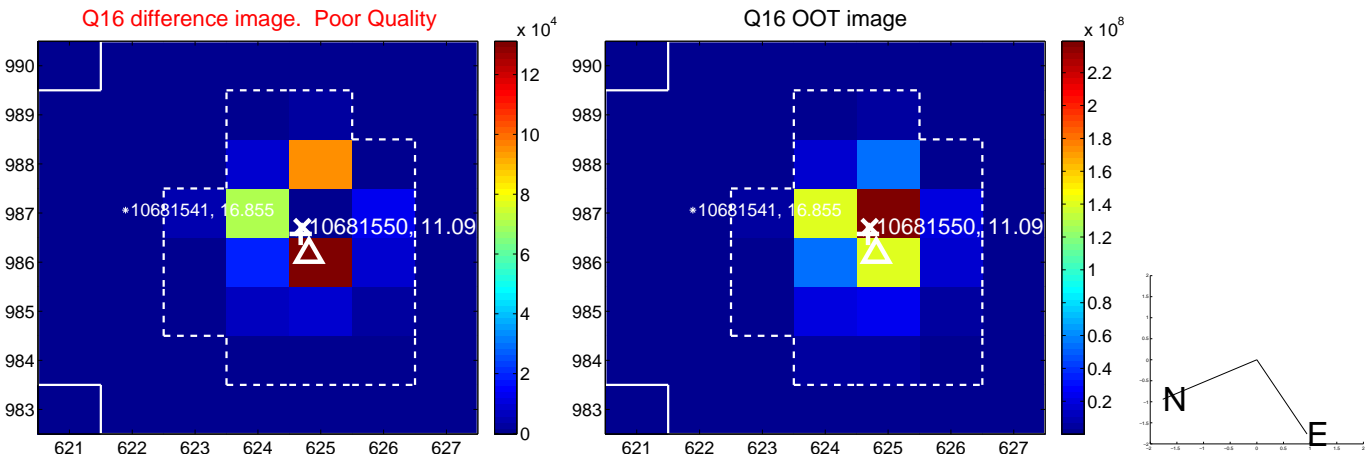
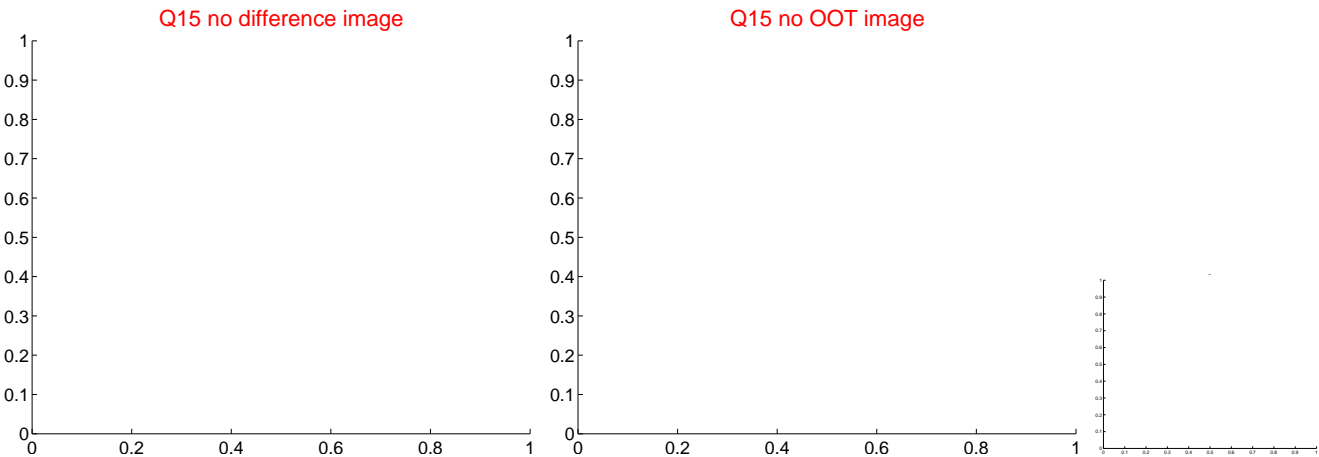
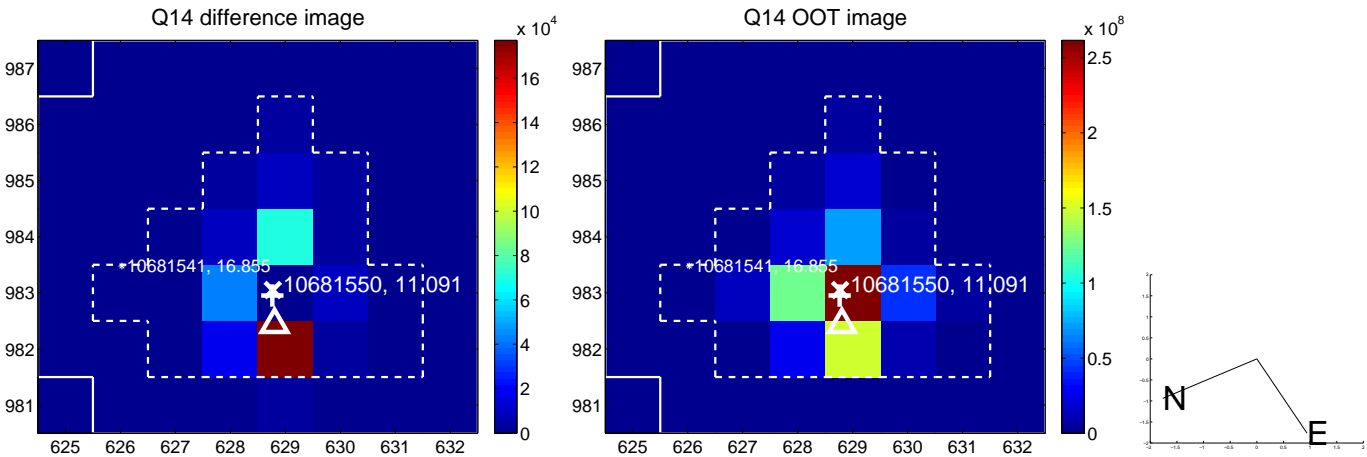
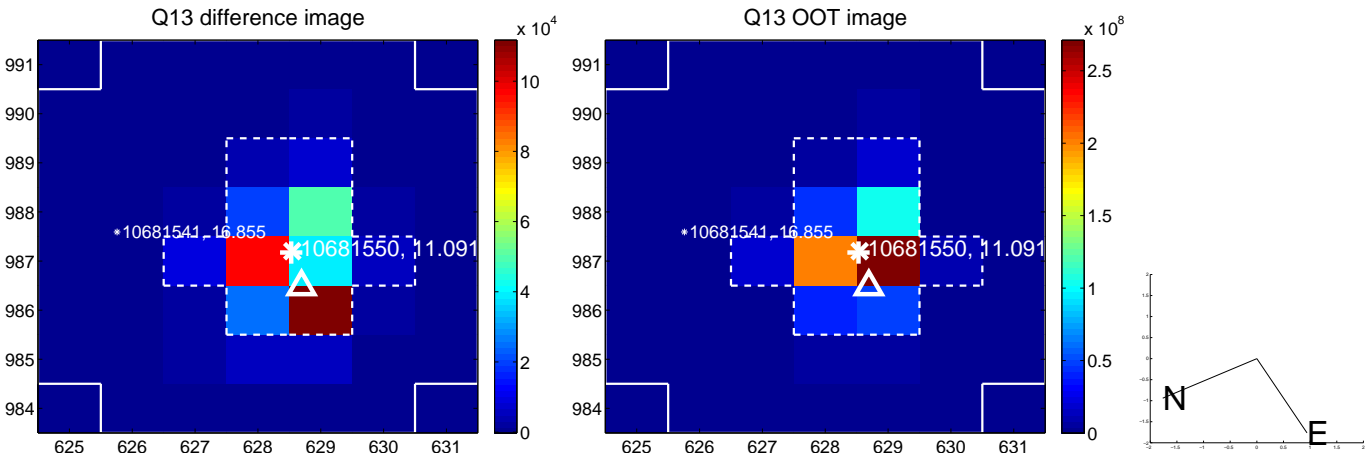
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



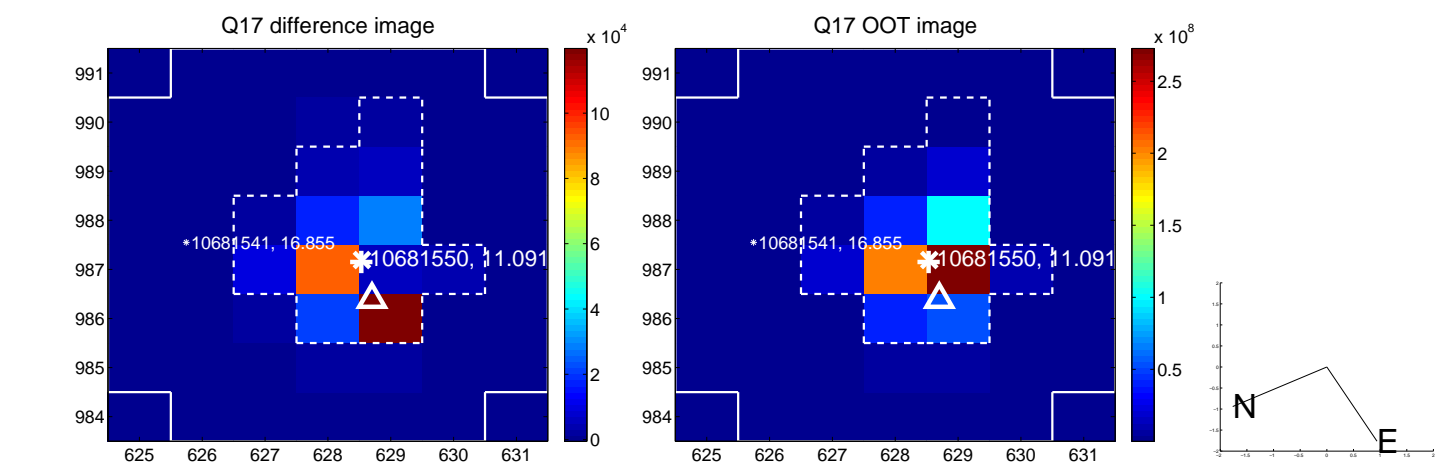
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



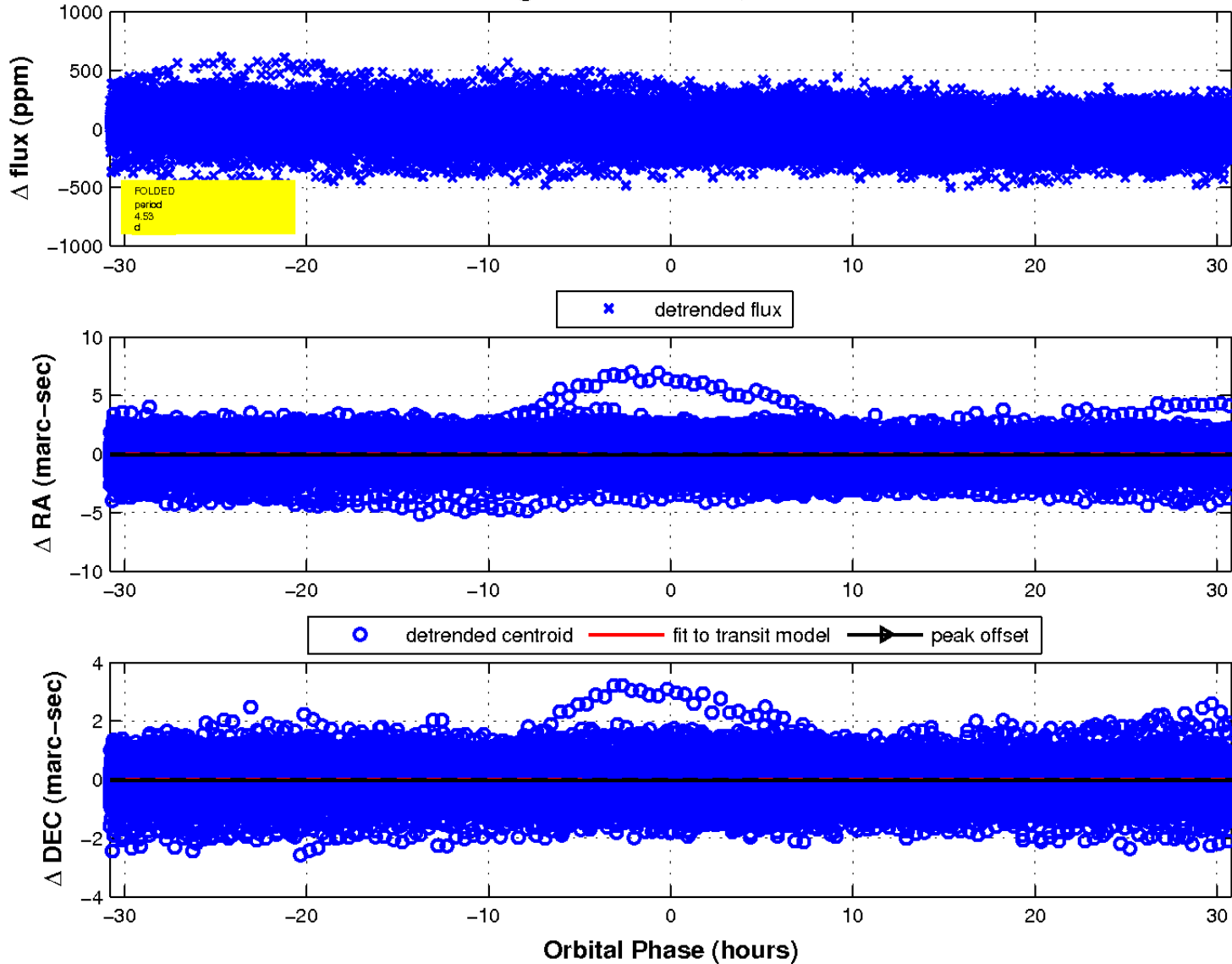
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

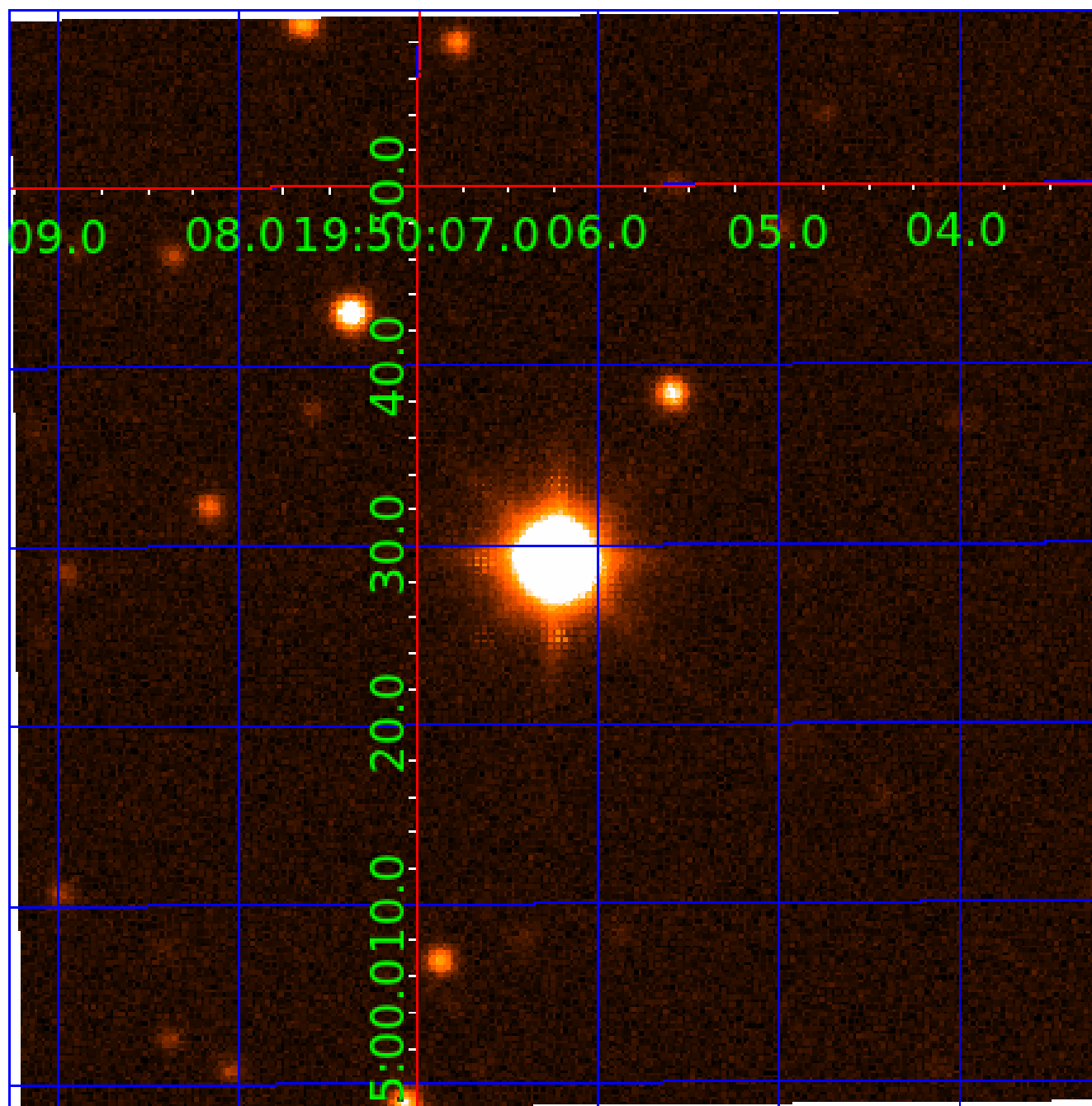


fluxWeightedCentroids, Planet 2 of 5



UKIRT Image

Declination



KIC 010681550

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})
010681550-01	OBS	No	4.530037	135.102778	45.4	13.320	12.5	13.2	1.08	6483	1.01	647.26
010681550-02	OBS	No	4.530013	132.877820	24.3	10.268	11.4	10.7	1.08	6483	0.62	647.27
010681550-03	OBS	No	123.937528	228.533374	71.3	13.003	16.8	3.5	1.08	6483	1.03	7.85
010681550-04	OBS	No	677.313799	219.694001	175.6	6.903	12.0	9.2	1.08	6483	1.65	0.82
010681550-05	OBS	No	271.622286	243.090279	121.8	12.040	8.6	6.1	1.08	6483	1.33	2.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010681550-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
010681550-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
010681550-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—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
010681550-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010681550-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_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.

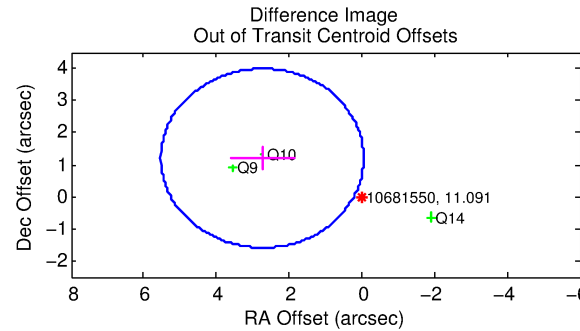
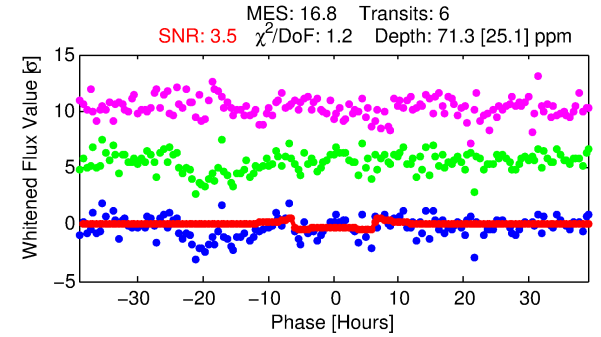
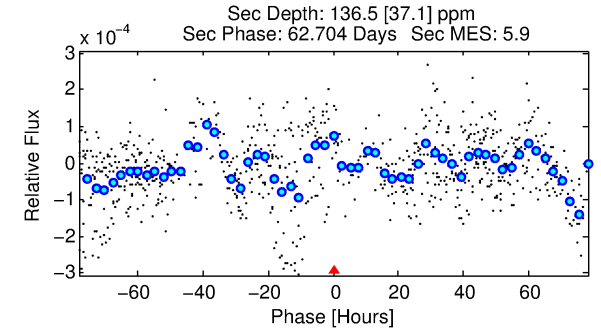
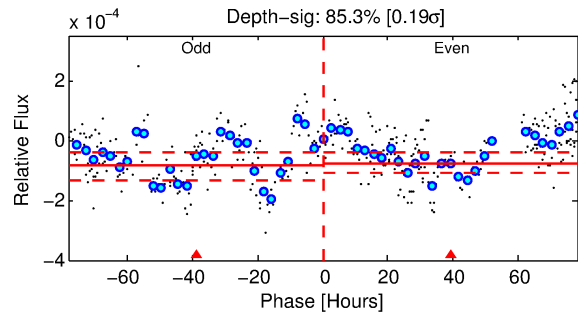
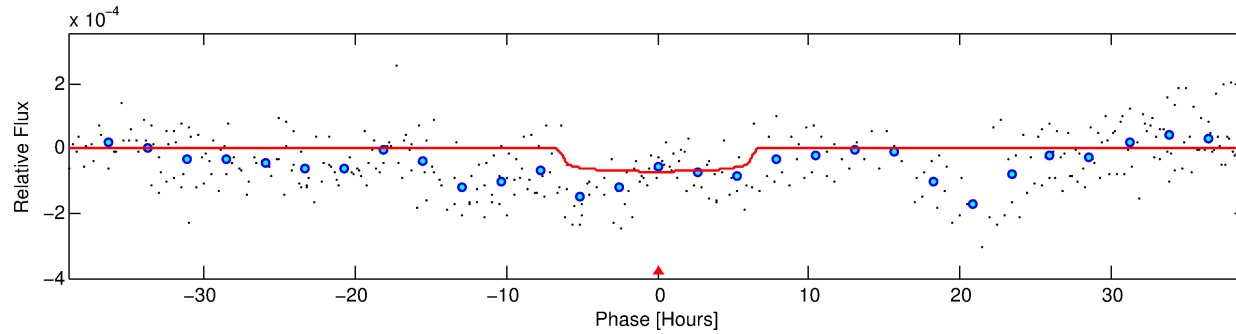
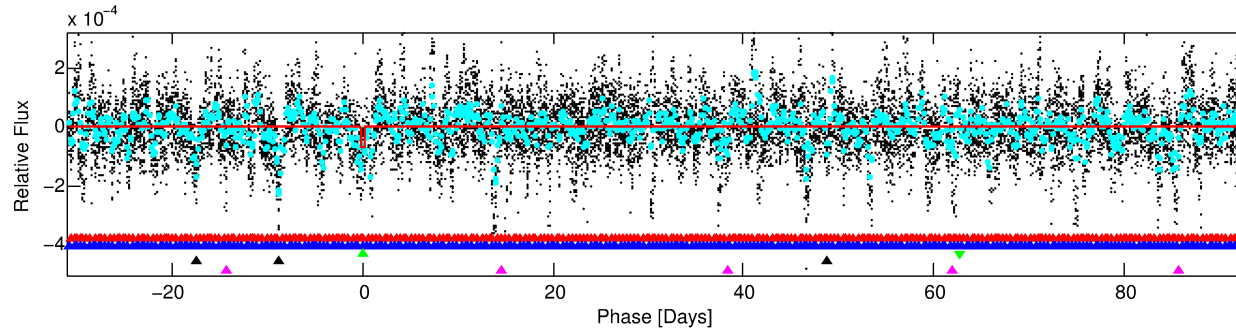
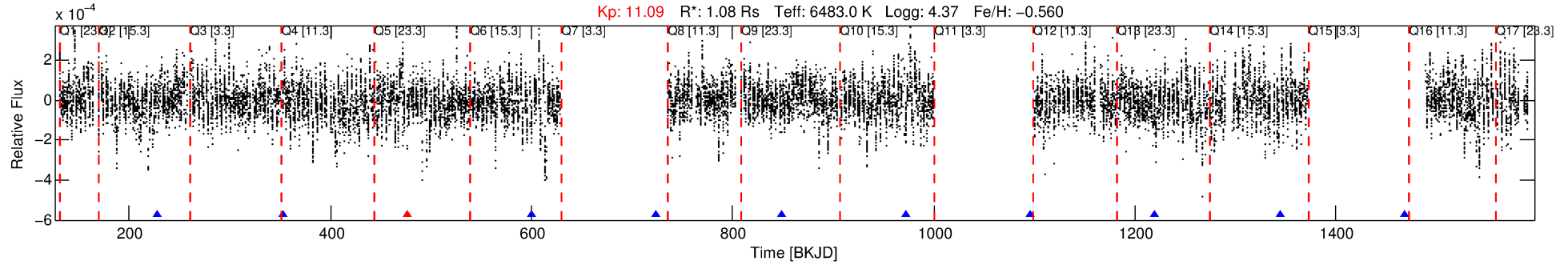
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010681550-03

No Significant Match Found

DV One-Page Summary

KIC: 10681550 Candidate: 3 of 5 Period: 123.938 d



DV Fit Results:

Period = 123.93753 [0.00850] d
Epoch = 228.5334 [0.0393] BKJD
Rp/R* = 0.0088 [0.0035]
a/R* = 38.78 [75.17]
b = 0.86 [0.60]
Seff = 7.85 [2.17]
Teq = 427 [29] K
Rp = 1.03 [0.46] Re
a = 0.4853 [0.0814] AU
Ag = 16526.42 [14674.75] [1.13σ]
Teffp = 7483 [1610] K [4.38σ]

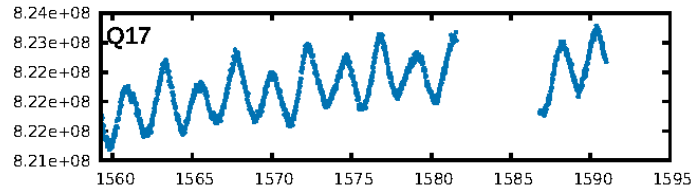
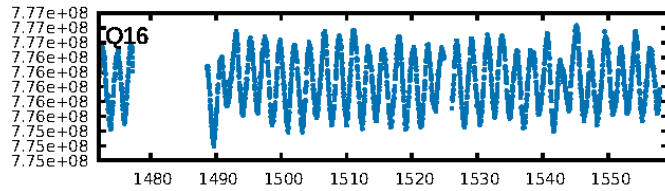
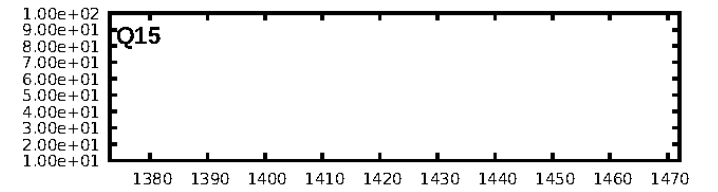
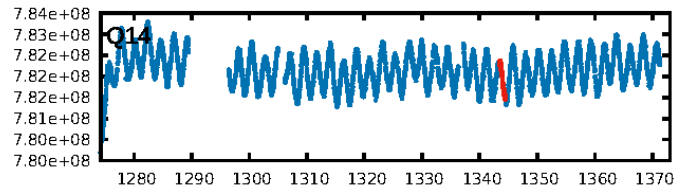
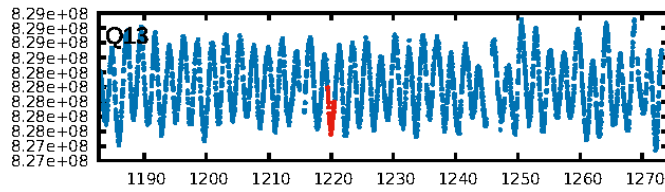
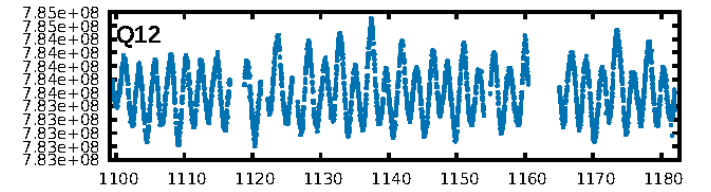
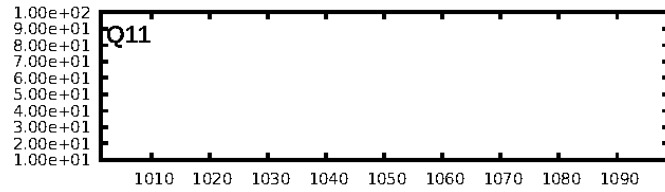
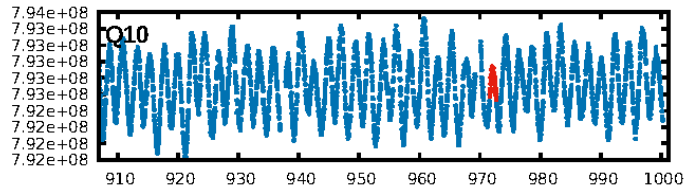
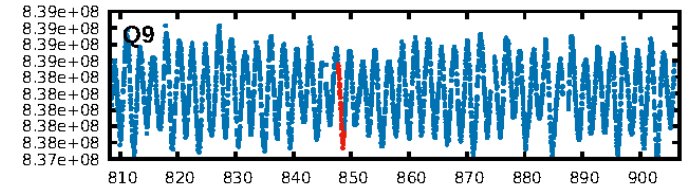
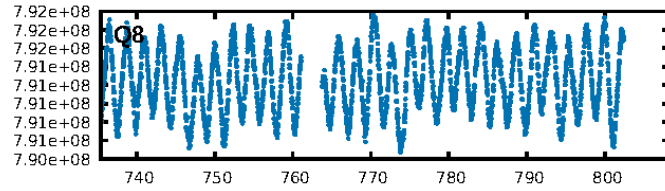
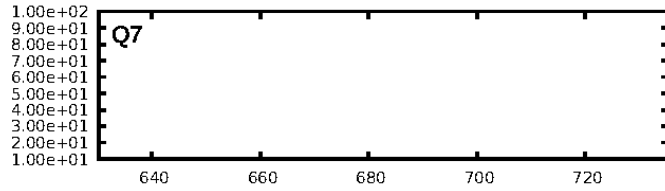
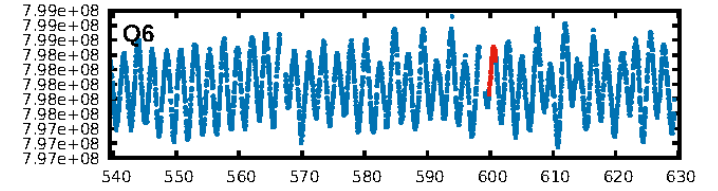
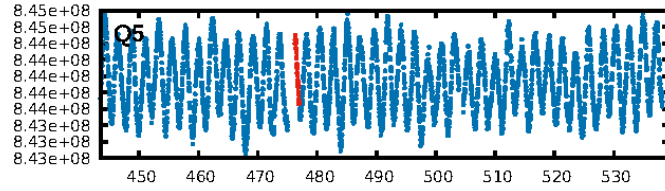
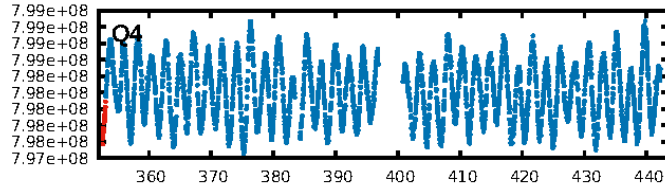
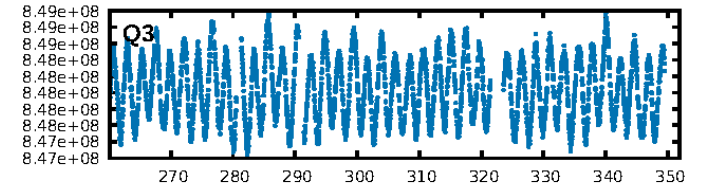
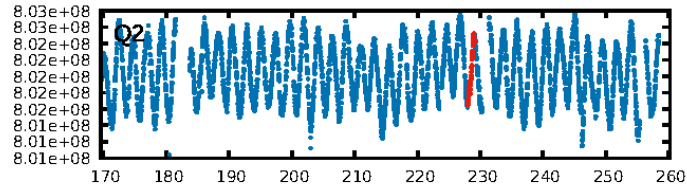
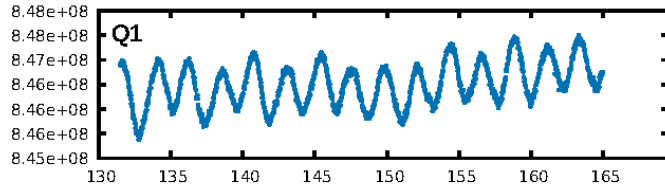
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [153.96σ]
LongPeriod-sig: 100.0% [200.02σ]
ModelChiSquare2-sig: 79.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.21e-30
RollingBand-fgt: 0.83 [5/6]
GhostDiagnostic-chr: 1.403
Centroid-sig: 1.8%
Centroid-so: 2.485 arcsec [1.49σ]
OotOffset-rm: 2.993 arcsec [3.22σ]
KicOffset-rm: 3.347 arcsec [1.97σ]
OotOffset-st: 2/0/0/1 [3]
KicOffset-st: 2/0/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/4]

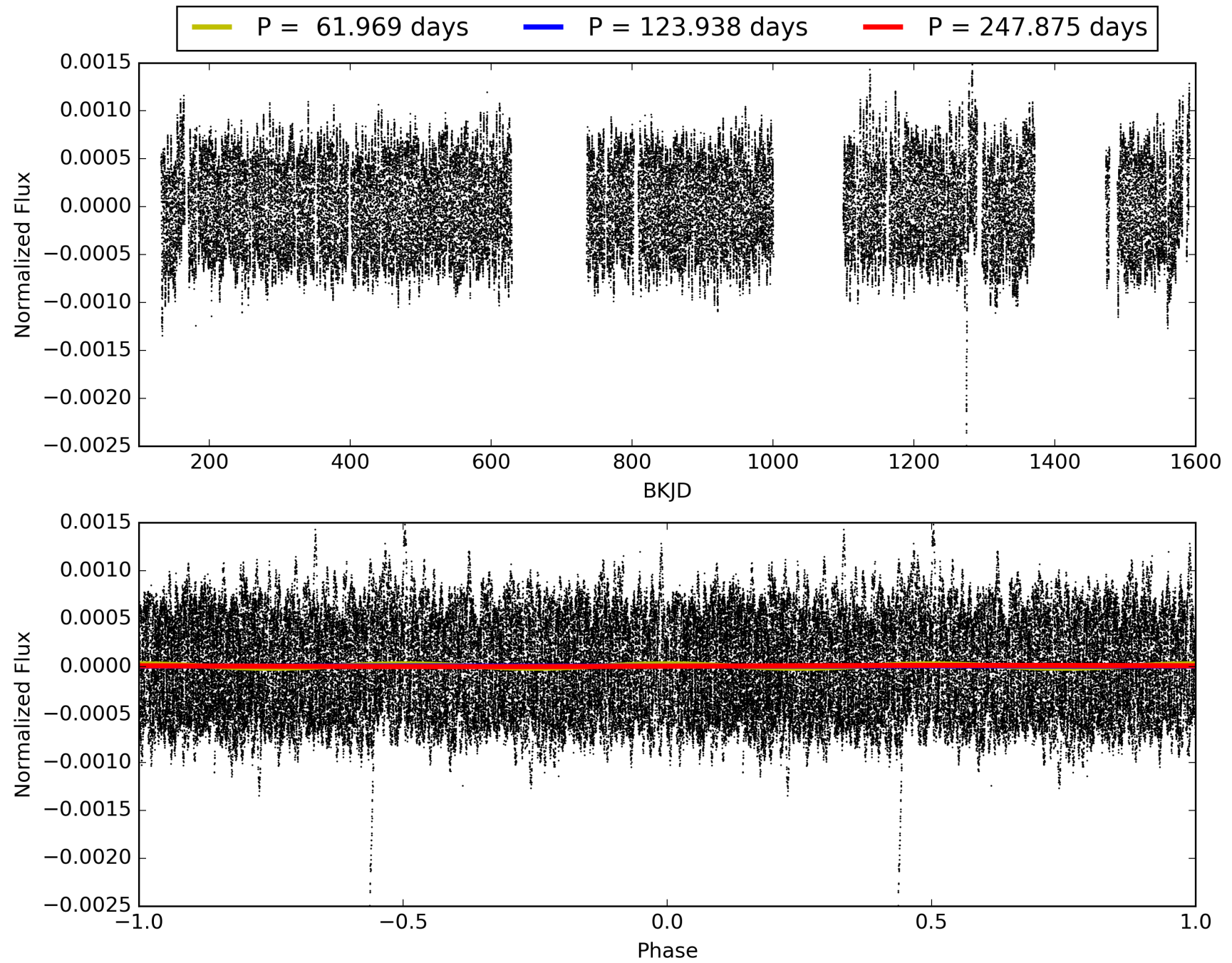
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:17:02 Z

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

TCE 010681550-03, PDC Light Curves

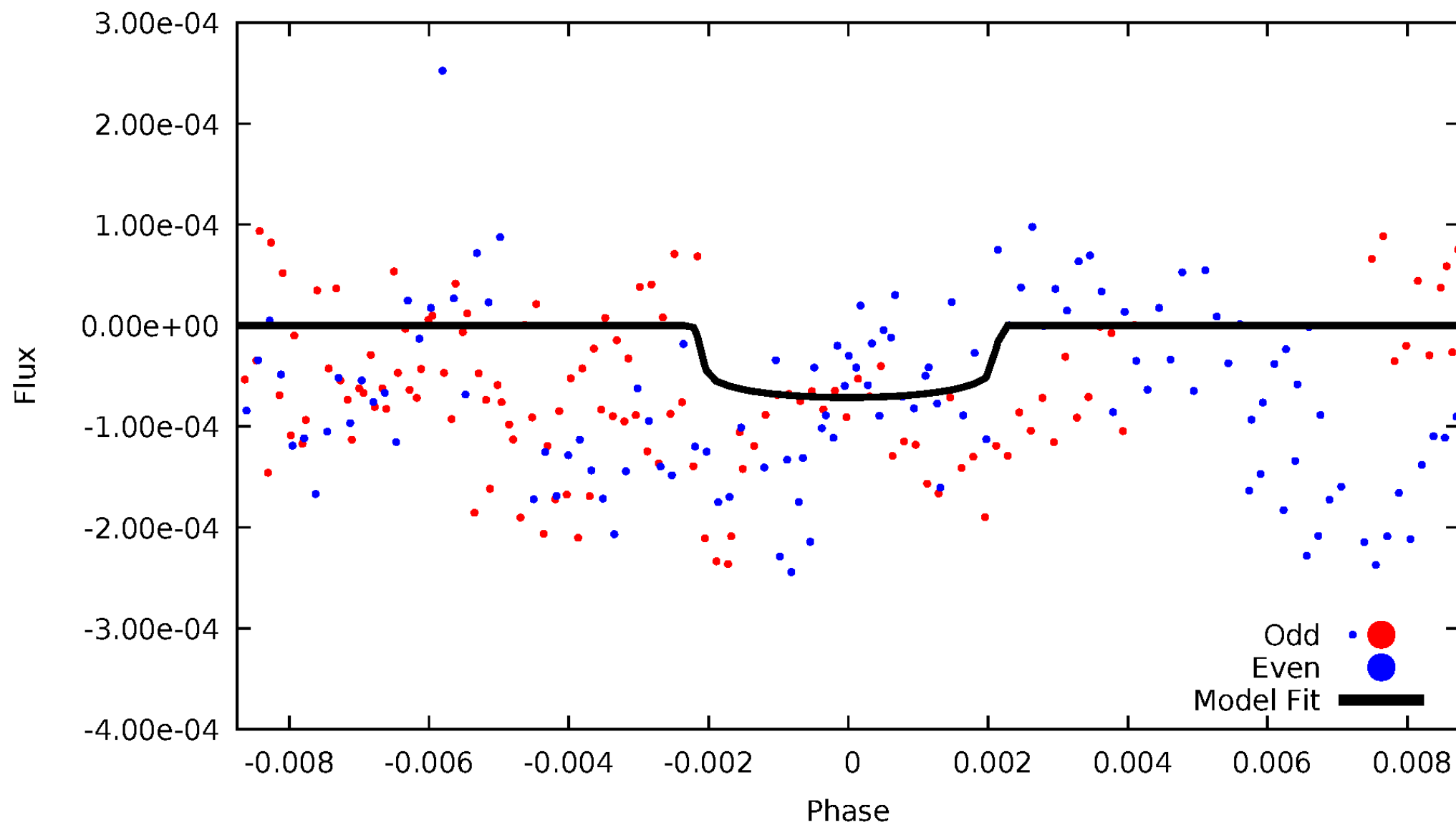


TCE 010681550-03



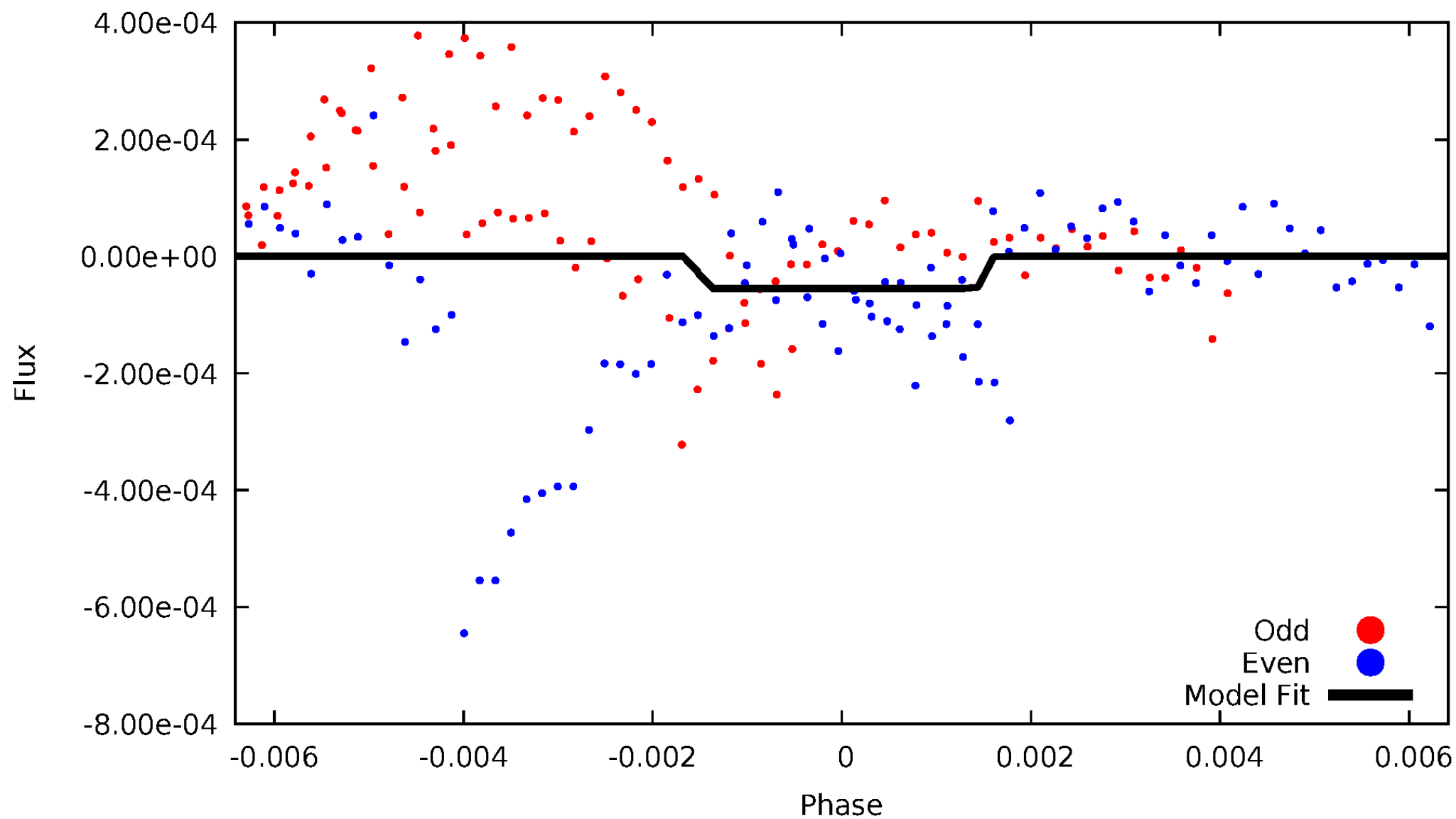
DV Odd/Even

TCE 010681550-03

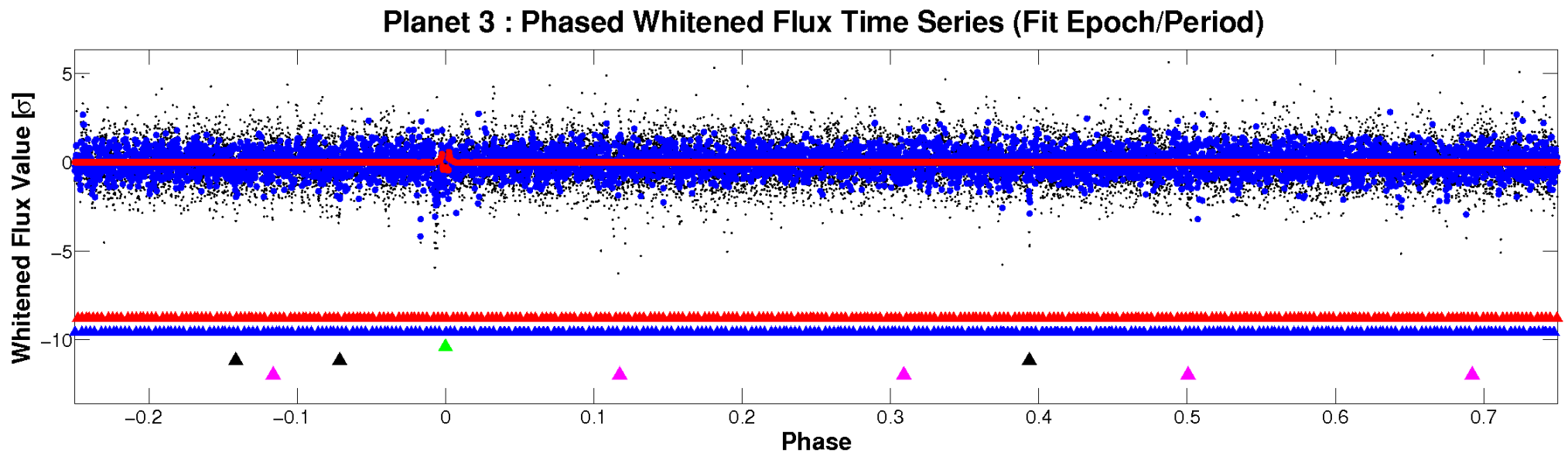
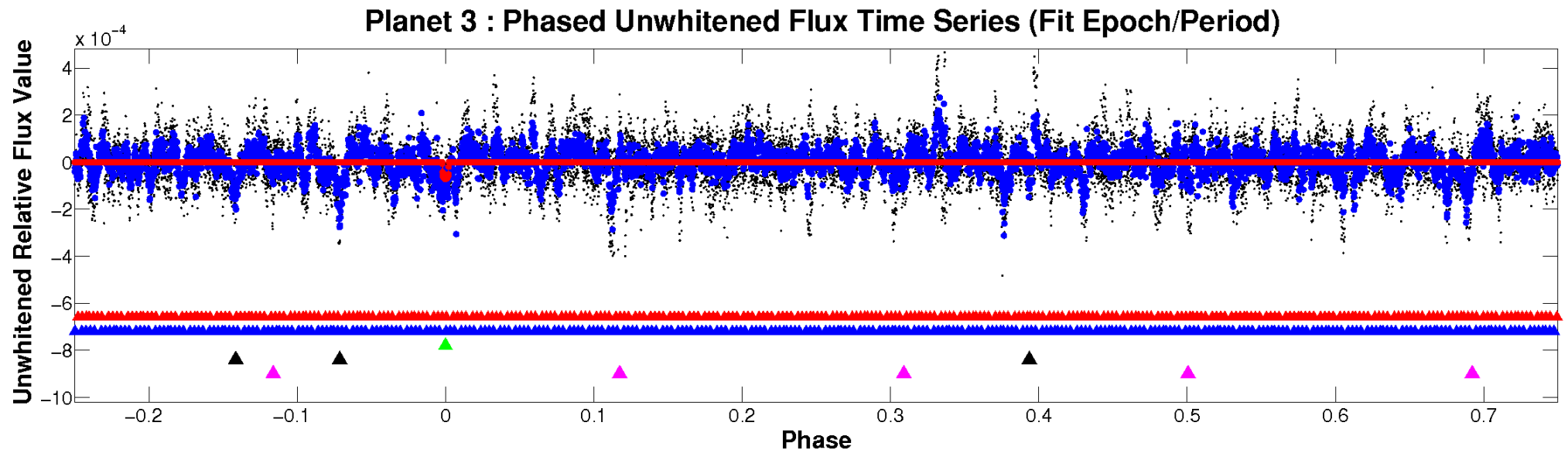


ALT Odd/Even

TCE 010681550-03

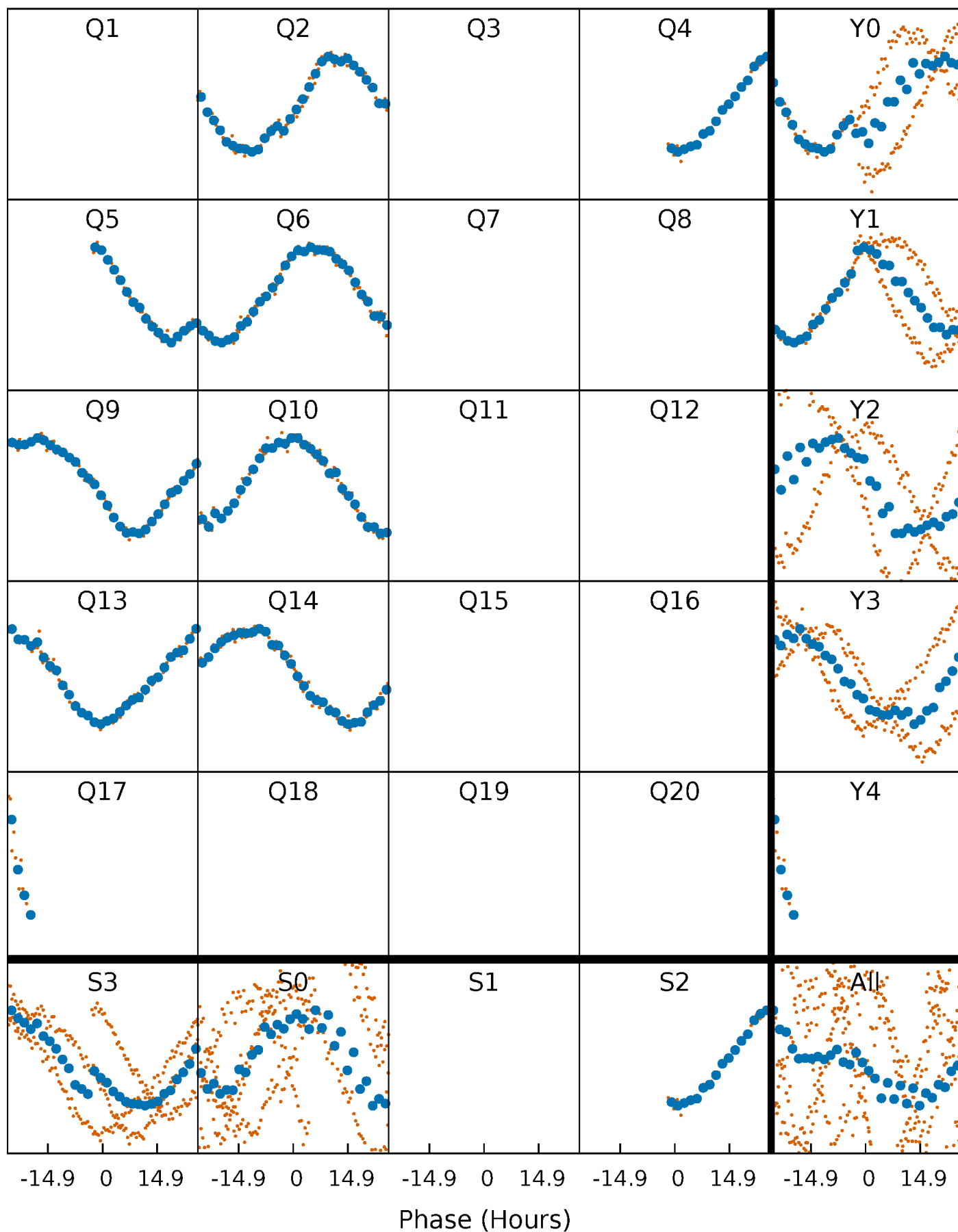


Non-Whitened Vs. Whitened Light Curve



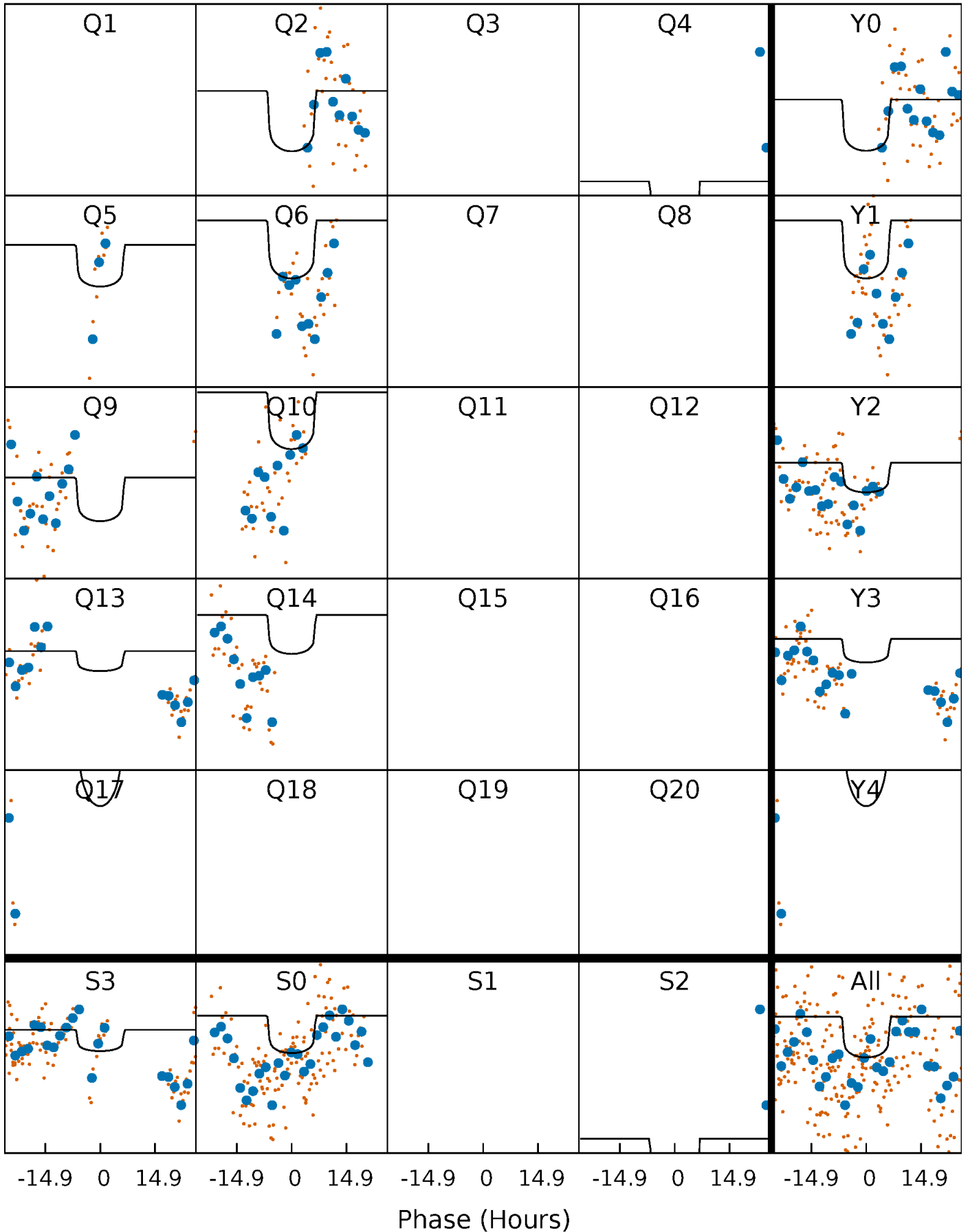
PDC Quarter-Phased Transit Curves

TCE 010681550-03 P=123.937528 Days $T_0=228.533374$ (BKJD)



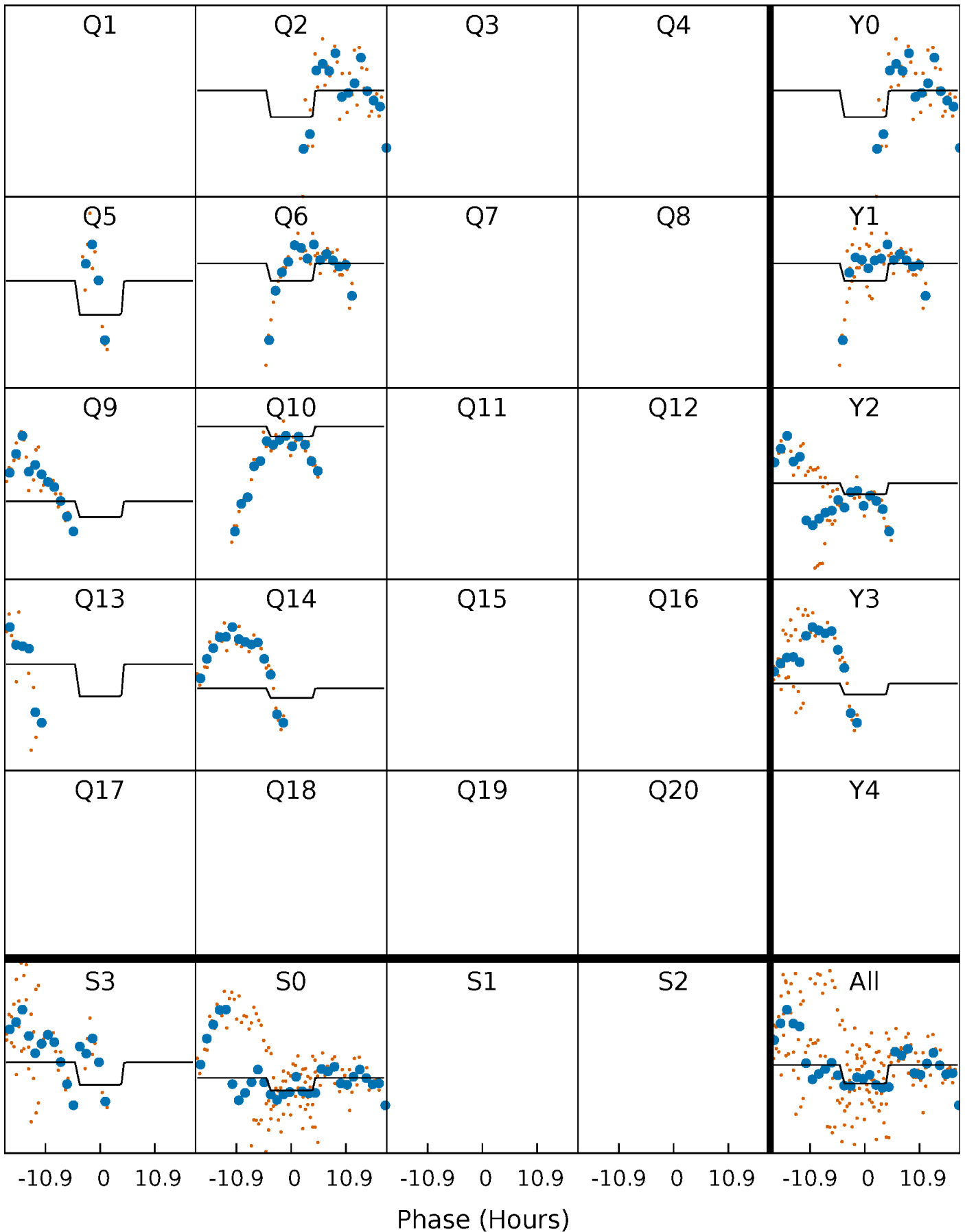
DV Quarter-Phased Transit Curves

TCE 010681550-03 P=123.937528 Days $T_0=228.533374$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

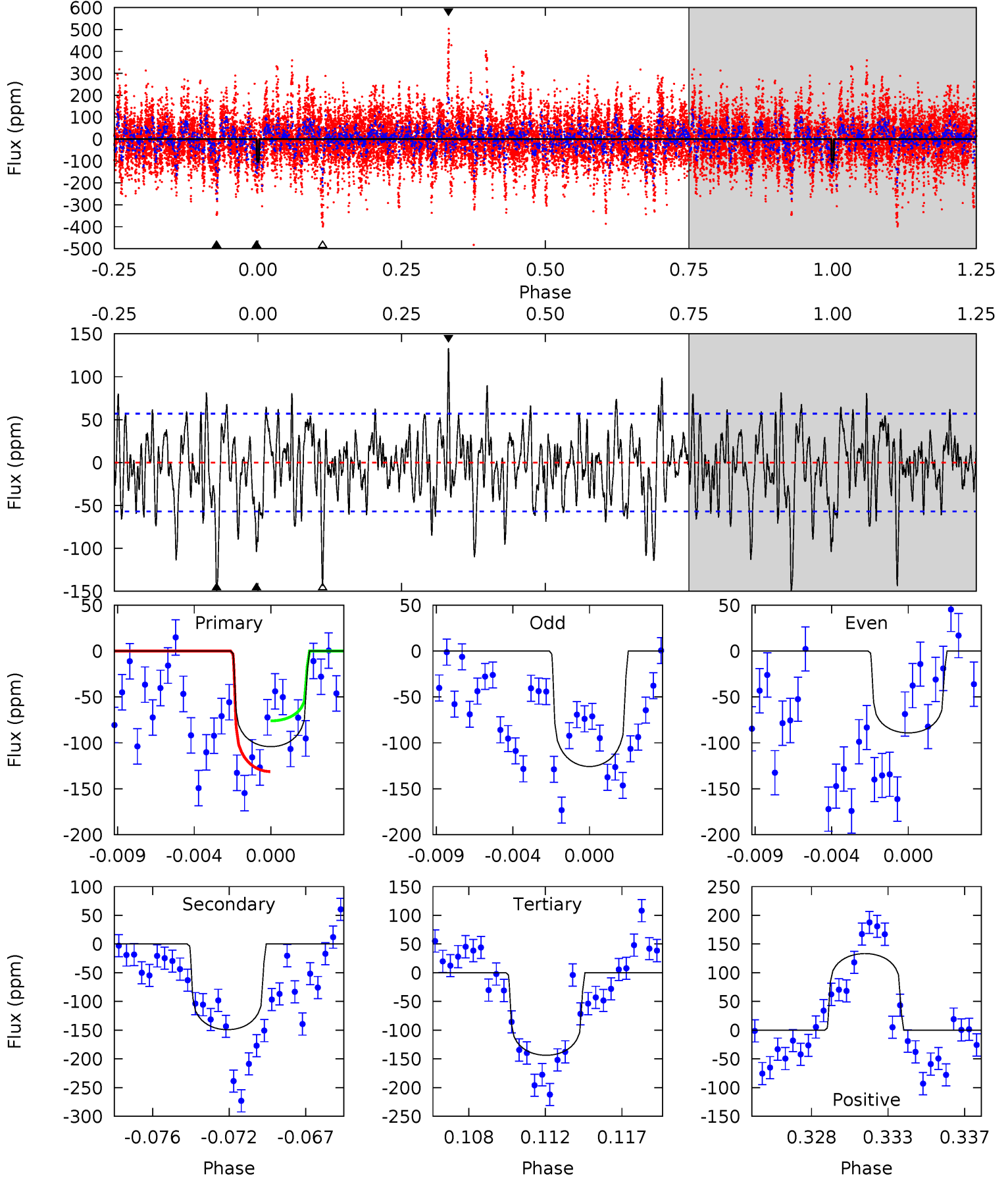
TCE 010681550-03 P=123.915919 Days $T_0=228.599848$ (BKJD)



DV Model-Shift Uniqueness Test

010681550-03, P = 123.937528 Days, E = 104.595846 Days

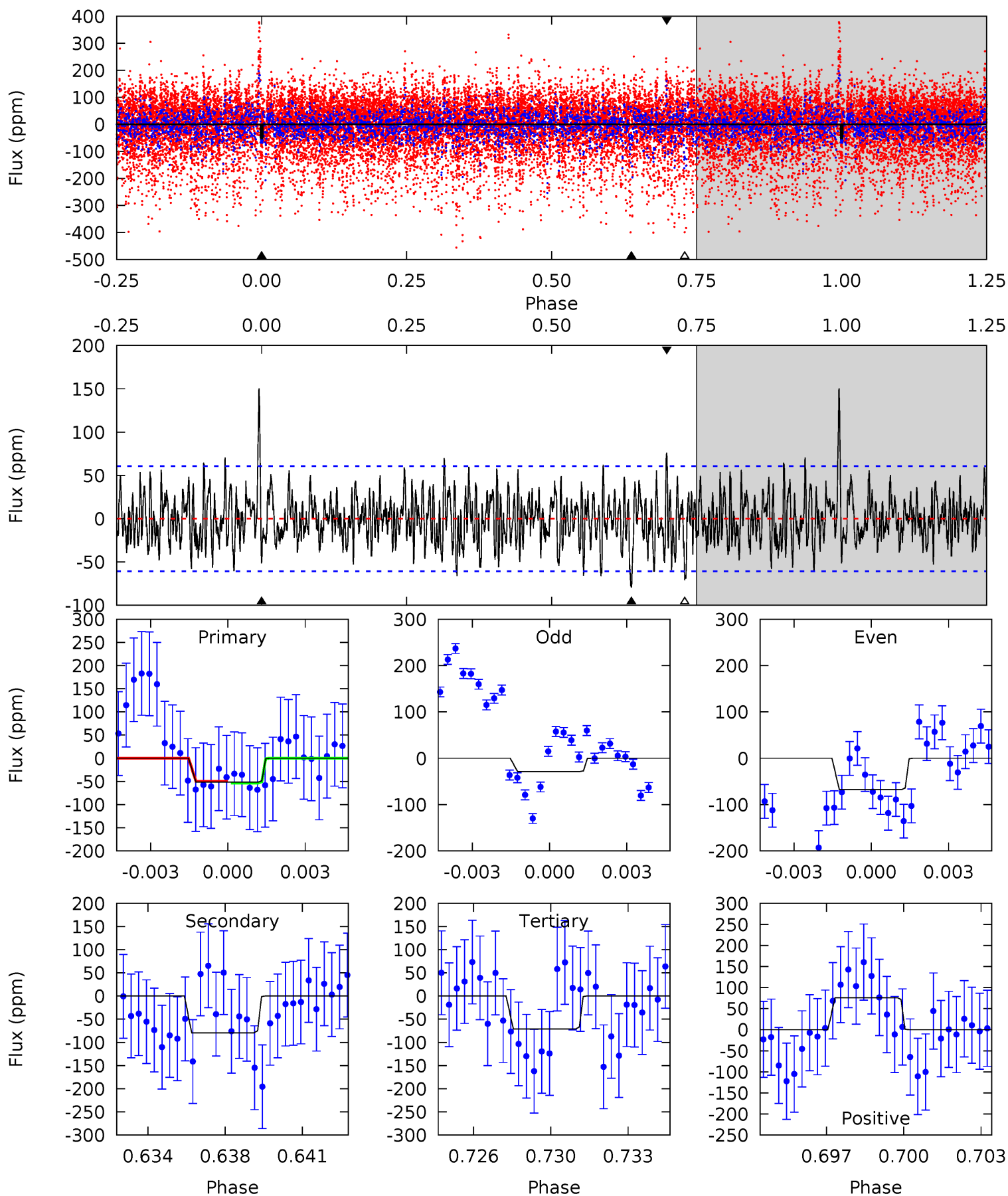
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.47	13.6	13.1	12.1	5.18	2.84	3.13	-3.60	-2.66	0.50	1.44	1.59	1.15	0.47	2.54



Alt Model-Shift Uniqueness Test

010681550-03, P = 123.915919 Days, E = 104.683929 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.44	6.84	6.12	6.56	5.24	2.94	2.16	-1.68	-2.12	0.72	0.28	1.64	0.73	0.65	0.15



Stellar Parameters For KIC 010681550

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6483^{+145}_{-194}	$4.367^{+0.092}_{-0.138}$	$-0.560^{+0.300}_{-0.300}$	$1.081^{+0.211}_{-0.141}$	$0.992^{+0.124}_{-0.112}$	$1.105^{+0.515}_{-0.412}$
	+2%/-3%	+2%/-3%	+54%/-54%	+20%/-13%	+12%/-11%	+47%/-37%
Source	PHO1	FLK73	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 010681550-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-149 ± 11	$1.03^{+0.44}_{-0.44}$	601^{+30}_{-32}	7879^{+3573}_{-1380}	18210^{+35358}_{-9281}
Alt.	-79 ± 12	$0.92^{+0.42}_{-0.43}$	599^{+31}_{-26}	6955^{+3562}_{-1185}	12220^{+31020}_{-6632}

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 $A_{obs} \gg 1.0$

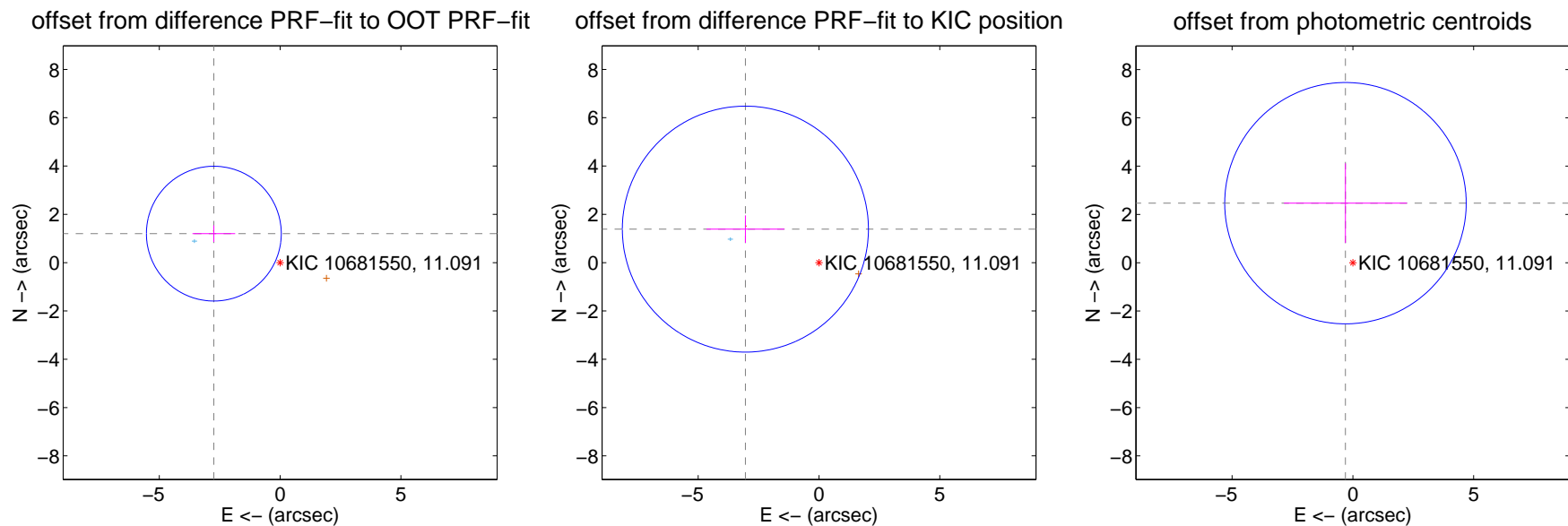
DV Centroid Data

Supplemental centroid analysis for 010681550-03. **Kepler magnitude: 11.09.** Transit SNR 3.46

There are 1 quarters with good PRF difference image offsets

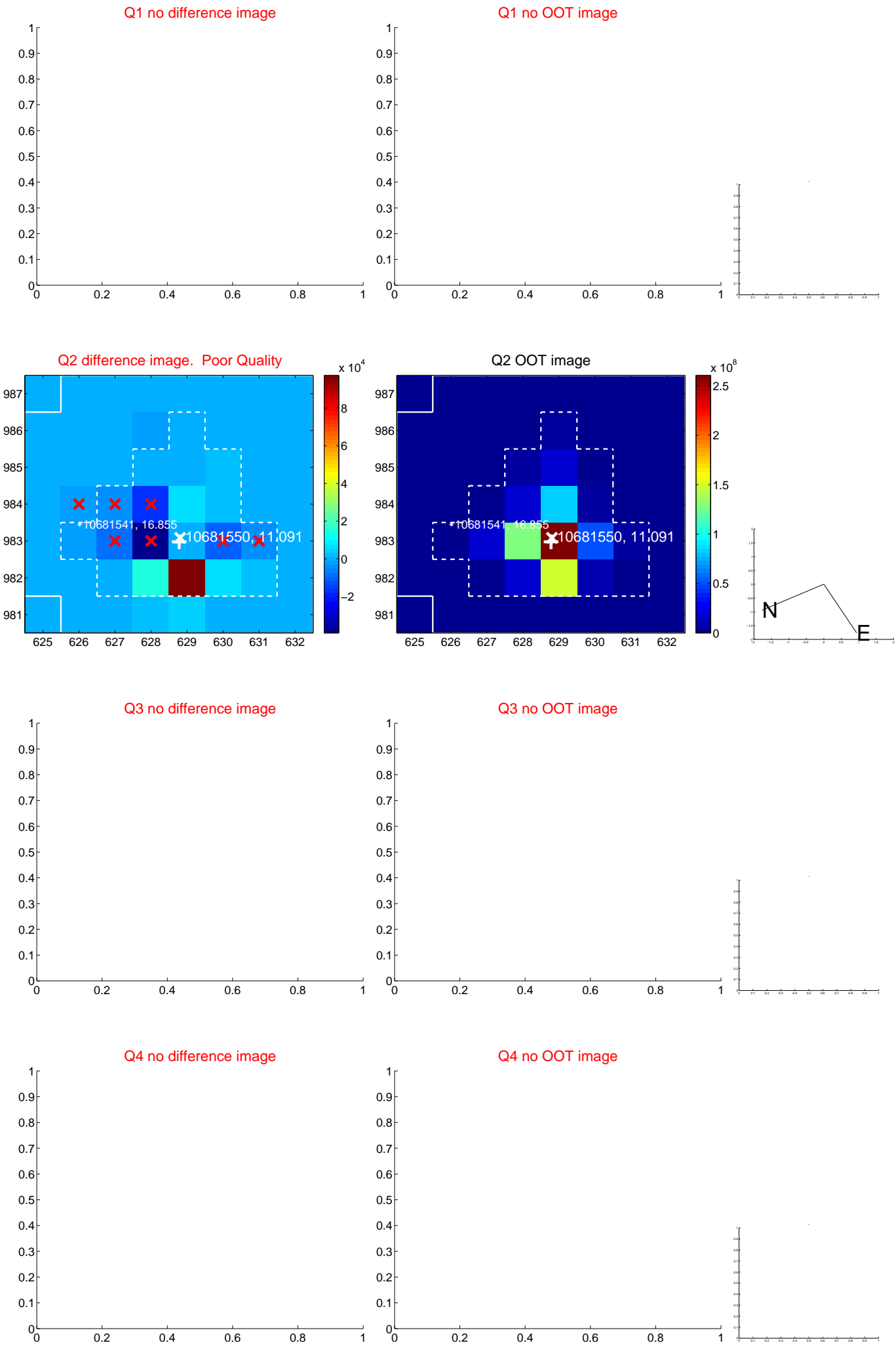
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.993 ± 0.930	3.22	2.741 ± 0.884	1.201 ± 0.343
PRF-fit source offset from KIC position	3.347 ± 1.697	1.97	3.045 ± 1.613	1.388 ± 0.569
photometric centroid source offset	2.48 ± 1.67	1.49	0.31 ± 2.55	2.47 ± 1.65

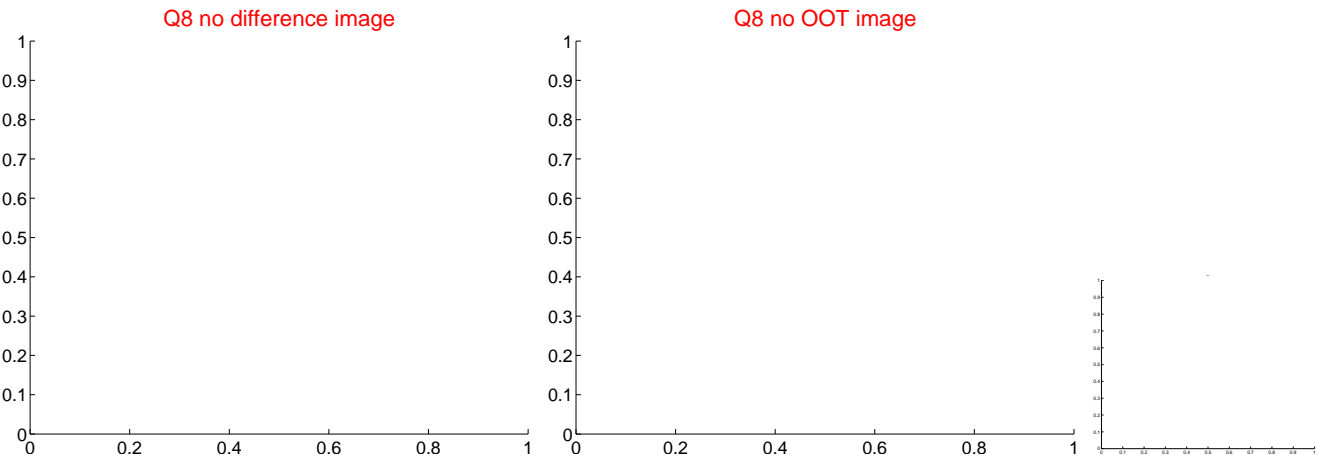
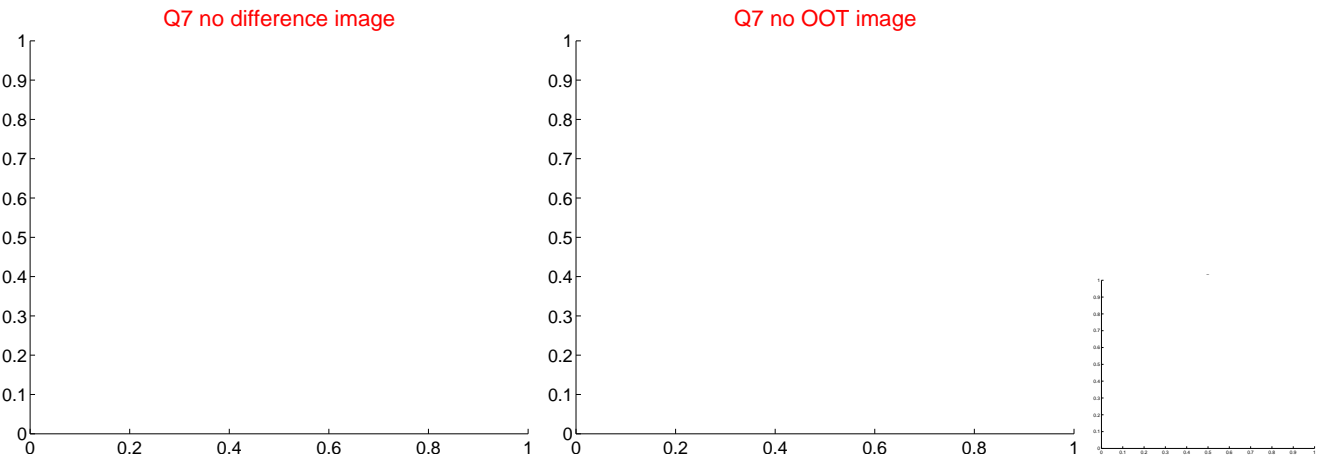
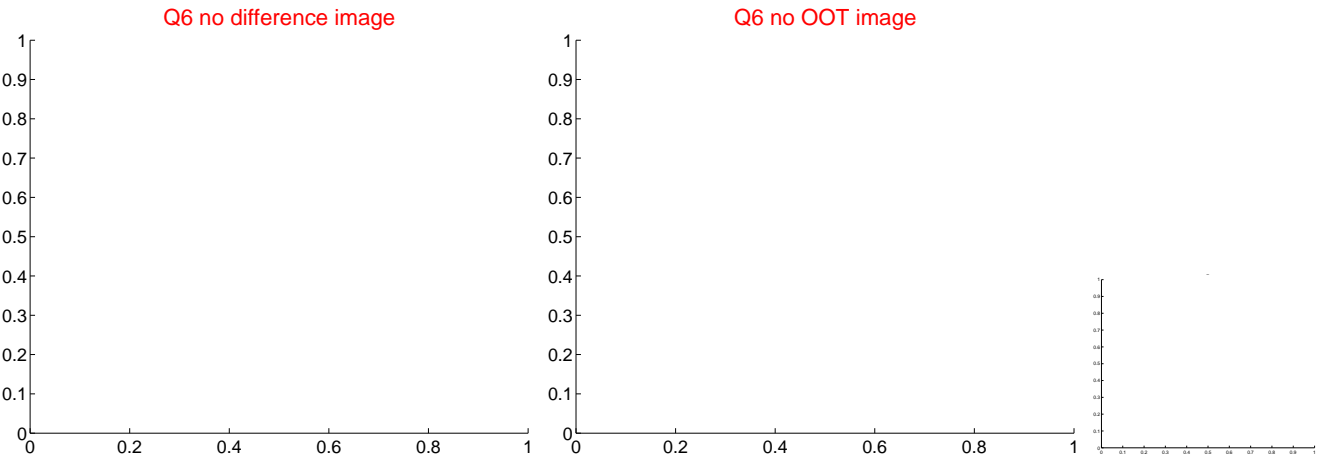
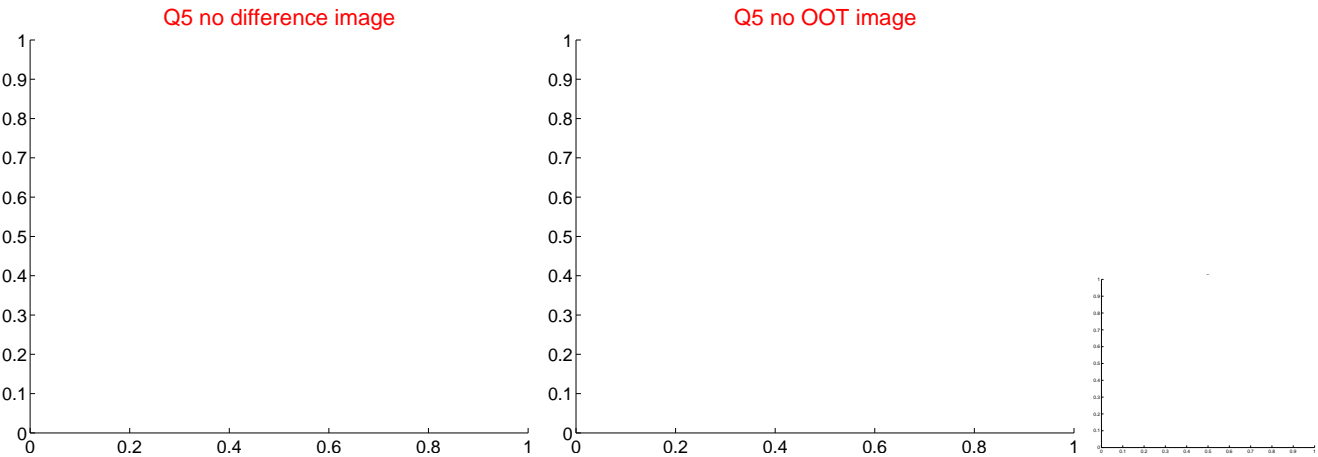


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

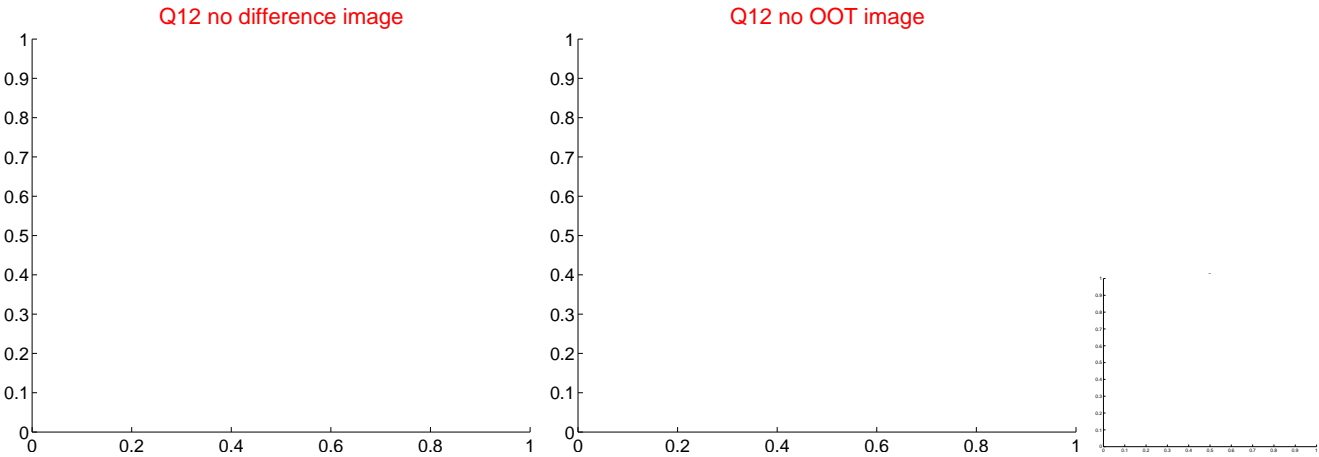
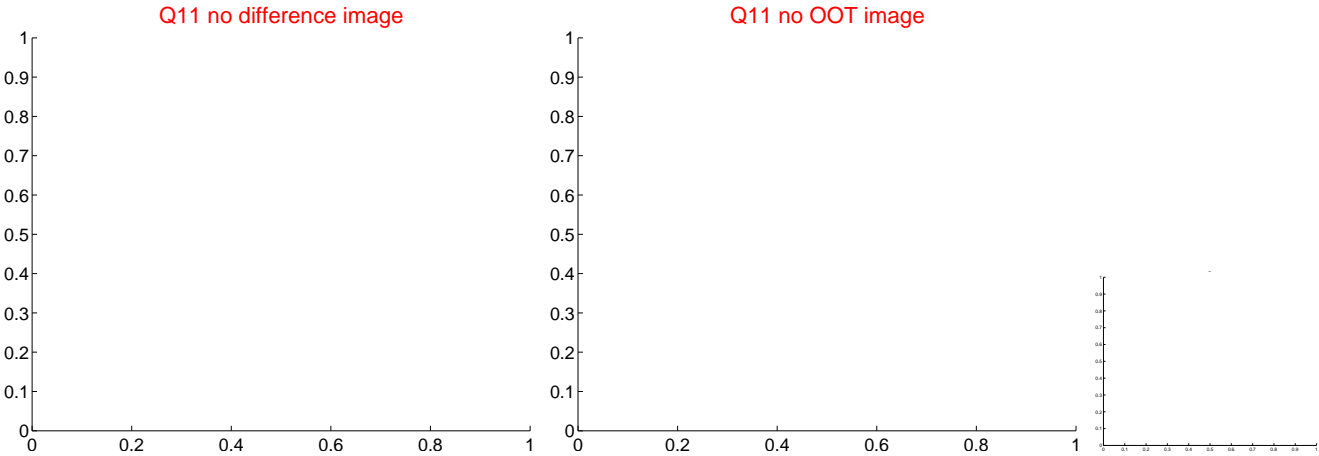
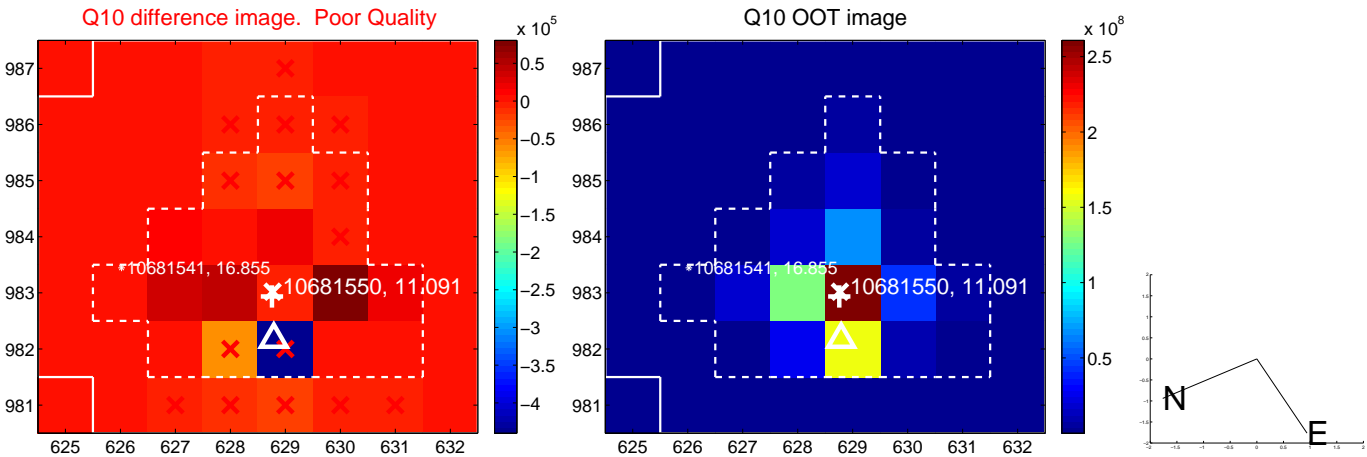
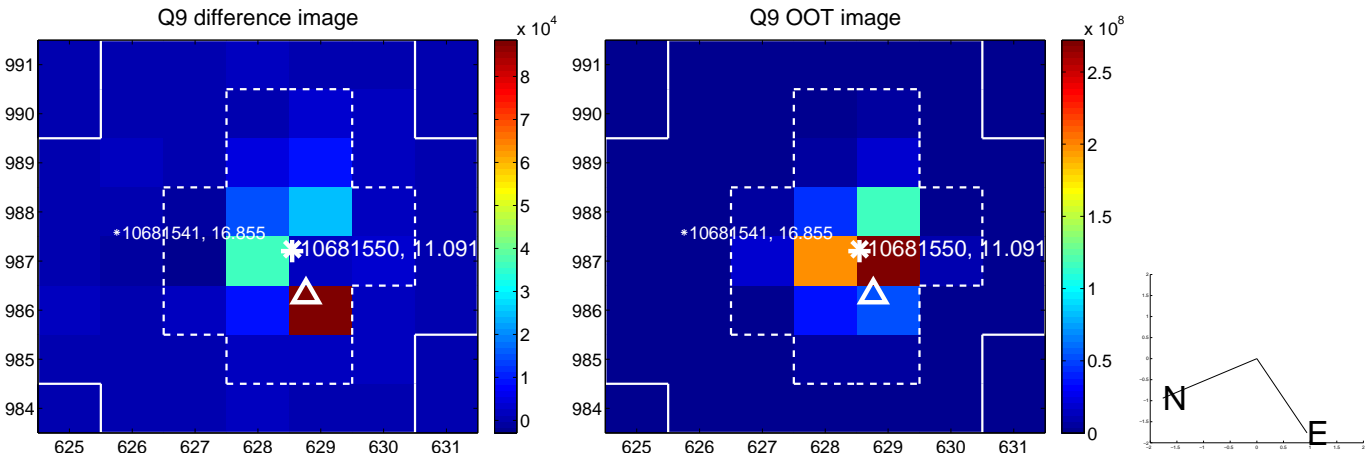
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



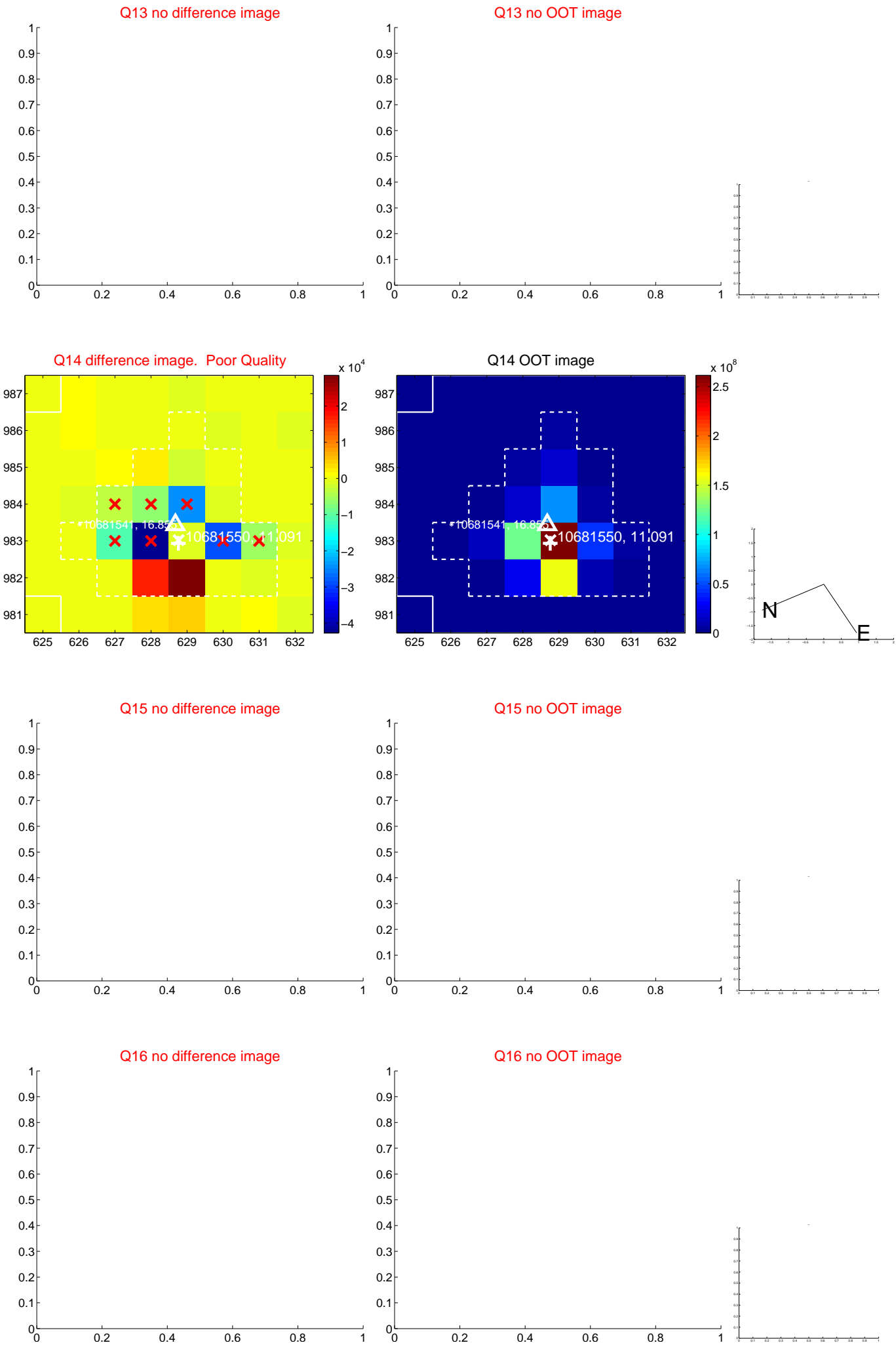
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



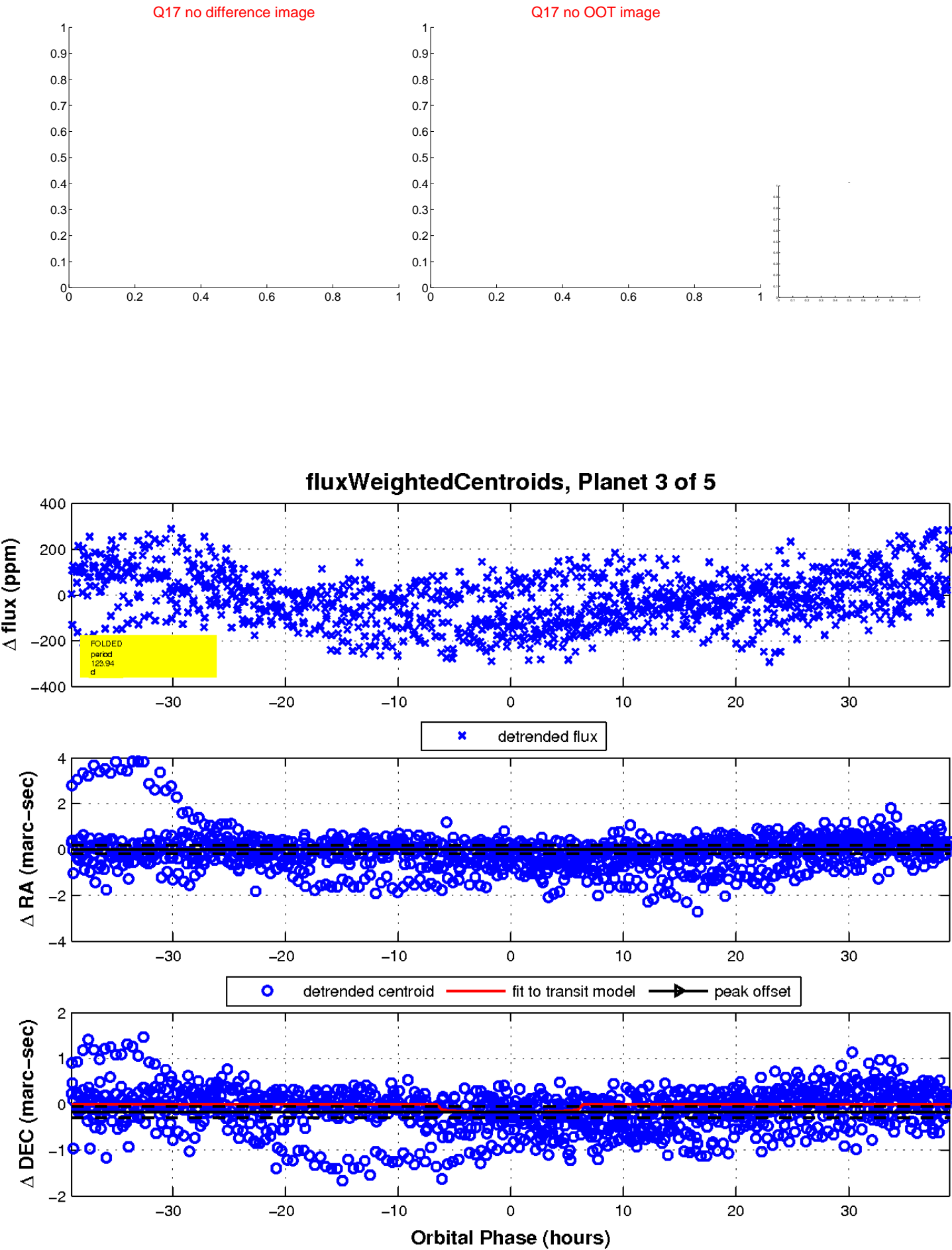
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

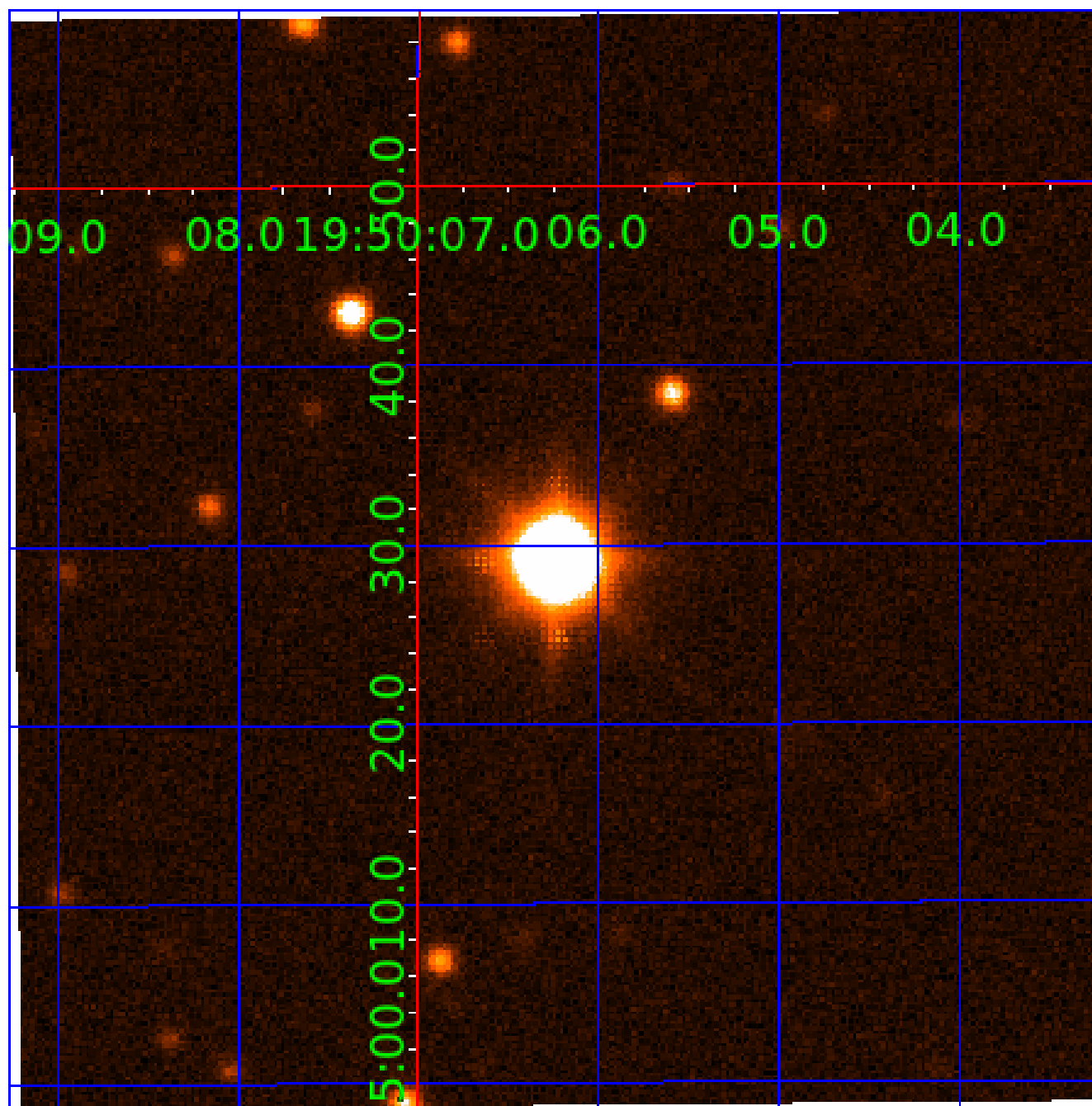


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010681550

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})
010681550-01	OBS	No	4.530037	135.102778	45.4	13.320	12.5	13.2	1.08	6483	1.01	647.26
010681550-02	OBS	No	4.530013	132.877820	24.3	10.268	11.4	10.7	1.08	6483	0.62	647.27
010681550-03	OBS	No	123.937528	228.533374	71.3	13.003	16.8	3.5	1.08	6483	1.03	7.85
010681550-04	OBS	No	677.313799	219.694001	175.6	6.903	12.0	9.2	1.08	6483	1.65	0.82
010681550-05	OBS	No	271.622286	243.090279	121.8	12.040	8.6	6.1	1.08	6483	1.33	2.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010681550-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
010681550-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
010681550-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—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
010681550-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010681550-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_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.

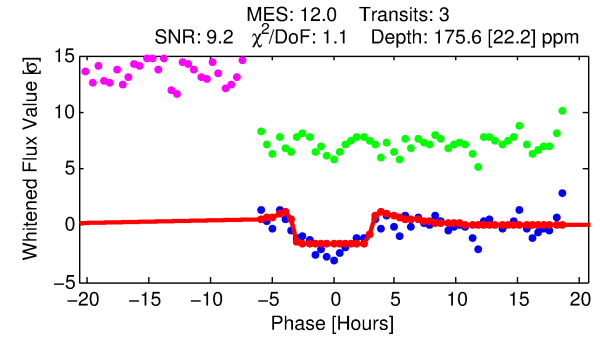
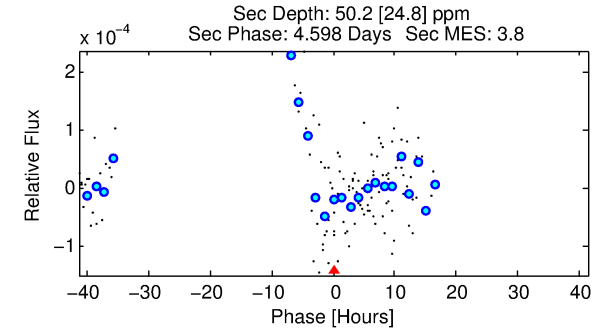
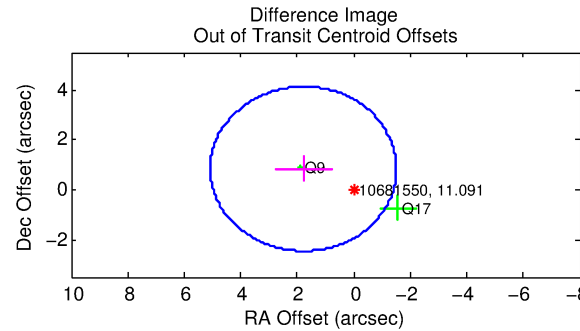
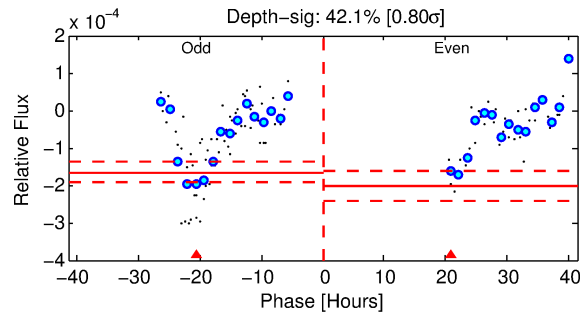
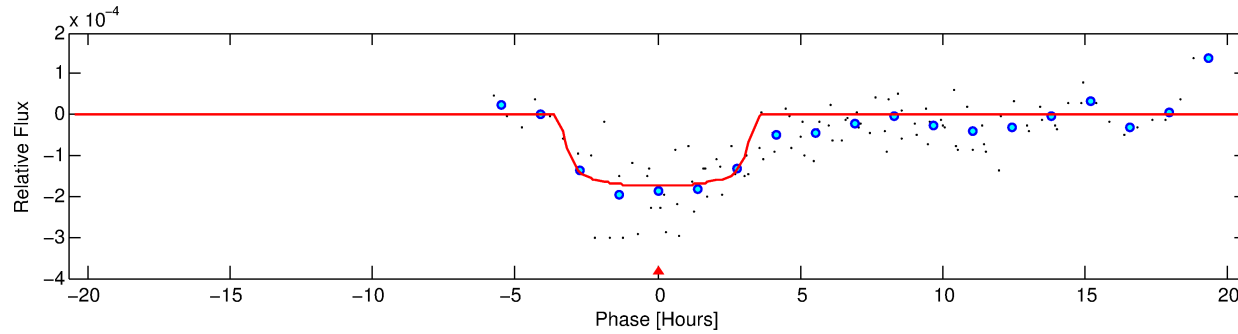
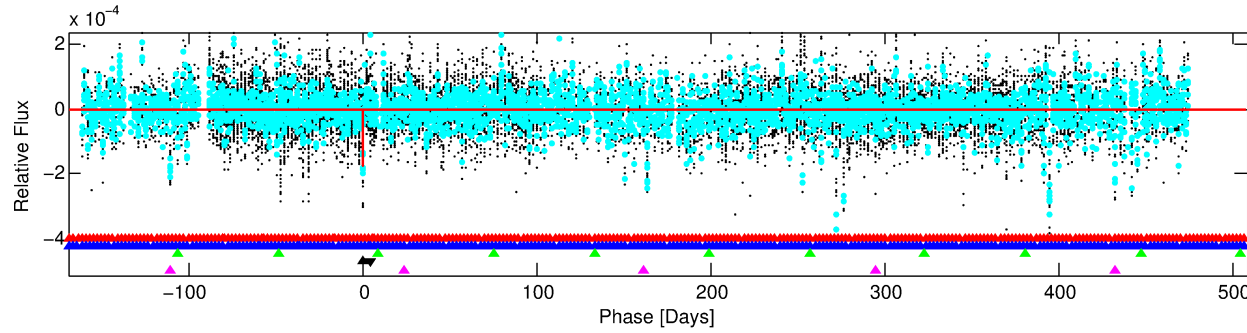
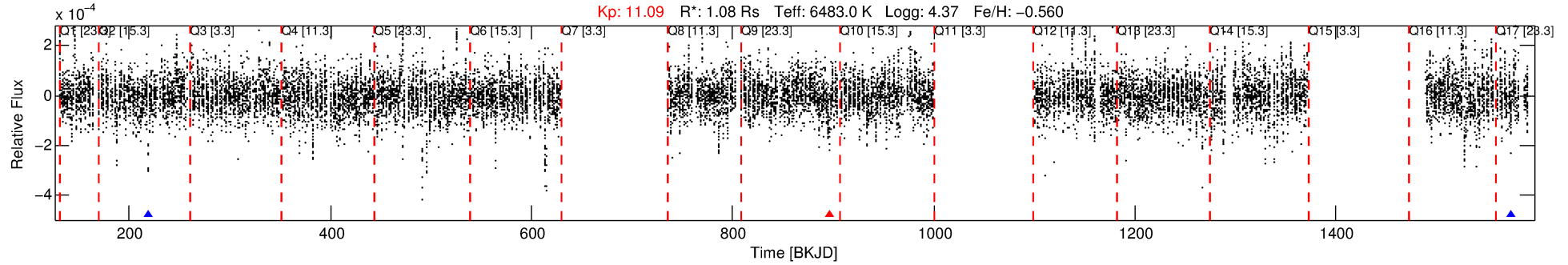
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010681550-04

No Significant Match Found

DV One-Page Summary

KIC: 10681550 Candidate: 4 of 5 Period: 677.314 d



DV Fit Results:

Period = 677.31380 [0.00779] d
Epoch = 219.6940 [0.0119] BKJD
Rp/R* = 0.0140 [0.0048]
a/R* = 370.63 [717.79]
b = 0.89 [0.48]
Seff = 0.82 [0.23]
Teq = 242 [17] K
Rp = 1.65 [0.65] Re
a = 1.5058 [0.2527] AU
Ag = 22919.65 [20277.25] [1.13 σ]
Teffp = 4610 [988] K [4.42 σ]

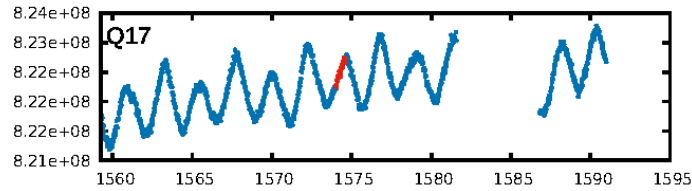
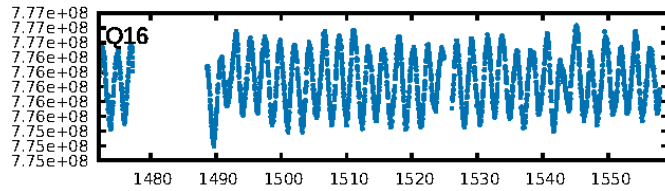
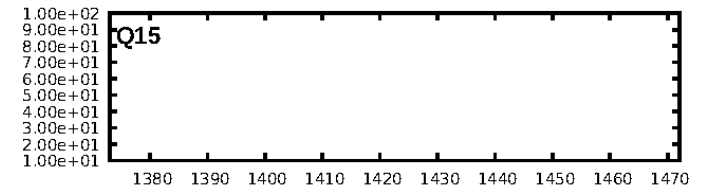
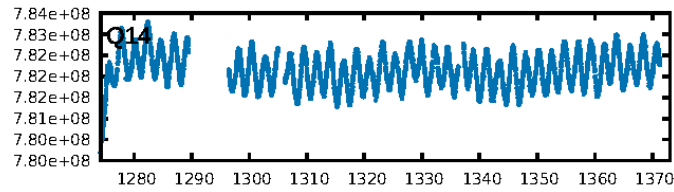
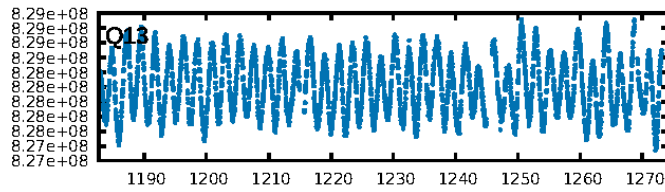
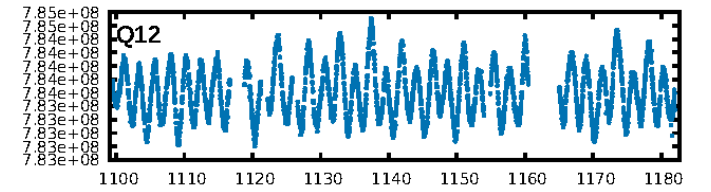
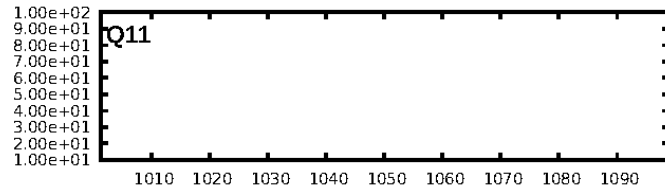
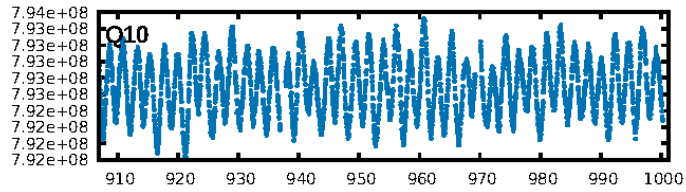
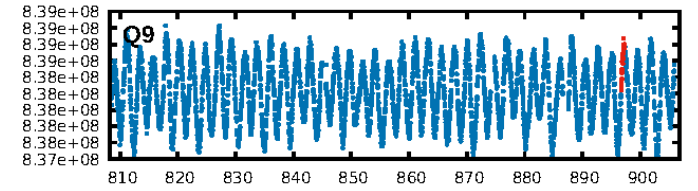
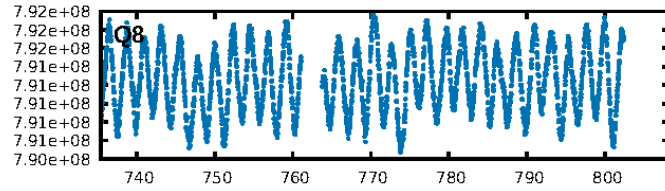
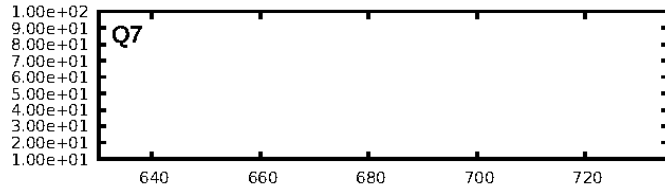
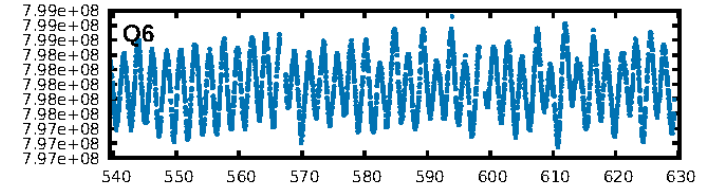
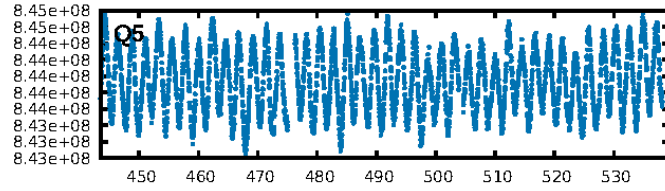
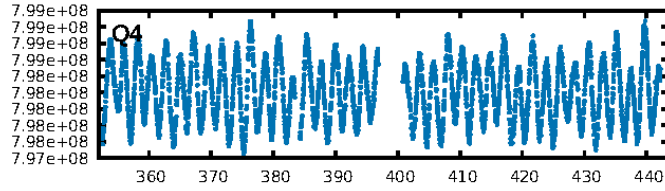
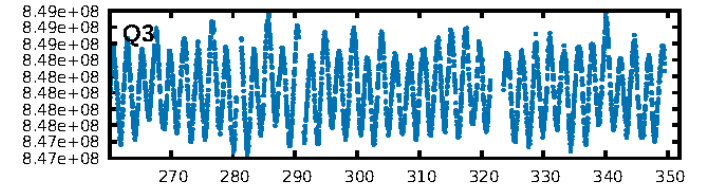
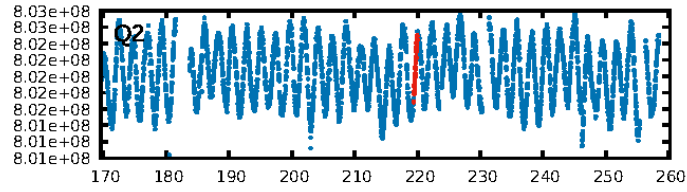
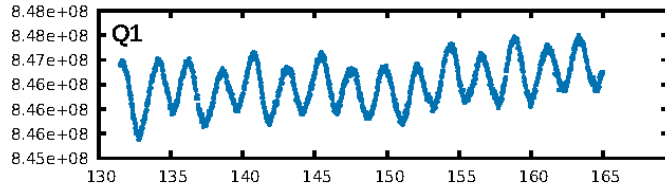
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [701.56 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 93.9%
Bootstrap-pfa: 6.68e-12
RollingBand-fgt: 0.50 [1/2]
GhostDiagnostic-chr: -1.483
Centroid-sig: 1.7%
Centroid-so: 2.166 arcsec [1.66 σ]
OotOffset-rm: 1.968 arcsec [1.79 σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 2.120 arcsec [2.23 σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.67 [2/3]

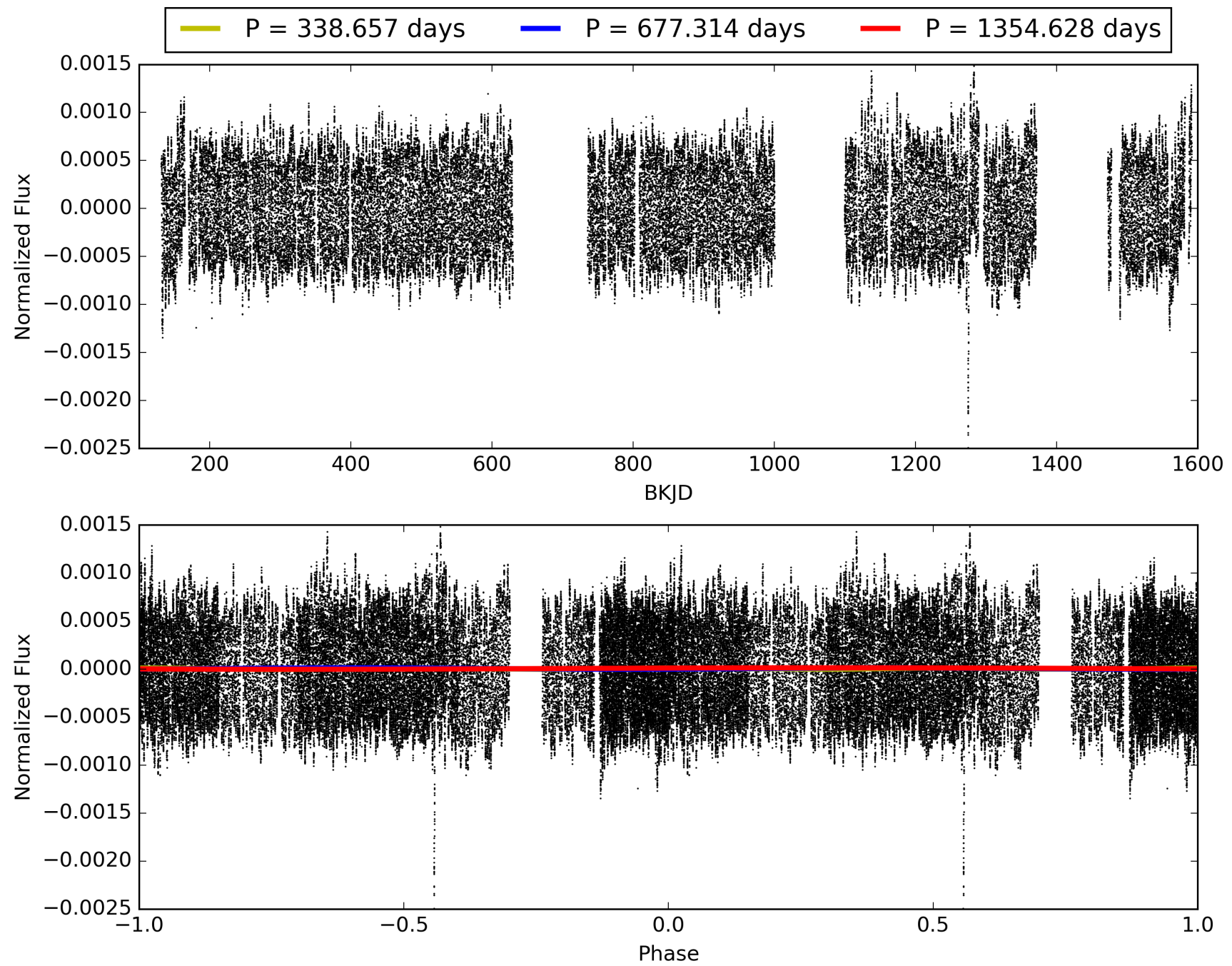
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:17:09 Z

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

TCE 010681550-04, PDC Light Curves

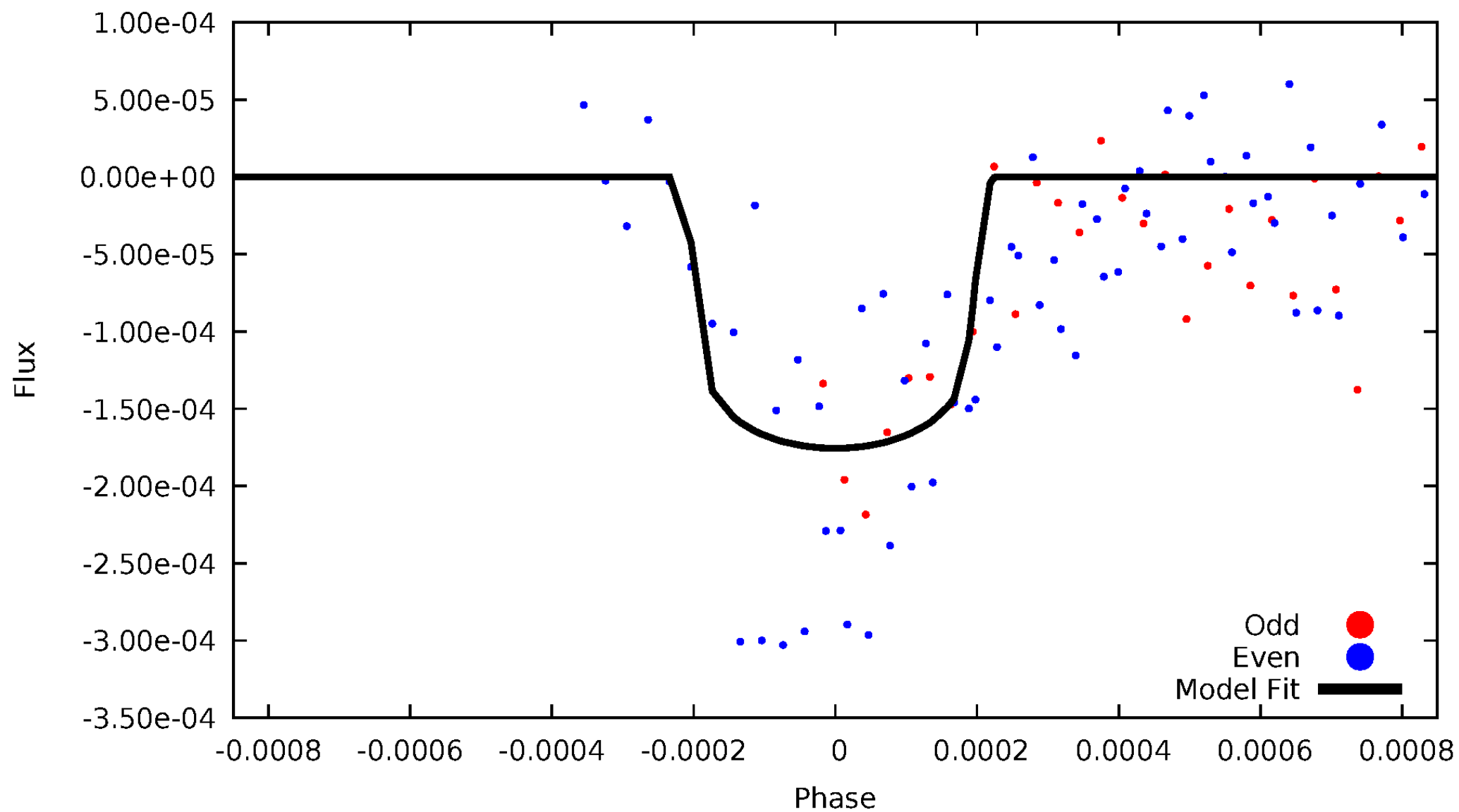


TCE 010681550-04



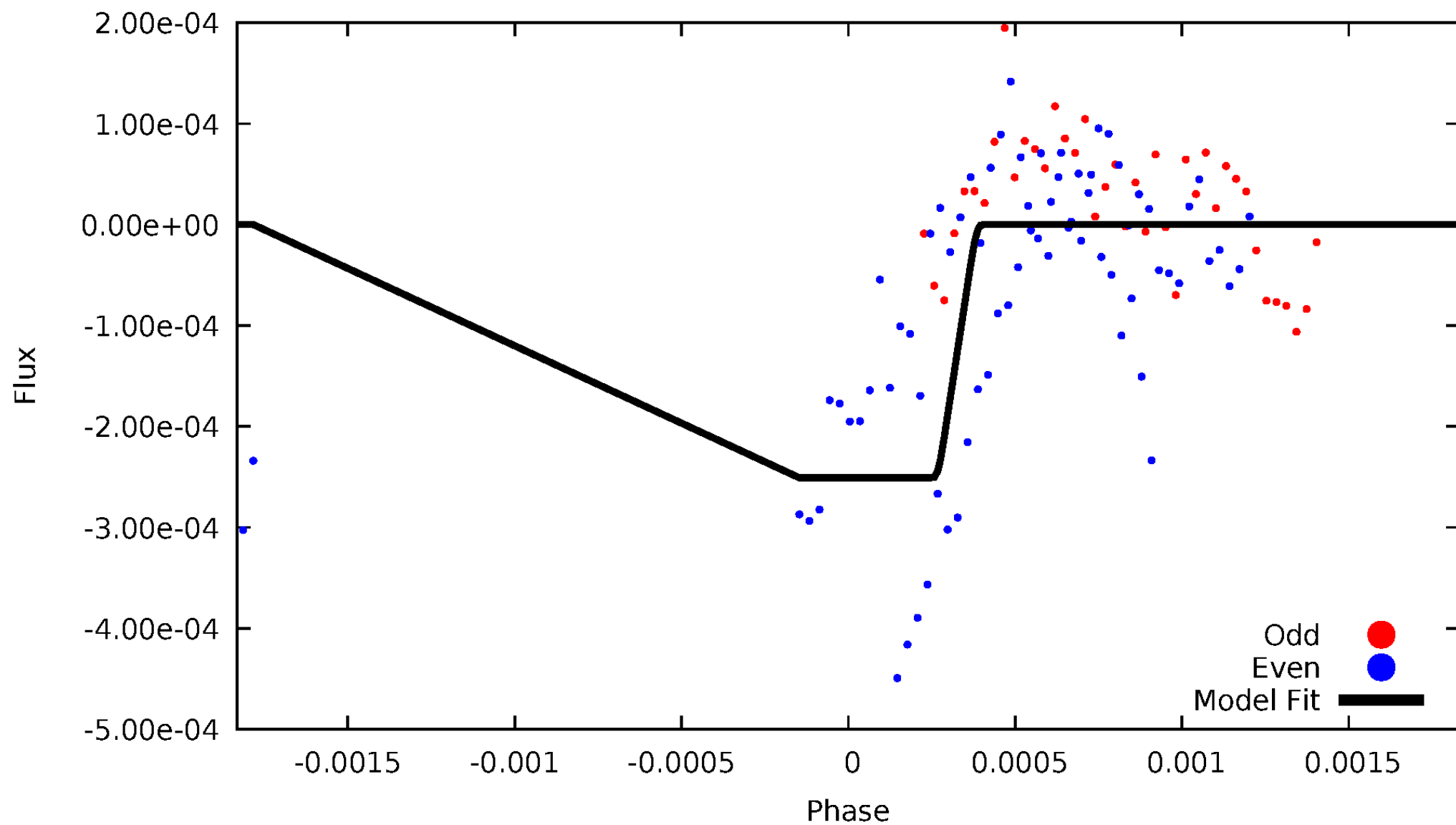
DV Odd/Even

TCE 010681550-04



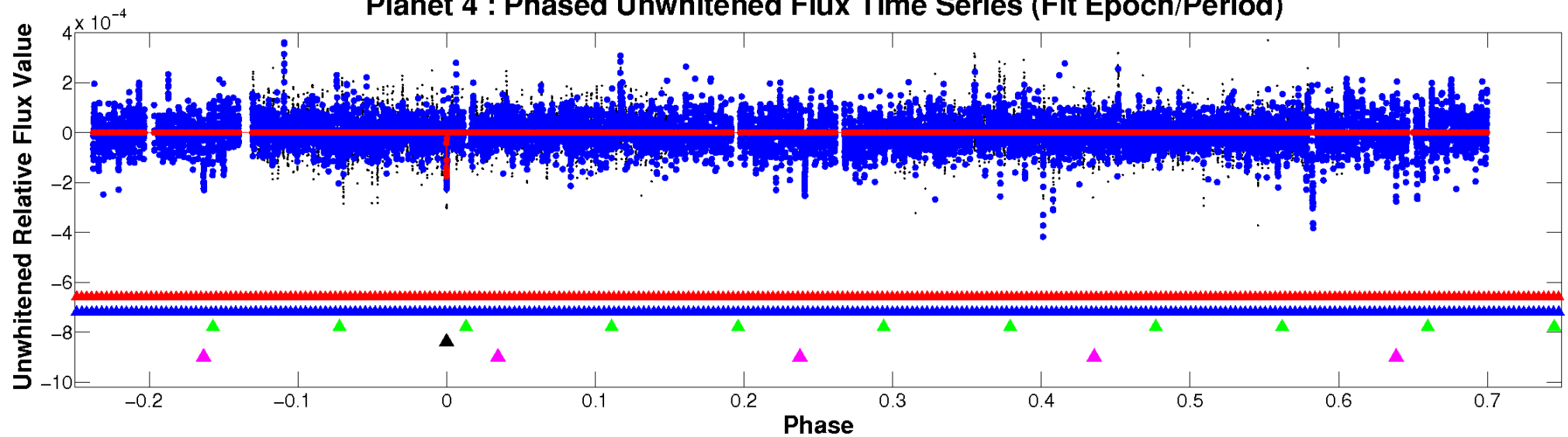
ALT Odd/Even

TCE 010681550-04

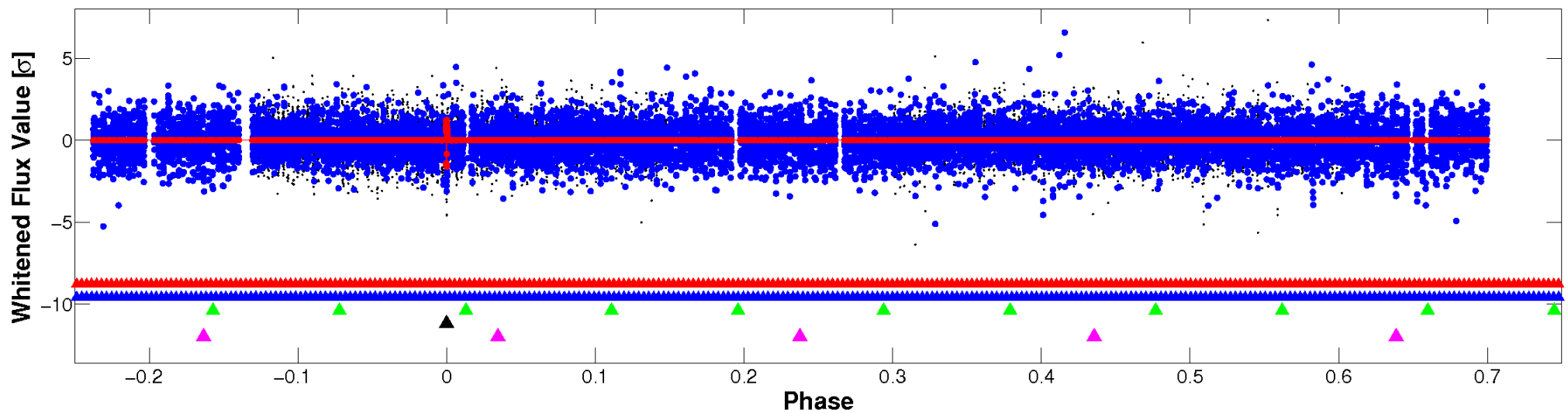


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

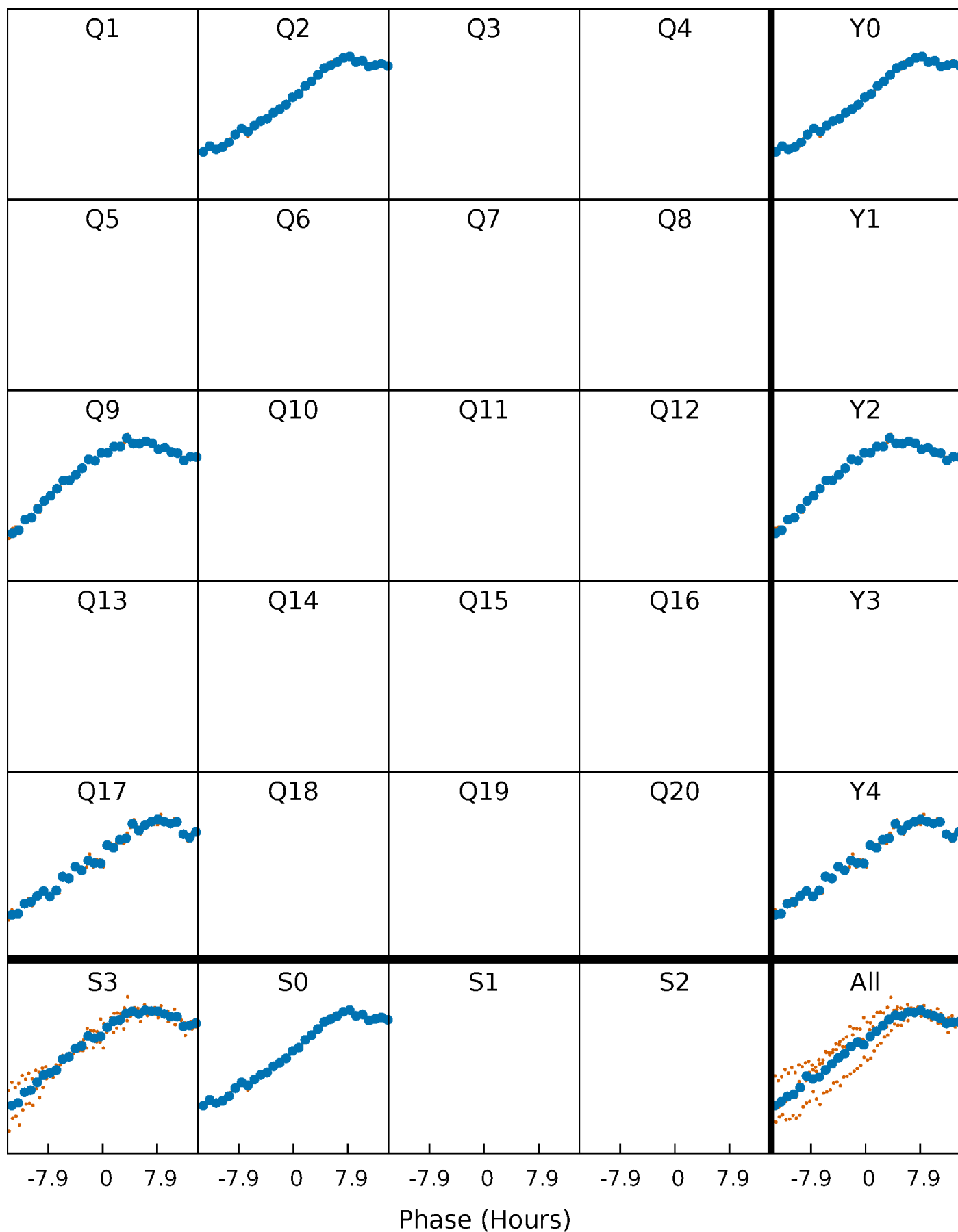


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



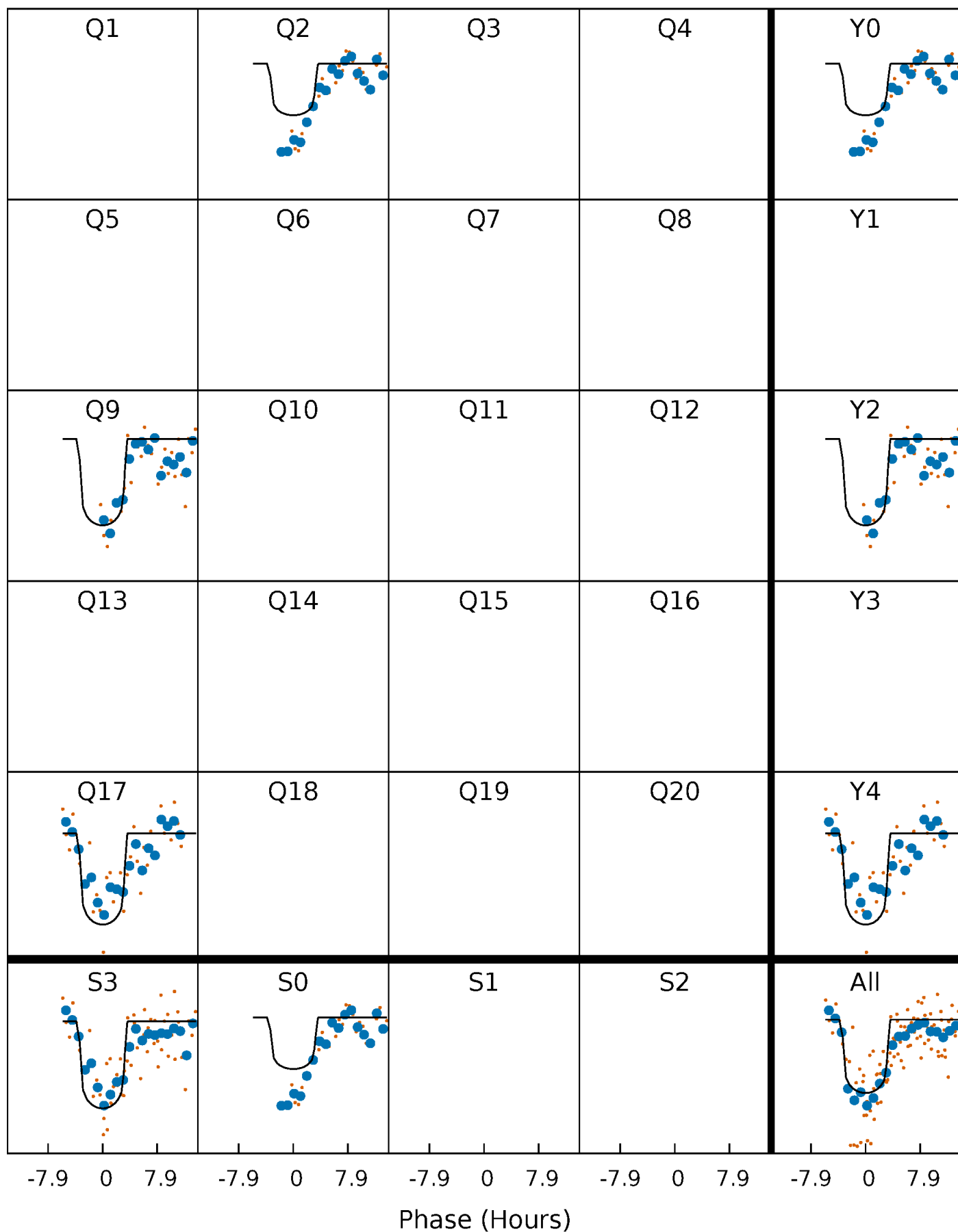
PDC Quarter-Phased Transit Curves

TCE 010681550-04 P=677.313799 Days $T_0=219.694001$ (BKJD)



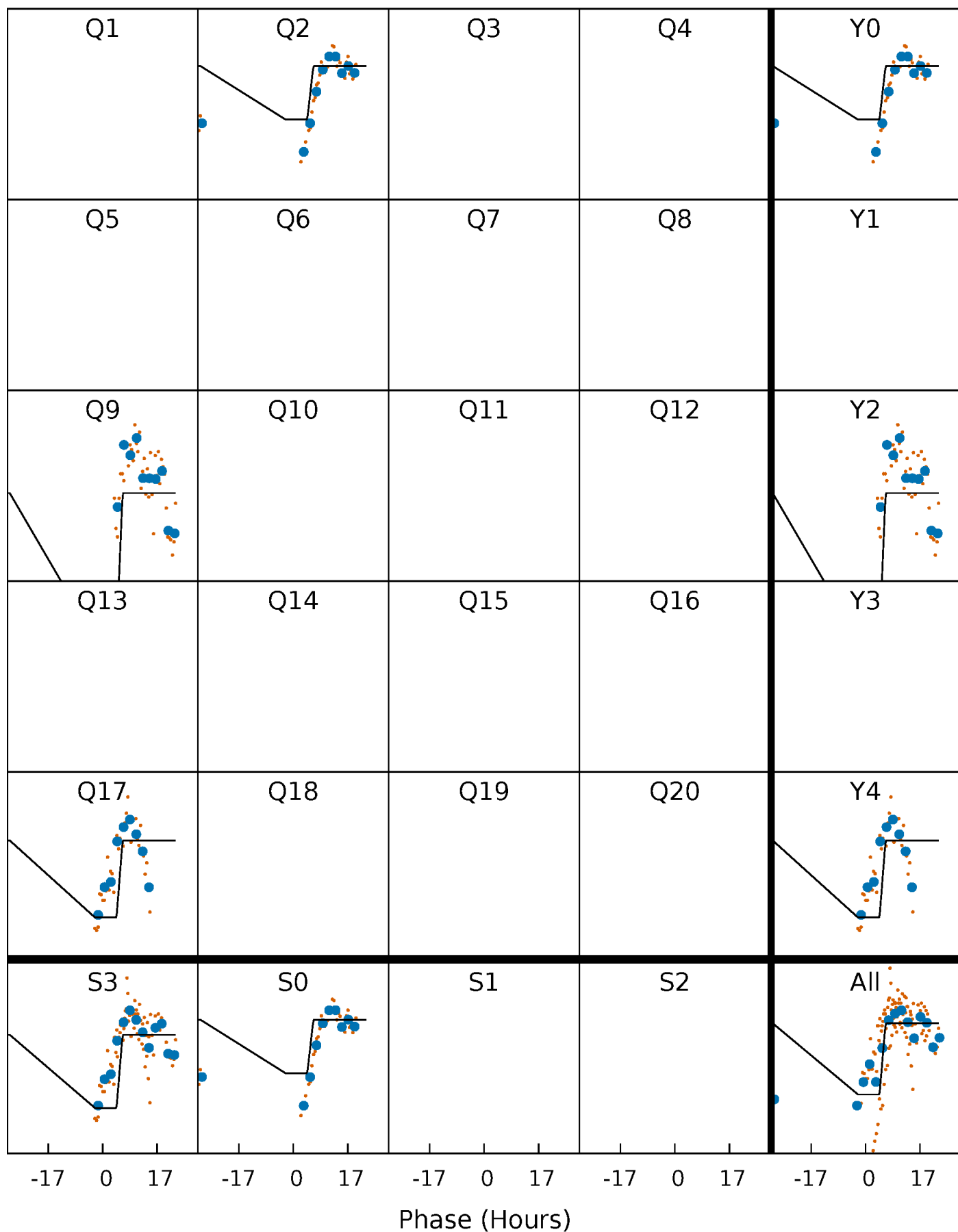
DV Quarter-Phased Transit Curves

TCE 010681550-04 P=677.313799 Days $T_0=219.694001$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

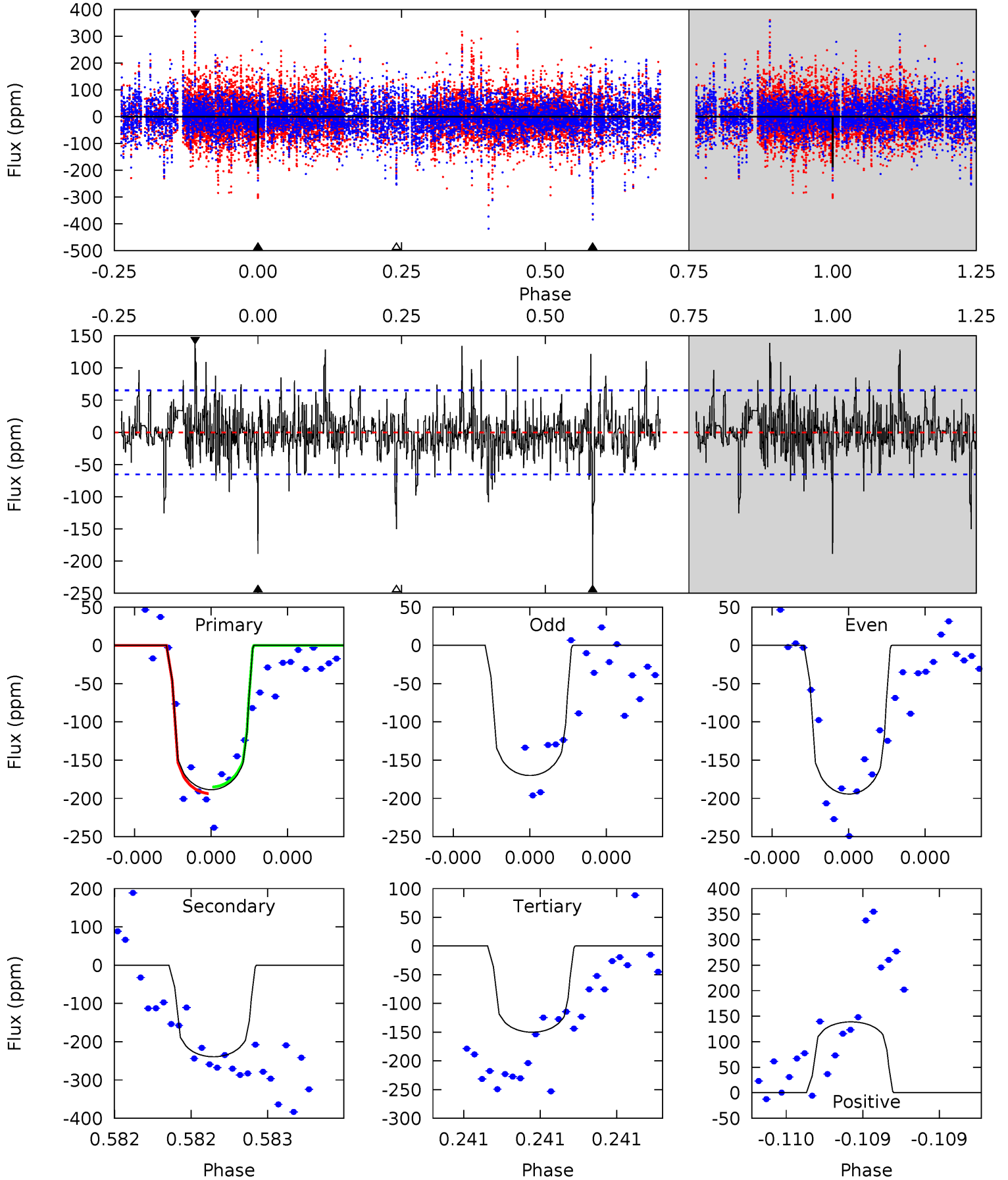
TCE 010681550-04 P=677.338458 Days $T_0=219.503780$ (BKJD)



DV Model-Shift Uniqueness Test

010681550-04, P = 677.313799 Days, E = 219.694001 Days

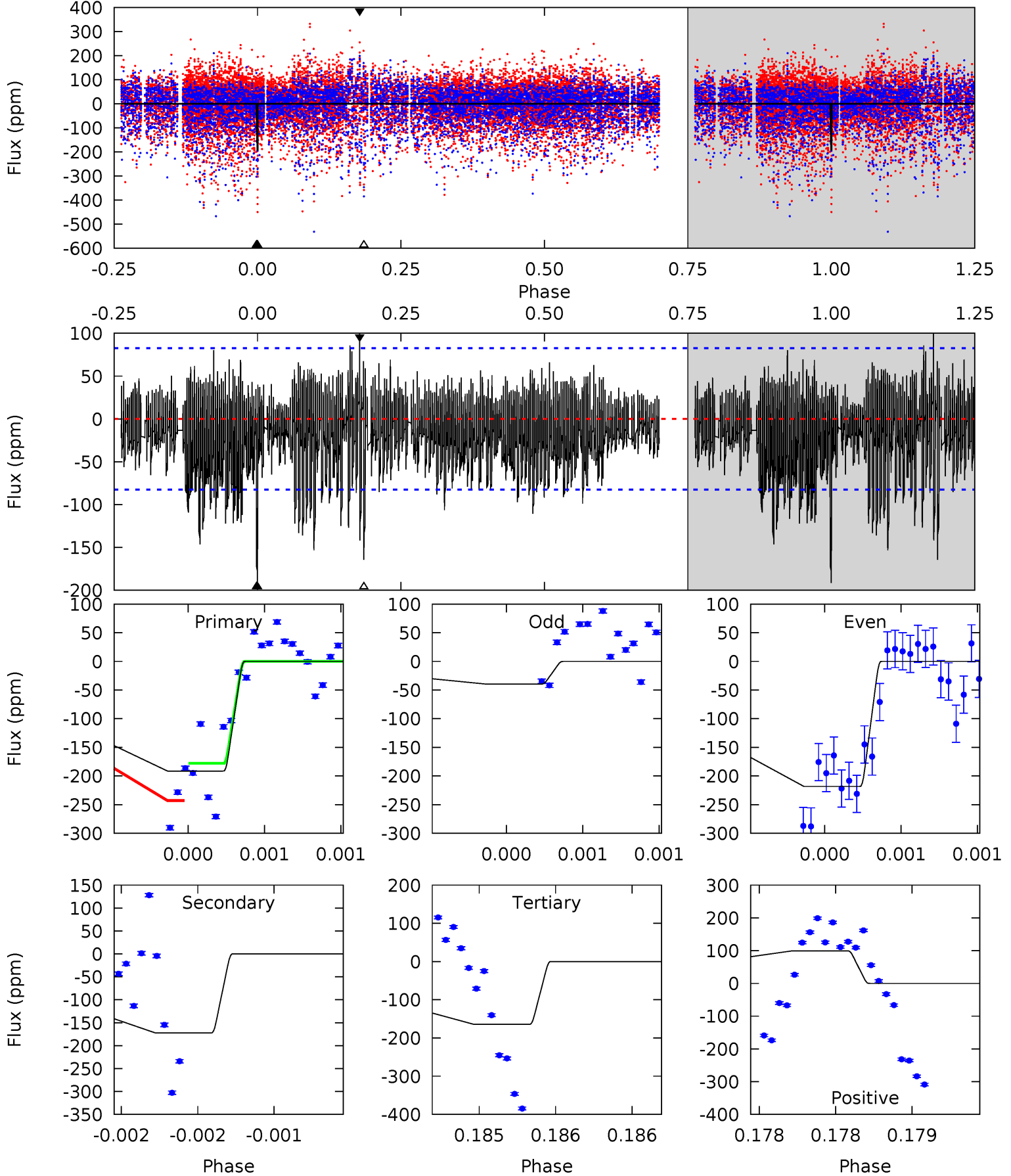
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	20.6	12.9	11.9	5.61	3.54	2.60	3.30	4.26	7.66	8.62	0.94	1.11	0.37	0.34



Alt Model-Shift Uniqueness Test

010681550-04, P = 677.338458 Days, E = 219.503780 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	11.6	11.0	6.67	5.56	3.46	2.42	1.83	6.21	0.55	4.93	5.23	1.29	0.34	1.45



Stellar Parameters For KIC 010681550

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	6483^{+145}_{-194}	$4.367^{+0.092}_{-0.138}$	$-0.560^{+0.300}_{-0.300}$	$1.081^{+0.211}_{-0.141}$	$0.992^{+0.124}_{-0.112}$	$1.105^{+0.515}_{-0.412}$
	+2%/-3%	+2%/-3%	+54%/-54%	+20%/-13%	+12%/-11%	+47%/-37%
Source	PHO1	FLK73	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 010681550-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-239 ± 12	$1.69^{+0.63}_{-0.58}$	341^{+19}_{-16}	6815^{+1971}_{-959}	$105907^{+131874}_{-48800}$
Alt.	-172 ± 15	$1.86^{+0.60}_{-0.49}$	339^{+18}_{-15}	5881^{+1028}_{-666}	60850^{+51419}_{-25969}

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

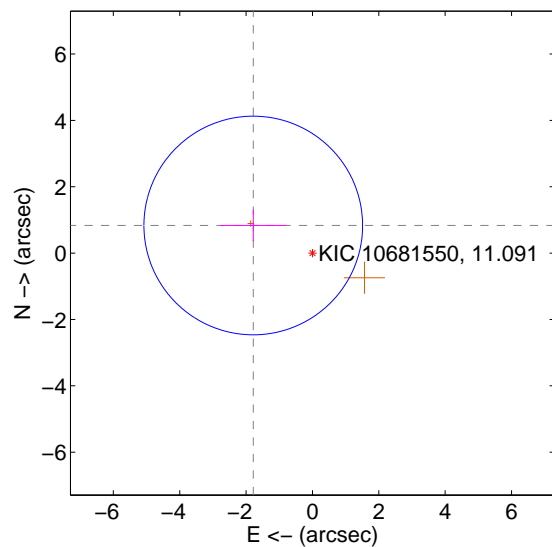
Supplemental centroid analysis for 010681550-04. **Kepler magnitude: 11.09.** Transit SNR 9.24

There are 0 quarters with good PRF difference image offsets

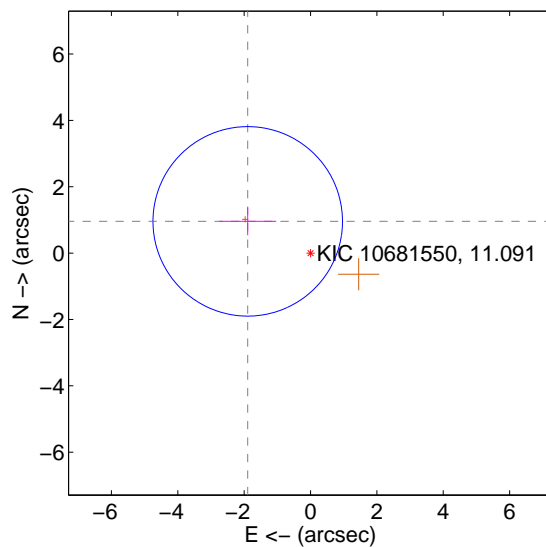
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.968 ± 1.098	1.79	1.784 ± 0.992	0.832 ± 0.476
PRF-fit source offset from KIC position	2.120 ± 0.952	2.23	1.892 ± 0.857	0.956 ± 0.419
photometric centroid source offset	2.17 ± 1.30	1.66	-2.06 ± 1.34	-0.67 ± 0.92

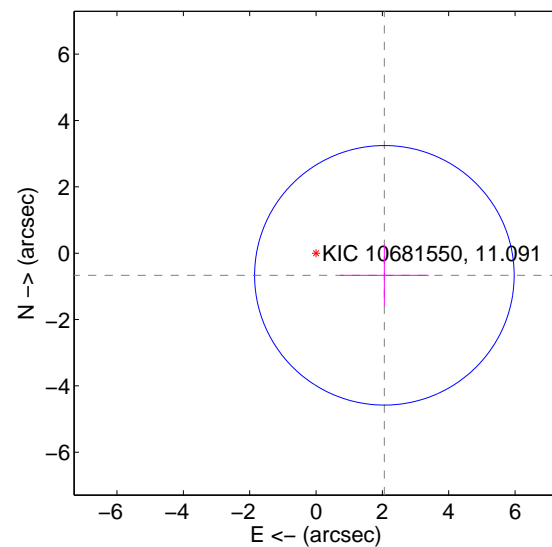
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

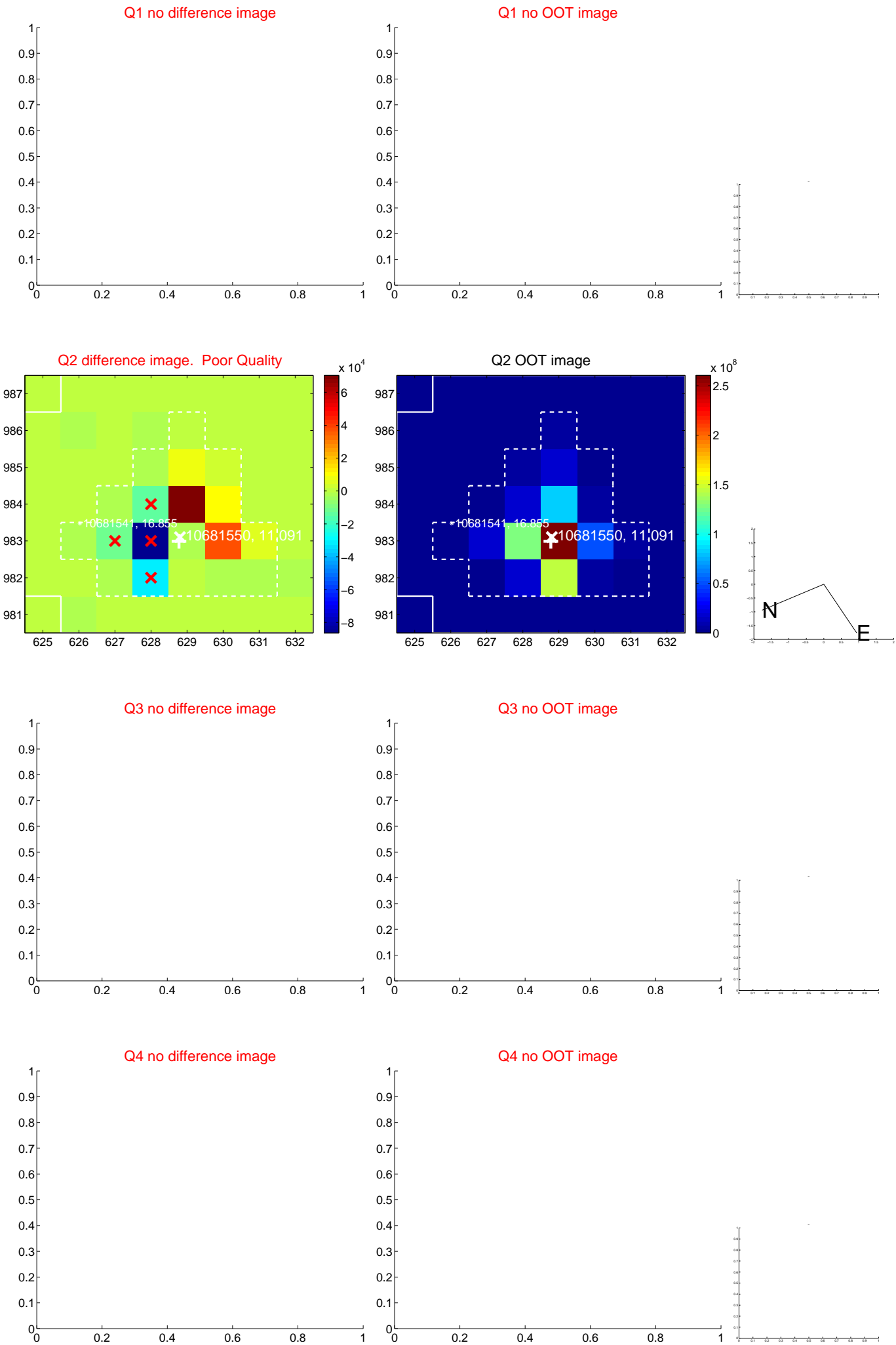


offset from photometric centroids

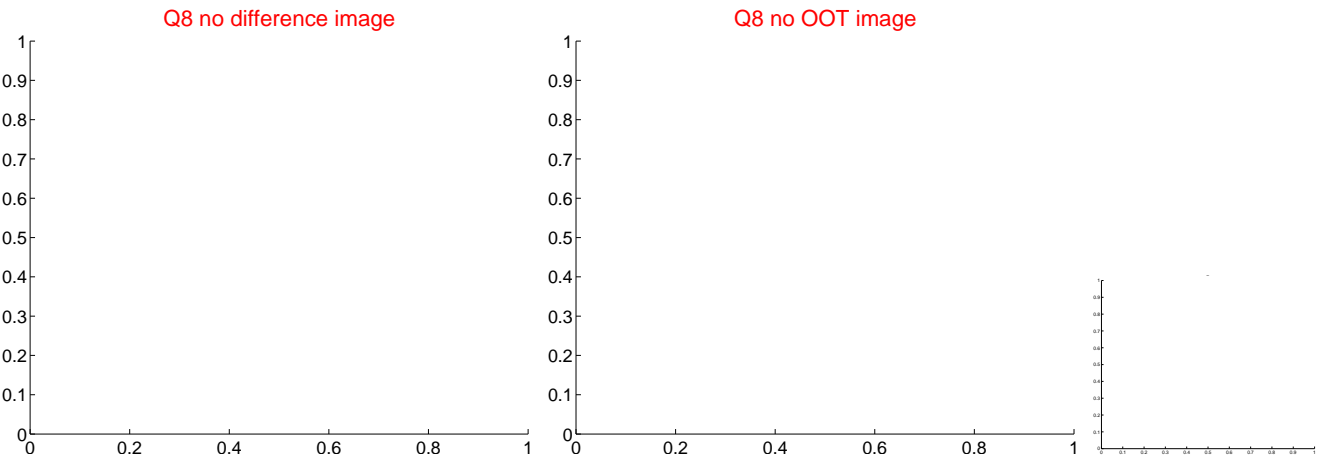
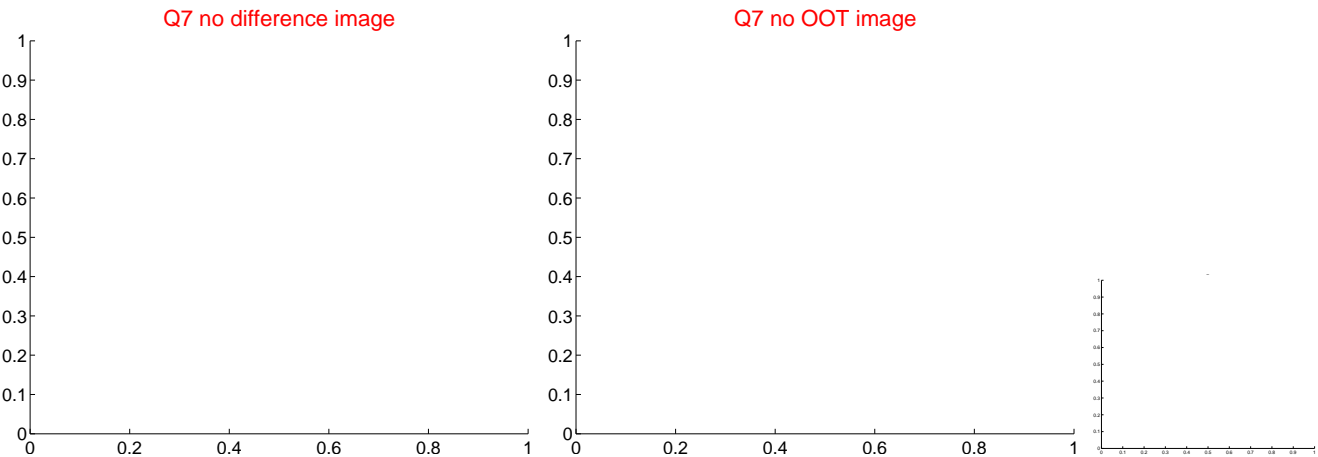
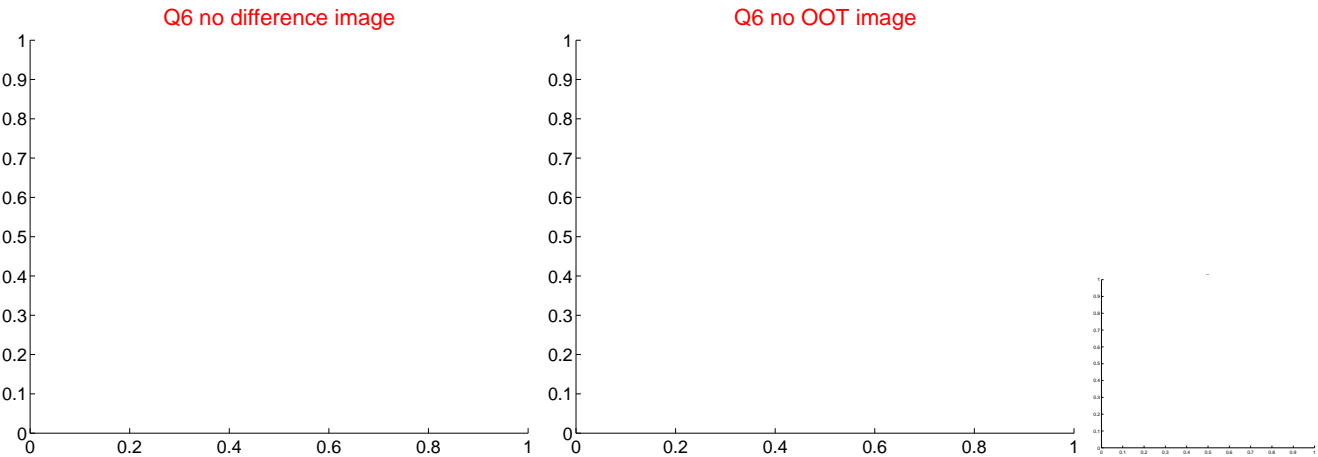
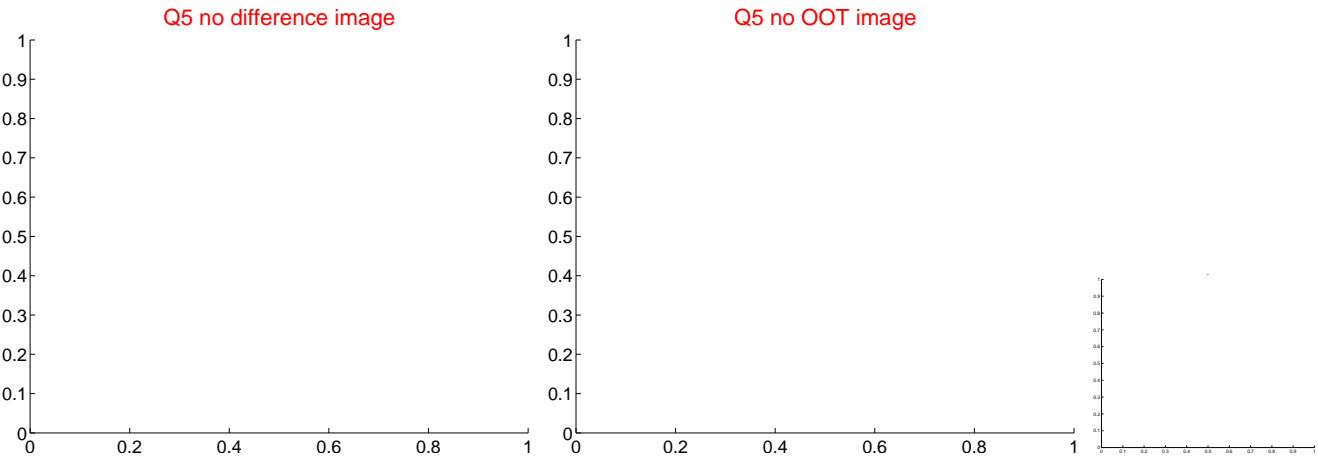


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

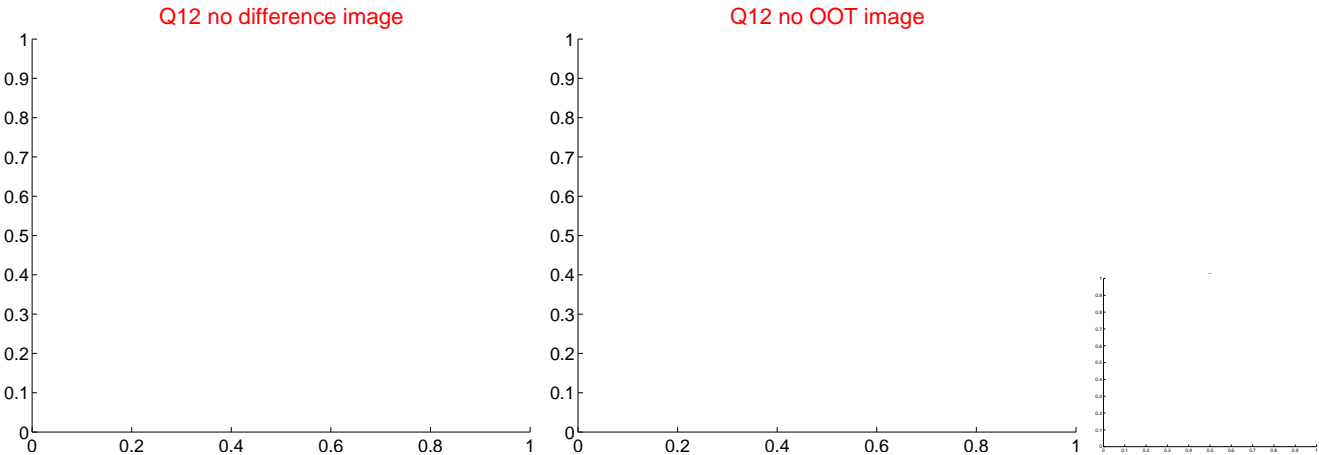
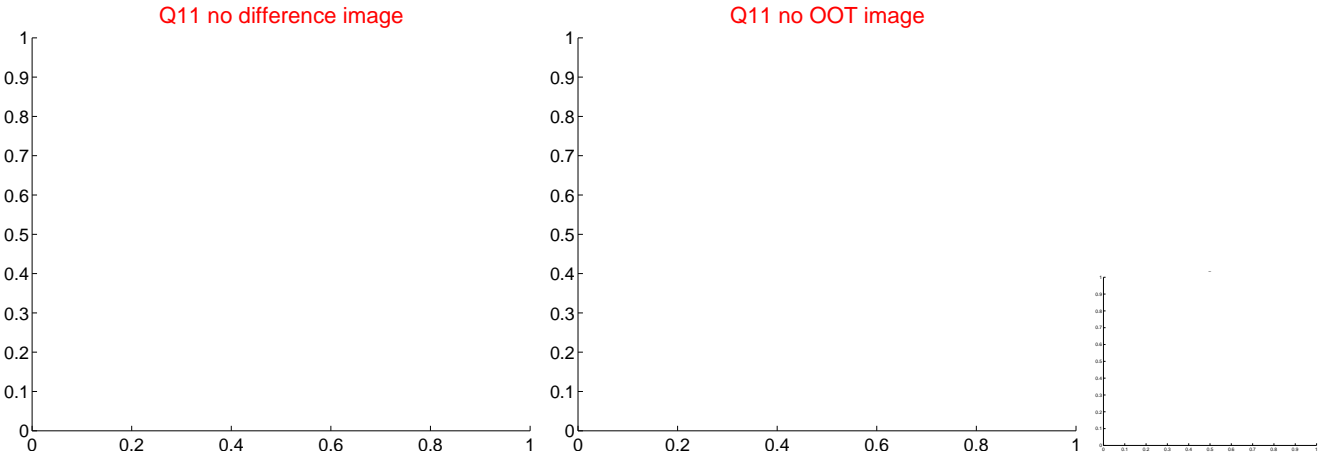
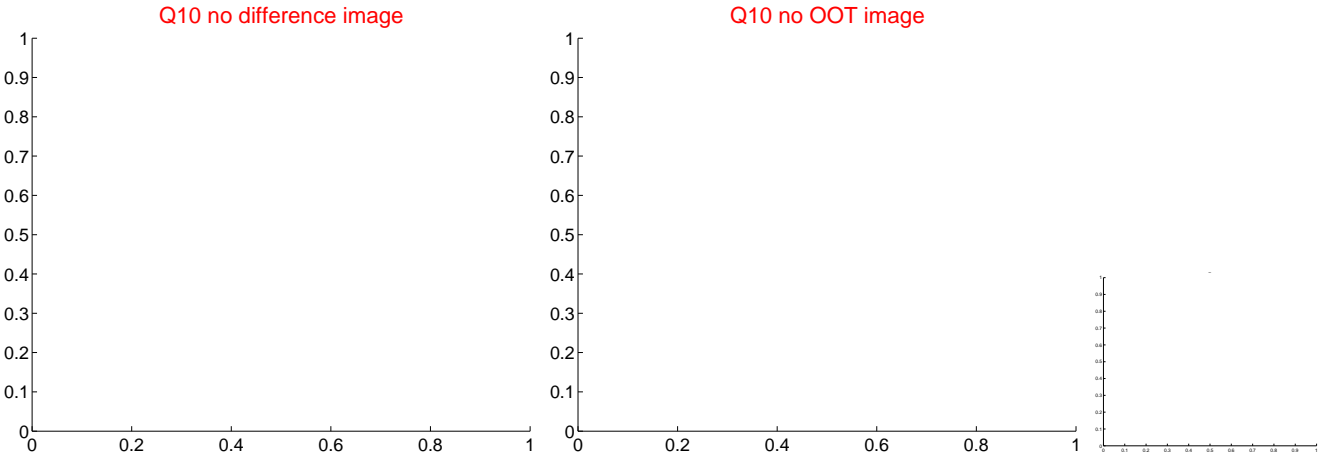
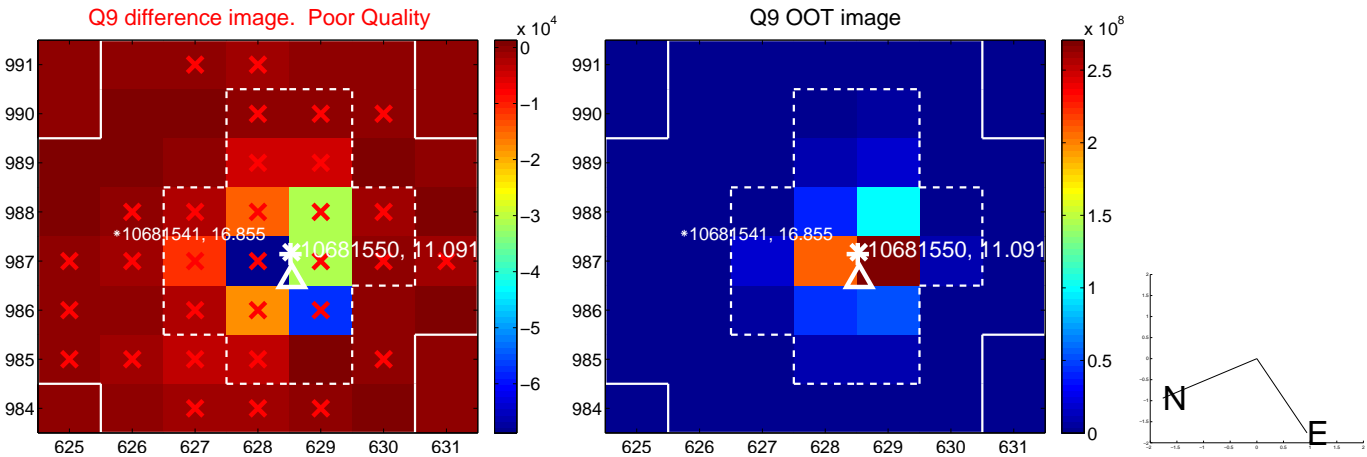
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



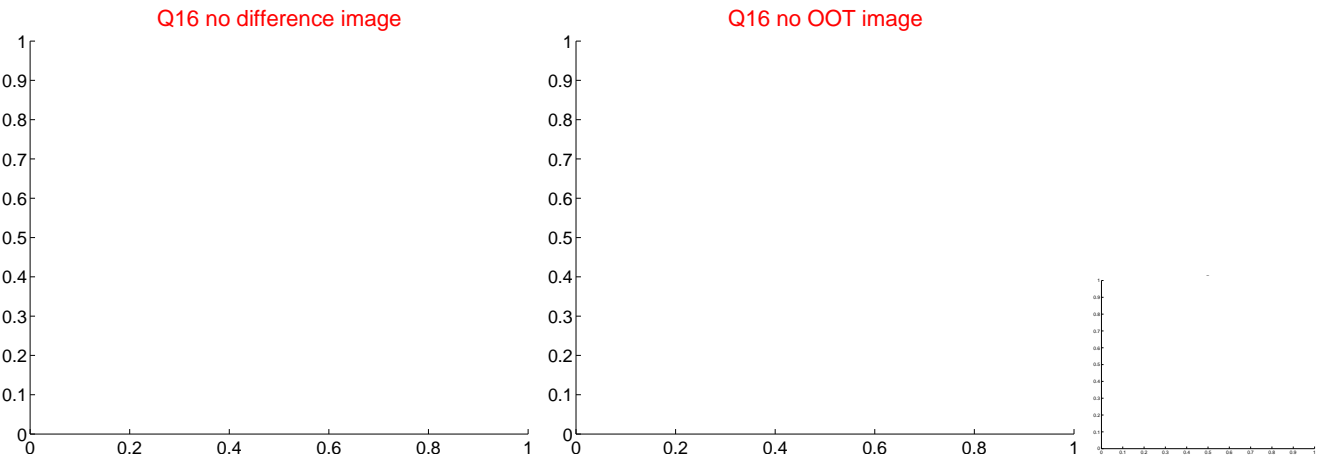
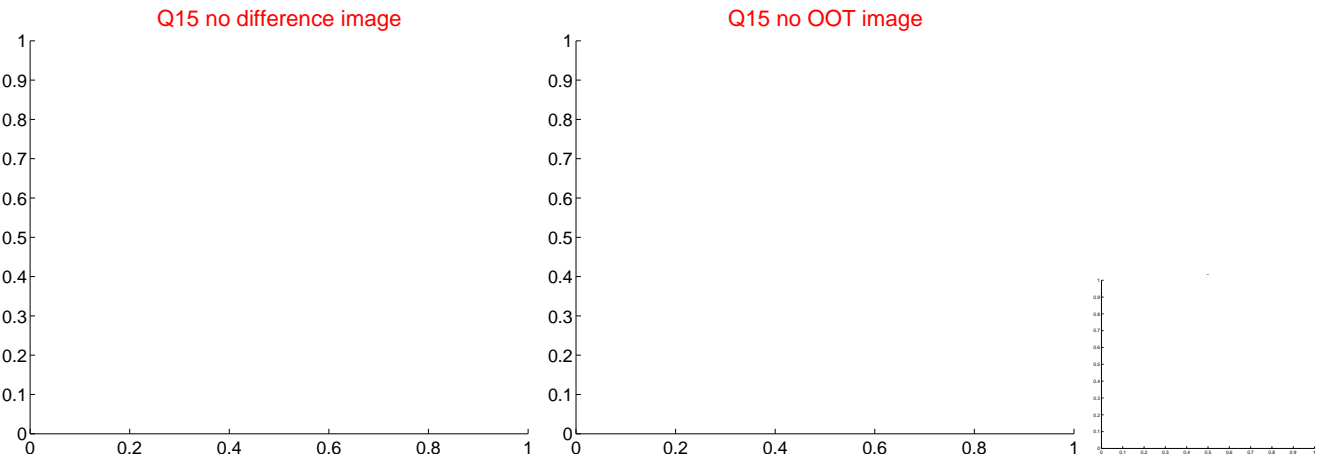
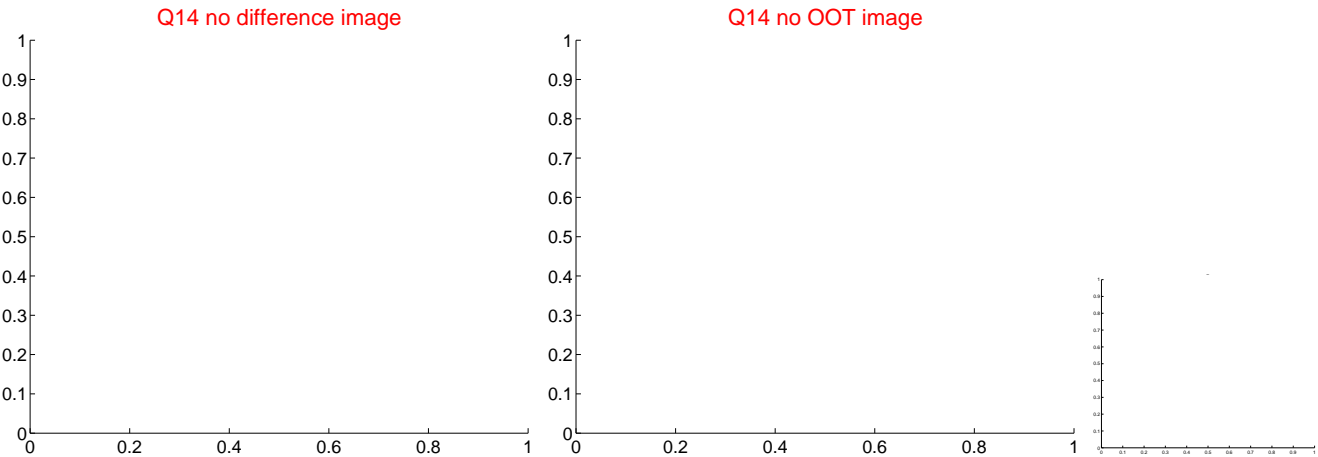
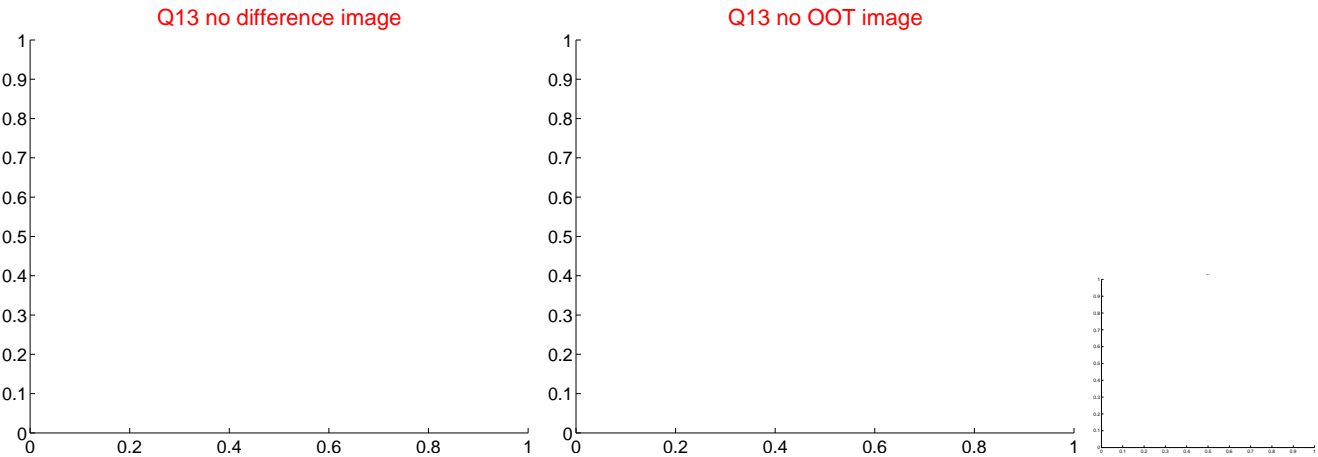
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



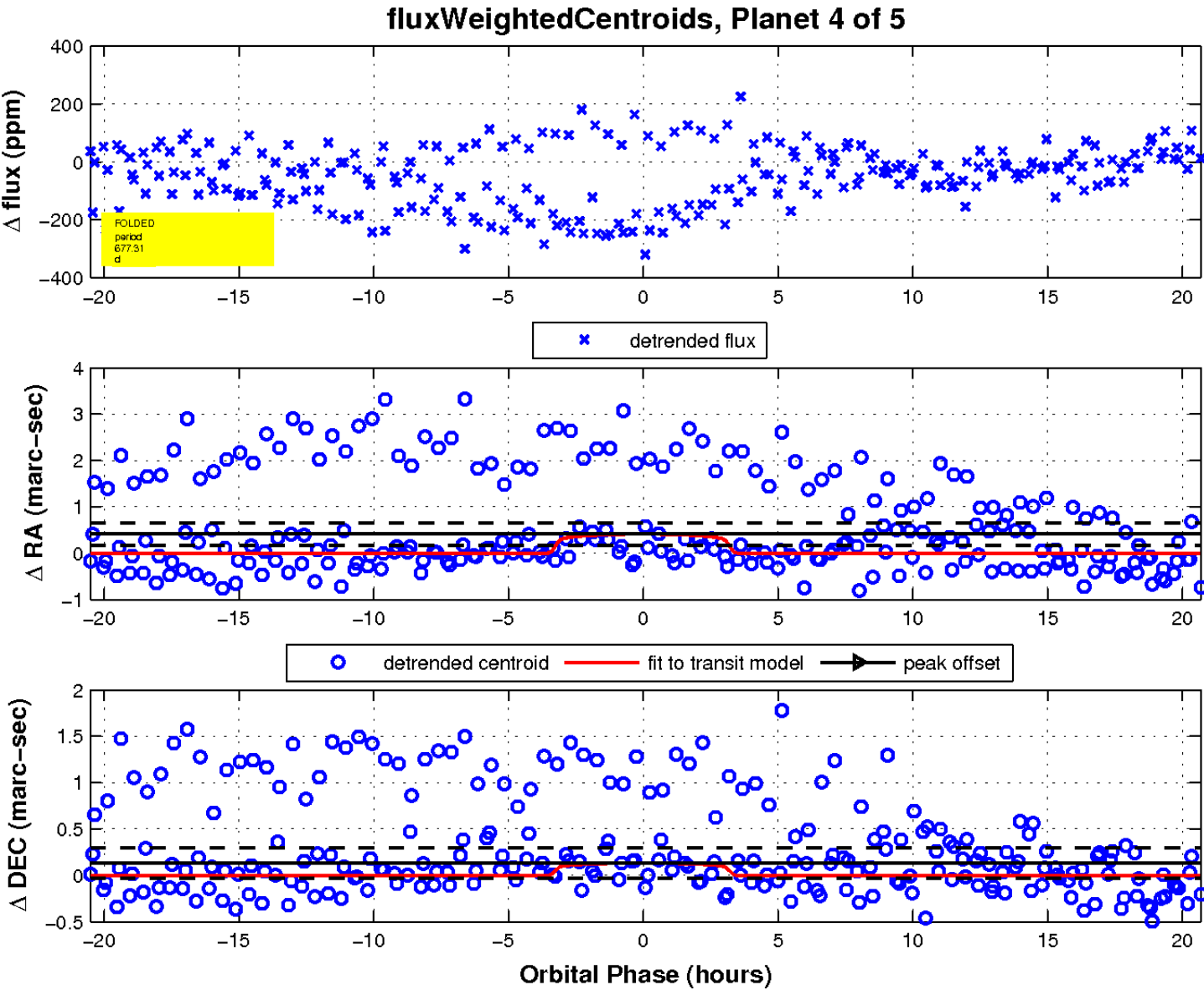
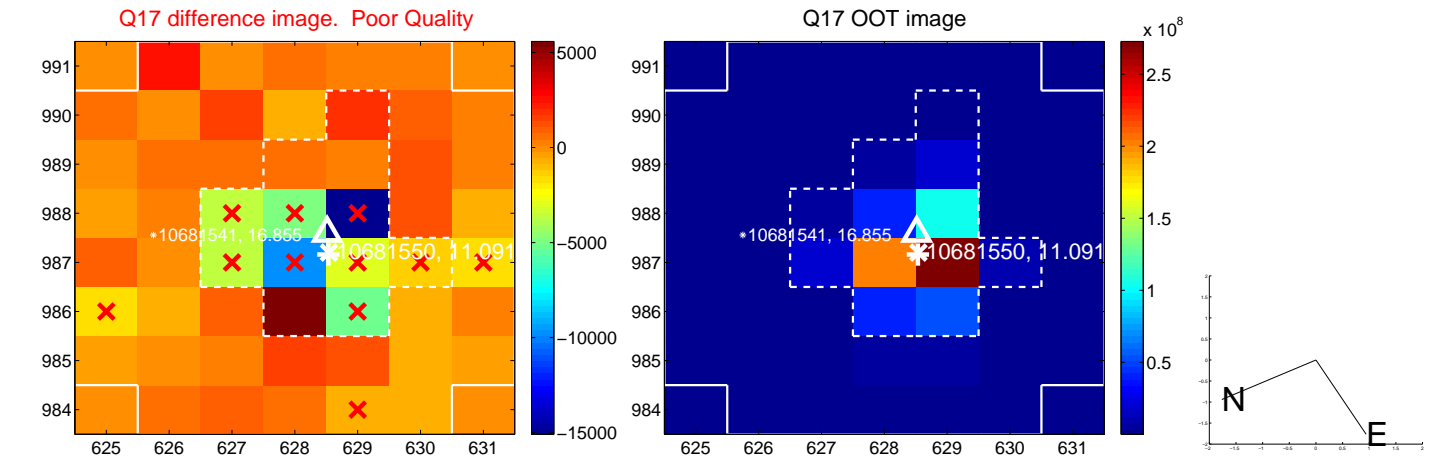
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

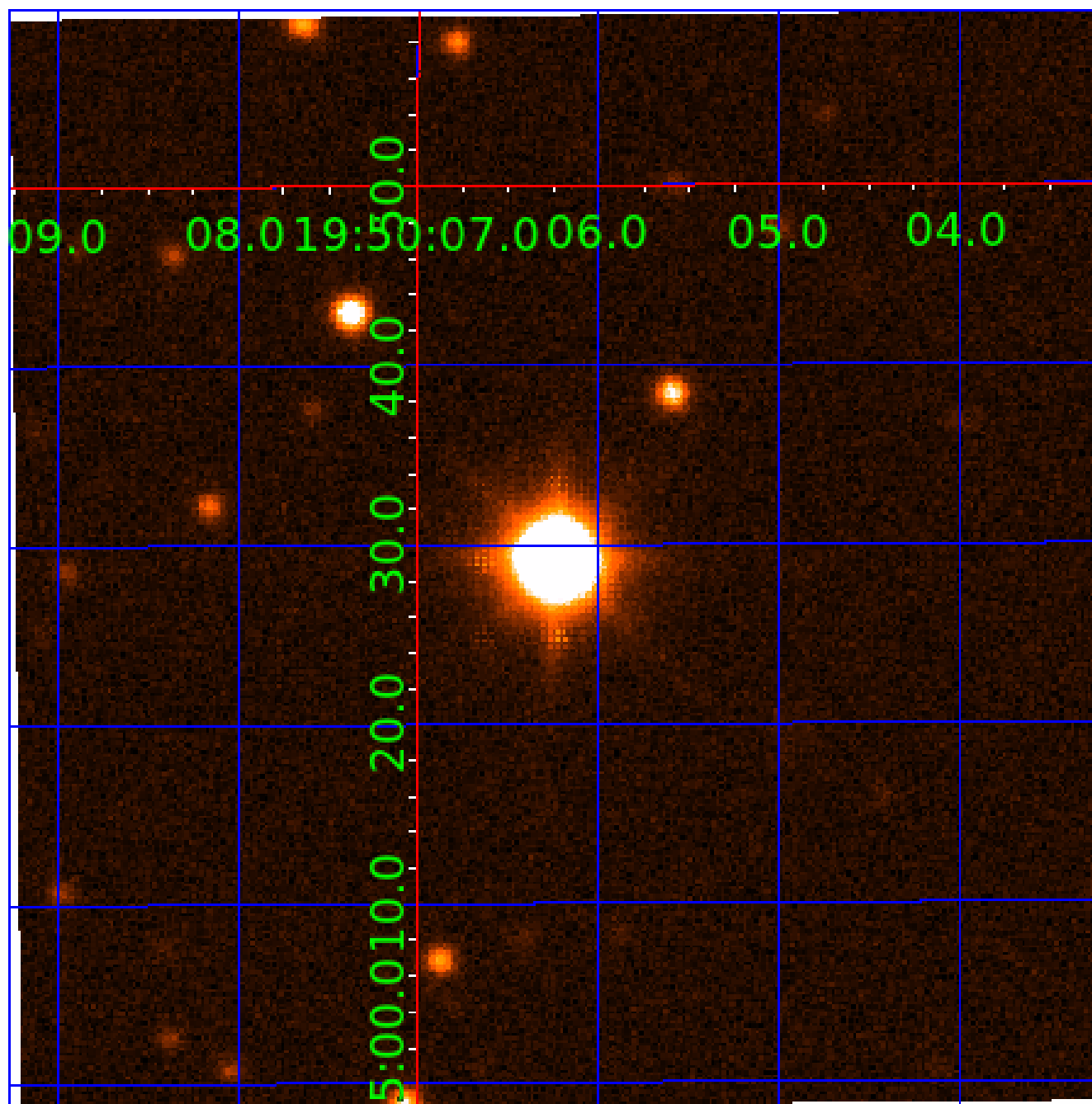


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010681550

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})
010681550-01	OBS	No	4.530037	135.102778	45.4	13.320	12.5	13.2	1.08	6483	1.01	647.26
010681550-02	OBS	No	4.530013	132.877820	24.3	10.268	11.4	10.7	1.08	6483	0.62	647.27
010681550-03	OBS	No	123.937528	228.533374	71.3	13.003	16.8	3.5	1.08	6483	1.03	7.85
010681550-04	OBS	No	677.313799	219.694001	175.6	6.903	12.0	9.2	1.08	6483	1.65	0.82
010681550-05	OBS	No	271.622286	243.090279	121.8	12.040	8.6	6.1	1.08	6483	1.33	2.76

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010681550-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
010681550-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_SATURATED
010681550-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—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
010681550-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_SATURATED
010681550-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_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.

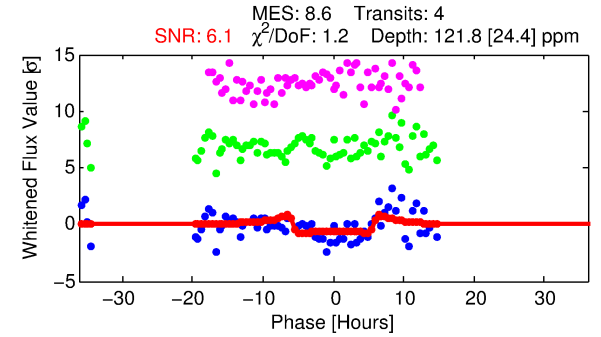
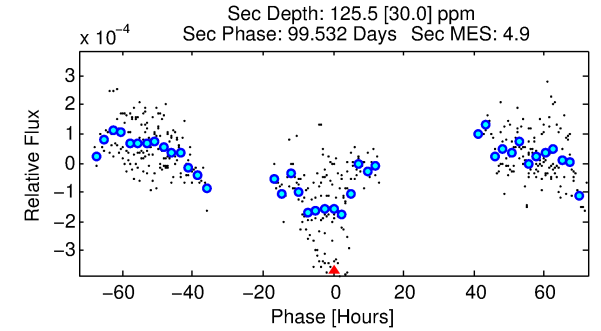
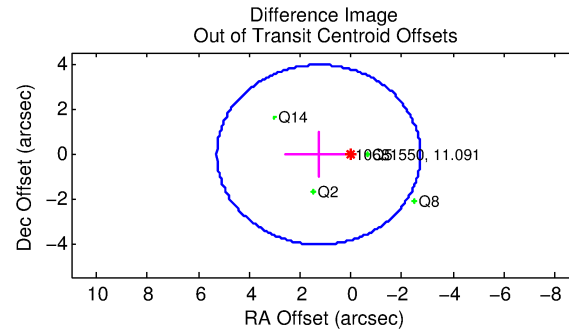
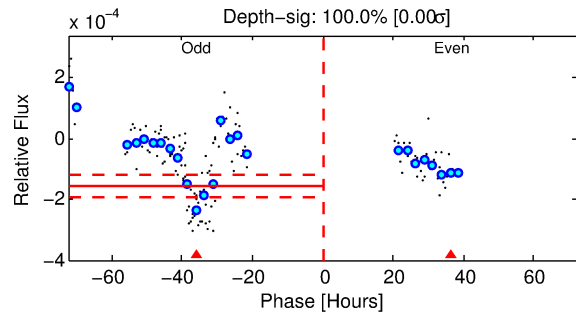
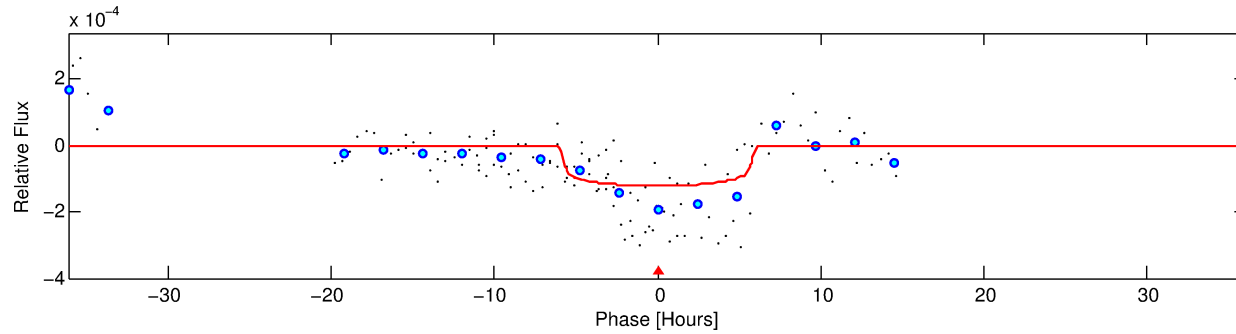
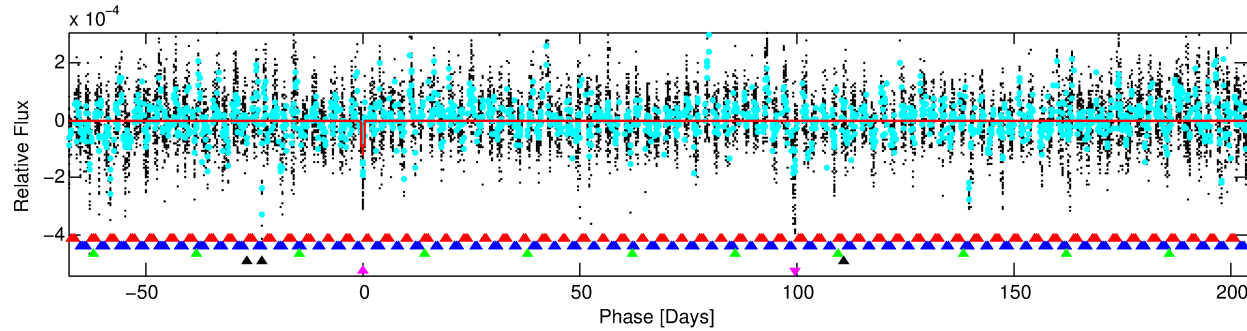
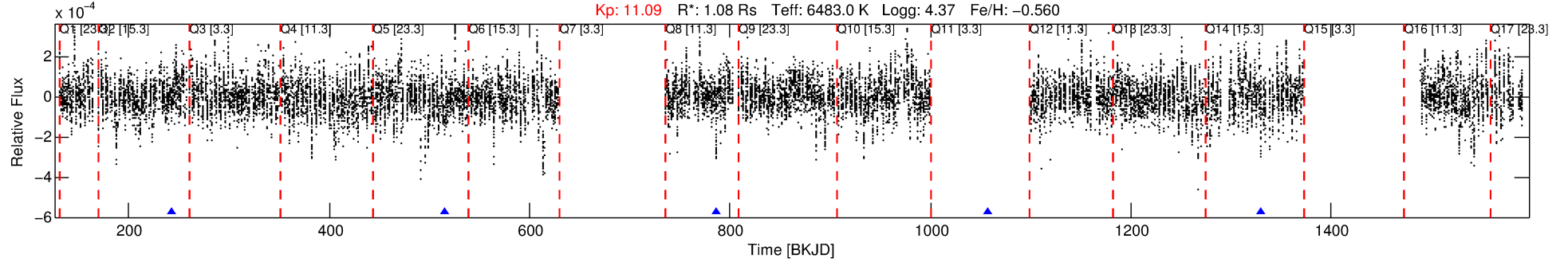
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010681550-05

No Significant Match Found

DV One-Page Summary

KIC: 10681550 Candidate: 5 of 5 Period: 271.622 d



DV Fit Results:

Period = 271.62229 [0.00875] d
Epoch = 243.0903 [0.0195] BKJD
Rp/R* = 0.0113 [0.0024]
a/R* = 99.62 [98.16]
b = 0.83 [0.37]
Seff = 2.76 [0.76]
Teq = 329 [23] K
Rp = 1.33 [0.38] Re
a = 0.8189 [0.1374] AU
Ag = 26028.82 [14189.90] [1.83 σ]
Teffp = 6453 [806] K [7.59 σ]

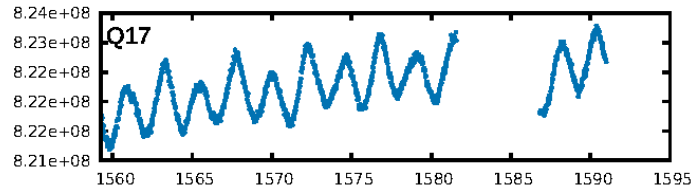
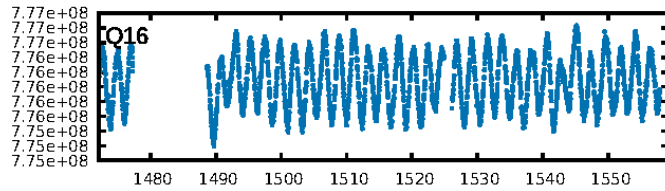
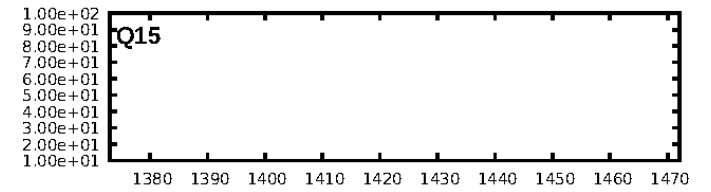
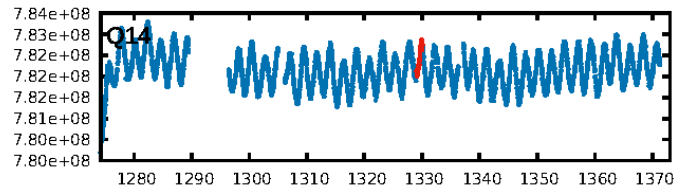
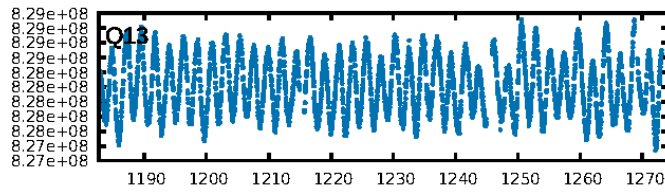
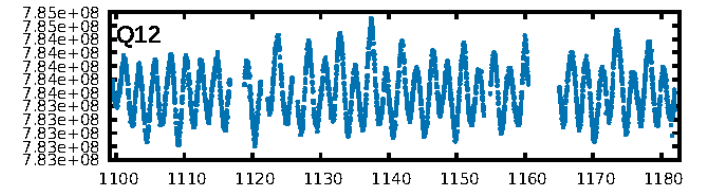
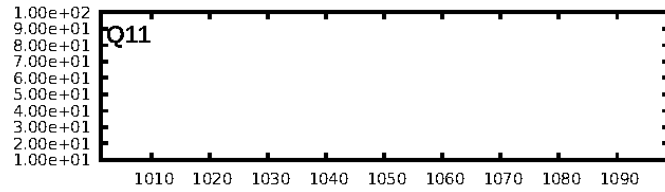
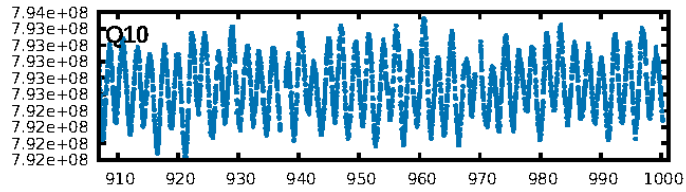
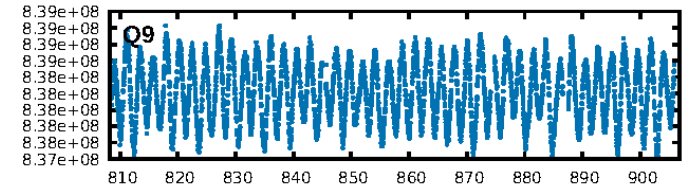
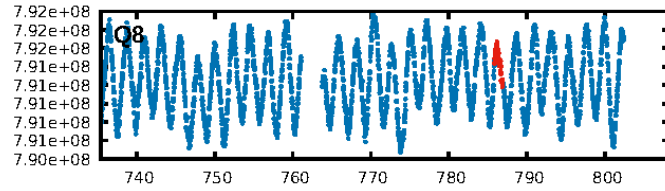
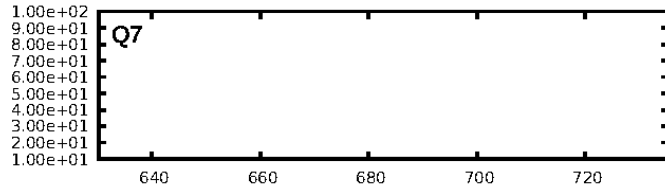
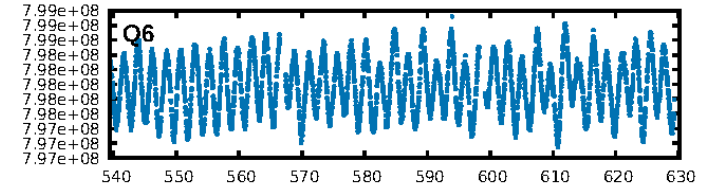
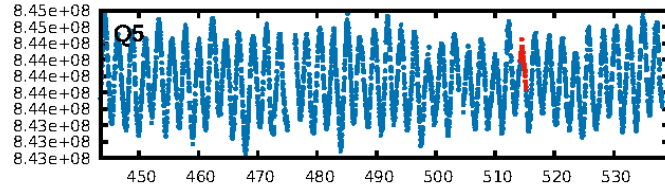
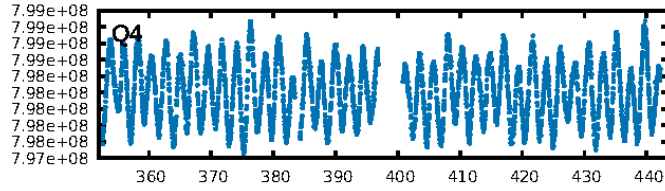
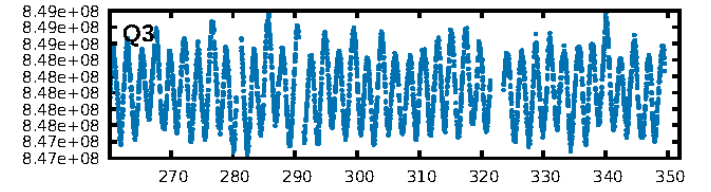
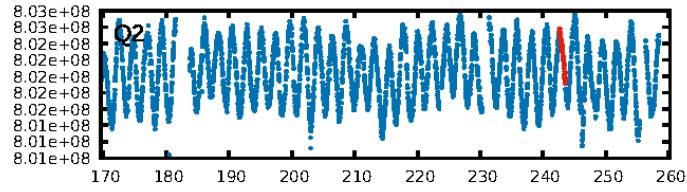
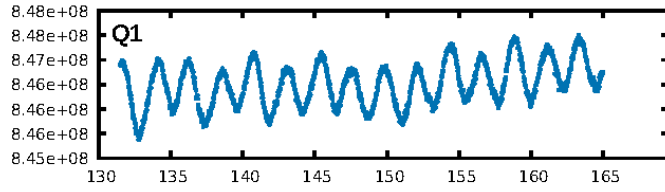
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [200.02 σ]
LongPeriod-sig: 100.0% [701.56 σ]
ModelChiSquare2-sig: 4.8%
ModelChiSquareGof-sig: 99.7%
Bootstrap-pfa: 1.85e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.9707
Centroid-sig: 0.8%
Centroid-so: 3.062 arcsec [1.64 σ]
OotOffset-rm: 1.270 arcsec [0.95 σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-rm: 1.565 arcsec [1.16 σ]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/4]

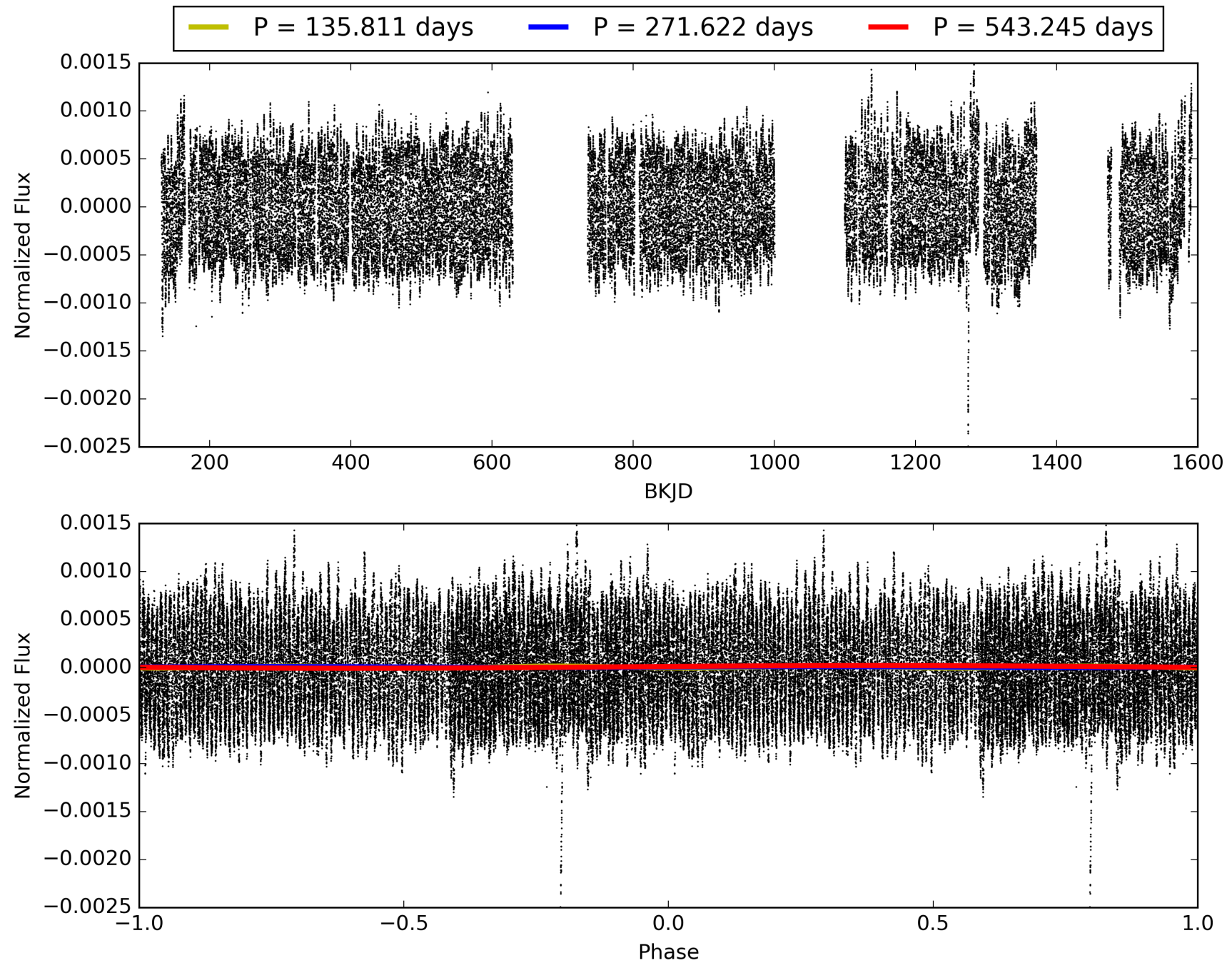
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 14:17:13 Z

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

TCE 010681550-05, PDC Light Curves

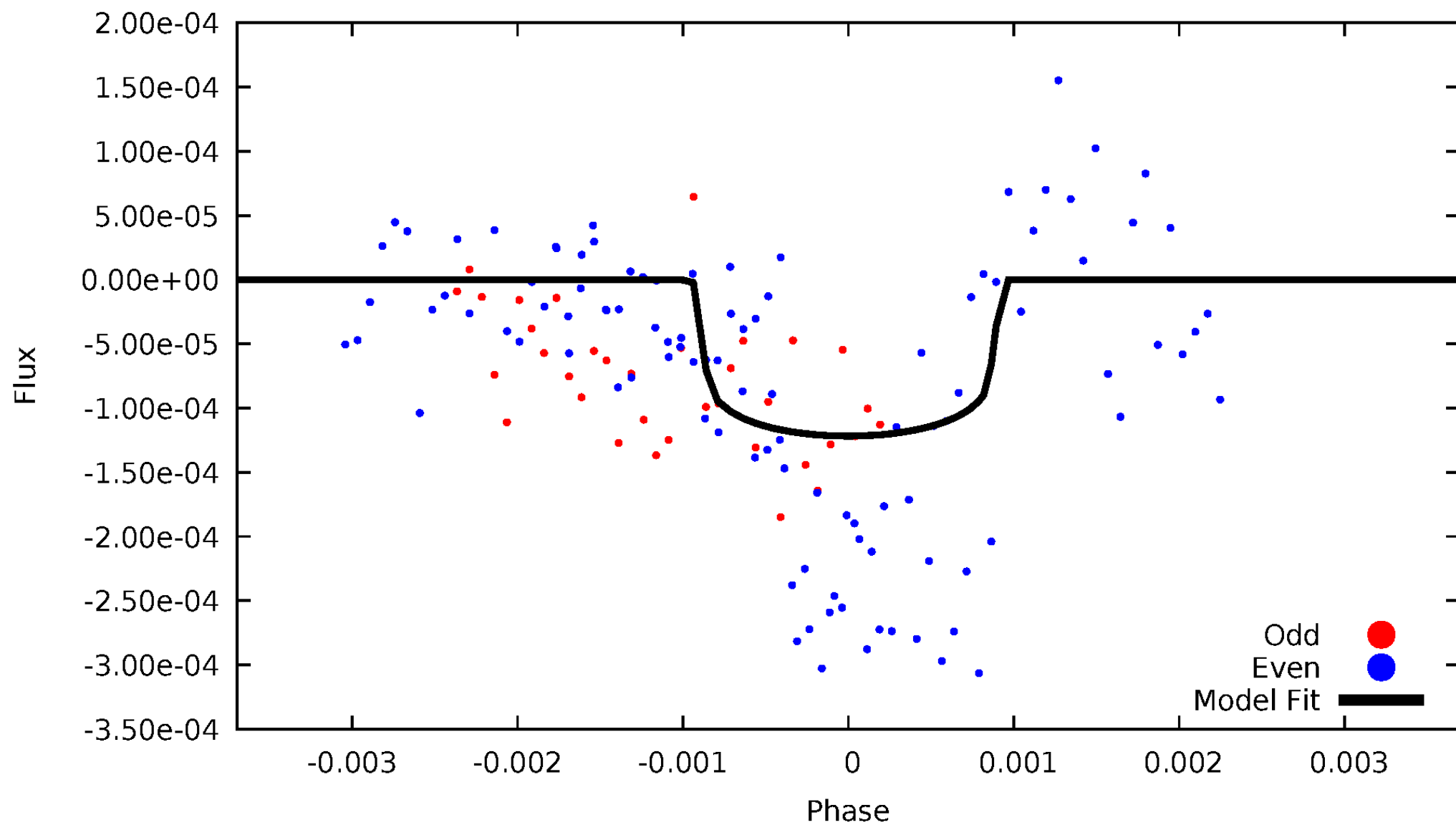


TCE 010681550-05



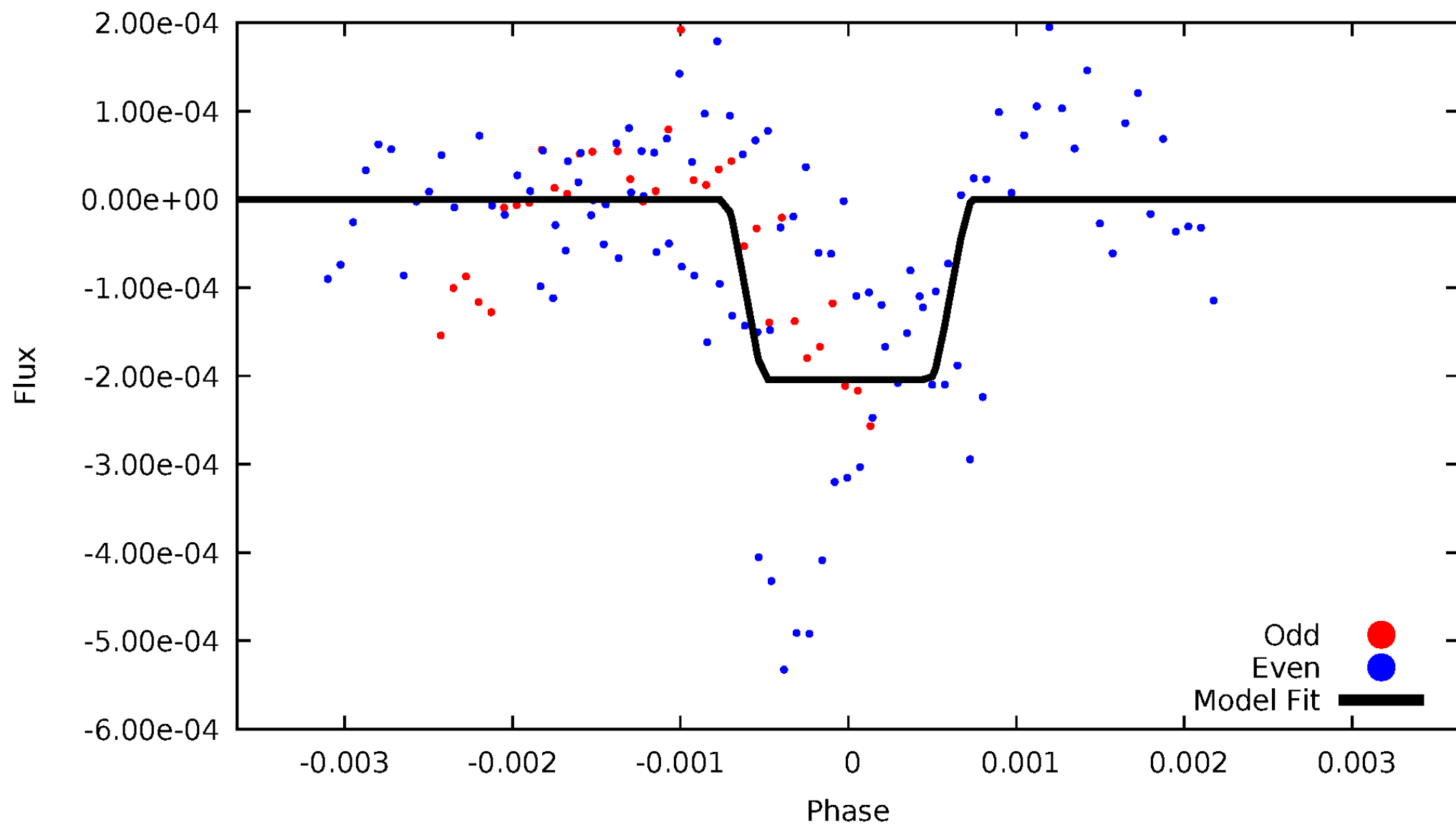
DV Odd/Even

TCE 010681550-05



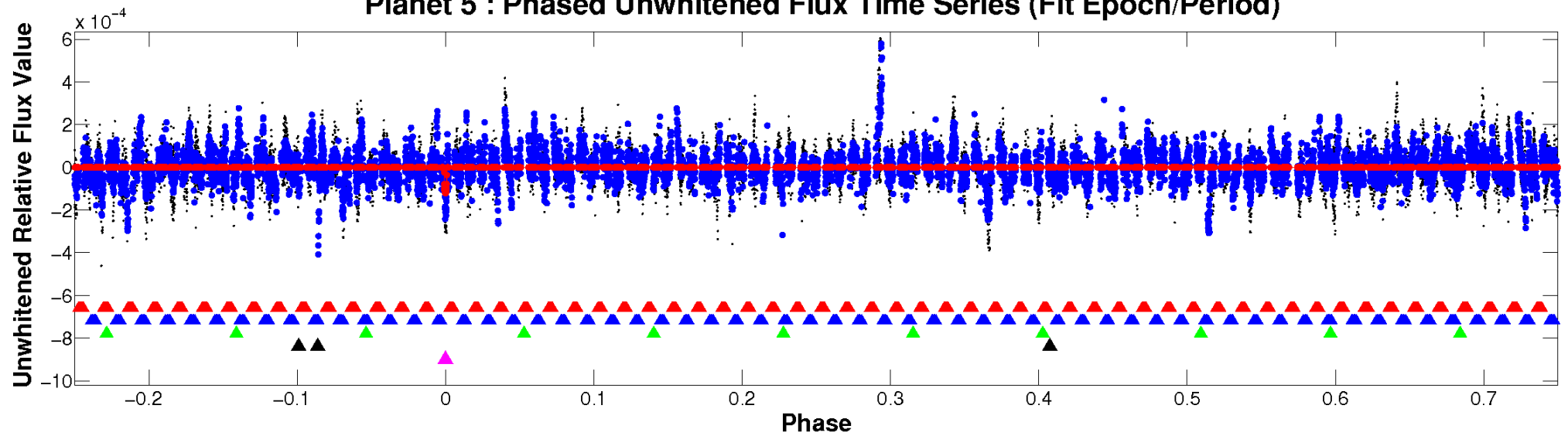
ALT Odd/Even

TCE 010681550-05

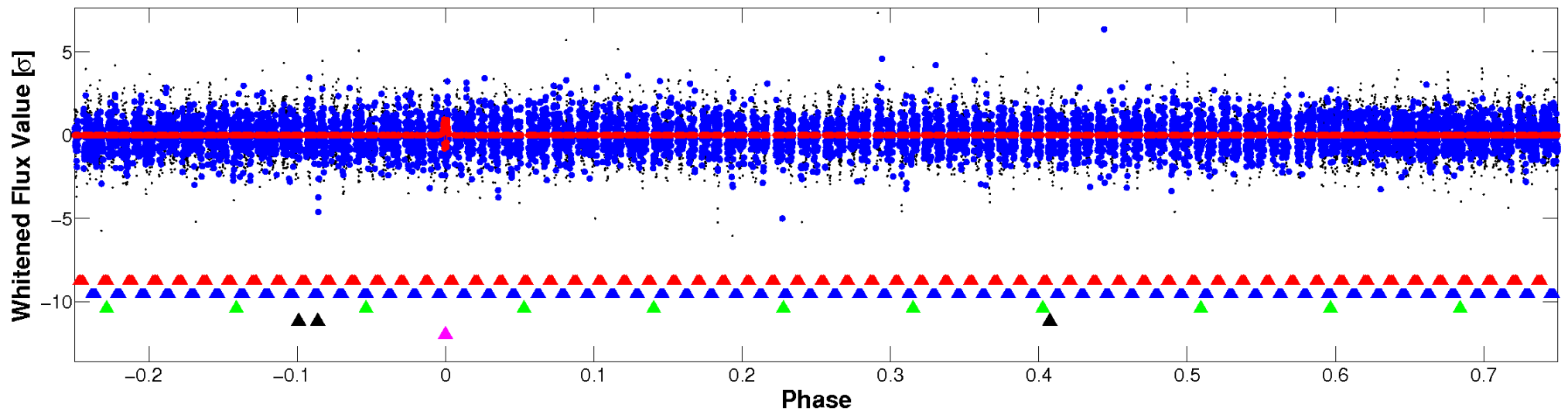


Non-Whitened Vs. Whitened Light Curve

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

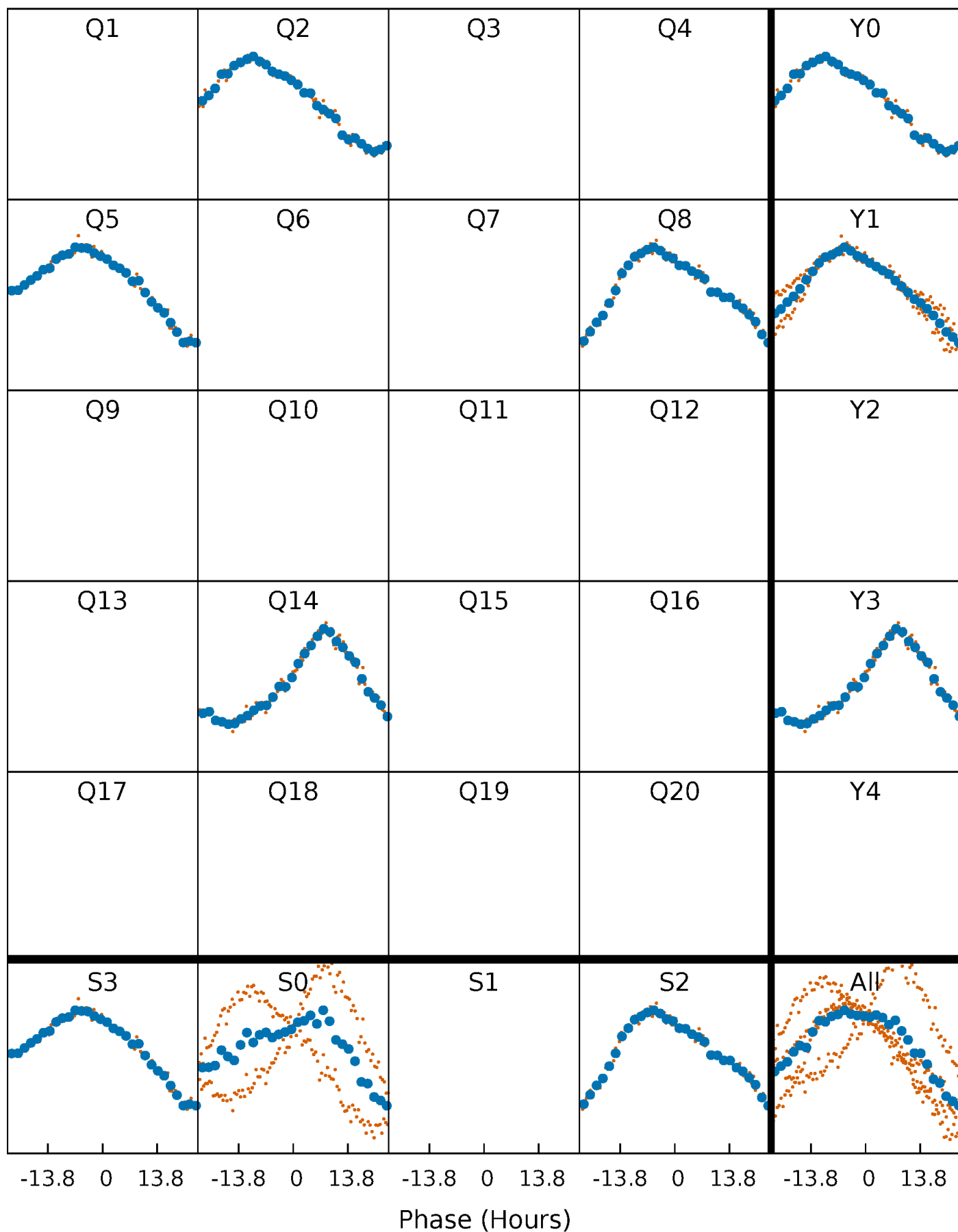


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



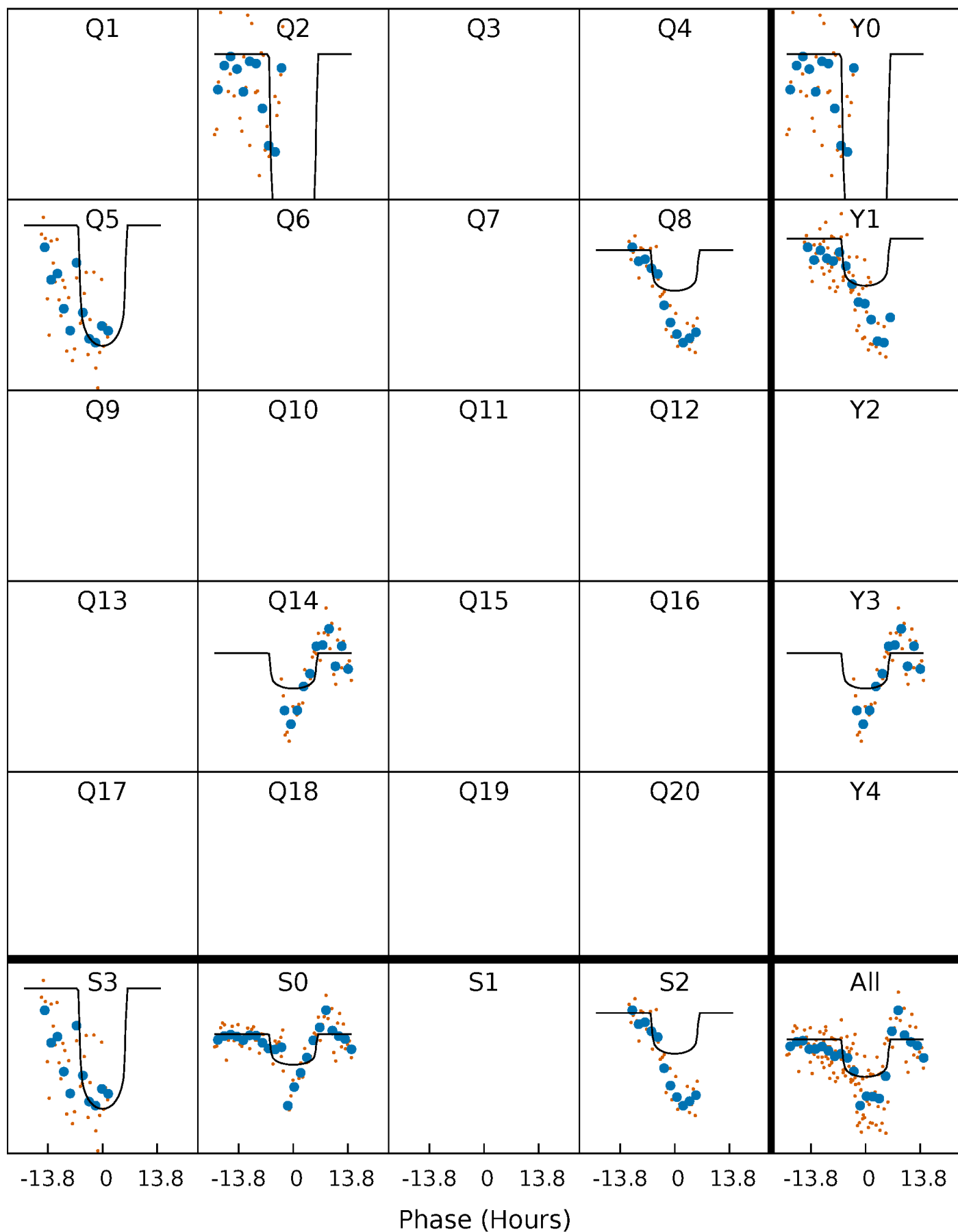
PDC Quarter-Phased Transit Curves

TCE 010681550-05 $P=271.622286$ Days $T_0=243.090279$ (BKJD)



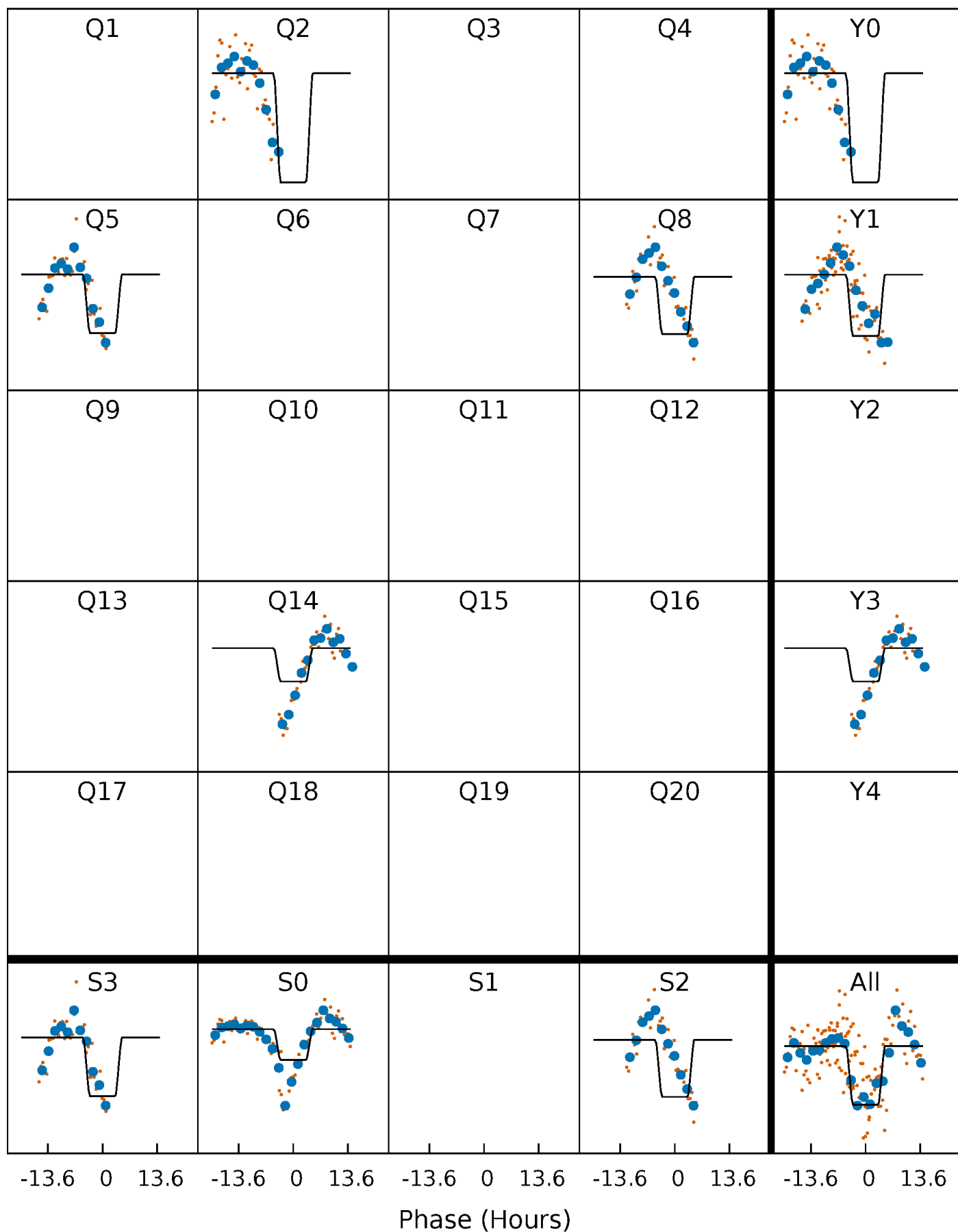
DV Quarter-Phased Transit Curves

TCE 010681550-05 $P=271.622286$ Days $T_0=243.090279$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

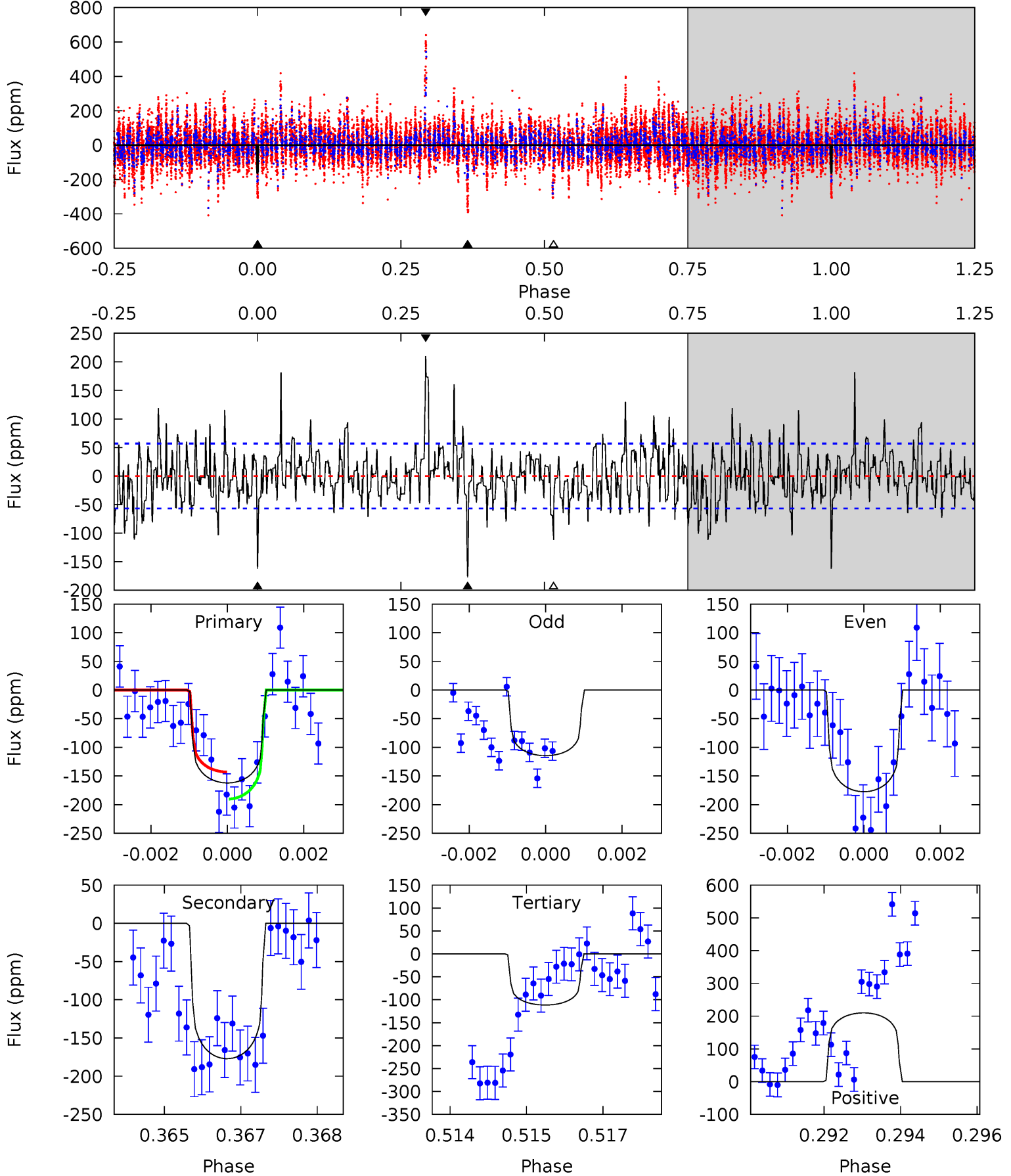
TCE 010681550-05 $P=271.623313$ Days $T_0=243.105758$ (BKJD)



DV Model-Shift Uniqueness Test

010681550-05, $P = 271.622286$ Days, $E = 243.090279$ Days

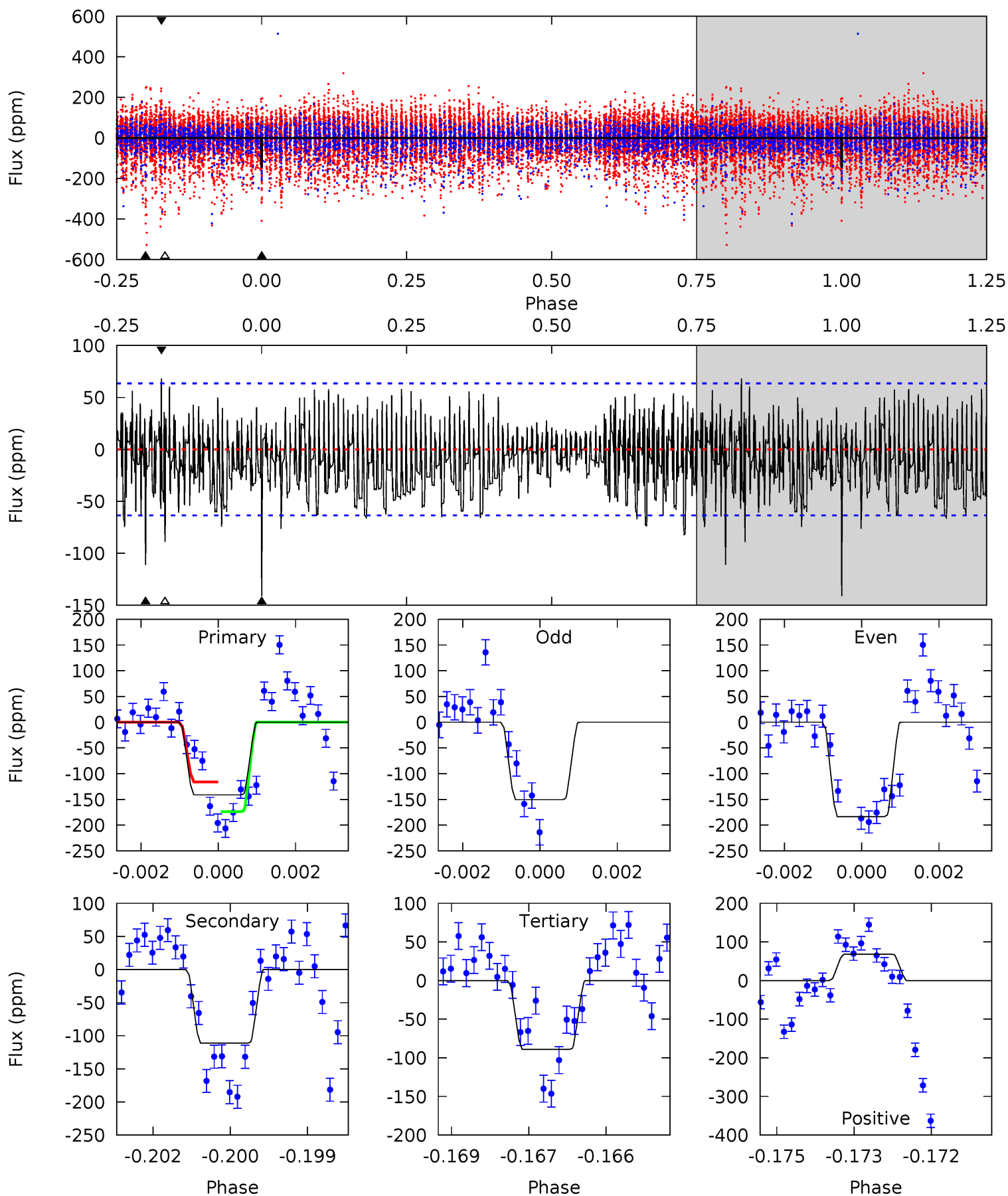
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	16.6	10.5	19.7	5.34	3.10	3.87	4.75	-4.49	6.16	-3.08	2.37	0.97	0.54	2.20



Alt Model-Shift Uniqueness Test

010681550-05, P = 271.623313 Days, E = 243.105758 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	9.41	7.54	5.78	5.38	3.17	2.12	4.40	6.16	1.87	3.63	1.17	1.07	0.33	2.44



Stellar Parameters For KIC 010681550

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6483^{+145}_{-194}	$4.367^{+0.092}_{-0.138}$	$-0.560^{+0.300}_{-0.300}$	$1.081^{+0.211}_{-0.141}$	$0.992^{+0.124}_{-0.112}$	$1.105^{+0.515}_{-0.412}$
	+2%/-3%	+2%/-3%	+54%/-54%	+20%/-13%	+12%/-11%	+47%/-37%
Source	PHO1	FLK73	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 010681550-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-177 ± 11	$1.36^{+0.34}_{-0.30}$	459^{+25}_{-20}	7043^{+1096}_{-744}	35349^{+23658}_{-12395}
Alt.	-111 ± 12	$1.70^{+0.33}_{-0.32}$	461^{+23}_{-22}	5570^{+585}_{-407}	14185^{+7496}_{-4553}

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

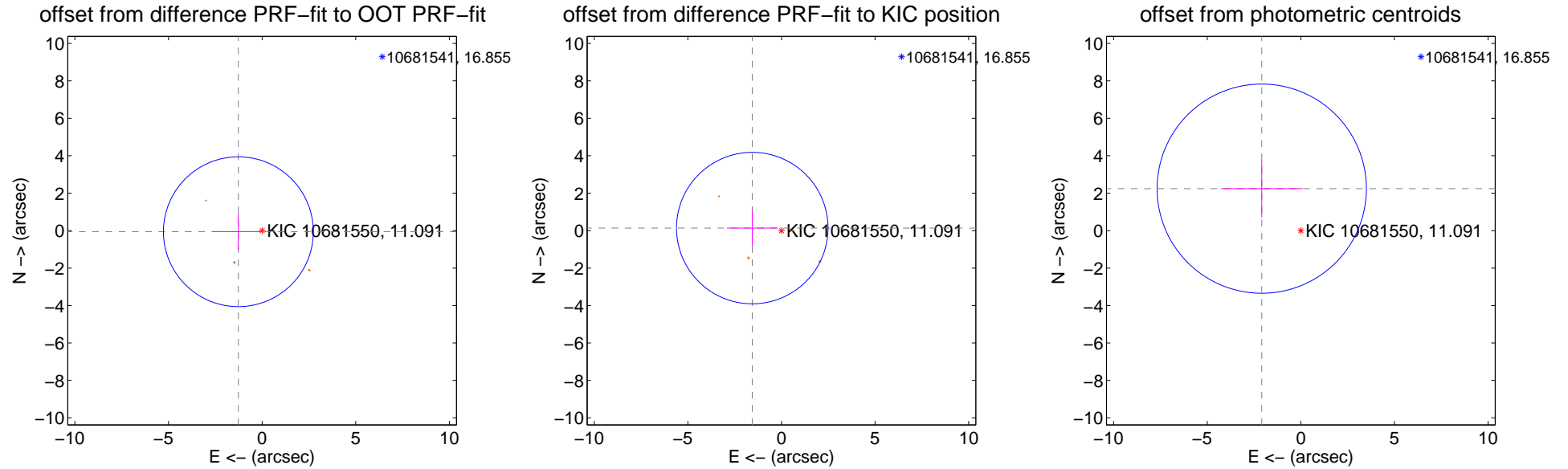
DV Centroid Data

Supplemental centroid analysis for 010681550-05. **Kepler magnitude: 11.09.** Transit SNR 6.15

There are 0 quarters with good PRF difference image offsets

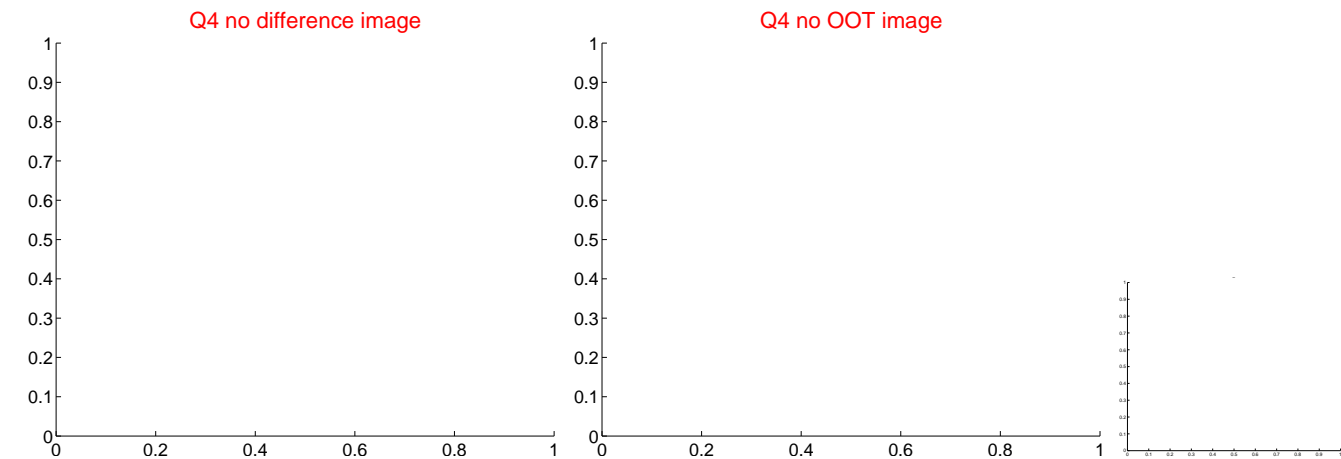
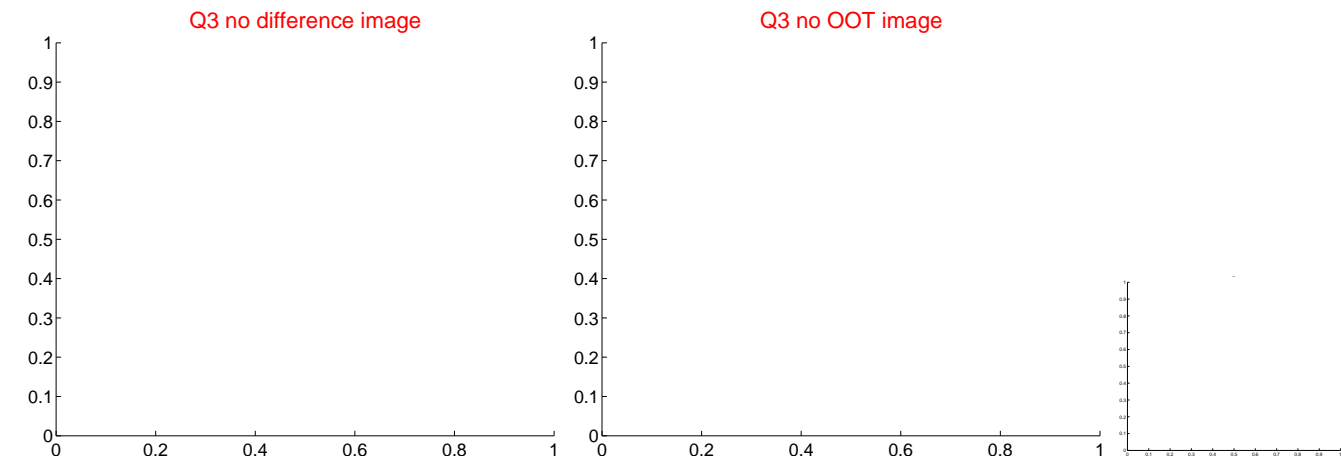
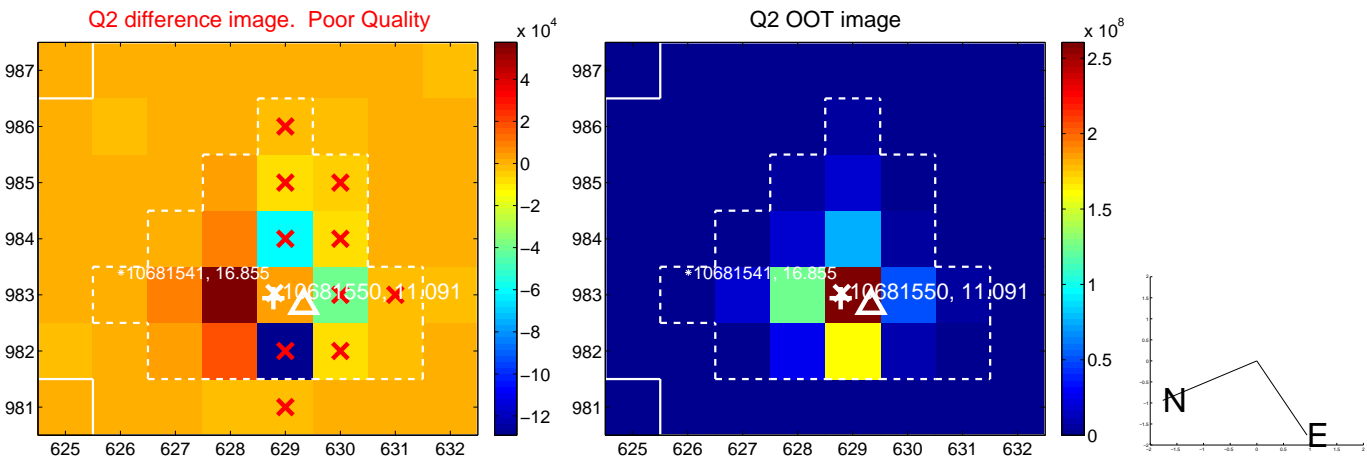
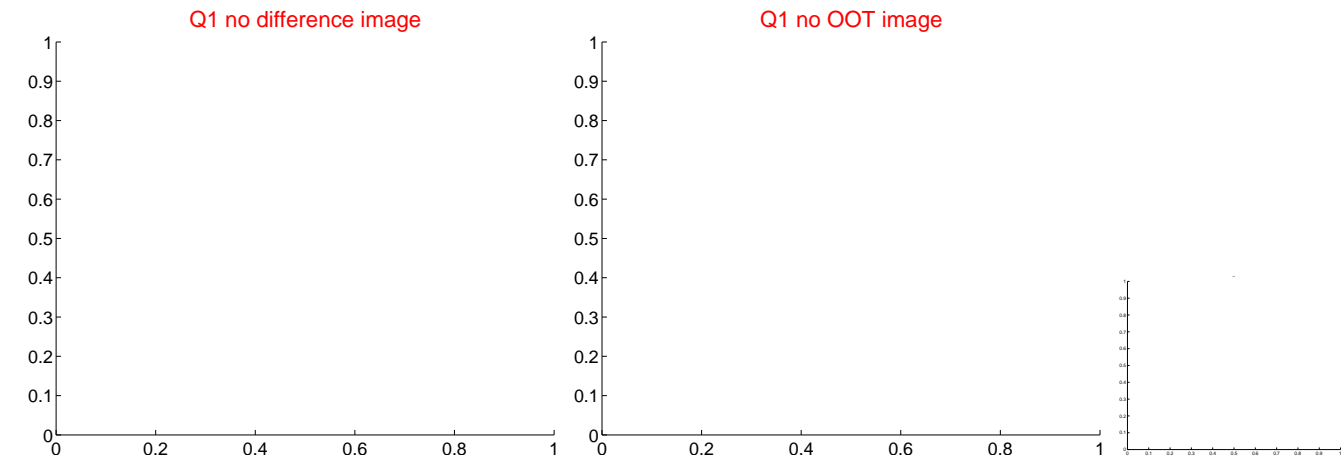
The direct PRF centroid is offset from the target star catalog position by about 0.41 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.270 ± 1.334	0.95	1.268 ± 1.335	-0.059 ± 0.979
PRF-fit source offset from KIC position	1.565 ± 1.349	1.16	1.559 ± 1.351	0.135 ± 0.957
photometric centroid source offset	3.06 ± 1.86	1.64	2.09 ± 2.18	2.24 ± 1.54

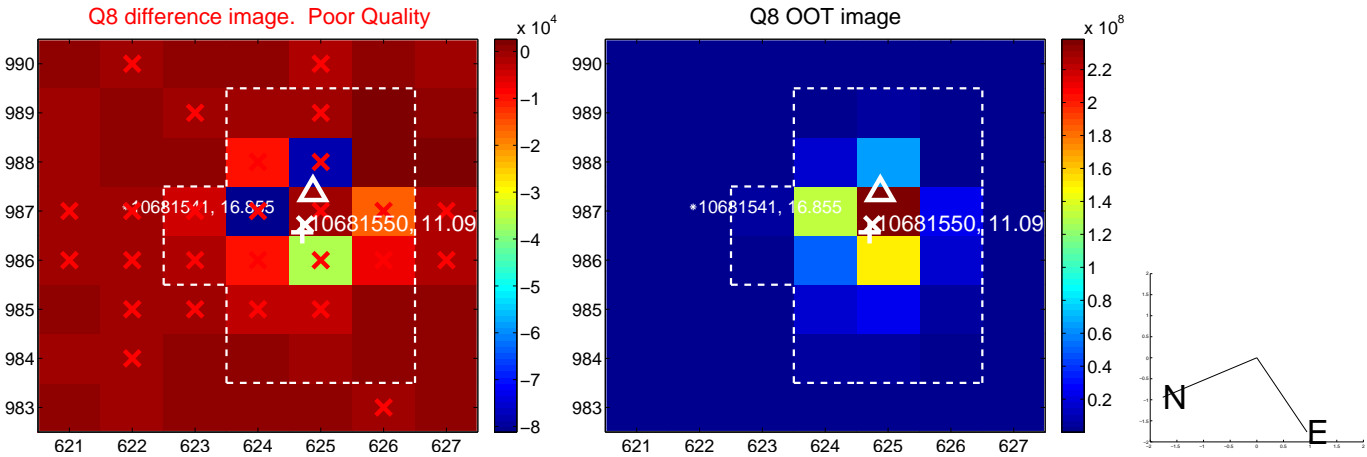
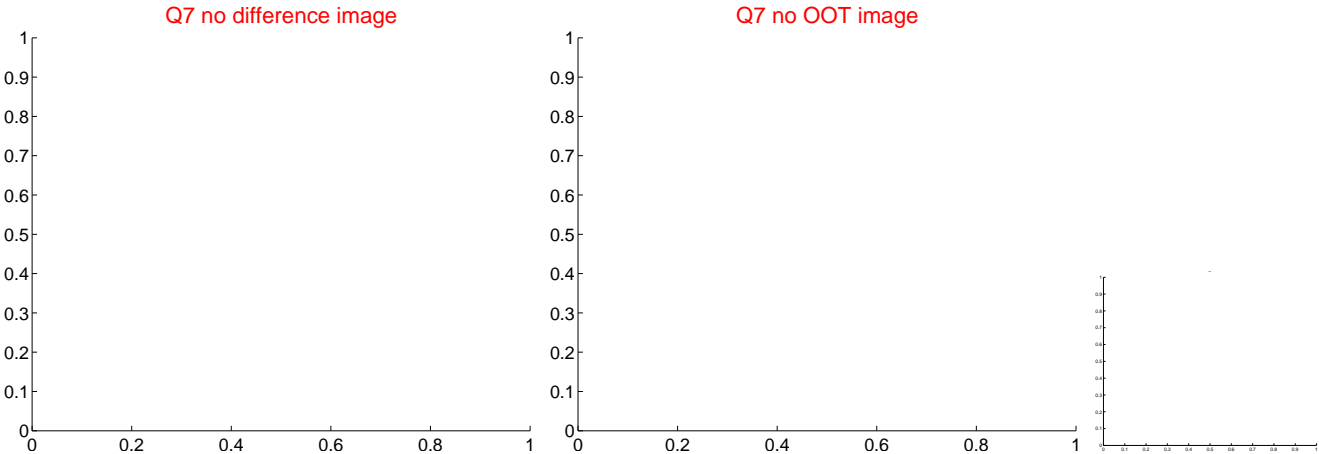
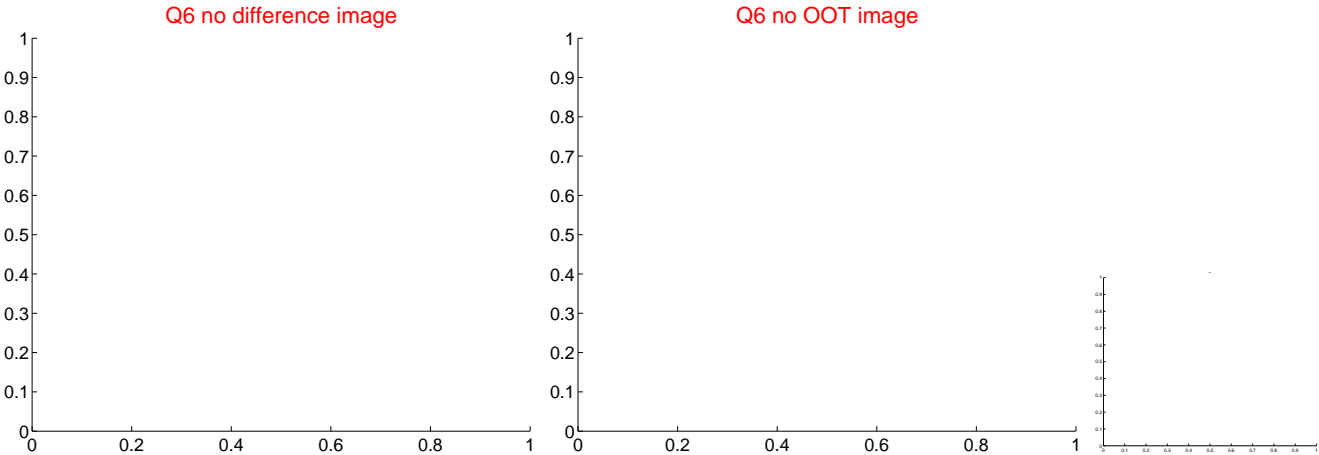
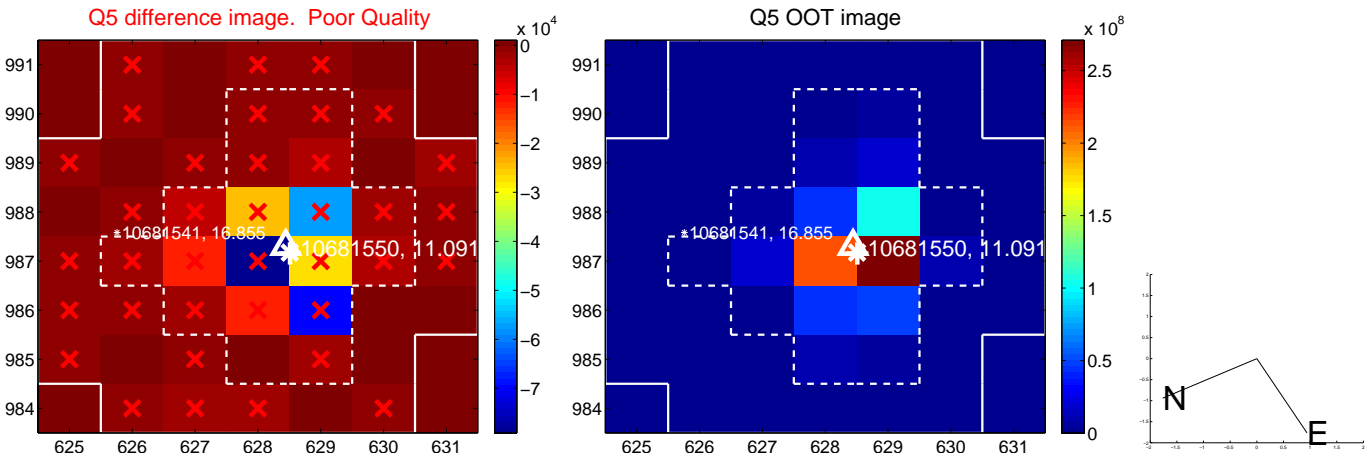


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

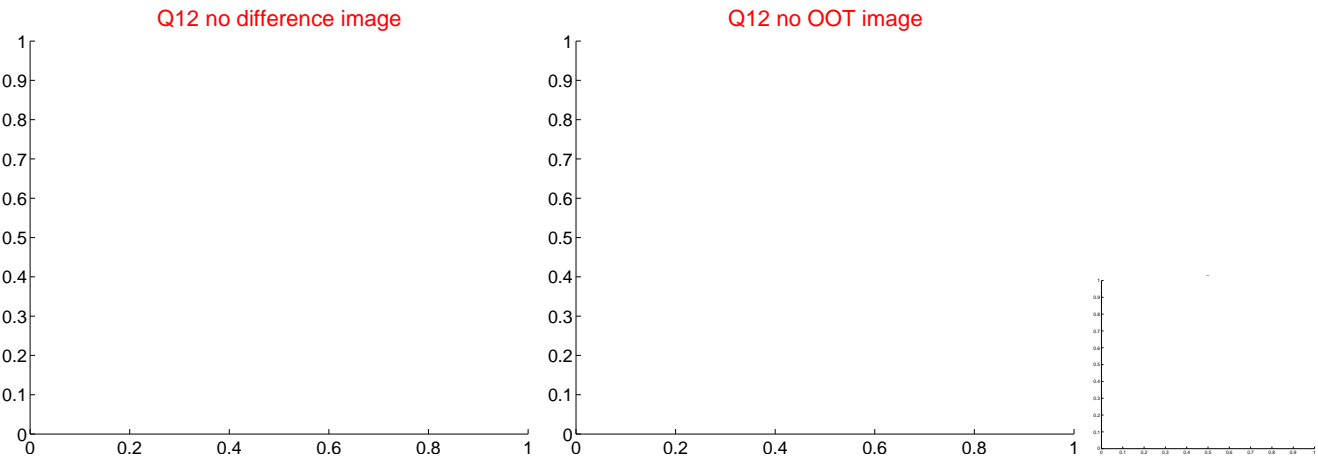
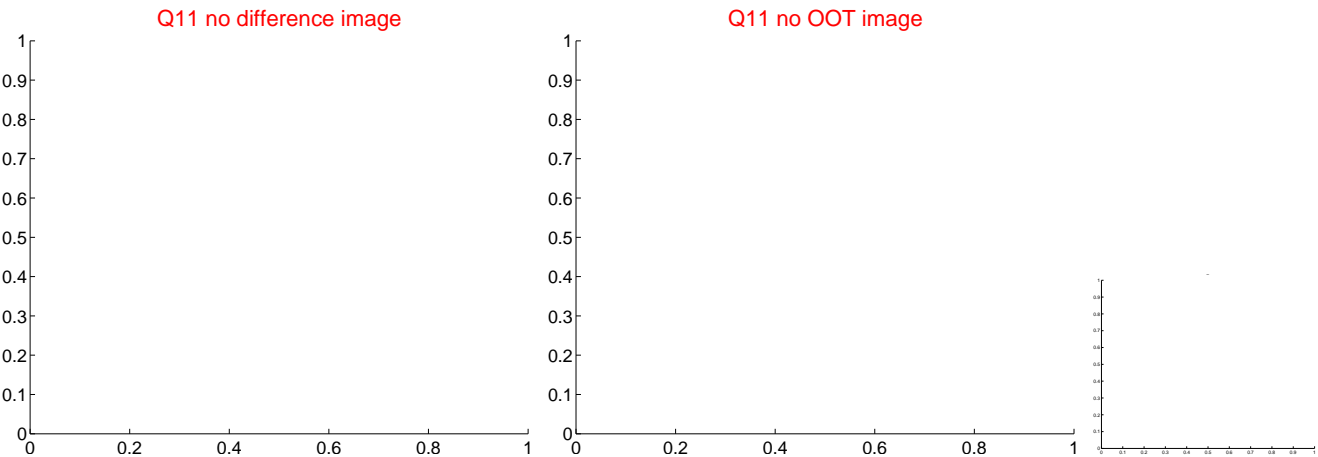
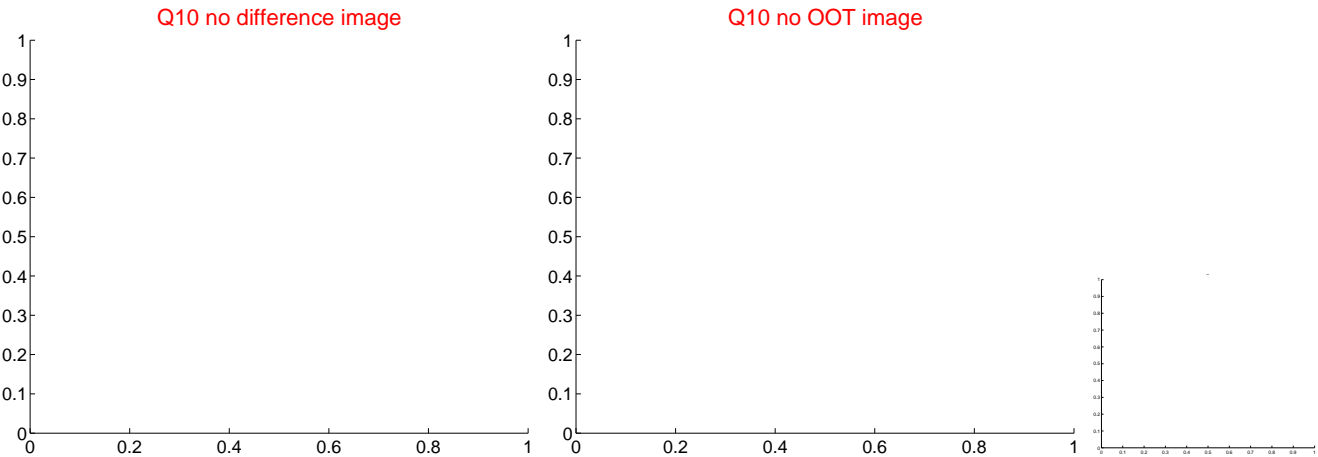
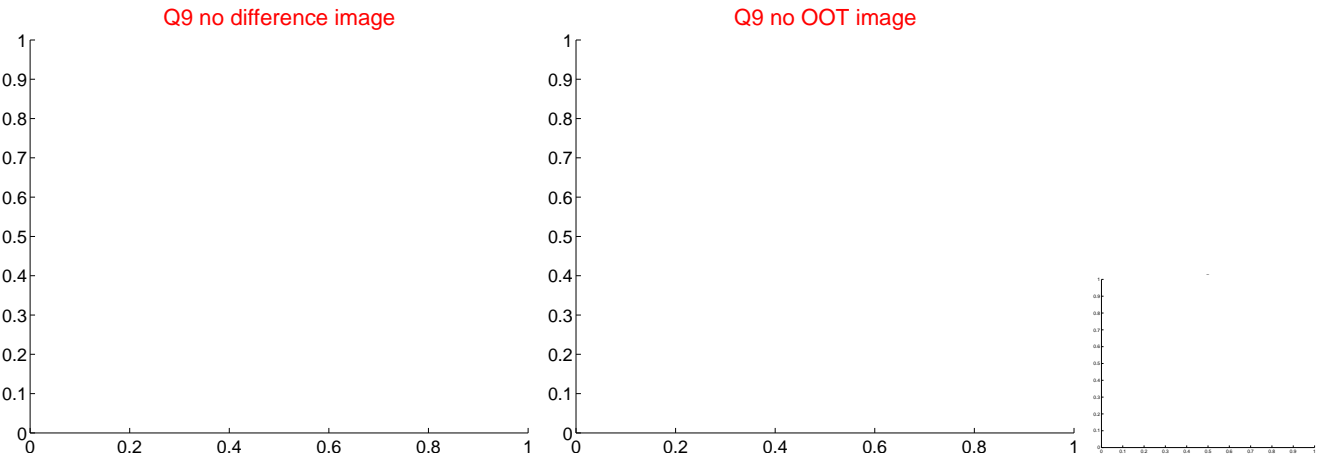
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



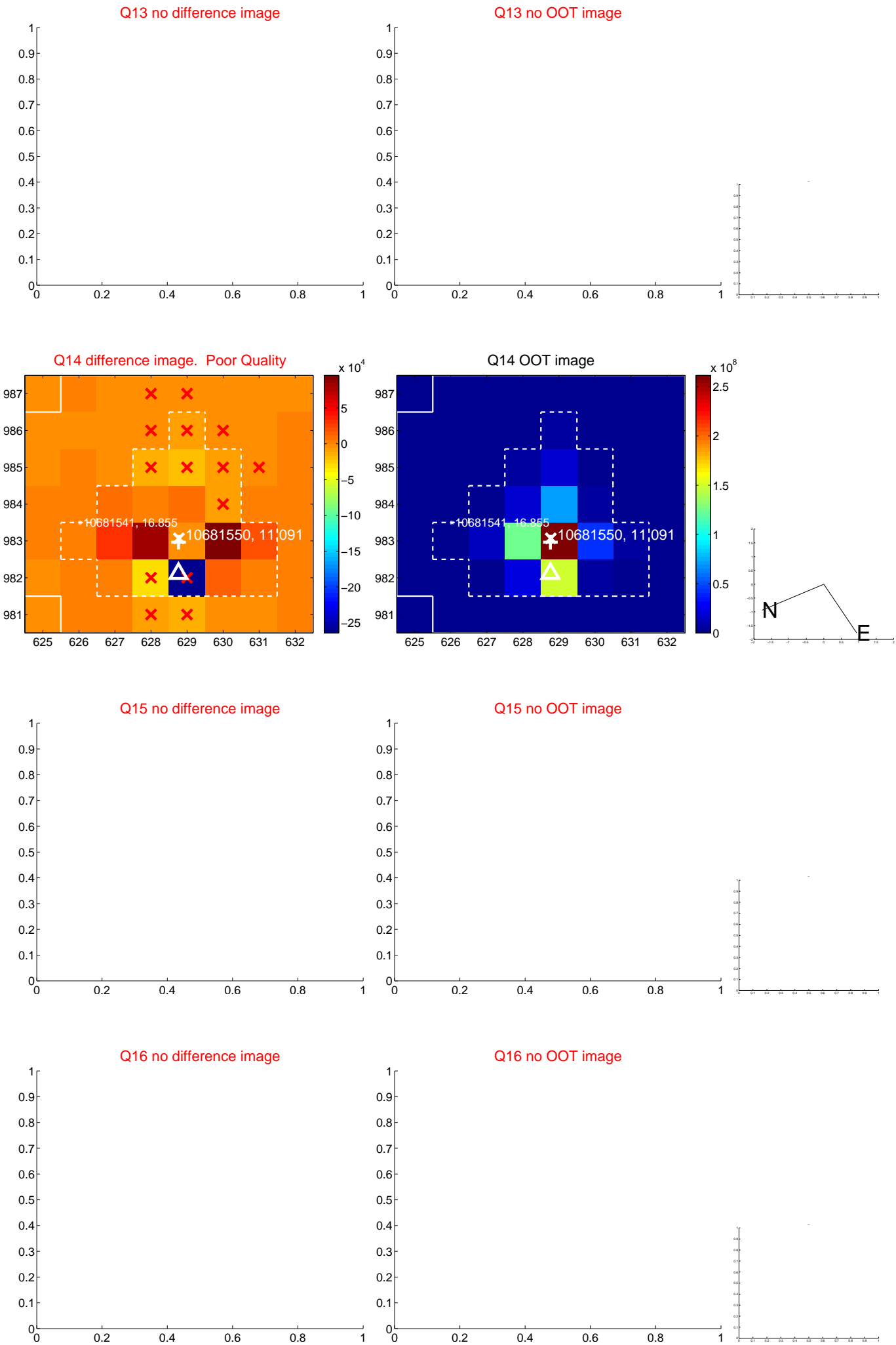
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



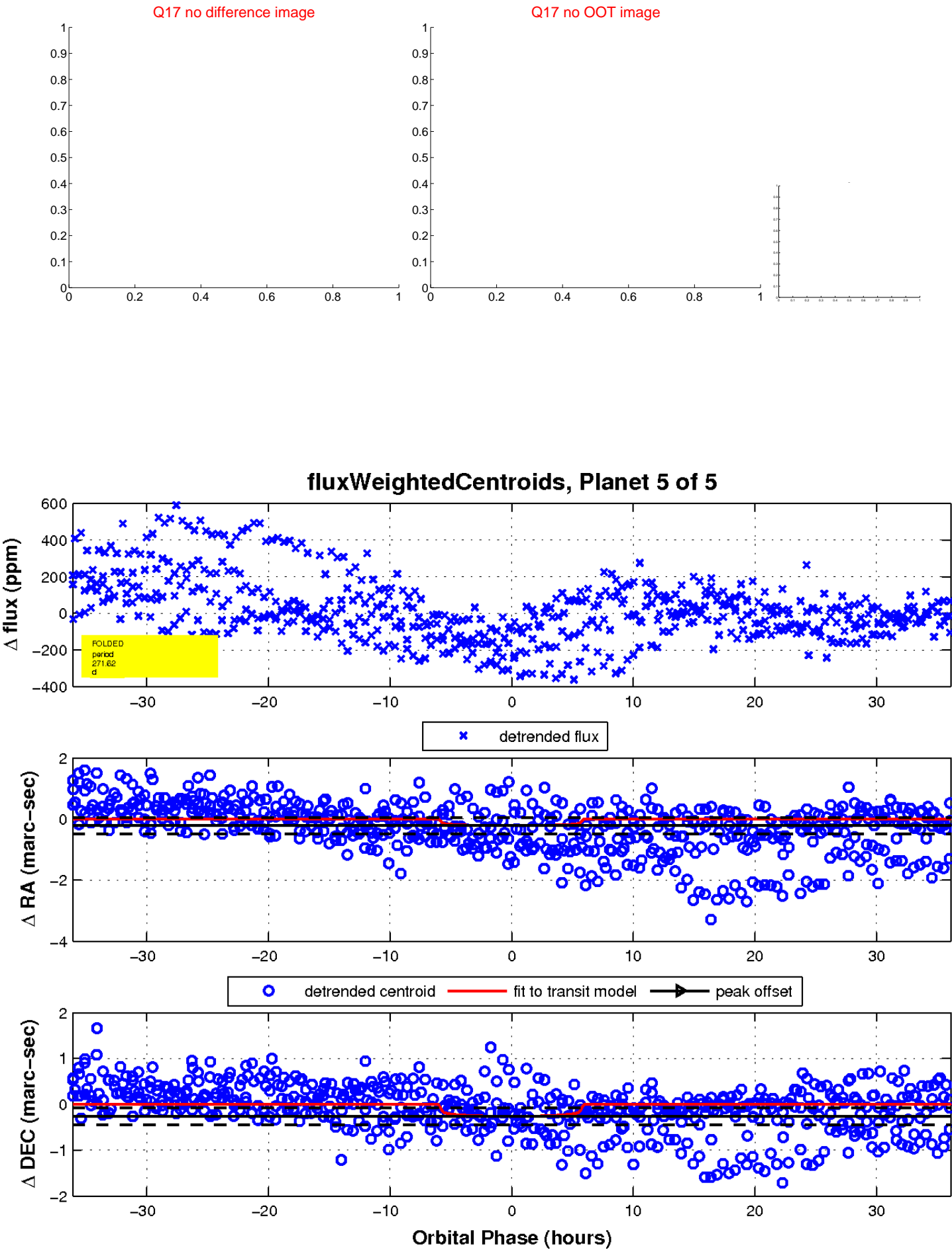
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

