

KIC 012602335

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})
012602335-01	OBS	No	496.357732	500.801329	154.4	12.582	10.5	9.4	2.69	8230	3.62	11.95
012602335-02	OBS	No	0.679409	131.796382	4.0	3.891	8.2	4.9	2.69	8230	0.55	78634.81
012602335-03	OBS	No	197.132041	161.100175	205.1	6.771	15.2	9.7	2.69	8230	4.34	40.94
012602335-04	OBS	No	101.463364	152.035964	82.9	9.022	8.8	7.9	2.69	8230	2.61	99.25
012602335-05	OBS	No	178.349262	197.338461	114.7	2.893	7.4	7.7	2.69	8230	3.23	46.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012602335-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
012602335-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

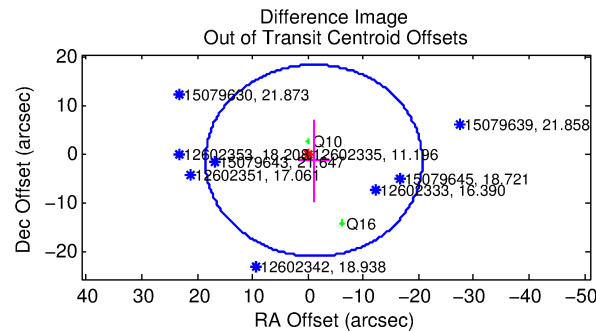
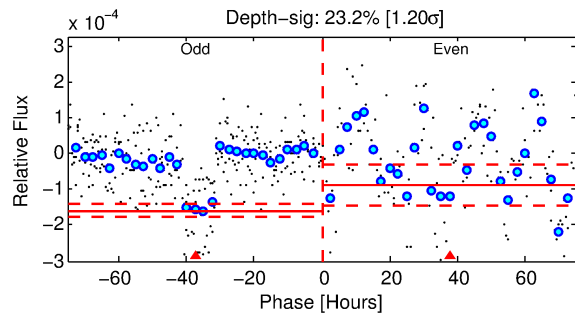
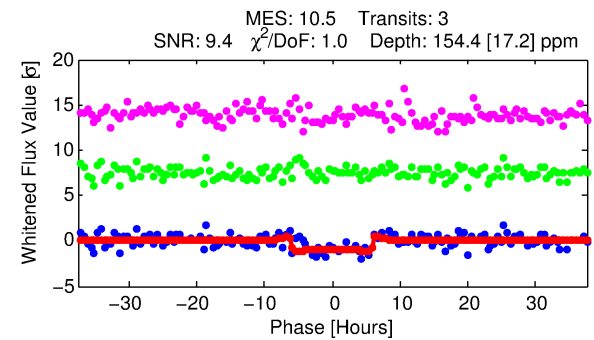
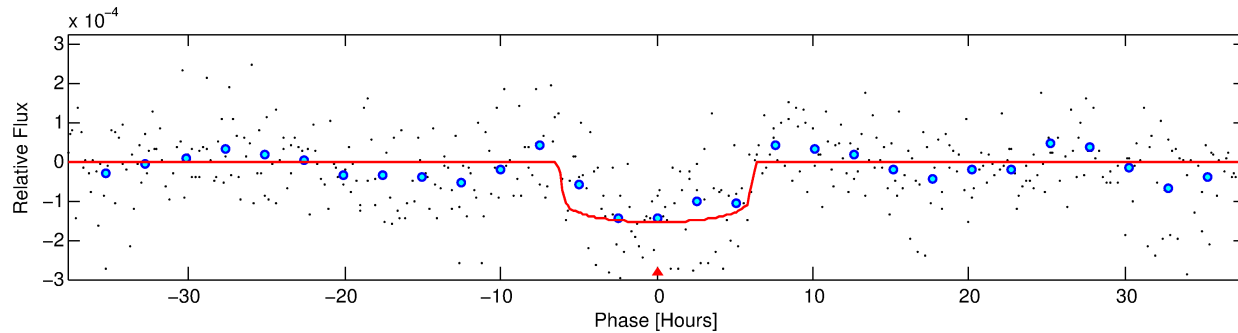
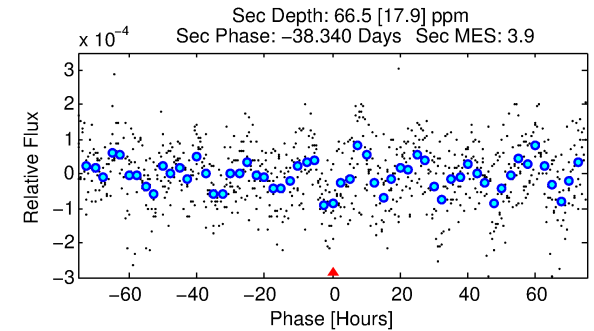
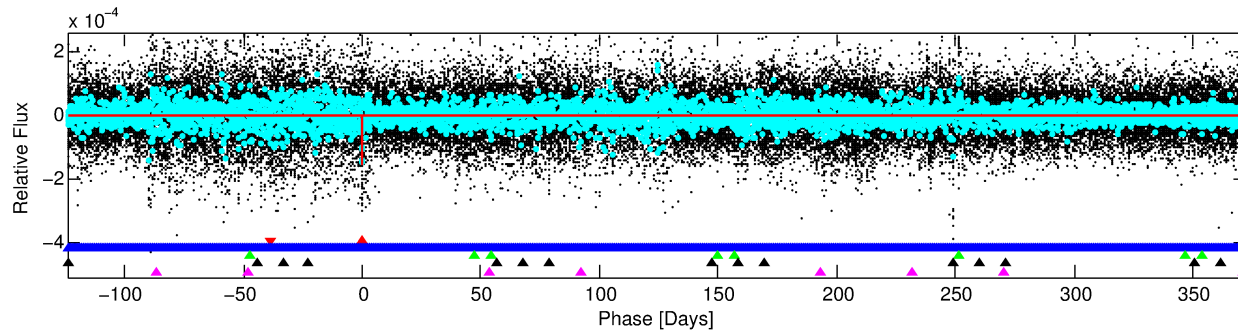
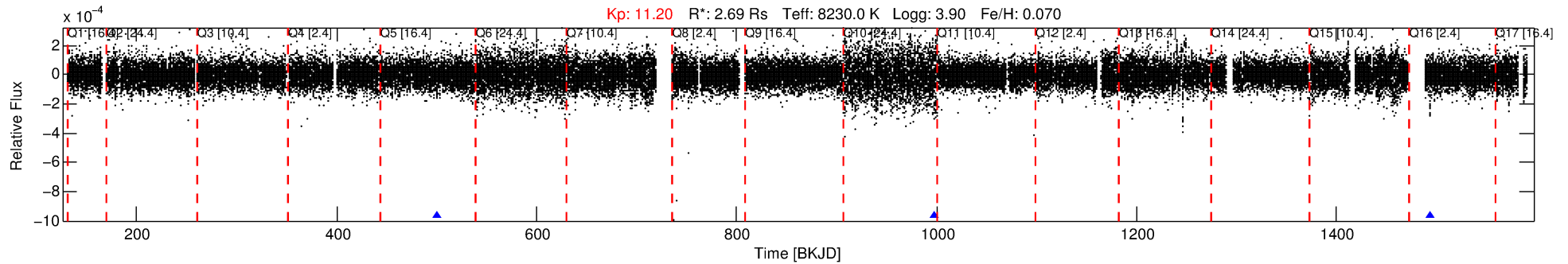
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012602335-01

No Significant Match Found

DV One-Page Summary

KIC: 12602335 Candidate: 1 of 5 Period: 496.358 d



DV Fit Results:

Period = 496.35773 [0.00673] d
Epoch = 500.8013 [0.0093] BKJD
Rp/R* = 0.0124 [0.0042]
a/R* = 204.84 [404.29]
b = 0.75 [1.16]
Seff = 11.95 [5.62]
Teff = 474 [56] K
Rp = 3.62 [1.72] Re
a = 1.5747 [0.4554] AU
Ag = 6916.56 [5857.62] [1.18σ]
Teffp = 6685 [1259] K [4.93σ]

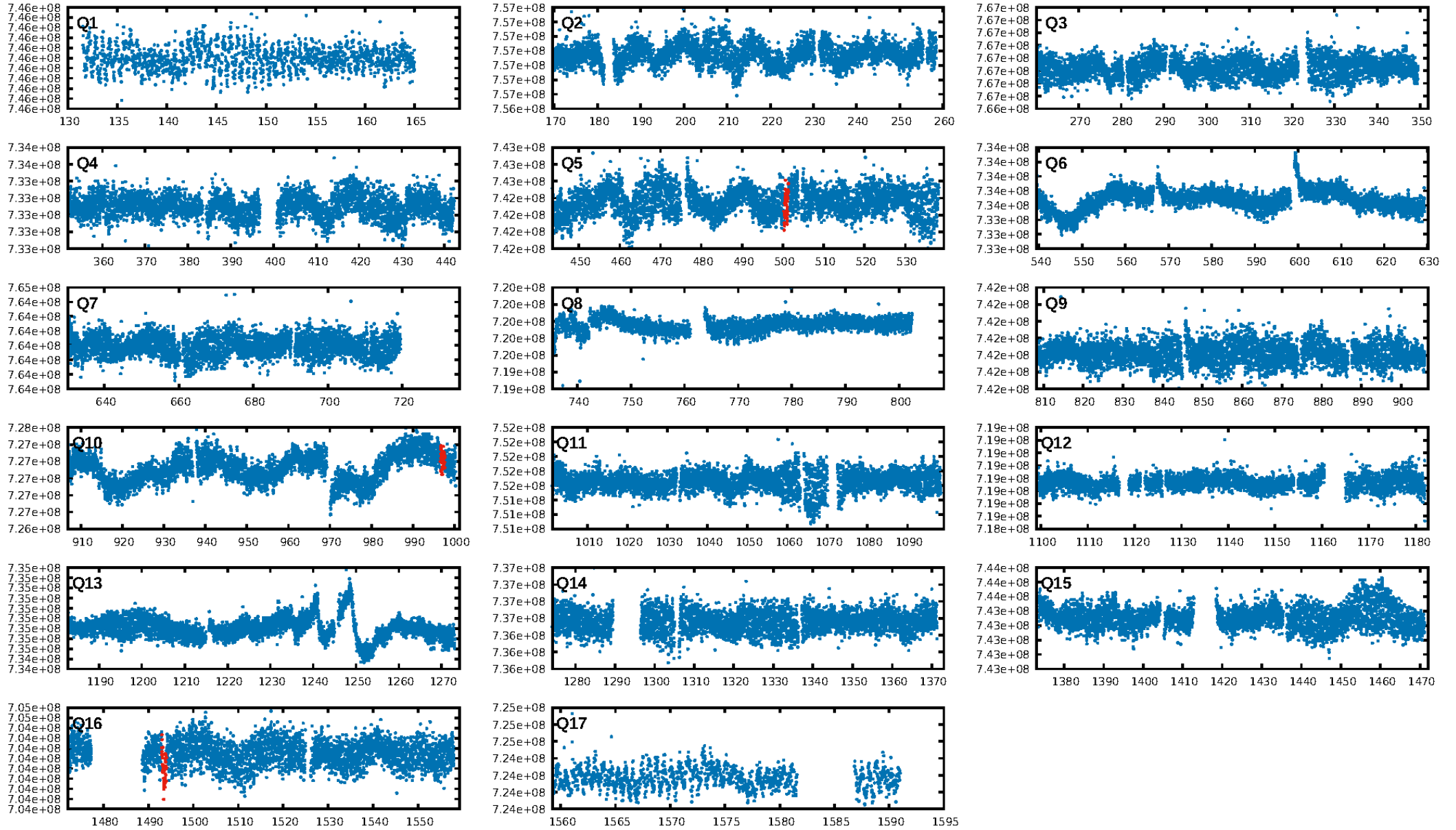
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [502.62σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 78.9%
Bootstrap-pfa: 4.77e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -11.32
Centroid-sig: 6.1%
Centroid-so: 1.126 arcsec [1.39σ]
OotOffset-rm: 1.662 arcsec [0.25σ]
KicOffset-rm: 1.680 arcsec [0.27σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 0.00 [0/3]

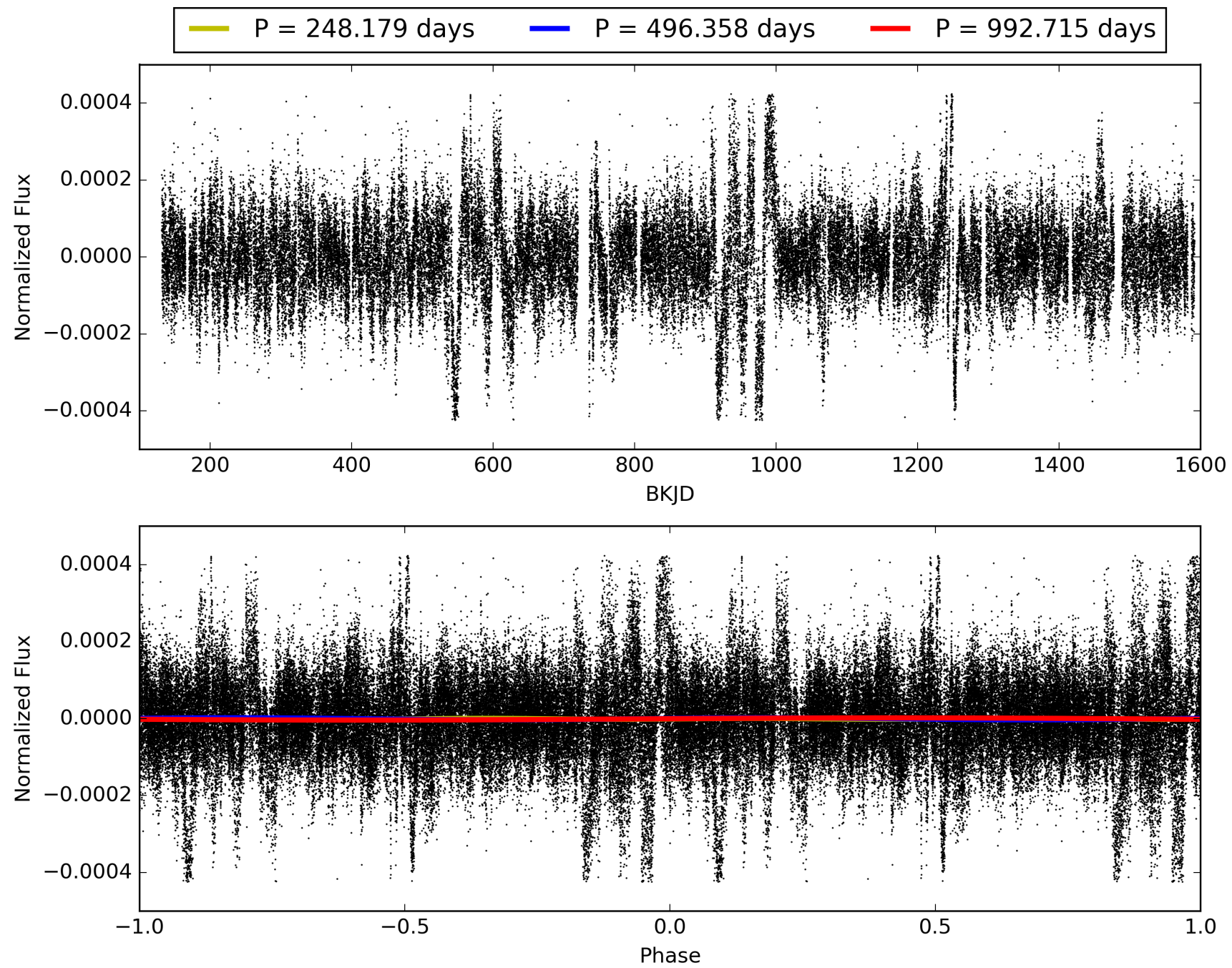
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:25:00 Z

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

TCE 012602335-01, PDC Light Curves

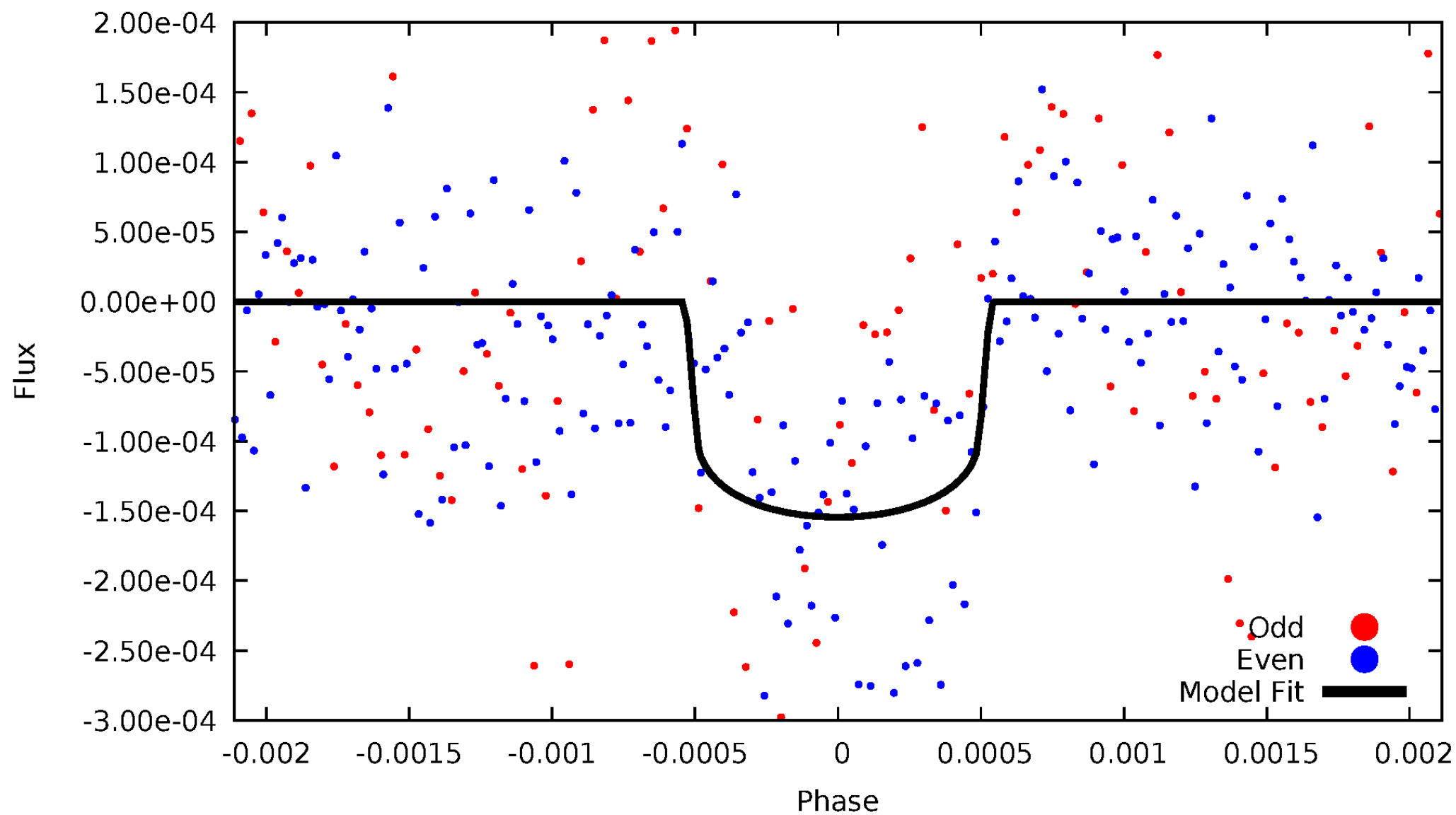


TCE 012602335-01



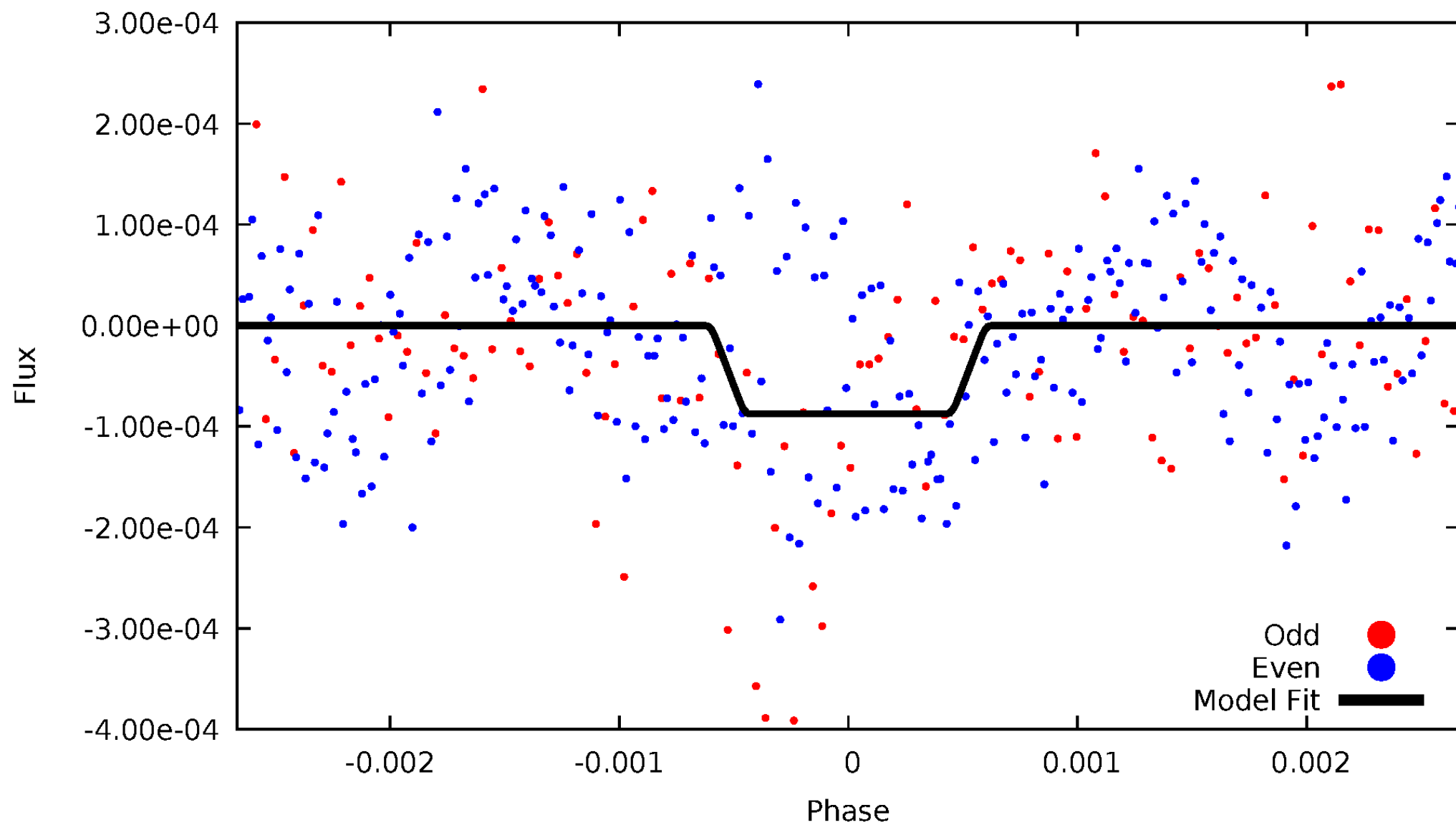
DV Odd/Even

TCE 012602335-01

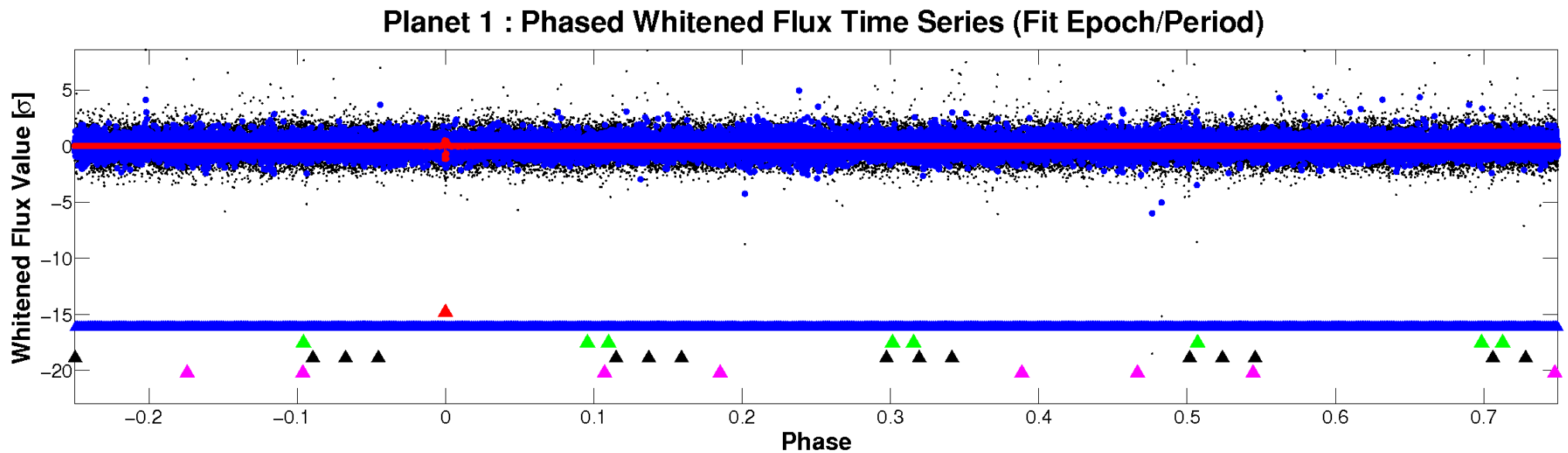
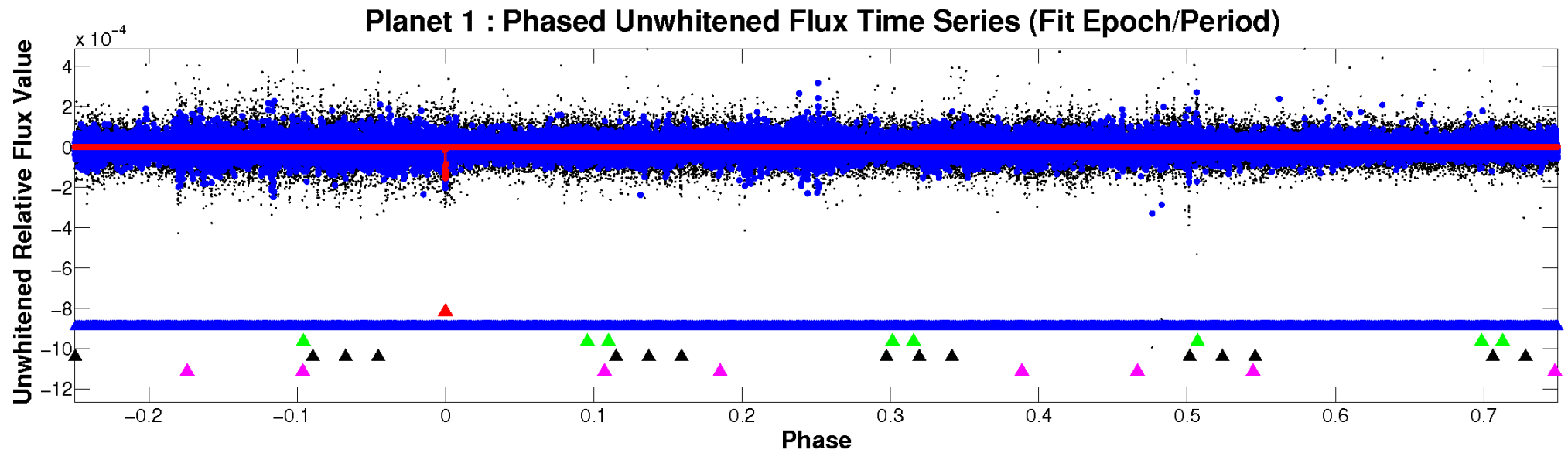


ALT Odd/Even

TCE 012602335-01

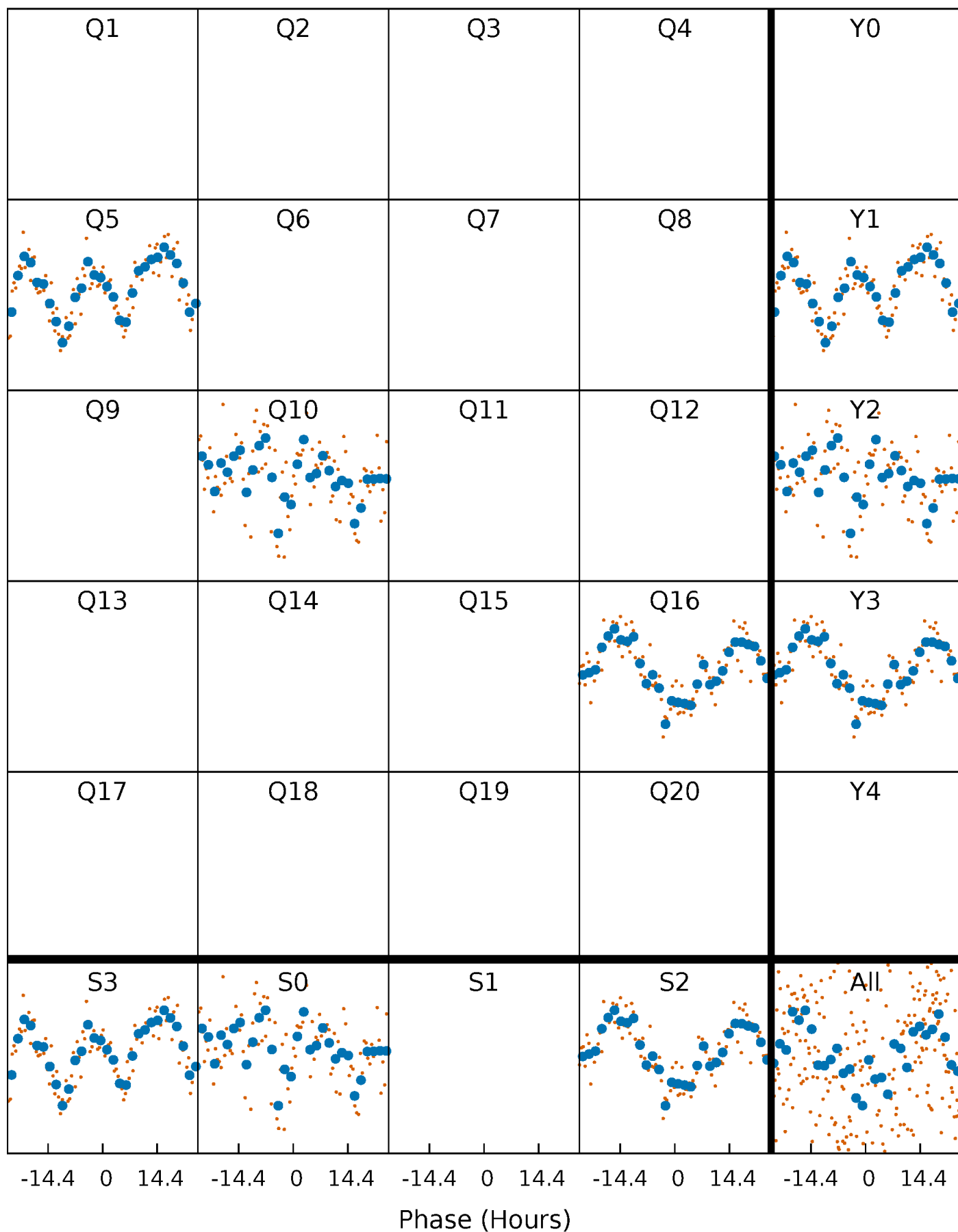


Non-Whitened Vs. Whitened Light Curve



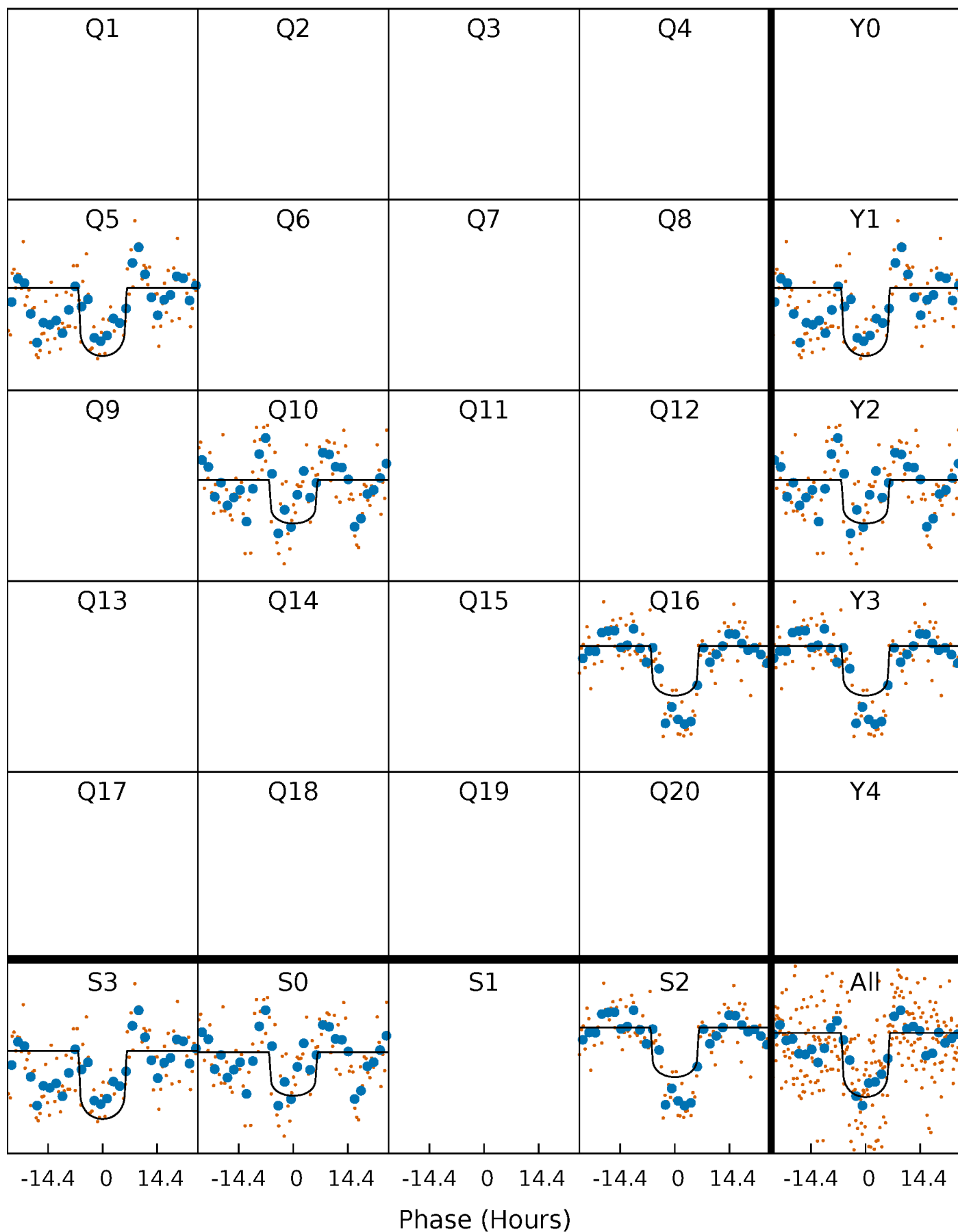
PDC Quarter-Phased Transit Curves

TCE 012602335-01 P=496.357732 Days $T_0=500.801329$ (BKJD)



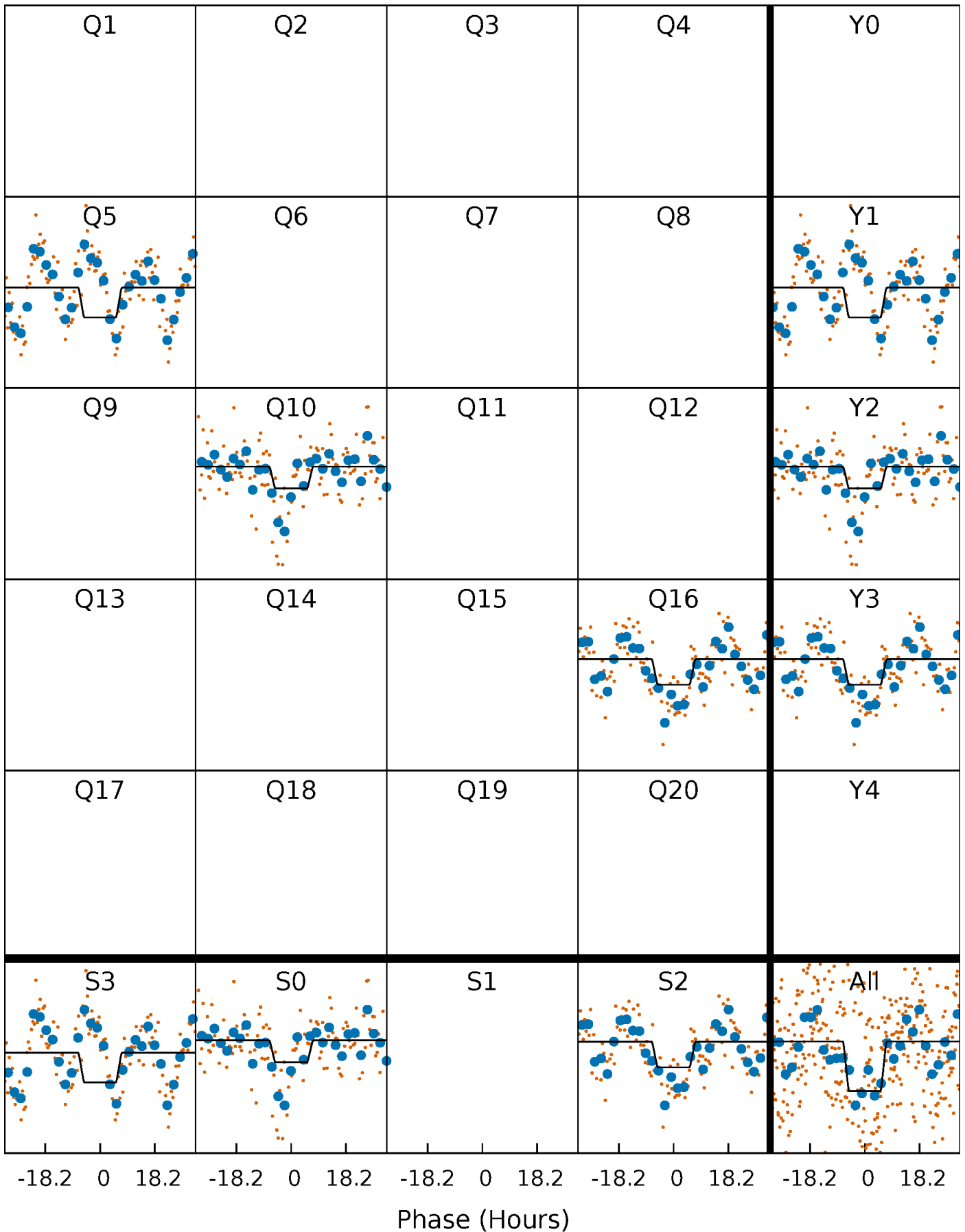
DV Quarter-Phased Transit Curves

TCE 012602335-01 P=496.357732 Days $T_0=500.801329$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

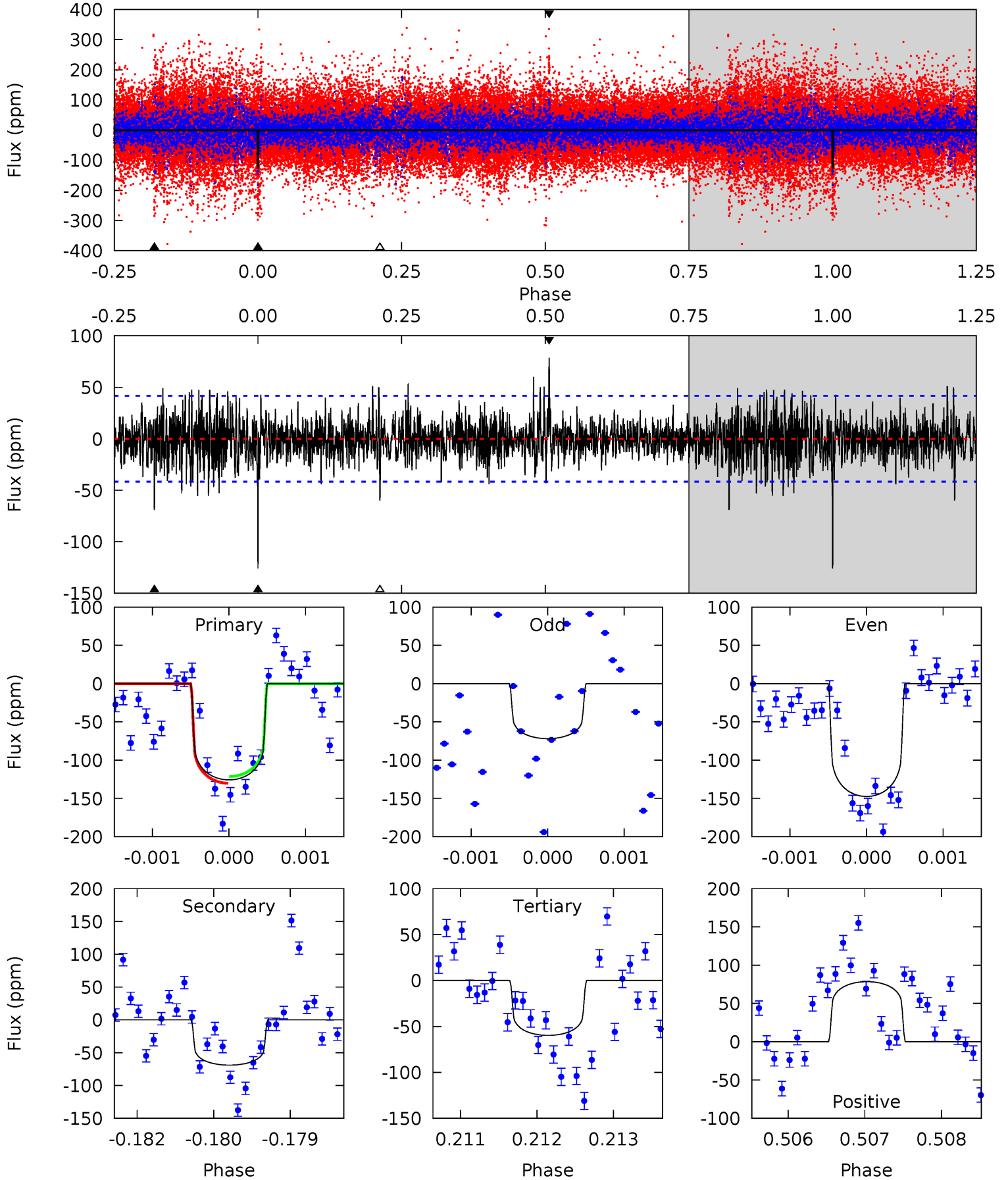
TCE 012602335-01 P=496.358417 Days $T_0=500.819795$ (BKJD)



DV Model-Shift Uniqueness Test

012602335-01, P = 496.357732 Days, E = 4.443597 Days

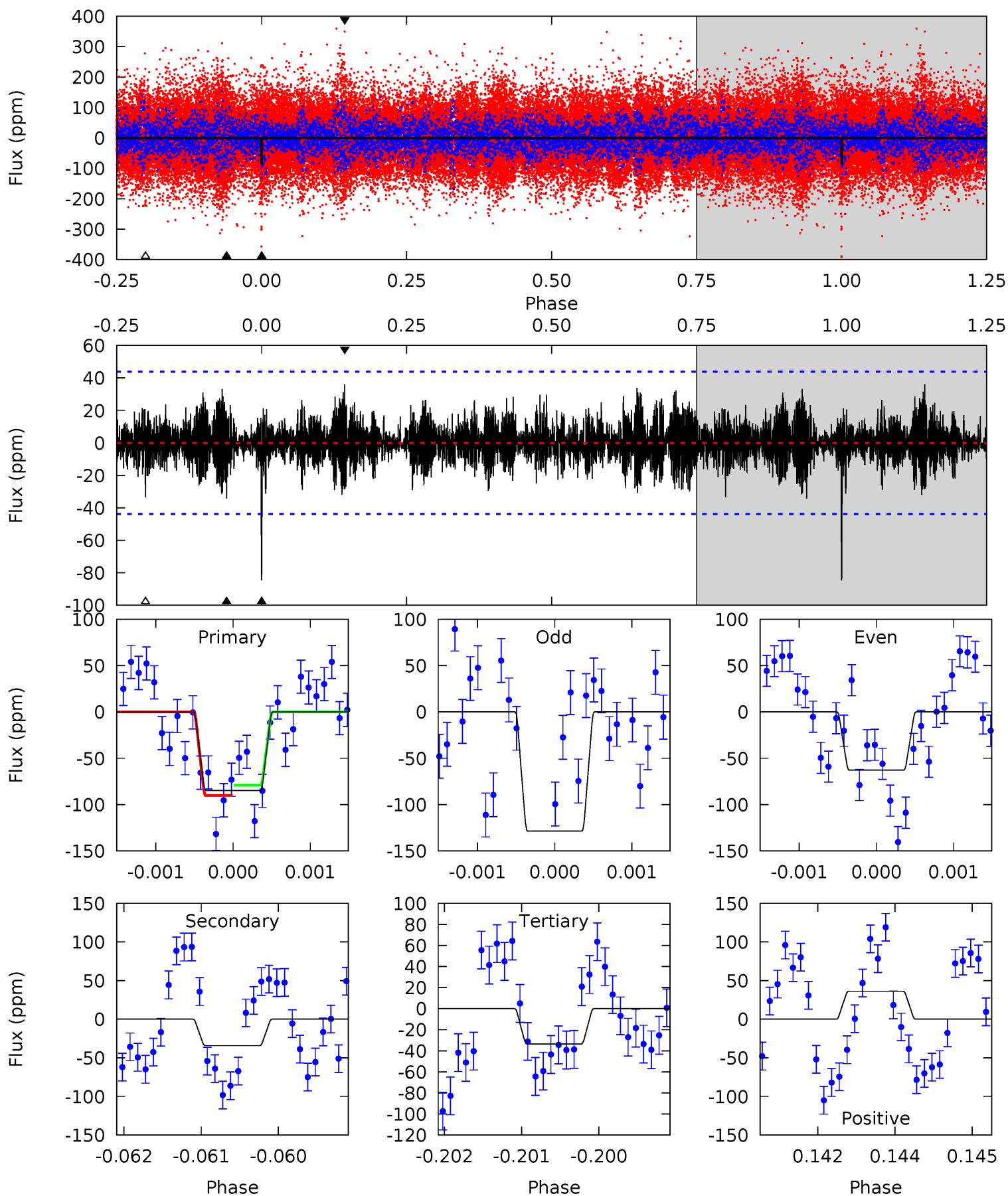
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	9.00	7.79	10.2	5.44	3.27	1.87	8.61	6.17	1.21	-1.23	4.50	1.38	0.38	0.58



Alt Model-Shift Uniqueness Test

012602335-01, P = 496.358417 Days, E = 4.461378 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.5	4.23	4.14	4.46	5.42	3.23	1.23	6.33	6.00	0.09	-0.23	3.86	0.66	0.30	0.68



Stellar Parameters For KIC 012602335

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	8230^{+225}_{-387}	$3.905^{+0.240}_{-0.140}$	$0.070^{+0.250}_{-0.400}$	$2.685^{+0.735}_{-0.898}$	$2.112^{+0.332}_{-0.498}$	$0.154^{+0.256}_{-0.062}$
	+3%/-5%	+6%/-4%	+357%/-571%	+27%/-33%	+16%/-24%	+167%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012602335-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-69 ± 8	$3.50^{+1.44}_{-1.25}$	650^{+47}_{-59}	6481^{+1750}_{-945}	7811^{+10327}_{-4003}
Alt.	-34 ± 8	$2.70^{+1.24}_{-1.22}$	648^{+53}_{-54}	6210^{+2215}_{-1042}	6517^{+12862}_{-3713}

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 $A_{obs} \gg 1.0$

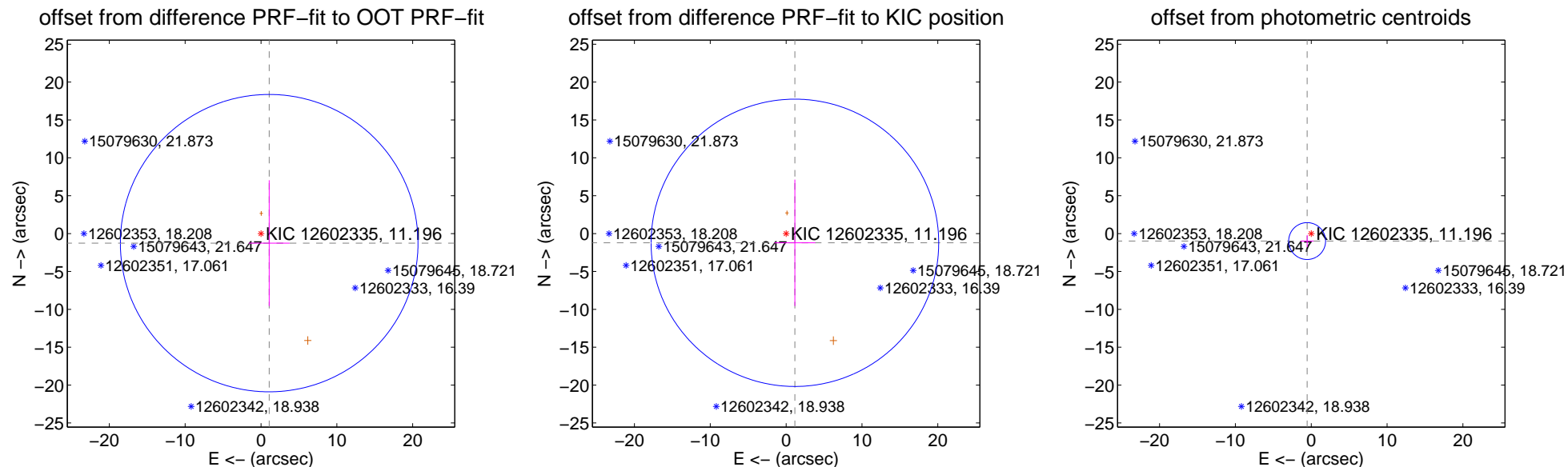
DV Centroid Data

Supplemental centroid analysis for 012602335-01. **Kepler magnitude: 11.20.** Transit SNR 9.38

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.662 ± 6.543	0.25	-1.081 ± 2.696	-1.262 ± 8.301
PRF-fit source offset from KIC position	1.680 ± 6.322	0.27	-1.158 ± 2.691	-1.218 ± 8.340
photometric centroid source offset	1.13 ± 0.81	1.39	0.54 ± 0.85	-0.99 ± 0.80

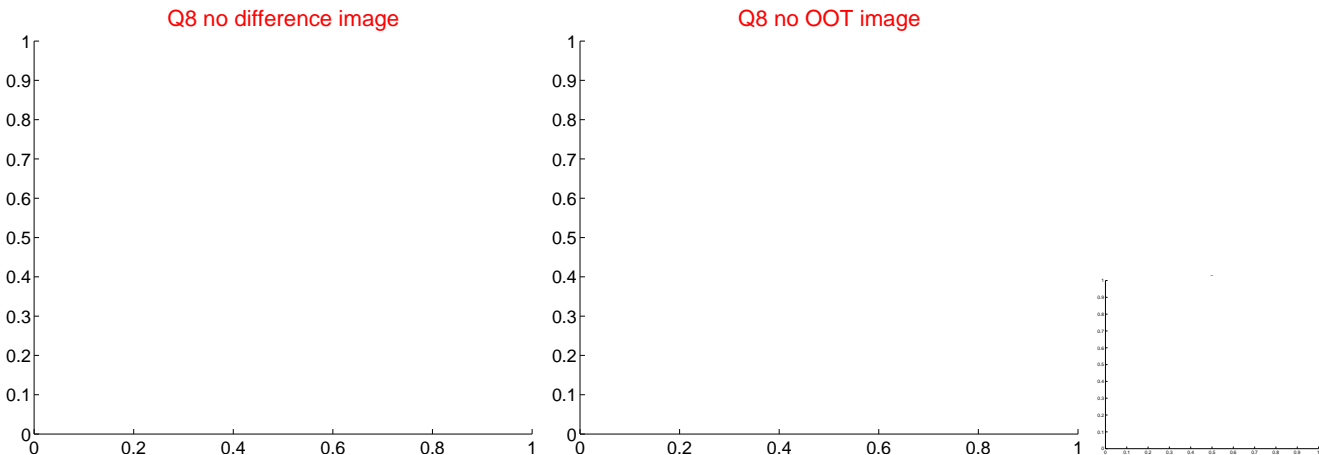
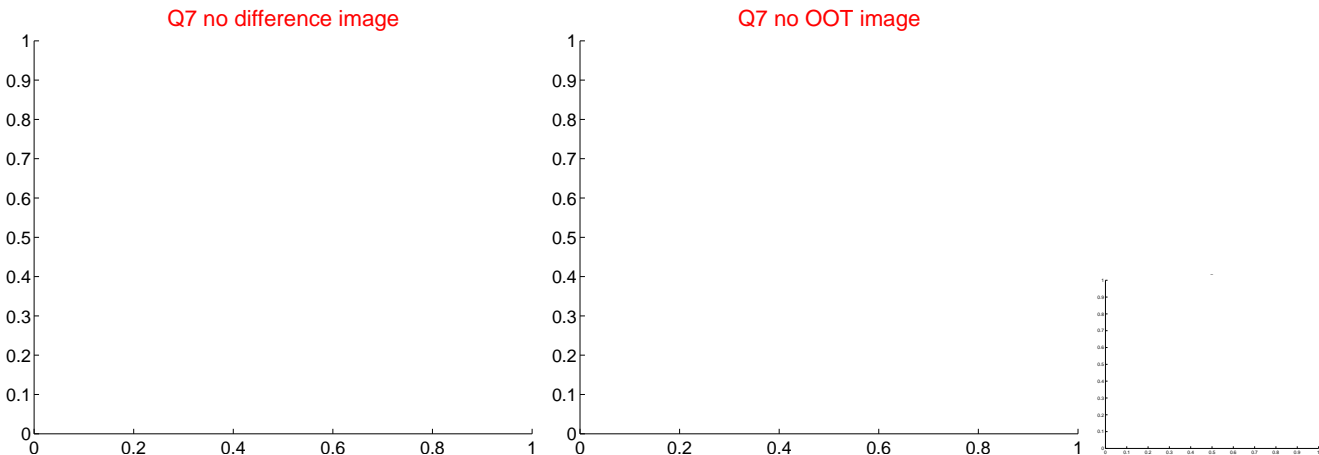
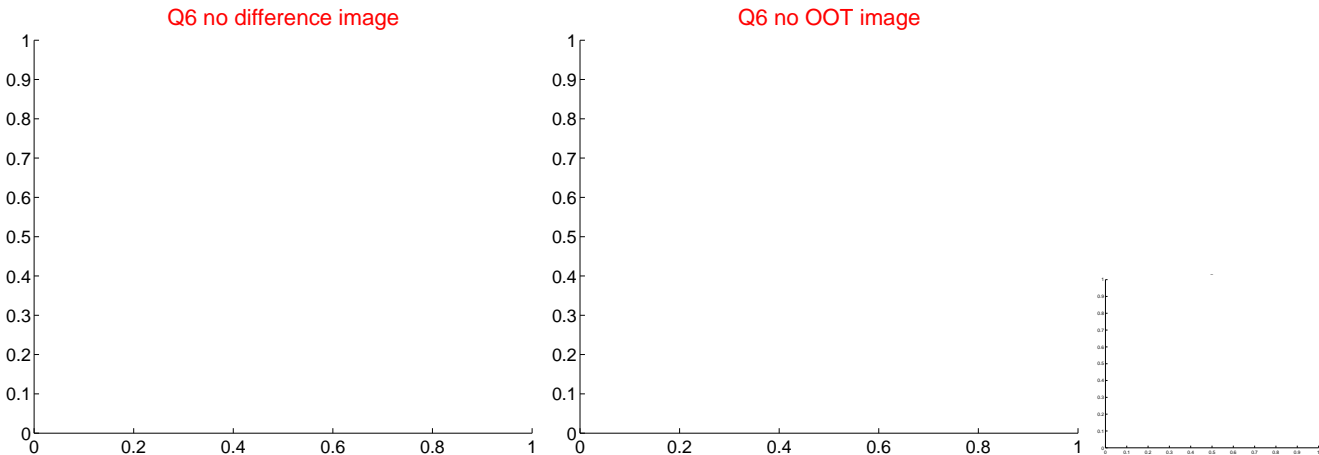
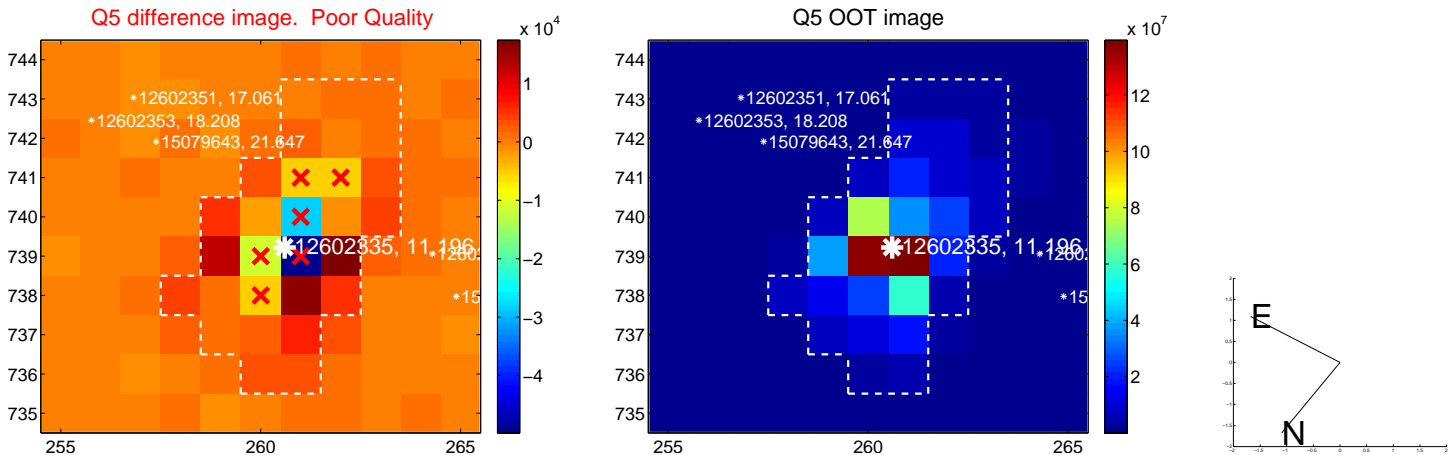


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

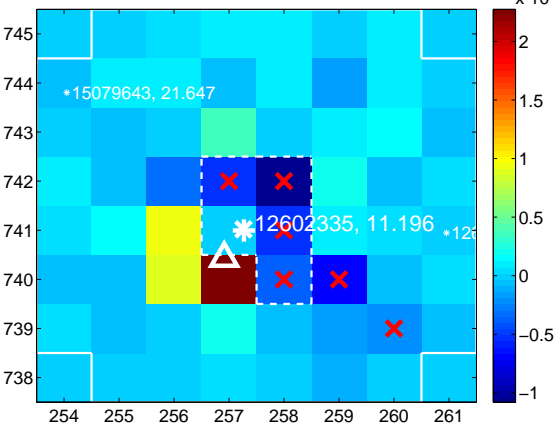
Q9 no difference image



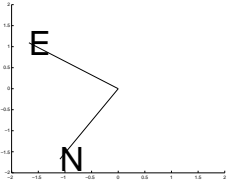
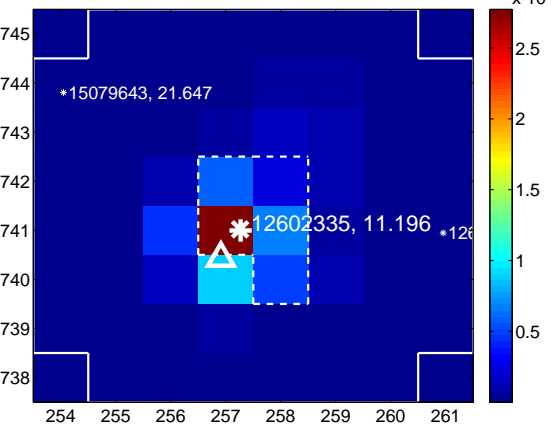
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



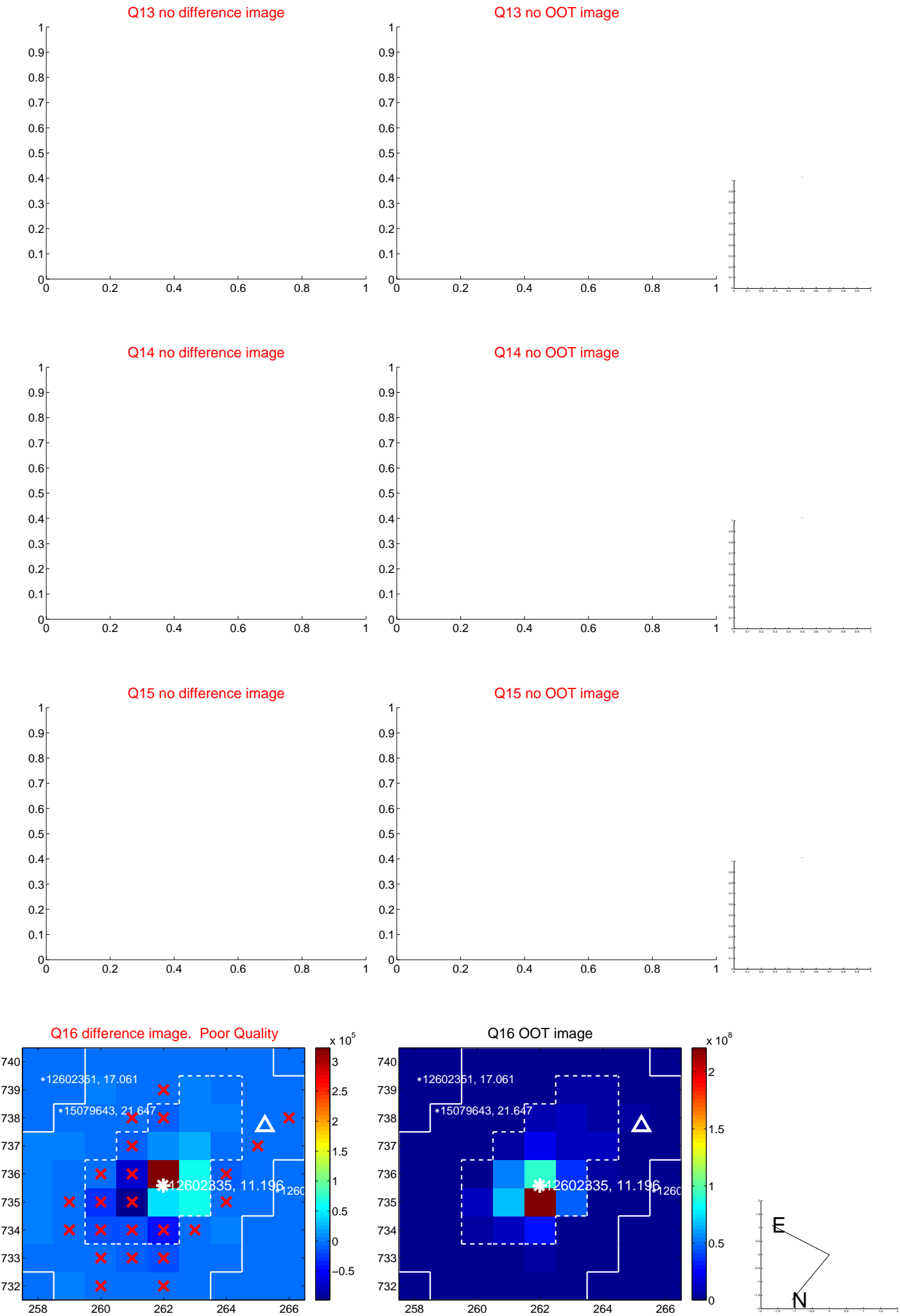
Q12 no difference image



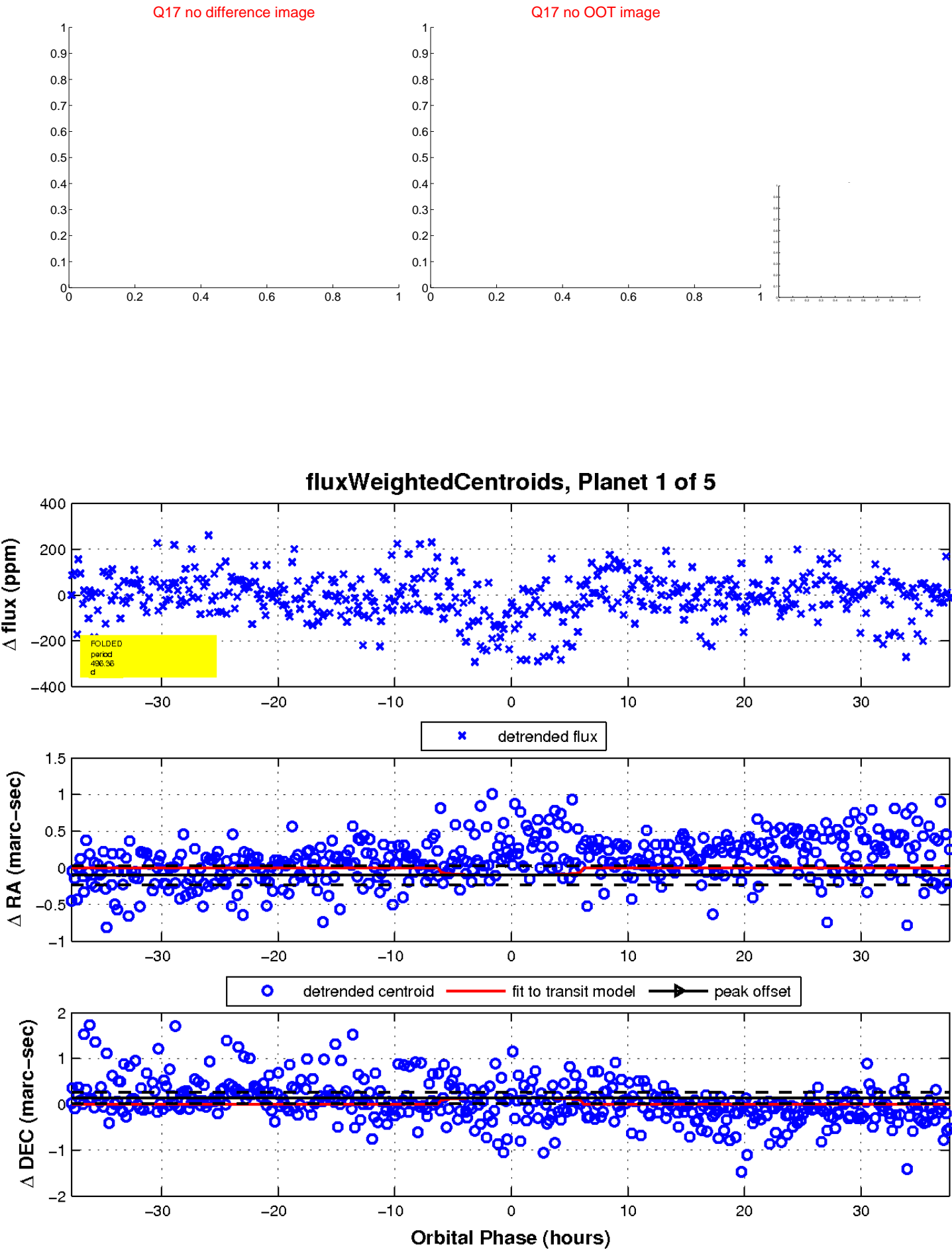
Q12 no OOT image



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

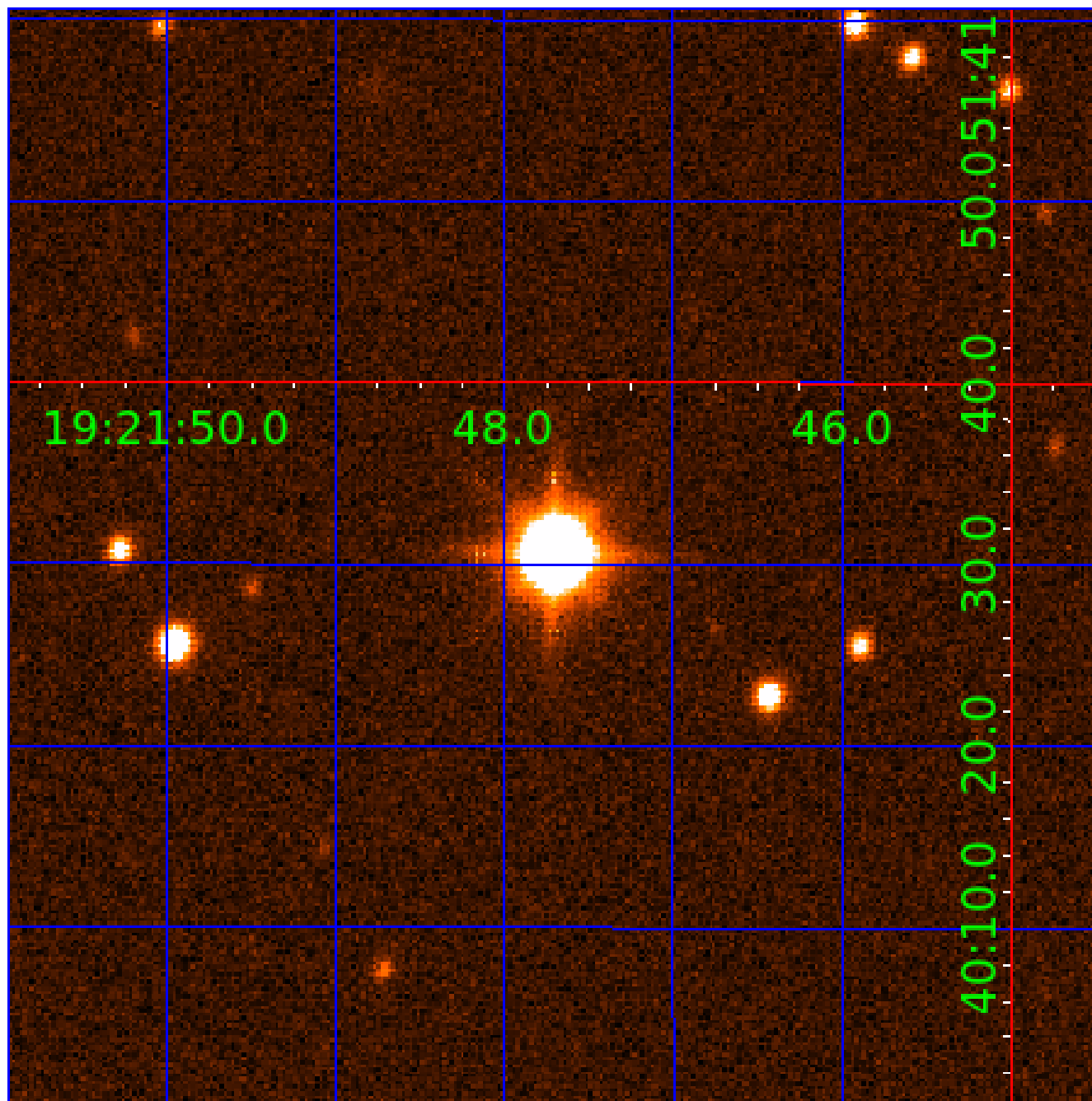


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012602335

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})
012602335-01	OBS	No	496.357732	500.801329	154.4	12.582	10.5	9.4	2.69	8230	3.62	11.95
012602335-02	OBS	No	0.679409	131.796382	4.0	3.891	8.2	4.9	2.69	8230	0.55	78634.81
012602335-03	OBS	No	197.132041	161.100175	205.1	6.771	15.2	9.7	2.69	8230	4.34	40.94
012602335-04	OBS	No	101.463364	152.035964	82.9	9.022	8.8	7.9	2.69	8230	2.61	99.25
012602335-05	OBS	No	178.349262	197.338461	114.7	2.893	7.4	7.7	2.69	8230	3.23	46.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012602335-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
012602335-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

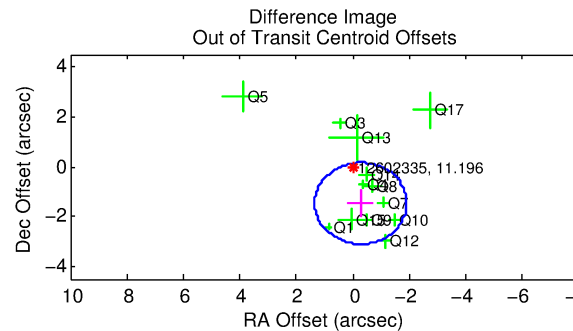
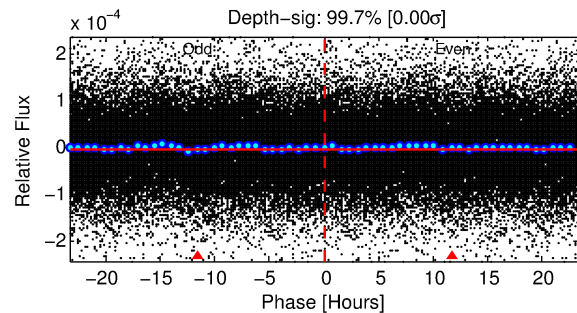
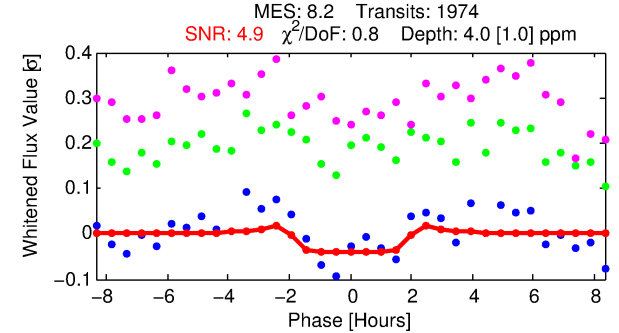
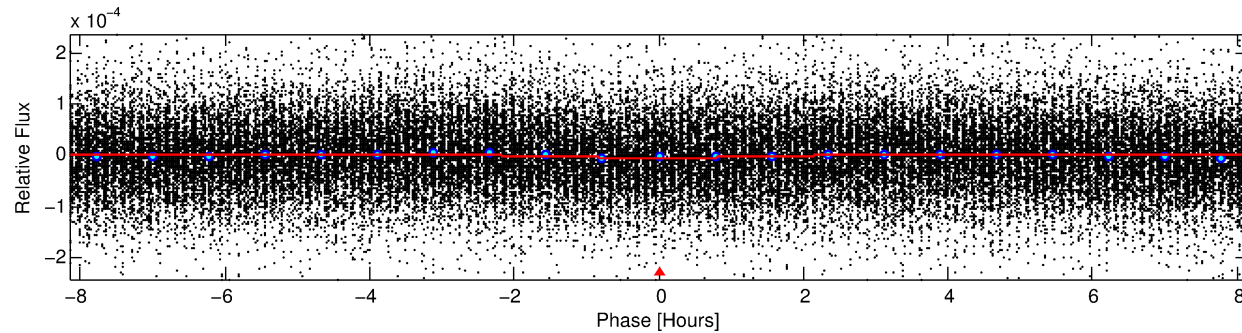
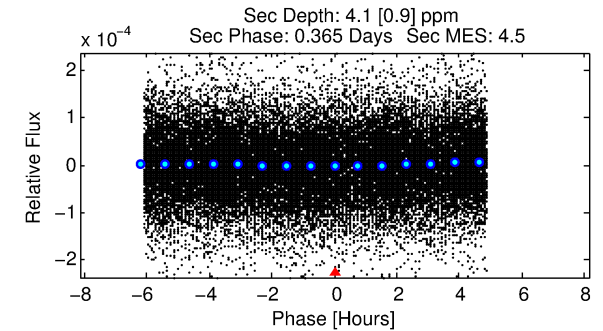
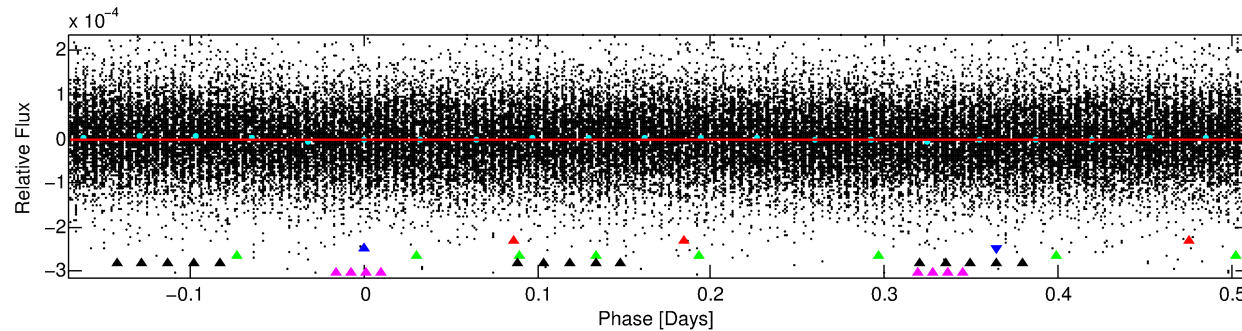
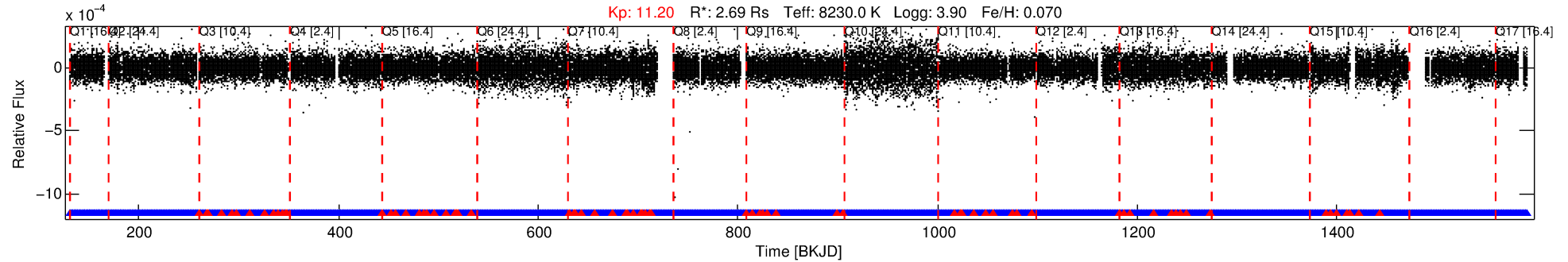
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012602335-02

No Significant Match Found

DV One-Page Summary

KIC: 12602335 Candidate: 2 of 5 Period: 0.679 d



DV Fit Results:

Period = 0.67941 [0.00002] d
Epoch = 131.7964 [0.0060] BKJD
Rp/R* = 0.0019 [0.0012]
a/R* = 1.43 [2.73]
b = 0.30 [11.27]
Seff = 78634.81 [36951.81]
Teq = 4270 [502] K
Rp = 0.55 [0.40] Re
a = 0.0194 [0.0056] AU
Ag = 2.83 [3.92] [0.47sigma]
Teffp = 8563 [2848] K [1.48sigma]

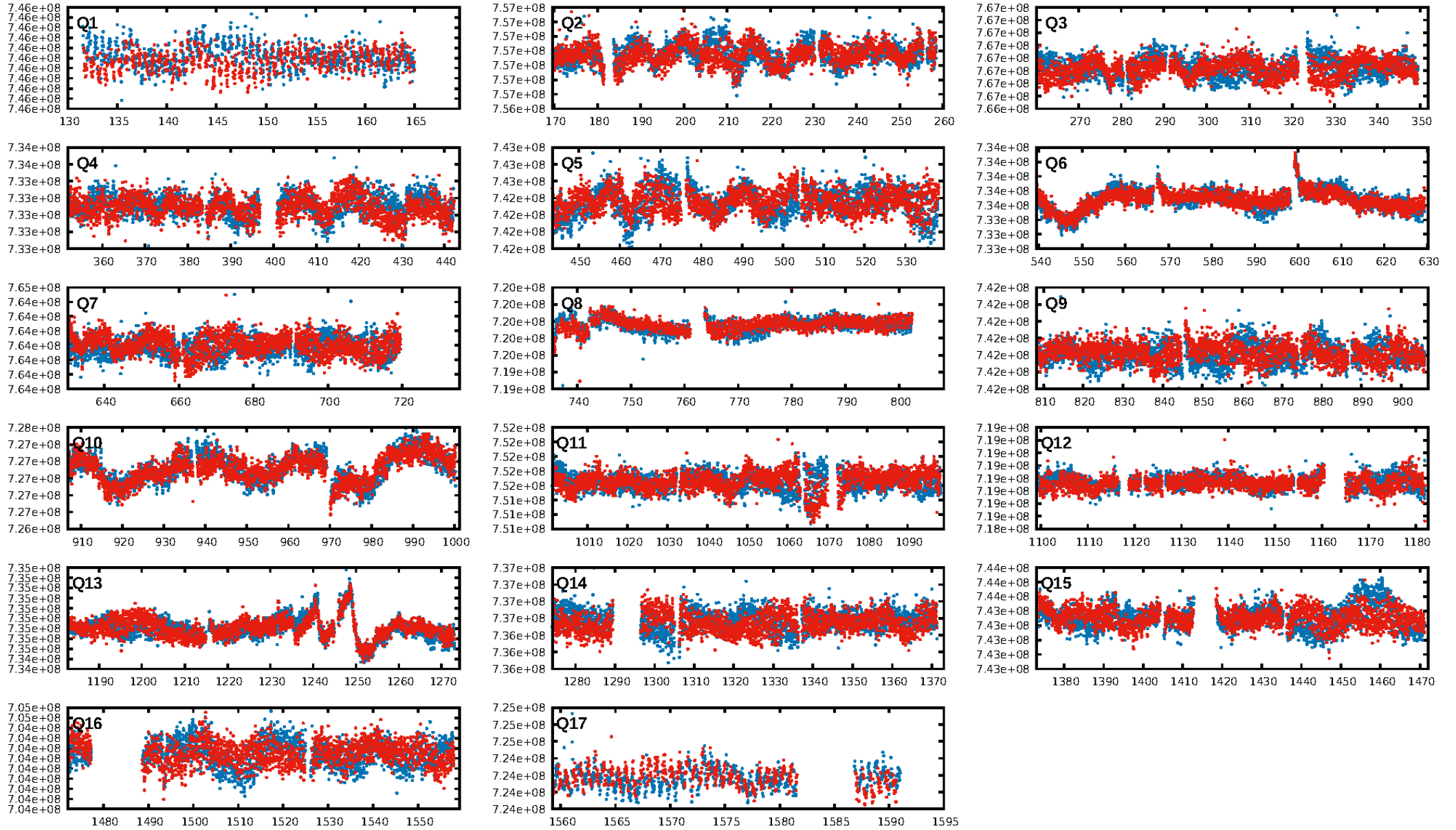
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [246.18sigma]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 9.36e-12
RollingBand-fgt: 0.96 [1806/1885]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.496 arcsec [2.75sigma]
KicOffset-rm: 1.493 arcsec [2.80sigma]
OotOffset-st: 2/3/3/5 [13]
KicOffset-st: 2/3/3/5 [13]
DiffImageQuality-fgm: 0.46 [6/13]
DiffImageOverlap-fno: 1.00 [17/17]

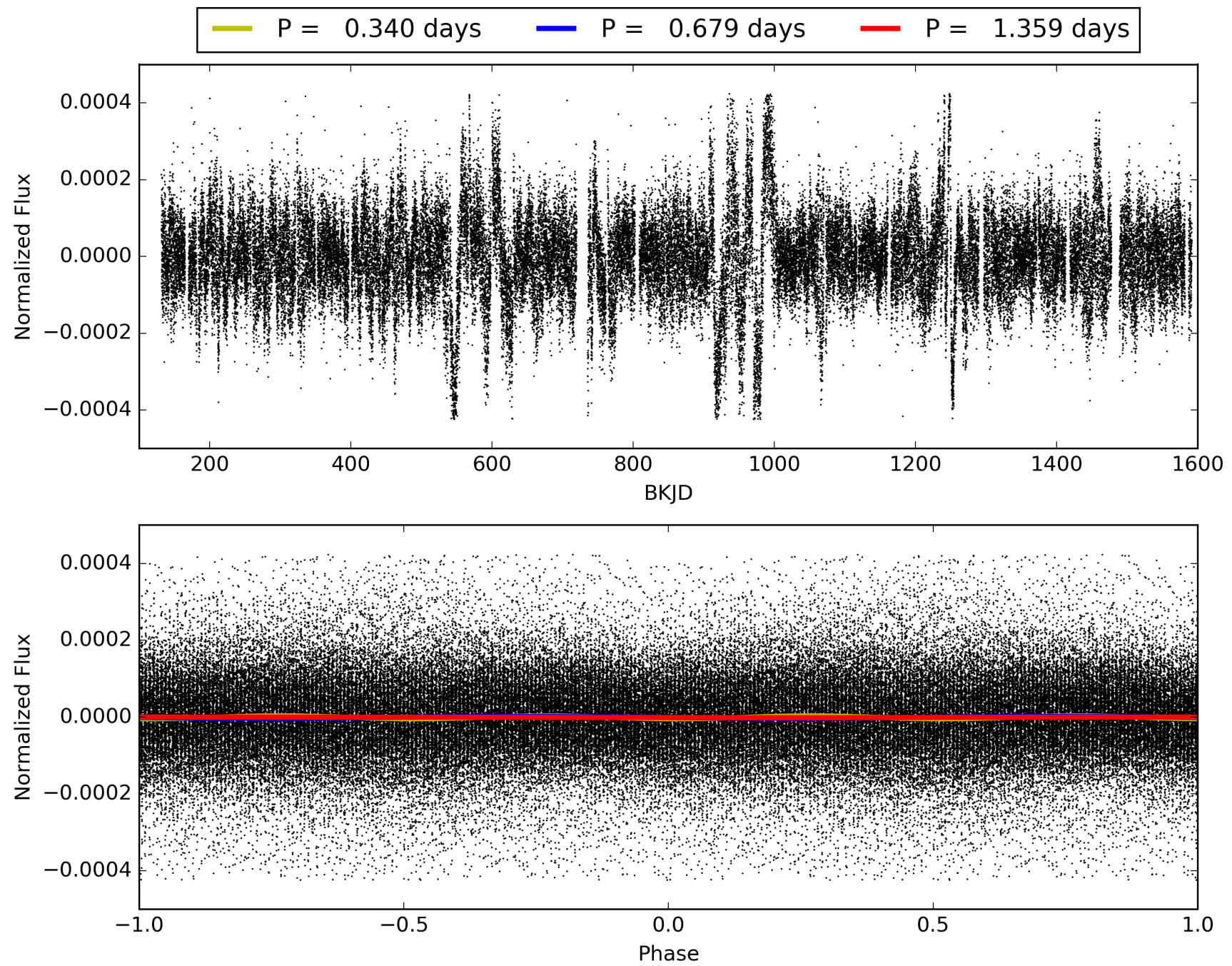
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:25:10 Z

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

TCE 012602335-02, PDC Light Curves

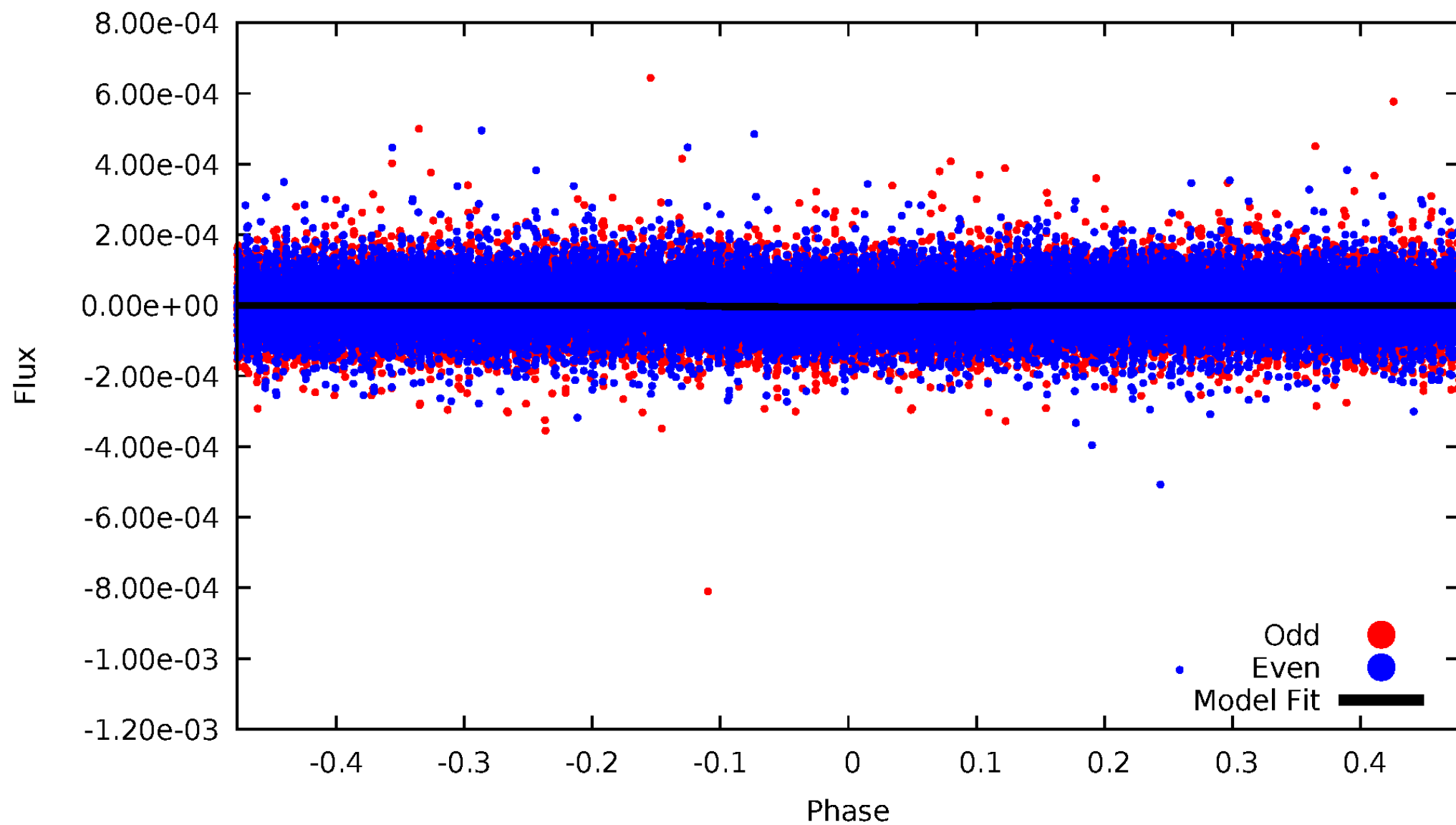


TCE 012602335-02



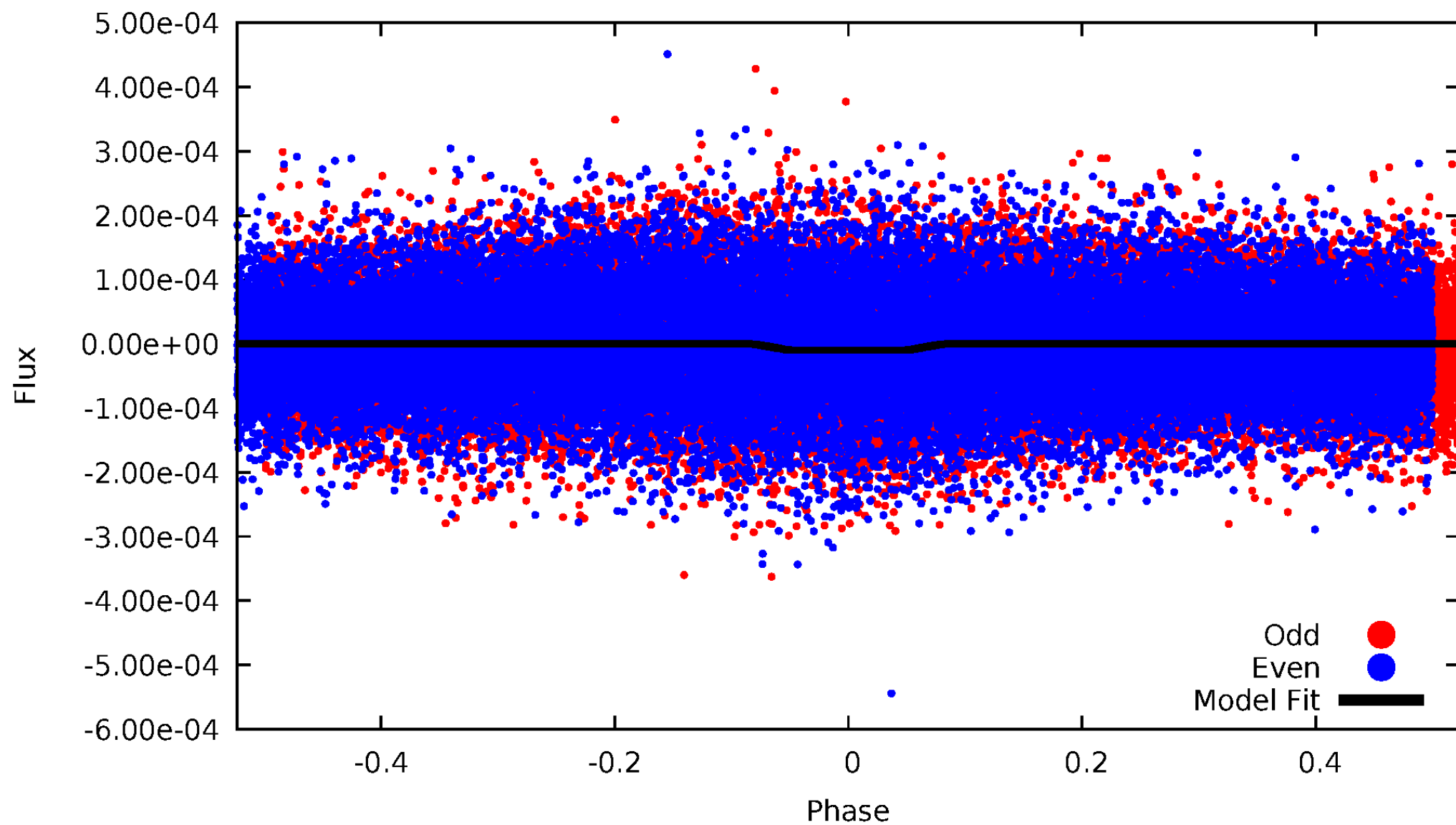
DV Odd/Even

TCE 012602335-02



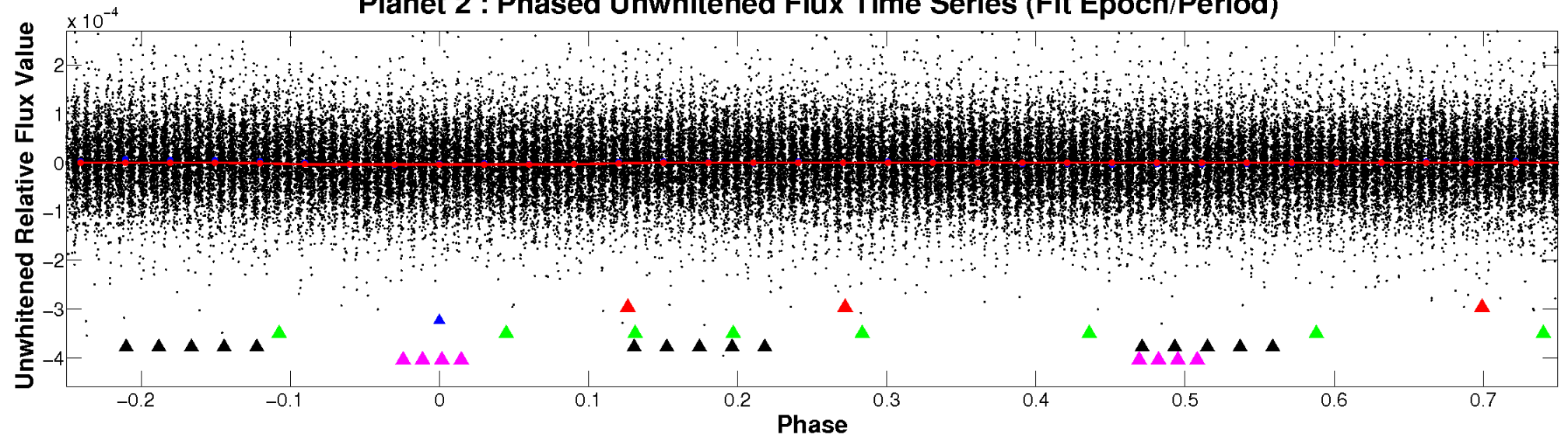
ALT Odd/Even

TCE 012602335-02

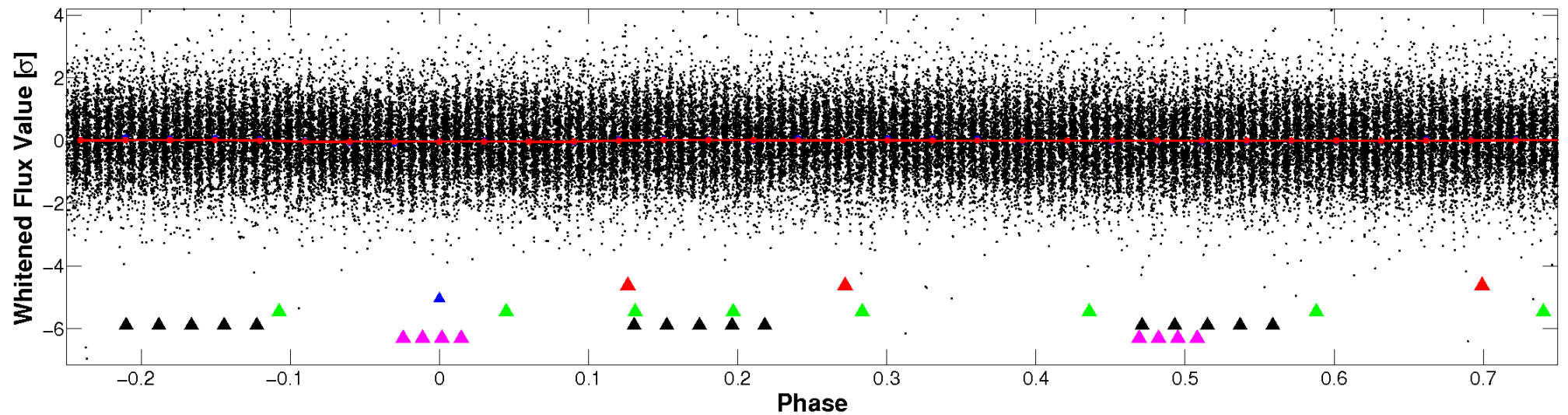


Non-Whitened Vs. Whitened Light Curve

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

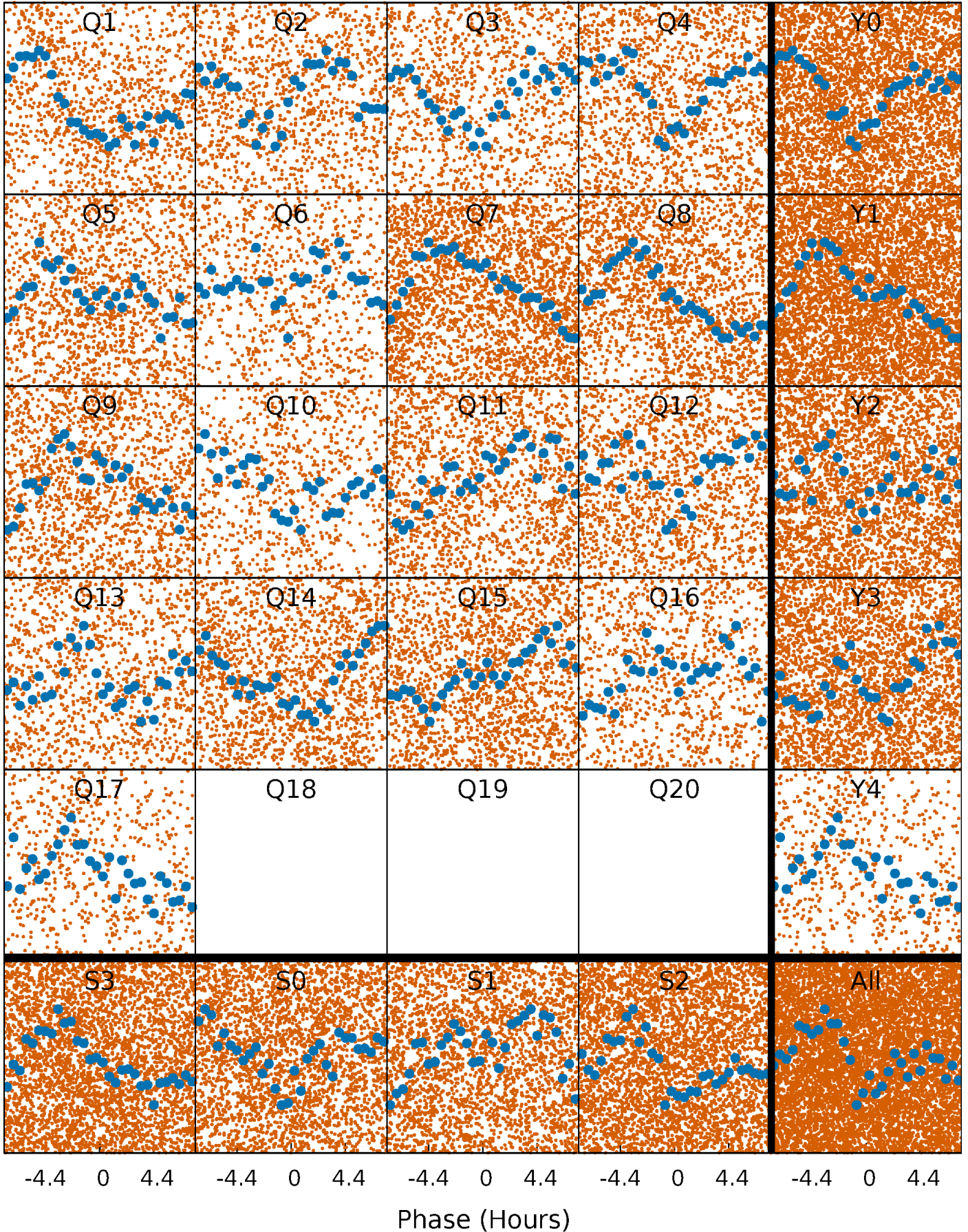


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



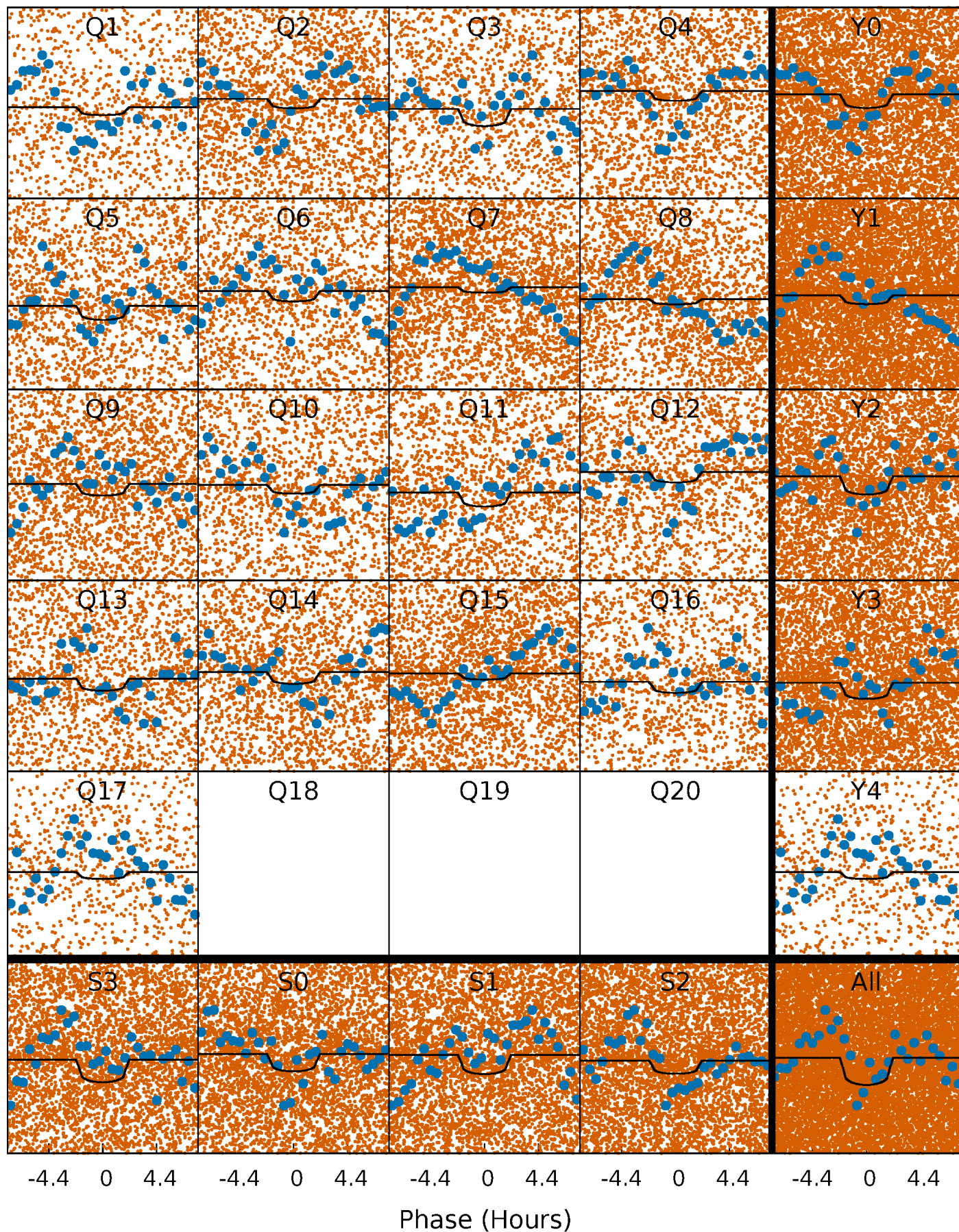
PDC Quarter-Phased Transit Curves

TCE 012602335-02 P= 0.679409 Days $T_0=131.796382$ (BKJD)



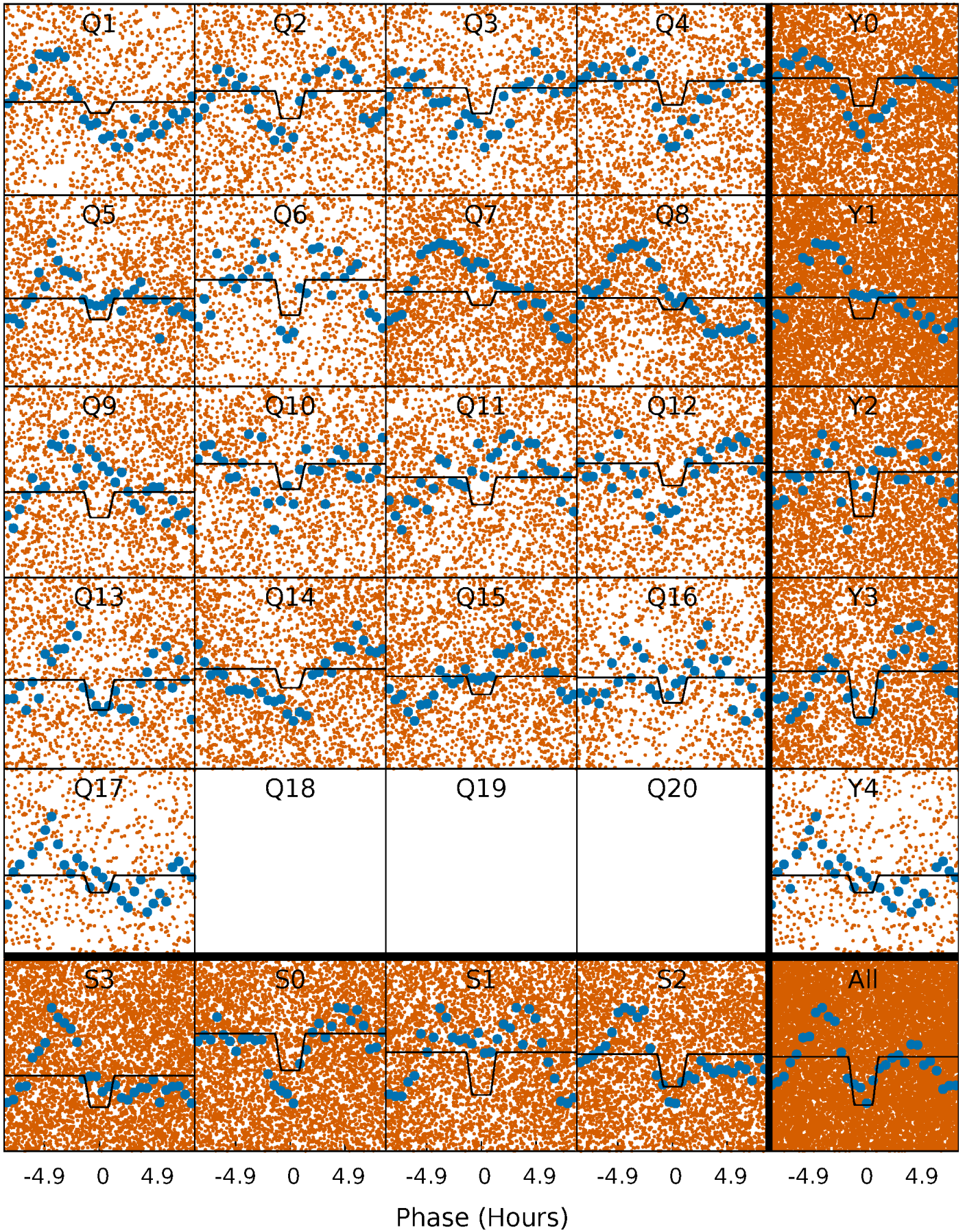
DV Quarter-Phased Transit Curves

TCE 012602335-02 P= 0.679409 Days $T_0=131.796382$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

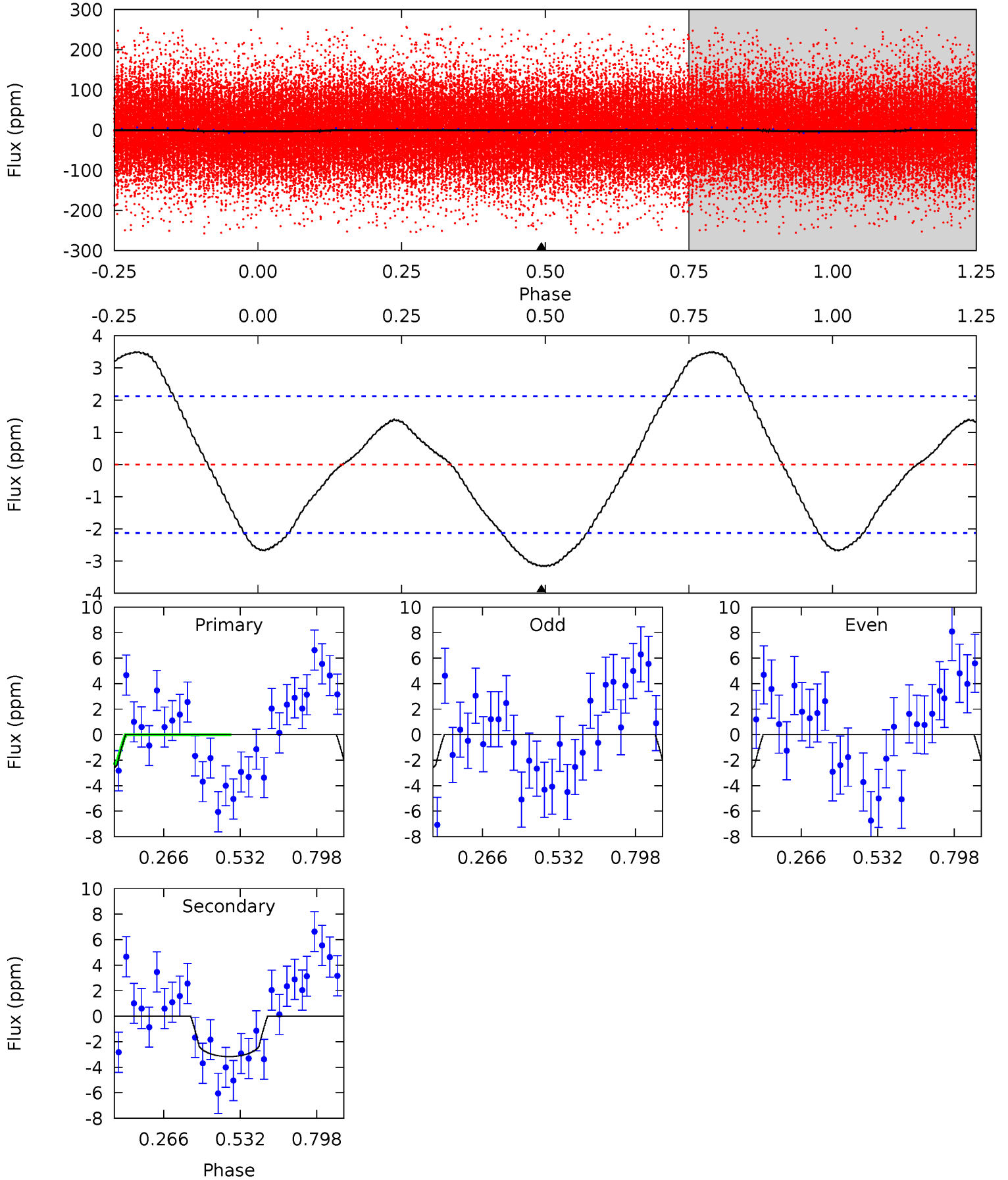
TCE 012602335-02 P= 0.679471 Days $T_0=131.746086$ (BKJD)



DV Model-Shift Uniqueness Test

012602335-02, P = 0.679409 Days, E = 131.116973 Days

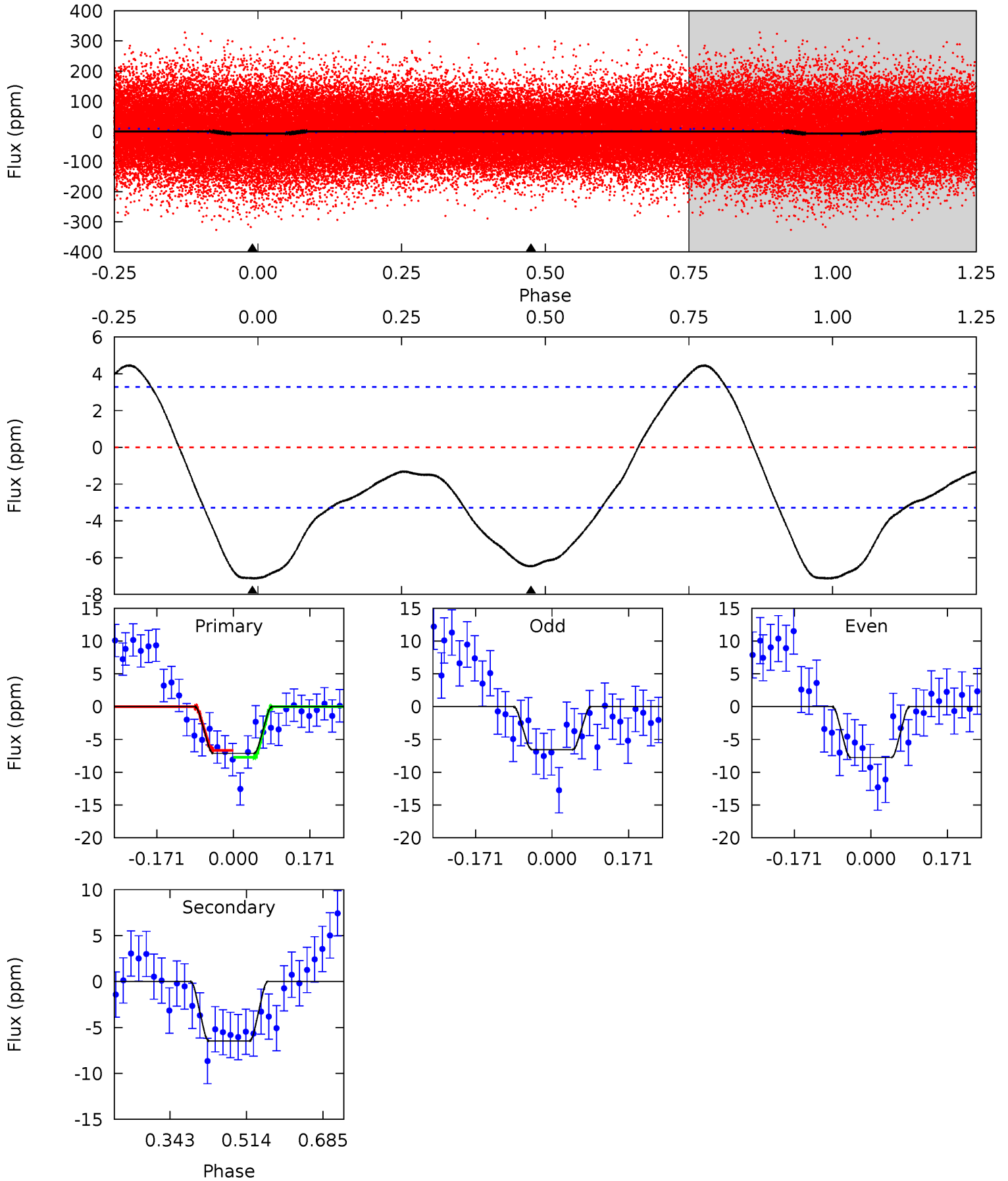
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.49	6.49	0	0	4.36	1.11	3.99	6.49	6.49	6.49	6.49	0.09	1.17	0.53	0.67



Alt Model-Shift Uniqueness Test

012602335-02, P = 0.679471 Days, E = 131.066615 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.66	8.76	0	0	4.45	1.37	3.44	9.66	9.66	8.76	8.76	0.82	0.98	0.38	0.69



Stellar Parameters For KIC 012602335

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8230^{+225}_{-387}	$3.905^{+0.240}_{-0.140}$	$0.070^{+0.250}_{-0.400}$	$2.685^{+0.735}_{-0.898}$	$2.112^{+0.332}_{-0.498}$	$0.154^{+0.256}_{-0.062}$
	+3%/-5%	+6%/-4%	+357%/-571%	+27%/-33%	+16%/-24%	+167%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012602335-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3 ± 0	$0.53^{+0.35}_{-0.29}$	5835^{+458}_{-446}	7514^{+6231}_{-2168}	$2.298^{+9.218}_{-1.498}$
Alt.	-6 ± 1	$0.86^{+0.37}_{-0.36}$	5861^{+436}_{-485}	6848^{+2924}_{-1346}	$1.808^{+3.527}_{-0.944}$

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 $A_{obs} \gg 1.0$

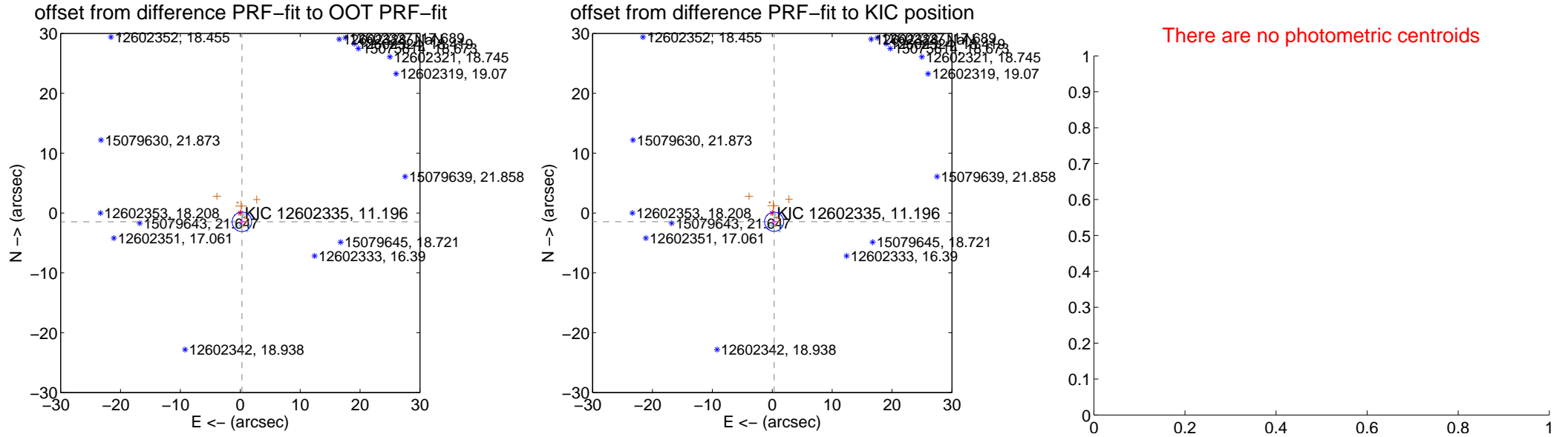
DV Centroid Data

Supplemental centroid analysis for 012602335-02. **Kepler magnitude: 11.20.** Transit SNR 4.90

There are 6 quarters with good PRF difference image offsets

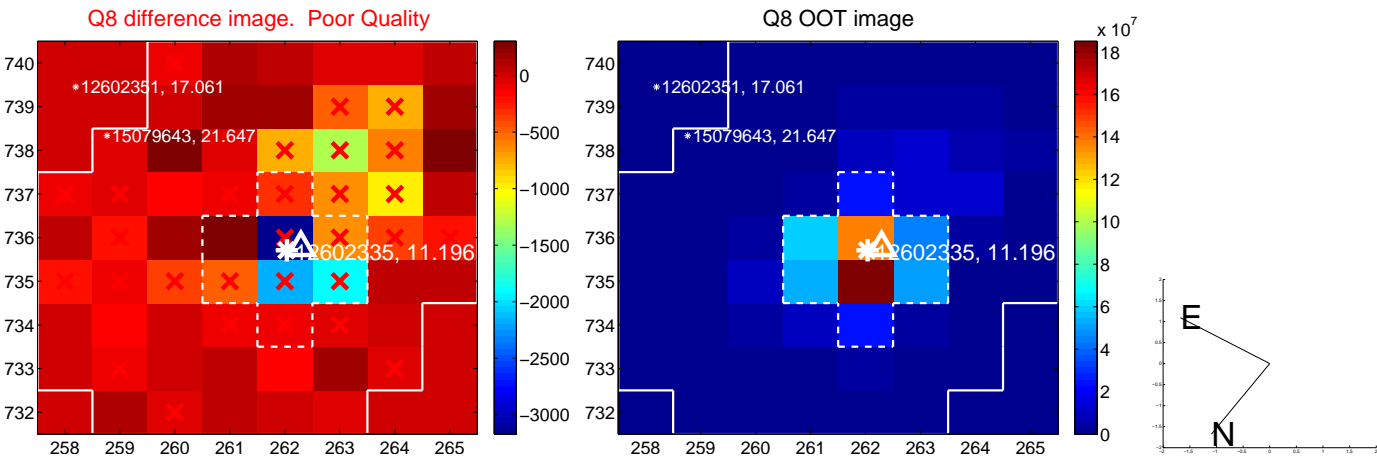
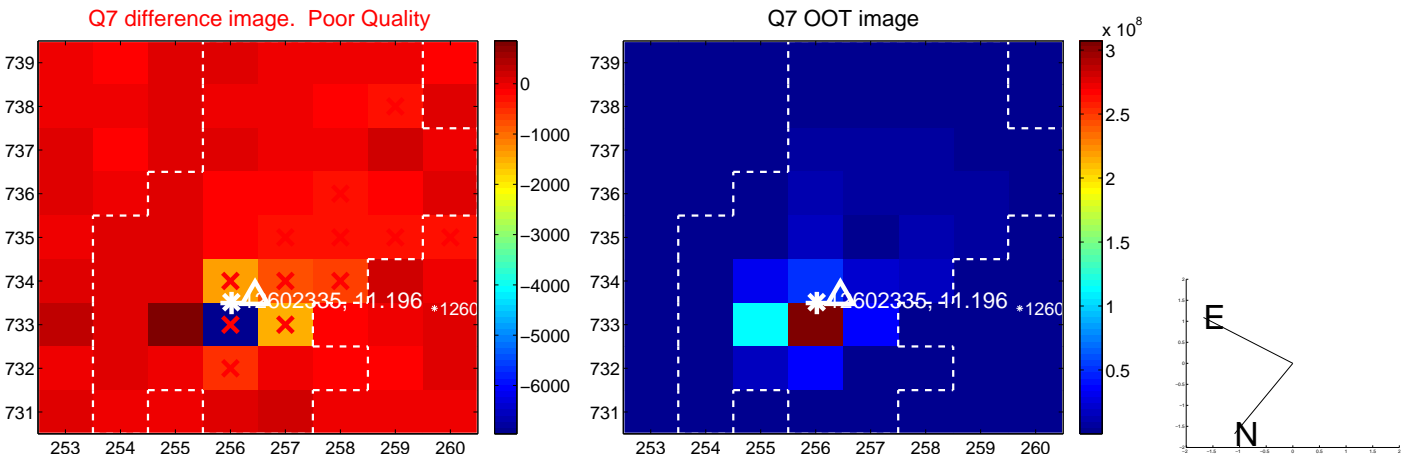
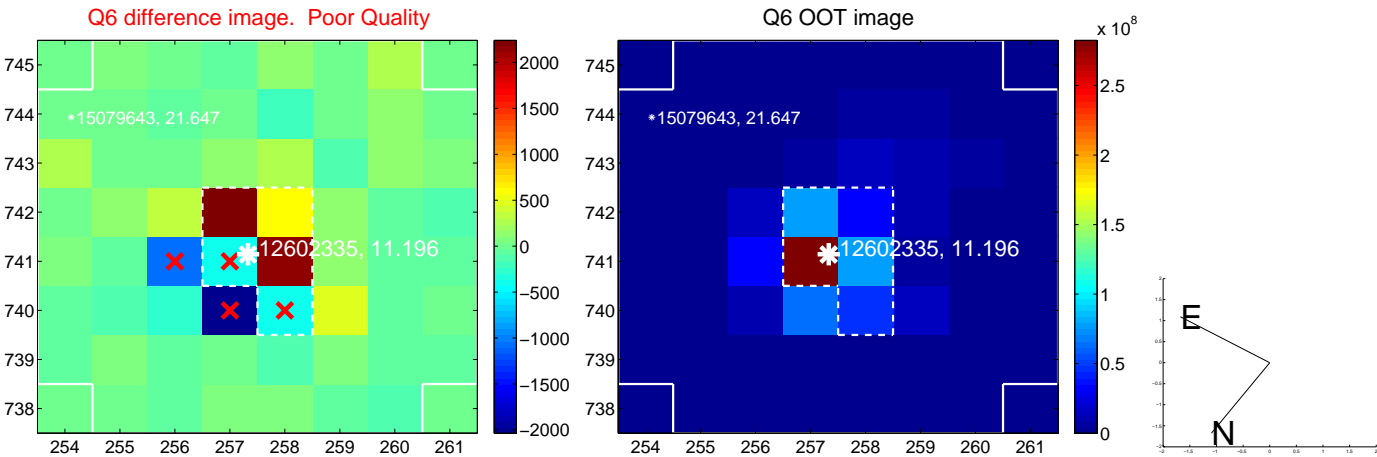
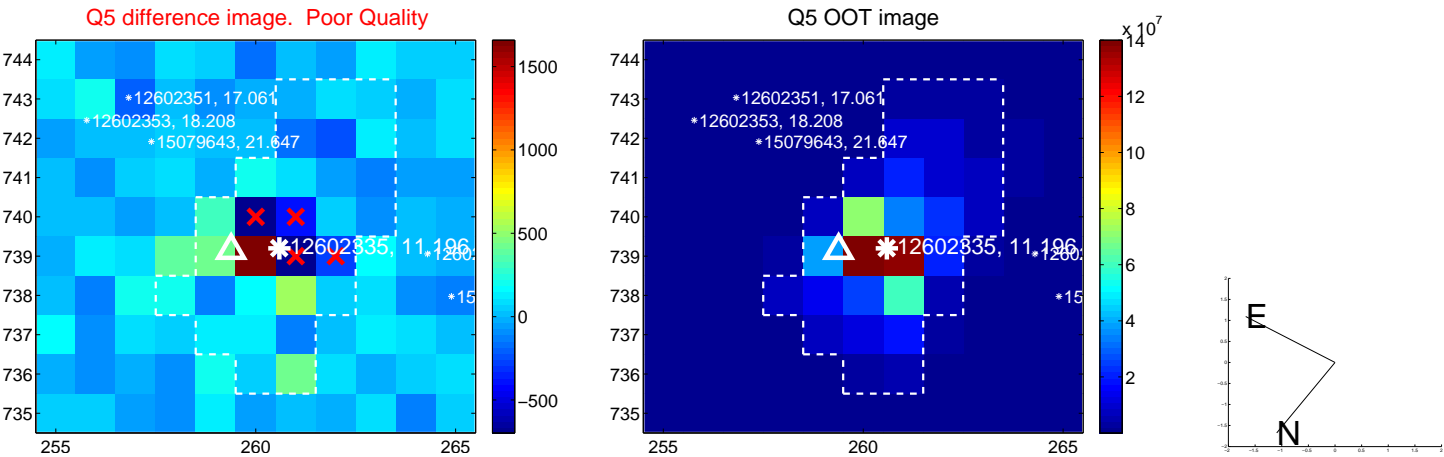
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.496 ± 0.543	2.75	-0.272 ± 0.413	-1.471 ± 0.524
PRF-fit source offset from KIC position	1.493 ± 0.533	2.80	-0.314 ± 0.419	-1.459 ± 0.507
photometric centroid source offset	—	—	—	—

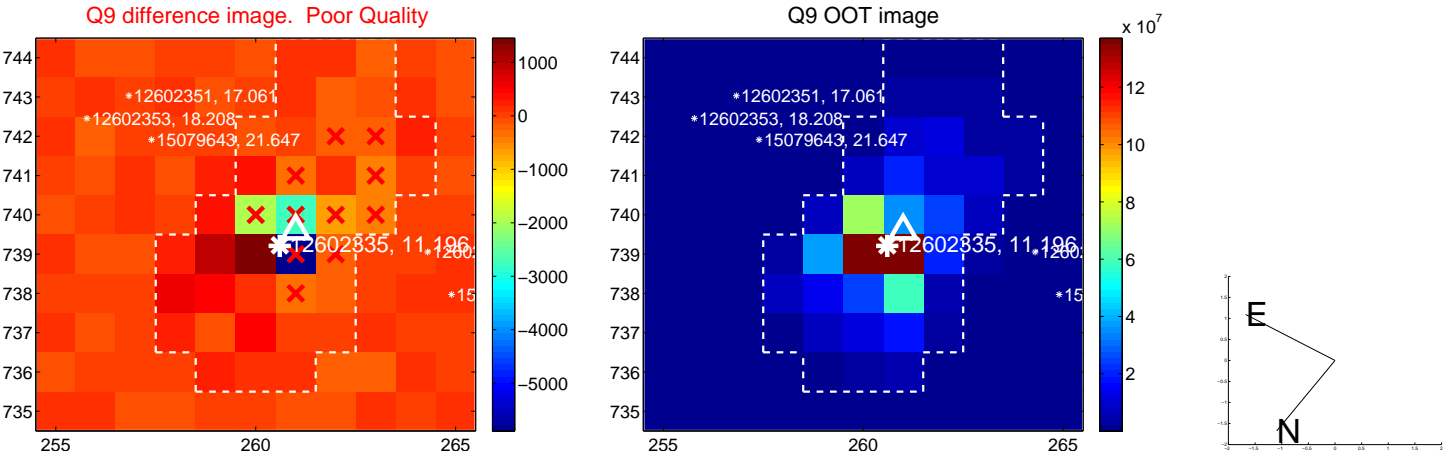


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

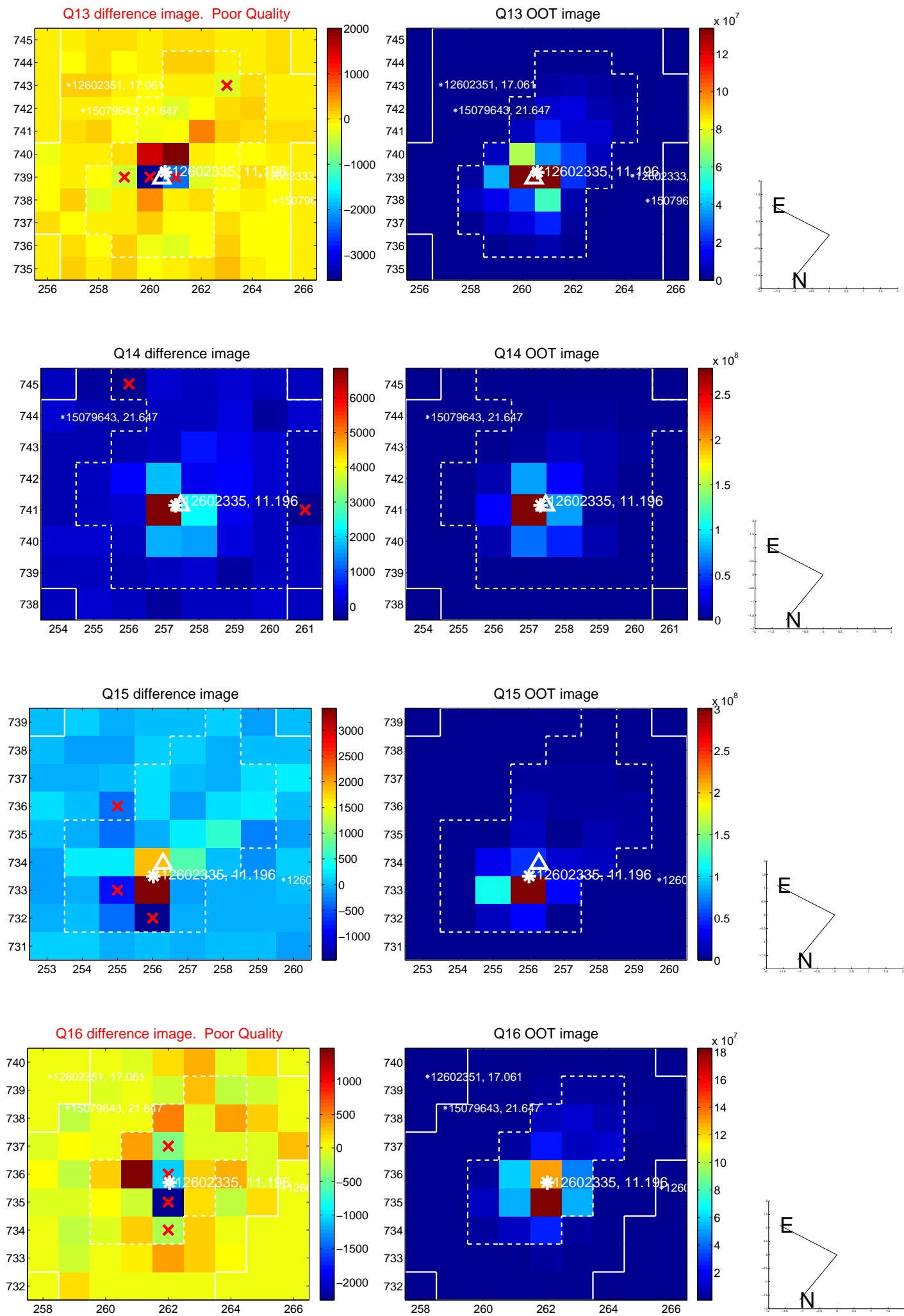
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



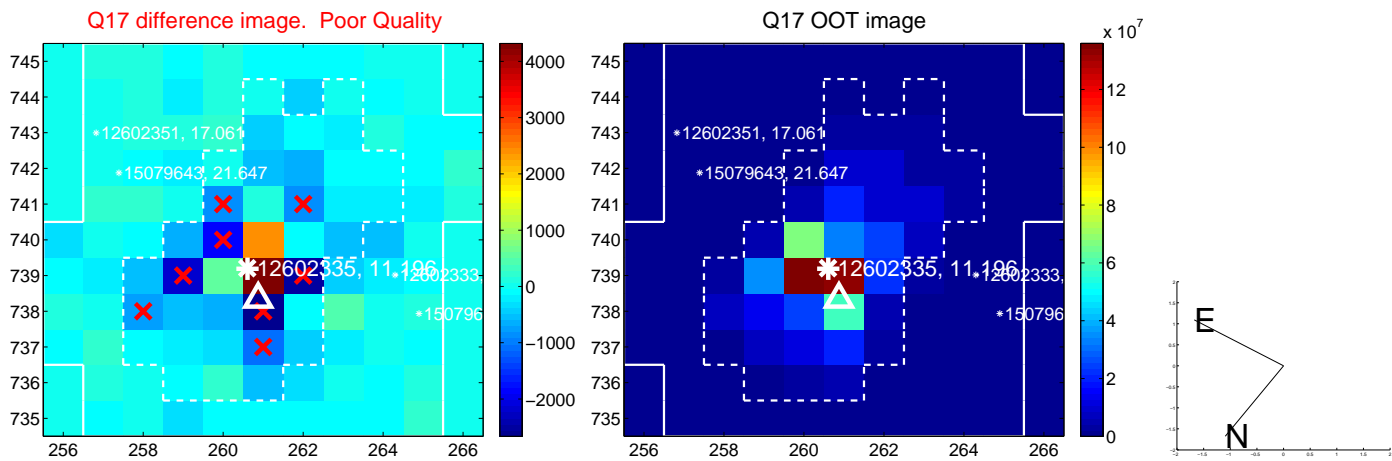
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



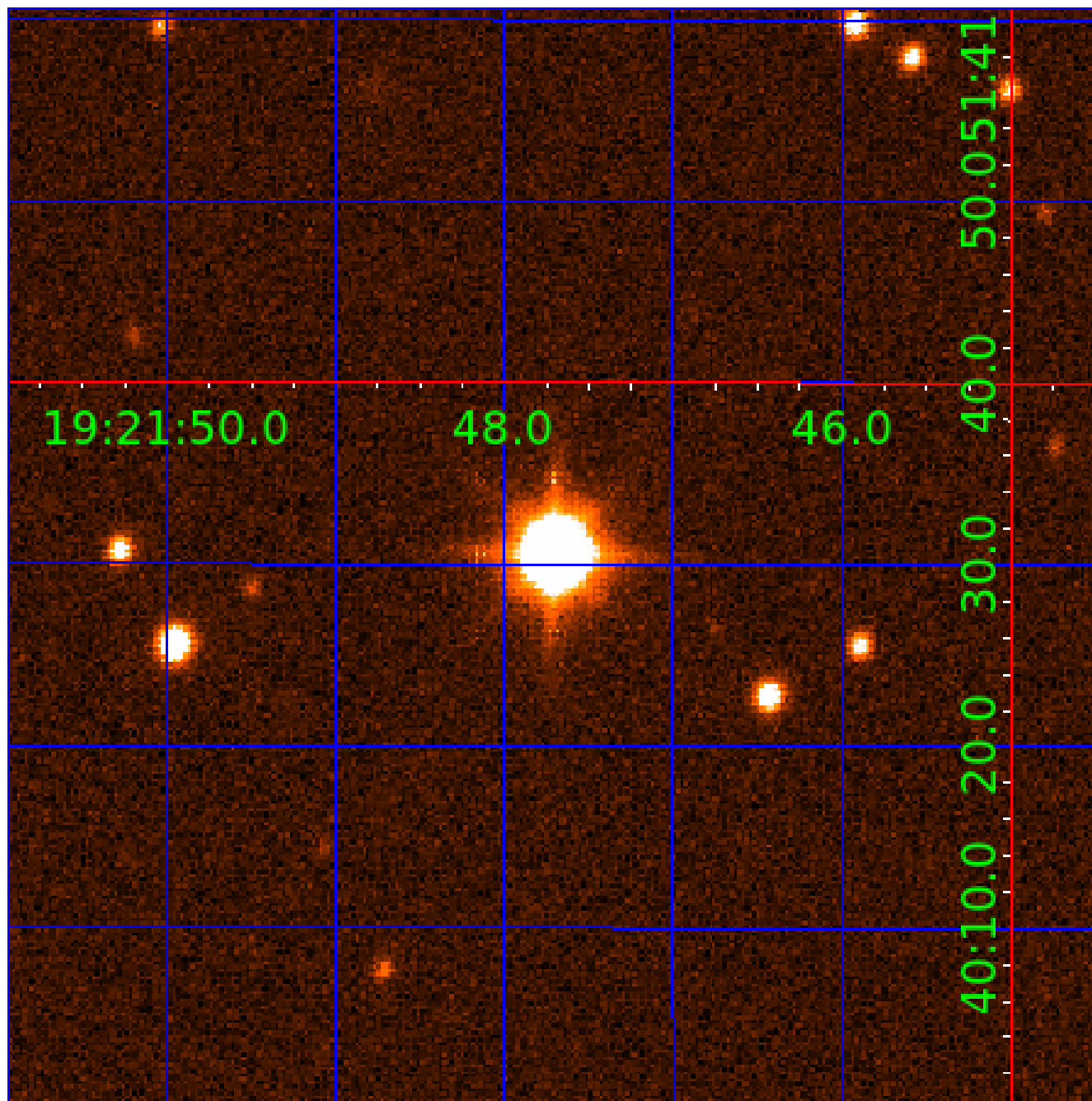
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 012602335

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})
012602335-01	OBS	No	496.357732	500.801329	154.4	12.582	10.5	9.4	2.69	8230	3.62	11.95
012602335-02	OBS	No	0.679409	131.796382	4.0	3.891	8.2	4.9	2.69	8230	0.55	78634.81
012602335-03	OBS	No	197.132041	161.100175	205.1	6.771	15.2	9.7	2.69	8230	4.34	40.94
012602335-04	OBS	No	101.463364	152.035964	82.9	9.022	8.8	7.9	2.69	8230	2.61	99.25
012602335-05	OBS	No	178.349262	197.338461	114.7	2.893	7.4	7.7	2.69	8230	3.23	46.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012602335-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
012602335-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

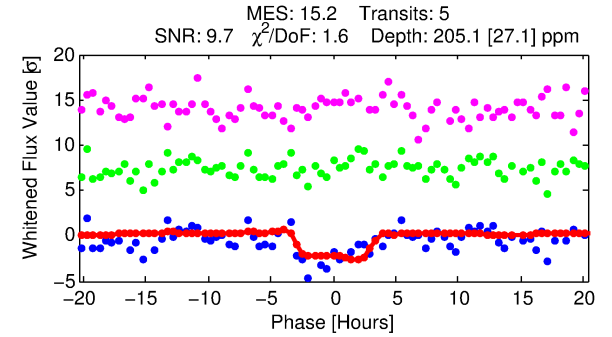
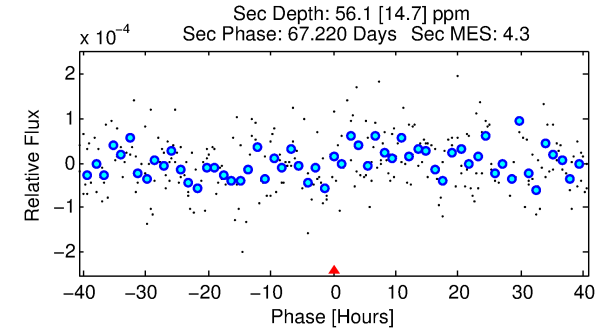
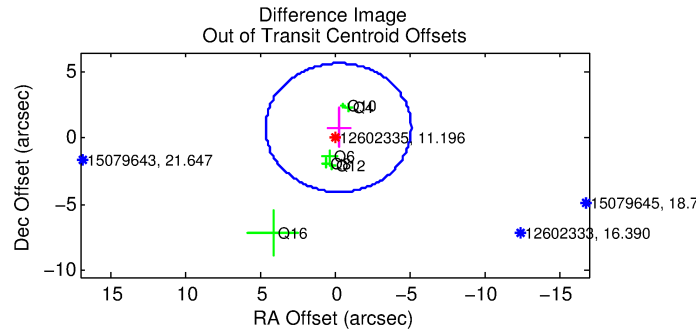
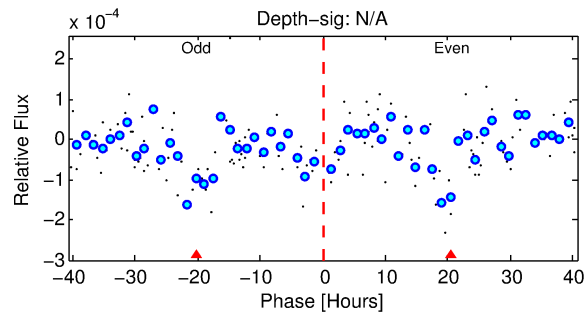
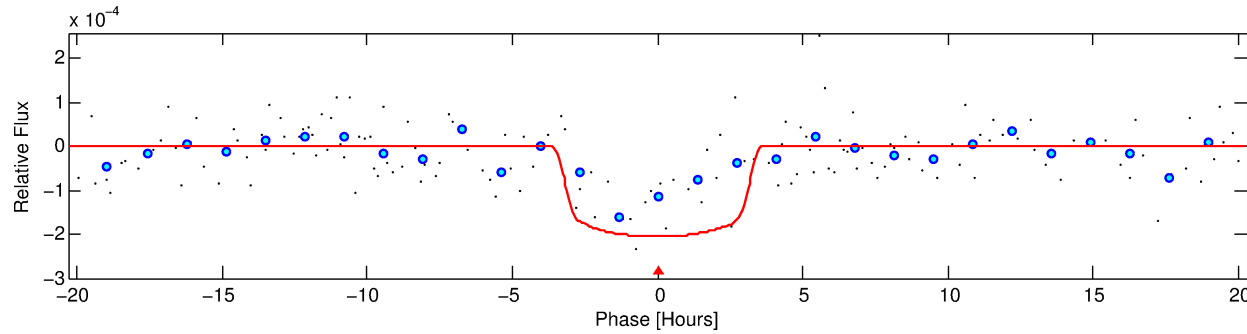
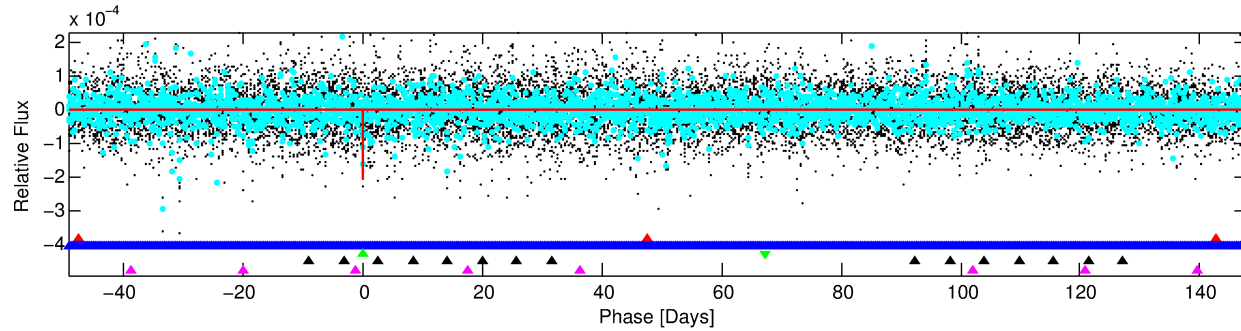
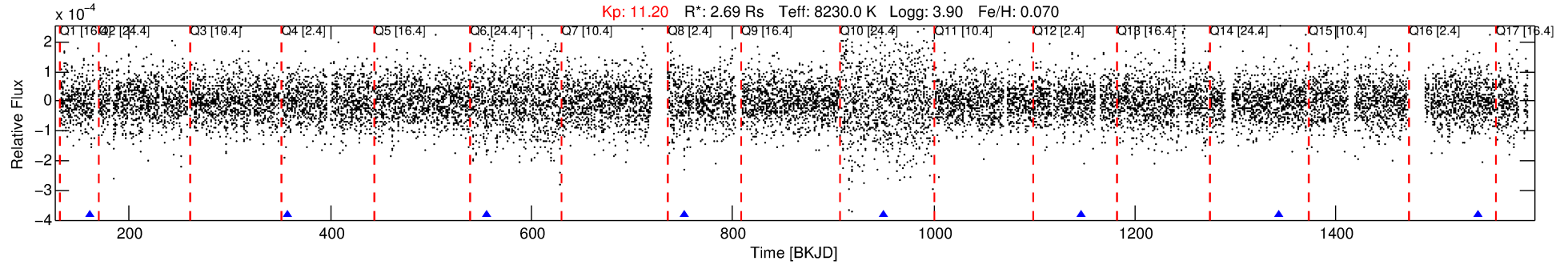
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012602335-03

No Significant Match Found

DV One-Page Summary

KIC: 12602335 Candidate: 3 of 5 Period: 197.132 d



DV Fit Results:

Period = 197.13204 [0.00286] d
Epoch = 161.1002 [0.0117] BKJD
Rp/R* = 0.0148 [0.0078]
a/R* = 122.04 [393.43]
b = 0.85 [1.03]
Seff = 40.94 [19.24]
Teff = 645 [76] K
Rp = 4.34 [2.70] Re
a = 0.8508 [0.2461] AU
Ag = 1183.87 [1377.84] [0.86σ]
Teffp = 5850 [1605] K [3.24σ]

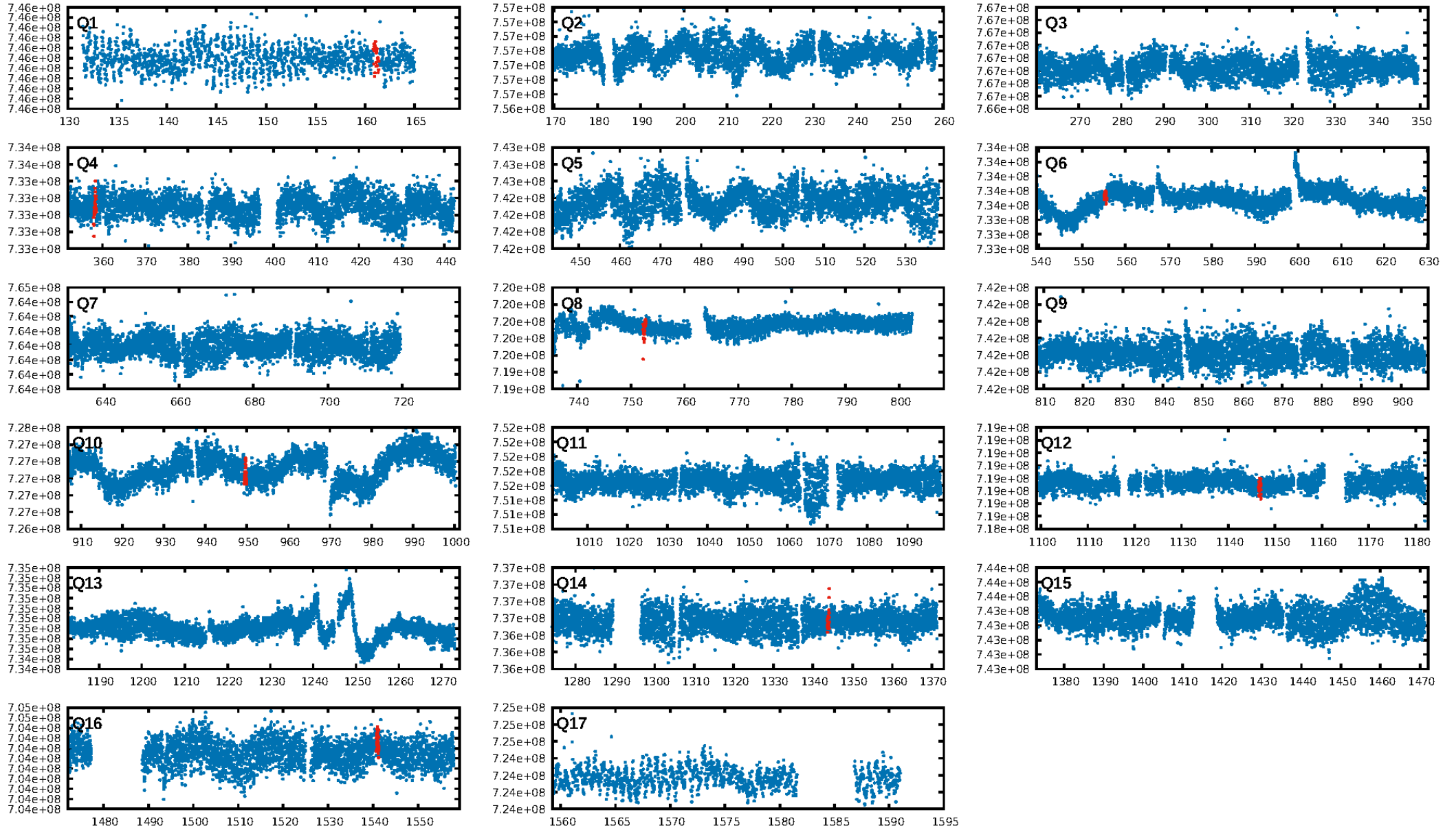
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [61.23σ]
LongPeriod-sig: 100.0% [502.62σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.20e-30
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -5.091
Centroid-sig: 37.6%
Centroid-so: 0.515 arcsec [1.18σ]
OotOffset-rm: 0.839 arcsec [0.52σ]
OotOffset-st: 2/0/4/0 [6]
KicOffset-rm: 0.814 arcsec [0.66σ]
KicOffset-st: 2/0/4/0 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.00 [0/8]

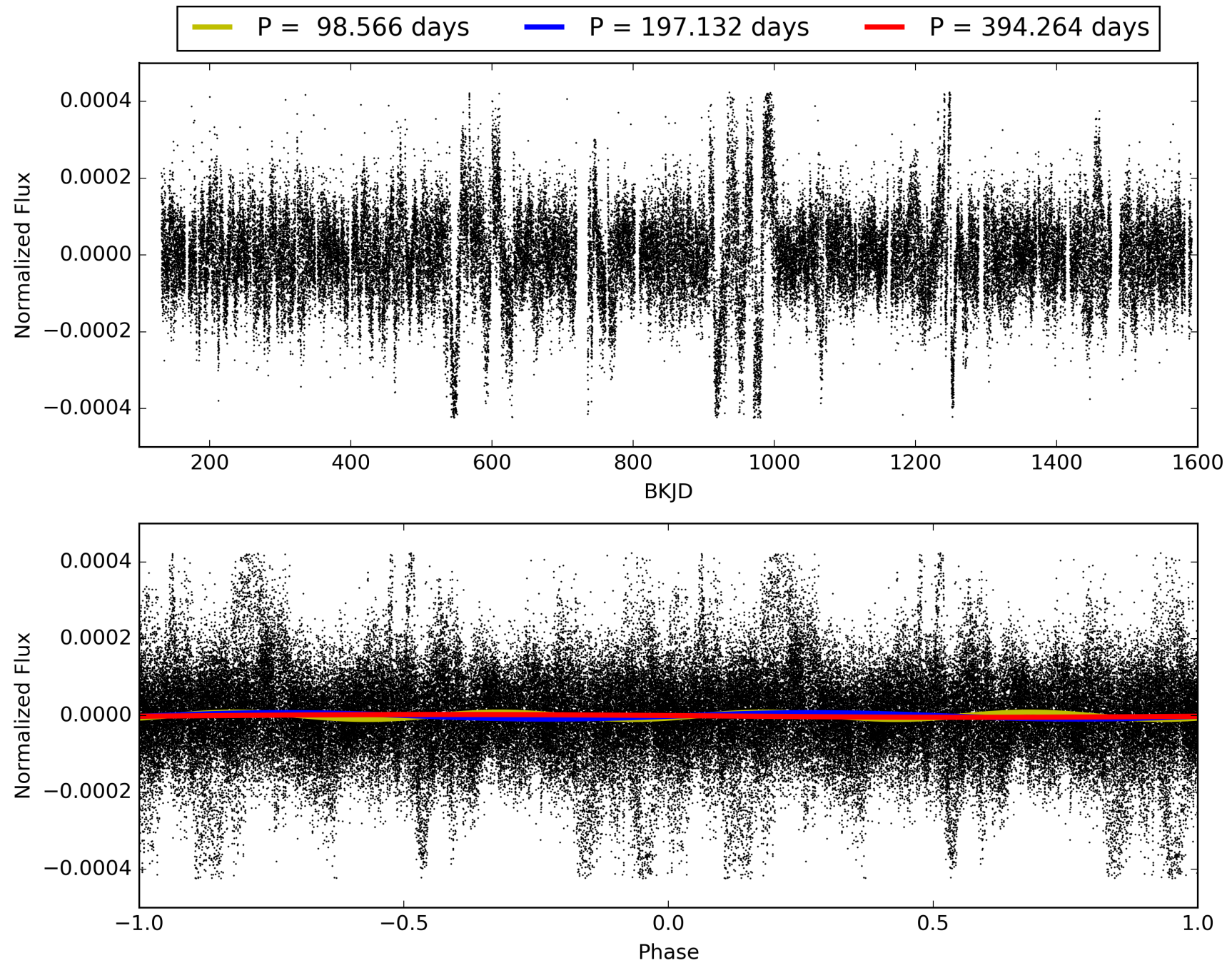
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:25:21 Z

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

TCE 012602335-03, PDC Light Curves

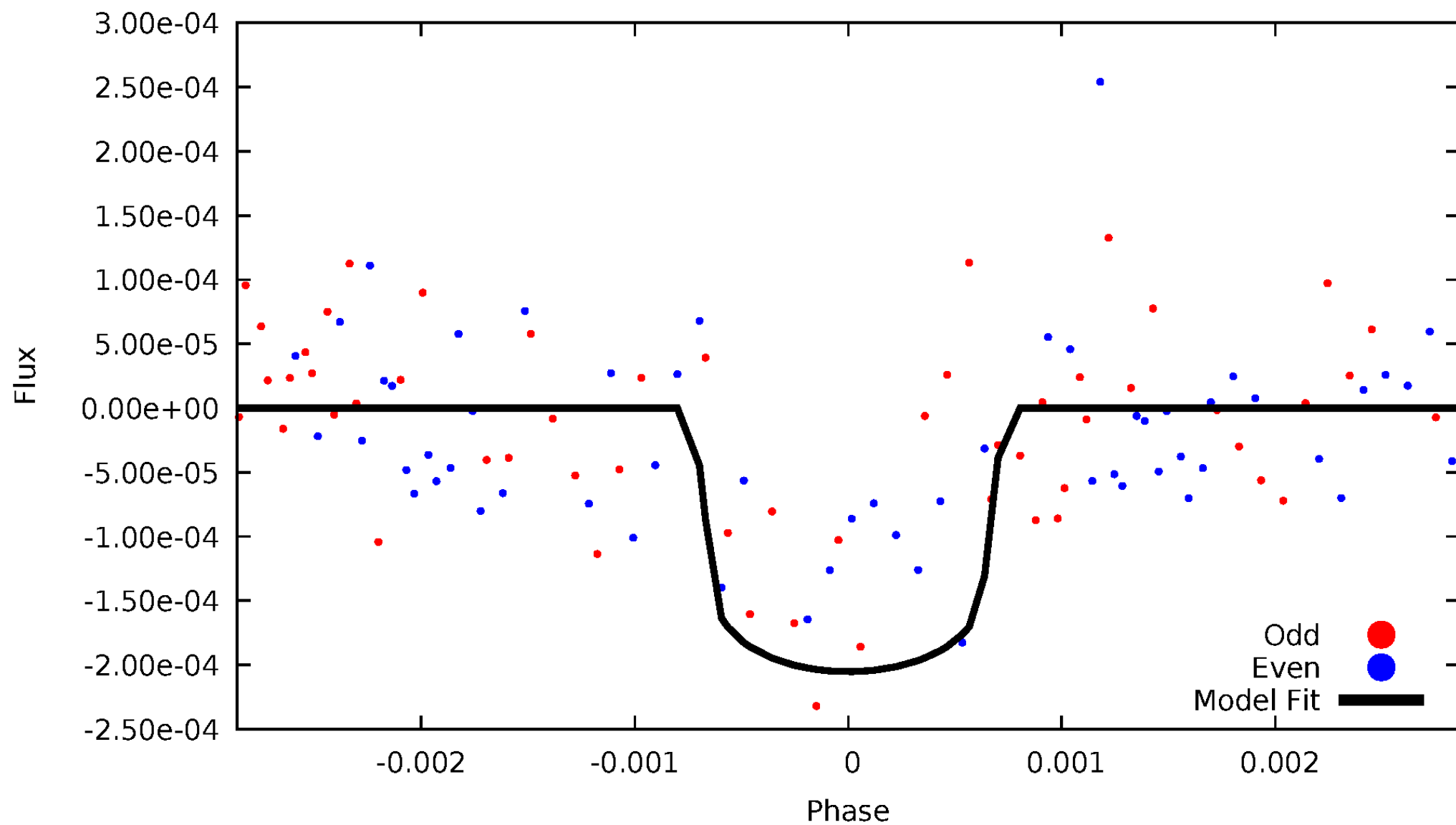


TCE 012602335-03



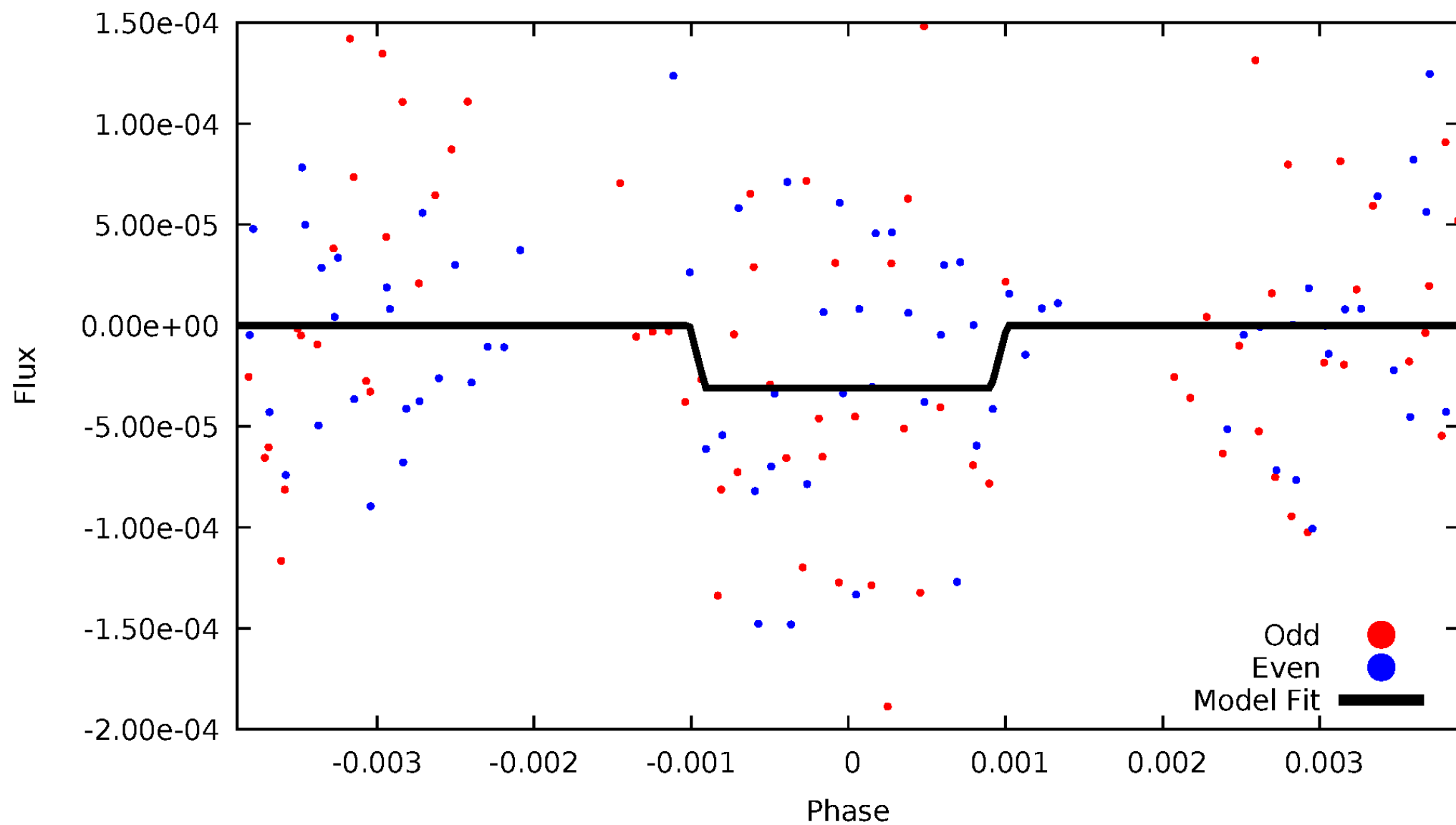
DV Odd/Even

TCE 012602335-03



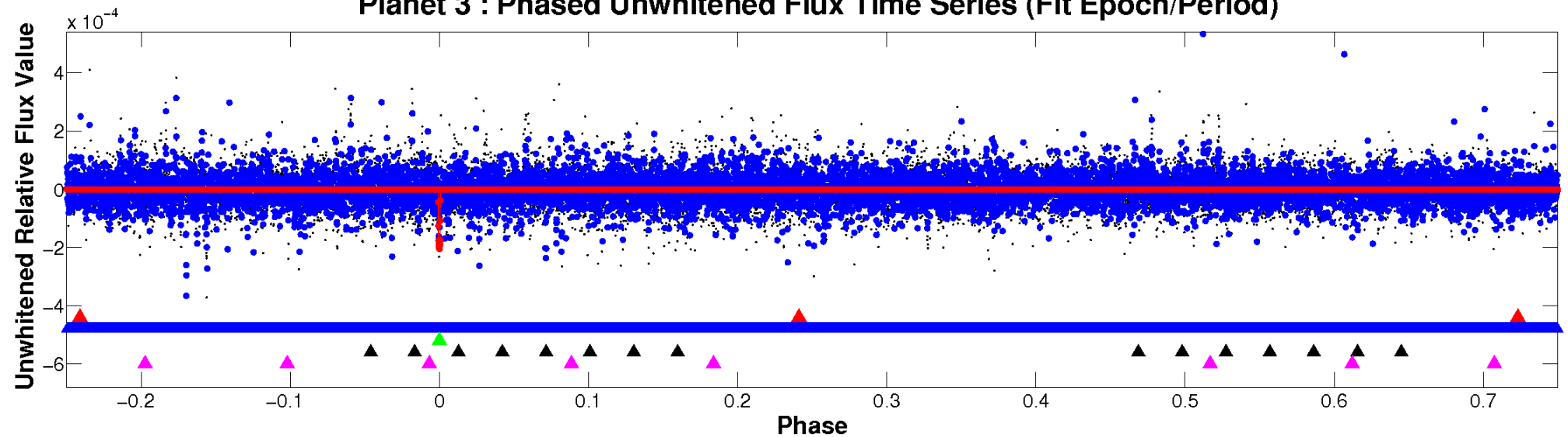
ALT Odd/Even

TCE 012602335-03

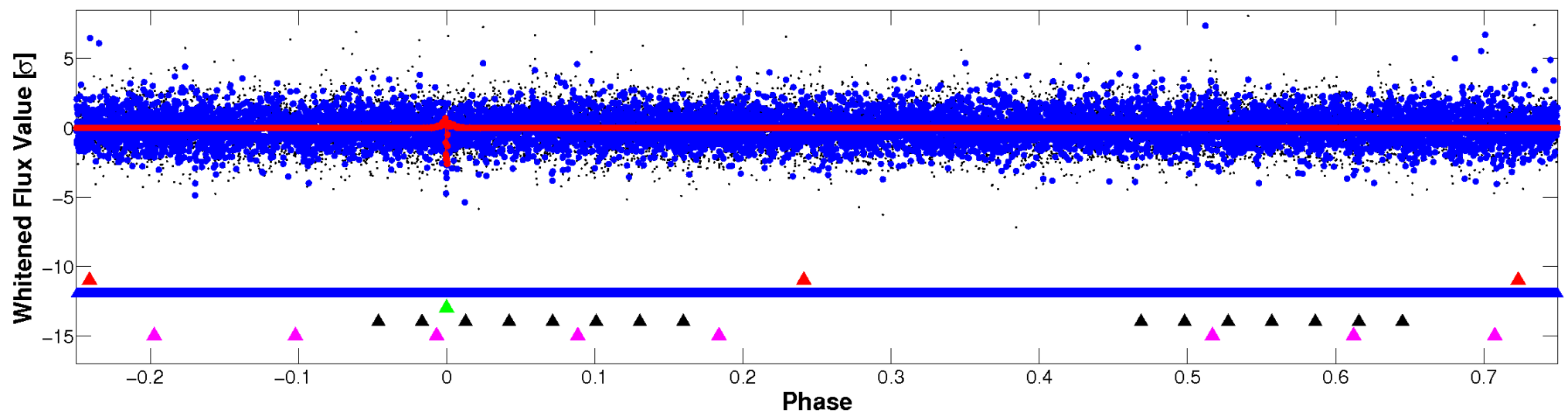


Non-Whitened Vs. Whitened Light Curve

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



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



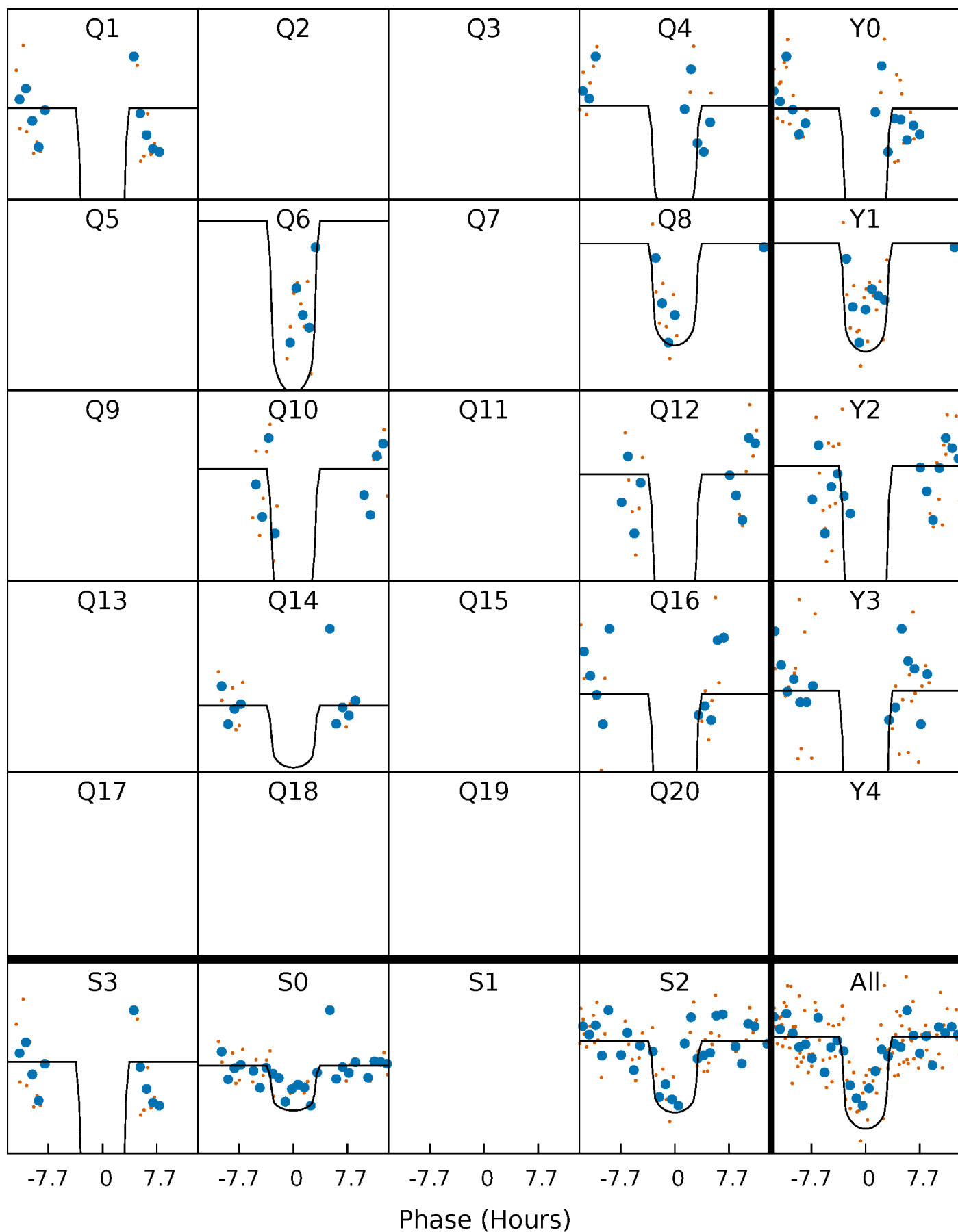
PDC Quarter-Phased Transit Curves

TCE 012602335-03 P=197.132041 Days $T_0=161.100176$ (BKJD)



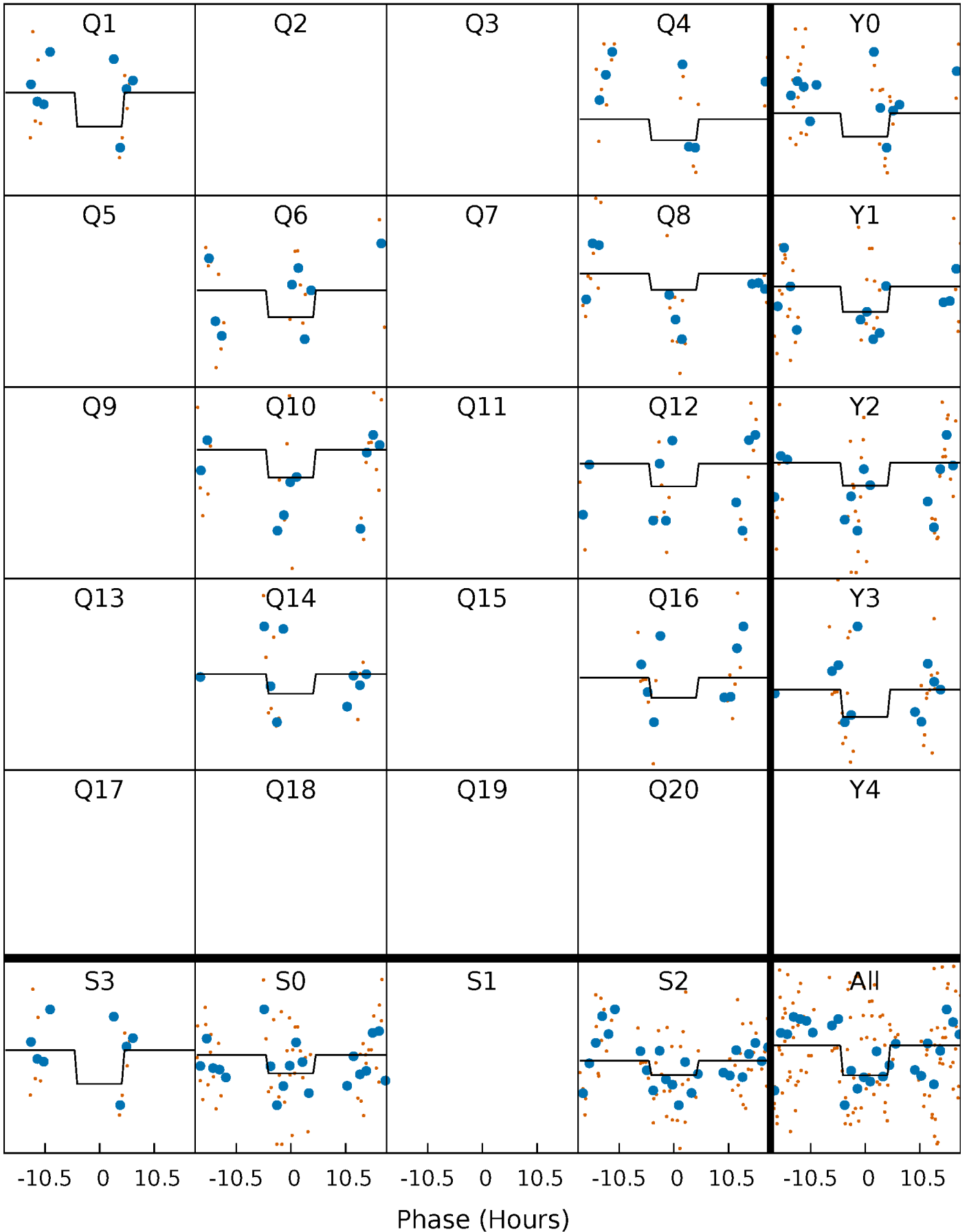
DV Quarter-Phased Transit Curves

TCE 012602335-03 P=197.132041 Days $T_0=161.100176$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

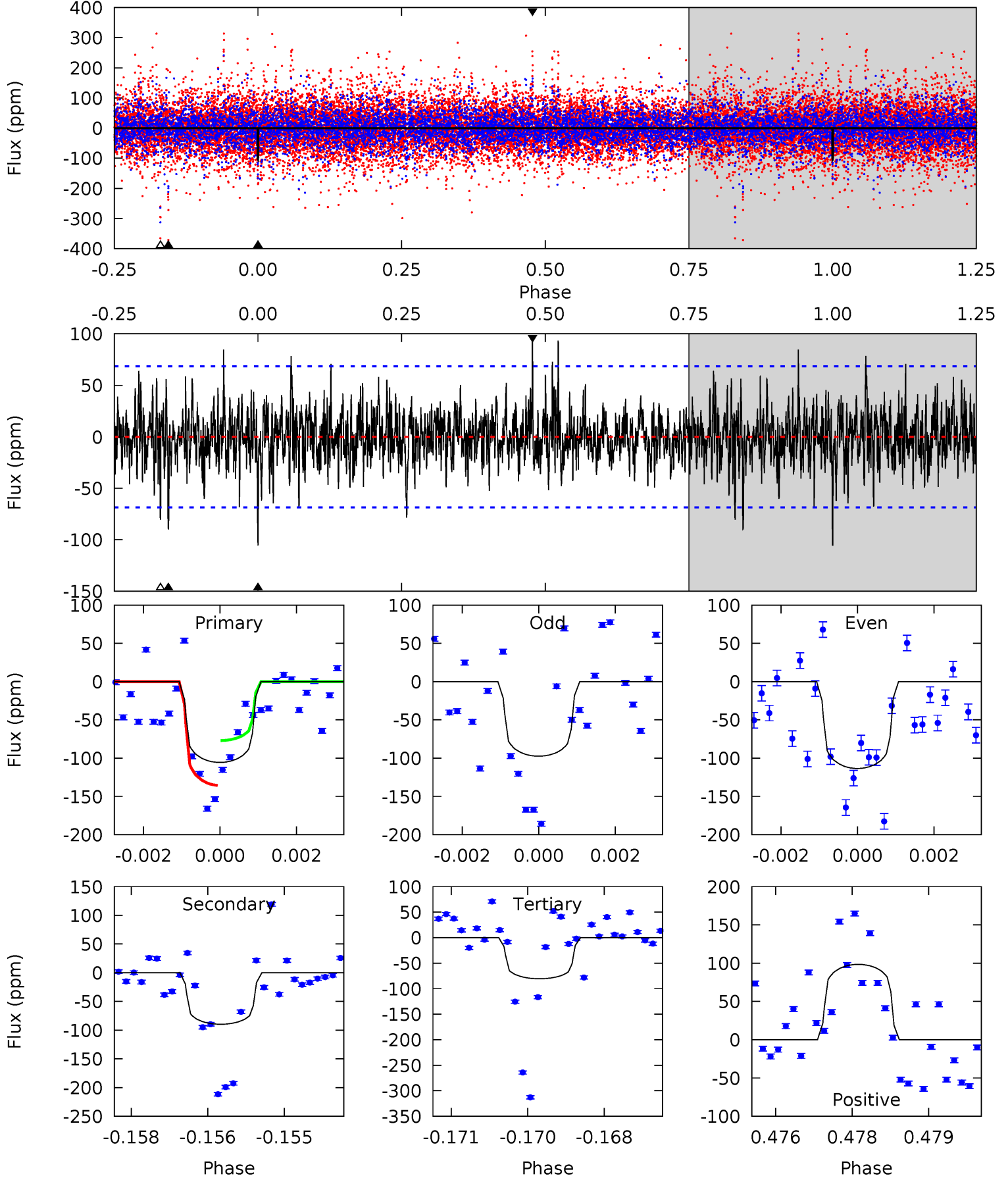
TCE 012602335-03 P=197.084247 Days $T_0=161.164637$ (BKJD)



DV Model-Shift Uniqueness Test

012602335-03, P = 197.132041 Days, E = 161.100176 Days

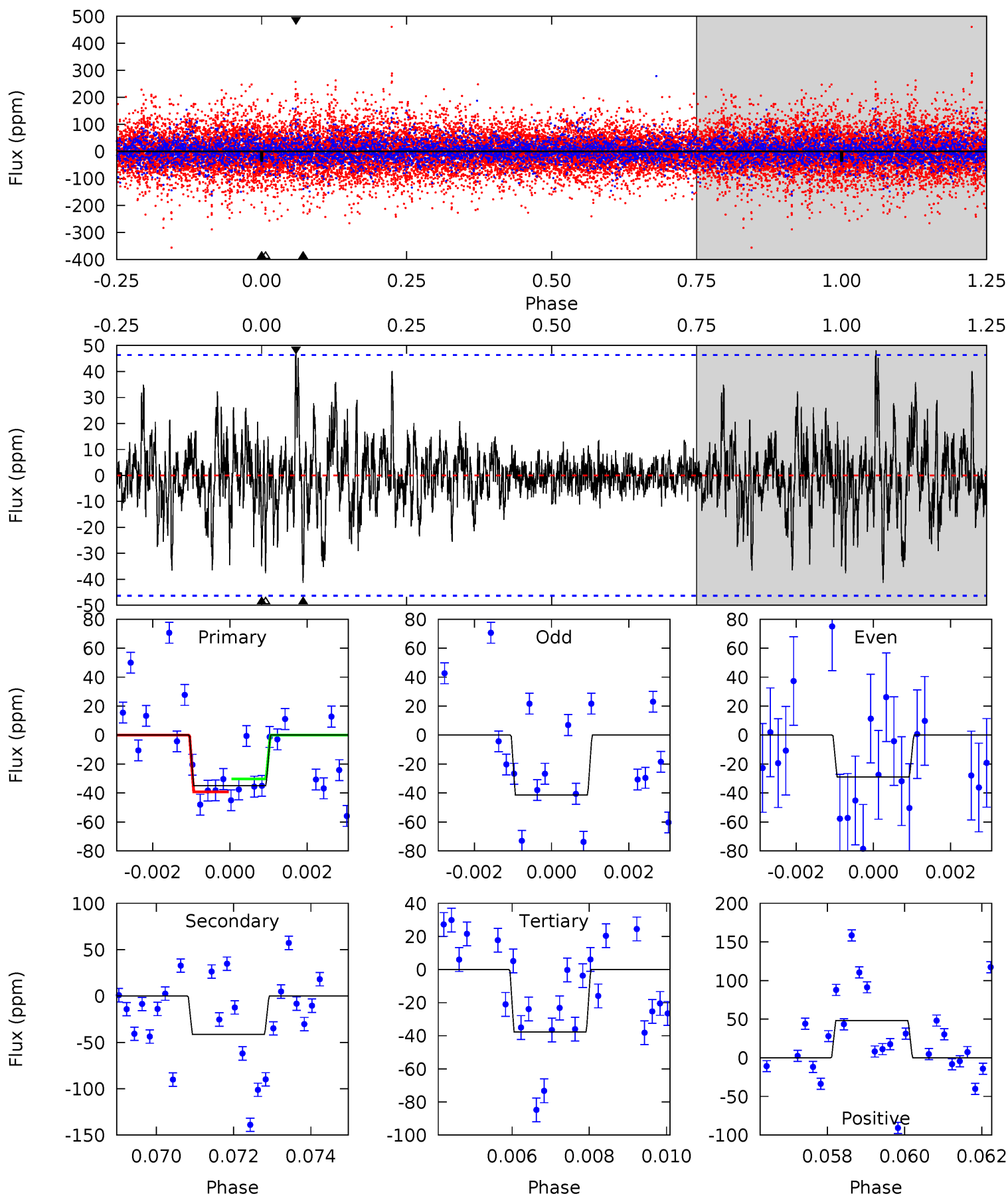
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.29	7.04	6.32	7.73	5.38	3.17	1.61	1.97	0.56	0.72	-0.69	0.62	0.77	0.48	2.30



Alt Model-Shift Uniqueness Test

012602335-03, P = 197.084247 Days, E = 161.164637 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.03	4.75	4.34	5.54	5.33	3.10	1.18	-0.31	-1.51	0.41	-0.79	0.71	1.28	0.54	0.51



Stellar Parameters For KIC 012602335

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8230^{+225}_{-387}	$3.905^{+0.240}_{-0.140}$	$0.070^{+0.250}_{-0.400}$	$2.685^{+0.735}_{-0.898}$	$2.112^{+0.332}_{-0.498}$	$0.154^{+0.256}_{-0.062}$
	+3%/-5%	+6%/-4%	+357%/-571%	+27%/-33%	+16%/-24%	+167%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012602335-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-90 ± 13	$4.09^{+2.49}_{-1.94}$	887^{+61}_{-73}	6320^{+2685}_{-1102}	2057^{+5666}_{-1240}
Alt.	-41 ± 9	$2.14^{+2.09}_{-1.42}$	888^{+71}_{-84}	7231^{+8925}_{-1988}	3447^{+26997}_{-2594}

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 $A_{obs} \gg 1.0$

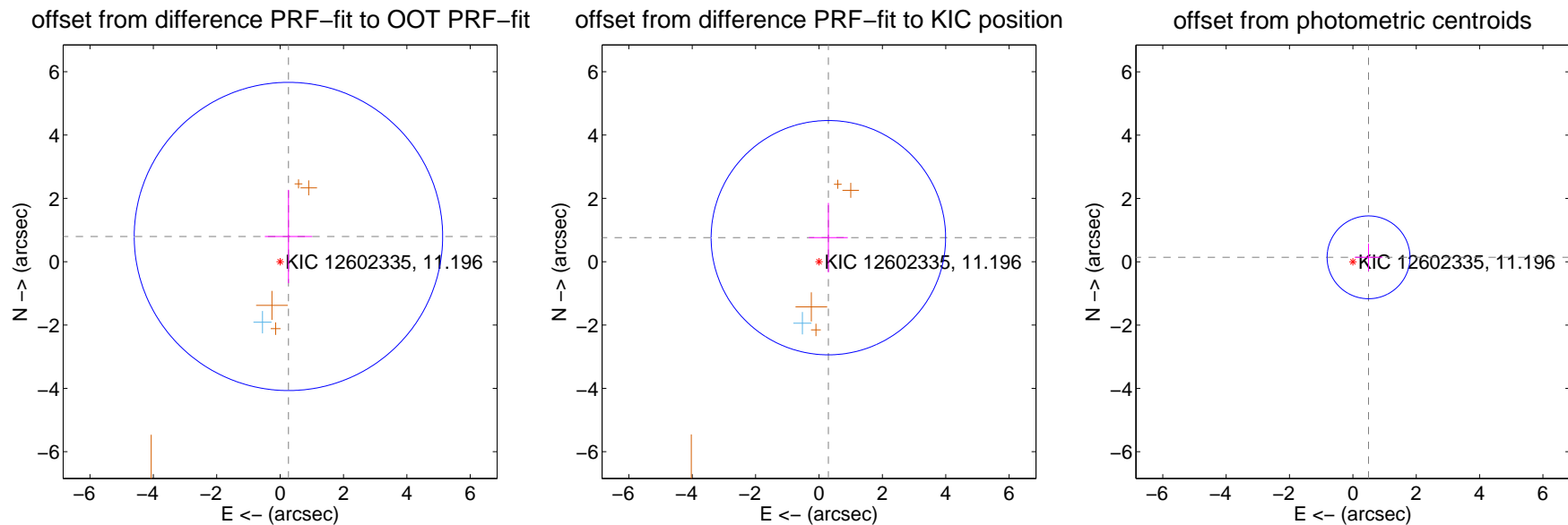
DV Centroid Data

Supplemental centroid analysis for 012602335-03. **Kepler magnitude: 11.20.** Transit SNR 9.67

There are 1 quarters with good PRF difference image offsets

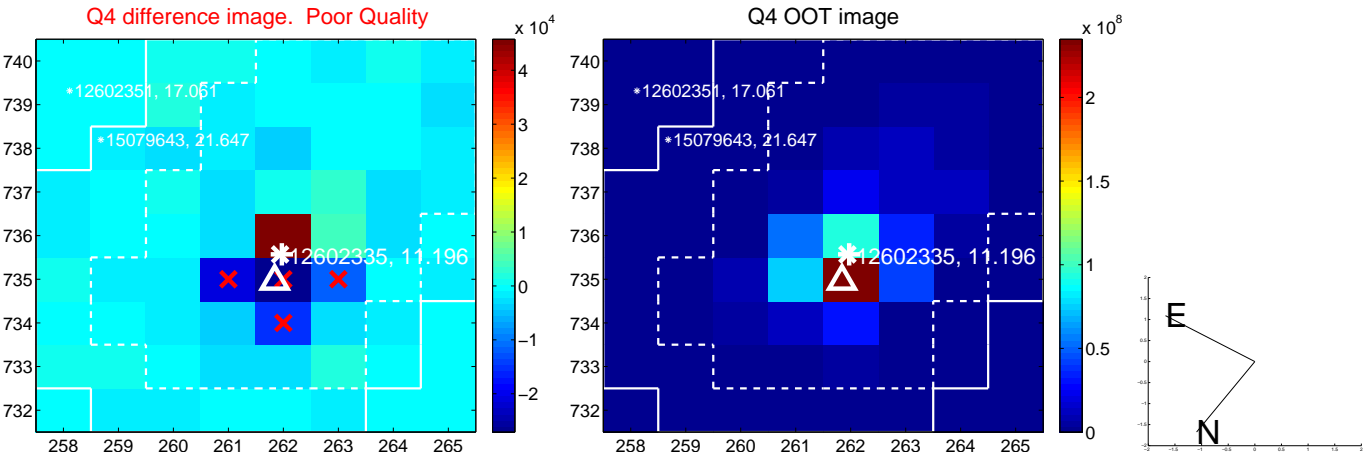
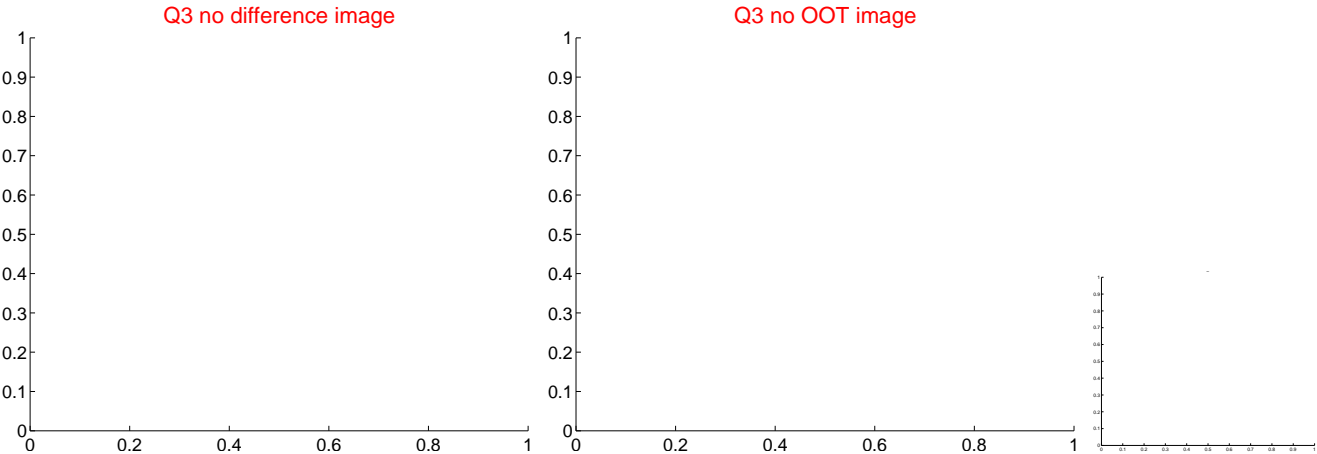
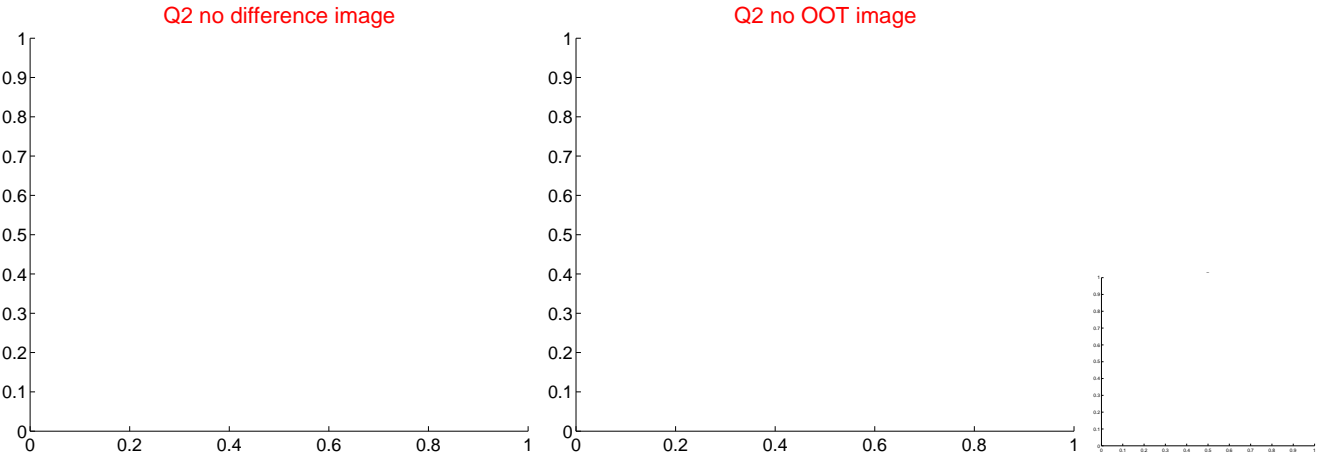
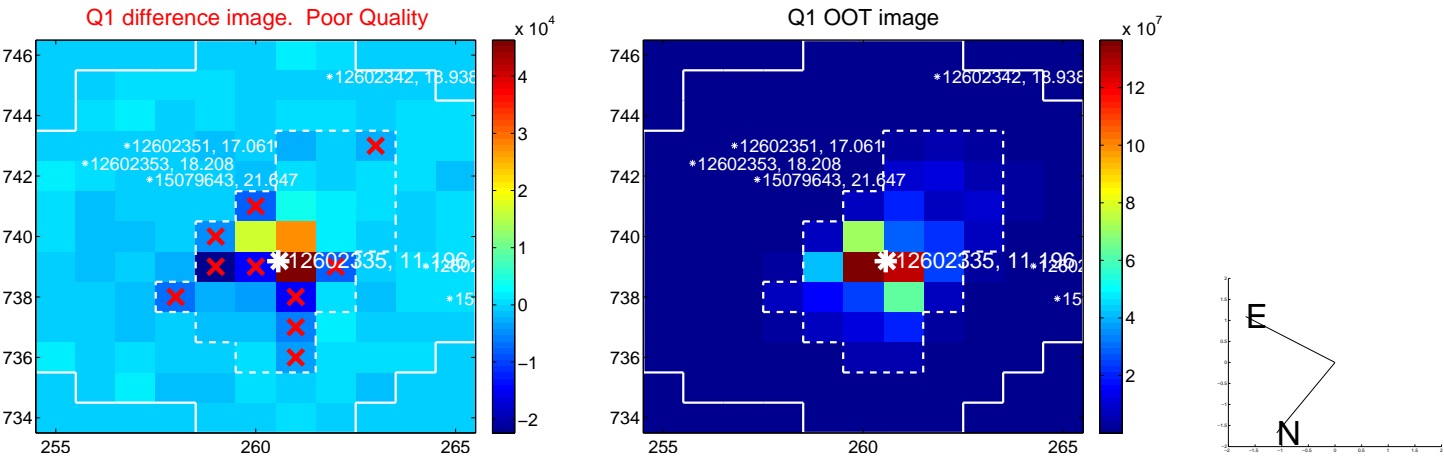
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.839 ± 1.623	0.52	-0.263 ± 0.746	0.797 ± 1.472
PRF-fit source offset from KIC position	0.814 ± 1.234	0.66	-0.296 ± 0.615	0.759 ± 1.098
photometric centroid source offset	0.51 ± 0.44	1.18	-0.50 ± 0.44	0.14 ± 0.43



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.

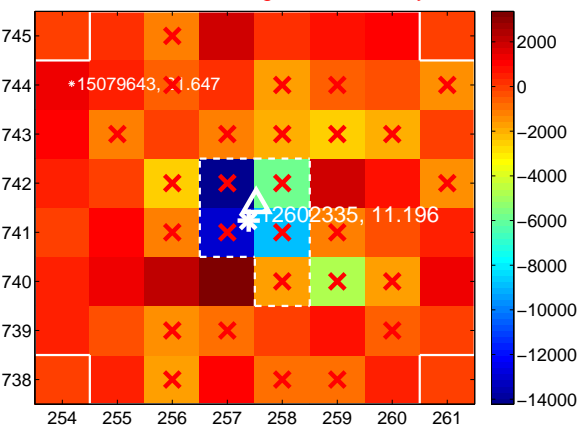
Q5 no difference image



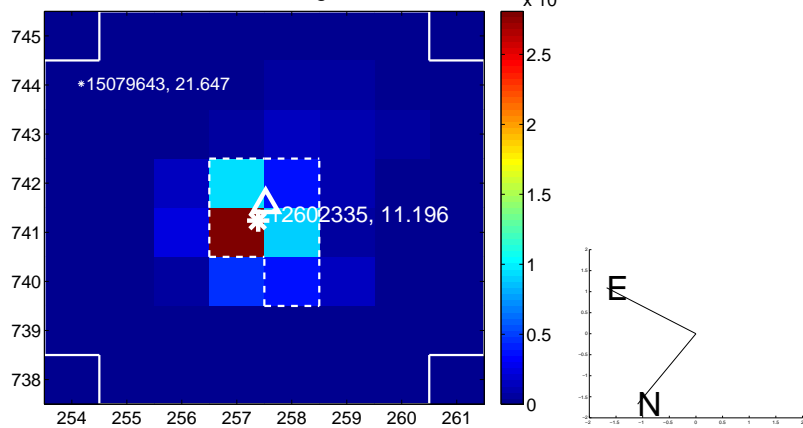
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



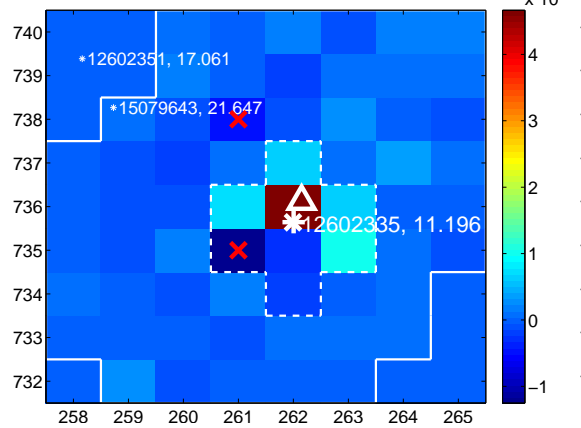
Q7 no difference image



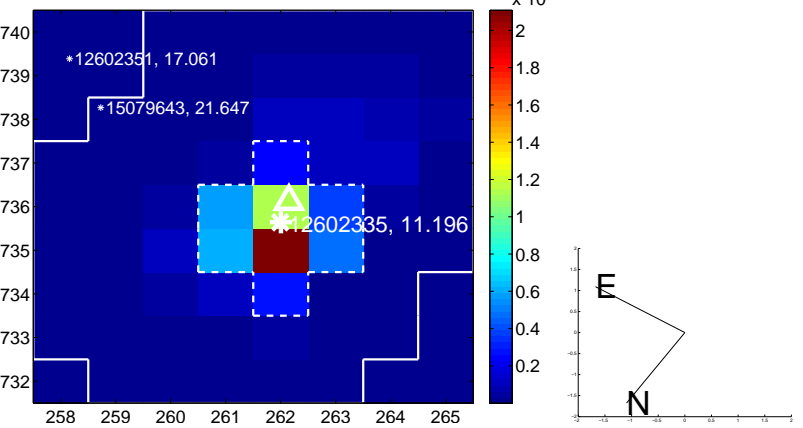
Q7 no OOT image



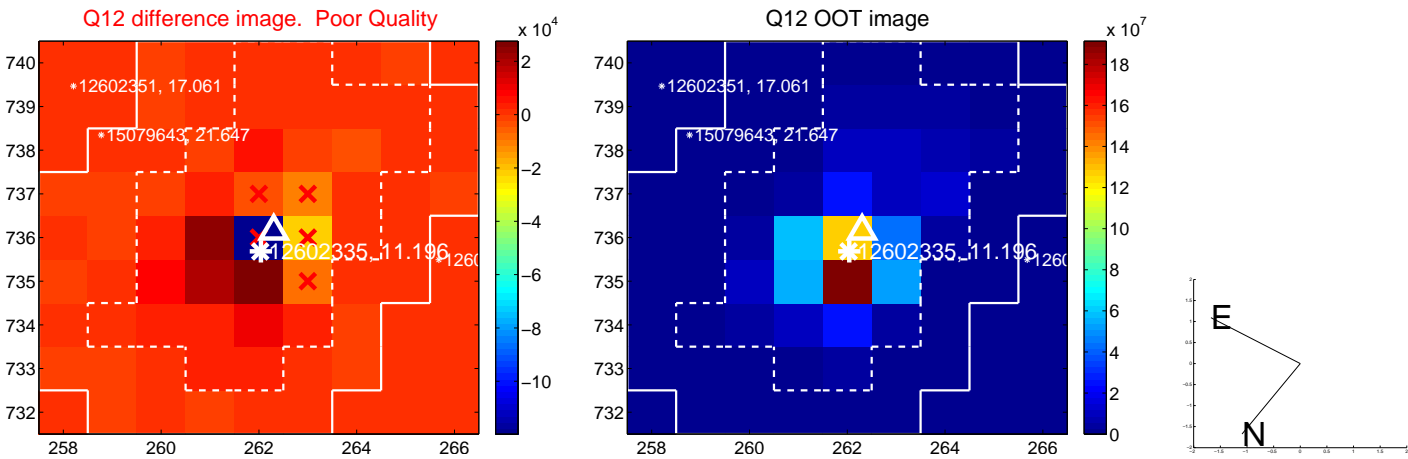
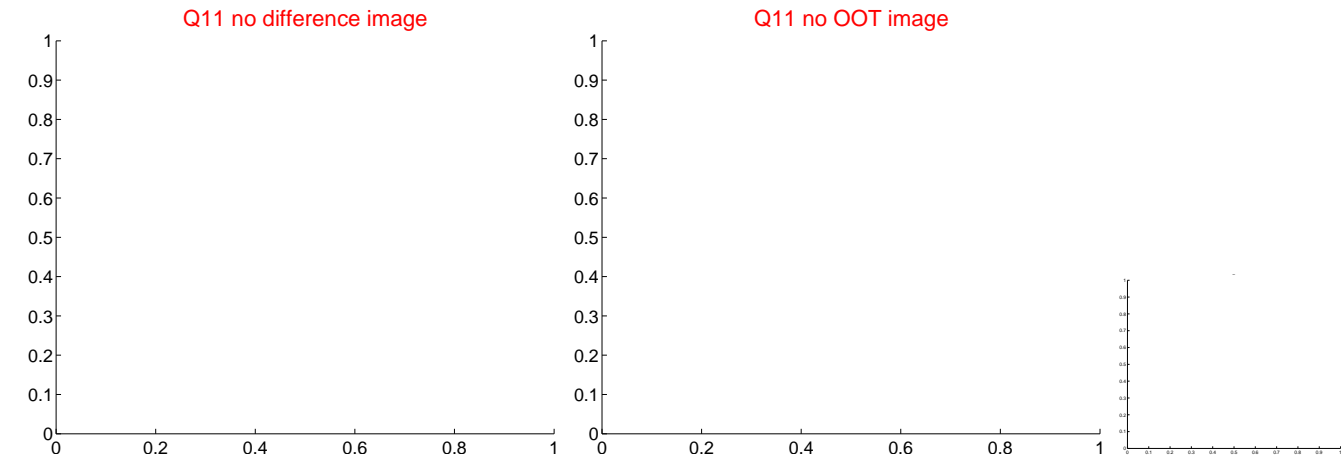
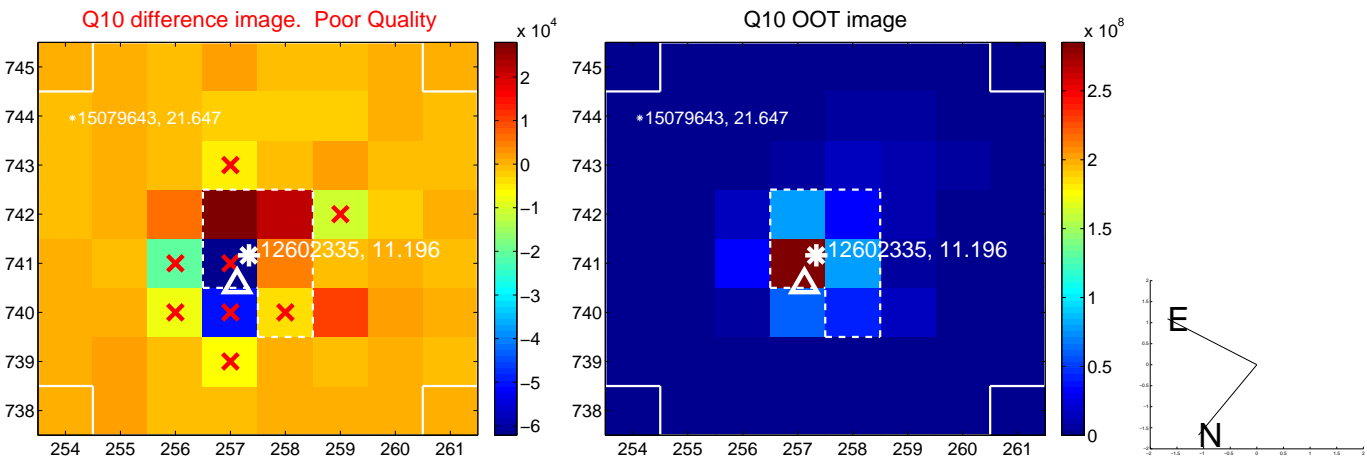
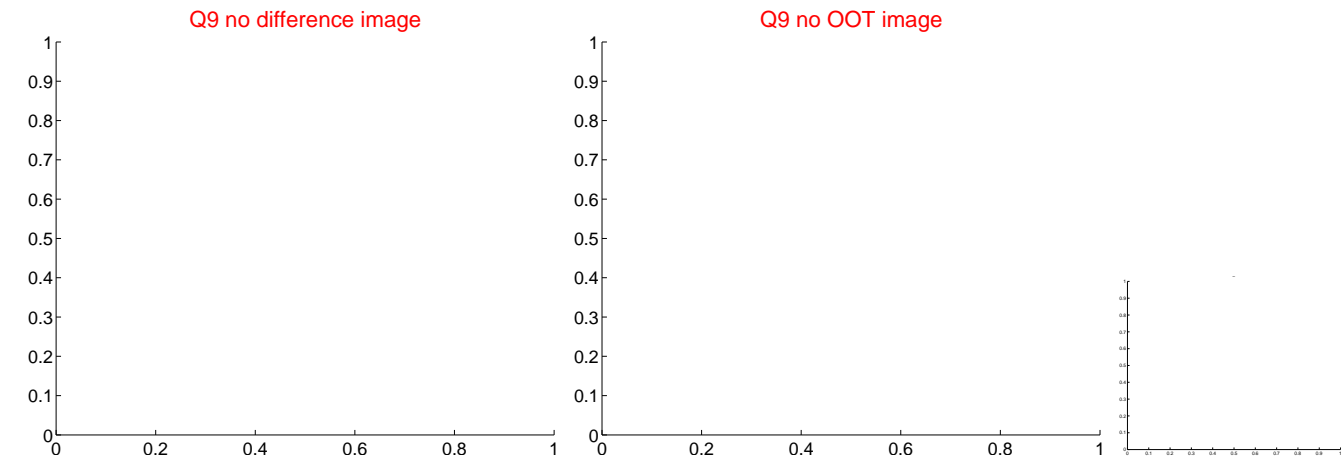
Q8 difference image



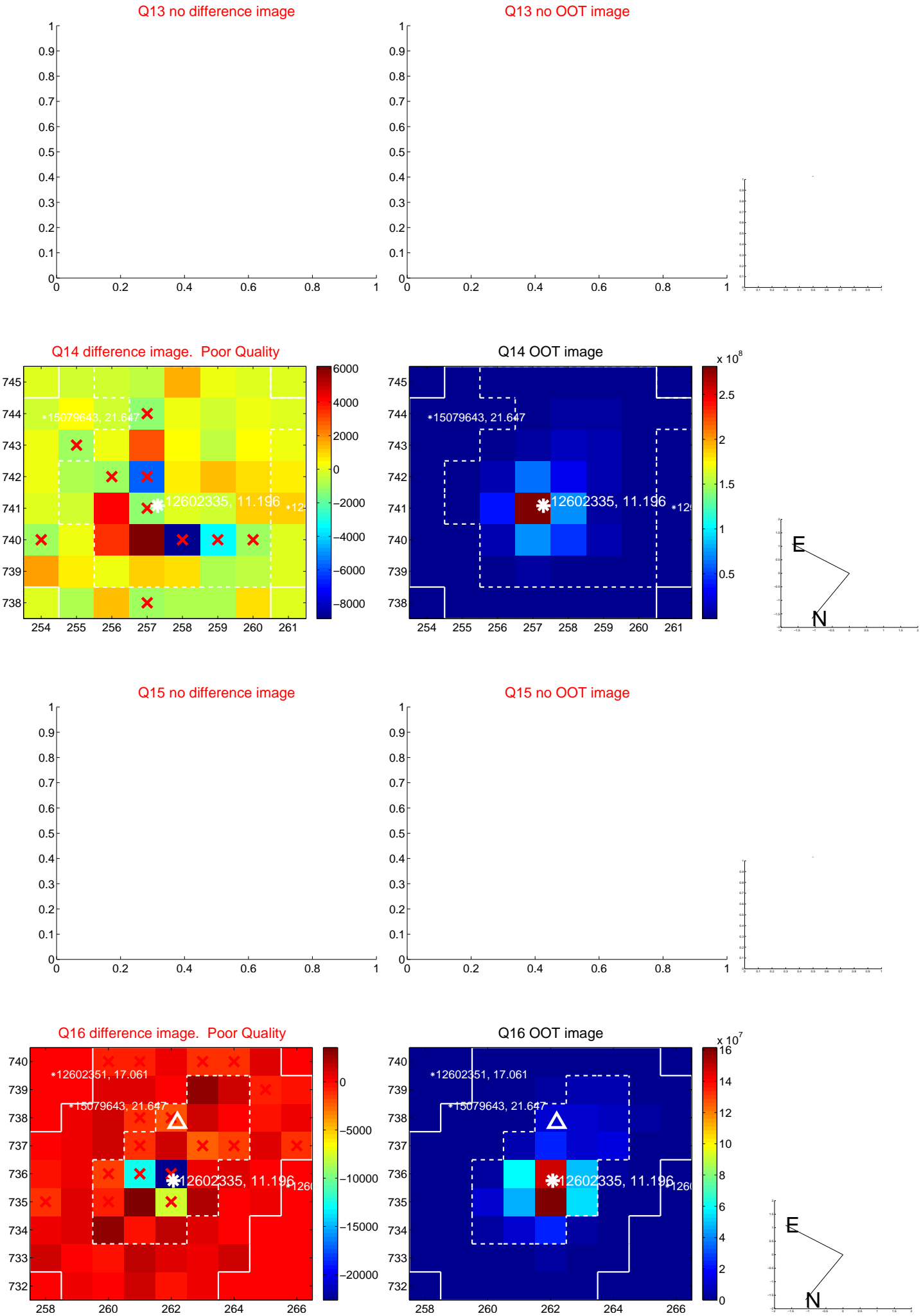
Q8 OOT image



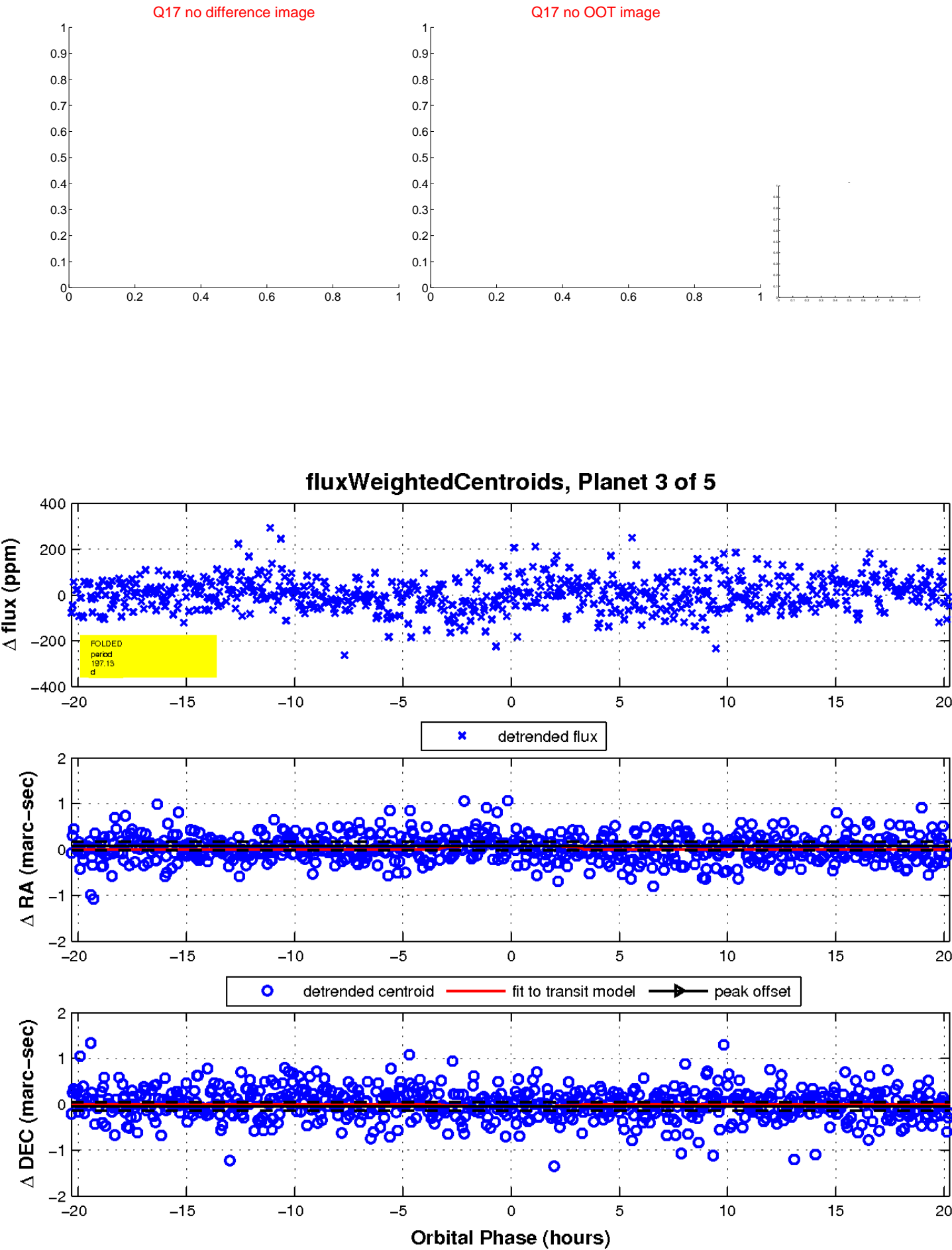
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

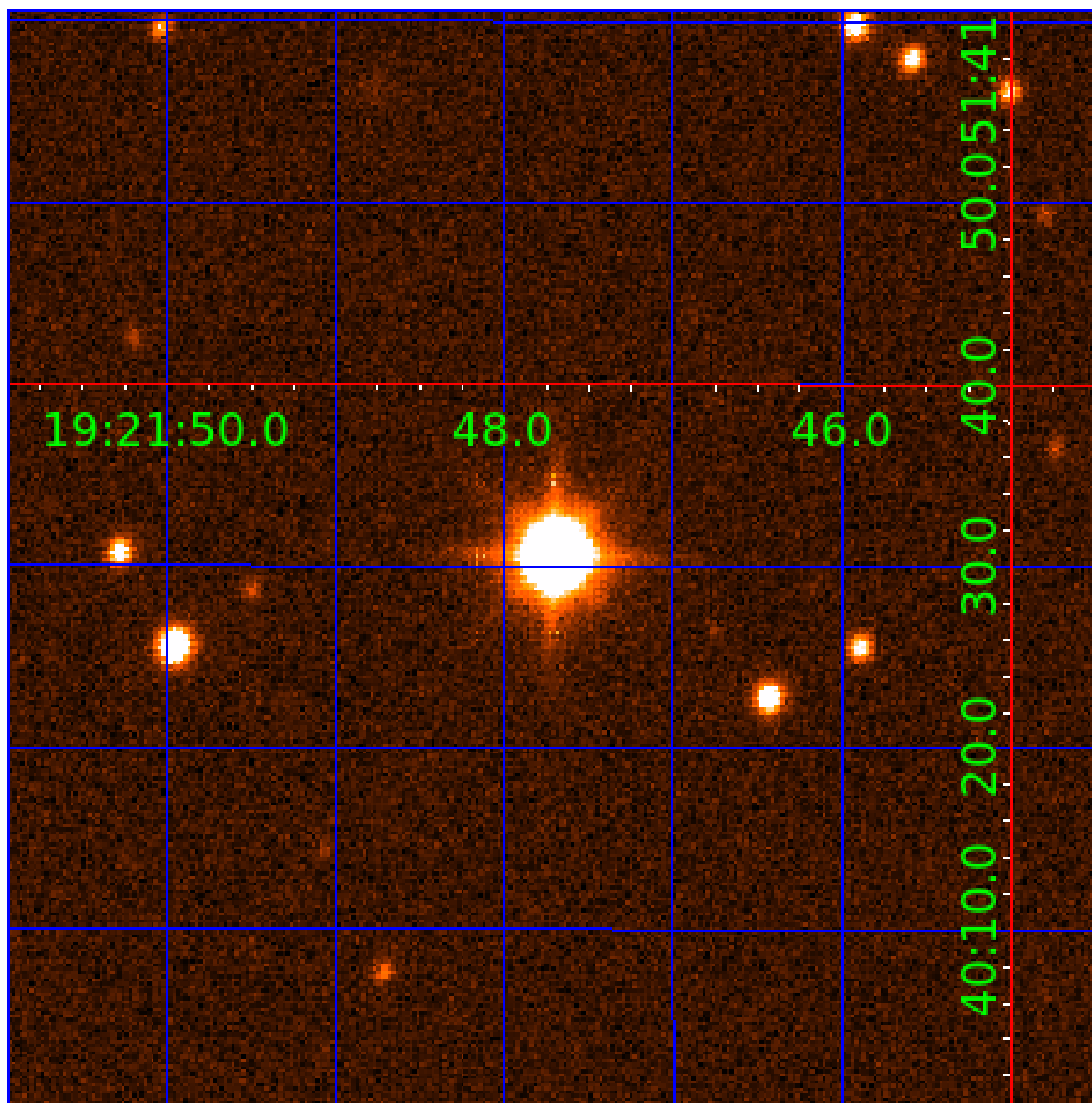


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012602335

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})
012602335-01	OBS	No	496.357732	500.801329	154.4	12.582	10.5	9.4	2.69	8230	3.62	11.95
012602335-02	OBS	No	0.679409	131.796382	4.0	3.891	8.2	4.9	2.69	8230	0.55	78634.81
012602335-03	OBS	No	197.132041	161.100175	205.1	6.771	15.2	9.7	2.69	8230	4.34	40.94
012602335-04	OBS	No	101.463364	152.035964	82.9	9.022	8.8	7.9	2.69	8230	2.61	99.25
012602335-05	OBS	No	178.349262	197.338461	114.7	2.893	7.4	7.7	2.69	8230	3.23	46.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012602335-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
012602335-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

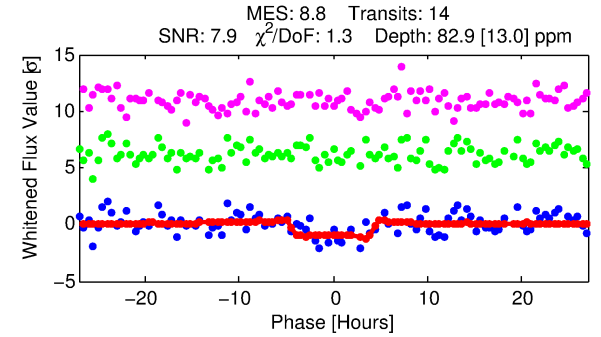
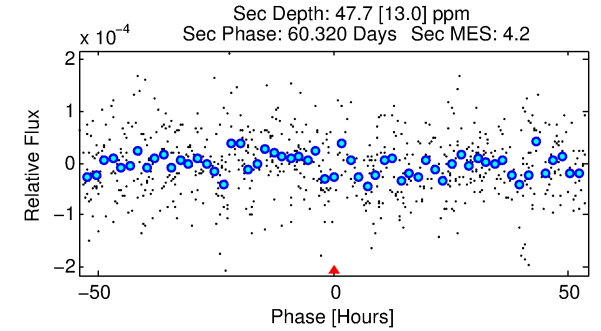
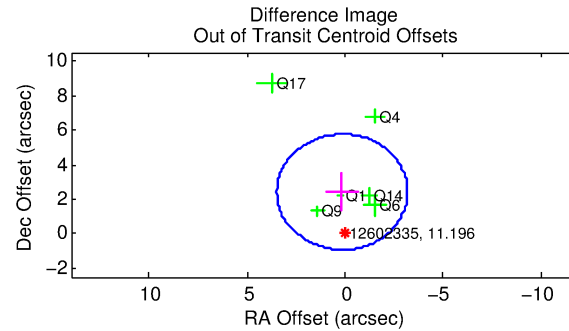
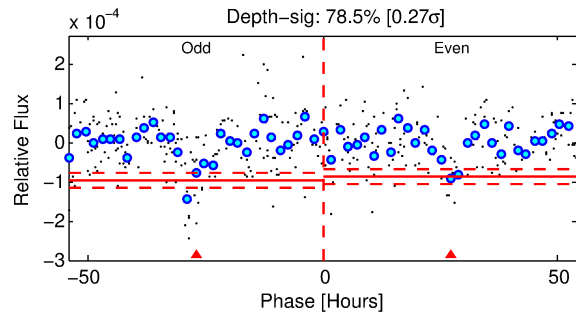
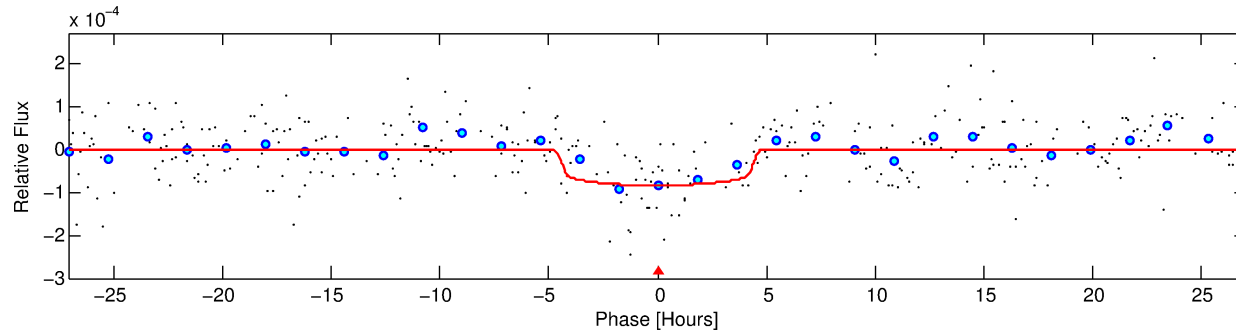
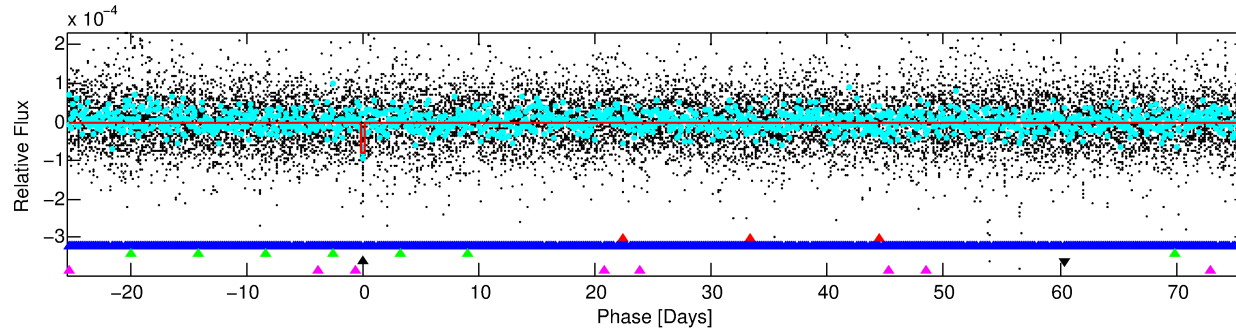
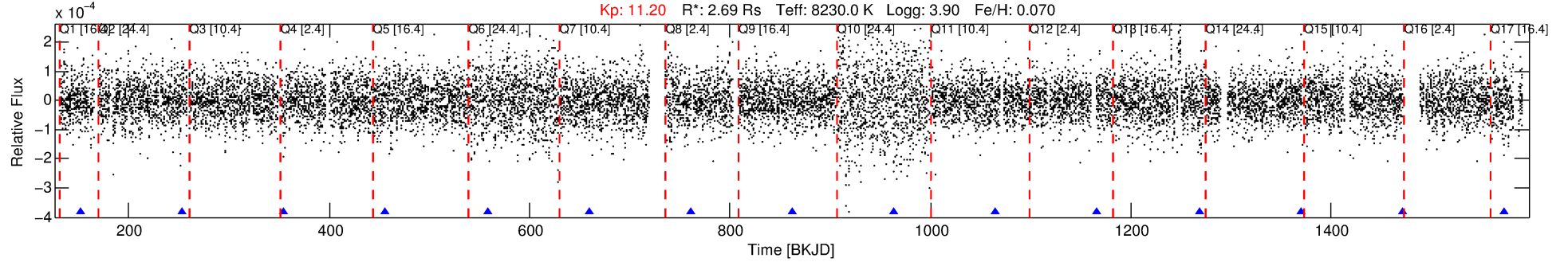
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012602335-04

No Significant Match Found

DV One-Page Summary

KIC: 12602335 Candidate: 4 of 5 Period: 101.463 d



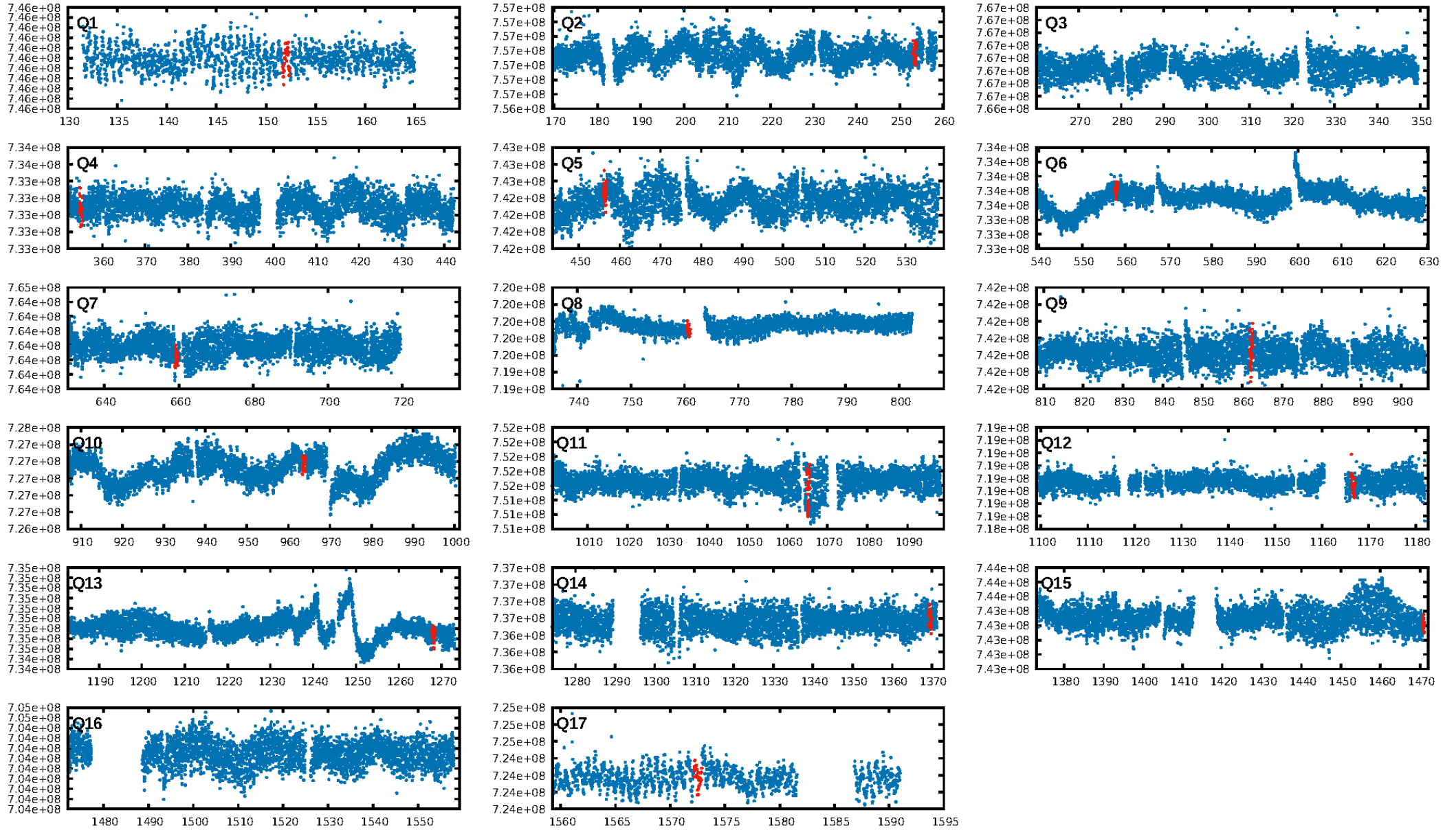
DV Fit Results:

Period = 101.46336 [0.00184] d
Epoch = 152.0360 [0.0133] BKJD
Rp/R* = 0.0089 [0.0039]
a/R* = 63.32 [156.61]
b = 0.69 [1.89]
Seff = 99.25 [46.64]
Teq = 805 [95] K
Rp = 2.61 [1.43] Re
a = 0.5464 [0.1580] AU
Ag = 1148.36 [1151.72] [1.00 σ]
Teffp = 7244 [1675] K [3.84 σ]

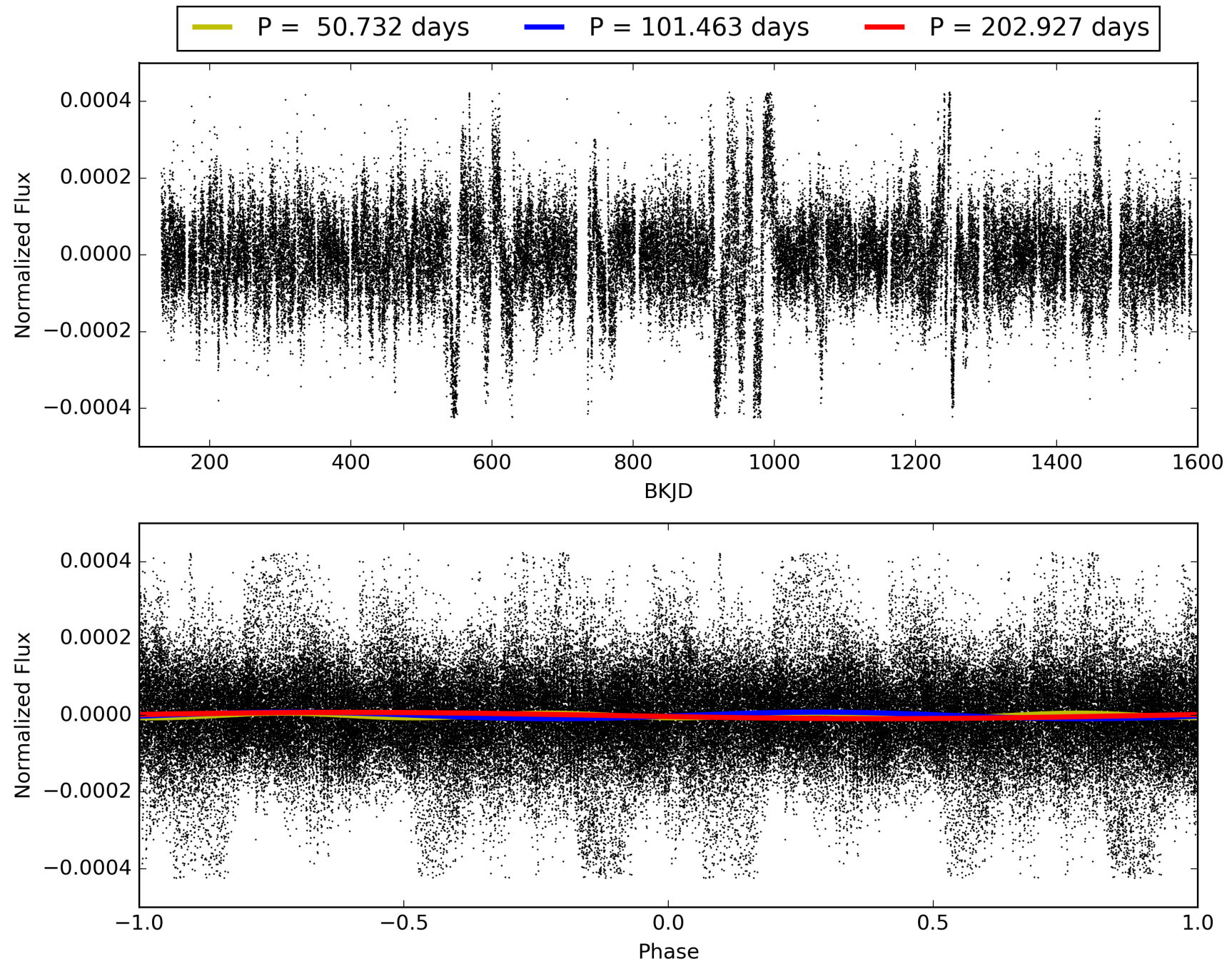
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [246.18 σ]
LongPeriod-sig: 100.0% [194.76 σ]
ModelChiSquare2-sig: 50.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.33e-11
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: 0.3365
Centroid-sig: 75.5%
Centroid-so: 0.386 arcsec [0.50 σ]
OotOffset-rm: 2.422 arcsec [2.17 σ]
KicOffset-rm: 2.456 arcsec [2.22 σ]
OotOffset-st: 2/0/1/3 [6]
KicOffset-st: 2/0/1/3 [6]
DiffImageQuality-fgm: 0.33 [2/6]
DiffImageOverlap-fno: 0.00 [0/10]

TCE 012602335-04, PDC Light Curves

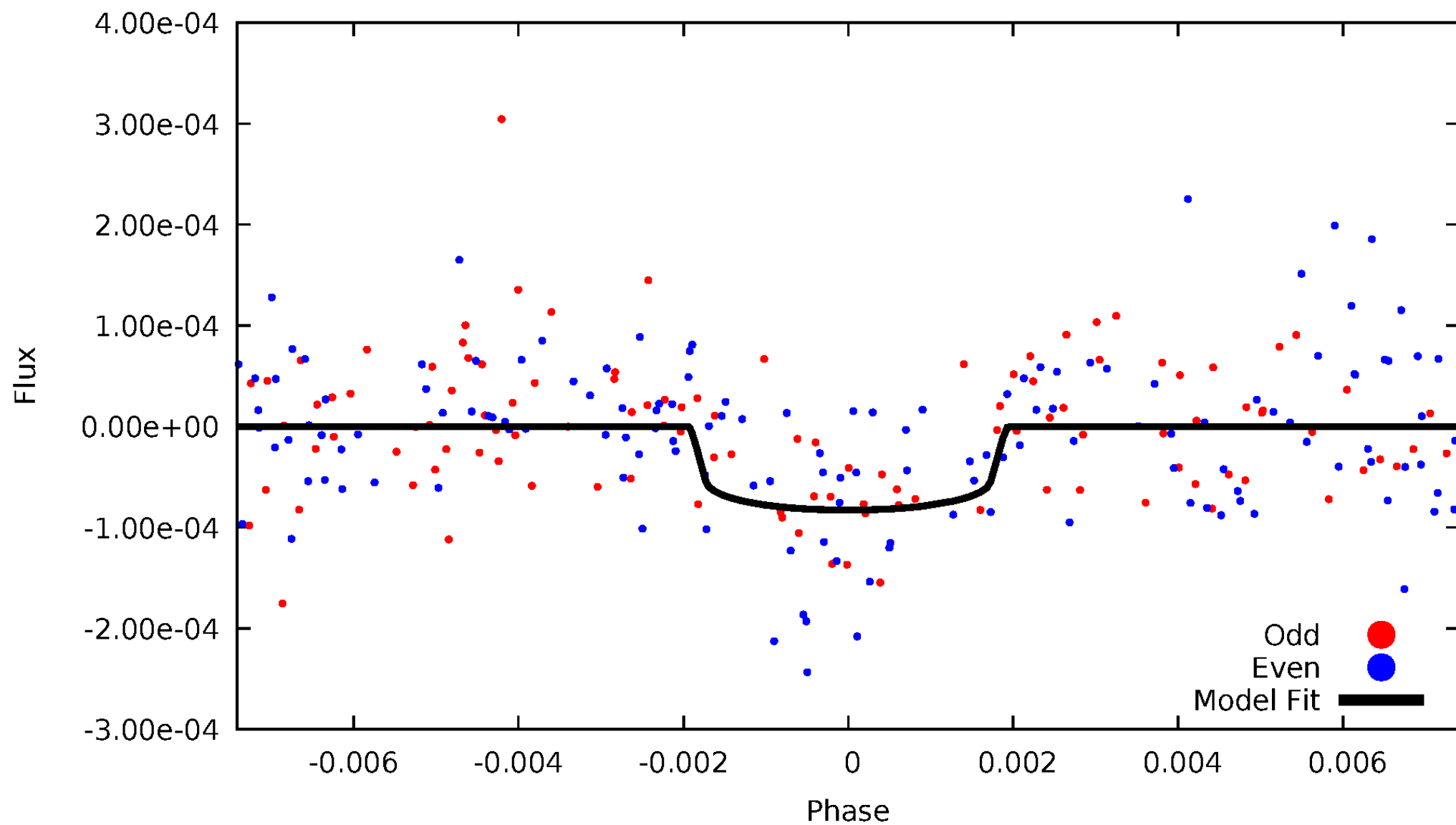


TCE 012602335-04



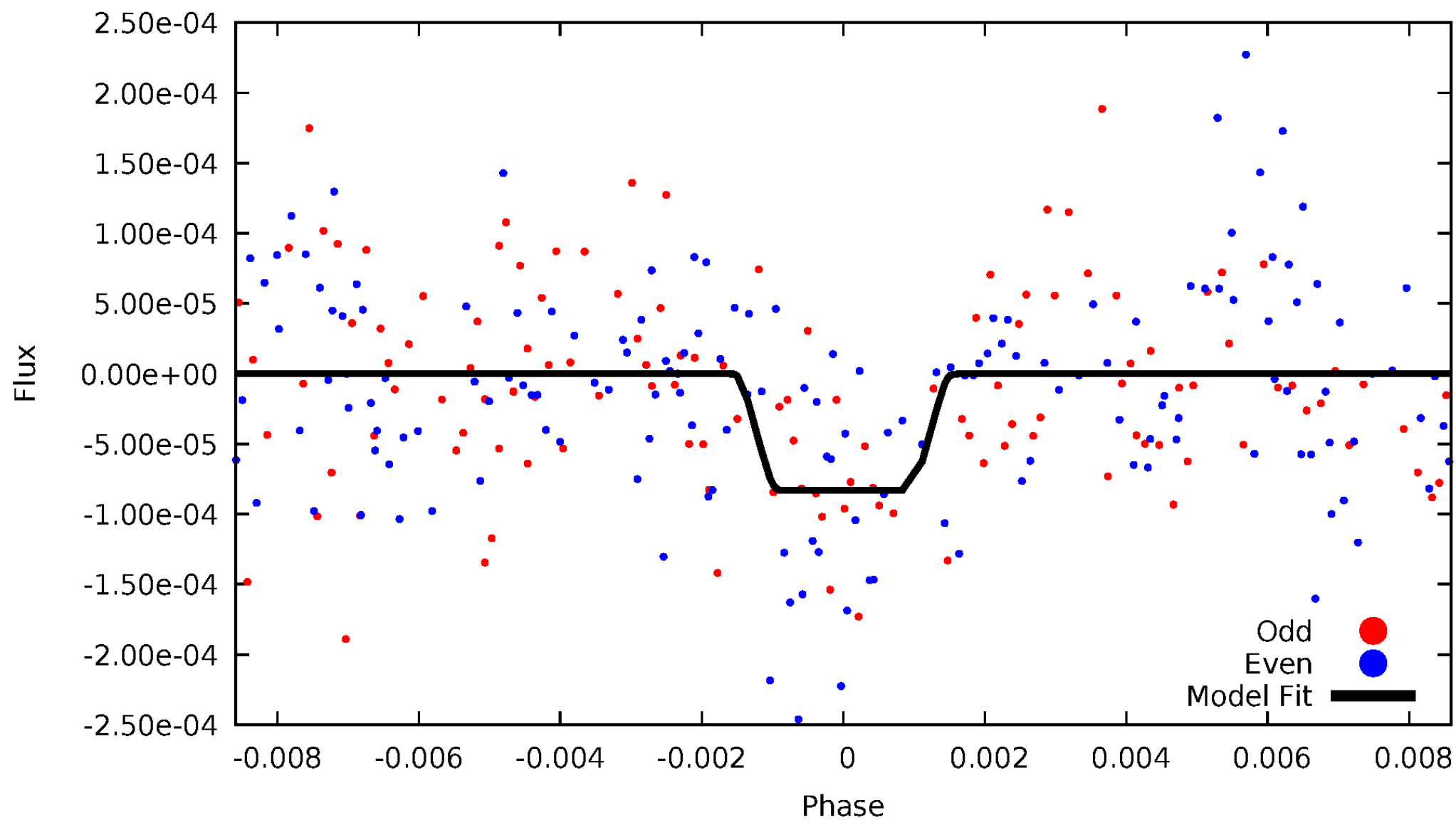
DV Odd/Even

TCE 012602335-04



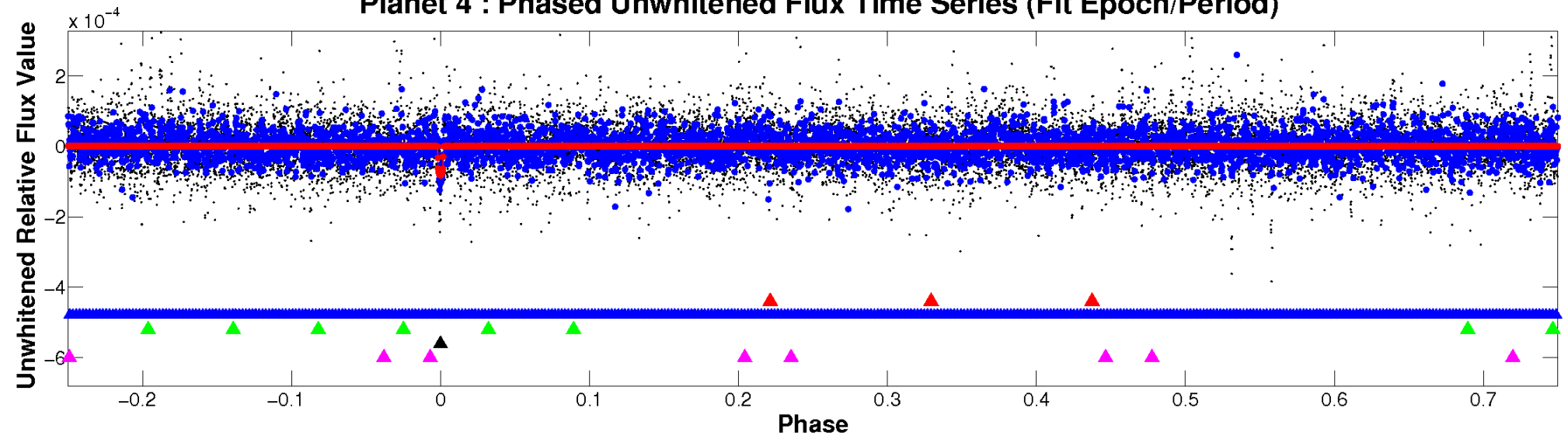
ALT Odd/Even

TCE 012602335-04

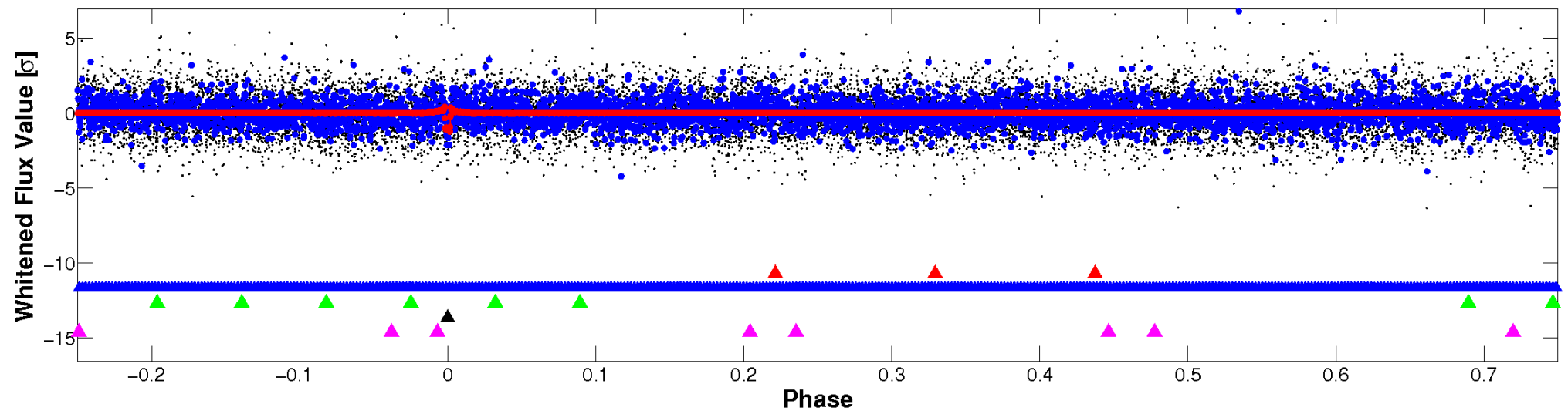


Non-Whitened Vs. Whitened Light Curve

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

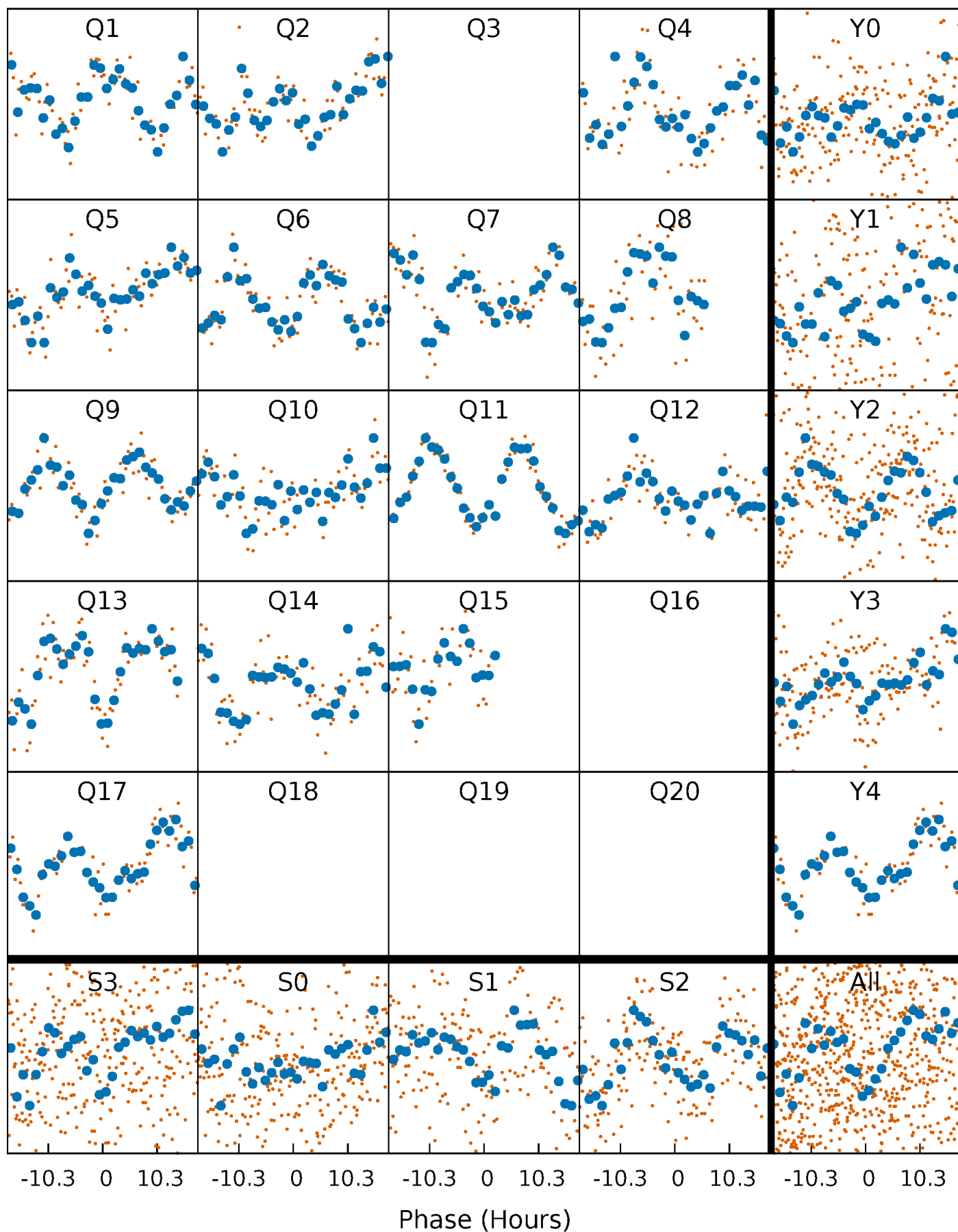


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



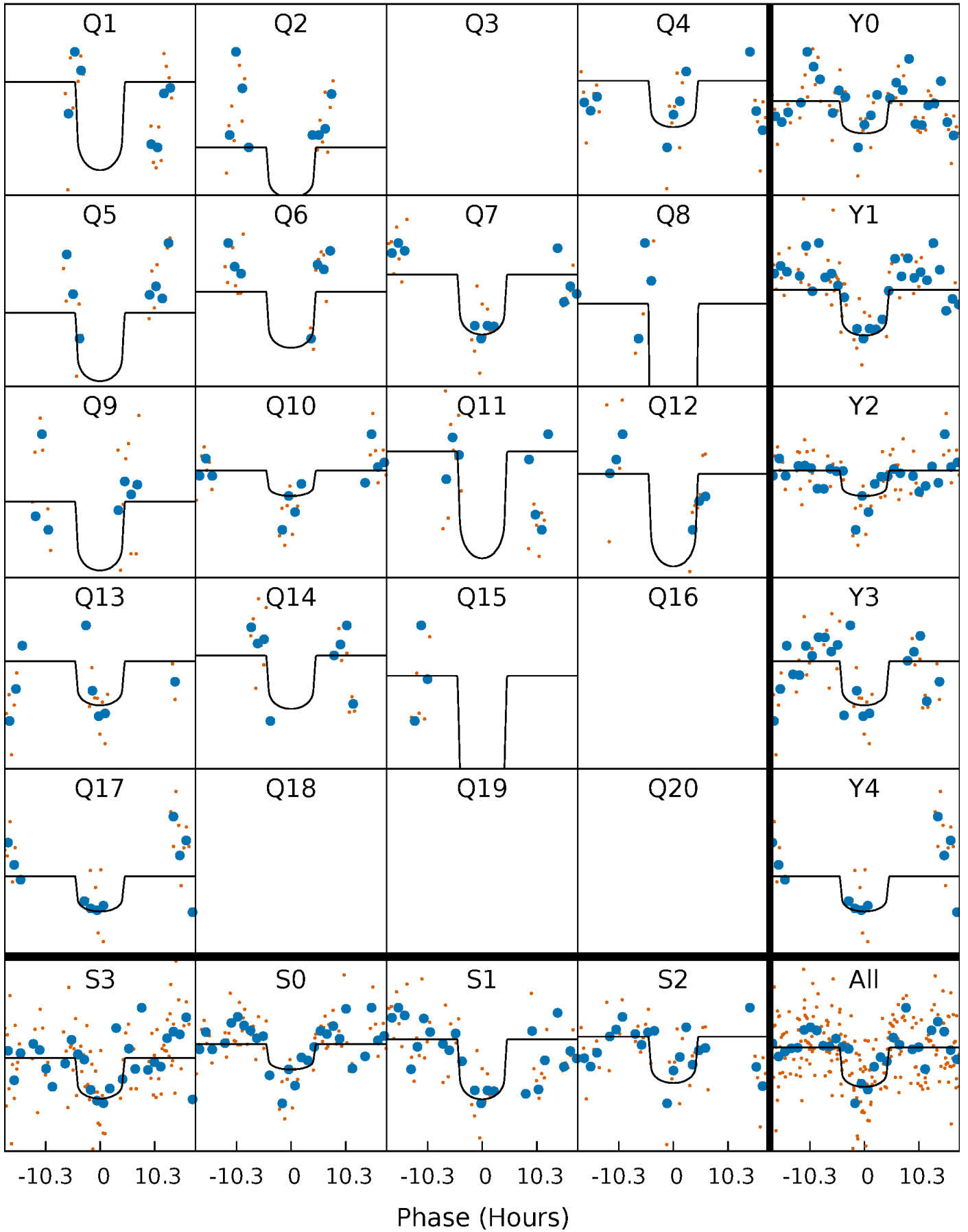
PDC Quarter-Phased Transit Curves

TCE 012602335-04 P=101.463364 Days $T_0=152.035964$ (BKJD)



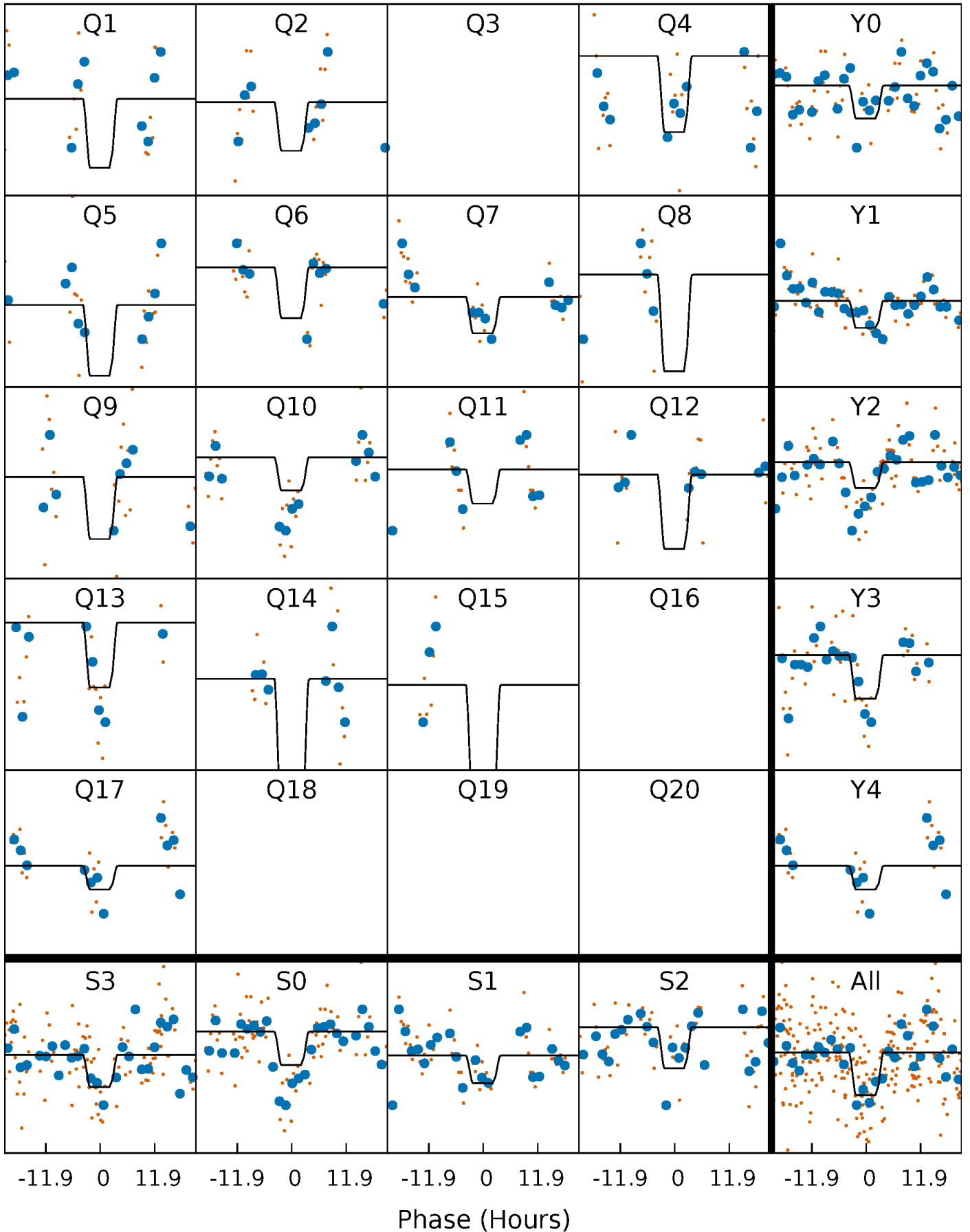
DV Quarter-Phased Transit Curves

TCE 012602335-04 P=101.463364 Days $T_0=152.035964$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

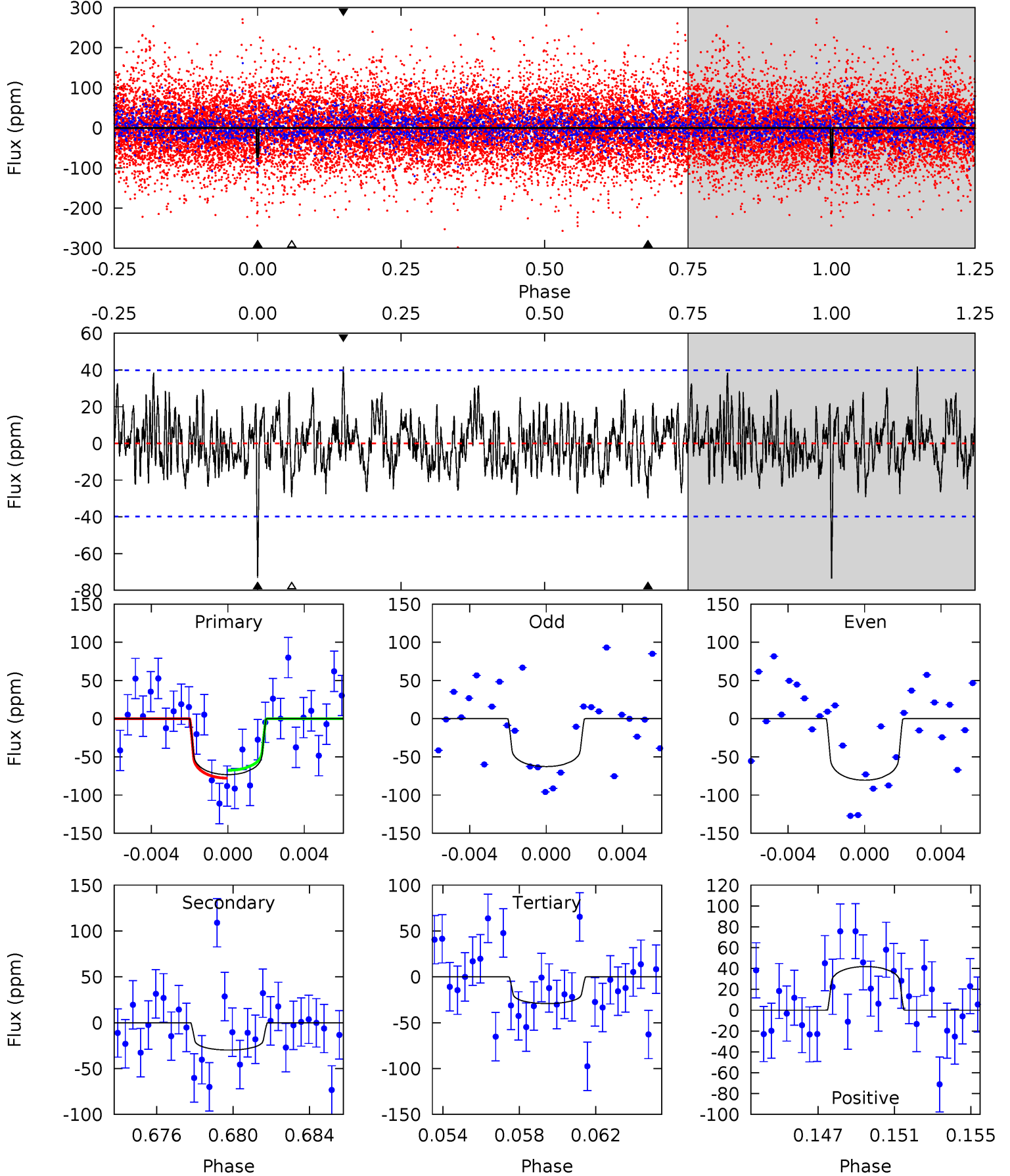
TCE 012602335-04 P=101.464523 Days $T_0=152.040627$ (BKJD)



DV Model-Shift Uniqueness Test

012602335-04, P = 101.463364 Days, E = 50.572600 Days

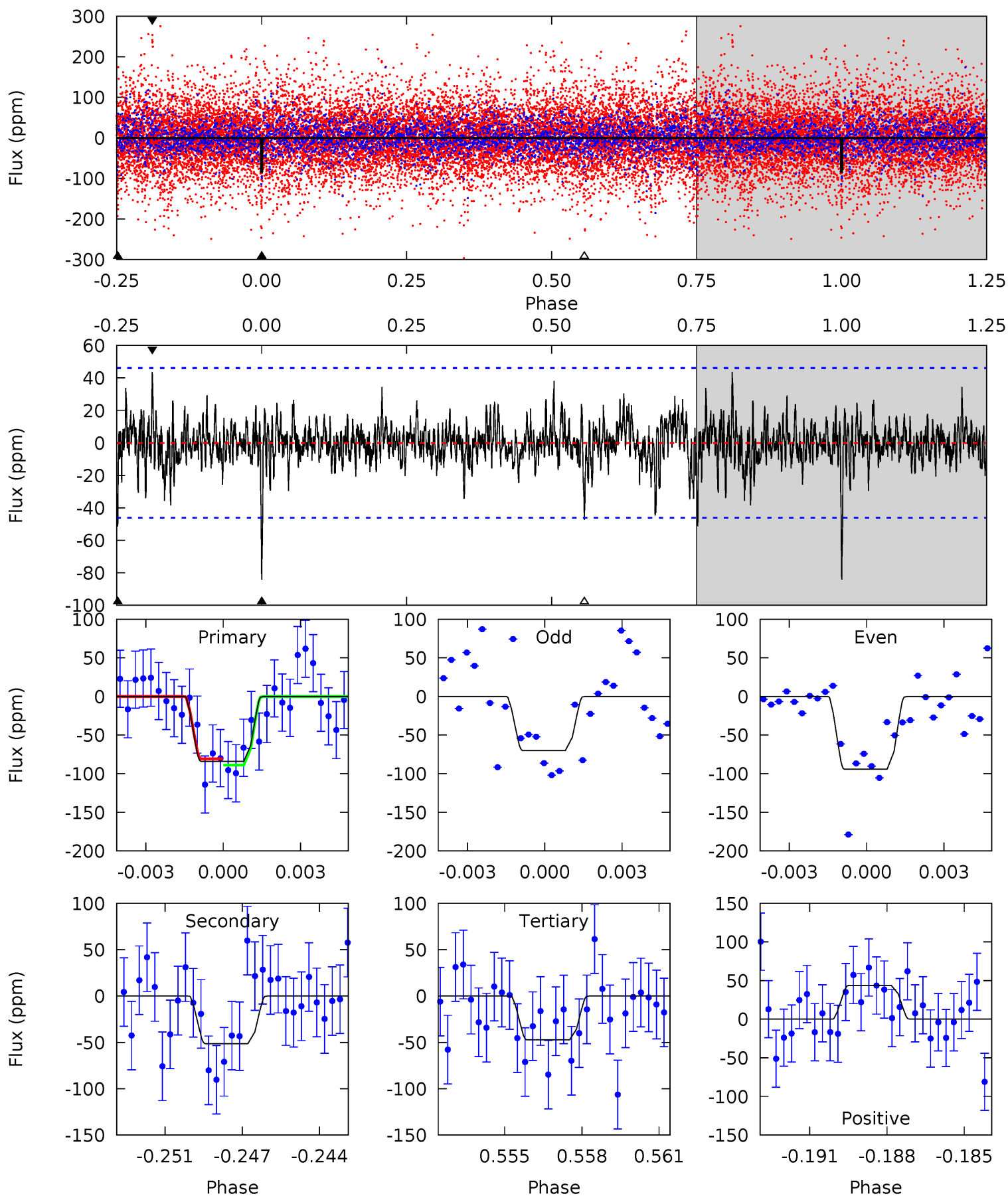
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.58	3.90	3.82	5.47	5.21	2.89	1.53	5.77	4.11	0.09	-1.57	1.14	0.93	0.36	0.68



Alt Model-Shift Uniqueness Test

012602335-04, P = 101.464523 Days, E = 50.576104 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.57	5.84	5.38	4.96	5.24	2.95	1.23	4.19	4.60	0.46	0.88	1.33	0.78	0.34	0.46



Stellar Parameters For KIC 012602335

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8230^{+225}_{-387}	$3.905^{+0.240}_{-0.140}$	$0.070^{+0.250}_{-0.400}$	$2.685^{+0.735}_{-0.898}$	$2.112^{+0.332}_{-0.498}$	$0.154^{+0.256}_{-0.062}$
	+3%/-5%	+6%/-4%	+357%/-571%	+27%/-33%	+16%/-24%	+167%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012602335-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-30 ± 8	$2.49^{+1.26}_{-1.05}$	1102^{+89}_{-89}	6208^{+2293}_{-1092}	772^{+1599}_{-451}
Alt.	-51 ± 9	$2.57^{+1.30}_{-1.18}$	1110^{+87}_{-96}	7049^{+3473}_{-1221}	1263^{+3019}_{-716}

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

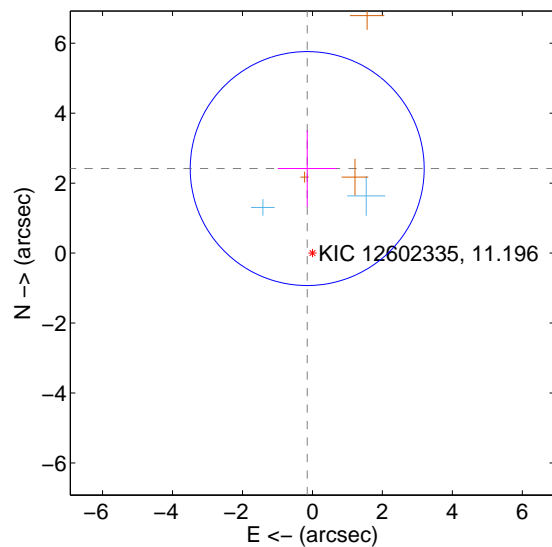
Supplemental centroid analysis for 012602335-04. **Kepler magnitude: 11.20.** Transit SNR 7.87

There are 2 quarters with good PRF difference image offsets

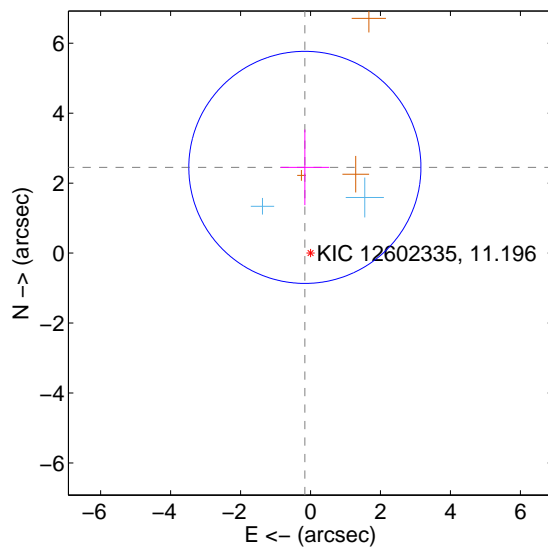
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.422 ± 1.115	2.17	0.150 ± 0.841	2.417 ± 1.092
PRF-fit source offset from KIC position	2.456 ± 1.106	2.22	0.161 ± 0.697	2.451 ± 1.082
photometric centroid source offset	0.39 ± 0.78	0.50	0.32 ± 0.73	-0.21 ± 0.88

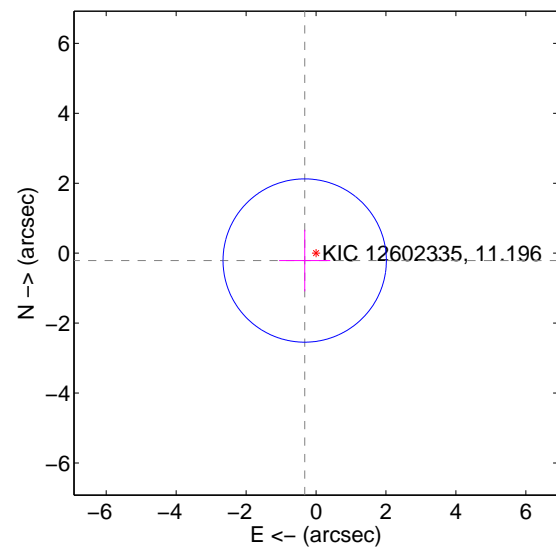
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

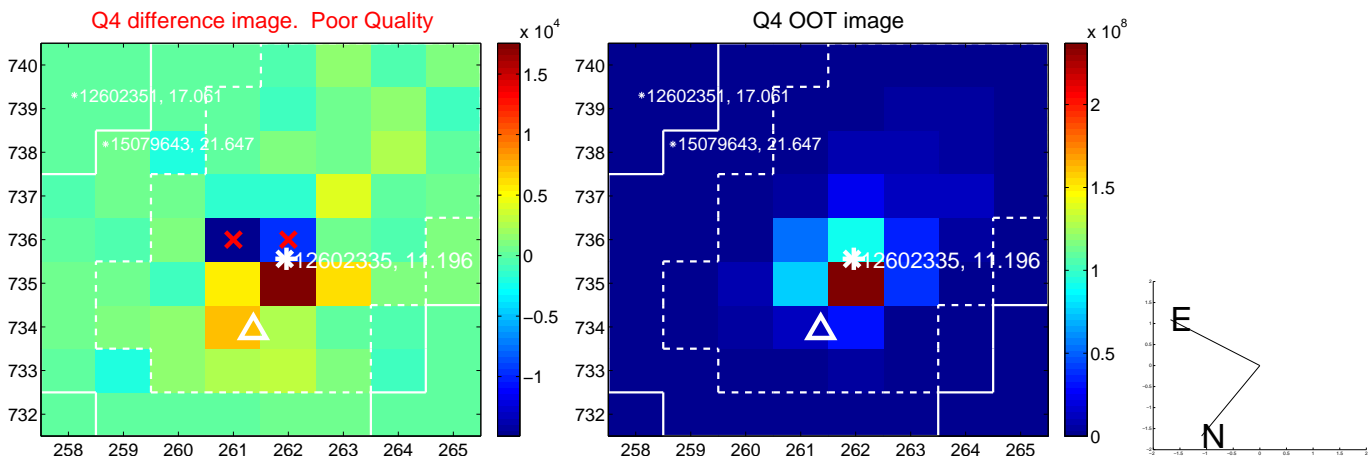
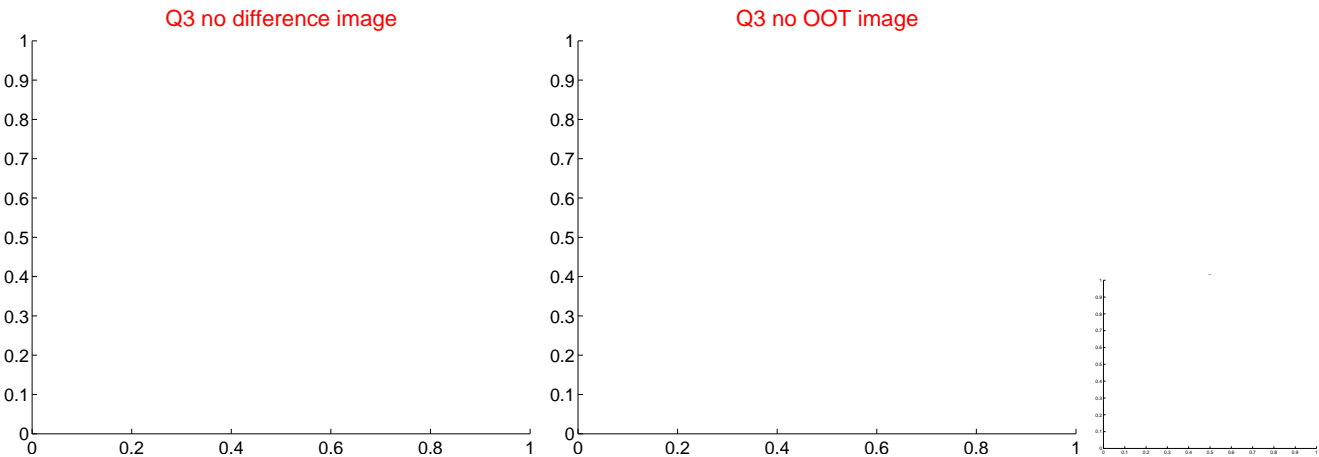
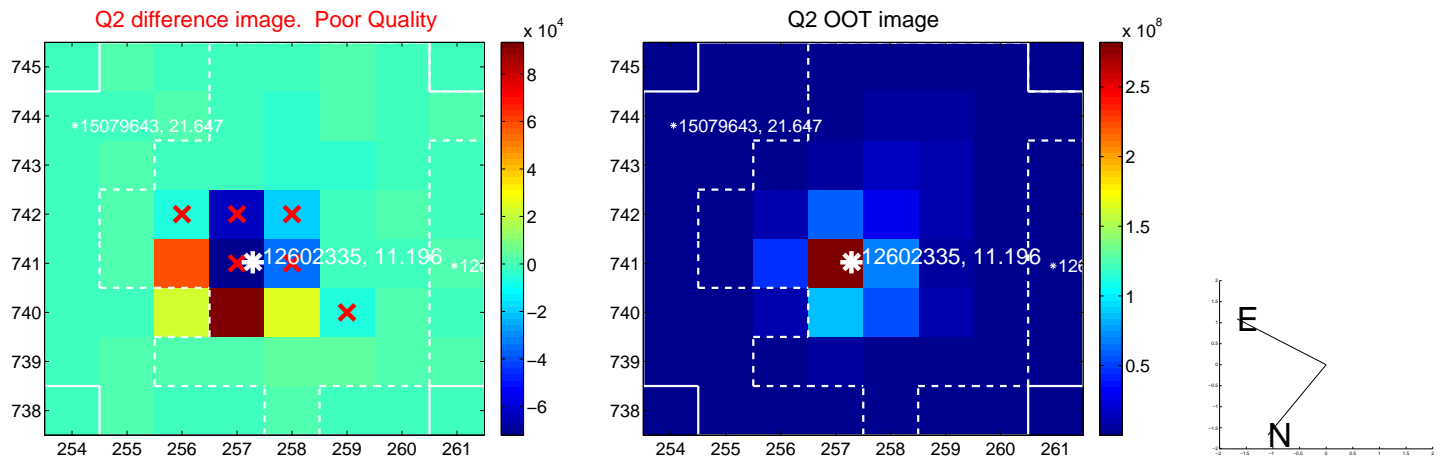
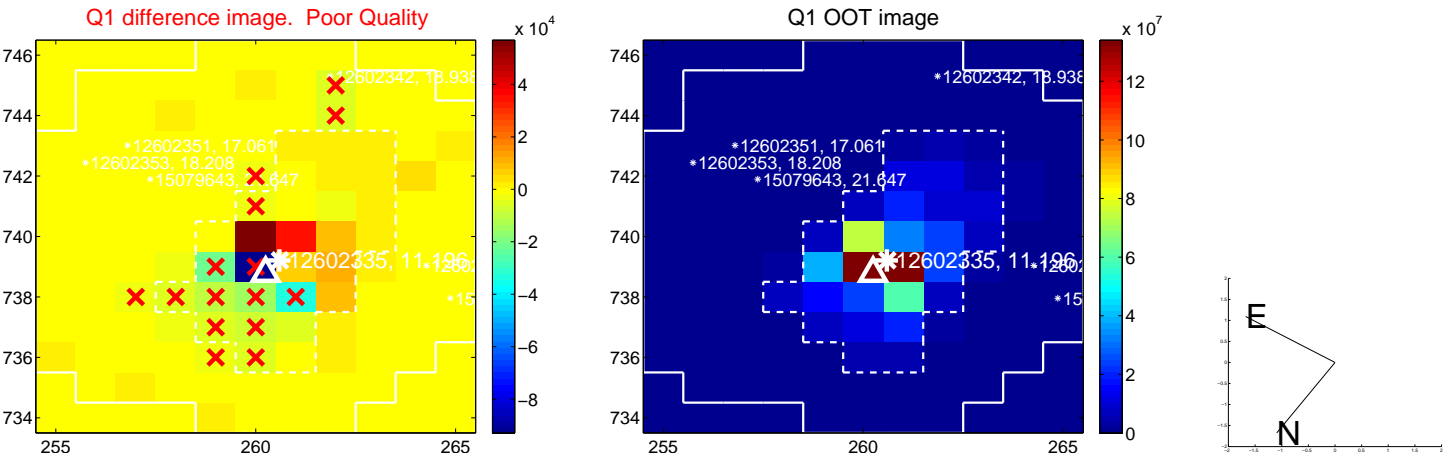


offset from photometric centroids

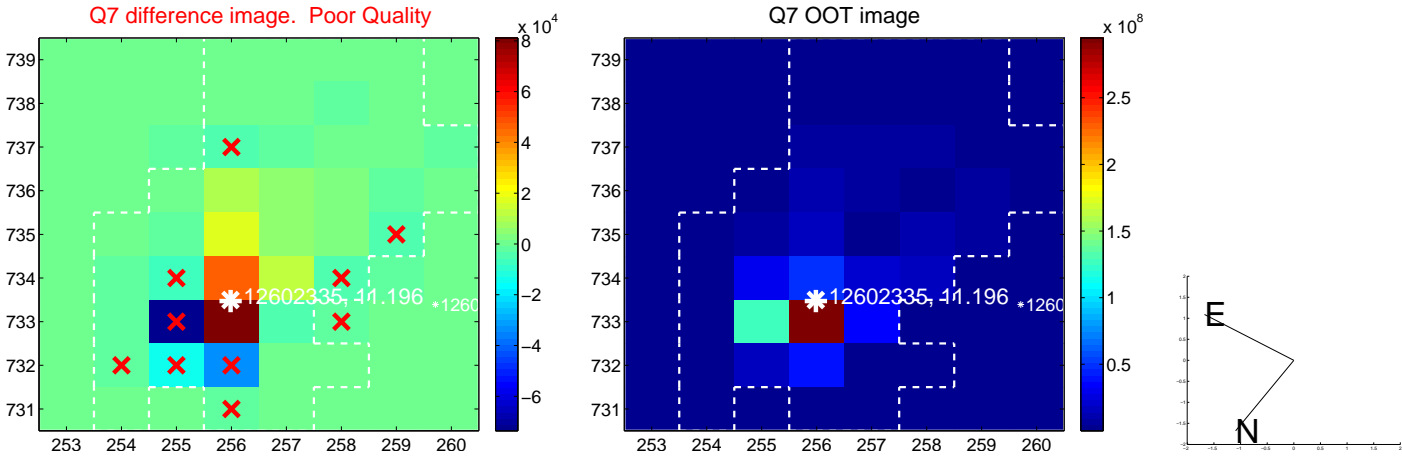
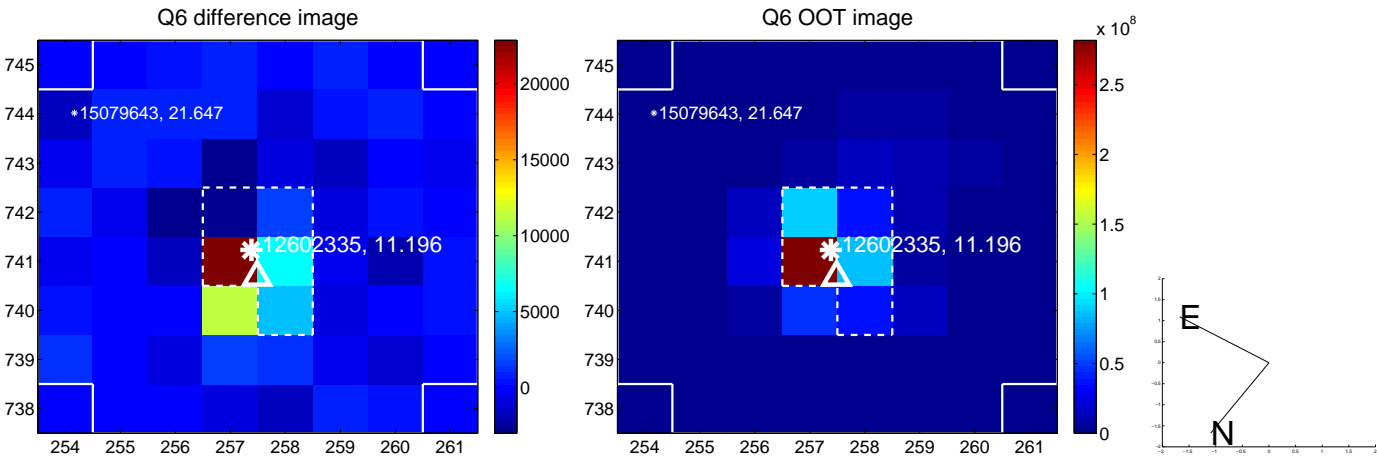
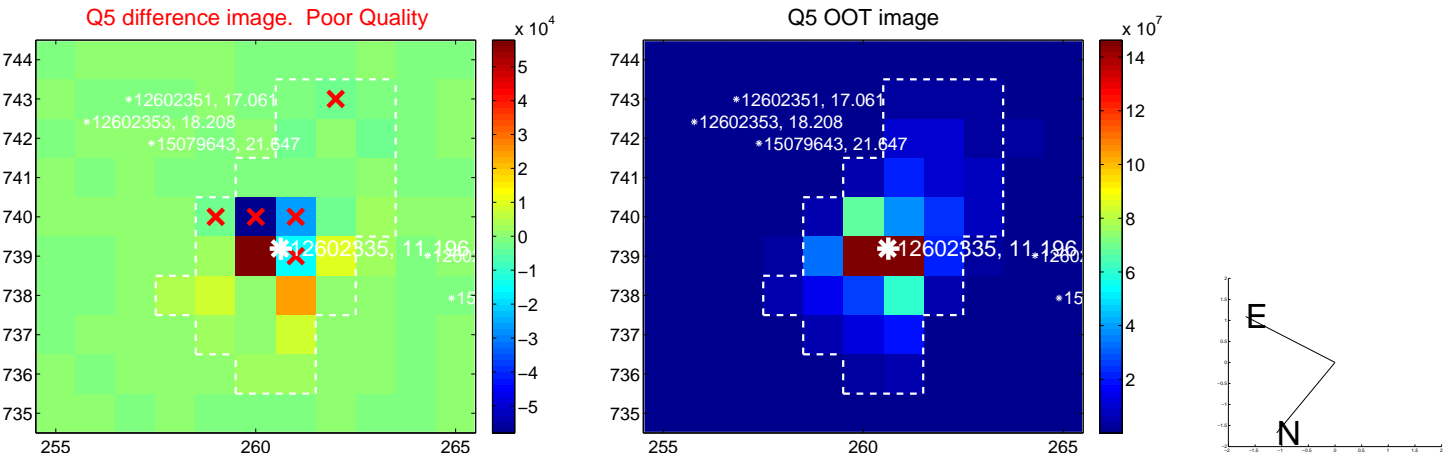


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

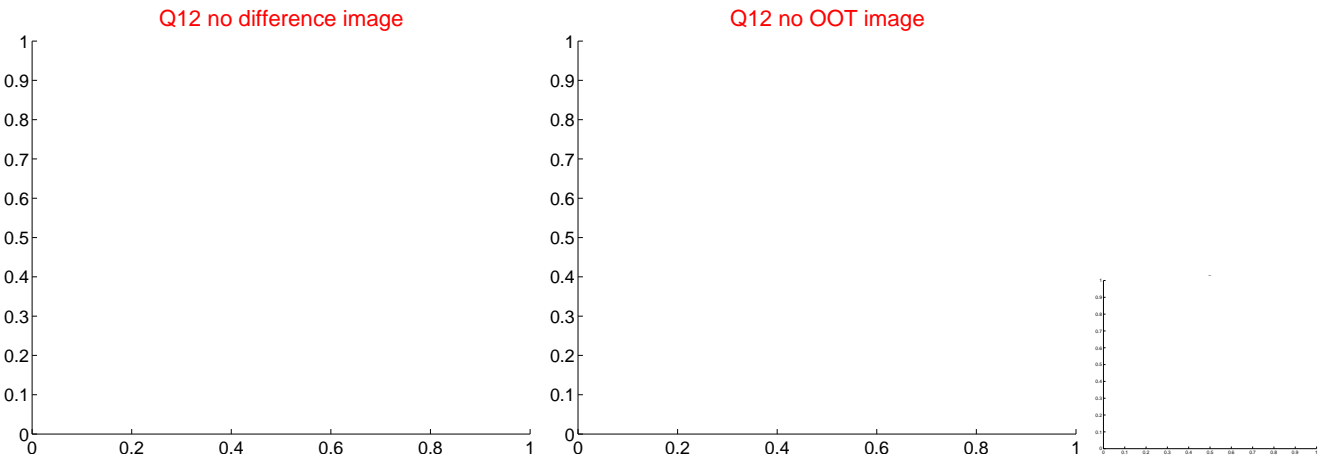
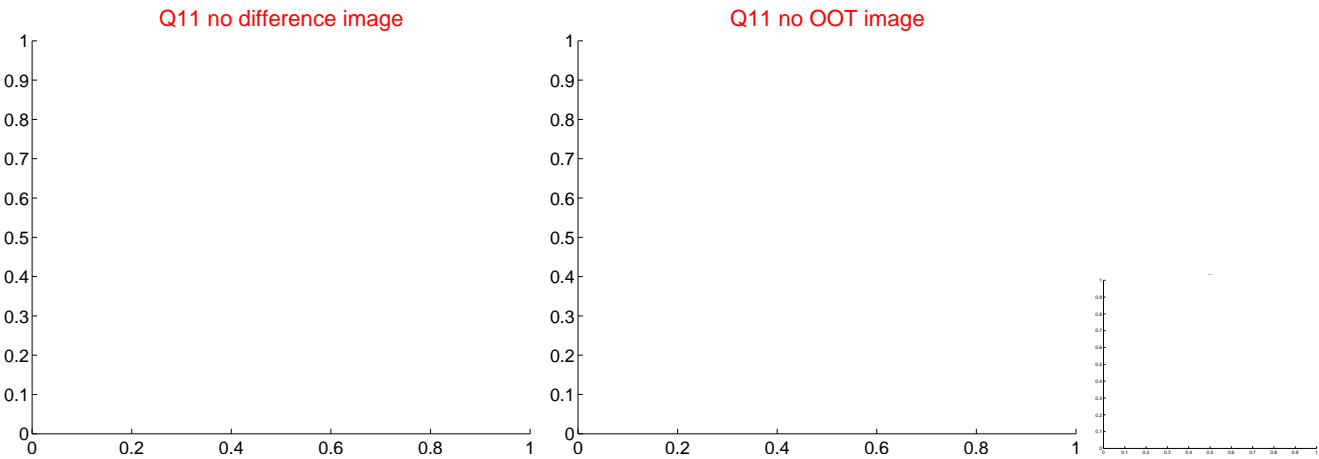
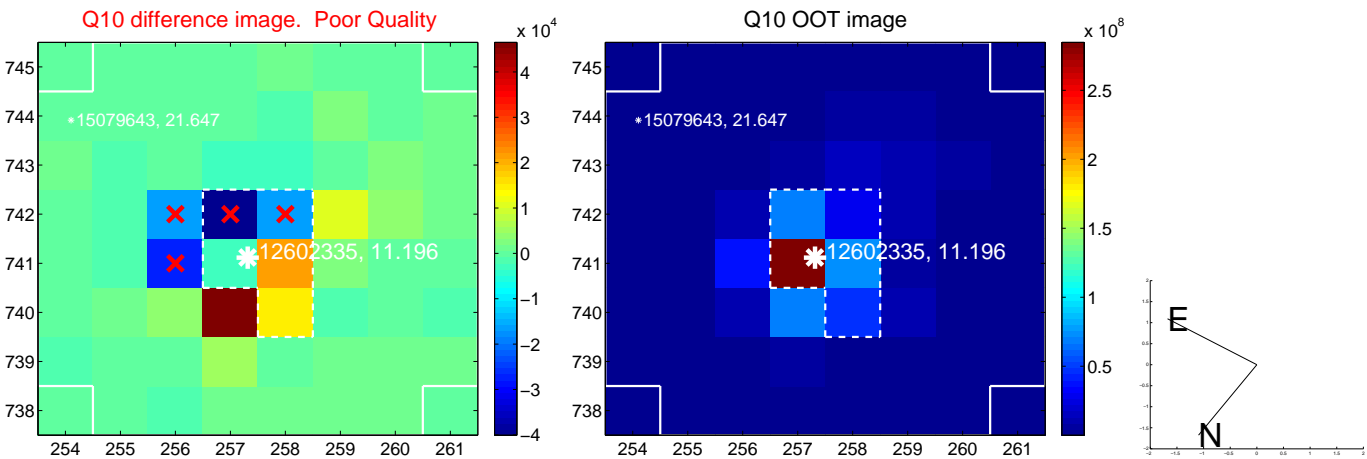
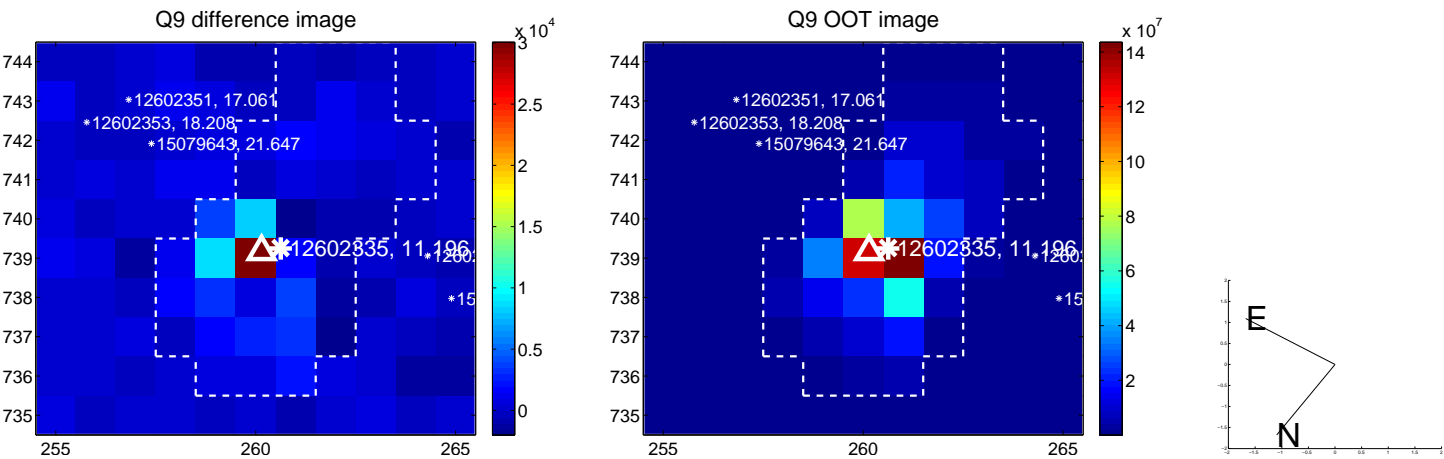
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

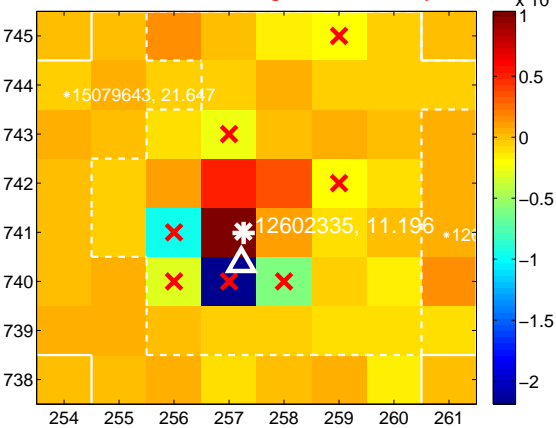
Q13 no difference image



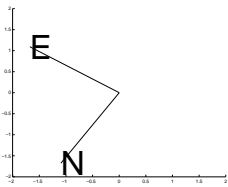
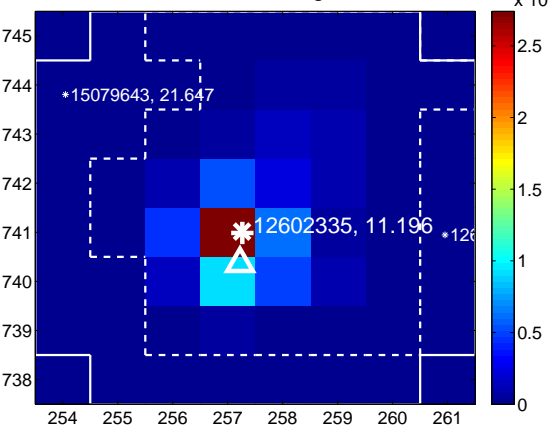
Q13 no OOT image



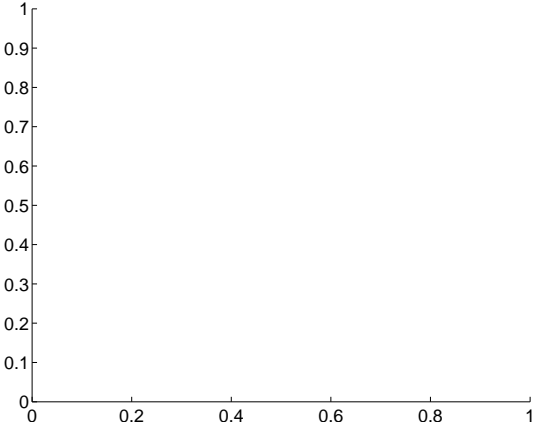
Q14 difference image. Poor Quality



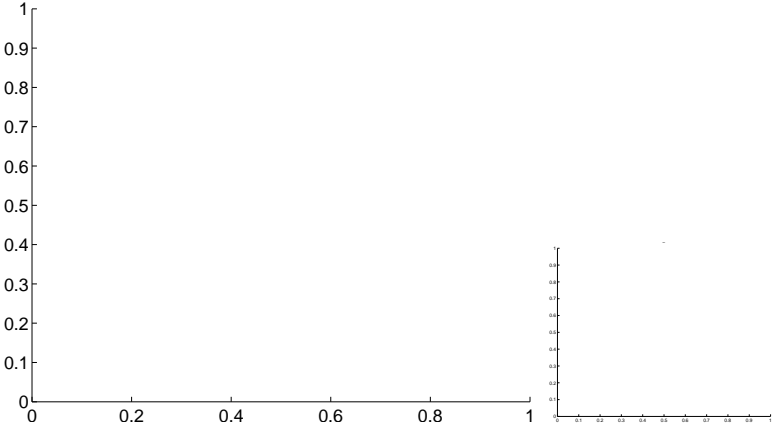
Q14 OOT image



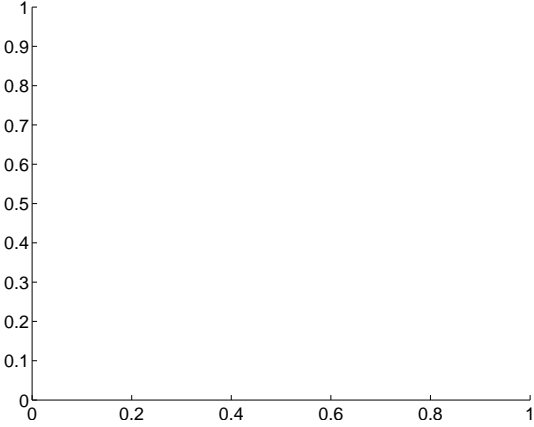
Q15 no difference image



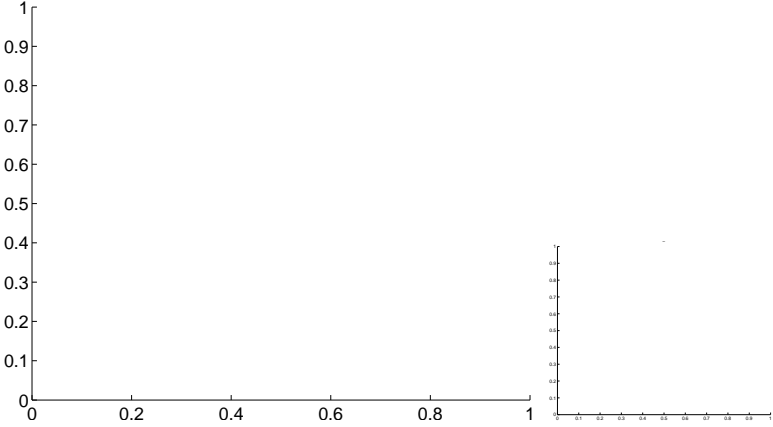
Q15 no OOT image



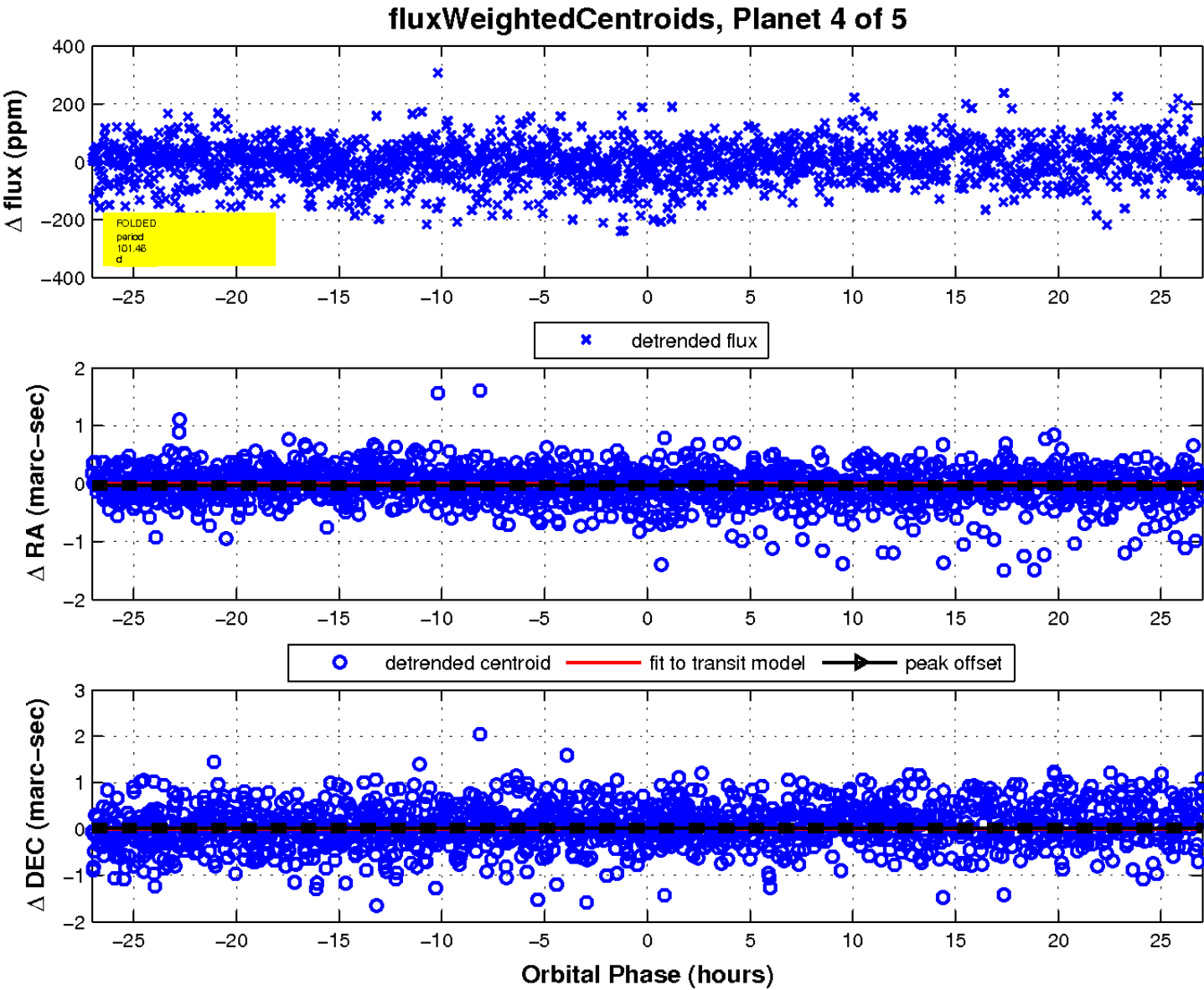
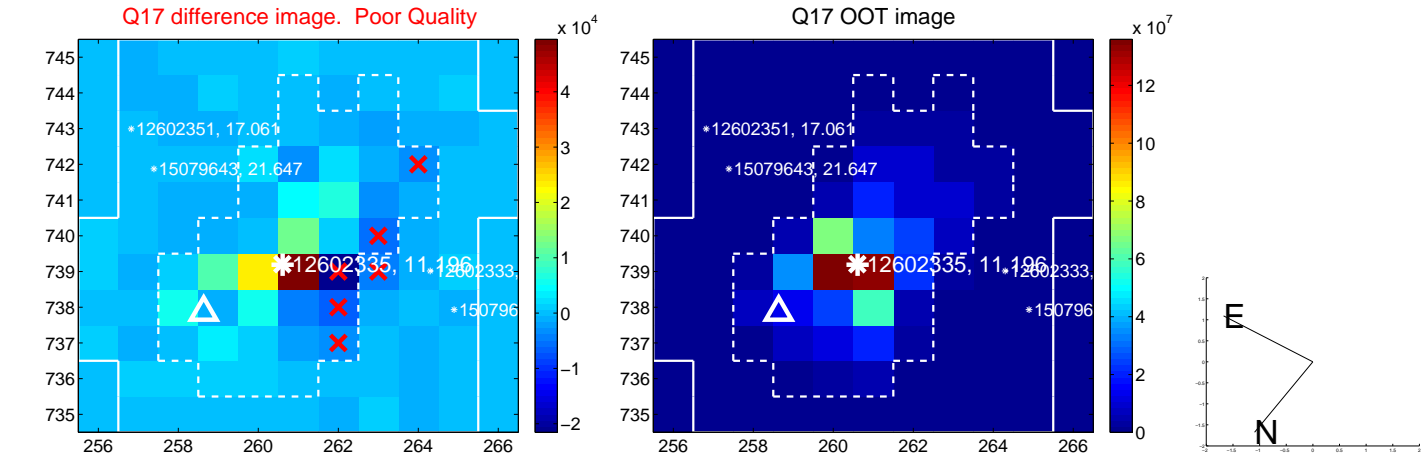
Q16 no difference image



Q16 no OOT image

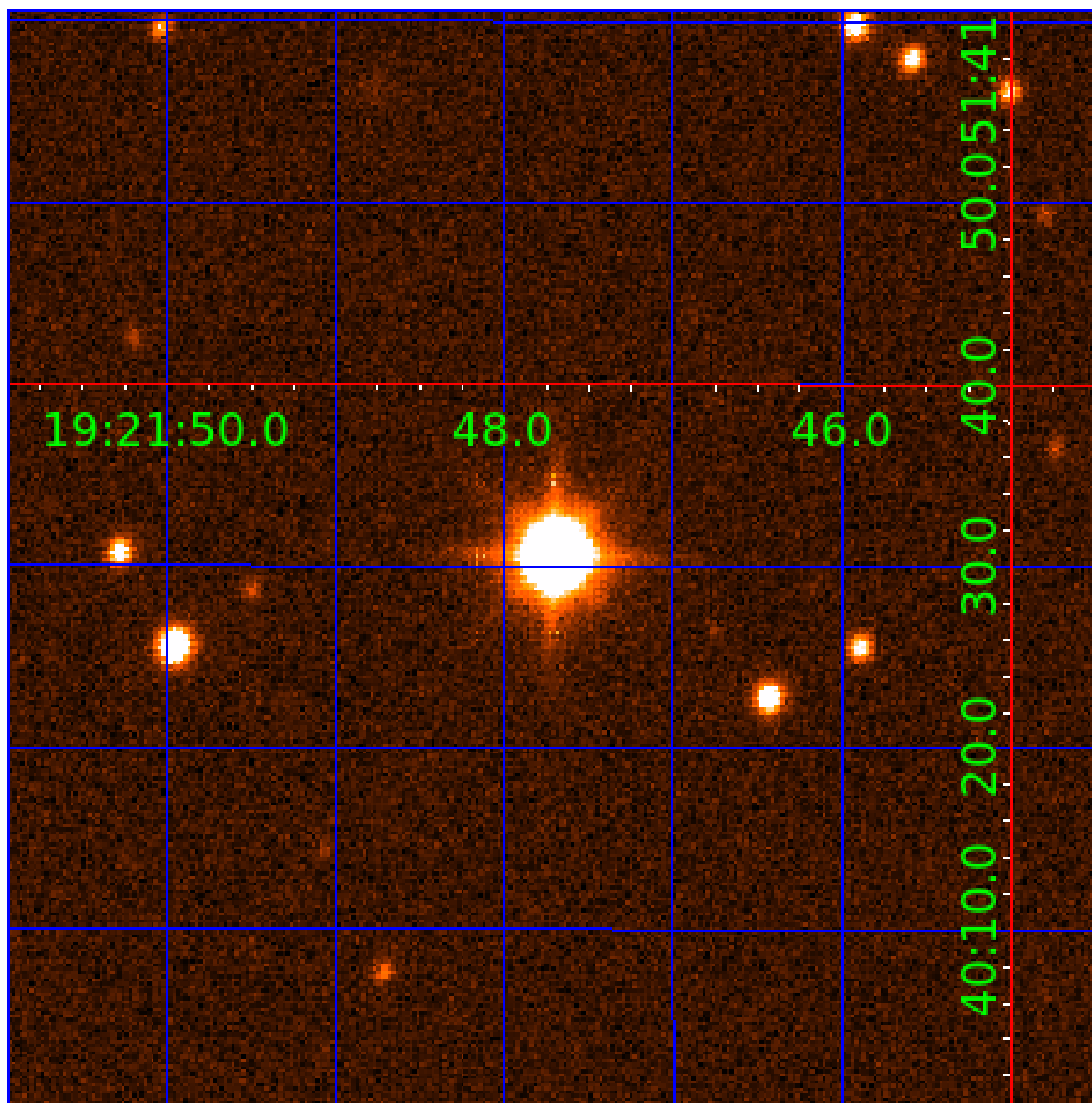


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012602335

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})
012602335-01	OBS	No	496.357732	500.801329	154.4	12.582	10.5	9.4	2.69	8230	3.62	11.95
012602335-02	OBS	No	0.679409	131.796382	4.0	3.891	8.2	4.9	2.69	8230	0.55	78634.81
012602335-03	OBS	No	197.132041	161.100175	205.1	6.771	15.2	9.7	2.69	8230	4.34	40.94
012602335-04	OBS	No	101.463364	152.035964	82.9	9.022	8.8	7.9	2.69	8230	2.61	99.25
012602335-05	OBS	No	178.349262	197.338461	114.7	2.893	7.4	7.7	2.69	8230	3.23	46.78

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012602335-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
012602335-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_SATURATED
012602335-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—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.

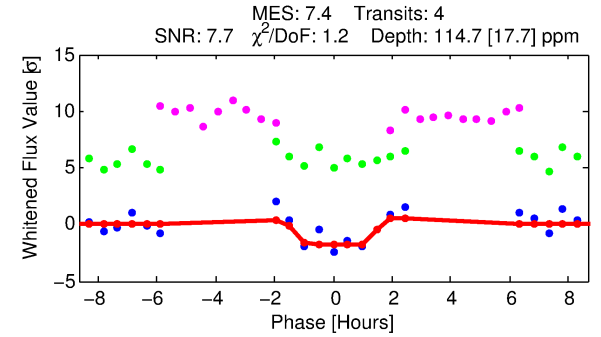
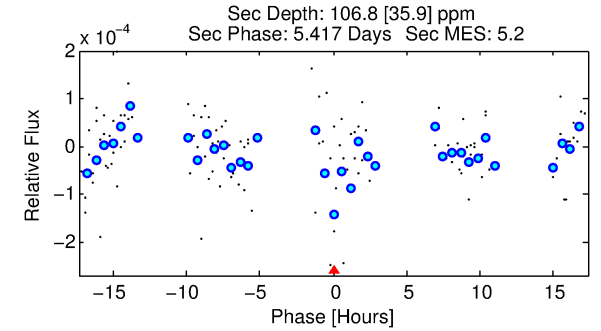
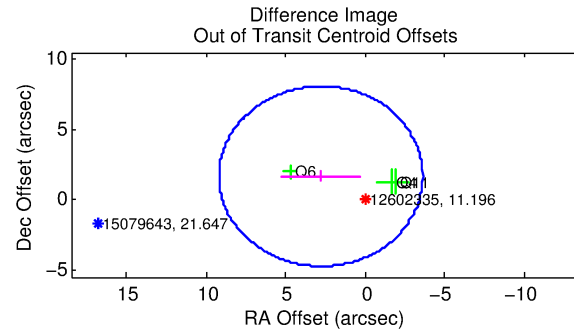
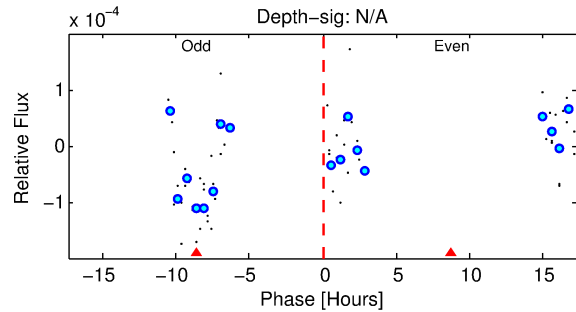
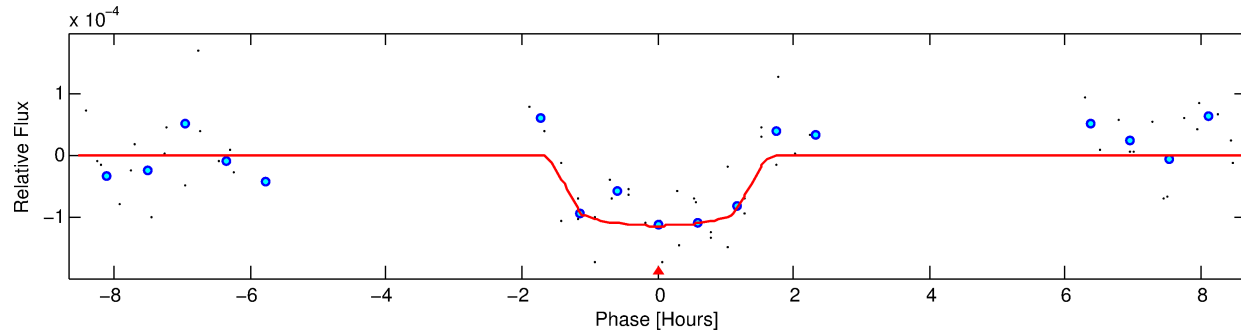
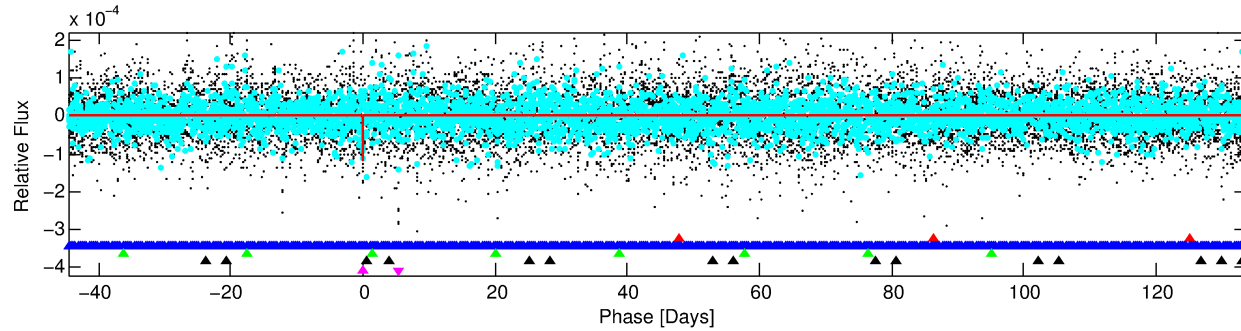
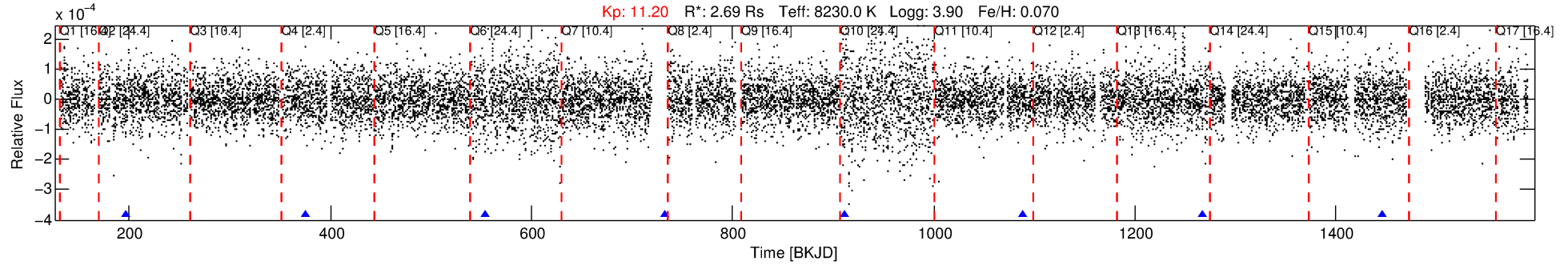
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012602335-05

No Significant Match Found

DV One-Page Summary

KIC: 12602335 Candidate: 5 of 5 Period: 178.349 d



DV Fit Results:

Period = 178.34926 [0.00155] d
Epoch = 197.3385 [0.0050] BKJD
 R_p/R^* = 0.0110 [0.0081]
 a/R^* = 266.16 [1208.26]
 b = 0.84 [1.61]
 S_{eff} = 46.78 [21.98]
 T_{eq} = 667 [78] K
 R_p = 3.23 [2.62] R_{e}
 a = 0.7959 [0.2302] AU
 A_g = 3575.86 [5641.51] [0.63σ]
 T_{eff} = 7973 [3049] K [2.40σ]

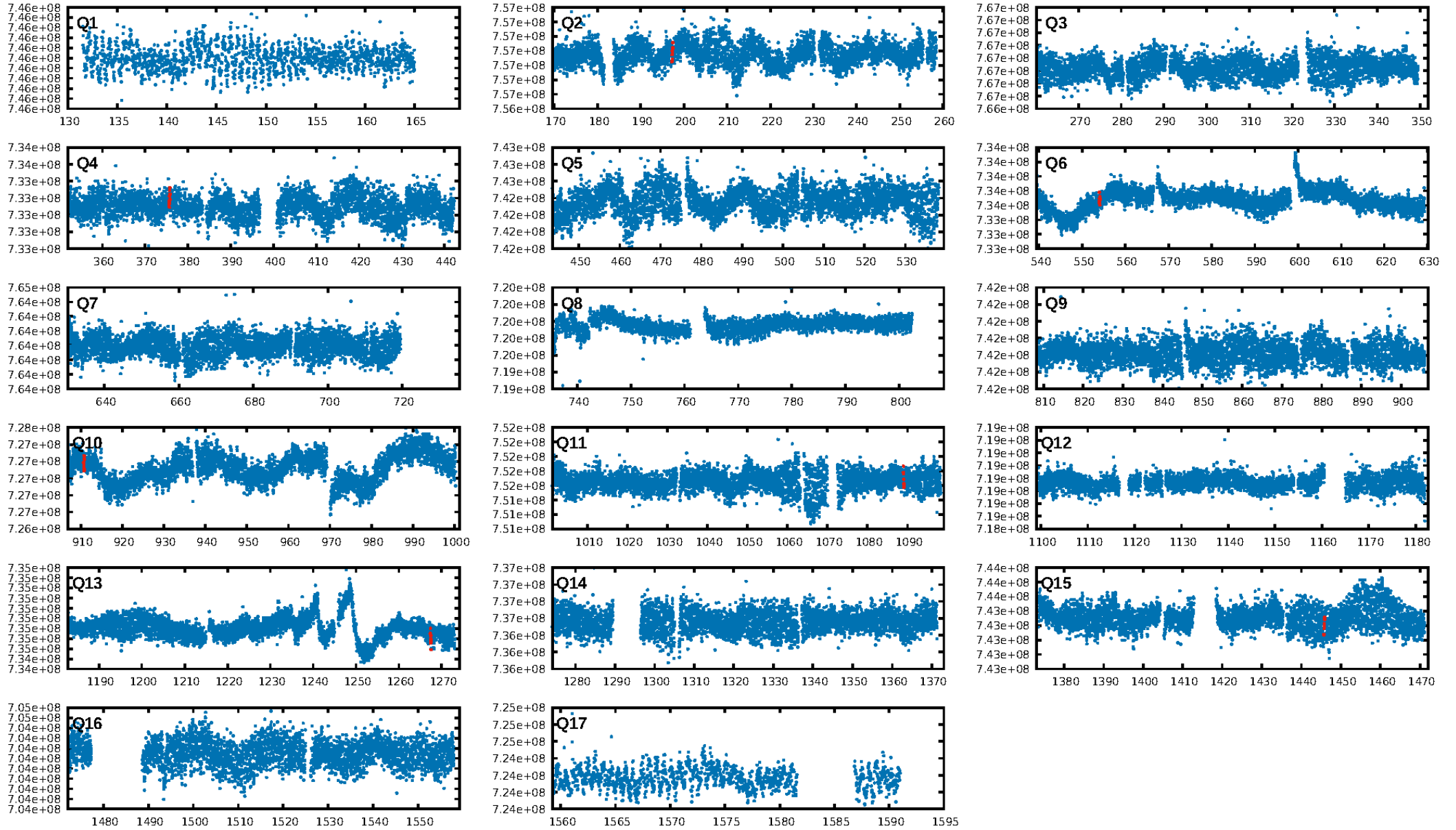
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [194.76σ]
LongPeriod-sig: 100.0% [61.23σ]
ModelChiSquare2-sig: 61.1%
ModelChiSquareGof-sig: 81.5%
Bootstrap-pfa: 1.96e-08
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -9.815
Centroid-sig: 29.8%
Centroid-so: 1.356 arcsec [1.18σ]
OotOffset-rm: 3.253 arcsec [1.52σ]
KicOffset-rm: 3.210 arcsec [1.49σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/6]

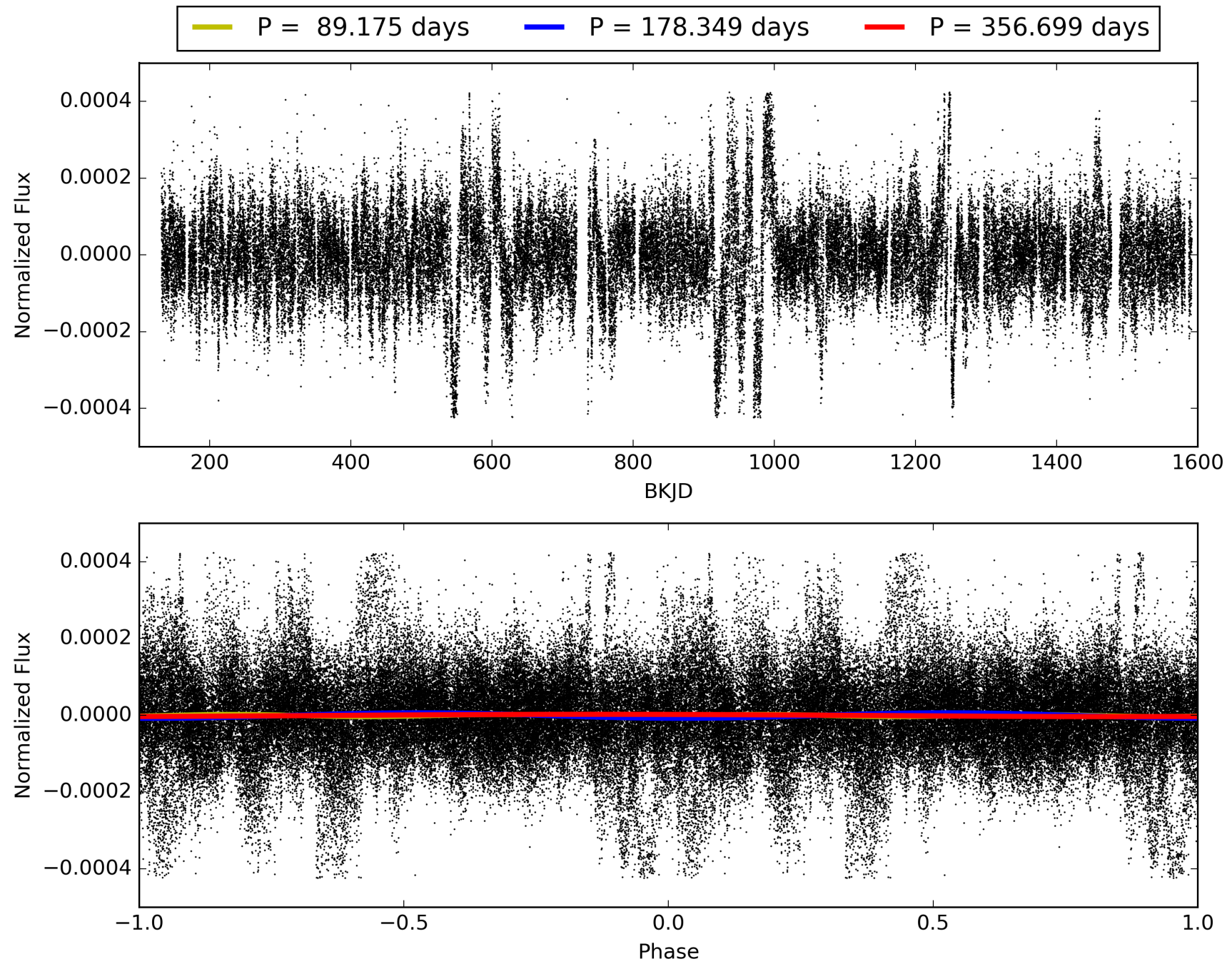
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 14:25:30 Z

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

TCE 012602335-05, PDC Light Curves

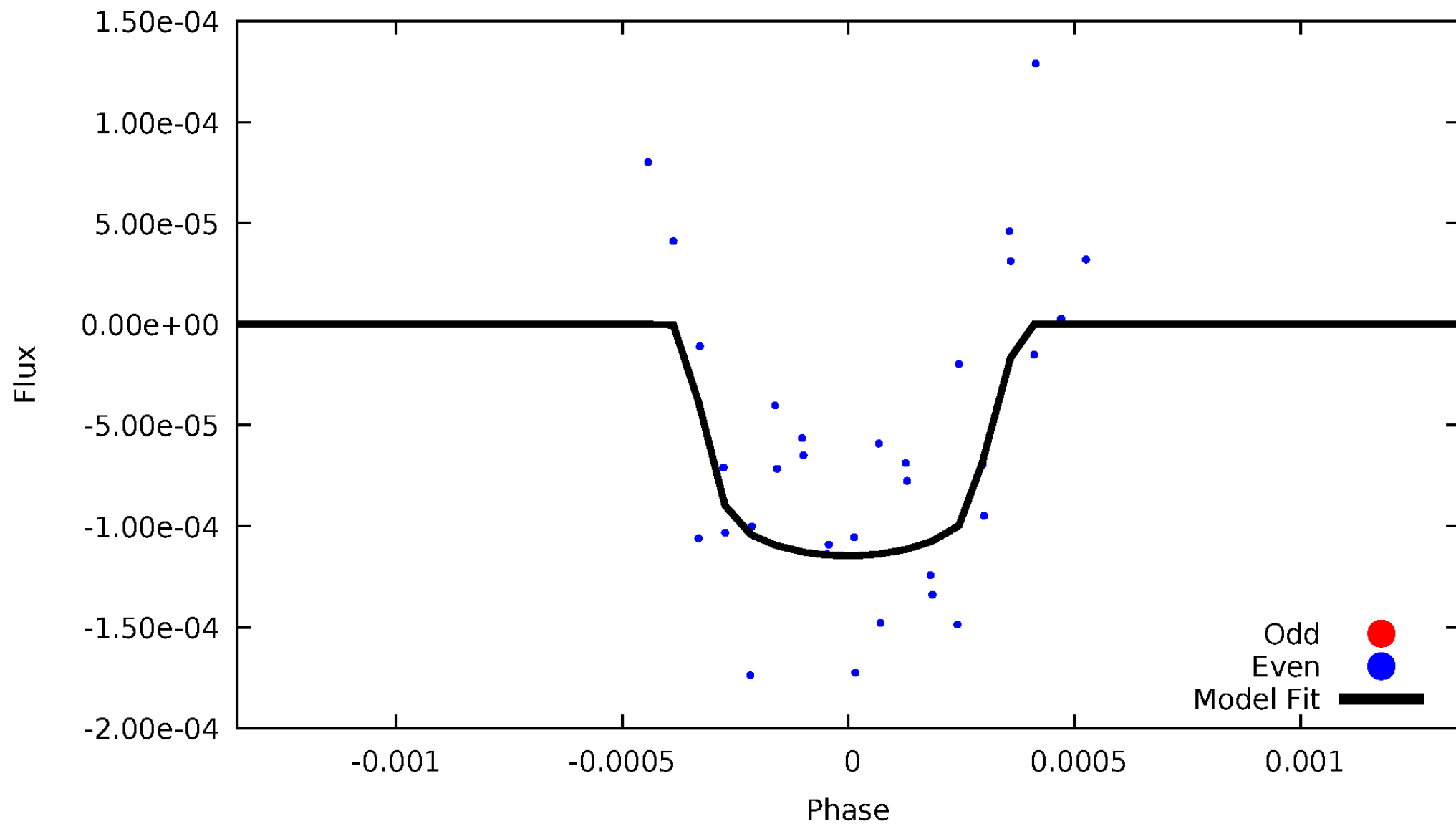


TCE 012602335-05



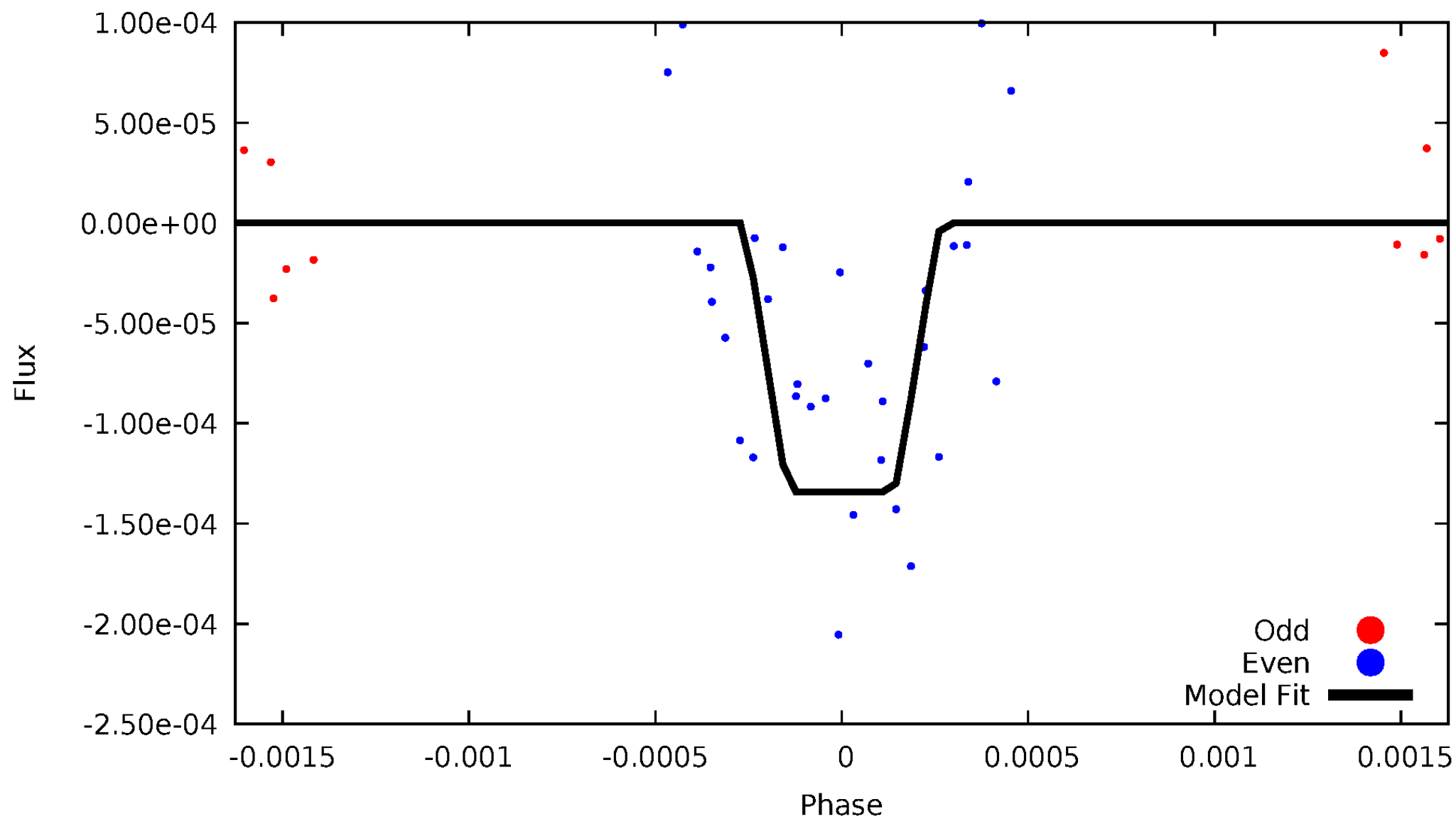
DV Odd/Even

TCE 012602335-05



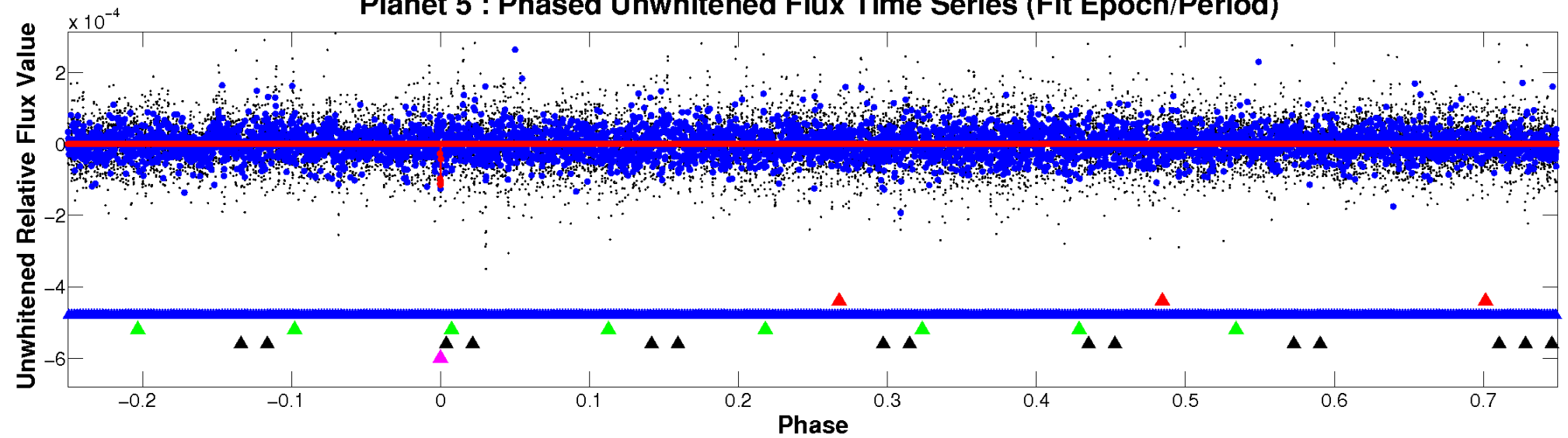
ALT Odd/Even

TCE 012602335-05

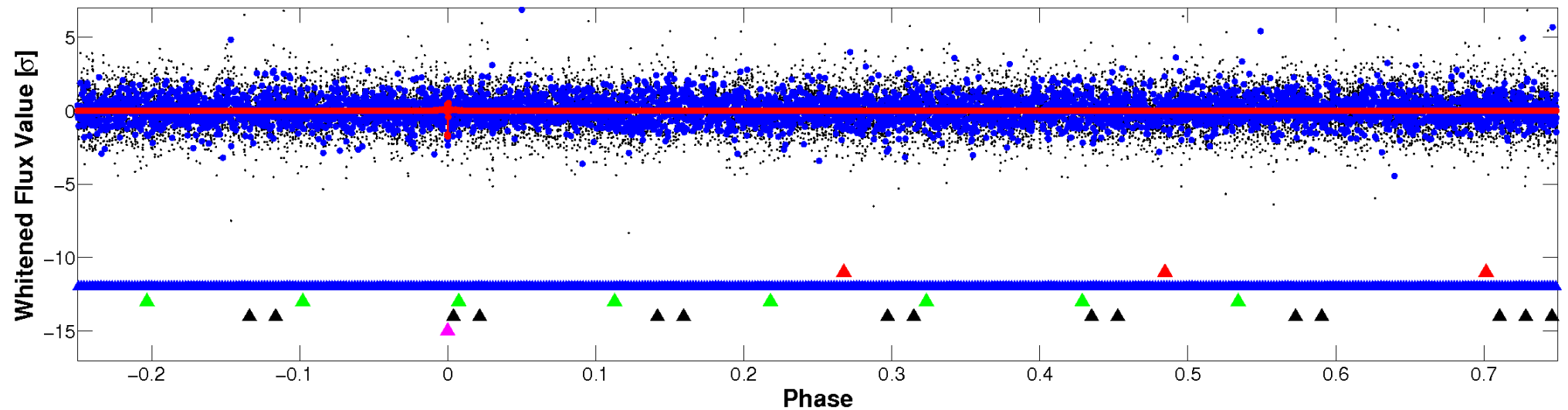


Non-Whitened Vs. Whitened Light Curve

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

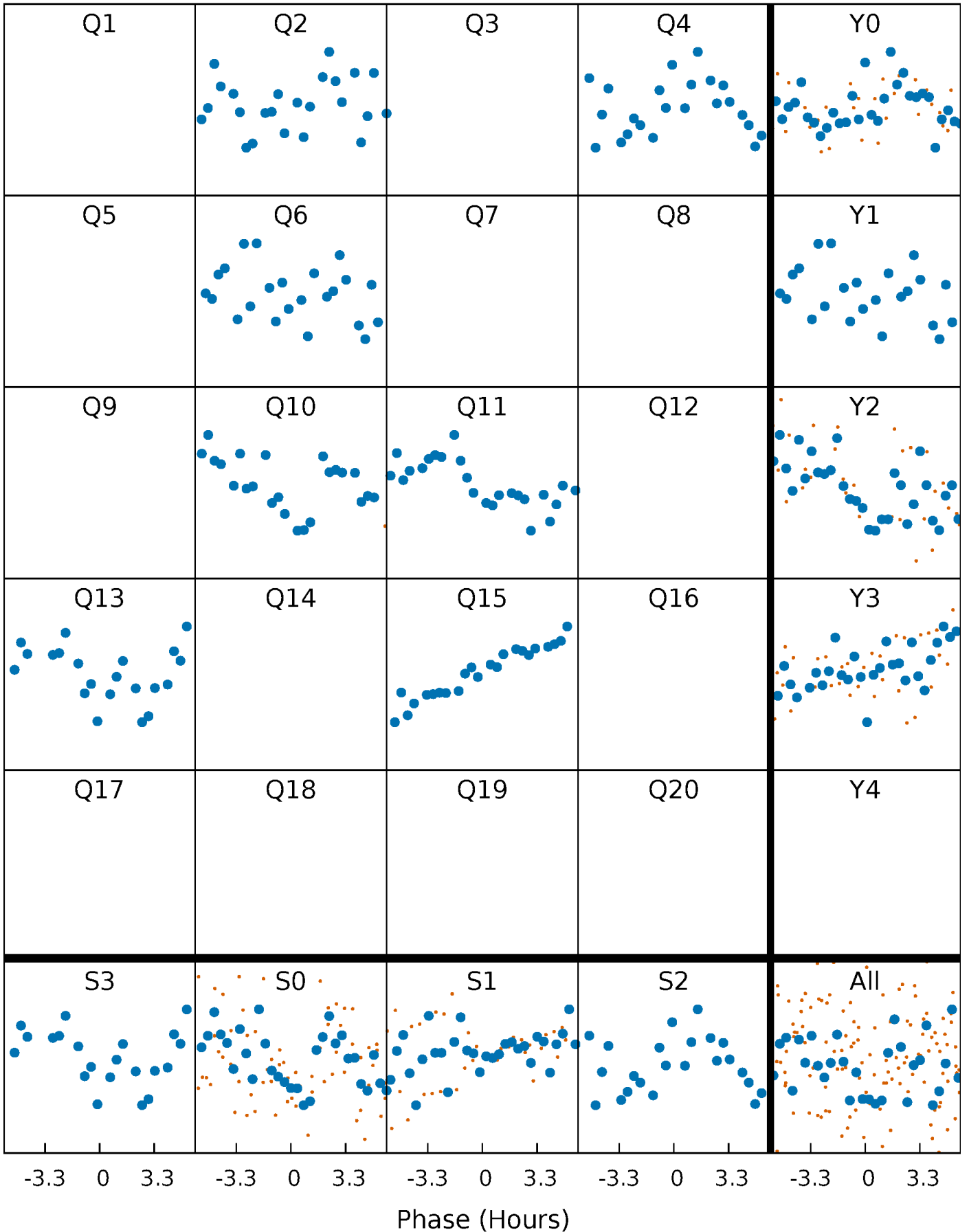


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



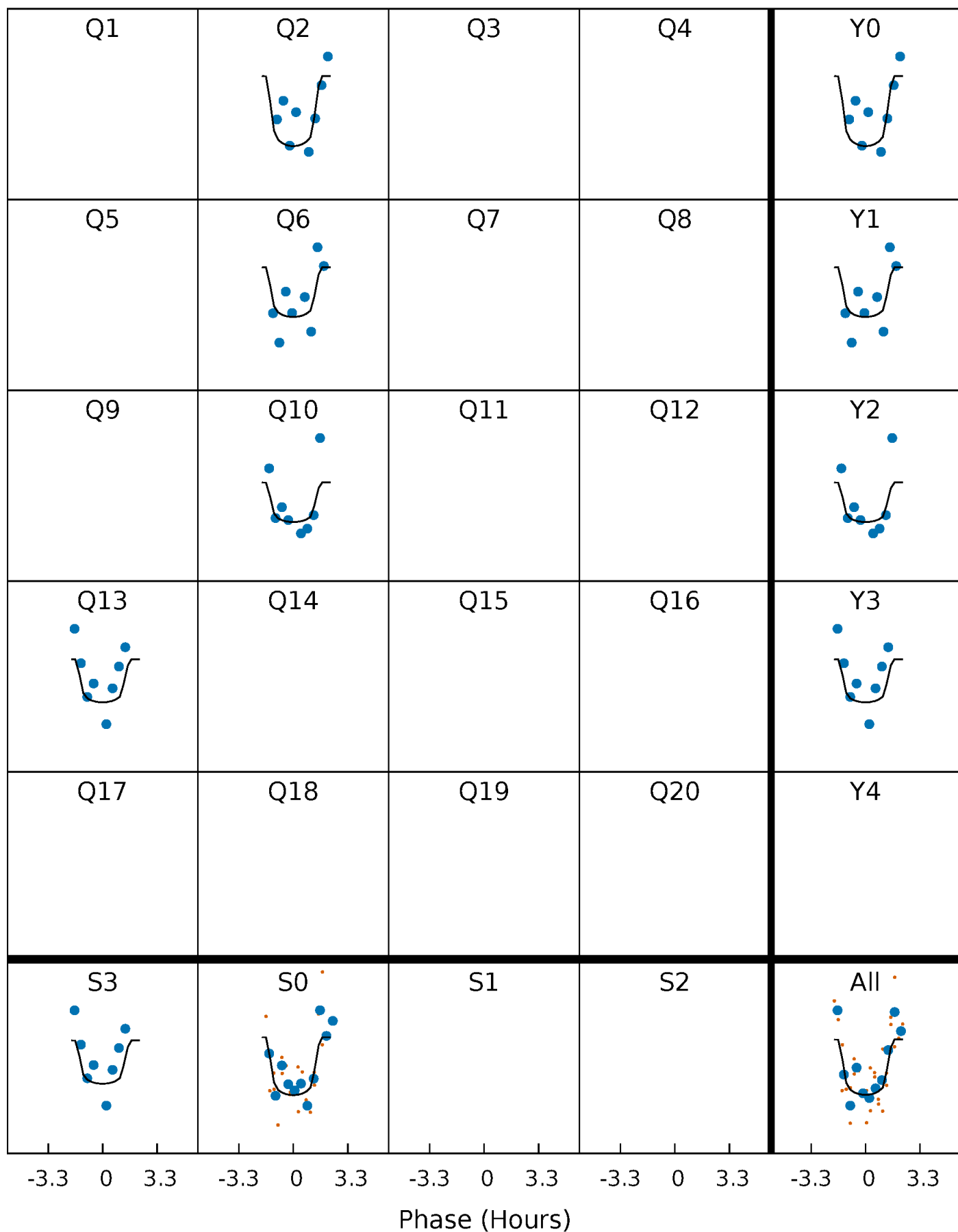
PDC Quarter-Phased Transit Curves

TCE 012602335-05 $P=178.349262$ Days $T_0=197.338461$ (BKJD)



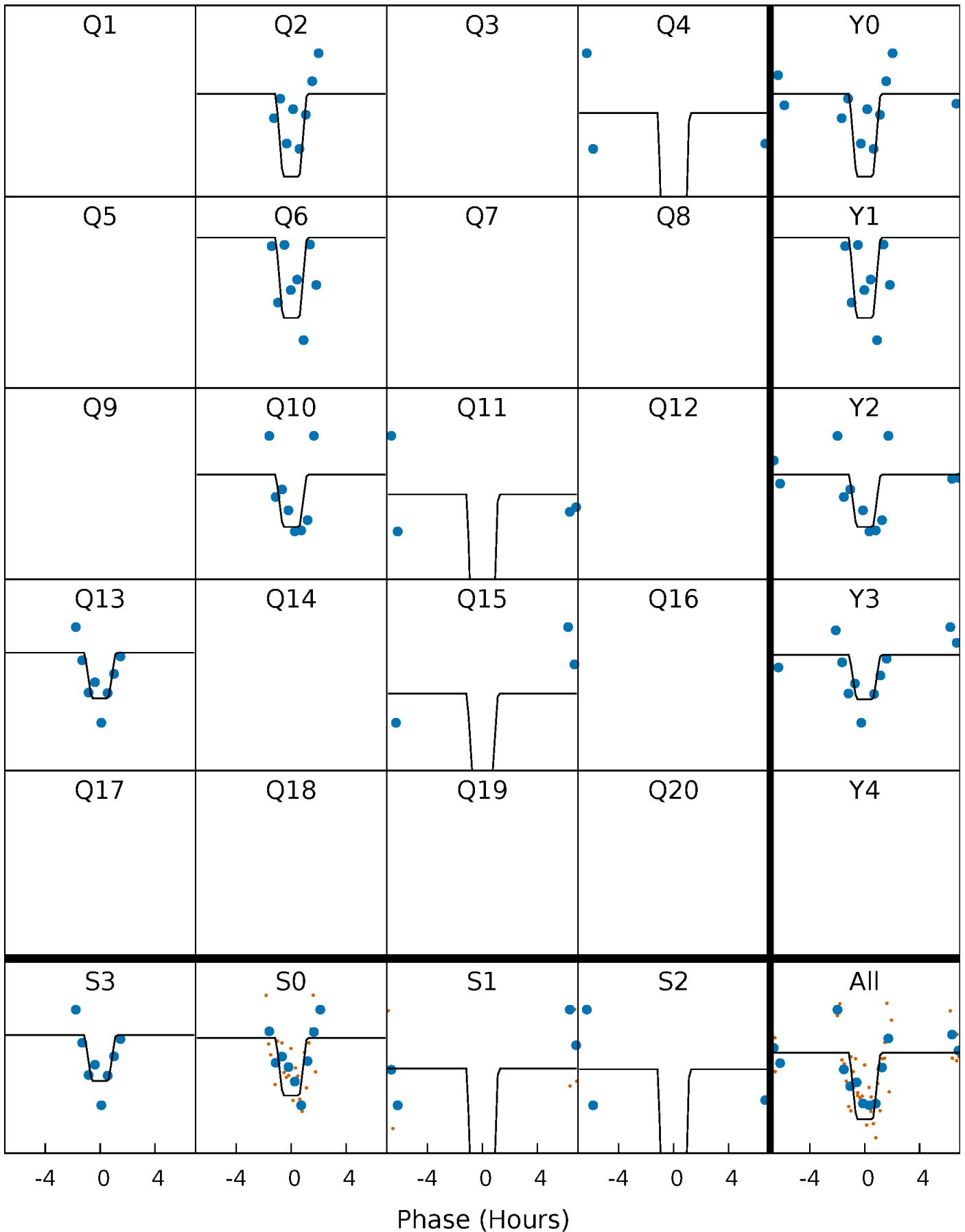
DV Quarter-Phased Transit Curves

TCE 012602335-05 P=178.349262 Days $T_0=197.338461$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

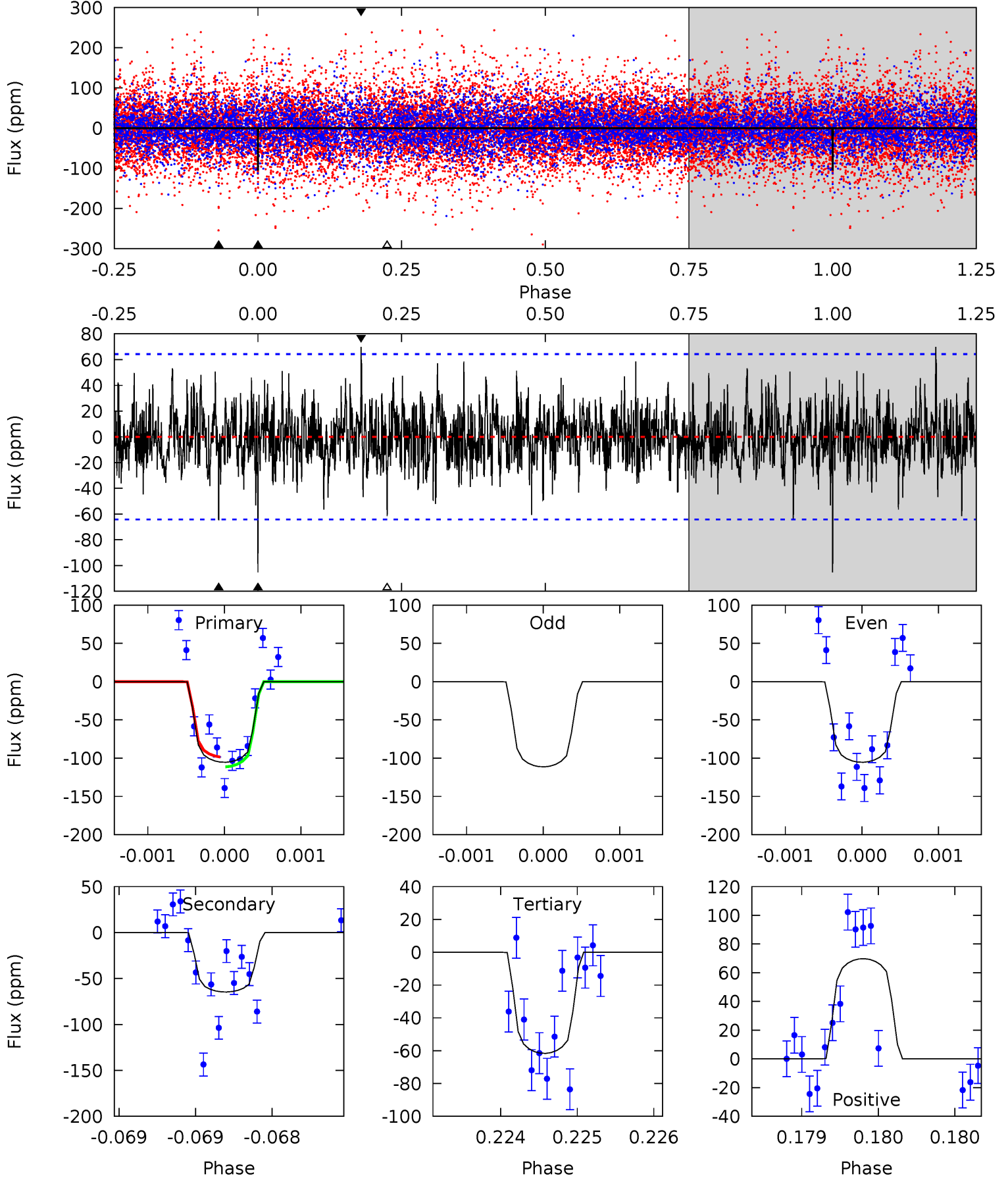
TCE 012602335-05 $P=178.347831$ Days $T_0=197.351260$ (BKJD)



DV Model-Shift Uniqueness Test

012602335-05, P = 178.349262 Days, E = 18.989199 Days

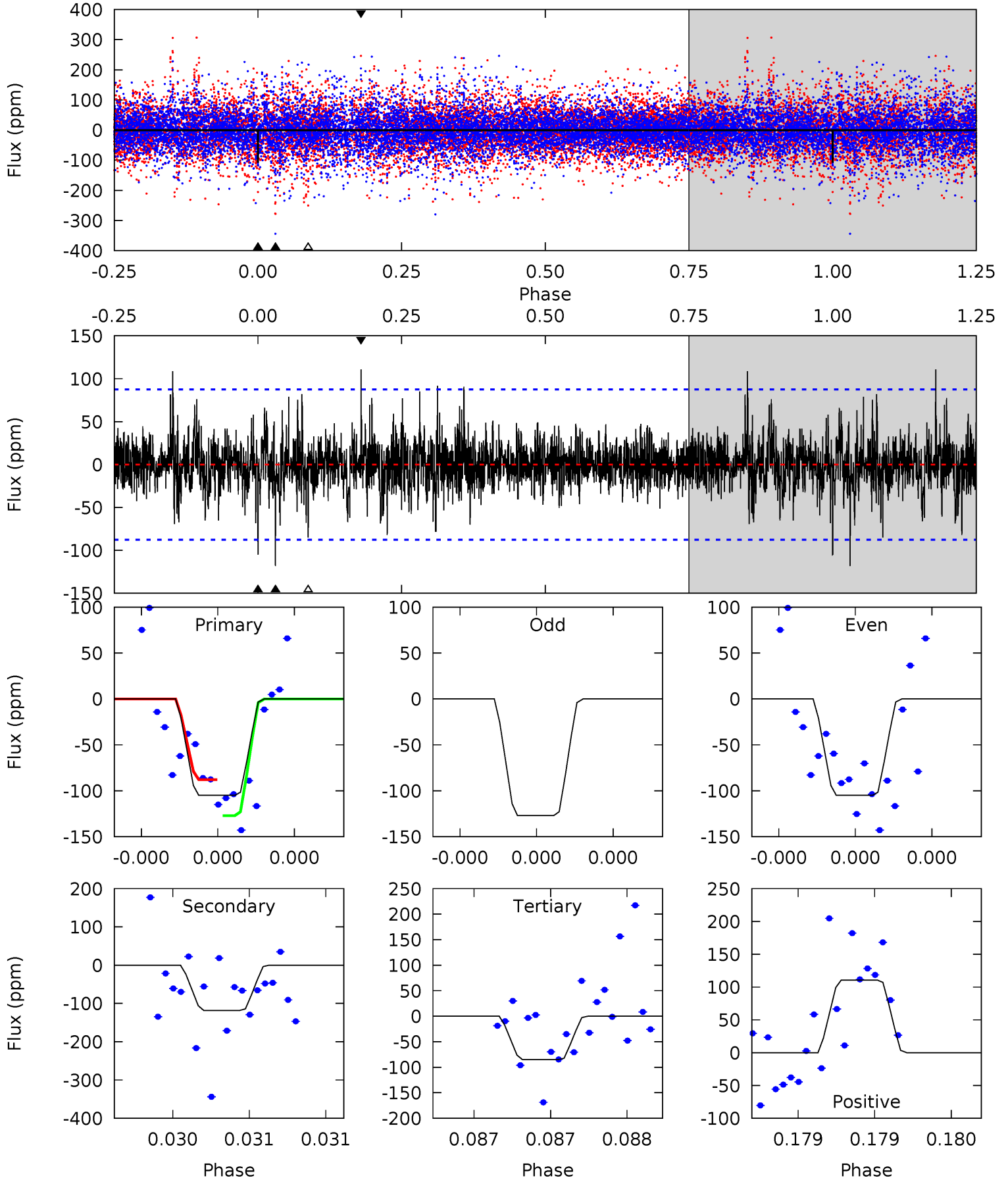
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.01	5.53	5.27	5.97	5.49	3.35	1.49	3.74	3.04	0.26	-0.44	0.28	1.02	0.40	0.55



Alt Model-Shift Uniqueness Test

012602335-05, P = 178.347831 Days, E = 19.003429 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.69	7.53	5.41	7.05	5.58	3.48	1.39	1.27	-0.36	2.11	0.48	0.75	1.00	0.48	1.24



Stellar Parameters For KIC 012602335

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	8230^{+225}_{-387}	$3.905^{+0.240}_{-0.140}$	$0.070^{+0.250}_{-0.400}$	$2.685^{+0.735}_{-0.898}$	$2.112^{+0.332}_{-0.498}$	$0.154^{+0.256}_{-0.062}$
	+3%/-5%	+6%/-4%	+357%/-571%	+27%/-33%	+16%/-24%	+167%/-40%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 012602335-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-65 ± 12	$3.19^{+2.50}_{-1.87}$	913^{+71}_{-78}	6589^{+5043}_{-1516}	2055^{+10044}_{-1388}
Alt.	-118 ± 16	$3.46^{+2.62}_{-2.04}$	919^{+67}_{-73}	7588^{+7649}_{-1834}	3283^{+16083}_{-2139}

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

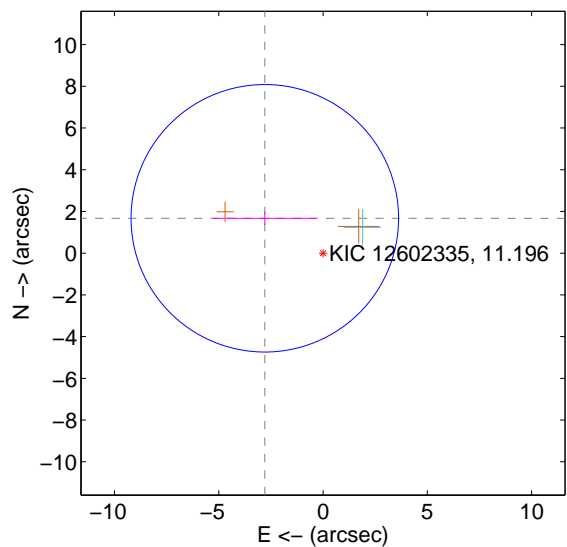
Supplemental centroid analysis for 012602335-05. **Kepler magnitude: 11.20.** Transit SNR 7.73

There are 1 quarters with good PRF difference image offsets

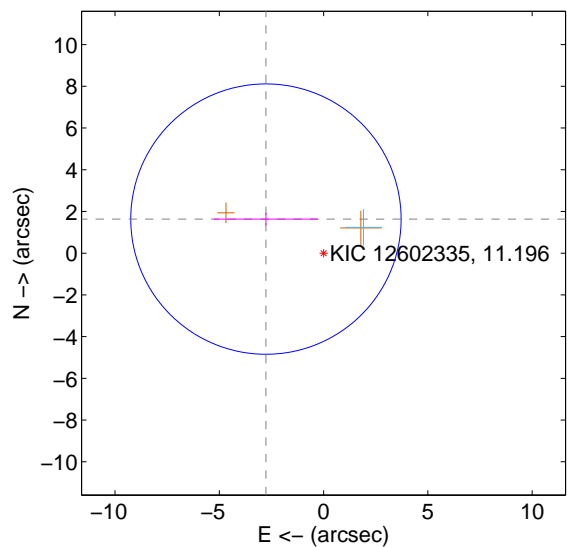
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.253 ± 2.137	1.52	2.790 ± 2.484	1.673 ± 0.320
PRF-fit source offset from KIC position	3.210 ± 2.160	1.49	2.763 ± 2.502	1.633 ± 0.309
photometric centroid source offset	1.36 ± 1.15	1.18	-1.22 ± 1.14	0.59 ± 1.20

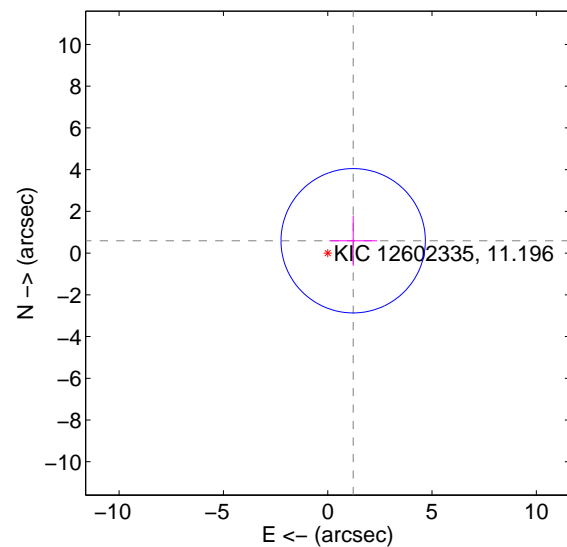
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

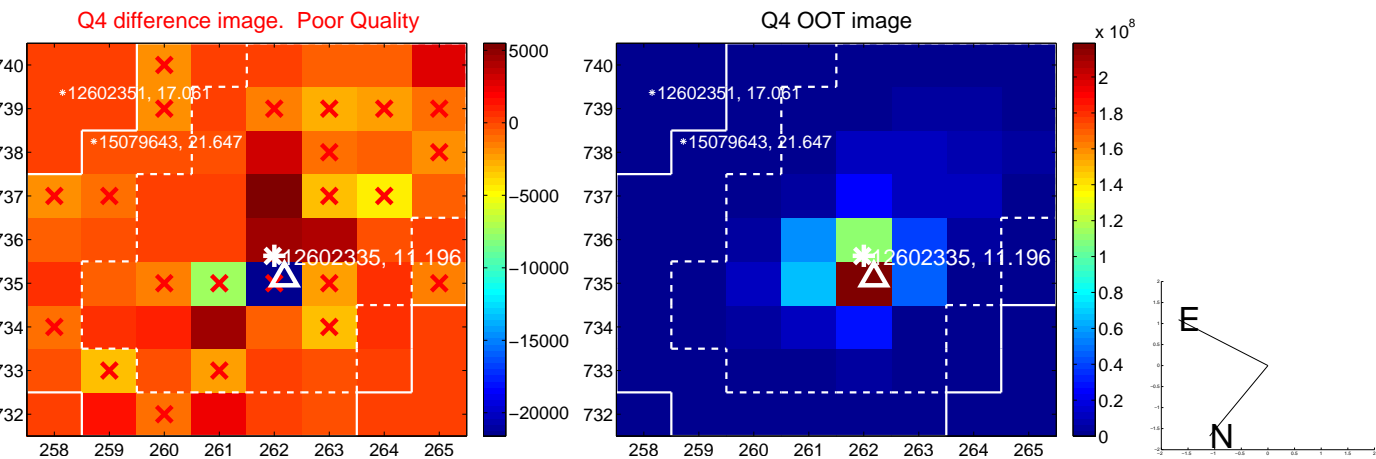
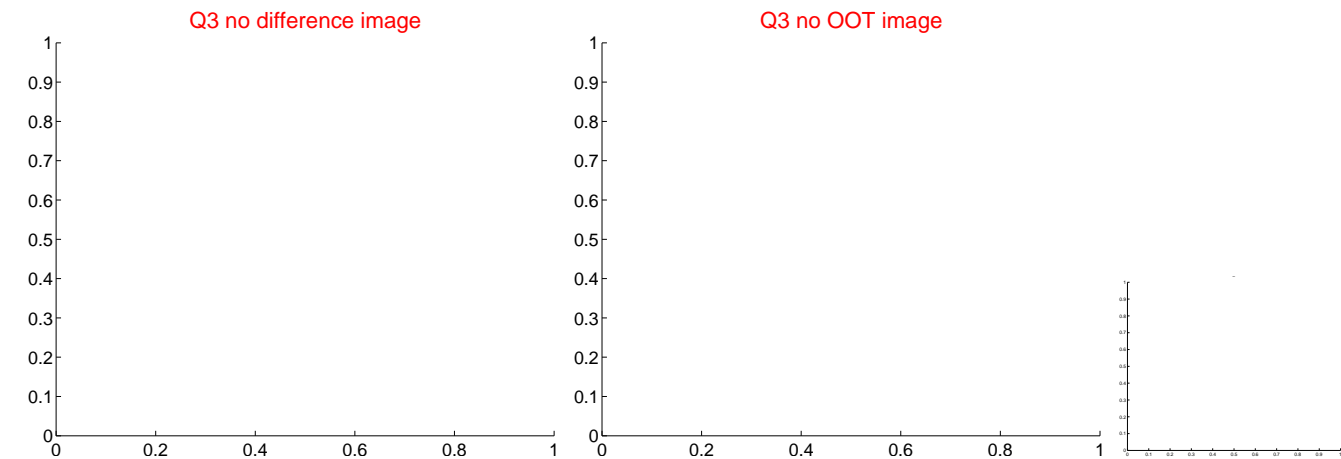
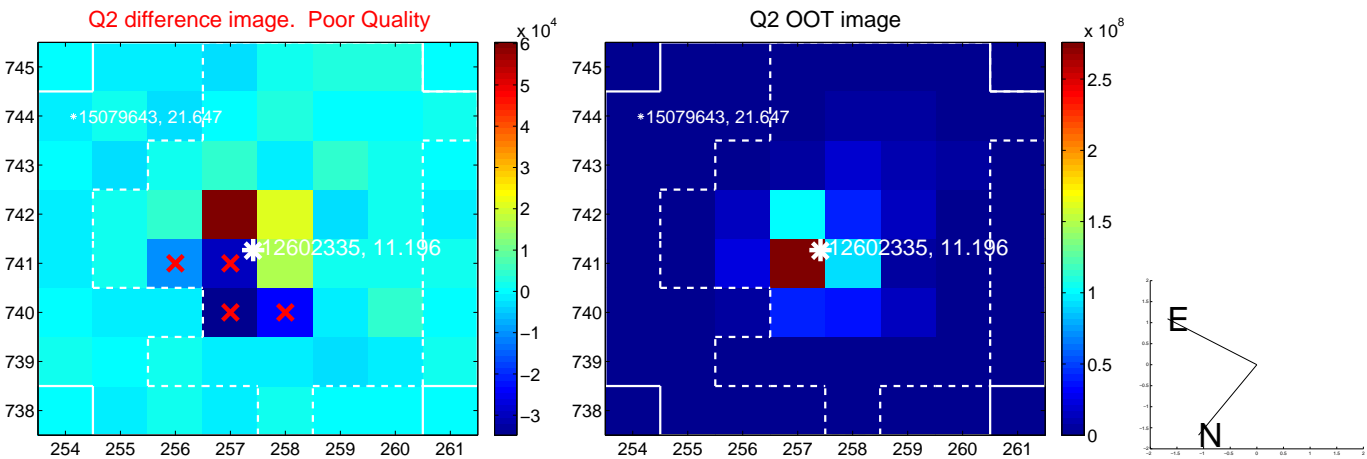


offset from photometric centroids



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.

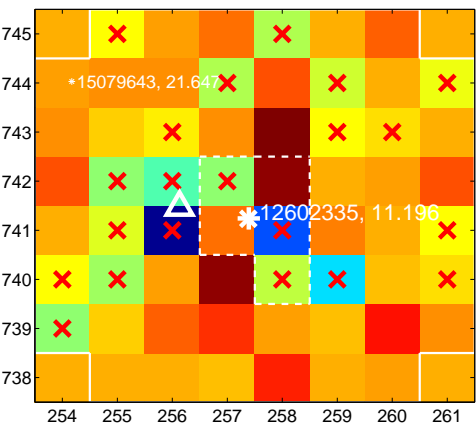
Q5 no difference image



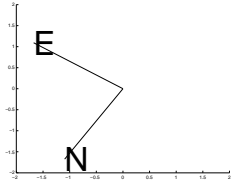
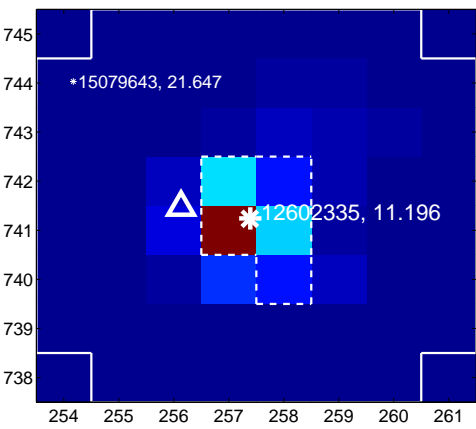
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



Q7 no difference image



Q7 no OOT image



Q8 no difference image



Q8 no OOT image

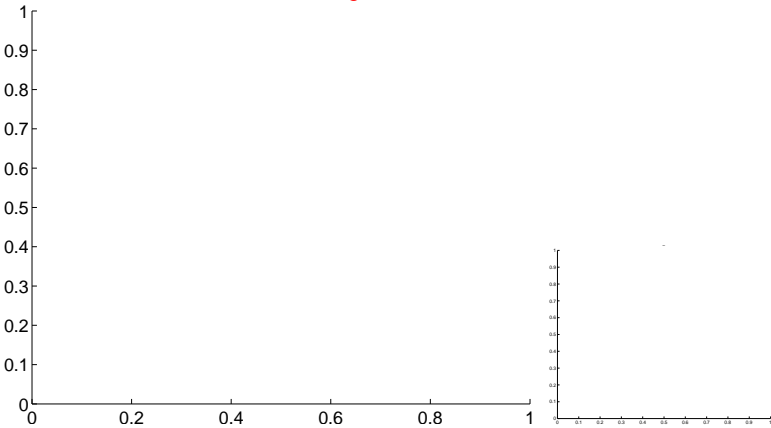


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

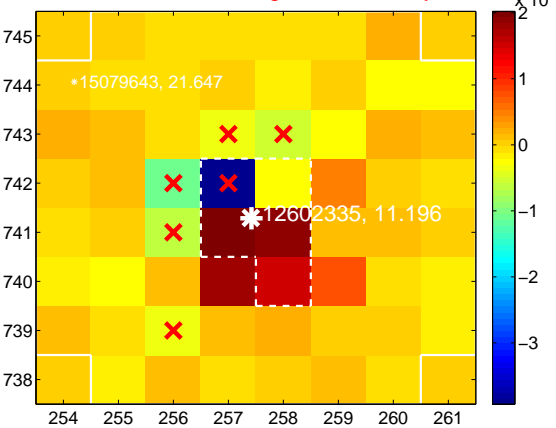
Q9 no difference image



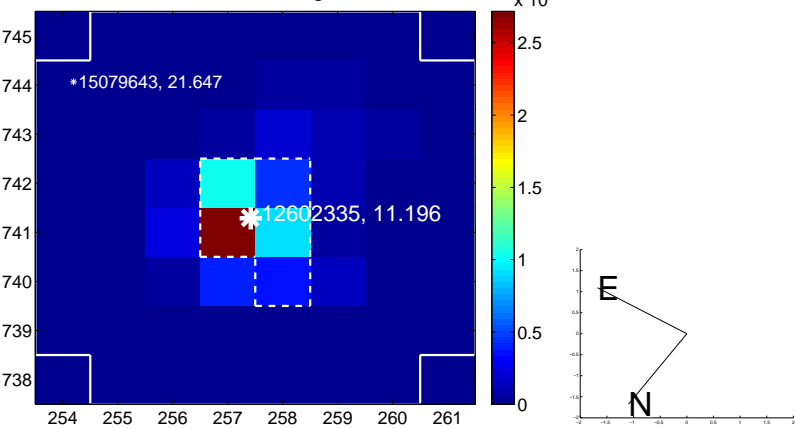
Q9 no OOT image



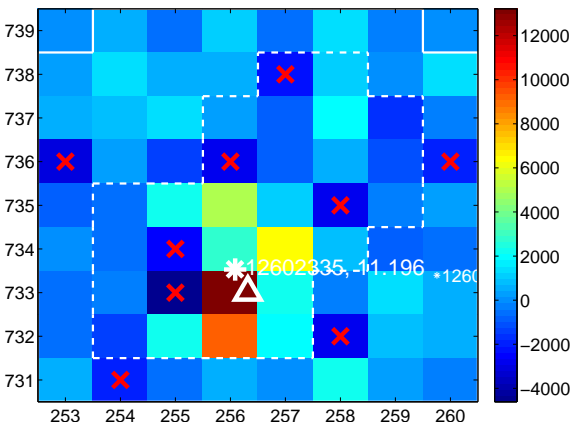
Q10 difference image. Poor Quality



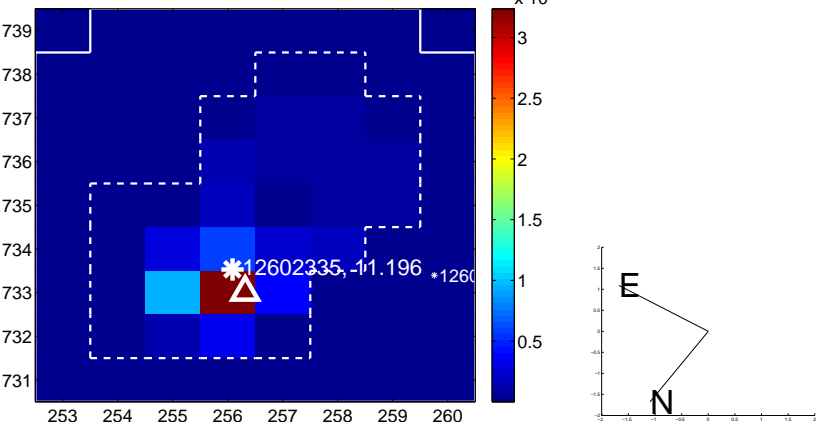
Q10 OOT image



Q11 difference image



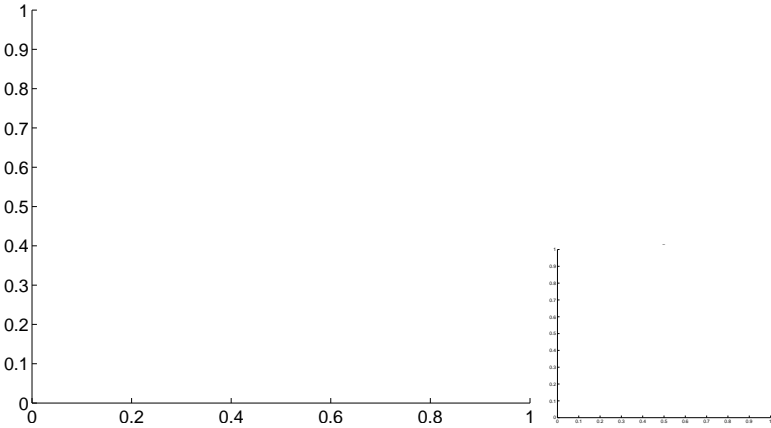
Q11 OOT image



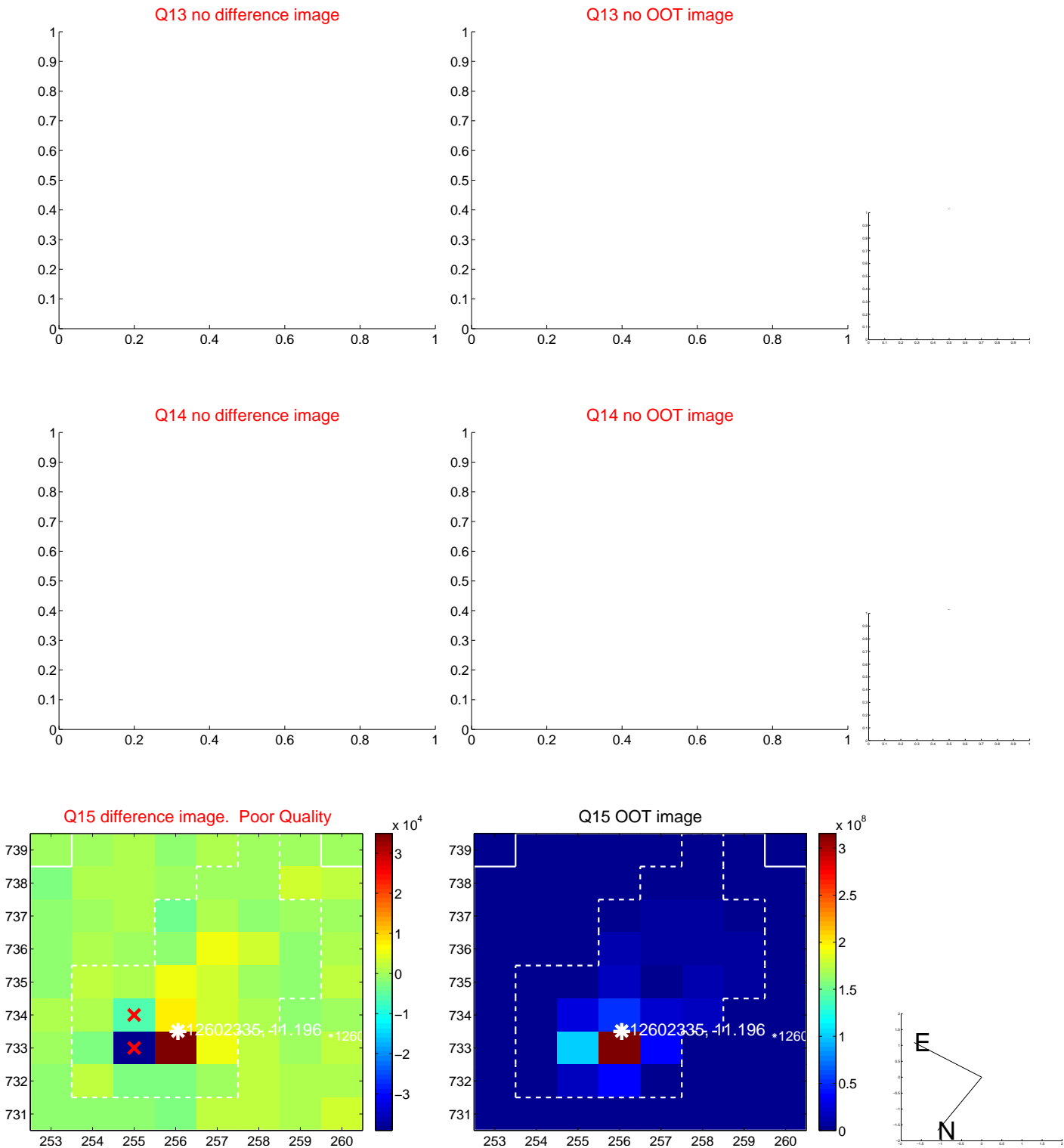
Q12 no difference image



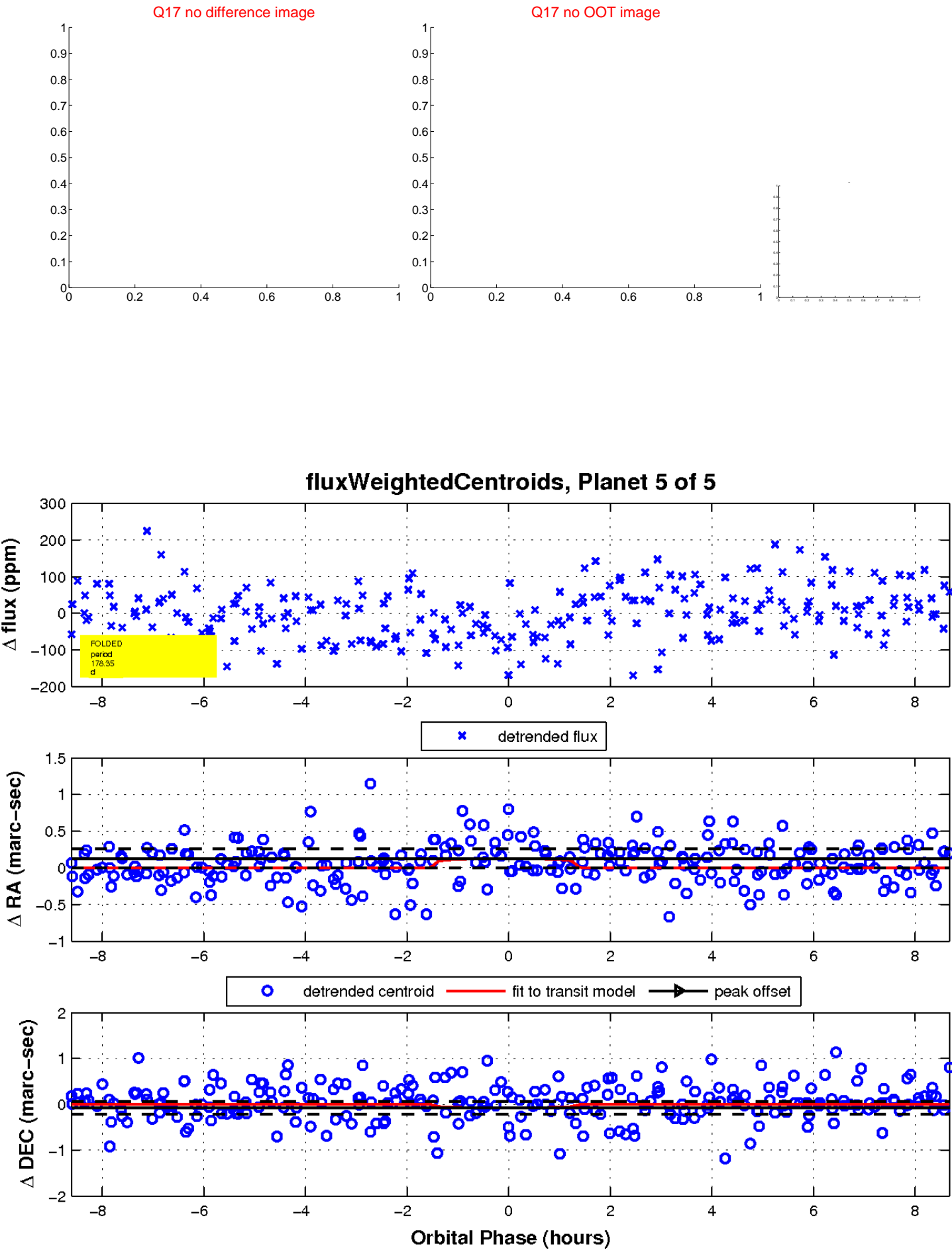
Q12 no OOT image



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



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



UKIRT Image

Declination

