

KIC 009541163

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})
009541163-01	OBS	7189.01	0.536664	131.705741	78.3	3.339	11.9	13.0	0.90	5822	0.79	4986.13
009541163-02	OBS	No	47.800354	176.549147	523.6	0.553	9.9	1.5	0.90	5822	2.16	12.54
009541163-03	OBS	No	23.902559	152.423334	416.0	9.412	8.5	3.0	0.90	5822	1.93	31.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009541163-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009541163-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009541163-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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.

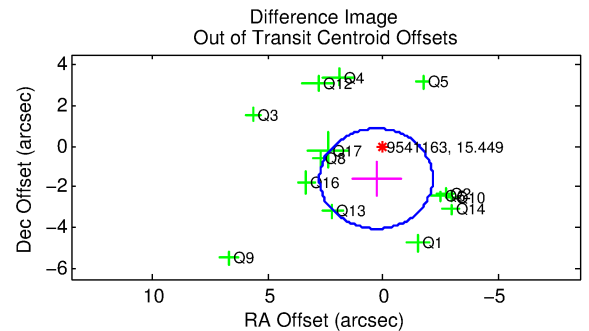
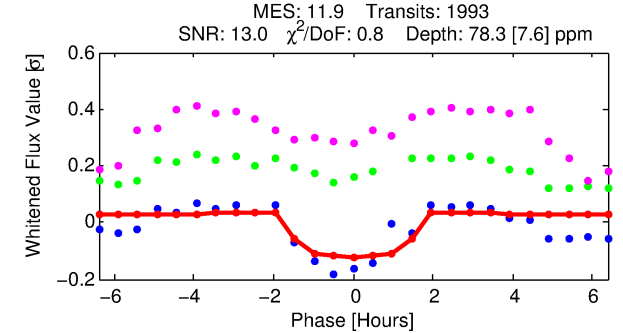
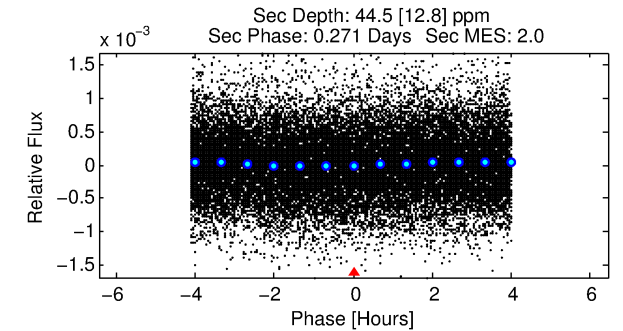
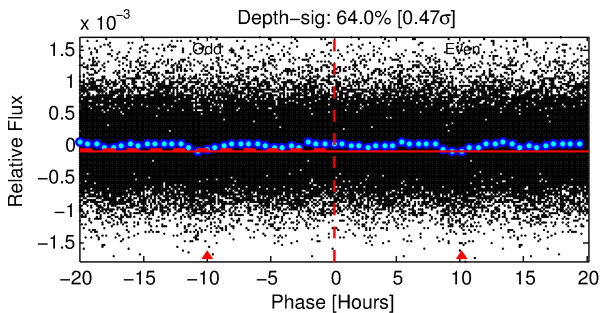
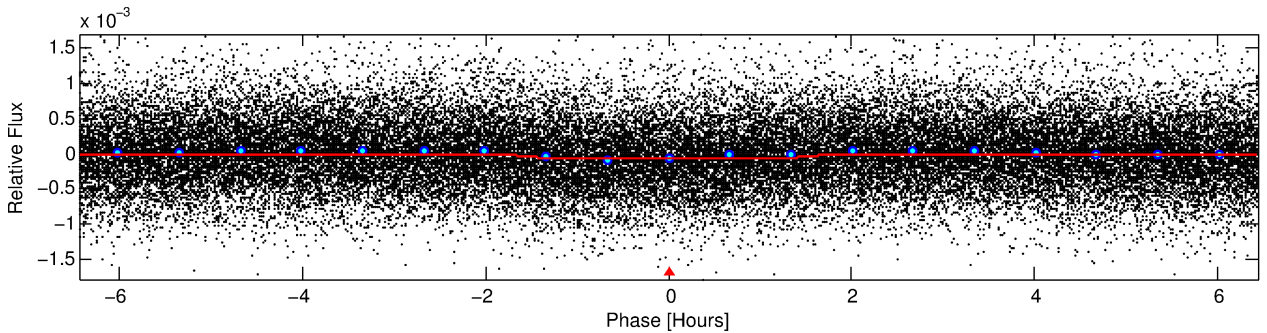
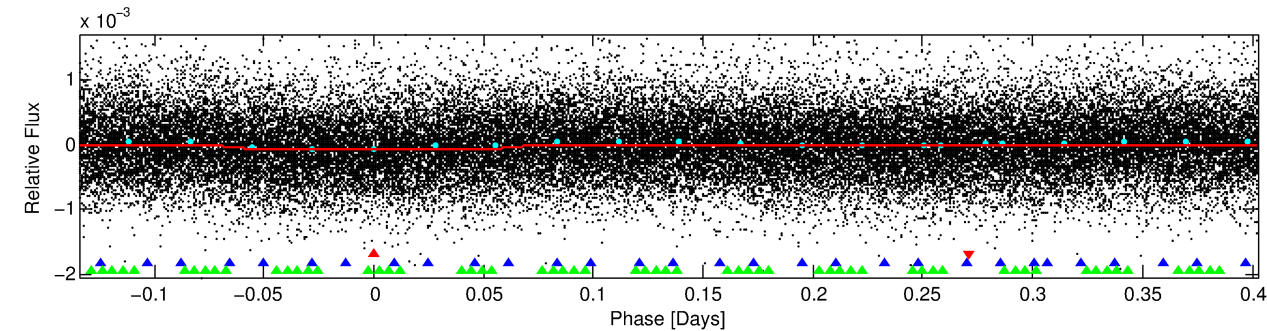
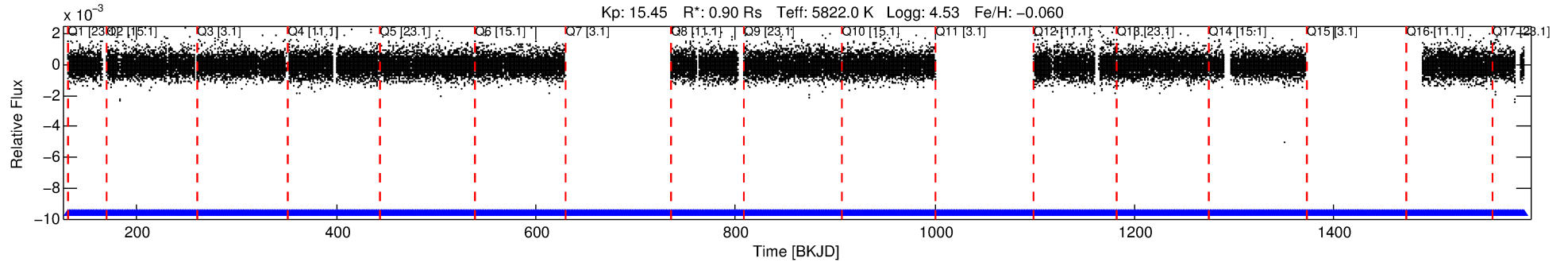
Ephemeris Match Information For 009541163-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	Δ Row	Δ Col	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ_P	σ_T
009541163-01	9541163	009541127-pri	9541127	1:1	61.9	-2	-16	12.56	15.45	4770.50	Direct-PRF	0	2.83	0.20

Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 9541163 Candidate: 1 of 3 Period: 0.537 d
KOI: K07189.01 Corr: 0.904



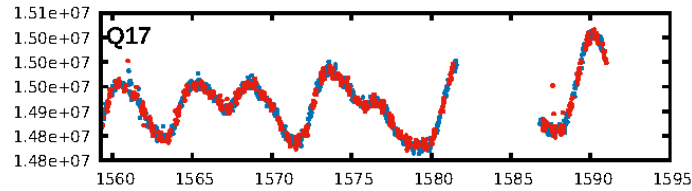
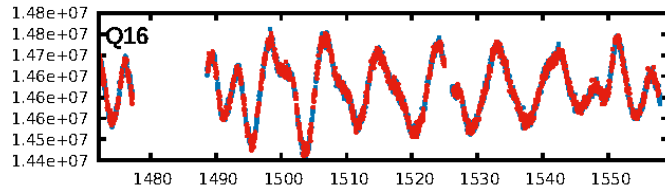
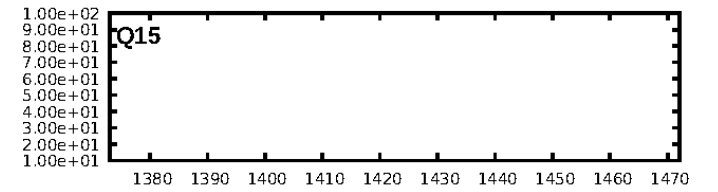
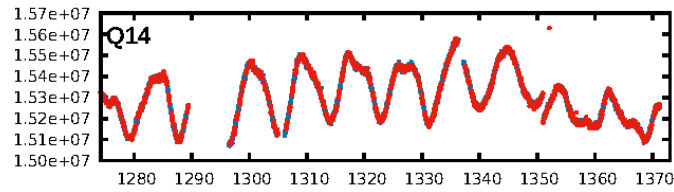
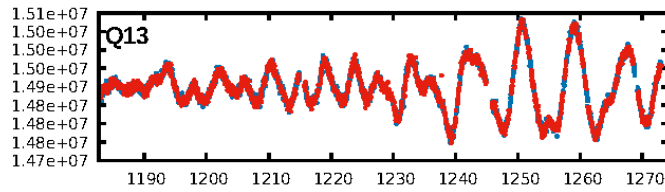
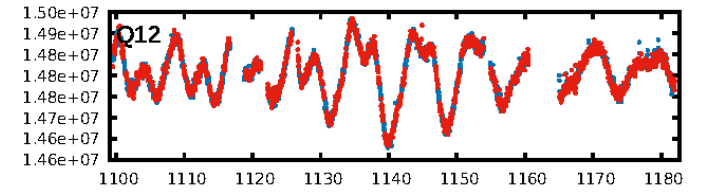
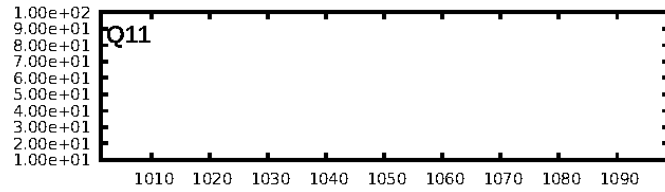
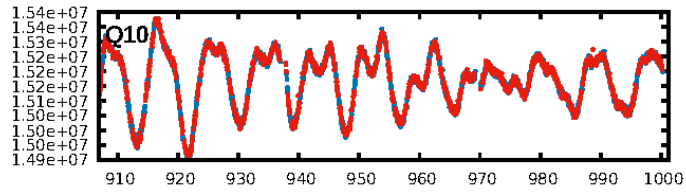
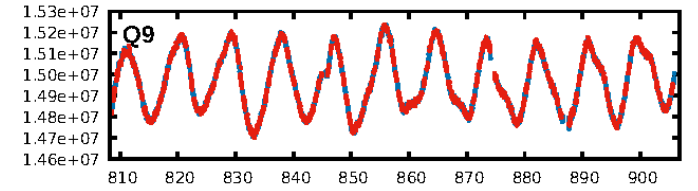
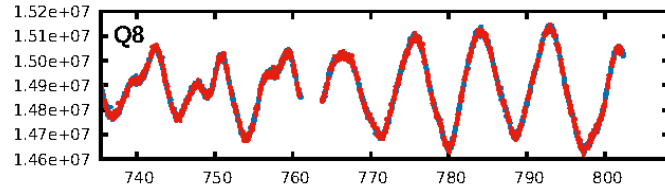
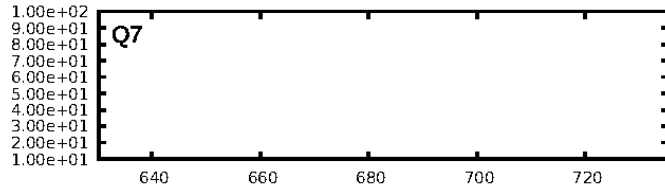
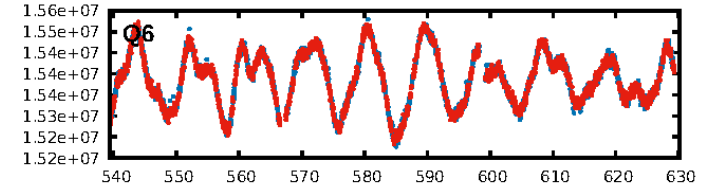
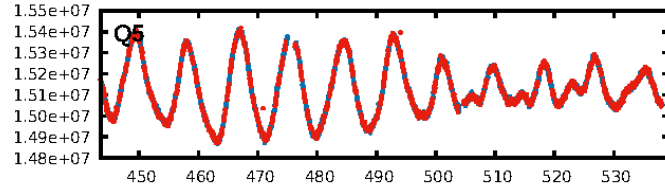
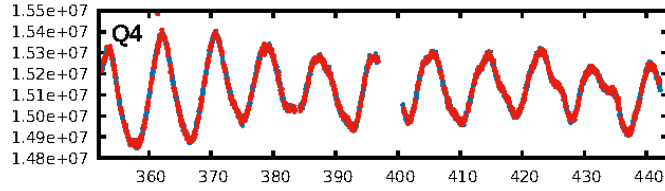
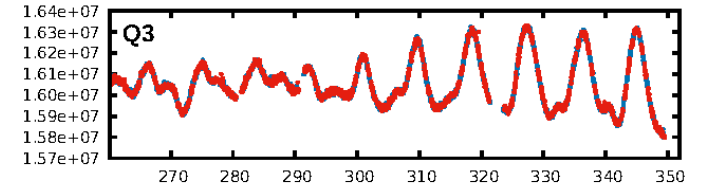
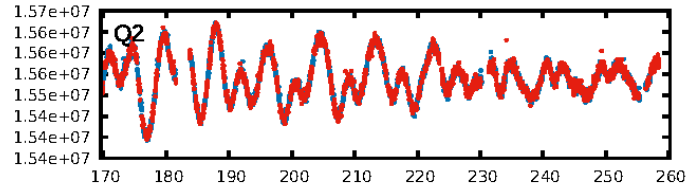
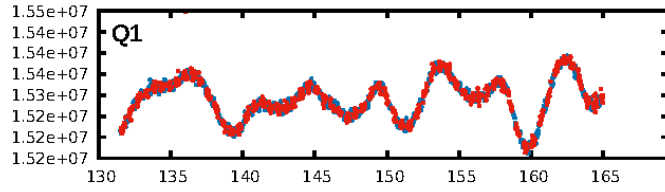
DV Fit Results:

Period = 0.53666 [0.00001] d
Epoch = 131.7057 [0.0026] BKJD
Rp/R* = 0.0081 [0.0074]
a/R* = 1.36 [2.58]
b = 0.26 [14.78]
Seff = 4986.13 [1737.80]
Teff = 2143 [187] K
Rp = 0.79 [0.76] Re
a = 0.0129 [0.0028] AU
Ag = 6.46 [12.20] [0.45 σ]
Teffp = 5282 [2463] K [1.27 σ]

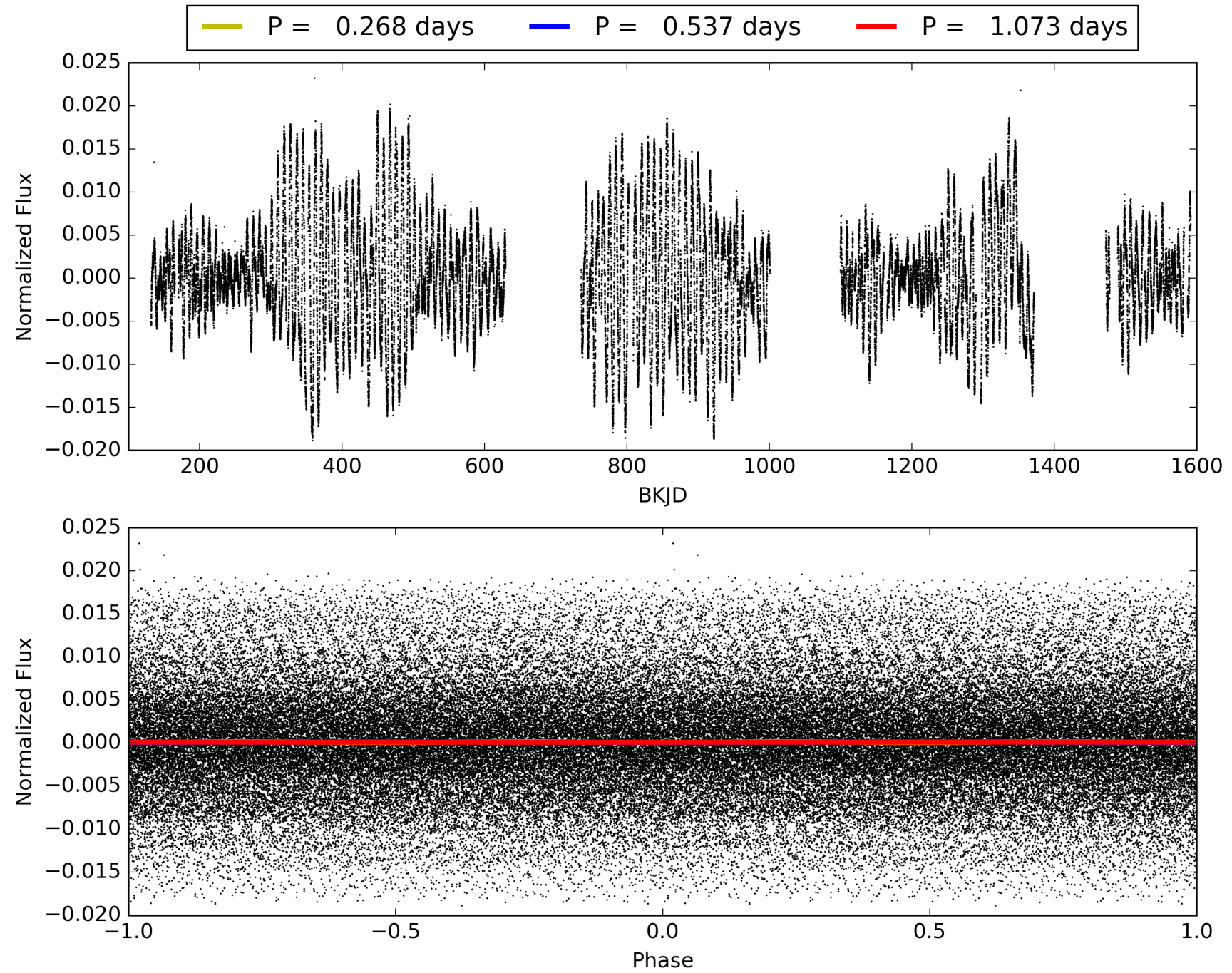
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [56.15 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.94e-29
RollingBand-fgt: 1.00 [1880/1880]
GhostDiagnostic-chr: 0.1145
Centroid-sig: 27.2%
Centroid-so: 1.070 arcsec [1.18 σ]
OotOffset-rm: 1.620 arcsec [1.98 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-rm: 1.450 arcsec [1.82 σ]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 009541163-01, PDC Light Curves

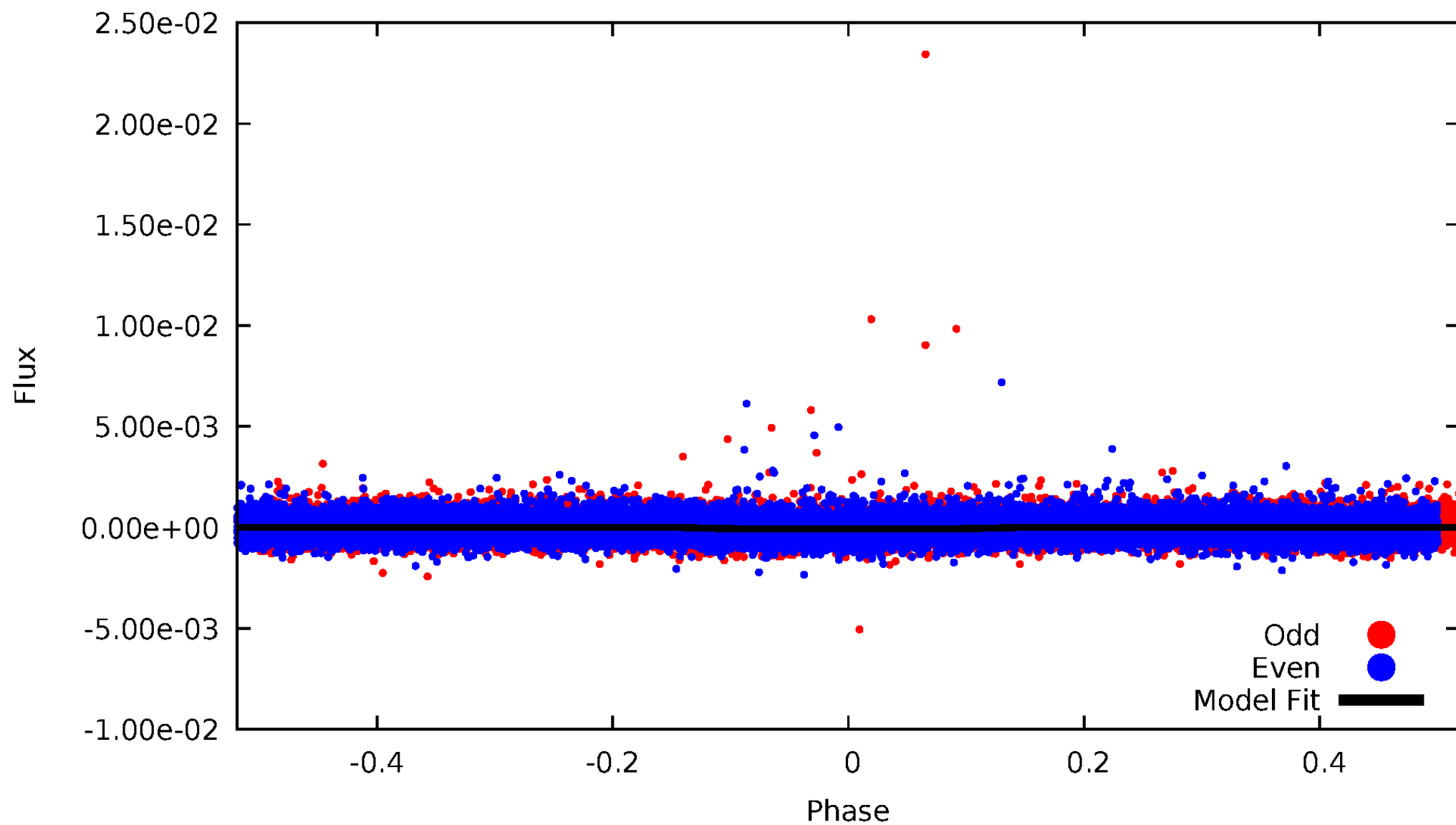


TCE 009541163-01



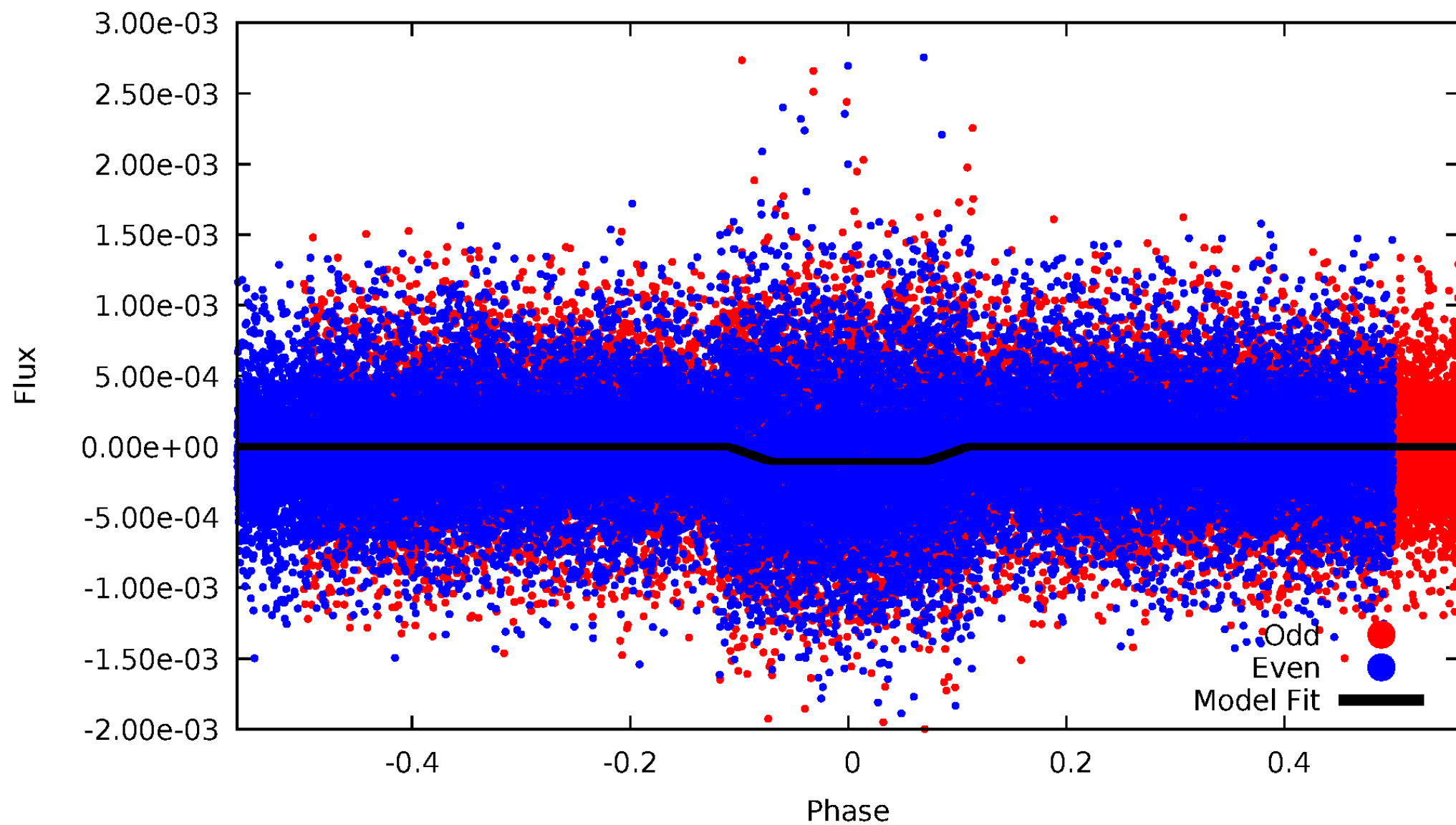
DV Odd/Even

TCE 009541163-01

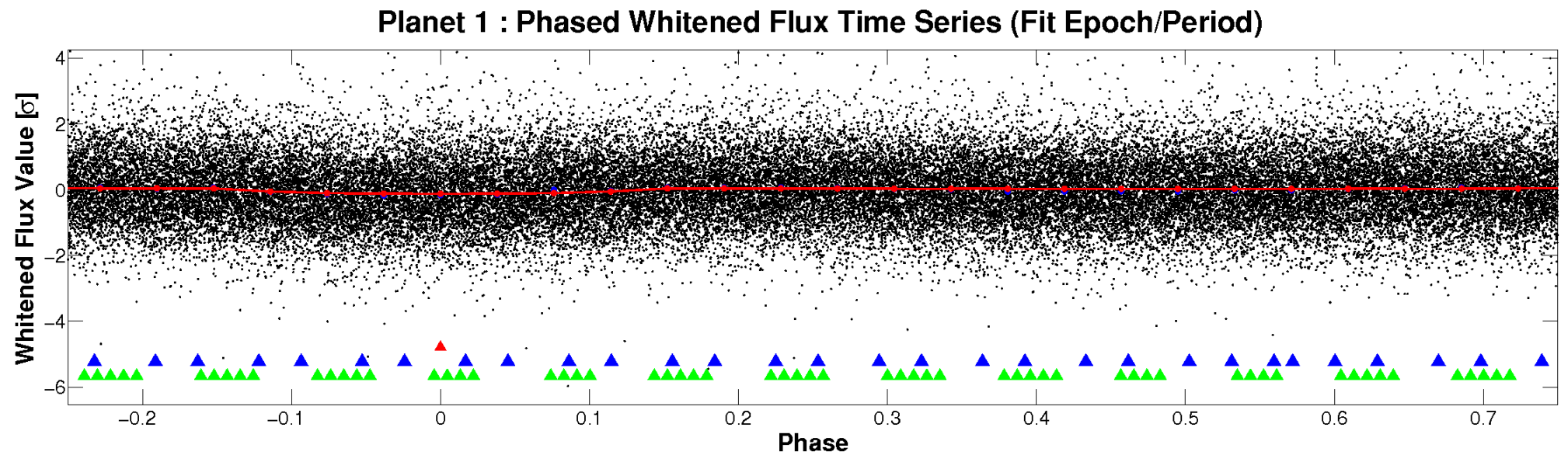
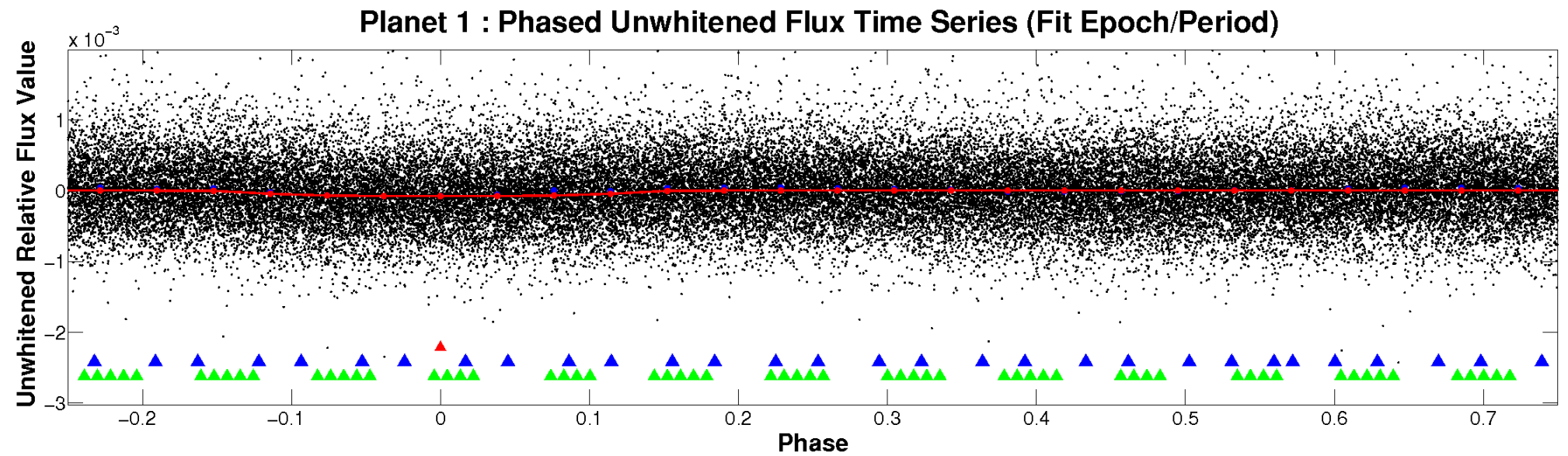


ALT Odd/Even

TCE 009541163-01

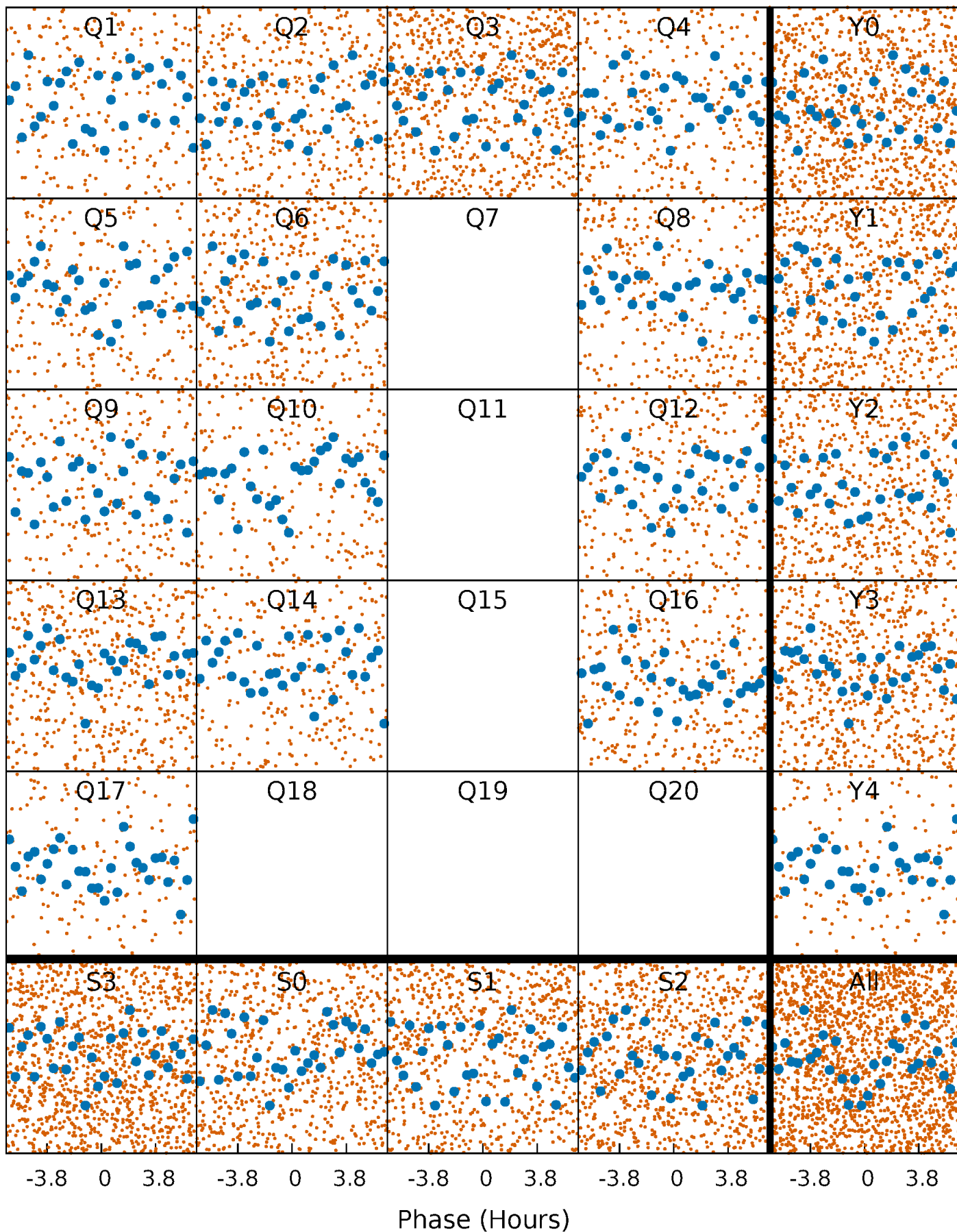


Non-Whitened Vs. Whitened Light Curve



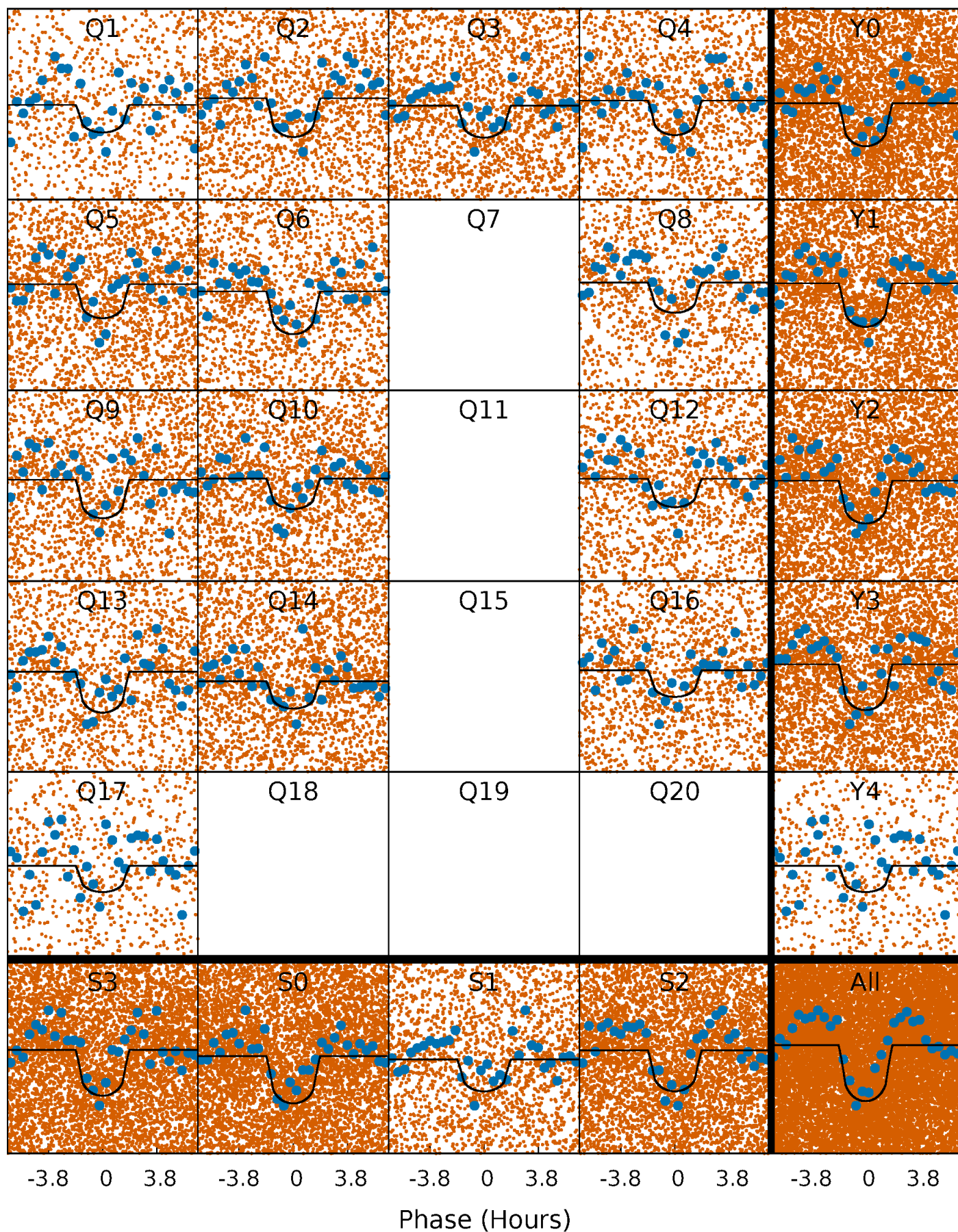
PDC Quarter-Phased Transit Curves

TCE 009541163-01 P= 0.536664 Days $T_0=131.705741$ (BKJD)



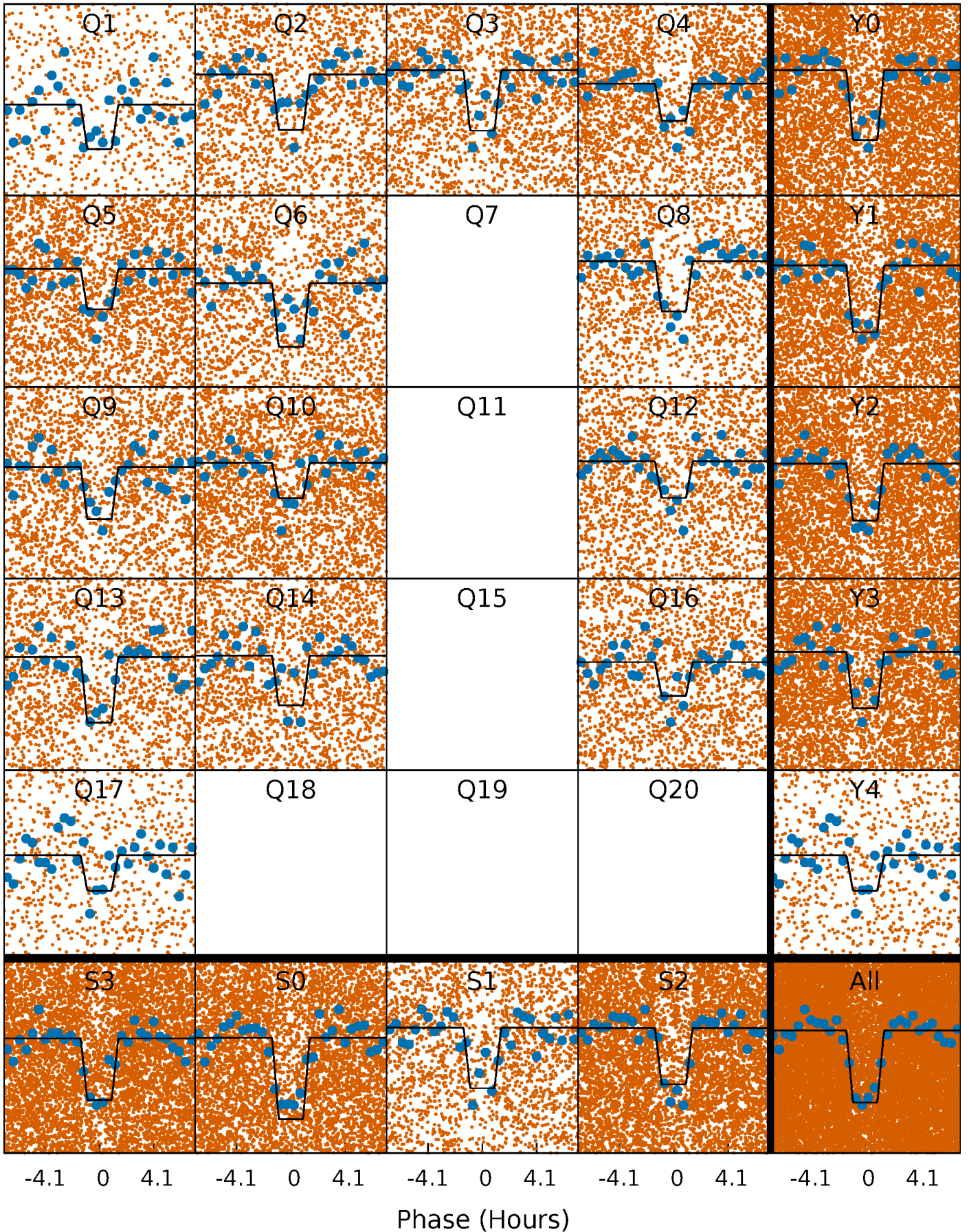
DV Quarter-Phased Transit Curves

TCE 009541163-01 P= 0.536664 Days $T_0=131.705741$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

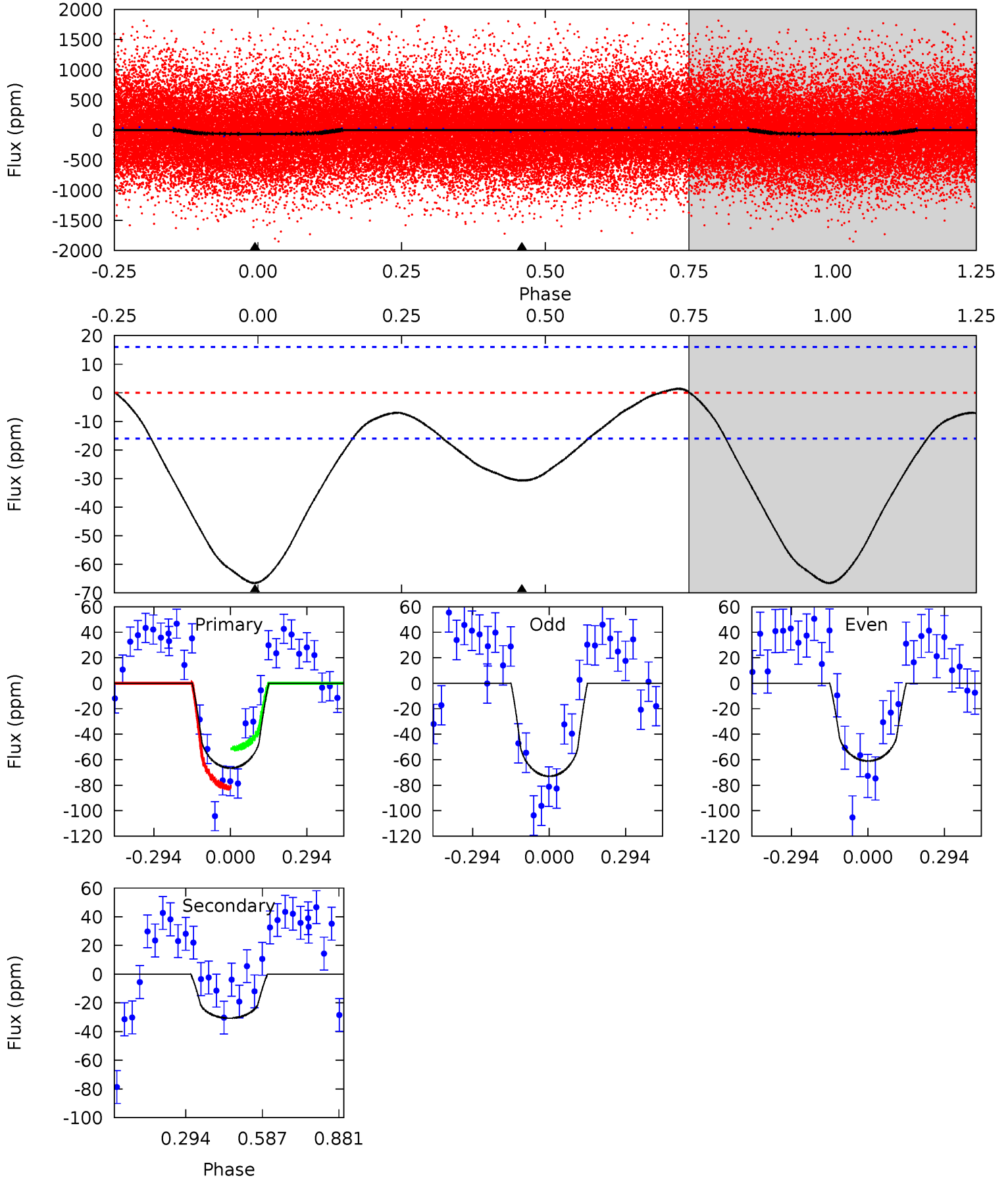
TCE 009541163-01 P= 0.536648 Days $T_0=131.717136$ (BKJD)



DV Model-Shift Uniqueness Test

009541163-01, P = 0.536664 Days, E = 131.169077 Days

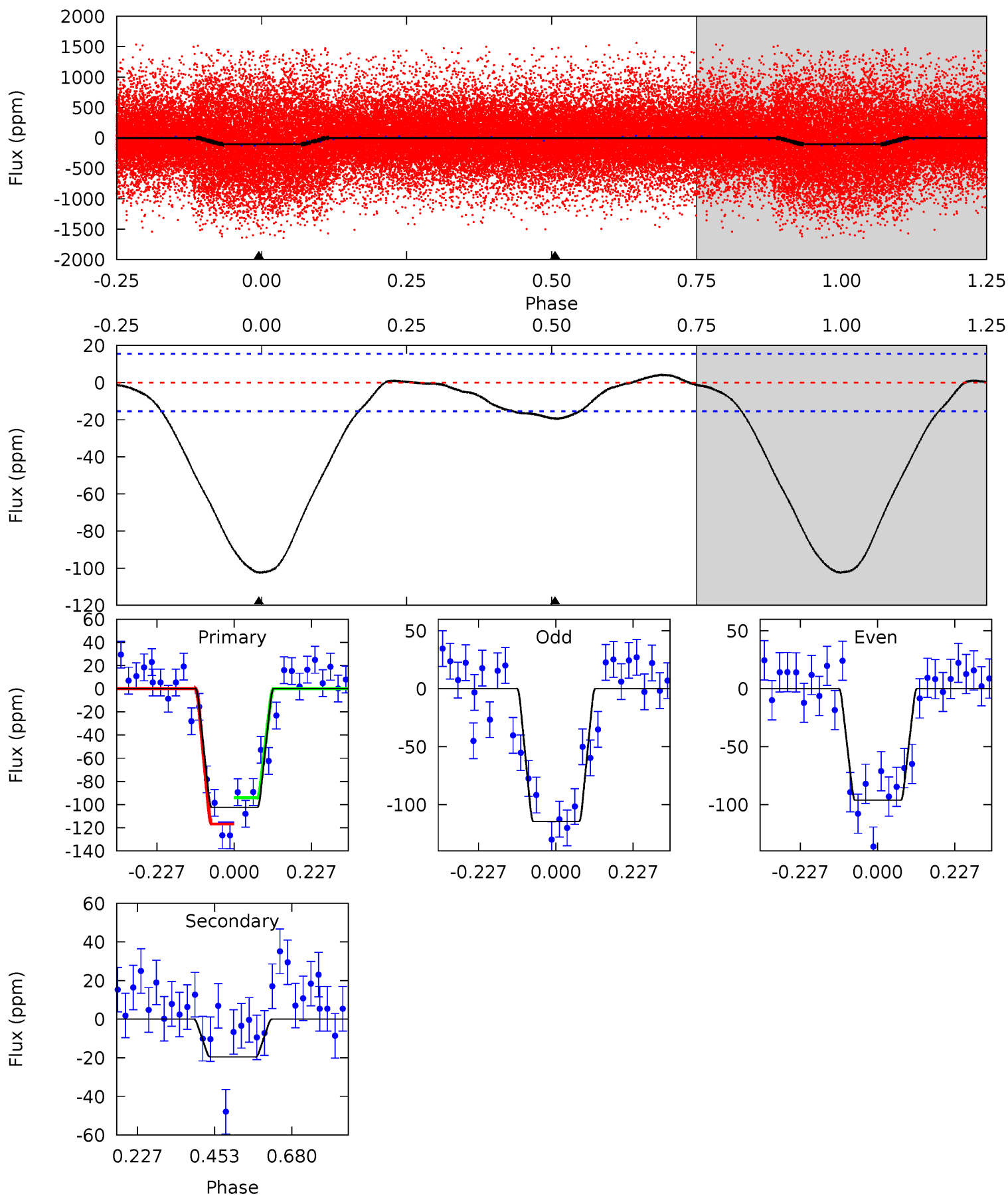
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	8.30	0	0	4.33	1.05	0.78	18.0	18.0	8.30	8.30	1.62	0.80	0.02	4.10



Alt Model-Shift Uniqueness Test

009541163-01, P = 0.536648 Days, E = 131.180488 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.0	5.53	0	0	4.39	1.21	0.28	29.0	29.0	5.53	5.53	2.58	0.99	0.04	3.18



Stellar Parameters For KIC 009541163

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5822^{+140}_{-192}	$4.529^{+0.042}_{-0.178}$	$-0.060^{+0.300}_{-0.300}$	$0.898^{+0.231}_{-0.077}$	$0.994^{+0.104}_{-0.116}$	$1.933^{+0.423}_{-0.859}$
	+2%/-3%	+1%/-4%	+500%/-500%	+26%/-9%	+10%/-12%	+22%/-44%
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 009541163-01 / KOI 7189.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-31 ± 4	$0.92^{+0.74}_{-0.56}$	3044^{+193}_{-130}	4591^{+2570}_{-1032}	$3.154^{+17.758}_{-2.178}$
Alt.	-20 ± 4	$1.13^{+0.72}_{-0.62}$	3046^{+171}_{-142}	3813^{+1574}_{-898}	$1.373^{+5.025}_{-0.881}$

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

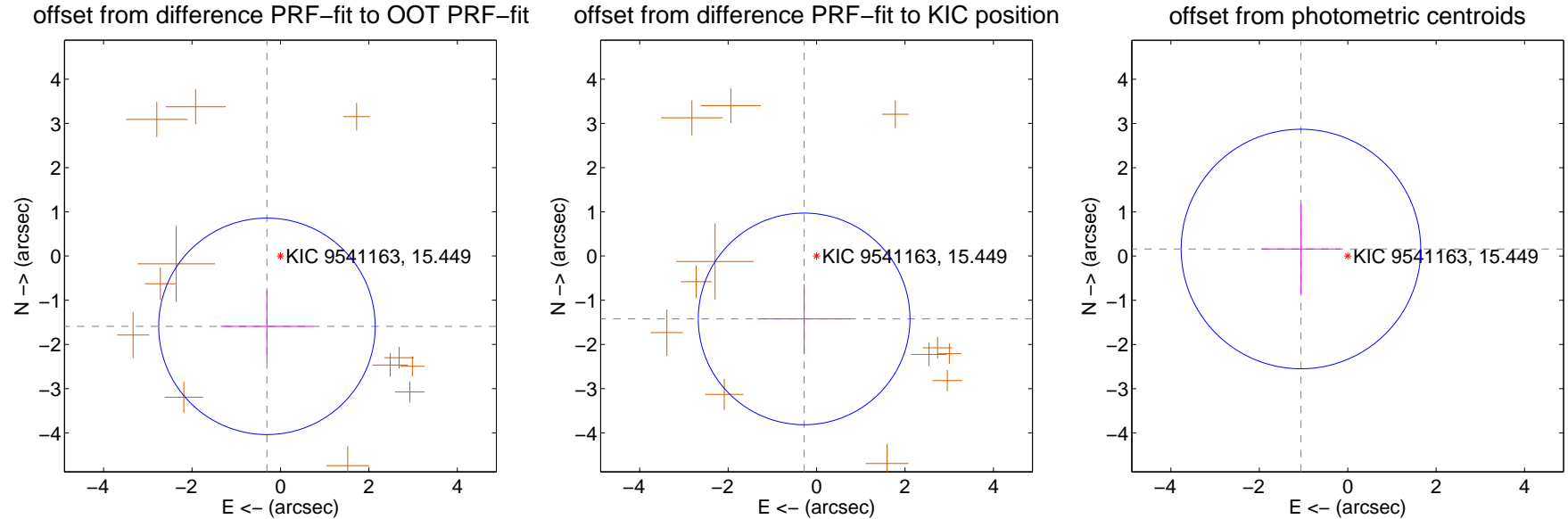
DV Centroid Data

Supplemental centroid analysis for 009541163-01. Kepler magnitude: 15.45. Transit SNR 13.02

There are 0 quarters with good PRF difference image offsets

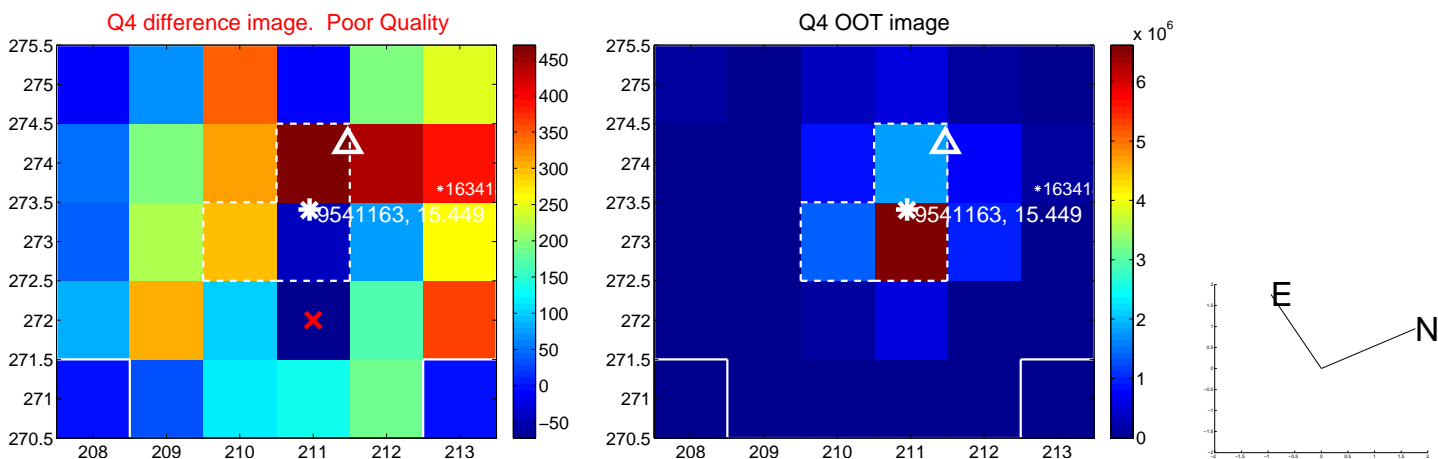
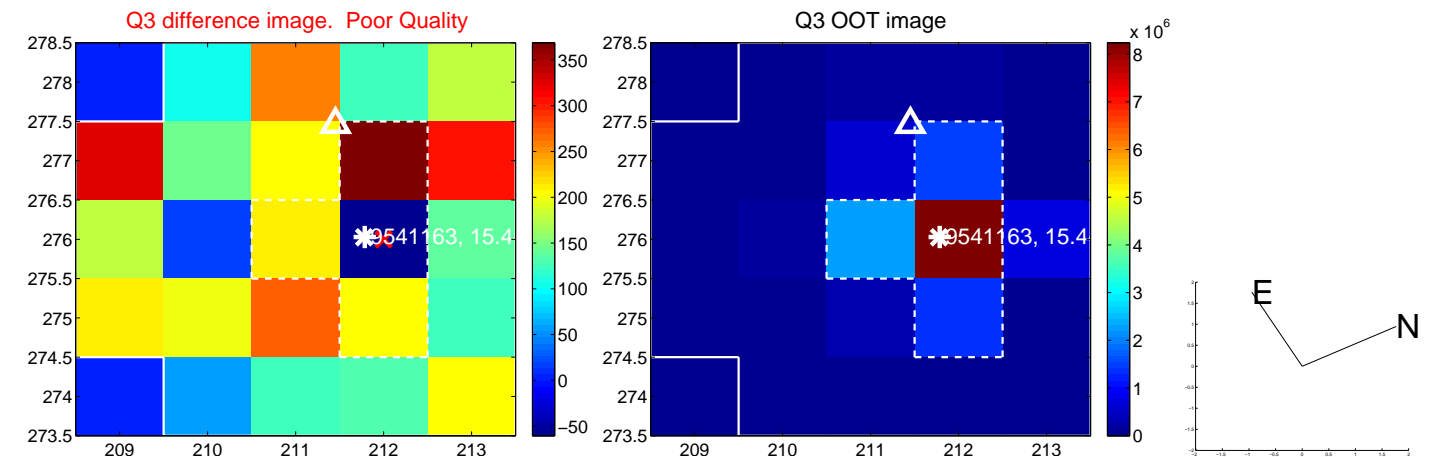
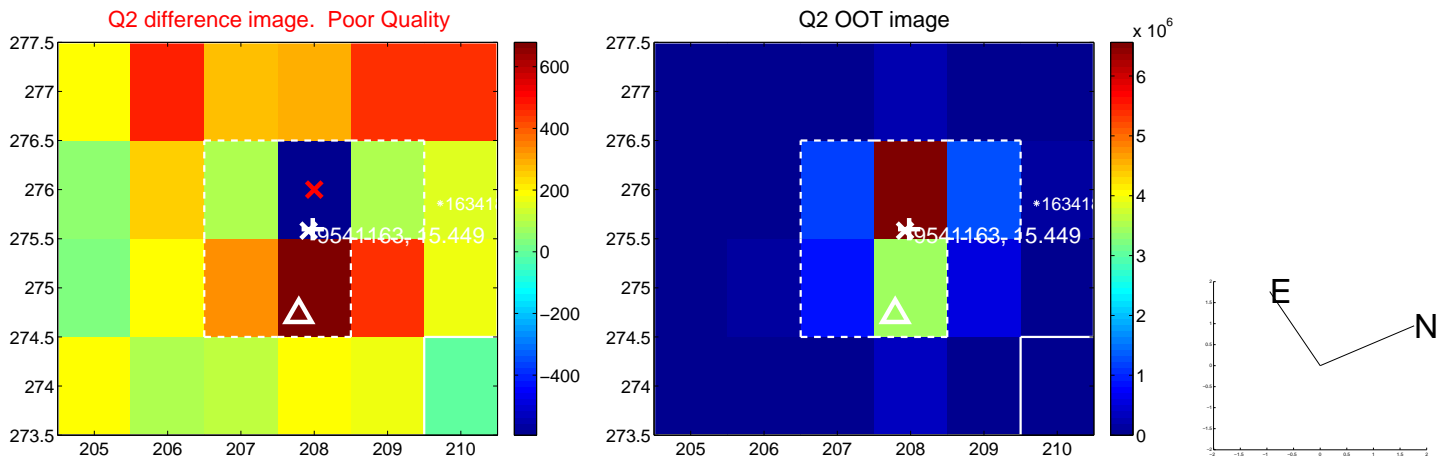
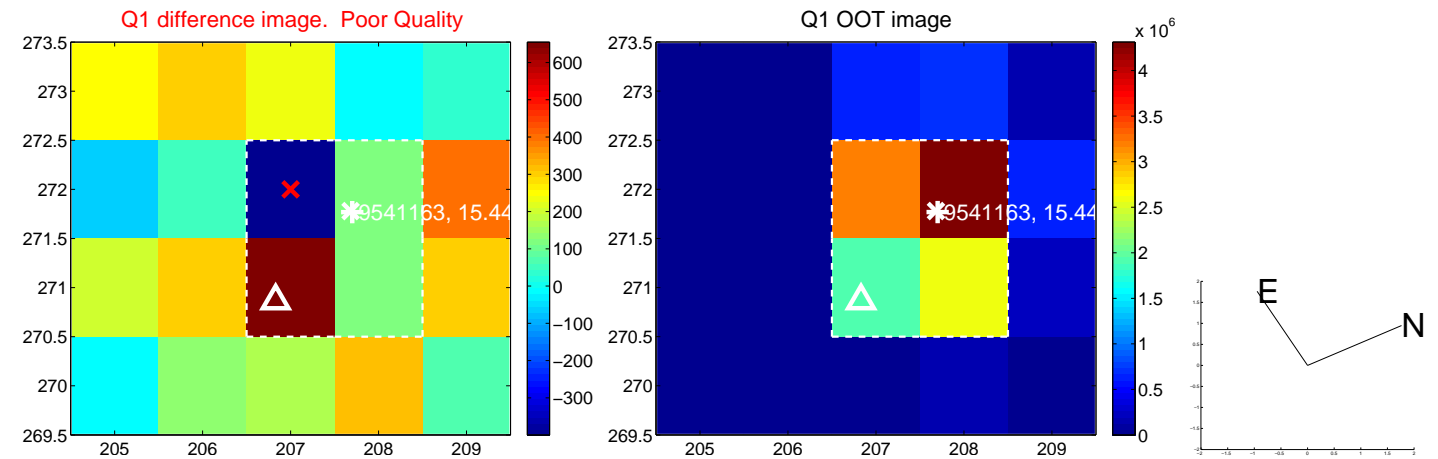
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.620 ± 0.816	1.98	0.306 ± 1.048	-1.591 ± 0.806
PRF-fit source offset from KIC position	1.450 ± 0.798	1.82	0.282 ± 1.052	-1.422 ± 0.786
photometric centroid source offset	1.07 ± 0.90	1.18	1.06 ± 0.90	0.16 ± 1.00

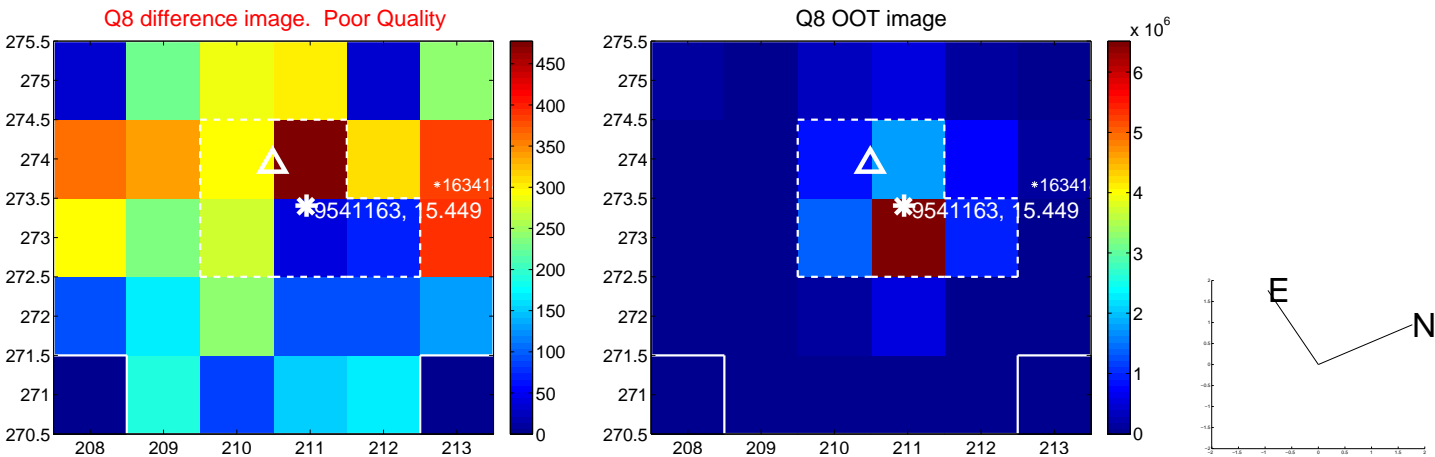
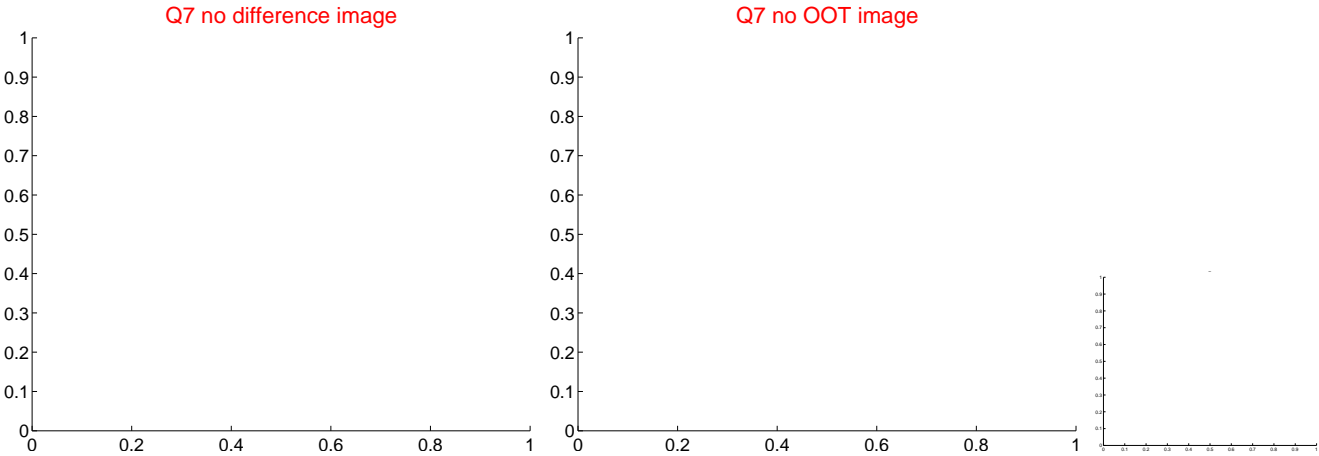
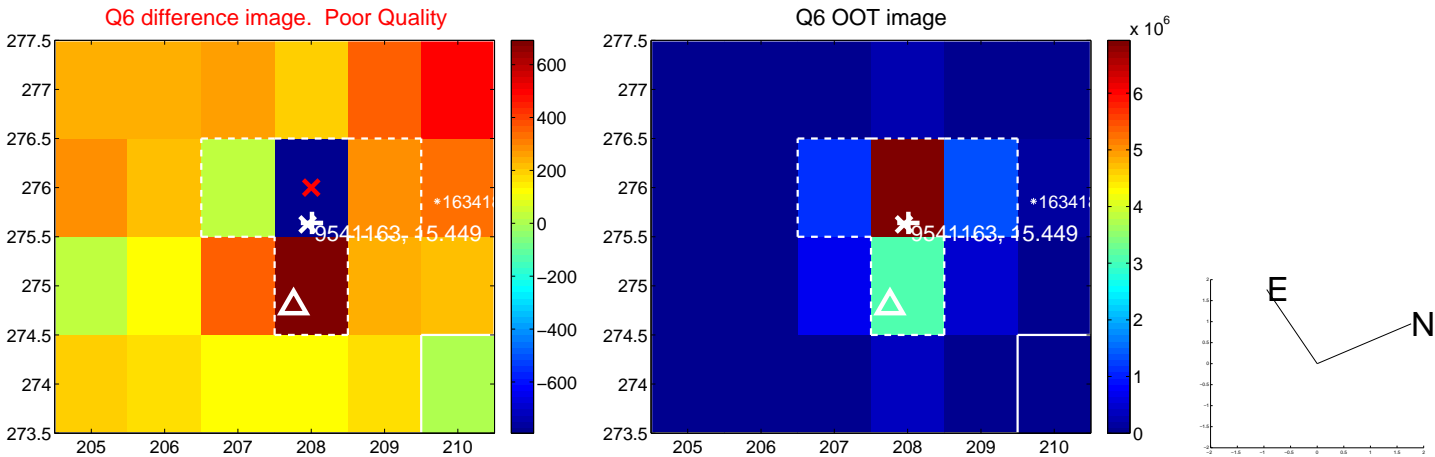
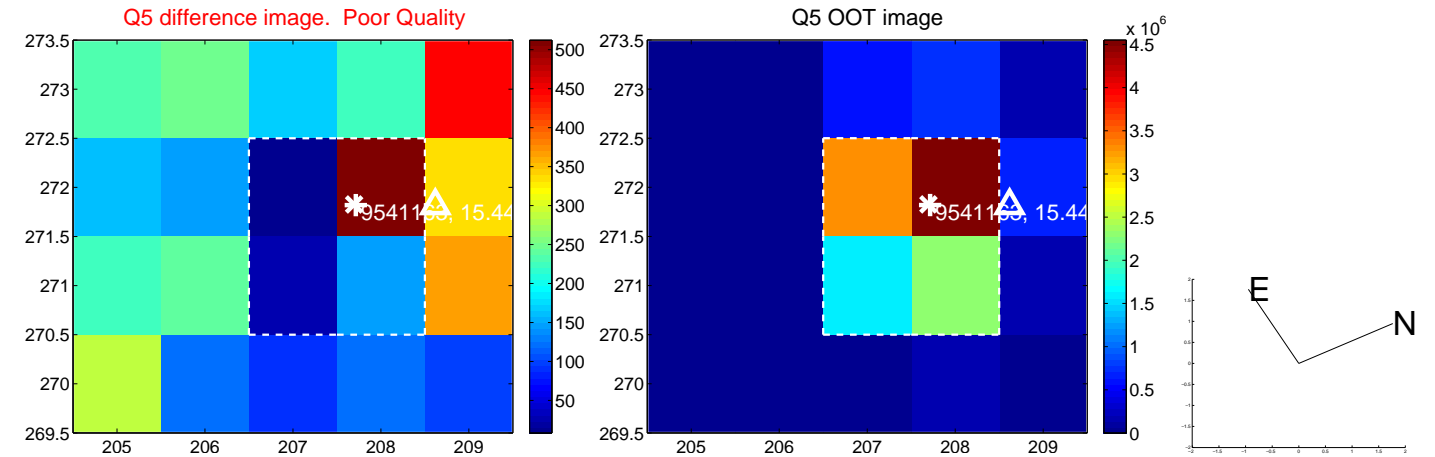


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

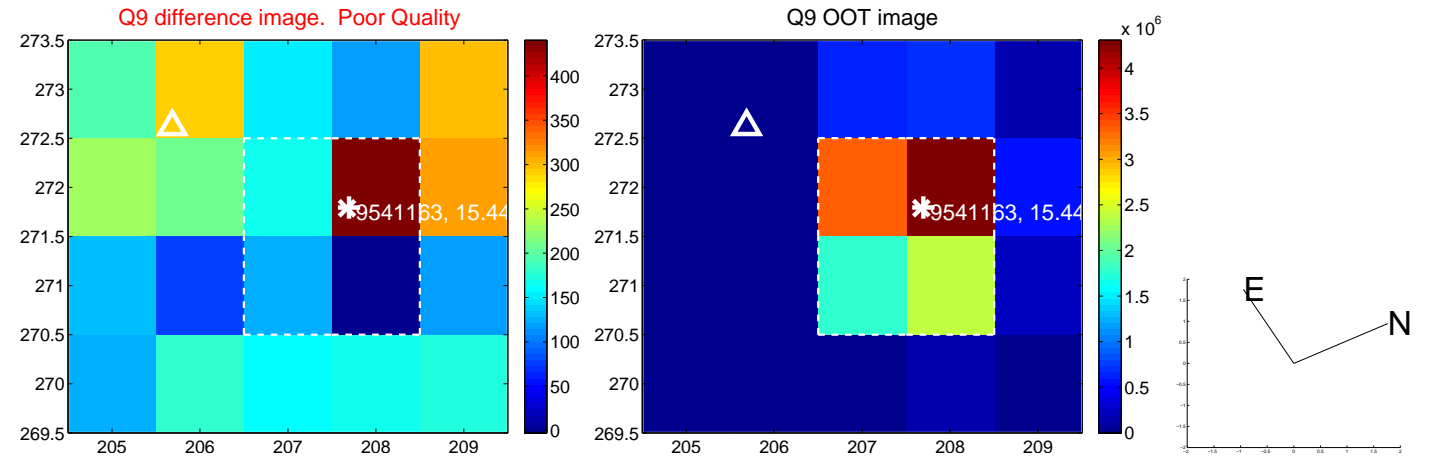
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



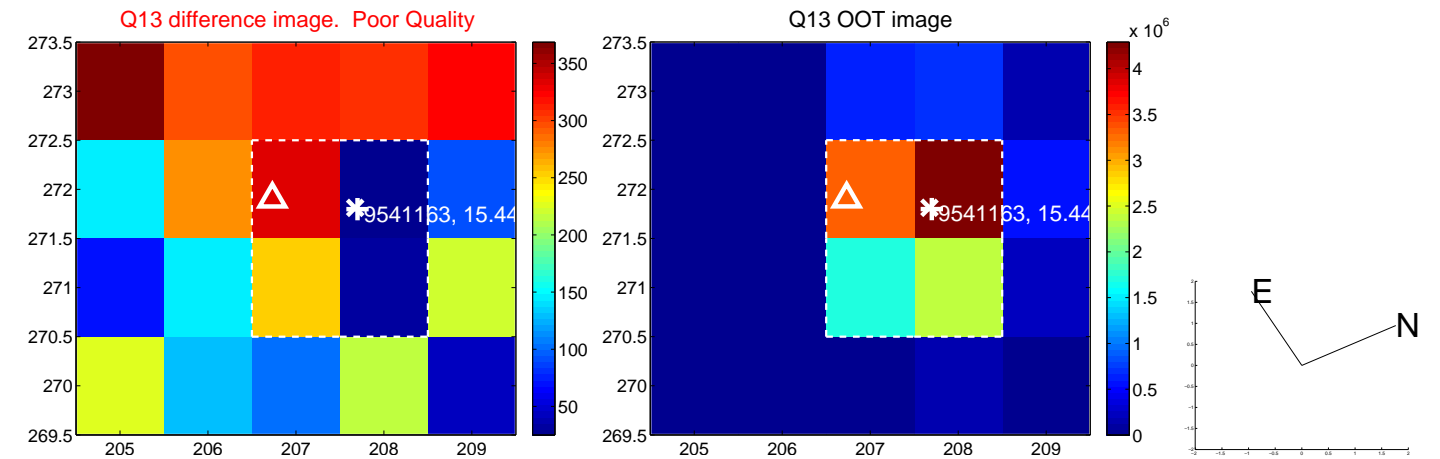
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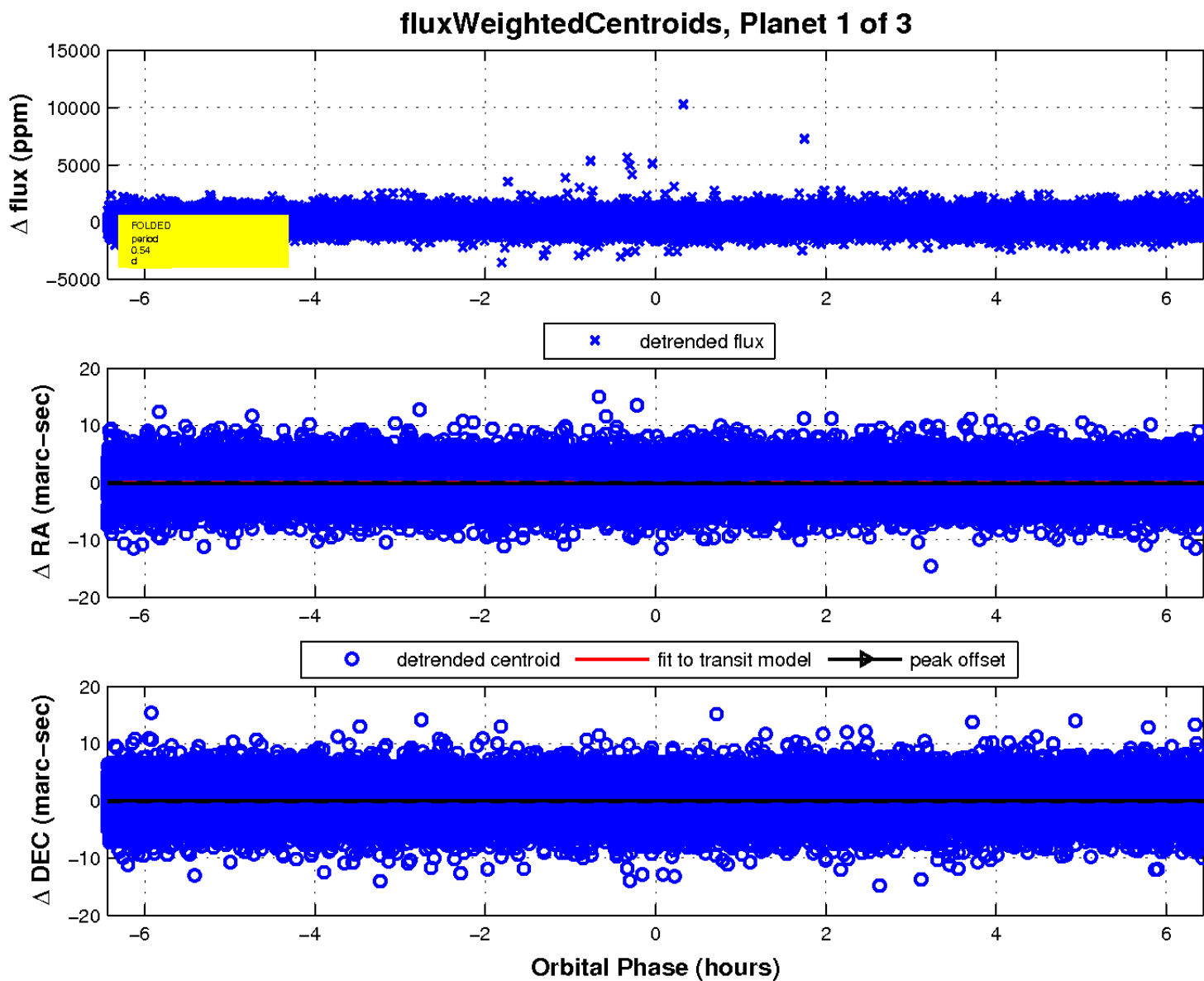
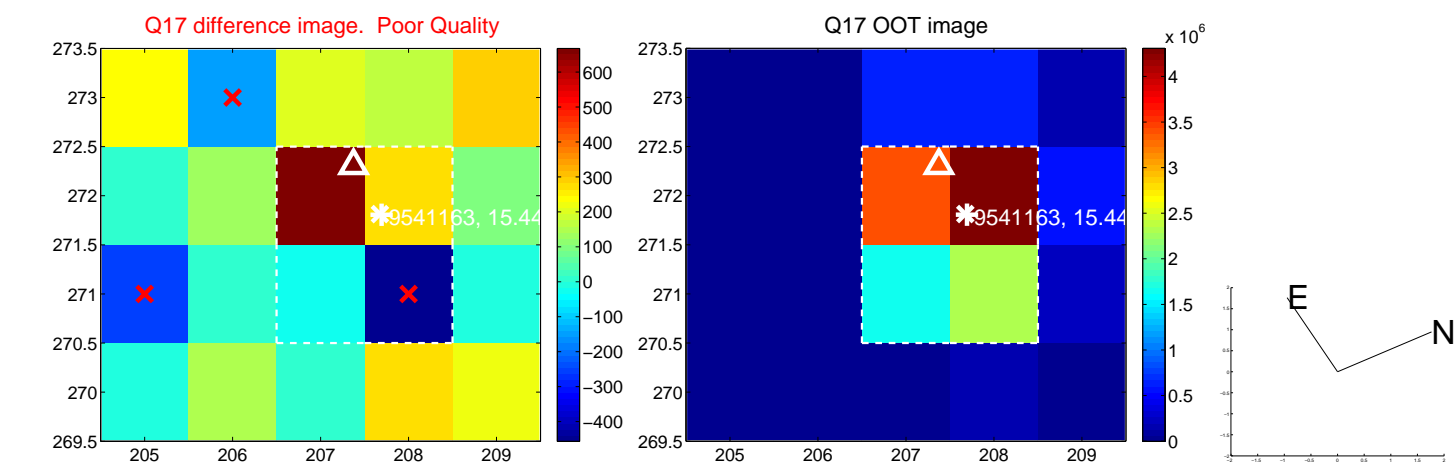
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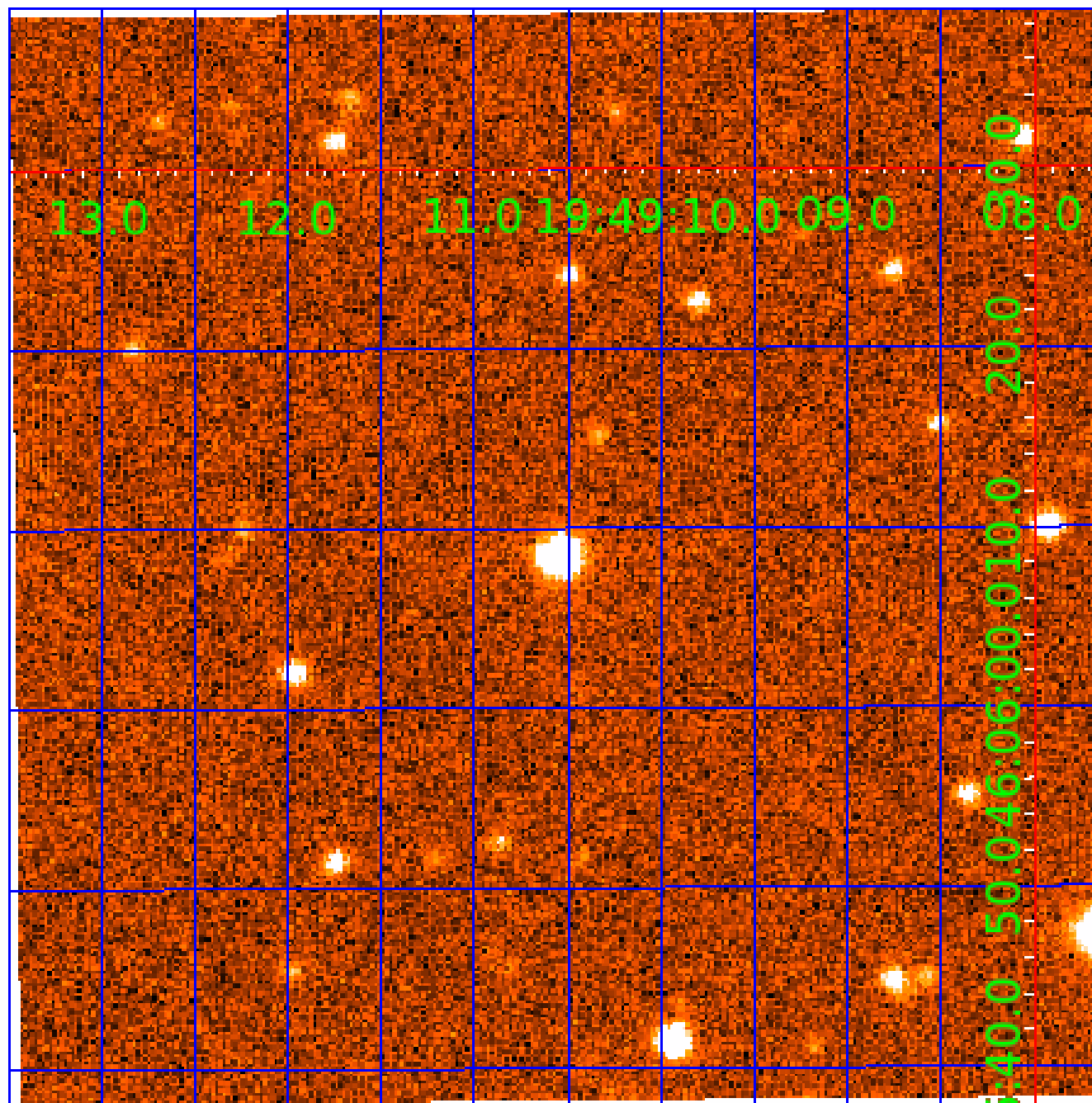


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009541163

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})
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Robovetter Results

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009541163-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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 009541163-02

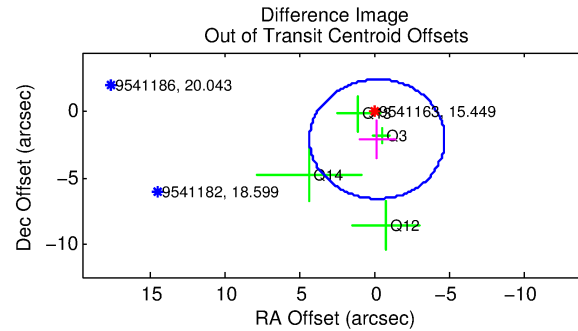
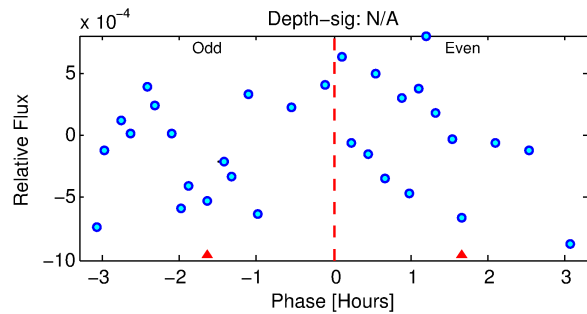
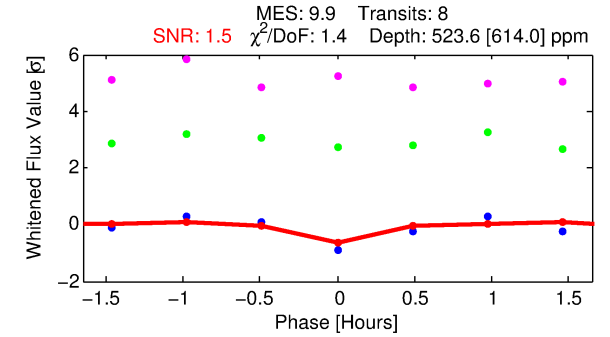
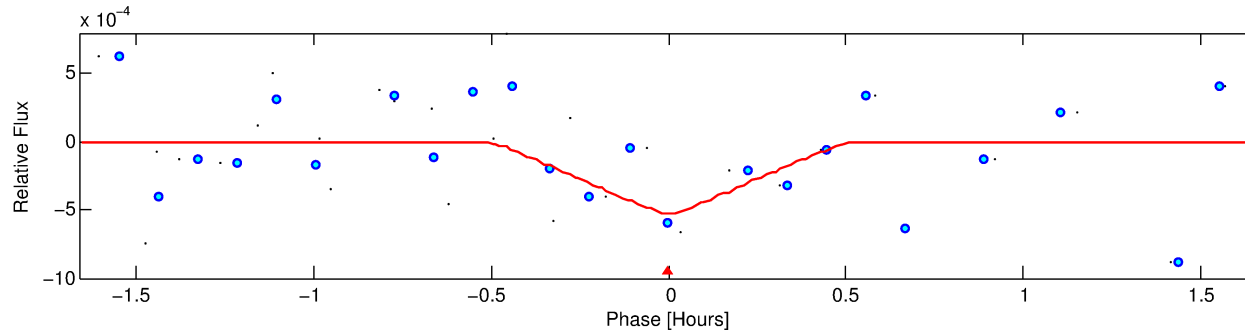
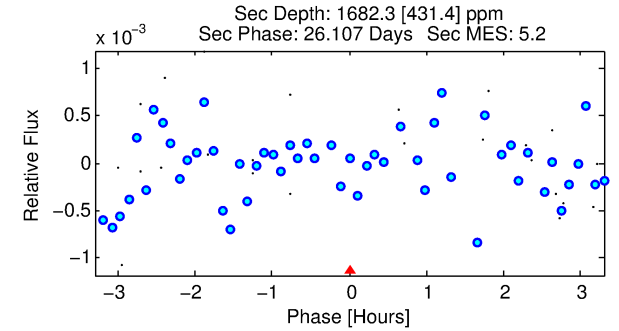
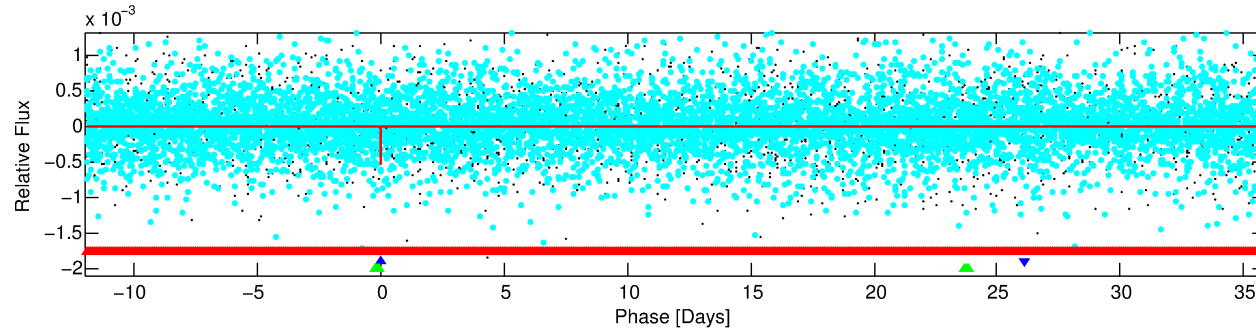
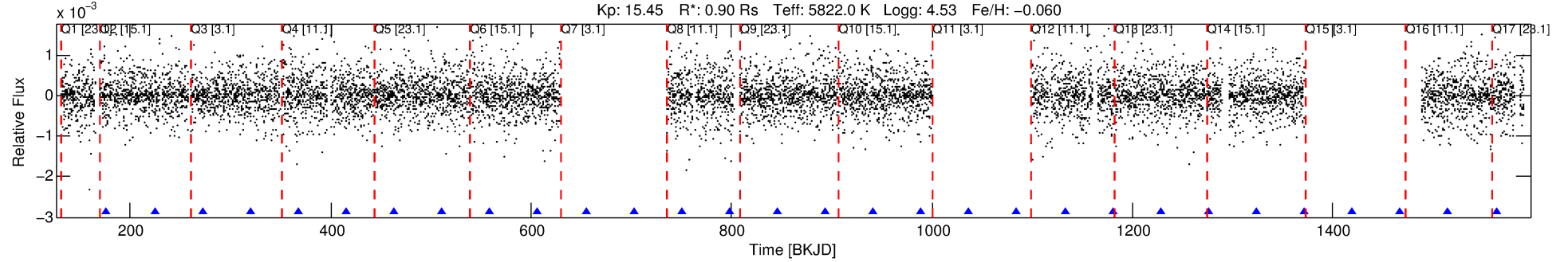
No Significant Match Found

DV One-Page Summary

KIC: 9541163 Candidate: 2 of 3 Period: 47.800 d

KOI: K07189 Corr: No Ephemeris Match

Kp: 15.45 R*: 0.90 Rs Teff: 5822.0 K Logg: 4.53 Fe/H: -0.060



DV Fit Results:

Period = 47.80035 [0.00196] d
Epoch = 176.5491 [0.0367] BKJD
Rp/R* = 0.0221 [0.3821]
a/R* = 621.18 [49836.69]
b = 0.40 [167.31]
Seff = 12.54 [4.37]
Teff = 480 [42] K
Rp = 2.16 [37.45] Re
a = 0.2573 [0.0564] AU
Ag = 13098.04 [453446.28] [0.03σ]
Teffp = 7936 [68682] K [0.11σ]

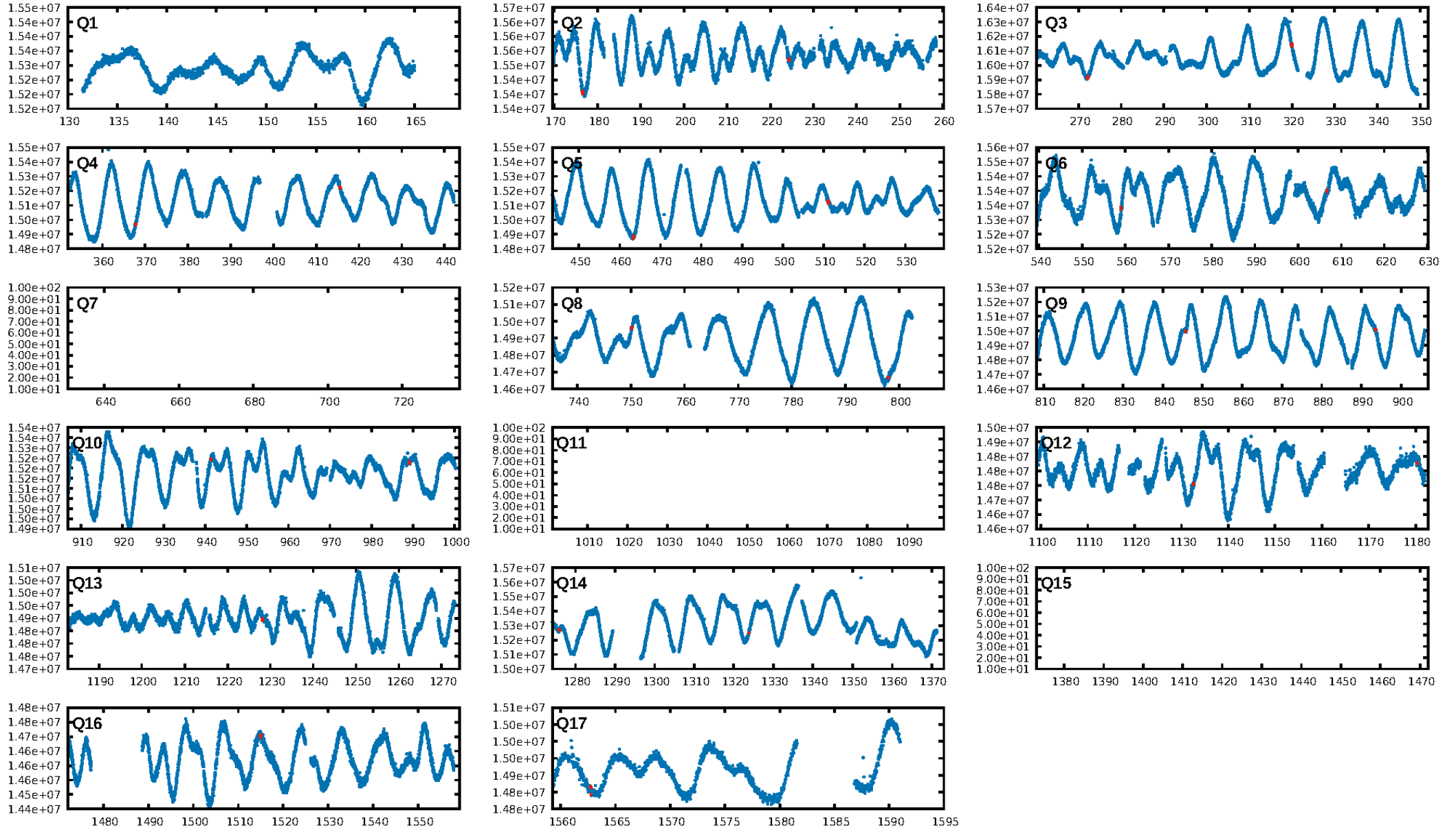
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.83σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 37.4%
ModelChiSquareGof-sig: 88.9%
Bootstrap-pfa: 5.04e-15
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 14.93
Centroid-sig: 42.2%
Centroid-so: 3.738 arcsec [1.12σ]
OotOffset-rm: 2.081 arcsec [1.38σ]
KicOffset-rm: 2.016 arcsec [1.00σ]
OotOffset-st: 1/1/1/1 [4]
KicOffset-st: 1/1/1/1 [4]
DiffImageQuality-fgm: 0.00 [0/4]
DiffImageOverlap-fno: 0.00 [0/9]

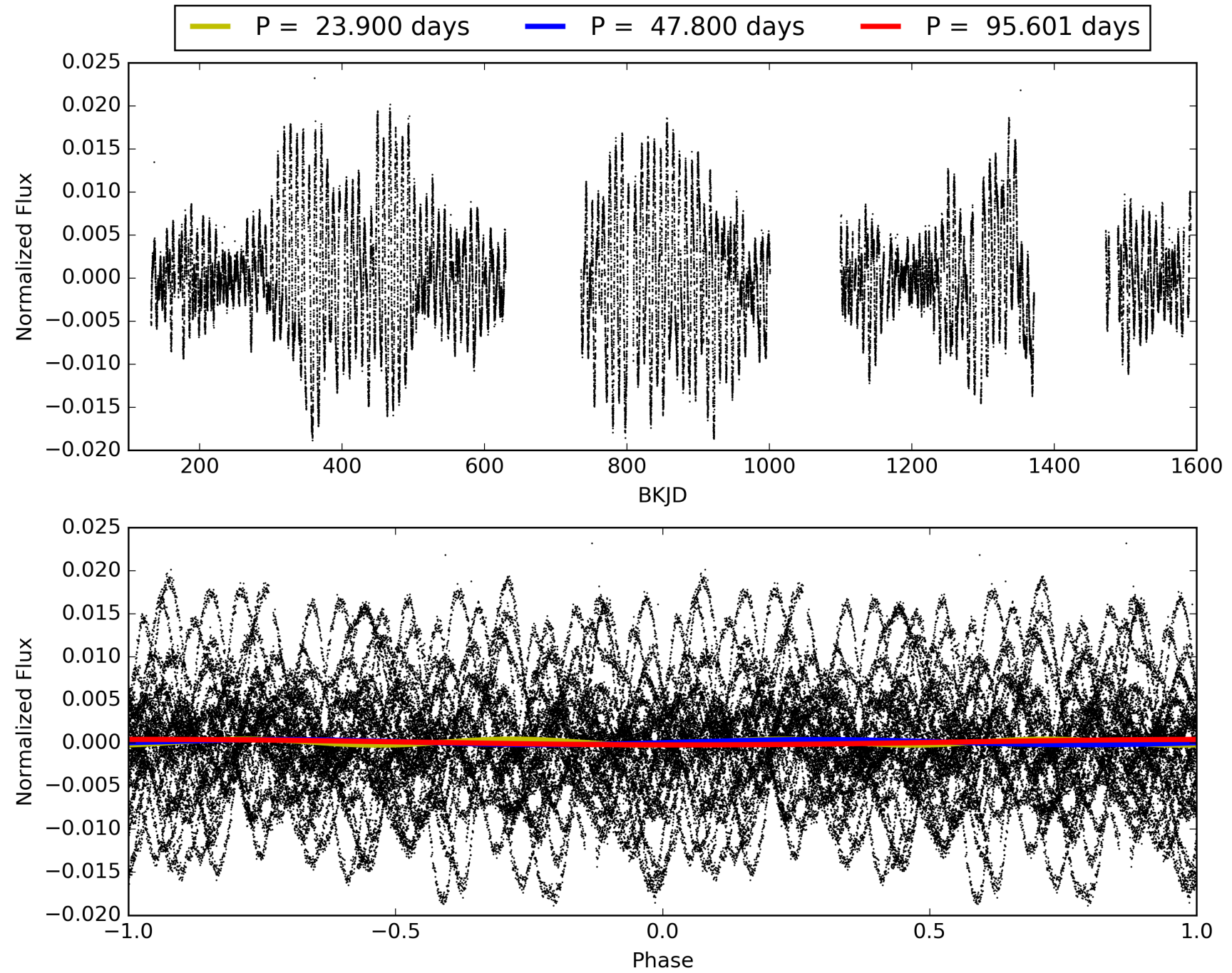
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:57:43 Z

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

TCE 009541163-02, PDC Light Curves

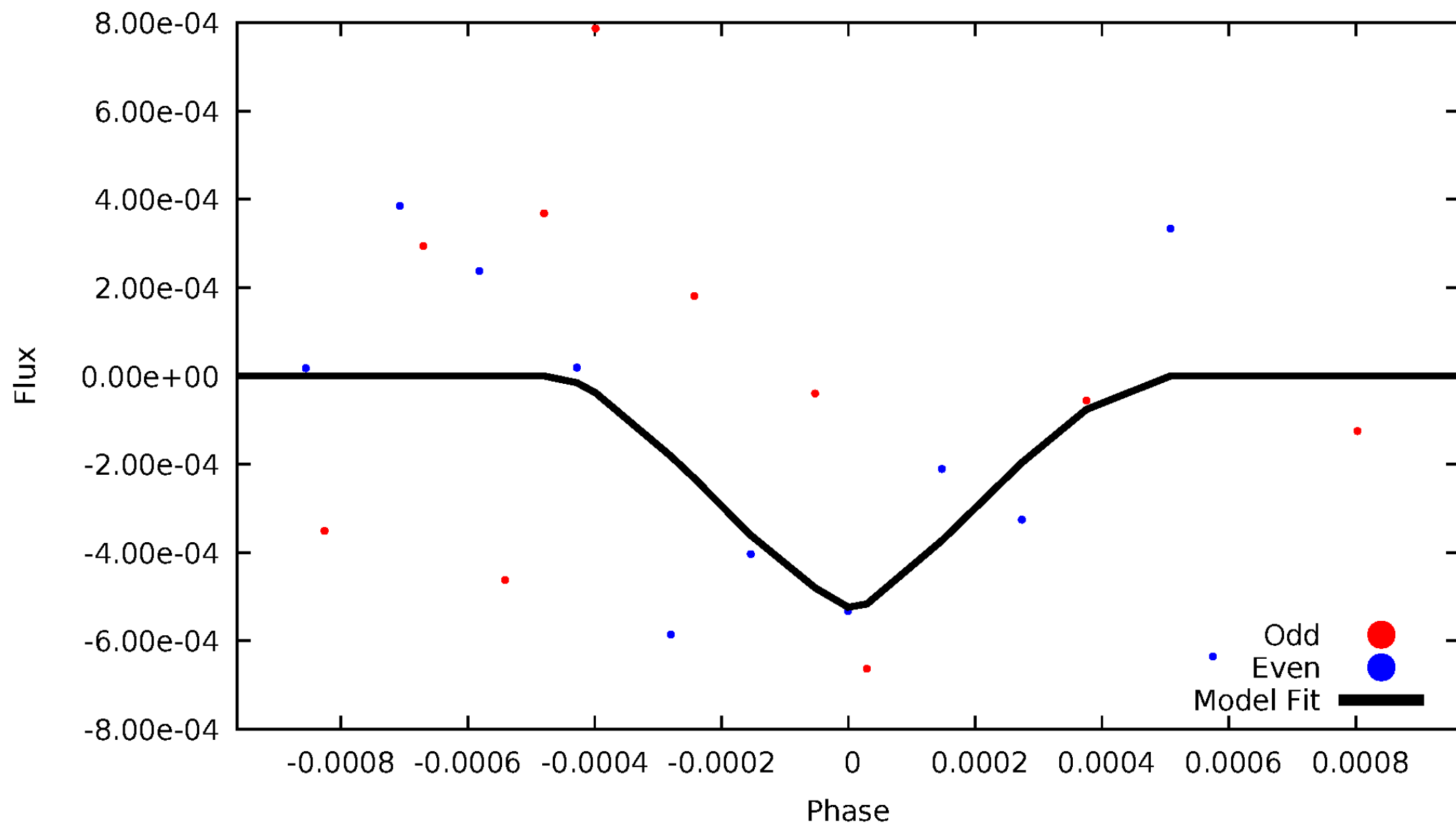


TCE 009541163-02



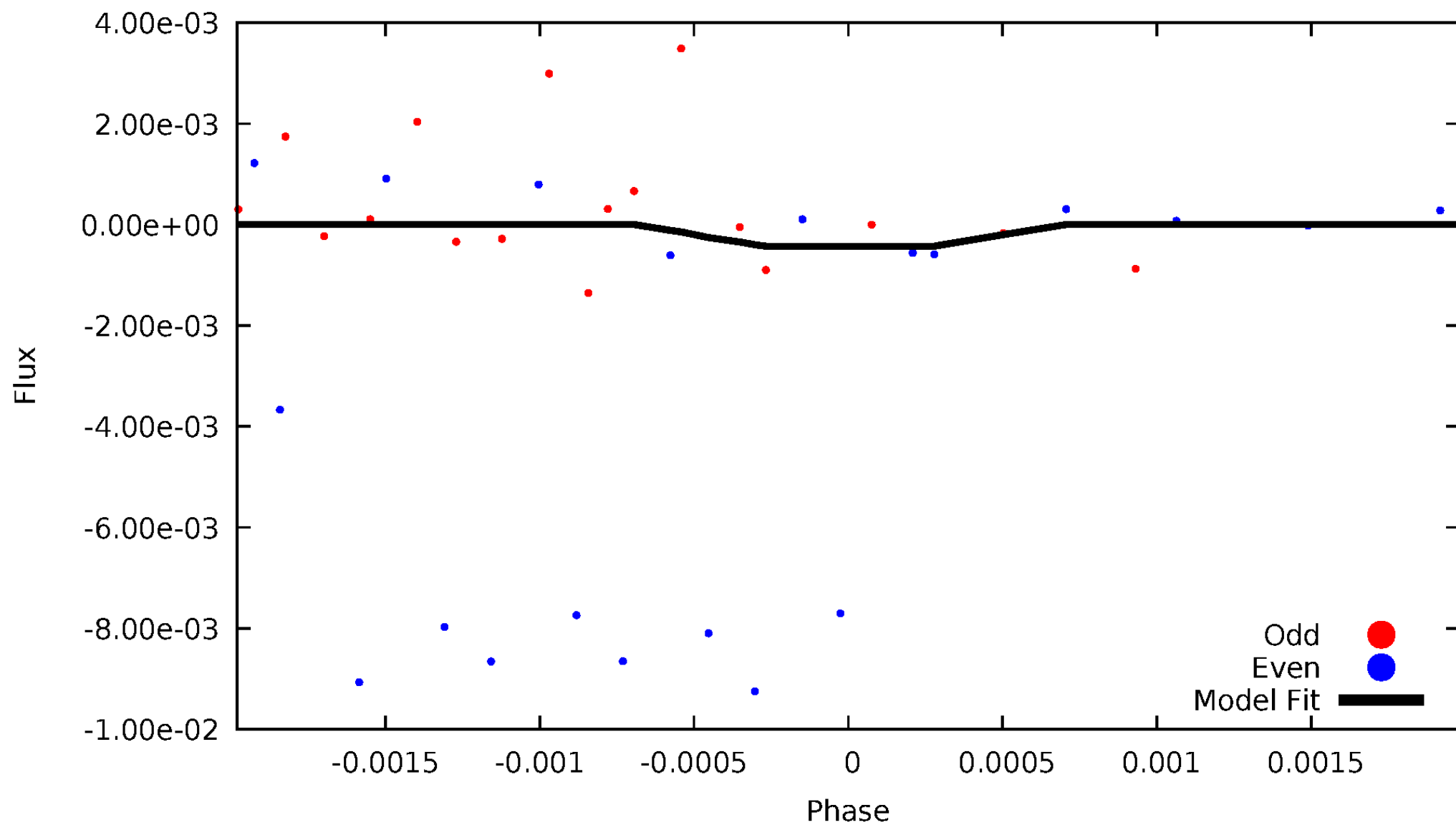
DV Odd/Even

TCE 009541163-02



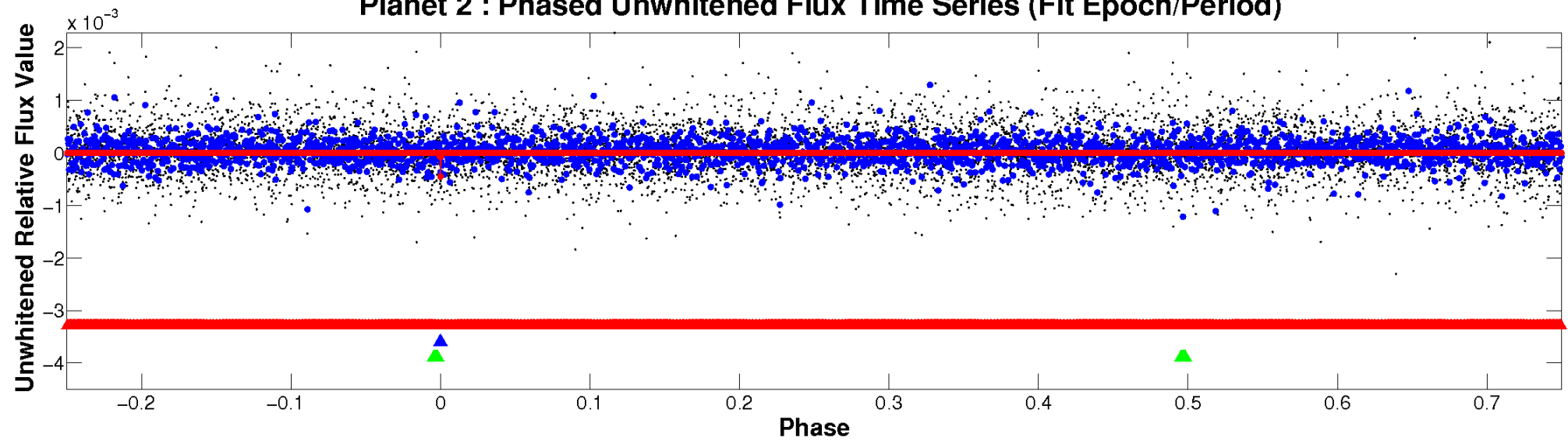
ALT Odd/Even

TCE 009541163-02

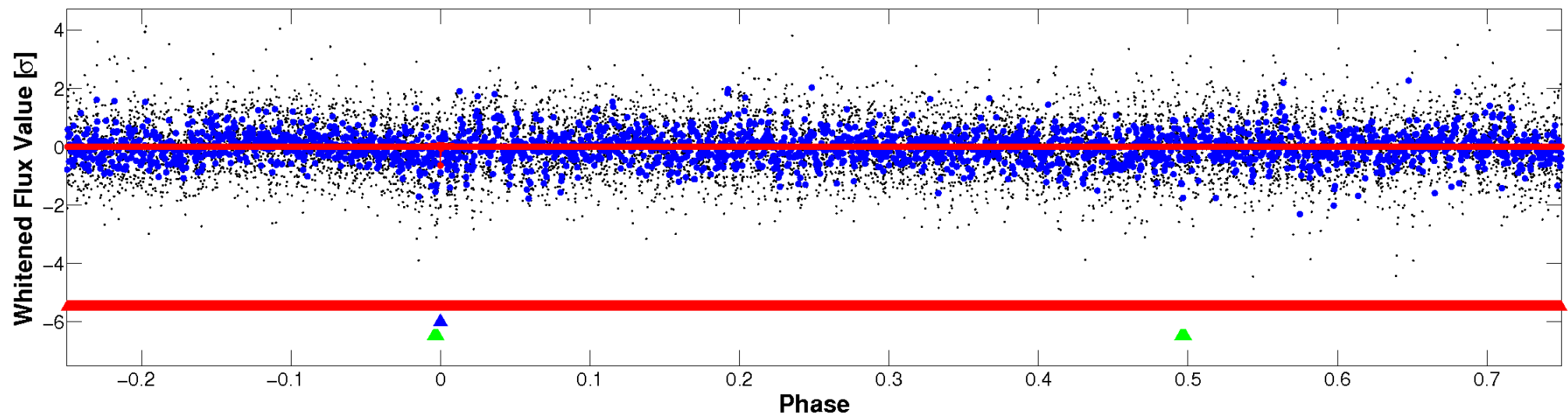


Non-Whitened Vs. Whitened Light Curve

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

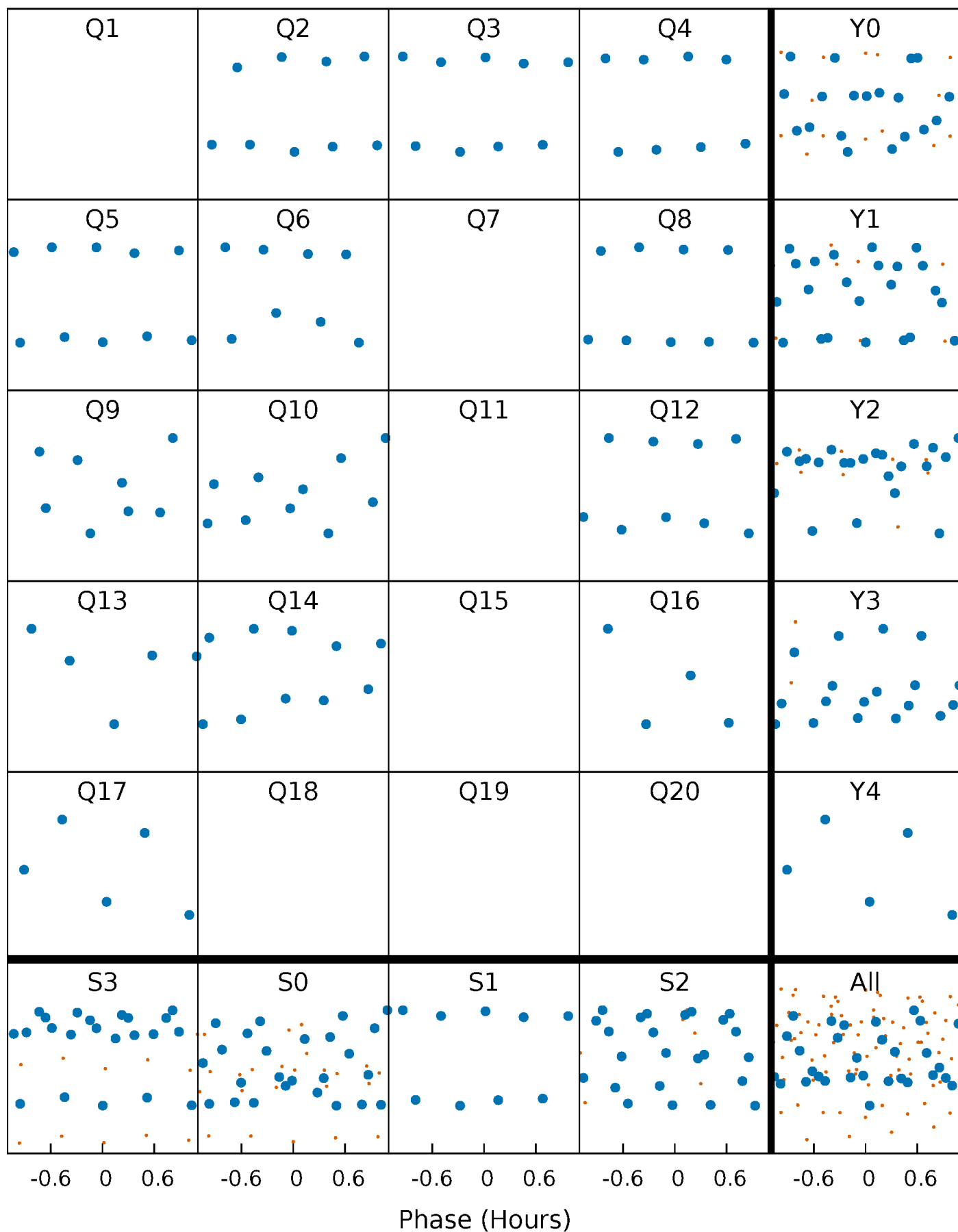


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



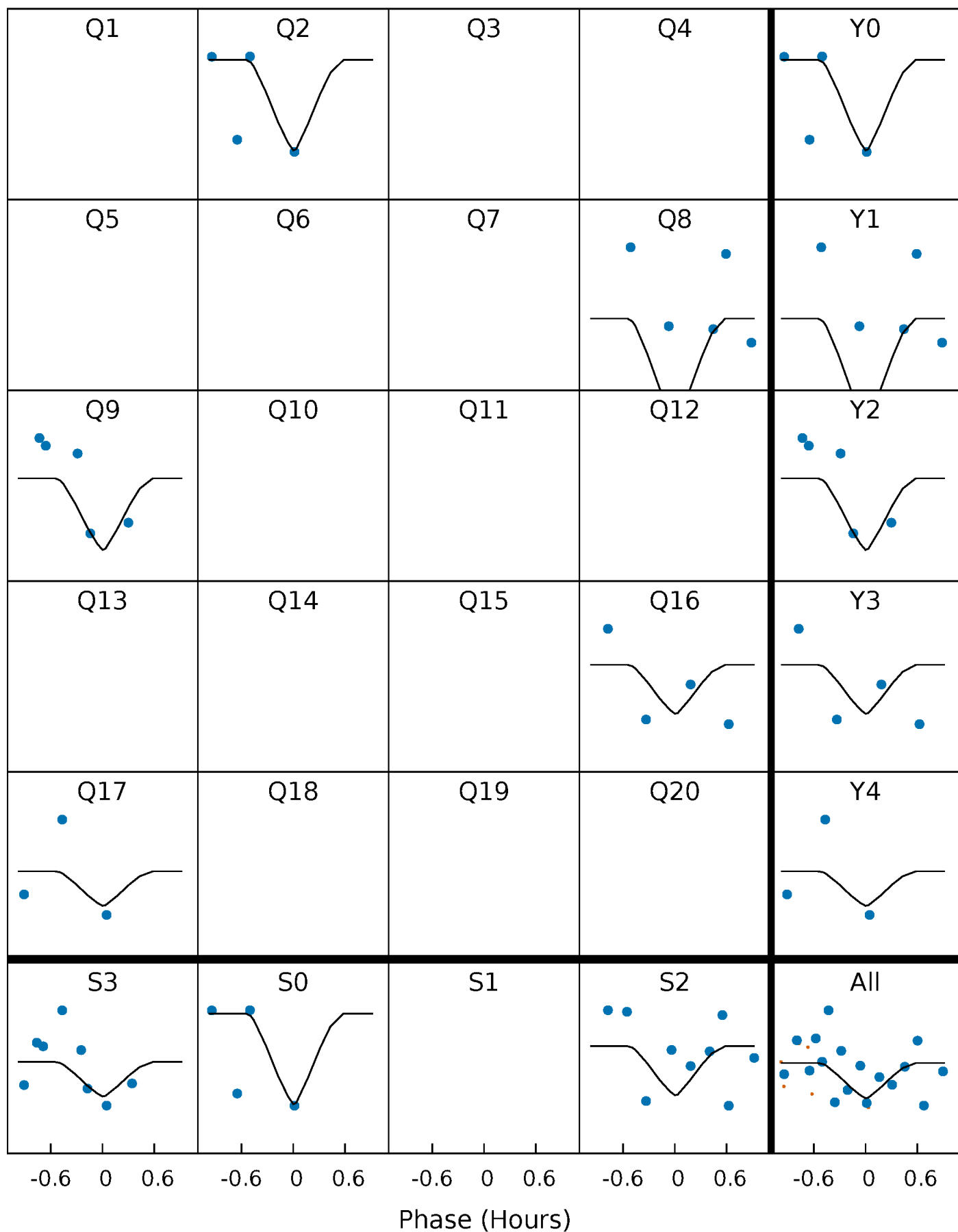
PDC Quarter-Phased Transit Curves

TCE 009541163-02 P= 47.800354 Days $T_0=176.549147$ (BKJD)



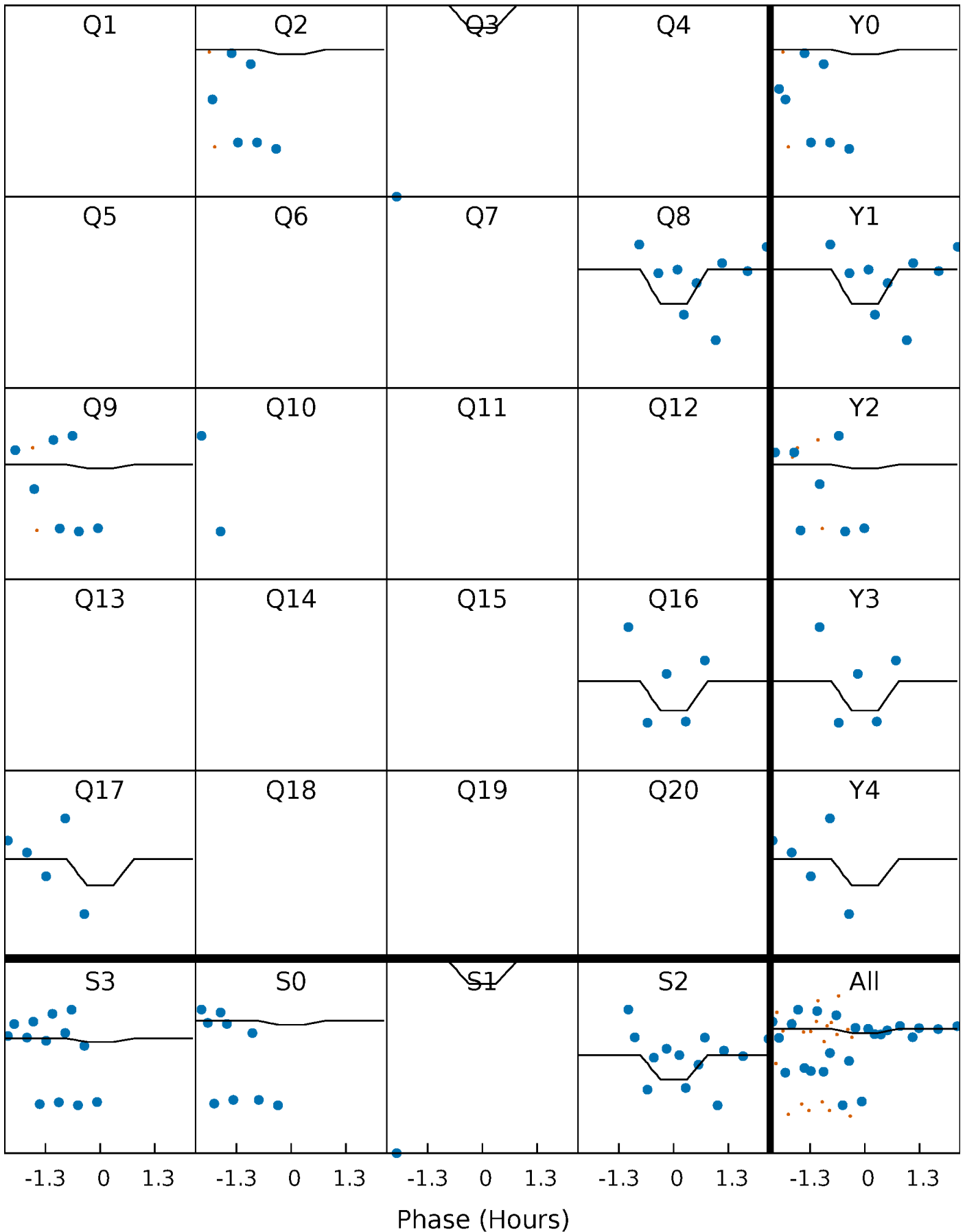
DV Quarter-Phased Transit Curves

TCE 009541163-02 P= 47.800354 Days $T_0=176.549147$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

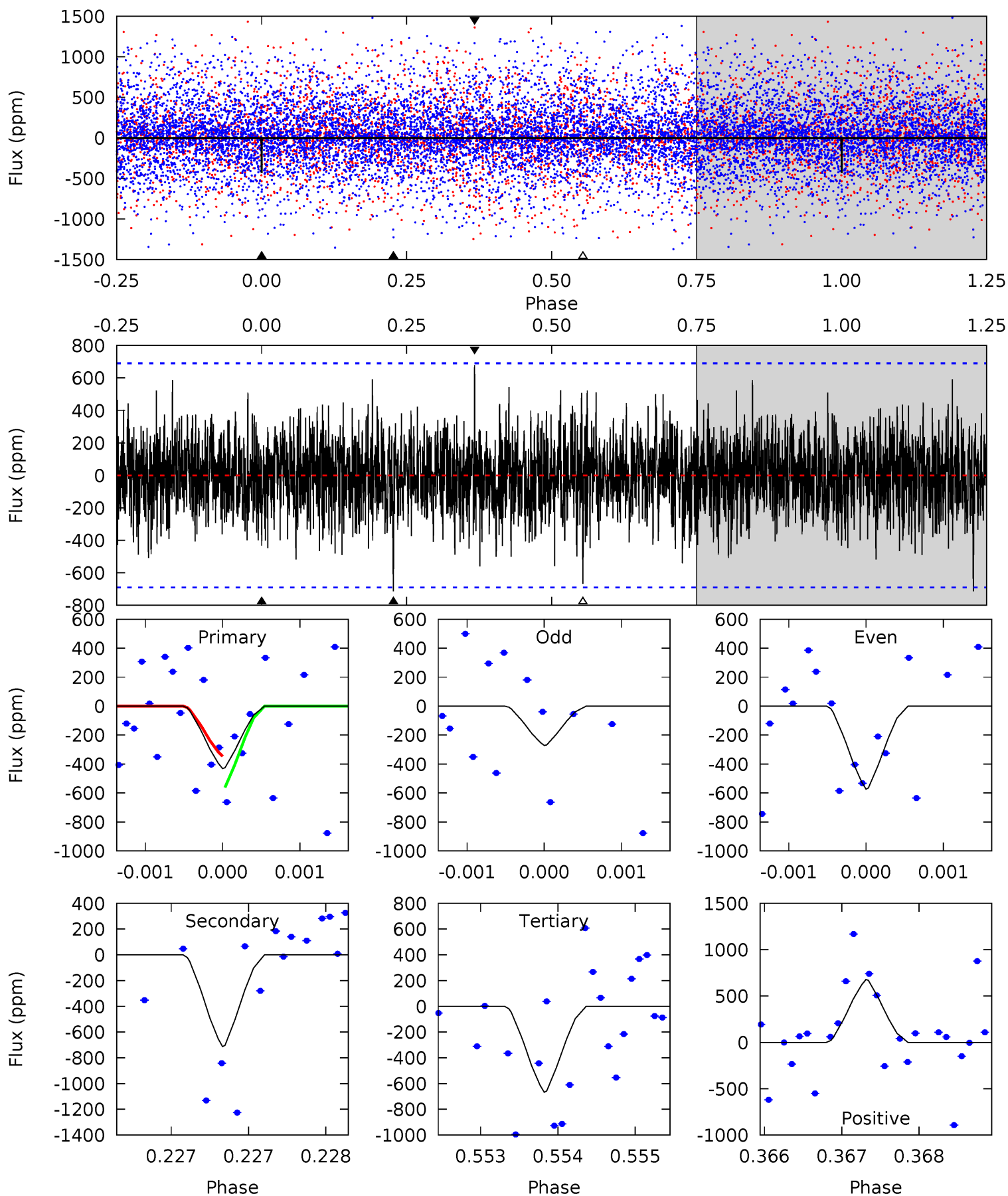
TCE 009541163-02 P= 47.800344 Days $T_0=176.563596$ (BKJD)



DV Model-Shift Uniqueness Test

009541163-02, P = 47.800354 Days, E = 128.748793 Days

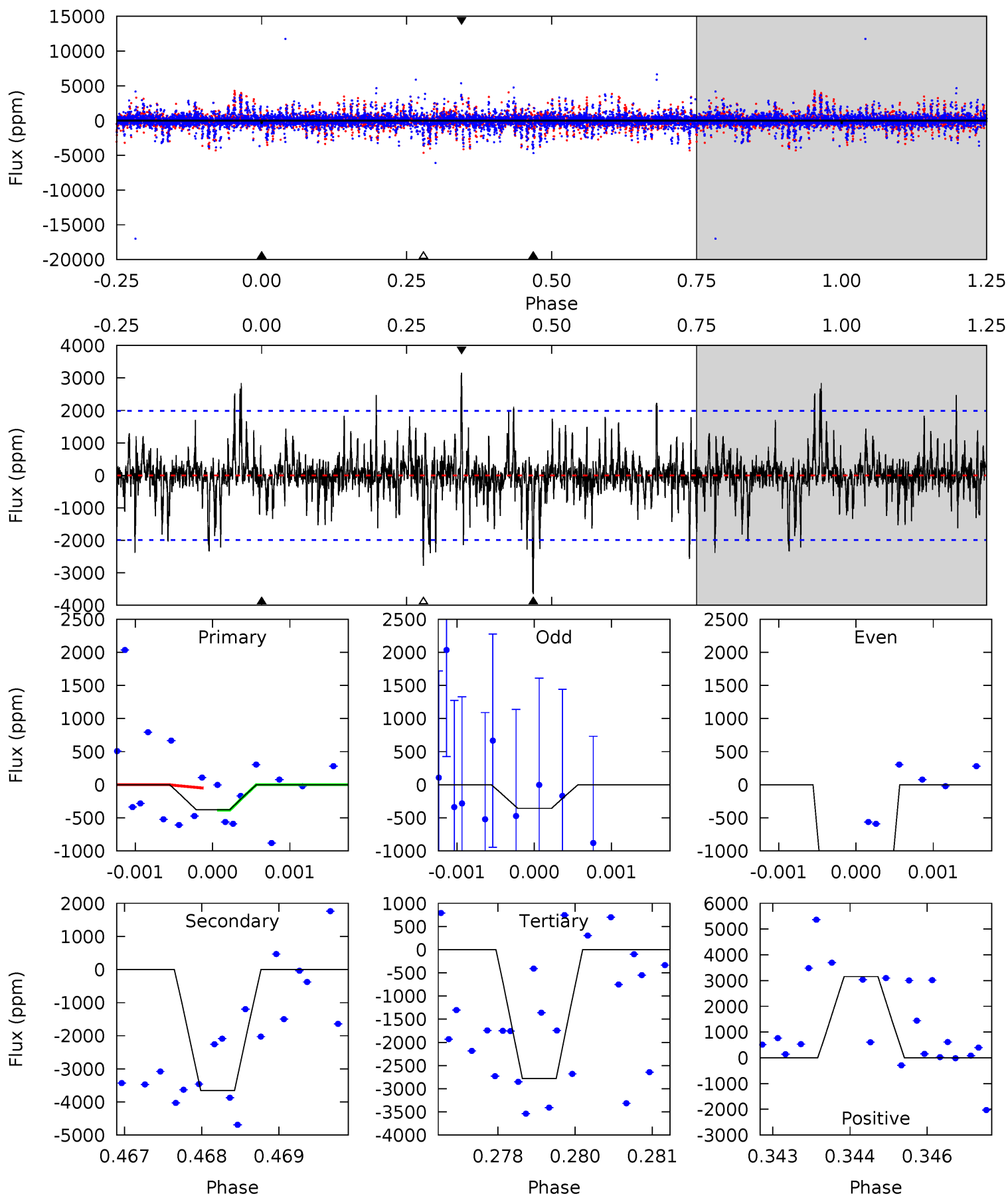
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.42	5.64	5.28	5.37	5.46	3.31	1.37	-1.86	-1.95	0.36	0.28	1.26	0.85	0.49	0.84



Alt Model-Shift Uniqueness Test

009541163-02, P = 47.800344 Days, E = 128.763252 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.02	9.94	7.56	8.59	5.41	3.23	1.52	-6.54	-7.56	2.37	1.35	2.97	10.3	0.46	0



Stellar Parameters For KIC 009541163

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5822^{+140}_{-192}	$4.529^{+0.042}_{-0.178}$	$-0.060^{+0.300}_{-0.300}$	$0.898^{+0.231}_{-0.077}$	$0.994^{+0.104}_{-0.116}$	$1.933^{+0.423}_{-0.859}$
	+2%/-3%	+1%/-4%	+500%/-500%	+26%/-9%	+10%/-12%	+22%/-44%
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 009541163-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-713 ± 126	$27.89^{+27.37}_{-20.31}$	681^{+41}_{-29}	2632^{+1189}_{-416}	34^{+407}_{-25}
Alt.	-3653 ± 368	$27.84^{+28.27}_{-19.84}$	682^{+42}_{-28}	3287^{+1767}_{-580}	164^{+1741}_{-123}

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 $A_{obs} \gg 1.0$

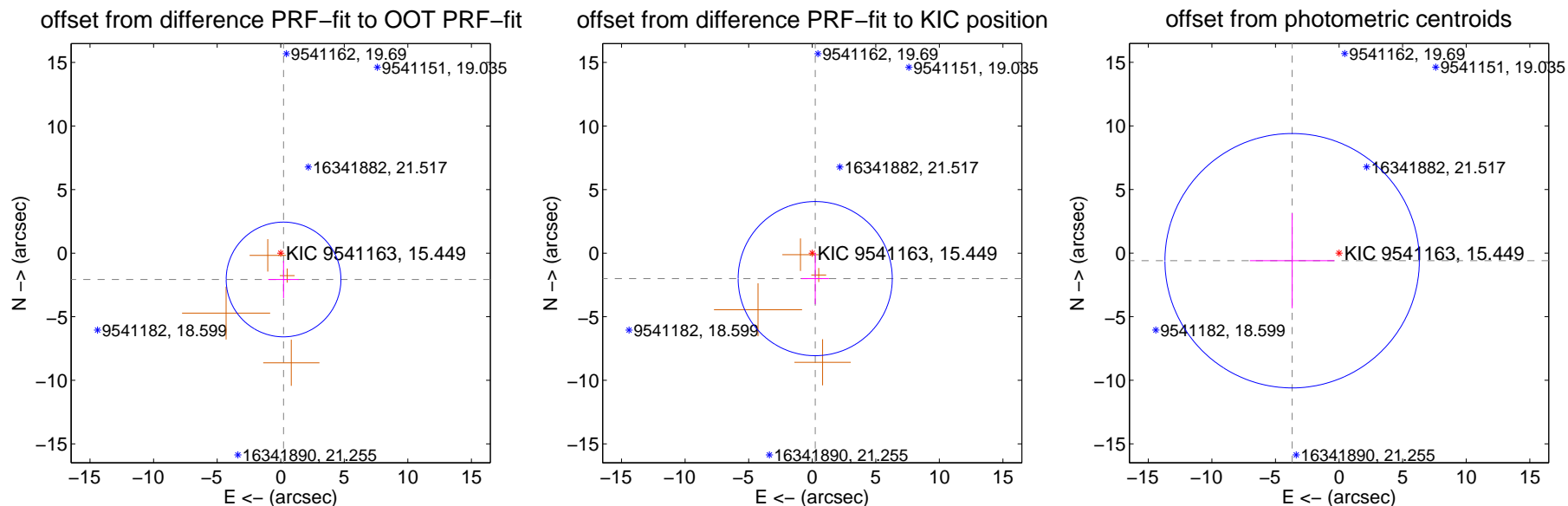
DV Centroid Data

Supplemental centroid analysis for 009541163-02. Kepler magnitude: 15.45. Transit SNR 1.51

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

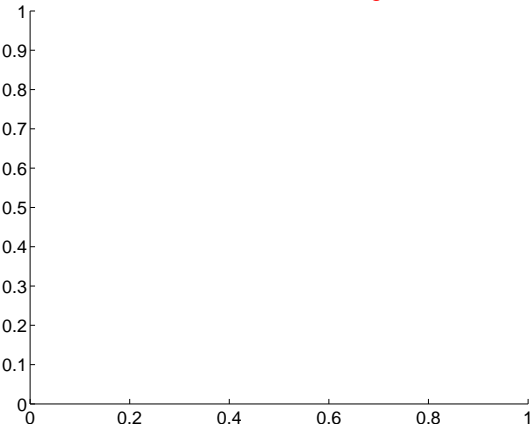
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.081 ± 1.504	1.38	-0.223 ± 1.202	-2.069 ± 1.459
PRF-fit source offset from KIC position	2.016 ± 2.021	1.00	-0.234 ± 1.079	-2.003 ± 2.012
photometric centroid source offset	3.74 ± 3.33	1.12	3.69 ± 3.32	-0.60 ± 3.74



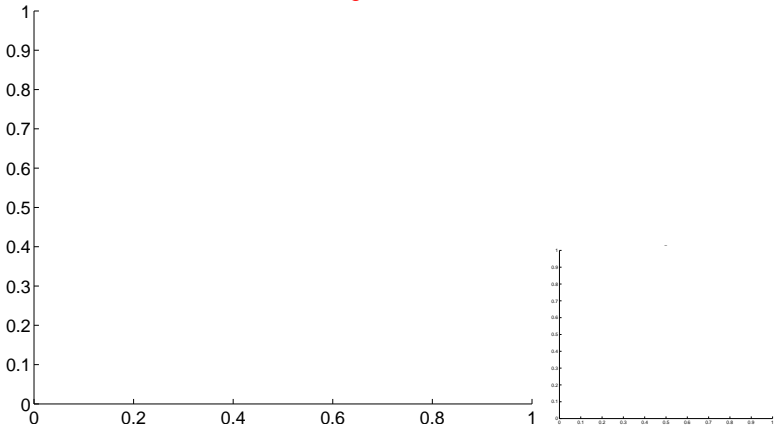
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

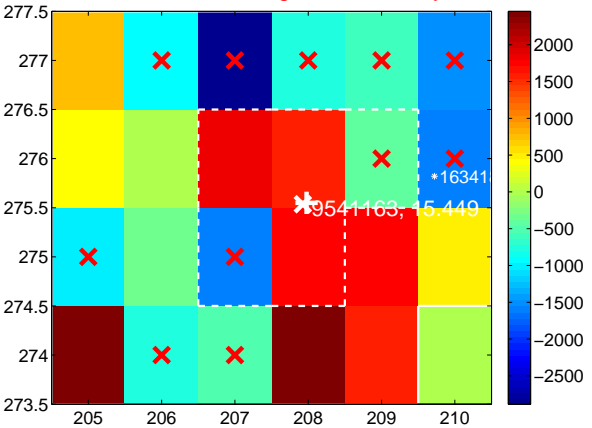
Q1 no difference image



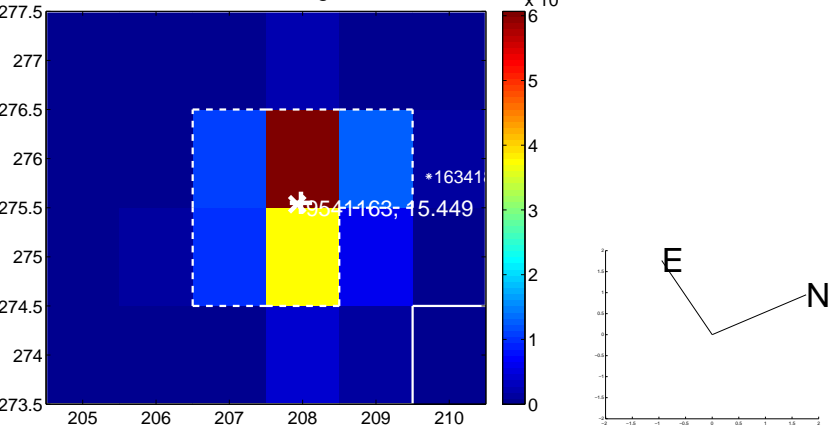
Q1 no OOT image



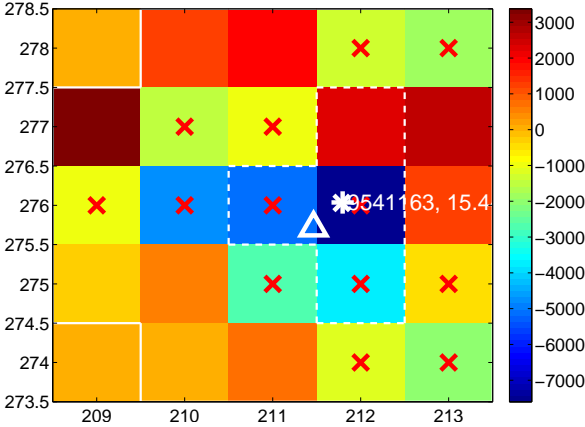
Q2 difference image. Poor Quality



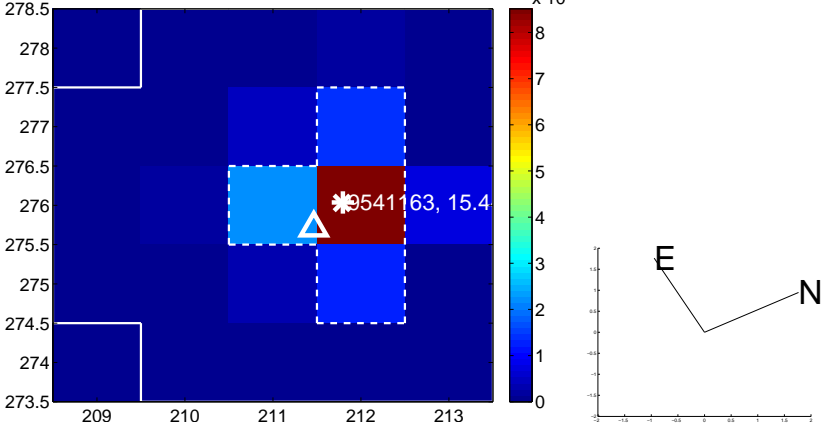
Q2 OOT image



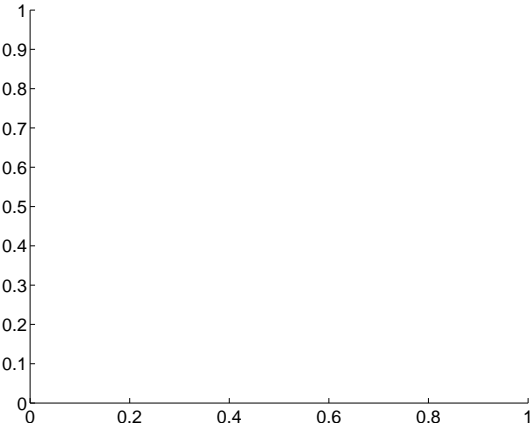
Q3 difference image. Poor Quality



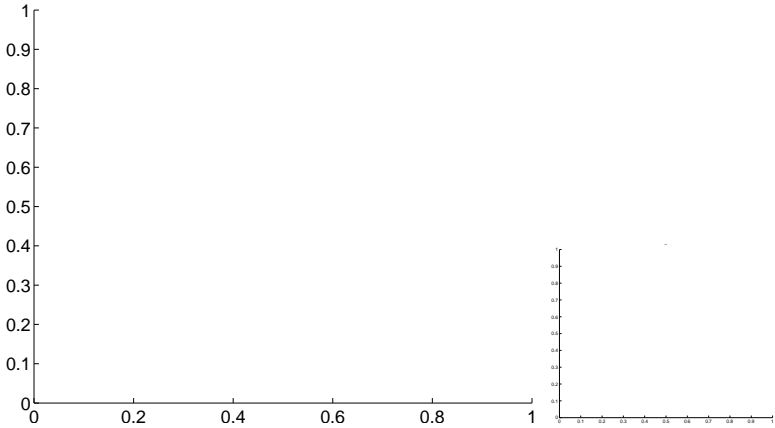
Q3 OOT image



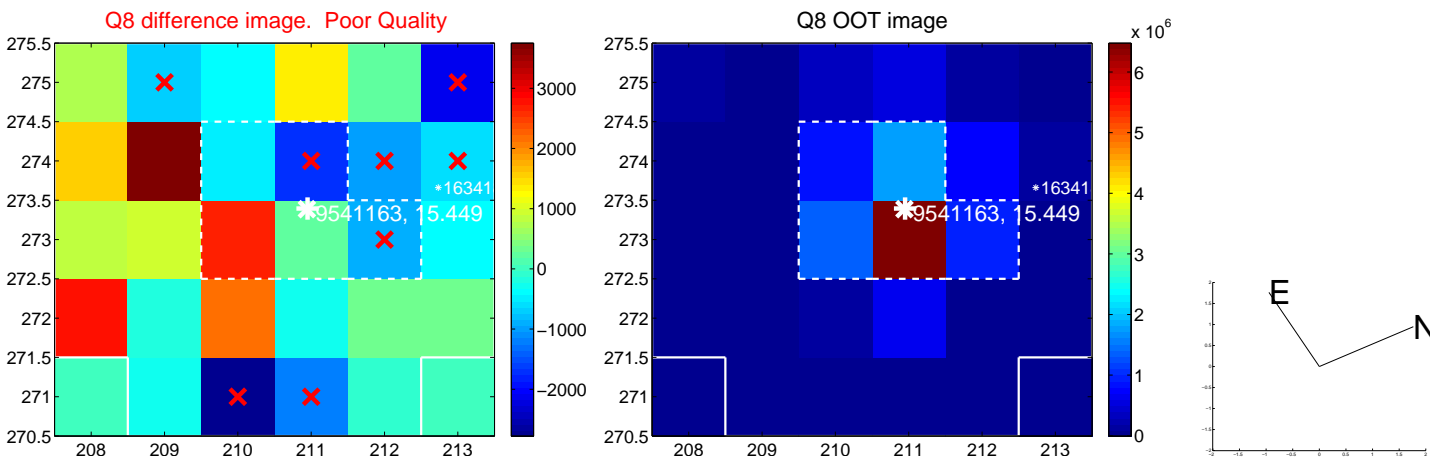
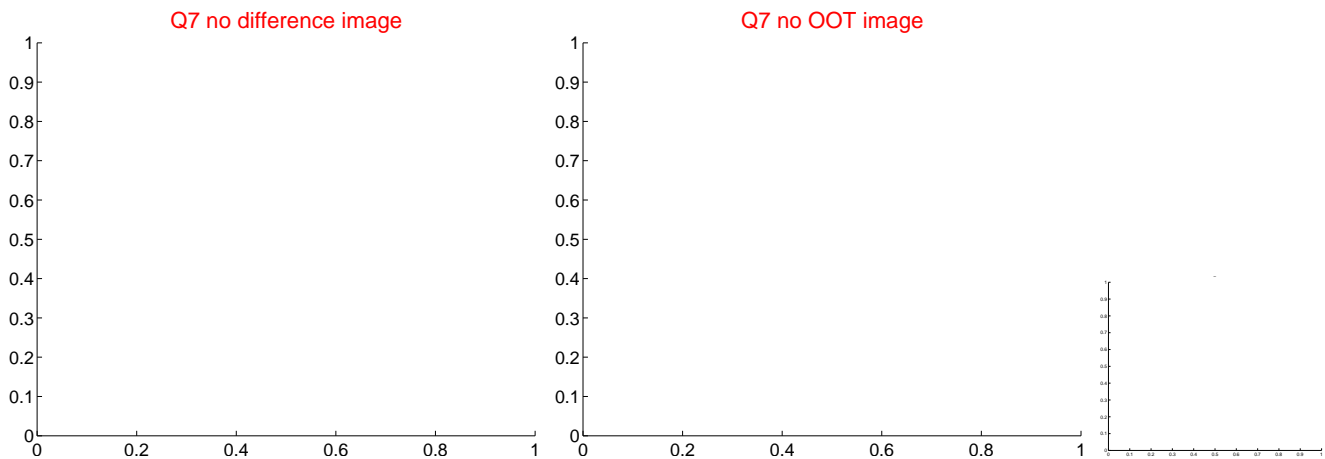
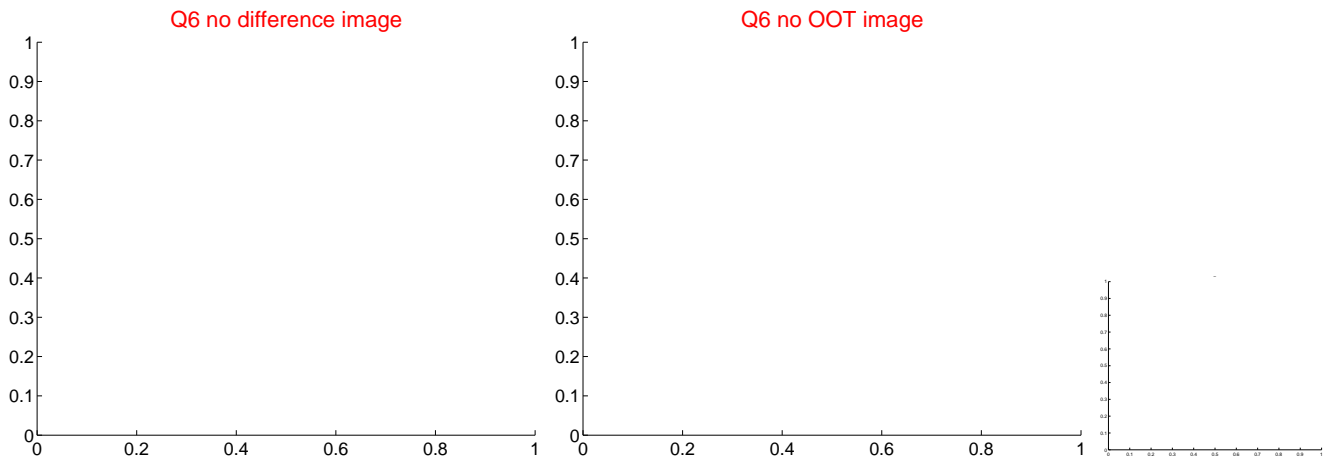
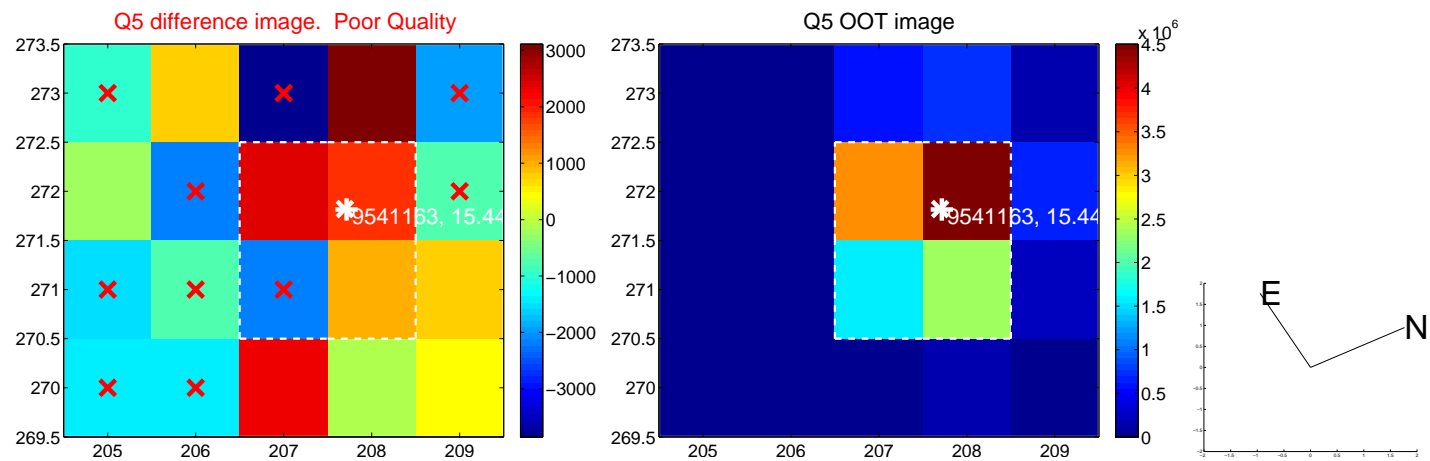
Q4 no difference image



Q4 no OOT image

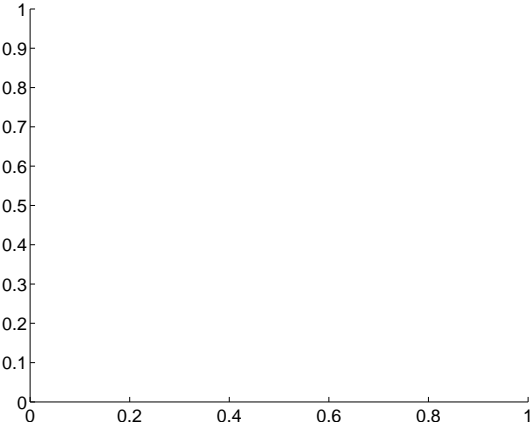


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

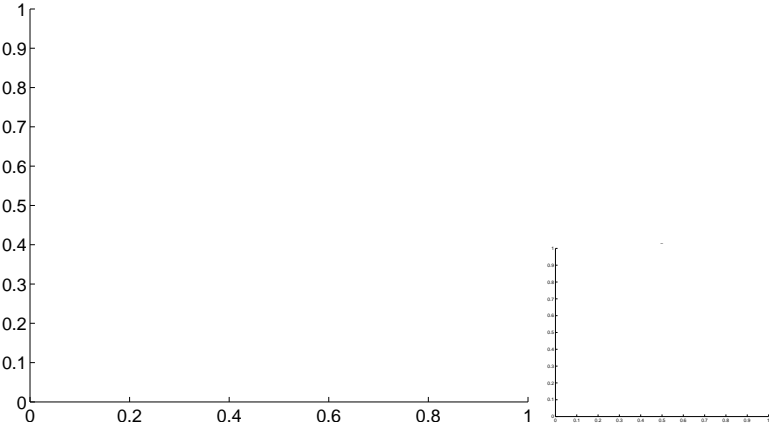


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

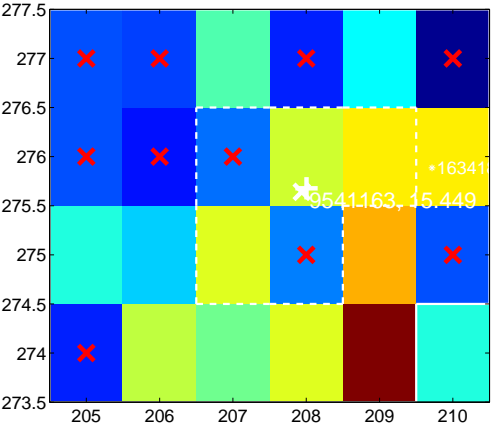
Q9 no difference image



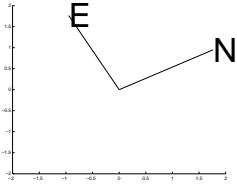
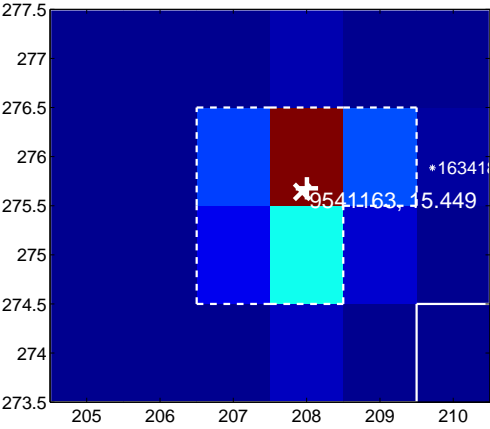
Q9 no OOT image



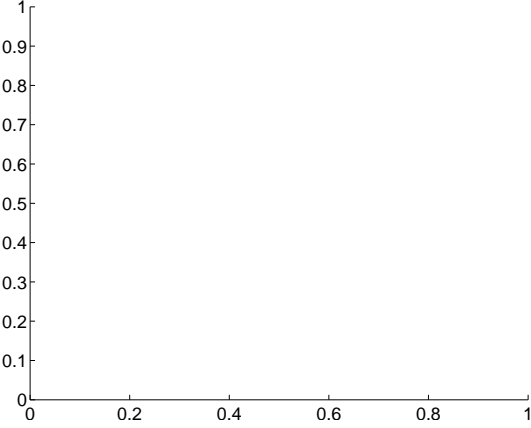
Q10 difference image. Poor Quality



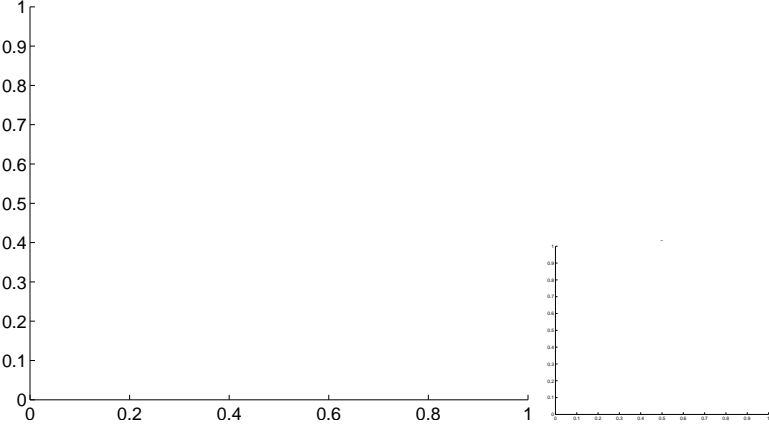
Q10 OOT image



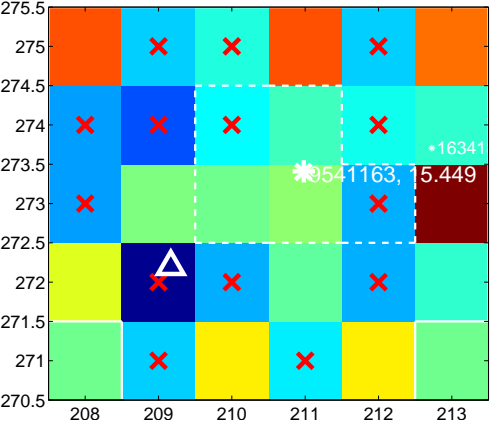
Q11 no difference image



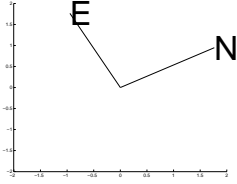
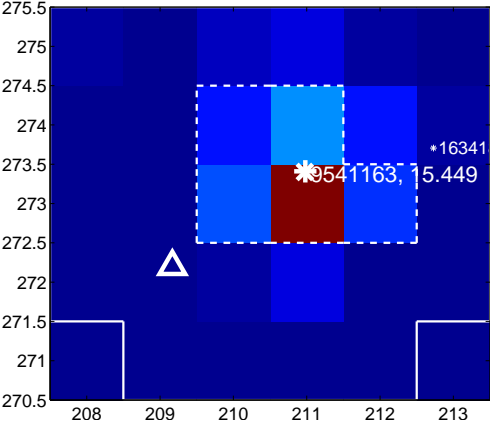
Q11 no OOT image



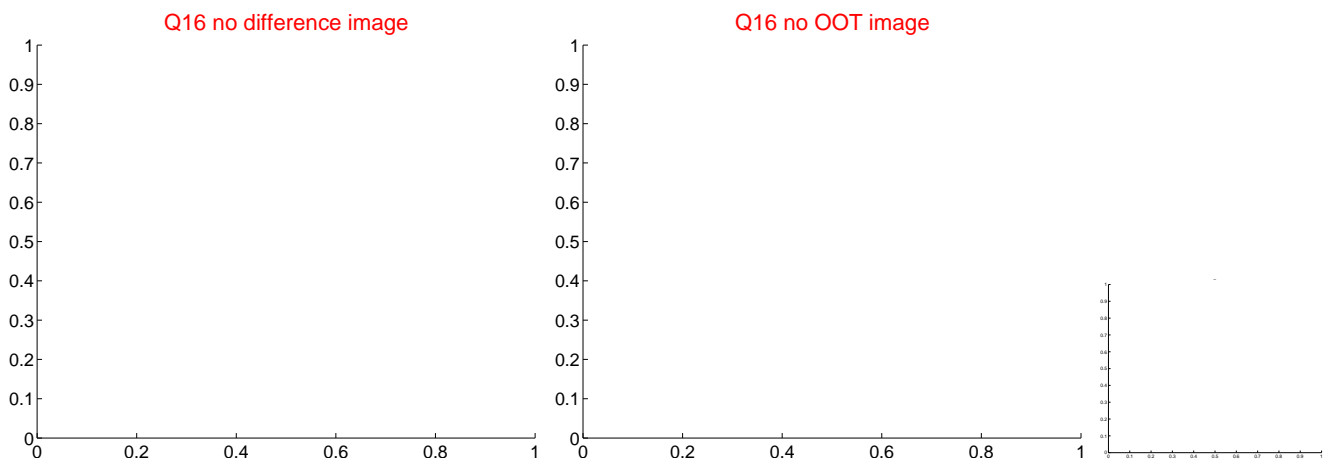
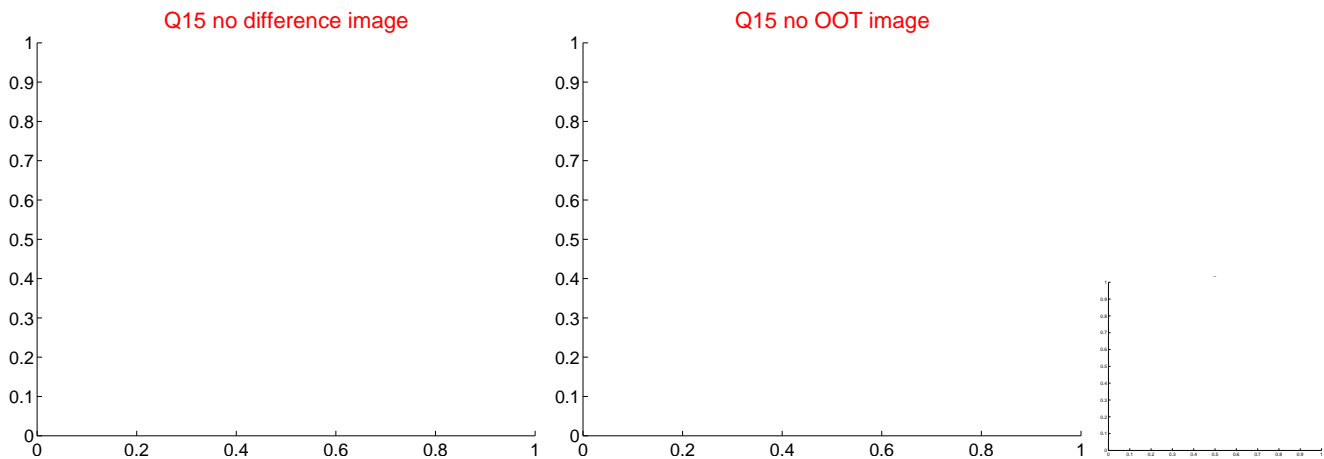
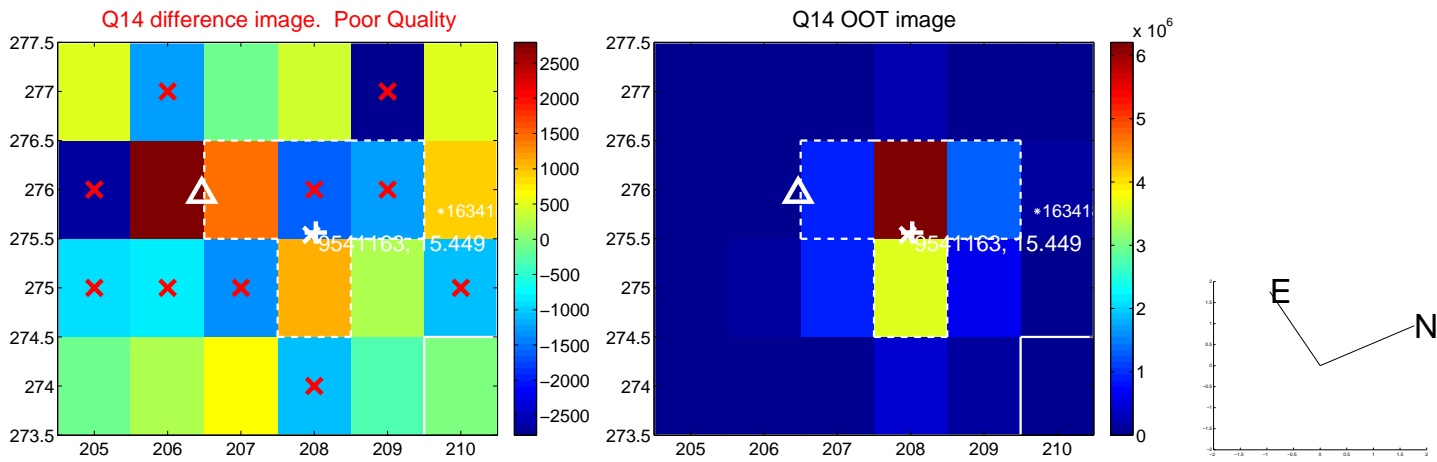
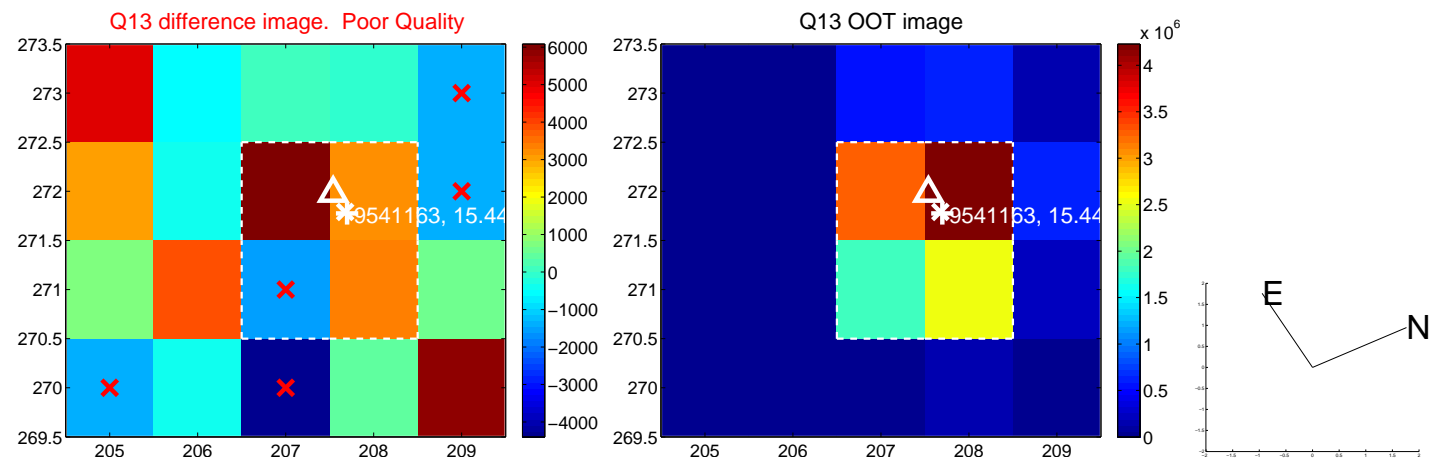
Q12 difference image. Poor Quality



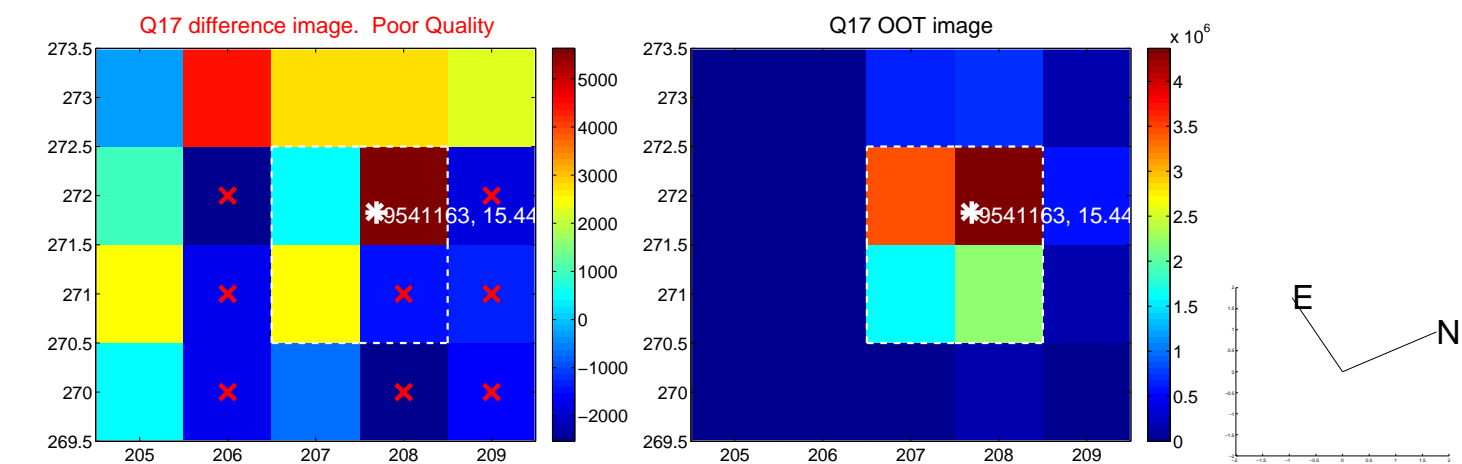
Q12 OOT image



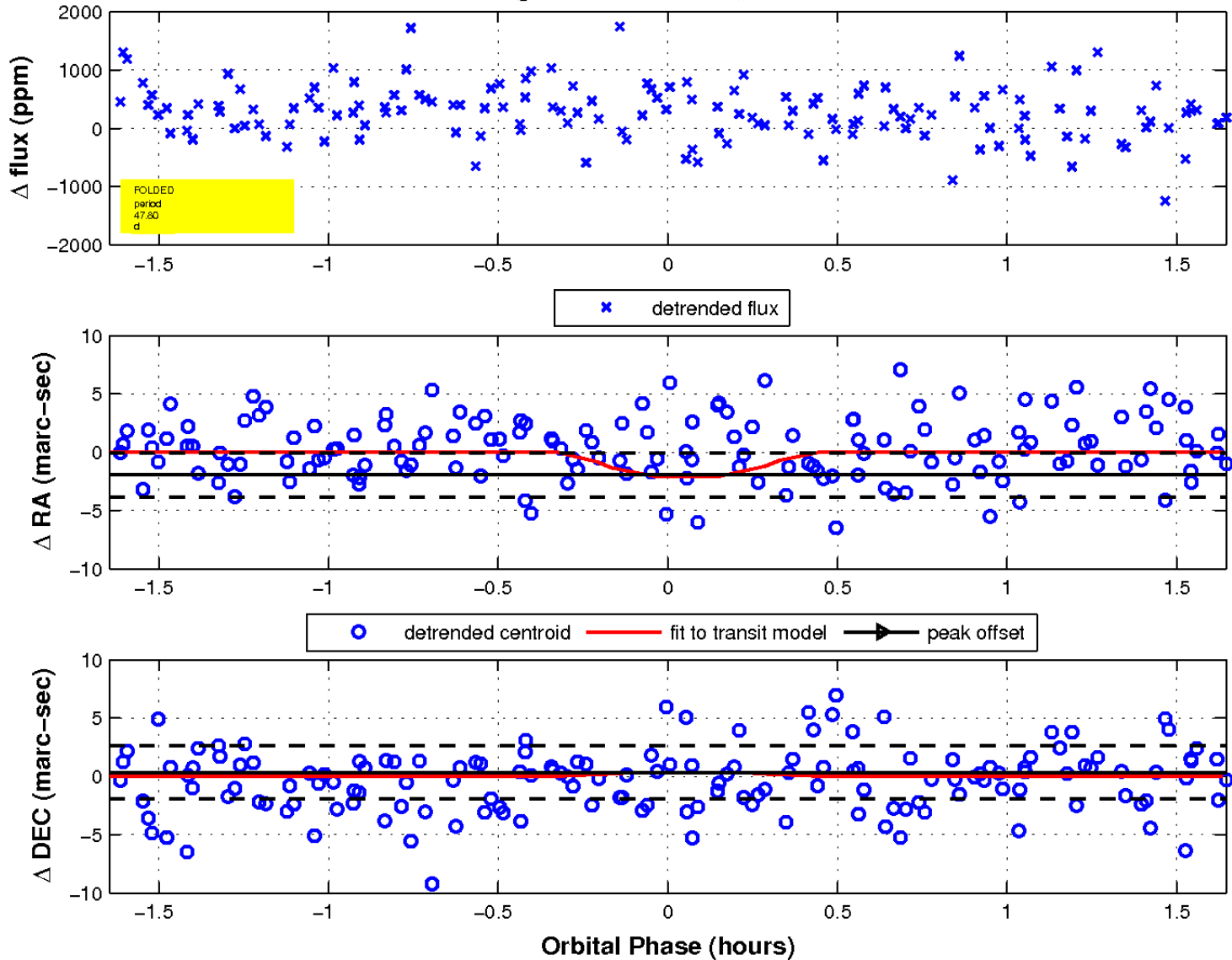
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

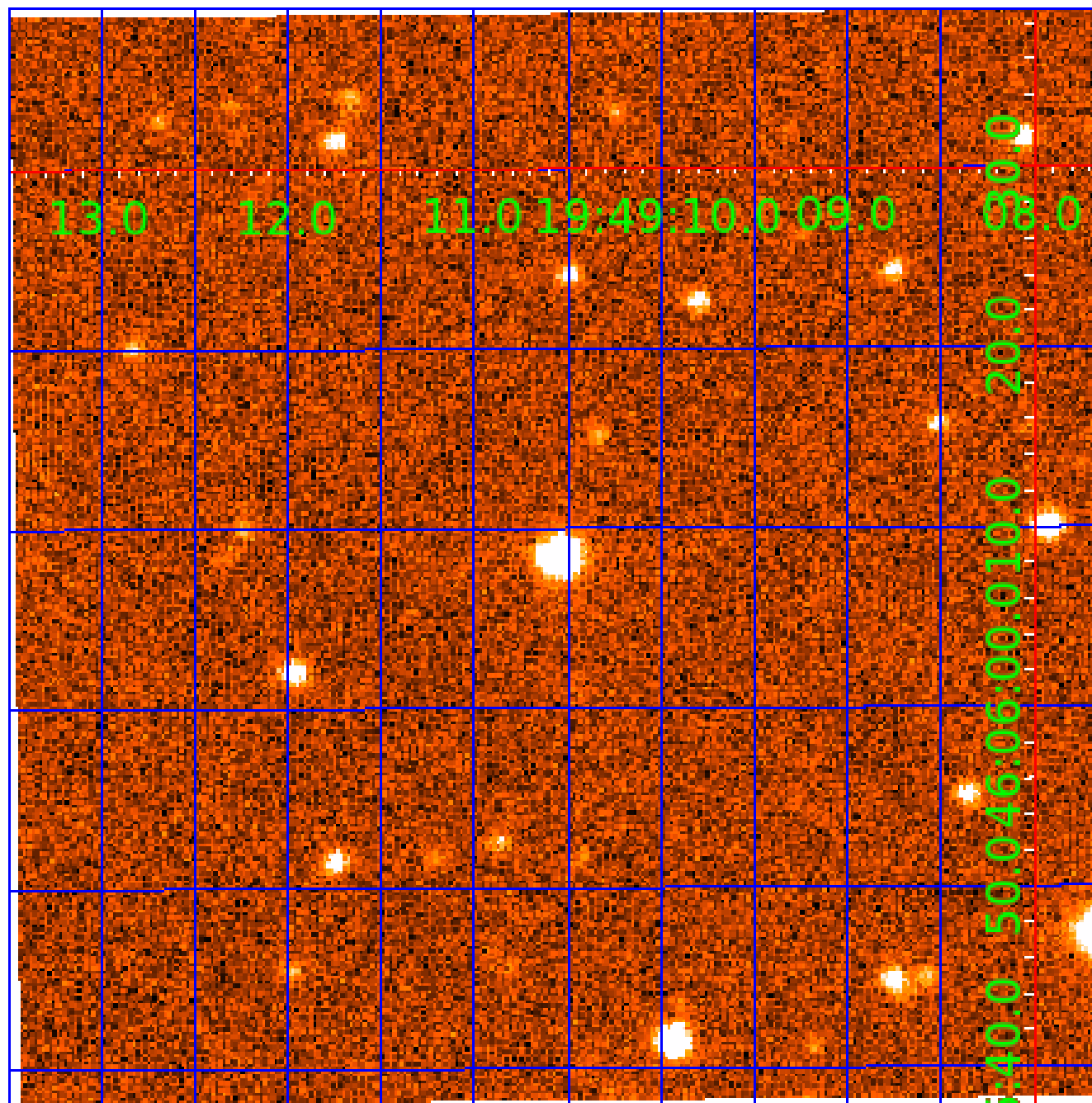


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 009541163

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})
009541163-01	OBS	7189.01	0.536664	131.705741	78.3	3.339	11.9	13.0	0.90	5822	0.79	4986.13
009541163-02	OBS	No	47.800354	176.549147	523.6	0.553	9.9	1.5	0.90	5822	2.16	12.54
009541163-03	OBS	No	23.902559	152.423334	416.0	9.412	8.5	3.0	0.90	5822	1.93	31.58

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009541163-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
009541163-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS
009541163-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD

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.

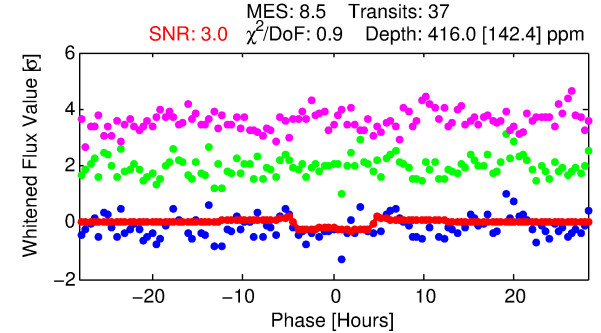
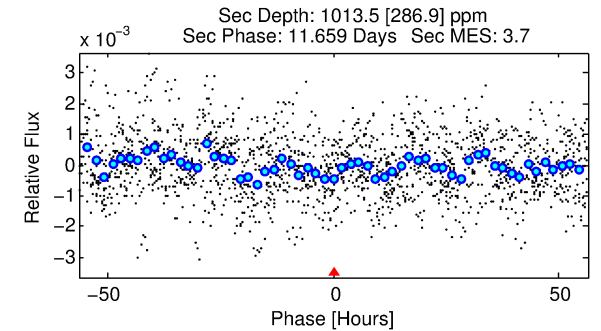
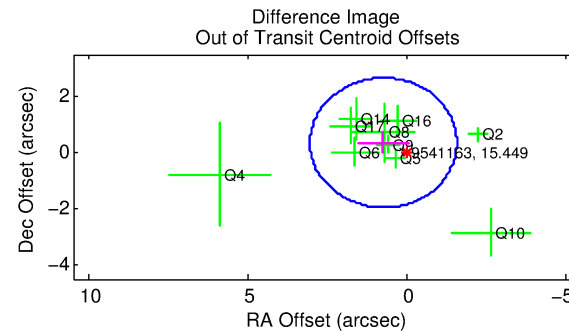
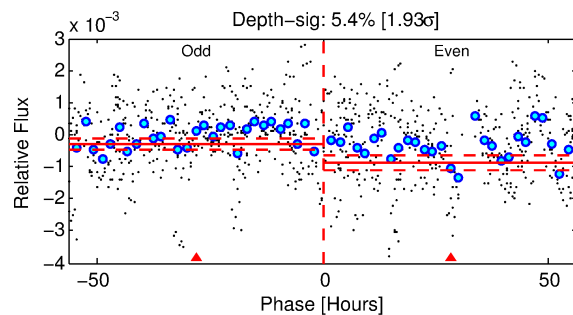
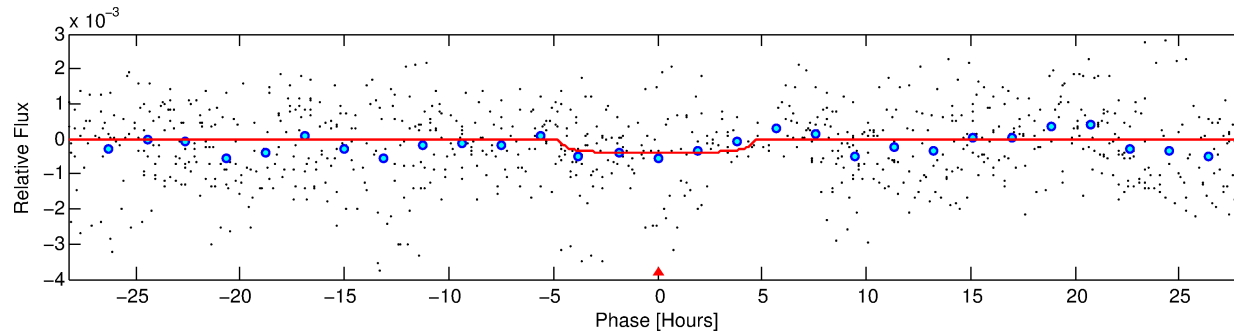
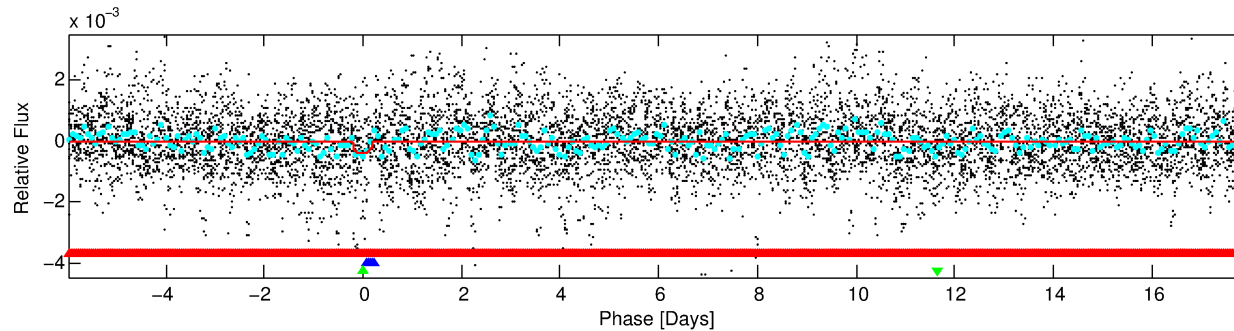
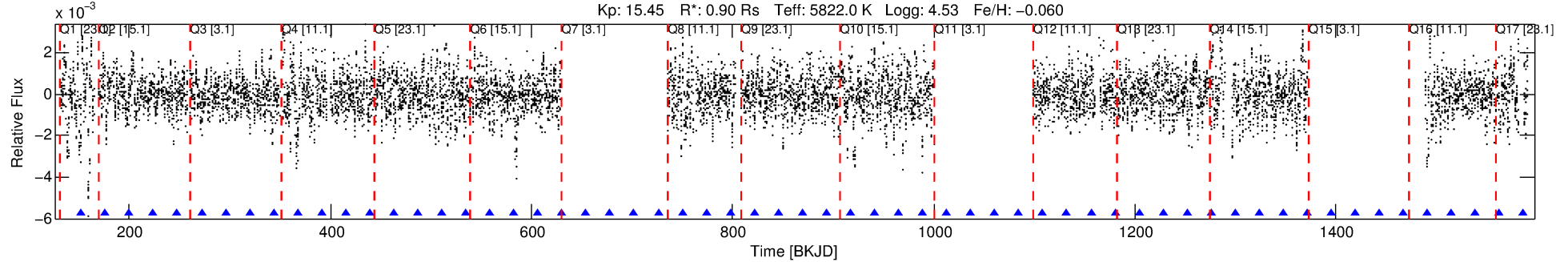
Ephemeris Match Information For 009541163-03

No Significant Match Found

DV One-Page Summary

KIC: 9541163 Candidate: 3 of 3 Period: 23.903 d
KOI: K07189 Corr: No Ephemeris Match

Kp: 15.45 R*: 0.90 Rs Teff: 5822.0 K Logg: 4.53 Fe/H: -0.060



DV Fit Results:

Period = 23.90256 [0.00091] d
Epoch = 152.4233 [0.0290] BKJD
Rp/R* = 0.0197 [0.0221]
a/R* = 15.16 [74.92]
b = 0.66 [4.33]
Seff = 31.58 [11.01]
Teq = 604 [53] K
Rp = 1.93 [2.22] Re
a = 0.1621 [0.0355] AU
Ag = 3927.27 [8974.65] [0.44σ]
Teffp = 7399 [4192] K [1.62σ]

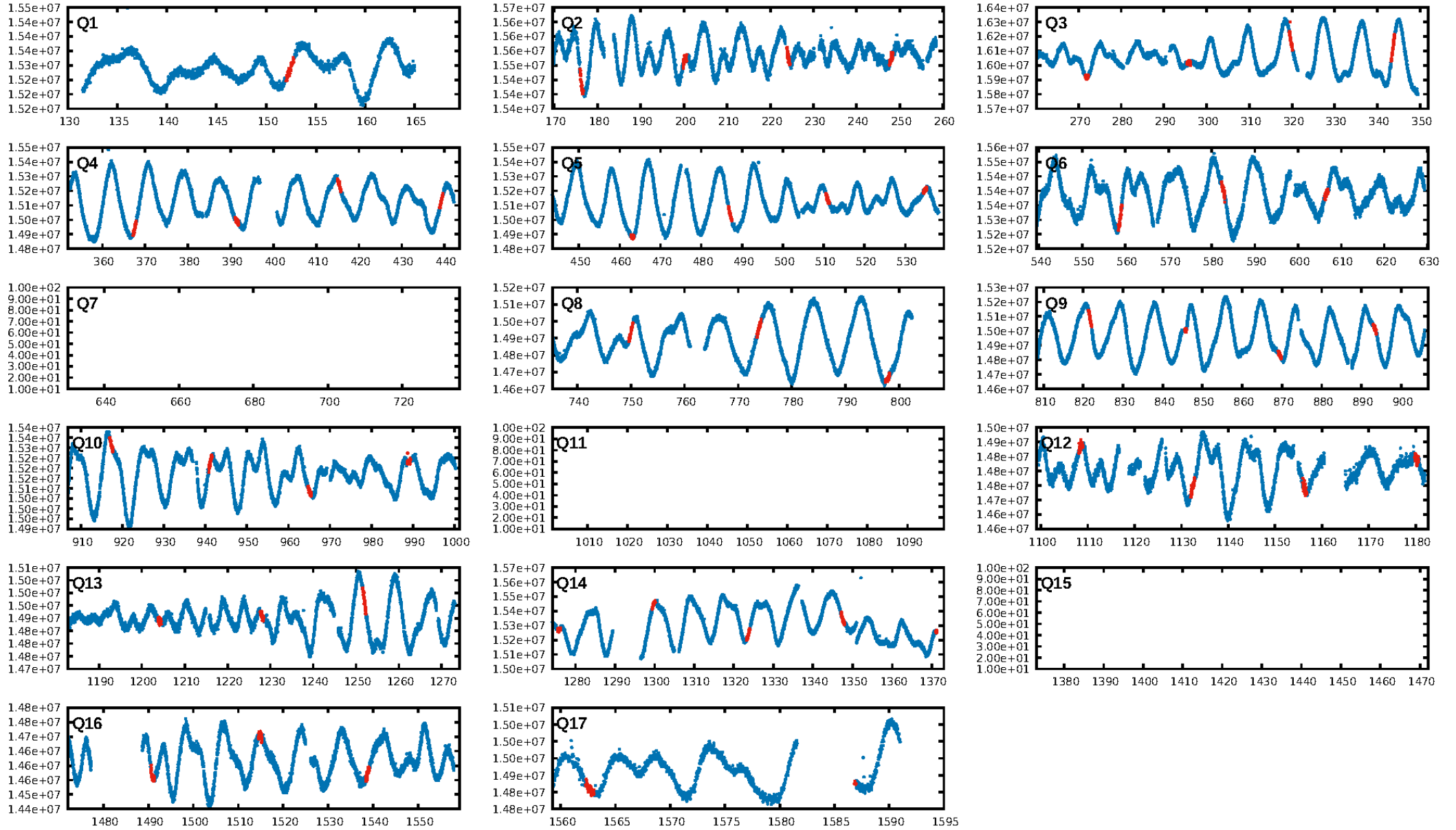
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.15σ]
LongPeriod-sig: 100.0% [60.83σ]
ModelChiSquare2-sig: 1.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.81e-14
RollingBand-fgt: 1.00 [36/36]
GhostDiagnostic-chr: 5.402
Centroid-sig: 82.5%
Centroid-so: 0.318 arcsec [0.45σ]
OotOffset-rm: 0.820 arcsec [1.07σ]
OotOffset-st: 4/0/3/3 [10]
KicOffset-rm: 0.860 arcsec [1.47σ]
KicOffset-st: 4/0/3/3 [10]
DiffImageQuality-fgm: 0.70 [7/10]
DiffImageOverlap-fno: 0.00 [0/14]

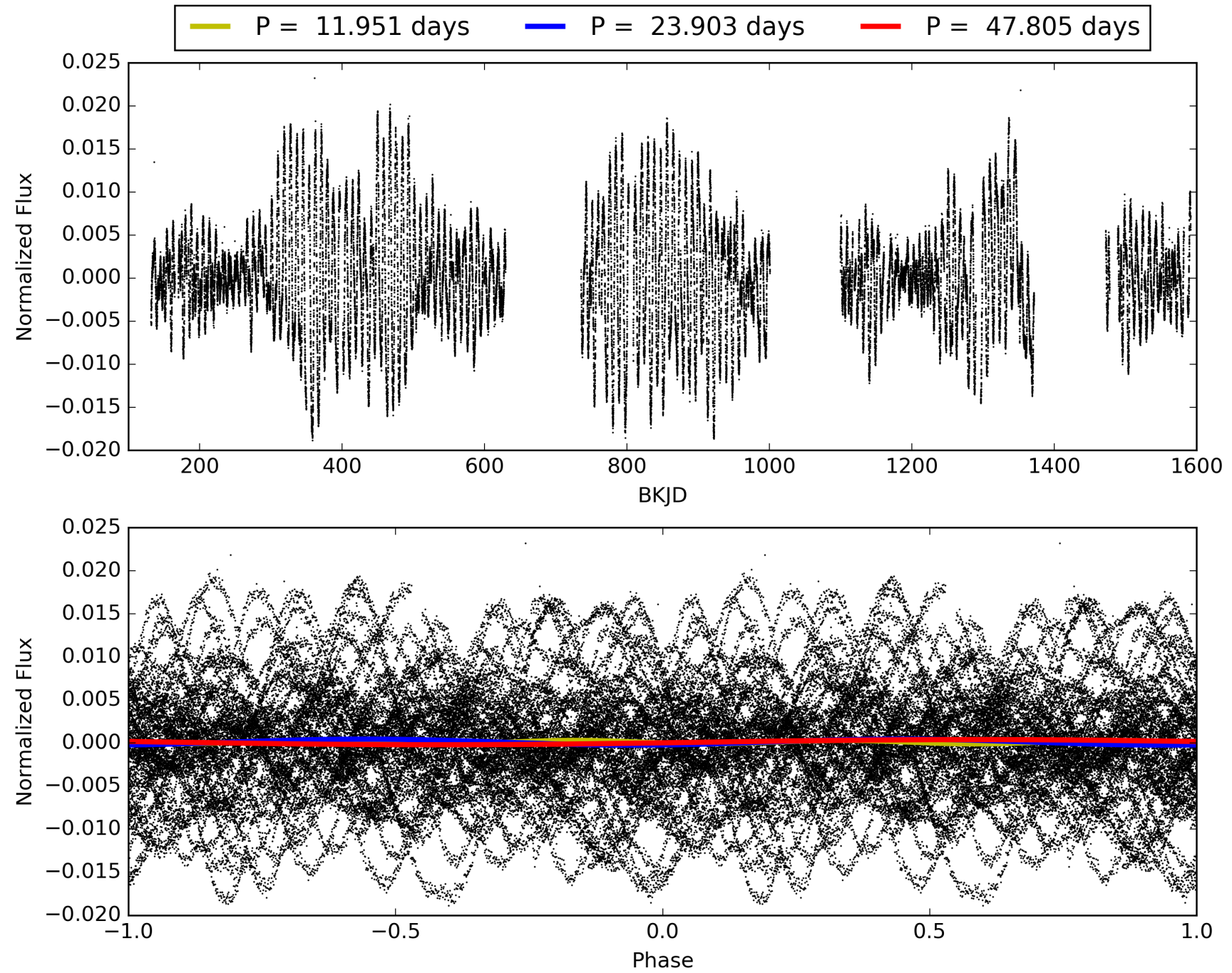
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 01:57:47 Z

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

TCE 009541163-03, PDC Light Curves

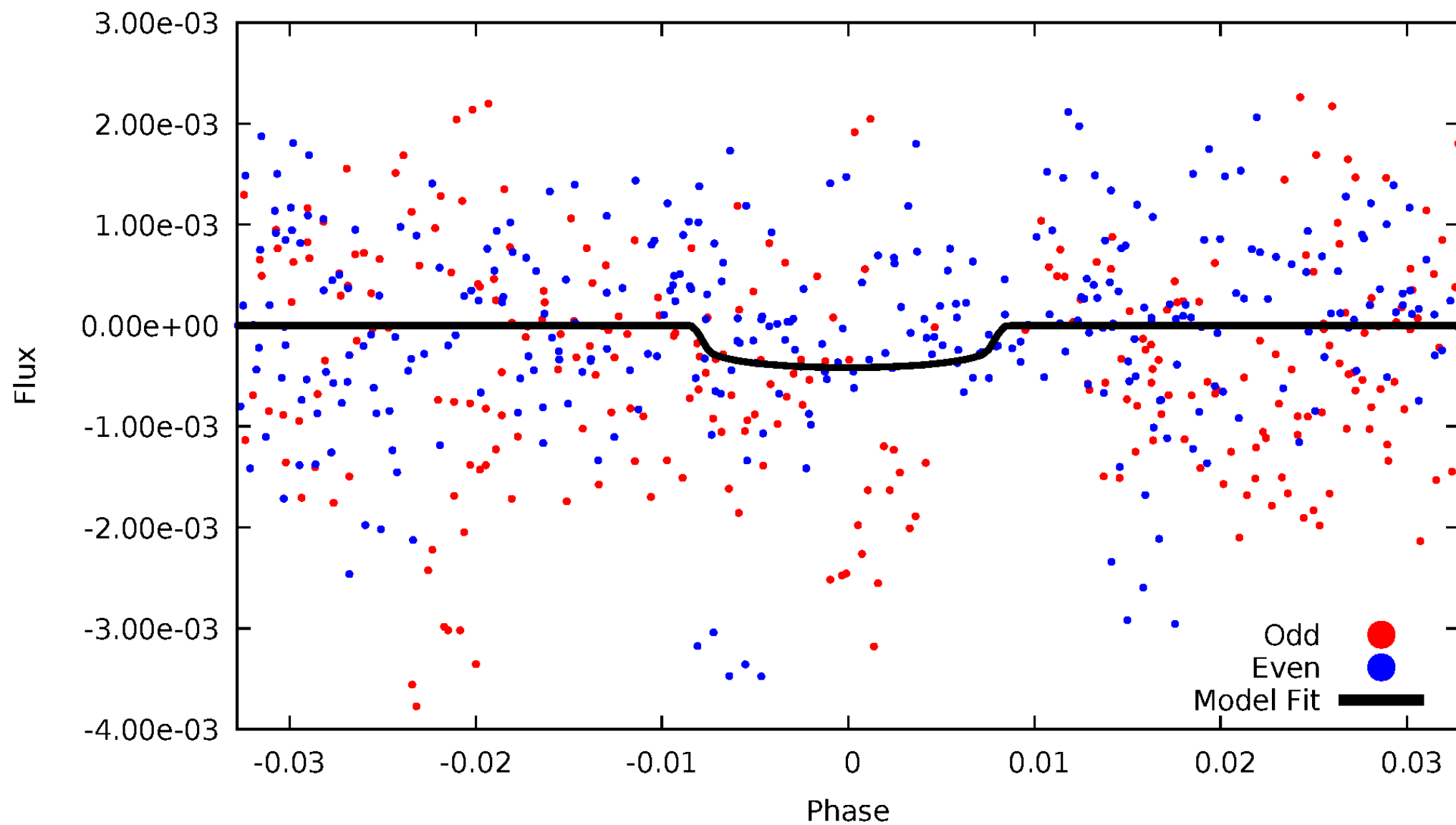


TCE 009541163-03



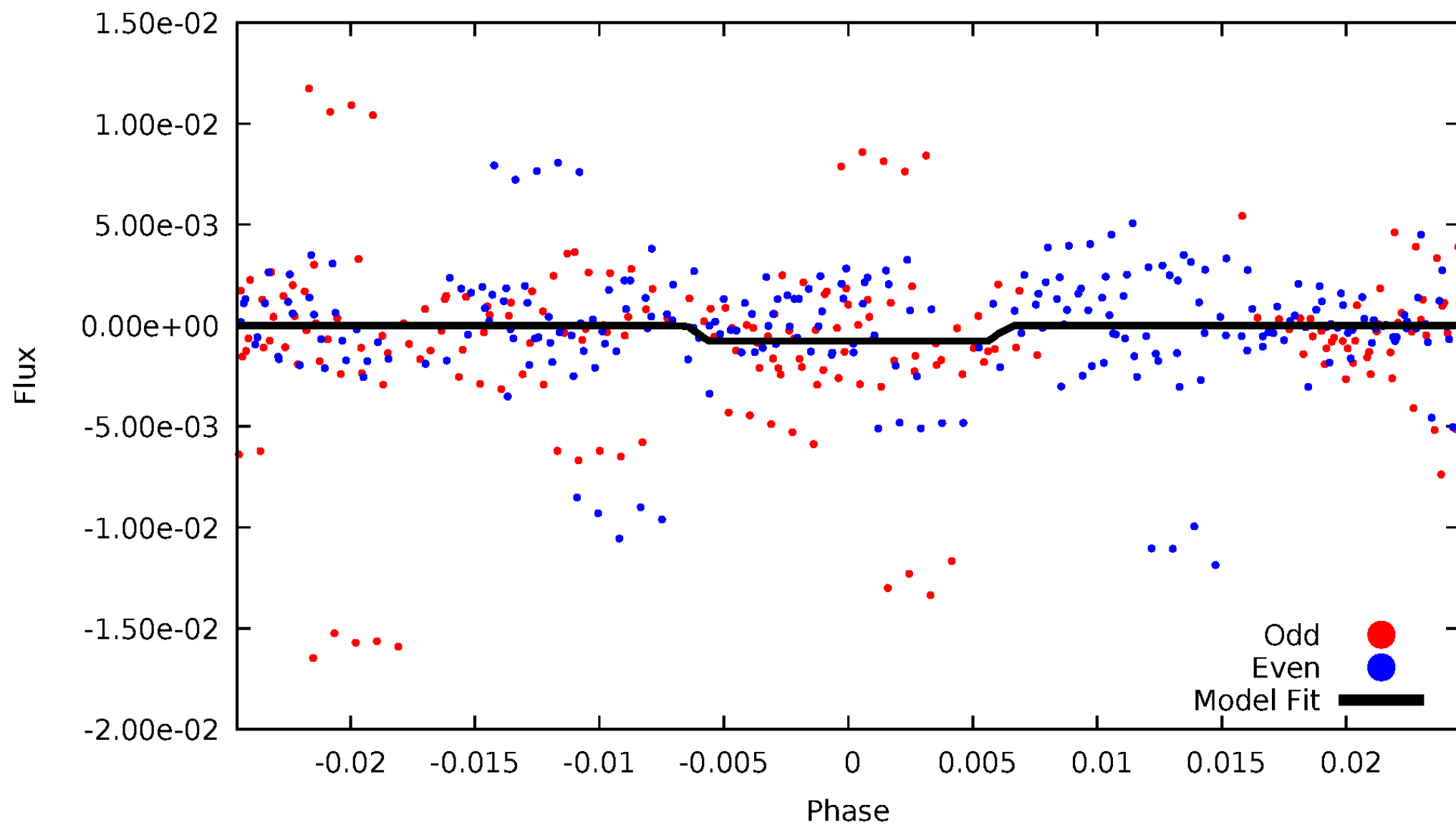
DV Odd/Even

TCE 009541163-03



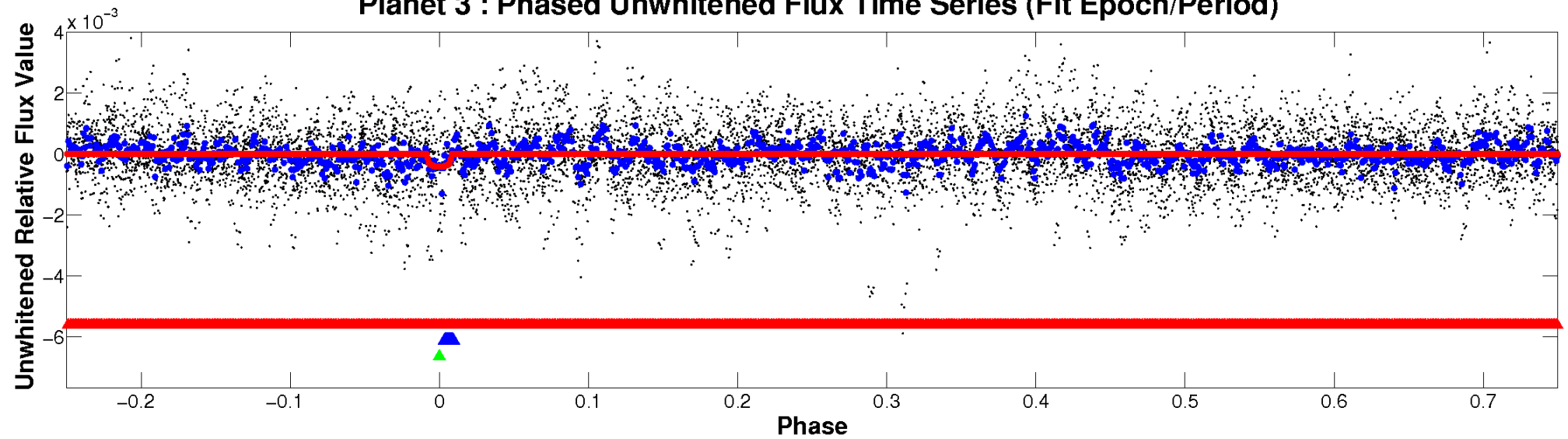
ALT Odd/Even

TCE 009541163-03

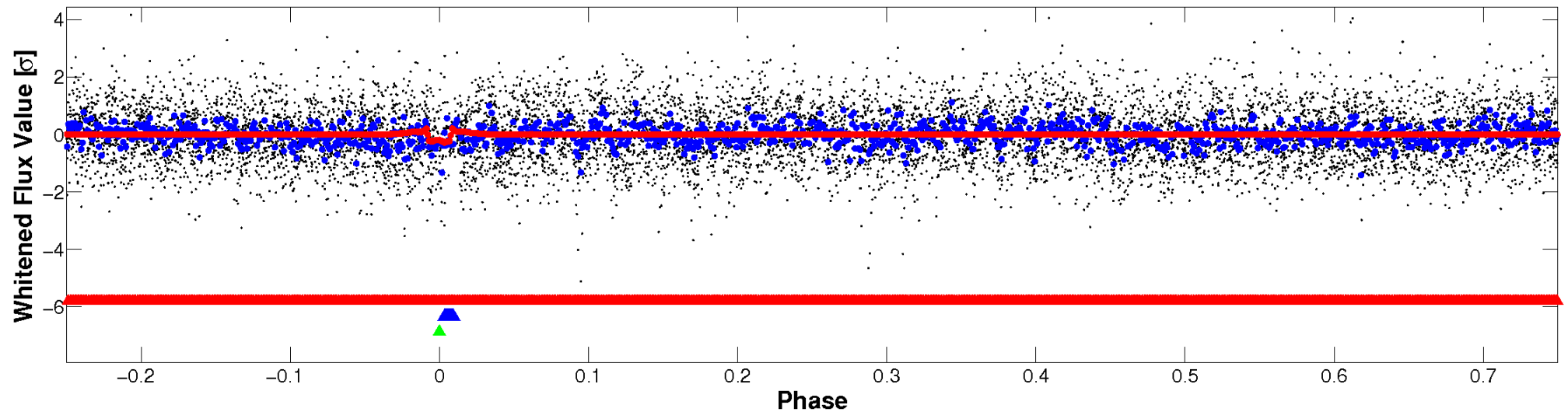


Non-Whitened Vs. Whitened Light Curve

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

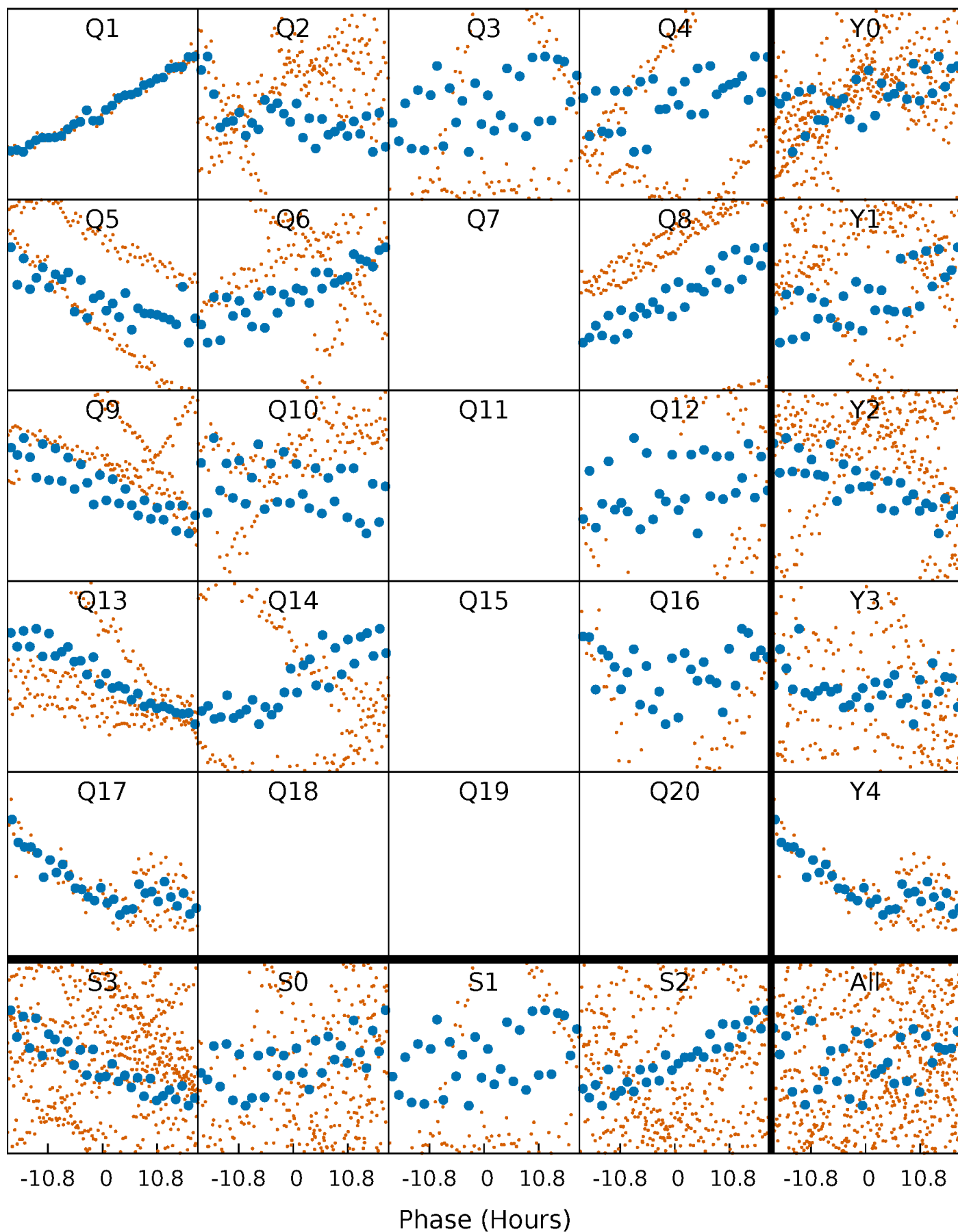


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



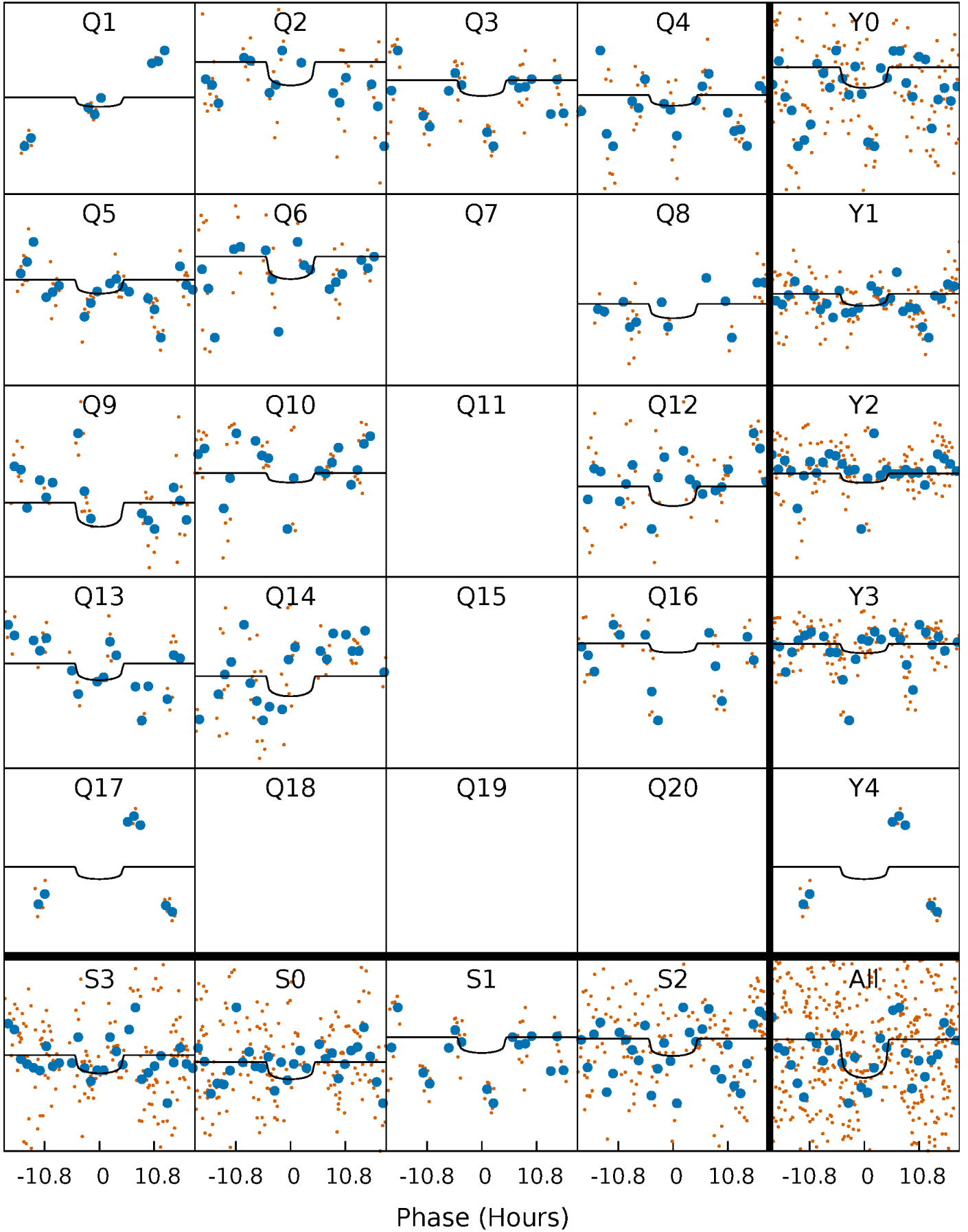
PDC Quarter-Phased Transit Curves

TCE 009541163-03 P= 23.902559 Days $T_0=152.423334$ (BKJD)



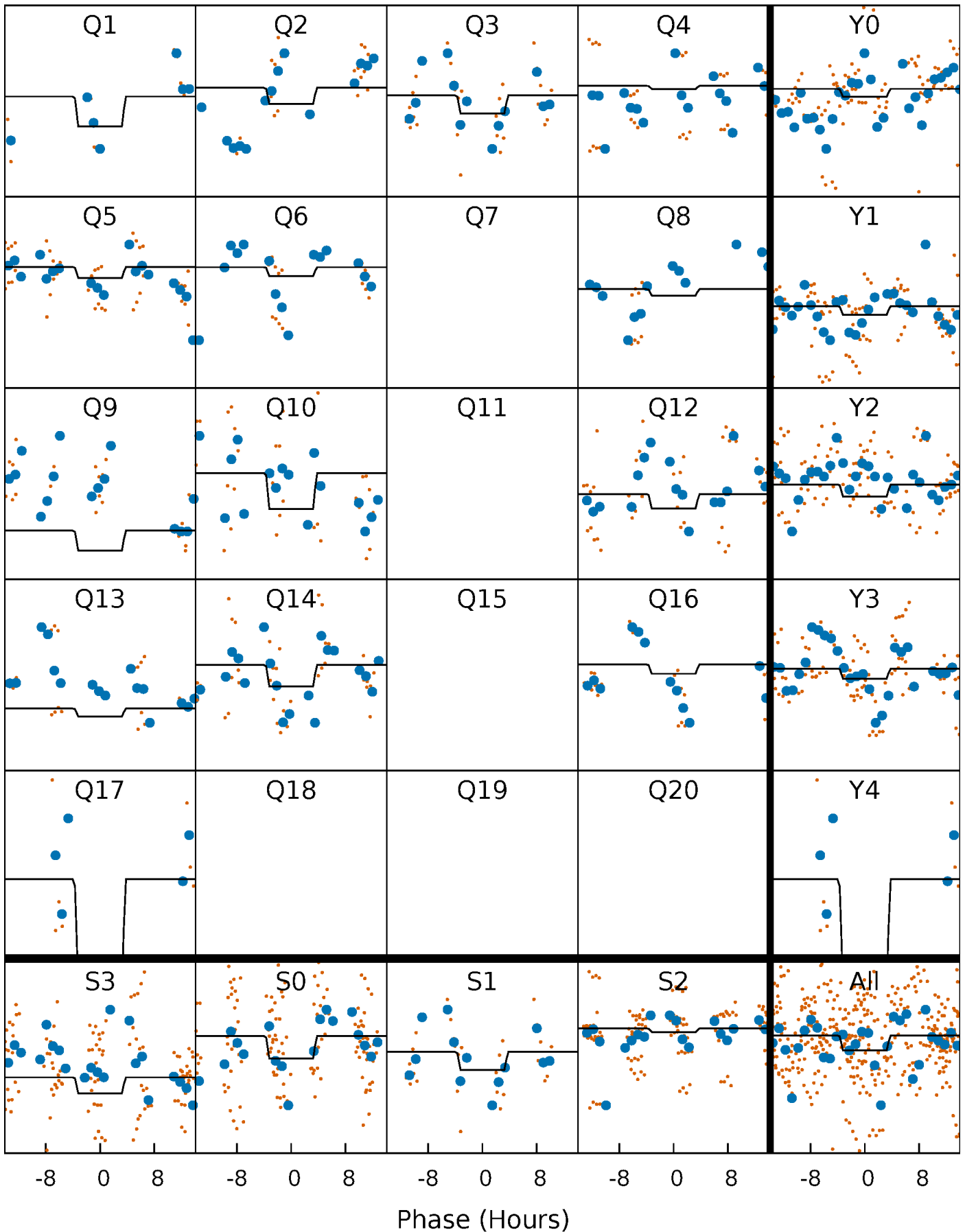
DV Quarter-Phased Transit Curves

TCE 009541163-03 P= 23.902559 Days $T_0=152.423334$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

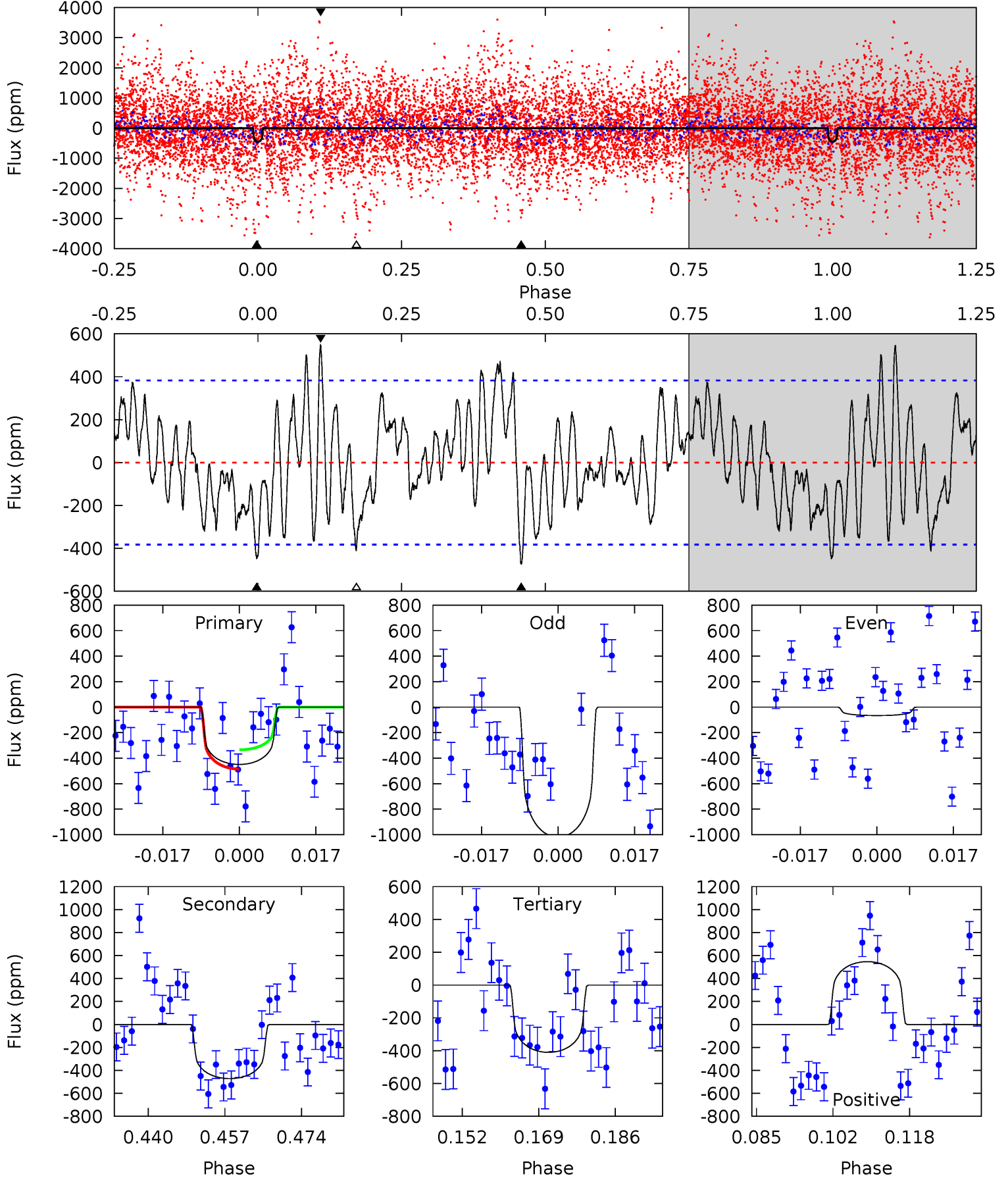
TCE 009541163-03 P= 23.898806 Days $T_0=152.411230$ (BKJD)



DV Model-Shift Uniqueness Test

009541163-03, P = 23.902559 Days, E = 128.520775 Days

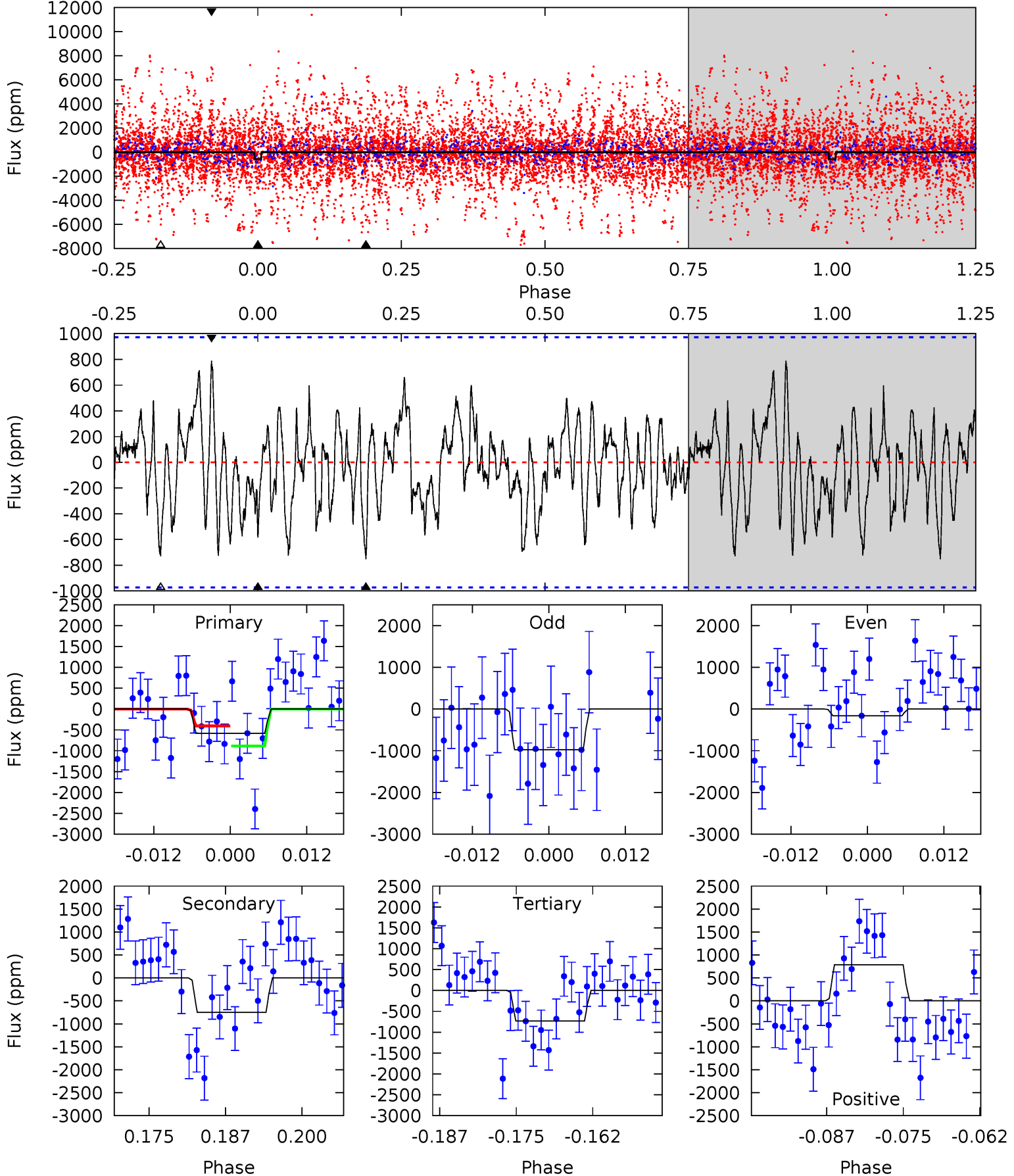
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.78	6.07	5.28	7.04	4.92	2.39	2.40	0.50	-1.25	0.79	-0.96	5.85	1.87	0.54	0.94



Alt Model-Shift Uniqueness Test

009541163-03, P = 23.898806 Days, E = 128.512424 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.99	3.86	3.74	4.04	4.98	2.50	1.46	-0.75	-1.06	0.12	-0.19	2.05	1.15	0.51	1.21



Stellar Parameters For KIC 009541163

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5822^{+140}_{-192}	$4.529^{+0.042}_{-0.178}$	$-0.060^{+0.300}_{-0.300}$	$0.898^{+0.231}_{-0.077}$	$0.994^{+0.104}_{-0.116}$	$1.933^{+0.423}_{-0.859}$
	+2%/-3%	+1%/-4%	+500%/-500%	+26%/-9%	+10%/-12%	+22%/-44%
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 009541163-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-472 ± 78	$2.43^{+2.24}_{-1.58}$	863^{+52}_{-41}	5579^{+4909}_{-1343}	1148^{+8758}_{-829}
Alt.	-752 ± 195	$3.04^{+2.18}_{-1.73}$	859^{+58}_{-35}	5556^{+3413}_{-1094}	1112^{+5589}_{-737}

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

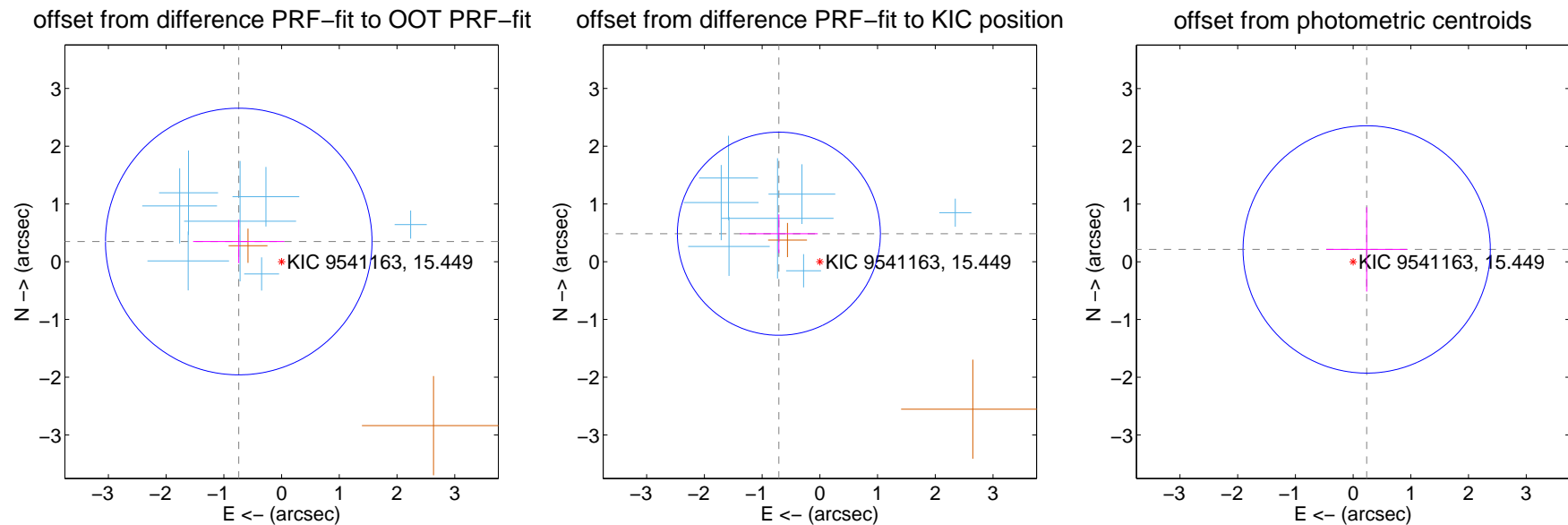
DV Centroid Data

Supplemental centroid analysis for 009541163-03. Kepler magnitude: 15.45. Transit SNR 2.98

There are 7 quarters with good PRF difference image offsets

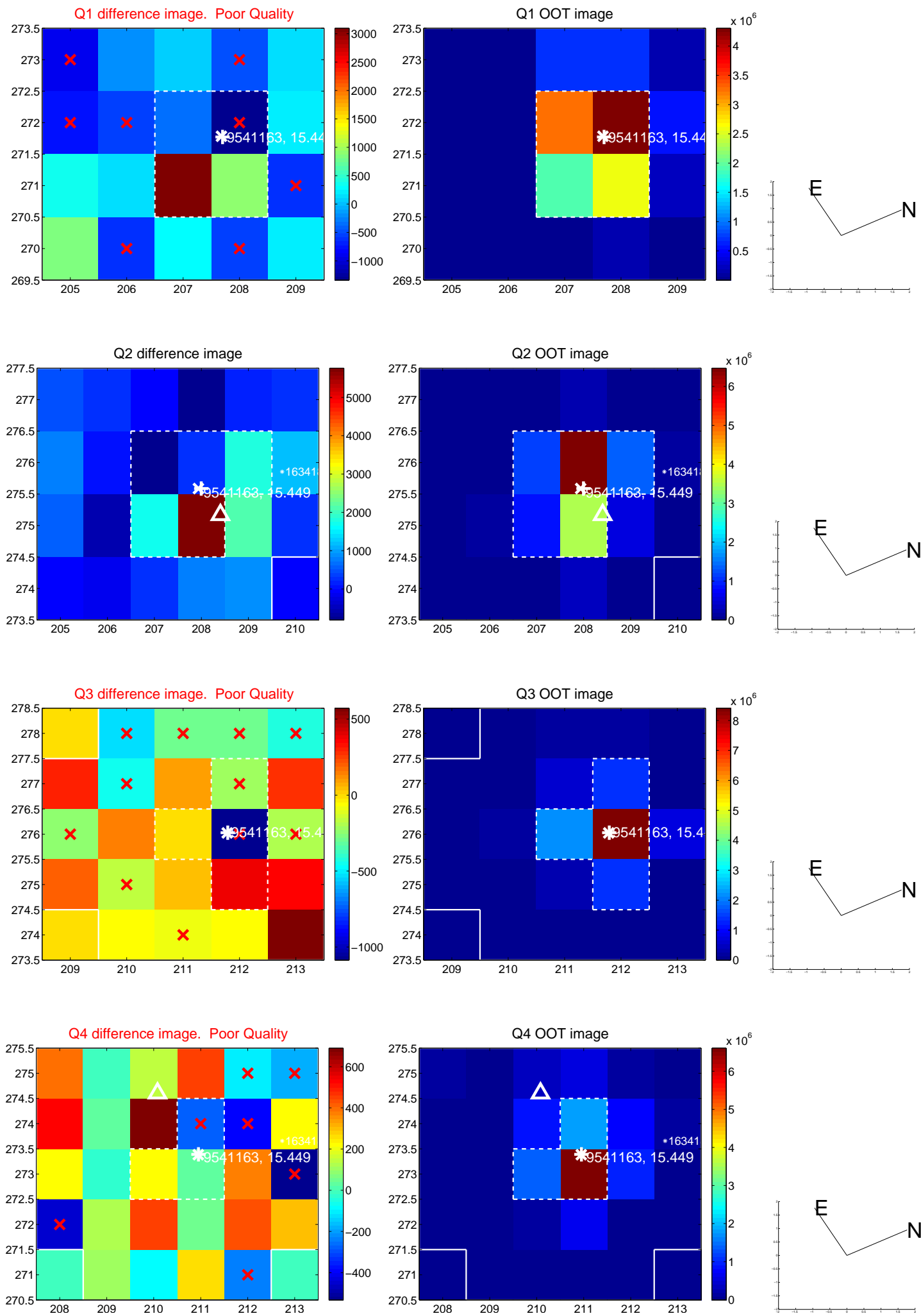
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.820 ± 0.770	1.07	0.742 ± 0.790	0.350 ± 0.374
PRF-fit source offset from KIC position	0.860 ± 0.586	1.47	0.710 ± 0.673	0.485 ± 0.335
photometric centroid source offset	0.32 ± 0.71	0.45	-0.24 ± 0.70	0.21 ± 0.73

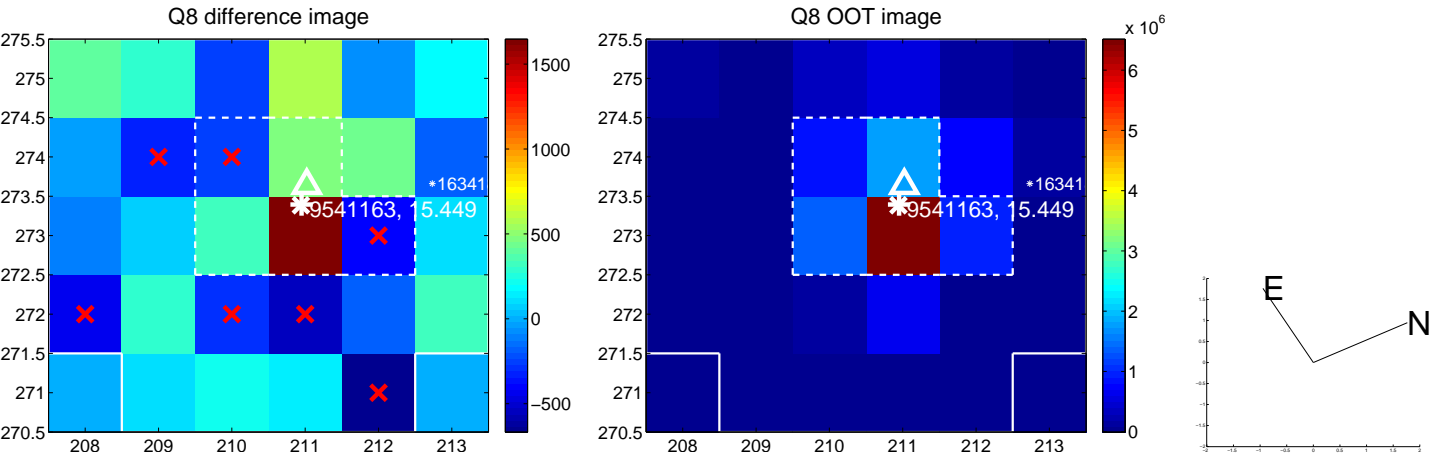
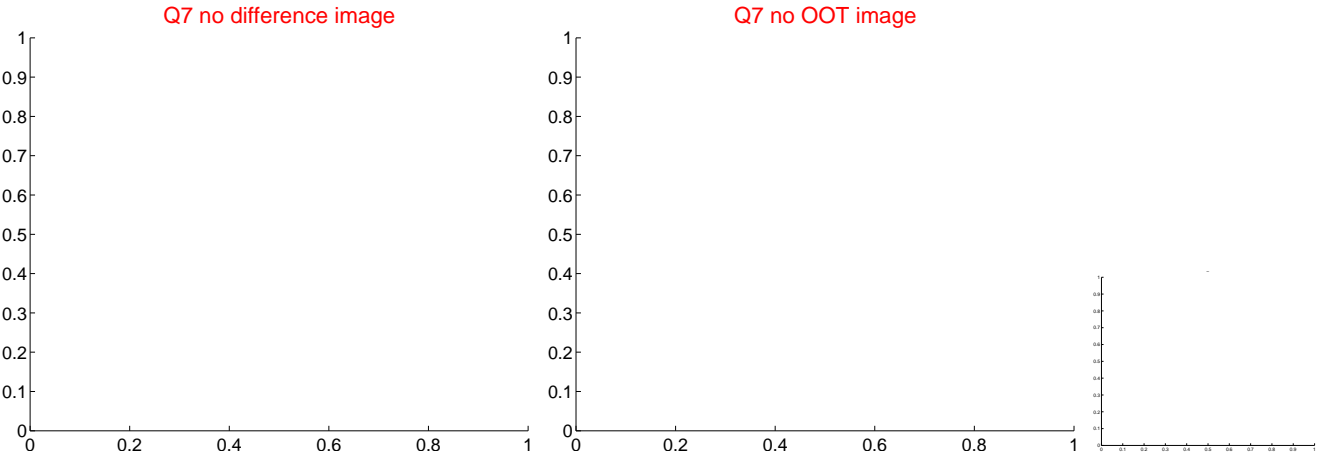
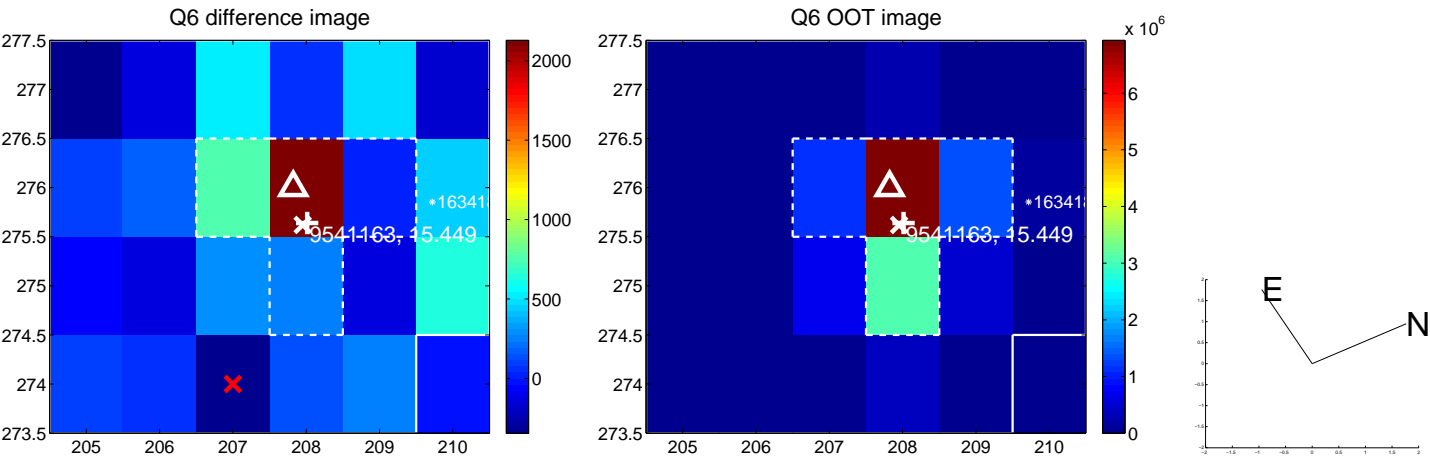
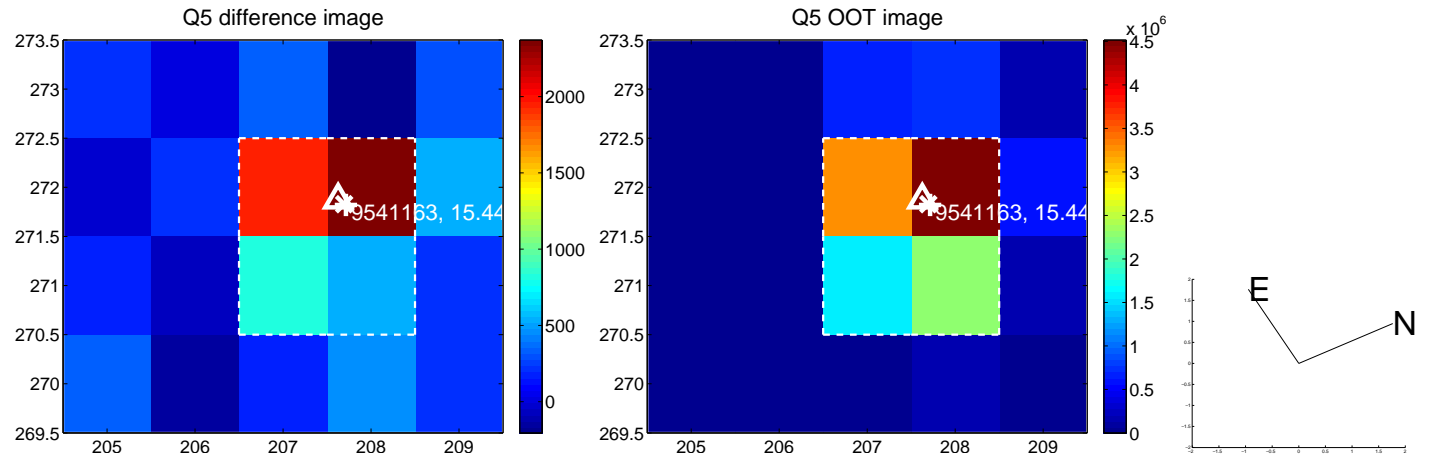


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

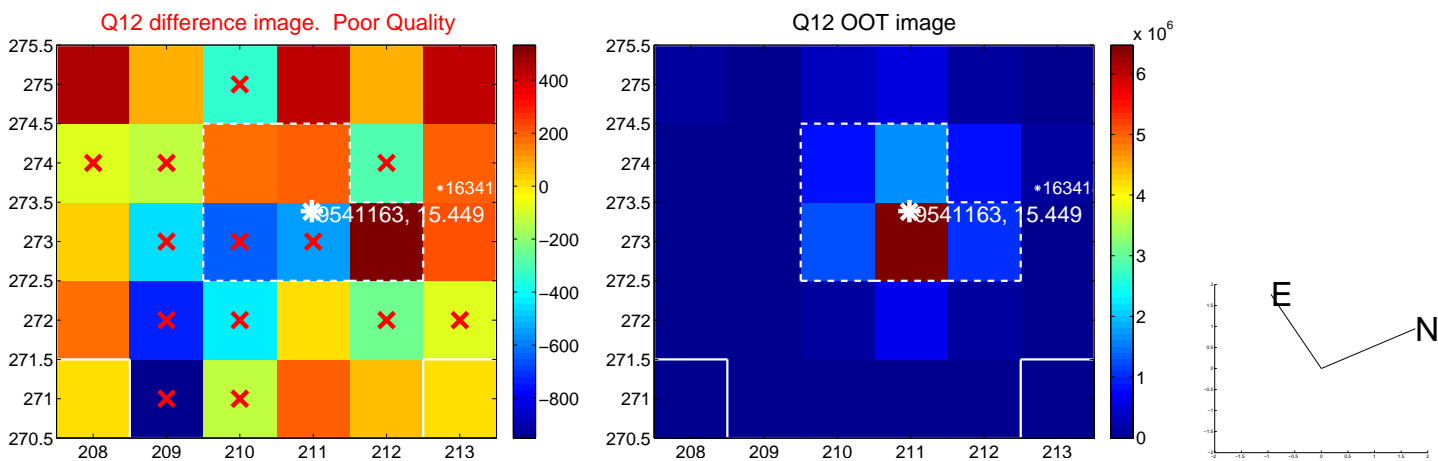
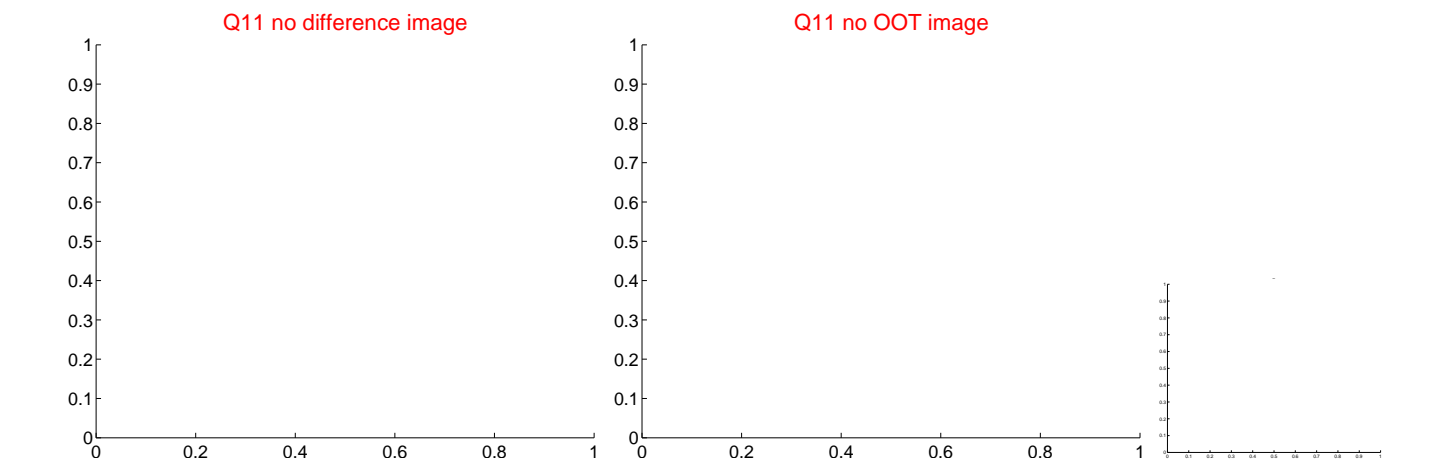
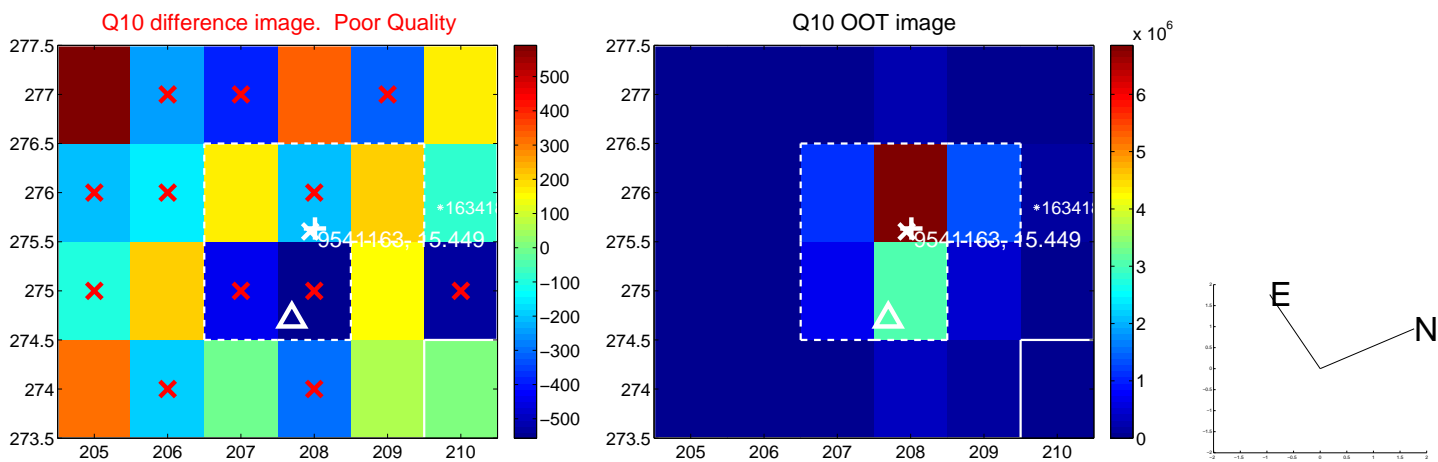
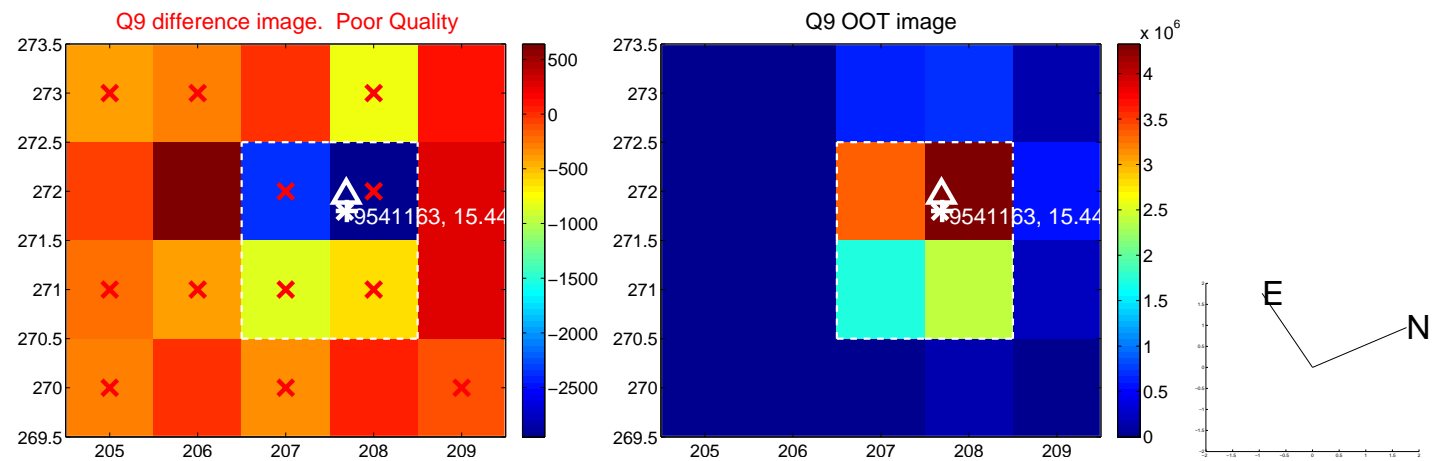
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



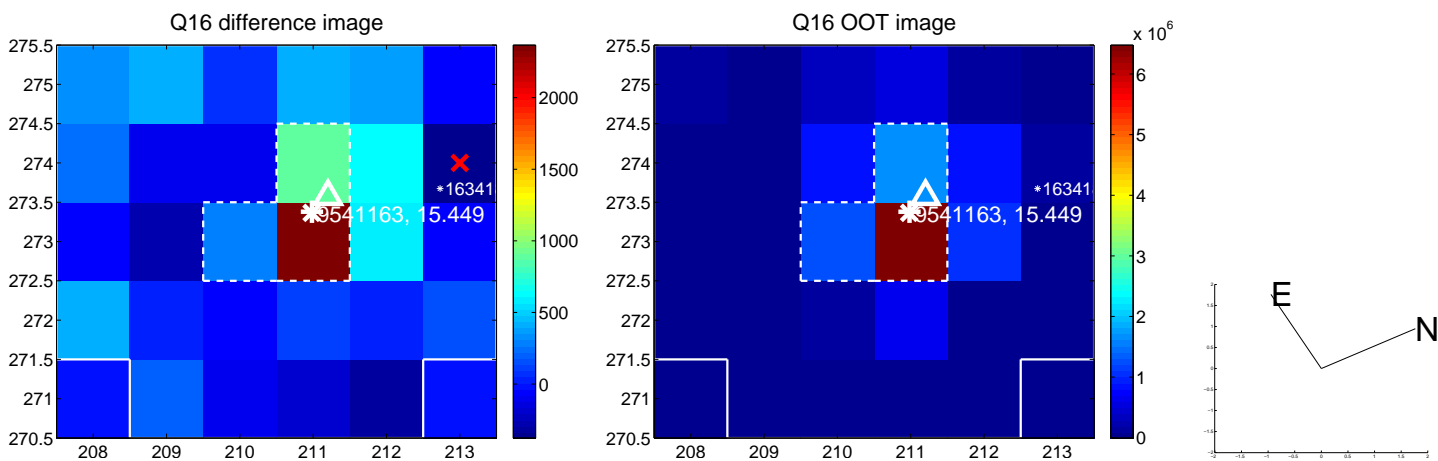
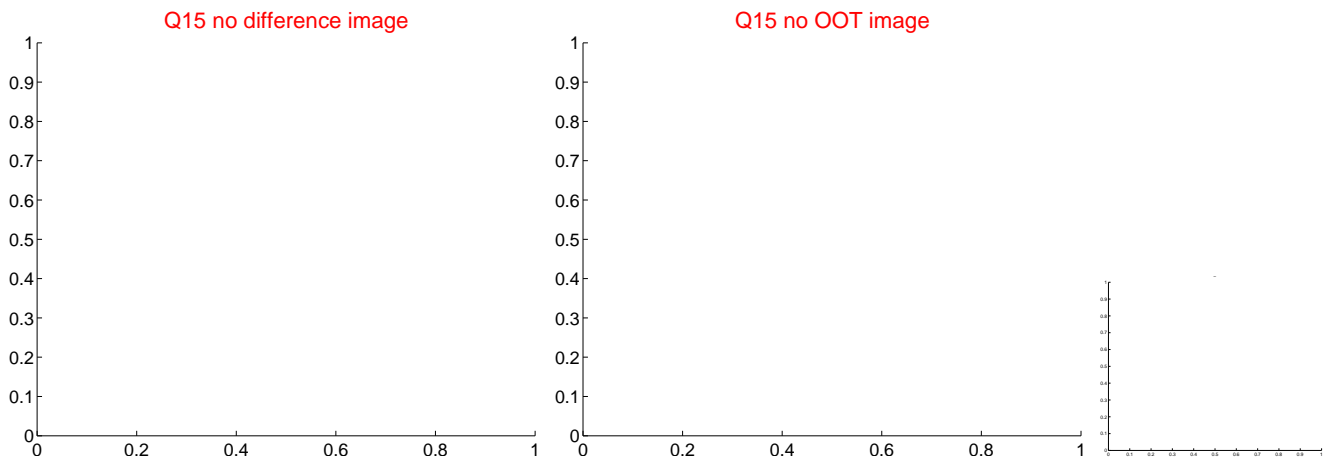
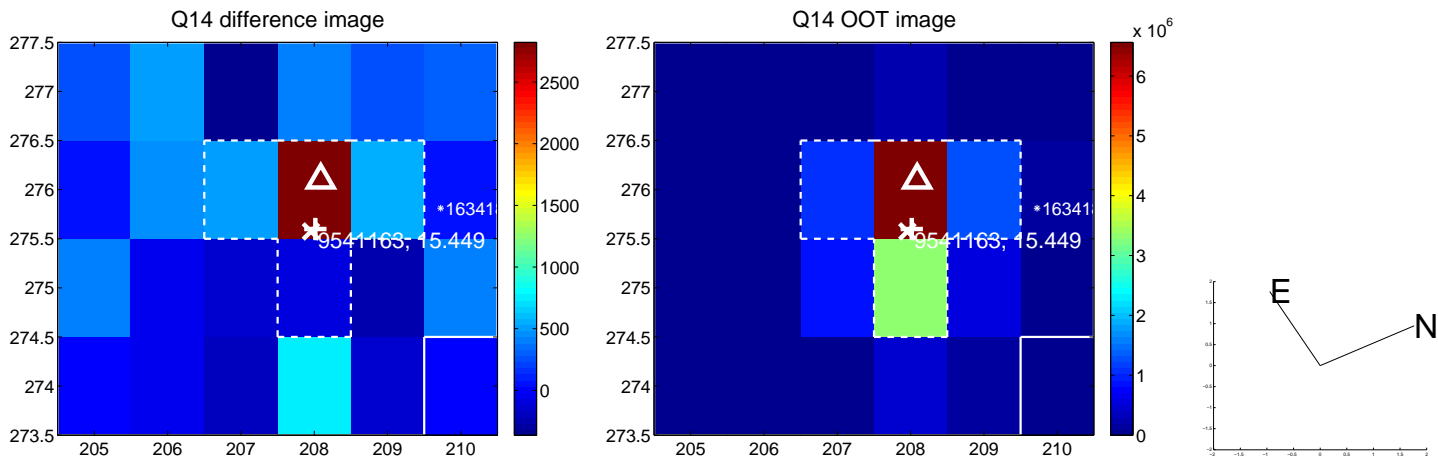
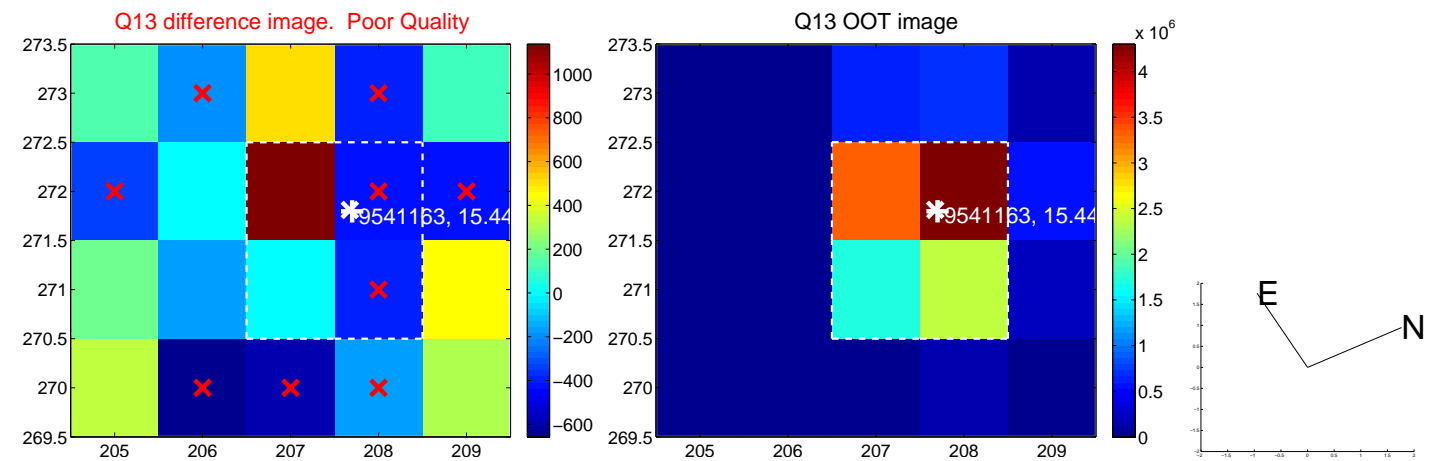
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



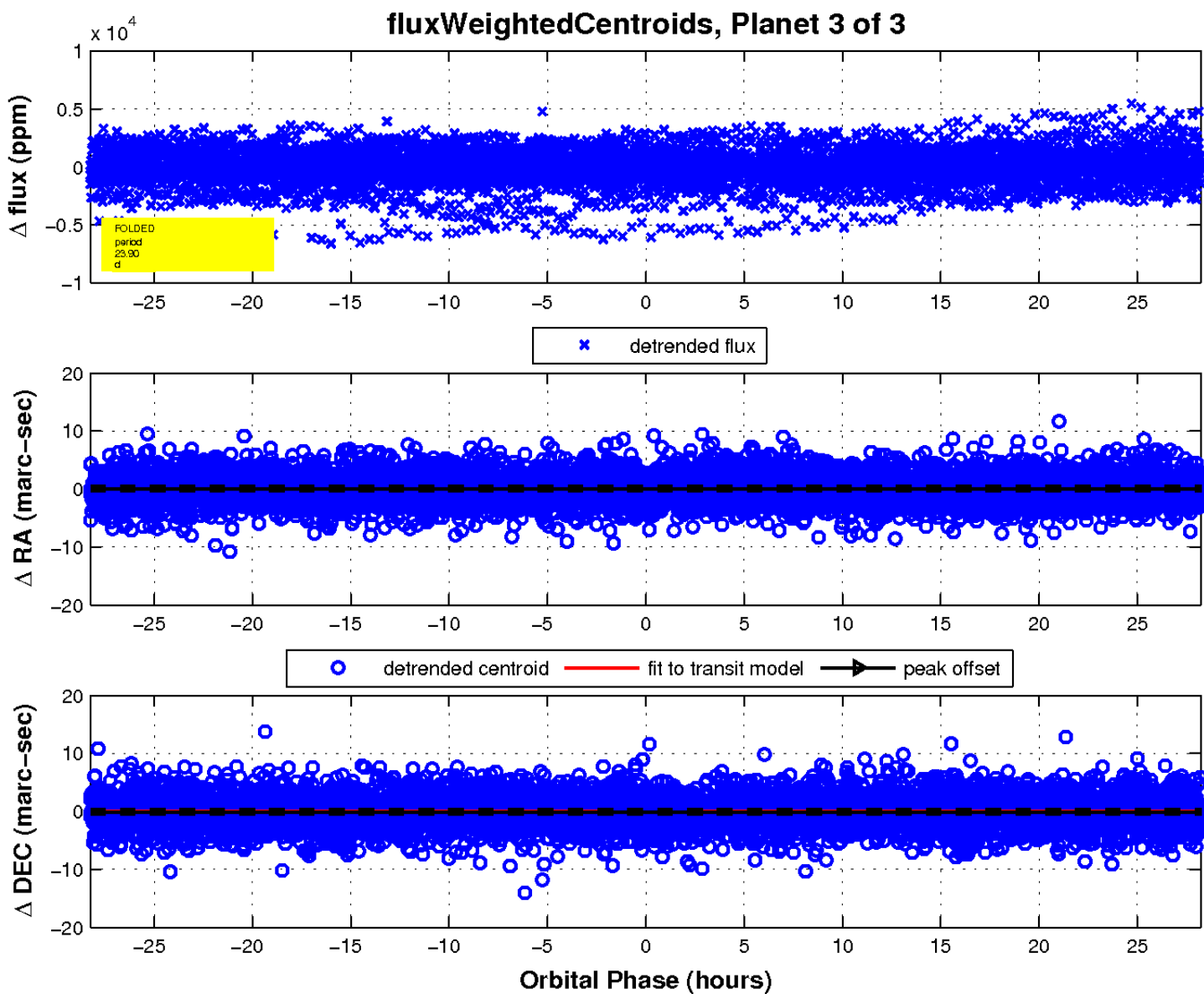
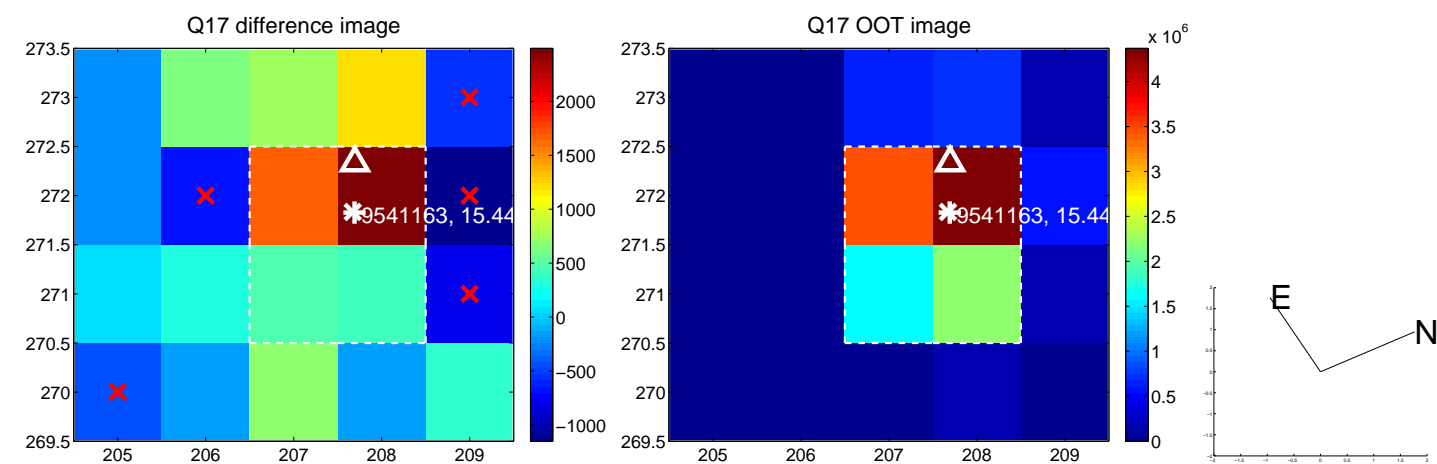
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

