

KIC 007685010

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})
007685010-01	OBS	No	2.150345	131.927710	16.0	11.363	11.4	6.3	2.05	6502	0.86	4951.83
007685010-02	OBS	No	249.318333	305.627181	441.9	22.058	12.7	11.7	2.05	6502	8.32	8.76
007685010-04	OBS	No	62.081942	175.805349	170.8	12.252	8.8	9.1	2.05	6502	2.87	55.91
007685010-05	OBS	No	99.804435	178.845873	200.8	5.679	8.7	7.5	2.05	6502	5.75	29.69
007685010-07	OBS	No	49.230875	170.930530	131.9	9.309	8.0	7.9	2.05	6502	2.69	76.17
007685010-08	OBS	No	110.398535	199.878663	171.6	5.029	7.6	6.8	2.05	6502	3.06	25.95
007685010-09	OBS	No	86.849723	185.394836	177.8	4.775	7.3	7.7	2.05	6502	3.08	35.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007685010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007685010-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007685010-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
007685010-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007685010-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

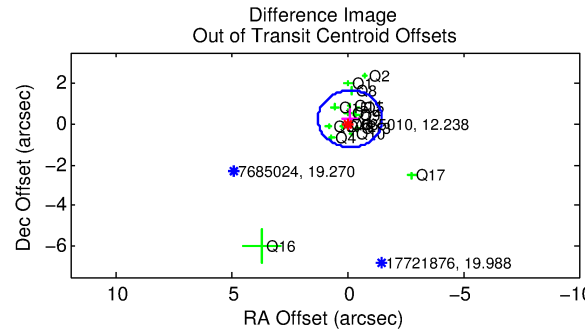
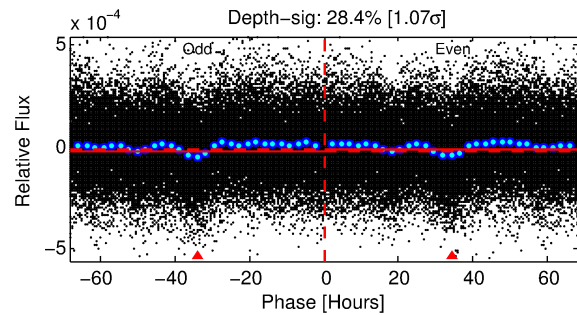
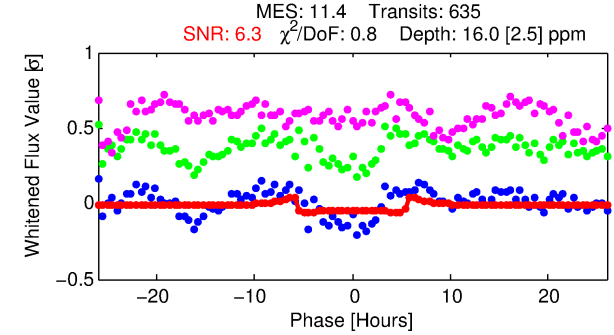
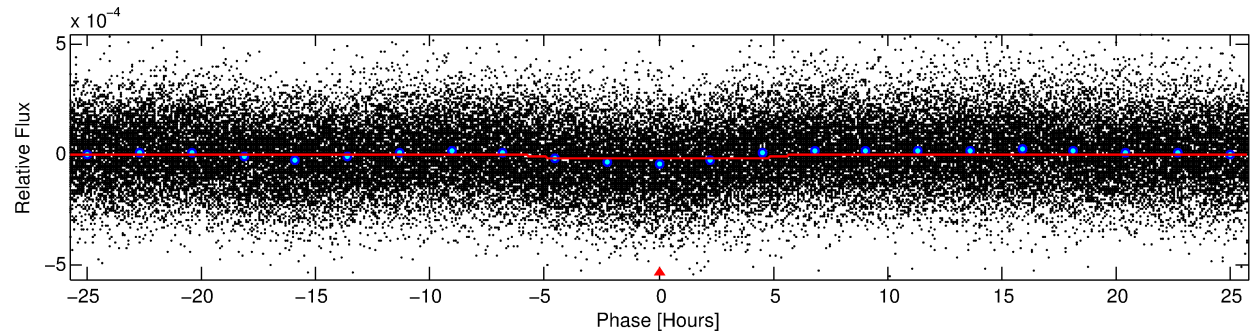
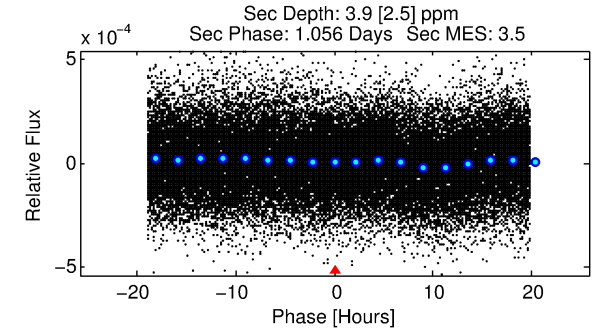
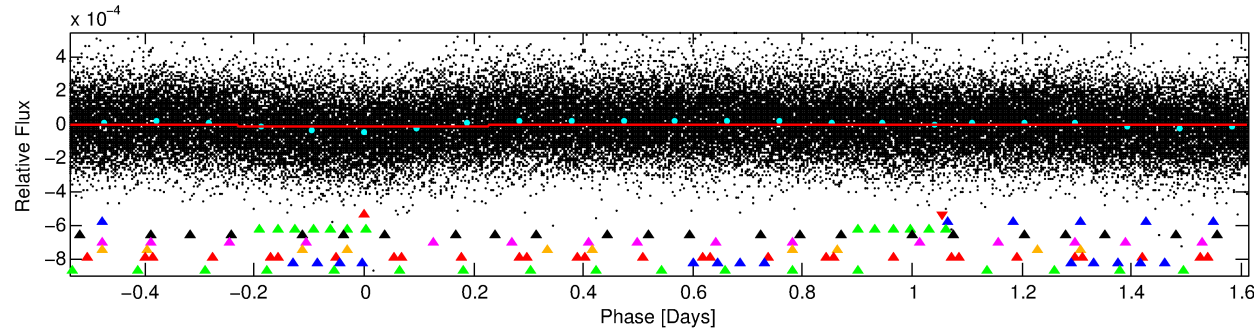
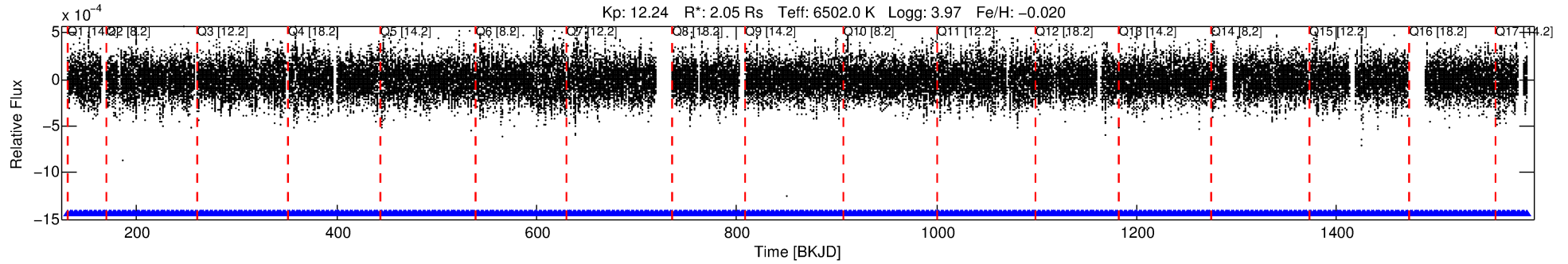
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007685010-01

No Significant Match Found

DV One-Page Summary

KIC: 7685010 Candidate: 1 of 9 Period: 2.150 d



DV Fit Results:

Period = 2.15035 [0.00003] d
Epoch = 131.9277 [0.0059] BKJD
Rp/R* = 0.0038 [0.0011]
a/R* = 1.40 [0.99]
b = 0.60 [1.58]
Seff = 4951.83 [2165.67]
Teq = 2139 [234] K
Rp = 0.86 [0.35] Re
a = 0.0368 [0.0102] AU
Ag = 4.00 [3.77] [0.80σ]
Teffp = 4677 [993] K [2.49σ]

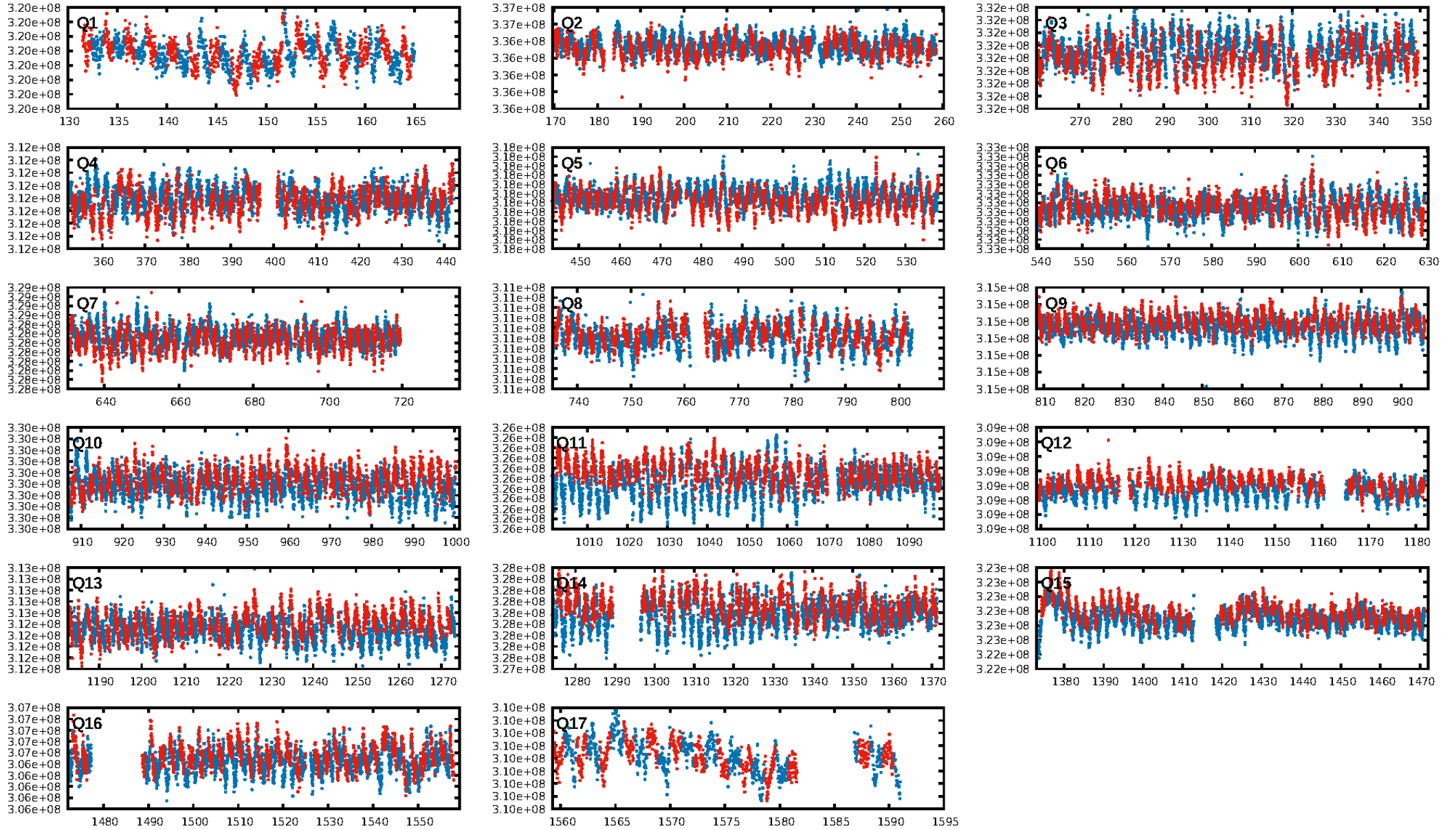
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [76.92σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.41e-17
RollingBand-fgt: 1.00 [606/606]
GhostDiagnostic-chr: 34.15
Centroid-sig: 10.9%
Centroid-so: 0.919 arcsec [1.52σ]
OotOffset-rm: 0.255 arcsec [0.55σ]
KicOffset-rm: 0.176 arcsec [0.39σ]
OotOffset-st: 4/4/4/5 [17]
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DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 1.00 [17/17]

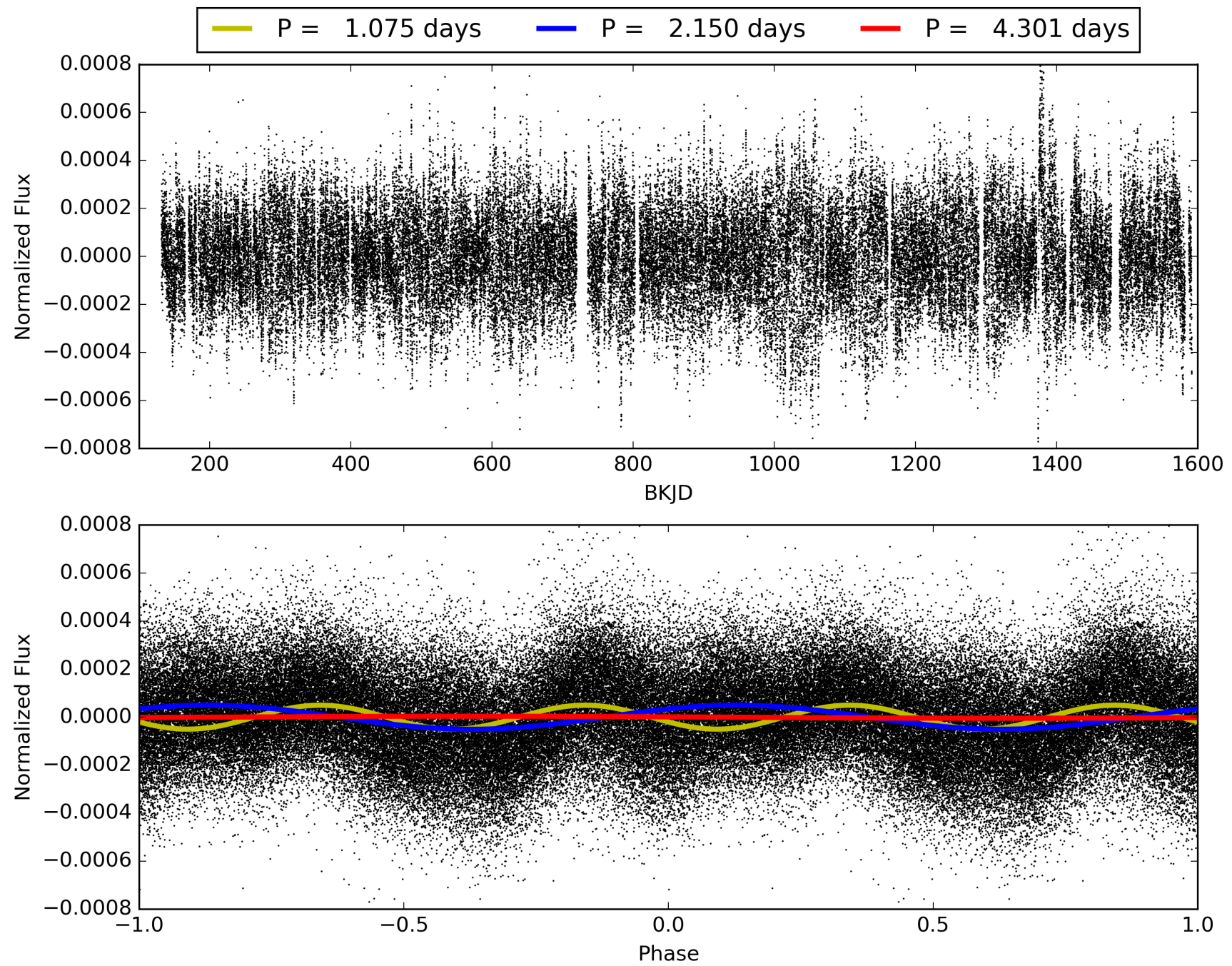
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007685010-01, PDC Light Curves

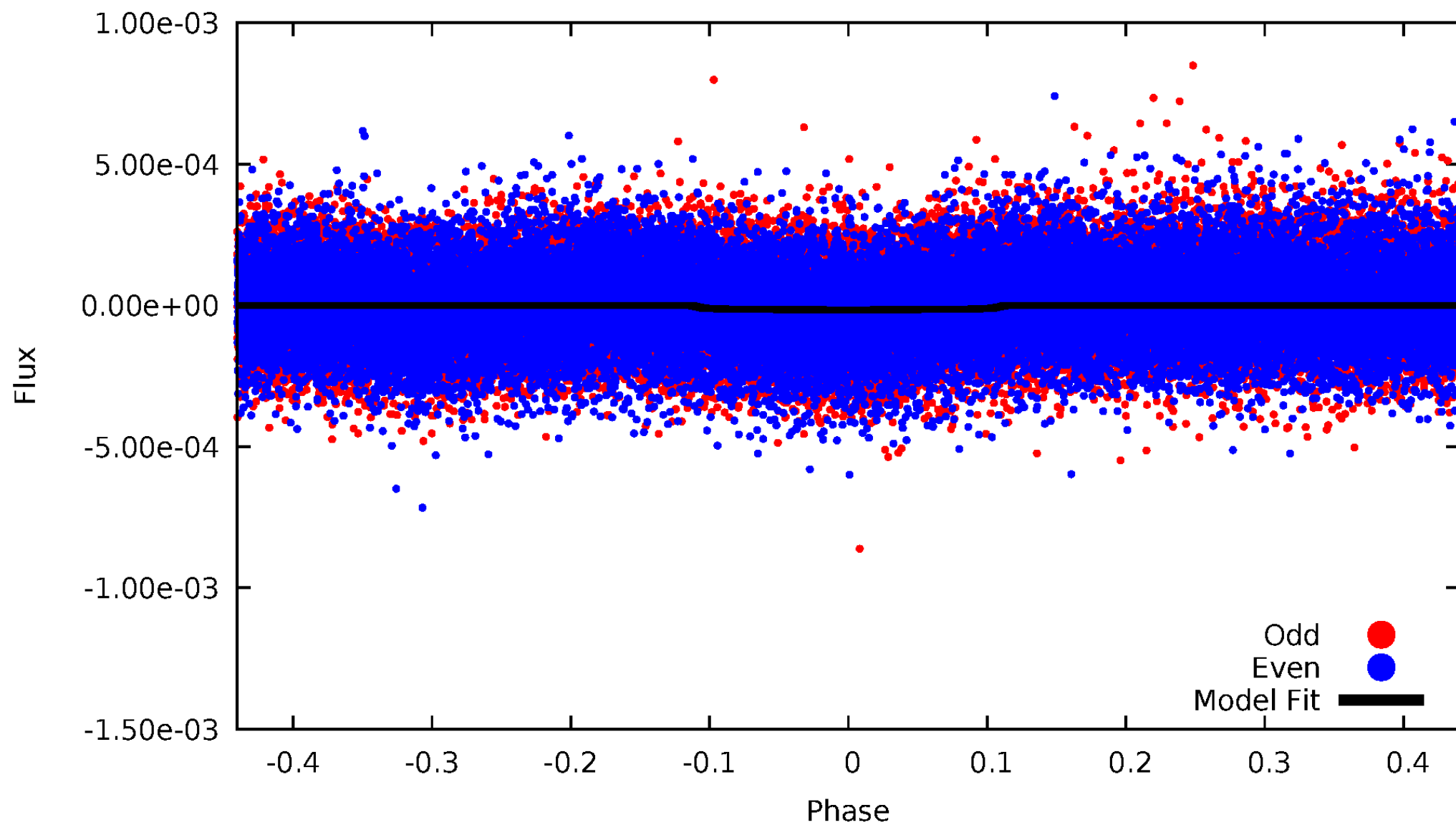


TCE 007685010-01



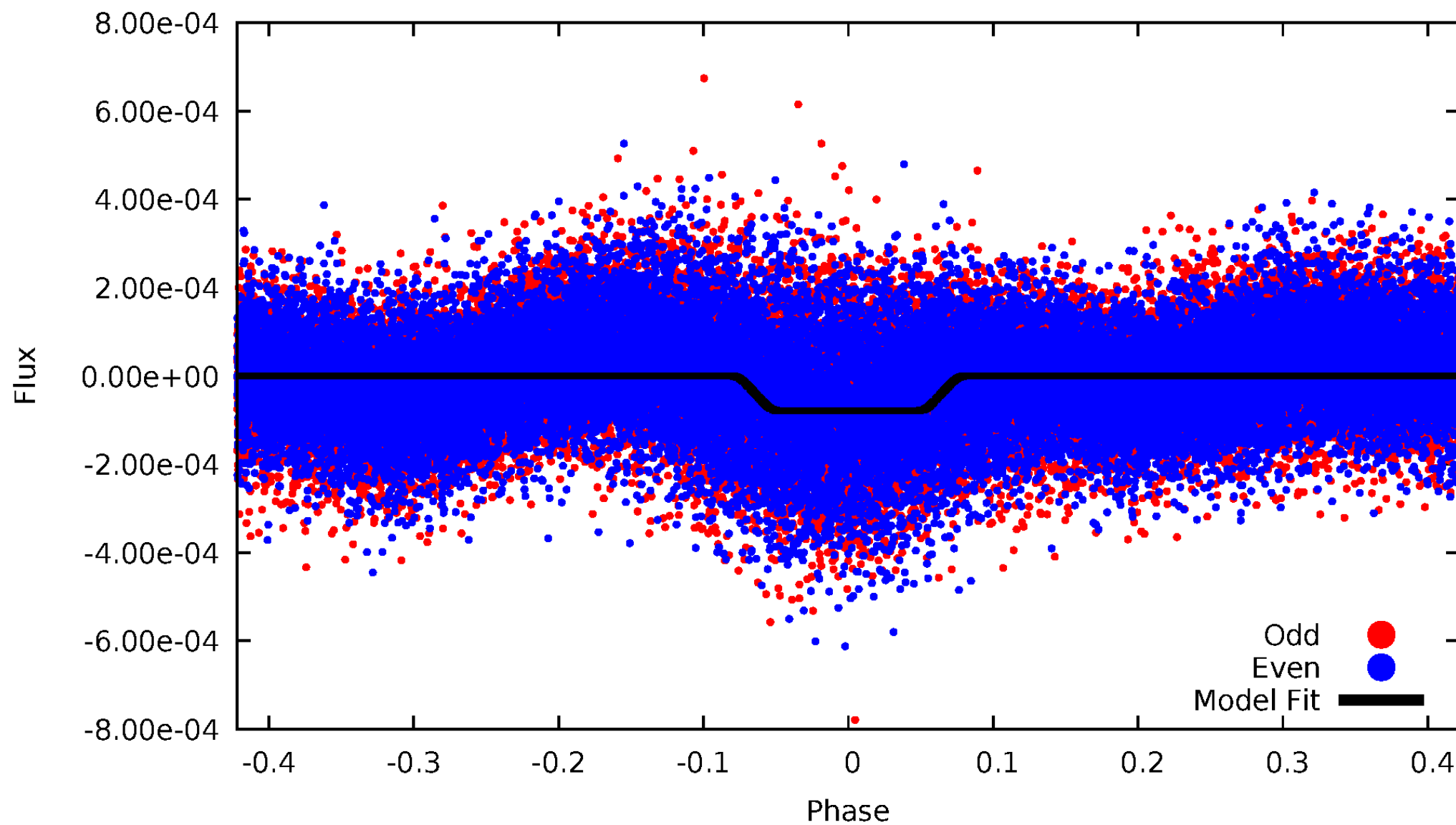
DV Odd/Even

TCE 007685010-01

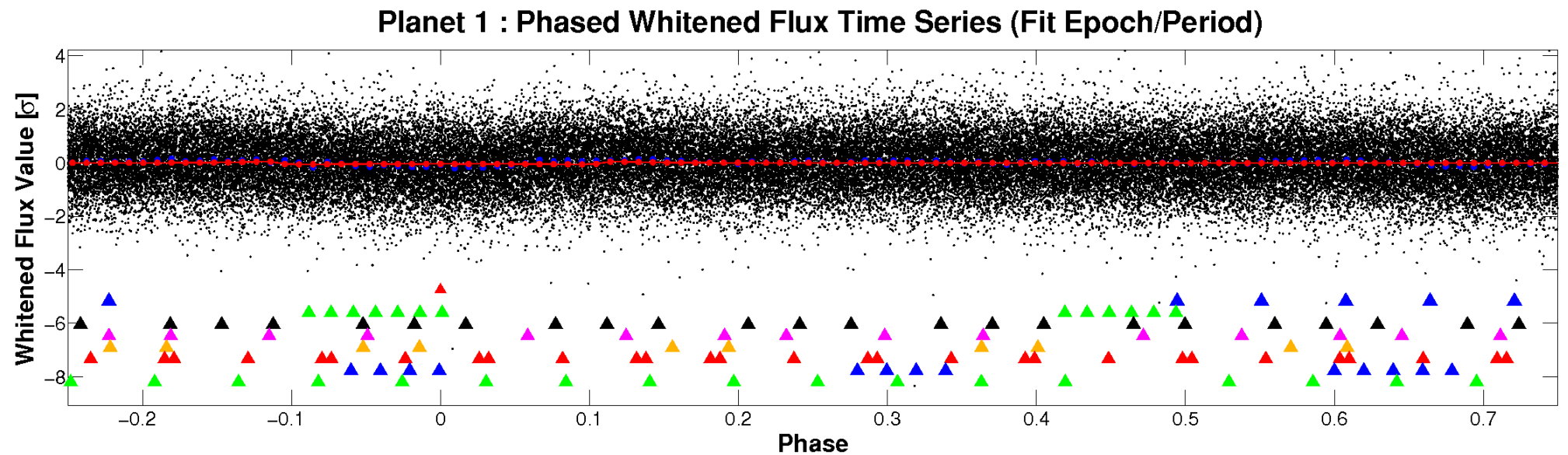
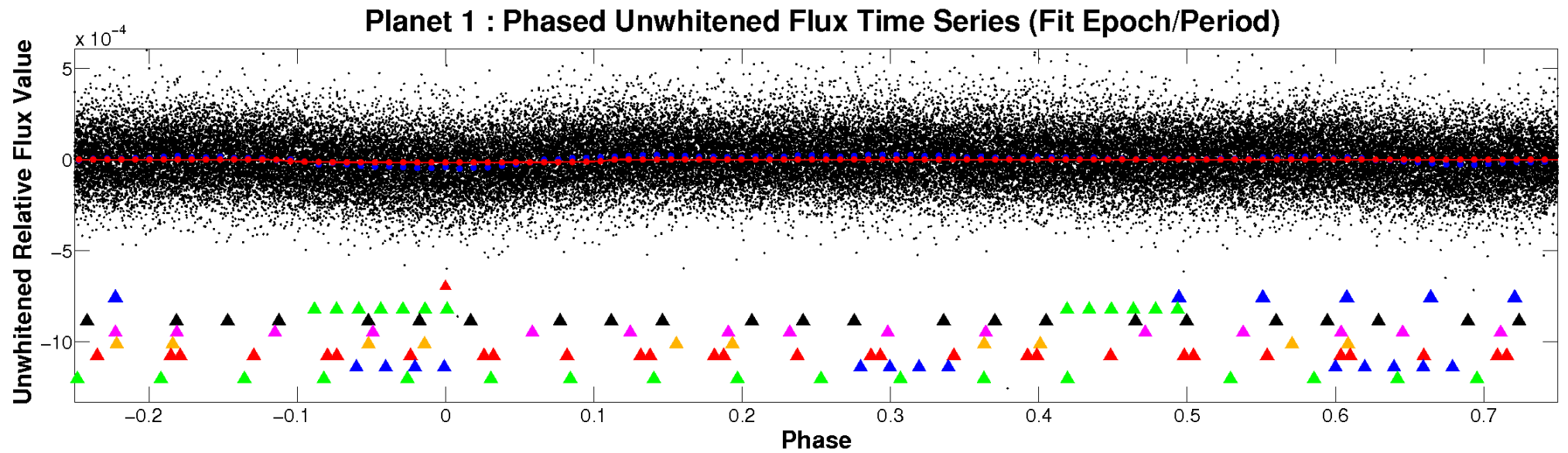


ALT Odd/Even

TCE 007685010-01

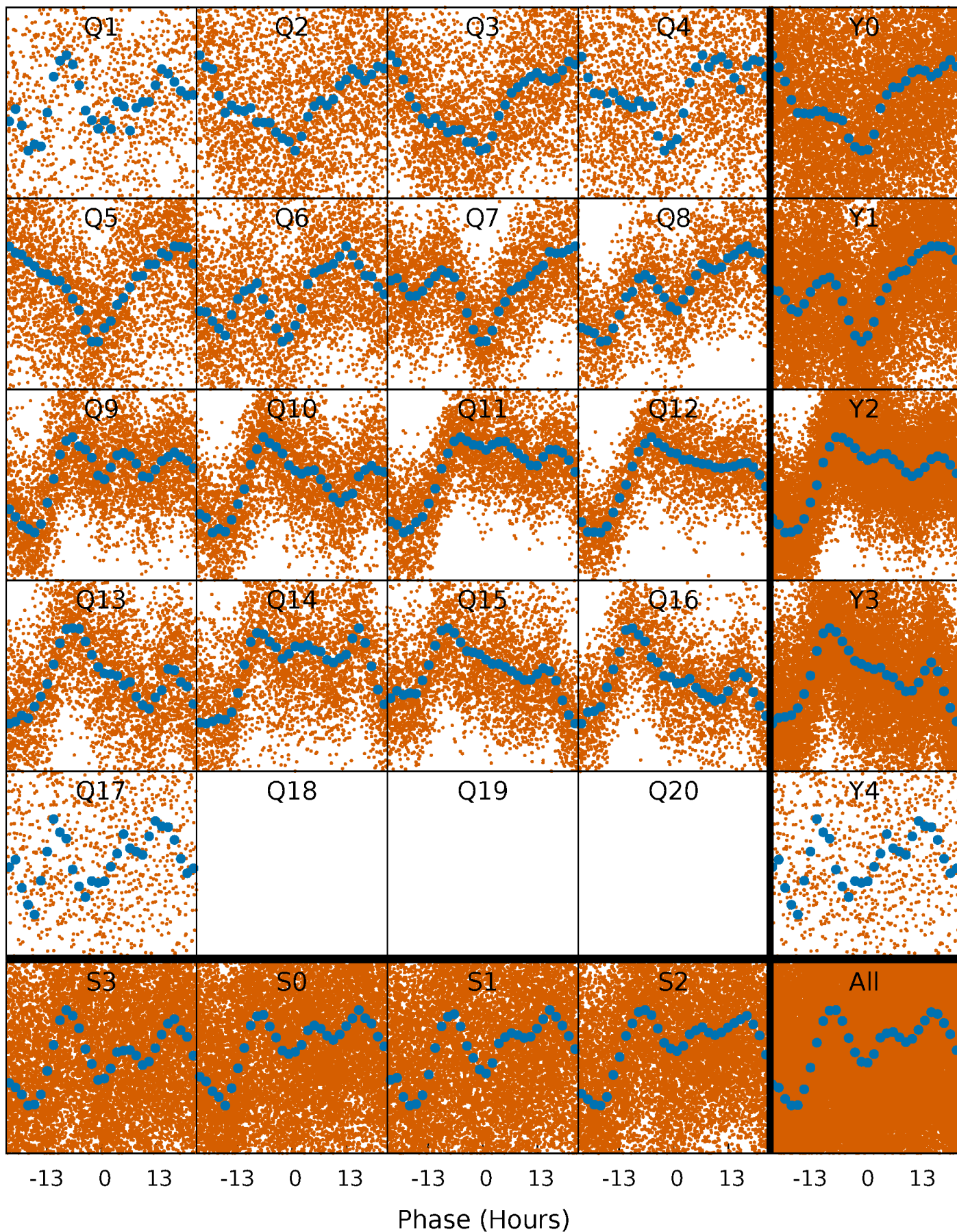


Non-Whitened Vs. Whitened Light Curve



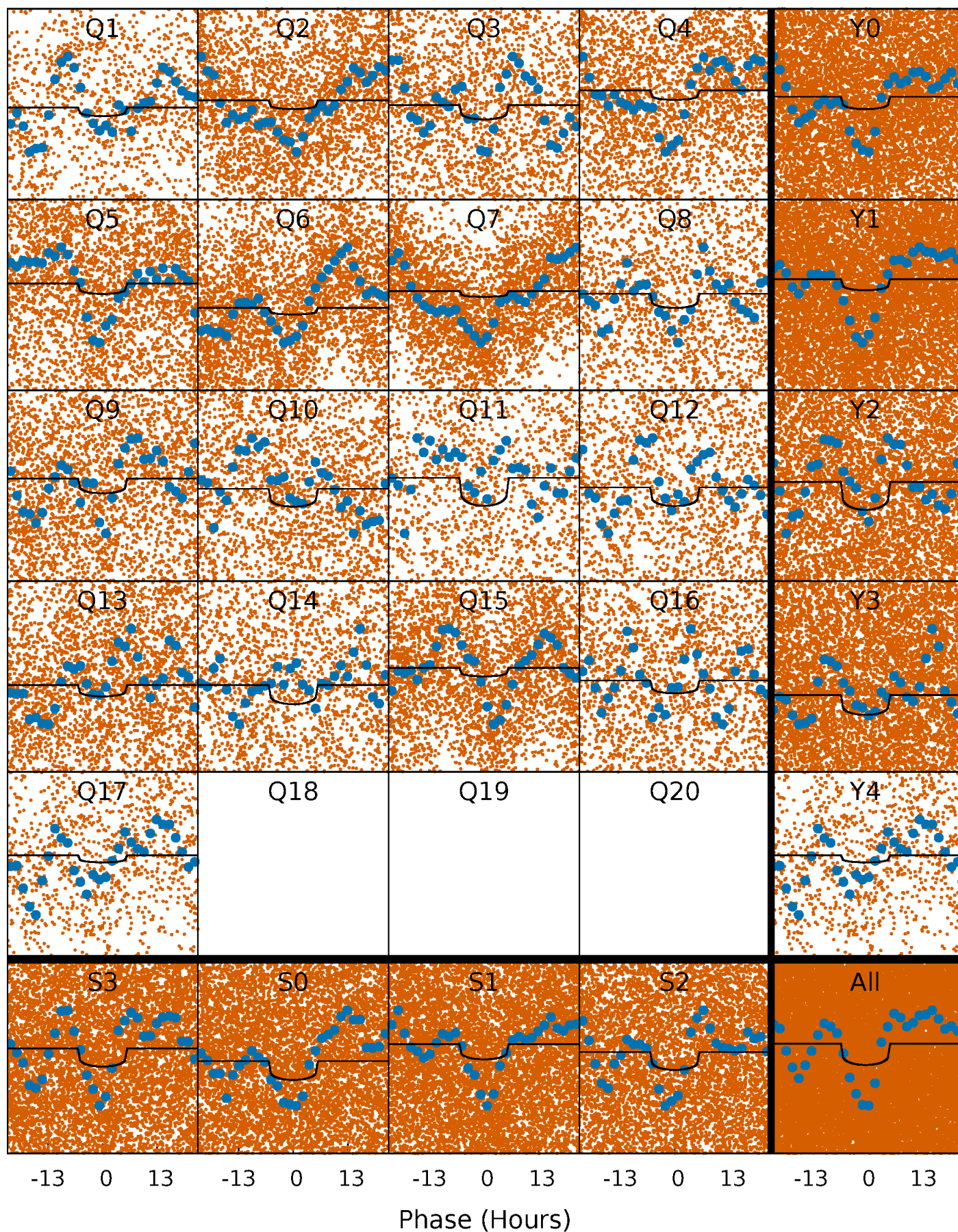
PDC Quarter-Phased Transit Curves

TCE 007685010-01 P= 2.150345 Days $T_0=131.927710$ (BKJD)



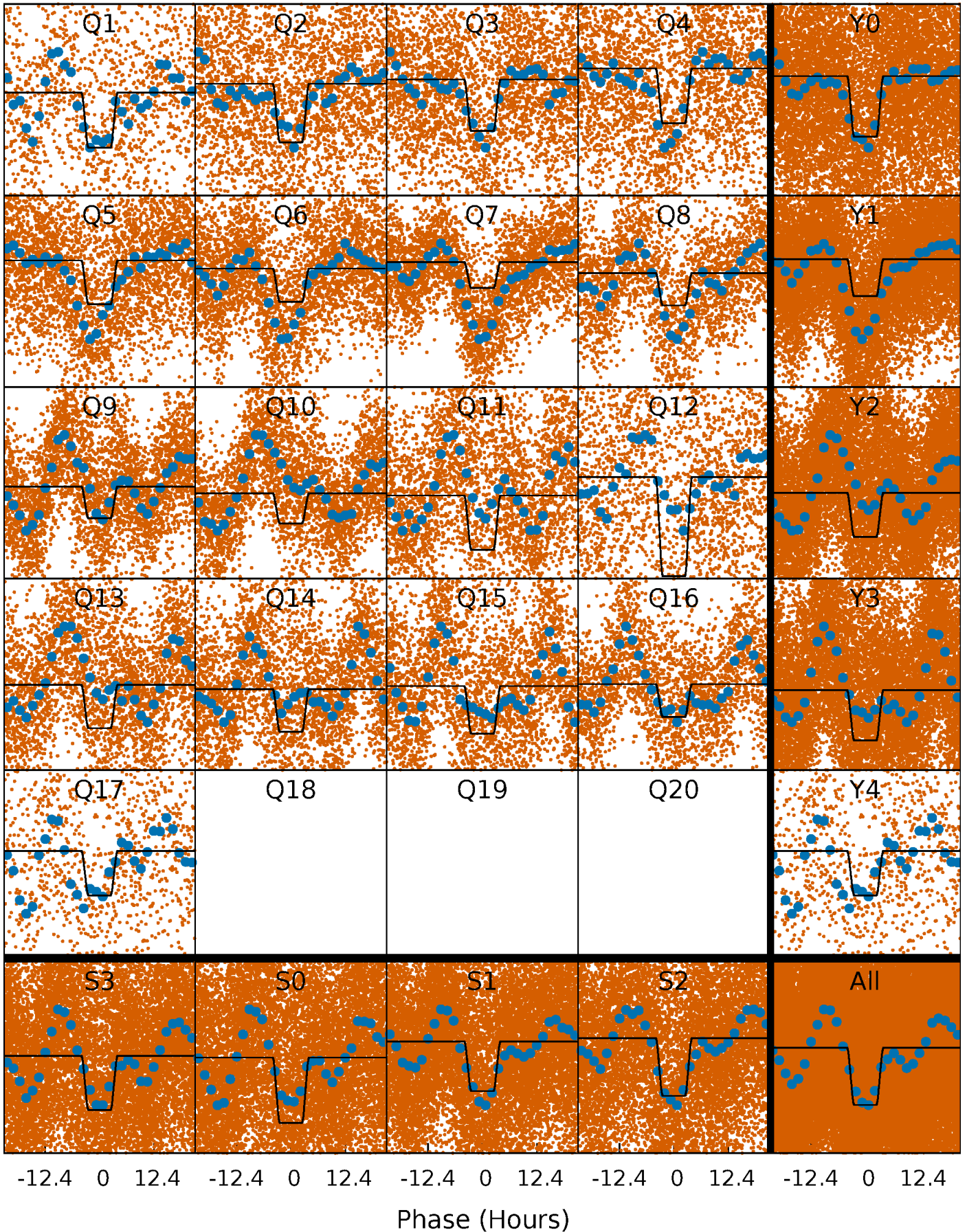
DV Quarter-Phased Transit Curves

TCE 007685010-01 P= 2.150345 Days $T_0=131.927710$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

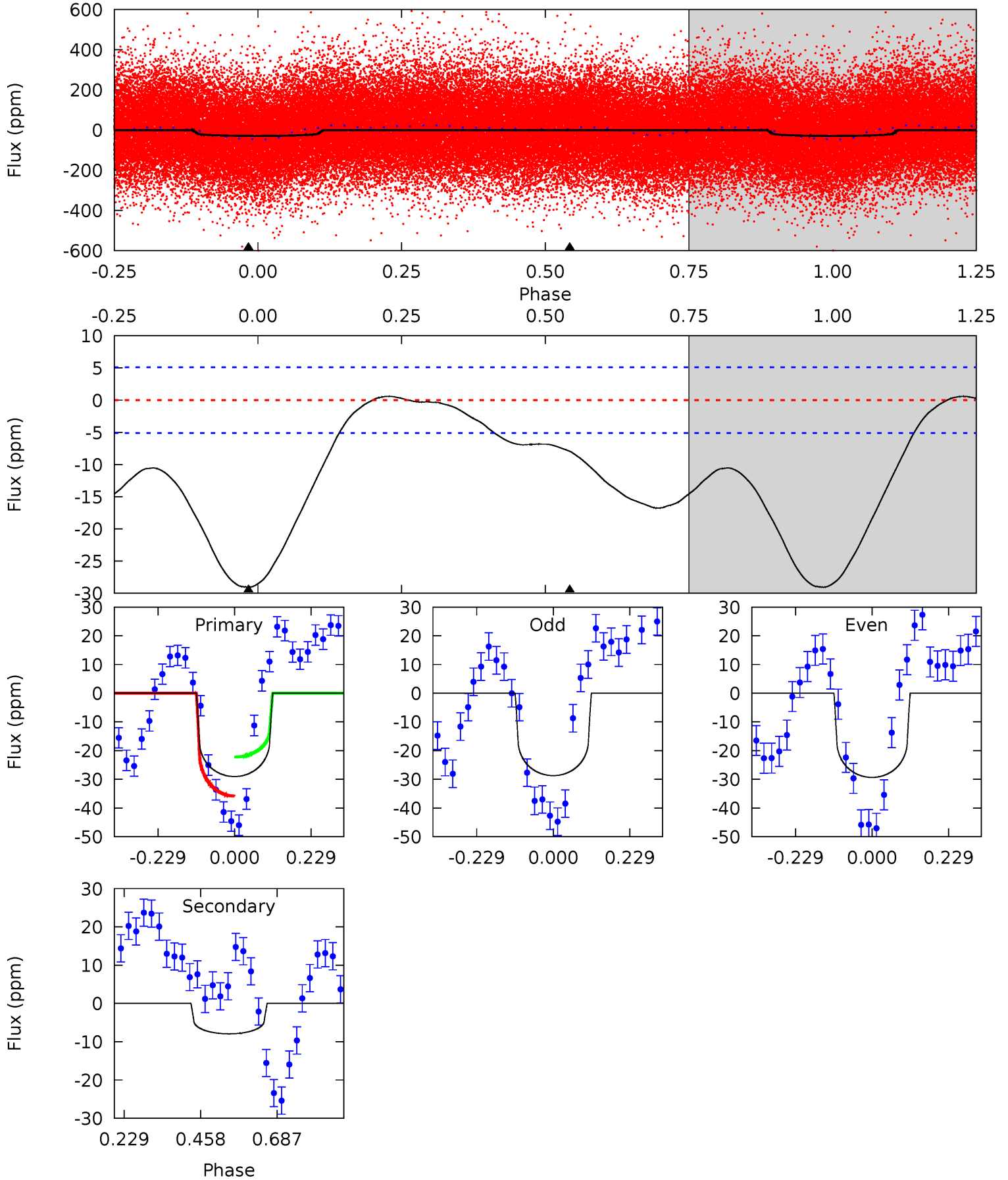
TCE 007685010-01 P= 2.150341 Days $T_0=131.935349$ (BKJD)



DV Model-Shift Uniqueness Test

007685010-01, P = 2.150345 Days, E = 129.777365 Days

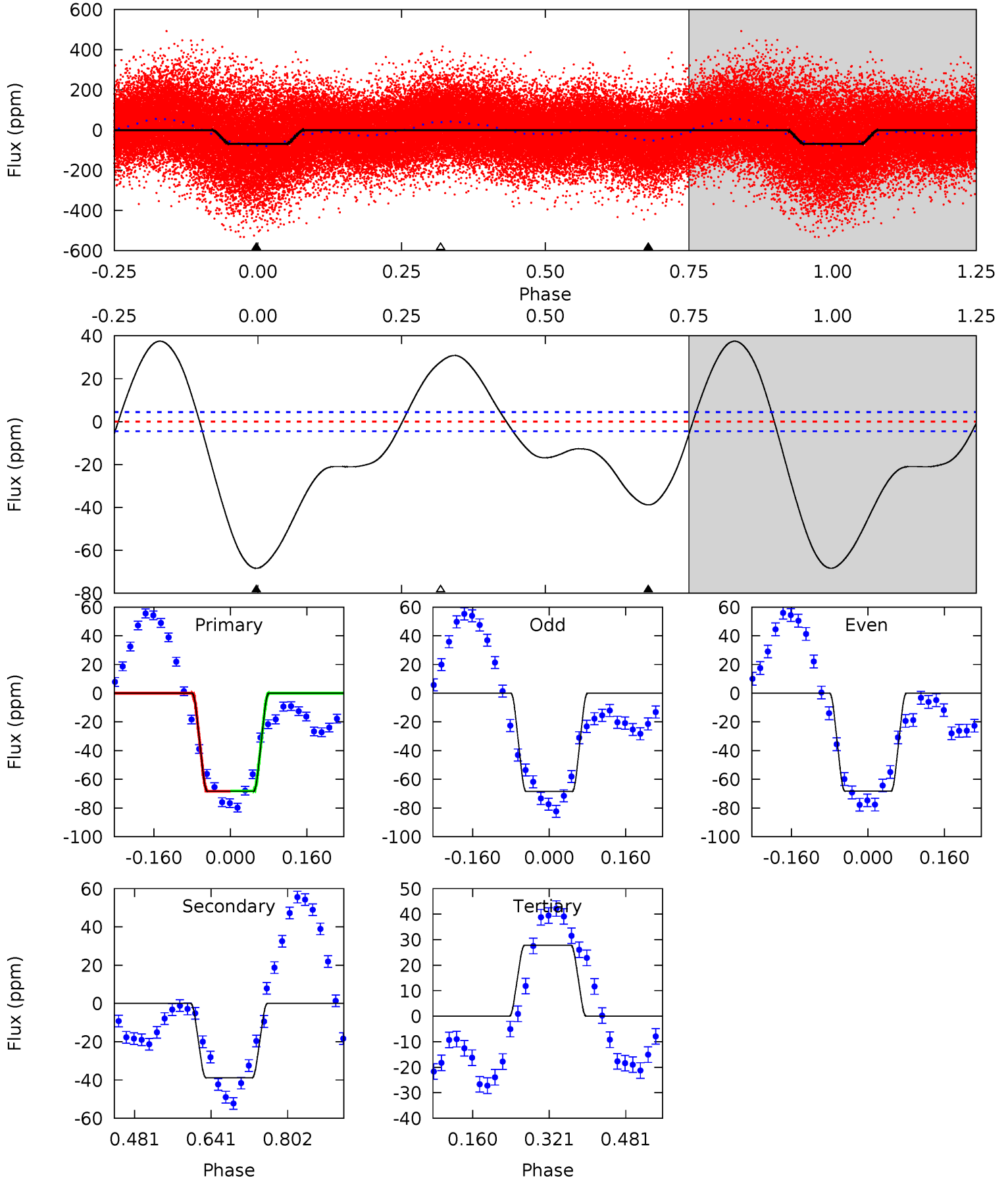
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.0	6.82	0	0	4.39	1.20	0.31	25.0	25.0	6.82	6.82	0.27	1.05	0.02	6.04



Alt Model-Shift Uniqueness Test

007685010-01, P = 2.150341 Days, E = 129.785008 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
68.1	38.7	-27.7	0	4.46	1.40	18.2	95.8	68.1	66.4	38.7	0.14	0.94	0.35	0.11



Stellar Parameters For KIC 007685010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6502^{+155}_{-175}	$3.974^{+0.241}_{-0.130}$	$-0.020^{+0.250}_{-0.250}$	$2.049^{+0.477}_{-0.636}$	$1.444^{+0.159}_{-0.273}$	$0.236^{+0.361}_{-0.094}$
	+2%/-3%	+6%/-3%	+1250%/-1250%	+23%/-31%	+11%/-19%	+153%/-40%
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 007685010-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-8 ± 1	$0.82^{+0.26}_{-0.26}$	2958^{+192}_{-236}	5576^{+1007}_{-636}	$8.911^{+9.189}_{-3.983}$
Alt.	-39 ± 1	$1.92^{+0.40}_{-0.37}$	2971^{+184}_{-236}	5423^{+354}_{-287}	$7.732^{+3.729}_{-2.274}$

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 $A_{obs} \gg 1.0$

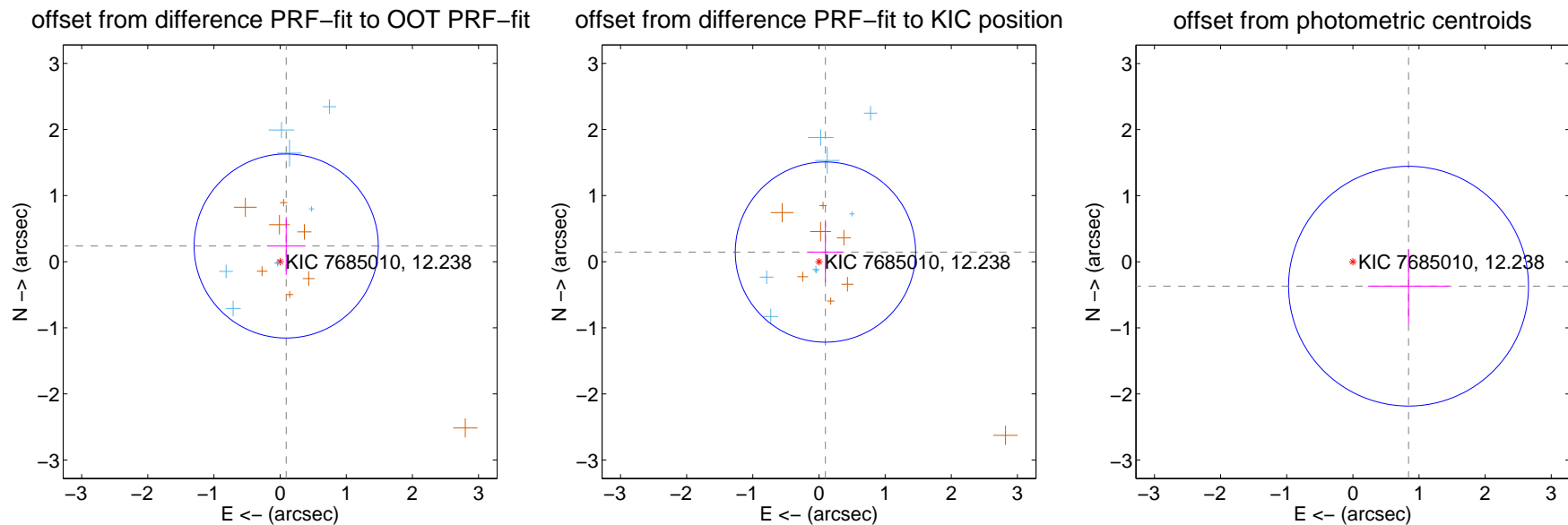
DV Centroid Data

Supplemental centroid analysis for 007685010-01. Kepler magnitude: 12.24. Transit SNR 6.30

There are 8 quarters with good PRF difference image offsets

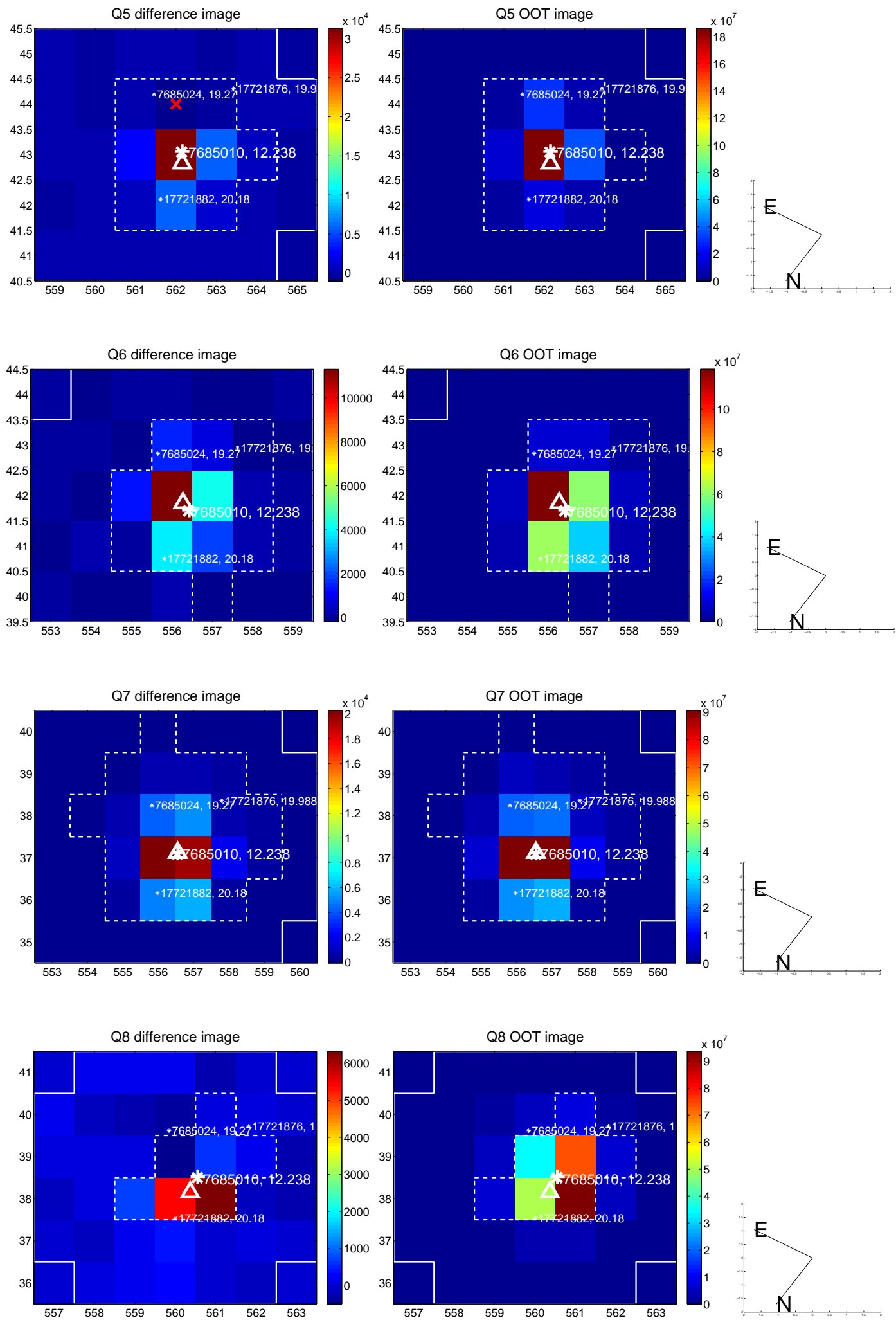
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.255 ± 0.464	0.55	-0.092 ± 0.290	0.238 ± 0.437
PRF-fit source offset from KIC position	0.176 ± 0.454	0.39	-0.098 ± 0.261	0.146 ± 0.456
photometric centroid source offset	0.92 ± 0.60	1.52	-0.84 ± 0.61	-0.37 ± 0.56

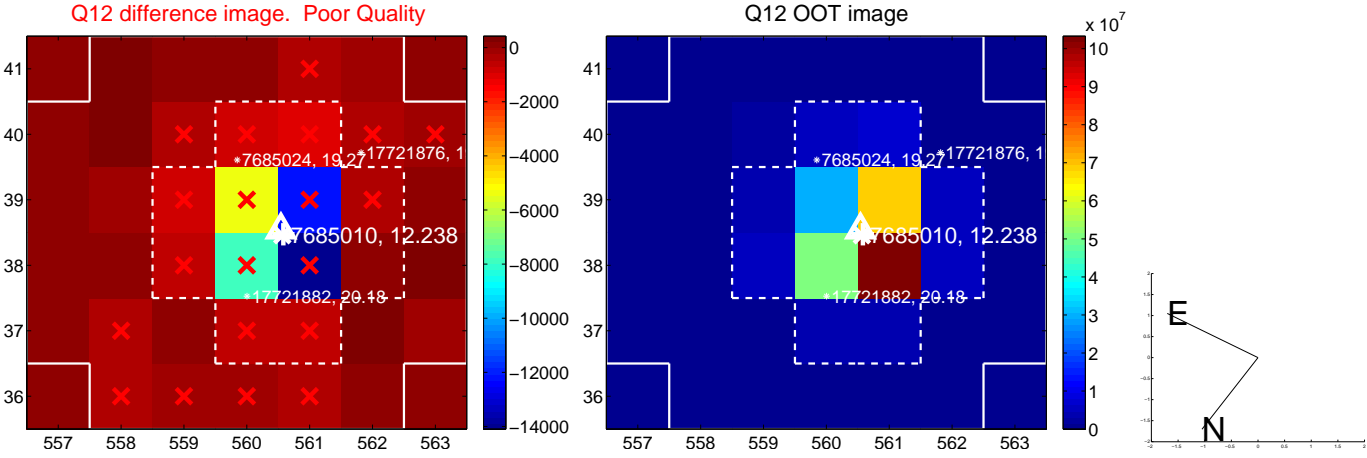
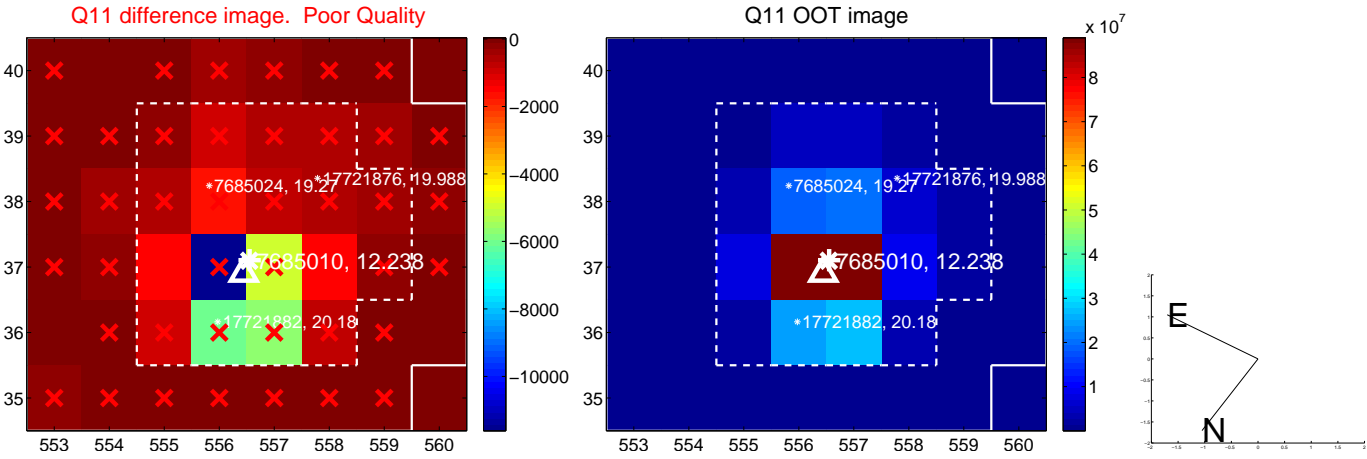
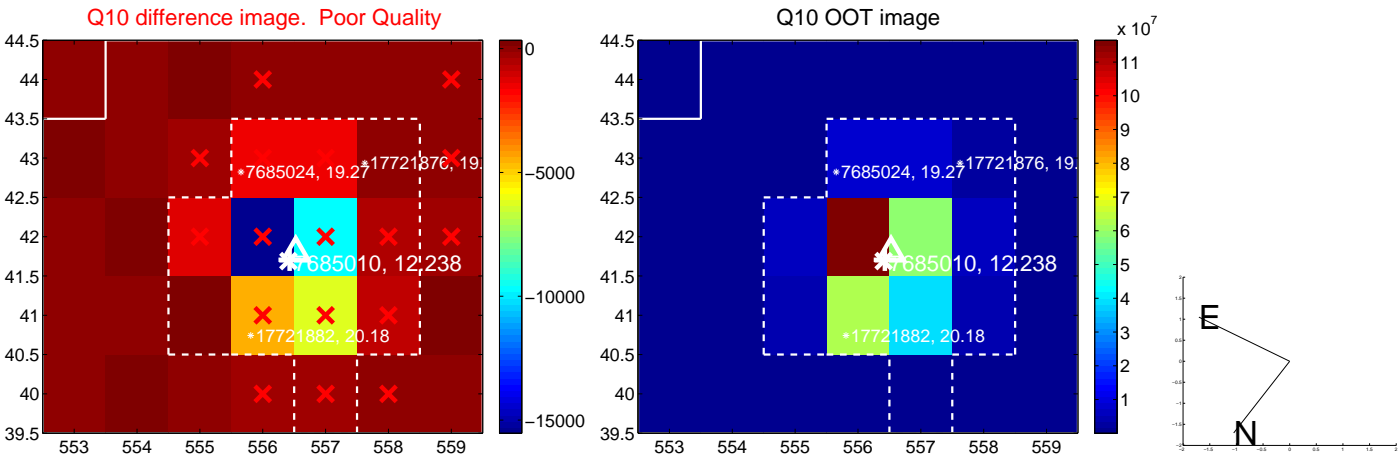
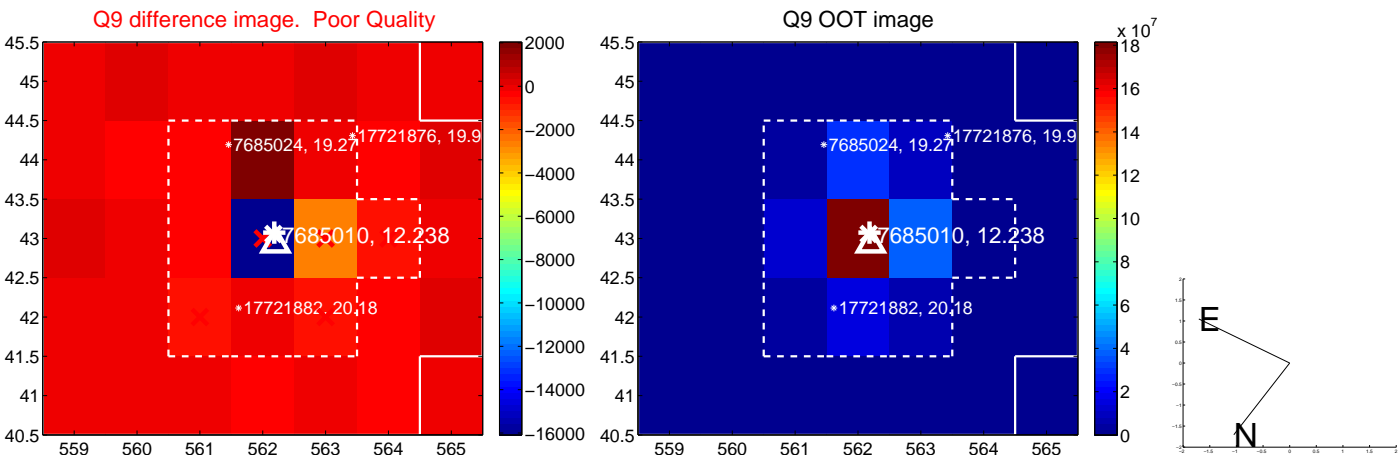


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

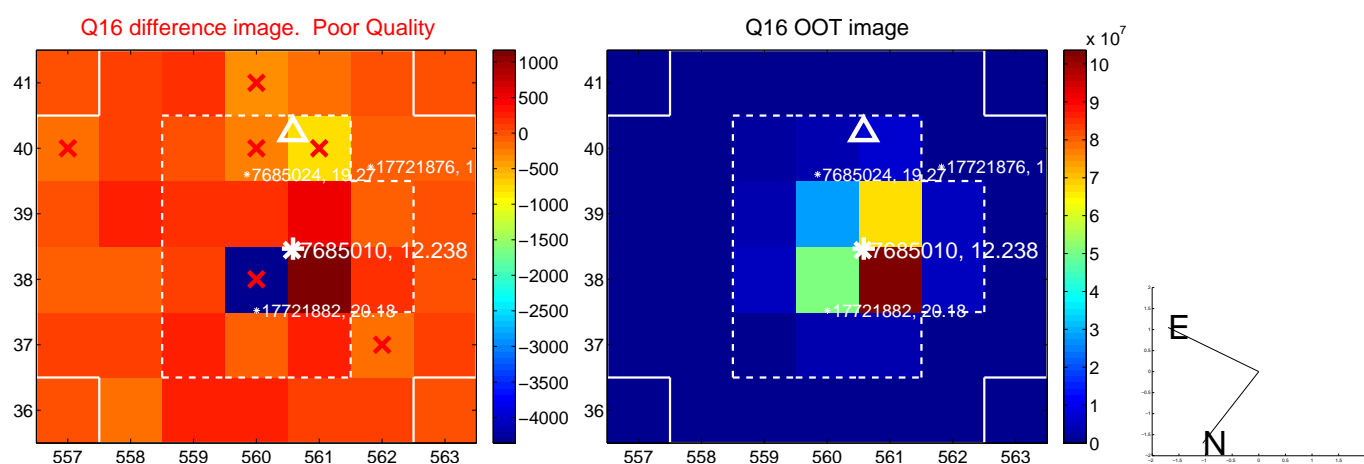
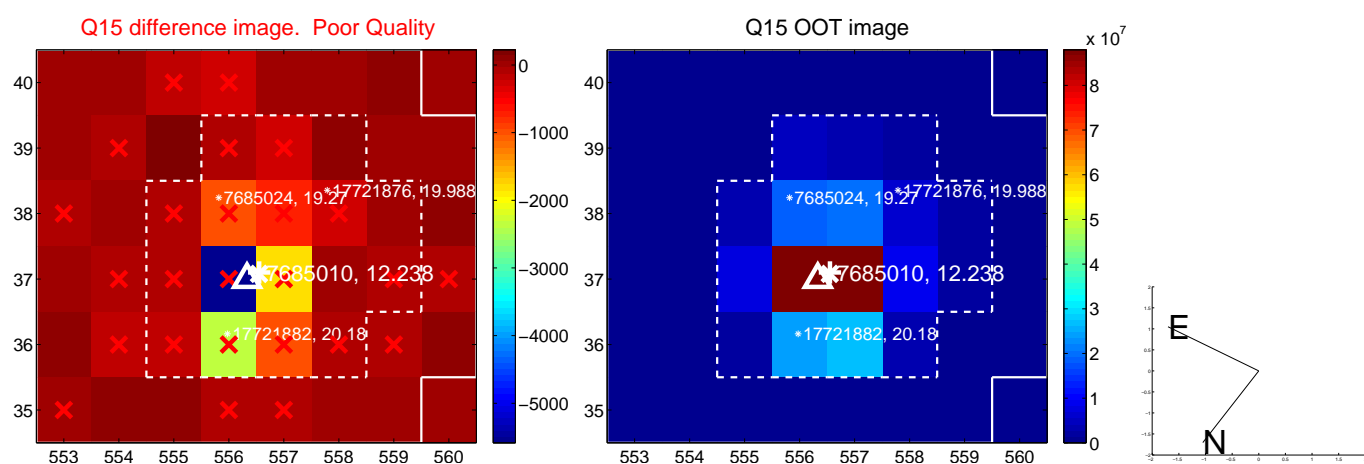
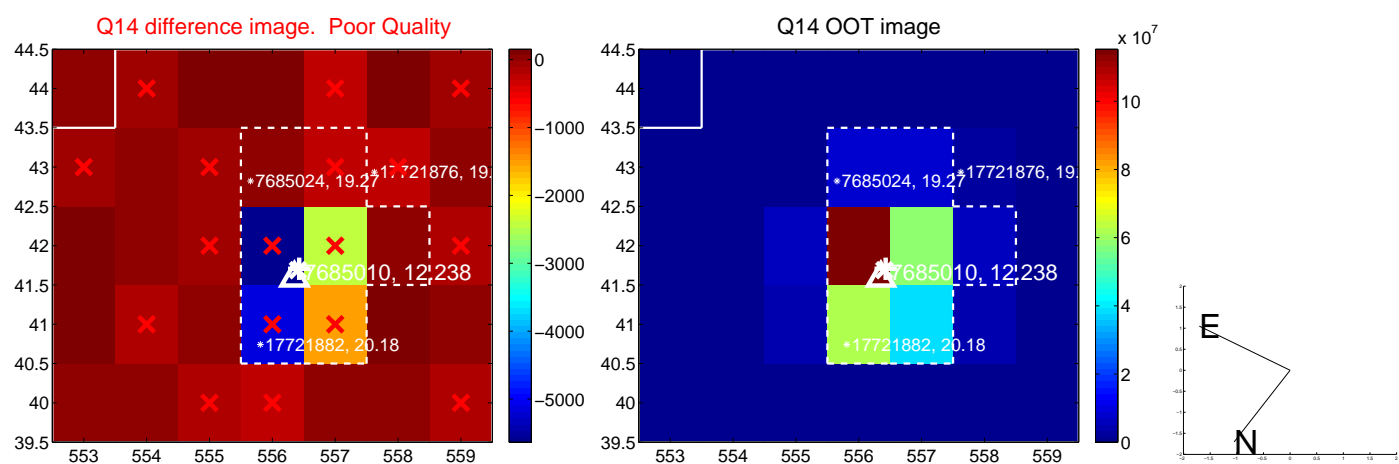
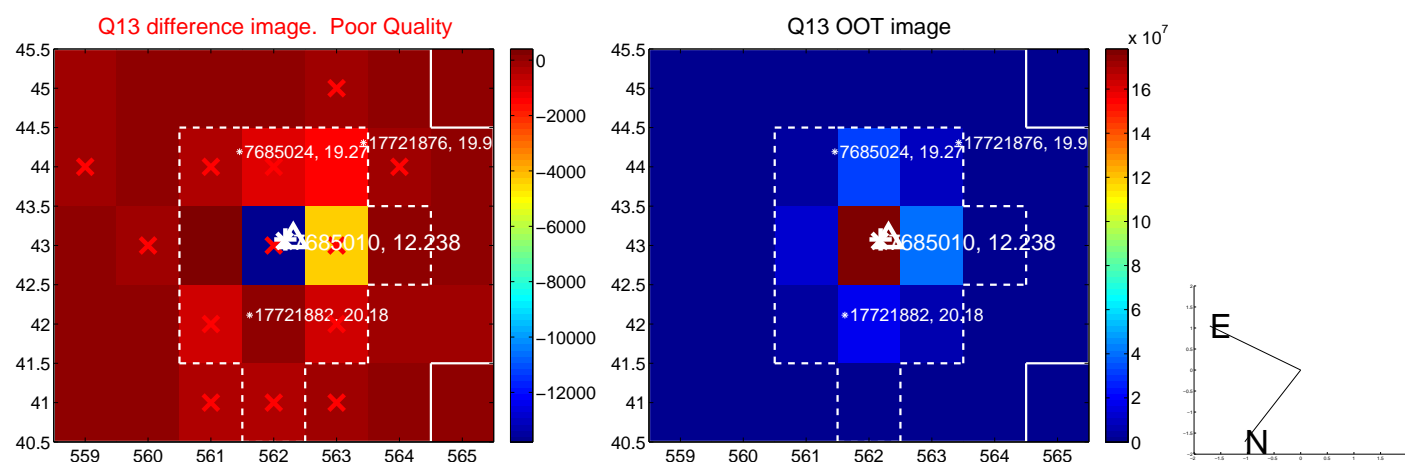
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



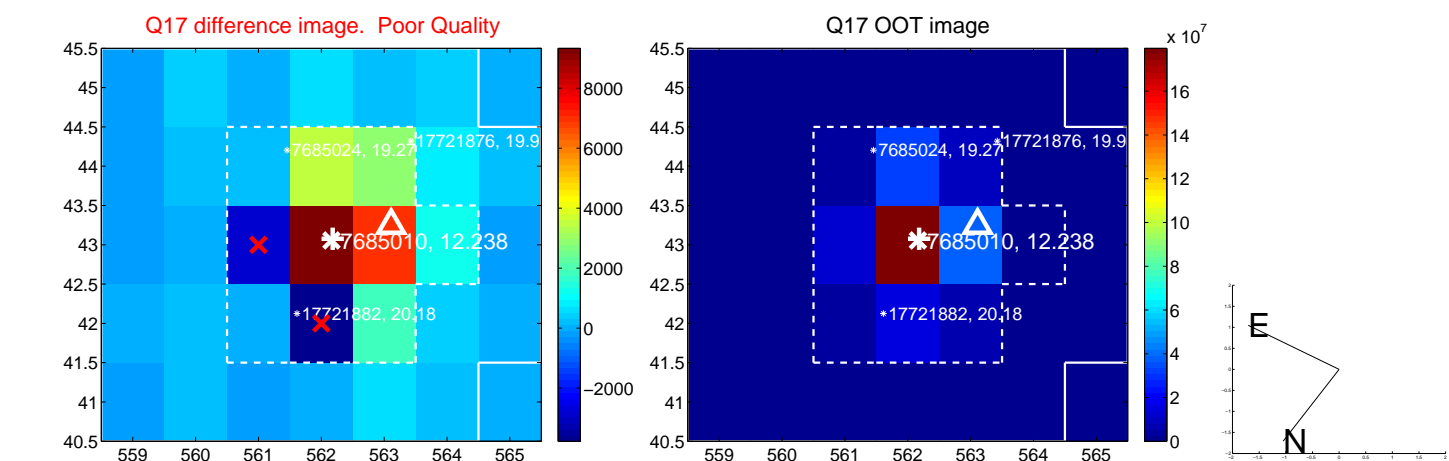
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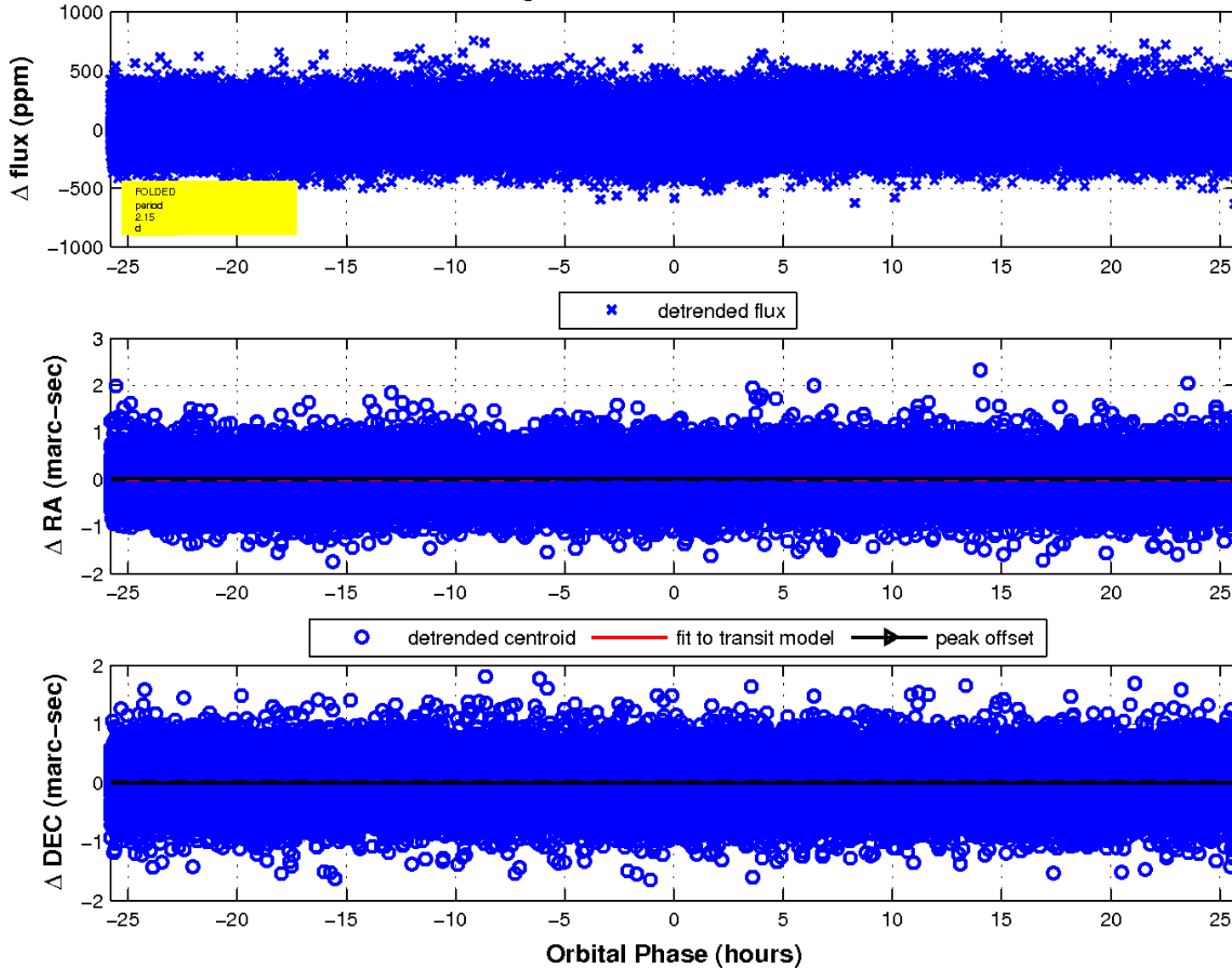
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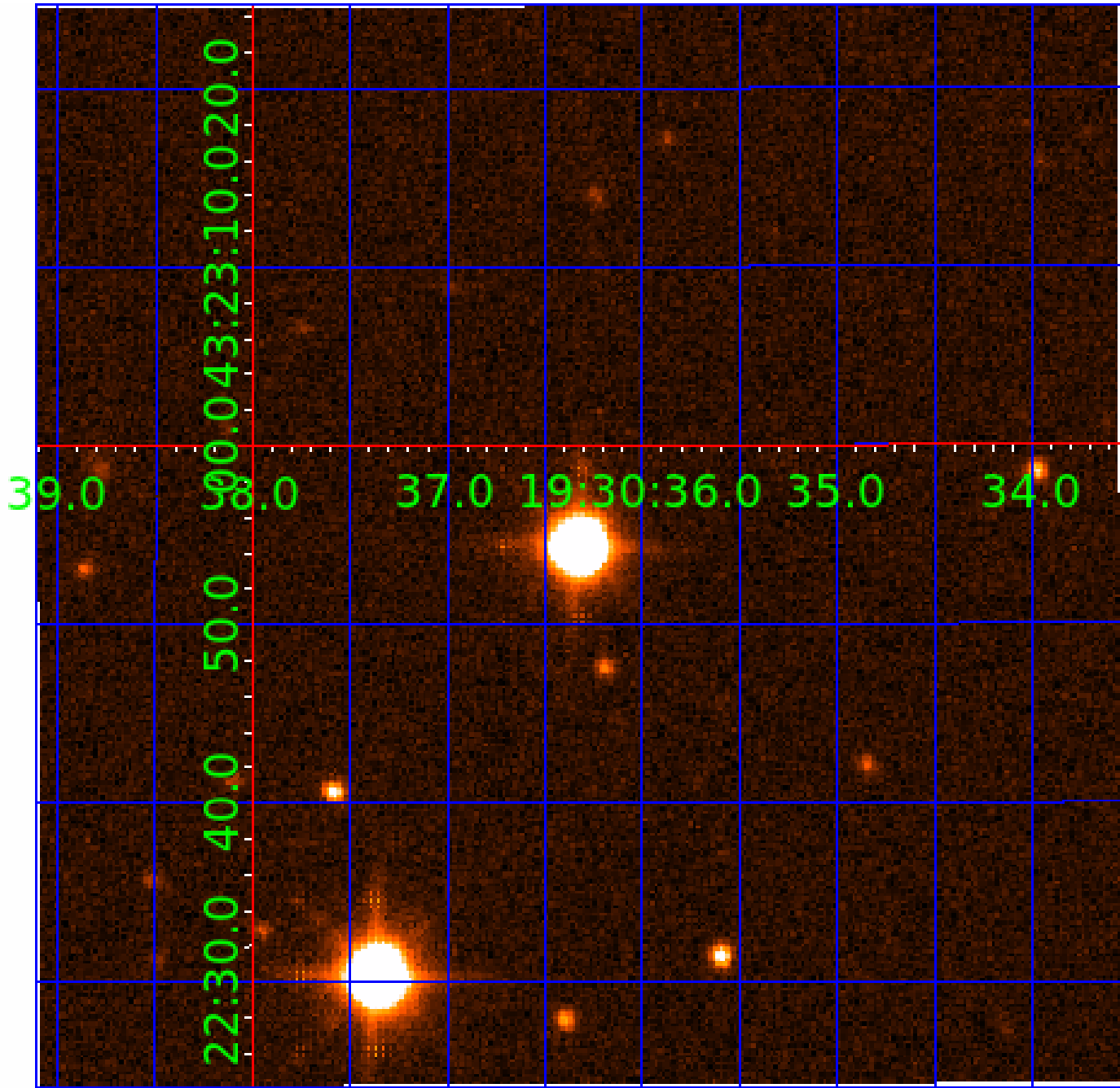


fluxWeightedCentroids, Planet 1 of 9



UKIRT Image

Declination



KIC 007685010

Q1-17 DR25 TCE Parameters

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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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007685010-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007685010-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
007685010-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007685010-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

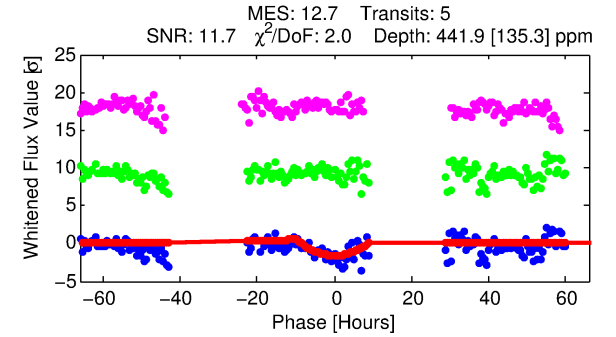
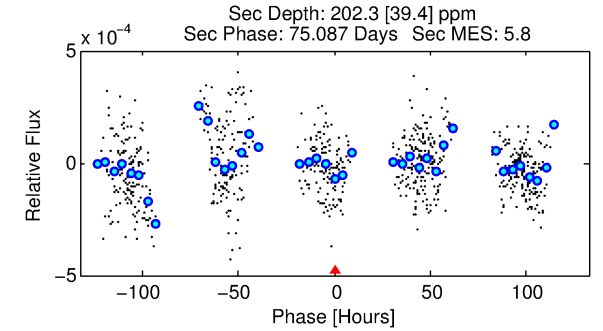
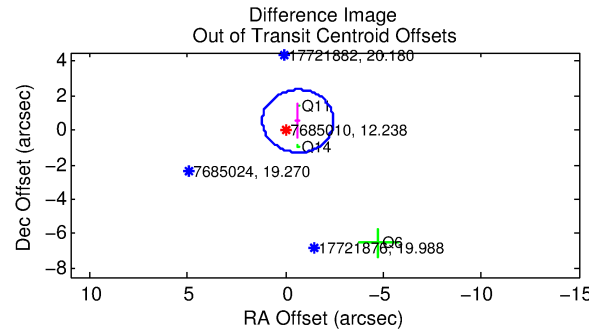
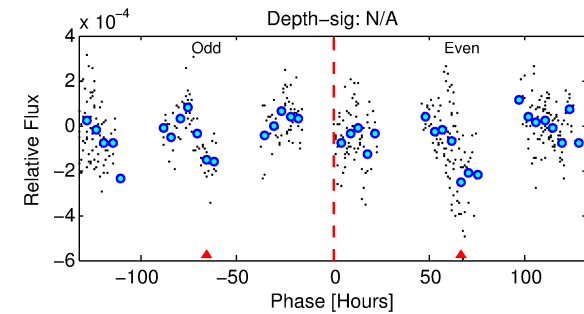
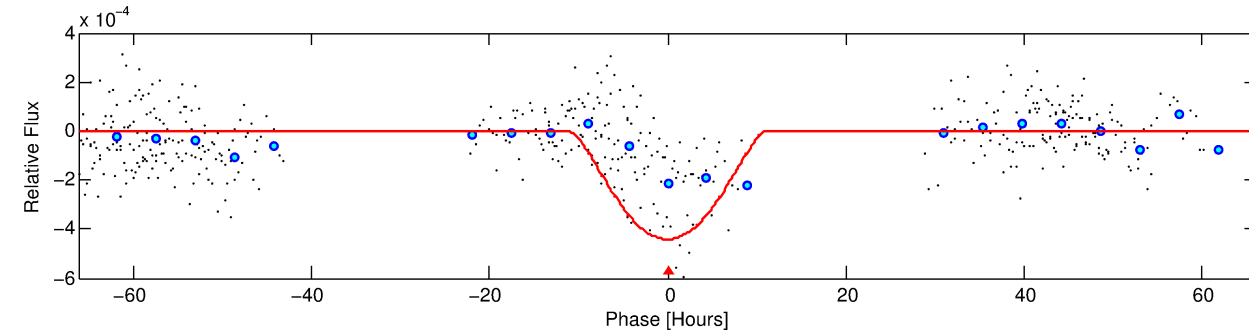
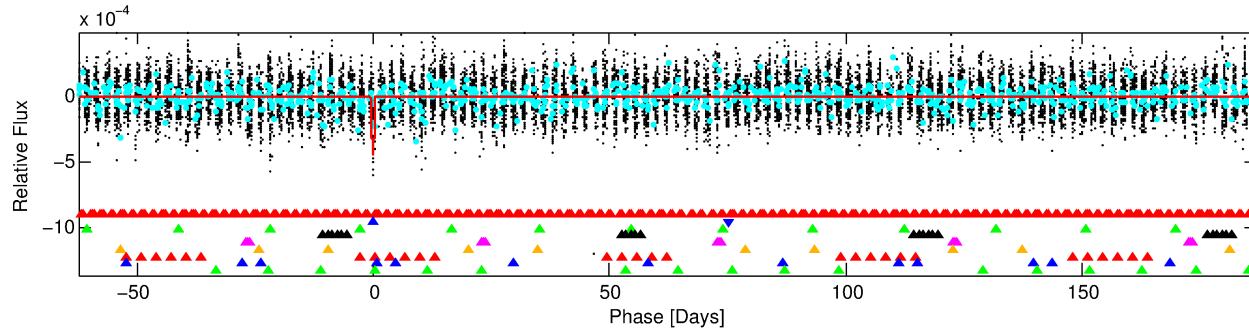
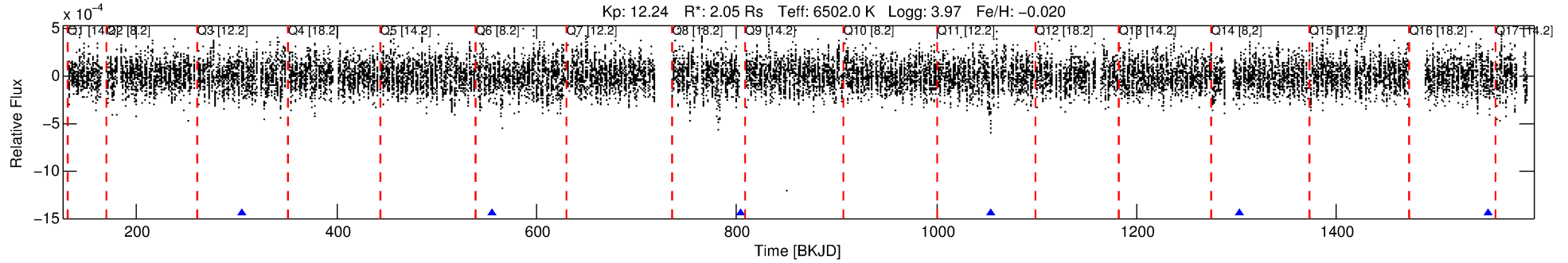
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007685010-02

No Significant Match Found

DV One-Page Summary

KIC: 7685010 Candidate: 2 of 9 Period: 249.318 d



DV Fit Results:

Period = 249.31833 [0.01774] d
Epoch = 305.6272 [0.0756] BKJD
Rp/R* = 0.0372 [0.0769]
a/R* = 23.83 [12.88]
b = 1.00 [0.12]
Seff = 8.76 [3.83]
Teq = 439 [48] K
Rp = 8.32 [17.38] Re
a = 0.8761 [0.2432] AU
Ag = 1235.26 [5137.49] [0.24σ]
Teffp = 4021 [4160] K [0.86σ]

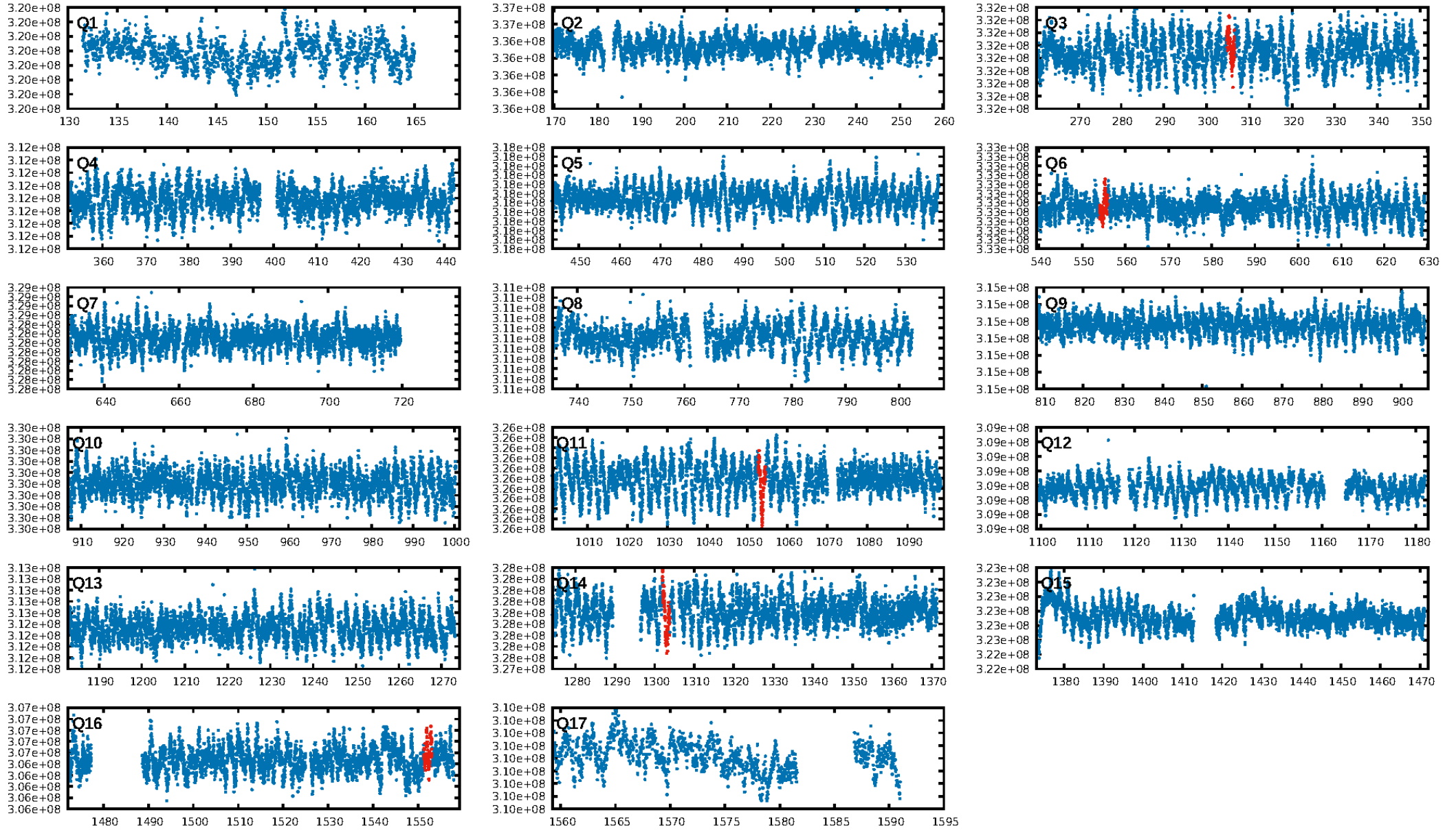
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.31σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.17e-15
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 0.2046
Centroid-sig: 11.3%
Centroid-so: 0.303 arcsec [0.97σ]
OotOffset-rm: 0.822 arcsec [1.36σ]
KicOffset-rm: 0.795 arcsec [1.41σ]
OotOffset-st: 2/1/0/0 [3]
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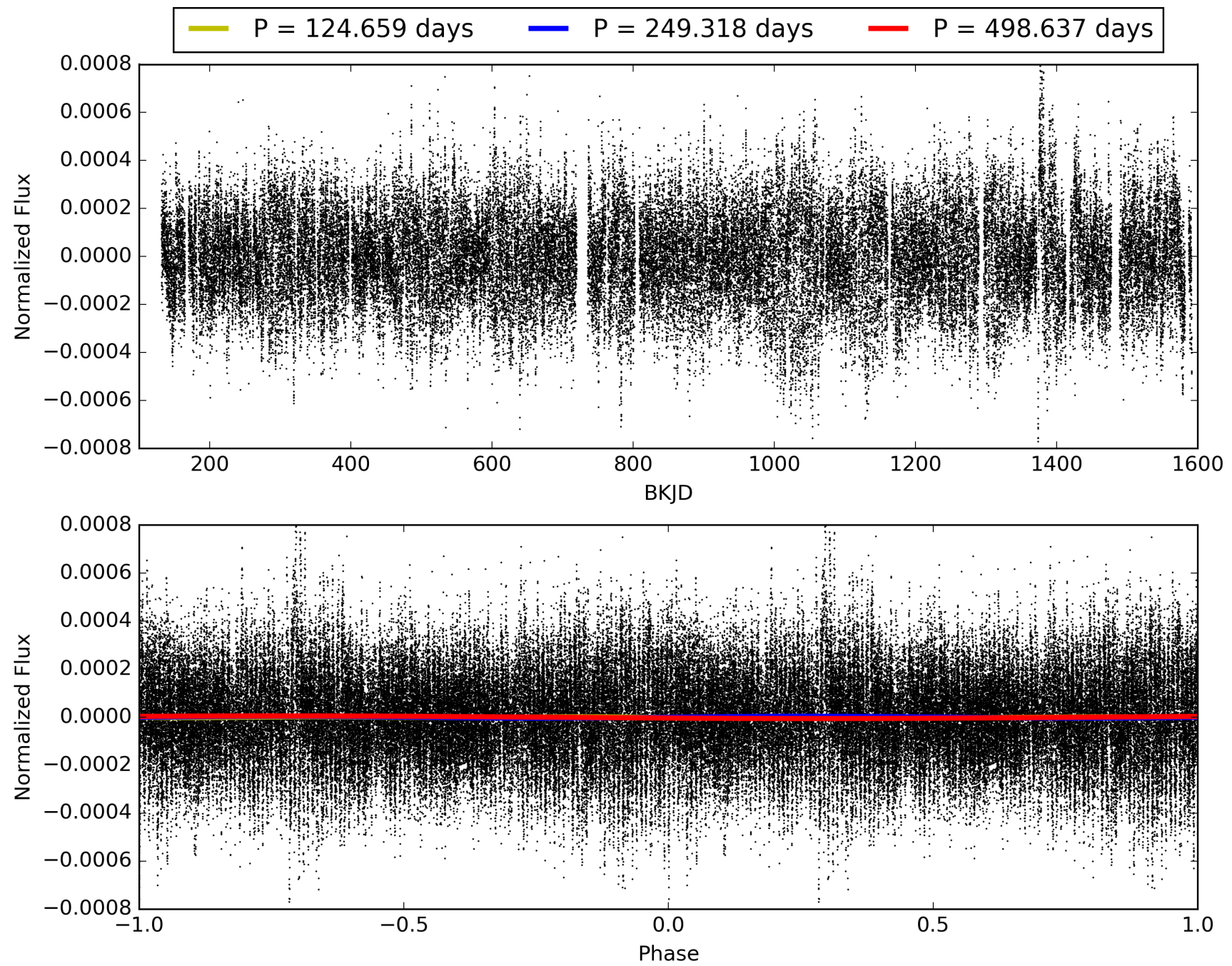
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007685010-02, PDC Light Curves

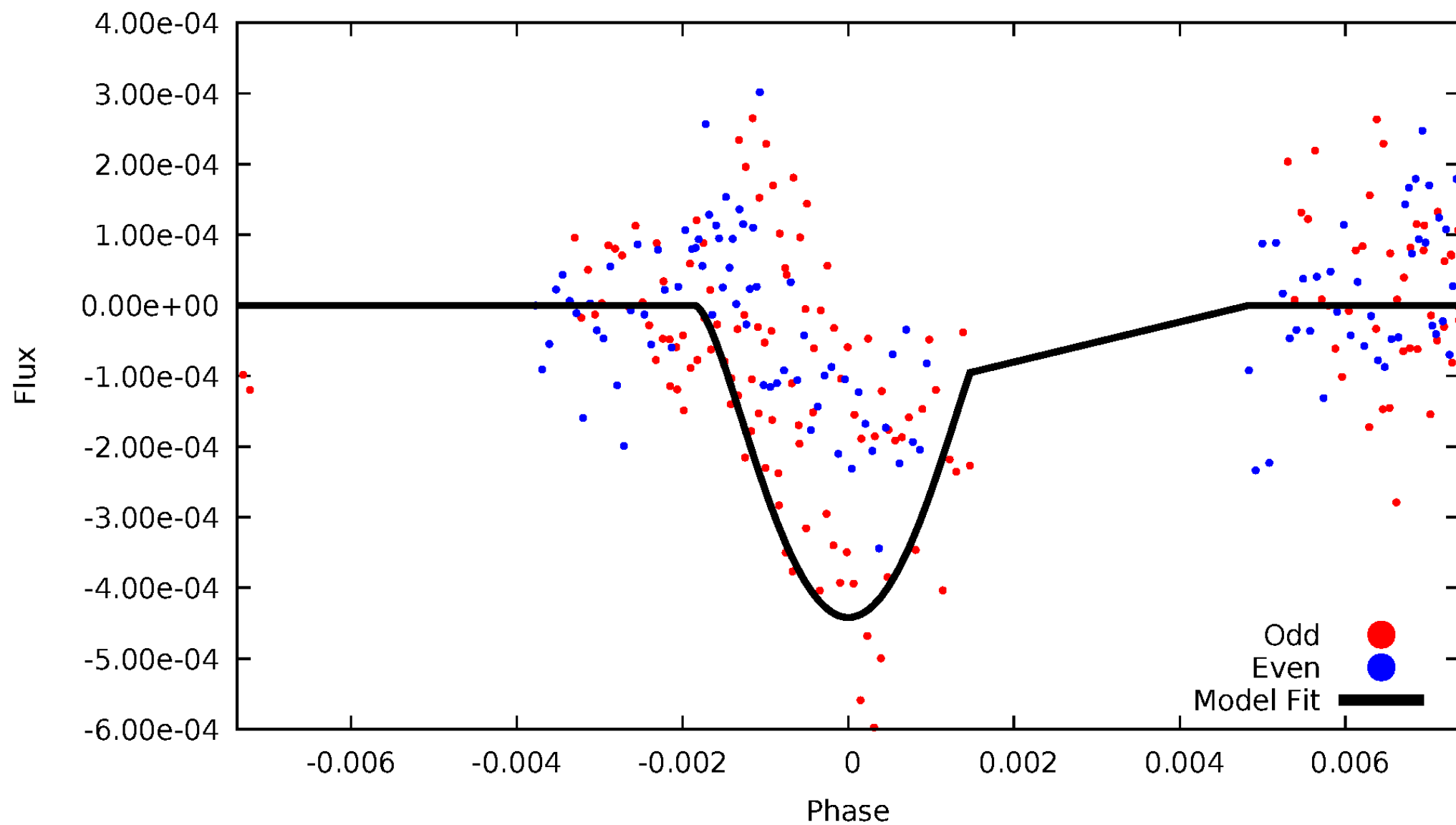


TCE 007685010-02



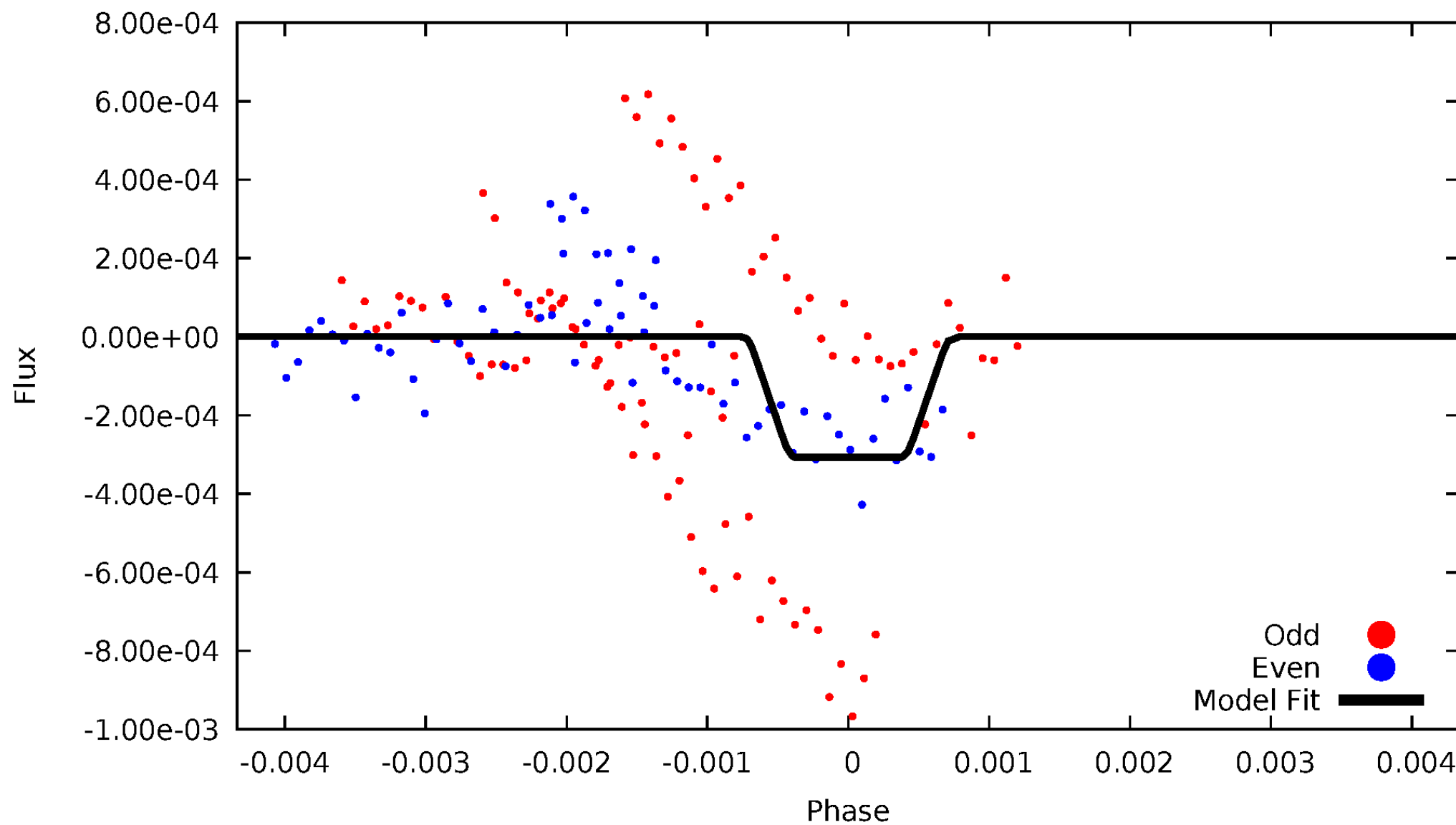
DV Odd/Even

TCE 007685010-02



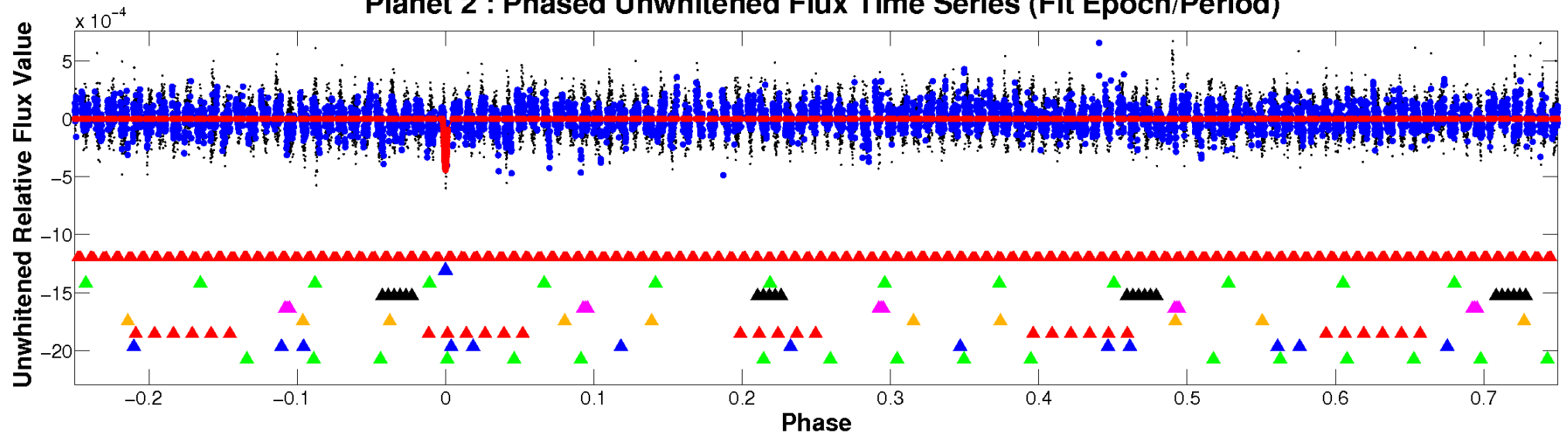
ALT Odd/Even

TCE 007685010-02

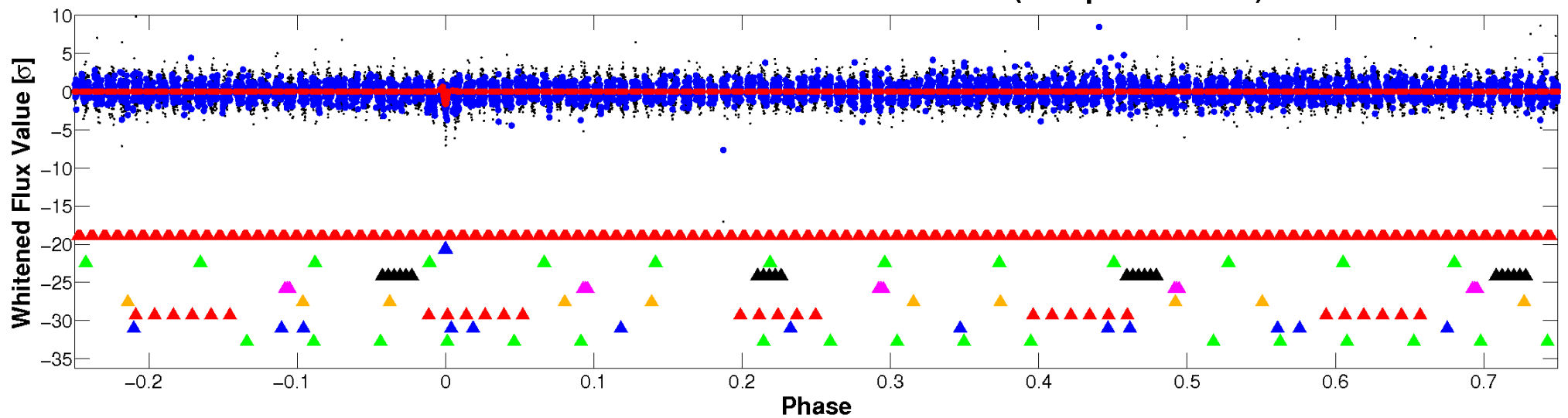


Non-Whitened Vs. Whitened Light Curve

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

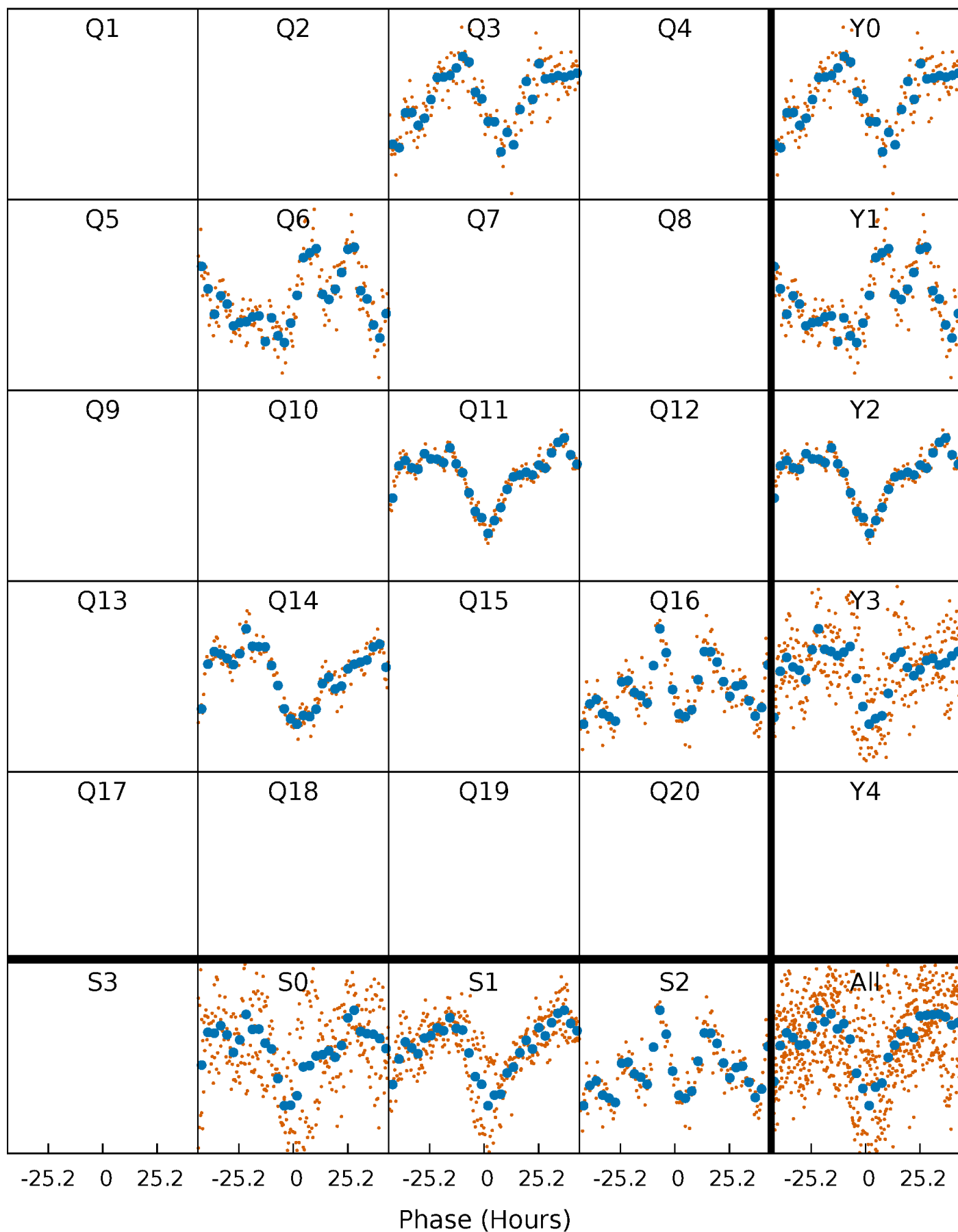


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



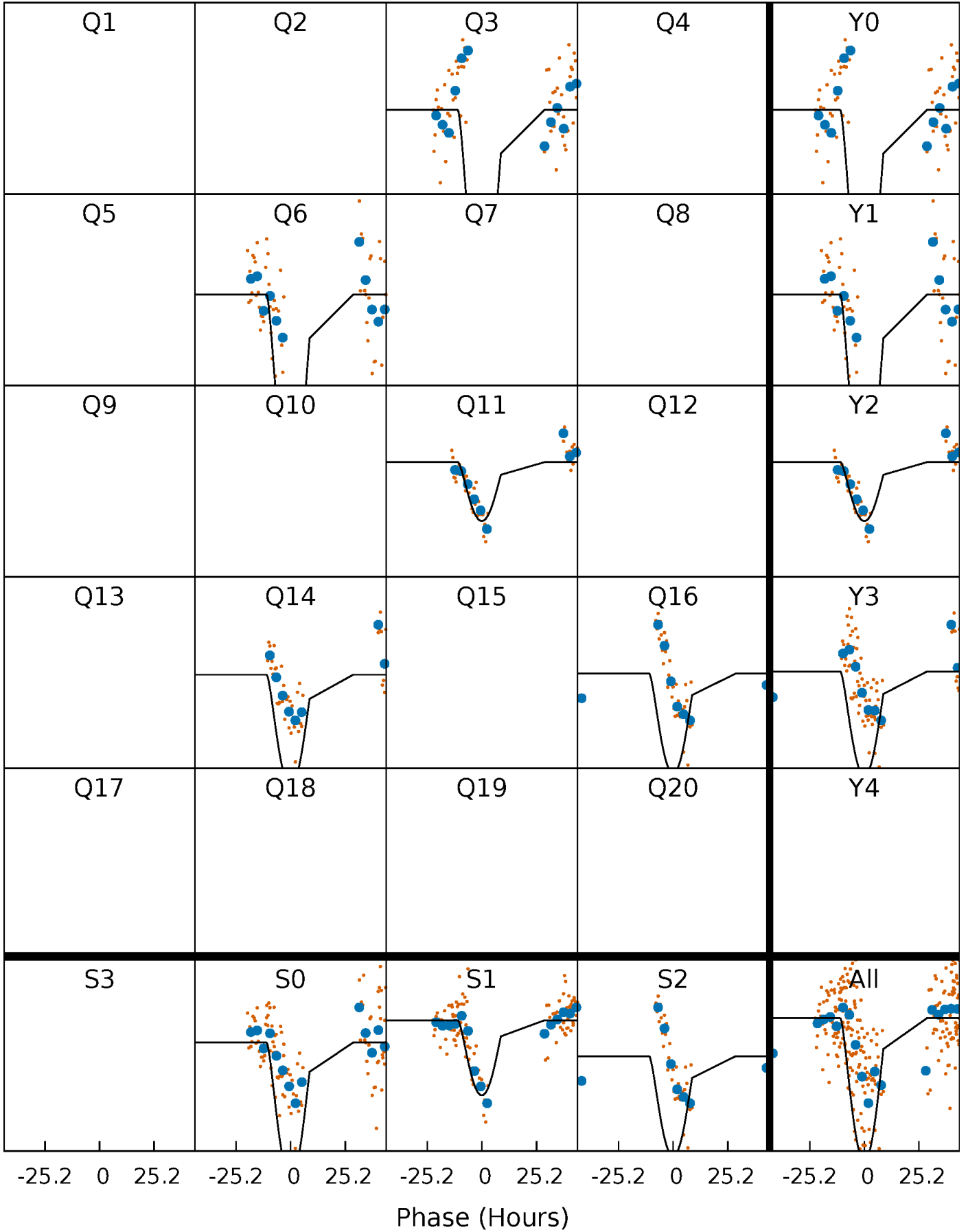
PDC Quarter-Phased Transit Curves

TCE 007685010-02 P=249.318333 Days $T_0=305.627181$ (BKJD)



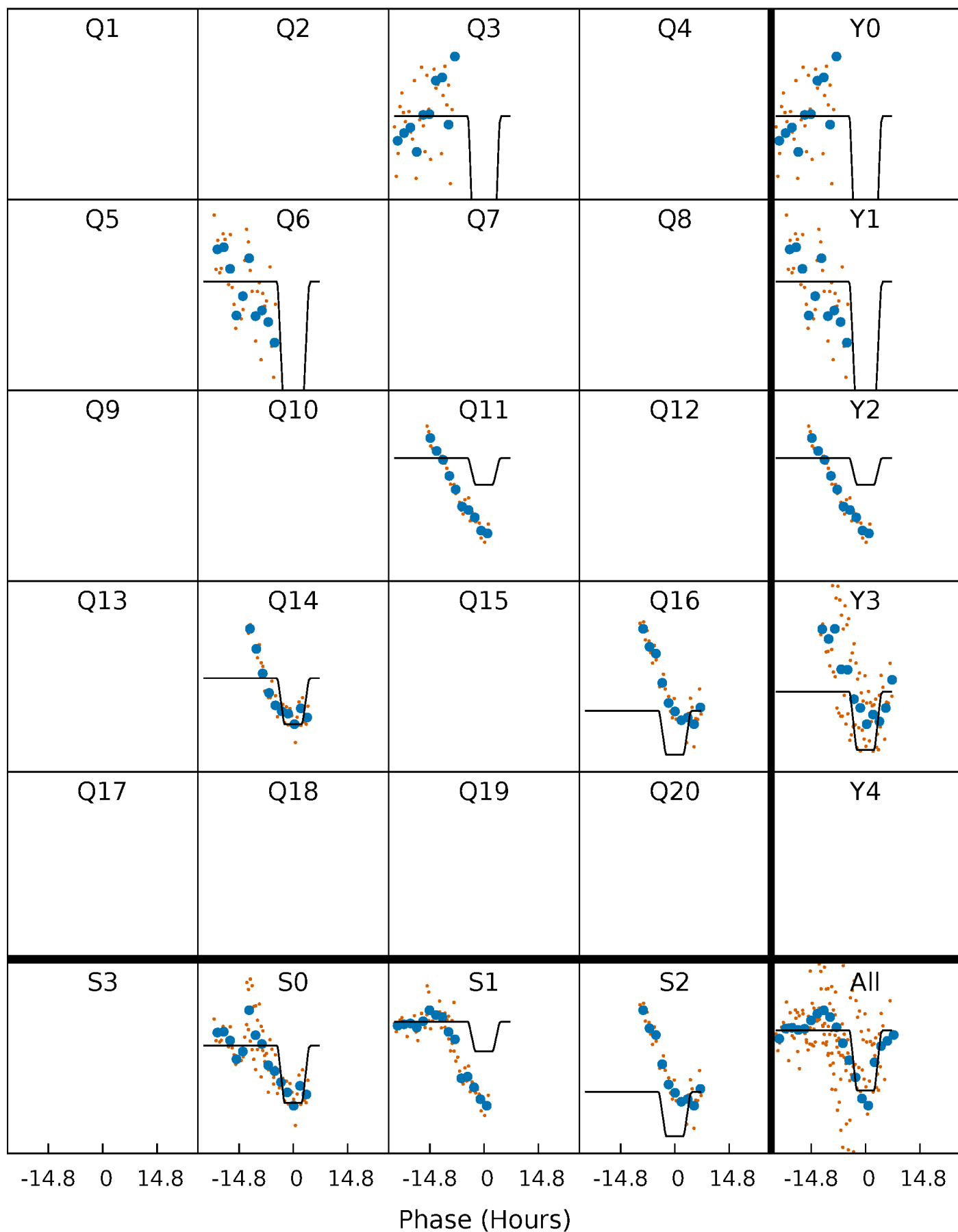
DV Quarter-Phased Transit Curves

TCE 007685010-02 P=249.318333 Days $T_0=305.627181$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

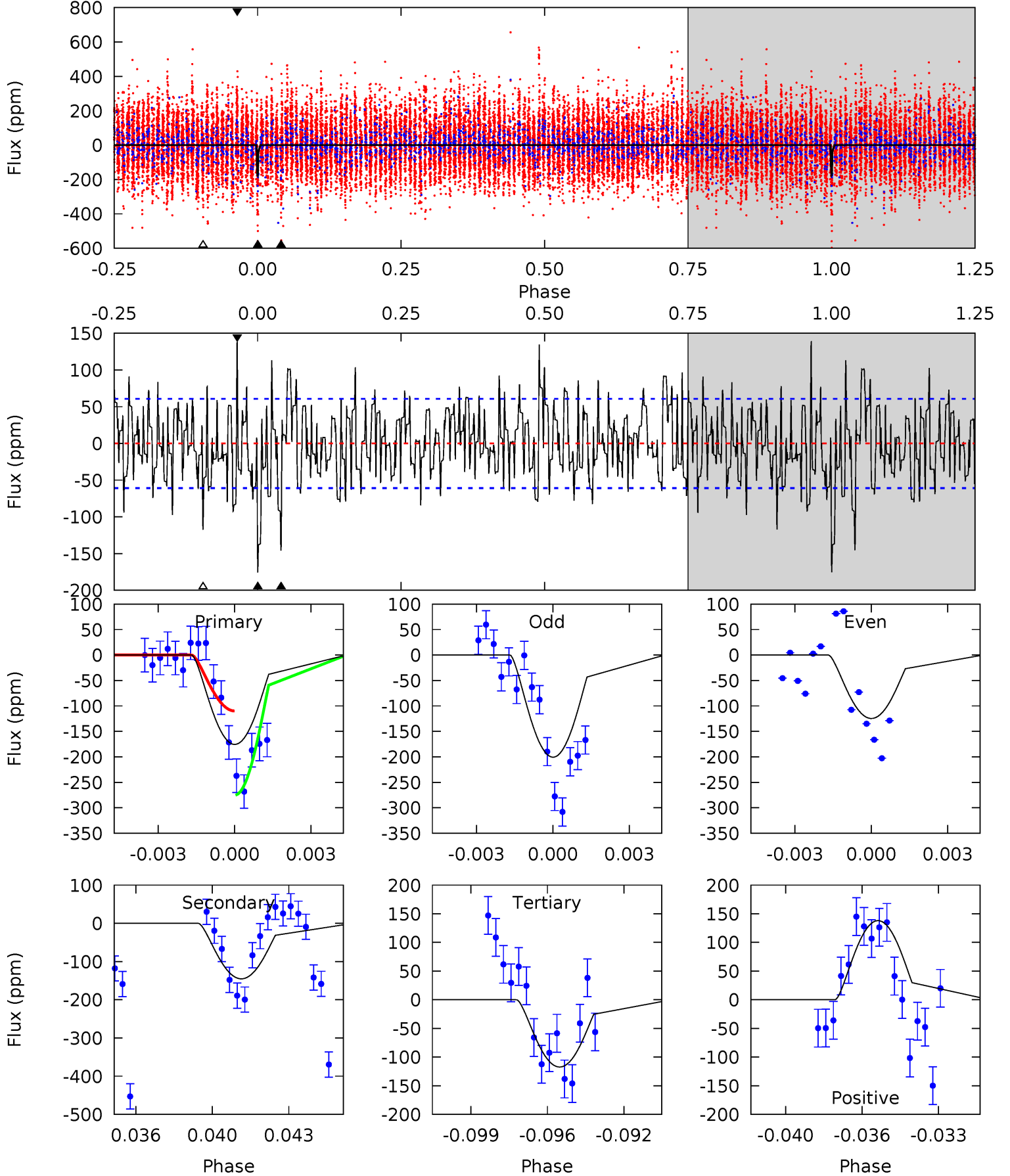
TCE 007685010-02 P=249.316677 Days $T_0=305.702038$ (BKJD)



DV Model-Shift Uniqueness Test

007685010-02, $P = 249.318333$ Days, $E = 56.308848$ Days

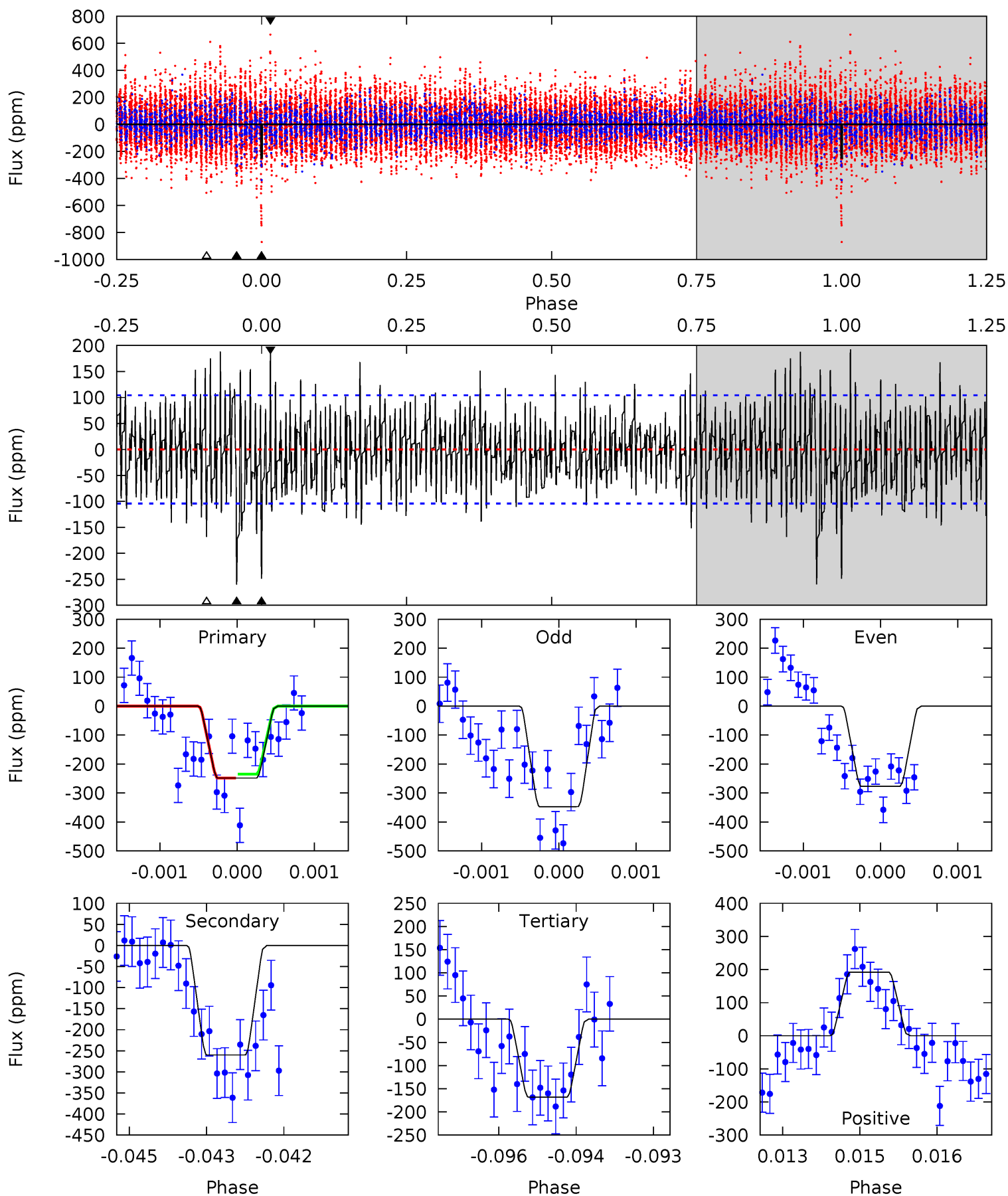
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	12.5	10.1	11.9	5.24	2.94	3.48	5.01	3.23	2.40	0.61	3.14	0.64	0.44	6.40



Alt Model-Shift Uniqueness Test

007685010-02, P = 249.316677 Days, E = 56.385361 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	13.4	8.67	9.92	5.38	3.17	2.96	4.15	2.91	4.74	3.49	1.83	1.33	0.43	0.34



Stellar Parameters For KIC 007685010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6502^{+155}_{-175}	$3.974^{+0.241}_{-0.130}$	$-0.020^{+0.250}_{-0.250}$	$2.049^{+0.477}_{-0.636}$	$1.444^{+0.159}_{-0.273}$	$0.236^{+0.361}_{-0.094}$
	+2%/-3%	+6%/-3%	+1250%/-1250%	+23%/-31%	+11%/-19%	+153%/-40%
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 007685010-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-145 ± 12	$14.88^{+13.78}_{-9.84}$	607^{+34}_{-44}	3252^{+1520}_{-520}	264^{+2137}_{-190}
Alt.	-260 ± 19	$13.14^{+13.22}_{-8.94}$	608^{+40}_{-48}	3771^{+2150}_{-744}	627^{+5978}_{-465}

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

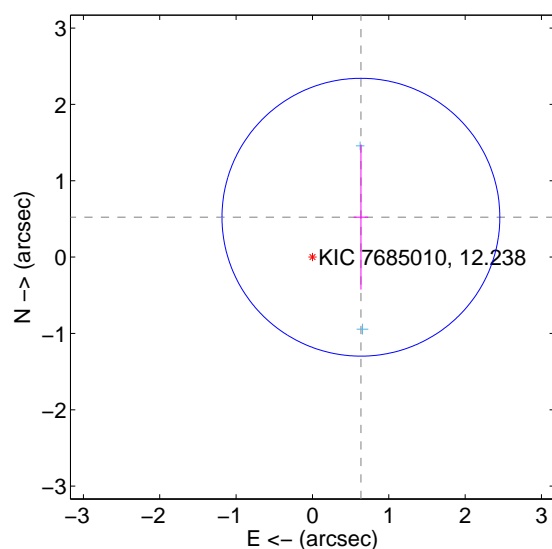
Supplemental centroid analysis for 007685010-02. Kepler magnitude: 12.24. Transit SNR 11.68

There are 2 quarters with good PRF difference image offsets

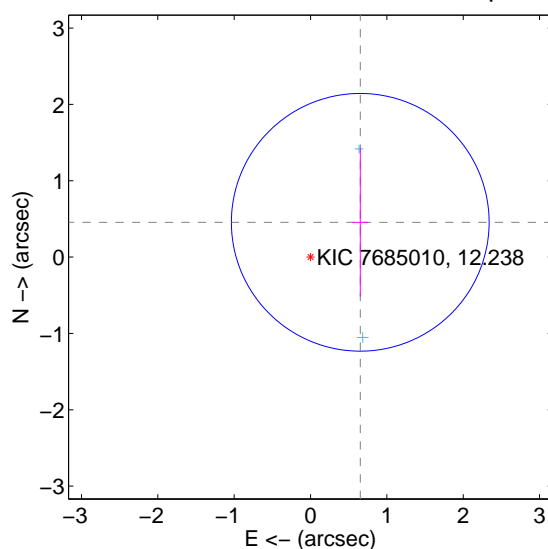
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.822 ± 0.606	1.36	-0.635 ± 0.095	0.522 ± 0.948
PRF-fit source offset from KIC position	0.795 ± 0.563	1.41	-0.651 ± 0.097	0.456 ± 0.971
photometric centroid source offset	0.30 ± 0.31	0.97	0.02 ± 0.30	0.30 ± 0.31

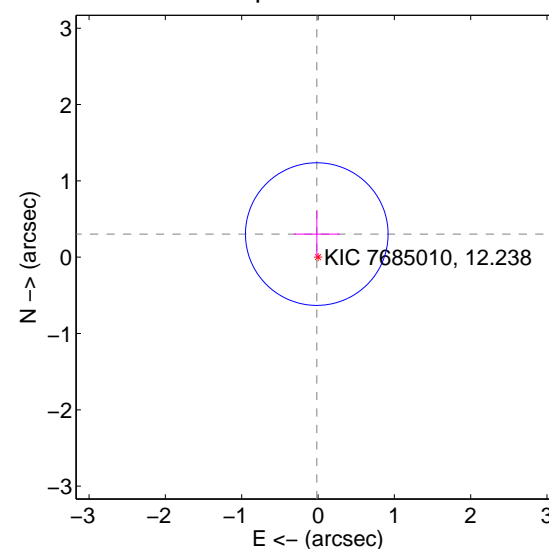
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

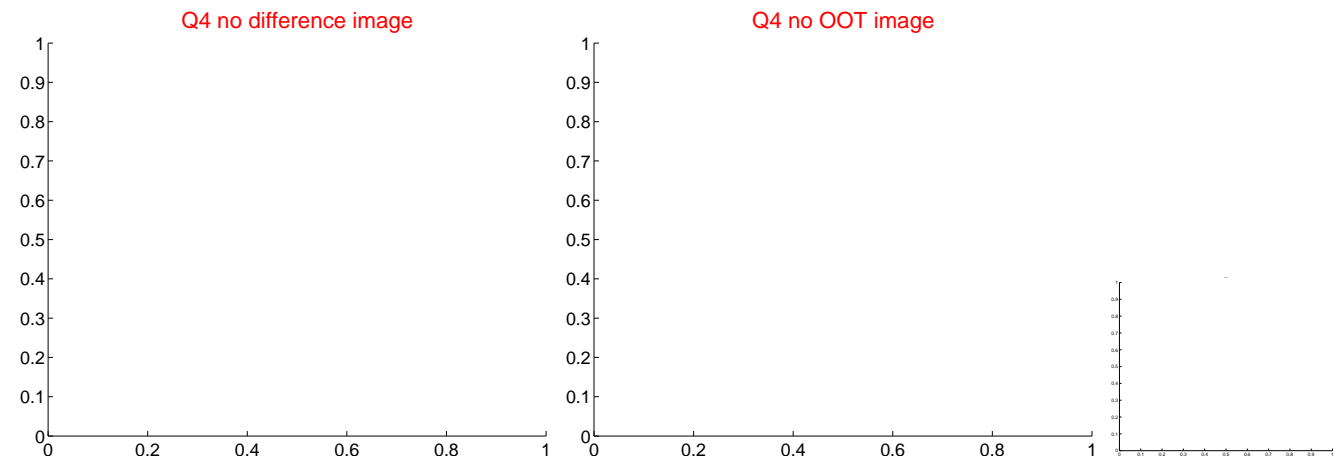
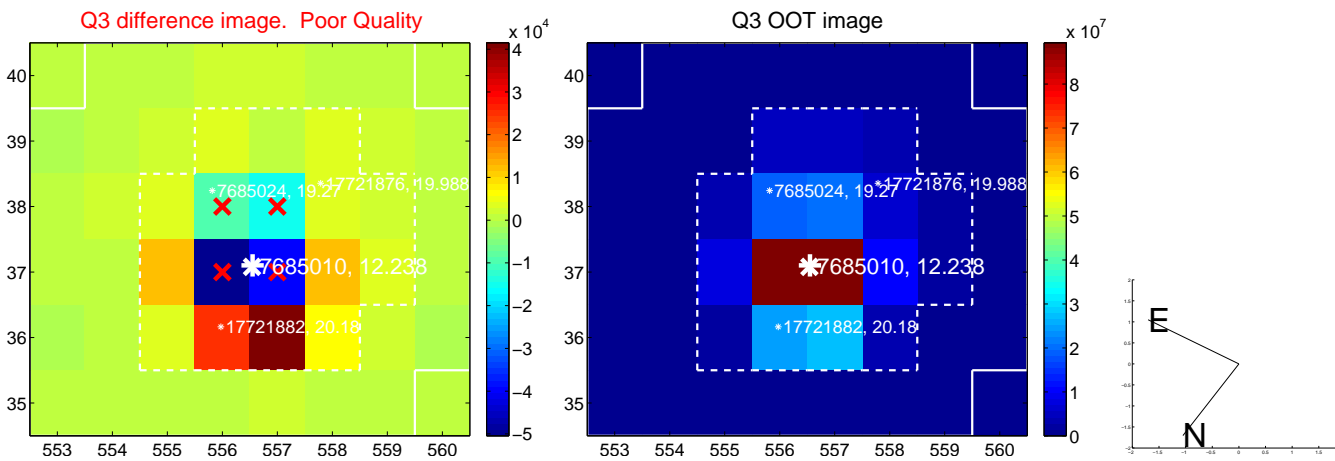
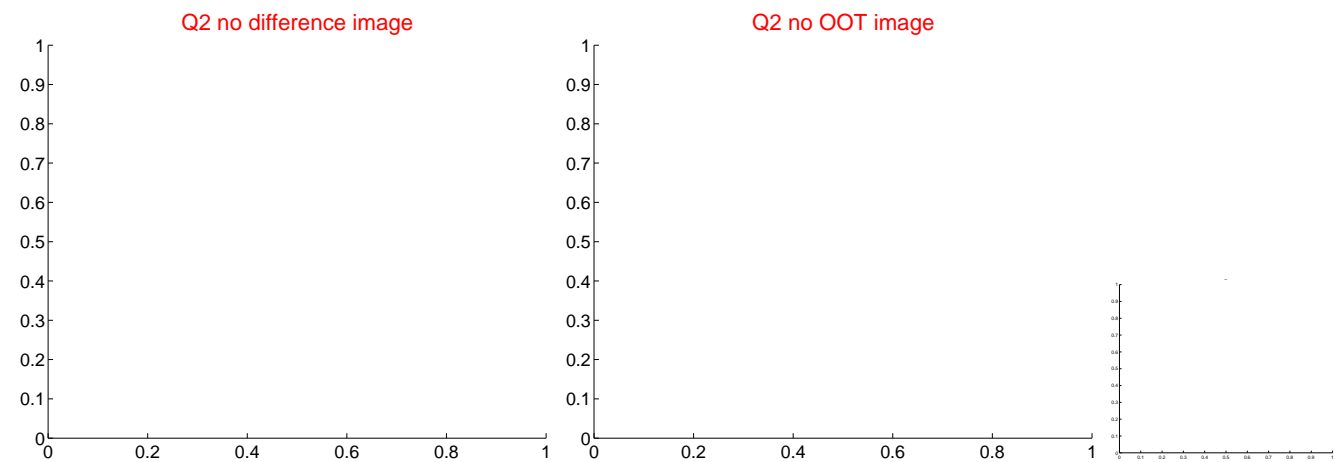
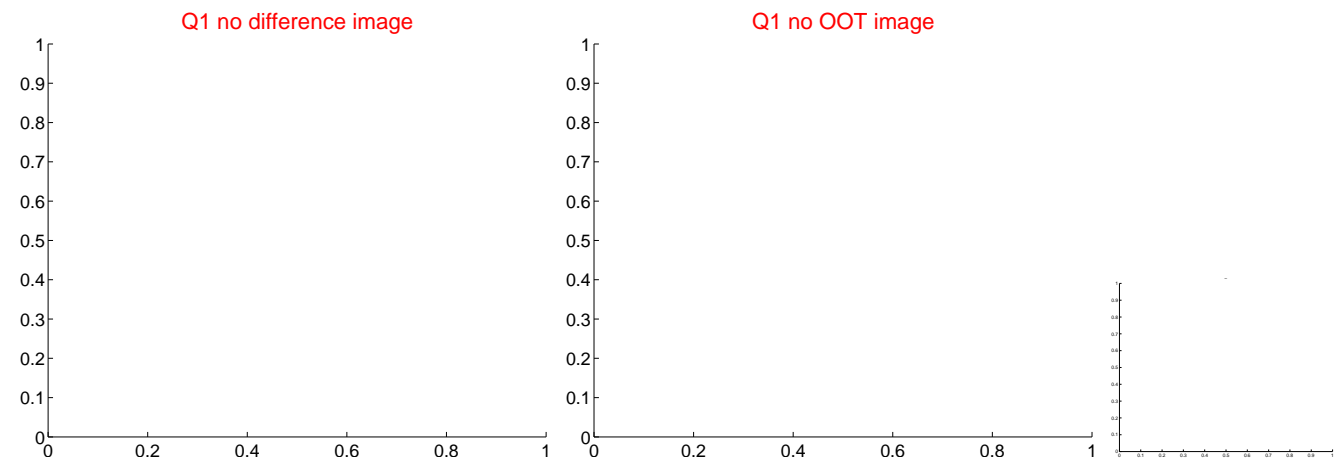


offset from photometric centroids

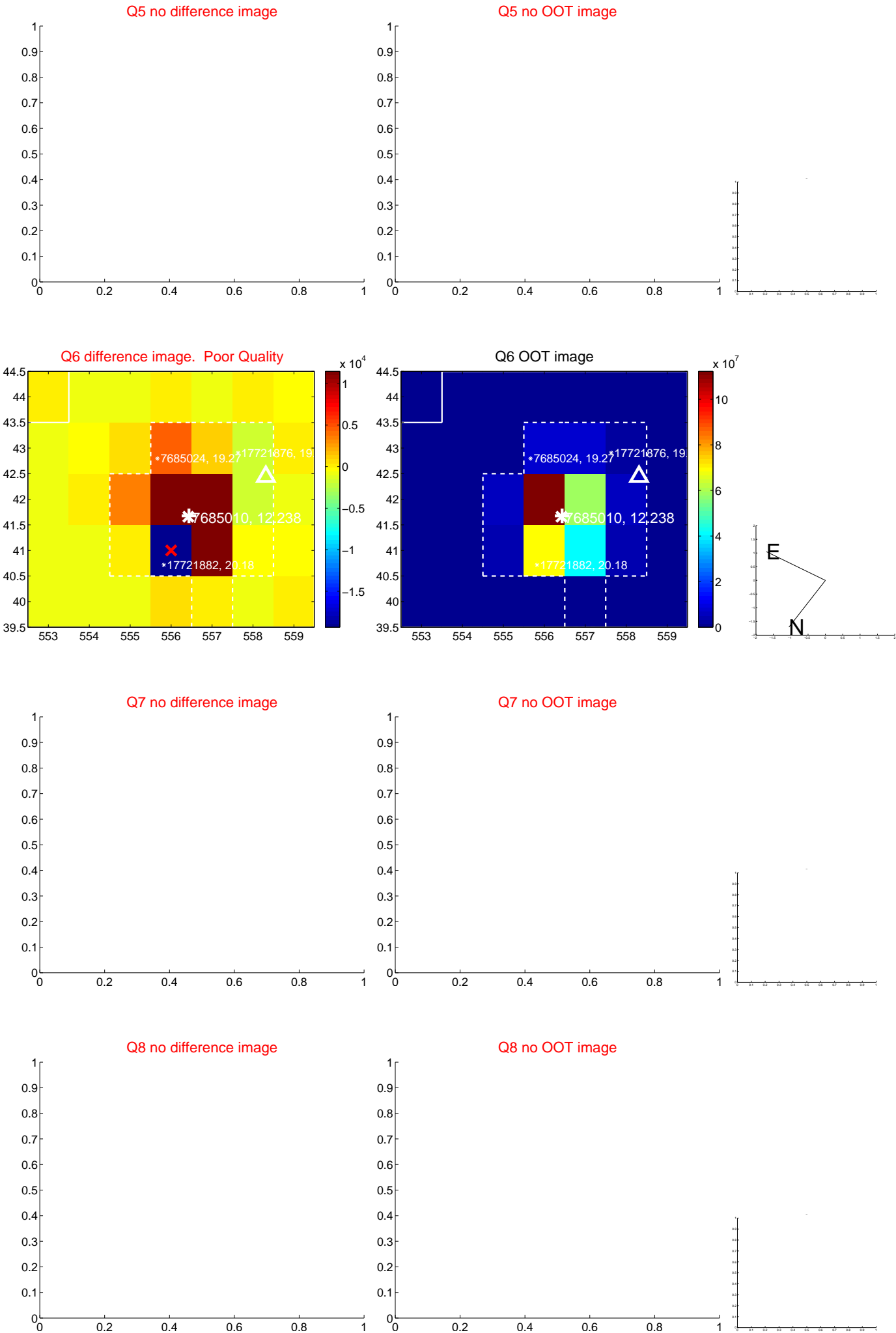


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

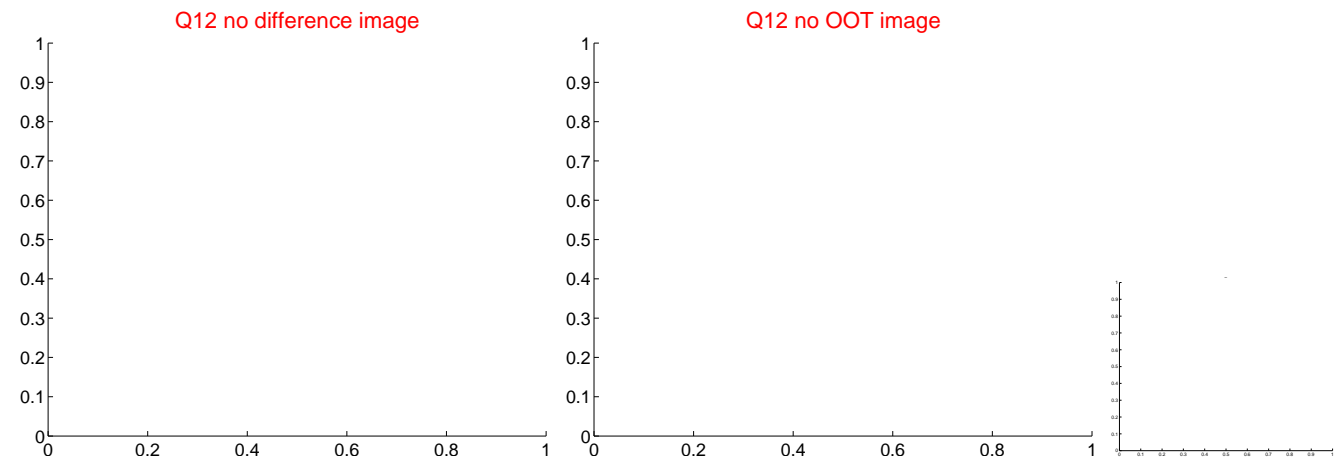
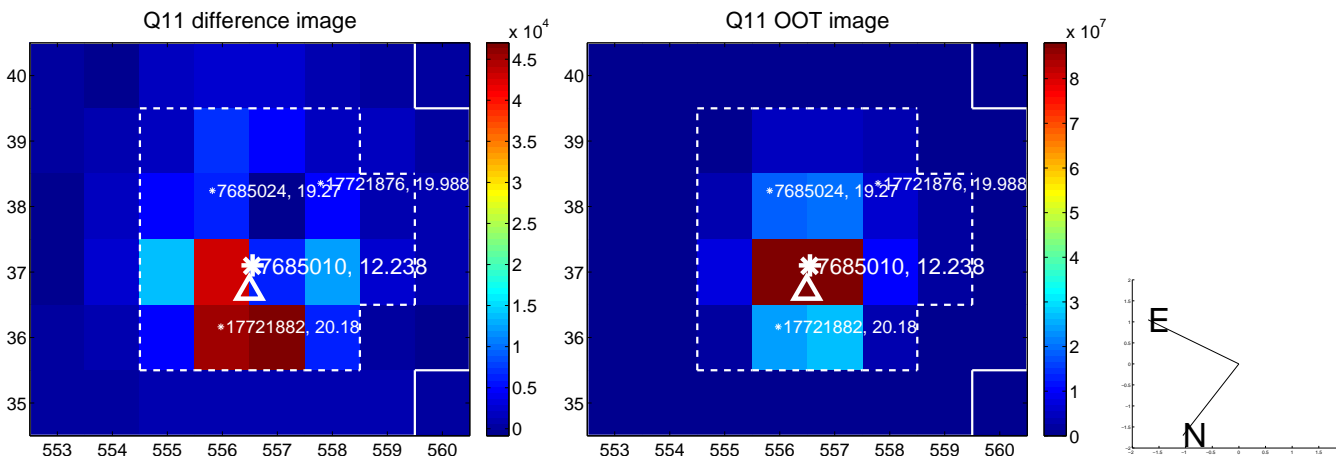
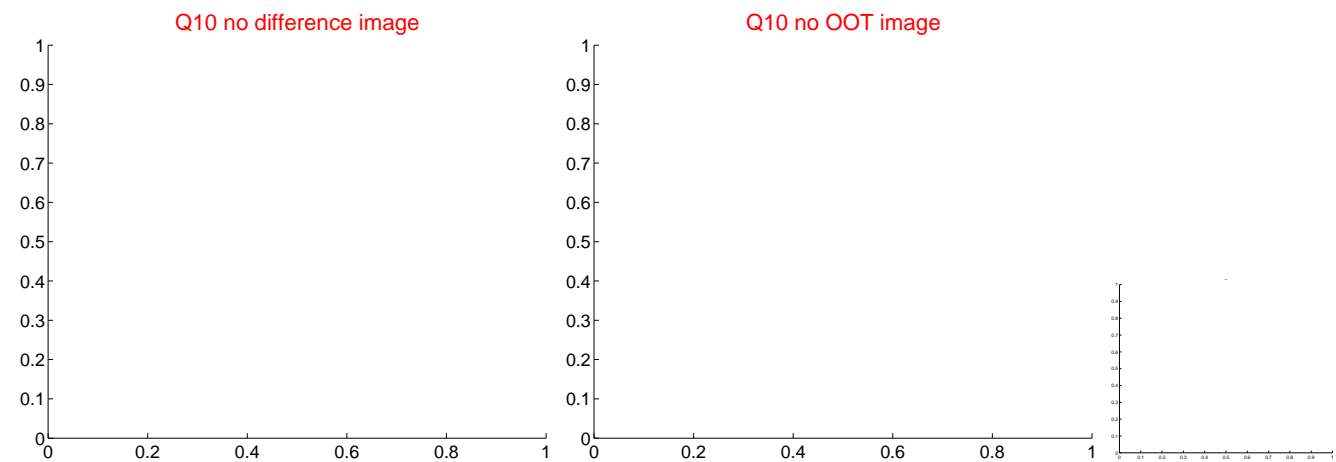
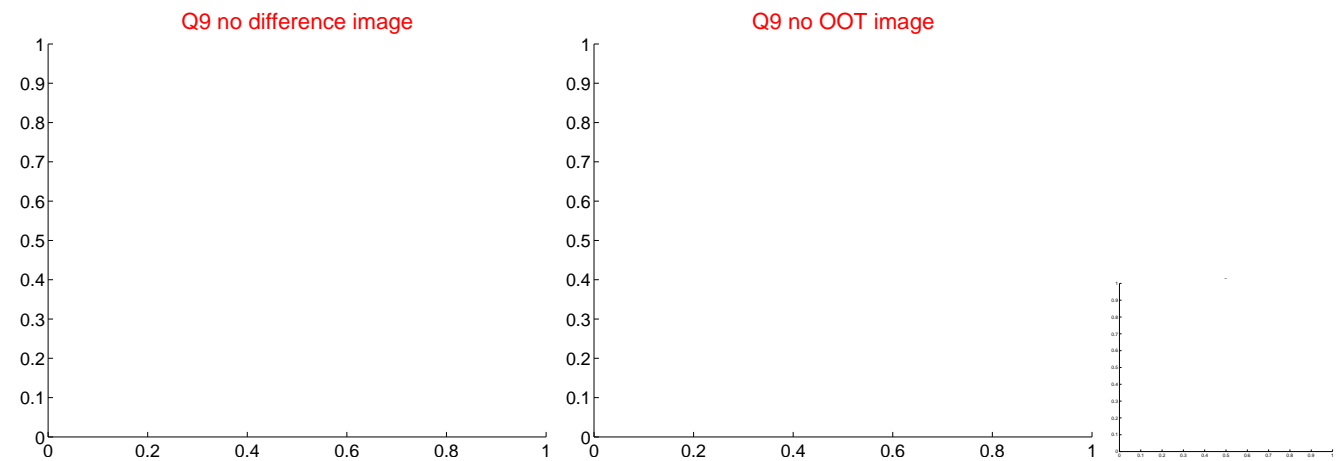
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



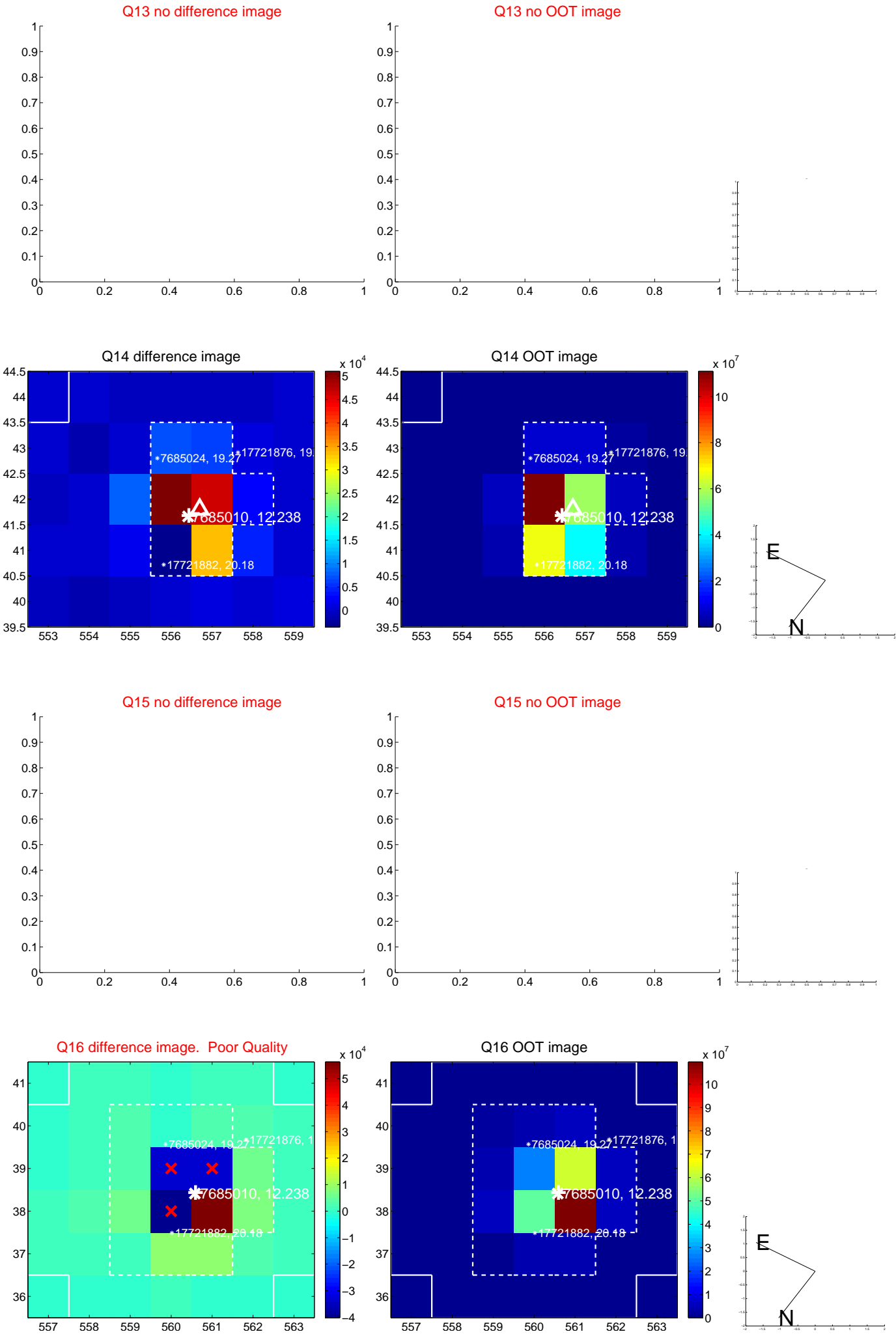
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



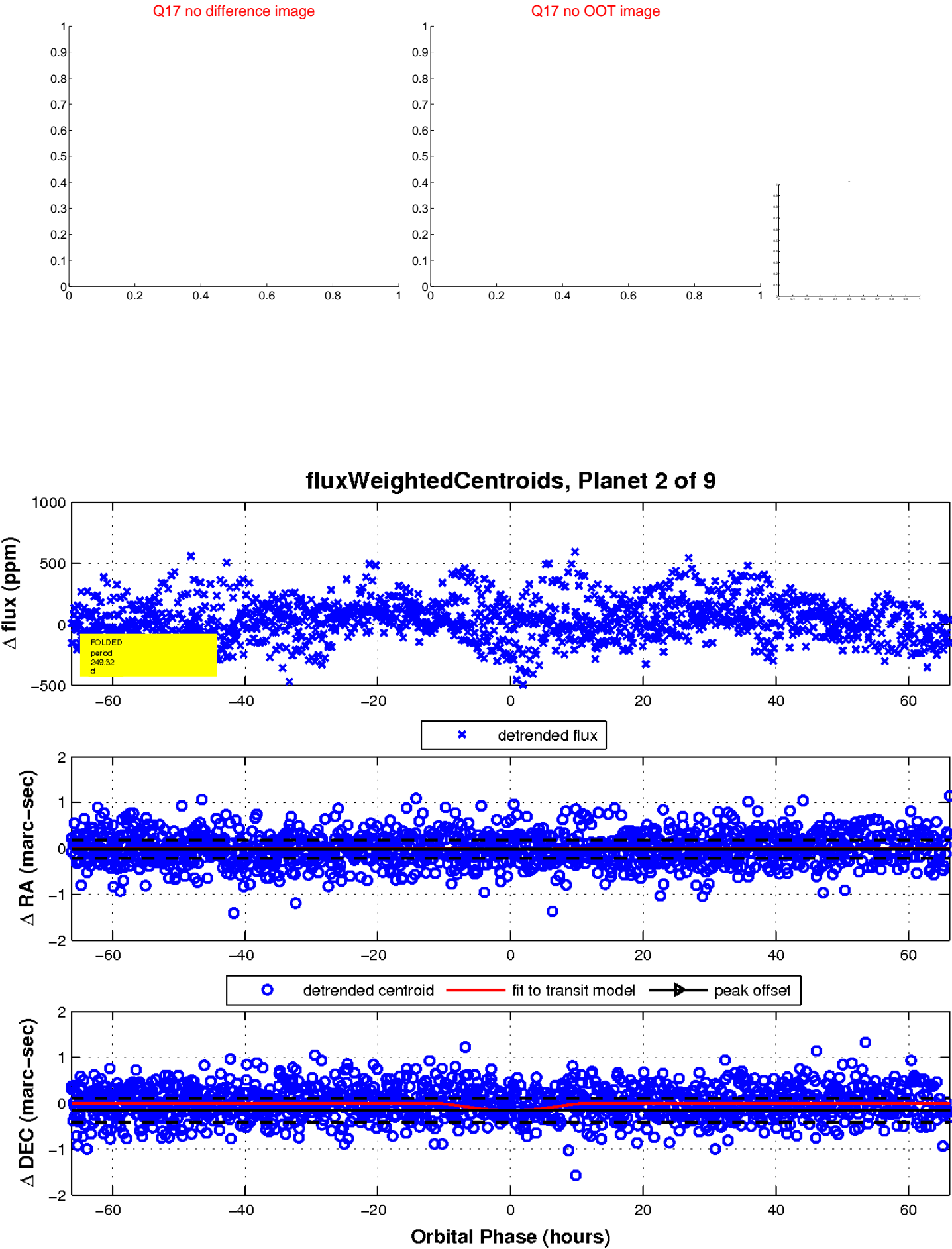
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



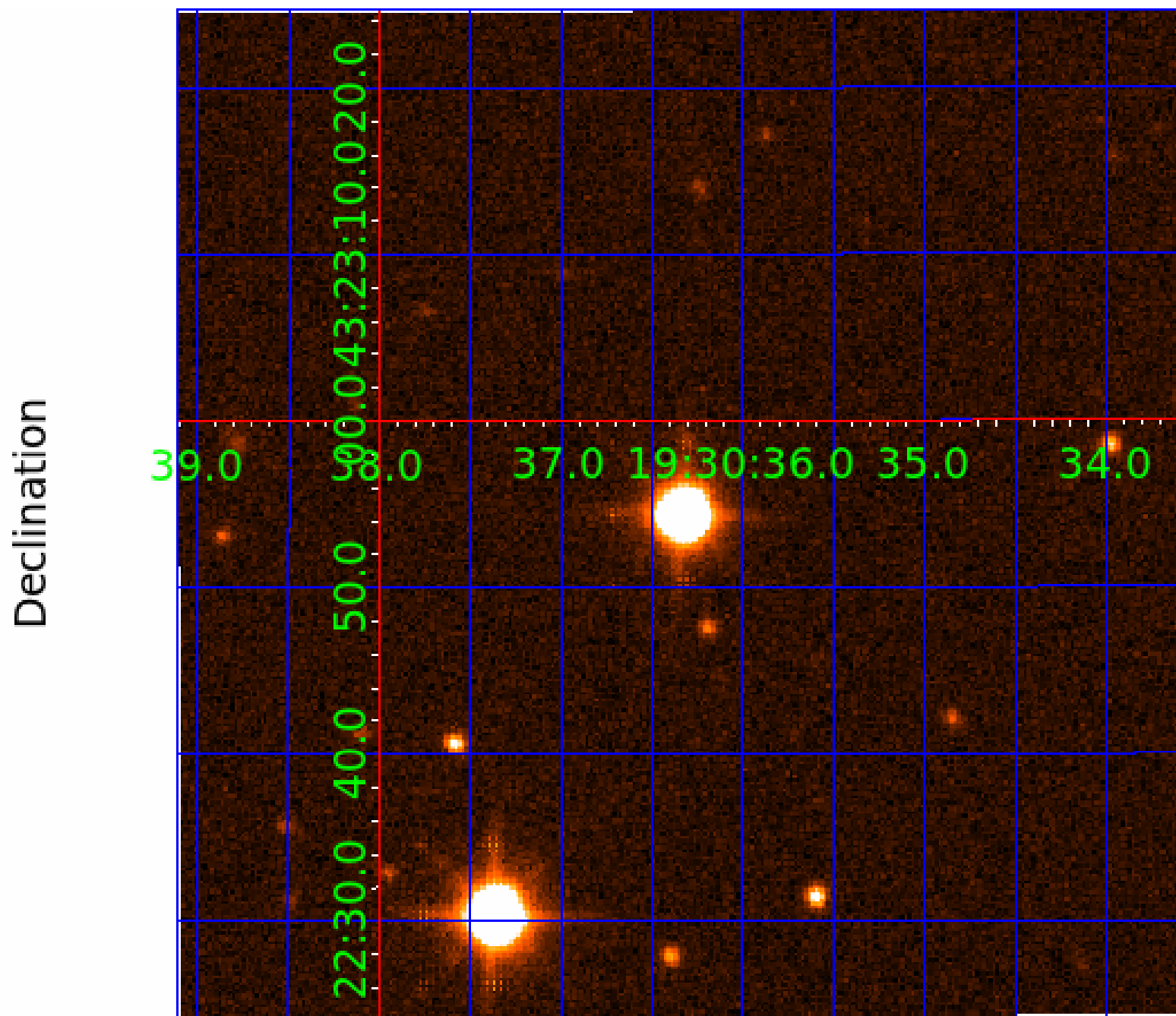
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007685010

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})
007685010-01	OBS	No	2.150345	131.927710	16.0	11.363	11.4	6.3	2.05	6502	0.86	4951.83
007685010-02	OBS	No	249.318333	305.627181	441.9	22.058	12.7	11.7	2.05	6502	8.32	8.76
007685010-04	OBS	No	62.081942	175.805349	170.8	12.252	8.8	9.1	2.05	6502	2.87	55.91
007685010-05	OBS	No	99.804435	178.845873	200.8	5.679	8.7	7.5	2.05	6502	5.75	29.69
007685010-07	OBS	No	49.230875	170.930530	131.9	9.309	8.0	7.9	2.05	6502	2.69	76.17
007685010-08	OBS	No	110.398535	199.878663	171.6	5.029	7.6	6.8	2.05	6502	3.06	25.95
007685010-09	OBS	No	86.849723	185.394836	177.8	4.775	7.3	7.7	2.05	6502	3.08	35.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007685010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007685010-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007685010-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
007685010-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007685010-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

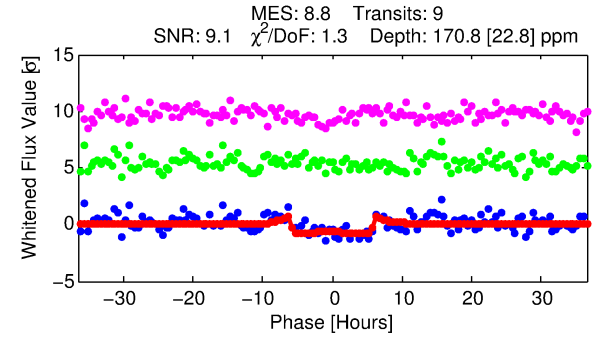
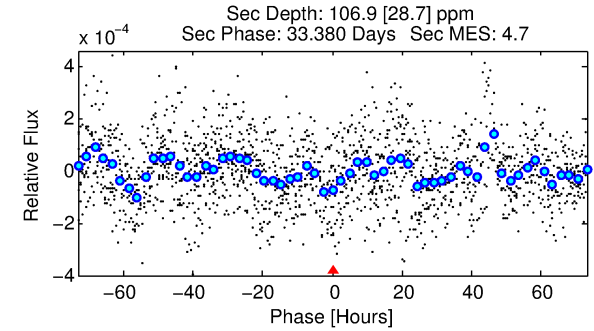
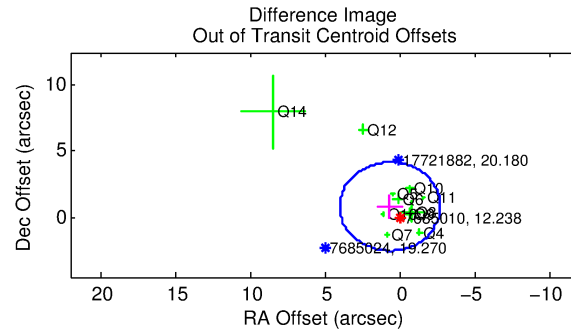
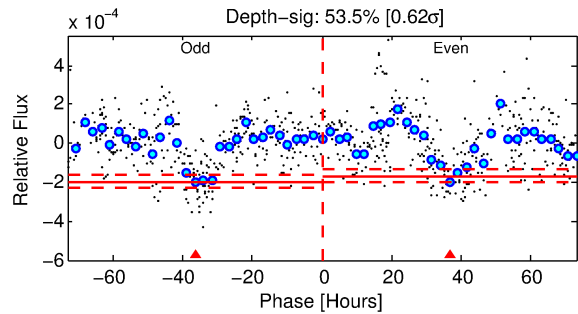
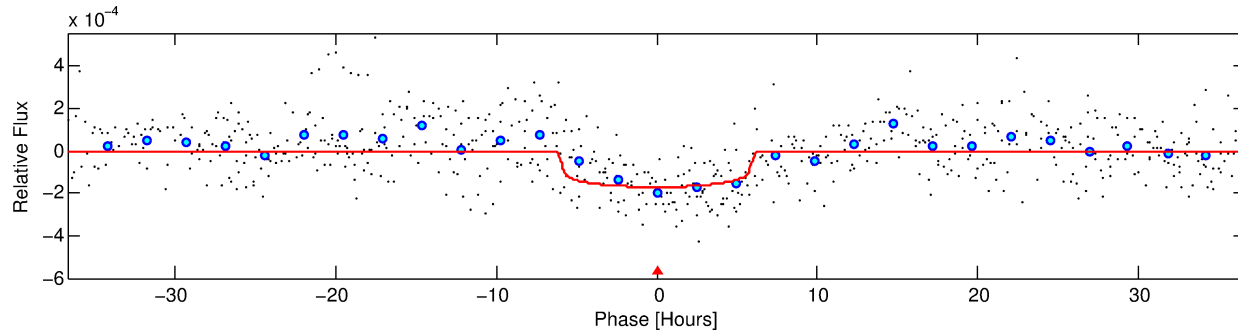
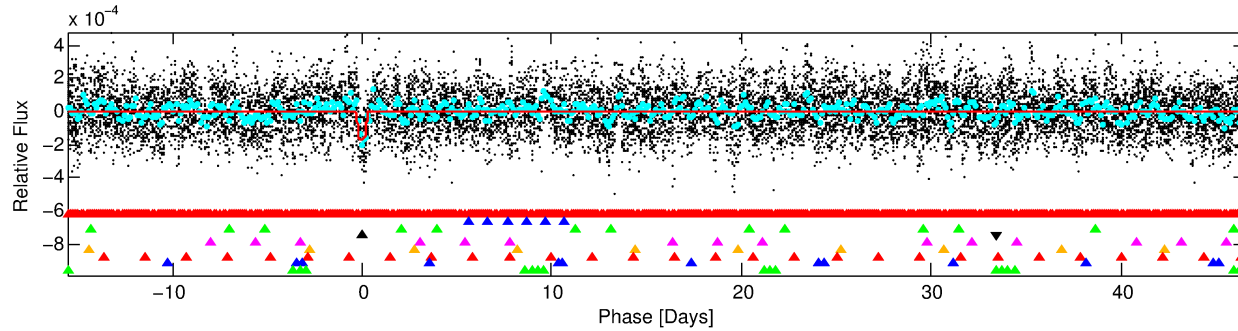
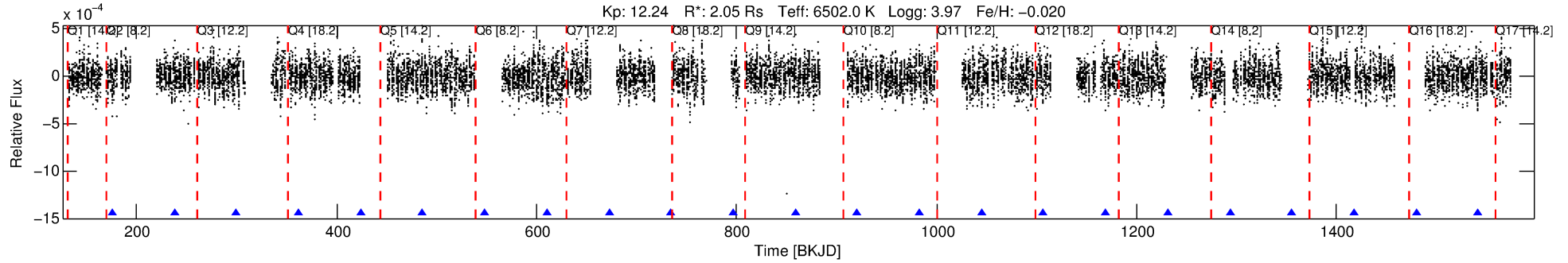
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007685010-04

No Significant Match Found

DV One-Page Summary

KIC: 7685010 Candidate: 4 of 9 Period: 62.082 d



DV Fit Results:

Period = 62.08194 [0.00098] d
Epoch = 175.8053 [0.0111] BKJD
Rp/R* = 0.0128 [0.0033]
a/R* = 28.27 [36.52]
b = 0.70 [0.94]
Seff = 55.91 [24.45]
Teq = 697 [76] K
Rp = 2.87 [1.15] Re
a = 0.3468 [0.0962] AU
Ag = 860.01 [613.49] [1.40 σ]
Teffp = 5838 [852] K [6.01 σ]

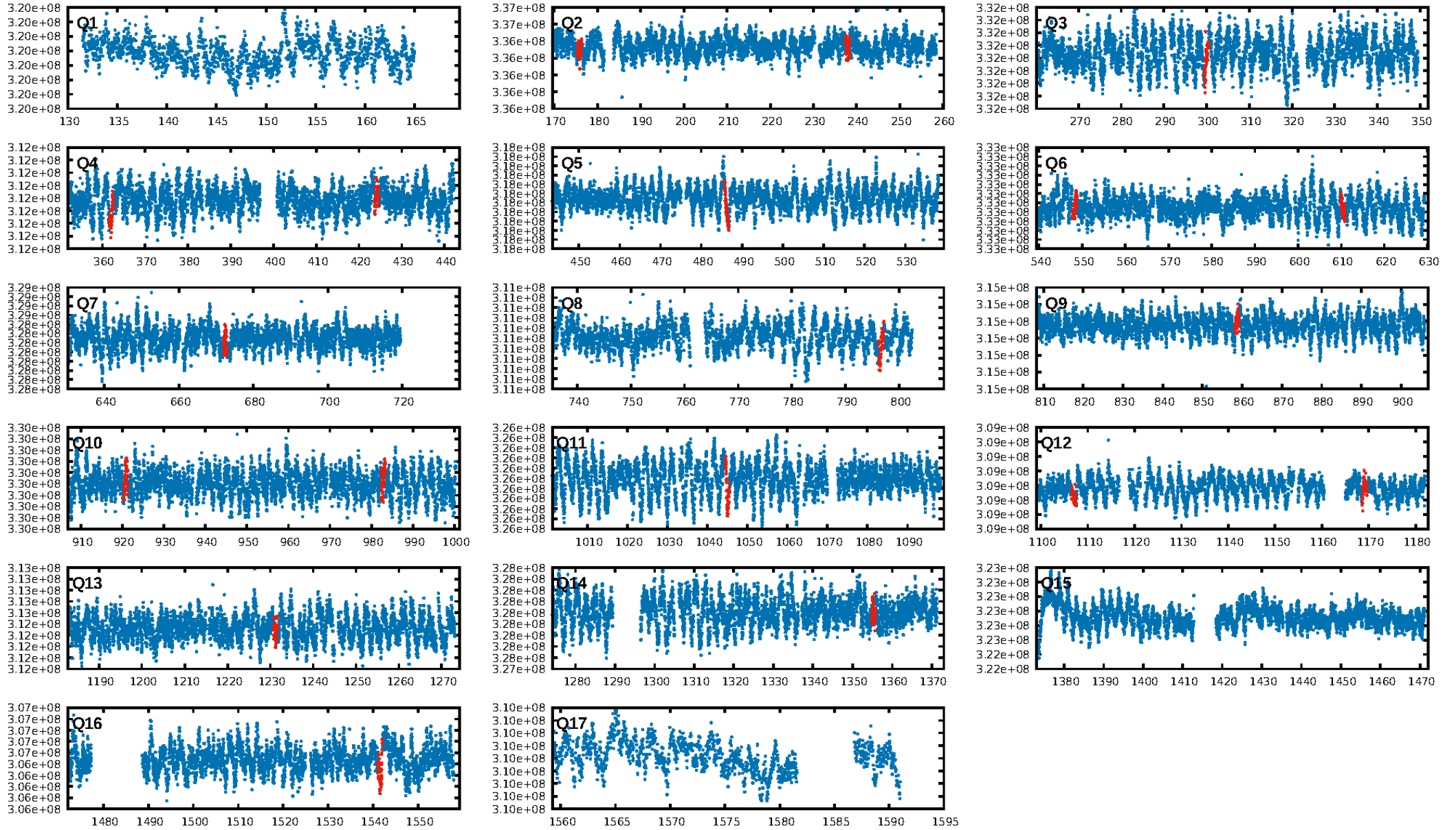
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.04 σ]
LongPeriod-sig: 100.0% [45.20 σ]
ModelChiSquare2-sig: 57.9%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 6.51e-10
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -0.3273
Centroid-sig: 33.0%
Centroid-so: 0.371 arcsec [1.02 σ]
OotOffset-rm: 1.042 arcsec [0.93 σ]
KicOffset-rm: 0.965 arcsec [0.94 σ]
OotOffset-st: 3/2/4/2 [11]
KicOffset-st: 3/2/4/2 [11]
DiffImageQuality-fgm: 0.55 [6/11]
DiffImageOverlap-fno: 0.00 [0/13]

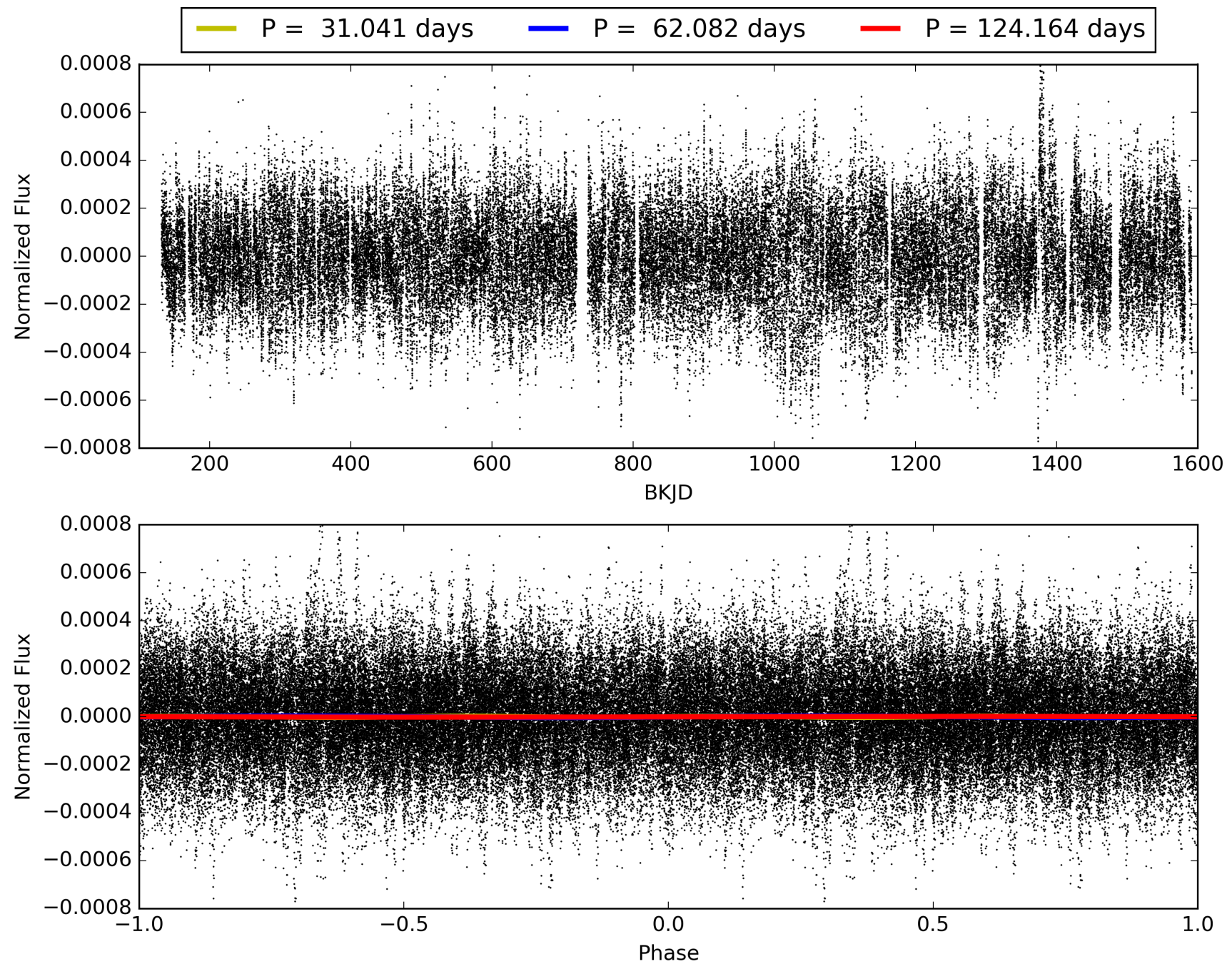
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:21:33 Z

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

TCE 007685010-04, PDC Light Curves

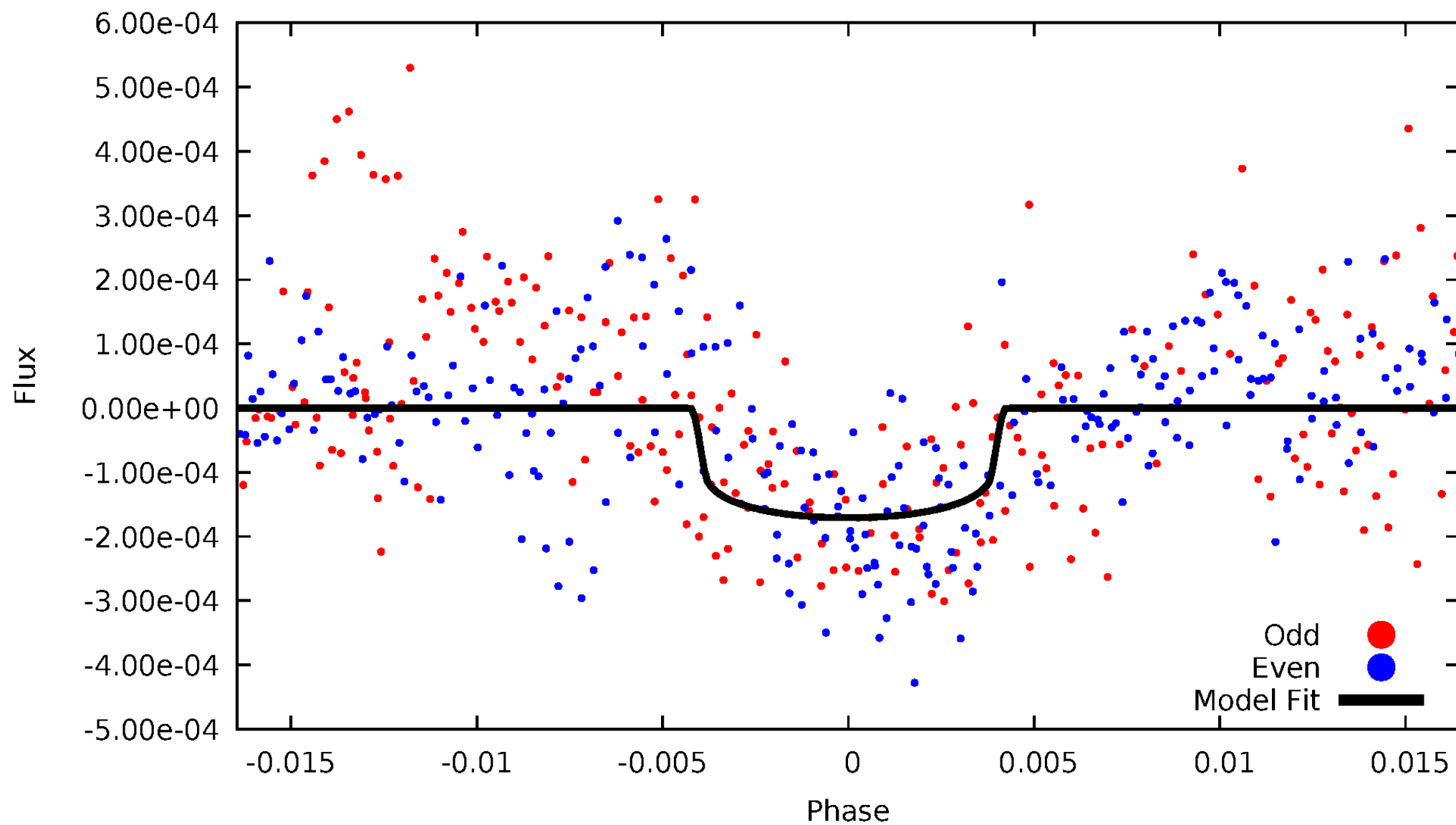


TCE 007685010-04



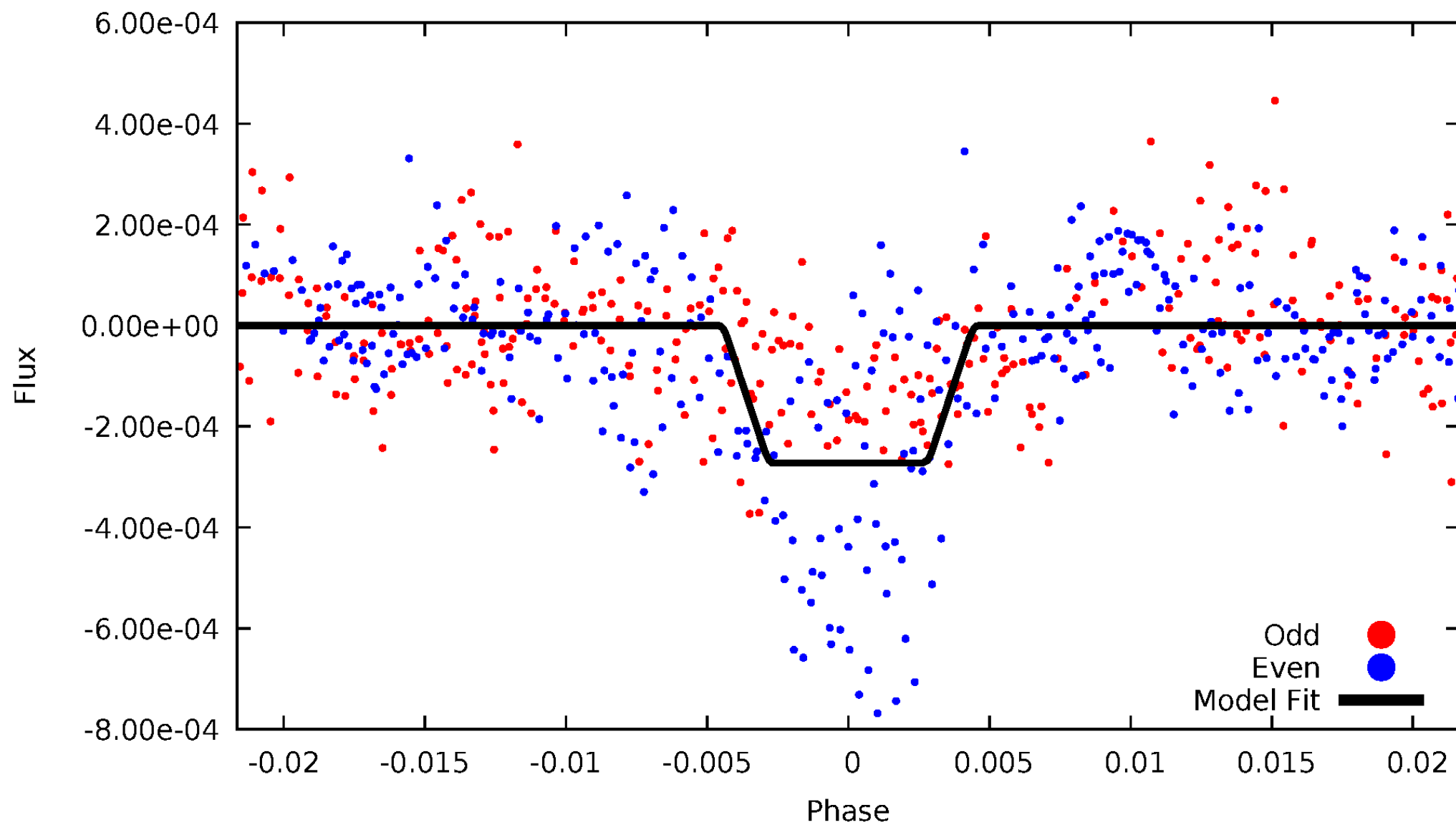
DV Odd/Even

TCE 007685010-04



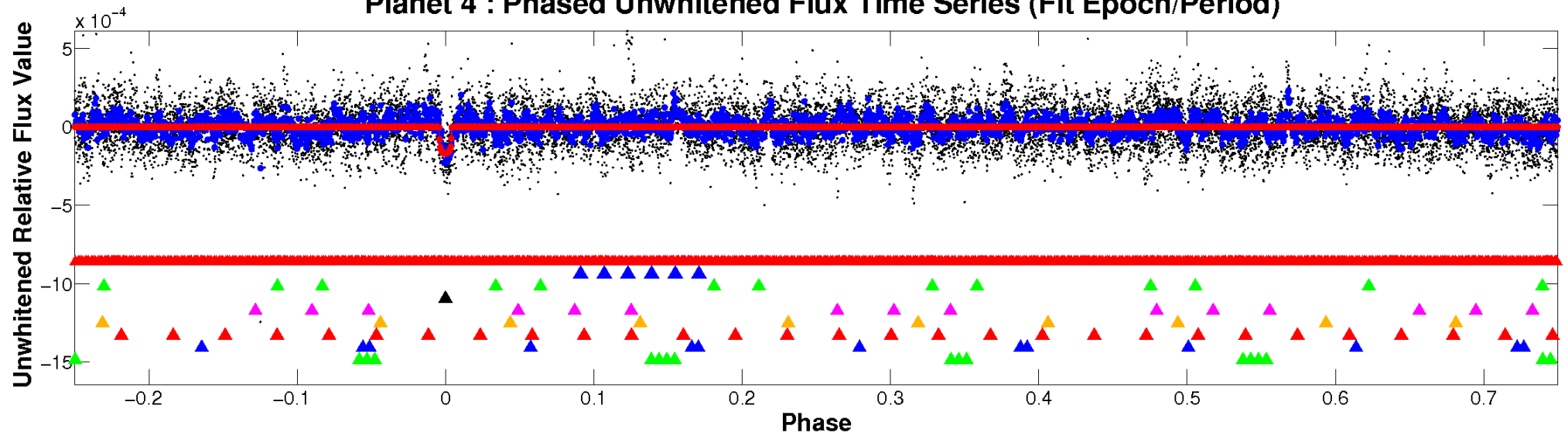
ALT Odd/Even

TCE 007685010-04

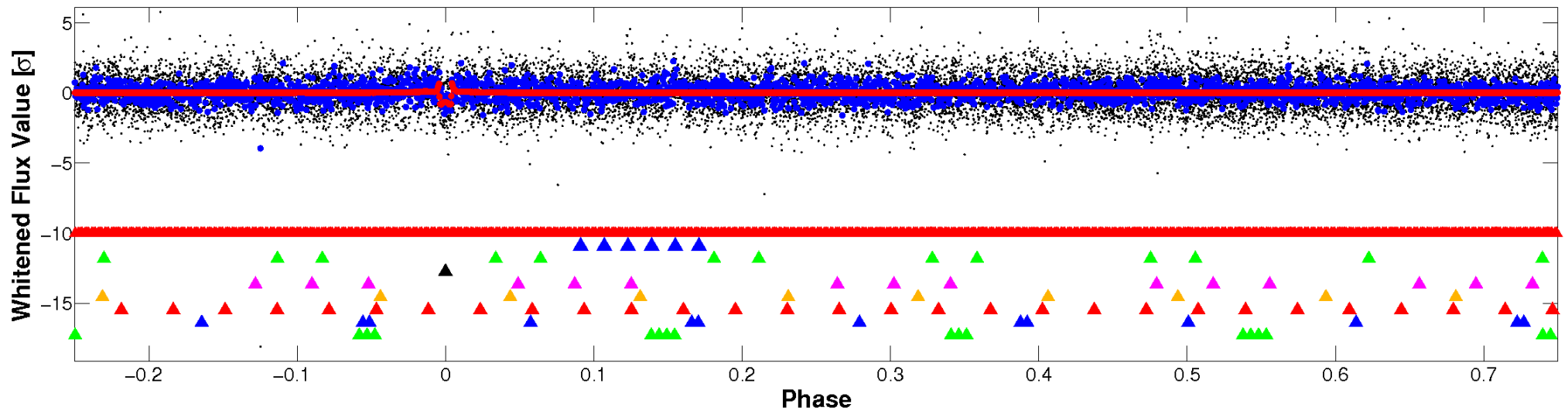


Non-Whitened Vs. Whitened Light Curve

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

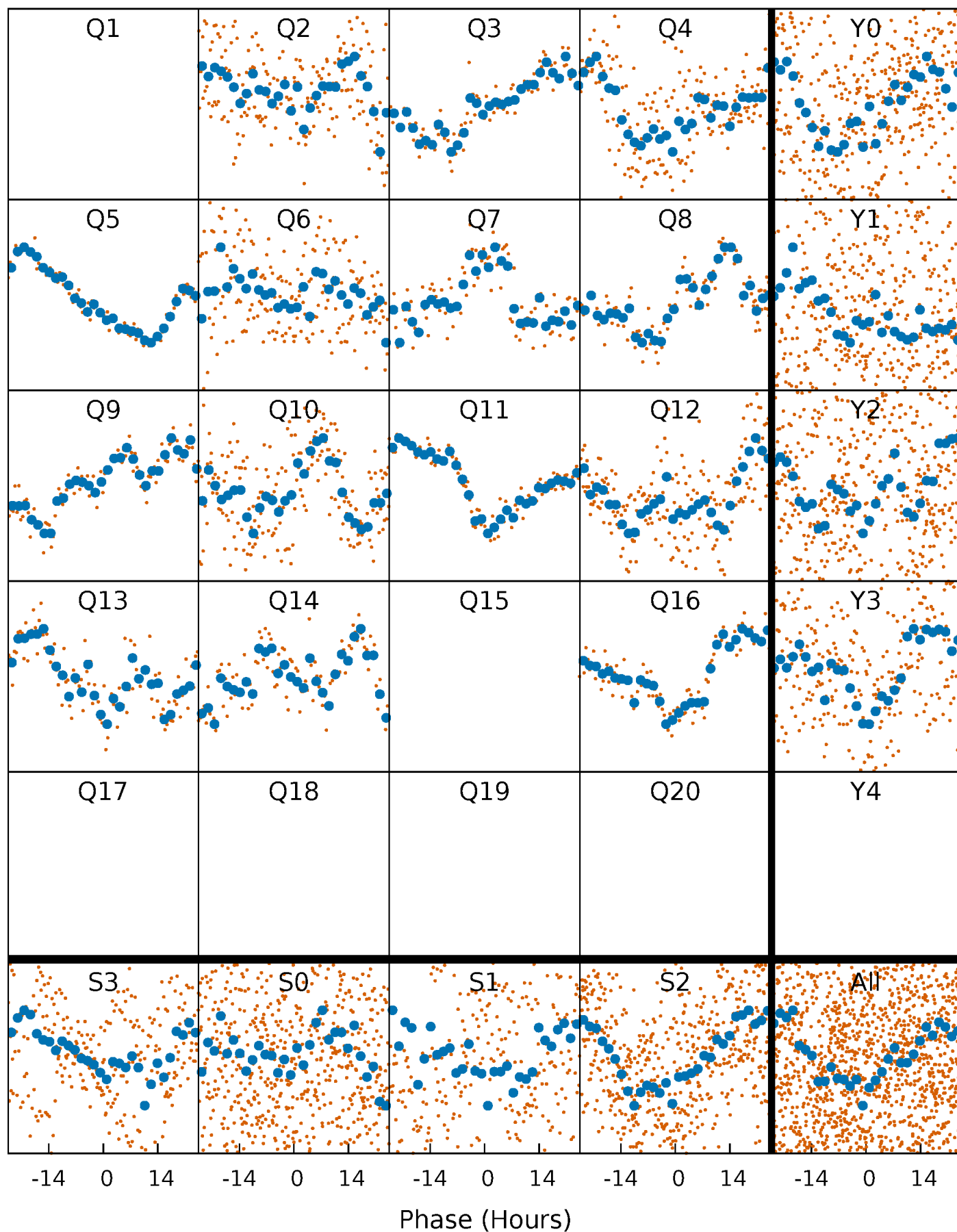


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



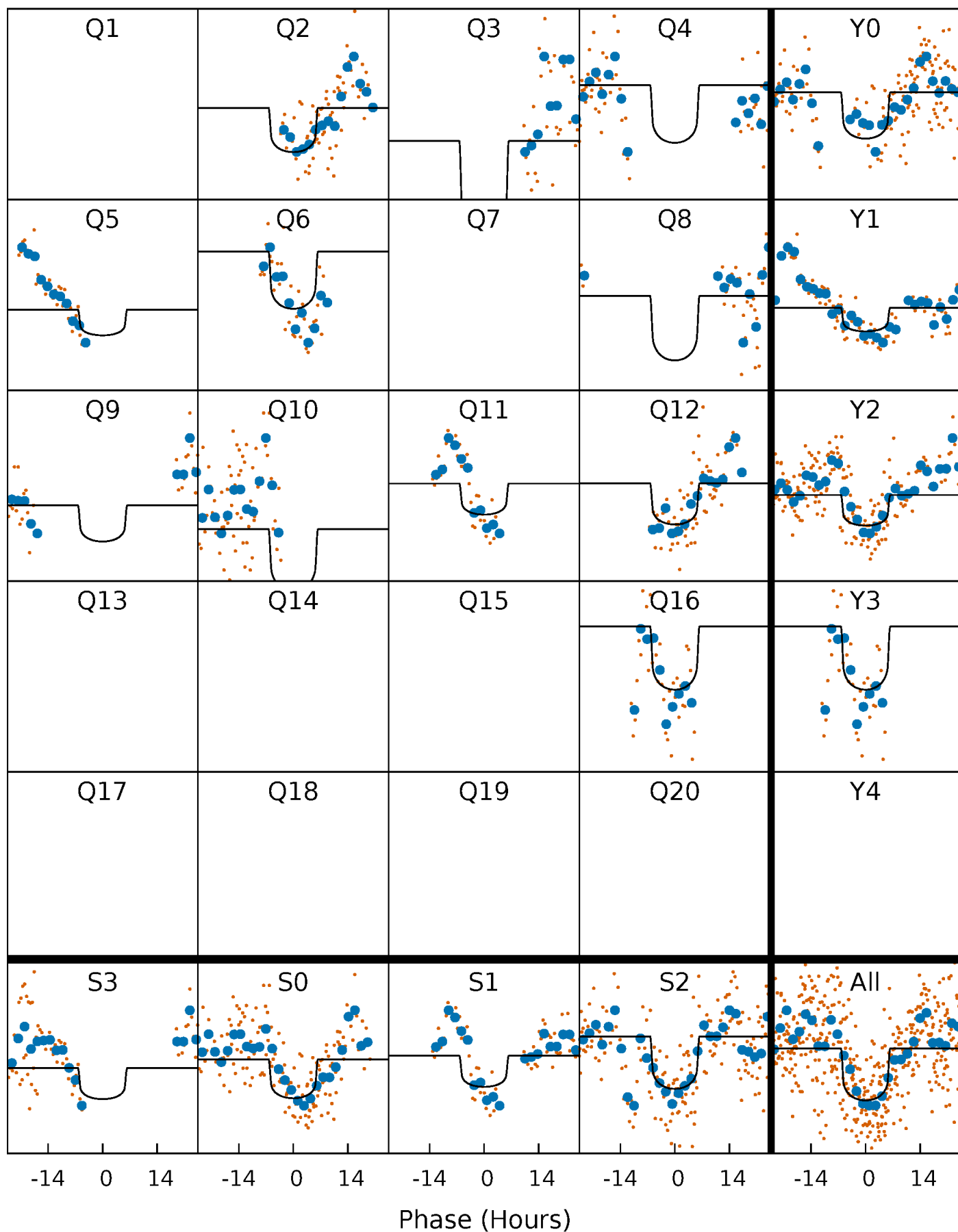
PDC Quarter-Phased Transit Curves

TCE 007685010-04 P= 62.081942 Days $T_0=175.805349$ (BKJD)



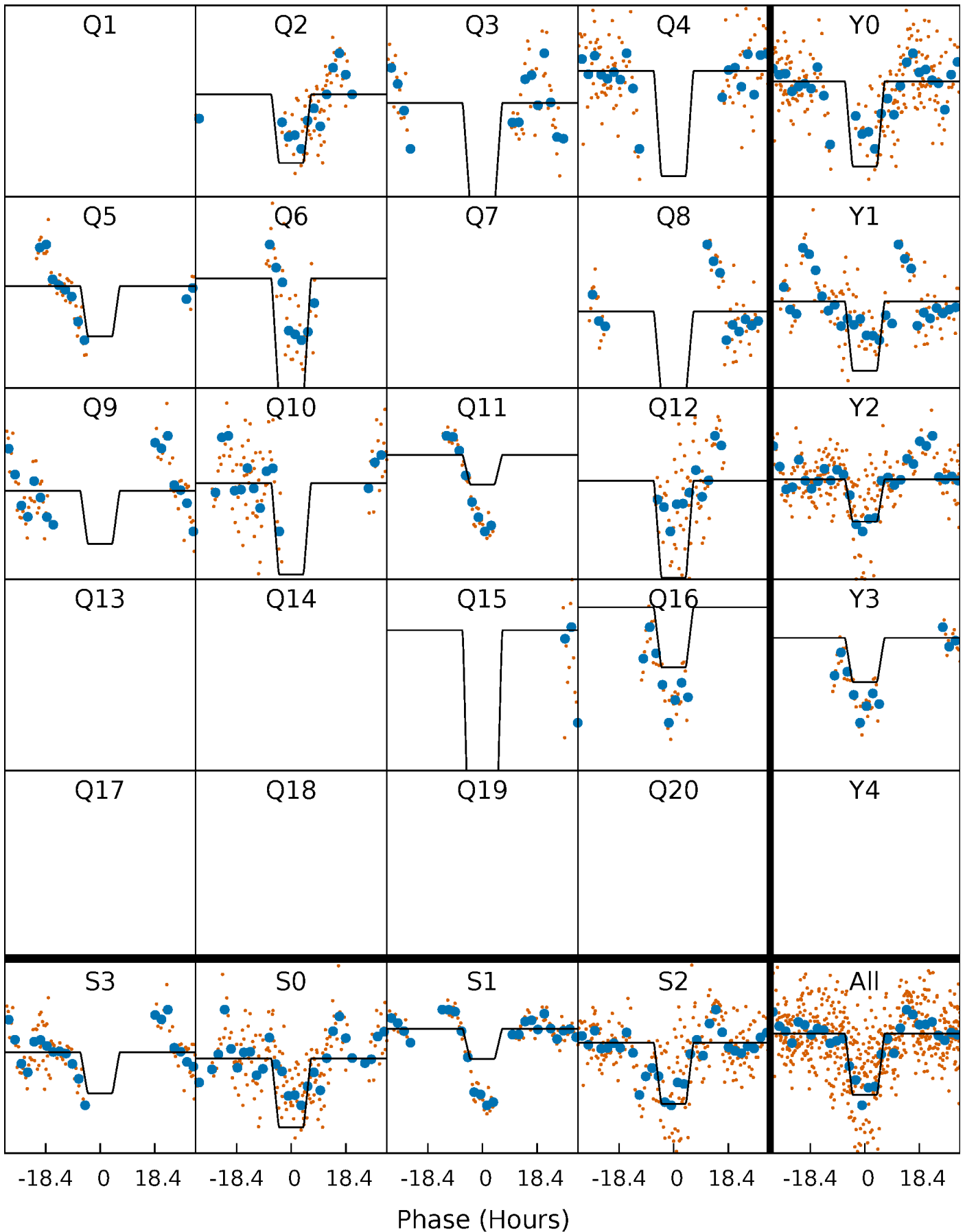
DV Quarter-Phased Transit Curves

TCE 007685010-04 P= 62.081942 Days $T_0=175.805349$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

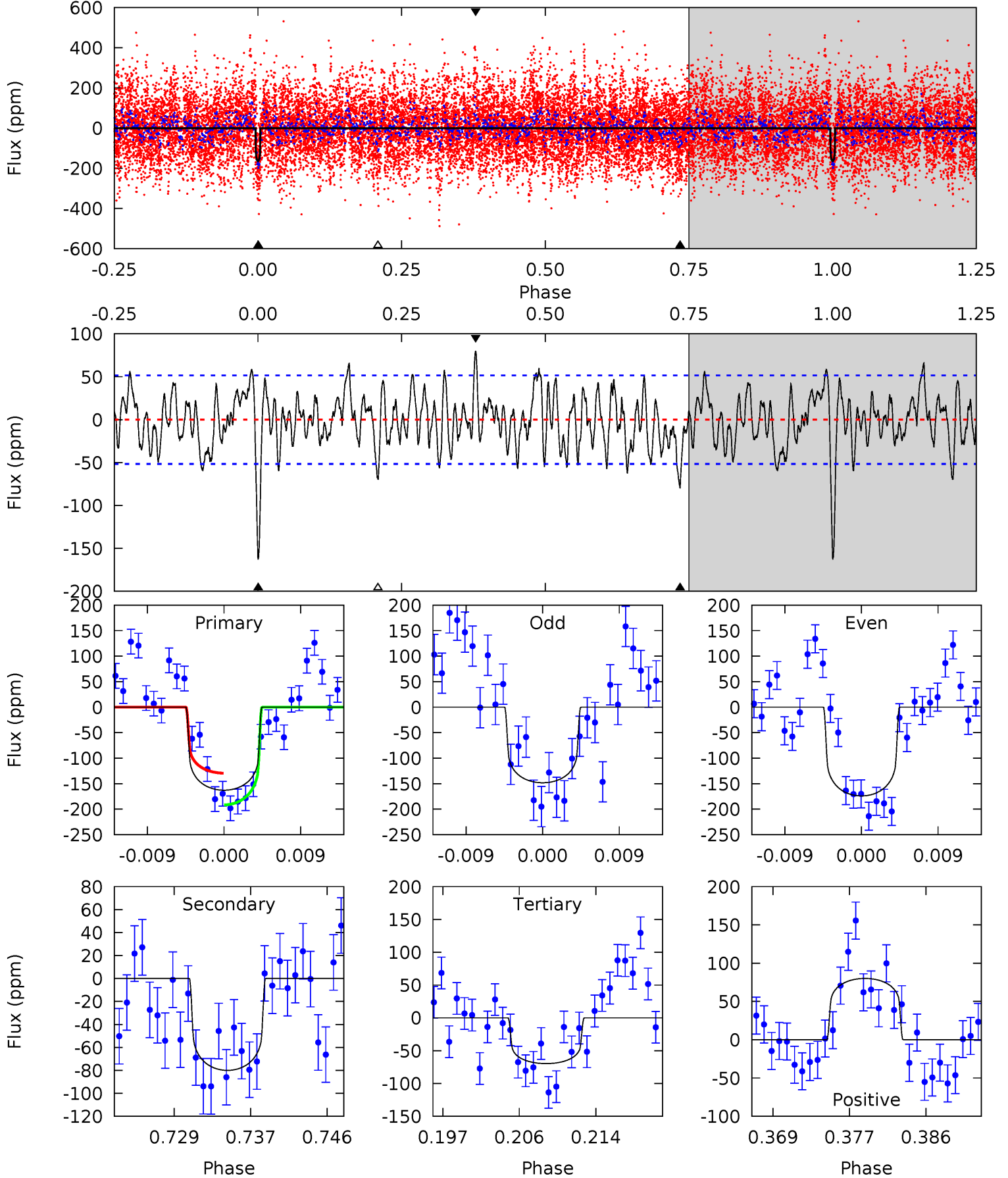
TCE 007685010-04 $P = 62.082439$ Days $T_0 = 175.798104$ (BKJD)



DV Model-Shift Uniqueness Test

007685010-04, P = 62.081942 Days, E = 113.723407 Days

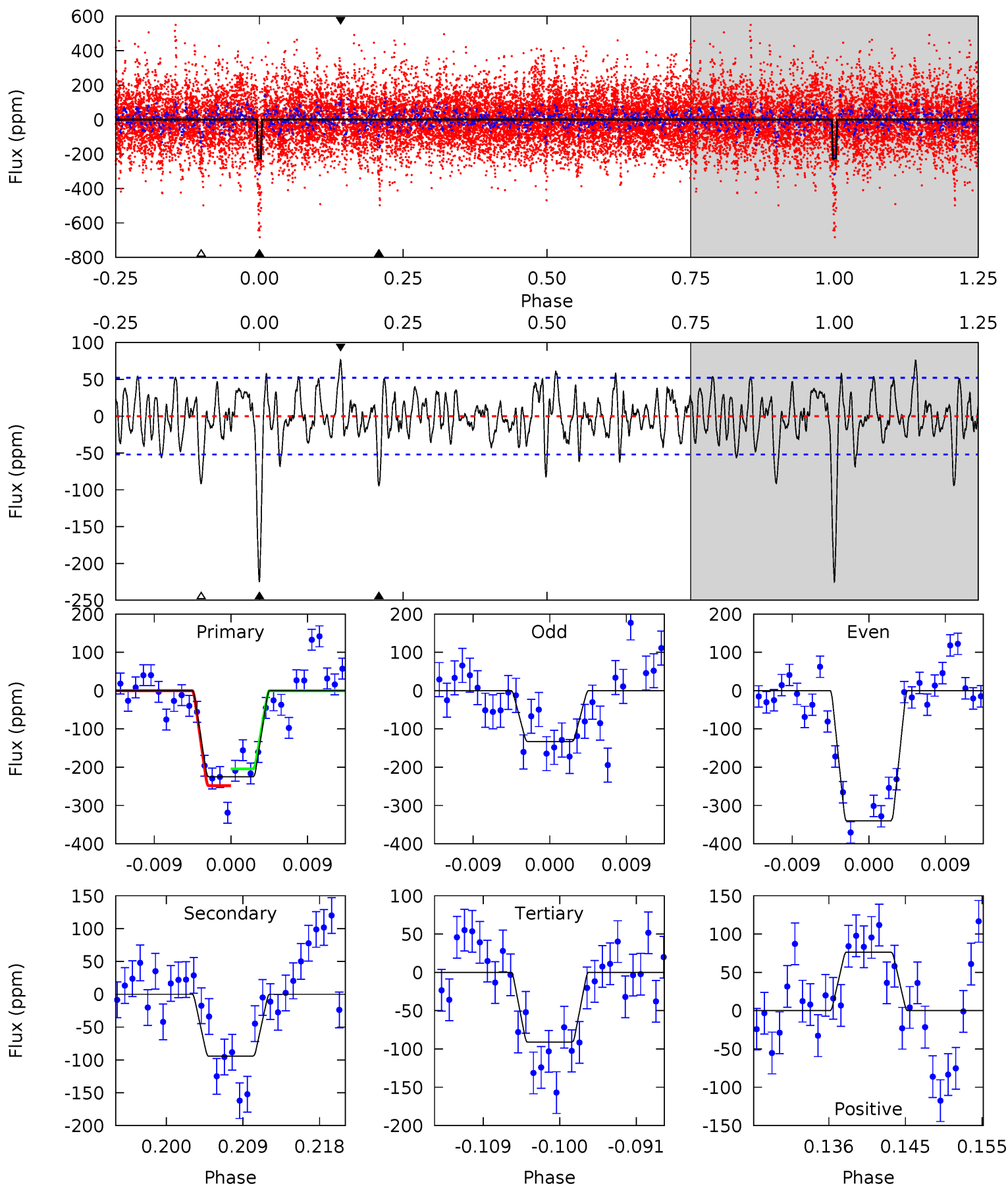
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	7.85	6.84	7.86	5.06	2.63	2.63	9.14	8.12	1.01	-0.01	1.26	1.08	0.33	3.05



Alt Model-Shift Uniqueness Test

007685010-04, P = 62.082439 Days, E = 113.715665 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.8	9.12	8.82	7.40	5.04	2.61	2.44	13.0	14.4	0.30	1.72	10.1	1.76	0.25	2.13



Stellar Parameters For KIC 007685010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6502^{+155}_{-175}	$3.974^{+0.241}_{-0.130}$	$-0.020^{+0.250}_{-0.250}$	$2.049^{+0.477}_{-0.636}$	$1.444^{+0.159}_{-0.273}$	$0.236^{+0.361}_{-0.094}$
	+2%/-3%	+6%/-3%	+1250%/-1250%	+23%/-31%	+11%/-19%	+153%/-40%
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 007685010-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-80 ± 10	$2.71^{+0.85}_{-0.75}$	963^{+61}_{-81}	5474^{+872}_{-553}	707^{+644}_{-304}
Alt.	-94 ± 10	$3.50^{+0.96}_{-0.88}$	962^{+59}_{-74}	5066^{+574}_{-404}	510^{+349}_{-199}

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

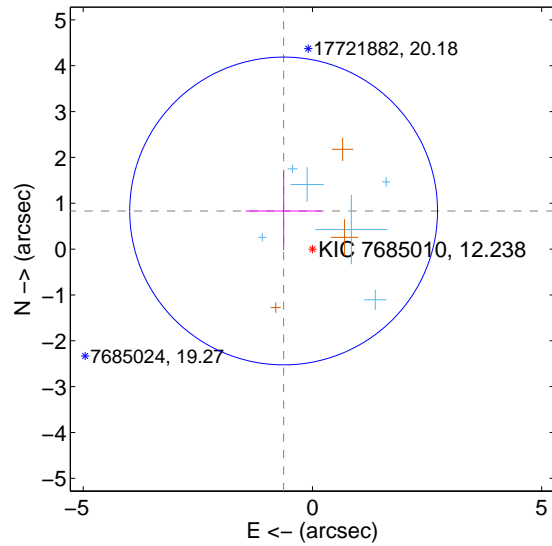
Supplemental centroid analysis for 007685010-04. Kepler magnitude: 12.24. Transit SNR 9.09

There are 6 quarters with good PRF difference image offsets

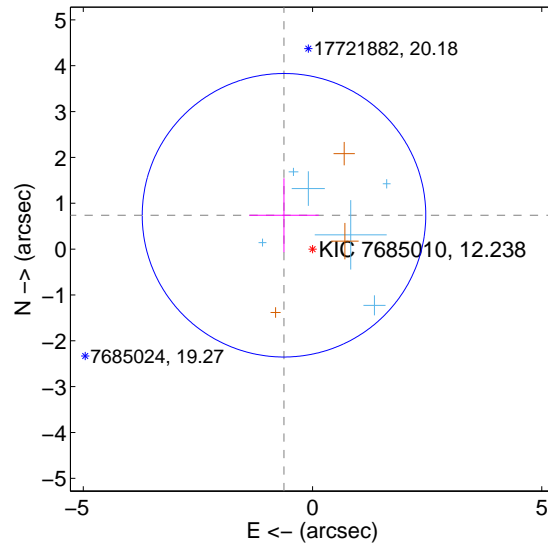
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.042 ± 1.119	0.93	0.629 ± 0.826	0.831 ± 0.859
PRF-fit source offset from KIC position	0.965 ± 1.031	0.94	0.622 ± 0.759	0.738 ± 0.806
photometric centroid source offset	0.37 ± 0.36	1.02	0.37 ± 0.36	0.01 ± 0.34

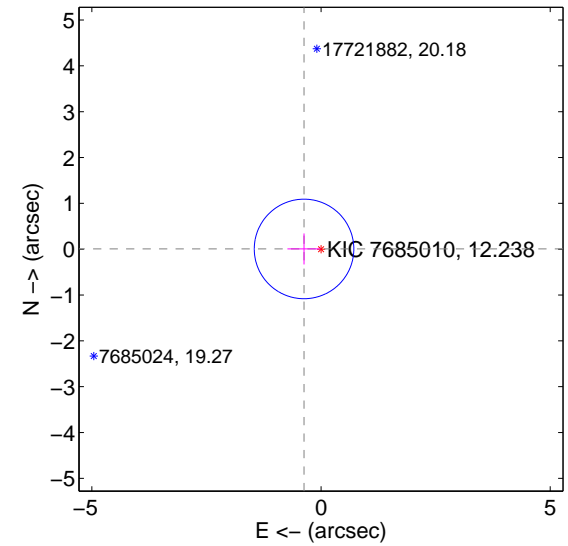
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

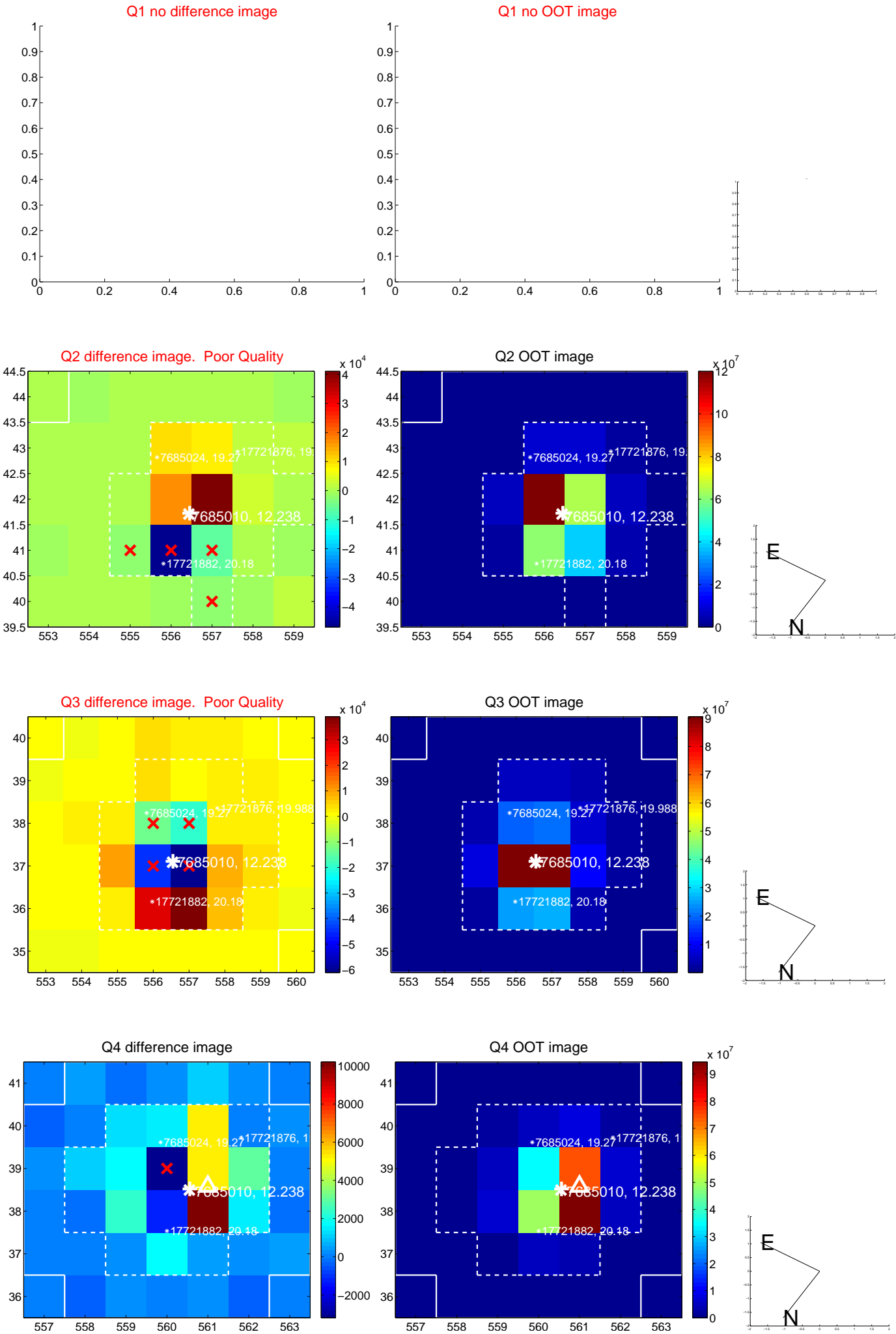


offset from photometric centroids

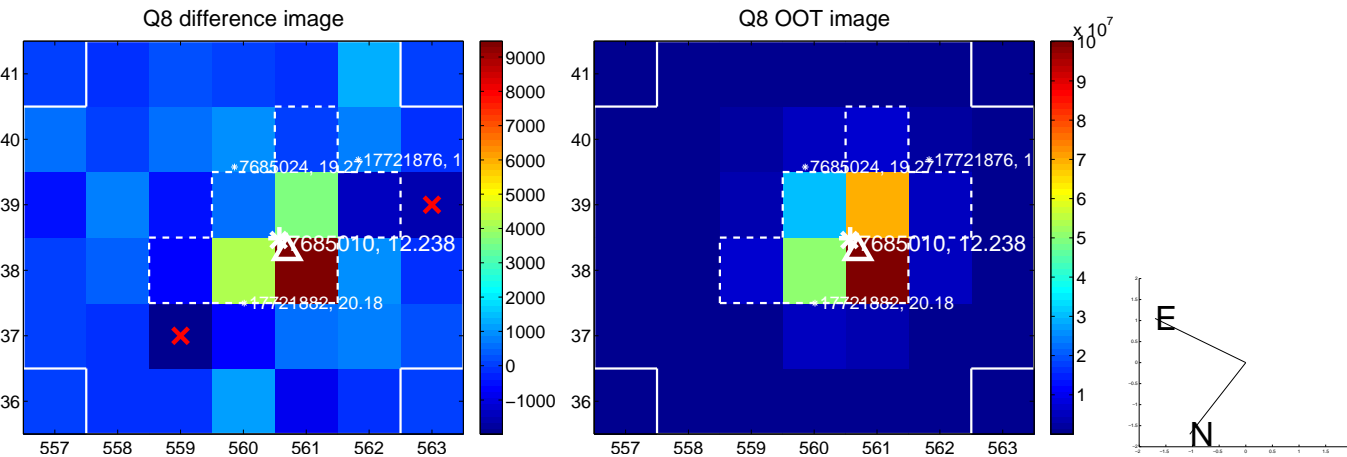
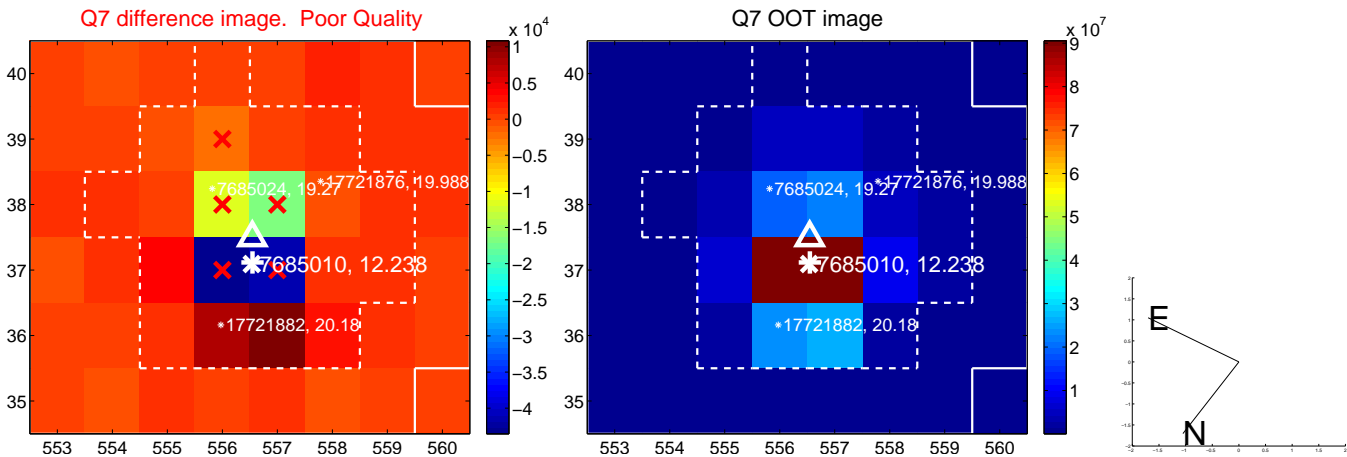
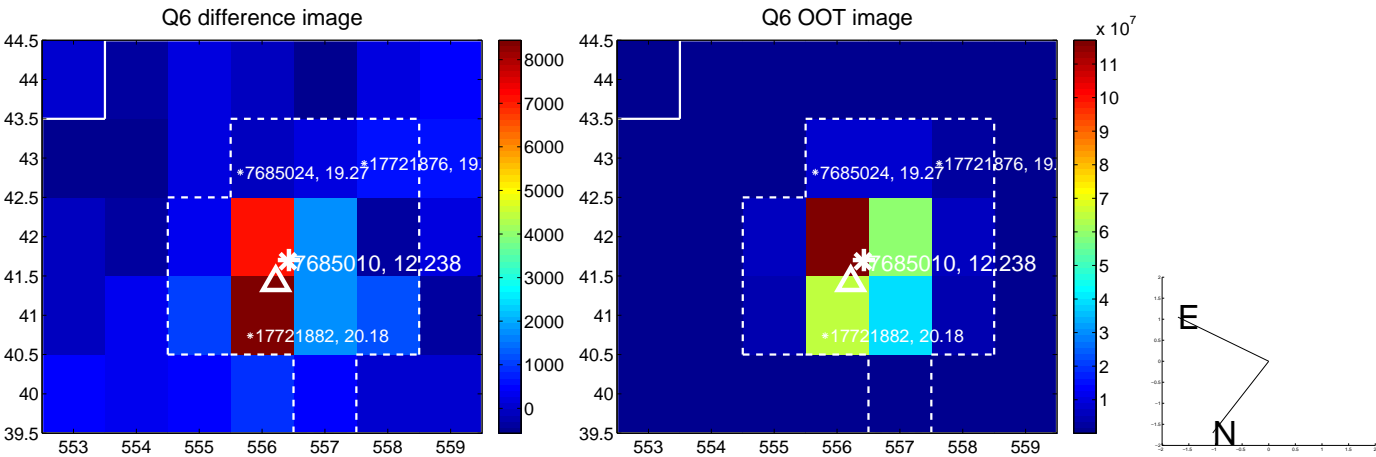
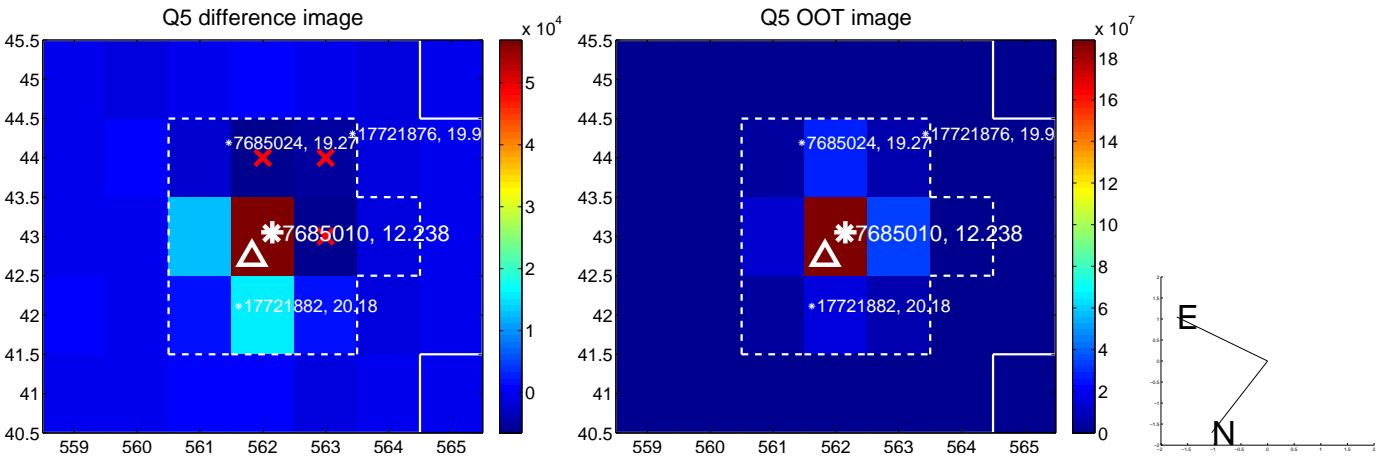


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

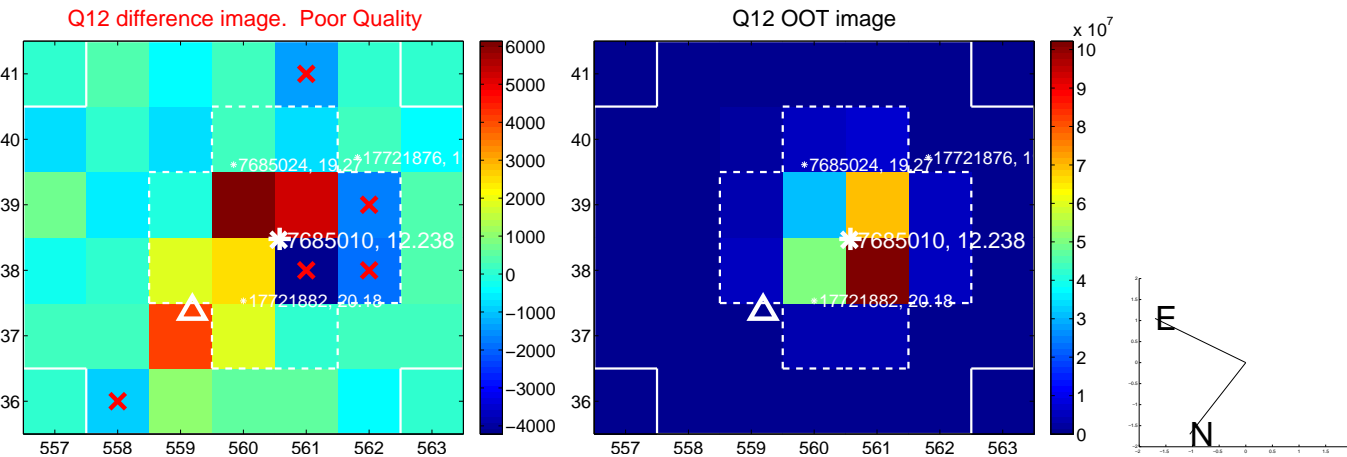
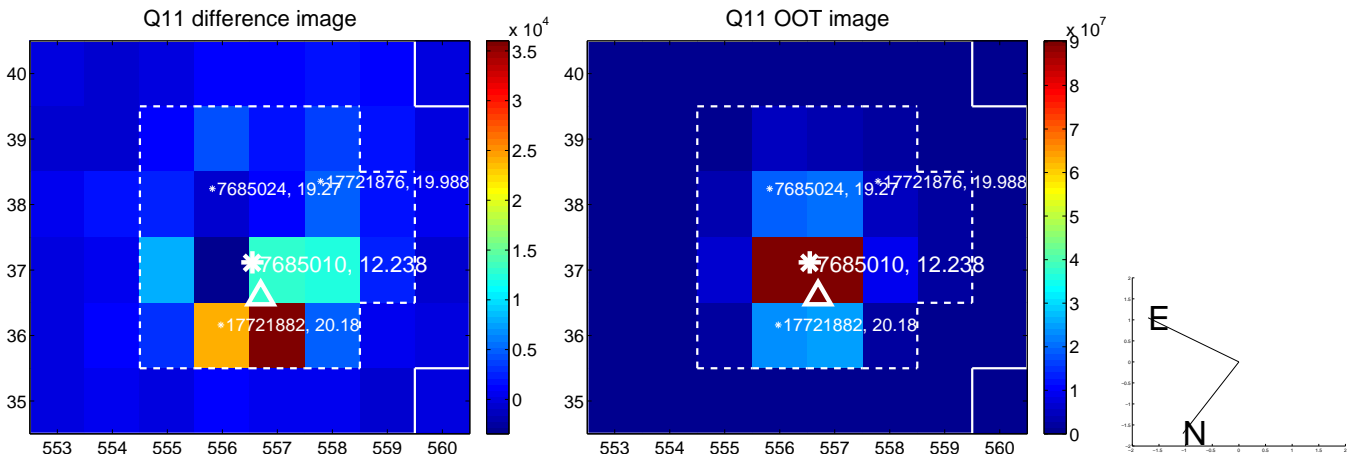
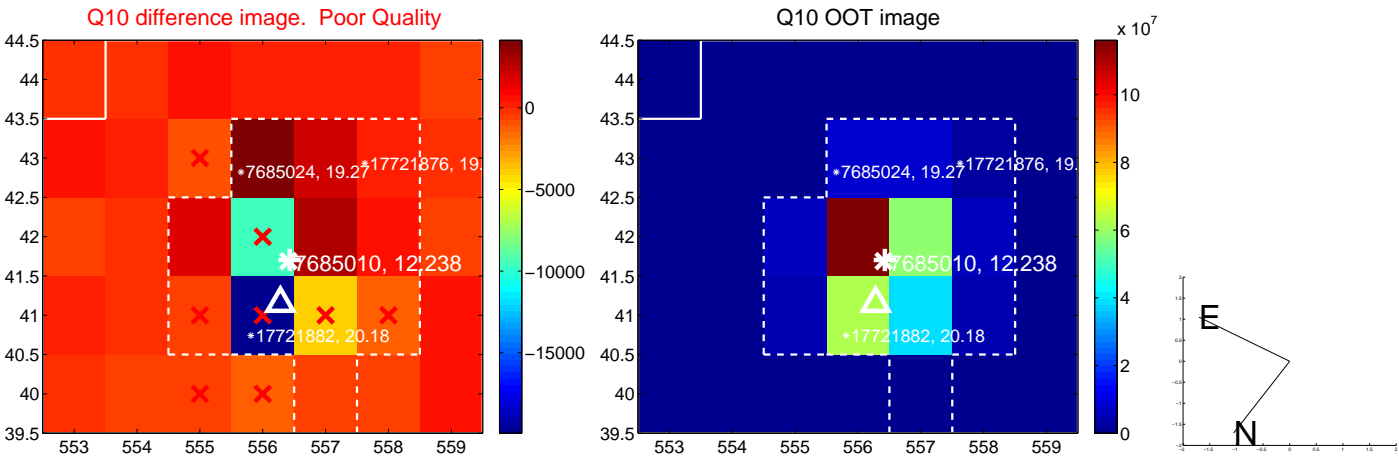
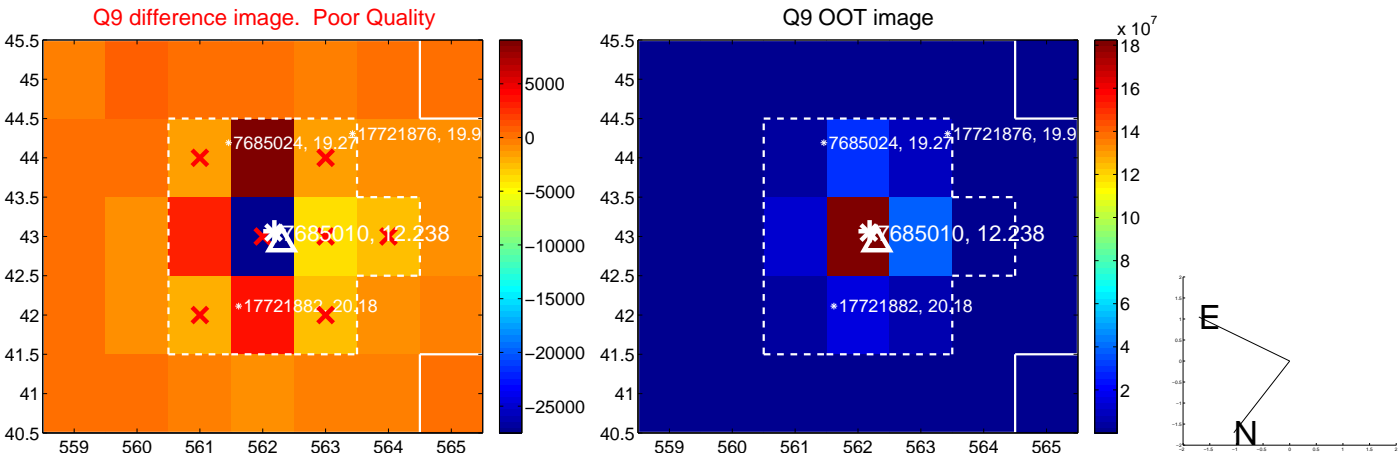
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

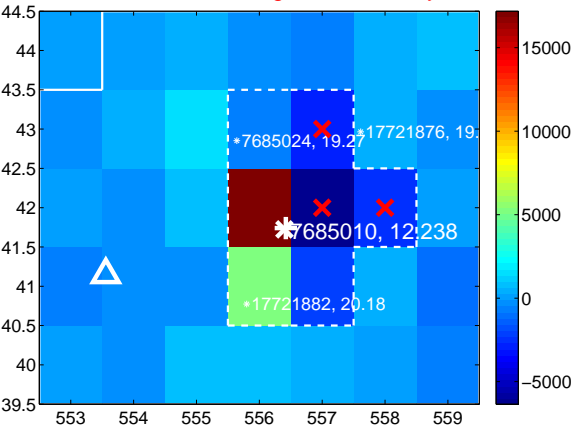
Q13 no difference image



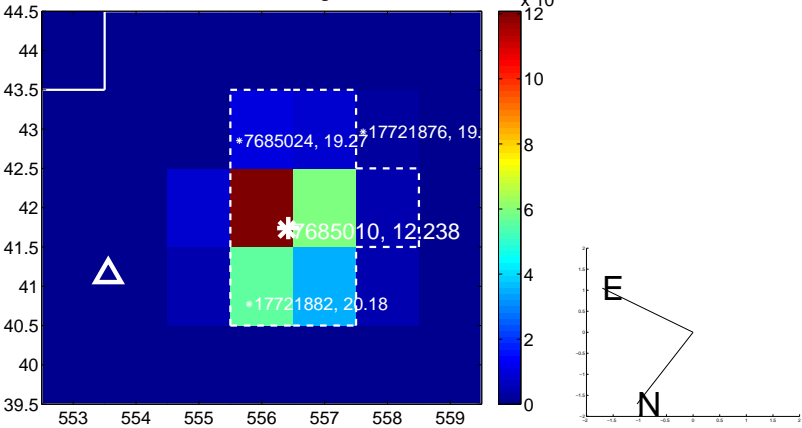
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



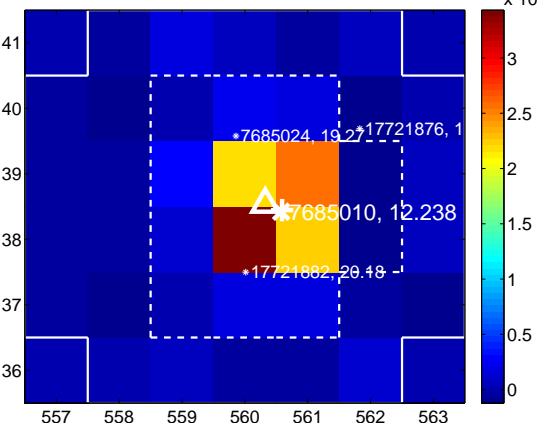
Q15 no difference image



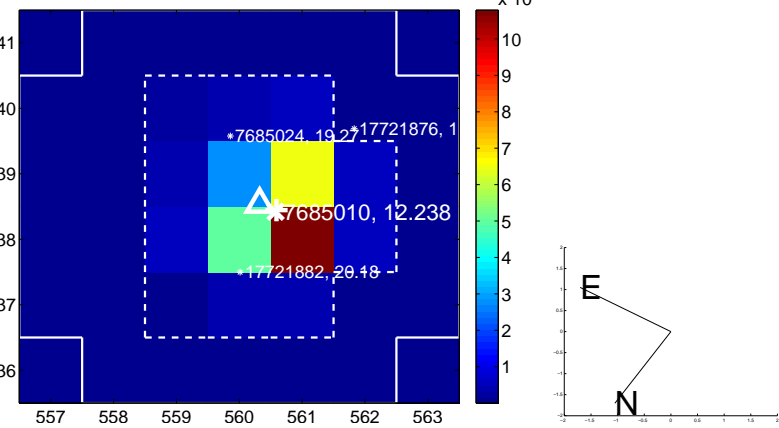
Q15 no OOT image



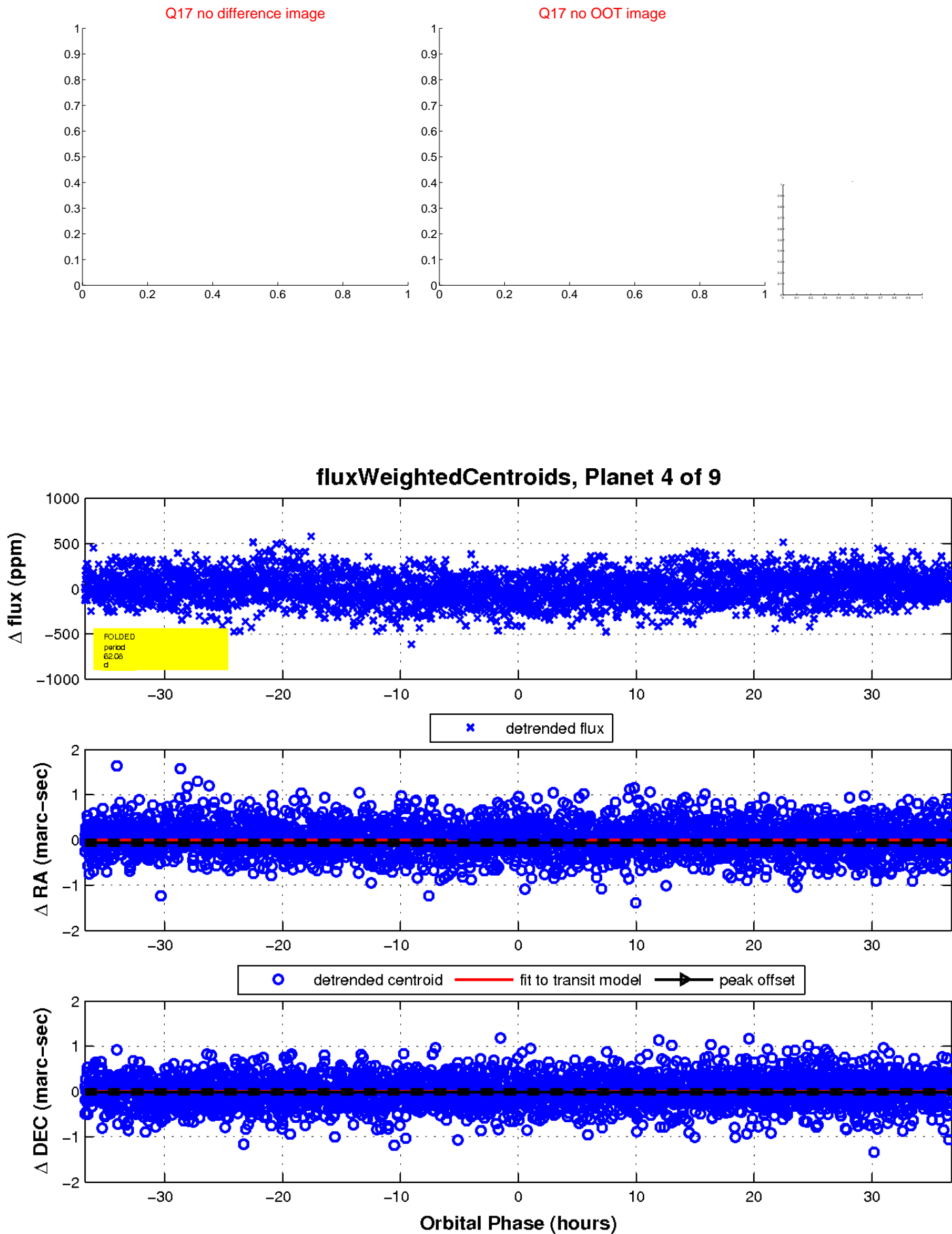
Q16 difference image



Q16 OOT image

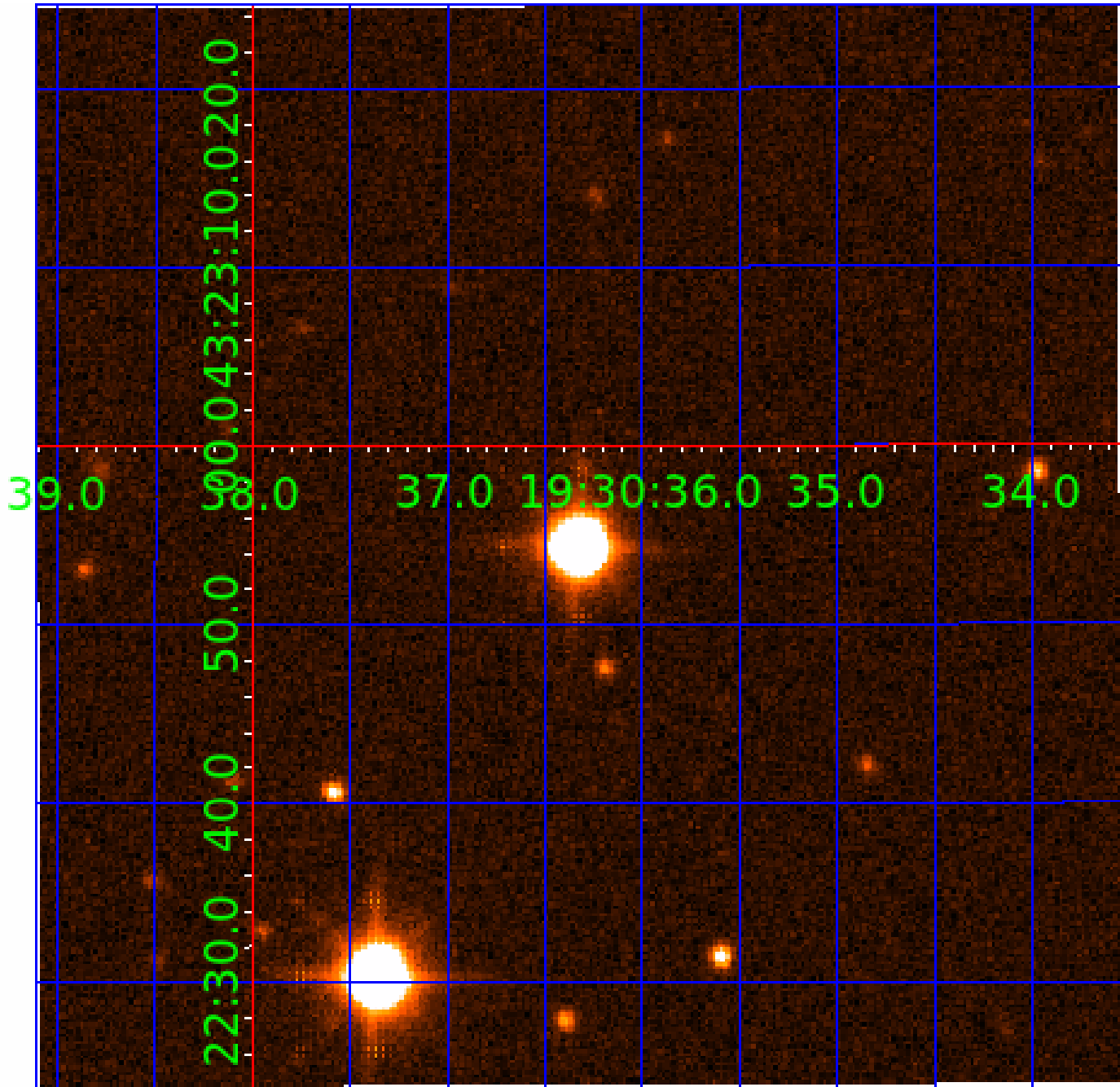


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007685010

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})
007685010-01	OBS	No	2.150345	131.927710	16.0	11.363	11.4	6.3	2.05	6502	0.86	4951.83
007685010-02	OBS	No	249.318333	305.627181	441.9	22.058	12.7	11.7	2.05	6502	8.32	8.76
007685010-04	OBS	No	62.081942	175.805349	170.8	12.252	8.8	9.1	2.05	6502	2.87	55.91
007685010-05	OBS	No	99.804435	178.845873	200.8	5.679	8.7	7.5	2.05	6502	5.75	29.69
007685010-07	OBS	No	49.230875	170.930530	131.9	9.309	8.0	7.9	2.05	6502	2.69	76.17
007685010-08	OBS	No	110.398535	199.878663	171.6	5.029	7.6	6.8	2.05	6502	3.06	25.95
007685010-09	OBS	No	86.849723	185.394836	177.8	4.775	7.3	7.7	2.05	6502	3.08	35.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007685010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007685010-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007685010-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
007685010-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007685010-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

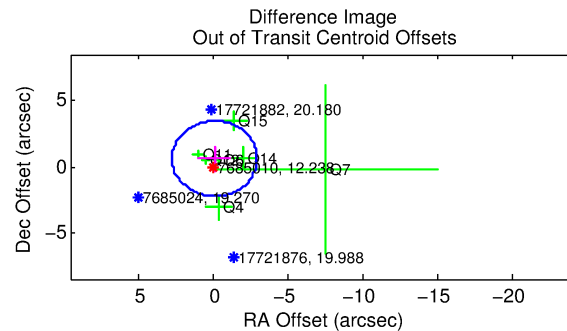
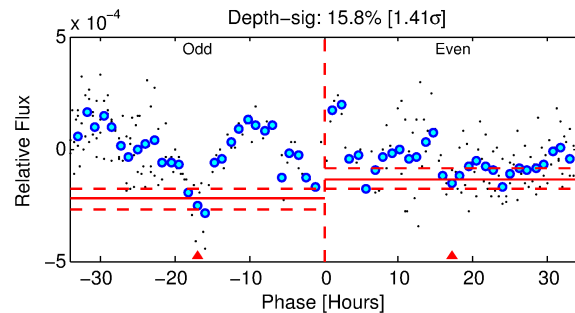
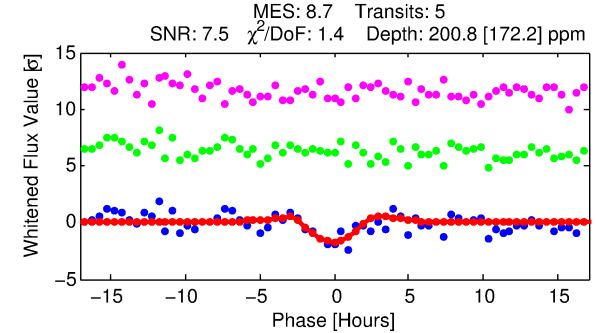
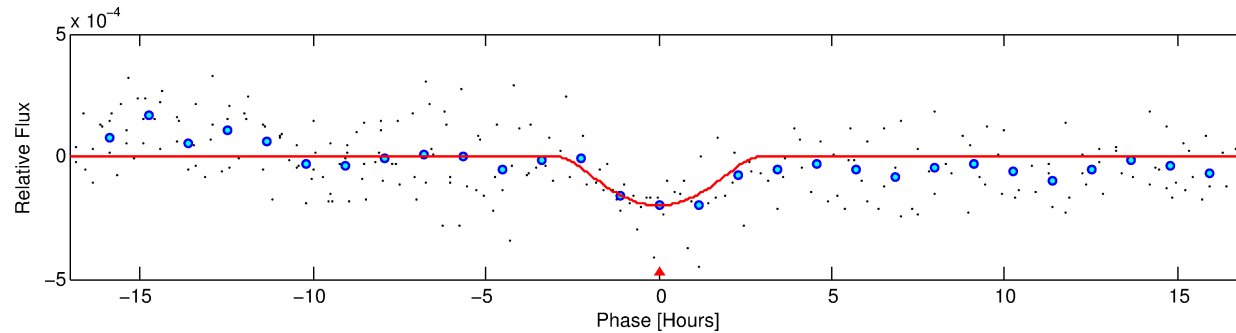
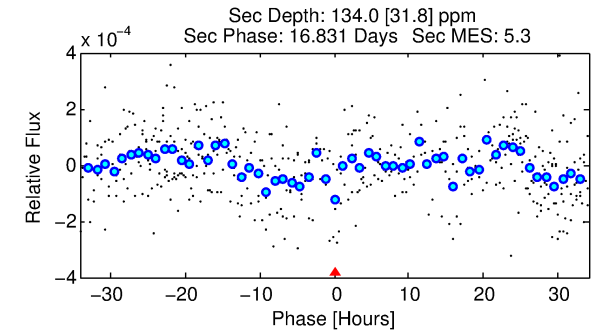
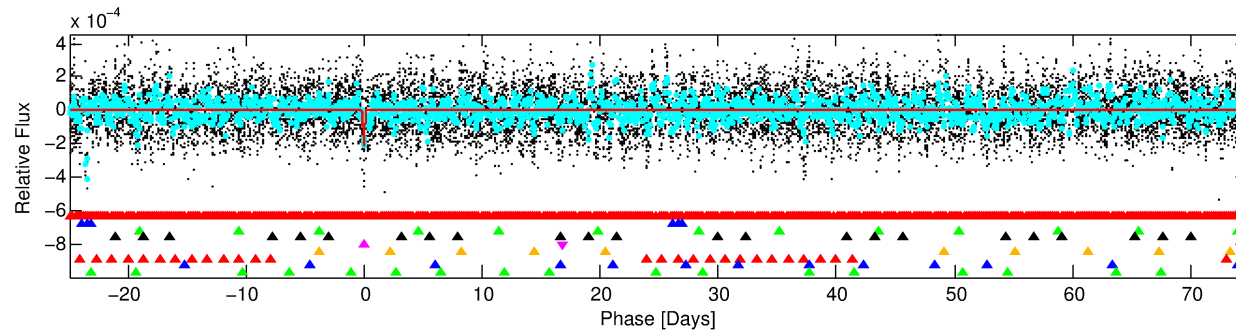
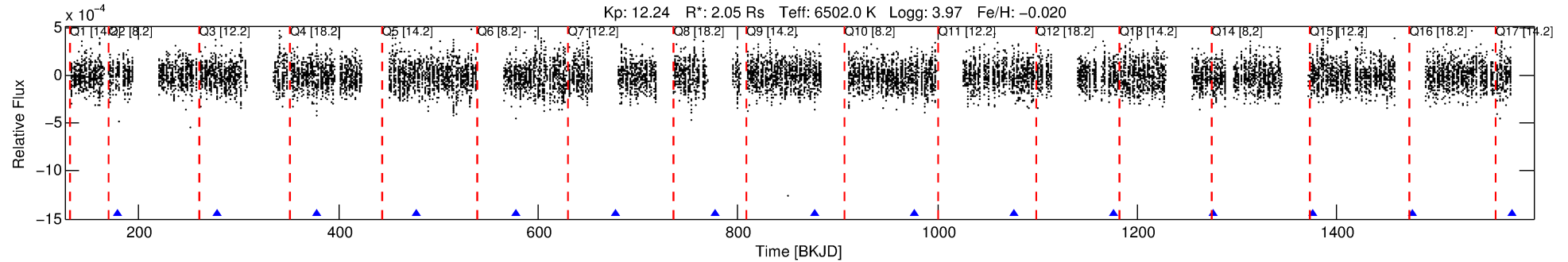
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007685010-05

No Significant Match Found

DV One-Page Summary

KIC: 7685010 Candidate: 5 of 9 Period: 99.804 d



DV Fit Results:

Period = 99.80443 [0.00310] d
Epoch = 178.8459 [0.0236] BKJD
Rp/R* = 0.0257 [0.1240]
a/R* = 30.69 [40.16]
b = 1.00 [0.20]
Seff = 29.69 [12.98]
Teq = 595 [65] K
Rp = 5.75 [27.79] Re
a = 0.4759 [0.1321] AU
Ag = 505.80 [4888.96] [0.10σ]
Teffp = 4364 [10536] K [0.36σ]

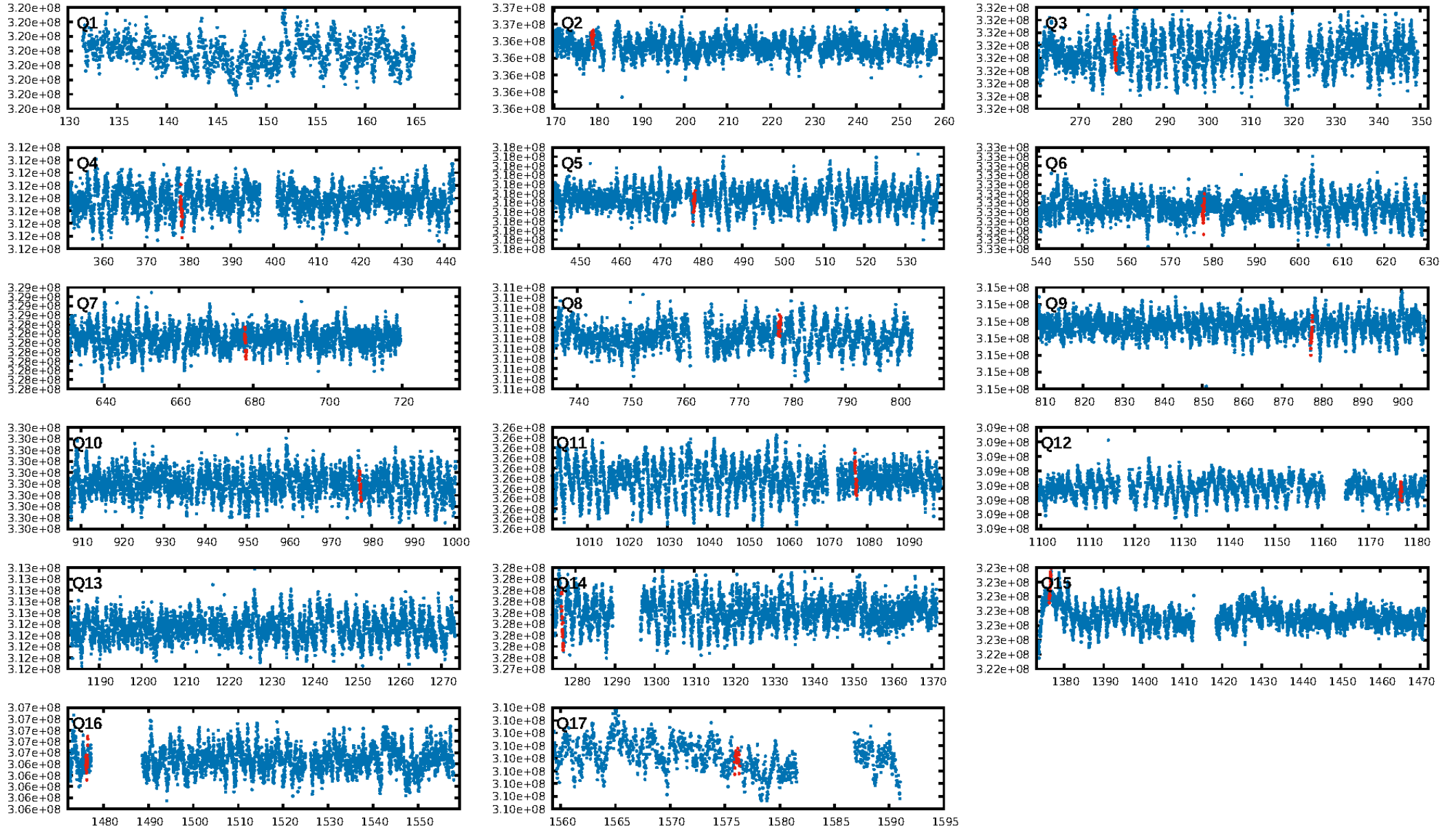
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [41.90σ]
LongPeriod-sig: 100.0% [33.52σ]
ModelChiSquare2-sig: 78.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.04e-10
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -4.459
Centroid-sig: 24.3%
Centroid-so: 0.602 arcsec [1.10σ]
OotOffset-rm: 0.623 arcsec [0.66σ]
KicOffset-rm: 0.548 arcsec [0.57σ]
OotOffset-st: 2/3/2/0 [7]
KicOffset-st: 2/3/2/0 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.36 [5/14]

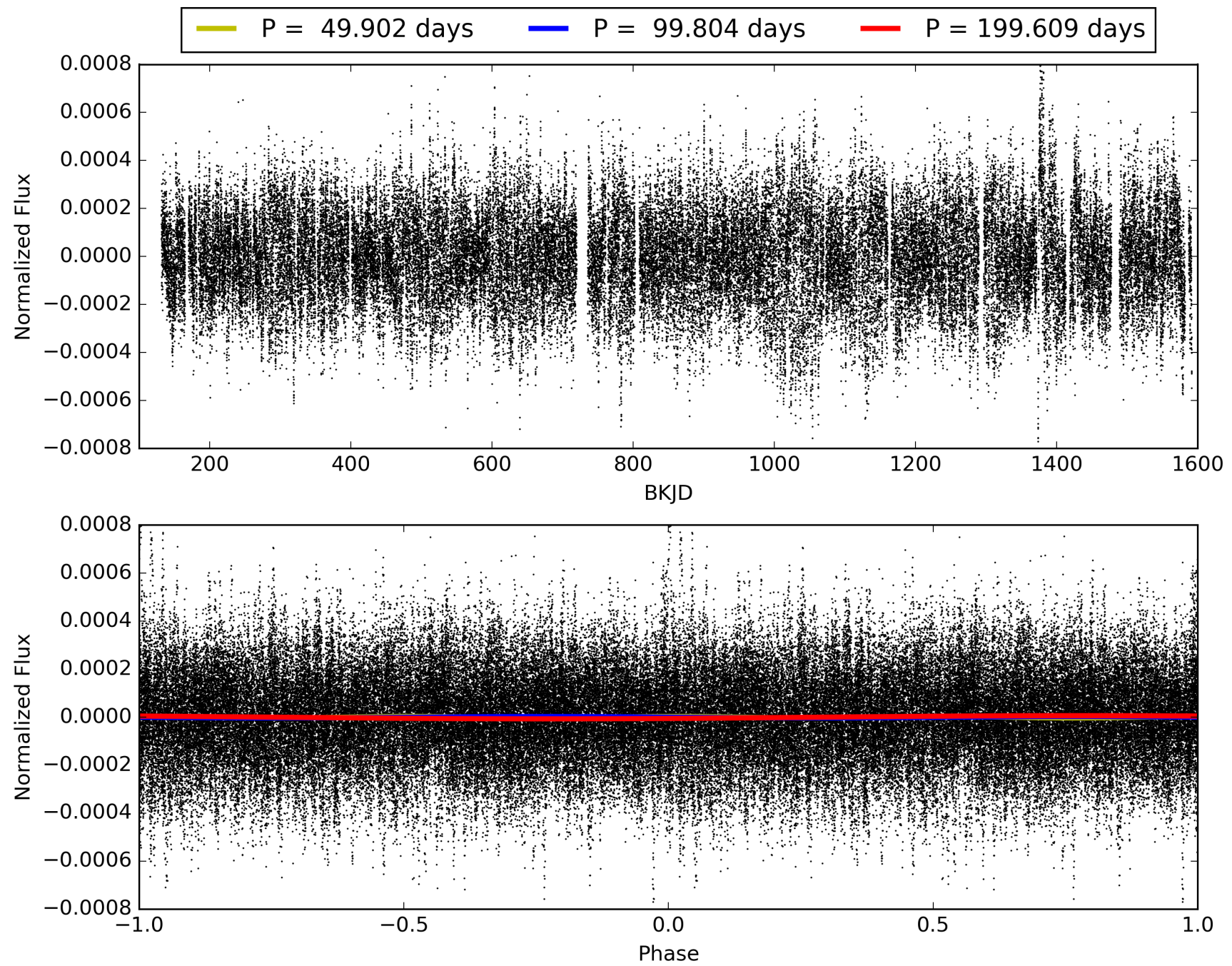
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:21:37 Z

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

TCE 007685010-05, PDC Light Curves

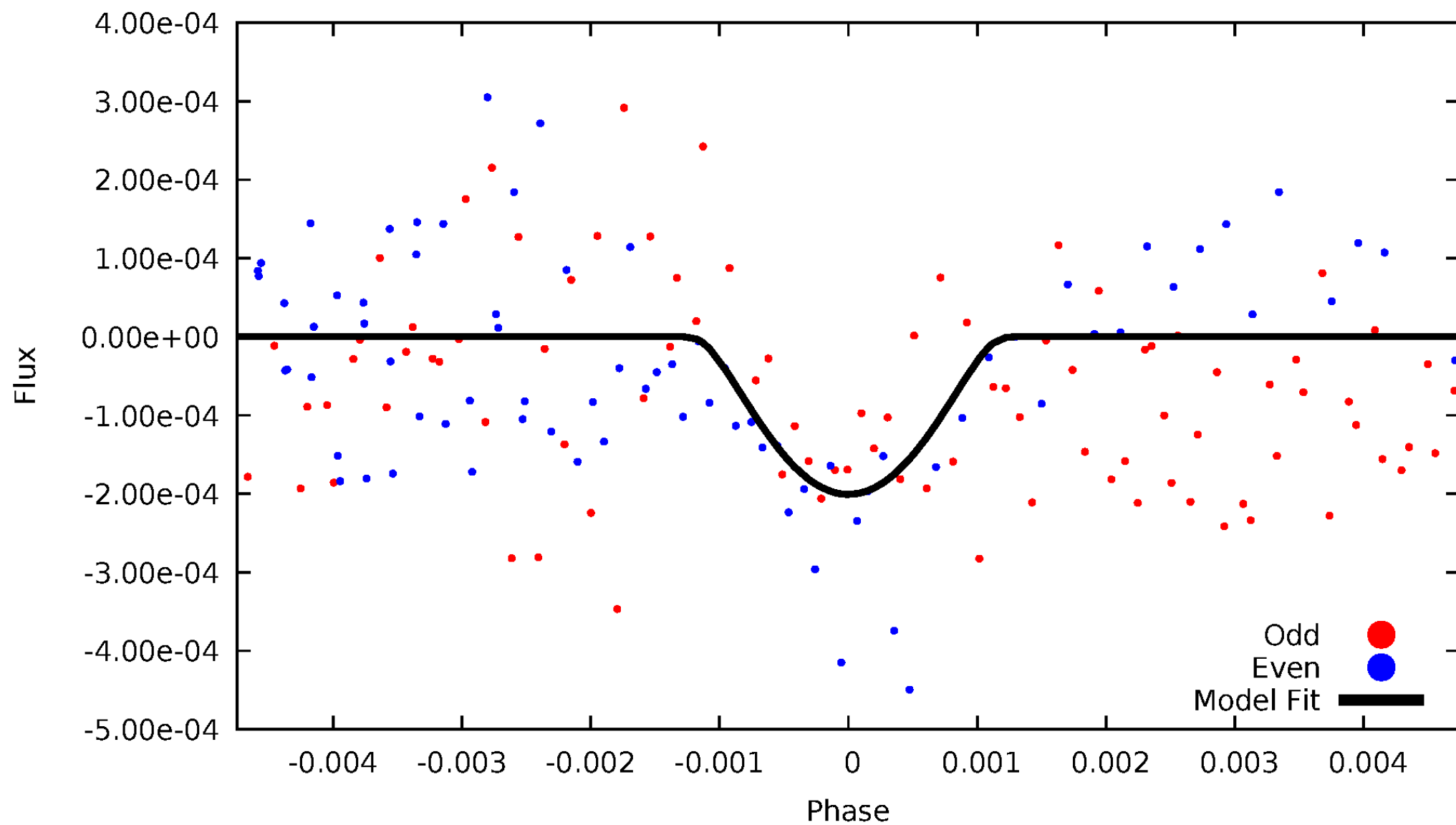


TCE 007685010-05



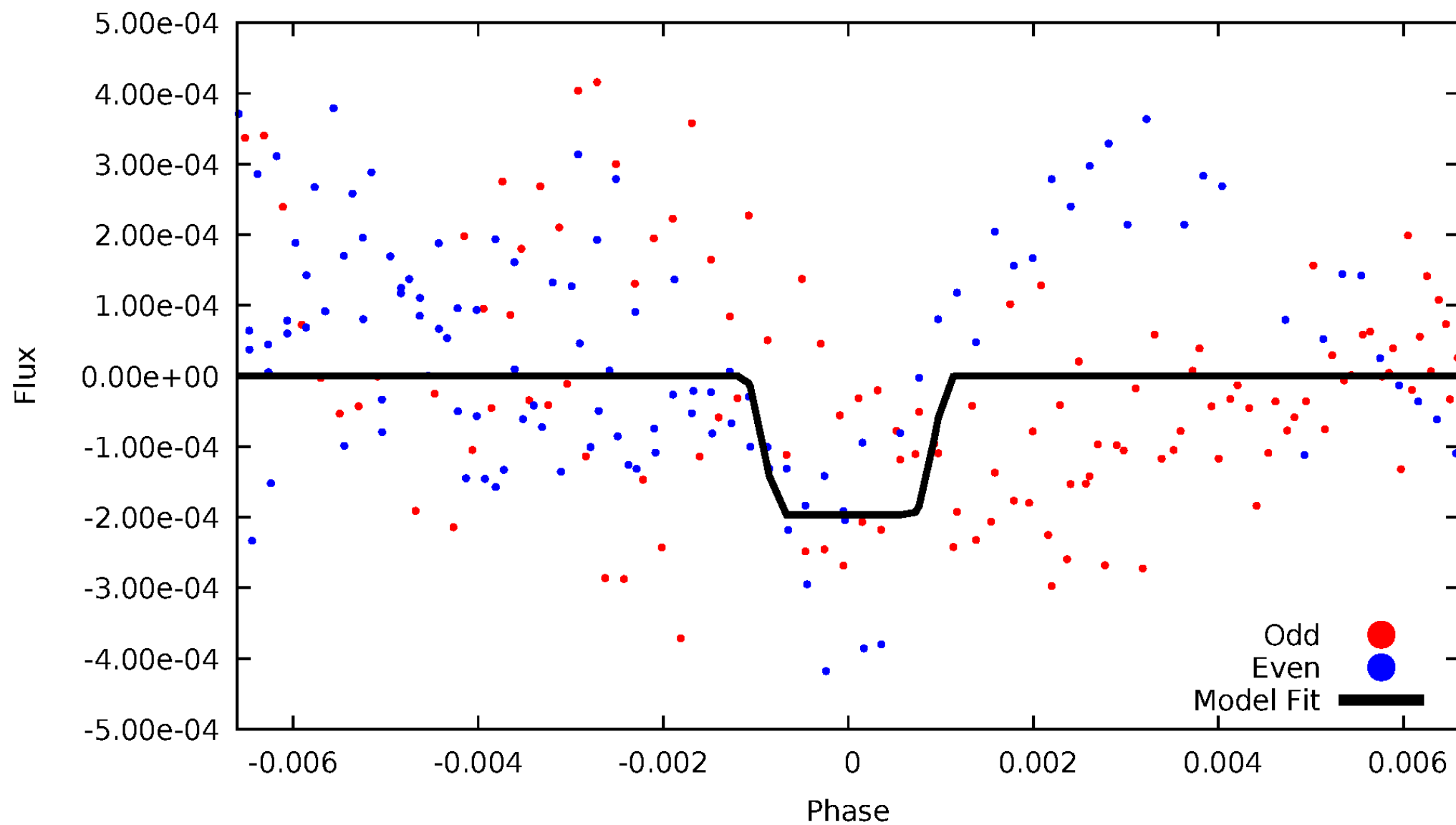
DV Odd/Even

TCE 007685010-05



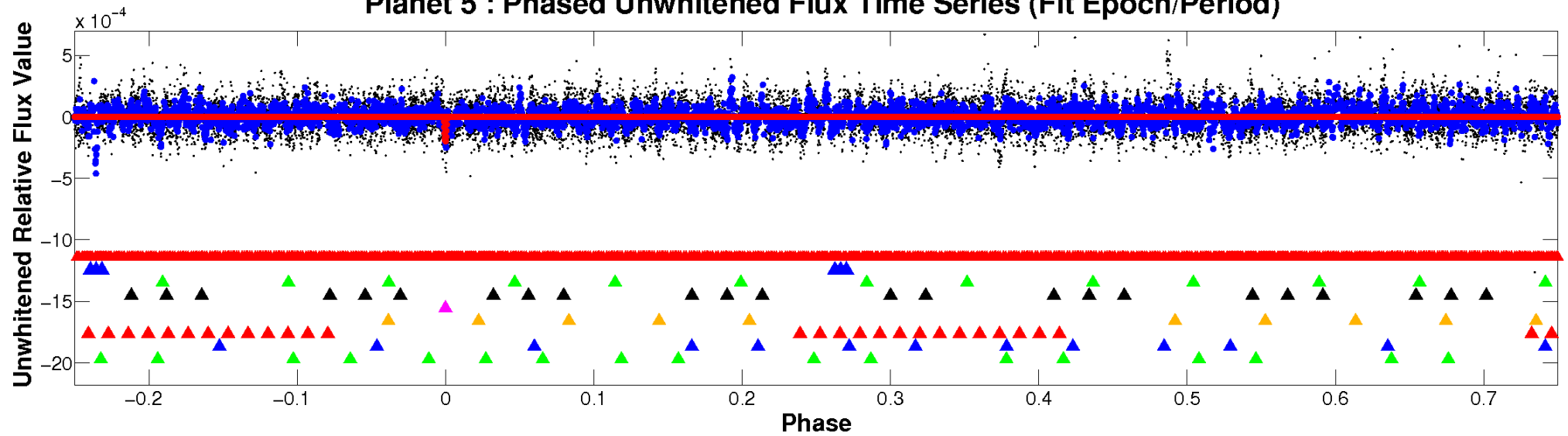
ALT Odd/Even

TCE 007685010-05

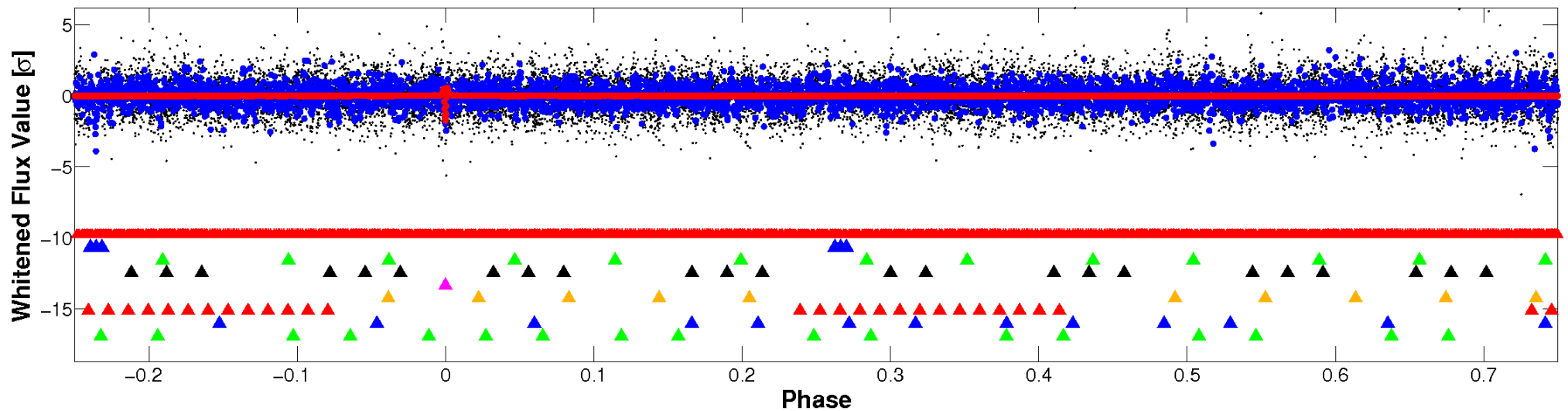


Non-Whitened Vs. Whitened Light Curve

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

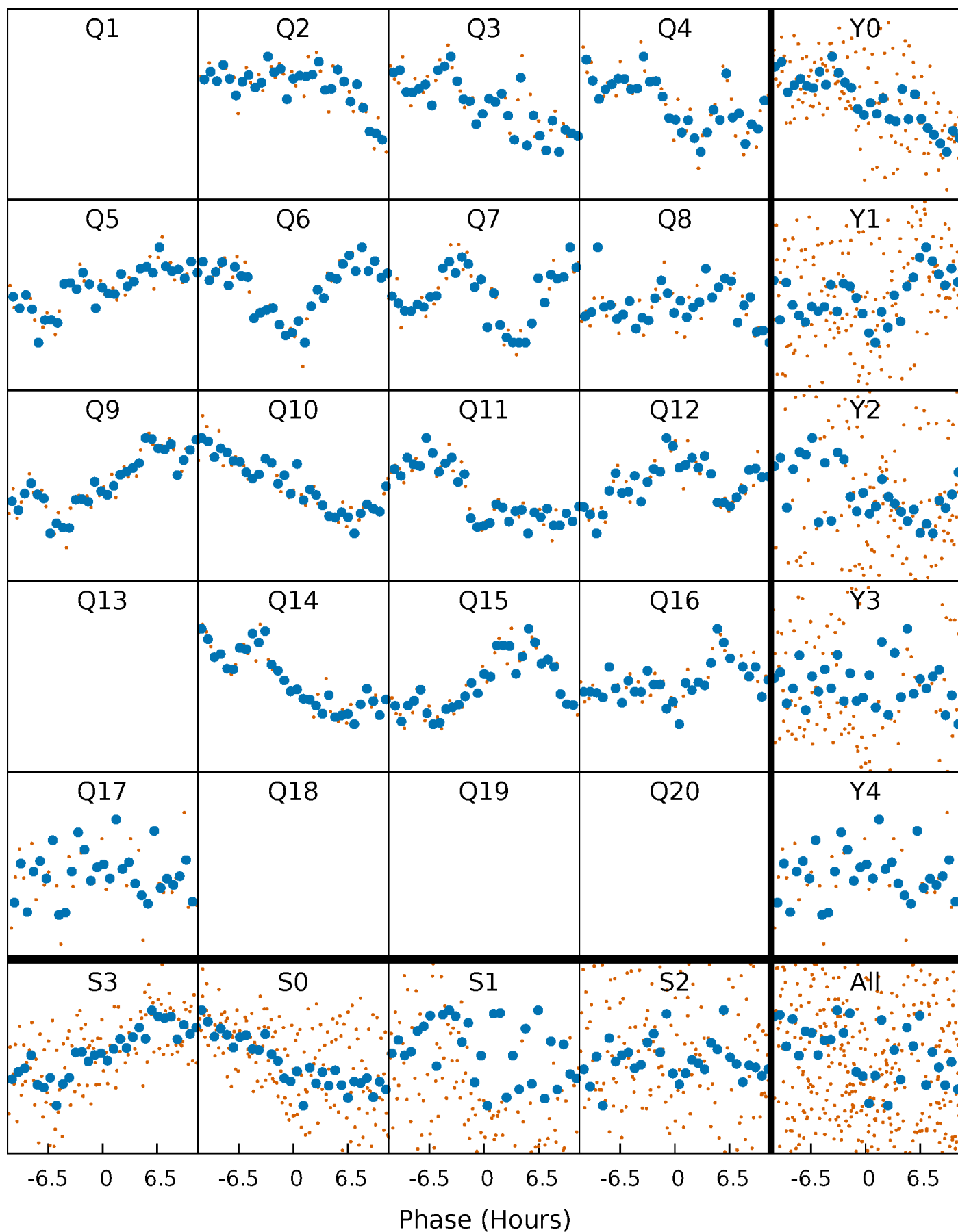


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



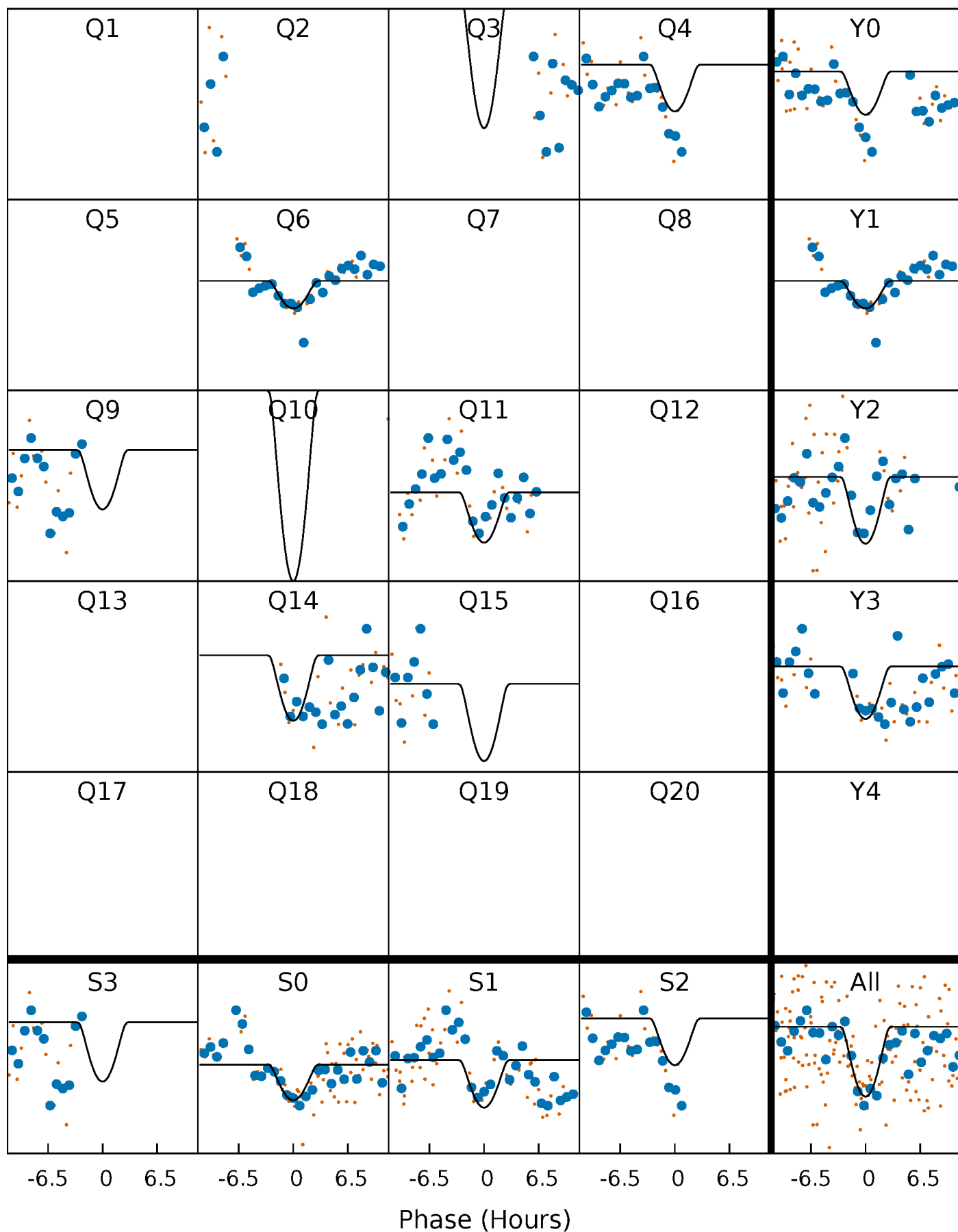
PDC Quarter-Phased Transit Curves

TCE 007685010-05 P= 99.804435 Days $T_0=178.845873$ (BKJD)



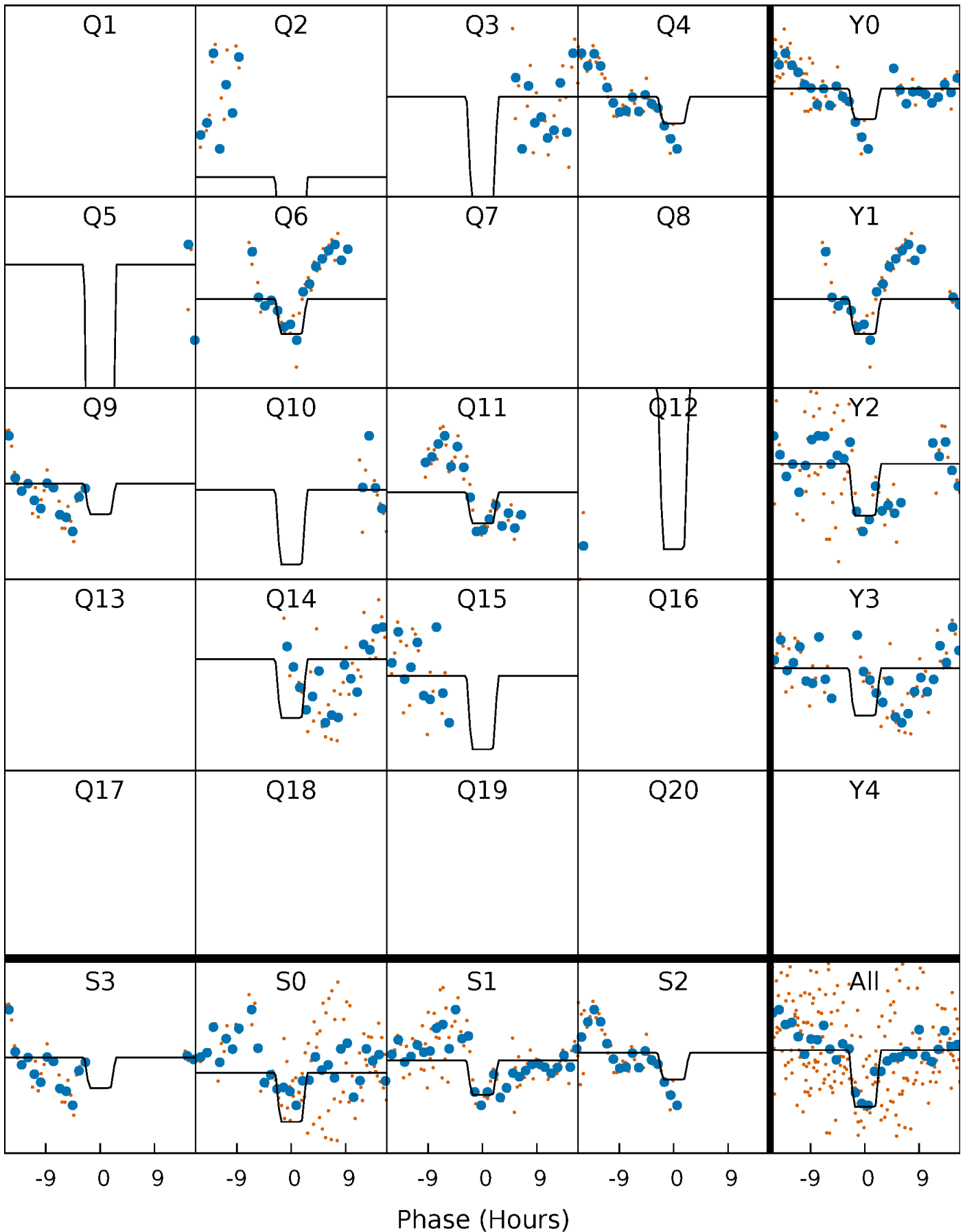
DV Quarter-Phased Transit Curves

TCE 007685010-05 P= 99.804435 Days $T_0=178.845873$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

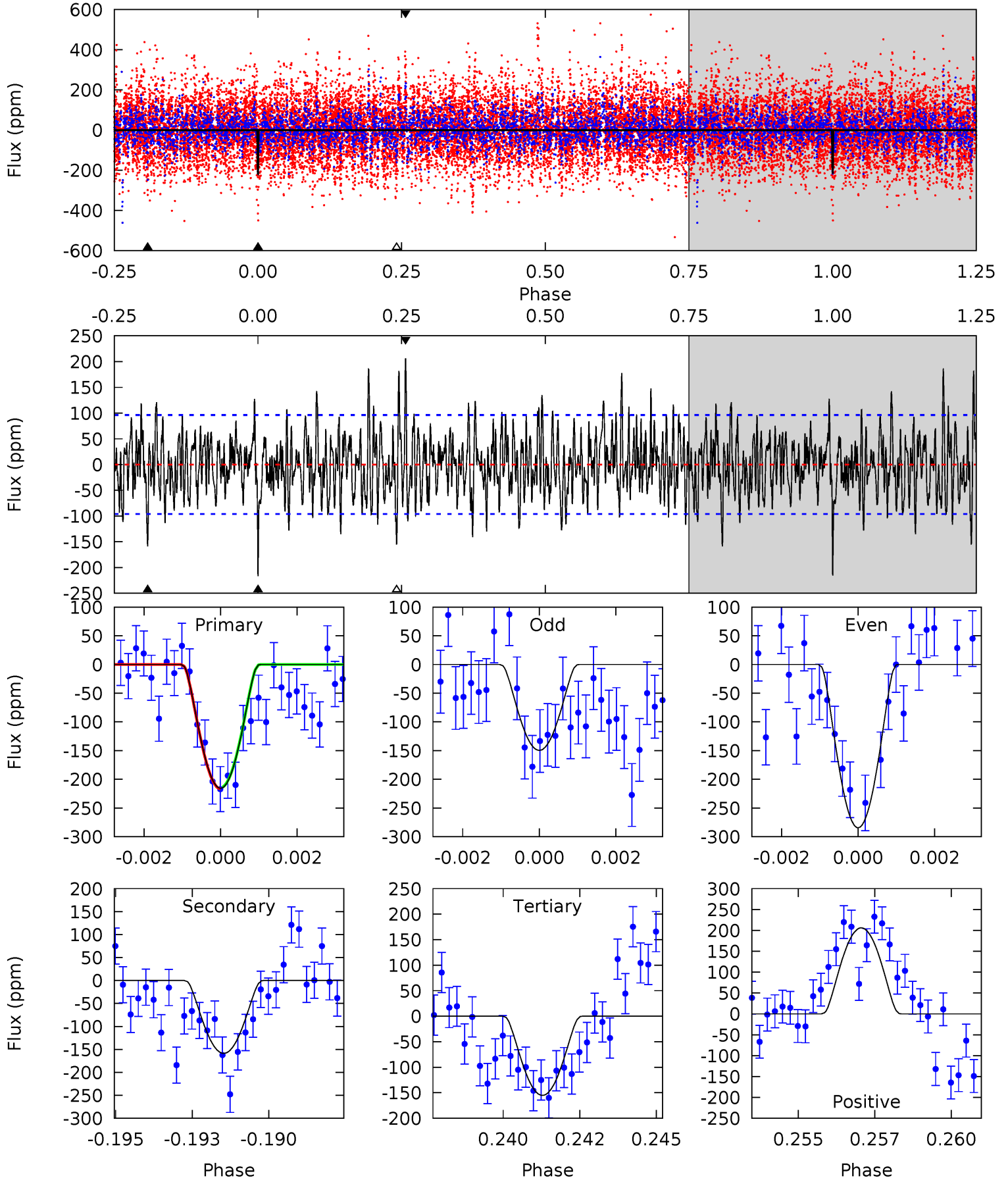
TCE 007685010-05 P= 99.801057 Days $T_0=178.871318$ (BKJD)



DV Model-Shift Uniqueness Test

007685010-05, P = 99.804435 Days, E = 79.041438 Days

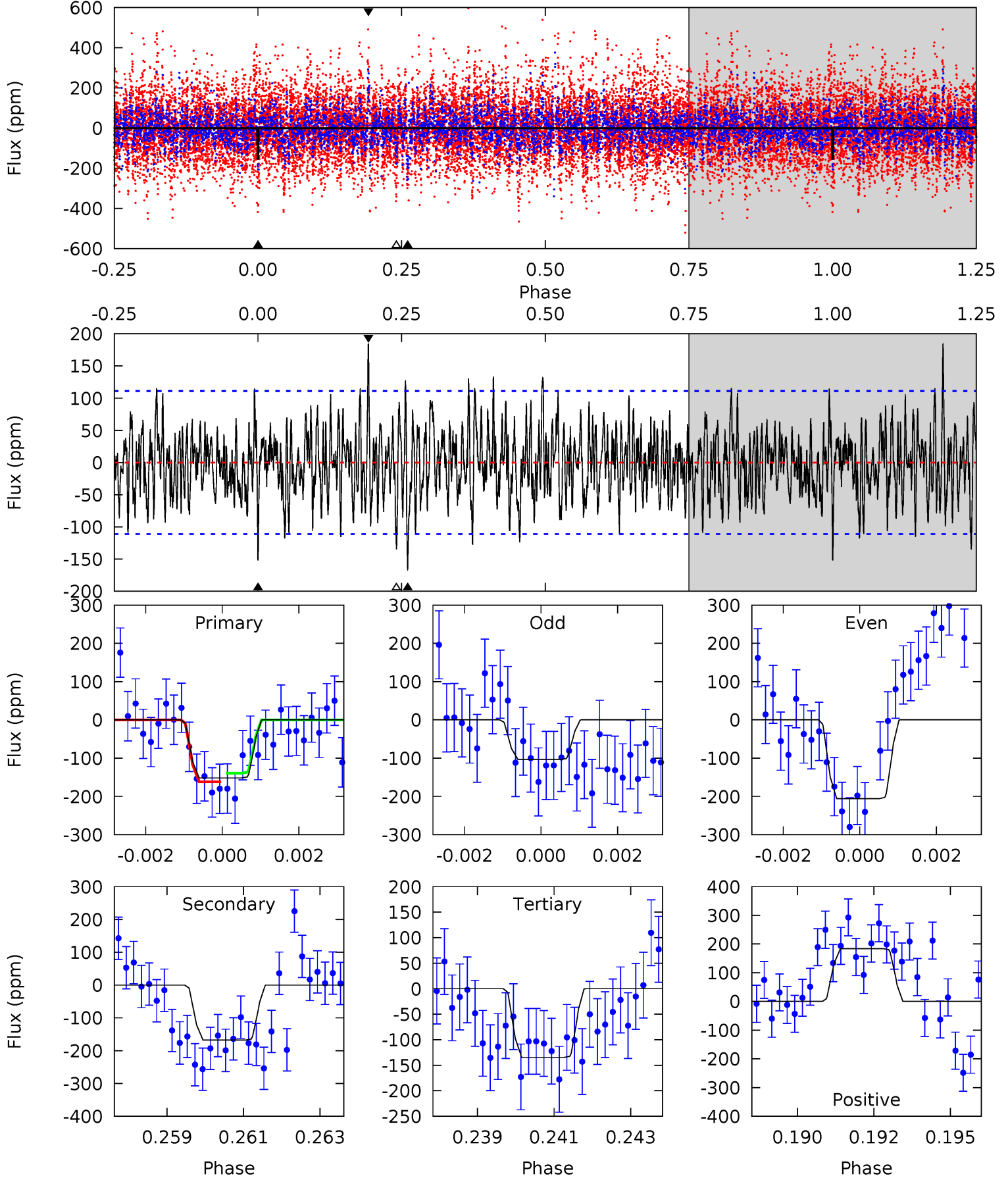
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	8.73	8.53	11.3	5.29	3.03	2.82	3.33	0.53	0.20	-2.60	3.70	0.99	0.49	0.08



Alt Model-Shift Uniqueness Test

007685010-05, P = 99.801057 Days, E = 79.070261 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.25	8.01	6.43	8.79	5.31	3.06	2.12	0.82	-1.54	1.57	-0.79	2.44	0.99	0.52	0.54



Stellar Parameters For KIC 007685010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6502^{+155}_{-175}	$3.974^{+0.241}_{-0.130}$	$-0.020^{+0.250}_{-0.250}$	$2.049^{+0.477}_{-0.636}$	$1.444^{+0.159}_{-0.273}$	$0.236^{+0.361}_{-0.094}$
	+2%/-3%	+6%/-3%	+1250%/-1250%	+23%/-31%	+11%/-19%	+153%/-40%
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 007685010-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-159 ± 18	$19.69^{+21.76}_{-13.07}$	822^{+51}_{-65}	3042^{+1240}_{-529}	49^{+379}_{-38}
Alt.	-168 ± 21	$19.93^{+19.08}_{-13.53}$	820^{+53}_{-62}	3081^{+1326}_{-512}	53^{+429}_{-39}

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

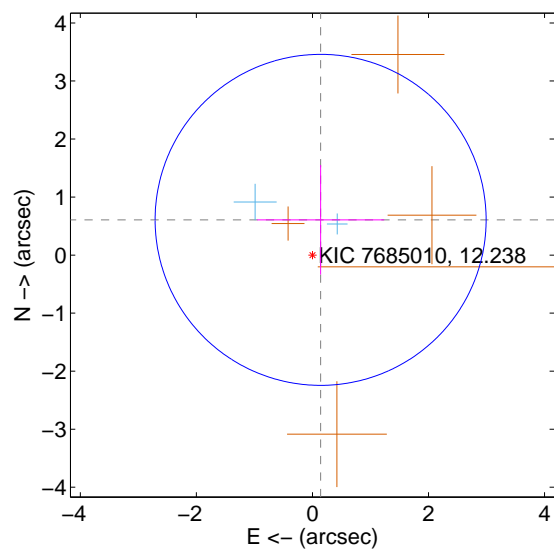
Supplemental centroid analysis for 007685010-05. Kepler magnitude: 12.24. Transit SNR 7.50

There are 2 quarters with good PRF difference image offsets

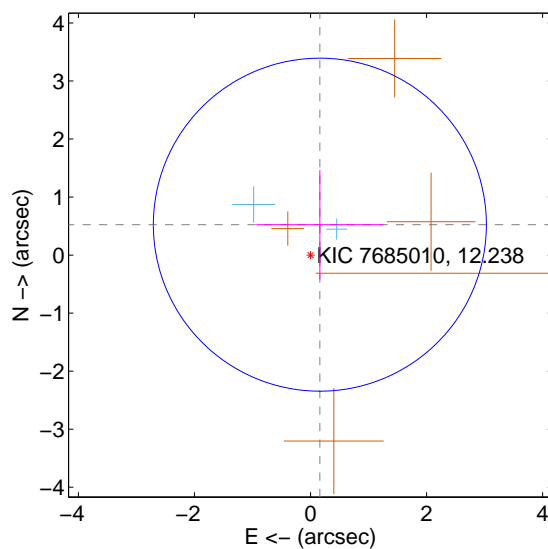
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.623 ± 0.951	0.66	-0.141 ± 1.095	0.607 ± 0.942
PRF-fit source offset from KIC position	0.548 ± 0.956	0.57	-0.161 ± 1.095	0.524 ± 0.942
photometric centroid source offset	0.60 ± 0.55	1.10	0.56 ± 0.56	0.22 ± 0.51

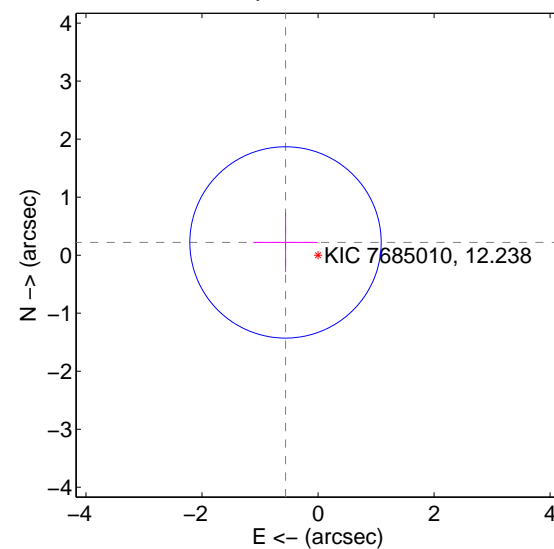
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

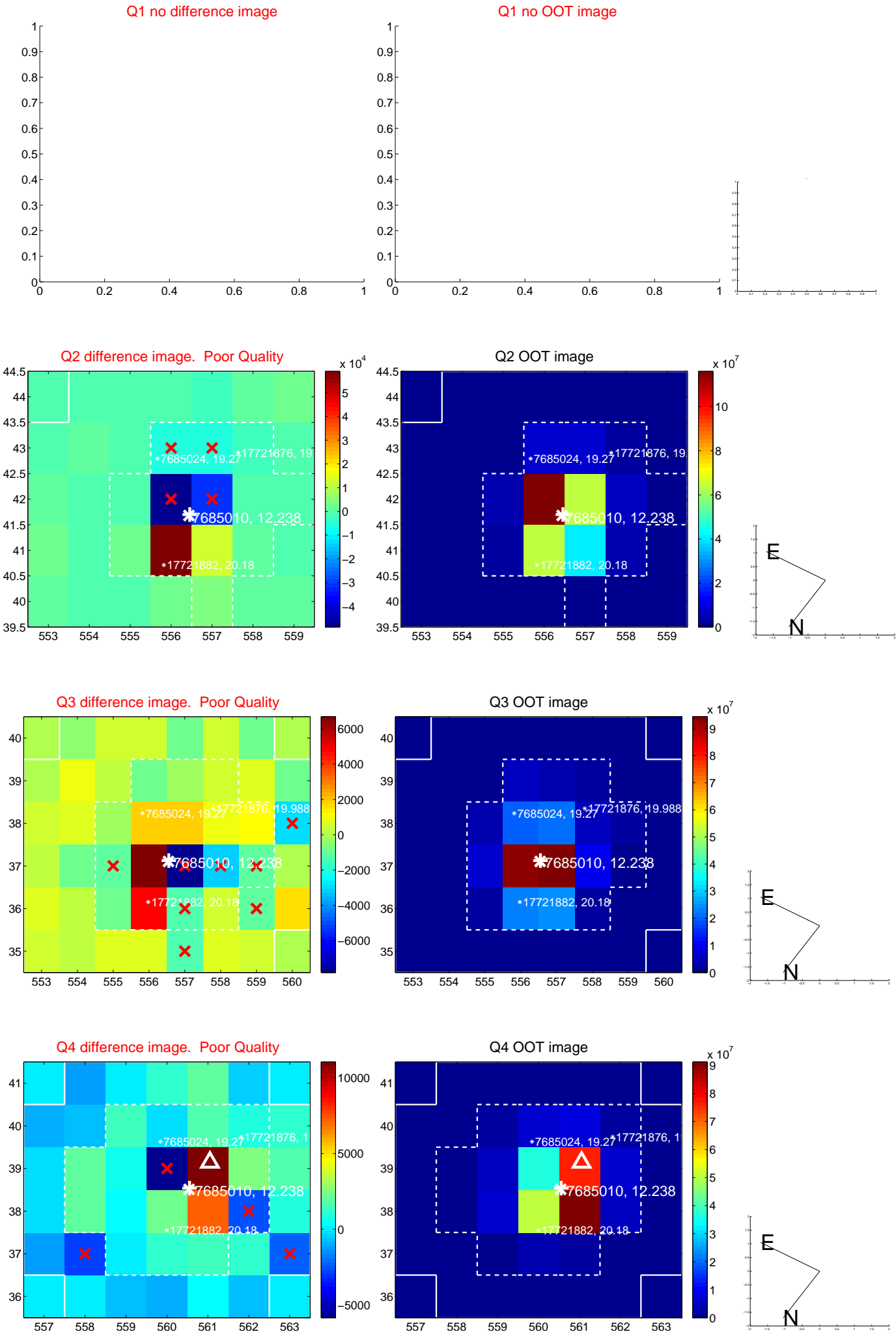


offset from photometric centroids

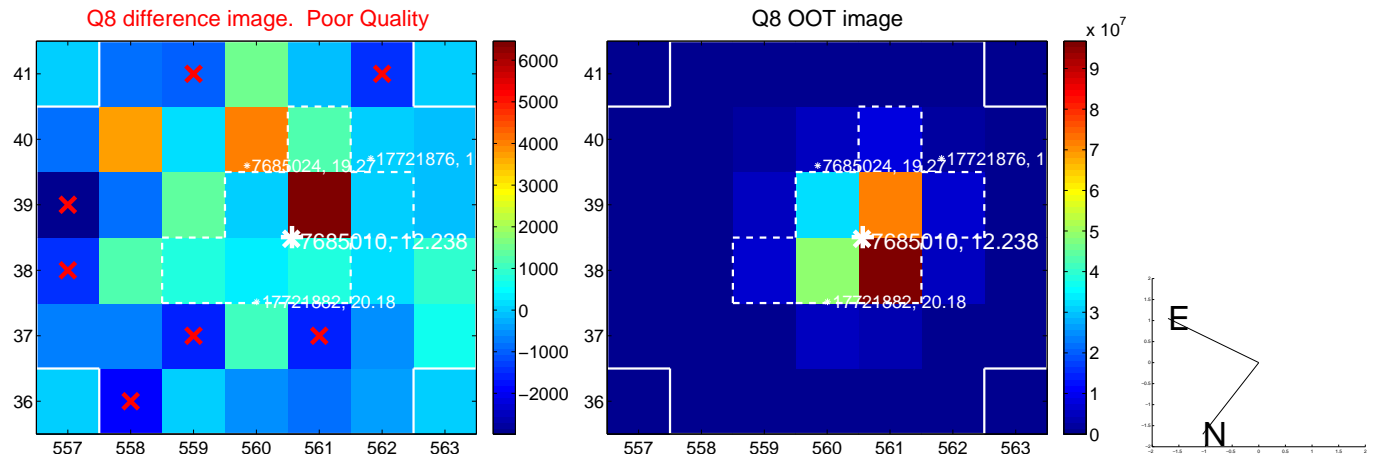
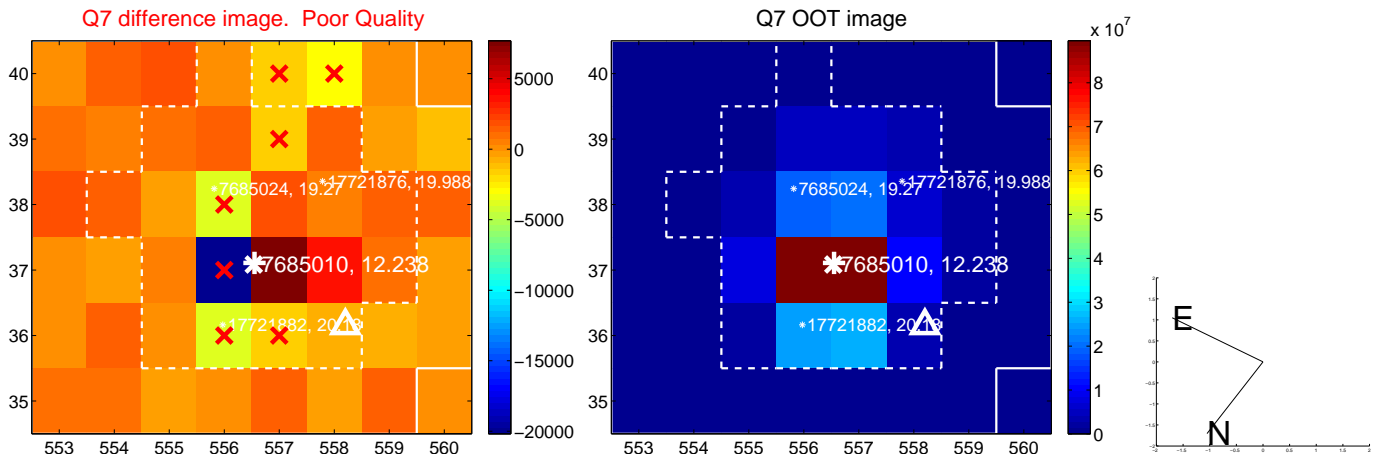
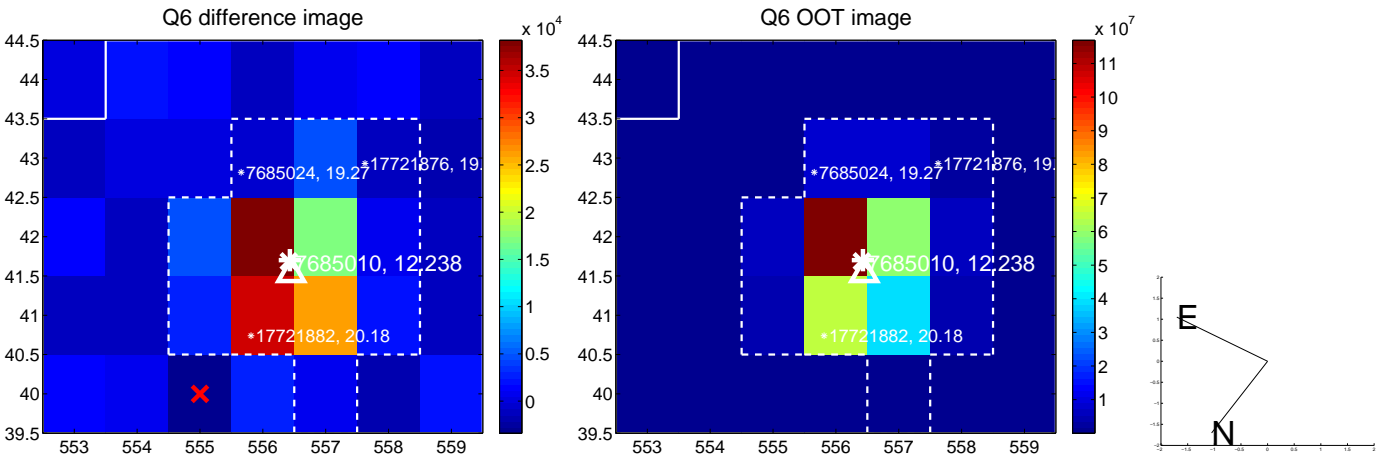
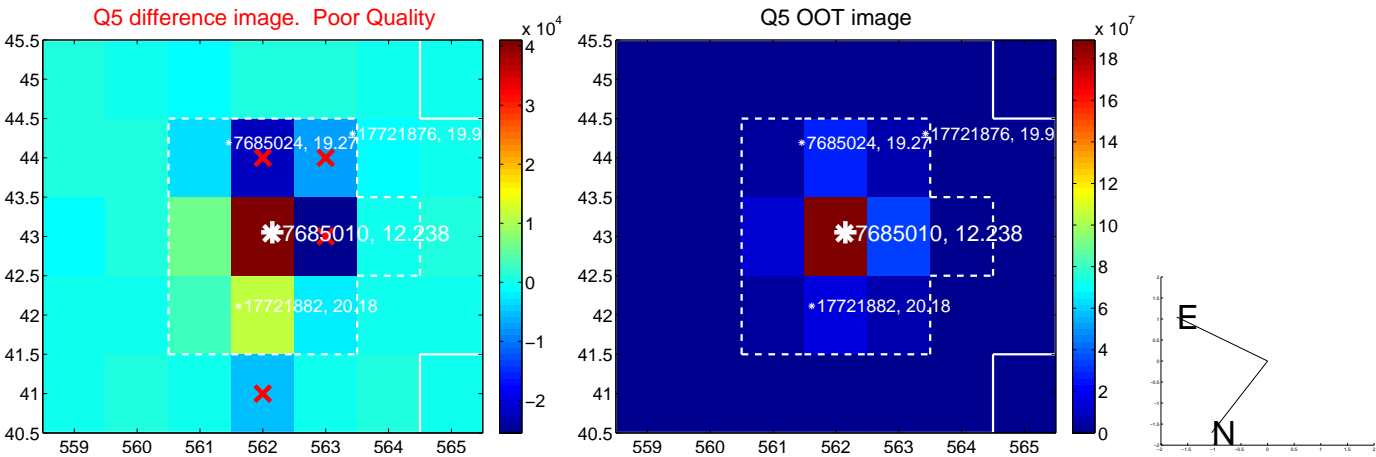


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

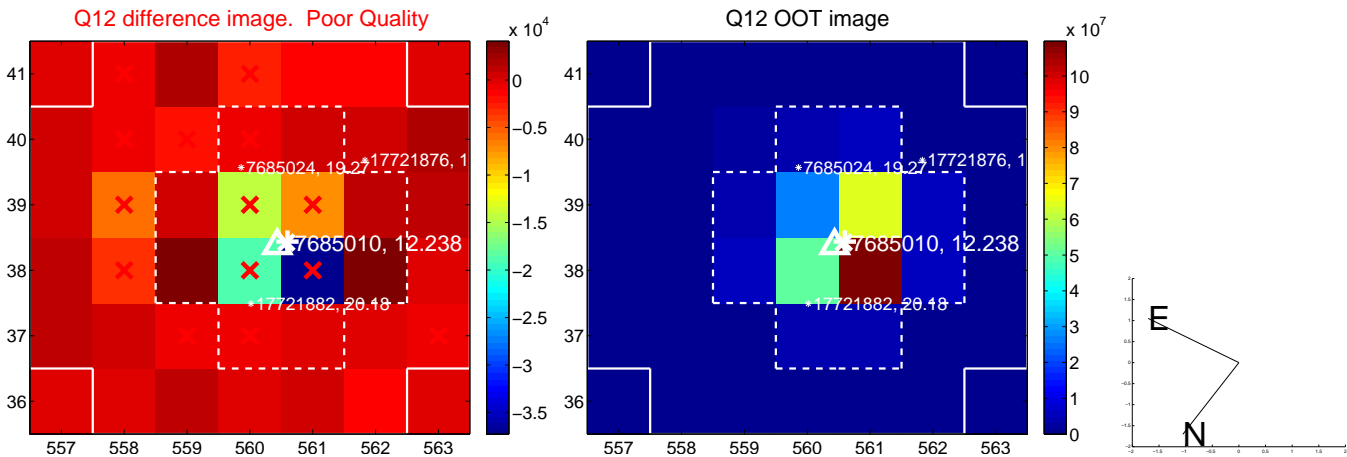
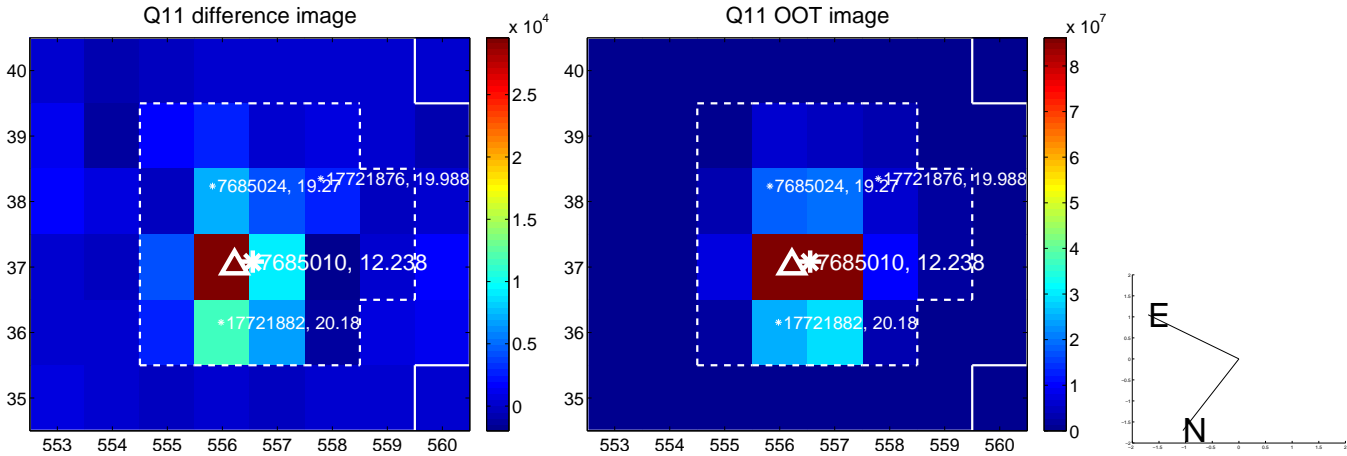
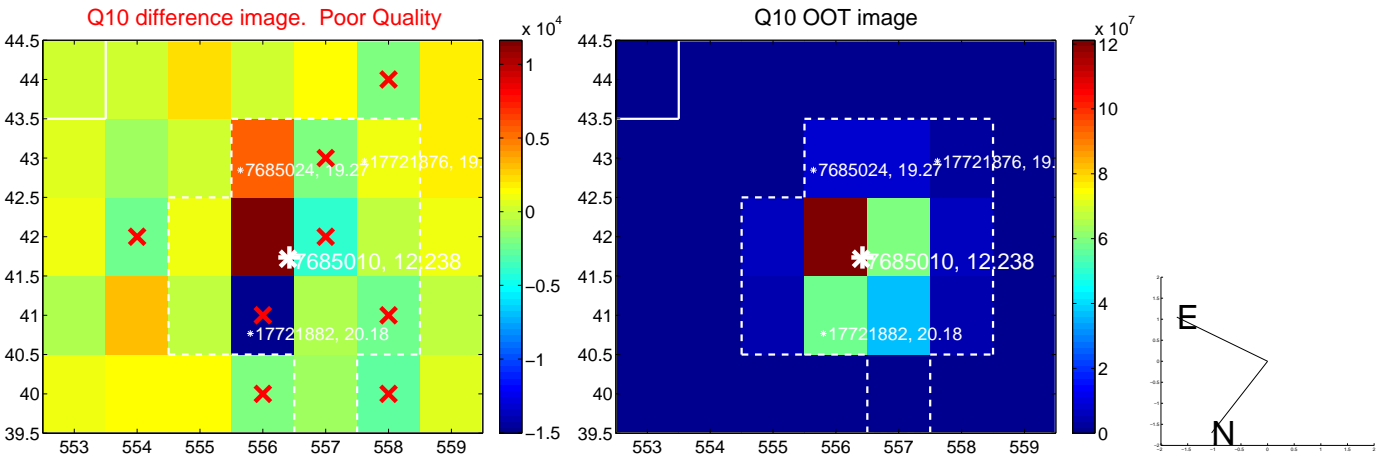
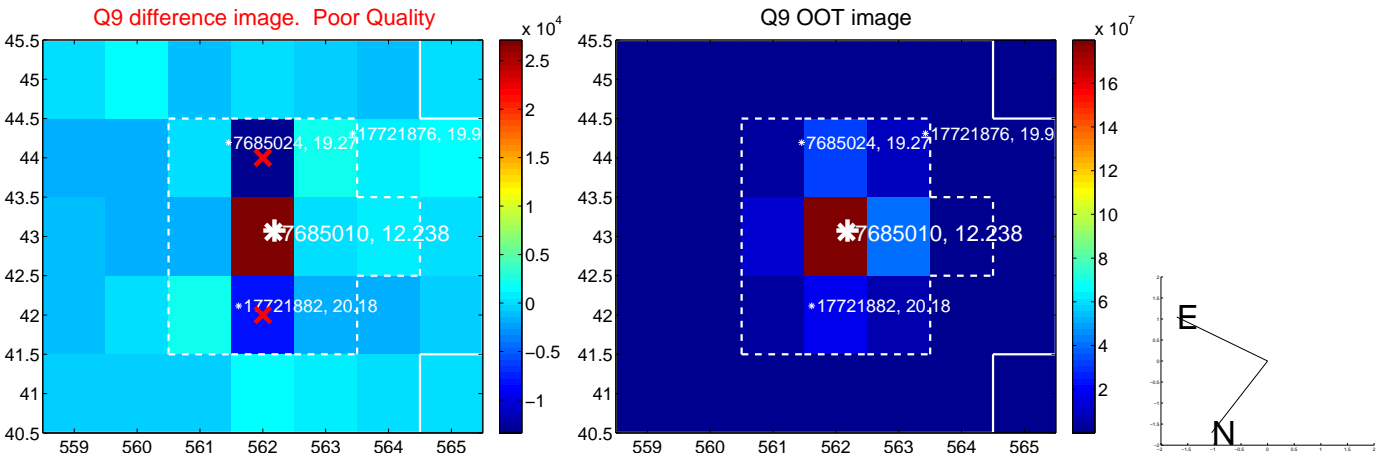
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



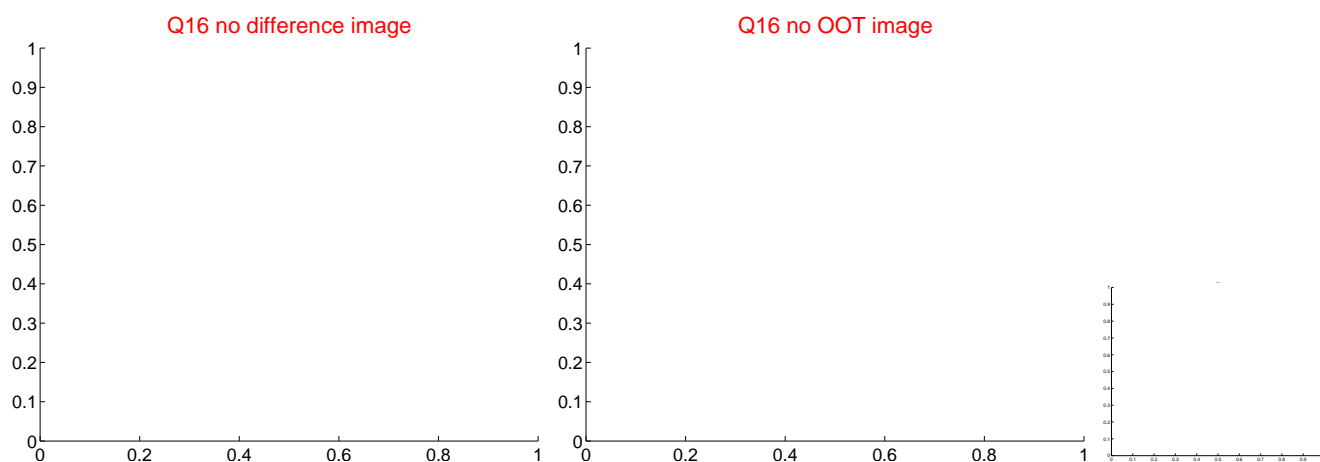
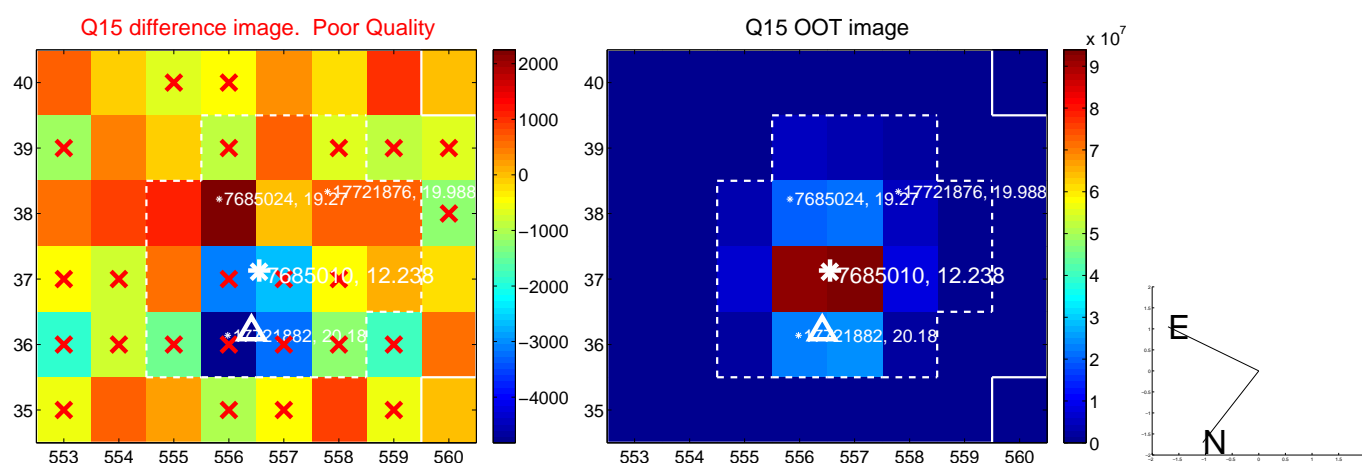
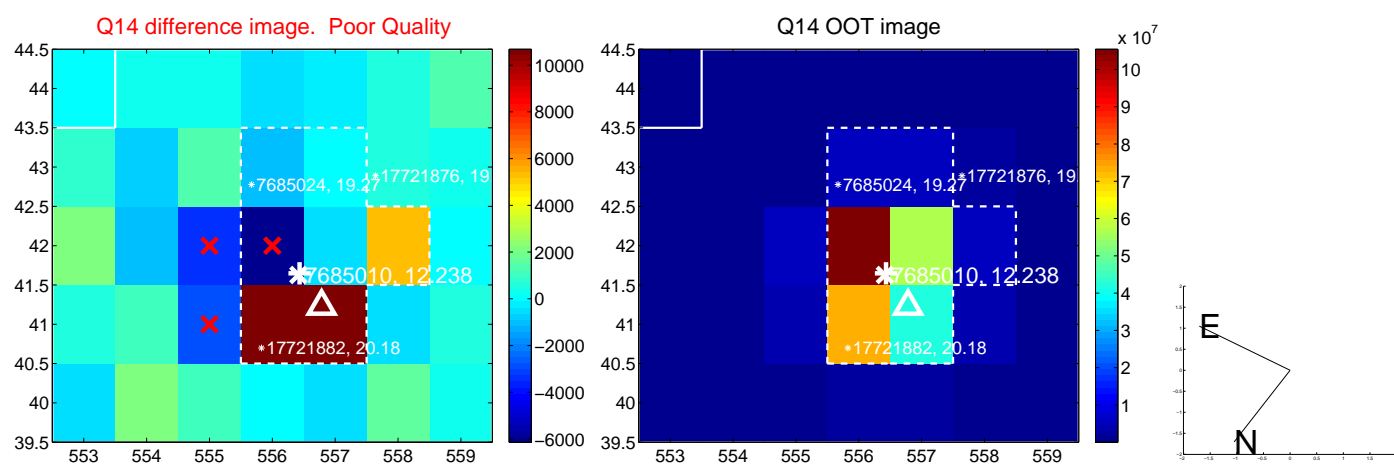
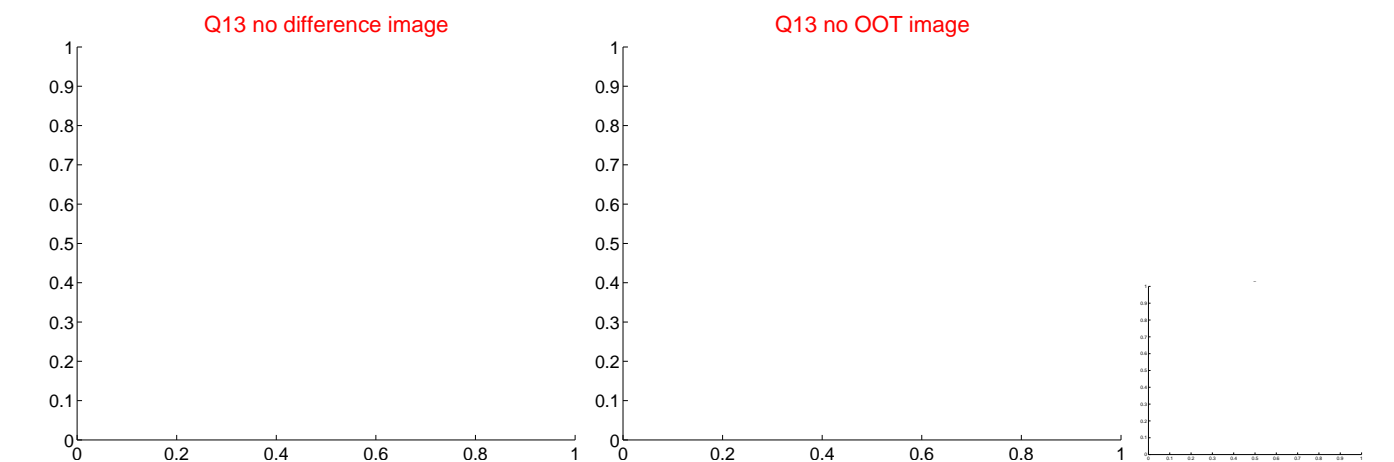
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



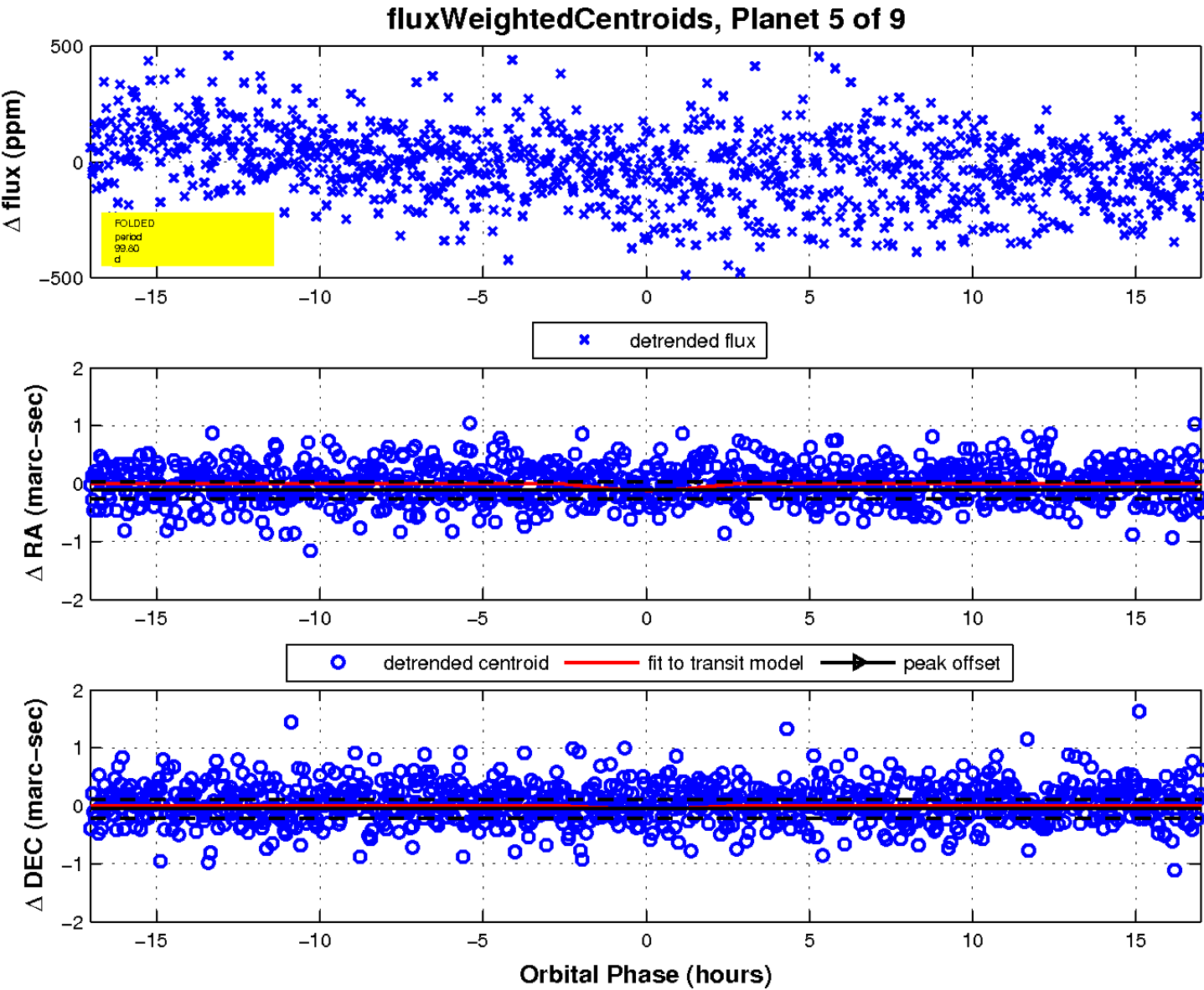
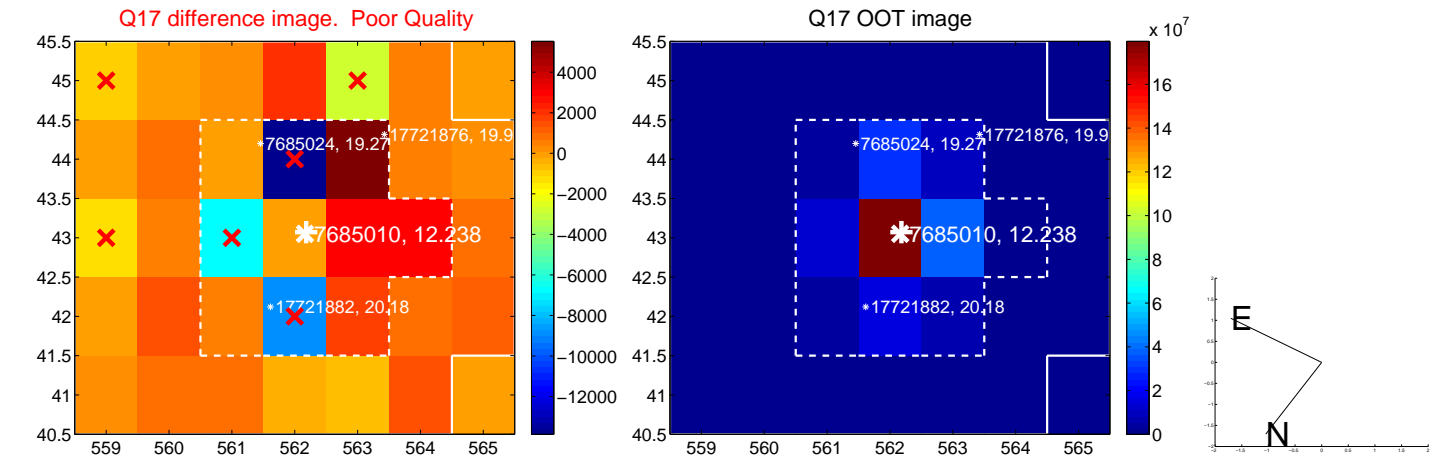
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

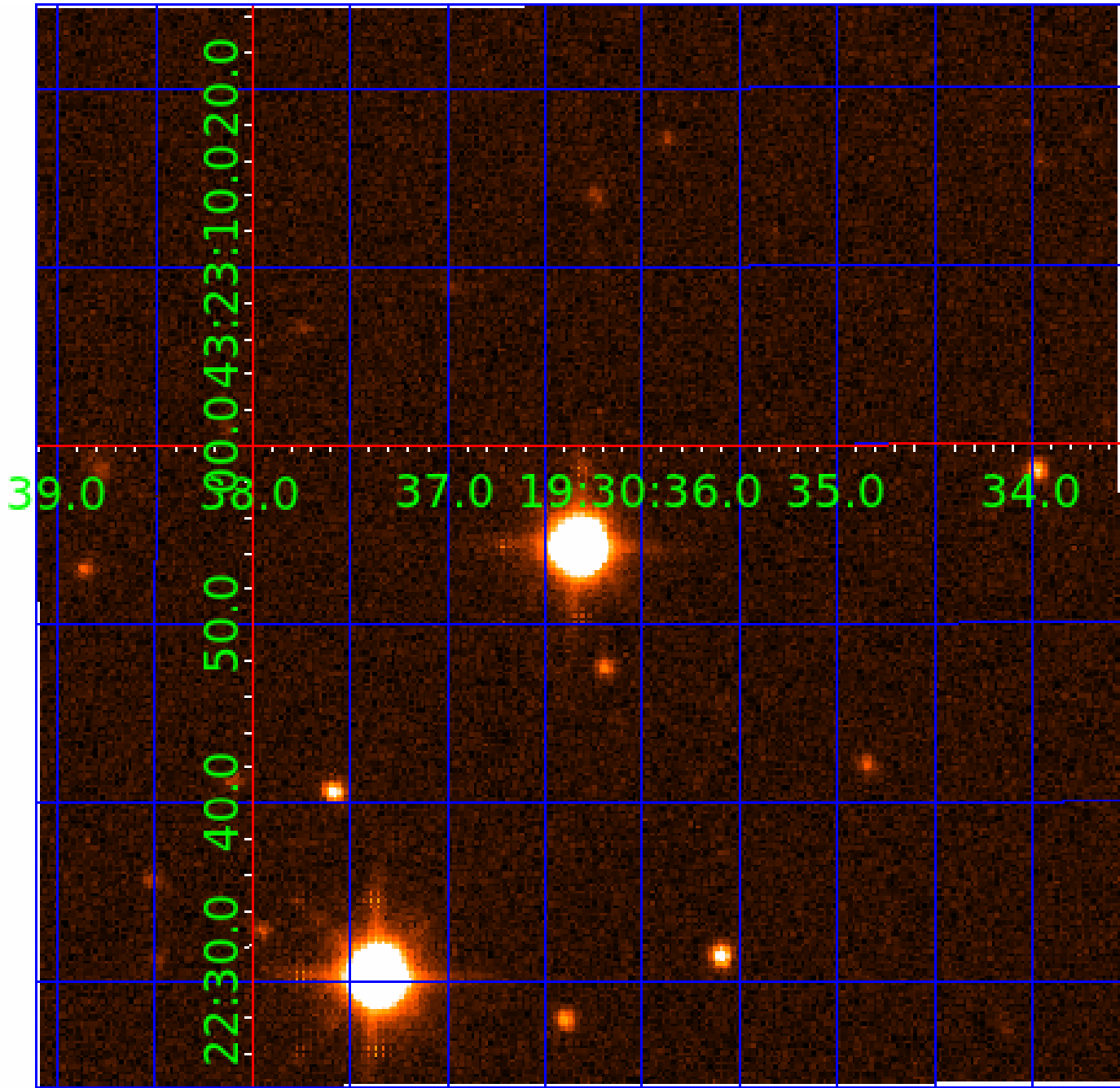


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007685010

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})
007685010-01	OBS	No	2.150345	131.927710	16.0	11.363	11.4	6.3	2.05	6502	0.86	4951.83
007685010-02	OBS	No	249.318333	305.627181	441.9	22.058	12.7	11.7	2.05	6502	8.32	8.76
007685010-04	OBS	No	62.081942	175.805349	170.8	12.252	8.8	9.1	2.05	6502	2.87	55.91
007685010-05	OBS	No	99.804435	178.845873	200.8	5.679	8.7	7.5	2.05	6502	5.75	29.69
007685010-07	OBS	No	49.230875	170.930530	131.9	9.309	8.0	7.9	2.05	6502	2.69	76.17
007685010-08	OBS	No	110.398535	199.878663	171.6	5.029	7.6	6.8	2.05	6502	3.06	25.95
007685010-09	OBS	No	86.849723	185.394836	177.8	4.775	7.3	7.7	2.05	6502	3.08	35.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007685010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007685010-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007685010-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
007685010-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007685010-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

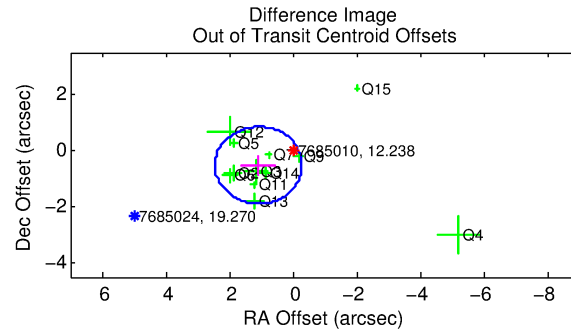
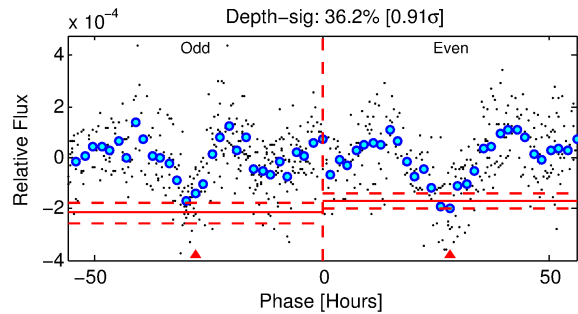
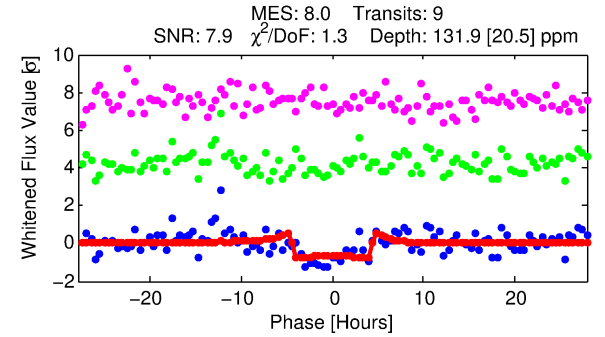
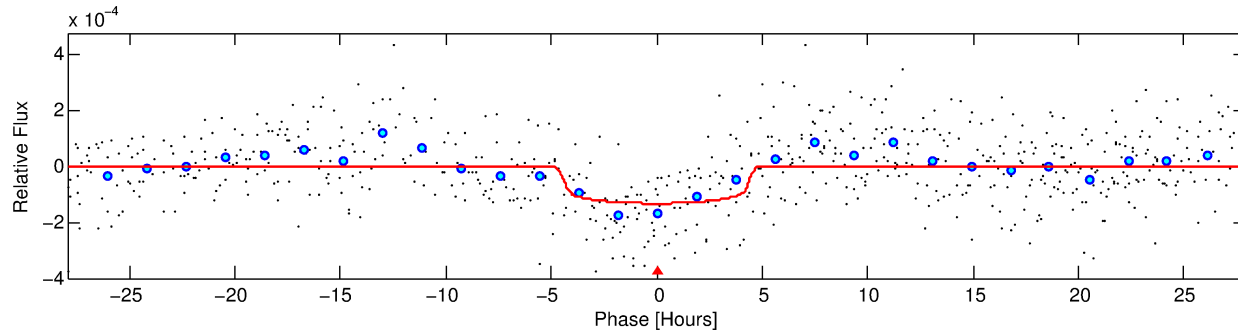
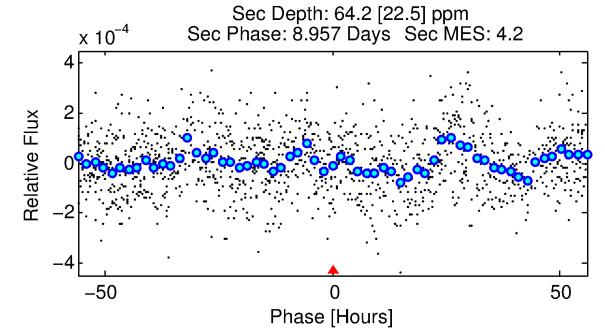
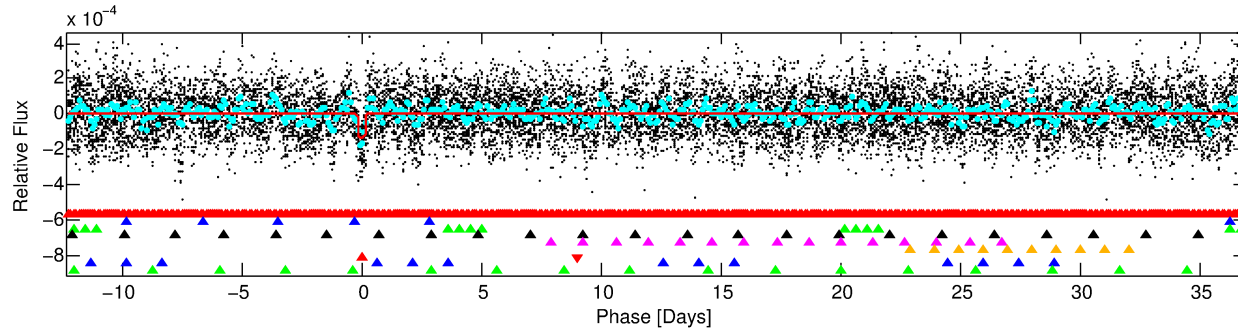
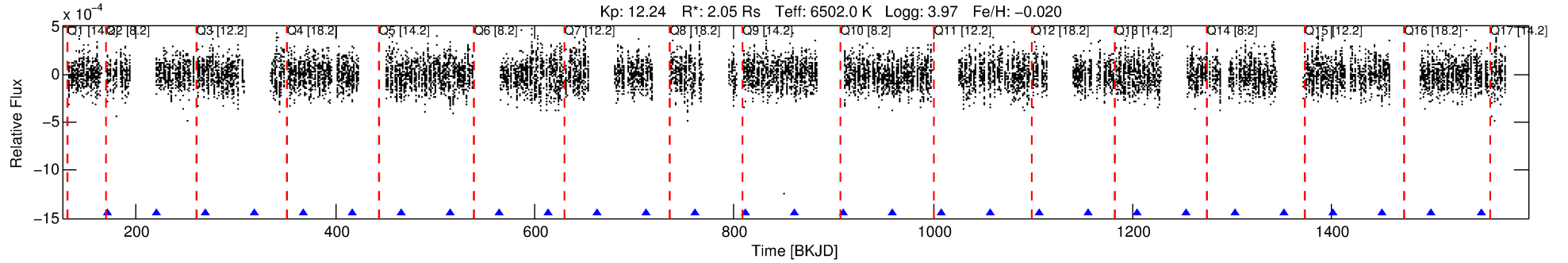
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007685010-07

No Significant Match Found

DV One-Page Summary

KIC: 7685010 Candidate: 7 of 9 Period: 49.231 d



DV Fit Results:

Period = 49.23088 [0.00080] d
Epoch = 170.9305 [0.0134] BKJD
Rp/R* = 0.0120 [0.0028]
a/R* = 20.99 [25.66]
b = 0.87 [0.35]
Seff = 76.17 [33.31]
Teq = 753 [82] K
Rp = 2.69 [1.05] Re
a = 0.2971 [0.0825] AU
Ag = 430.72 [312.32] [1.38σ]
Teffp = 5306 [793] K [5.71σ]

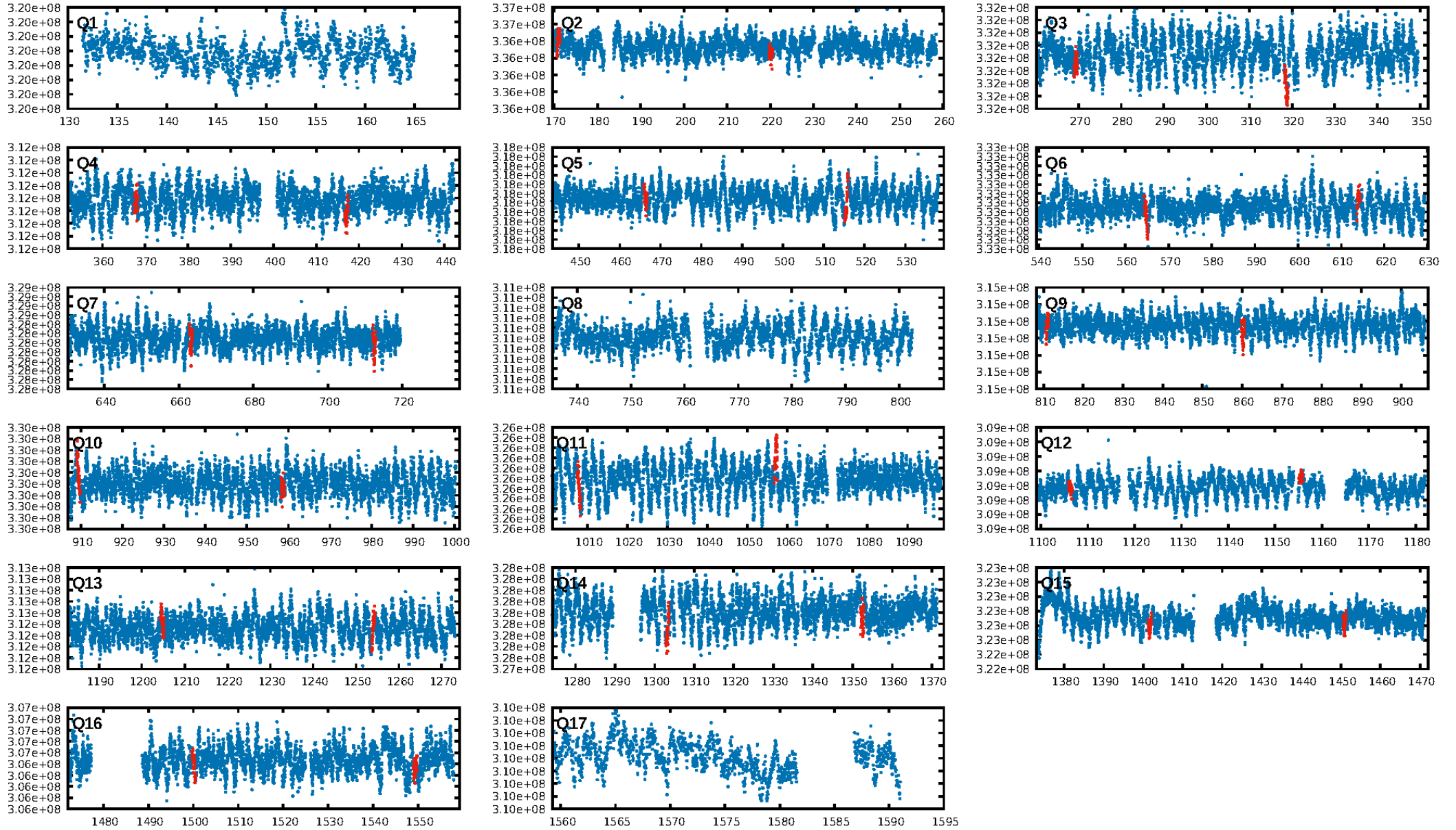
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [76.92σ]
LongPeriod-sig: 100.0% [20.04σ]
ModelChiSquare2-sig: 13.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.51e-08
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -1.48
Centroid-sig: 29.5%
Centroid-so: 0.415 arcsec [1.06σ]
OotOffset-rm: 1.201 arcsec [2.63σ]
KicOffset-rm: 1.236 arcsec [2.52σ]
OotOffset-st: 3/4/2/3 [12]
KicOffset-st: 3/4/2/3 [12]
DiffImageQuality-fgm: 0.50 [6/12]
DiffImageOverlap-fno: 0.14 [2/14]

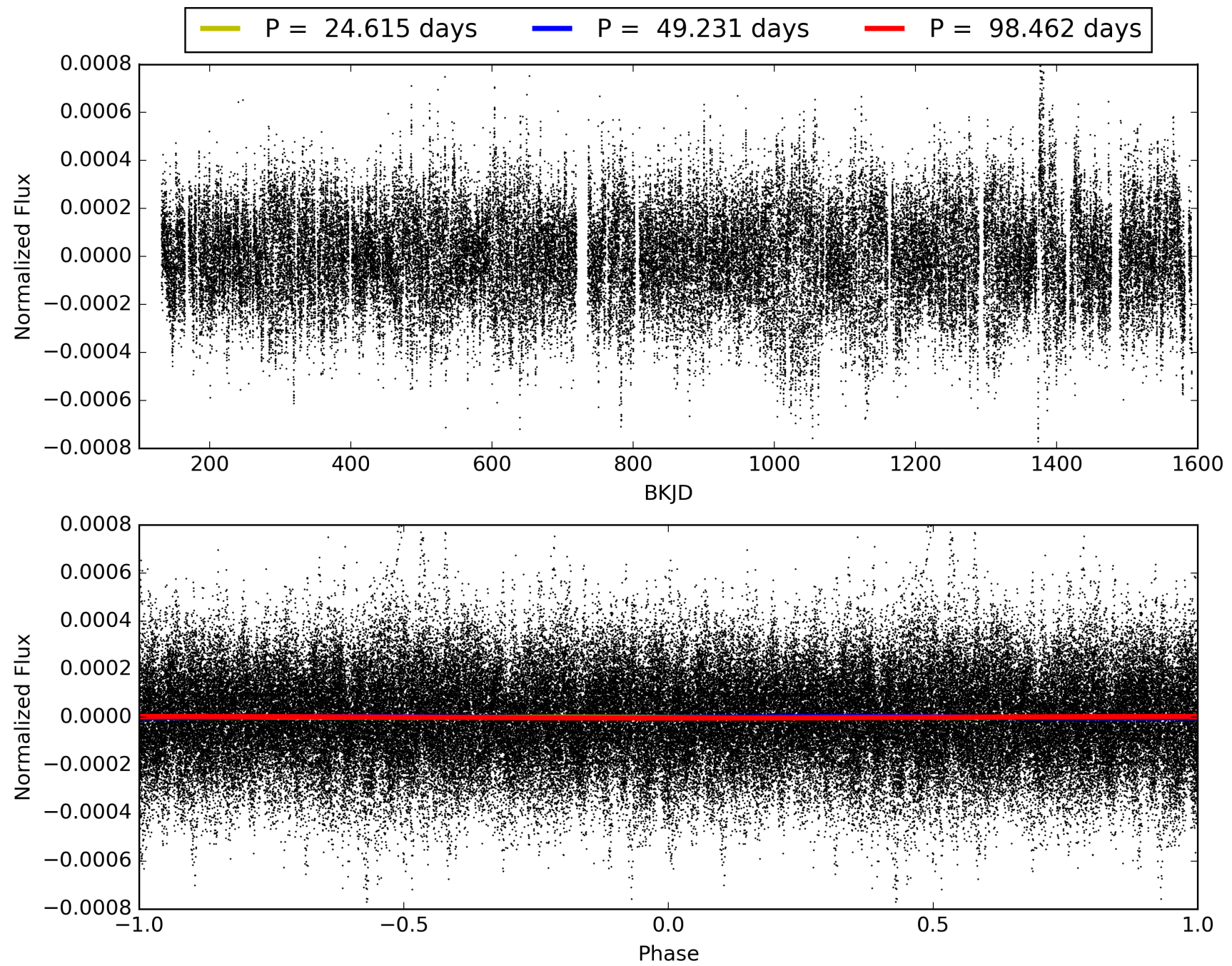
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:21:45 Z

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

TCE 007685010-07, PDC Light Curves

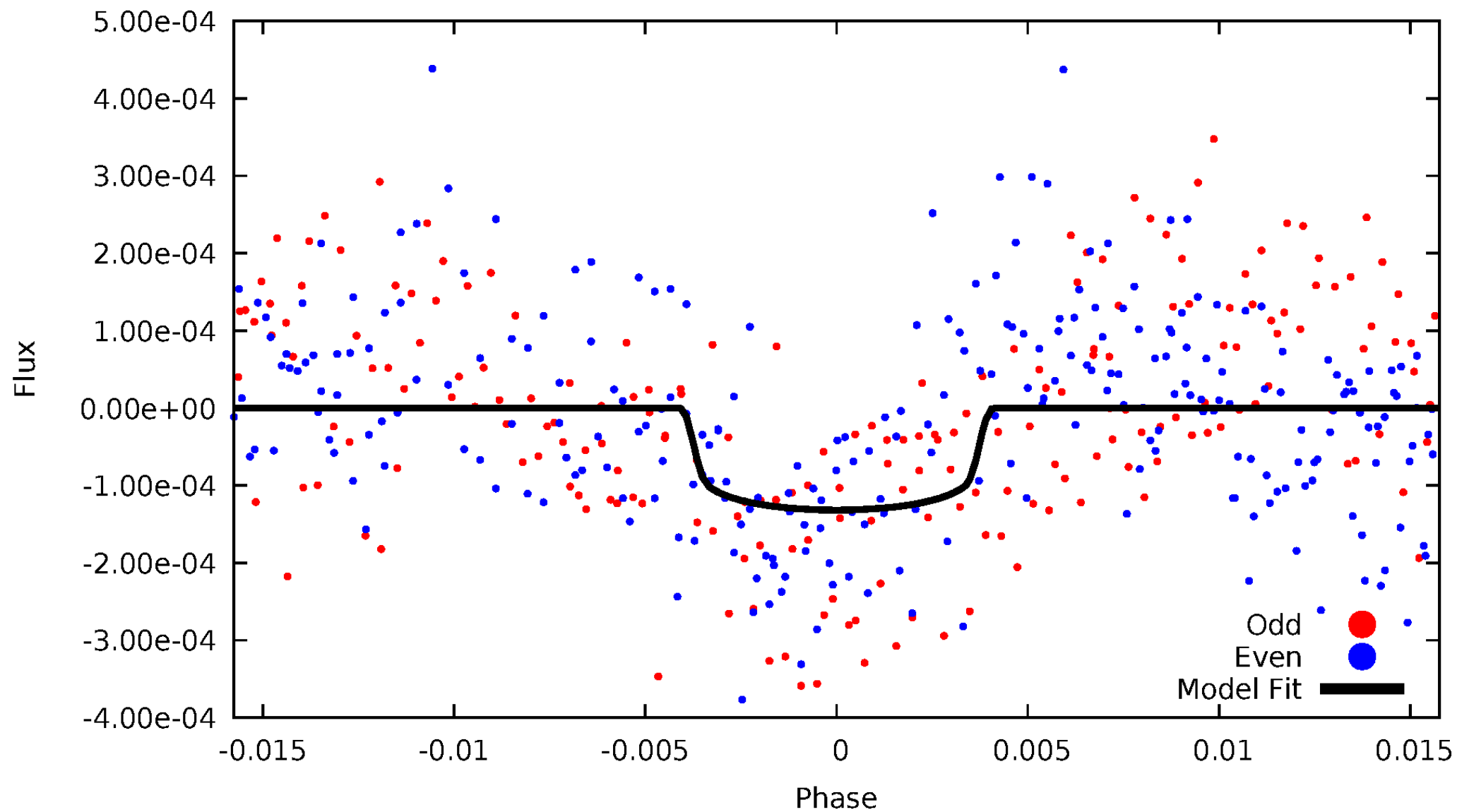


TCE 007685010-07



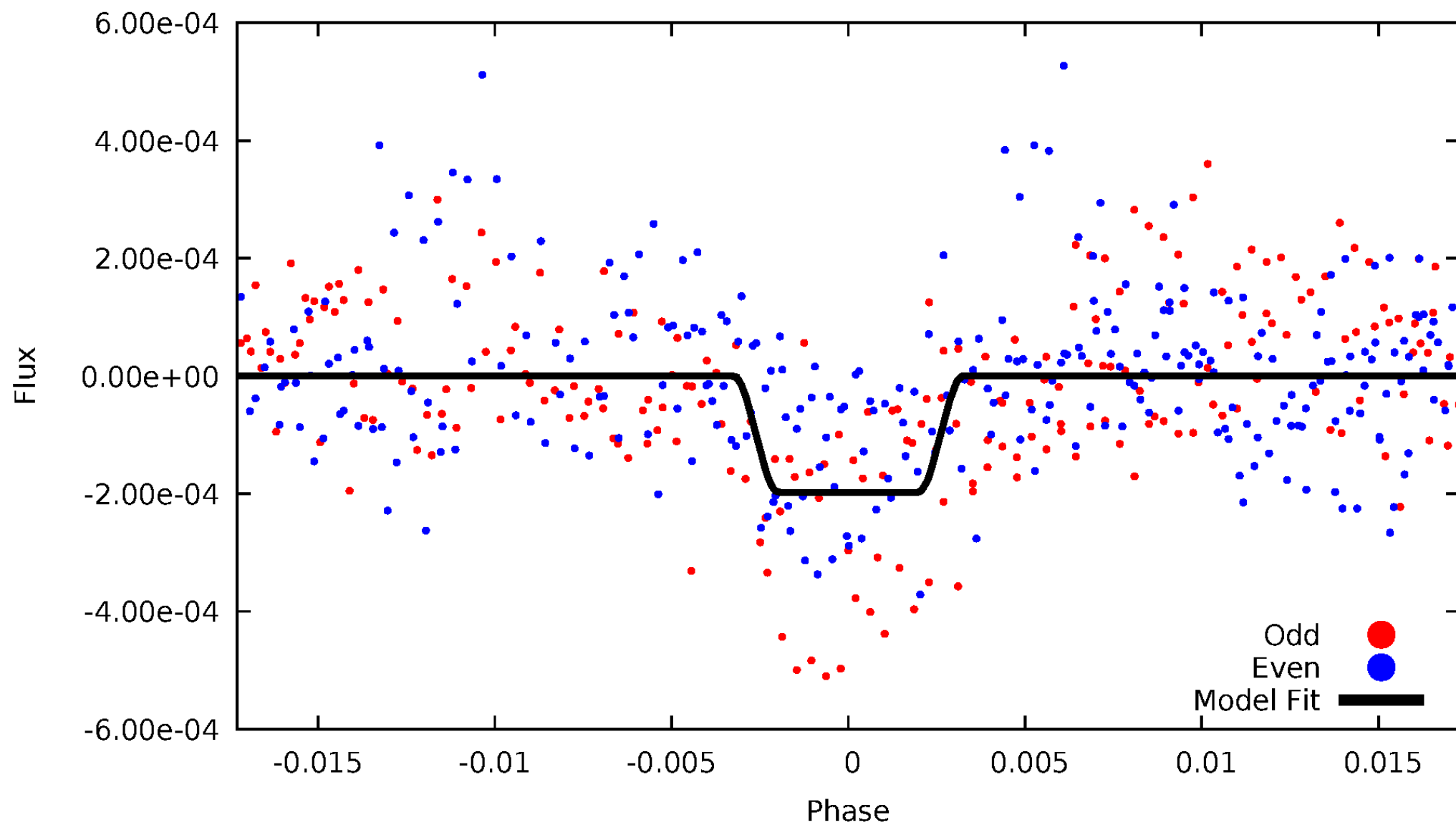
DV Odd/Even

TCE 007685010-07



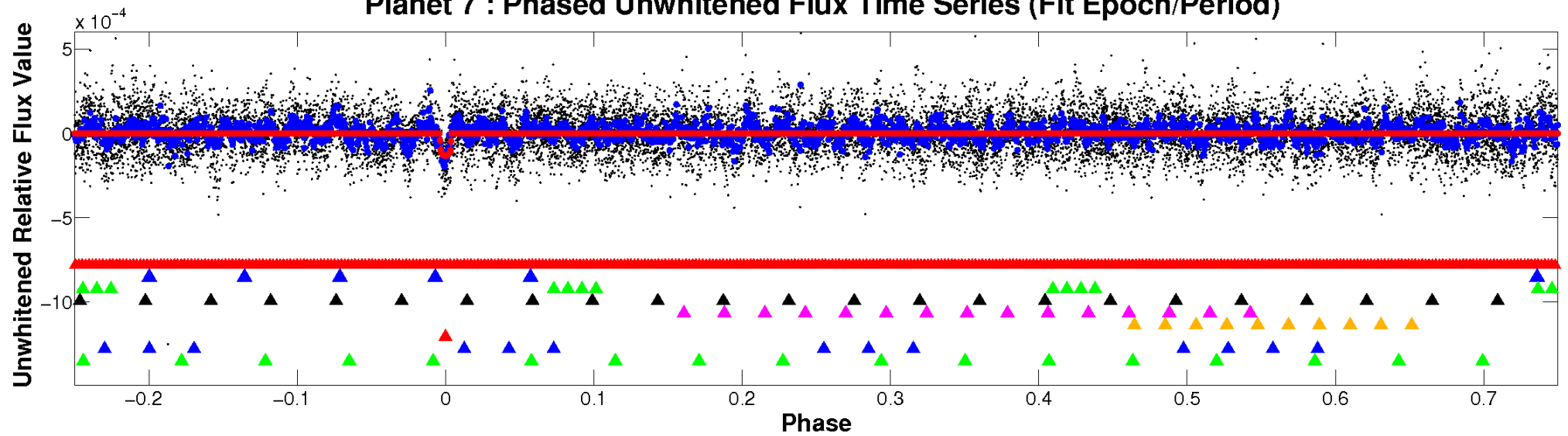
ALT Odd/Even

TCE 007685010-07

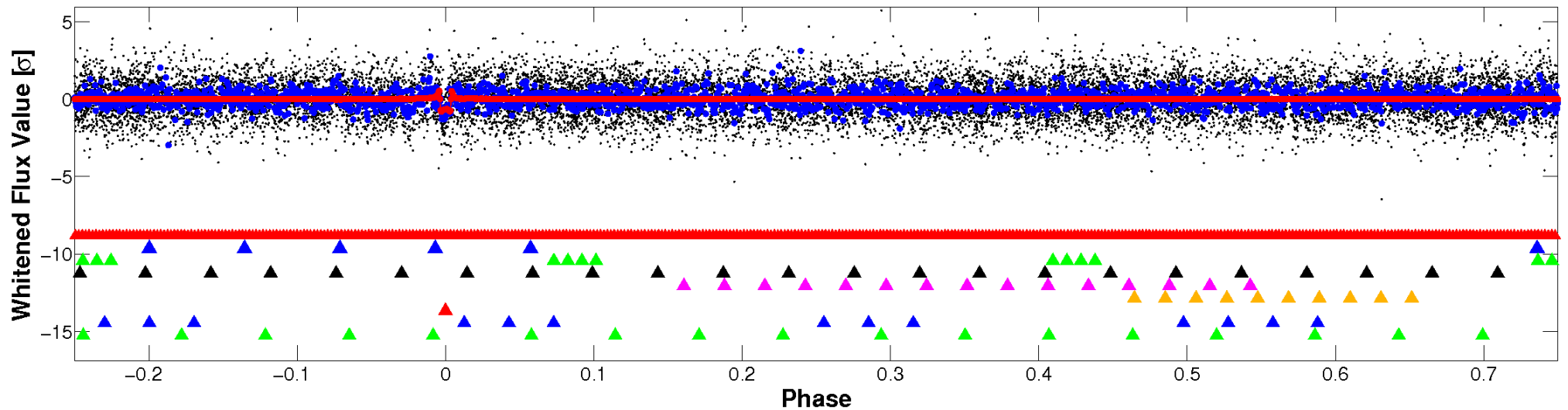


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

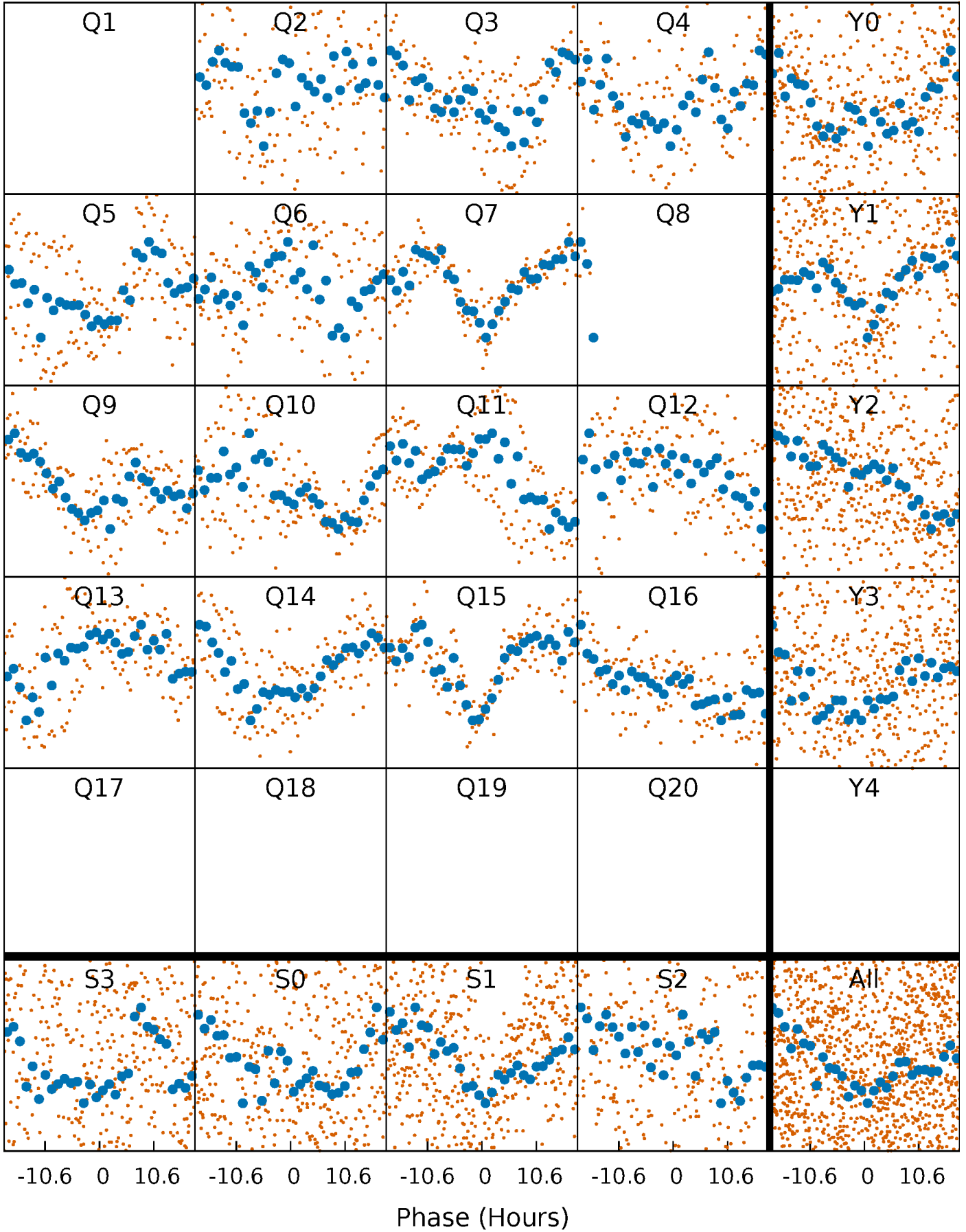


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



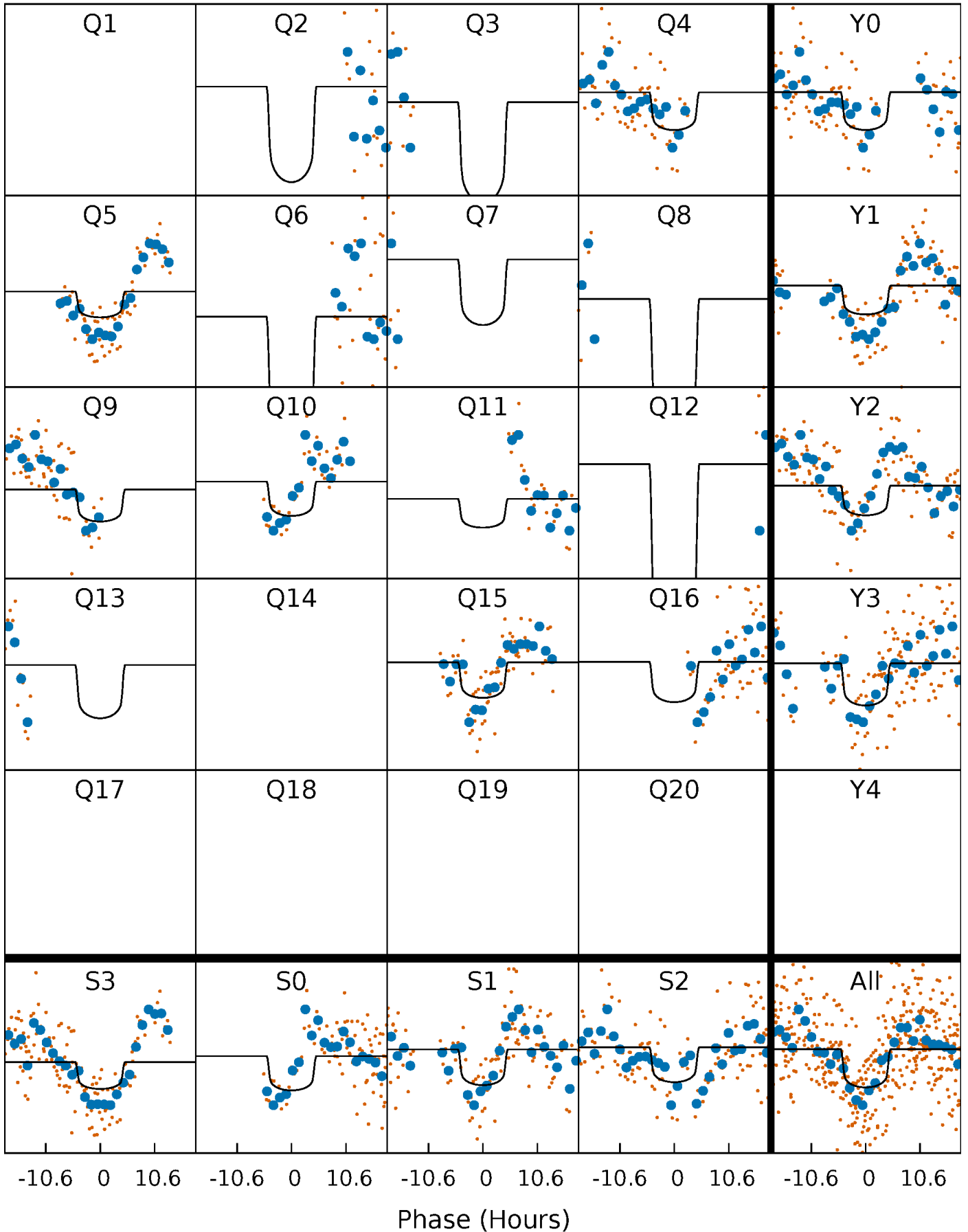
PDC Quarter-Phased Transit Curves

TCE 007685010-07 $P = 49.230875$ Days $T_0 = 170.930530$ (BKJD)



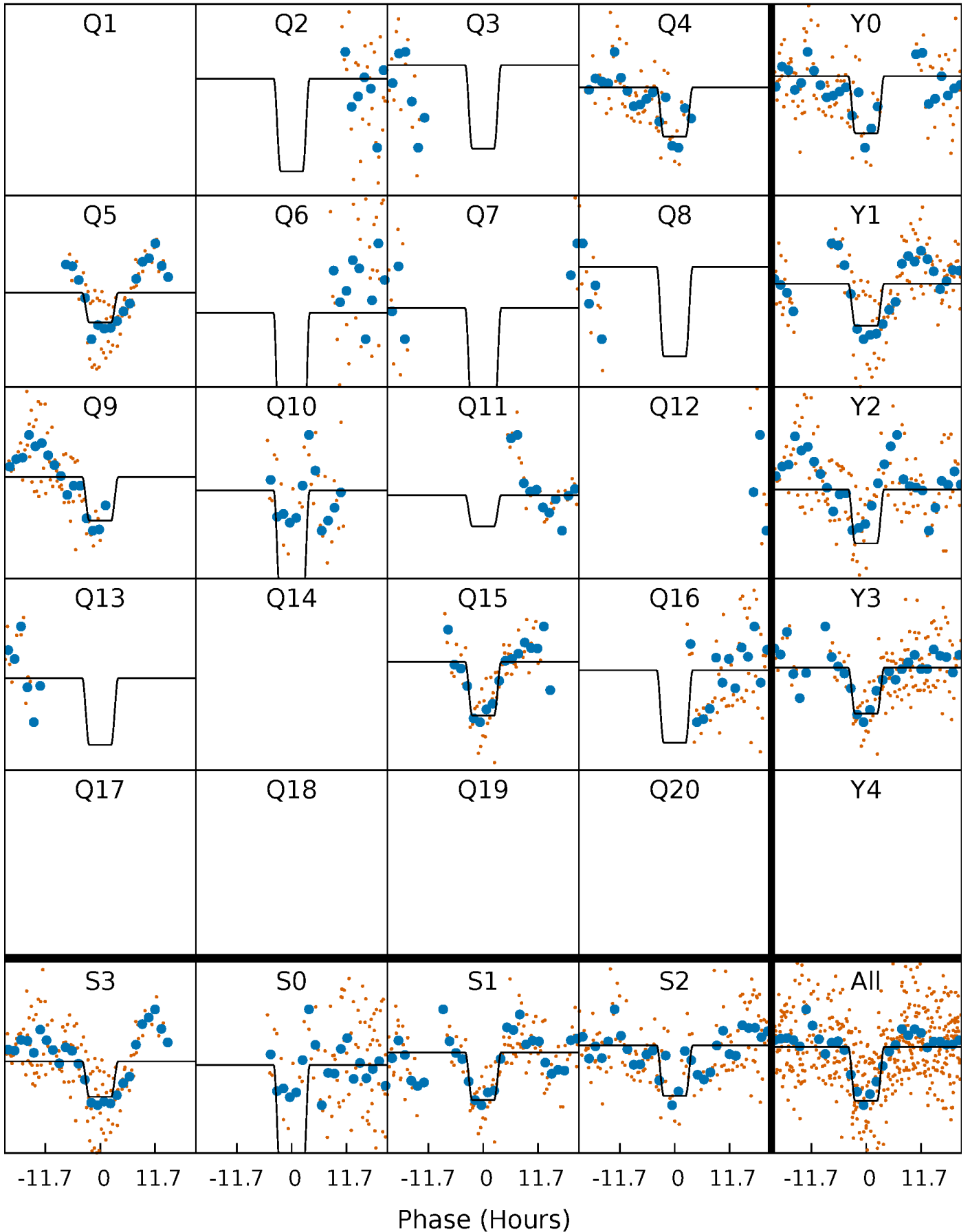
DV Quarter-Phased Transit Curves

TCE 007685010-07 $P = 49.230875$ Days $T_0 = 170.930530$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

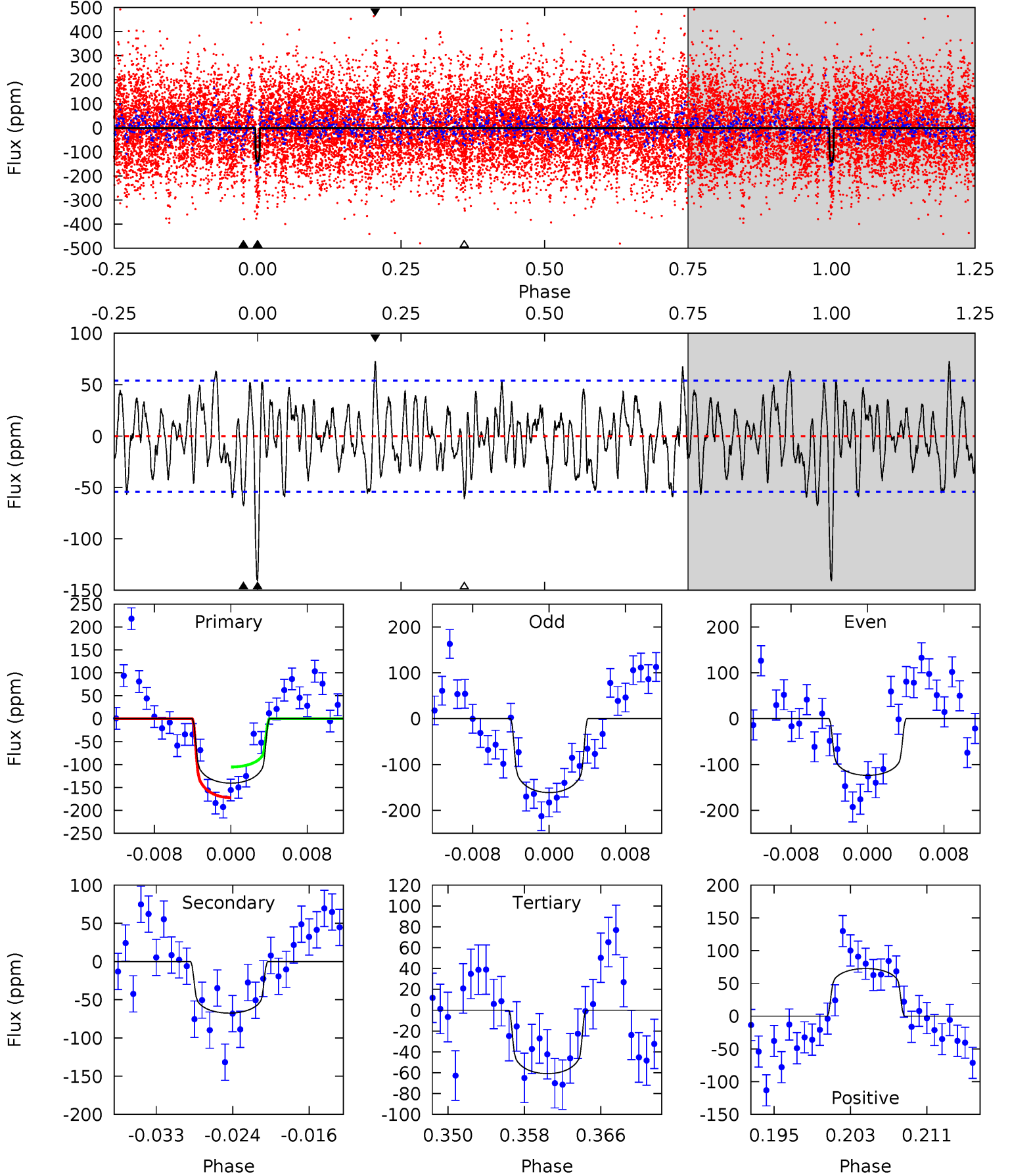
TCE 007685010-07 $P = 49.231497$ Days $T_0 = 170.911506$ (BKJD)



DV Model-Shift Uniqueness Test

007685010-07, P = 49.230875 Days, E = 121.699655 Days

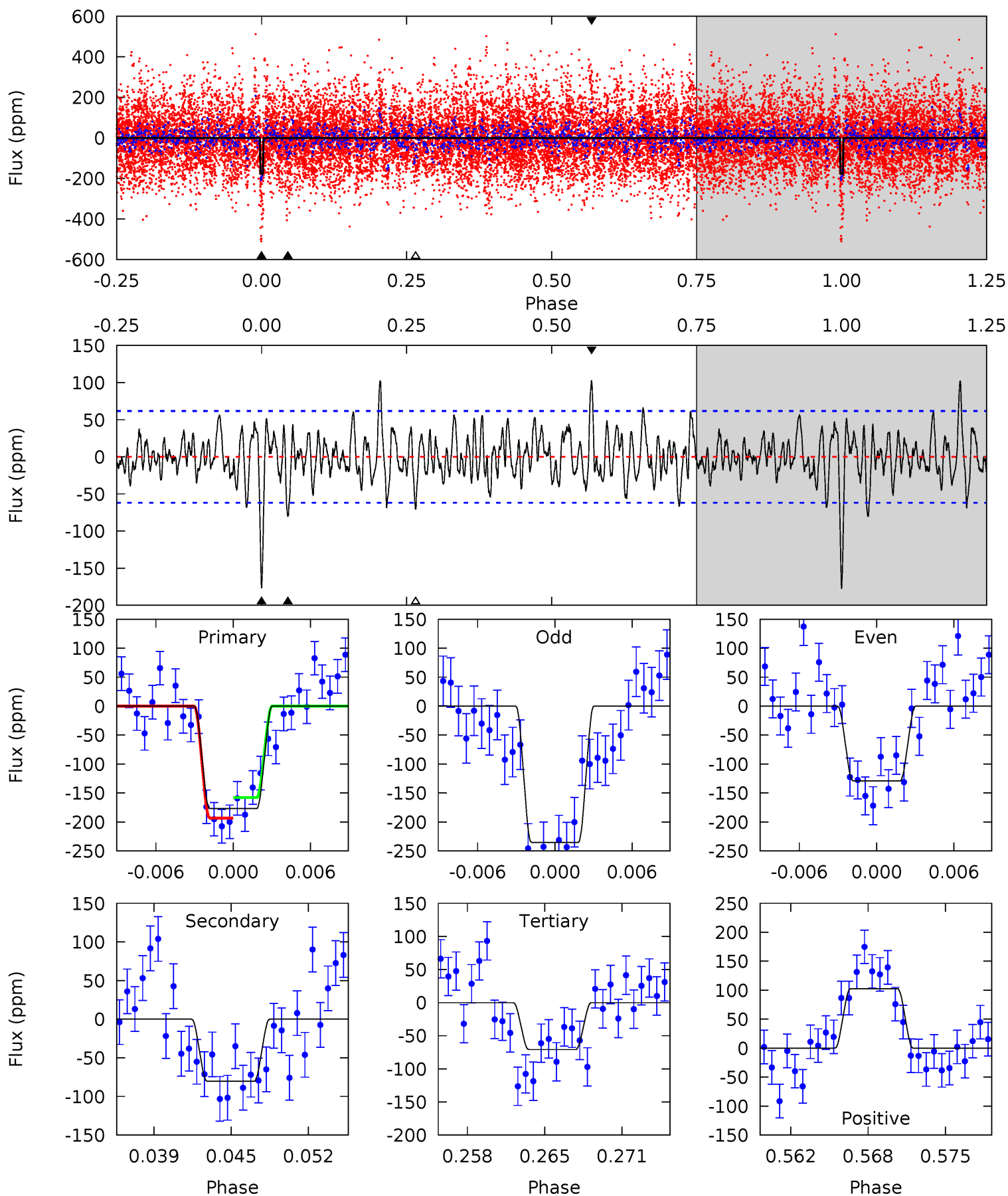
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	6.32	5.71	6.80	5.07	2.65	2.32	7.46	6.36	0.61	-0.49	1.75	0.91	0.34	3.13



Alt Model-Shift Uniqueness Test

007685010-07, P = 49.231497 Days, E = 121.680009 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	6.65	5.86	8.48	5.11	2.72	2.13	8.77	6.14	0.79	-1.84	4.36	0.93	0.37	1.46



Stellar Parameters For KIC 007685010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6502^{+155}_{-175}	$3.974^{+0.241}_{-0.130}$	$-0.020^{+0.250}_{-0.250}$	$2.049^{+0.477}_{-0.636}$	$1.444^{+0.159}_{-0.273}$	$0.236^{+0.361}_{-0.094}$
	+2%/-3%	+6%/-3%	+1250%/-1250%	+23%/-31%	+11%/-19%	+153%/-40%
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 007685010-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-67 ± 11	$2.57^{+0.77}_{-0.63}$	1040^{+70}_{-80}	5370^{+673}_{-489}	476^{+394}_{-195}
Alt.	-80 ± 12	$3.04^{+0.81}_{-0.75}$	1044^{+68}_{-85}	5240^{+600}_{-458}	423^{+325}_{-165}

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 $A_{obs} \gg 1.0$

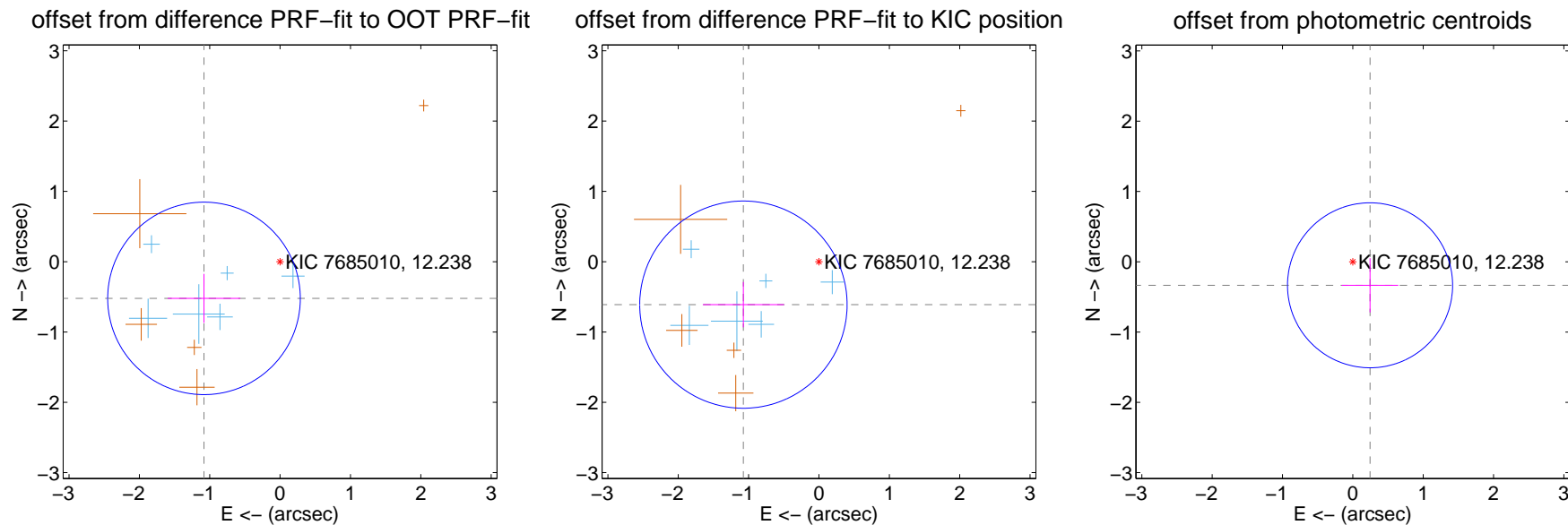
DV Centroid Data

Supplemental centroid analysis for 007685010-07. Kepler magnitude: 12.24. Transit SNR 7.91

There are 6 quarters with good PRF difference image offsets

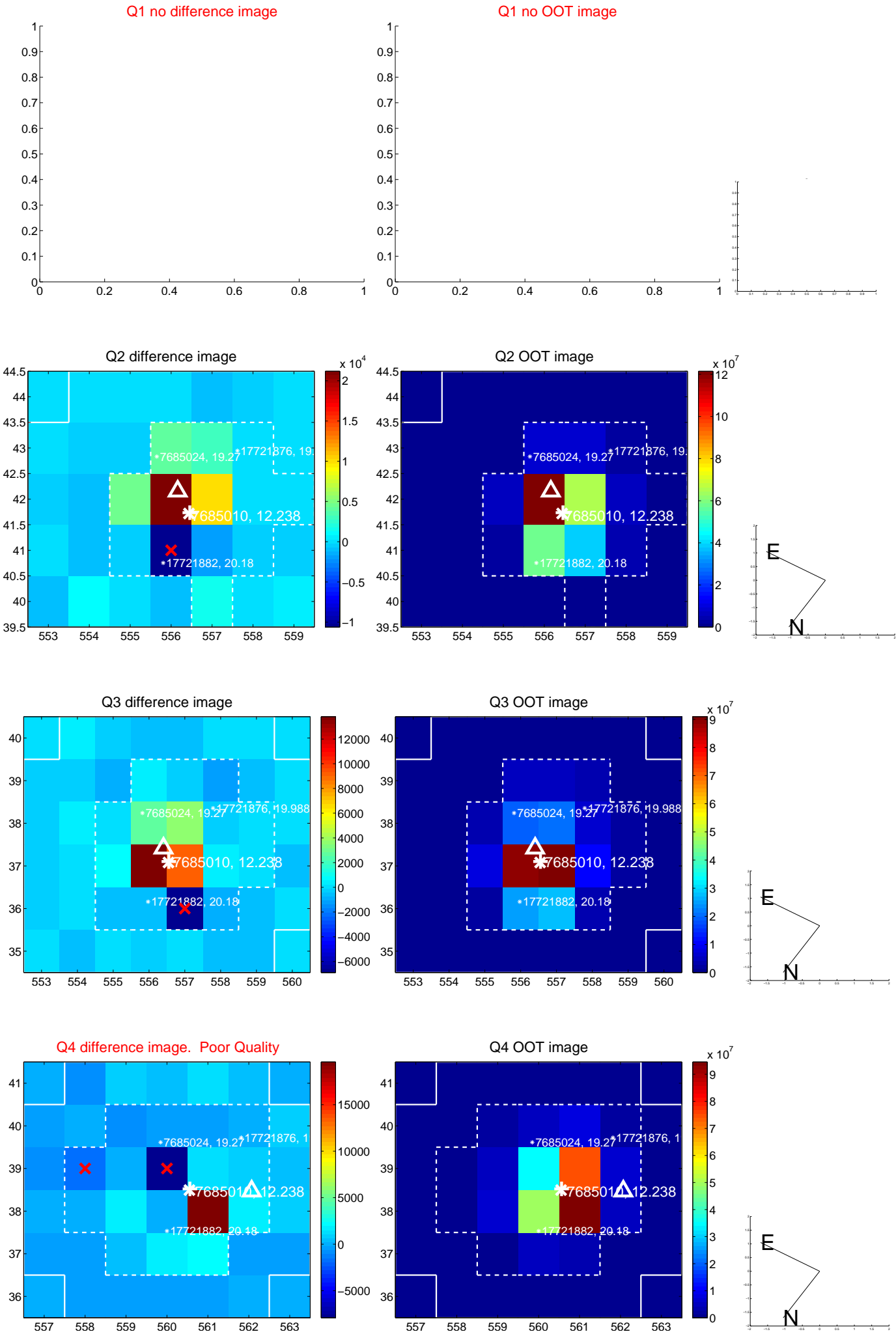
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.201 ± 0.456	2.63	1.082 ± 0.516	-0.522 ± 0.348
PRF-fit source offset from KIC position	1.236 ± 0.491	2.52	1.074 ± 0.578	-0.611 ± 0.322
photometric centroid source offset	0.41 ± 0.39	1.06	-0.24 ± 0.40	-0.33 ± 0.39

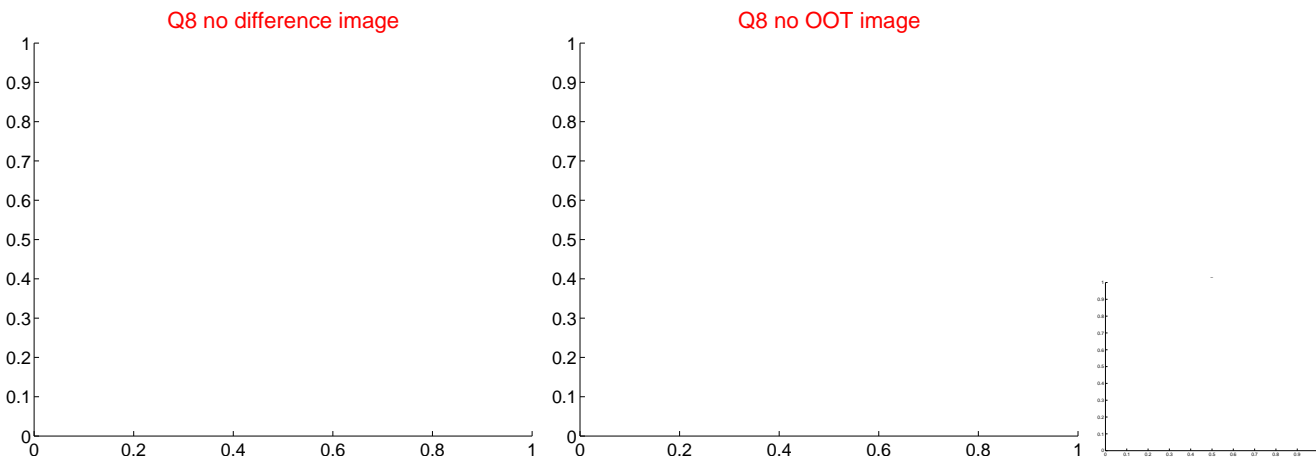
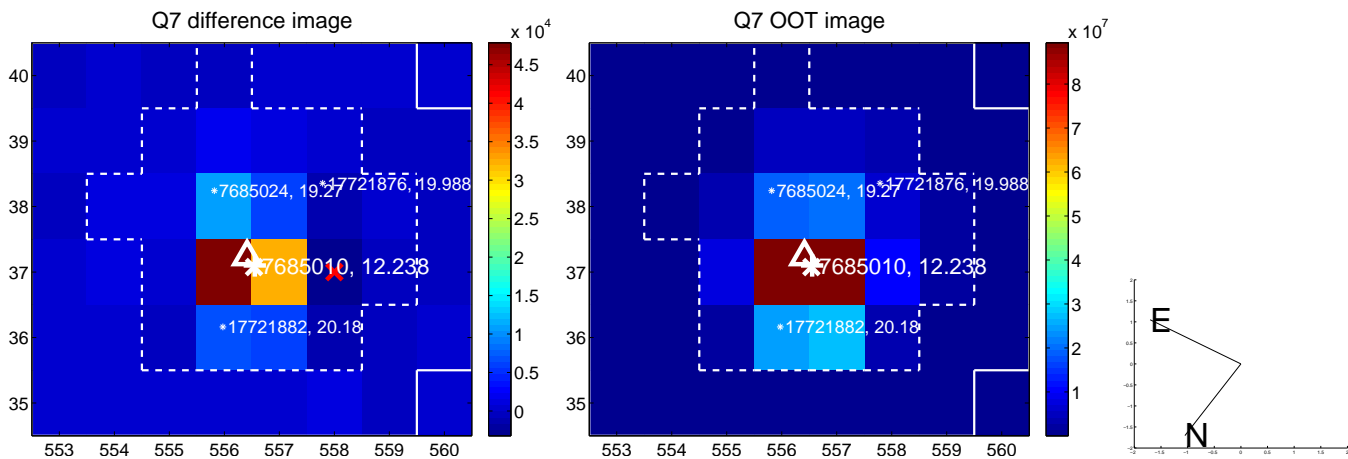
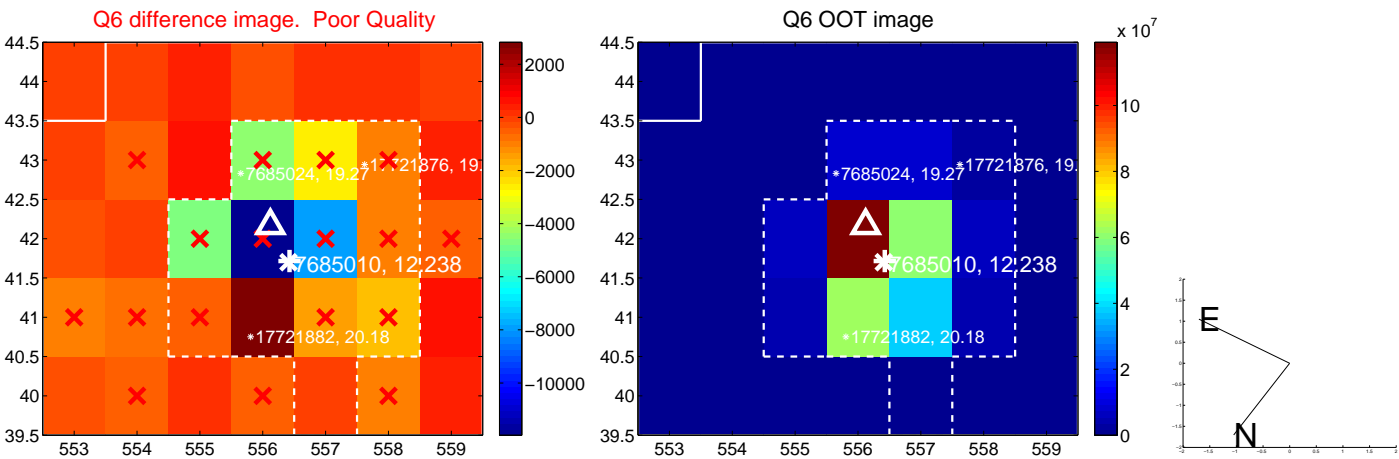
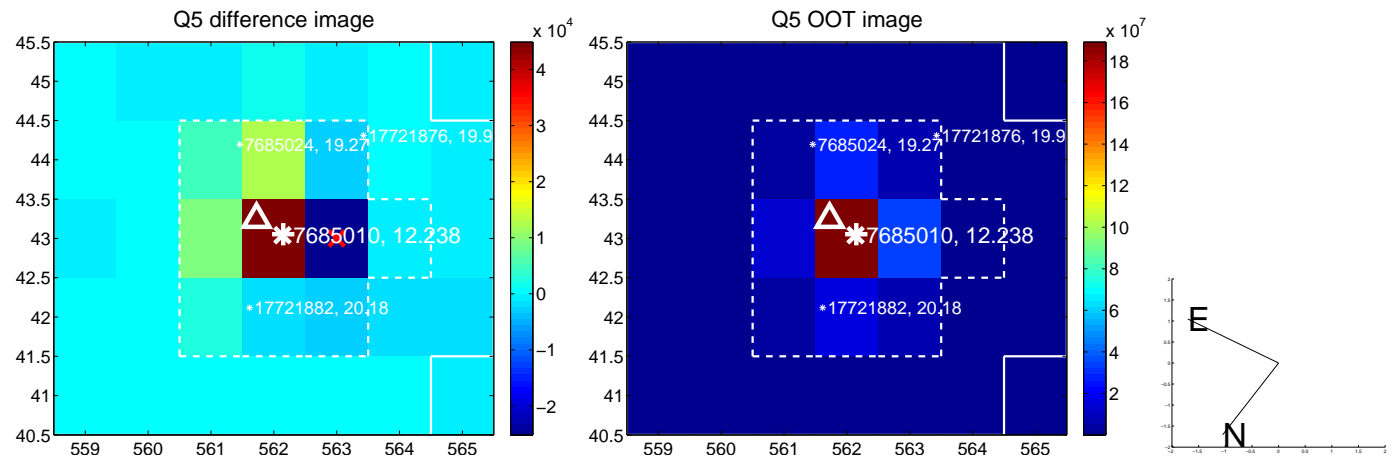


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

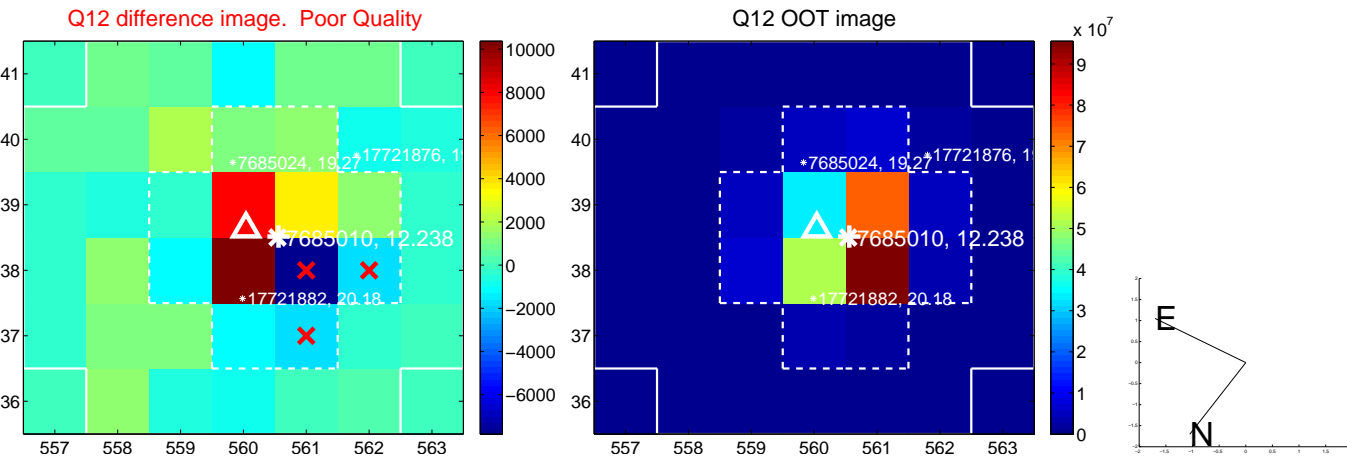
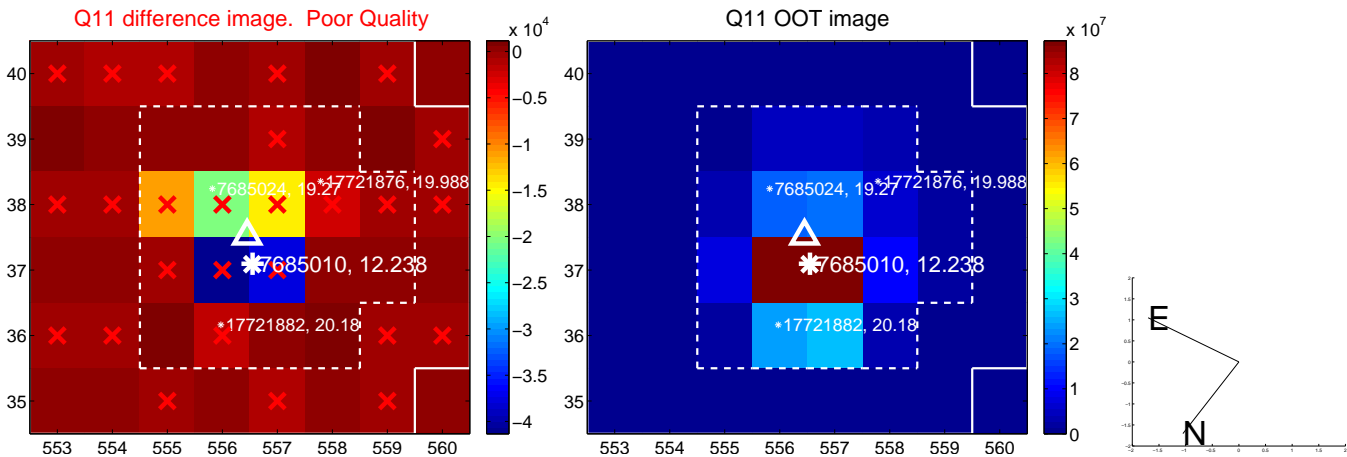
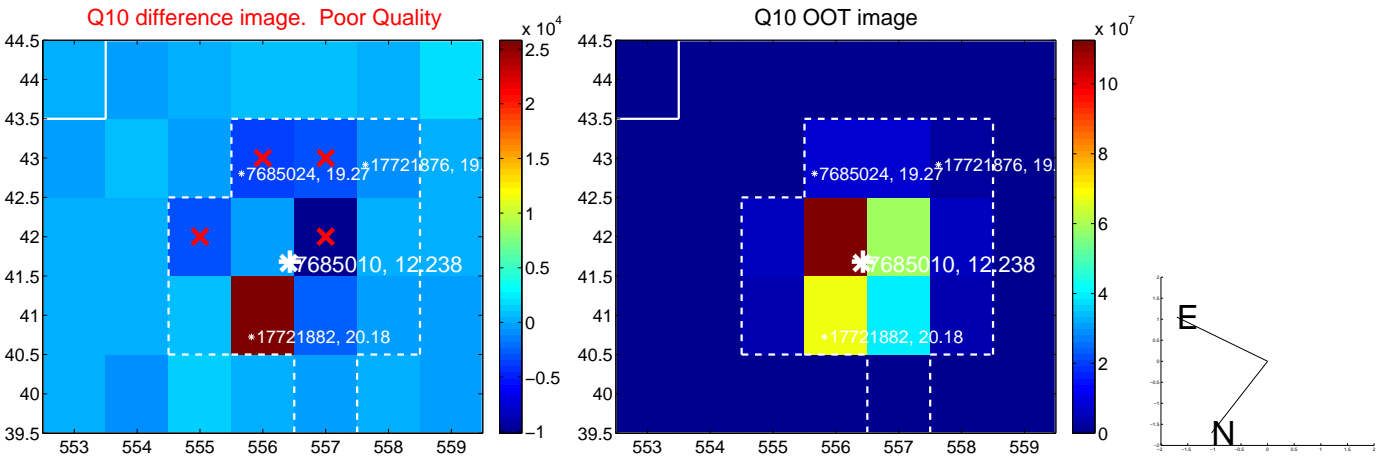
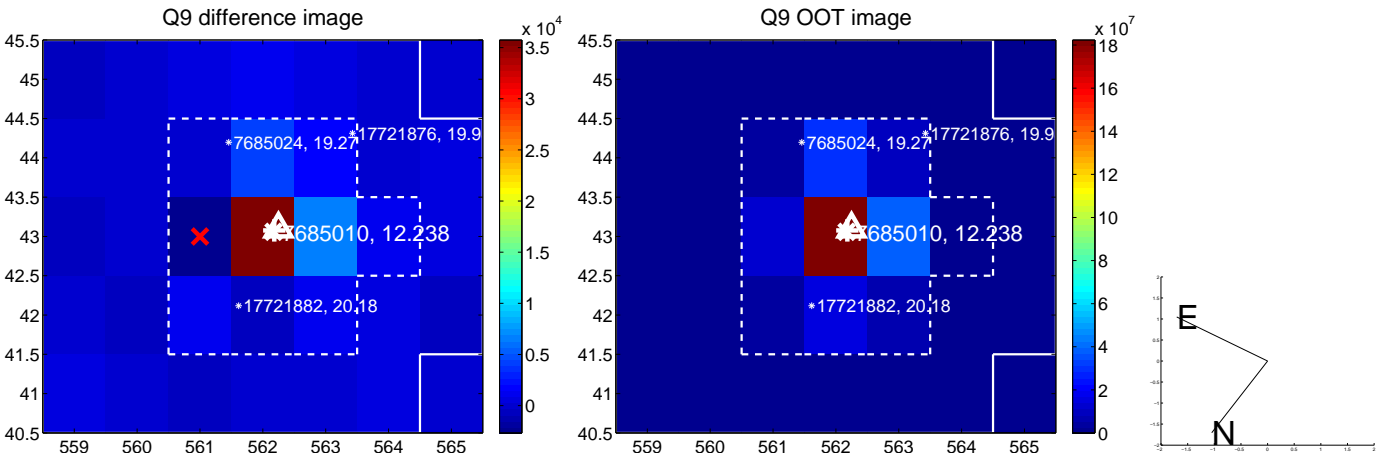
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



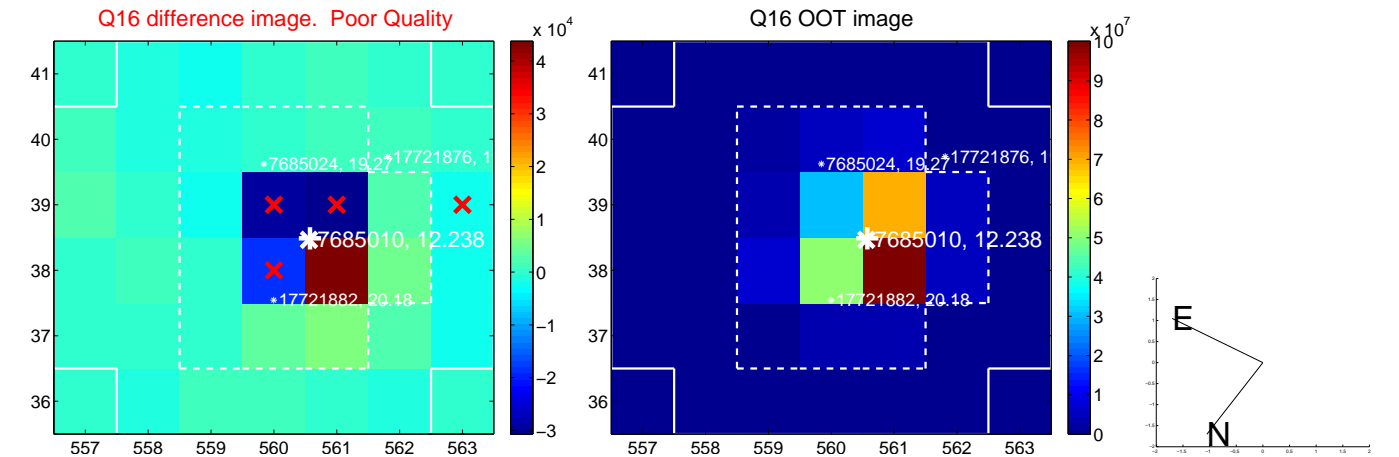
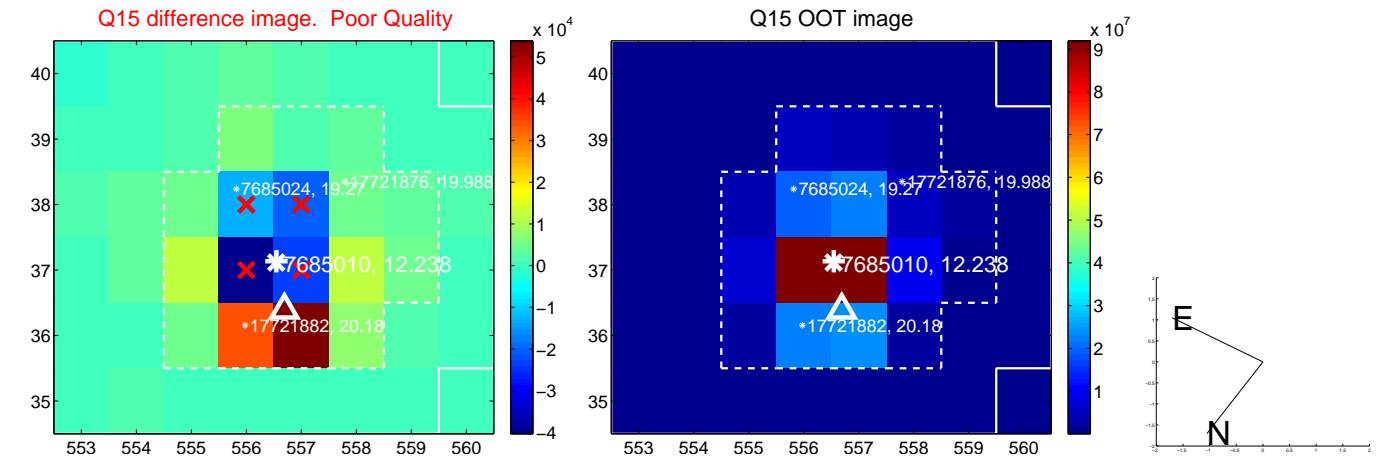
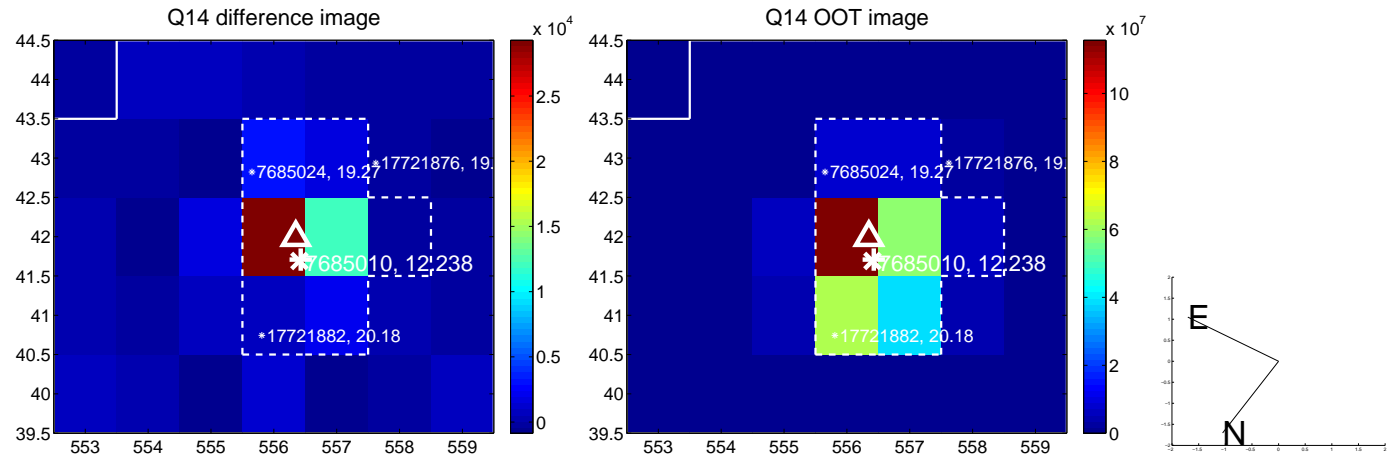
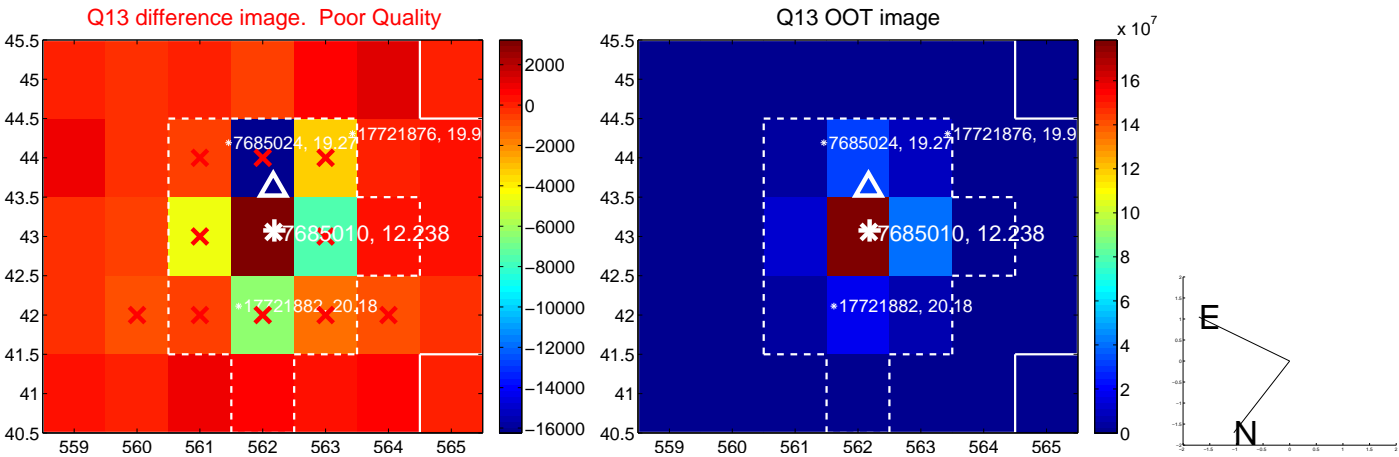
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



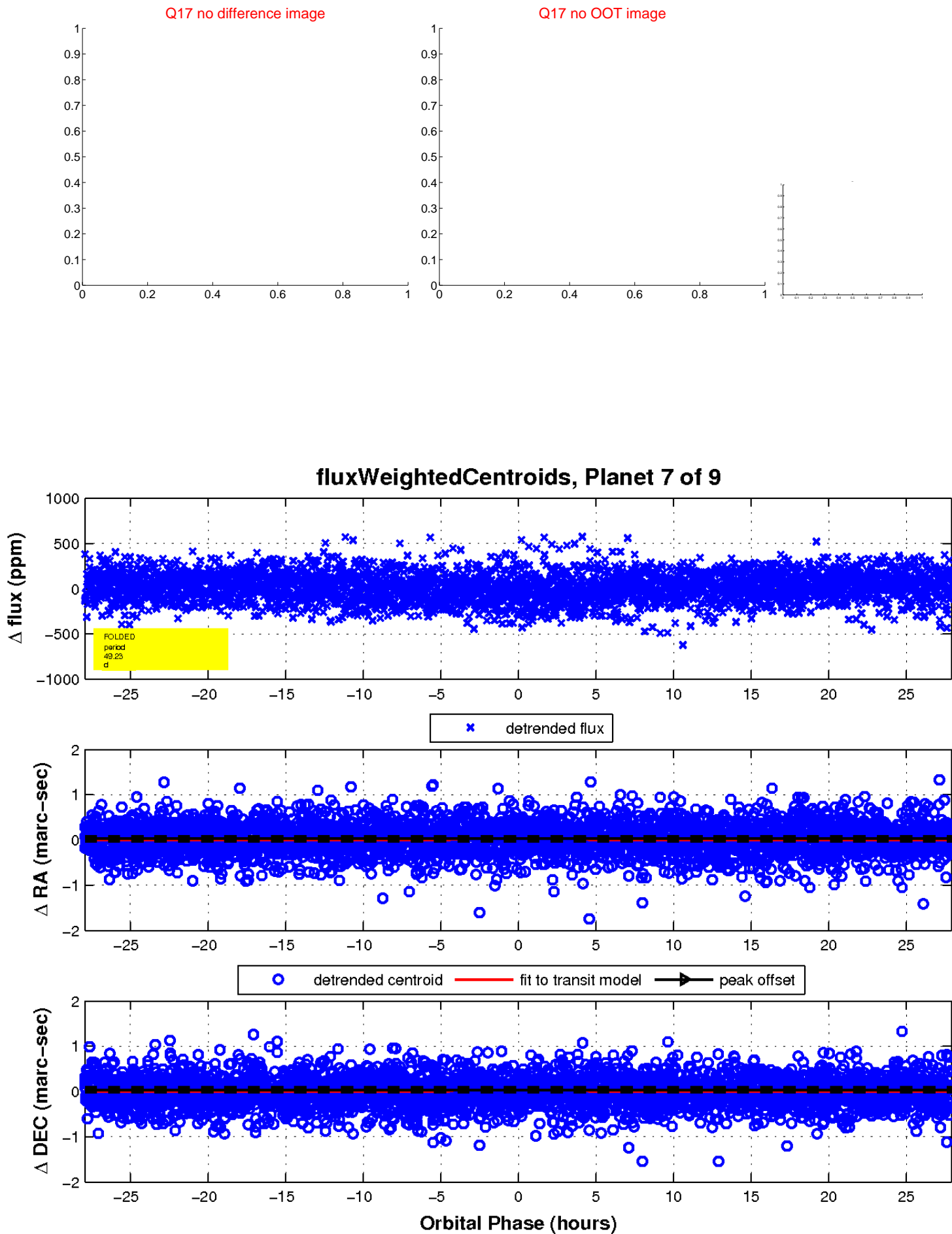
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



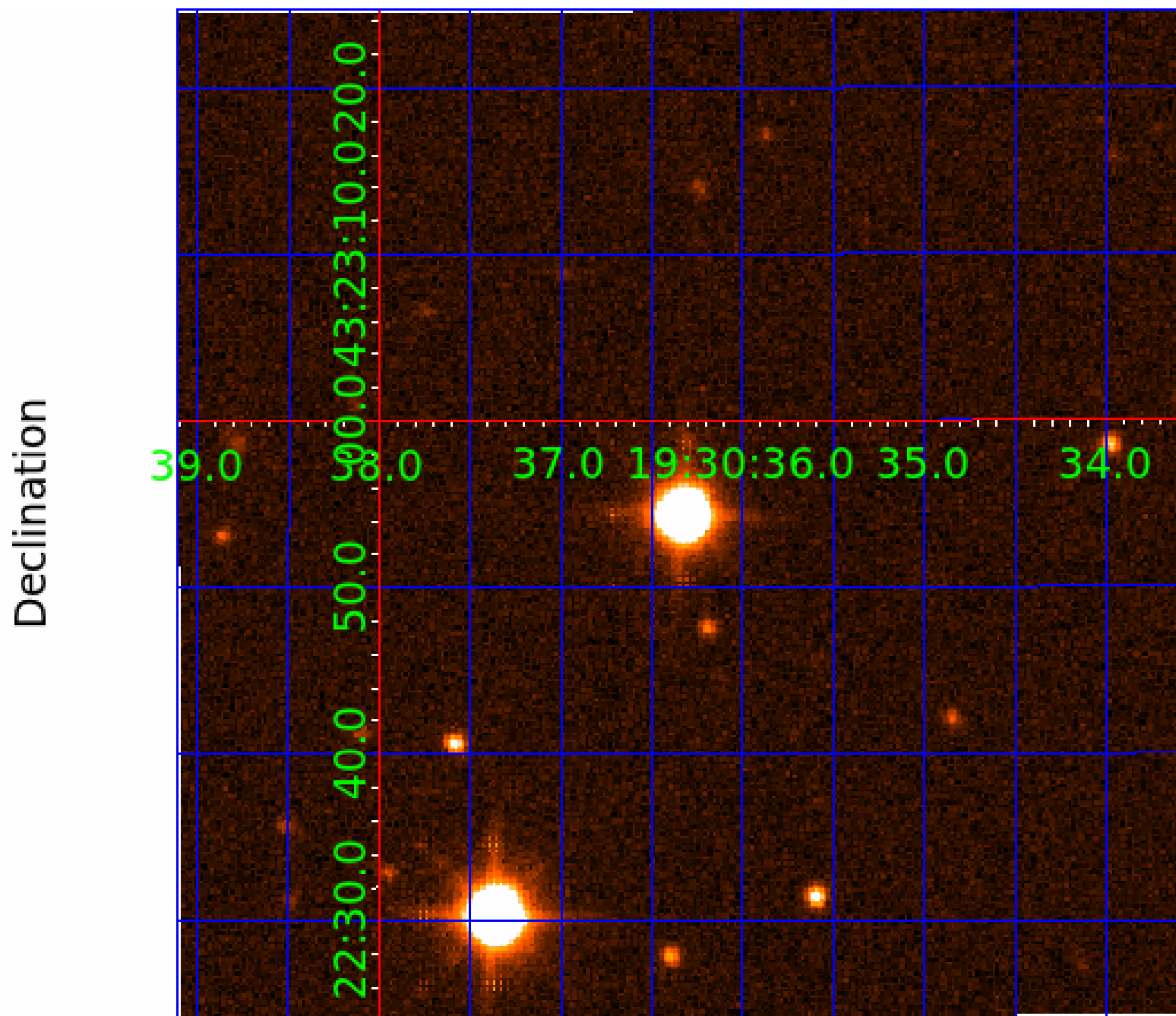
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007685010

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})
007685010-01	OBS	No	2.150345	131.927710	16.0	11.363	11.4	6.3	2.05	6502	0.86	4951.83
007685010-02	OBS	No	249.318333	305.627181	441.9	22.058	12.7	11.7	2.05	6502	8.32	8.76
007685010-04	OBS	No	62.081942	175.805349	170.8	12.252	8.8	9.1	2.05	6502	2.87	55.91
007685010-05	OBS	No	99.804435	178.845873	200.8	5.679	8.7	7.5	2.05	6502	5.75	29.69
007685010-07	OBS	No	49.230875	170.930530	131.9	9.309	8.0	7.9	2.05	6502	2.69	76.17
007685010-08	OBS	No	110.398535	199.878663	171.6	5.029	7.6	6.8	2.05	6502	3.06	25.95
007685010-09	OBS	No	86.849723	185.394836	177.8	4.775	7.3	7.7	2.05	6502	3.08	35.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007685010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007685010-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007685010-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
007685010-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007685010-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

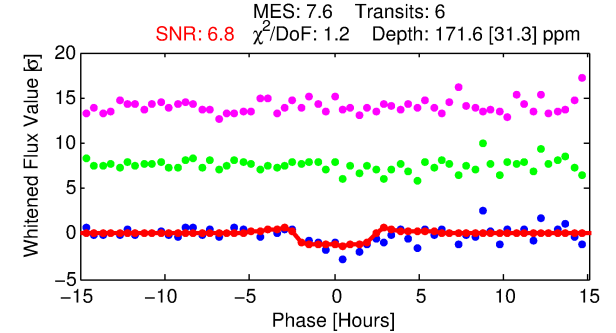
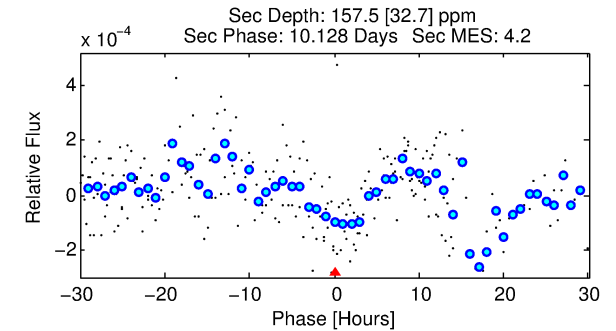
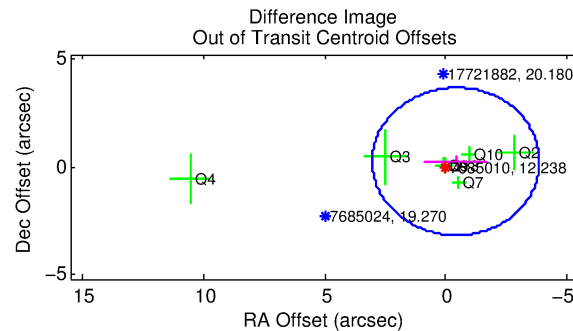
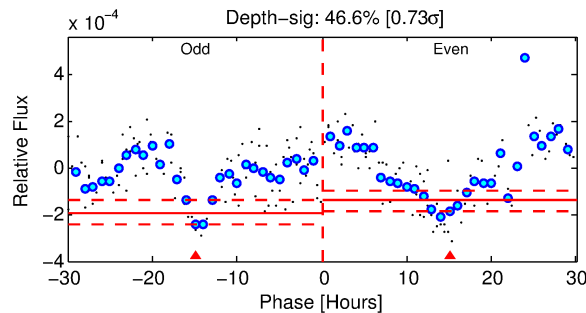
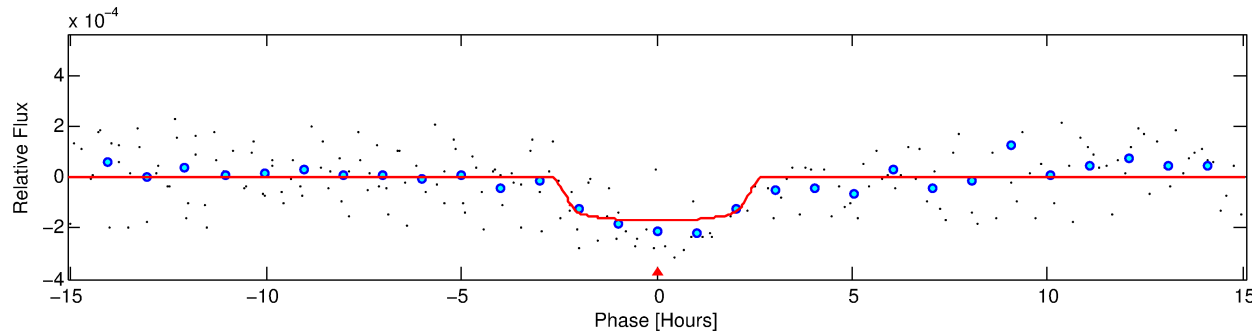
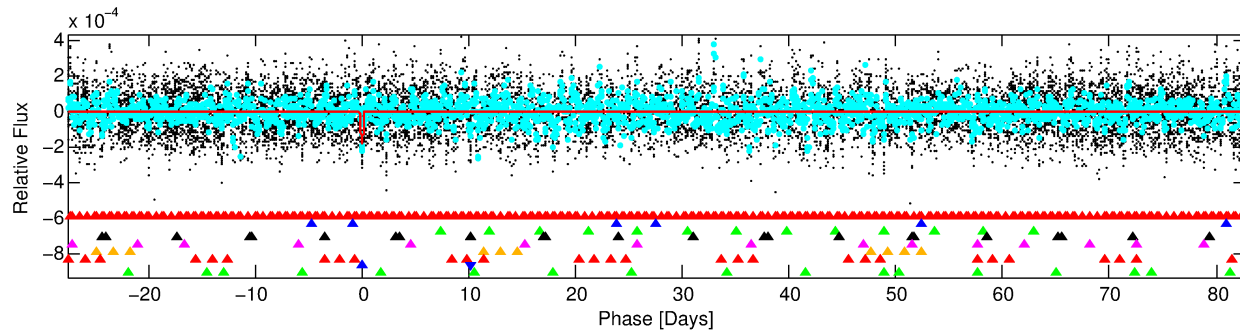
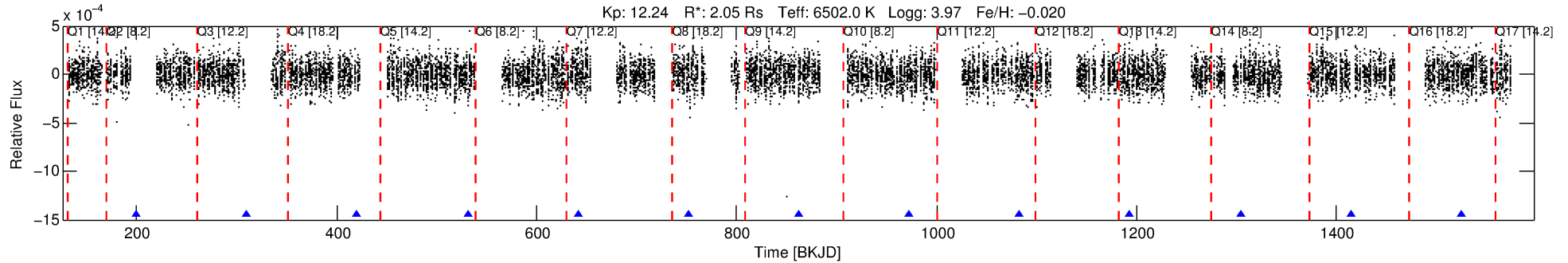
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007685010-08

No Significant Match Found

DV One-Page Summary

KIC: 7685010 Candidate: 8 of 9 Period: 110.399 d



DV Fit Results:

Period = 110.39854 [0.00238] d
Epoch = 199.8787 [0.0179] BKJD
Rp/R* = 0.0137 [0.0092]
a/R* = 88.48 [331.21]
b = 0.87 [1.10]
Seff = 25.95 [11.35]
Teq = 576 [63] K
Rp = 3.06 [2.27] Re
a = 0.5090 [0.1413] AU
Ag = 2393.38 [3421.34] [0.70σ]
Teffp = 6224 [2131] K [2.65σ]

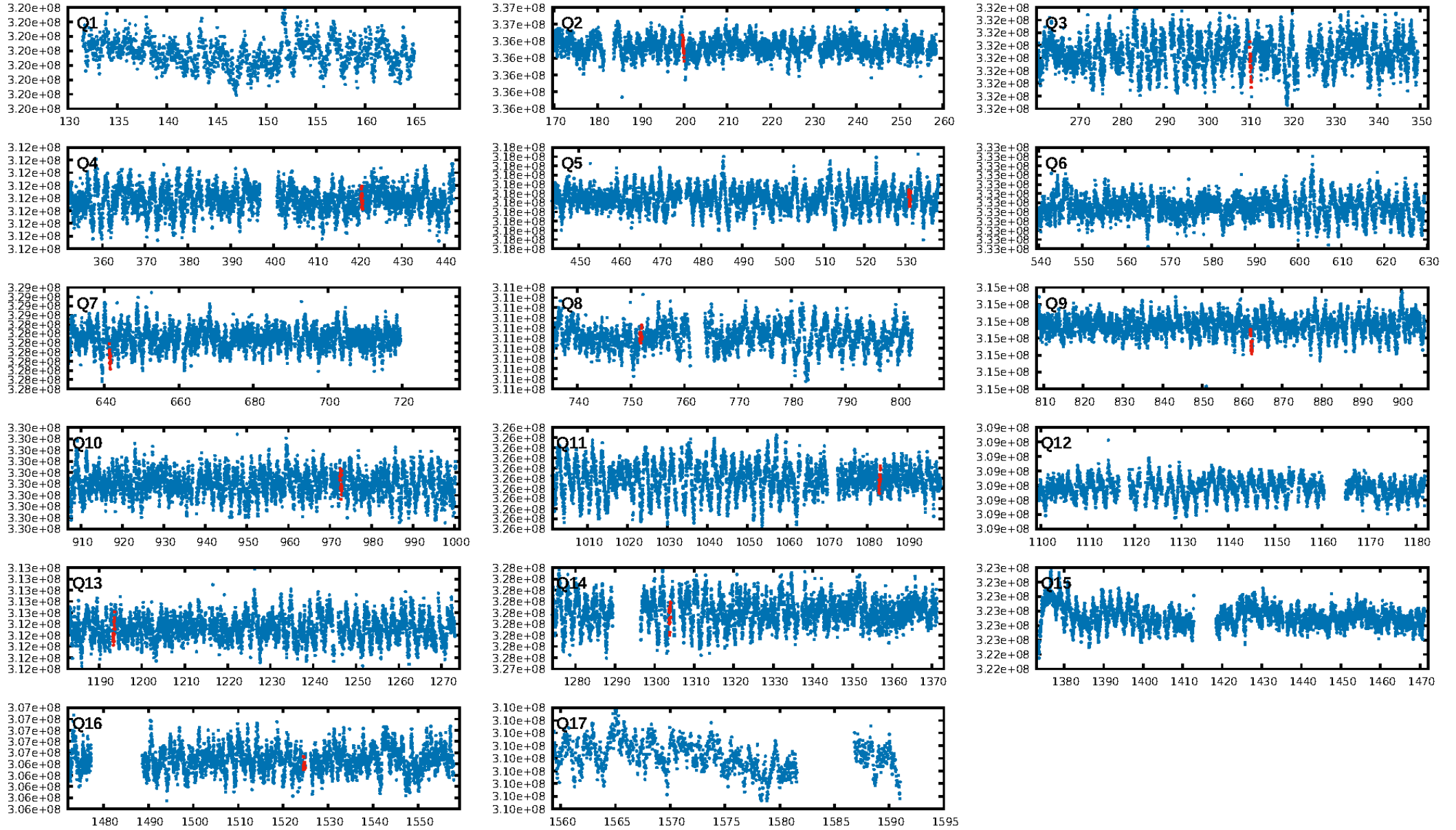
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [33.52σ]
LongPeriod-sig: 40.4% [0.53σ]
ModelChiSquare2-sig: 31.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.57e-08
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 4.143
Centroid-sig: 68.9%
Centroid-so: 0.282 arcsec [0.52σ]
OotOffset-rm: 0.482 arcsec [0.42σ]
OotOffset-st: 2/2/1/2 [7]
KicOffset-rm: 0.430 arcsec [0.30σ]
KicOffset-st: 2/2/1/2 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.40 [4/10]

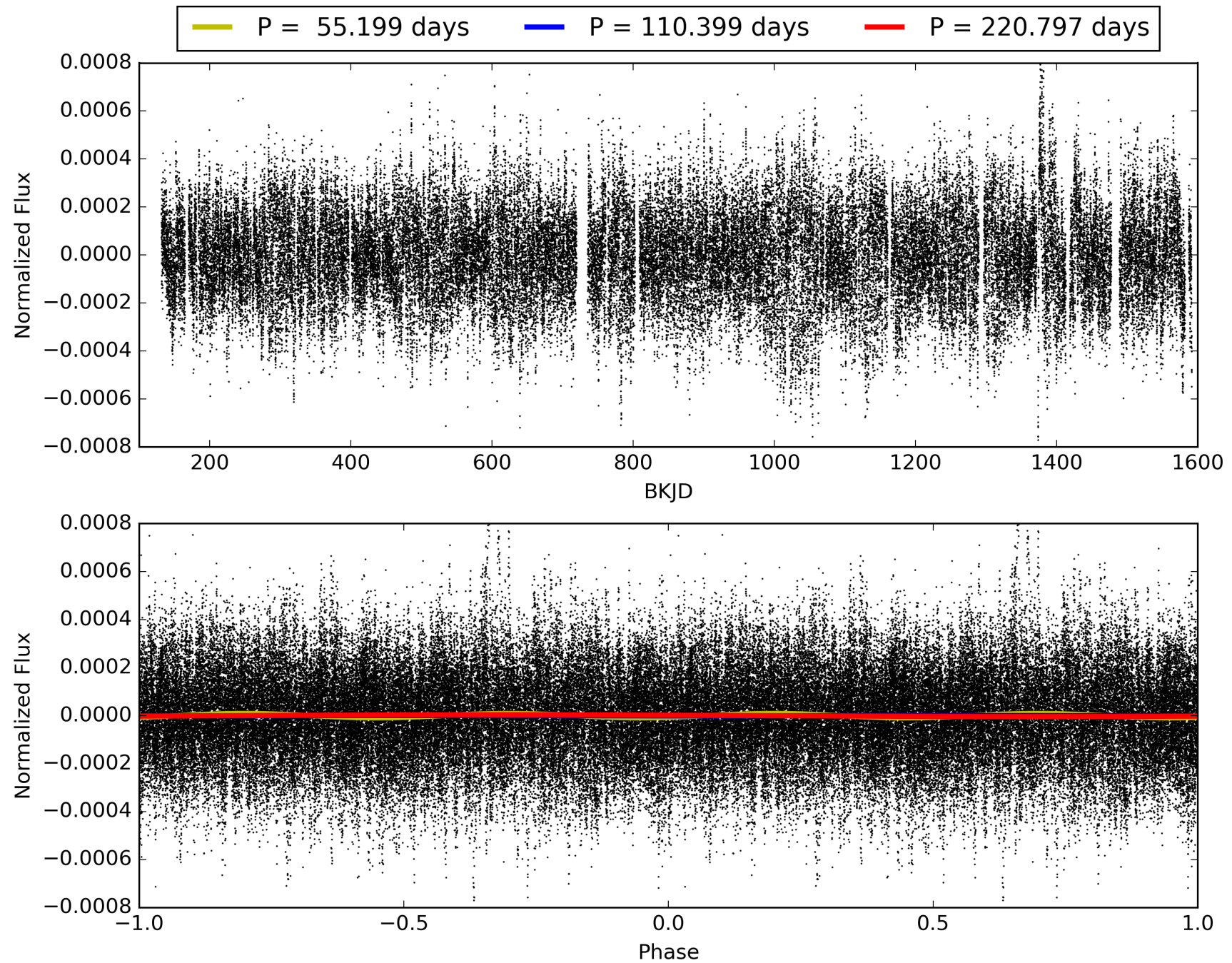
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:21:49 Z

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

TCE 007685010-08, PDC Light Curves

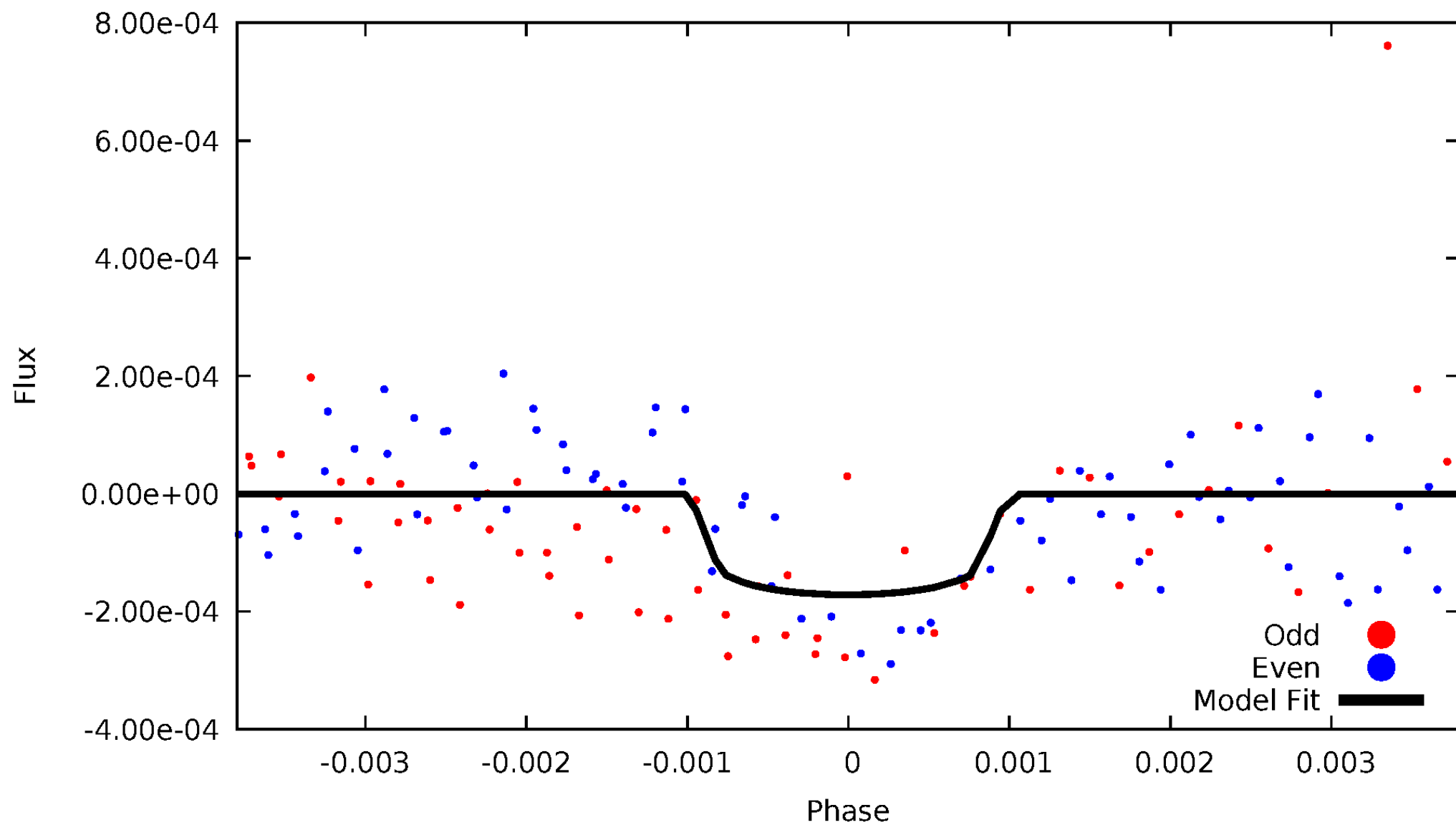


TCE 007685010-08



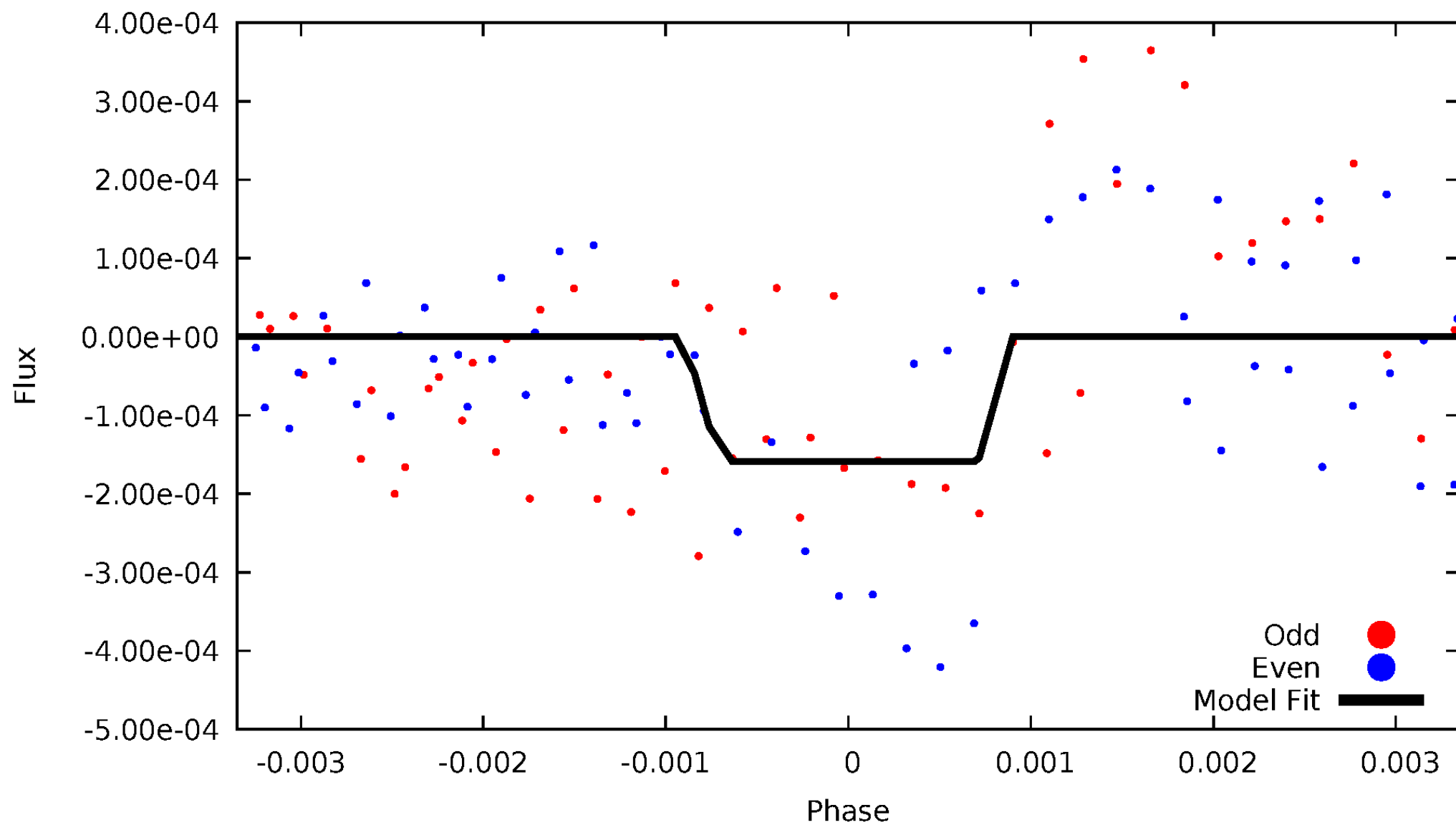
DV Odd/Even

TCE 007685010-08



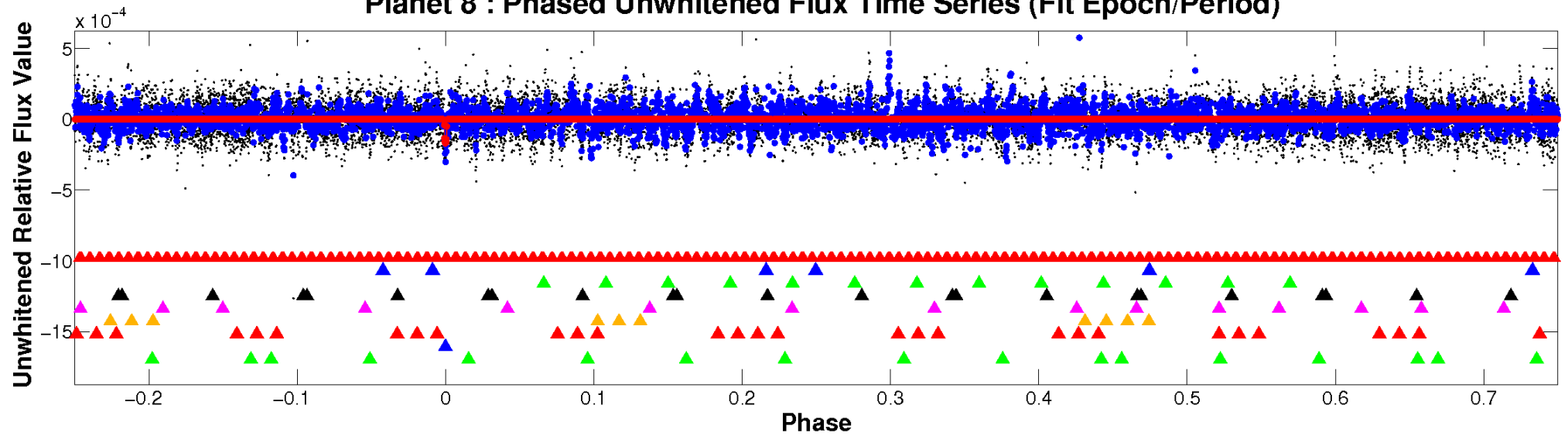
ALT Odd/Even

TCE 007685010-08

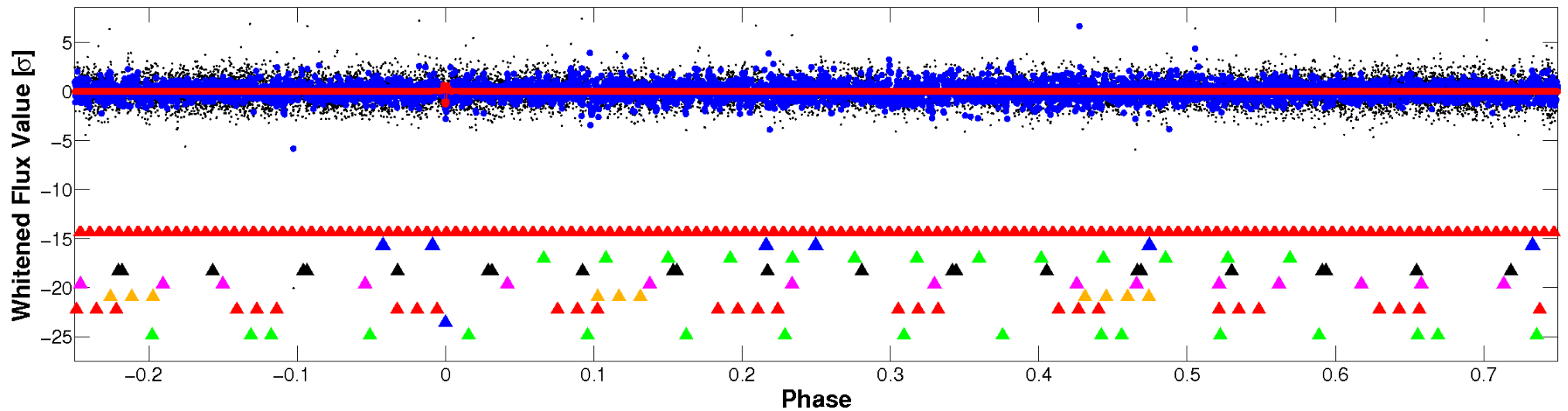


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

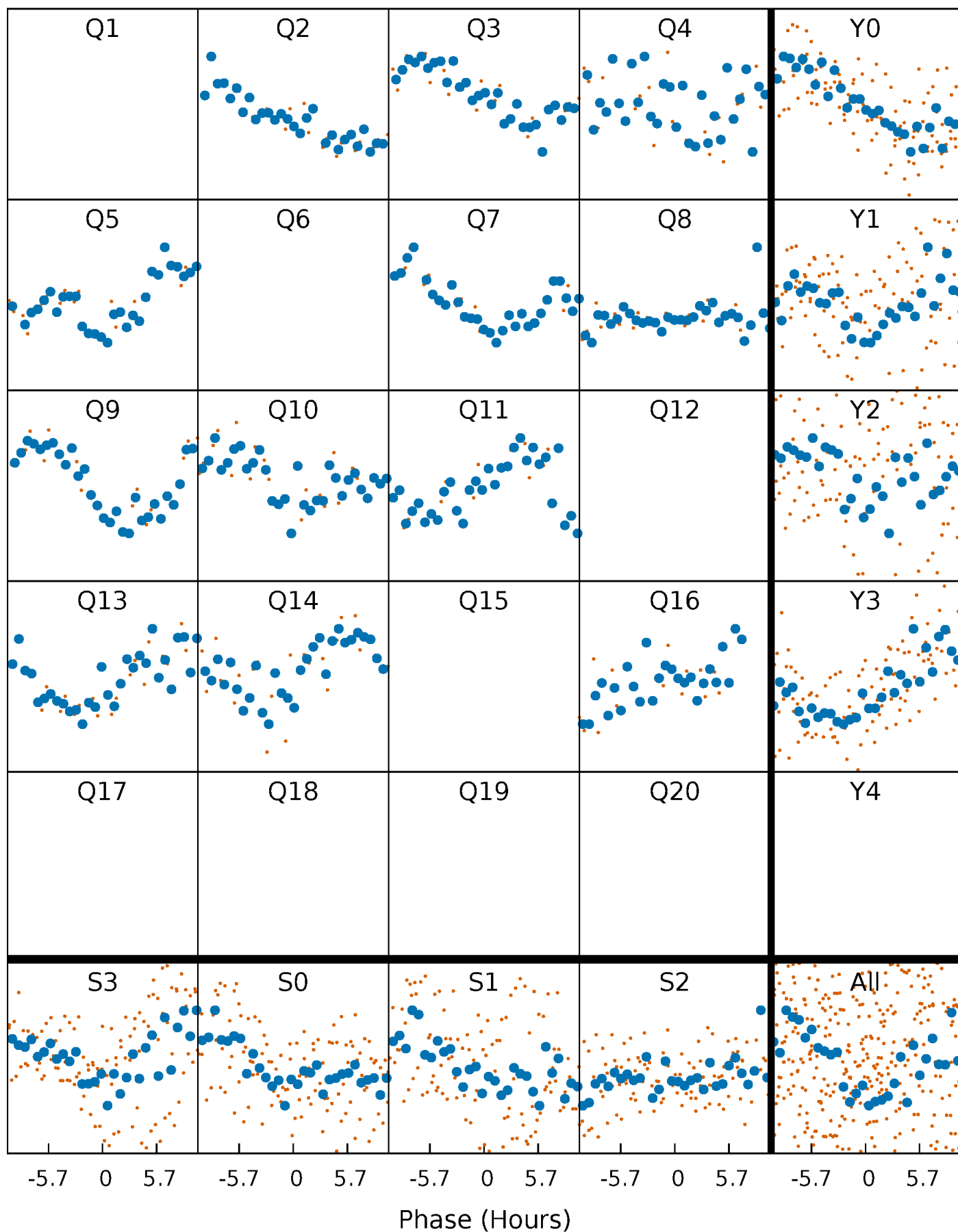


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



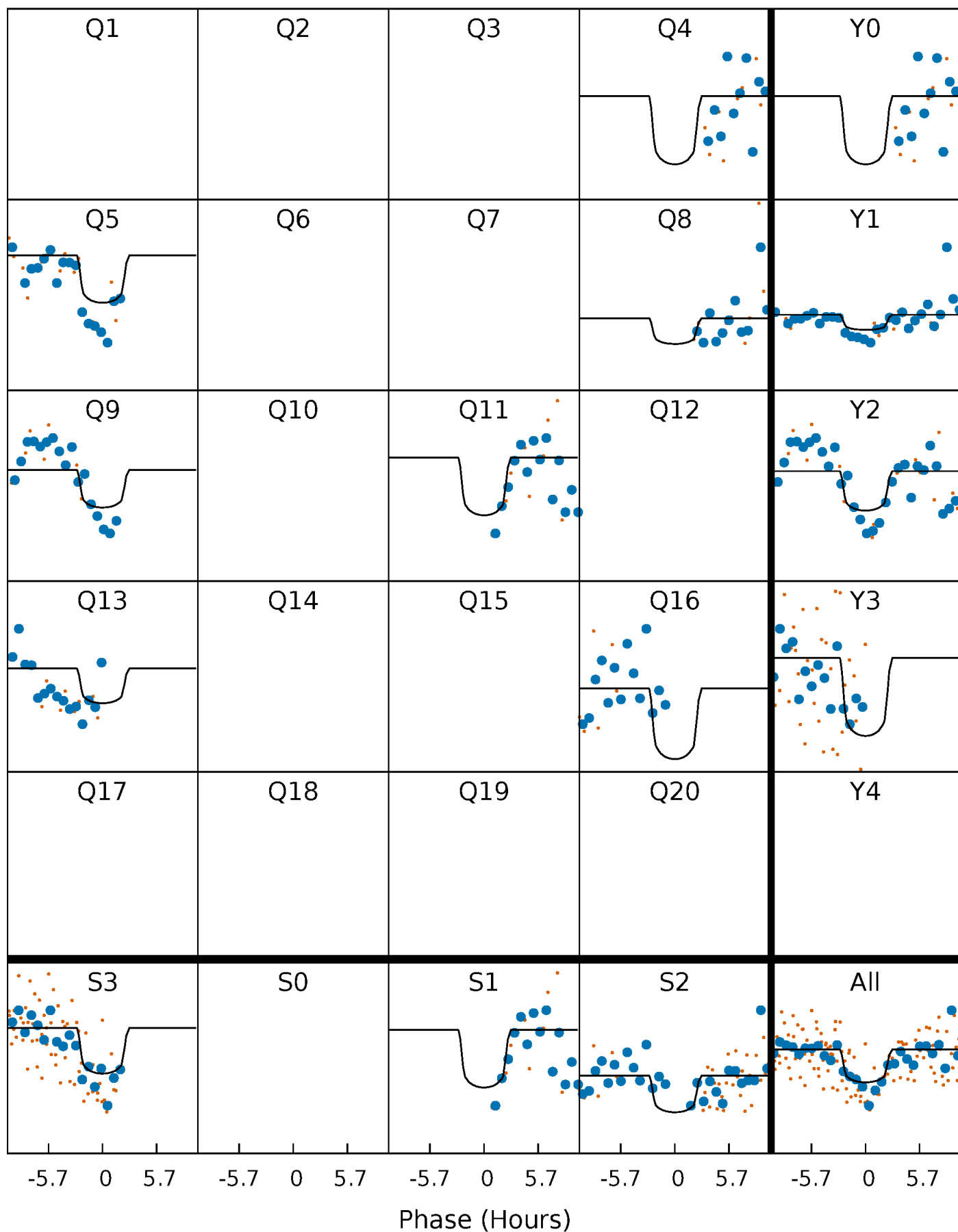
PDC Quarter-Phased Transit Curves

TCE 007685010-08 P=110.398535 Days $T_0=199.878663$ (BKJD)



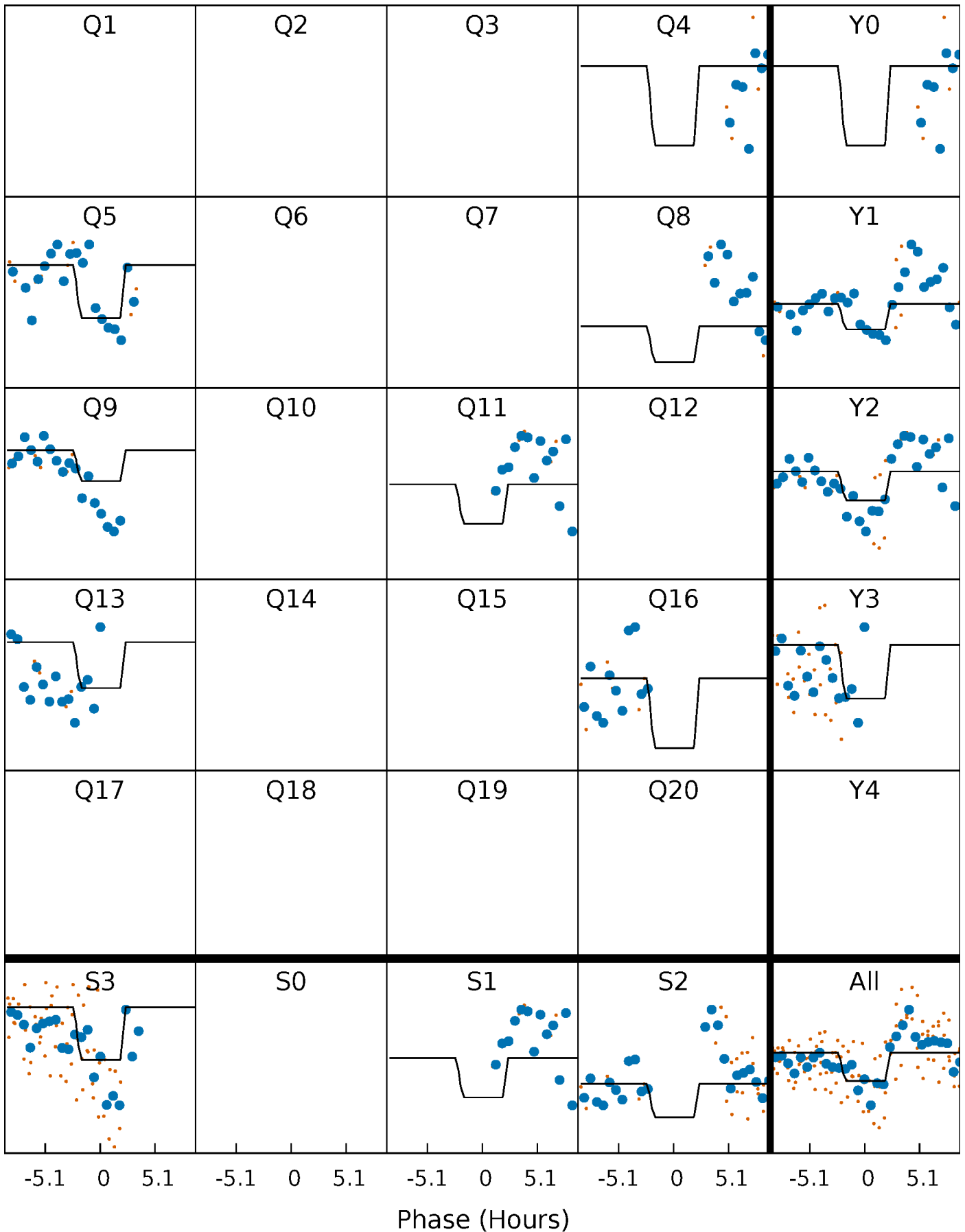
DV Quarter-Phased Transit Curves

TCE 007685010-08 $P=110.398535$ Days $T_0=199.878663$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

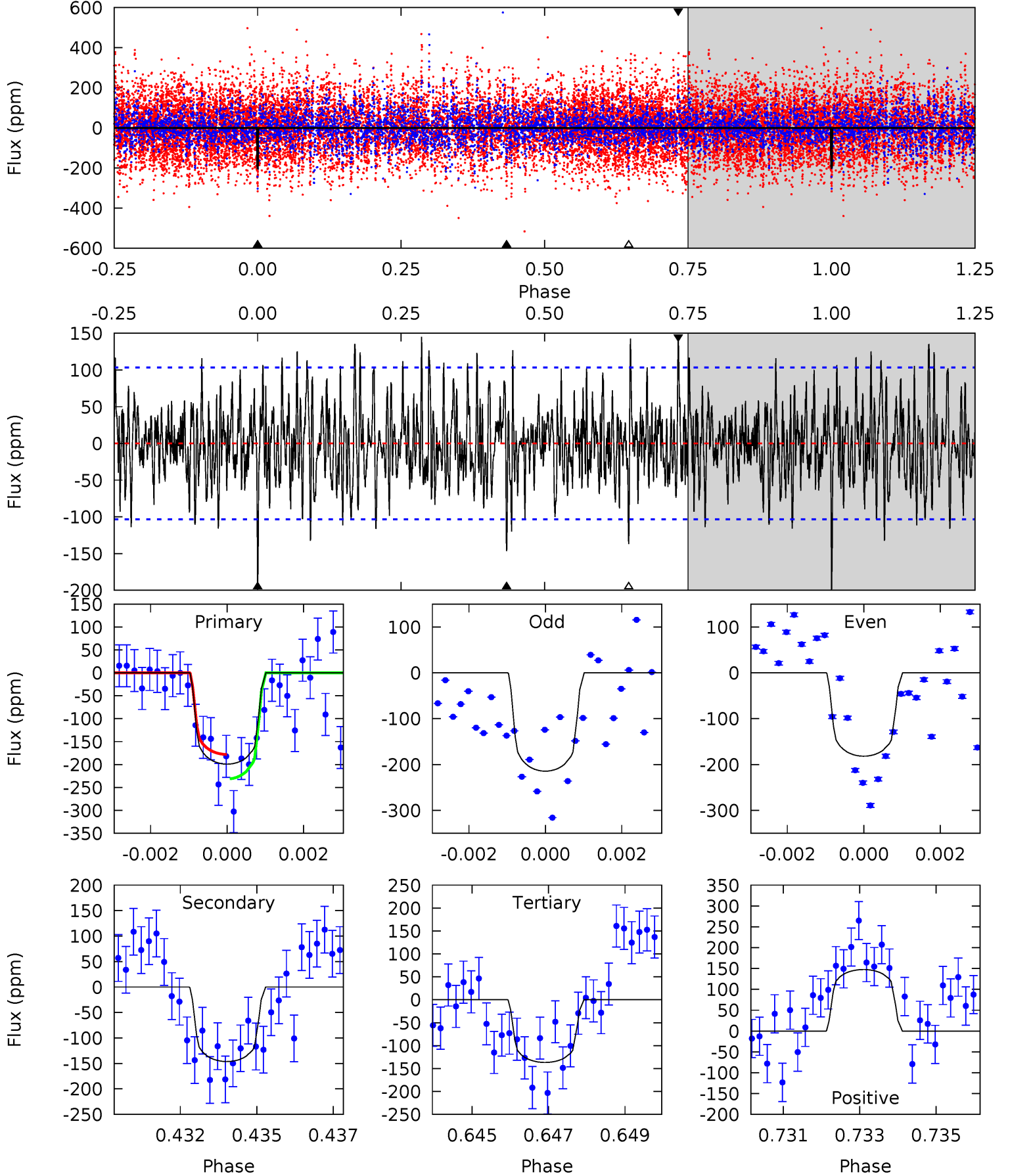
TCE 007685010-08 P=110.410046 Days $T_0=199.783078$ (BKJD)



DV Model-Shift Uniqueness Test

007685010-08, P = 110.398535 Days, E = 89.480128 Days

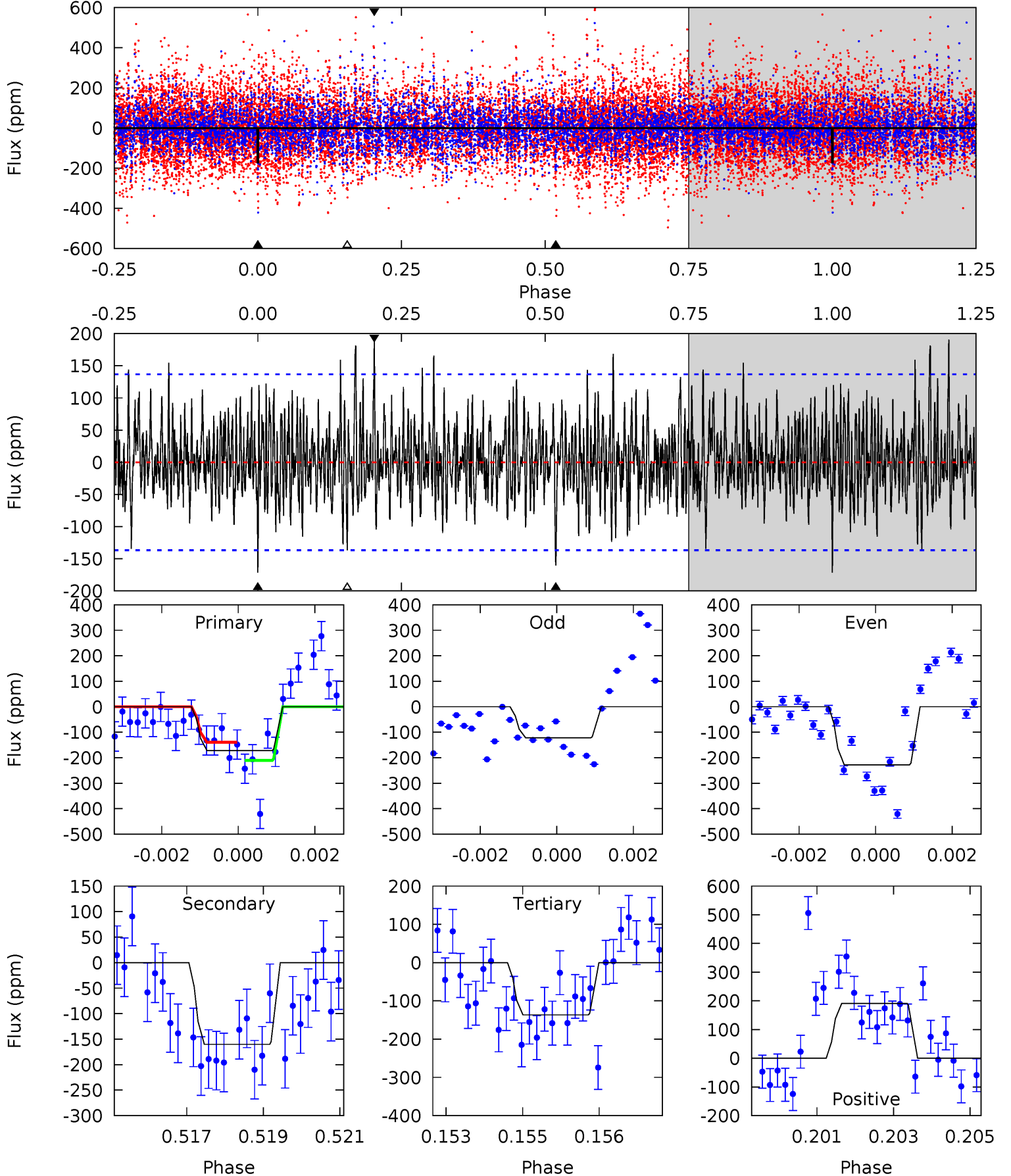
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	7.52	7.03	7.58	5.32	3.08	2.19	3.21	2.66	0.49	-0.06	0.84	0.91	0.43	1.32



Alt Model-Shift Uniqueness Test

007685010-08, P = 110.410046 Days, E = 89.373032 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.74	6.29	5.37	7.50	5.37	3.17	1.87	1.37	-0.76	0.92	-1.21	2.07	1.11	0.53	1.39



Stellar Parameters For KIC 007685010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6502^{+155}_{-175}	$3.974^{+0.241}_{-0.130}$	$-0.020^{+0.250}_{-0.250}$	$2.049^{+0.477}_{-0.636}$	$1.444^{+0.159}_{-0.273}$	$0.236^{+0.361}_{-0.094}$
	+2%/-3%	+6%/-3%	+1250%/-1250%	+23%/-31%	+11%/-19%	+153%/-40%
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 007685010-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-146 ± 19	$2.98^{+2.04}_{-1.79}$	795^{+57}_{-65}	6050^{+4476}_{-1235}	2382^{+12105}_{-1552}
Alt.	-160 ± 25	$2.86^{+2.05}_{-1.74}$	796^{+54}_{-65}	6343^{+4699}_{-1414}	2826^{+13947}_{-1881}

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

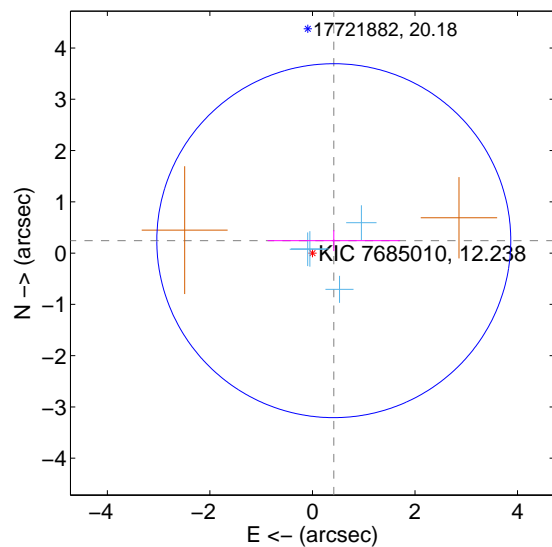
Supplemental centroid analysis for 007685010-08. Kepler magnitude: 12.24. Transit SNR 6.79

There are 4 quarters with good PRF difference image offsets

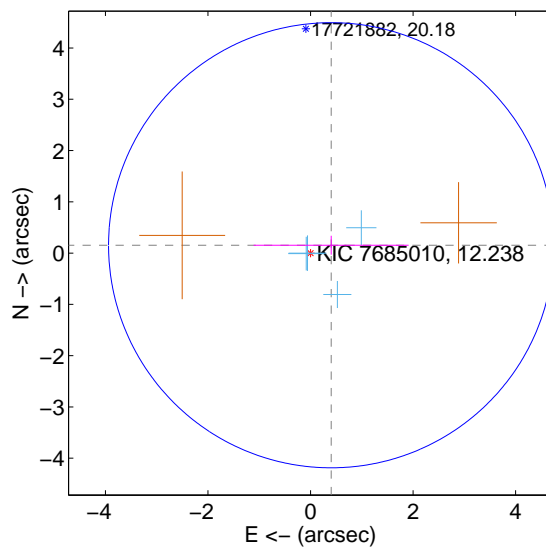
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.482 ± 1.150	0.42	-0.416 ± 1.290	0.242 ± 0.203
PRF-fit source offset from KIC position	0.430 ± 1.447	0.30	-0.402 ± 1.512	0.153 ± 0.184
photometric centroid source offset	0.28 ± 0.55	0.52	0.05 ± 0.58	-0.28 ± 0.55

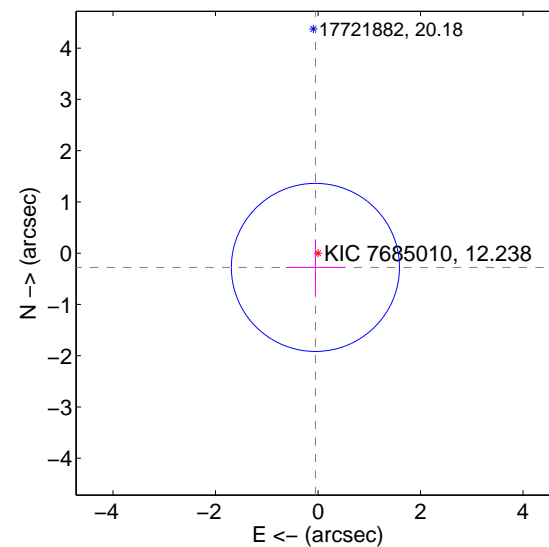
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

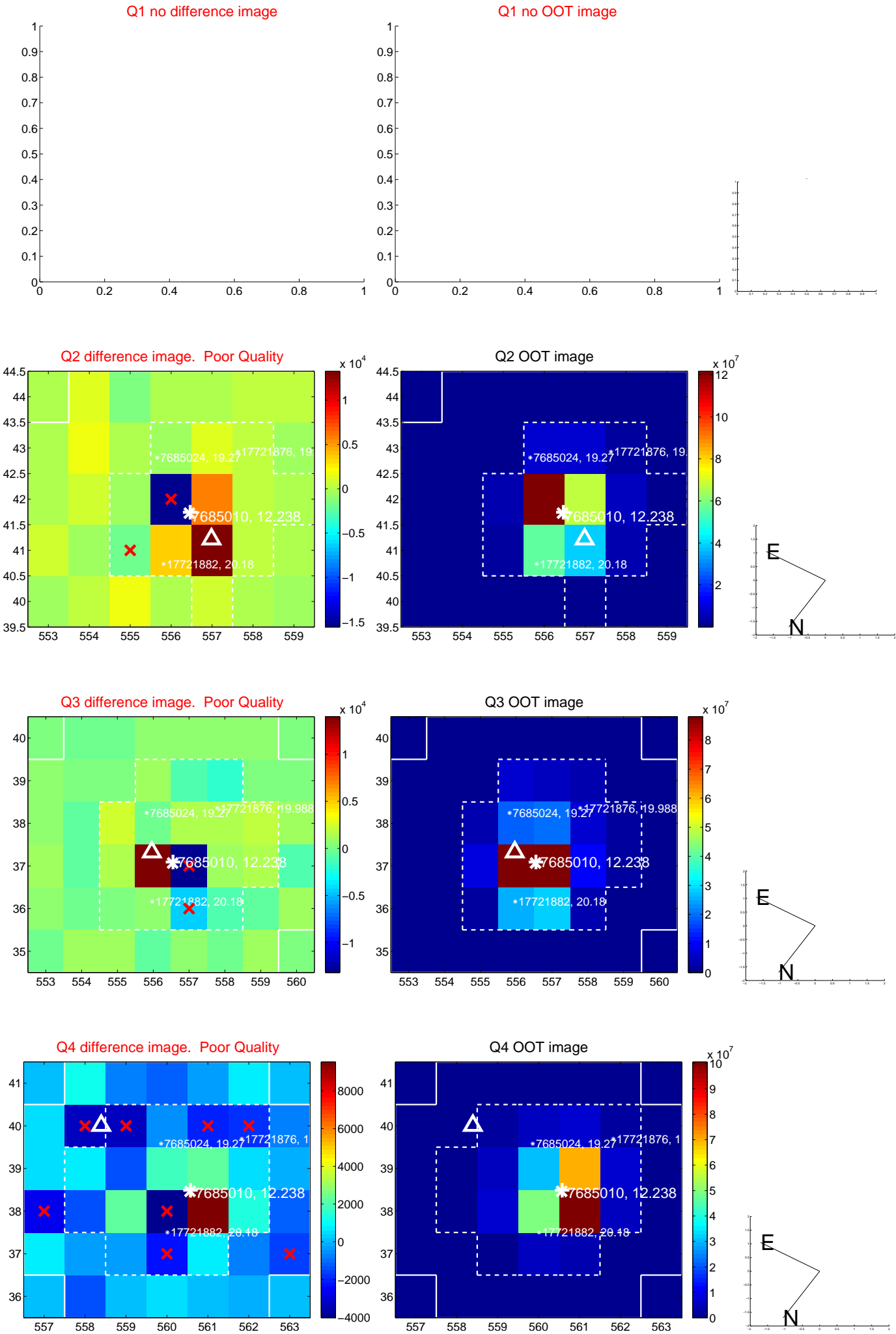


offset from photometric centroids

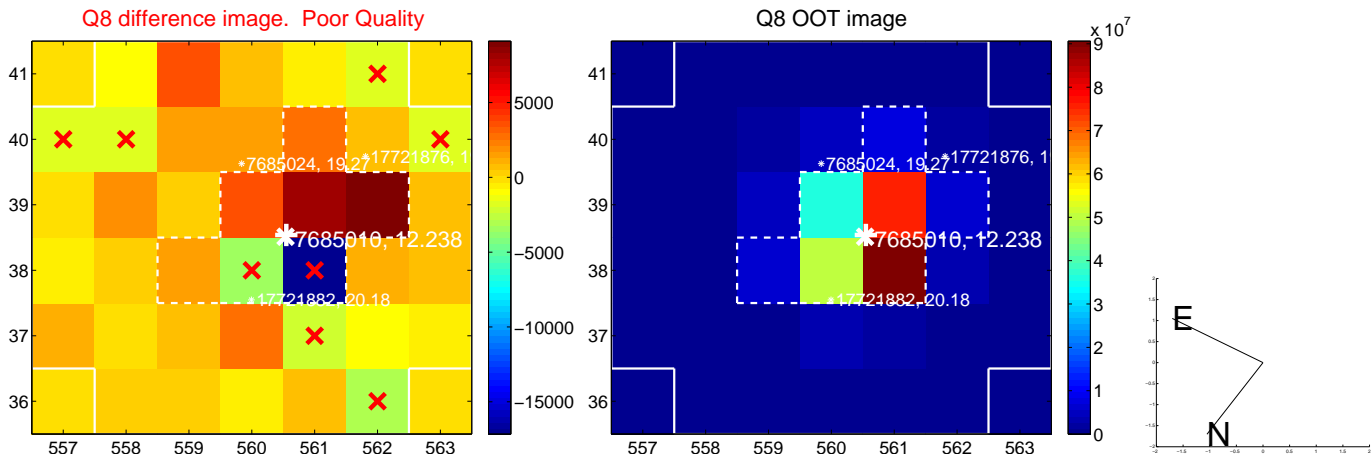
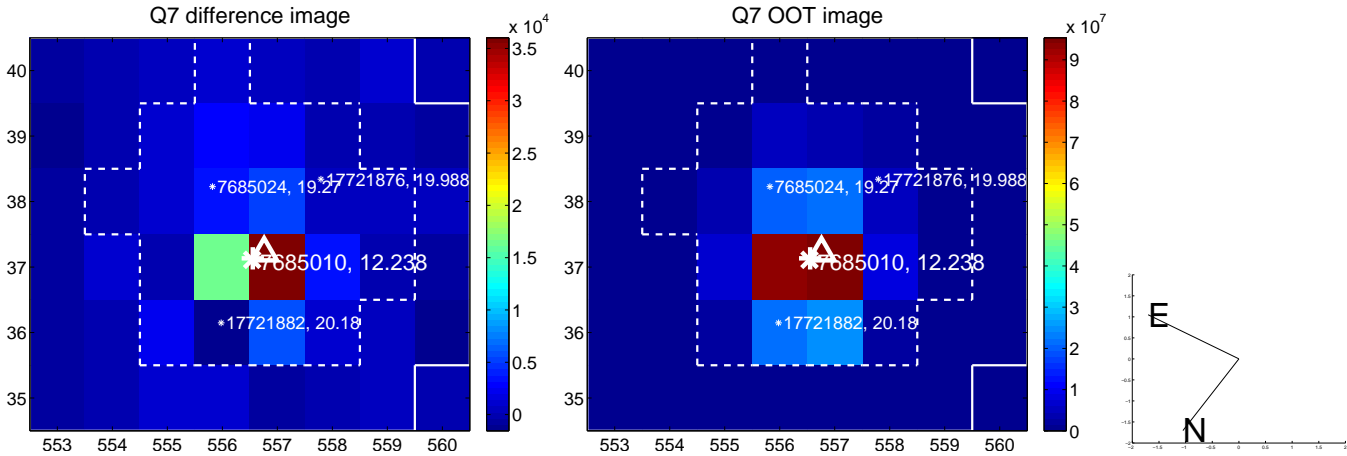
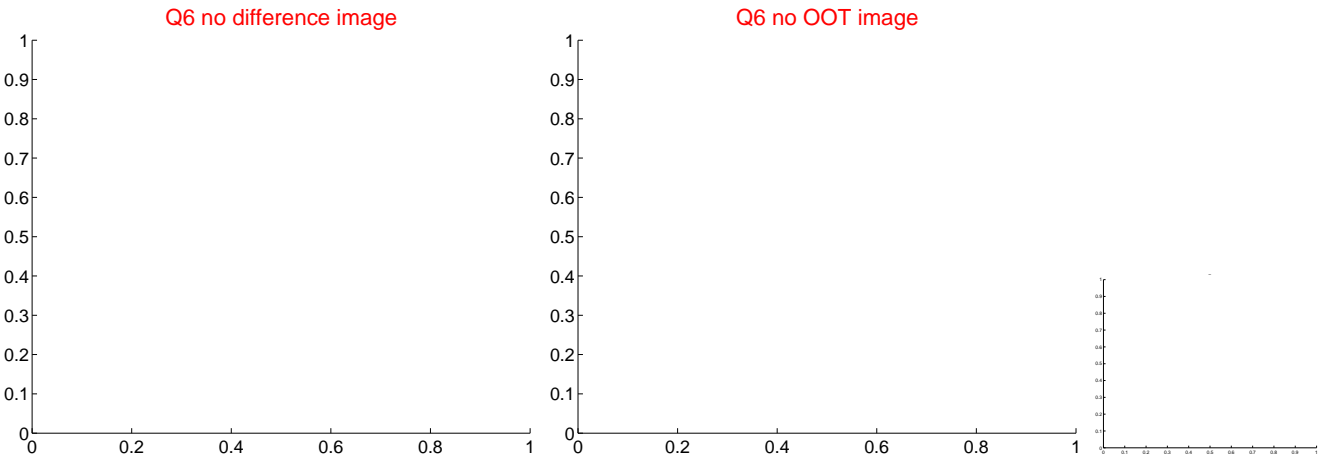
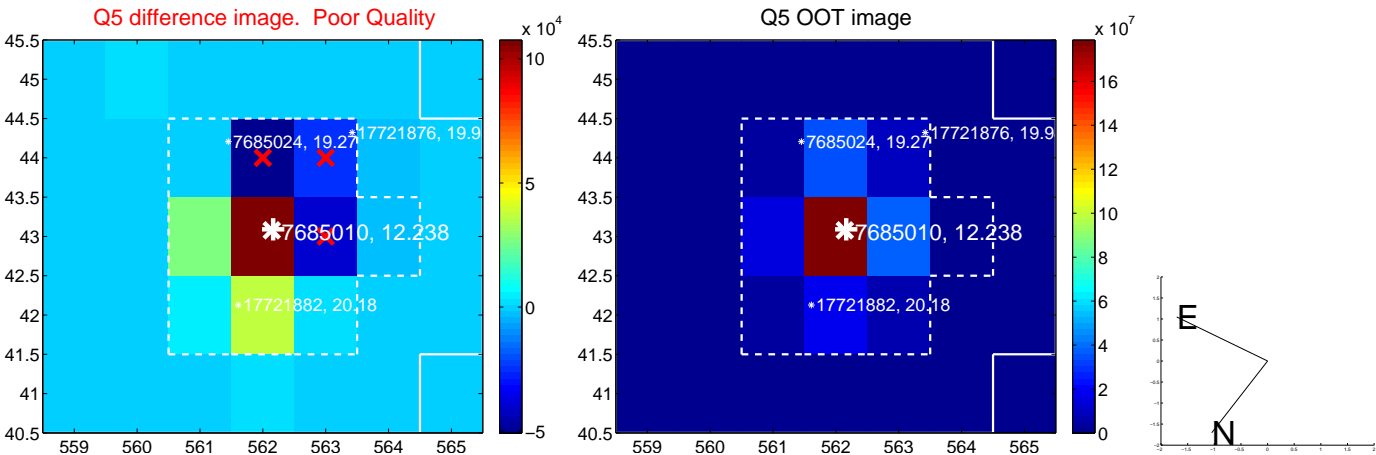


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

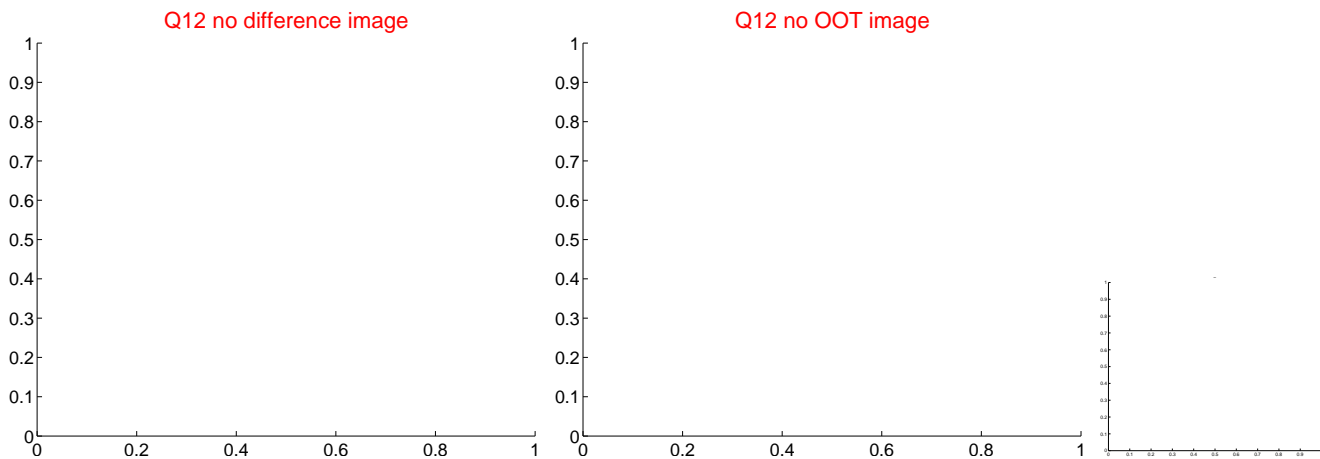
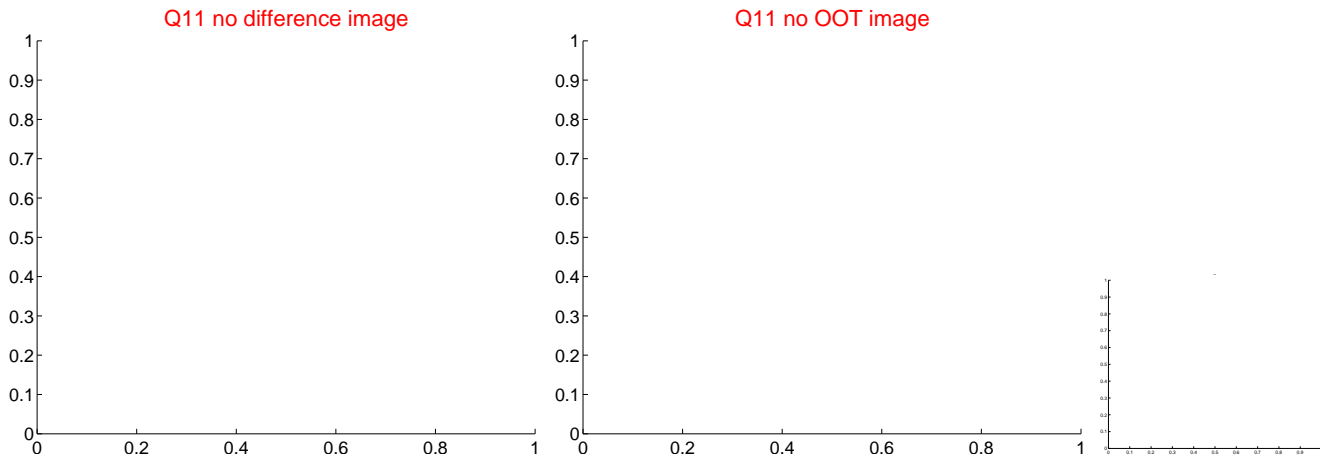
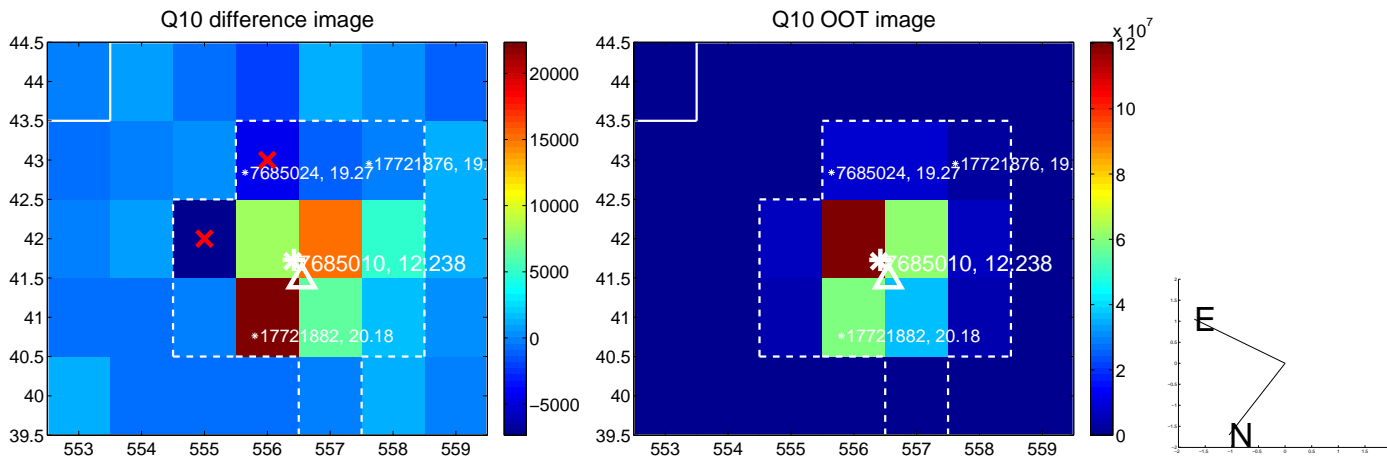
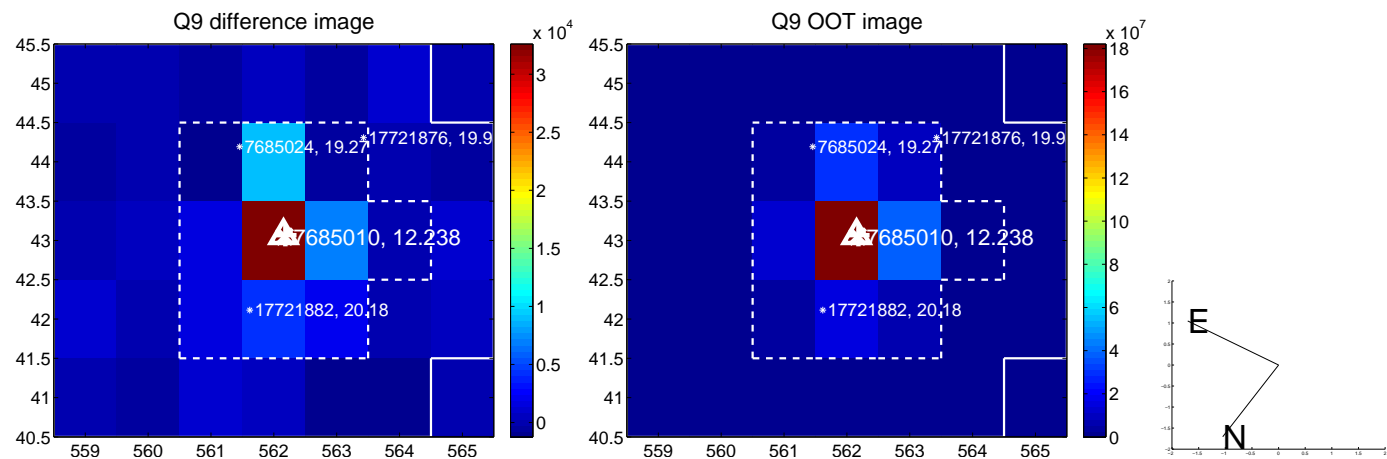
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



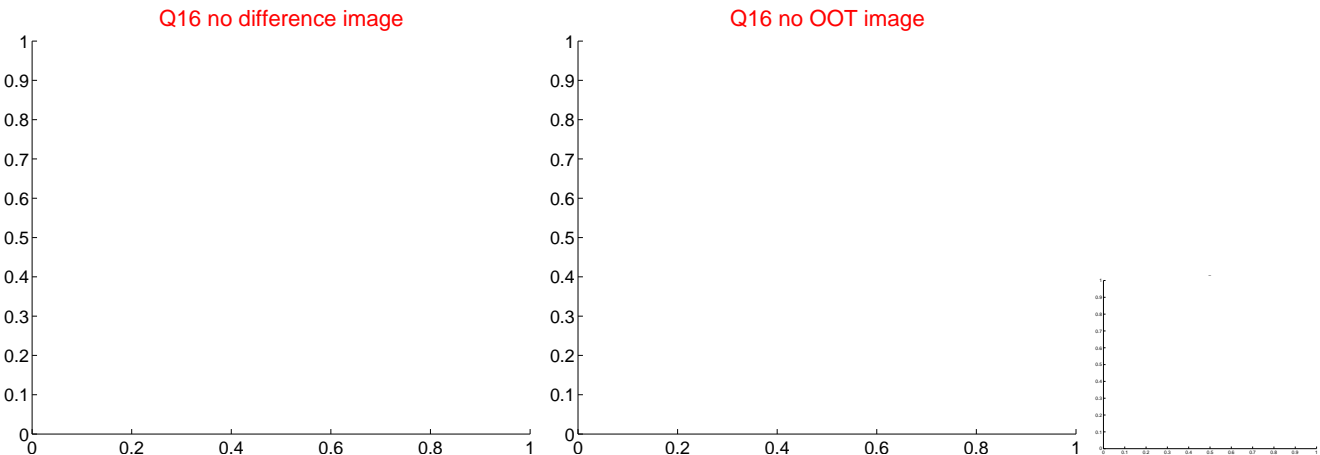
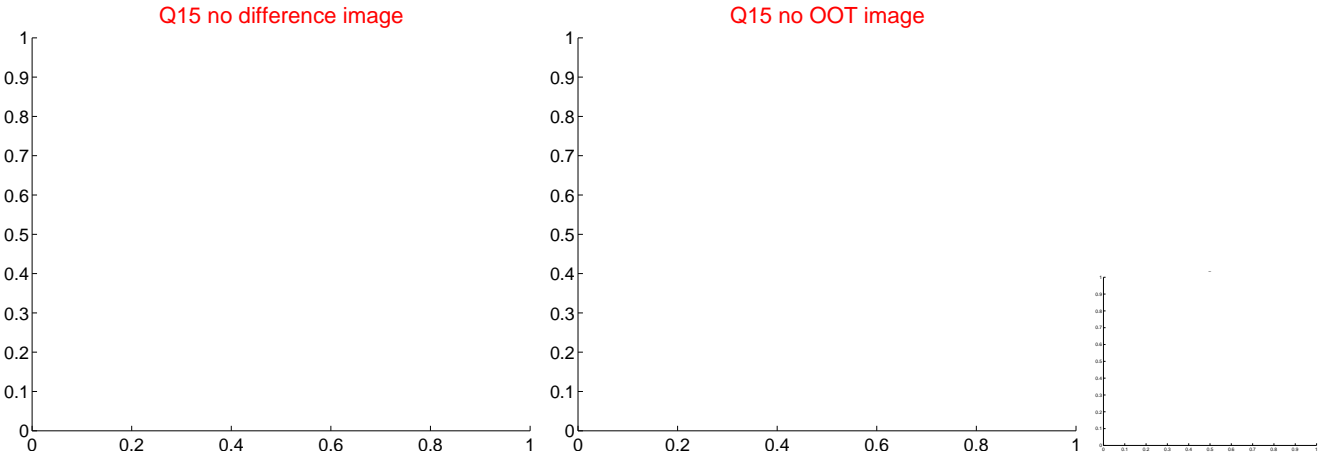
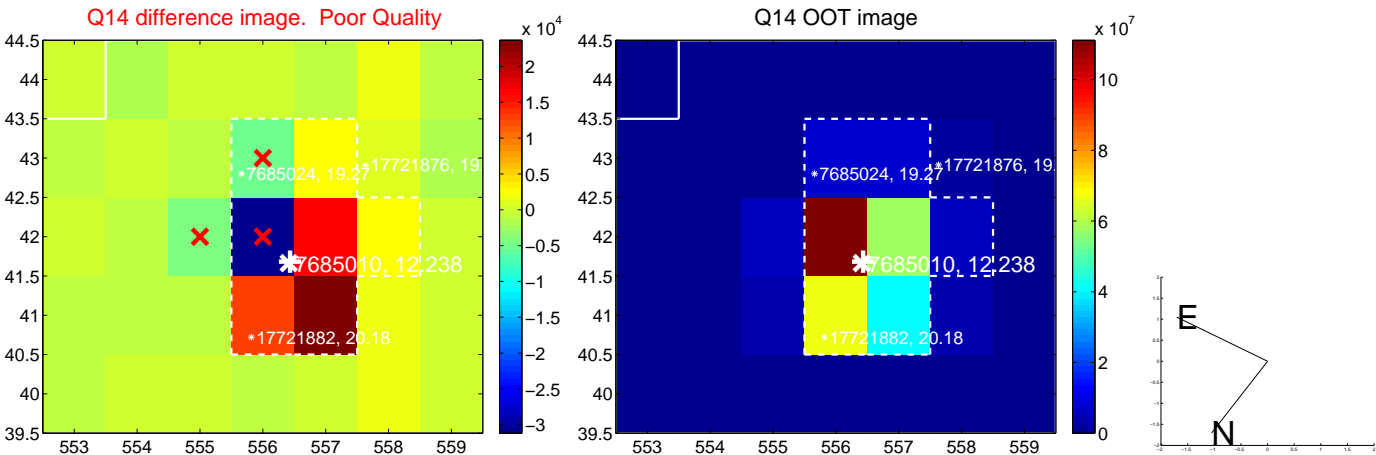
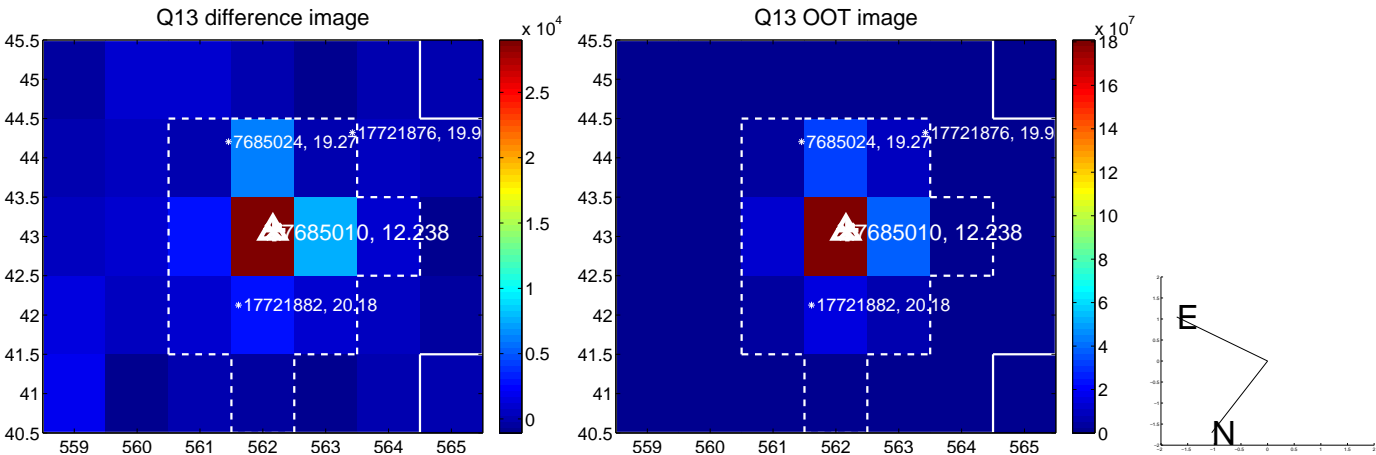
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



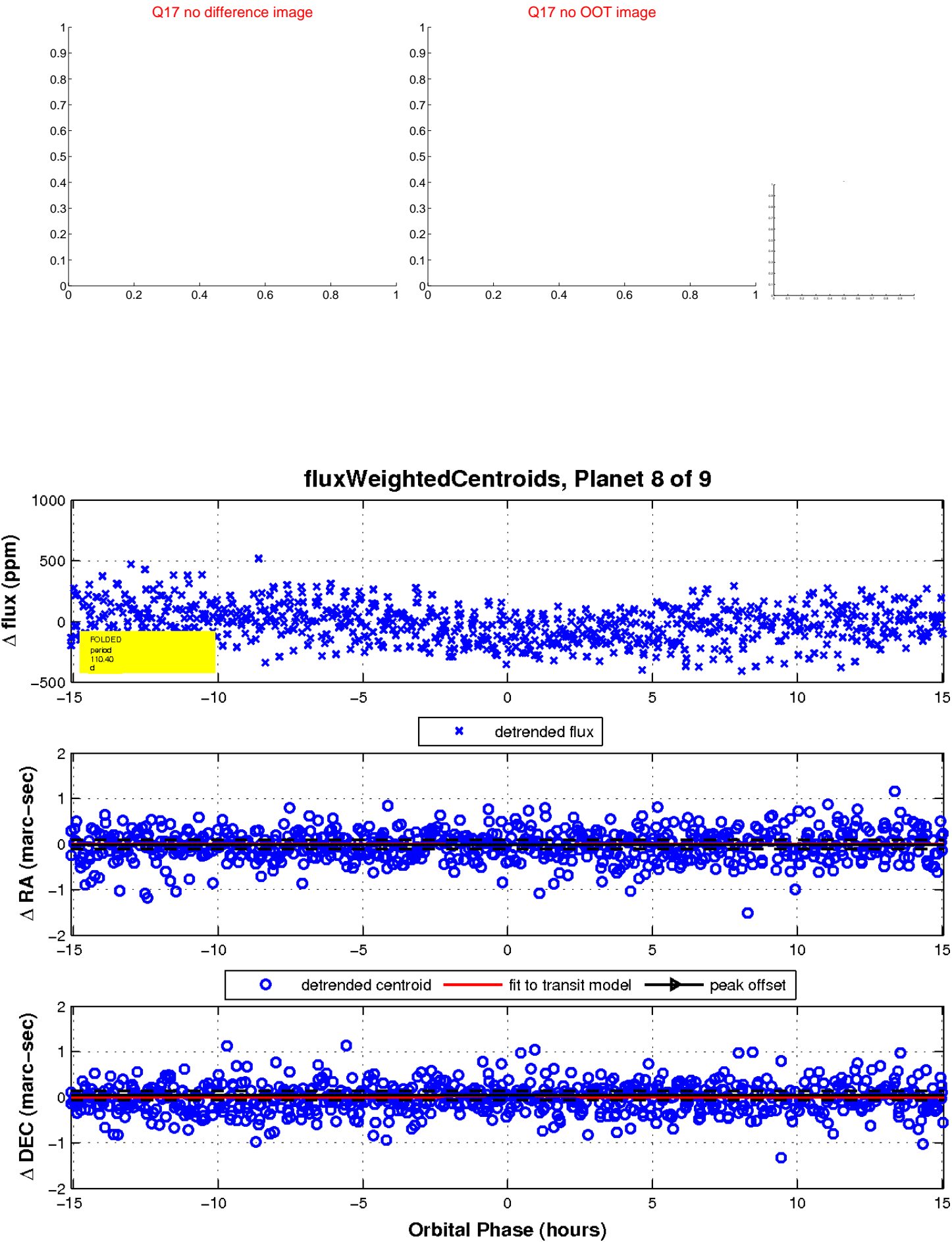
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



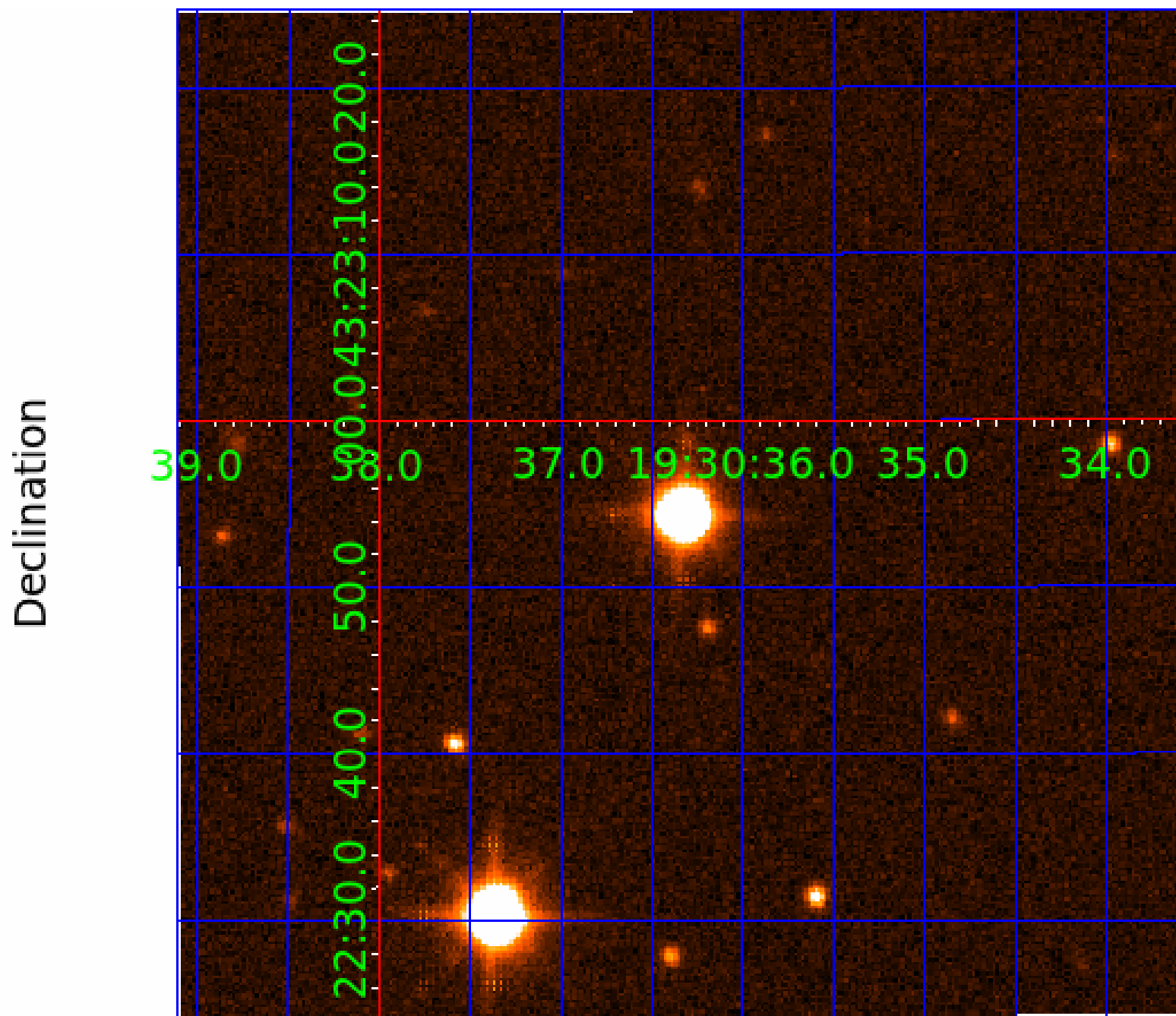
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image



KIC 007685010

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})
007685010-01	OBS	No	2.150345	131.927710	16.0	11.363	11.4	6.3	2.05	6502	0.86	4951.83
007685010-02	OBS	No	249.318333	305.627181	441.9	22.058	12.7	11.7	2.05	6502	8.32	8.76
007685010-04	OBS	No	62.081942	175.805349	170.8	12.252	8.8	9.1	2.05	6502	2.87	55.91
007685010-05	OBS	No	99.804435	178.845873	200.8	5.679	8.7	7.5	2.05	6502	5.75	29.69
007685010-07	OBS	No	49.230875	170.930530	131.9	9.309	8.0	7.9	2.05	6502	2.69	76.17
007685010-08	OBS	No	110.398535	199.878663	171.6	5.029	7.6	6.8	2.05	6502	3.06	25.95
007685010-09	OBS	No	86.849723	185.394836	177.8	4.775	7.3	7.7	2.05	6502	3.08	35.73

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007685010-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007685010-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007685010-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
007685010-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
007685010-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
007685010-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—HALO_GHOST

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

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

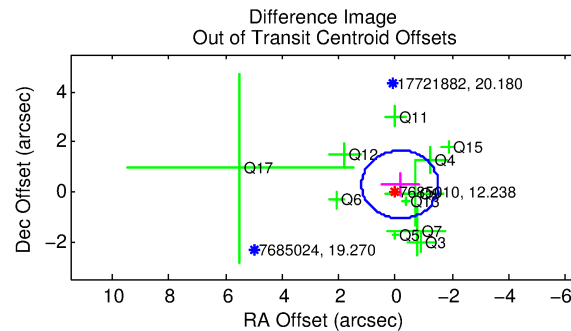
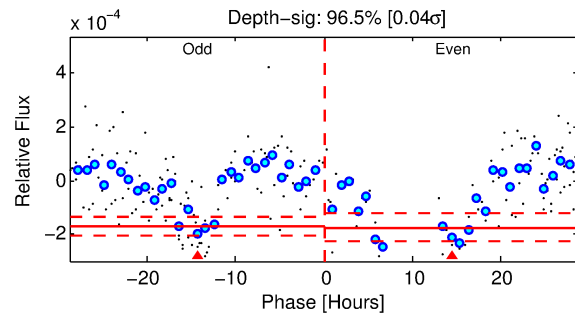
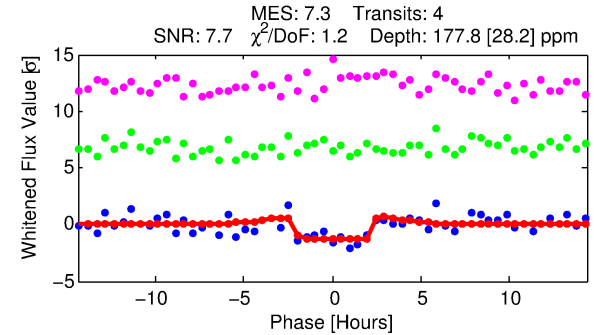
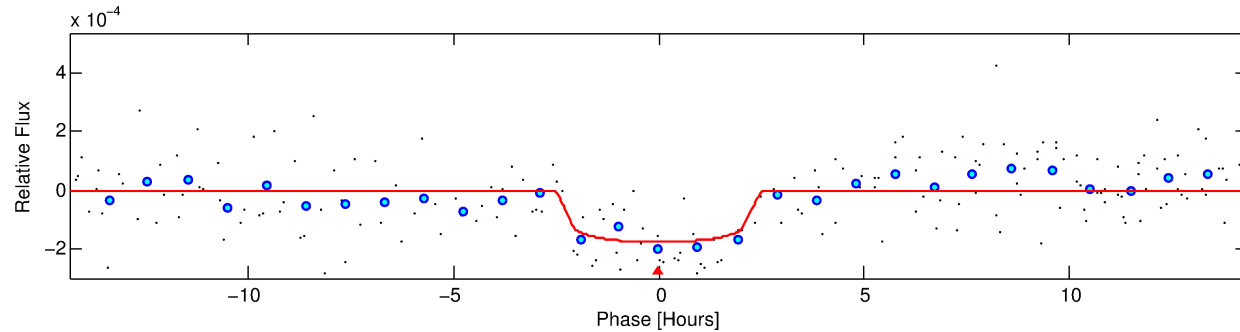
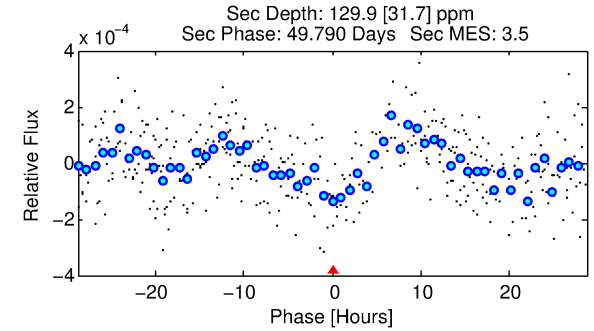
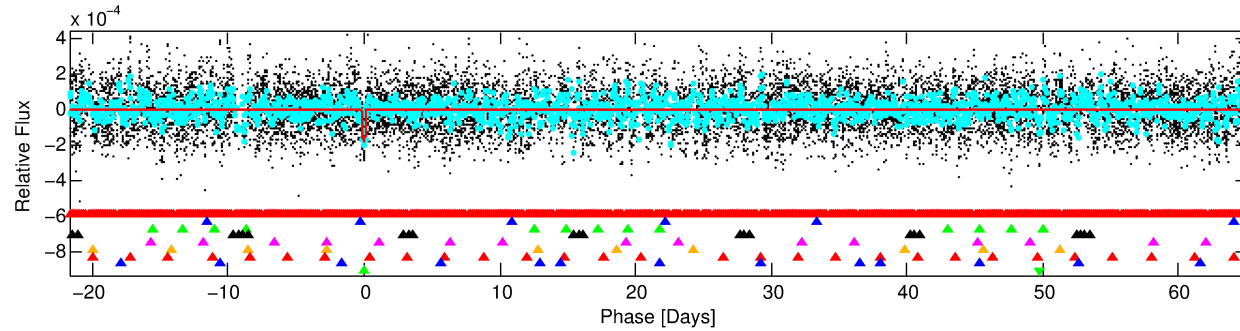
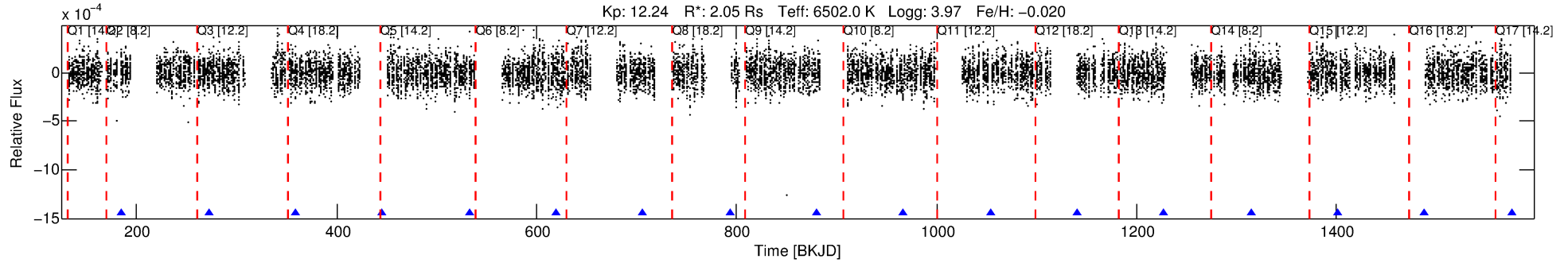
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007685010-09

No Significant Match Found

DV One-Page Summary

KIC: 7685010 Candidate: 9 of 9 Period: 86.850 d



DV Fit Results:

Period = 86.84972 [0.00149] d
Epoch = 185.3948 [0.0121] BKJD
Rp/R* = 0.0138 [0.0064]
a/R* = 78.39 [196.71]
b = 0.84 [0.87]
Seff = 35.73 [15.63]
Teq = 623 [68] K
Rp = 3.08 [1.72] Re
a = 0.4337 [0.1204] AU
Ag = 1420.05 [1491.83] [0.95σ]
Teffp = 5917 [1431] K [3.70σ]

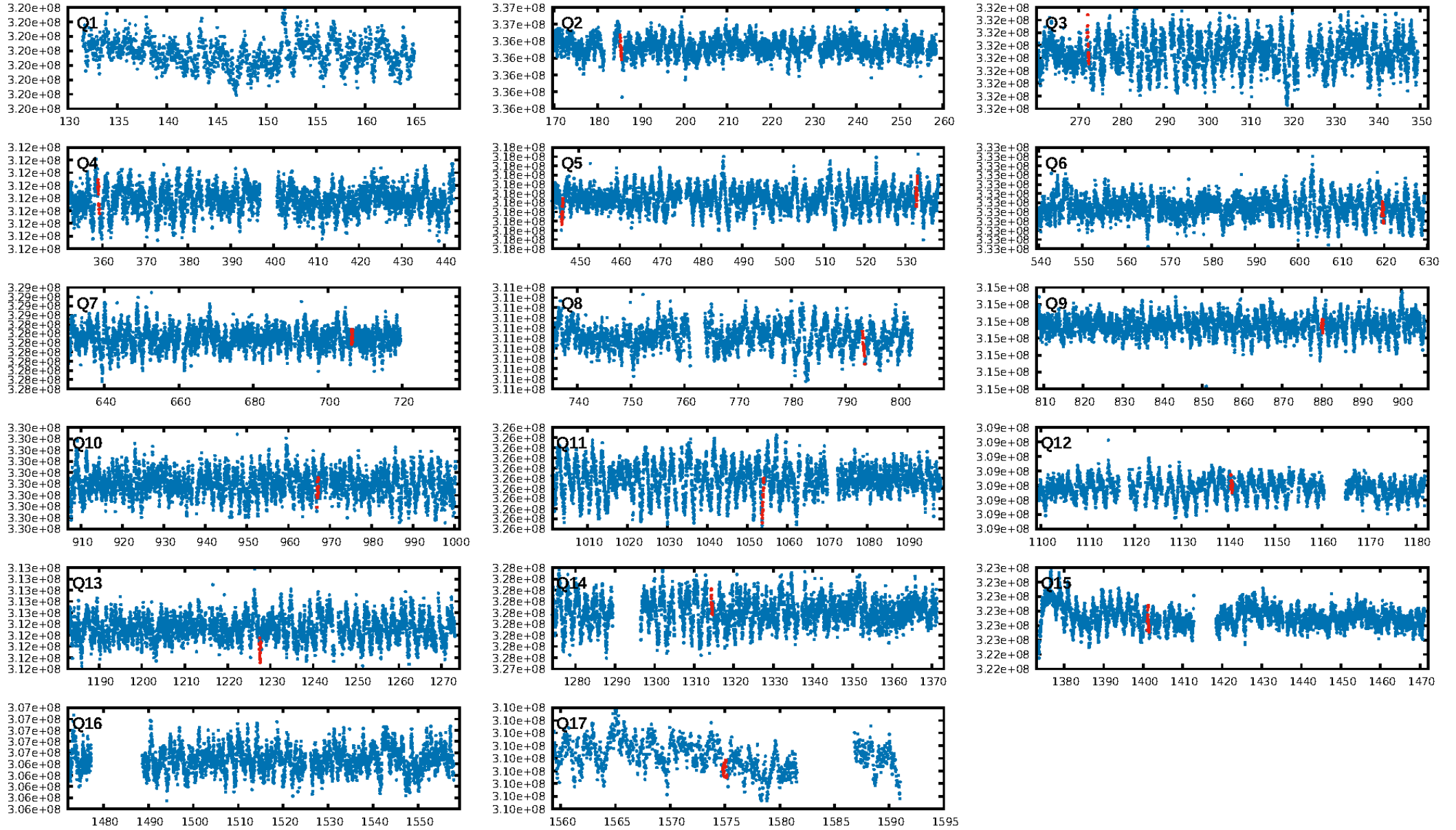
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [45.20σ]
LongPeriod-sig: 100.0% [41.90σ]
ModelChiSquare2-sig: 29.1%
ModelChiSquareGof-sig: 93.1%
Bootstrap-pfa: 1.88e-07
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.05371
Centroid-sig: 54.1%
Centroid-so: 0.339 arcsec [0.73σ]
OotOffset-rm: 0.326 arcsec [0.72σ]
KicOffset-rm: 0.280 arcsec [0.54σ]
OotOffset-st: 1/4/2/4 [11]
KicOffset-st: 1/4/2/4 [11]
DiffImageQuality-fgm: 0.27 [3/11]
DiffImageOverlap-fno: 0.29 [4/14]

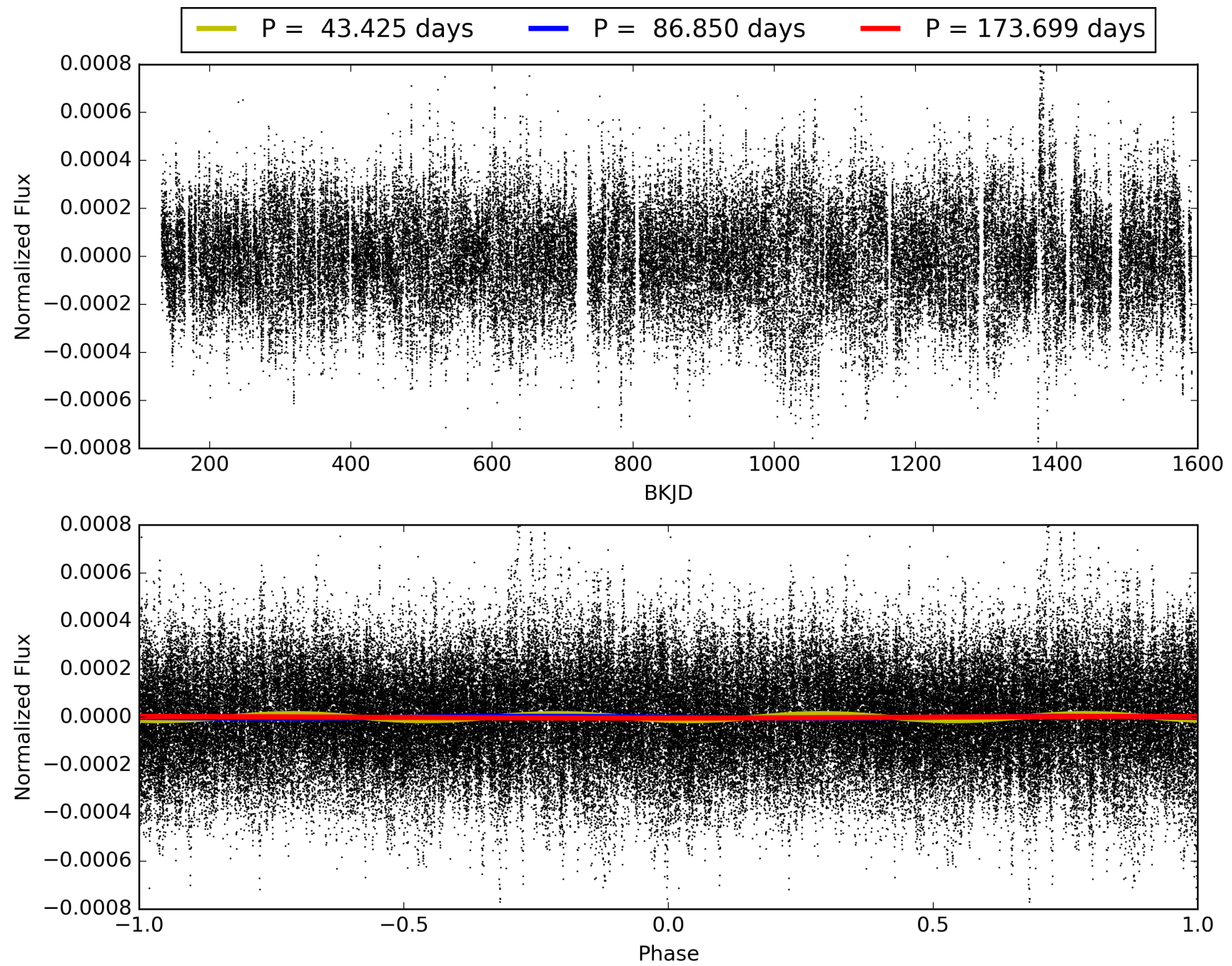
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 09:21:53 Z

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TCE 007685010-09, PDC Light Curves

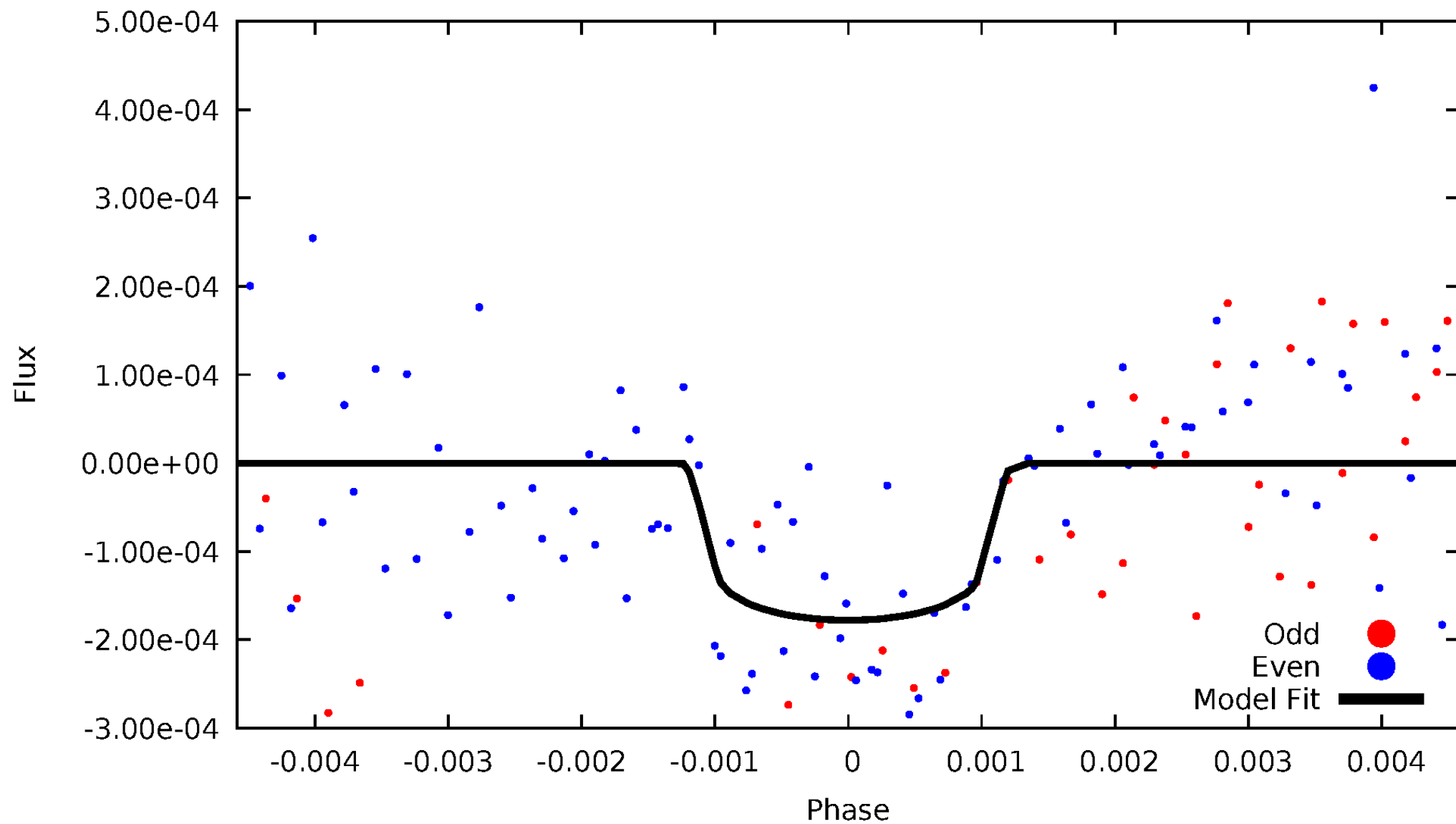


TCE 007685010-09



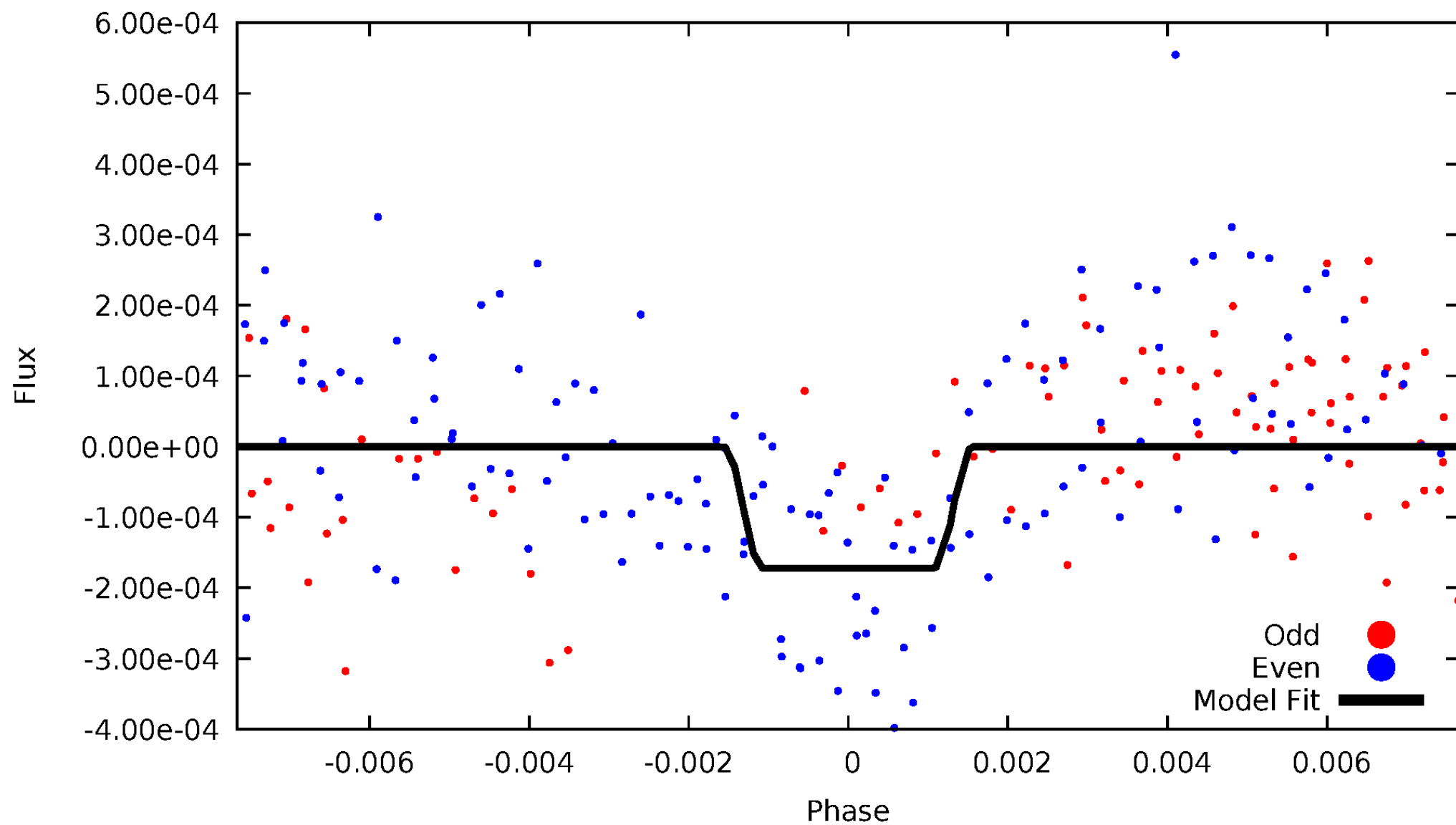
DV Odd/Even

TCE 007685010-09



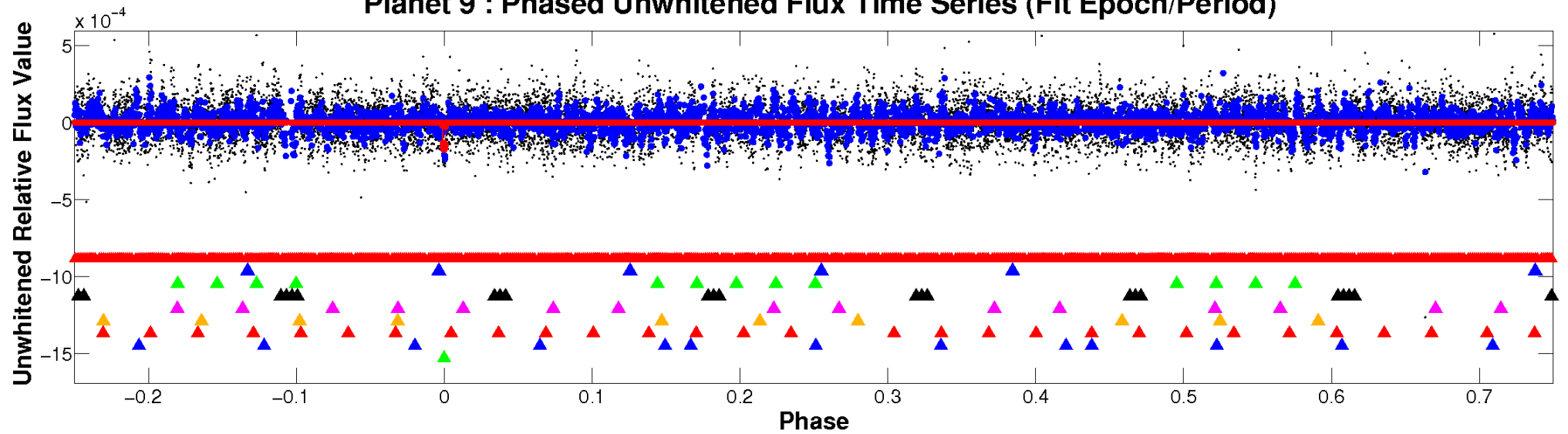
ALT Odd/Even

TCE 007685010-09

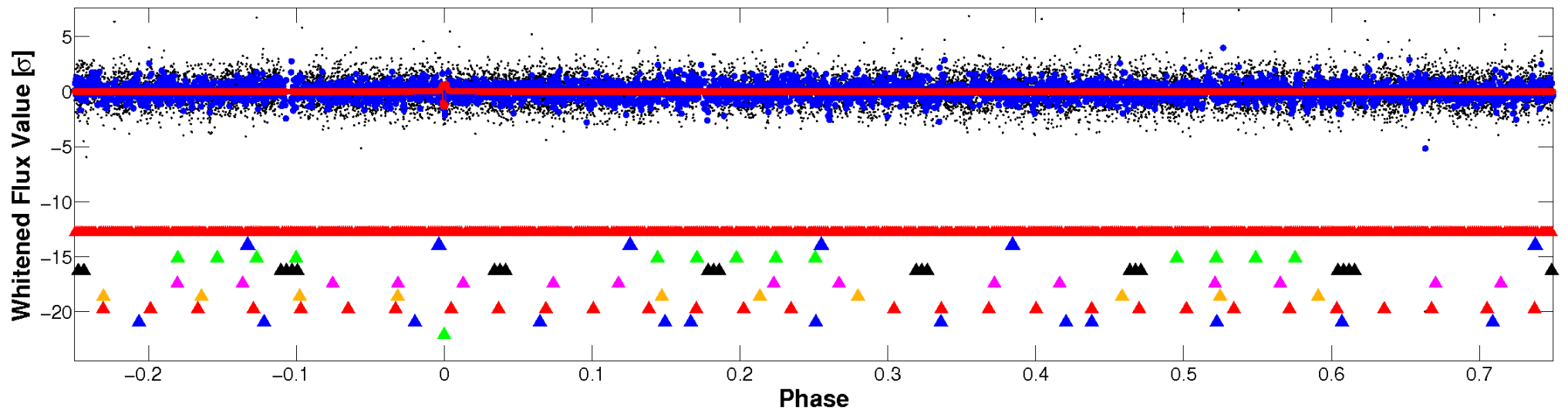


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

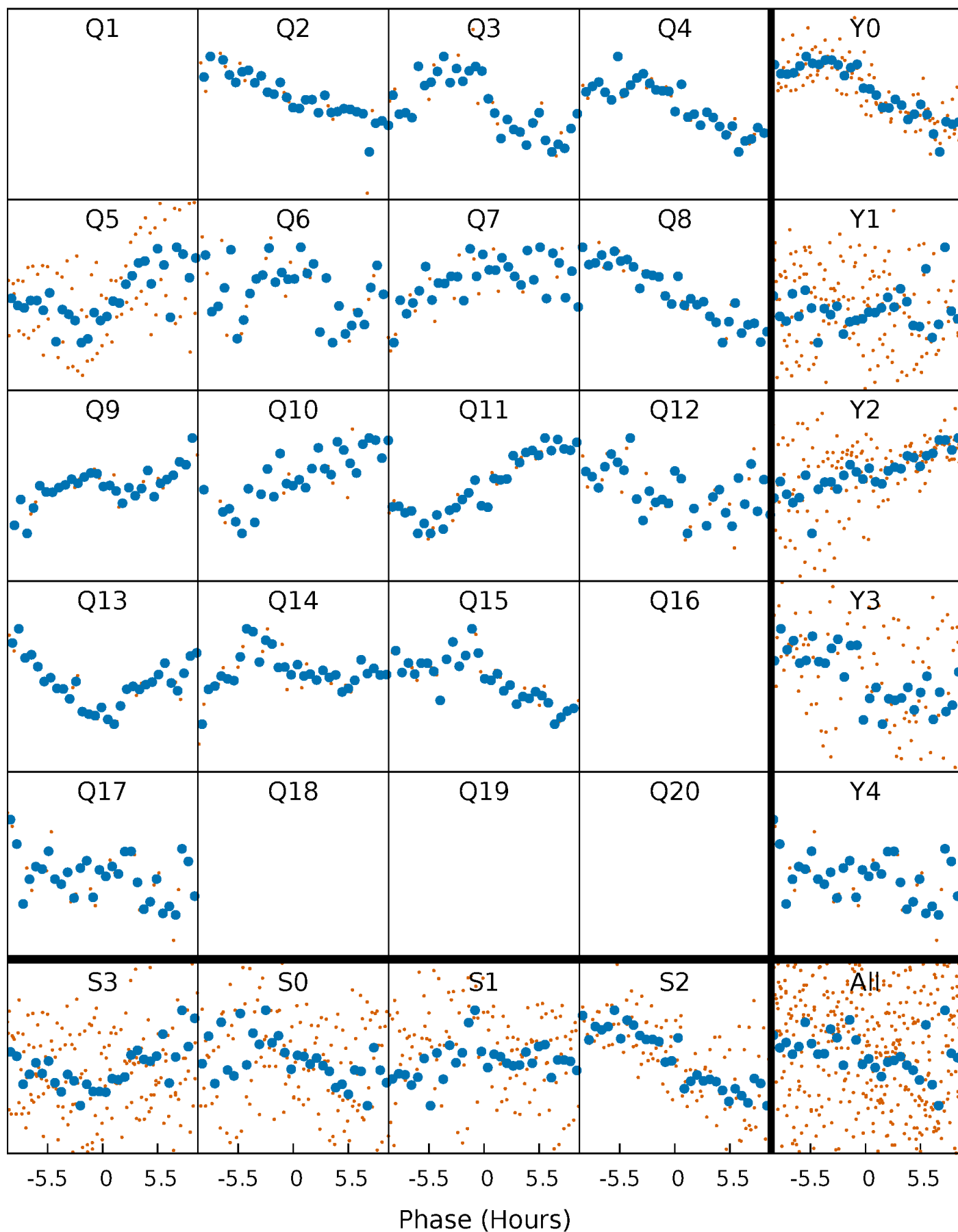


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



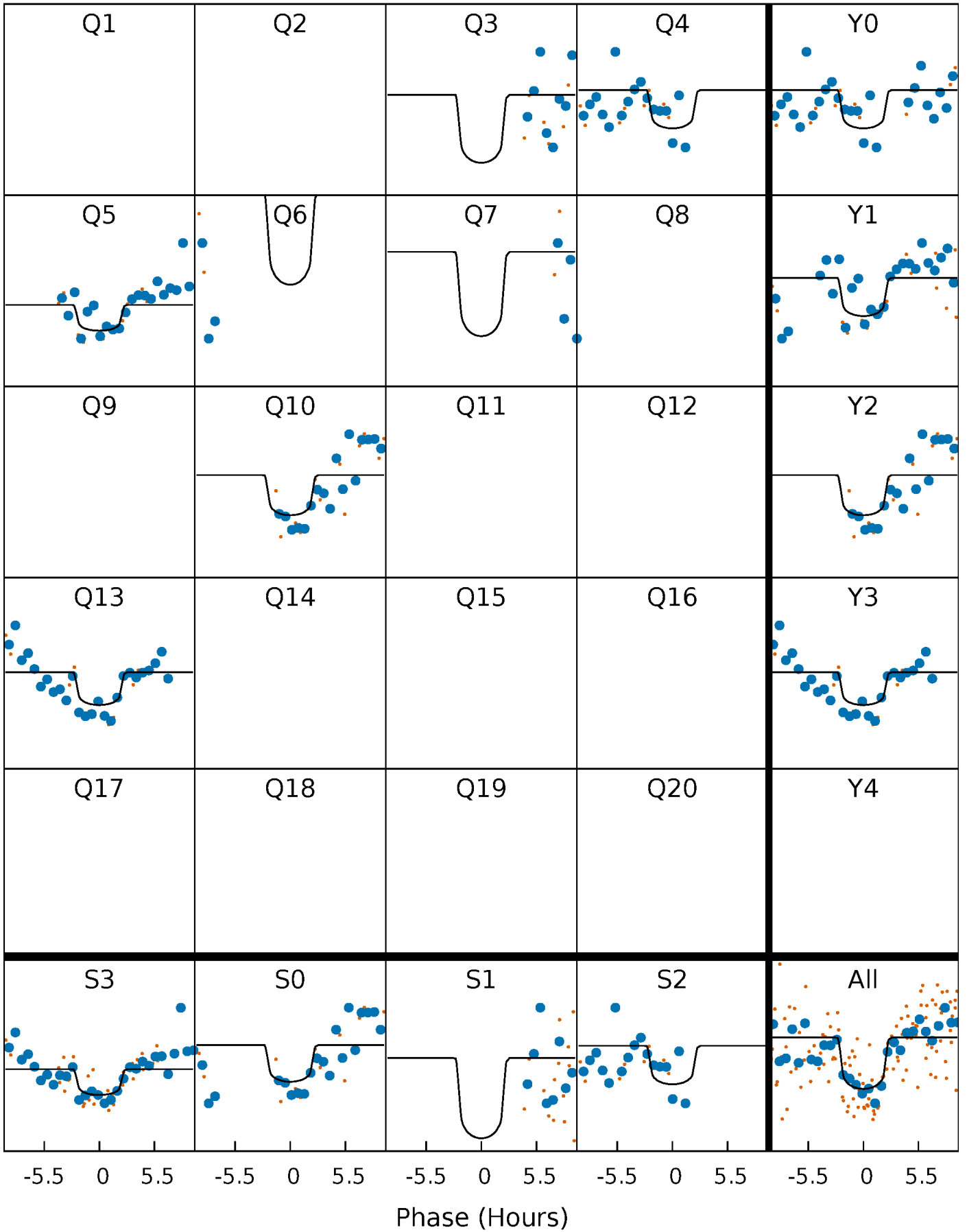
PDC Quarter-Phased Transit Curves

TCE 007685010-09 P= 86.849723 Days $T_0=185.394836$ (BKJD)



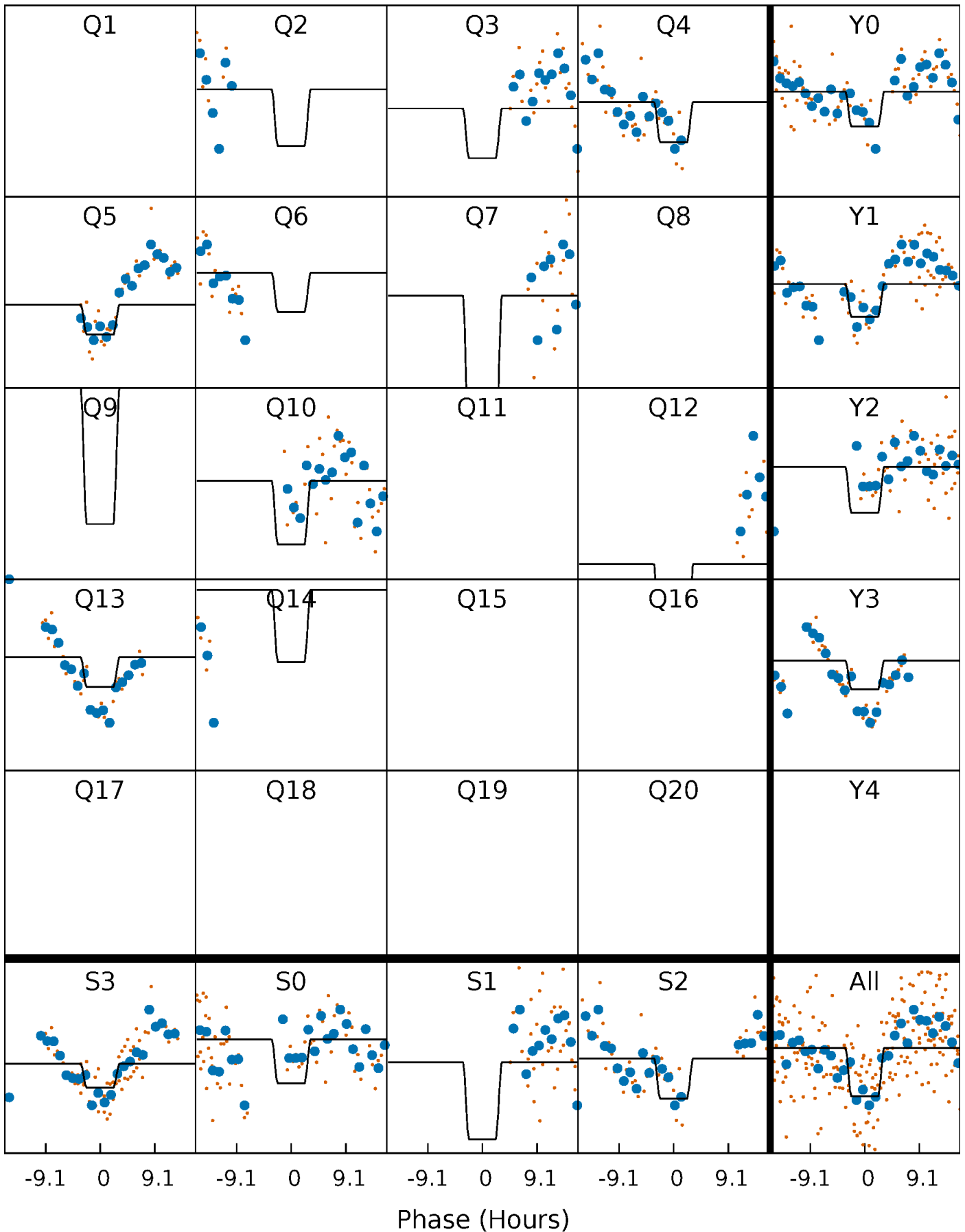
DV Quarter-Phased Transit Curves

TCE 007685010-09 P= 86.849723 Days $T_0=185.394836$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

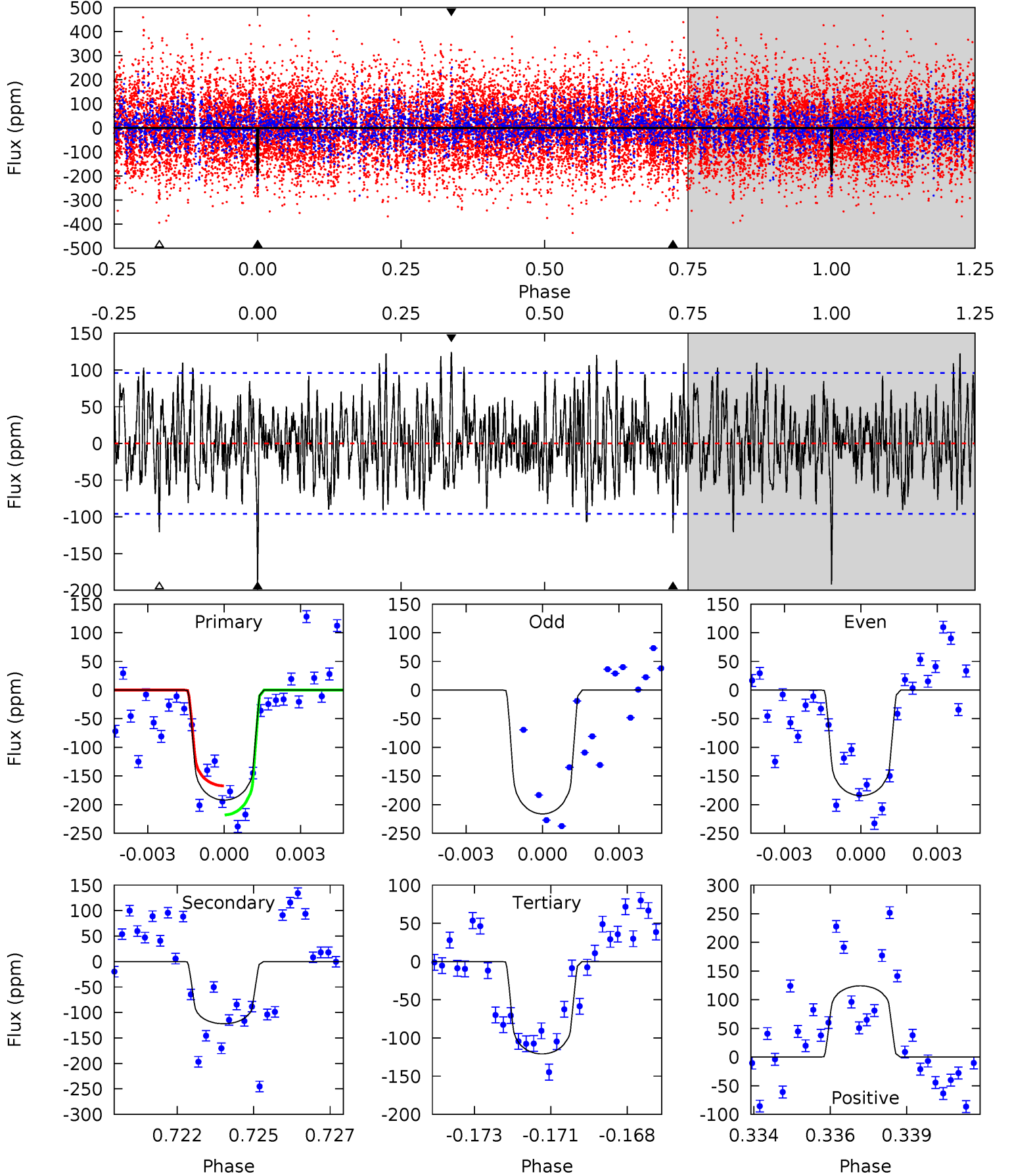
TCE 007685010-09 $P = 86.850121$ Days $T_0 = 185.379469$ (BKJD)



DV Model-Shift Uniqueness Test

007685010-09, P = 86.849723 Days, E = 98.545113 Days

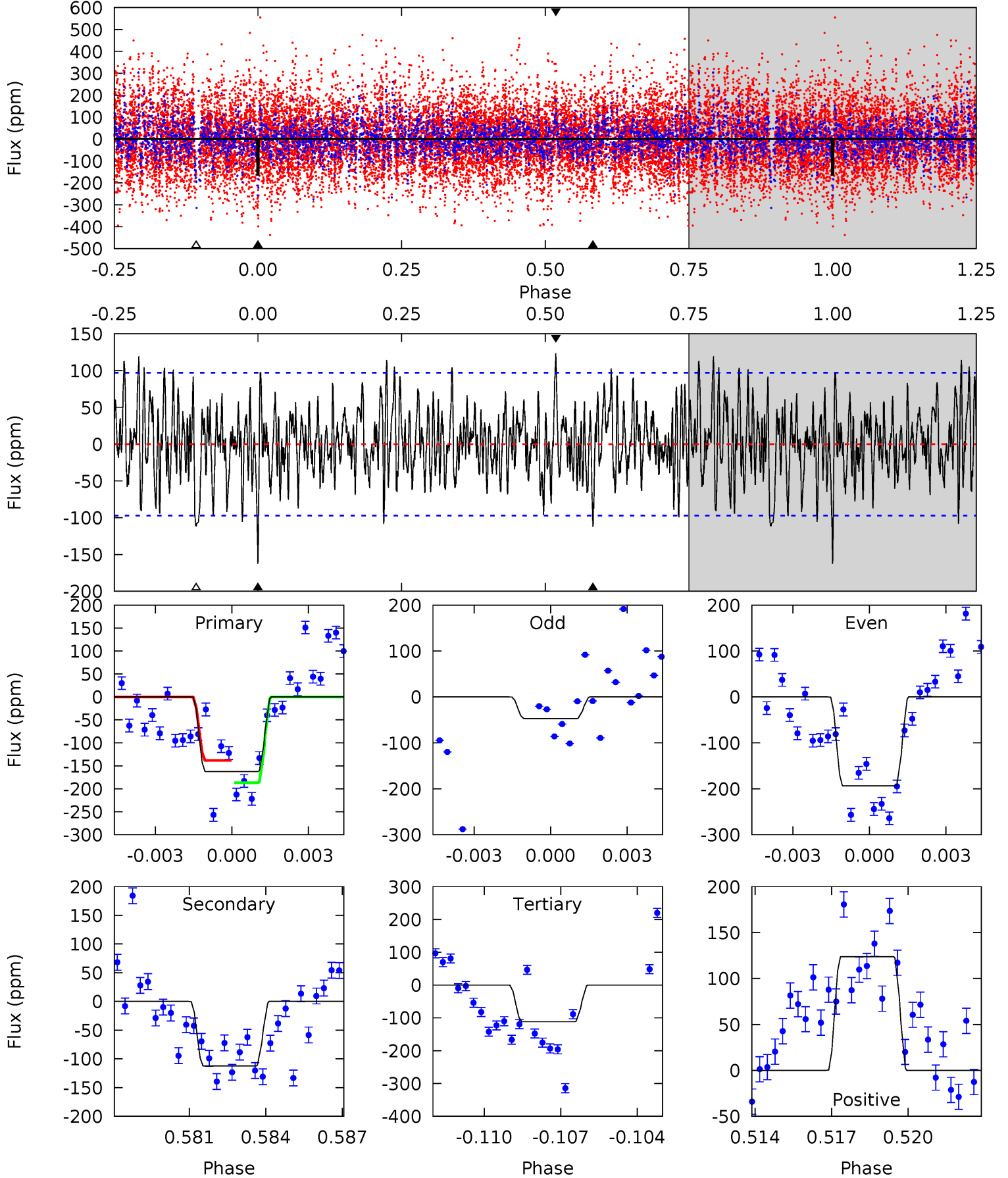
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	6.72	6.65	6.84	5.28	3.01	2.13	3.92	3.73	0.07	-0.12	0.75	0.98	0.39	1.39



Alt Model-Shift Uniqueness Test

007685010-09, P = 86.850121 Days, E = 98.529348 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.77	6.06	6.03	6.69	5.25	2.96	2.08	2.74	2.09	0.03	-0.62	3.17	1.11	0.43	1.31



Stellar Parameters For KIC 007685010

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6502^{+155}_{-175}	$3.974^{+0.241}_{-0.130}$	$-0.020^{+0.250}_{-0.250}$	$2.049^{+0.477}_{-0.636}$	$1.444^{+0.159}_{-0.273}$	$0.236^{+0.361}_{-0.094}$
	+2%/-3%	+6%/-3%	+1250%/-1250%	+23%/-31%	+11%/-19%	+153%/-40%
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 007685010-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-122 ± 18	$2.96^{+1.31}_{-1.40}$	863^{+60}_{-64}	5857^{+2336}_{-927}	1417^{+3732}_{-738}
Alt.	-112 ± 19	$2.76^{+1.52}_{-1.25}$	863^{+53}_{-64}	5908^{+2314}_{-1060}	1556^{+3880}_{-943}

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

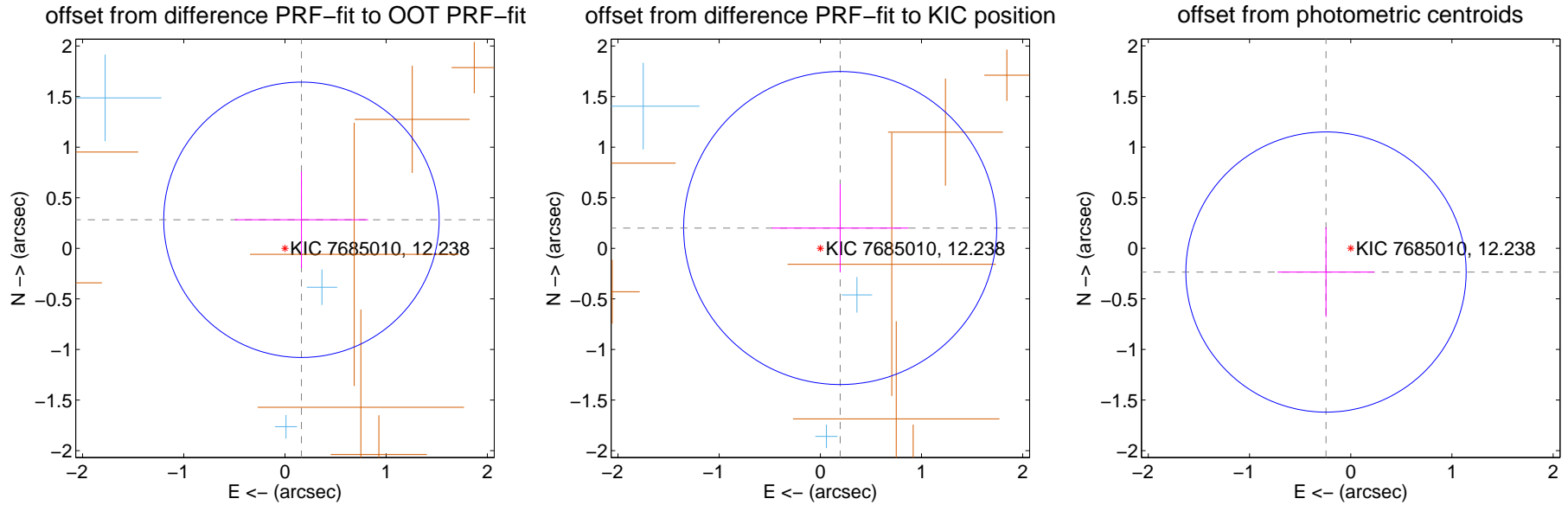
DV Centroid Data

Supplemental centroid analysis for 007685010-09. Kepler magnitude: 12.24. Transit SNR 7.72

There are 3 quarters with good PRF difference image offsets

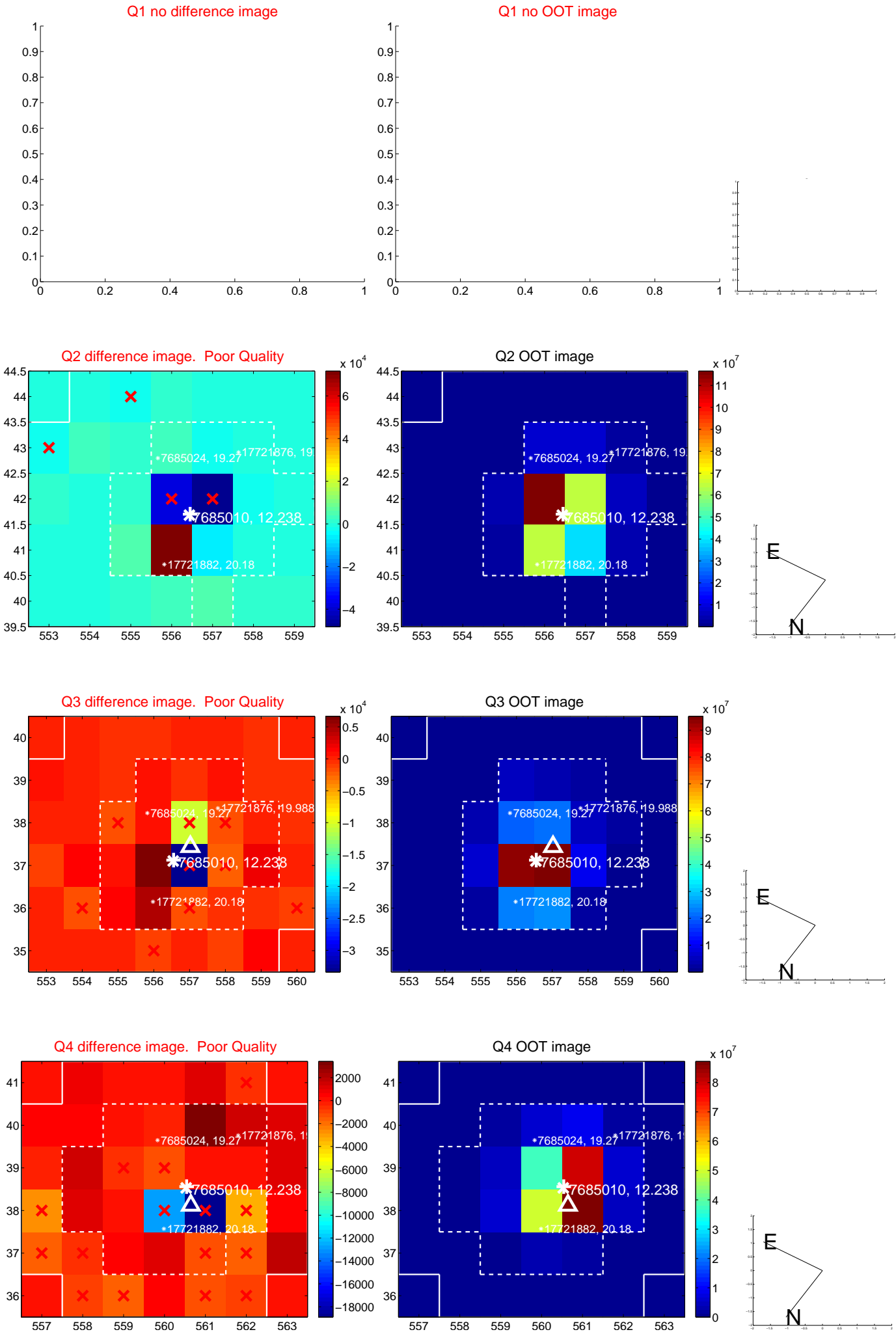
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.326 ± 0.454	0.72	-0.163 ± 0.659	0.282 ± 0.477
PRF-fit source offset from KIC position	0.280 ± 0.516	0.54	-0.196 ± 0.674	0.200 ± 0.434
photometric centroid source offset	0.34 ± 0.46	0.73	0.24 ± 0.48	-0.23 ± 0.44

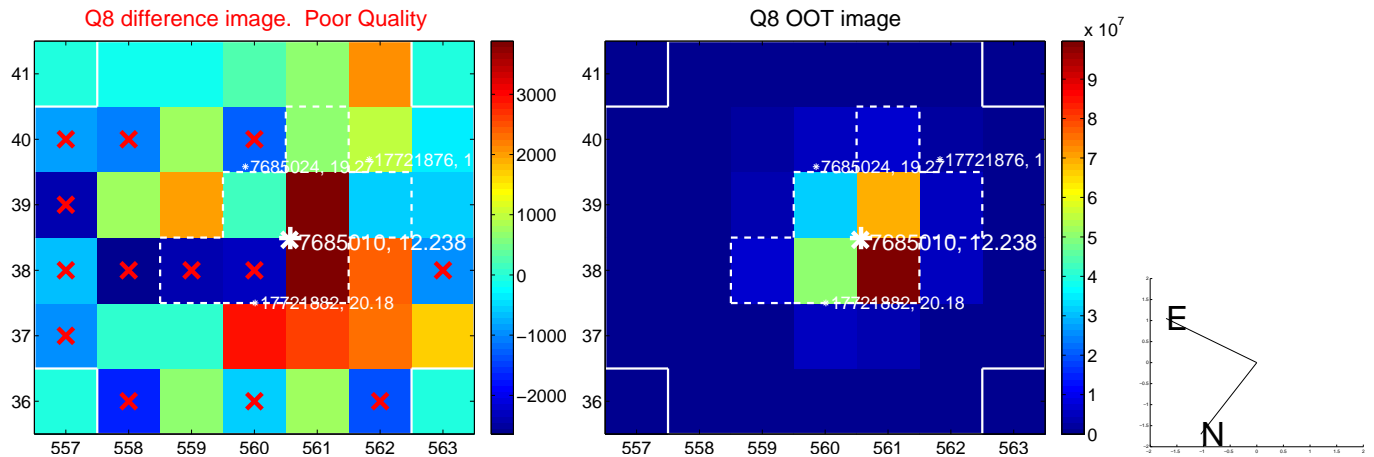
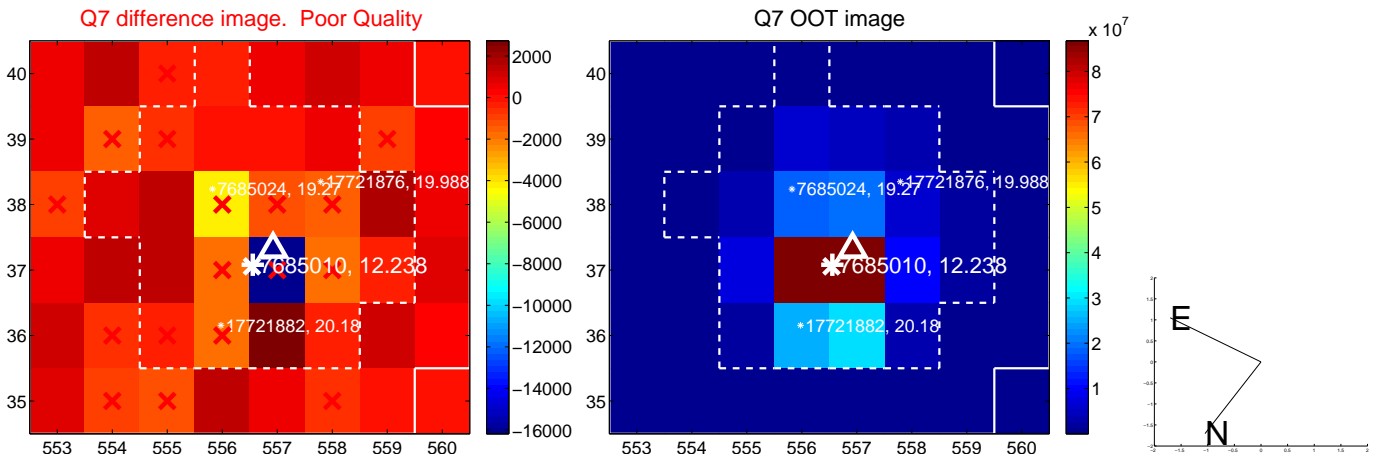
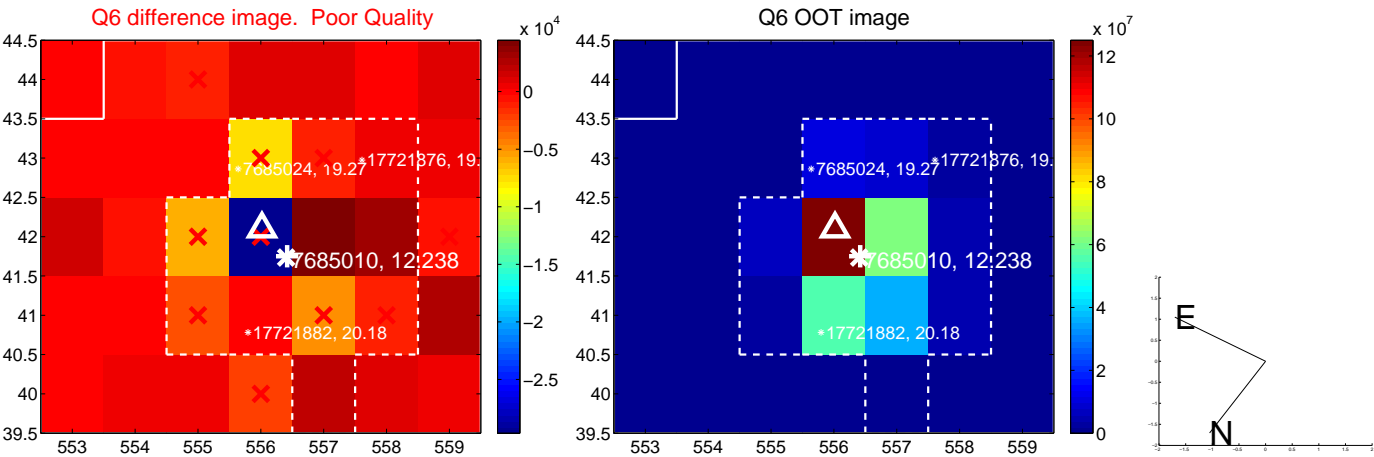
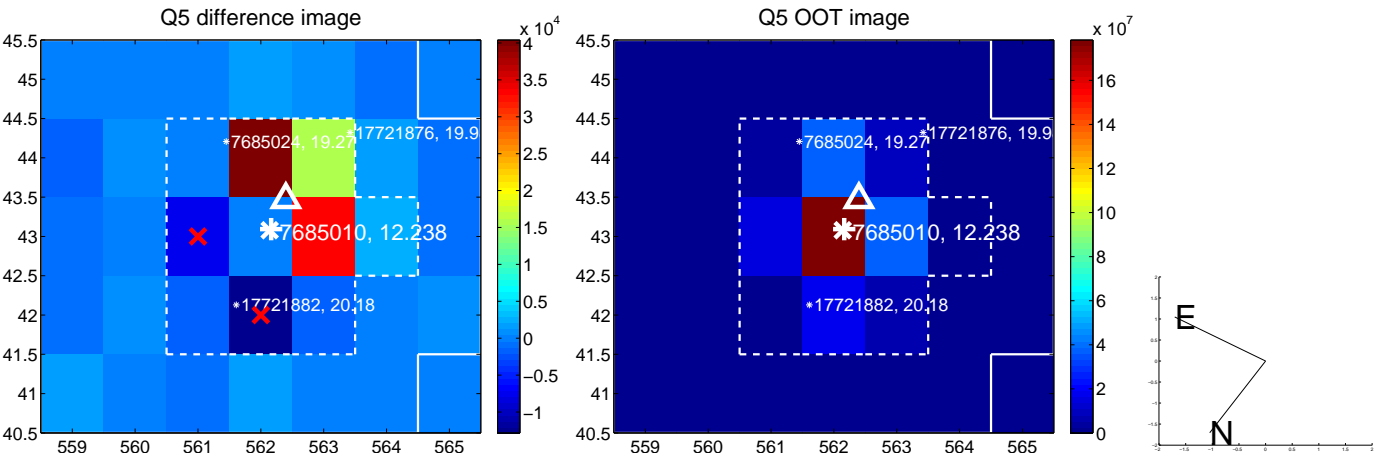


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

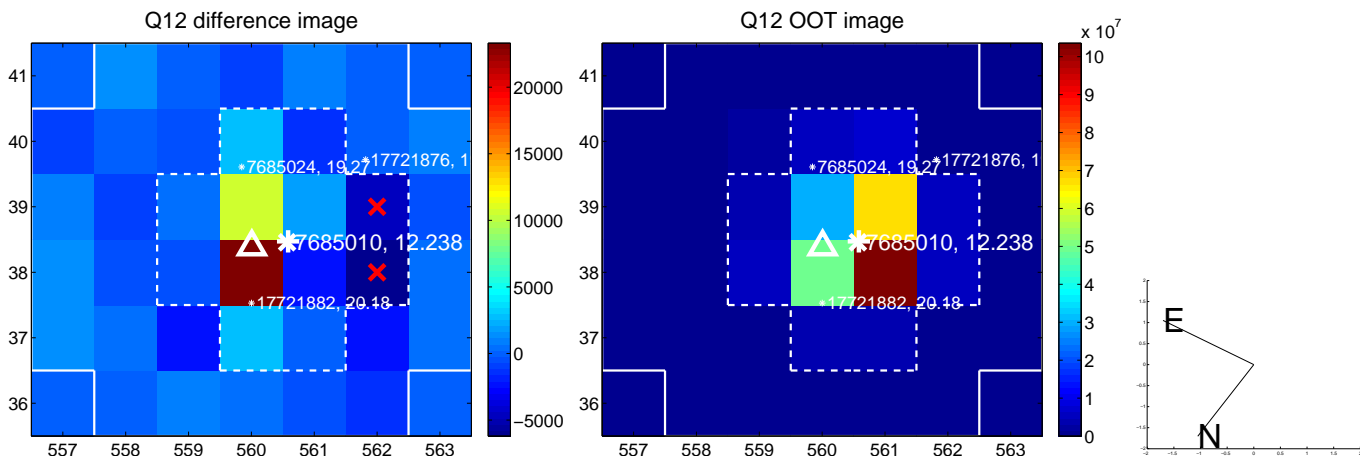
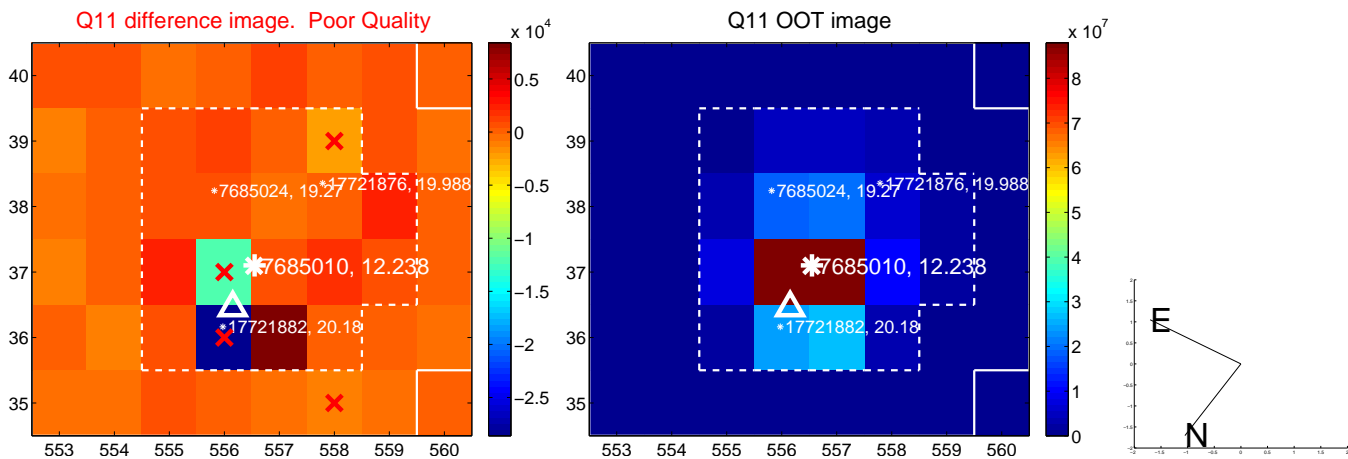
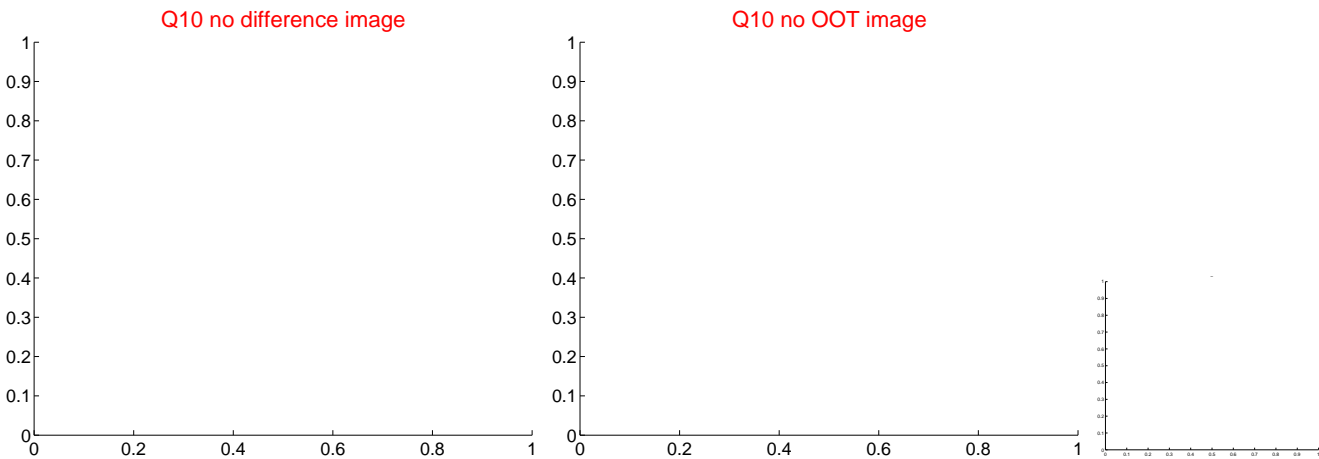
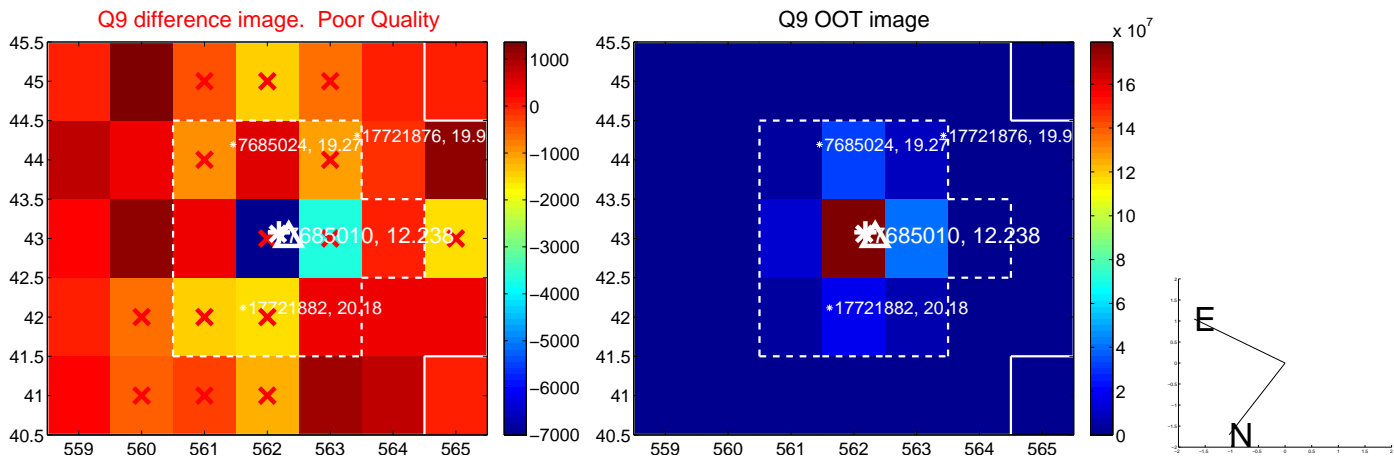
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



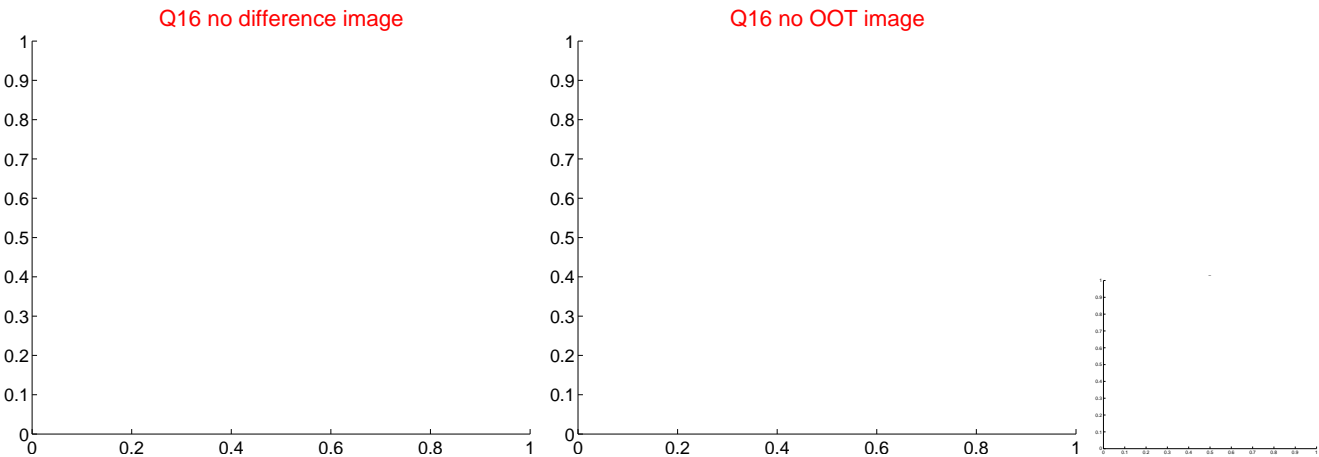
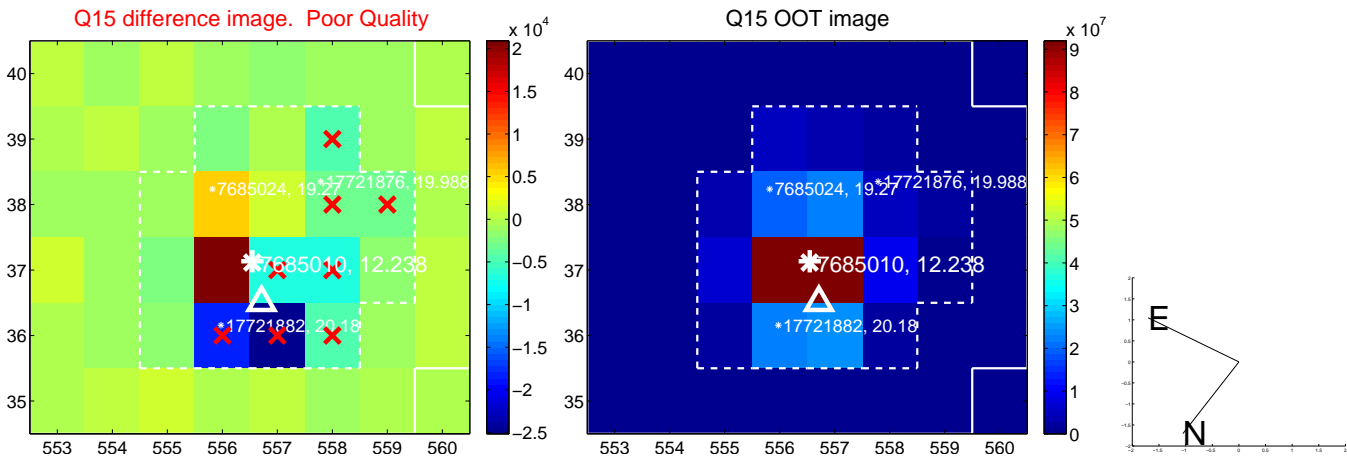
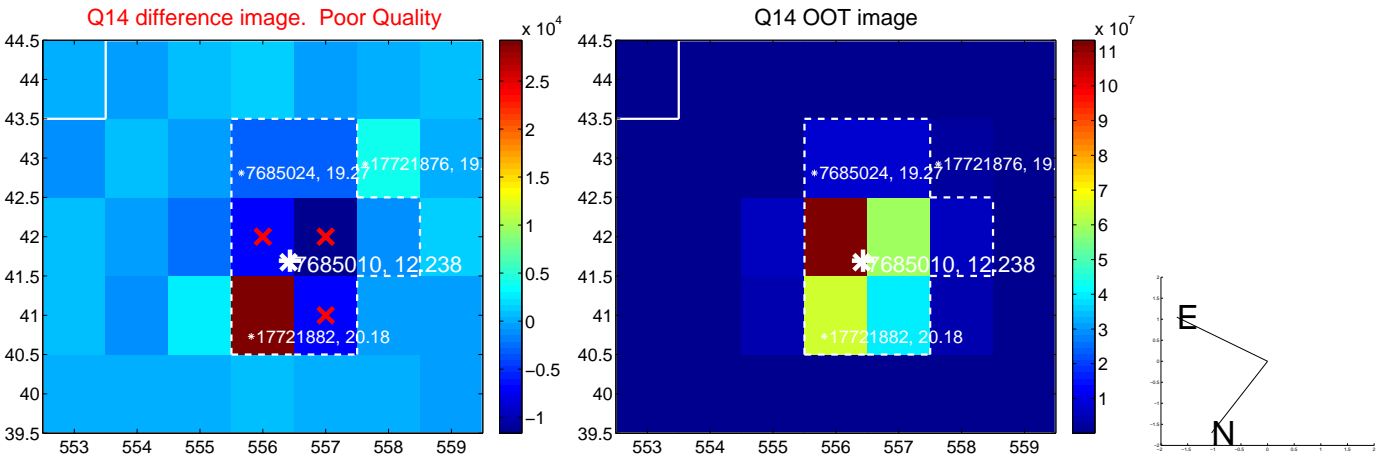
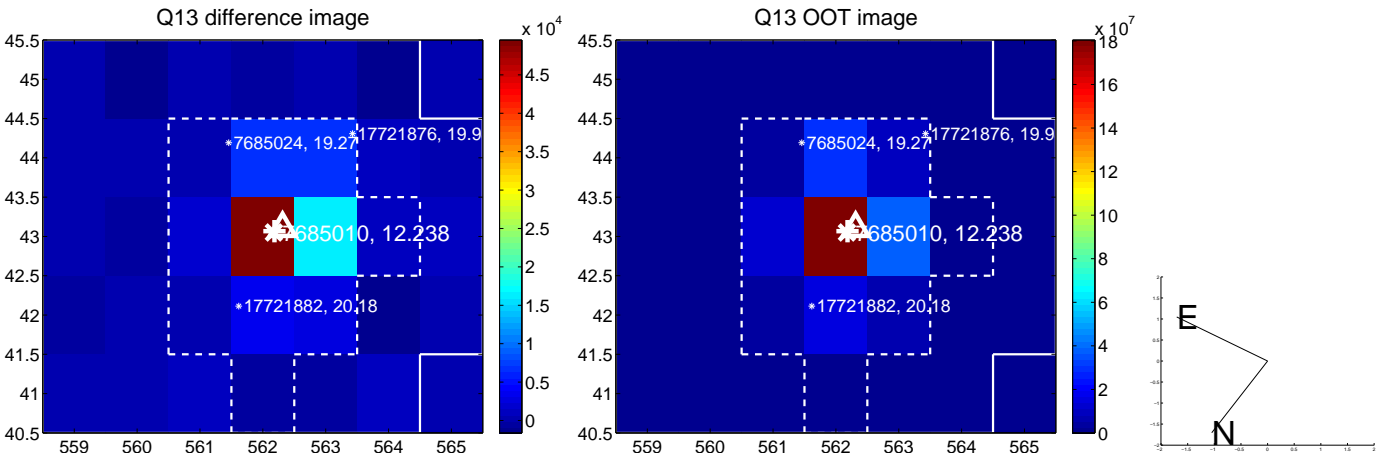
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



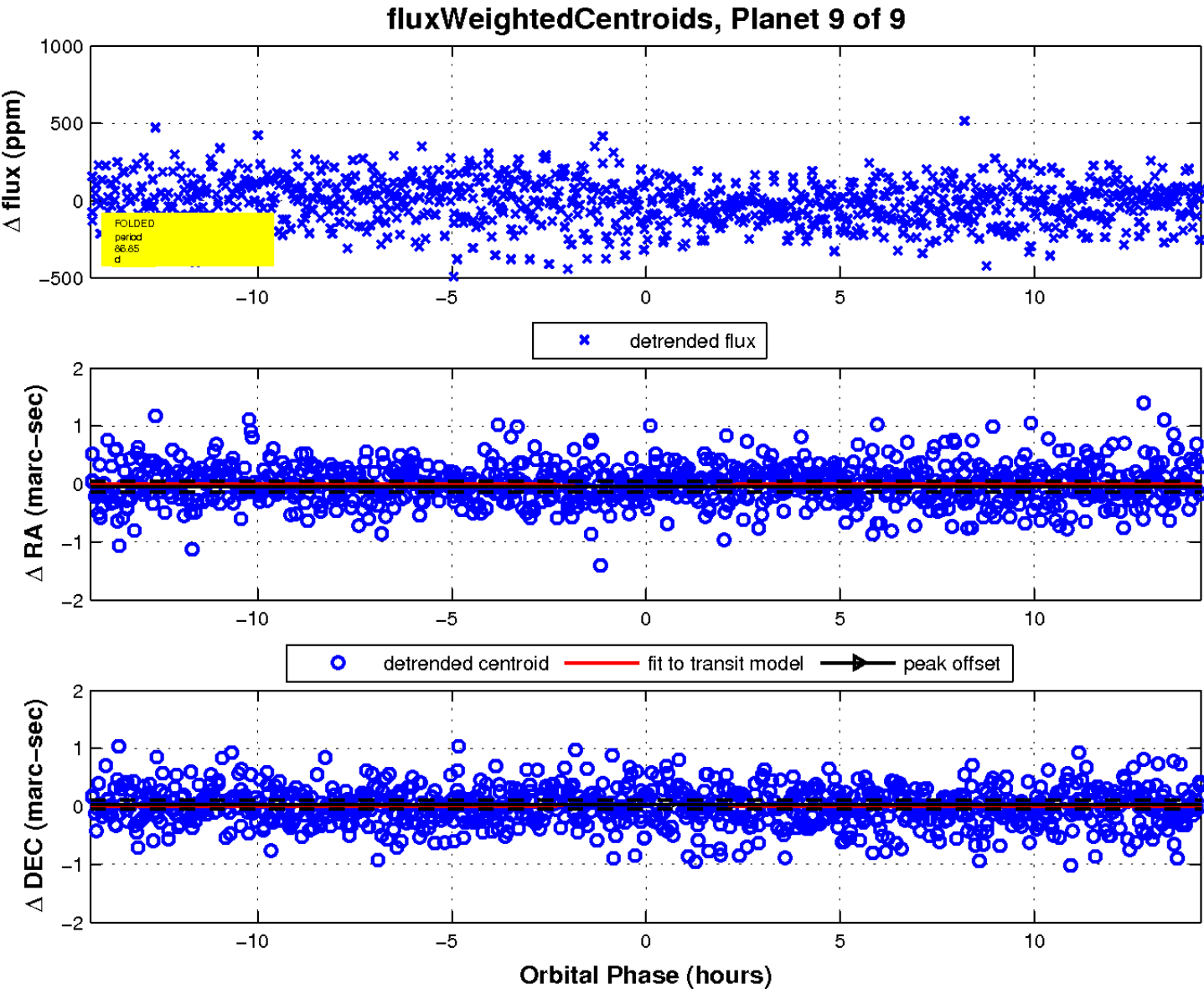
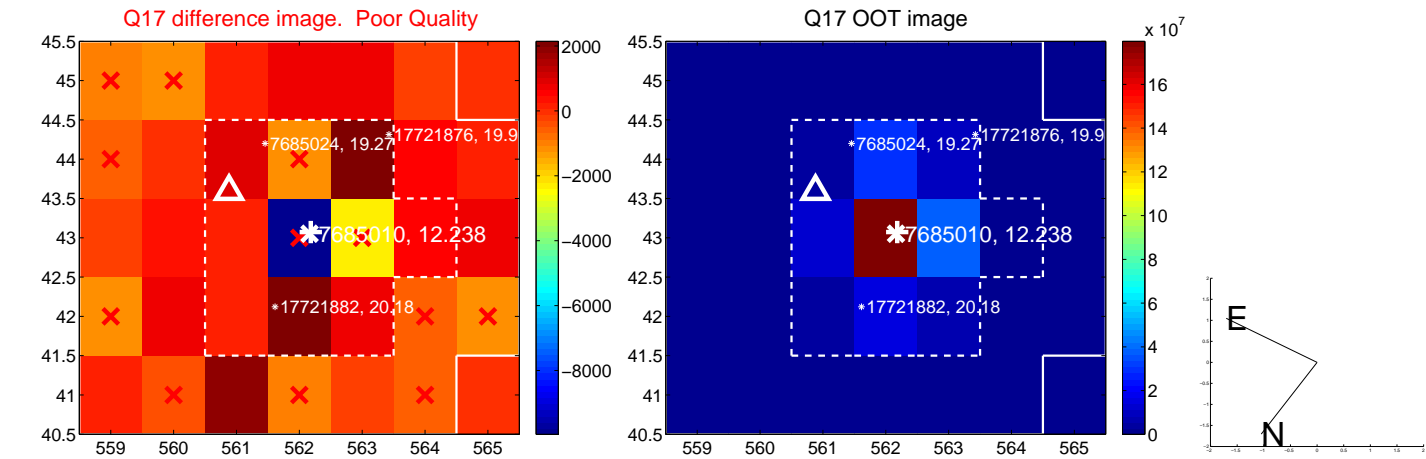
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

