

KIC 005531281

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})
005531281-01	OBS	No	495.015863	178.817207	1358.0	5.154	12.9	6.5	0.79	5052	3.27	0.29
005531281-02	OBS	No	517.950490	525.422114	2380.8	9.008	13.5	9.9	0.79	5052	4.23	0.28
005531281-03	OBS	No	381.185794	433.173160	771.5	3.738	10.8	4.2	0.79	5052	2.13	0.41
005531281-04	OBS	No	616.839298	301.691067	1115.4	7.368	9.7	5.6	0.79	5052	2.82	0.22
005531281-05	OBS	No	384.103250	514.367796	1819.6	4.500	11.9	-1.0	0.79	5052	3.26	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
005531281-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNI_Q_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNI_Q_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNI_Q_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

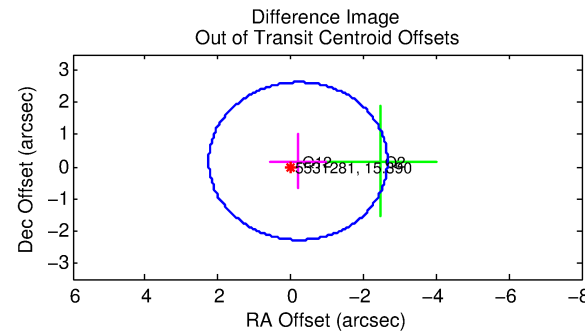
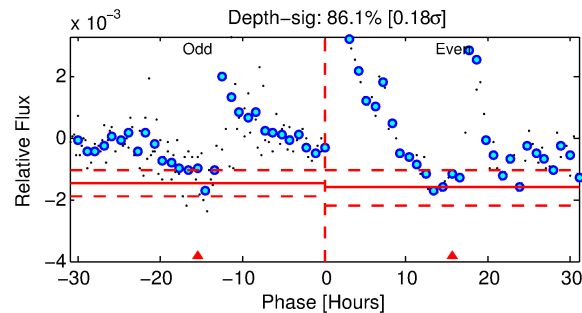
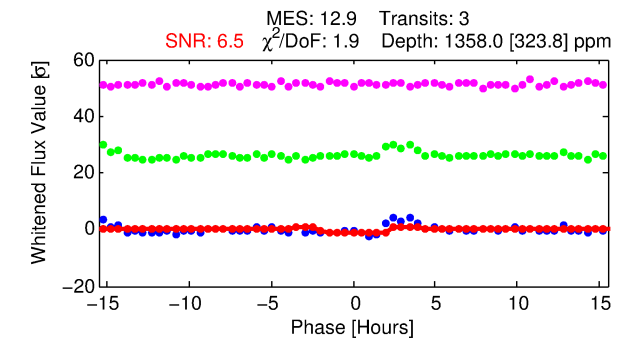
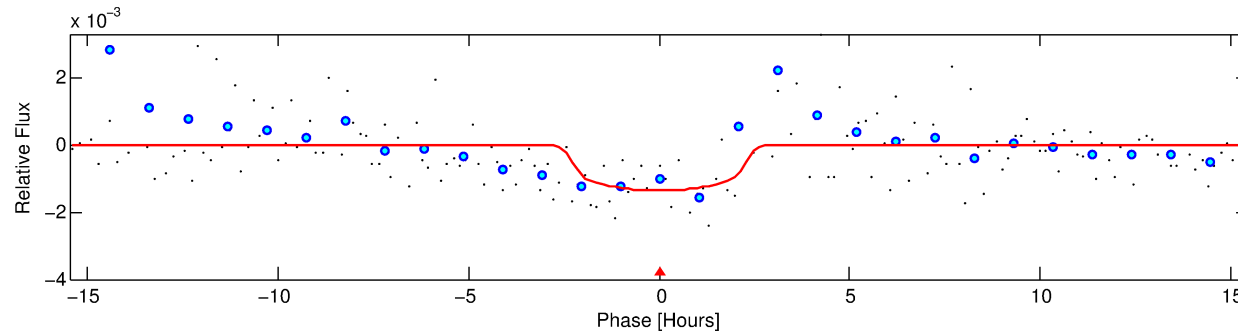
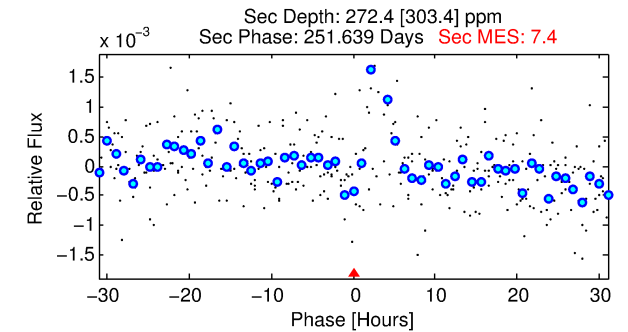
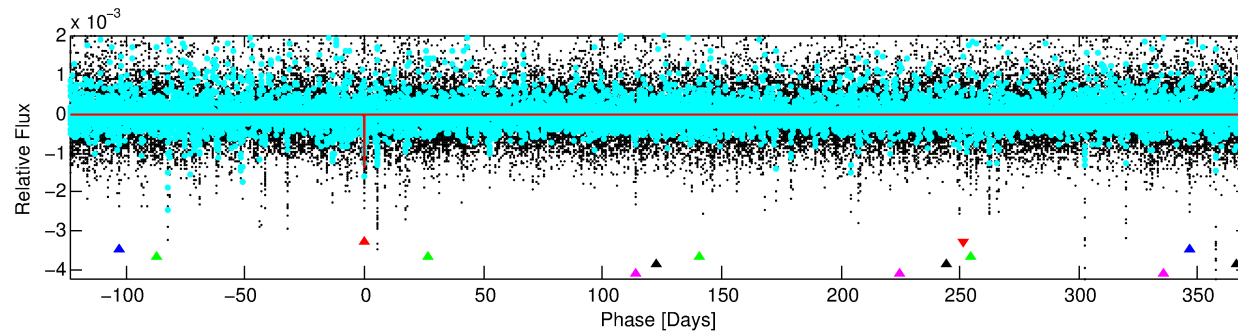
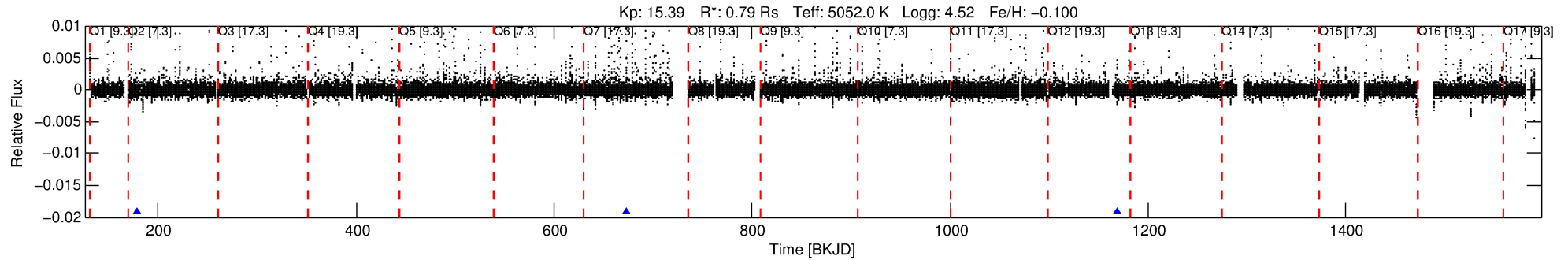
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

Ephemeris Match Information For 005531281-01

No Significant Match Found

KIC: 5531281 Candidate: 1 of 5 Period: 495.016 d



DV Fit Results:

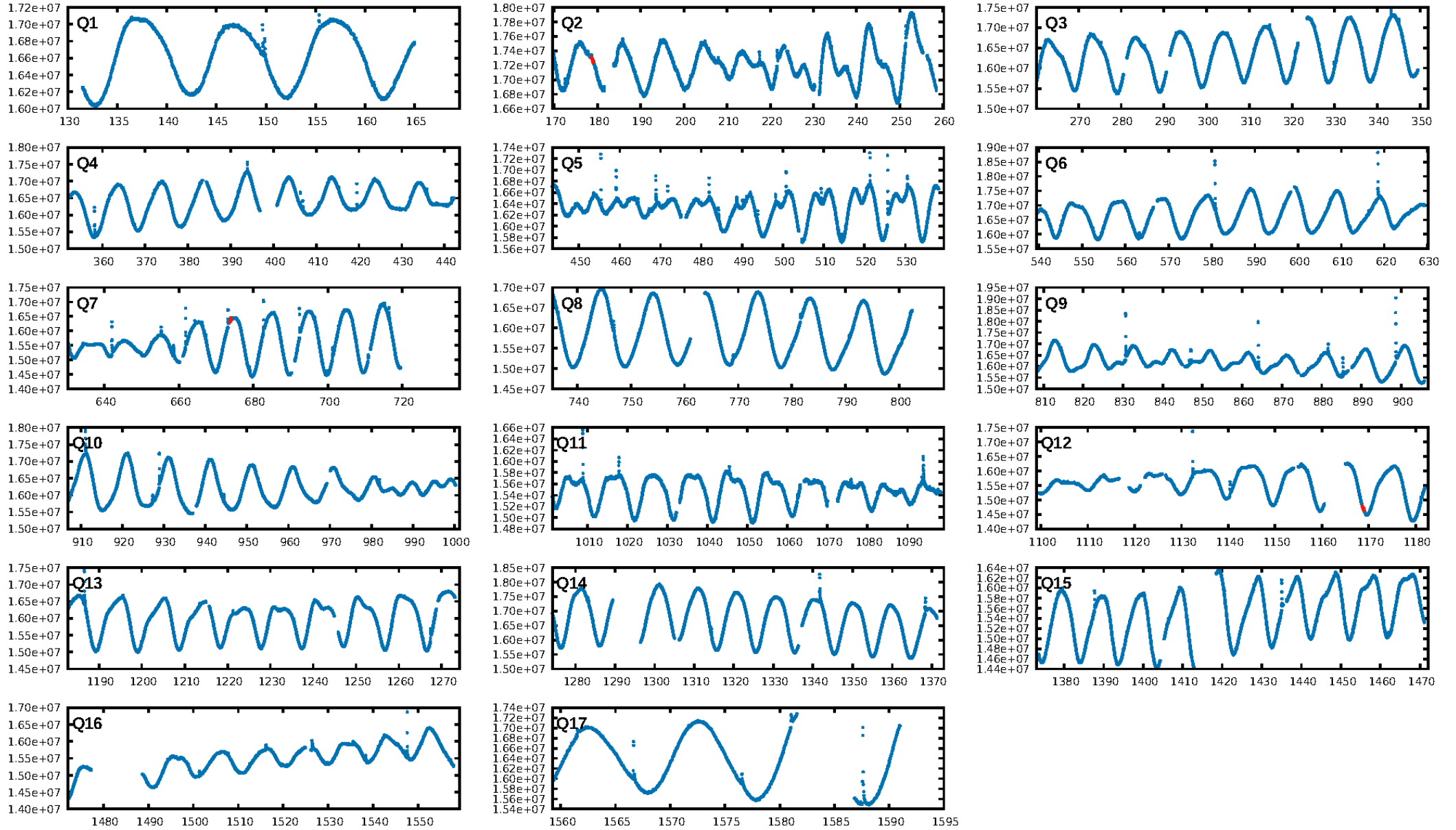
Period = 495.01586 [0.01253] d
 Epoch = 178.8172 [0.0135] BKJD
 Rp/R* = 0.0381 [0.0175]
 a/R* = 473.70 [731.04]
 b = 0.81 [0.66]
 Seff = 0.29 [0.05]
 Teq = 187 [9] K
 Rp = 3.27 [1.54] Re
 a = 1.1119 [0.1060] AU
 Ag = 17353.36 [25170.69] [0.69σ]
 Tefp = 3325 [1204] K [2.61σ]

DV Diagnostic Results:

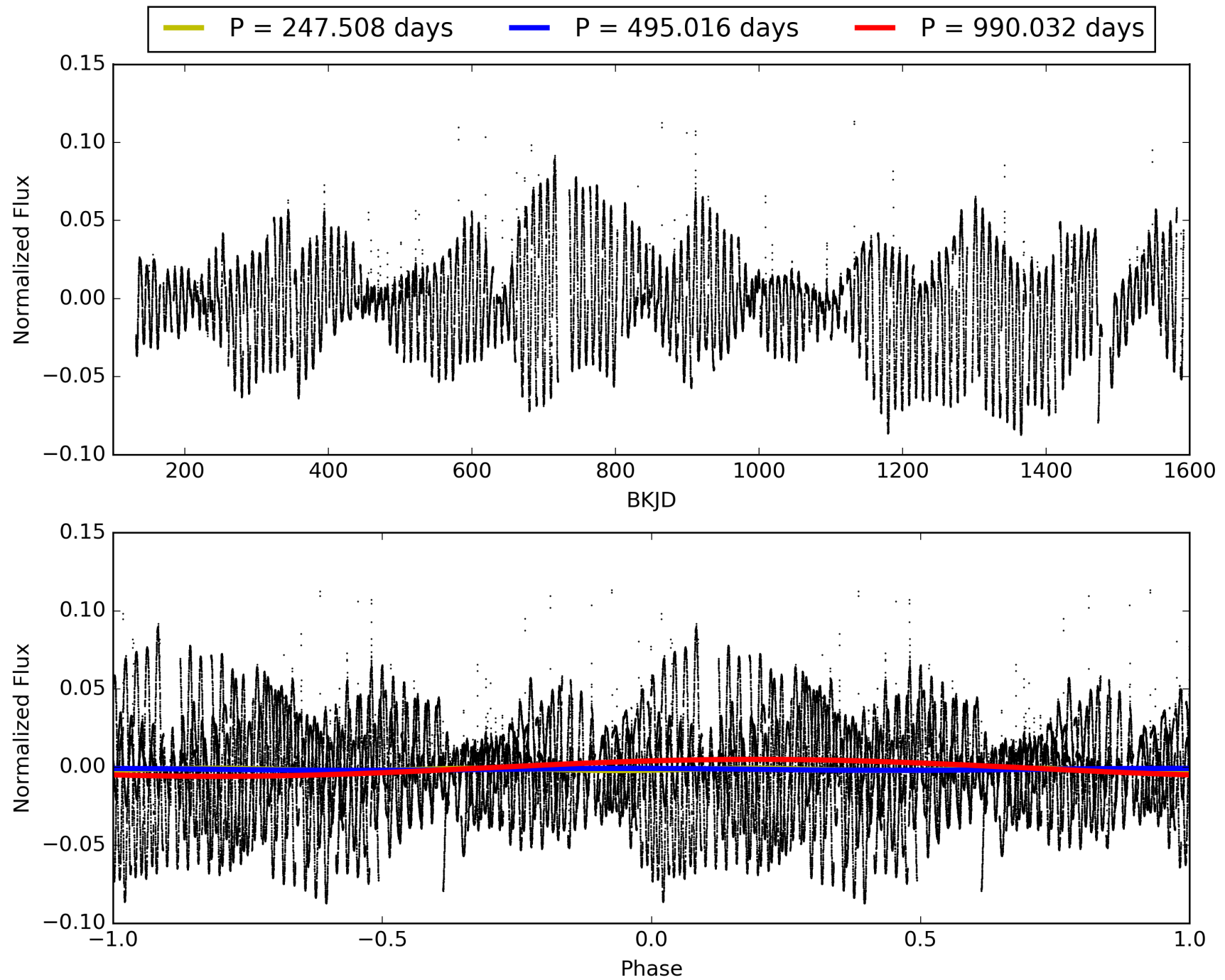
ShortPeriod-sig: 100.0% [389.05σ]
 LongPeriod-sig: 100.0% [53.04σ]
 ModelChiSquare2-sig: 4.5%
 ModelChiSquareGof-sig: 43.3%
 Bootstrap-pfa: N/A
 RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.954

Centroid-sig: 44.2%
 Centroid-so: 0.746 arcsec [0.71σ]
 OotOffset-rm: 0.266 arcsec [0.32σ]
 KicOffset-rm: 0.232 arcsec [0.26σ]
 OotOffset-st: 1/0/1/0 [2]
 KicOffset-st: 1/0/1/0 [2]
 DiffImageQuality-figm: 0.50 [1/2]
 DiffImageOverlap-fno: 1.00 [3/3]

TCE 005531281-01, PDC Light Curves

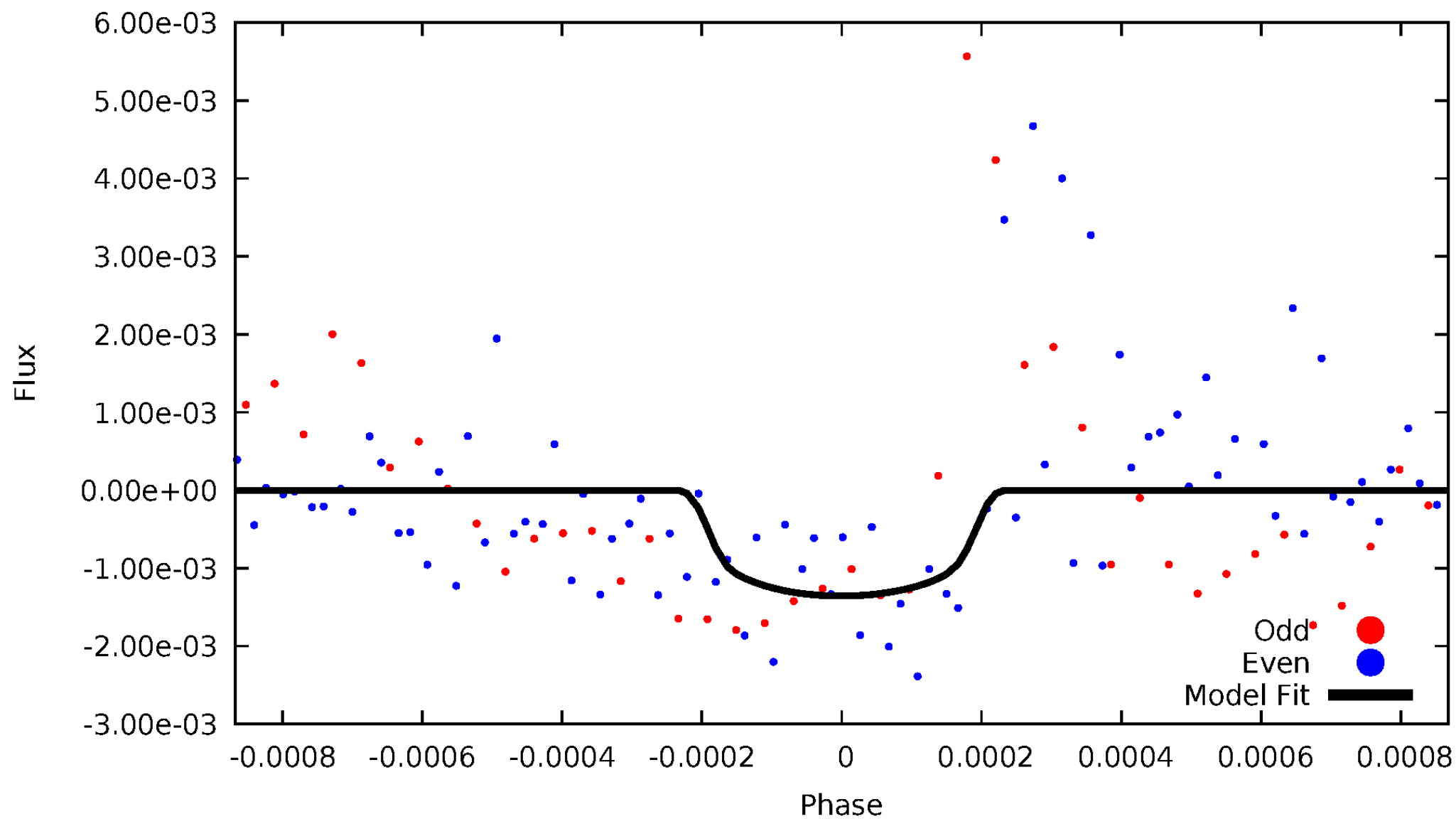


TCE 005531281-01



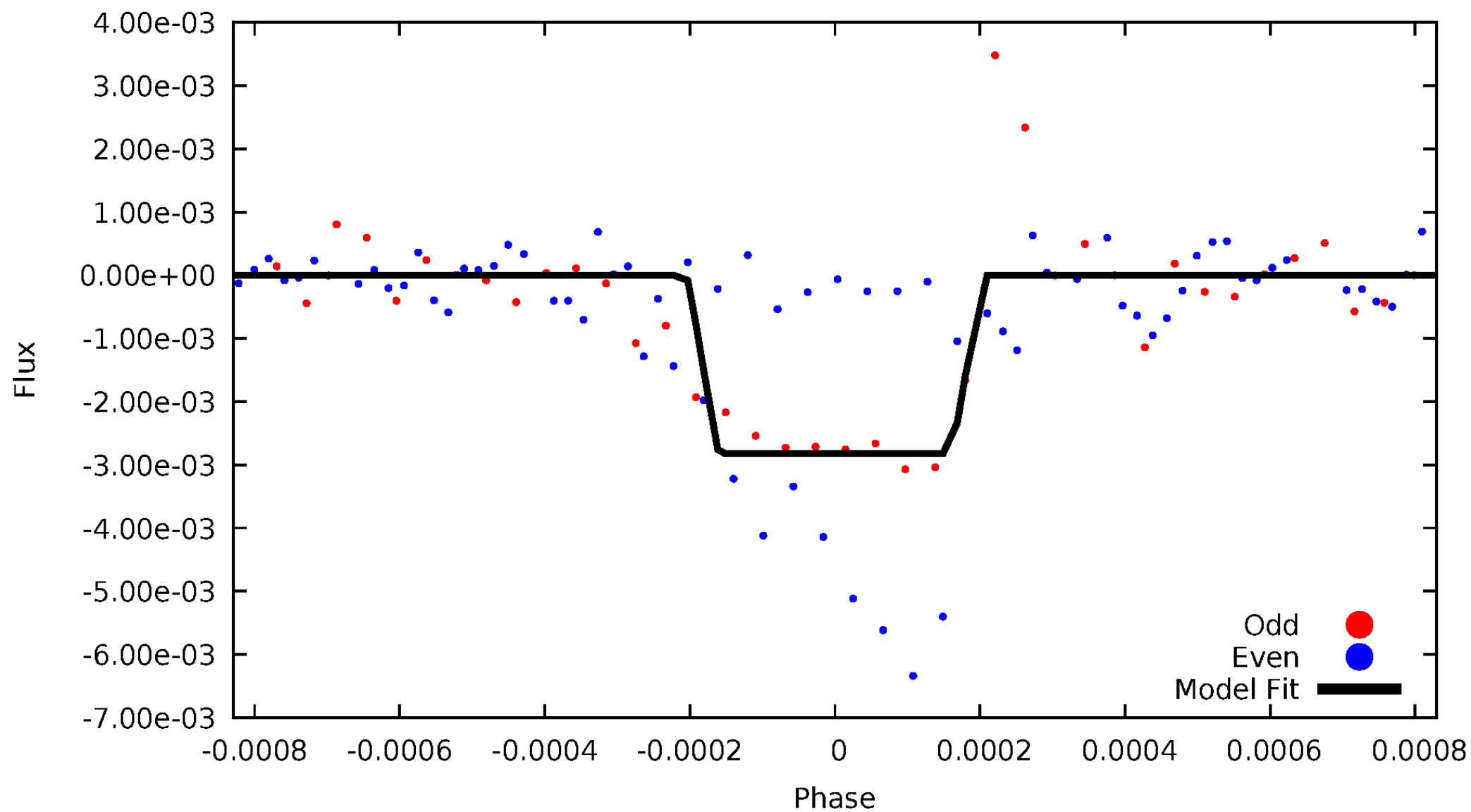
DV Odd/Even

TCE 005531281-01



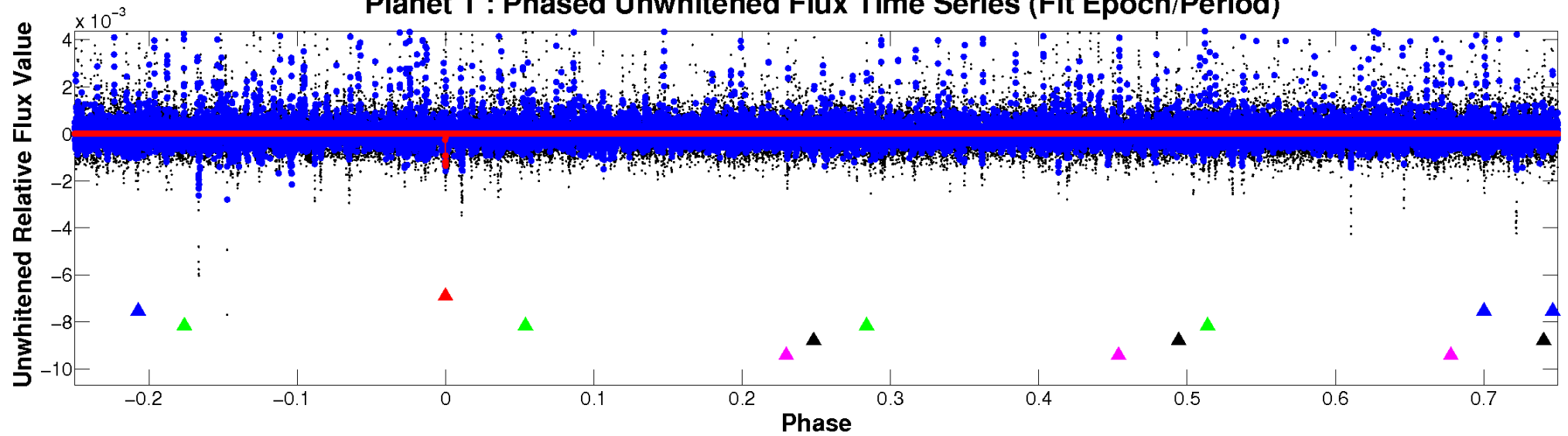
ALT Odd/Even

TCE 005531281-01

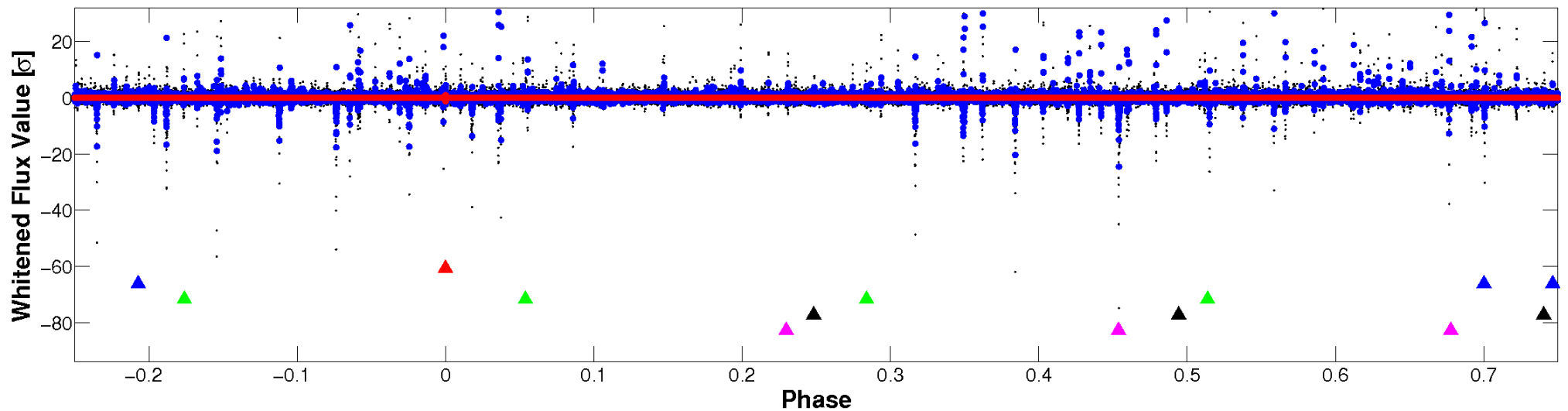


Non-Whitened Vs. Whitened Light Curve

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

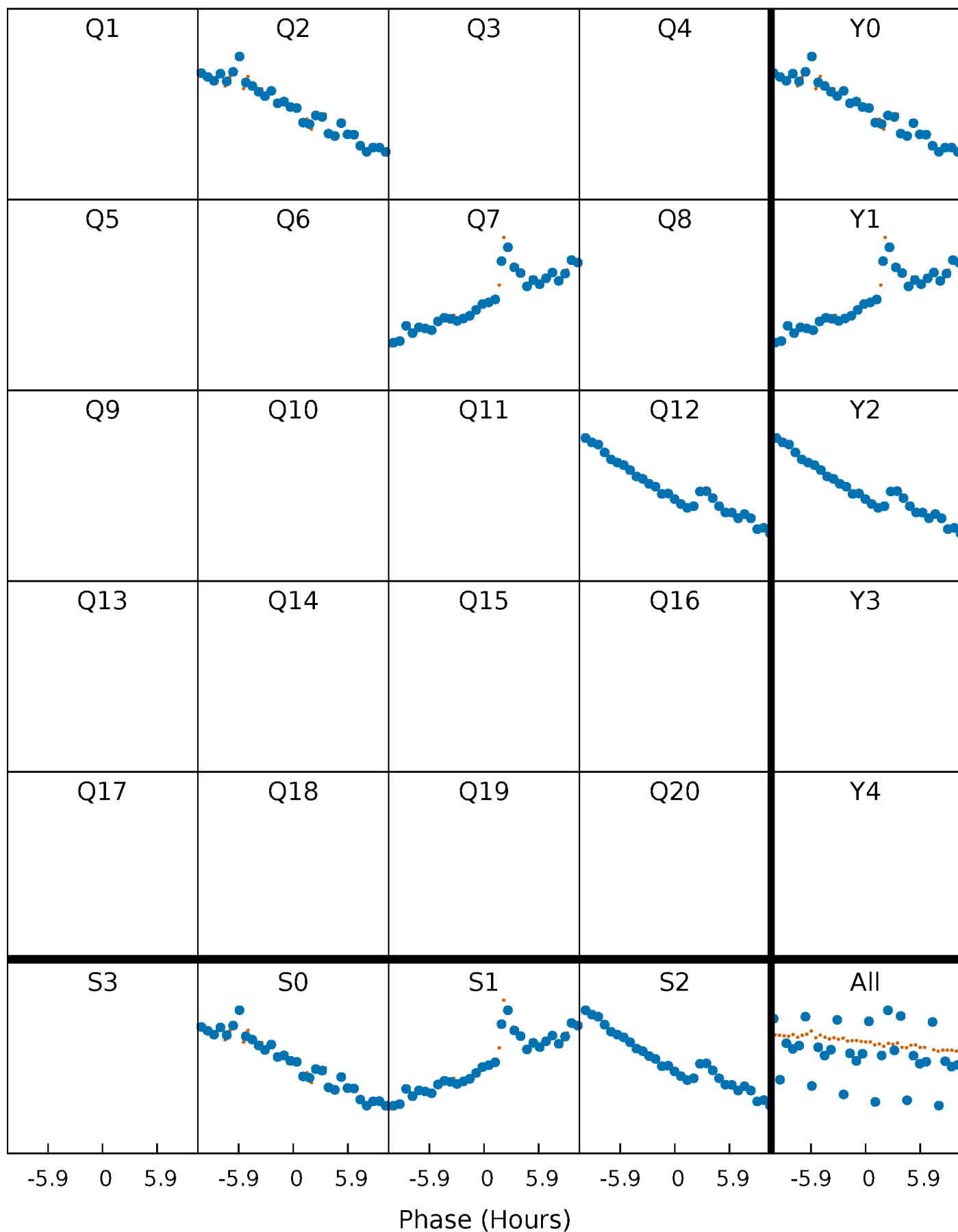


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



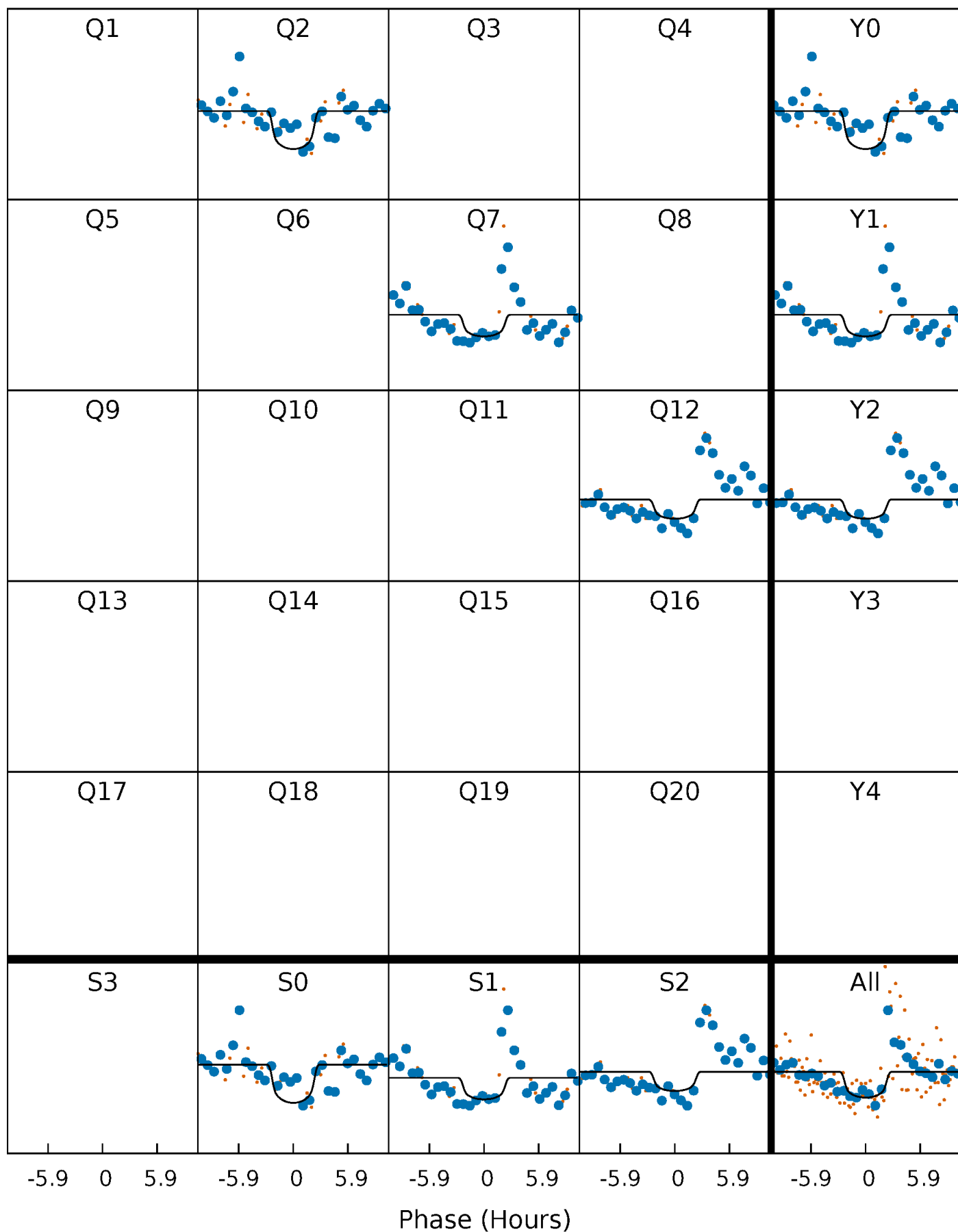
PDC Quarter-Phased Transit Curves

TCE 005531281-01 P=495.015863 Days $T_0=178.817207$ (BKJD)



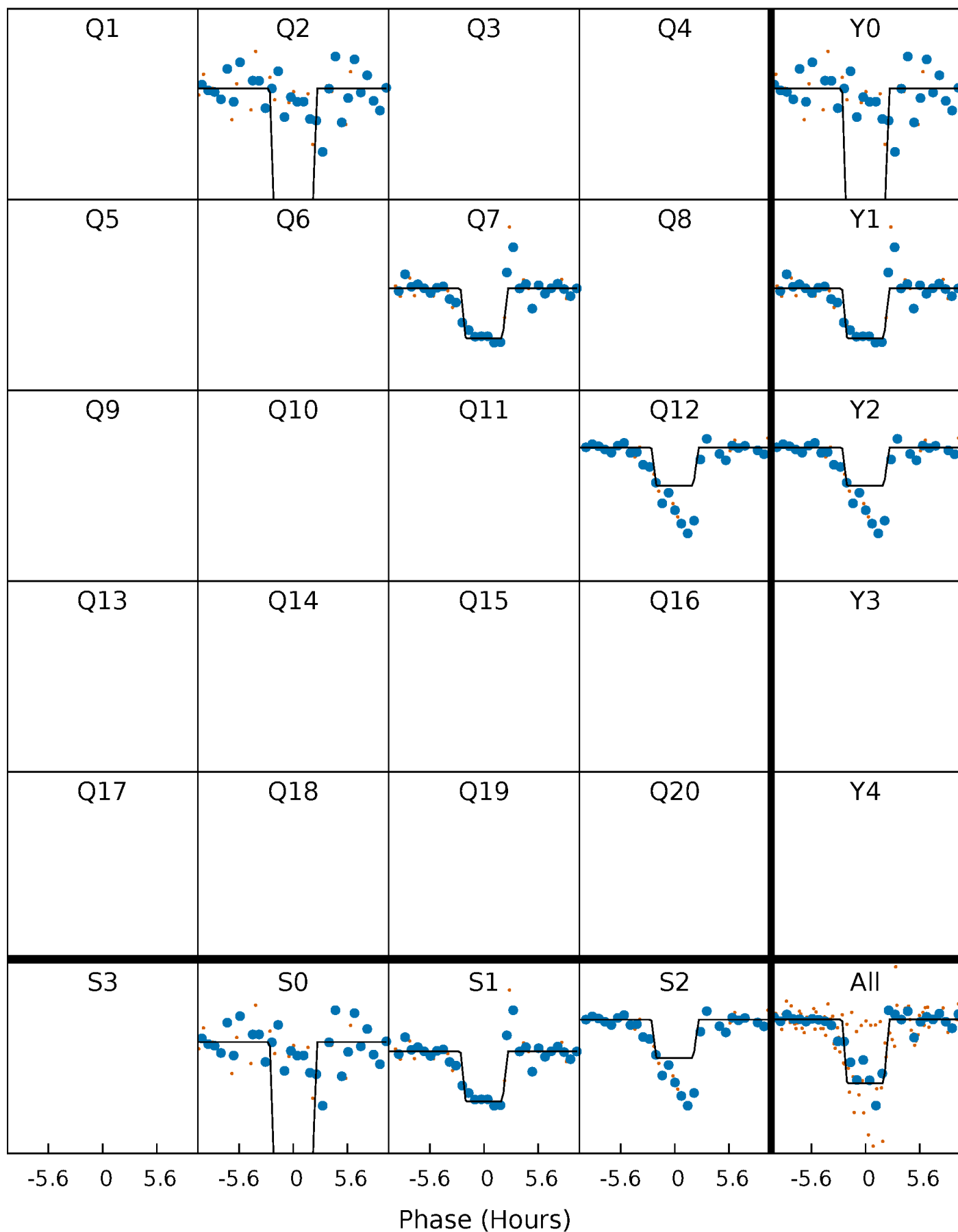
DV Quarter-Phased Transit Curves

TCE 005531281-01 P=495.015863 Days $T_0=178.817207$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

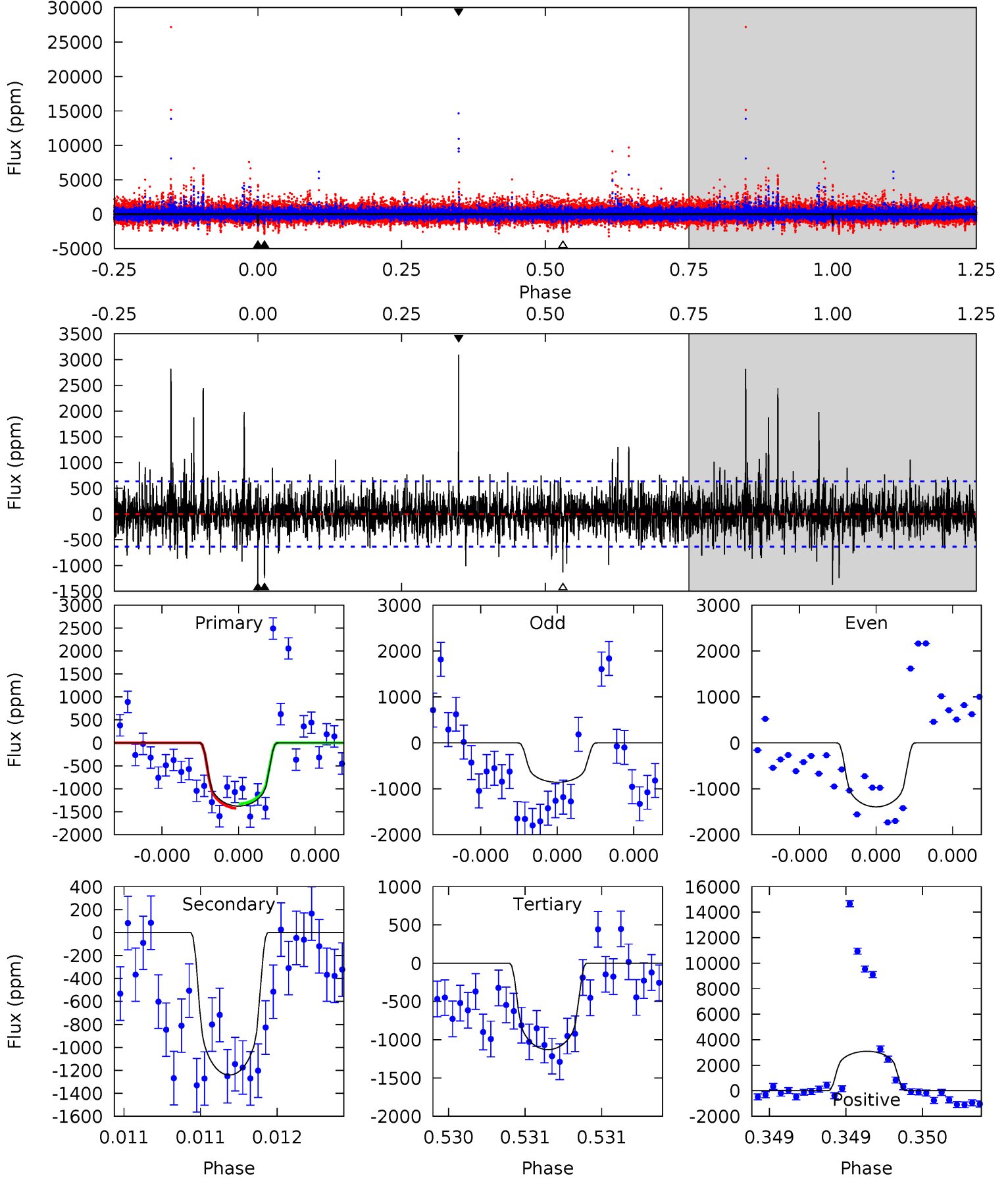
TCE 005531281-01 P=495.037047 Days $T_0=178.775310$ (BKJD)



DV Model-Shift Uniqueness Test

005531281-01, P = 495.015863 Days, E = 178.817207 Days

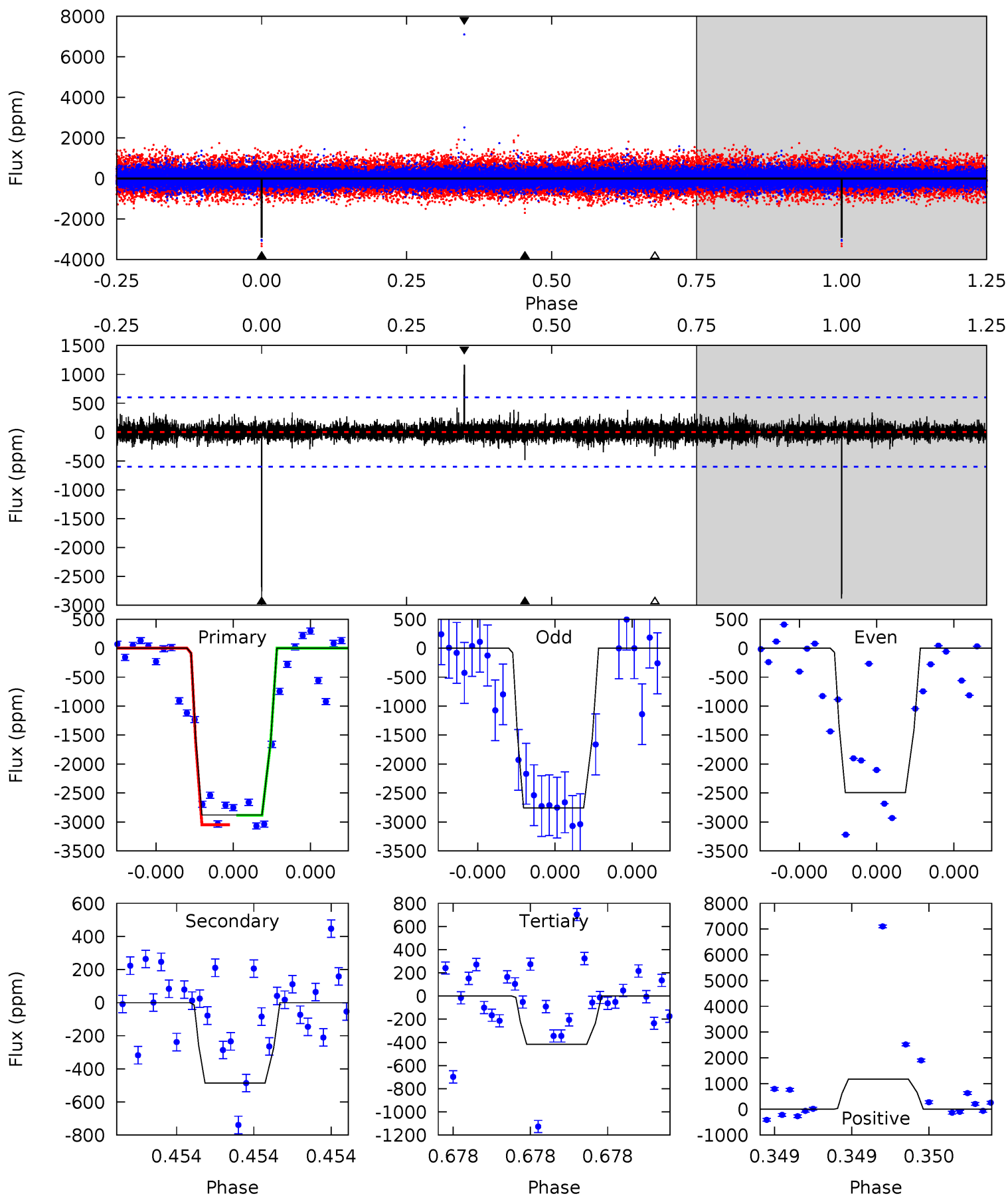
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	10.9	9.97	27.3	5.59	3.50	2.27	2.18	-15.1	0.98	-16.3	0.78	1.35	0.69	0.44



Alt Model-Shift Uniqueness Test

005531281-01, P = 495.037047 Days, E = 178.775310 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.0	4.55	3.90	10.9	5.62	3.56	0.69	23.0	16.0	0.64	-6.37	1.53	0.92	0.29	0.76



Stellar Parameters For KIC 005531281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5052^{+151}_{-136}	$4.521^{+0.080}_{-0.072}$	$-0.100^{+0.300}_{-0.300}$	$0.786^{+0.078}_{-0.086}$	$0.748^{+0.103}_{-0.055}$	$2.173^{+0.776}_{-0.481}$
	+3%/-3%	+2%/-2%	+300%/-300%	+10%/-11%	+14%/-7%	+36%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005531281-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1241 ± 113	$3.32^{+1.46}_{-1.40}$	262^{+10}_{-10}	4859^{+1420}_{-660}	$76785^{+154283}_{-40037}$
Alt.	-486 ± 107	$4.55^{+1.62}_{-1.44}$	263^{+11}_{-12}	3638^{+575}_{-358}	15713^{+20550}_{-7601}

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 $A_{obs} \gg 1.0$

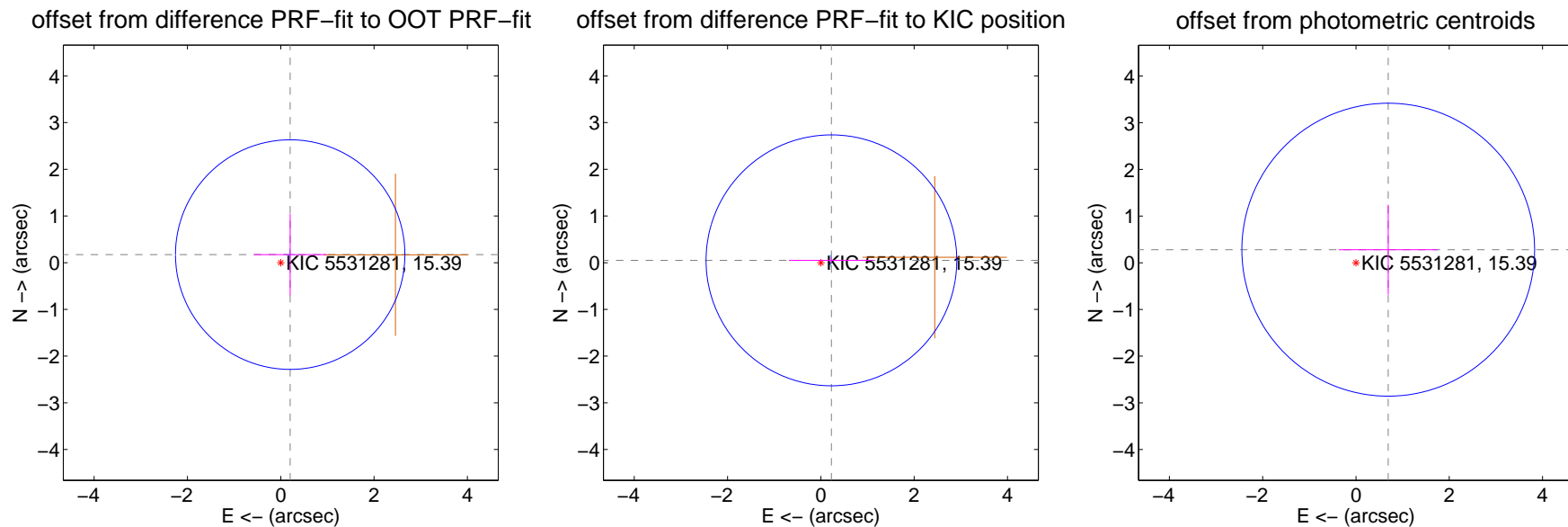
DV Centroid Data

Supplemental centroid analysis for 005531281-01. Kepler magnitude: 15.39. Transit SNR 6.52

There are 1 quarters with good PRF difference image offsets

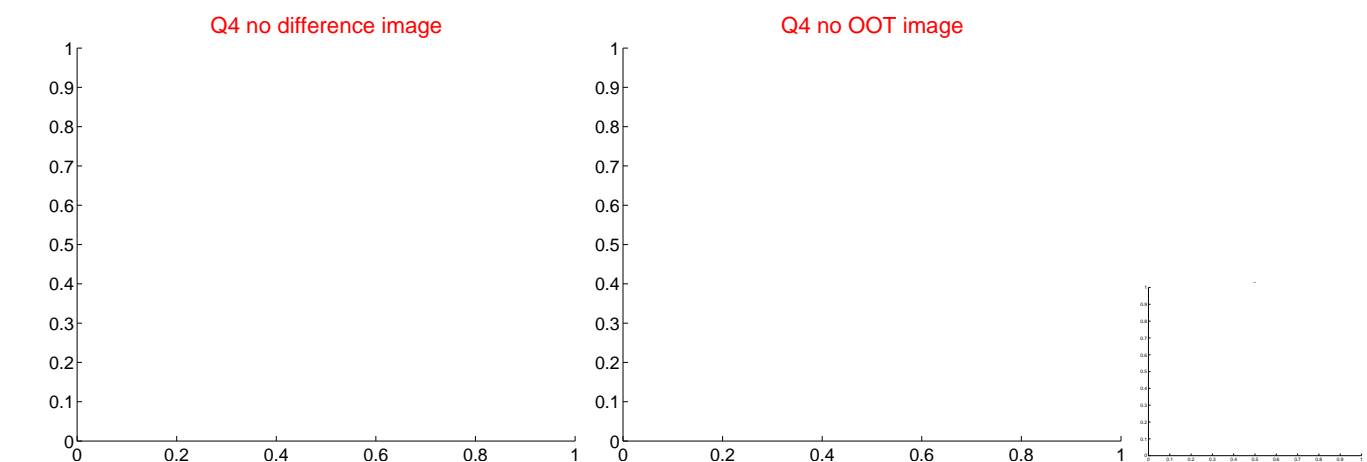
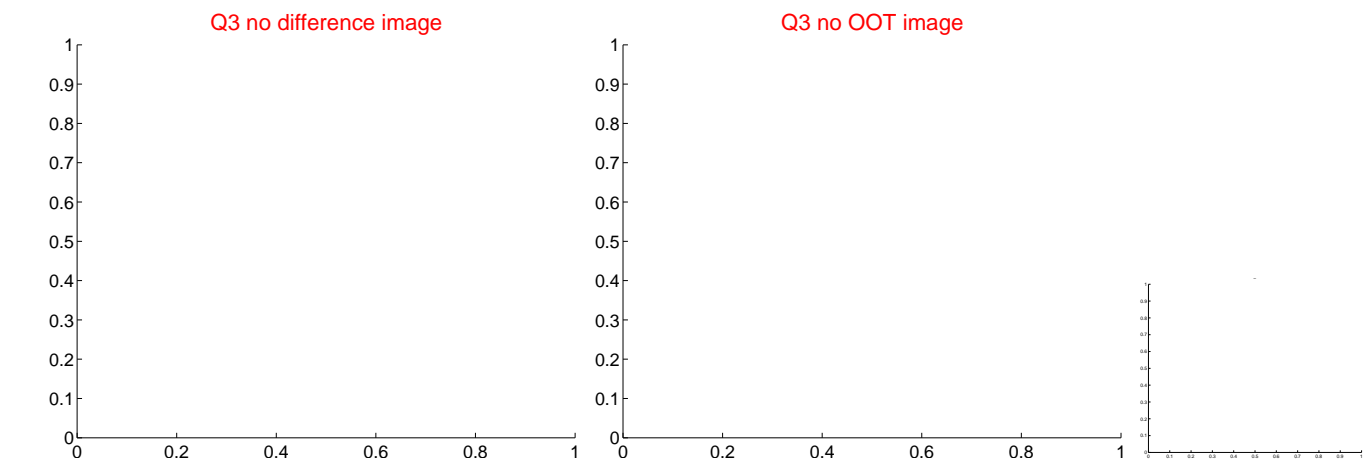
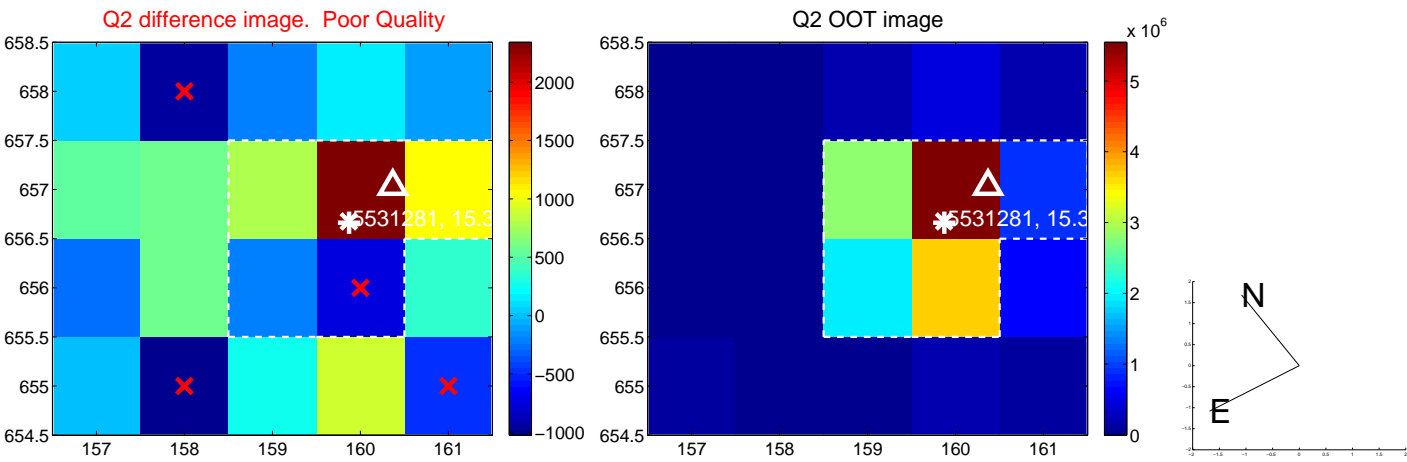
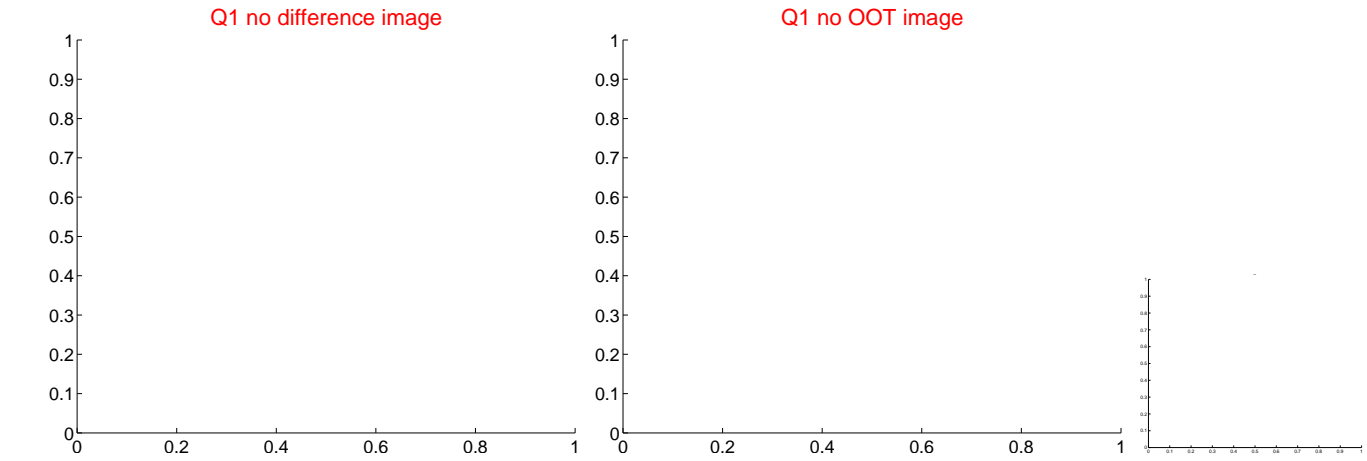
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.266 ± 0.819	0.32	-0.202 ± 0.778	0.173 ± 0.873
PRF-fit source offset from KIC position	0.232 ± 0.895	0.26	-0.226 ± 0.911	0.050 ± 0.072
photometric centroid source offset	0.75 ± 1.05	0.71	-0.69 ± 1.06	0.28 ± 0.96

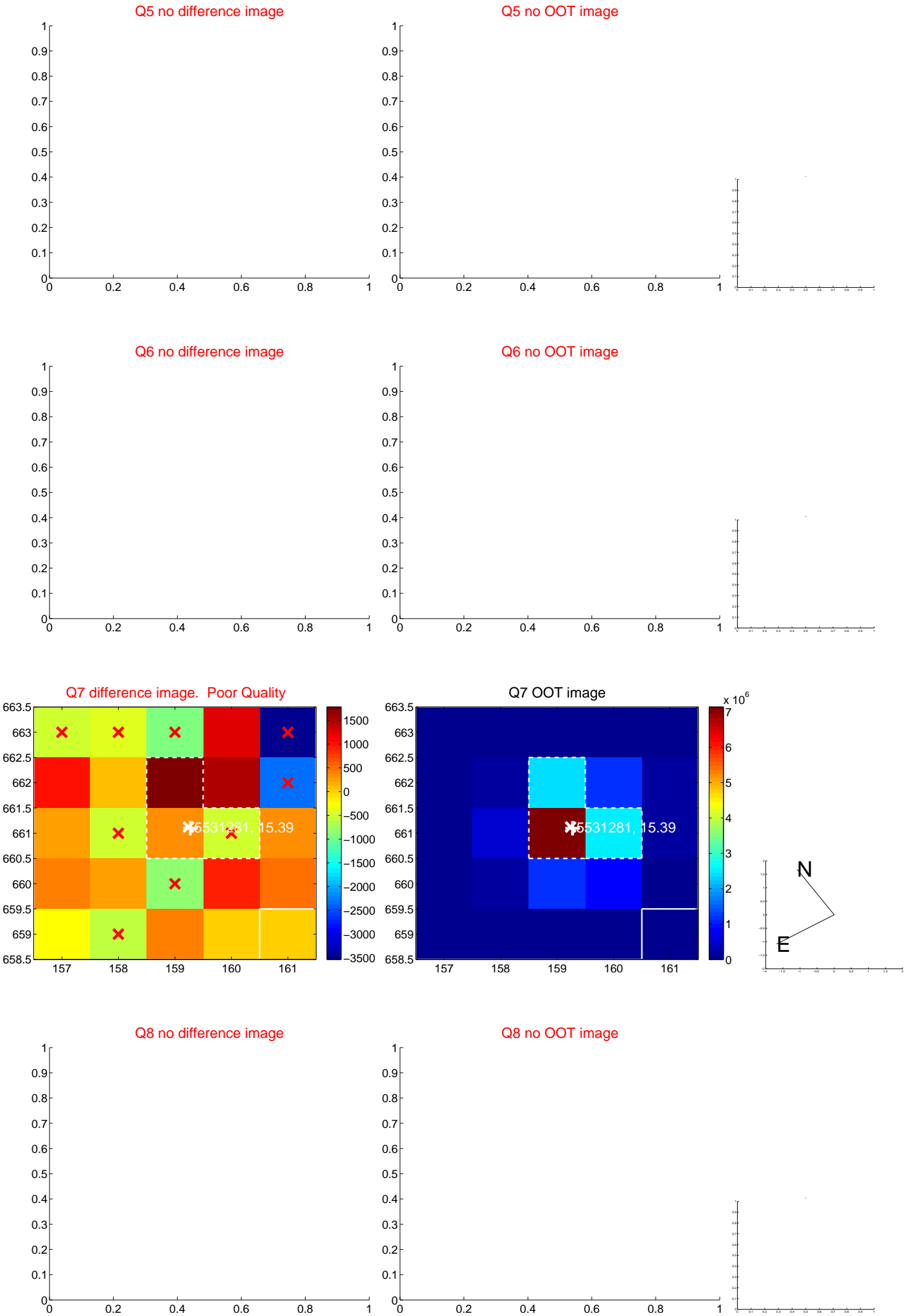


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

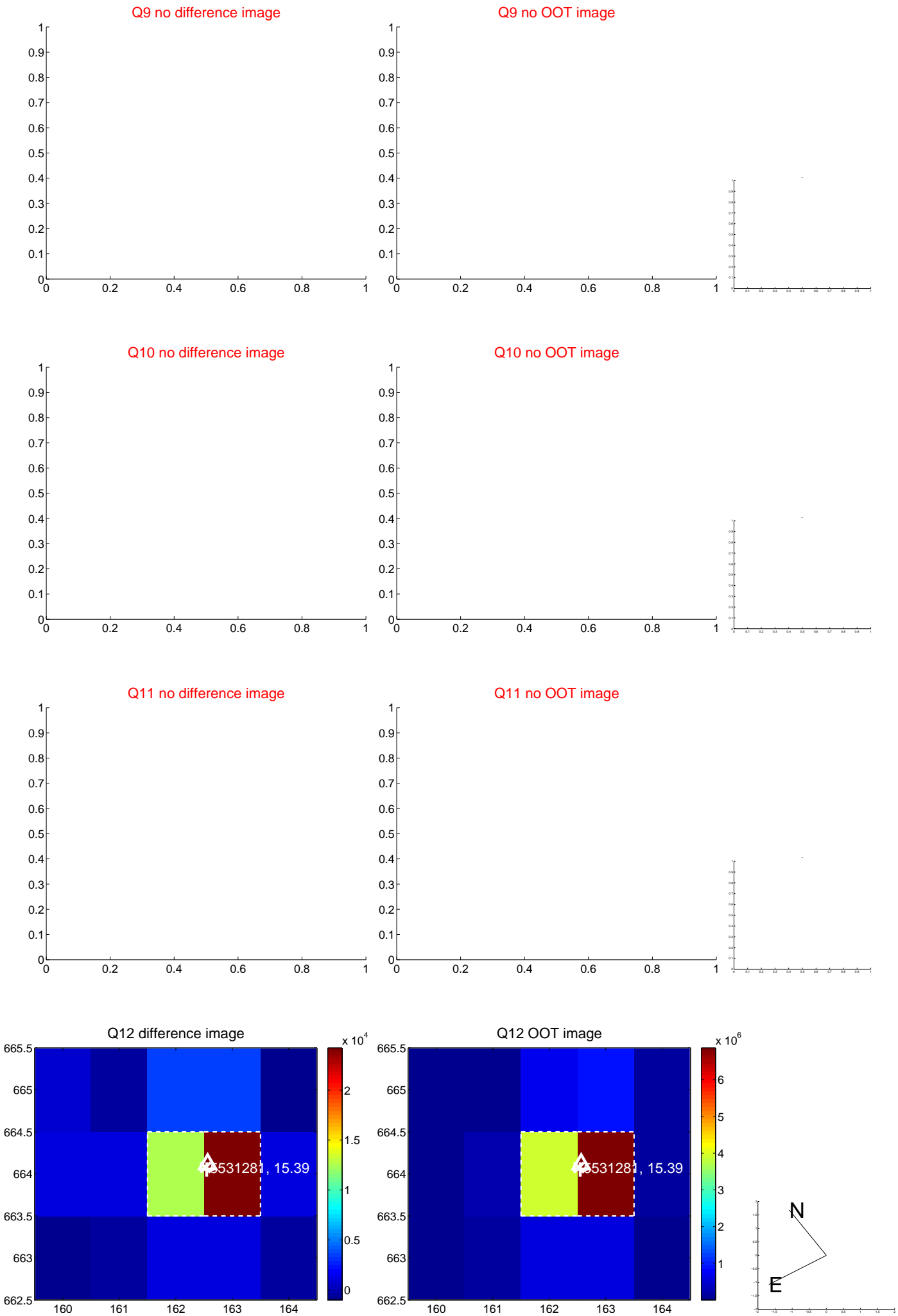
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



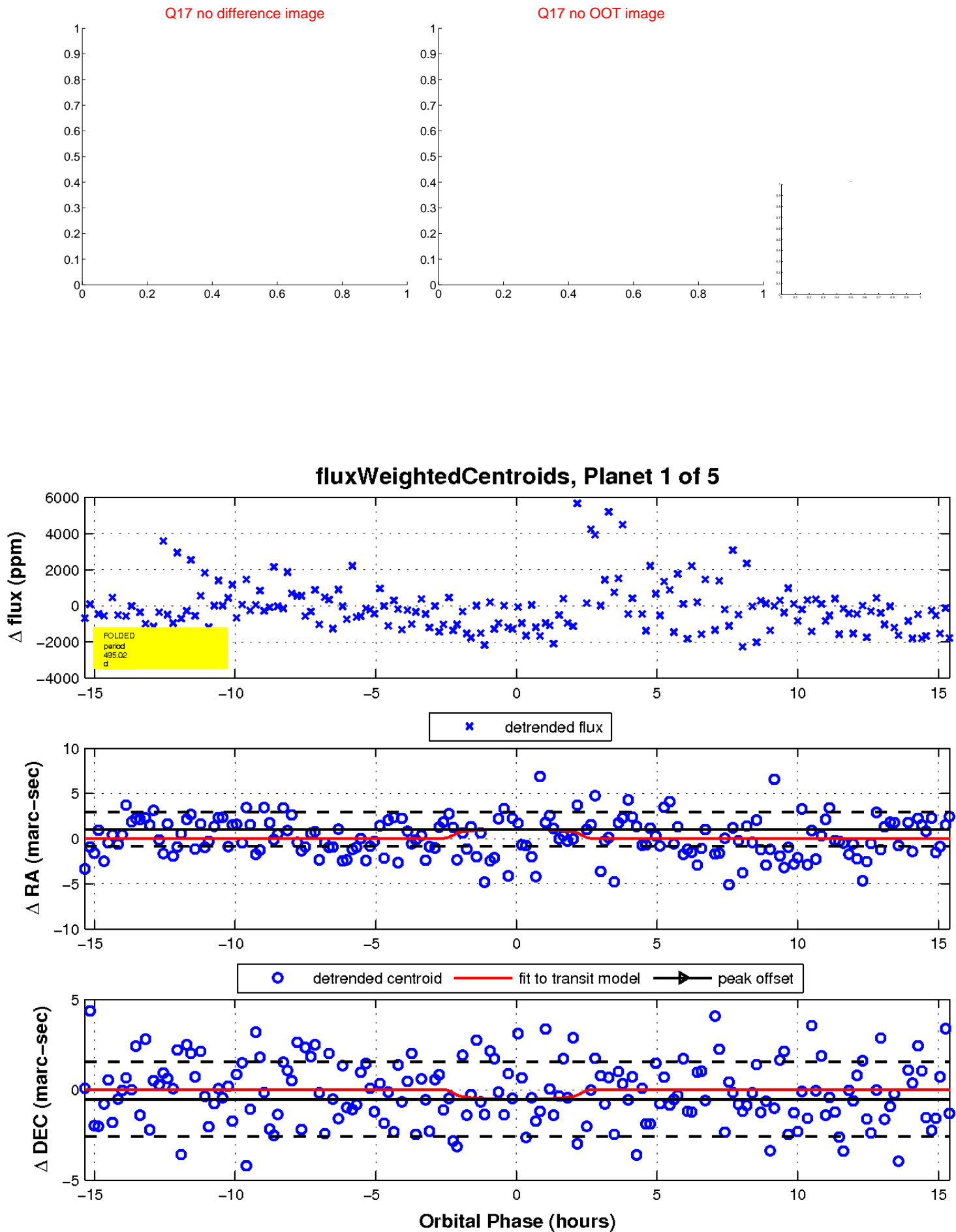
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

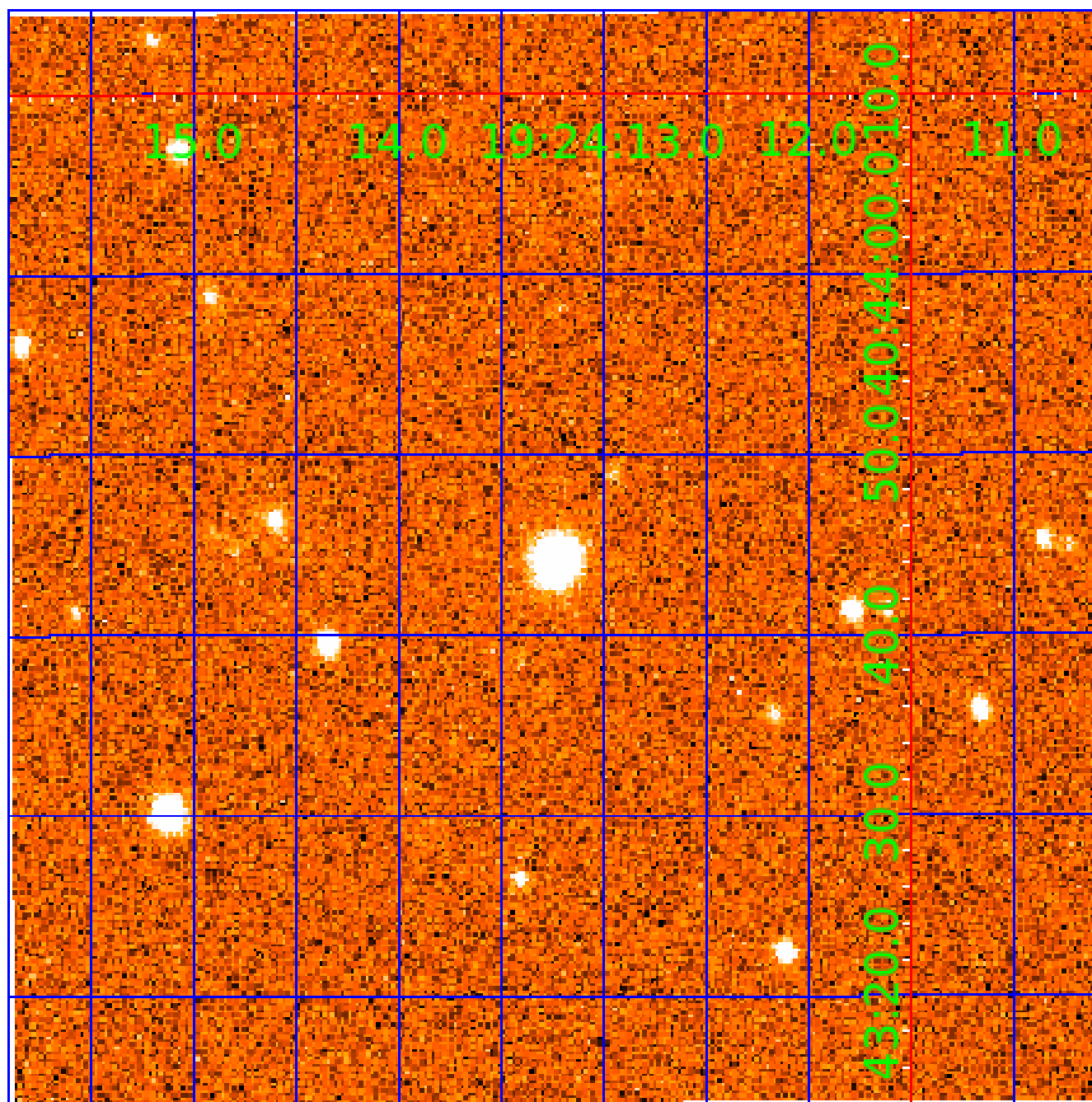


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005531281

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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005531281-03	OBS	No	381.185794	433.173160	771.5	3.738	10.8	4.2	0.79	5052	2.13	0.41
005531281-04	OBS	No	616.839298	301.691067	1115.4	7.368	9.7	5.6	0.79	5052	2.82	0.22
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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005531281-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

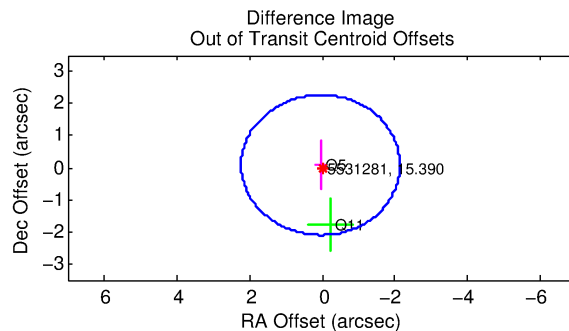
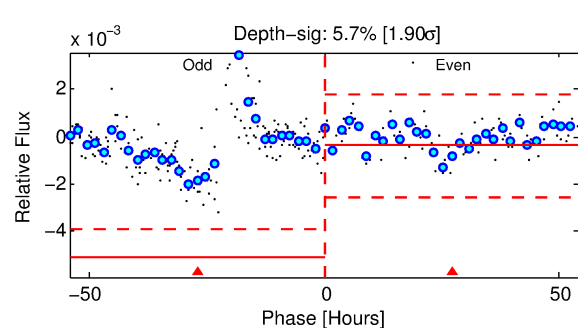
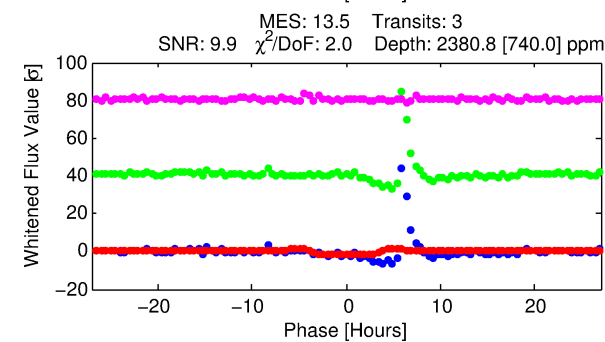
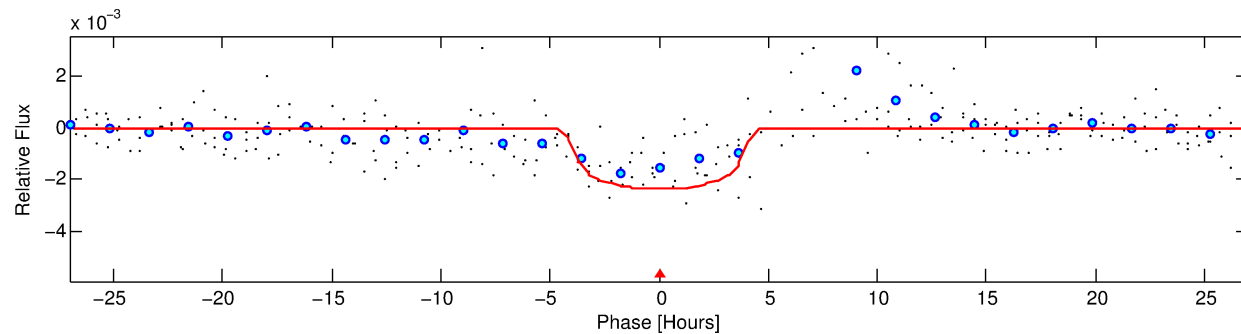
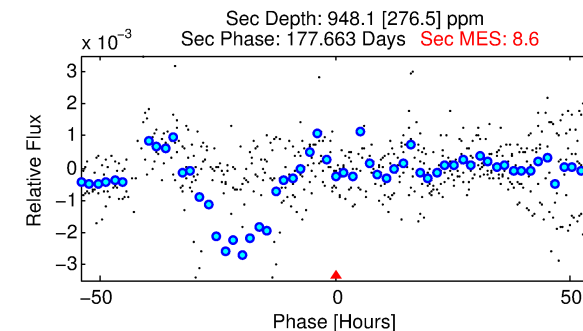
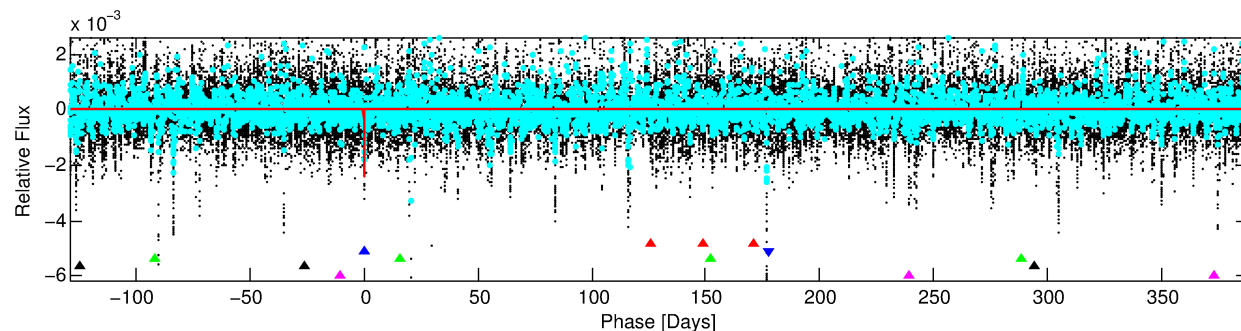
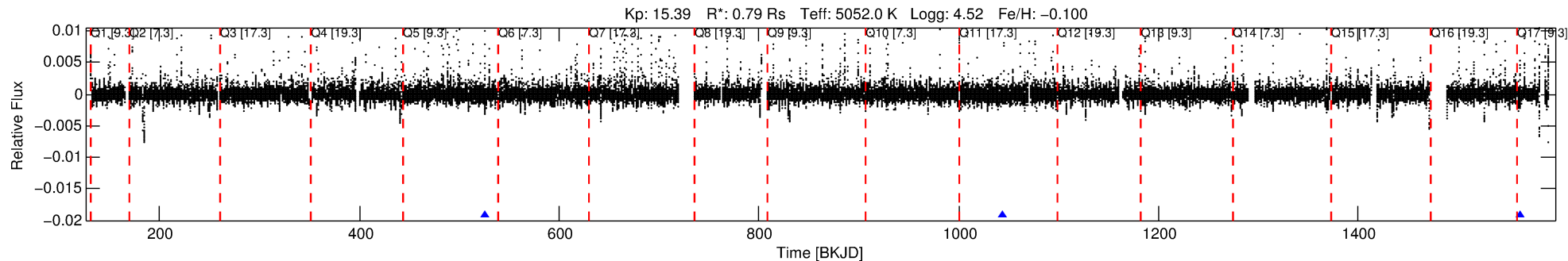
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531281-02

No Significant Match Found

DV One-Page Summary

KIC: 5531281 Candidate: 2 of 5 Period: 517.950 d



DV Fit Results:

Period = 517.95049 [0.01621] d
Epoch = 525.4221 [0.0218] BKJD
Rp/R* = 0.0493 [0.0144]
a/R* = 311.51 [252.94]
b = 0.77 [0.43]
Seff = 0.27 [0.05]
Teq = 185 [9] K
Rp = 4.23 [1.32] Re
a = 1.1460 [0.1093] AU
Ag = 38298.60 [25636.02] [1.49σ]
Teffp = 3992 [664] K [5.74σ]

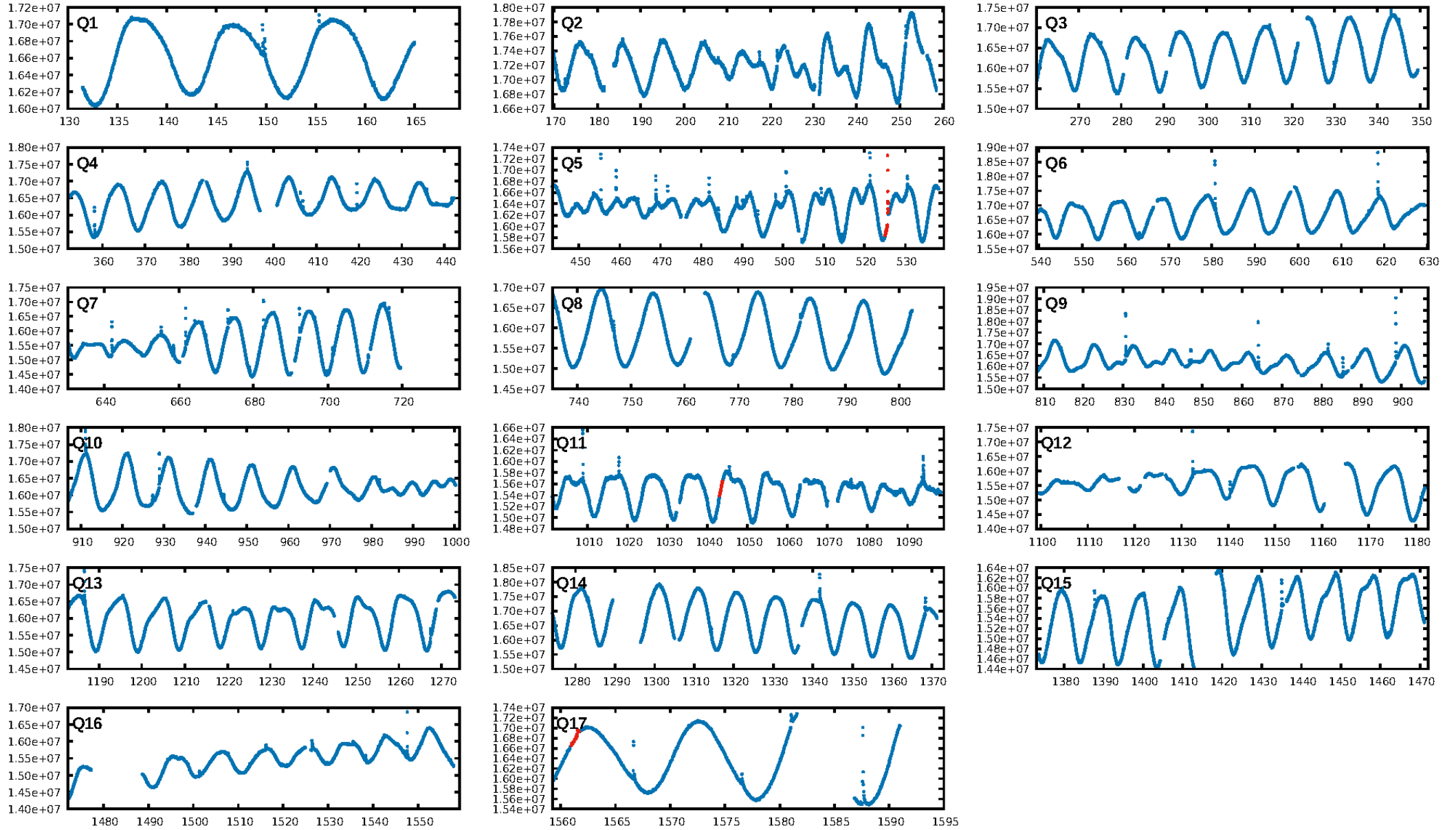
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [53.04σ]
LongPeriod-sig: 100.0% [203.93σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 4.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: -0.0571
Centroid-sig: 85.1%
Centroid-so: 0.182 arcsec [0.46σ]
OotOffset-rm: 0.093 arcsec [0.13σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: 0.089 arcsec [0.15σ]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [2/2]

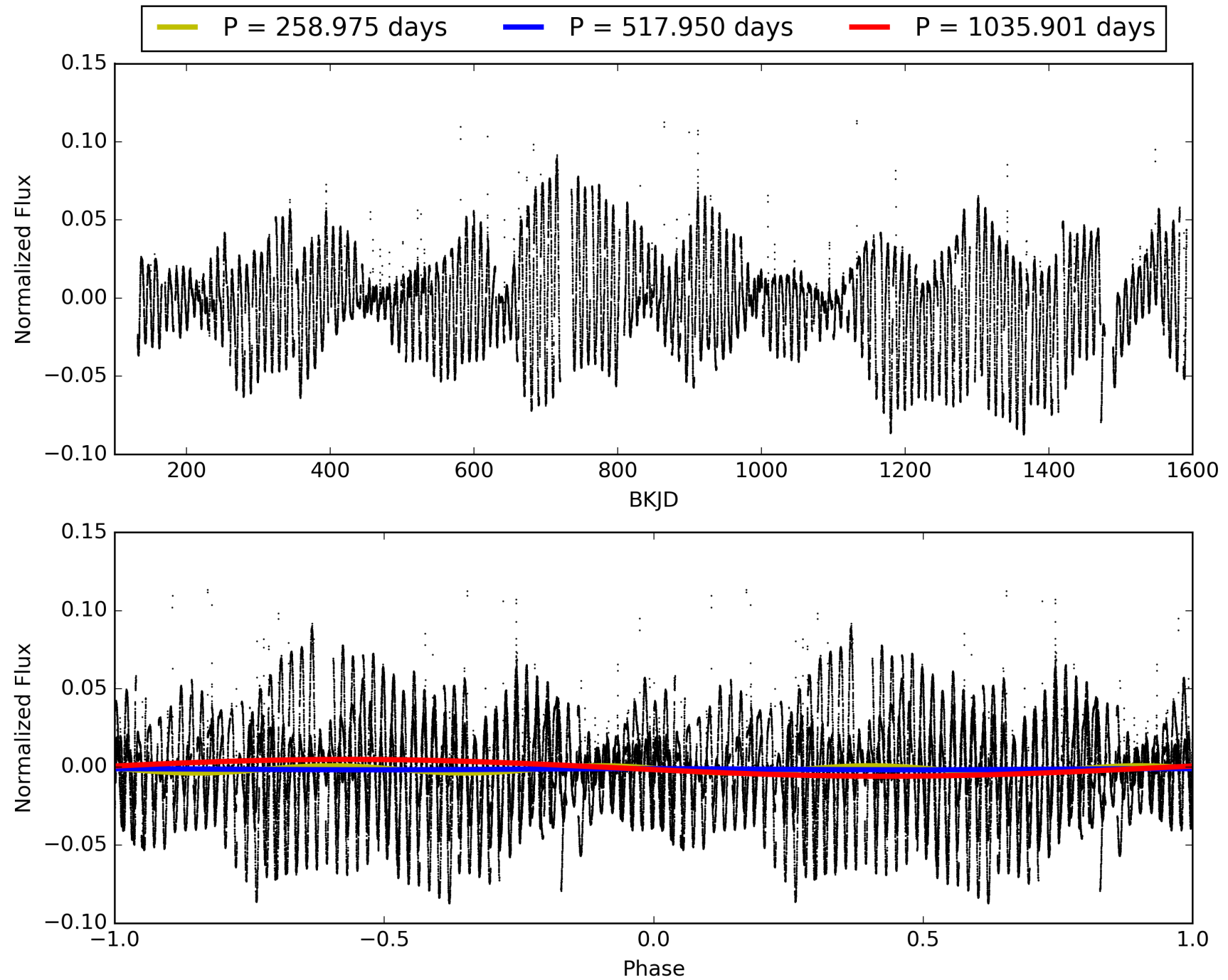
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005531281-02, PDC Light Curves

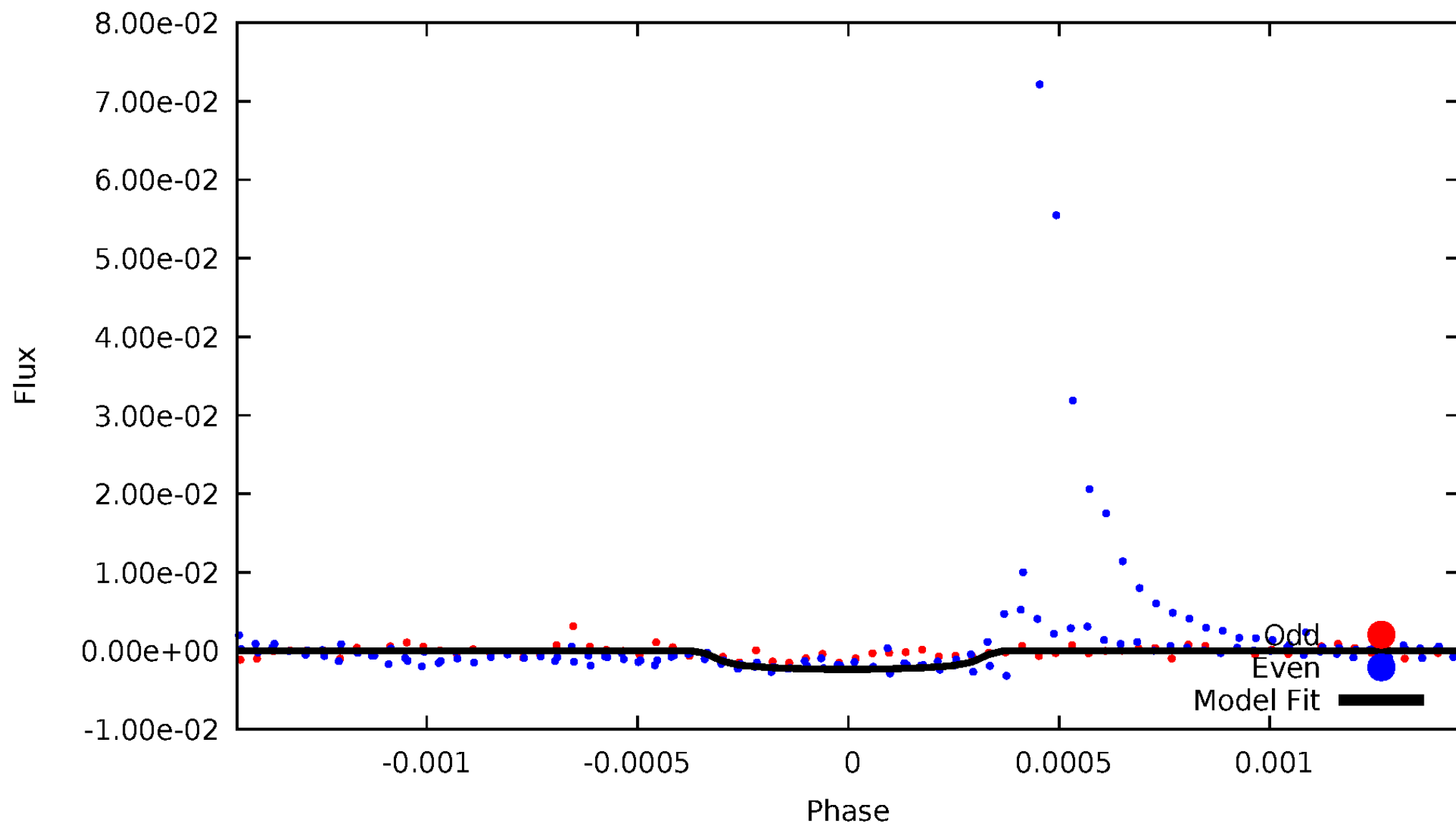


TCE 005531281-02



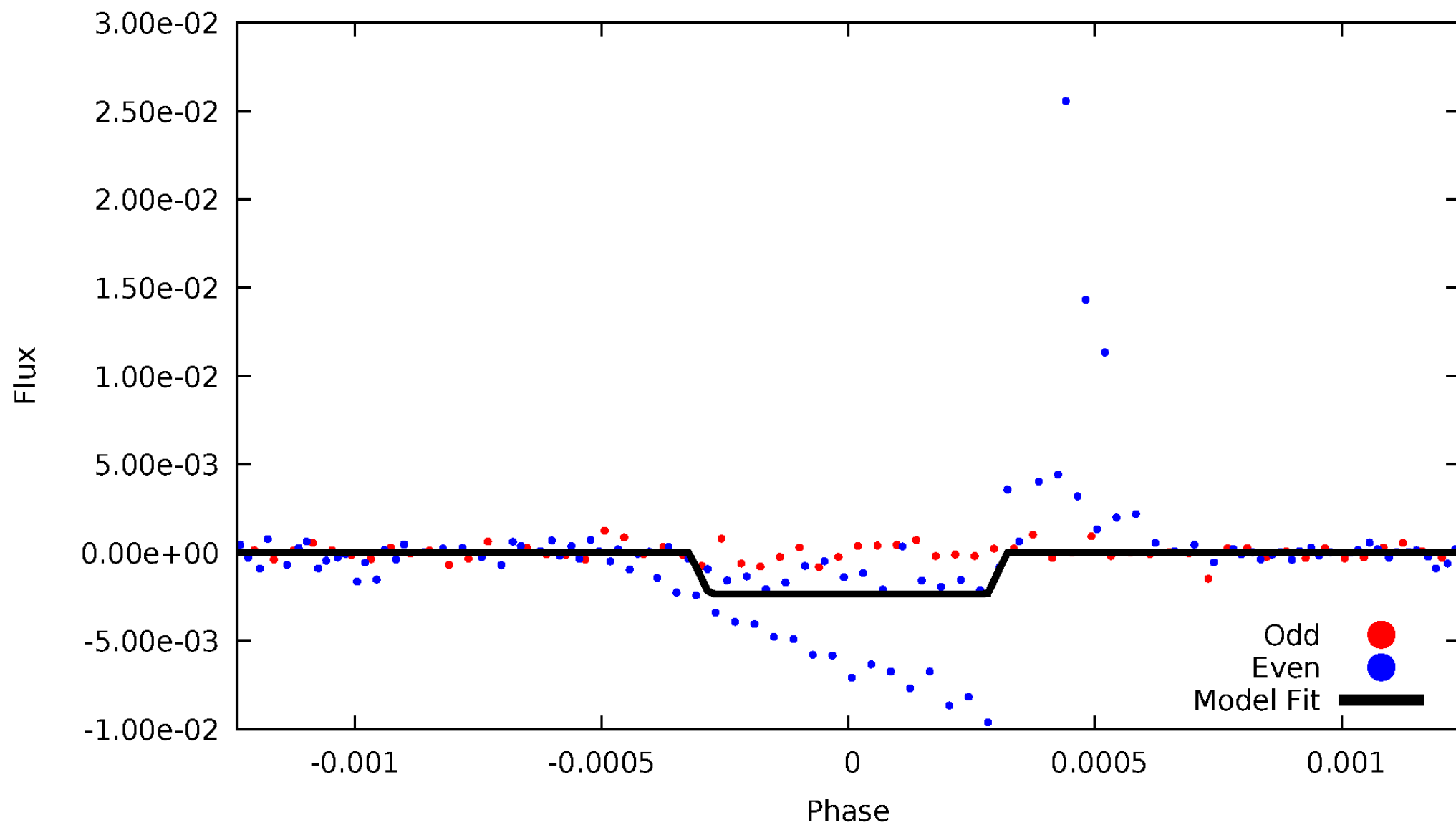
DV Odd/Even

TCE 005531281-02



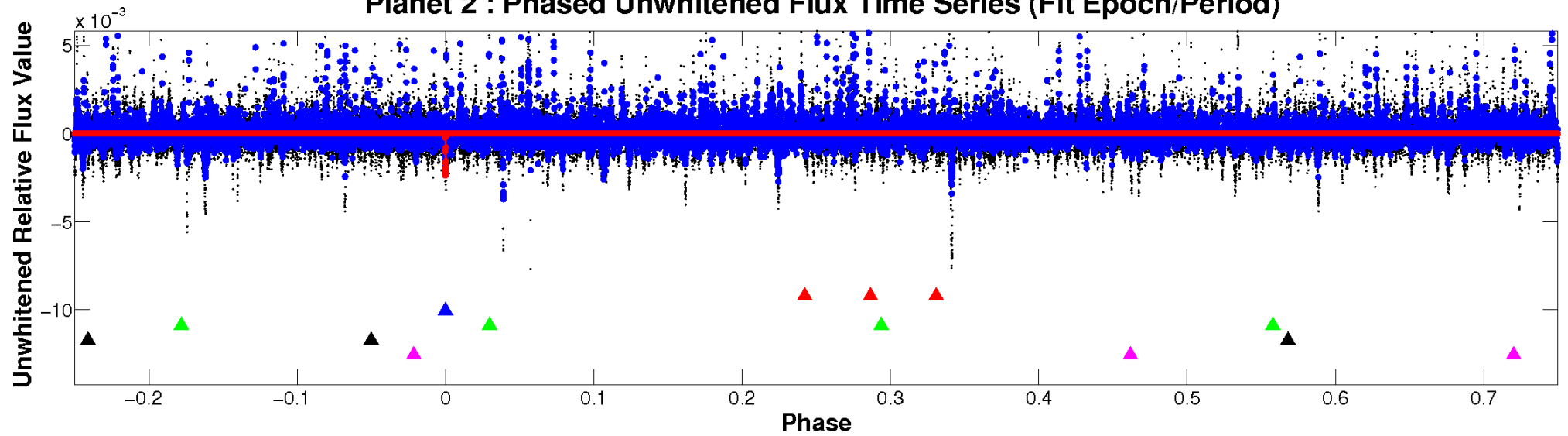
ALT Odd/Even

TCE 005531281-02

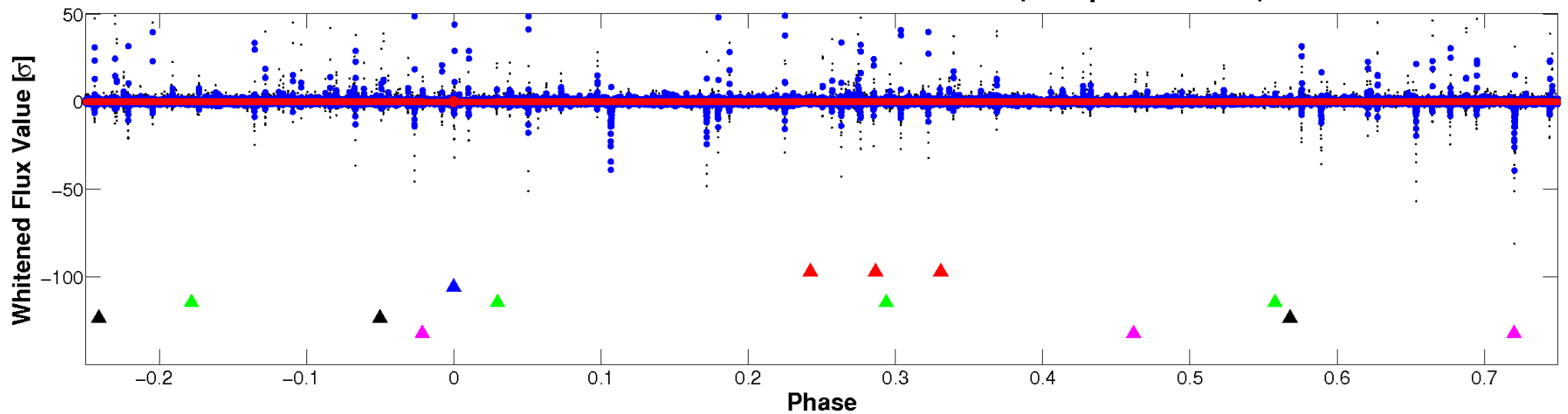


Non-Whitened Vs. Whitened Light Curve

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

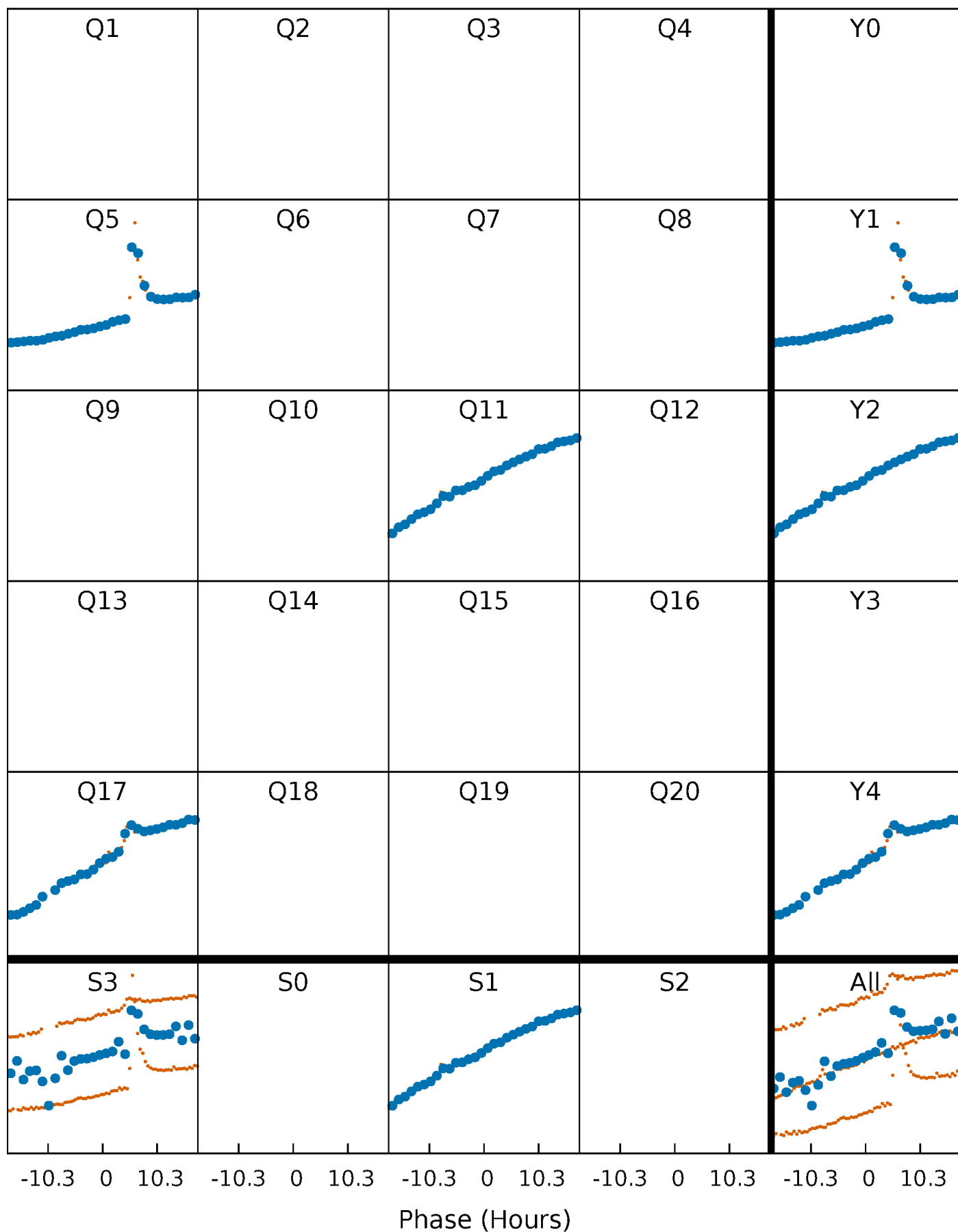


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



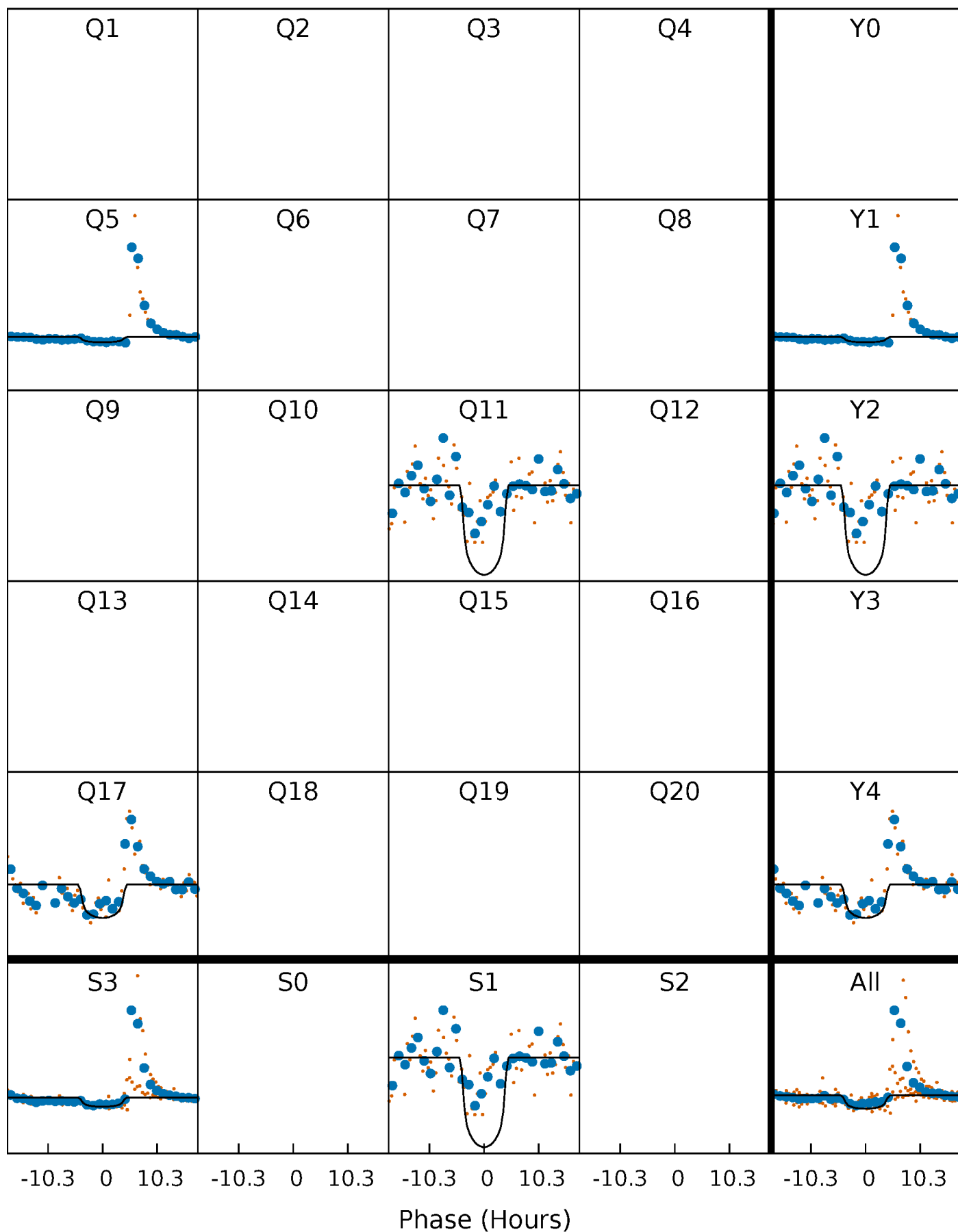
PDC Quarter-Phased Transit Curves

TCE 005531281-02 $P=517.950490$ Days $T_0=525.422114$ (BKJD)



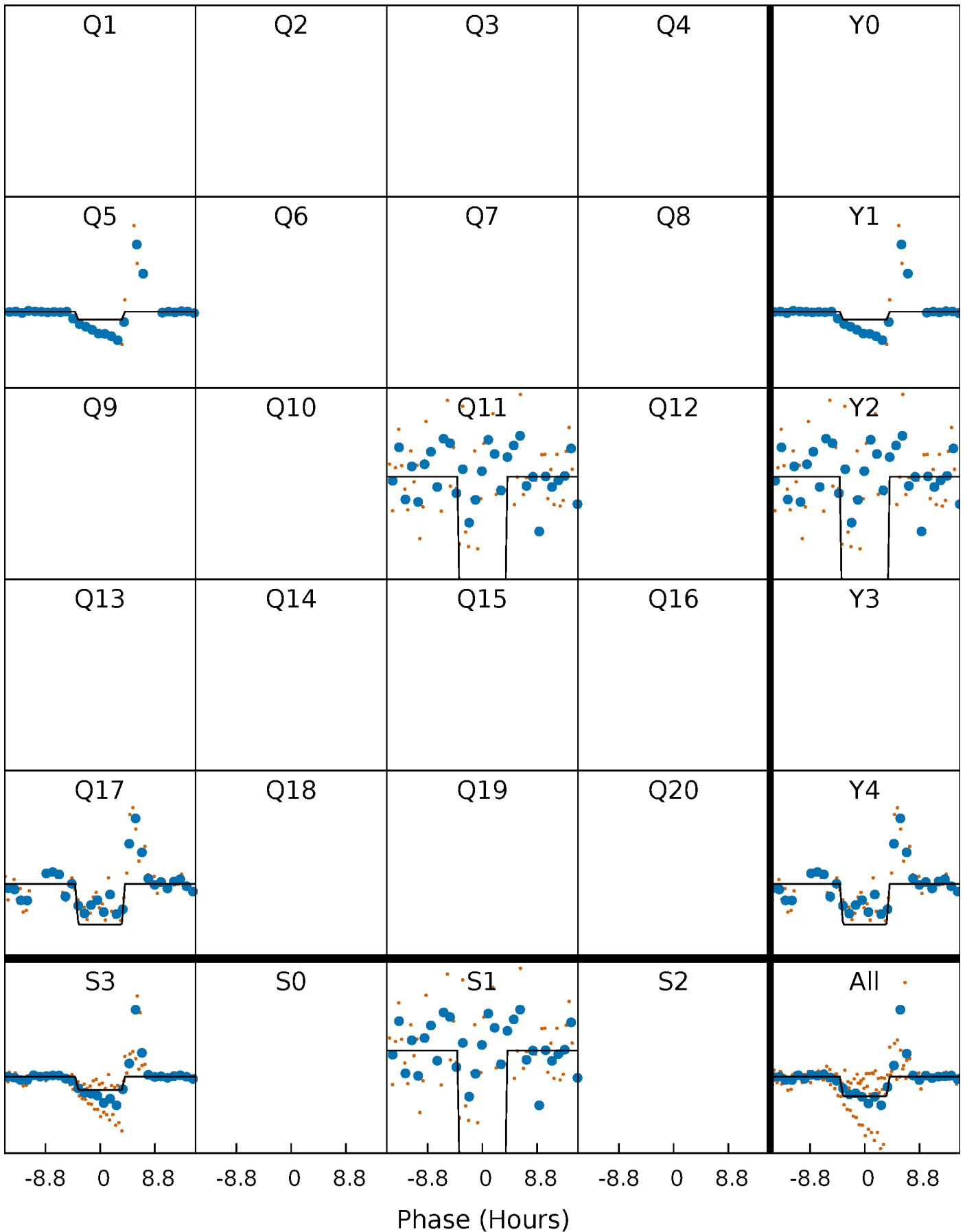
DV Quarter-Phased Transit Curves

TCE 005531281-02 $P=517.950490$ Days $T_0=525.422114$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

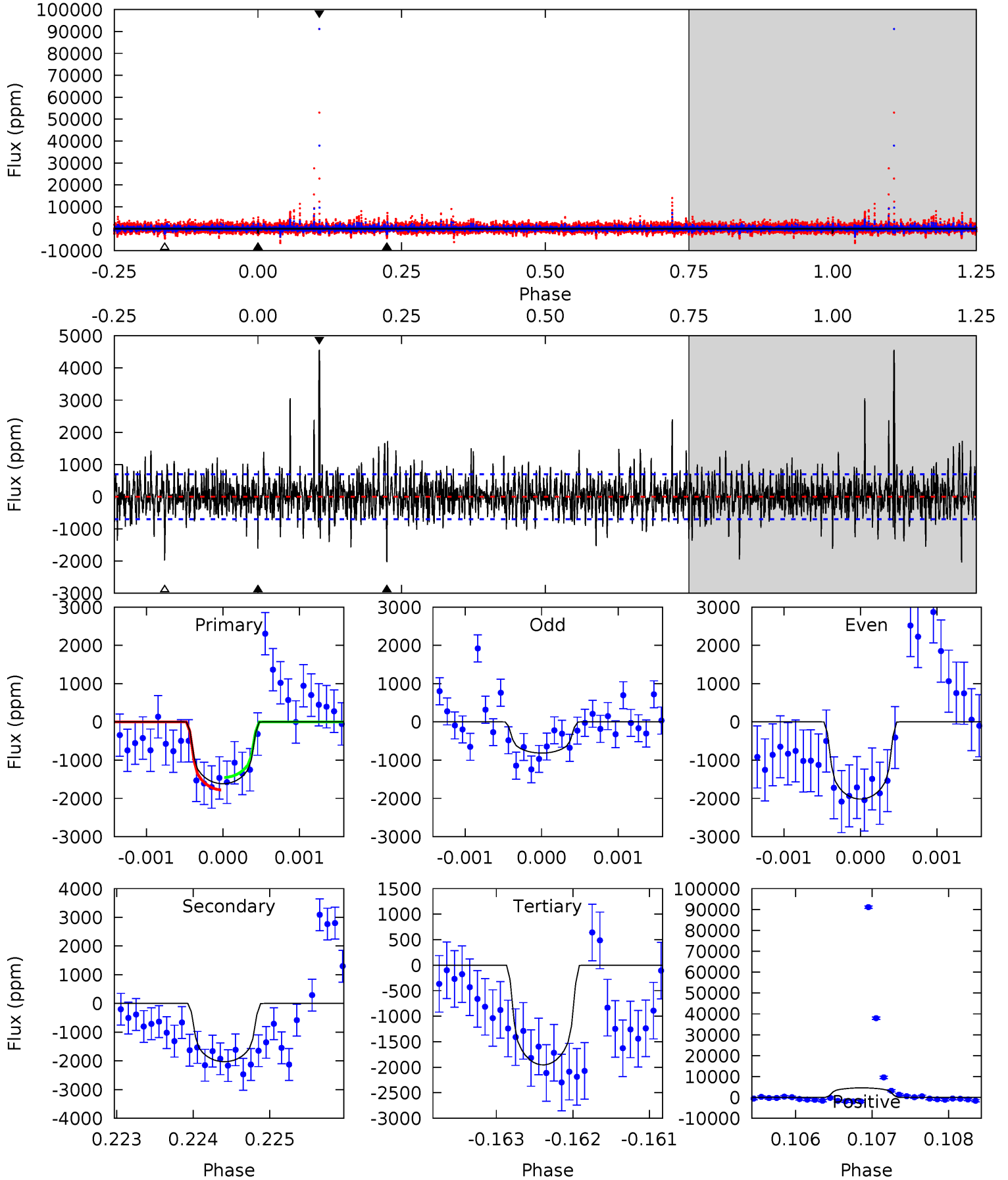
TCE 005531281-02 $P=517.922634$ Days $T_0=525.469606$ (BKJD)



DV Model-Shift Uniqueness Test

005531281-02, P = 517.950490 Days, E = 7.471624 Days

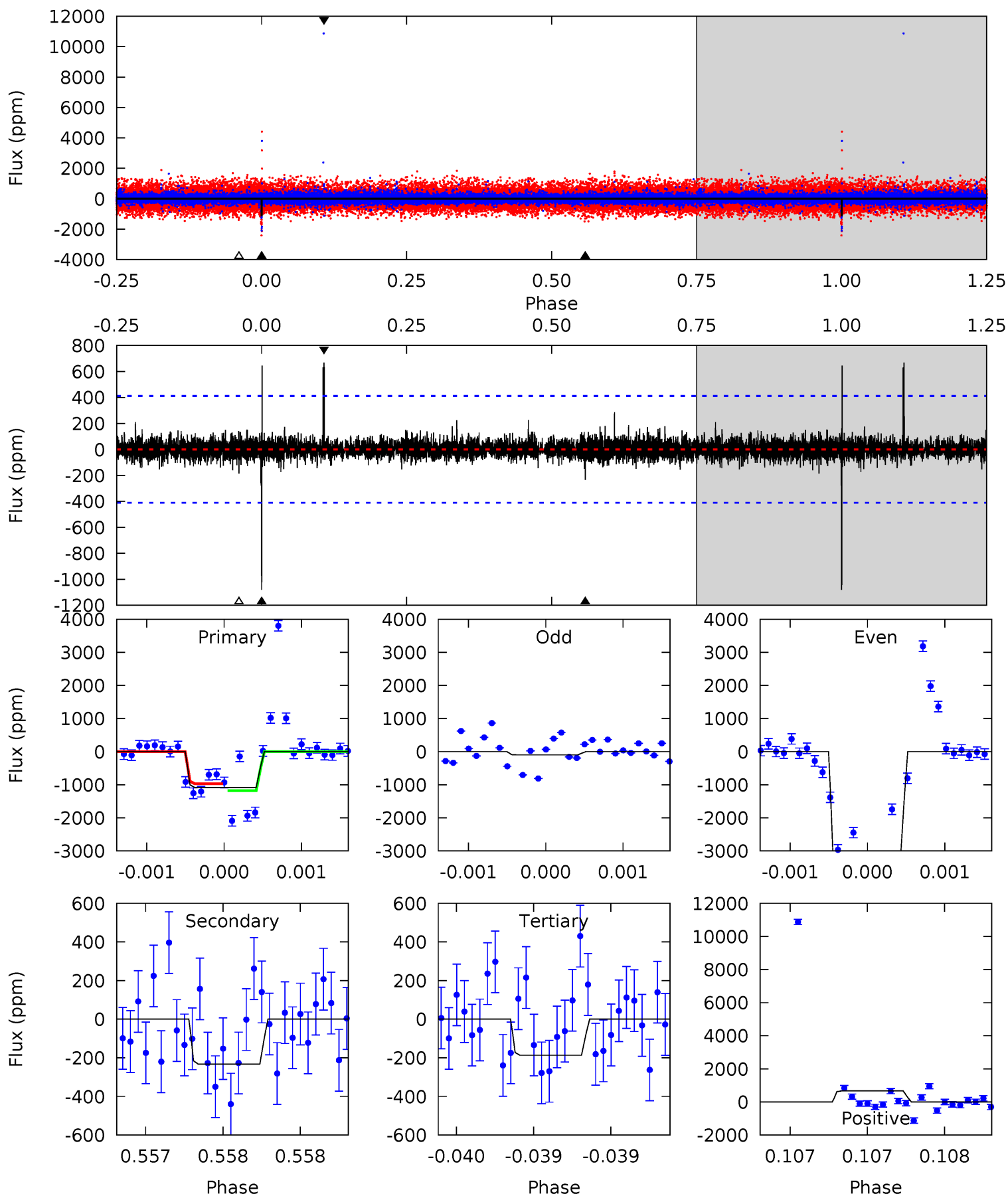
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	16.0	15.4	35.9	5.49	3.36	3.56	-2.66	-23.2	0.59	-20.0	1.98	0.91	0.69	1.27



Alt Model-Shift Uniqueness Test

005531281-02, P = 517.922634 Days, E = 7.546972 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.6	3.13	2.51	8.98	5.53	3.41	0.56	12.0	5.57	0.62	-5.85	28.1	1.86	0.38	1.40



Stellar Parameters For KIC 005531281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5052^{+151}_{-136}	$4.521^{+0.080}_{-0.072}$	$-0.100^{+0.300}_{-0.300}$	$0.786^{+0.078}_{-0.086}$	$0.748^{+0.103}_{-0.055}$	$2.173^{+0.776}_{-0.481}$
	+3%/-3%	+2%/-2%	+300%/-300%	+10%/-11%	+14%/-7%	+36%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005531281-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2028 ± 127	$4.23^{+1.33}_{-1.22}$	258^{+10}_{-10}	4875^{+773}_{-502}	82131^{+78739}_{-34181}
Alt.	-233 ± 74	$4.12^{+1.28}_{-1.25}$	258^{+10}_{-11}	3345^{+423}_{-330}	9709^{+11439}_{-4771}

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

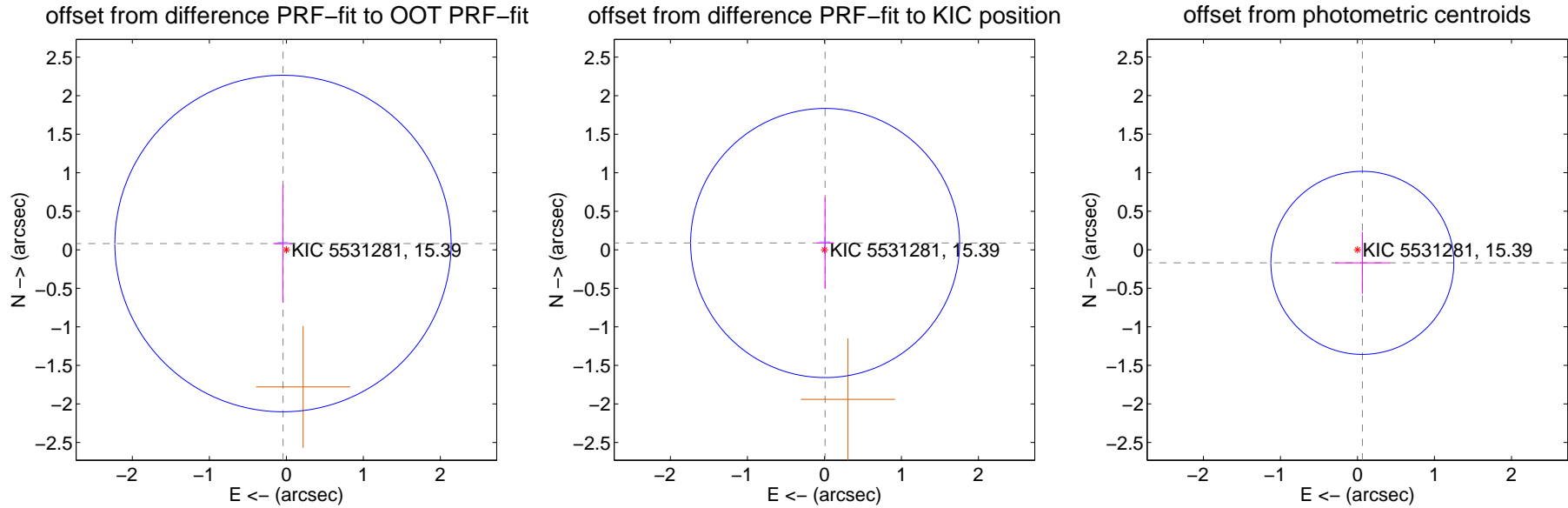
DV Centroid Data

Supplemental centroid analysis for 005531281-02. Kepler magnitude: 15.39. Transit SNR 9.92

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.093 ± 0.728	0.13	0.044 ± 0.127	0.081 ± 0.768
PRF-fit source offset from KIC position	0.089 ± 0.582	0.15	-0.009 ± 0.109	0.088 ± 0.594
photometric centroid source offset	0.18 ± 0.40	0.46	-0.06 ± 0.35	-0.17 ± 0.40

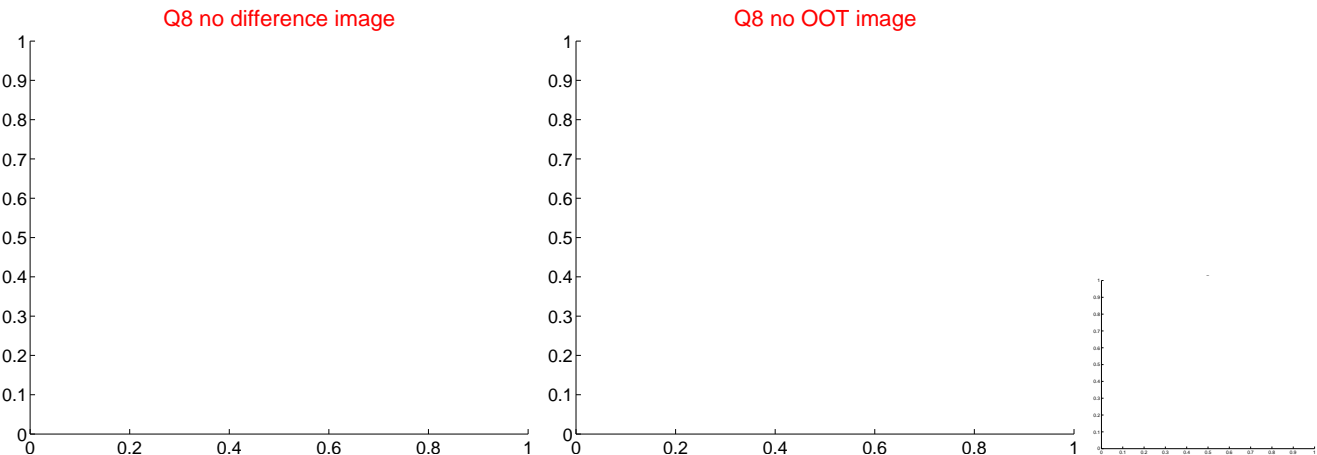
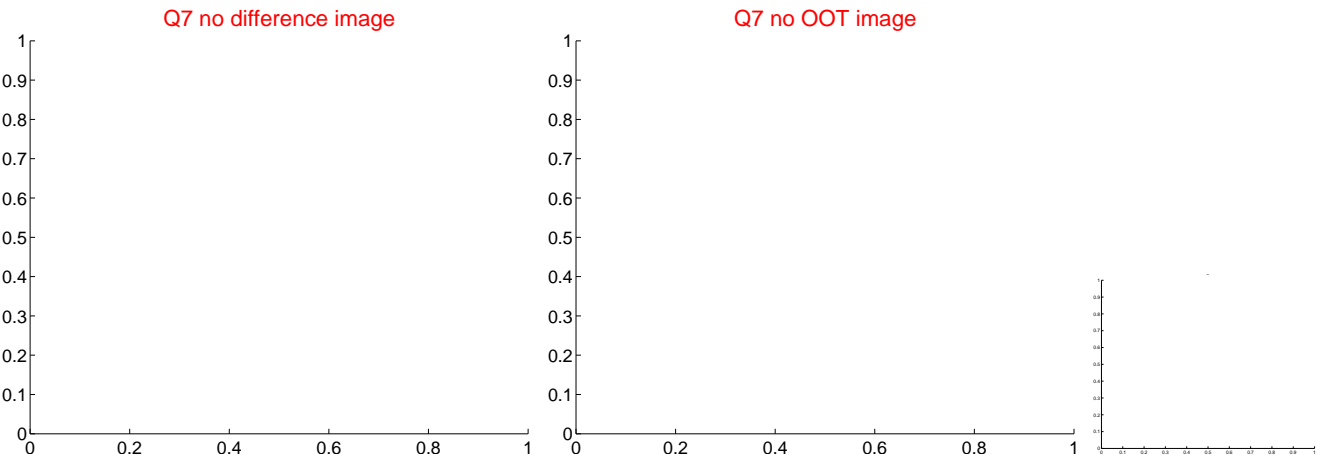
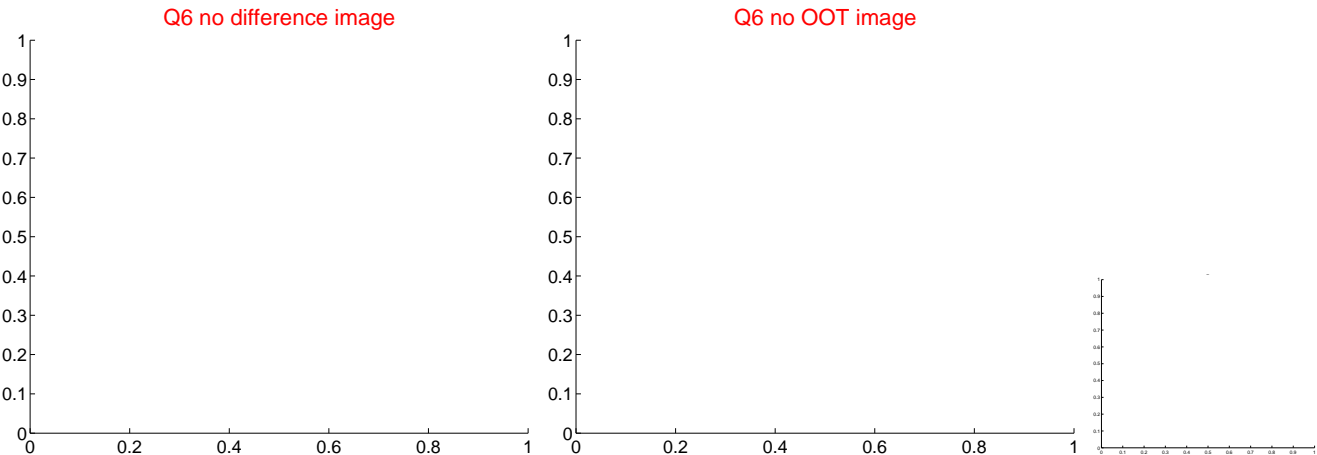
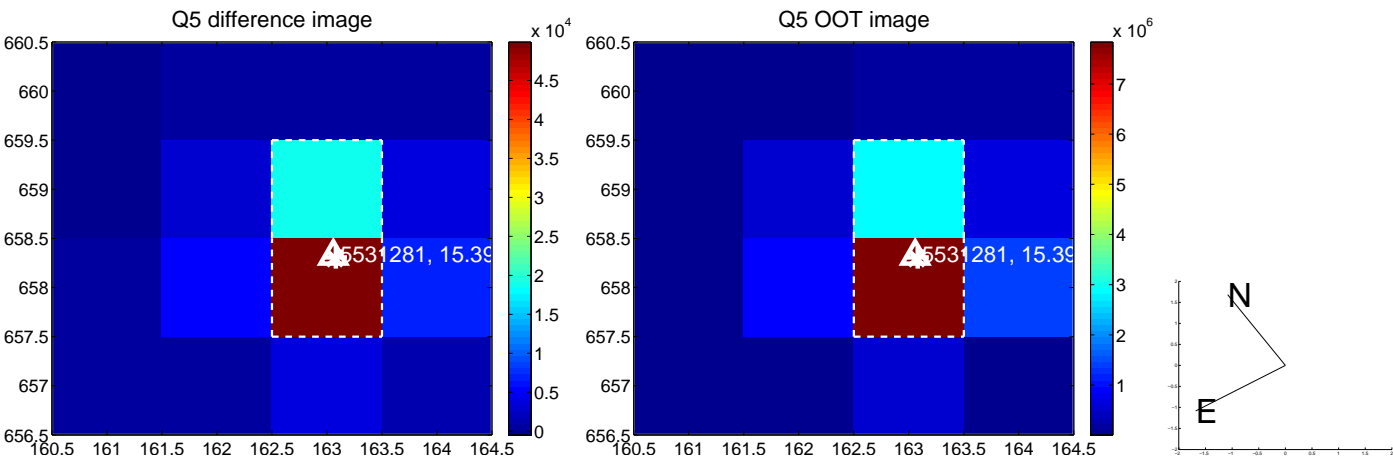


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

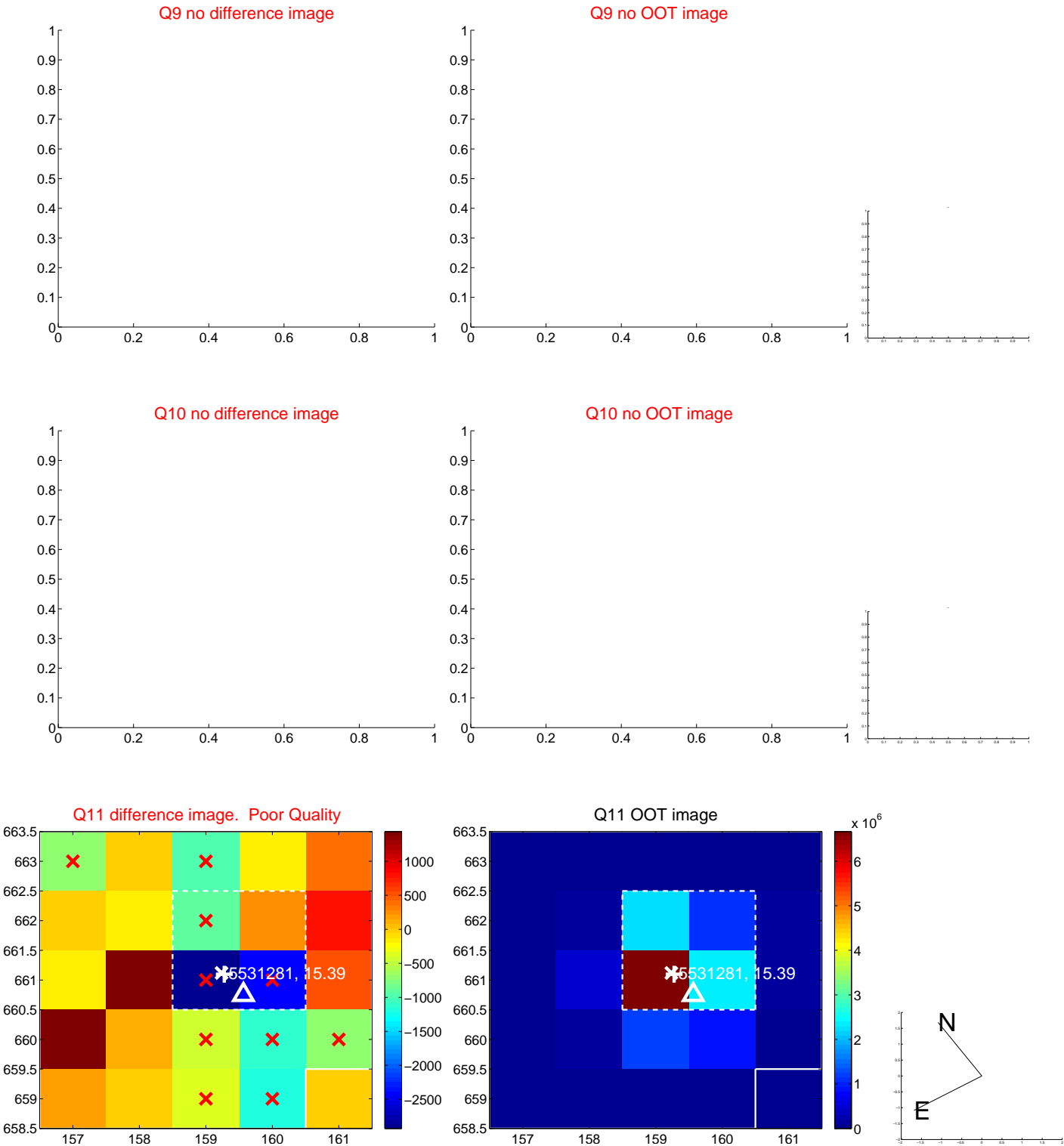
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



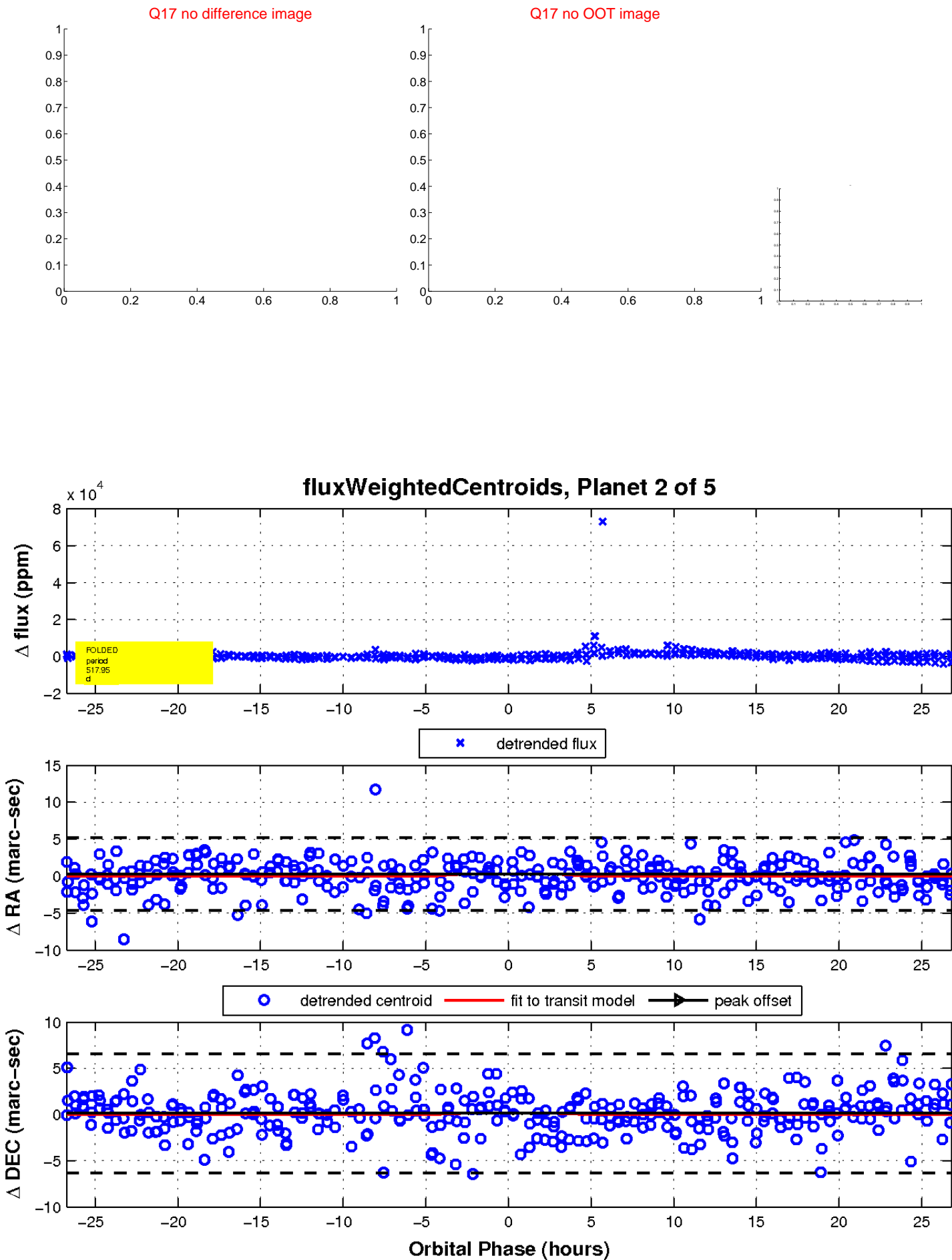
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

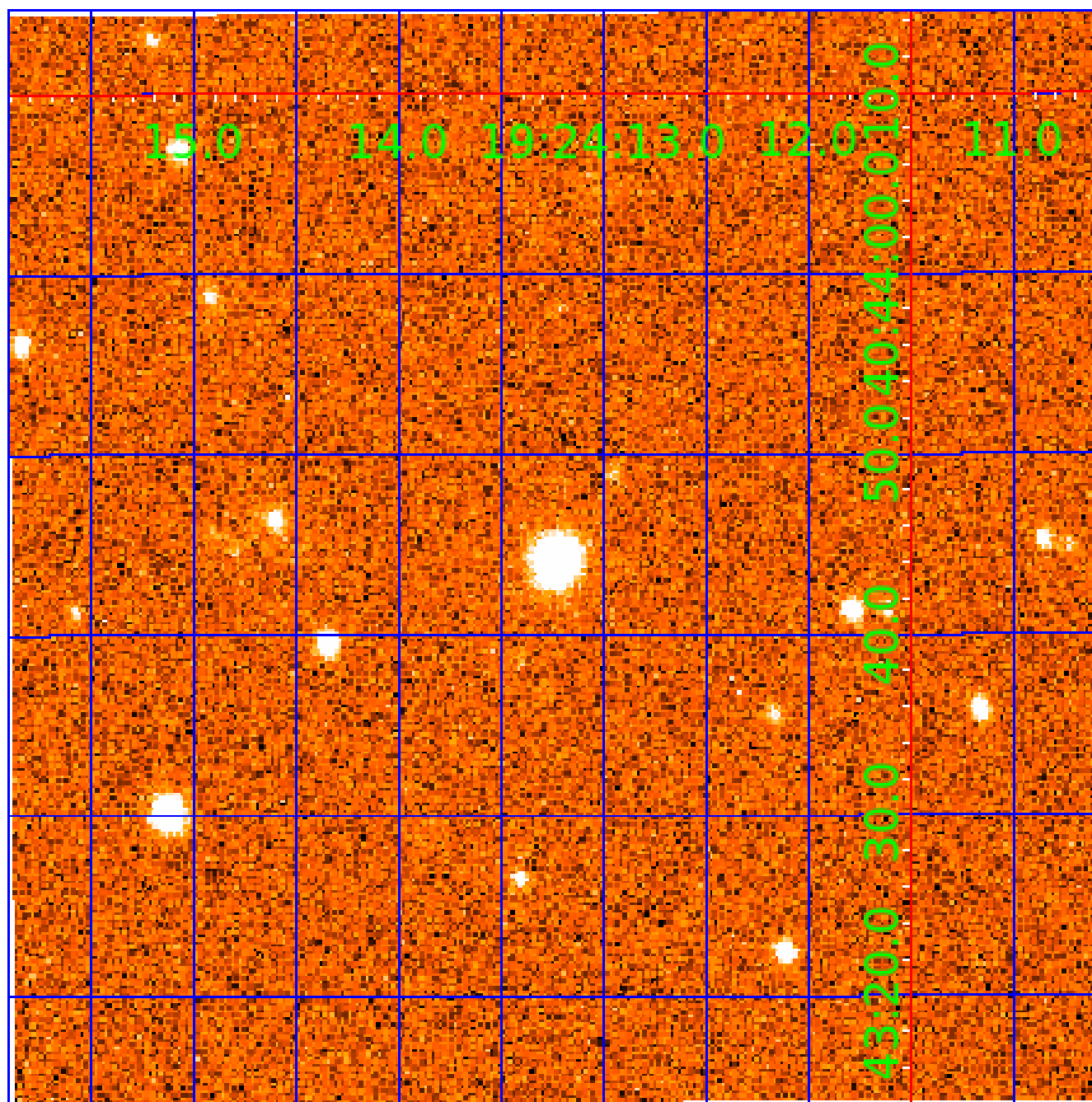


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005531281

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})
005531281-01	OBS	No	495.015863	178.817207	1358.0	5.154	12.9	6.5	0.79	5052	3.27	0.29
005531281-02	OBS	No	517.950490	525.422114	2380.8	9.008	13.5	9.9	0.79	5052	4.23	0.28
005531281-03	OBS	No	381.185794	433.173160	771.5	3.738	10.8	4.2	0.79	5052	2.13	0.41
005531281-04	OBS	No	616.839298	301.691067	1115.4	7.368	9.7	5.6	0.79	5052	2.82	0.22
005531281-05	OBS	No	384.103250	514.367796	1819.6	4.500	11.9	-1.0	0.79	5052	3.26	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
005531281-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

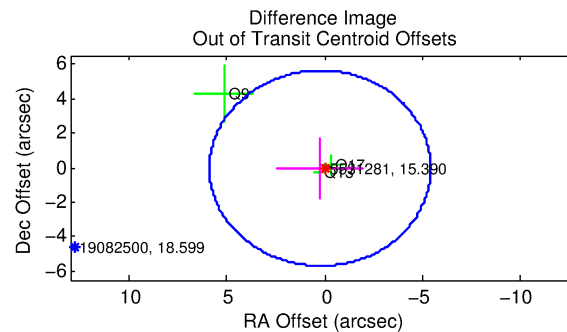
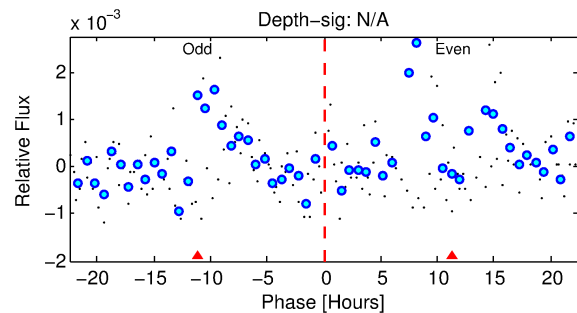
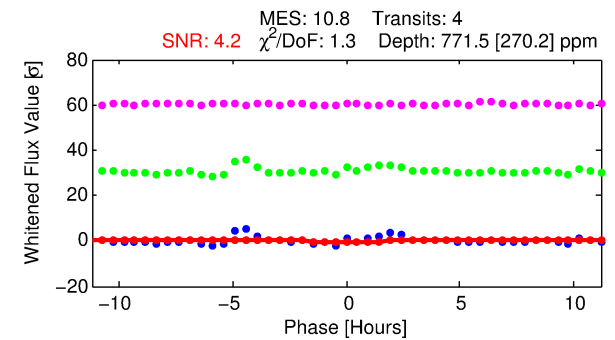
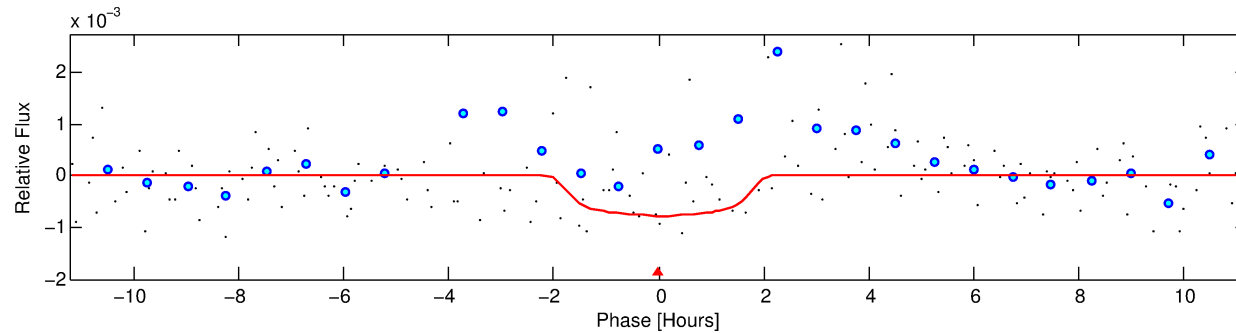
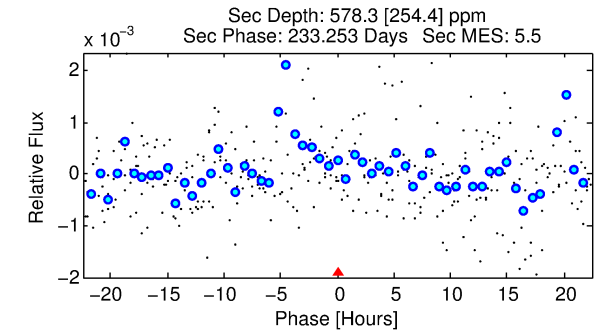
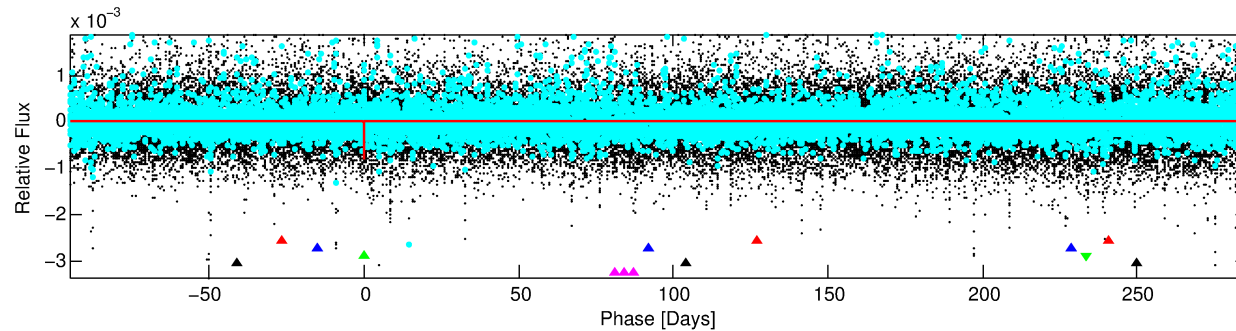
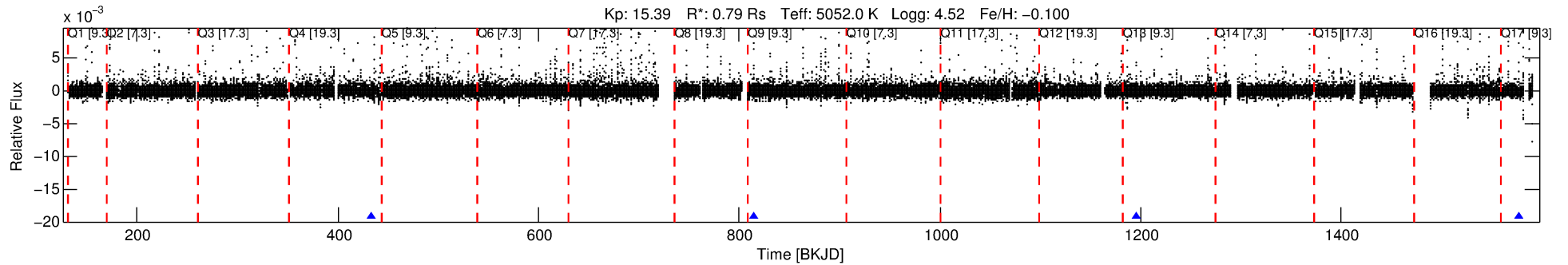
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531281-03

No Significant Match Found

DV One-Page Summary

KIC: 5531281 Candidate: 3 of 5 Period: 381.186 d



DV Fit Results:

Period = 381.18579 [0.00905] d
Epoch = 433.1732 [0.0191] BKJD
Rp/R* = 0.0249 [0.1510]
a/R* = 780.65 [16487.49]
b = 0.22 [94.98]
Seff = 0.41 [0.08]
Teq = 204 [10] K
Rp = 2.13 [12.95] Re
a = 0.9341 [0.0891] AU
Ag = 61068.72 [742281.31] [0.08]
Teffp = 4969 [15099] K [0.32]

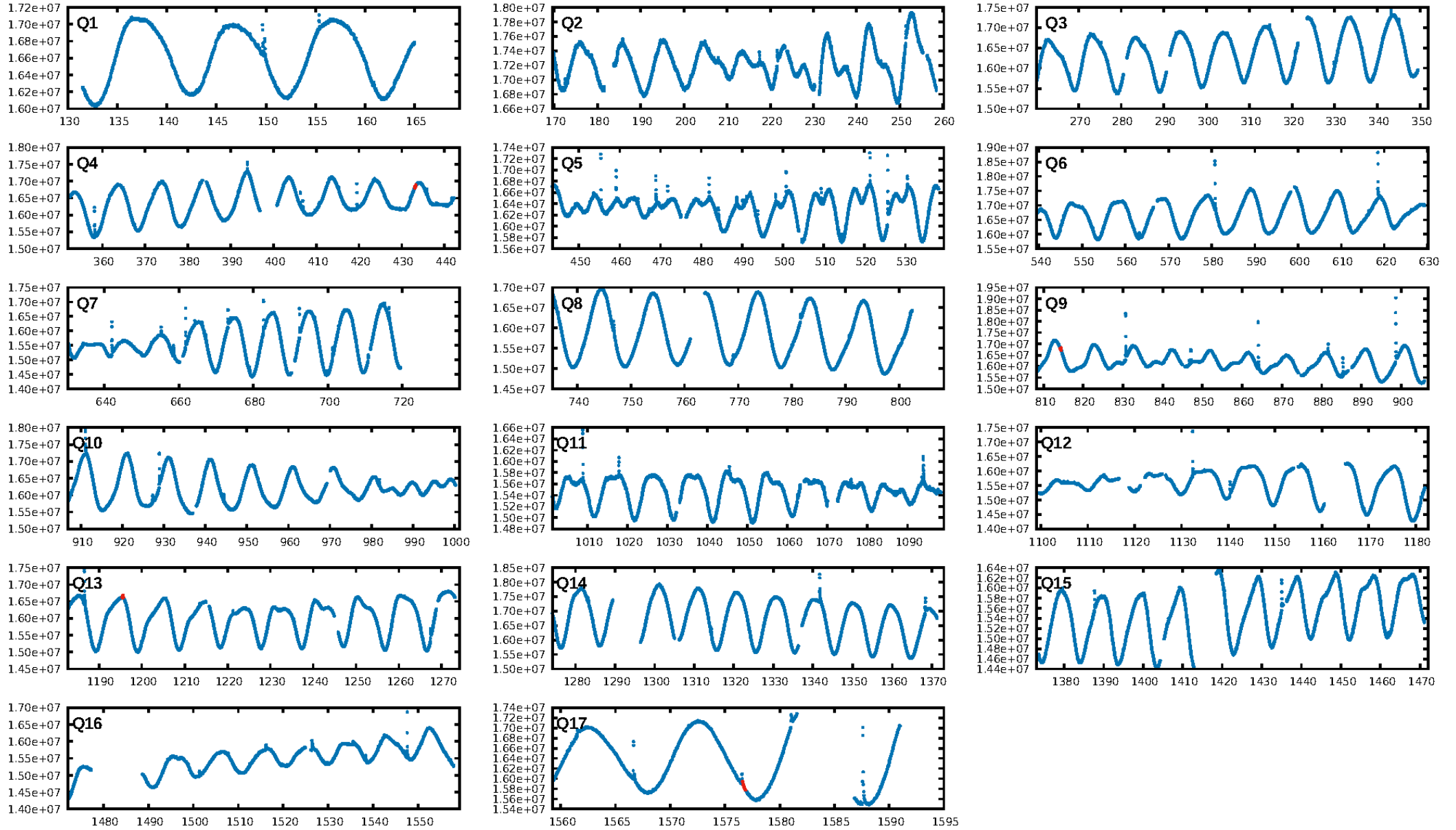
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [11.97]
ModelChiSquare2-sig: 16.1%
ModelChiSquareGof-sig: 59.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.8342
Centroid-sig: 1.8%
Centroid-so: 1.964 arcsec [1.37]
OotOffset-rm: 0.231 arcsec [0.12]
OotOffset-st: 0/0/0/3 [3]
KicOffset-rm: 0.224 arcsec [0.21]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 1.00 [4/4]

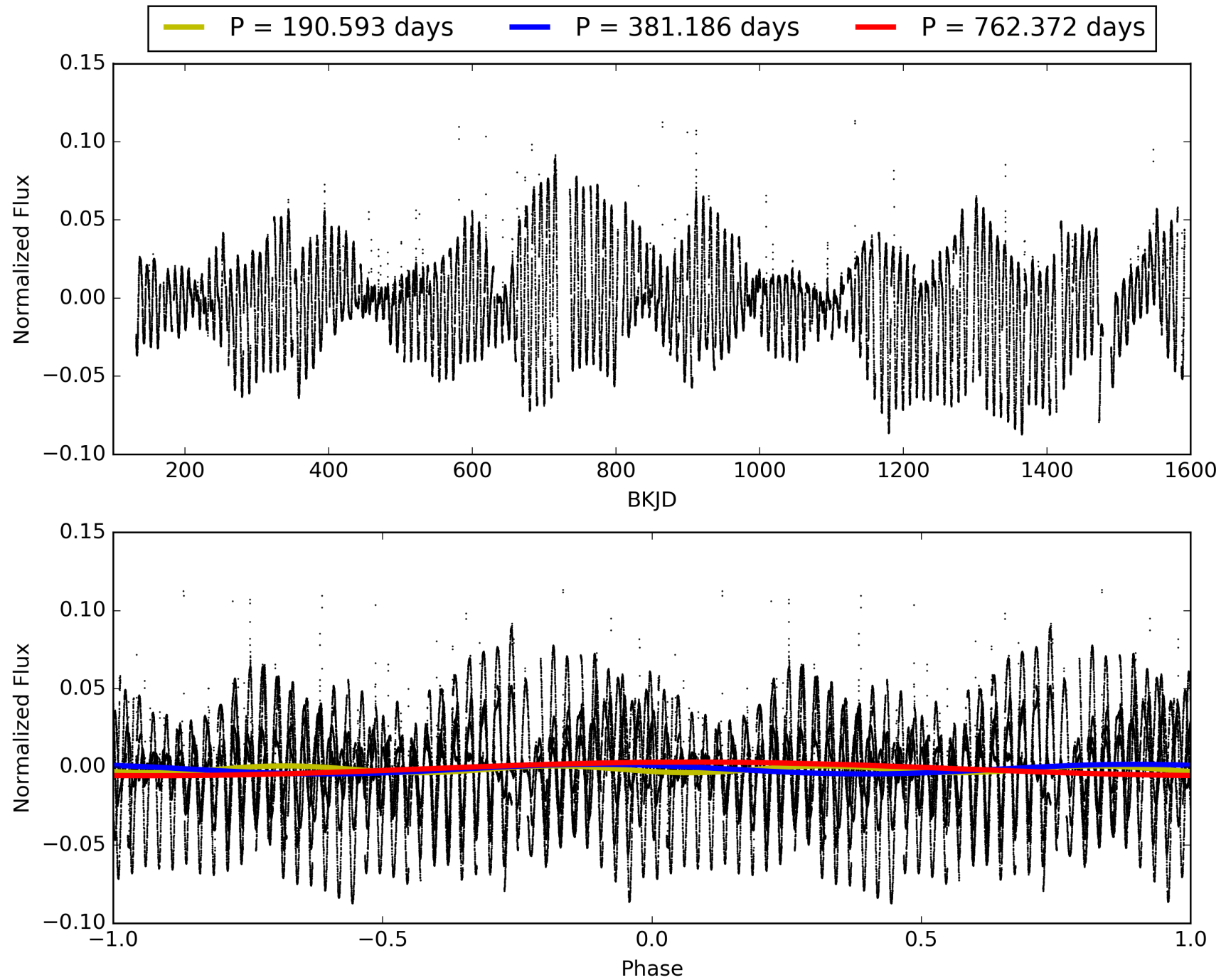
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:56:45 Z

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

TCE 005531281-03, PDC Light Curves

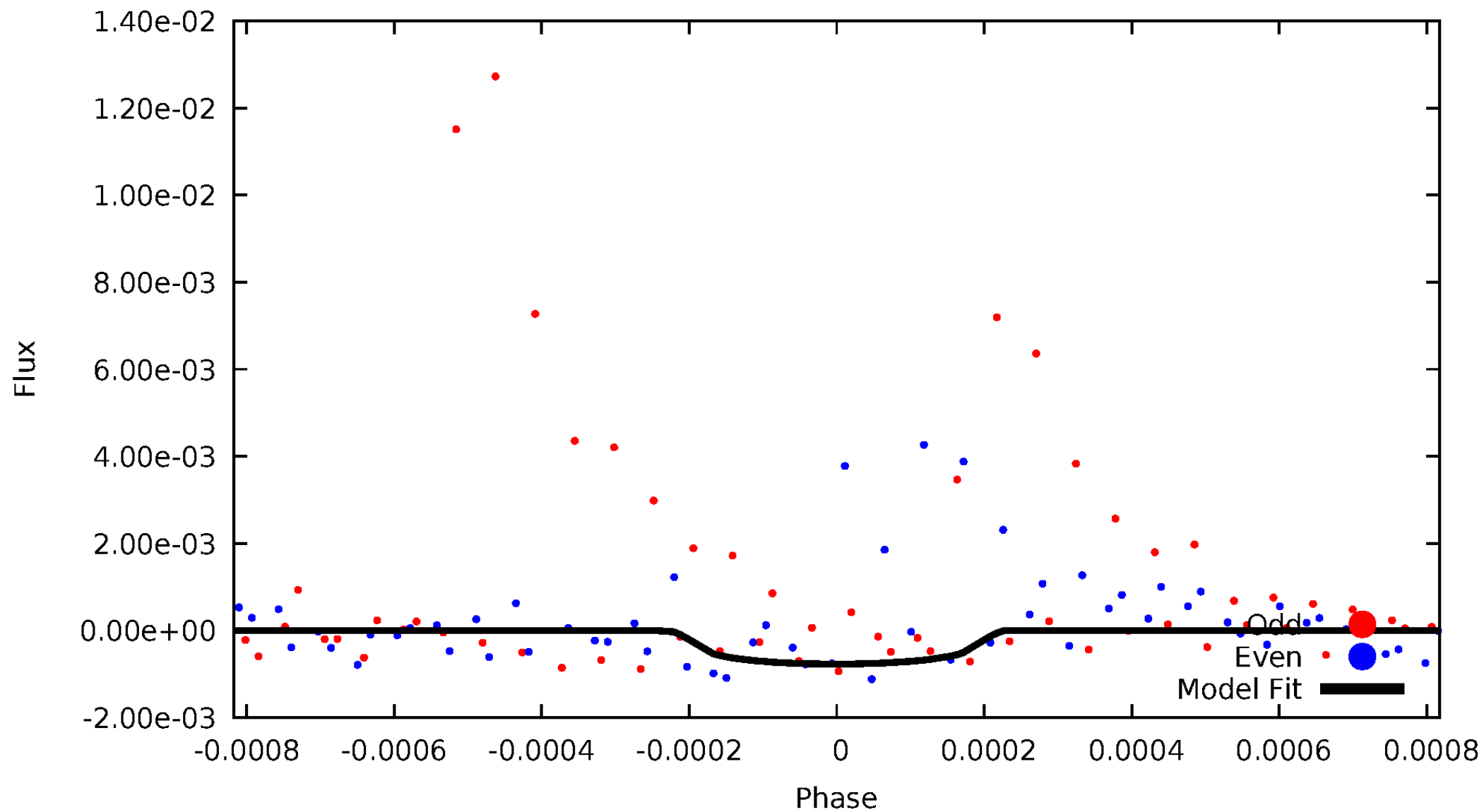


TCE 005531281-03



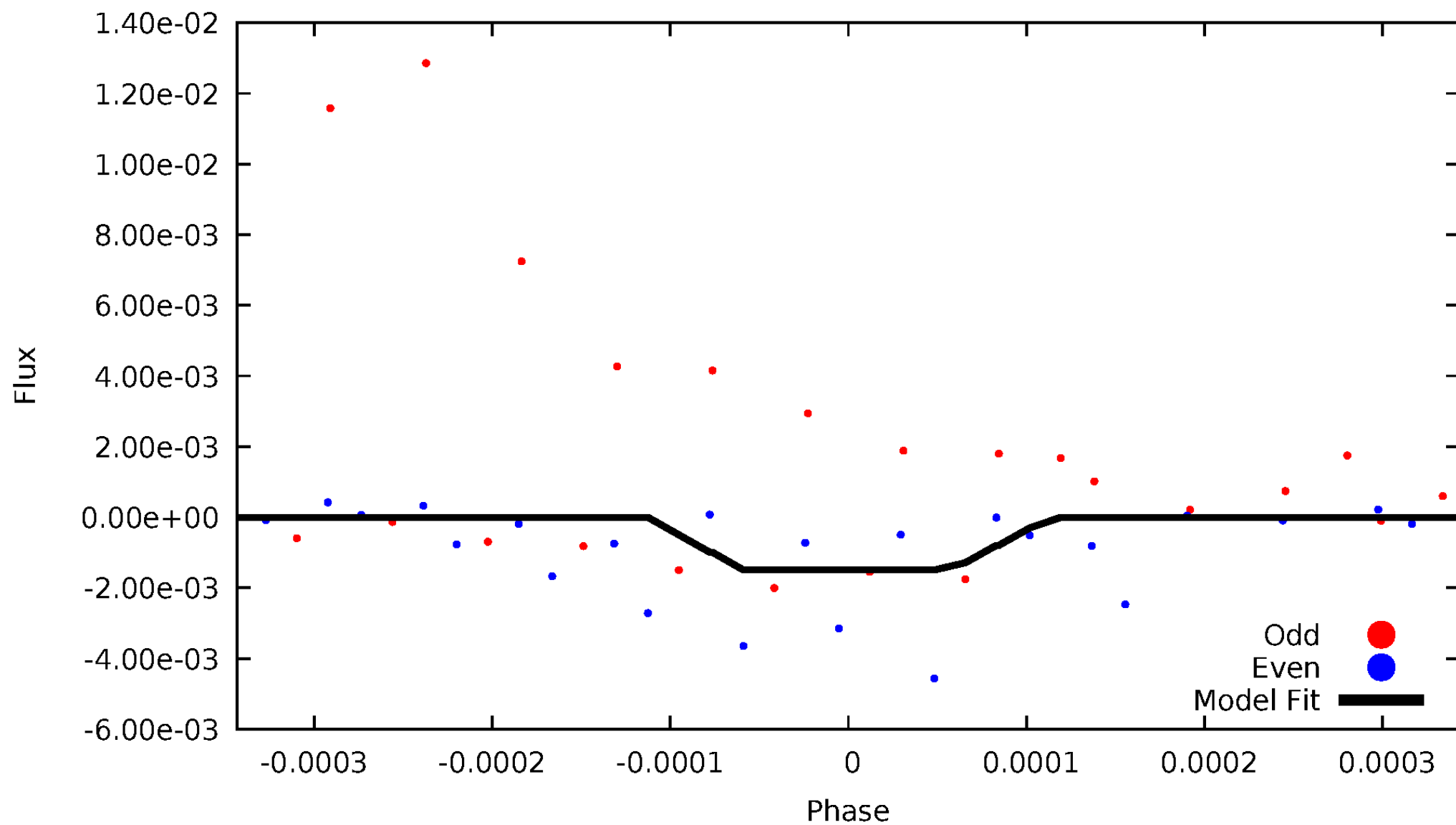
DV Odd/Even

TCE 005531281-03



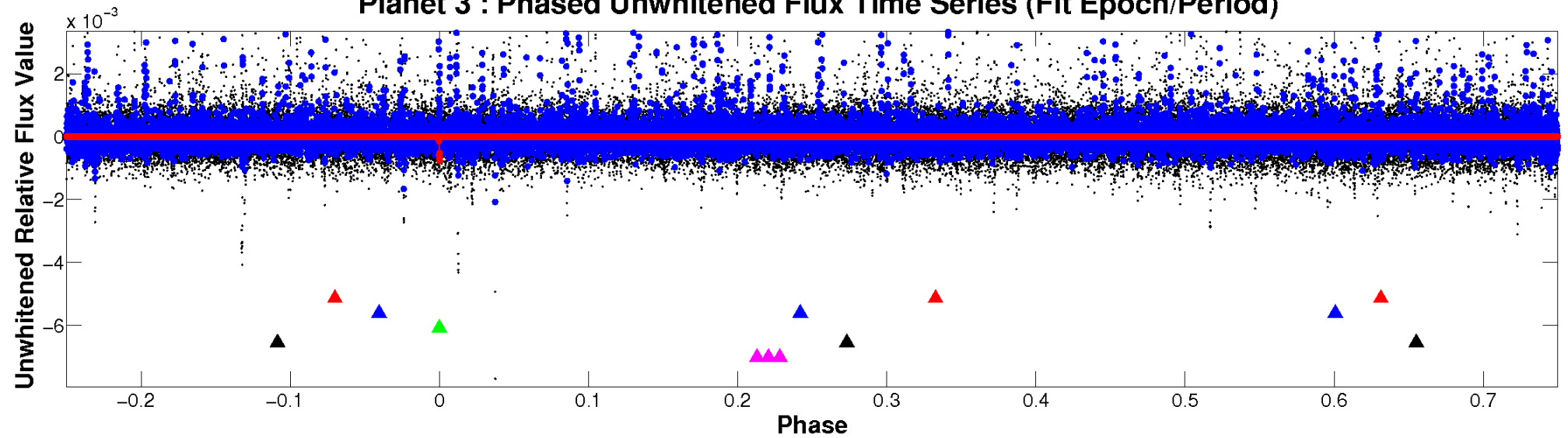
ALT Odd/Even

TCE 005531281-03

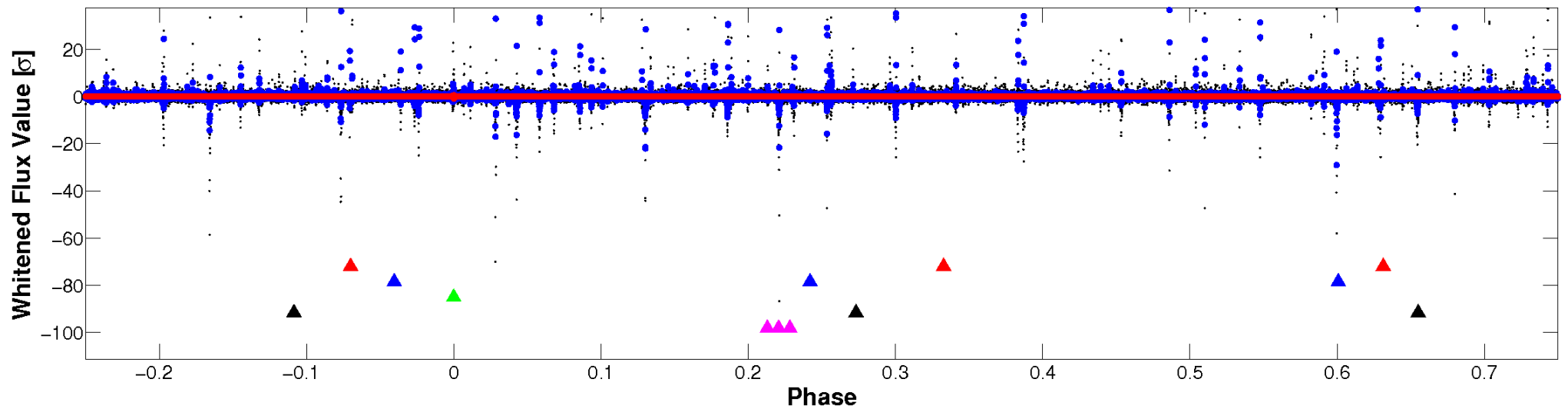


Non-Whitened Vs. Whitened Light Curve

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

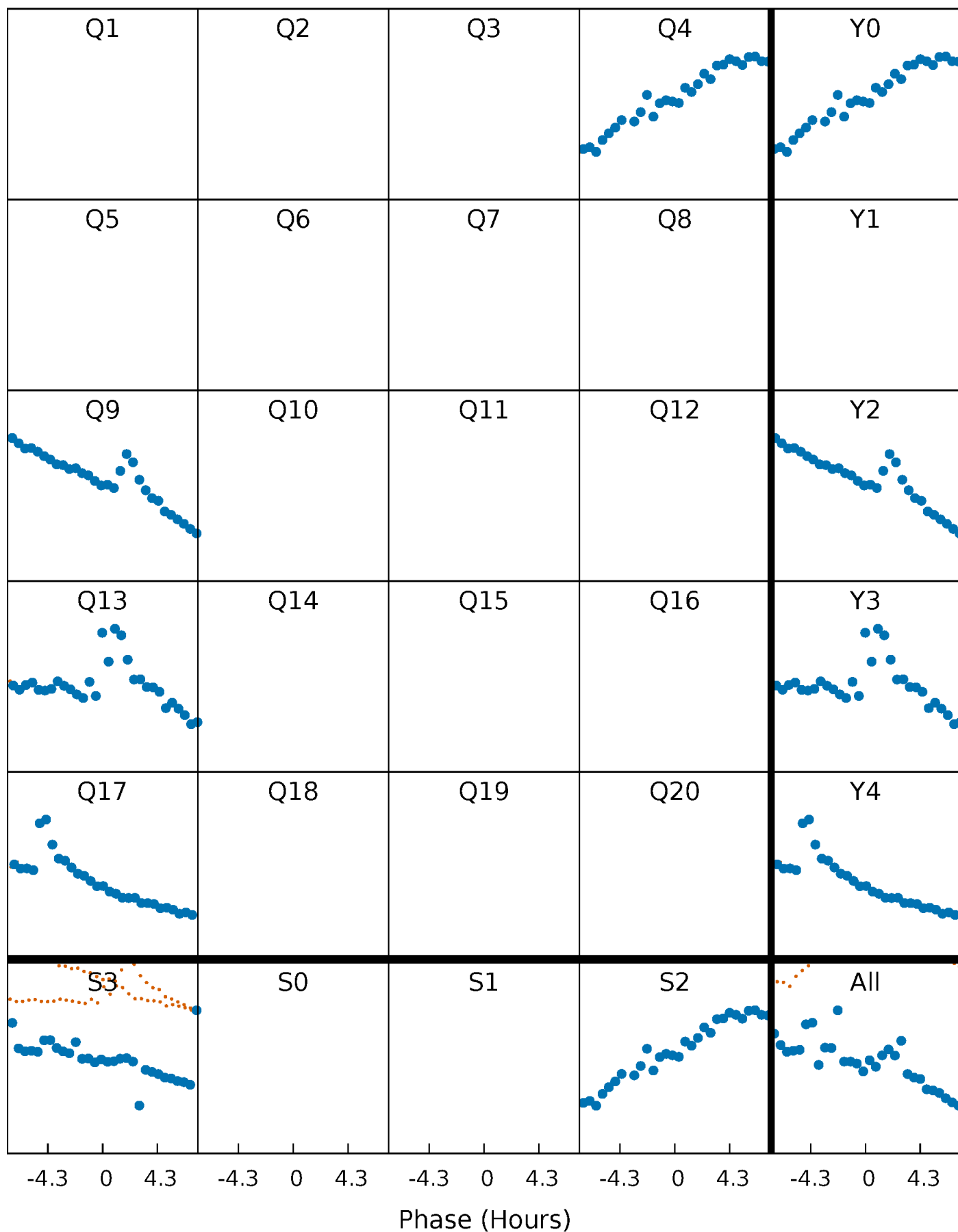


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



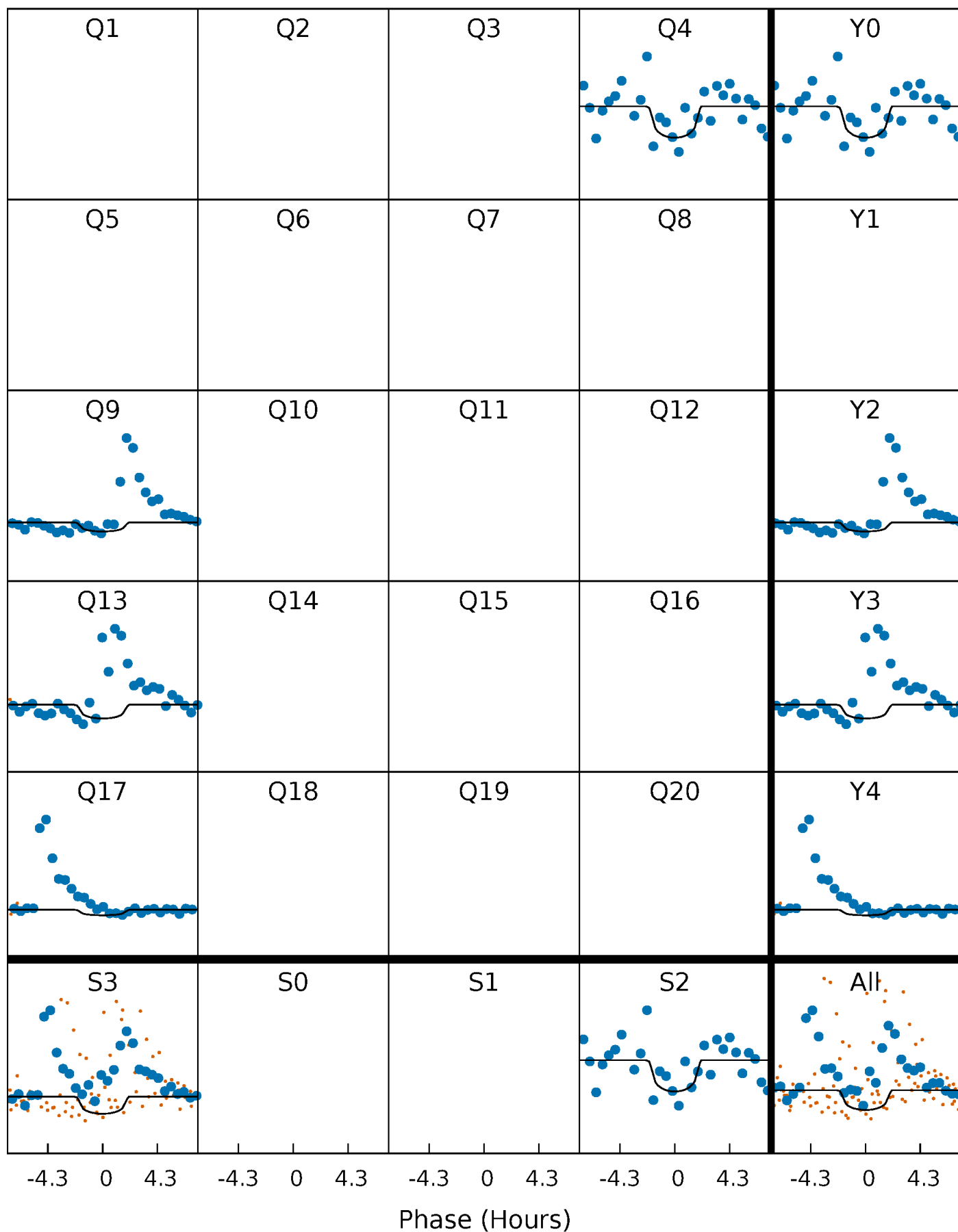
PDC Quarter-Phased Transit Curves

TCE 005531281-03 P=381.185793 Days $T_0=433.173160$ (BKJD)



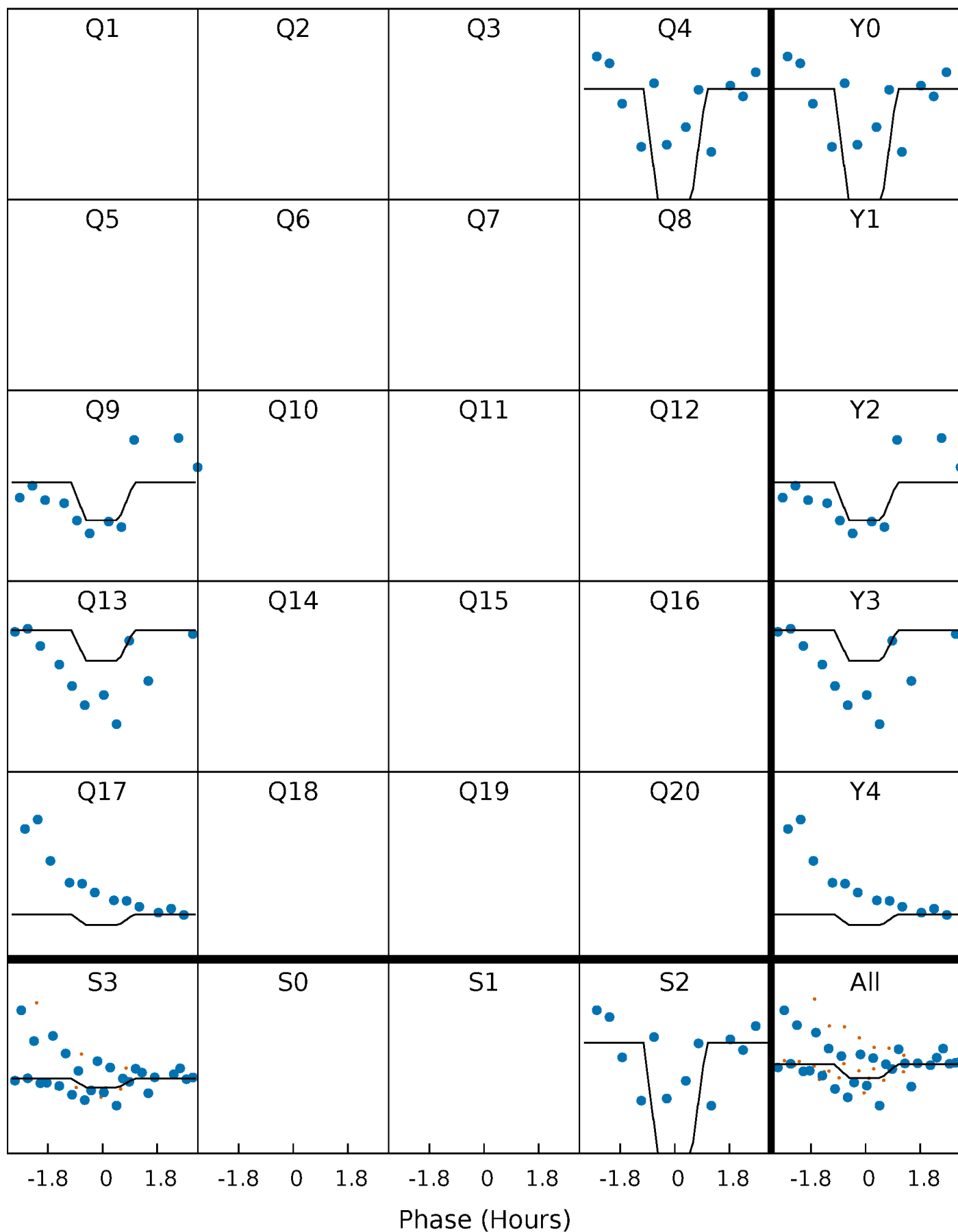
DV Quarter-Phased Transit Curves

TCE 005531281-03 $P=381.185793$ Days $T_0=433.173160$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

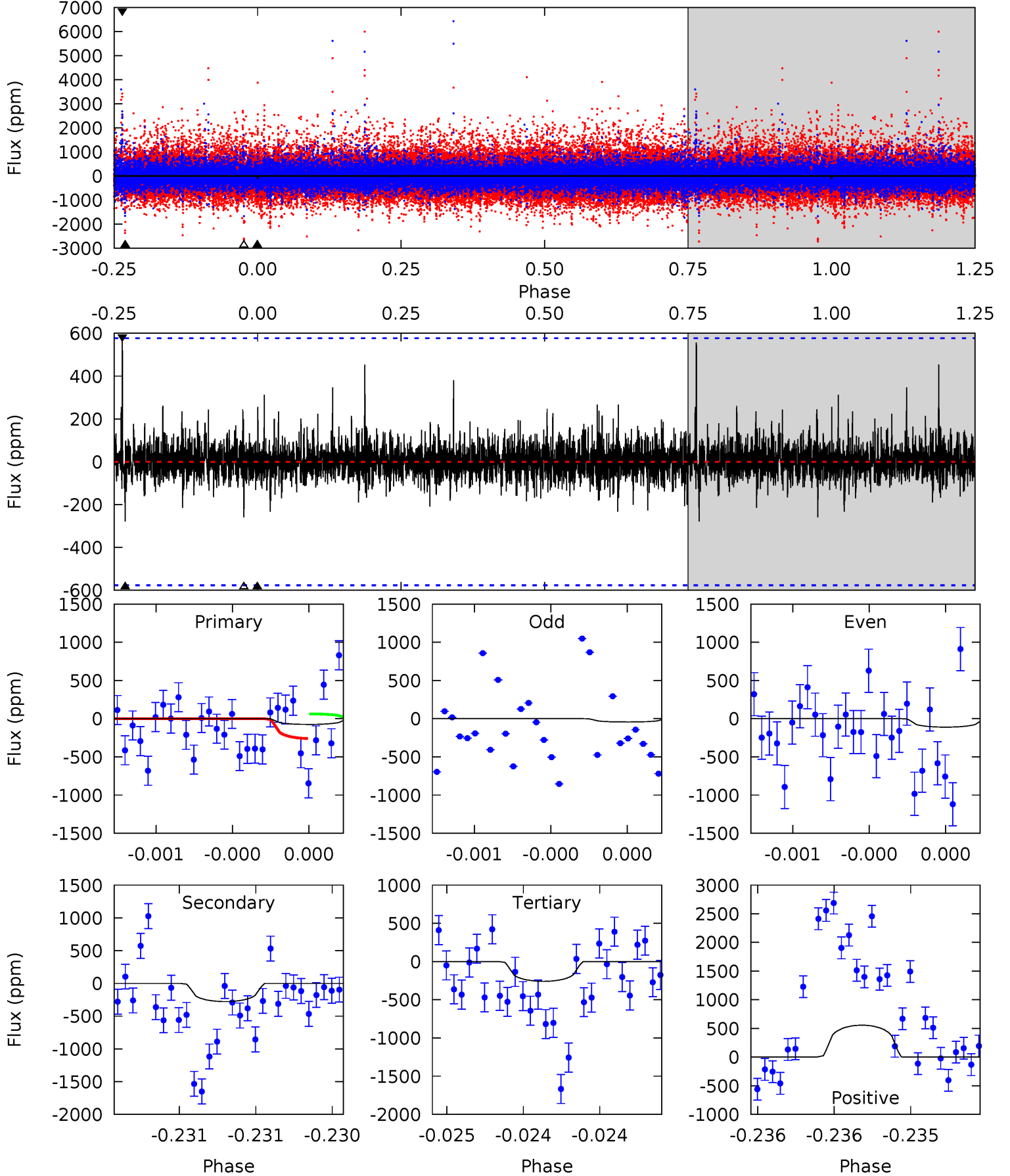
TCE 005531281-03 P=381.134441 Days $T_0=433.241332$ (BKJD)



DV Model-Shift Uniqueness Test

005531281-03, P = 381.185793 Days, E = 51.987367 Days

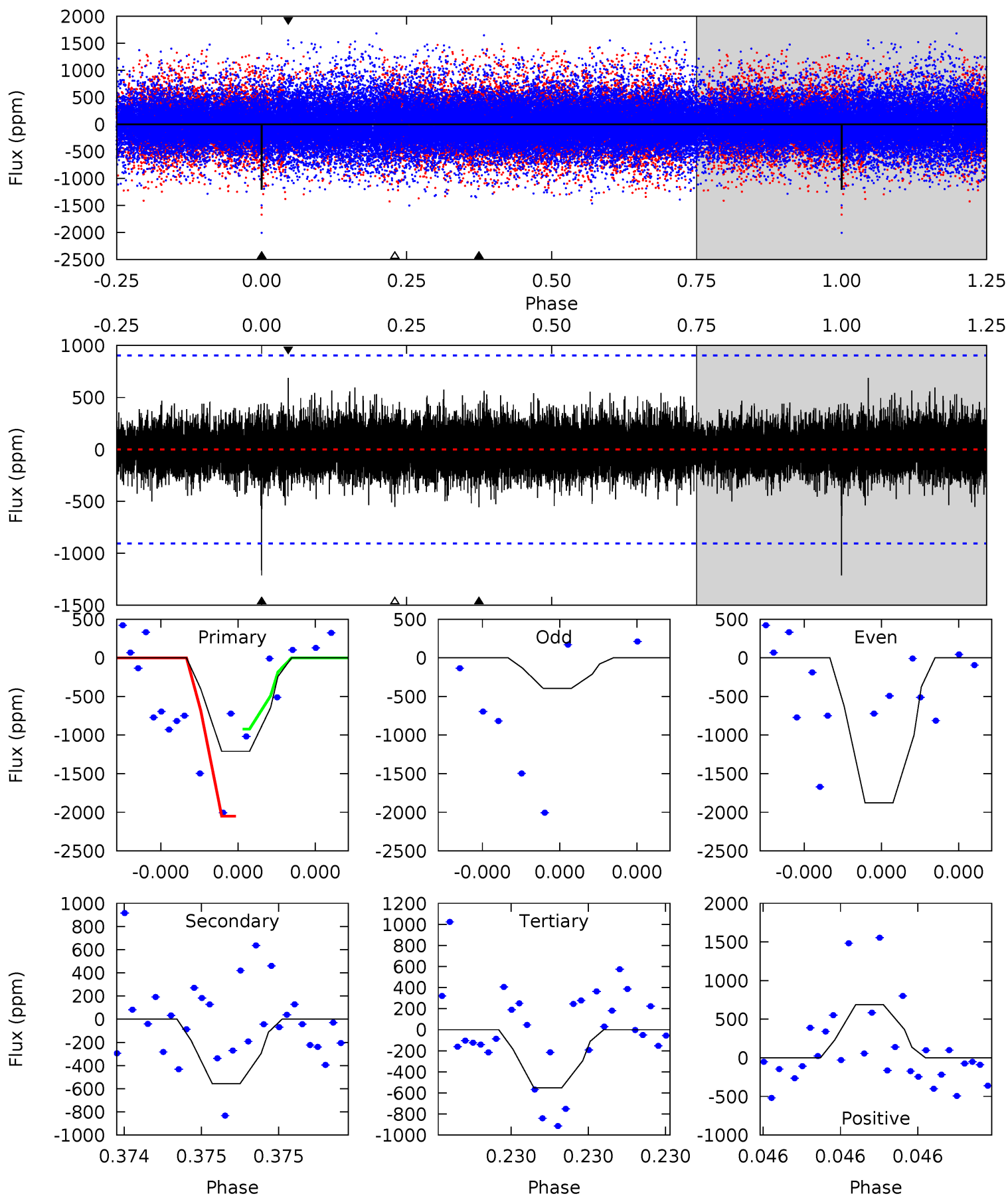
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.73	2.70	2.51	5.41	5.60	3.52	0.60	-1.78	-4.68	0.19	-2.71	0.15	1.75	0.67	0.95



Alt Model-Shift Uniqueness Test

005531281-03, P = 381.134441 Days, E = 52.106891 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.67	3.53	3.50	4.35	5.73	3.72	0.84	4.17	3.32	0.03	-0.83	6.27	0.63	0.36	3.94



Stellar Parameters For KIC 005531281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5052^{+151}_{-136}	$4.521^{+0.080}_{-0.072}$	$-0.100^{+0.300}_{-0.300}$	$0.786^{+0.078}_{-0.086}$	$0.748^{+0.103}_{-0.055}$	$2.173^{+0.776}_{-0.481}$
	+3%/-3%	+2%/-2%	+300%/-300%	+10%/-11%	+14%/-7%	+36%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005531281-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-278 ± 103	$9.99^{+9.92}_{-6.65}$	286^{+12}_{-11}	2683^{+1046}_{-440}	1298^{+12235}_{-992}
Alt.	-557 ± 158	$10.22^{+10.43}_{-6.88}$	286^{+11}_{-11}	2924^{+1215}_{-508}	2632^{+22123}_{-2047}

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 $A_{obs} \gg 1.0$

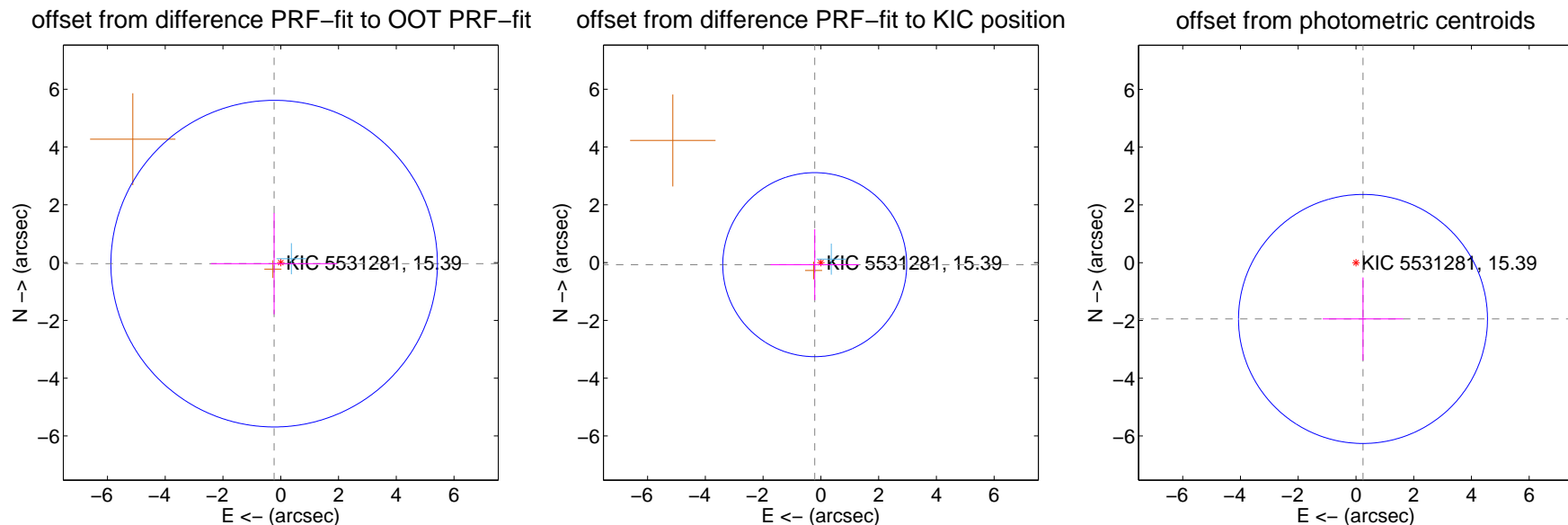
DV Centroid Data

Supplemental centroid analysis for 005531281-03. Kepler magnitude: 15.39. Transit SNR 4.22

There are 1 quarters with good PRF difference image offsets

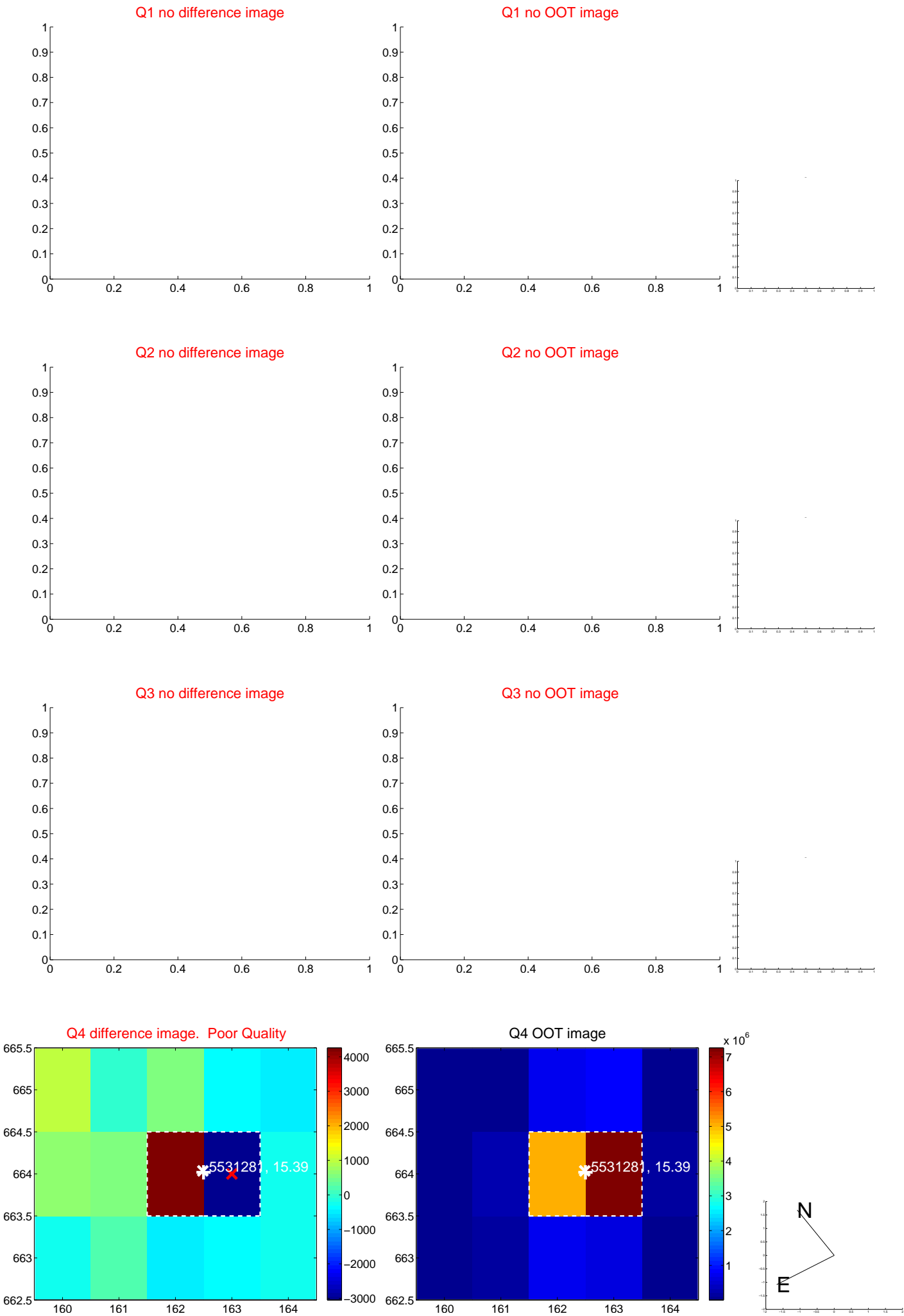
The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.231 ± 1.885	0.12	0.228 ± 2.187	-0.037 ± 1.753
PRF-fit source offset from KIC position	0.224 ± 1.062	0.21	0.213 ± 1.529	-0.072 ± 1.227
photometric centroid source offset	1.96 ± 1.44	1.37	-0.24 ± 1.39	-1.95 ± 1.44



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

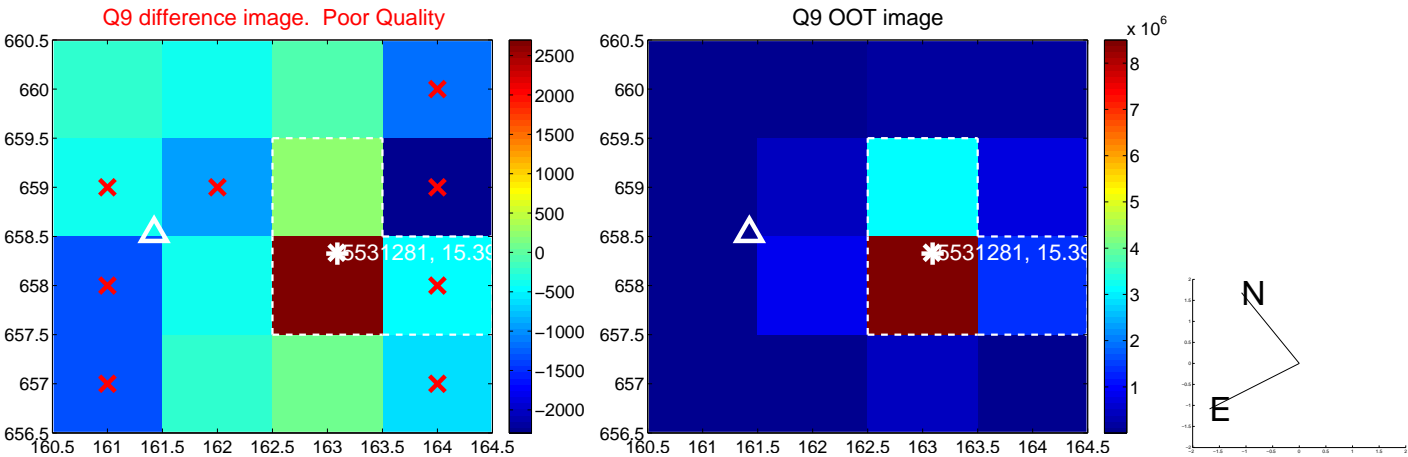
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



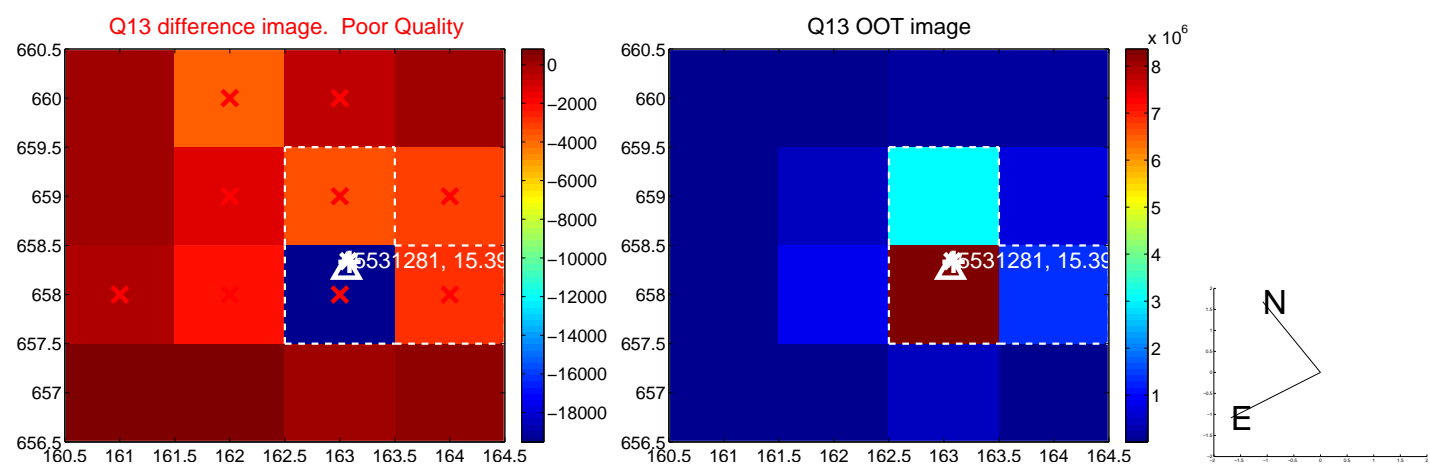
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



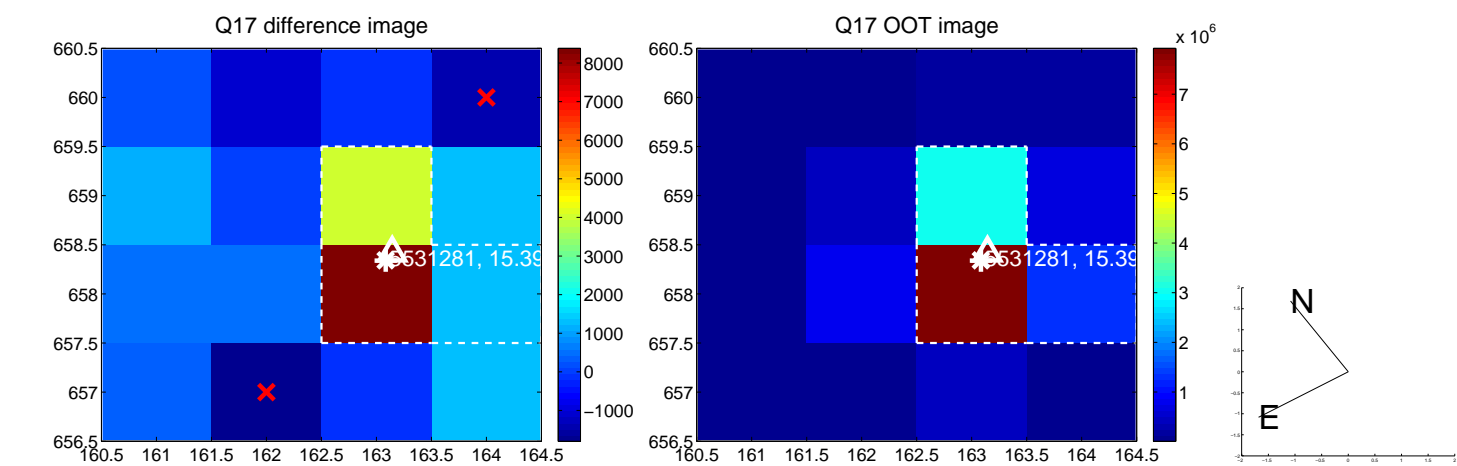
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



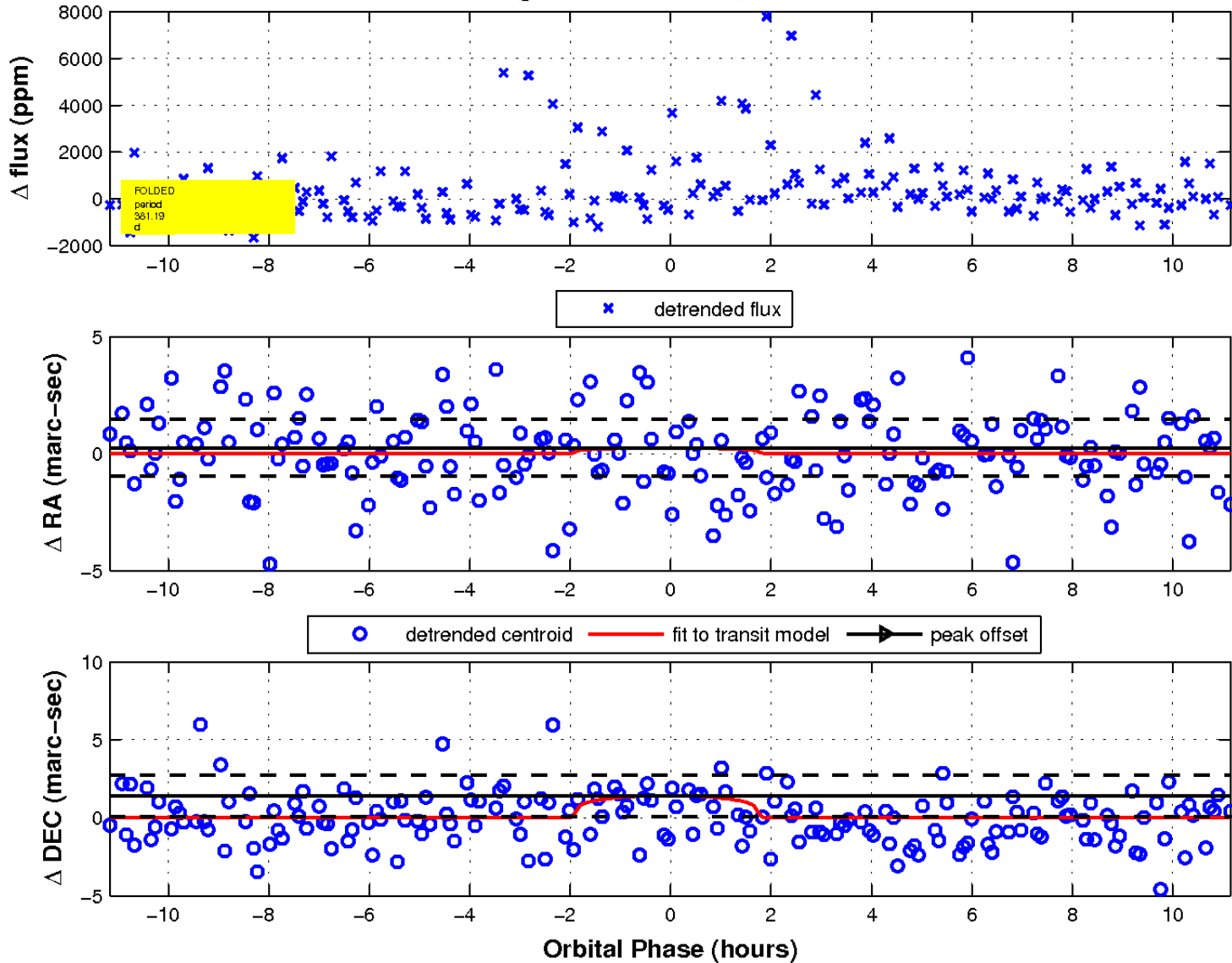
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

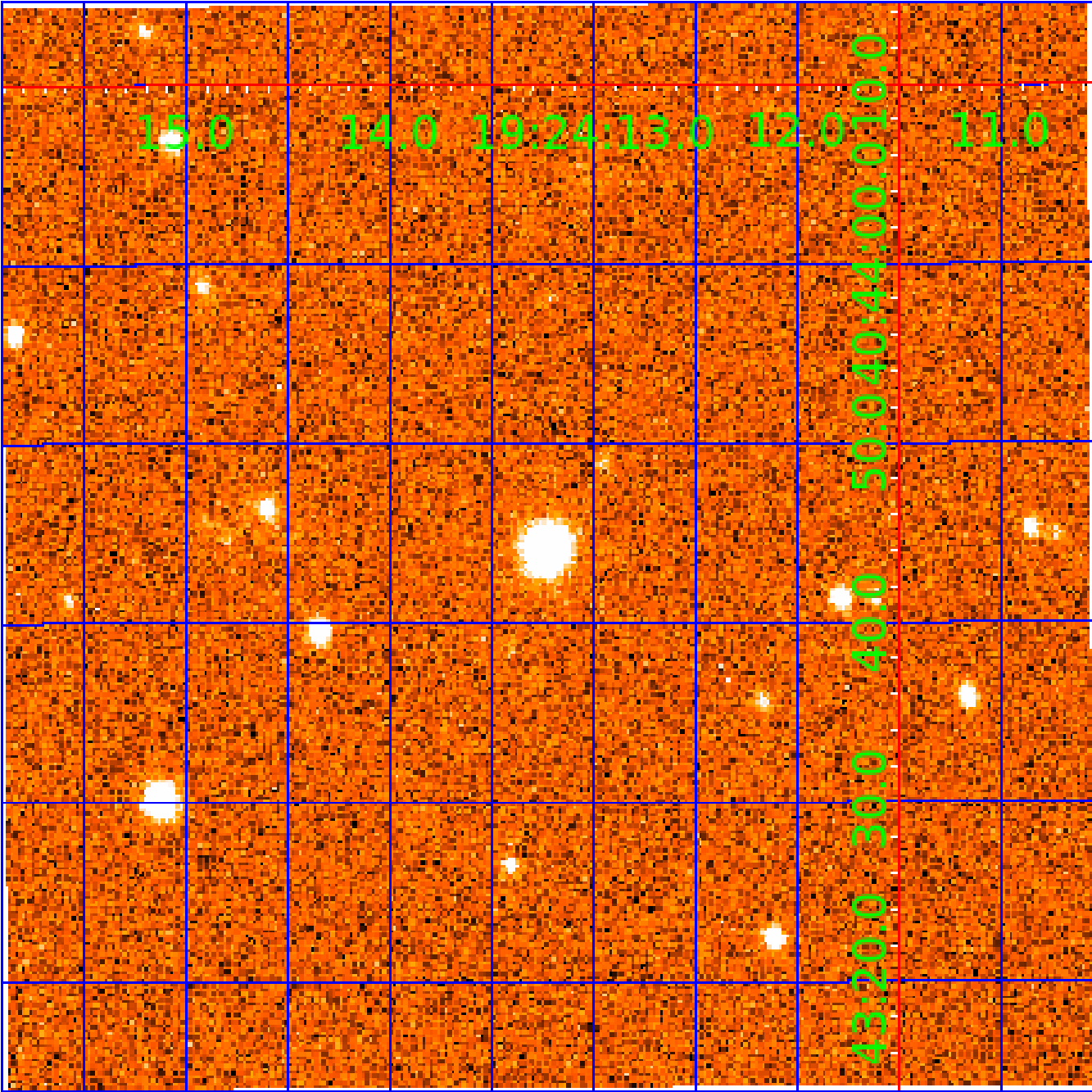


fluxWeightedCentroids, Planet 3 of 5



UKIRT Image

Declination



KIC 005531281

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})
005531281-01	OBS	No	495.015863	178.817207	1358.0	5.154	12.9	6.5	0.79	5052	3.27	0.29
005531281-02	OBS	No	517.950490	525.422114	2380.8	9.008	13.5	9.9	0.79	5052	4.23	0.28
005531281-03	OBS	No	381.185794	433.173160	771.5	3.738	10.8	4.2	0.79	5052	2.13	0.41
005531281-04	OBS	No	616.839298	301.691067	1115.4	7.368	9.7	5.6	0.79	5052	2.82	0.22
005531281-05	OBS	No	384.103250	514.367796	1819.6	4.500	11.9	-1.0	0.79	5052	3.26	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
005531281-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

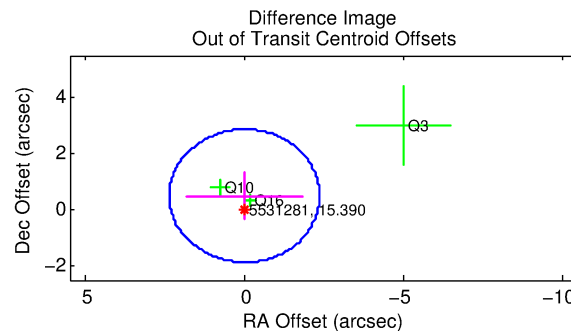
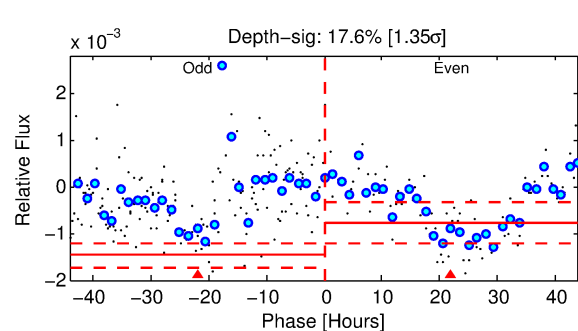
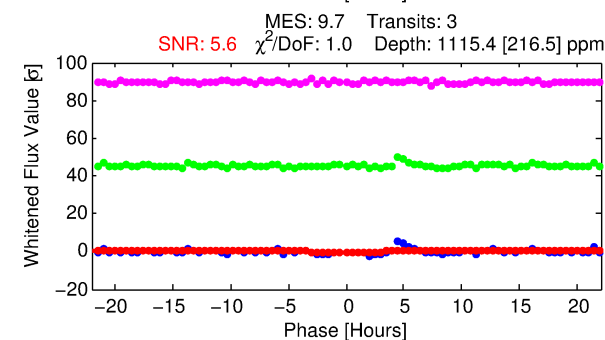
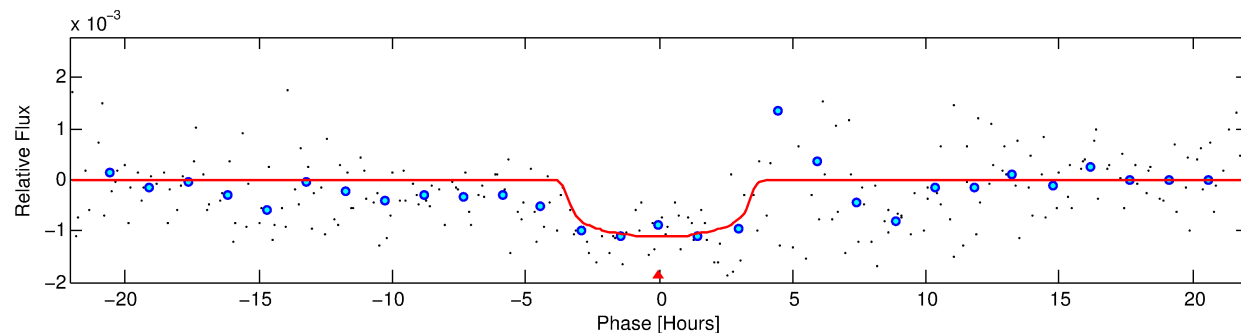
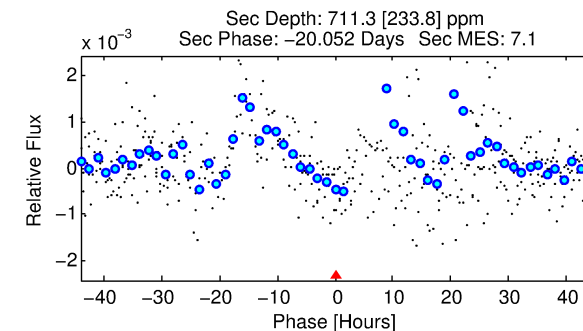
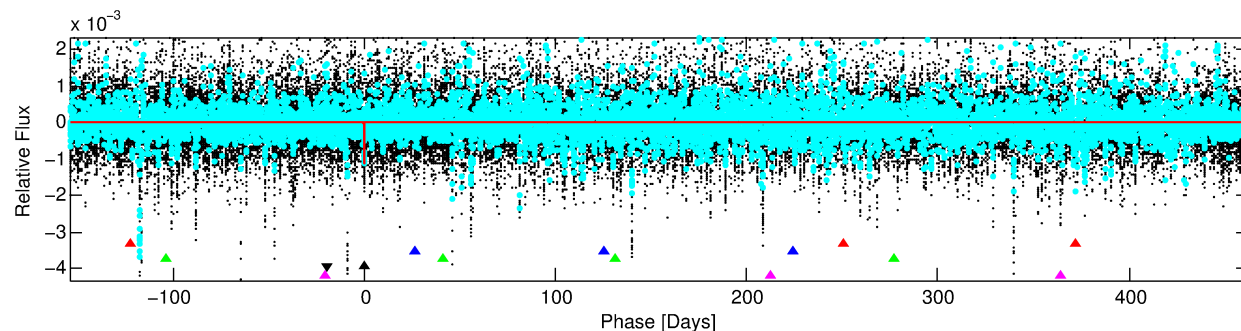
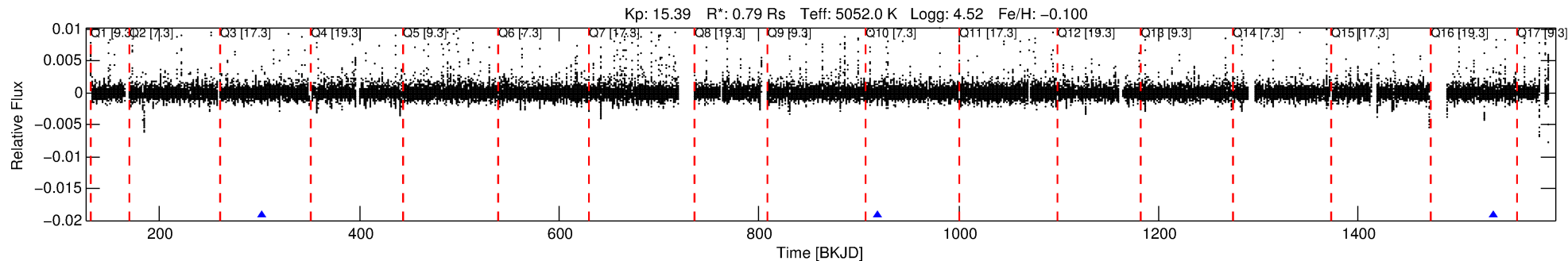
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531281-04

No Significant Match Found

DV One-Page Summary

KIC: 5531281 Candidate: 4 of 5 Period: 616.839 d



DV Fit Results:

Period = 616.83930 [0.01071] d
Epoch = 301.6911 [0.0137] BKJD
Rp/R* = 0.0329 [0.0153]
a/R* = 473.00 [739.63]
b = 0.72 [1.06]
Seff = 0.22 [0.04]
Teq = 174 [8] K
Rp = 2.82 [1.35] Re
a = 1.2875 [0.1228] AU
Ag = 81387.01 [80994.53] [1.00σ]
Teff = 4547 [1128] K [3.88σ]

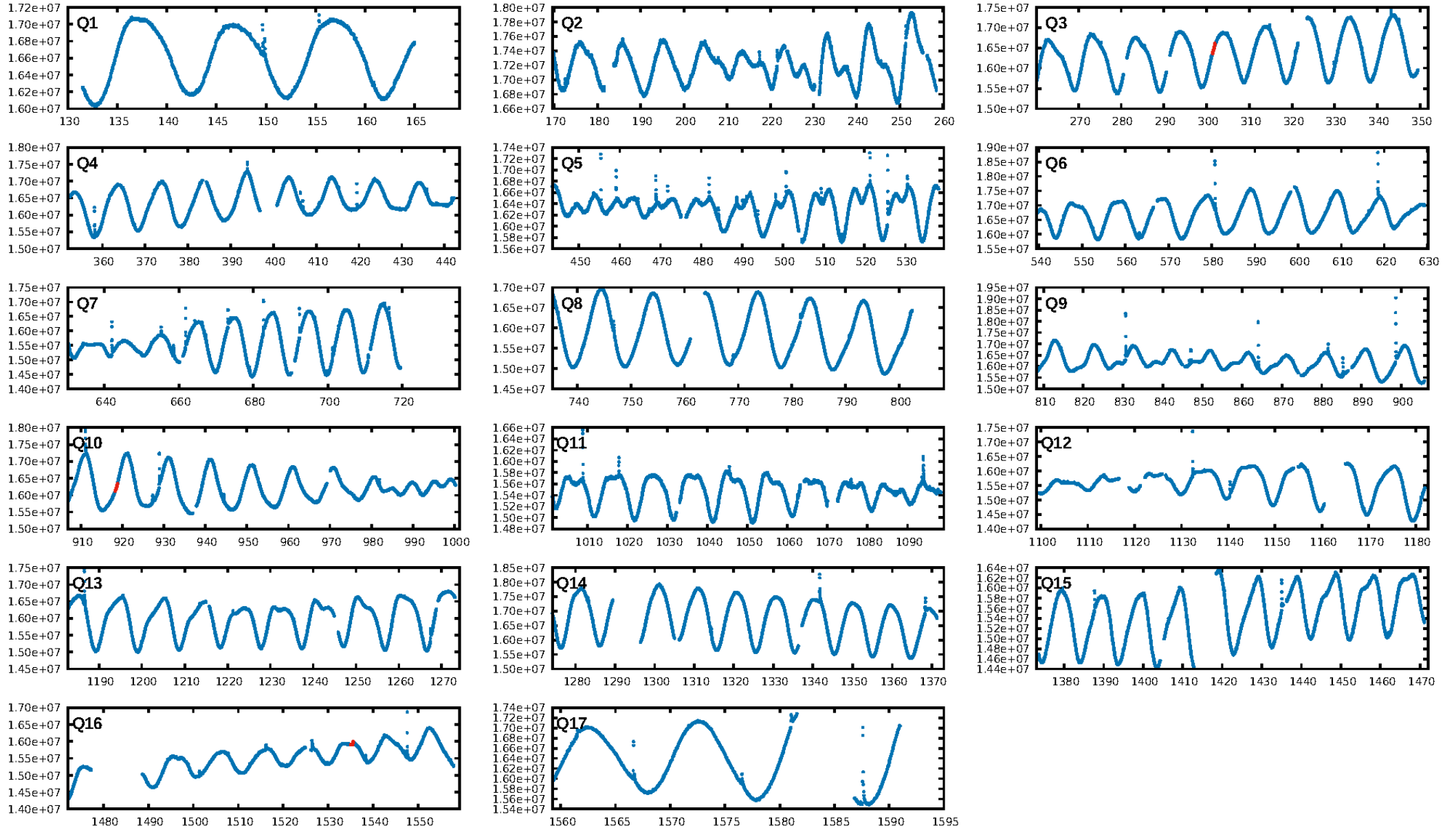
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [203.93σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 20.3%
ModelChiSquareGof-sig: 99.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.2995
Centroid-sig: 42.2%
Centroid-so: 0.957 arcsec [0.93σ]
OotOffset-rm: 0.497 arcsec [0.63σ]
KicOffset-rm: 0.379 arcsec [0.69σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

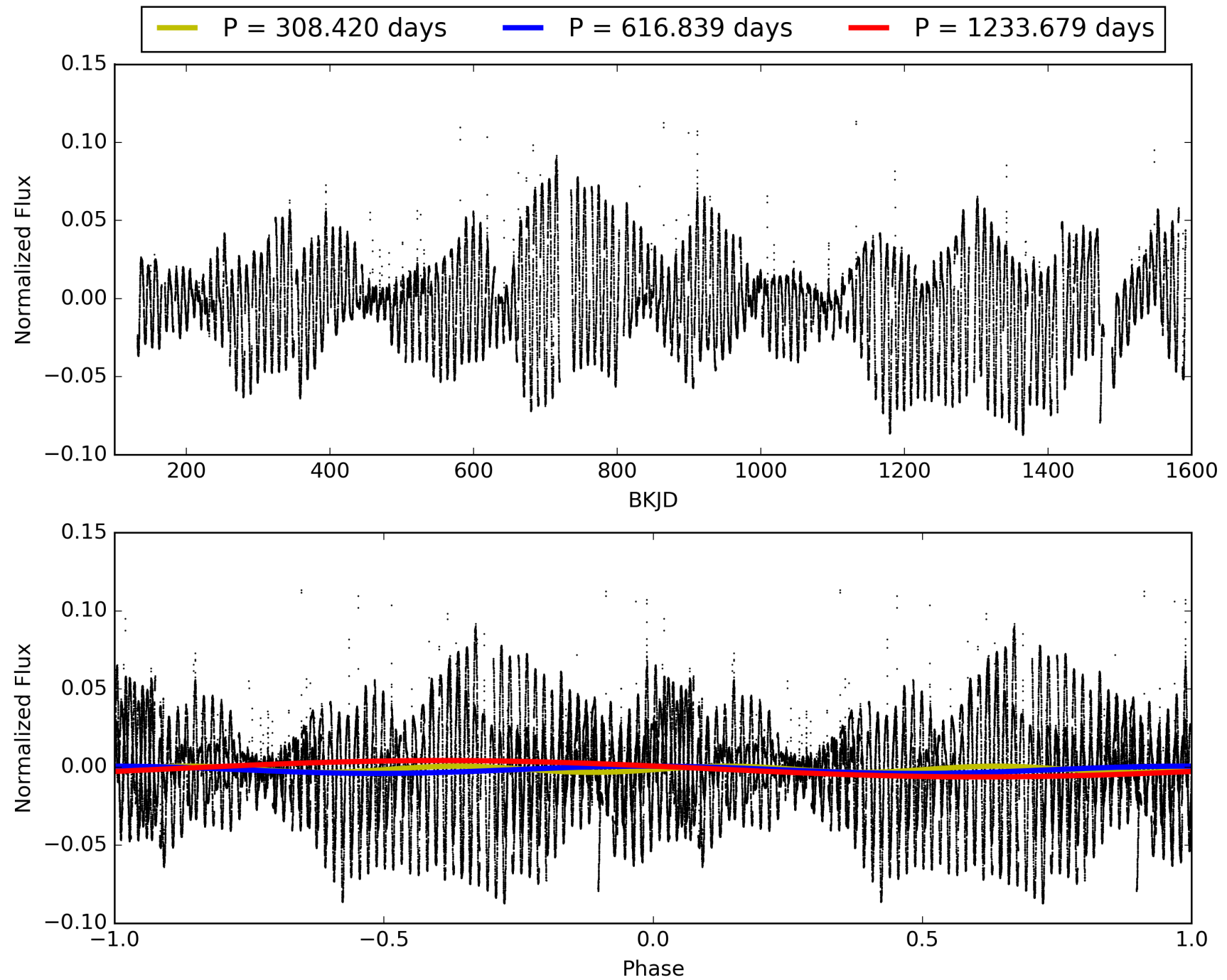
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:57:00 Z

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

TCE 005531281-04, PDC Light Curves

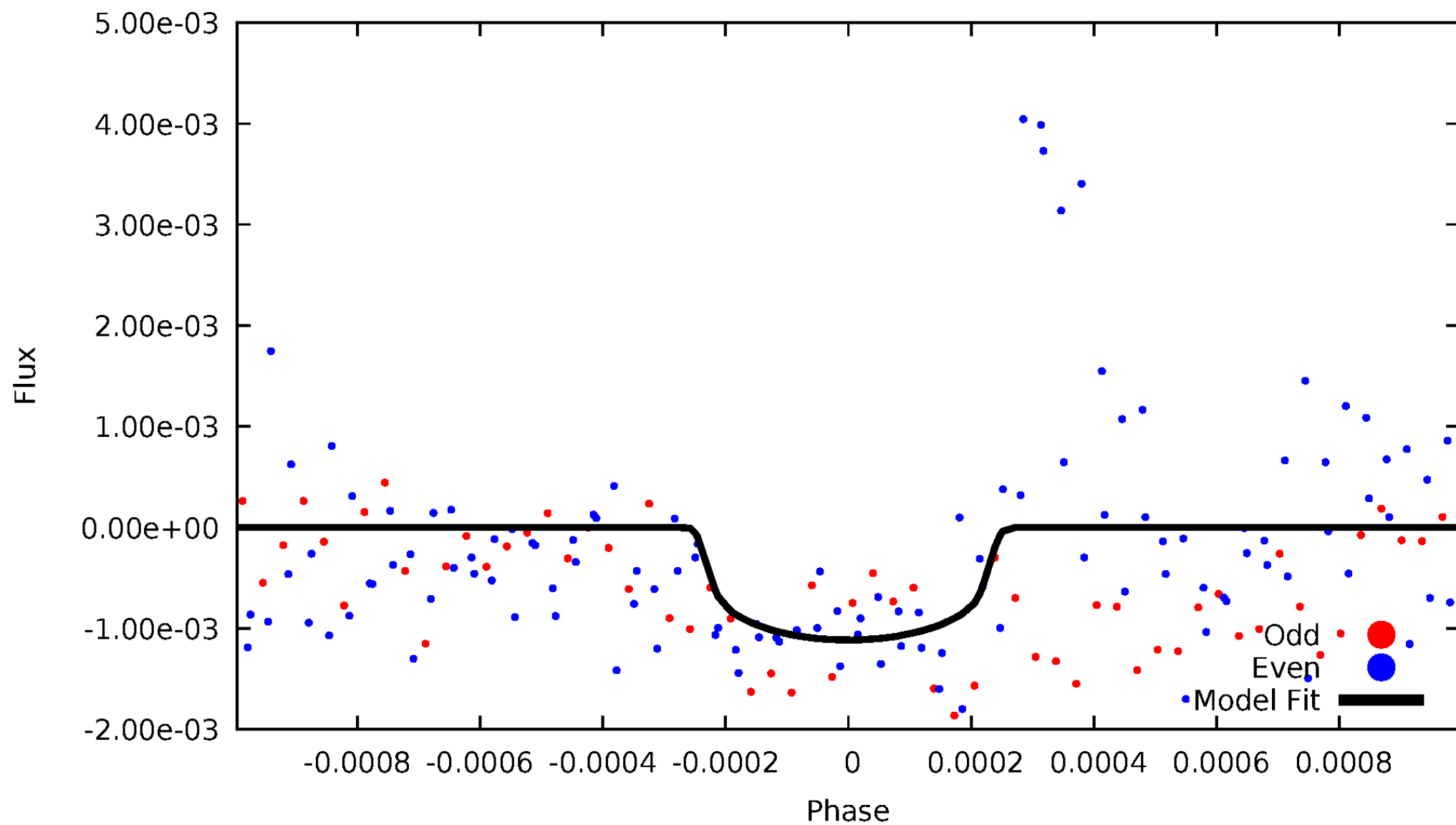


TCE 005531281-04



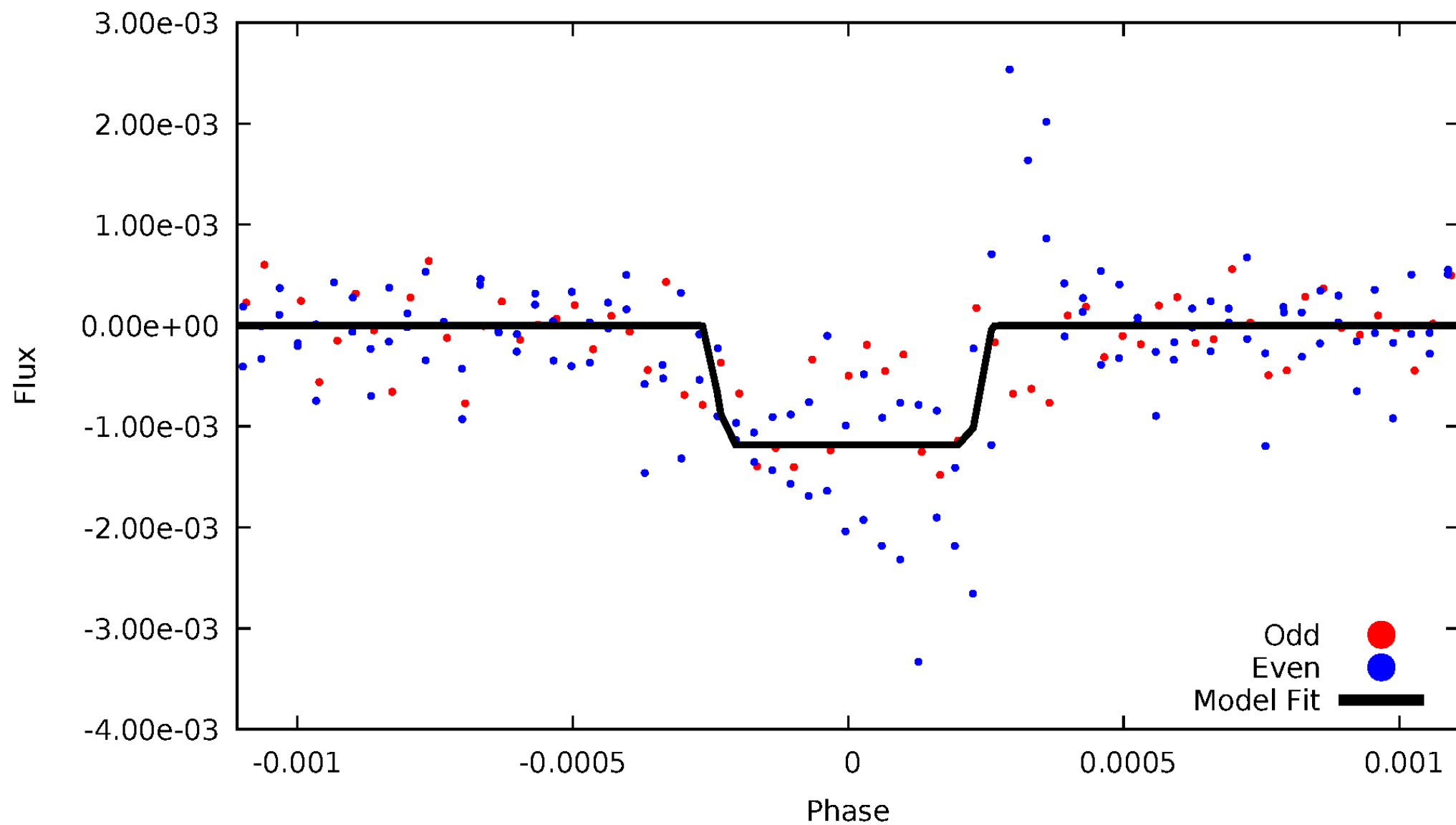
DV Odd/Even

TCE 005531281-04



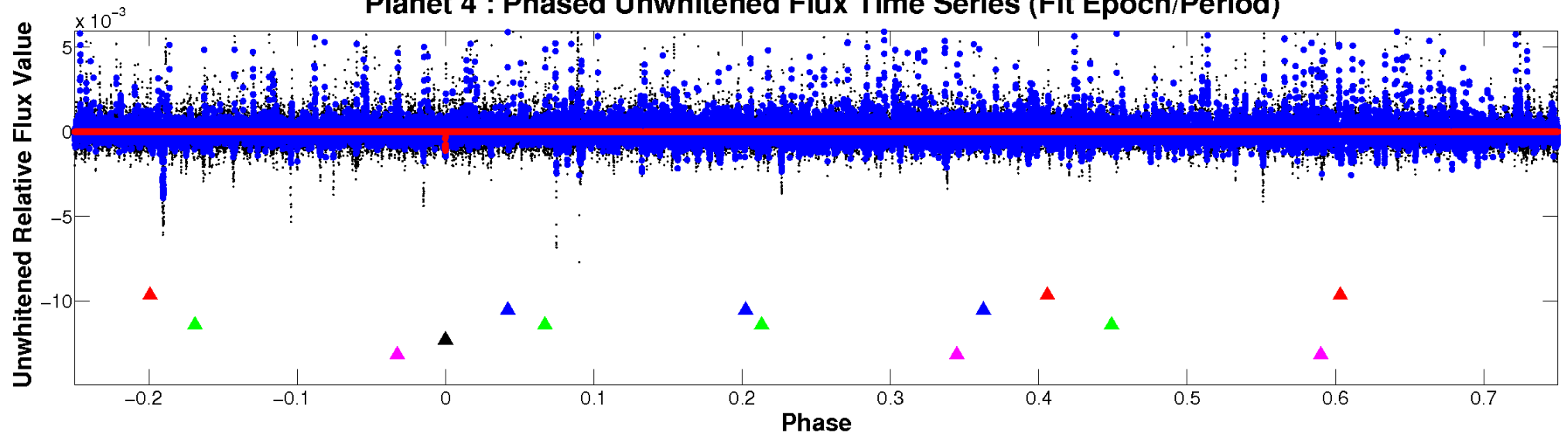
ALT Odd/Even

TCE 005531281-04

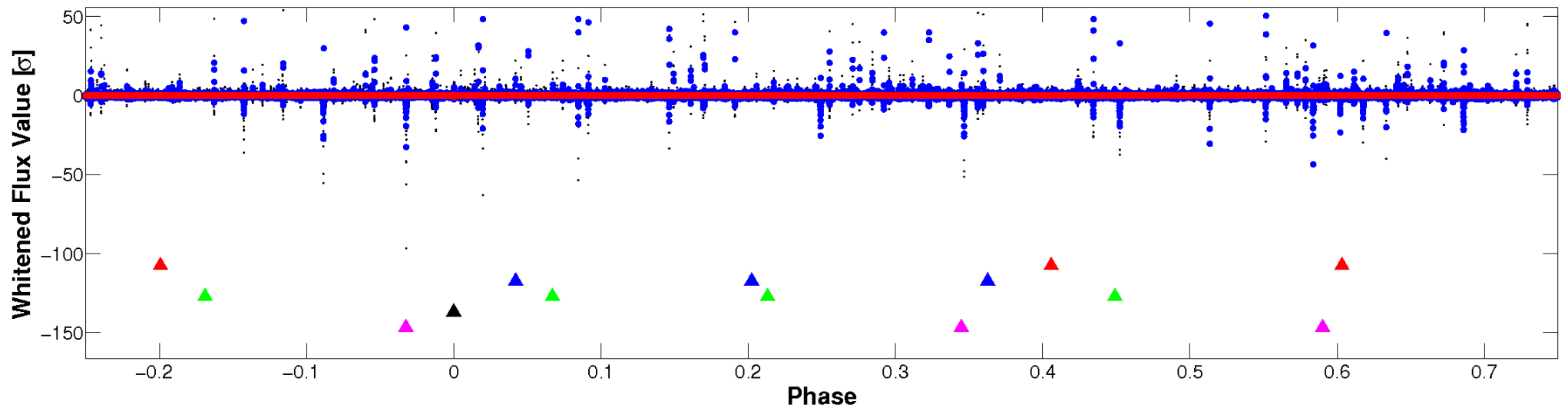


Non-Whitened Vs. Whitened Light Curve

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

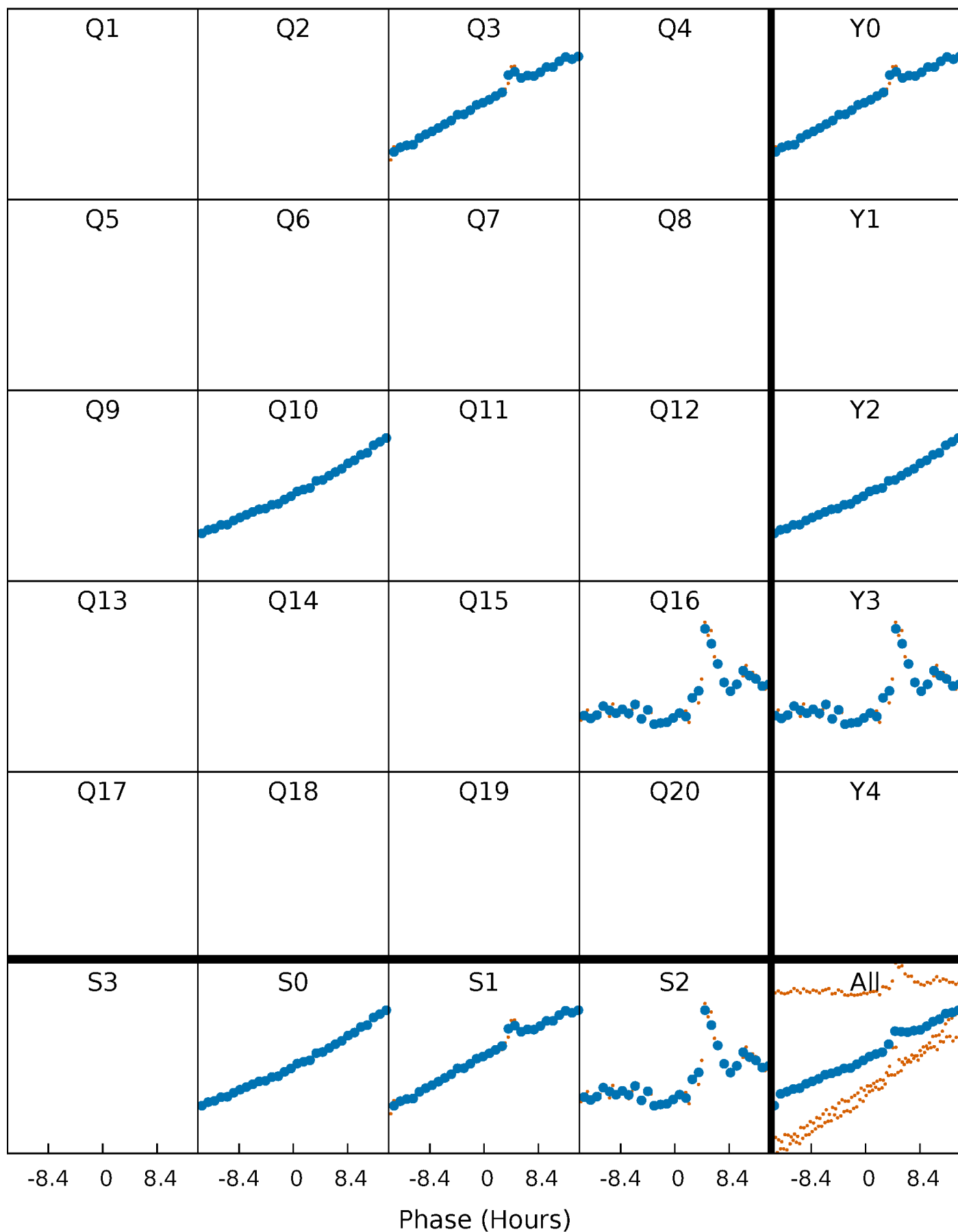


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



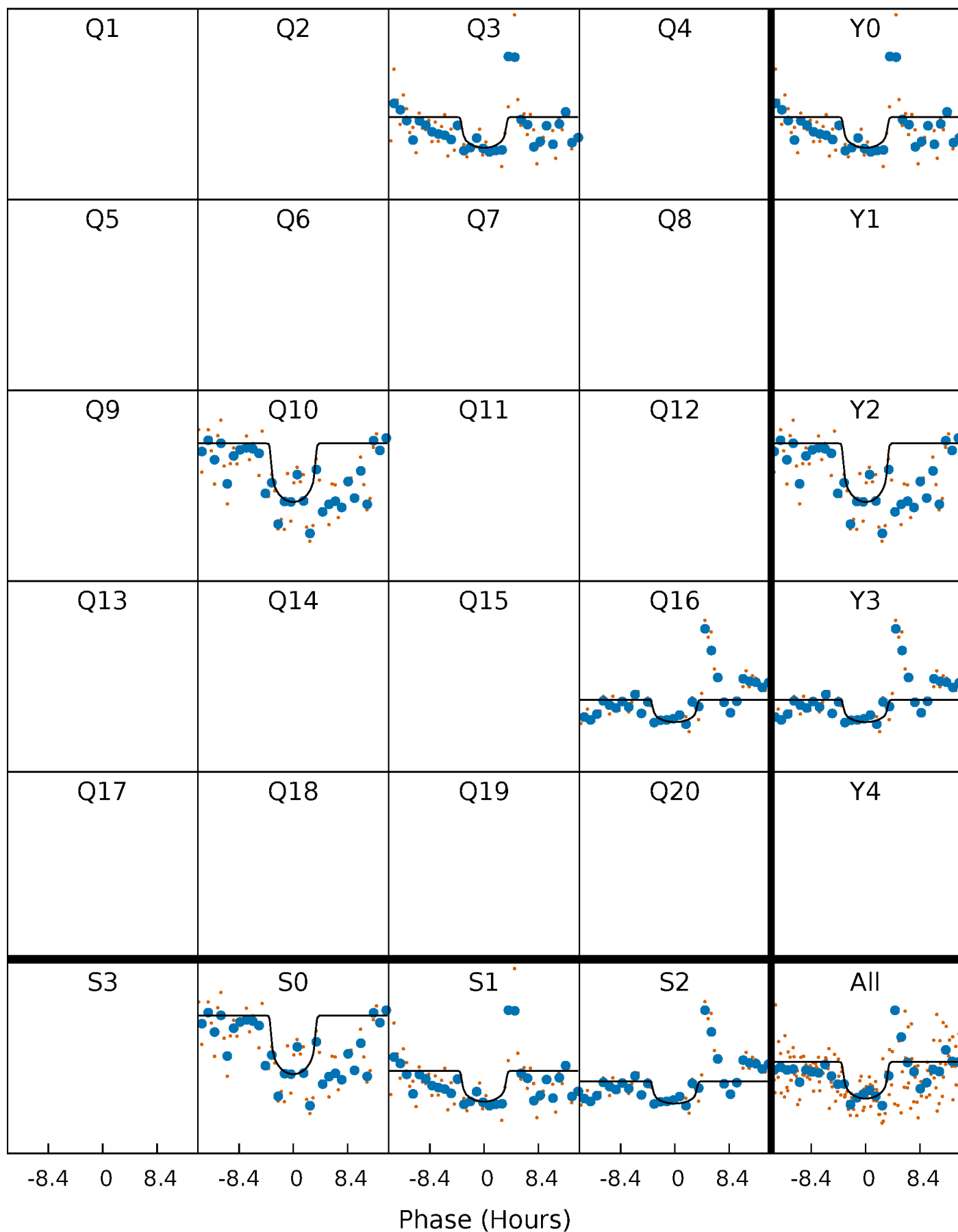
PDC Quarter-Phased Transit Curves

TCE 005531281-04 P=616.839298 Days $T_0=301.691067$ (BKJD)



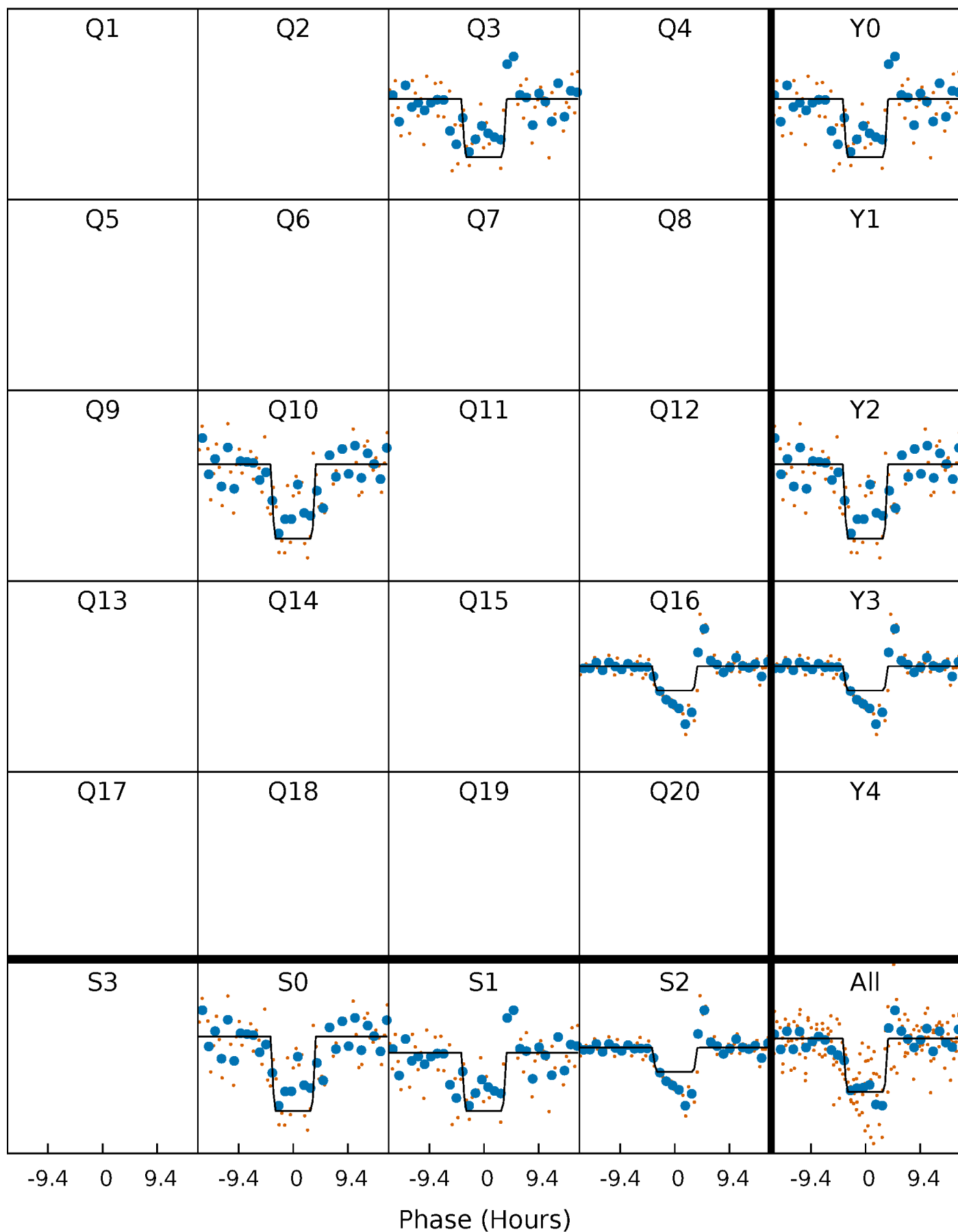
DV Quarter-Phased Transit Curves

TCE 005531281-04 P=616.839298 Days $T_0=301.691067$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

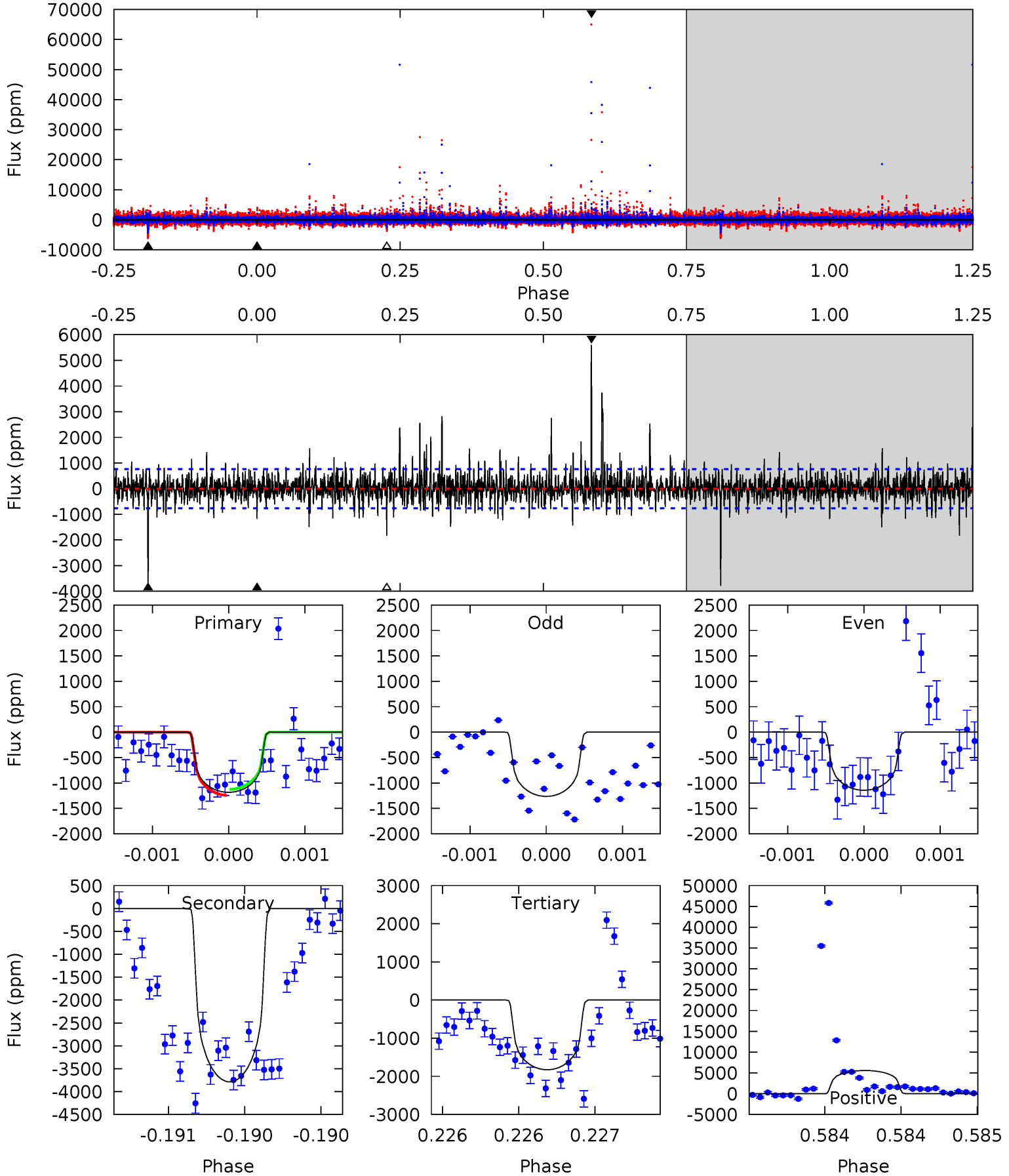
TCE 005531281-04 $P=616.848309$ Days $T_0=301.685979$ (BKJD)



DV Model-Shift Uniqueness Test

005531281-04, P = 616.839298 Days, E = 301.691067 Days

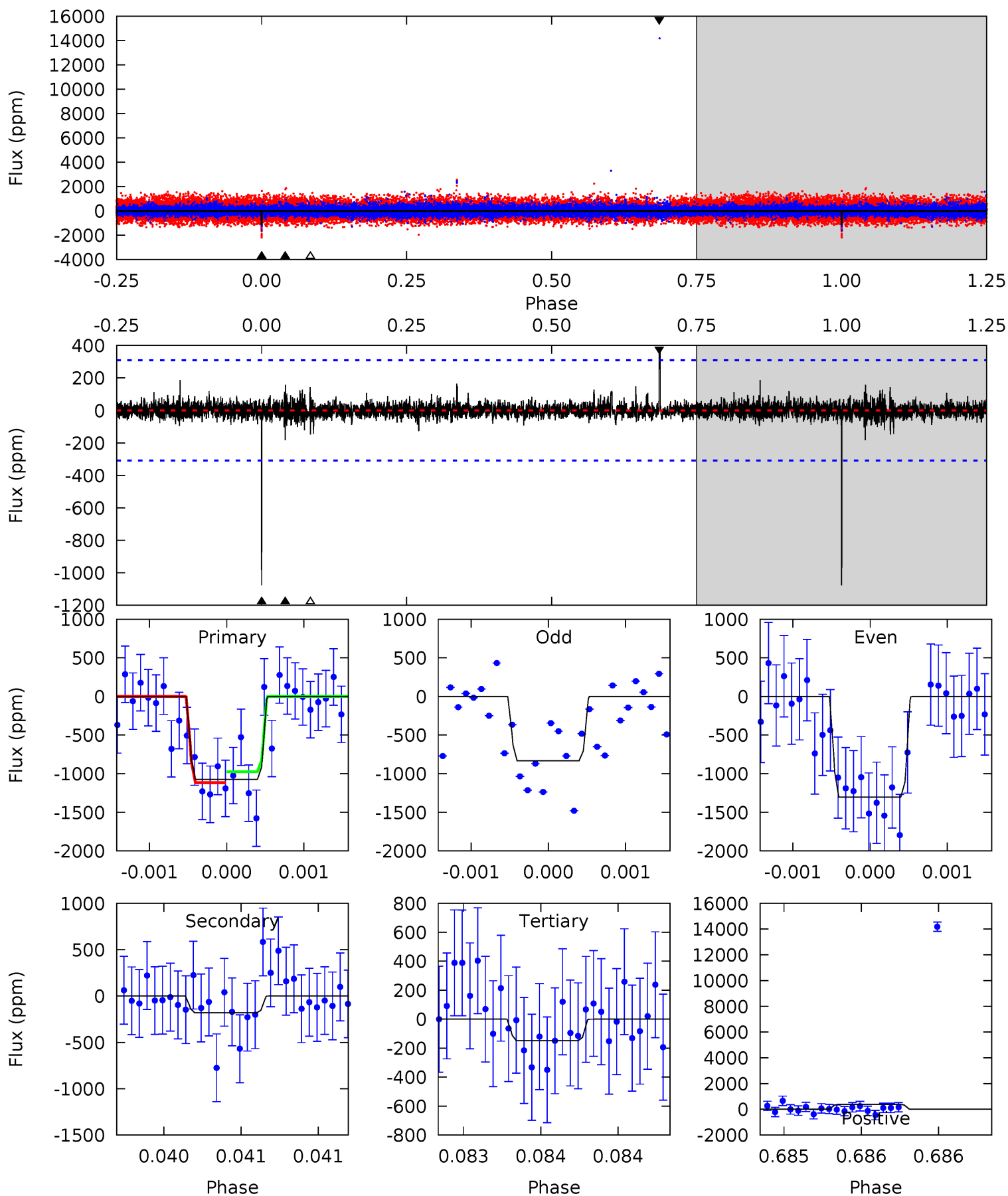
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.64	27.6	13.3	40.7	5.57	3.48	2.95	-4.70	-32.1	14.3	-13.1	0.16	0.94	0.60	0.44



Alt Model-Shift Uniqueness Test

005531281-04, P = 616.848309 Days, E = 301.685979 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.4	3.28	2.66	7.01	5.57	3.48	0.51	16.7	12.4	0.61	-3.74	3.26	1.44	0.27	1.26



Stellar Parameters For KIC 005531281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5052^{+151}_{-136}	$4.521^{+0.080}_{-0.072}$	$-0.100^{+0.300}_{-0.300}$	$0.786^{+0.078}_{-0.086}$	$0.748^{+0.103}_{-0.055}$	$2.173^{+0.776}_{-0.481}$
	+3%/-3%	+2%/-2%	+300%/-300%	+10%/-11%	+14%/-7%	+36%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005531281-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3786 ± 137	$2.96^{+1.34}_{-1.27}$	243^{+10}_{-9}	6713^{+2597}_{-1142}	$405345^{+800917}_{-211869}$
Alt.	-182 ± 55	$2.97^{+1.28}_{-1.25}$	244^{+10}_{-10}	3595^{+751}_{-447}	19377^{+40386}_{-10783}

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

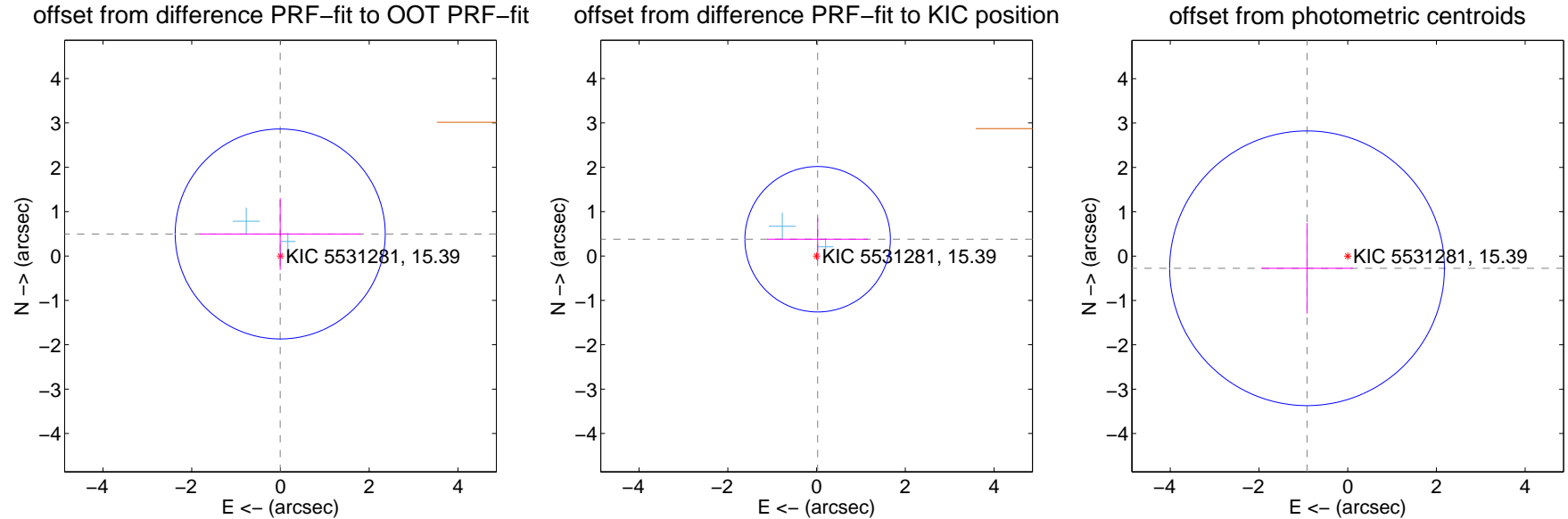
DV Centroid Data

Supplemental centroid analysis for 005531281-04. Kepler magnitude: 15.39. Transit SNR 5.60

There are 2 quarters with good PRF difference image offsets

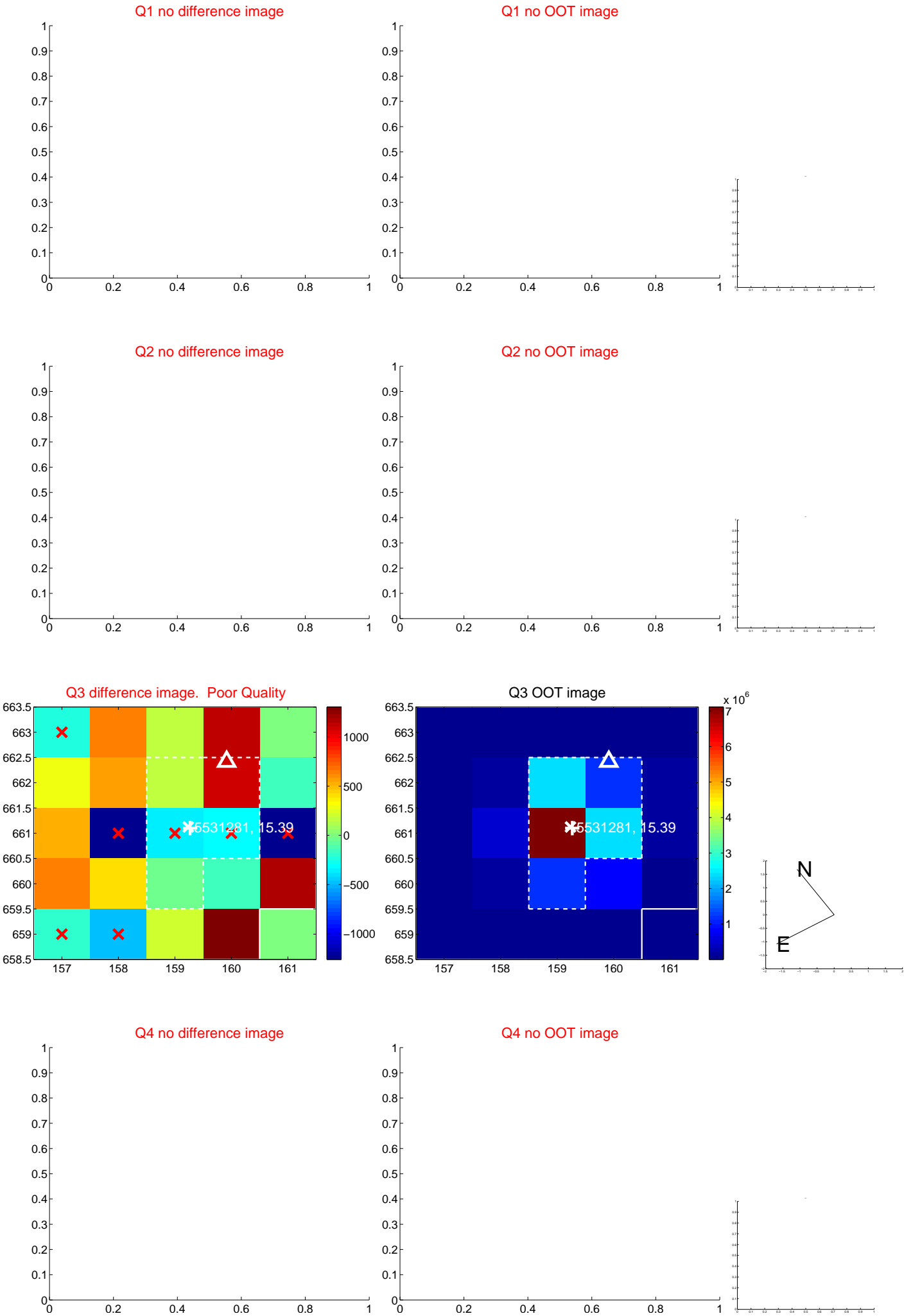
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.497 ± 0.789	0.63	0.005 ± 1.817	0.497 ± 0.808
PRF-fit source offset from KIC position	0.379 ± 0.546	0.69	-0.024 ± 1.136	0.378 ± 0.481
photometric centroid source offset	0.96 ± 1.03	0.93	0.92 ± 1.03	-0.27 ± 1.02



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.

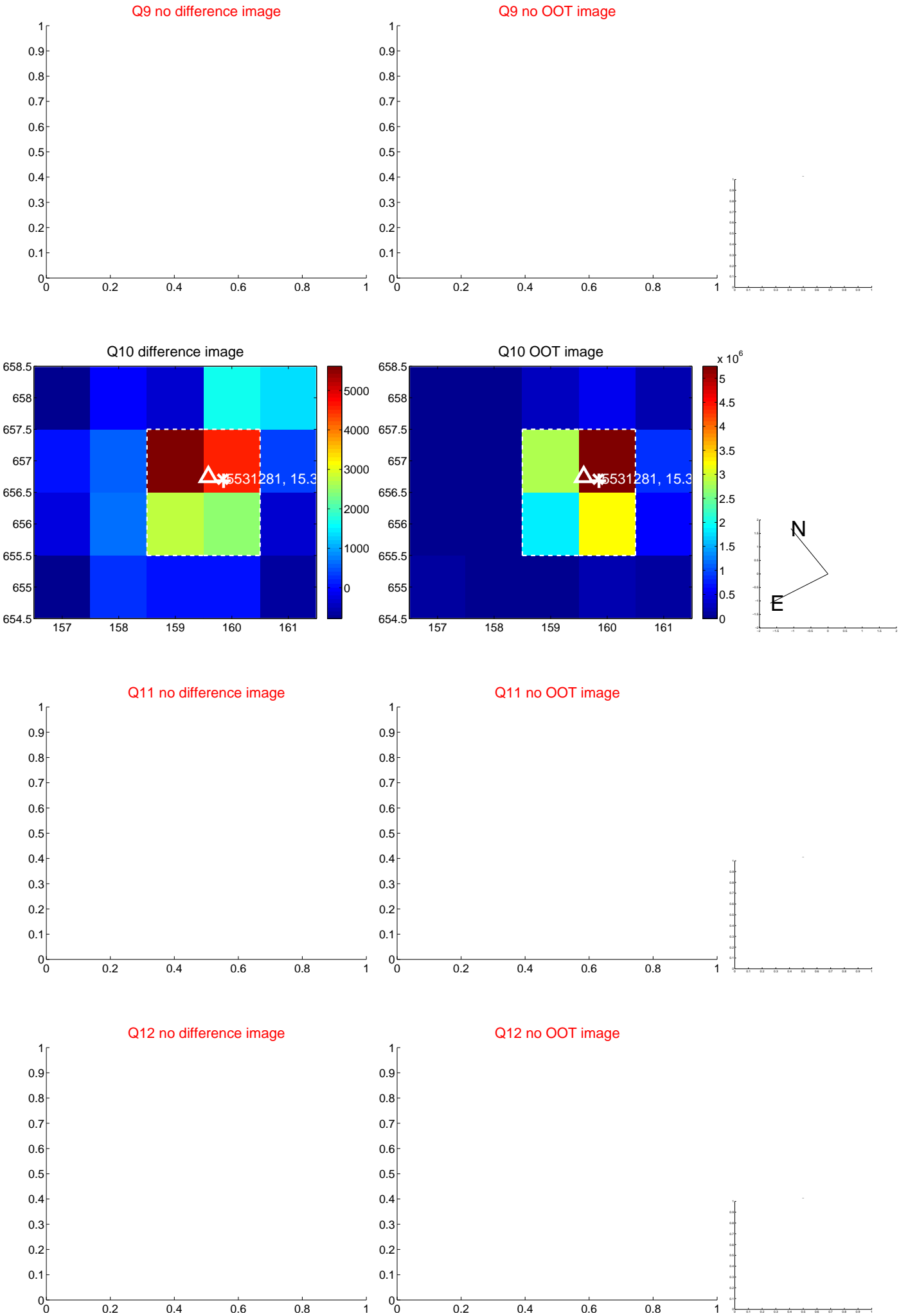
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



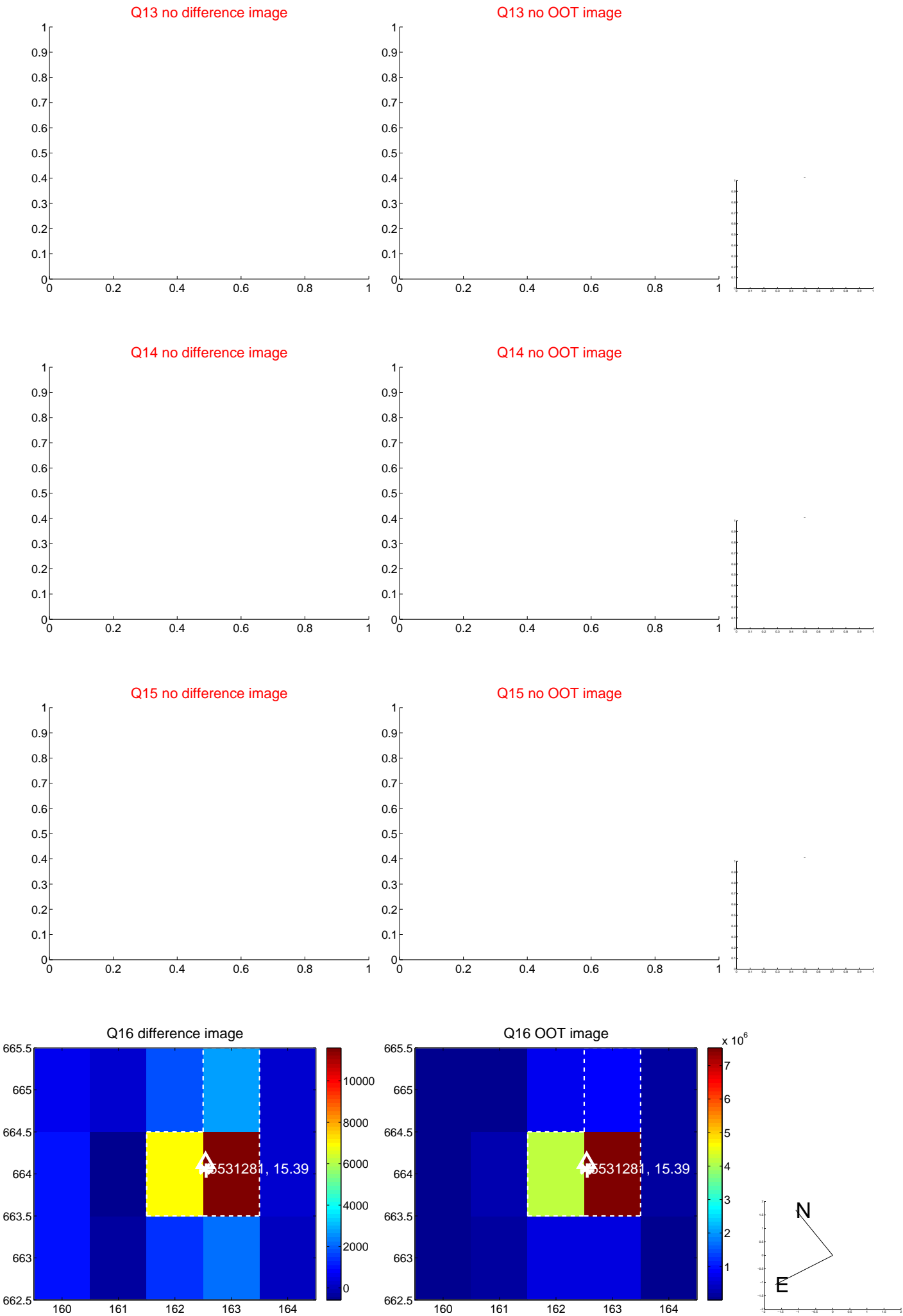
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



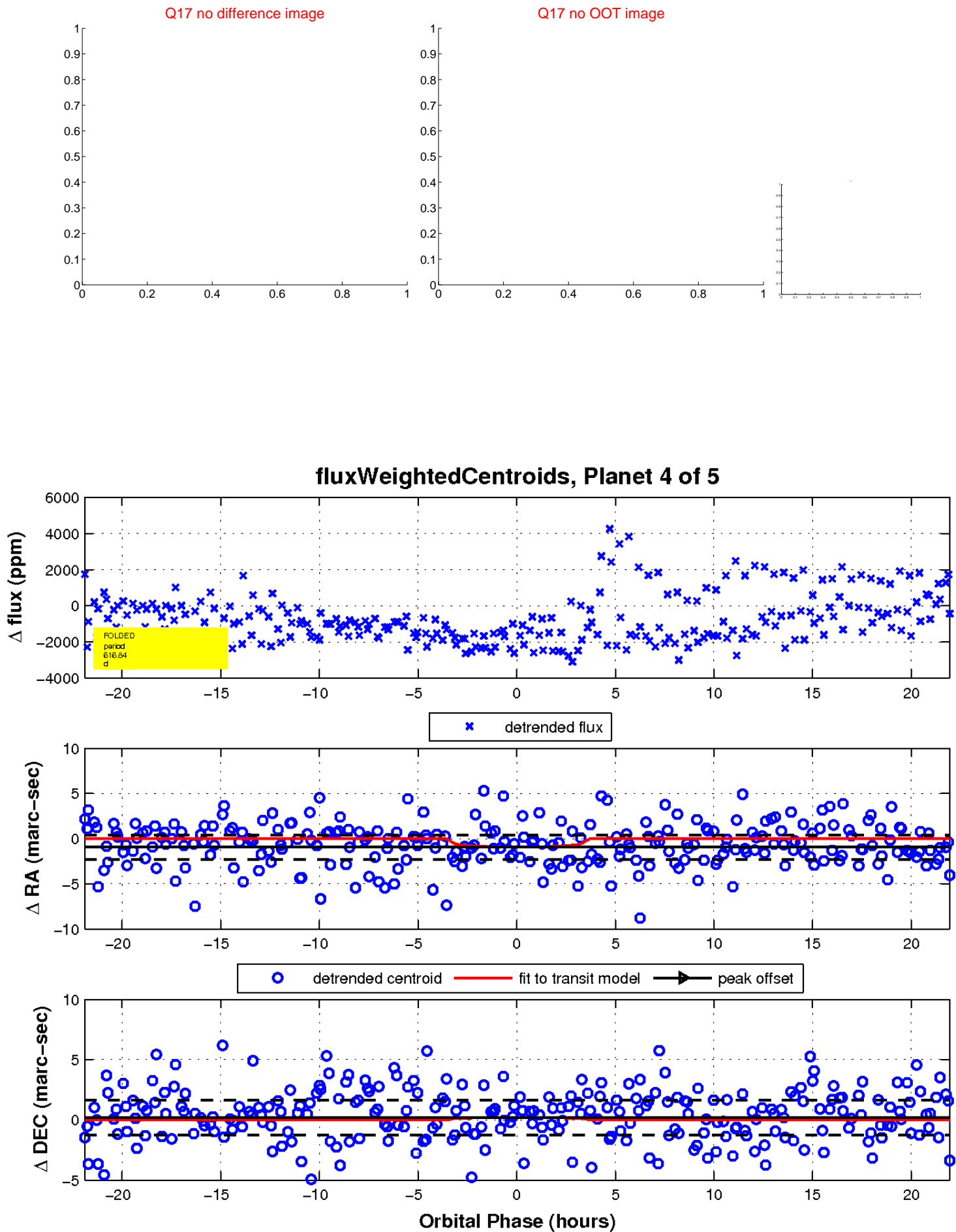
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

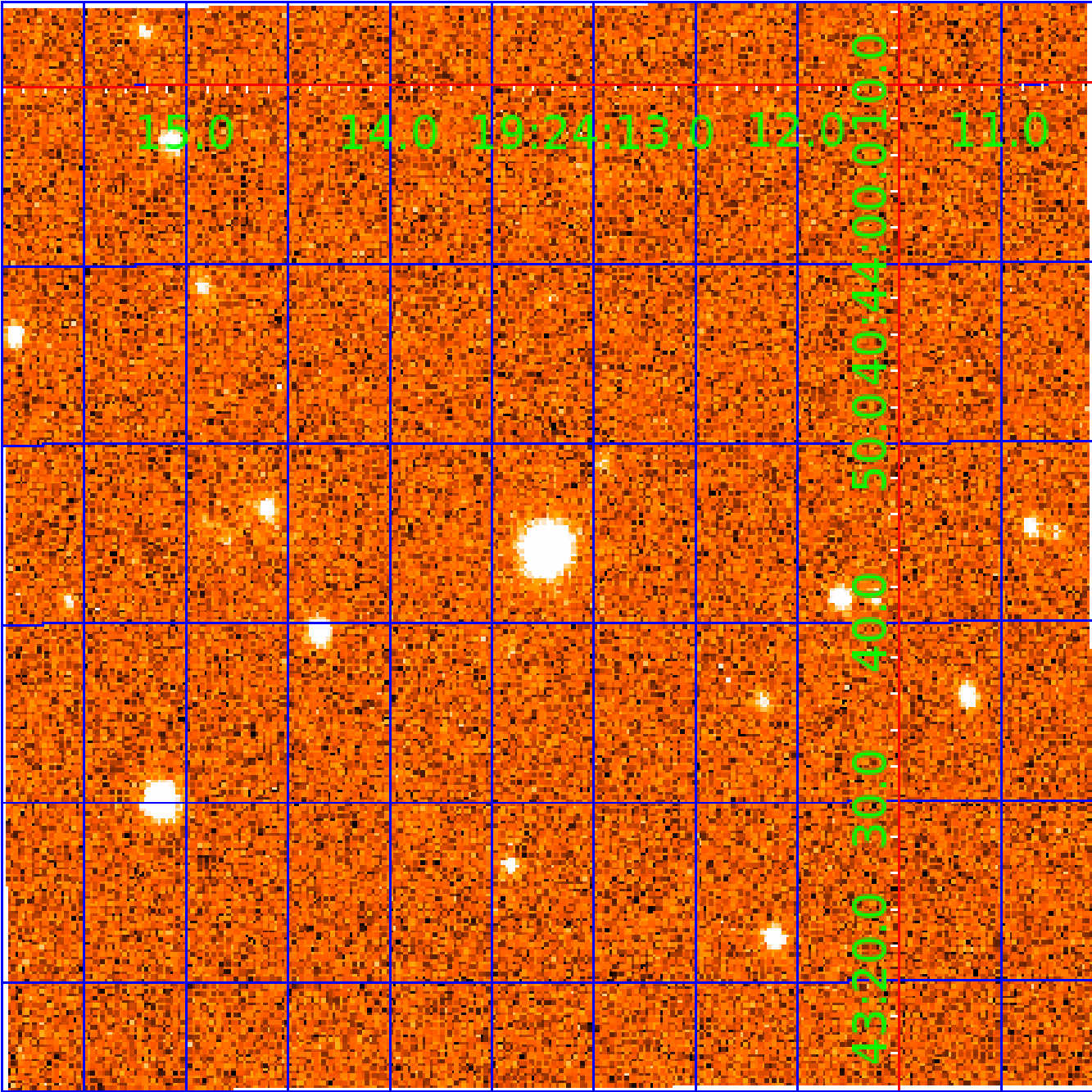


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005531281

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})
005531281-01	OBS	No	495.015863	178.817207	1358.0	5.154	12.9	6.5	0.79	5052	3.27	0.29
005531281-02	OBS	No	517.950490	525.422114	2380.8	9.008	13.5	9.9	0.79	5052	4.23	0.28
005531281-03	OBS	No	381.185794	433.173160	771.5	3.738	10.8	4.2	0.79	5052	2.13	0.41
005531281-04	OBS	No	616.839298	301.691067	1115.4	7.368	9.7	5.6	0.79	5052	2.82	0.22
005531281-05	OBS	No	384.103250	514.367796	1819.6	4.500	11.9	-1.0	0.79	5052	3.26	0.41

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005531281-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
005531281-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
005531281-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005531281-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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

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

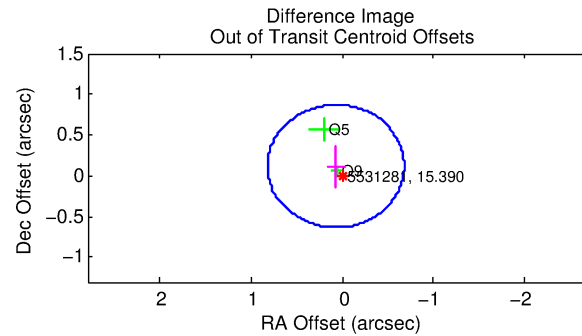
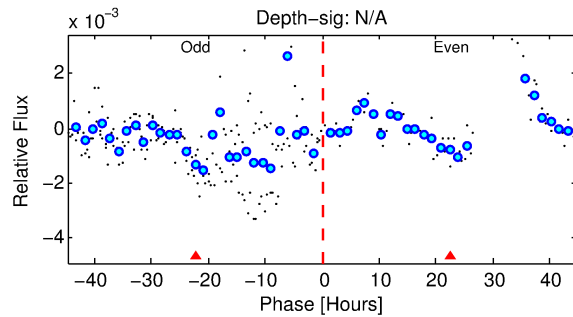
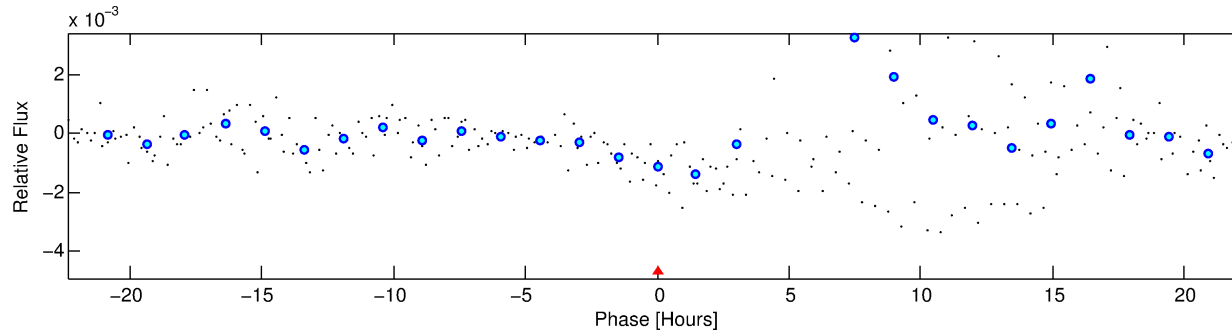
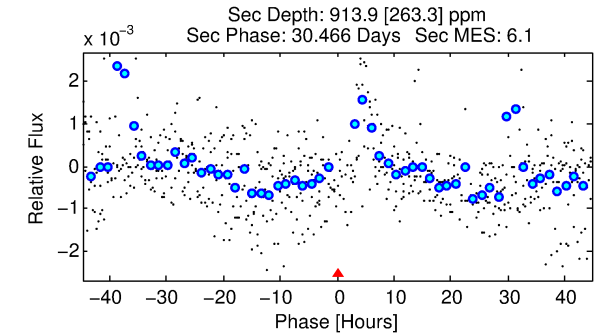
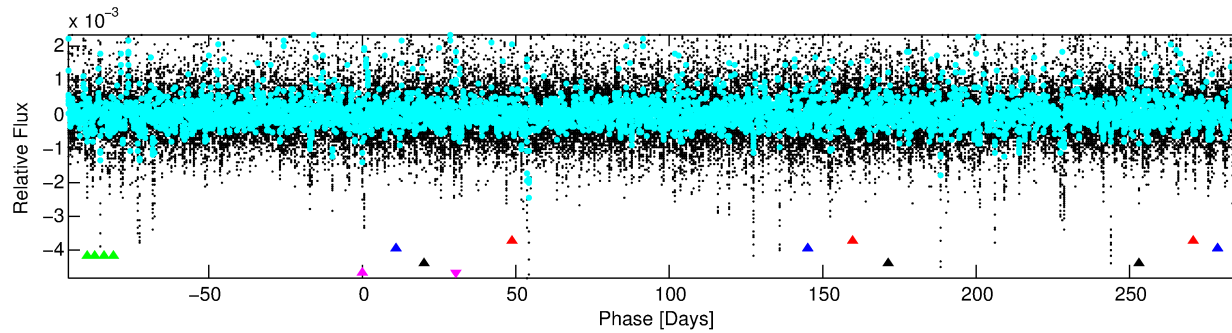
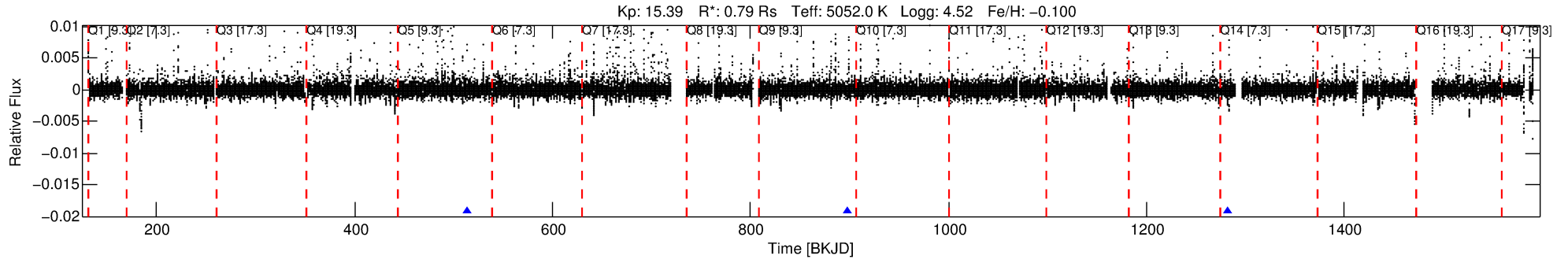
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005531281-05

No Significant Match Found

DV One-Page Summary

KIC: 5531281 Candidate: 5 of 5 Period: 384.103 d



TPS TCE Results:

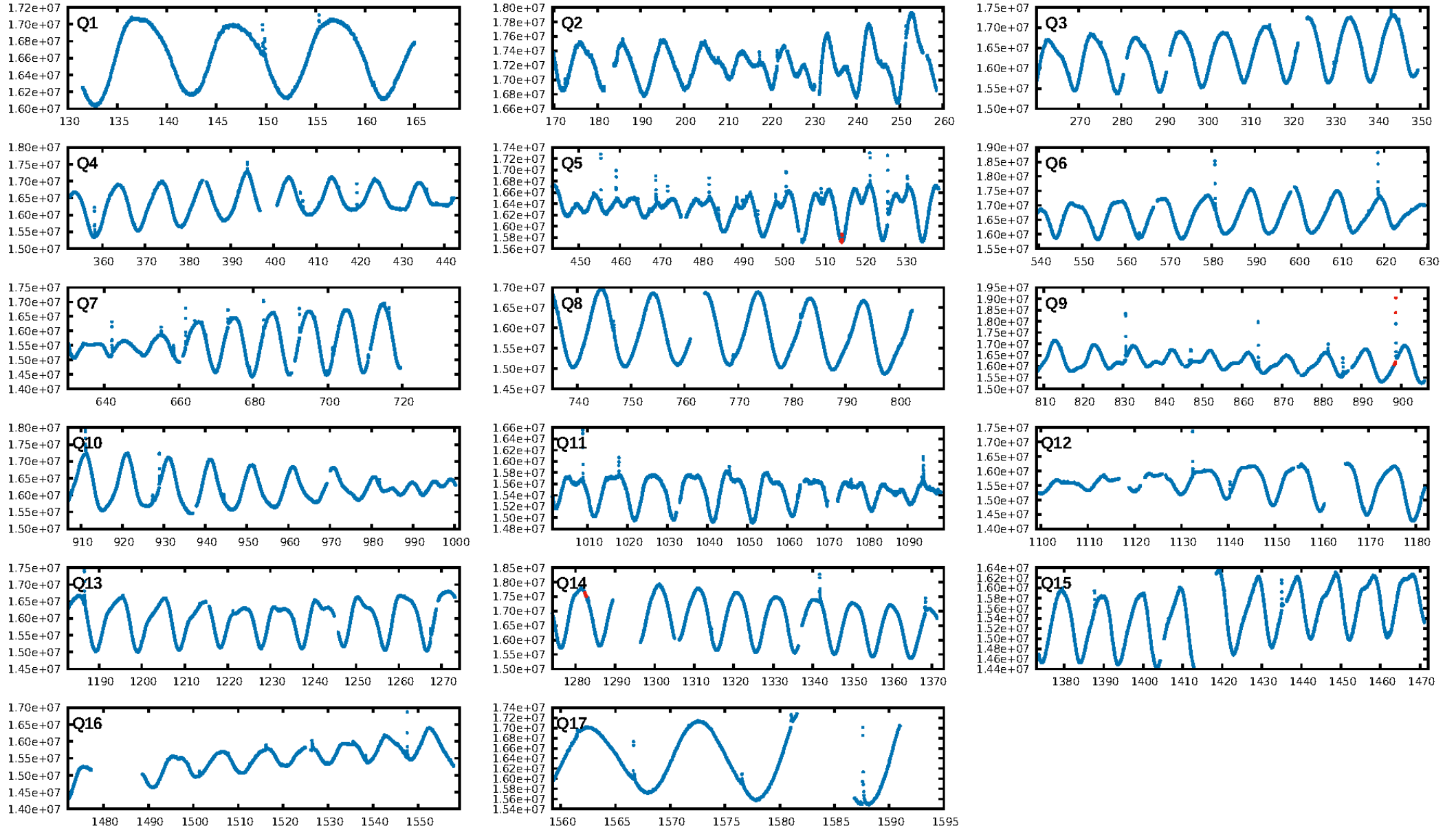
Period = 384.10325 d
Epoch = 514.3678 BKJD

DV fit results are unavailable

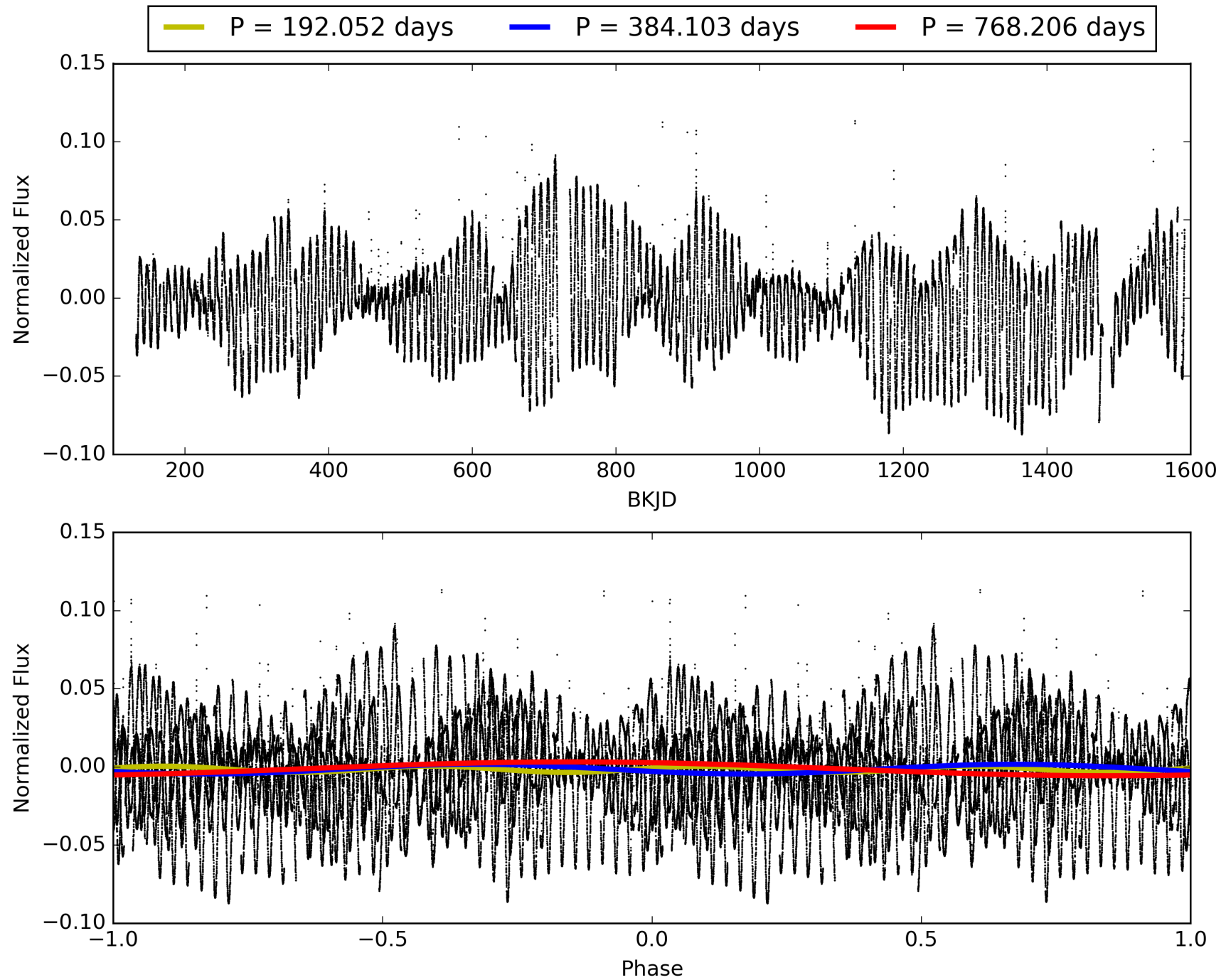
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.97 σ]
LongPeriod-sig: 100.0% [389.05 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4484
Centroid-sig: 32.9%
Centroid-so: 0.689 arcsec [0.86 σ]
OotOffset-rm: 0.139 arcsec [0.56 σ]
KicOffset-rm: 0.101 arcsec [0.48 σ]
OotOffset-st: 0/0/2 [2]
KicOffset-st: 0/0/2 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [2/2]

TCE 005531281-05, PDC Light Curves

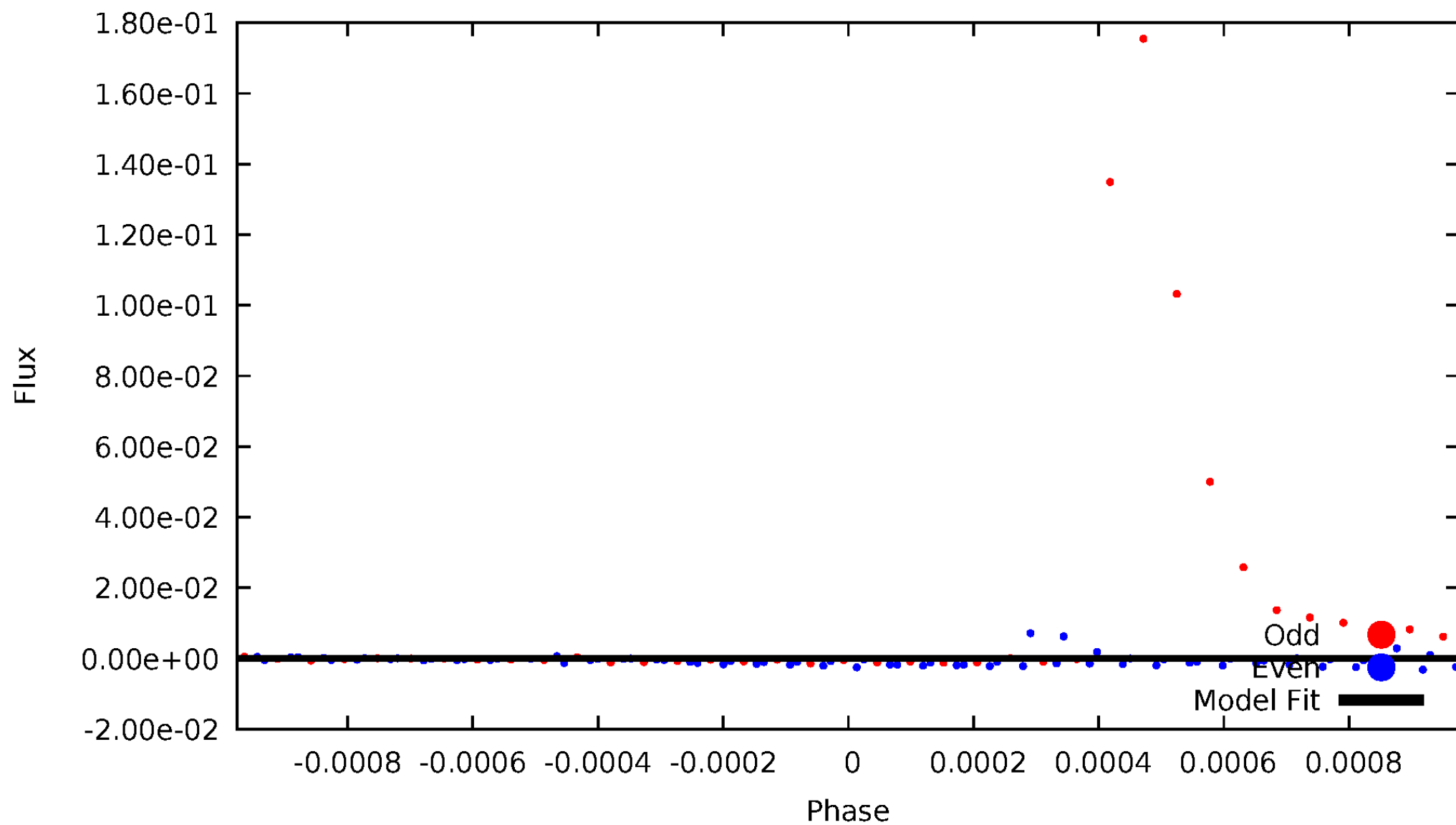


TCE 005531281-05



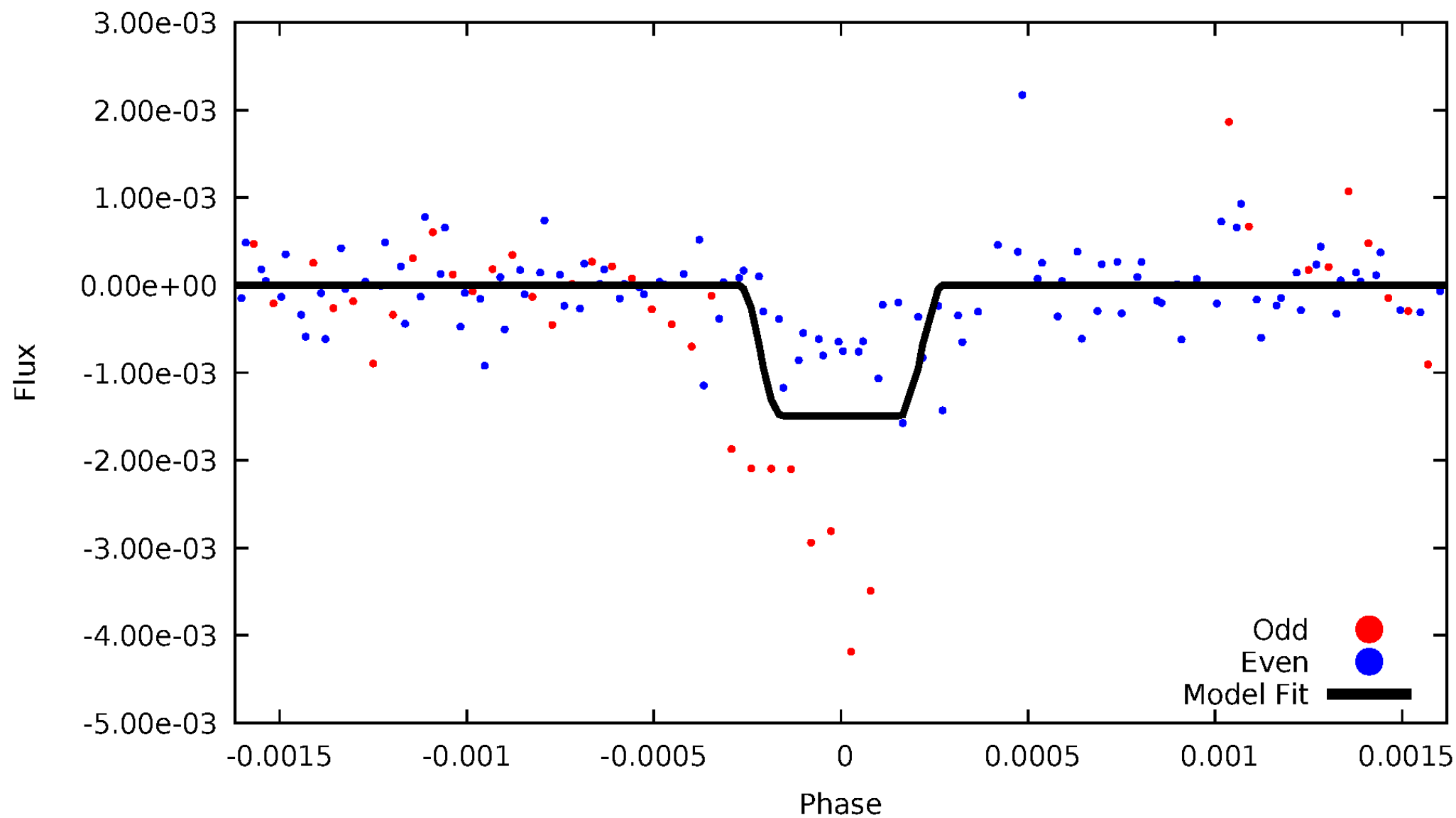
DV Odd/Even

TCE 005531281-05

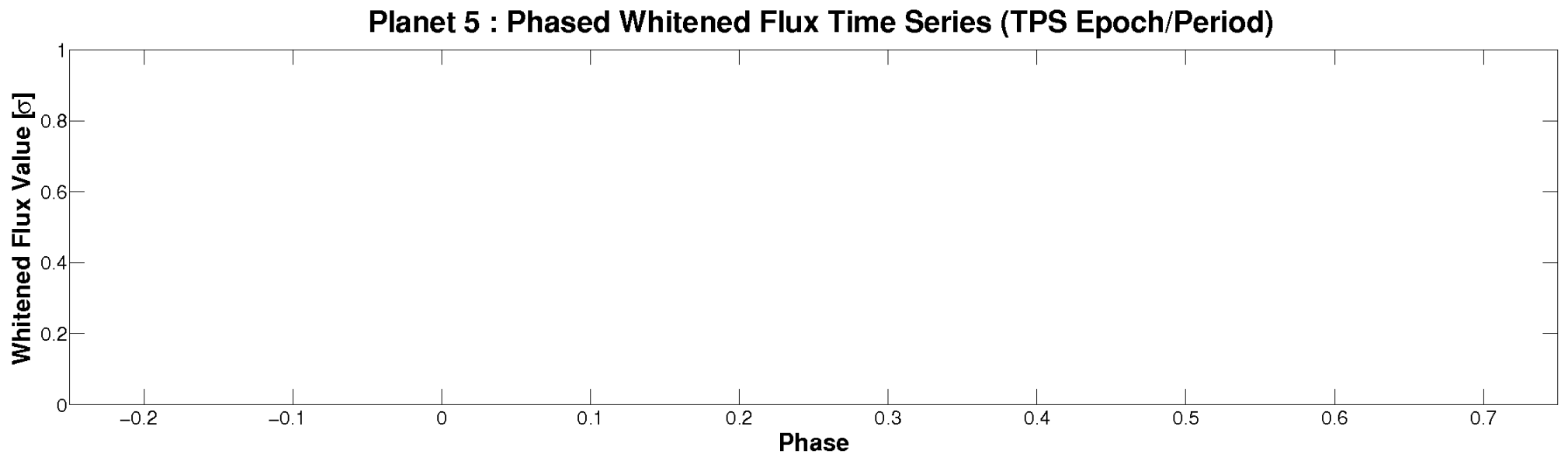
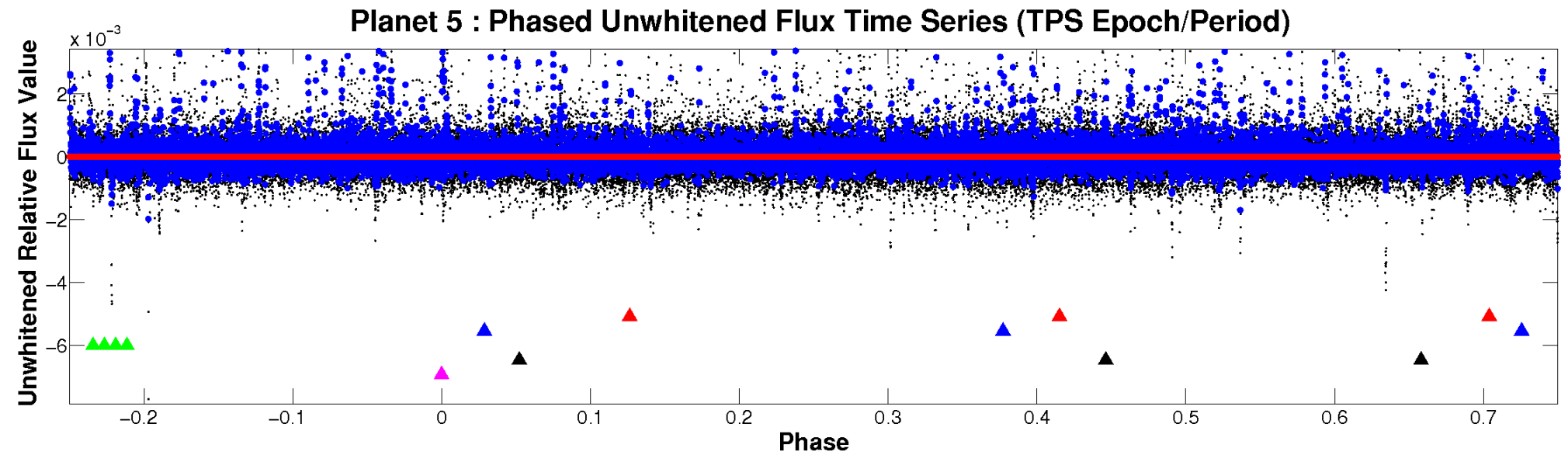


ALT Odd/Even

TCE 005531281-05

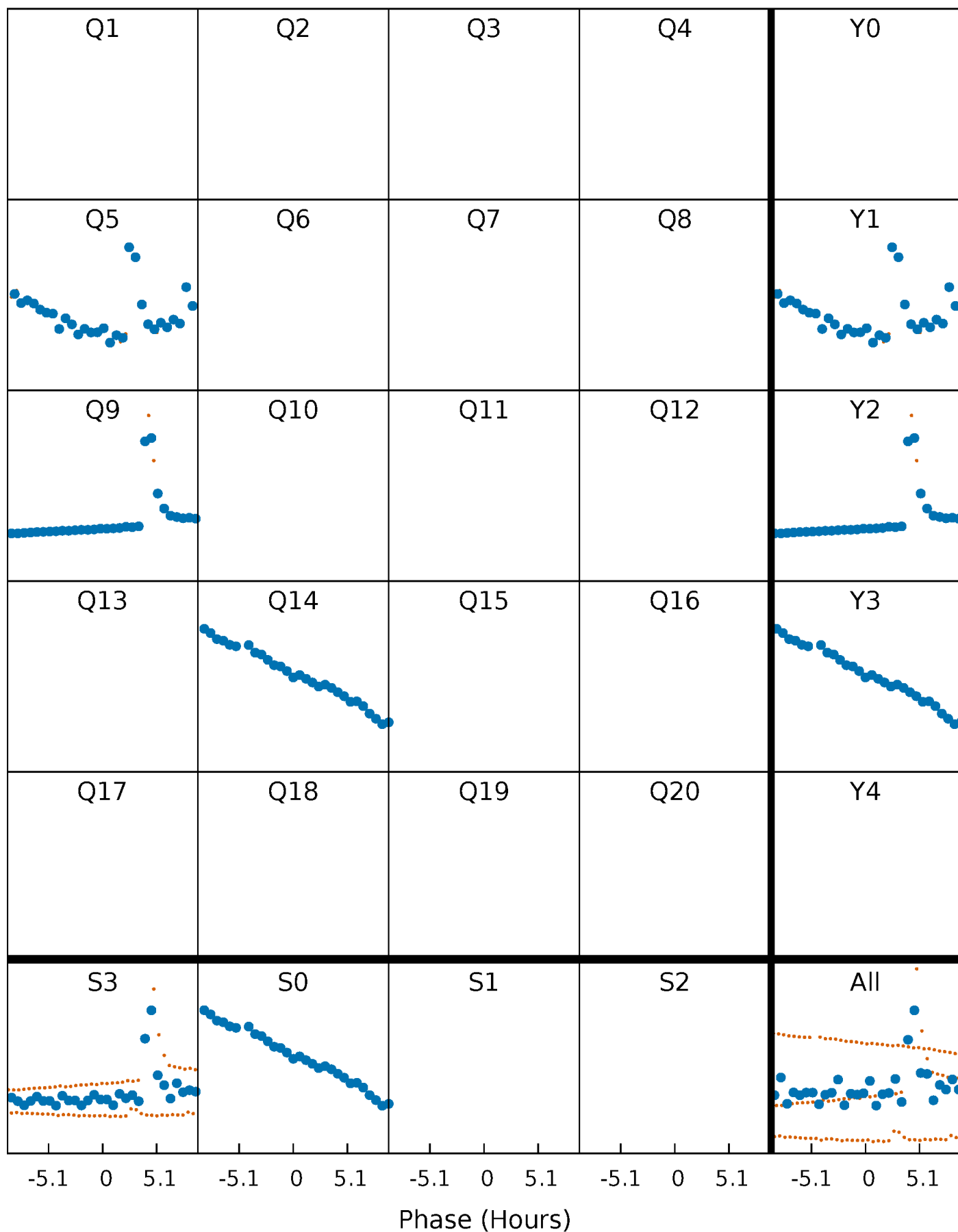


Non-Whitened Vs. Whitened Light Curve



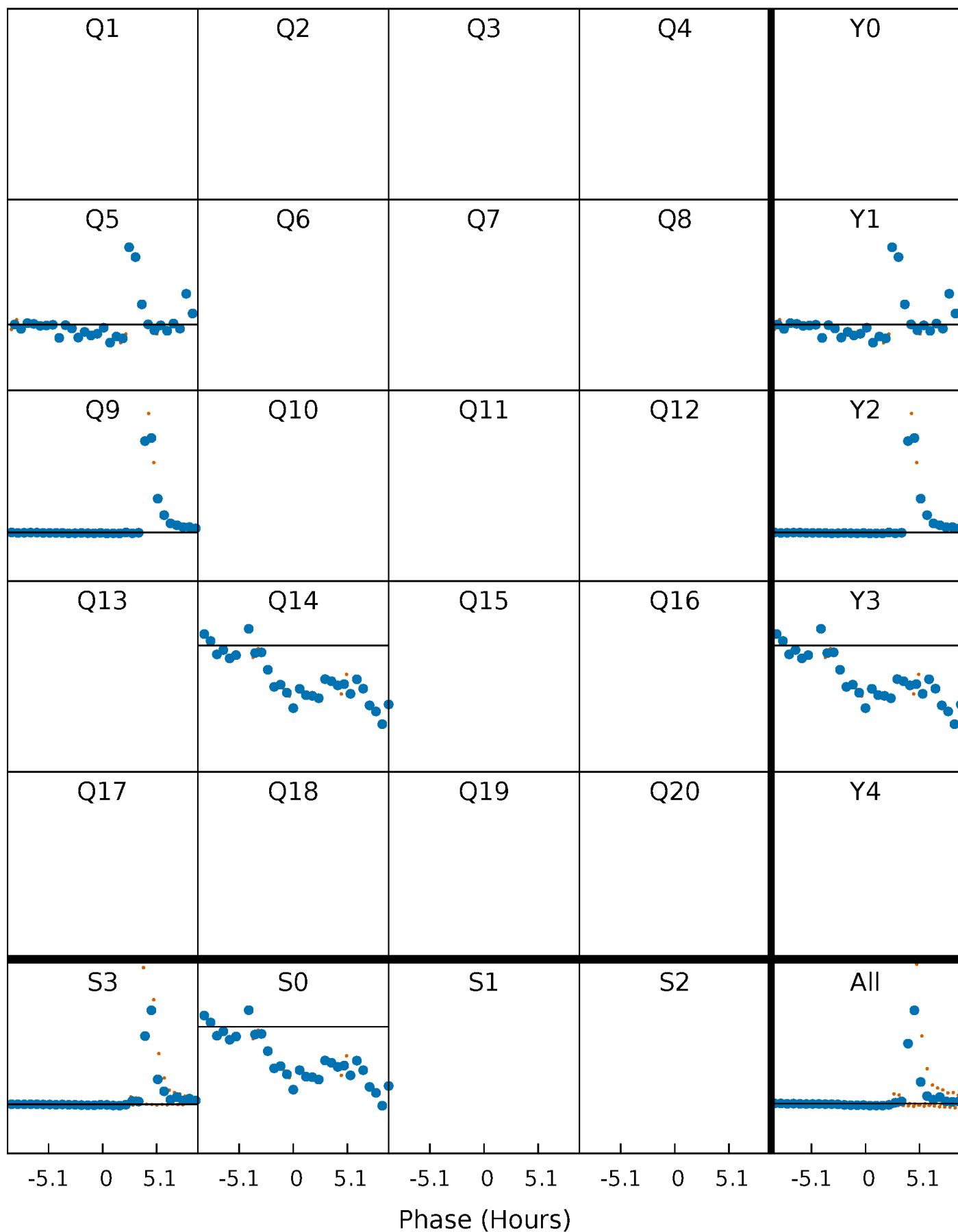
PDC Quarter-Phased Transit Curves

TCE 005531281-05 $P=384.103250$ Days $T_0=514.367796$ (BKJD)



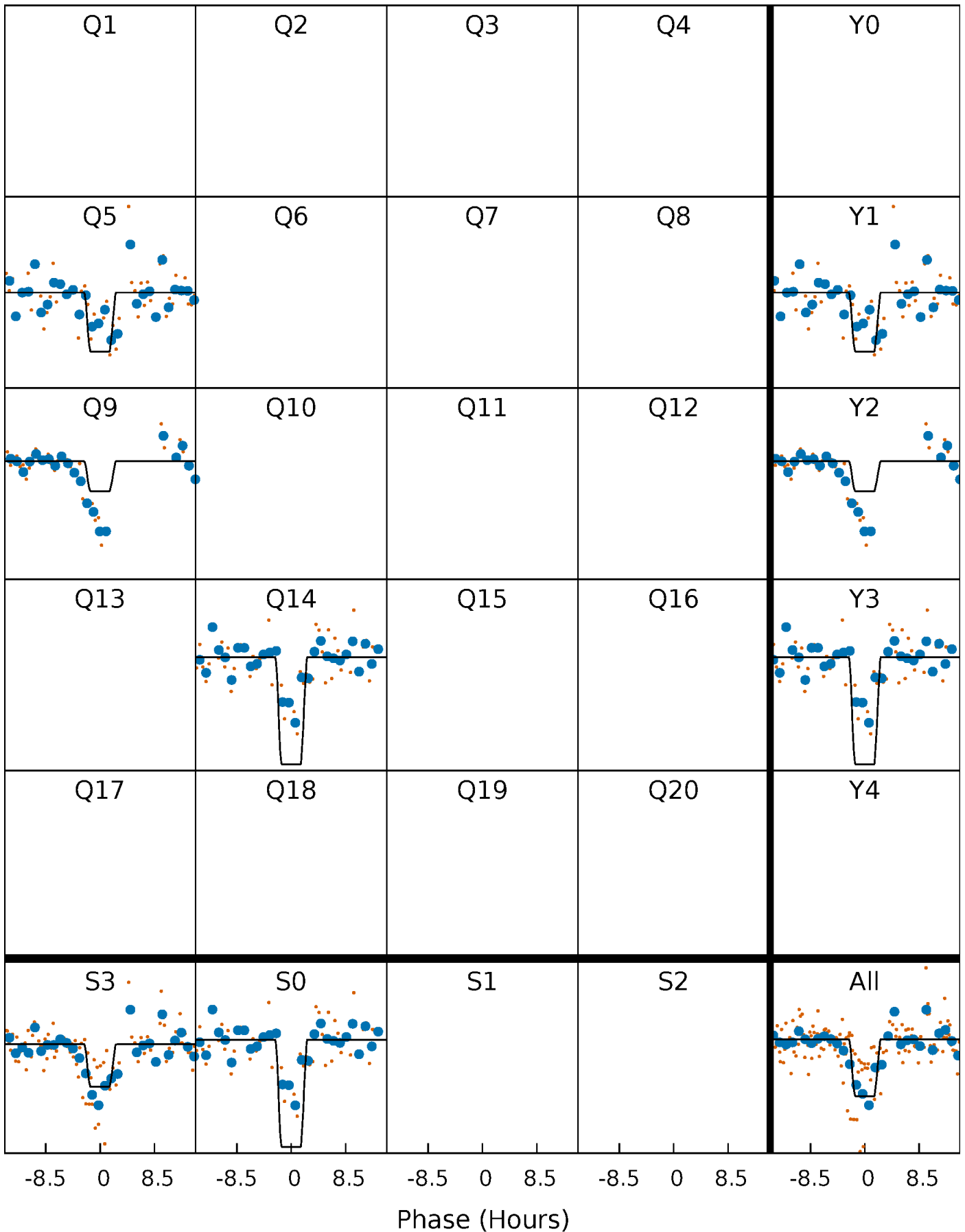
DV Quarter-Phased Transit Curves

TCE 005531281-05 $P=384.103250$ Days $T_0=514.367796$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

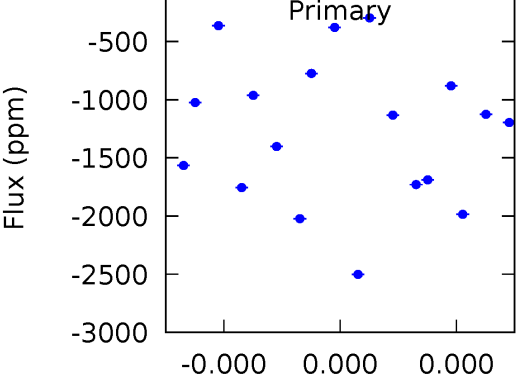
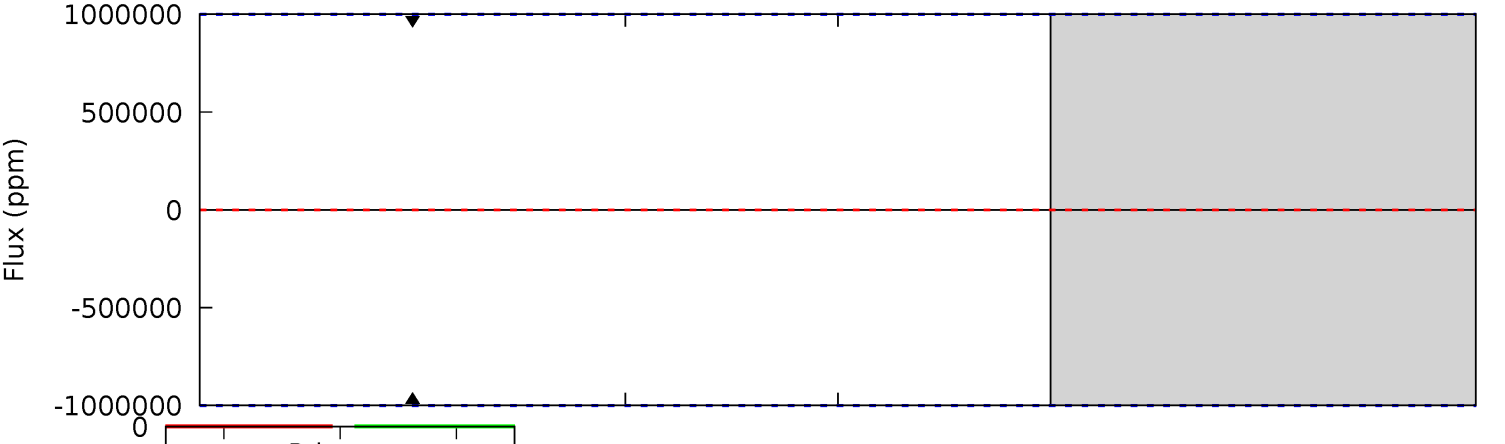
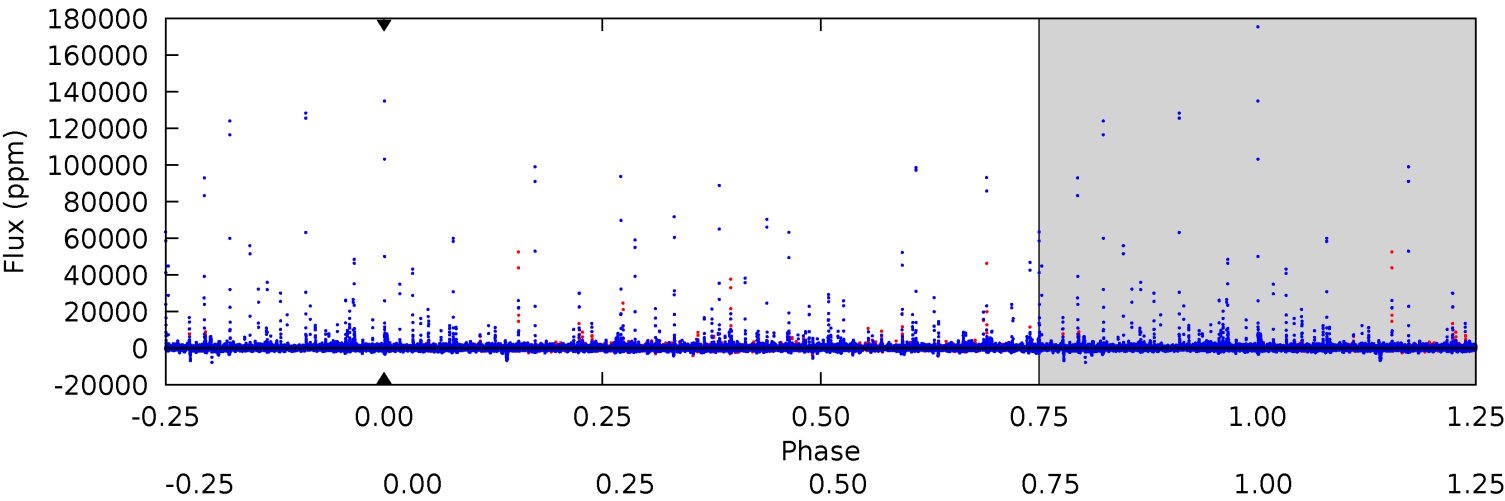
TCE 005531281-05 $P=384.103250$ Days $T_0=514.334340$ (BKJD)



DV Model-Shift Uniqueness Test

005531281-05, P = 384.103250 Days, E = 130.264546 Days

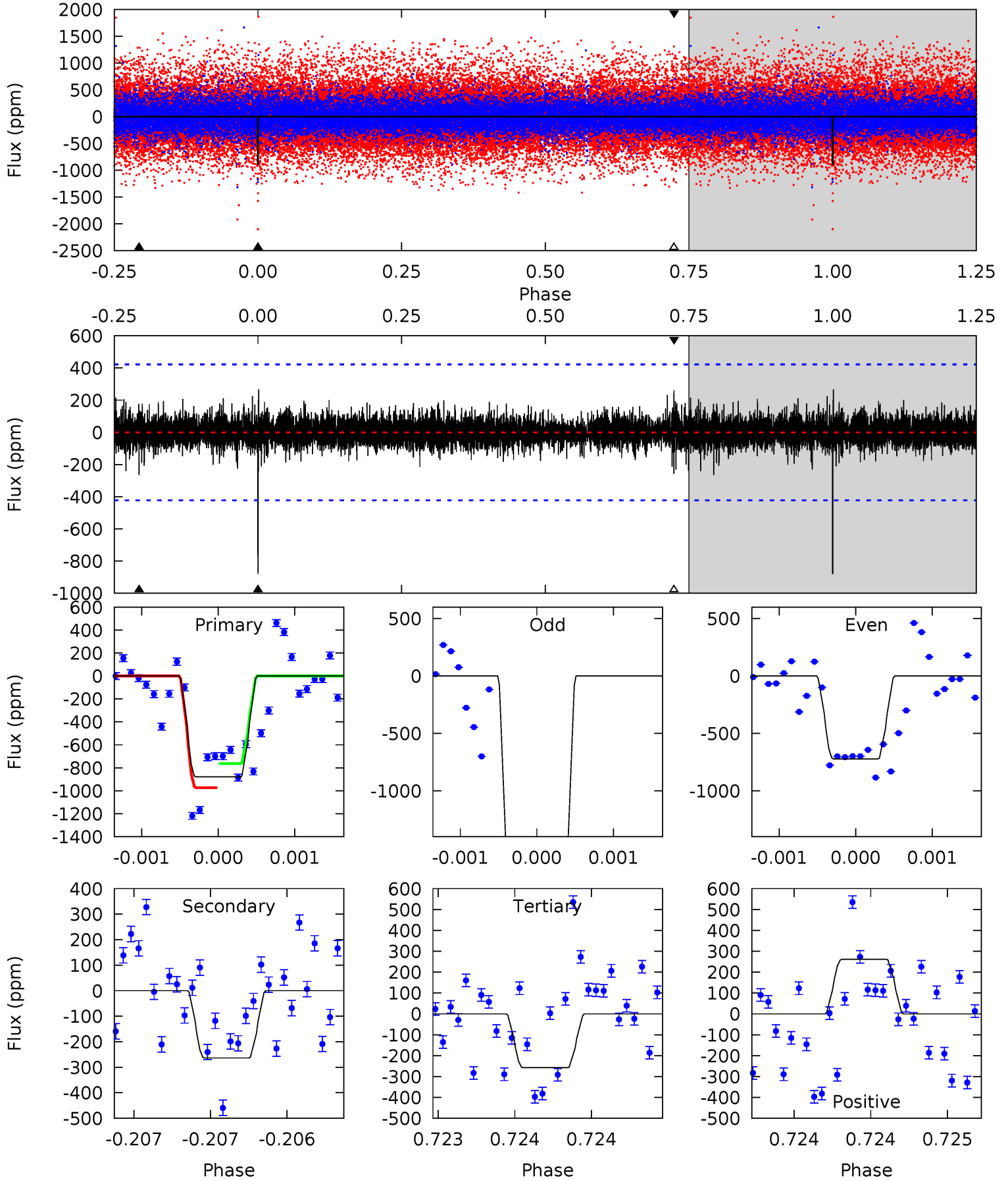
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005531281-05, P = 384.103250 Days, E = 130.231090 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	3.47	3.40	3.44	5.56	3.46	0.67	8.19	8.15	0.08	0.03	15.0	1.82	0.23	1.38



Stellar Parameters For KIC 005531281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	5052^{+151}_{-136}	$4.521^{+0.080}_{-0.072}$	$-0.100^{+0.300}_{-0.300}$	$0.786^{+0.078}_{-0.086}$	$0.748^{+0.103}_{-0.055}$	$2.173^{+0.776}_{-0.481}$
	+3%/-3%	+2%/-2%	+300%/-300%	+10%/-11%	+14%/-7%	+36%/-22%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 005531281-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$6.75^{+6.91}_{-4.64}$	285^{+12}_{-12}	4183^{+12582}_{-16683}	$24332^{+2562306}_{-1432631}$
Alt.	-264 ± 76	$6.82^{+7.30}_{-4.72}$	285^{+11}_{-11}	2930^{+1355}_{-518}	2655^{+25789}_{-2052}

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

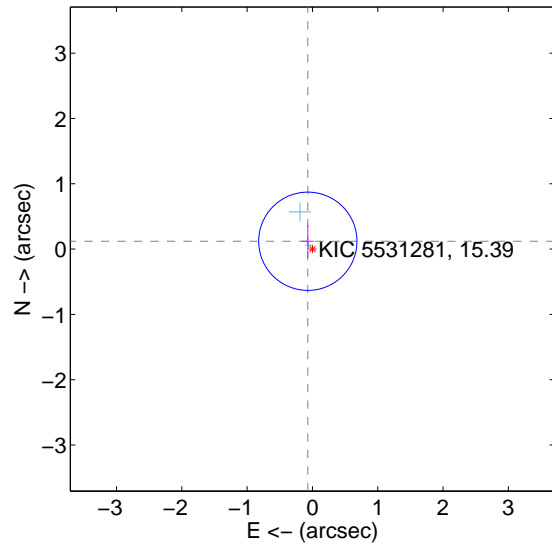
Supplemental centroid analysis for 005531281-05. Kepler magnitude: 15.39. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

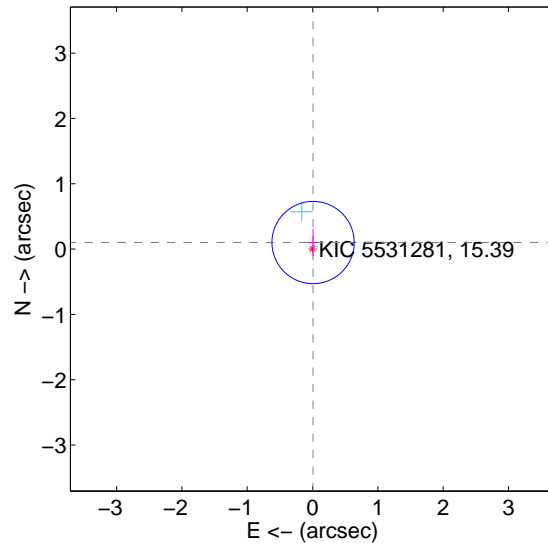
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.139 ± 0.251	0.56	0.071 ± 0.092	0.120 ± 0.253
PRF-fit source offset from KIC position	0.101 ± 0.210	0.48	-0.008 ± 0.092	0.100 ± 0.211
photometric centroid source offset	0.69 ± 0.80	0.86	-0.39 ± 0.78	-0.57 ± 0.81

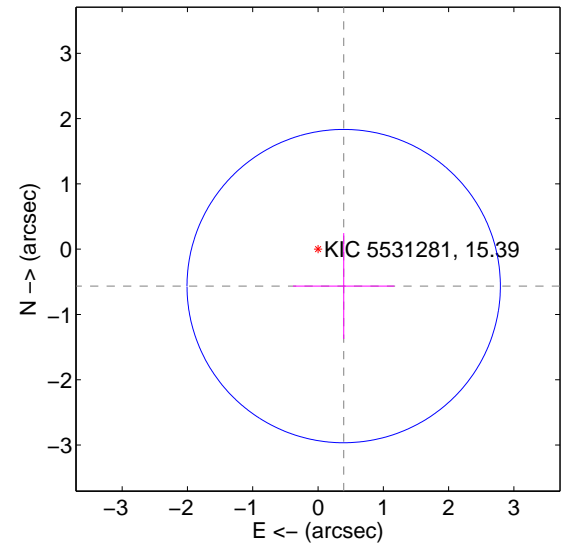
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

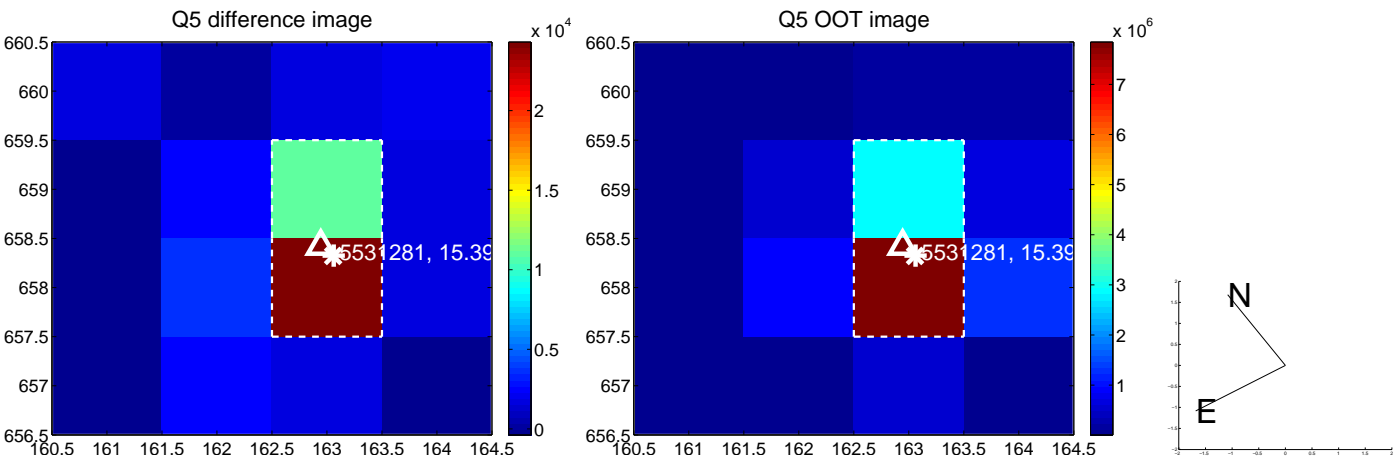


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

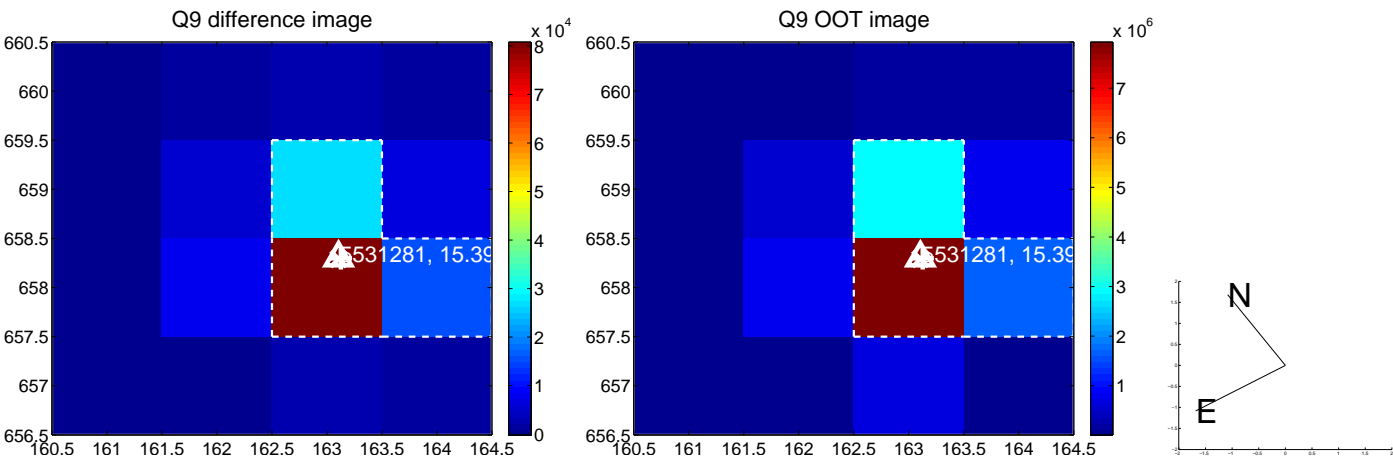
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



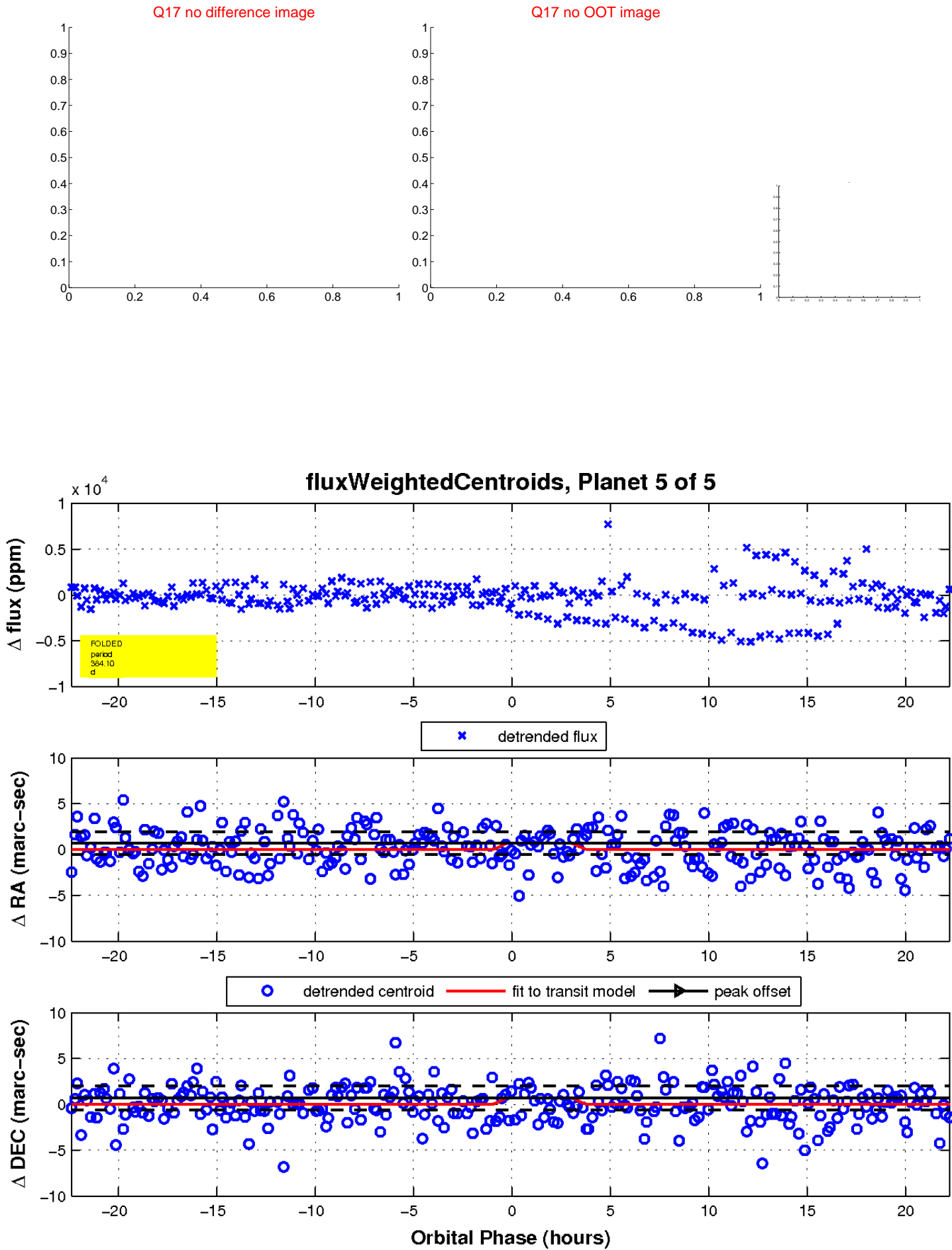
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

