

KIC 004571780

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})
004571780-01	OBS	No	2.077176	133.369663	35.2	8.554	9.0	7.5	4.42	6449	3.35	19348.41
004571780-02	OBS	No	2.076966	131.932693	62.2	4.896	11.3	12.3	4.42	6449	3.52	19351.02
004571780-03	OBS	No	129.203939	217.593144	526.2	5.848	11.4	10.1	4.42	6449	19.55	78.51
004571780-04	OBS	No	163.873879	222.574172	556.9	11.132	10.7	10.1	4.42	6449	19.79	57.18
004571780-05	OBS	No	166.304669	229.577616	486.9	3.758	9.7	11.1	4.42	6449	18.87	56.07
004571780-06	OBS	No	197.394504	203.063351	376.9	7.156	9.1	9.2	4.42	6449	10.79	44.62
004571780-07	OBS	No	204.354493	186.458924	77.8	2.500	8.7	-1.0	4.42	6449	3.92	42.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004571780-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
004571780-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
004571780-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004571780-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004571780-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

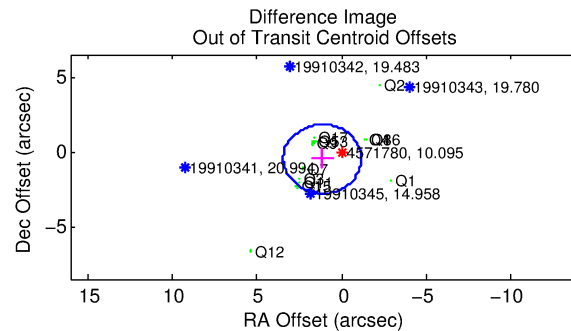
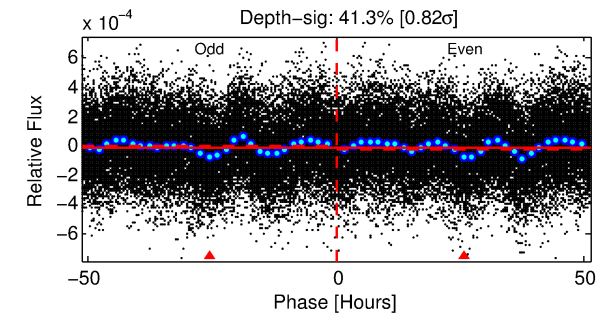
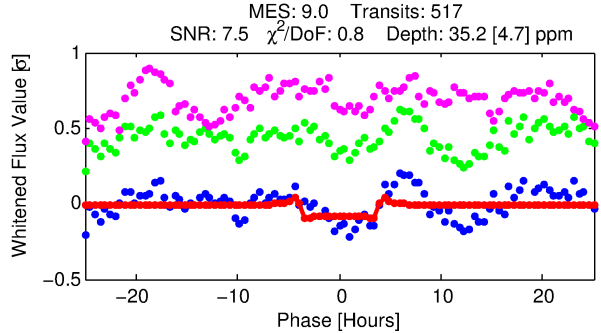
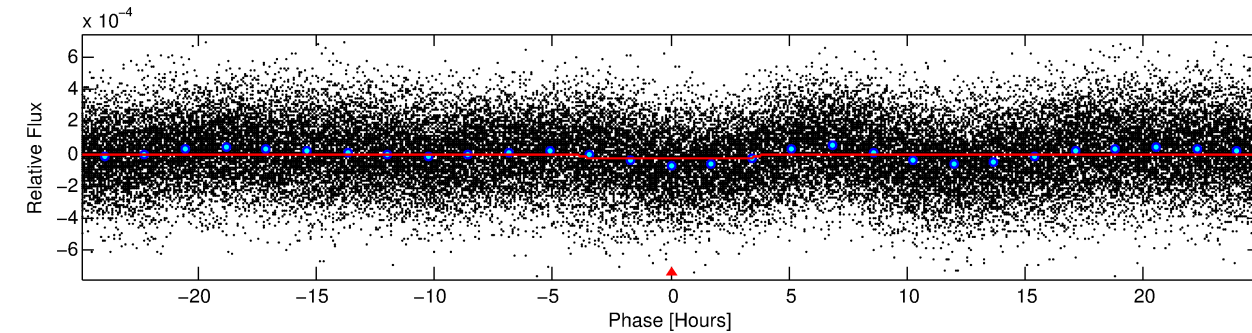
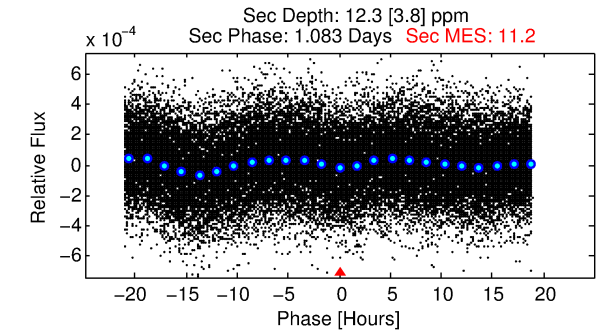
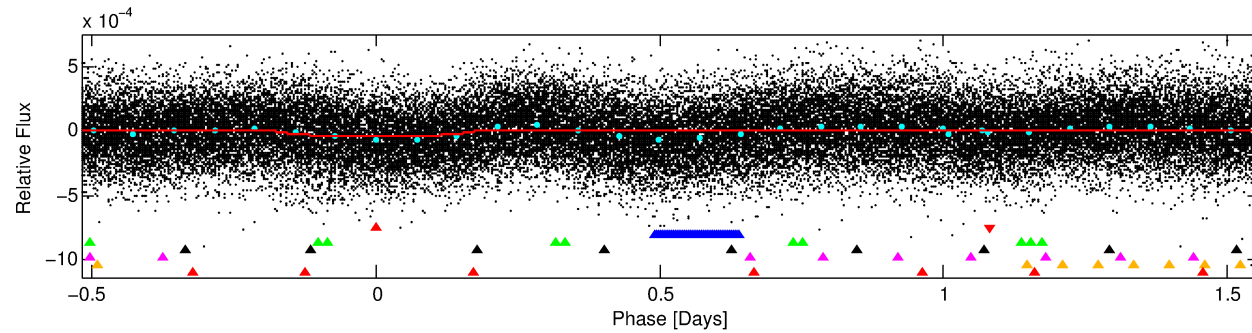
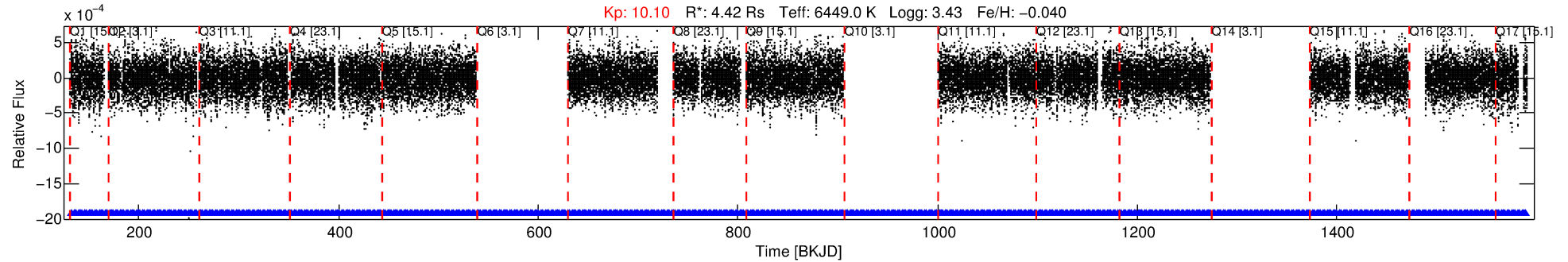
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004571780-01

No Significant Match Found

DV One-Page Summary

KIC: 4571780 Candidate: 1 of 7 Period: 2.077 d



DV Fit Results:

Period = 2.07718 [0.00002] d
Epoch = 133.3697 [0.0053] BKJD
 R_p/R^* = 0.0070 [0.0005]
 a/R^* = 1.11 [0.05]
 b = 0.97 [0.02]
 S_{eff} = 19348.41 [11904.30]
 T_{eq} = 3007 [463] K
 R_p = 3.35 [1.29] R_e
 a = 0.0396 [0.0148] AU
 A_g = 0.94 [0.66] [-0.08σ]
 T_{eff} = 4584 [413] K [2.54σ]

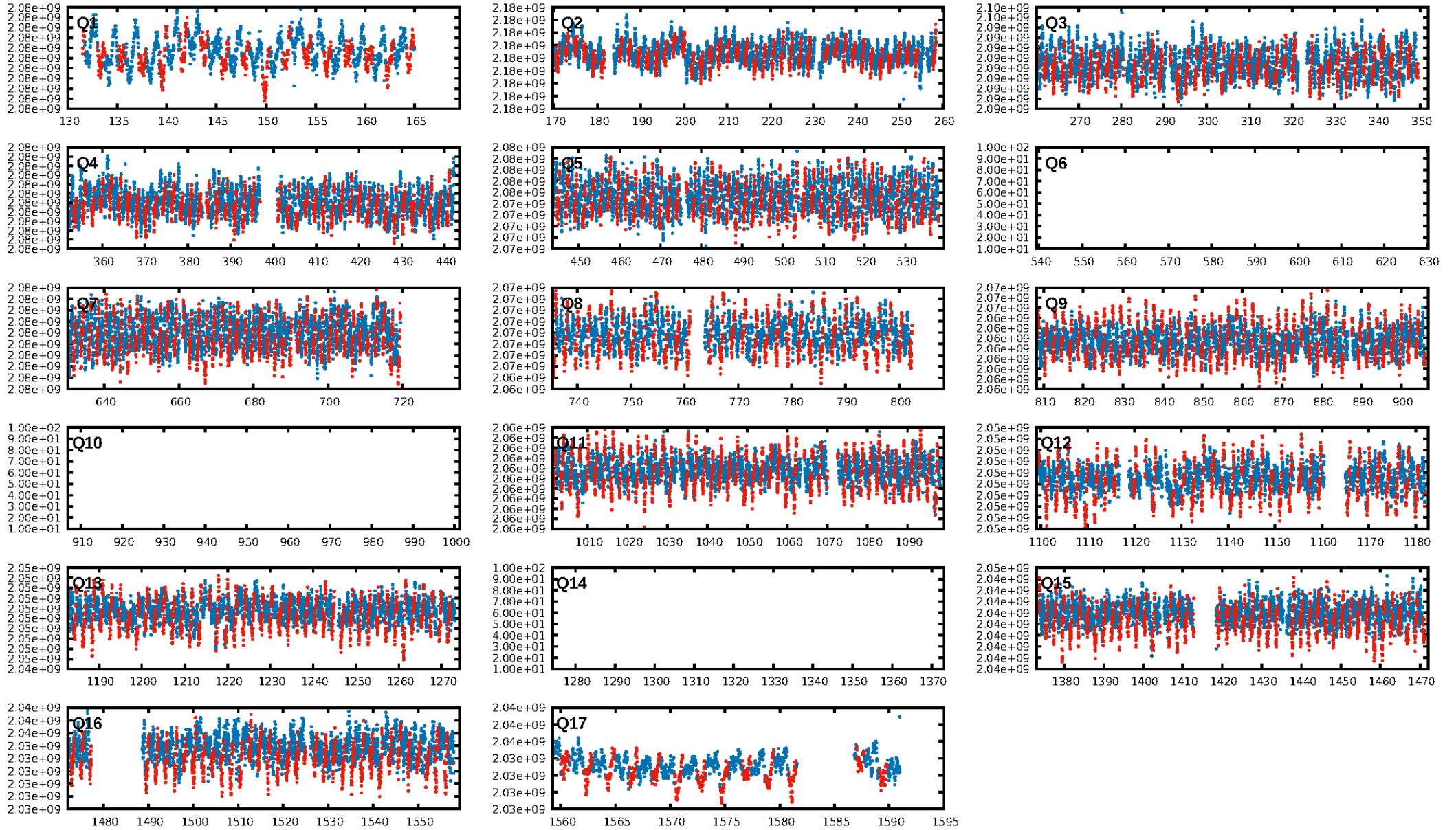
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: 100.0% [294.46σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [488/488]
GhostDiagnostic-chr: N/A
Centroid-sig: 1.3%
Centroid-so: 0.913 arcsec [2.09σ]
OotOffset-rm: 1.239 arcsec [1.62σ]
KicOffset-rm: 0.904 arcsec [1.96σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 0.07 [1/14]
DiffImageOverlap-fno: 0.00 [0/14]

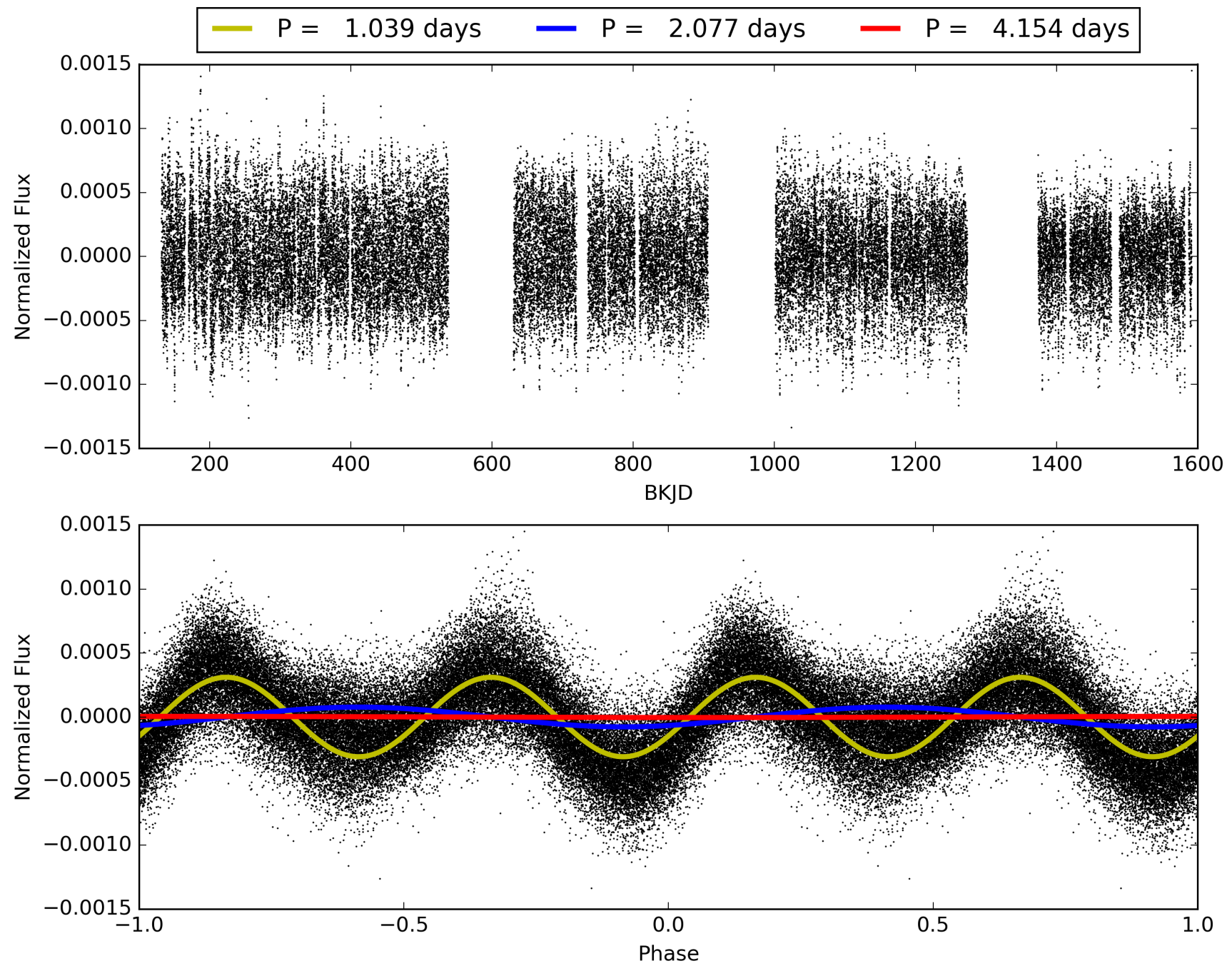
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 004571780-01, PDC Light Curves

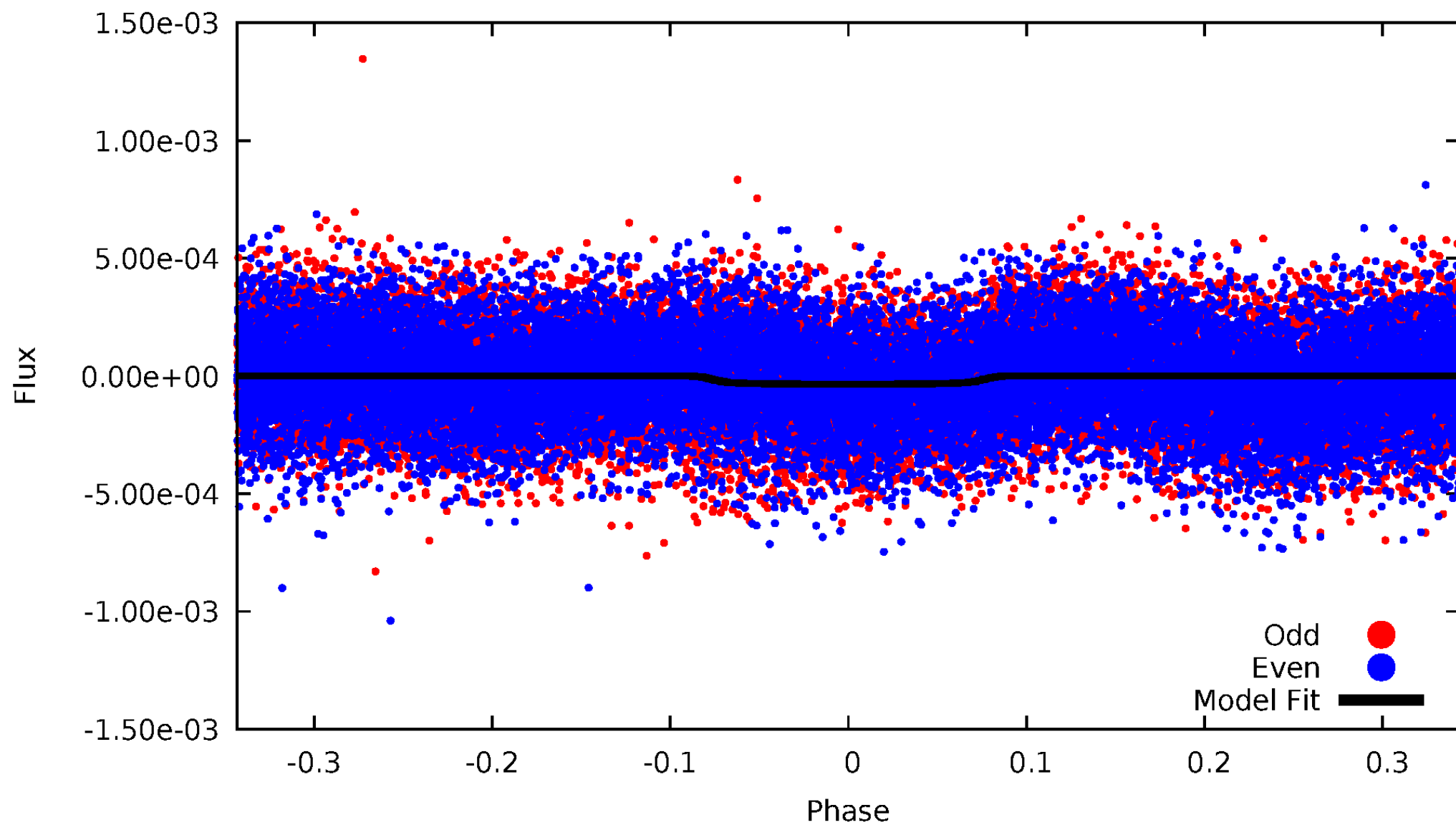


TCE 004571780-01



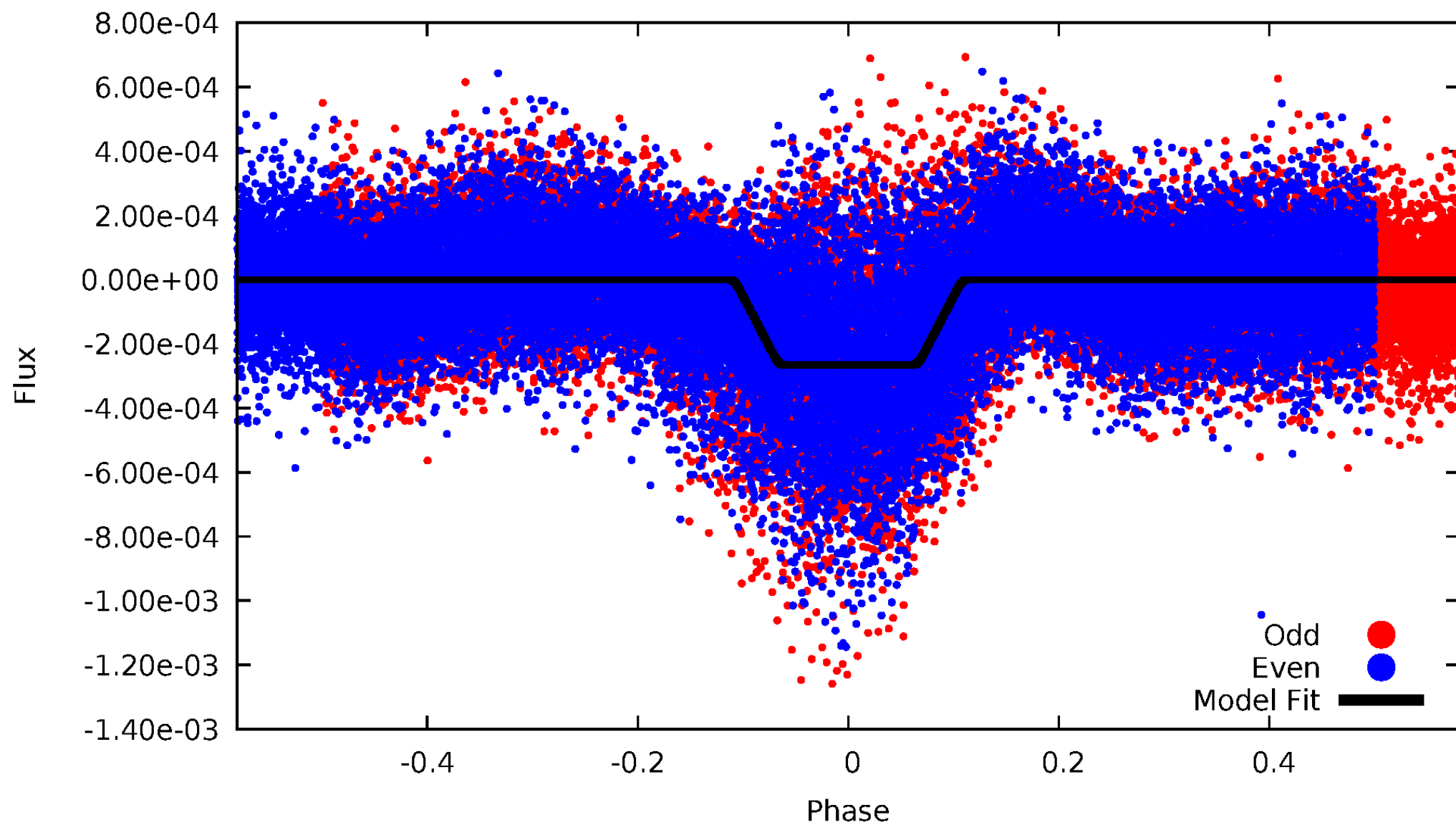
DV Odd/Even

TCE 004571780-01

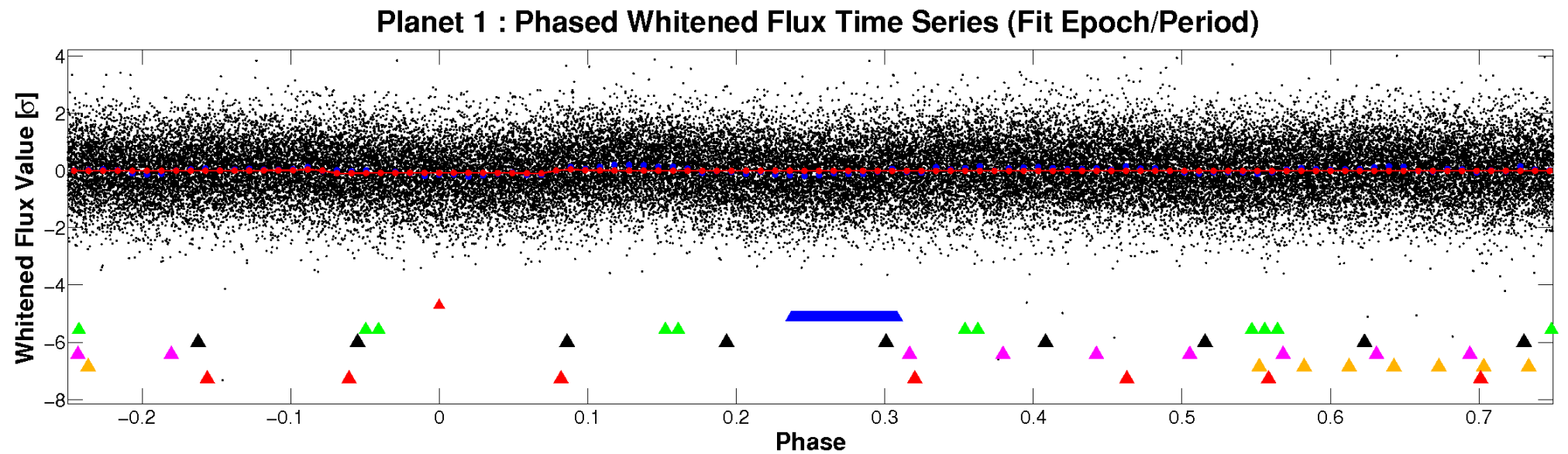
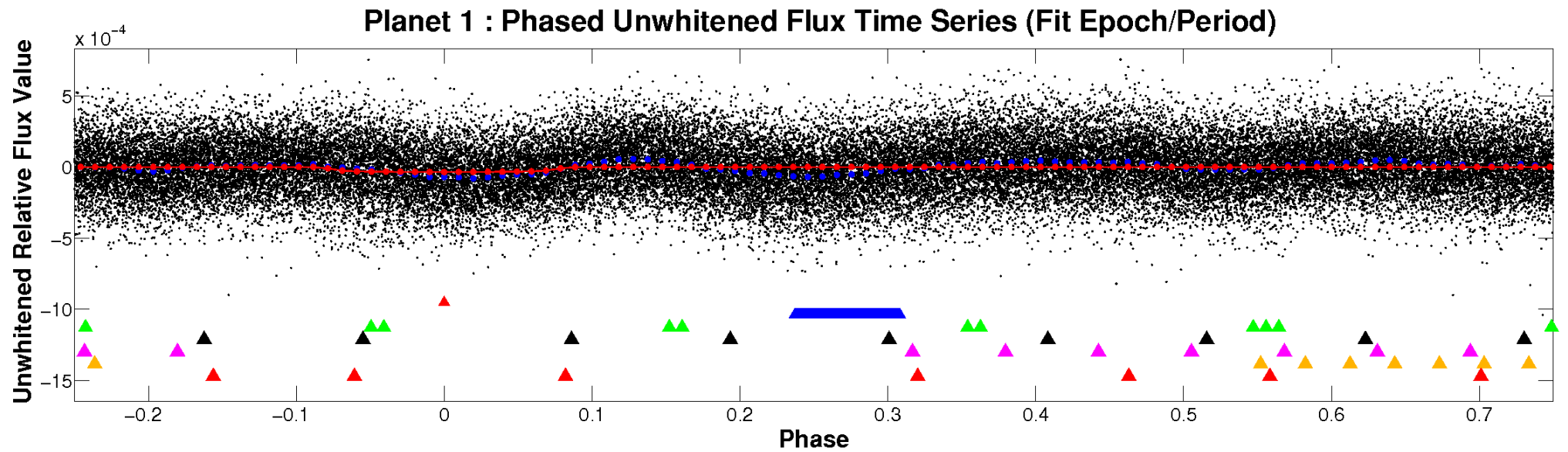


ALT Odd/Even

TCE 004571780-01

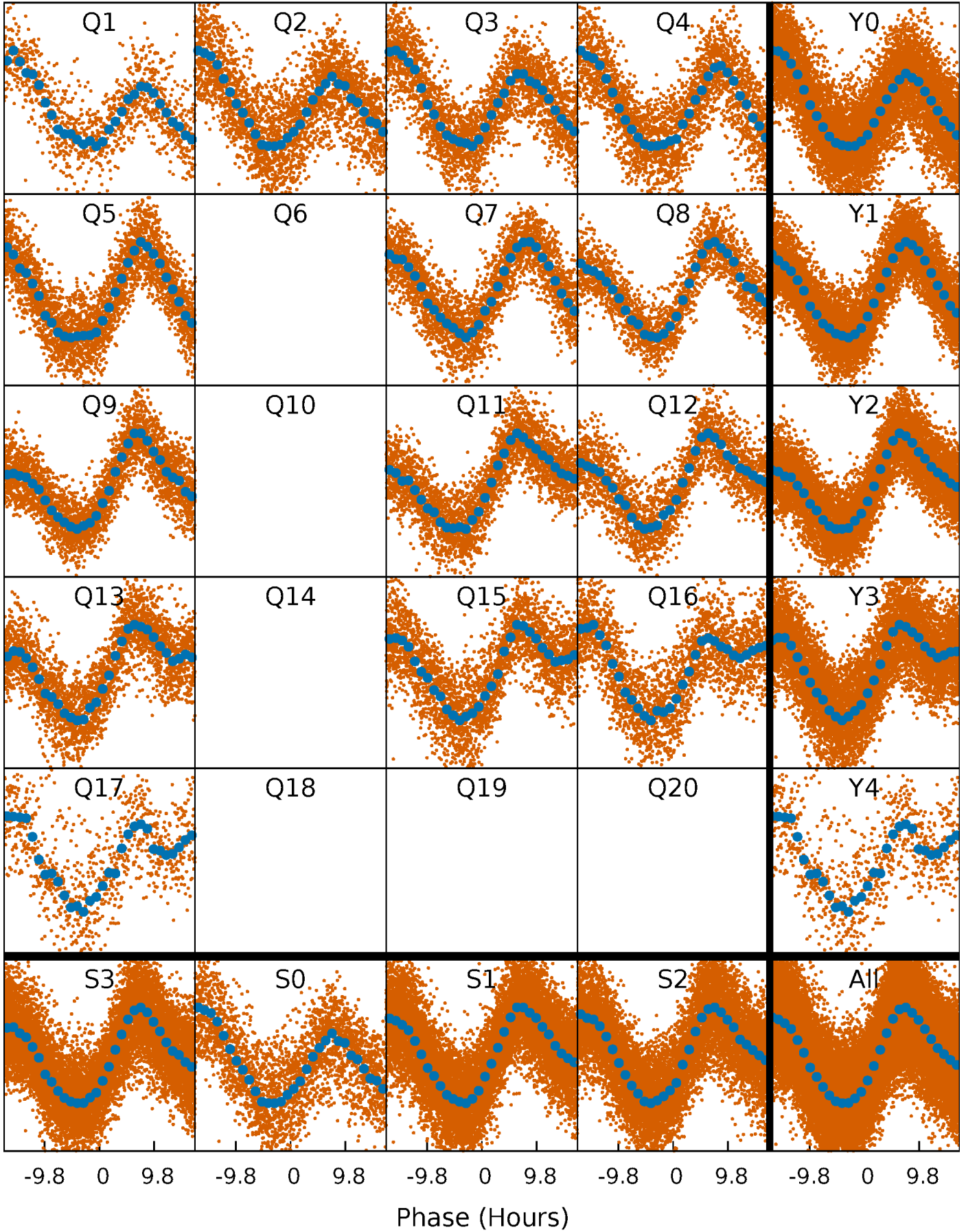


Non-Whitened Vs. Whitened Light Curve



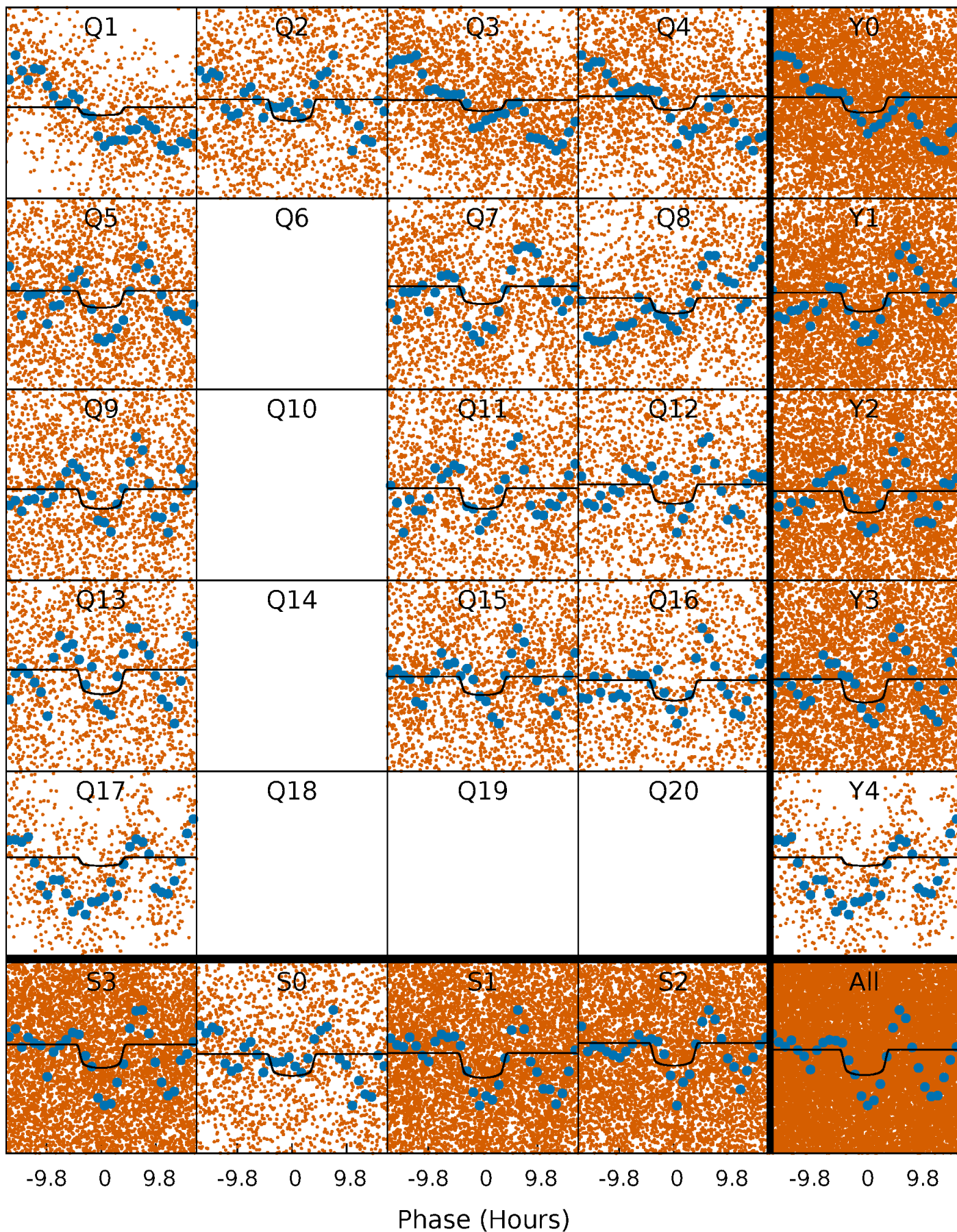
PDC Quarter-Phased Transit Curves

TCE 004571780-01 P= 2.077176 Days $T_0=133.369663$ (BKJD)



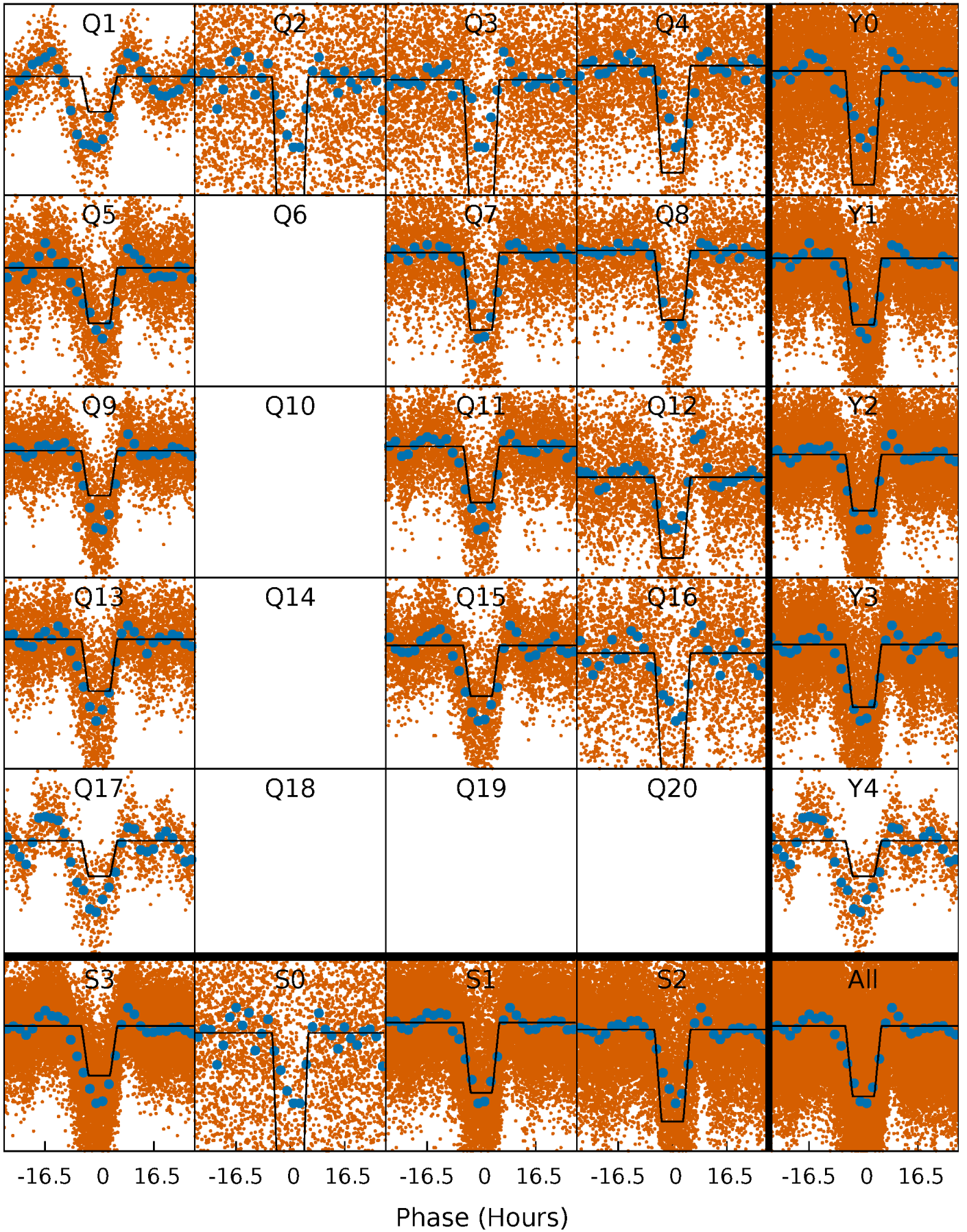
DV Quarter-Phased Transit Curves

TCE 004571780-01 P= 2.077176 Days $T_0=133.369663$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

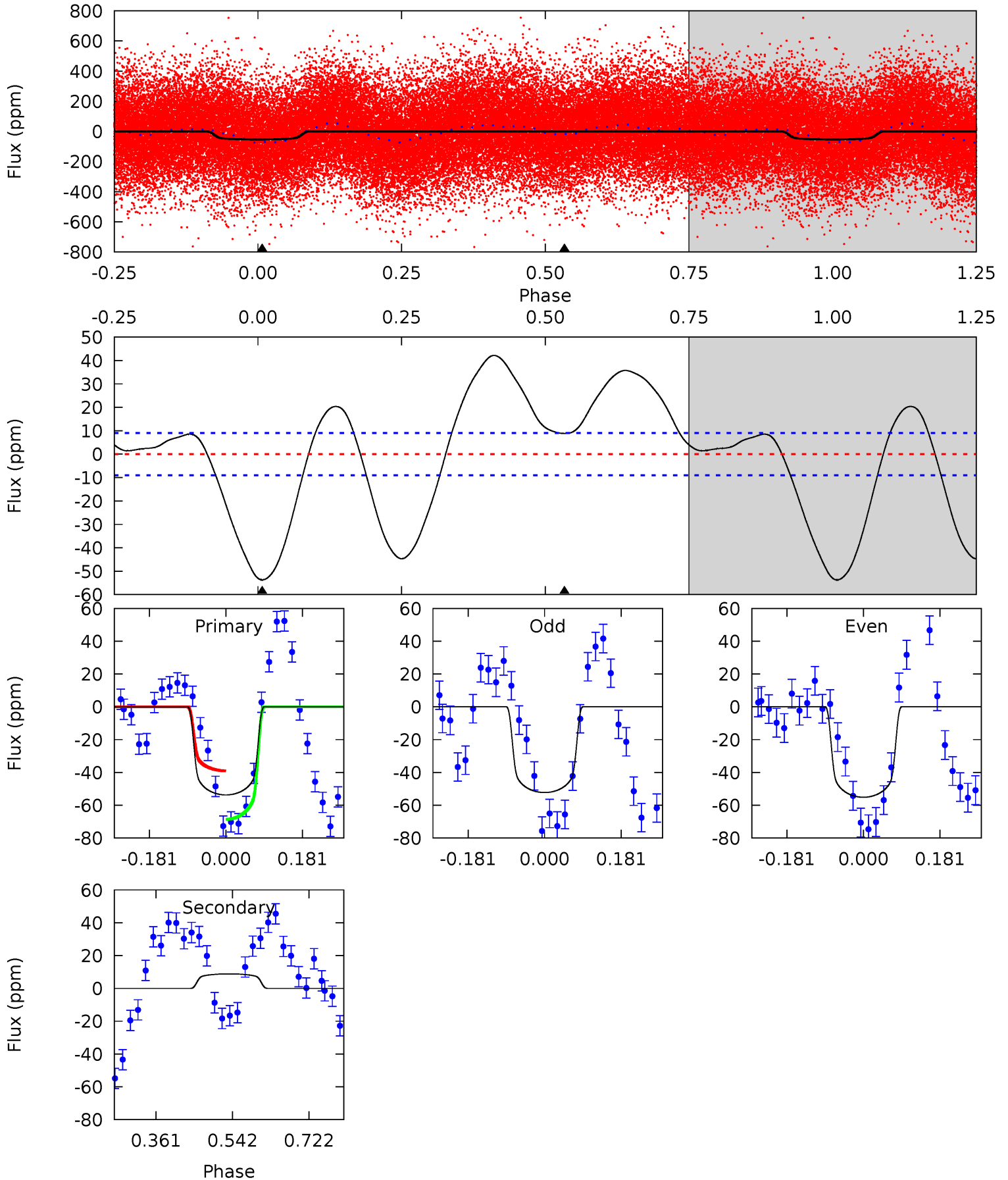
TCE 004571780-01 P= 2.077086 Days $T_0=133.337062$ (BKJD)



DV Model-Shift Uniqueness Test

004571780-01, P = 2.077176 Days, E = 131.292487 Days

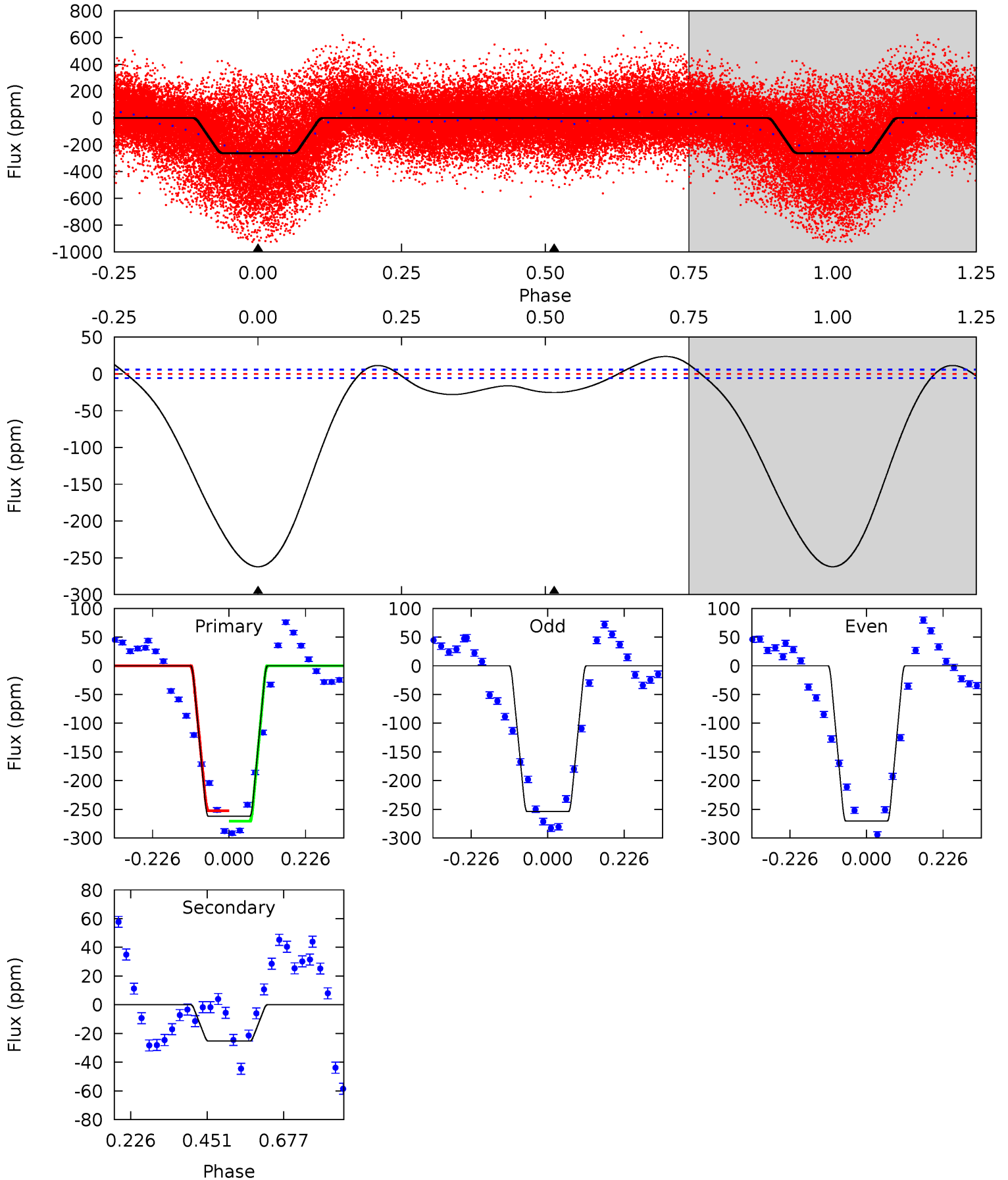
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.5	-4.34	0	0	4.44	1.34	9.98	26.5	26.5	-4.34	-4.34	0.71	1.00	0.44	7.30



Alt Model-Shift Uniqueness Test

004571780-01, P = 2.077086 Days, E = 131.259976 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
203.3	19.6	0	0	4.39	1.21	8.49	203.3	203.3	19.6	19.6	6.40	1.02	0.08	6.98



Stellar Parameters For KIC 004571780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6449^{+163}_{-146}	$3.429^{+0.360}_{-0.090}$	$-0.040^{+0.300}_{-0.250}$	$4.422^{+0.713}_{-1.664}$	$1.914^{+0.086}_{-0.365}$	$0.031^{+0.083}_{-0.009}$
	+3%/-2%	+10%/-3%	+750%/-625%	+16%/-38%	+4%/-19%	+266%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004571780-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	9 ± 2	$3.12^{+0.51}_{-0.64}$	4122^{+246}_{-418}	-4734^{+233}_{-235}	$-0.757^{+0.229}_{-0.440}$
Alt.	-25 ± 1	$7.43^{+0.95}_{-1.37}$	4115^{+246}_{-379}	3085^{+386}_{-795}	$0.385^{+0.176}_{-0.079}$

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 $A_{obs} \gg 1.0$

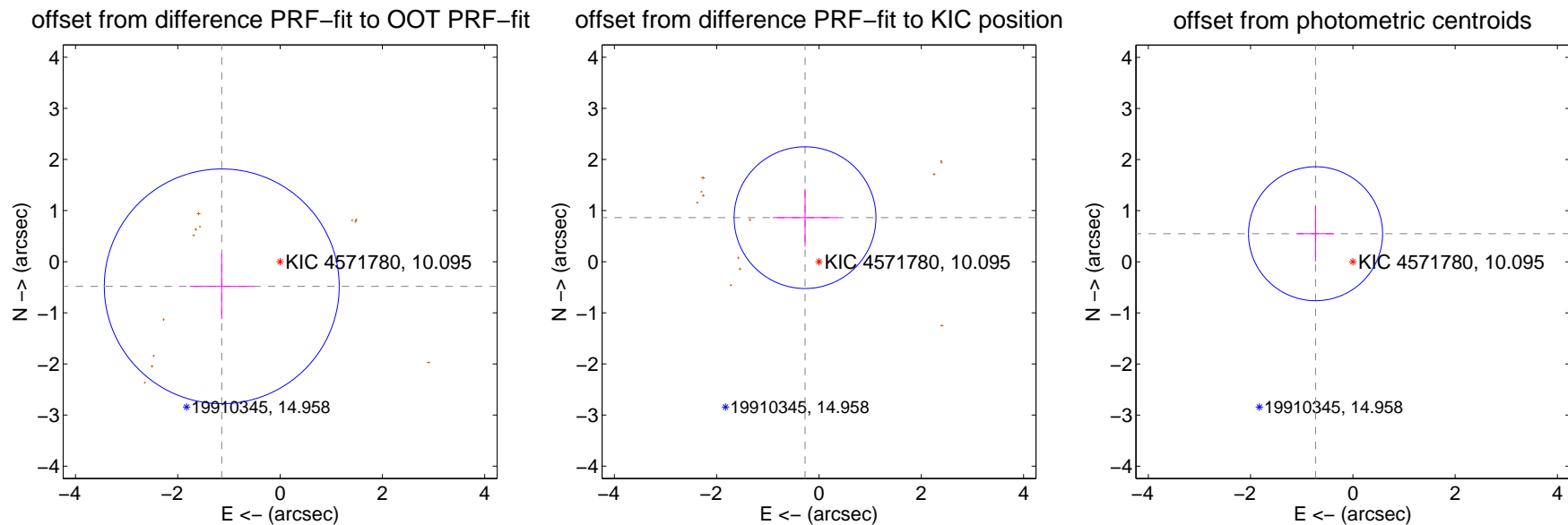
DV Centroid Data

Supplemental centroid analysis for 004571780-01. **Kepler magnitude: 10.10.** Transit SNR 7.51

There are 1 quarters with good PRF difference image offsets

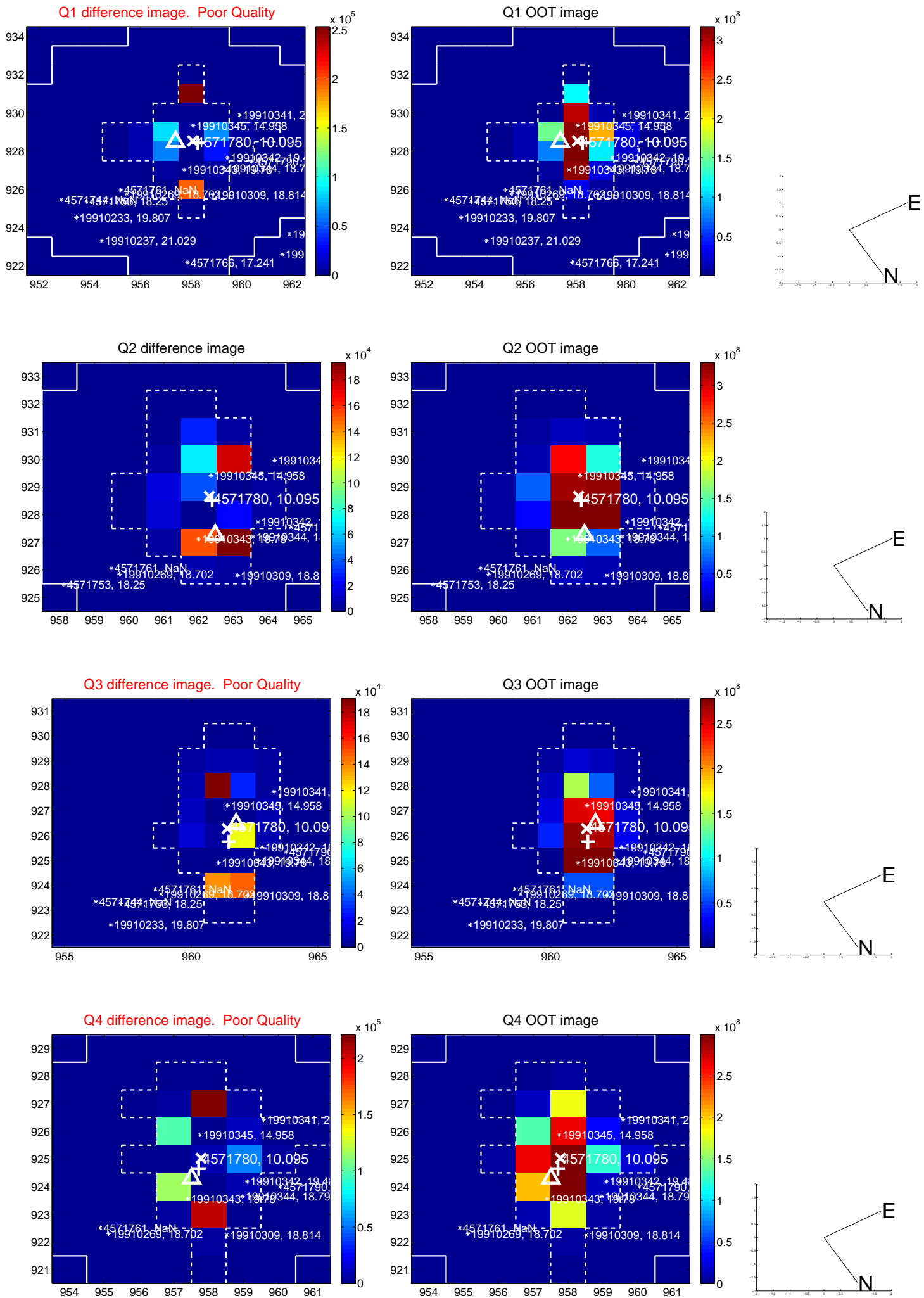
The direct PRF centroid is offset from the target star catalog position by about 0.97 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.239 ± 0.766	1.62	1.141 ± 0.627	-0.482 ± 0.639
PRF-fit source offset from KIC position	0.904 ± 0.462	1.96	0.273 ± 0.630	0.862 ± 0.565
photometric centroid source offset	0.91 ± 0.44	2.09	0.73 ± 0.36	0.55 ± 0.55

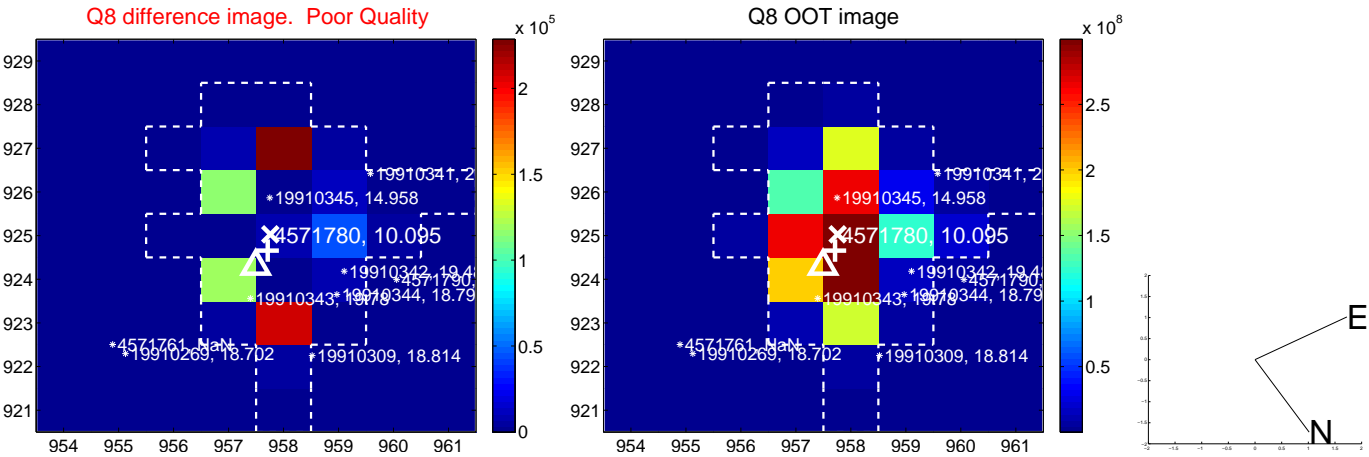
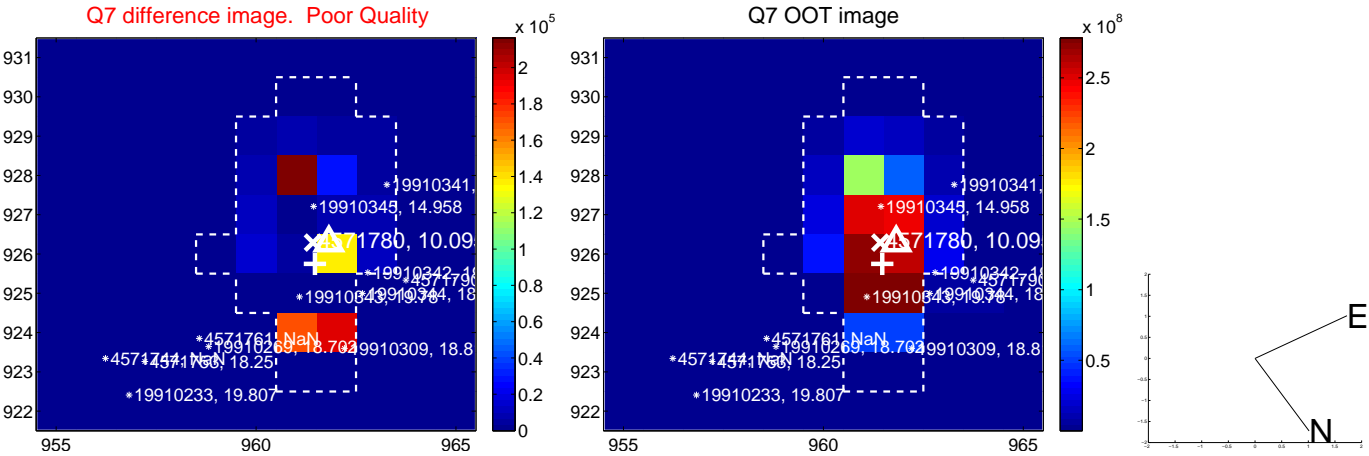
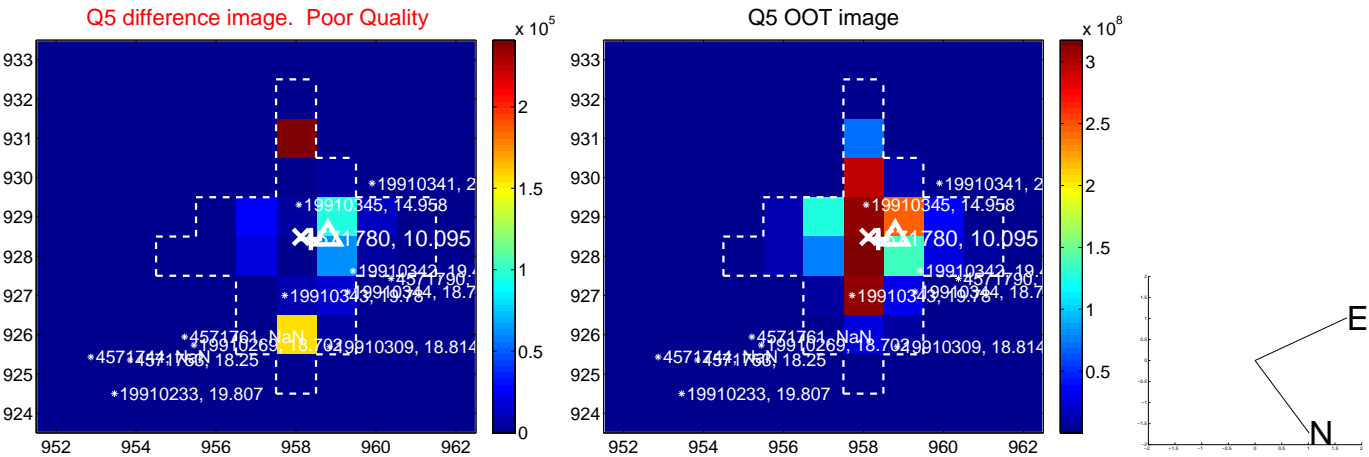


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

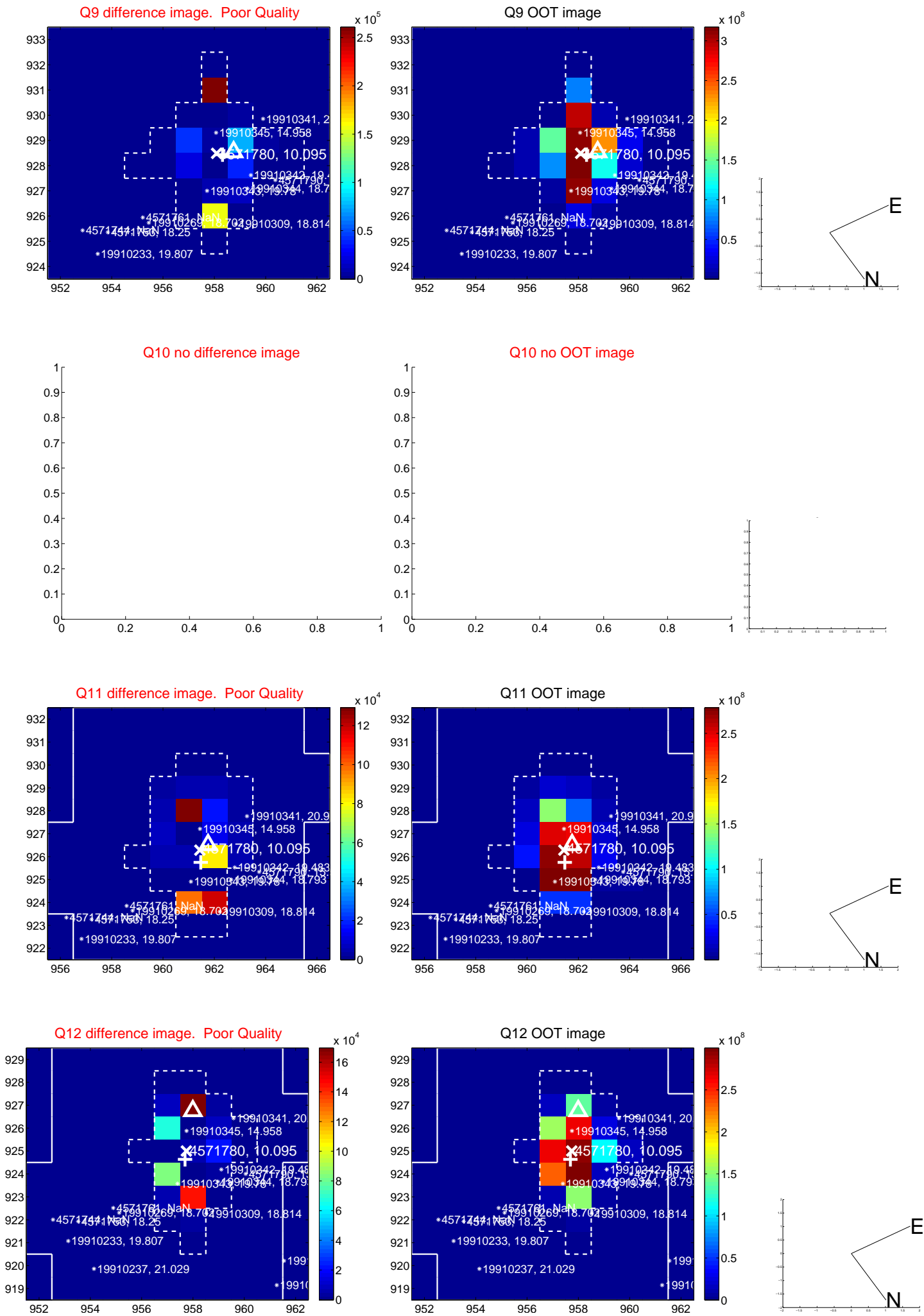
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



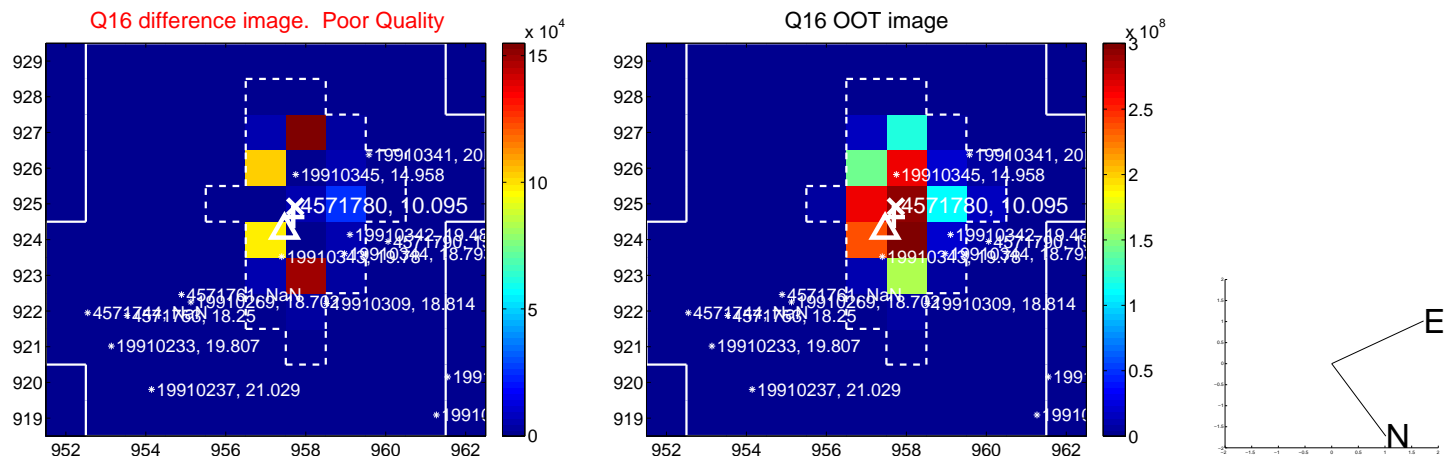
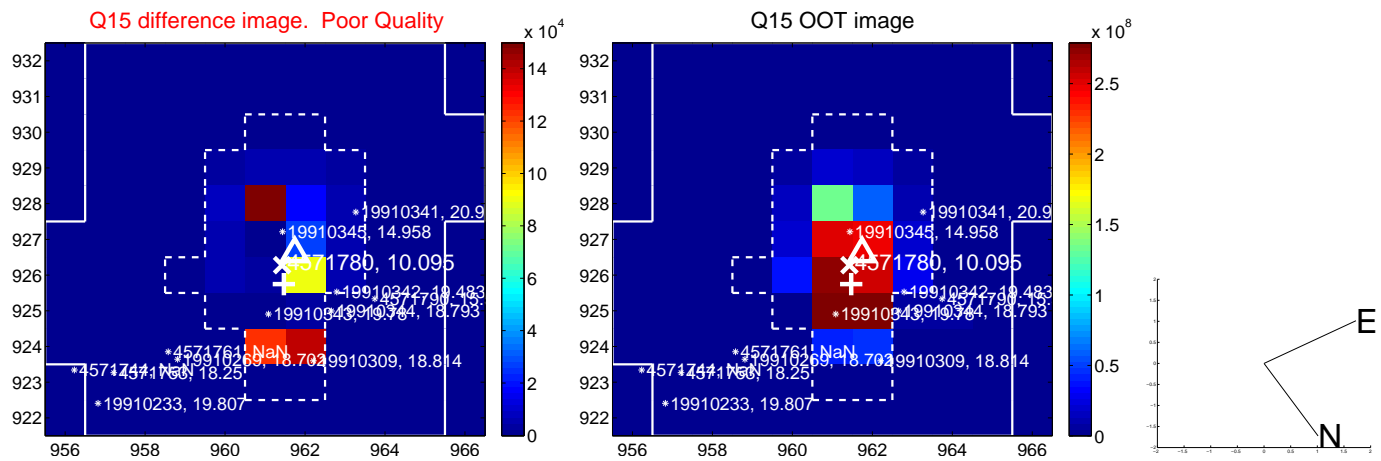
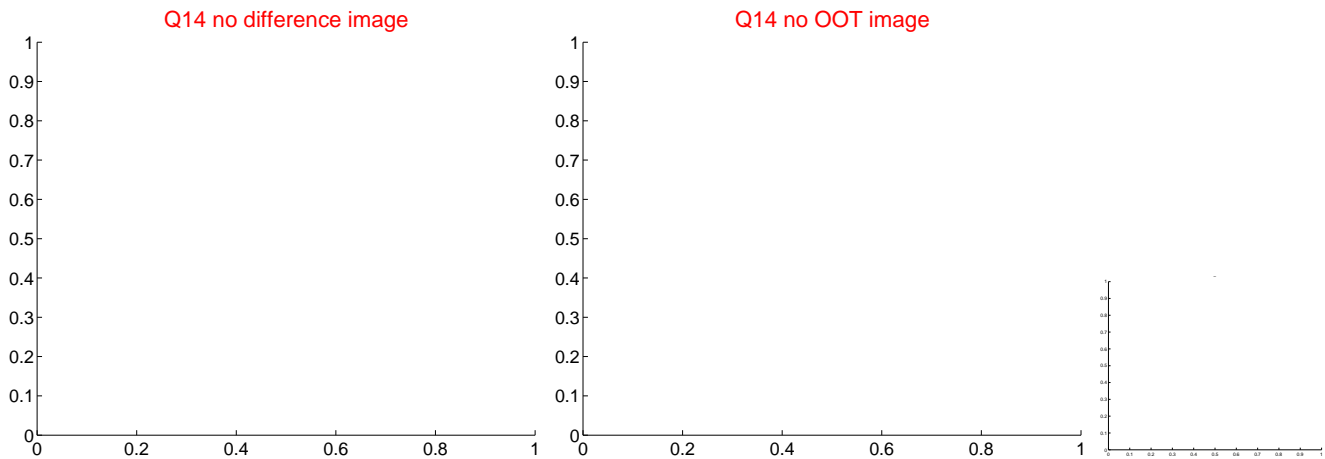
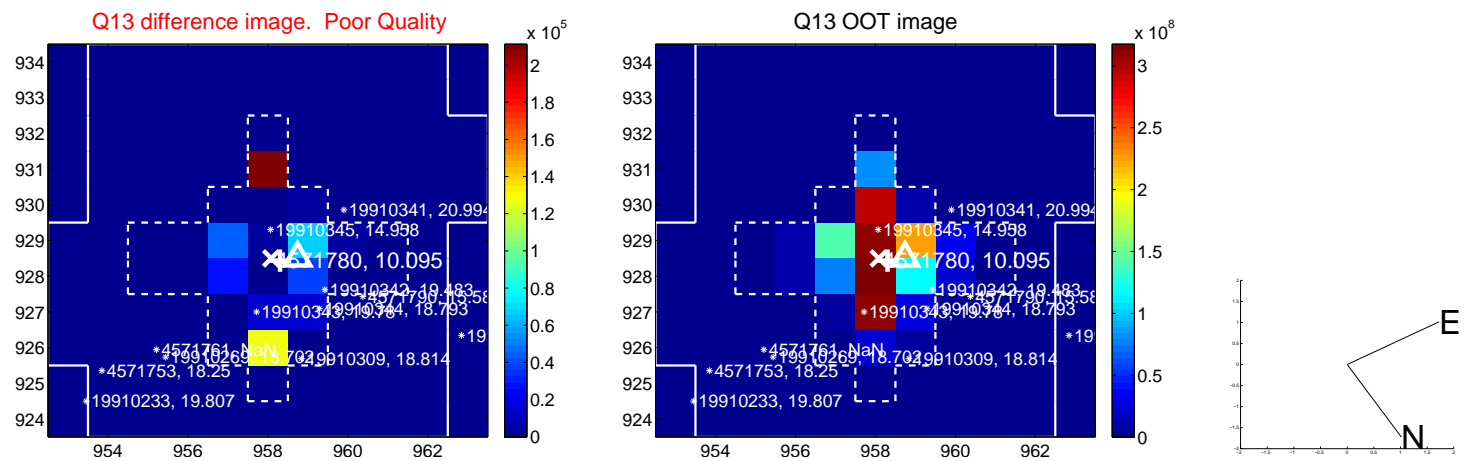
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



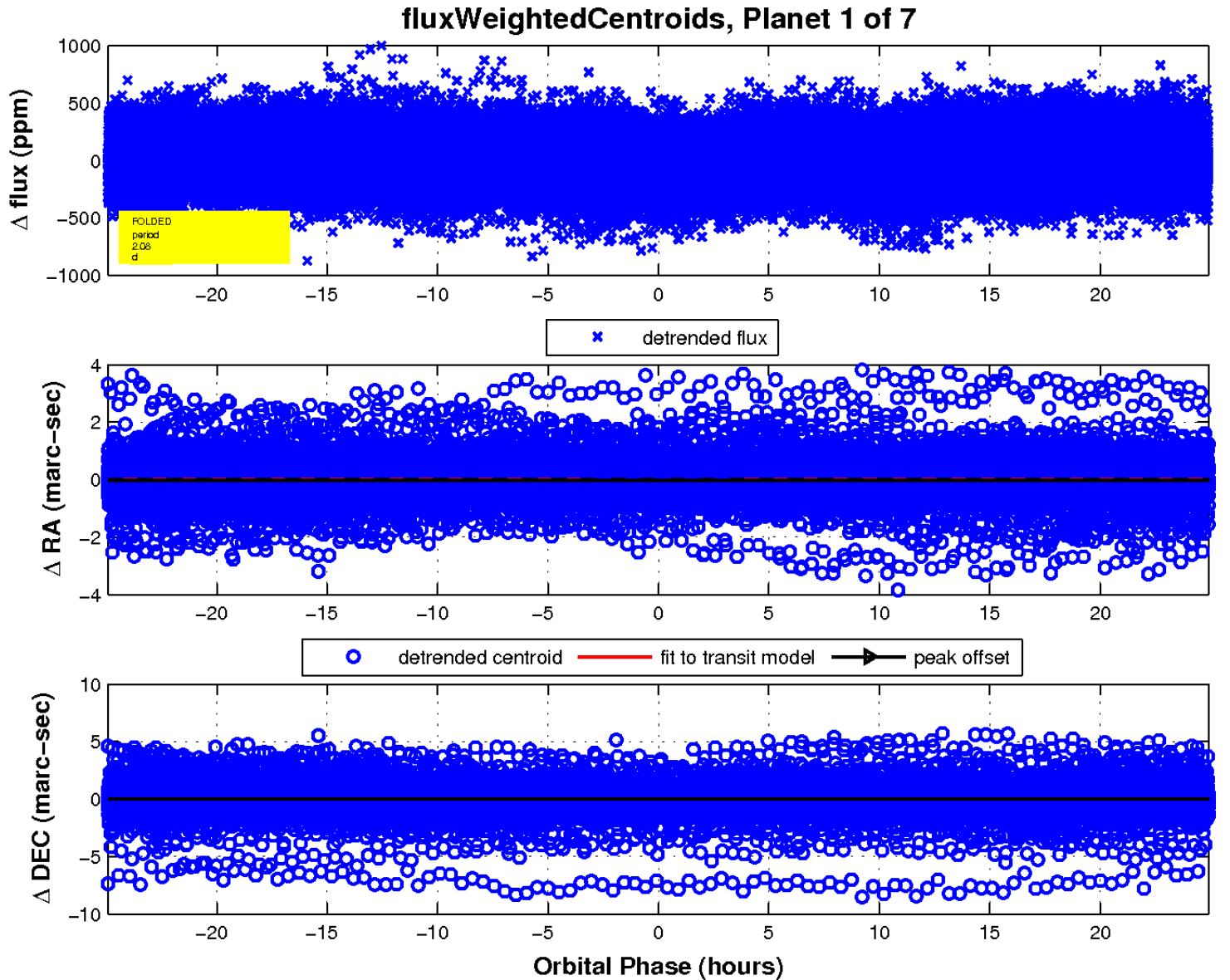
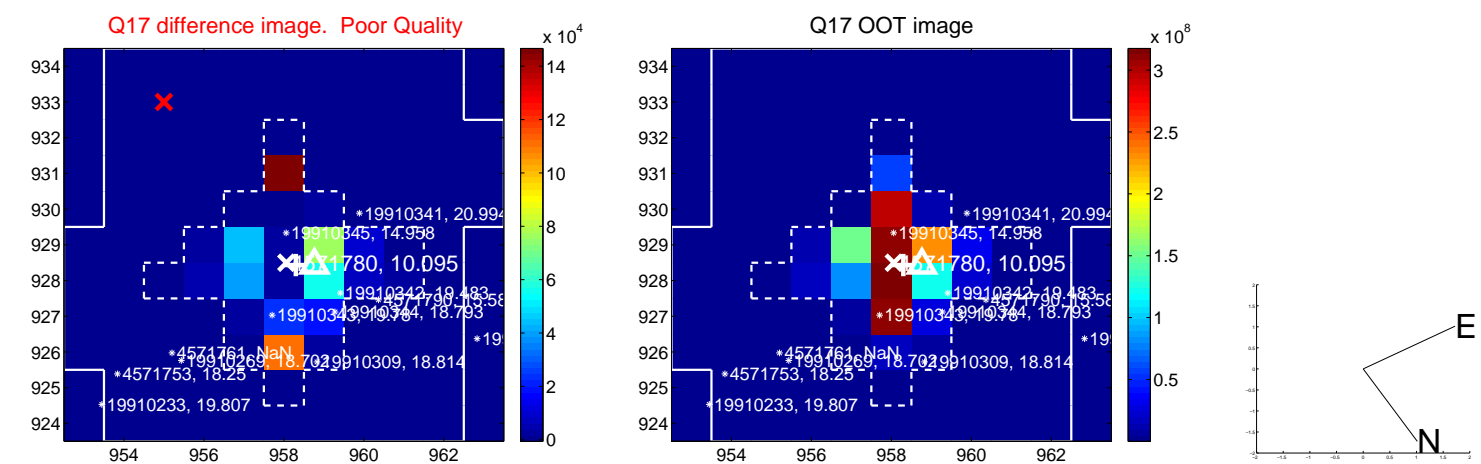
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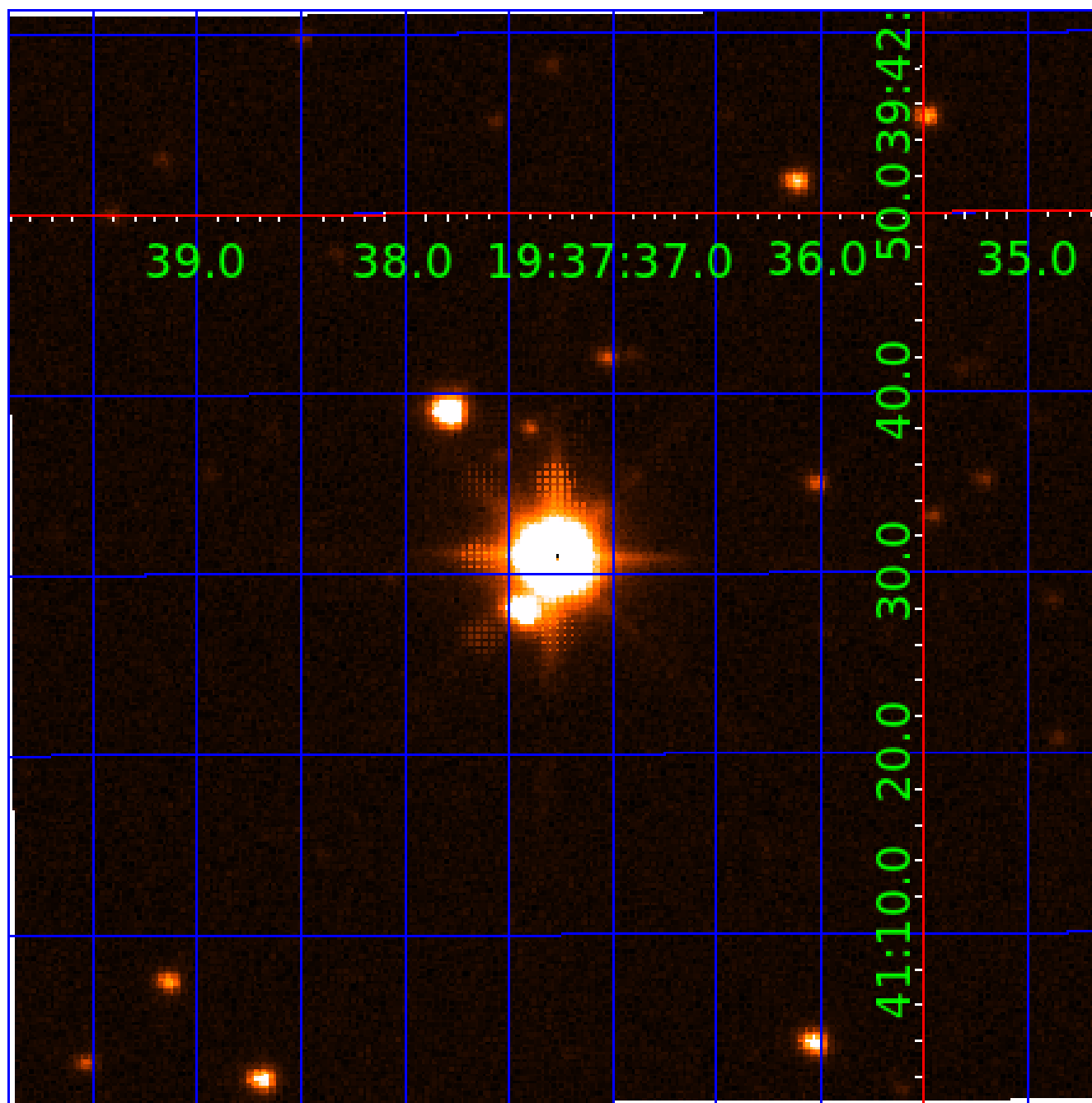


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004571780

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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004571780-02	OBS	No	2.076966	131.932693	62.2	4.896	11.3	12.3	4.42	6449	3.52	19351.02
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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004571780-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
004571780-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004571780-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004571780-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

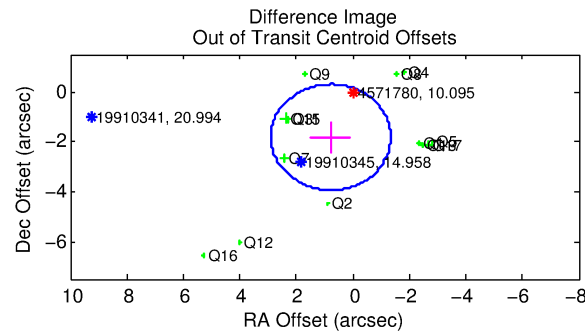
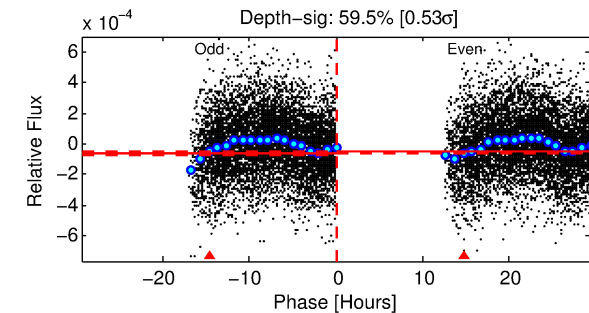
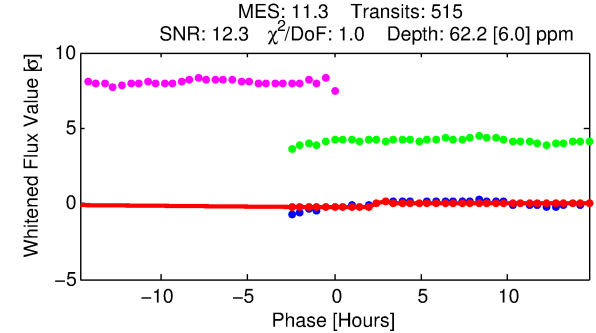
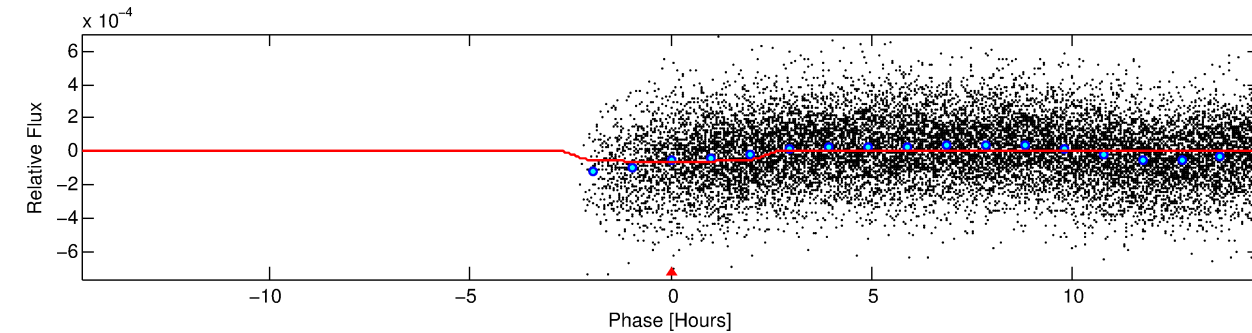
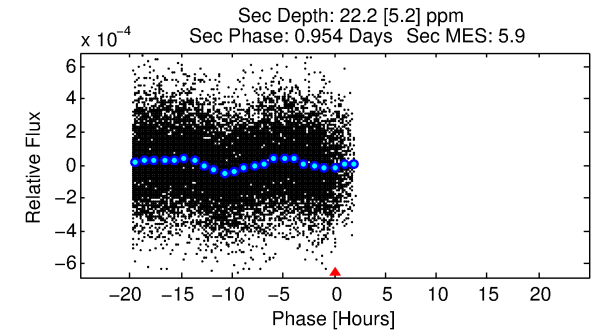
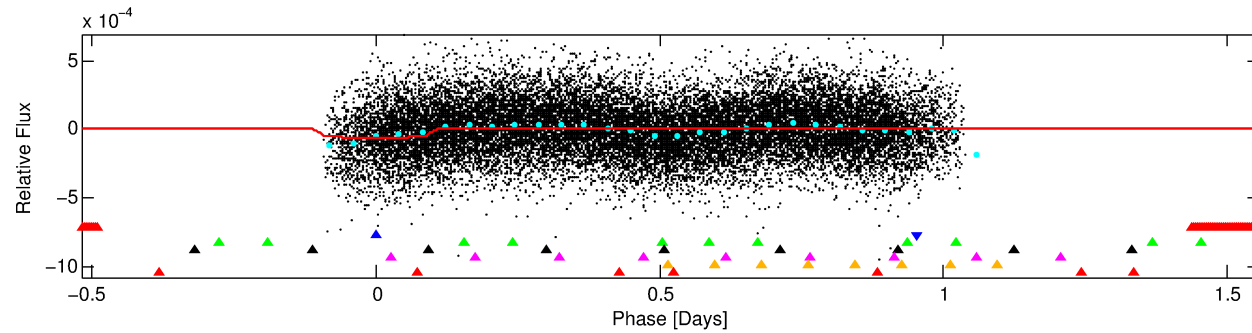
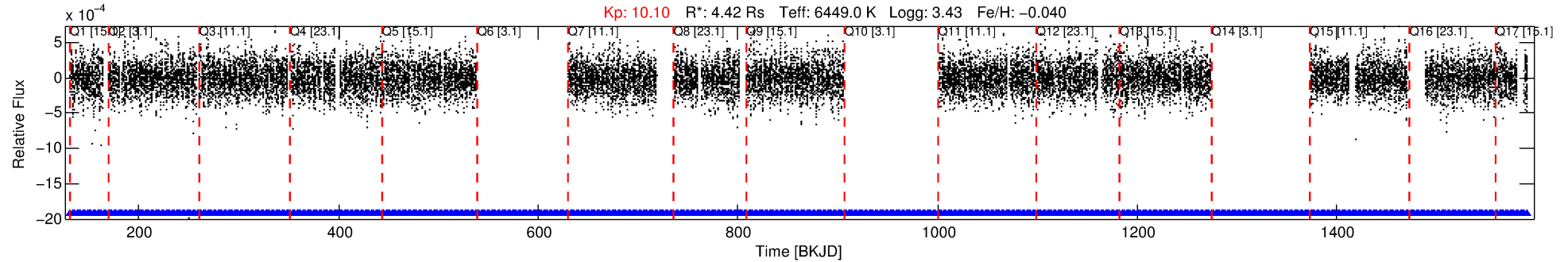
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004571780-02

No Significant Match Found

DV One-Page Summary

KIC: 4571780 Candidate: 2 of 7 Period: 2.077 d



DV Fit Results:

Period = 2.07697 [0.00001] d
Epoch = 131.9327 [0.0057] BKJD
Rp/R* = 0.0073 [0.0034]
a/R* = 3.21 [7.00]
b = 0.26 [8.63]
Seff = 19351.02 [11905.91]
Teq = 3007 [463] K
Rp = 3.53 [2.10] Re
a = 0.0396 [0.0148] AU
Ag = 1.54 [1.74] [0.31σ]
Teffp = 5179 [1239] K [1.64σ]

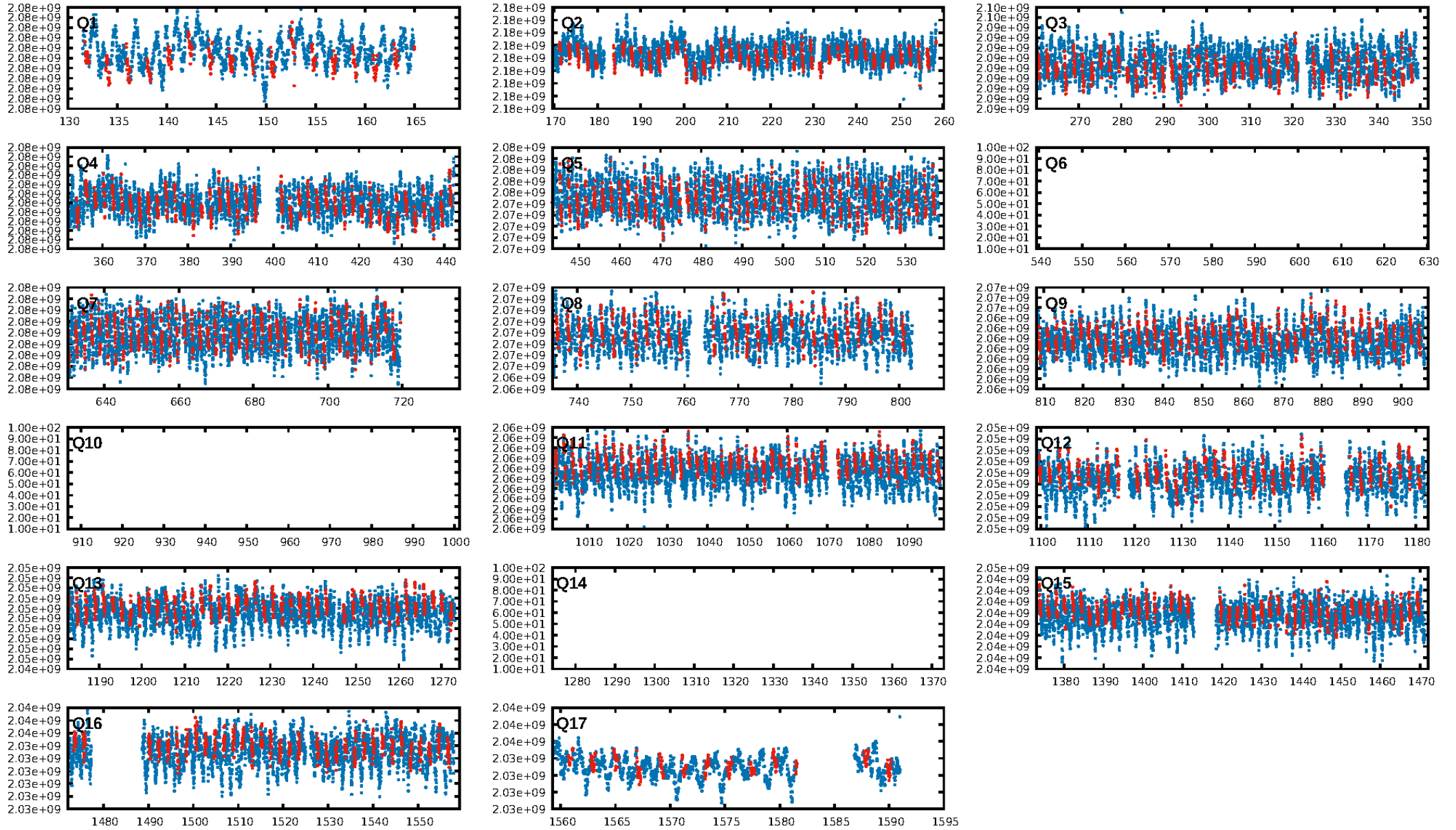
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [487/487]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.2%
Centroid-so: 0.398 arcsec [1.26σ]
OotOffset-rm: 1.983 arcsec [2.80σ]
KicOffset-rm: 1.080 arcsec [1.37σ]
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KicOffset-st: 1/4/4/5 [14]
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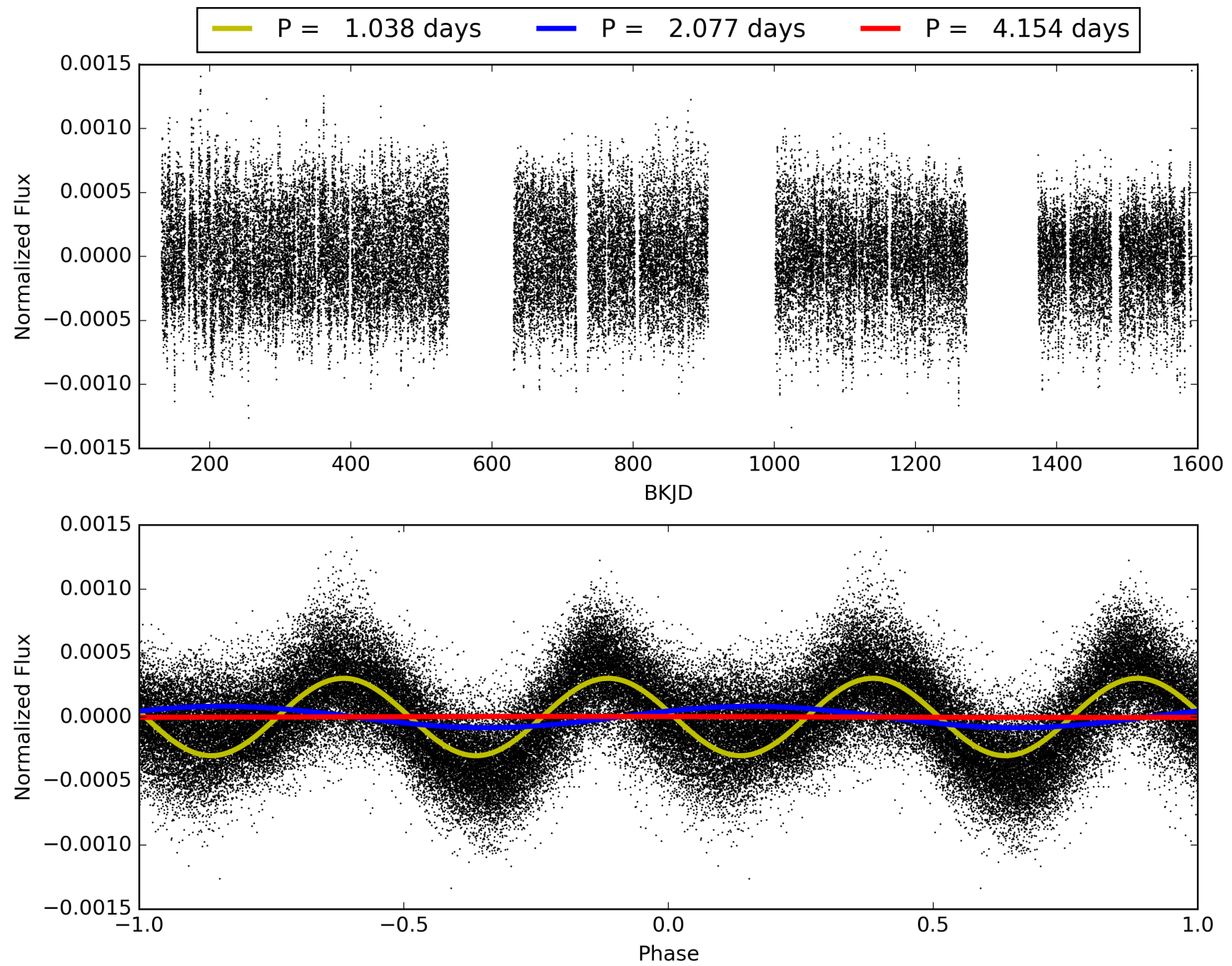
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:08:04 Z

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

TCE 004571780-02, PDC Light Curves

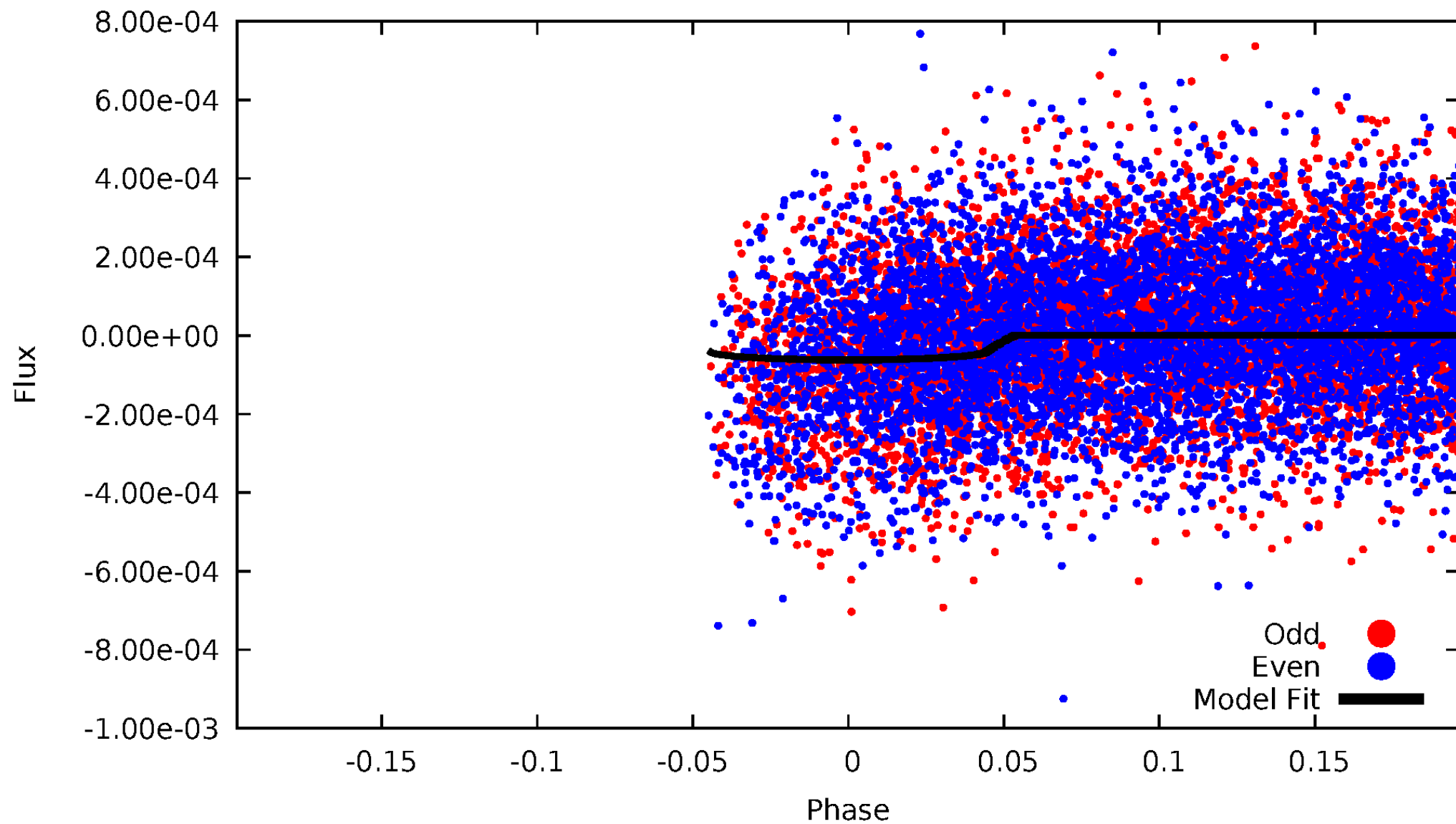


TCE 004571780-02



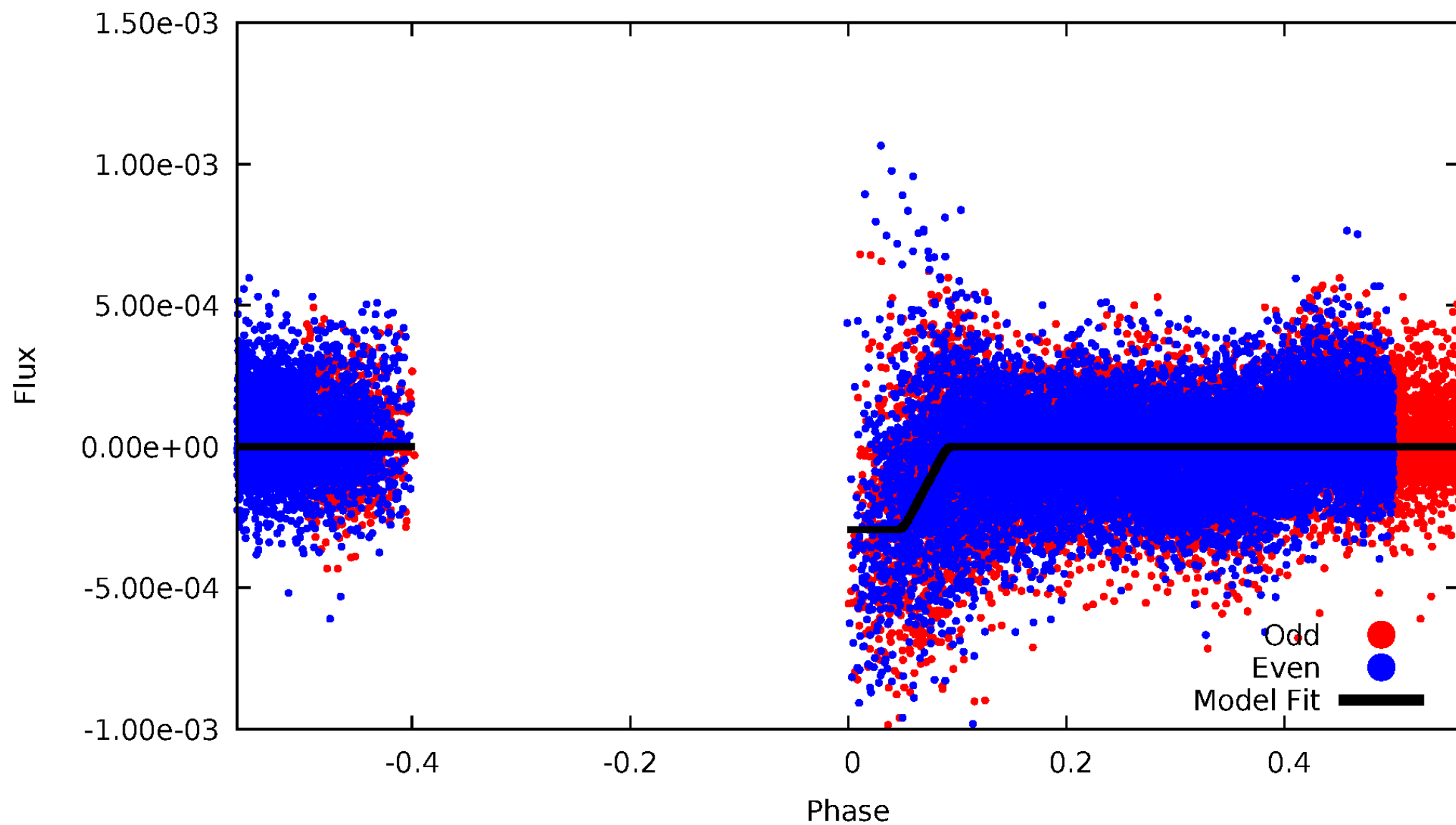
DV Odd/Even

TCE 004571780-02



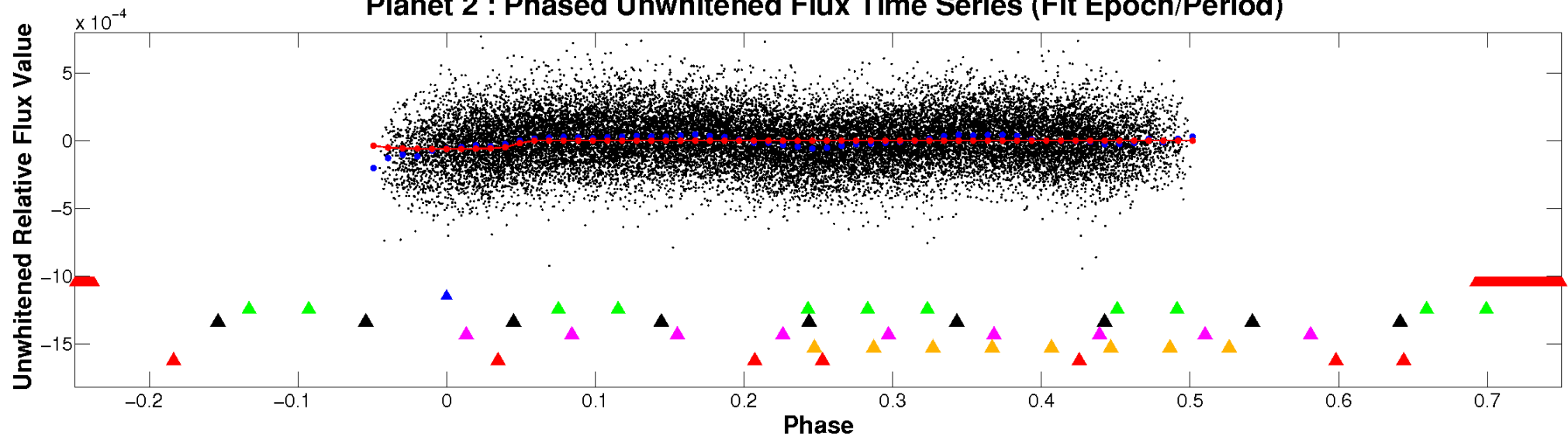
ALT Odd/Even

TCE 004571780-02

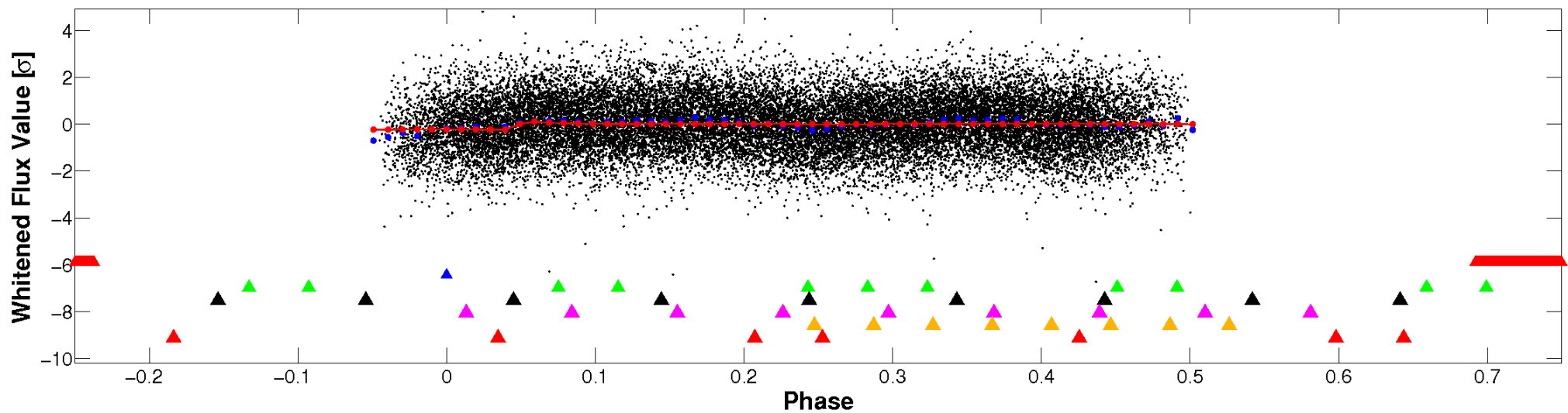


Non-Whitened Vs. Whitened Light Curve

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

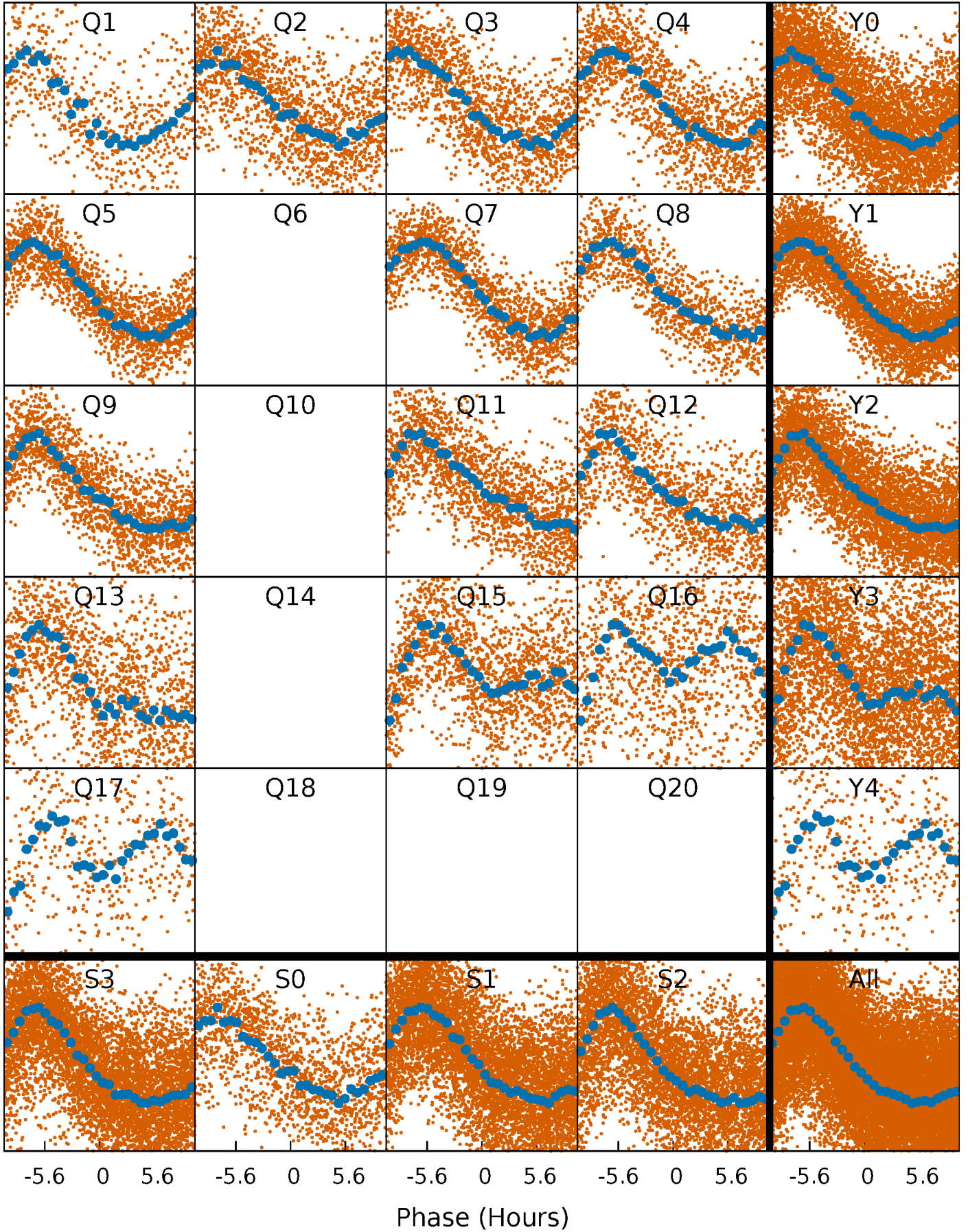


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



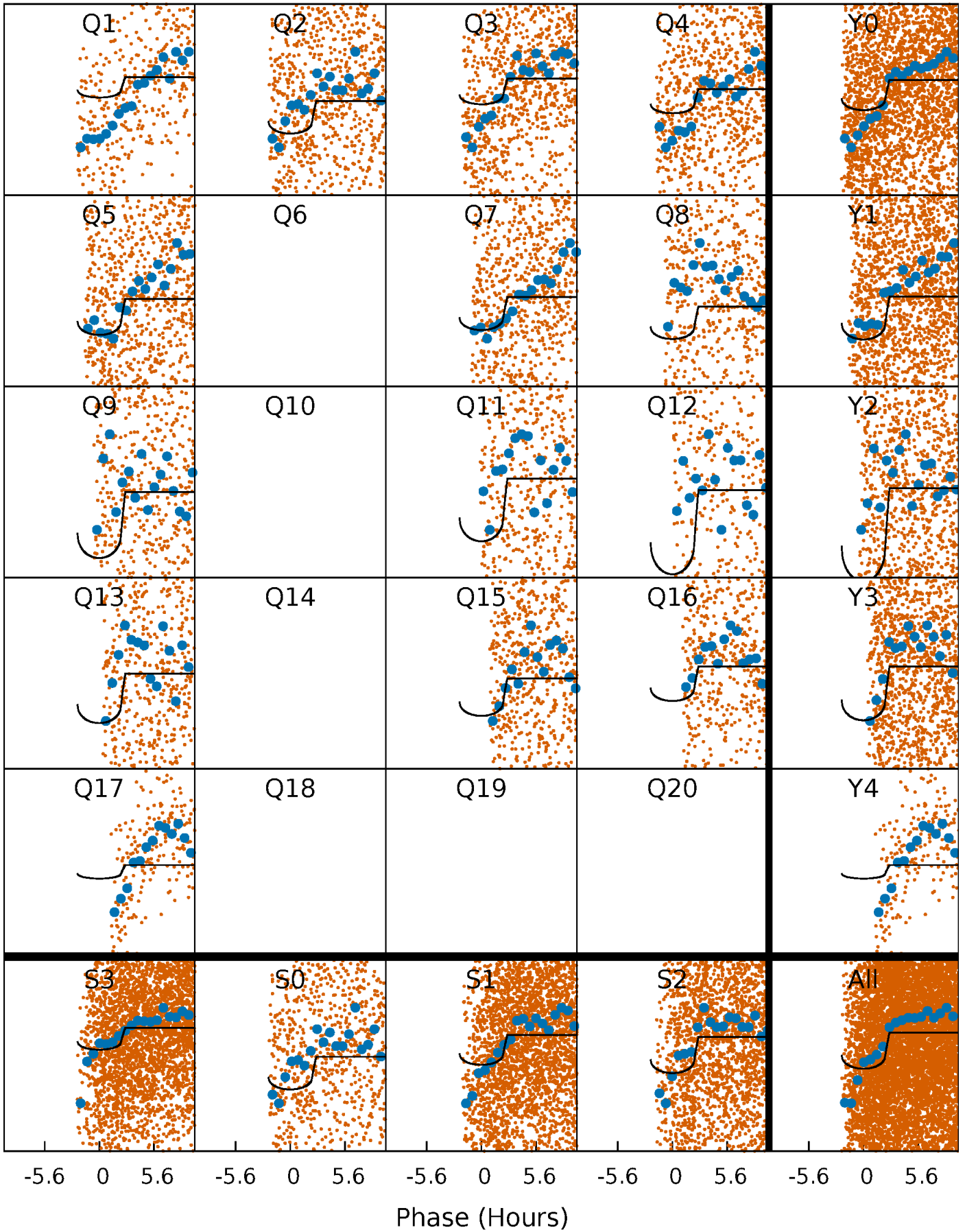
PDC Quarter-Phased Transit Curves

TCE 004571780-02 P= 2.076966 Days $T_0=131.932693$ (BKJD)



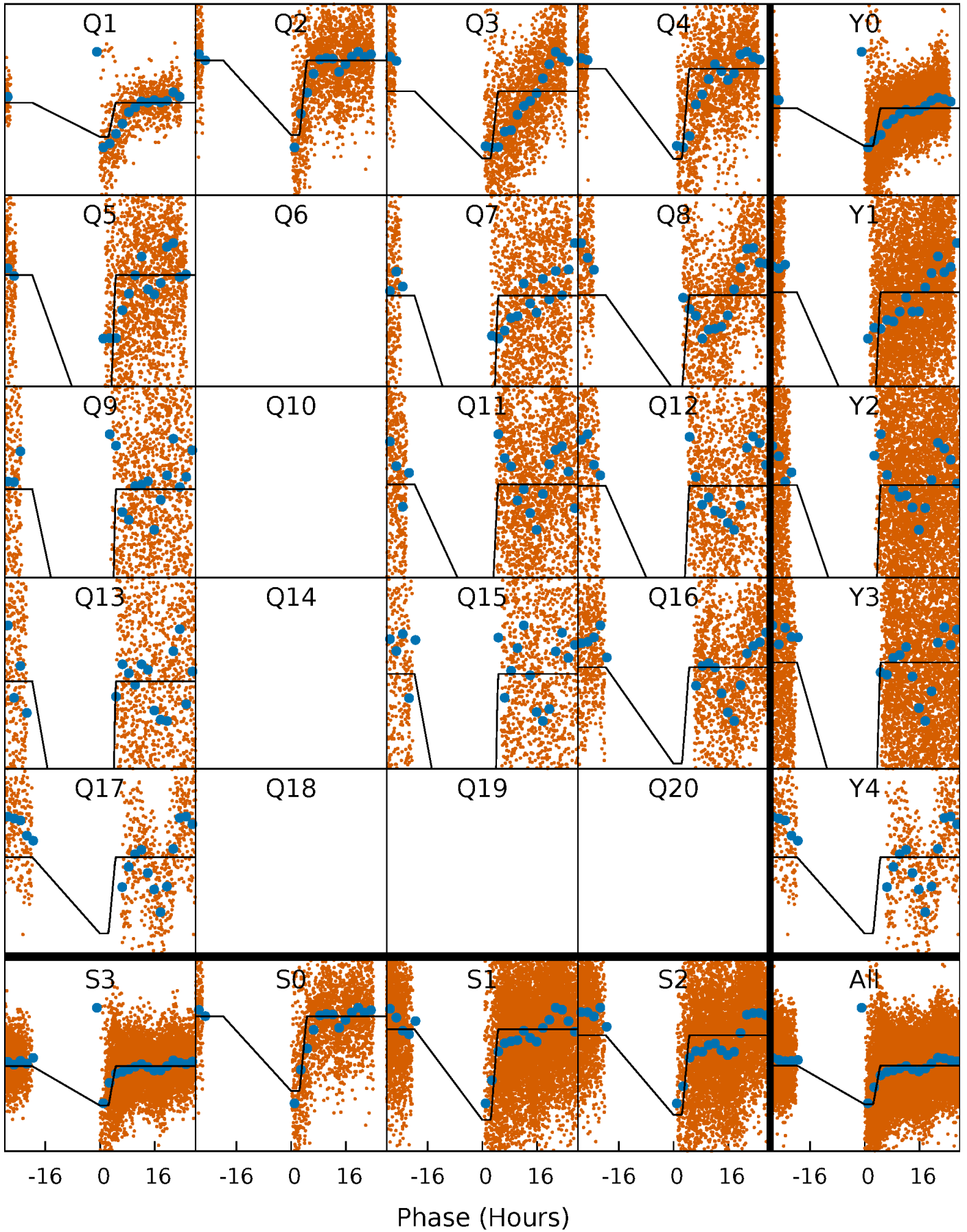
DV Quarter-Phased Transit Curves

TCE 004571780-02 P= 2.076966 Days $T_0=131.932693$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

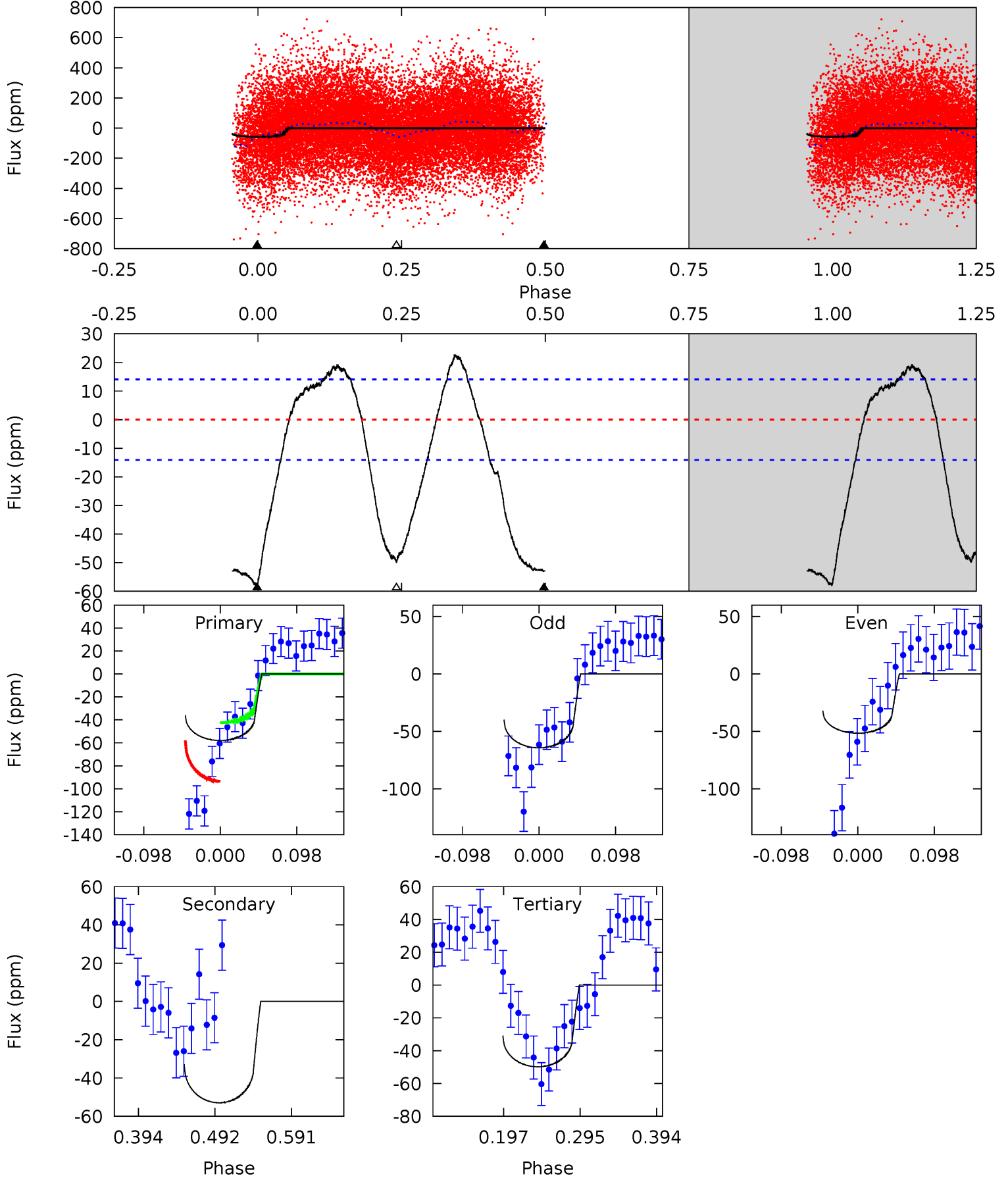
TCE 004571780-02 $P = 2.076794$ Days $T_0 = 131.841120$ (BKJD)



DV Model-Shift Uniqueness Test

004571780-02, P = 2.076966 Days, E = 129.855727 Days

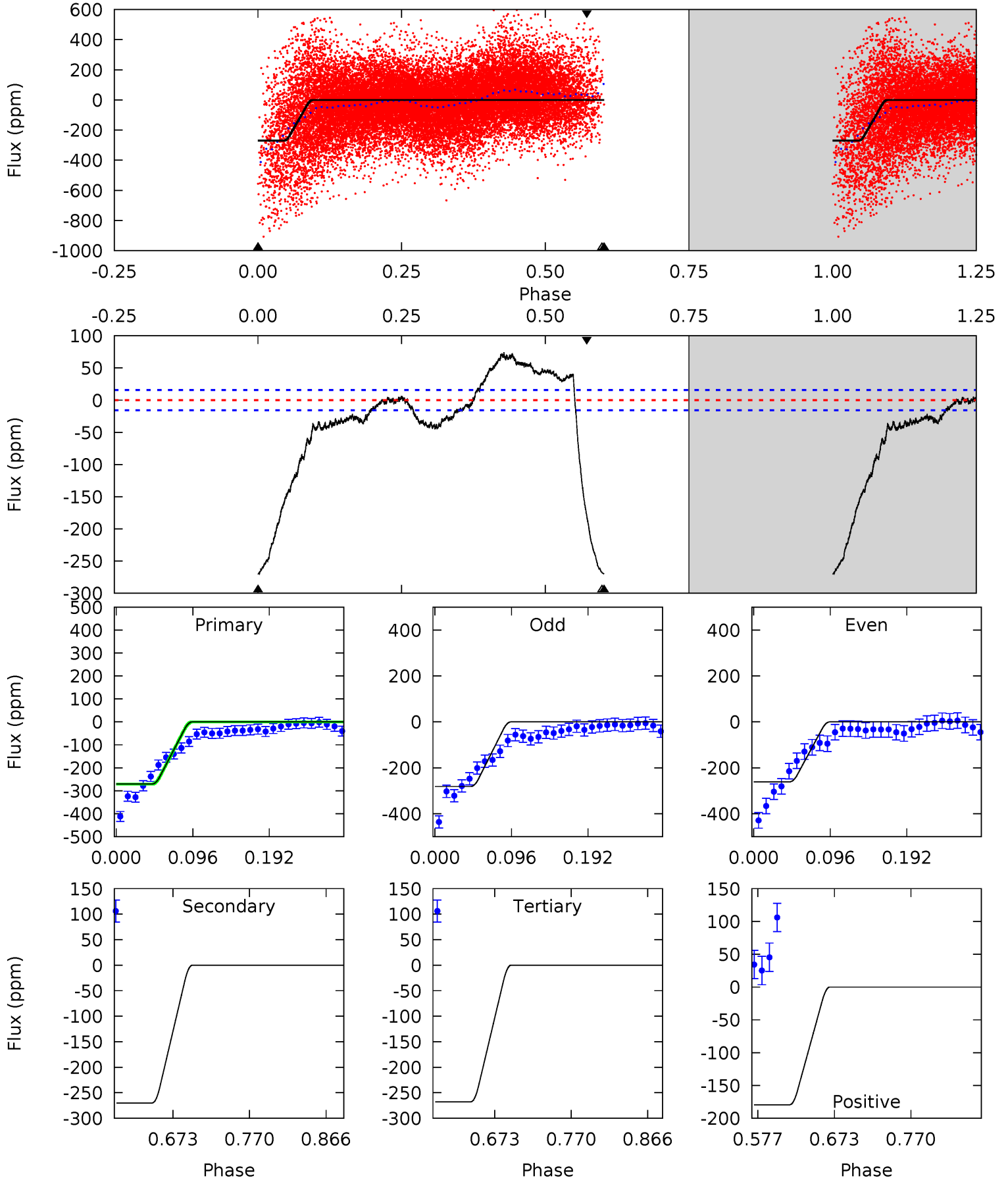
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	17.2	16.2	0	4.57	1.65	7.56	2.64	18.8	1.02	17.2	2.07	1.04	0.28	7.45



Alt Model-Shift Uniqueness Test

004571780-02, P = 2.076794 Days, E = 129.764326 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
78.8	78.6	77.9	-52.2	4.57	1.66	13.2	0.84	131.0	0.70	130.9	2.94	0.44	0.21	0.00



Stellar Parameters For KIC 004571780

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6449^{+163}_{-146}	$3.429^{+0.360}_{-0.090}$	$-0.040^{+0.300}_{-0.250}$	$4.422^{+0.713}_{-1.664}$	$1.914^{+0.086}_{-0.365}$	$0.031^{+0.083}_{-0.009}$
	+3%/-2%	+10%/-3%	+750%/-625%	+16%/-38%	+4%/-19%	+266%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004571780-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-53 ± 3	$3.20^{+1.60}_{-1.47}$	4099^{+258}_{-440}	6254^{+2674}_{-1106}	$4.292^{+10.900}_{-2.383}$
Alt.	-270 ± 3	$7.53^{+1.97}_{-2.08}$	4087^{+264}_{-419}	6171^{+800}_{-571}	$4.036^{+3.493}_{-1.495}$

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

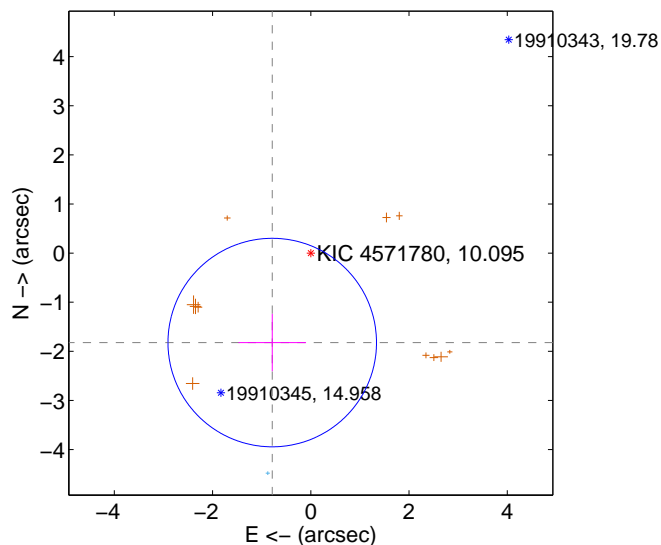
Supplemental centroid analysis for 004571780-02. **Kepler magnitude: 10.10.** Transit SNR 12.32

There are 1 quarters with good PRF difference image offsets

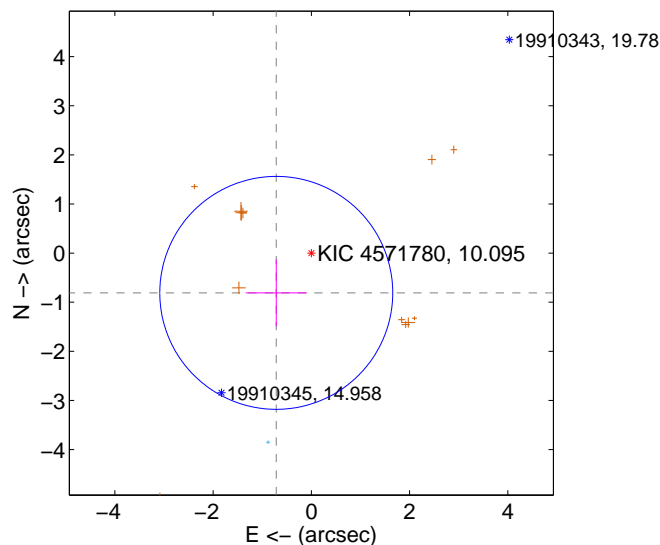
The direct PRF centroid is offset from the target star catalog position by about 0.97 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.983 ± 0.708	2.80	0.785 ± 0.689	-1.822 ± 0.583
PRF-fit source offset from KIC position	1.080 ± 0.790	1.37	0.714 ± 0.622	-0.810 ± 0.680
photometric centroid source offset	0.40 ± 0.31	1.26	-0.07 ± 0.21	-0.39 ± 0.32

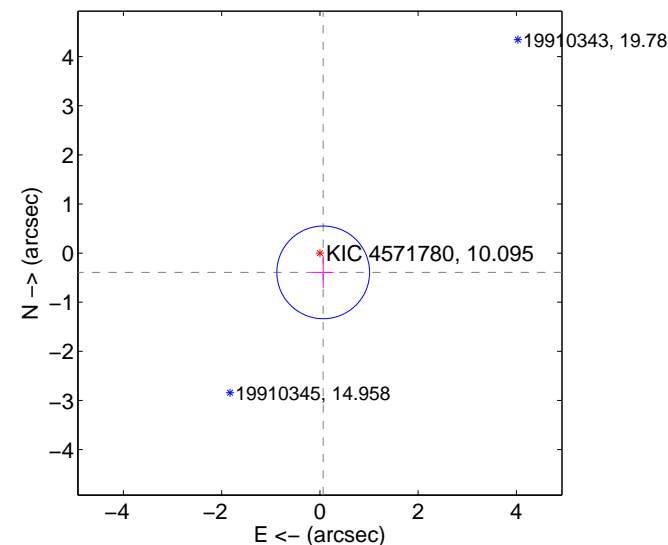
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

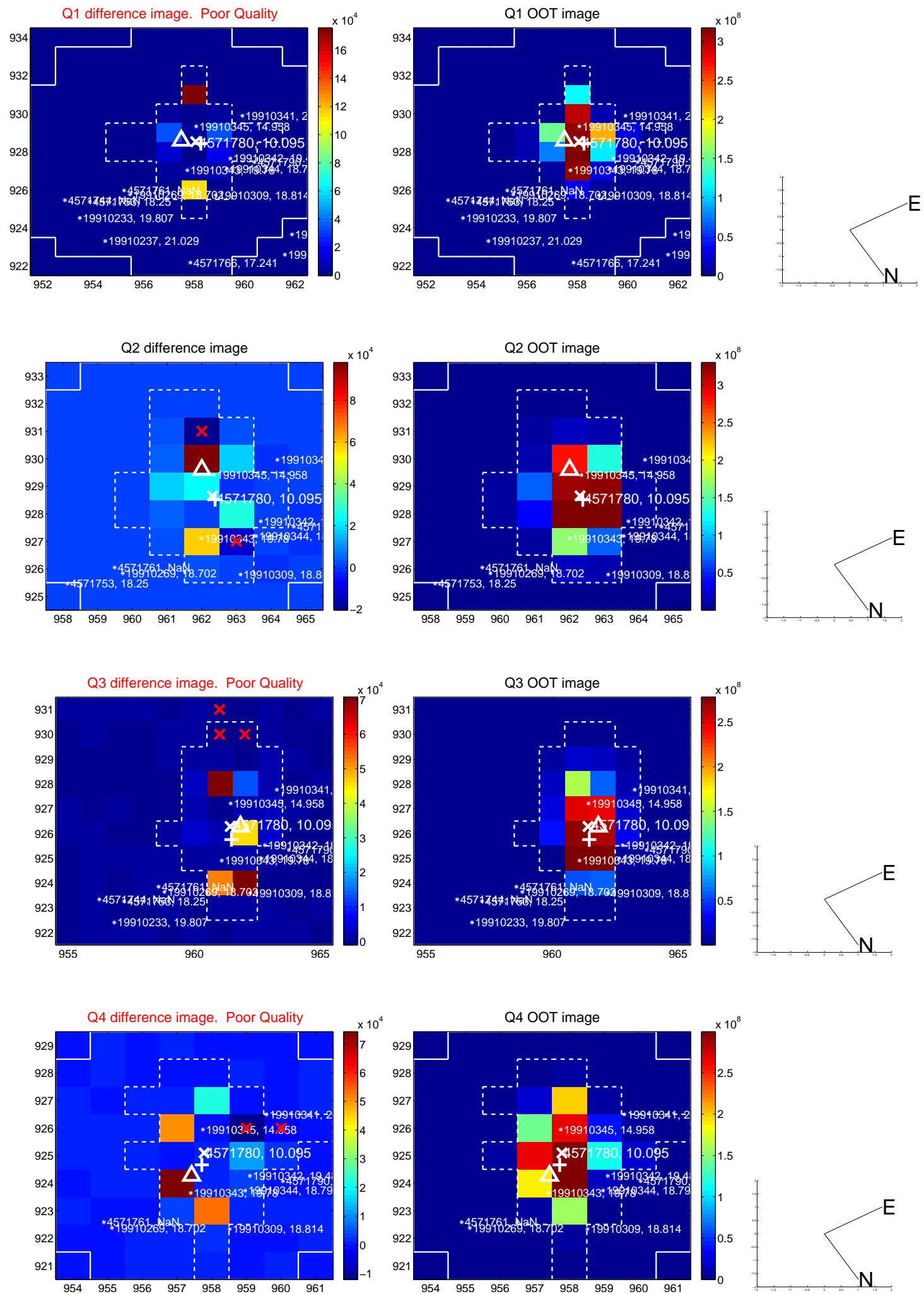


offset from photometric centroids

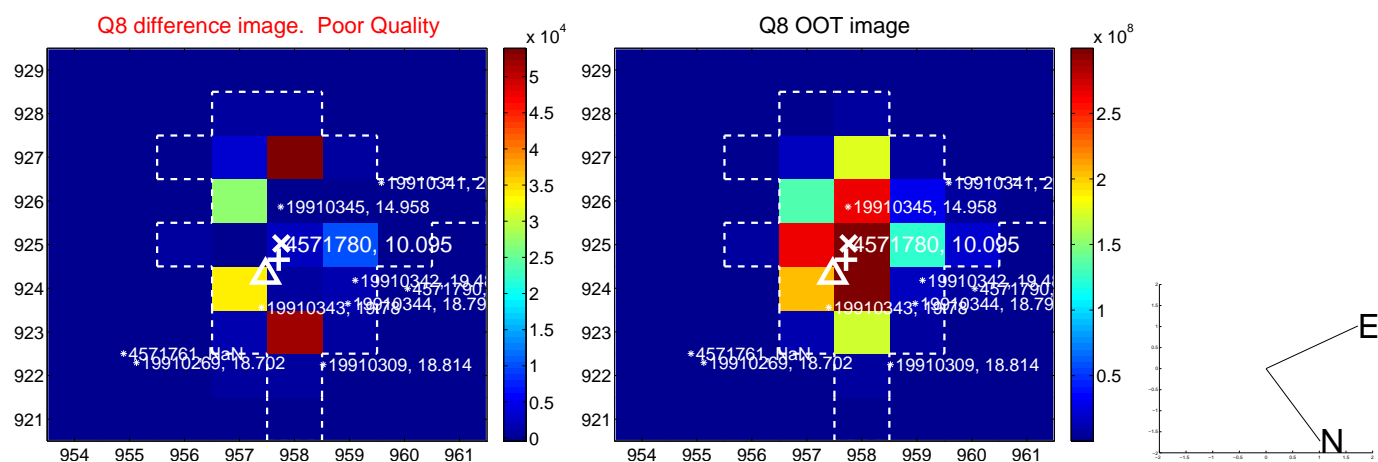
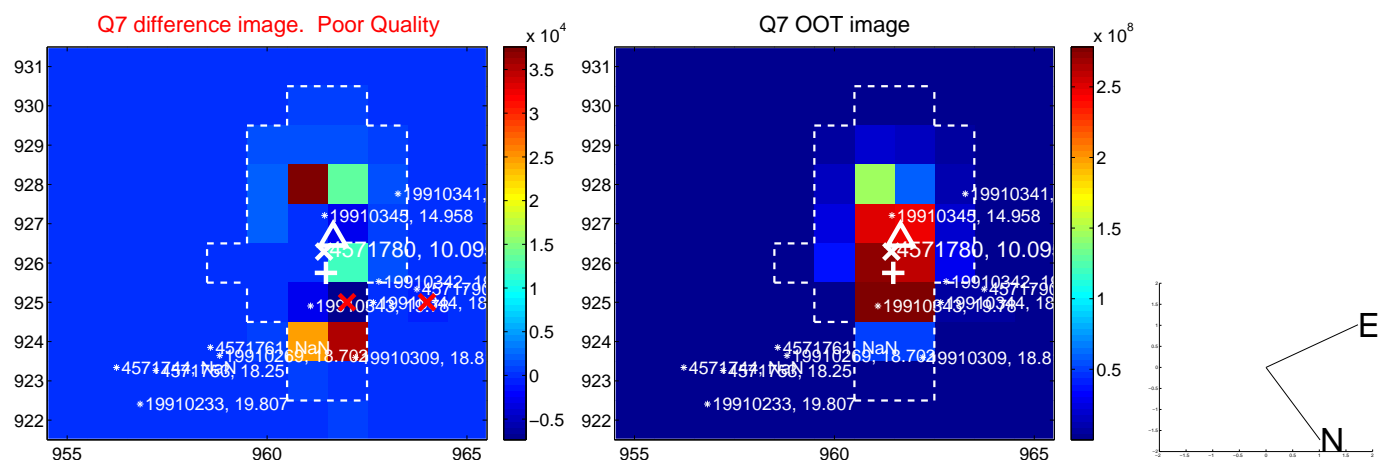
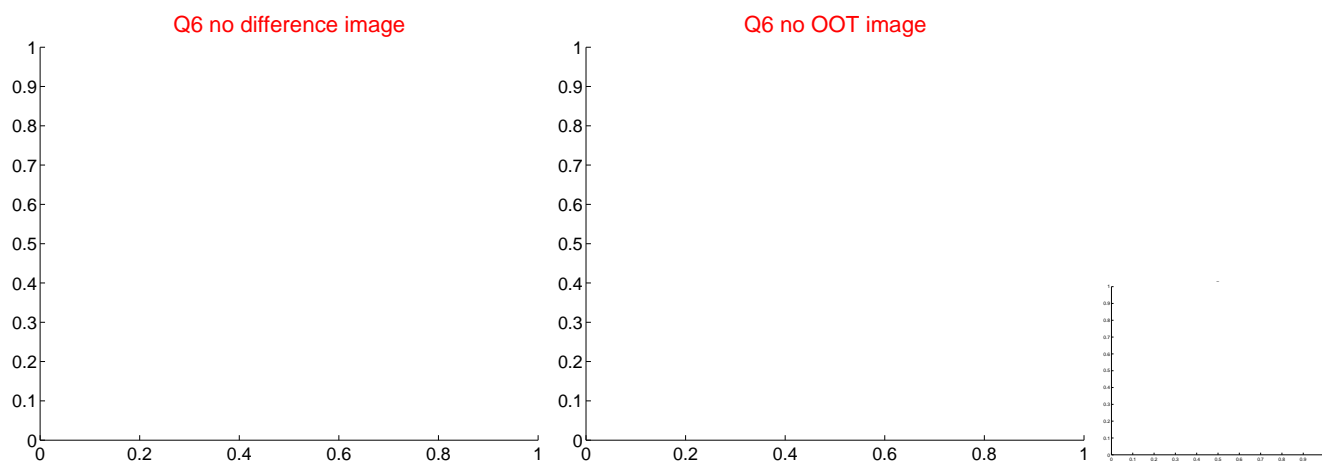
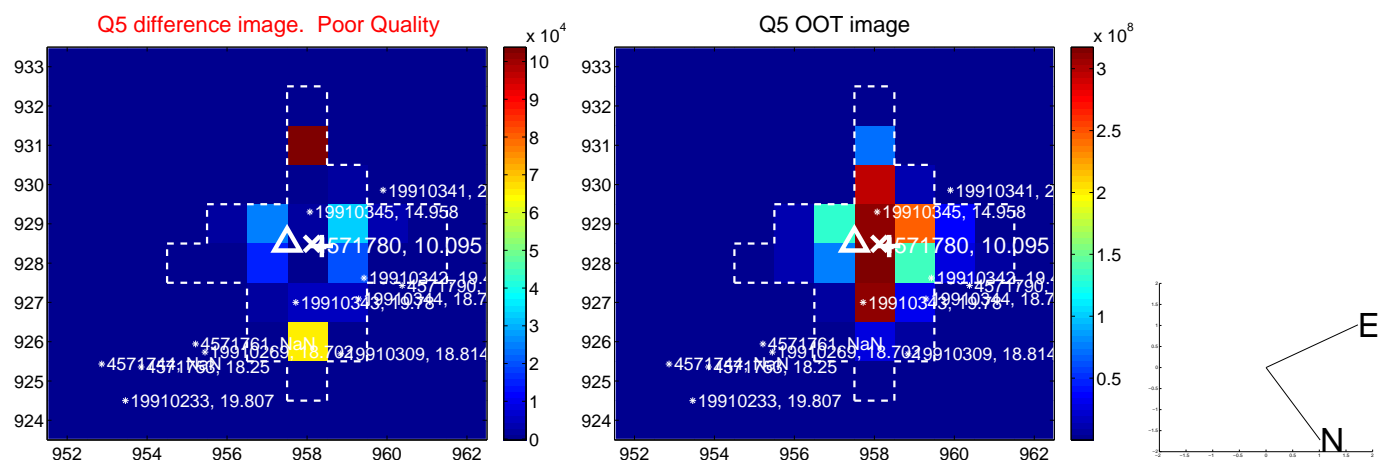


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

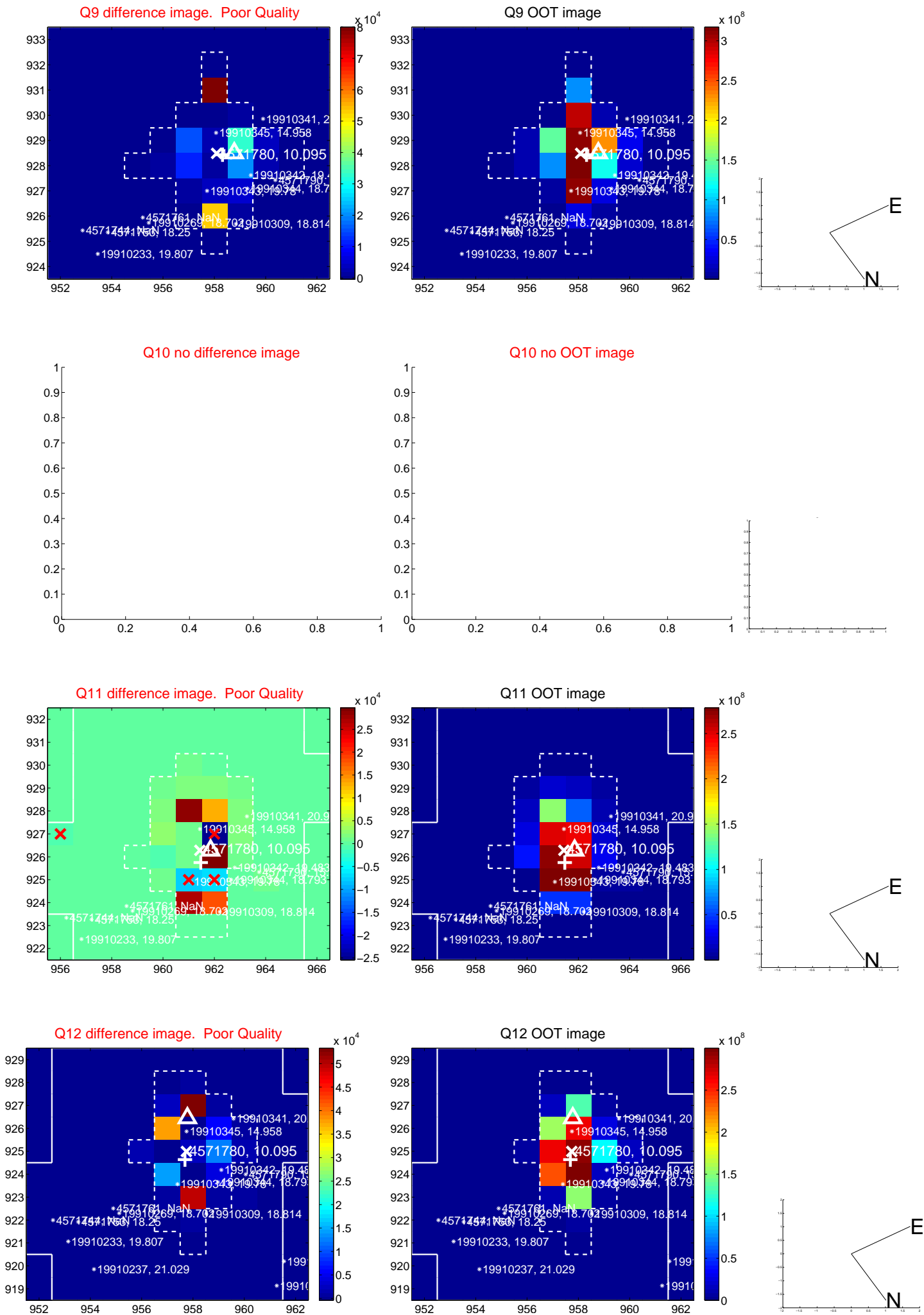
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



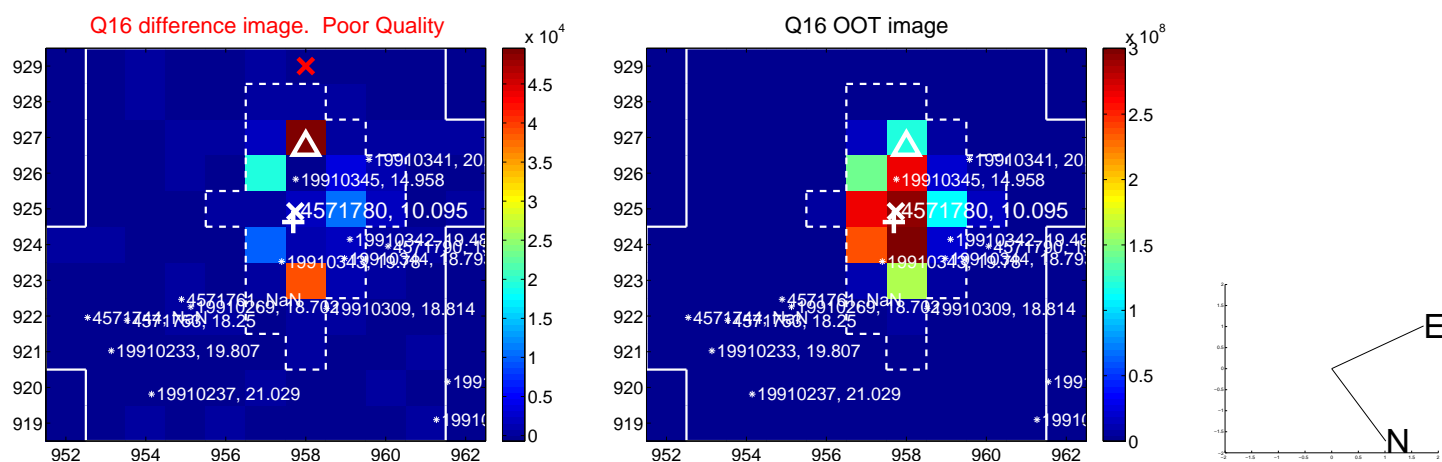
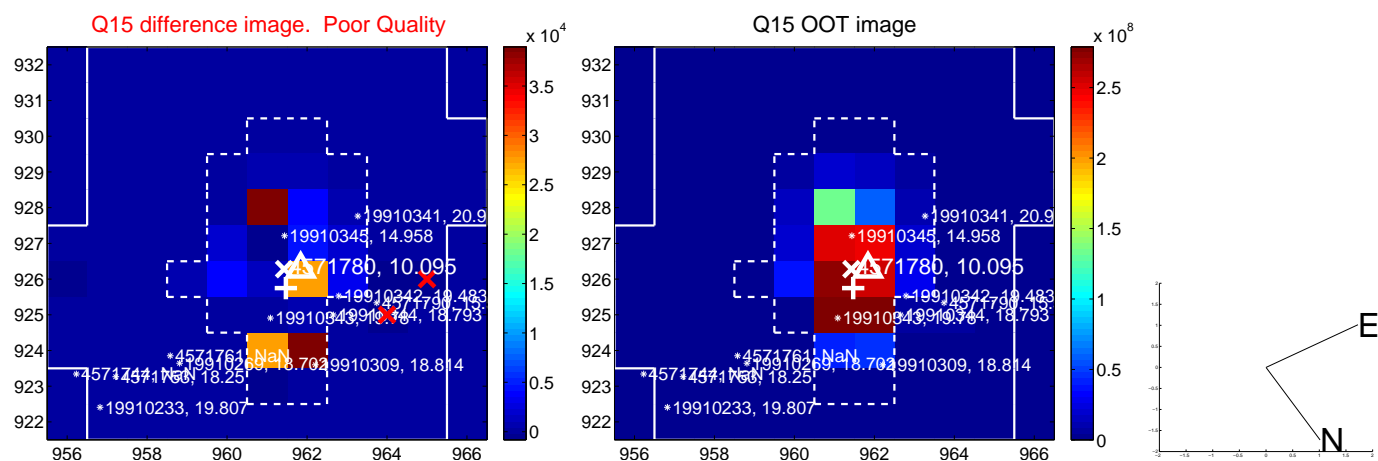
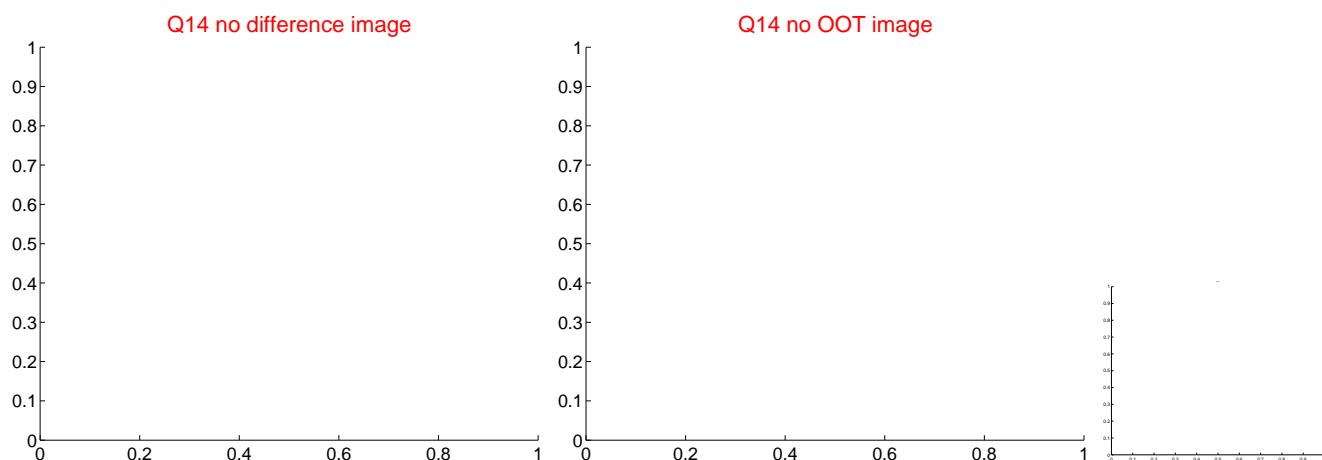
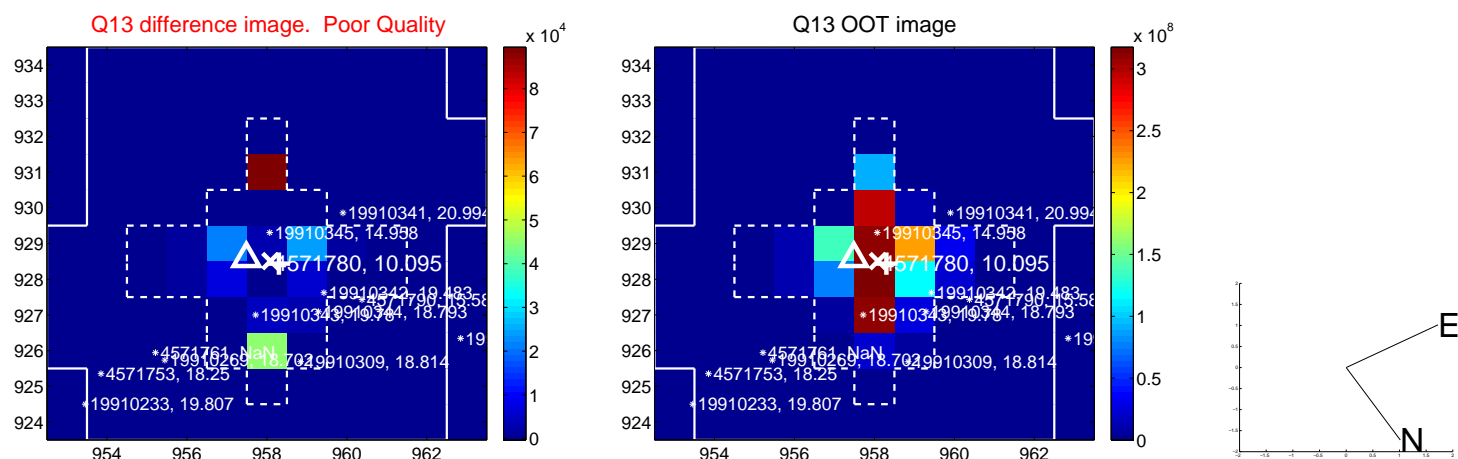
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



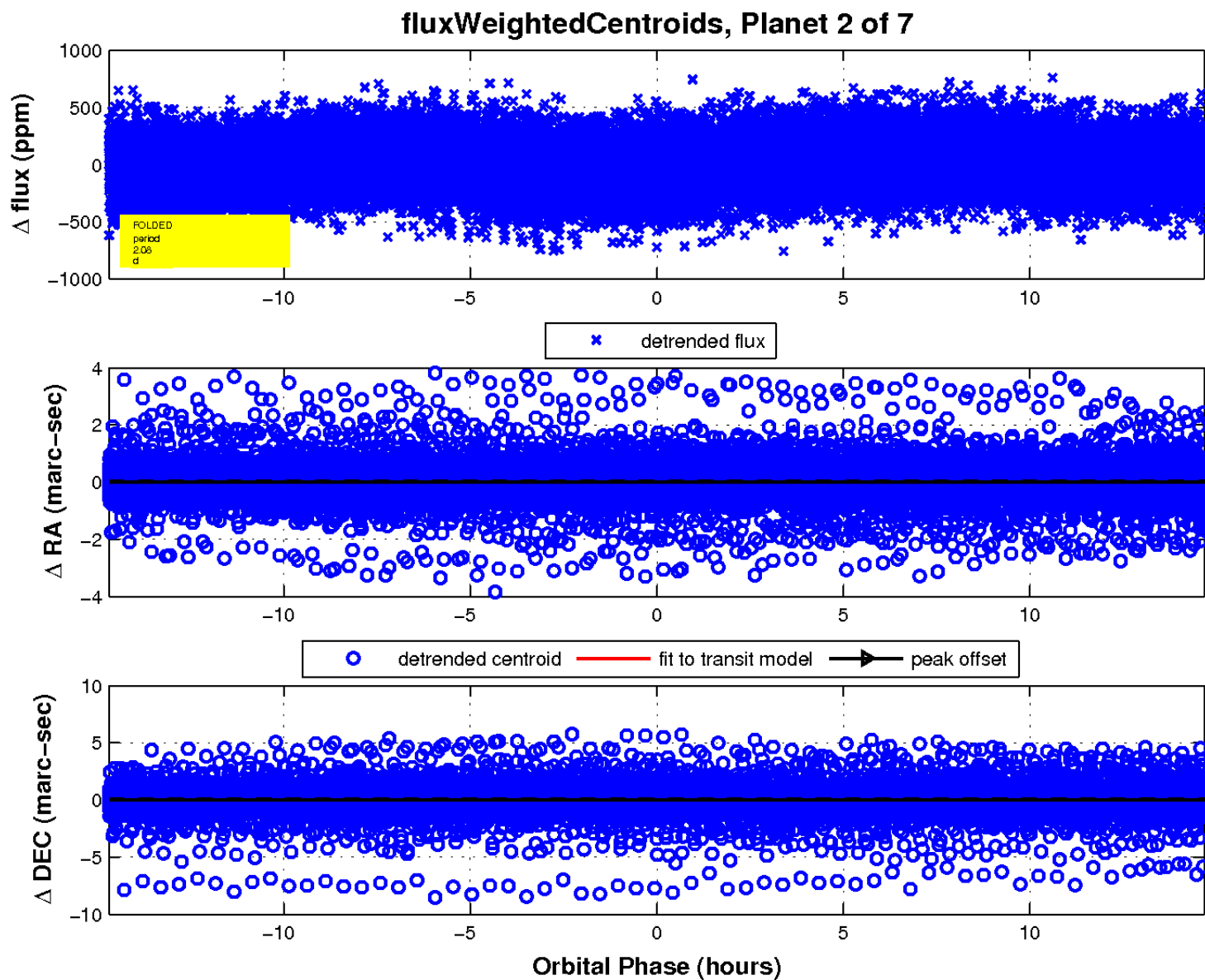
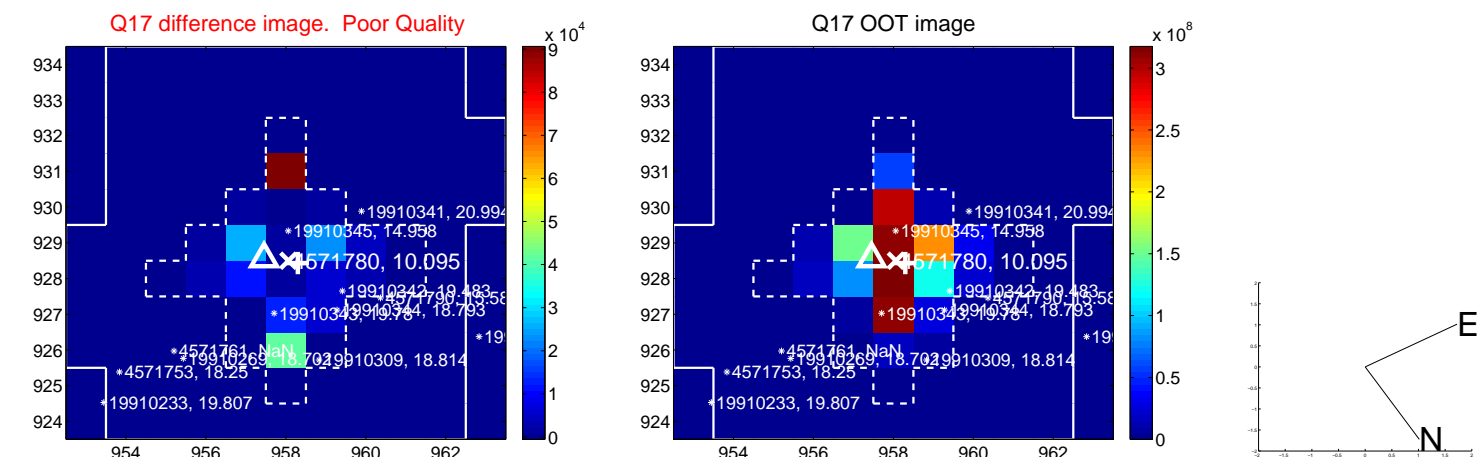
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

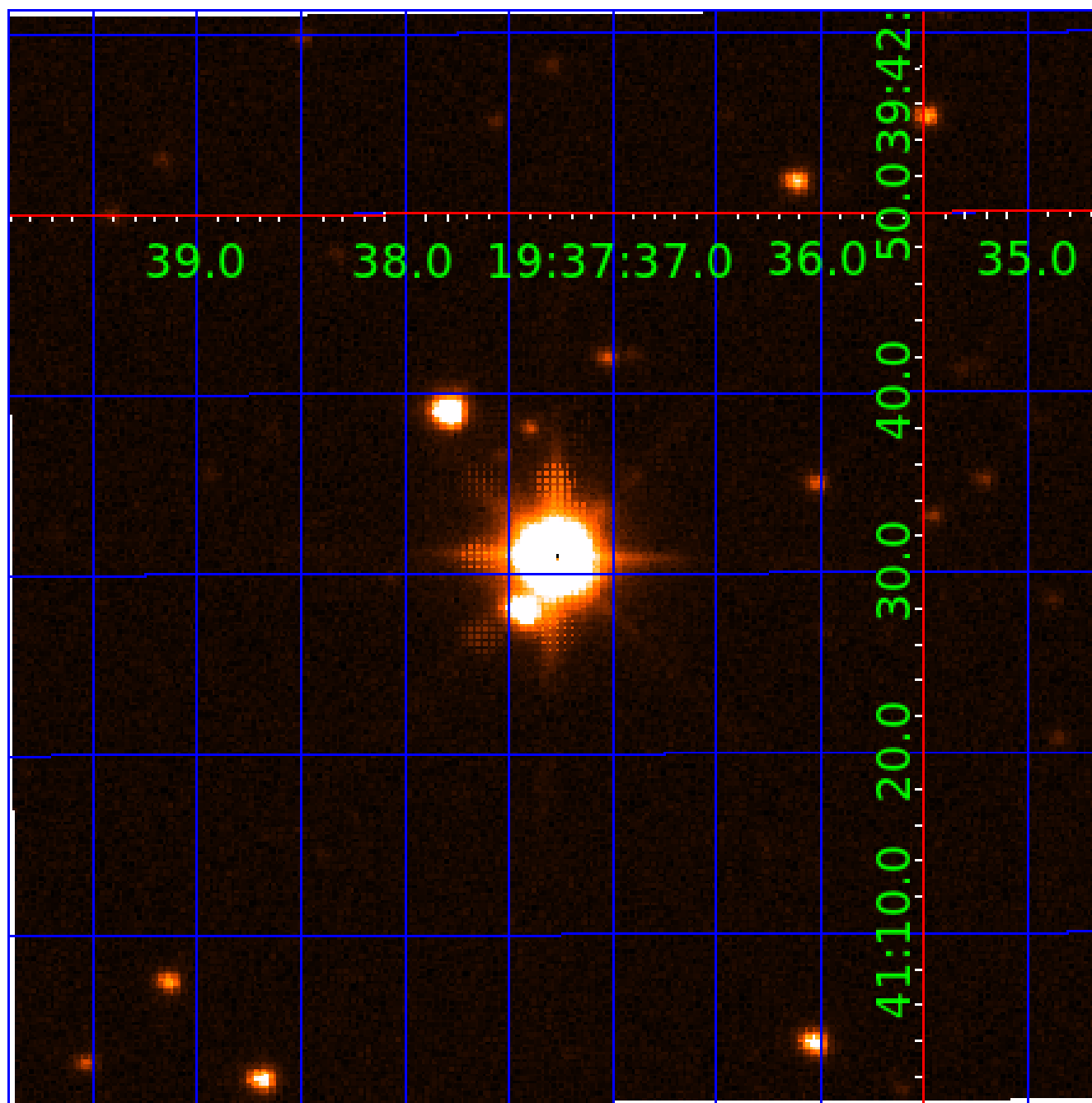


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value



UKIRT Image

Declination



KIC 004571780

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})
004571780-01	OBS	No	2.077176	133.369663	35.2	8.554	9.0	7.5	4.42	6449	3.35	19348.41
004571780-02	OBS	No	2.076966	131.932693	62.2	4.896	11.3	12.3	4.42	6449	3.52	19351.02
004571780-03	OBS	No	129.203939	217.593144	526.2	5.848	11.4	10.1	4.42	6449	19.55	78.51
004571780-04	OBS	No	163.873879	222.574172	556.9	11.132	10.7	10.1	4.42	6449	19.79	57.18
004571780-05	OBS	No	166.304669	229.577616	486.9	3.758	9.7	11.1	4.42	6449	18.87	56.07
004571780-06	OBS	No	197.394504	203.063351	376.9	7.156	9.1	9.2	4.42	6449	10.79	44.62
004571780-07	OBS	No	204.354493	186.458924	77.8	2.500	8.7	-1.0	4.42	6449	3.92	42.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004571780-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
004571780-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
004571780-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004571780-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004571780-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

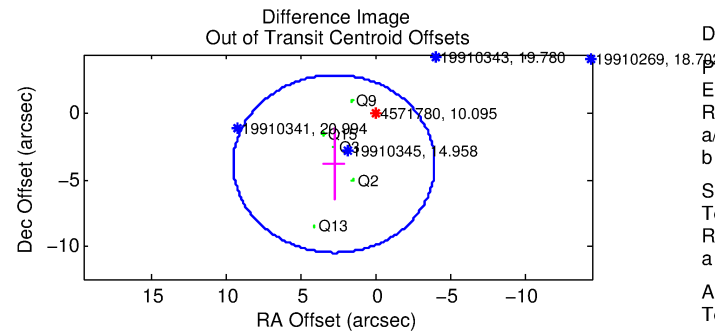
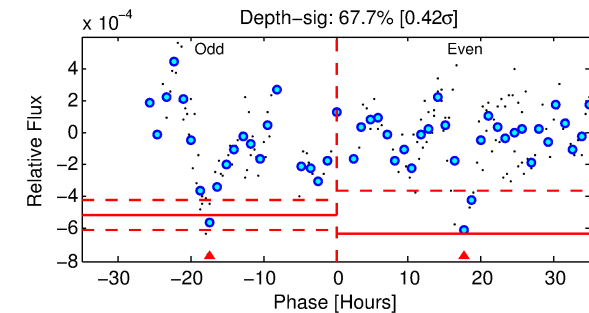
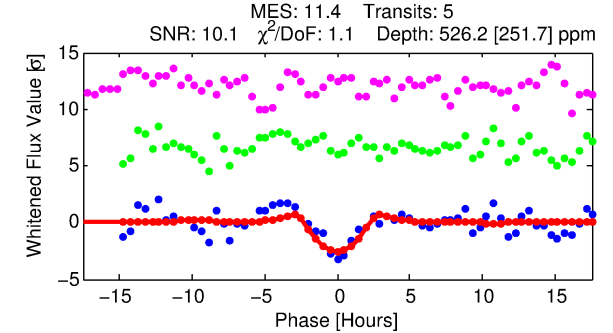
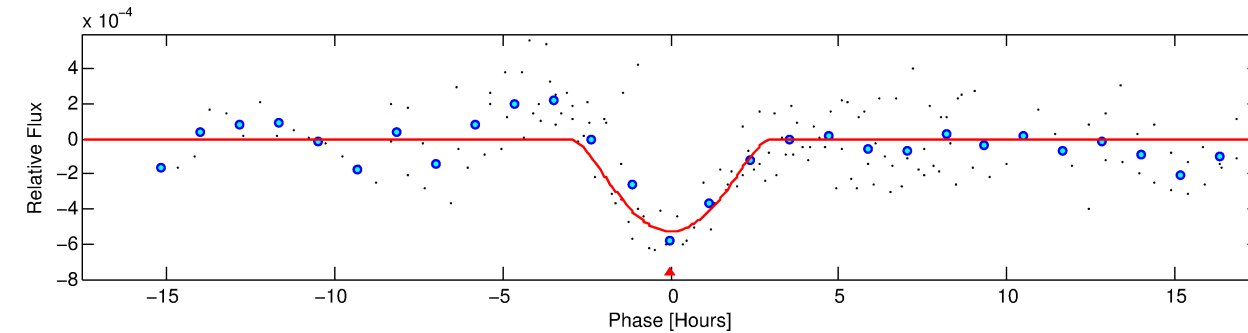
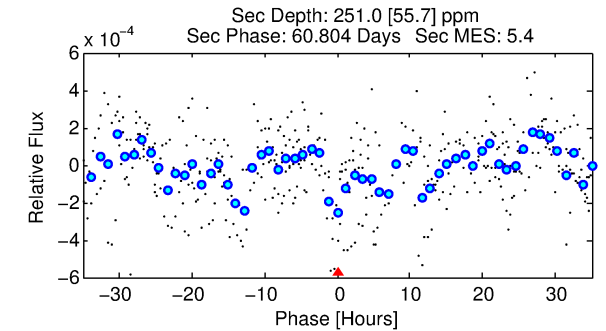
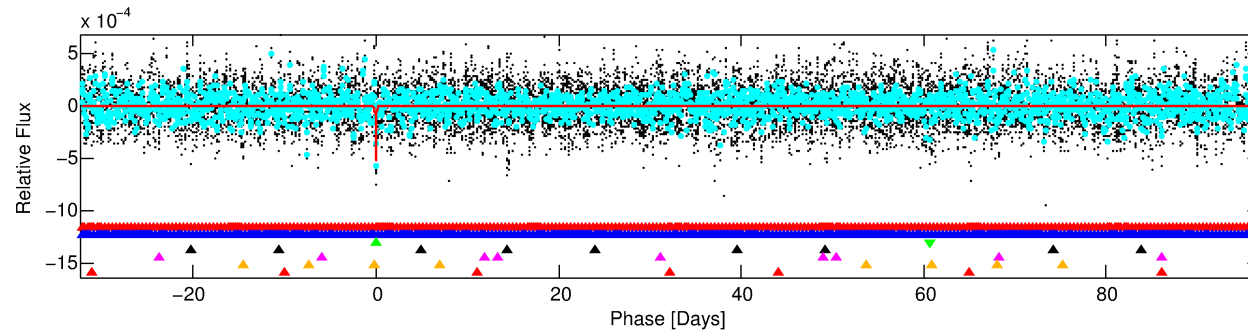
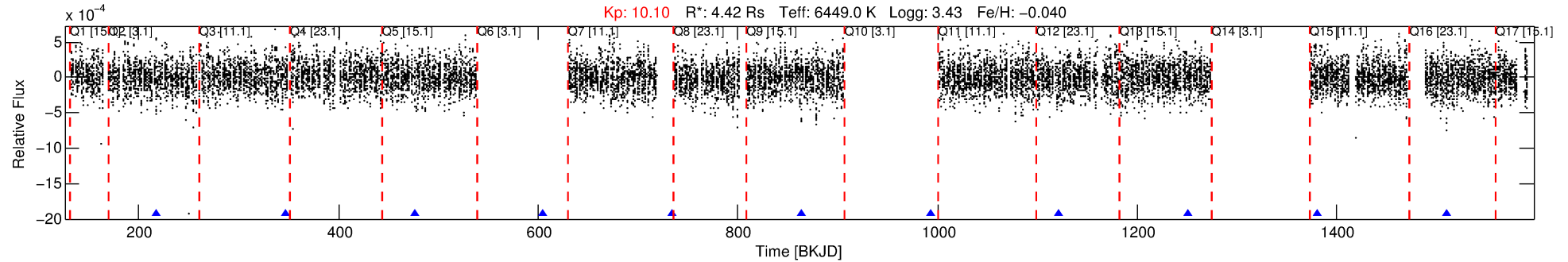
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004571780-03

No Significant Match Found

DV One-Page Summary

KIC: 4571780 Candidate: 3 of 7 Period: 129.204 d



DV Fit Results:

Period = 129.20394 [0.00139] d
Epoch = 217.5931 [0.0088] BKJD
Rp/R* = 0.0405 [0.0998]
a/R* = 48.58 [29.91]
b = 1.00 [0.16]
Seff = 78.51 [48.30]
Teq = 759 [117] K
Rp = 19.55 [48.70] Re
a = 0.6213 [0.2319] AU
Ag = 139.48 [692.87] [0.20σ]
Teffp = 4033 [4972] K [0.66σ]

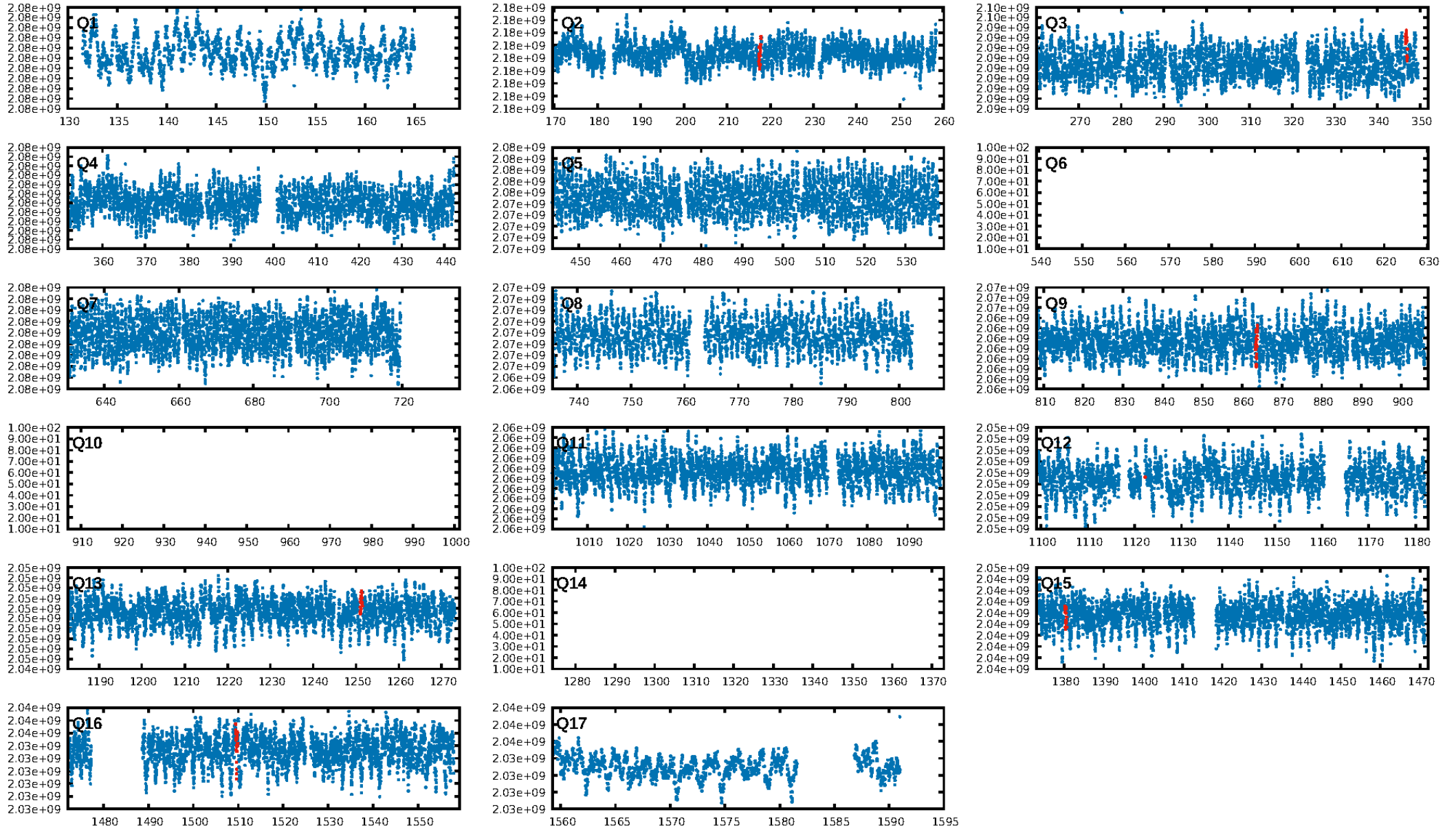
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [294.46σ]
LongPeriod-sig: 100.0% [66.17σ]
ModelChiSquare2-sig: 57.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 43.7%
Centroid-so: 0.144 arcsec [0.52σ]
OotOffset-rm: 4.676 arcsec [2.08σ]
KicOffset-rm: 3.304 arcsec [1.58σ]
OotOffset-st: 1/2/0/2 [5]
KicOffset-st: 1/2/0/2 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.00 [0/5]

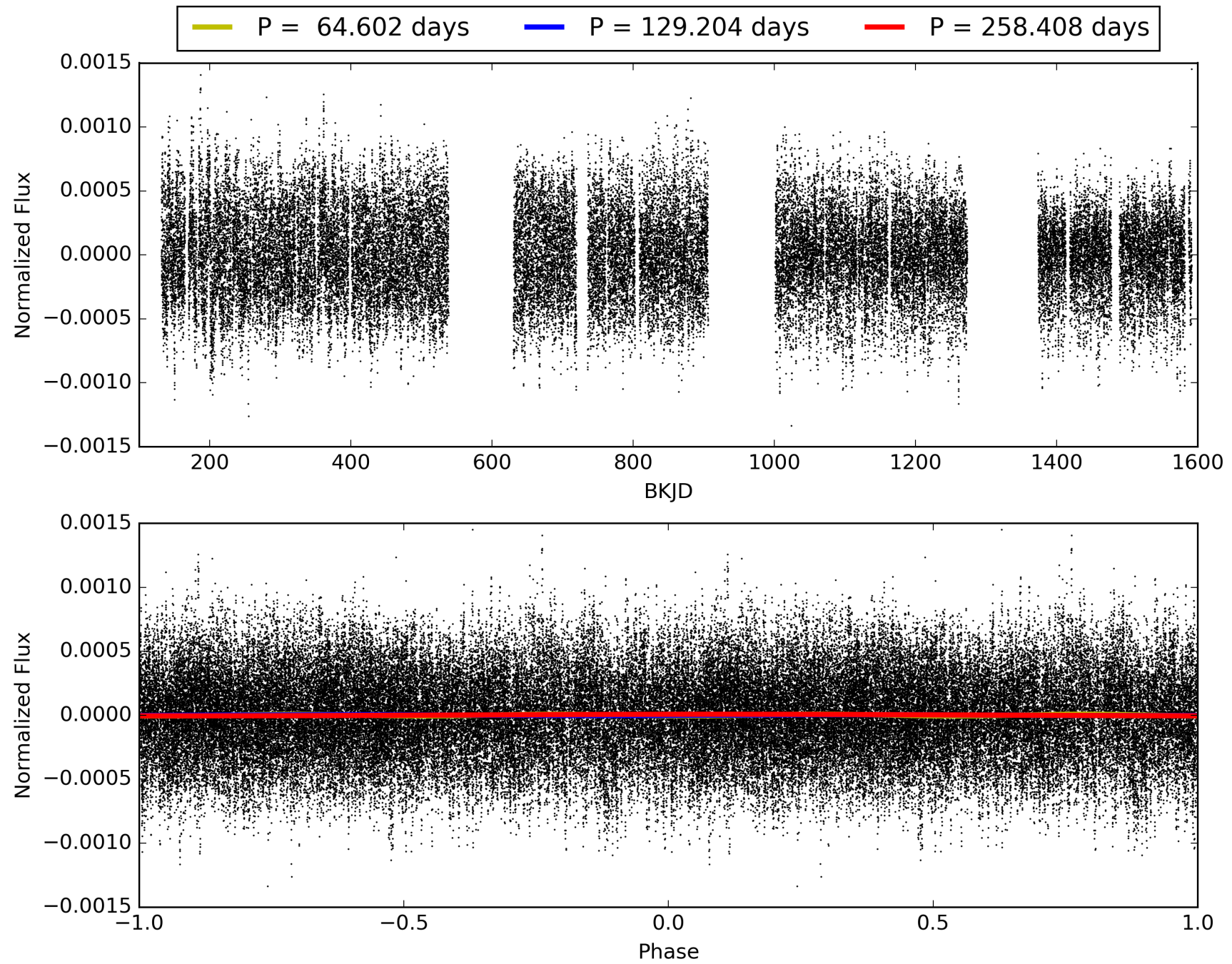
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:08:10 Z

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

TCE 004571780-03, PDC Light Curves

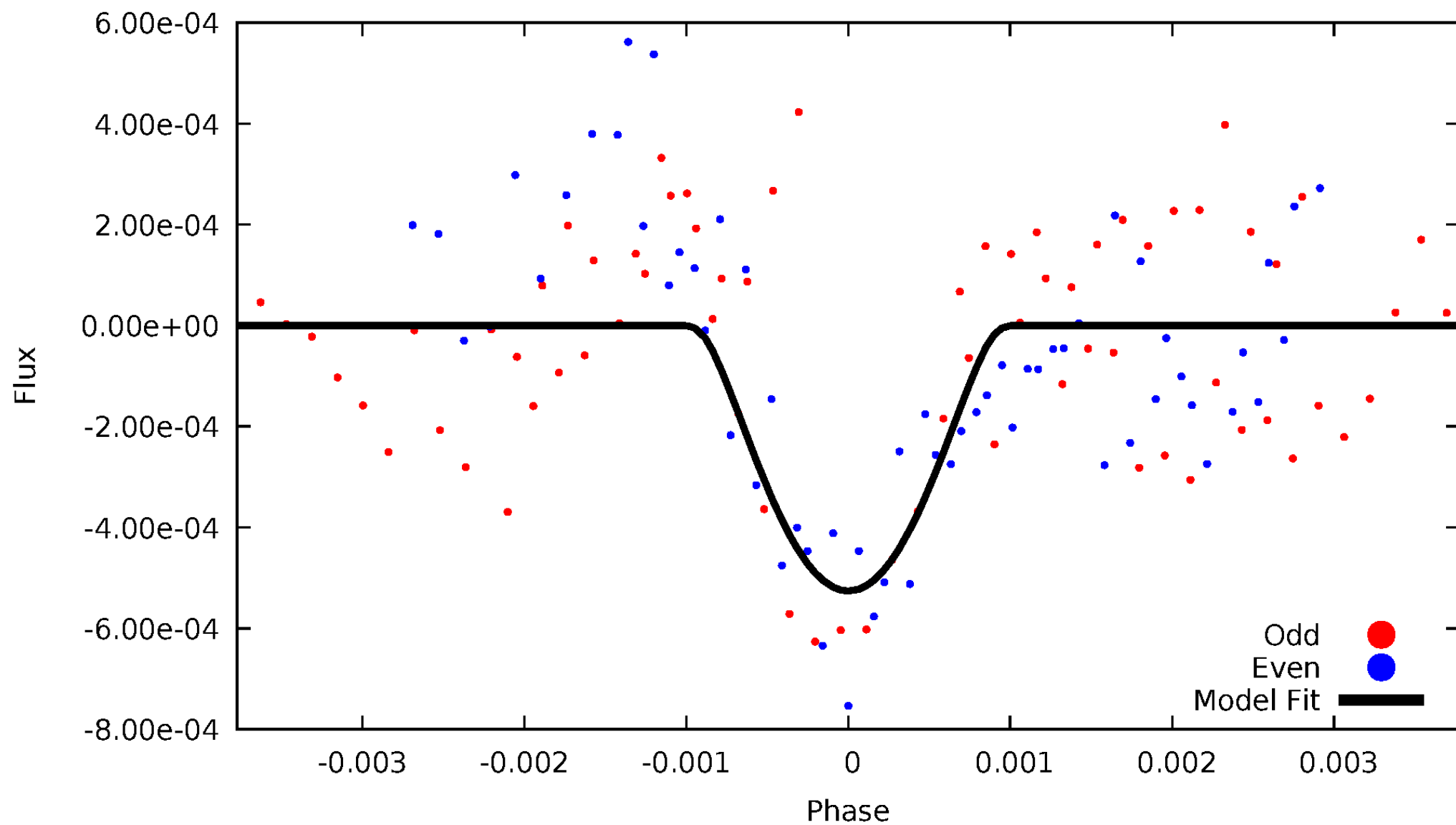


TCE 004571780-03



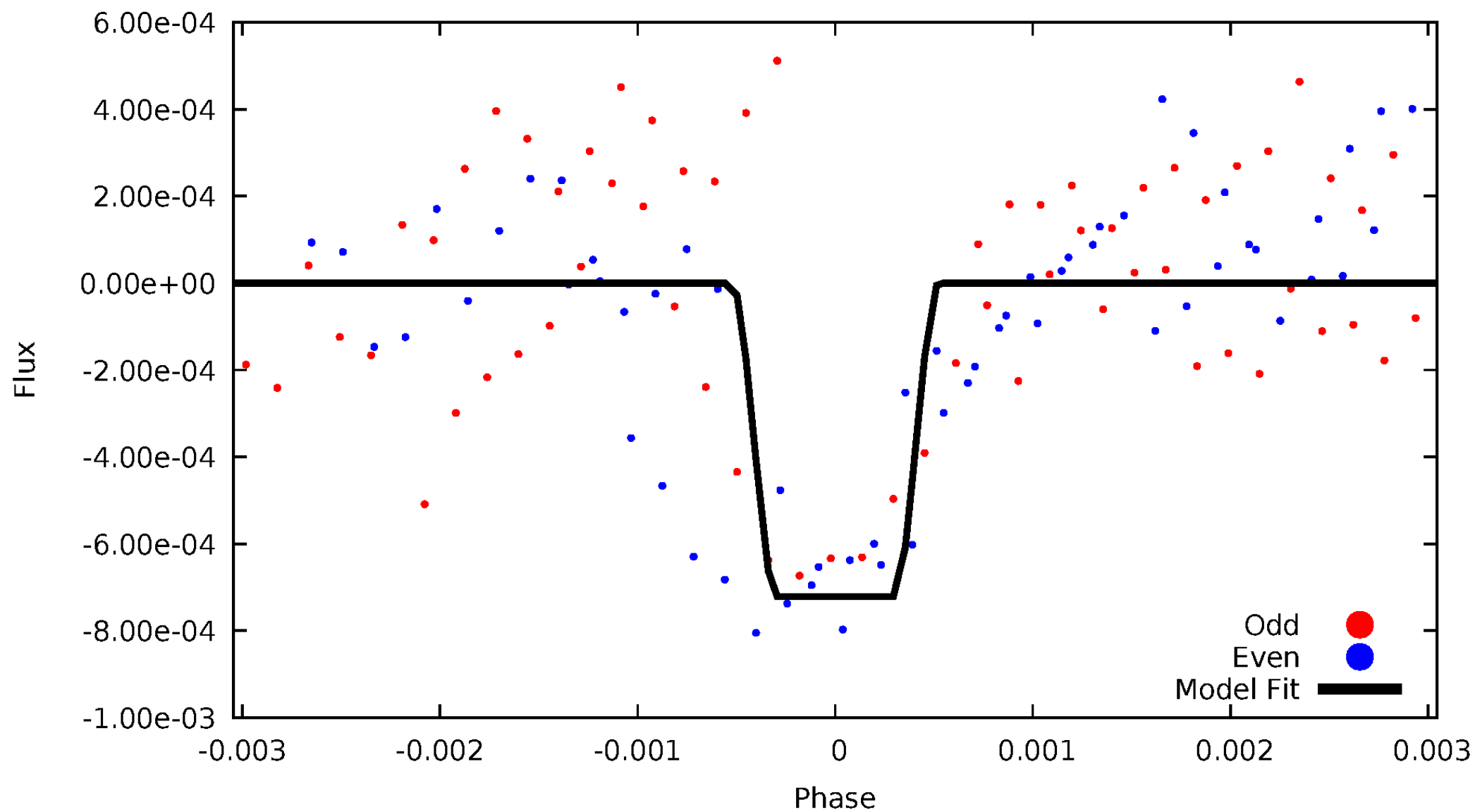
DV Odd/Even

TCE 004571780-03

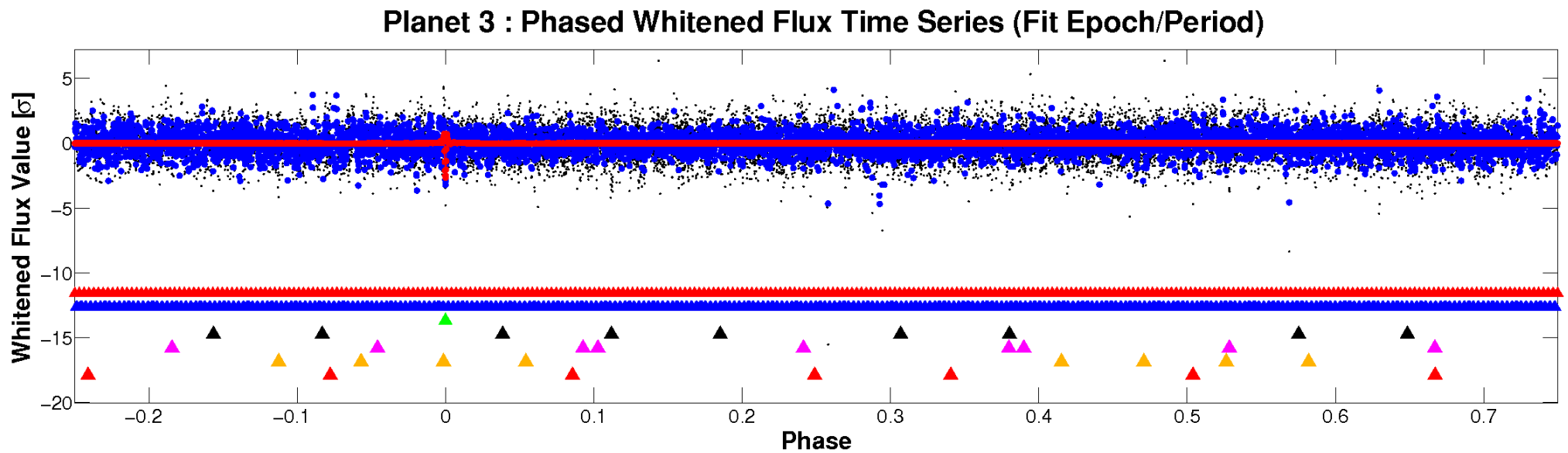
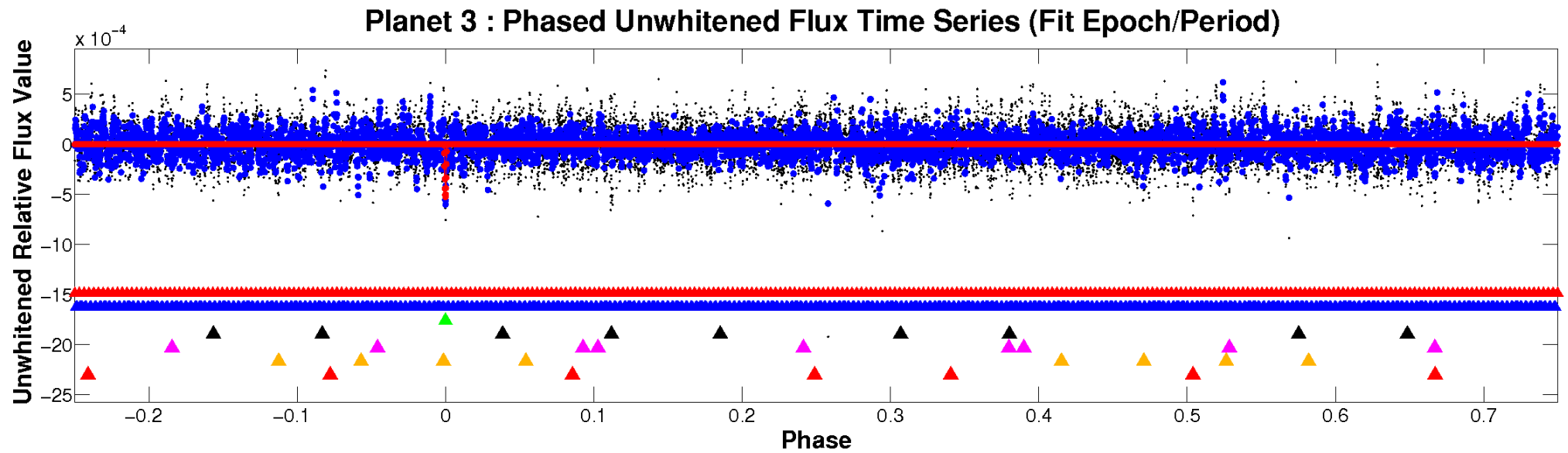


ALT Odd/Even

TCE 004571780-03

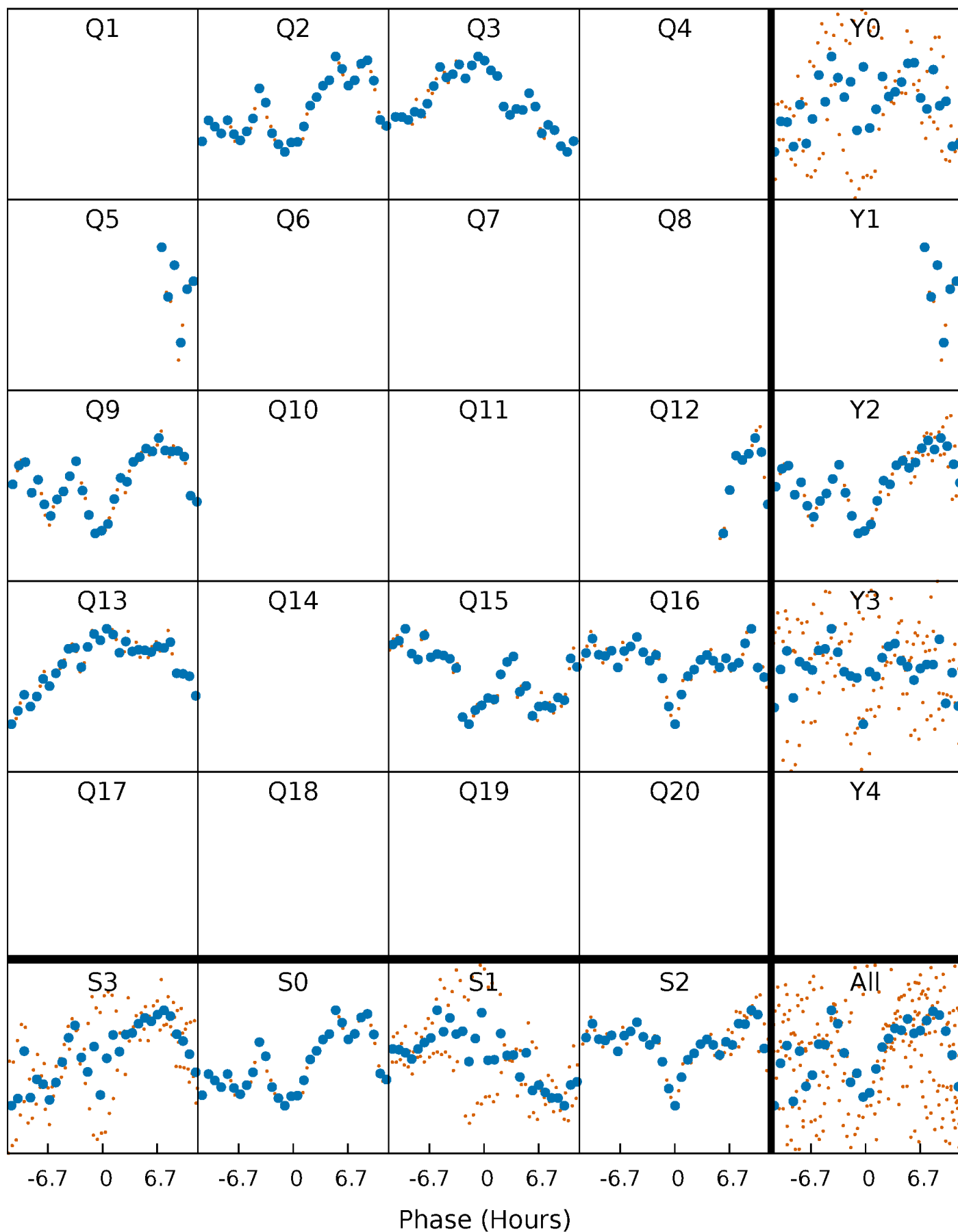


Non-Whitened Vs. Whitened Light Curve



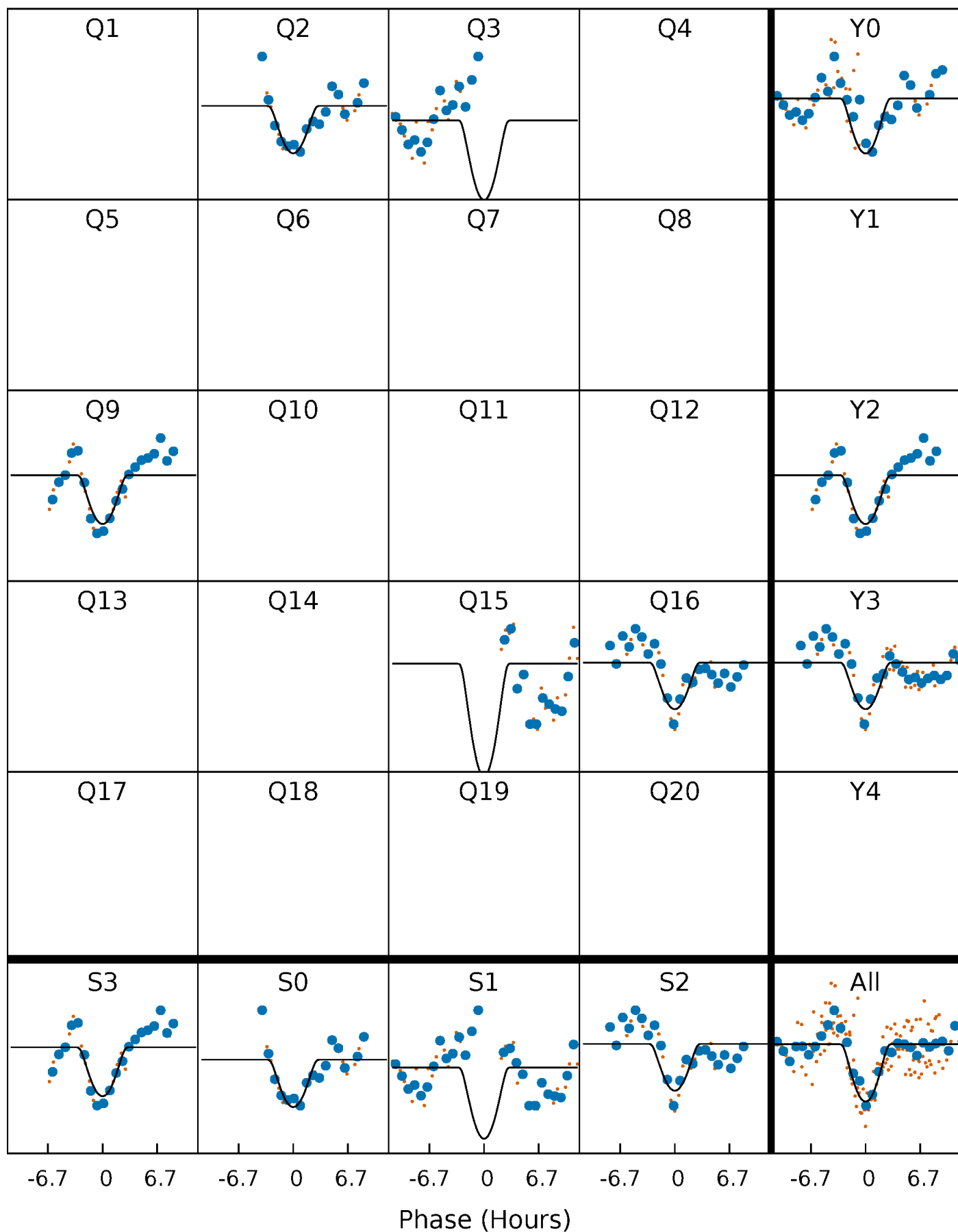
PDC Quarter-Phased Transit Curves

TCE 004571780-03 P=129.203939 Days $T_0=217.593144$ (BKJD)



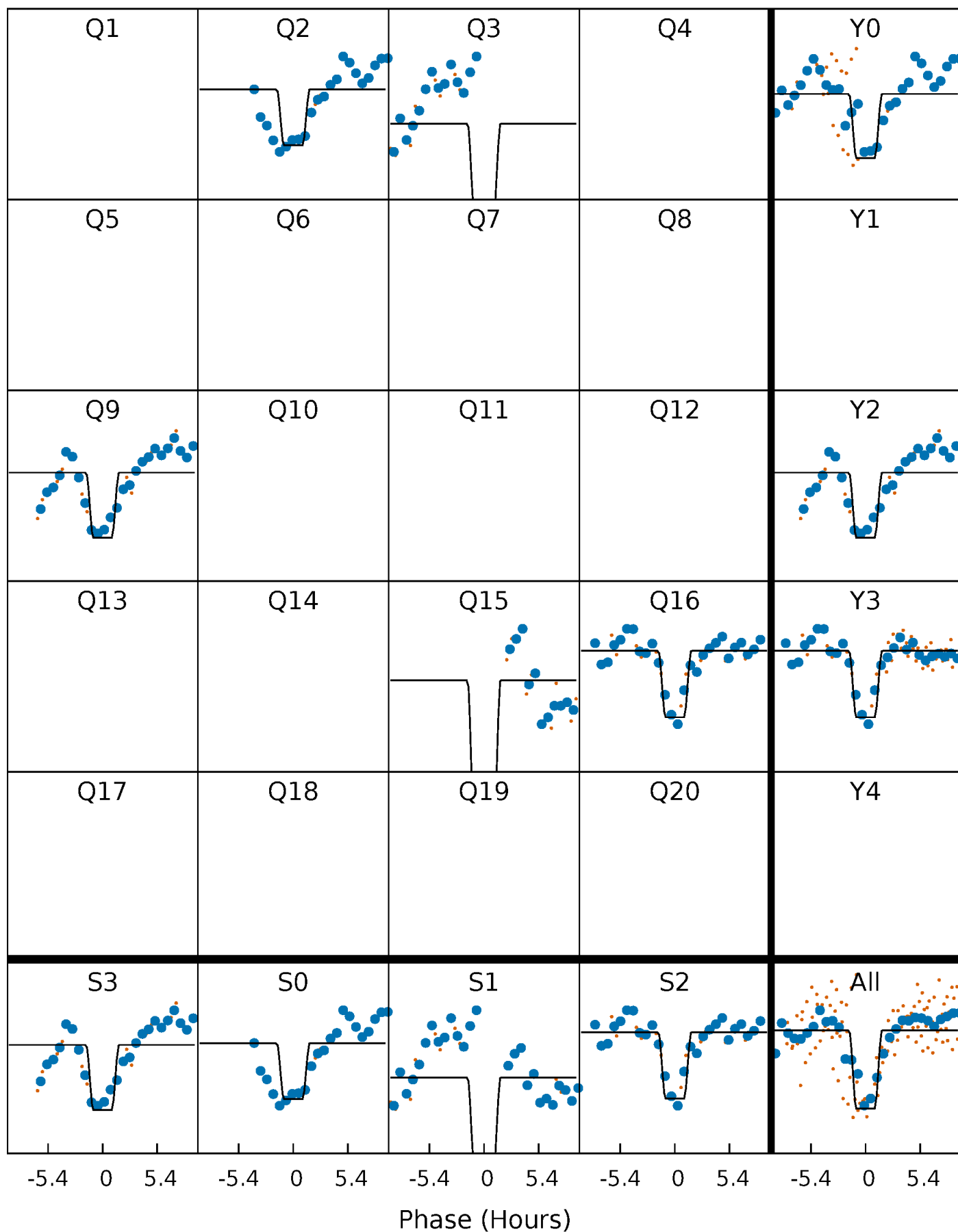
DV Quarter-Phased Transit Curves

TCE 004571780-03 $P=129.203939$ Days $T_0=217.593144$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

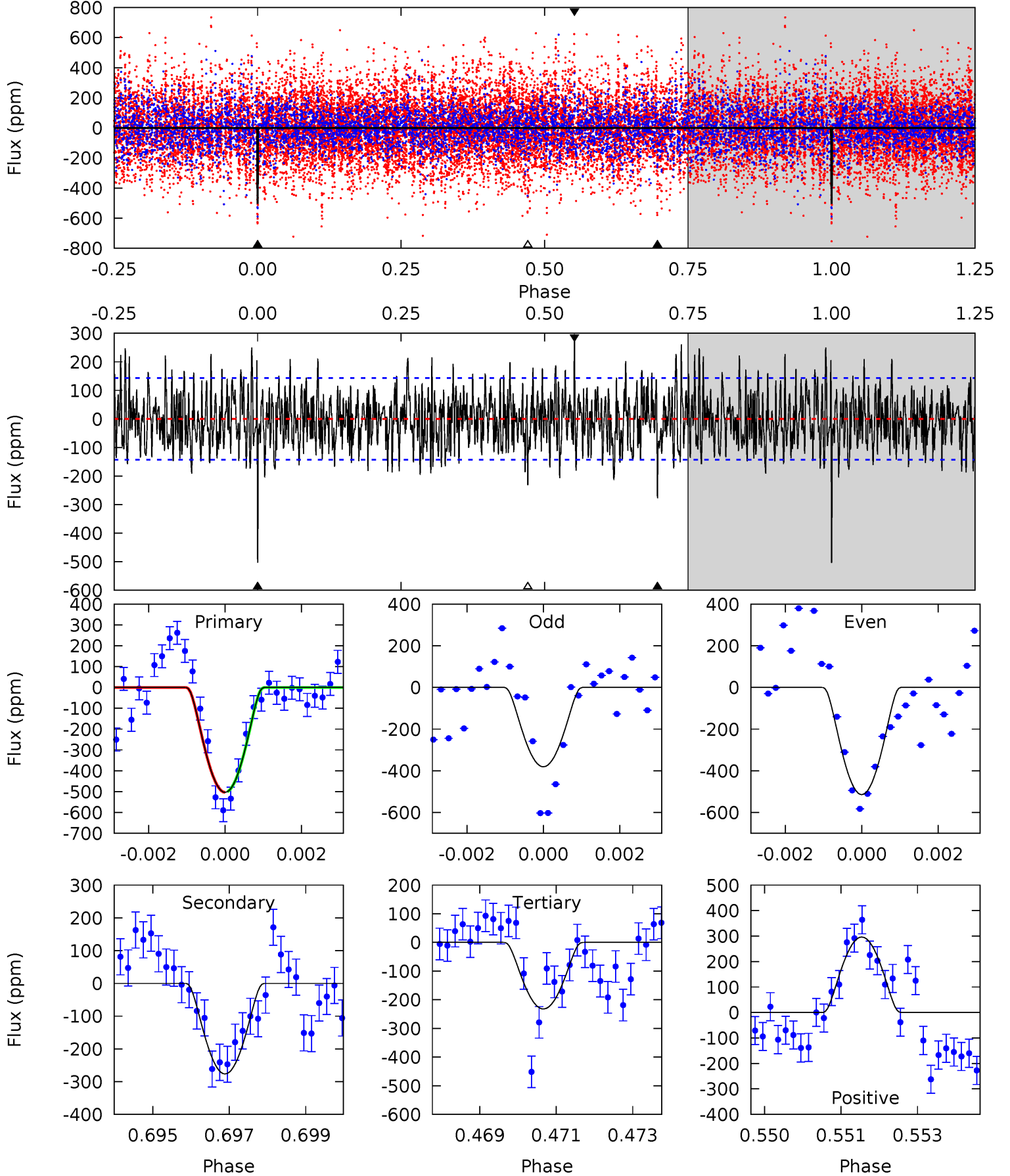
TCE 004571780-03 P=129.203560 Days $T_0=217.591856$ (BKJD)



DV Model-Shift Uniqueness Test

004571780-03, $P = 129.203939$ Days, $E = 88.389205$ Days

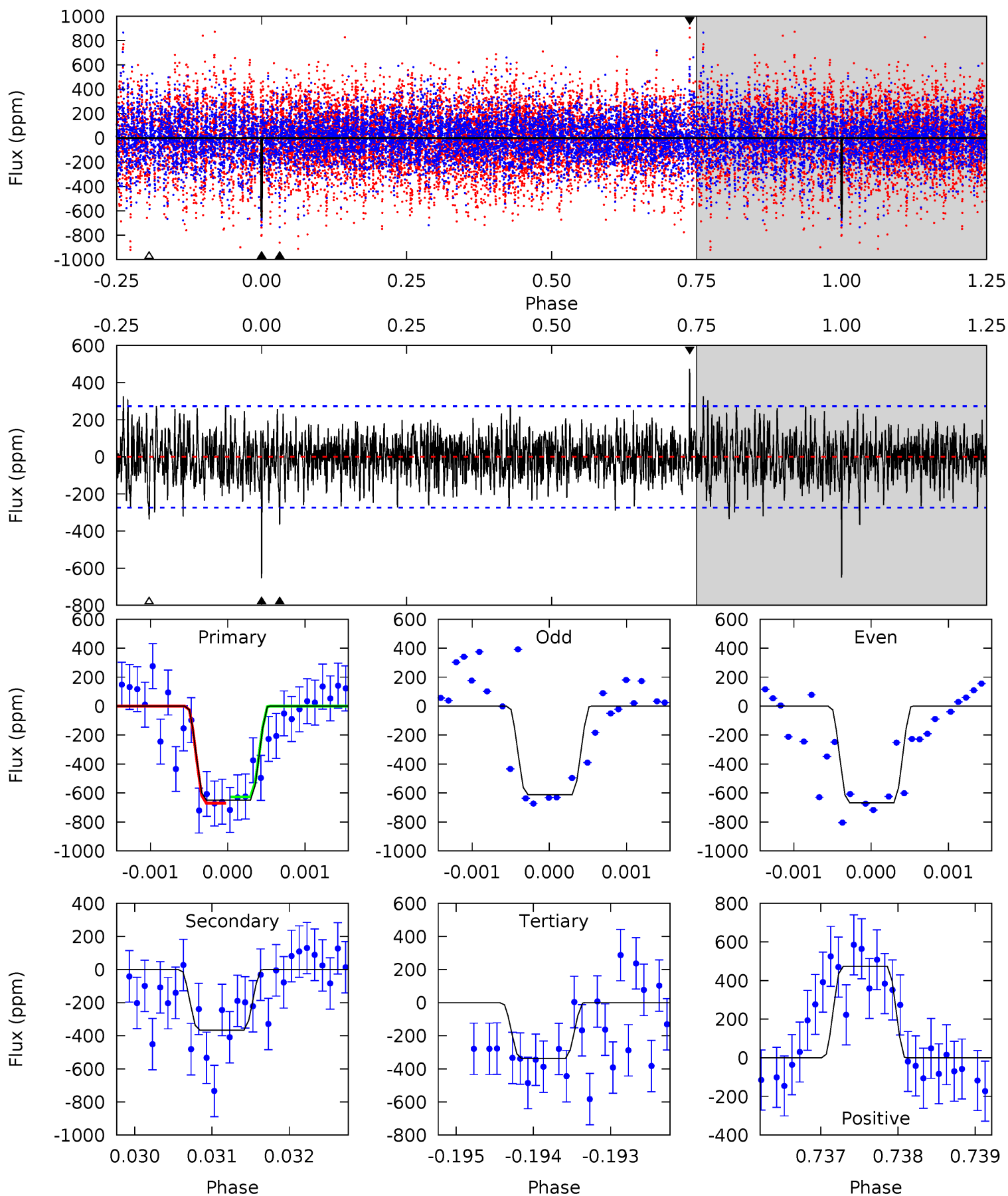
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	10.3	8.66	11.0	5.33	3.10	2.94	10.1	7.74	1.65	-0.74	2.51	0.35	0.37	0.06



Alt Model-Shift Uniqueness Test

004571780-03, P = 129.203560 Days, E = 88.388296 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.9	7.30	6.70	9.44	5.45	3.29	1.92	6.24	3.50	0.60	-2.14	0.54	0.57	0.42	0.42



Stellar Parameters For KIC 004571780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6449^{+163}_{-146}	$3.429^{+0.360}_{-0.090}$	$-0.040^{+0.300}_{-0.250}$	$4.422^{+0.713}_{-1.664}$	$1.914^{+0.086}_{-0.365}$	$0.031^{+0.083}_{-0.009}$
	+3%/-2%	+10%/-3%	+750%/-625%	+16%/-38%	+4%/-19%	+266%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004571780-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-276 ± 27	$35.92^{+38.58}_{-24.12}$	1035^{+69}_{-101}	3412^{+1673}_{-628}	45^{+386}_{-35}
Alt.	-366 ± 50	$32.76^{+36.52}_{-21.86}$	1035^{+63}_{-96}	3647^{+1947}_{-699}	70^{+580}_{-54}

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

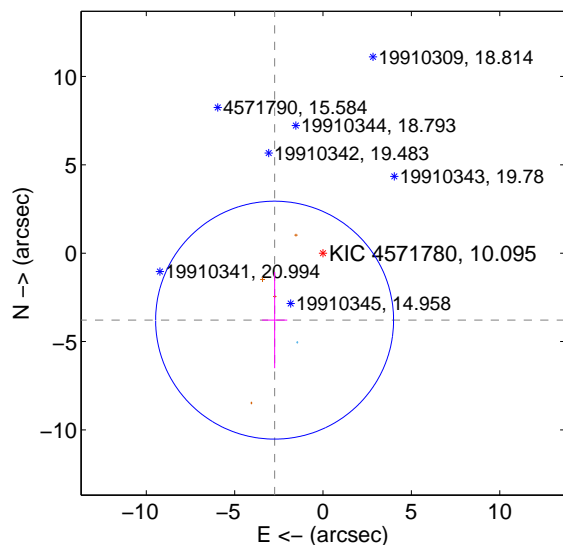
Supplemental centroid analysis for 004571780-03. **Kepler magnitude: 10.10.** Transit SNR 10.15

There are 1 quarters with good PRF difference image offsets

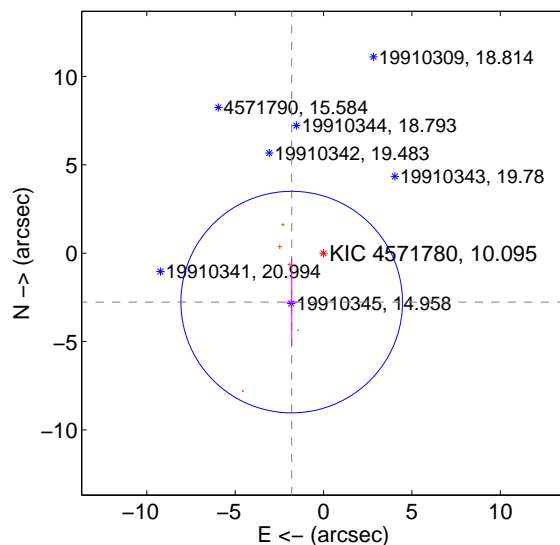
The OOT PRF centroid is offset from the target star catalog position by about 2.08 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.676 ± 2.243	2.08	2.740 ± 0.718	-3.789 ± 2.719
PRF-fit source offset from KIC position	3.304 ± 2.089	1.58	1.804 ± 0.356	-2.768 ± 2.482
photometric centroid source offset	0.14 ± 0.28	0.52	-0.14 ± 0.28	-0.00 ± 0.45

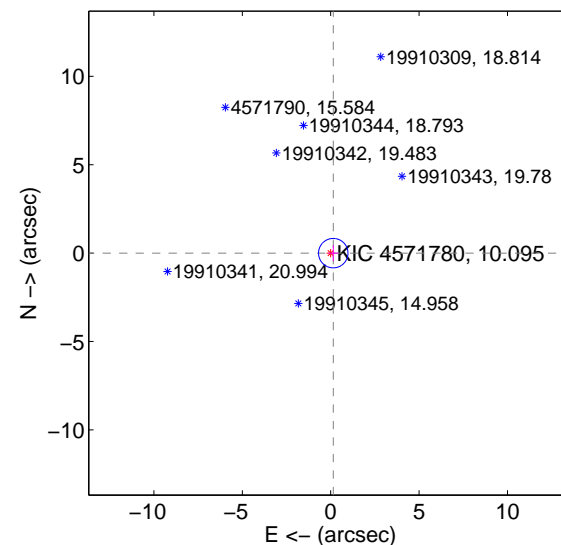
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

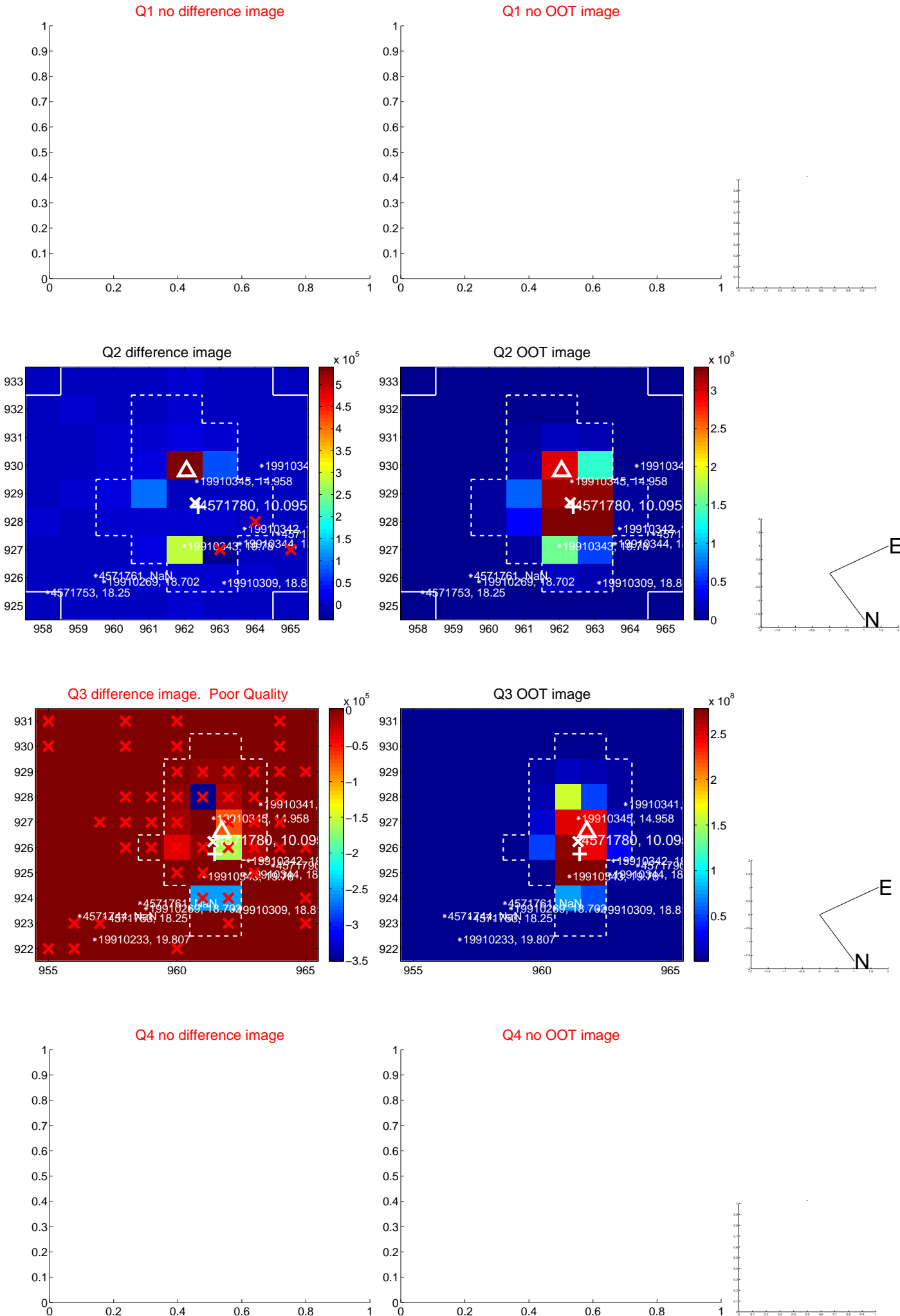


offset from photometric centroids



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

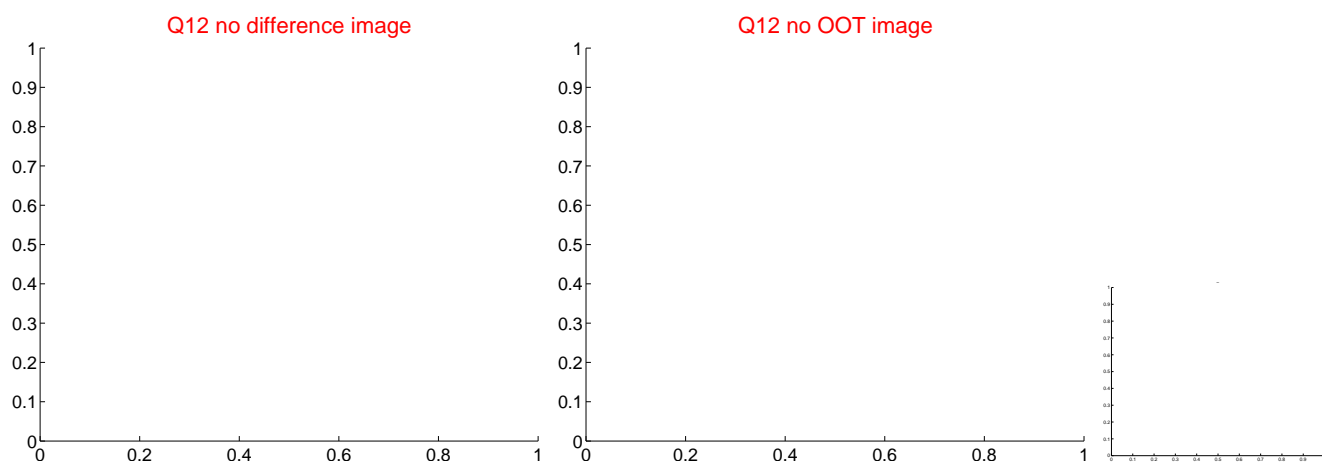
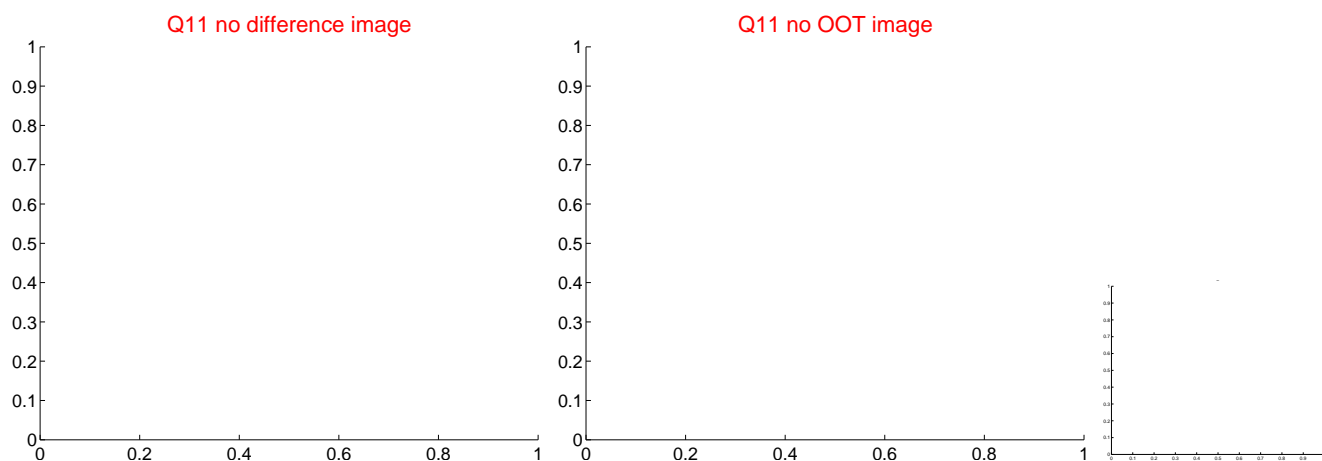
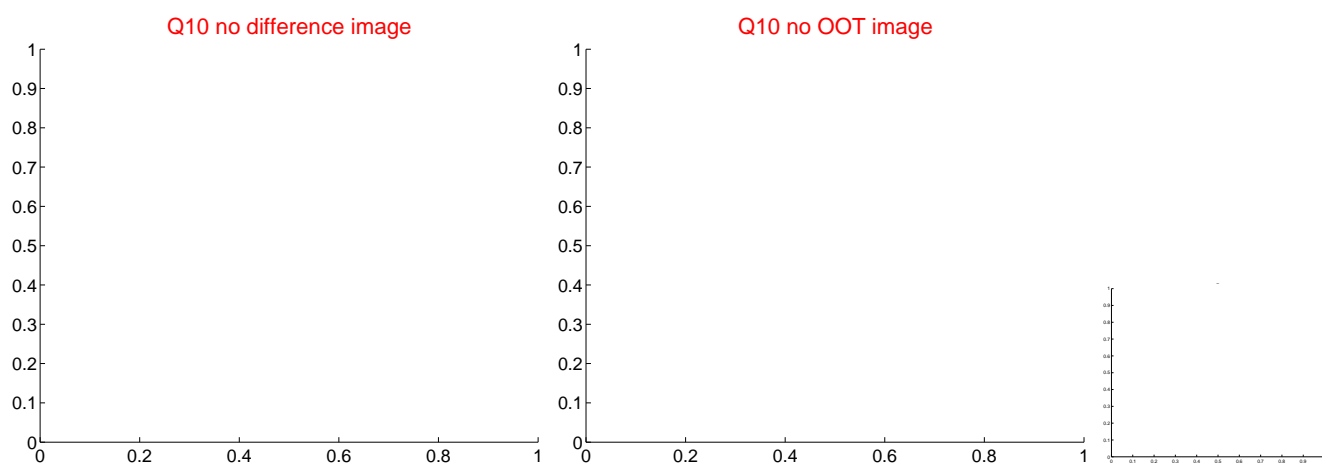
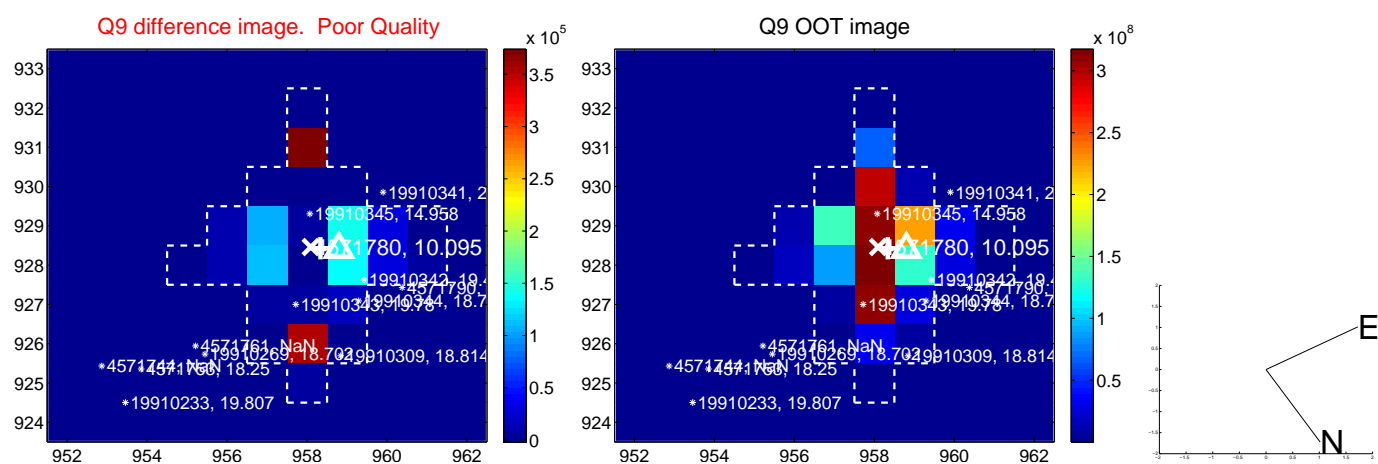
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



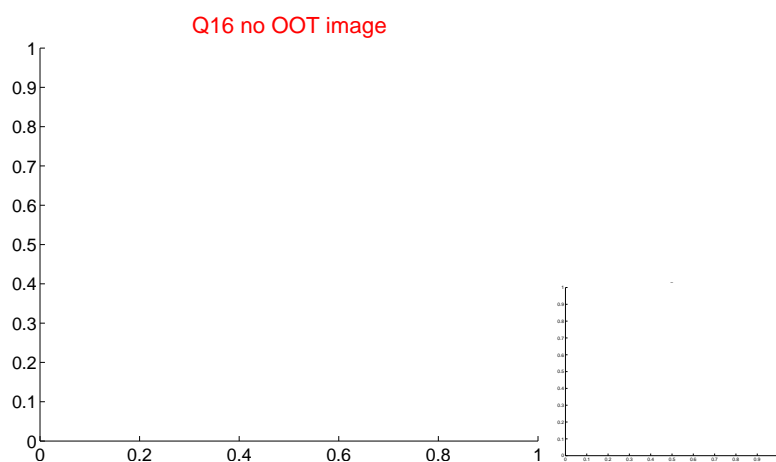
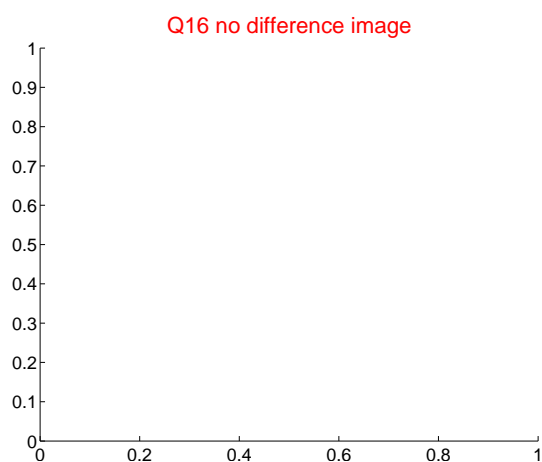
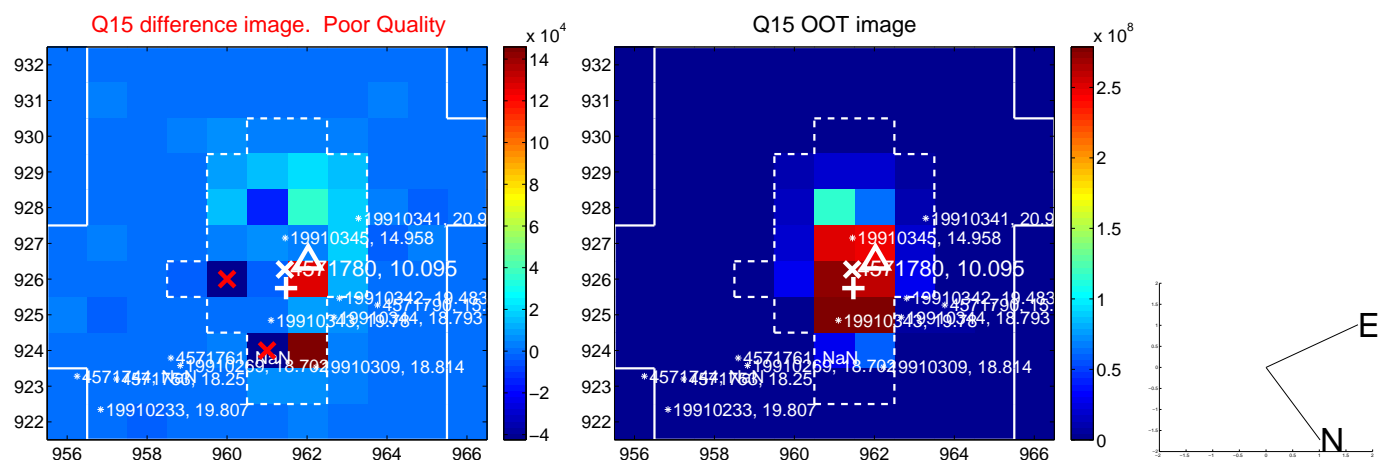
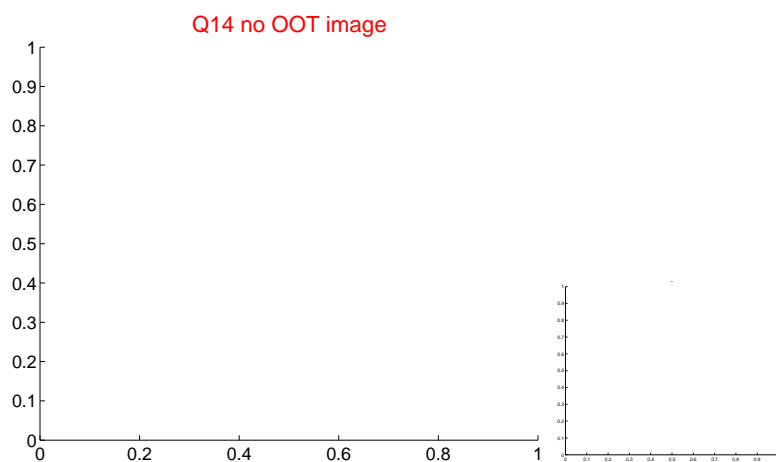
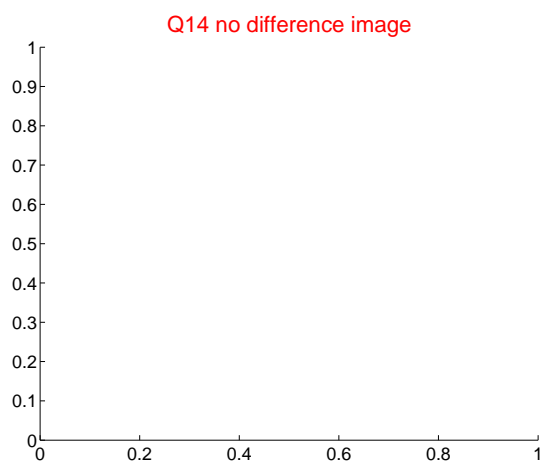
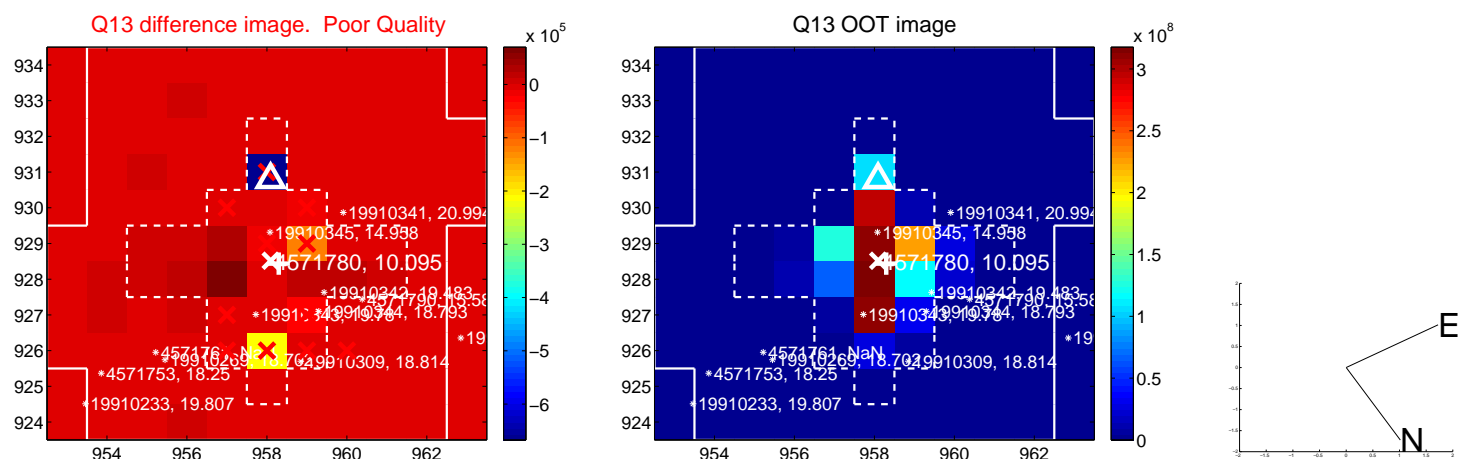
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



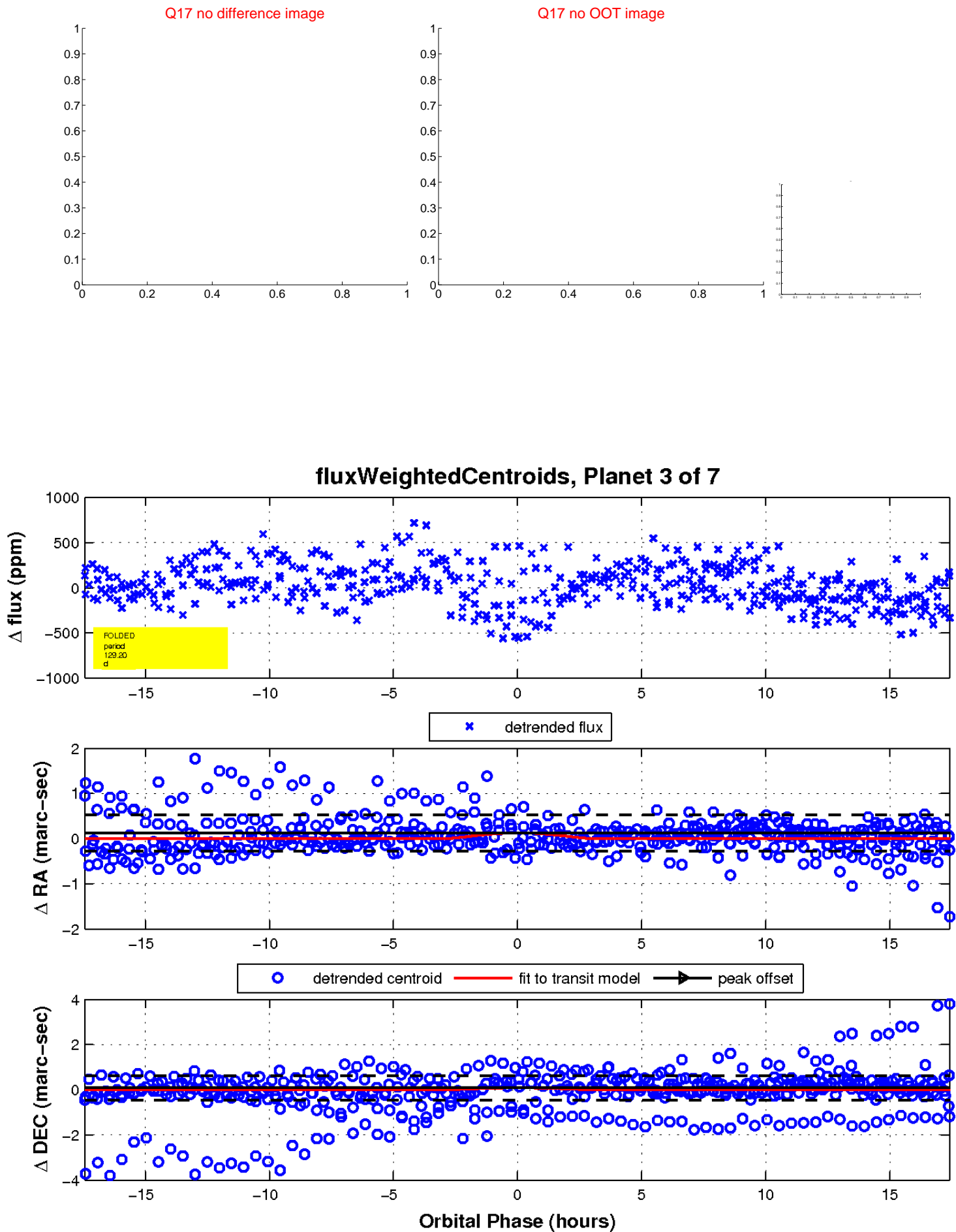
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

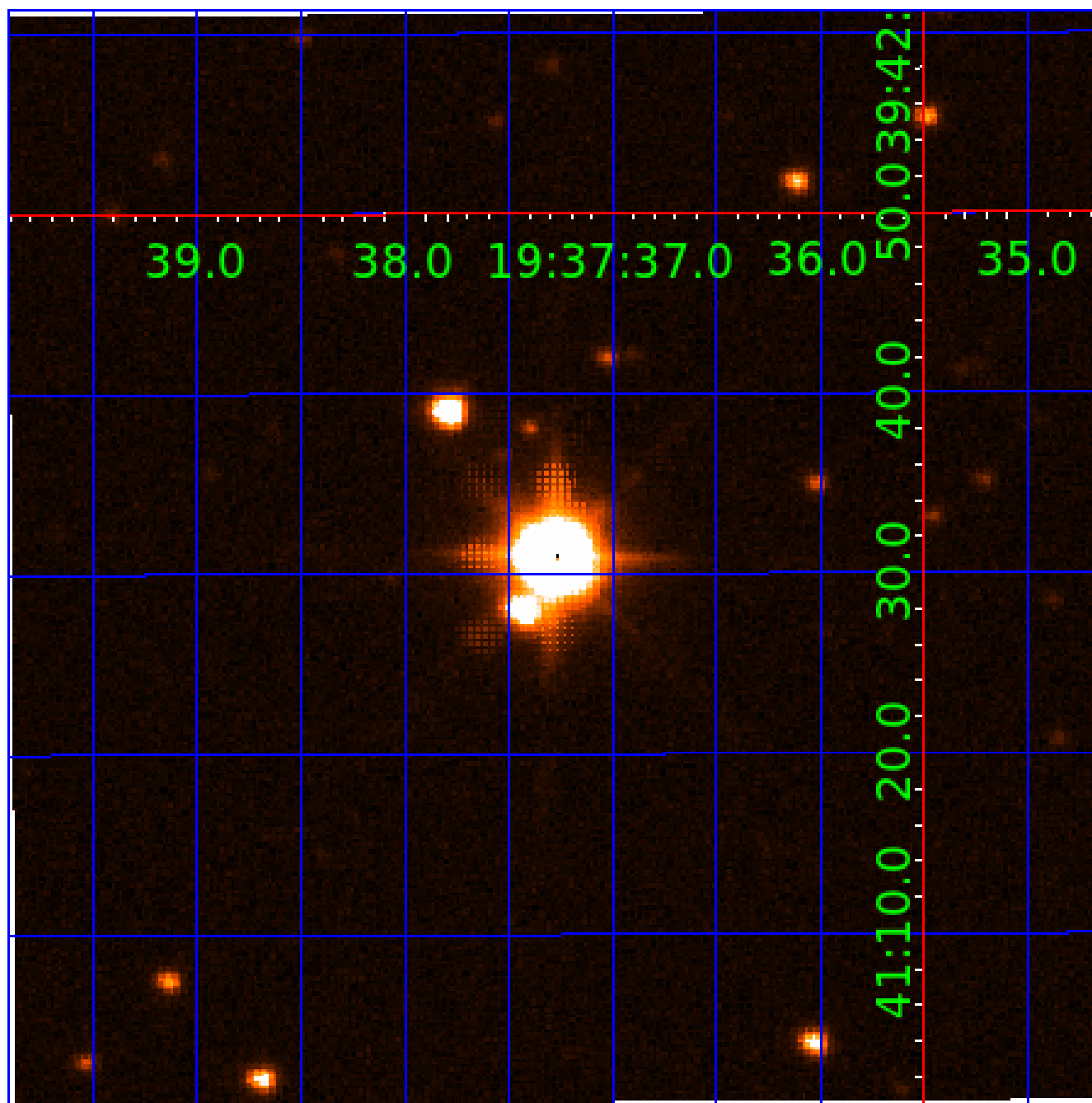


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004571780

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})
004571780-01	OBS	No	2.077176	133.369663	35.2	8.554	9.0	7.5	4.42	6449	3.35	19348.41
004571780-02	OBS	No	2.076966	131.932693	62.2	4.896	11.3	12.3	4.42	6449	3.52	19351.02
004571780-03	OBS	No	129.203939	217.593144	526.2	5.848	11.4	10.1	4.42	6449	19.55	78.51
004571780-04	OBS	No	163.873879	222.574172	556.9	11.132	10.7	10.1	4.42	6449	19.79	57.18
004571780-05	OBS	No	166.304669	229.577616	486.9	3.758	9.7	11.1	4.42	6449	18.87	56.07
004571780-06	OBS	No	197.394504	203.063351	376.9	7.156	9.1	9.2	4.42	6449	10.79	44.62
004571780-07	OBS	No	204.354493	186.458924	77.8	2.500	8.7	-1.0	4.42	6449	3.92	42.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004571780-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
004571780-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
004571780-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004571780-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004571780-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

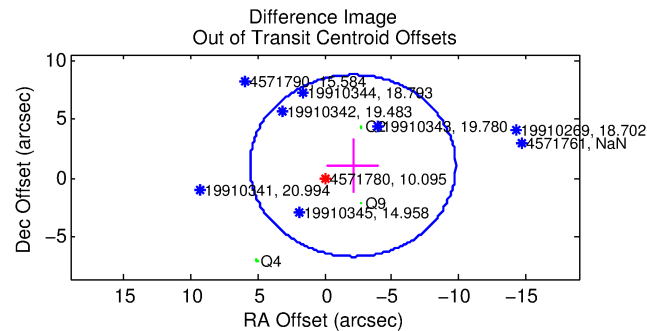
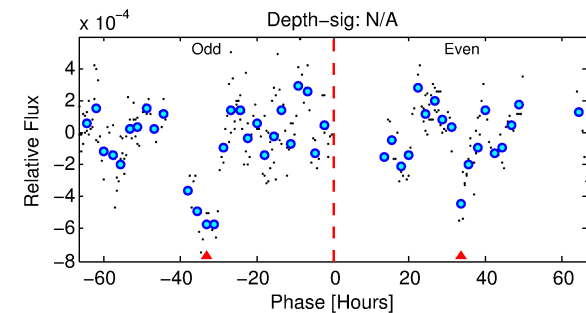
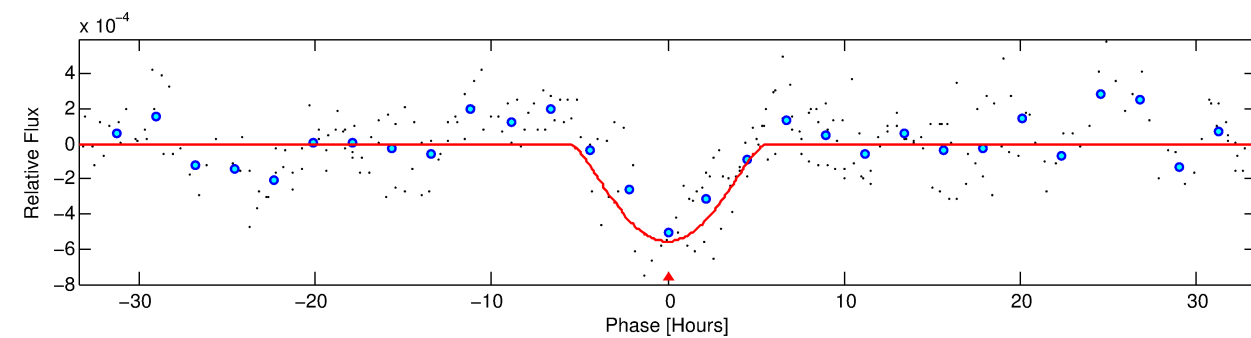
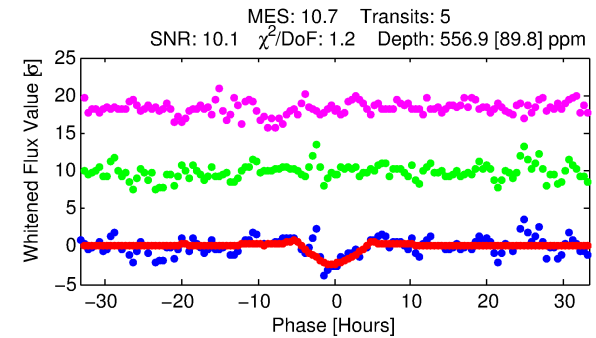
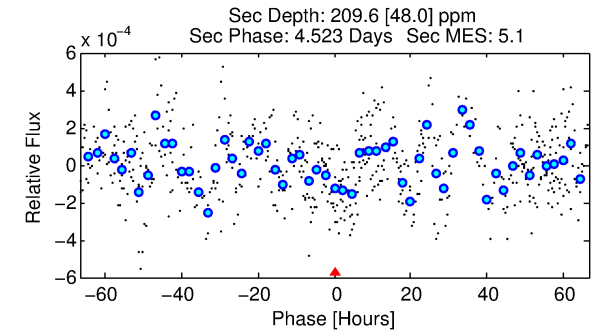
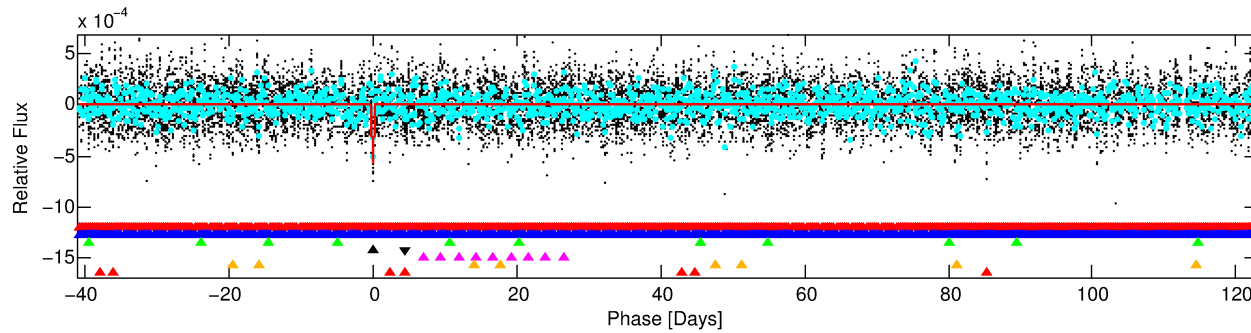
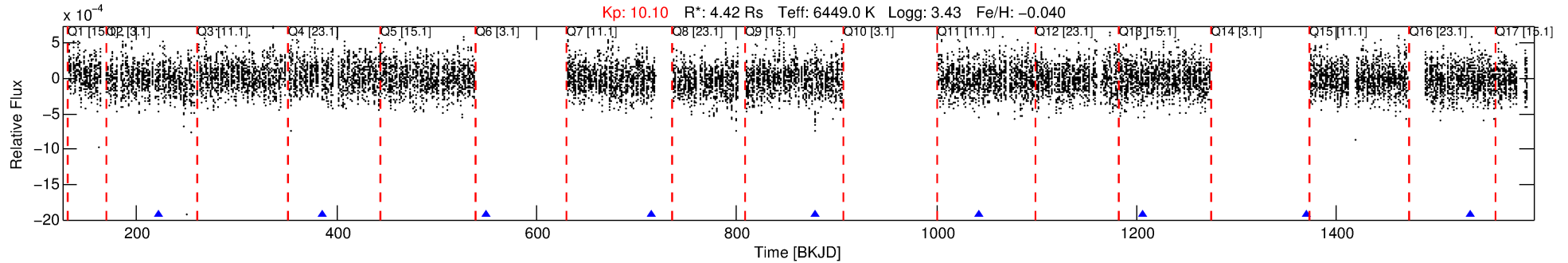
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004571780-04

No Significant Match Found

DV One-Page Summary

KIC: 4571780 Candidate: 4 of 7 Period: 163.874 d



DV Fit Results:

Period = 163.87388 [0.01466] d
Epoch = 222.5742 [0.0539] BKJD
 R_p/R^* = 0.0410 [0.0859]
 a/R^* = 32.89 [17.47]
 b = 1.00 [0.13]
 Seff = 57.18 [35.18]
 T_{eq} = 701 [108] K
 R_p = 19.79 [42.13] R_e
 a = 0.7280 [0.2717] AU
 A_g = 156.13 [662.21] [0.23σ]
 T_{effp} = 3832 [4023] K [0.78σ]

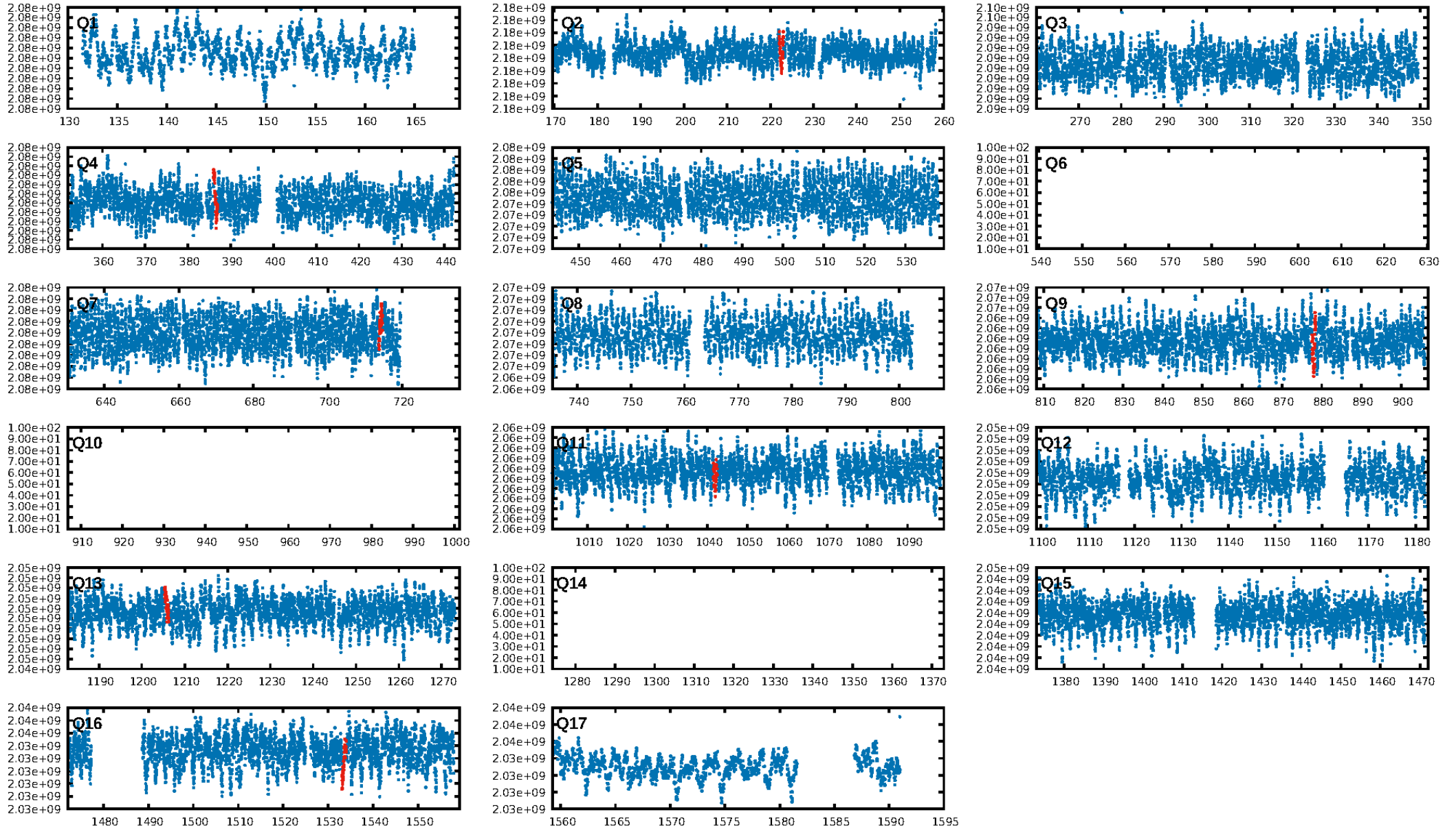
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [66.17σ]
LongPeriod-sig: 100.0% [4.97σ]
ModelChiSquare2-sig: 4.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 16.3%
Centroid-so: 0.533 arcsec [1.52σ]
OotOffset-rm: 2.369 arcsec [0.92σ]
KicOffset-rm: 2.833 arcsec [0.90σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

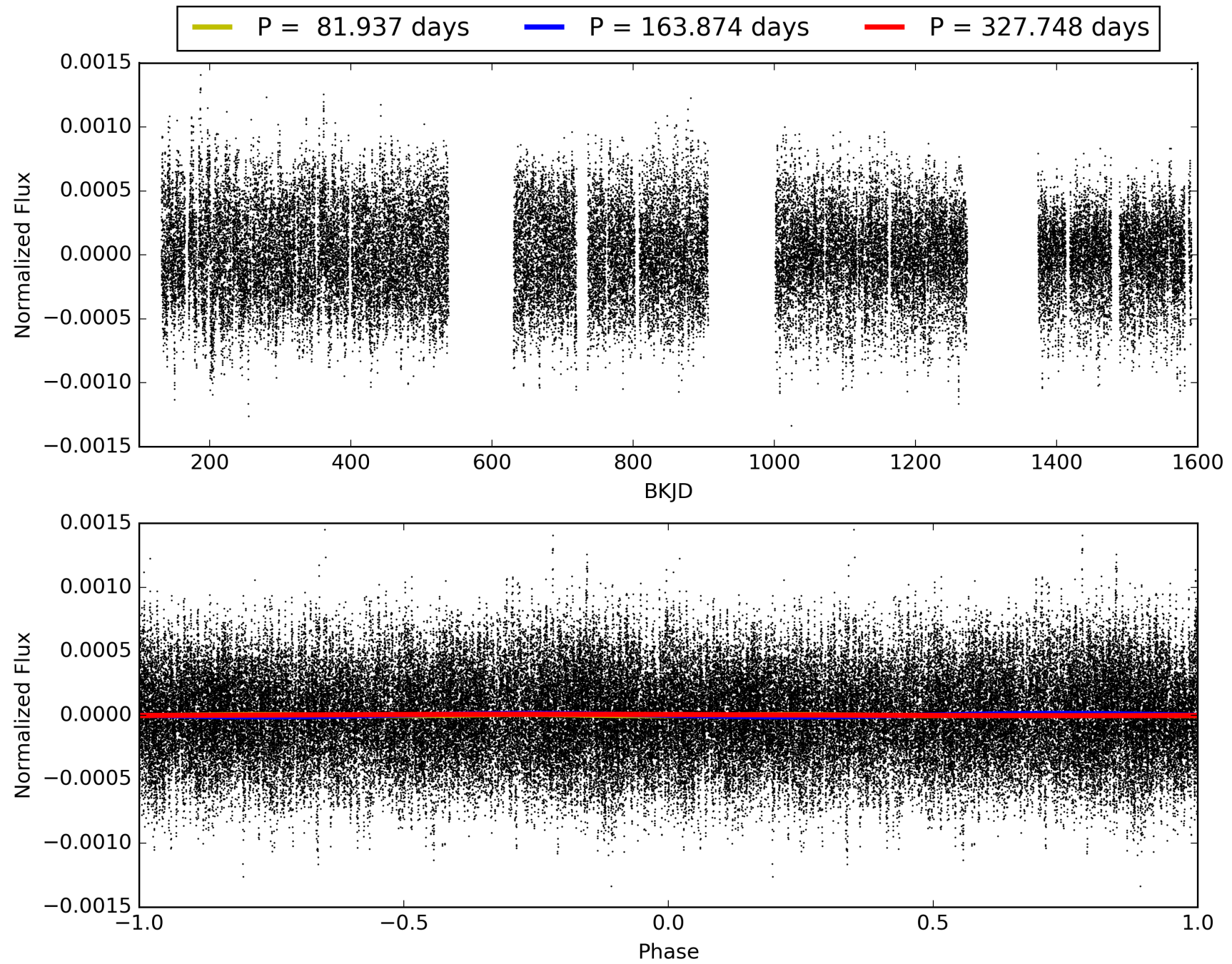
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:08:14 Z

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

TCE 004571780-04, PDC Light Curves

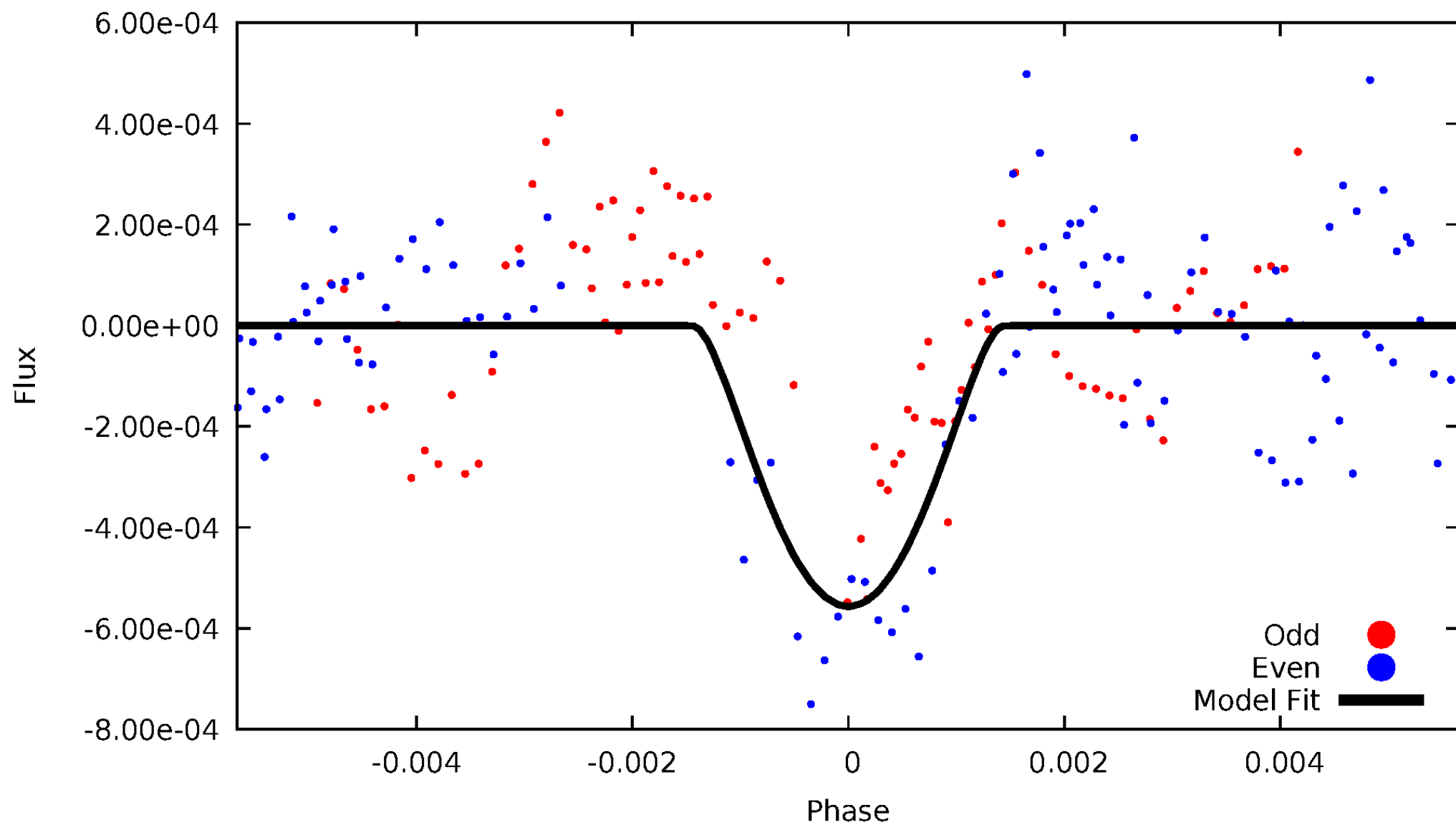


TCE 004571780-04



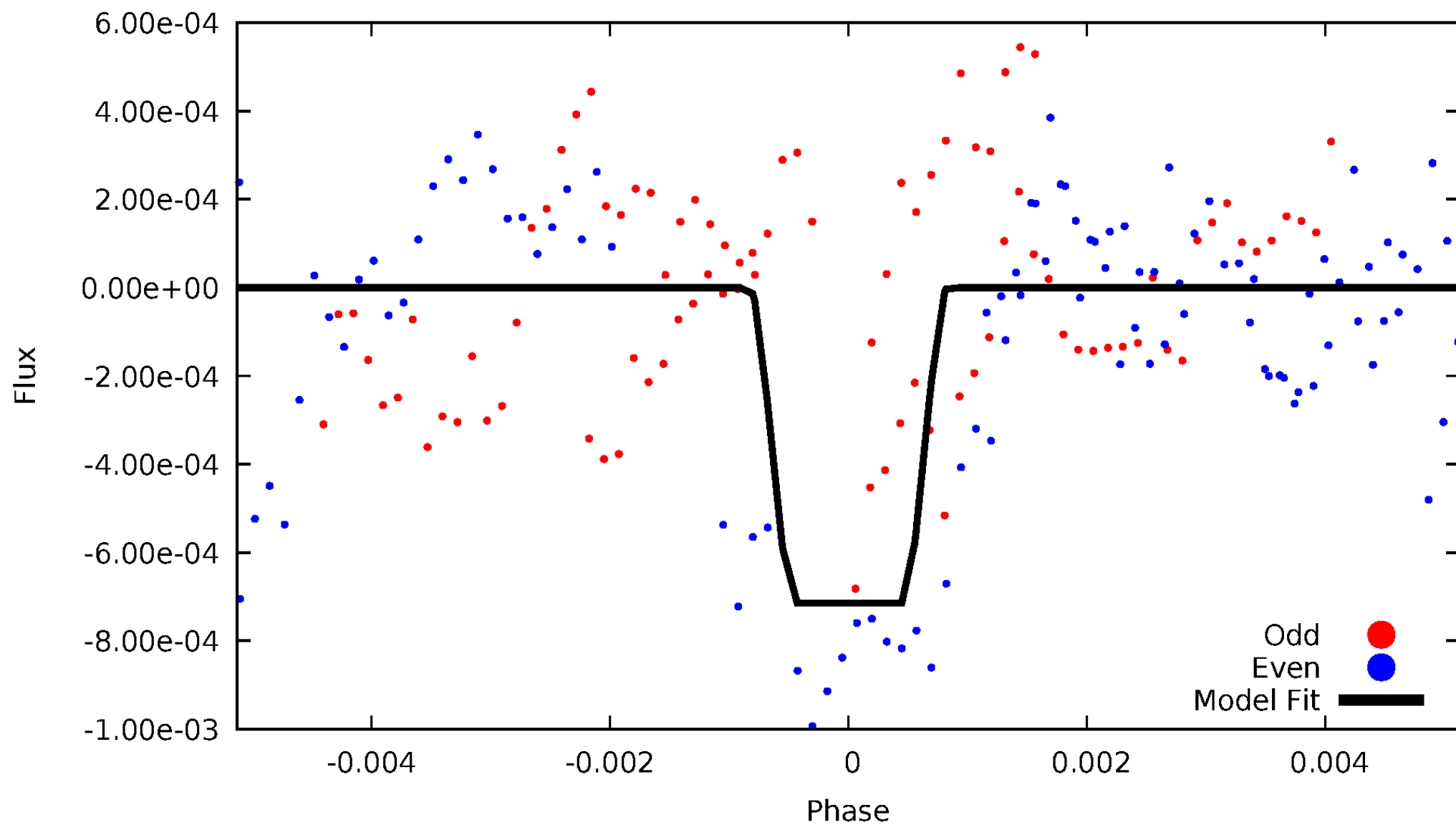
DV Odd/Even

TCE 004571780-04



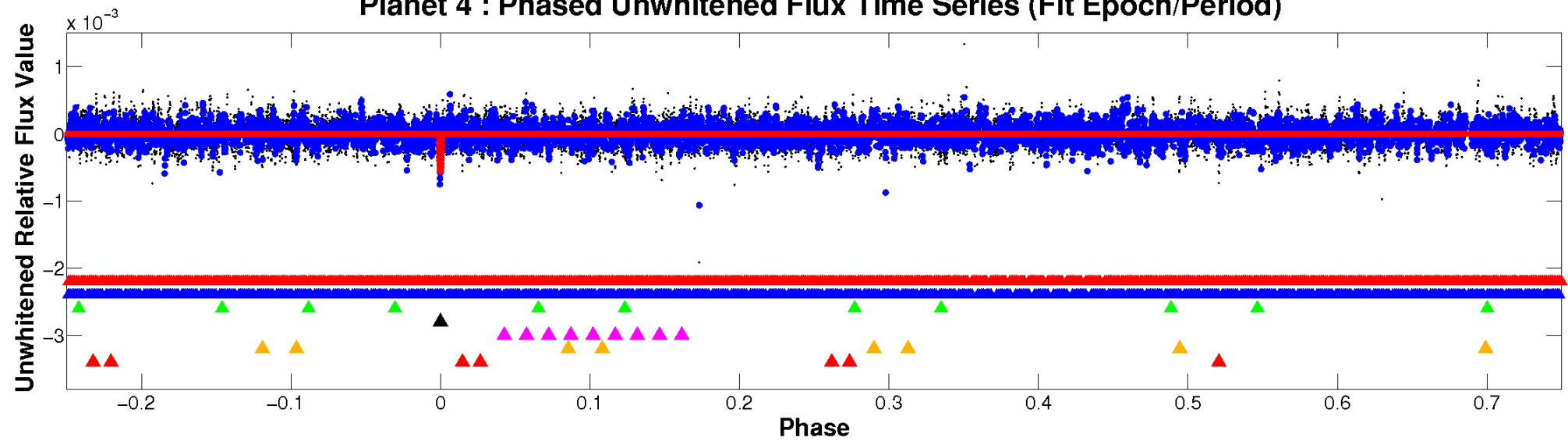
ALT Odd/Even

TCE 004571780-04

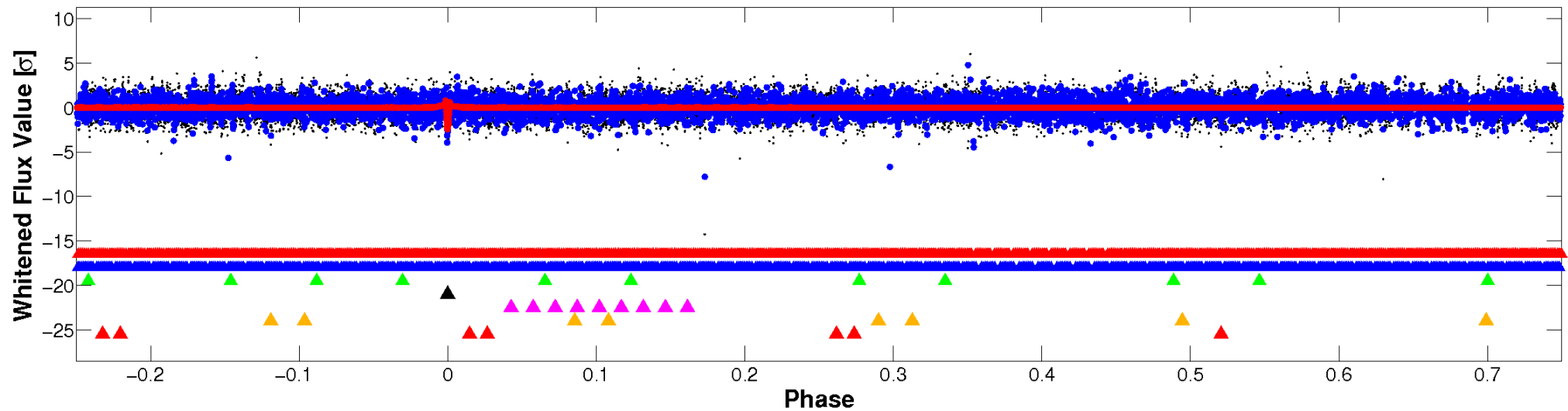


Non-Whitened Vs. Whitened Light Curve

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

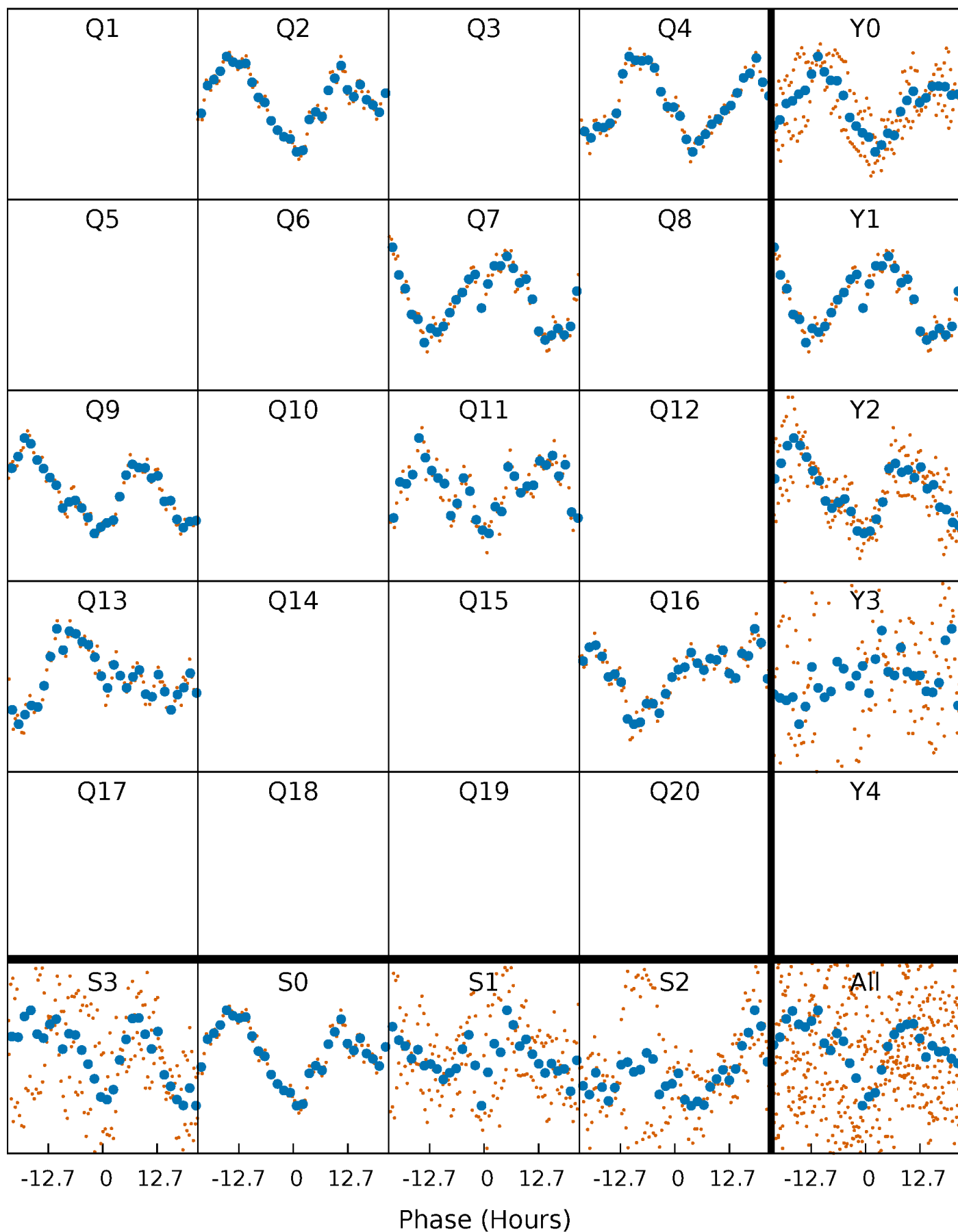


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



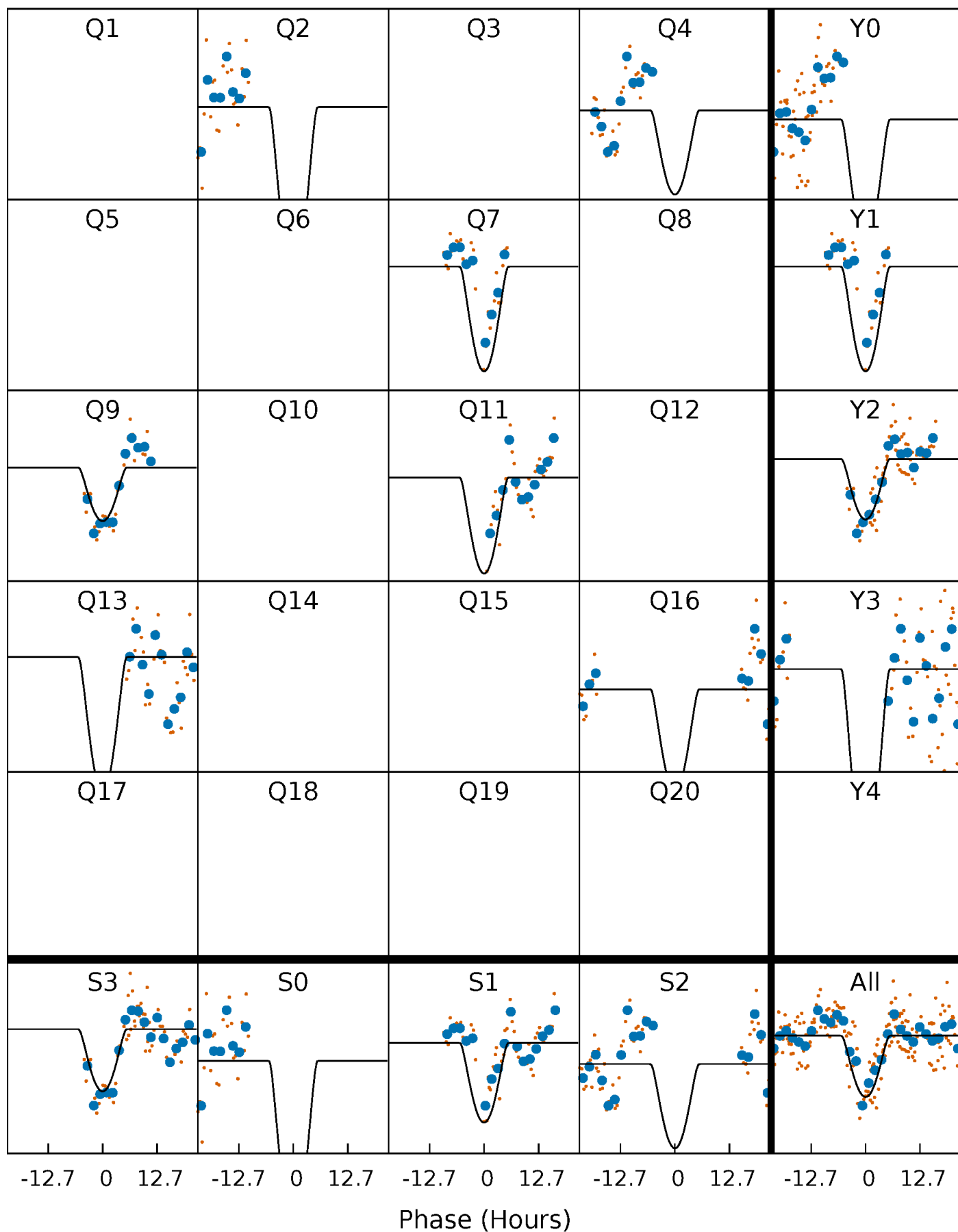
PDC Quarter-Phased Transit Curves

TCE 004571780-04 P=163.873879 Days $T_0=222.574172$ (BKJD)



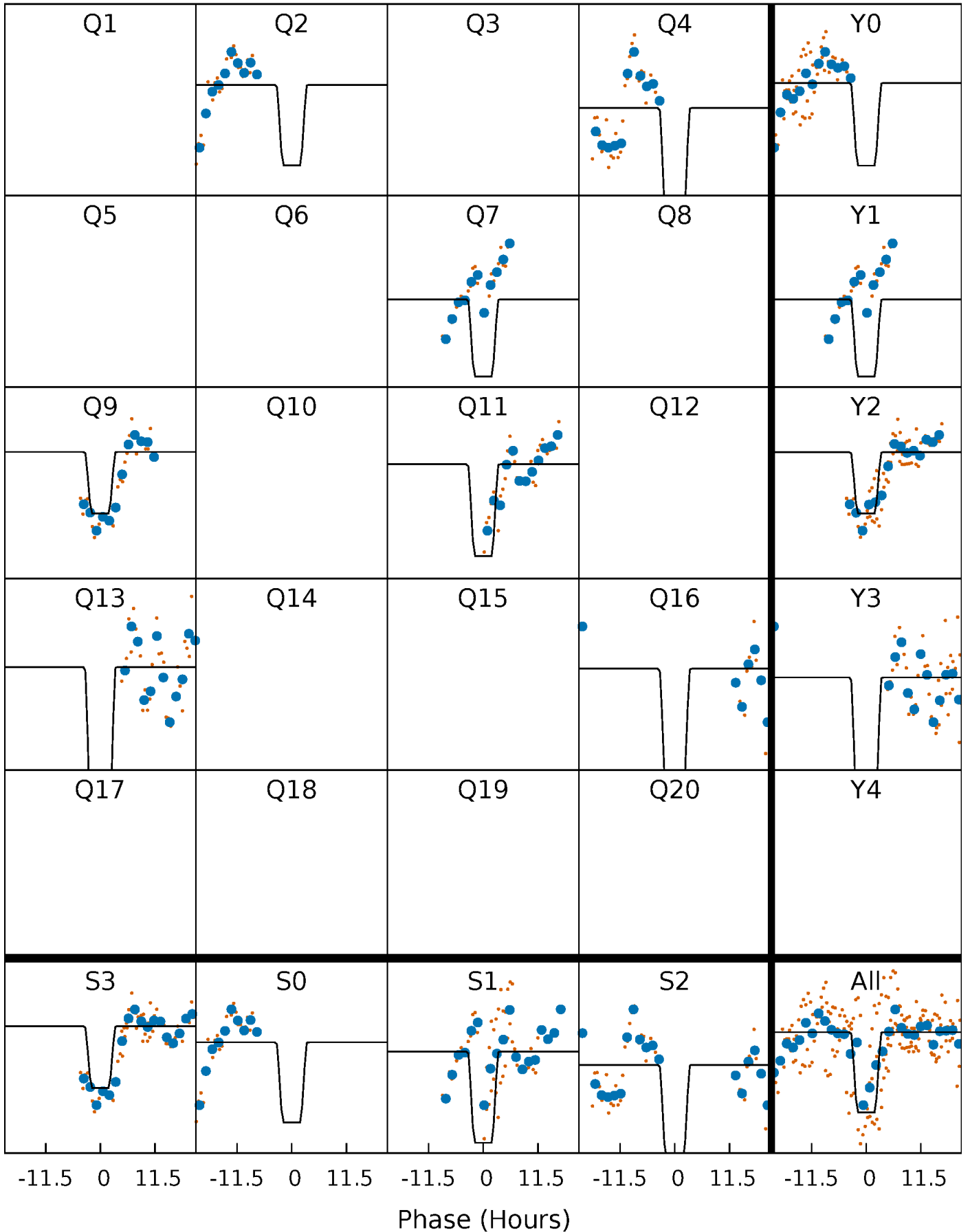
DV Quarter-Phased Transit Curves

TCE 004571780-04 P=163.873879 Days $T_0=222.574172$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

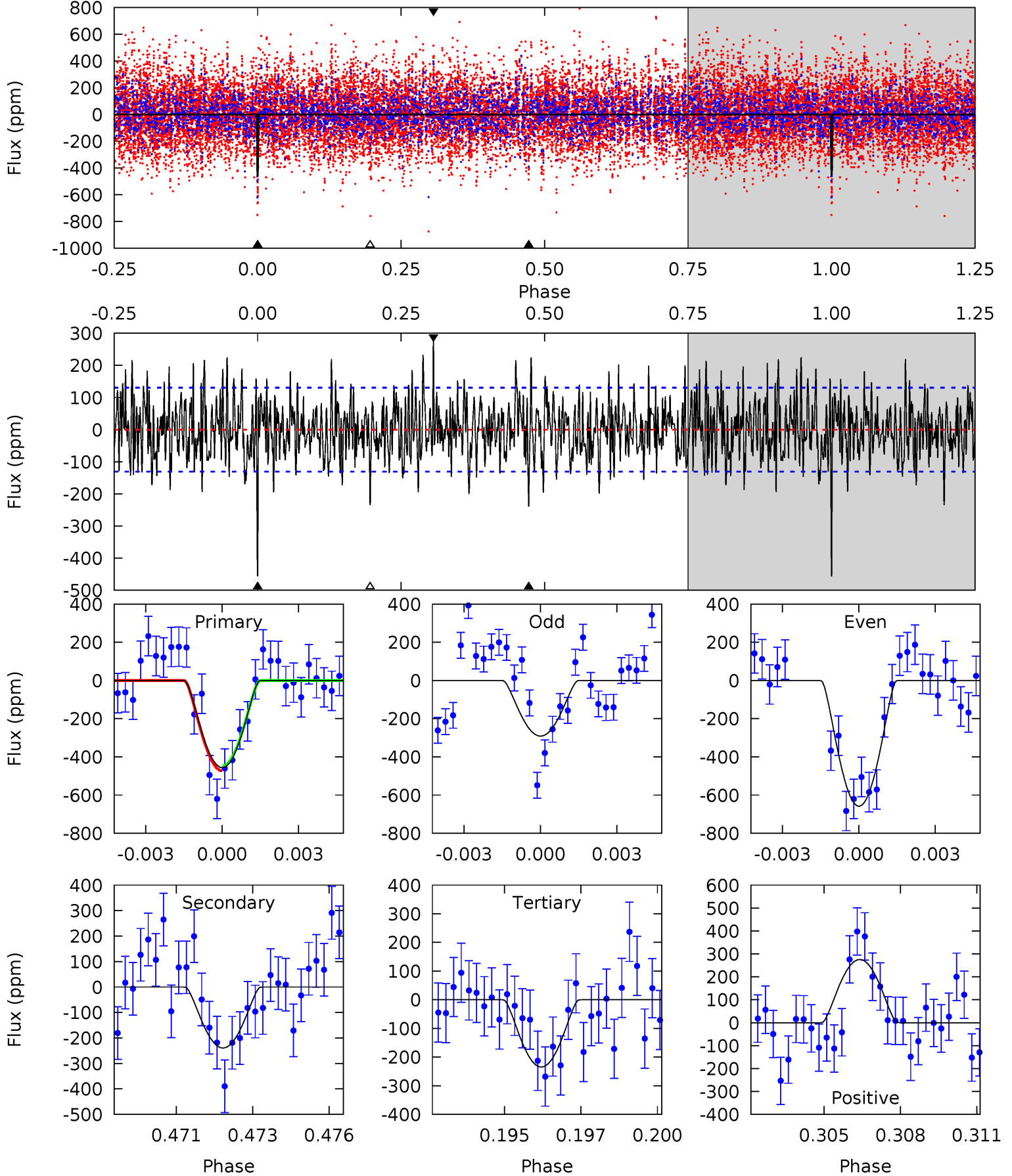
TCE 004571780-04 $P=163.899894$ Days $T_0=222.462970$ (BKJD)



DV Model-Shift Uniqueness Test

004571780-04, $P = 163.873879$ Days, $E = 58.700293$ Days

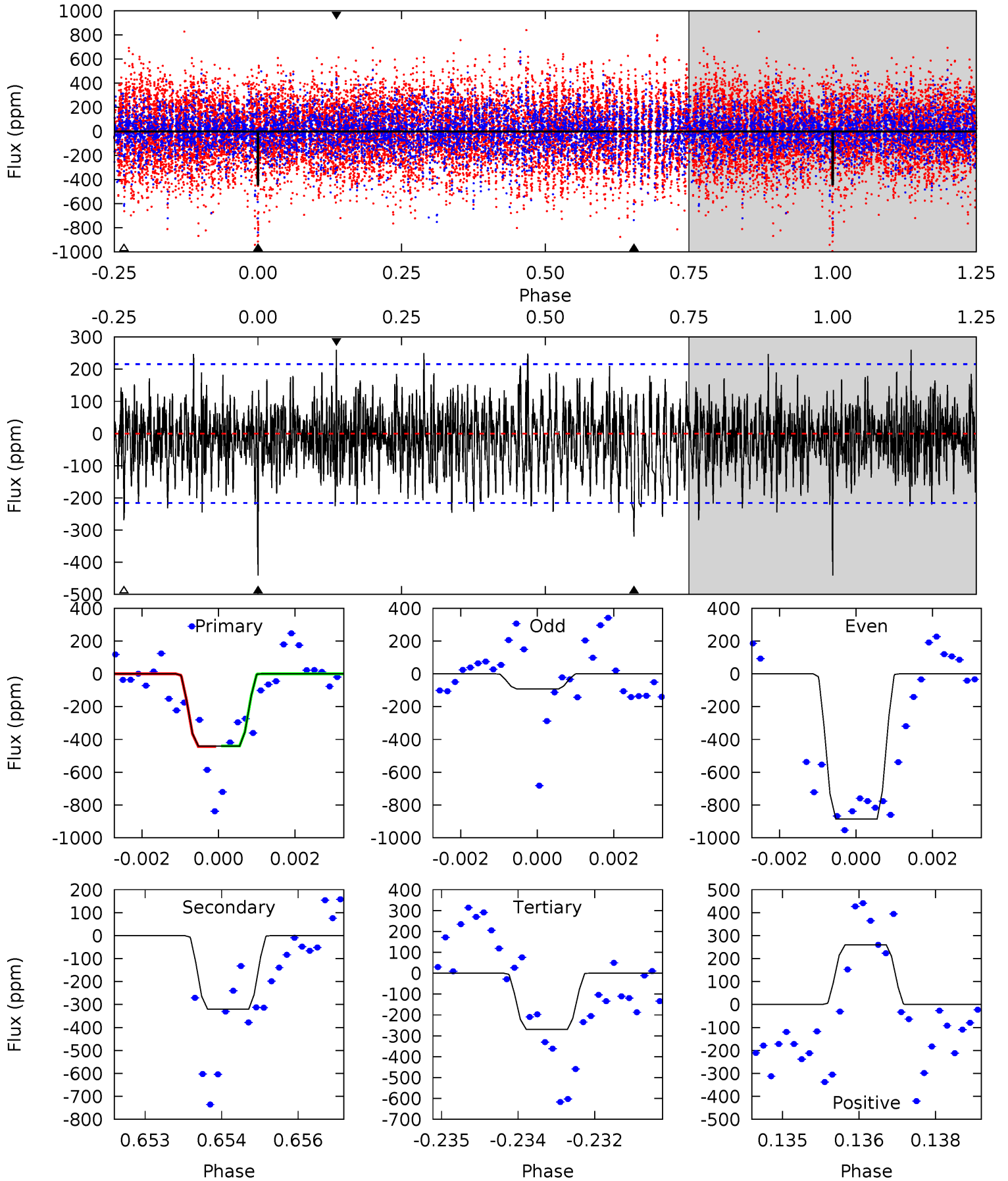
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	9.63	9.44	11.1	5.26	2.98	3.00	8.92	7.27	0.19	-1.46	7.24	-2.92	0.38	0.49



Alt Model-Shift Uniqueness Test

004571780-04, P = 163.899894 Days, E = 58.563076 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	7.95	6.68	6.45	5.36	3.15	1.98	4.28	4.51	1.27	1.49	9.65	0.86	0.37	0.05



Stellar Parameters For KIC 004571780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6449^{+163}_{-146}	$3.429^{+0.360}_{-0.090}$	$-0.040^{+0.300}_{-0.250}$	$4.422^{+0.713}_{-1.664}$	$1.914^{+0.086}_{-0.365}$	$0.031^{+0.083}_{-0.009}$
	+3%/-2%	+10%/-3%	+750%/-625%	+16%/-38%	+4%/-19%	+266%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004571780-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-239 ± 25	$33.07^{+31.21}_{-22.64}$	960^{+62}_{-87}	3436^{+1837}_{-575}	63^{+542}_{-46}
Alt.	-320 ± 40	$29.97^{+31.77}_{-21.50}$	962^{+55}_{-102}	3686^{+2474}_{-692}	102^{+1256}_{-78}

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

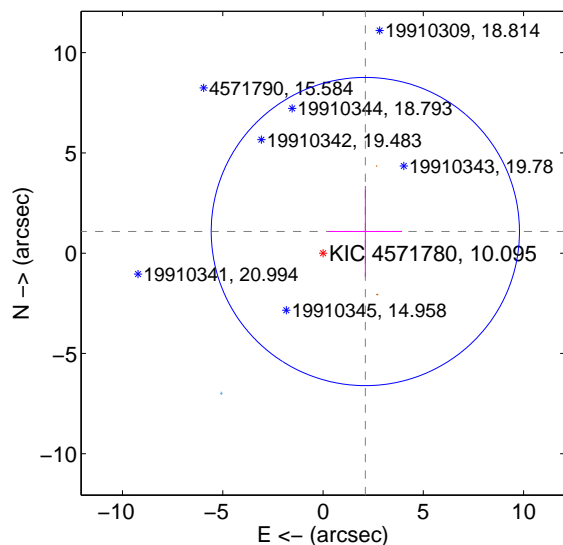
Supplemental centroid analysis for 004571780-04. **Kepler magnitude: 10.10.** Transit SNR 10.07

There are 1 quarters with good PRF difference image offsets

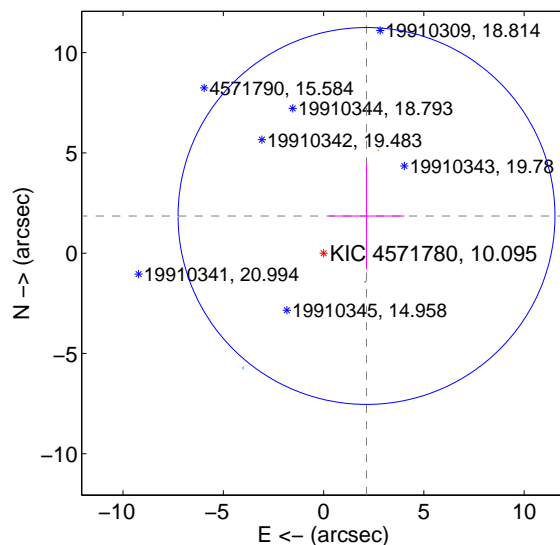
The direct PRF centroid is offset from the target star catalog position by about 0.89 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.369 ± 2.561	0.92	-2.109 ± 1.831	1.079 ± 2.267
PRF-fit source offset from KIC position	2.833 ± 3.132	0.90	-2.140 ± 1.888	1.855 ± 2.657
photometric centroid source offset	0.53 ± 0.35	1.52	0.39 ± 0.27	0.36 ± 0.43

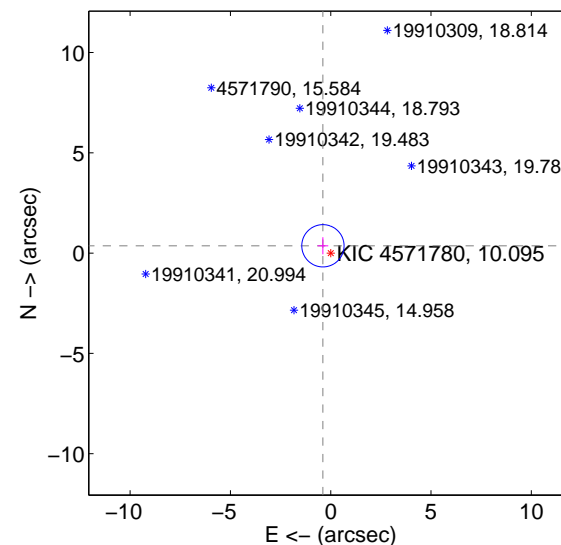
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

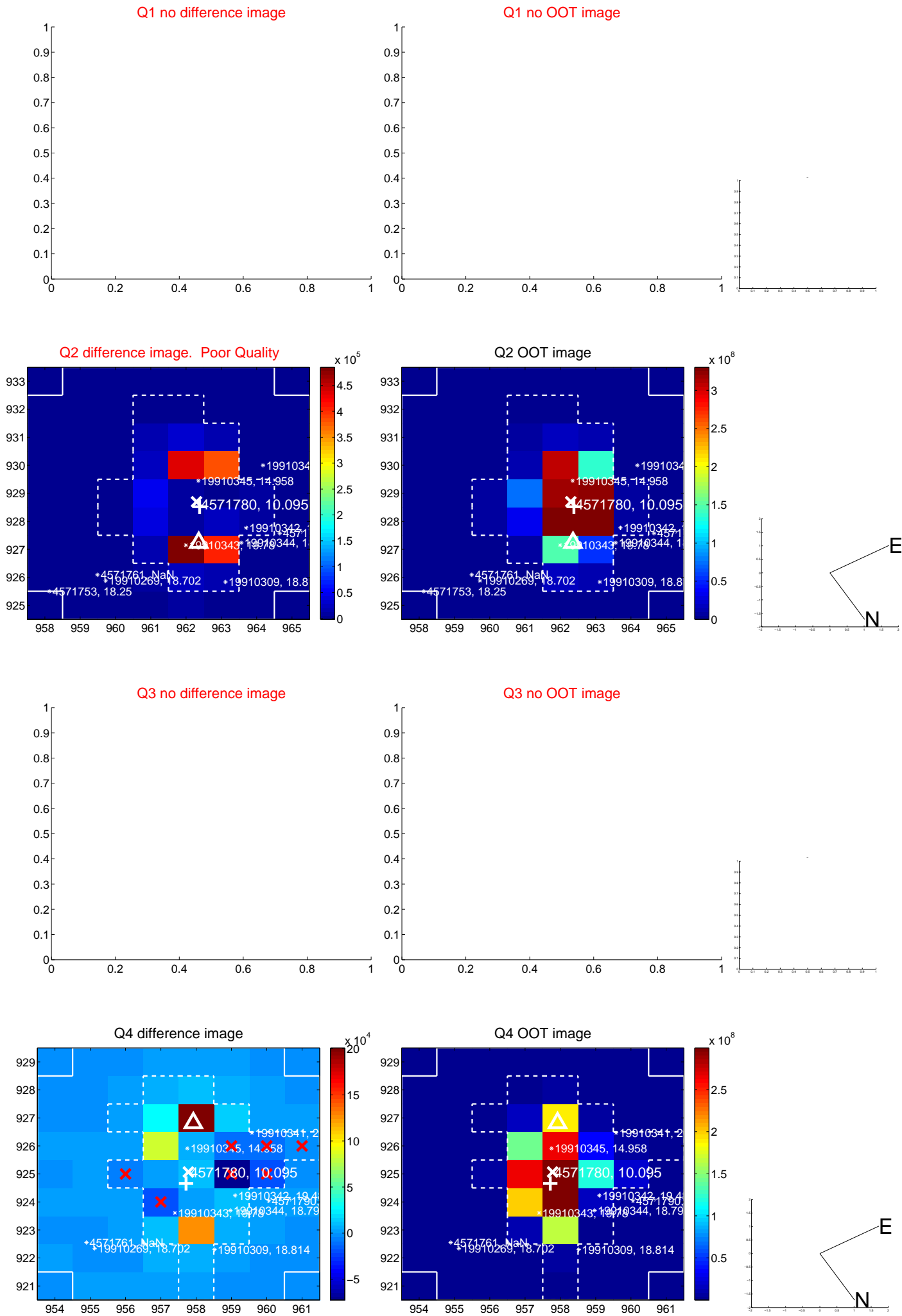


offset from photometric centroids



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.

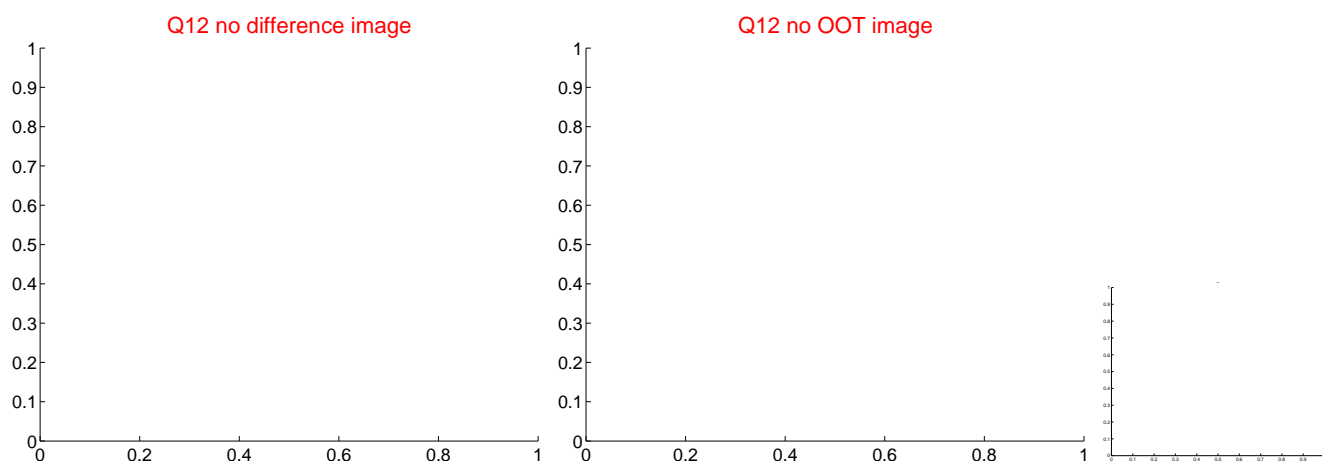
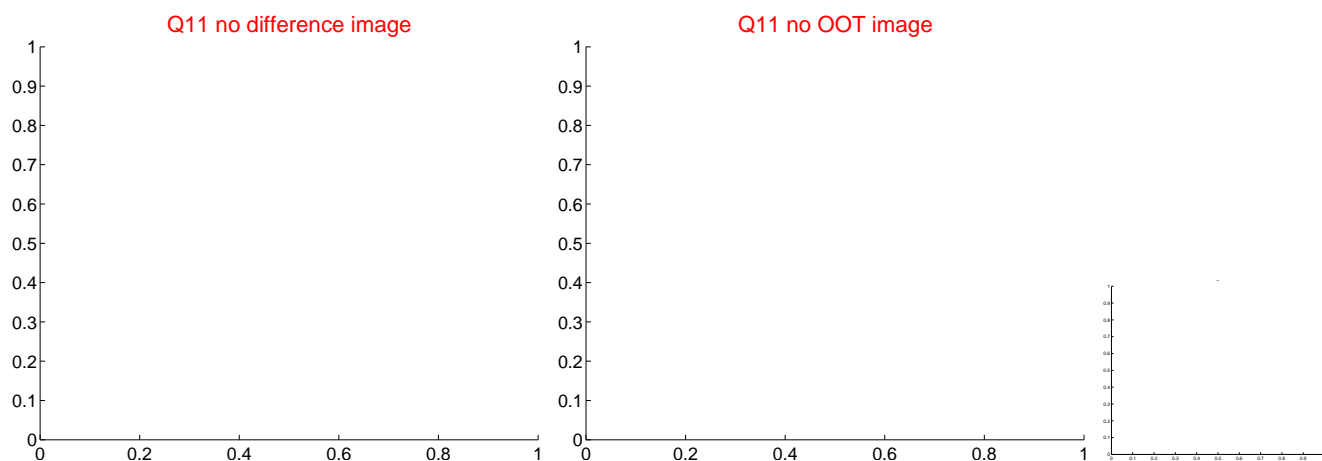
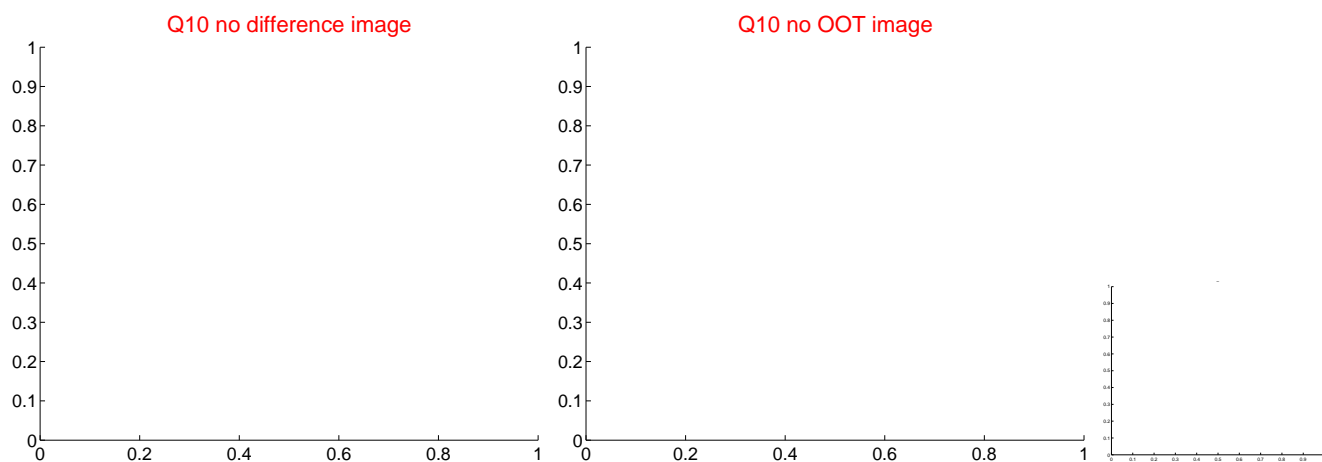
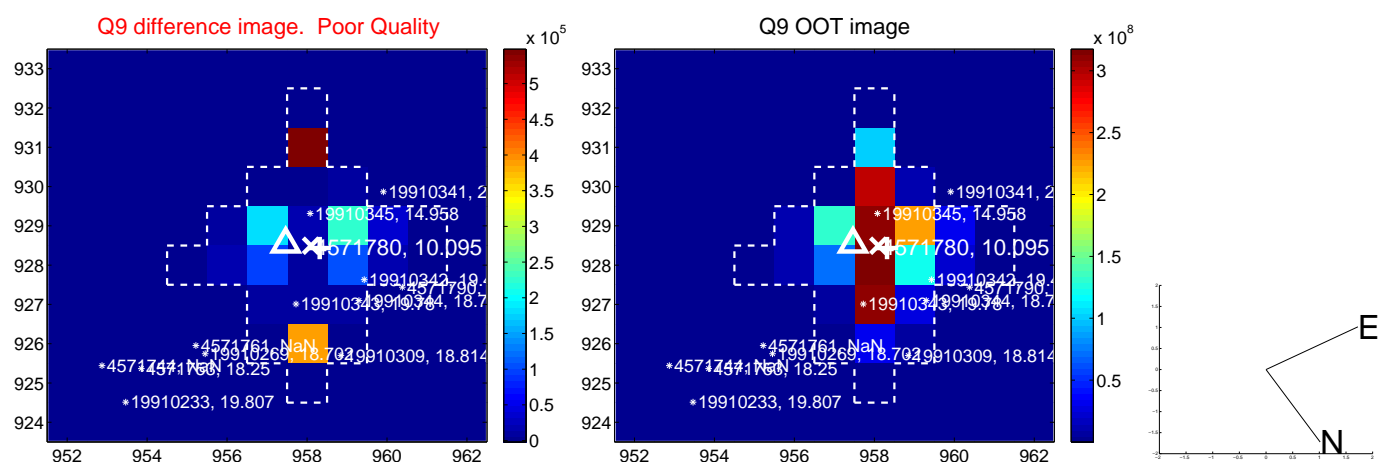
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



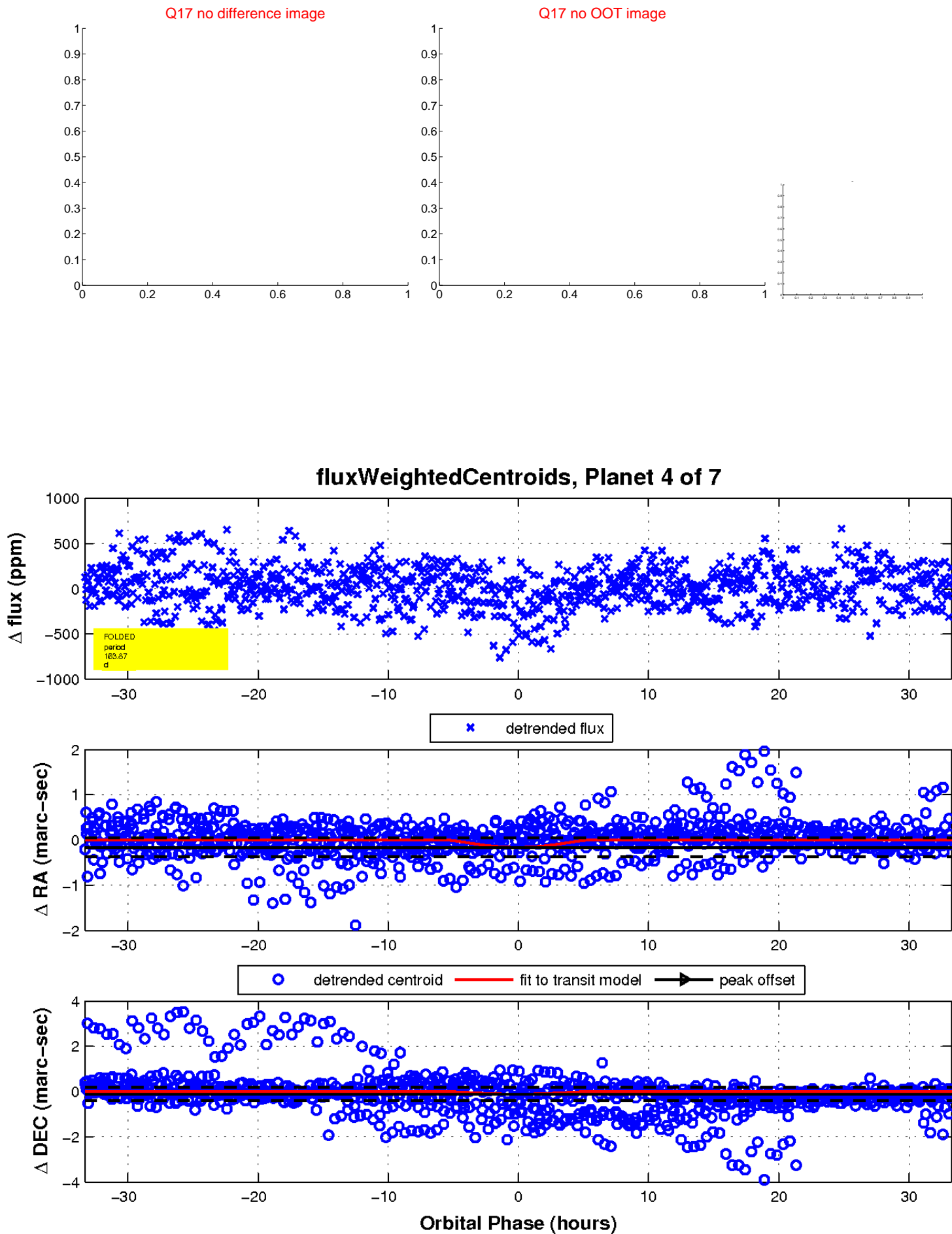
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

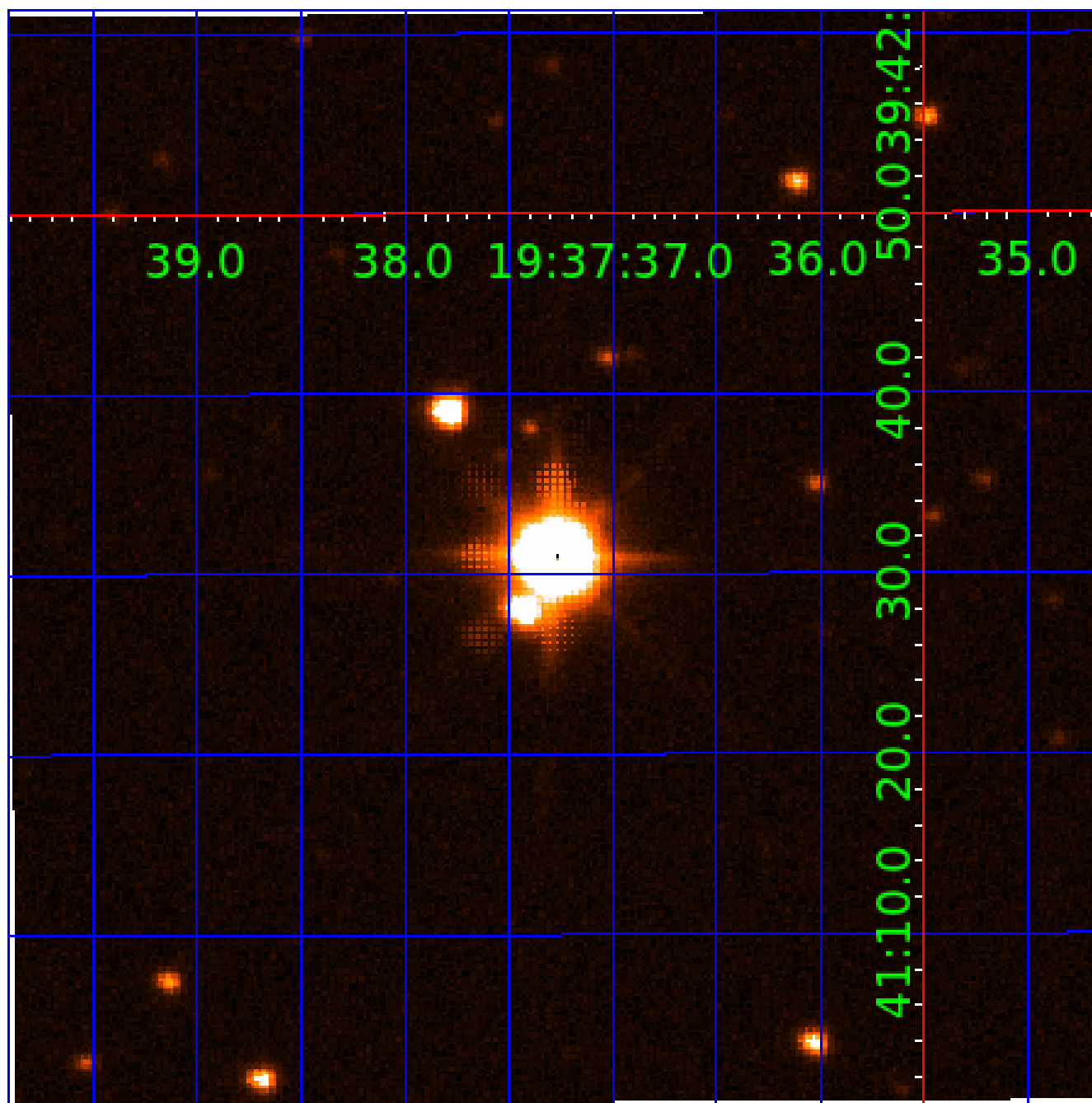


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004571780

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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004571780-02	OBS	No	2.076966	131.932693	62.2	4.896	11.3	12.3	4.42	6449	3.52	19351.02
004571780-03	OBS	No	129.203939	217.593144	526.2	5.848	11.4	10.1	4.42	6449	19.55	78.51
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004571780-05	OBS	No	166.304669	229.577616	486.9	3.758	9.7	11.1	4.42	6449	18.87	56.07
004571780-06	OBS	No	197.394504	203.063351	376.9	7.156	9.1	9.2	4.42	6449	10.79	44.62
004571780-07	OBS	No	204.354493	186.458924	77.8	2.500	8.7	-1.0	4.42	6449	3.92	42.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004571780-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
004571780-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
004571780-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004571780-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004571780-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

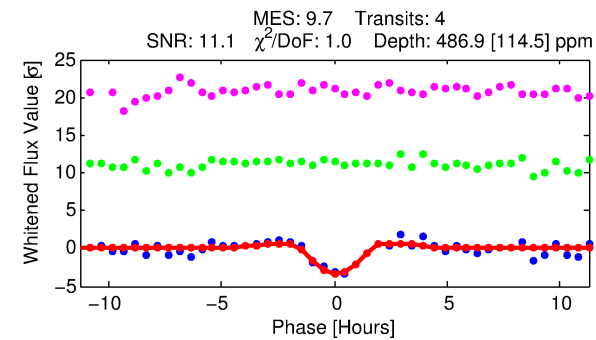
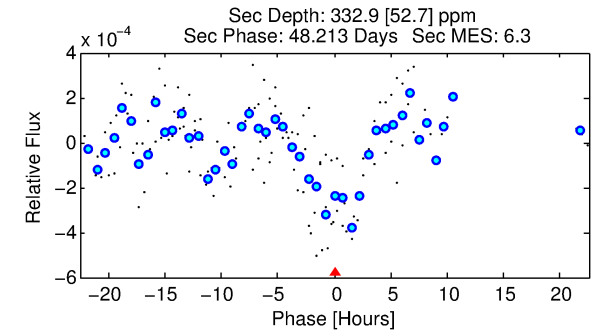
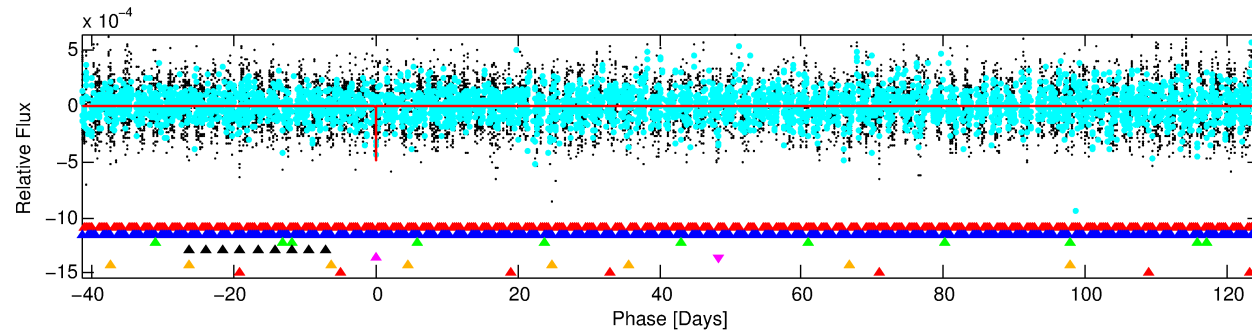
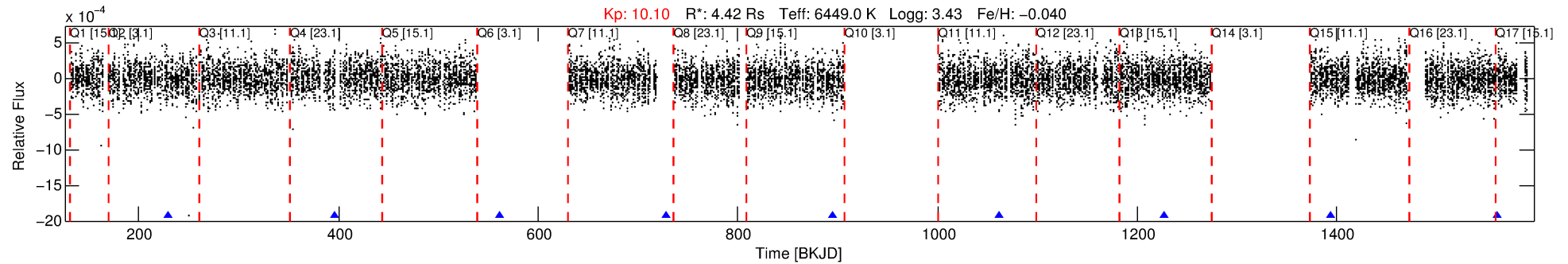
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004571780-05

No Significant Match Found

DV One-Page Summary

KIC: 4571780 Candidate: 5 of 7 Period: 166.305 d

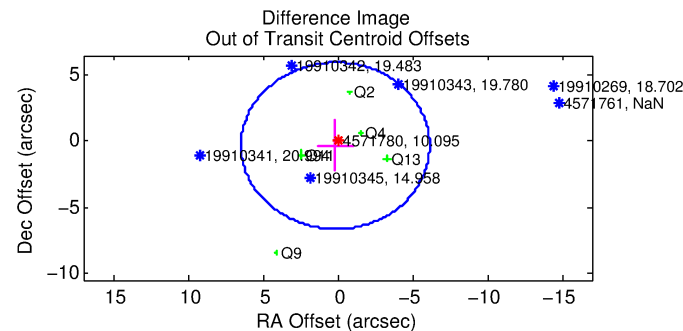
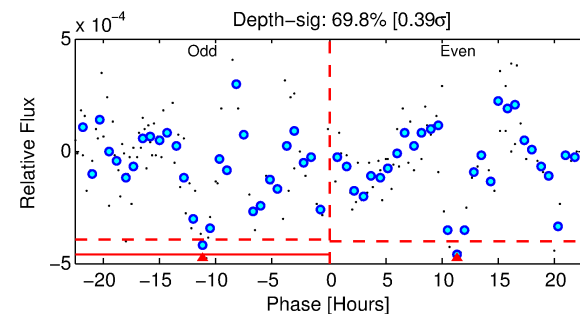
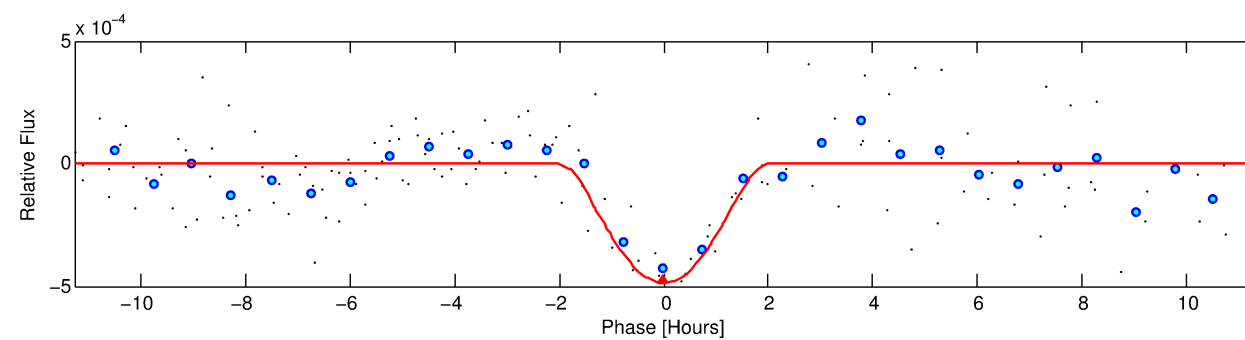


DV Fit Results:

Period = 166.30467 [0.00393] d
Epoch = 229.5776 [0.0205] BKJD
 R_p/R^* = 0.0391 [0.1064]
 a/R^* = 95.62 [66.59]
 b = 1.00 [0.15]
 Seff = 56.07 [34.50]
 T_{eq} = 698 [107] K
 R_p = 18.87 [51.83] R_e
 a = 0.7352 [0.2744] AU
 A_g = 277.85 [1521.75] [0.18σ]
 T_{eff} = 4405 [5995] K [0.62σ]

DV Diagnostic Results:

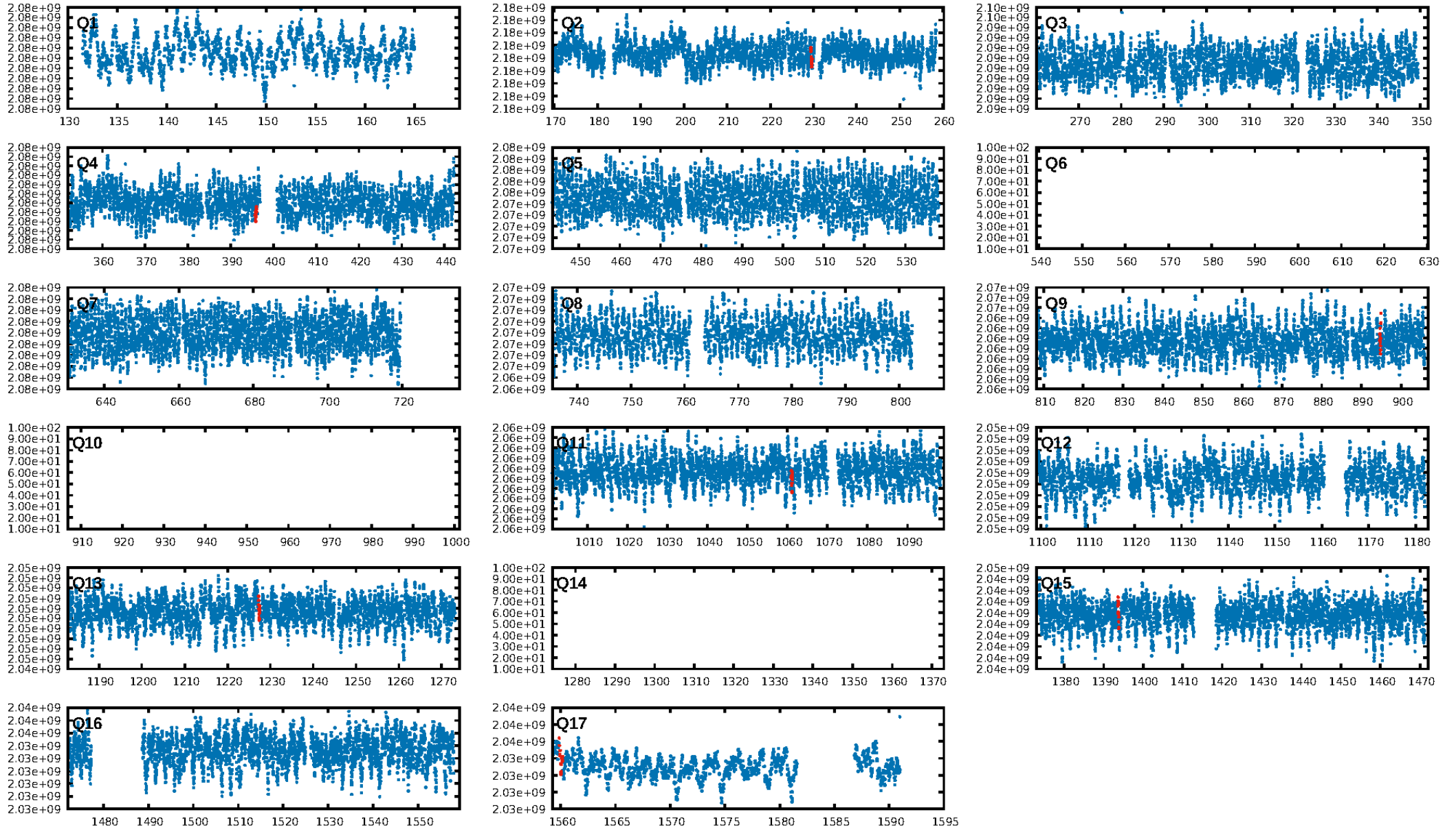
ShortPeriod-sig: 100.0% [4.97σ]
LongPeriod-sig: 100.0% [92.32σ]
ModelChiSquare2-sig: 76.6%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 14.7%
Centroid-so: 0.385 arcsec [0.99σ]
OotOffset-rm: 0.374 arcsec [0.18σ]
KicOffset-rm: 2.274 arcsec [0.88σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.20 [1/5]
DiffImageOverlap-fno: 0.60 [3/5]



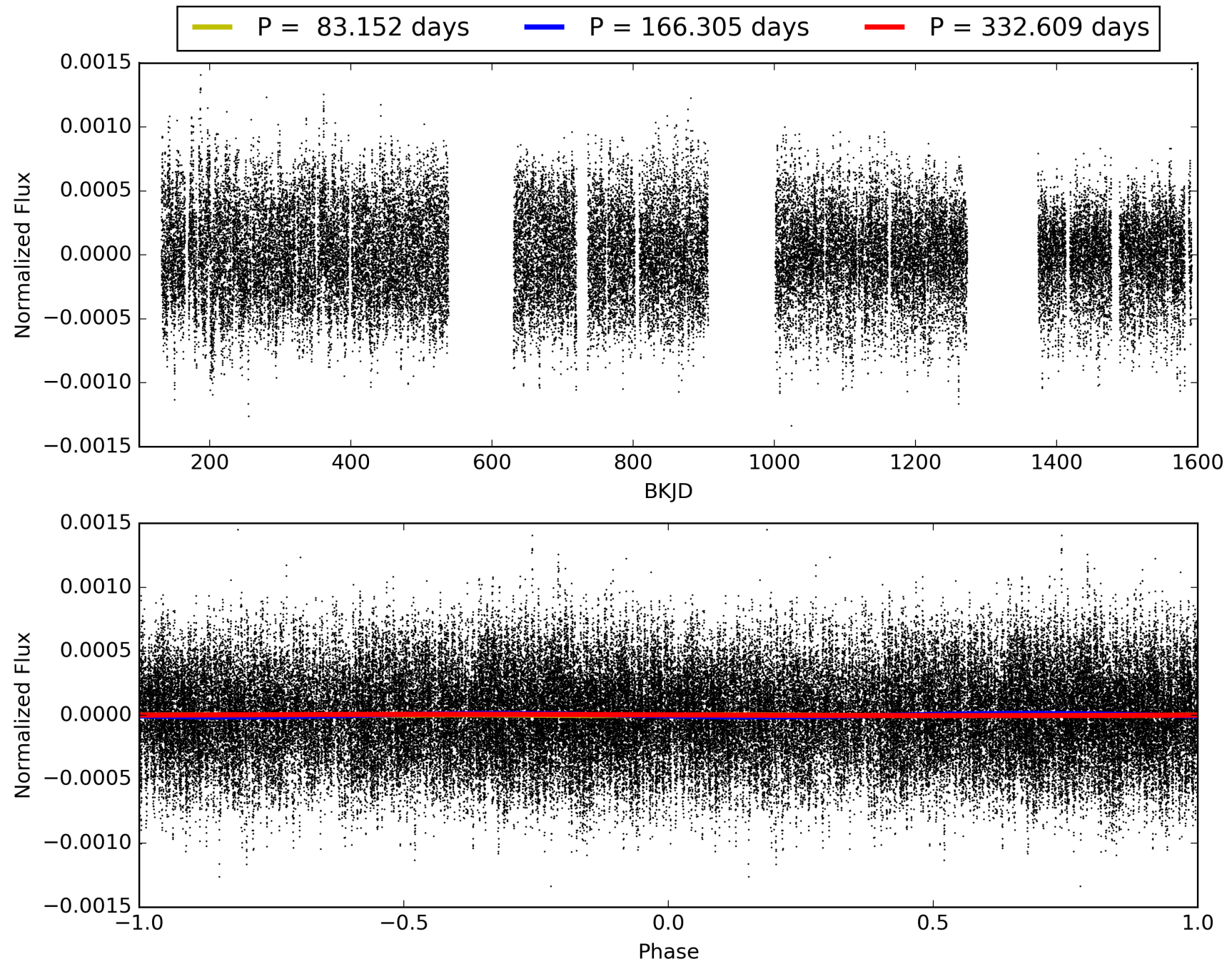
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:08:19 Z

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

TCE 004571780-05, PDC Light Curves

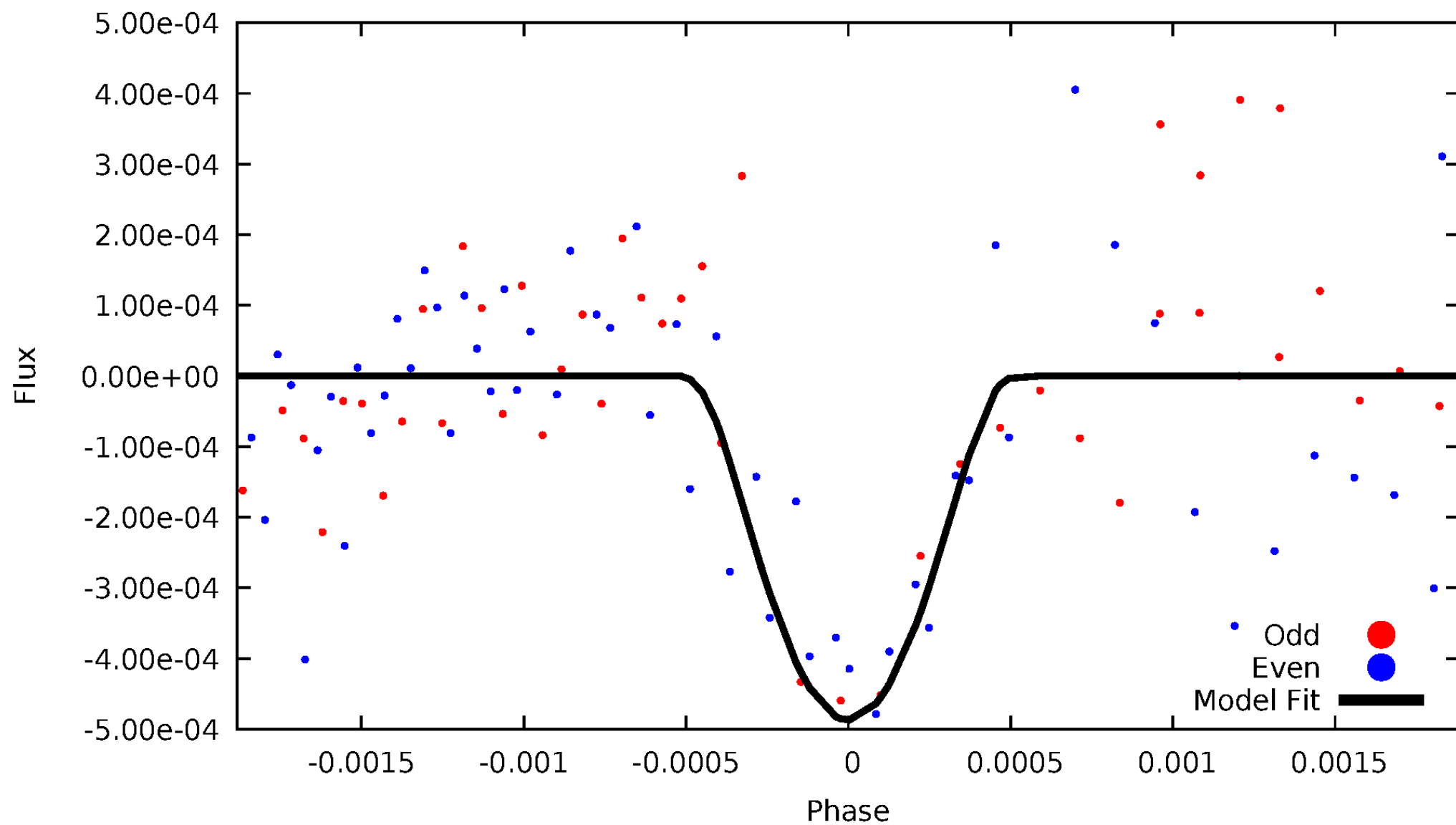


TCE 004571780-05



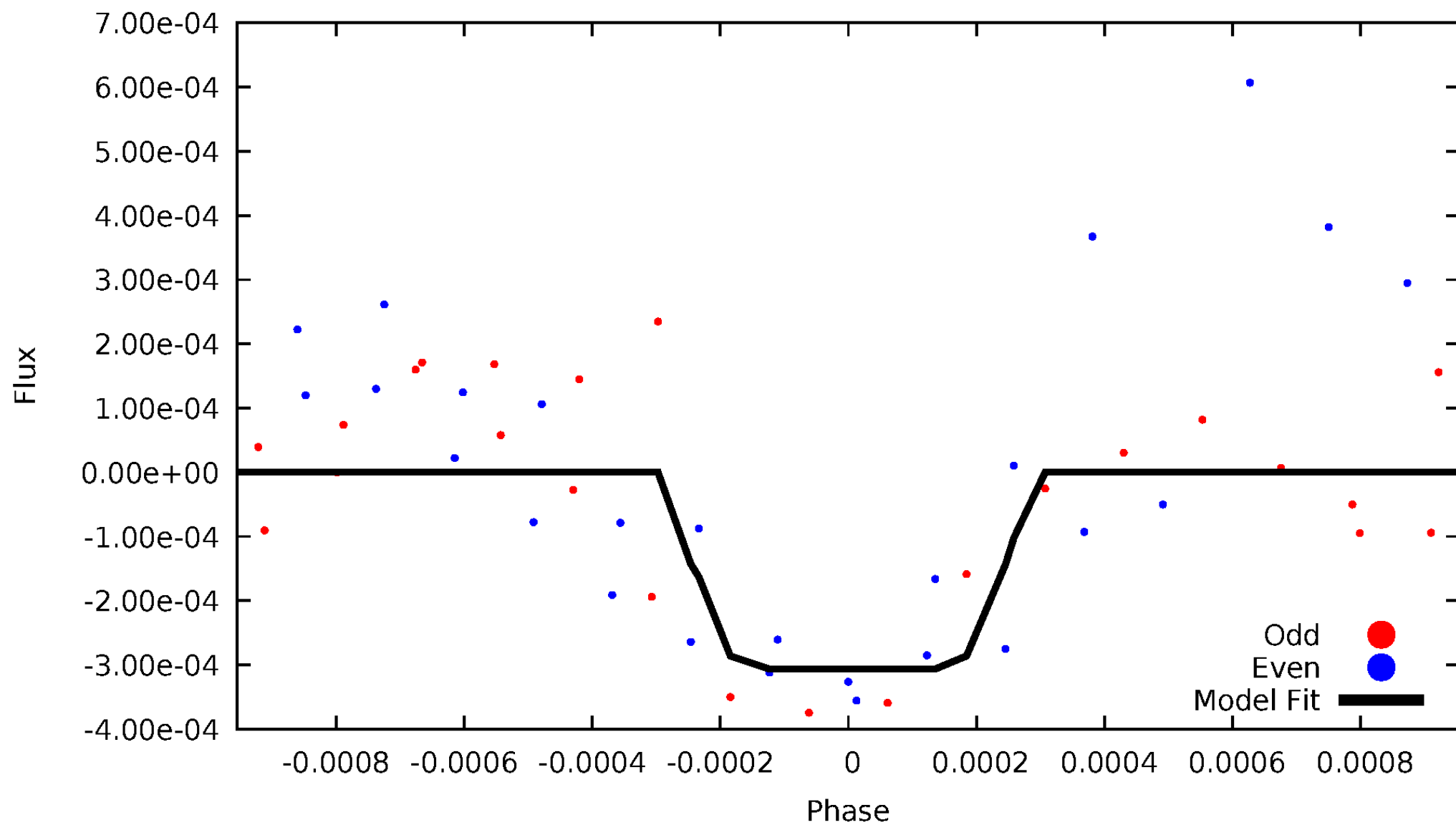
DV Odd/Even

TCE 004571780-05



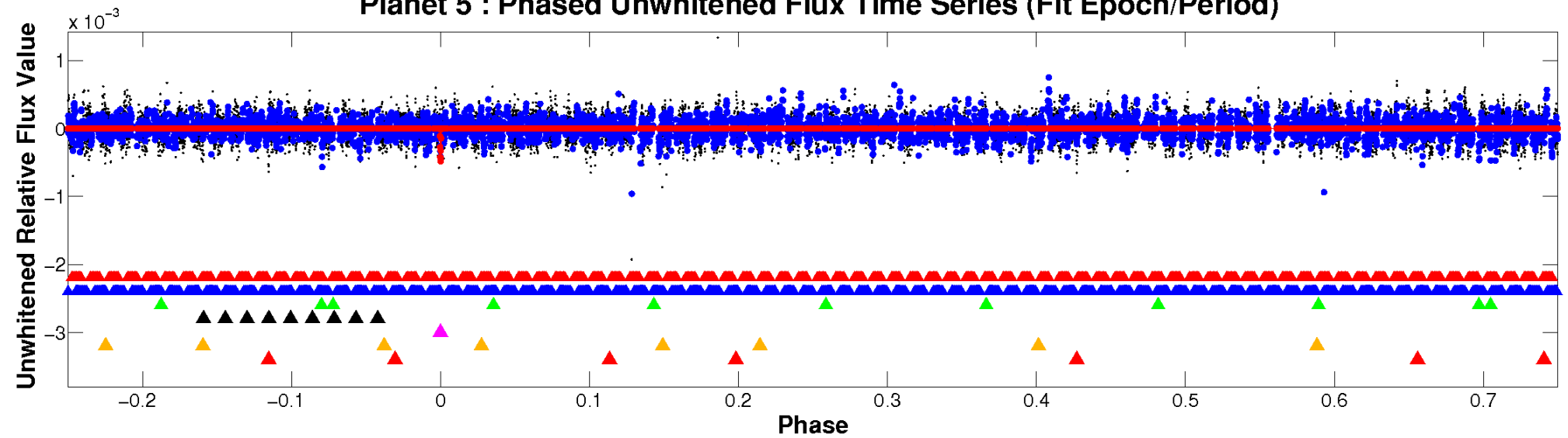
ALT Odd/Even

TCE 004571780-05

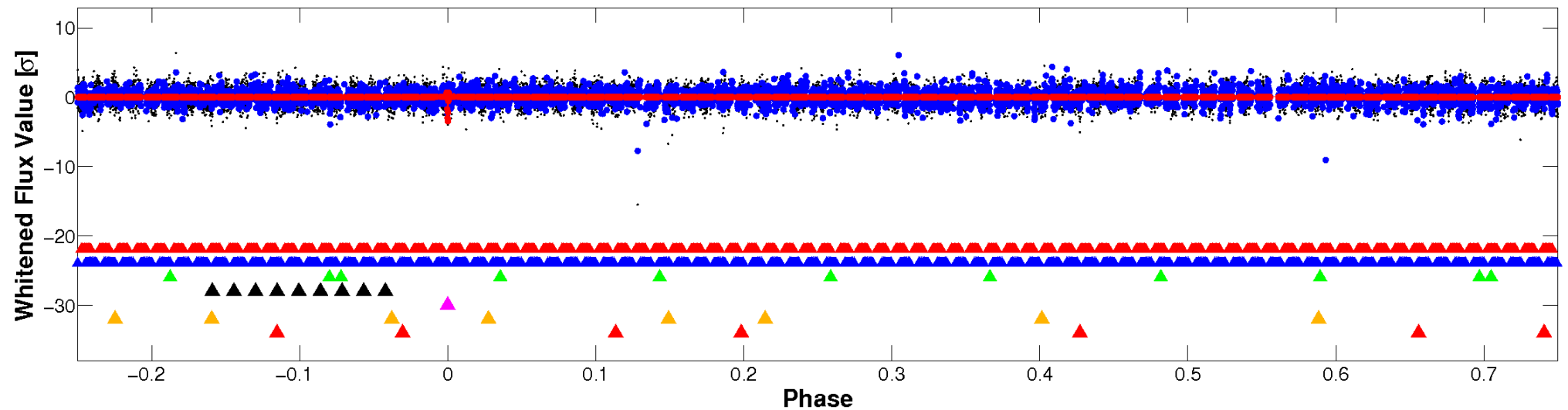


Non-Whitened Vs. Whitened Light Curve

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

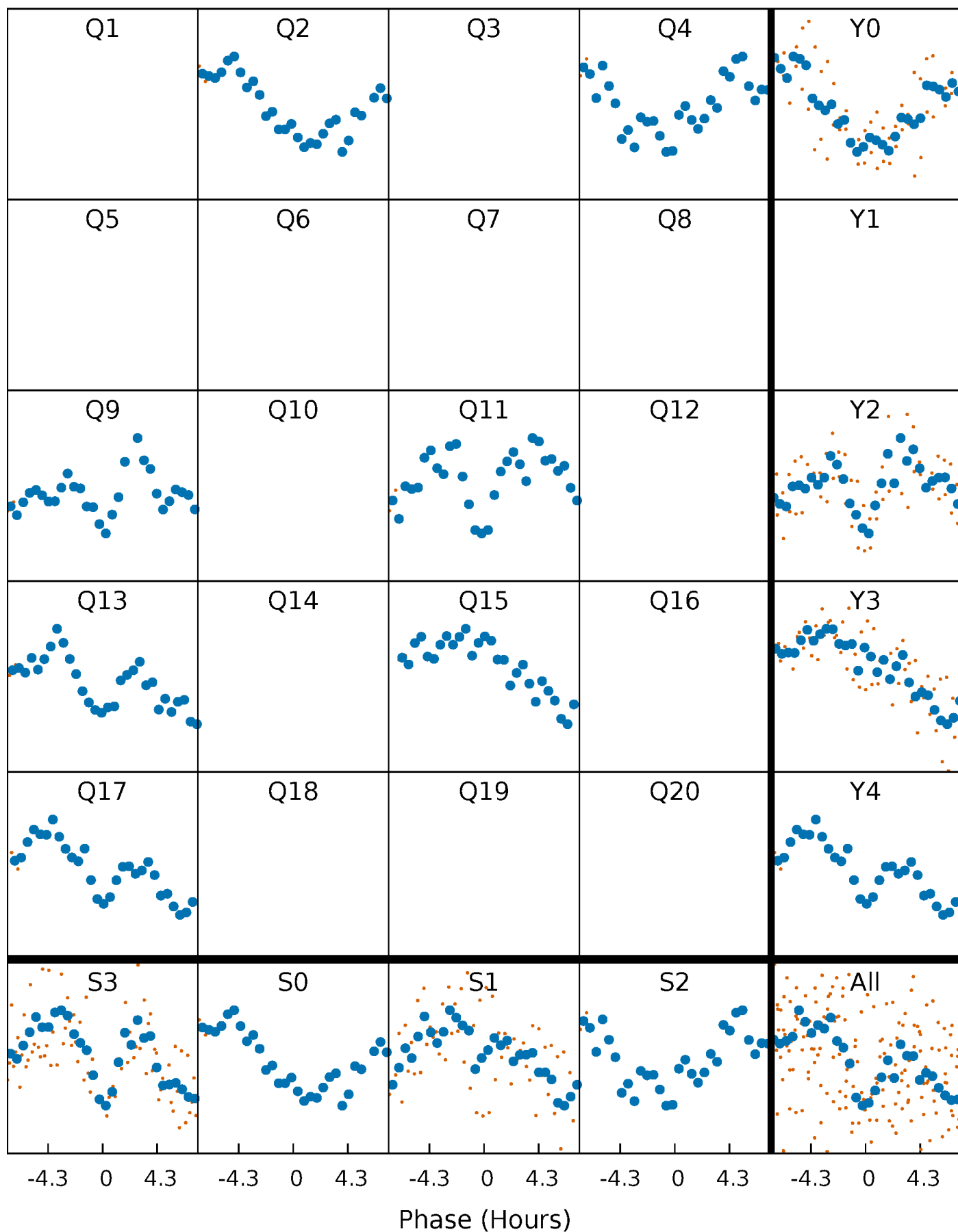


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



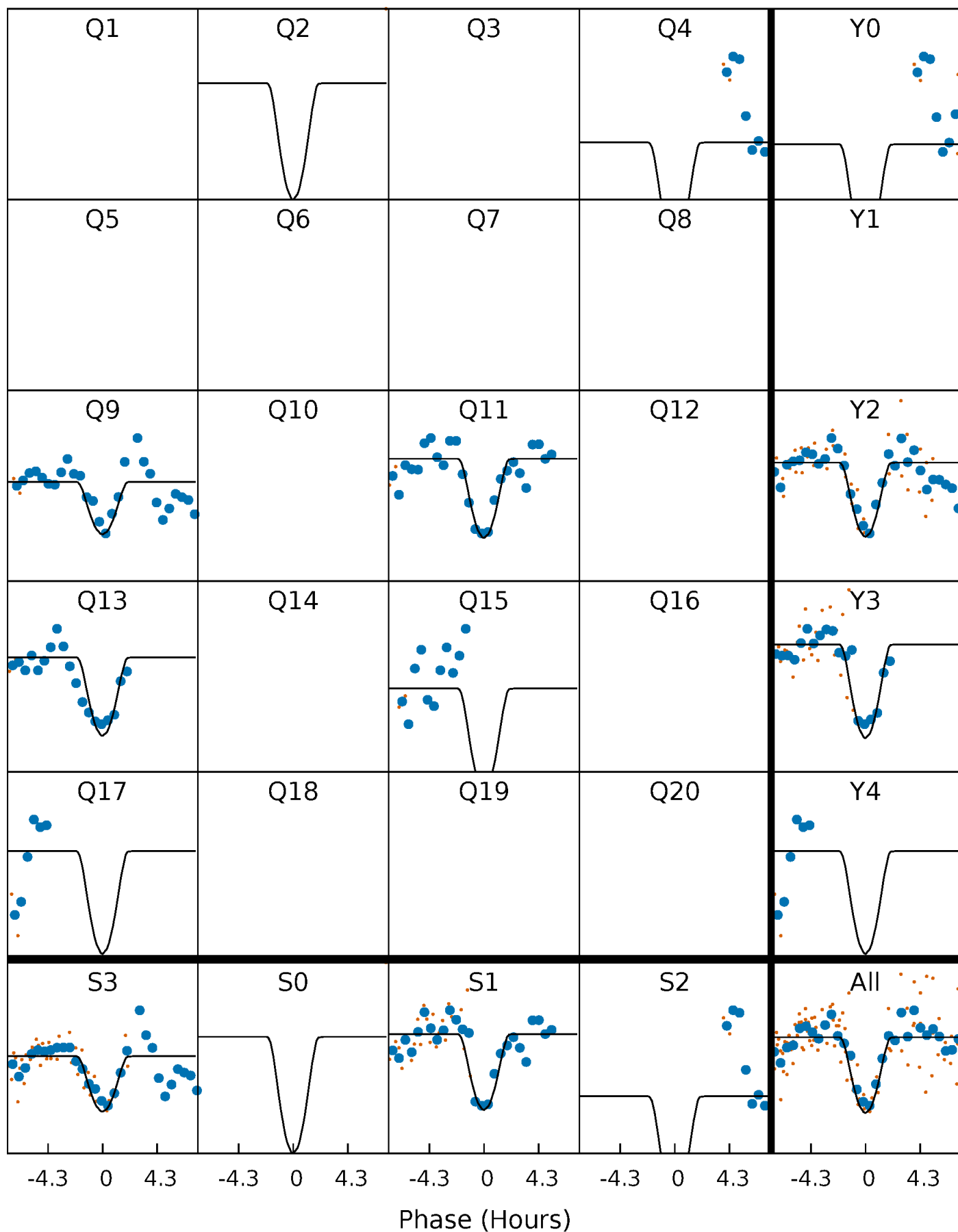
PDC Quarter-Phased Transit Curves

TCE 004571780-05 $P=166.304669$ Days $T_0=229.577616$ (BKJD)



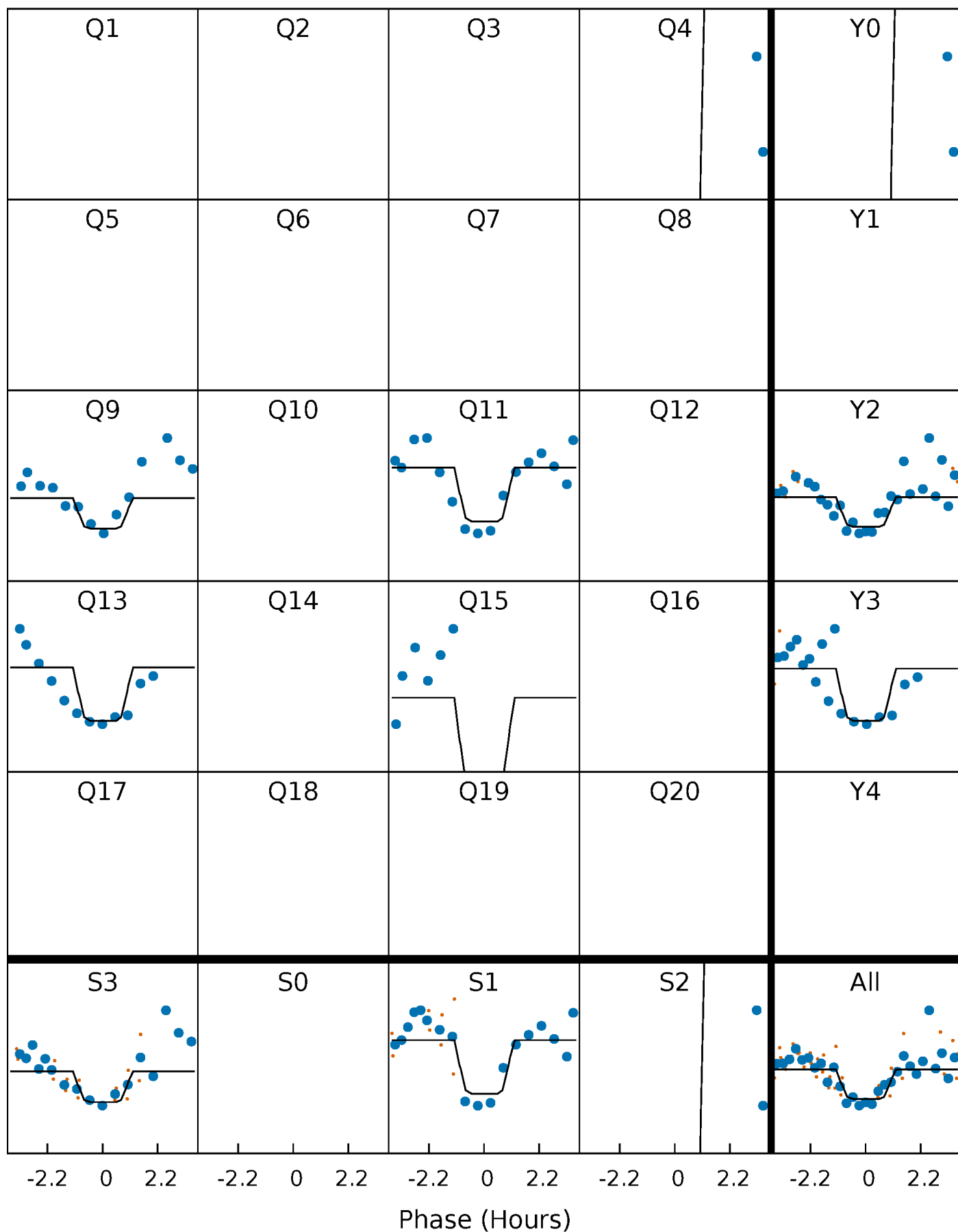
DV Quarter-Phased Transit Curves

TCE 004571780-05 $P=166.304669$ Days $T_0=229.577616$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

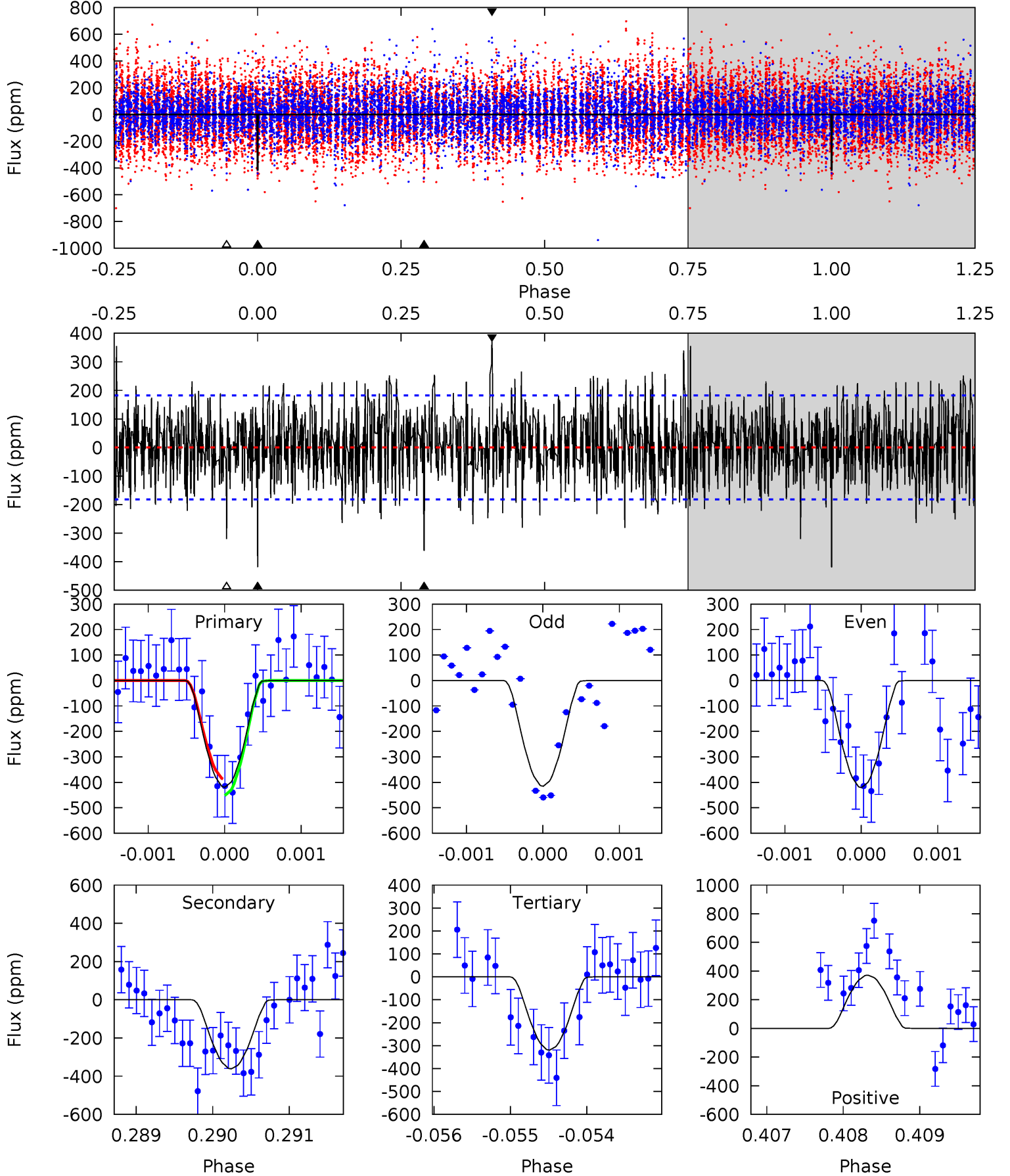
TCE 004571780-05 P=166.298973 Days $T_0=229.612383$ (BKJD)



DV Model-Shift Uniqueness Test

004571780-05, $P = 166.304669$ Days, $E = 63.272947$ Days

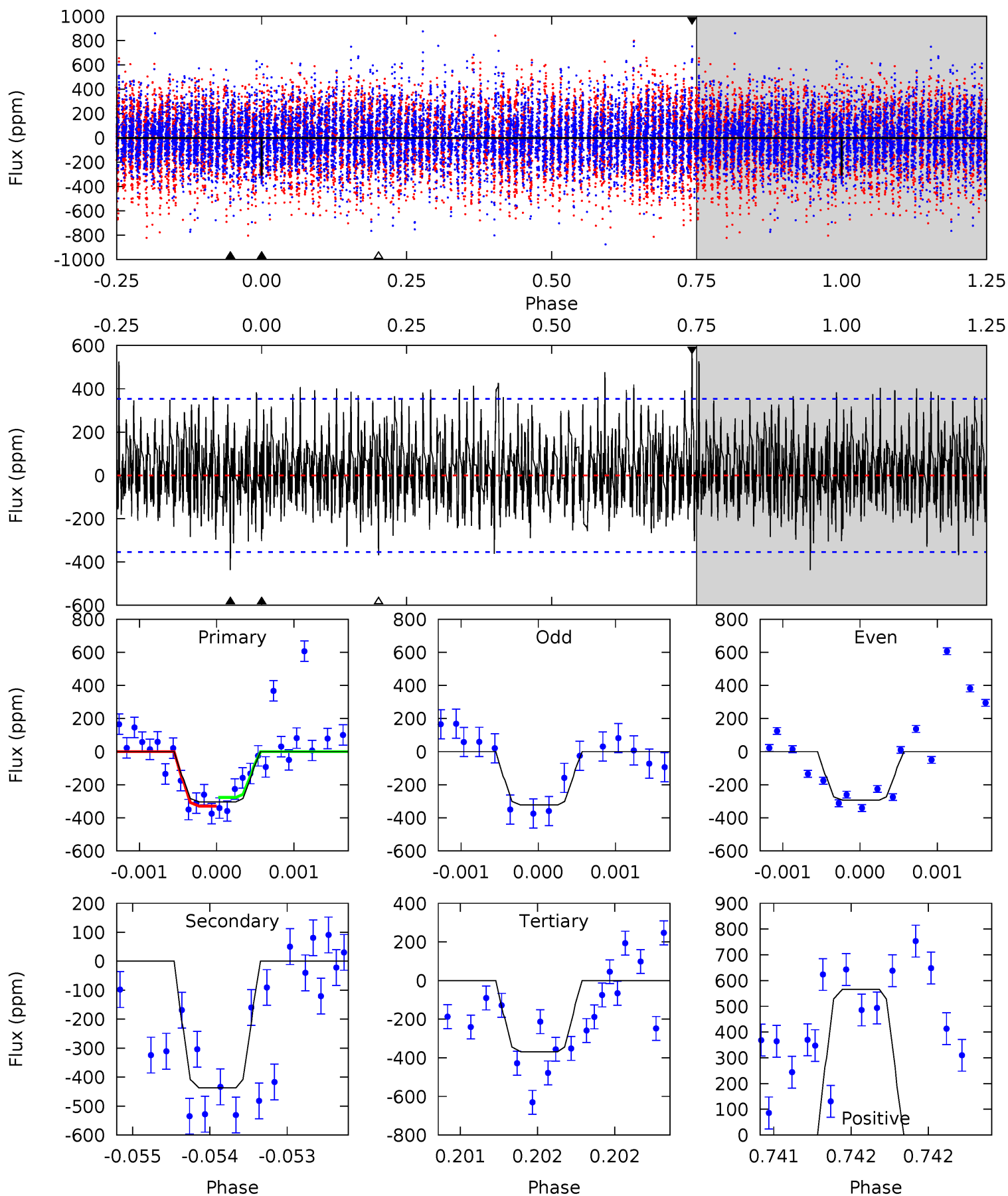
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	10.8	9.56	11.1	5.45	3.29	2.68	2.98	1.42	1.25	-0.31	0.08	0.30	0.47	0.97



Alt Model-Shift Uniqueness Test

004571780-05, P = 166.298973 Days, E = 63.313410 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.77	6.87	5.79	8.90	5.56	3.46	1.89	-1.02	-4.13	1.07	-2.03	0.23	0.94	0.56	0.41



Stellar Parameters For KIC 004571780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6449^{+163}_{-146}	$3.429^{+0.360}_{-0.090}$	$-0.040^{+0.300}_{-0.250}$	$4.422^{+0.713}_{-1.664}$	$1.914^{+0.086}_{-0.365}$	$0.031^{+0.083}_{-0.009}$
	+3%/-2%	+10%/-3%	+750%/-625%	+16%/-38%	+4%/-19%	+266%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004571780-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-361 ± 33	$38.21^{+42.34}_{-26.45}$	954^{+58}_{-98}	3519^{+1883}_{-702}	71^{+656}_{-55}
Alt.	-437 ± 64	$35.36^{+35.94}_{-23.82}$	953^{+62}_{-99}	3680^{+1944}_{-719}	101^{+849}_{-77}

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

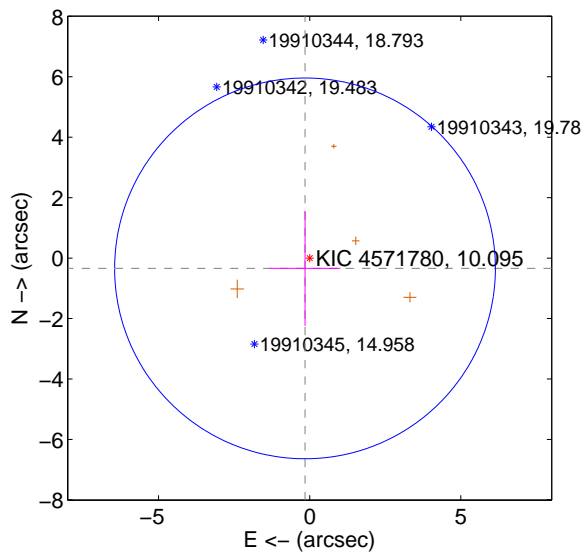
Supplemental centroid analysis for 004571780-05. **Kepler magnitude: 10.10.** Transit SNR 11.15

There are 1 quarters with good PRF difference image offsets

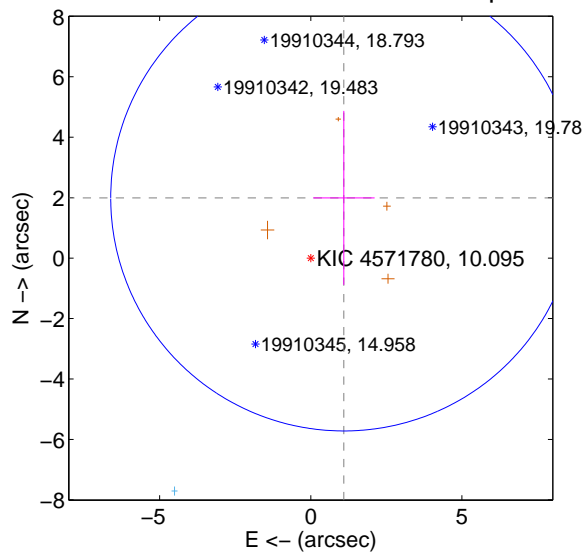
The direct PRF centroid is offset from the target star catalog position by about 0.98 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.374 ± 2.100	0.18	0.155 ± 1.170	-0.340 ± 1.903
PRF-fit source offset from KIC position	2.274 ± 2.571	0.88	-1.094 ± 1.017	1.993 ± 2.879
photometric centroid source offset	0.39 ± 0.39	0.99	0.31 ± 0.32	-0.23 ± 0.50

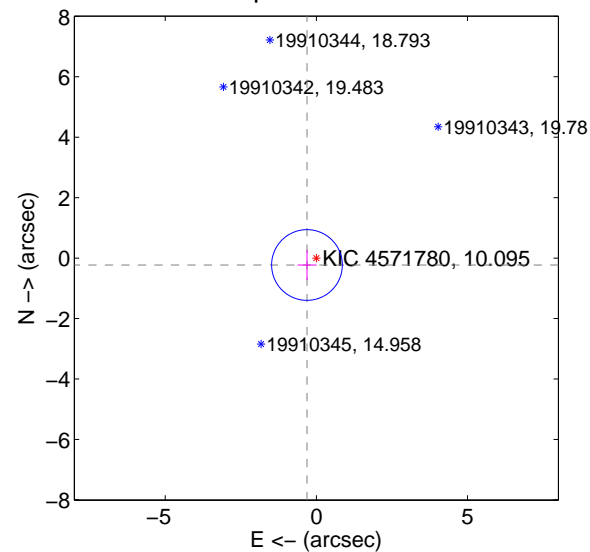
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

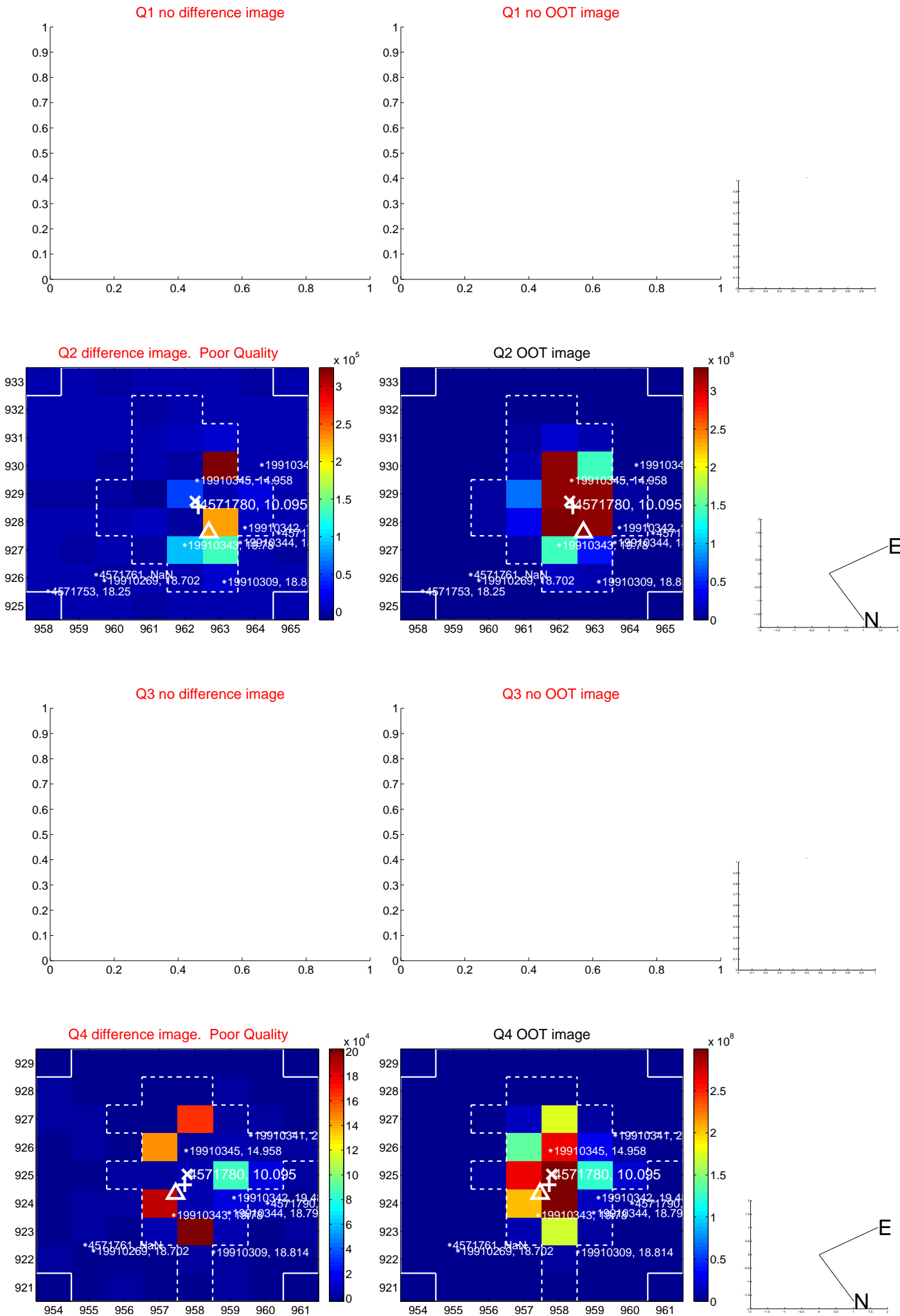


offset from photometric centroids



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

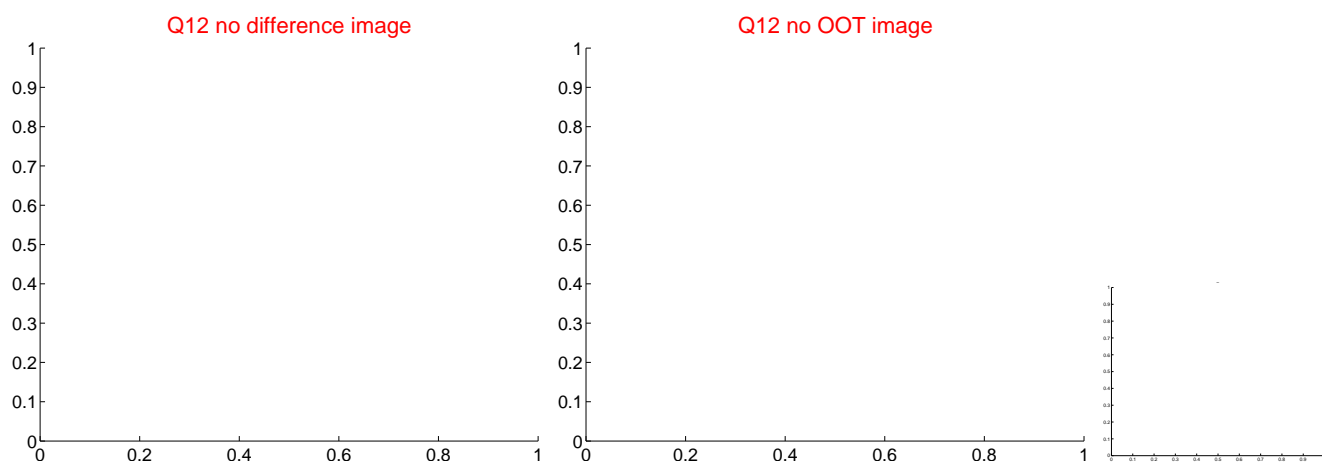
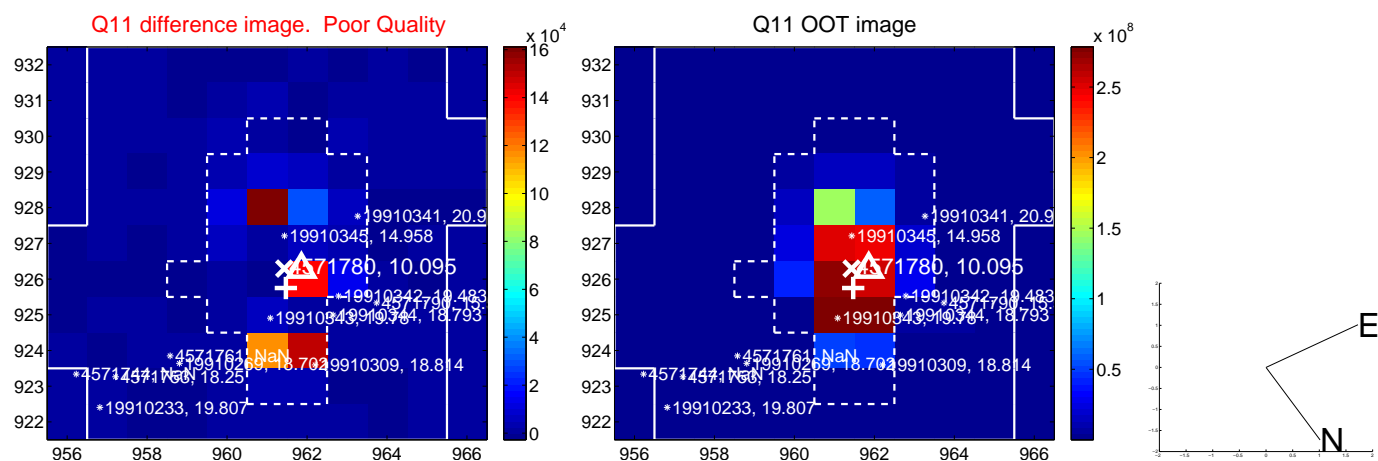
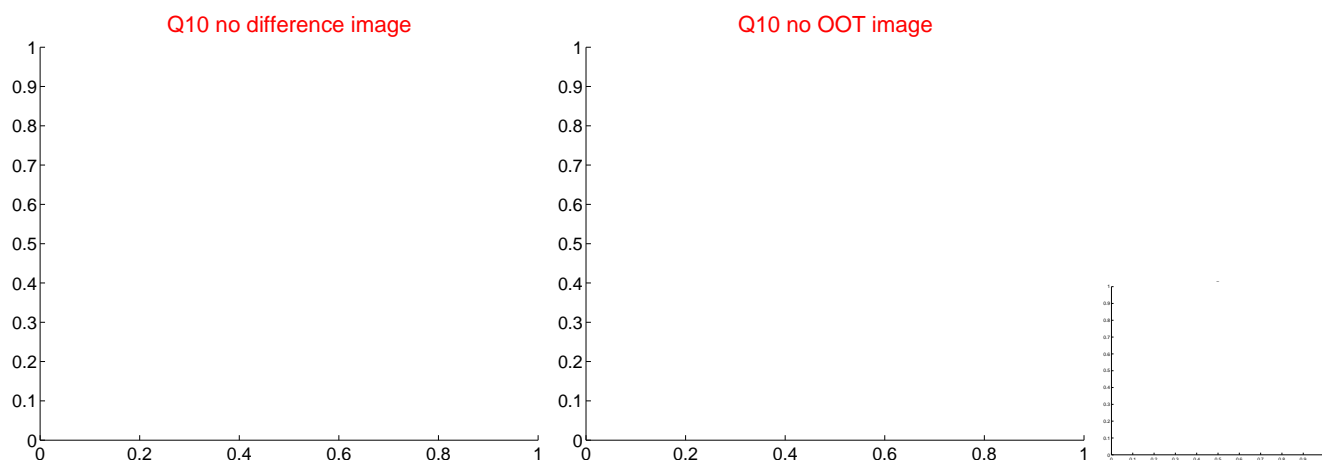
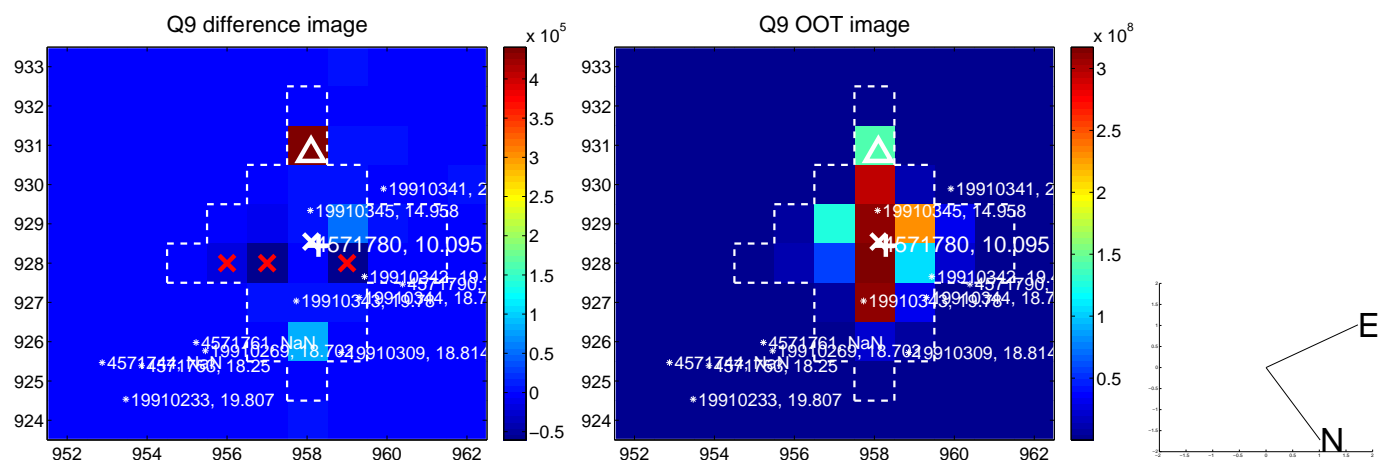
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



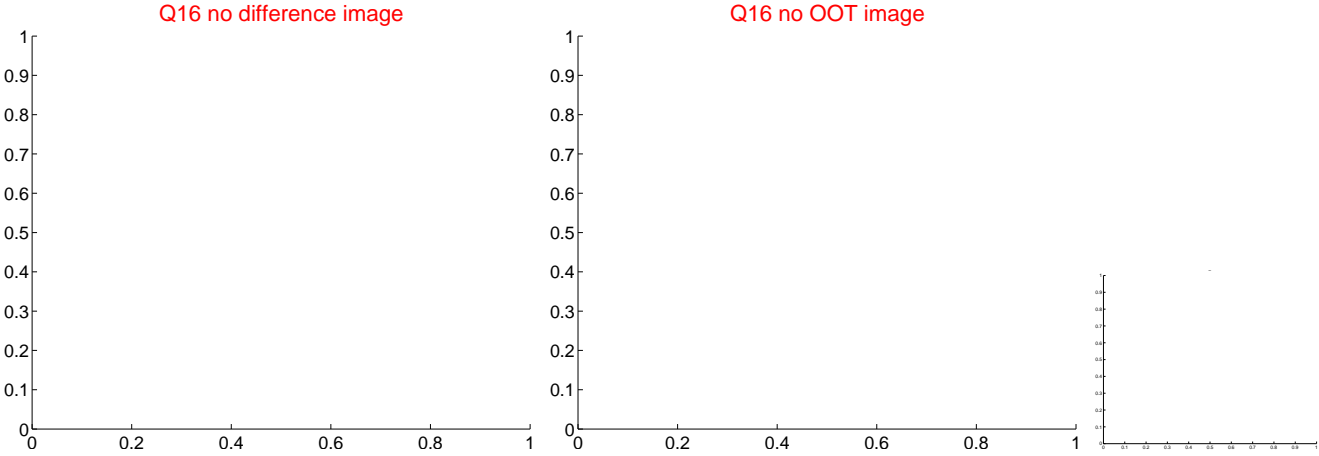
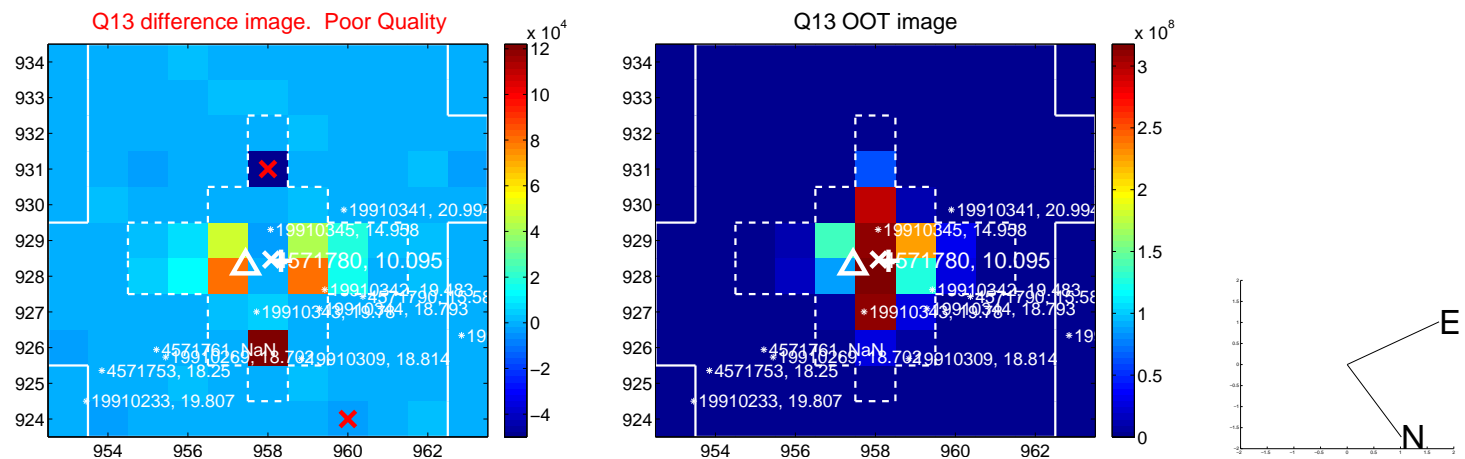
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



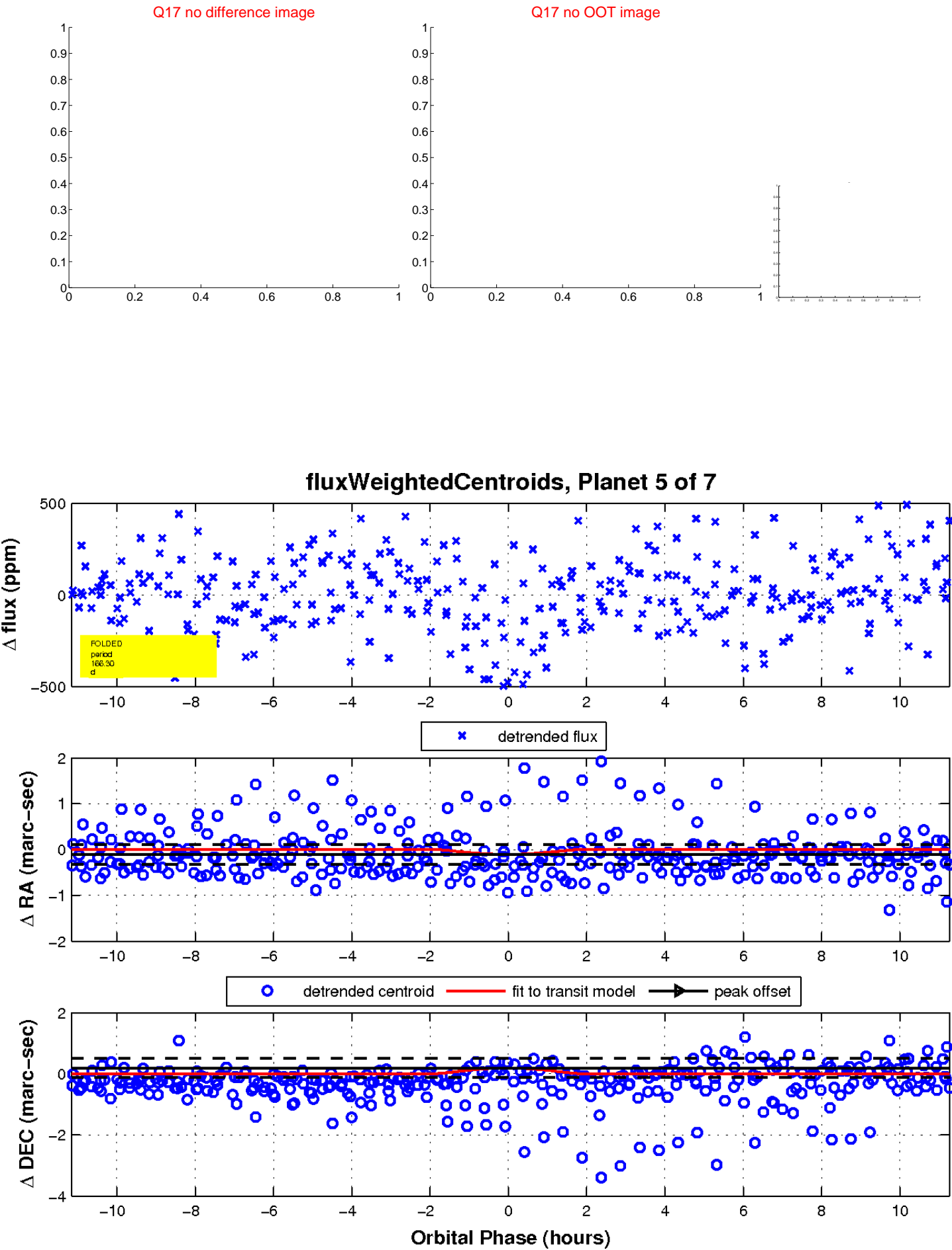
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

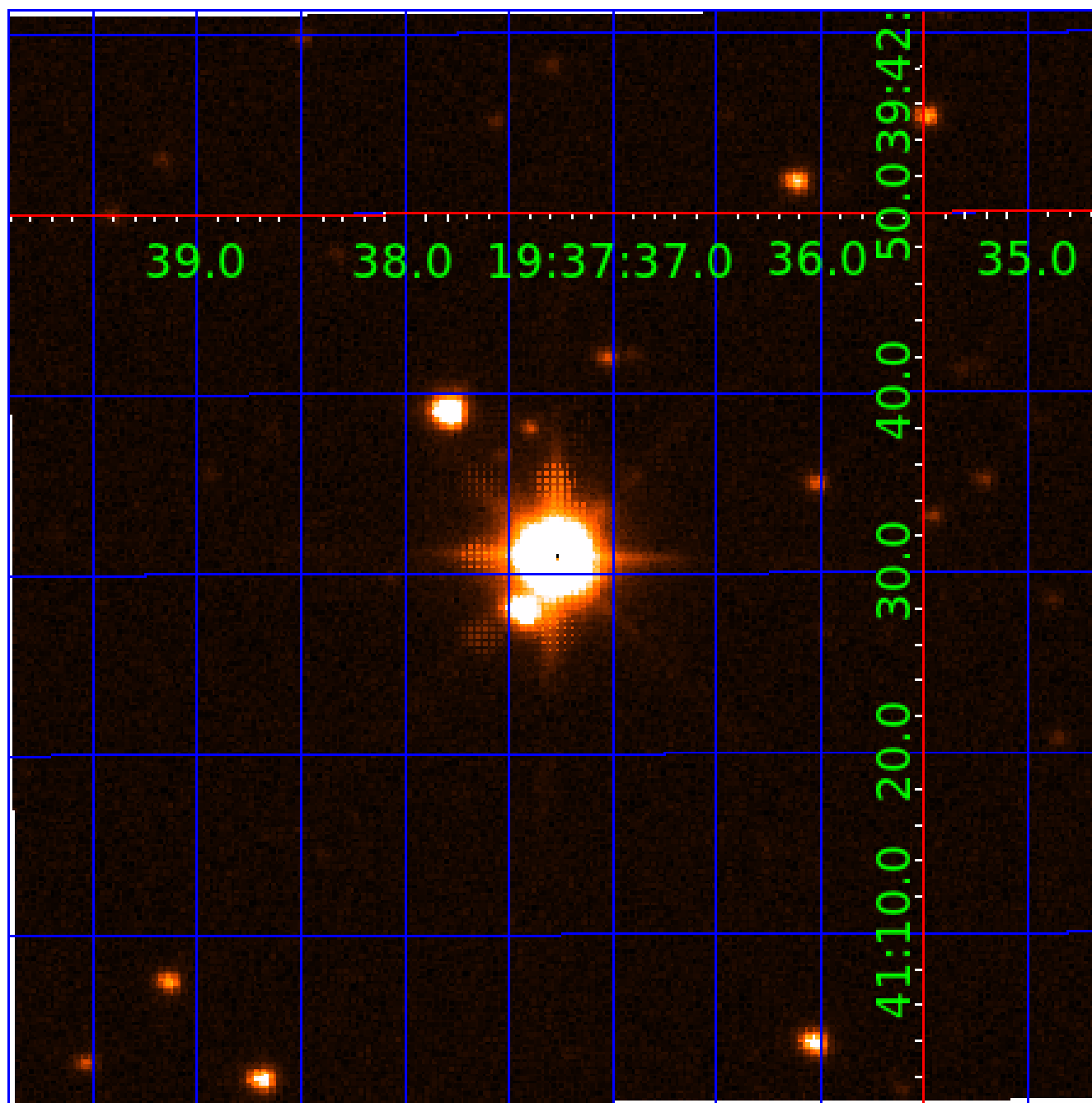


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004571780

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})
004571780-01	OBS	No	2.077176	133.369663	35.2	8.554	9.0	7.5	4.42	6449	3.35	19348.41
004571780-02	OBS	No	2.076966	131.932693	62.2	4.896	11.3	12.3	4.42	6449	3.52	19351.02
004571780-03	OBS	No	129.203939	217.593144	526.2	5.848	11.4	10.1	4.42	6449	19.55	78.51
004571780-04	OBS	No	163.873879	222.574172	556.9	11.132	10.7	10.1	4.42	6449	19.79	57.18
004571780-05	OBS	No	166.304669	229.577616	486.9	3.758	9.7	11.1	4.42	6449	18.87	56.07
004571780-06	OBS	No	197.394504	203.063351	376.9	7.156	9.1	9.2	4.42	6449	10.79	44.62
004571780-07	OBS	No	204.354493	186.458924	77.8	2.500	8.7	-1.0	4.42	6449	3.92	42.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004571780-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
004571780-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
004571780-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004571780-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004571780-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

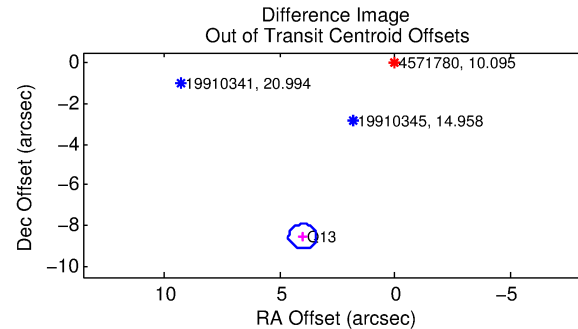
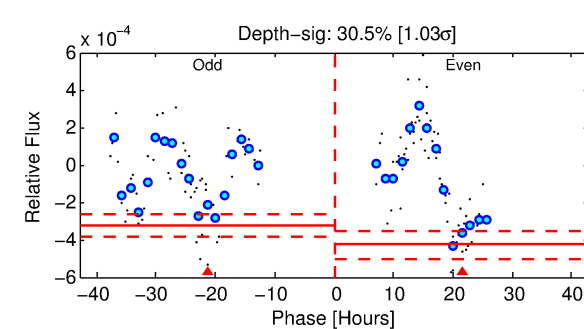
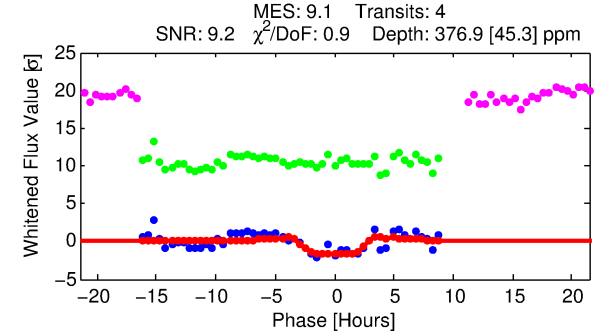
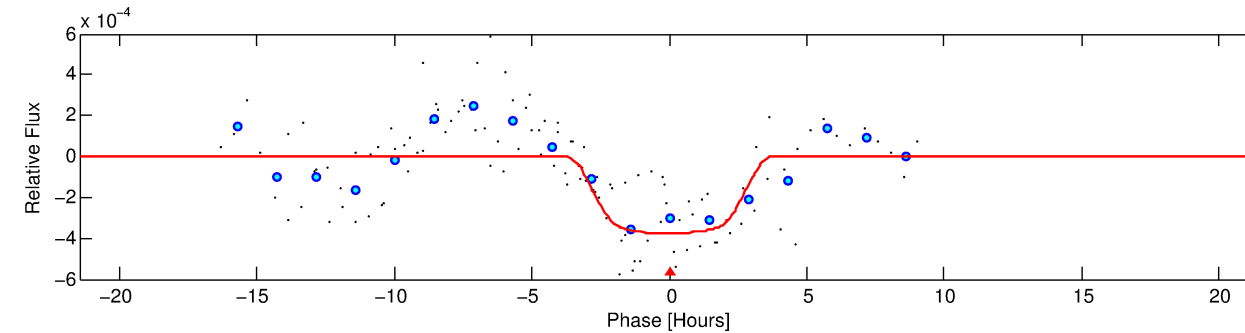
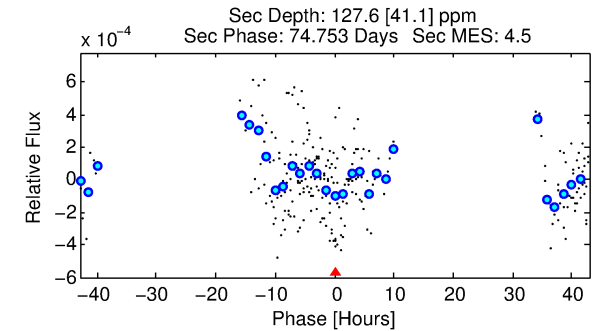
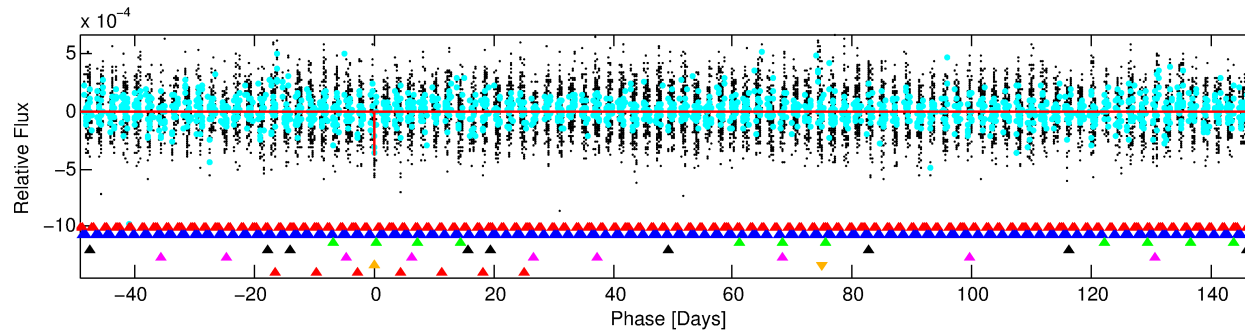
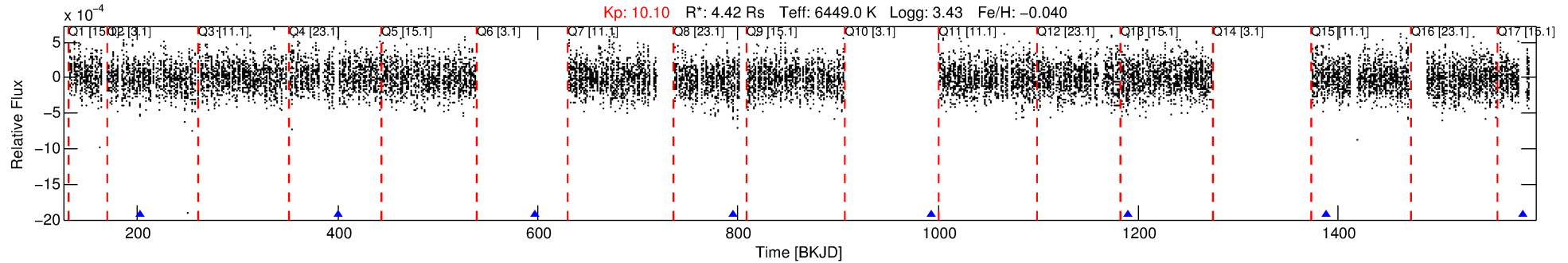
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004571780-06

No Significant Match Found

DV One-Page Summary

KIC: 4571780 Candidate: 6 of 7 Period: 197.395 d



DV Fit Results:

Period = 197.39450 [0.00362] d
Epoch = 203.0634 [0.0111] BKJD
Rp/R* = 0.0224 [0.0018]
a/R* = 74.67 [17.68]
b = 0.96 [0.02]
Seff = 44.62 [27.45]
Teq = 659 [101] K
Rp = 10.79 [4.15] Re
a = 0.8241 [0.3076] AU
Ag = 409.32 [288.70] [1.41σ]
Teffp = 4583 [428] K [8.93σ]

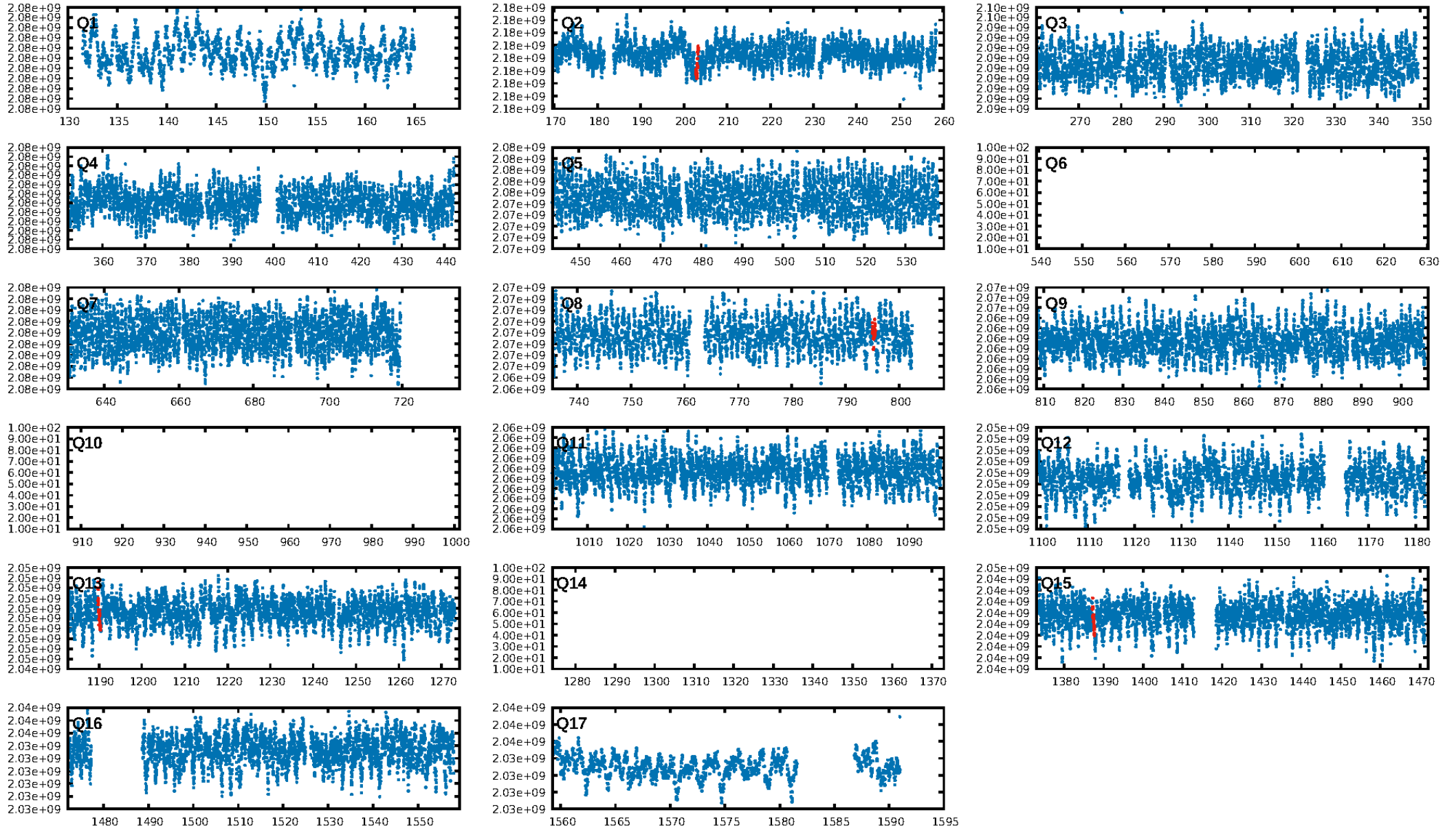
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [92.32σ]
LongPeriod-sig: 100.0% [22.04σ]
ModelChiSquare2-sig: 28.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.1%
Centroid-so: 1.550 arcsec [3.08σ]
OotOffset-rm: 9.411 arcsec [46.93σ]
KicOffset-rm: 9.114 arcsec [46.48σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/3]

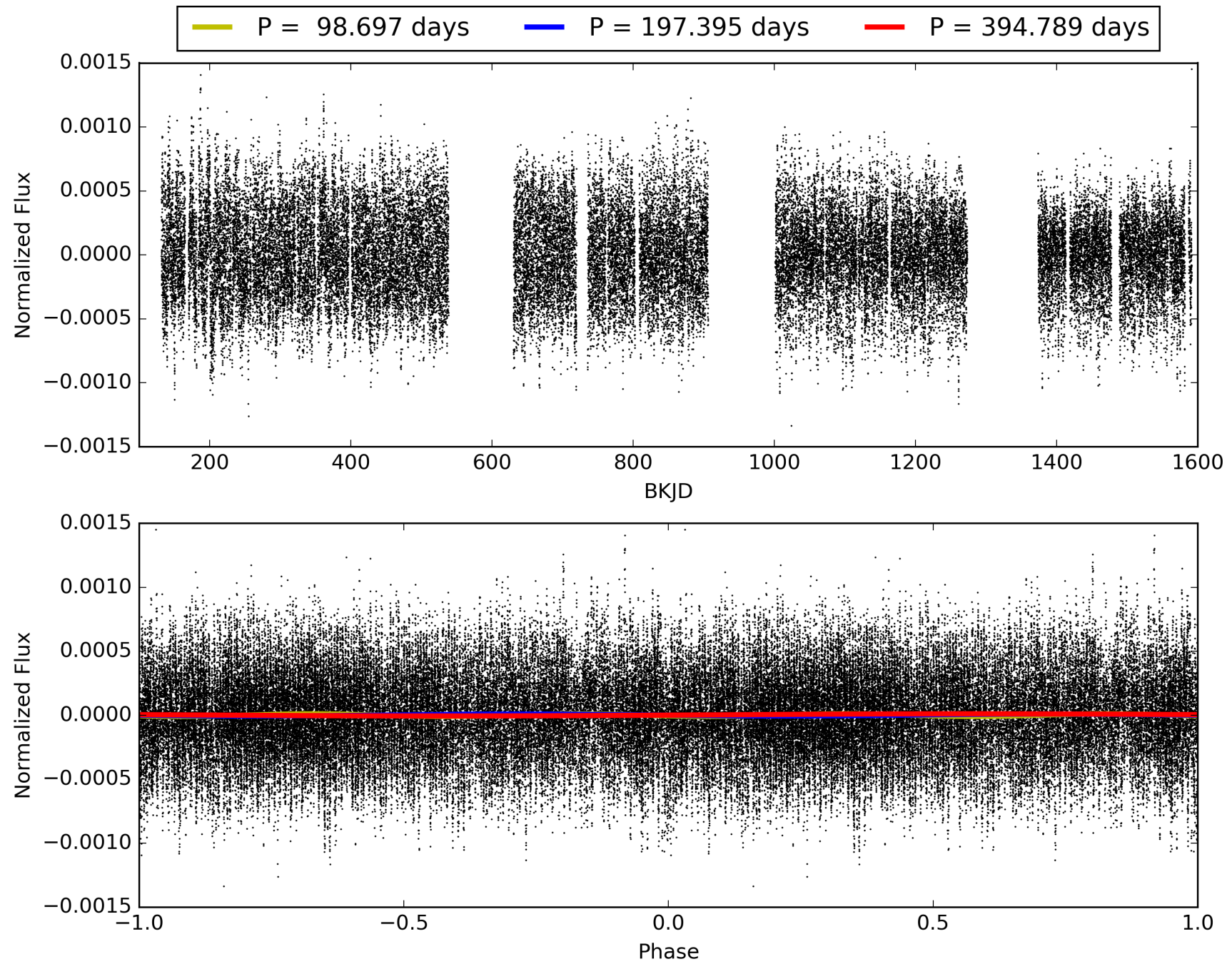
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:08:24 Z

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

TCE 004571780-06, PDC Light Curves

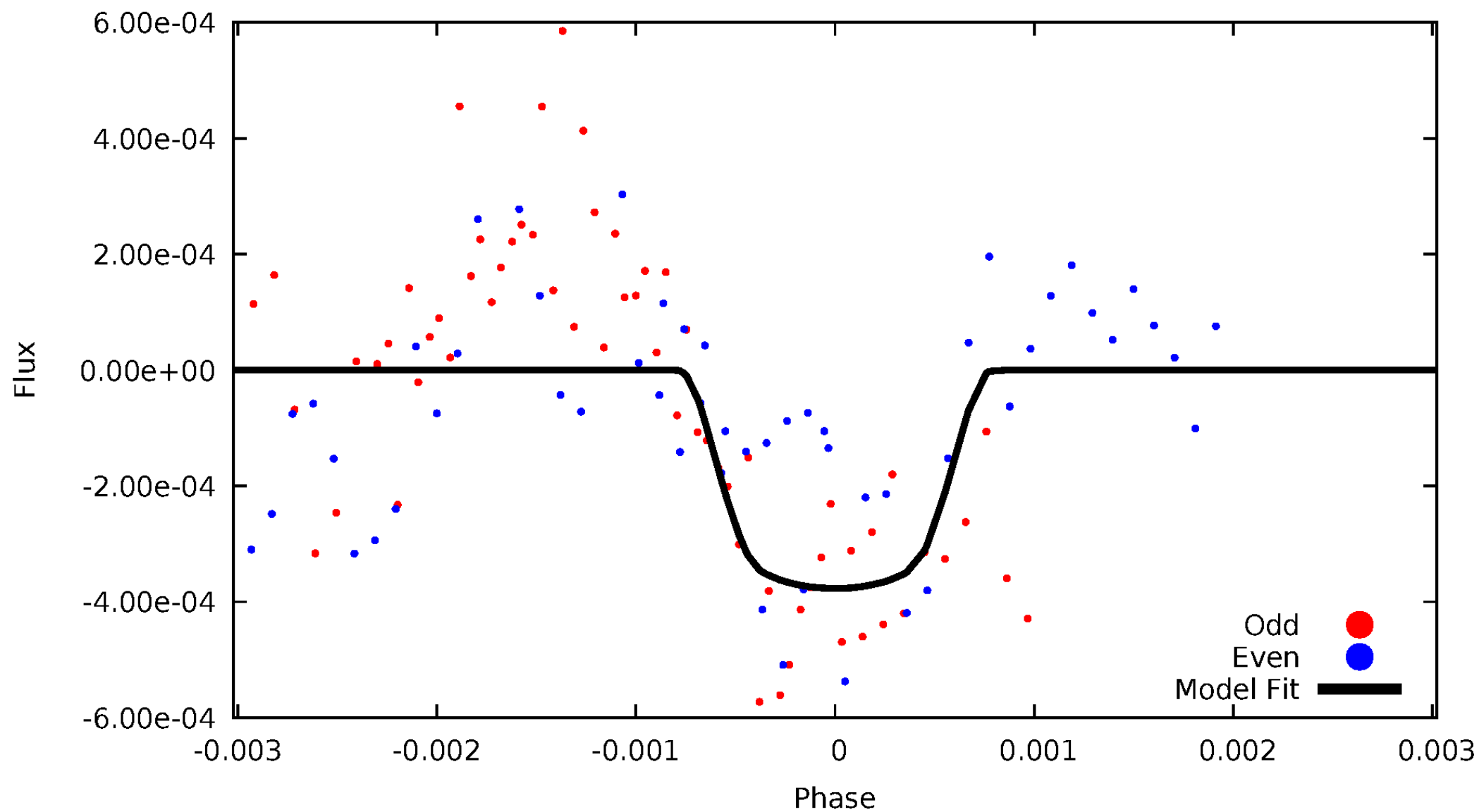


TCE 004571780-06



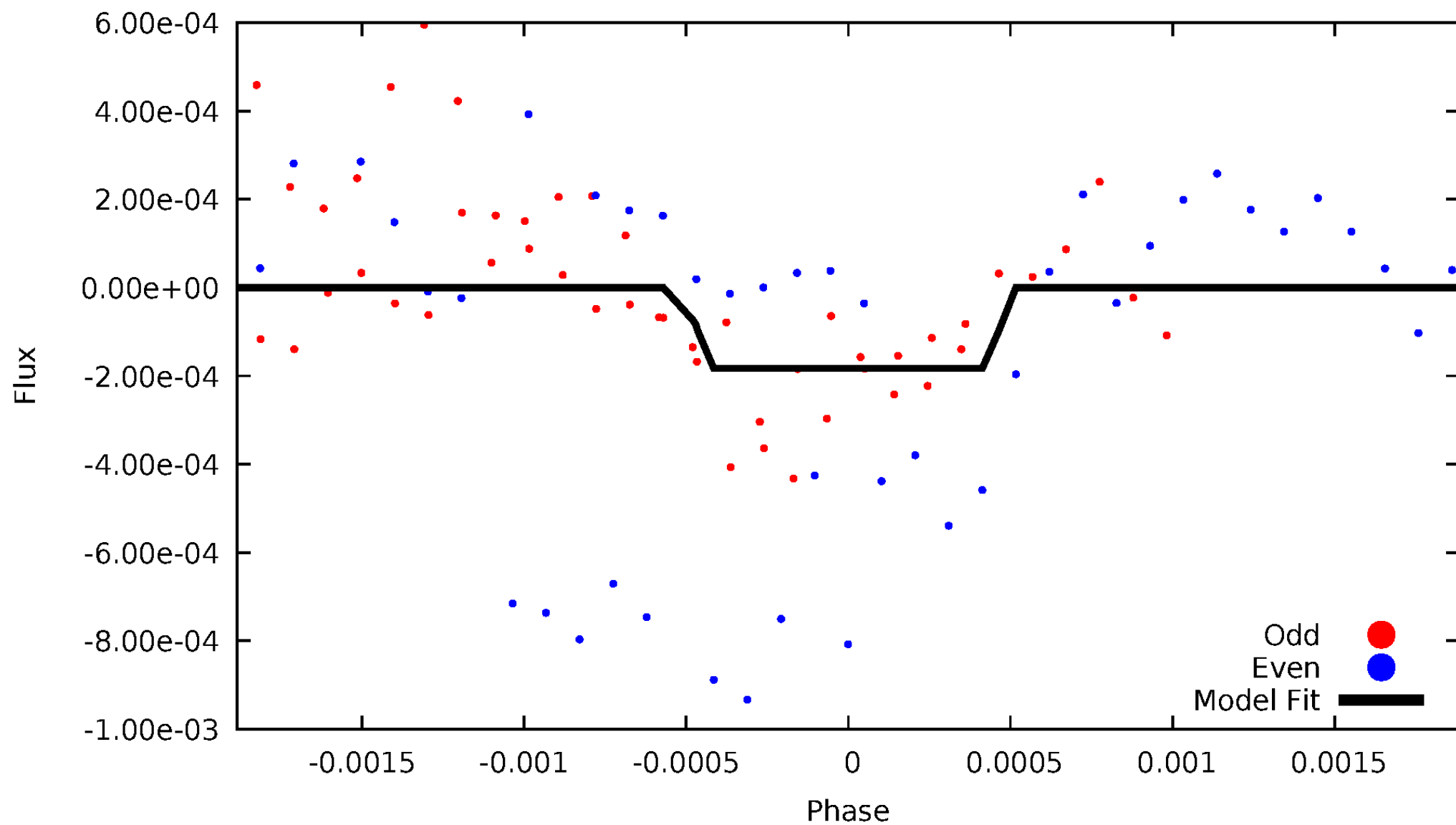
DV Odd/Even

TCE 004571780-06



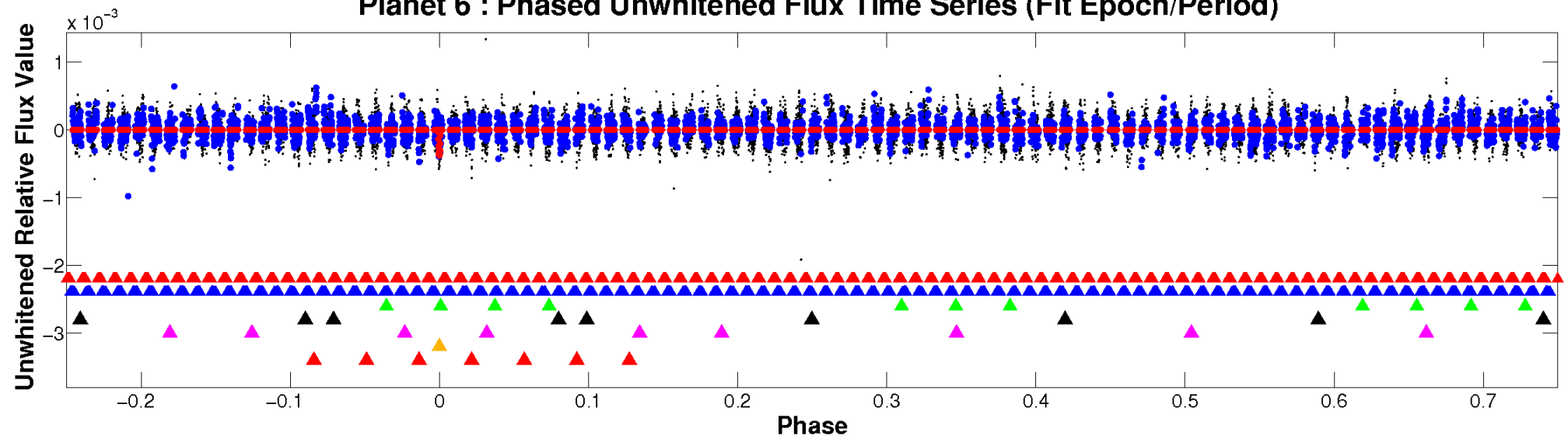
ALT Odd/Even

TCE 004571780-06

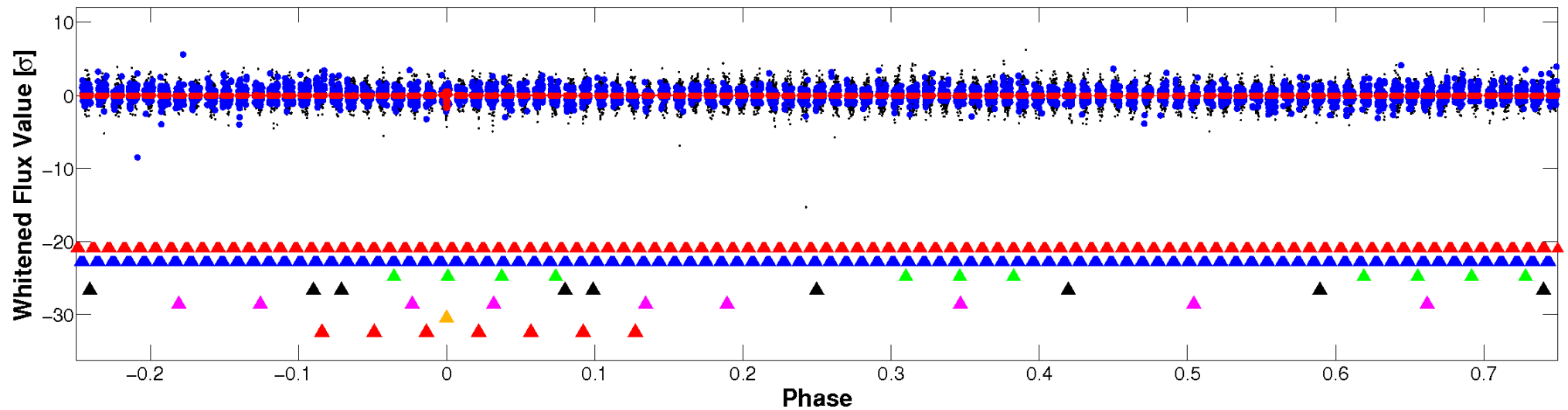


Non-Whitened Vs. Whitened Light Curve

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

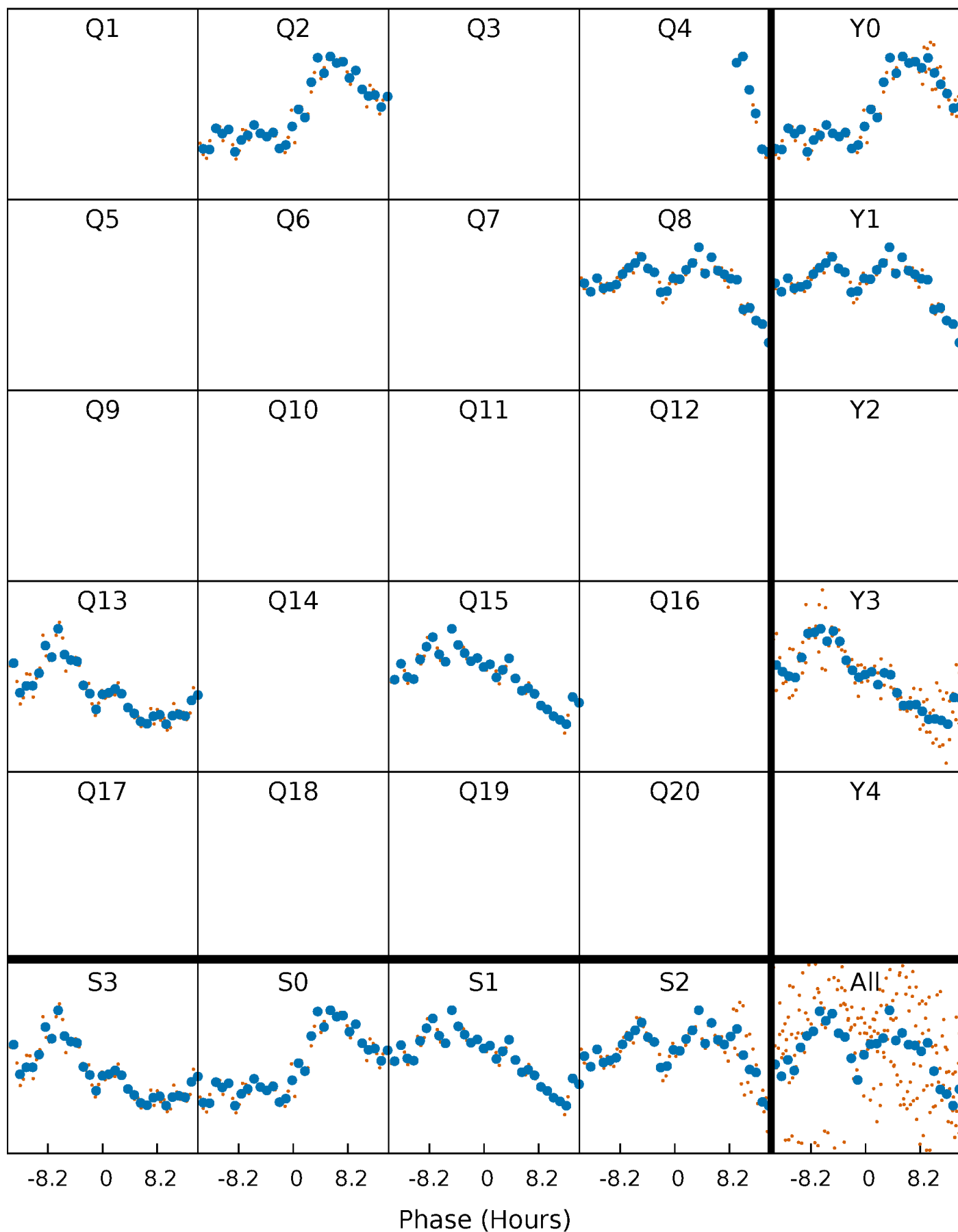


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



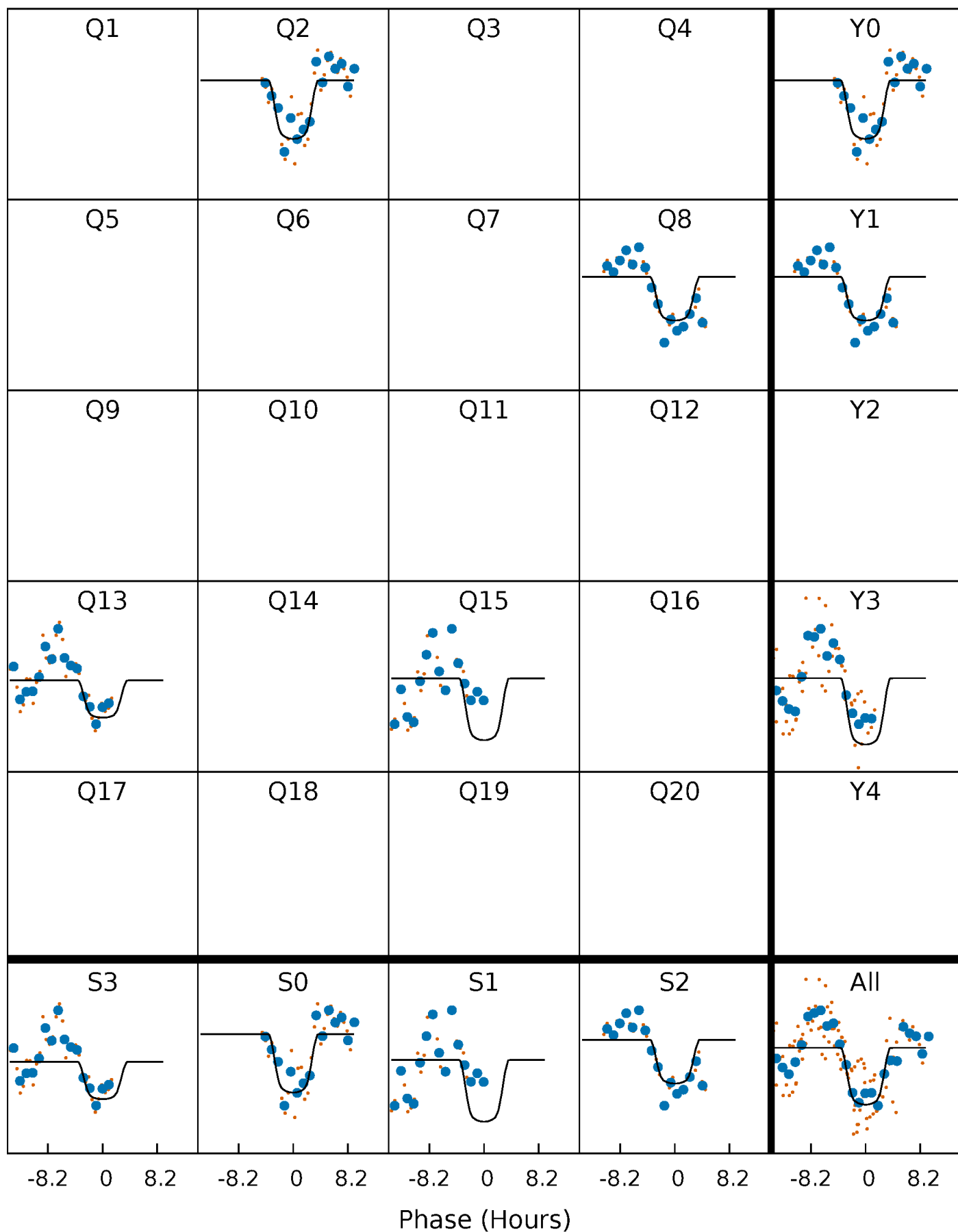
PDC Quarter-Phased Transit Curves

TCE 004571780-06 $P=197.394504$ Days $T_0=203.063351$ (BKJD)



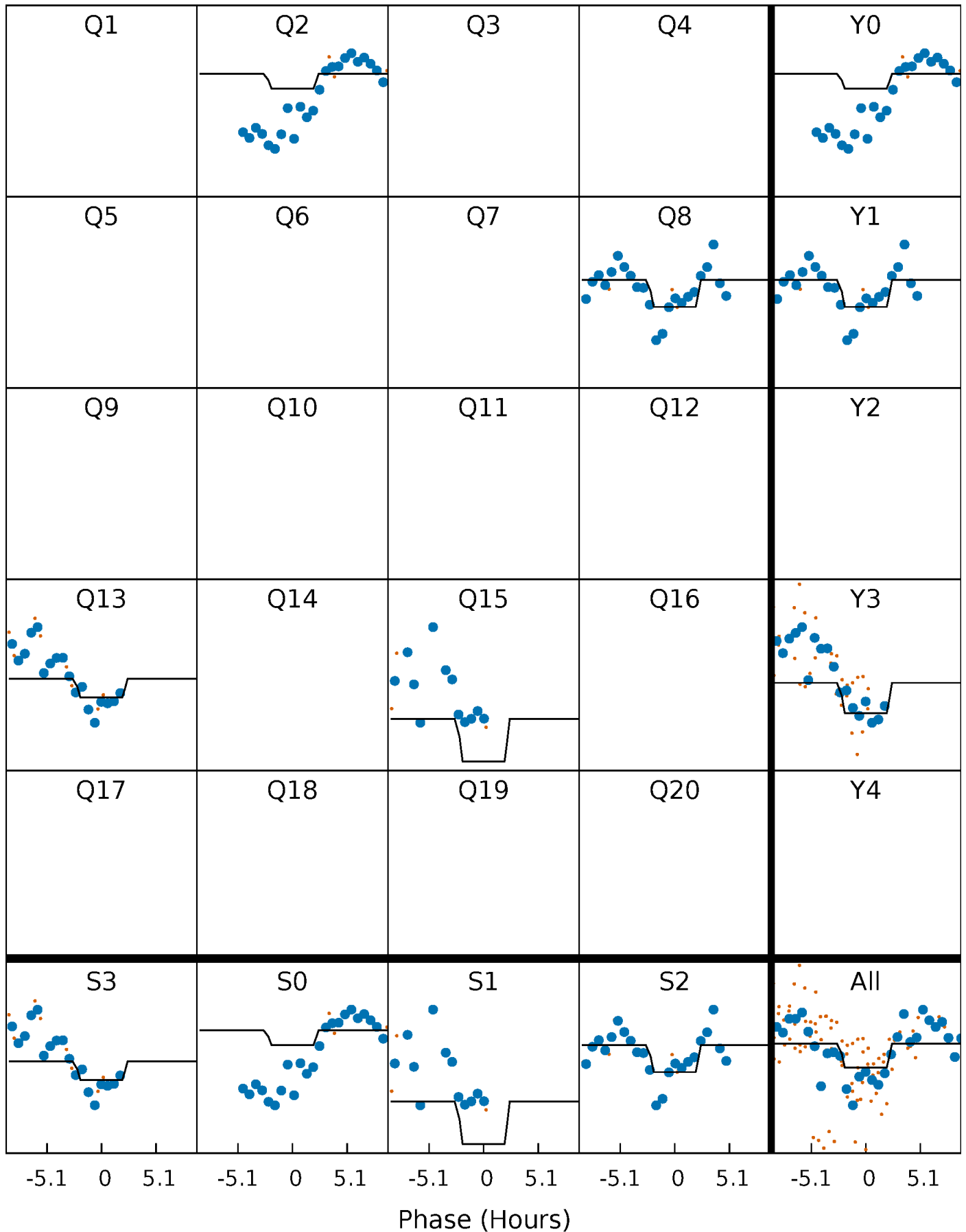
DV Quarter-Phased Transit Curves

TCE 004571780-06 $P=197.394504$ Days $T_0=203.063351$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

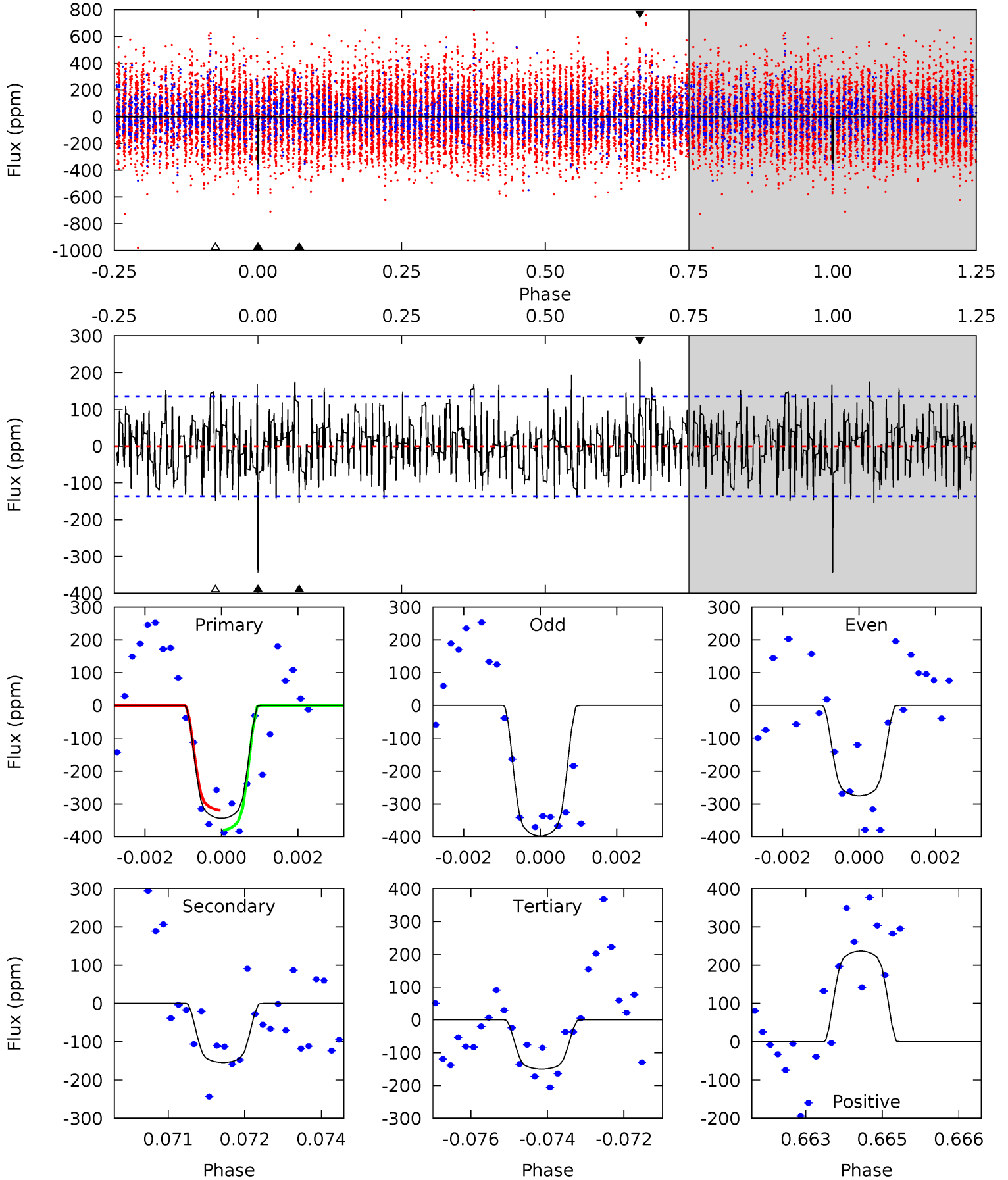
TCE 004571780-06 P=197.390155 Days $T_0=203.073284$ (BKJD)



DV Model-Shift Uniqueness Test

004571780-06, P = 197.394504 Days, E = 5.668847 Days

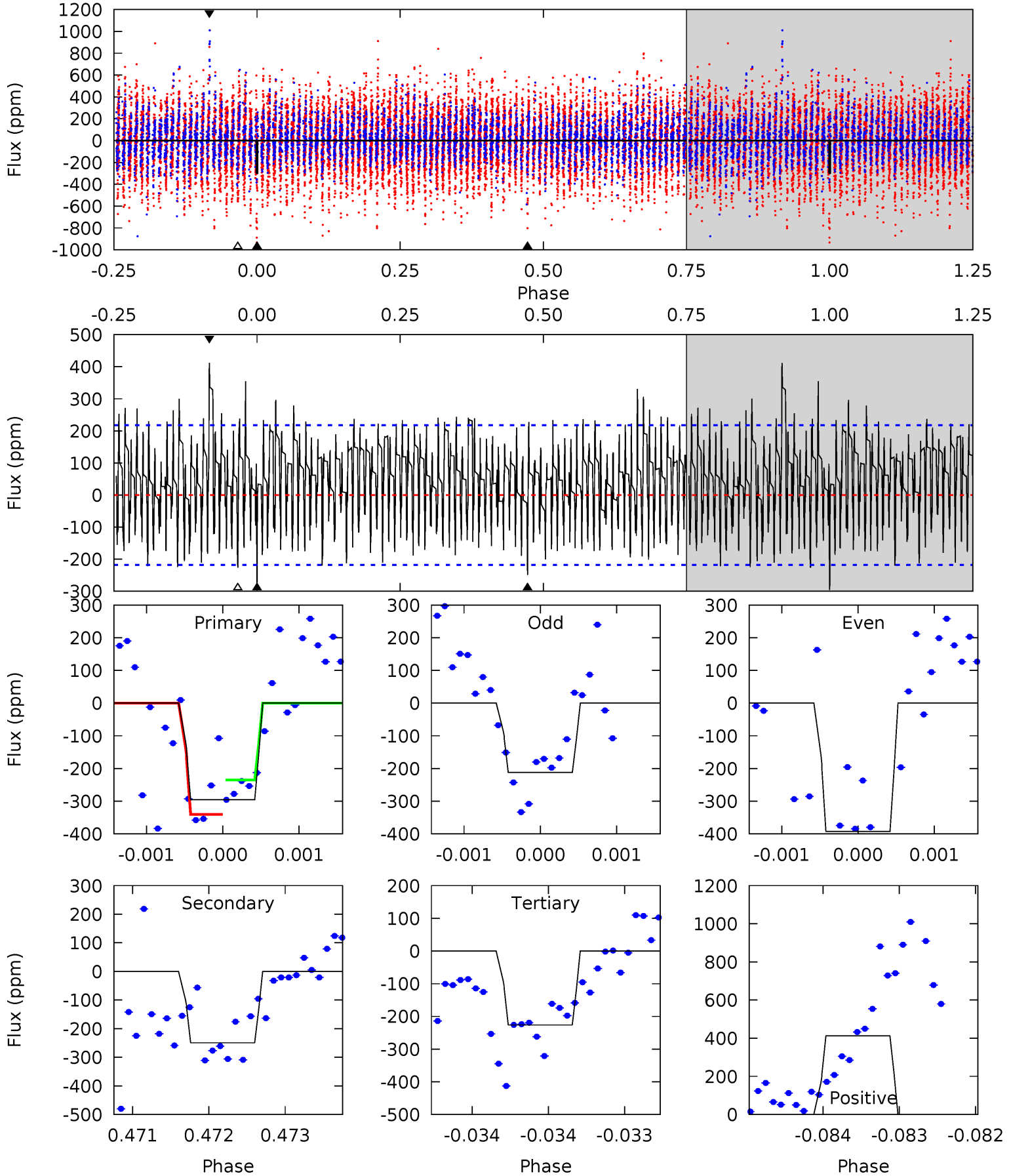
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	6.08	5.91	9.33	5.36	3.15	2.31	7.64	4.21	0.17	-3.26	2.41	0.93	0.41	1.17



Alt Model-Shift Uniqueness Test

004571780-06, P = 197.390155 Days, E = 5.683129 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.40	6.25	5.67	10.3	5.45	3.29	2.74	1.73	-2.92	0.58	-4.07	2.23	1.23	0.58	1.31



Stellar Parameters For KIC 004571780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6449^{+163}_{-146}	$3.429^{+0.360}_{-0.090}$	$-0.040^{+0.300}_{-0.250}$	$4.422^{+0.713}_{-1.664}$	$1.914^{+0.086}_{-0.365}$	$0.031^{+0.083}_{-0.009}$
	+3%/-2%	+10%/-3%	+750%/-625%	+16%/-38%	+4%/-19%	+266%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004571780-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-154 ± 25	$10.15^{+1.63}_{-1.94}$	903^{+55}_{-88}	4897^{+250}_{-237}	546^{+296}_{-155}
Alt.	-250 ± 40	$6.01^{+1.21}_{-1.37}$	896^{+59}_{-90}	7023^{+725}_{-574}	2496^{+1729}_{-790}

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

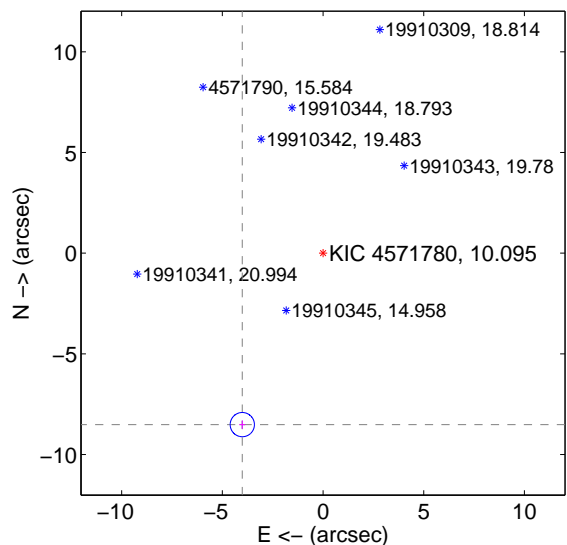
Supplemental centroid analysis for 004571780-06. **Kepler magnitude: 10.10.** Transit SNR 9.19

There are 1 quarters with good PRF difference image offsets

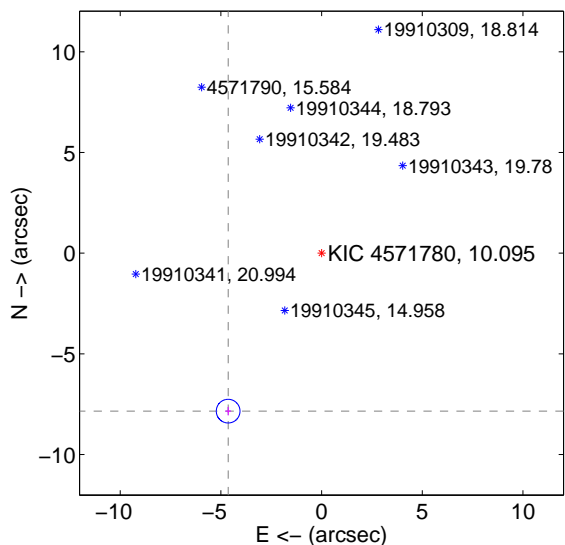
The direct PRF centroid is offset from the target star catalog position by about 0.92 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	9.411 \pm 0.201	46.93	4.009 \pm 0.147	-8.514 \pm 0.210
PRF-fit source offset from KIC position	9.114 \pm 0.196	46.48	4.640 \pm 0.147	-7.845 \pm 0.210
photometric centroid source offset	1.55 \pm 0.50	3.08	1.42 \pm 0.48	-0.61 \pm 0.61

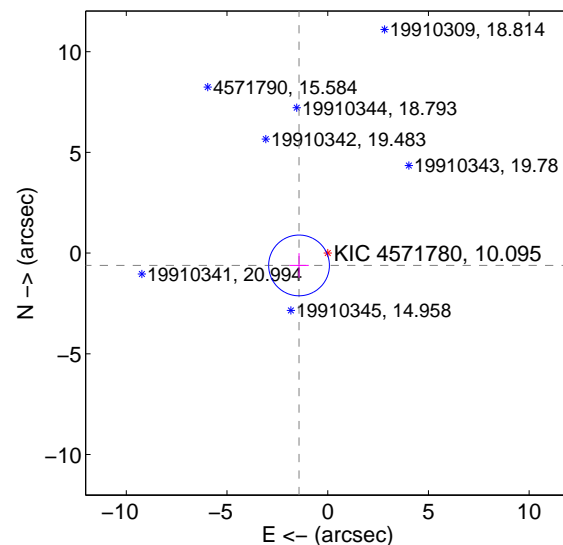
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

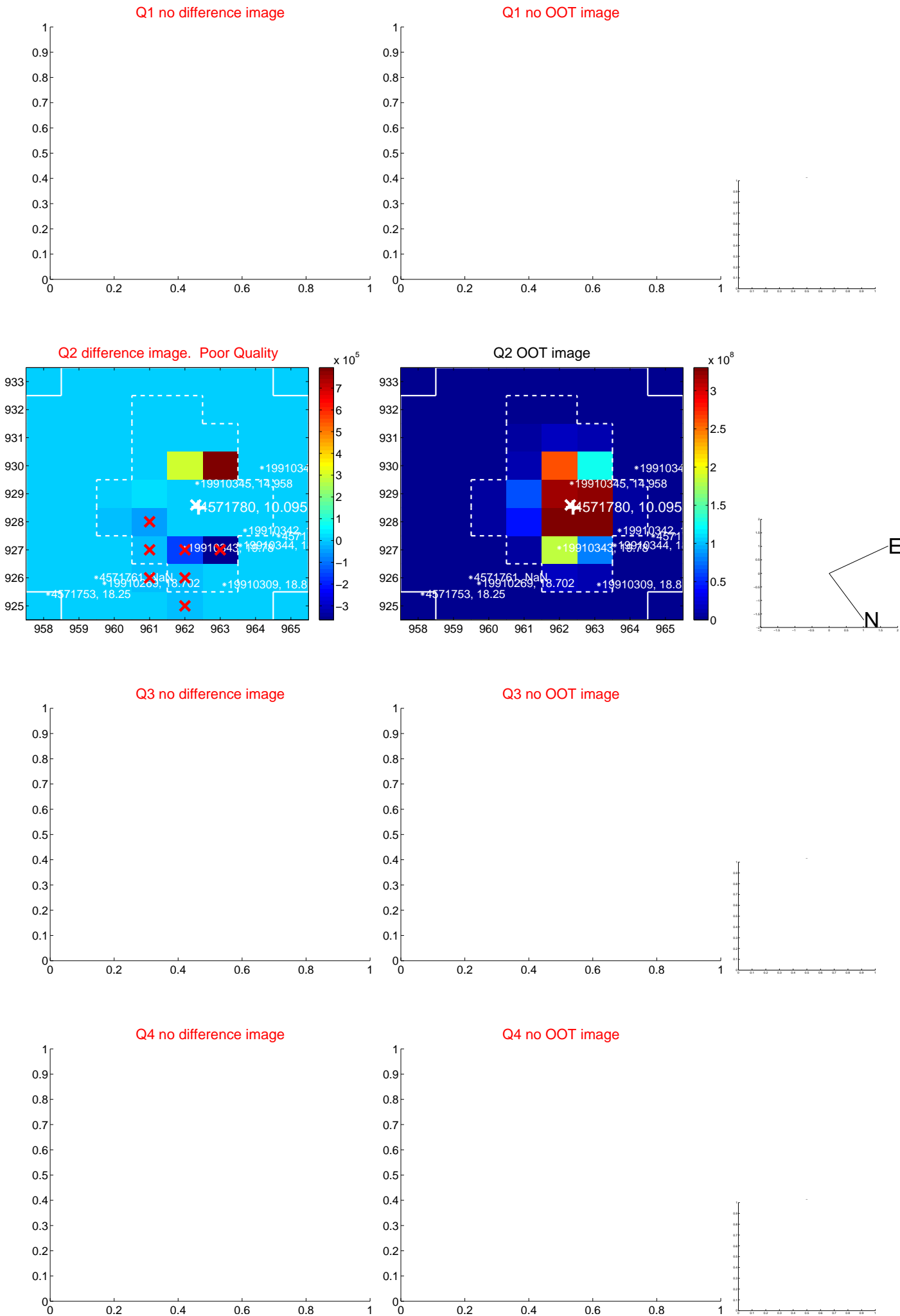


offset from photometric centroids

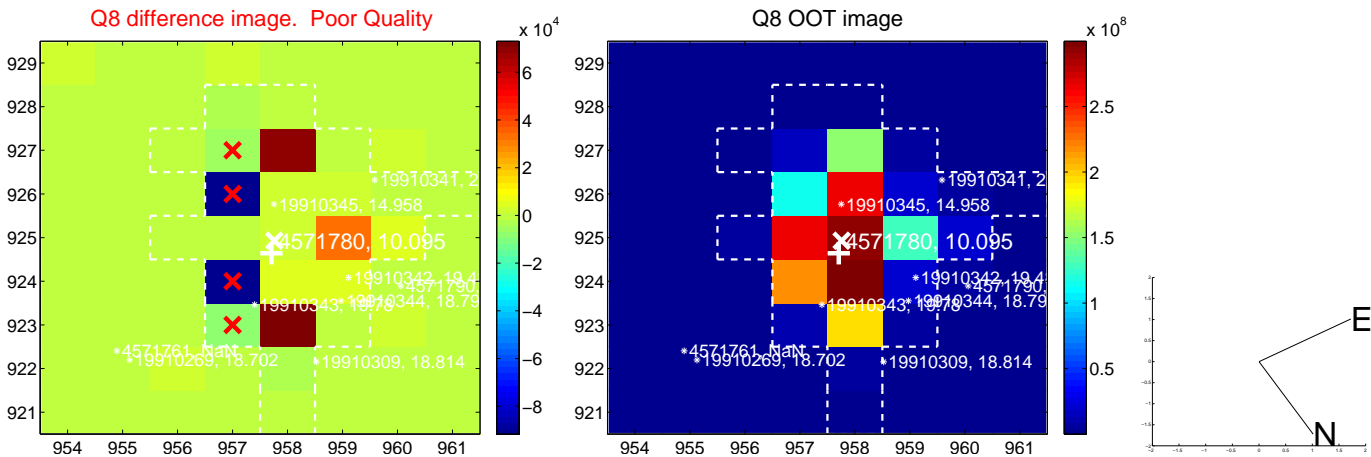
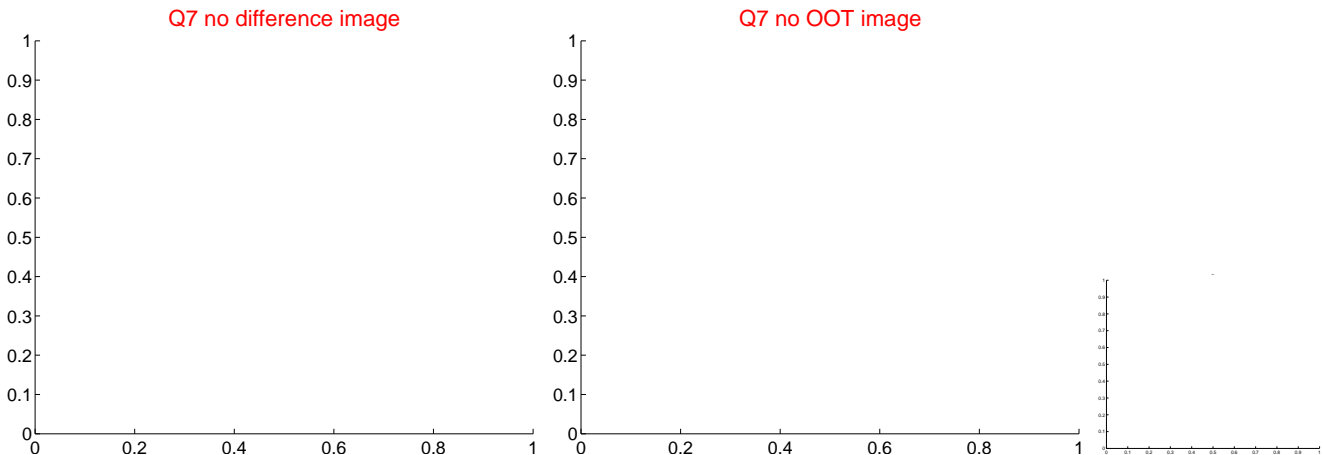
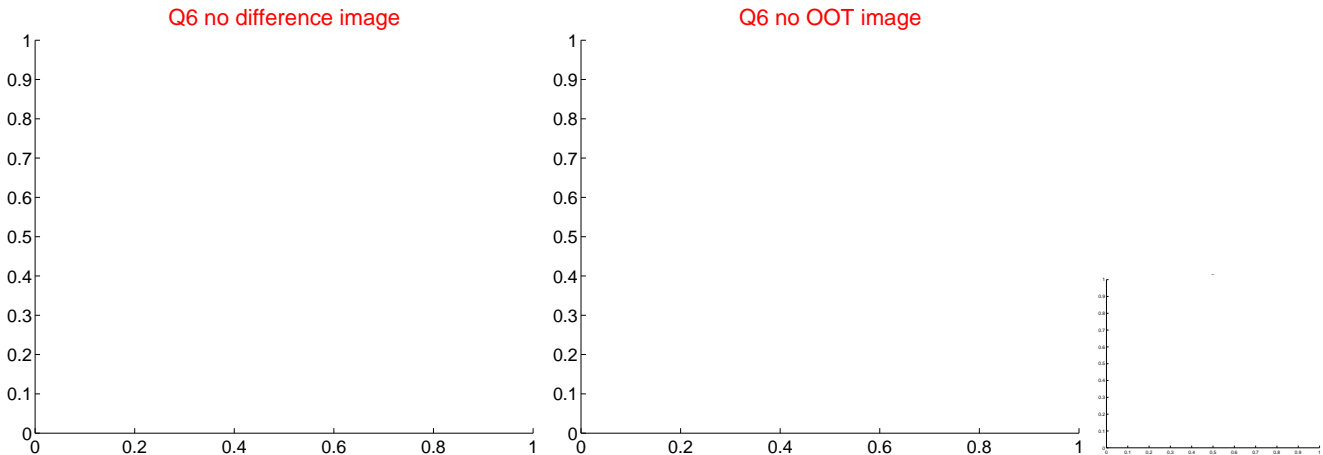
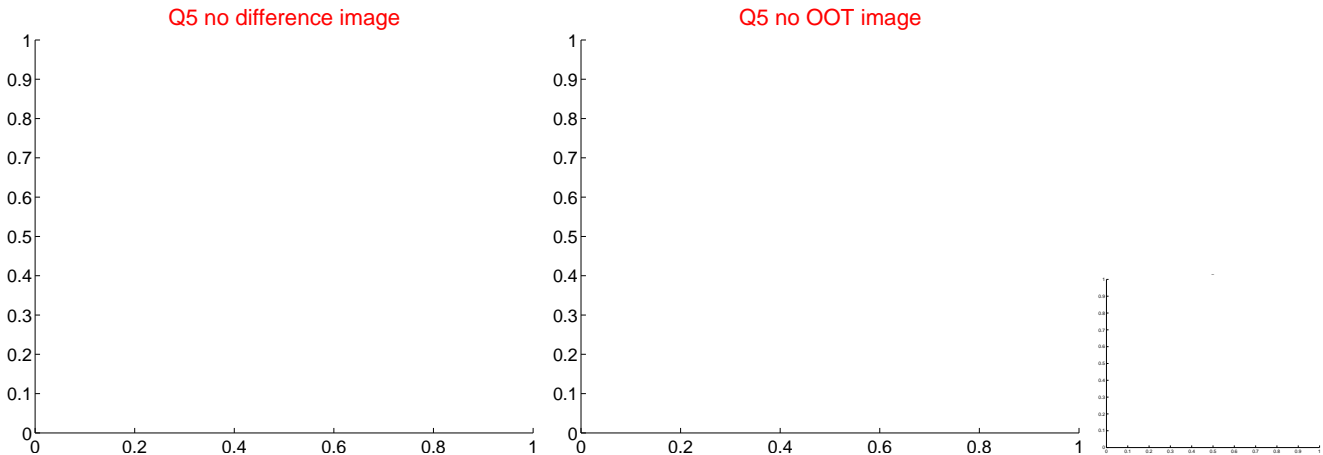


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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



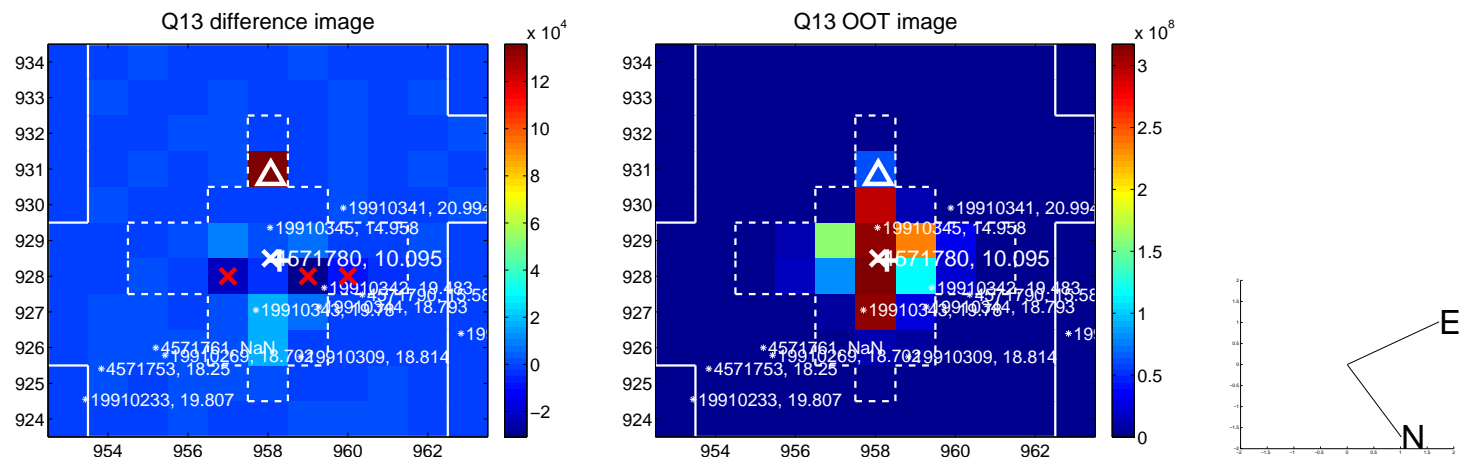
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



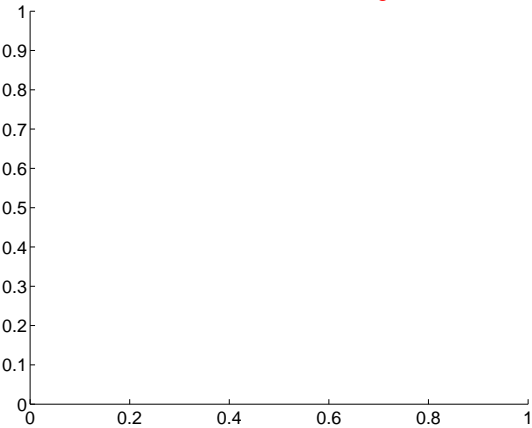
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



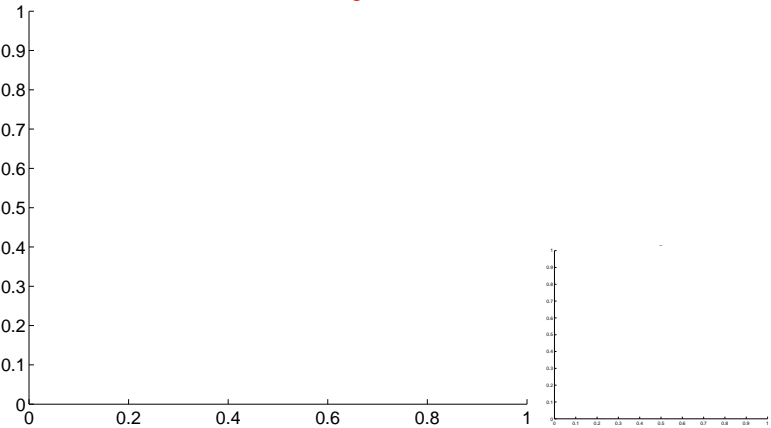
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



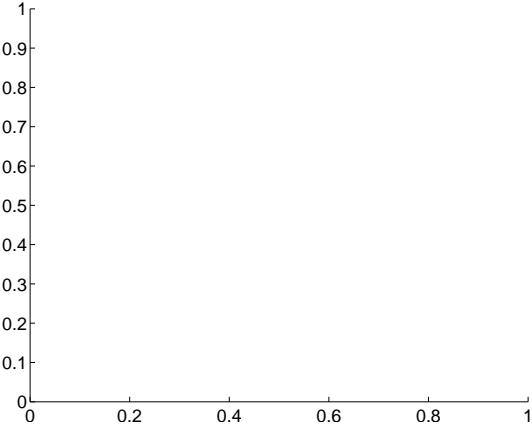
Q14 no difference image



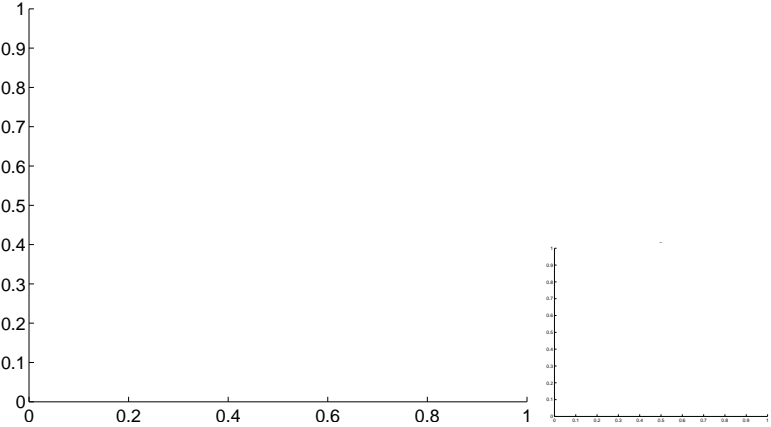
Q14 no OOT image



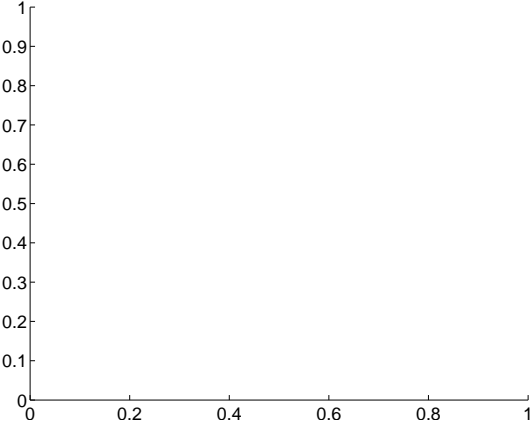
Q15 no difference image



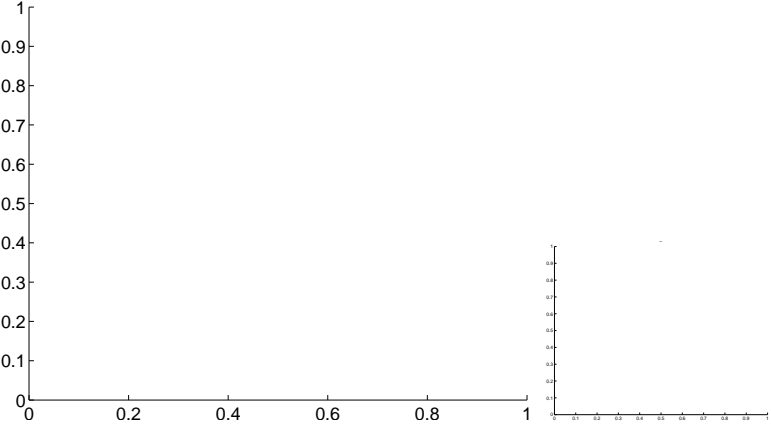
Q15 no OOT image



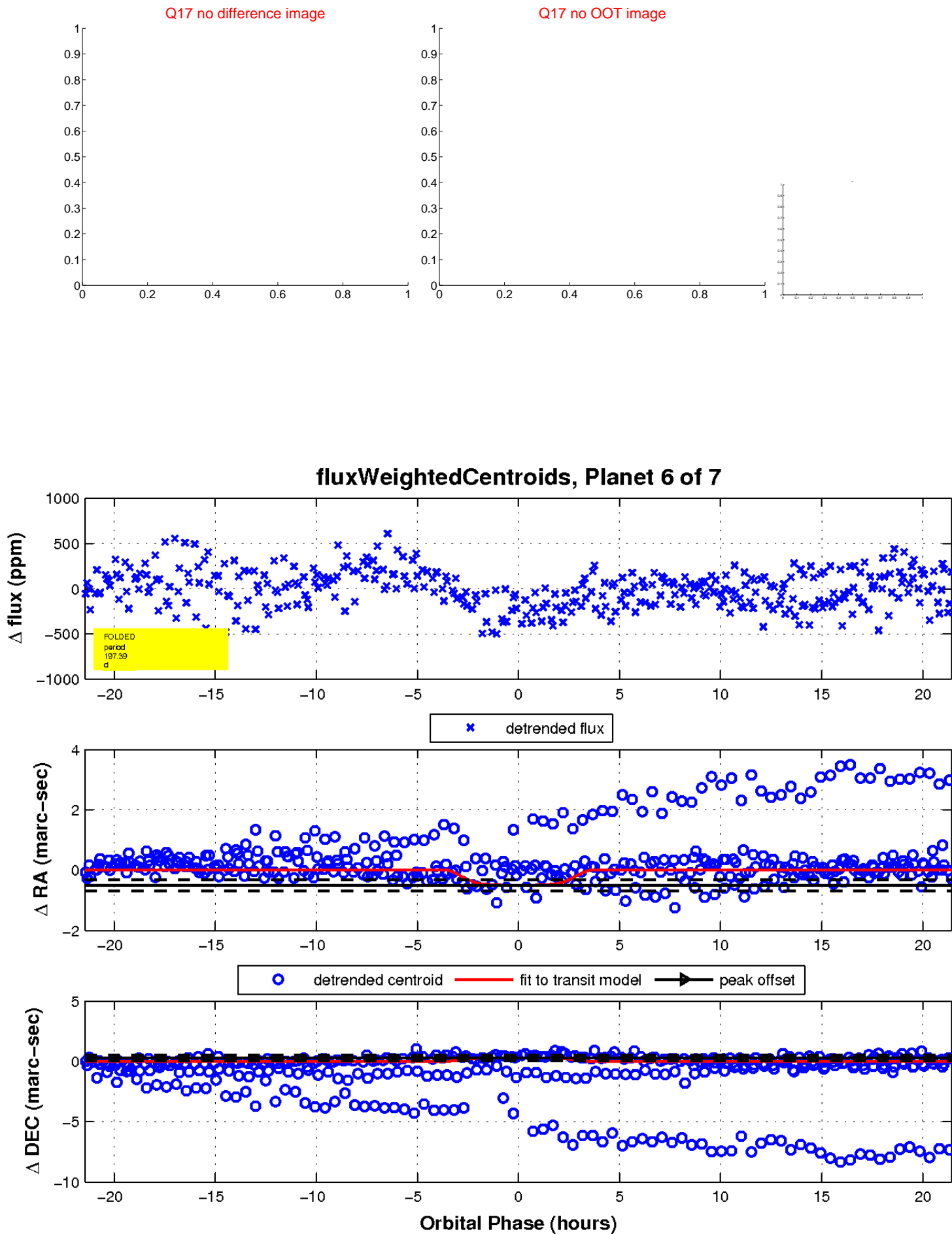
Q16 no difference image



Q16 no OOT image

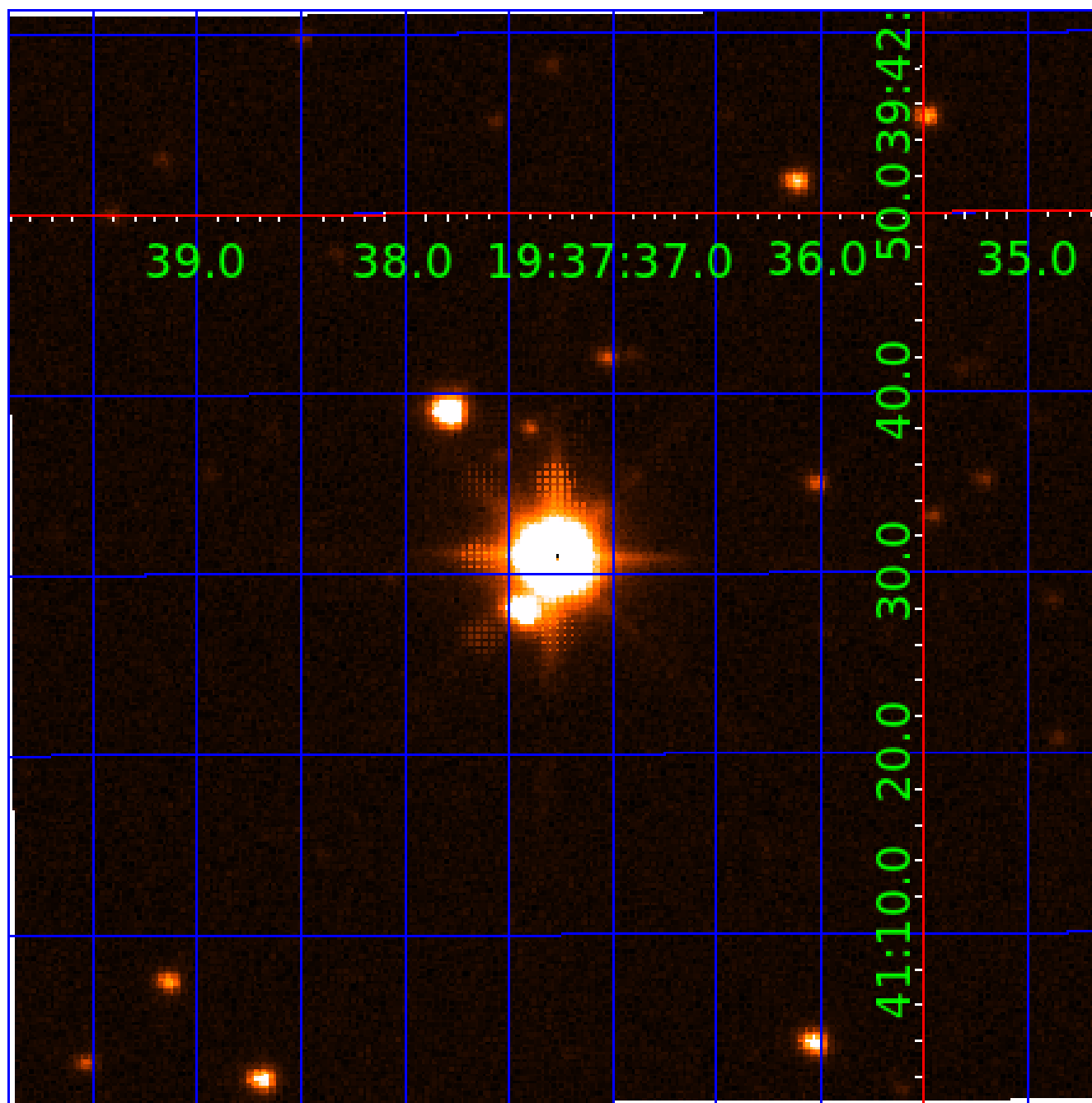


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004571780

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})
004571780-01	OBS	No	2.077176	133.369663	35.2	8.554	9.0	7.5	4.42	6449	3.35	19348.41
004571780-02	OBS	No	2.076966	131.932693	62.2	4.896	11.3	12.3	4.42	6449	3.52	19351.02
004571780-03	OBS	No	129.203939	217.593144	526.2	5.848	11.4	10.1	4.42	6449	19.55	78.51
004571780-04	OBS	No	163.873879	222.574172	556.9	11.132	10.7	10.1	4.42	6449	19.79	57.18
004571780-05	OBS	No	166.304669	229.577616	486.9	3.758	9.7	11.1	4.42	6449	18.87	56.07
004571780-06	OBS	No	197.394504	203.063351	376.9	7.156	9.1	9.2	4.42	6449	10.79	44.62
004571780-07	OBS	No	204.354493	186.458924	77.8	2.500	8.7	-1.0	4.42	6449	3.92	42.60

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004571780-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
004571780-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
004571780-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—CENT_SATURATED
004571780-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
004571780-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
004571780-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

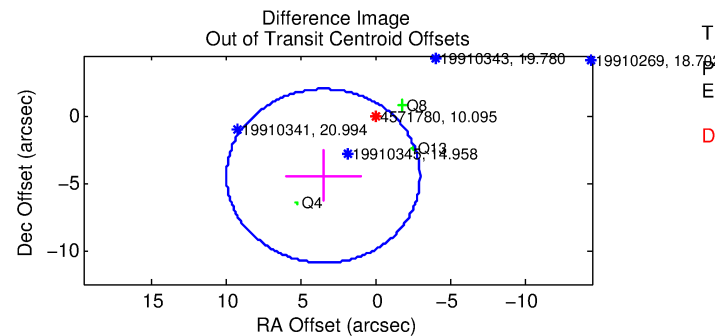
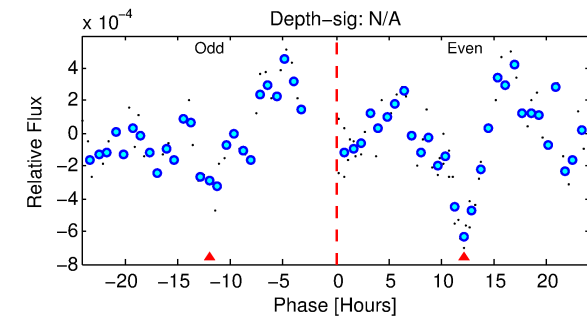
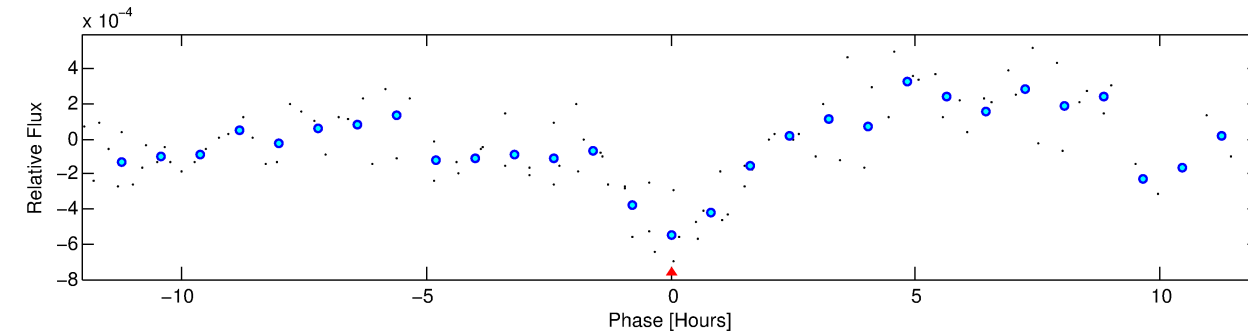
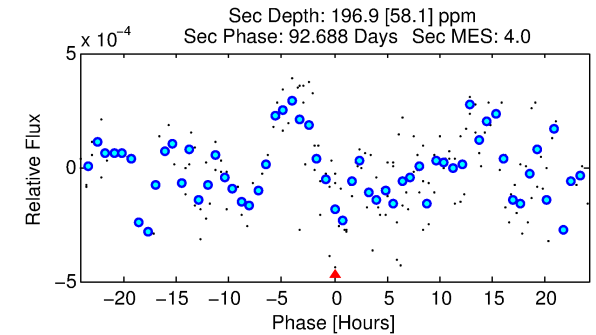
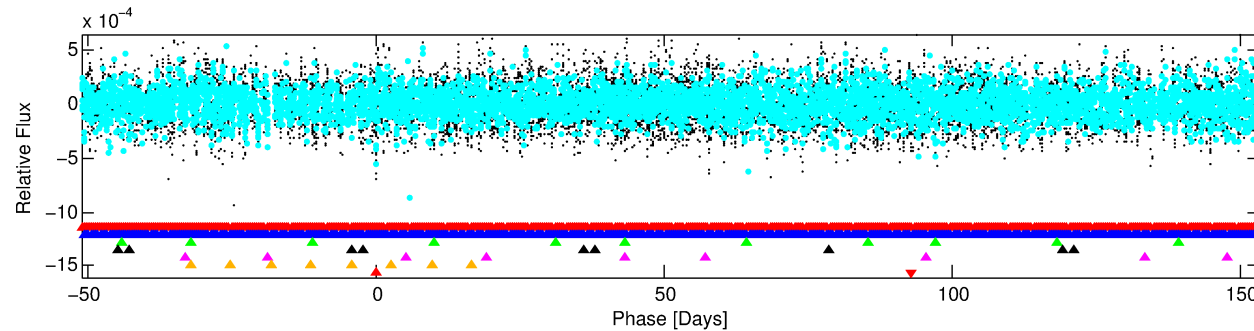
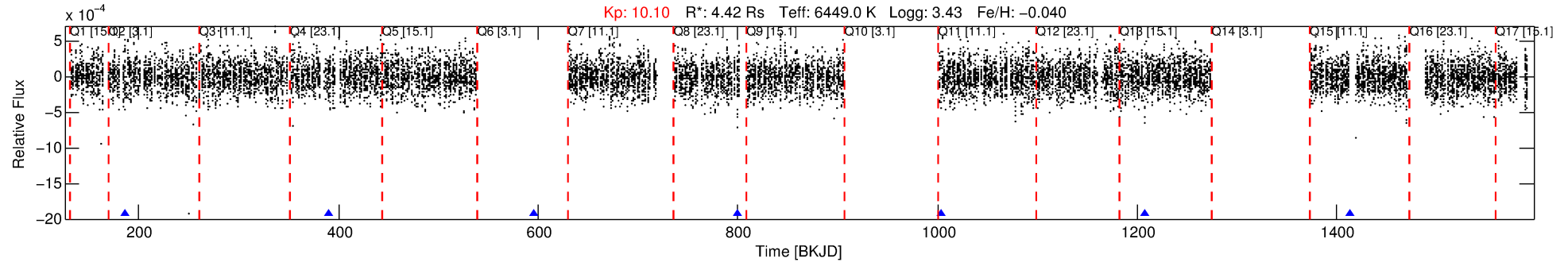
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004571780-07

No Significant Match Found

DV One-Page Summary

KIC: 4571780 Candidate: 7 of 7 Period: 204.354 d



TPS TCE Results:

Period = 204.35449 d
Epoch = 186.4589 BKJD

DV fit results are unavailable

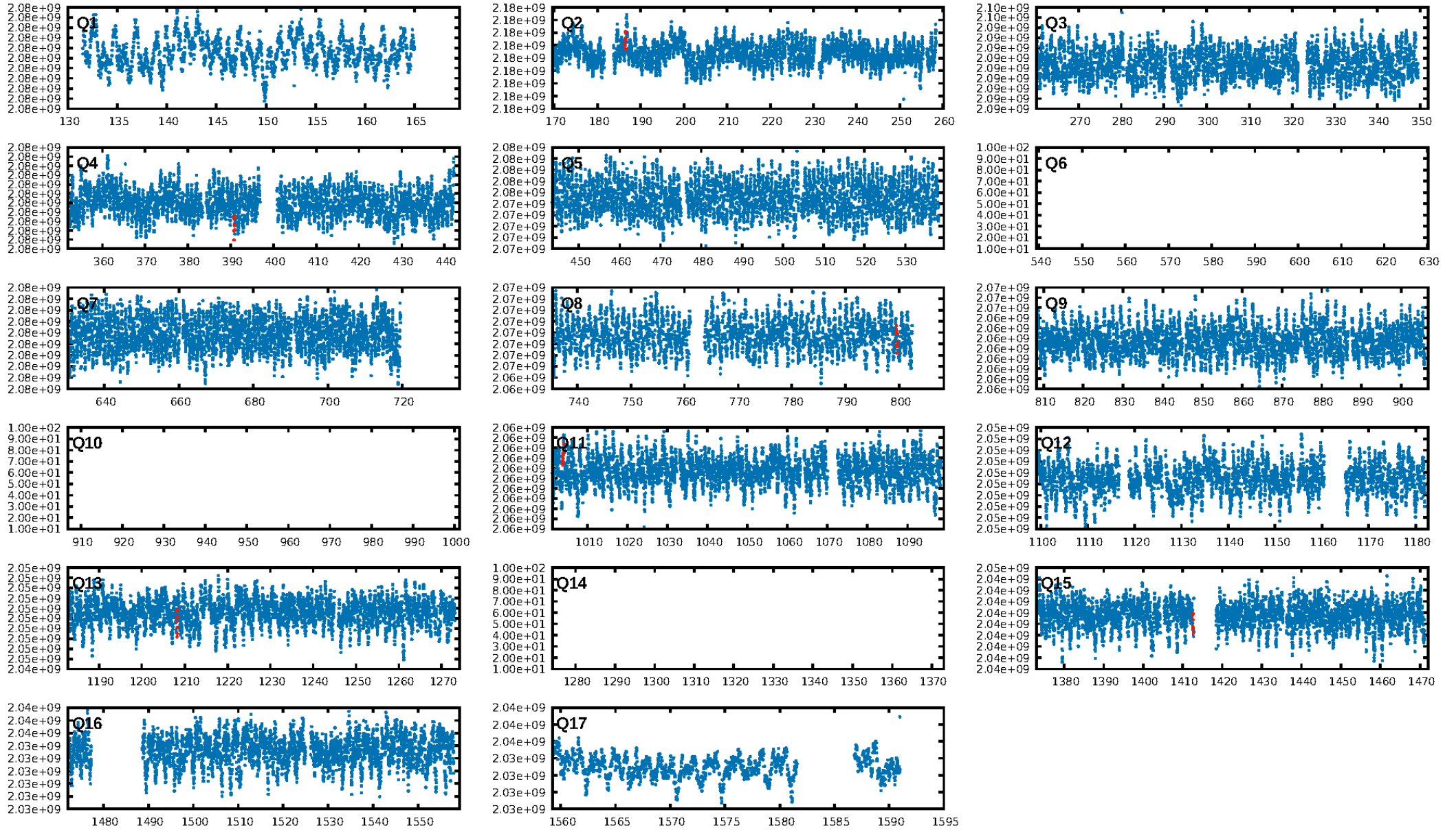
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.04σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 90.0%
Centroid-so: 0.103 arcsec [0.35σ]
OotOffset-rm: 5.639 arcsec [2.62σ]
KicOffset-rm: 4.446 arcsec [2.11σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.50 [2/4]

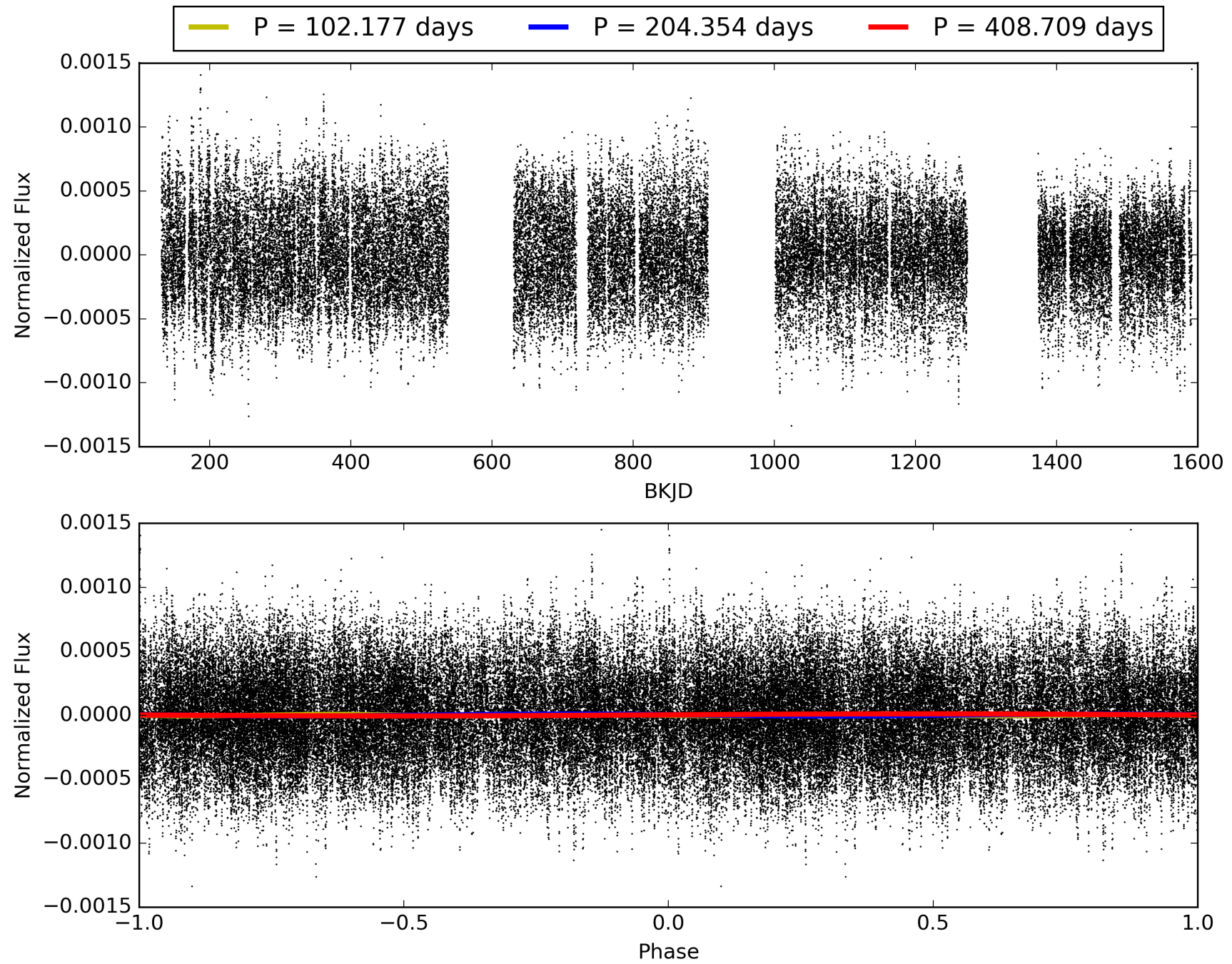
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 13:08:28 Z

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

TCE 004571780-07, PDC Light Curves

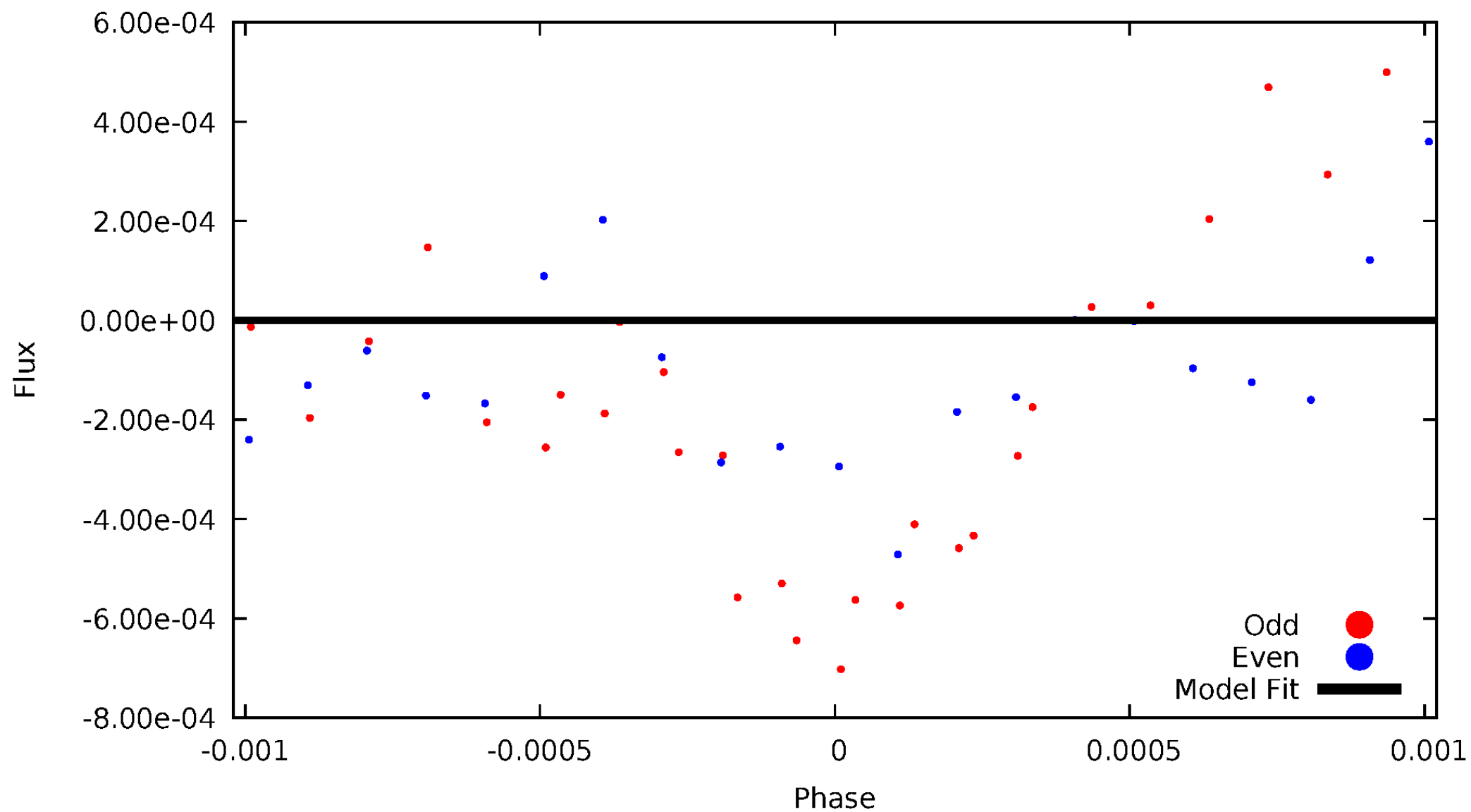


TCE 004571780-07



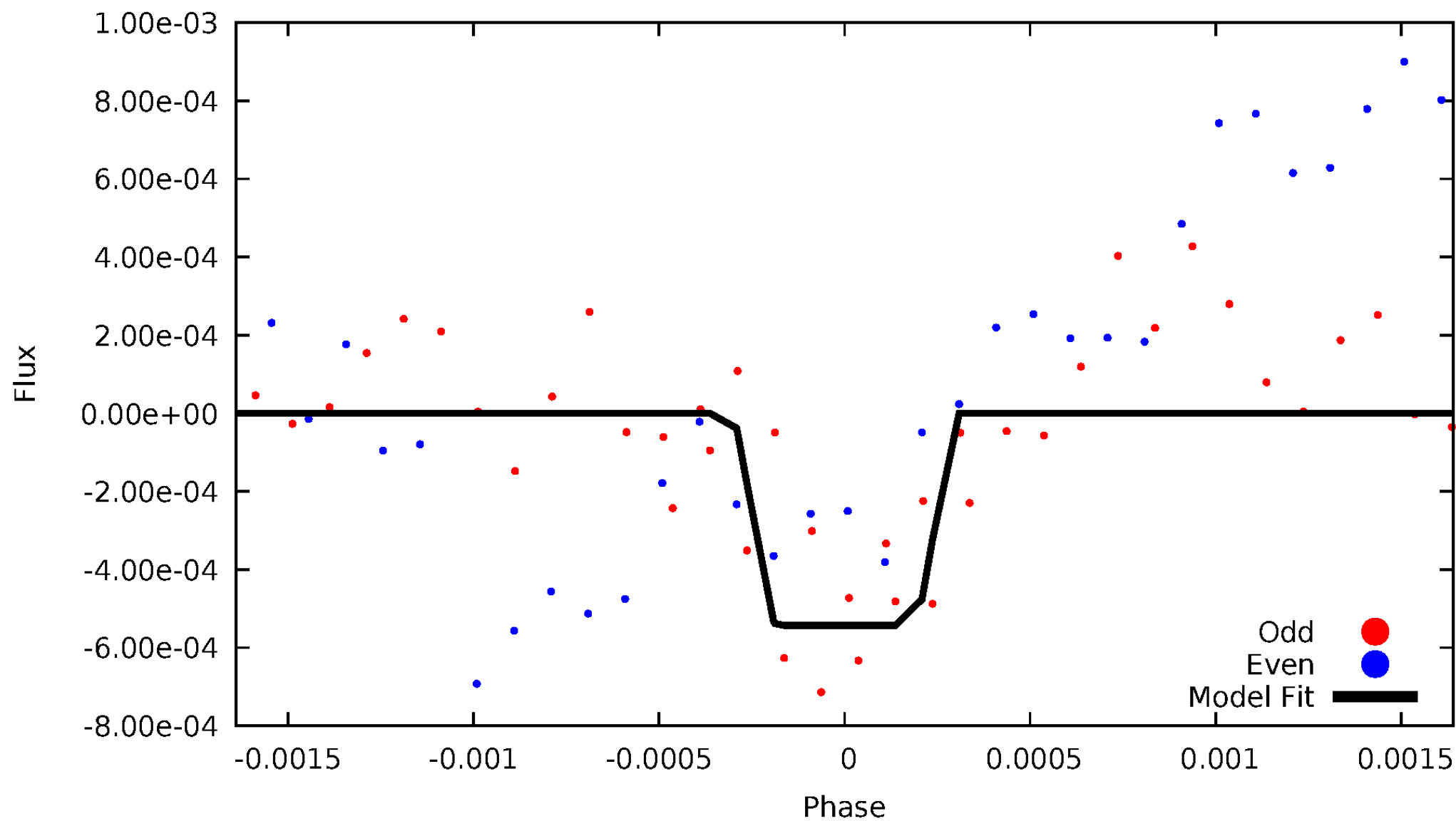
DV Odd/Even

TCE 004571780-07

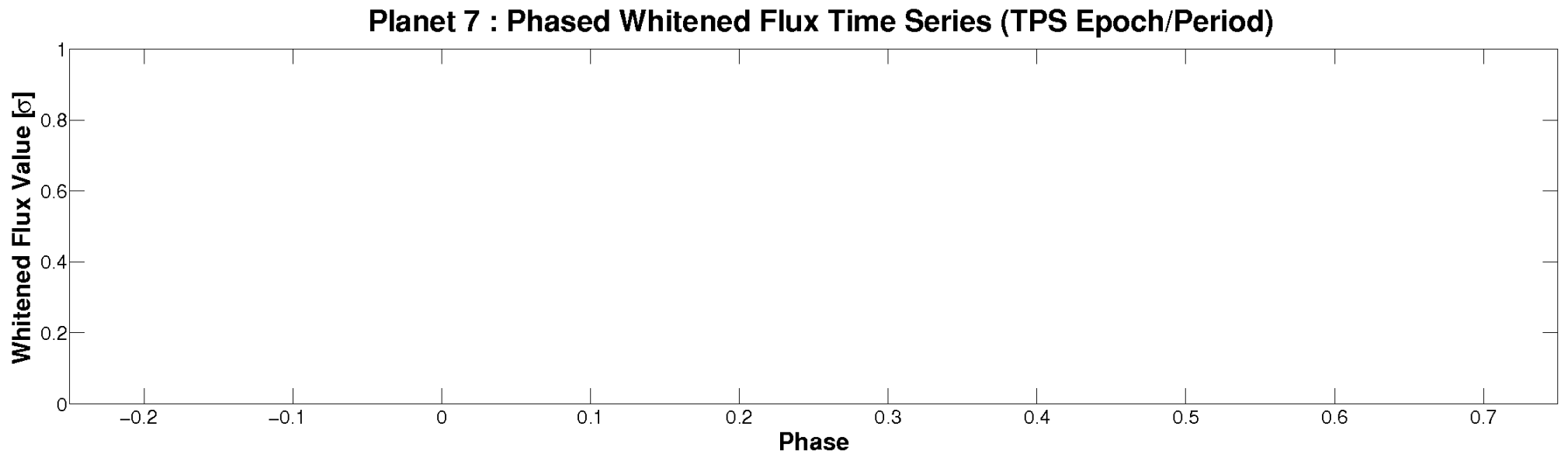
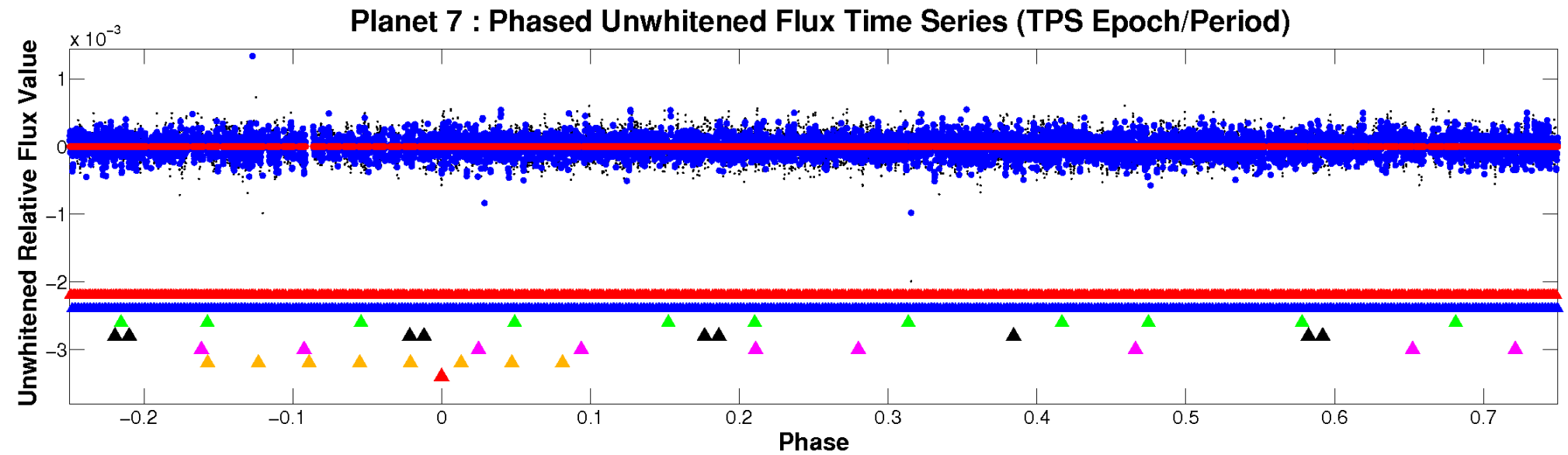


ALT Odd/Even

TCE 004571780-07

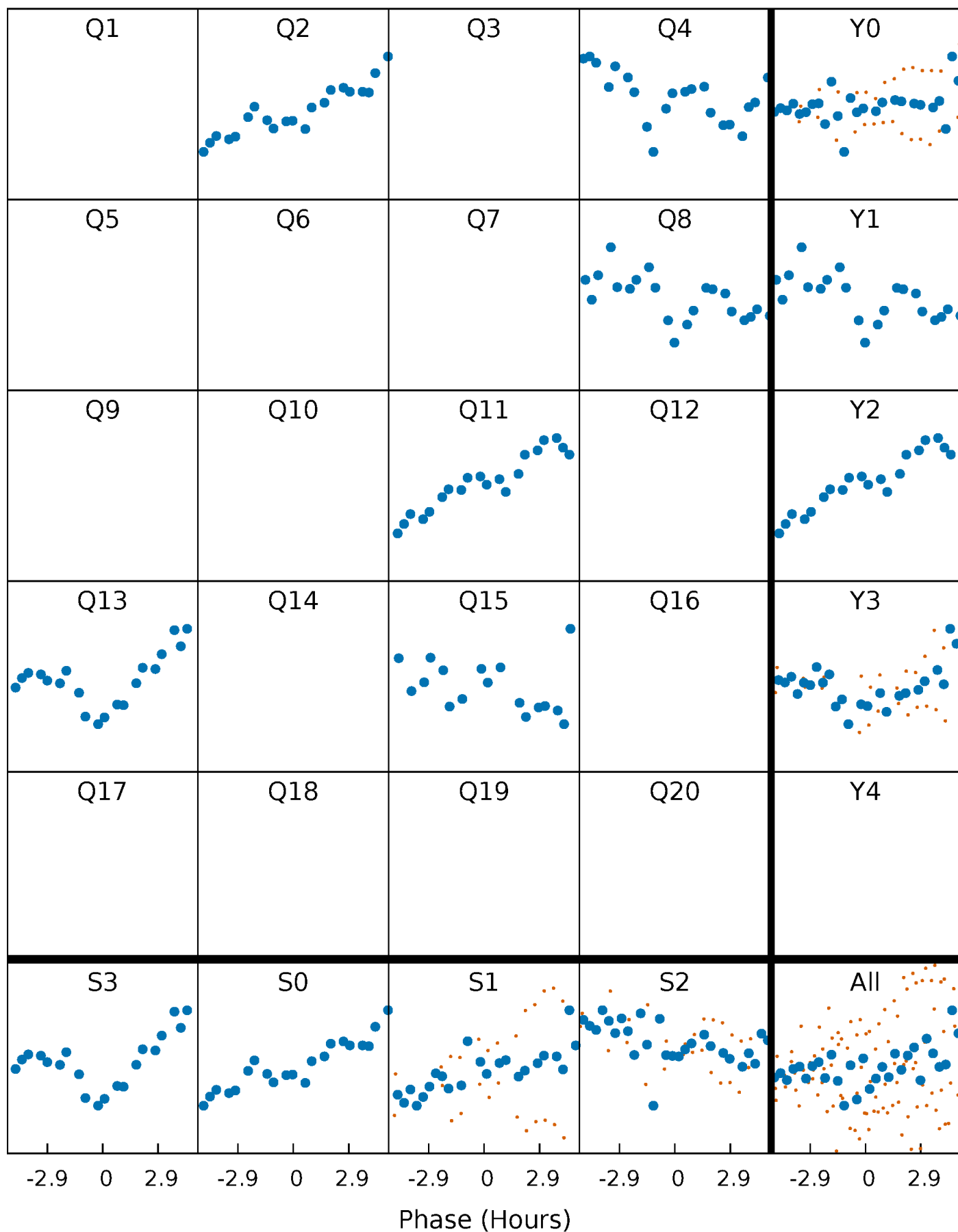


Non-Whitened Vs. Whitened Light Curve



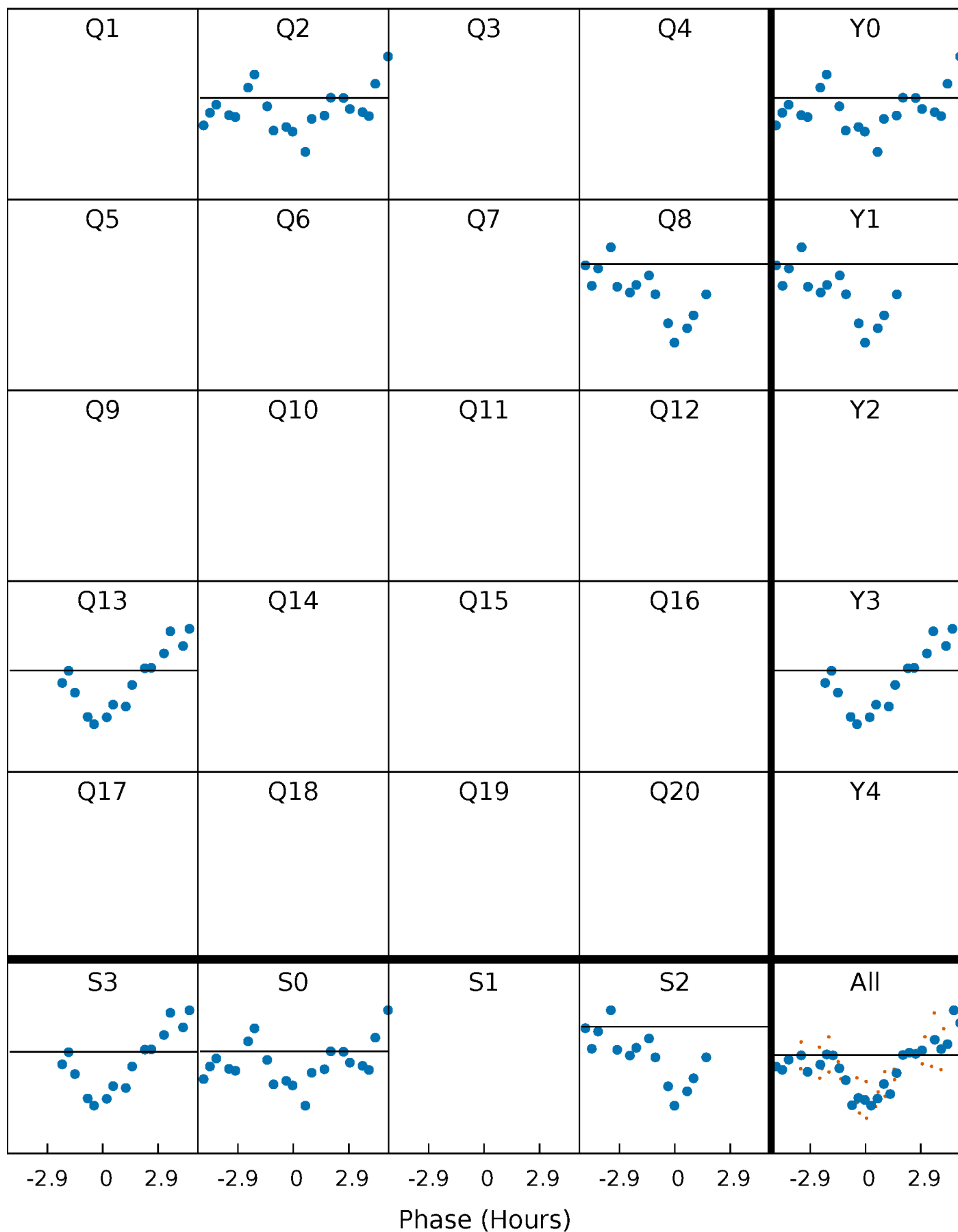
PDC Quarter-Phased Transit Curves

TCE 004571780-07 $P=204.354492$ Days $T_0=186.458924$ (BKJD)



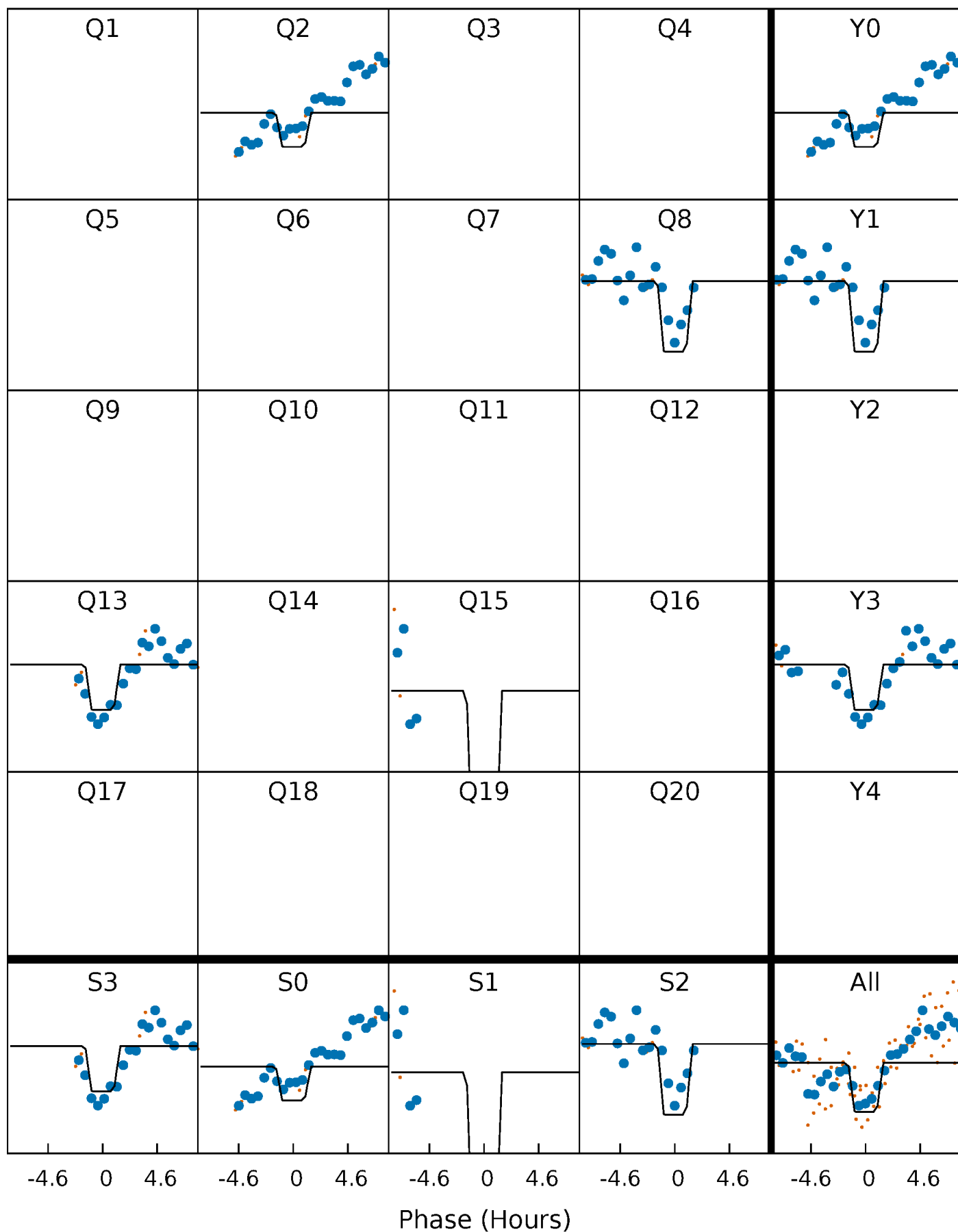
DV Quarter-Phased Transit Curves

TCE 004571780-07 $P=204.354492$ Days $T_0=186.458924$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

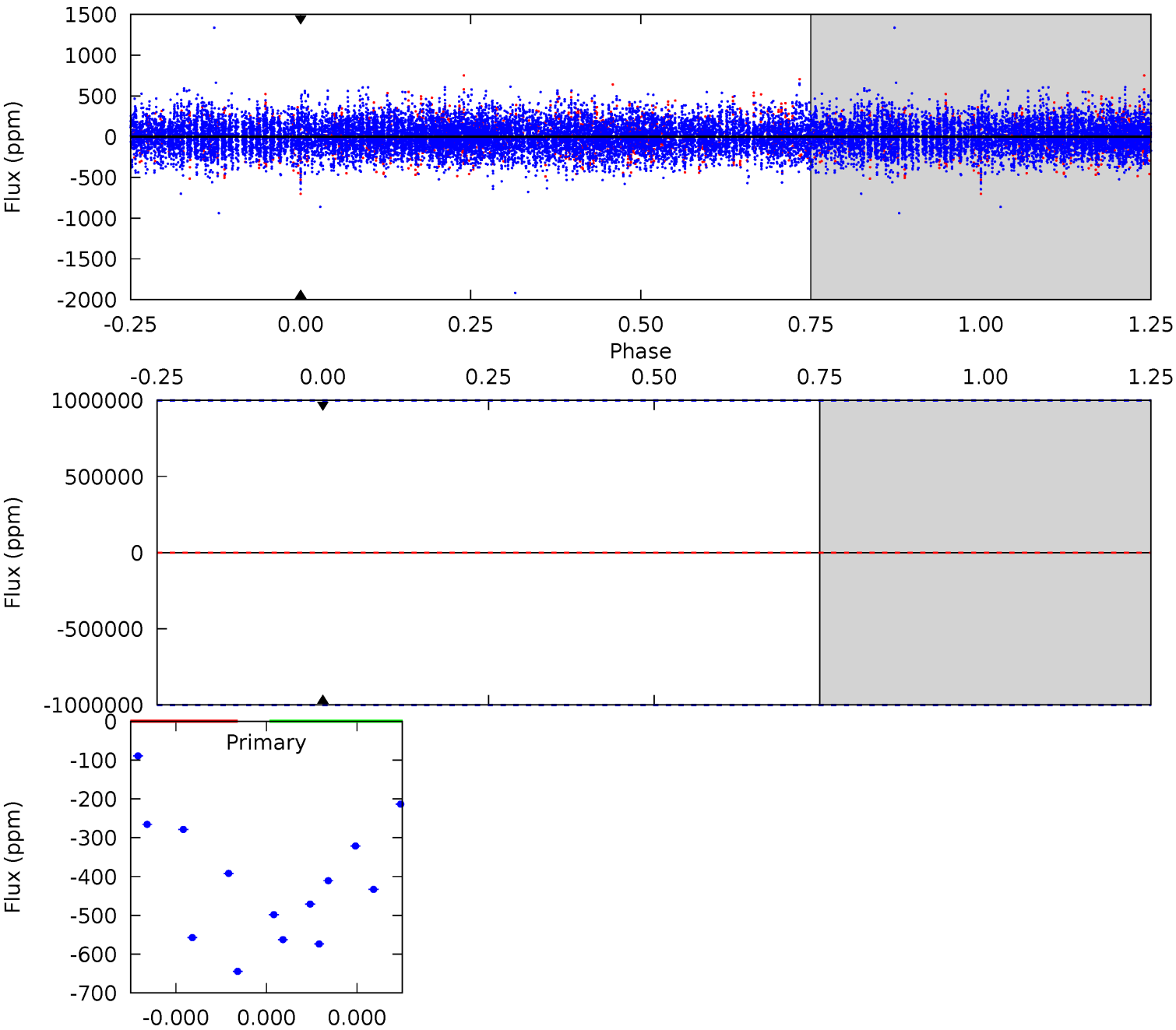
TCE 004571780-07 $P=204.354492$ Days $T_0=186.458547$ (BKJD)



DV Model-Shift Uniqueness Test

004571780-07, P = 204.354492 Days, E = 186.458924 Days

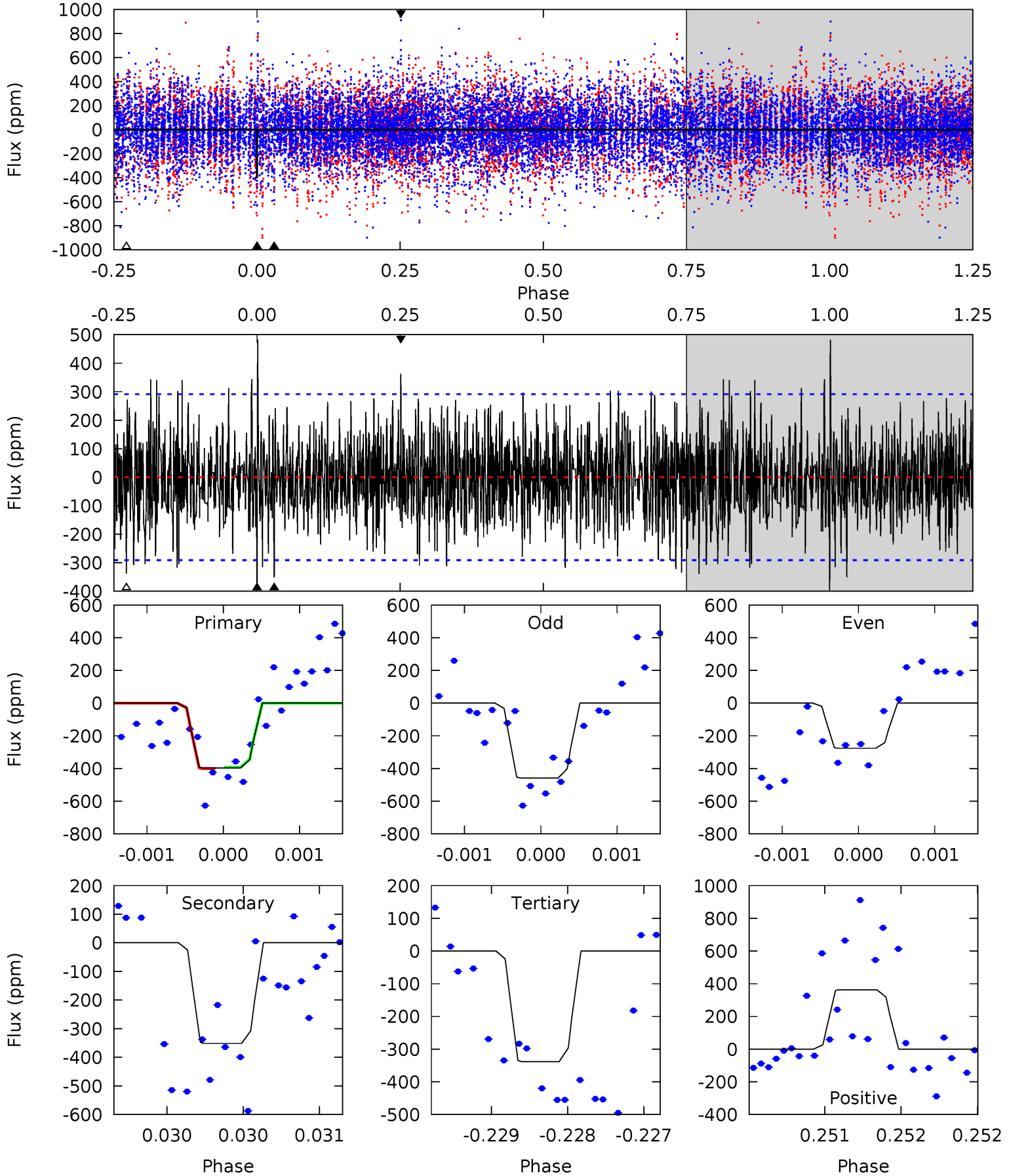
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

004571780-07, P = 204.354492 Days, E = 186.458547 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.54	6.69	6.44	6.91	5.54	3.43	2.02	1.10	0.63	0.25	-0.22	1.64	1.41	0.55	0.08



Stellar Parameters For KIC 004571780

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6449^{+163}_{-146}	$3.429^{+0.360}_{-0.090}$	$-0.040^{+0.300}_{-0.250}$	$4.422^{+0.713}_{-1.664}$	$1.914^{+0.086}_{-0.365}$	$0.031^{+0.083}_{-0.009}$
	+3%/-2%	+10%/-3%	+750%/-625%	+16%/-38%	+4%/-19%	+266%/-27%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 004571780-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$27.63^{+37.50}_{-19.81}$	884^{+58}_{-86}	5716^{+31540}_{-33183}	$1156^{+121893}_{-73257}$
Alt.	-351 ± 53	$31.97^{+37.67}_{-22.82}$	887^{+58}_{-87}	3698^{+2255}_{-785}	131^{+1423}_{-104}

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

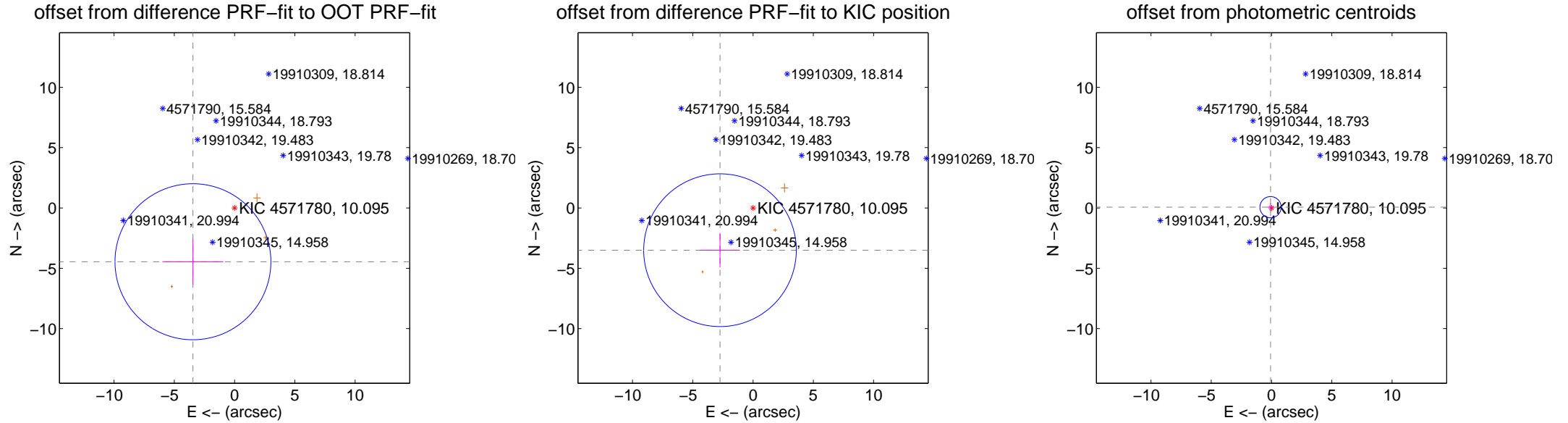
DV Centroid Data

Supplemental centroid analysis for 004571780-07. **Kepler magnitude: 10.10.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

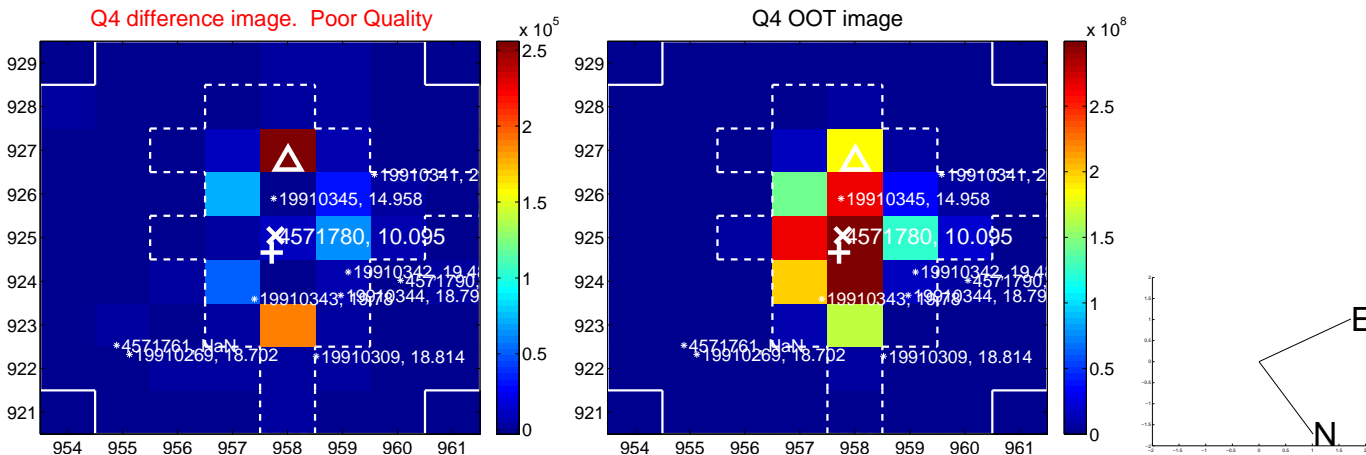
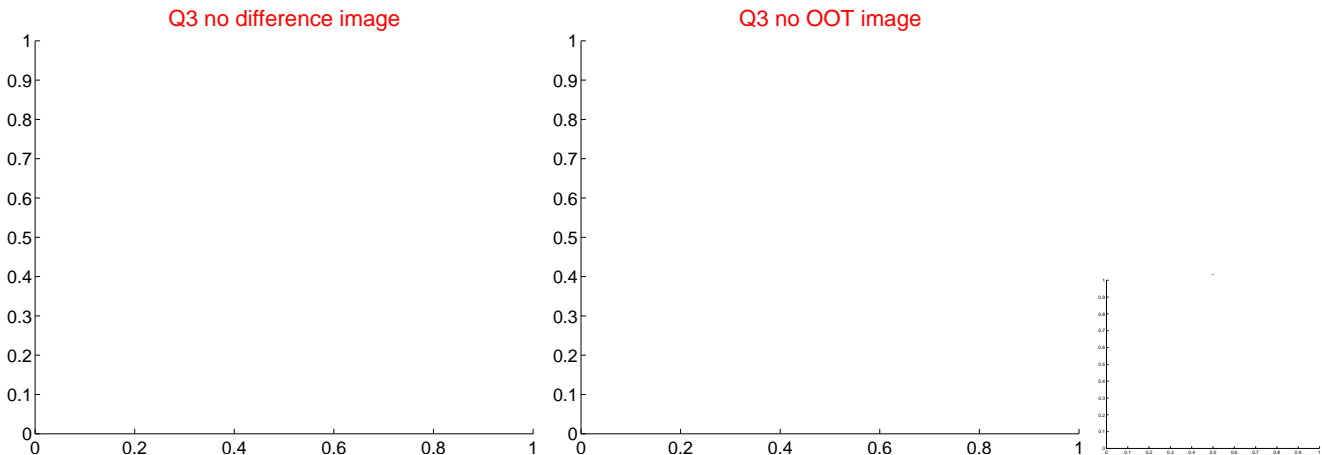
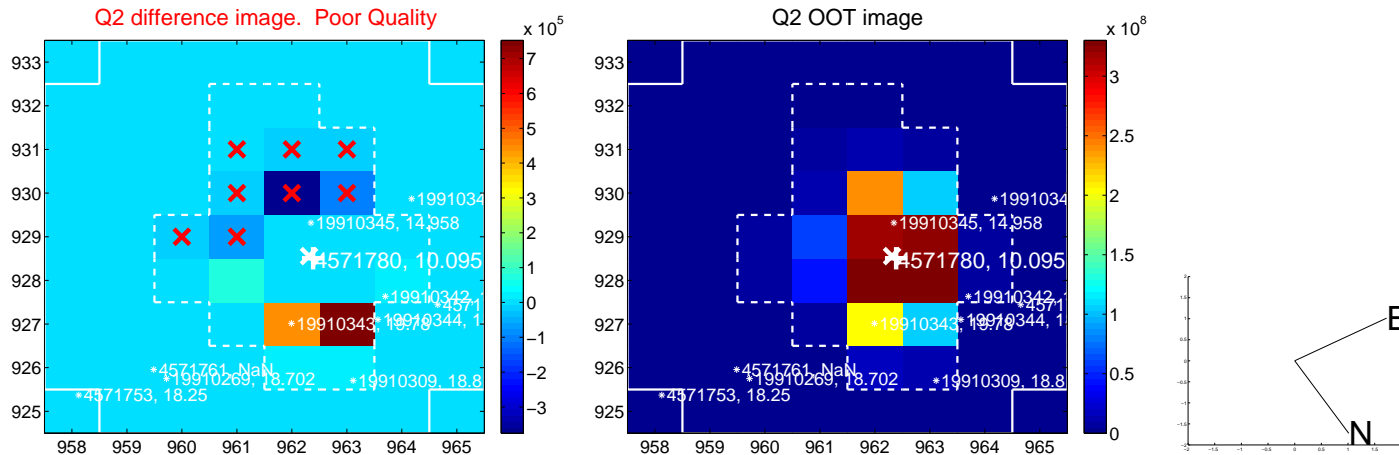
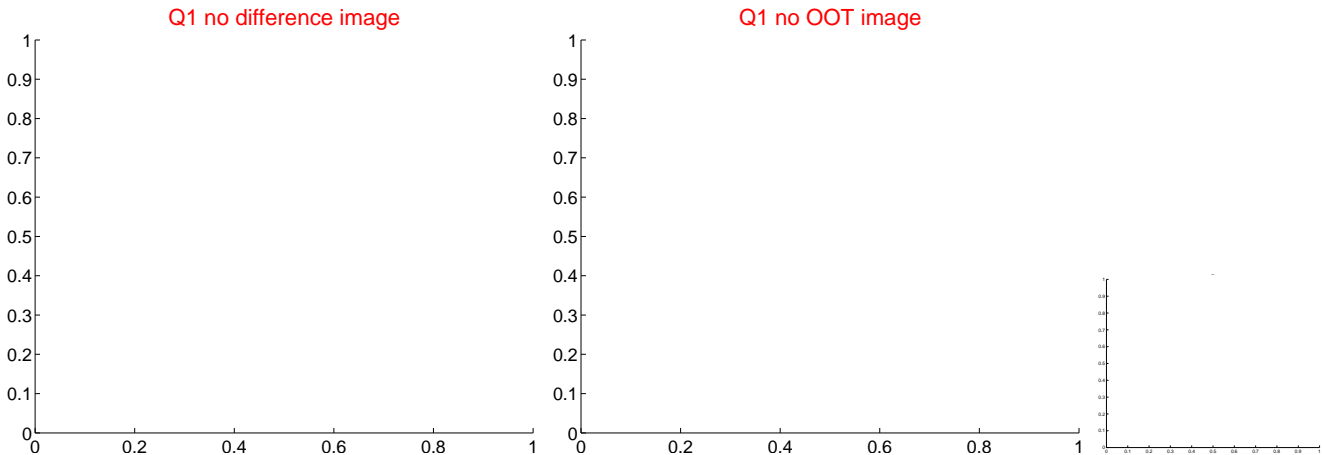
The direct PRF centroid is offset from the target star catalog position by about 0.96 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.639 ± 2.155	2.62	3.454 ± 2.517	-4.457 ± 1.905
PRF-fit source offset from KIC position	4.446 ± 2.110	2.11	2.741 ± 1.661	-3.501 ± 1.420
photometric centroid source offset	0.10 ± 0.29	0.35	0.08 ± 0.26	0.06 ± 0.35

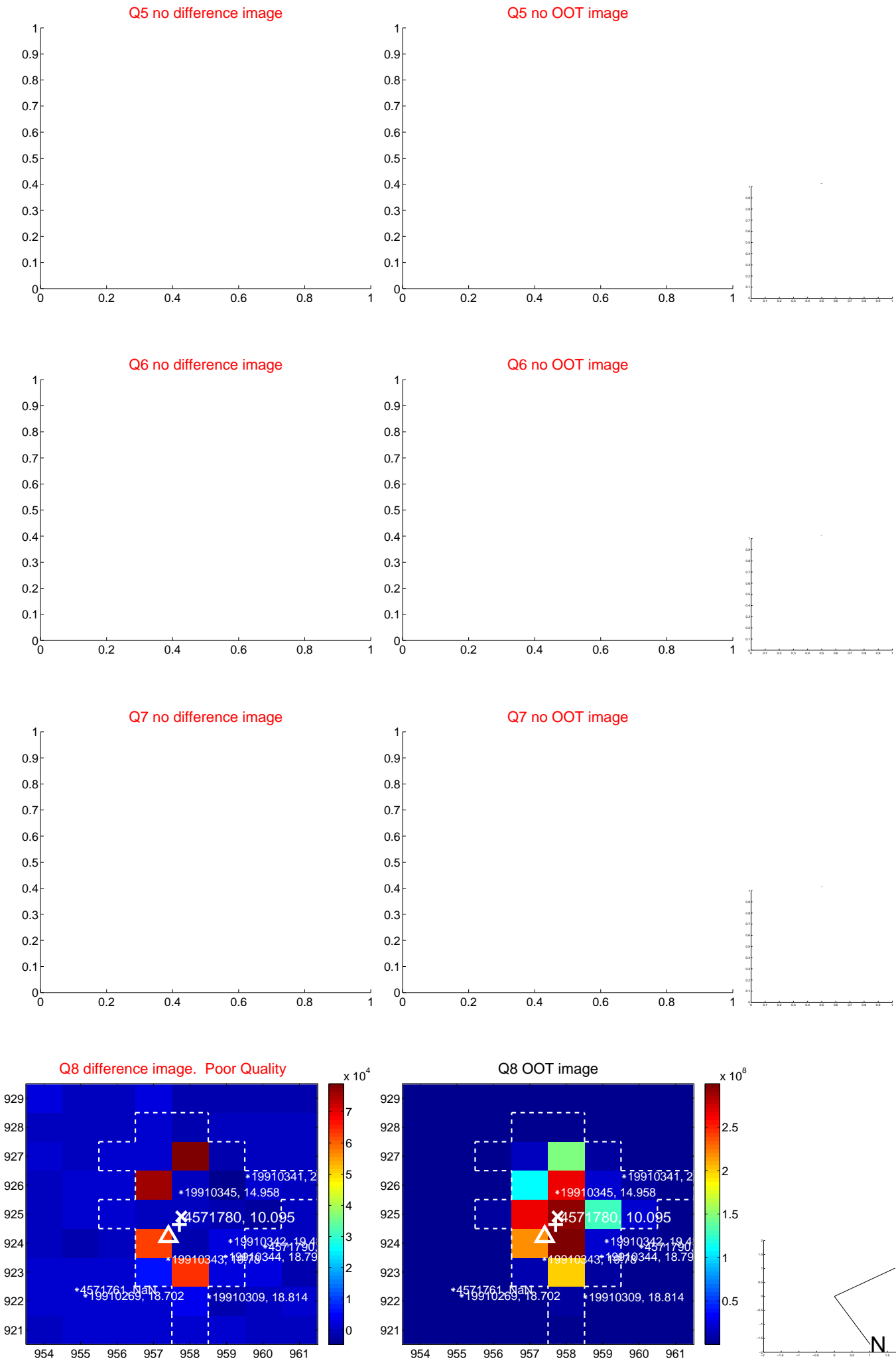


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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



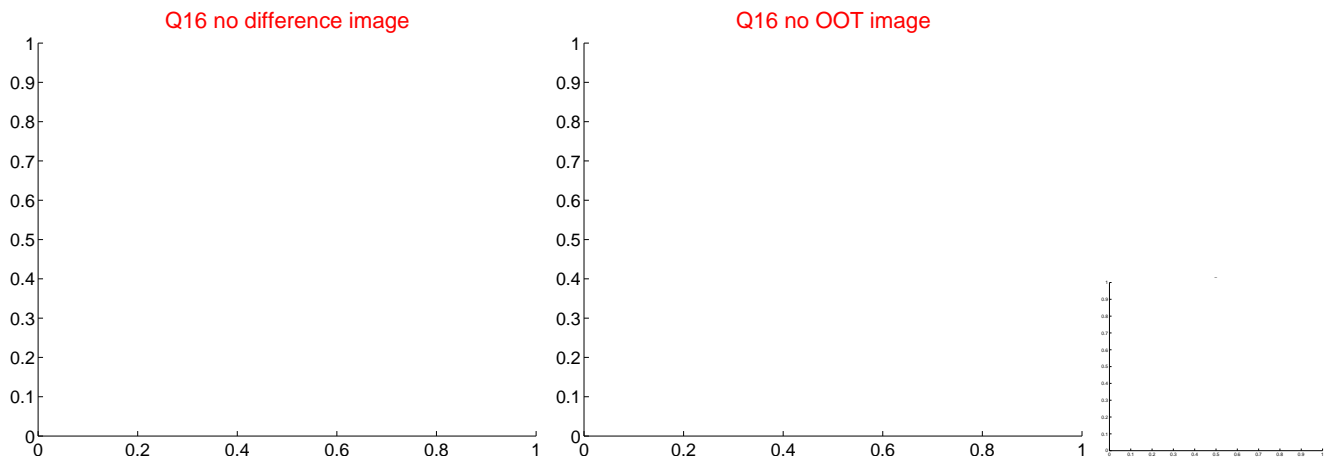
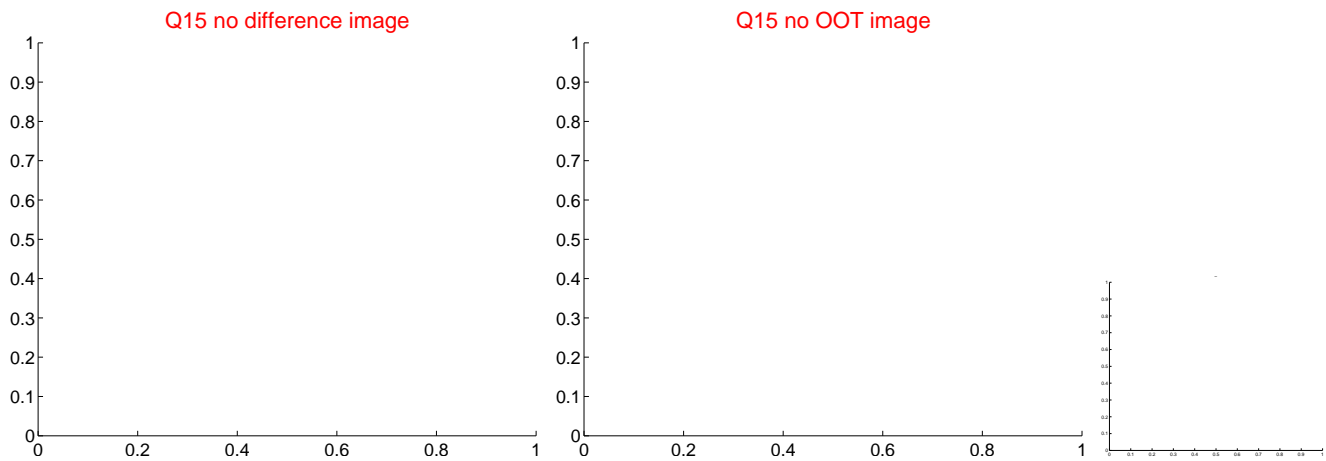
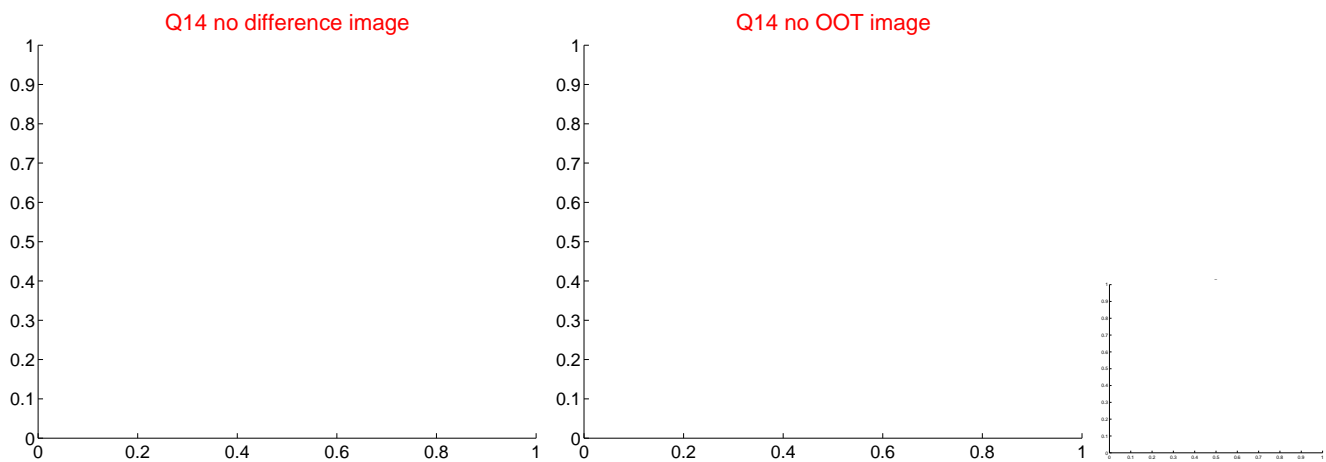
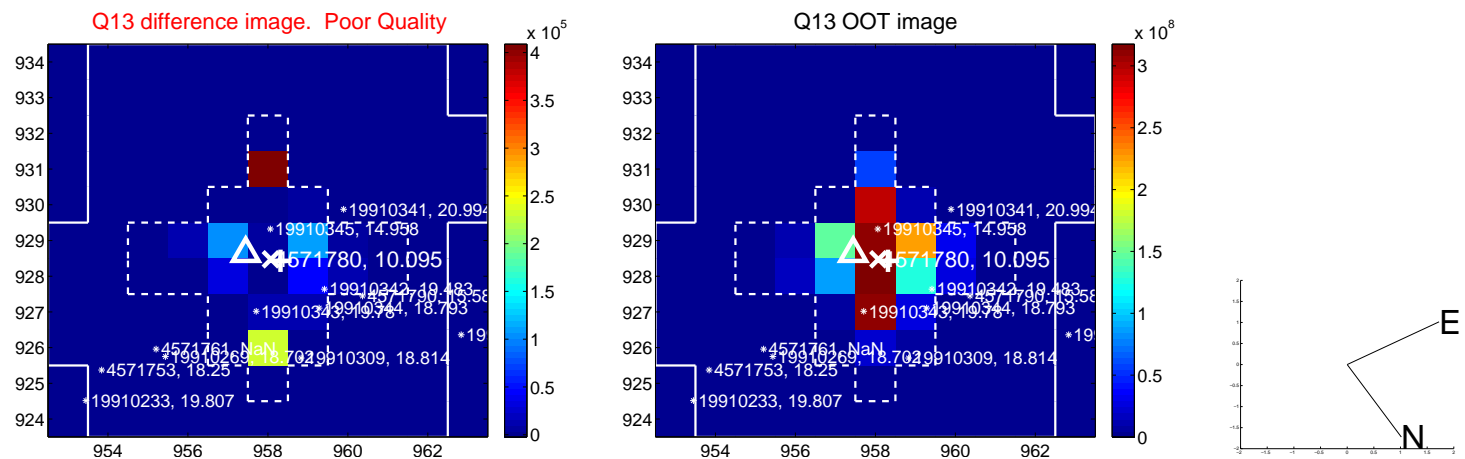
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



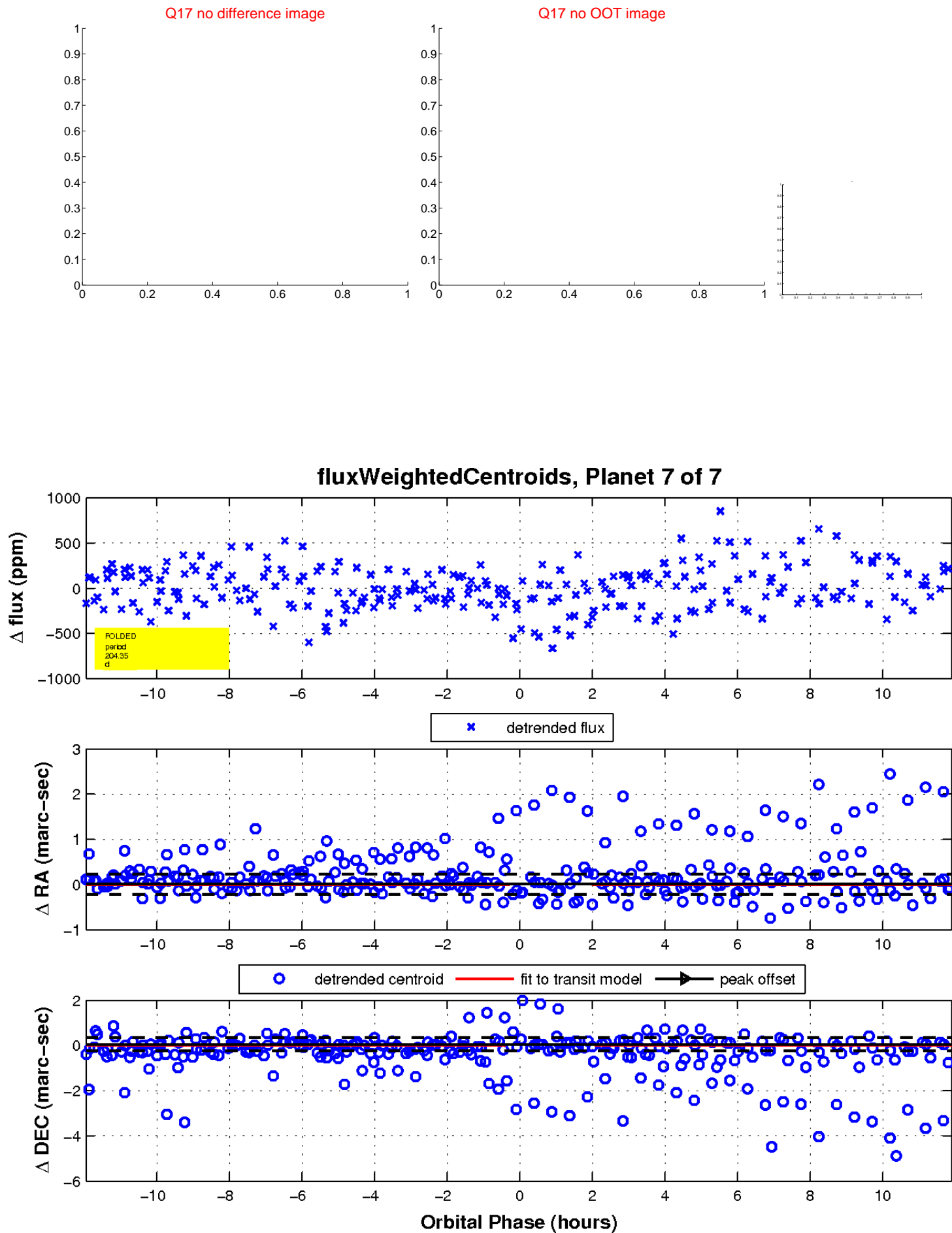
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

