

KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

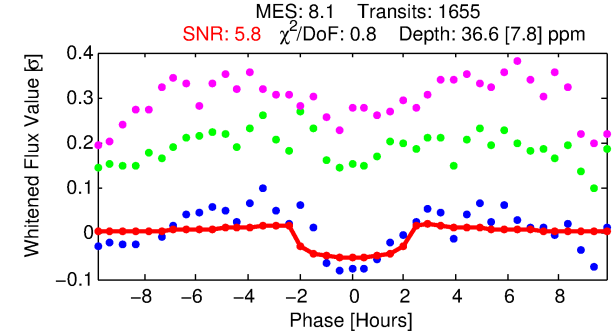
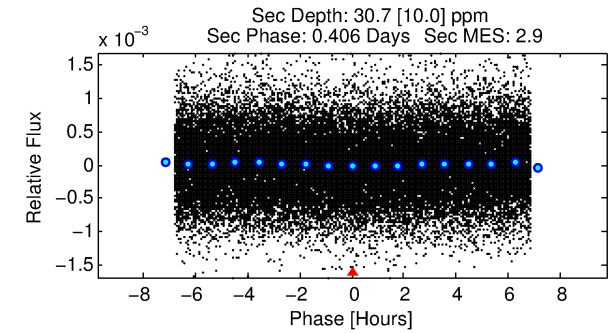
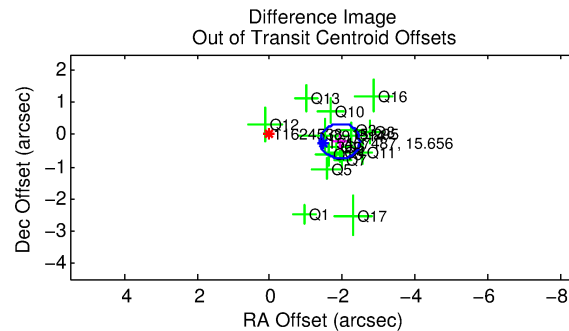
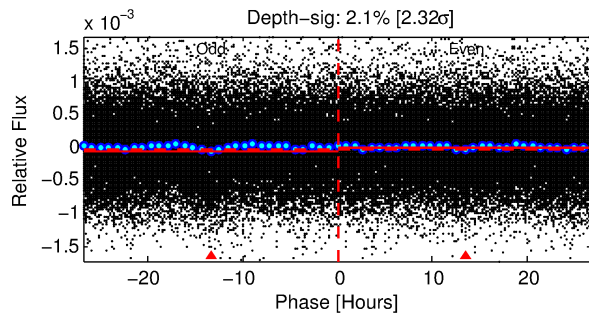
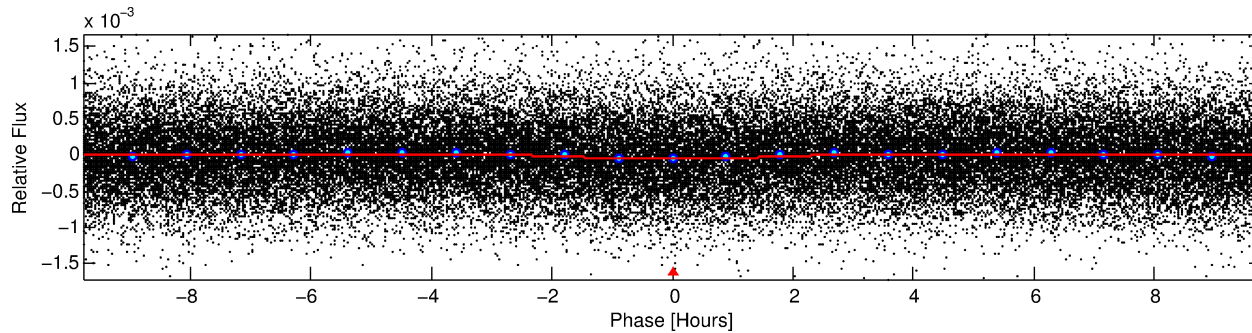
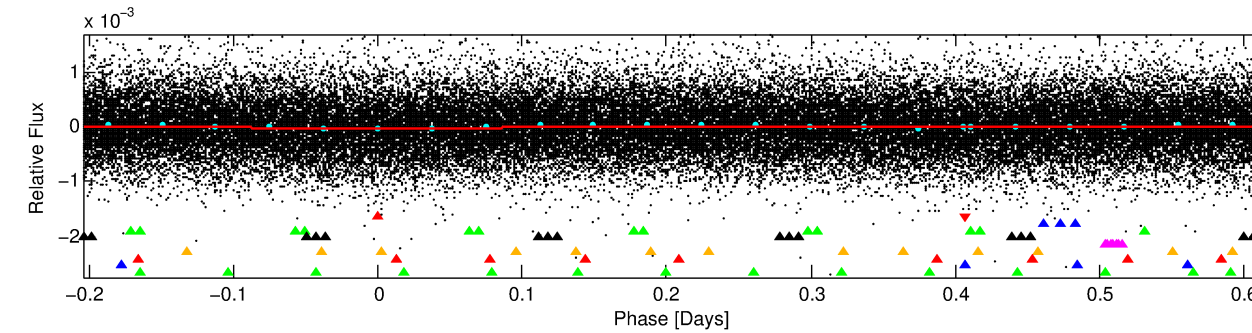
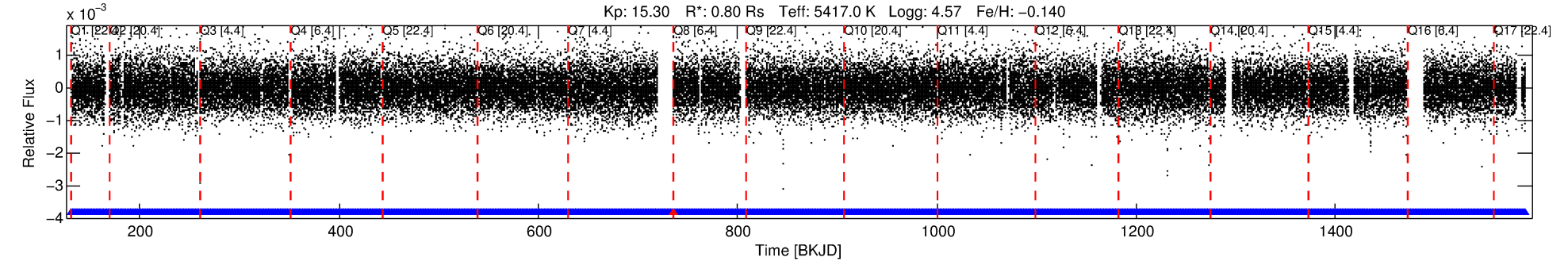
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-01

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 1 of 9 Period: 0.816 d



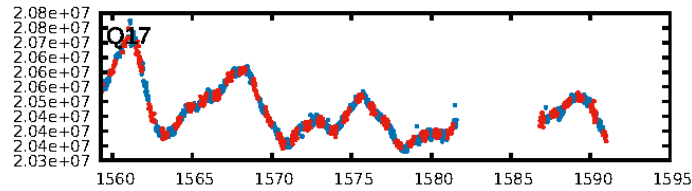
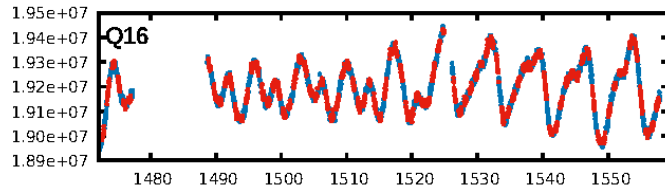
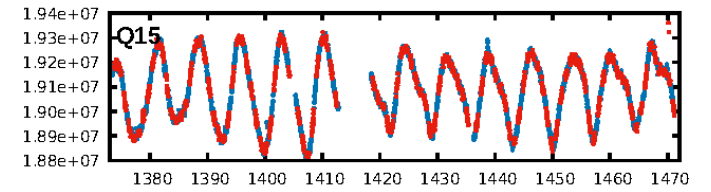
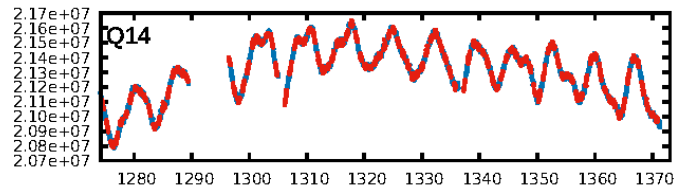
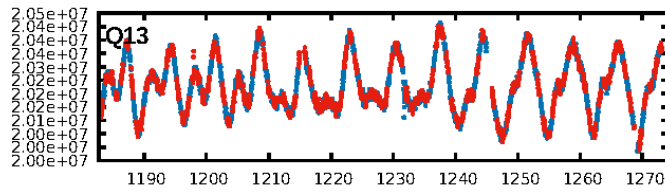
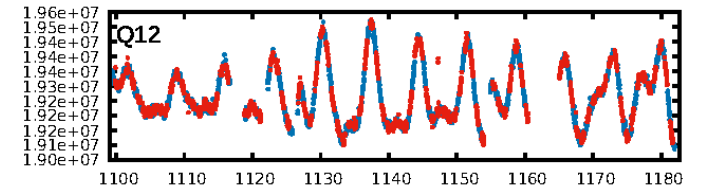
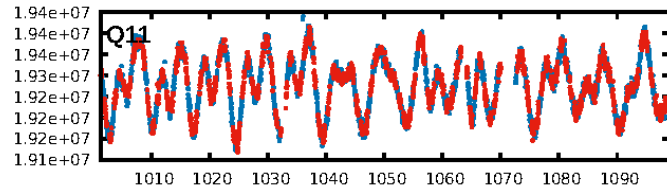
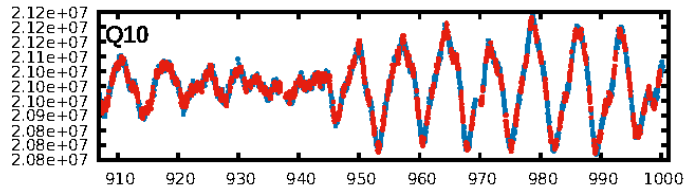
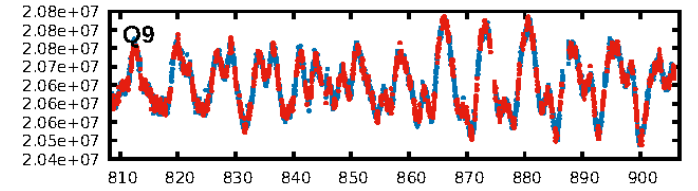
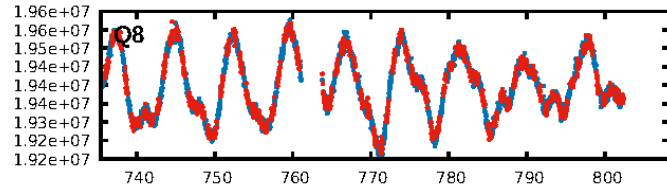
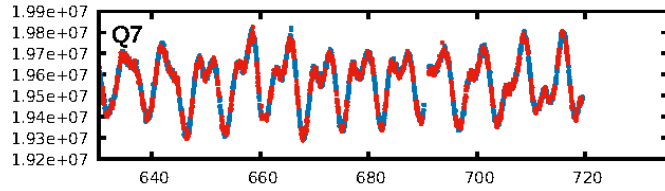
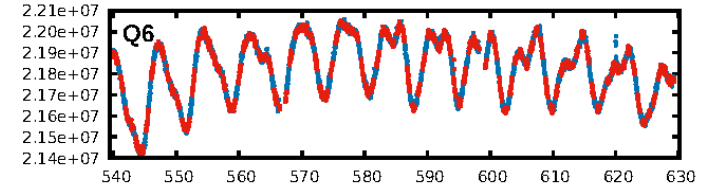
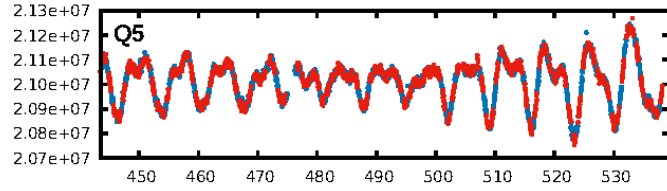
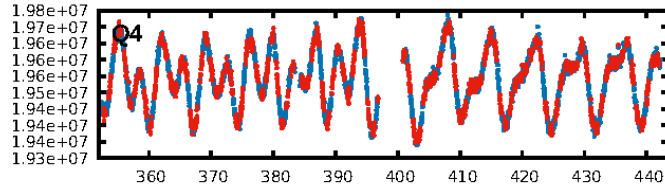
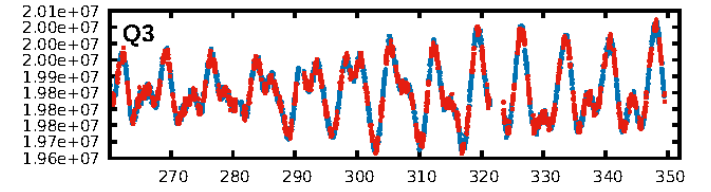
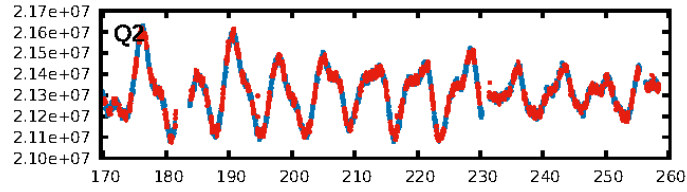
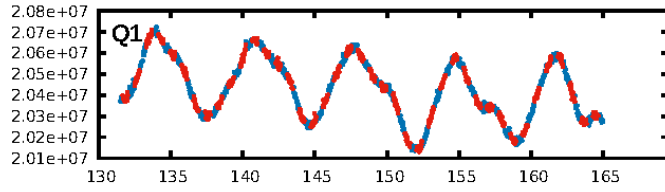
DV Fit Results:

Period = 0.81562 [0.00002] d
Epoch = 131.8525 [0.0067] BKJD
Rp/R* = 0.0056 [0.0063]
a/R* = 1.41 [3.11]
b = 0.50 [6.67]
Seff = 1870.47 [530.04]
Teq = 1677 [119] K
Rp = 0.49 [0.55] Re
a = 0.0162 [0.0027] AU
Ag = 18.36 [41.40] [0.42σ]
Teffp = 5367 [3015] K [1.22σ]

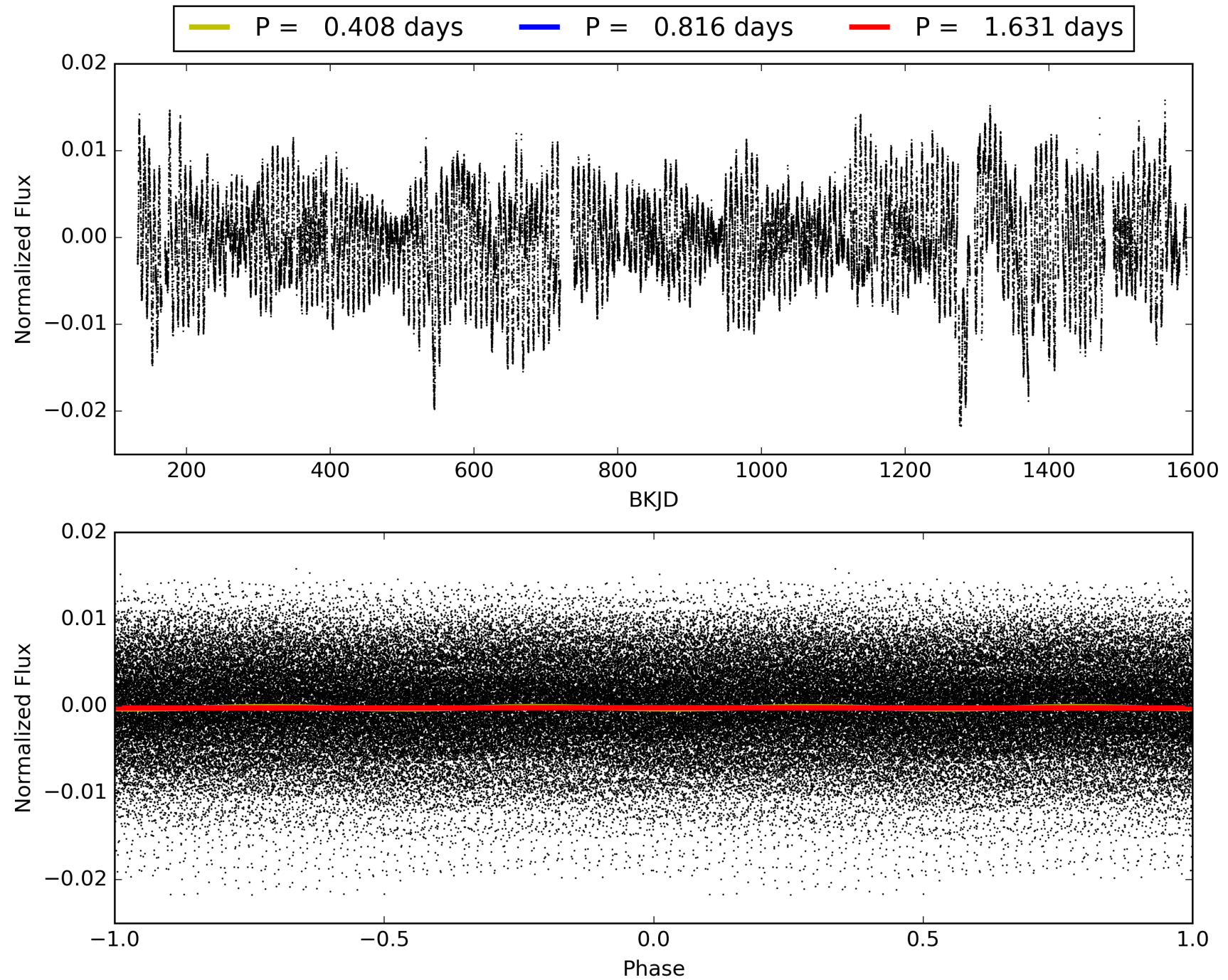
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [274.91σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.51e-18
RollingBand-fgt: 1.00 [1579/1580]
GhostDiagnostic-chr: 1.025
Centroid-sig: 0.2%
Centroid-so: 3.542 arcsec [2.13σ]
OotOffset-rm: 1.944 arcsec [10.70σ]
KicOffset-rm: 1.402 arcsec [7.86σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 011624538-01, PDC Light Curves

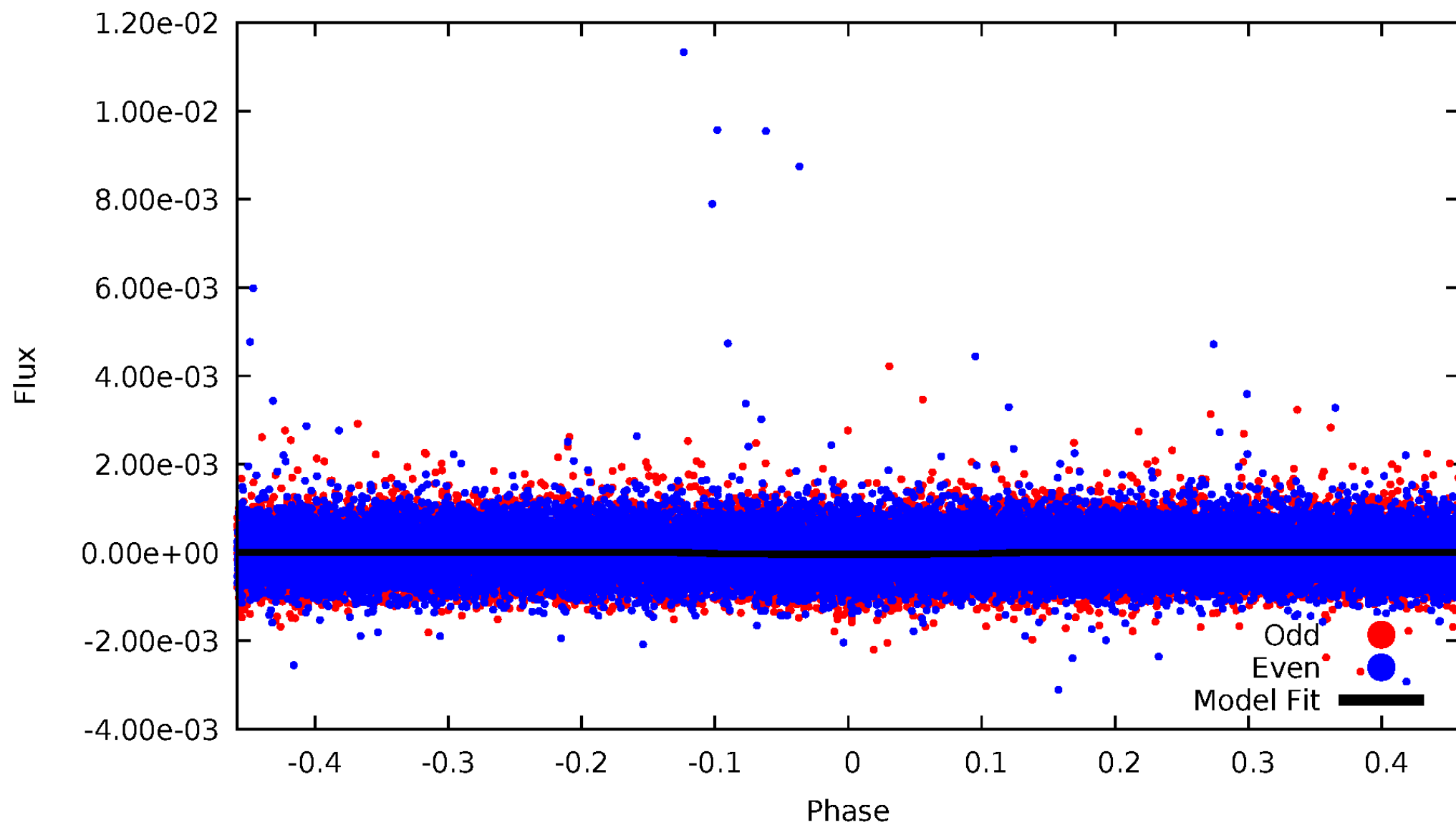


TCE 011624538-01



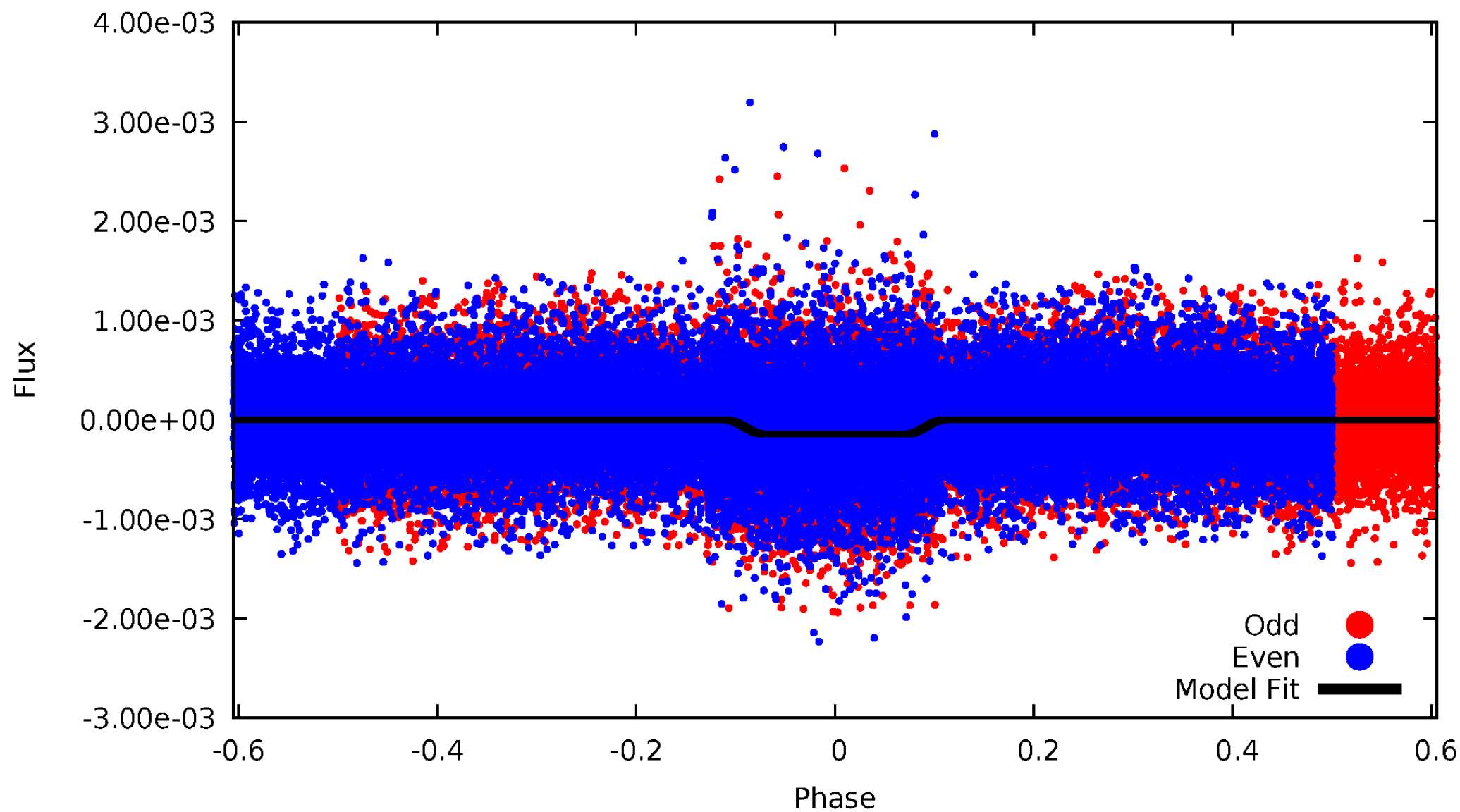
DV Odd/Even

TCE 011624538-01



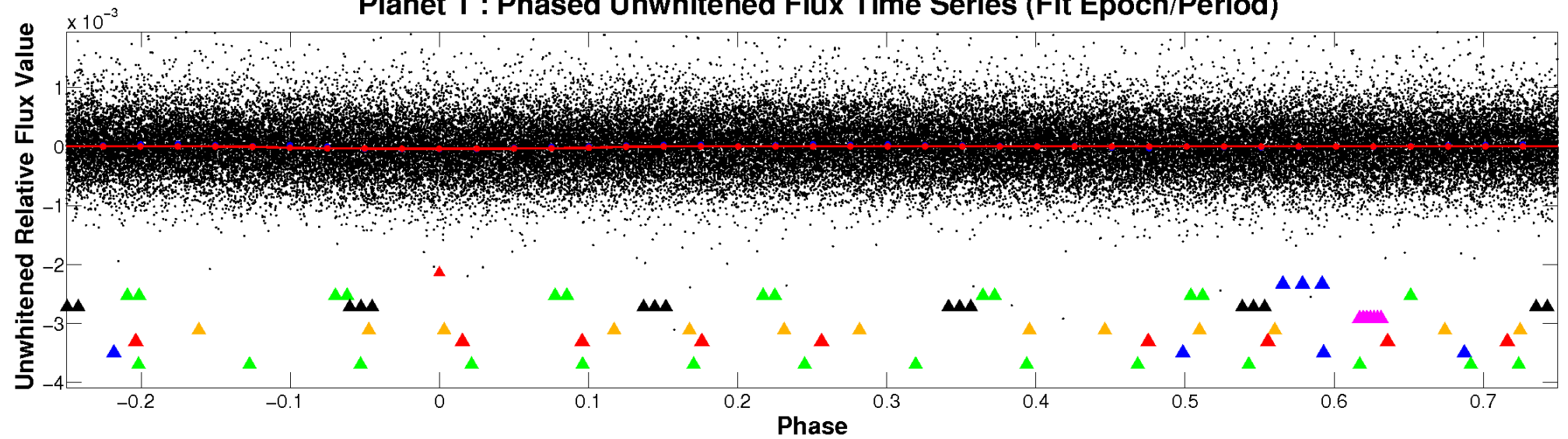
ALT Odd/Even

TCE 011624538-01

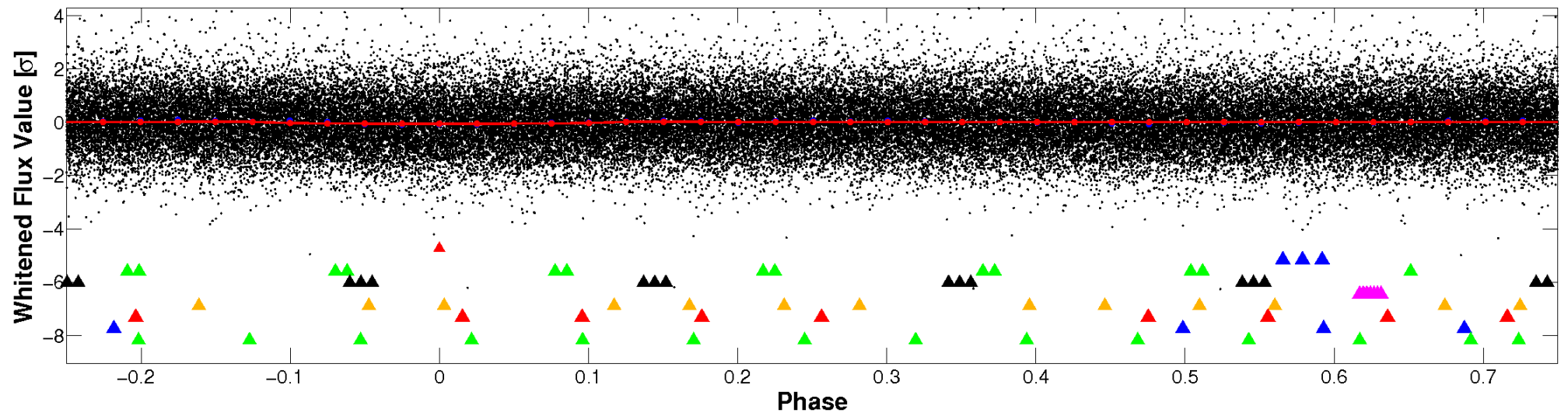


Non-Whitened Vs. Whitened Light Curve

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

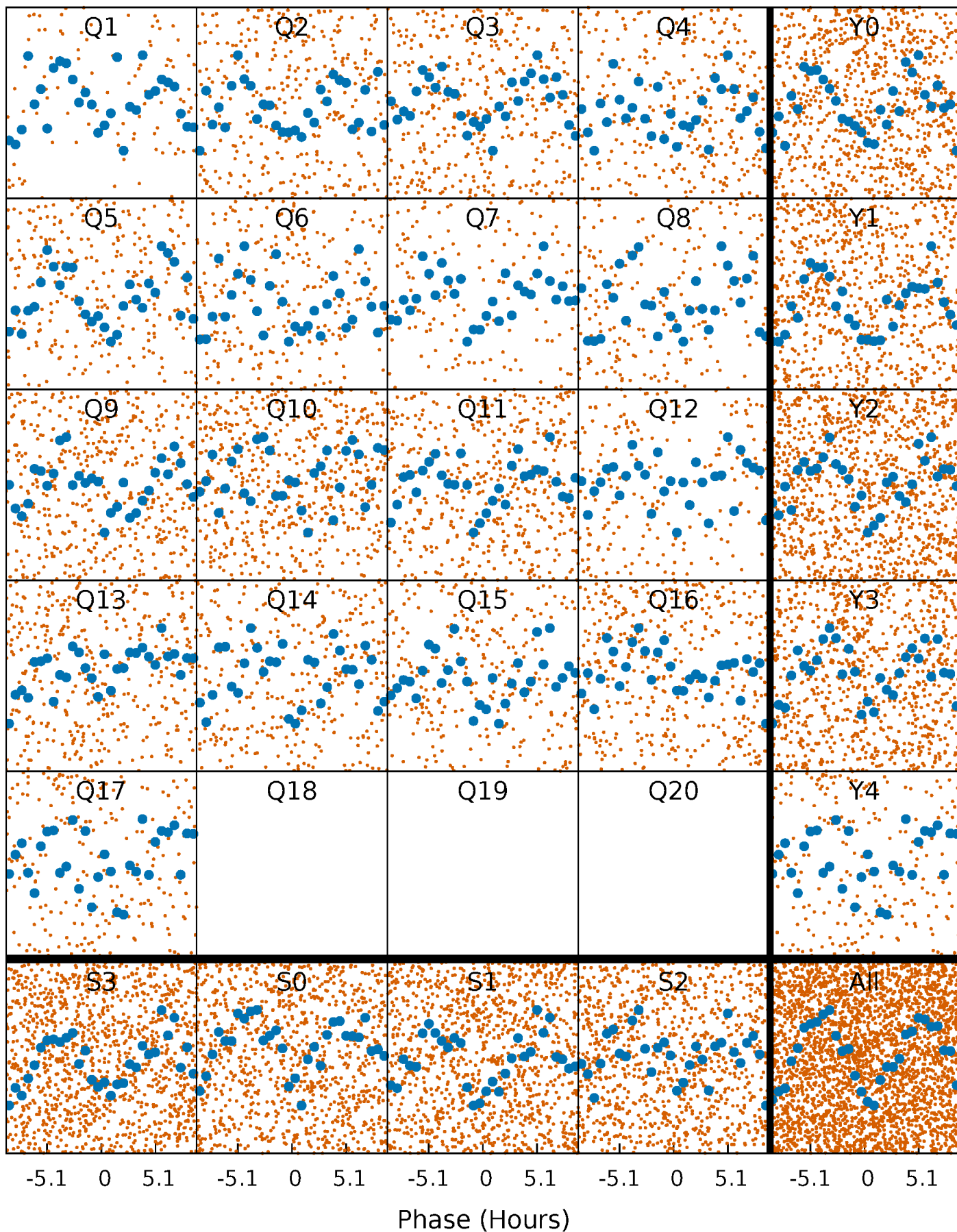


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



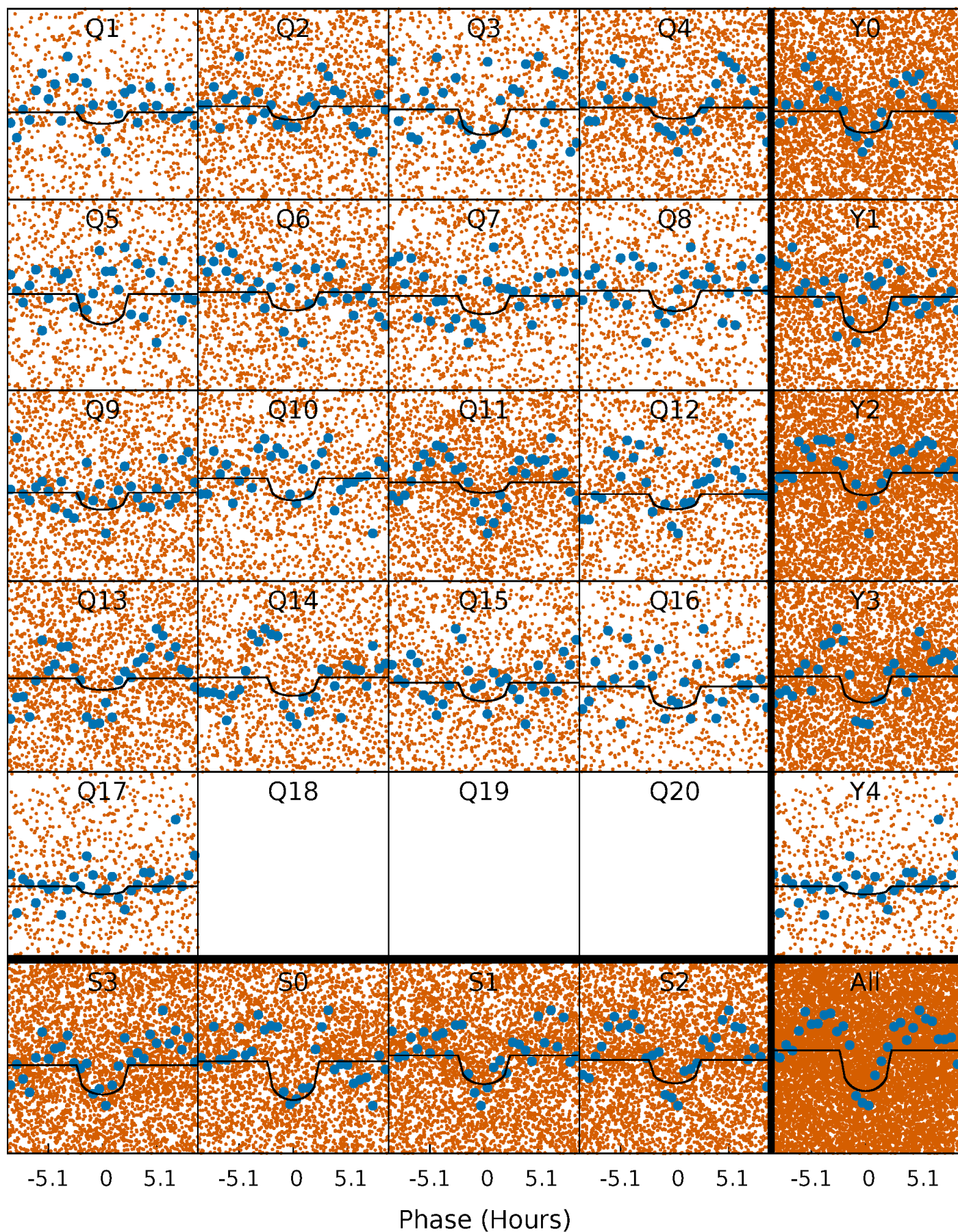
PDC Quarter-Phased Transit Curves

TCE 011624538-01 P= 0.815615 Days $T_0=131.852510$ (BKJD)



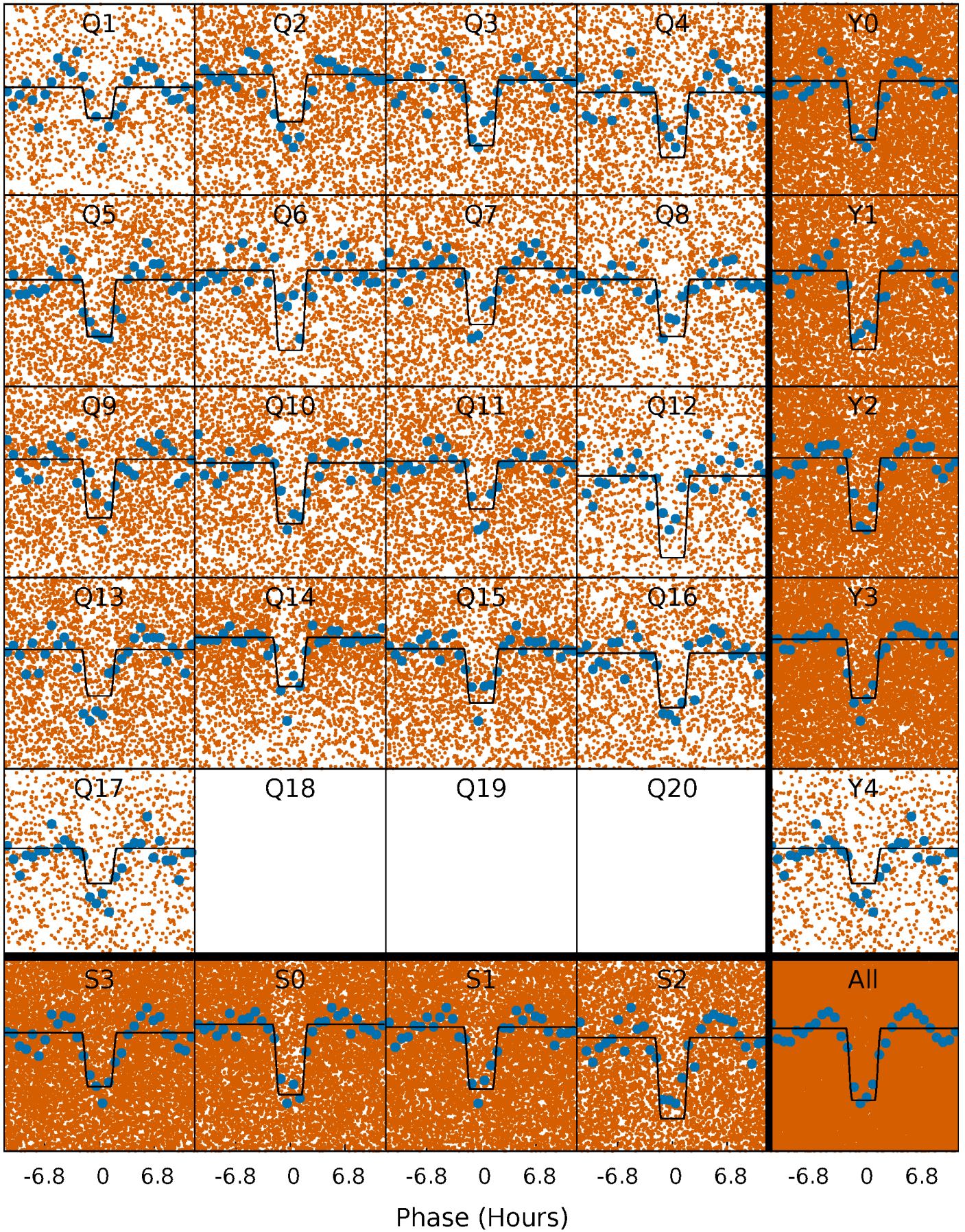
DV Quarter-Phased Transit Curves

TCE 011624538-01 P= 0.815615 Days $T_0=131.852510$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

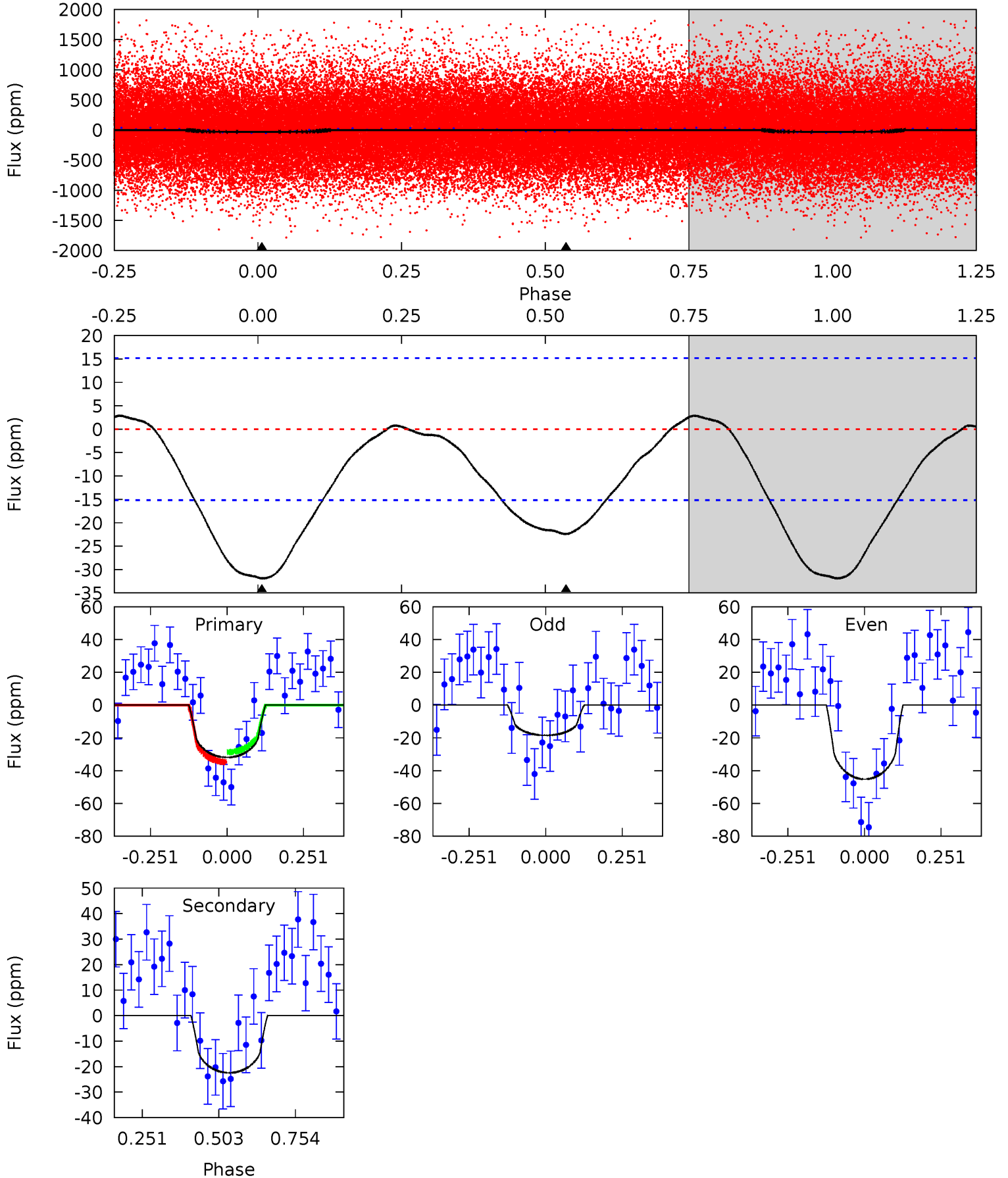
TCE 011624538-01 P= 0.815645 Days $T_0=131.829681$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-01, P = 0.815615 Days, E = 131.036895 Days

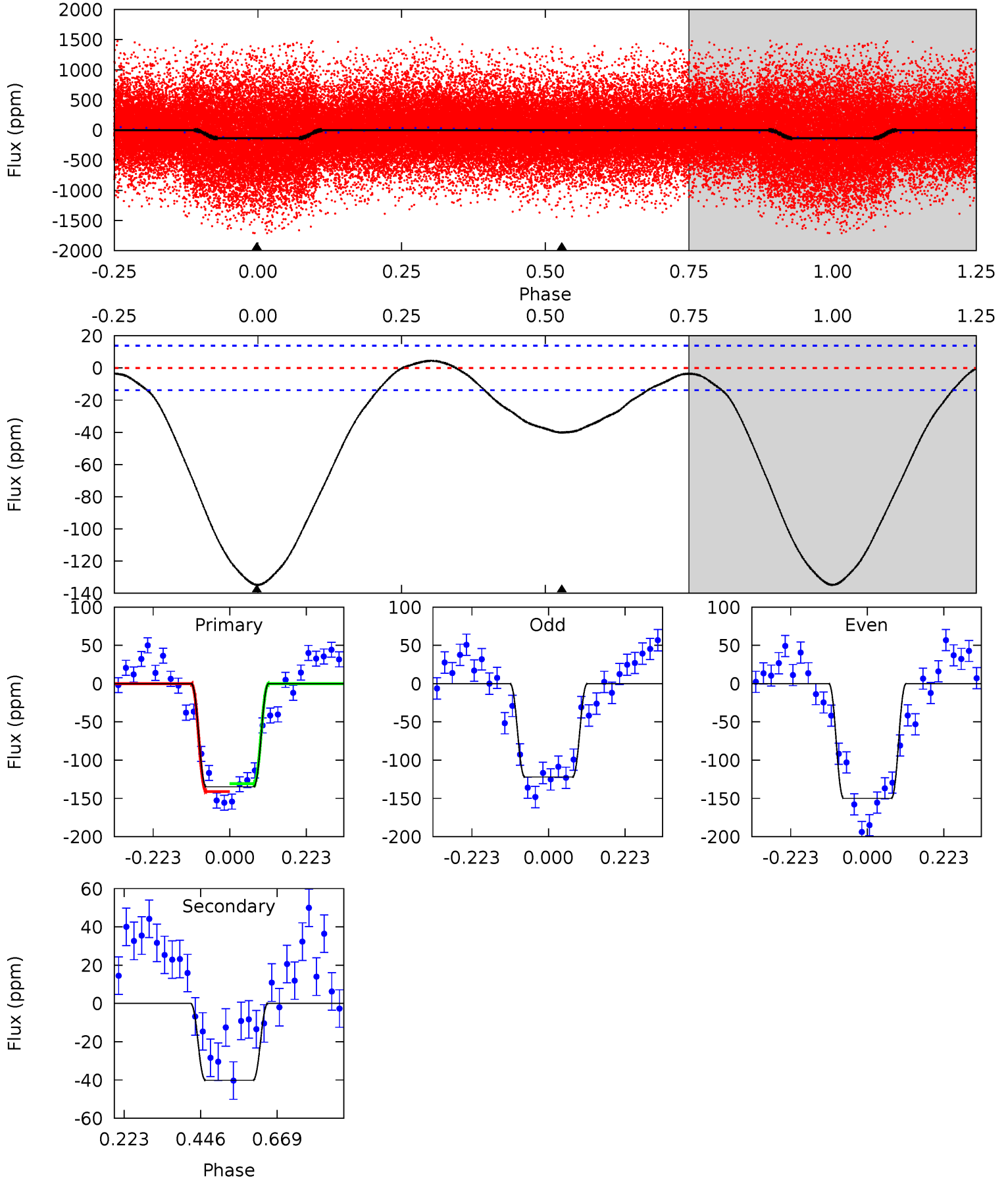
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.18	6.45	0	0	4.37	1.15	0.40	9.18	9.18	6.45	6.45	3.84	0.77	0.08	0.86



Alt Model-Shift Uniqueness Test

011624538-01, P = 0.815645 Days, E = 131.014036 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.8	12.7	0	0	4.39	1.22	1.24	42.8	42.8	12.7	12.7	4.40	1.09	0.03	1.64



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-22 ± 3	$0.63^{+0.49}_{-0.41}$	2388^{+123}_{-106}	4577^{+3072}_{-931}	$8.073^{+60.022}_{-5.662}$
Alt.	-40 ± 3	$1.11^{+0.55}_{-0.54}$	2375^{+142}_{-105}	4080^{+1369}_{-573}	$4.666^{+13.239}_{-2.596}$

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 $A_{obs} \gg 1.0$

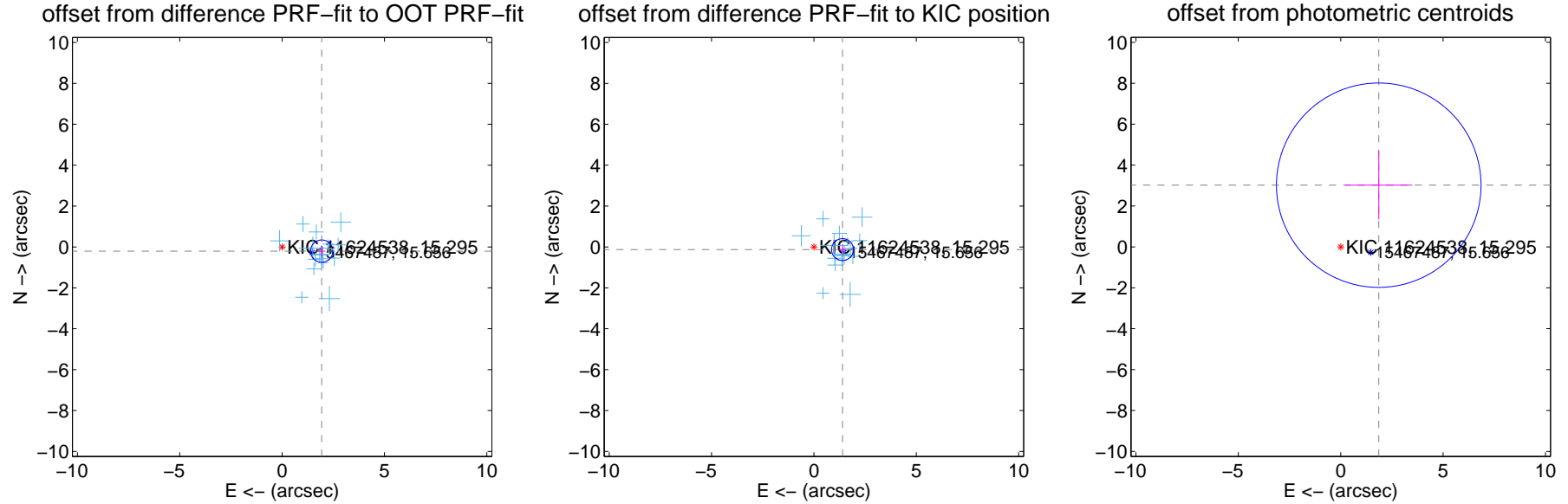
DV Centroid Data

Supplemental centroid analysis for 011624538-01. Kepler magnitude: 15.29. Transit SNR 5.80

There are 17 quarters with good PRF difference image offsets

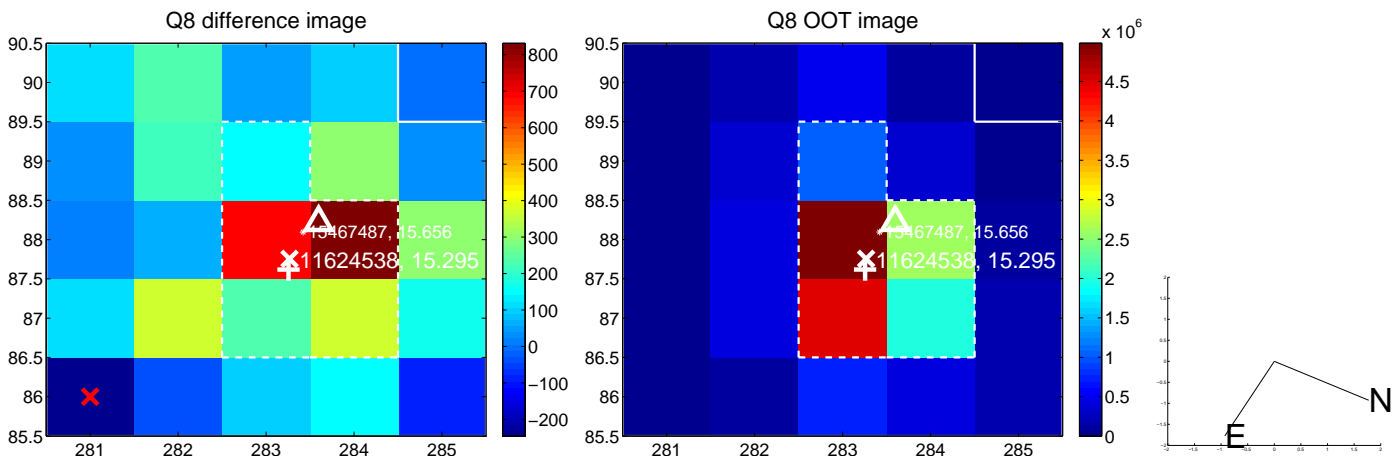
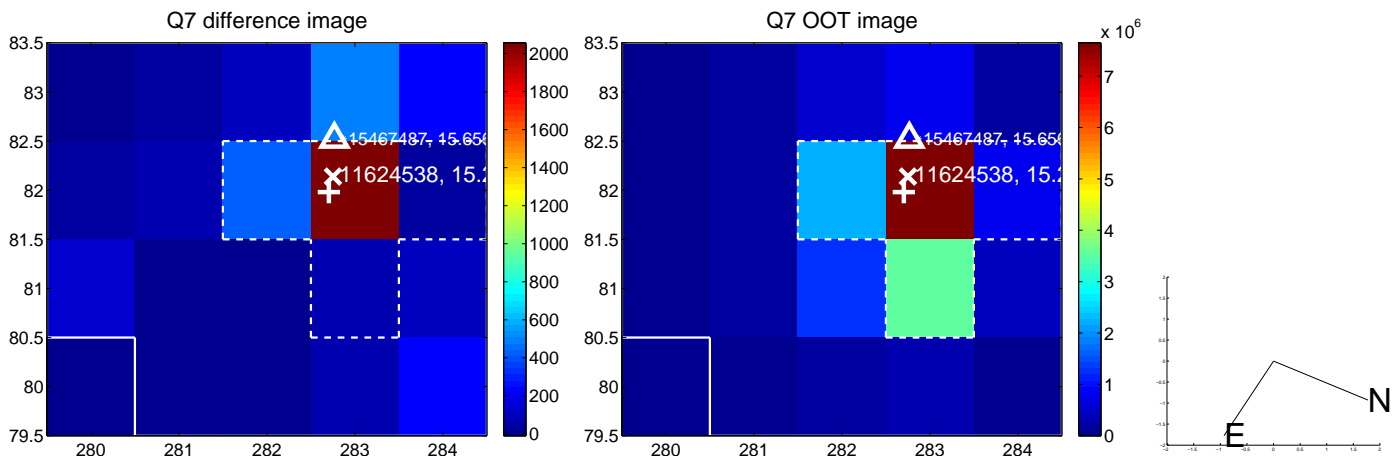
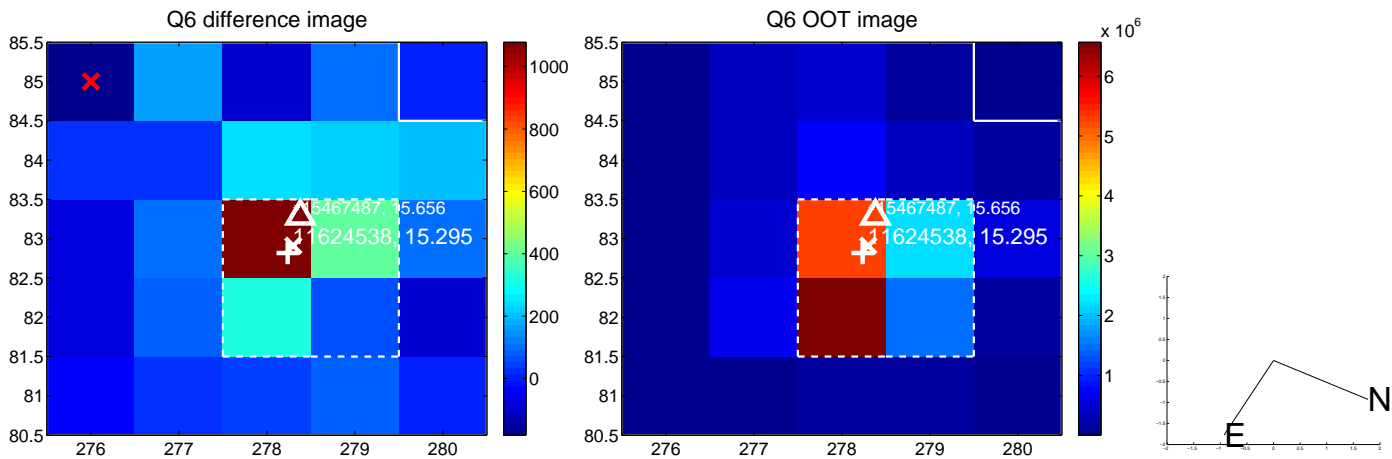
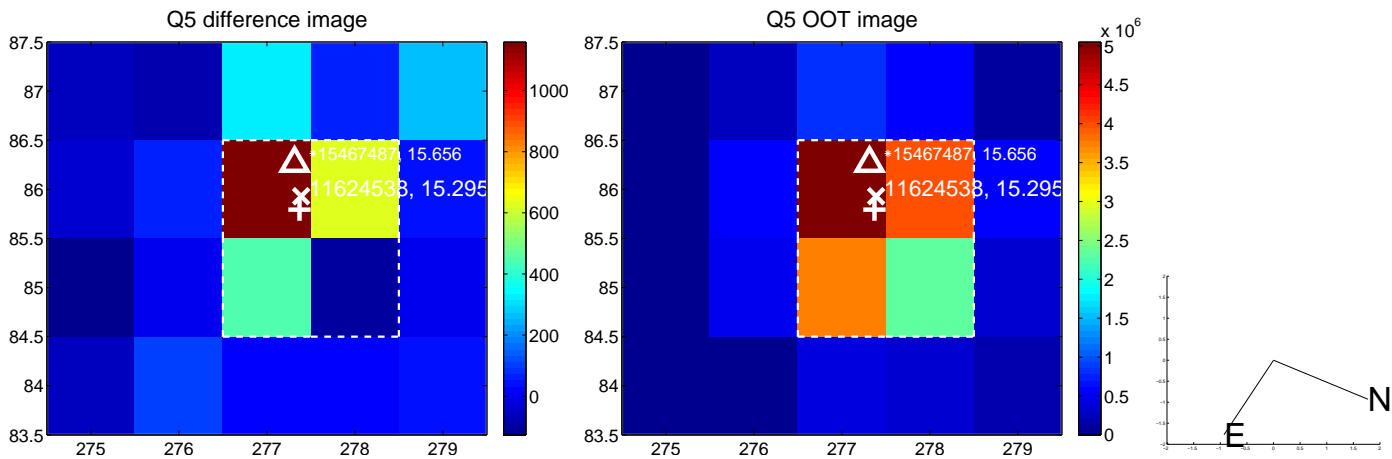
The direct PRF centroid is offset from the target star catalog position by about 0.57 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.944 ± 0.182	10.70	-1.933 ± 0.184	-0.204 ± 0.249
PRF-fit source offset from KIC position	1.402 ± 0.178	7.86	-1.397 ± 0.177	-0.127 ± 0.265
photometric centroid source offset	3.54 ± 1.67	2.13	-1.86 ± 1.64	3.02 ± 1.68

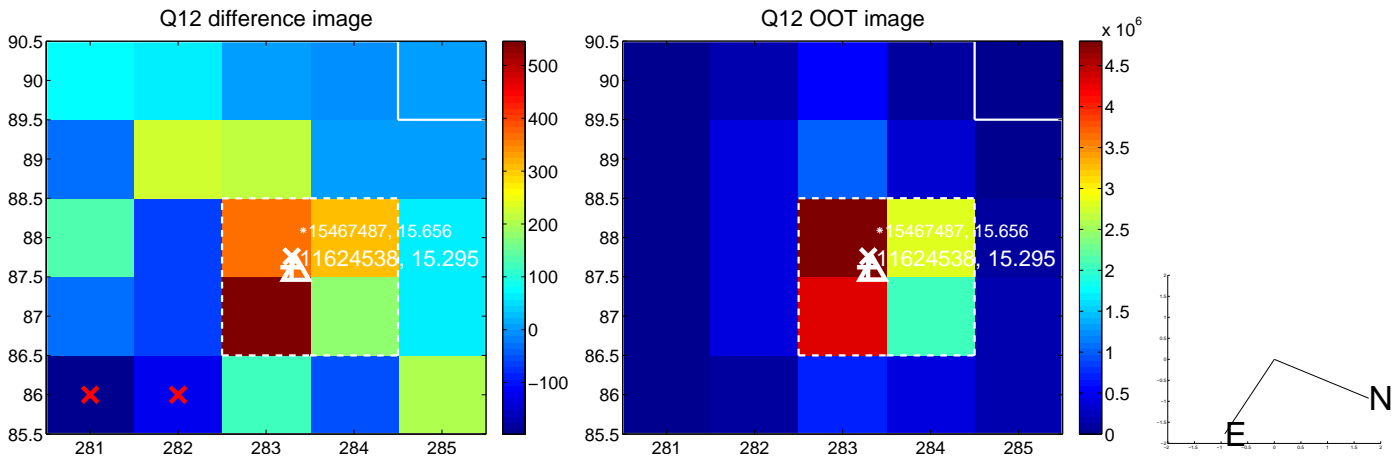
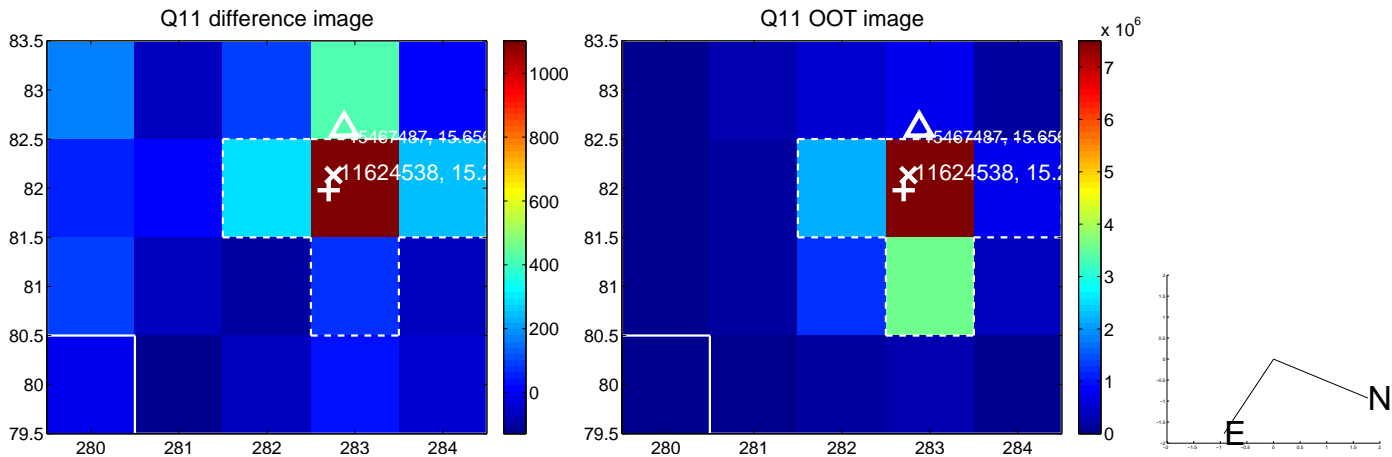
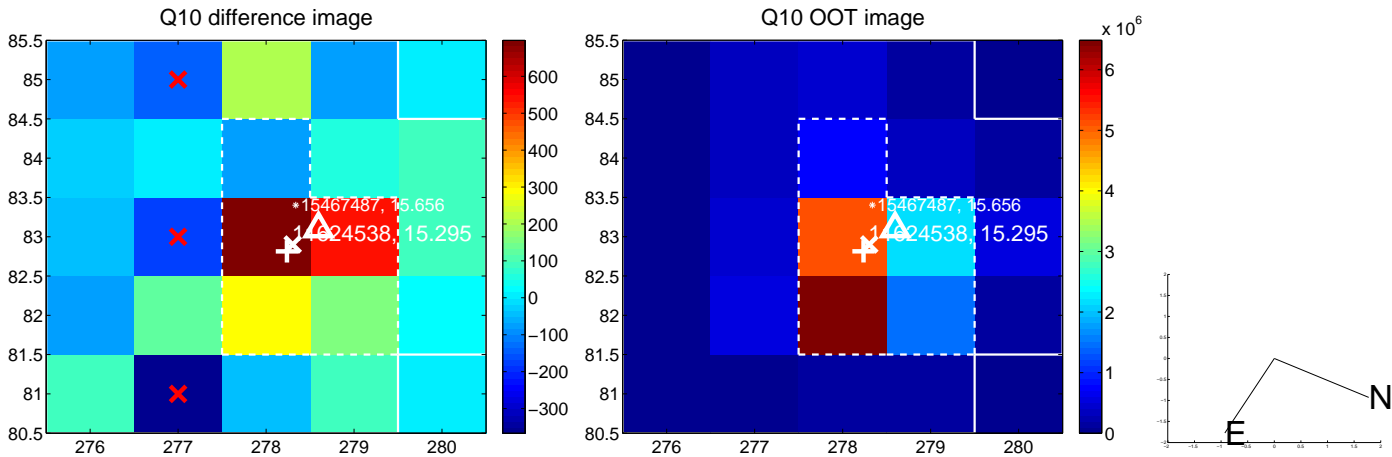
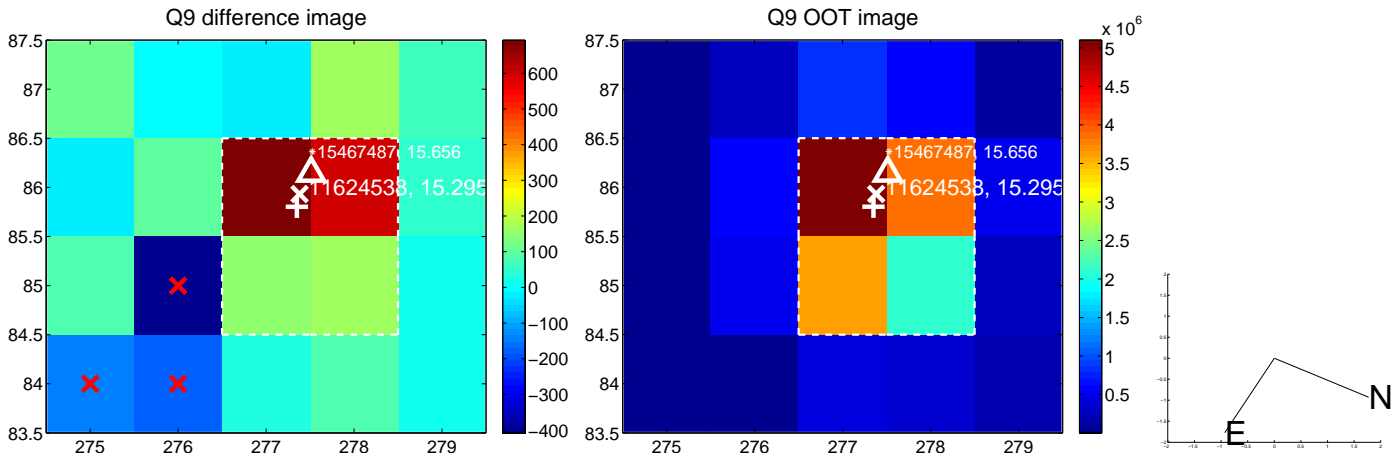


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

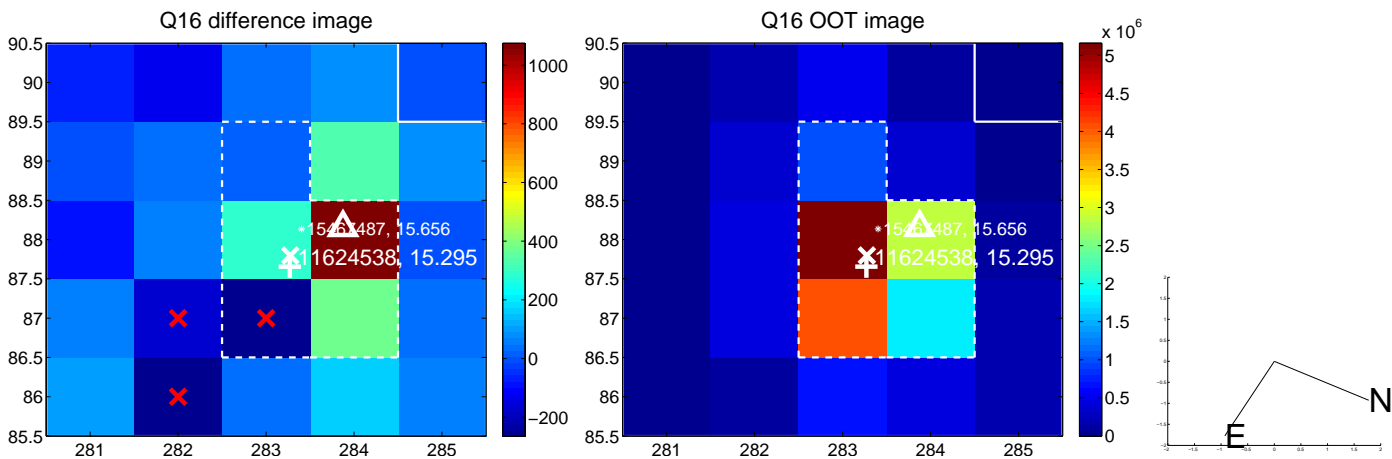
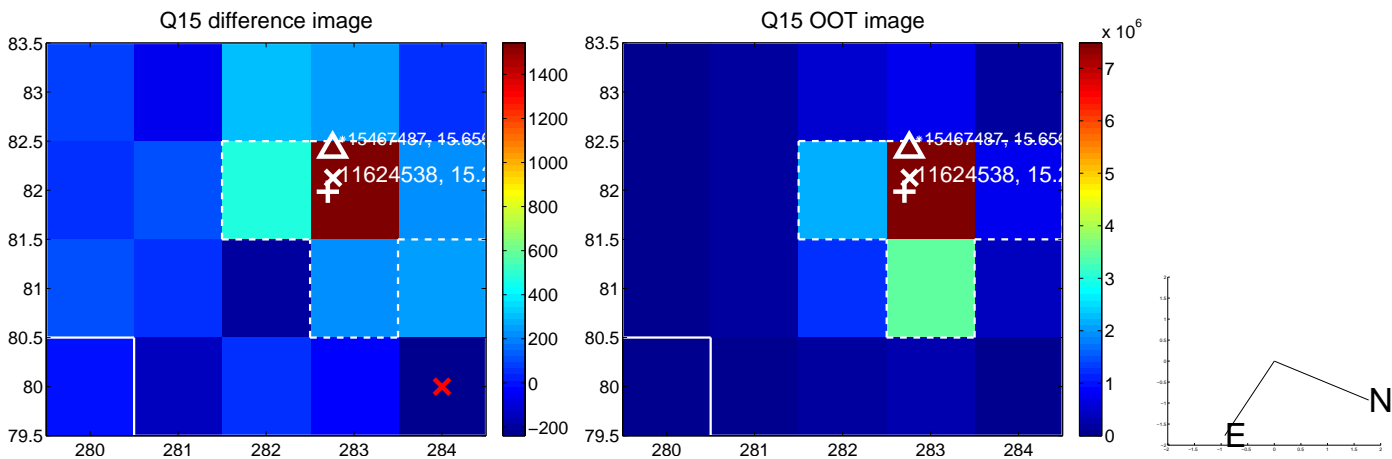
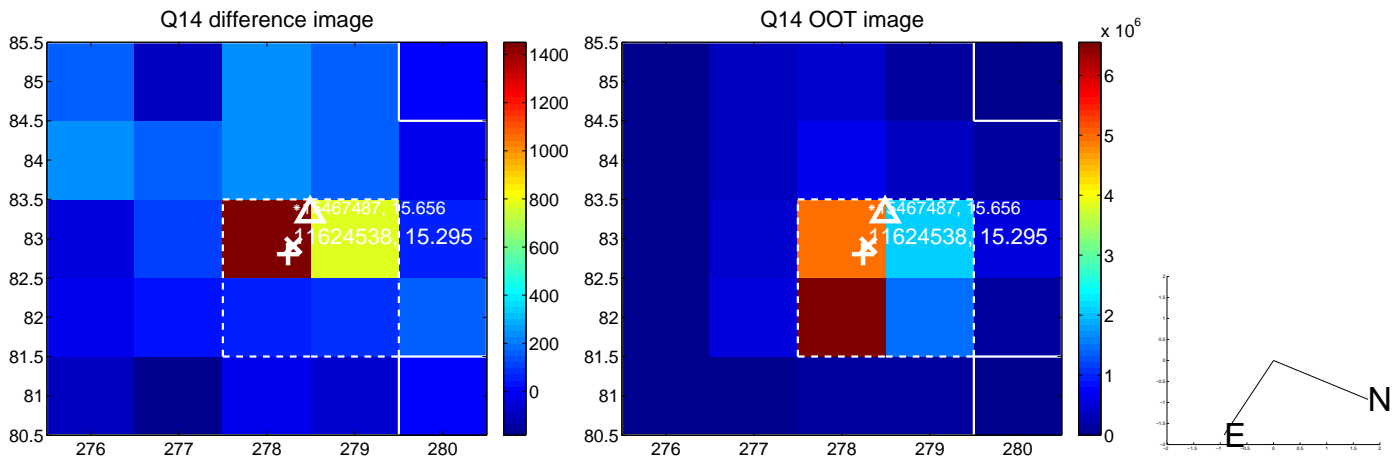
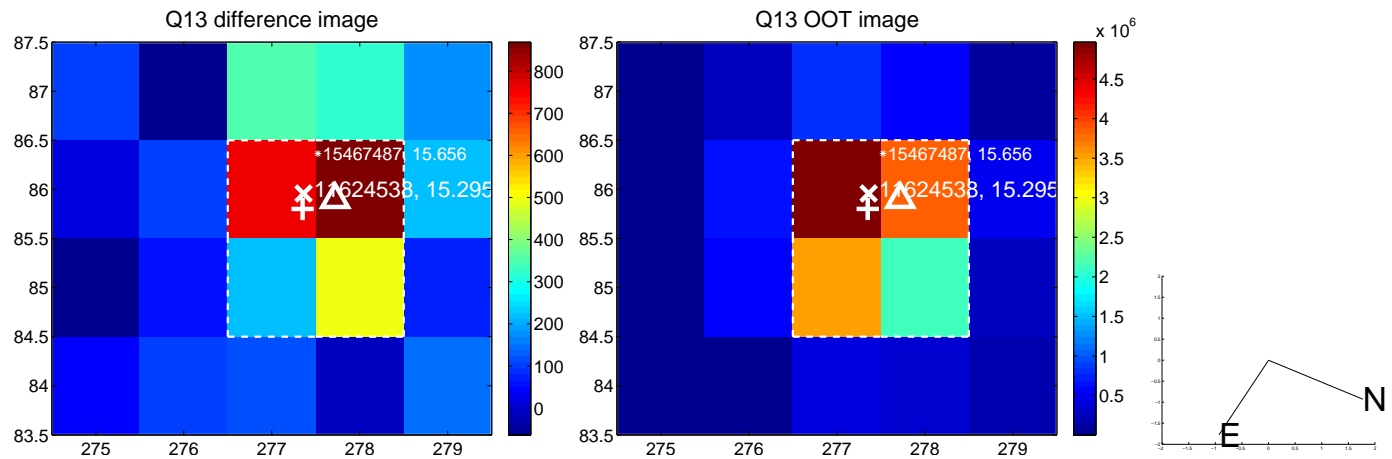
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



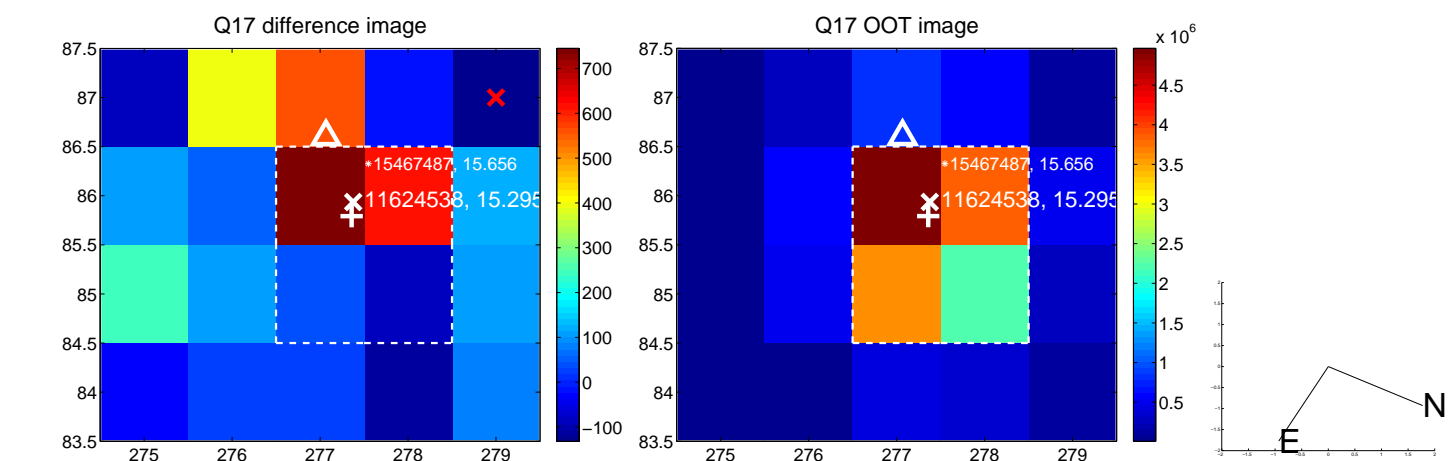
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



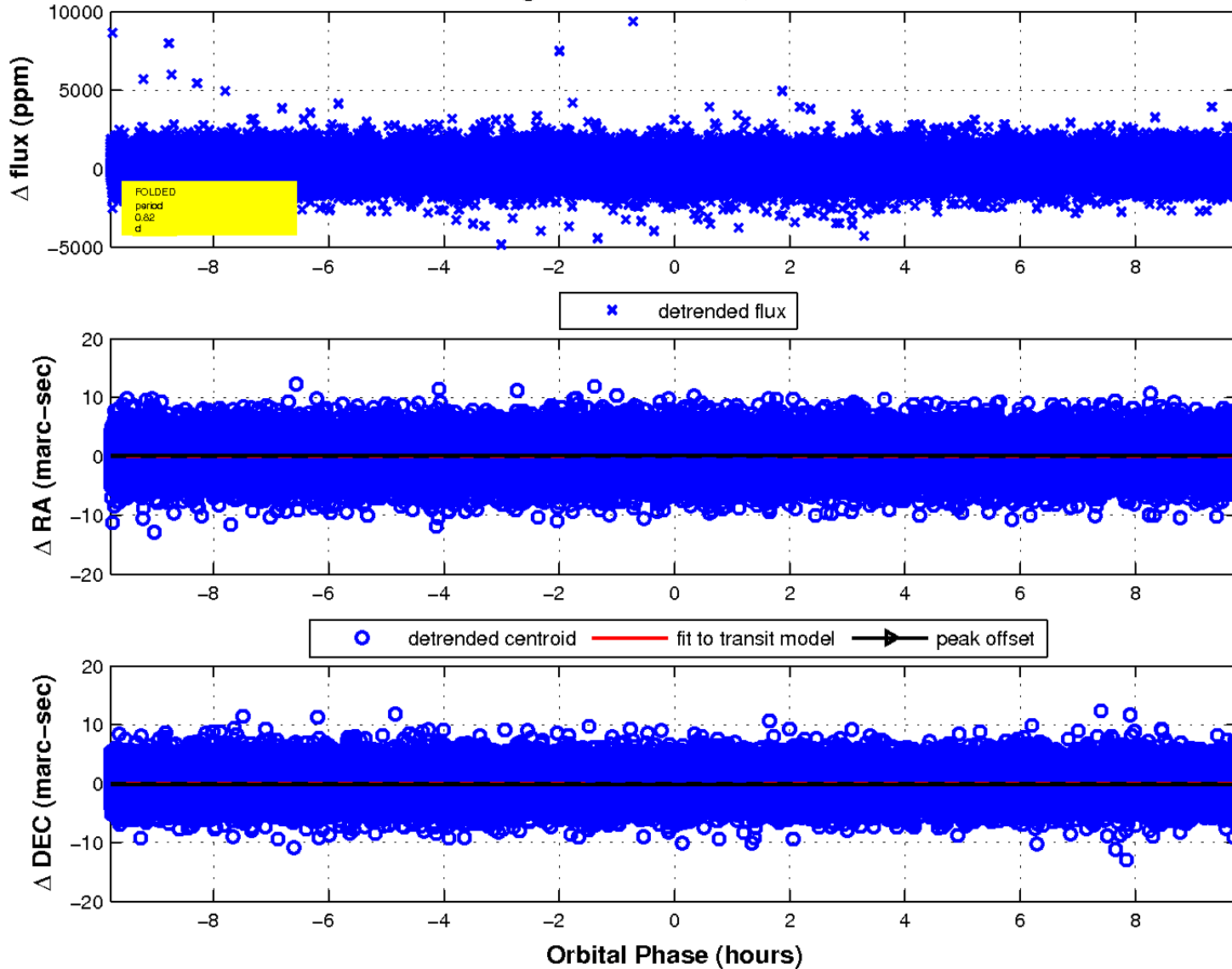
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

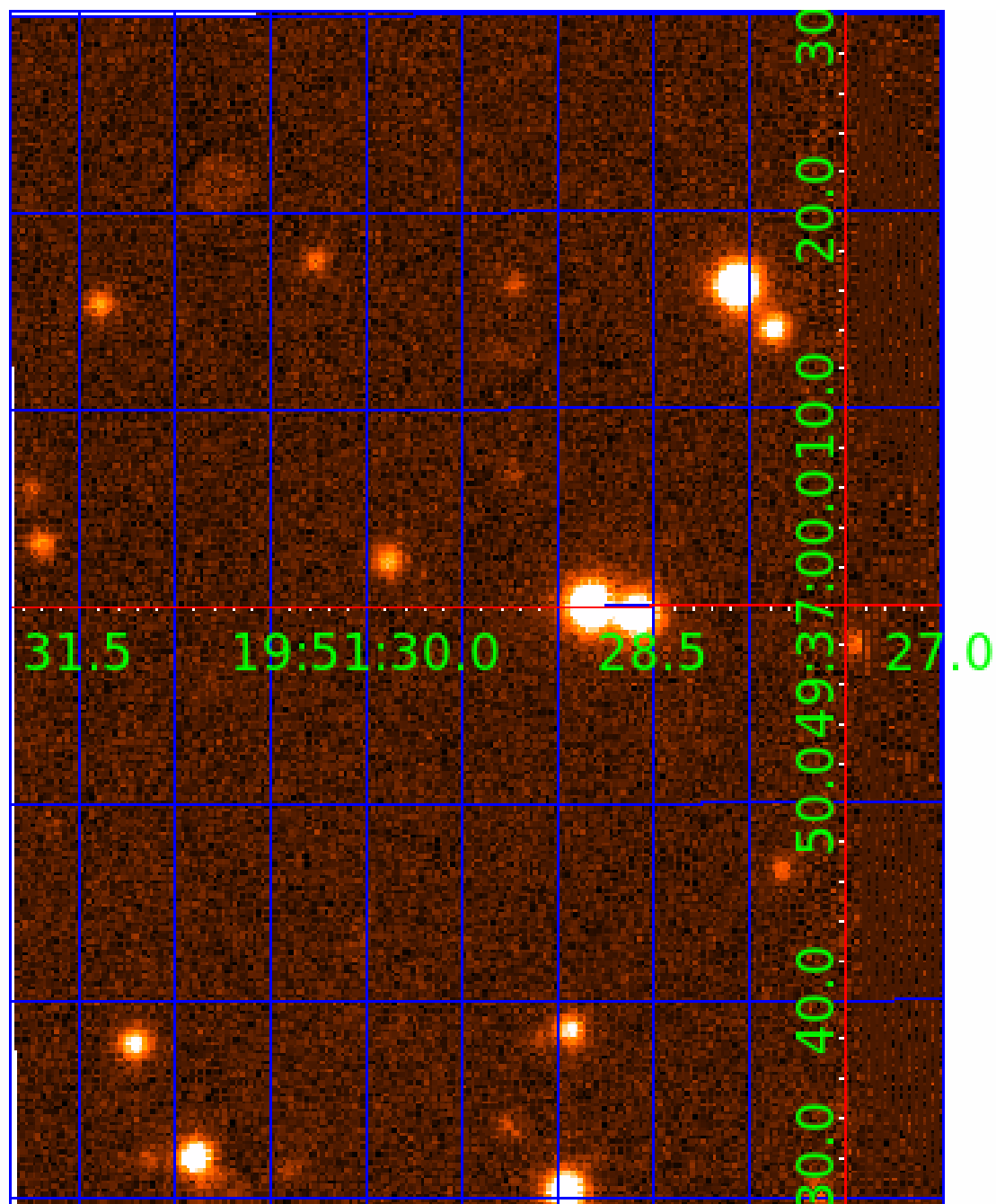


fluxWeightedCentroids, Planet 1 of 9



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

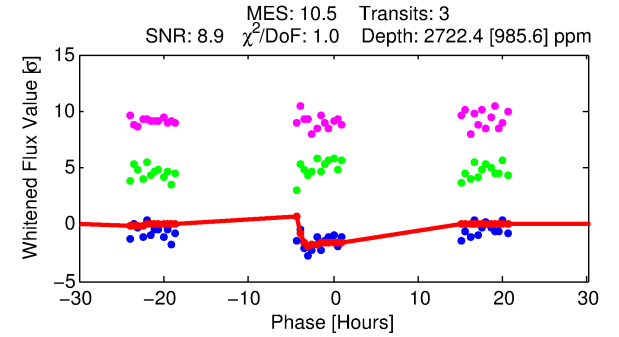
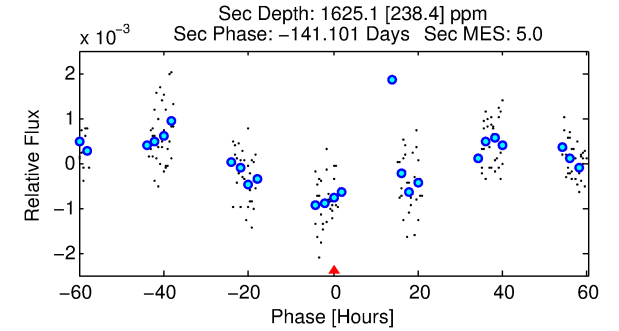
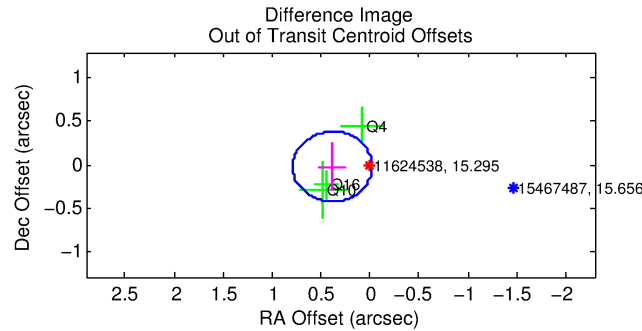
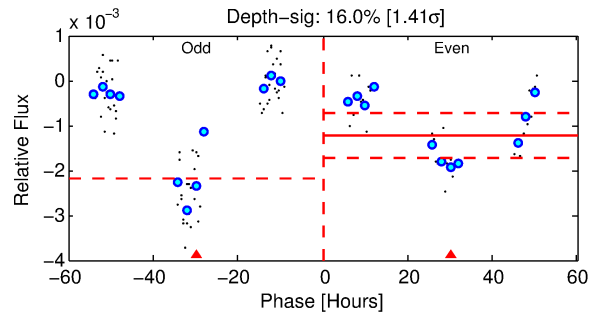
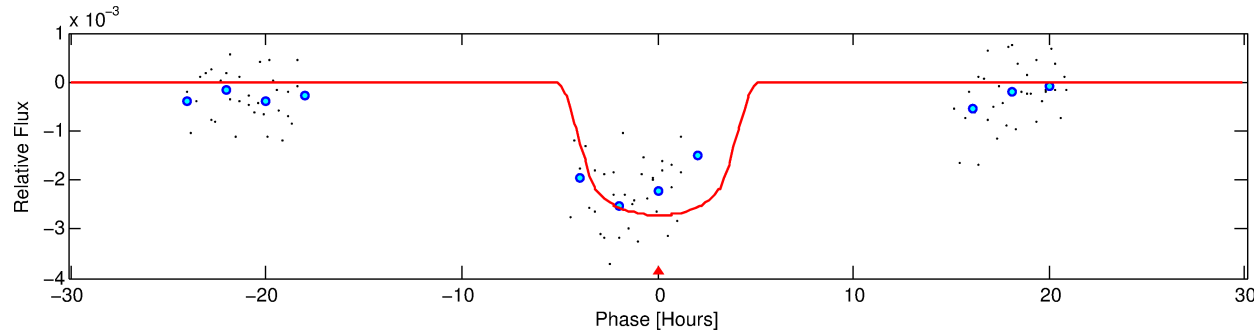
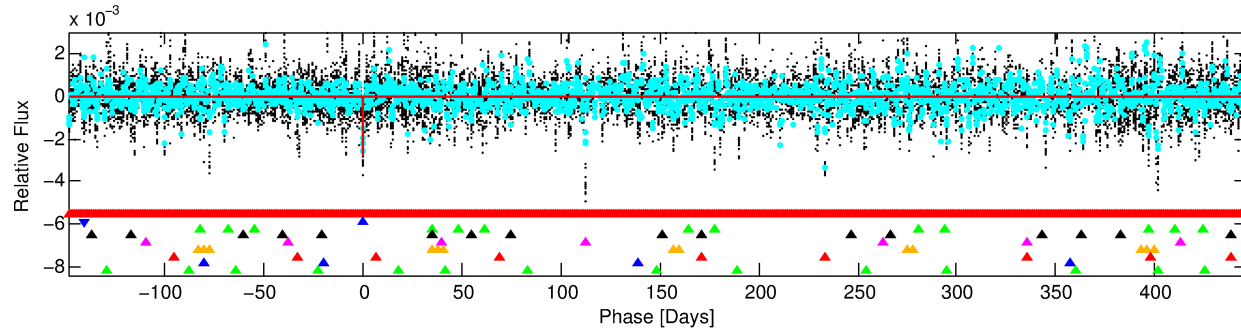
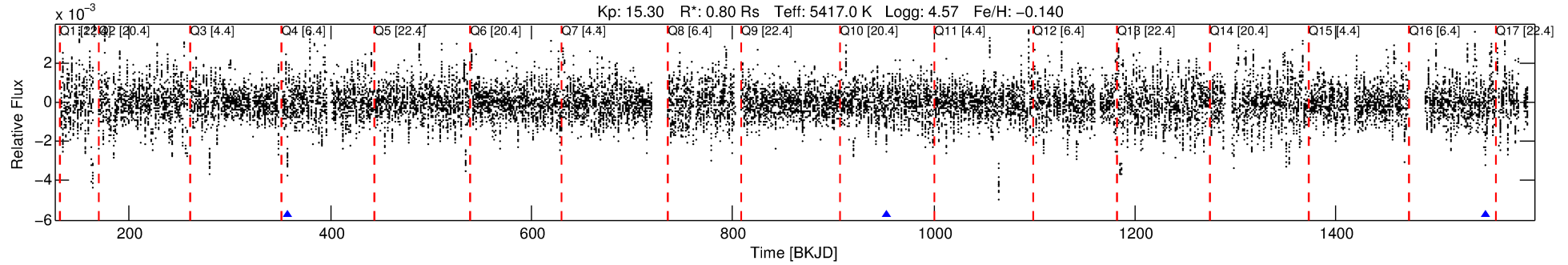
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-02

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 2 of 9 Period: 595.389 d



DV Fit Results:

Period = 595.38851 [0.01235] d
Epoch = 357.4452 [0.0672] BKJD
Rp/R* = 0.0556 [0.0085]
a/R* = 273.90 [87.21]
b = 0.87 [0.10]
Seff = 0.28 [0.08]
Teq = 186 [13] K
Rp = 4.85 [1.25] Re
a = 1.3139 [0.2224] AU
Ag = 65730.62 [27329.64] [2.41 σ]
Teffp = 4611 [428] K [10.33 σ]

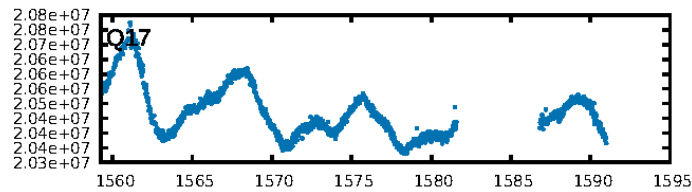
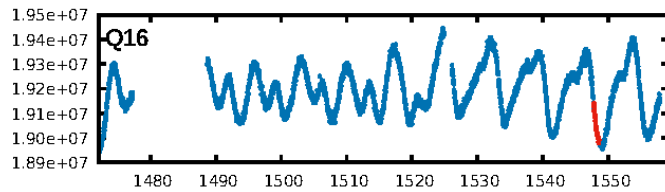
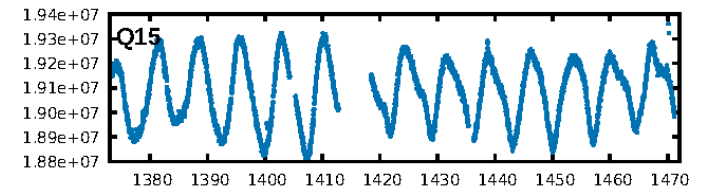
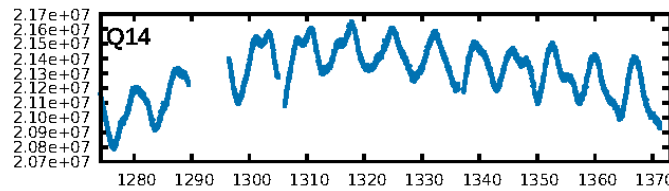
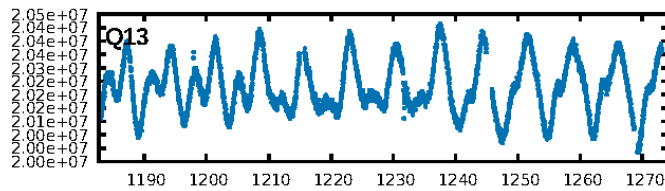
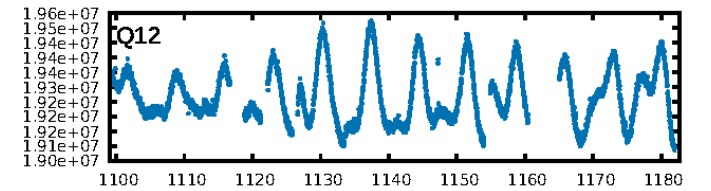
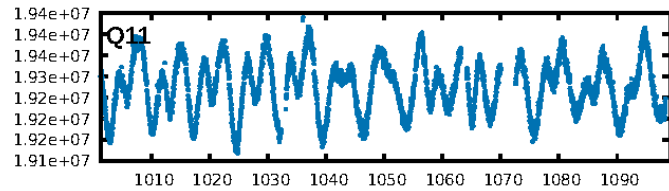
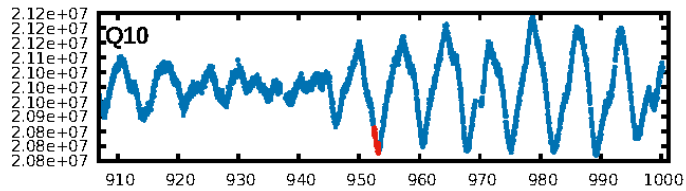
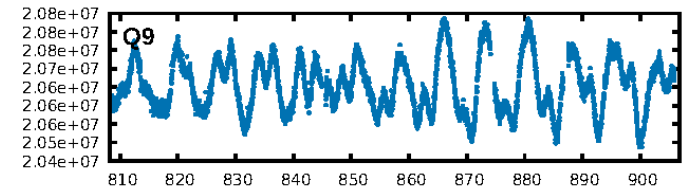
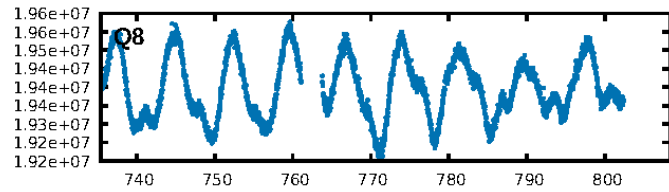
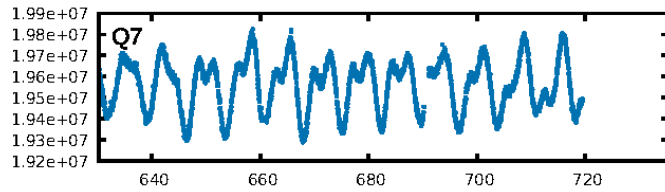
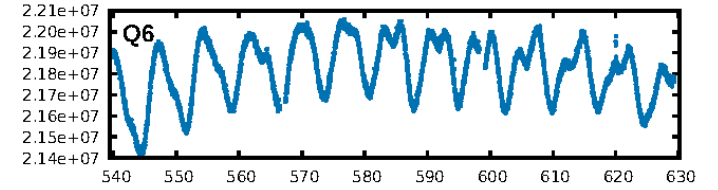
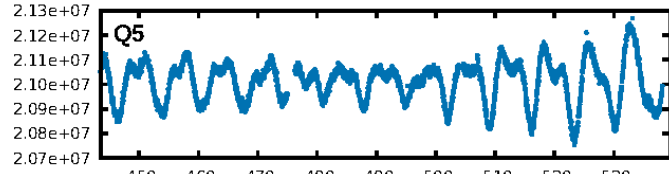
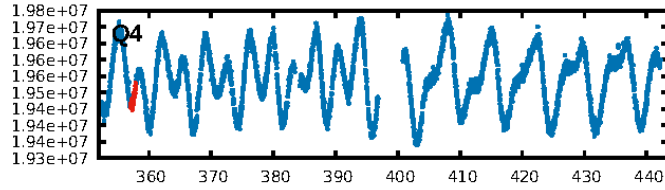
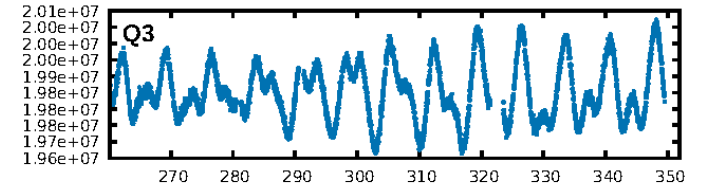
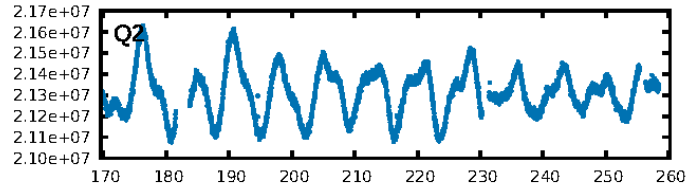
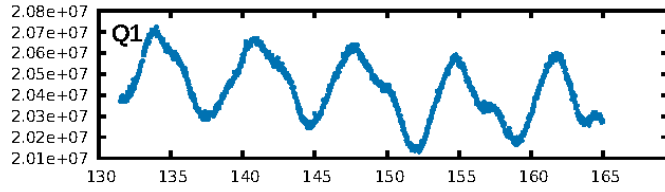
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [436.91 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 6.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.26e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.8504
Centroid-sig: 0.0%
Centroid-so: 2.342 arcsec [4.38 σ]
OotOffset-rm: 0.384 arcsec [2.84 σ]
OotOffset-st: 1/0/2/0 [3]
KicOffset-rm: 0.926 arcsec [5.30 σ]
KicOffset-st: 1/0/2/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

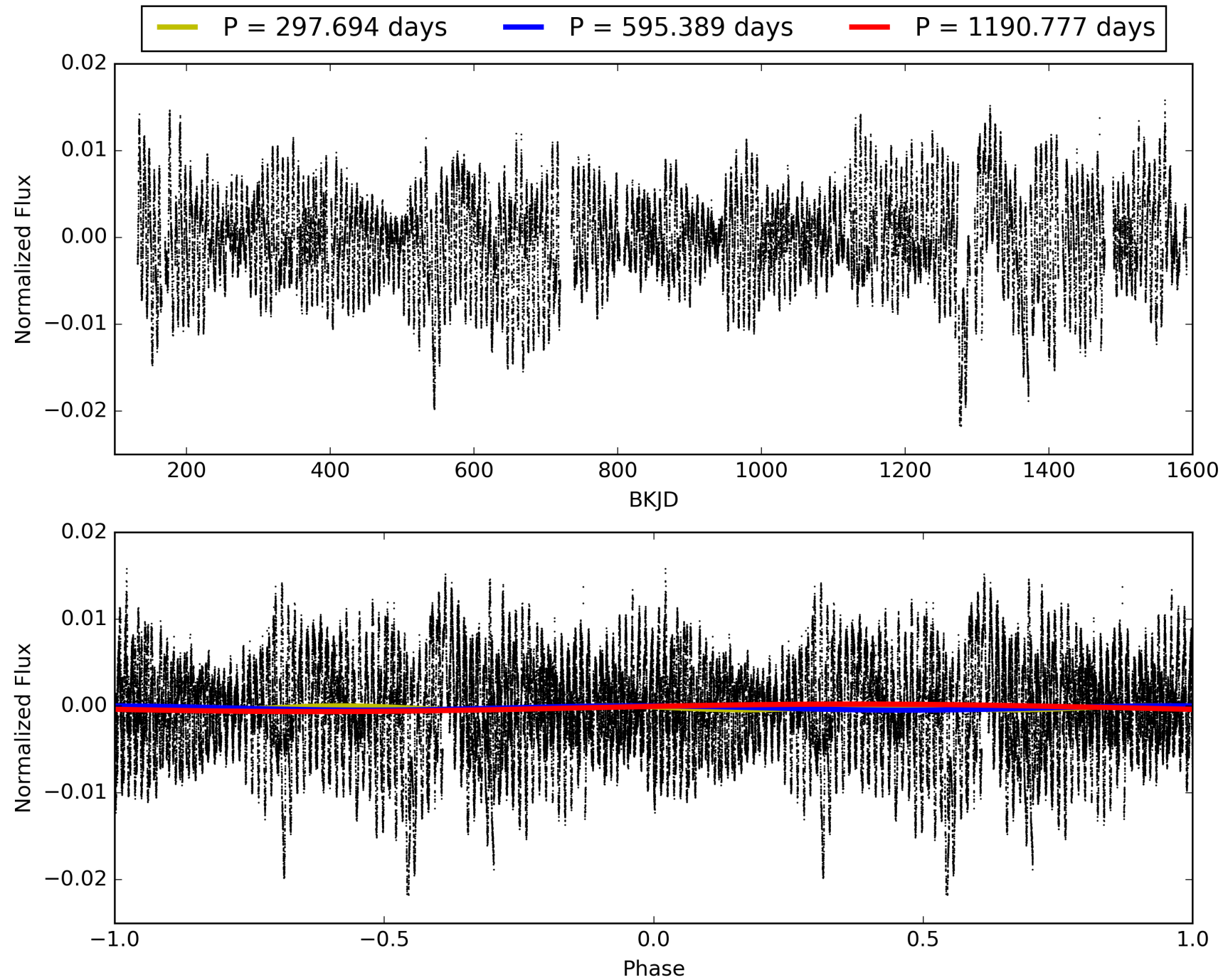
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:25 Z

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

TCE 011624538-02, PDC Light Curves

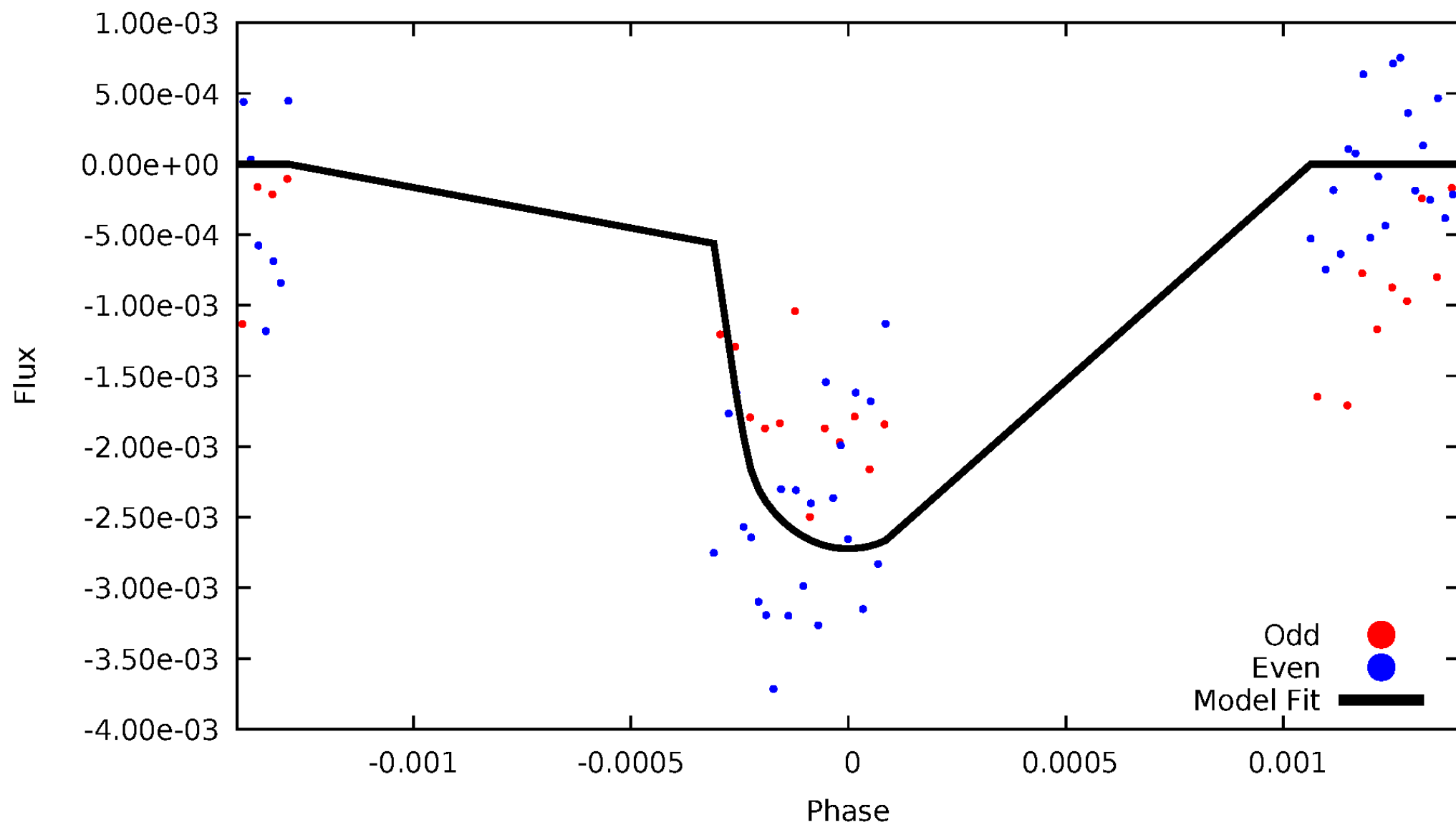


TCE 011624538-02



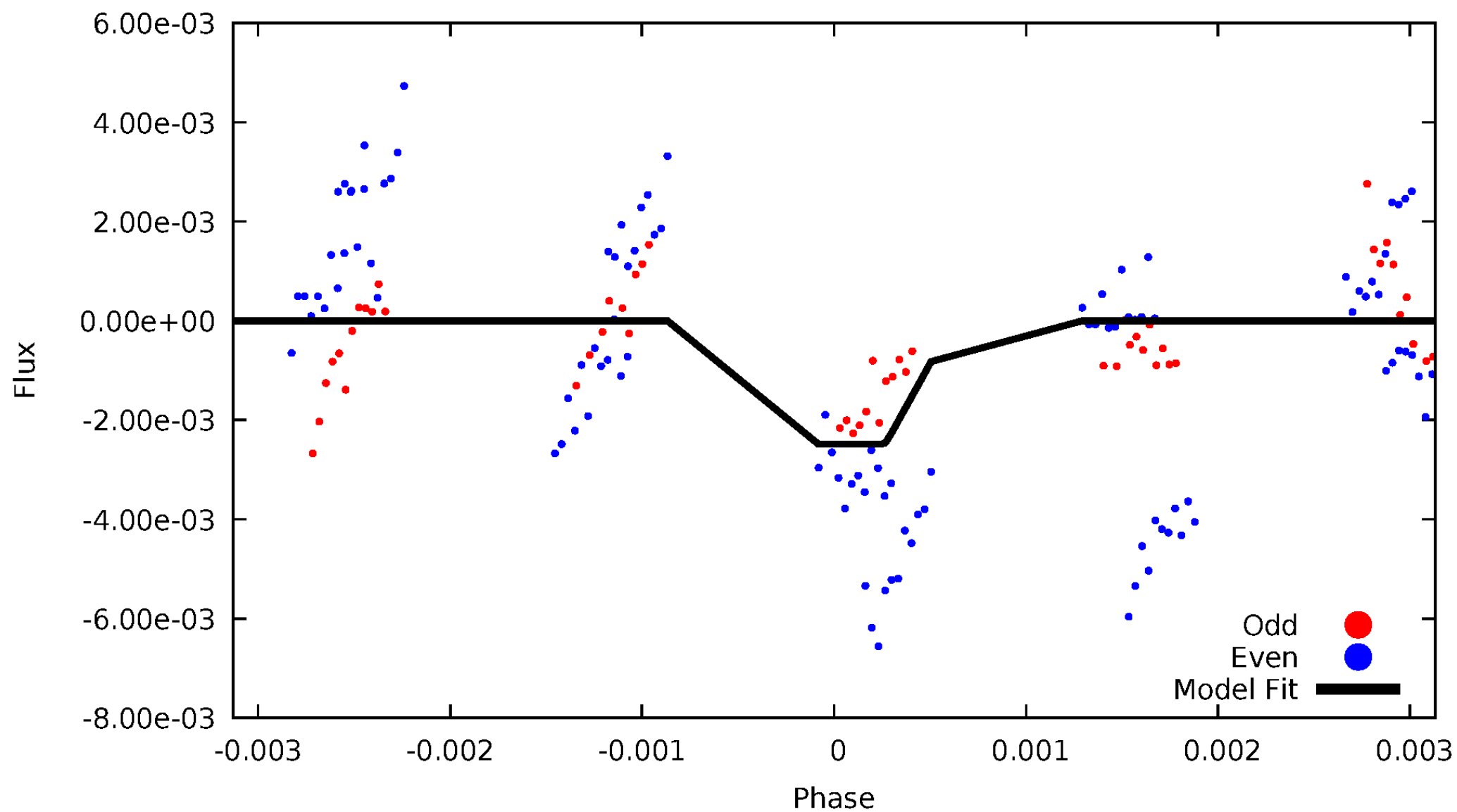
DV Odd/Even

TCE 011624538-02



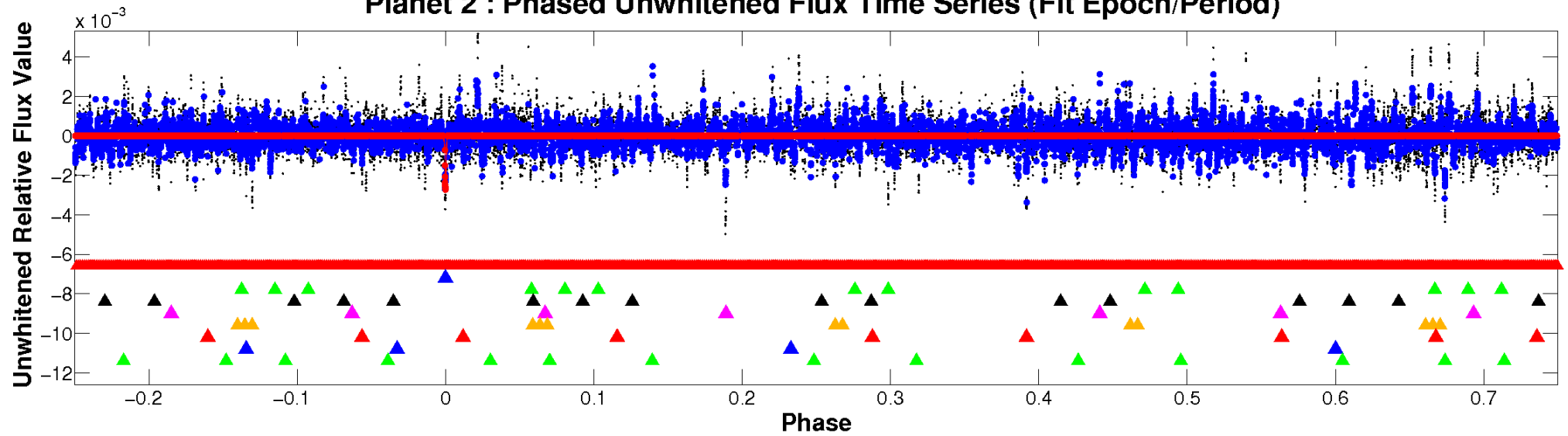
ALT Odd/Even

TCE 011624538-02

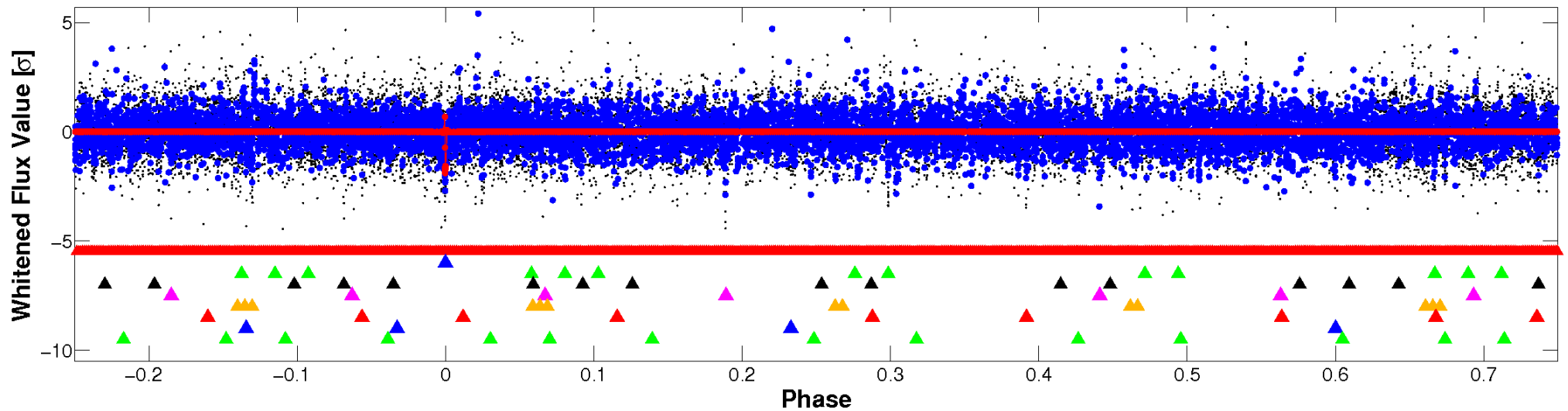


Non-Whitened Vs. Whitened Light Curve

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

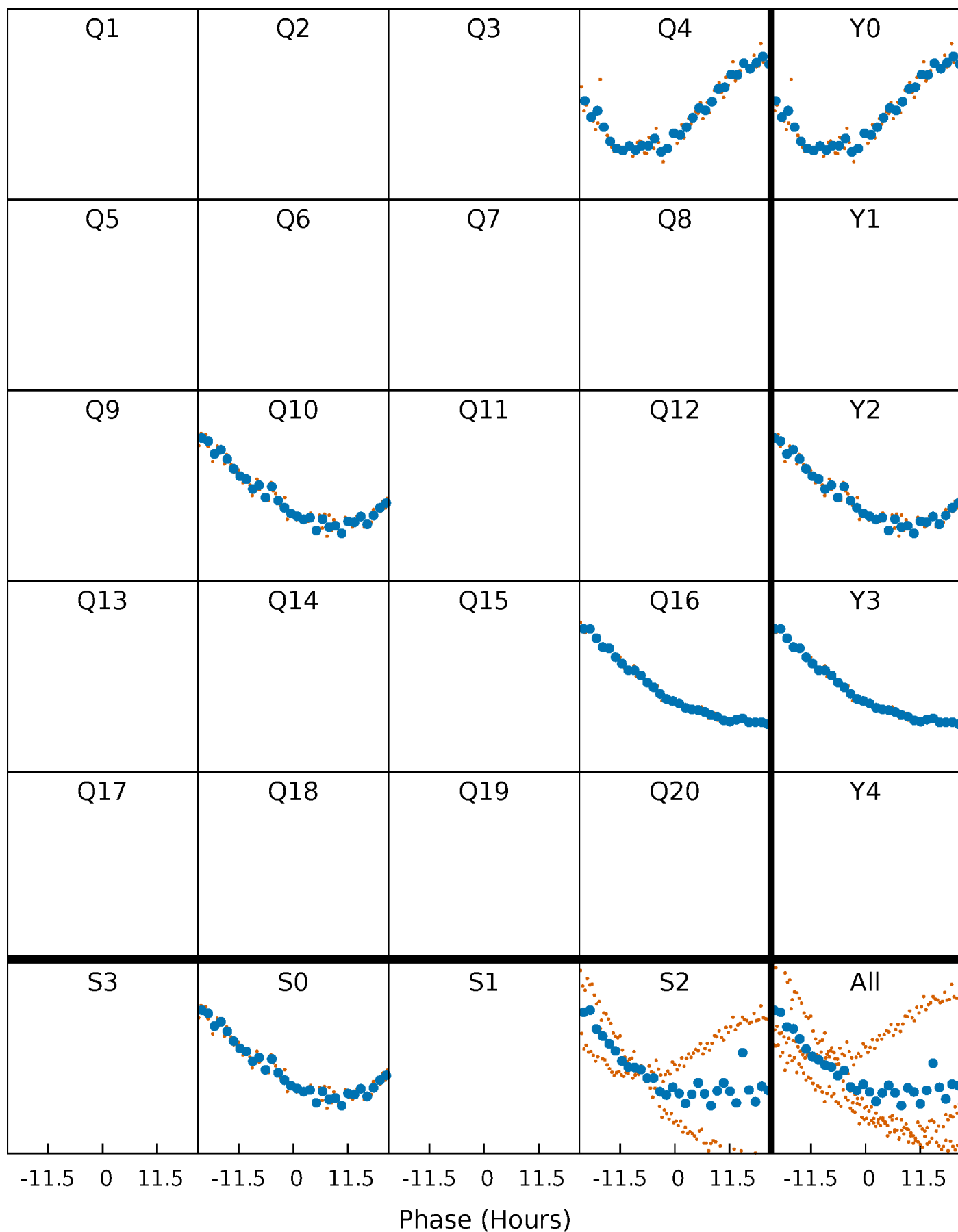


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



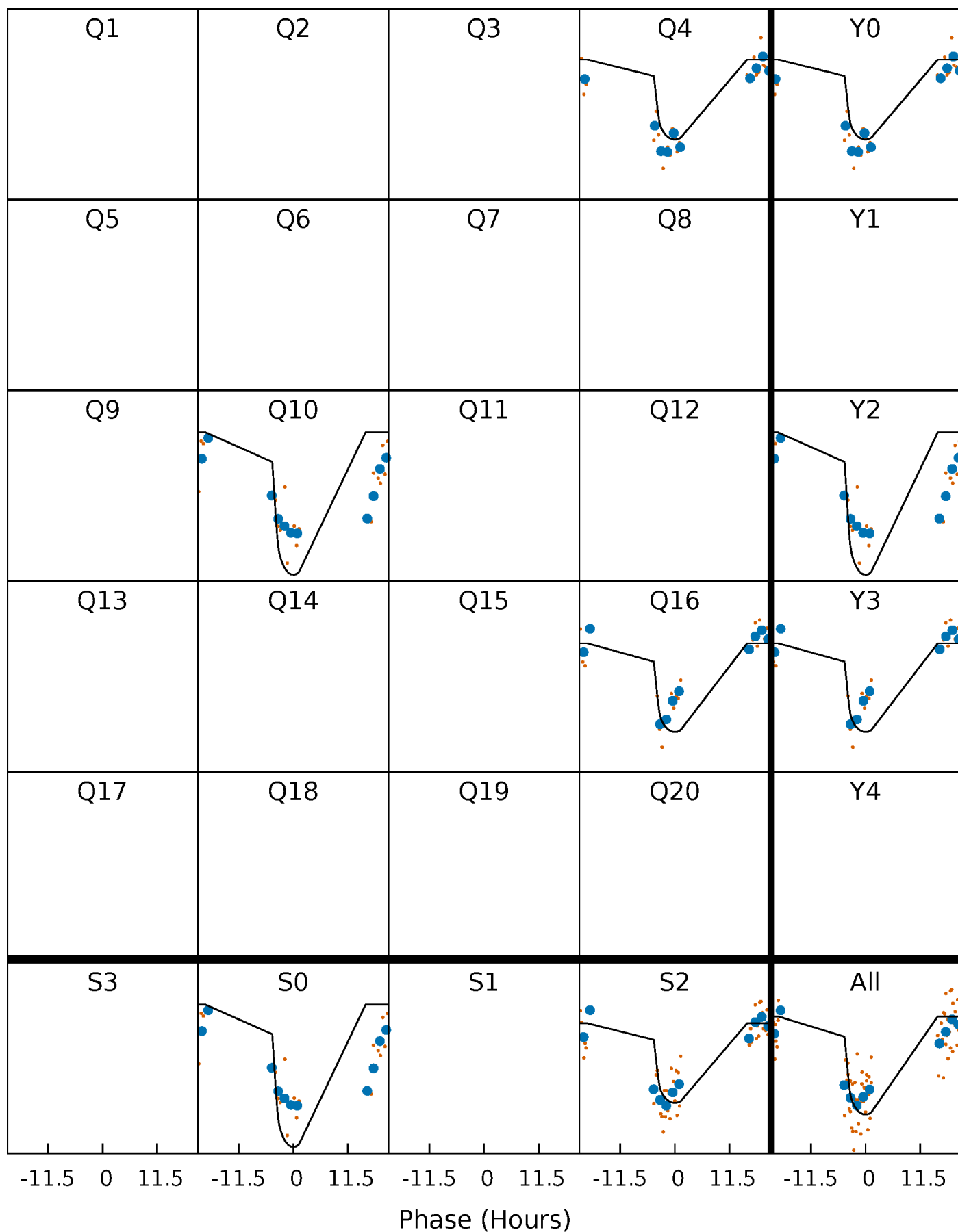
PDC Quarter-Phased Transit Curves

TCE 011624538-02 P=595.388512 Days $T_0=357.445200$ (BKJD)



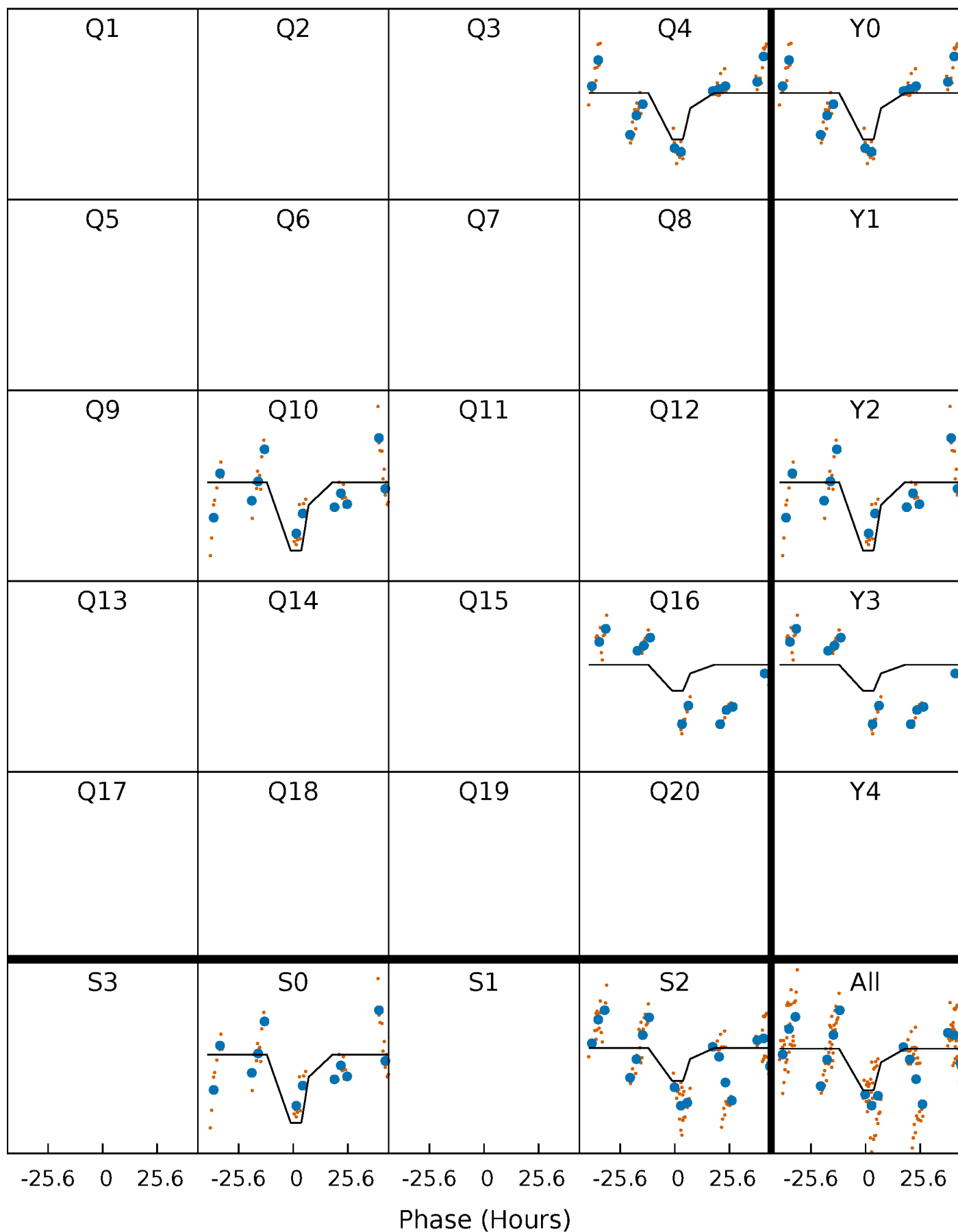
DV Quarter-Phased Transit Curves

TCE 011624538-02 $P=595.388512$ Days $T_0=357.445200$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

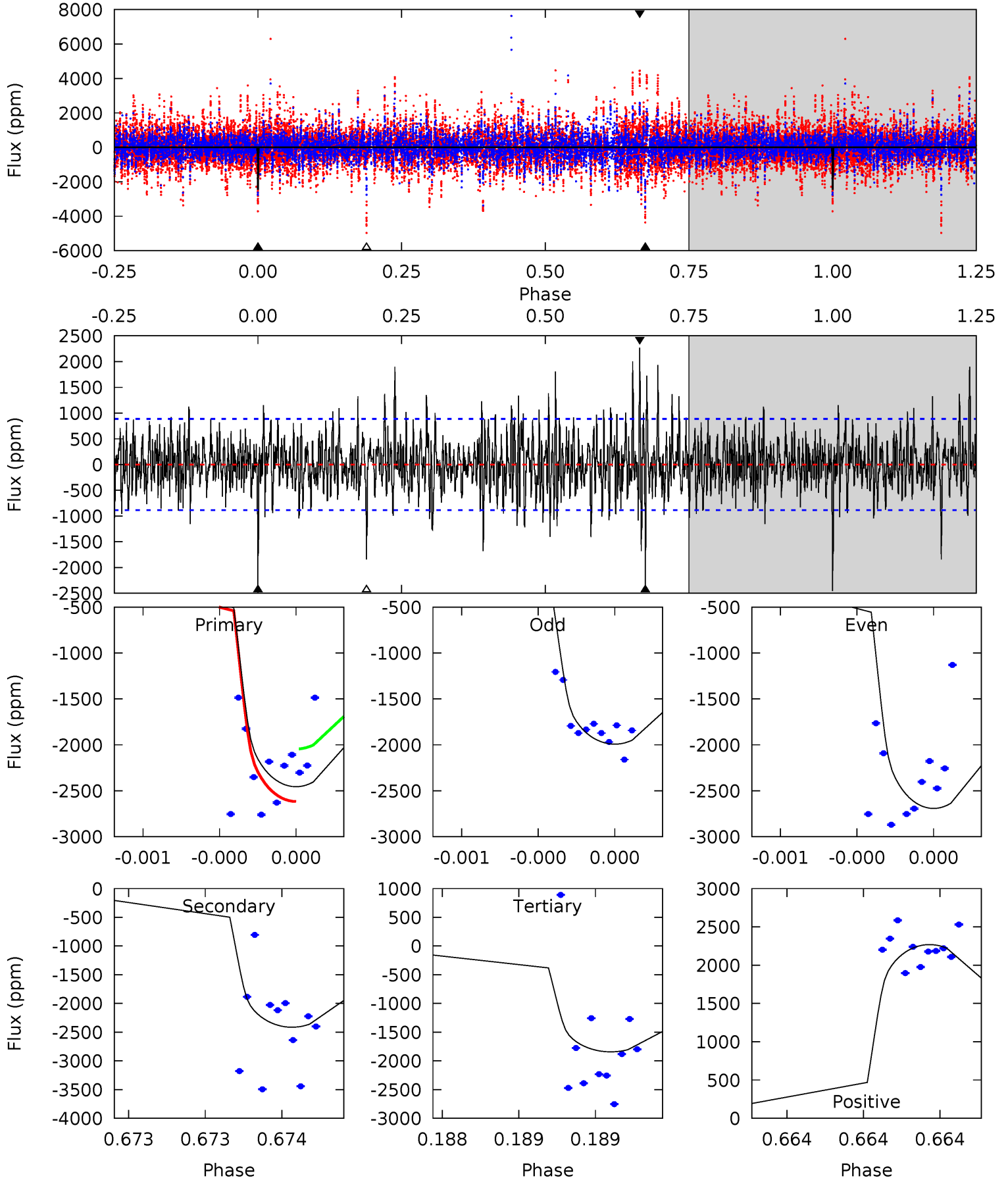
TCE 011624538-02 P=595.331771 Days $T_0=357.308820$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-02, P = 595.388512 Days, E = 357.445200 Days

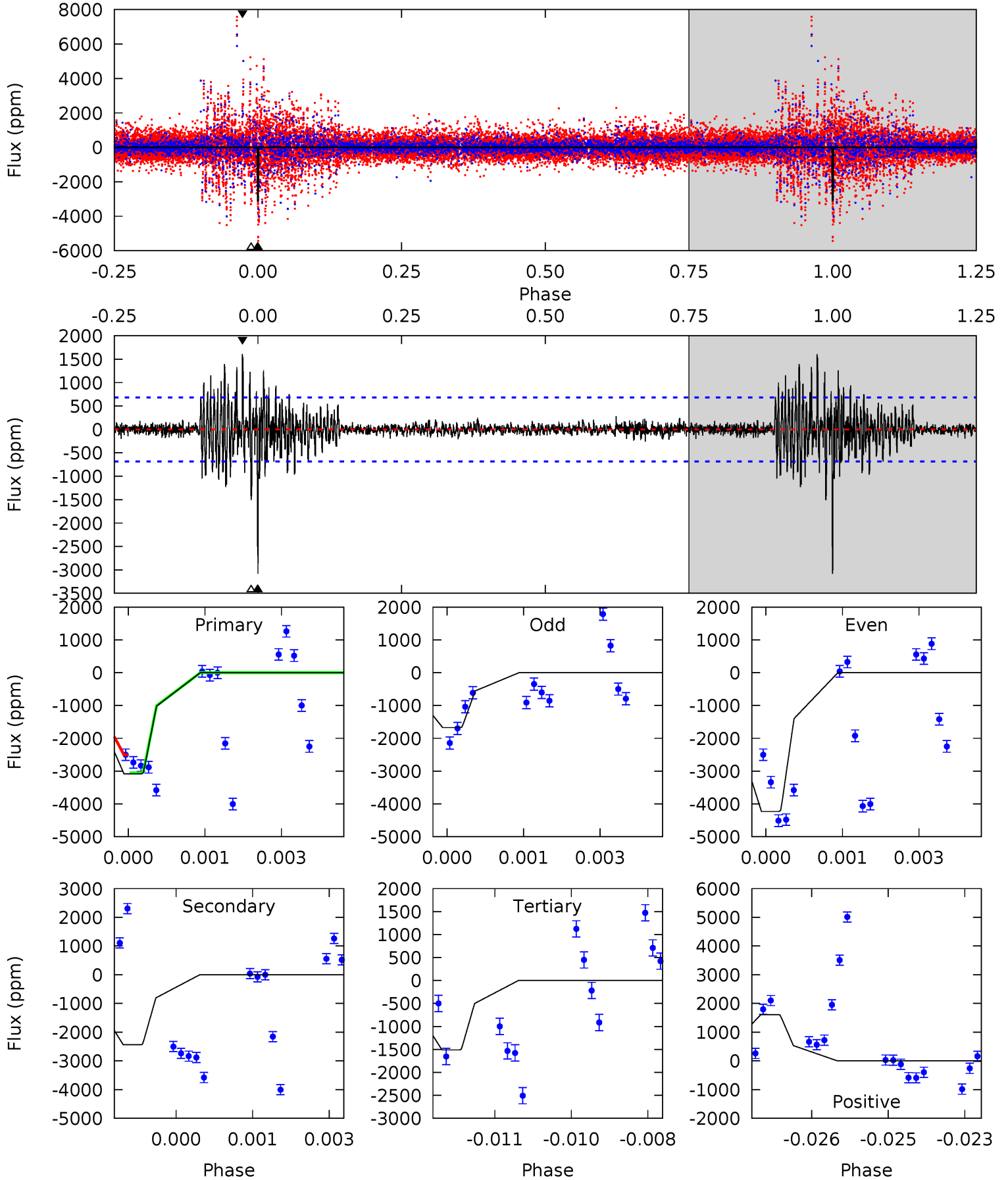
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.6	15.3	11.7	14.4	5.62	3.55	2.87	3.89	1.19	3.62	0.92	2.17	1.13	0.48	1.52



Alt Model-Shift Uniqueness Test

011624538-02, P = 595.331771 Days, E = 357.308820 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.4	19.3	11.9	12.7	5.39	3.20	1.95	12.4	11.6	7.34	6.54	10.8	1.19	0.34	1.08



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-2414 ± 158	$4.92^{+0.94}_{-0.80}$	265^{+13}_{-12}	5131^{+490}_{-342}	92586^{+40744}_{-26413}
Alt.	-2439 ± 126	$4.44^{+1.00}_{-0.84}$	265^{+14}_{-13}	5409^{+592}_{-401}	115192^{+58002}_{-35648}

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 $A_{obs} \gg 1.0$

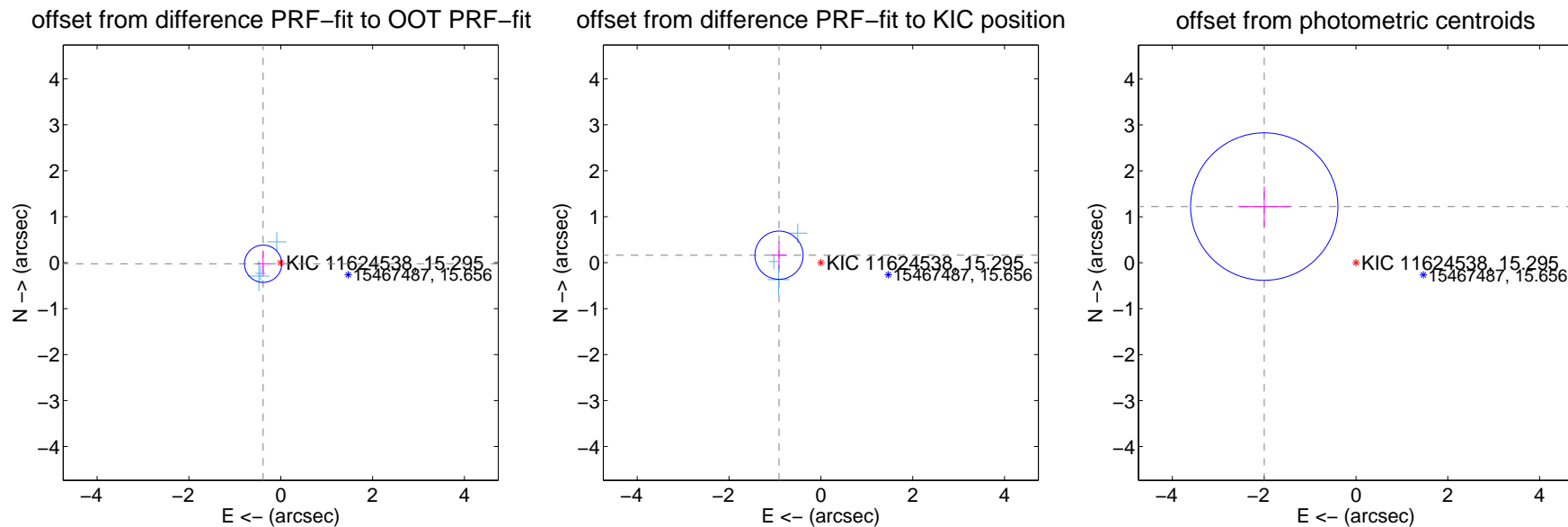
DV Centroid Data

Supplemental centroid analysis for 011624538-02. Kepler magnitude: 15.29. Transit SNR 8.92

There are 3 quarters with good PRF difference image offsets

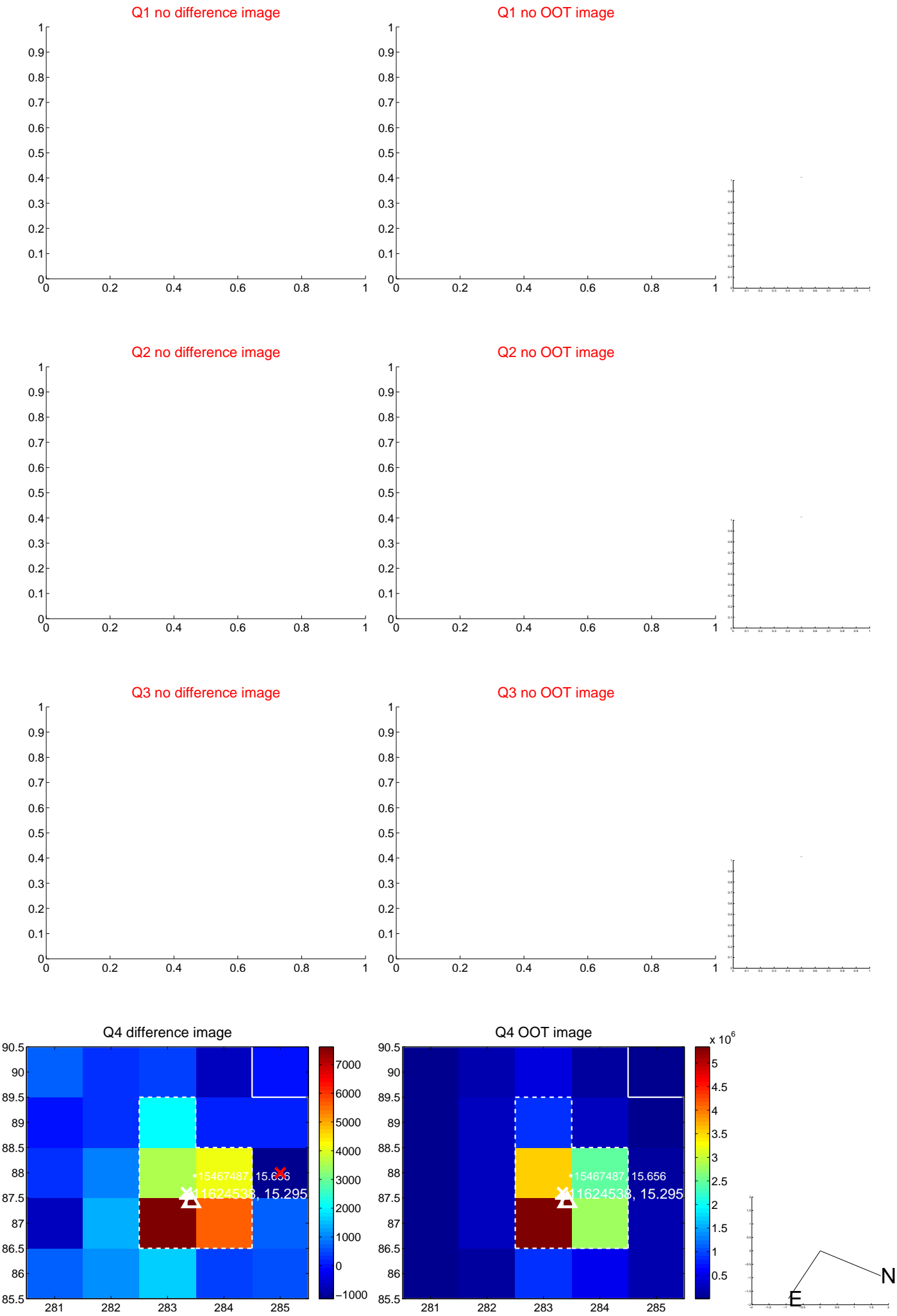
The direct PRF centroid is offset from the target star catalog position by about 0.64 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.384 ± 0.135	2.84	0.384 ± 0.134	-0.023 ± 0.272
PRF-fit source offset from KIC position	0.926 ± 0.175	5.30	0.912 ± 0.169	0.163 ± 0.299
photometric centroid source offset	2.34 ± 0.53	4.38	2.00 ± 0.57	1.22 ± 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.

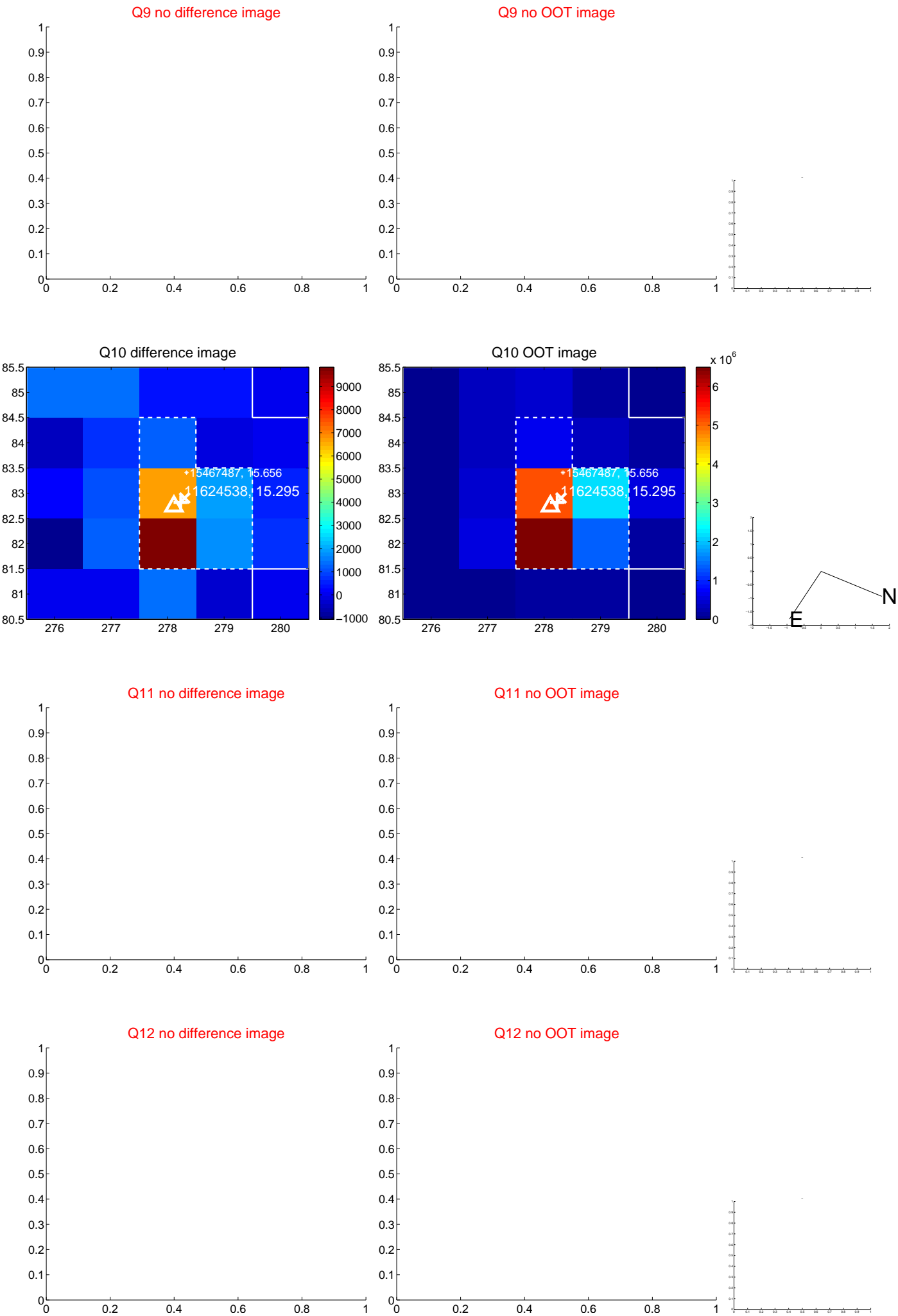
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



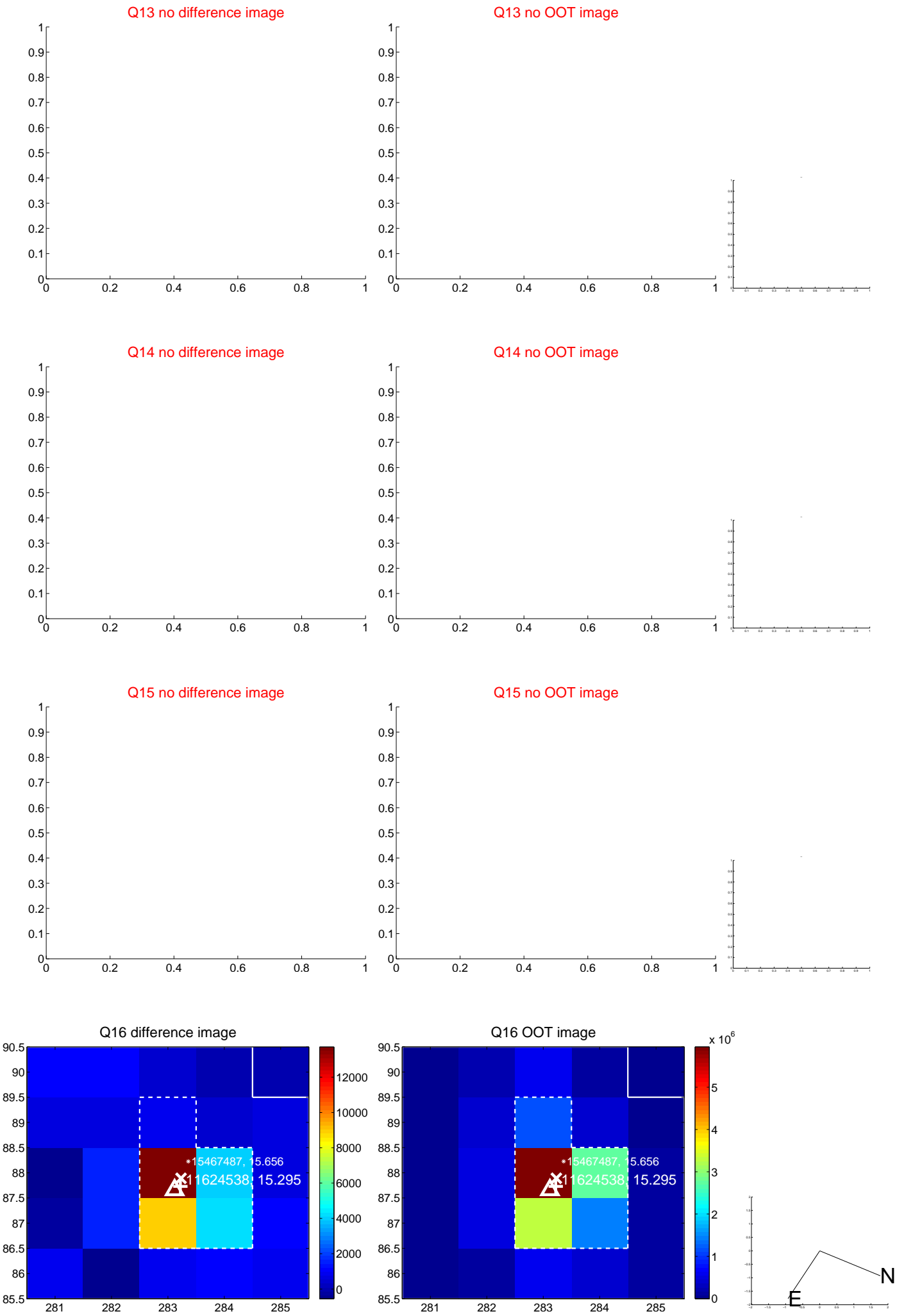
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



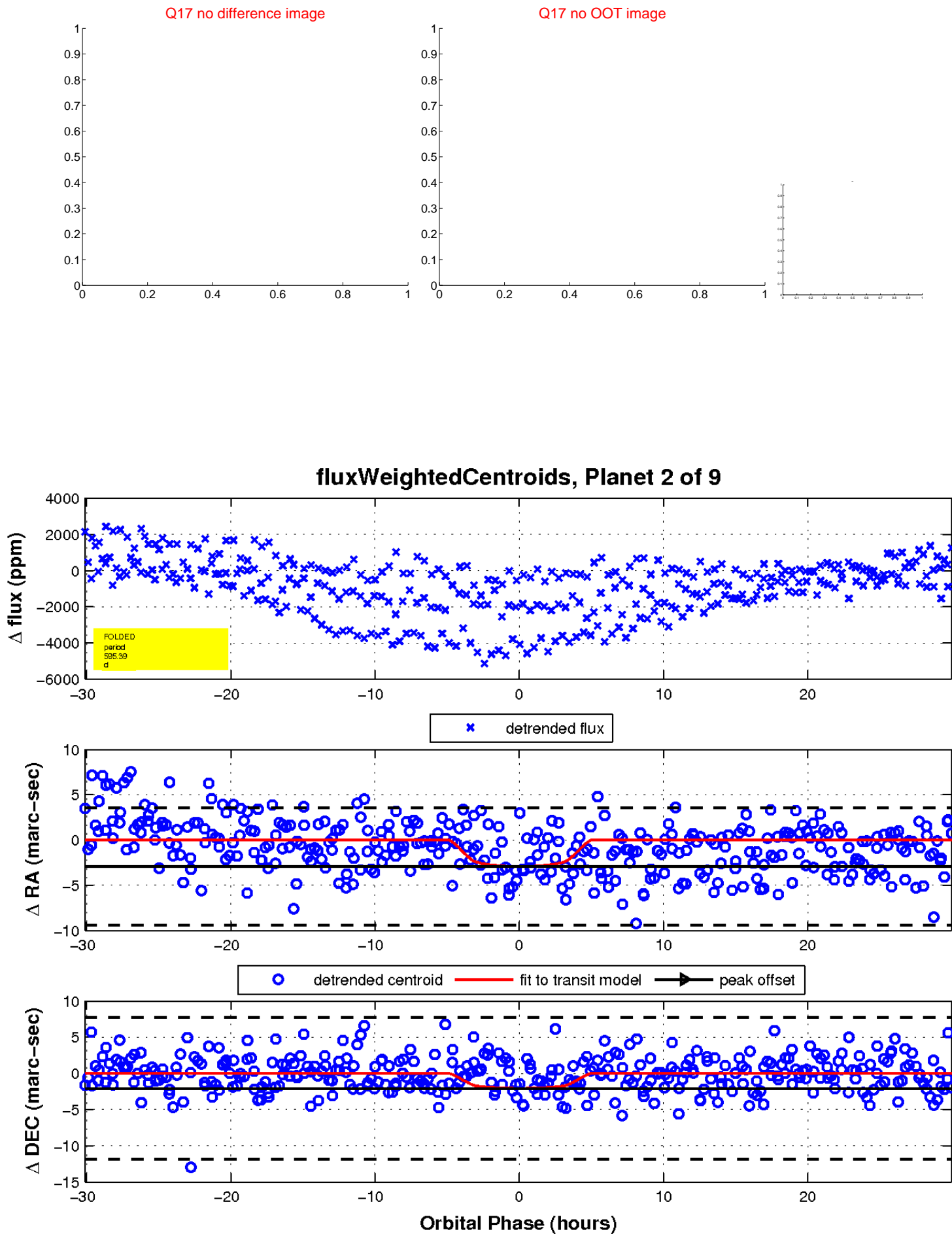
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

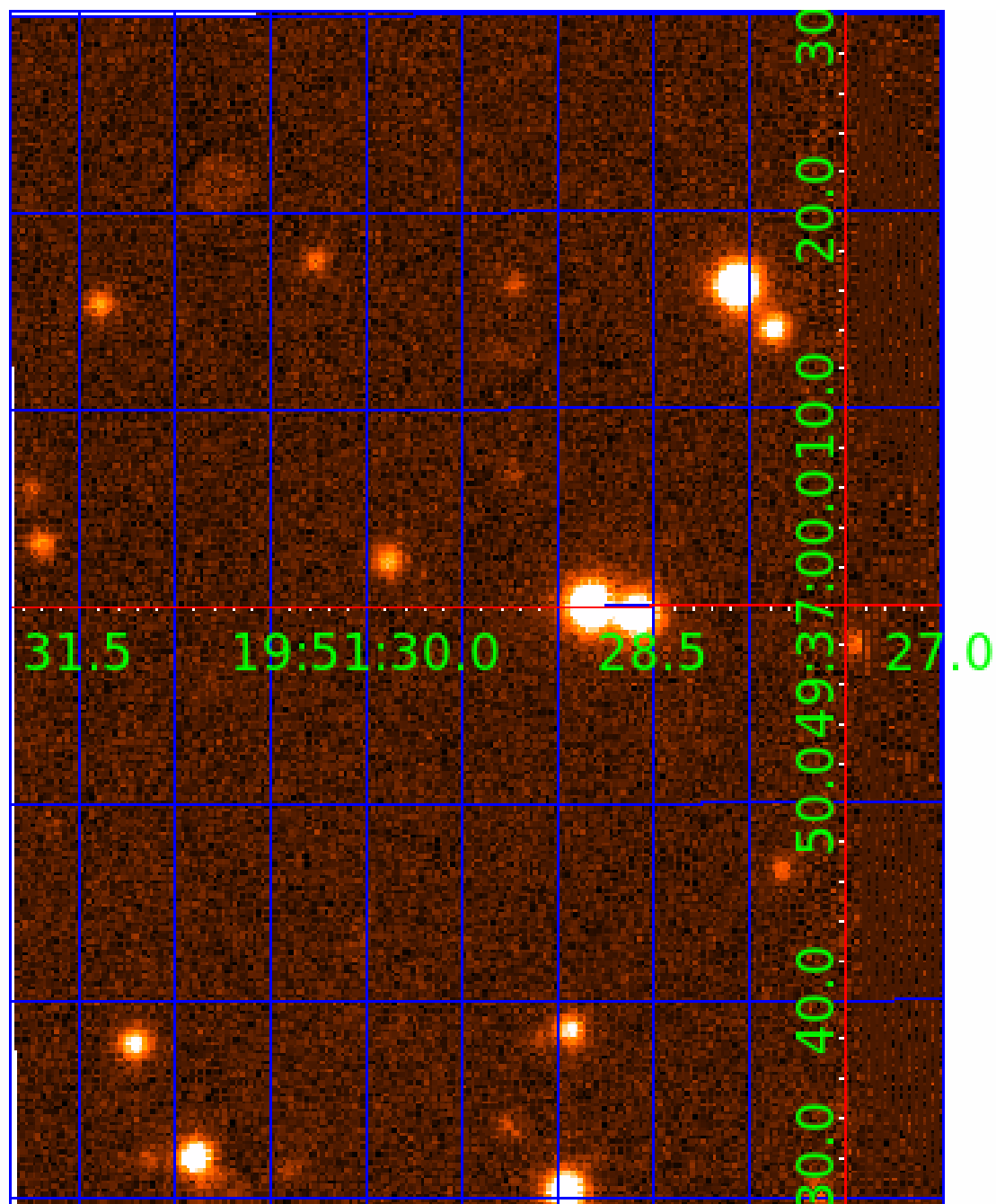


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

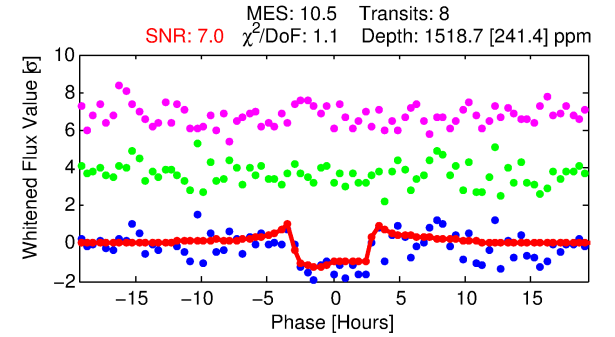
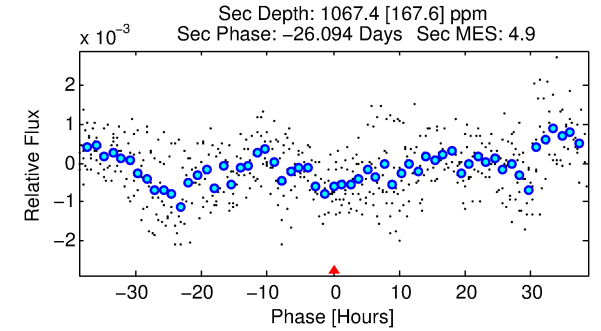
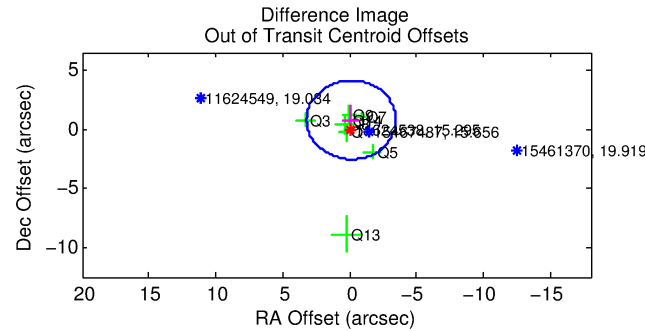
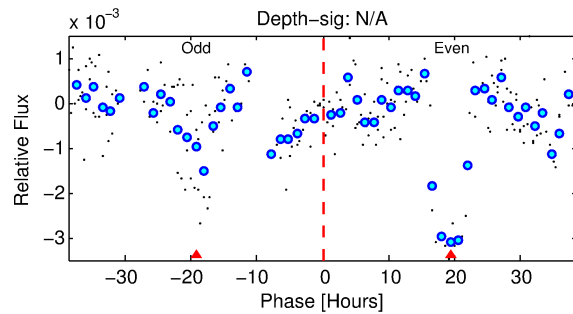
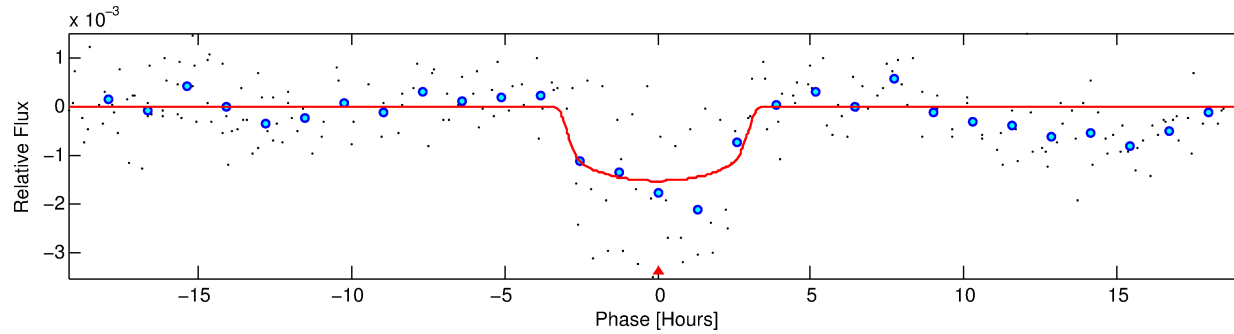
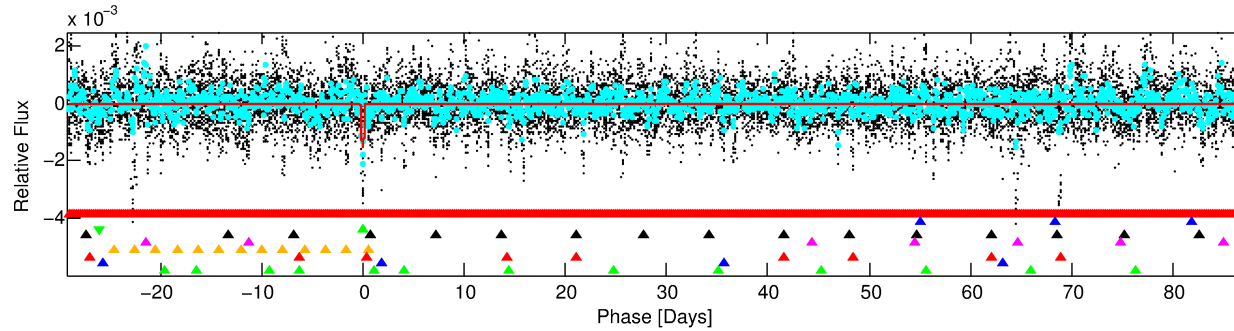
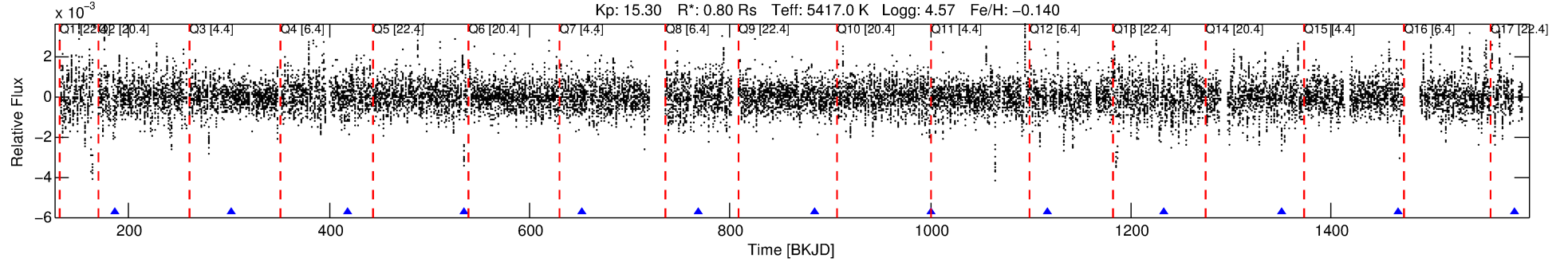
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-03

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 3 of 9 Period: 116.399 d



DV Fit Results:

Period = 116.39906 [0.00137] d
Epoch = 185.9868 [0.0110] BKJD
Rp/R* = 0.0381 [0.0162]
a/R* = 106.39 [174.82]
b = 0.70 [1.22]
Seff = 2.51 [0.71]
Teq = 321 [23] K
Rp = 3.32 [1.57] Re
a = 0.4426 [0.0749] AU
Ag = 10463.05 [9392.11] [1.11σ]
Teffp = 5018 [1101] K [4.26σ]

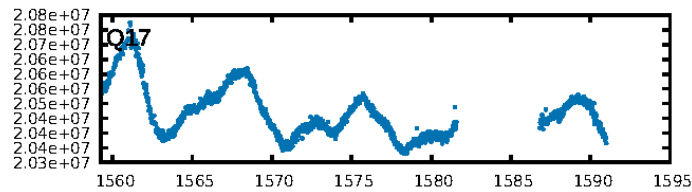
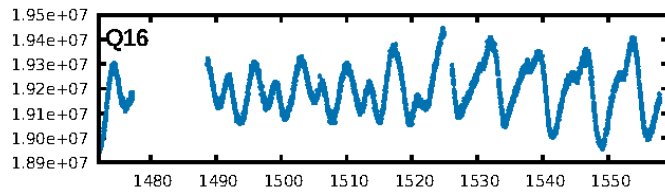
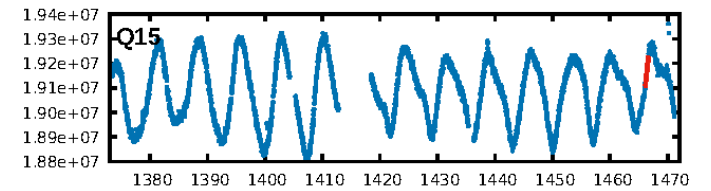
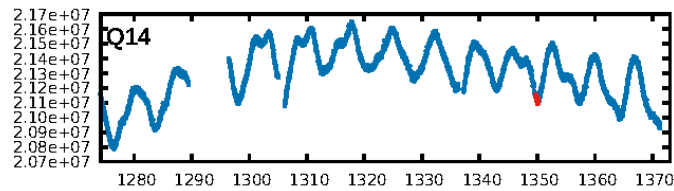
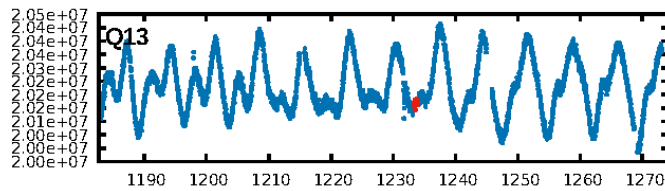
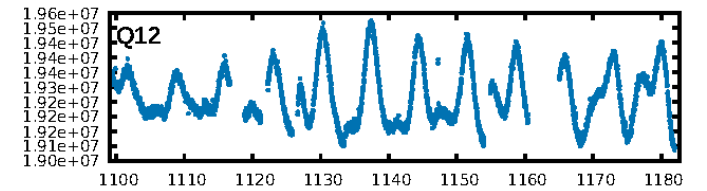
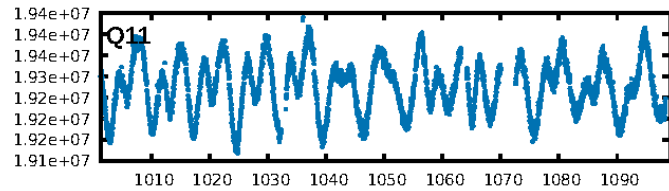
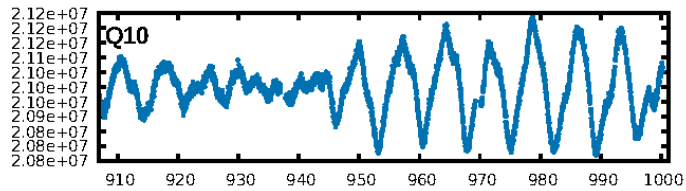
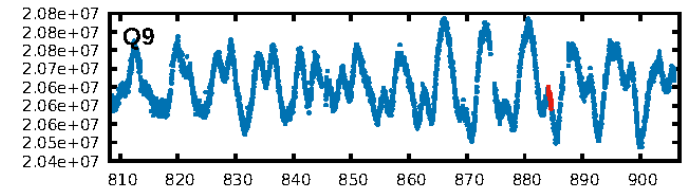
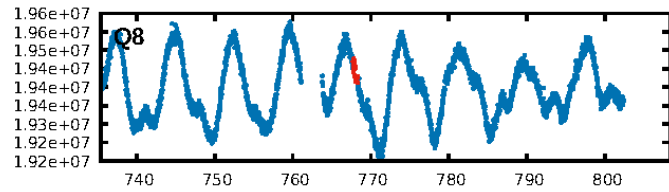
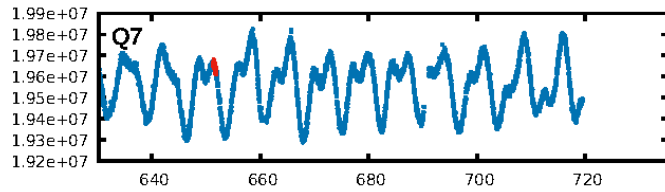
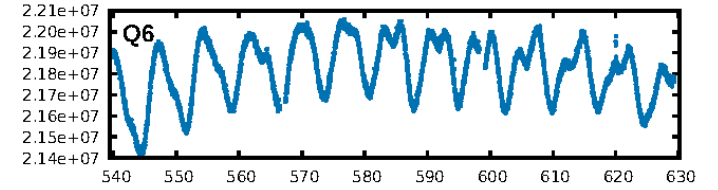
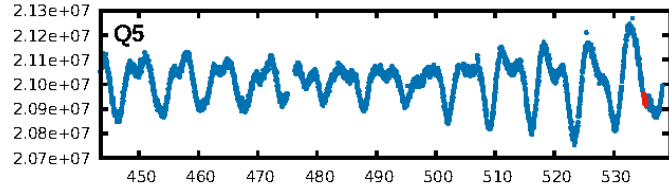
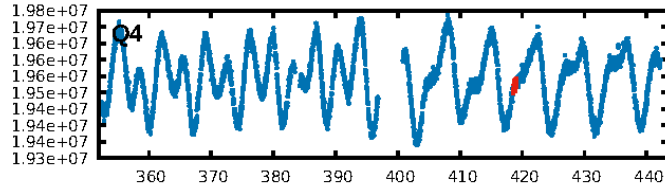
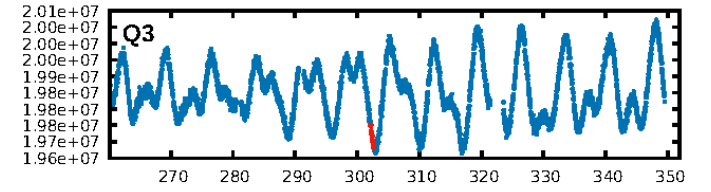
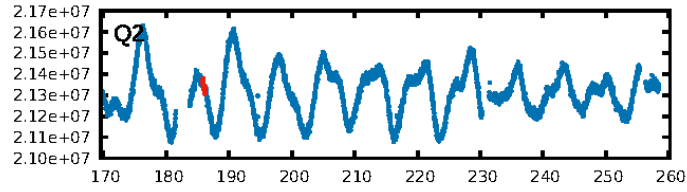
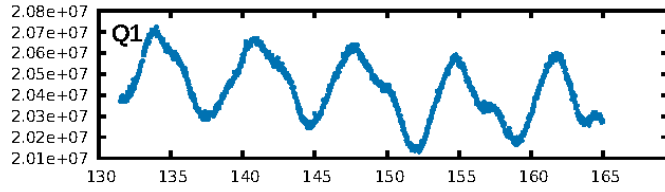
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [23.91σ]
LongPeriod-sig: 100.0% [4.58σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.01e-16
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 28.11
Centroid-sig: 46.7%
Centroid-so: 1.053 arcsec [2.18σ]
OotOffset-rm: 0.790 arcsec [0.71σ]
OotOffset-st: 1/2/2/3 [8]
KicOffset-rm: 0.840 arcsec [0.83σ]
KicOffset-st: 1/2/2/3 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.00 [0/10]

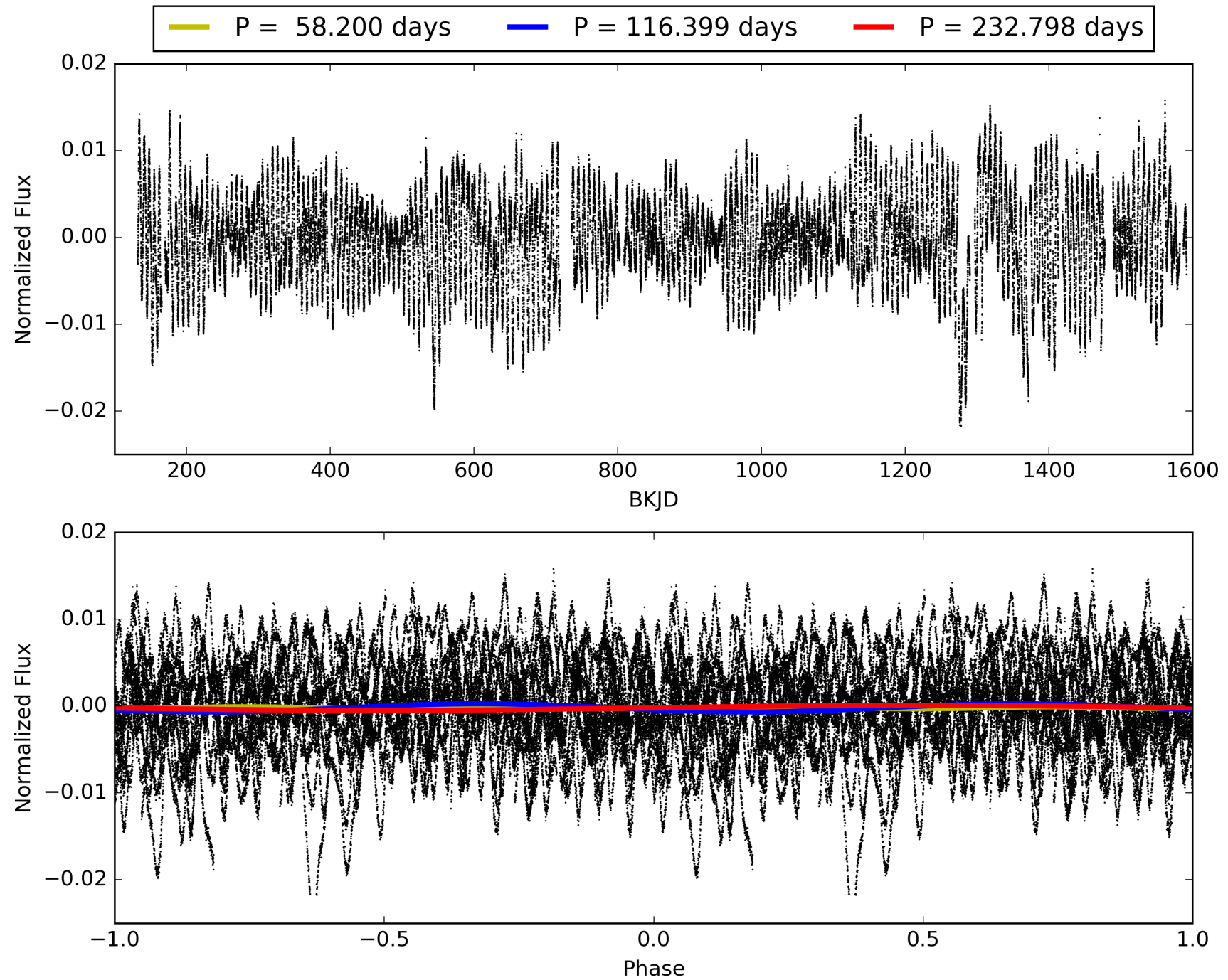
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:29 Z

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

TCE 011624538-03, PDC Light Curves

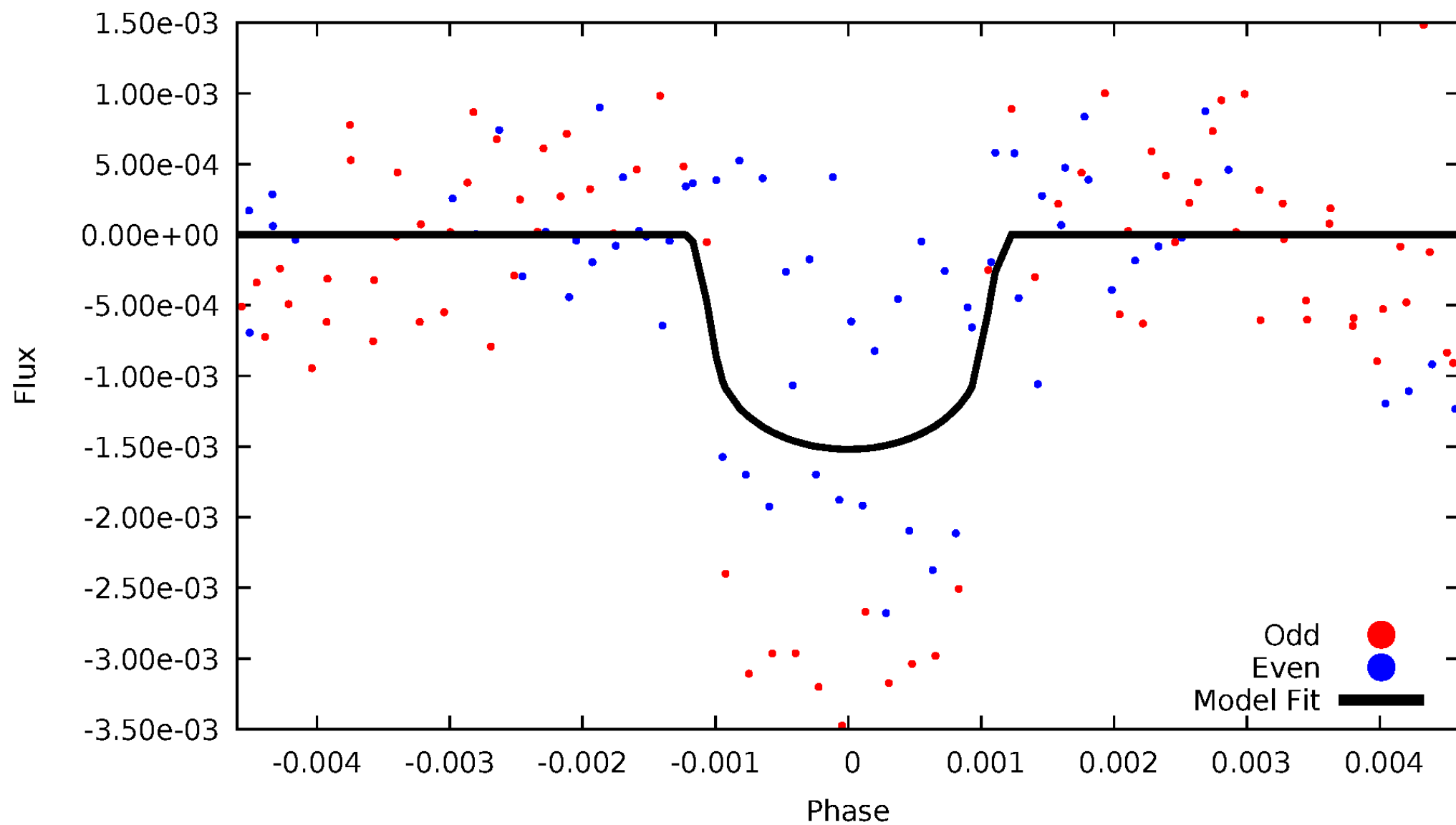


TCE 011624538-03



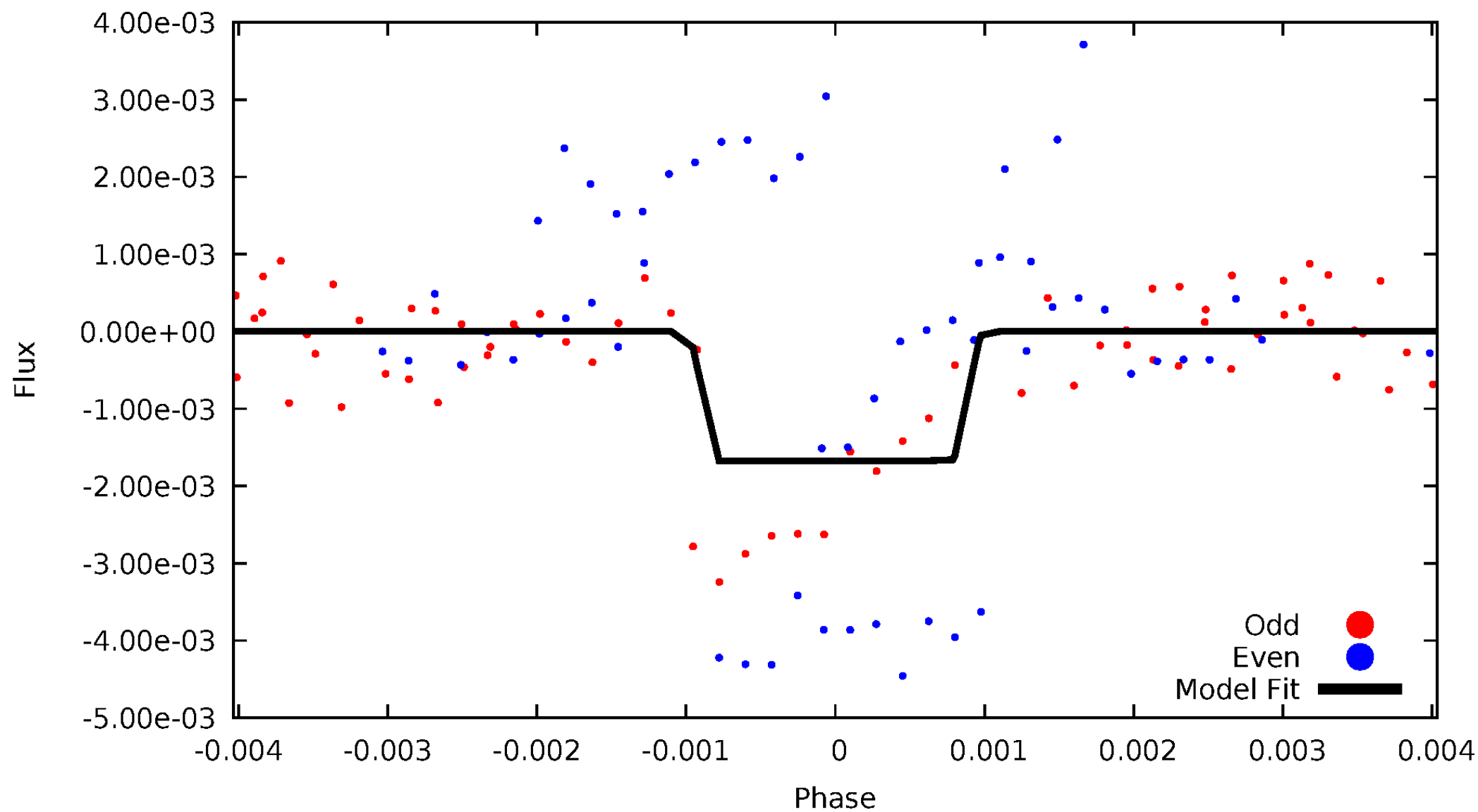
DV Odd/Even

TCE 011624538-03



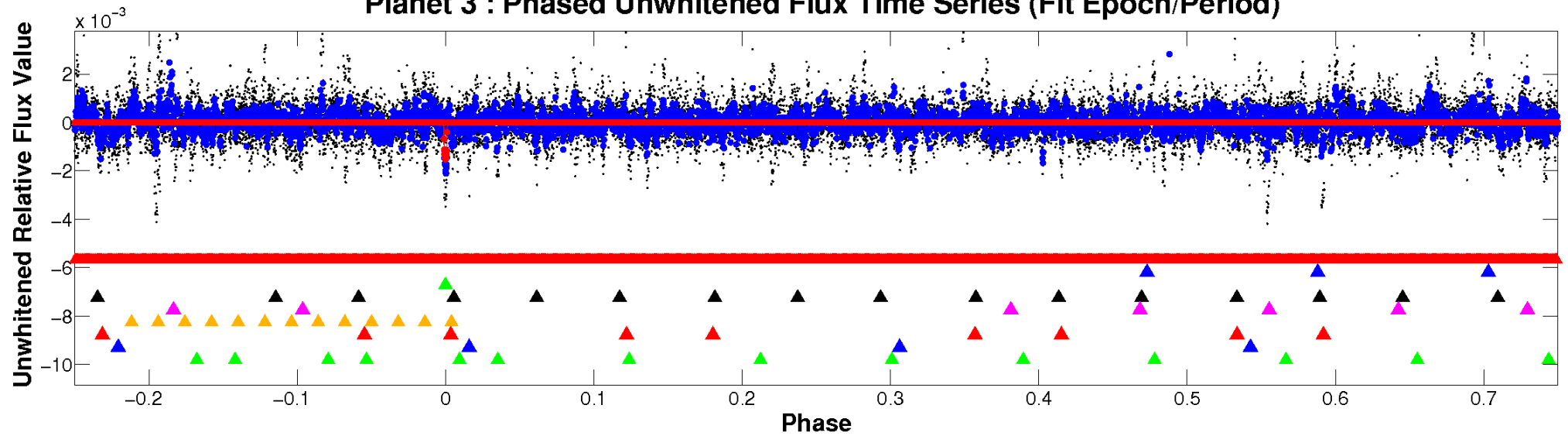
ALT Odd/Even

TCE 011624538-03

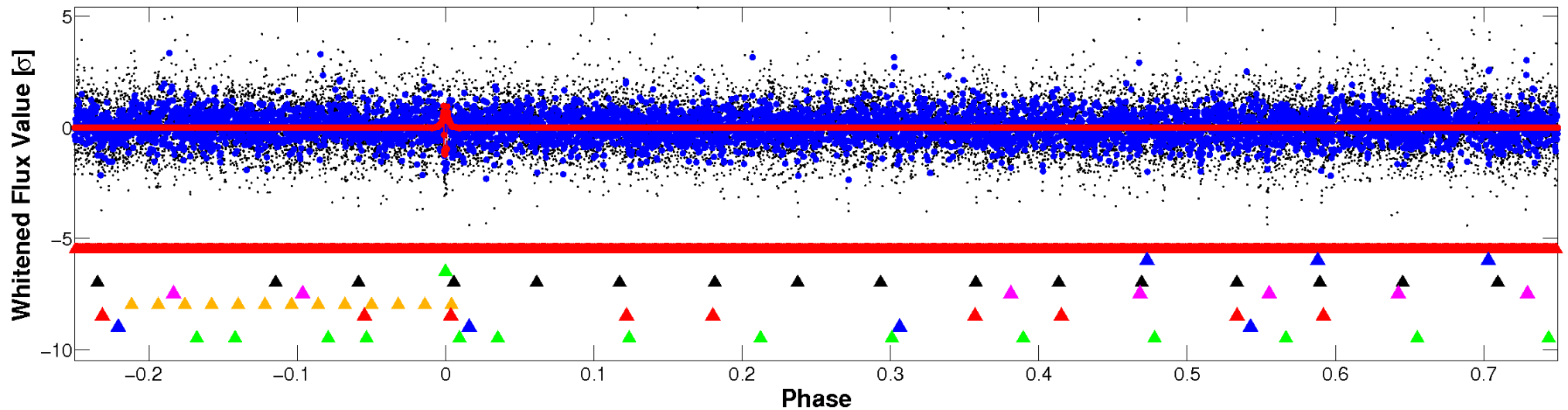


Non-Whitened Vs. Whitened Light Curve

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

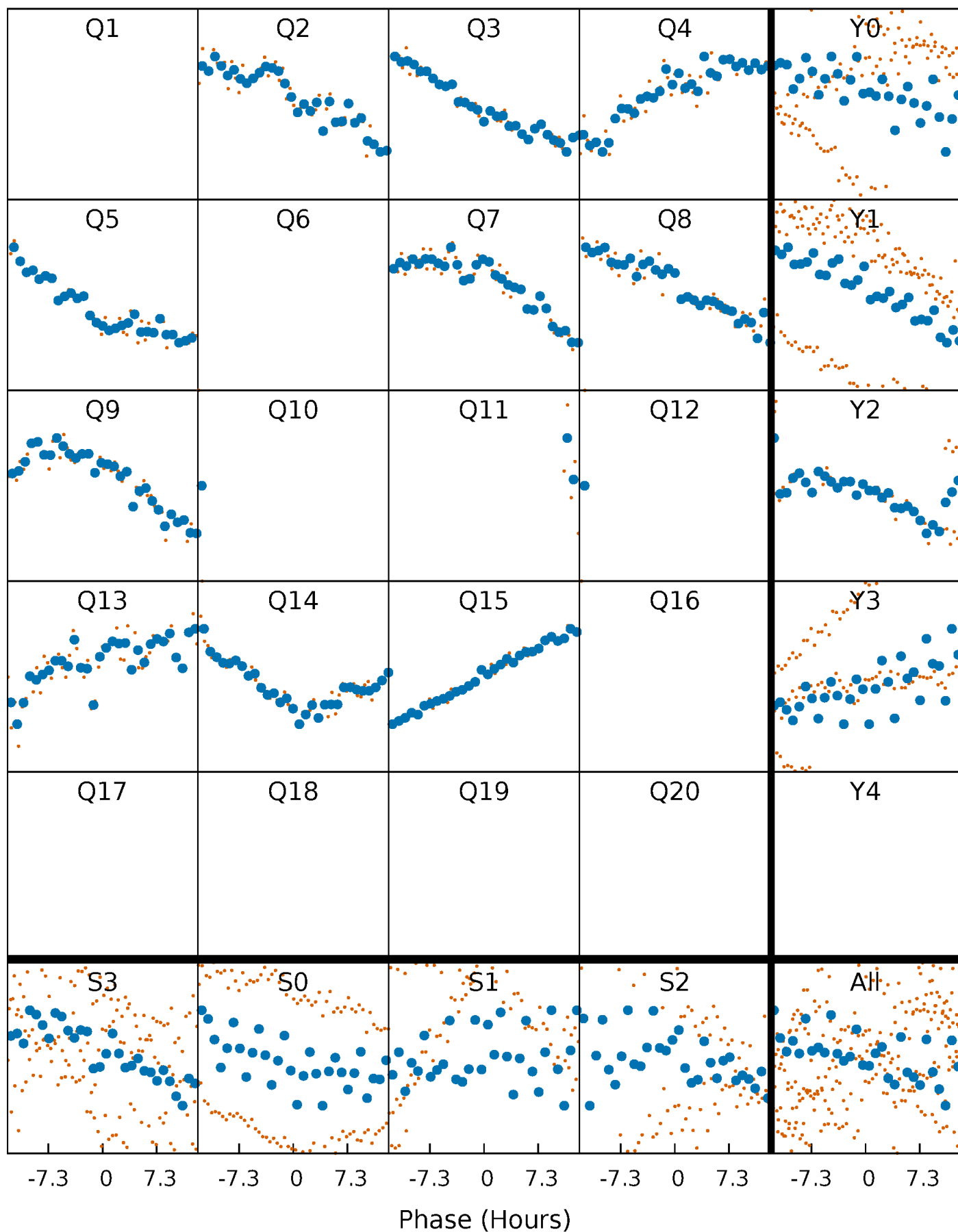


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



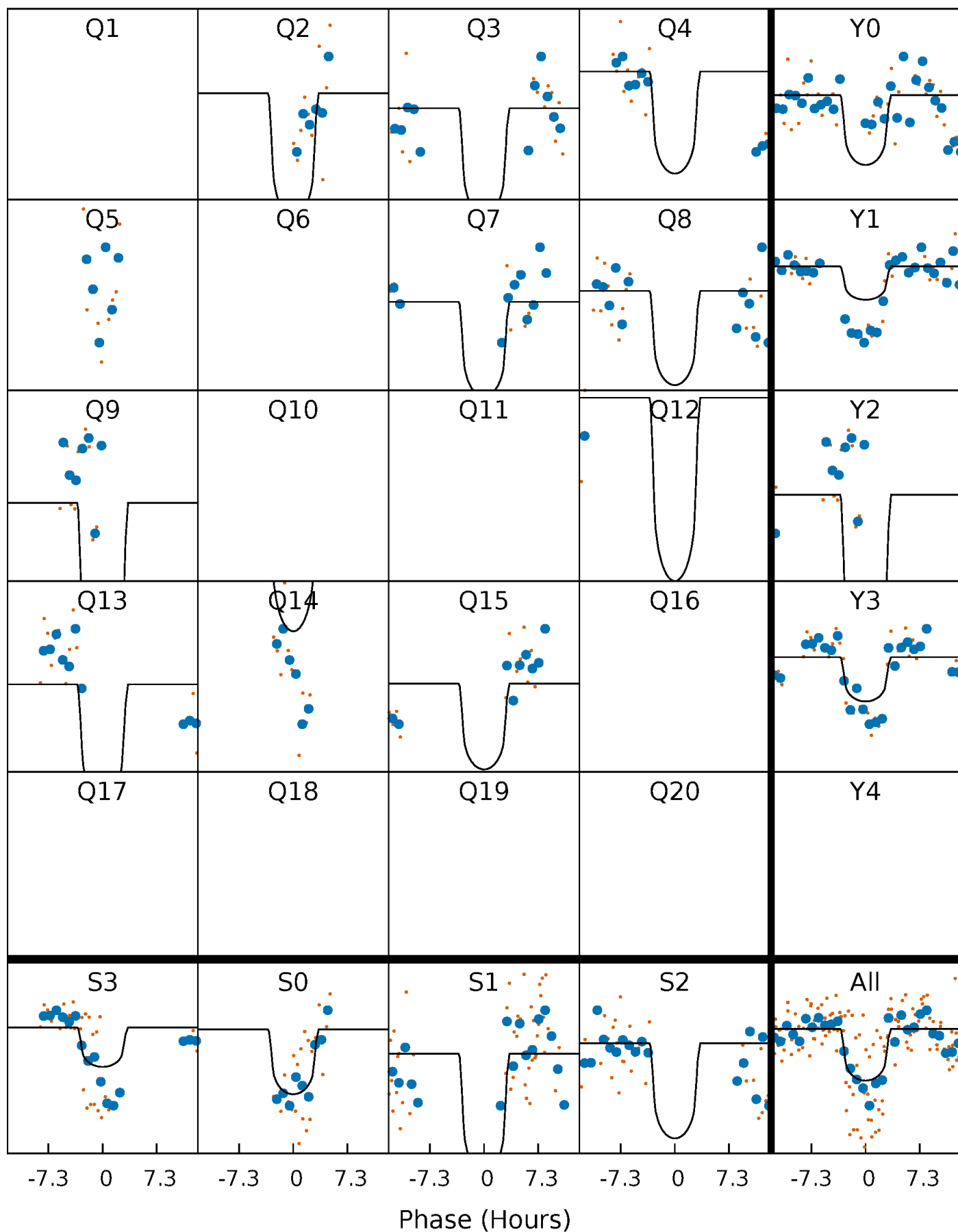
PDC Quarter-Phased Transit Curves

TCE 011624538-03 P=116.399059 Days $T_0=185.986811$ (BKJD)



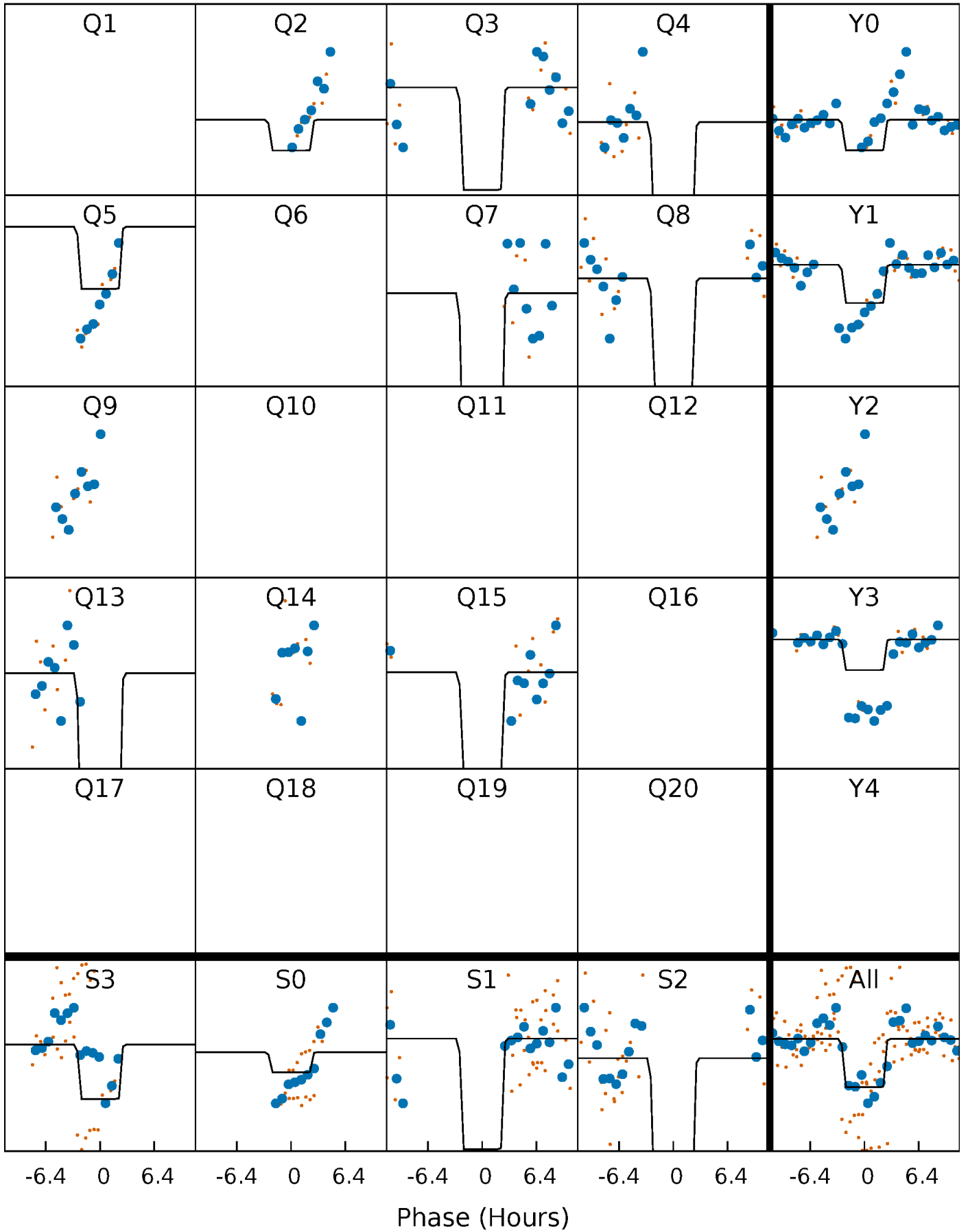
DV Quarter-Phased Transit Curves

TCE 011624538-03 P=116.399059 Days $T_0=185.986811$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

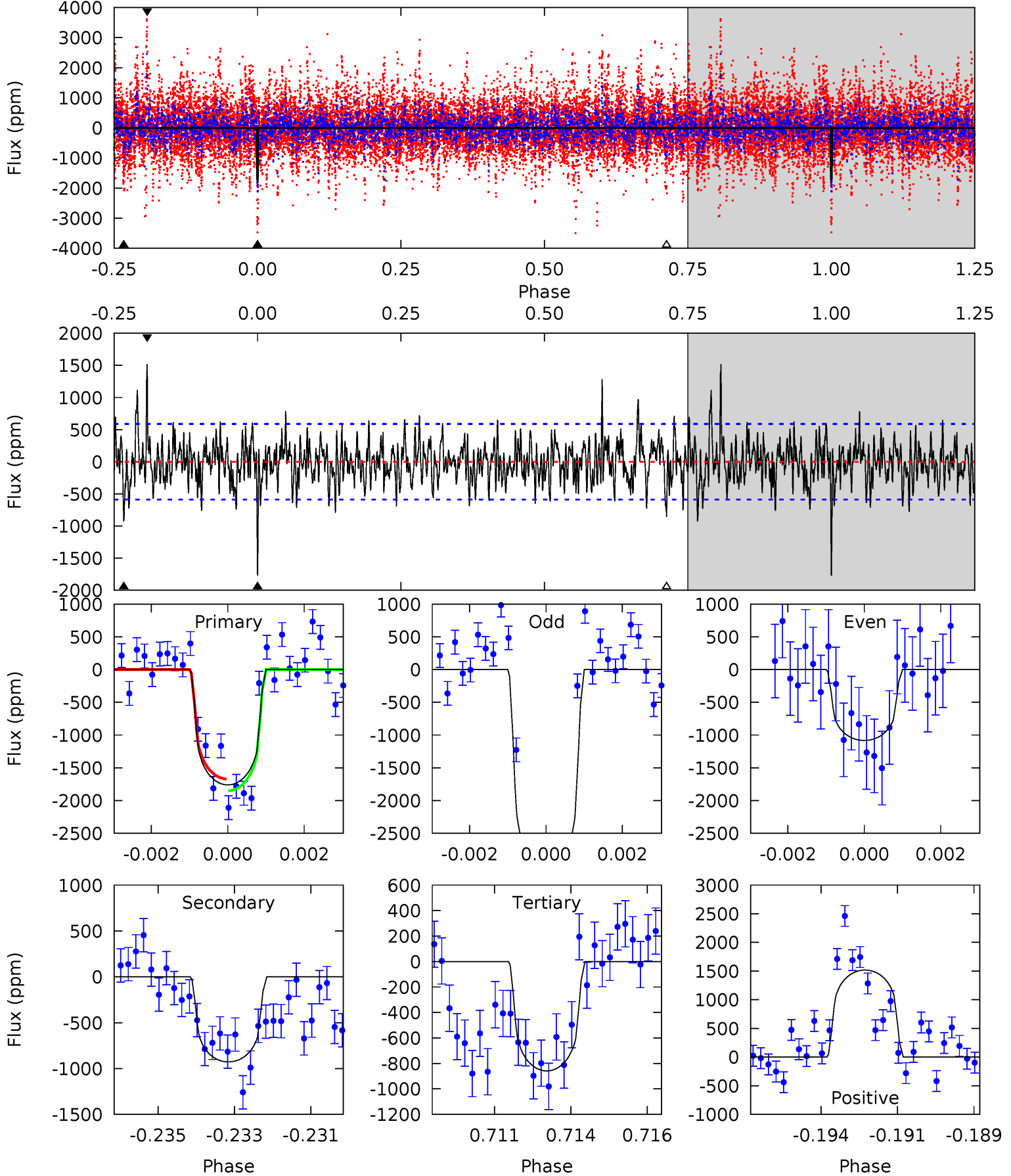
TCE 011624538-03 P=116.395795 Days $T_0=185.999936$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-03, P = 116.399059 Days, E = 69.587752 Days

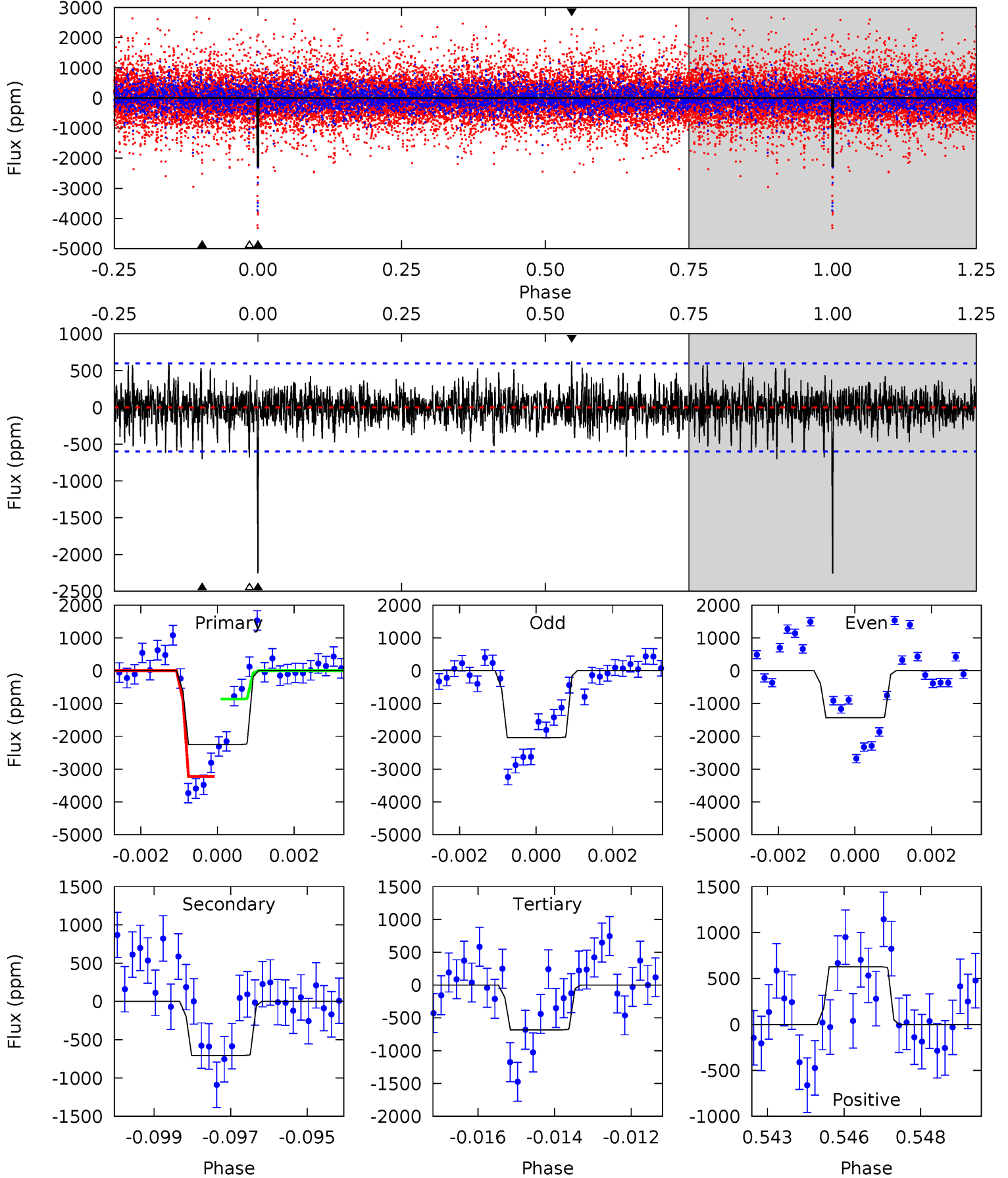
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.8	8.35	7.73	13.7	5.29	3.03	2.51	8.12	2.18	0.62	-5.32	8.48	1.69	0.46	0.81



Alt Model-Shift Uniqueness Test

011624538-03, P = 116.395795 Days, E = 69.604141 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	6.26	6.06	5.57	5.32	3.08	1.48	14.0	14.5	0.21	0.69	2.81	0.78	0.22	0



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-928 ± 111	$3.41^{+1.44}_{-1.45}$	455^{+25}_{-20}	4922^{+1373}_{-648}	8435^{+16830}_{-4307}
Alt.	-705 ± 113	$3.78^{+1.48}_{-1.48}$	456^{+23}_{-21}	4470^{+1052}_{-532}	5332^{+8842}_{-2665}

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 $A_{obs} \gg 1.0$

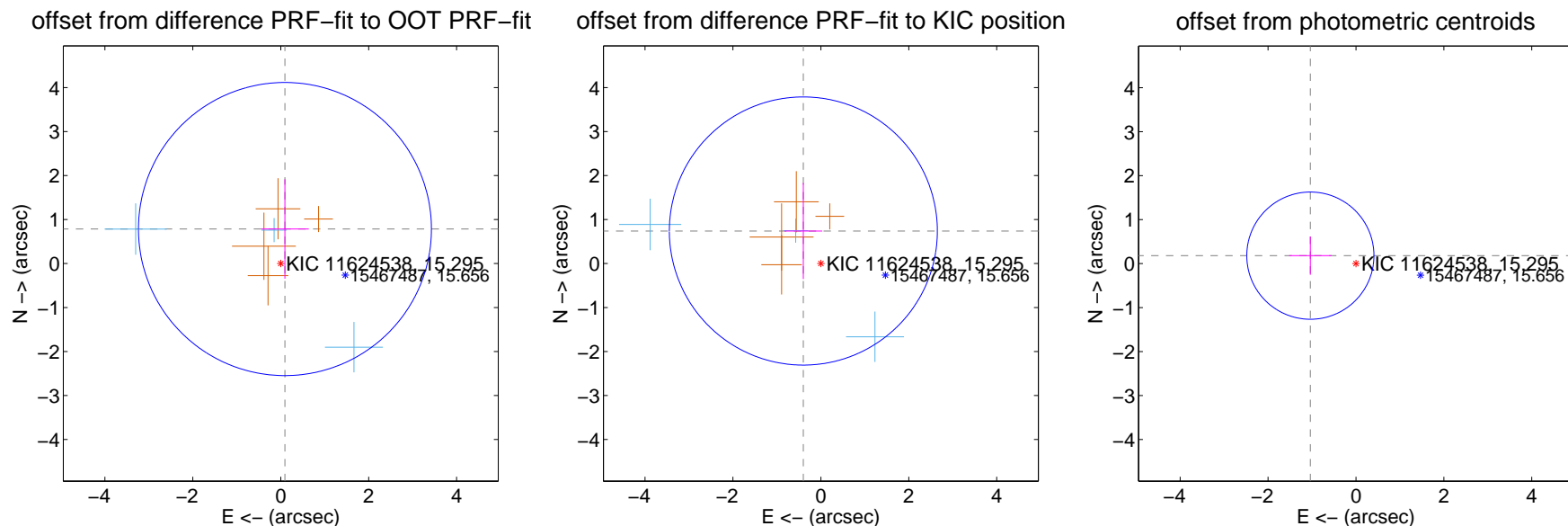
DV Centroid Data

Supplemental centroid analysis for 011624538-03. Kepler magnitude: 15.29. Transit SNR 7.00

There are 3 quarters with good PRF difference image offsets

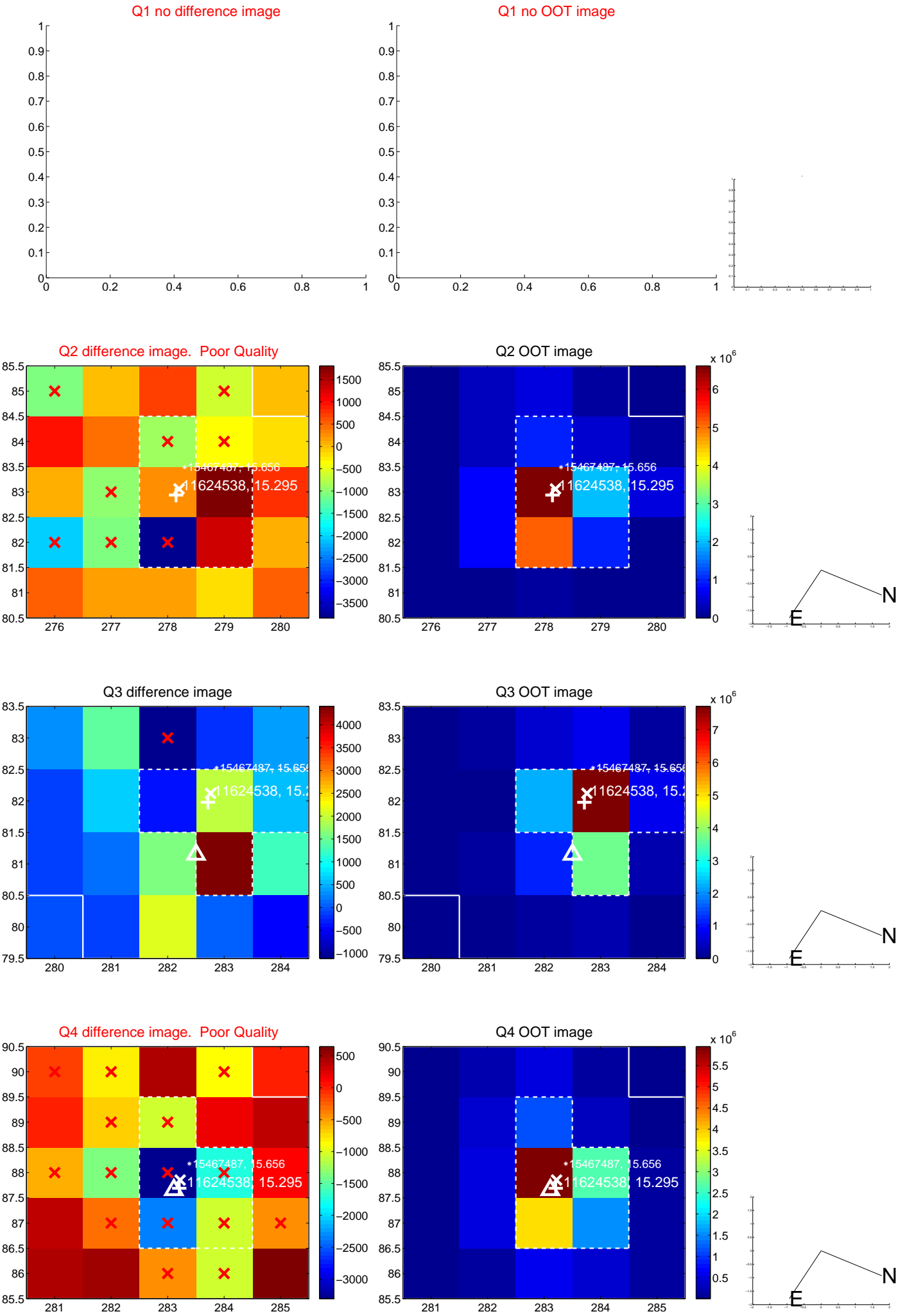
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.790 ± 1.111	0.71	-0.095 ± 0.542	0.784 ± 1.131
PRF-fit source offset from KIC position	0.840 ± 1.016	0.83	0.399 ± 0.430	0.739 ± 1.092
photometric centroid source offset	1.05 ± 0.48	2.18	1.04 ± 0.48	0.18 ± 0.44

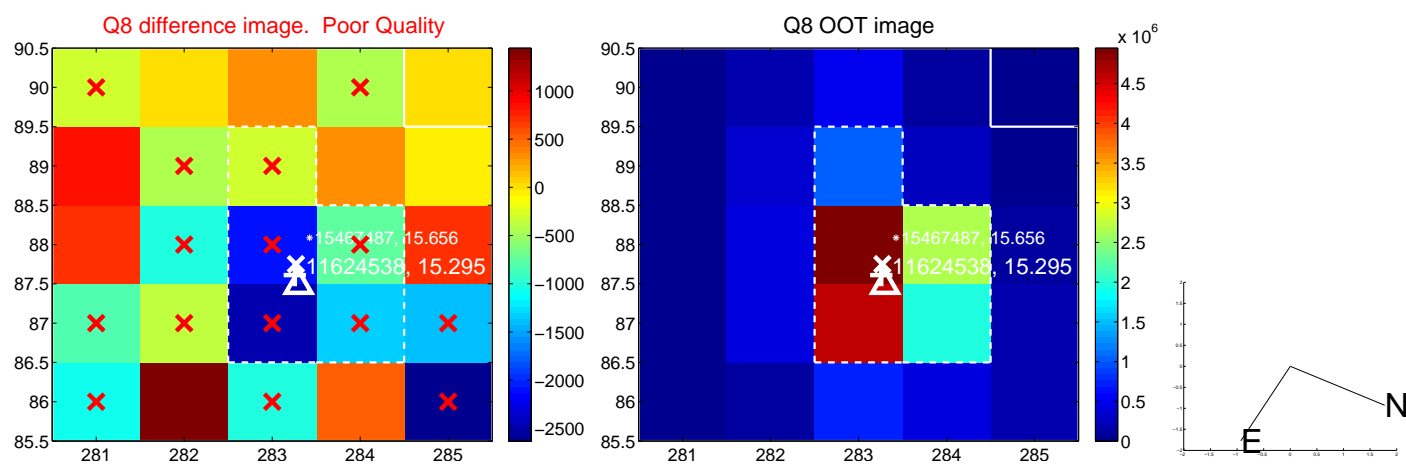
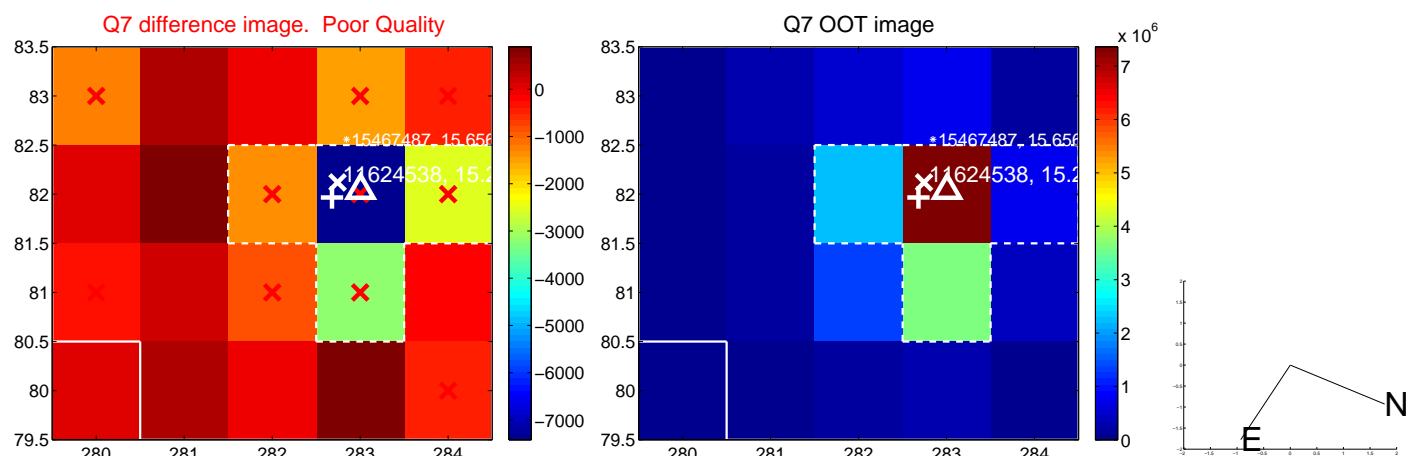
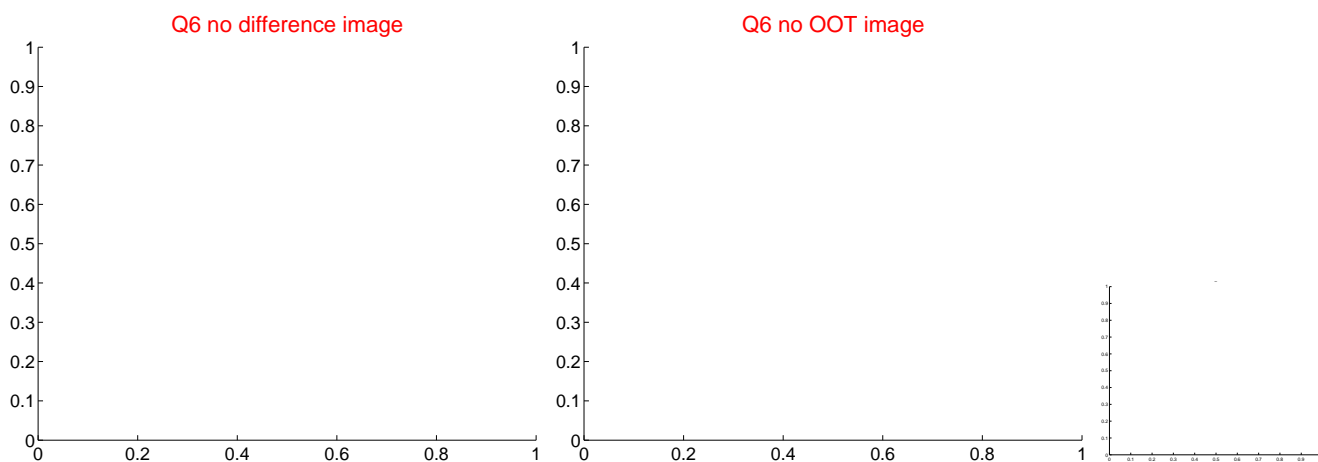
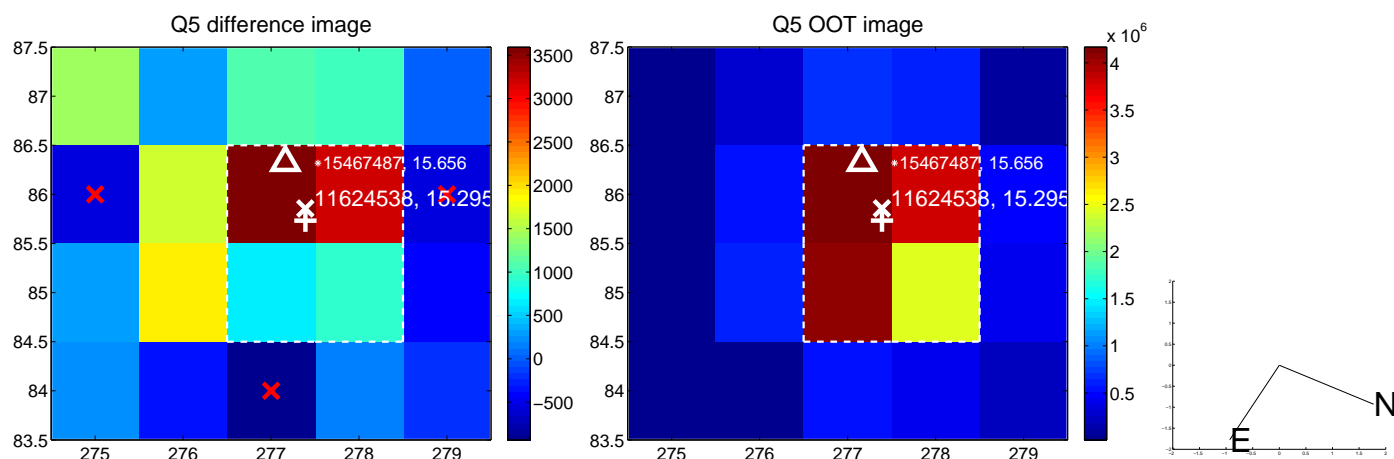


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

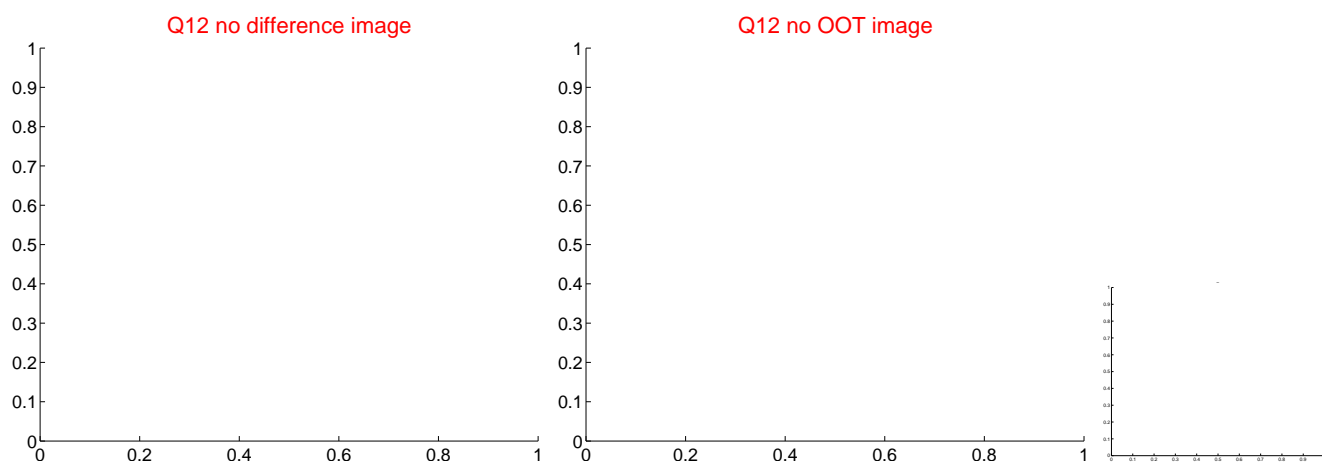
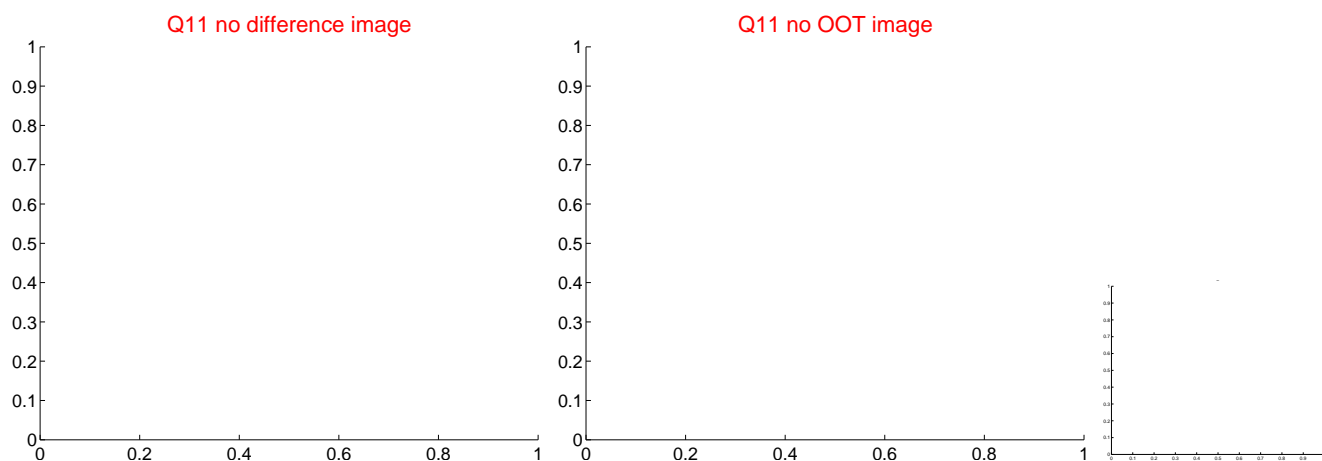
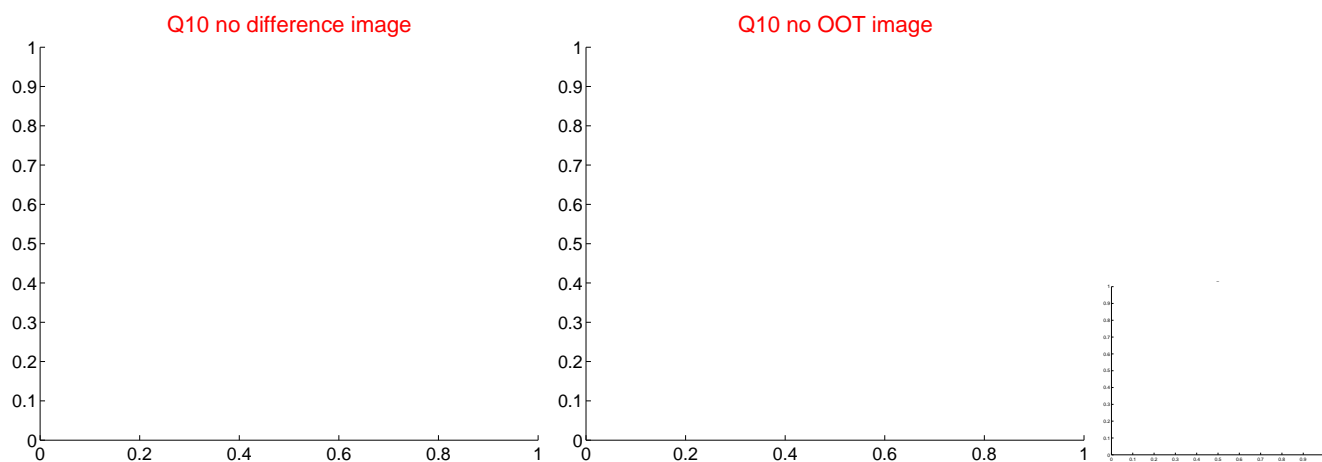
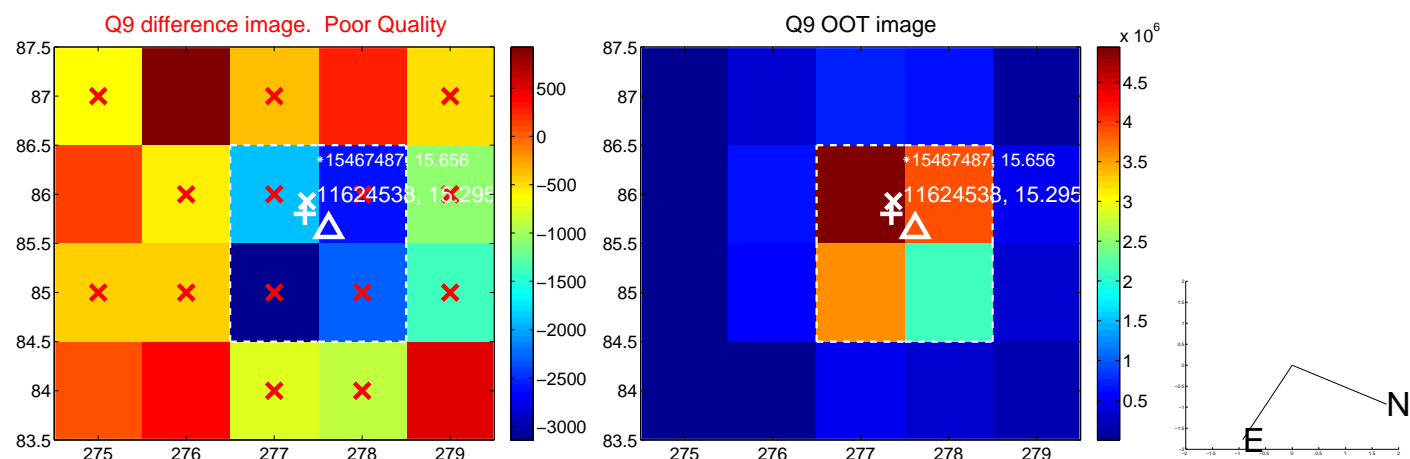
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



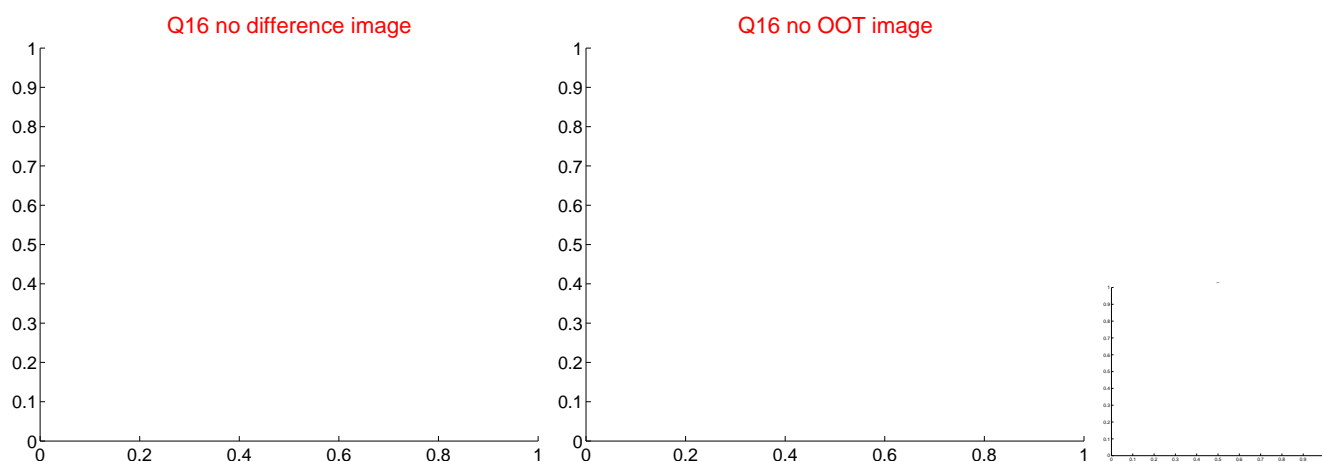
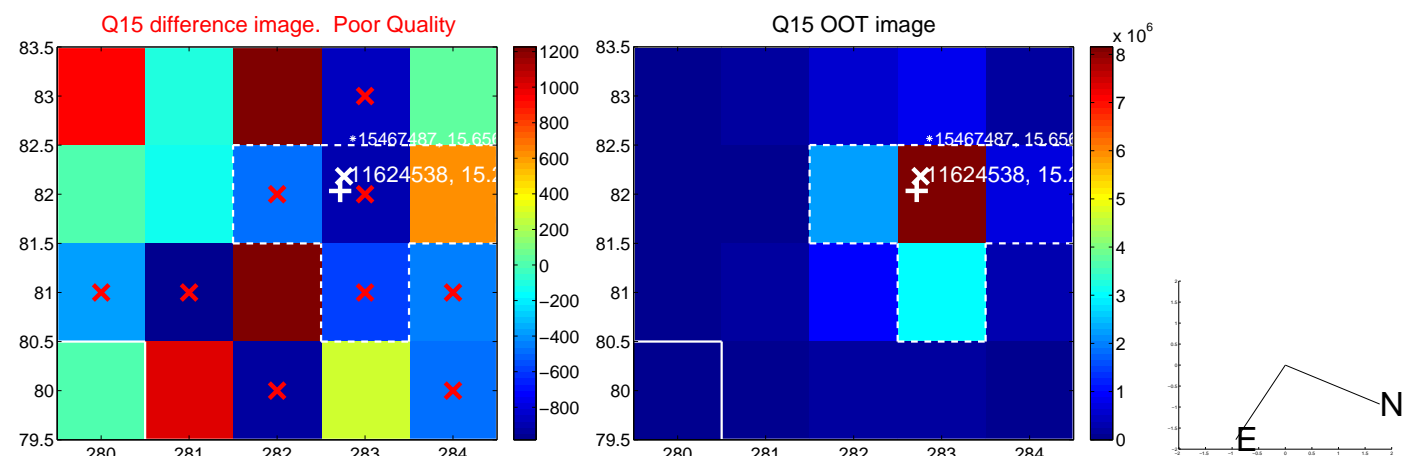
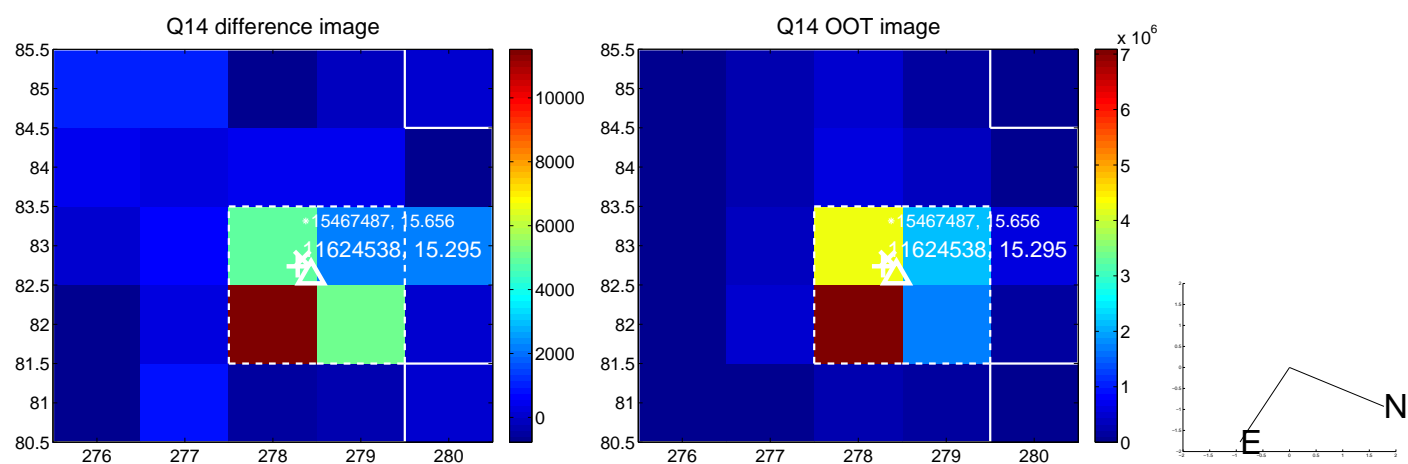
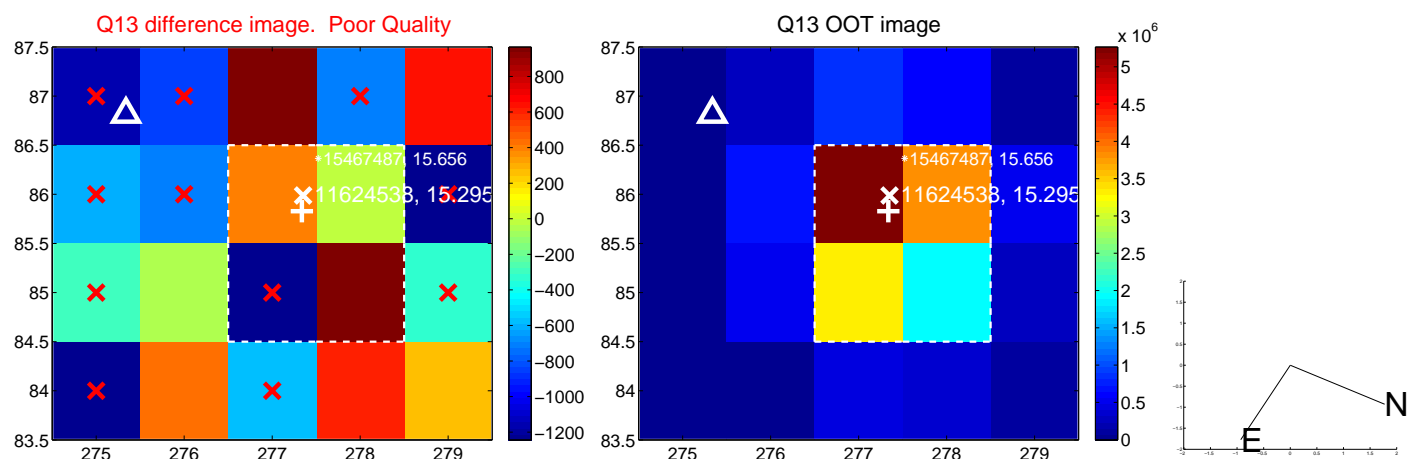
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



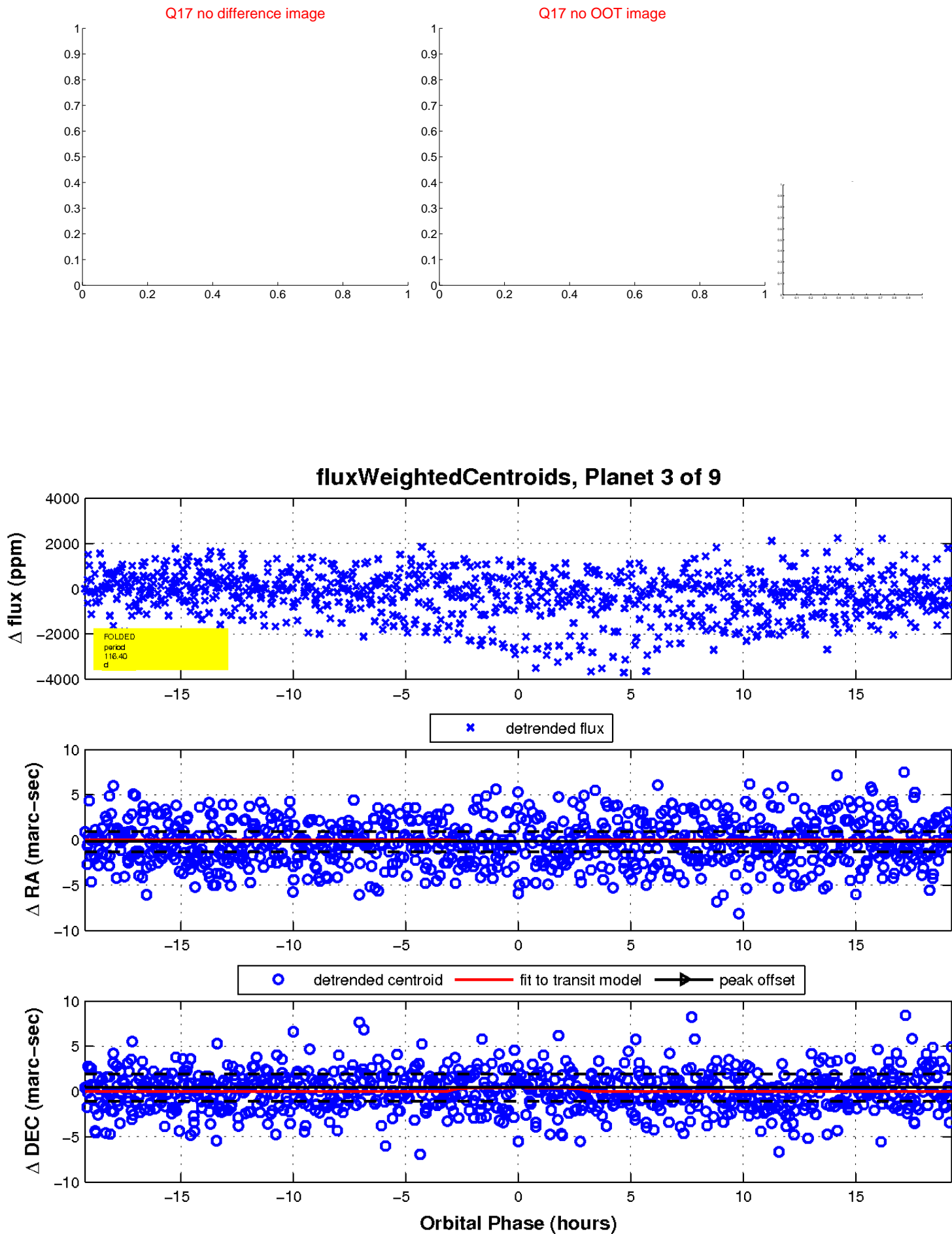
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

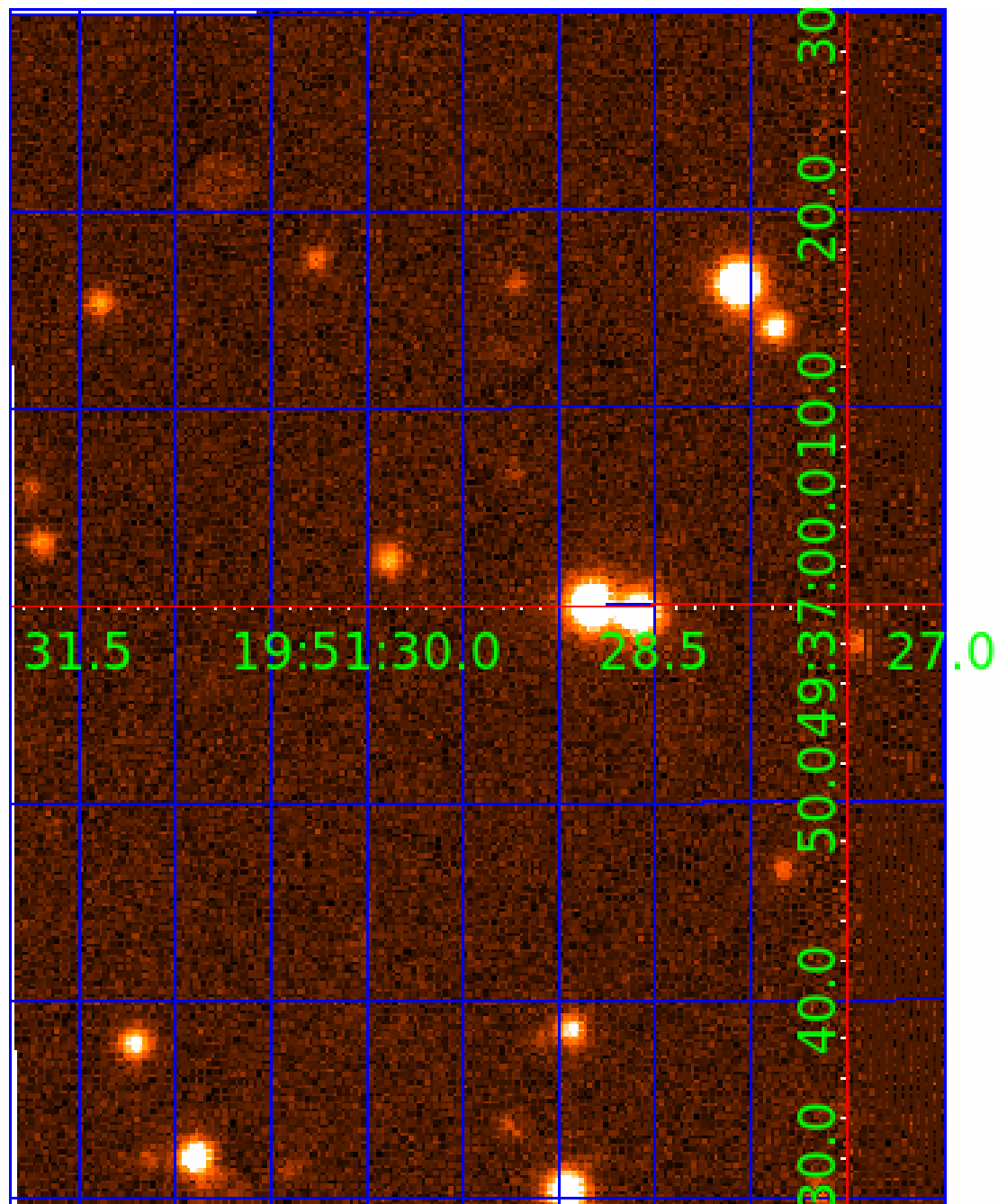


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

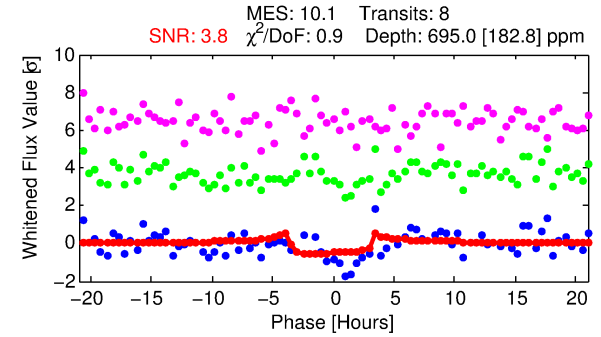
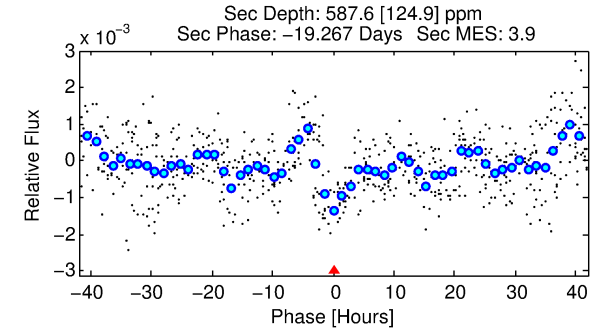
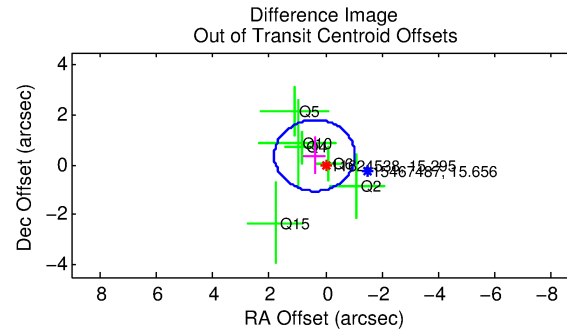
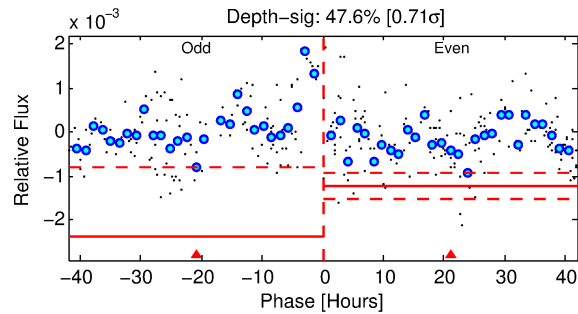
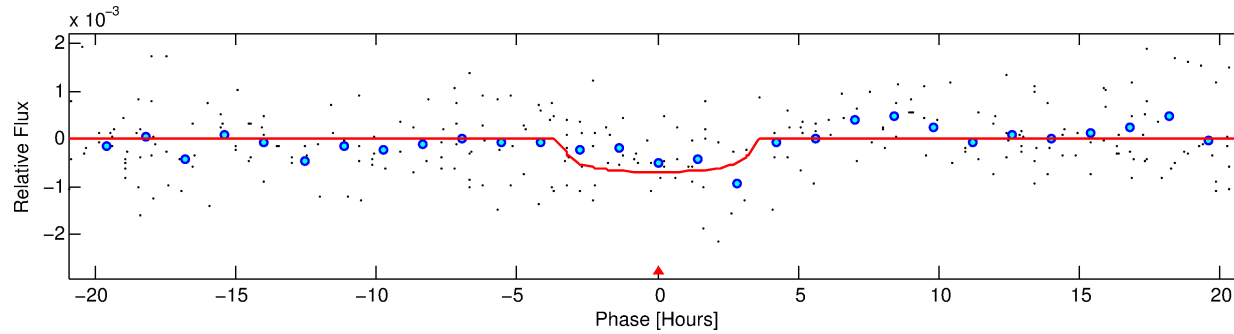
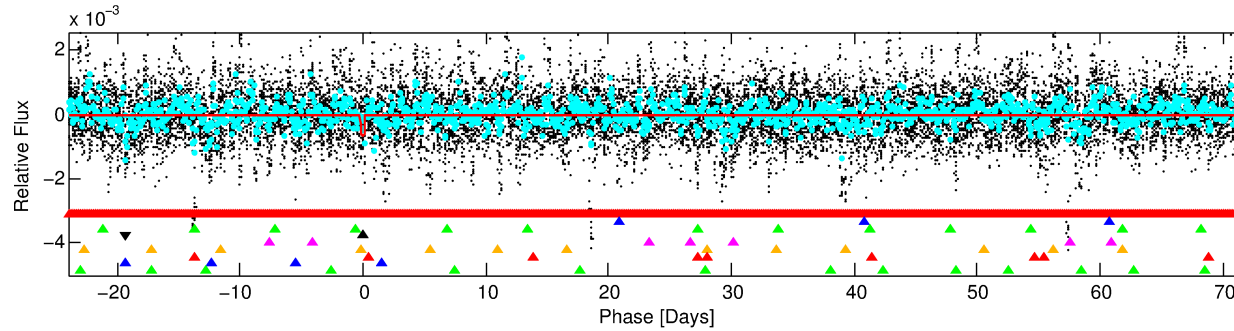
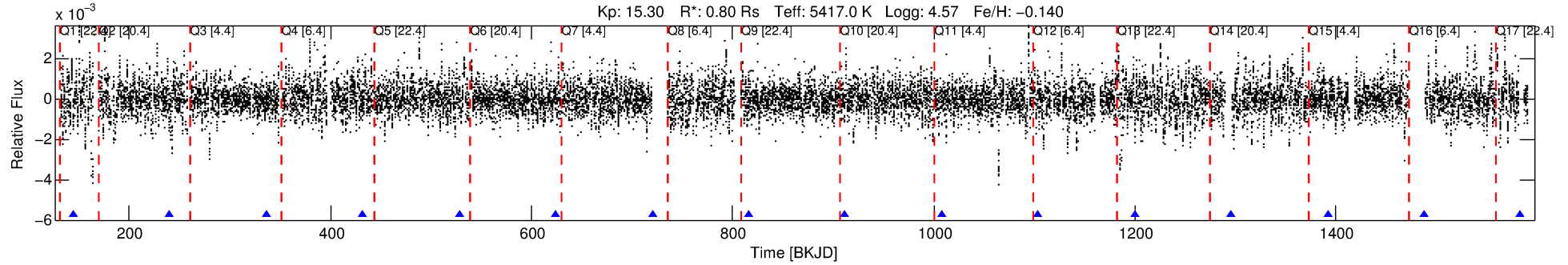
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-04

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 4 of 9 Period: 95.915 d



DV Fit Results:

Period = 95.91516 [0.00177] d
Epoch = 144.7049 [0.0176] BKJD
Rp/R* = 0.0253 [0.0346]
a/R* = 83.75 [456.51]
b = 0.64 [5.00]
Seff = 3.25 [0.92]
Teq = 342 [24] K
Rp = 2.21 [3.04] Re
a = 0.3890 [0.0658] AU
Ag = 10054.13 [27616.07] [0.36 σ]
Teffp = 5299 [3630] K [1.37 σ]

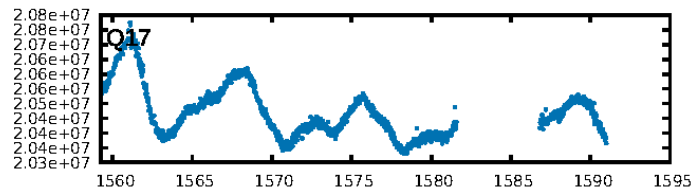
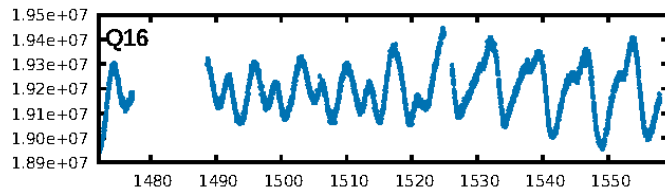
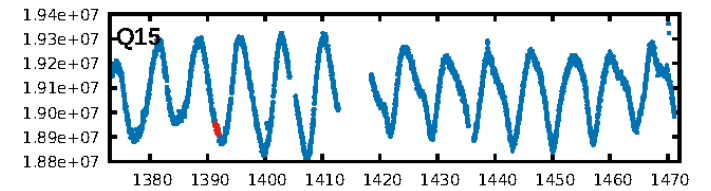
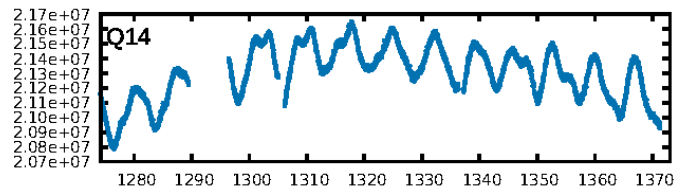
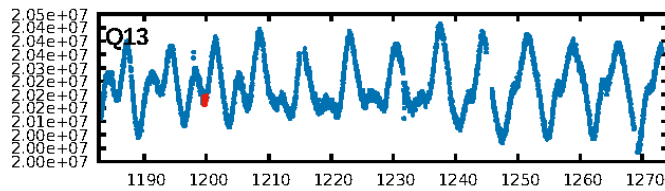
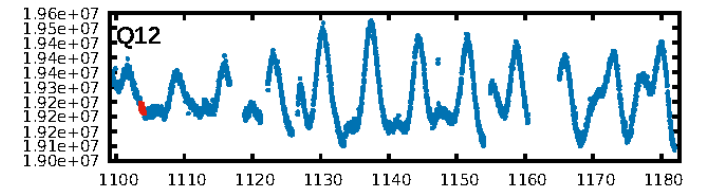
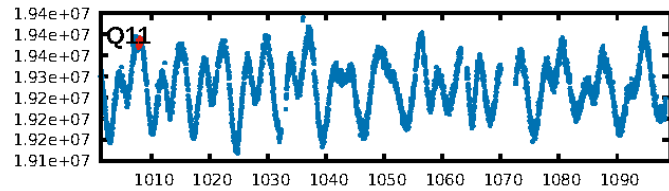
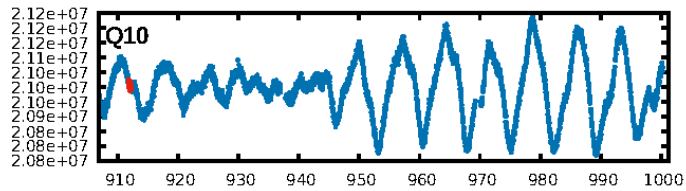
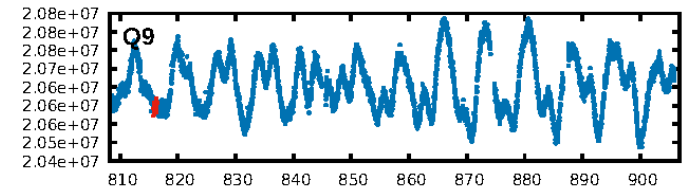
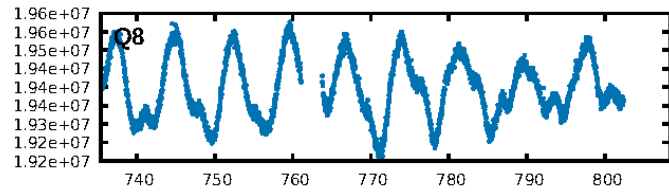
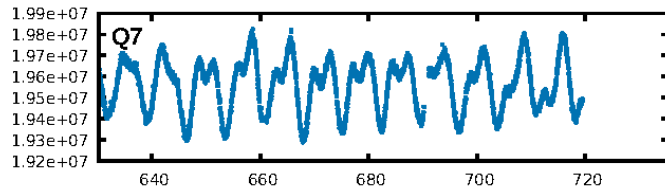
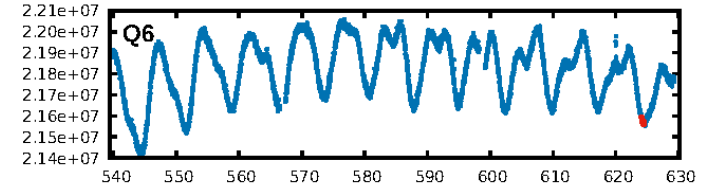
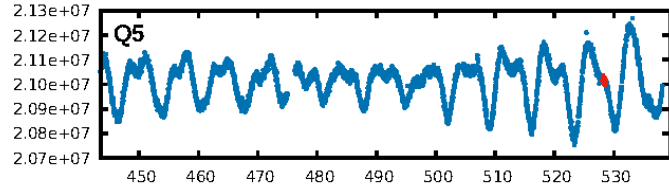
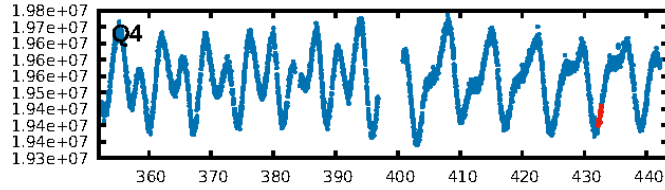
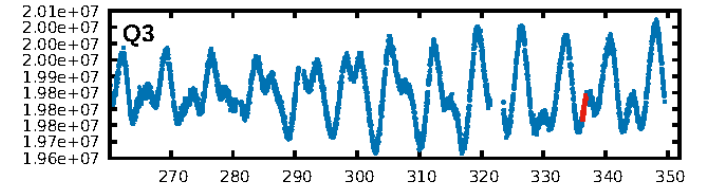
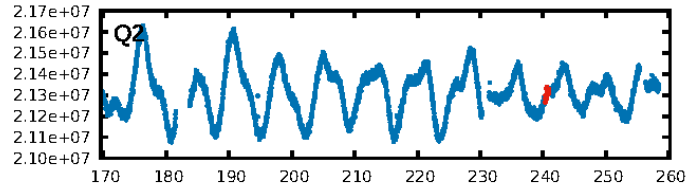
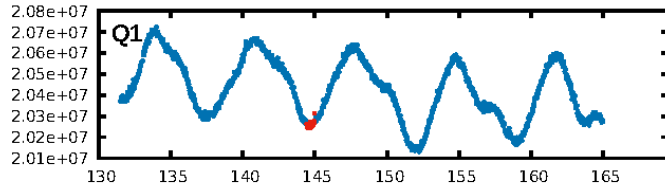
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [274.91 σ]
LongPeriod-sig: 100.0% [22.81 σ]
ModelChiSquare2-sig: 41.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.60e-19
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.5877
Centroid-sig: 41.6%
Centroid-so: 1.685 arcsec [1.84 σ]
OotOffset-rm: 0.536 arcsec [1.13 σ]
OotOffset-st: 3/1/1/1 [6]
KicOffset-rm: 0.976 arcsec [1.74 σ]
KicOffset-st: 3/1/1/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.00 [0/9]

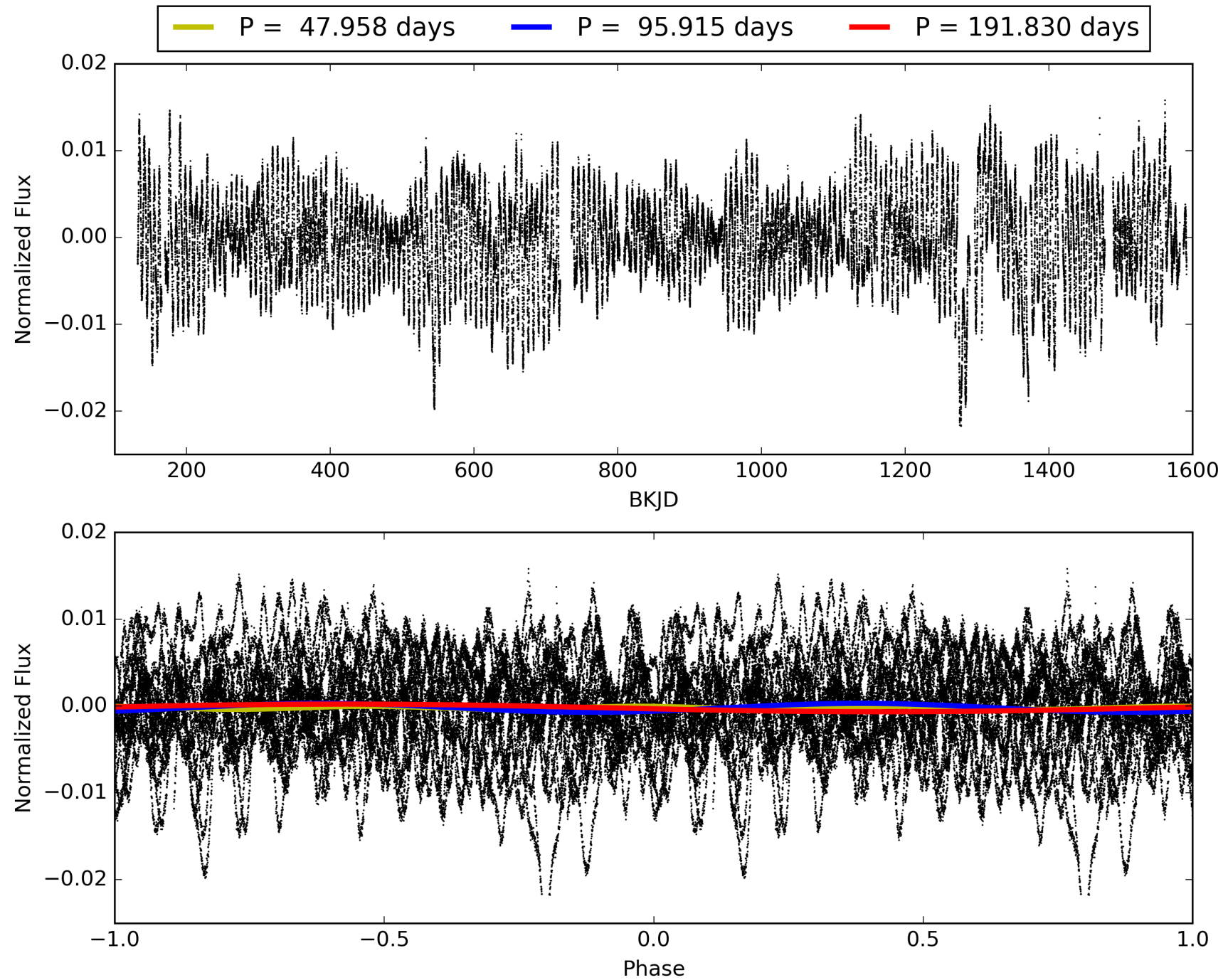
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:33 Z

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

TCE 011624538-04, PDC Light Curves

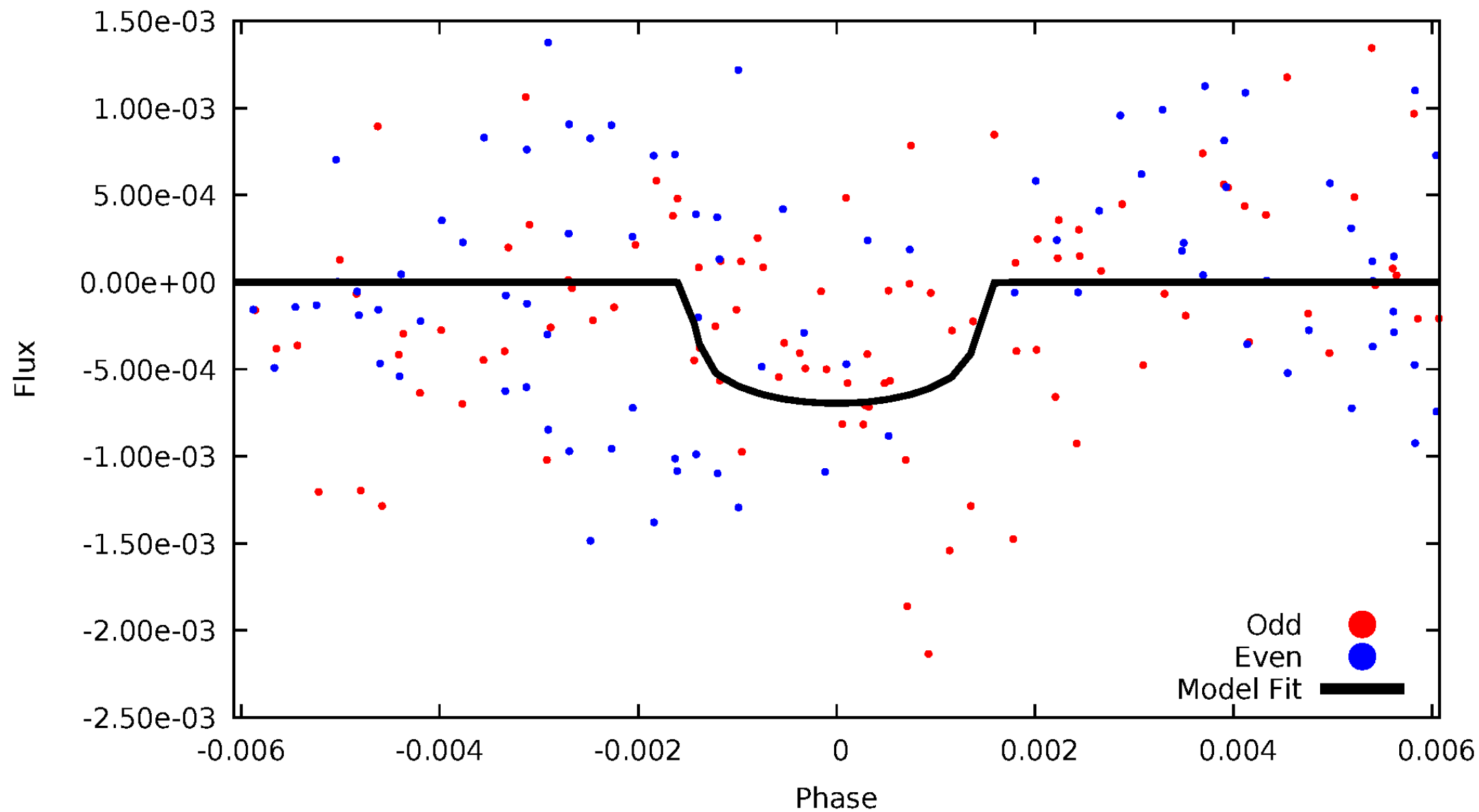


TCE 011624538-04



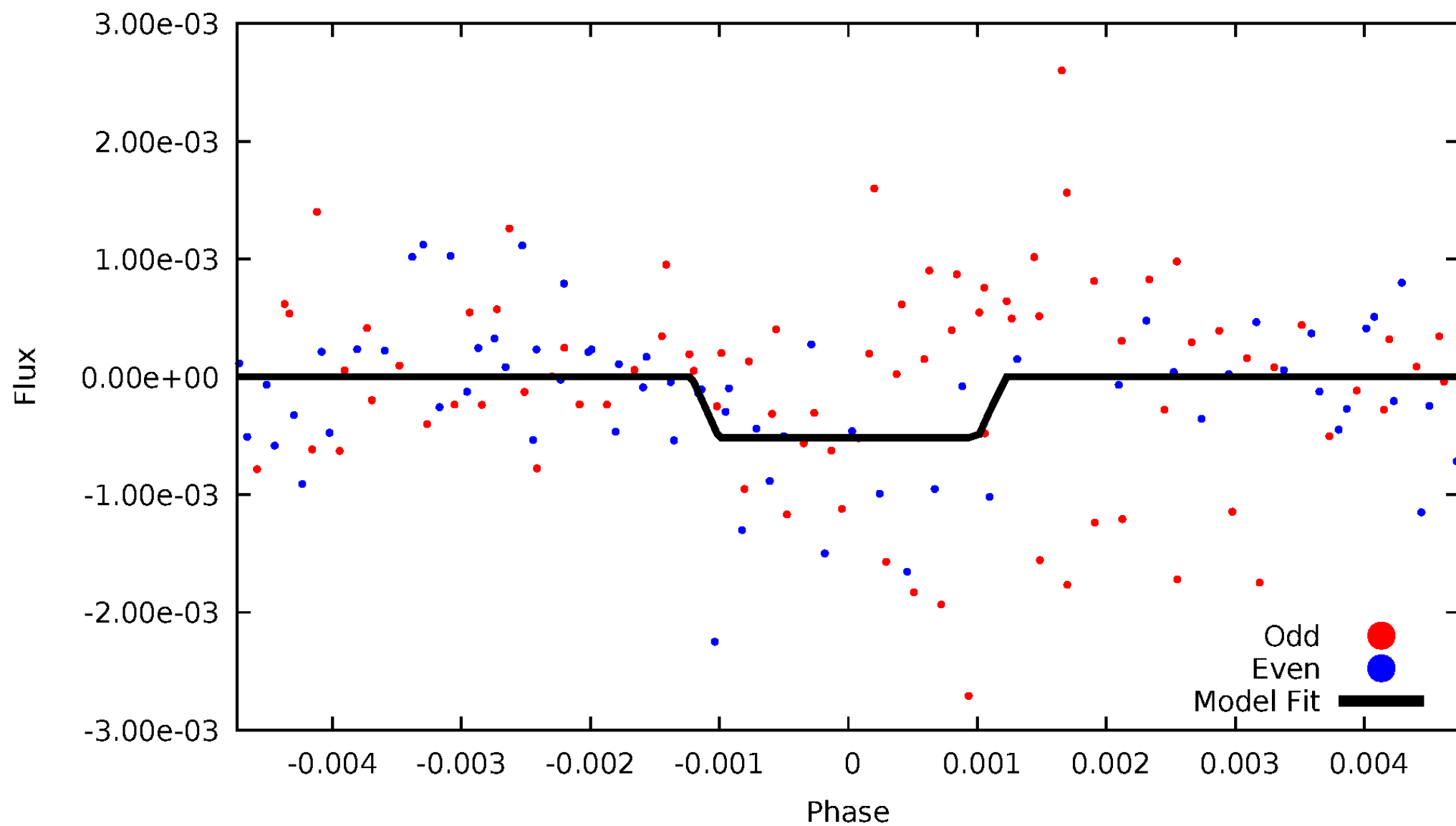
DV Odd/Even

TCE 011624538-04



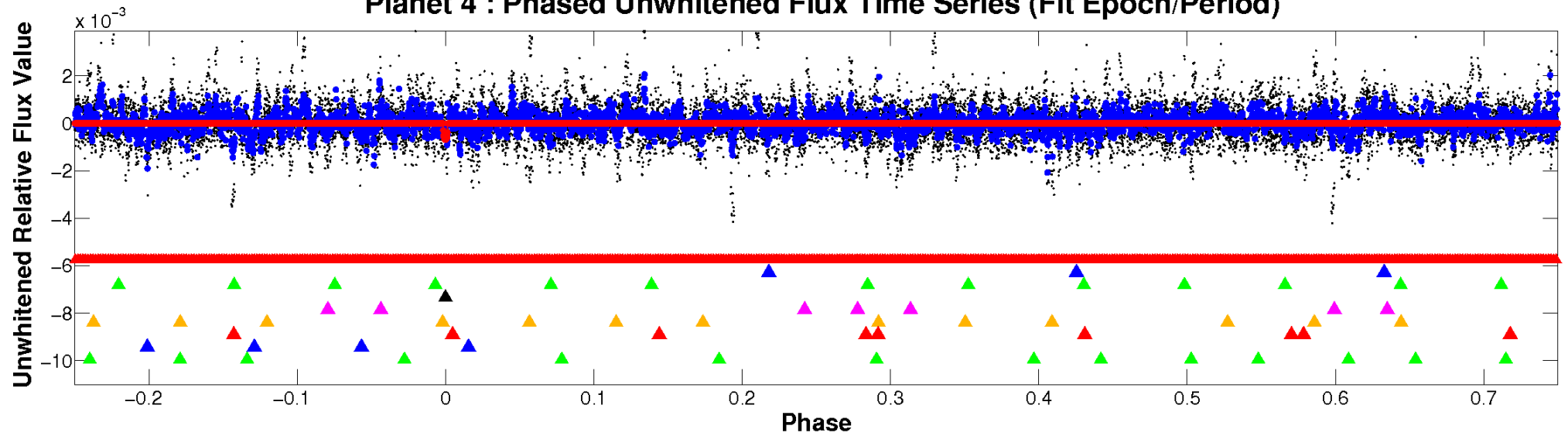
ALT Odd/Even

TCE 011624538-04

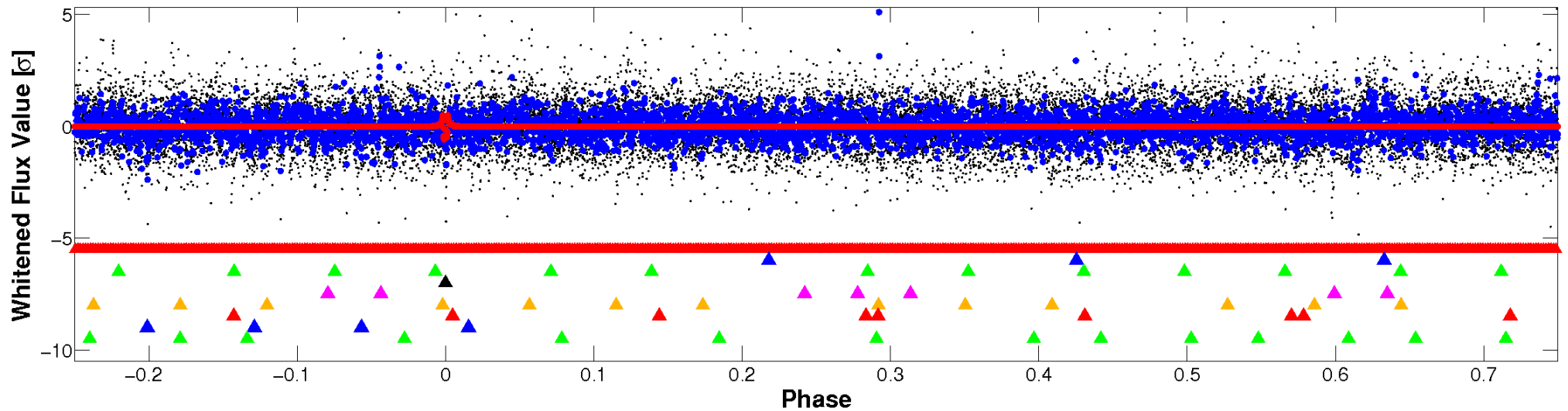


Non-Whitened Vs. Whitened Light Curve

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

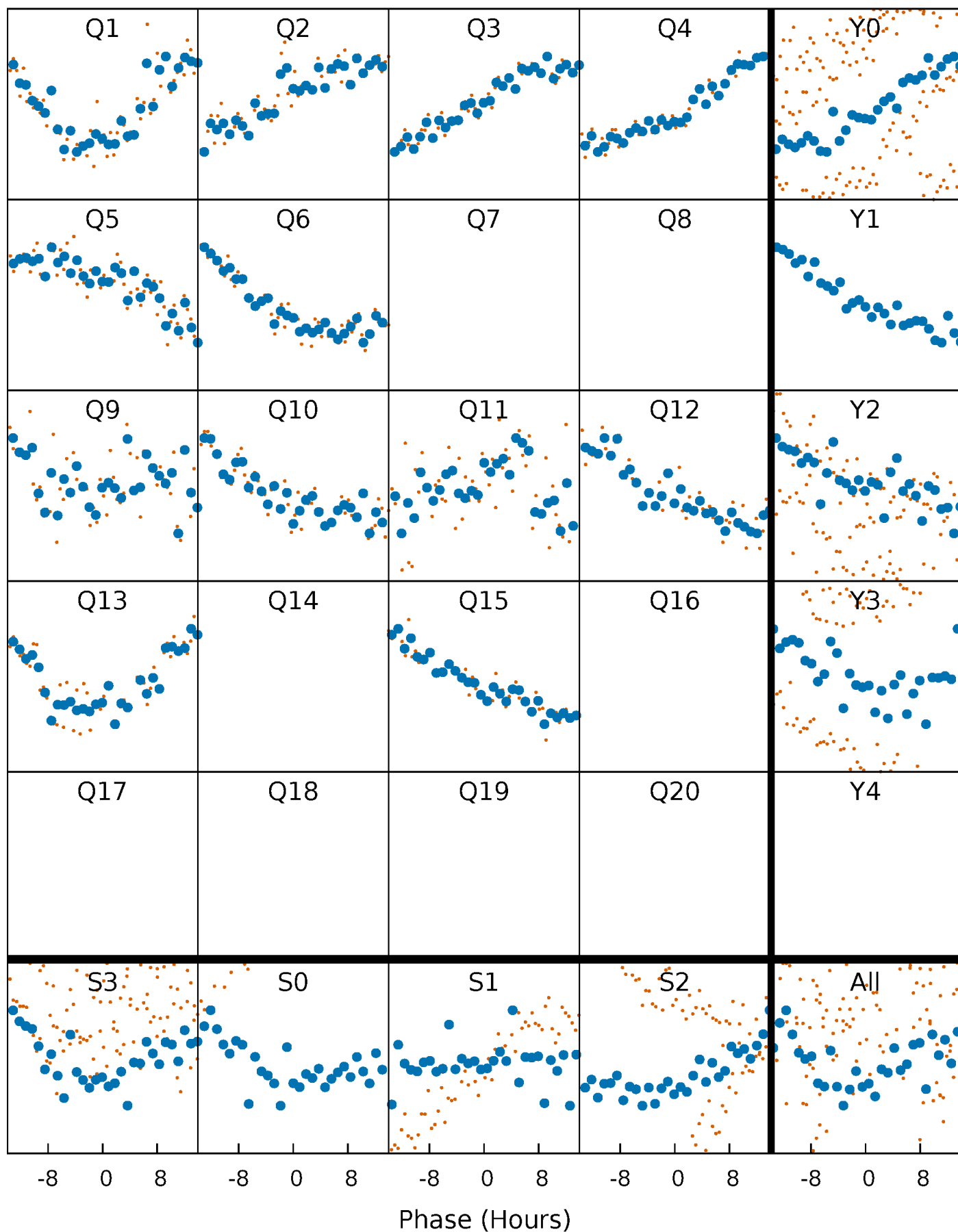


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



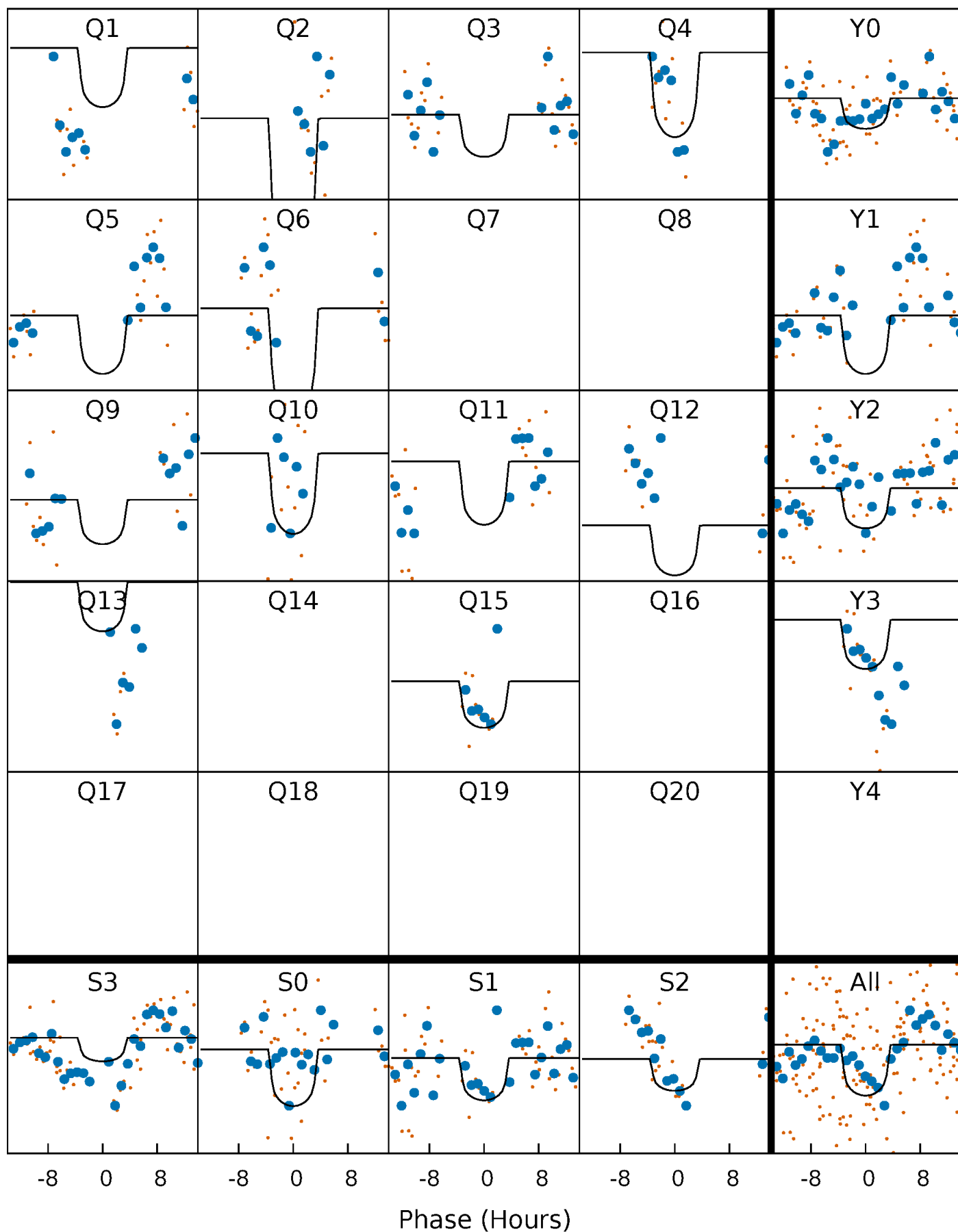
PDC Quarter-Phased Transit Curves

TCE 011624538-04 P= 95.915156 Days $T_0=144.704888$ (BKJD)



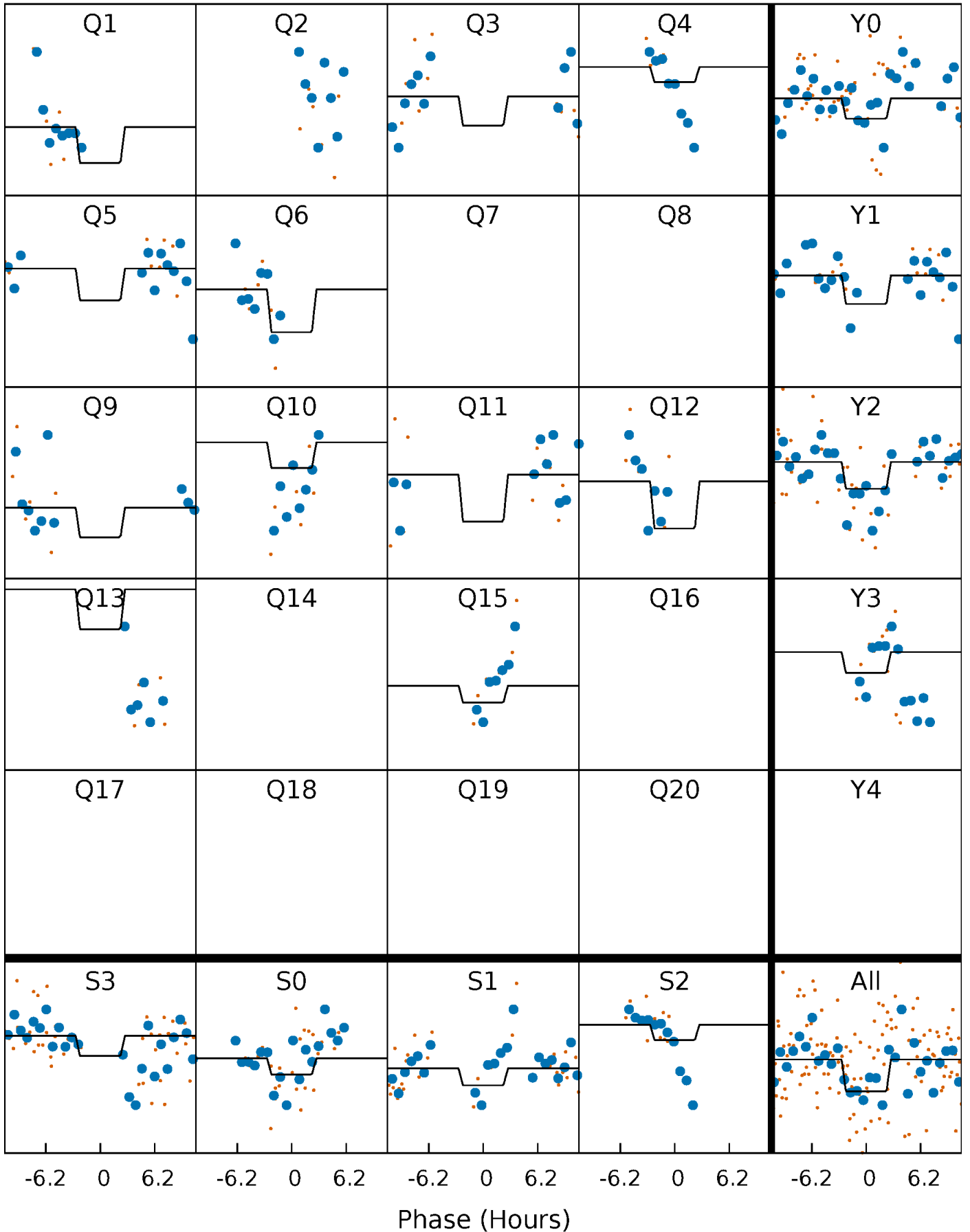
DV Quarter-Phased Transit Curves

TCE 011624538-04 P= 95.915156 Days $T_0=144.704888$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

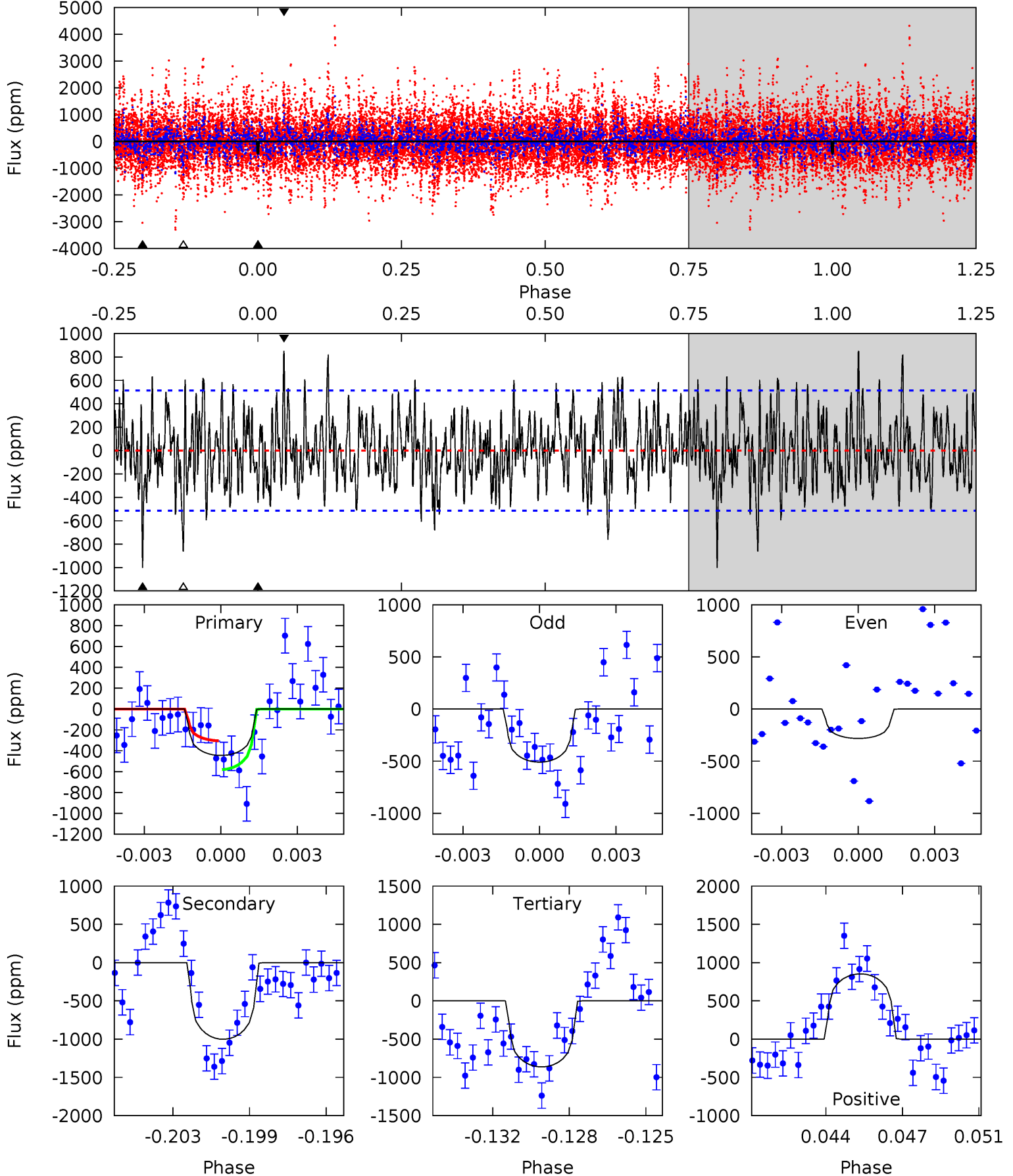
TCE 011624538-04 $P = 95.908761$ Days $T_0 = 144.701280$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-04, P = 95.915156 Days, E = 48.789732 Days

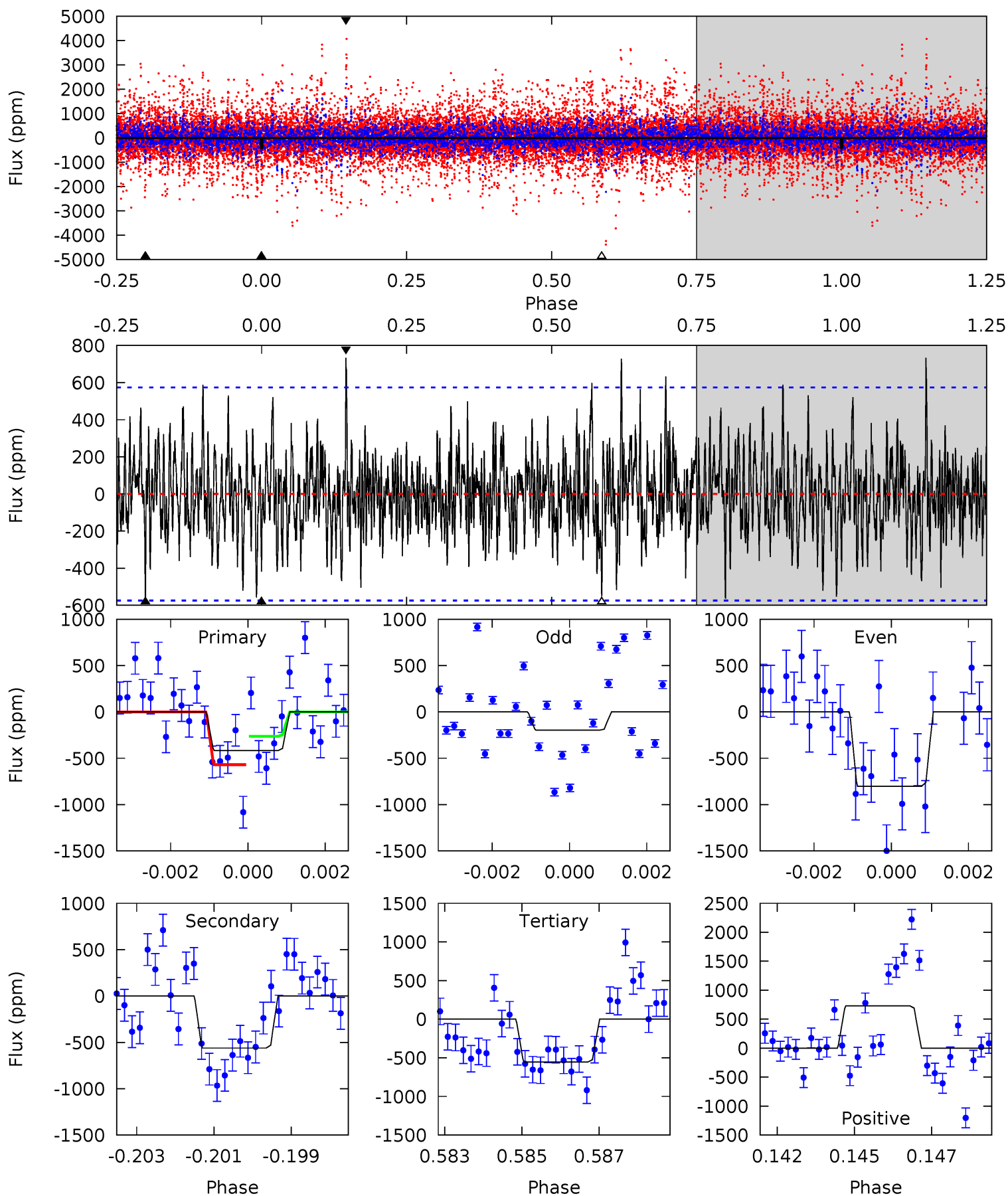
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.53	10.2	8.79	8.68	5.23	2.93	2.53	-4.25	-4.15	1.41	1.51	1.02	1.45	0.46	1.41



Alt Model-Shift Uniqueness Test

011624538-04, P = 95.908761 Days, E = 48.792519 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.86	5.18	5.13	6.77	5.30	3.05	1.68	-1.26	-2.90	0.06	-1.58	2.27	1.03	0.57	1.44



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1001 ± 98	$3.30^{+2.69}_{-2.22}$	487^{+24}_{-23}	5086^{+4146}_{-1064}	7582^{+62103}_{-5357}
Alt.	-561 ± 108	$2.98^{+2.74}_{-1.95}$	486^{+24}_{-22}	4676^{+3259}_{-1018}	5244^{+40883}_{-3890}

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 $A_{obs} \gg 1.0$

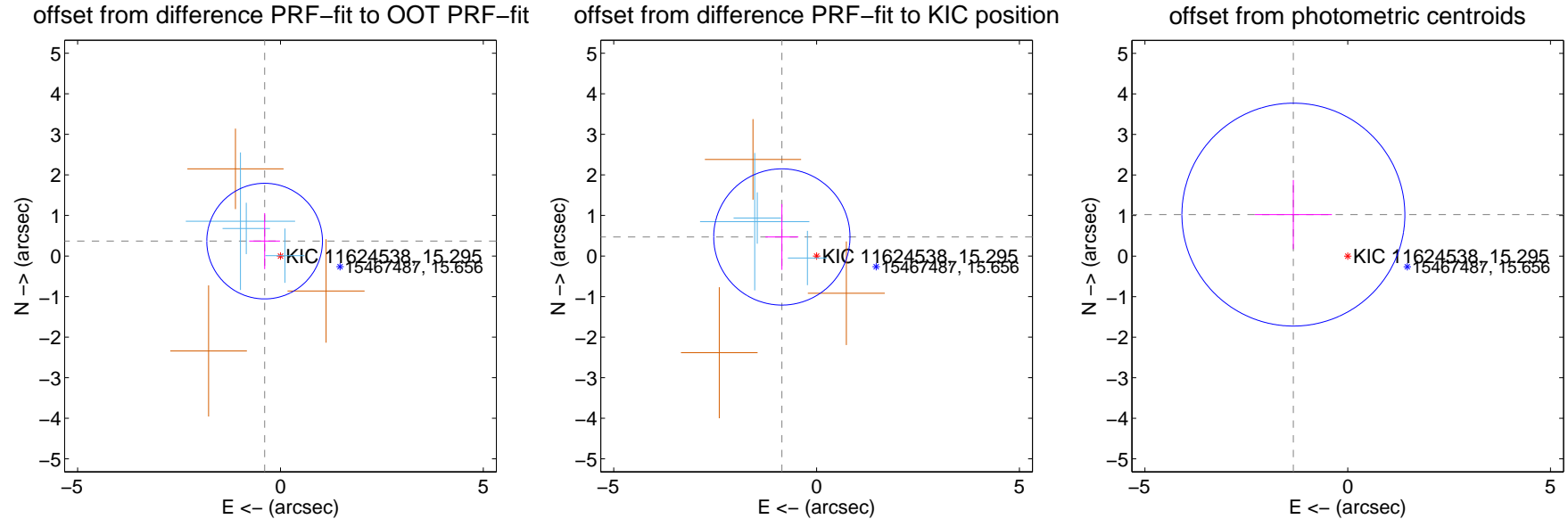
DV Centroid Data

Supplemental centroid analysis for 011624538-04. Kepler magnitude: 15.29. Transit SNR 3.78

There are 3 quarters with good PRF difference image offsets

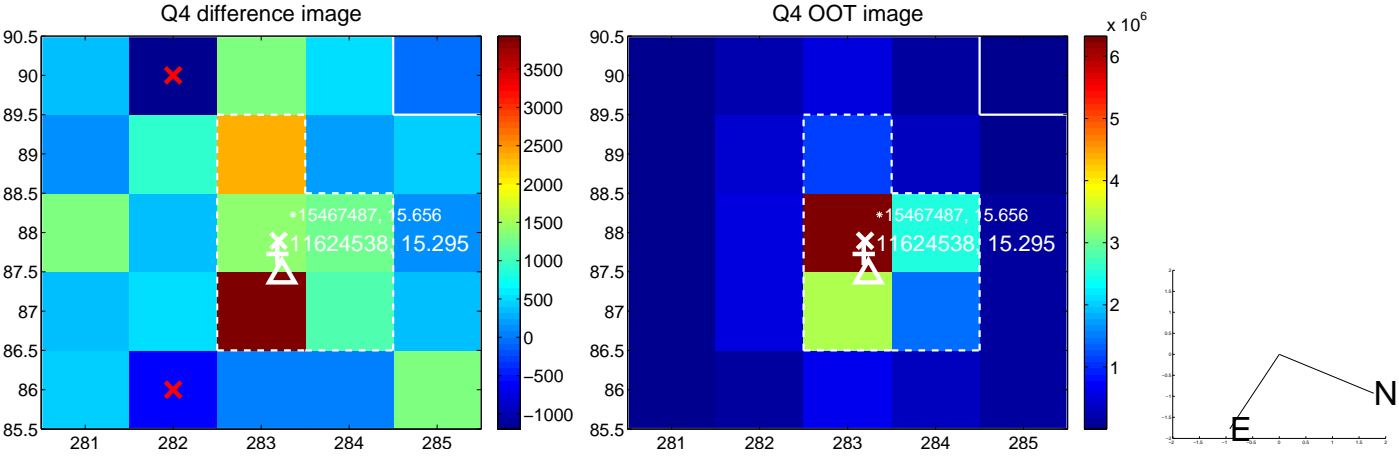
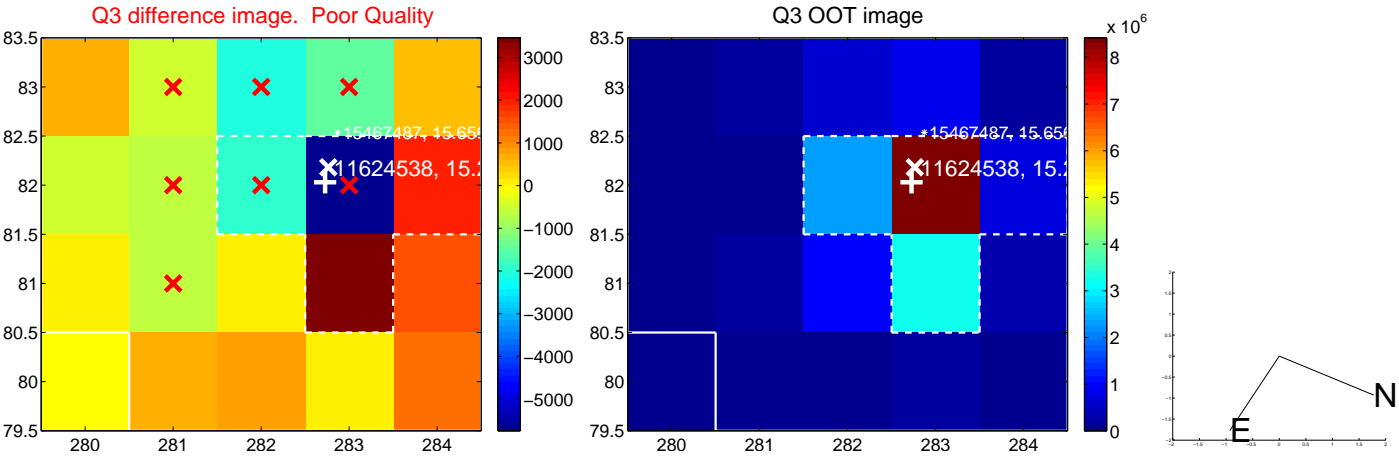
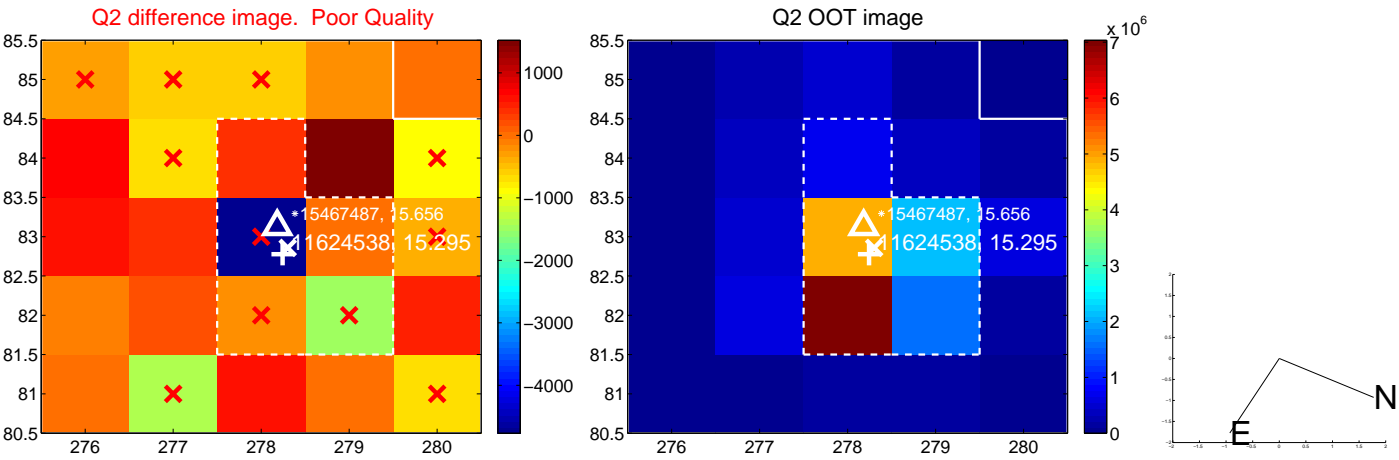
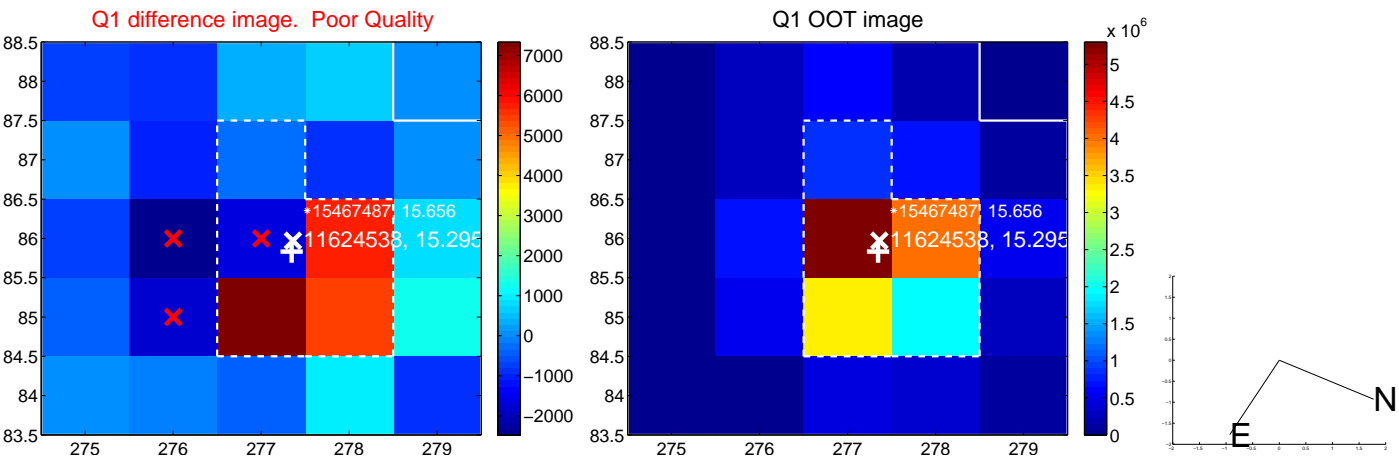
The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.536 ± 0.475	1.13	0.390 ± 0.380	0.368 ± 0.692
PRF-fit source offset from KIC position	0.976 ± 0.560	1.74	0.856 ± 0.405	0.470 ± 0.811
photometric centroid source offset	1.69 ± 0.92	1.84	1.34 ± 0.95	1.02 ± 0.85

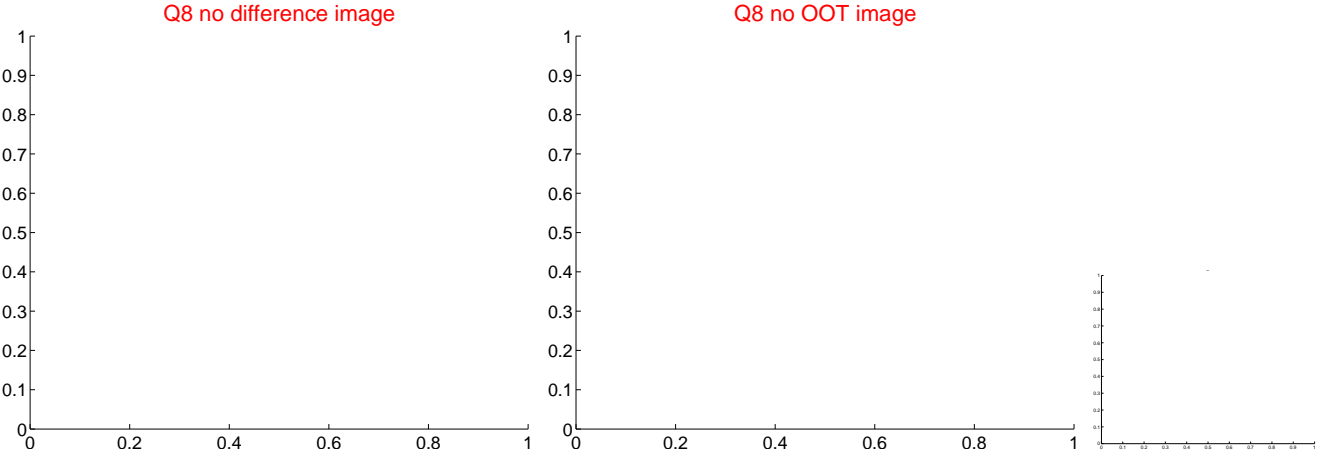
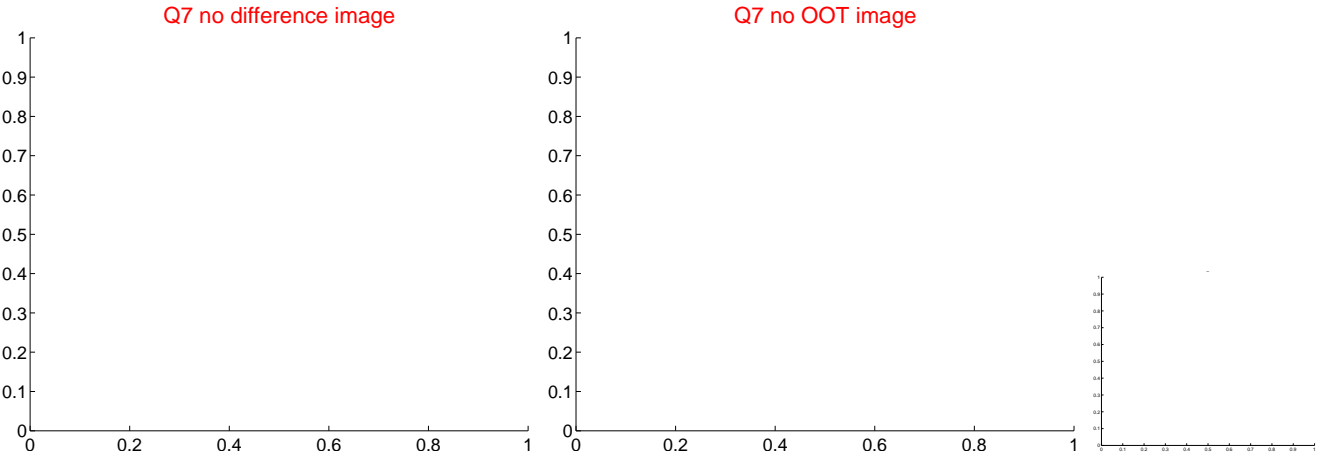
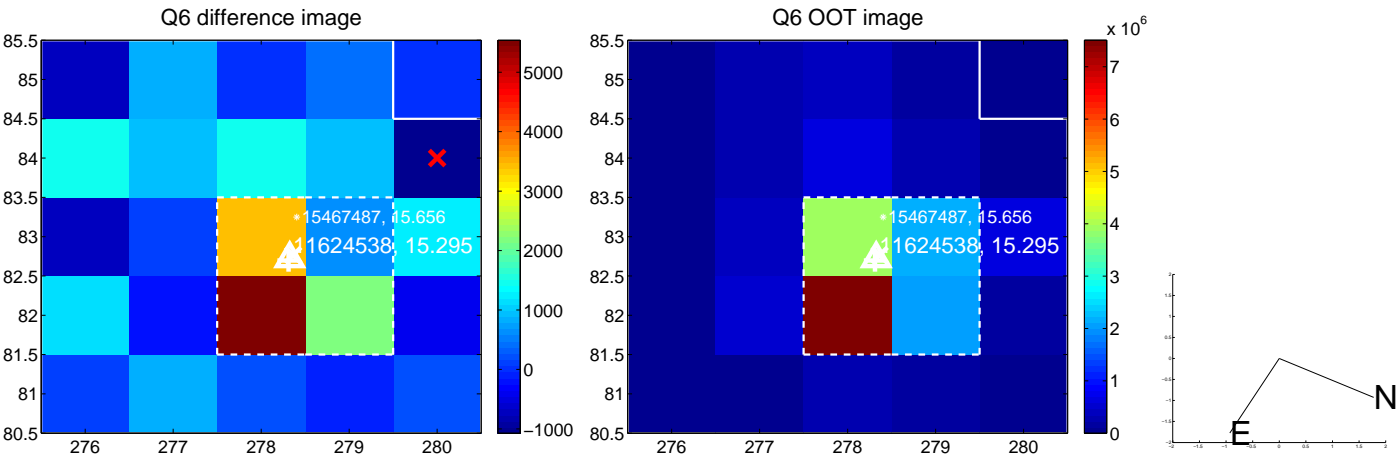
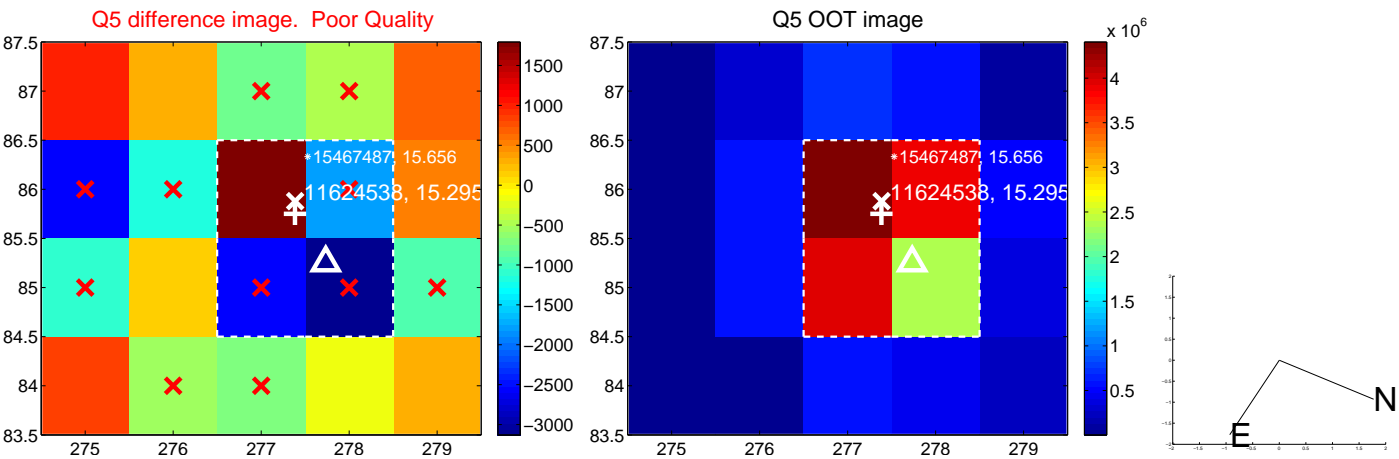


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

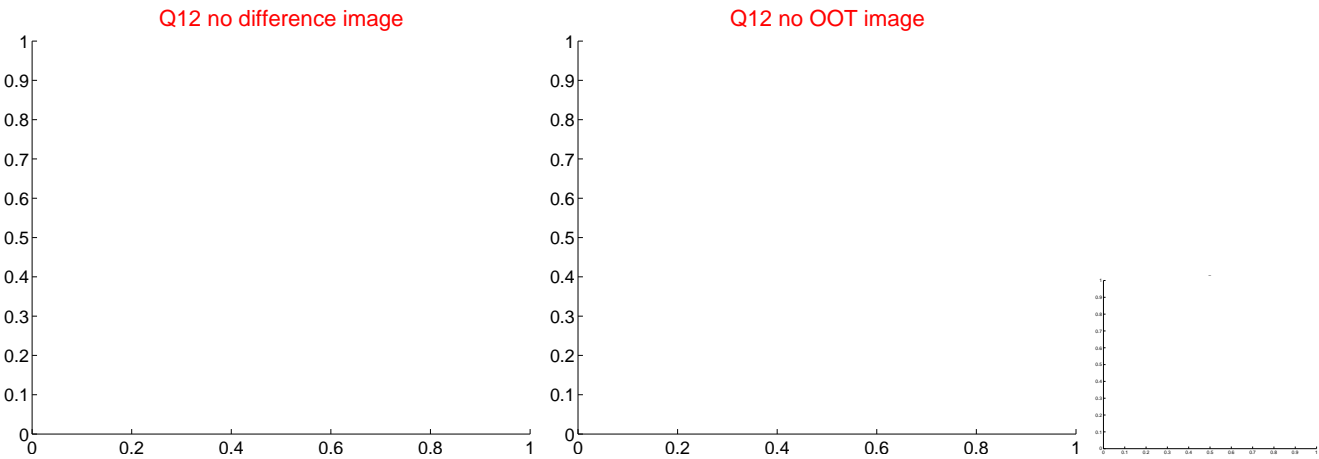
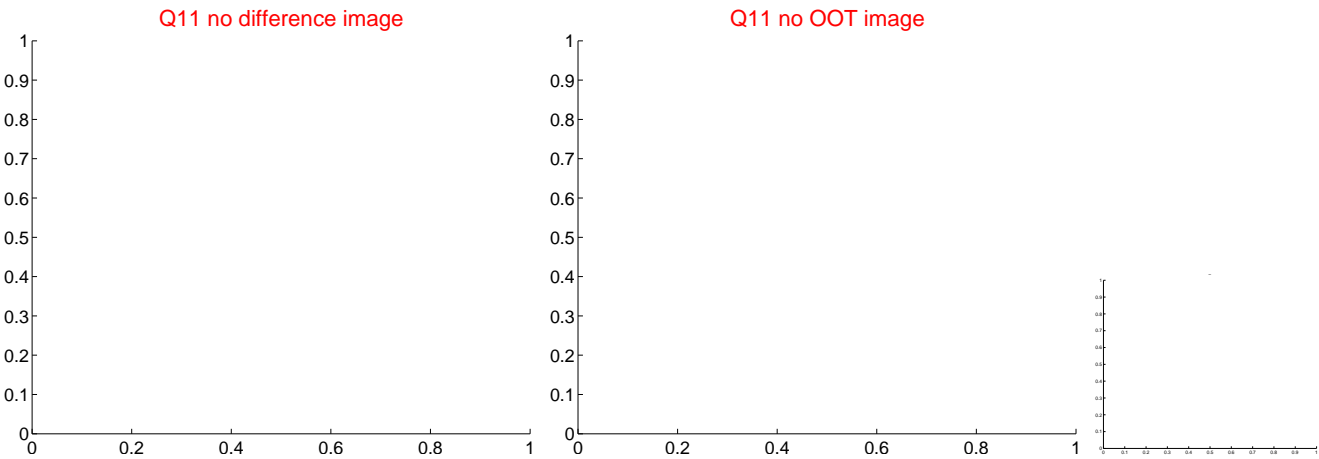
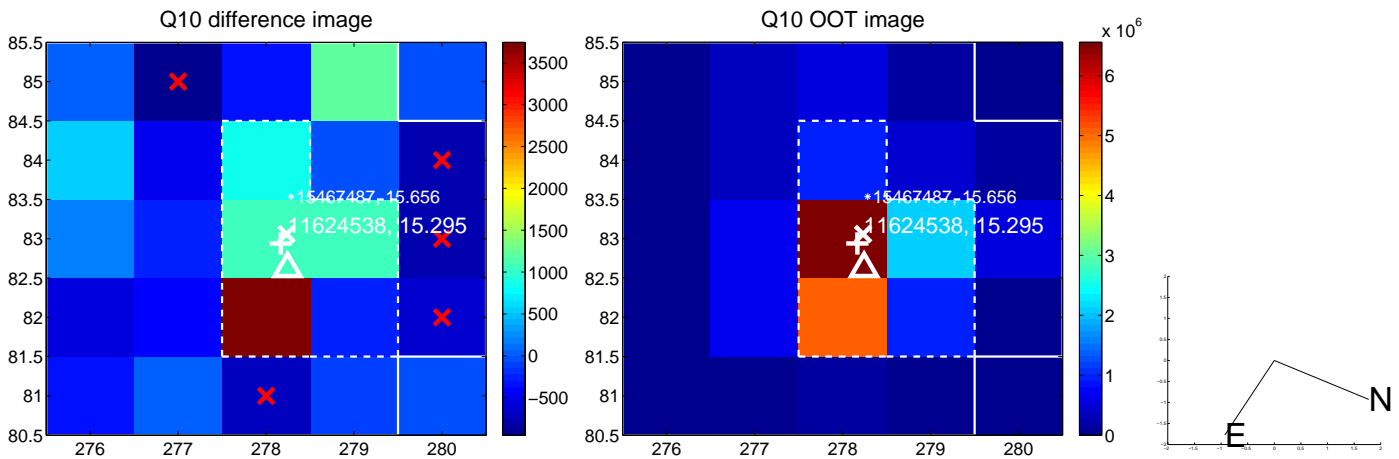
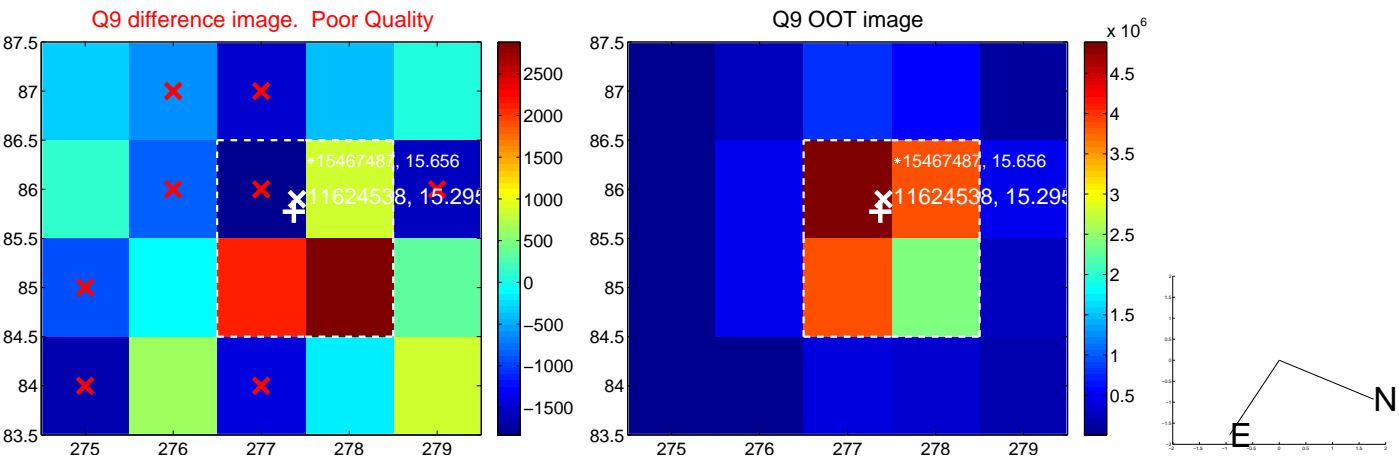
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



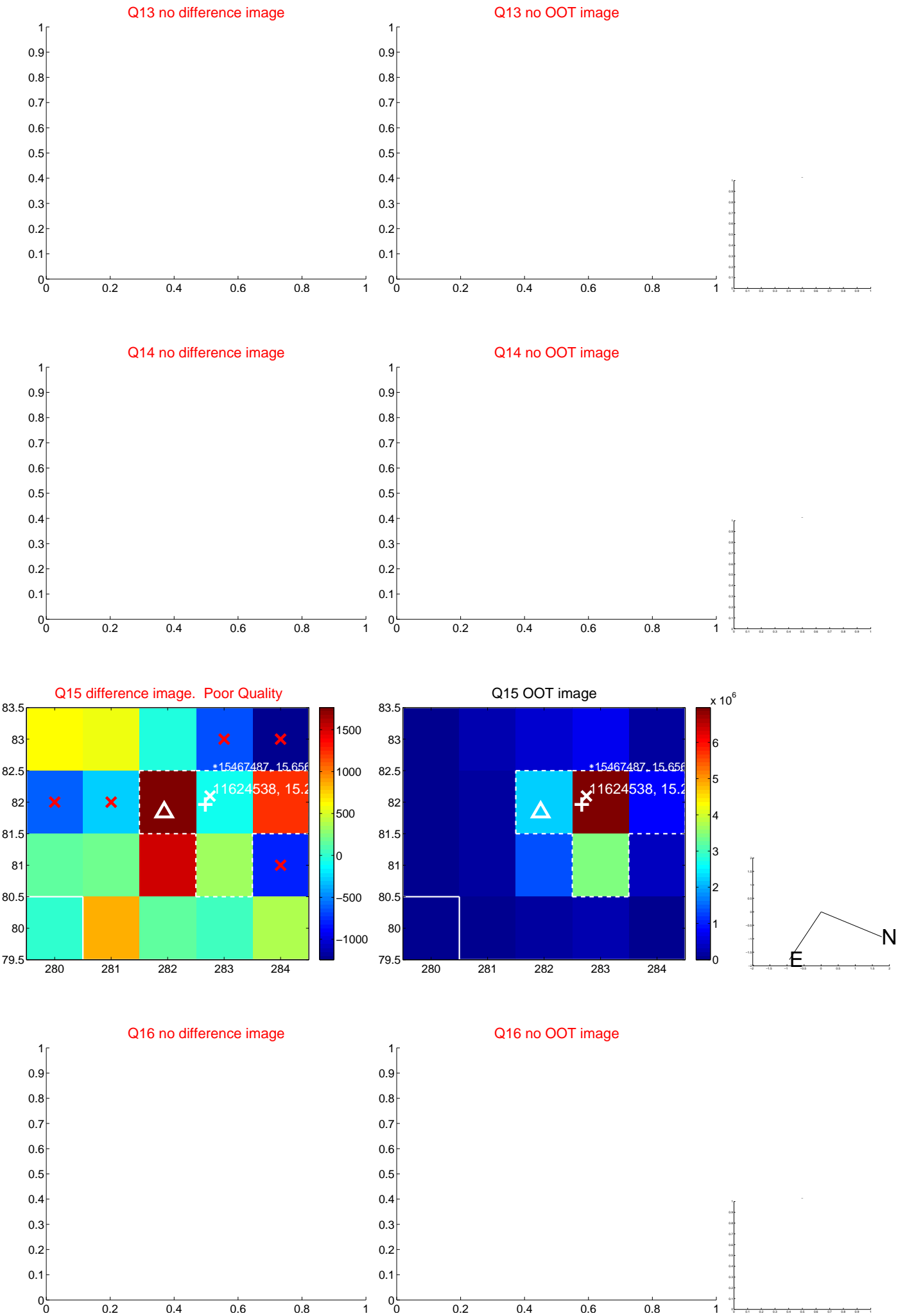
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



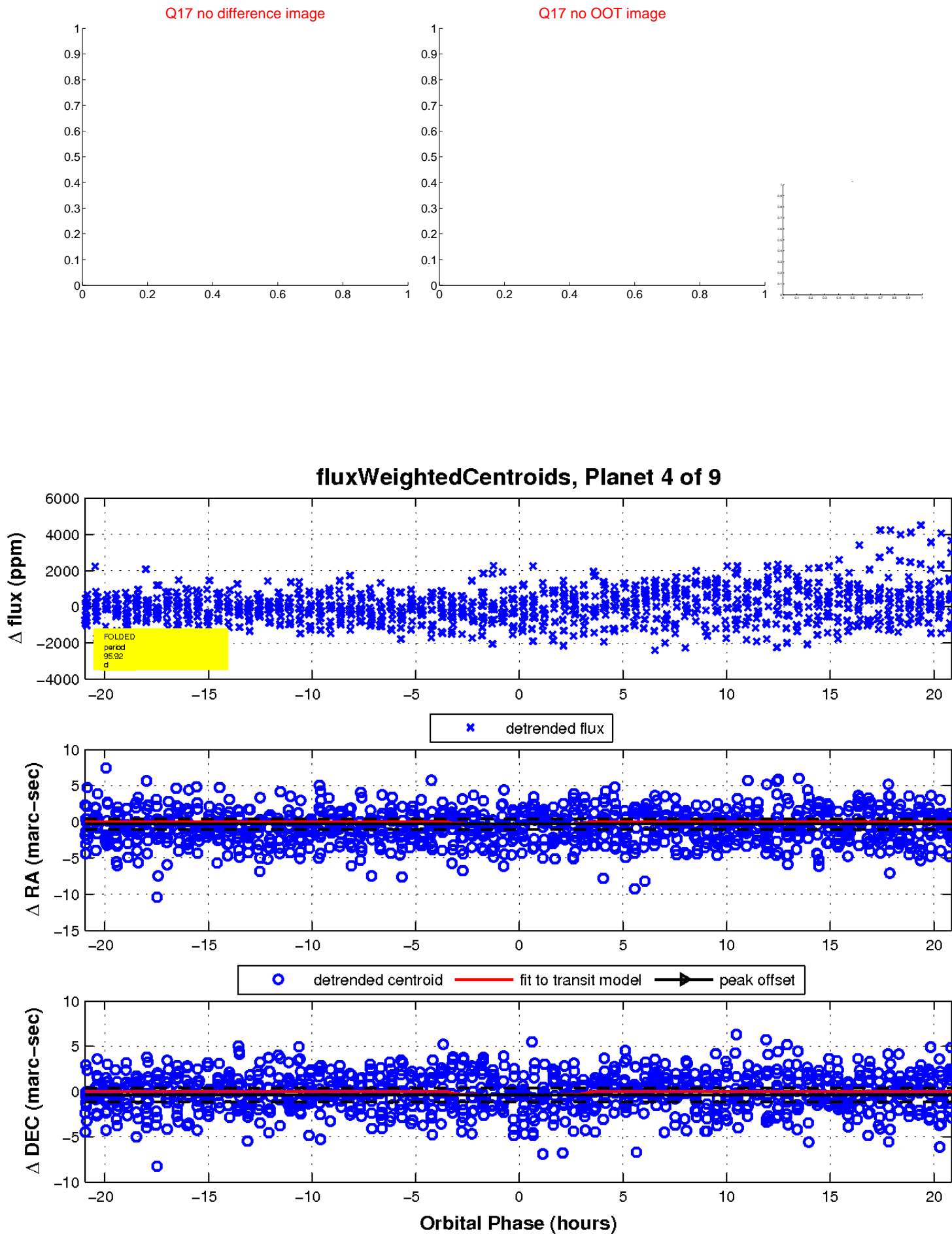
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

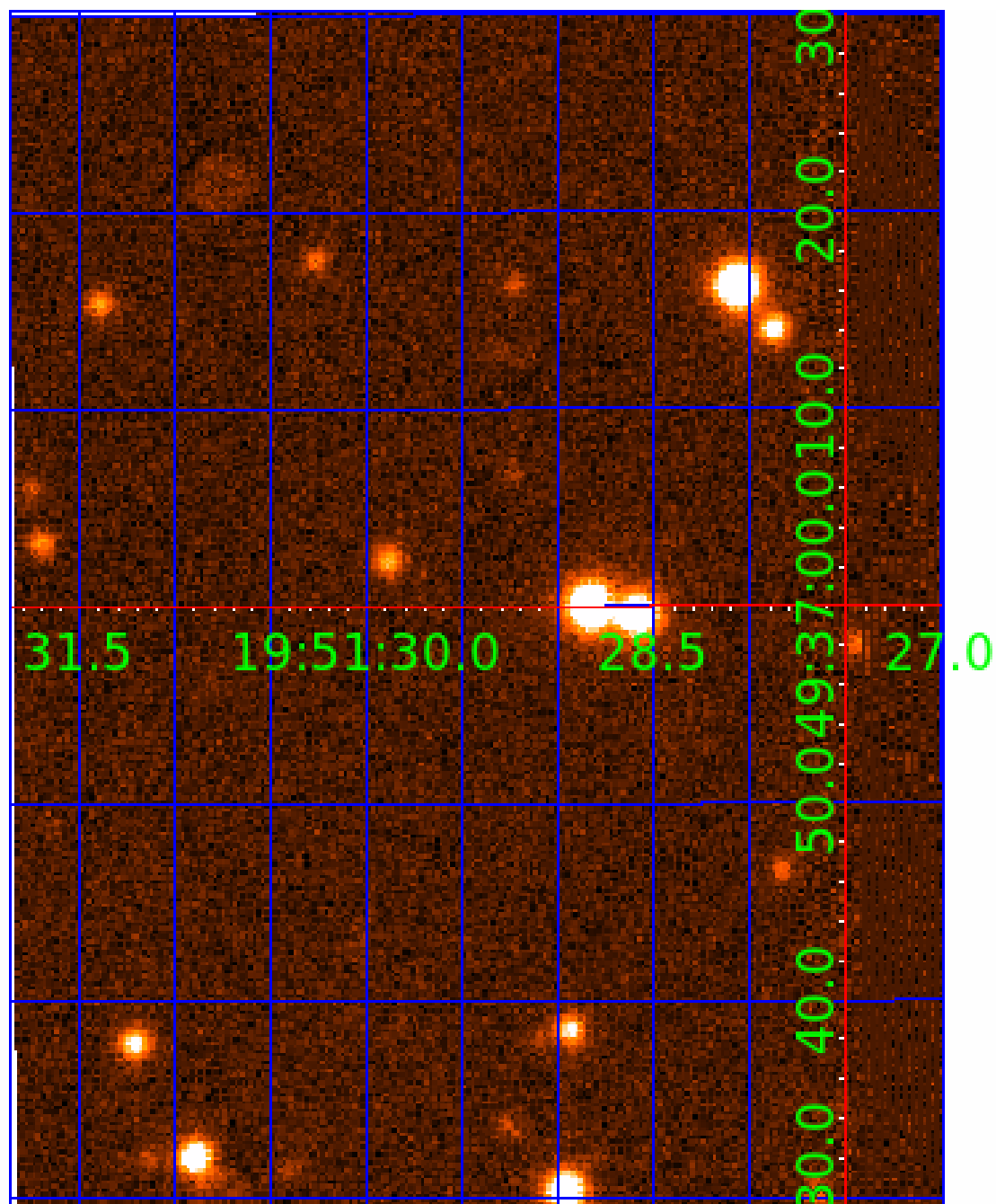


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

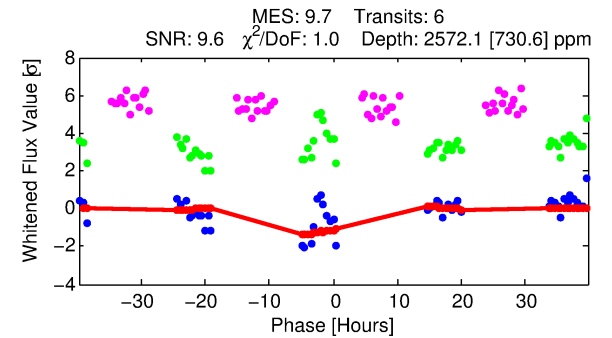
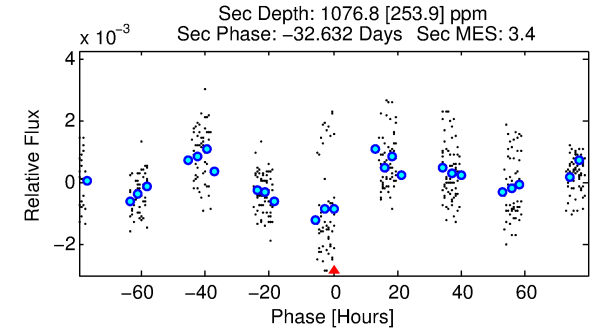
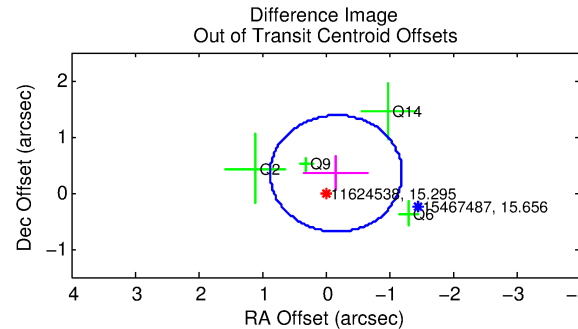
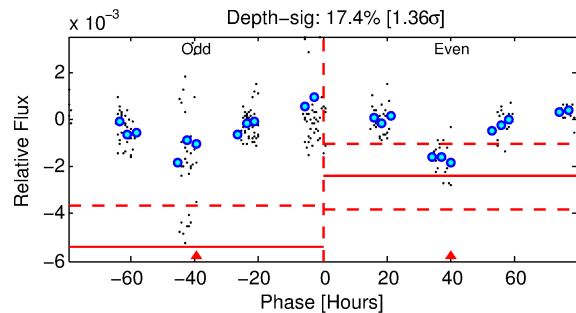
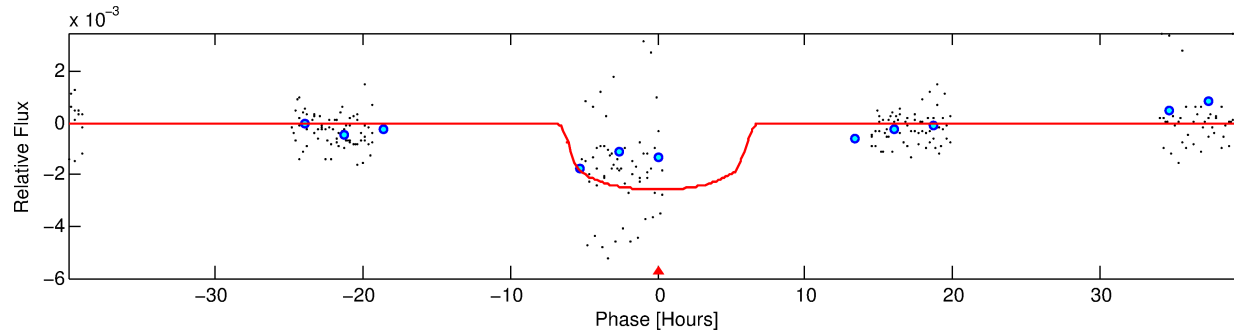
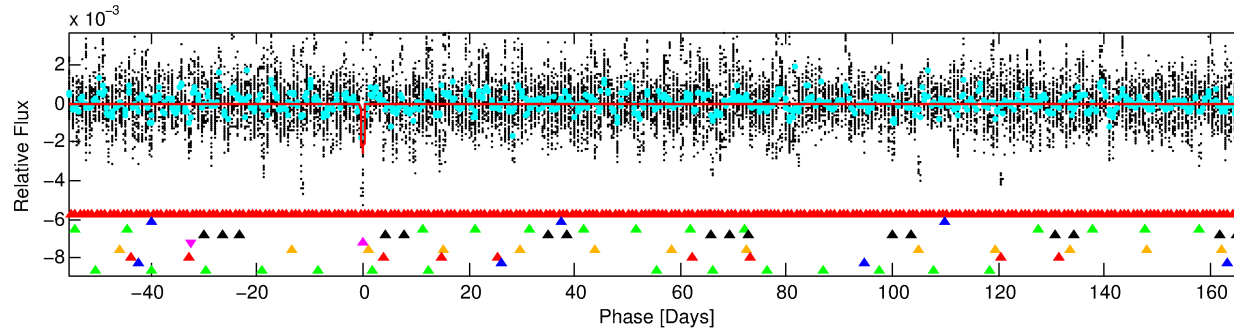
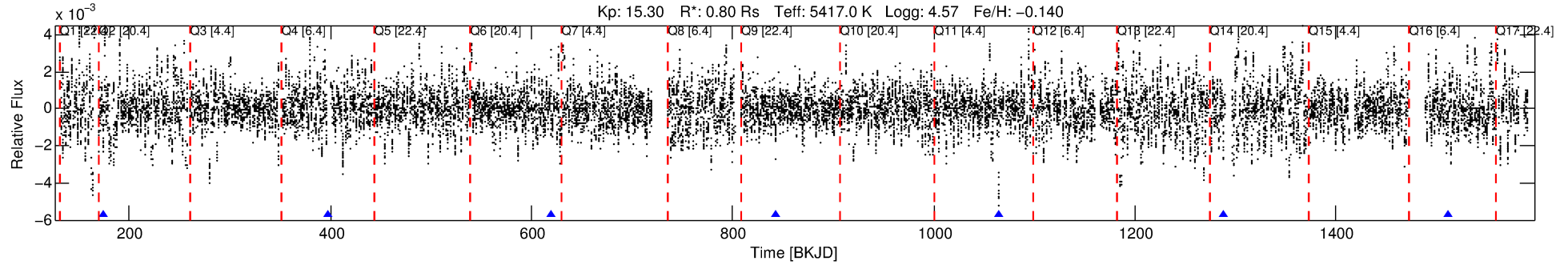
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-05

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 5 of 9 Period: 222.661 d



DV Fit Results:

Period = 222.66107 [0.02664] d
Epoch = 174.7795 [0.1176] BKJD
Rp/R* = 0.0496 [0.0618]
a/R* = 100.15 [504.79]
b = 0.70 [3.80]
Seff = 1.06 [0.30]
Teq = 259 [18] K
Rp = 4.32 [5.46] Re
a = 0.6820 [0.1154] AU
Ag = 14795.72 [37257.76] [0.40 σ]
Teffp = 4408 [2767] K [1.50 σ]

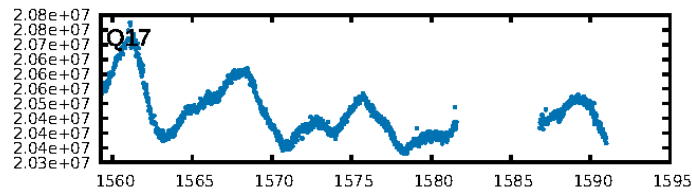
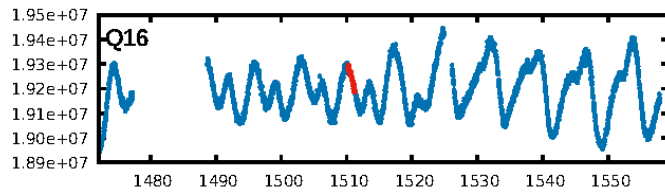
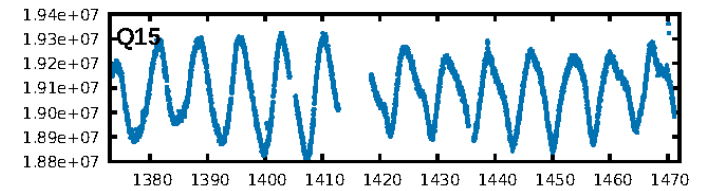
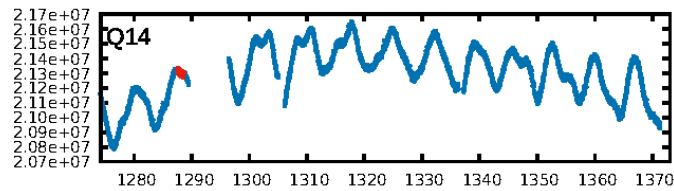
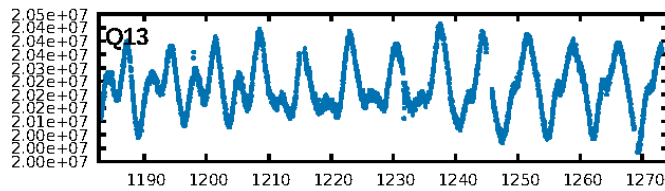
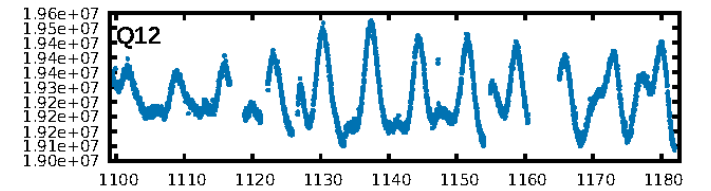
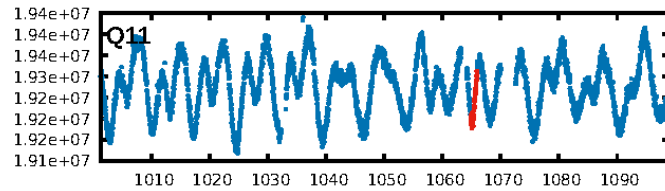
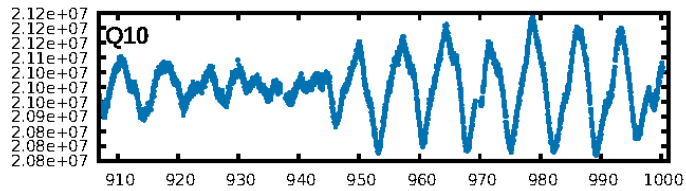
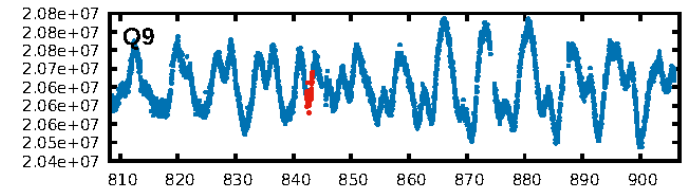
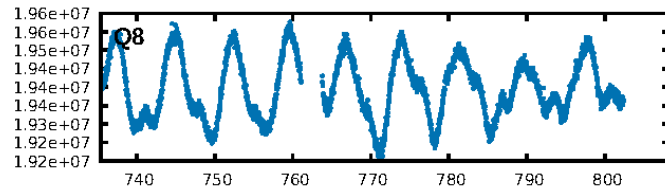
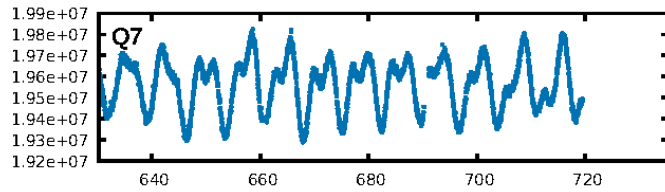
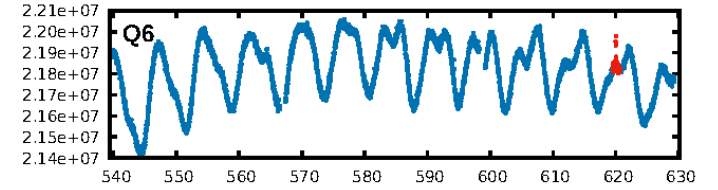
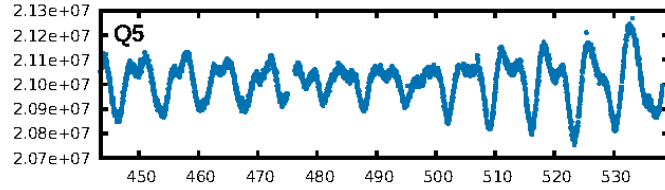
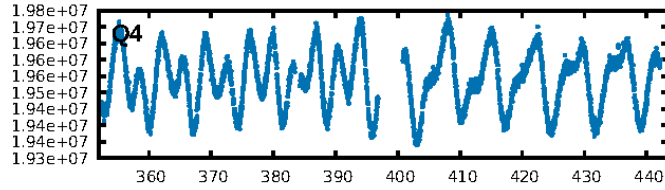
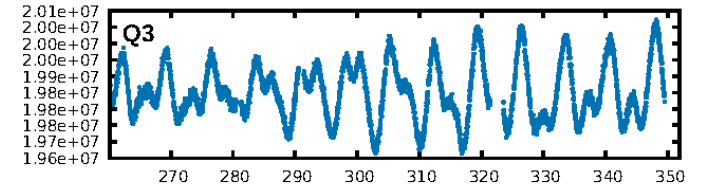
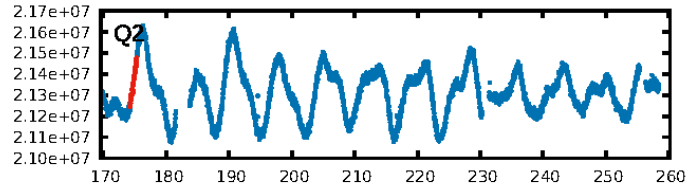
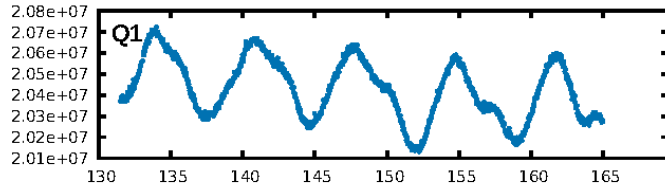
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [92.00 σ]
LongPeriod-sig: 100.0% [248.94 σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.72e-12
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: 0.7373
Centroid-sig: 20.6%
Centroid-so: 0.599 arcsec [2.02 σ]
OotOffset-rm: 0.380 arcsec [1.10 σ]
KicOffset-rm: 0.527 arcsec [0.98 σ]
OotOffset-st: 3/0/0/1 [4]
KicOffset-st: 3/0/0/1 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 0.00 [0/4]

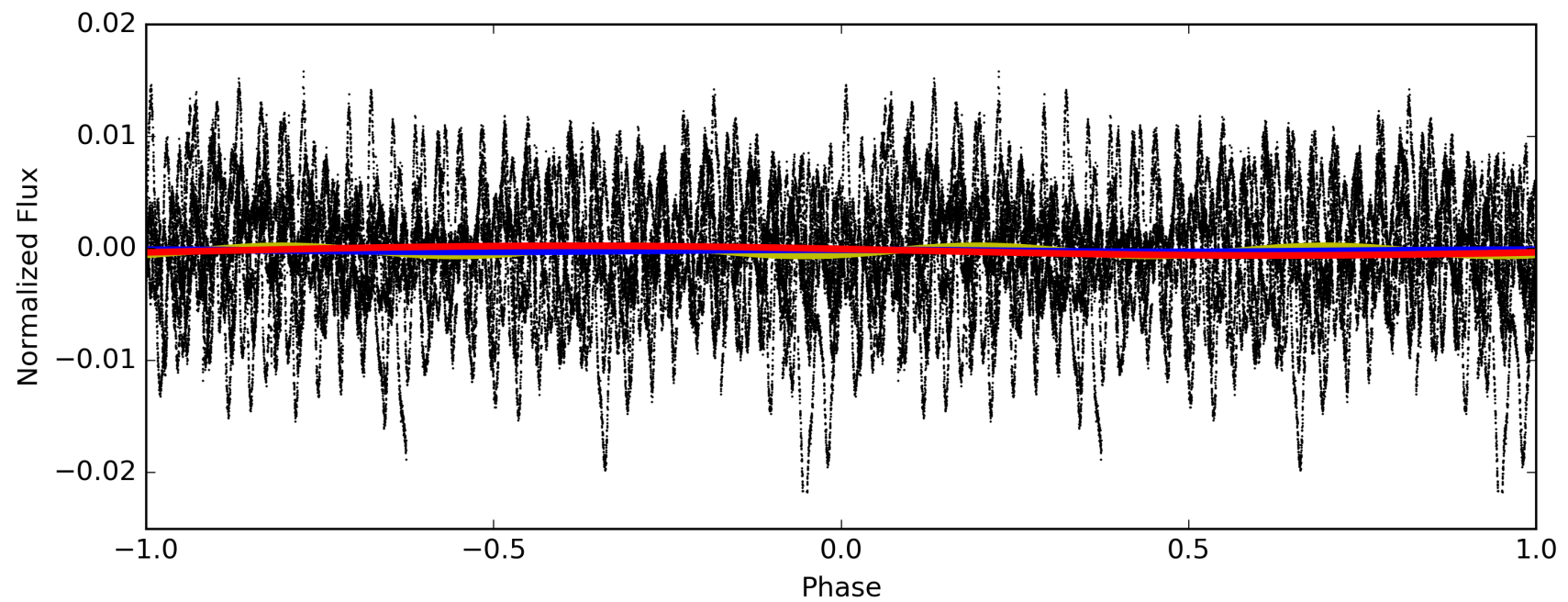
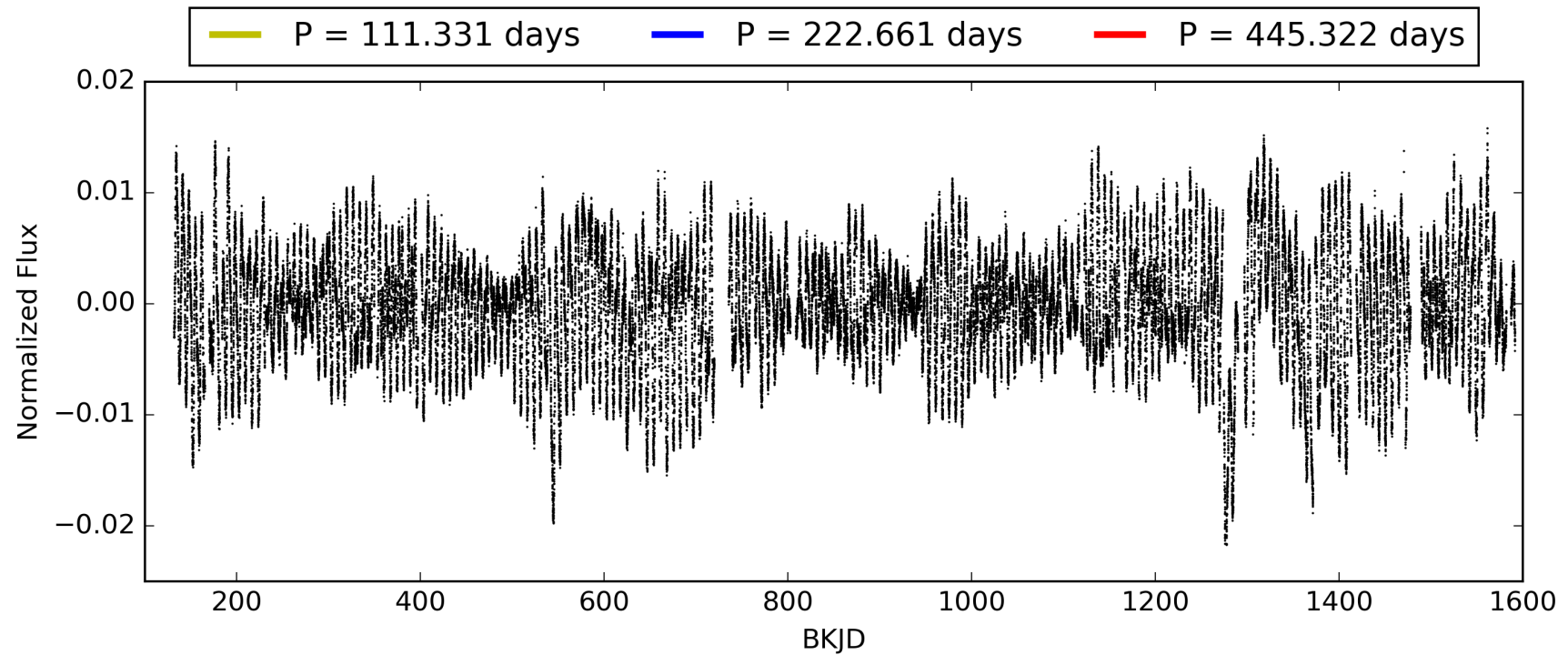
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:38 Z

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

TCE 011624538-05, PDC Light Curves

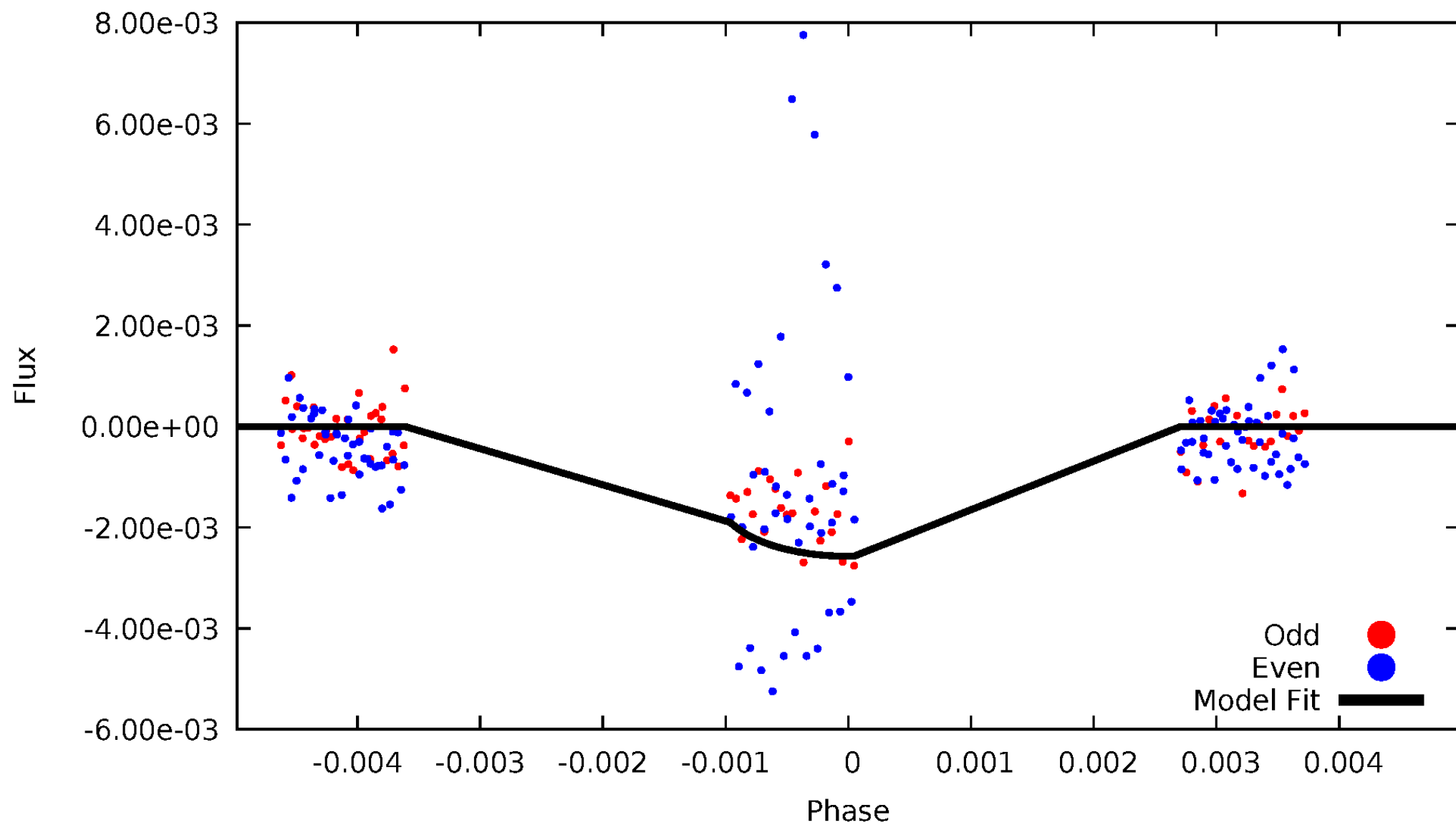


TCE 011624538-05



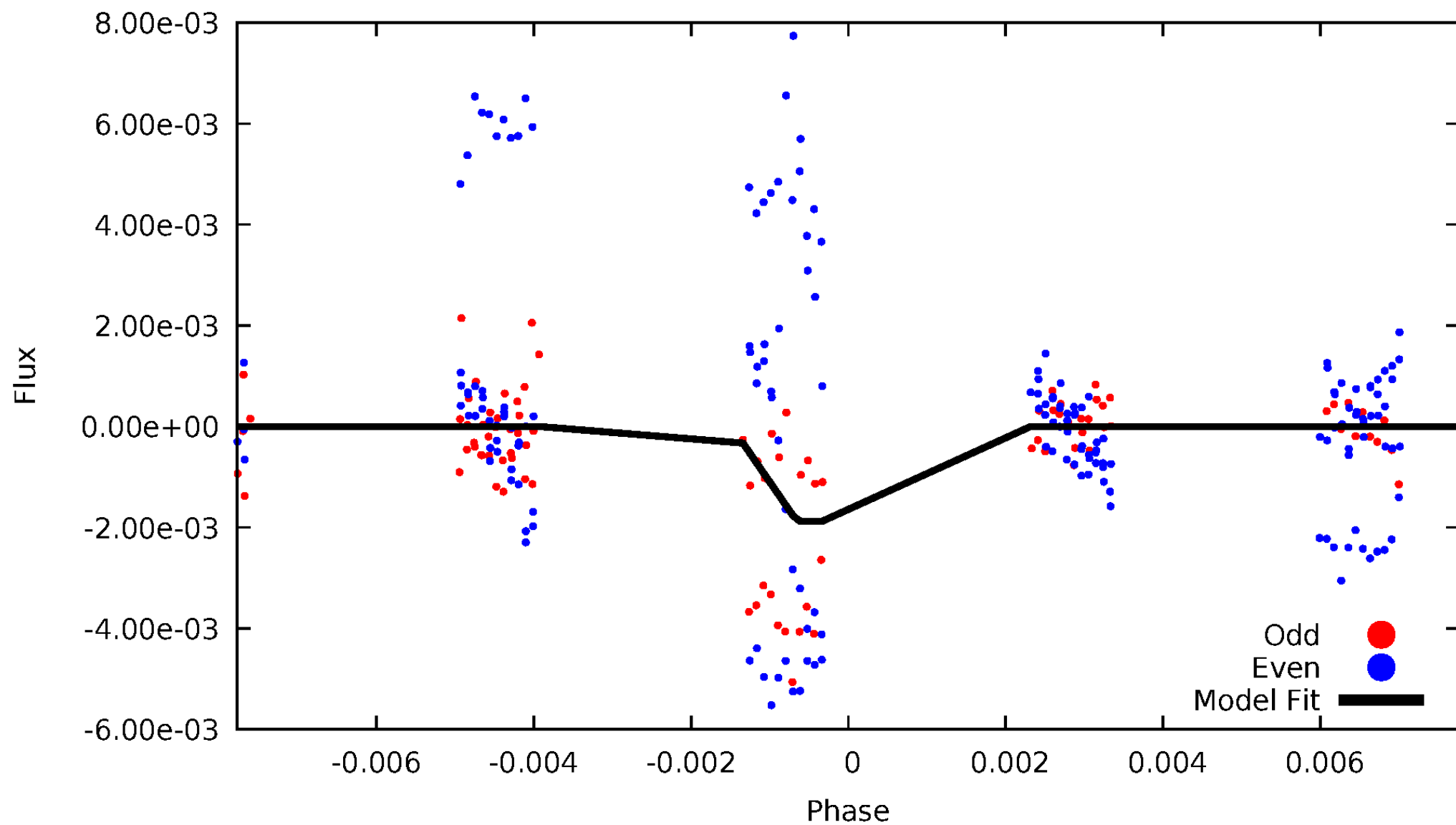
DV Odd/Even

TCE 011624538-05



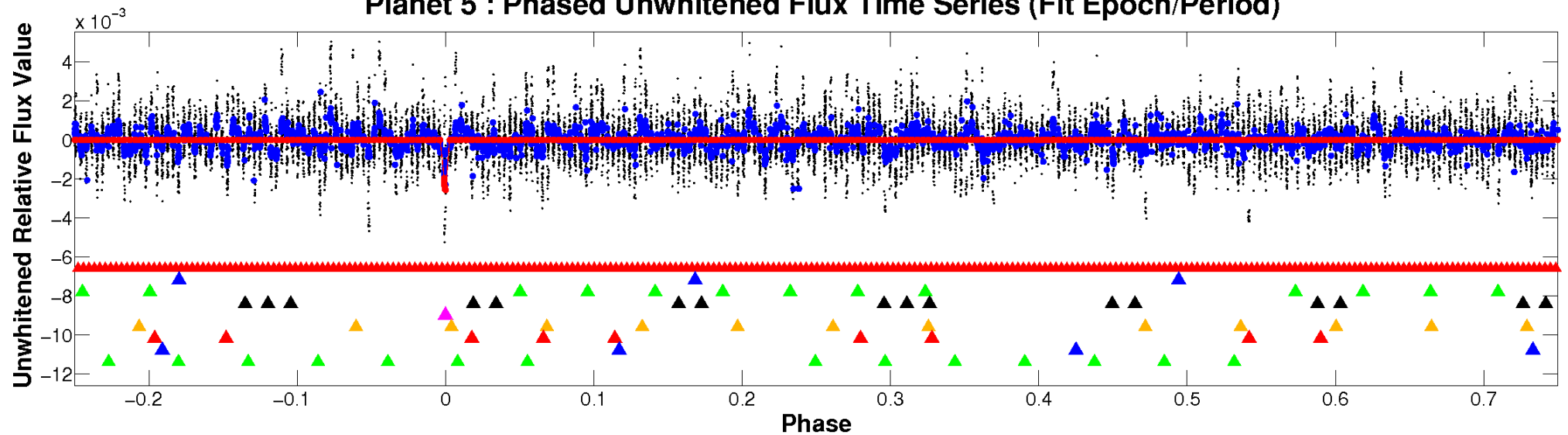
ALT Odd/Even

TCE 011624538-05

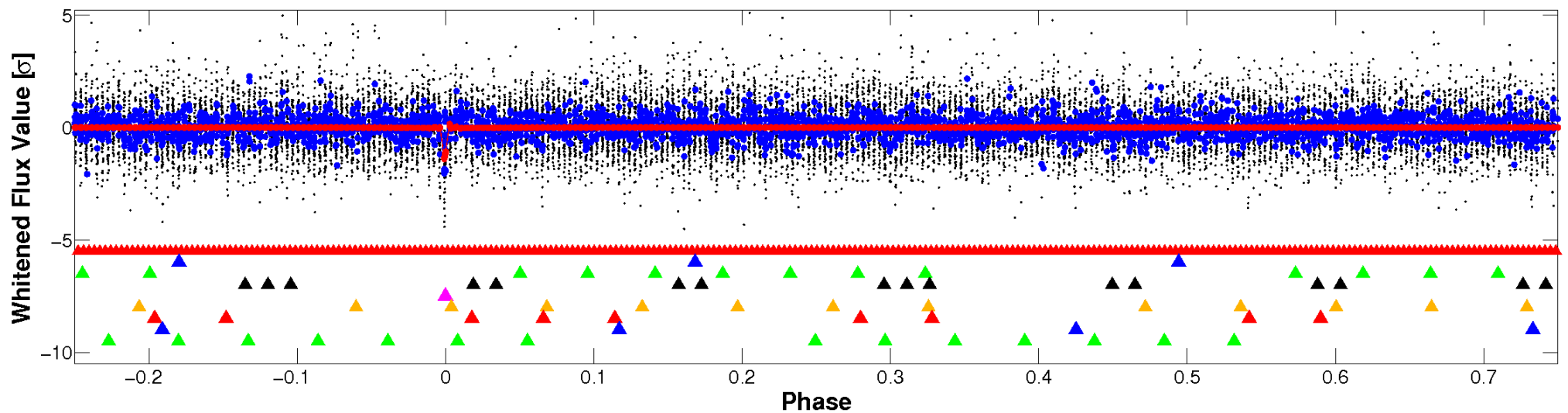


Non-Whitened Vs. Whitened Light Curve

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

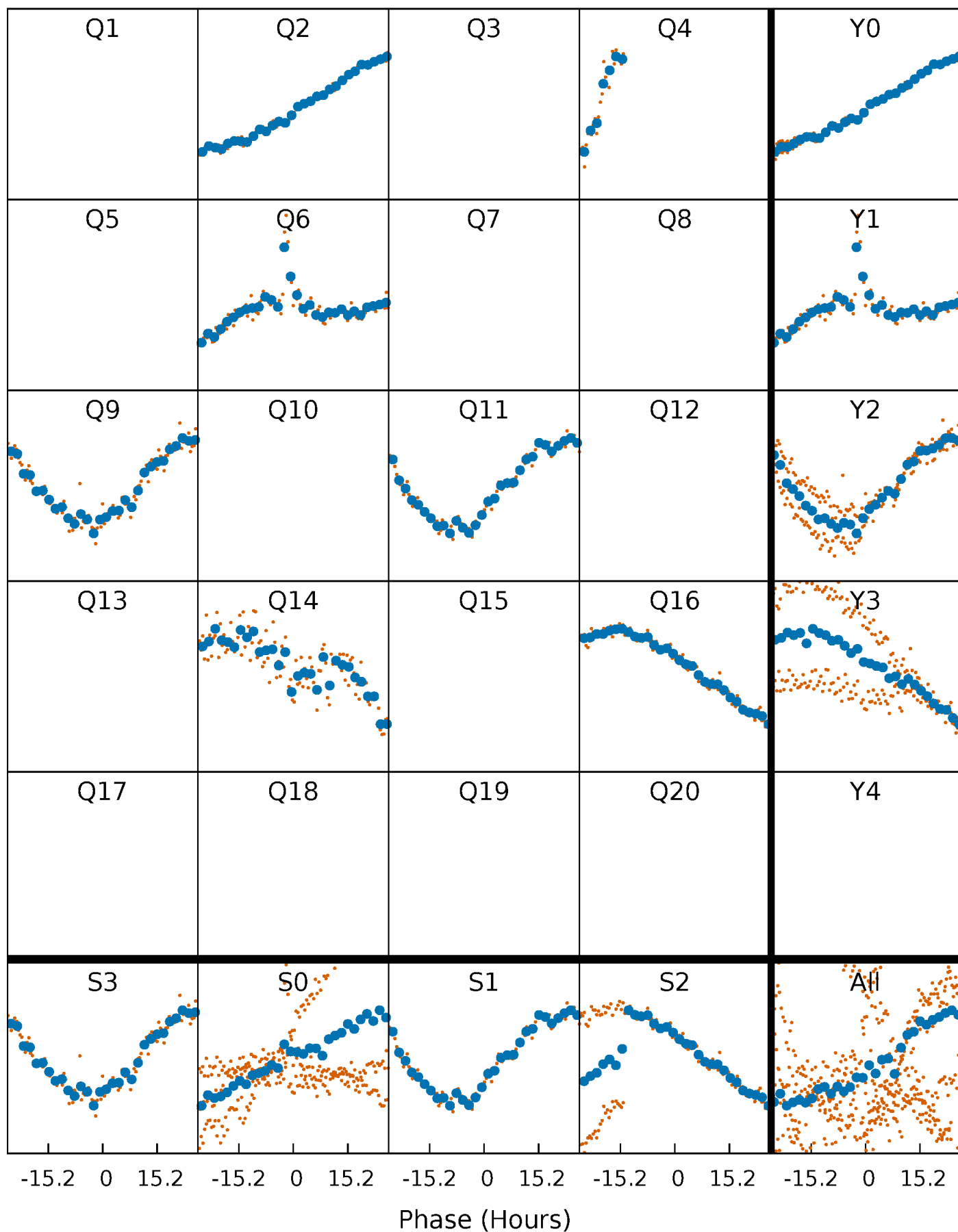


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



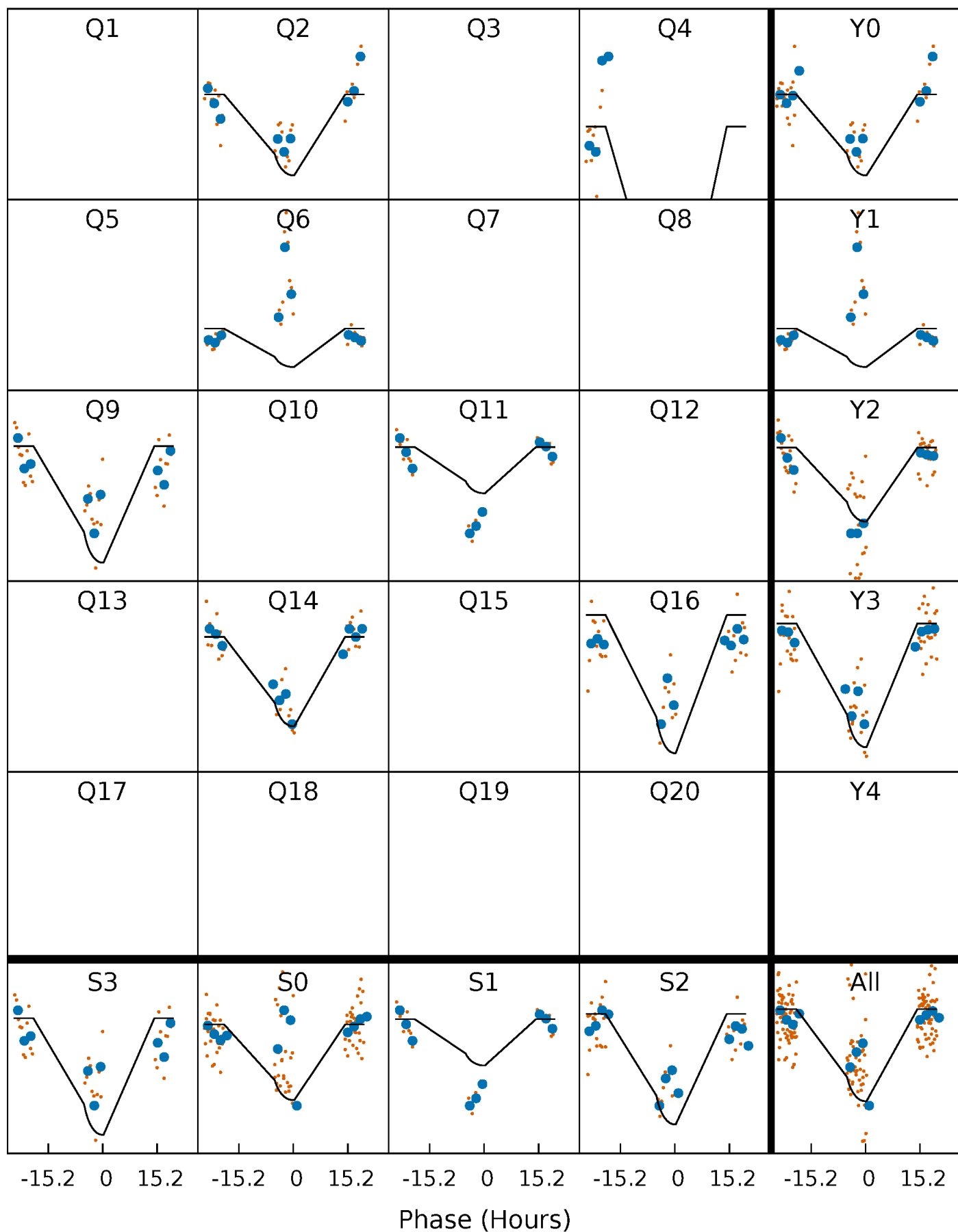
PDC Quarter-Phased Transit Curves

TCE 011624538-05 $P=222.661074$ Days $T_0=174.779527$ (BKJD)



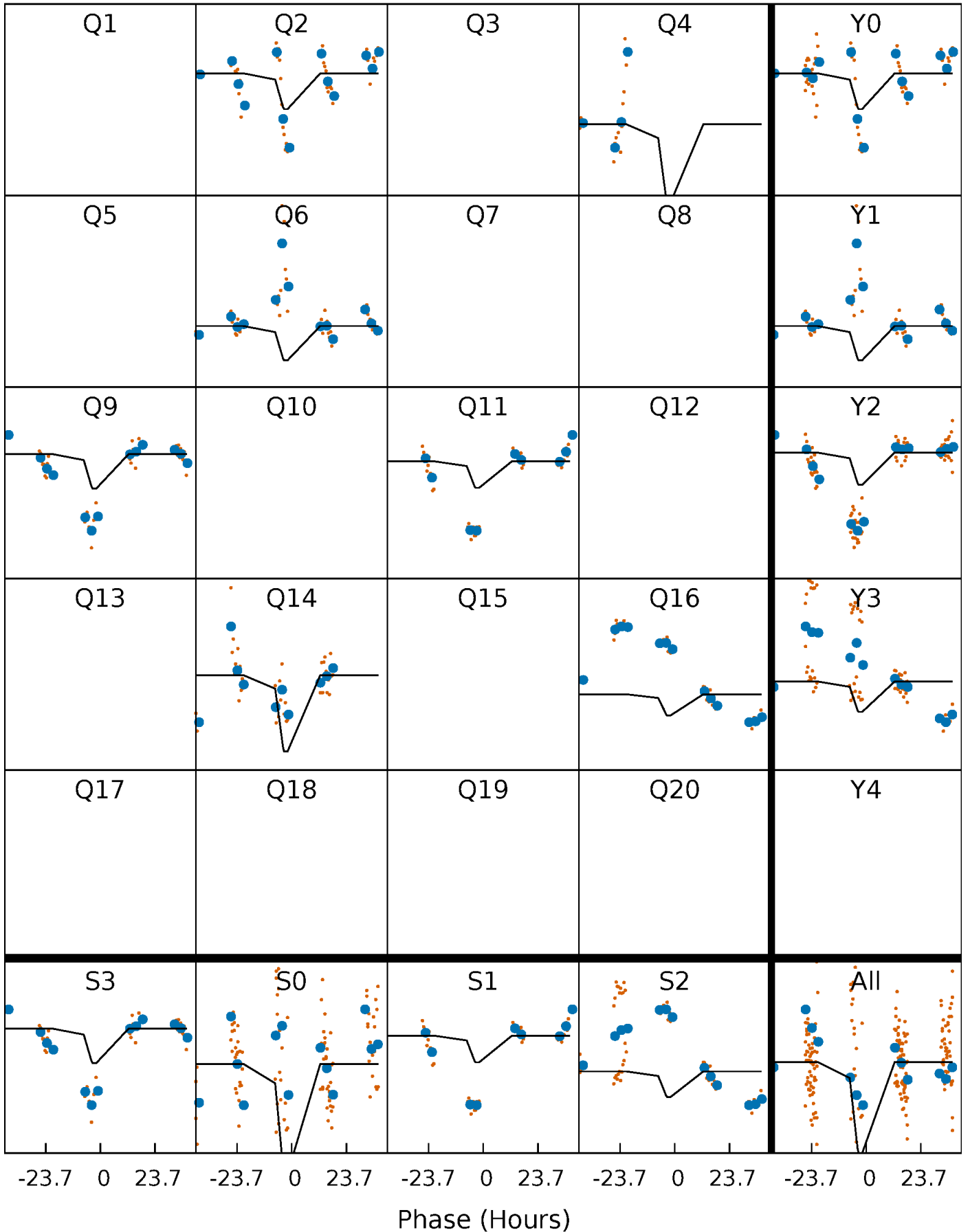
DV Quarter-Phased Transit Curves

TCE 011624538-05 $P=222.661074$ Days $T_0=174.779527$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

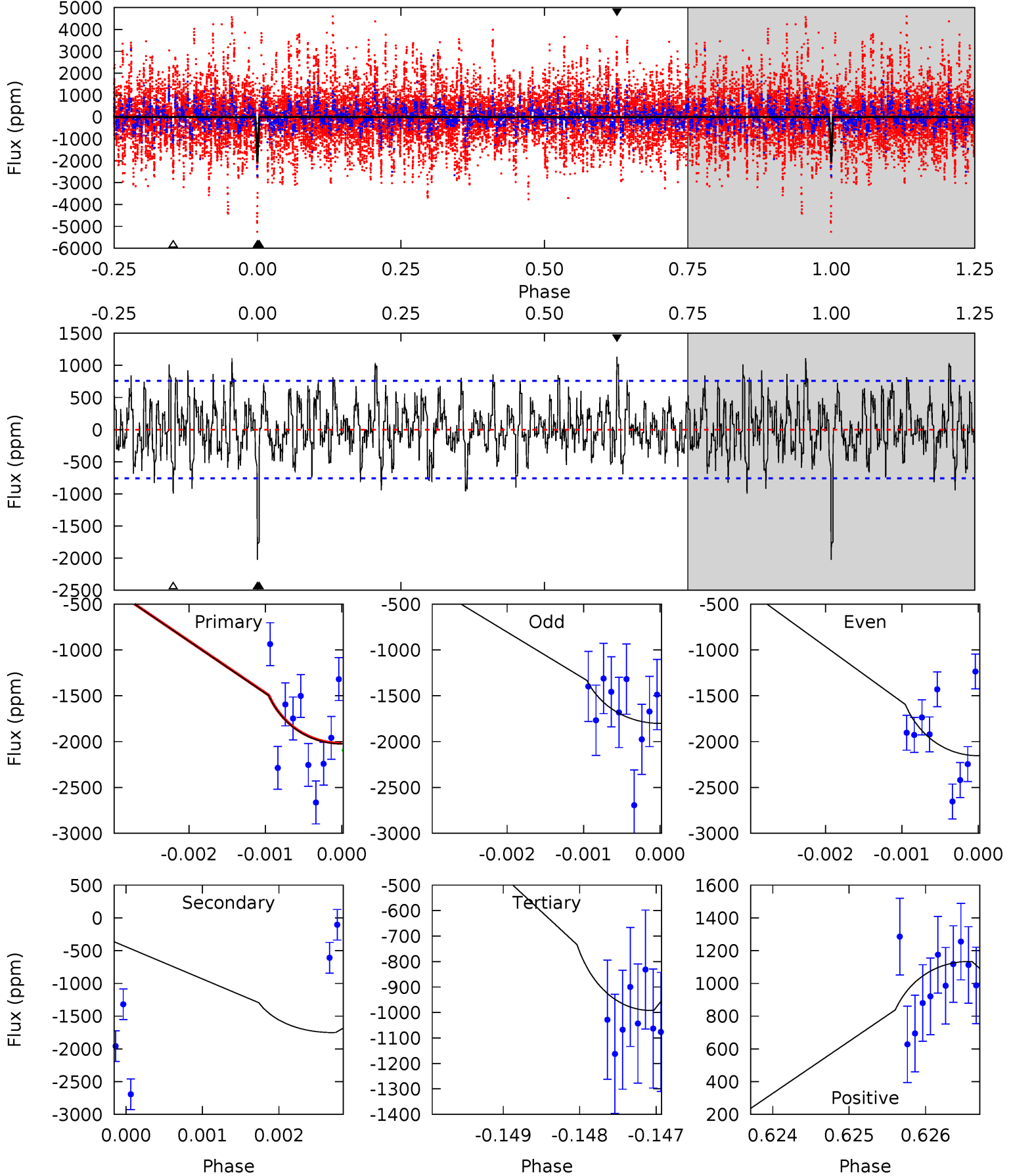
TCE 011624538-05 $P=222.664503$ Days $T_0=174.846437$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-05, P = 222.661074 Days, E = 174.779527 Days

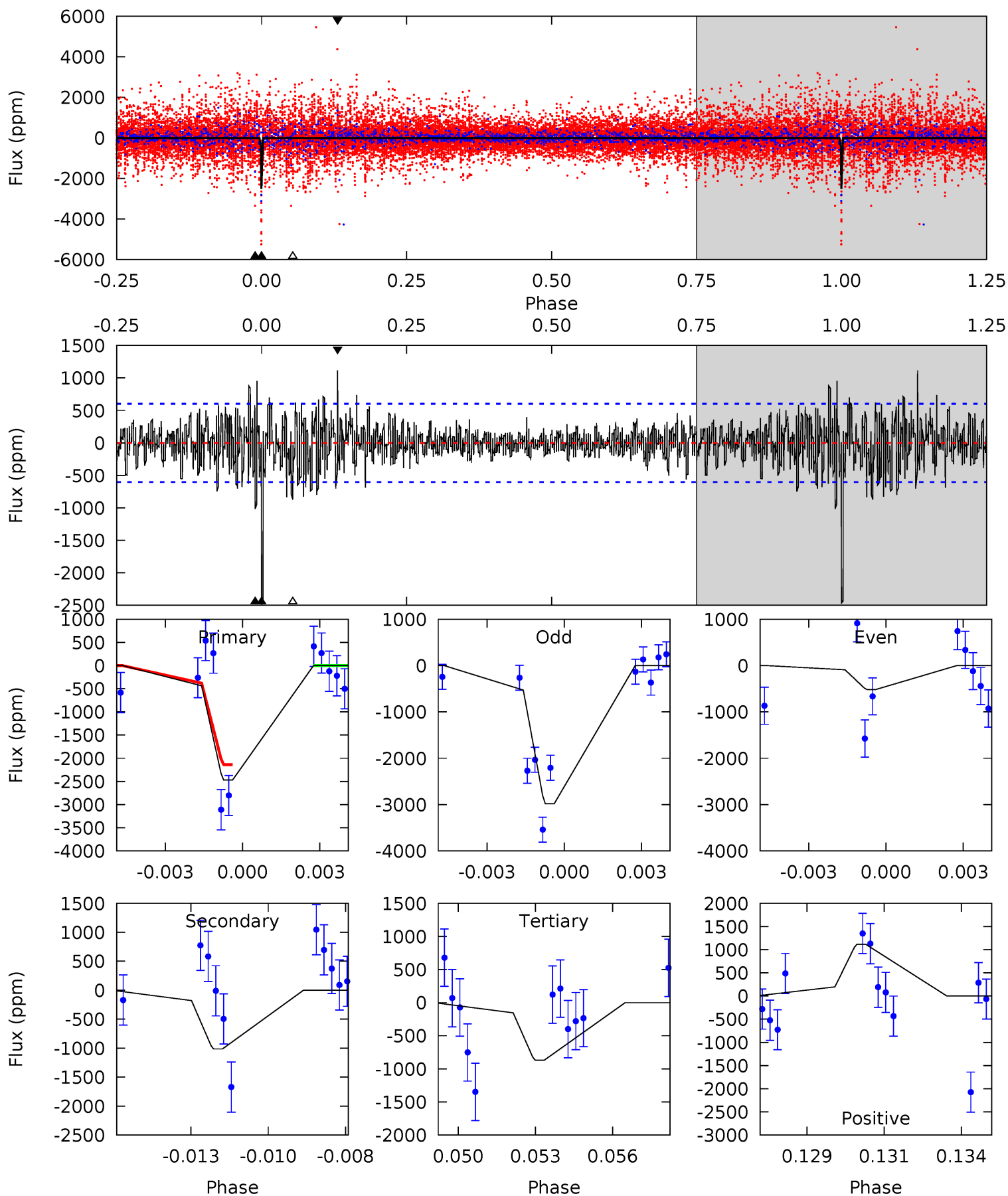
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	12.6	7.13	8.15	5.45	3.29	2.42	7.42	6.41	5.45	4.43	1.22	0.82	0.36	0.12



Alt Model-Shift Uniqueness Test

011624538-05, P = 222.664503 Days, E = 174.846437 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	8.91	7.65	9.79	5.28	3.02	1.88	14.1	11.9	1.26	-0.89	11.5	0	0.31	0



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1750 ± 139	$6.08^{+4.74}_{-3.90}$	368^{+21}_{-16}	4461^{+2669}_{-823}	12112^{+80067}_{-8229}
Alt.	-1014 ± 114	$5.68^{+5.03}_{-3.46}$	367^{+19}_{-18}	4094^{+2057}_{-761}	8001^{+44605}_{-5765}

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 $A_{obs} \gg 1.0$

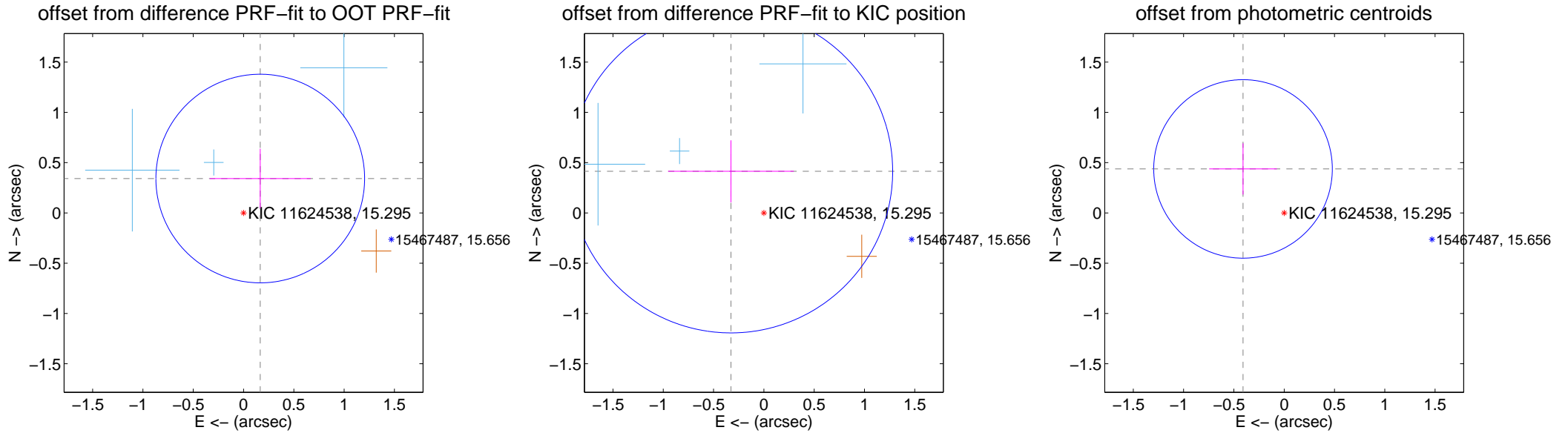
DV Centroid Data

Supplemental centroid analysis for 011624538-05. Kepler magnitude: 15.29. Transit SNR 9.58

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.380 ± 0.346	1.10	-0.166 ± 0.502	0.342 ± 0.297
PRF-fit source offset from KIC position	0.527 ± 0.536	0.98	0.327 ± 0.625	0.414 ± 0.309
photometric centroid source offset	0.60 ± 0.30	2.02	0.41 ± 0.34	0.44 ± 0.25



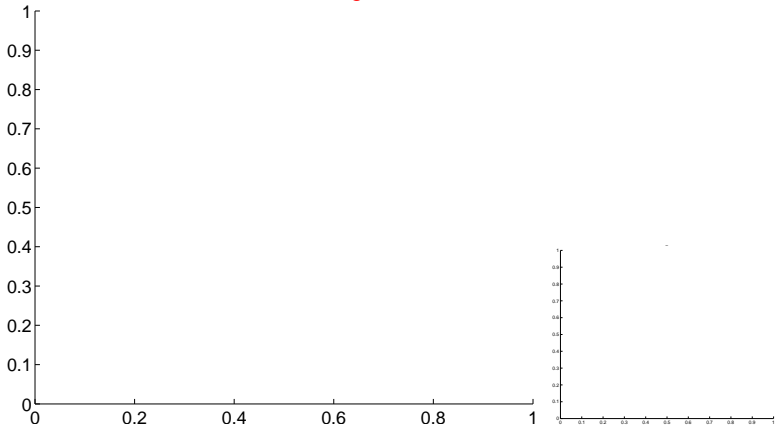
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

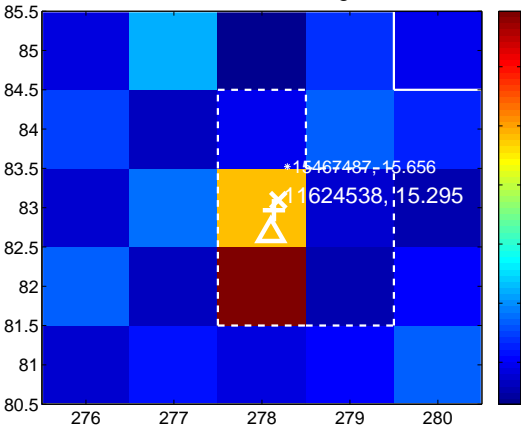
Q1 no difference image



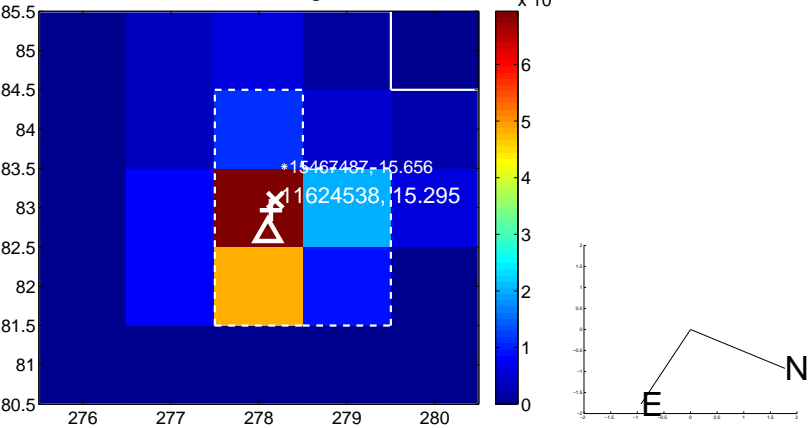
Q1 no OOT image



Q2 difference image



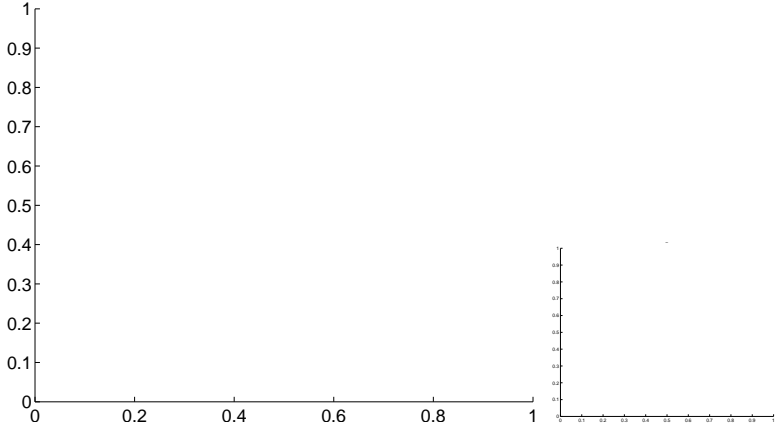
Q2 OOT image



Q3 no difference image



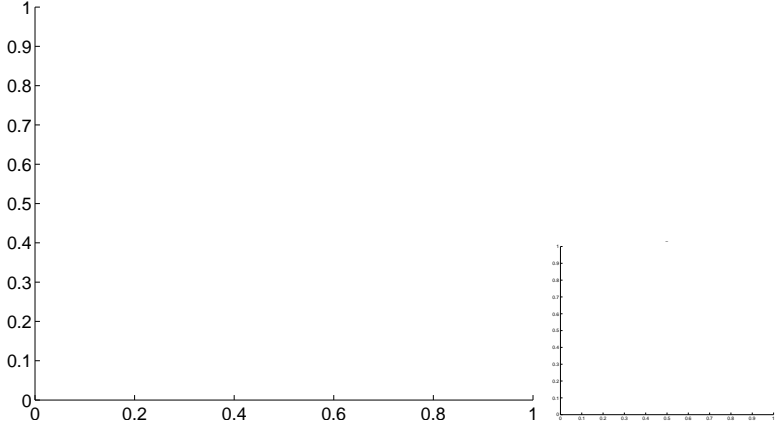
Q3 no OOT image



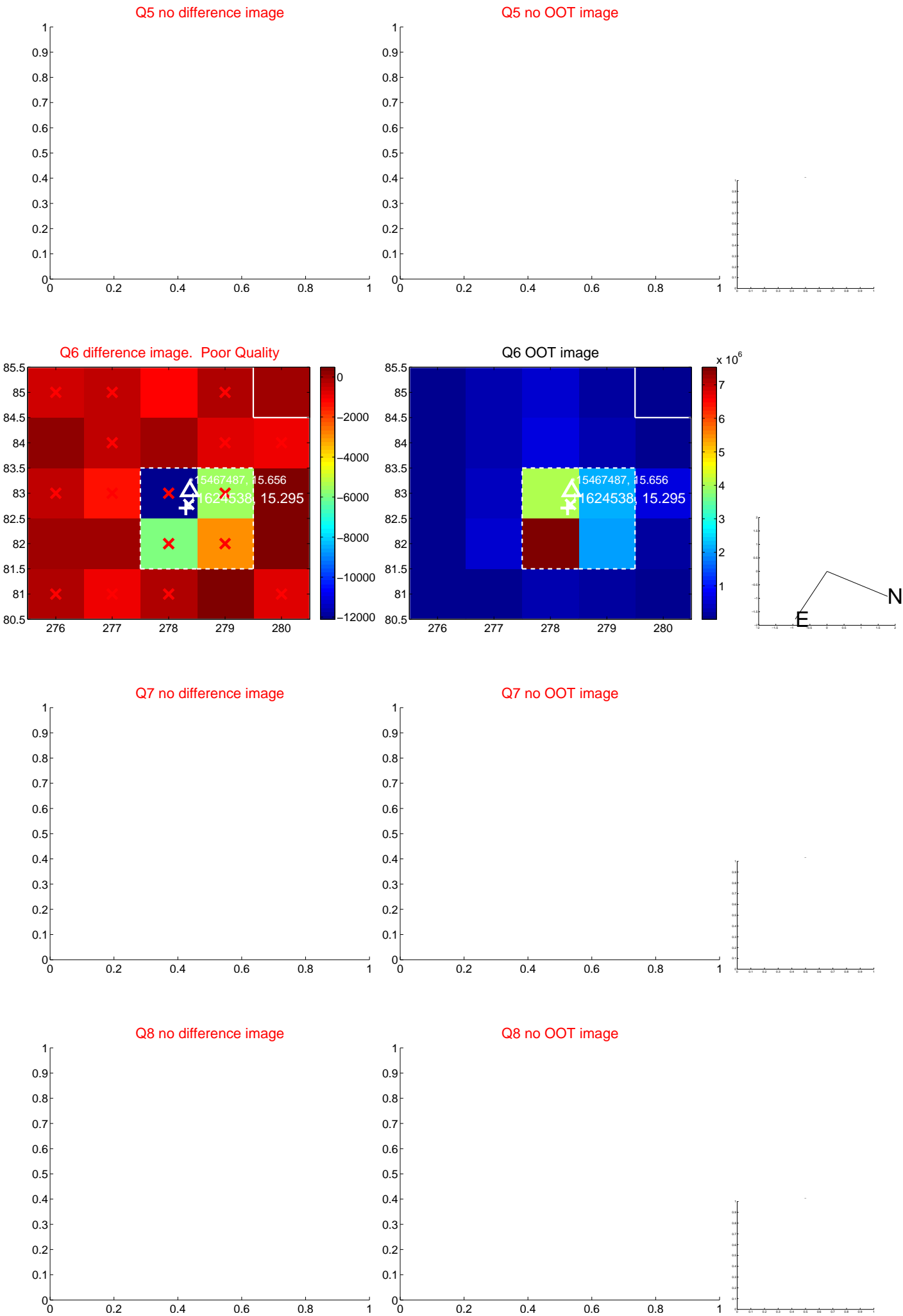
Q4 no difference image



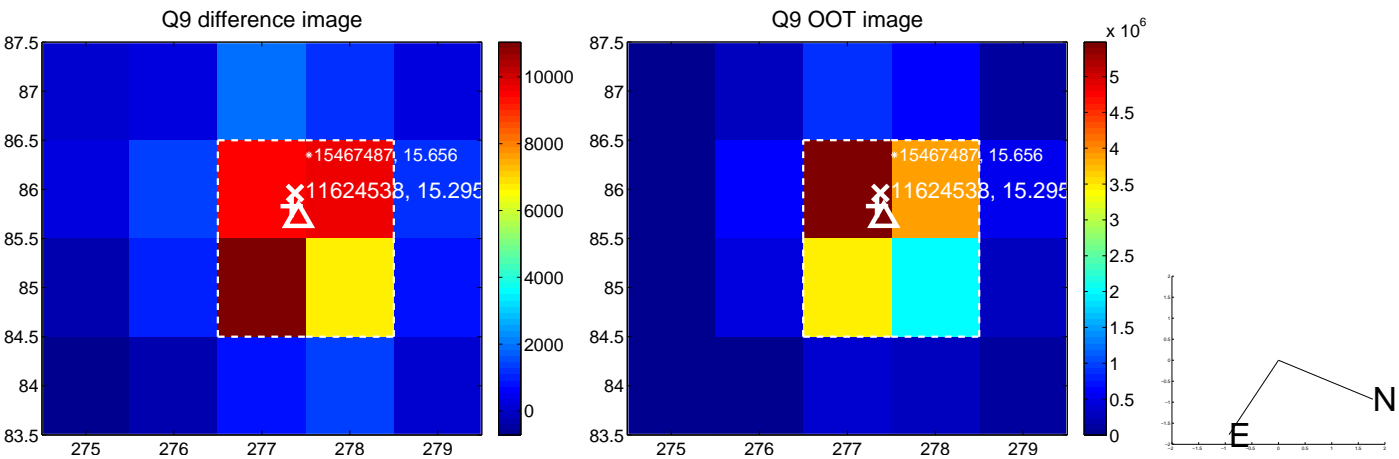
Q4 no OOT image



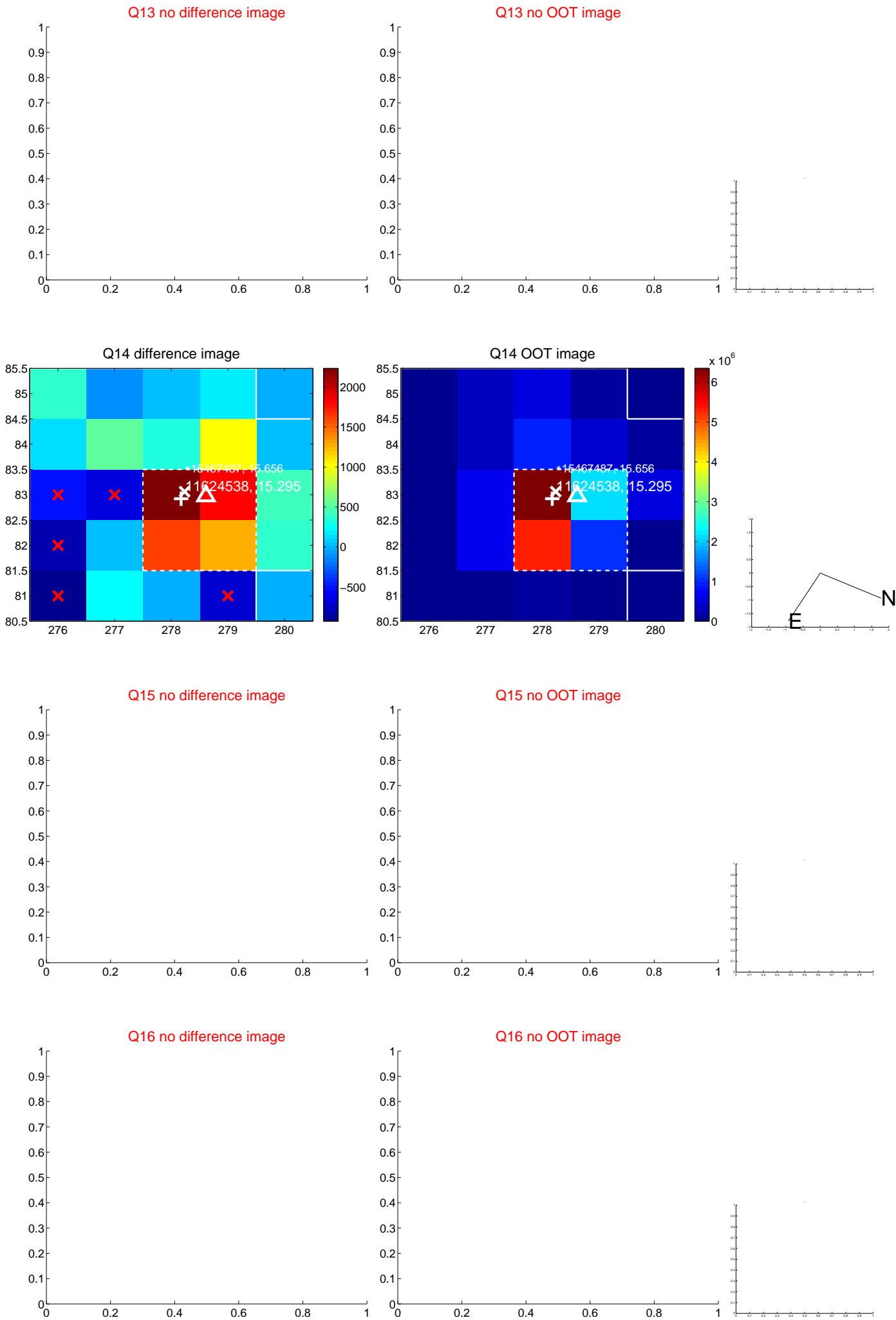
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



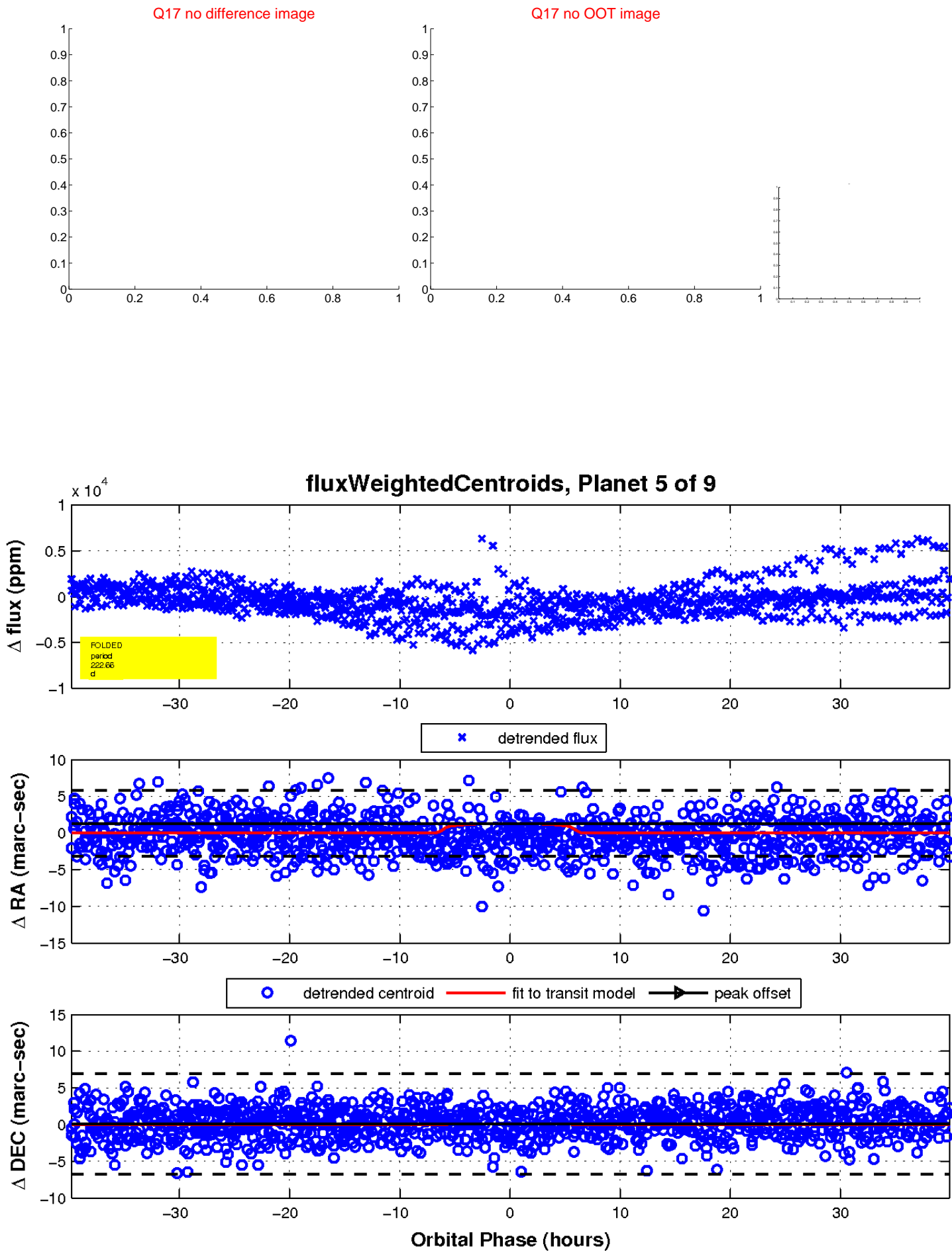
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

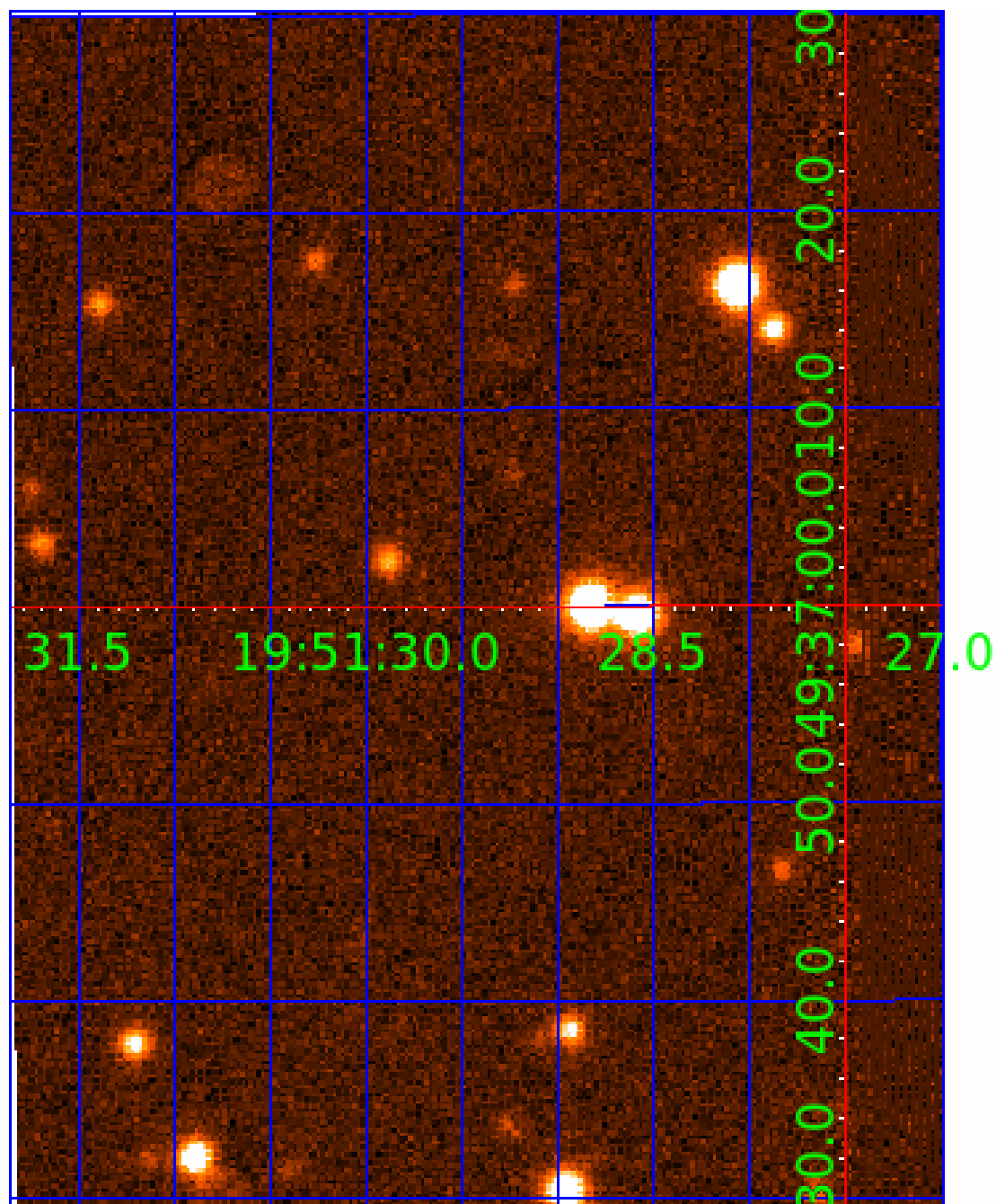


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

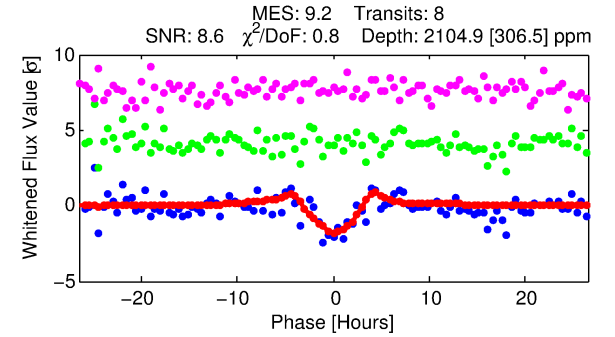
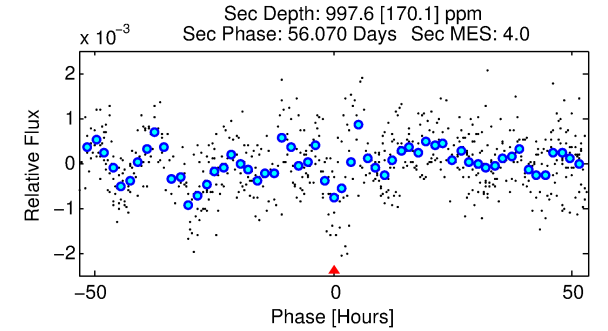
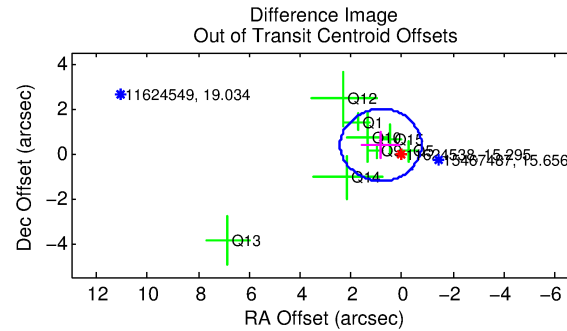
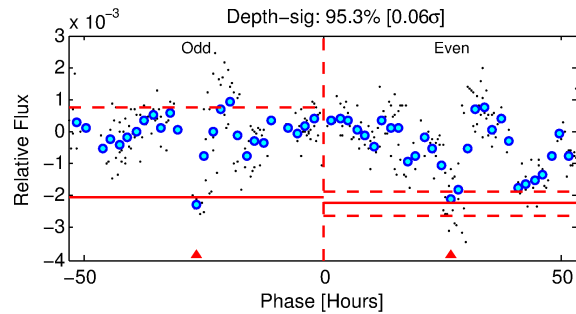
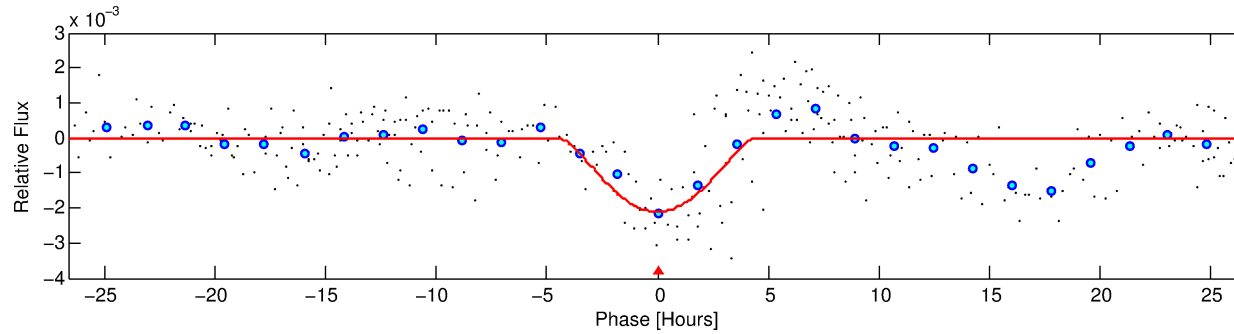
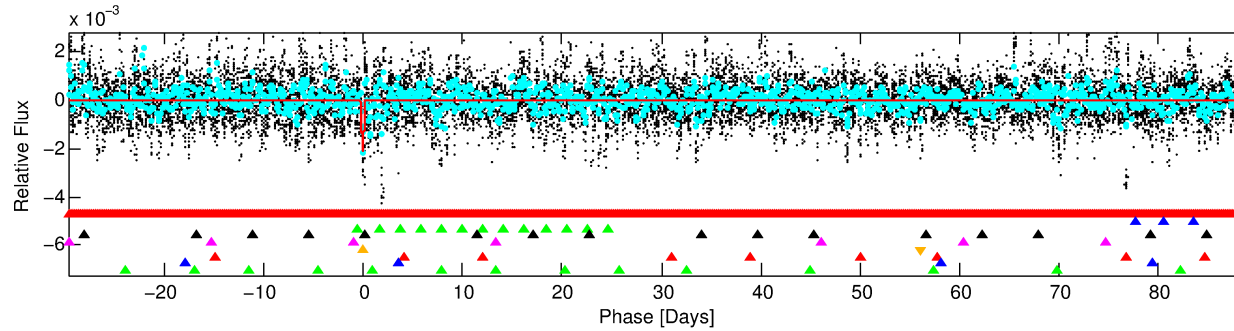
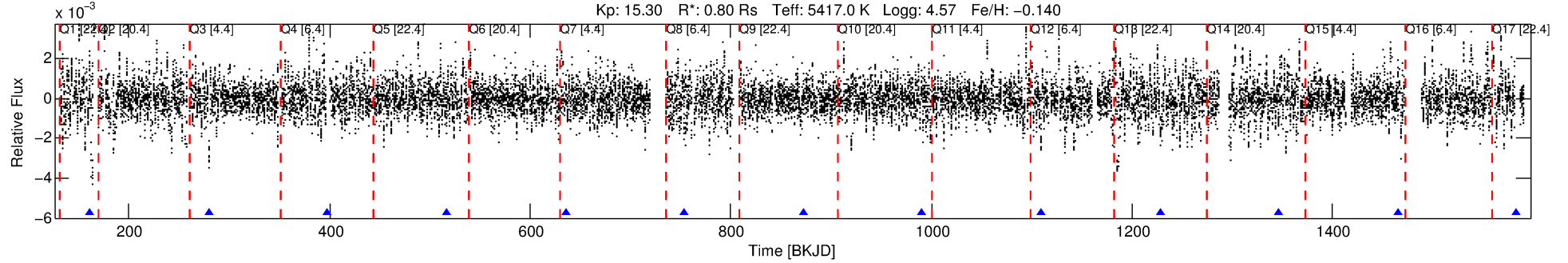
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-06

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 6 of 9 Period: 118.491 d



DV Fit Results:

Period = 118.49139 [0.00247] d
Epoch = 161.3515 [0.0172] BKJD
Rp/R* = 0.0796 [0.1573]
a/R* = 42.05 [17.94]
b = 1.00 [0.23]
Seff = 2.45 [0.69]
Teq = 319 [23] K
Rp = 6.93 [13.77] Re
a = 0.4479 [0.0758] AU
Ag = 2289.84 [9073.14] [0.25 σ]
Teffp = 3412 [3376] K [0.92 σ]

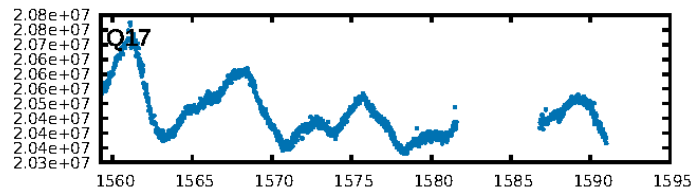
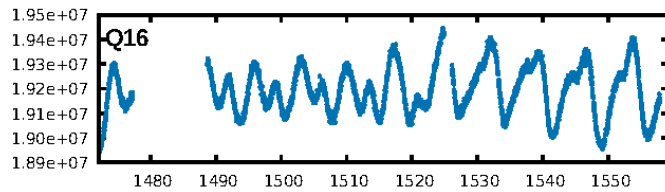
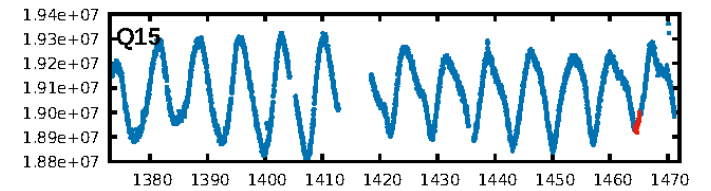
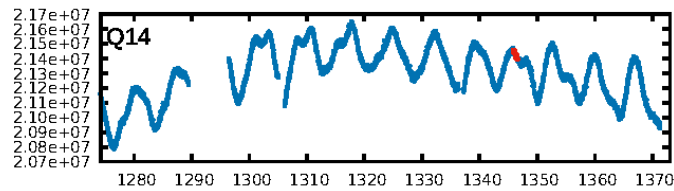
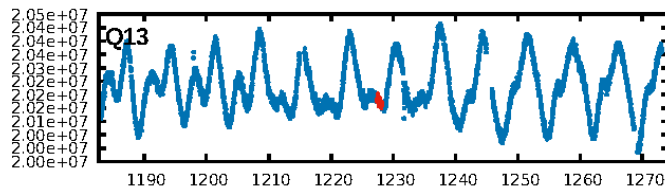
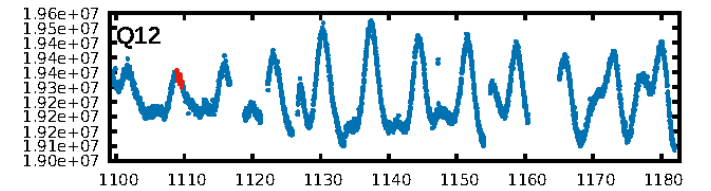
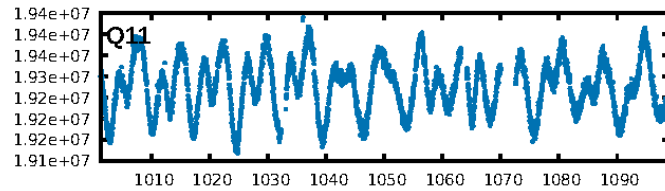
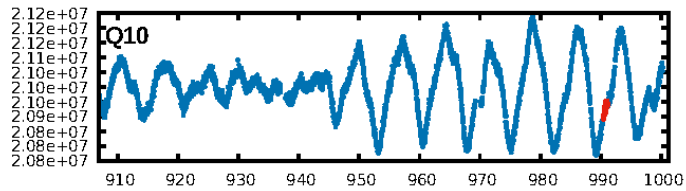
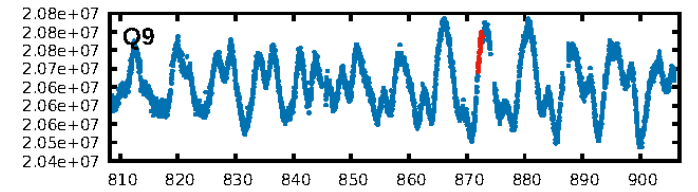
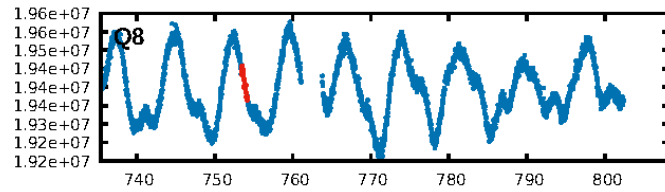
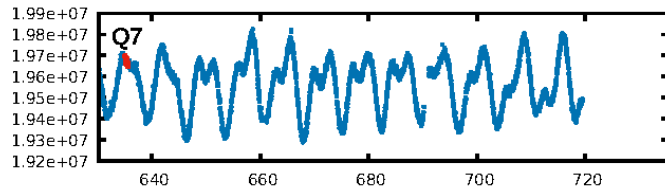
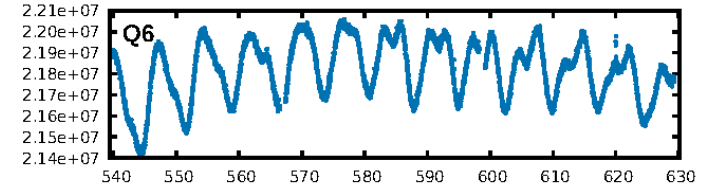
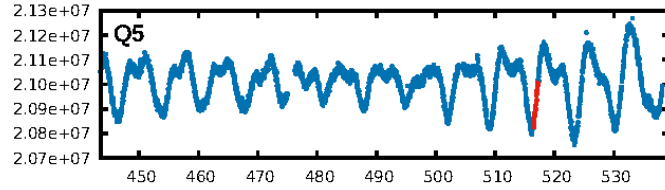
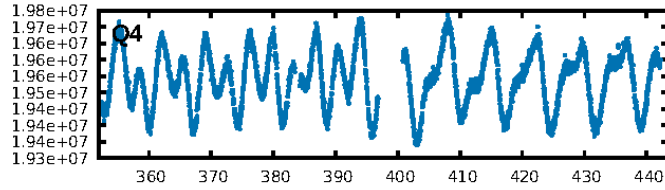
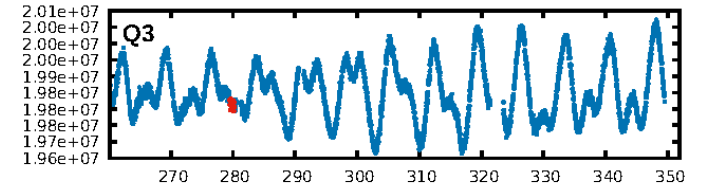
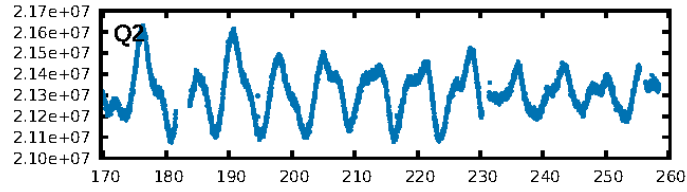
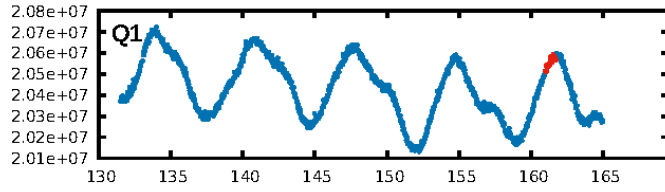
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.58 σ]
LongPeriod-sig: 100.0% [95.20 σ]
ModelChiSquare2-sig: 53.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.51e-13
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -1.496
Centroid-sig: 42.8%
Centroid-so: 0.867 arcsec [2.37 σ]
OotOffset-rm: 0.909 arcsec [1.71 σ]
KicOffset-rm: 1.475 arcsec [2.58 σ]
OotOffset-st: 2/1/1/4 [8]
KicOffset-st: 2/1/1/4 [8]
DiffImageQuality-fgm: 0.25 [2/8]
DiffImageOverlap-fno: 0.00 [0/11]

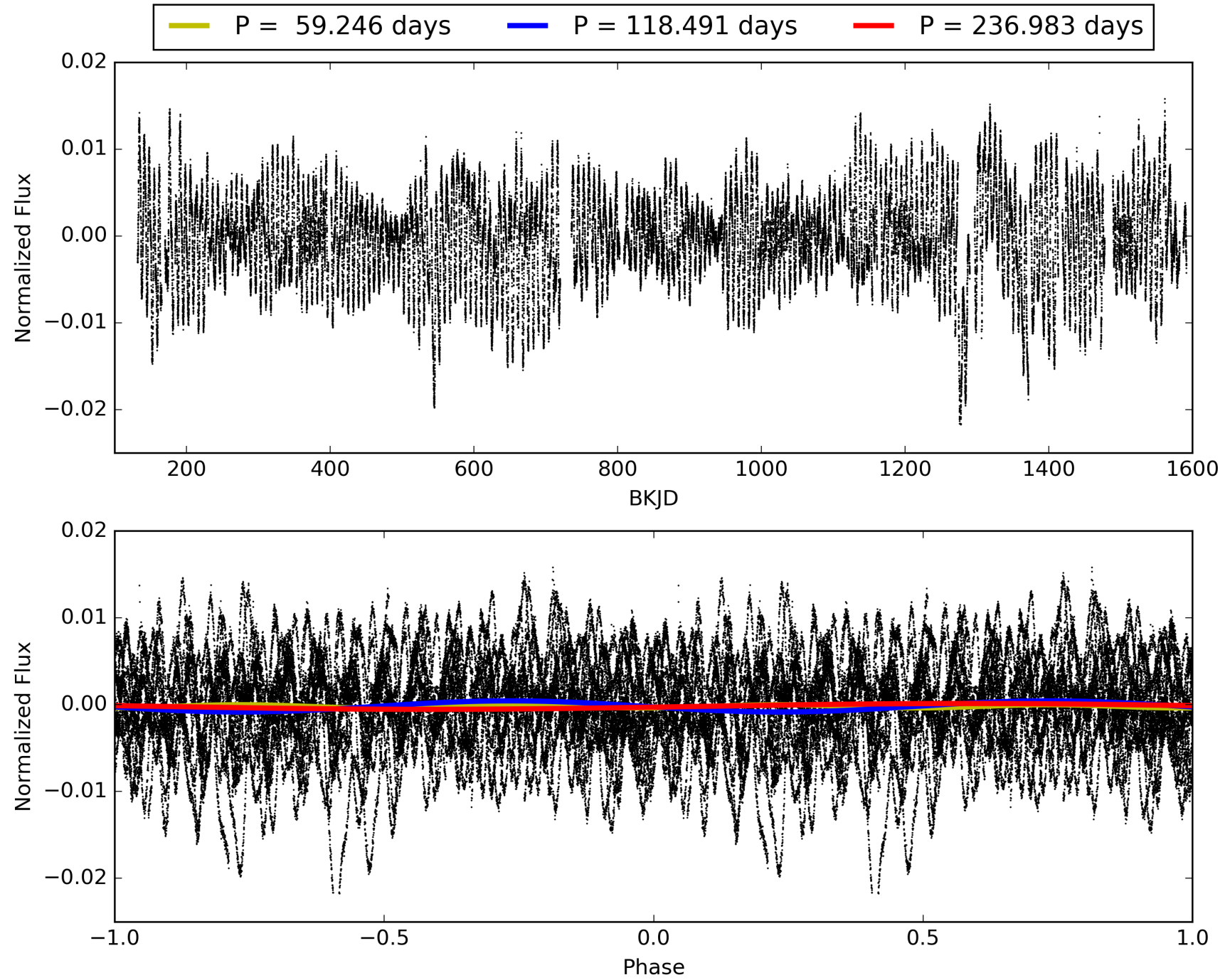
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:42 Z

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

TCE 011624538-06, PDC Light Curves

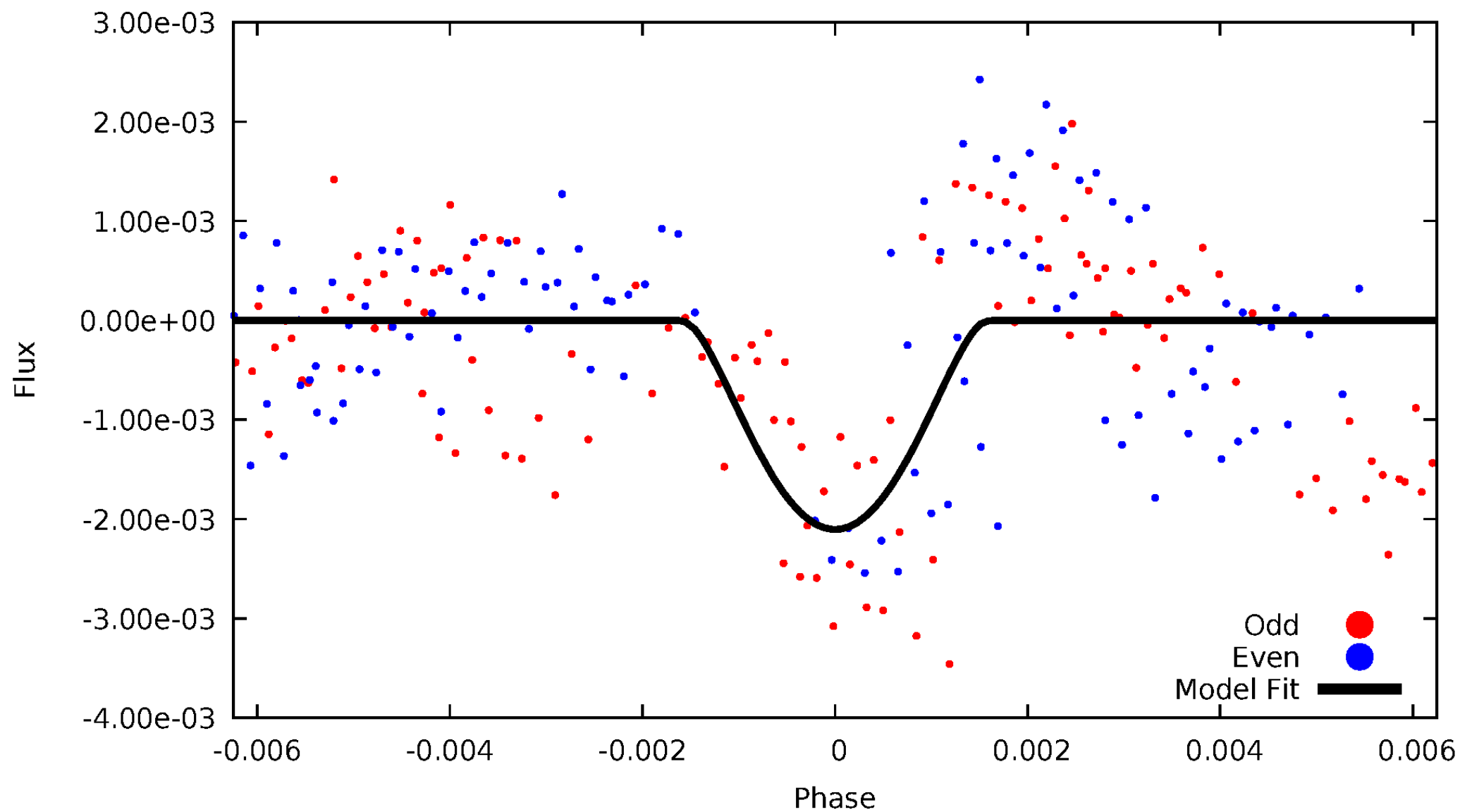


TCE 011624538-06



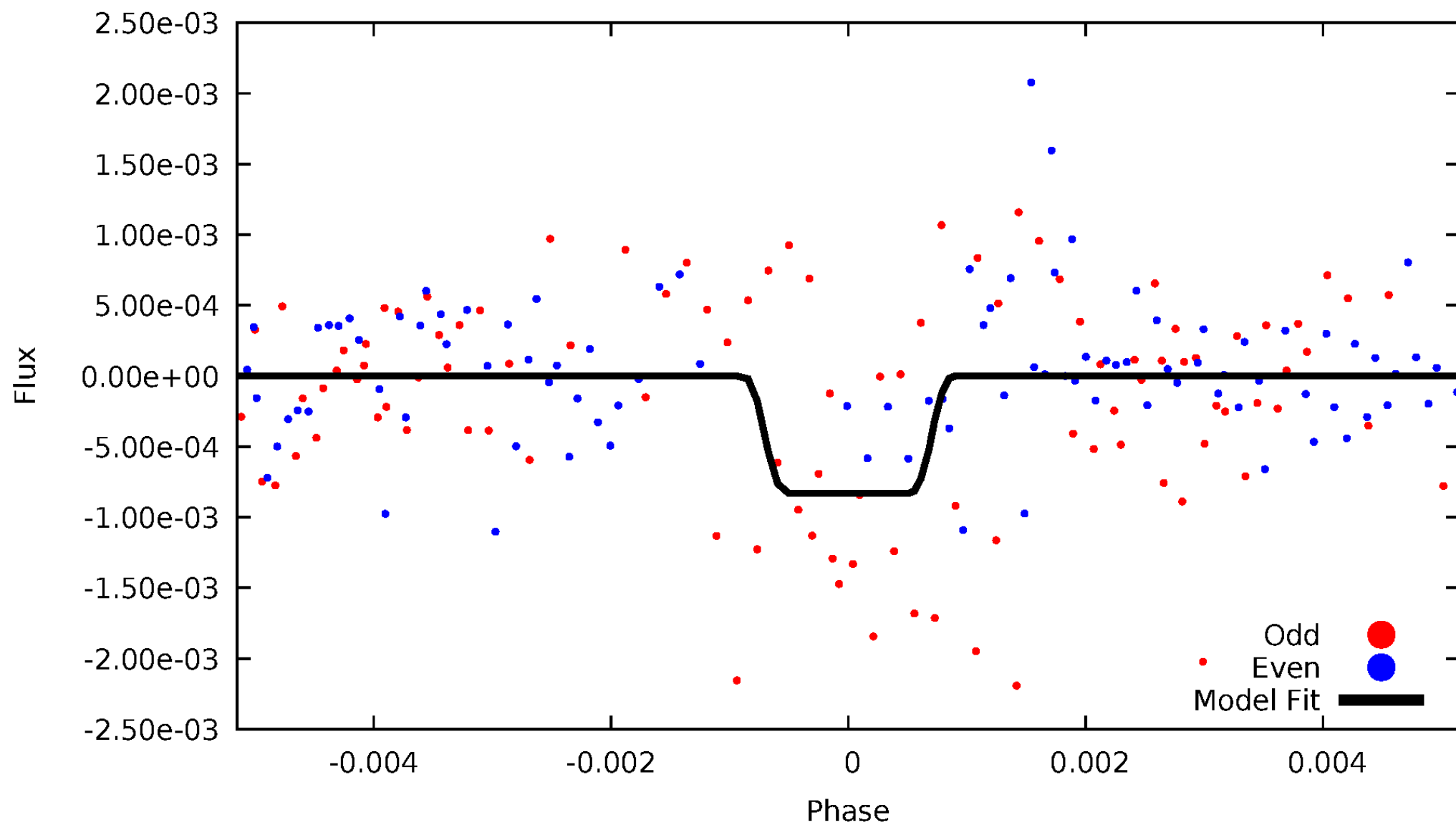
DV Odd/Even

TCE 011624538-06



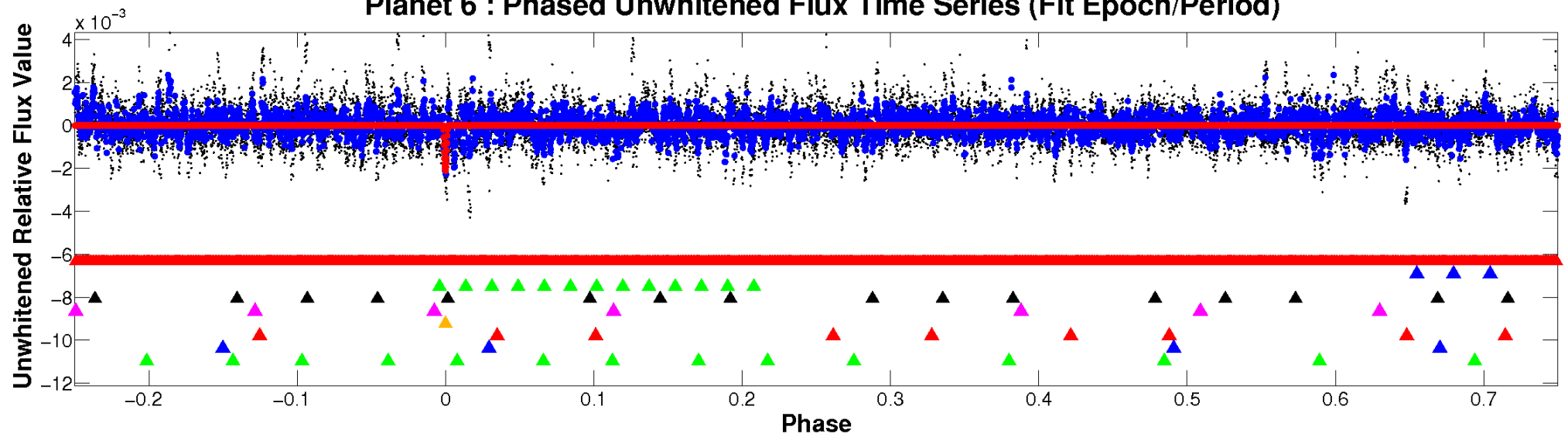
ALT Odd/Even

TCE 011624538-06

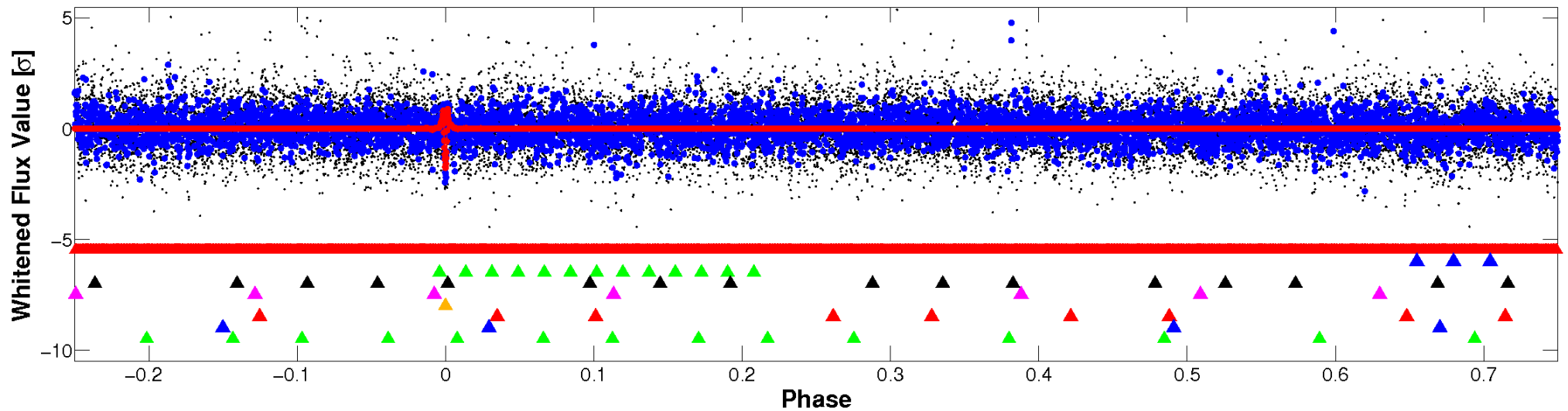


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

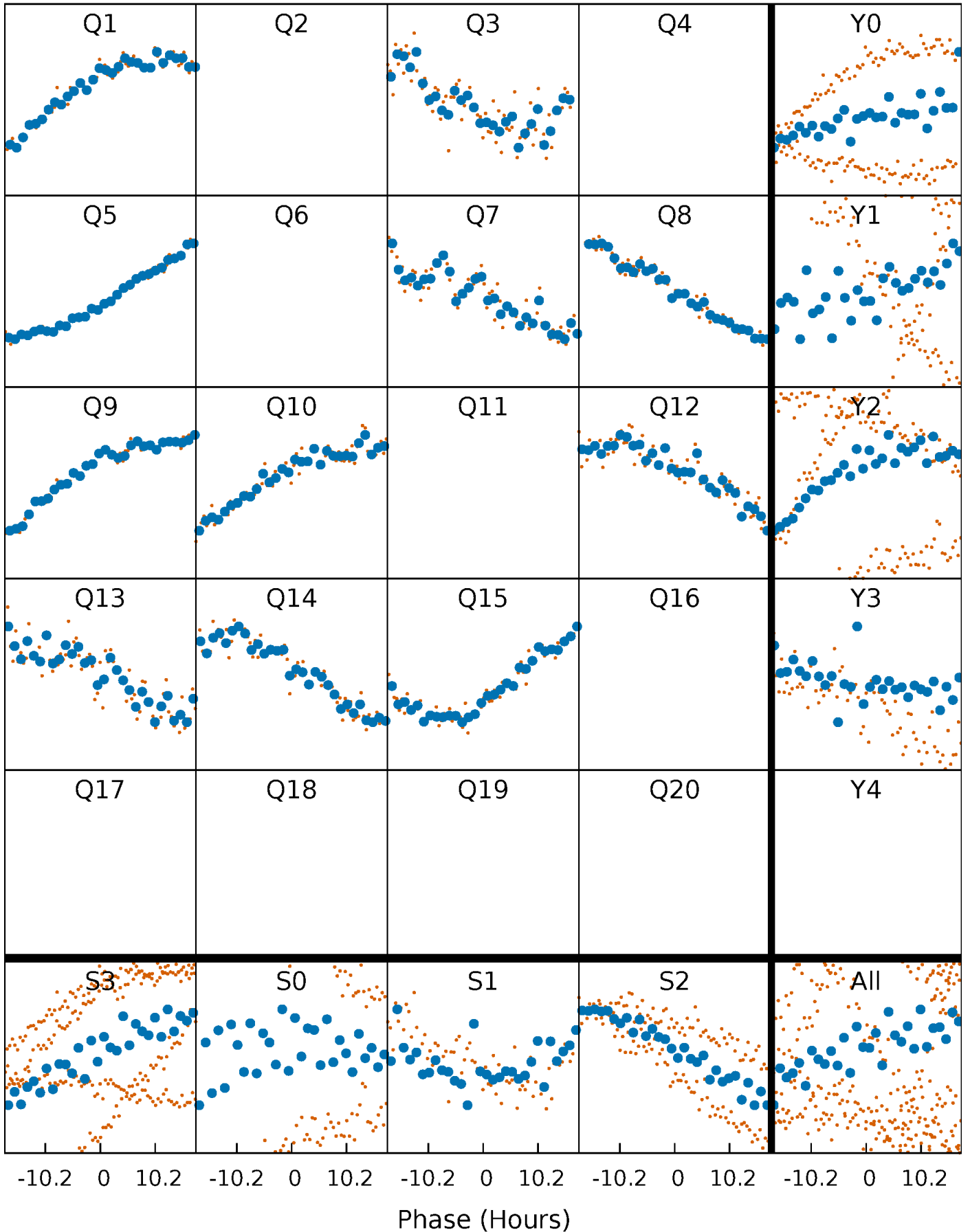


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



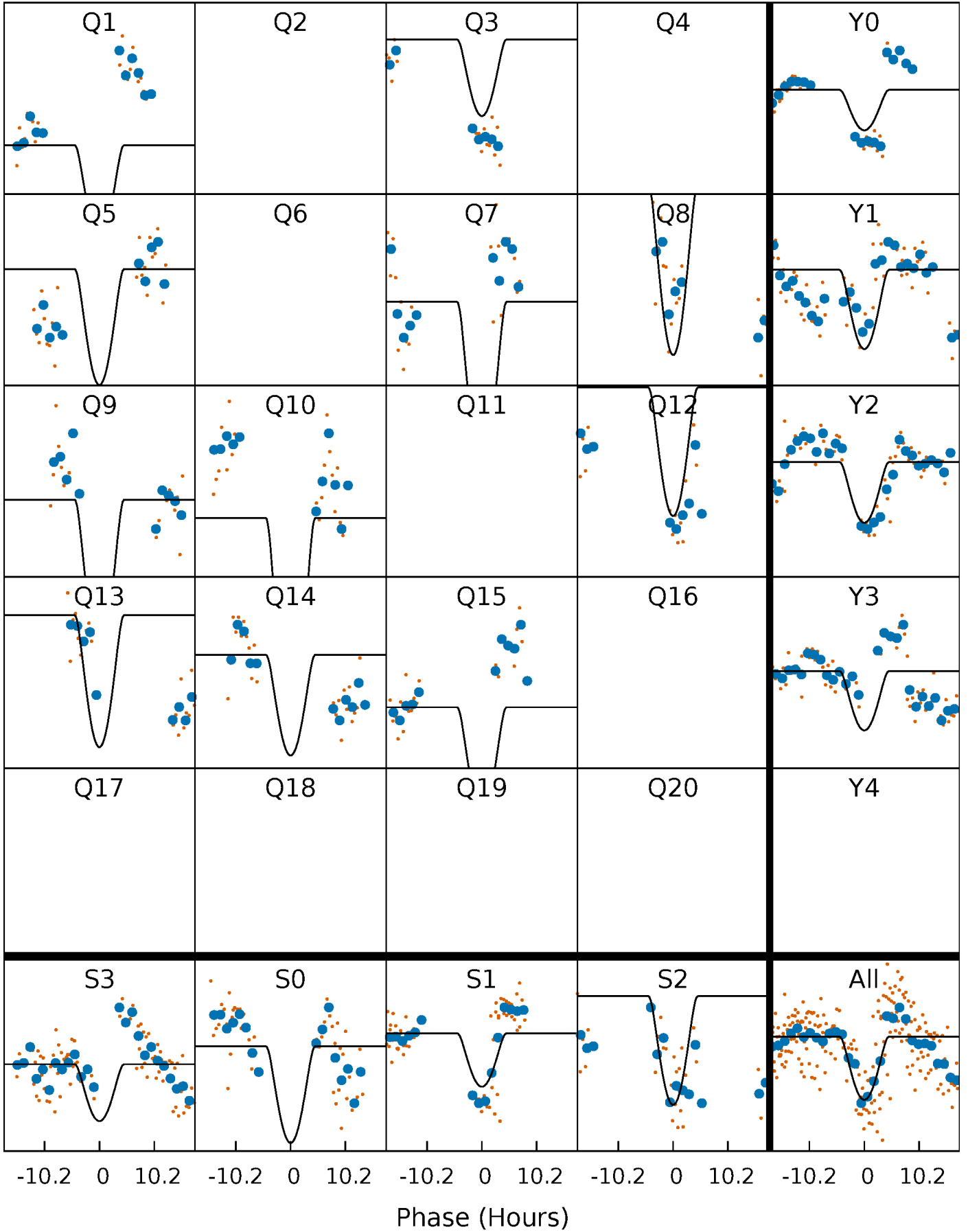
PDC Quarter-Phased Transit Curves

TCE 011624538-06 P=118.491387 Days $T_0=161.351472$ (BKJD)



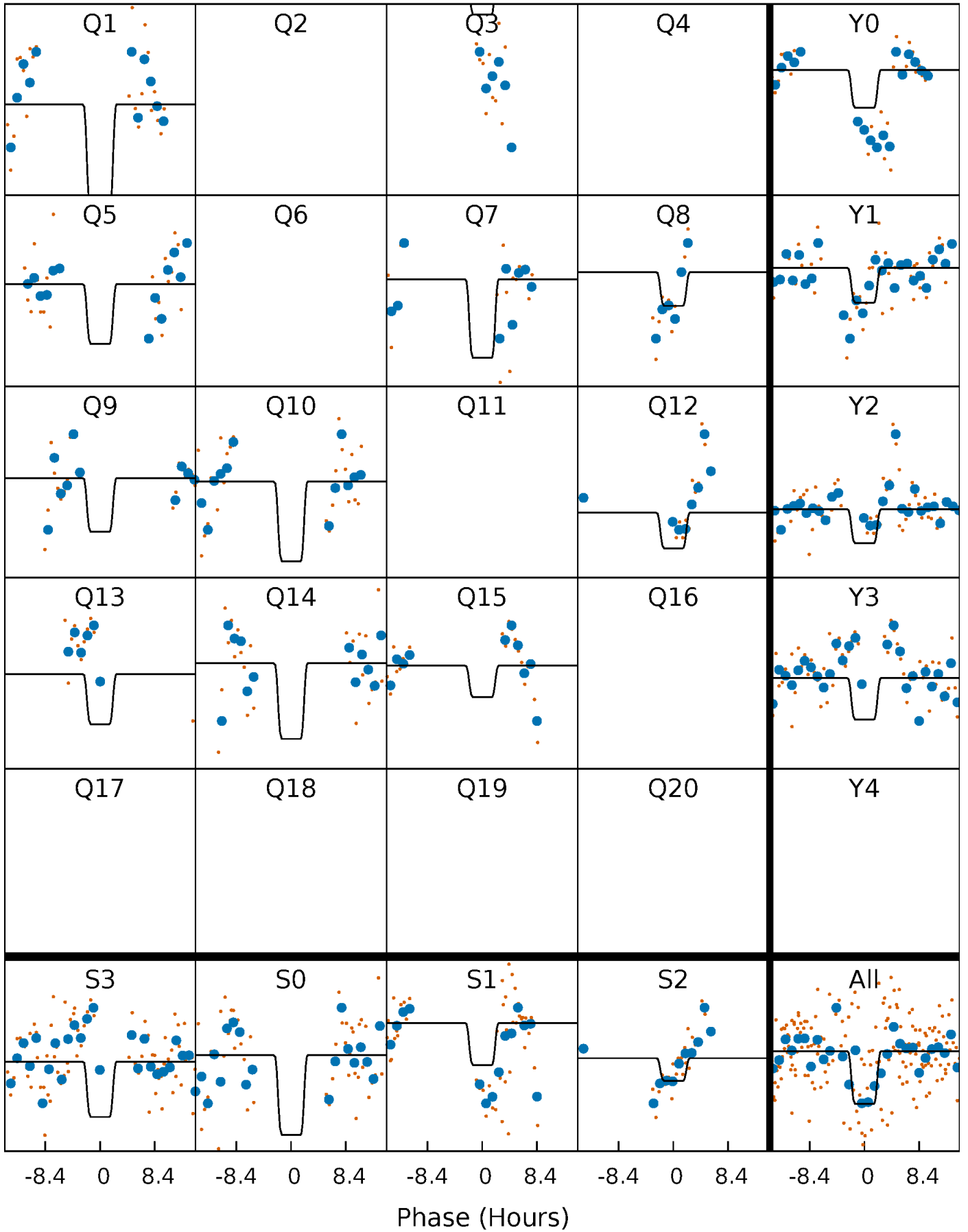
DV Quarter-Phased Transit Curves

TCE 011624538-06 P=118.491387 Days $T_0=161.351472$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

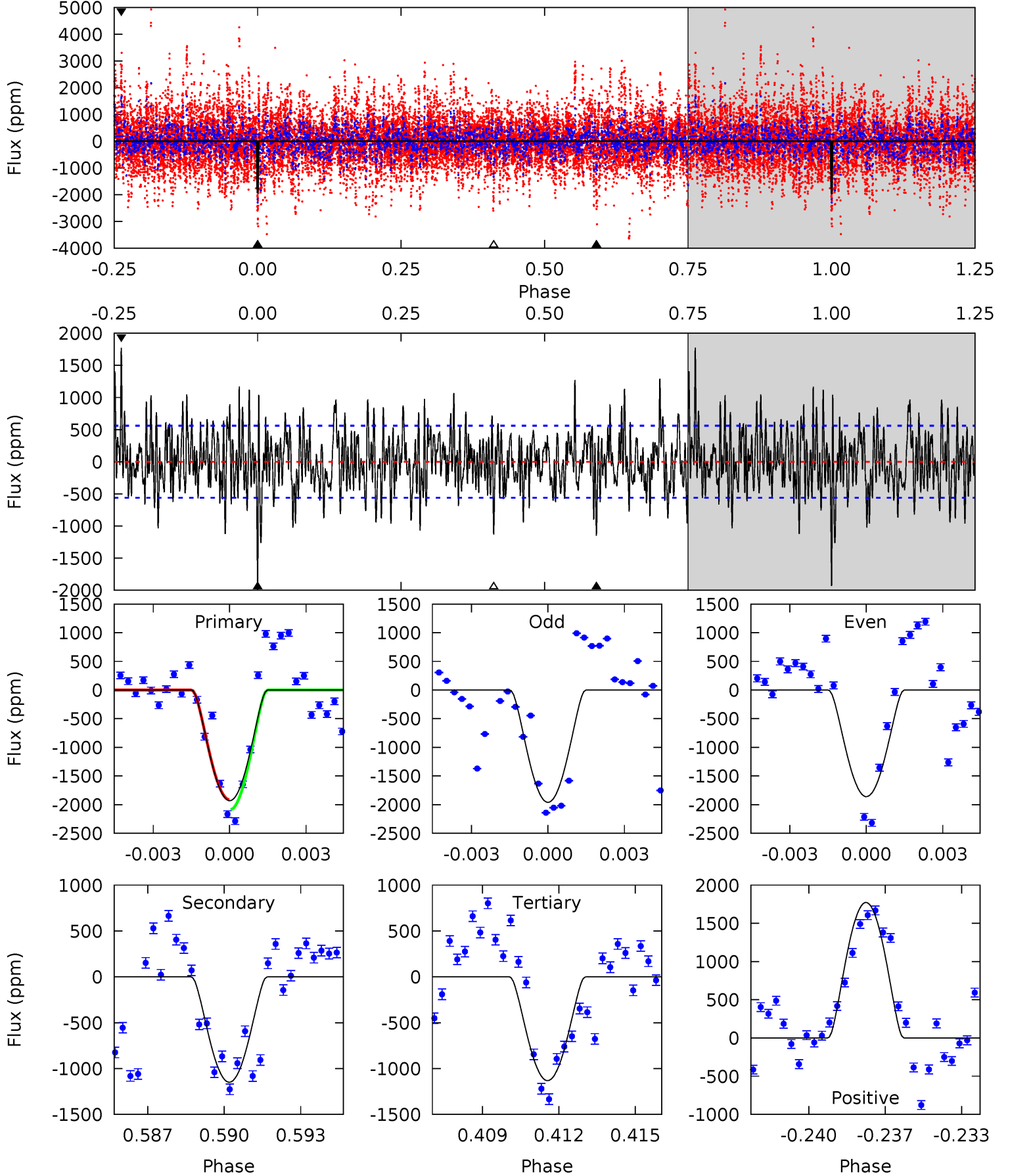
TCE 011624538-06 P=118.491949 Days $T_0=161.323678$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-06, P = 118.491387 Days, E = 42.860085 Days

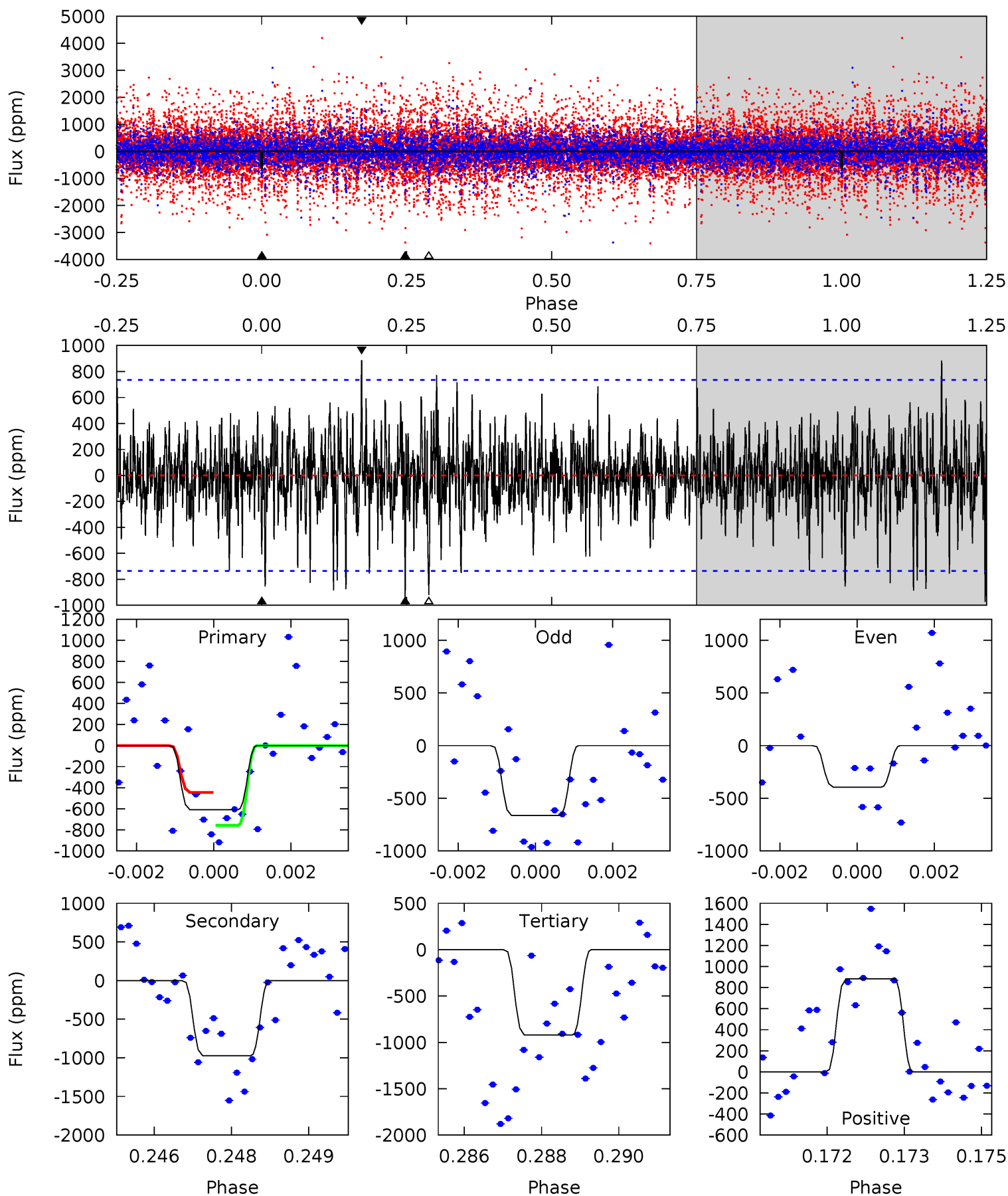
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.1	10.7	10.6	16.6	5.24	2.94	3.65	7.48	1.49	0.17	-5.82	0.43	126.1	0.48	0.80



Alt Model-Shift Uniqueness Test

011624538-06, P = 118.491949 Days, E = 42.831729 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.44	7.09	6.71	6.44	5.37	3.15	1.58	-2.28	-2.00	0.38	0.65	0.82	0.98	0.48	1.15



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1150 ± 107	$12.68^{+11.75}_{-8.70}$	453^{+23}_{-20}	3230^{+1533}_{-539}	766^{+7030}_{-552}
Alt.	-972 ± 137	$10.46^{+11.55}_{-7.34}$	455^{+25}_{-22}	3327^{+1930}_{-609}	975^{+10935}_{-757}

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 $A_{obs} \gg 1.0$

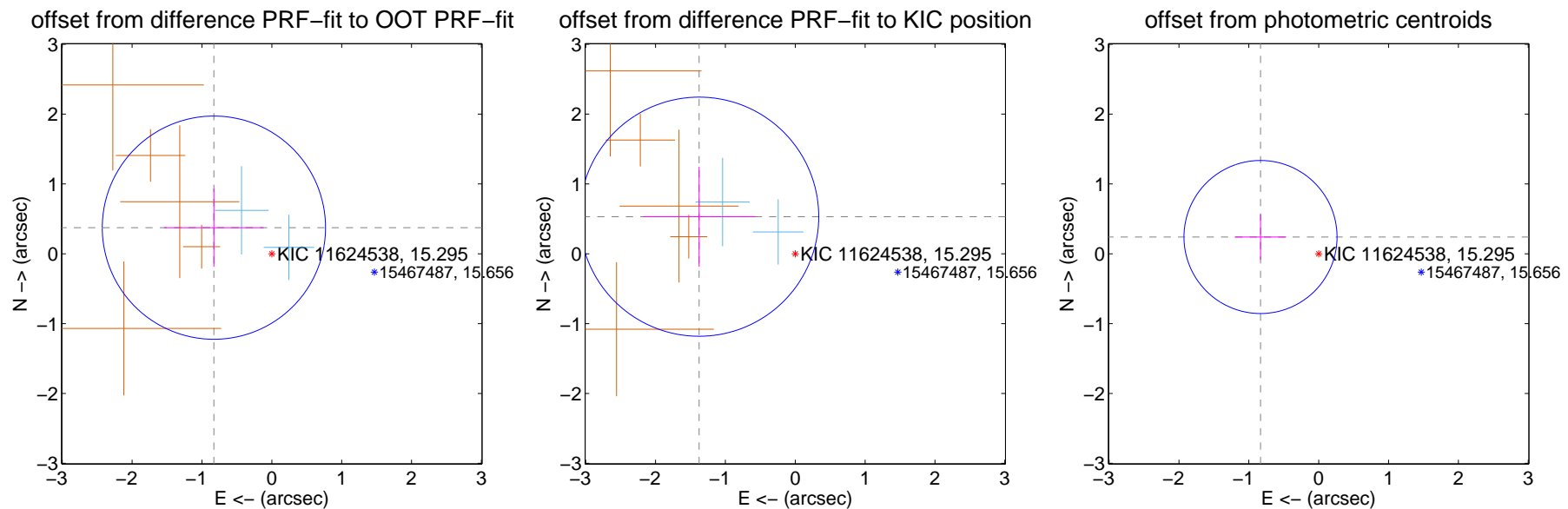
DV Centroid Data

Supplemental centroid analysis for 011624538-06. Kepler magnitude: 15.29. Transit SNR 8.56

There are 2 quarters with good PRF difference image offsets

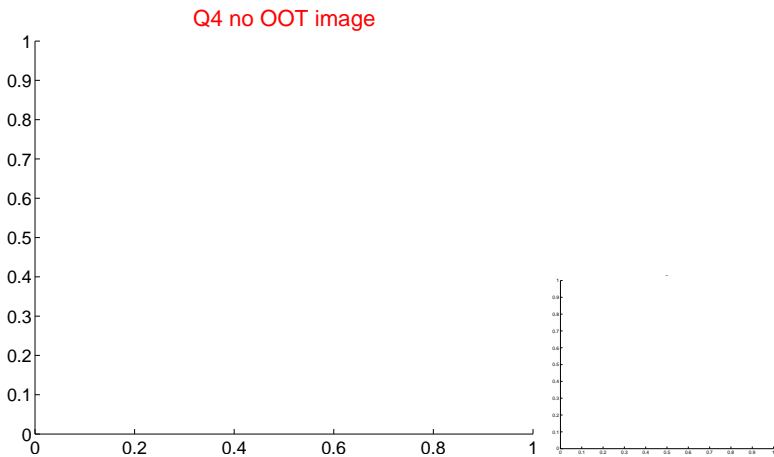
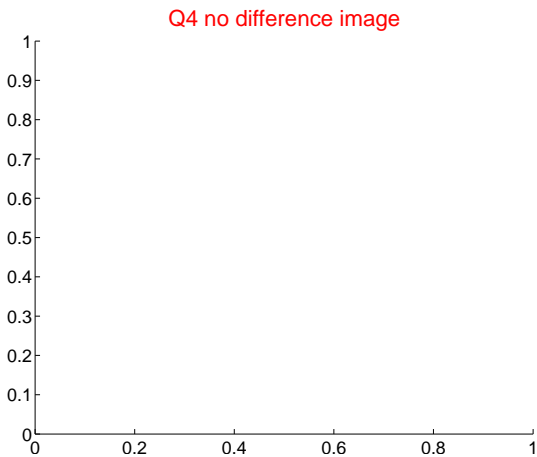
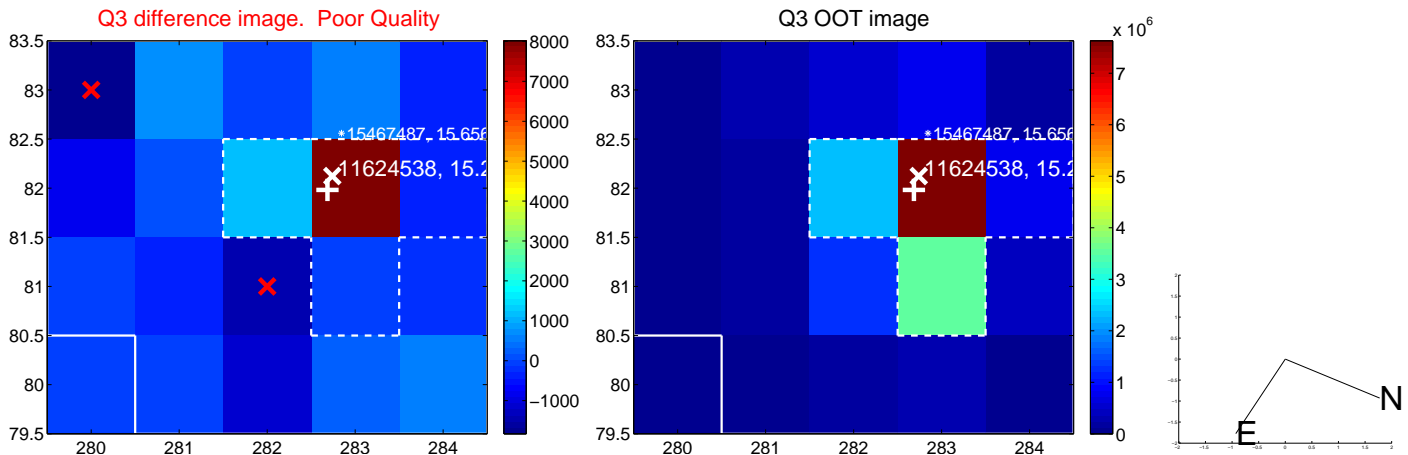
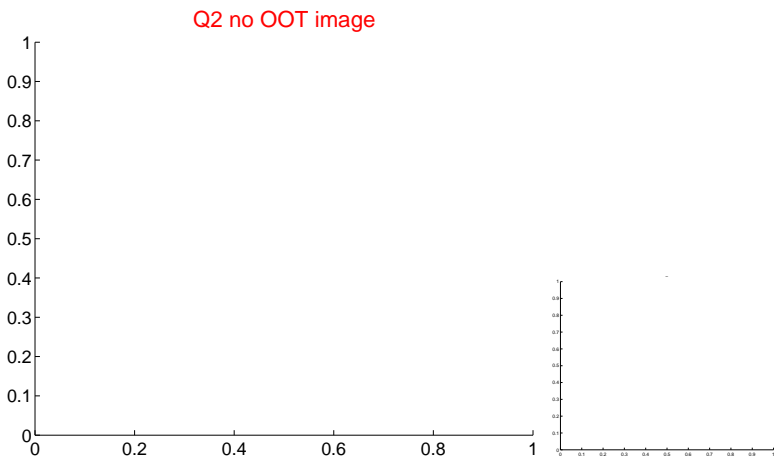
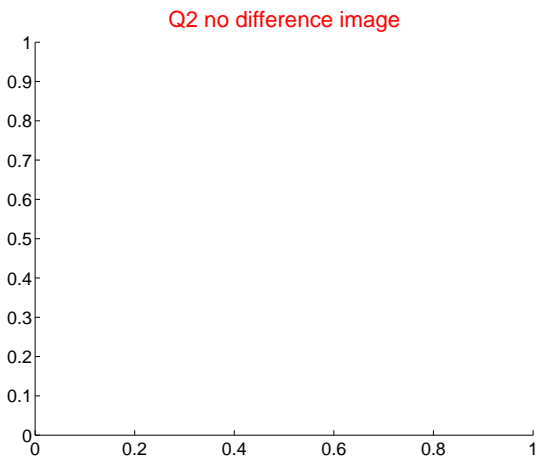
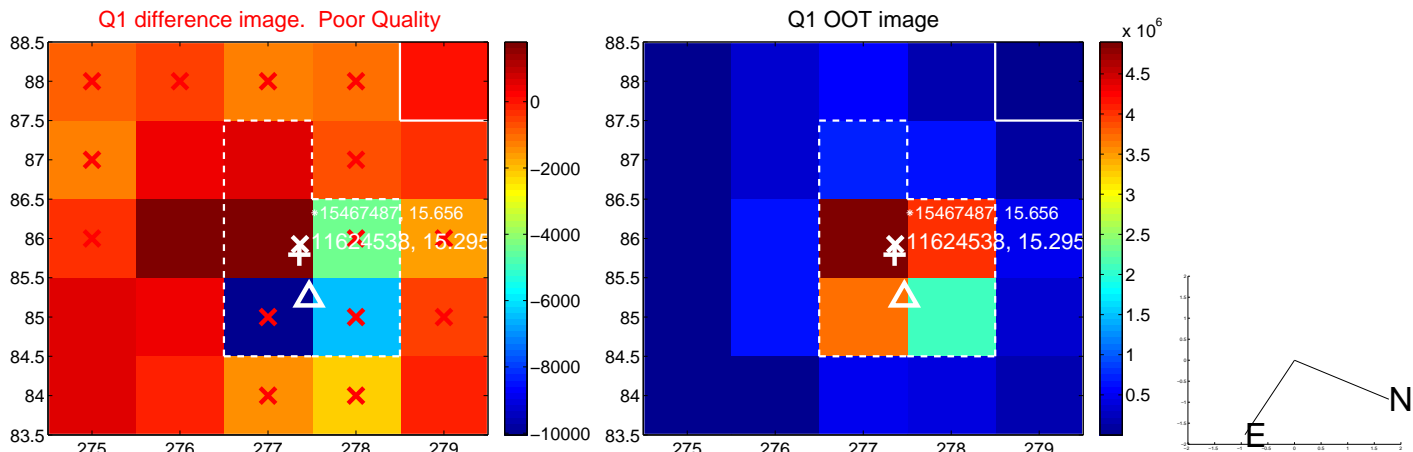
The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.909 ± 0.533	1.71	0.829 ± 0.712	0.374 ± 0.559
PRF-fit source offset from KIC position	1.475 ± 0.571	2.58	1.376 ± 0.808	0.531 ± 0.715
photometric centroid source offset	0.87 ± 0.37	2.37	0.83 ± 0.37	0.24 ± 0.32

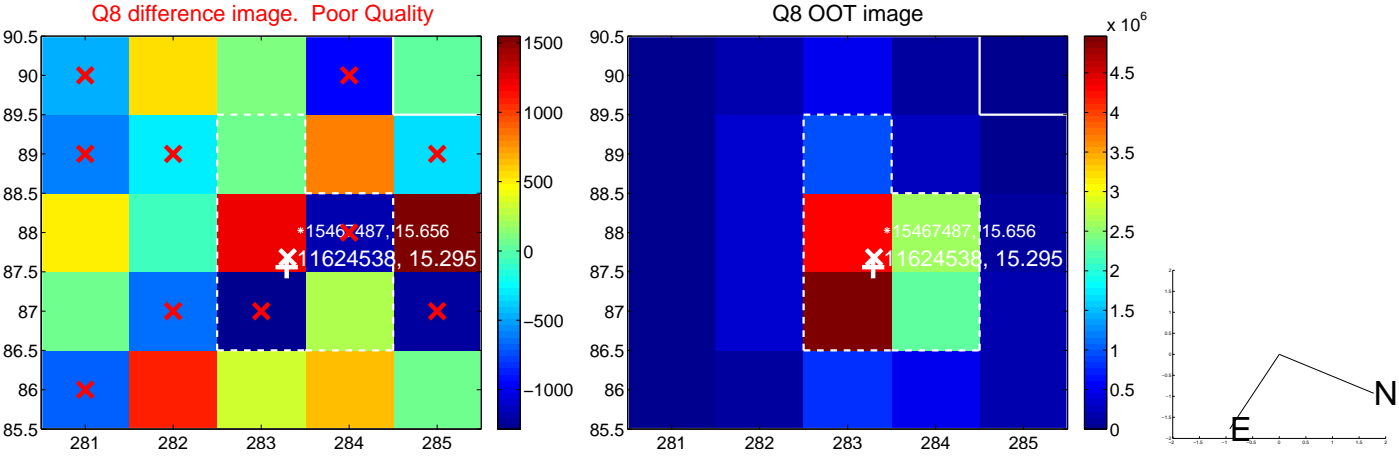
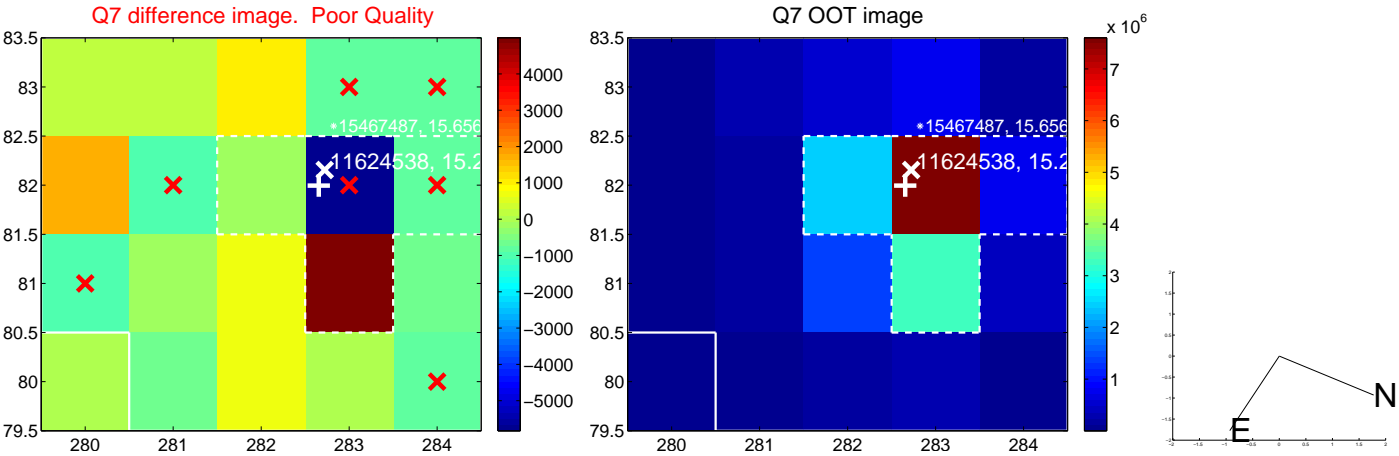
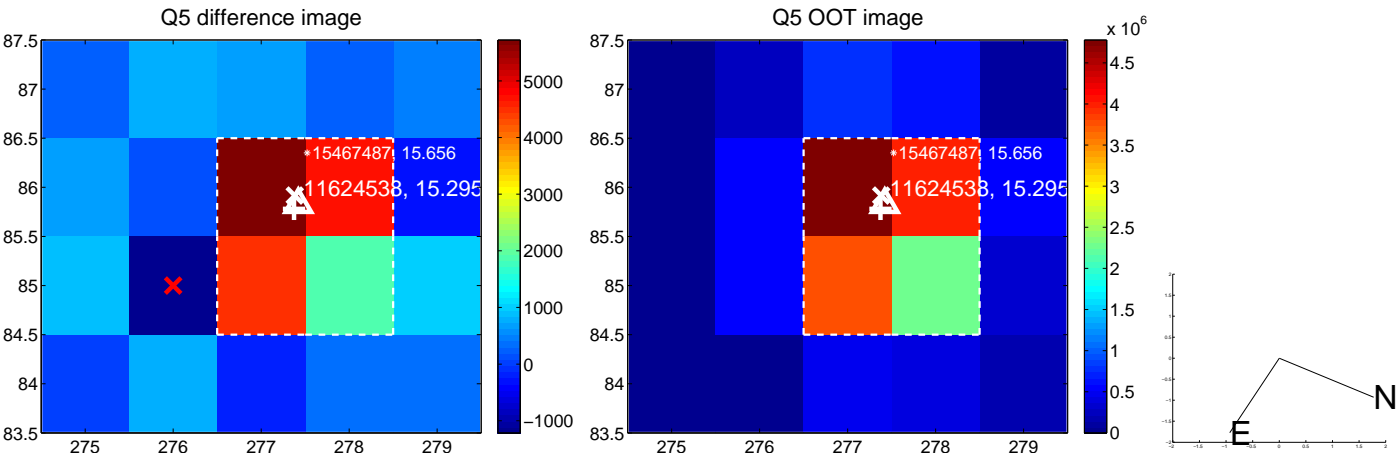


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

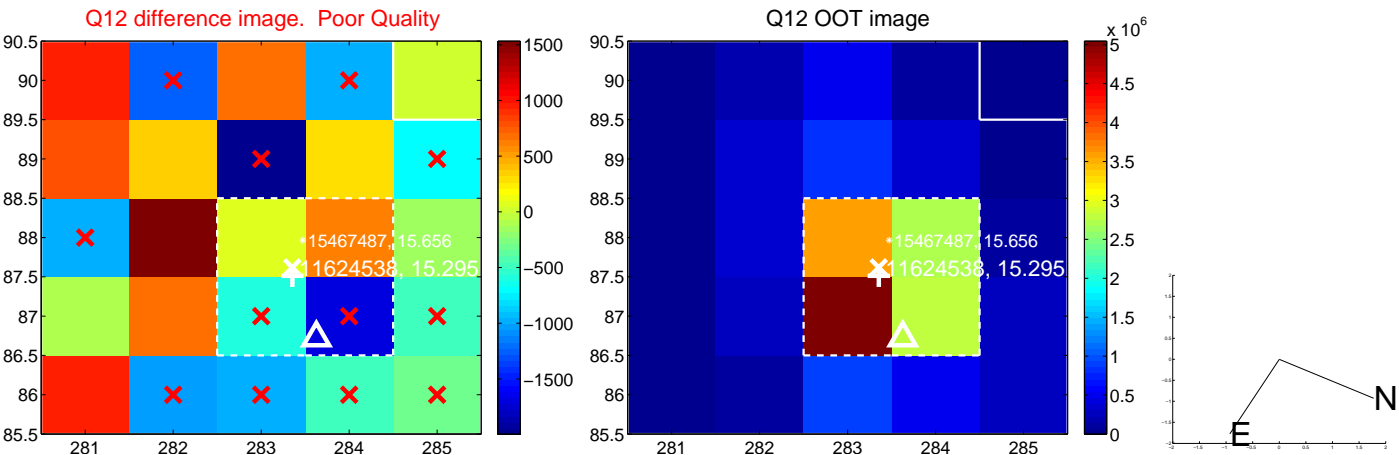
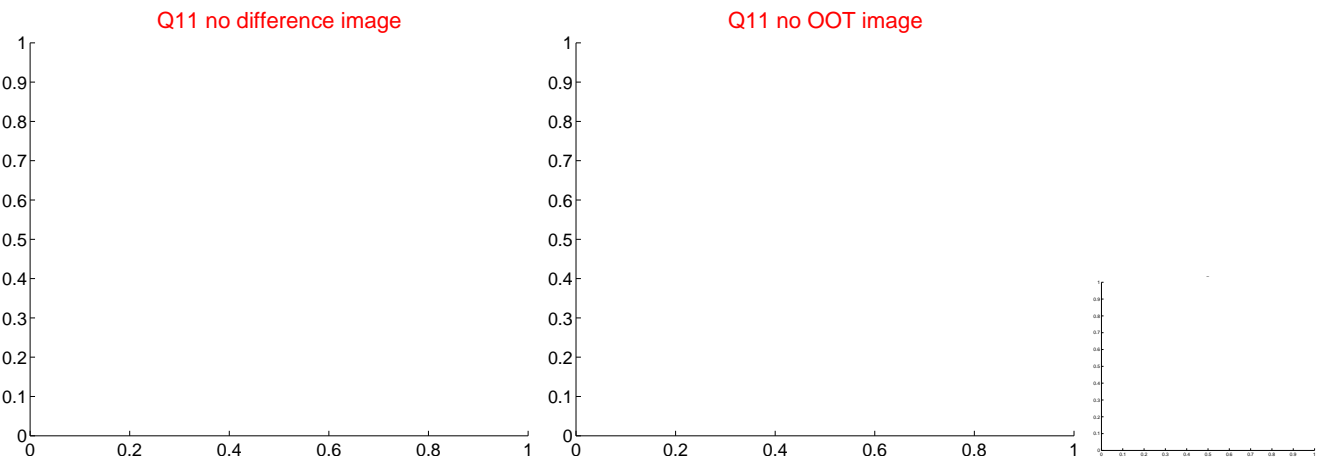
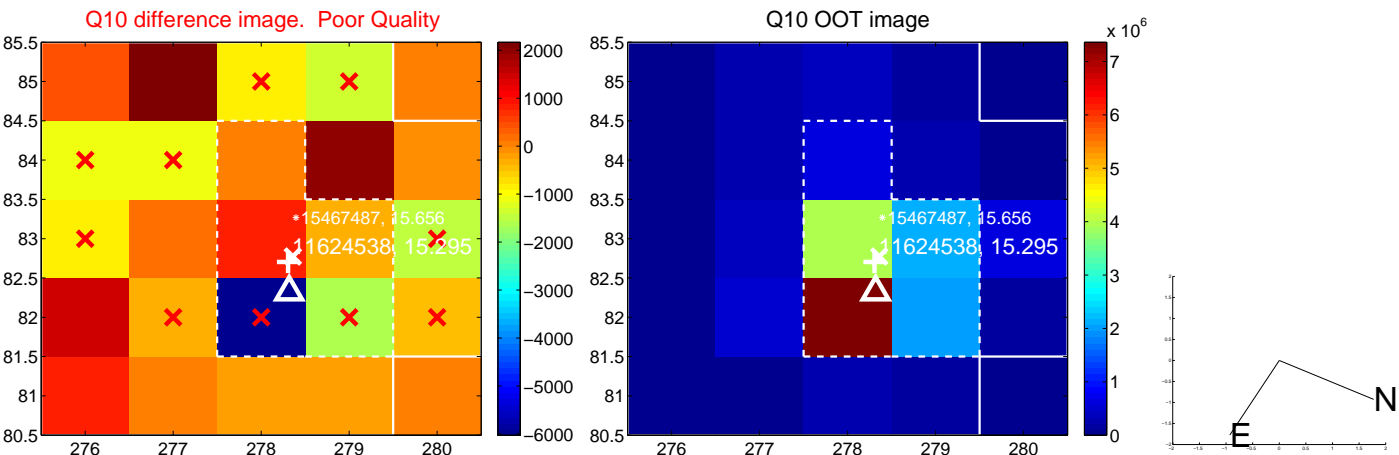
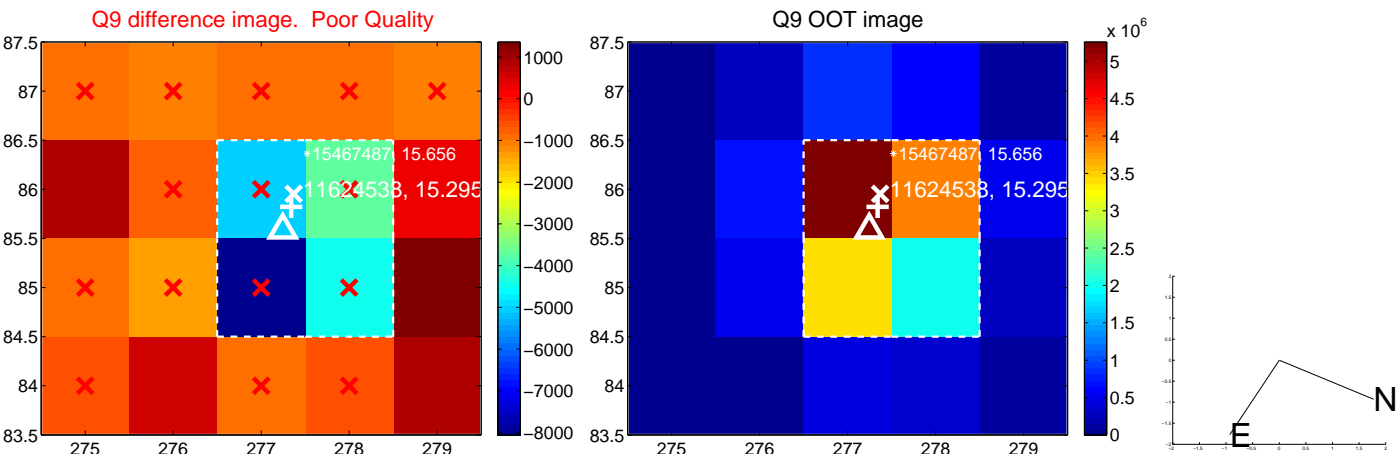
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



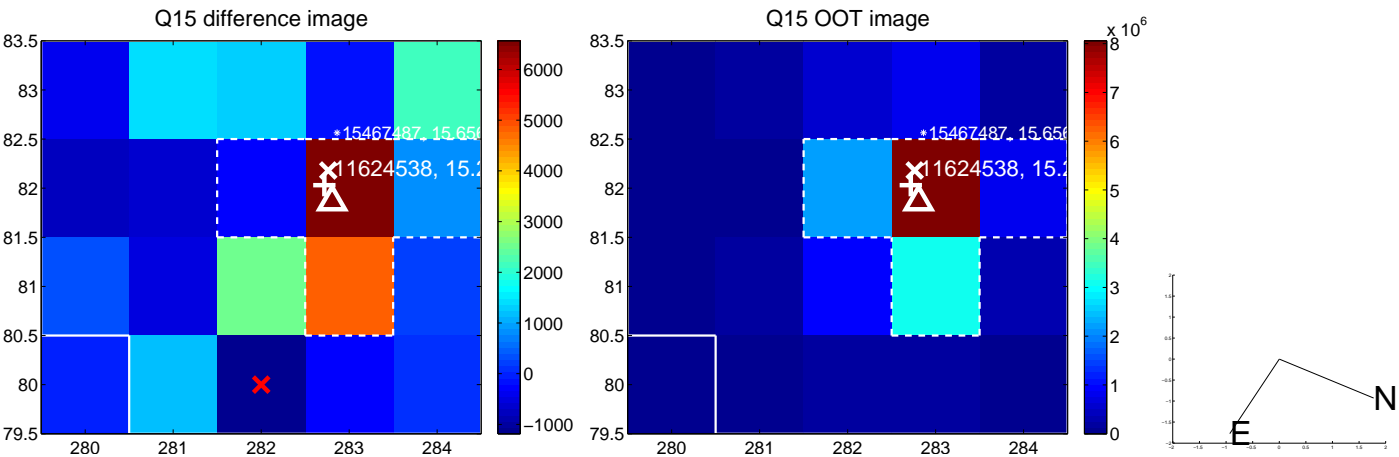
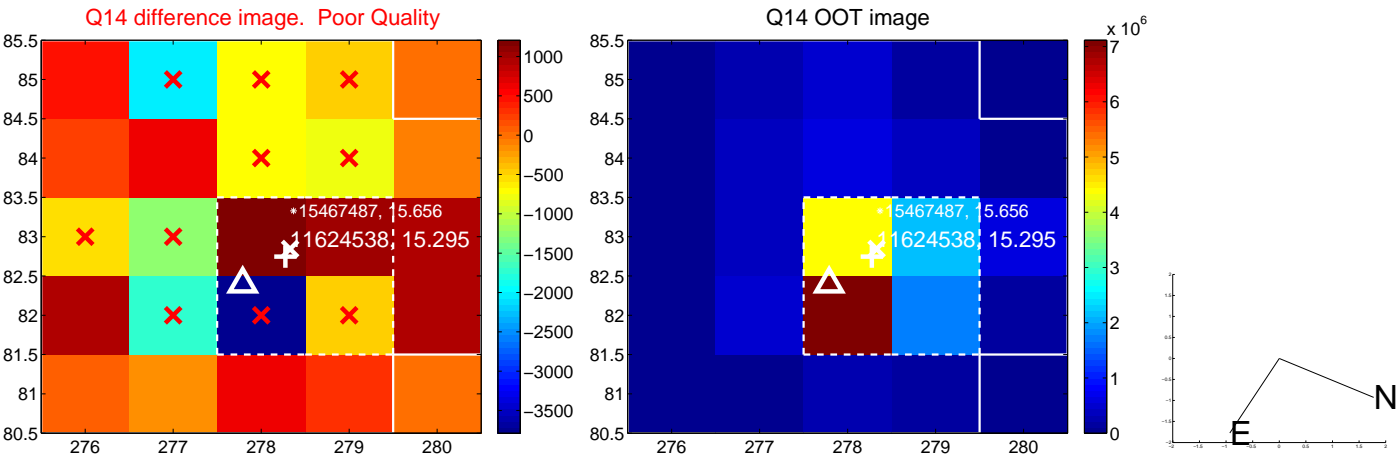
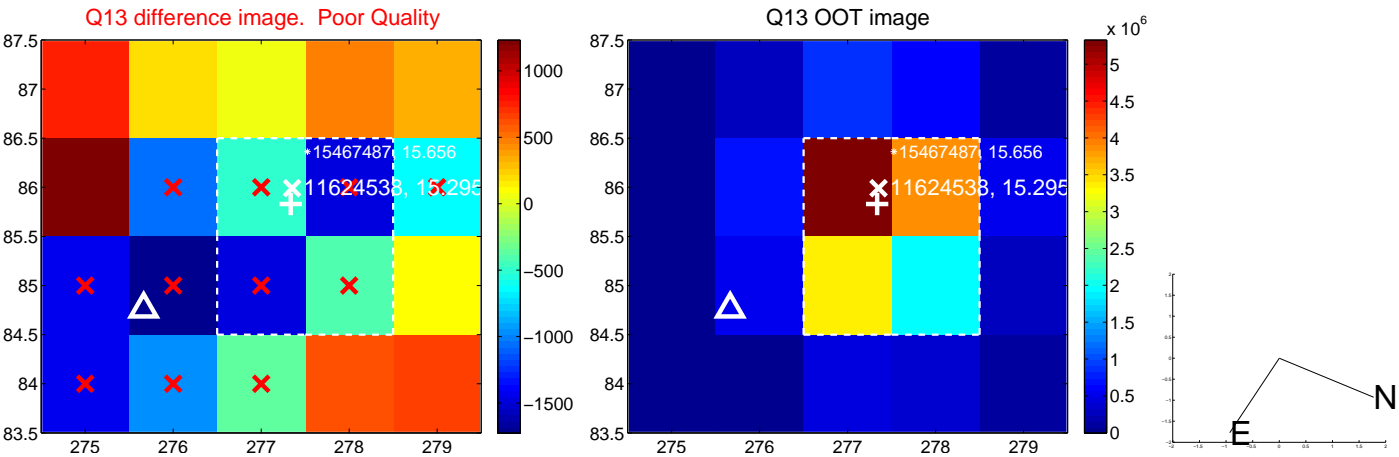
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



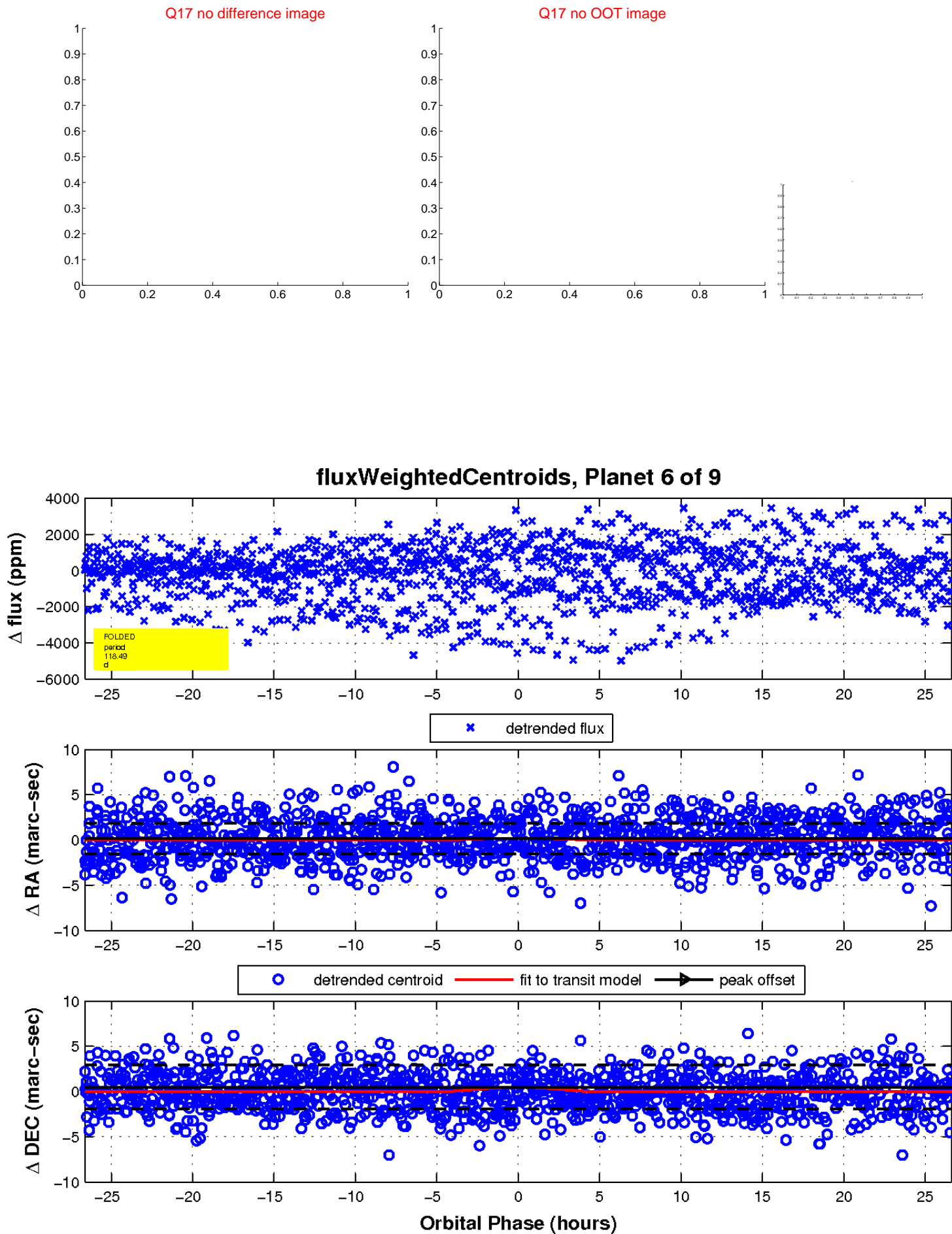
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

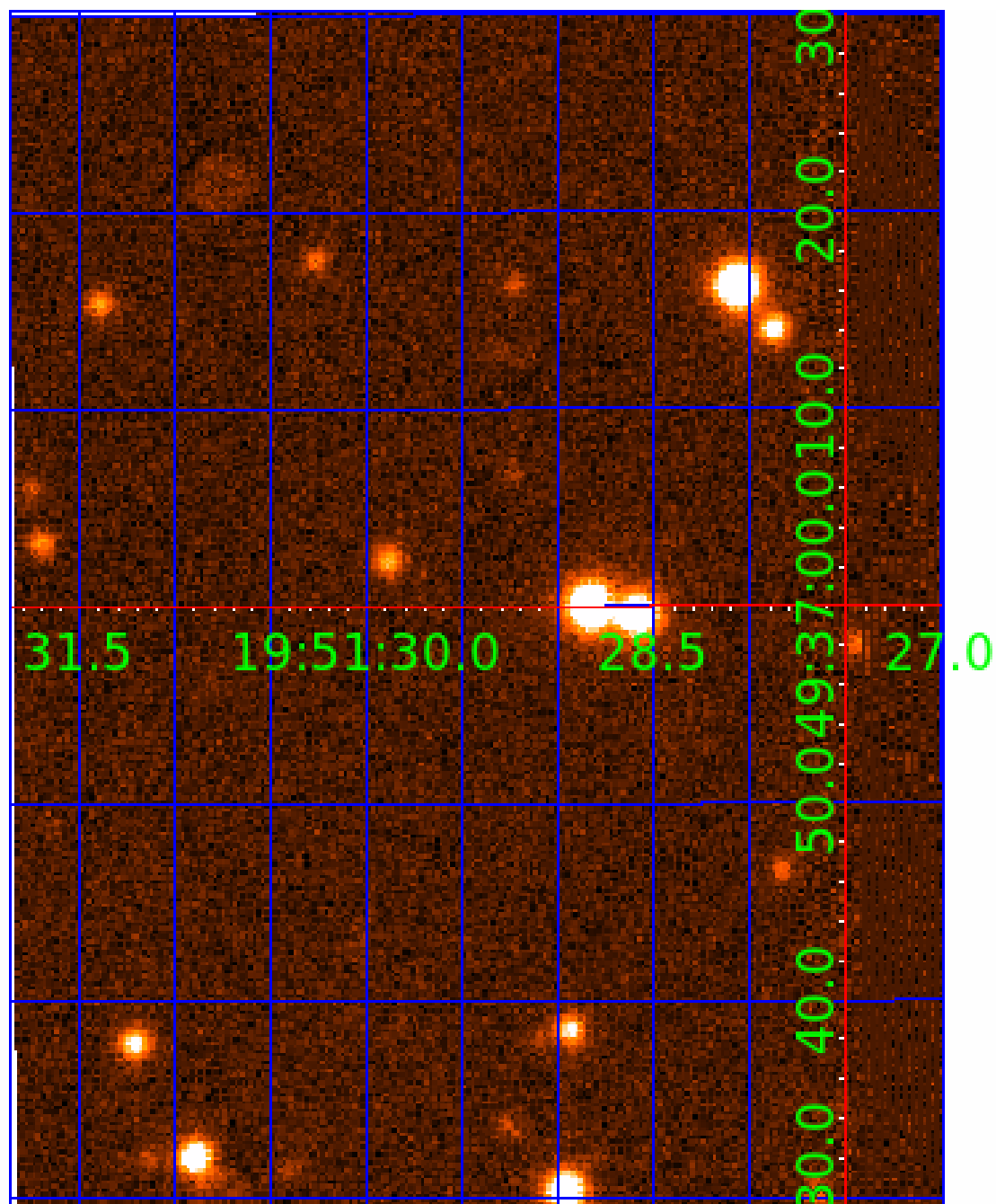


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

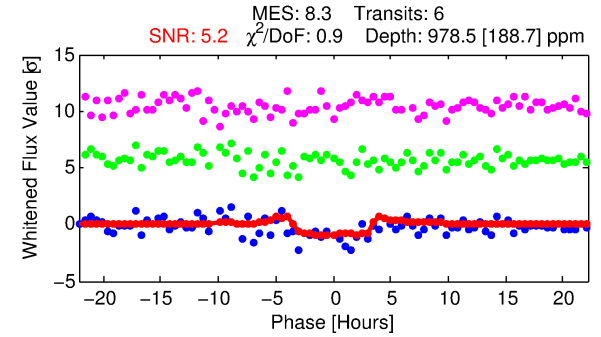
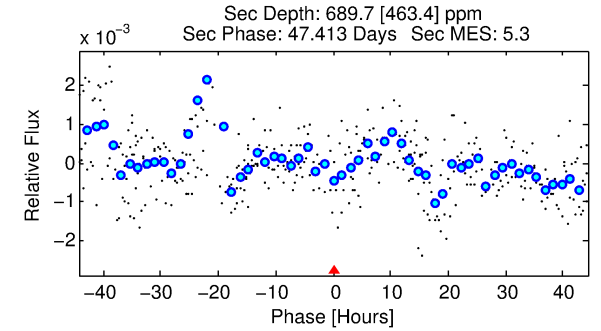
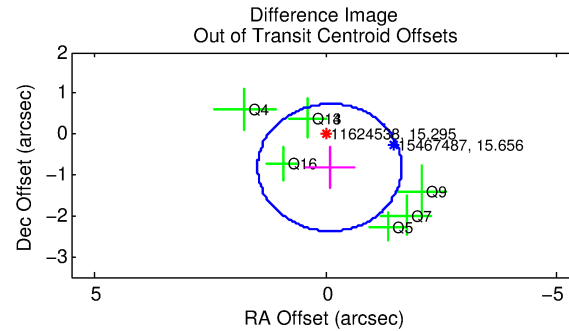
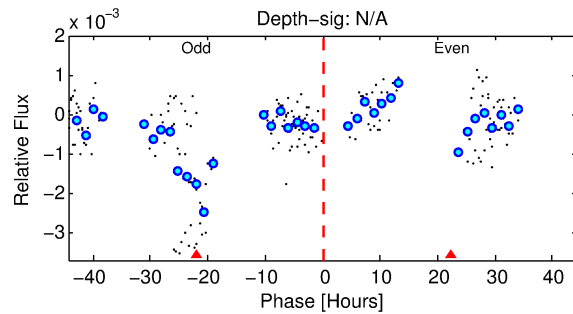
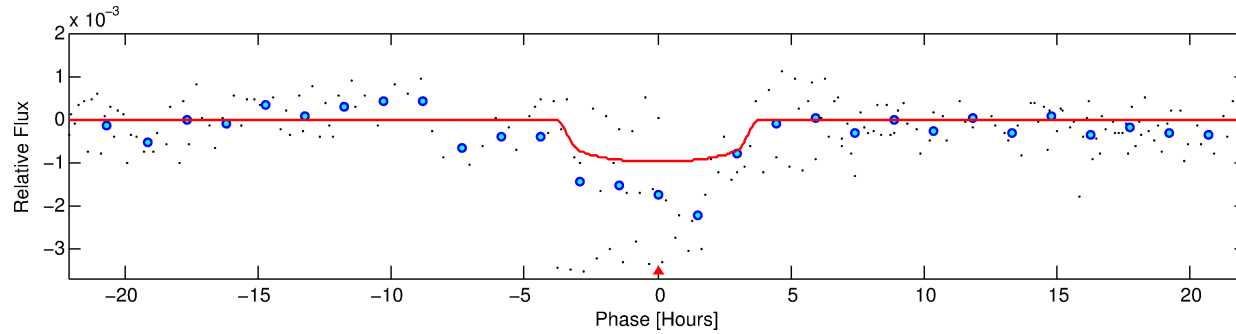
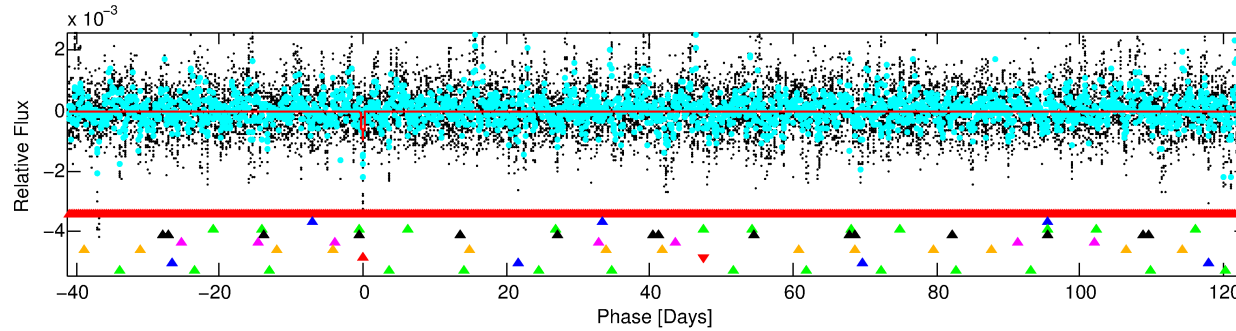
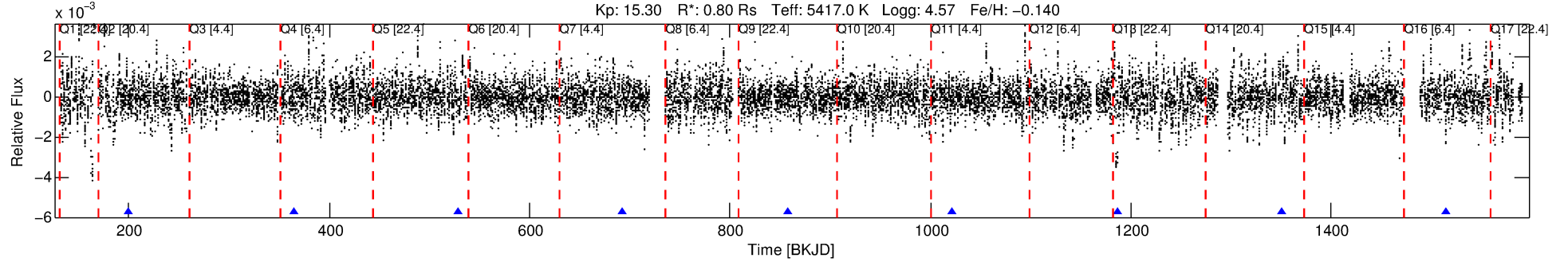
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-07

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 7 of 9 Period: 164.314 d



DV Fit Results:

Period = 164.31378 [0.00301] d
Epoch = 200.1982 [0.0142] BKJD
Rp/R* = 0.0313 [0.0134]
a/R* = 118.35 [193.37]
b = 0.76 [0.92]
Seff = 1.58 [0.45]
Teq = 286 [20] K
Rp = 2.73 [1.30] Re
a = 0.5569 [0.0943] AU
Ag = 15831.73 [17646.60] [0.90σ]
Teffp = 4961 [1363] K [3.43σ]

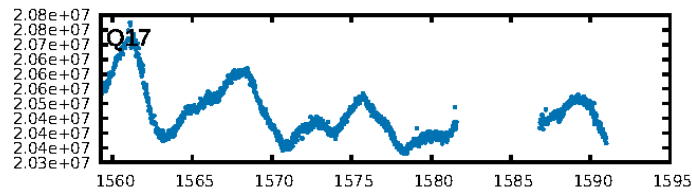
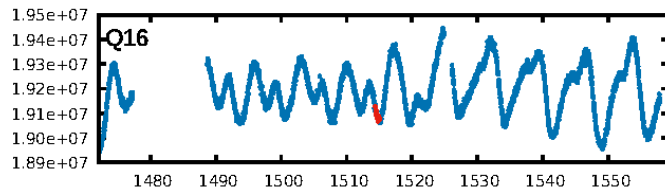
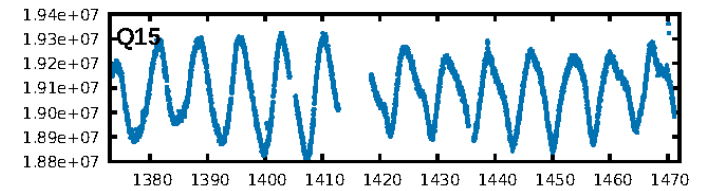
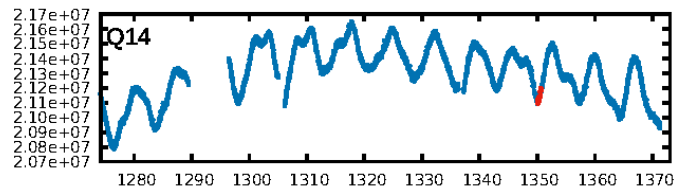
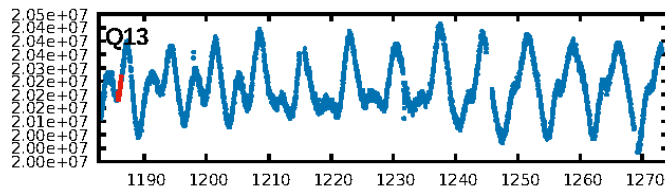
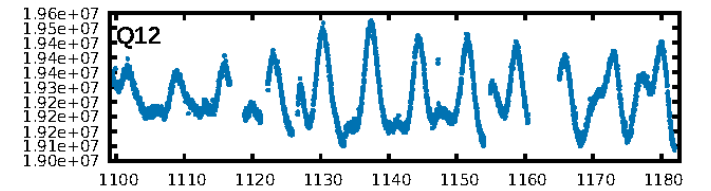
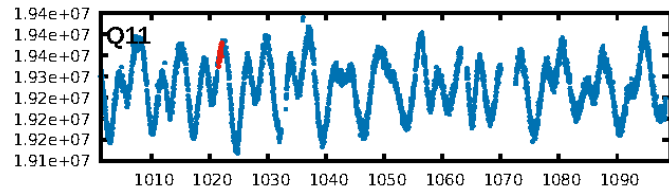
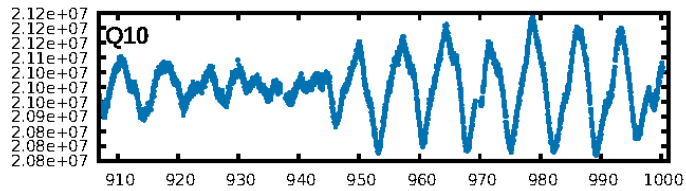
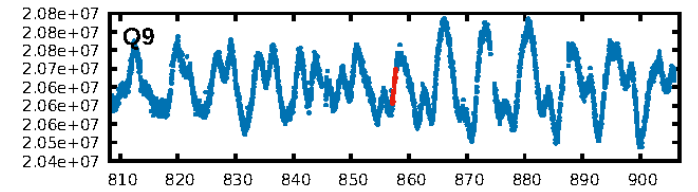
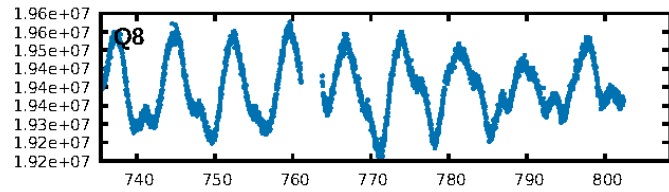
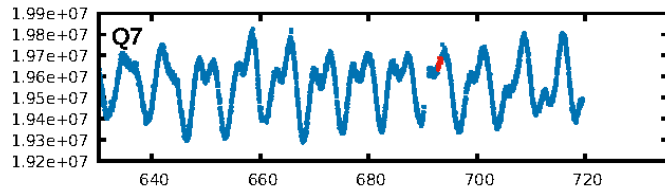
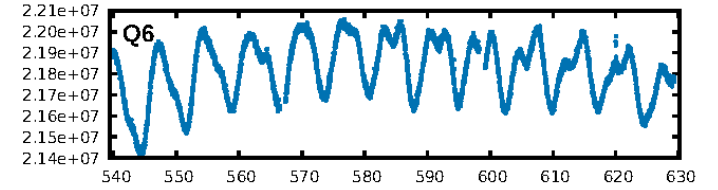
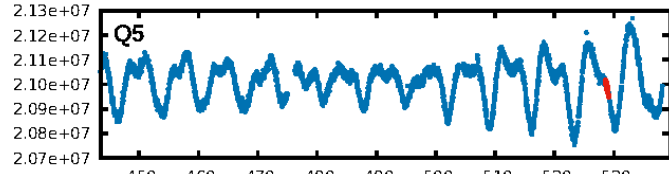
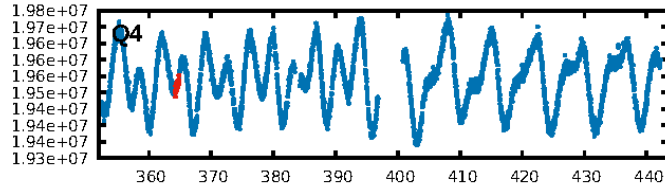
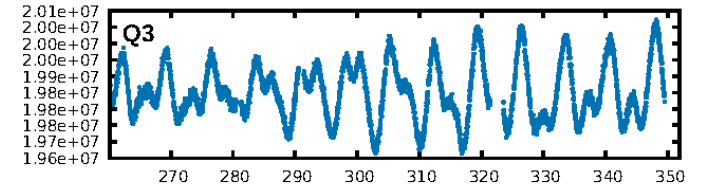
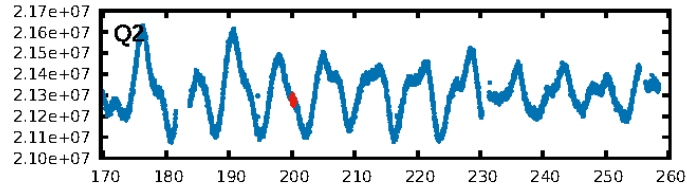
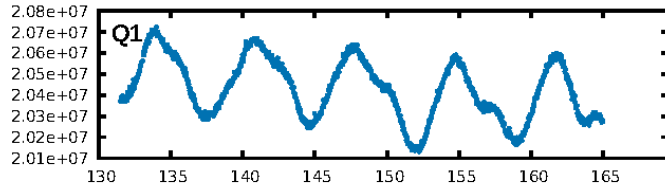
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [95.20σ]
LongPeriod-sig: 100.0% [92.00σ]
ModelChiSquare2-sig: 0.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.37e-09
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.9045
Centroid-sig: 3.5%
Centroid-so: 1.091 arcsec [1.53σ]
OotOffset-rm: 0.825 arcsec [1.59σ]
KicOffset-rm: 0.763 arcsec [1.50σ]
OotOffset-st: 1/1/2/3 [7]
KicOffset-st: 1/1/2/3 [7]
DiffImageQuality-fgm: 0.71 [5/7]
DiffImageOverlap-fno: 0.00 [0/7]

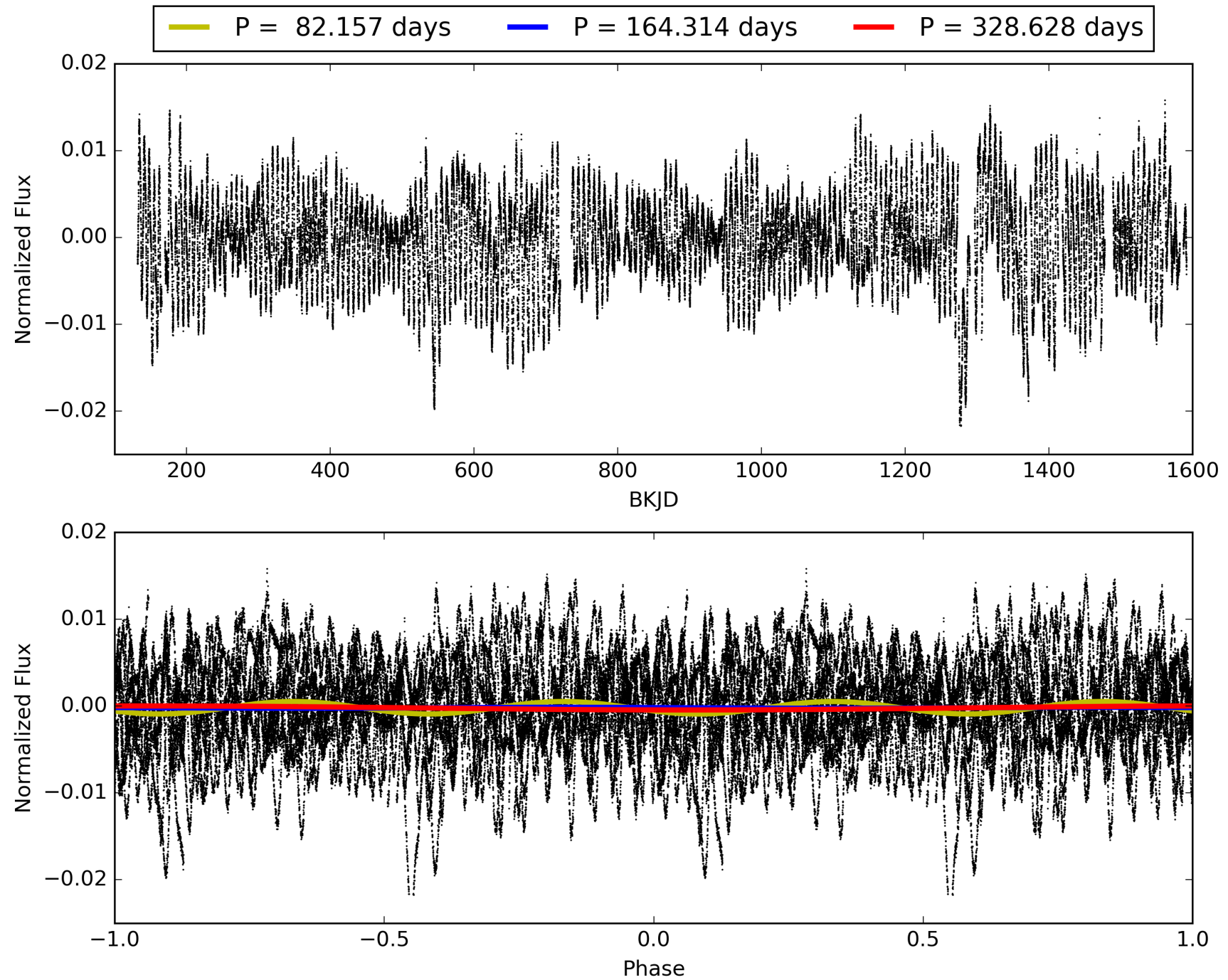
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:46 Z

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

TCE 011624538-07, PDC Light Curves

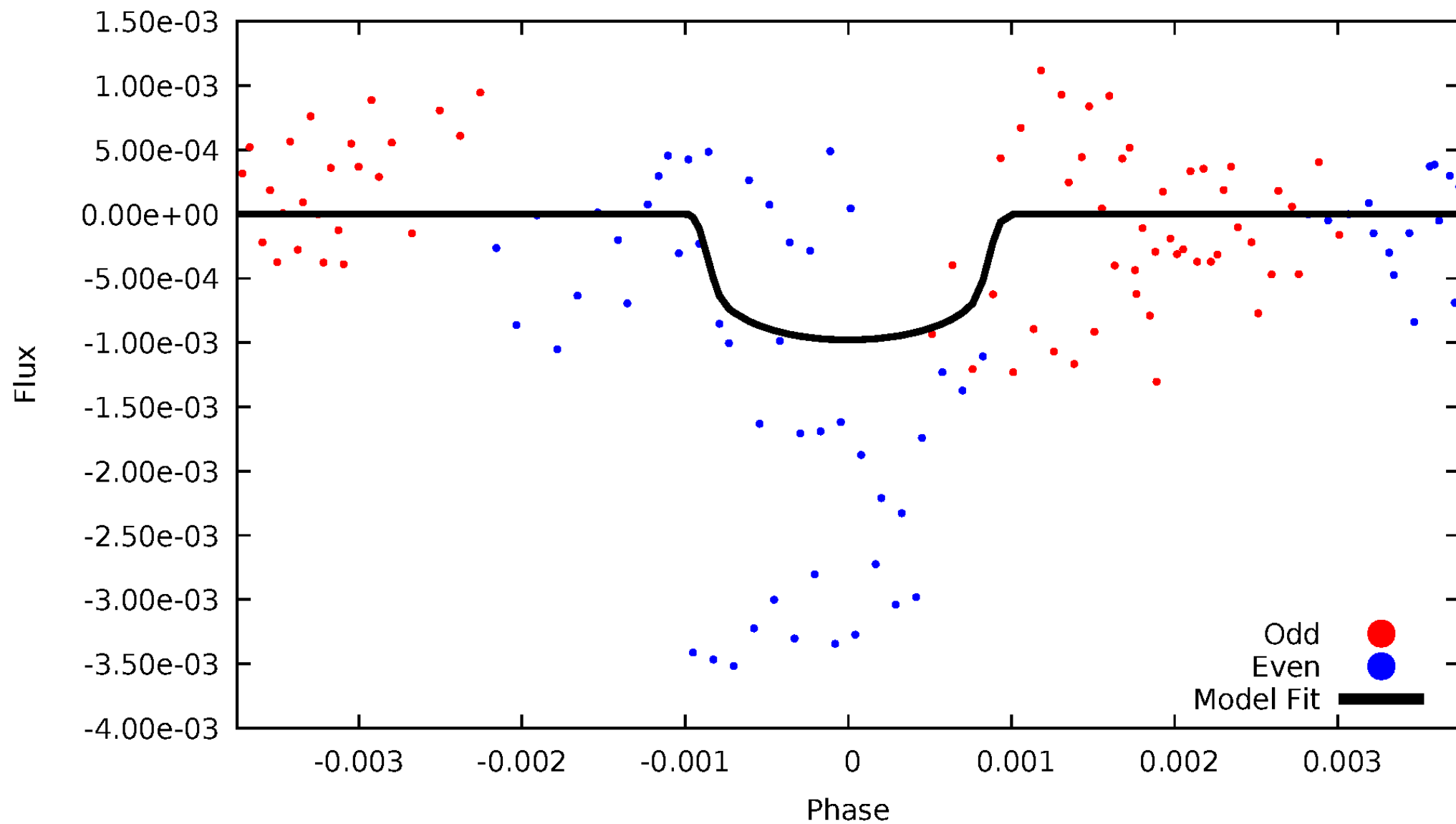


TCE 011624538-07



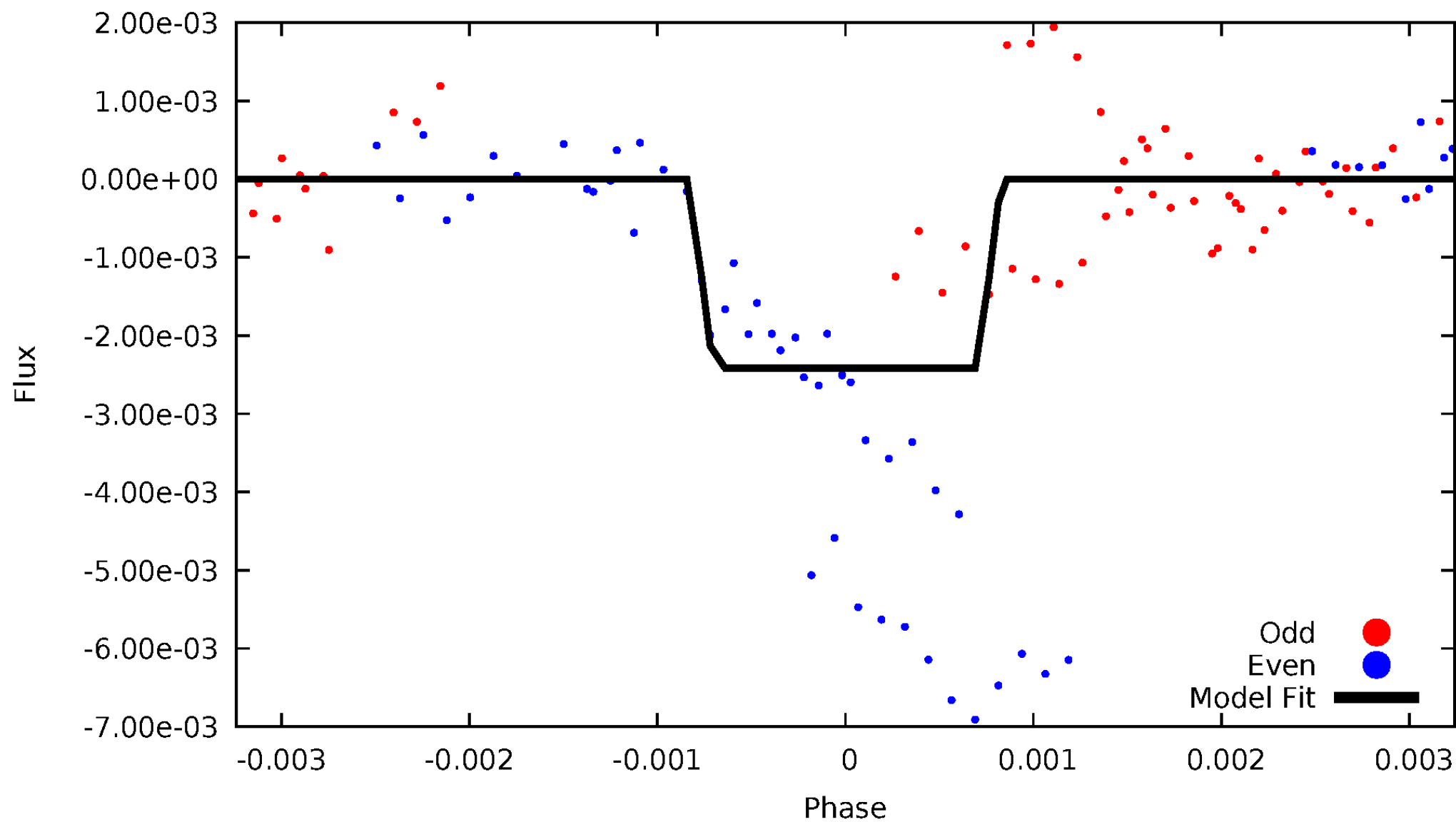
DV Odd/Even

TCE 011624538-07



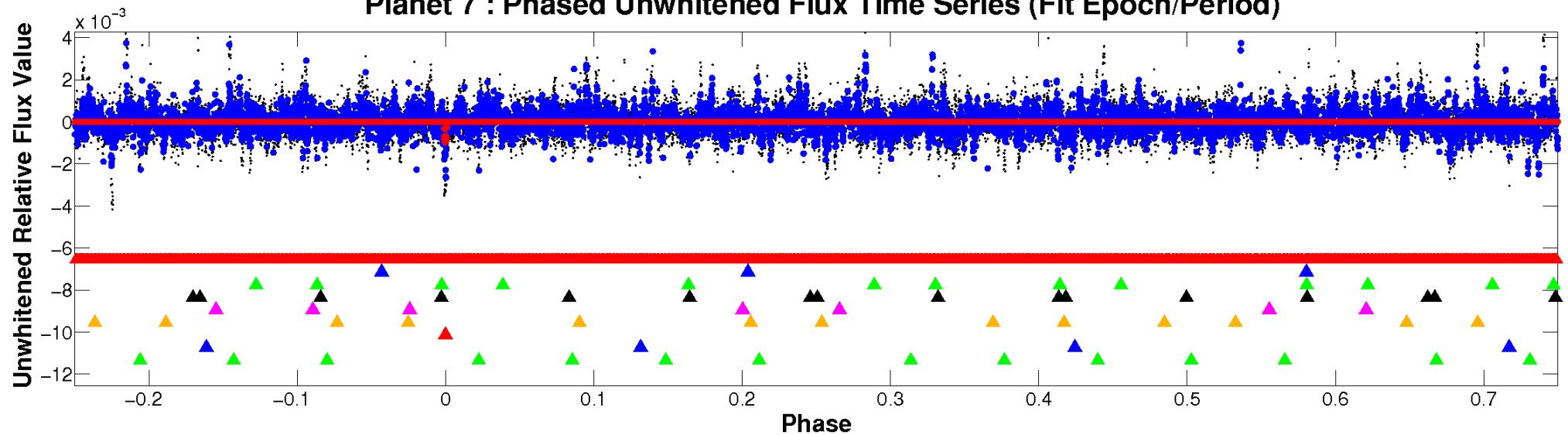
ALT Odd/Even

TCE 011624538-07

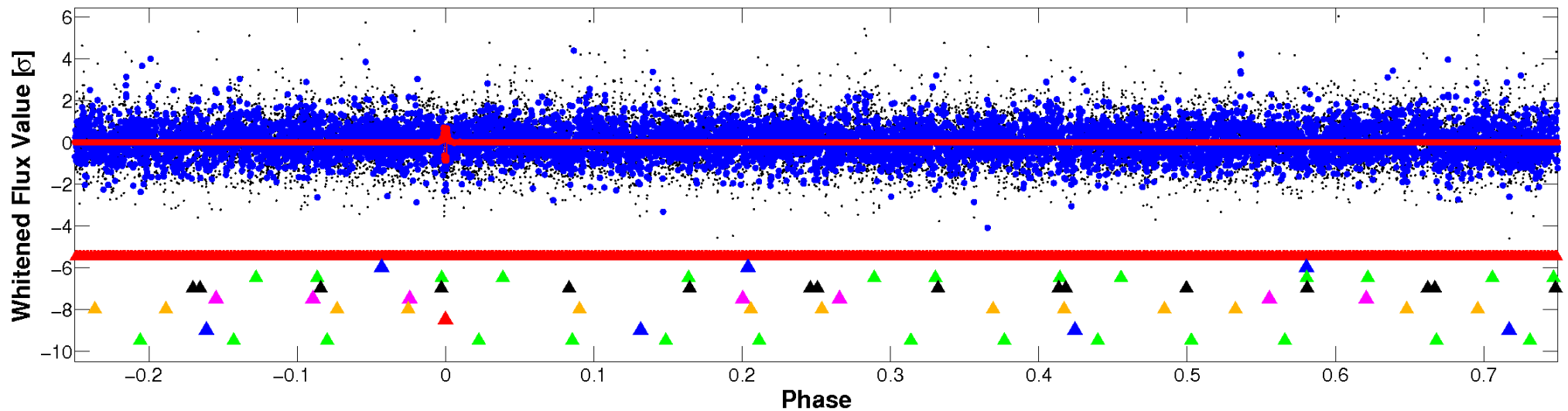


Non-Whitened Vs. Whitened Light Curve

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

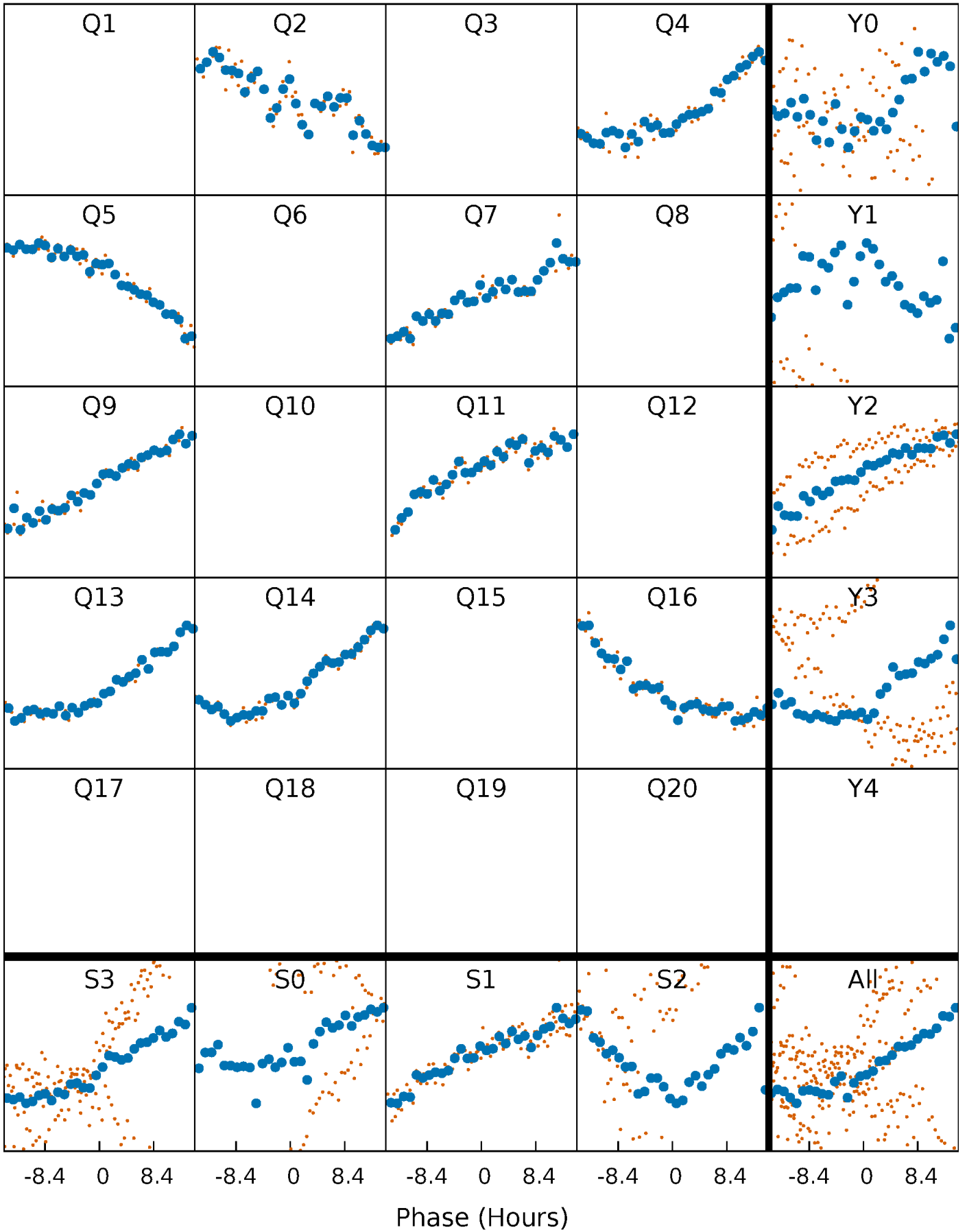


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



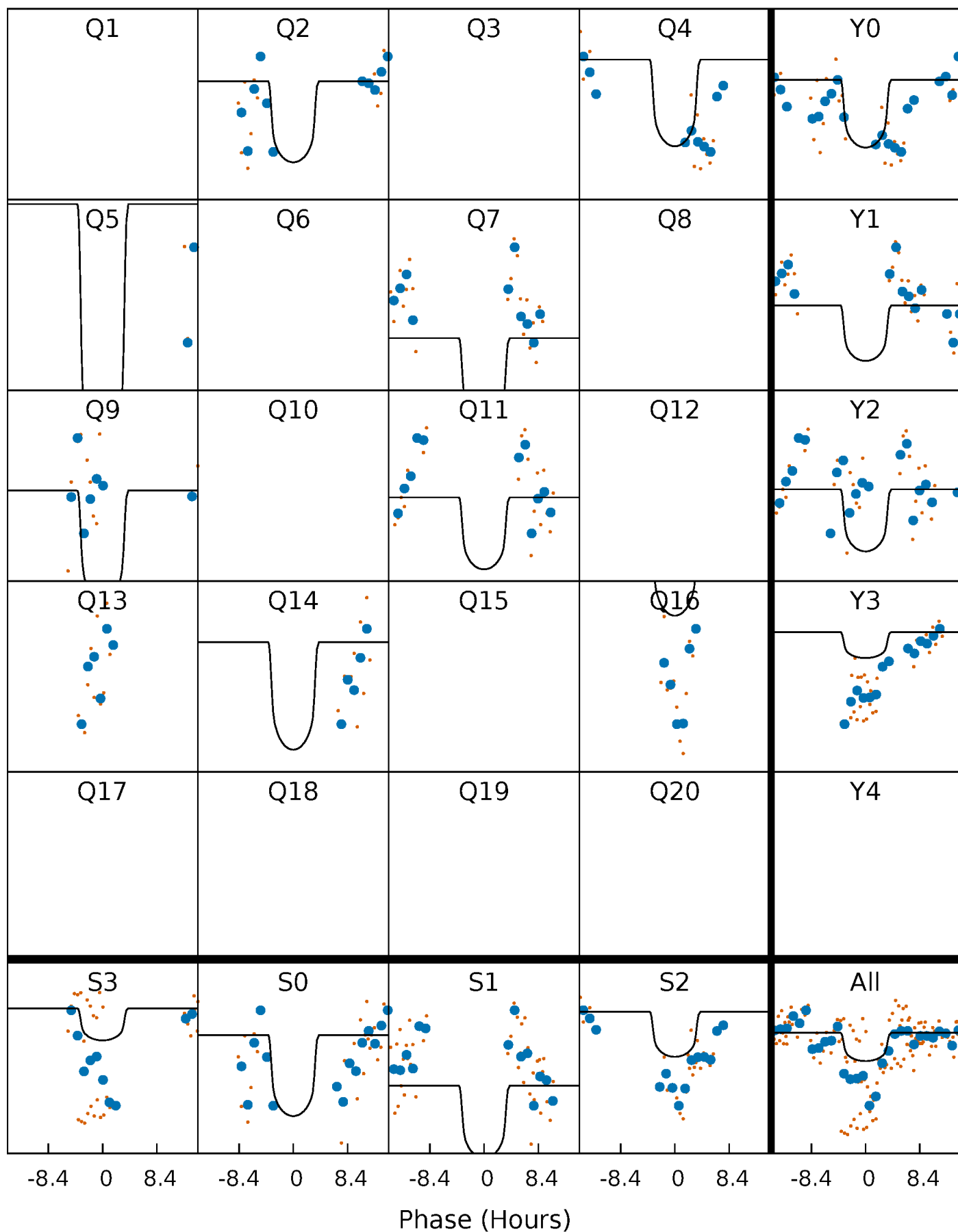
PDC Quarter-Phased Transit Curves

TCE 011624538-07 $P=164.313776$ Days $T_0=200.198175$ (BKJD)



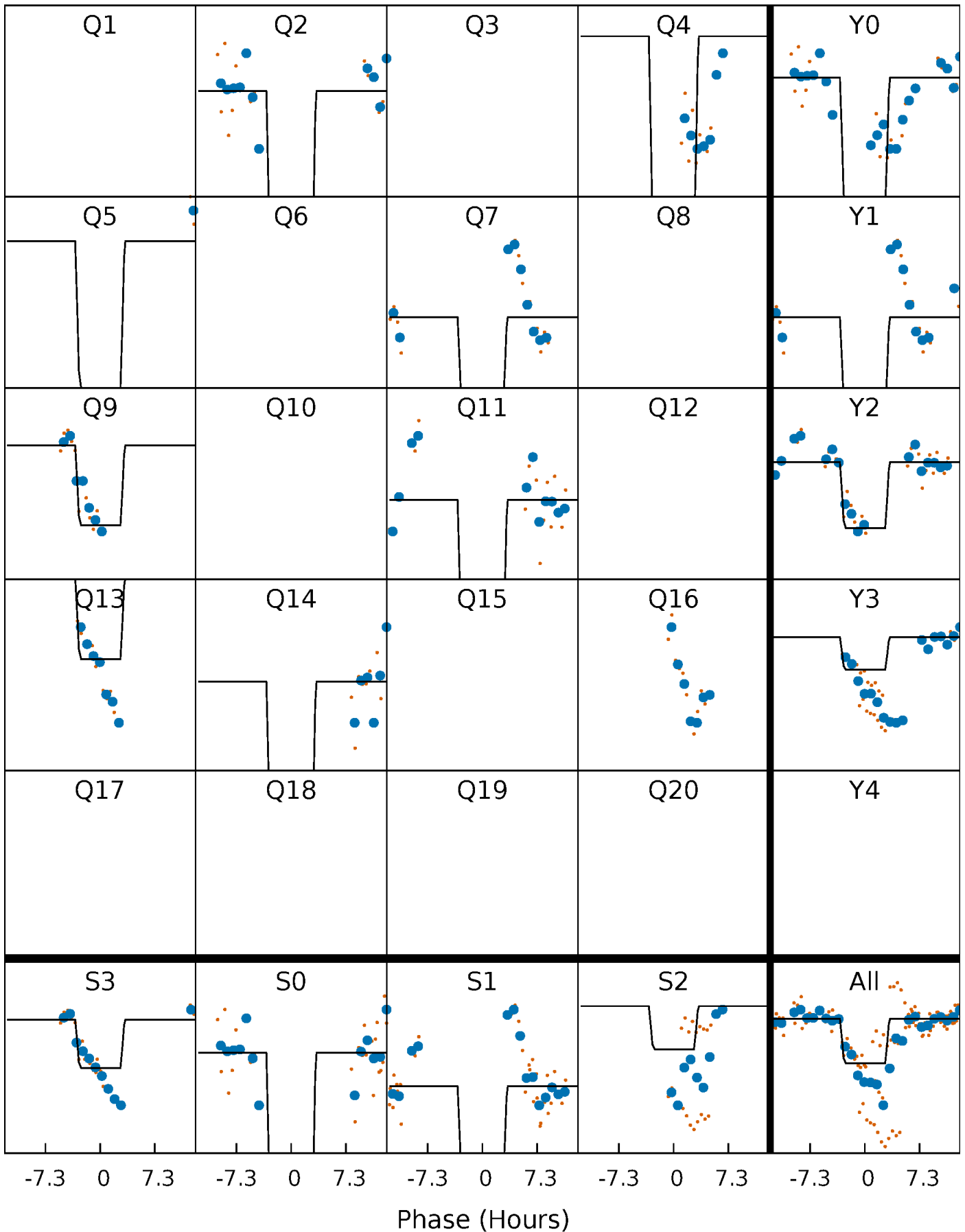
DV Quarter-Phased Transit Curves

TCE 011624538-07 P=164.313776 Days $T_0=200.198175$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

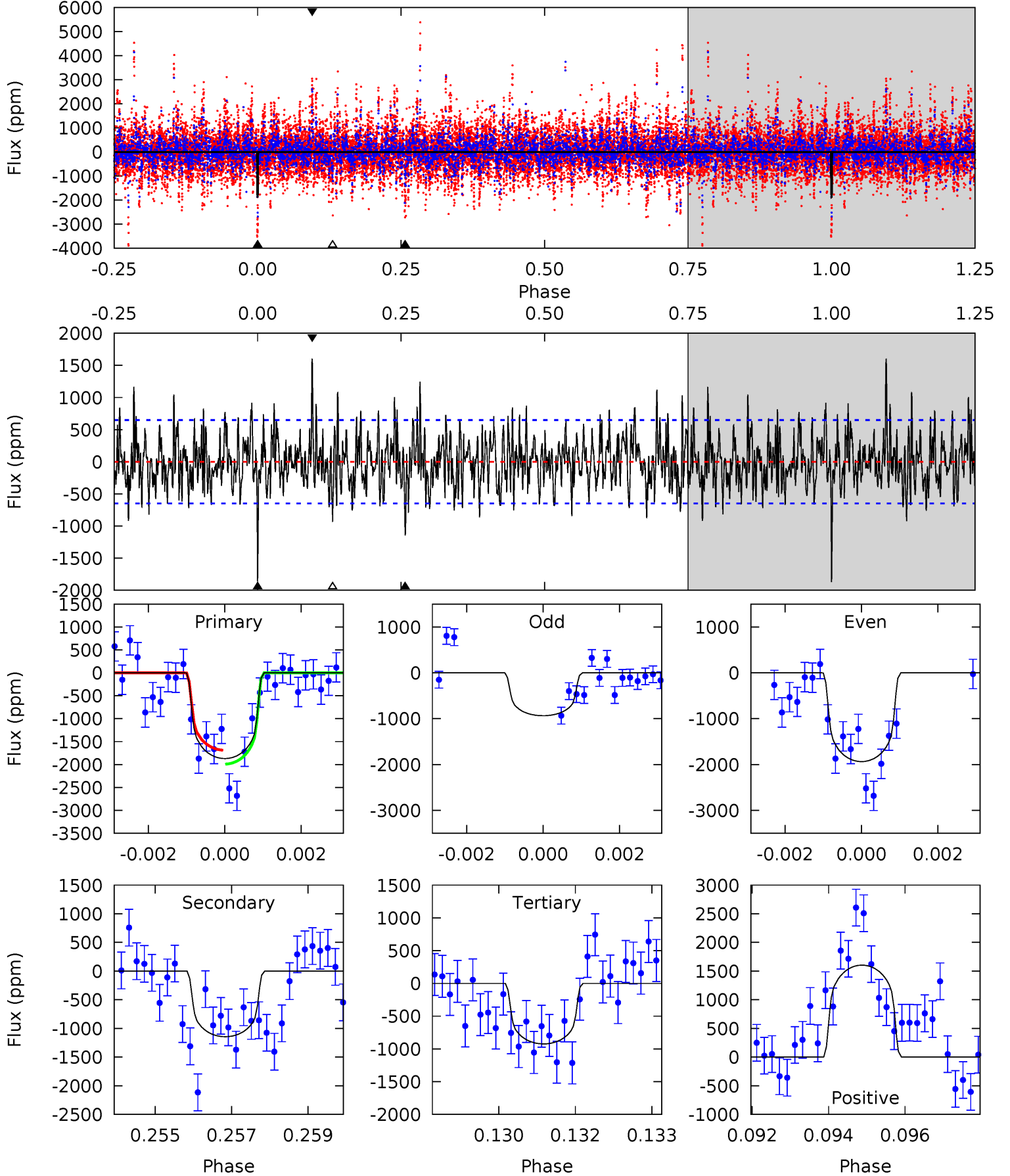
TCE 011624538-07 $P=164.299445$ Days $T_0=200.253207$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-07, $P = 164.313776$ Days, $E = 35.884399$ Days

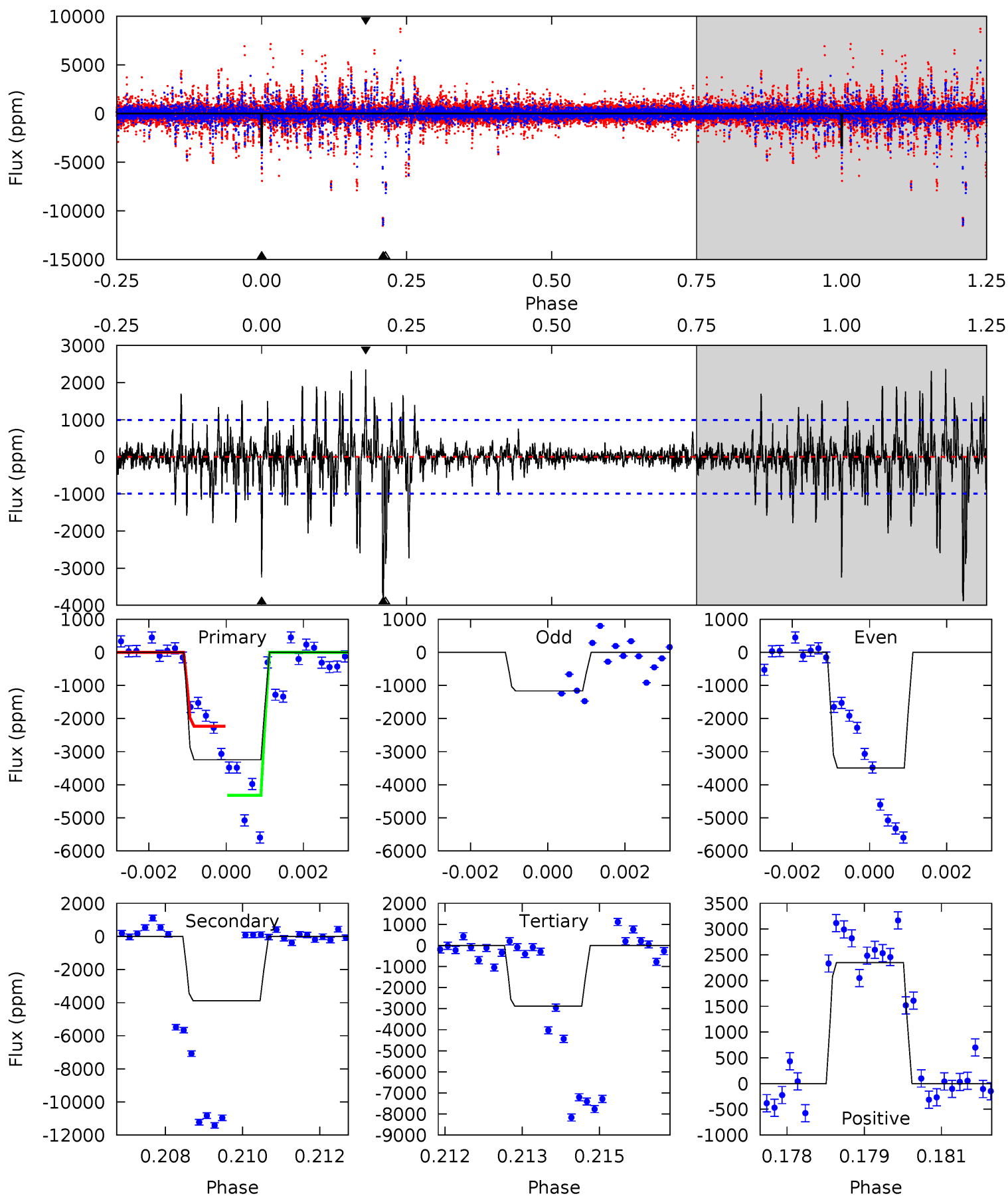
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	9.41	7.59	13.2	5.33	3.10	2.80	7.77	2.19	1.81	-3.77	2.92	1.14	0.46	1.23



Alt Model-Shift Uniqueness Test

011624538-07, P = 164.299445 Days, E = 35.953762 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.6	21.0	15.6	12.7	5.37	3.17	2.25	1.96	4.86	5.43	8.32	4.98	1.22	0.38	5.73



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1145 ± 122	$2.78^{+1.24}_{-1.20}$	407^{+22}_{-18}	5686^{+1969}_{-873}	25582^{+51796}_{-13812}
Alt.	-3887 ± 185	$4.41^{+1.32}_{-1.29}$	406^{+23}_{-18}	6067^{+1262}_{-699}	33824^{+34180}_{-14003}

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

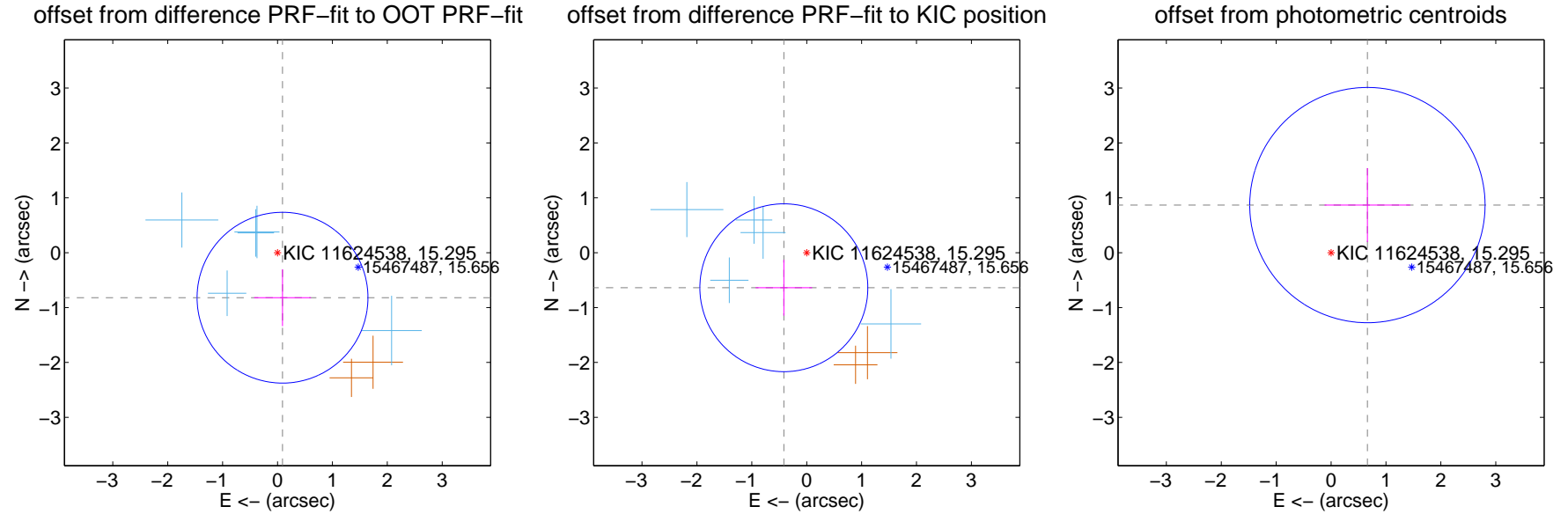
DV Centroid Data

Supplemental centroid analysis for 011624538-07. Kepler magnitude: 15.29. Transit SNR 5.16

There are 5 quarters with good PRF difference image offsets

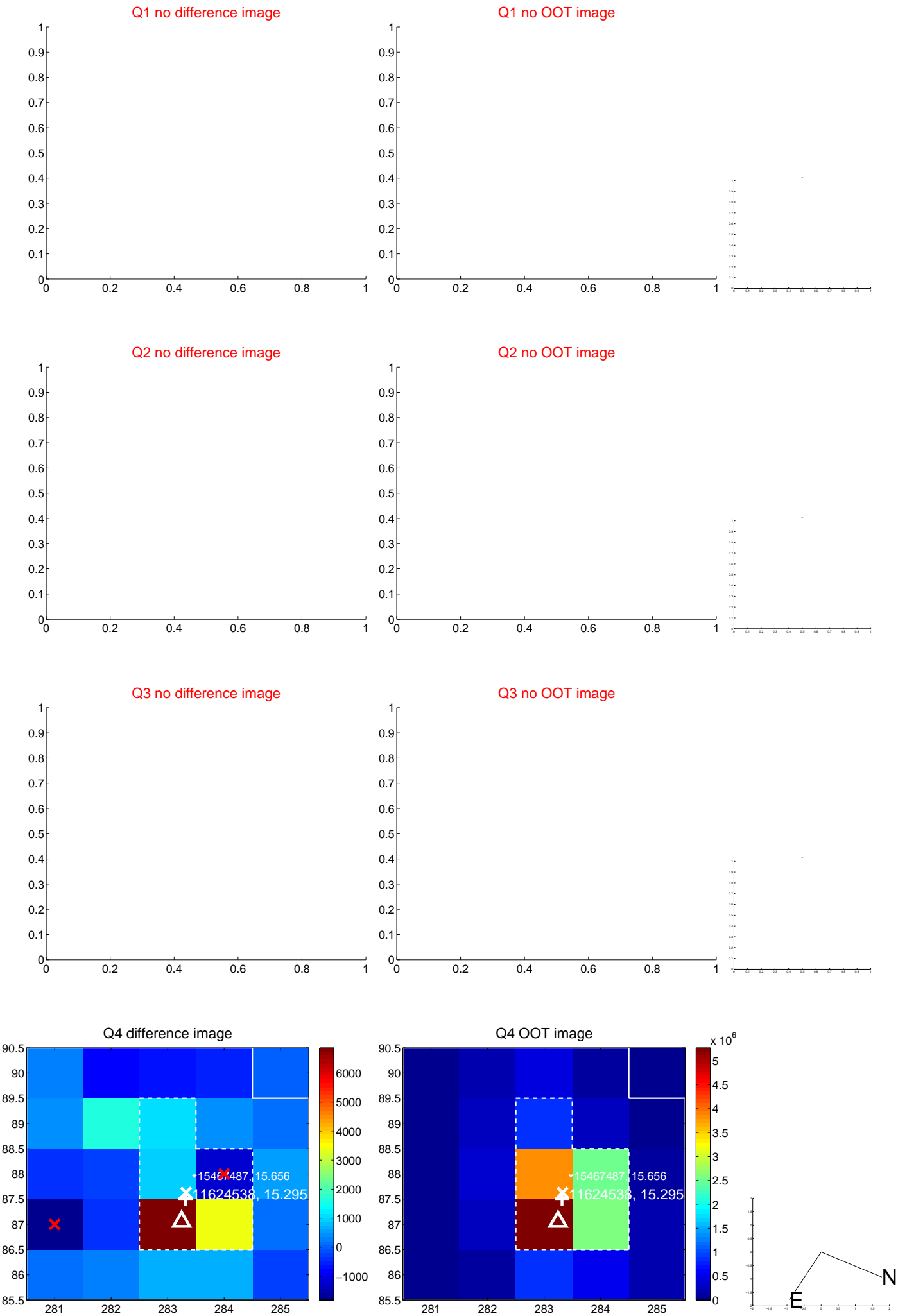
The direct PRF centroid is offset from the target star catalog position by about 0.55 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.825 ± 0.519	1.59	-0.091 ± 0.517	-0.820 ± 0.519
PRF-fit source offset from KIC position	0.763 ± 0.510	1.50	0.416 ± 0.514	-0.639 ± 0.508
photometric centroid source offset	1.09 ± 0.71	1.53	-0.66 ± 0.78	0.87 ± 0.67

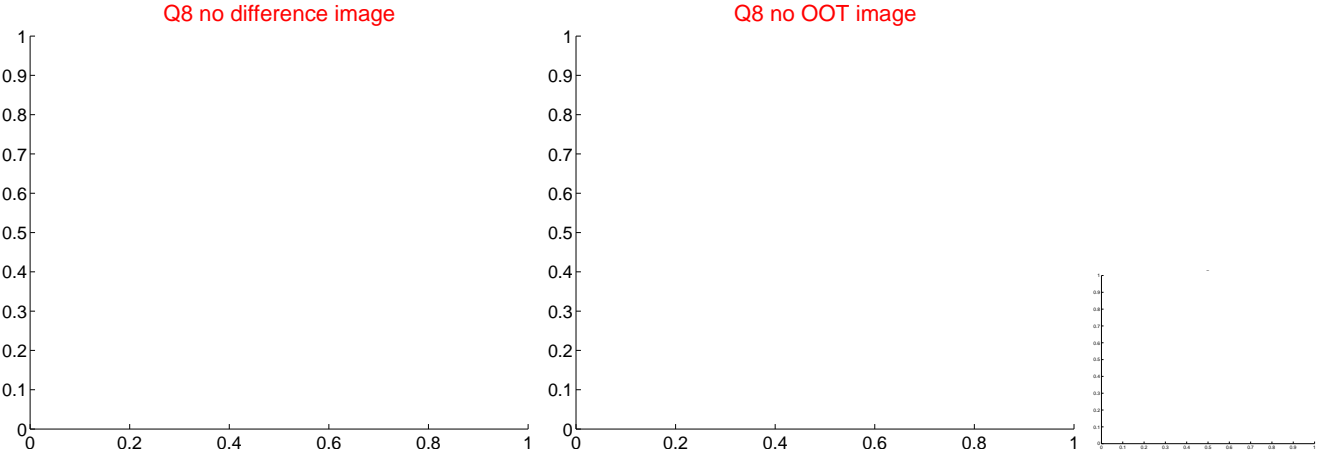
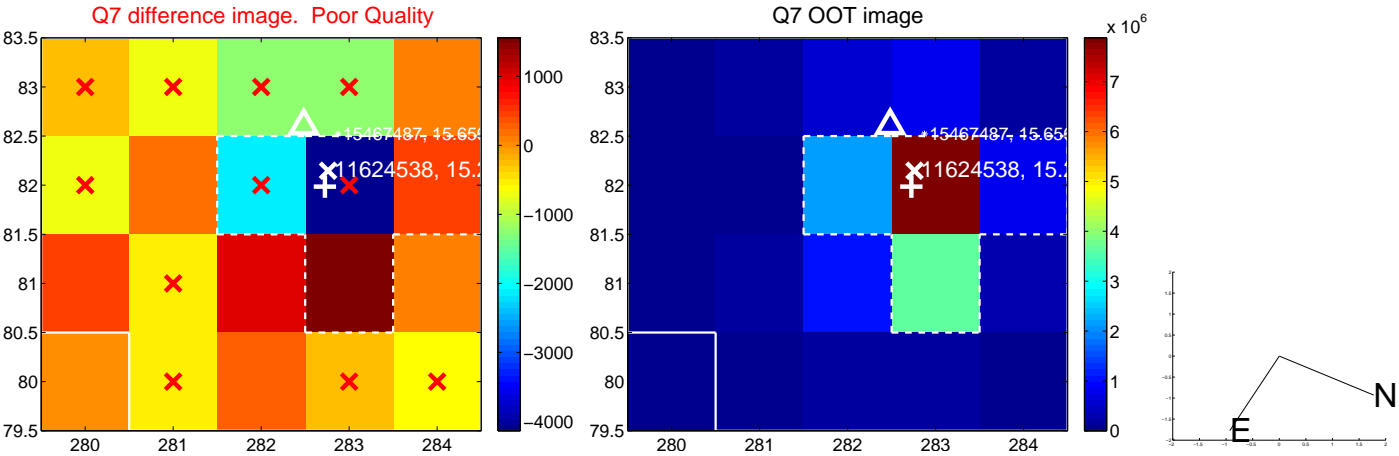
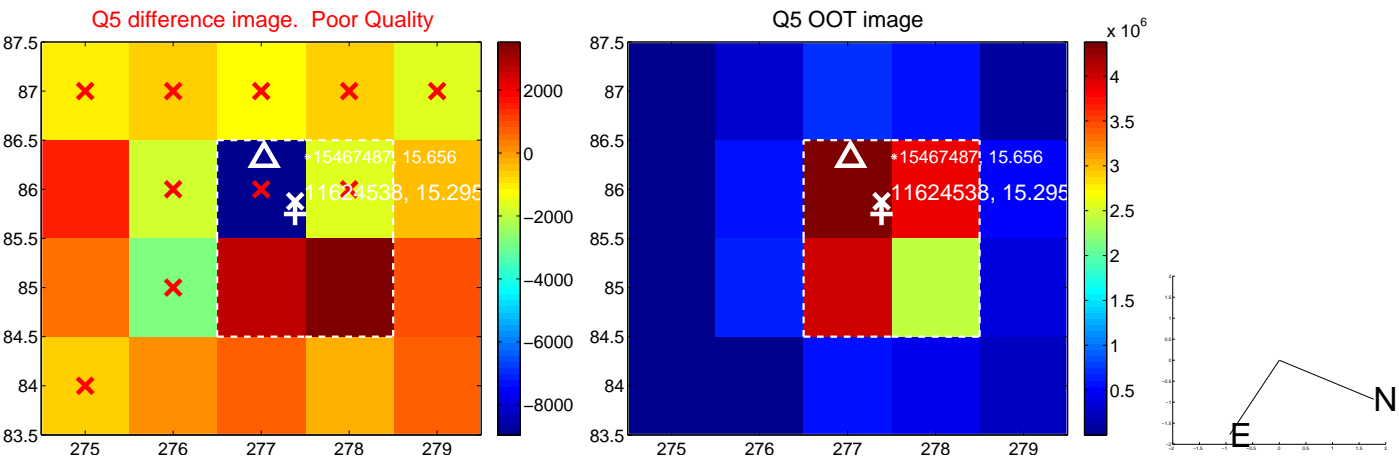


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

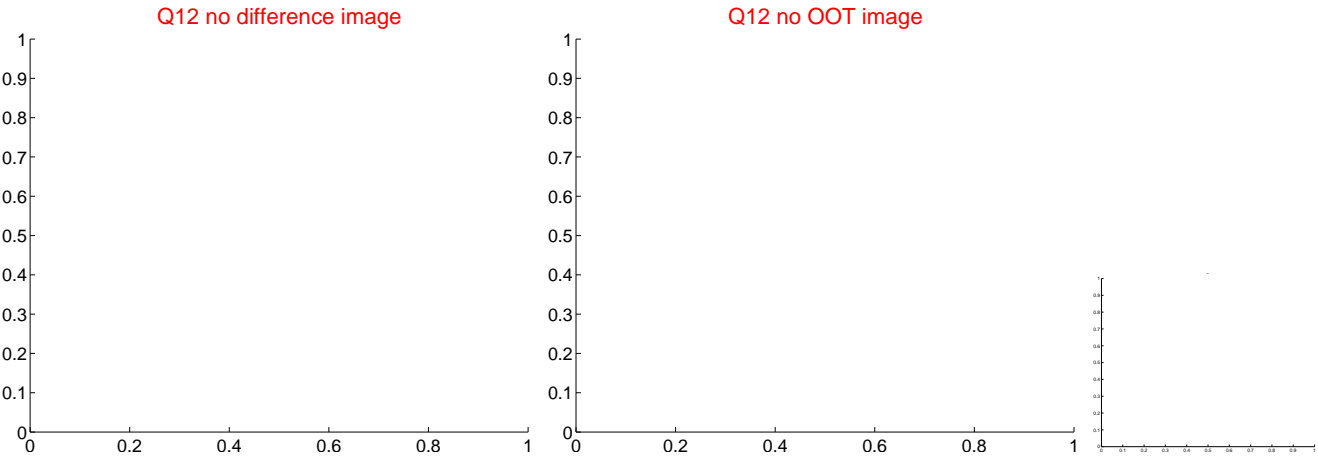
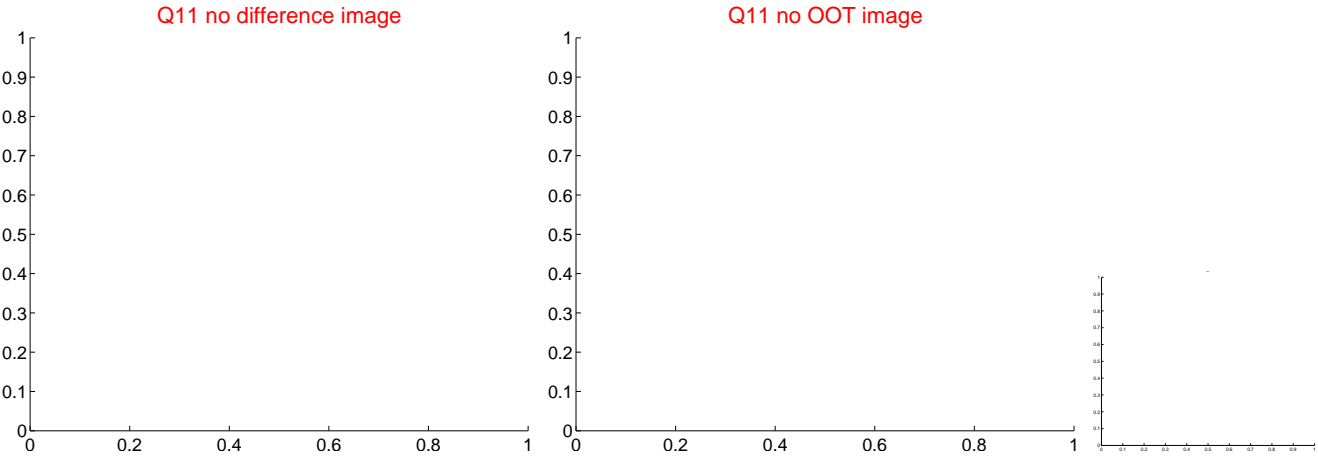
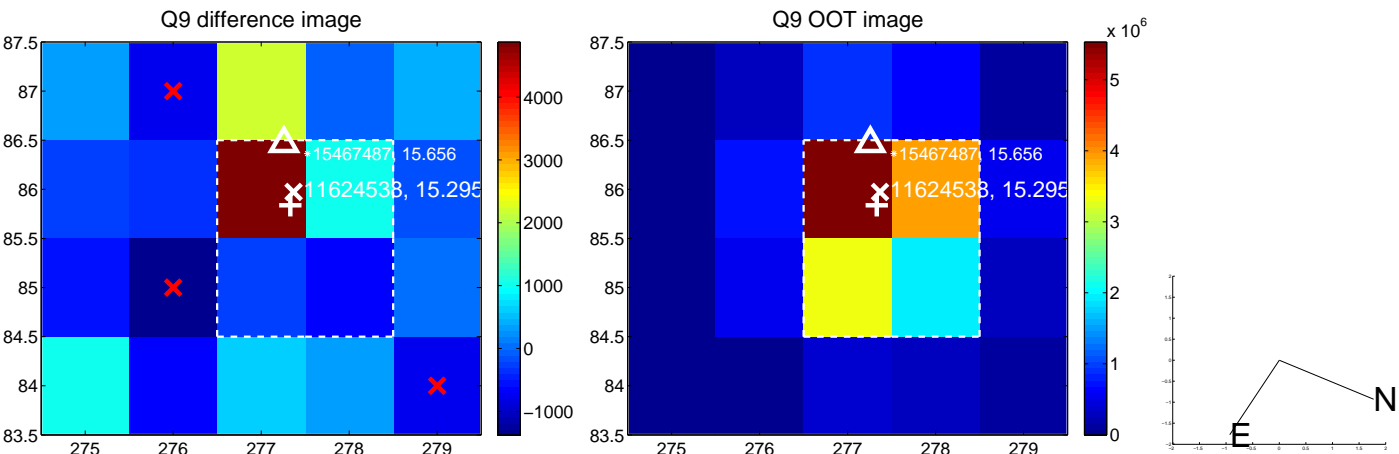
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



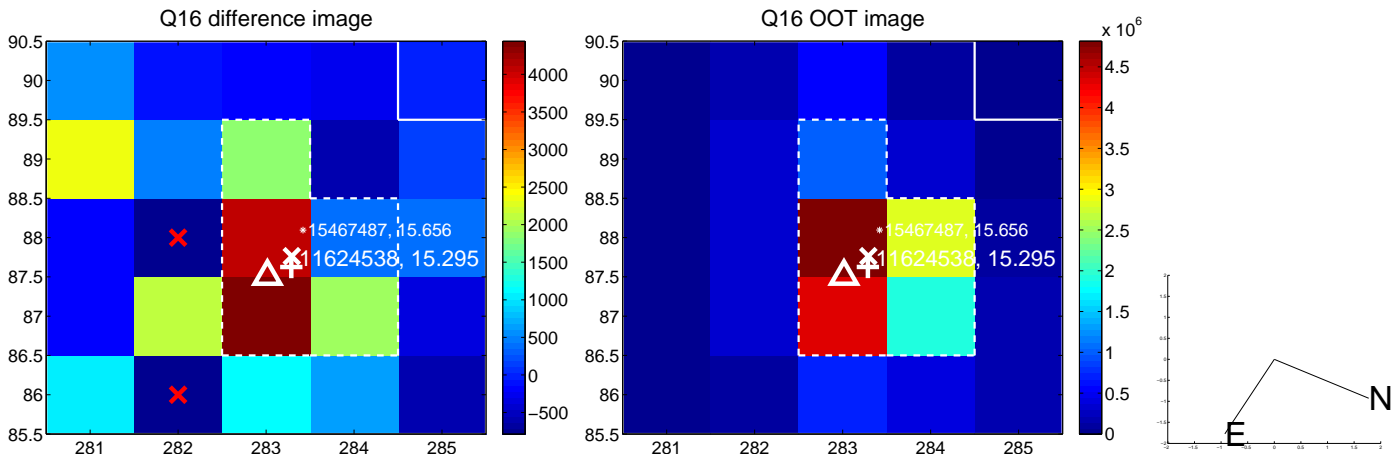
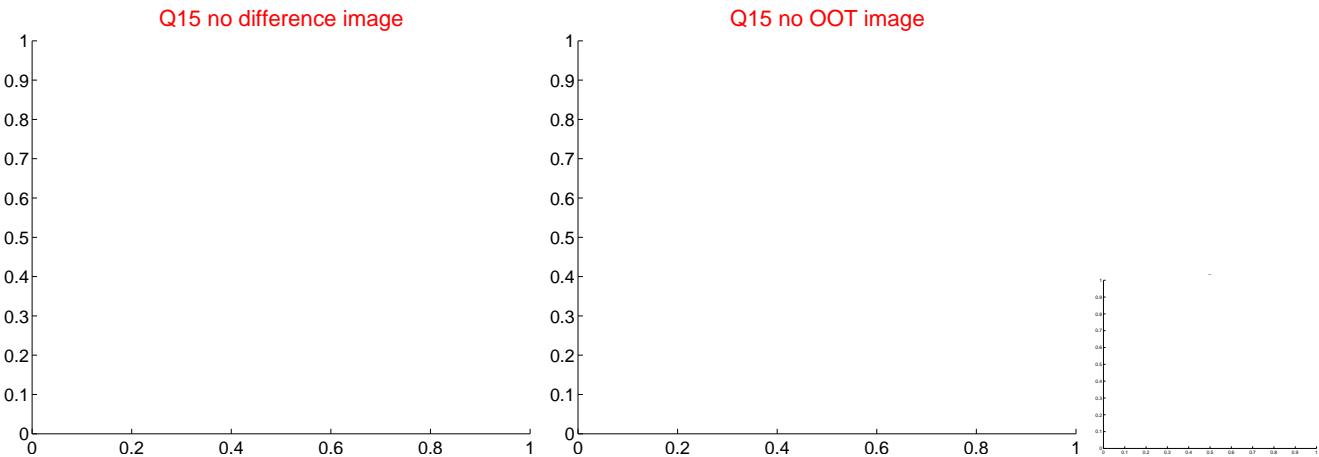
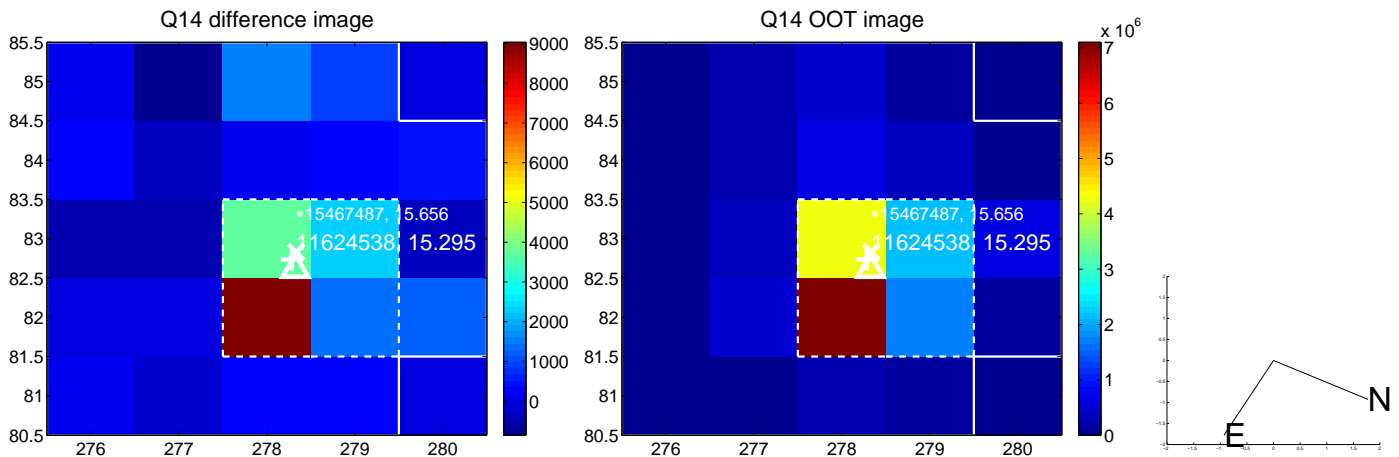
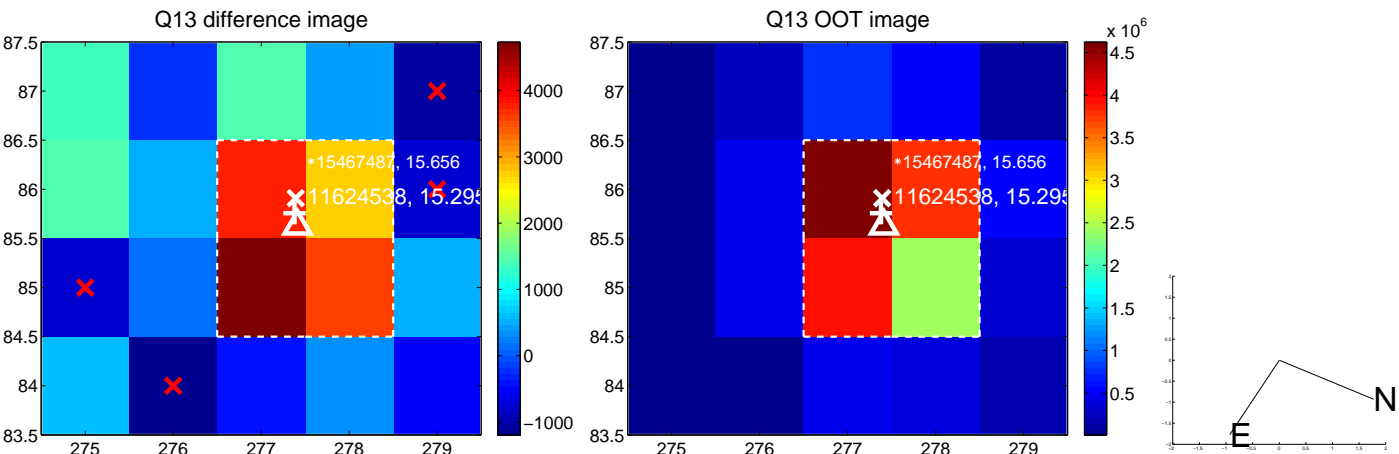
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



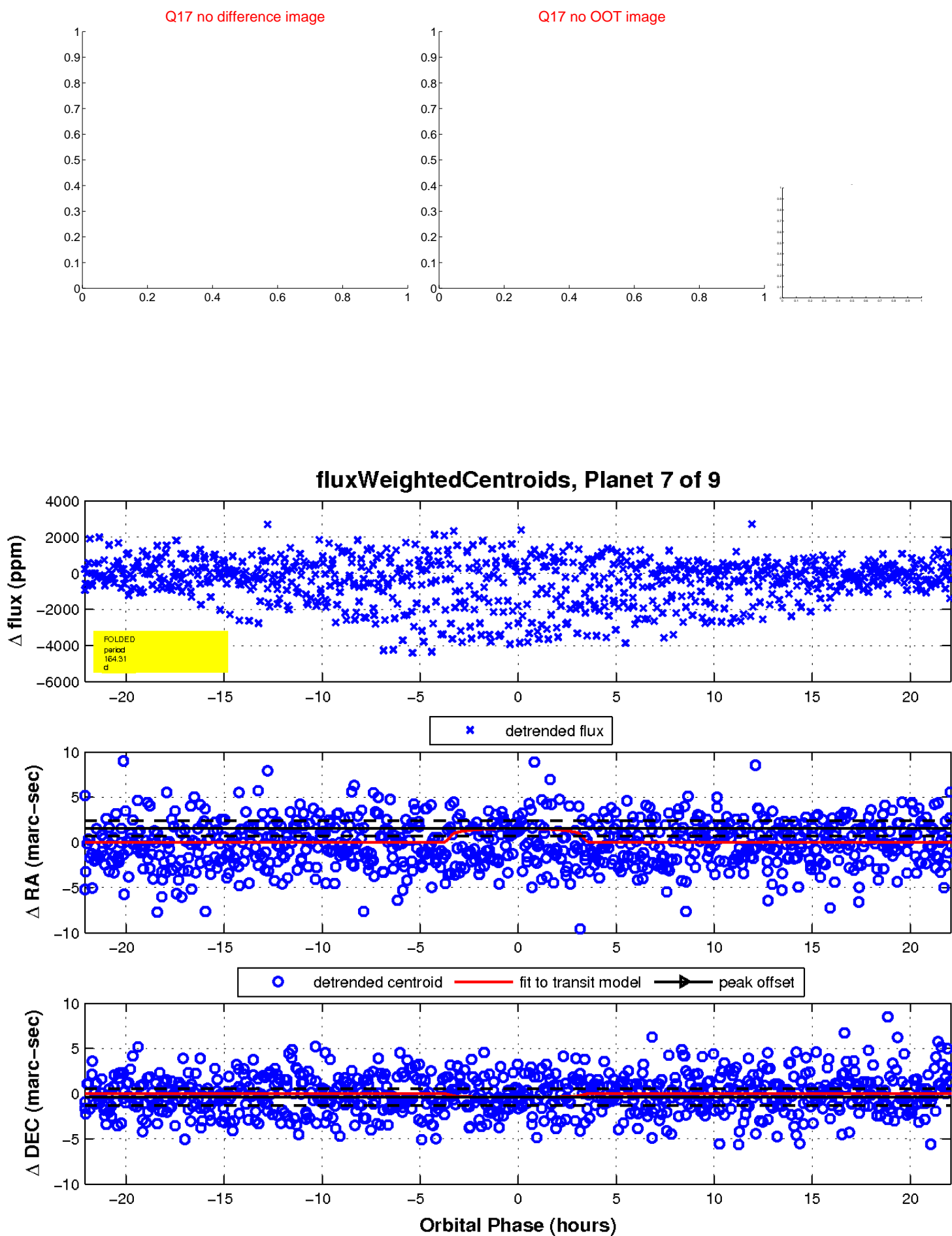
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

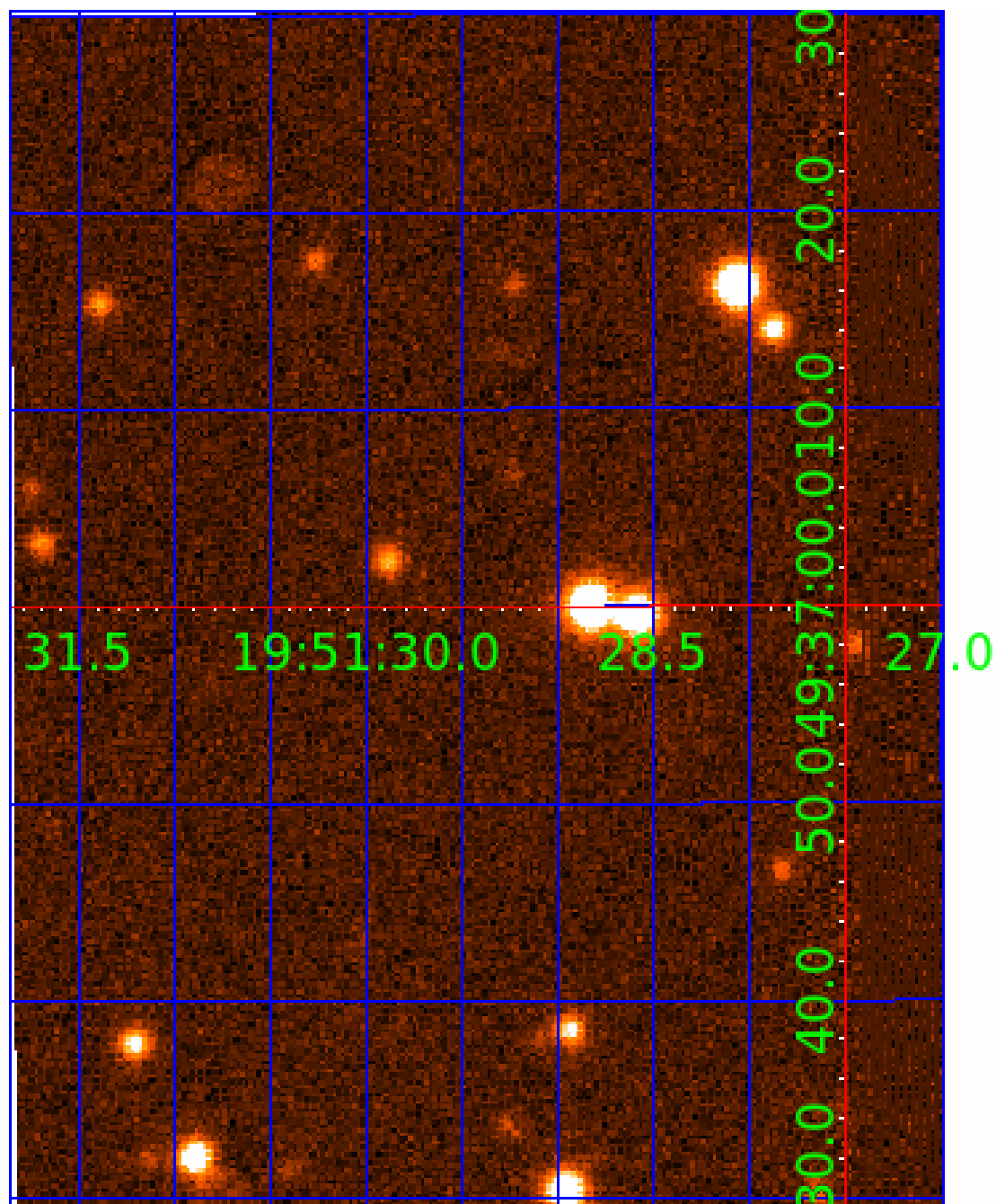


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

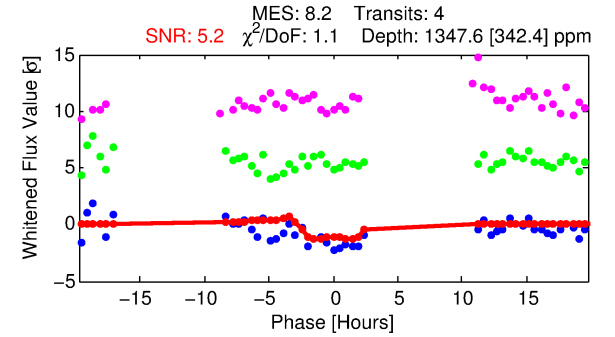
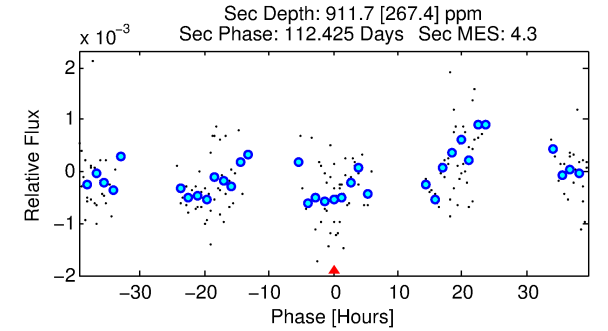
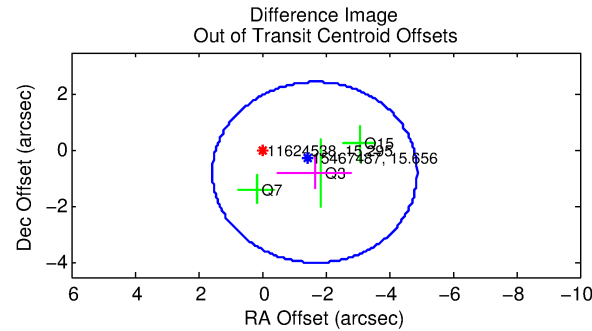
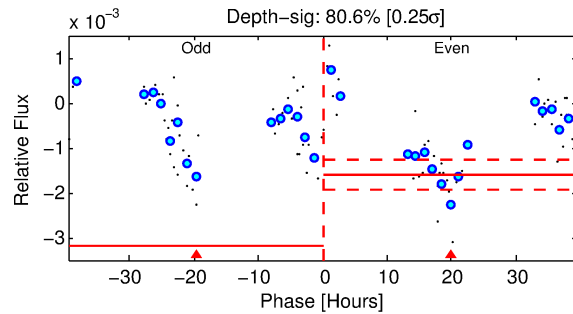
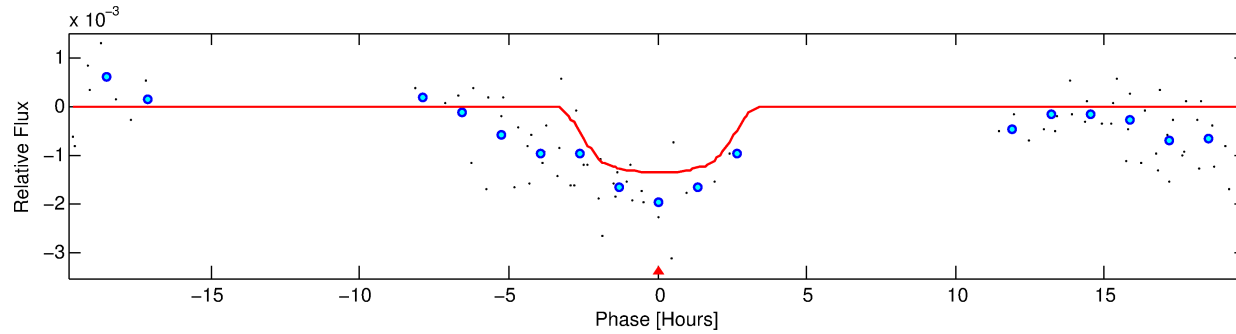
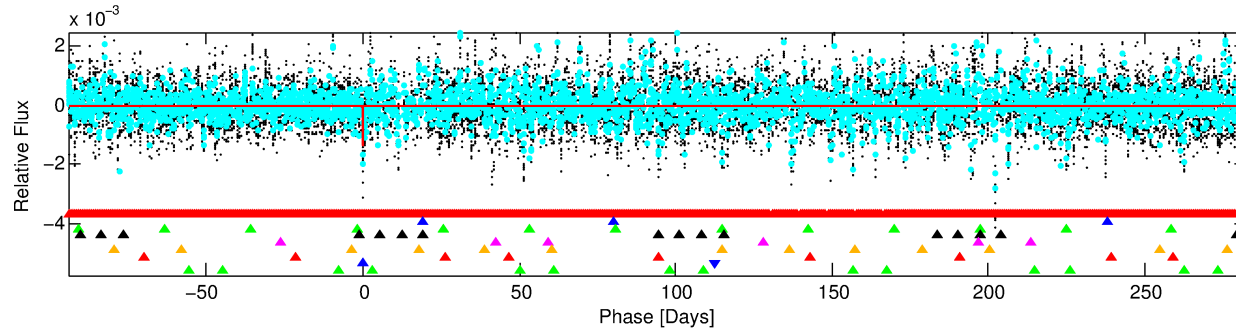
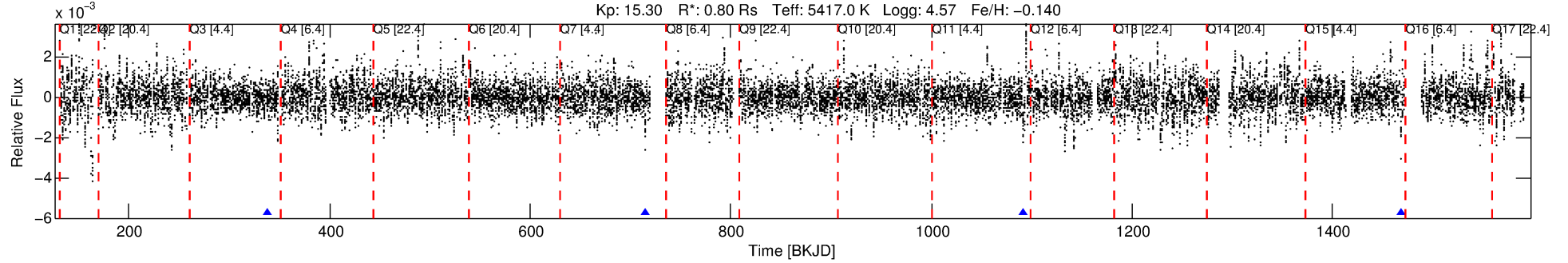
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-08

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 8 of 9 Period: 376.737 d



DV Fit Results:

Period = 376.73734 [0.01170] d
Epoch = 338.0252 [0.0311] BKJD
Rp/R* = 0.0414 [0.0077]
a/R* = 212.17 [103.13]
b = 0.92 [0.07]
Seff = 0.52 [0.15]
Teq = 217 [15] K
Rp = 3.61 [1.00] Re
a = 0.9684 [0.1639] AU
Ag = 36128.77 [19192.99] [1.88 σ]
Teffp = 4624 [575] K [7.66 σ]

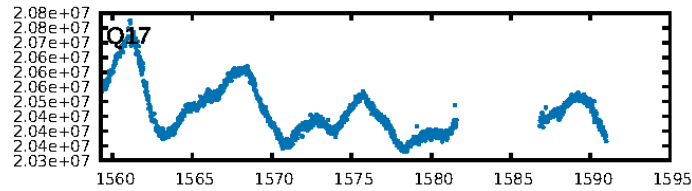
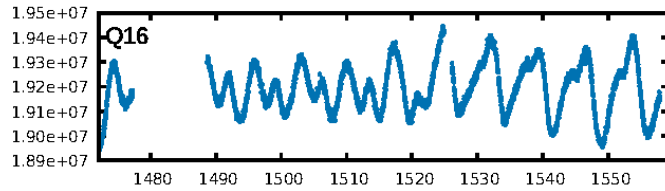
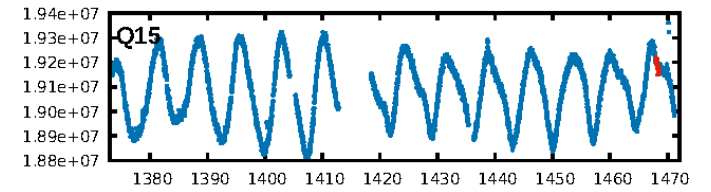
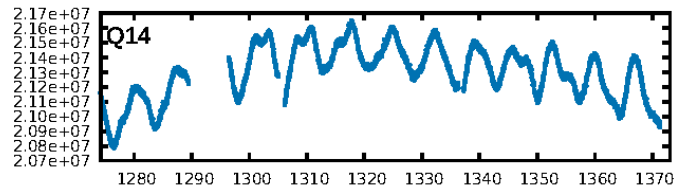
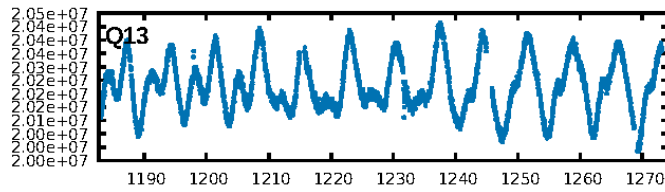
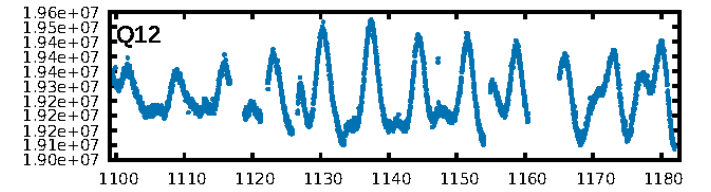
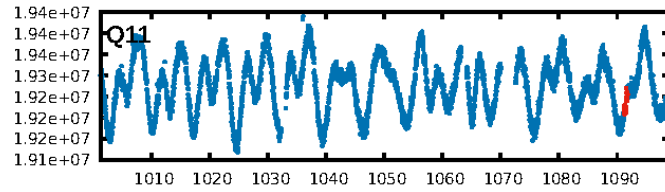
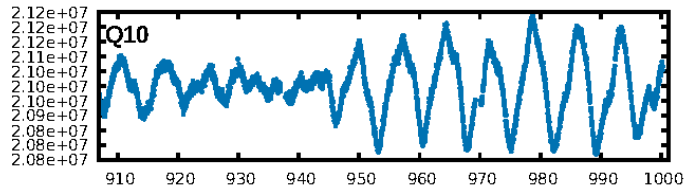
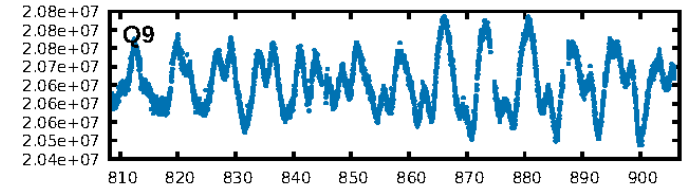
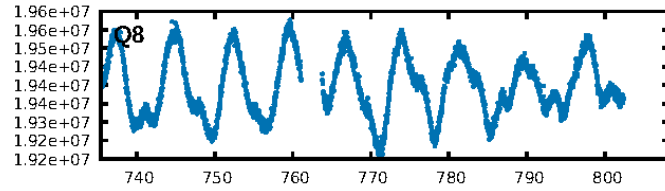
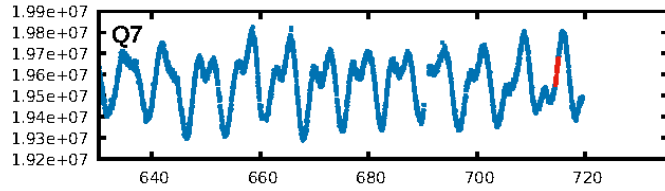
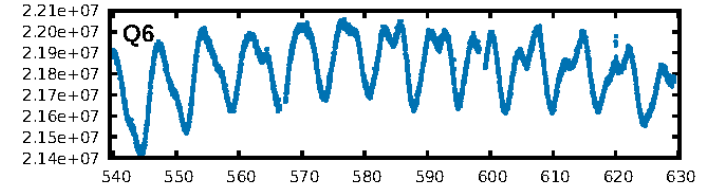
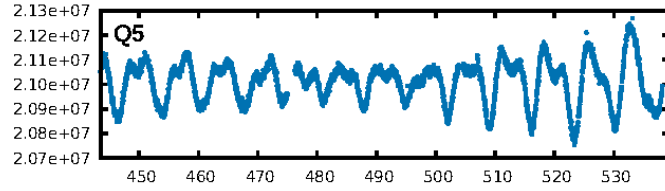
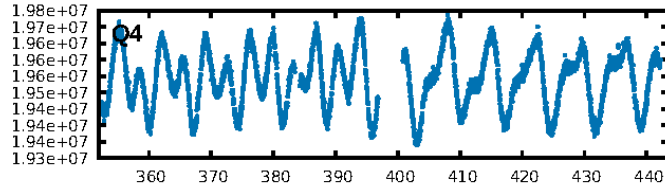
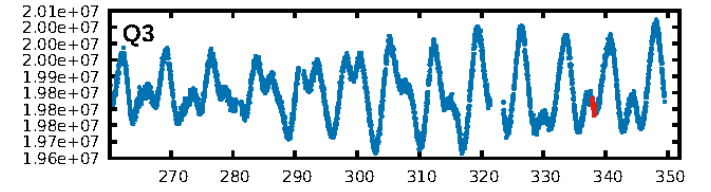
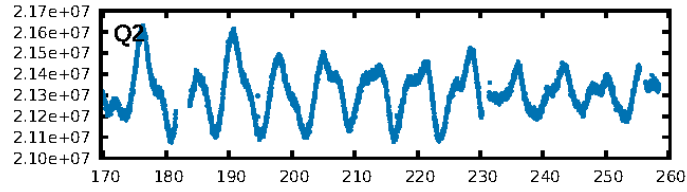
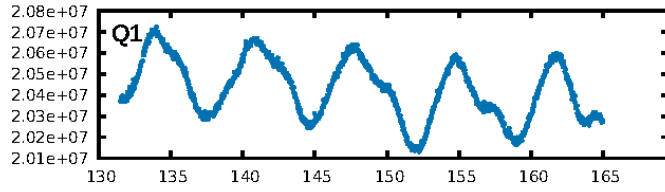
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [248.94 σ]
LongPeriod-sig: 100.0% [436.91 σ]
ModelChiSquare2-sig: 48.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.09e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.5804
Centroid-sig: 54.8%
Centroid-so: 0.895 arcsec [1.09 σ]
OotOffset-rm: 1.839 arcsec [1.71 σ]
OotOffset-st: 0/3/0/0 [3]
KicOffset-rm: 1.211 arcsec [1.16 σ]
KicOffset-st: 0/3/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/4]

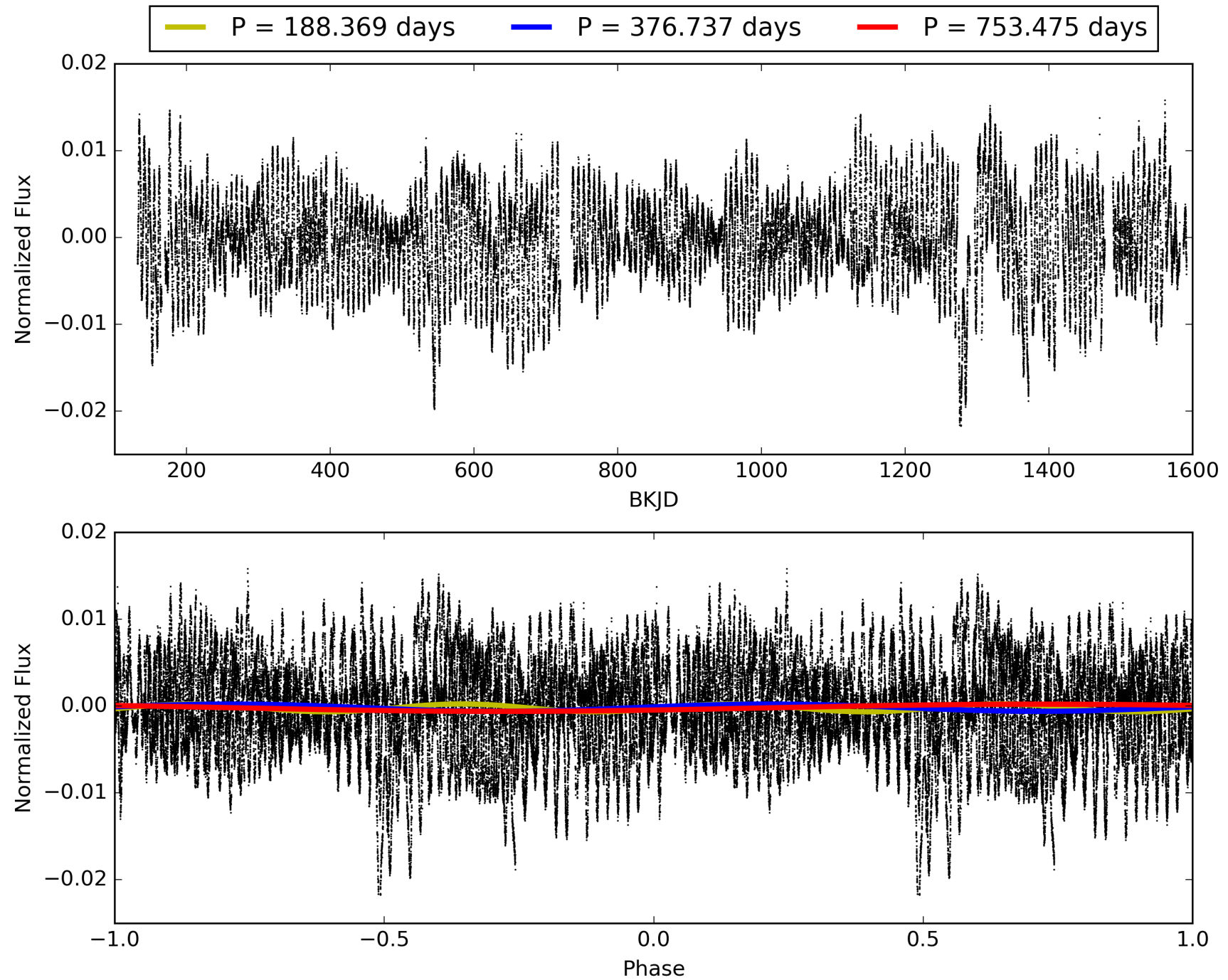
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:51 Z

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

TCE 011624538-08, PDC Light Curves

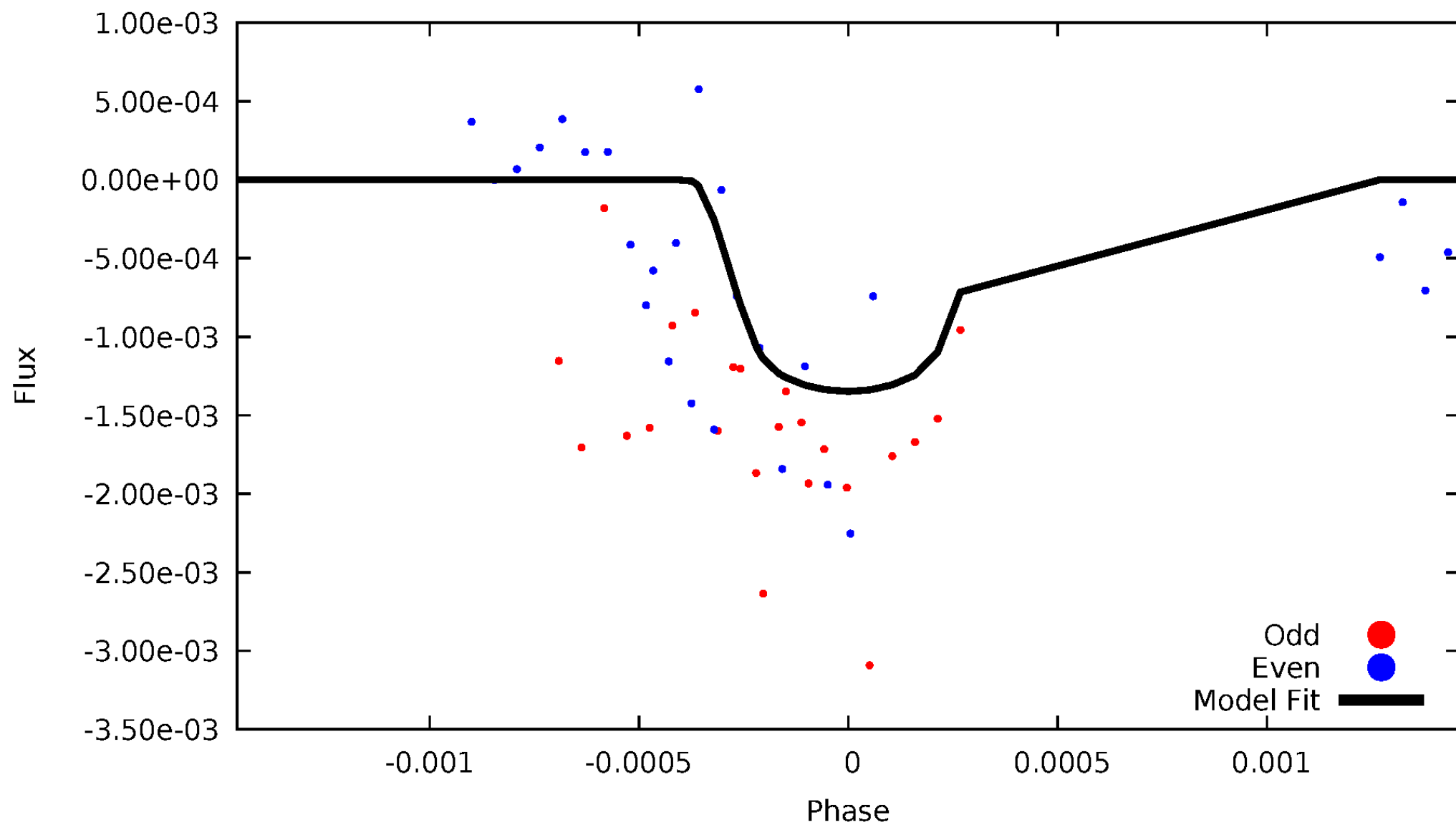


TCE 011624538-08



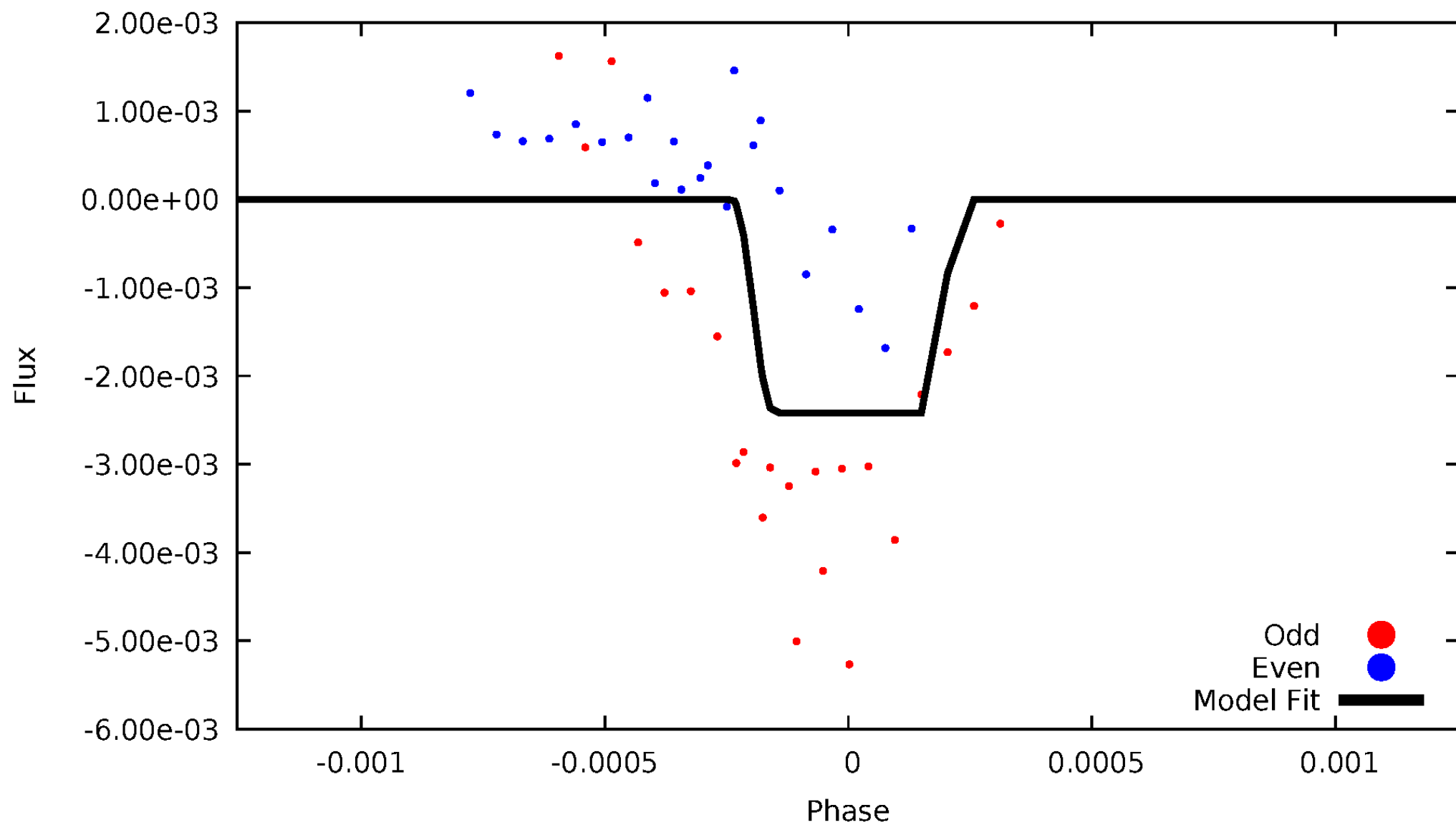
DV Odd/Even

TCE 011624538-08



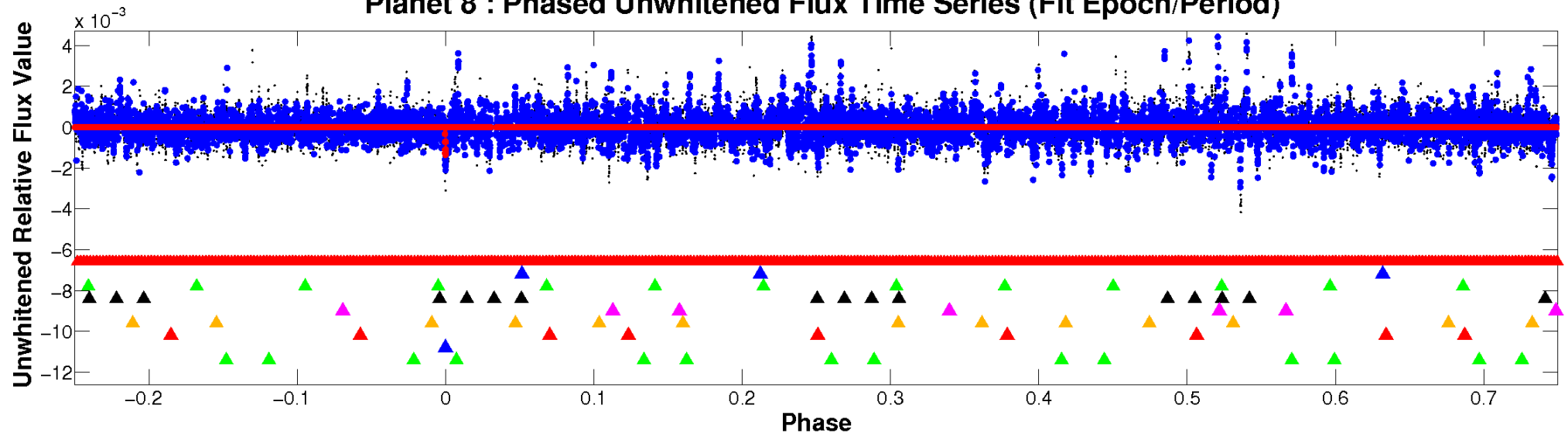
ALT Odd/Even

TCE 011624538-08

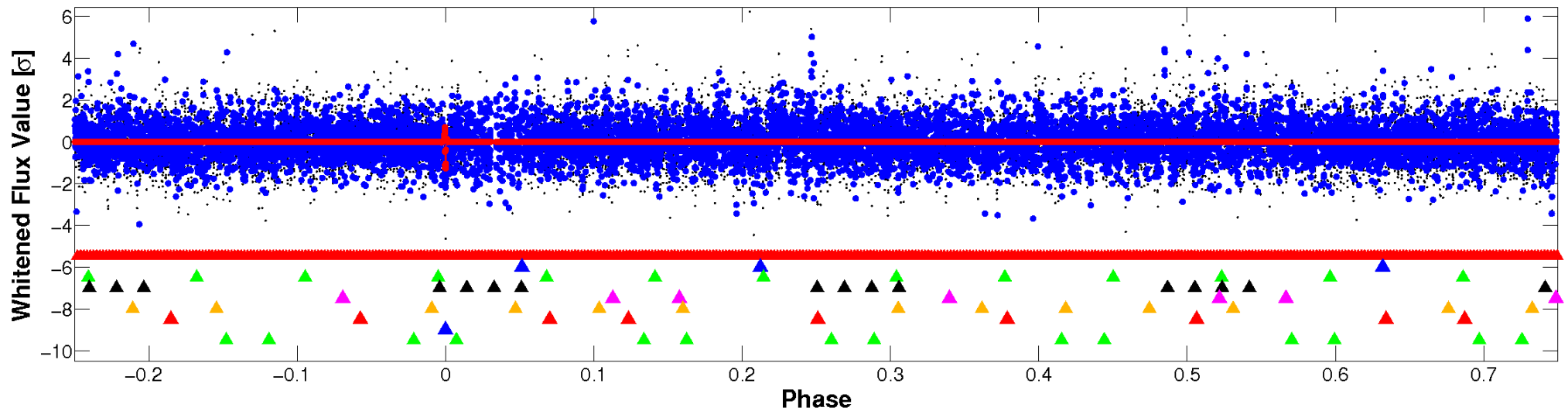


Non-Whitened Vs. Whitened Light Curve

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

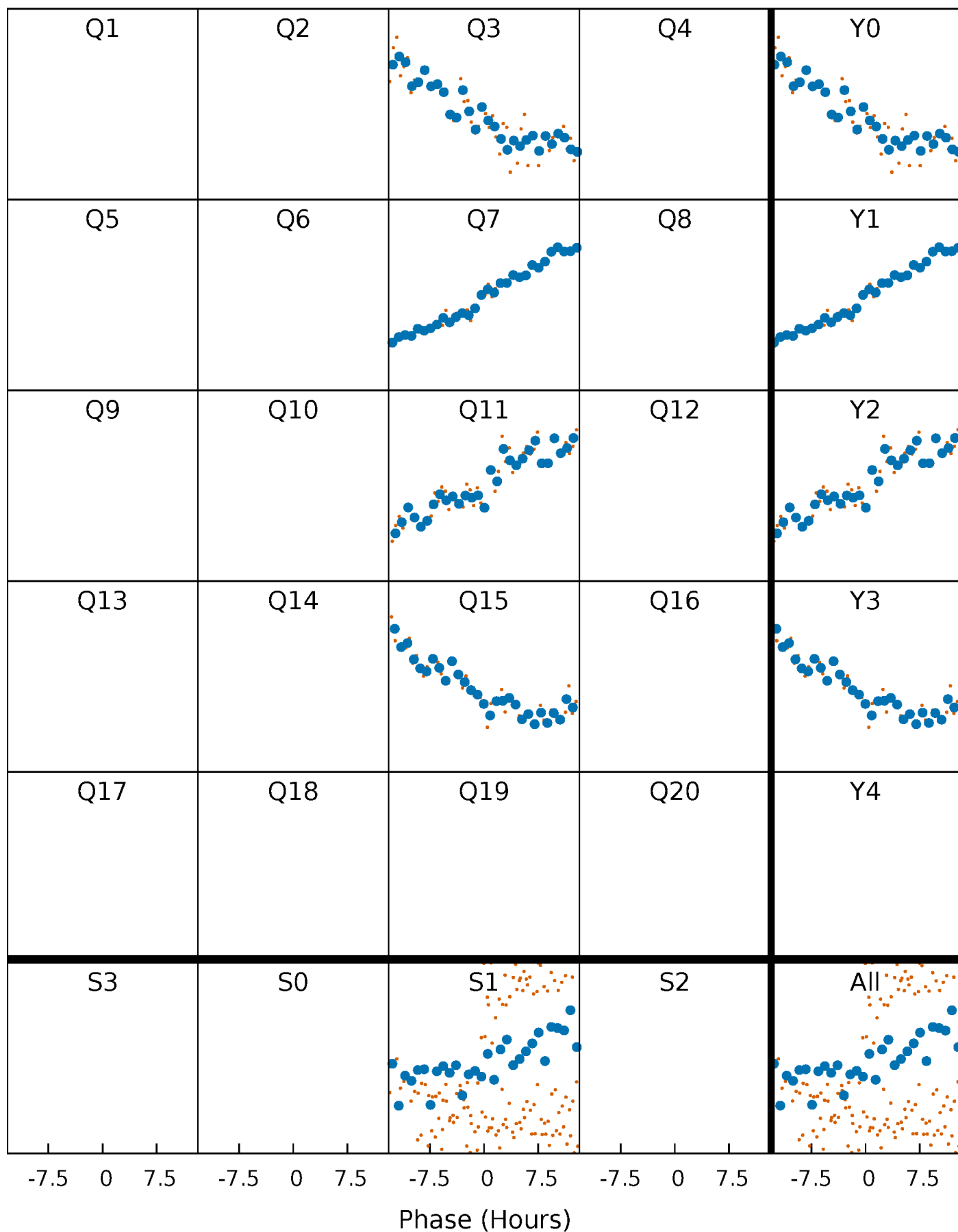


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



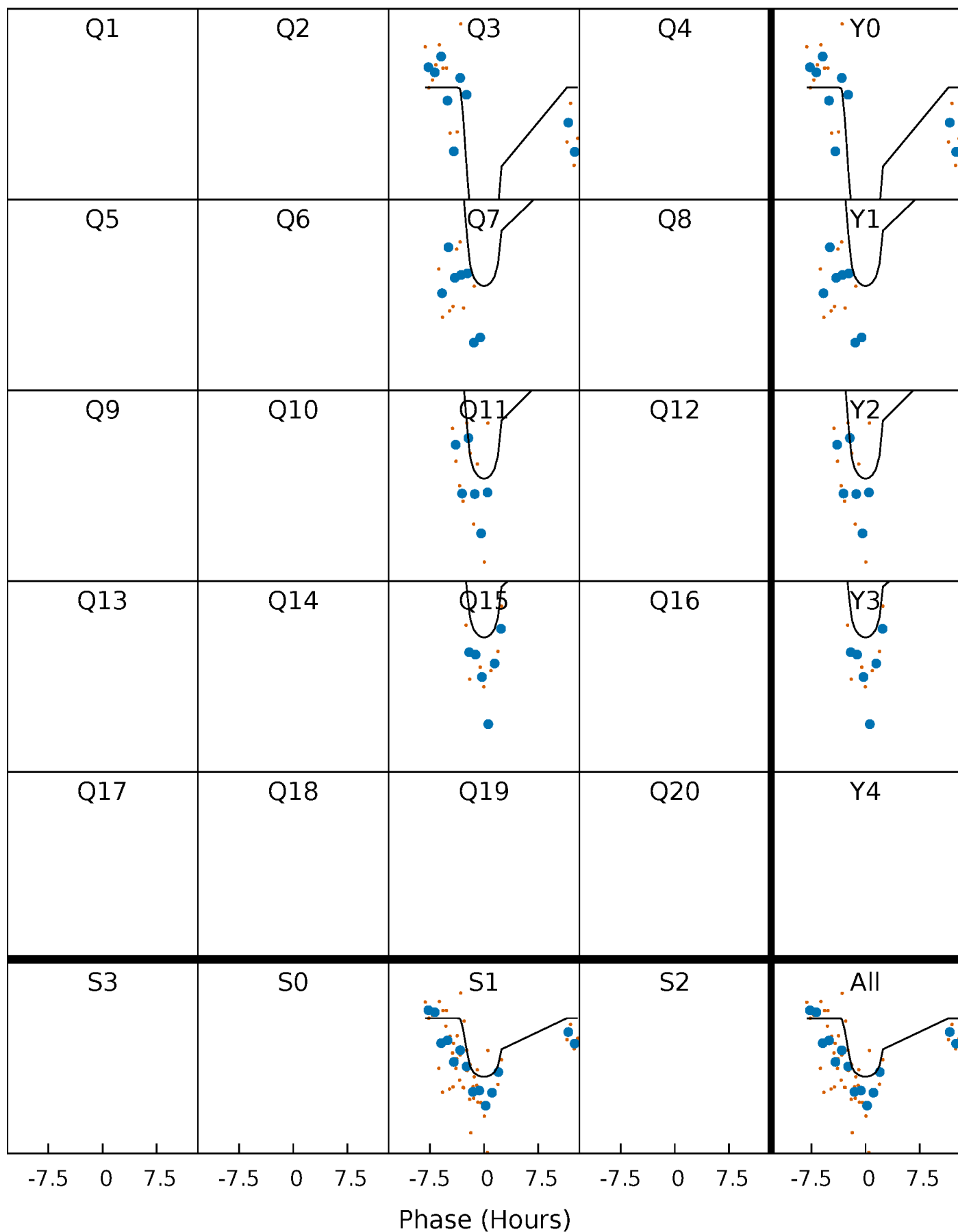
PDC Quarter-Phased Transit Curves

TCE 011624538-08 $P=376.737341$ Days $T_0=338.025208$ (BKJD)



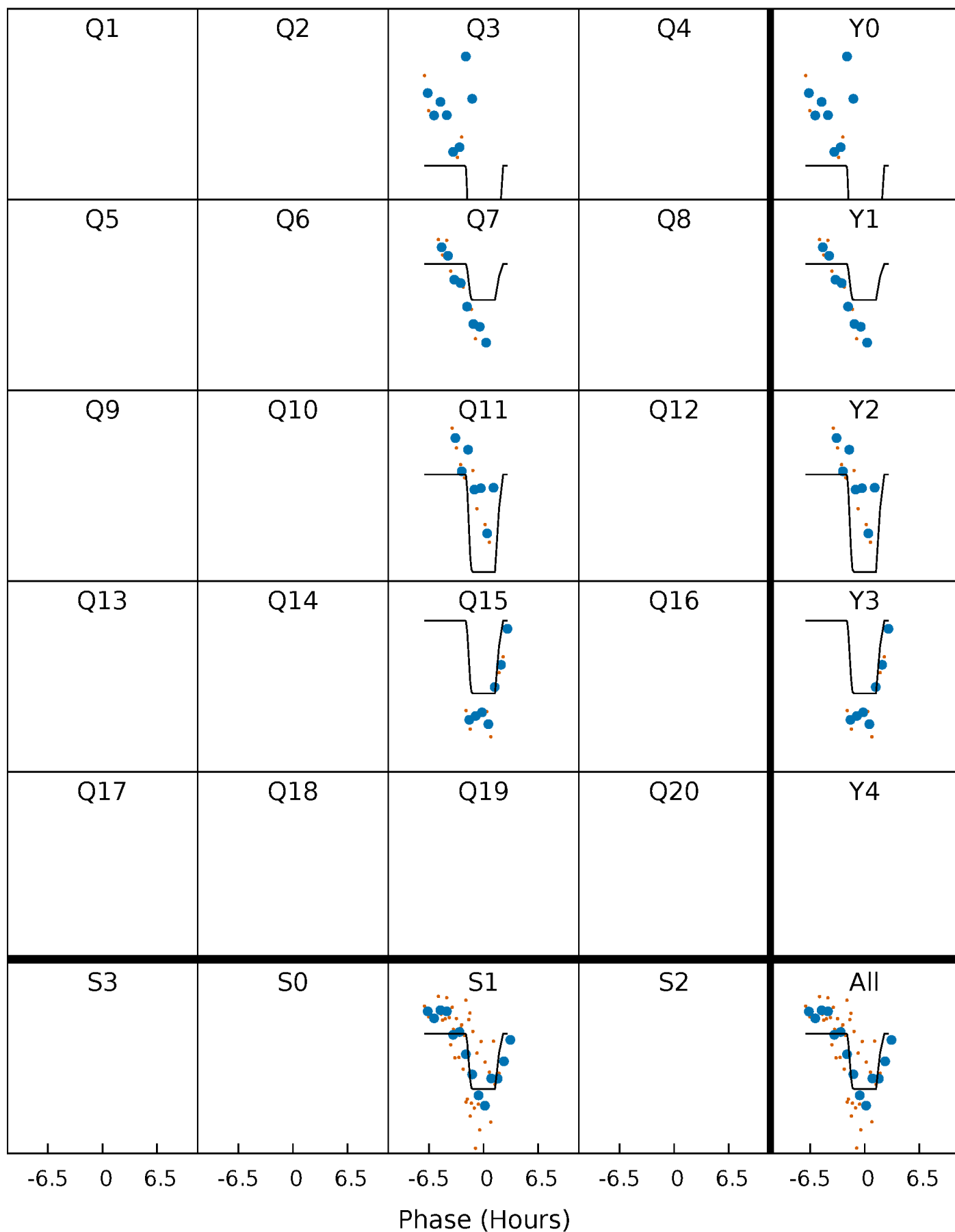
DV Quarter-Phased Transit Curves

TCE 011624538-08 $P=376.737341$ Days $T_0=338.025208$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

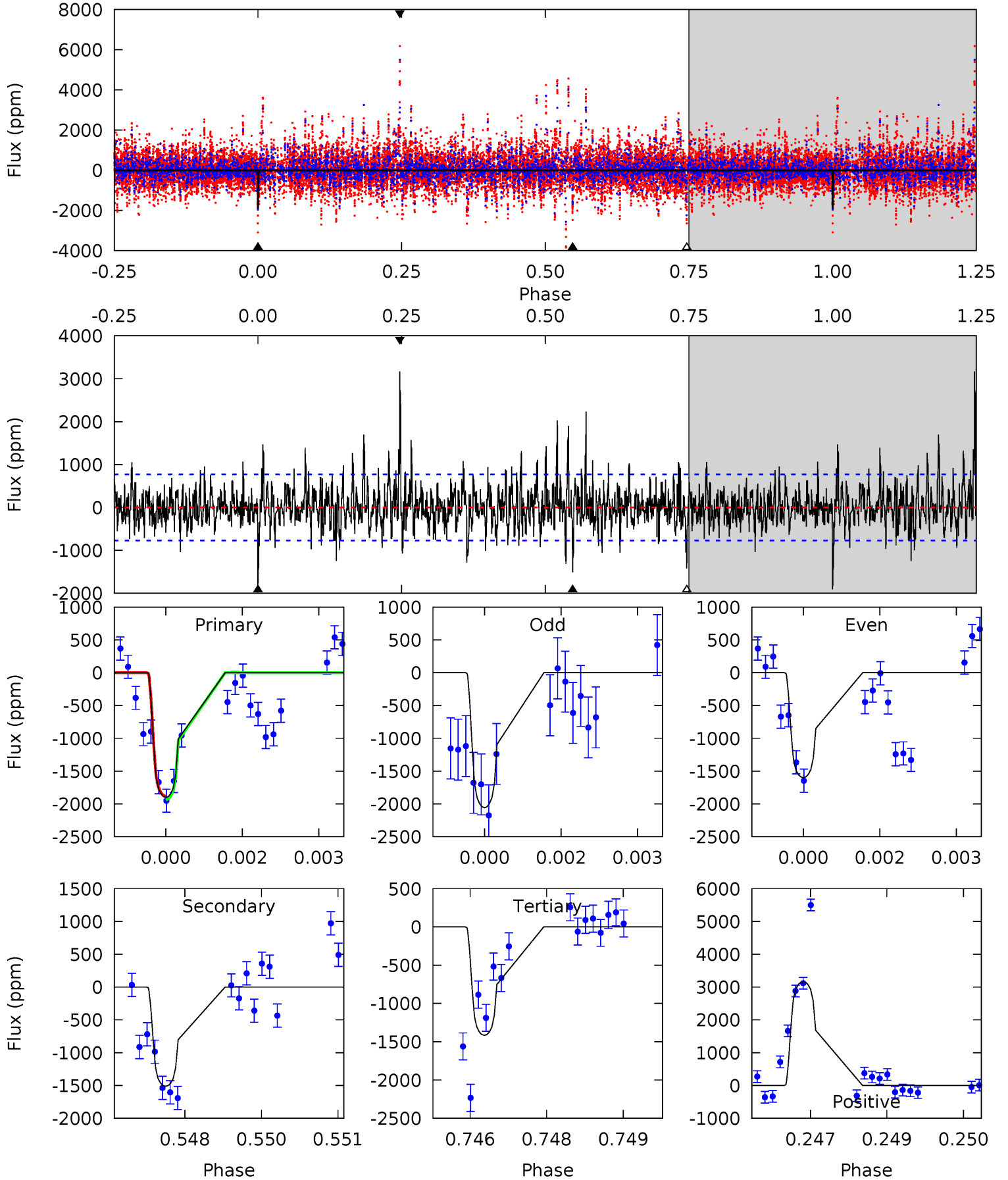
TCE 011624538-08 P=376.747168 Days $T_0=337.978807$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-08, P = 376.737341 Days, E = 338.025208 Days

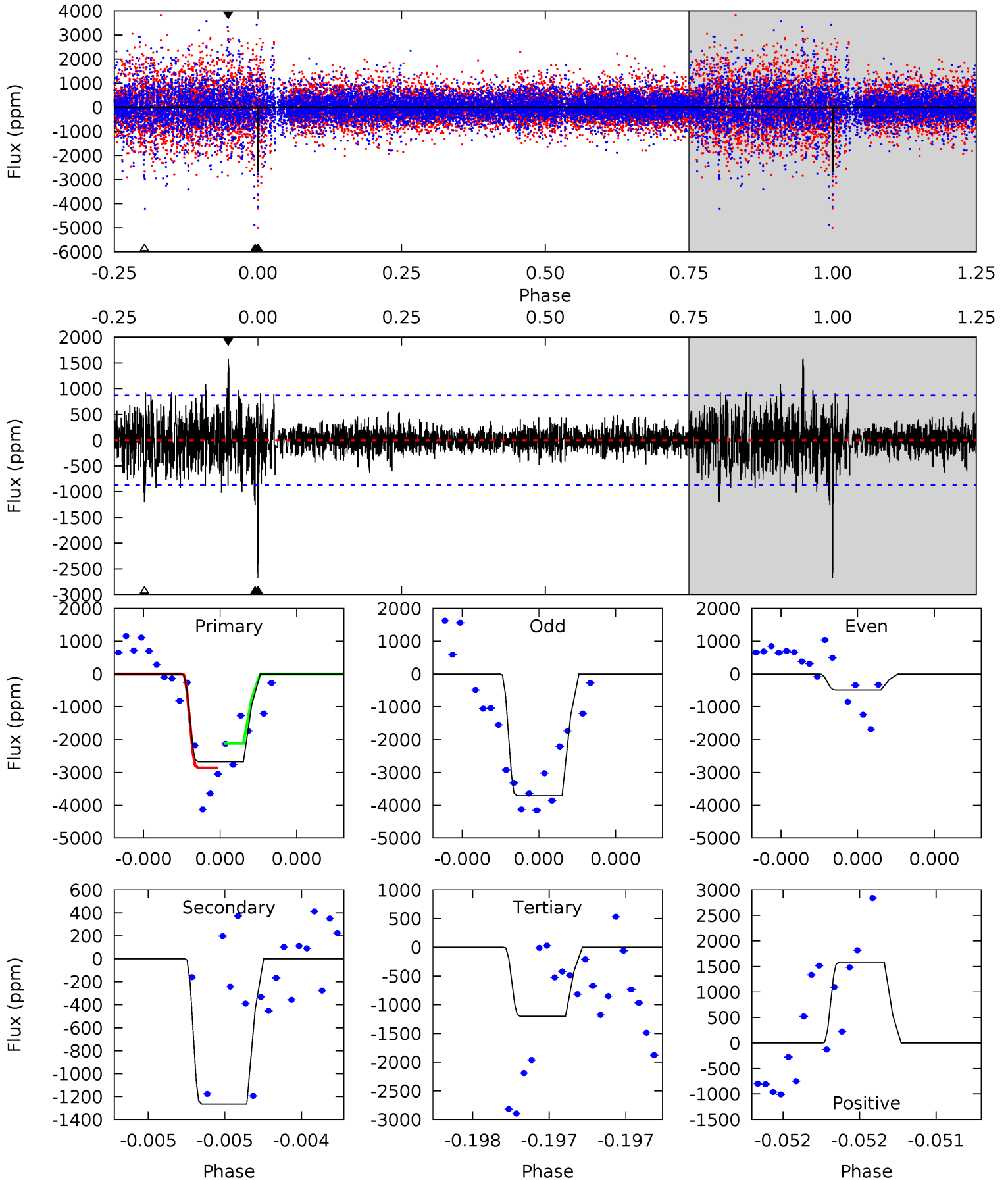
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	10.5	9.87	22.1	5.36	3.15	2.74	3.38	-8.82	0.66	-11.5	1.52	0.80	0.62	0.17



Alt Model-Shift Uniqueness Test

011624538-08, P = 376.747168 Days, E = 337.978807 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	8.10	7.70	10.2	5.58	3.48	1.50	9.44	6.99	0.40	-2.05	11.0	0.93	0.37	2.56



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1511 \pm 144	$3.75^{+0.77}_{-0.70}$	308^{+15}_{-14}	5250^{+554}_{-418}	55094^{+28281}_{-17487}
Alt.	-1264 \pm 156	$4.35^{+0.86}_{-0.72}$	308^{+17}_{-14}	4724^{+451}_{-337}	33537^{+16939}_{-10581}

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

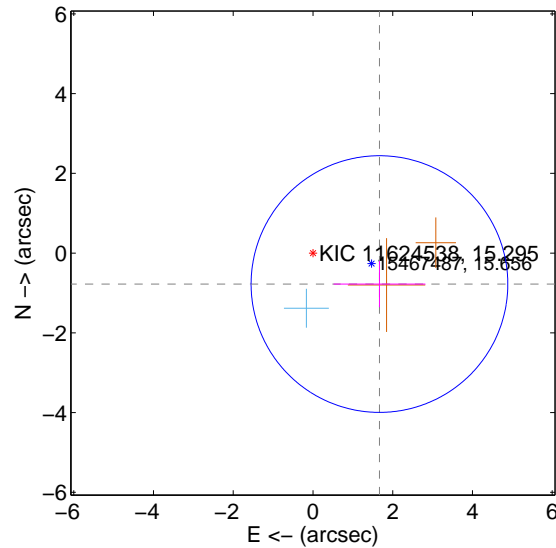
Supplemental centroid analysis for 011624538-08. Kepler magnitude: 15.29. Transit SNR 5.23

There are 1 quarters with good PRF difference image offsets

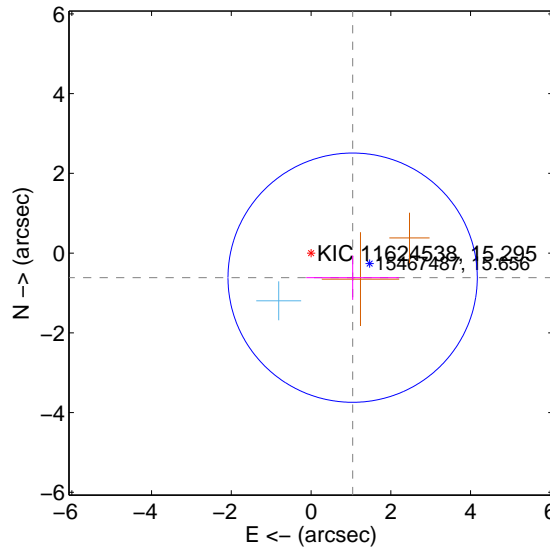
The direct PRF centroid is offset from the target star catalog position by about 0.62 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.839 ± 1.073	1.71	-1.667 ± 1.152	-0.776 ± 0.580
PRF-fit source offset from KIC position	1.211 ± 1.042	1.16	-1.043 ± 1.165	-0.616 ± 0.557
photometric centroid source offset	0.90 ± 0.82	1.09	0.89 ± 0.82	0.02 ± 0.80

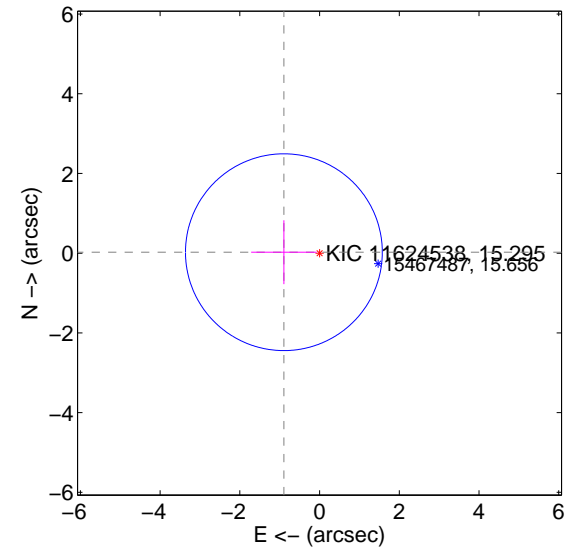
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

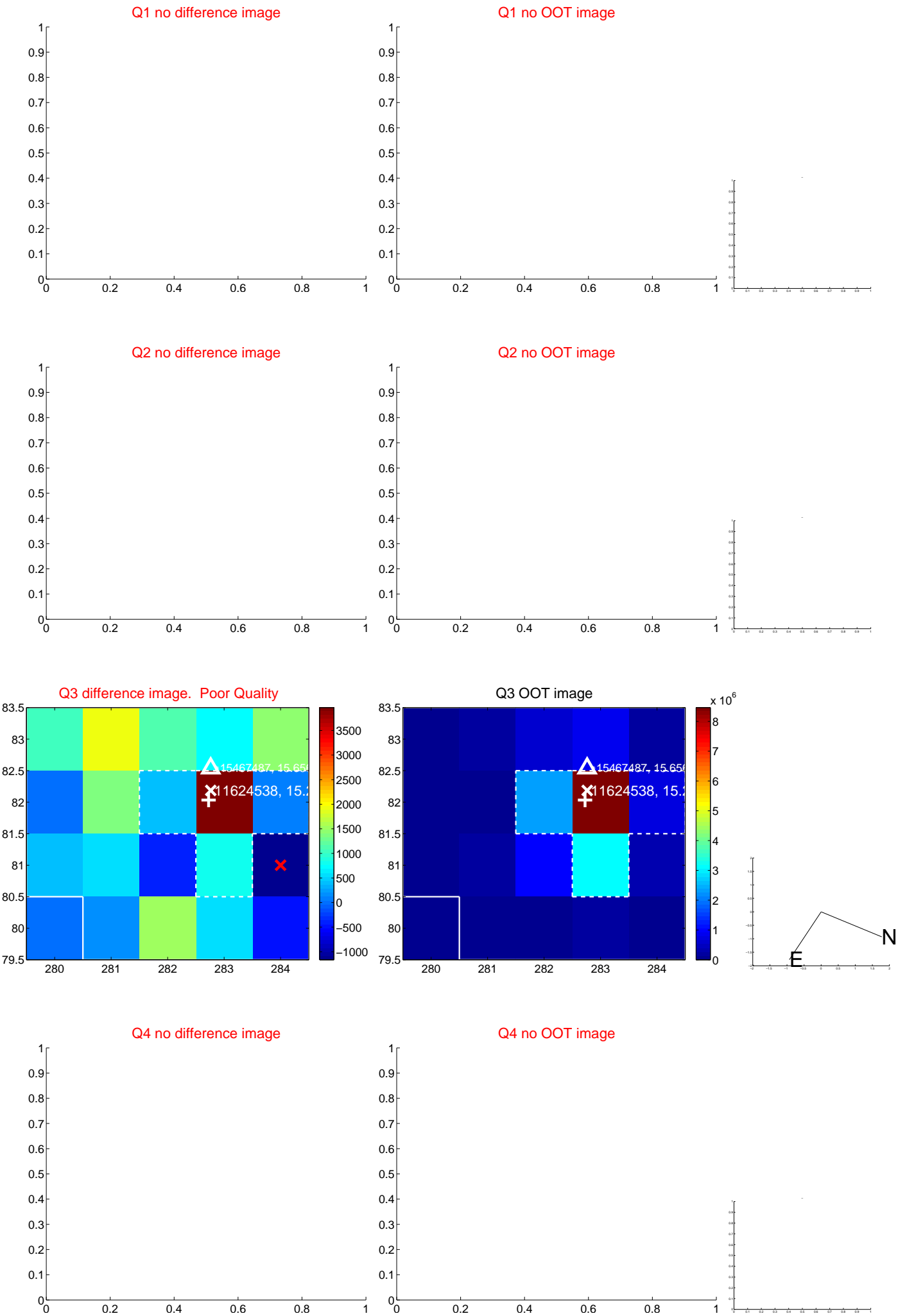


offset from photometric centroids

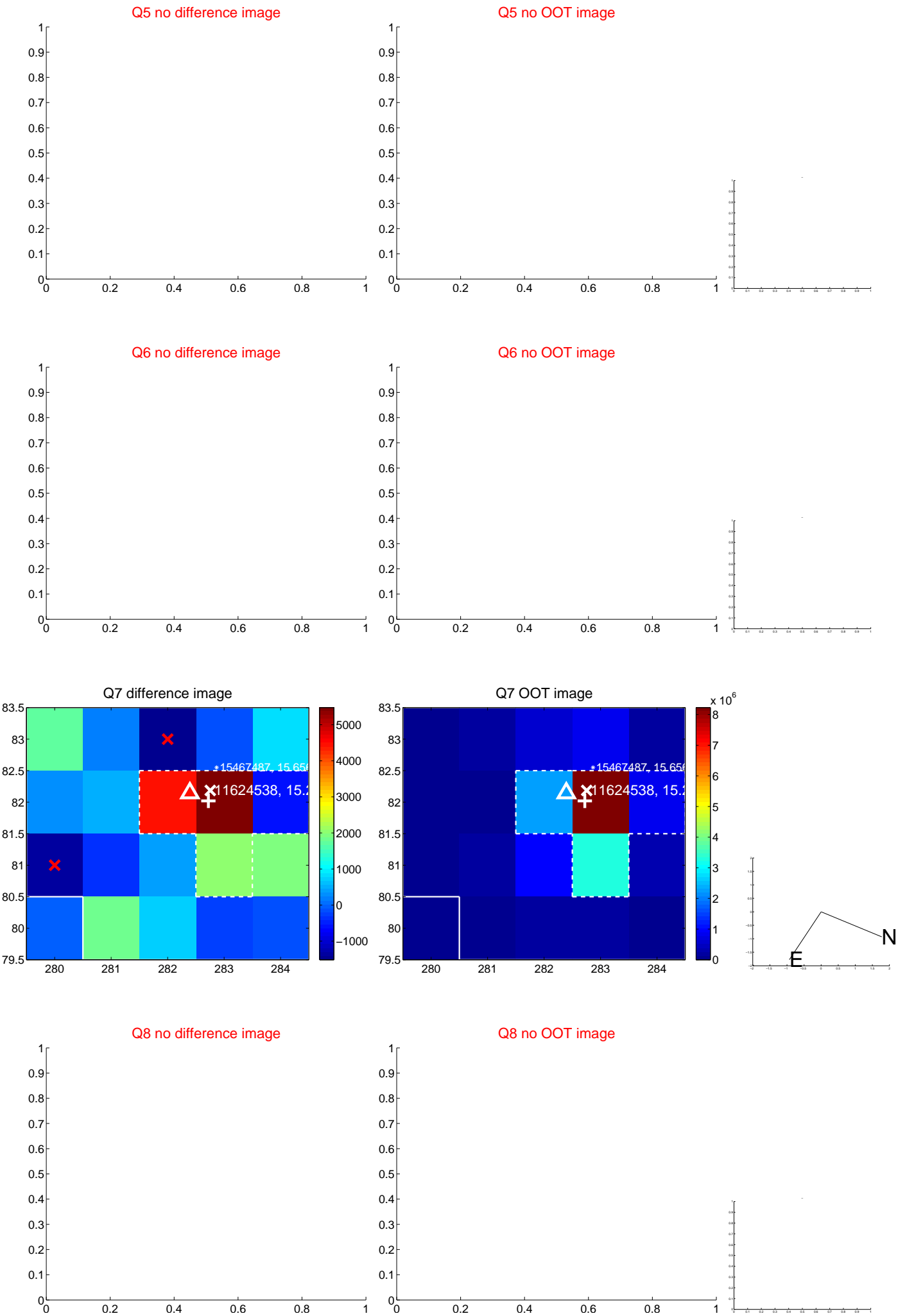


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

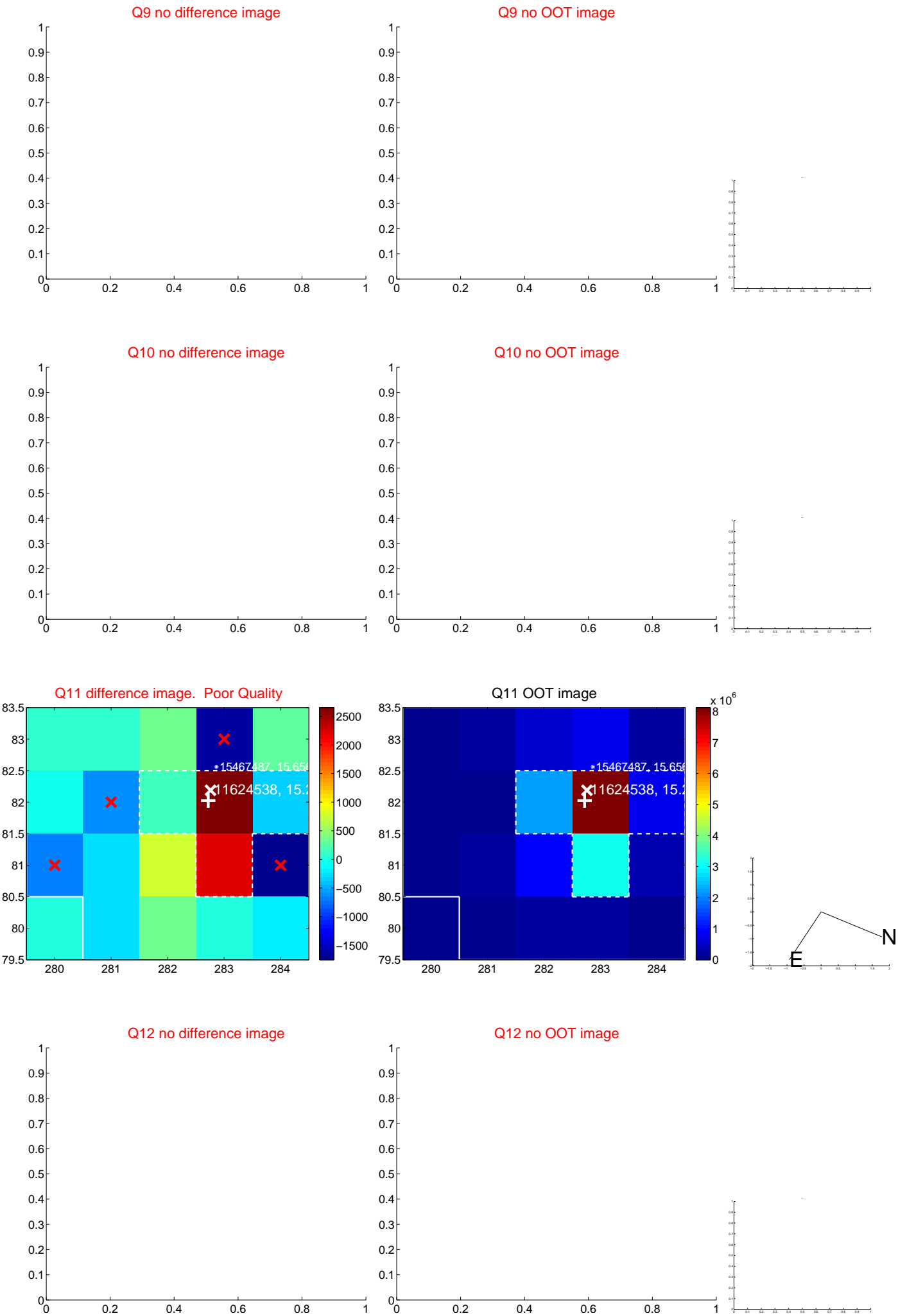
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



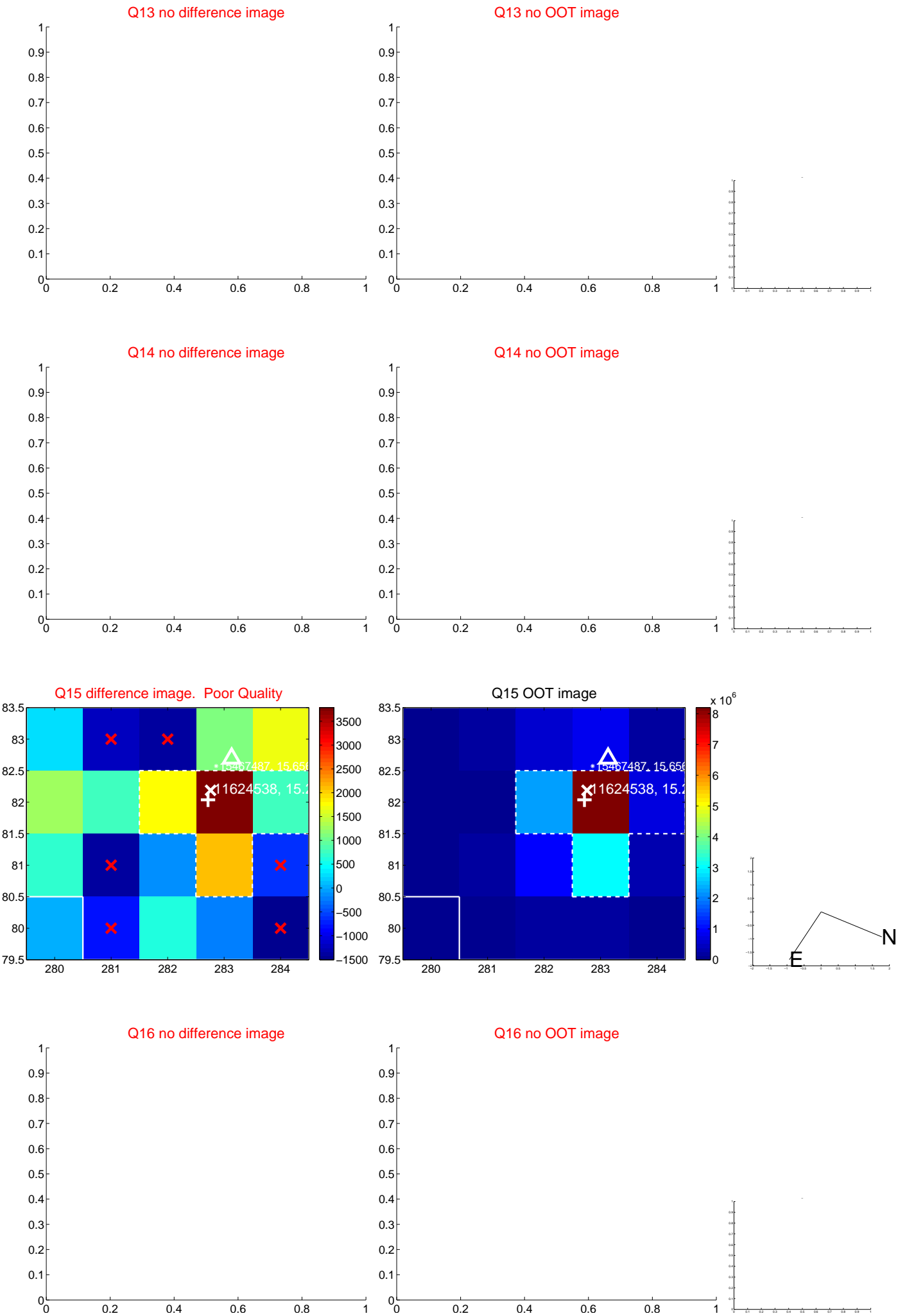
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



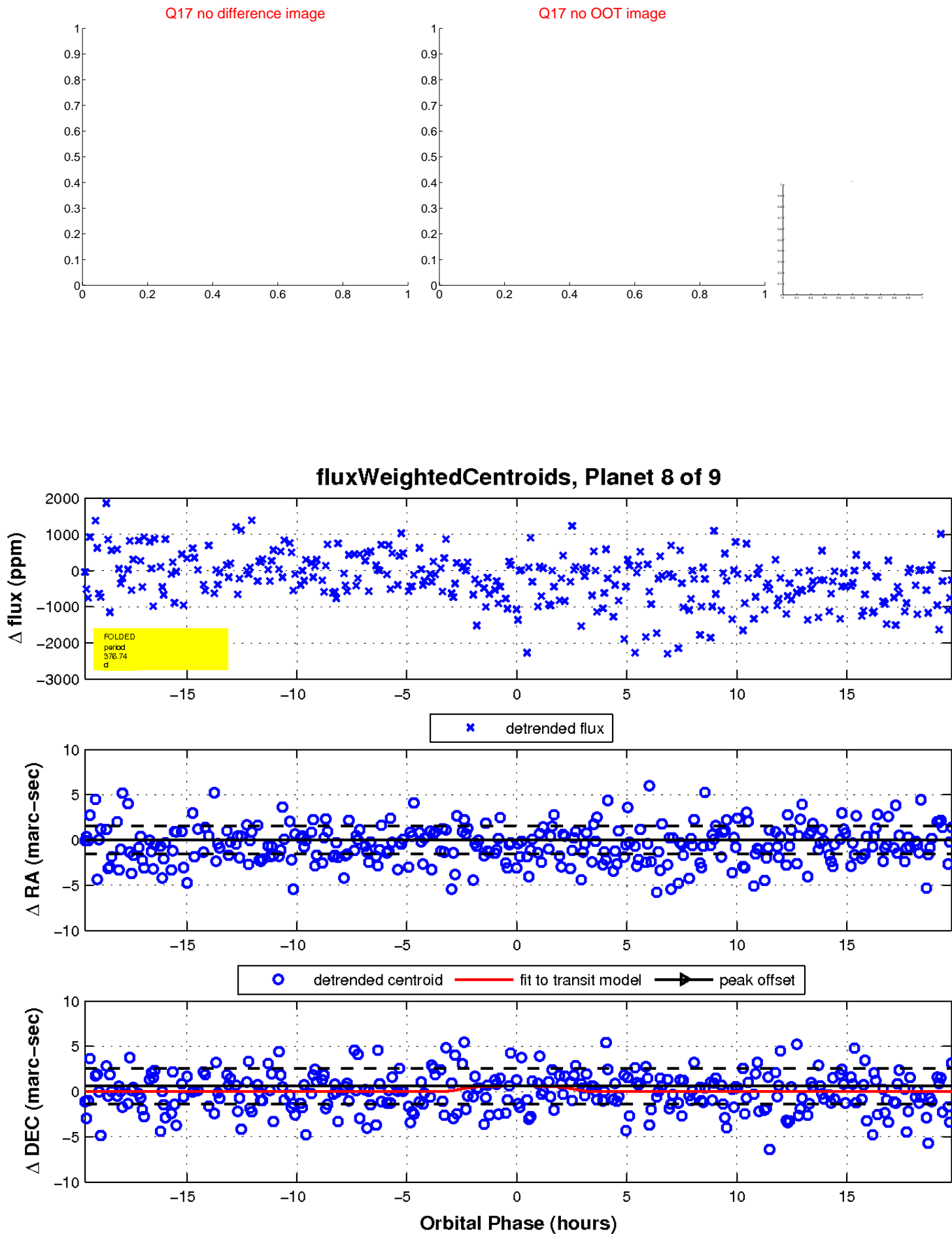
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

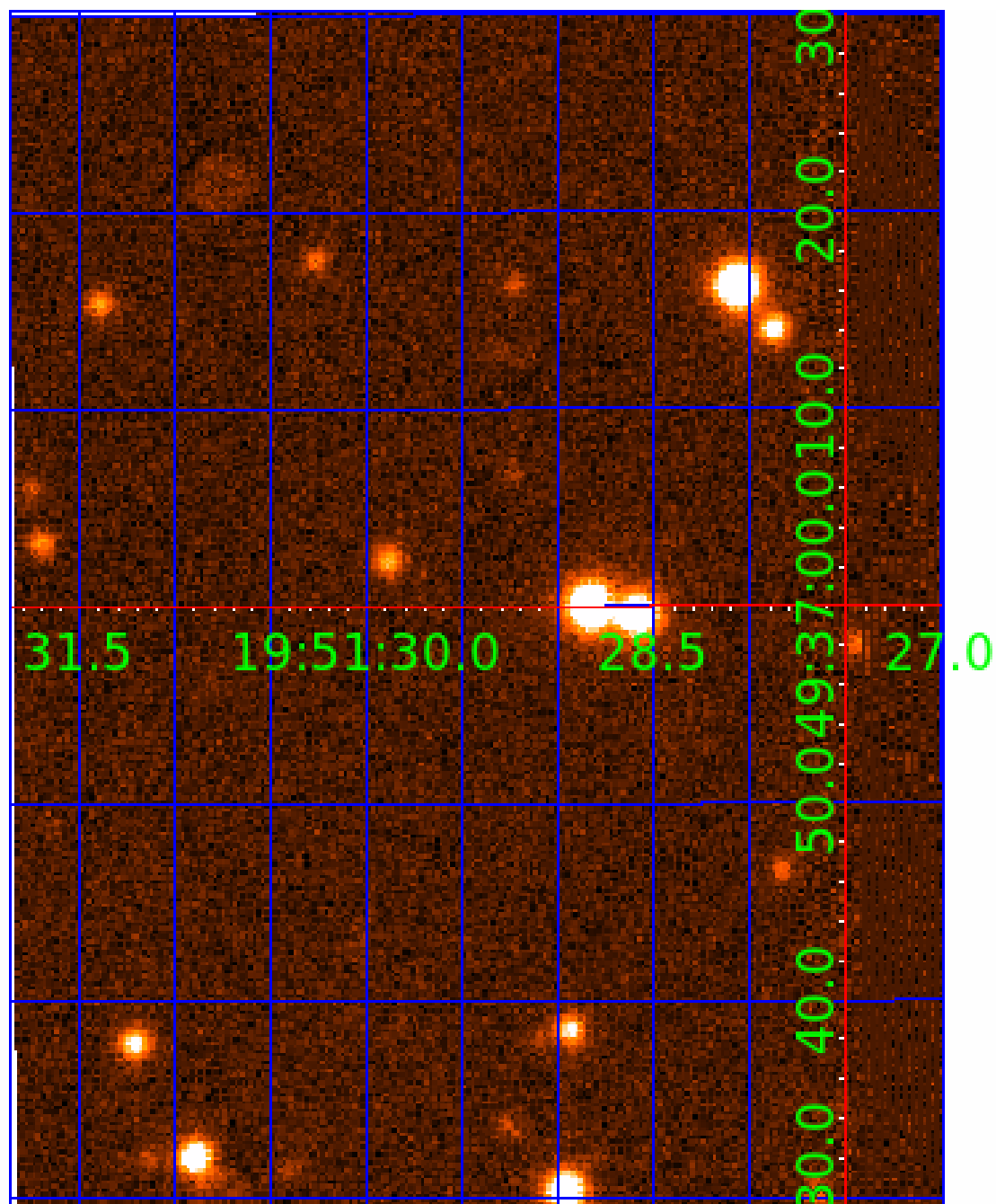


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011624538

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})
011624538-01	OBS	No	0.815615	131.852510	36.6	4.484	8.1	5.8	0.80	5417	0.49	1870.47
011624538-02	OBS	No	595.388512	357.445200	2722.4	10.037	10.5	8.9	0.80	5417	4.85	0.28
011624538-03	OBS	No	116.399059	185.986811	1518.7	6.425	10.5	7.0	0.80	5417	3.32	2.51
011624538-04	OBS	No	95.915156	144.704888	695.0	6.987	10.1	3.8	0.80	5417	2.21	3.25
011624538-05	OBS	No	222.661074	174.779527	2572.1	13.309	9.7	9.6	0.80	5417	4.32	1.06
011624538-06	OBS	No	118.491387	161.351472	2104.9	8.883	9.2	8.6	0.80	5417	6.93	2.45
011624538-07	OBS	No	164.313776	200.198175	978.5	7.384	8.3	5.2	0.80	5417	2.73	1.58
011624538-08	OBS	No	376.737340	338.025208	1347.6	6.597	8.2	5.2	0.80	5417	3.61	0.52
011624538-09	OBS	No	106.090729	187.089088	1048.4	8.112	8.3	5.2	0.80	5417	2.95	2.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011624538-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_KIC_POS
011624538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_KIC_POS
011624538-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
011624538-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_TER_ALT—CENT_KIC_POS
011624538-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
011624538-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

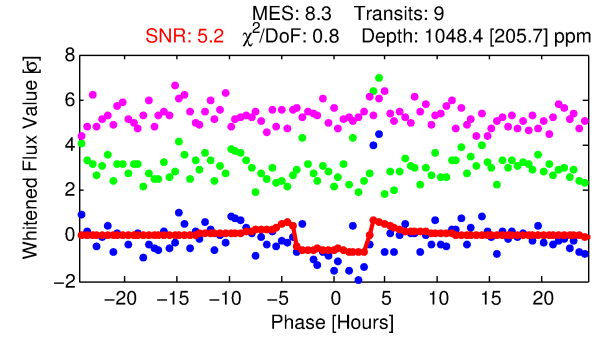
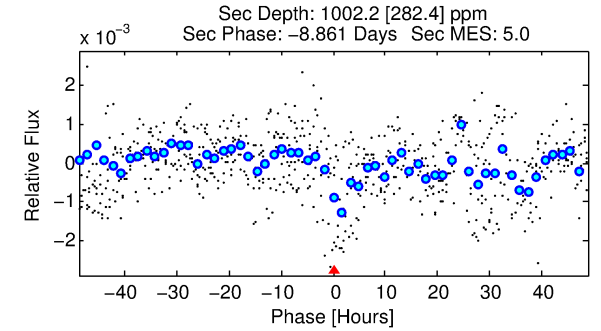
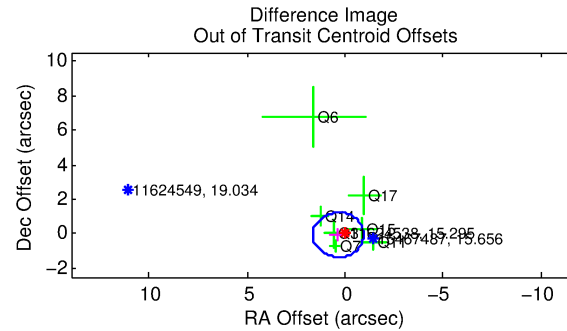
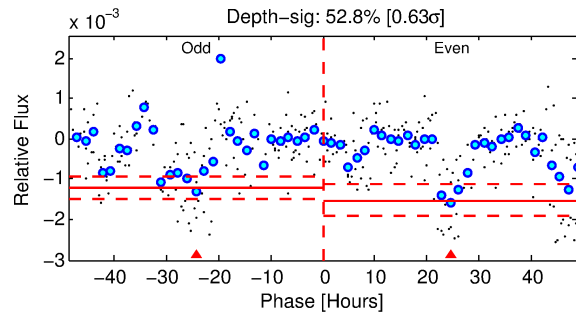
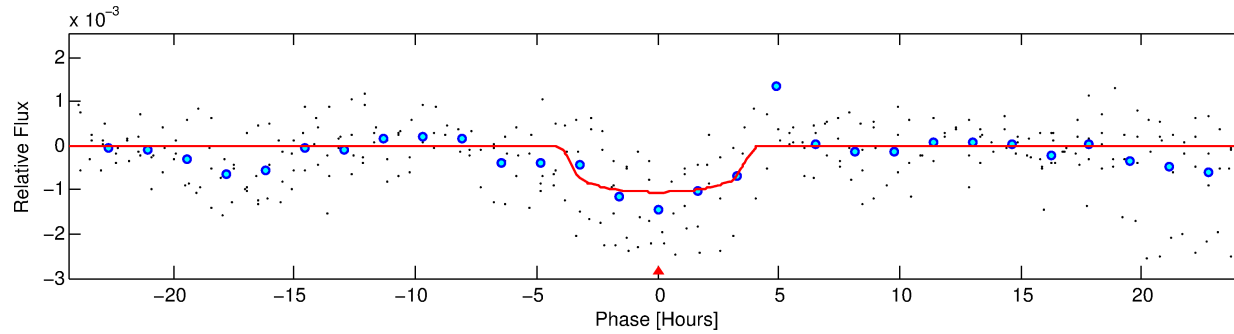
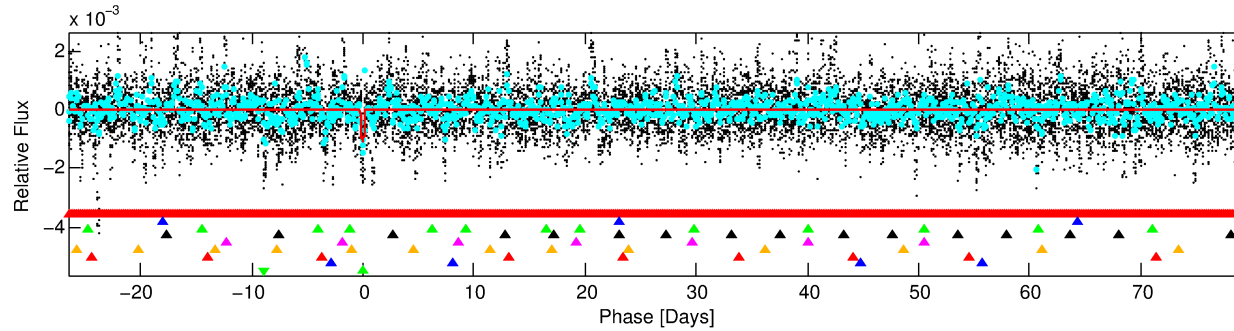
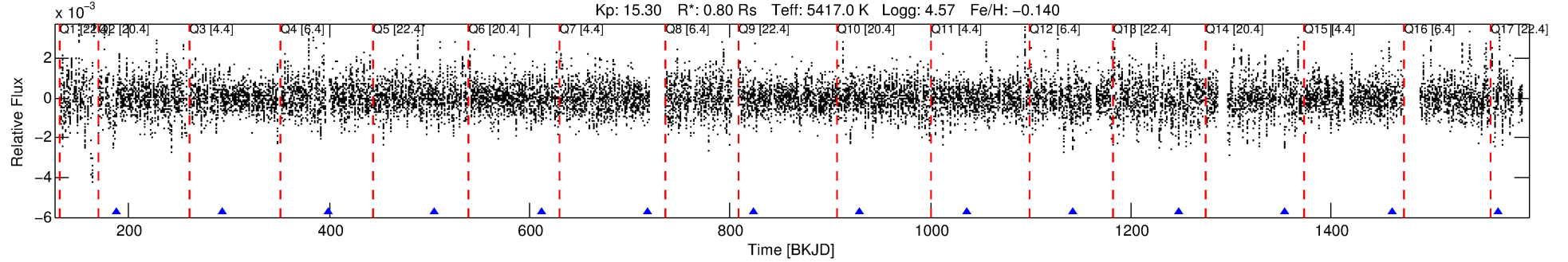
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 011624538-09

No Significant Match Found

DV One-Page Summary

KIC: 11624538 Candidate: 9 of 9 Period: 106.091 d



DV Fit Results:

Period = 106.09073 [0.00179] d
Epoch = 187.0891 [0.0160] BKJD
Rp/R* = 0.0339 [0.0065]
a/R* = 60.14 [36.35]
b = 0.84 [0.22]
Seff = 2.84 [0.80]
Teq = 331 [23] K
Rp = 2.95 [0.83] Re
a = 0.4161 [0.0704] AU
Ag = 10980.13 [5861.70] [1.87 σ]
Teffp = 5238 [655] K [7.49 σ]

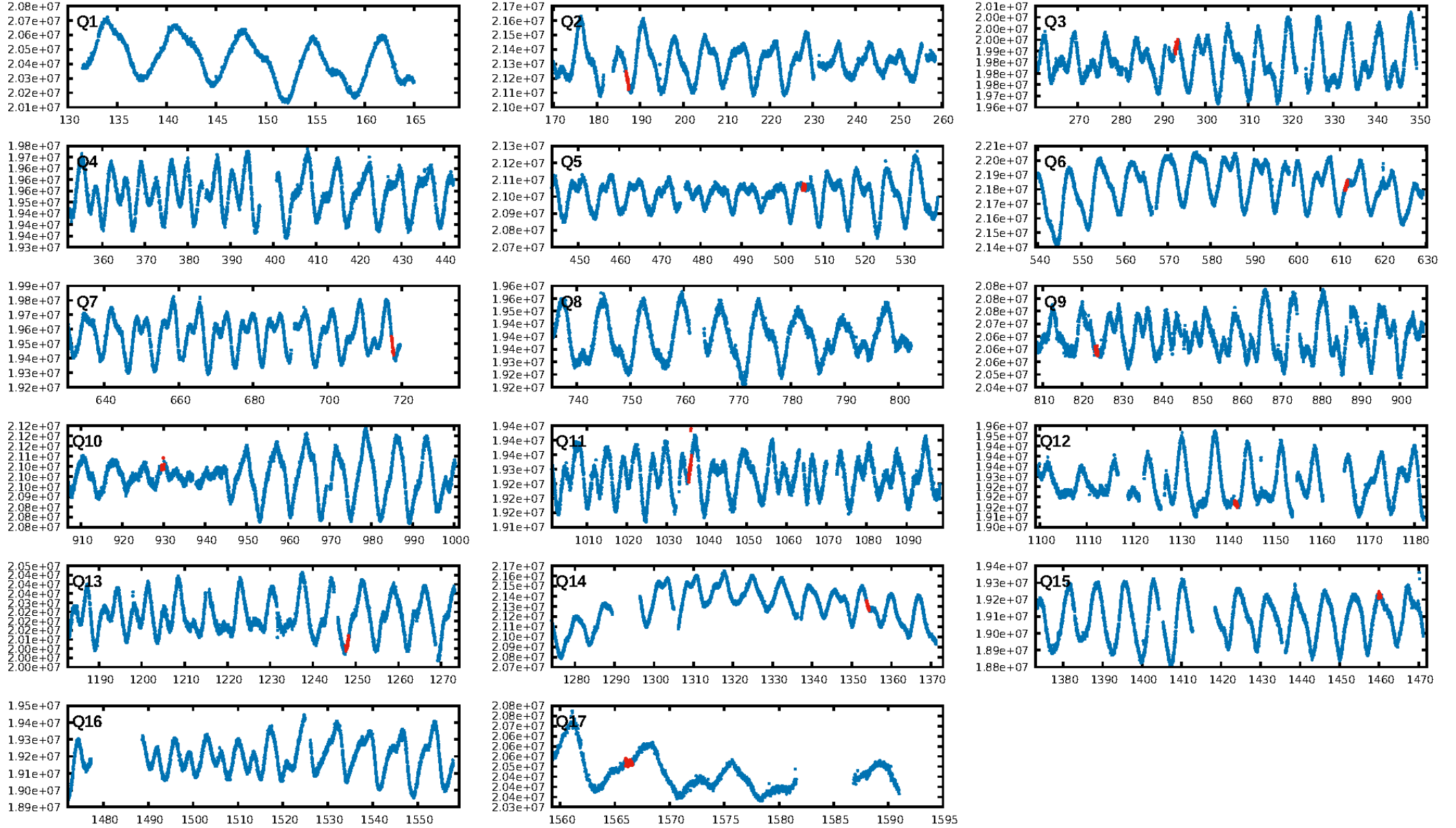
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.81 σ]
LongPeriod-sig: 100.0% [23.91 σ]
ModelChiSquare2-sig: 16.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.85e-10
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -4.136
Centroid-sig: 17.2%
Centroid-so: 1.555 arcsec [2.67 σ]
OotOffset-rm: 0.358 arcsec [0.83 σ]
OotOffset-st: 2/4/0/1 [7]
KicOffset-rm: 0.947 arcsec [2.19 σ]
KicOffset-st: 2/4/0/1 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/11]

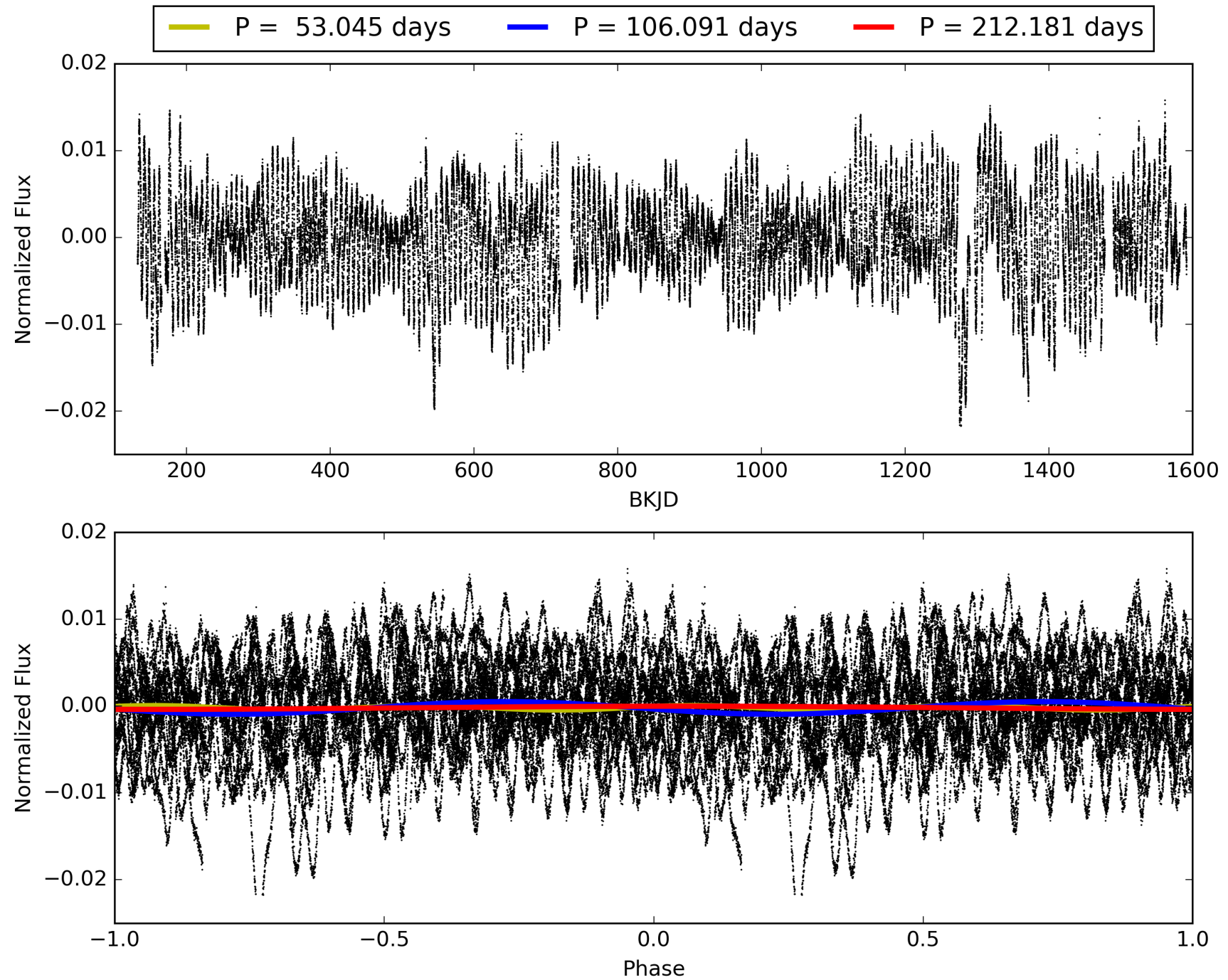
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:24:56 Z

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

TCE 011624538-09, PDC Light Curves

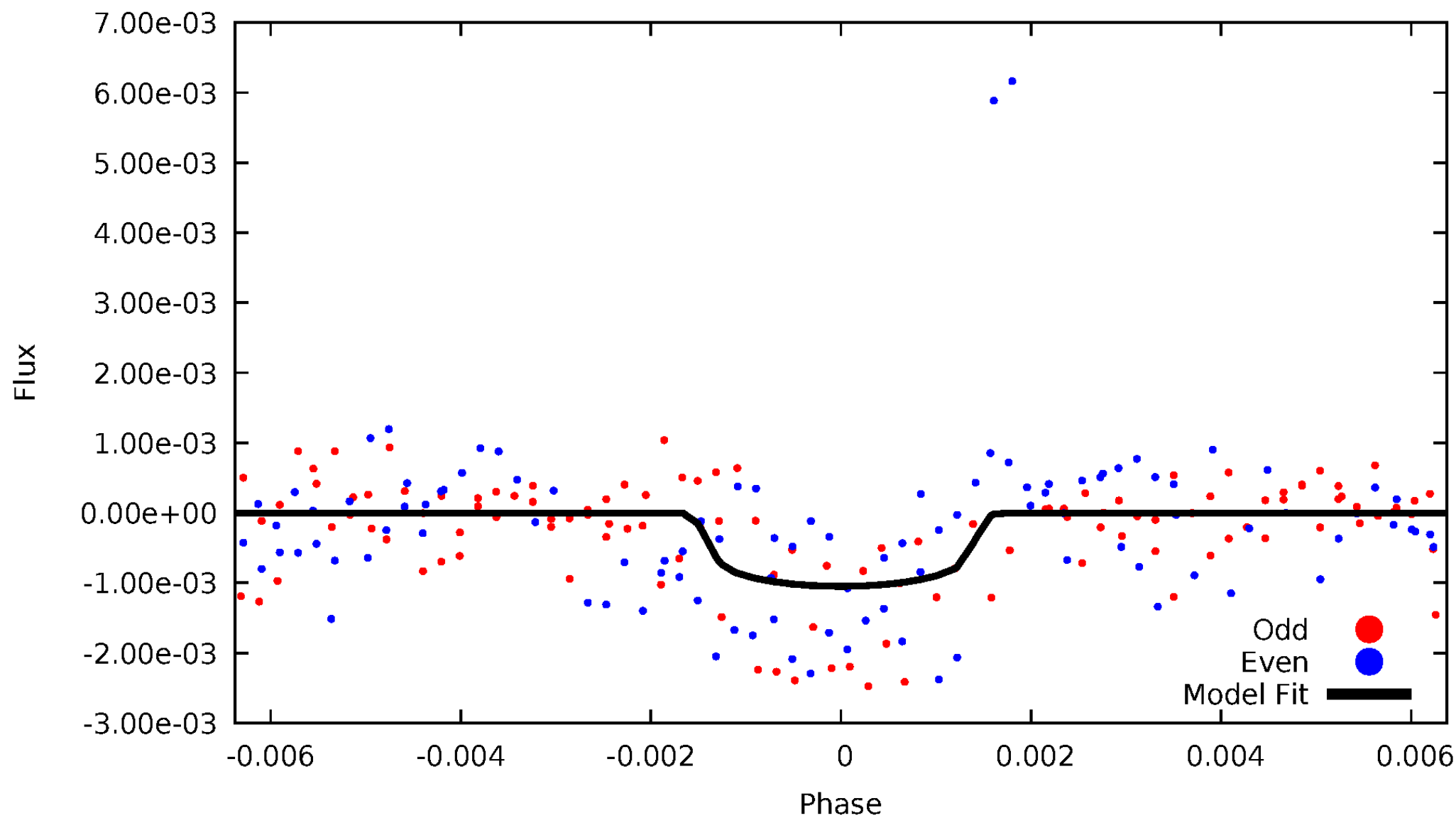


TCE 011624538-09



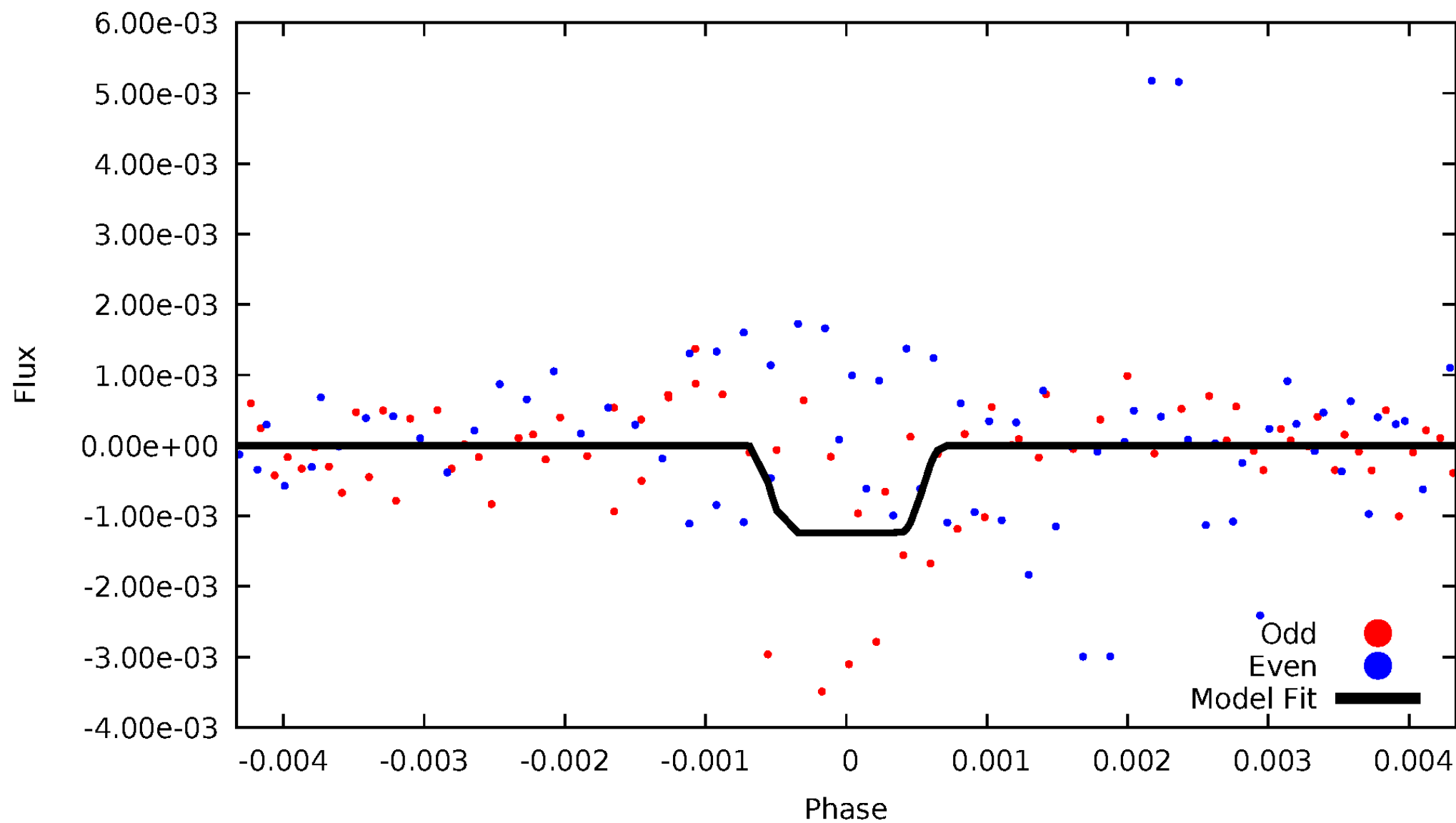
DV Odd/Even

TCE 011624538-09



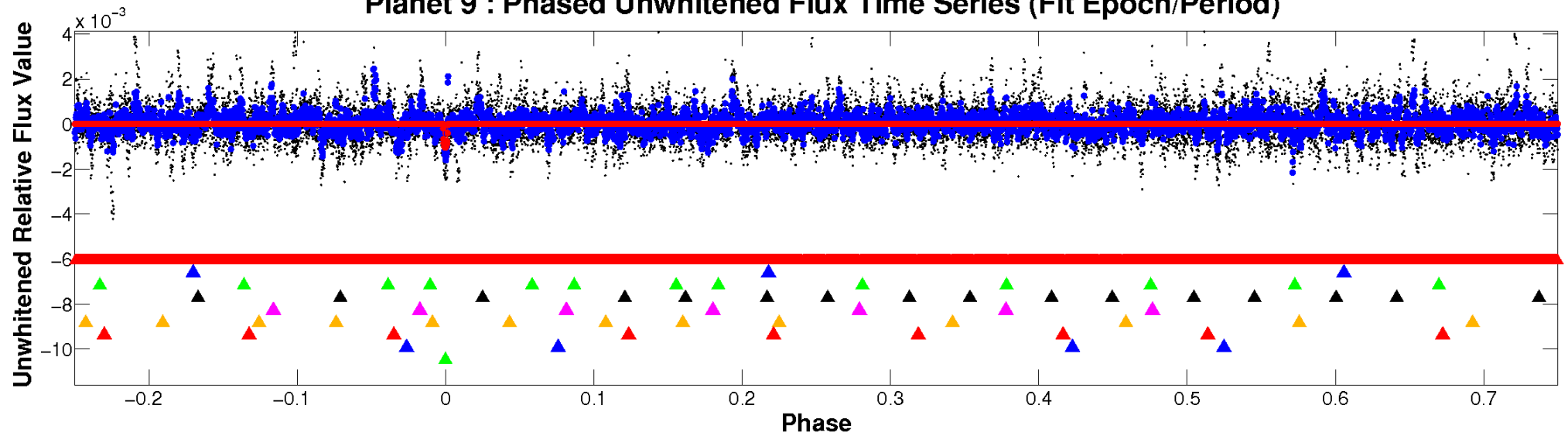
ALT Odd/Even

TCE 011624538-09

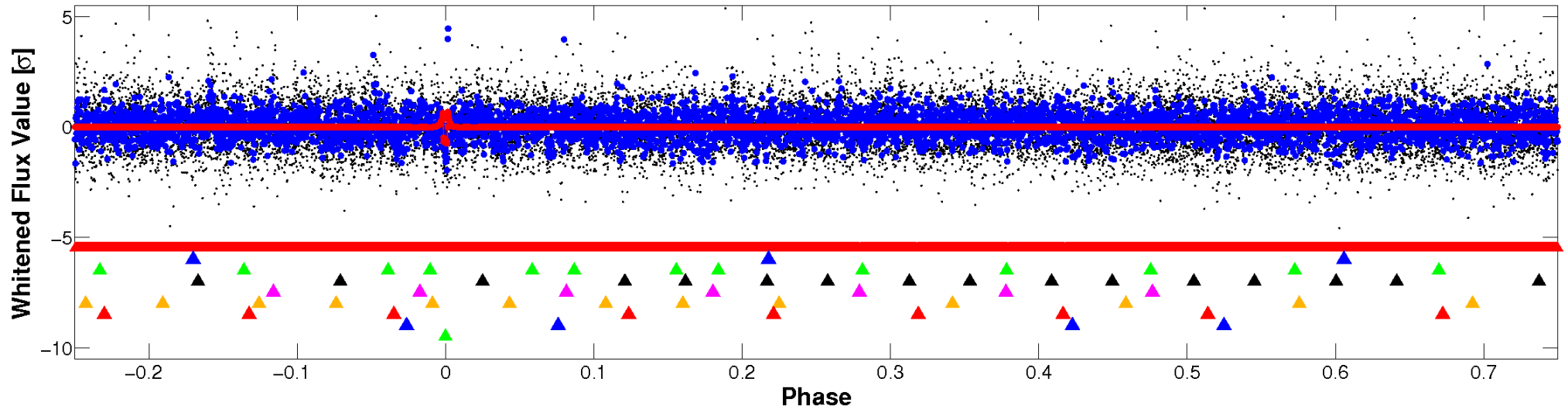


Non-Whitened Vs. Whitened Light Curve

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

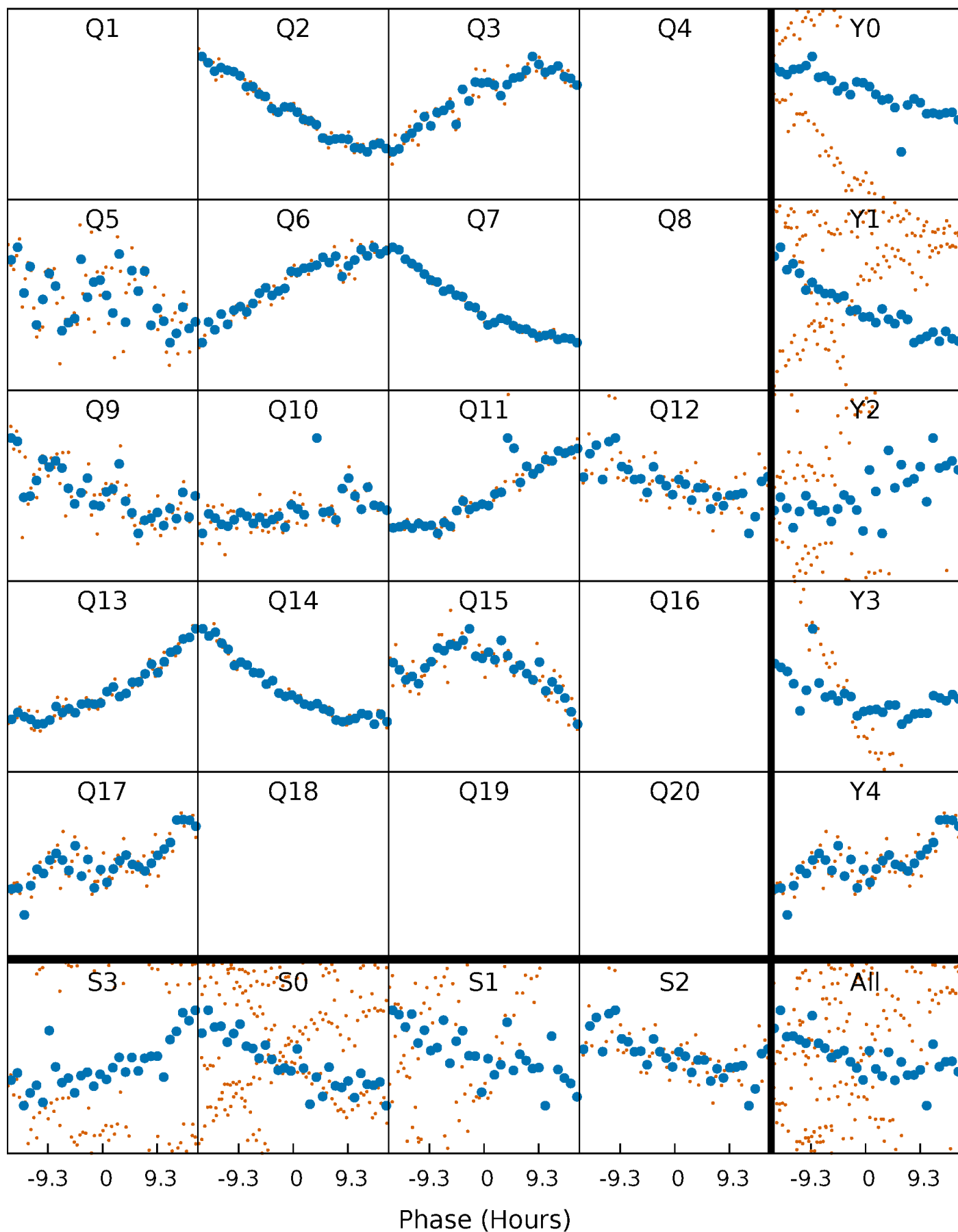


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



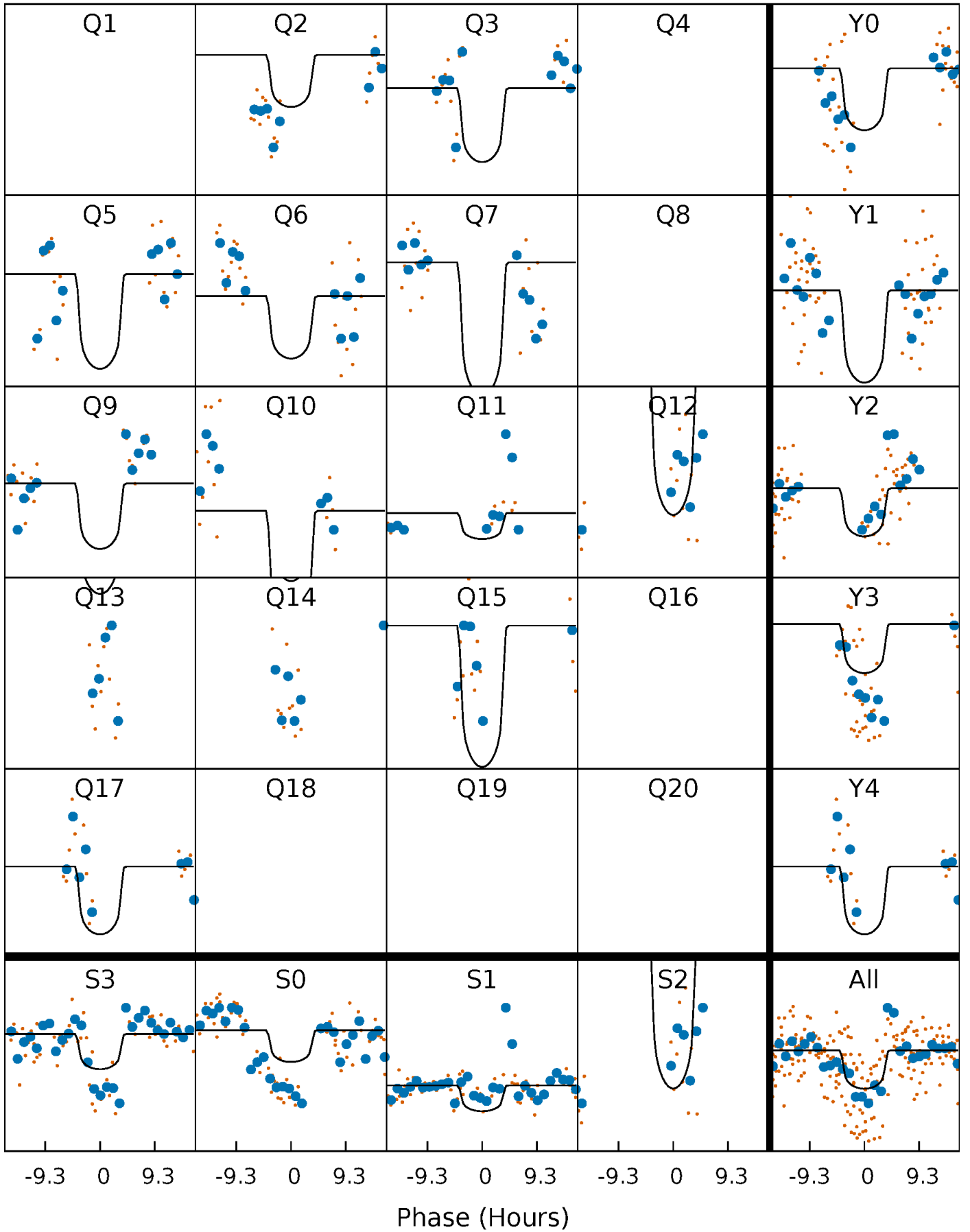
PDC Quarter-Phased Transit Curves

TCE 011624538-09 P=106.090729 Days $T_0=187.089088$ (BKJD)



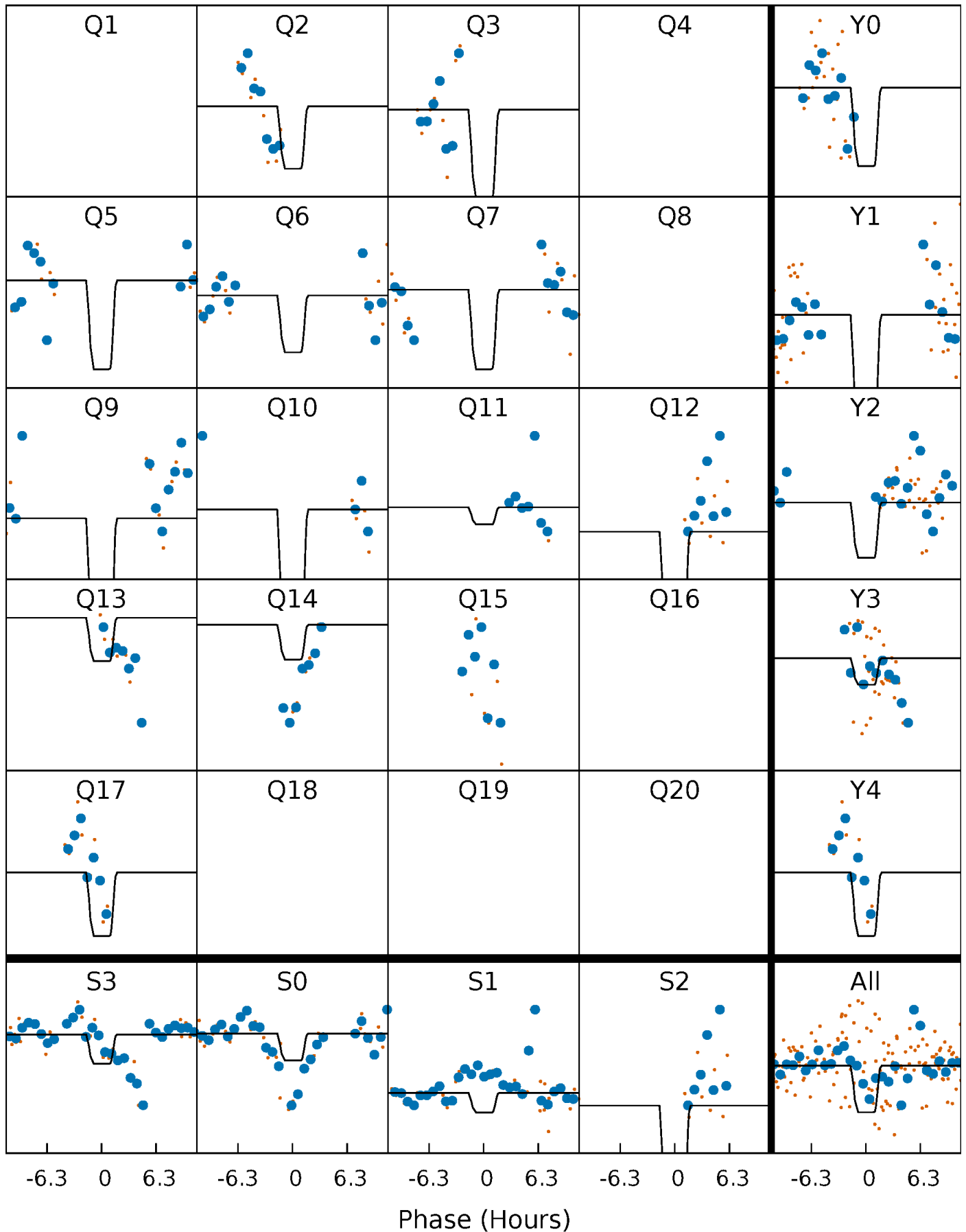
DV Quarter-Phased Transit Curves

TCE 011624538-09 P=106.090729 Days $T_0=187.089088$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

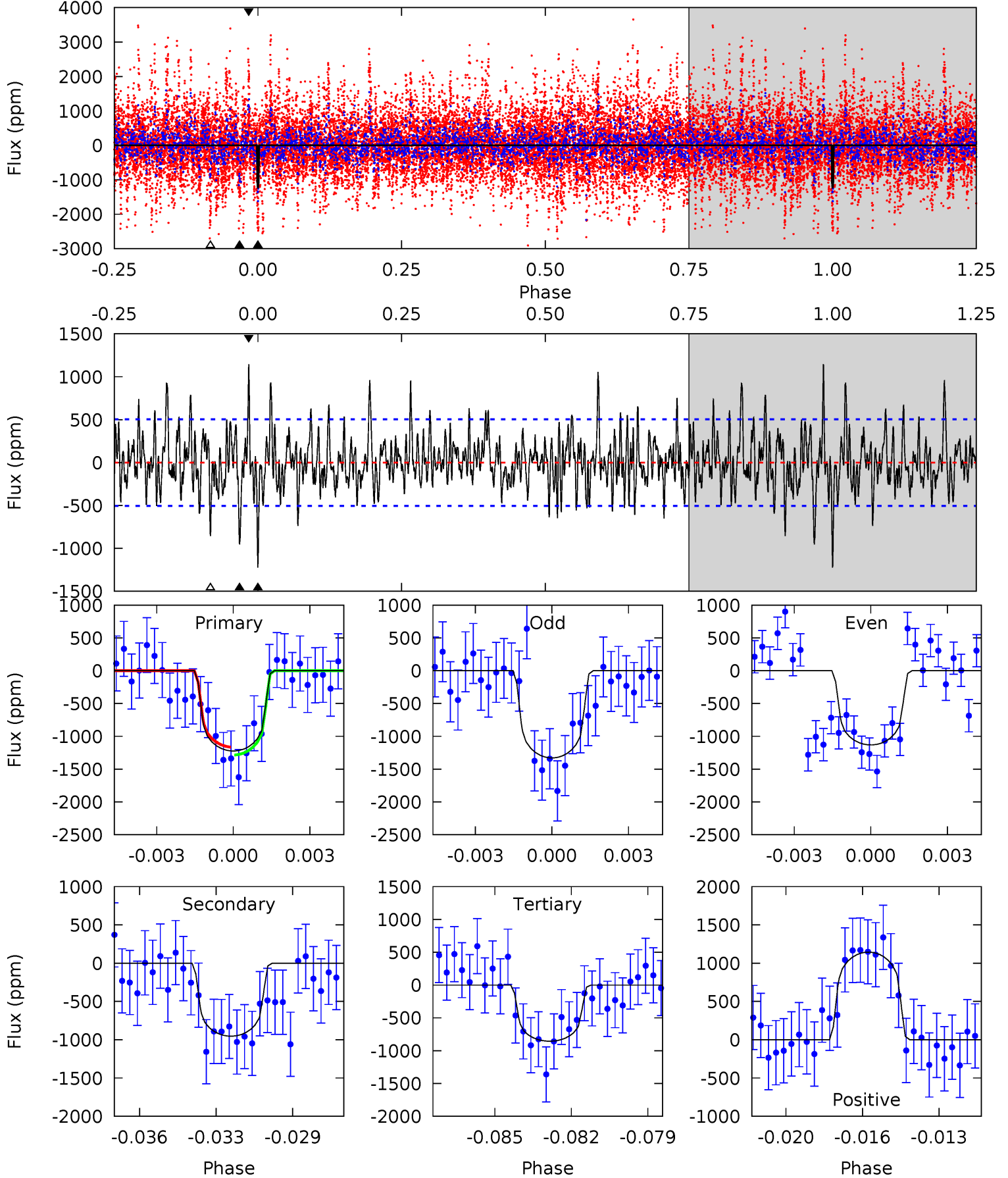
TCE 011624538-09 P=106.085921 Days $T_0=187.068034$ (BKJD)



DV Model-Shift Uniqueness Test

011624538-09, P = 106.090729 Days, E = 80.998359 Days

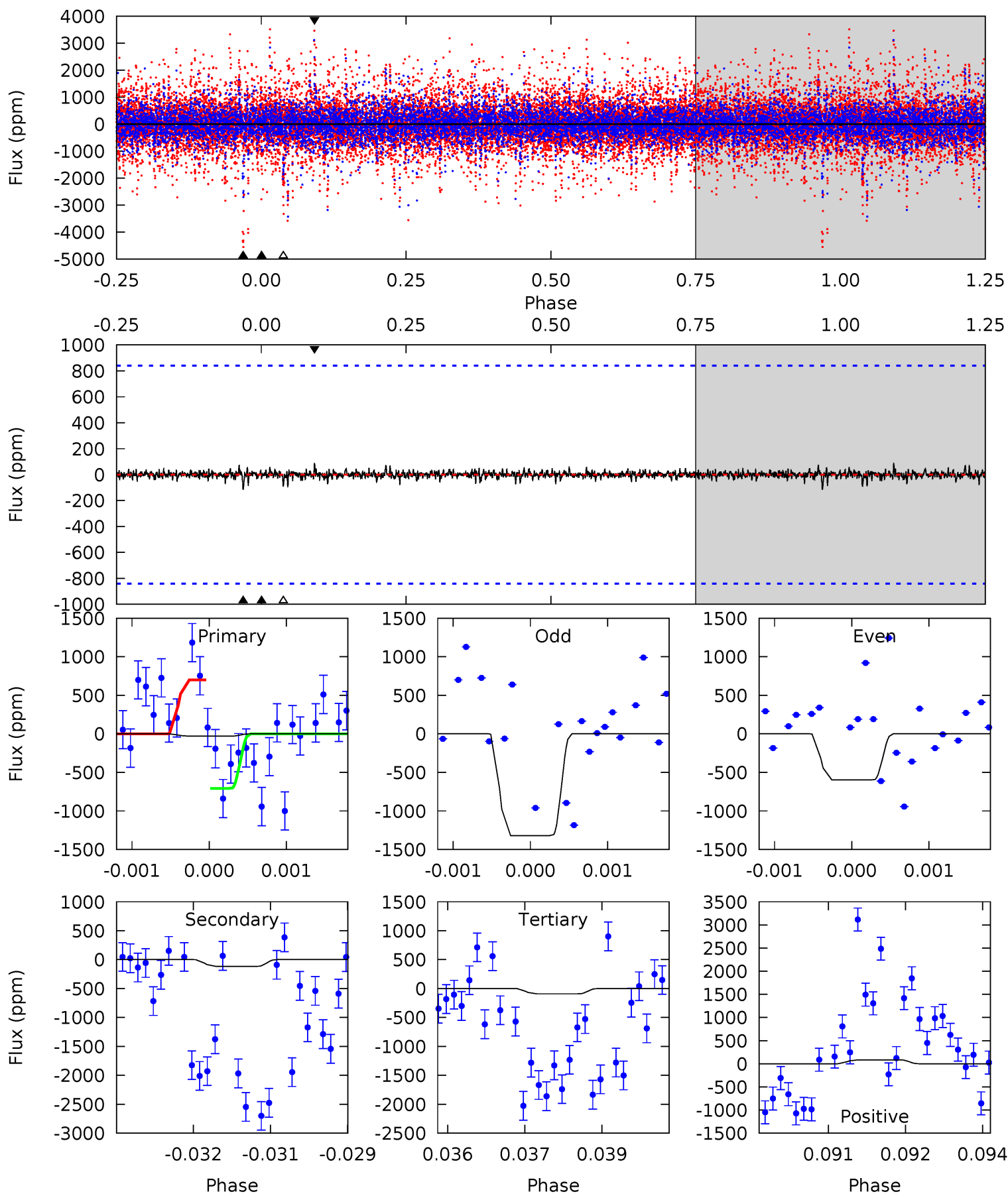
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	9.88	8.87	11.9	5.24	2.94	2.75	3.81	0.82	1.01	-1.98	0.99	1.42	0.48	0.62



Alt Model-Shift Uniqueness Test

011624538-09, P = 106.085921 Days, E = 80.982113 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.19	0.75	0.59	0.54	5.40	3.21	0.12	-0.39	-0.35	0.16	0.20	2.21	1.74	0.42	0.03



Stellar Parameters For KIC 011624538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5417^{+204}_{-185}	$4.565^{+0.043}_{-0.128}$	$-0.140^{+0.300}_{-0.300}$	$0.798^{+0.165}_{-0.071}$	$0.854^{+0.087}_{-0.087}$	$2.367^{+0.519}_{-0.873}$
	+4%/-3%	+1%/-3%	+214%/-214%	+21%/-9%	+10%/-10%	+22%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011624538-09 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-953 ± 96	$3.05^{+0.64}_{-0.62}$	470^{+27}_{-21}	5196^{+577}_{-417}	9652^{+5379}_{-3070}
Alt.	-116 ± 156	$3.16^{+0.68}_{-0.61}$	468^{+27}_{-21}	3464^{+581}_{-6445}	1094^{+1777}_{-1518}

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 $A_{obs} \gg 1.0$

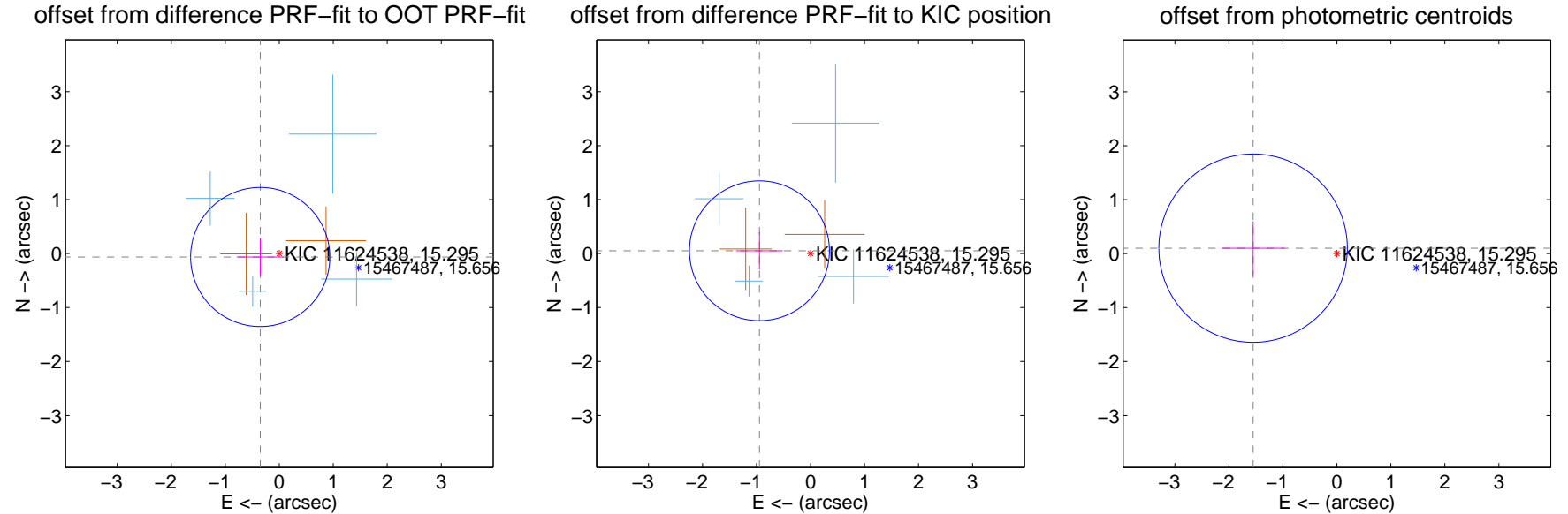
DV Centroid Data

Supplemental centroid analysis for 011624538-09. Kepler magnitude: 15.29. Transit SNR 5.25

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.56 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.358 ± 0.430	0.83	0.352 ± 0.432	-0.064 ± 0.350
PRF-fit source offset from KIC position	0.947 ± 0.432	2.19	0.946 ± 0.432	0.051 ± 0.350
photometric centroid source offset	1.56 ± 0.58	2.67	1.55 ± 0.58	0.10 ± 0.50



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.

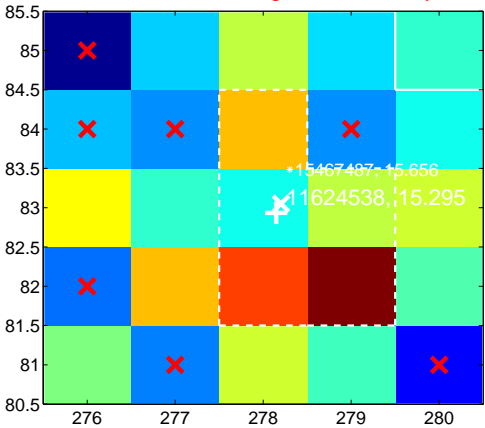
Q1 no difference image



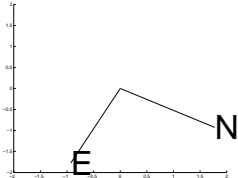
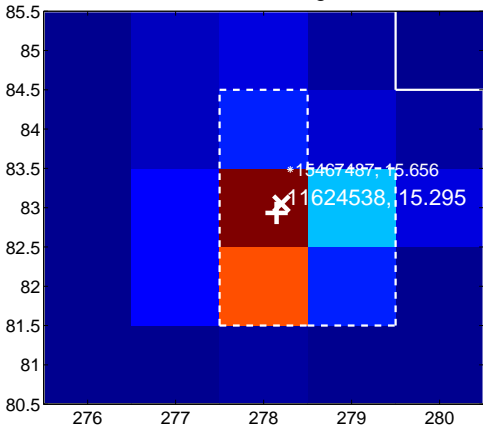
Q1 no OOT image



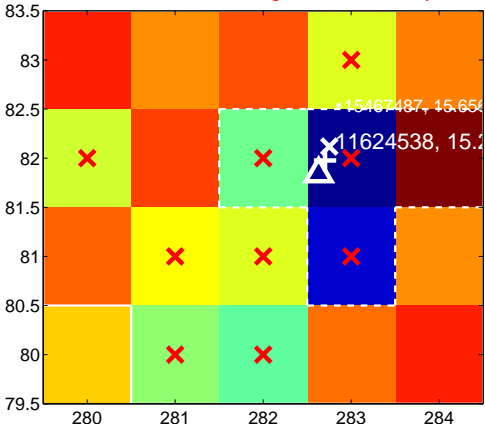
Q2 difference image. Poor Quality



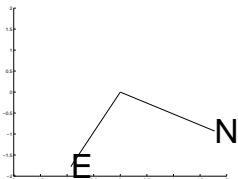
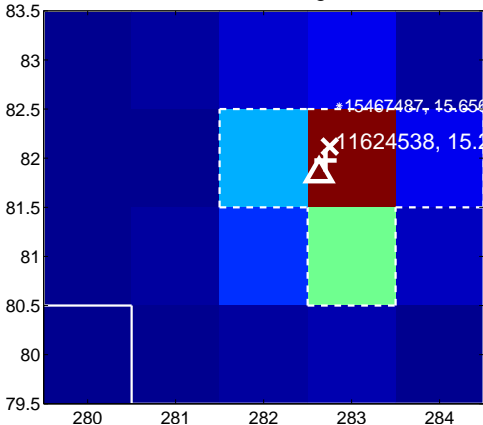
Q2 OOT image



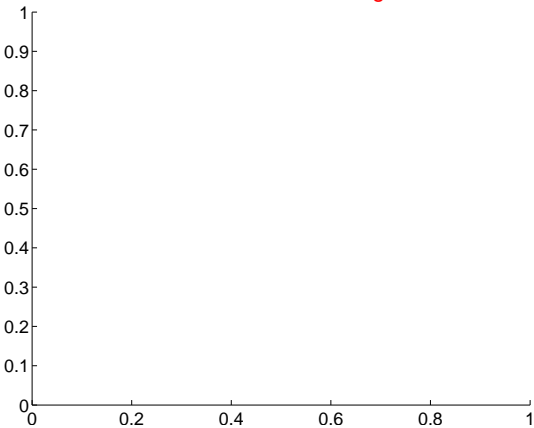
Q3 difference image. Poor Quality



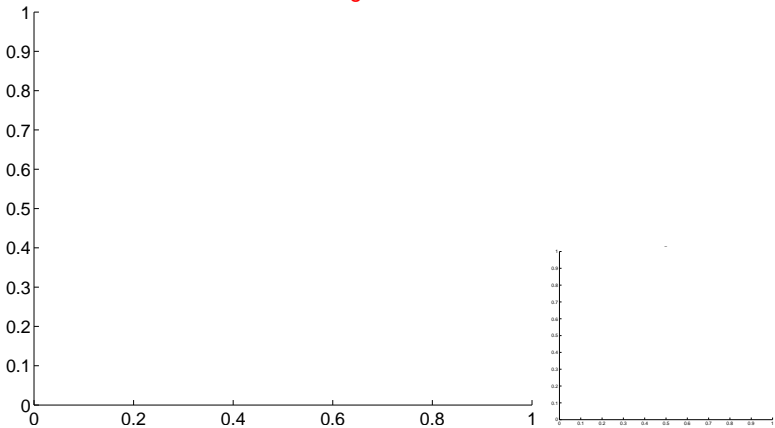
Q3 OOT image



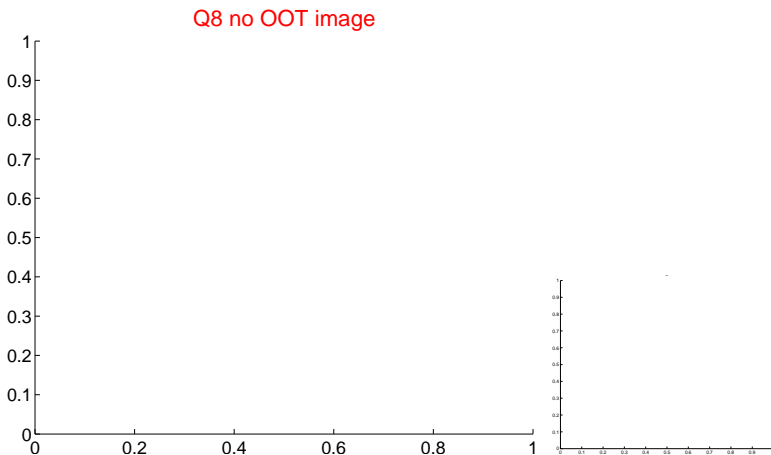
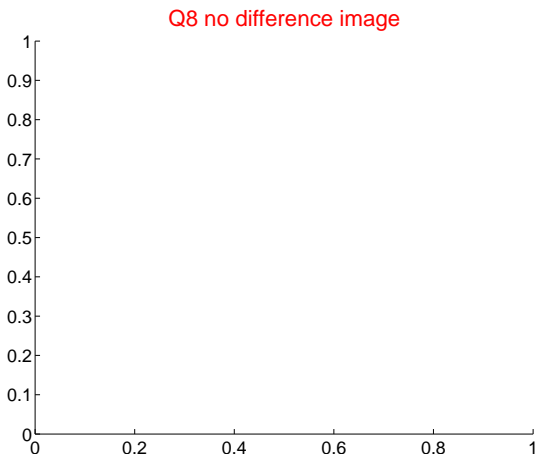
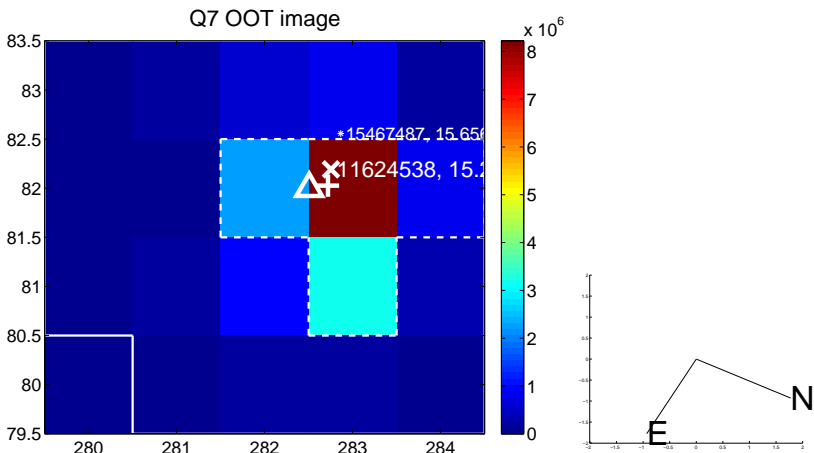
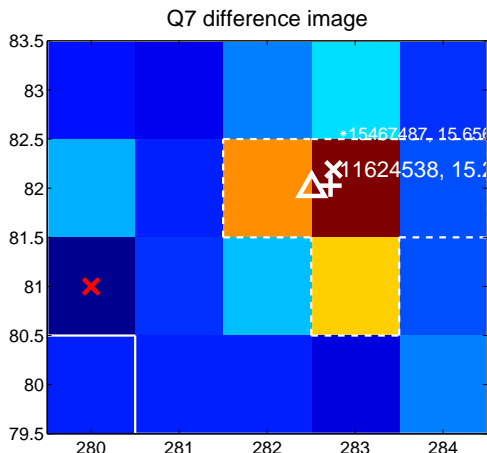
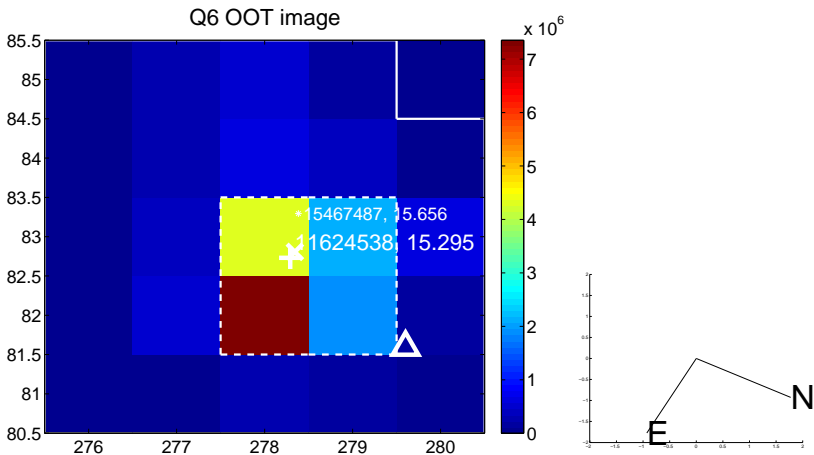
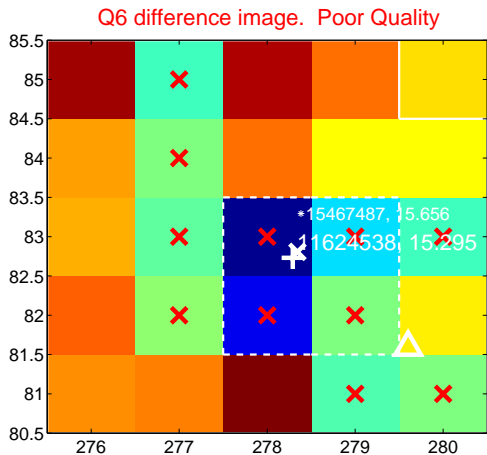
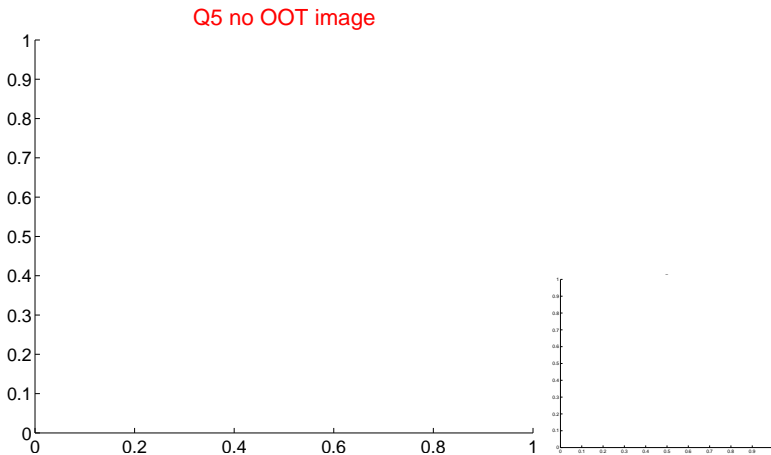
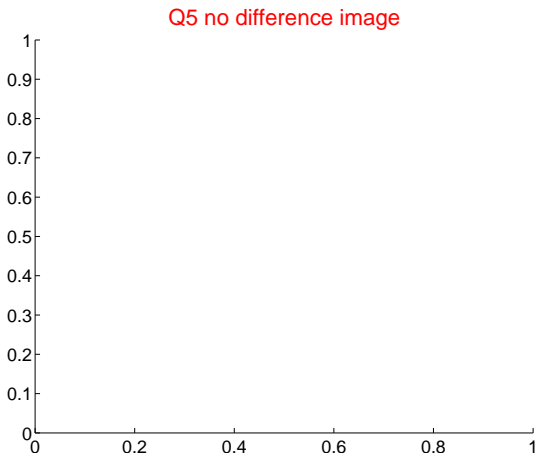
Q4 no difference image



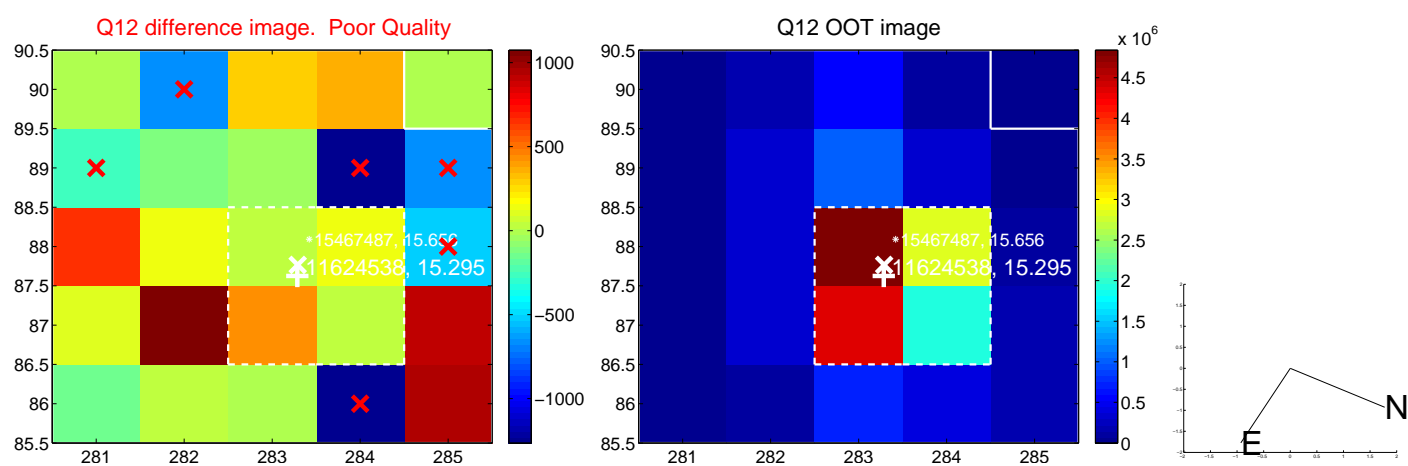
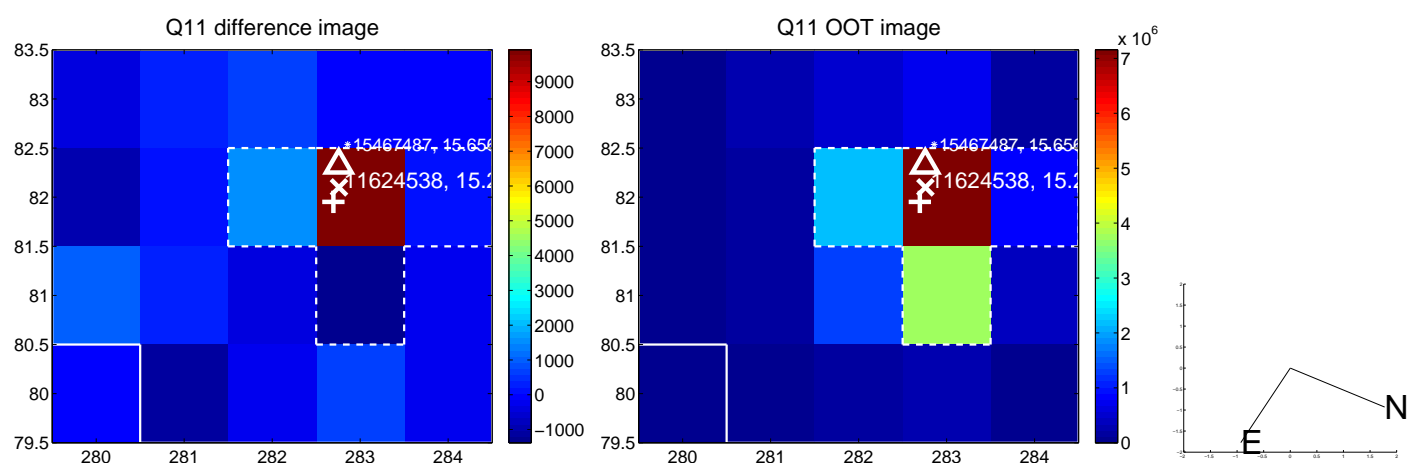
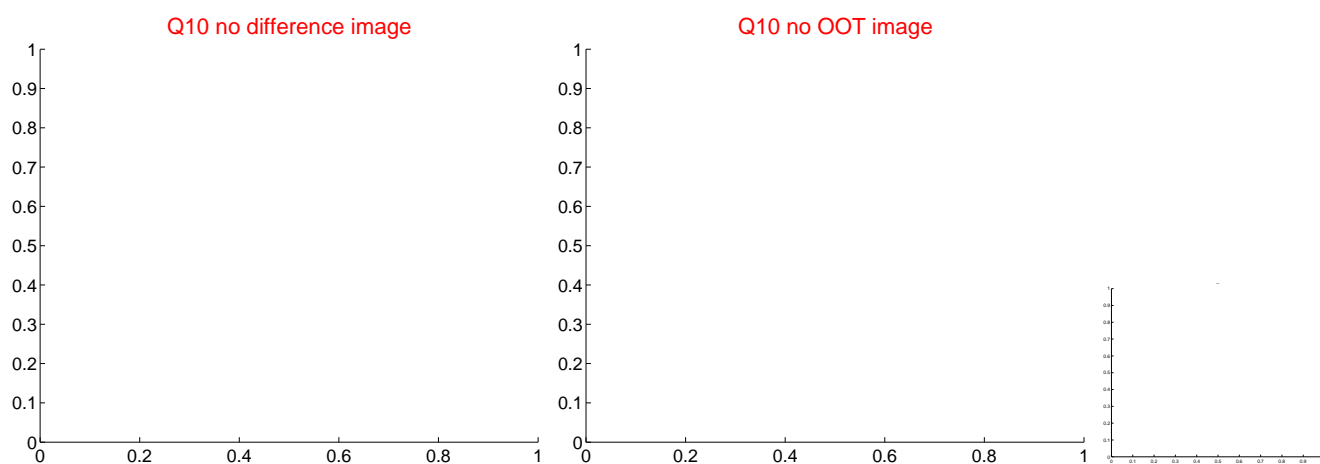
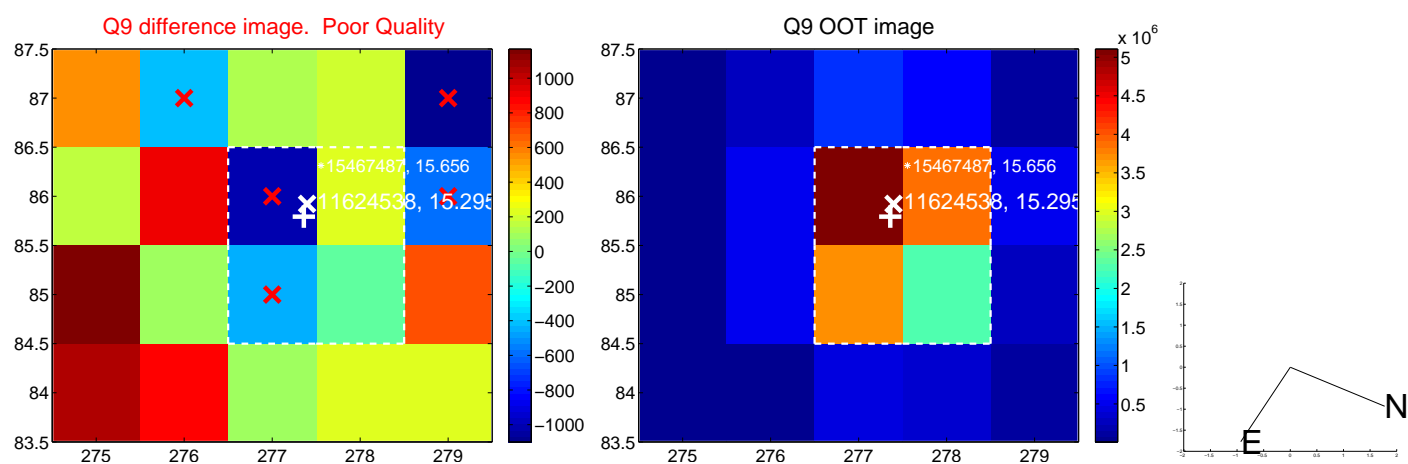
Q4 no OOT image



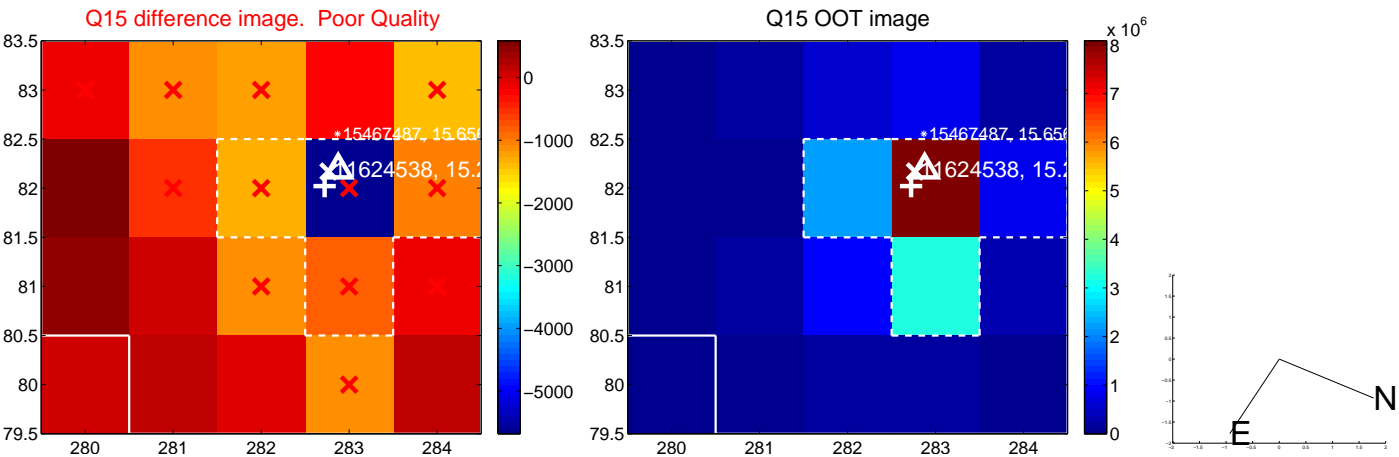
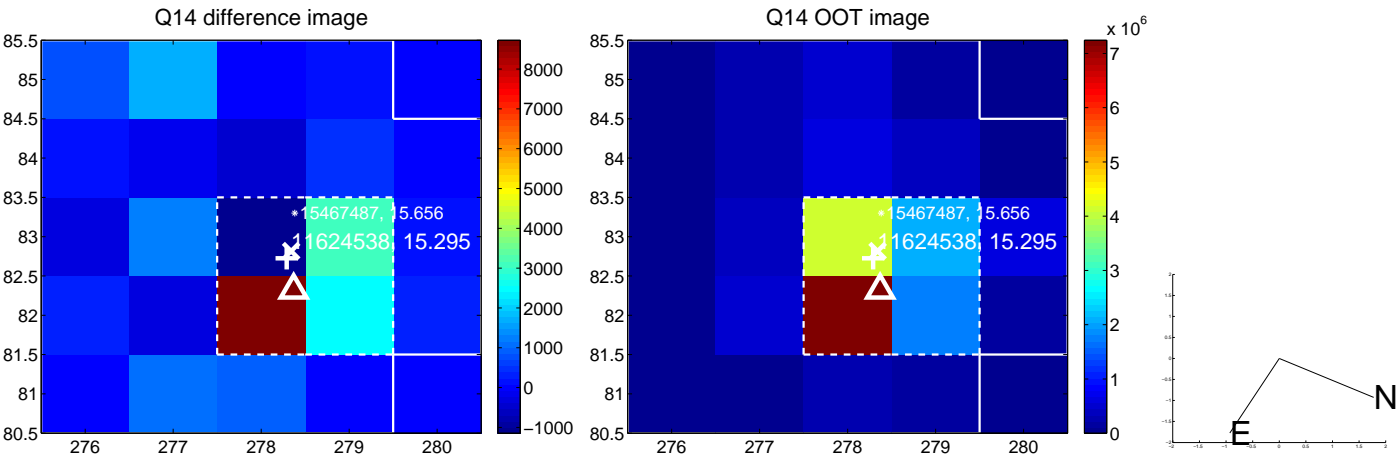
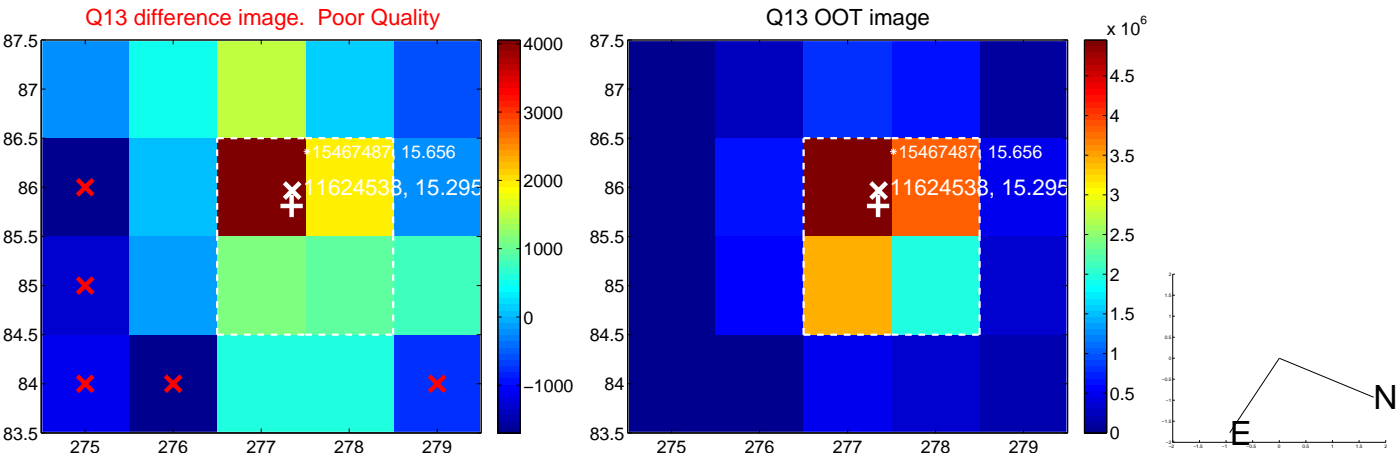
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



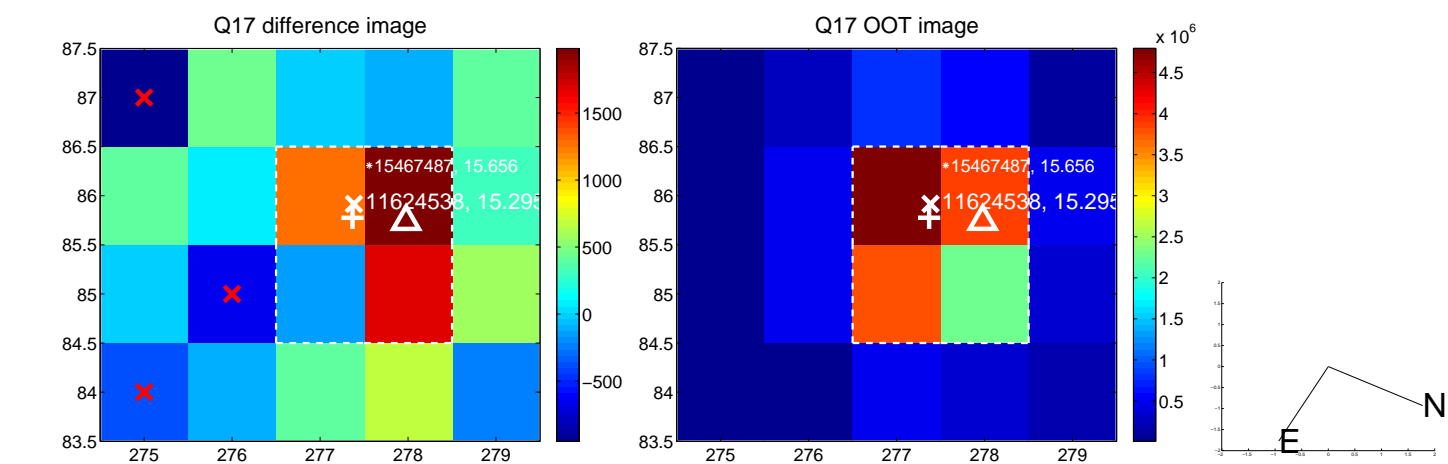
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



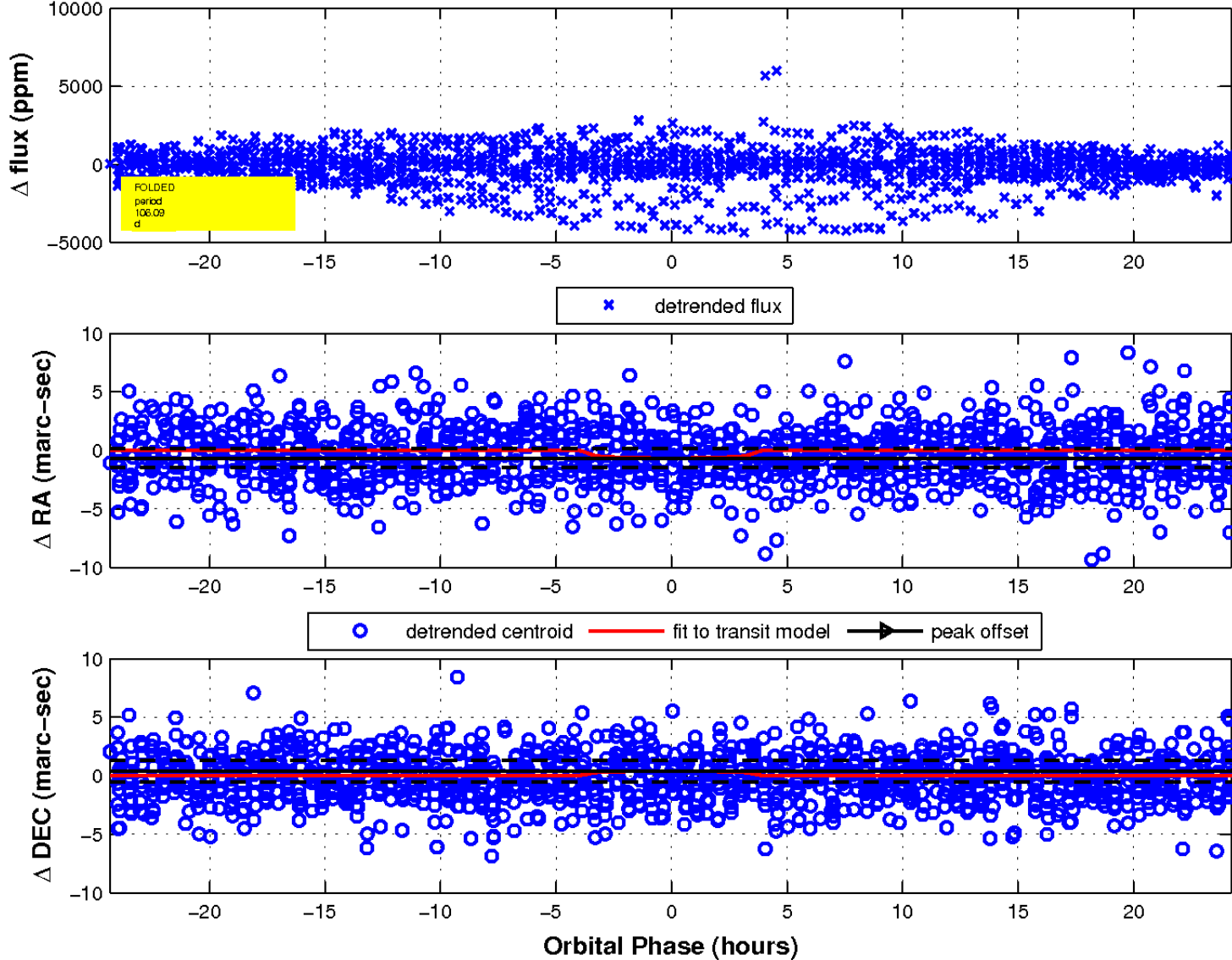
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 9 of 9



UKIRT Image

Declination

