

KIC 004544571

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})
004544571-01	OBS	3976.01	2.189053	132.093245	793.0	3.050	42.5	47.3	0.86	5681	3.21	651.00
004544571-02	OBS	No	2.189061	133.522316	377.8	1.631	23.0	20.8	0.86	5681	2.00	651.00
004544571-03	OBS	No	2.188987	133.674464	164.5	2.957	9.3	10.2	0.86	5681	1.15	651.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004544571-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
004544571-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
004544571-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST

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

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

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

Ephemeris Match Information For 004544571-01

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
004544571-01	4544571	004544587-pri	4544587	1:1	28.2	4	-5	10.80	15.75	564.82	Direct-PRF	0	1.39	0.67

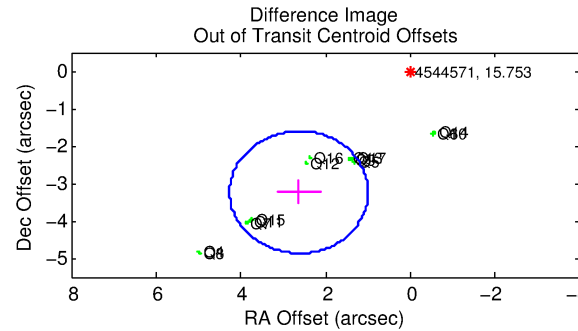
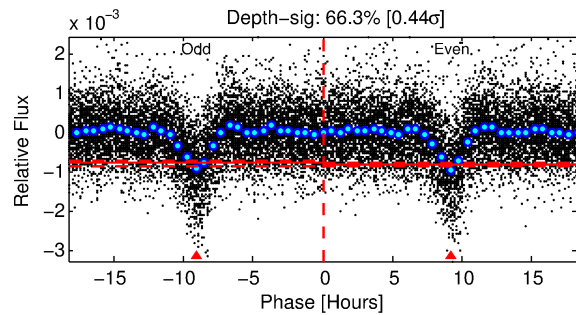
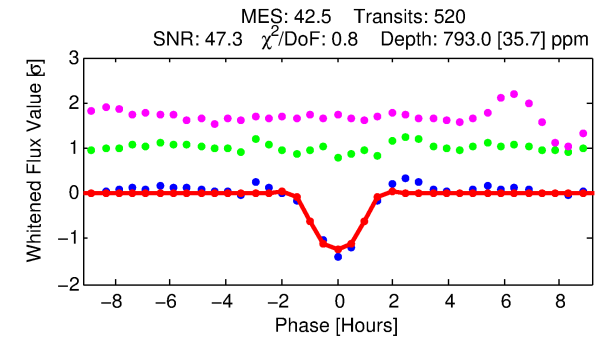
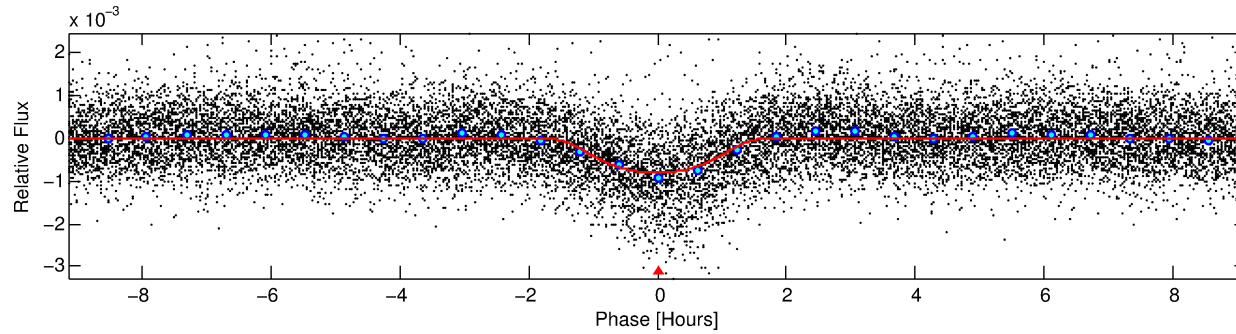
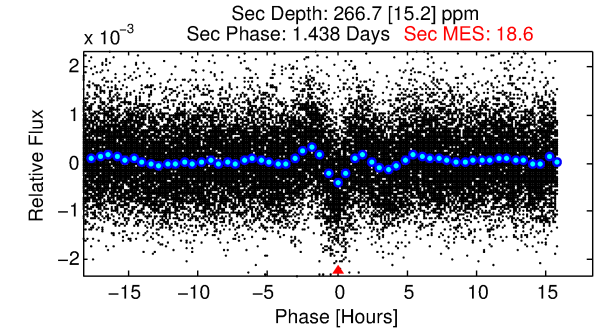
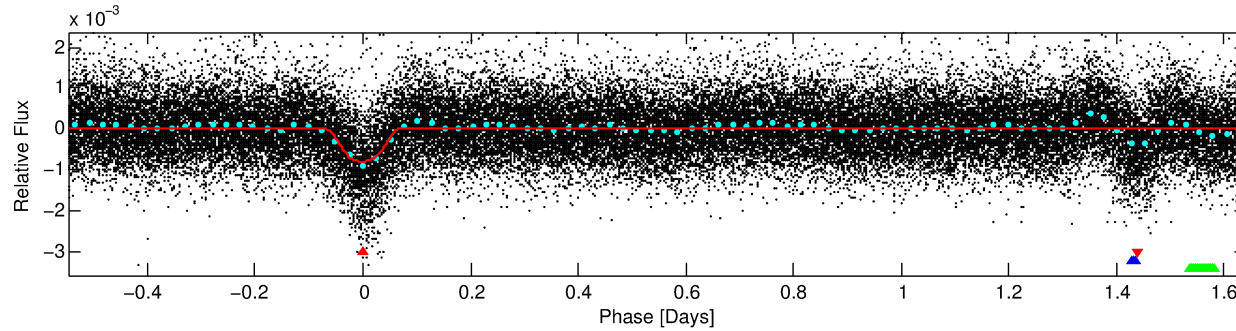
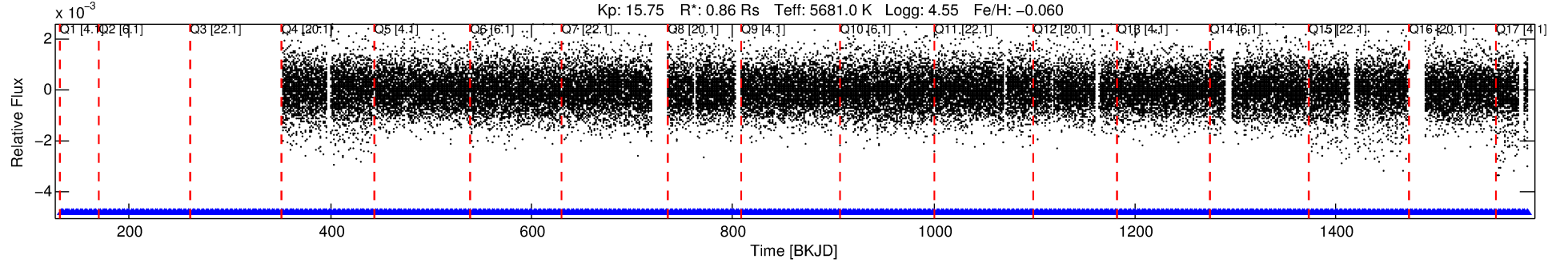
Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period 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: 4544571 Candidate: 1 of 3 Period: 2.189 d

KOI: K03976.01 Corr: 0.773

Kp: 15.75 R*: 0.86 Rs Teff: 5681.0 K Logg: 4.55 Fe/H: -0.060



DV Fit Results:

Period = 2.18905 [0.00000] d
Epoch = 132.0932 [0.0011] BKJD
Rp/R* = 0.0343 [0.0013]
a/R* = 2.27 [0.10]
b = 0.97 [0.01]
Seff = 651.00 [246.35]
Teff = 1288 [122] K
Rp = 3.21 [0.93] Re
a = 0.0325 [0.0079] AU
Ag = 15.02 [5.51] [2.54σ]
Teffp = 3921 [157] K [13.24σ]

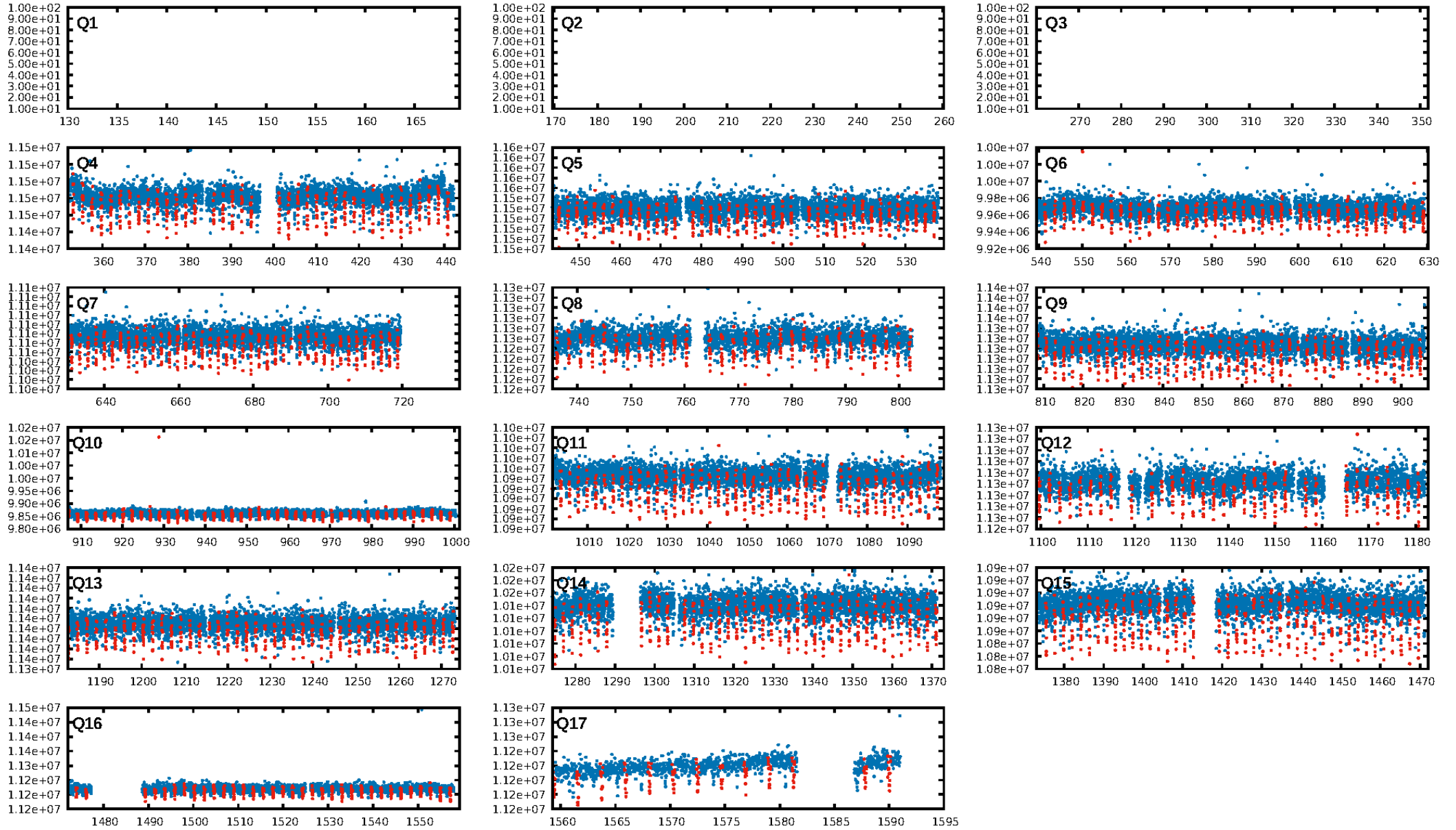
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [507/507]
GhostDiagnostic-chr: -0.08742
Centroid-sig: 0.0%
Centroid-so: 6.511 arcsec [23.03σ]
OotOffset-rm: 4.170 arcsec [7.66σ]
KicOffset-rm: 4.338 arcsec [8.50σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.36 [5/14]
DiffImageOverlap-fno: 1.00 [14/14]

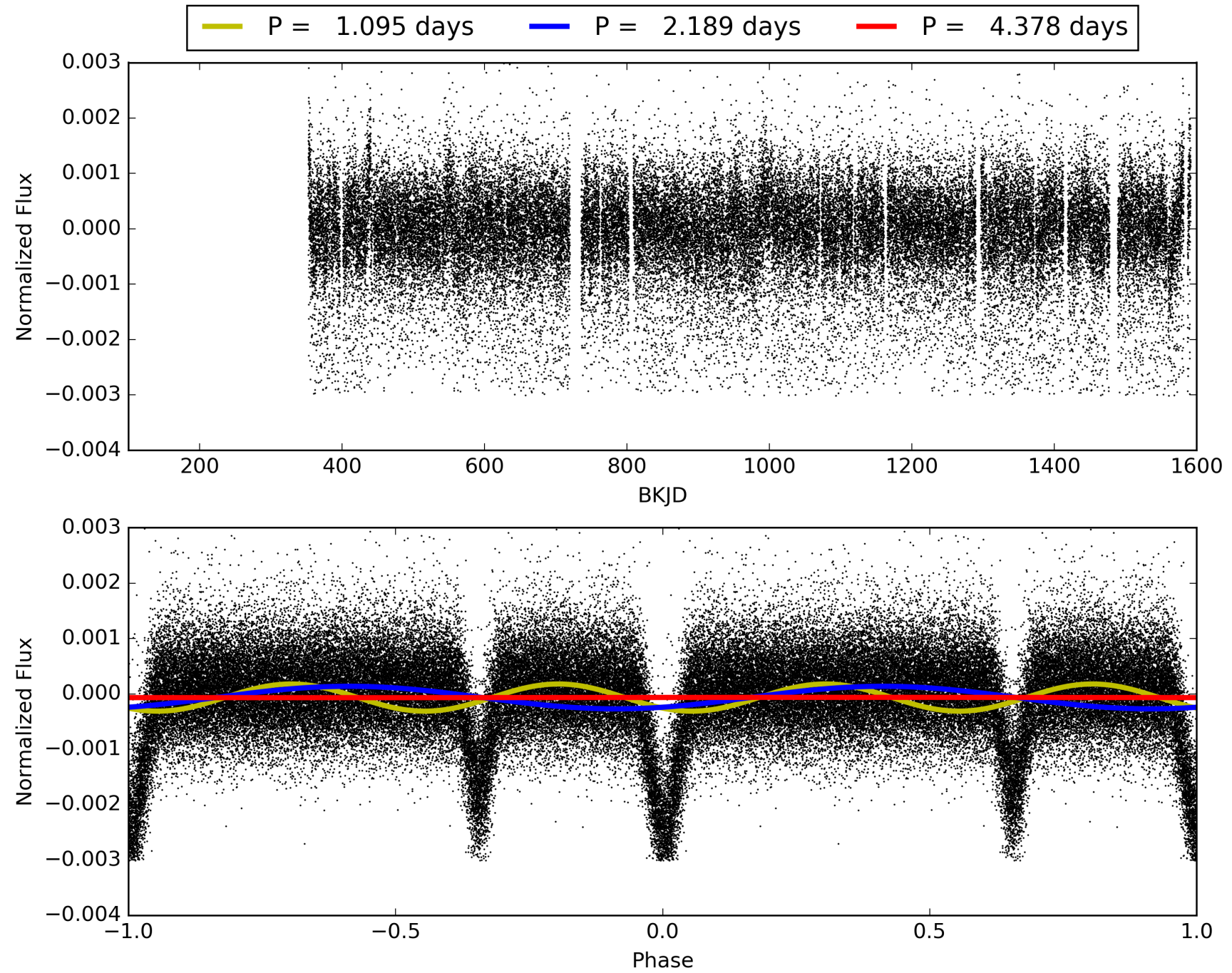
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:26:35 Z

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

TCE 004544571-01, PDC Light Curves

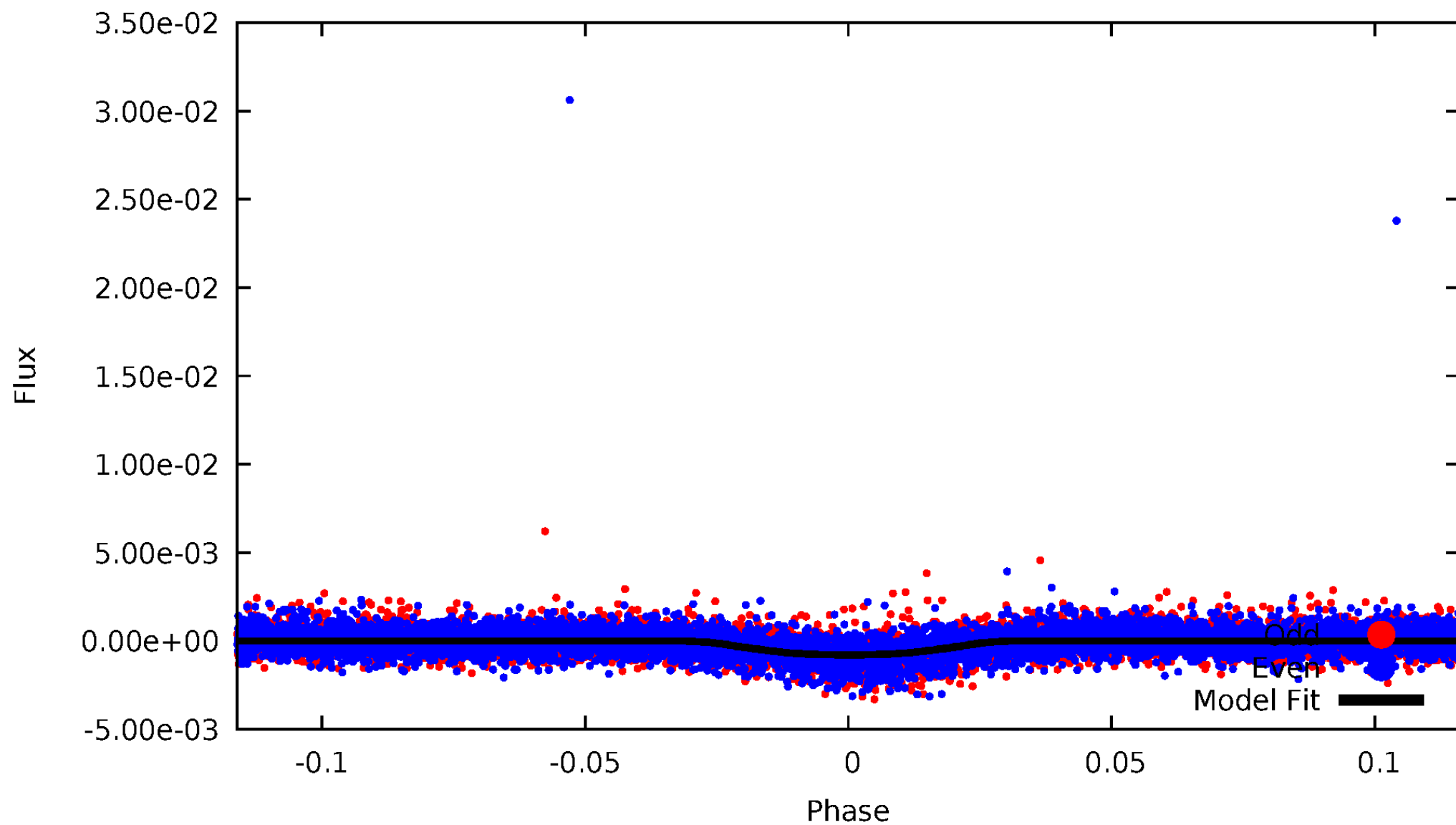


TCE 004544571-01



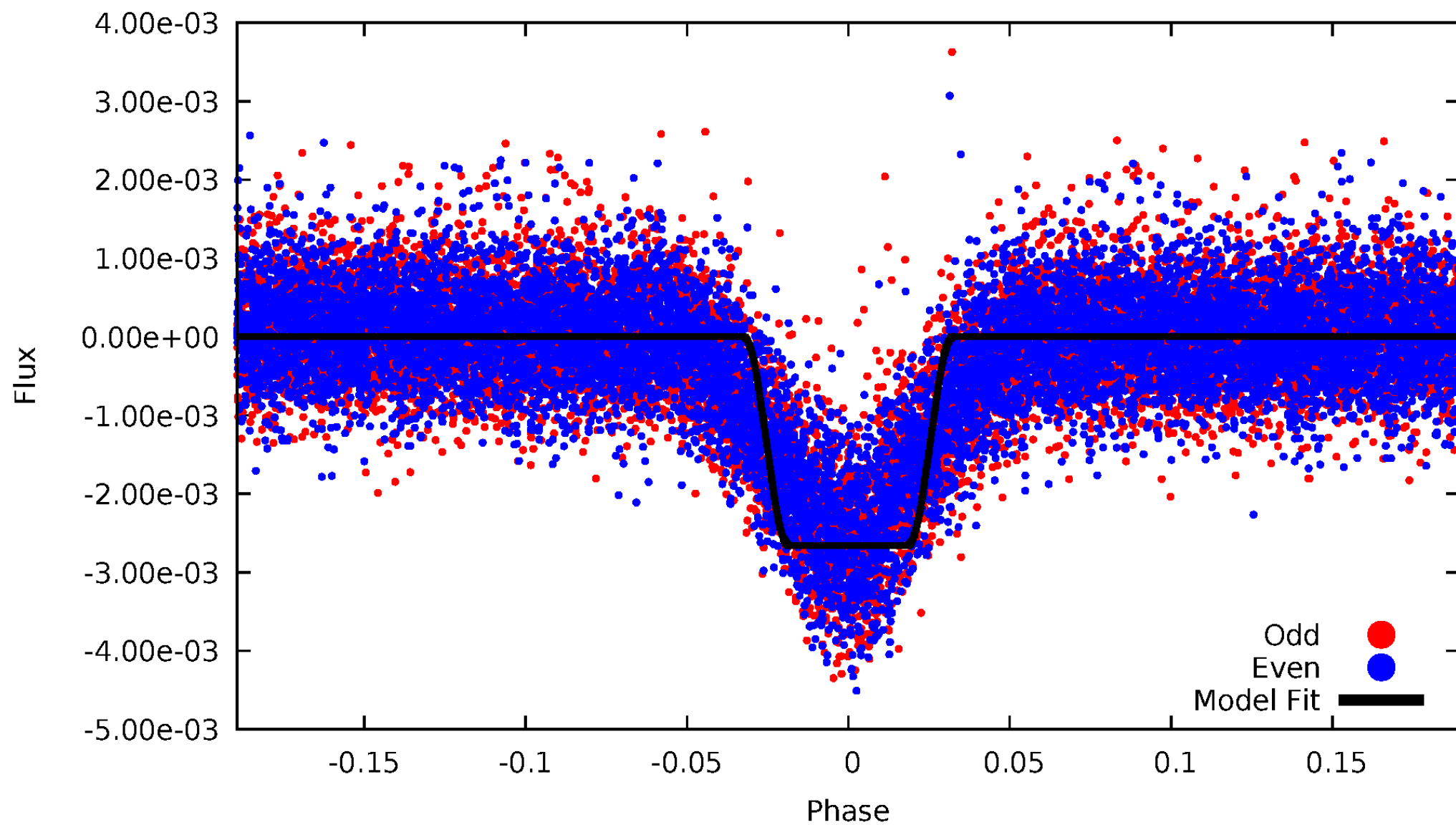
DV Odd/Even

TCE 004544571-01



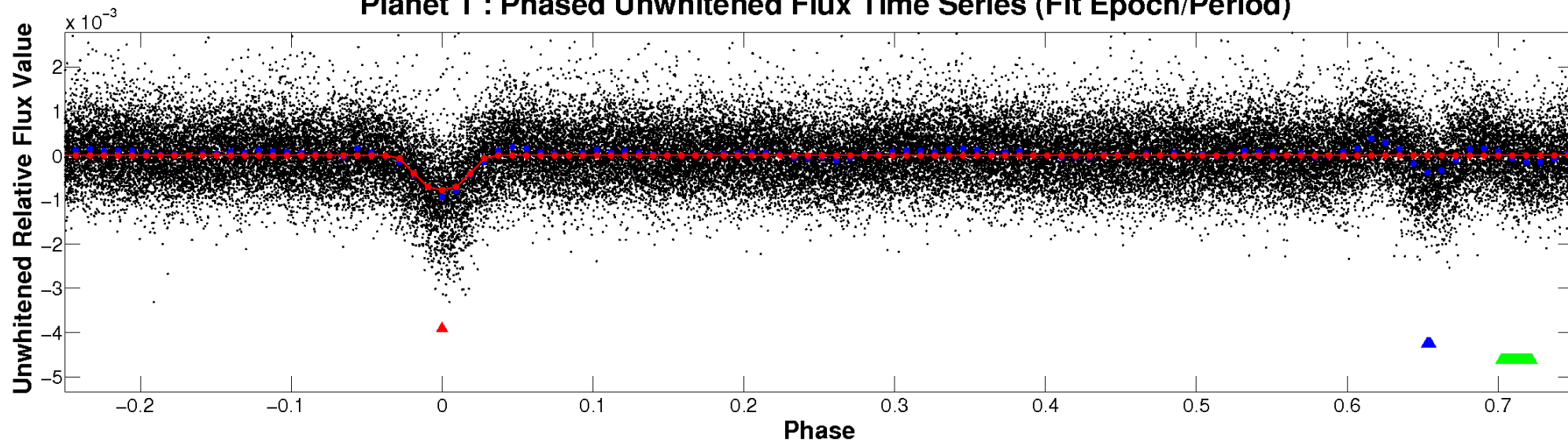
ALT Odd/Even

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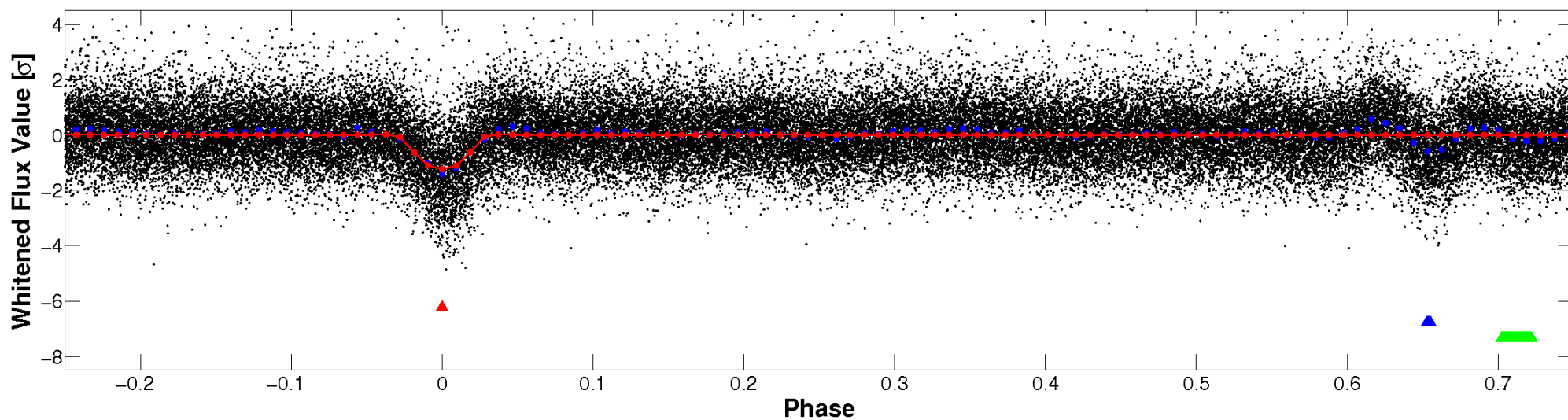


Non-Whitened Vs. Whitened Light Curve

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

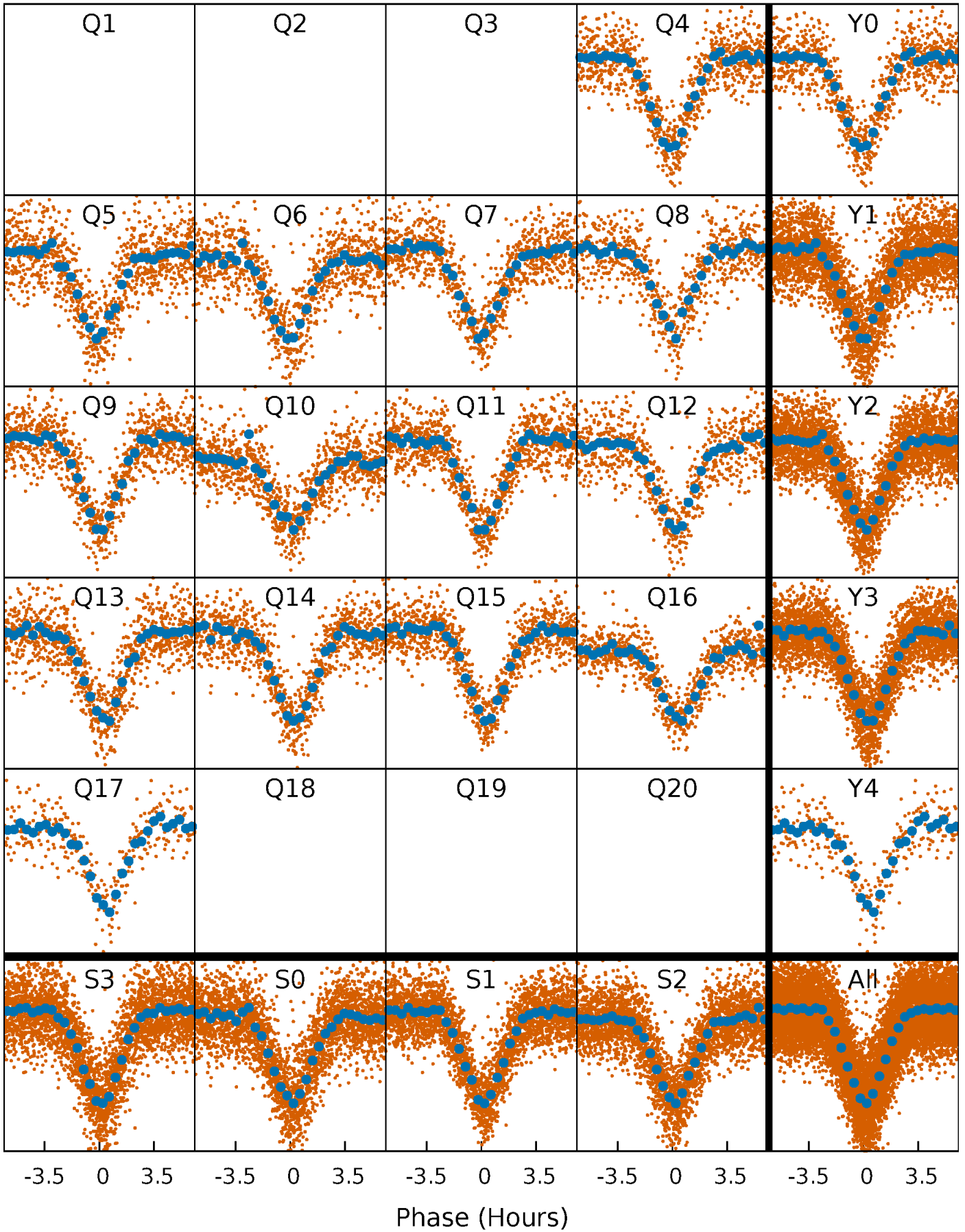


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



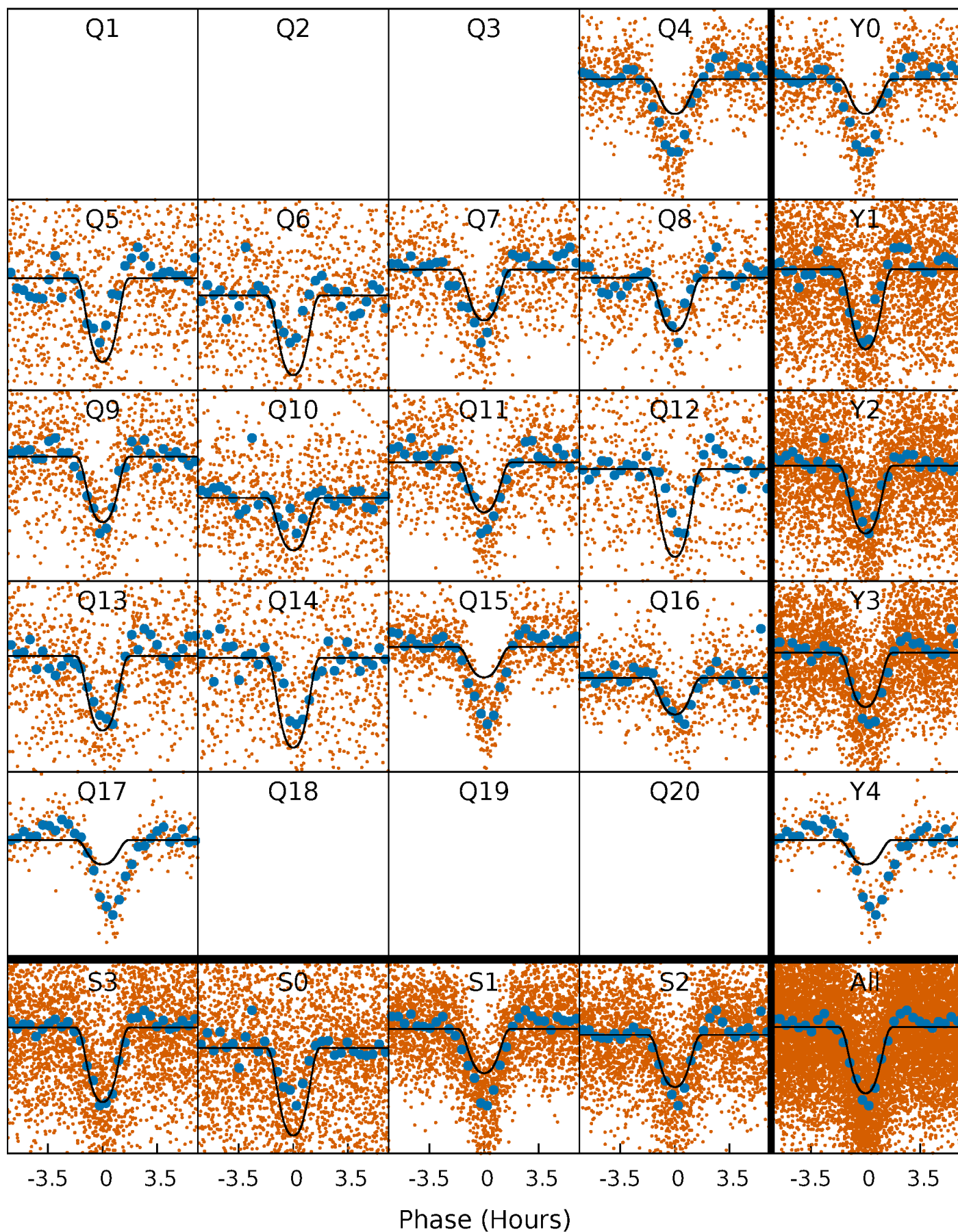
PDC Quarter-Phased Transit Curves

TCE 004544571-01 P= 2.189053 Days $T_0=132.093245$ (BKJD)



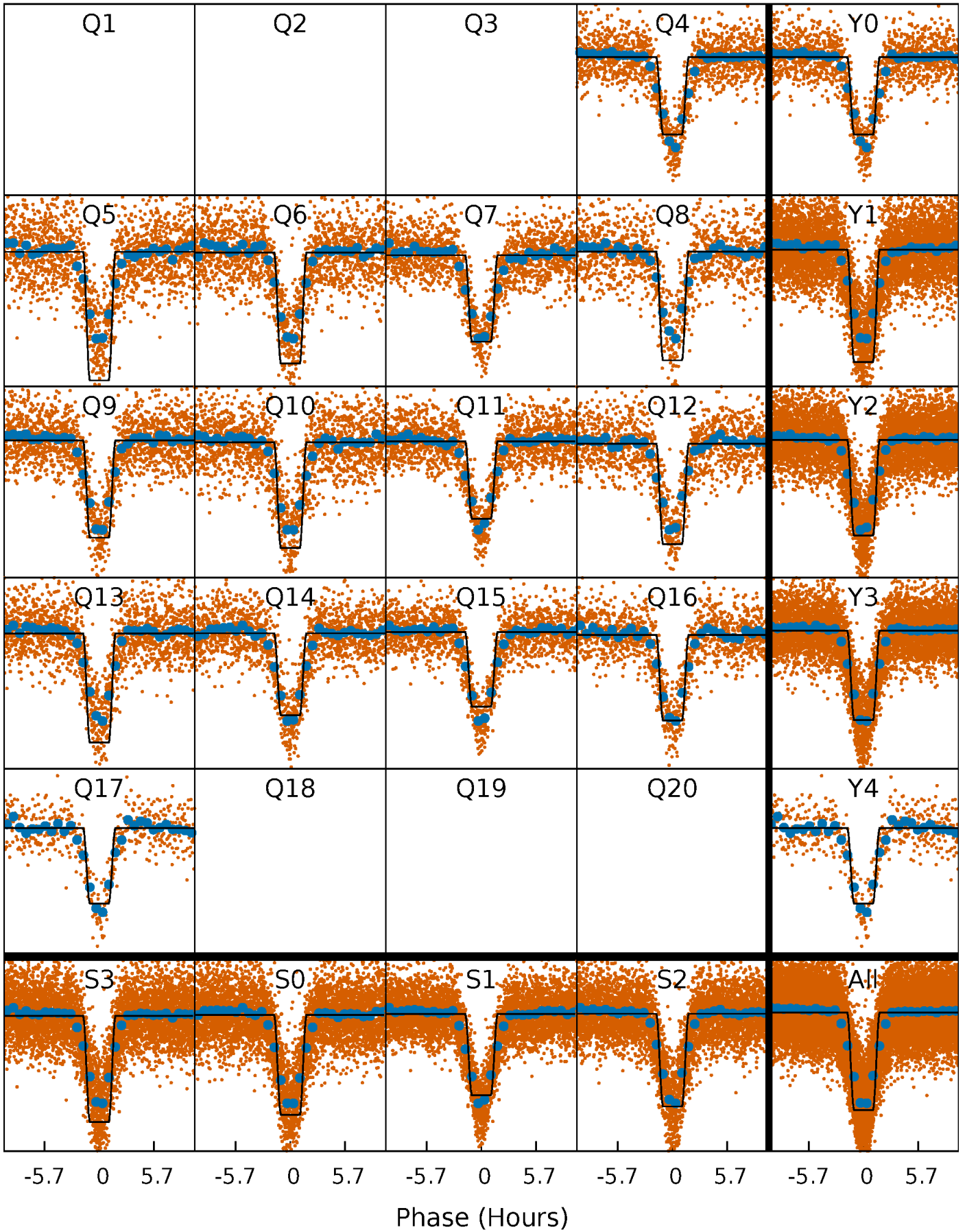
DV Quarter-Phased Transit Curves

TCE 004544571-01 P= 2.189053 Days $T_0=132.093245$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

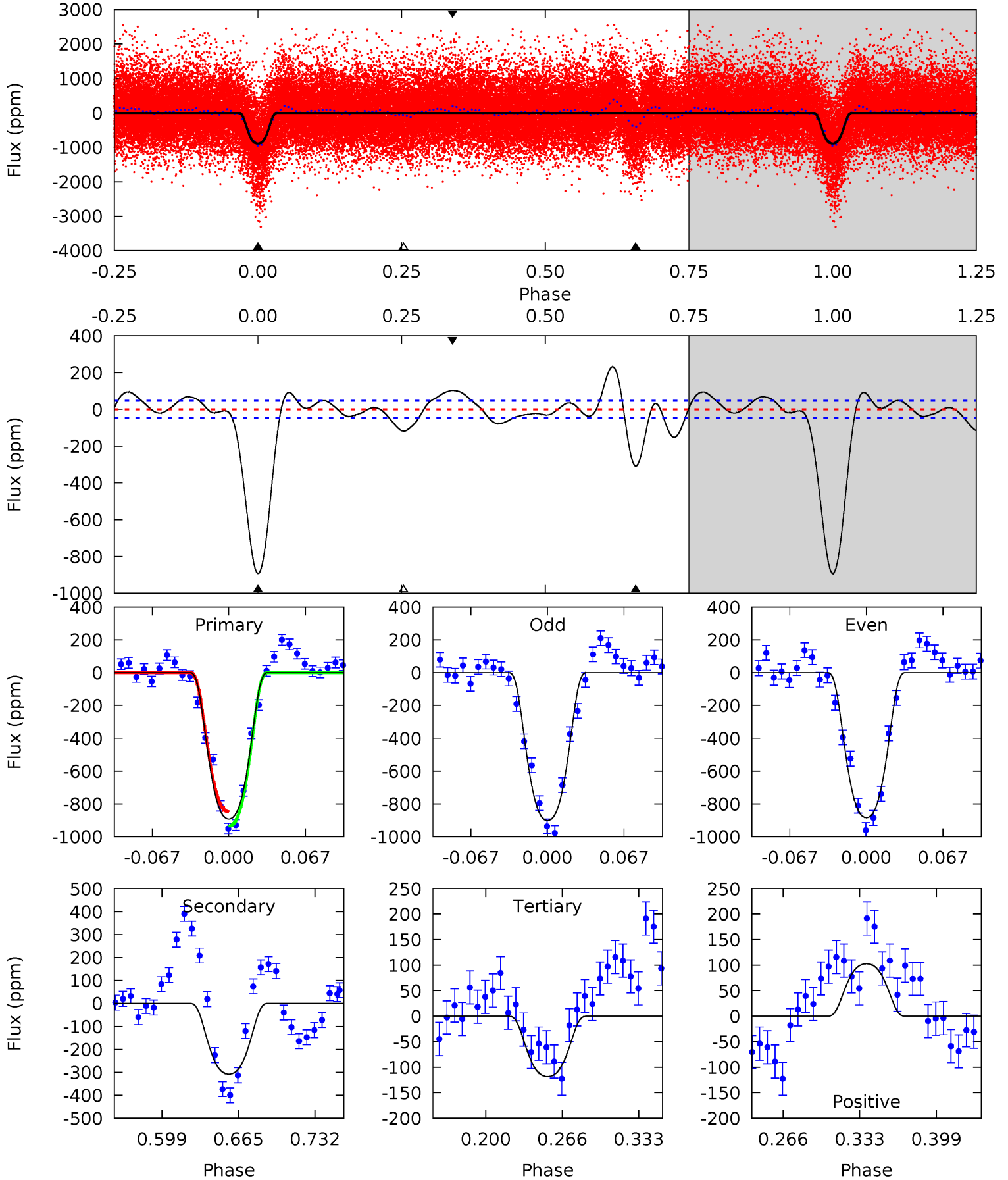
TCE 004544571-01 P= 2.189103 Days $T_0=132.079319$ (BKJD)



DV Model-Shift Uniqueness Test

004544571-01, P = 2.189053 Days, E = 132.093245 Days

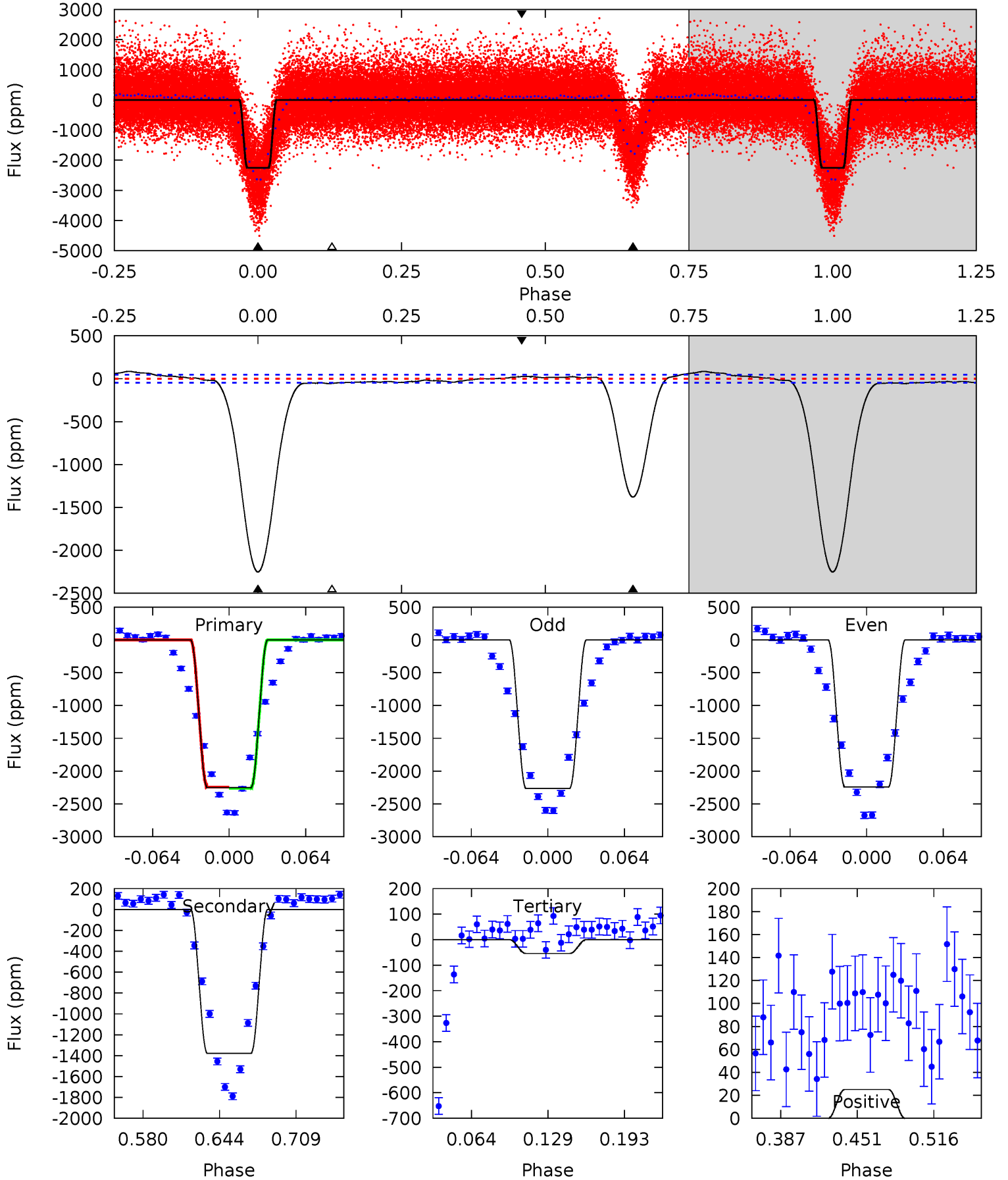
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.3	30.8	11.8	10.3	4.65	1.83	5.37	77.5	79.1	19.0	20.6	0.86	1.10	0.21	4.30



Alt Model-Shift Uniqueness Test

004544571-01, P = 2.189103 Days, E = 132.079319 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
222.3	136.1	5.37	2.48	4.66	1.85	3.81	217.0	219.9	130.7	133.6	0.97	1.00	0.04	0.79



Stellar Parameters For KIC 004544571

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5681^{+186}_{-186}	$4.551^{+0.034}_{-0.195}$	$-0.060^{+0.250}_{-0.300}$	$0.859^{+0.246}_{-0.082}$	$0.957^{+0.104}_{-0.115}$	$2.129^{+0.407}_{-1.073}$
	+3%/-3%	+1%/-4%	+417%/-500%	+29%/-10%	+11%/-12%	+19%/-50%
Source	KIC0	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 004544571-01 / KOI 3976.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-308 ± 10	$3.32^{+0.48}_{-0.27}$	1849^{+120}_{-94}	4285^{+136}_{-133}	16^{+3}_{-3}
Alt.	-1378 ± 10	$5.04^{+0.68}_{-0.42}$	1850^{+120}_{-84}	4907^{+159}_{-152}	31^{+4}_{-7}

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

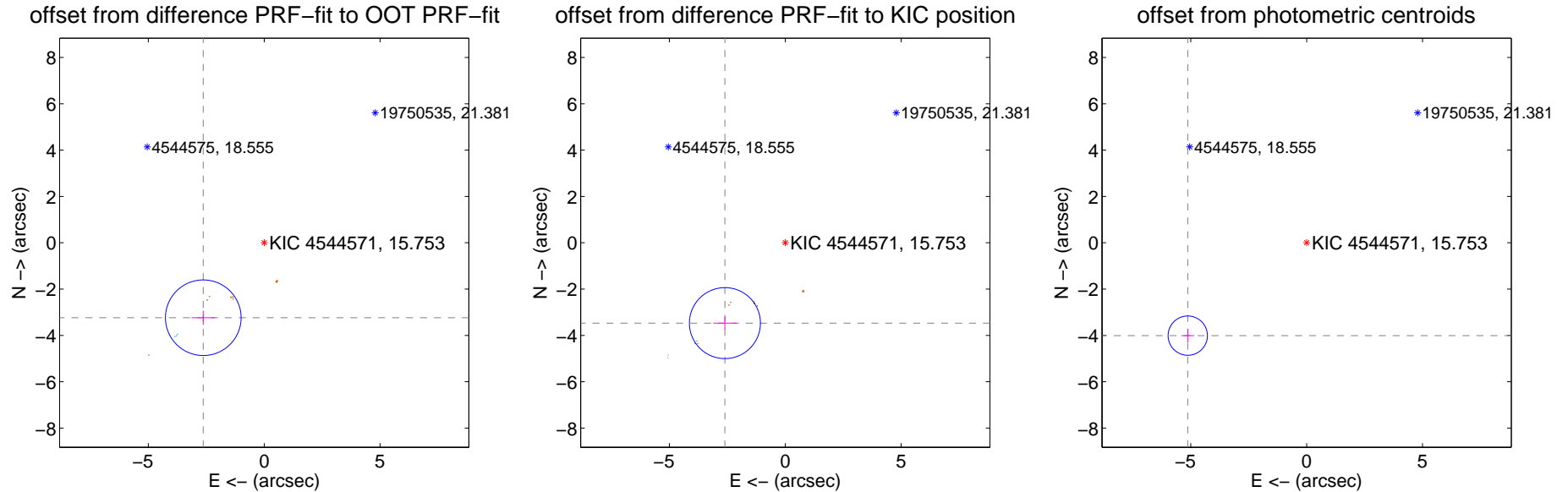
DV Centroid Data

Supplemental centroid analysis for 004544571-01. Kepler magnitude: 15.75. Transit SNR 47.26

There are 5 quarters with good PRF difference image offsets

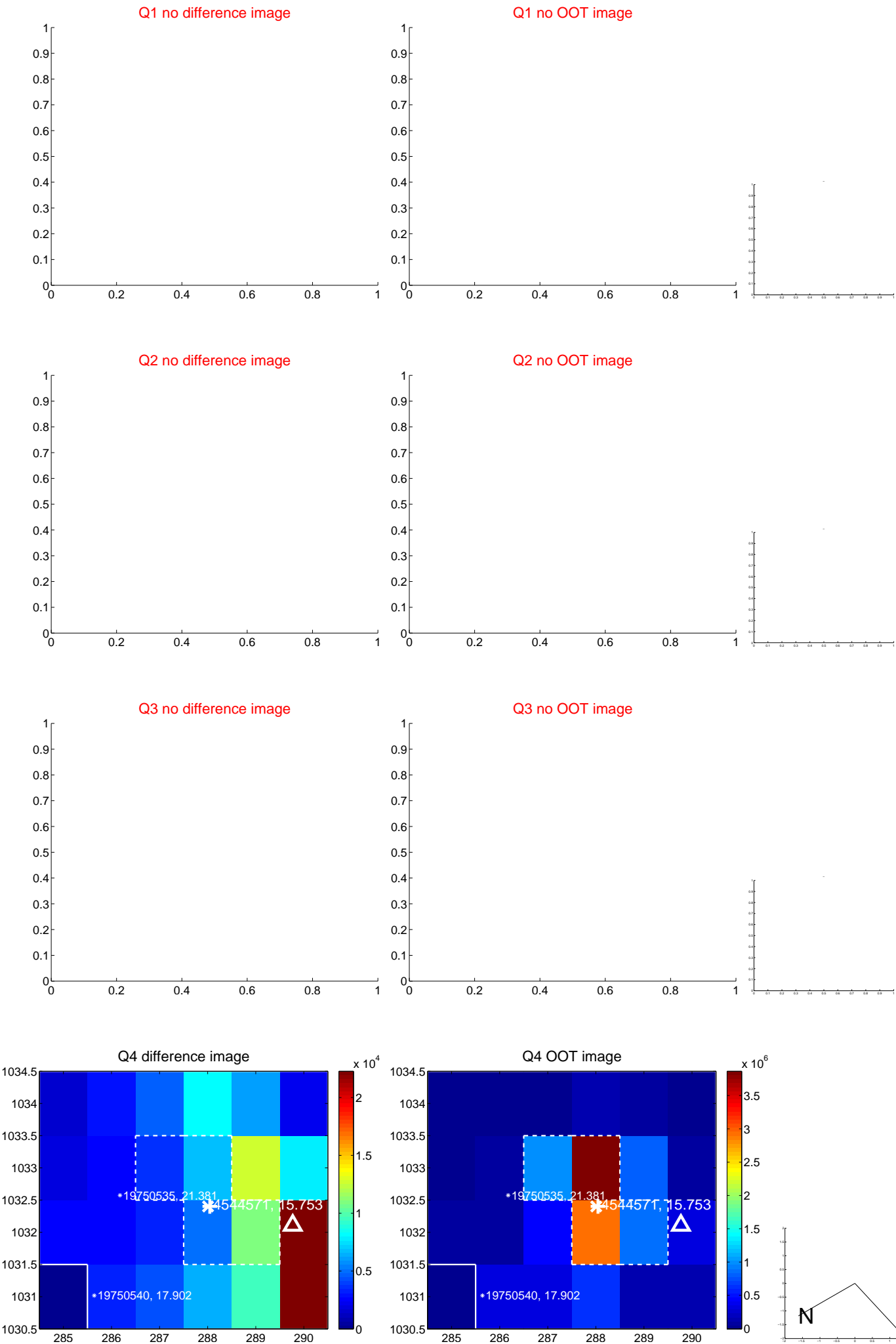
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.170 ± 0.544	7.66	2.629 ± 0.503	-3.236 ± 0.306
PRF-fit source offset from KIC position	4.338 ± 0.511	8.50	2.605 ± 0.499	-3.469 ± 0.279
photometric centroid source offset	6.51 ± 0.28	23.03	5.13 ± 0.28	-4.01 ± 0.29

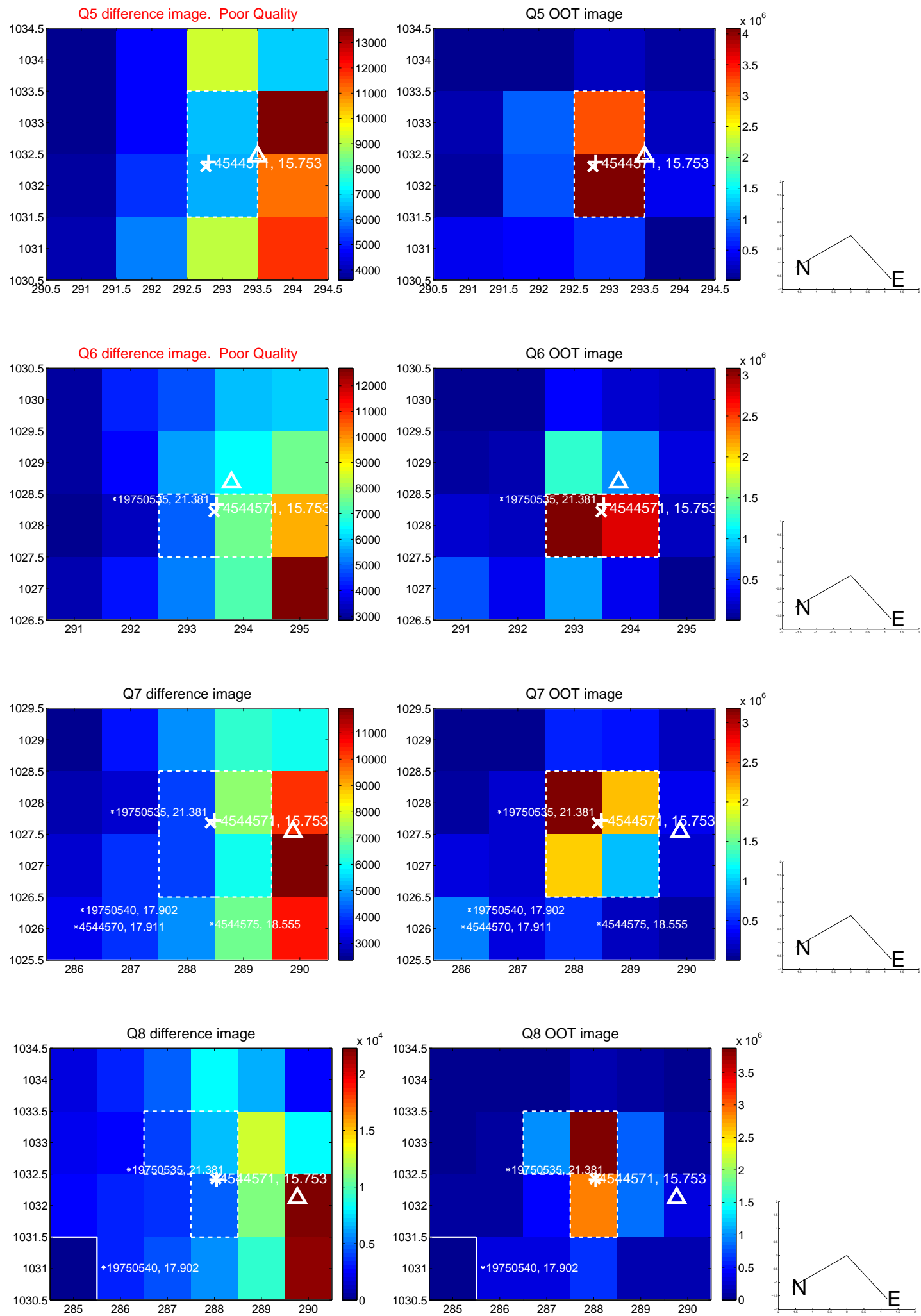


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

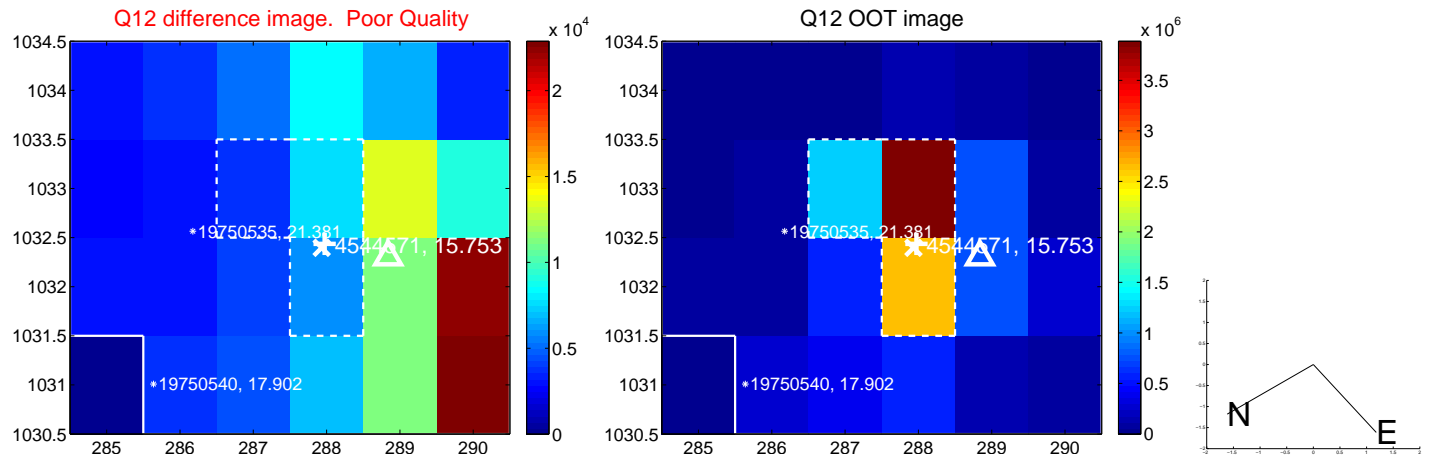
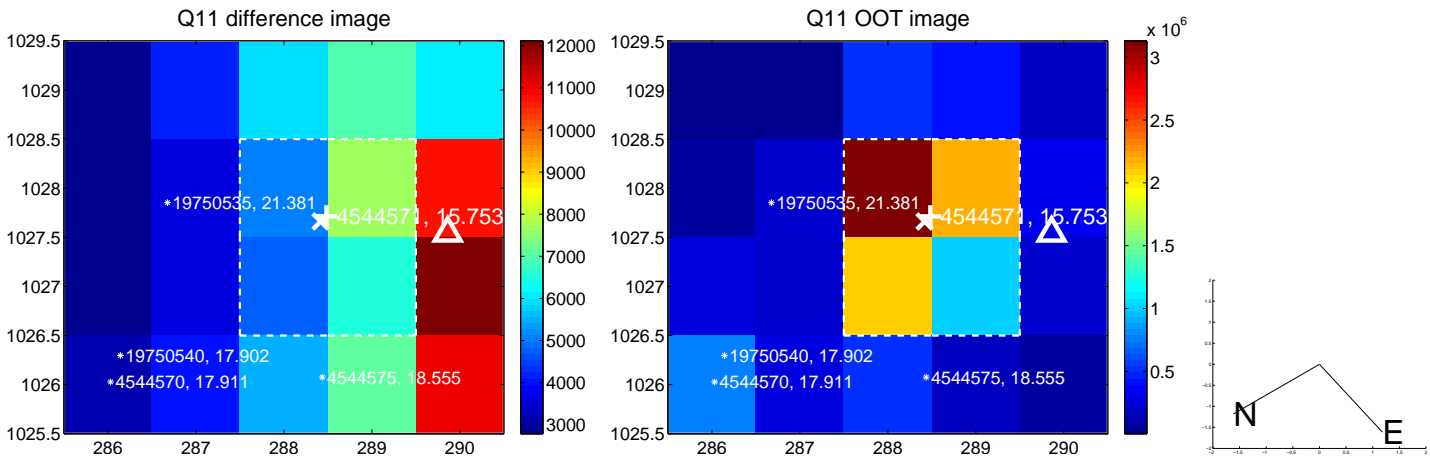
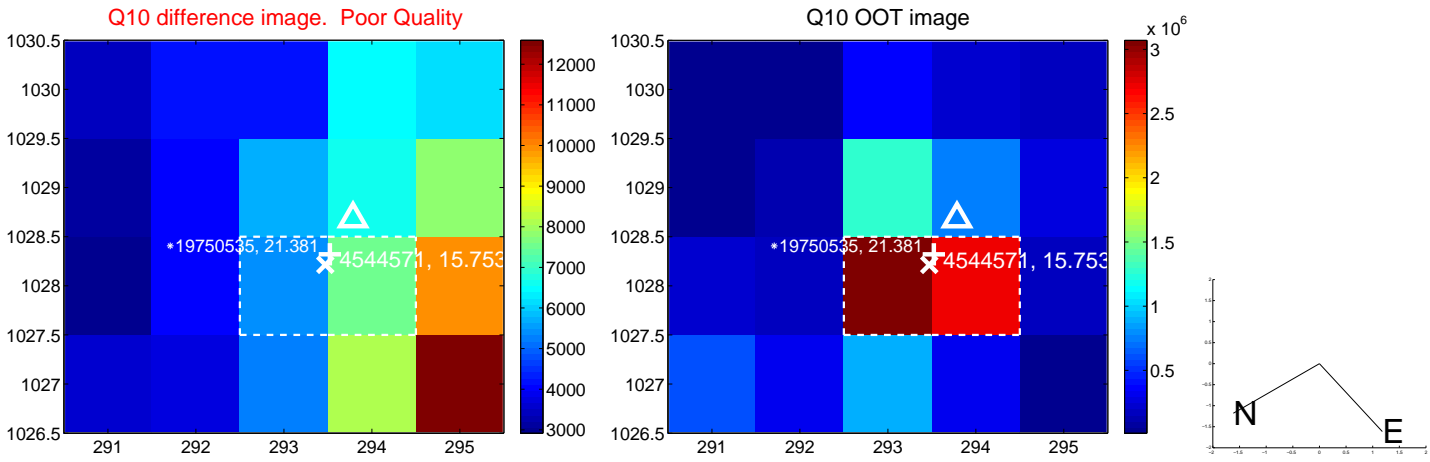
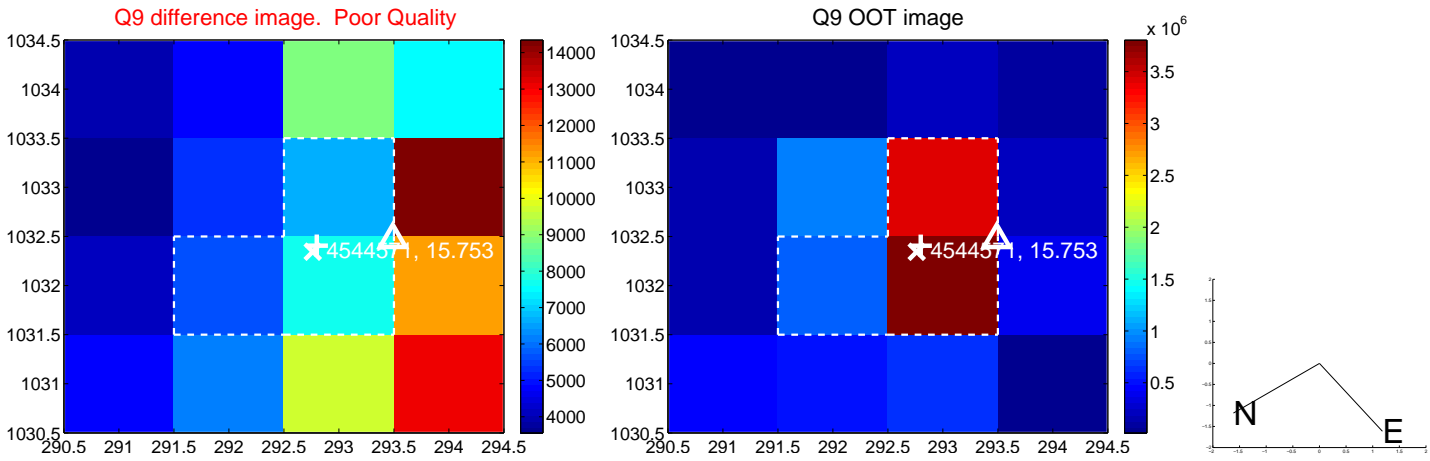
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



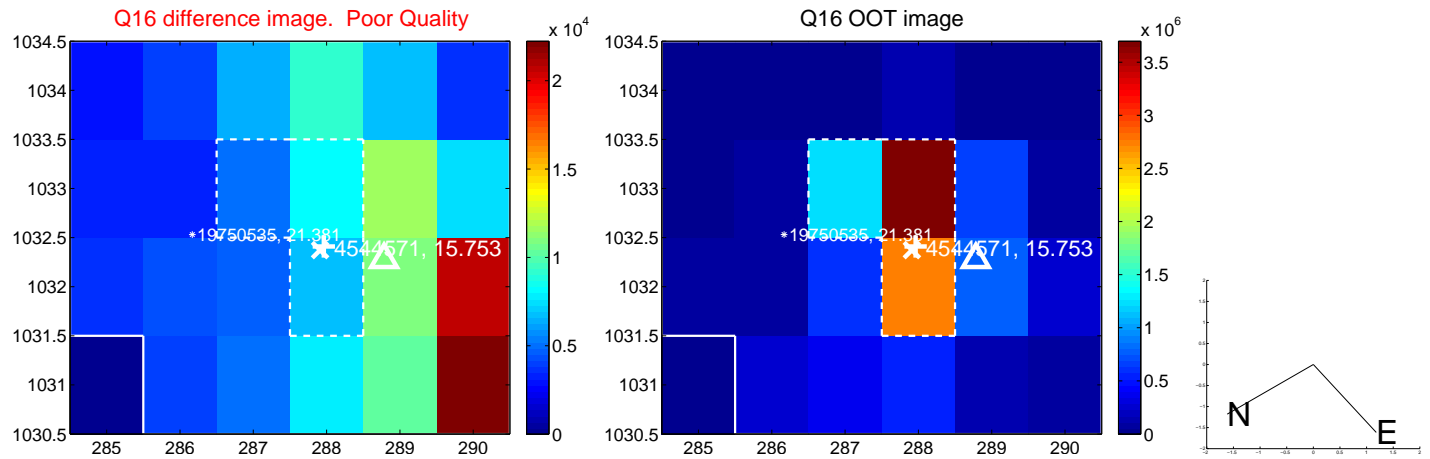
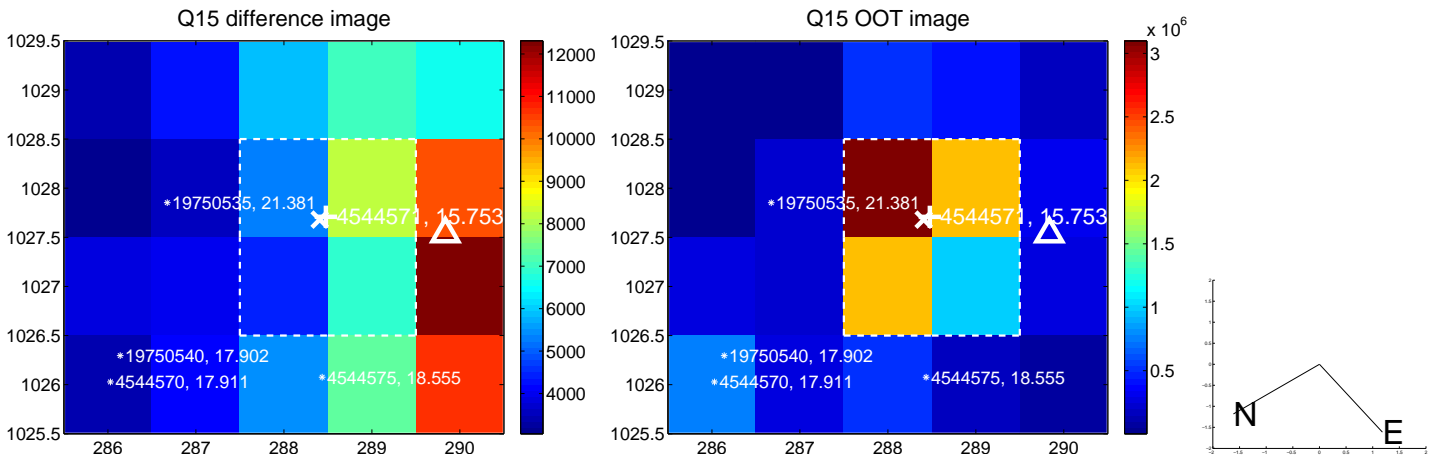
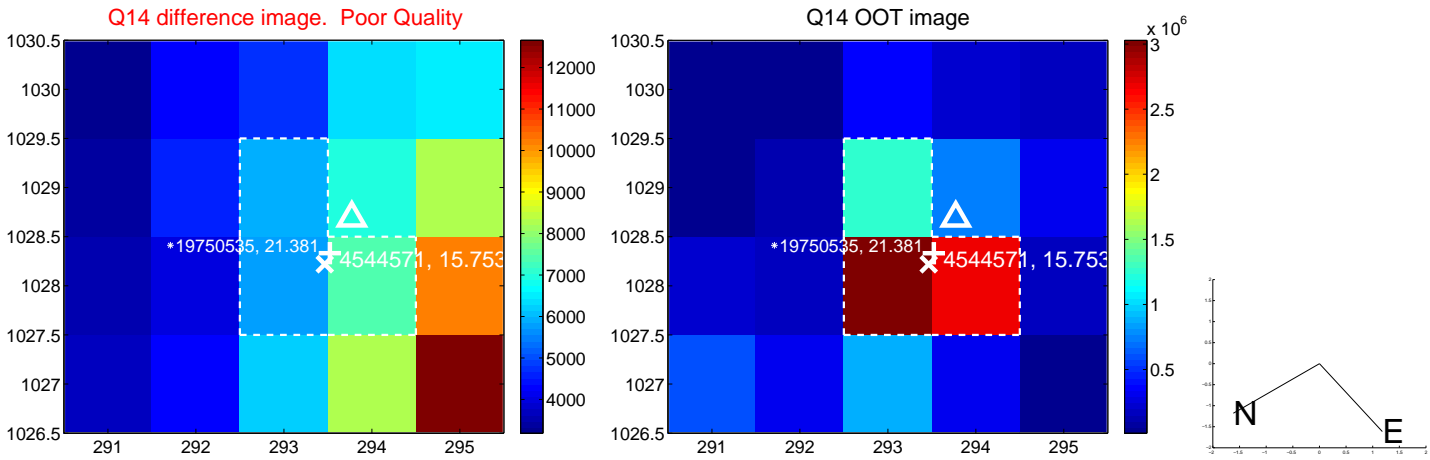
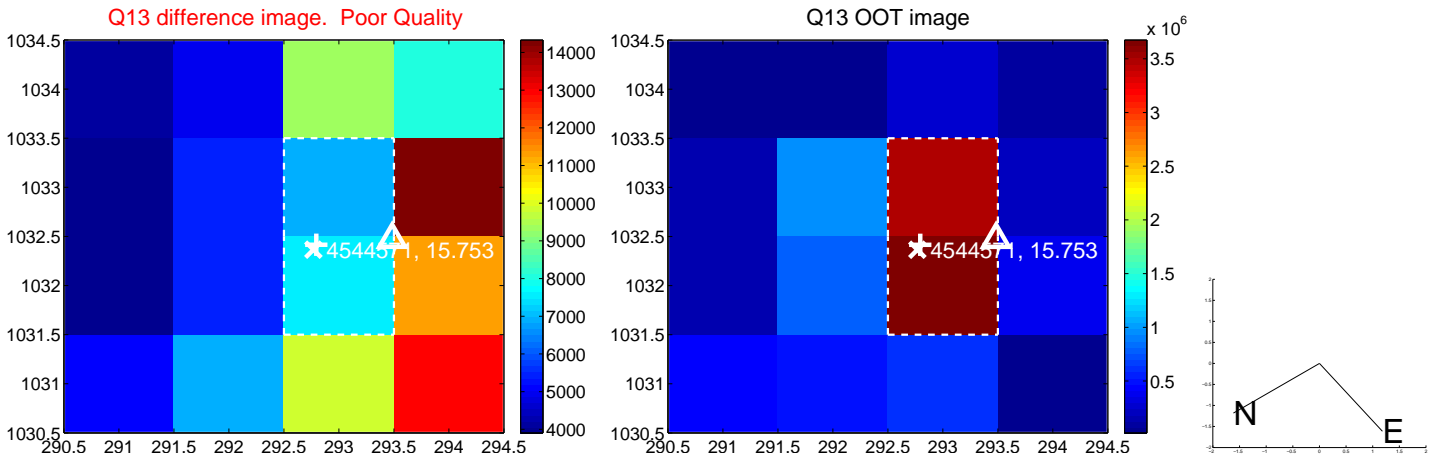
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



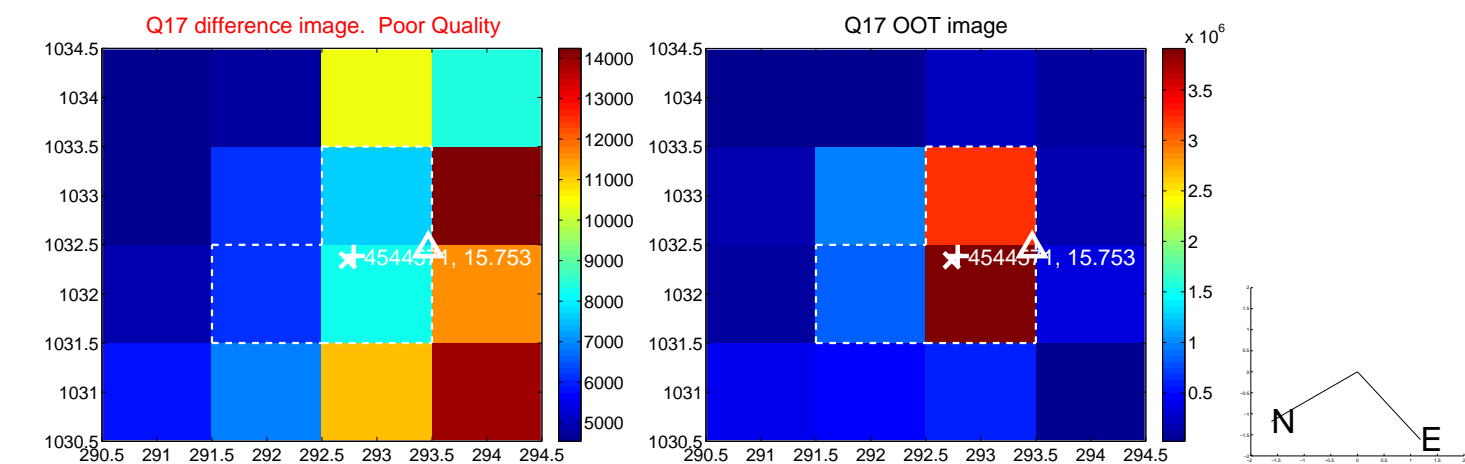
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



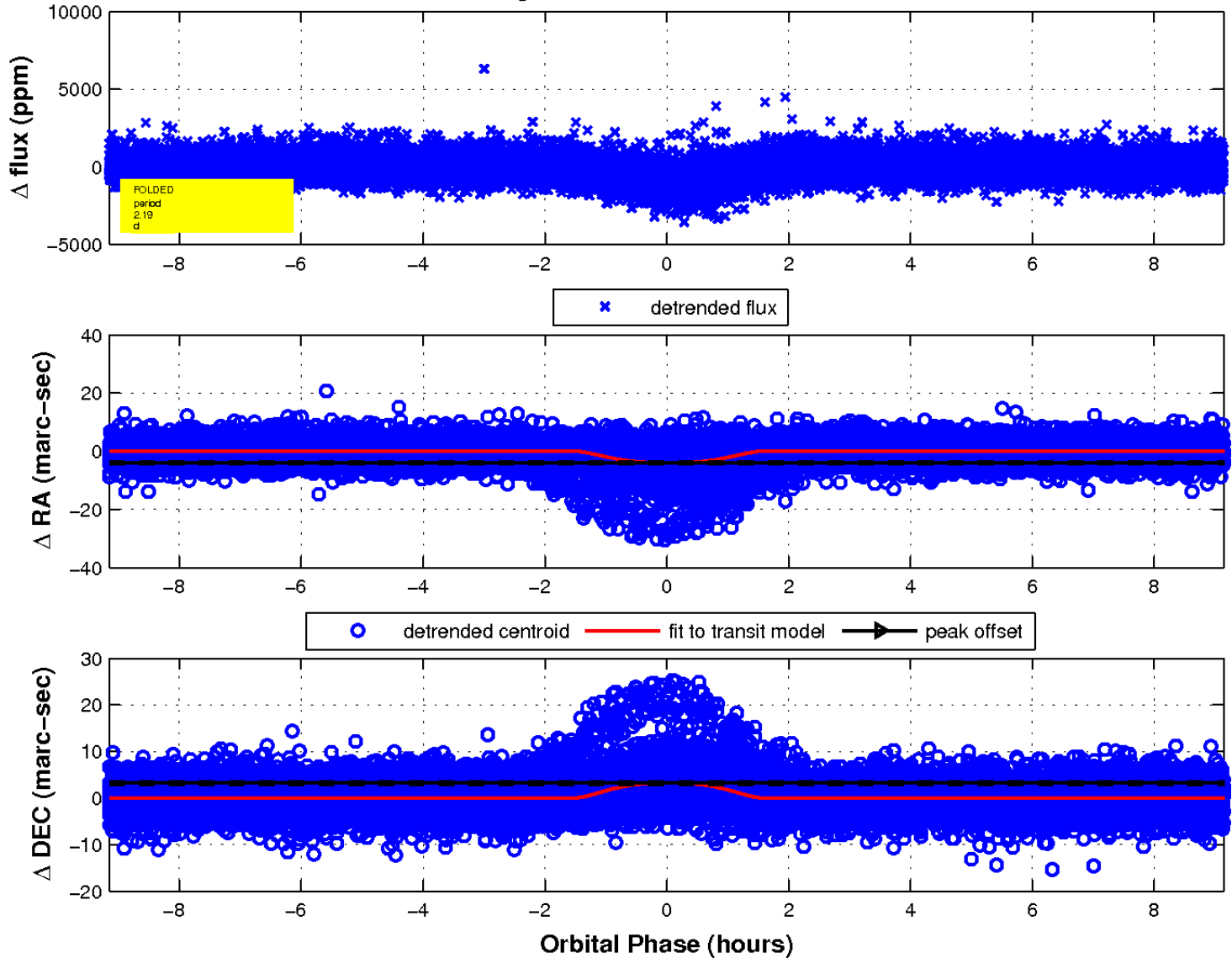
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



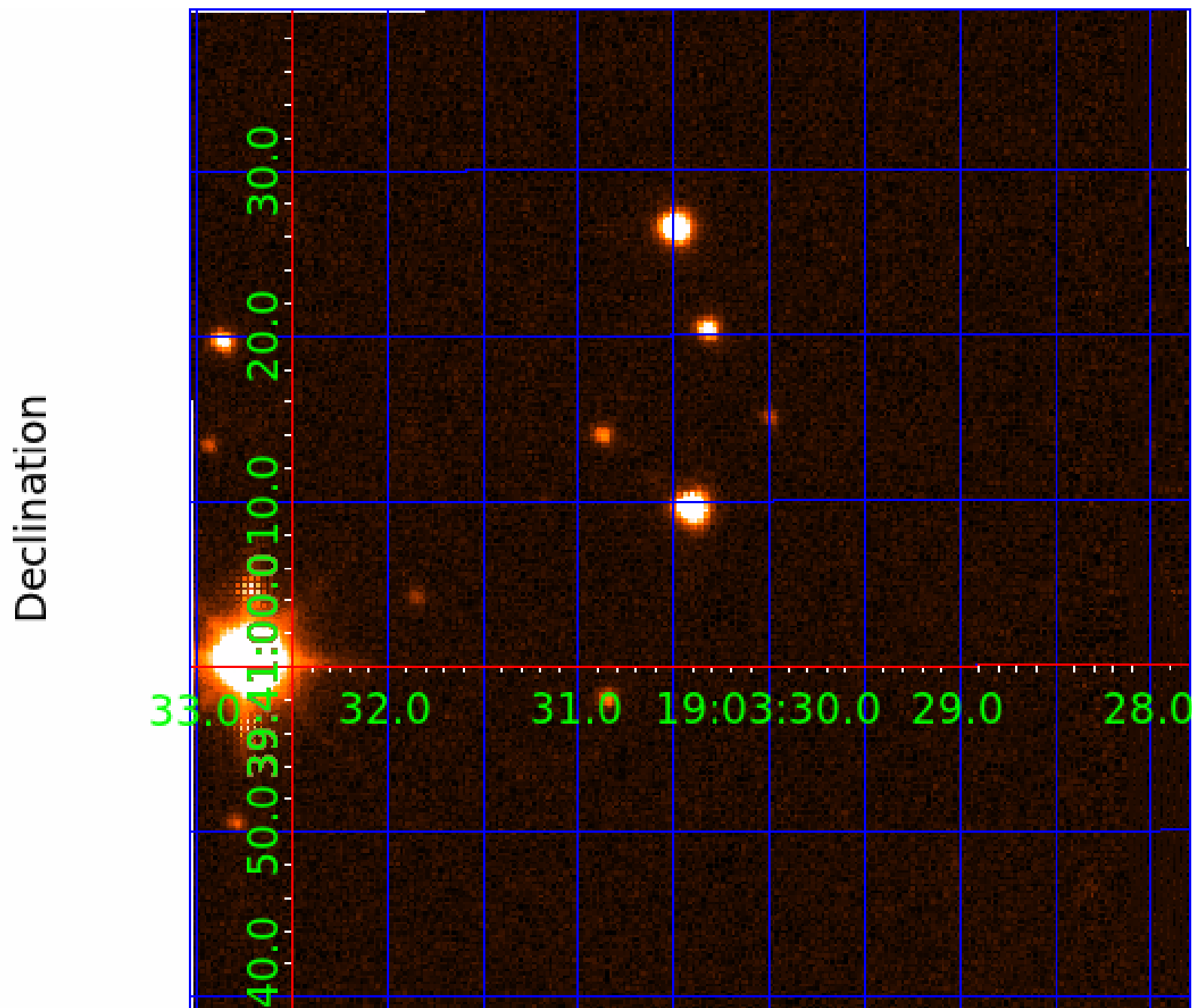
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 3



UKIRT Image



KIC 004544571

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

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004544571-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
004544571-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
004544571-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST

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

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

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

Ephemeris Match Information For 004544571-02

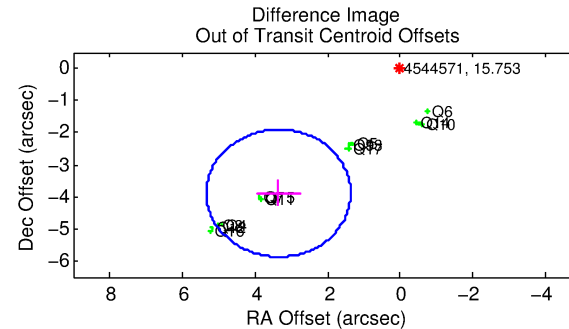
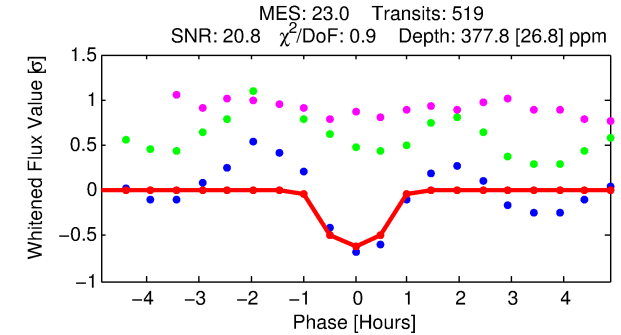
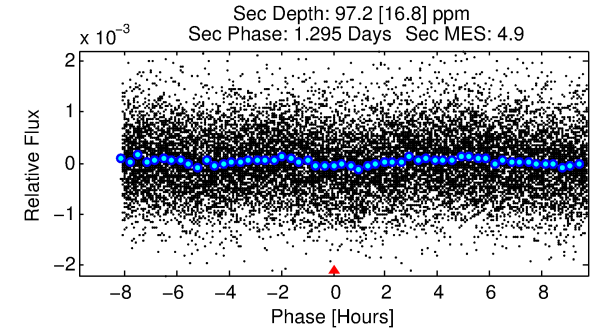
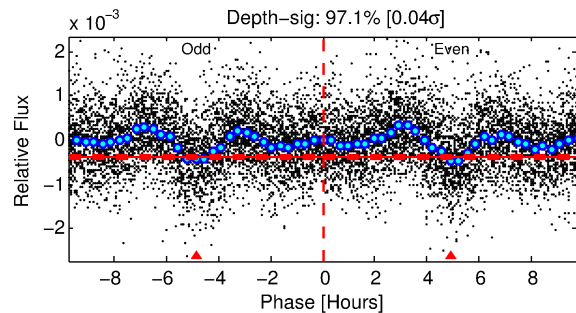
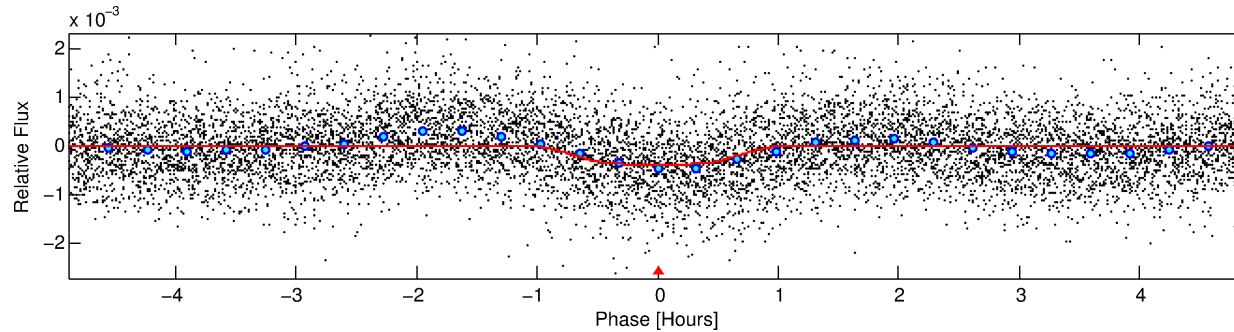
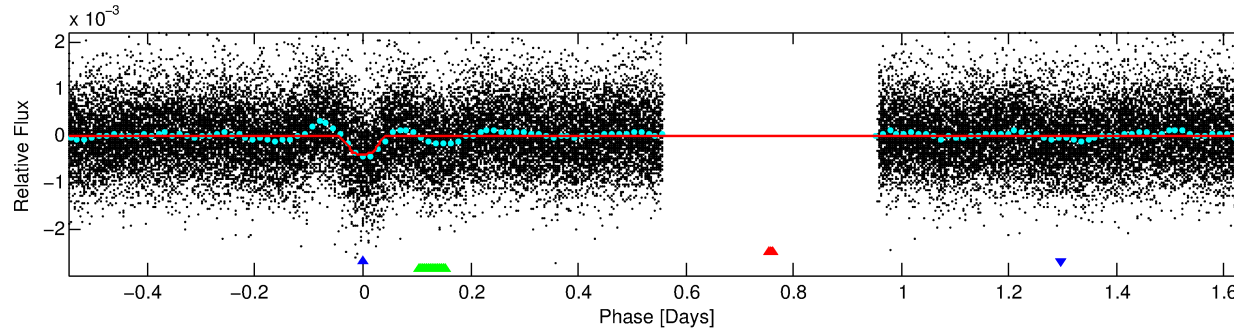
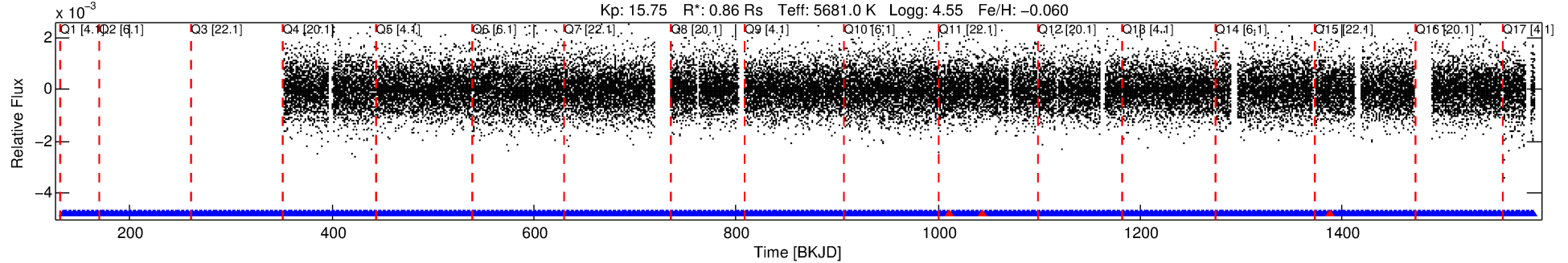
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004544571-02	4544571	004544587-sec	4544587	1:1	28.2	4	-5	10.80	15.75	857.14	Direct-PRF	0	1.13	0.82

Notes: $P_1:P_2$ 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. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 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: 4544571 Candidate: 2 of 3 Period: 2.189 d
KOI: K03976 Corr: No Ephemeris Match

Kp: 15.75 R*: 0.86 Rs Teff: 5681.0 K Logg: 4.55 Fe/H: -0.060



DV Fit Results:

Period = 2.18906 [0.00001] d
Epoch = 133.5223 [0.0013] BKJD
Rp/R* = 0.0213 [0.0076]
a/R* = 5.04 [7.90]
b = 0.90 [0.35]
Seff = 651.00 [246.35]
Teff = 1288 [122] K
Rp = 2.00 [0.91] Re
a = 0.0325 [0.0079] AU
Ag = 14.21 [11.54] [1.14σ]
Teffp = 3866 [717] K [3.54σ]

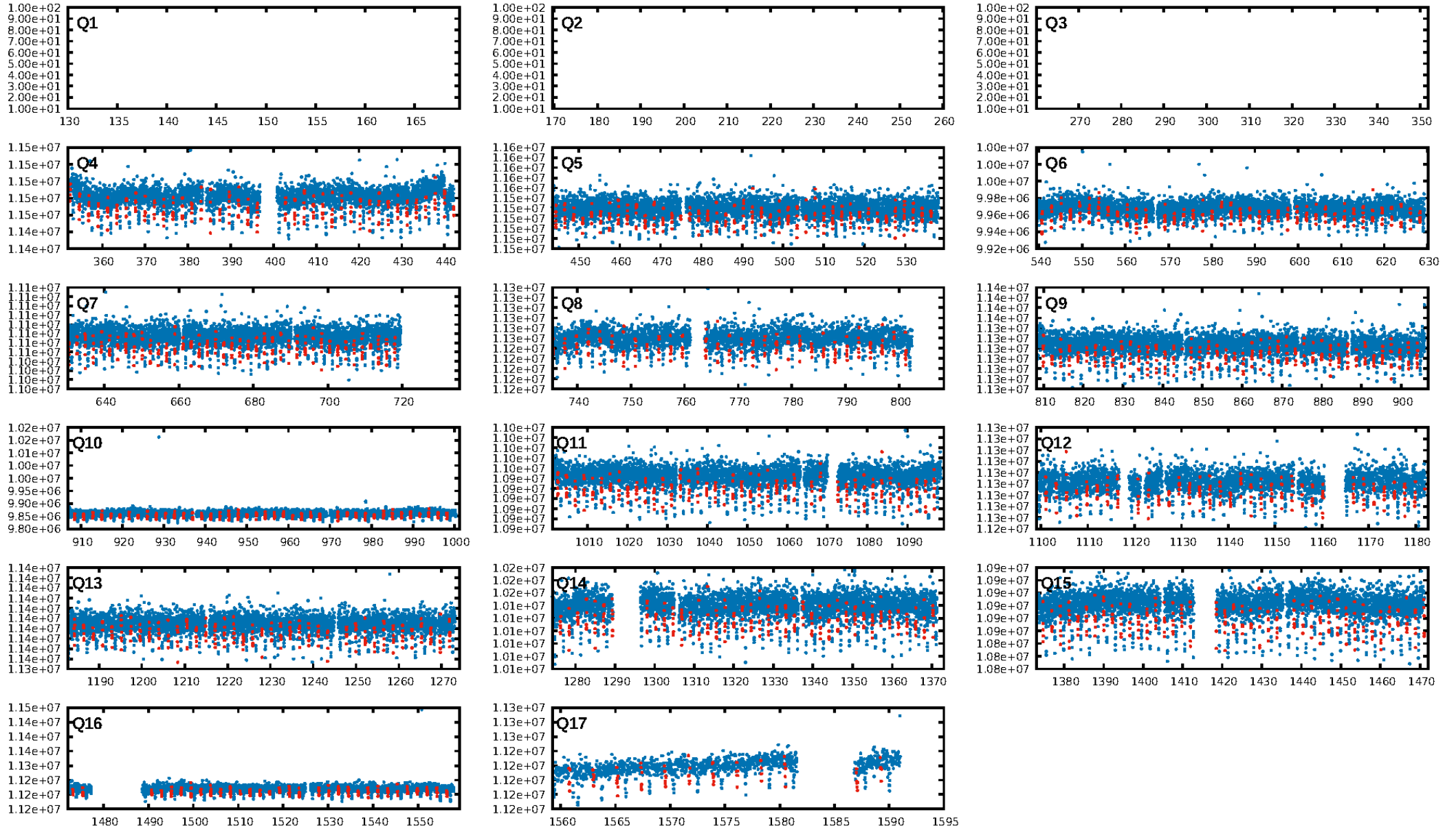
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.12e-115
RollingBand-fgt: 0.99 [504/507]
GhostDiagnostic-chr: -0.08469
Centroid-sig: 0.0%
Centroid-so: 9.103 arcsec [13.47σ]
OotOffset-rm: 5.134 arcsec [7.76σ]
KicOffset-rm: 5.292 arcsec [7.19σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.50 [7/14]
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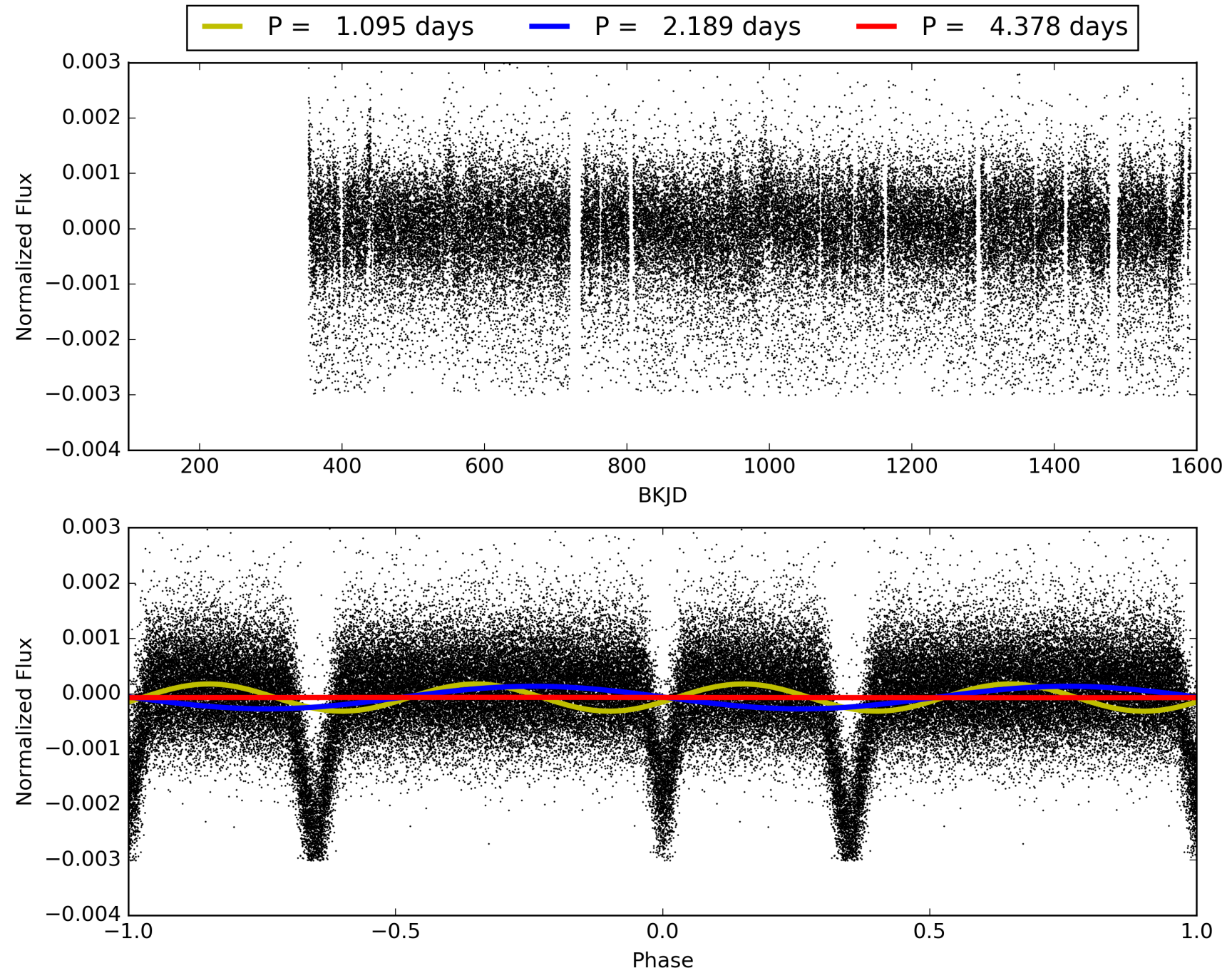
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:26:43 Z

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

TCE 004544571-02, PDC Light Curves

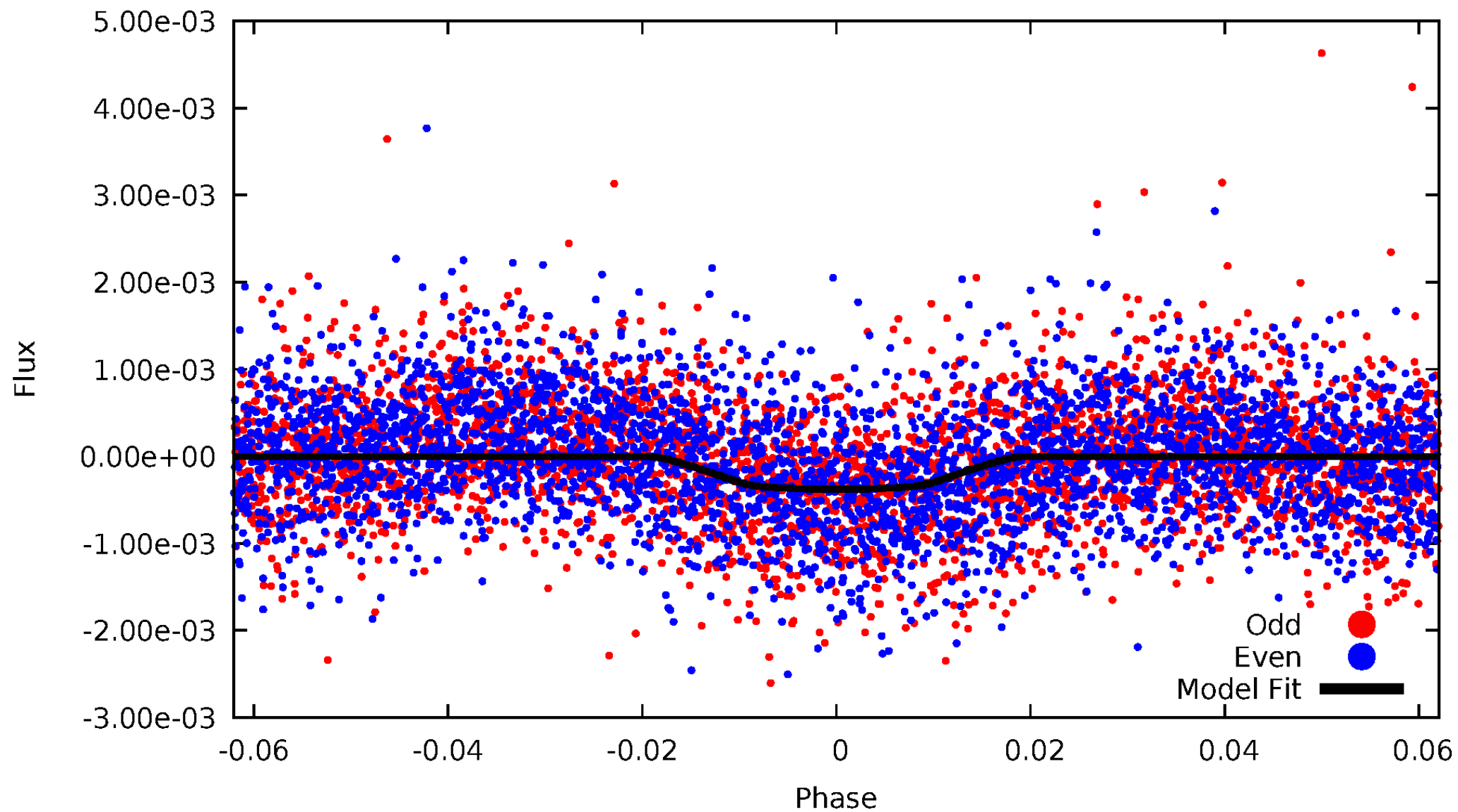


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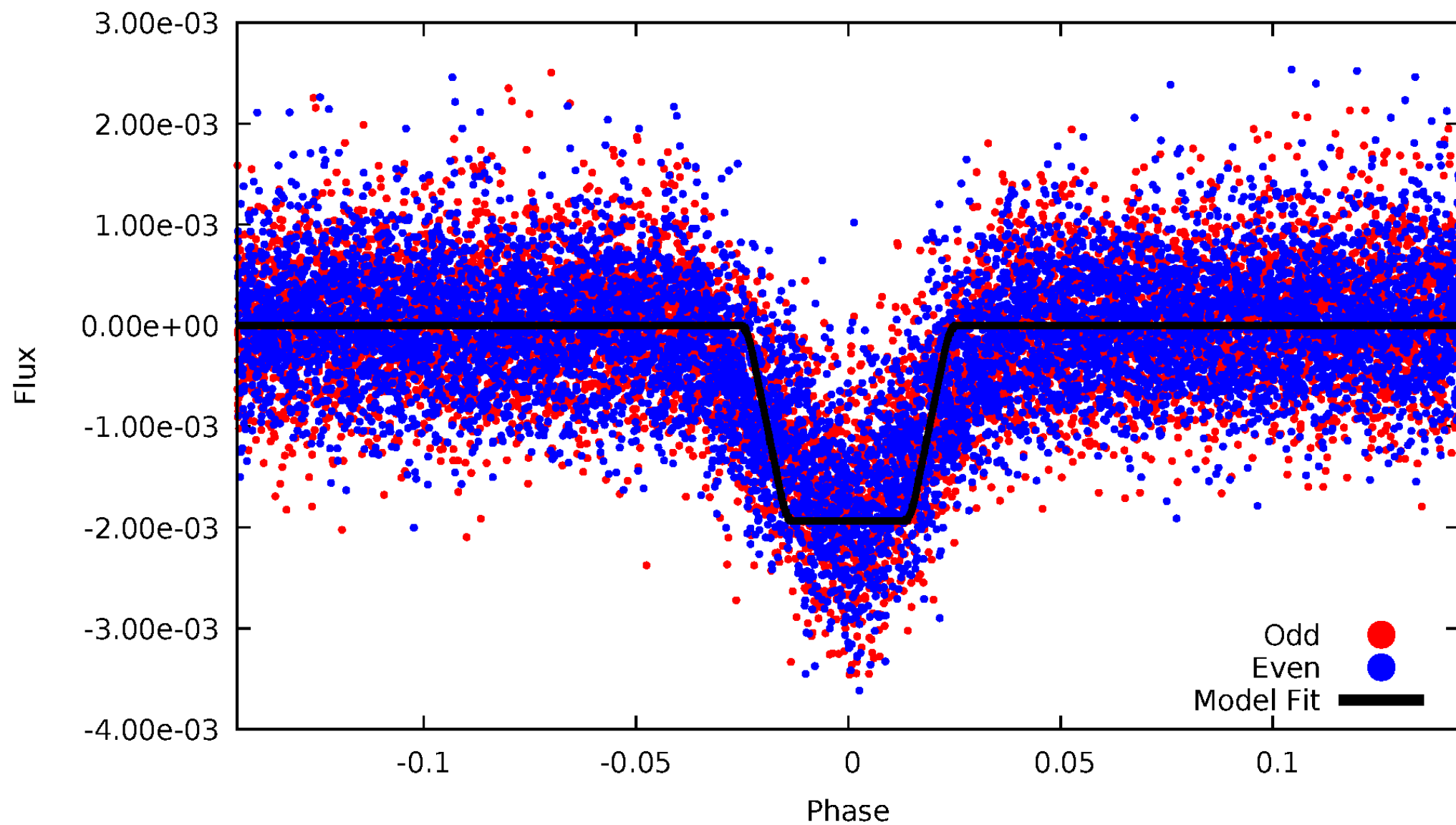
DV Odd/Even

TCE 004544571-02



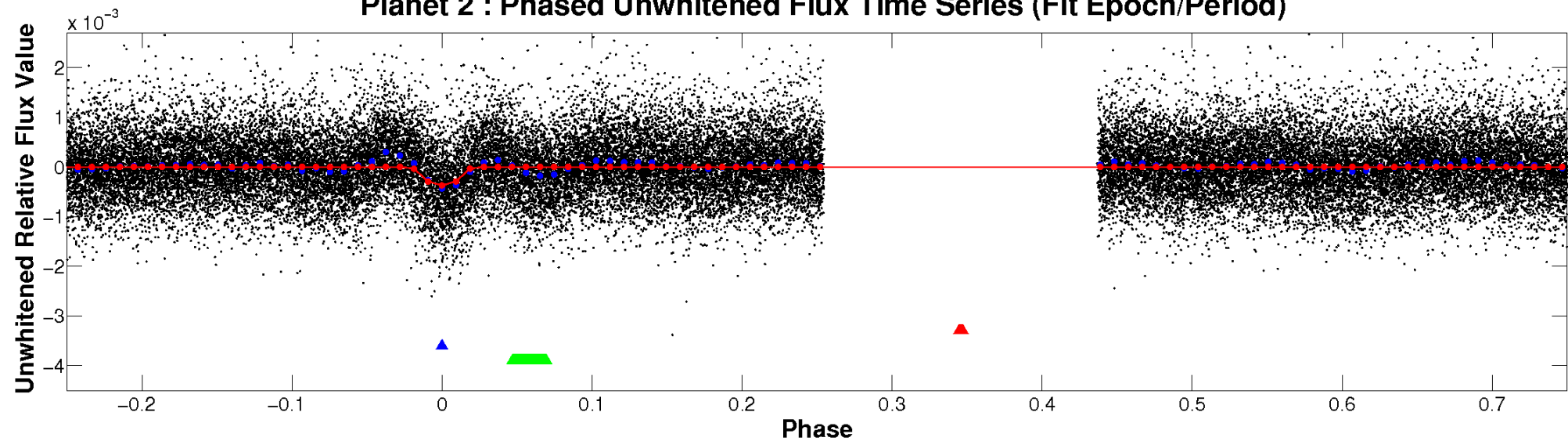
ALT Odd/Even

TCE 004544571-02

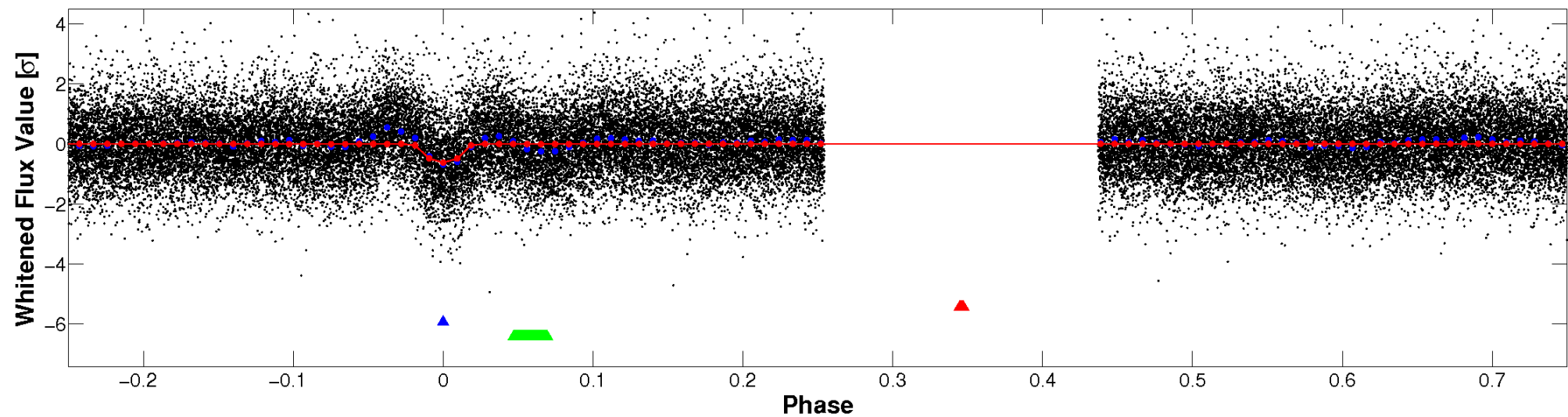


Non-Whitened Vs. Whitened Light Curve

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

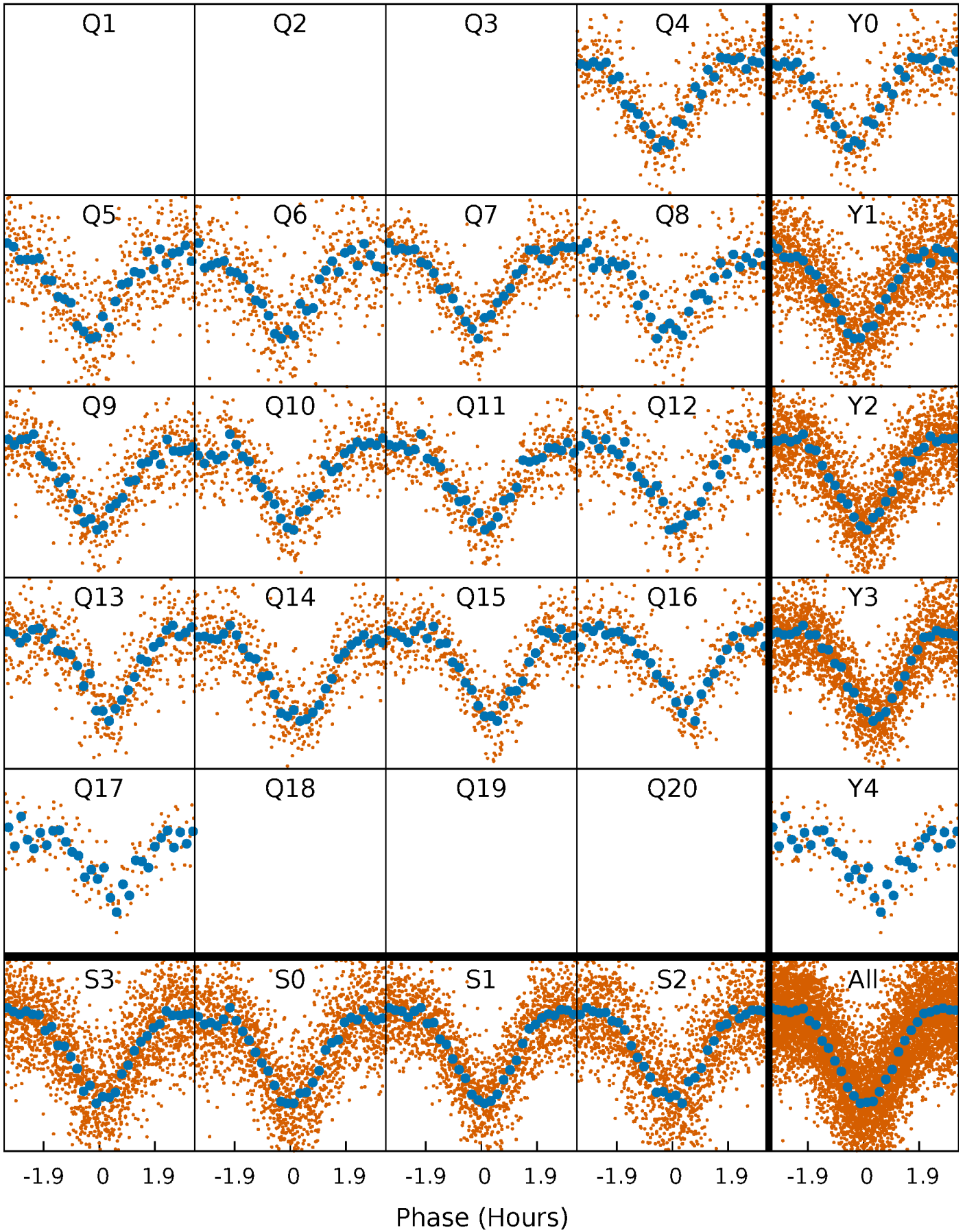


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



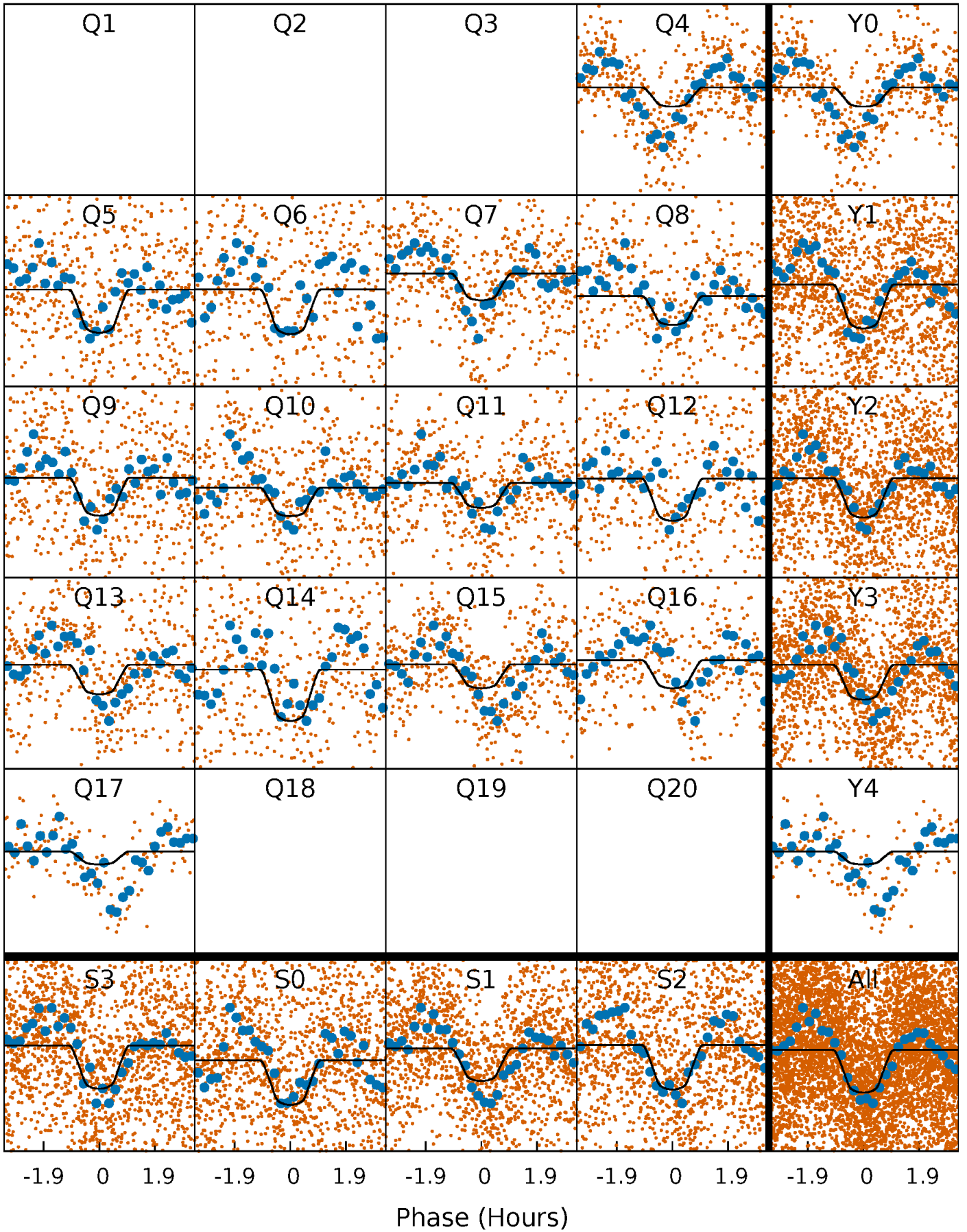
PDC Quarter-Phased Transit Curves

TCE 004544571-02 P= 2.189061 Days $T_0=133.522316$ (BKJD)



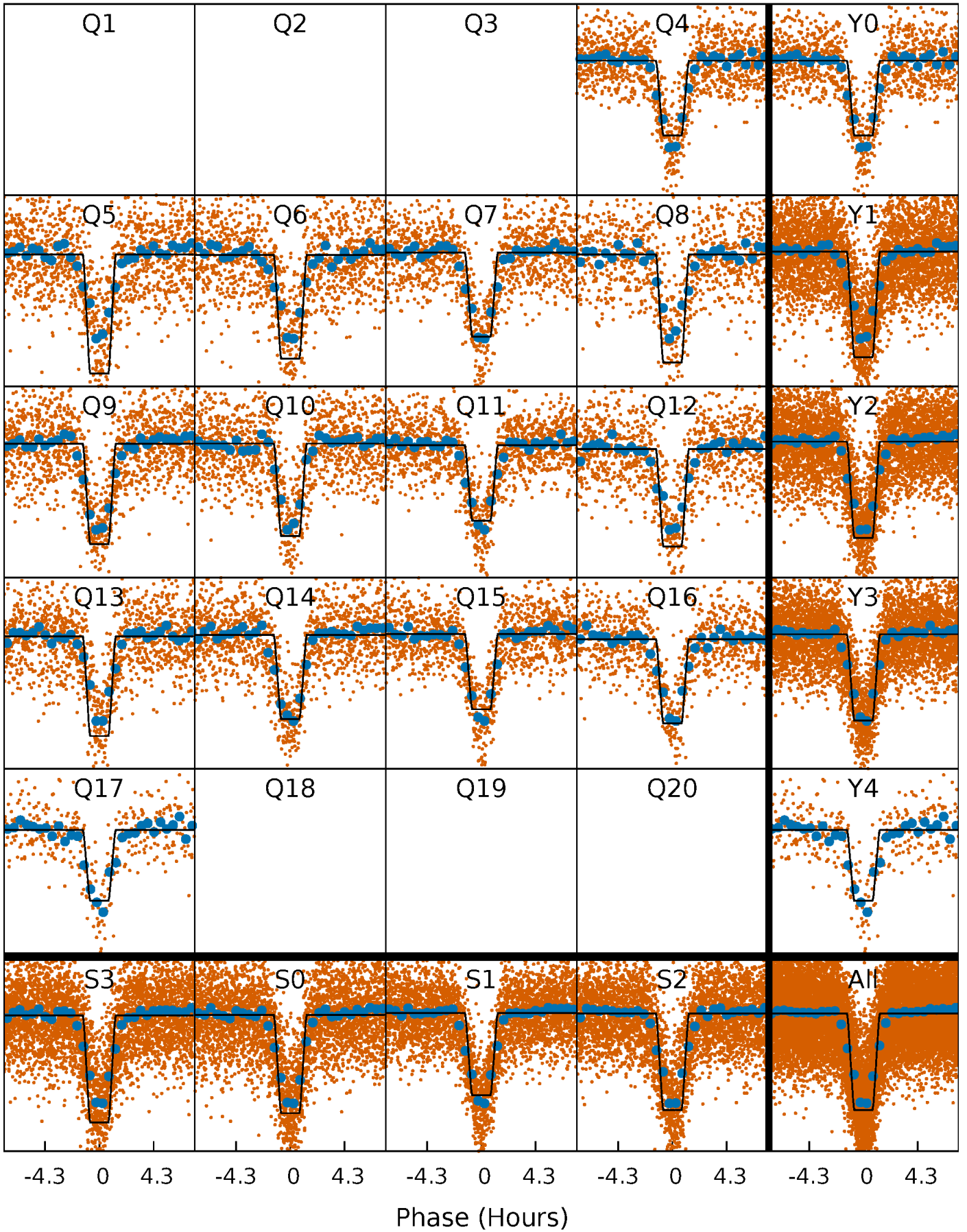
DV Quarter-Phased Transit Curves

TCE 004544571-02 P= 2.189061 Days $T_0=133.522316$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

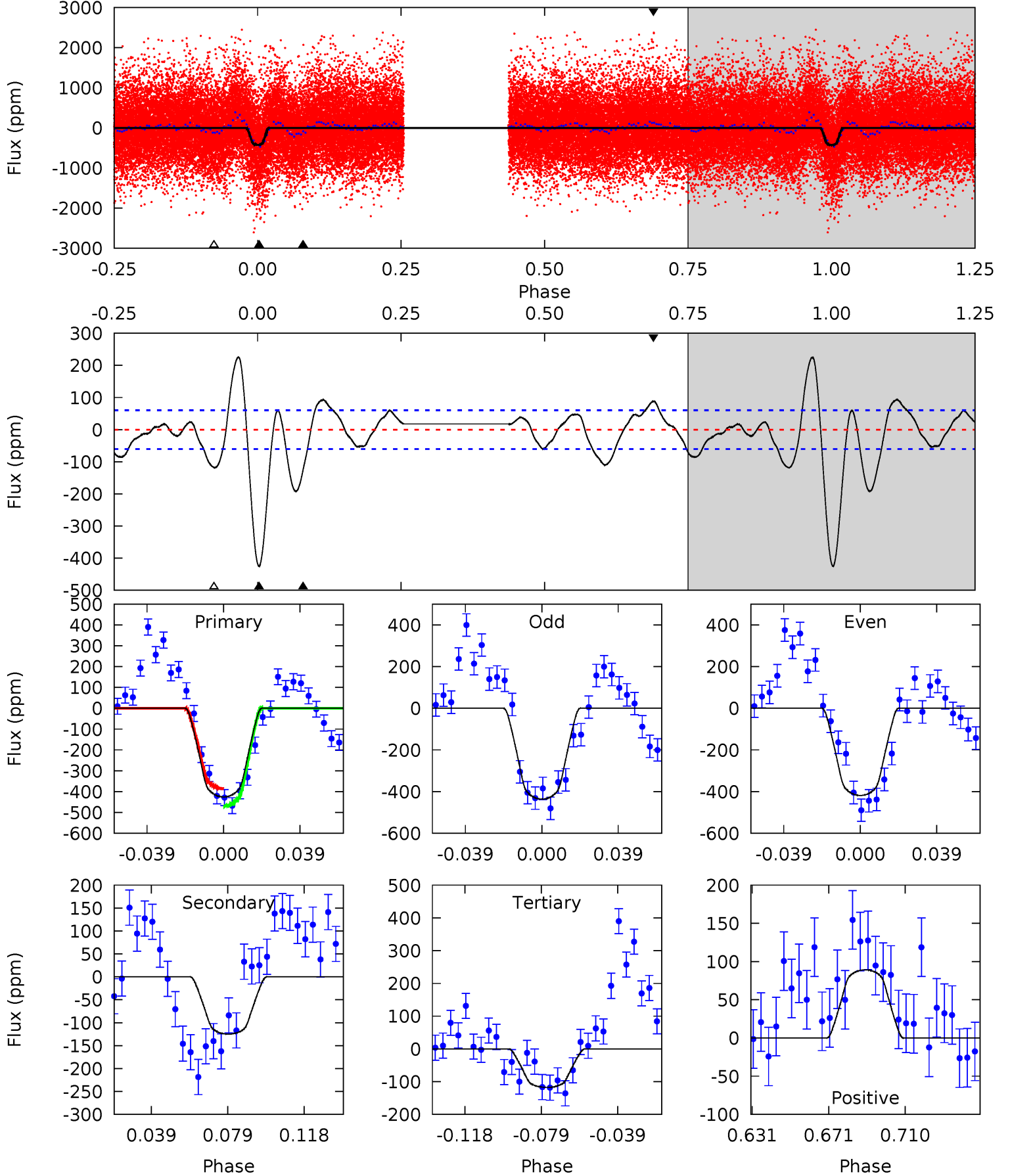
TCE 004544571-02 P= 2.189130 Days $T_0=133.497908$ (BKJD)



DV Model-Shift Uniqueness Test

004544571-02, P = 2.189061 Days, E = 133.522316 Days

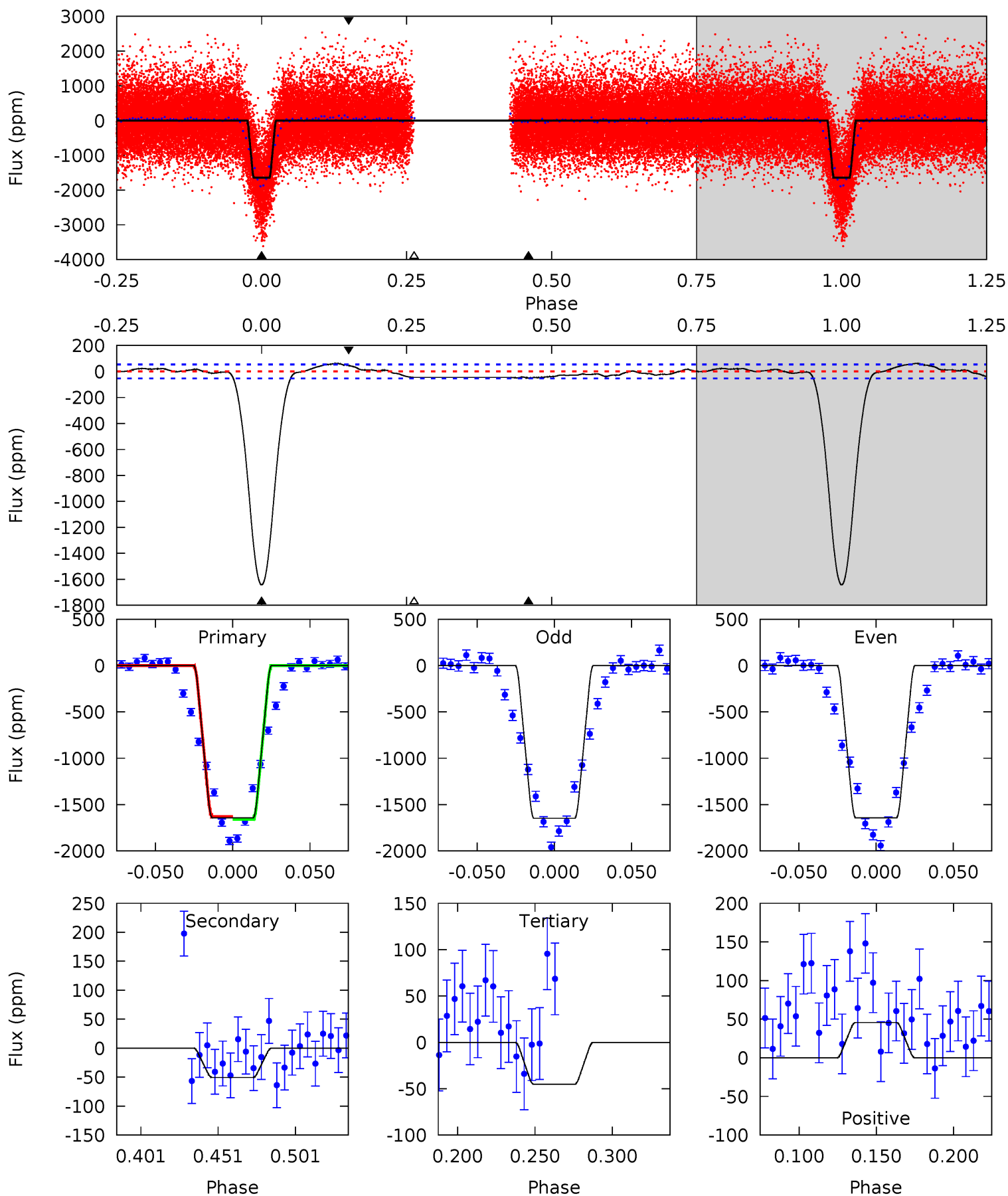
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.4	9.82	9.23	7.00	4.76	2.06	4.28	24.2	26.4	0.59	2.82	0.69	1.03	0.35	3.27



Alt Model-Shift Uniqueness Test

004544571-02, P = 2.189130 Days, E = 133.497908 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
144.9	4.47	3.99	4.03	4.71	1.96	2.10	140.9	140.9	0.48	0.44	0.21	1.01	0.04	1.41



Stellar Parameters For KIC 004544571

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5681^{+186}_{-186}	$4.551^{+0.034}_{-0.195}$	$-0.060^{+0.250}_{-0.300}$	$0.859^{+0.246}_{-0.082}$	$0.957^{+0.104}_{-0.115}$	$2.129^{+0.407}_{-1.073}$
	+3%/-3%	+1%/-4%	+417%/-500%	+29%/-10%	+11%/-12%	+19%/-50%
Source	KIC0	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 004544571-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-125 ± 13	$2.07^{+0.80}_{-0.78}$	1847^{+117}_{-88}	4317^{+957}_{-469}	17^{+25}_{-8}
Alt.	-51 ± 11	$4.37^{+1.09}_{-0.81}$	1846^{+128}_{-85}	2849^{+241}_{-214}	$1.469^{+0.867}_{-0.580}$

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

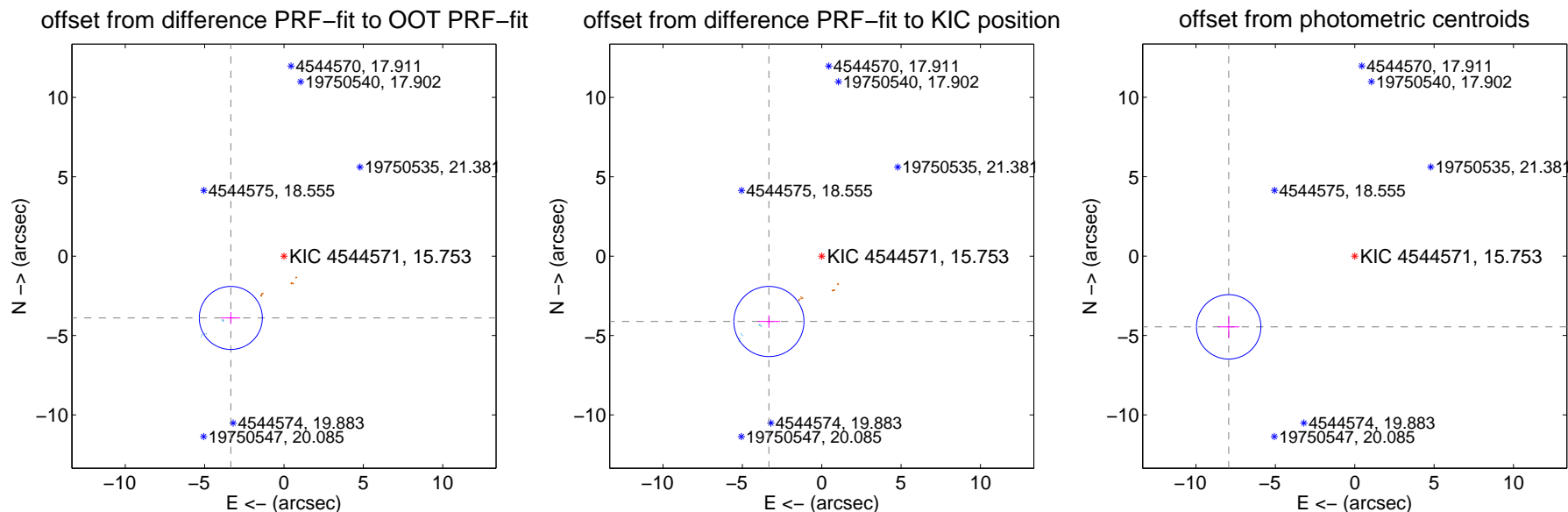
DV Centroid Data

Supplemental centroid analysis for 004544571-02. Kepler magnitude: 15.75. Transit SNR 20.76

There are 7 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.134 ± 0.662	7.76	3.350 ± 0.595	-3.891 ± 0.367
PRF-fit source offset from KIC position	5.292 ± 0.736	7.19	3.327 ± 0.697	-4.115 ± 0.390
photometric centroid source offset	9.10 ± 0.68	13.47	7.94 ± 0.67	-4.46 ± 0.71



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



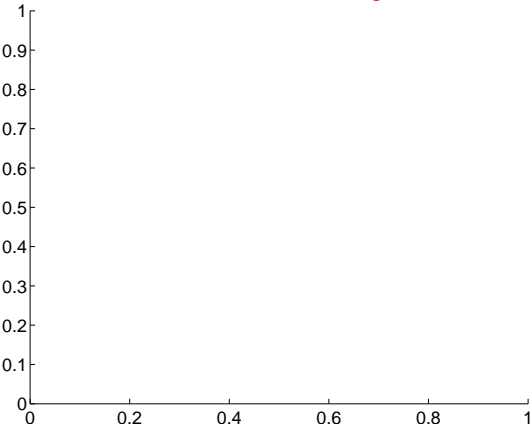
Q2 no difference image



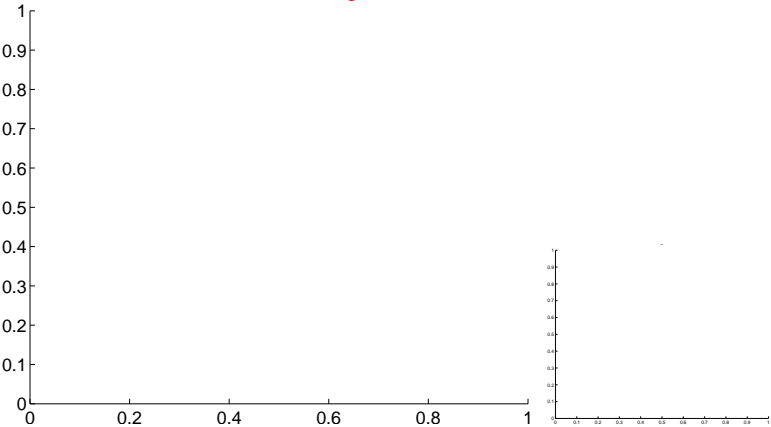
Q2 no OOT image



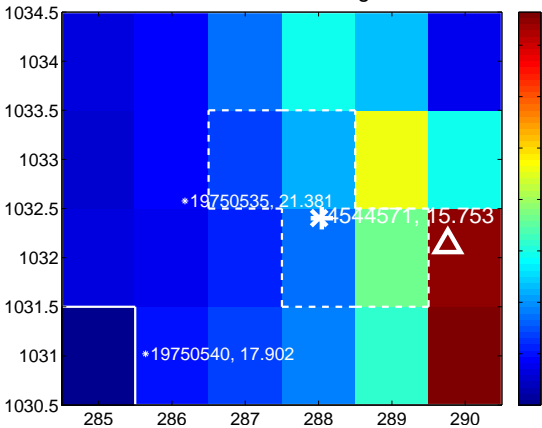
Q3 no difference image



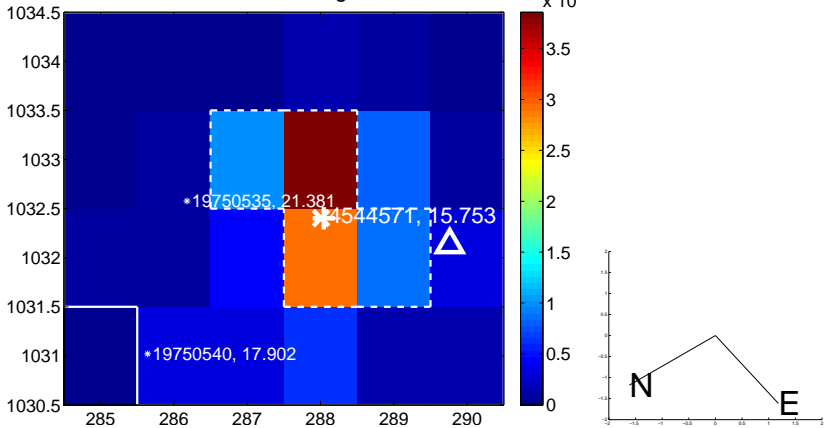
Q3 no OOT image



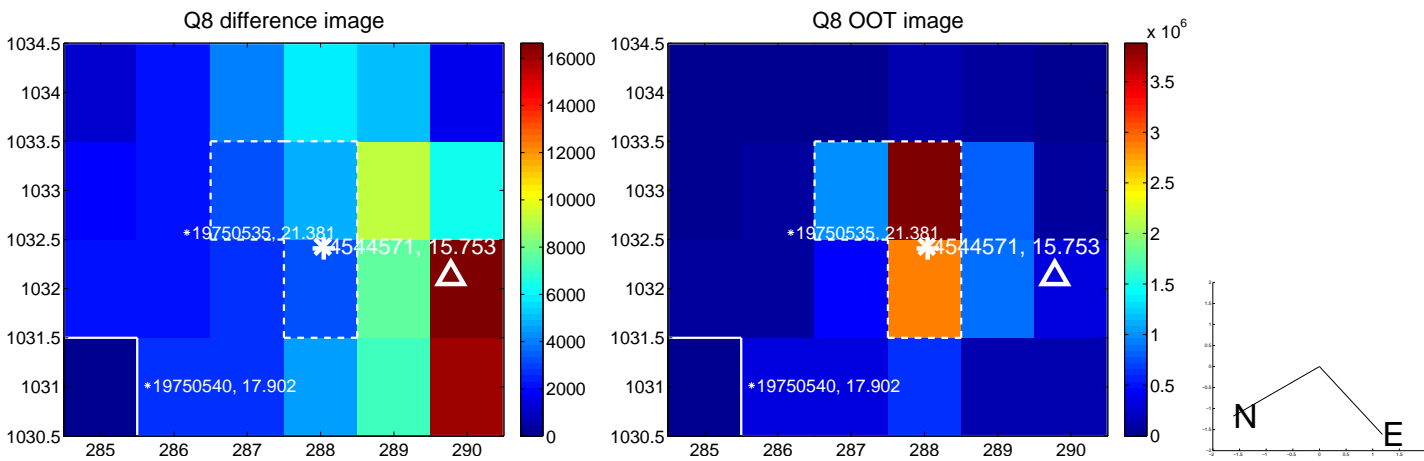
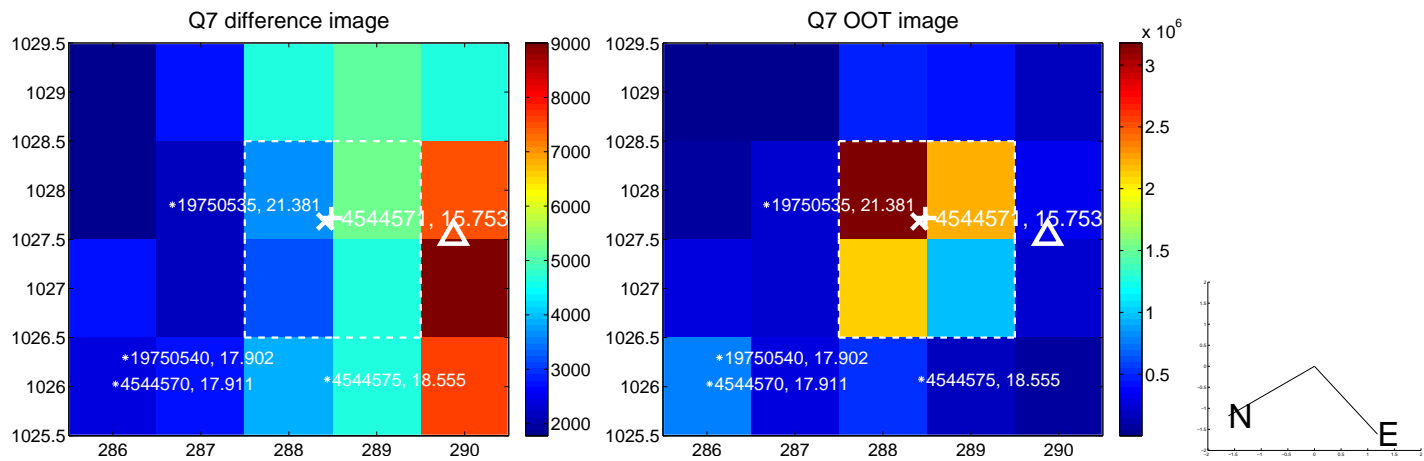
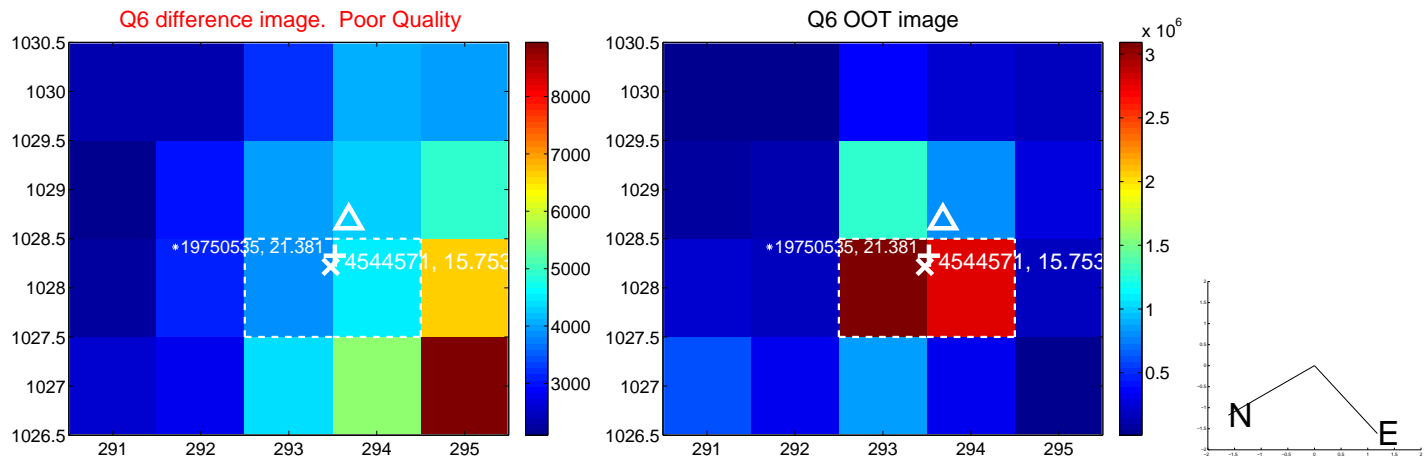
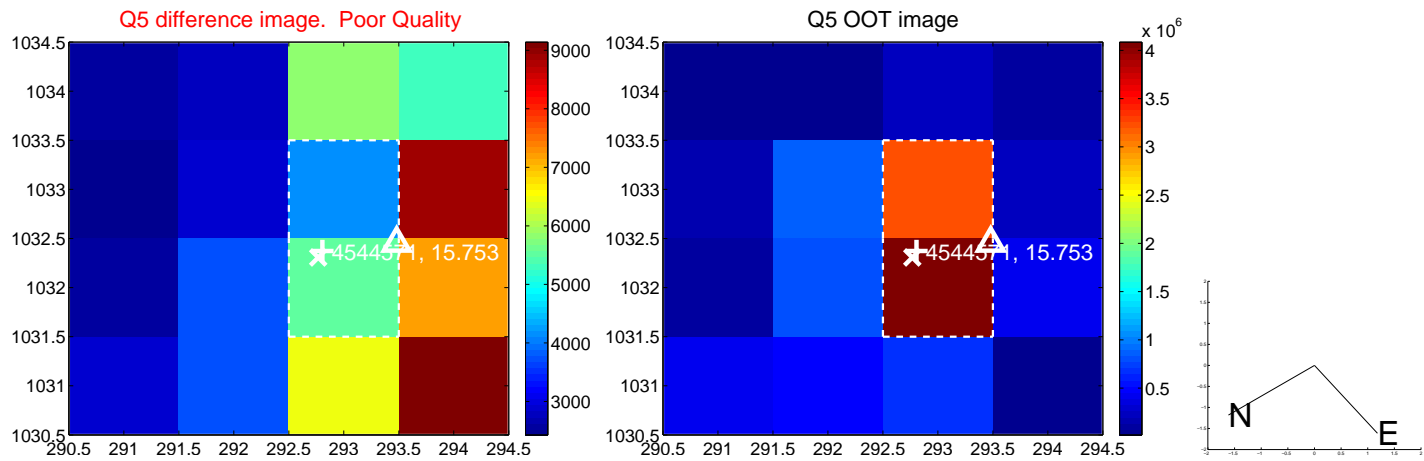
Q4 difference image



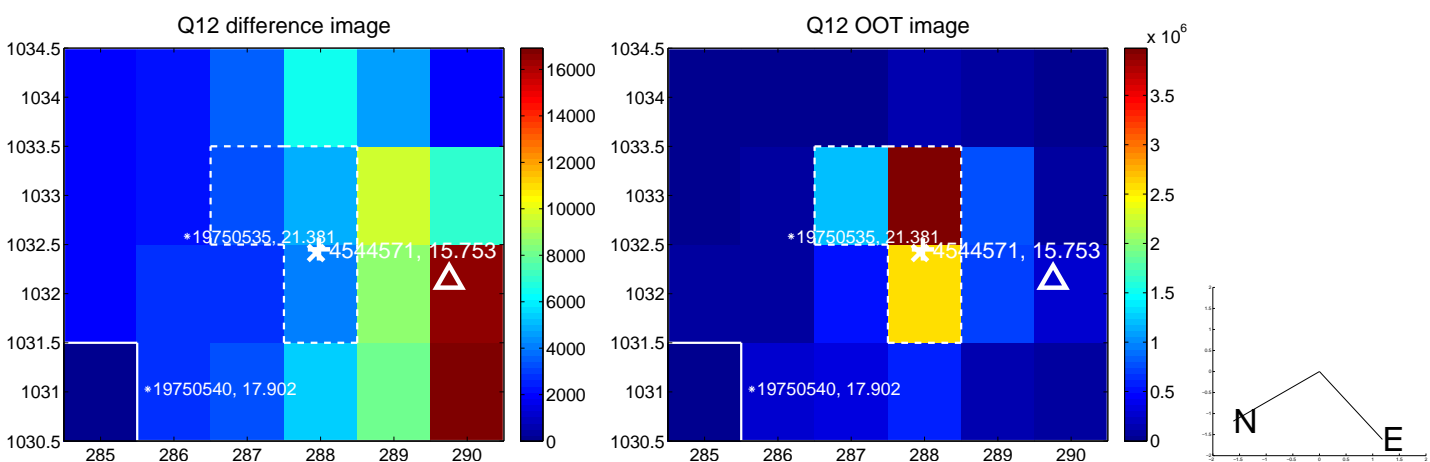
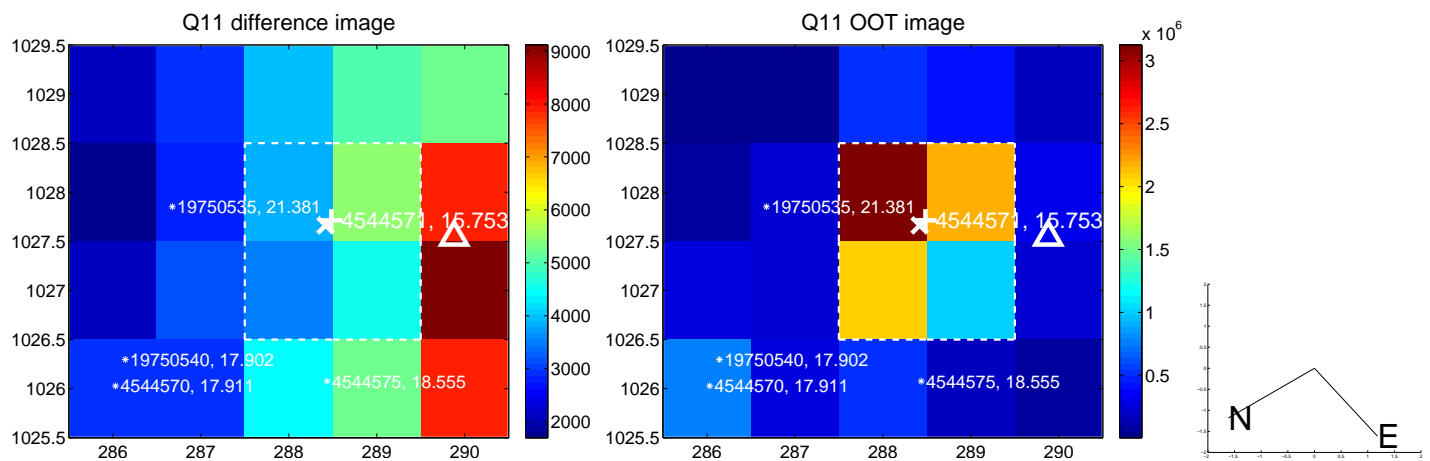
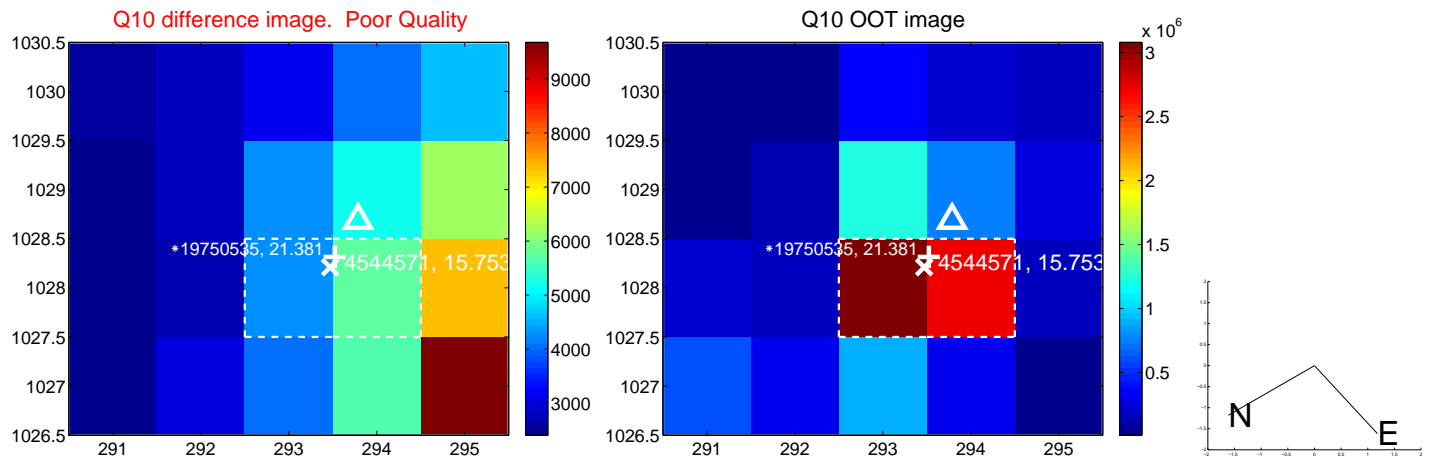
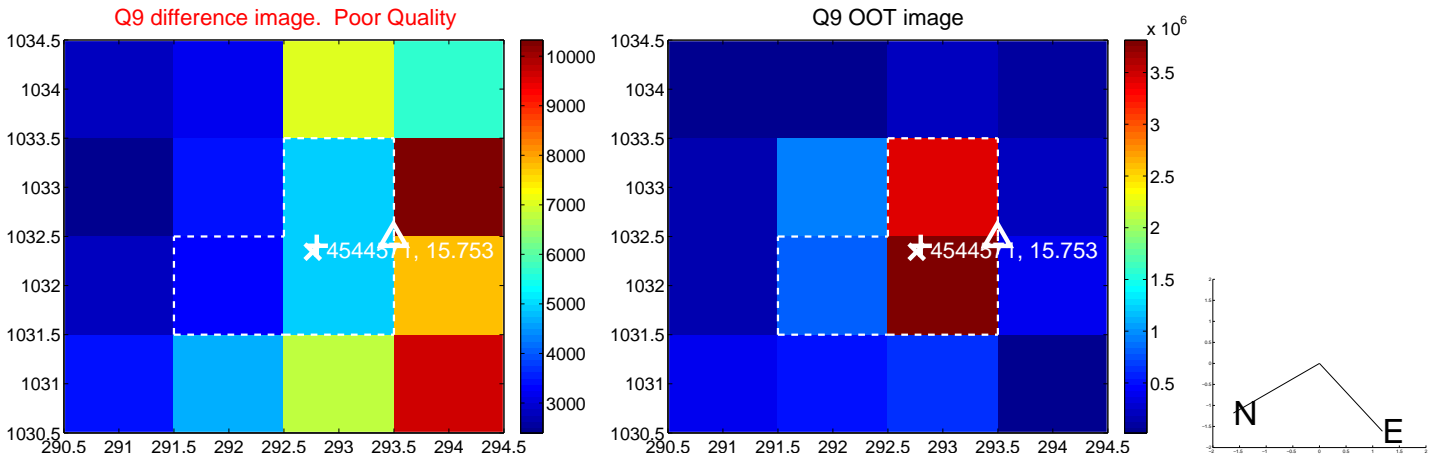
Q4 OOT image



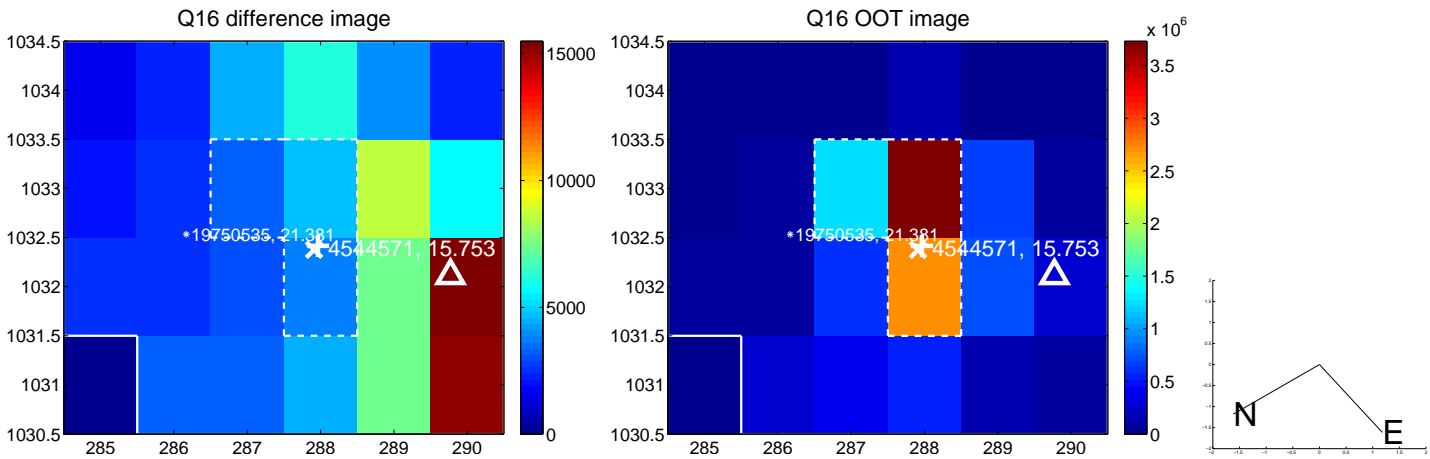
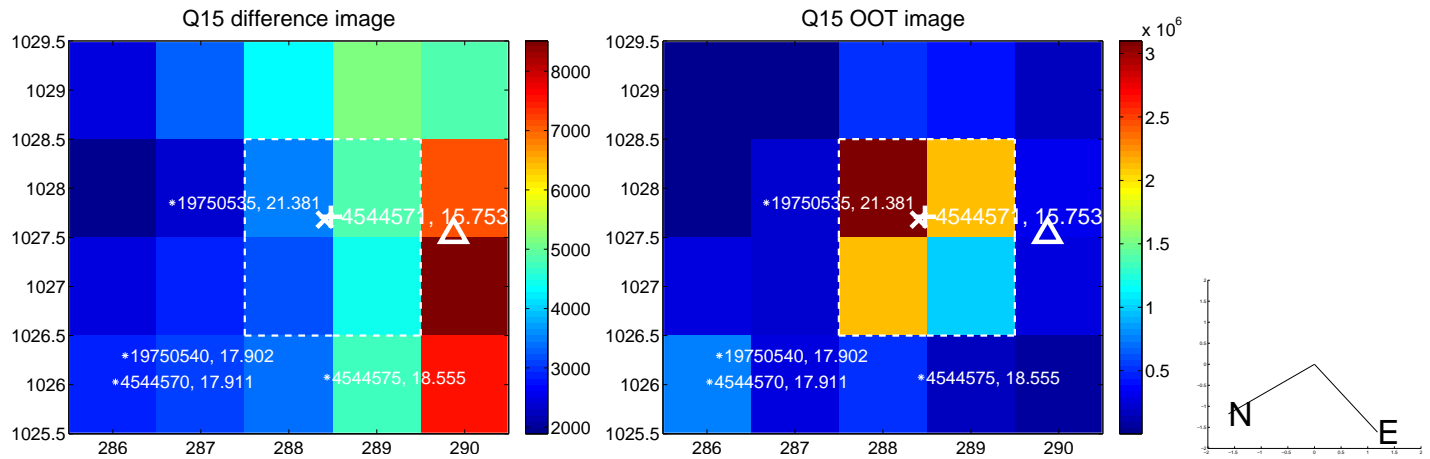
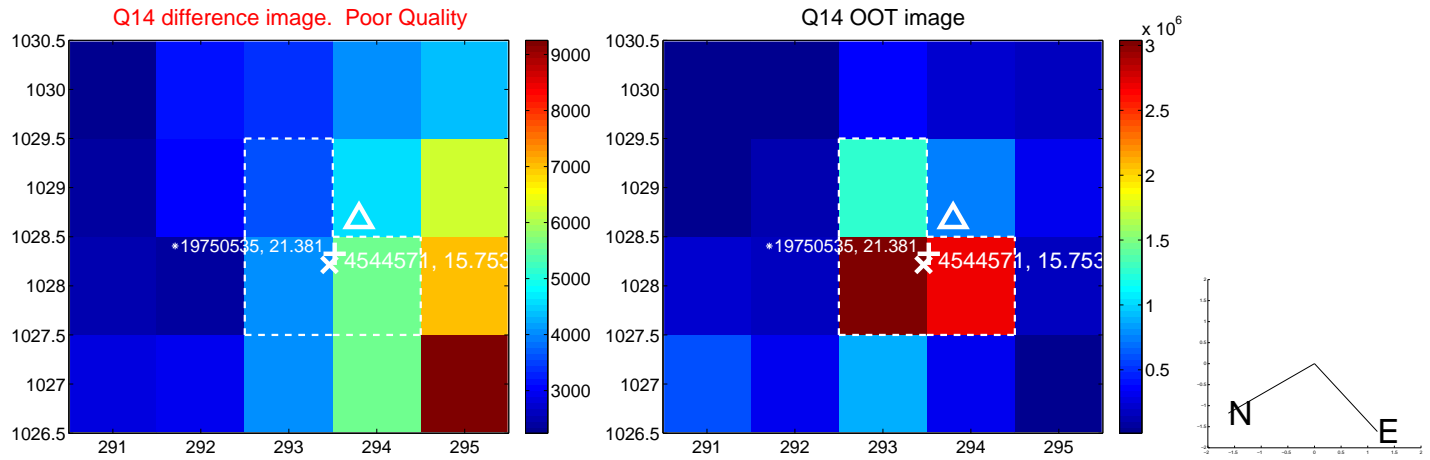
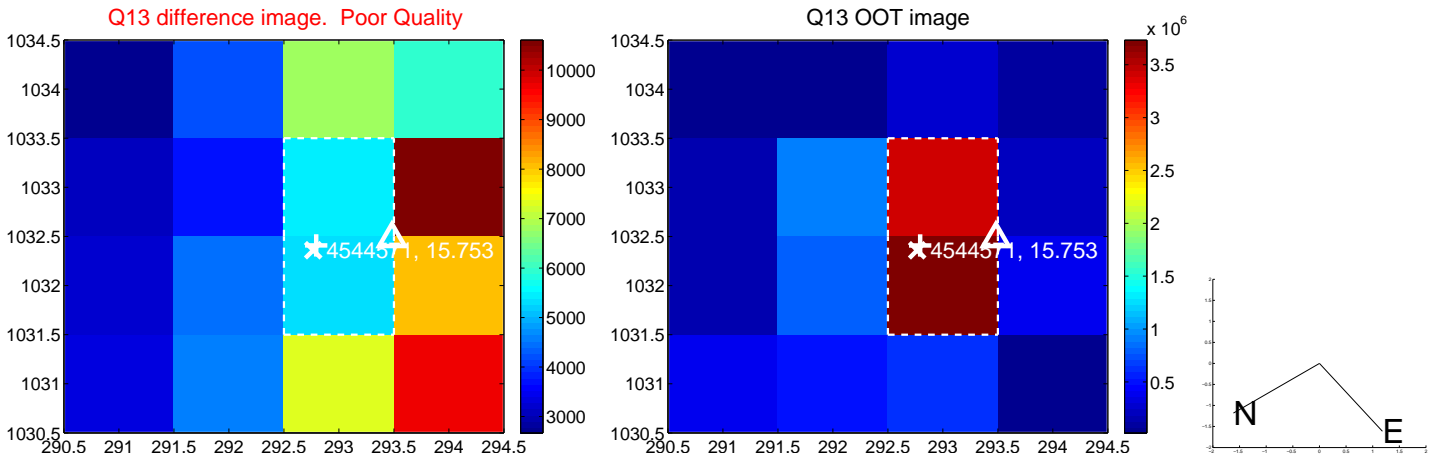
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



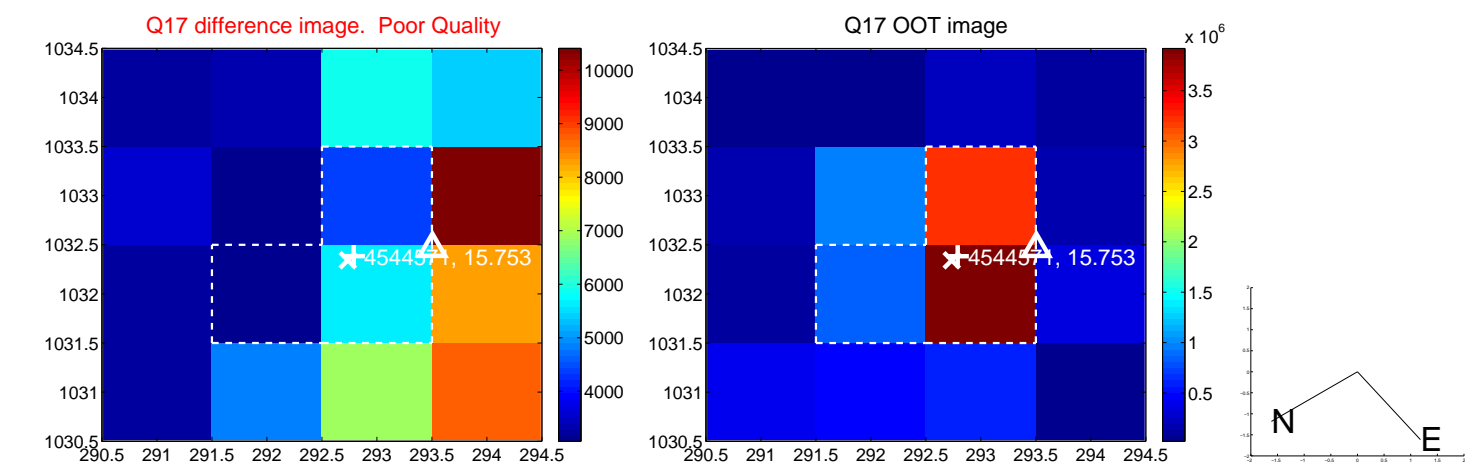
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



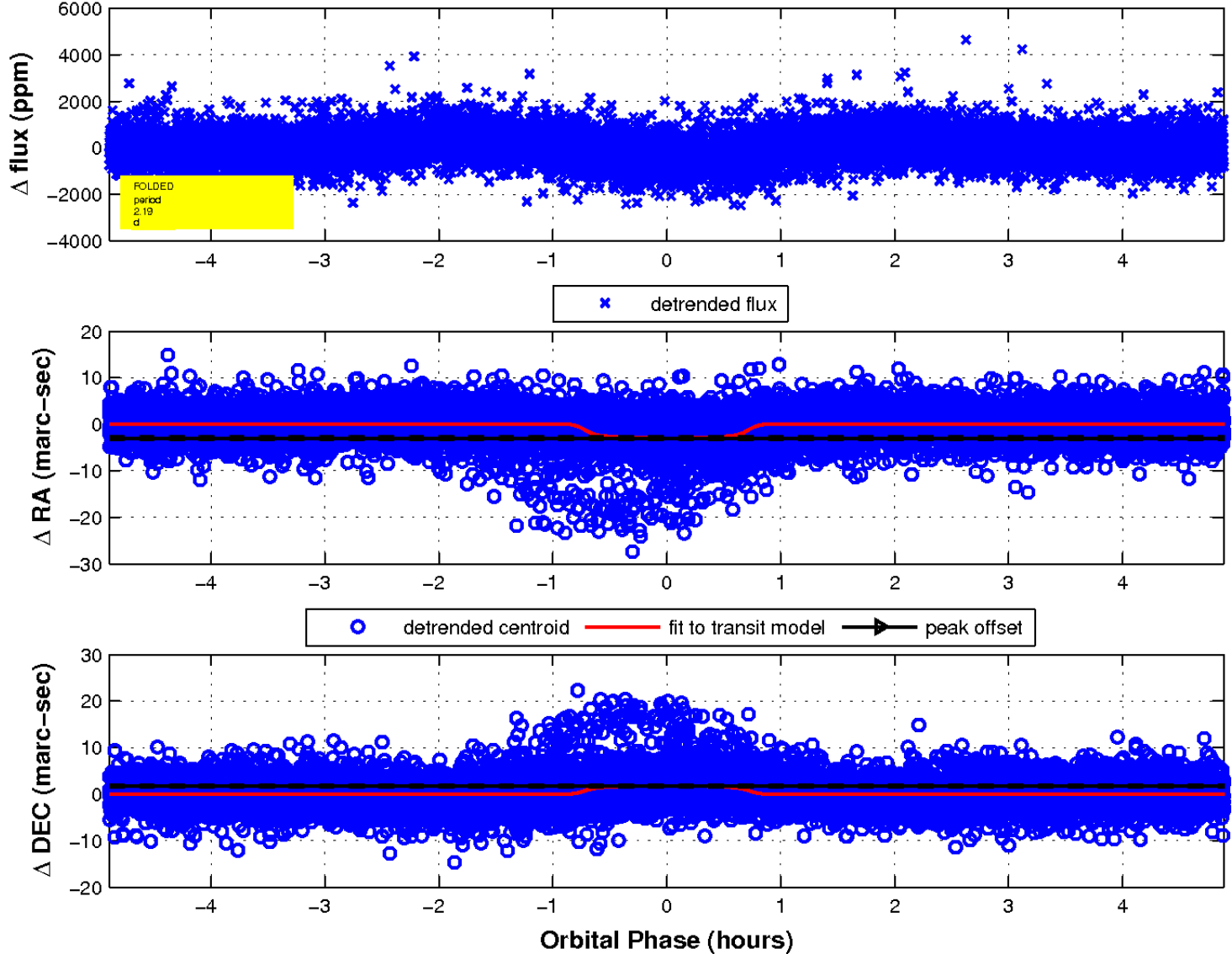
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



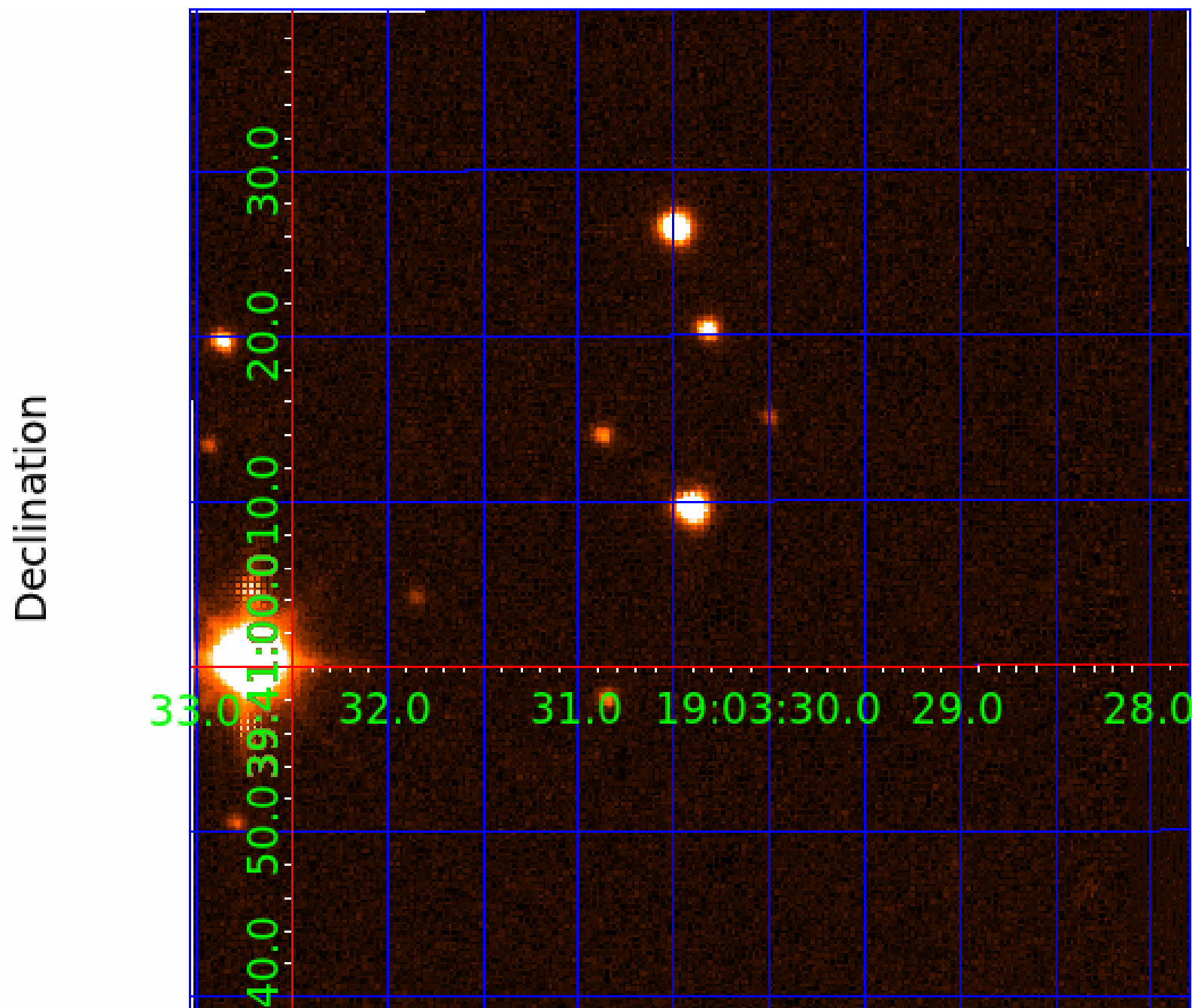
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 2 of 3



UKIRT Image



KIC 004544571

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})
004544571-01	OBS	3976.01	2.189053	132.093245	793.0	3.050	42.5	47.3	0.86	5681	3.21	651.00
004544571-02	OBS	No	2.189061	133.522316	377.8	1.631	23.0	20.8	0.86	5681	2.00	651.00
004544571-03	OBS	No	2.188987	133.674464	164.5	2.957	9.3	10.2	0.86	5681	1.15	651.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004544571-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
004544571-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
004544571-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—HALO_GHOST

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

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

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

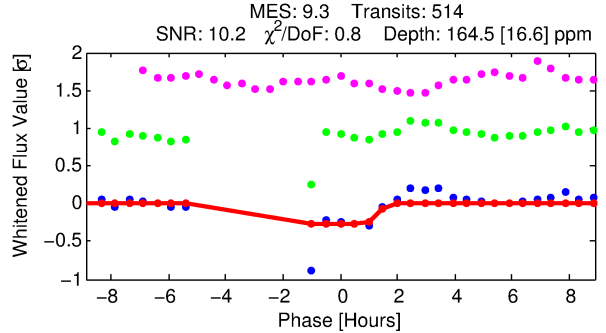
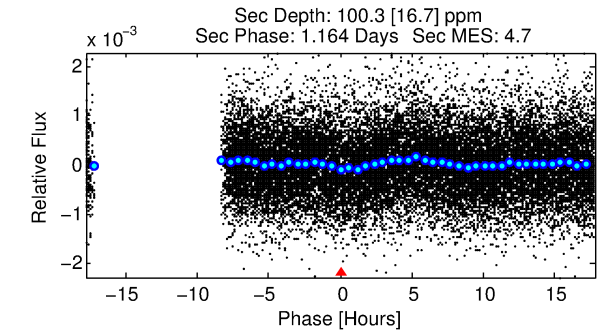
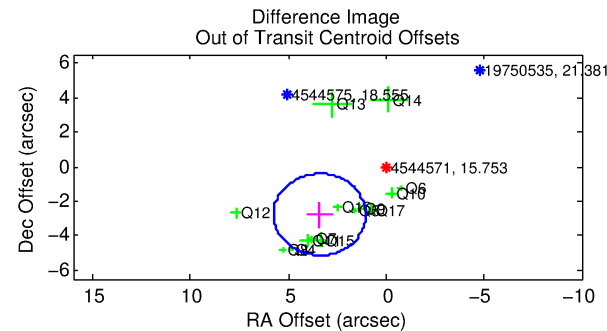
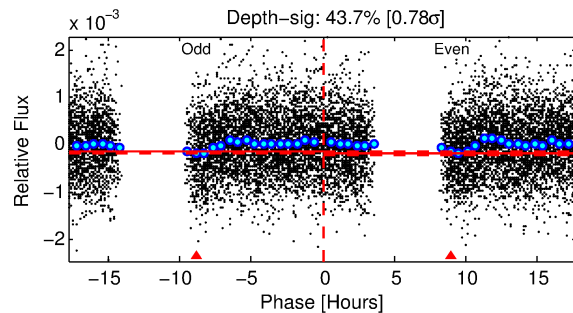
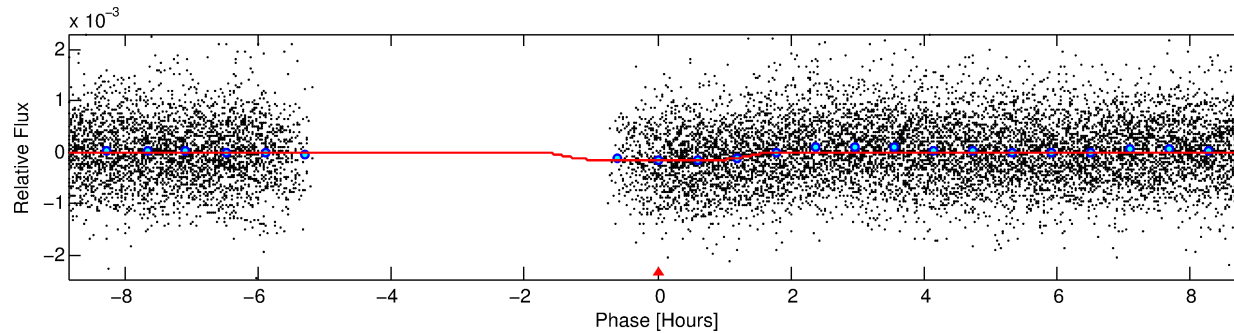
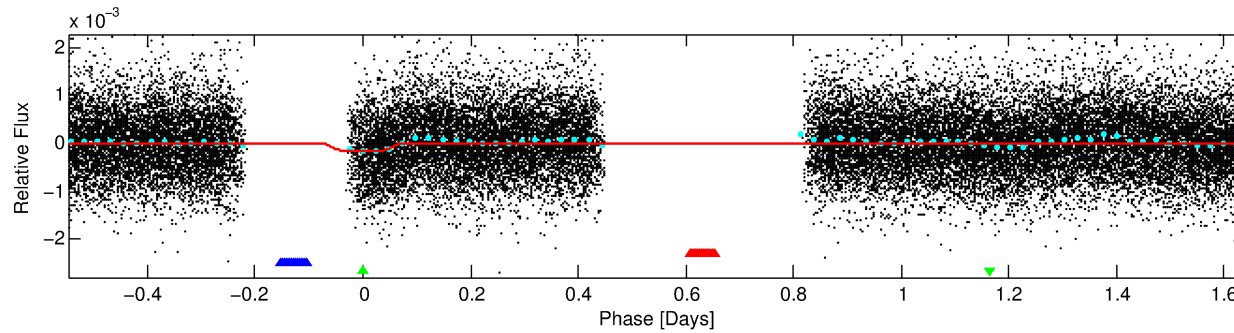
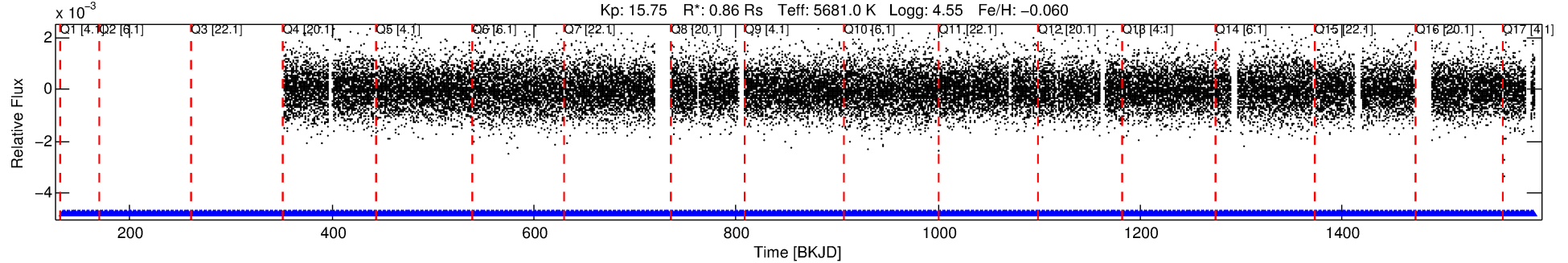
Ephemeris Match Information For 004544571-03

No Significant Match Found

DV One-Page Summary

KIC: 4544571 Candidate: 3 of 3 Period: 2.189 d
KOI: K03976 Corr: No Ephemeris Match

Kp: 15.75 R*: 0.86 Rs Teff: 5681.0 K Logg: 4.55 Fe/H: -0.060



DV Fit Results:

Period = 2.18899 [0.00002] d
Epoch = 133.6745 [0.0143] BKJD
Rp/R* = 0.0123 [0.0169]
a/R* = 4.61 [25.84]
b = 0.62 [5.99]
Seff = 651.03 [246.36]
Teq = 1288 [122] K
Rp = 1.15 [1.61] Re
a = 0.0325 [0.0079] AU
Ag = 44.09 [122.33] [0.35σ]
Teffp = 5132 [3534] K [1.09σ]

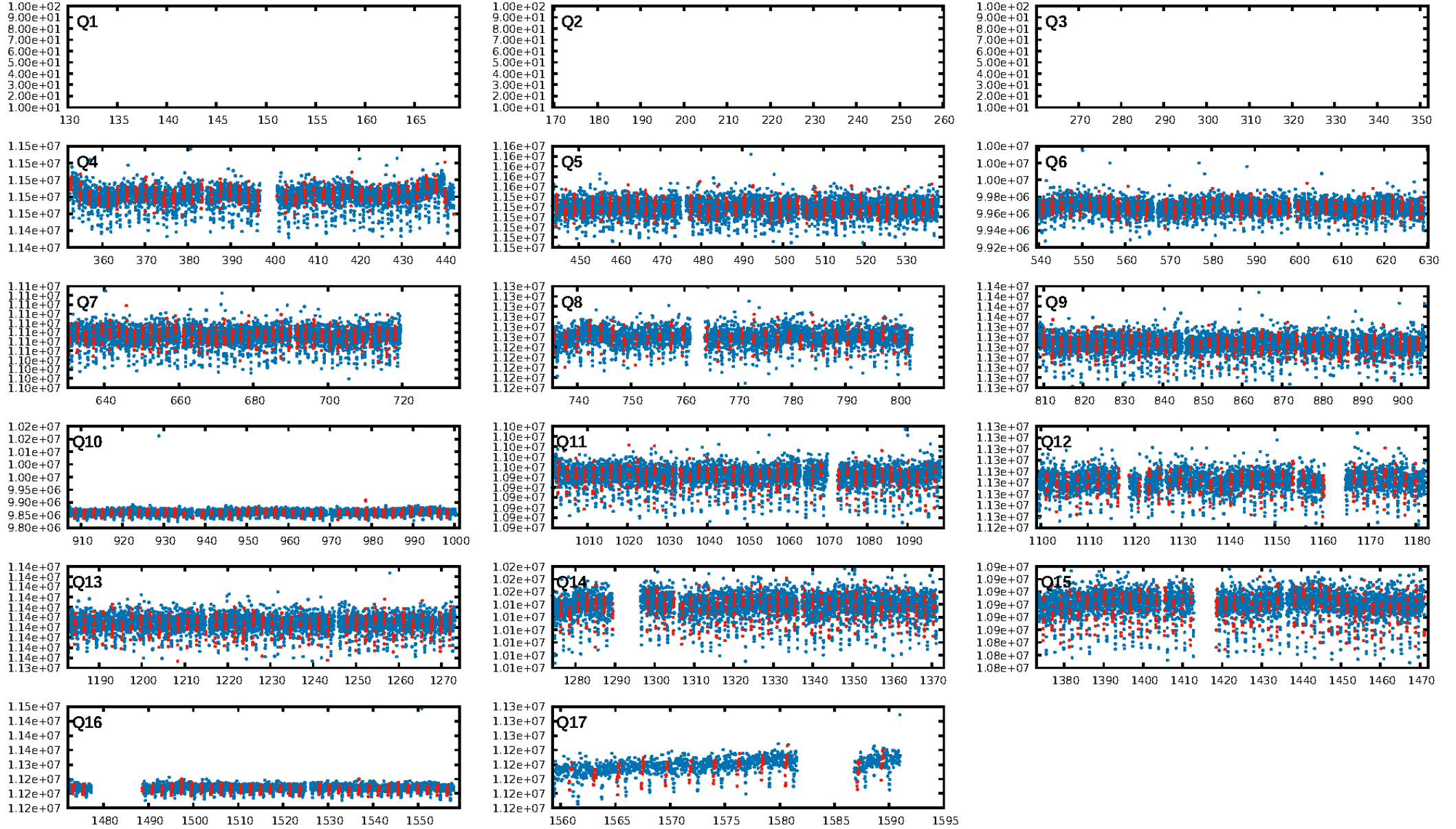
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.34e-22
RollingBand-fgt: 1.00 [502/502]
GhostDiagnostic-chr: -0.2474
Centroid-sig: 5.2%
Centroid-so: 1.544 arcsec [1.32σ]
OotOffset-rm: 4.390 arcsec [5.58σ]
KicOffset-rm: 4.580 arcsec [6.06σ]
OotOffset-st: 3/3/4/4 [14]
KicOffset-st: 3/3/4/4 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 0.00 [0/14]

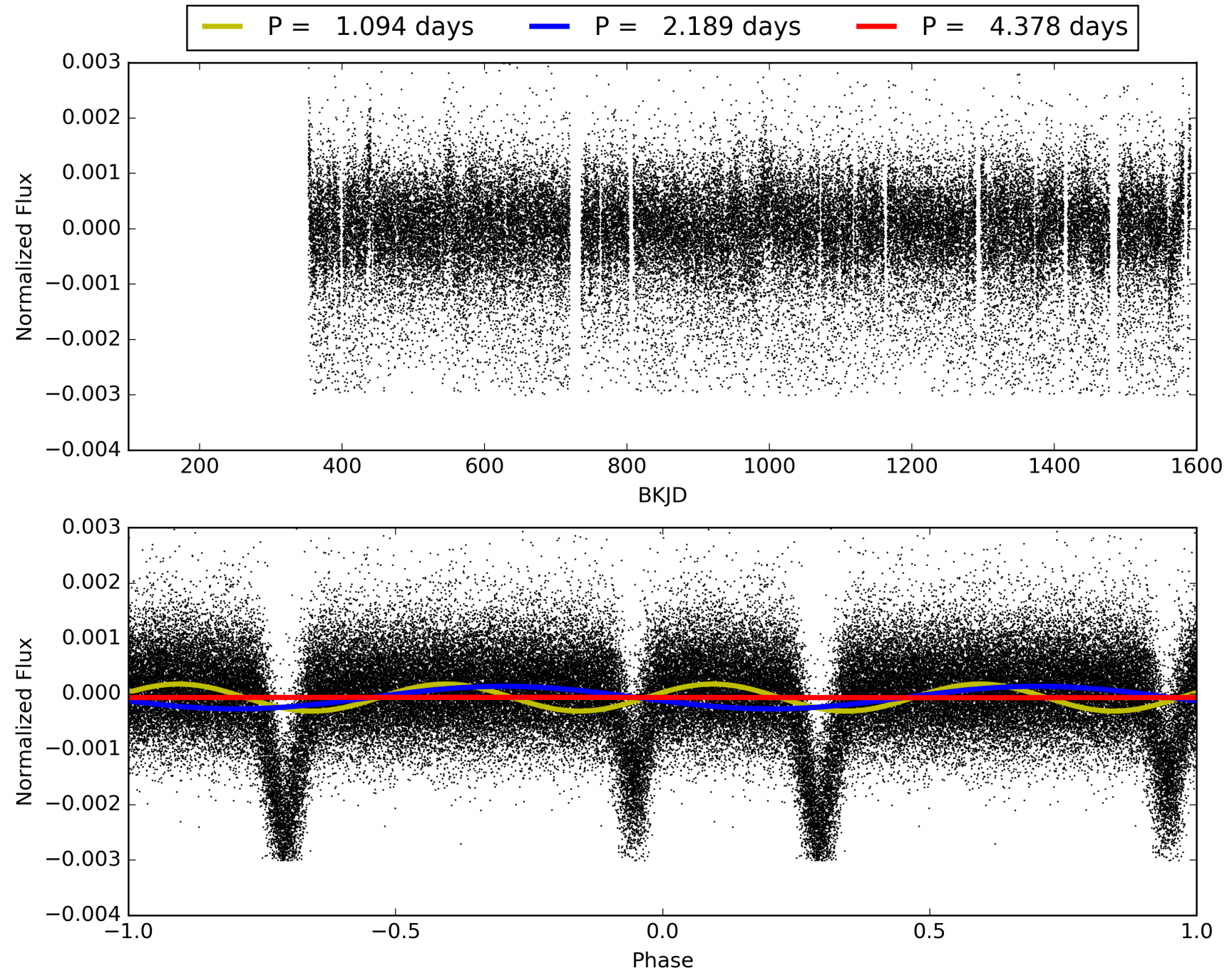
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 21:26:50 Z

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

TCE 004544571-03, PDC Light Curves

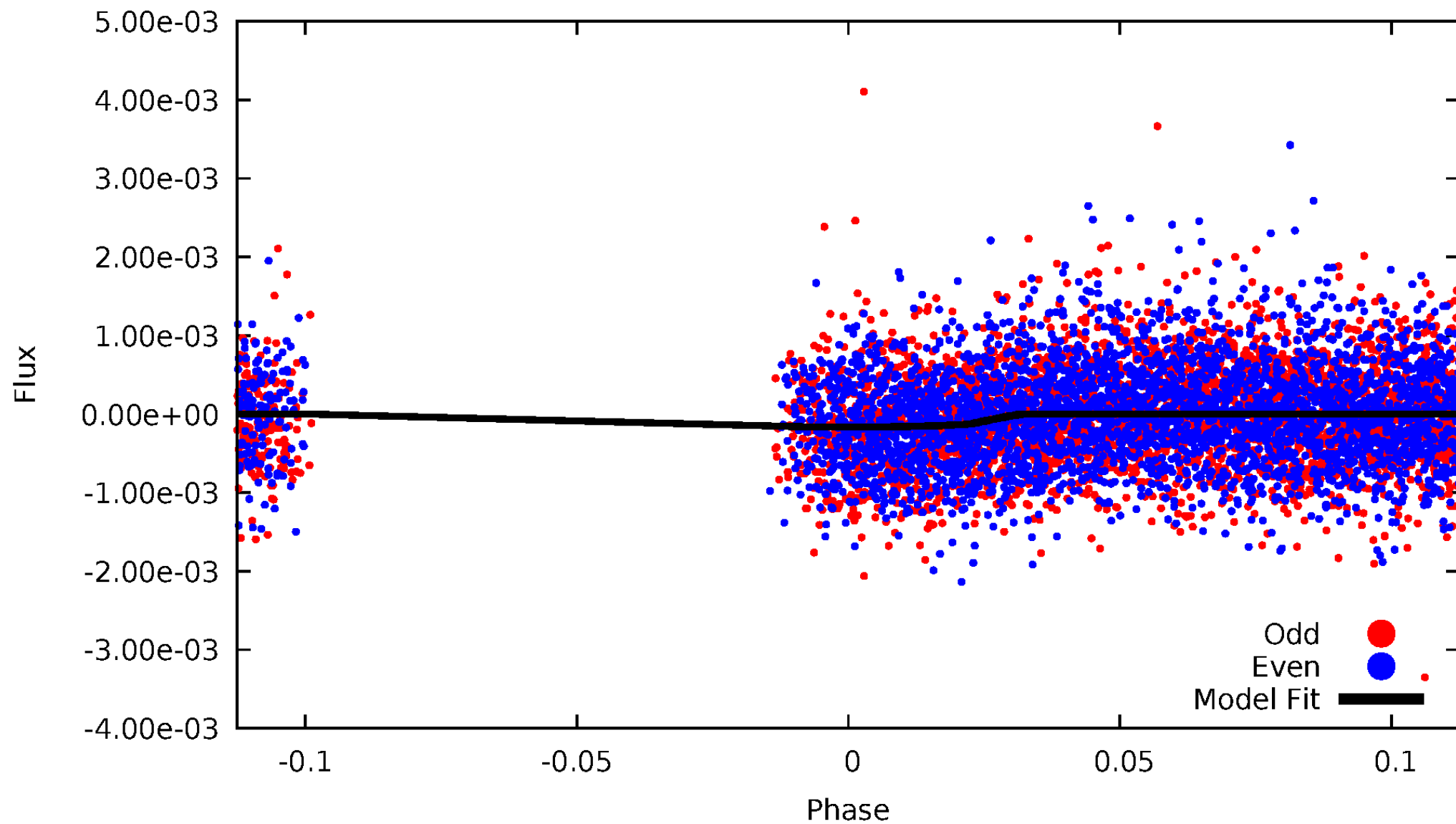


TCE 004544571-03



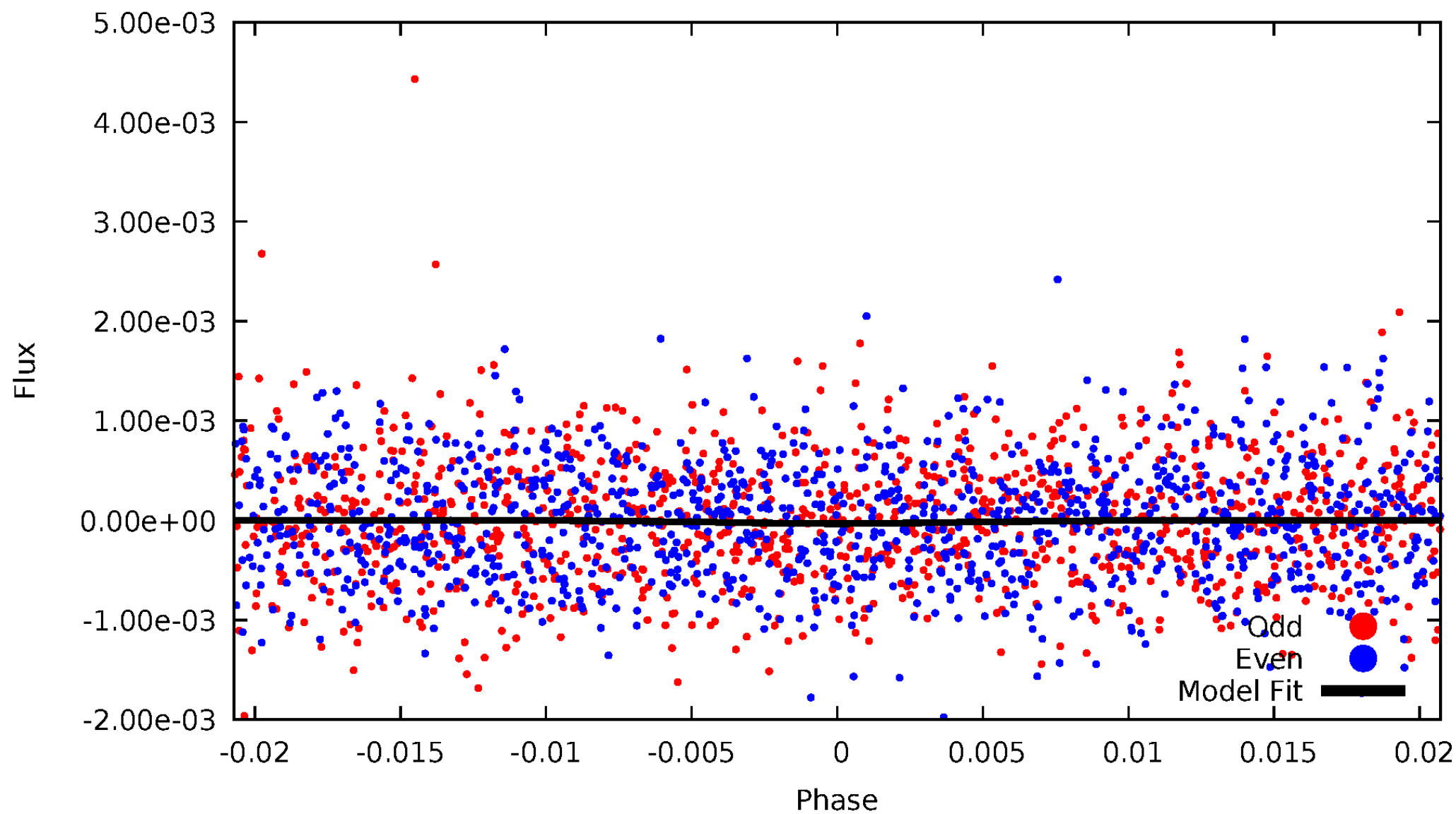
DV Odd/Even

TCE 004544571-03



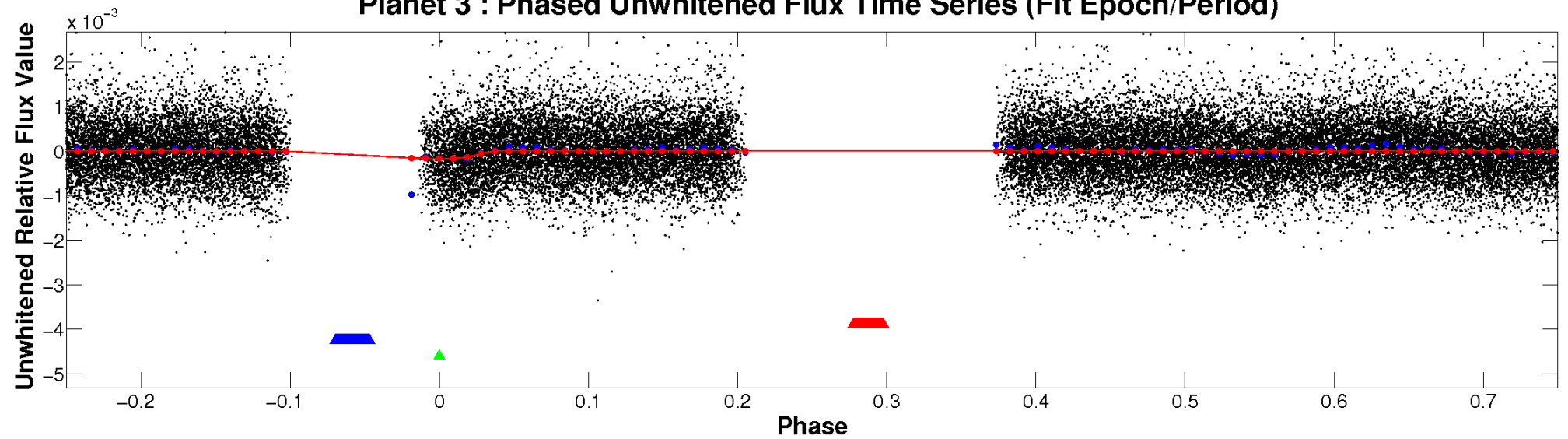
ALT Odd/Even

TCE 004544571-03

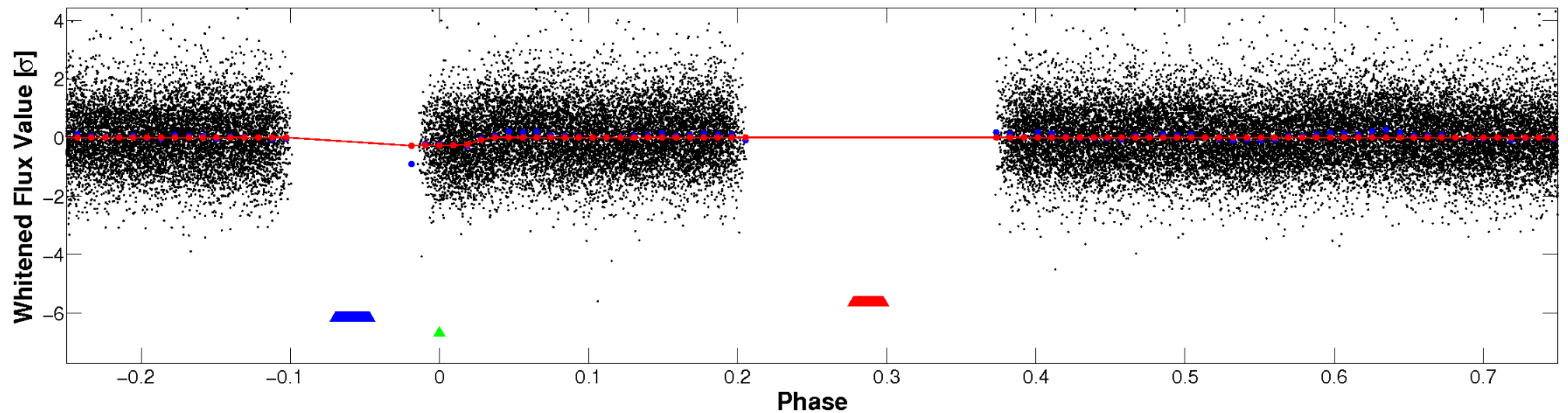


Non-Whitened Vs. Whitened Light Curve

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

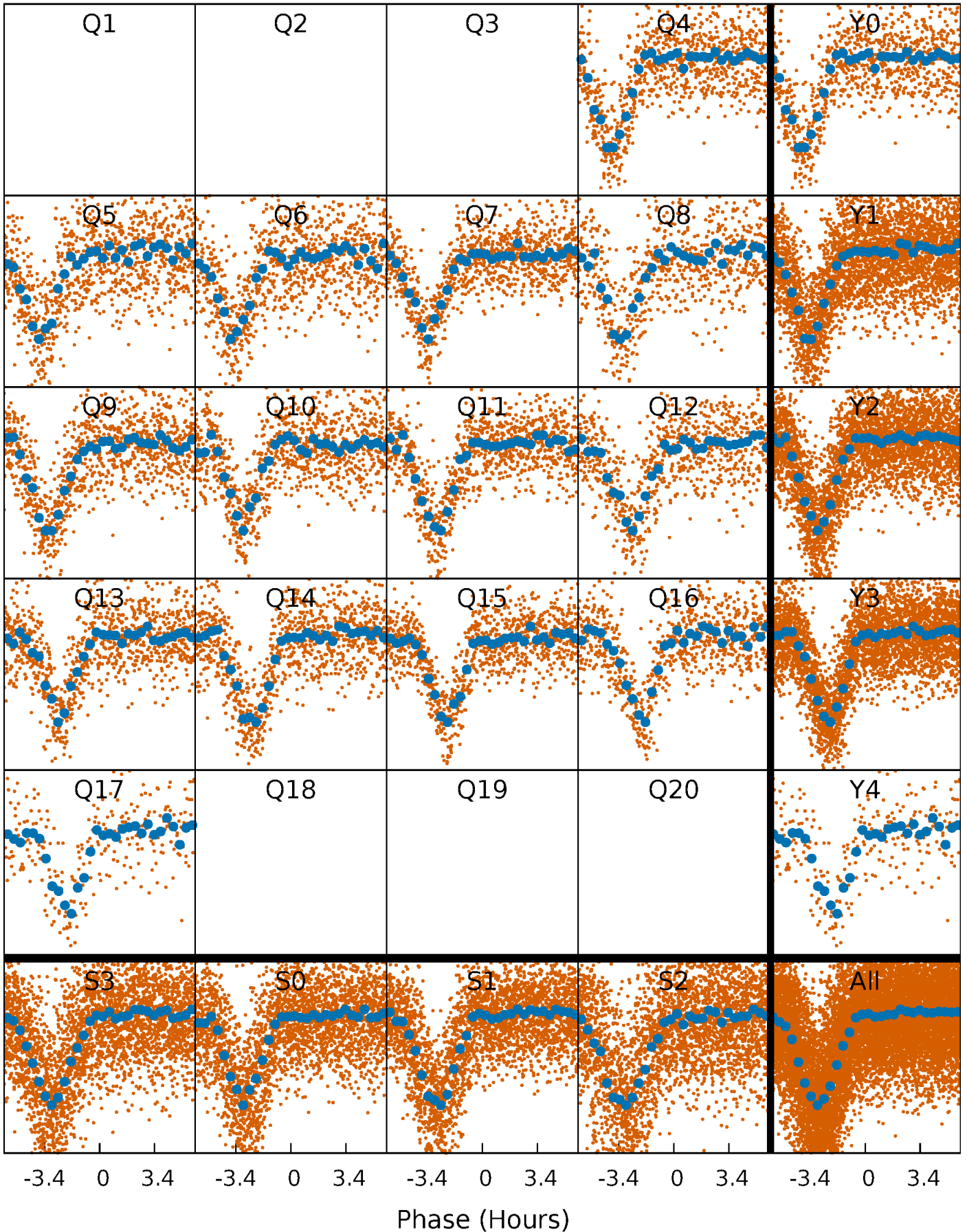


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



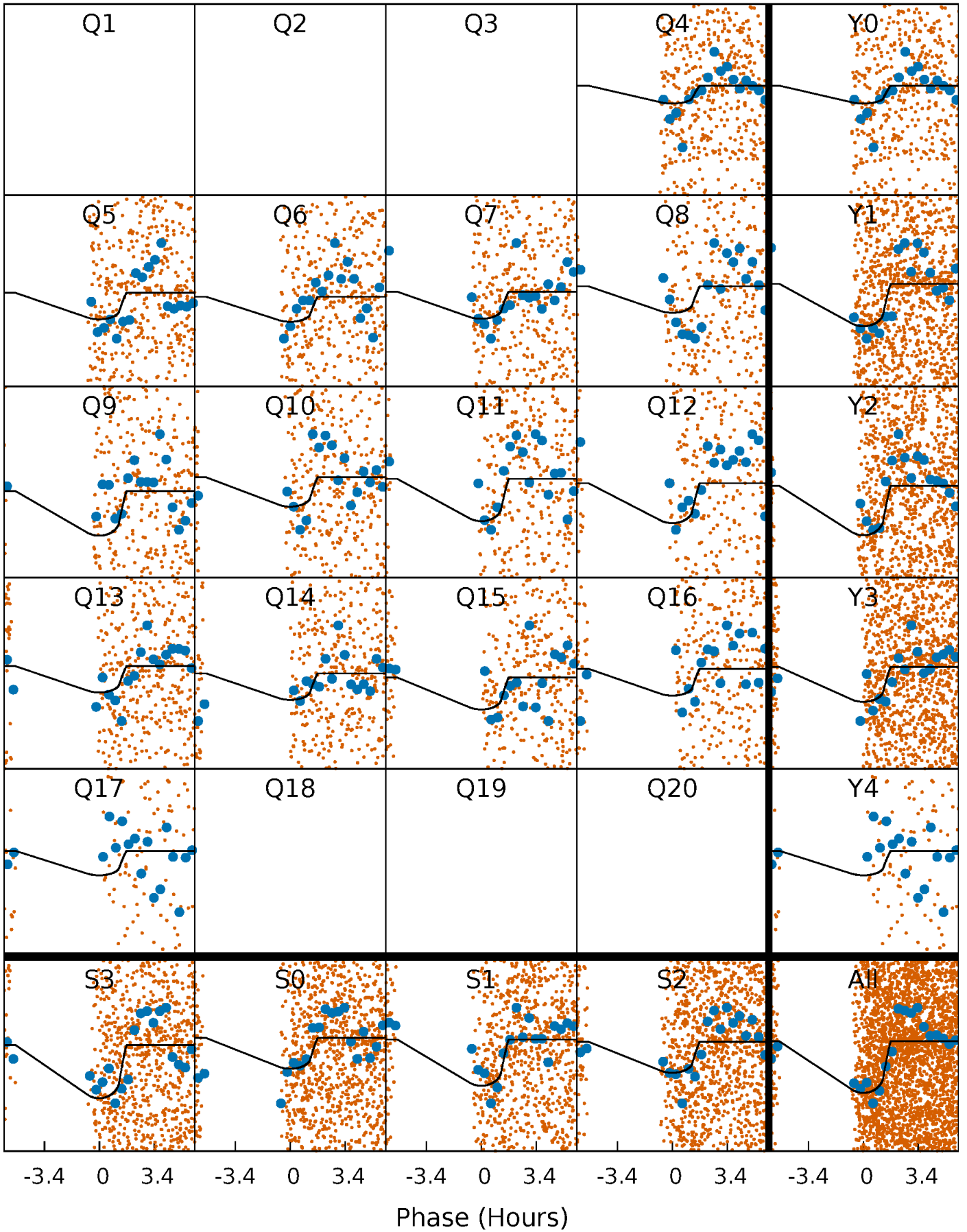
PDC Quarter-Phased Transit Curves

TCE 004544571-03 P= 2.188987 Days $T_0=133.674464$ (BKJD)



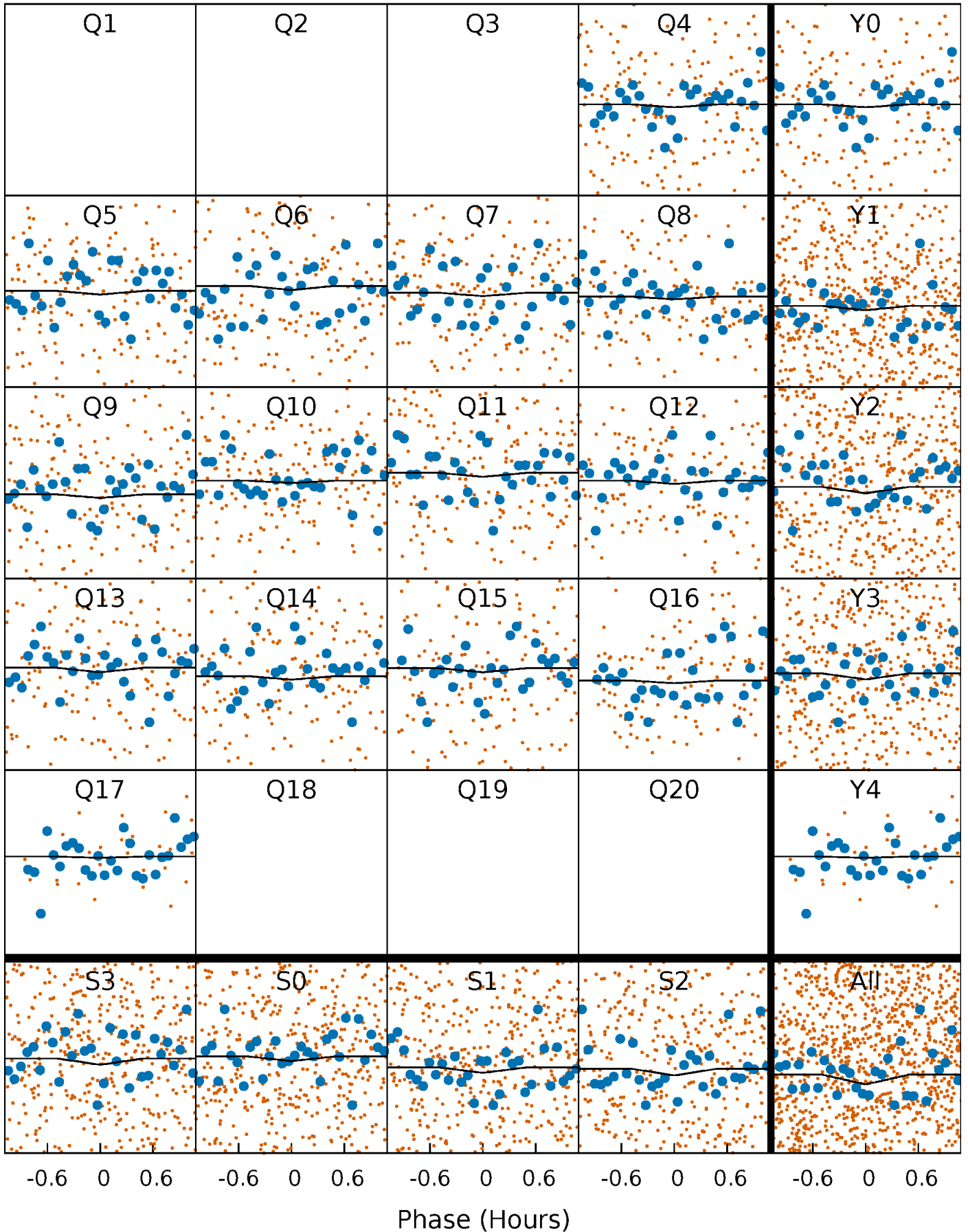
DV Quarter-Phased Transit Curves

TCE 004544571-03 P= 2.188987 Days $T_0=133.674464$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

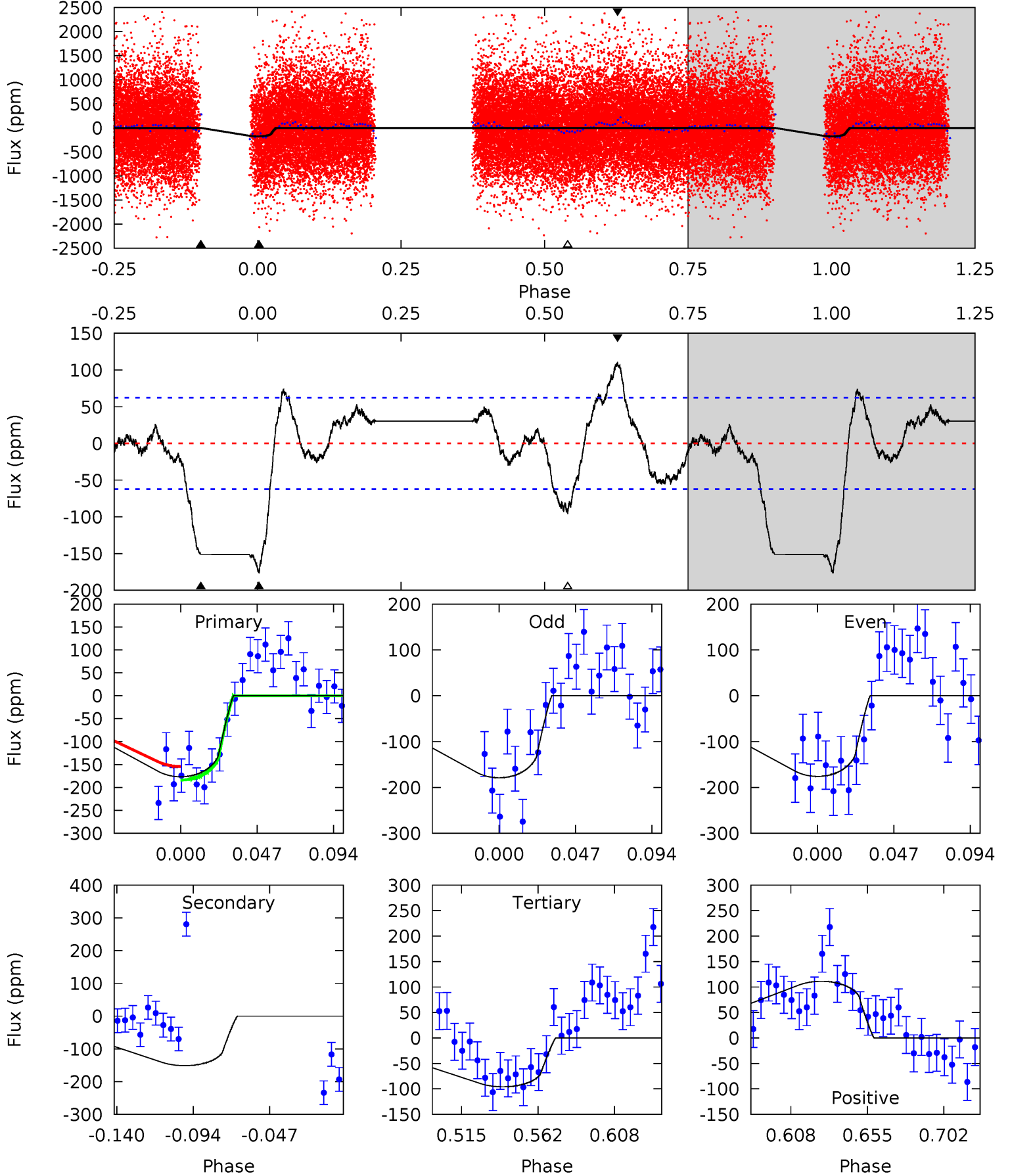
TCE 004544571-03 P= 2.189017 Days $T_0=133.700932$ (BKJD)



DV Model-Shift Uniqueness Test

004544571-03, P = 2.188987 Days, E = 133.674464 Days

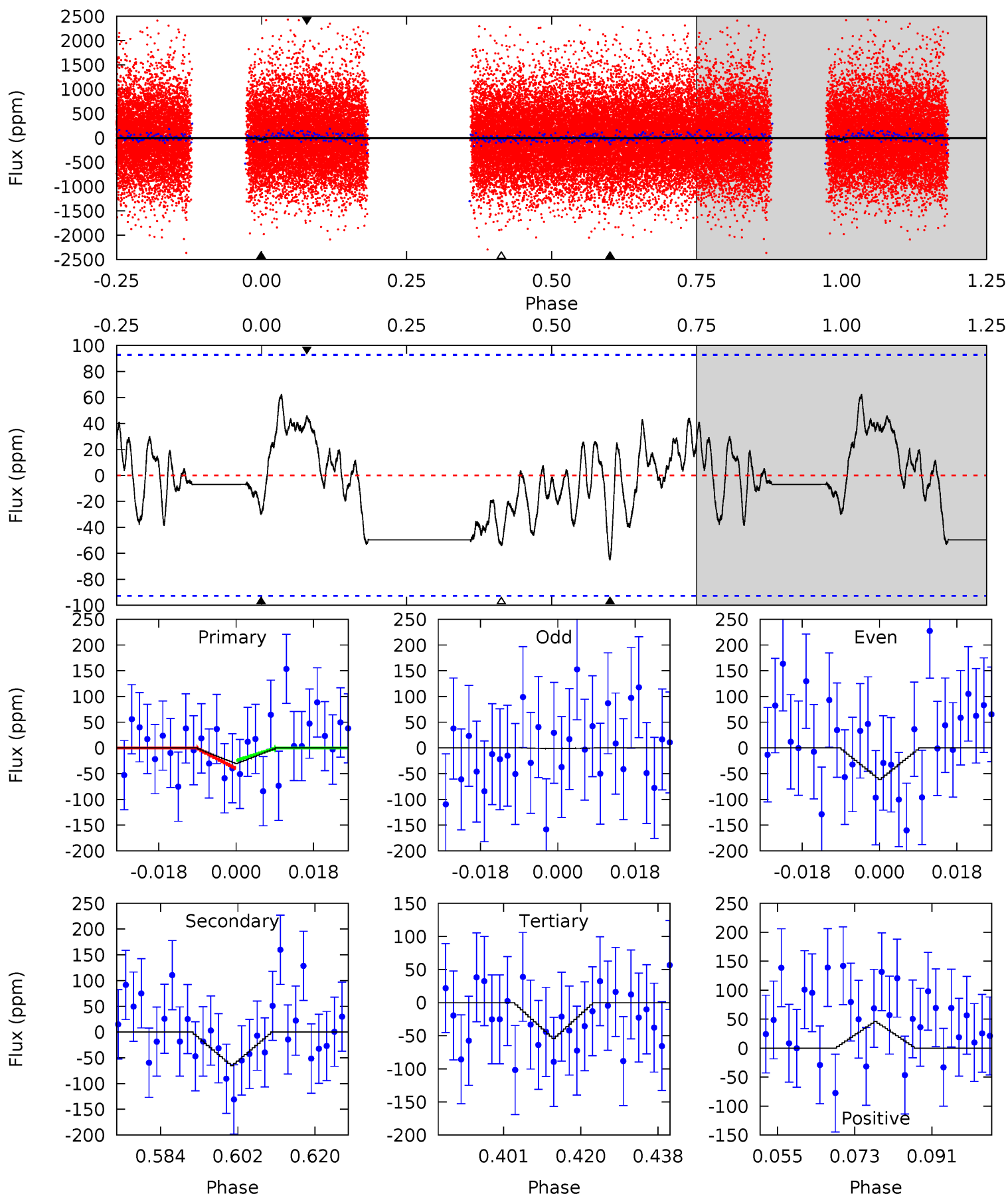
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.4	11.5	7.27	8.43	4.72	1.99	3.01	6.13	4.97	4.19	3.03	0.11	0.86	0.39	0.81



Alt Model-Shift Uniqueness Test

004544571-03, P = 2.189017 Days, E = 133.700932 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.61	3.45	2.88	2.44	4.91	2.36	1.35	-1.27	-0.84	0.58	1.01	1.59	0.38	0.49	0.42



Stellar Parameters For KIC 004544571

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5681^{+186}_{-186}	$4.551^{+0.034}_{-0.195}$	$-0.060^{+0.250}_{-0.300}$	$0.859^{+0.246}_{-0.082}$	$0.957^{+0.104}_{-0.115}$	$2.129^{+0.407}_{-1.073}$
	+3%/-3%	+1%/-4%	+417%/-500%	+29%/-10%	+11%/-12%	+19%/-50%
Source	KIC0	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 004544571-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-151 ± 13	$1.76^{+1.42}_{-1.15}$	1850^{+118}_{-90}	4865^{+3233}_{-1016}	29^{+203}_{-20}
Alt.	-65 ± 19	$1.39^{+1.31}_{-0.97}$	1852^{+130}_{-85}	4428^{+3404}_{-980}	19^{+198}_{-14}

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

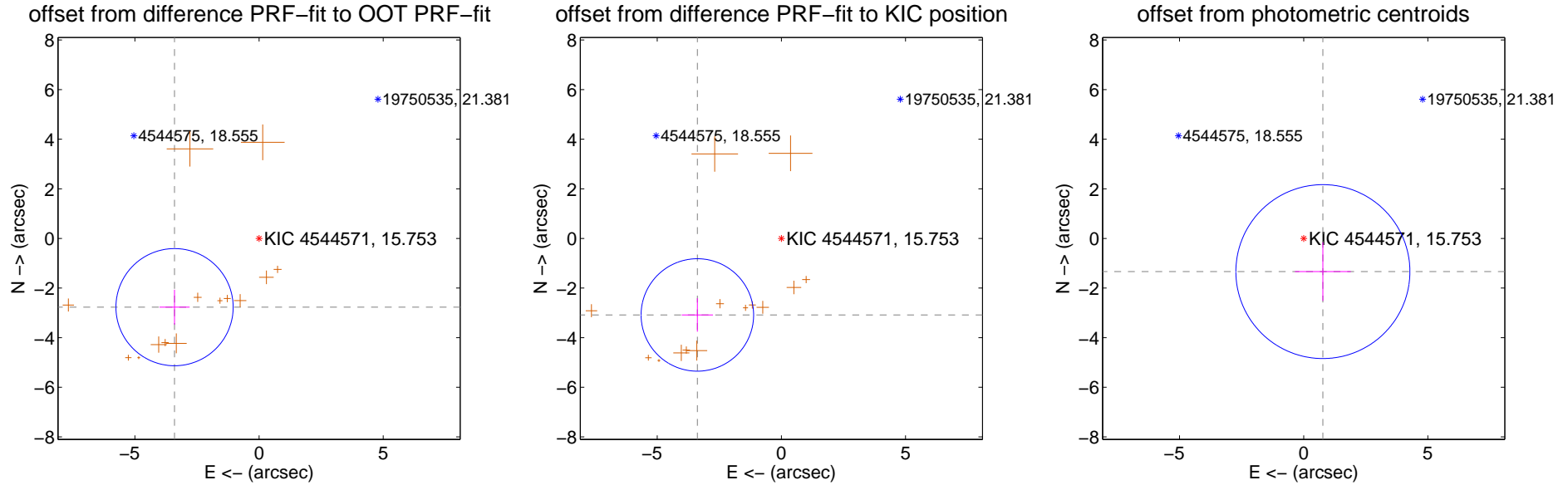
DV Centroid Data

Supplemental centroid analysis for 004544571-03. Kepler magnitude: 15.75. Transit SNR 10.17

There are 0 quarters with good PRF difference image offsets

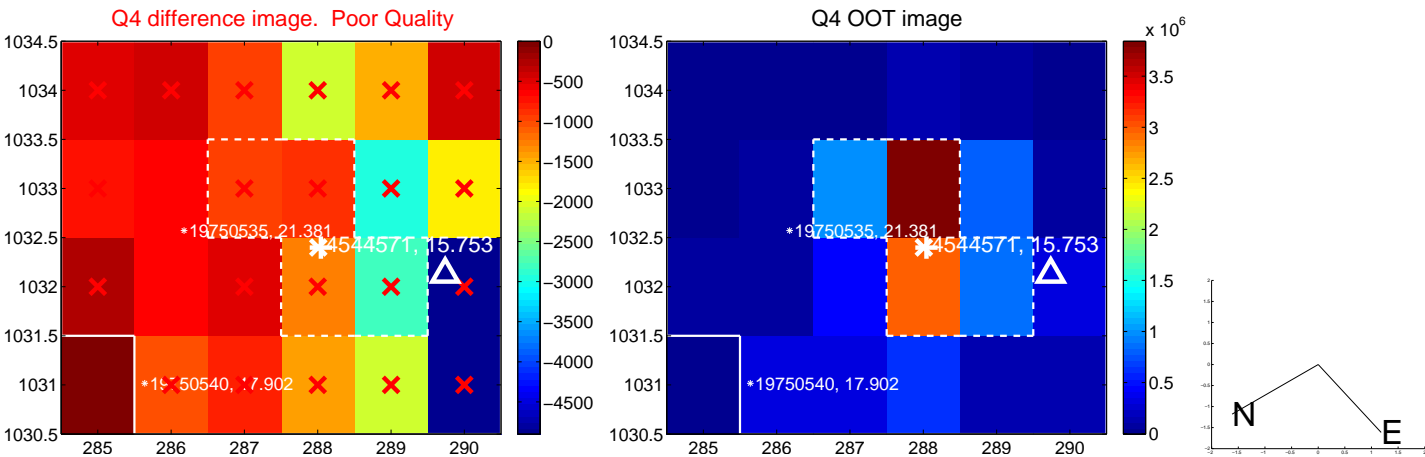
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.390 ± 0.787	5.58	3.405 ± 0.609	-2.771 ± 0.704
PRF-fit source offset from KIC position	4.580 ± 0.756	6.06	3.385 ± 0.629	-3.085 ± 0.676
photometric centroid source offset	1.54 ± 1.17	1.32	-0.77 ± 1.13	-1.34 ± 1.18

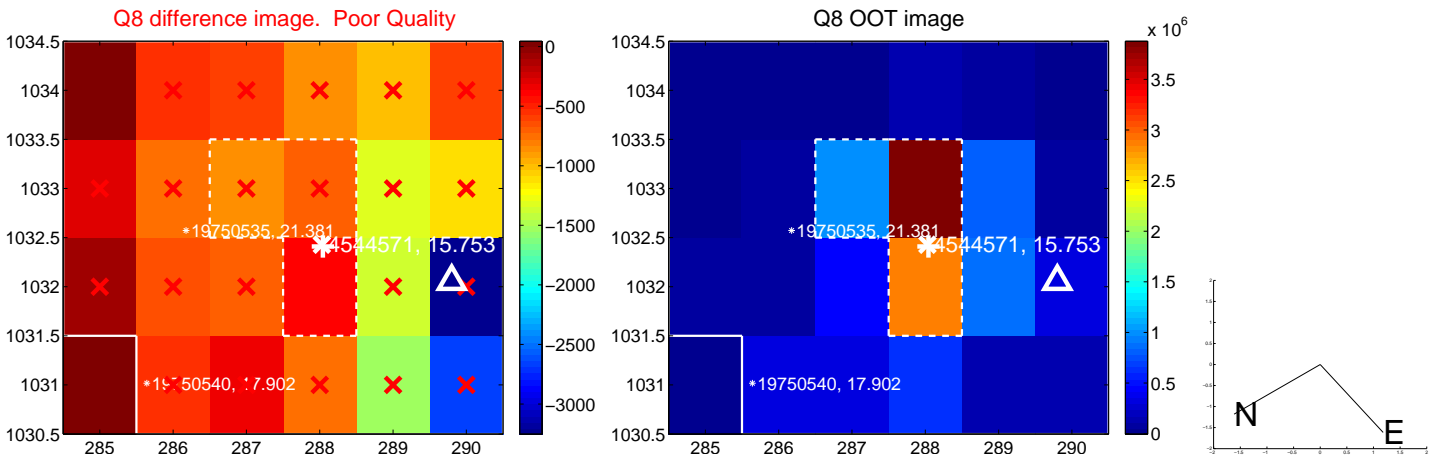
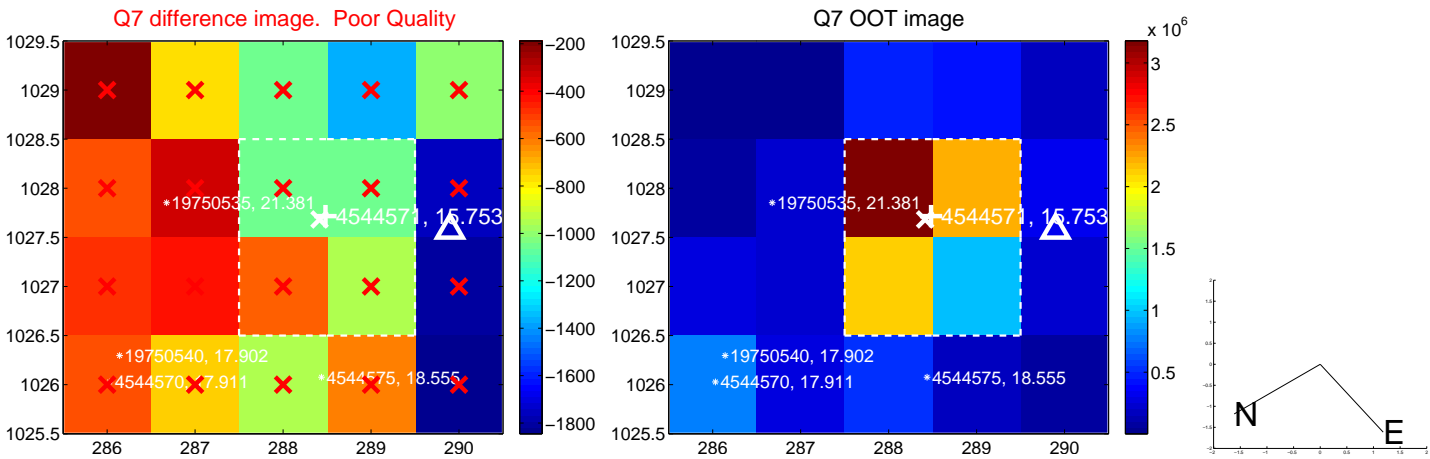
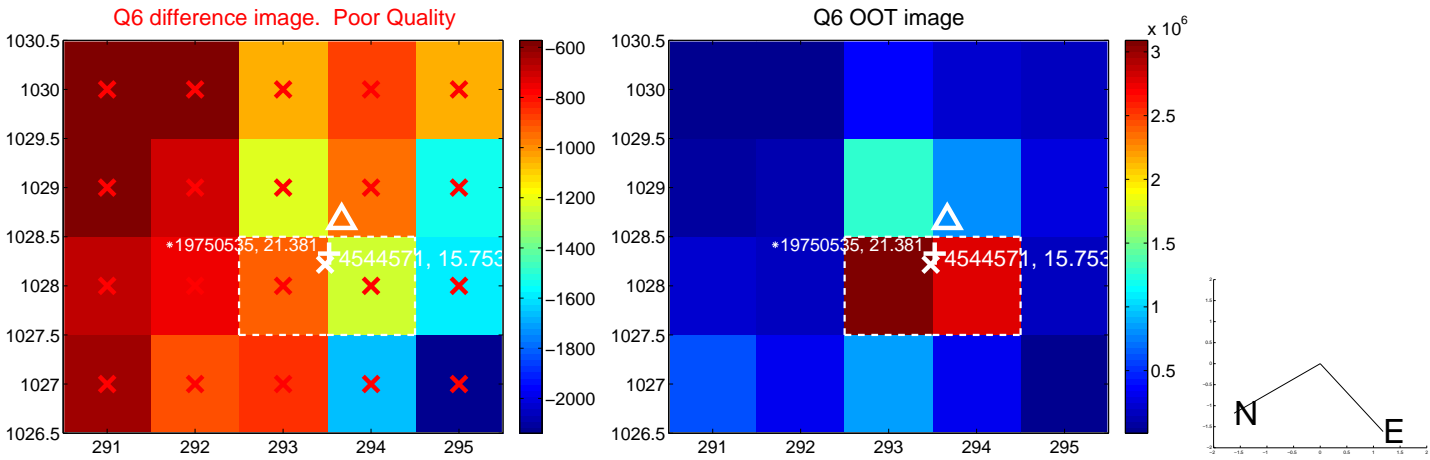
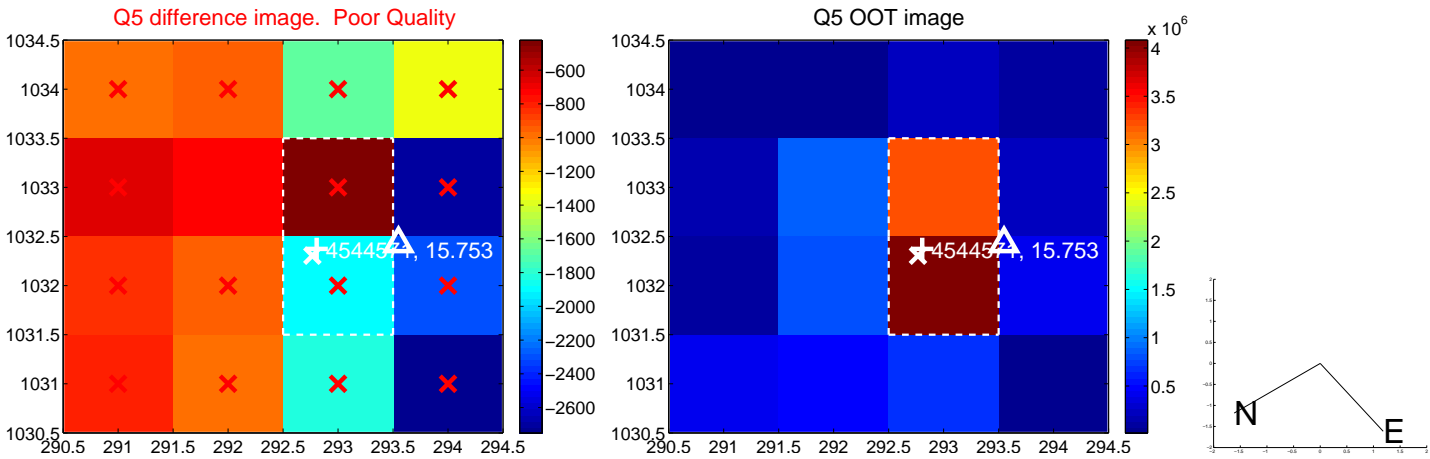


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

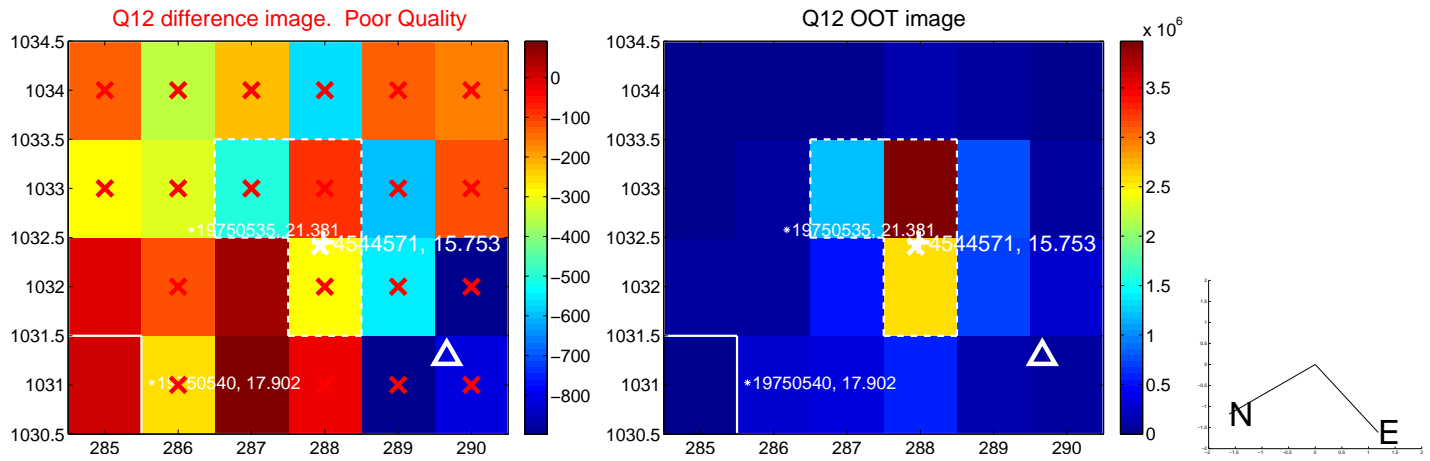
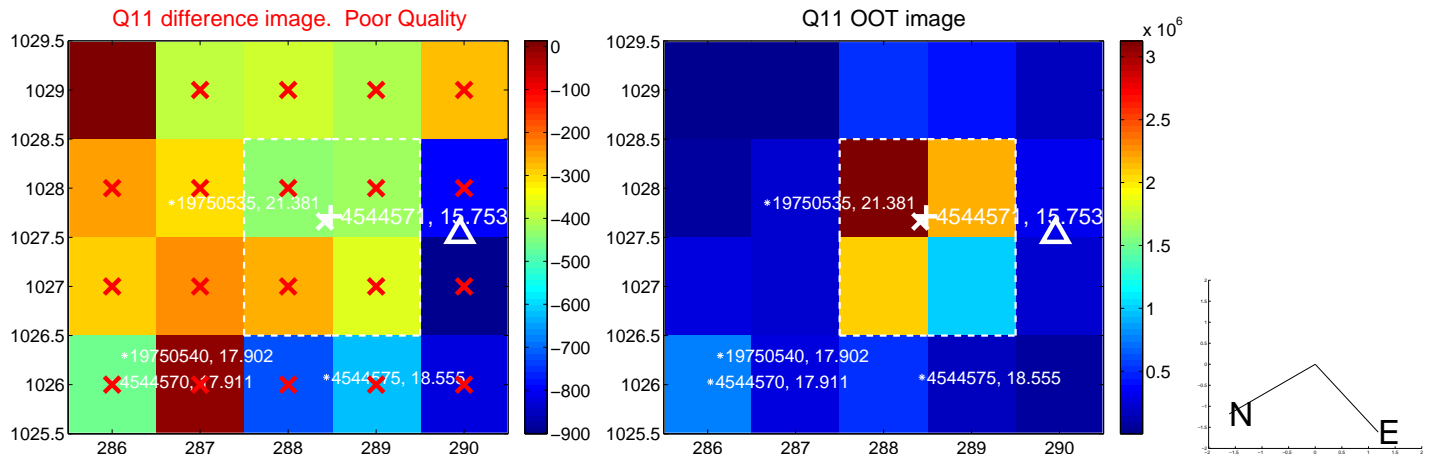
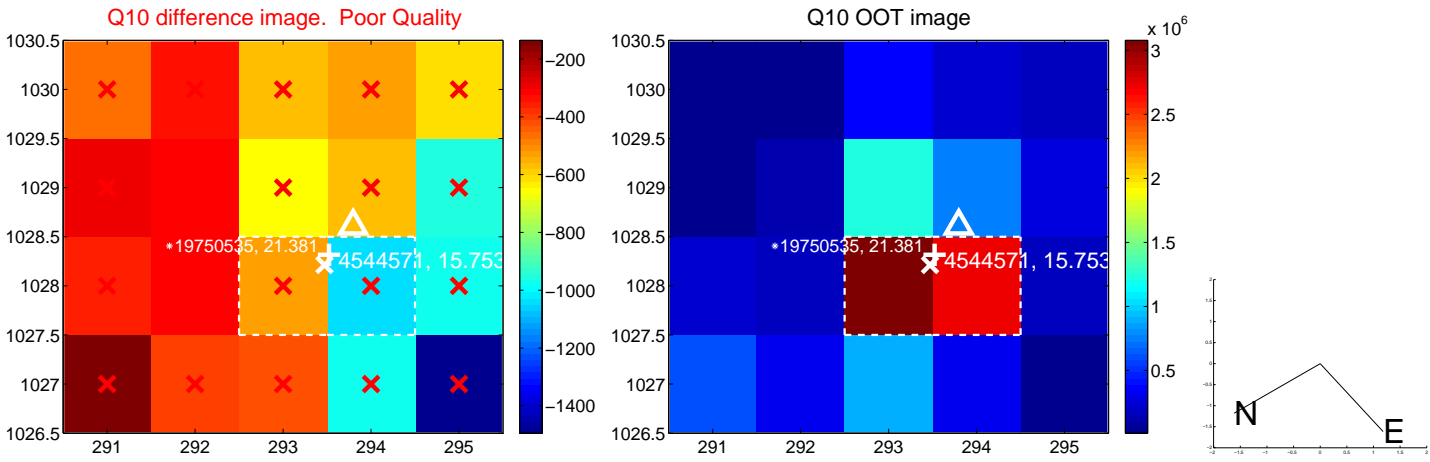
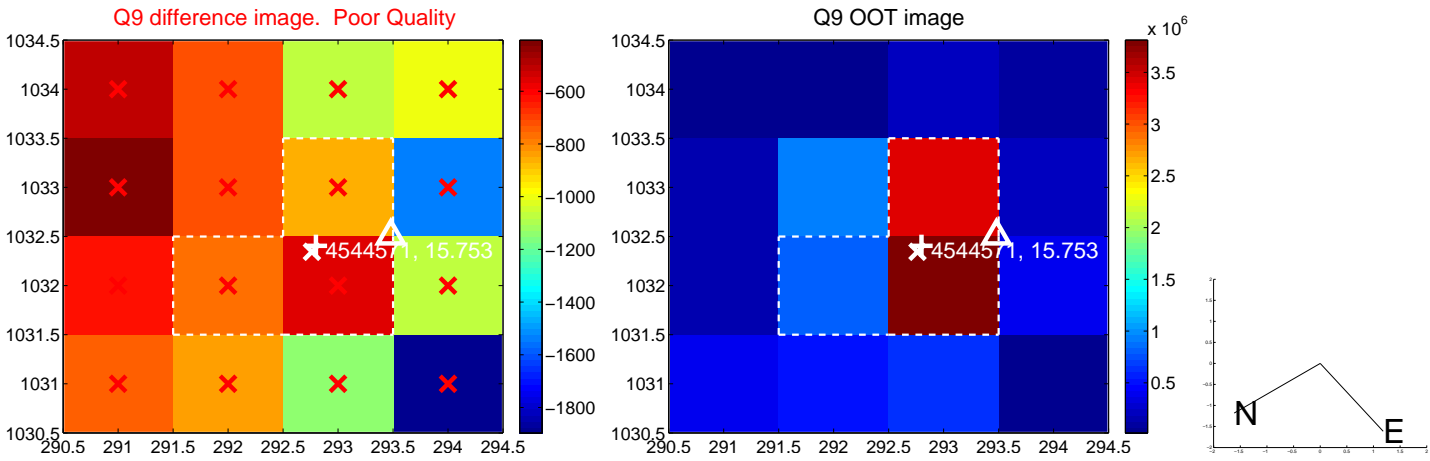
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



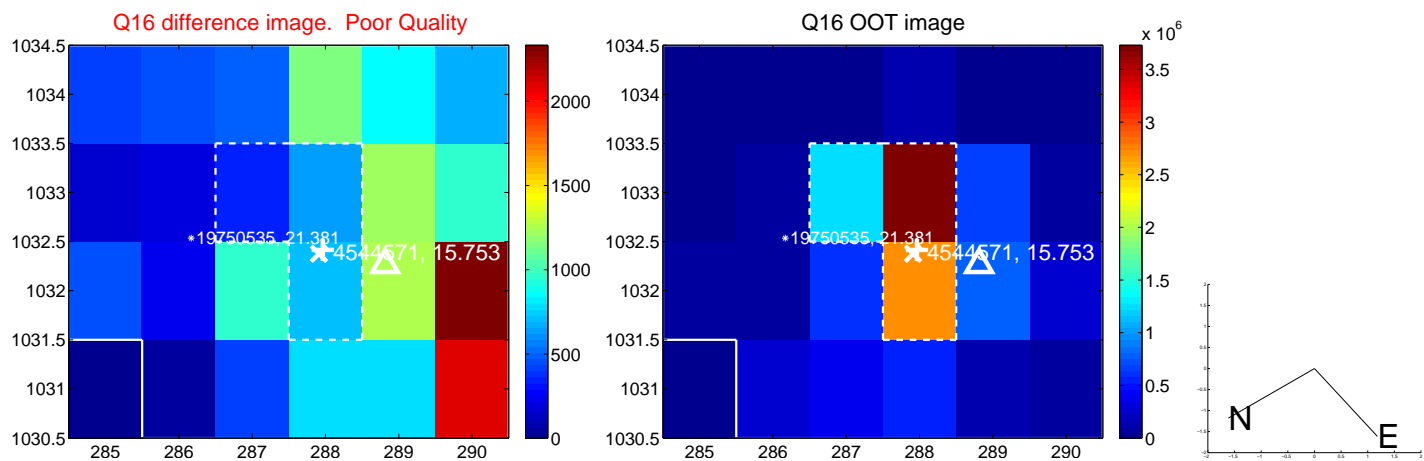
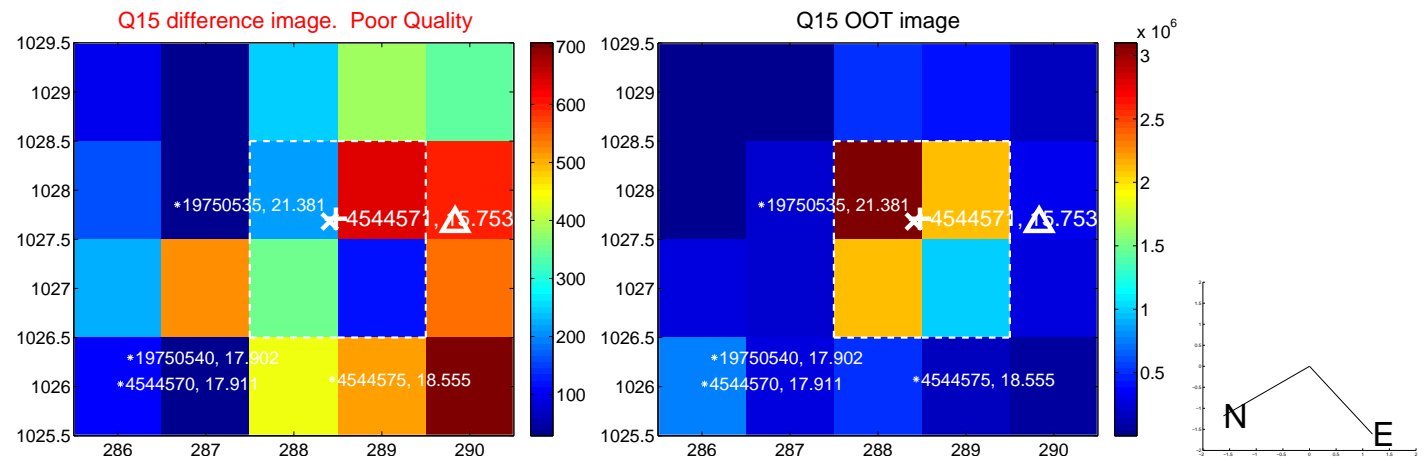
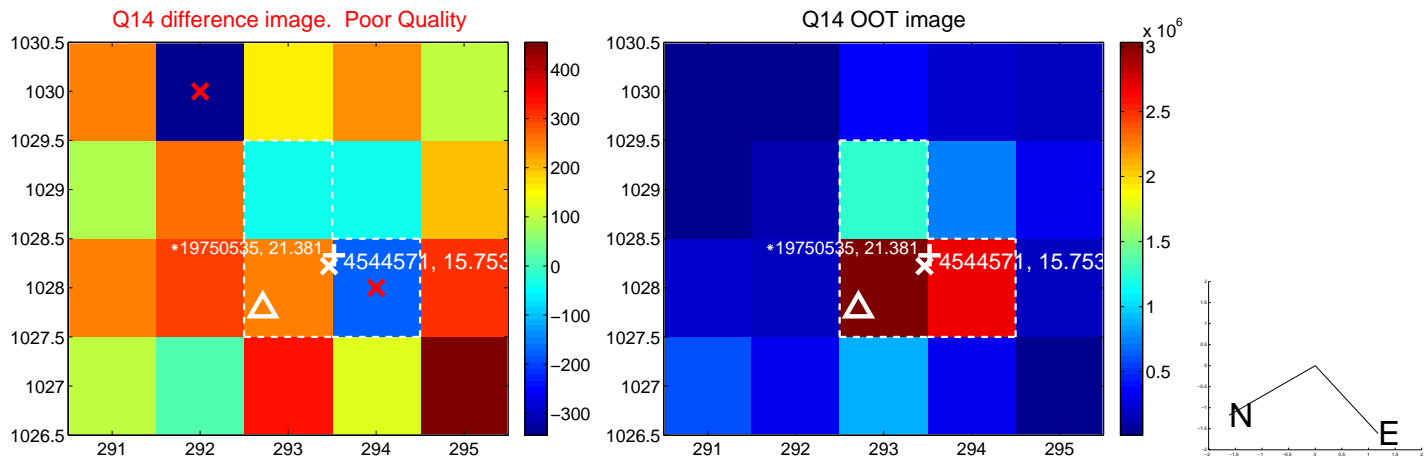
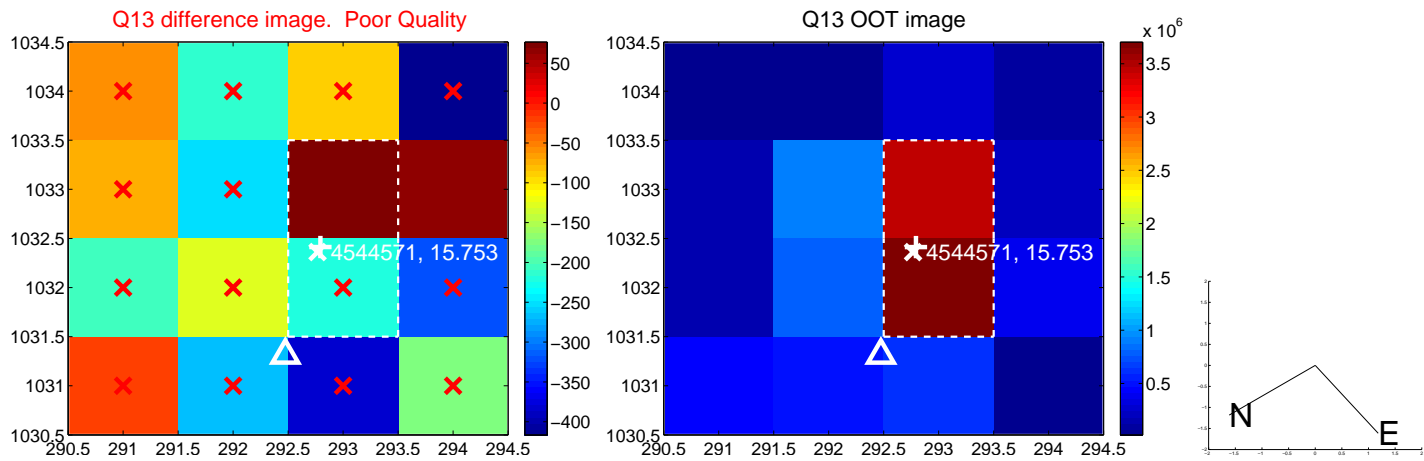
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



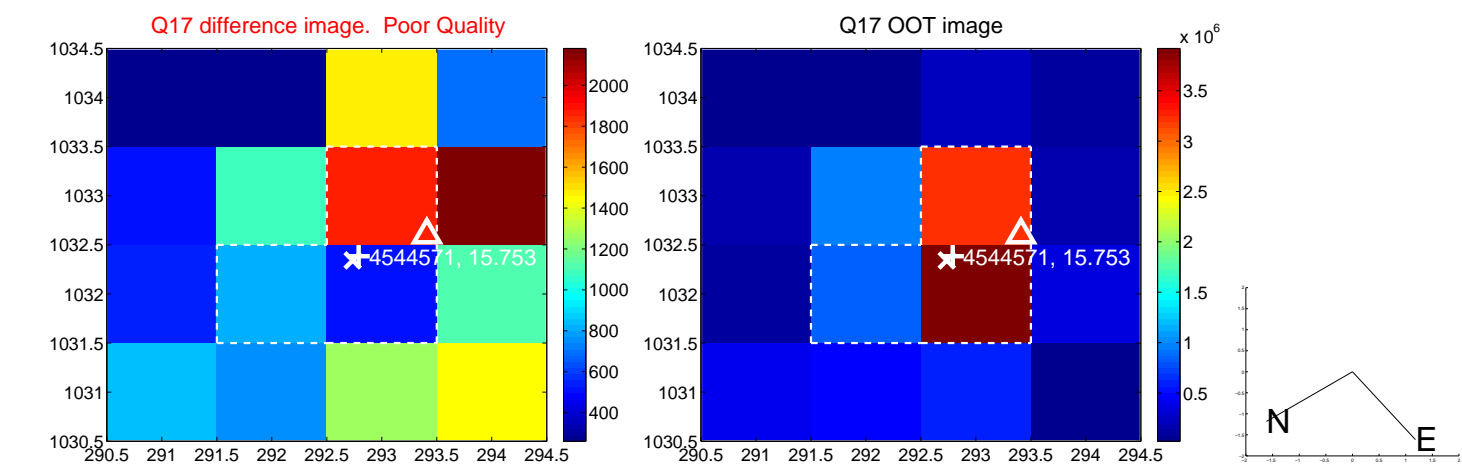
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



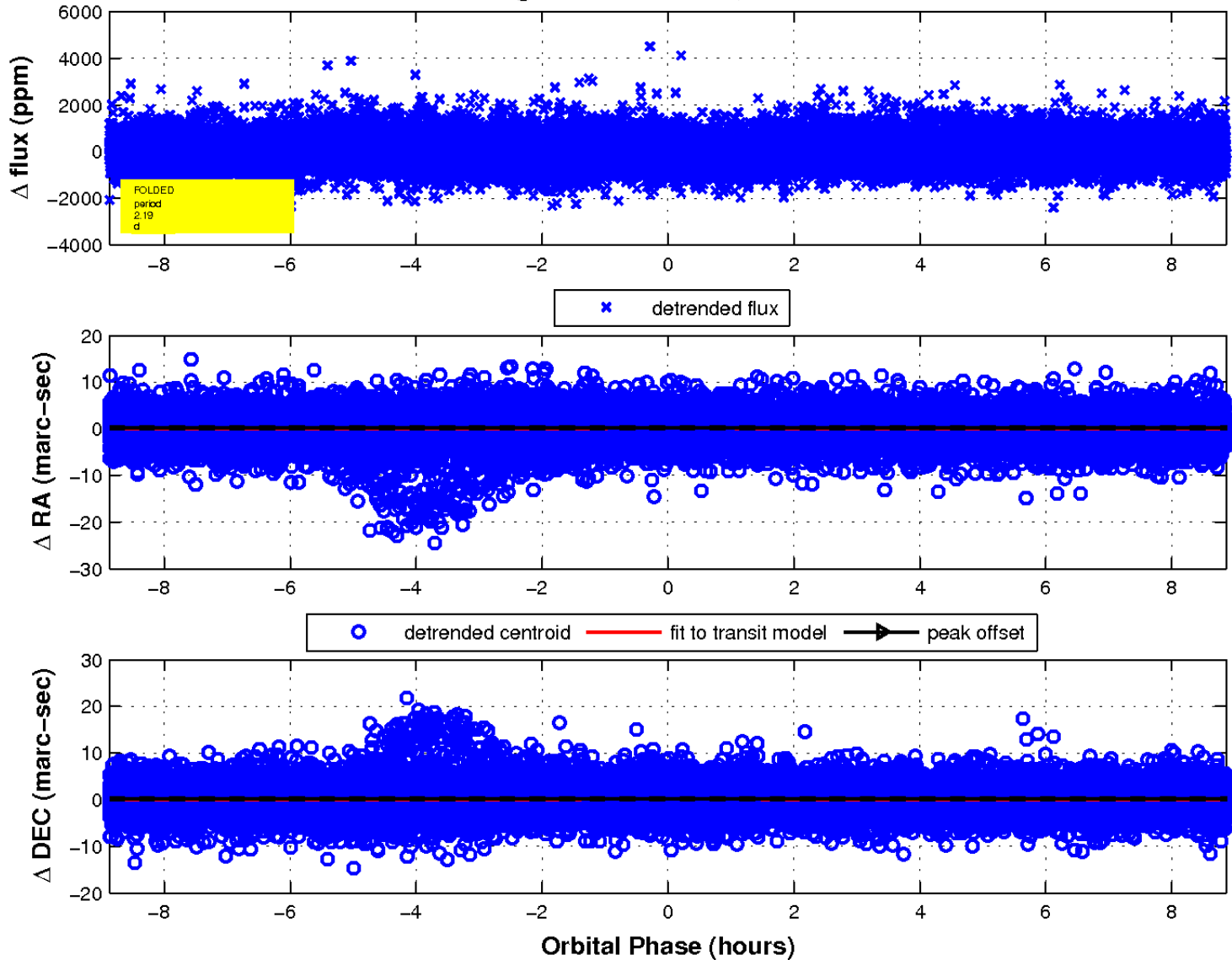
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

