

KIC 012691760

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})
012691760-01	OBS	No	0.769880	131.946693	28.9	3.343	7.9	8.1	0.76	5184	0.52	1635.06
012691760-02	OBS	No	357.281300	175.411893	1431.3	12.758	16.9	8.1	0.76	5184	3.58	0.46
012691760-03	OBS	No	615.165201	298.641446	1402.3	14.504	14.0	6.9	0.76	5184	3.68	0.22
012691760-05	OBS	No	153.547120	247.805082	442.8	8.757	11.8	4.9	0.76	5184	1.75	1.40
012691760-07	OBS	No	503.516611	457.980263	1288.7	9.860	10.9	8.0	0.76	5184	3.09	0.29
012691760-08	OBS	No	178.350186	151.344833	667.5	10.912	9.5	6.2	0.76	5184	2.33	1.15
012691760-09	OBS	No	112.977153	218.469414	373.1	15.000	10.9	-1.0	0.76	5184	1.43	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012691760-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012691760-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
012691760-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012691760-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES
012691760-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
012691760-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
012691760-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

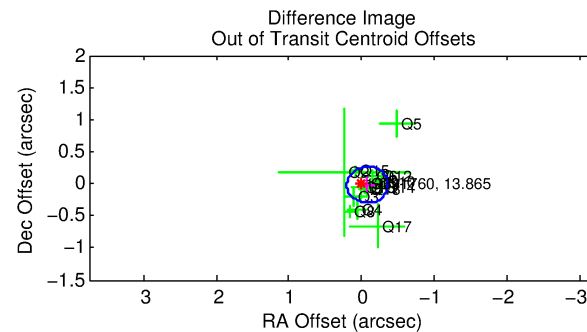
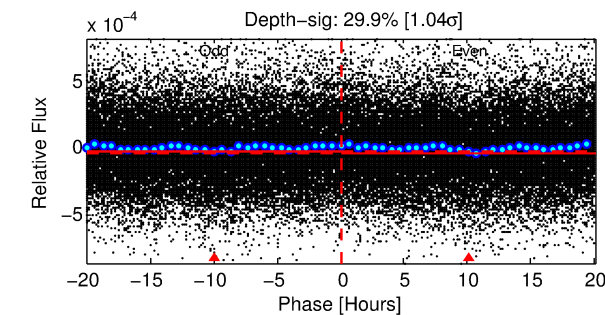
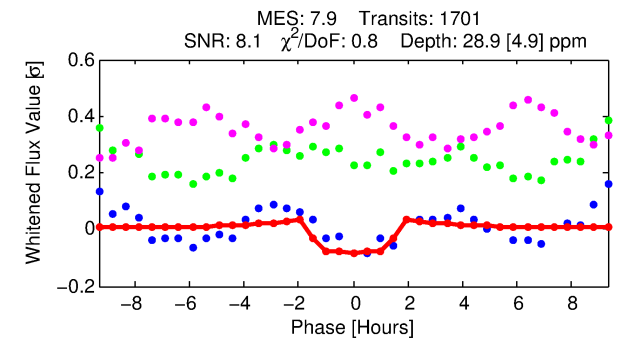
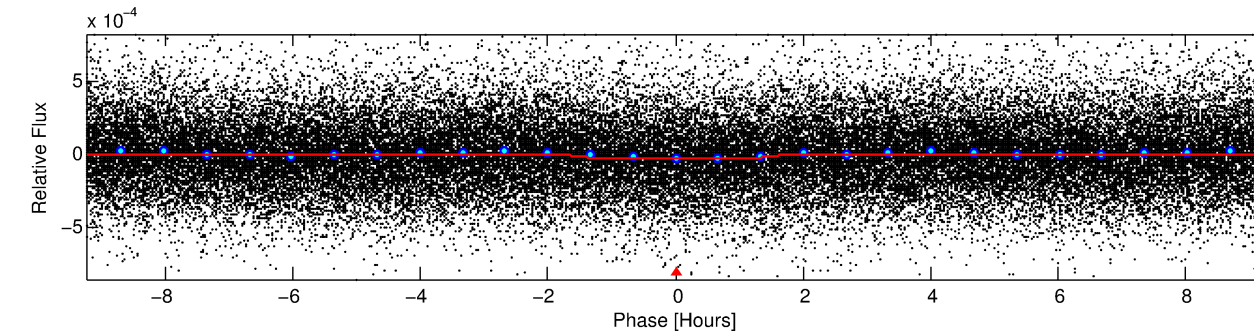
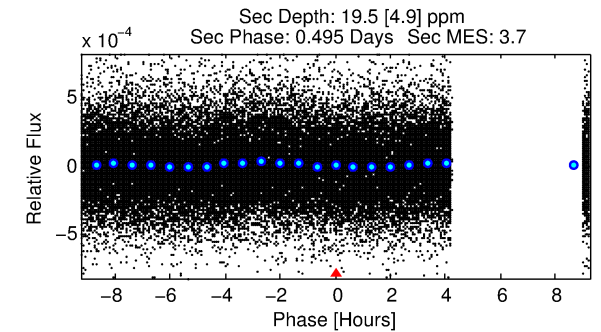
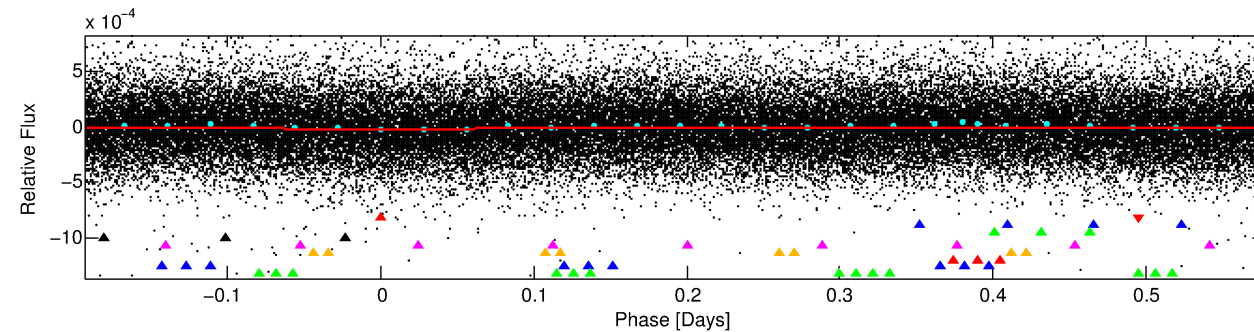
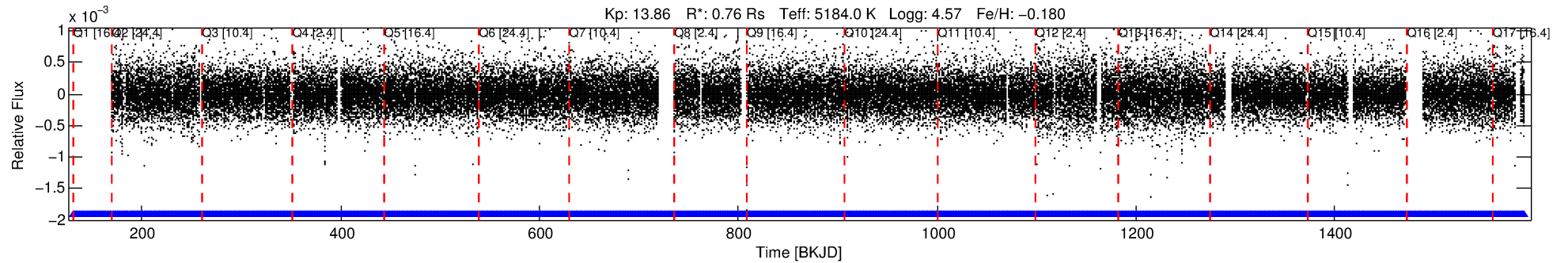
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012691760-01

No Significant Match Found

DV One-Page Summary

KIC: 12691760 Candidate: 1 of 9 Period: 0.770 d



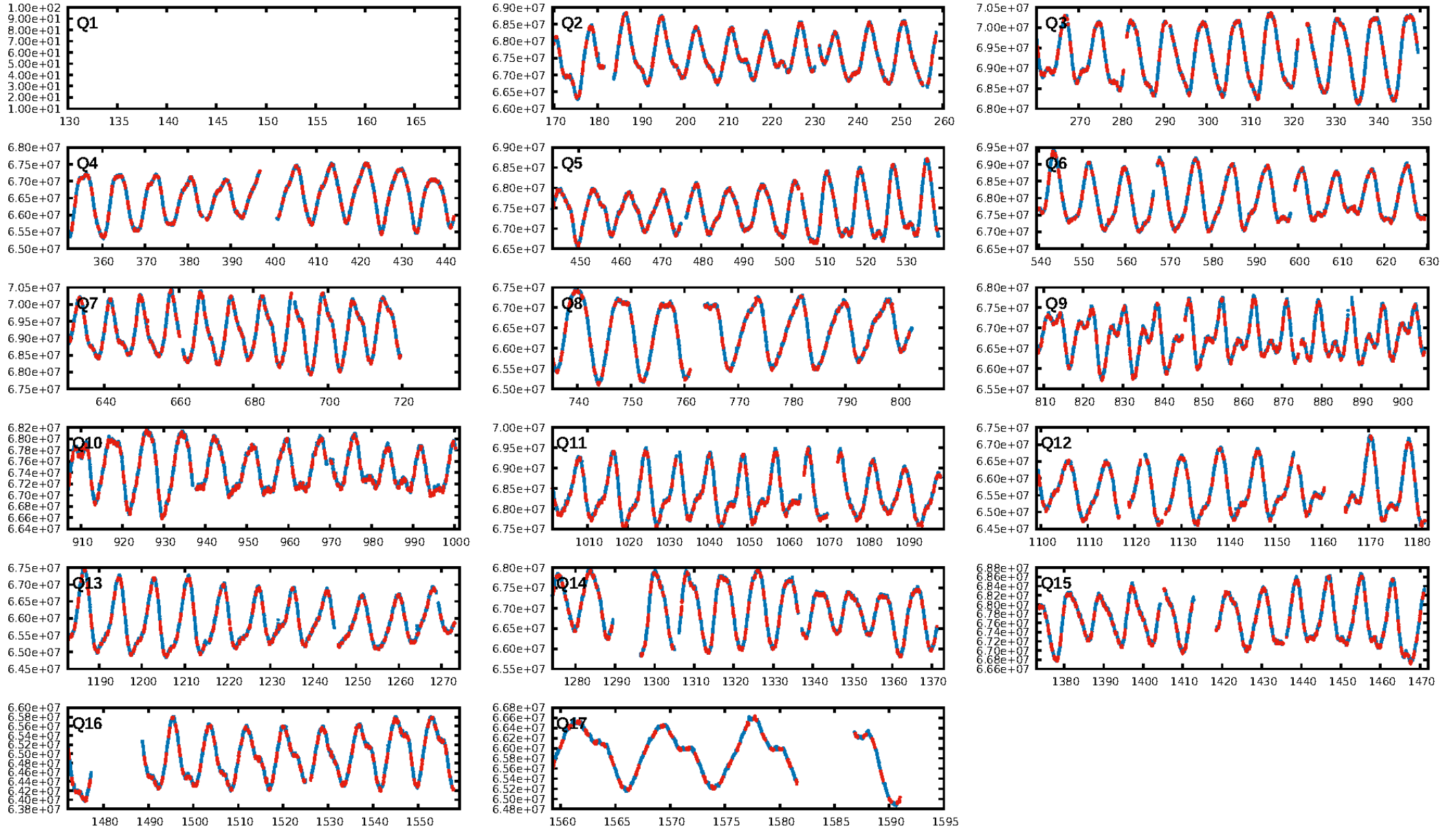
DV Fit Results:

Period = 0.76988 [0.00001] d
Epoch = 131.9467 [0.0036] BKJD
Rp/R* = 0.0063 [0.0032]
a/R* = 1.16 [0.70]
b = 0.94 [0.32]
Seff = 1635.06 [350.12]
Teff = 1621 [87] K
Rp = 0.52 [0.28] Re
a = 0.0151 [0.0017] AU
Ag = 9.13 [9.79] [0.83σ]
Teffp = 4357 [1168] K [2.34σ]

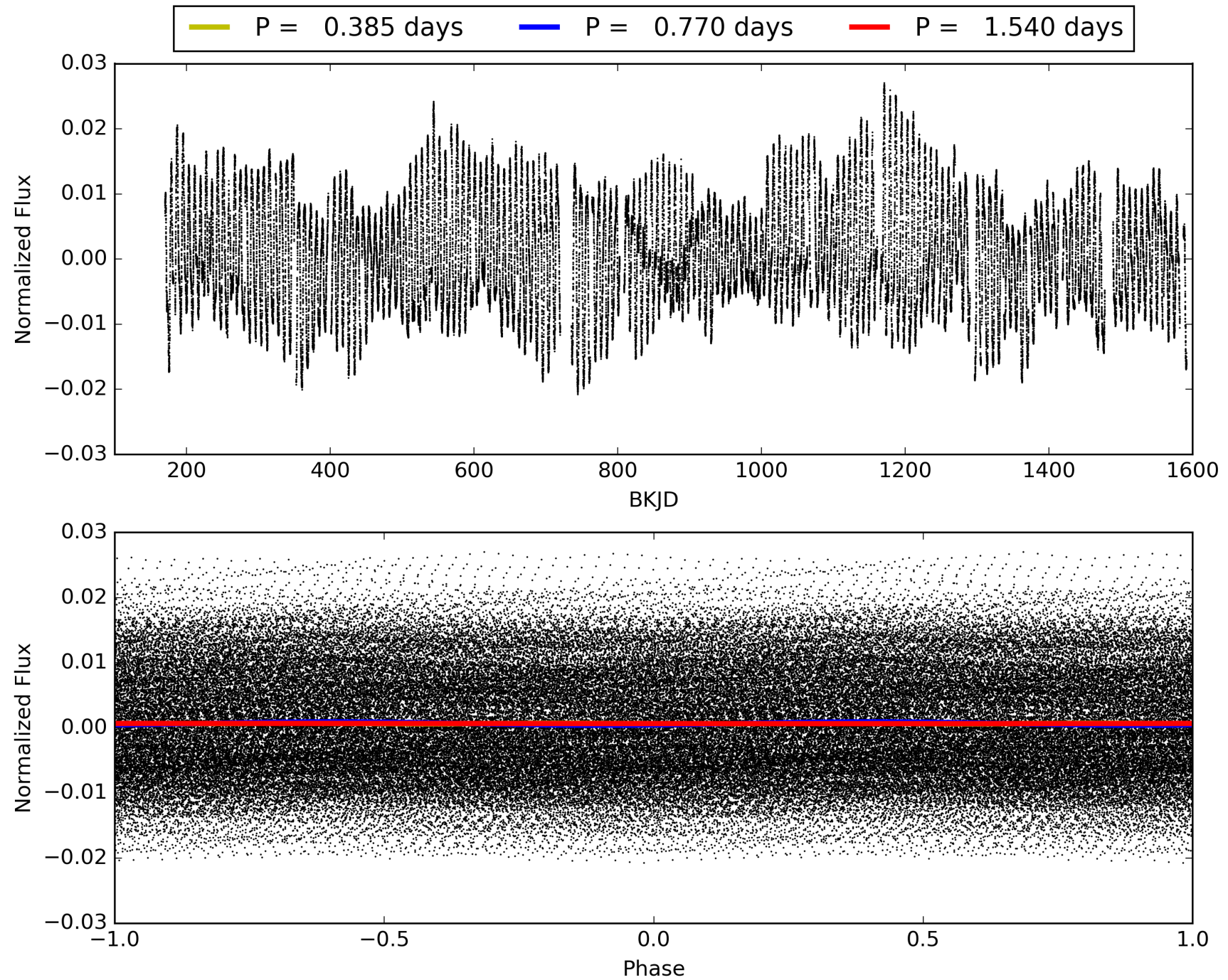
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [175.23σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1665/1665]
GhostDiagnostic-chr: 1.246
Centroid-sig: 1.3%
Centroid-so: 1.267 arcsec [0.98σ]
OotOffset-rm: 0.080 arcsec [0.85σ]
KicOffset-rm: 0.221 arcsec [2.15σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 1.00 [16/16]
DiffImageOverlap-fno: 1.00 [16/16]

TCE 012691760-01, PDC Light Curves

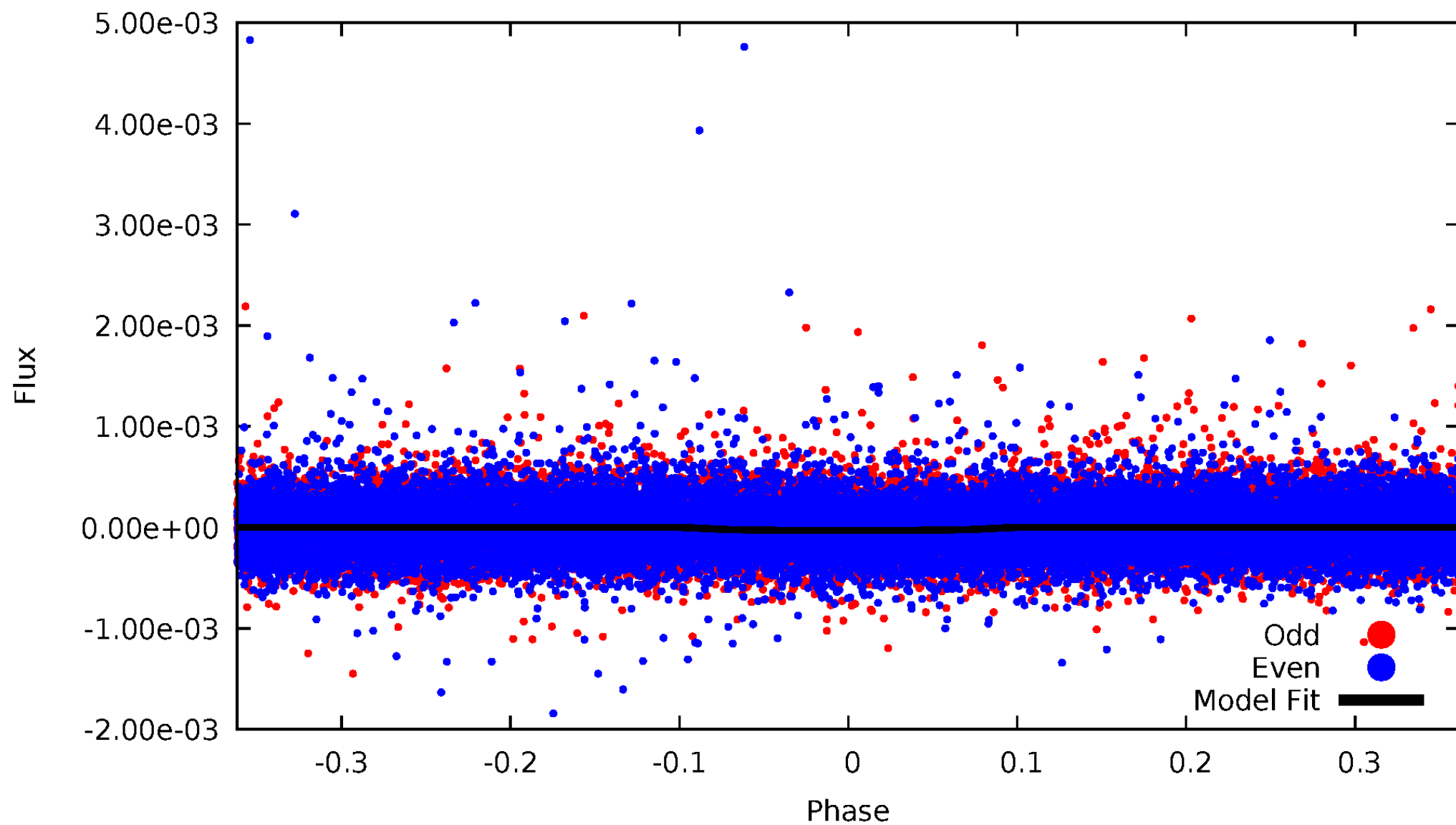


TCE 012691760-01



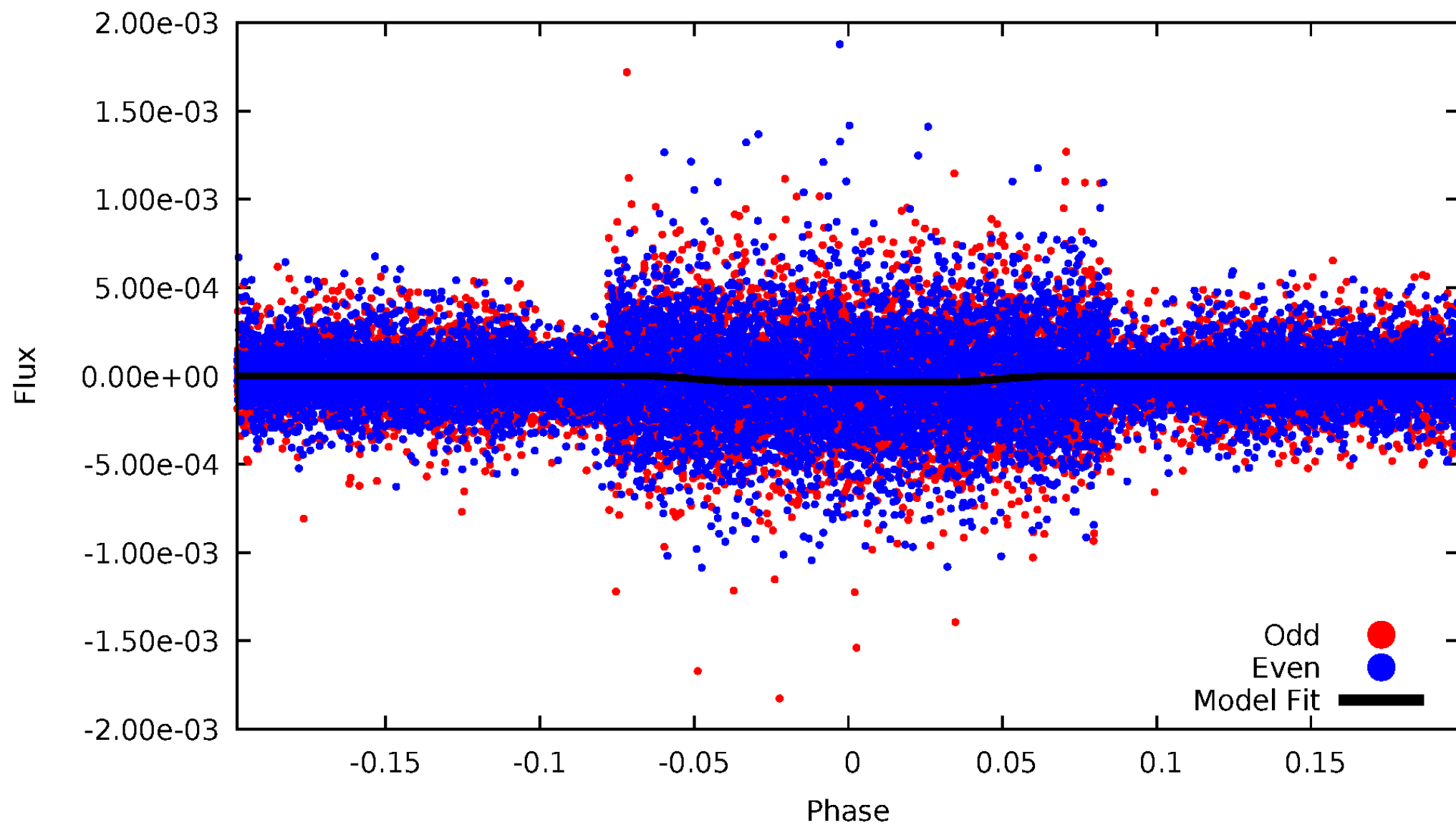
DV Odd/Even

TCE 012691760-01



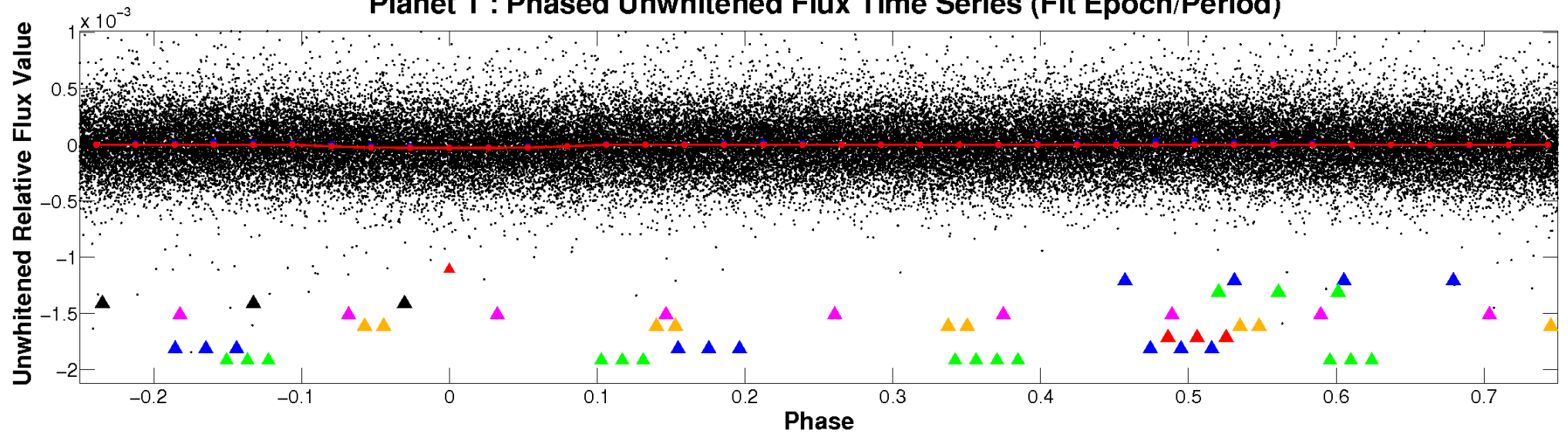
ALT Odd/Even

TCE 012691760-01

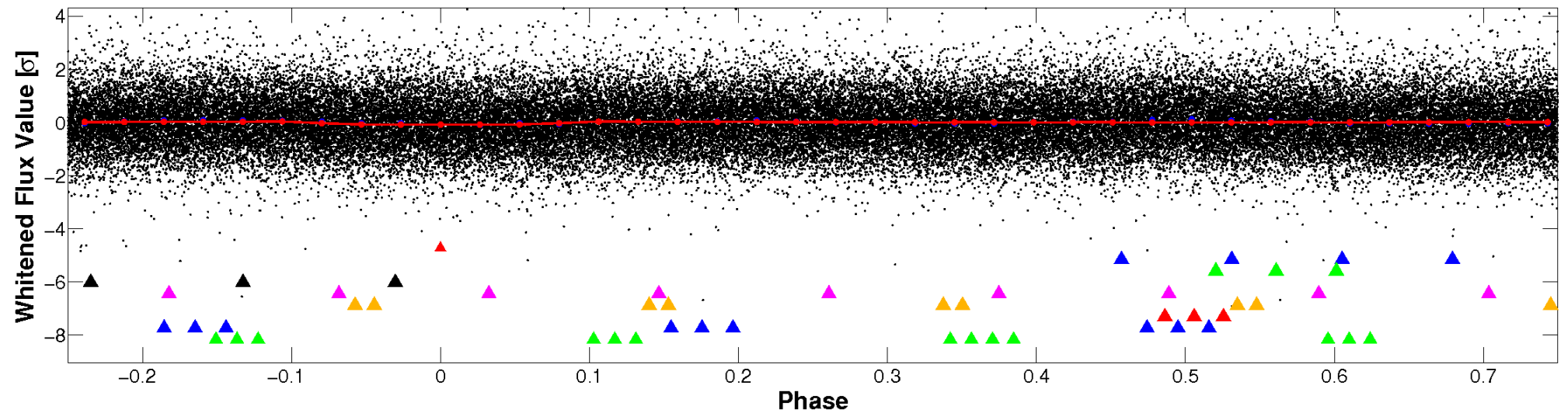


Non-Whitened Vs. Whitened Light Curve

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

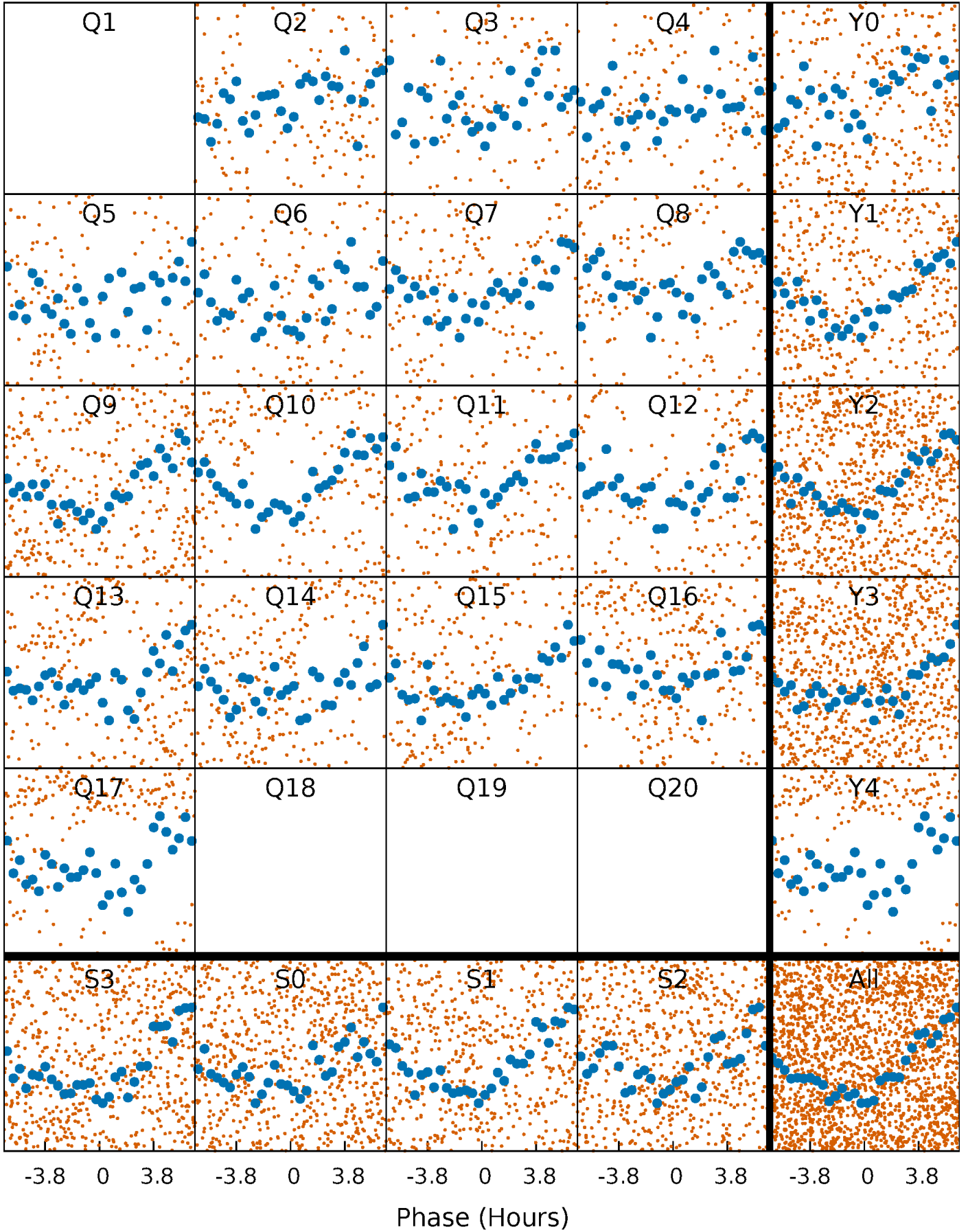


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



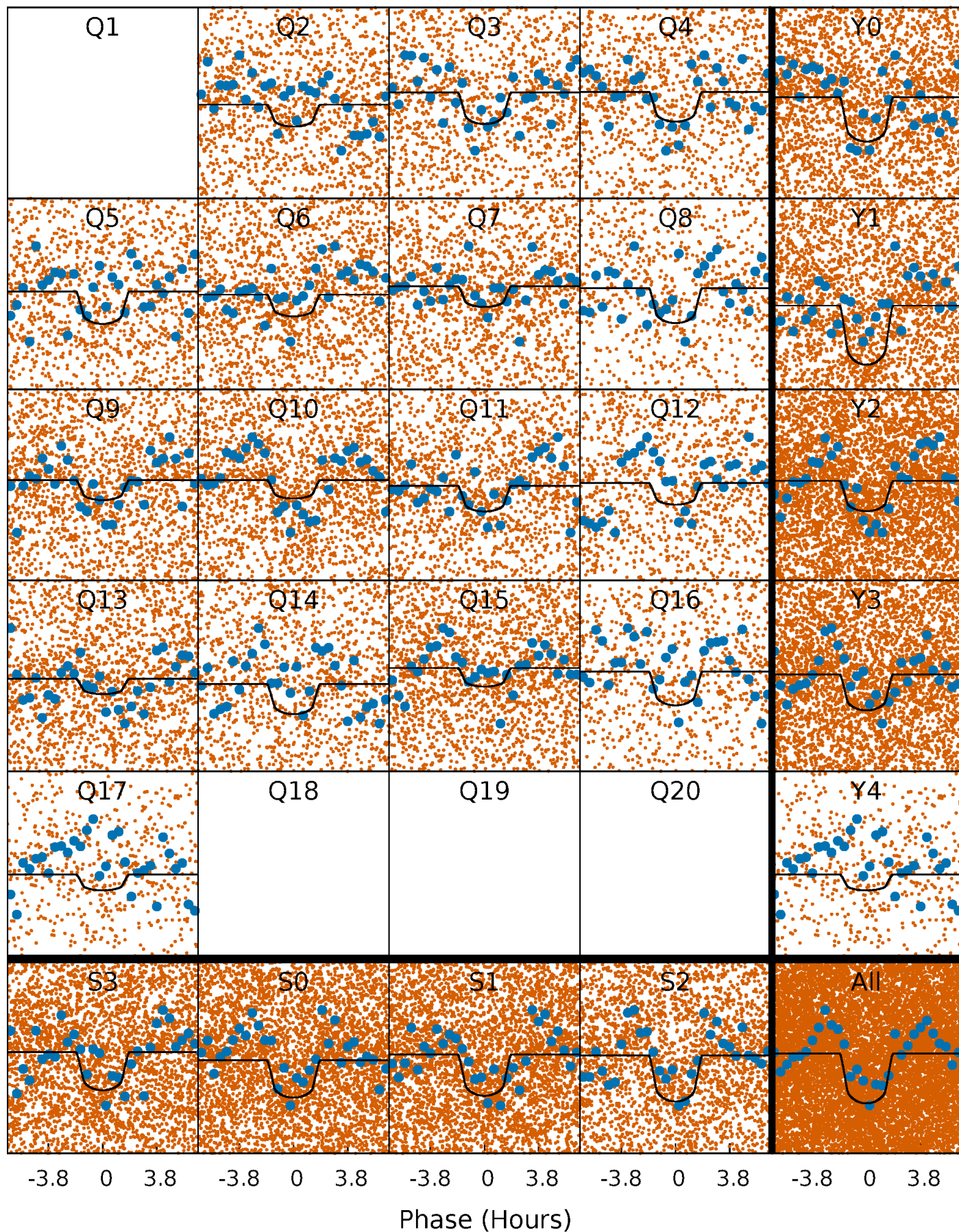
PDC Quarter-Phased Transit Curves

TCE 012691760-01 P= 0.769880 Days $T_0=131.946693$ (BKJD)



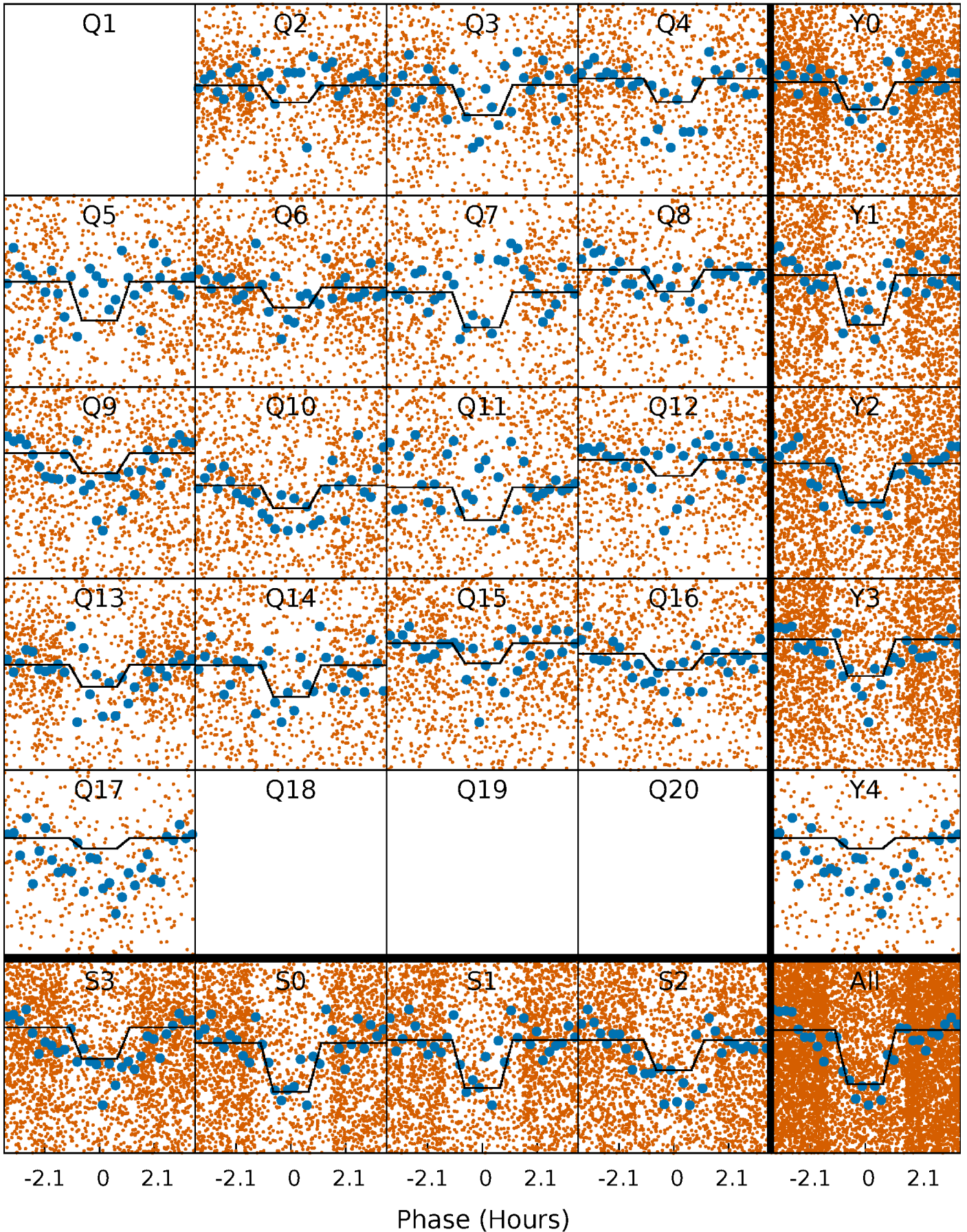
DV Quarter-Phased Transit Curves

TCE 012691760-01 P= 0.769880 Days $T_0=131.946693$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

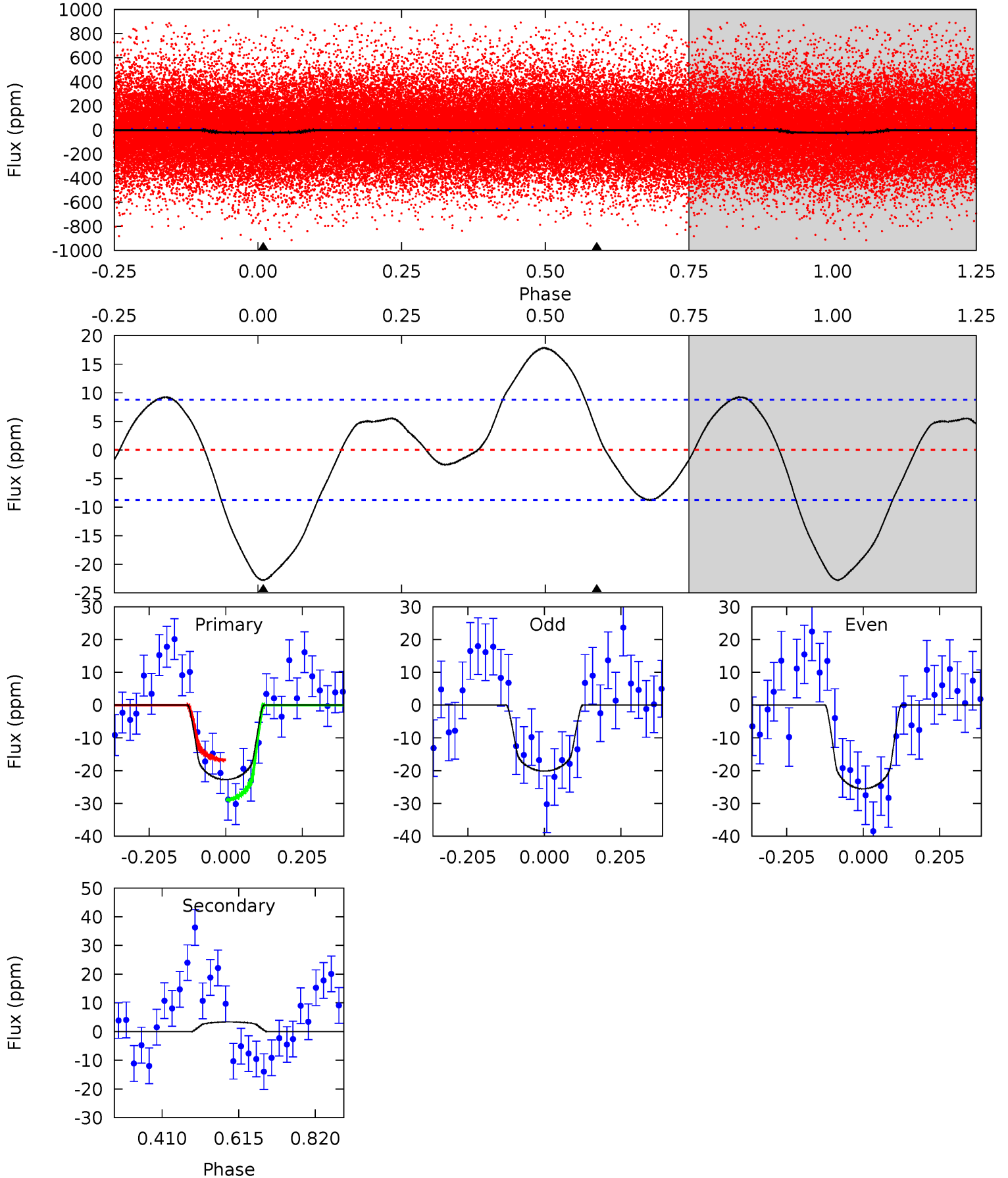
TCE 012691760-01 P= 0.769928 Days $T_0=131.918098$ (BKJD)



DV Model-Shift Uniqueness Test

012691760-01, P = 0.769880 Days, E = 131.946693 Days

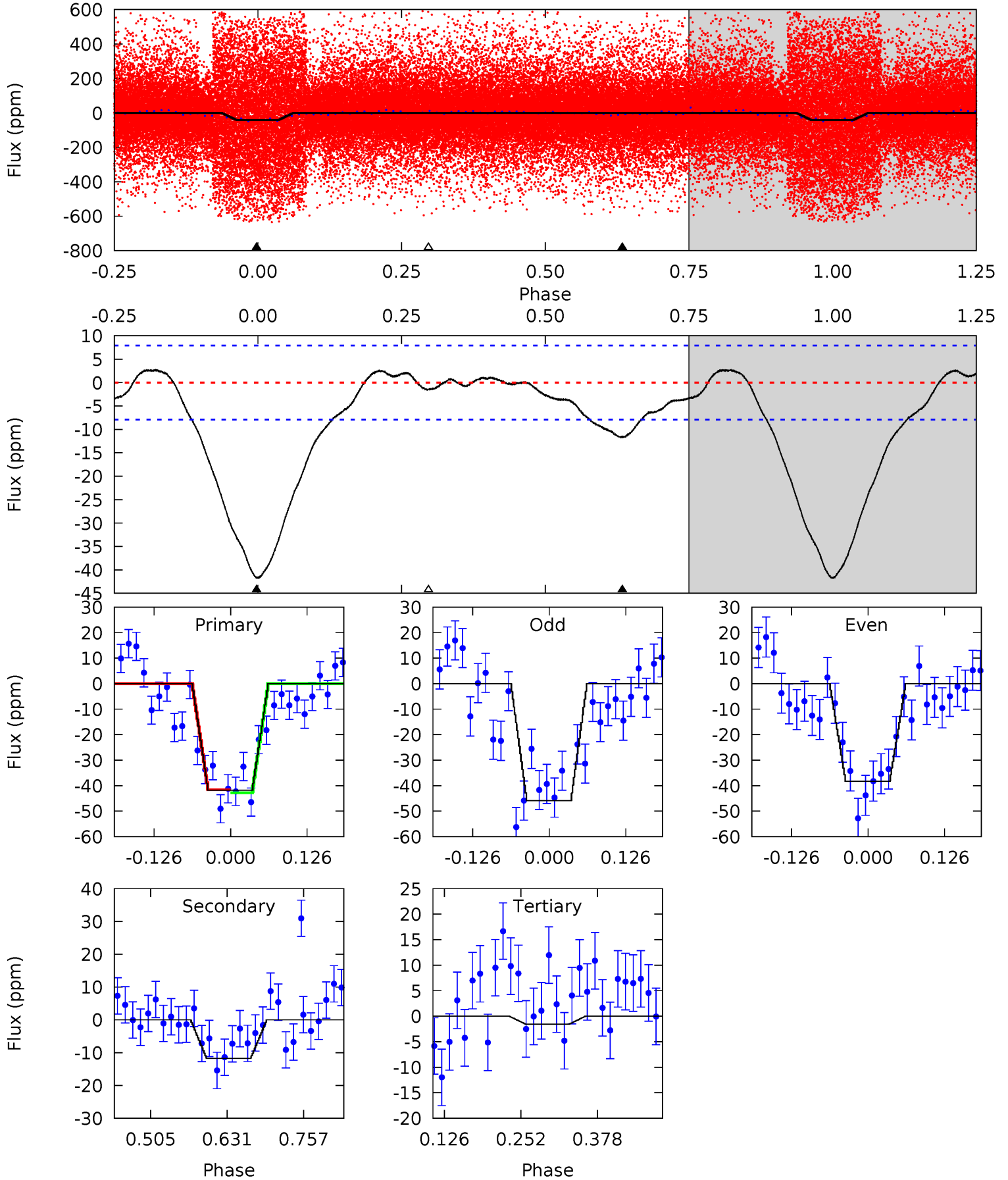
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.4	-1.68	0	0	4.41	1.27	1.57	11.4	11.4	-1.68	-1.68	1.35	0.67	0.44	3.04



Alt Model-Shift Uniqueness Test

012691760-01, P = 0.769928 Days, E = 131.918098 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.9	6.70	0.88	0	4.52	1.53	1.37	23.0	23.9	5.82	6.70	2.20	1.05	0.06	0.33



Stellar Parameters For KIC 012691760

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5184^{+196}_{-179}	$4.567^{+0.052}_{-0.078}$	$-0.180^{+0.300}_{-0.300}$	$0.760^{+0.106}_{-0.071}$	$0.779^{+0.090}_{-0.073}$	$2.496^{+0.564}_{-0.657}$
	+4%/-3%	+1%/-2%	+167%/-167%	+14%/-9%	+12%/-9%	+23%/-26%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012691760-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	3 ± 2	$0.53^{+0.28}_{-0.26}$	2285^{+106}_{-94}	-3367^{+372}_{-775}	$-1.357^{+0.929}_{-3.796}$
Alt.	-12 ± 2	$0.49^{+0.28}_{-0.24}$	2272^{+102}_{-94}	4124^{+1422}_{-617}	$6.053^{+18.470}_{-3.582}$

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

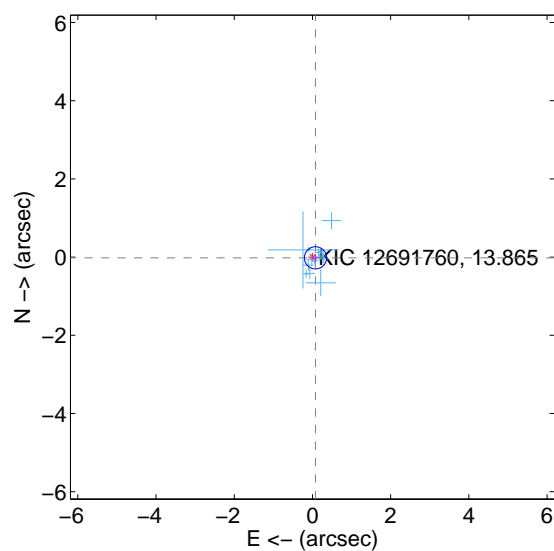
Supplemental centroid analysis for 012691760-01. Kepler magnitude: 13.87. Transit SNR 8.08

There are 16 quarters with good PRF difference image offsets

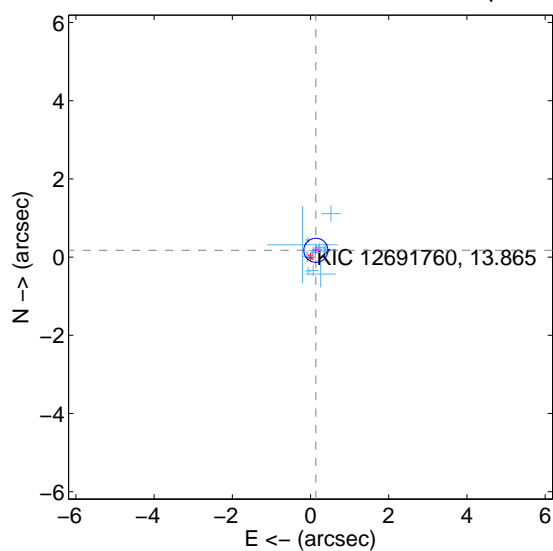
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.080 ± 0.094	0.85	-0.078 ± 0.094	-0.018 ± 0.097
PRF-fit source offset from KIC position	0.221 ± 0.103	2.15	-0.136 ± 0.081	0.174 ± 0.106
photometric centroid source offset	1.27 ± 1.30	0.98	-0.69 ± 1.27	-1.06 ± 1.31

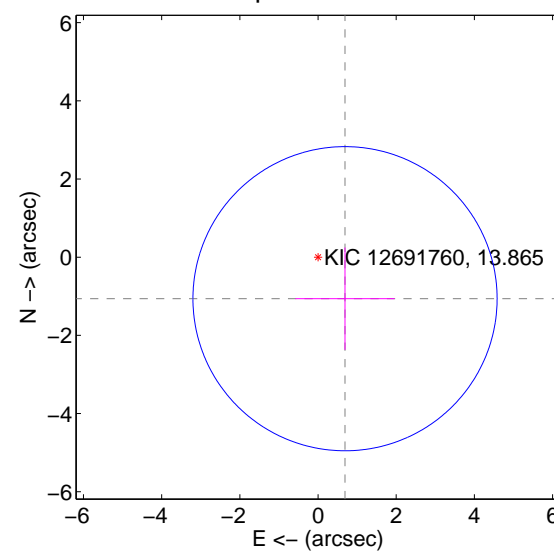
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

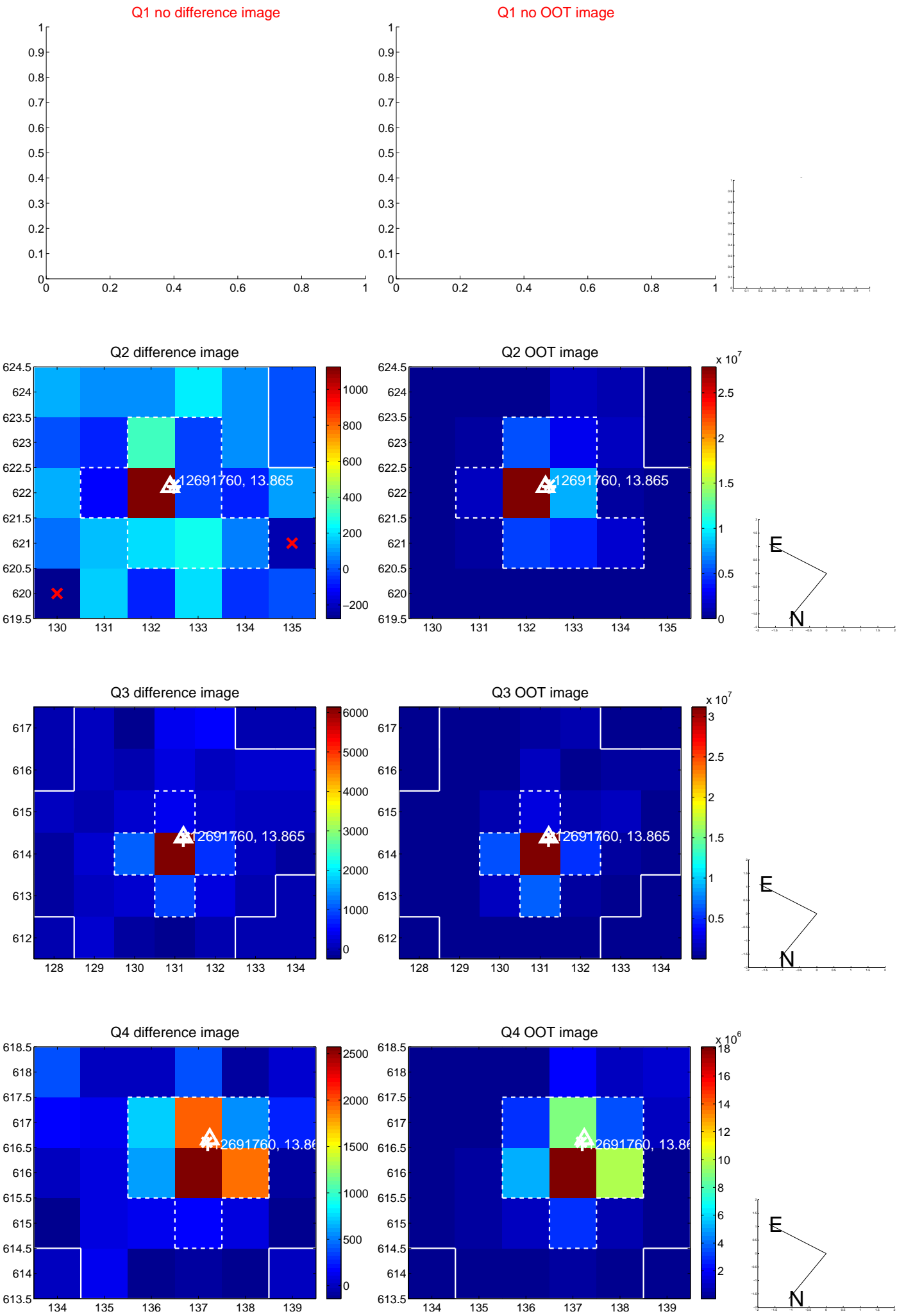


offset from photometric centroids

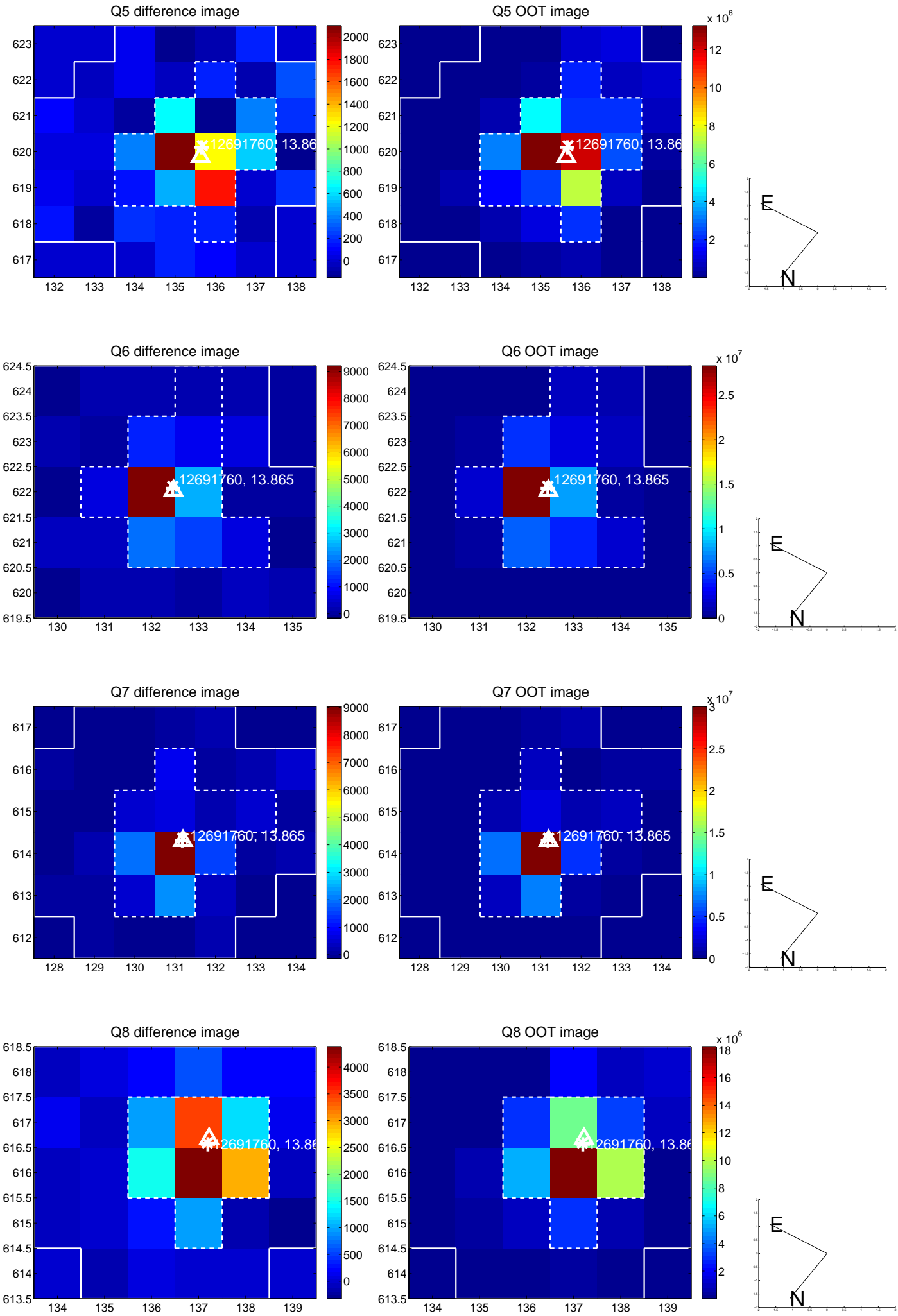


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

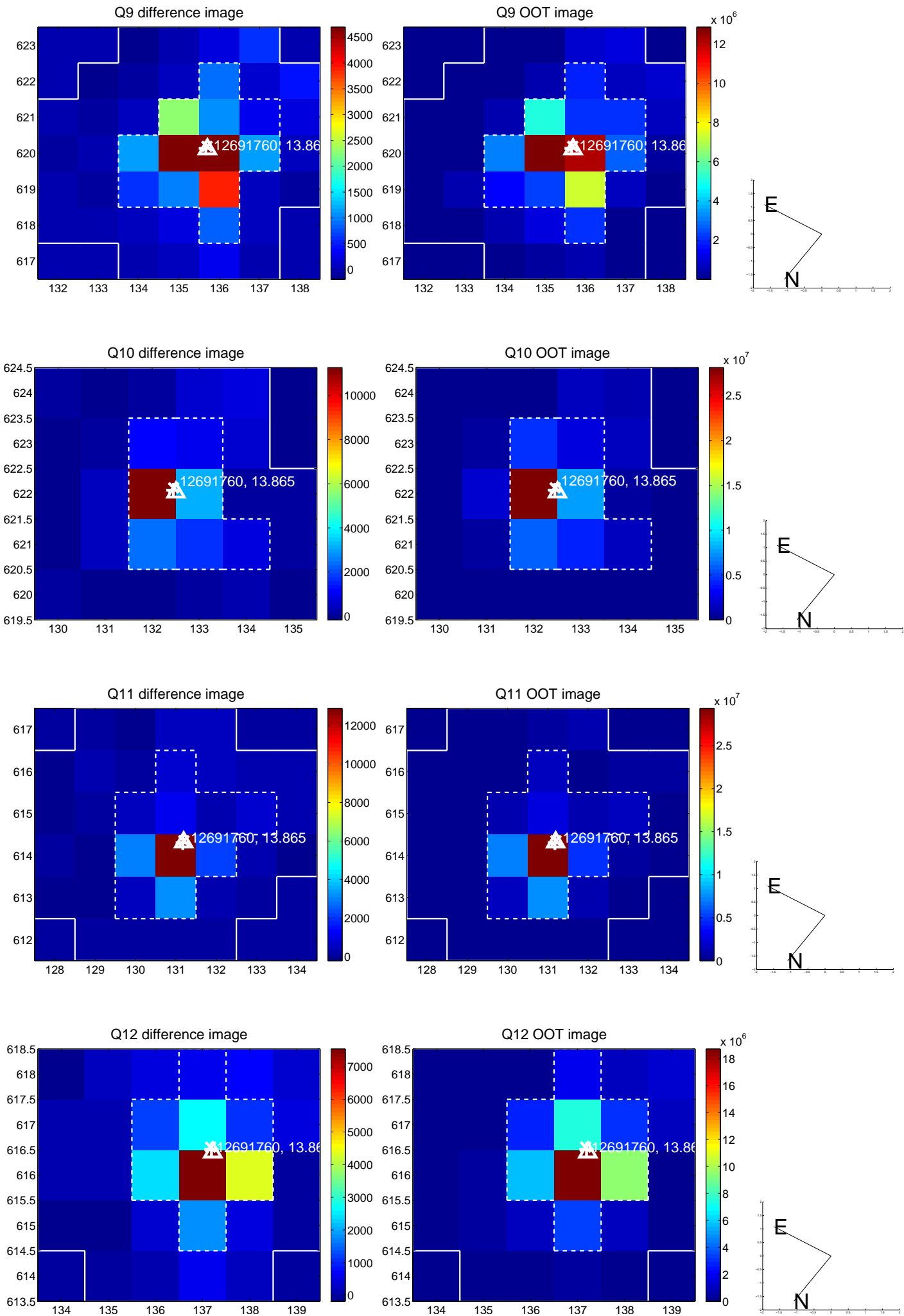
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



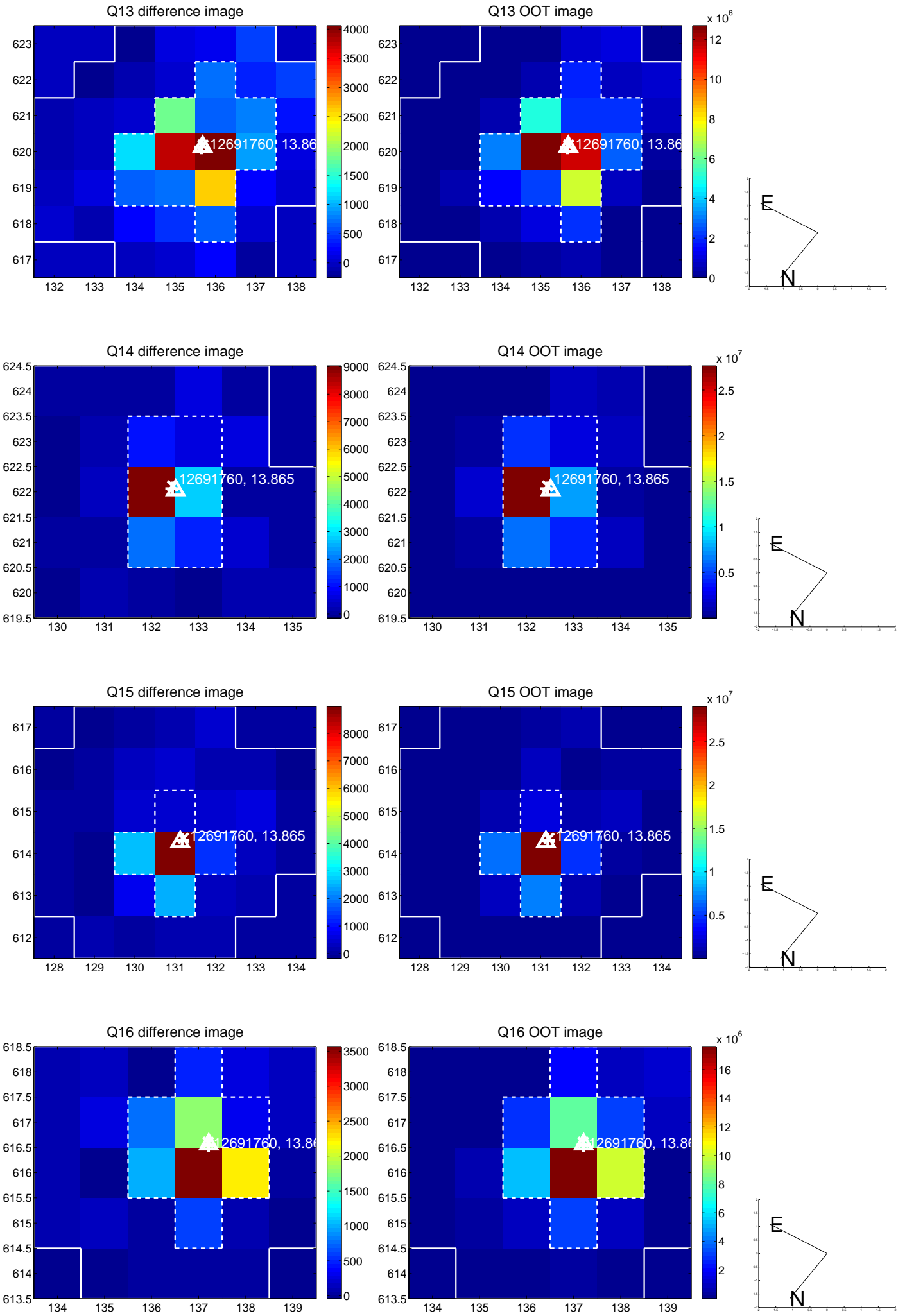
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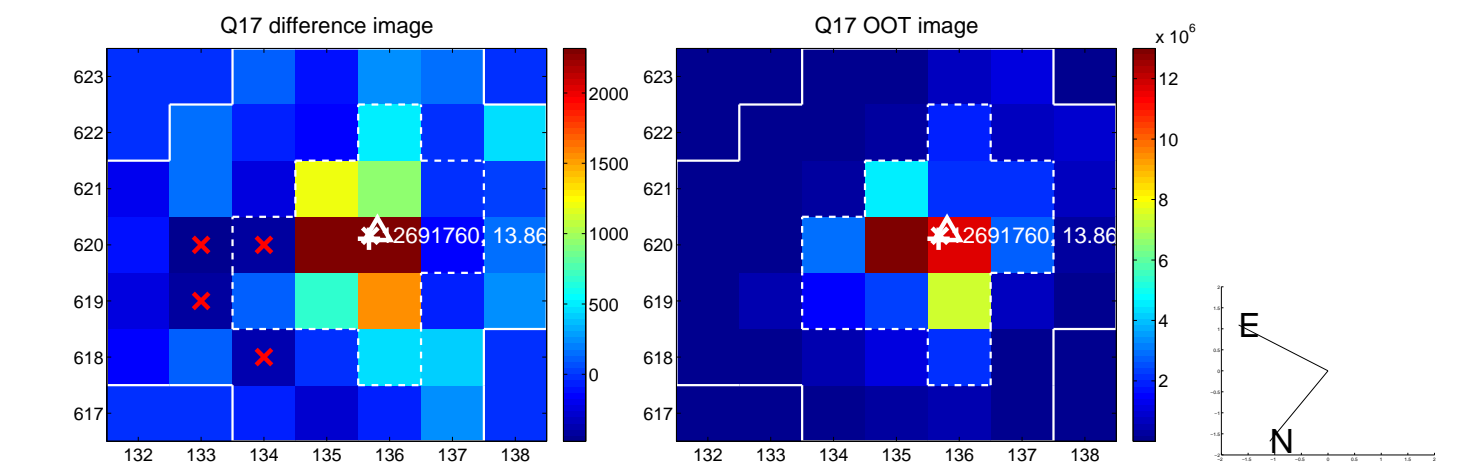
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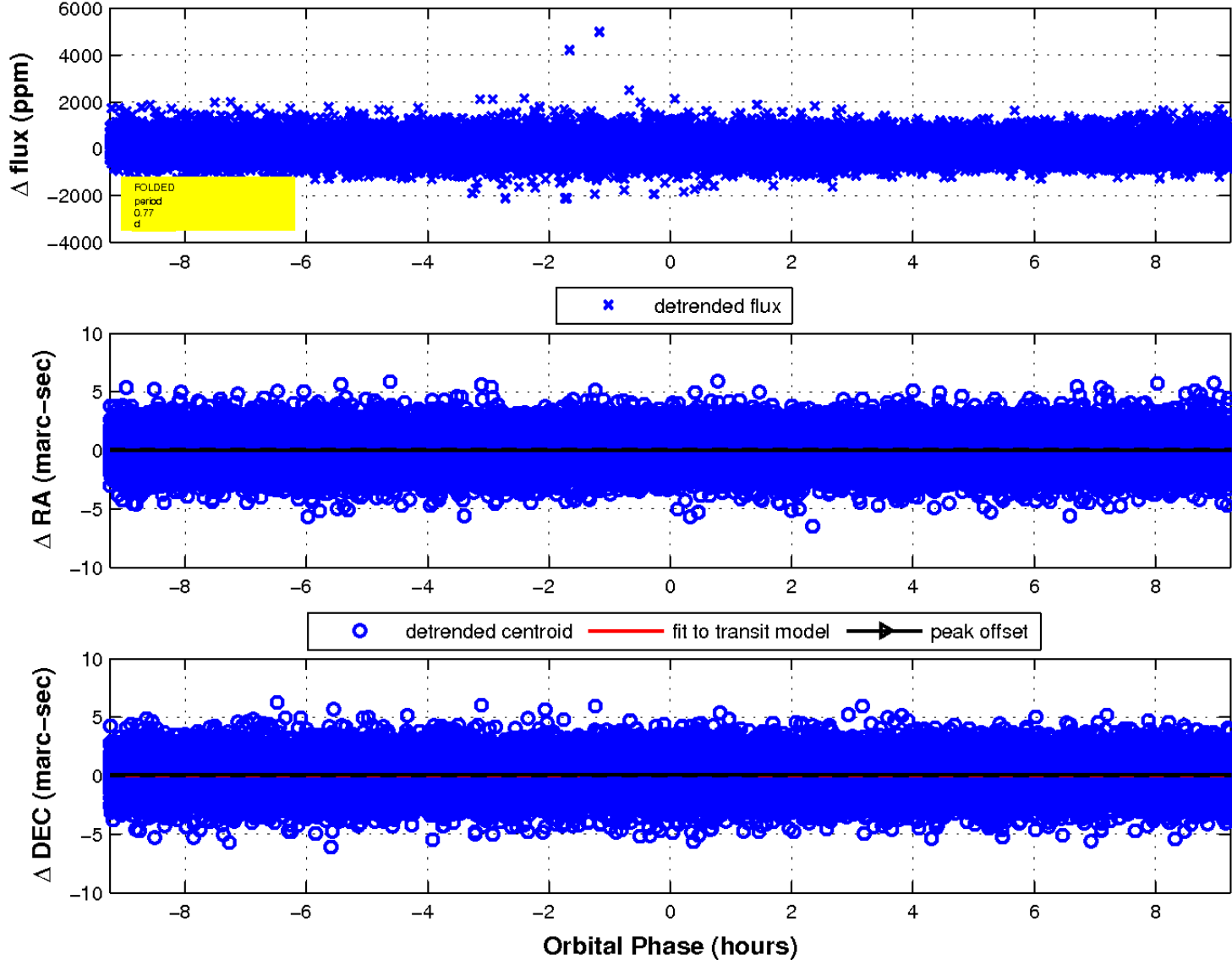
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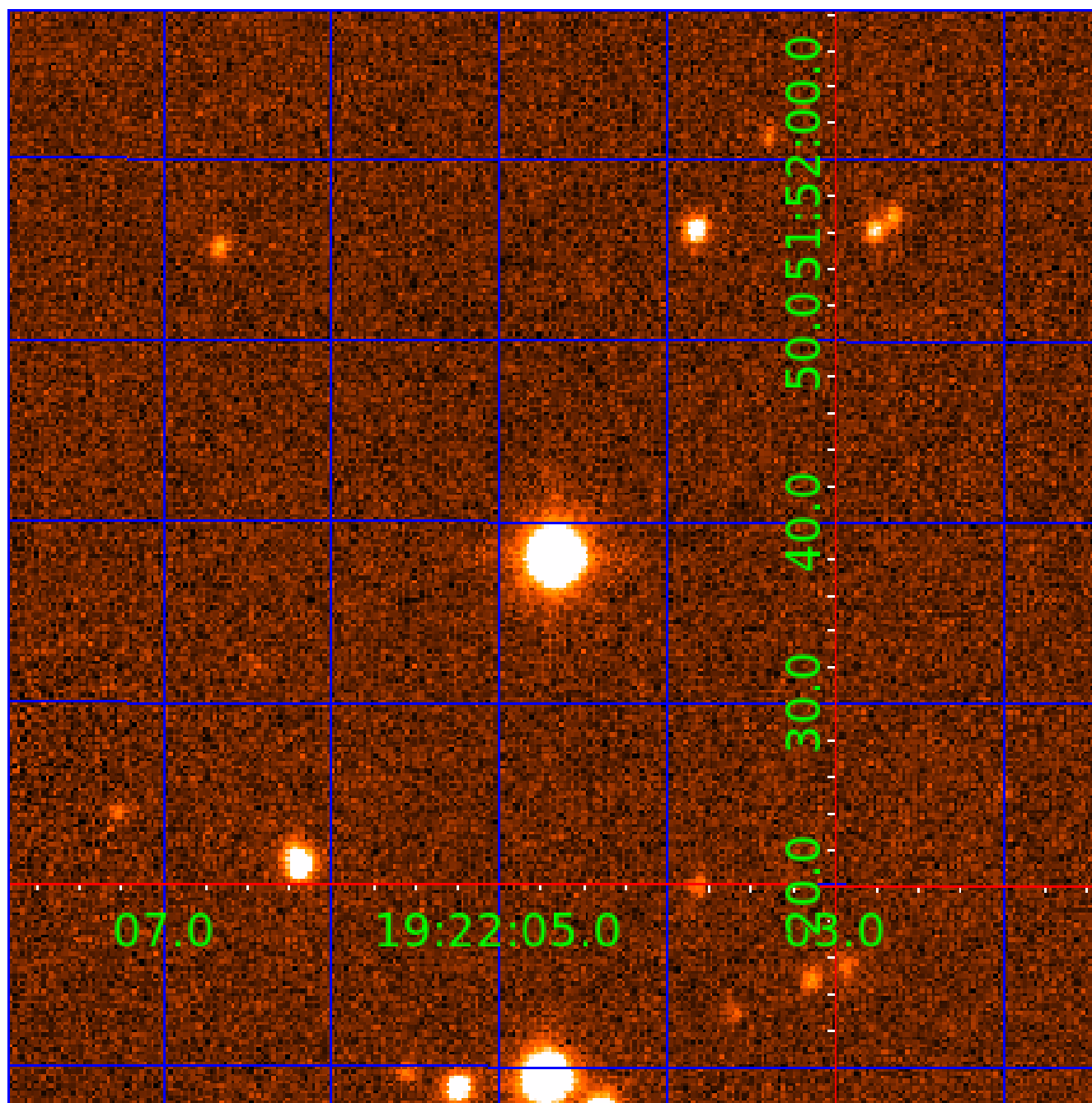


fluxWeightedCentroids, Planet 1 of 9



UKIRT Image

Declination



KIC 012691760

Q1-17 DR25 TCE Parameters

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Robovetter Results

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012691760-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012691760-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES
012691760-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
012691760-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
012691760-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

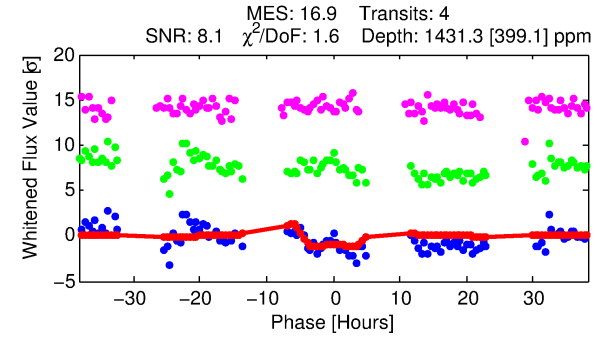
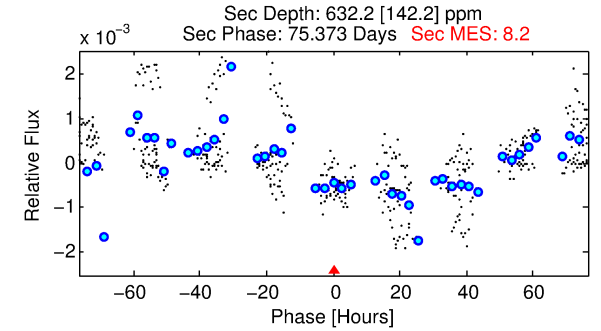
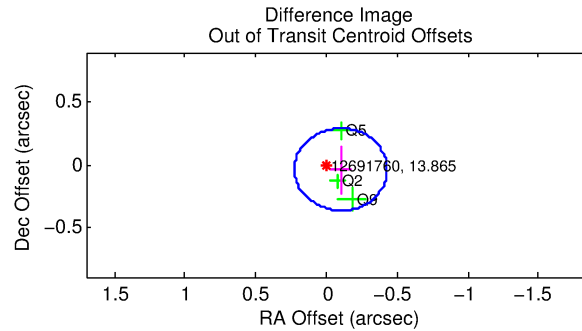
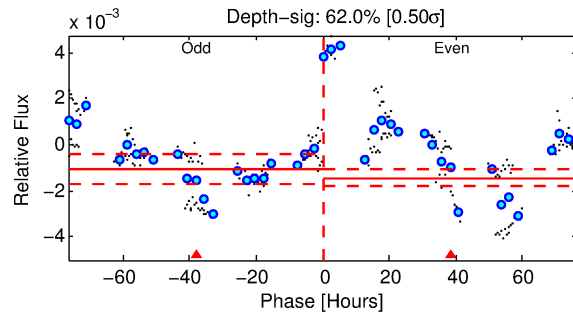
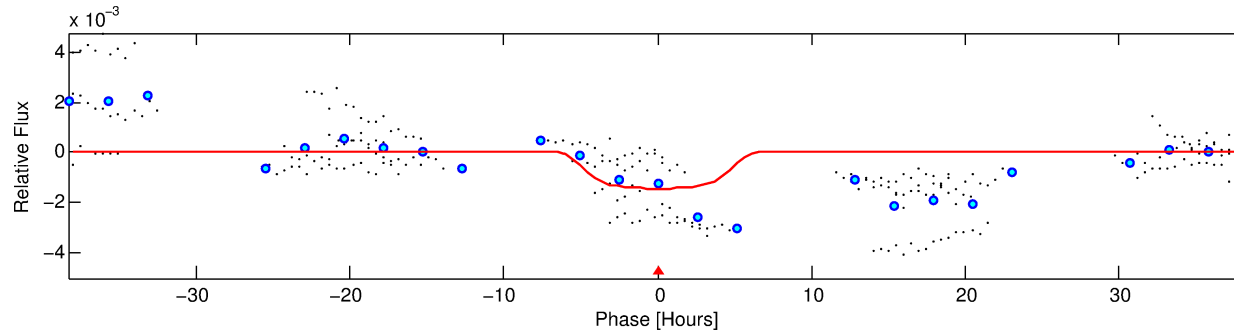
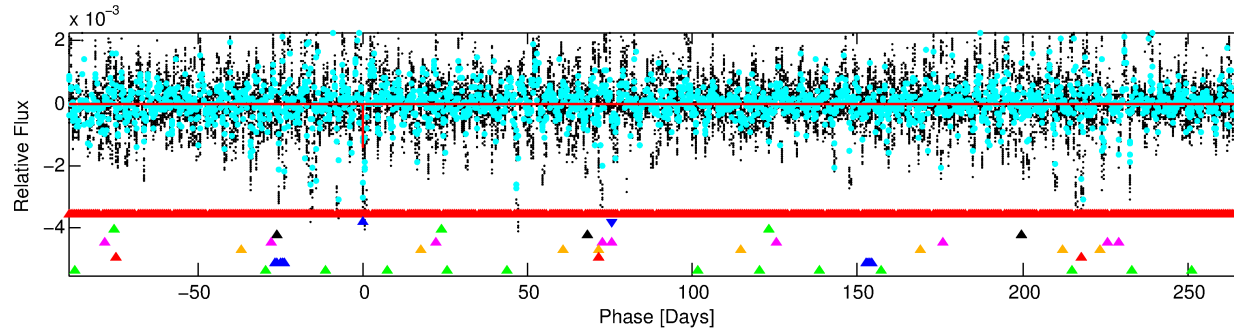
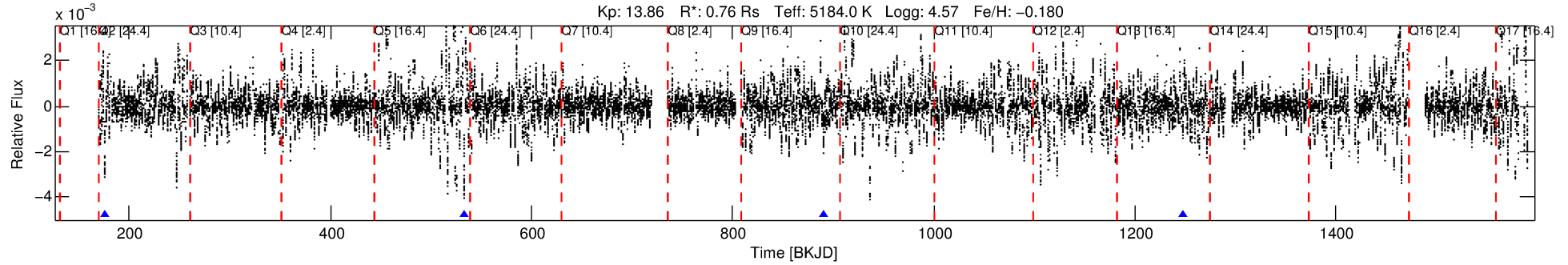
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012691760-02

No Significant Match Found

DV One-Page Summary

KIC: 12691760 Candidate: 2 of 9 Period: 357.281 d



DV Fit Results:

Period = 357.28130 [0.02594] d
Epoch = 175.4119 [0.0377] BKJD
Rp/R* = 0.0432 [0.0067]
a/R* = 104.12 [30.12]
b = 0.92 [0.03]
Seff = 0.46 [0.10]
Teq = 209 [11] K
Rp = 3.58 [0.74] Re
a = 0.9062 [0.1002] AU
Ag = 22270.45 [9140.18] [2.44 σ]
Teffp = 3956 [406] K [9.23 σ]

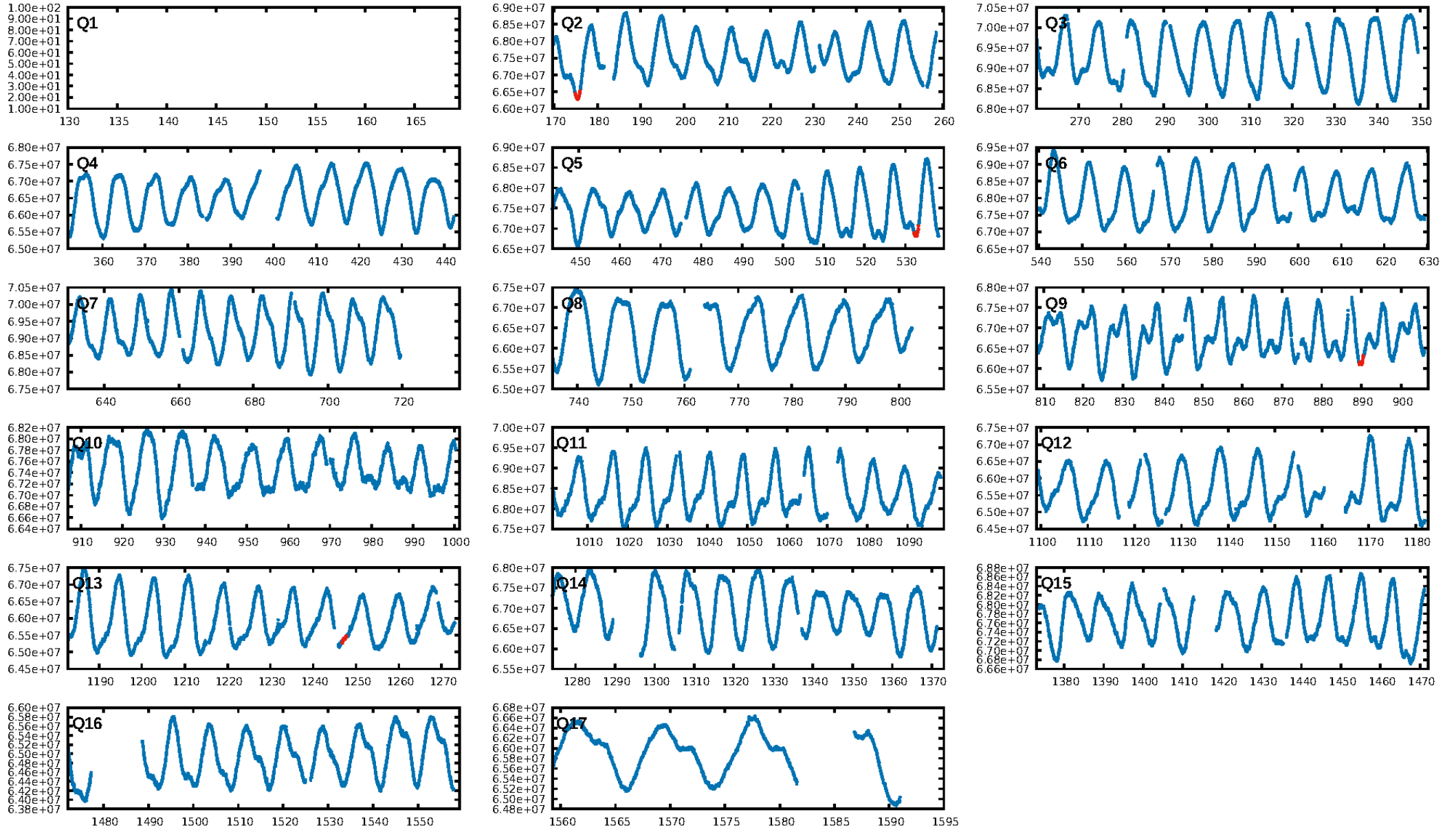
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [255.80 σ]
LongPeriod-sig: 100.0% [122.30 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.4008
Centroid-sig: 0.6%
Centroid-so: 1.602 arcsec [4.30 σ]
OotOffset-rm: 0.109 arcsec [0.99 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 0.246 arcsec [1.35 σ]
KicOffset-st: 1/0/0/2 [3]
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DiffImageOverlap-fno: 0.00 [0/3]

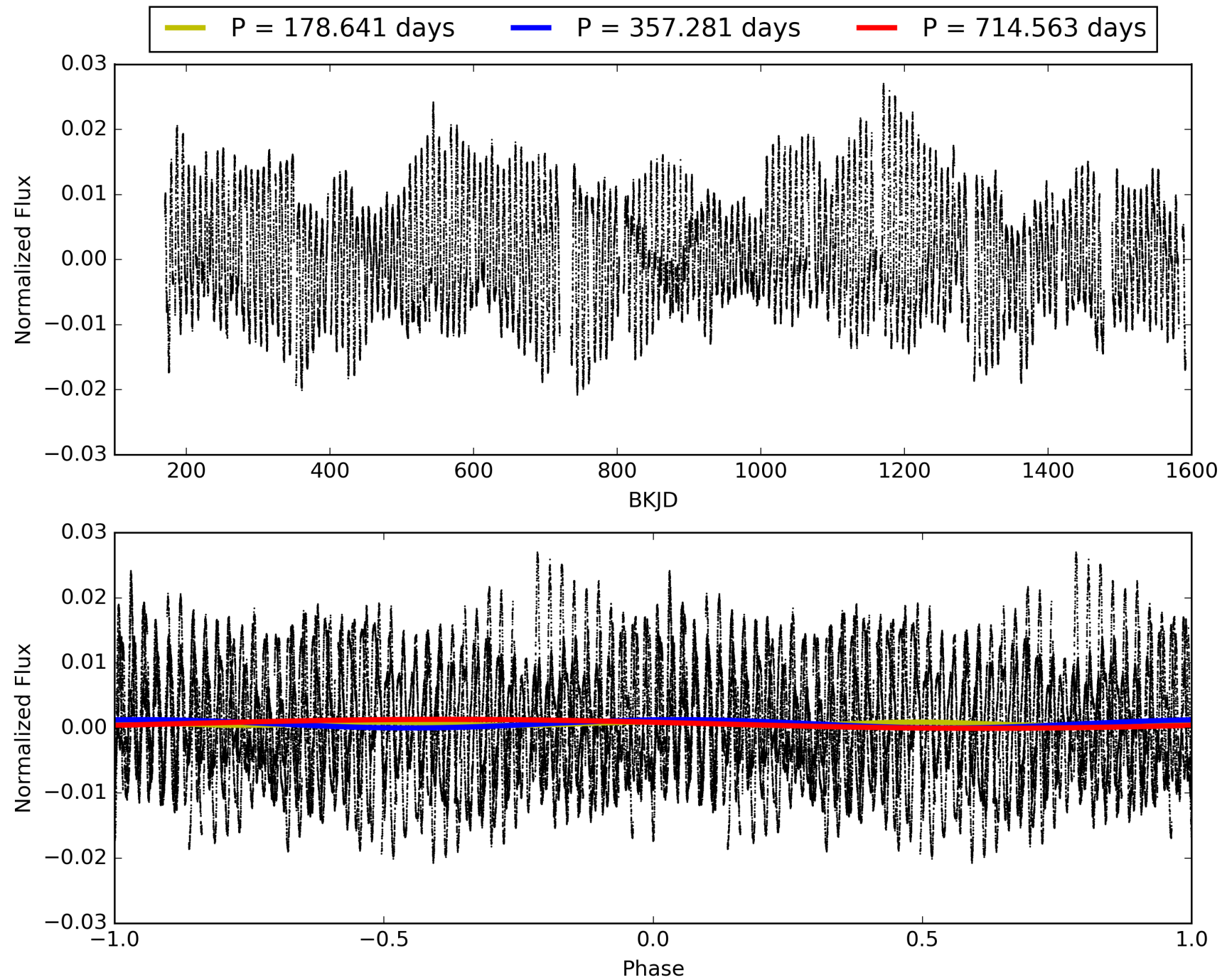
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012691760-02, PDC Light Curves

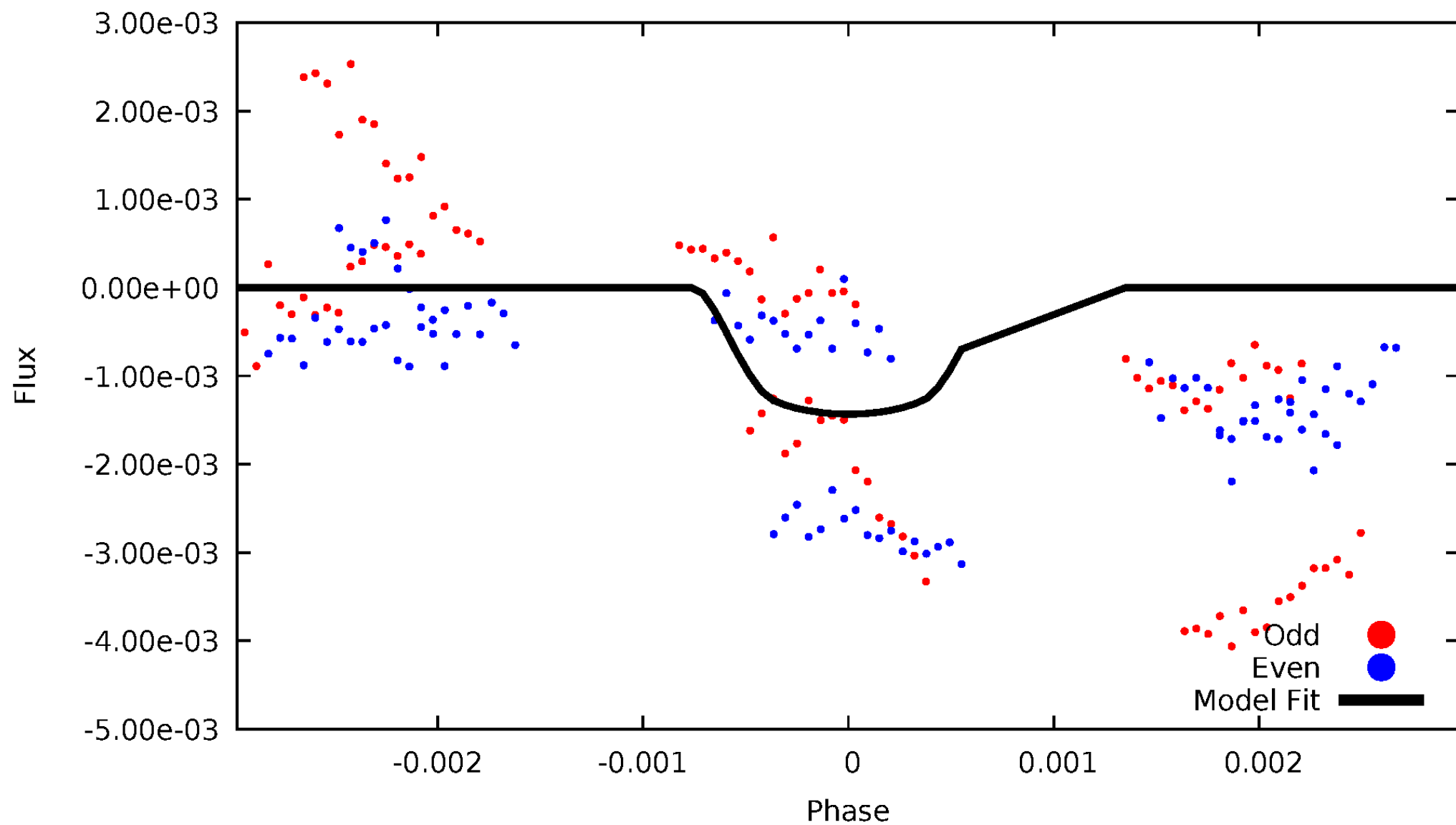


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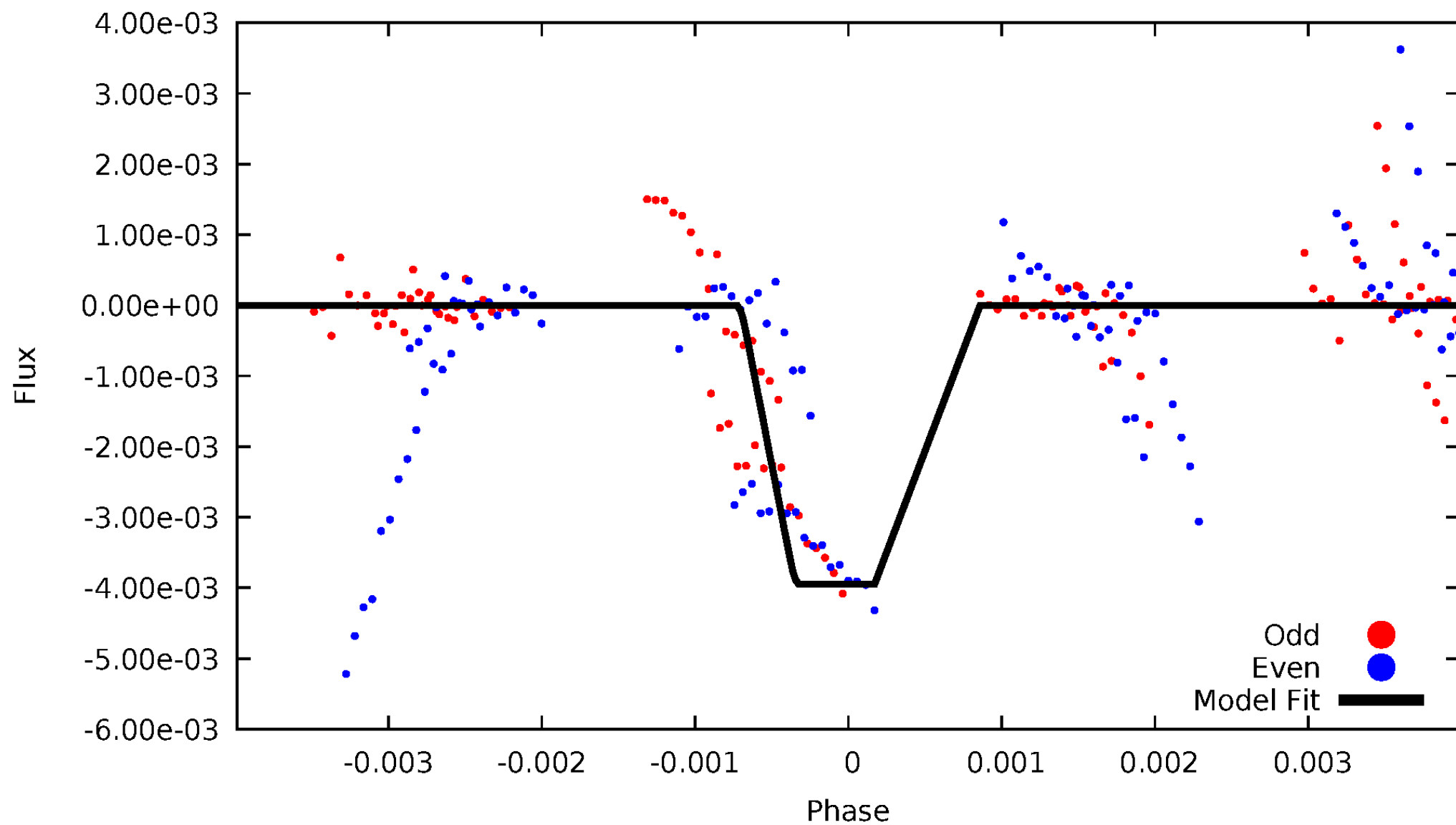
DV Odd/Even

TCE 012691760-02



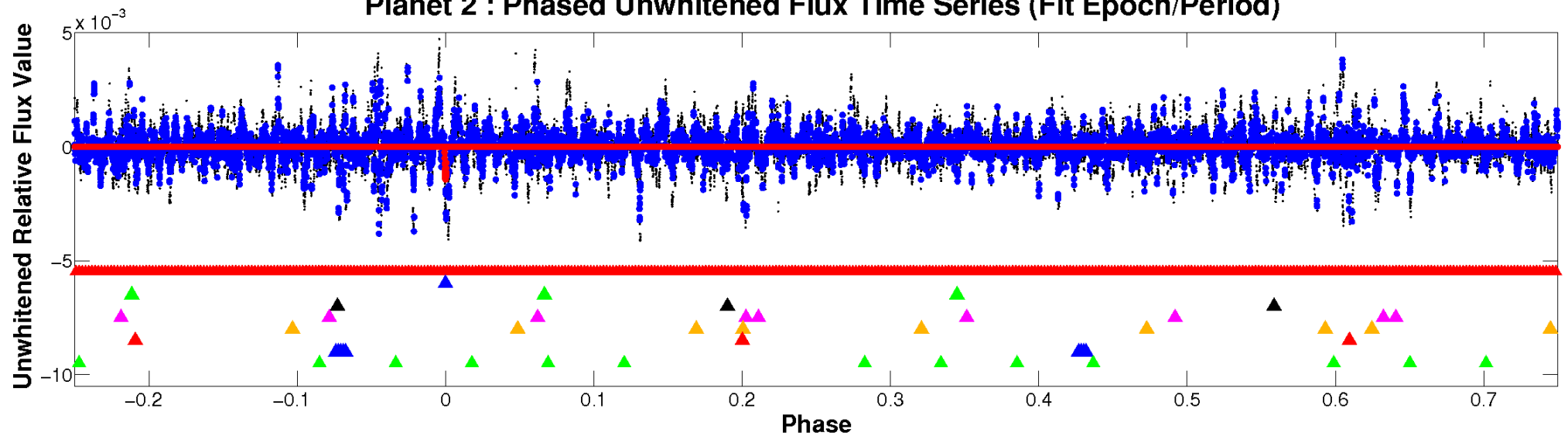
ALT Odd/Even

TCE 012691760-02

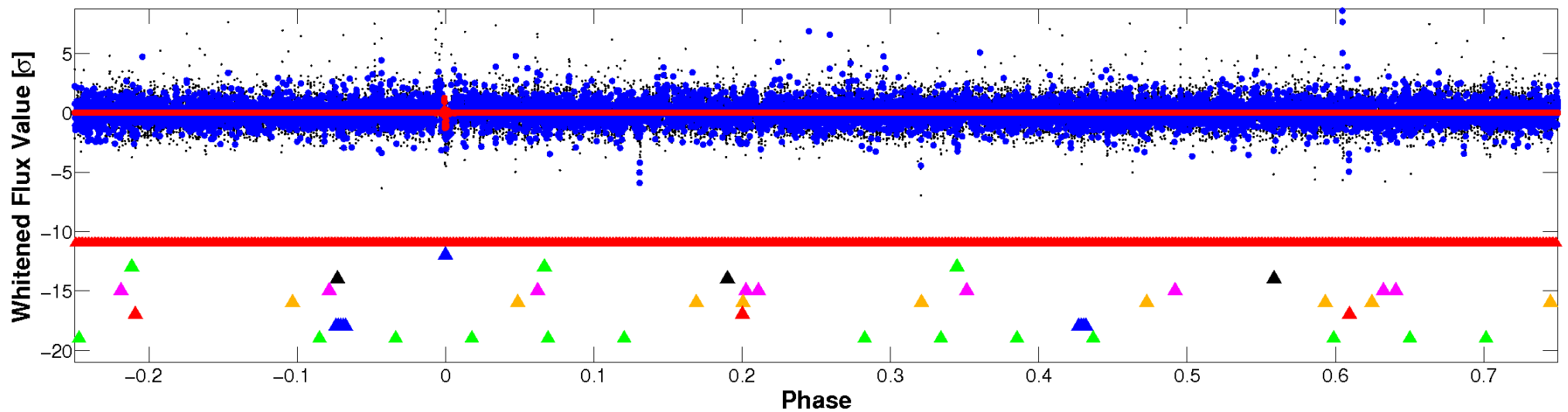


Non-Whitened Vs. Whitened Light Curve

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

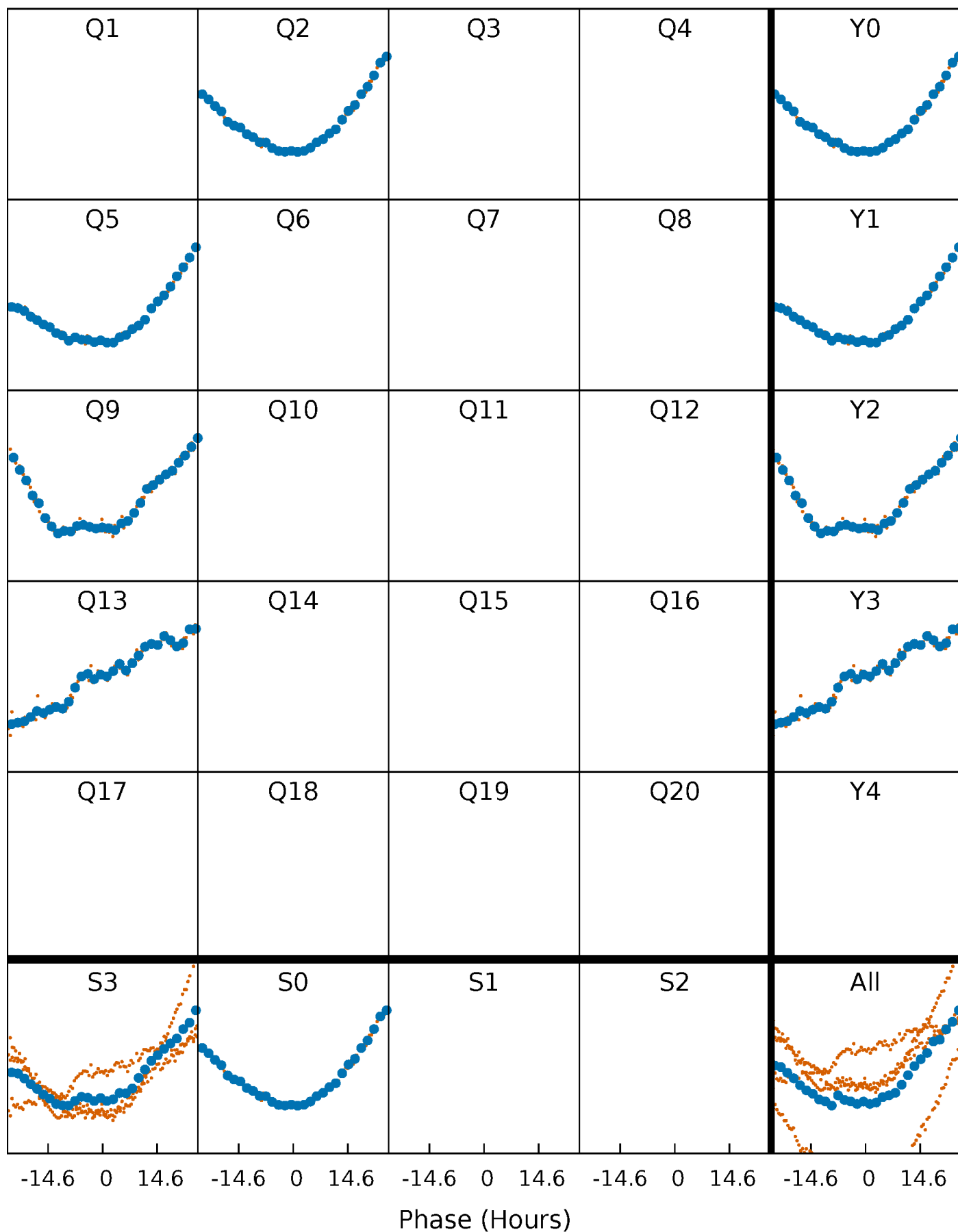


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



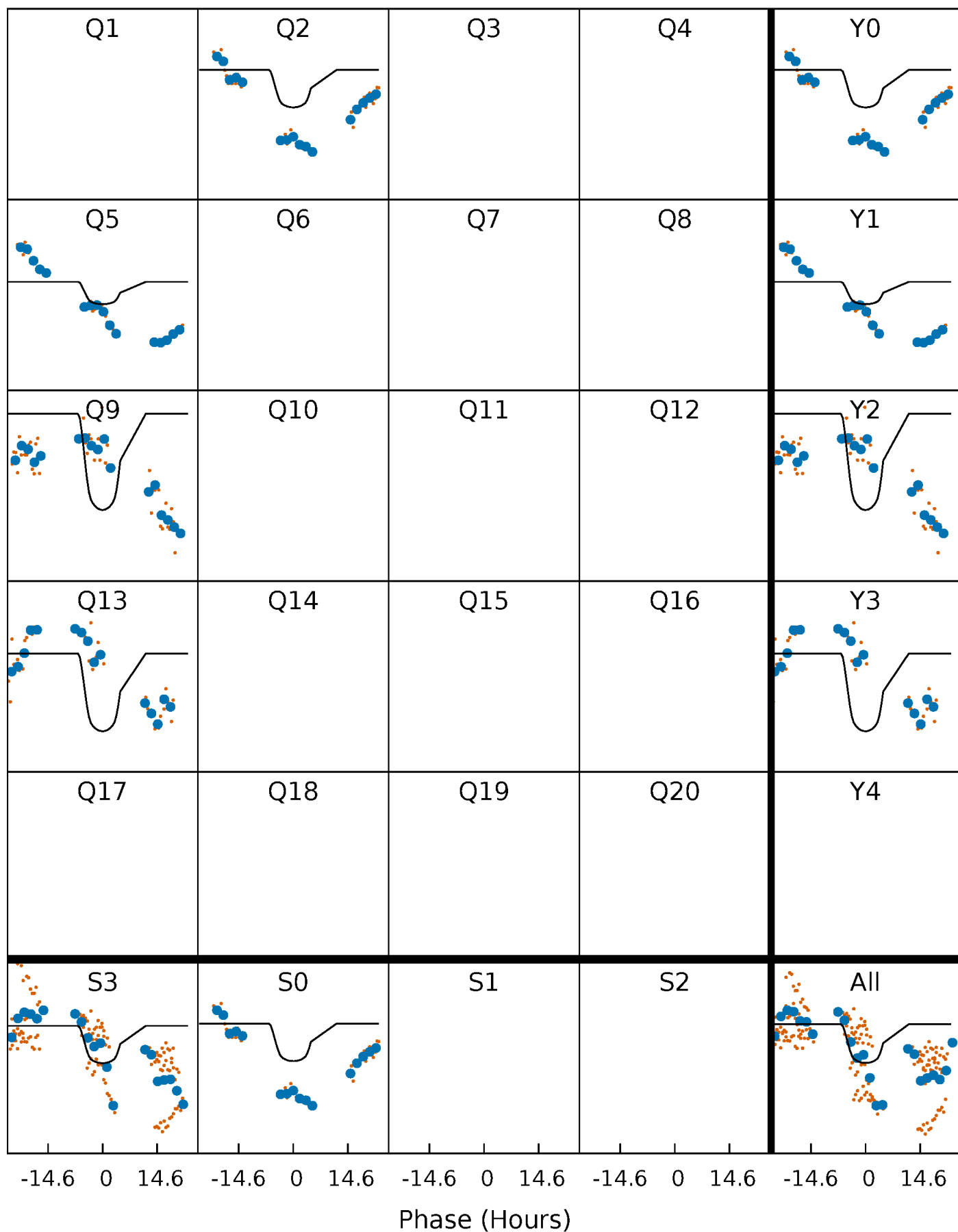
PDC Quarter-Phased Transit Curves

TCE 012691760-02 $P=357.281300$ Days $T_0=175.411893$ (BKJD)



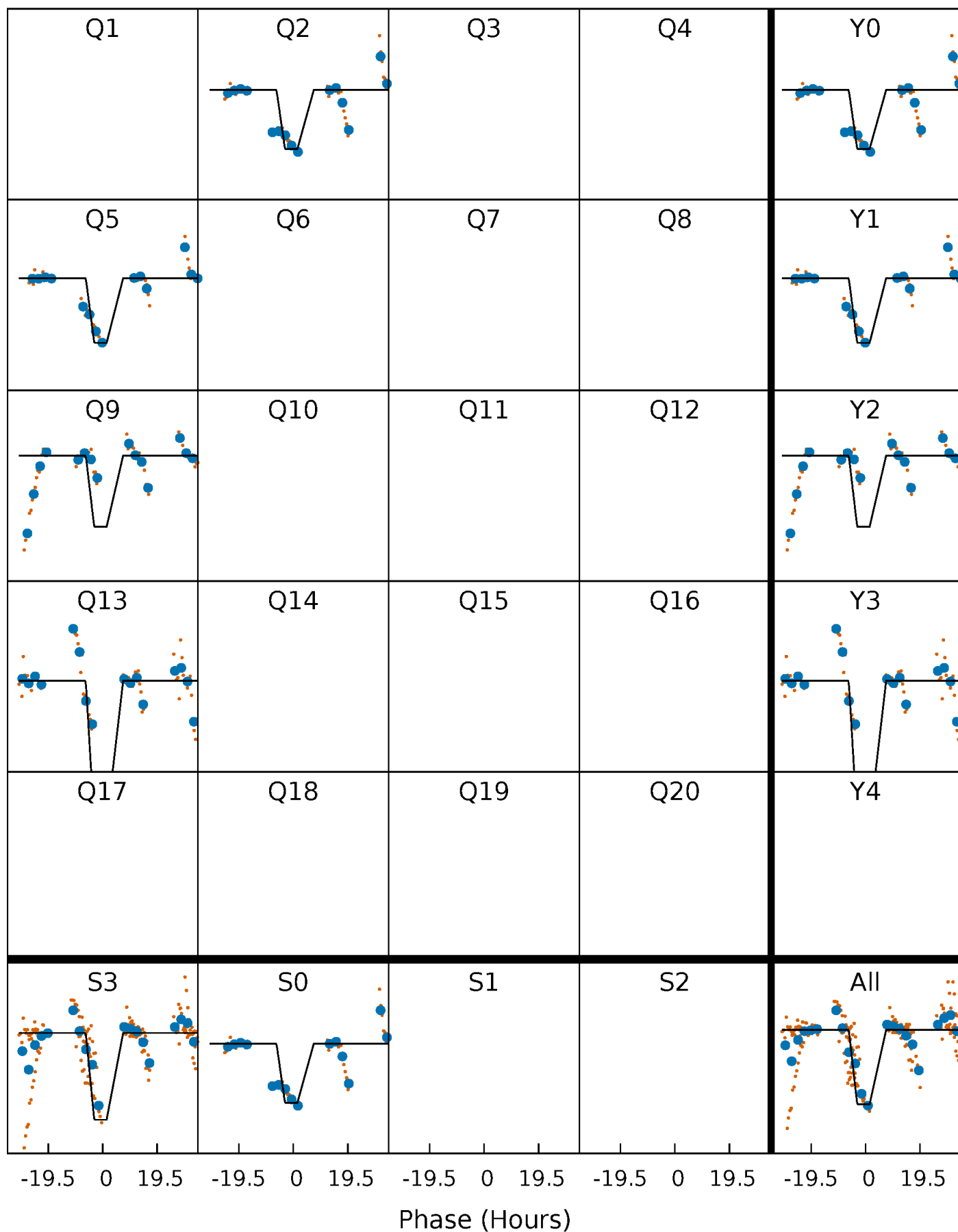
DV Quarter-Phased Transit Curves

TCE 012691760-02 $P=357.281300$ Days $T_0=175.411893$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

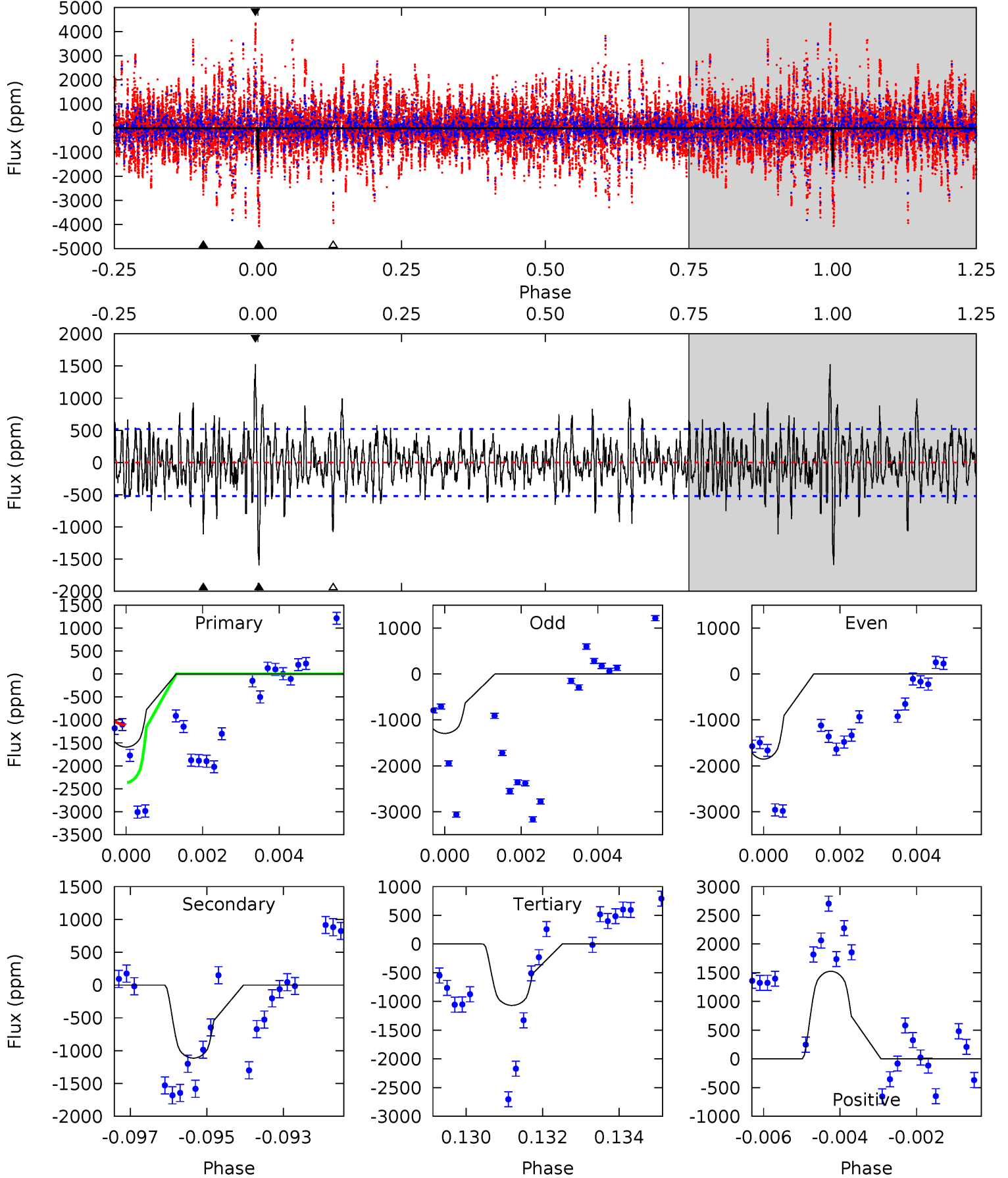
TCE 012691760-02 P=357.294419 Days $T_0=175.547643$ (BKJD)



DV Model-Shift Uniqueness Test

012691760-02, P = 357.281300 Days, E = 175.411893 Days

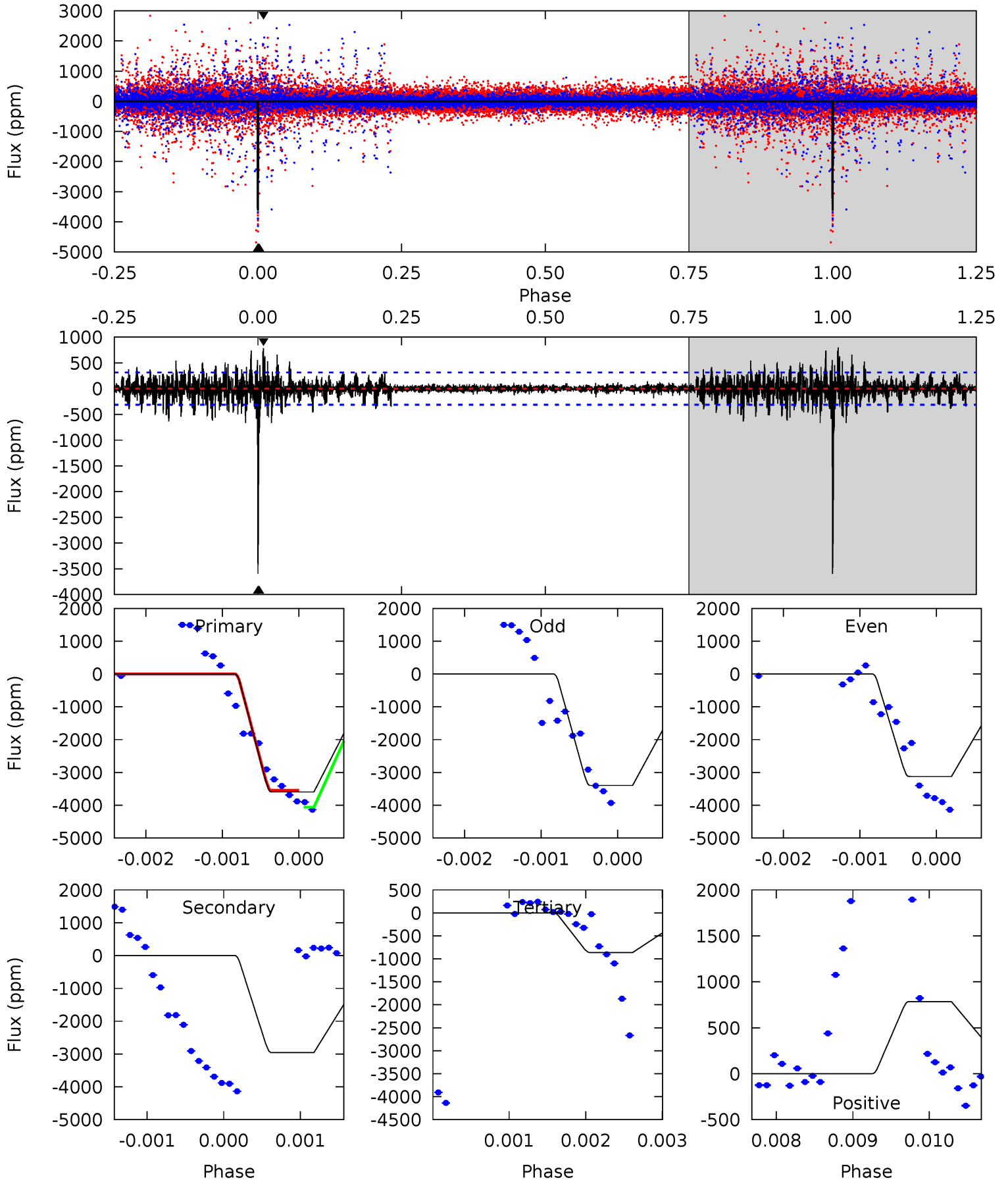
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	11.4	10.9	15.6	5.32	3.08	3.01	5.34	0.67	0.46	-4.21	2.75	1.05	0.49	6.29



Alt Model-Shift Uniqueness Test

012691760-02, P = 357.294419 Days, E = 175.547643 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.7	51.6	15.0	13.7	5.48	3.33	1.93	47.7	49.1	36.5	37.9	2.20	0.91	0.18	2.46



Stellar Parameters For KIC 012691760

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5184^{+196}_{-179}	$4.567^{+0.052}_{-0.078}$	$-0.180^{+0.300}_{-0.300}$	$0.760^{+0.106}_{-0.071}$	$0.779^{+0.090}_{-0.073}$	$2.496^{+0.564}_{-0.657}$
	+4%/-3%	+1%/-2%	+167%/-167%	+14%/-9%	+12%/-9%	+23%/-26%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012691760-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1113 ± 98	$3.63^{+0.60}_{-0.59}$	295^{+14}_{-12}	4678^{+372}_{-322}	39015^{+15989}_{-11267}
Alt.	-2955 ± 57	$5.24^{+0.65}_{-0.60}$	294^{+14}_{-12}	4901^{+292}_{-260}	48778^{+13101}_{-10113}

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

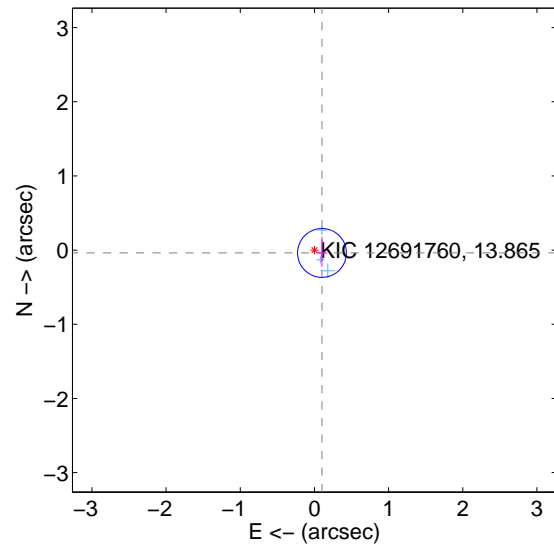
Supplemental centroid analysis for 012691760-02. Kepler magnitude: 13.87. Transit SNR 8.10

There are 3 quarters with good PRF difference image offsets

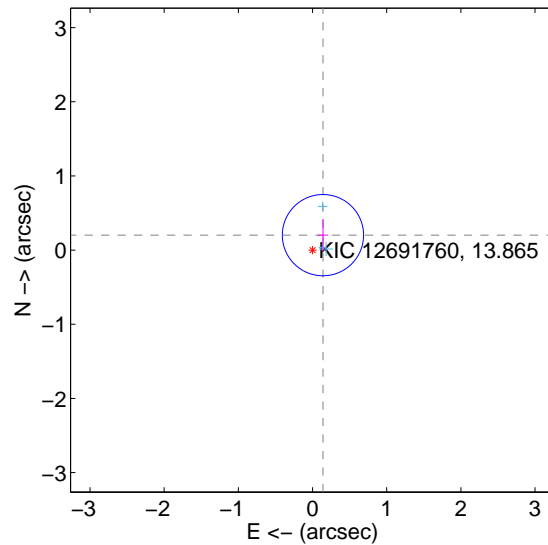
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.109 ± 0.110	0.99	-0.102 ± 0.075	-0.038 ± 0.188
PRF-fit source offset from KIC position	0.246 ± 0.183	1.35	-0.141 ± 0.068	0.202 ± 0.217
photometric centroid source offset	1.60 ± 0.37	4.30	-0.77 ± 0.34	1.40 ± 0.38

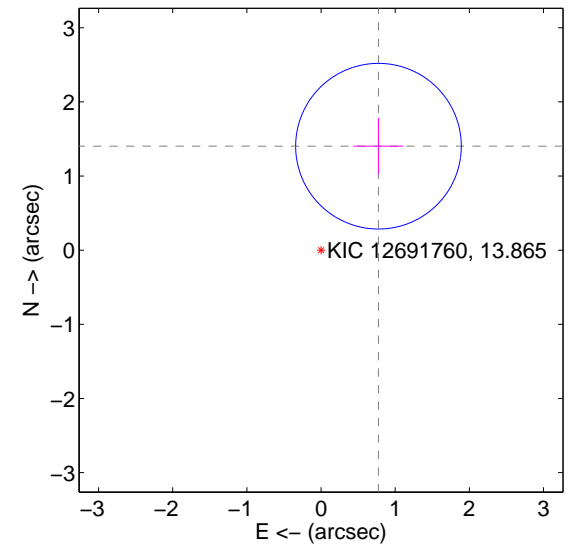
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

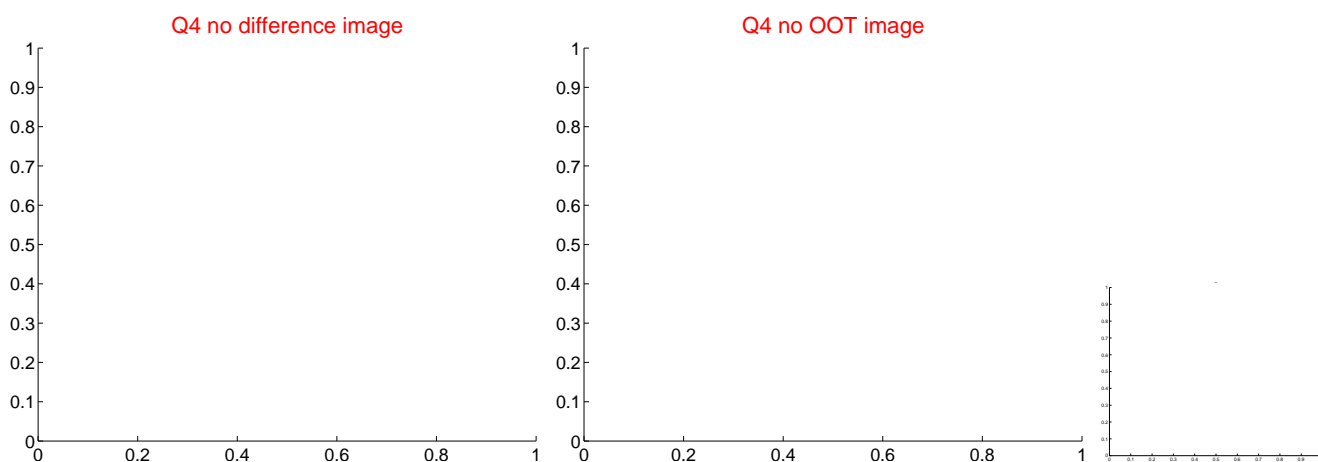
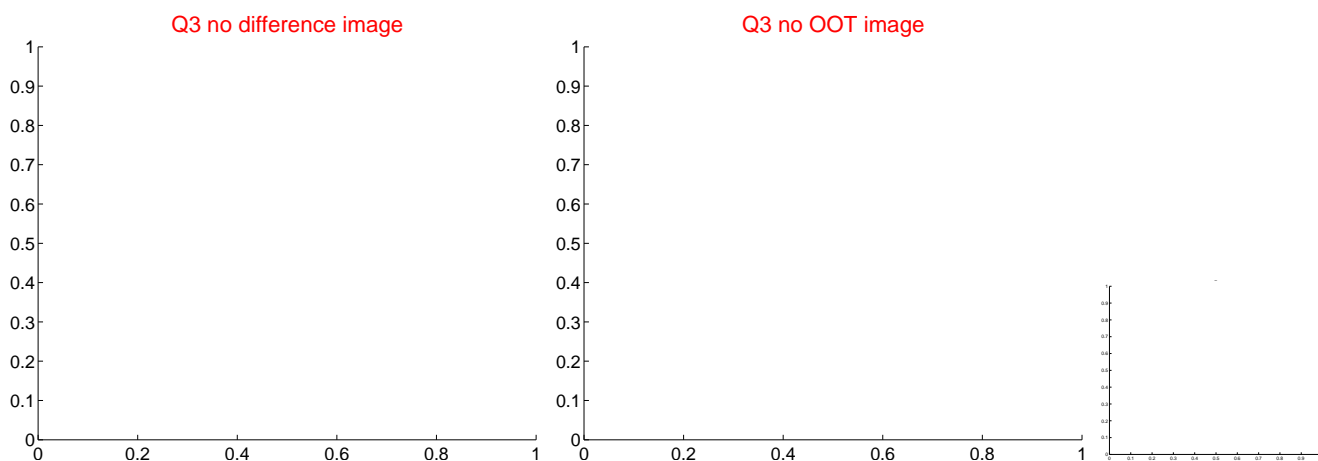
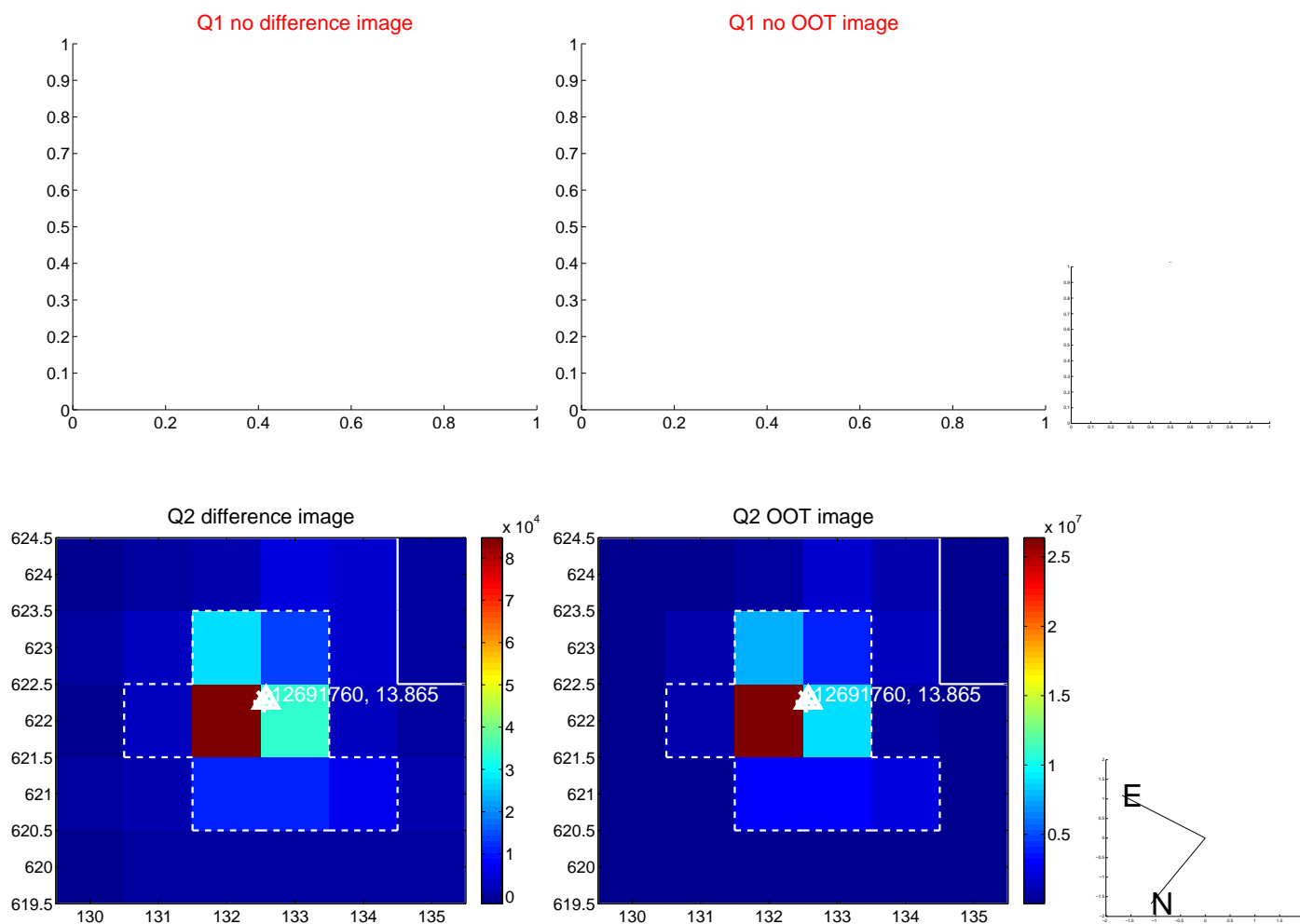


offset from photometric centroids

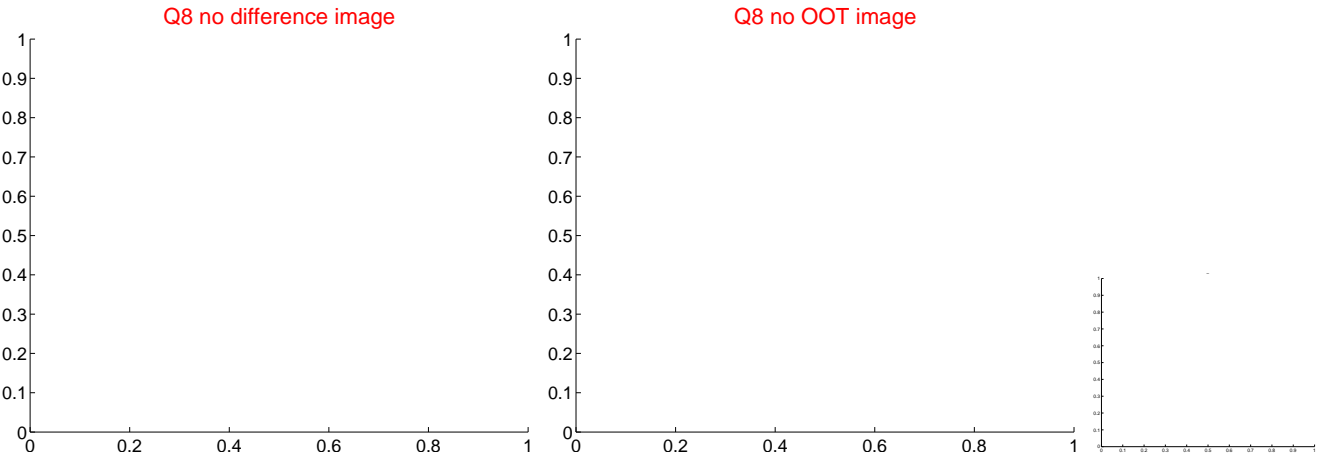
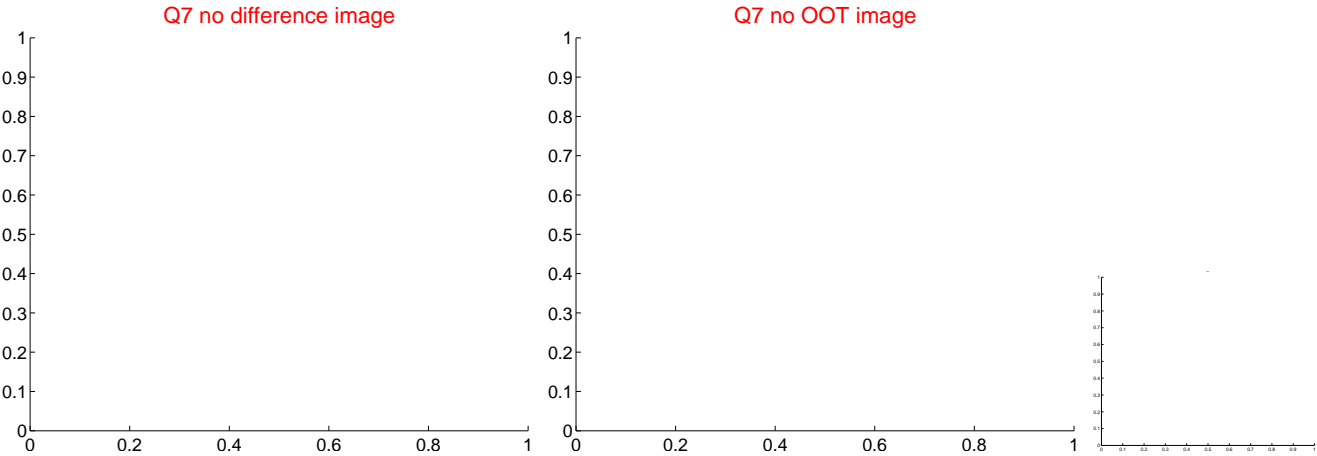
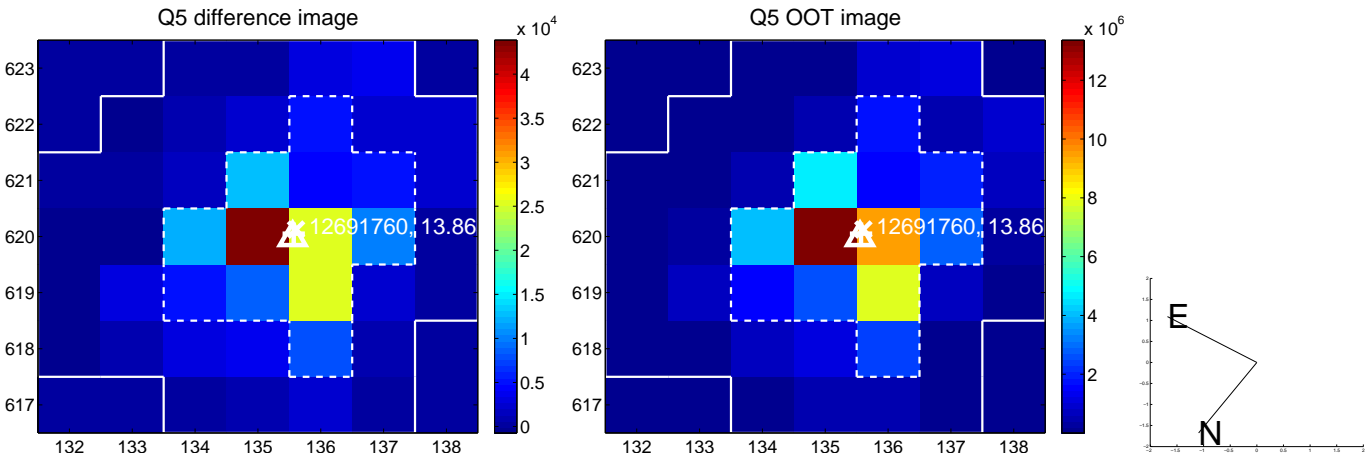


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

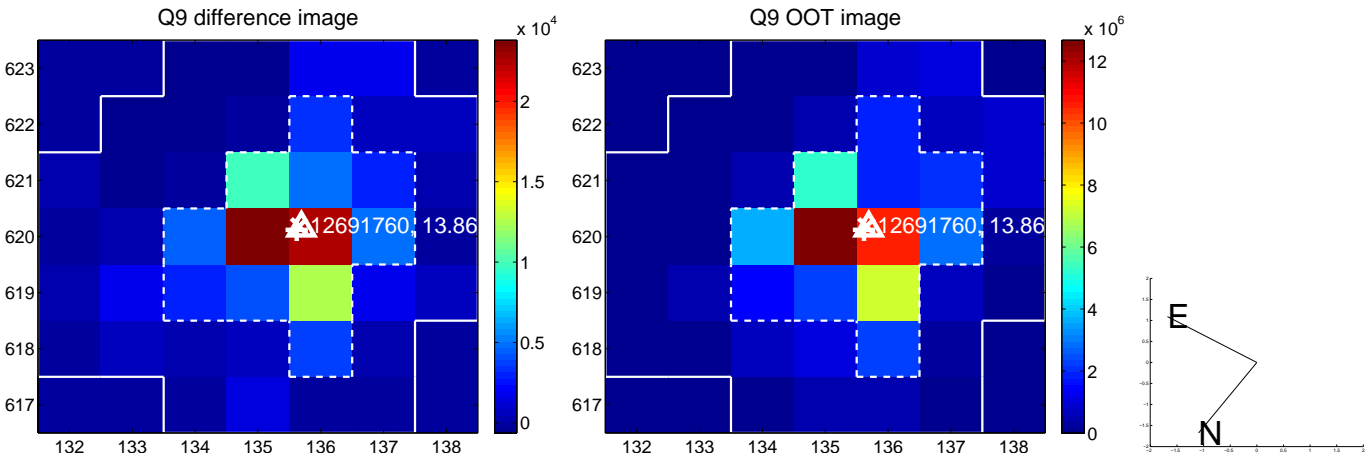
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



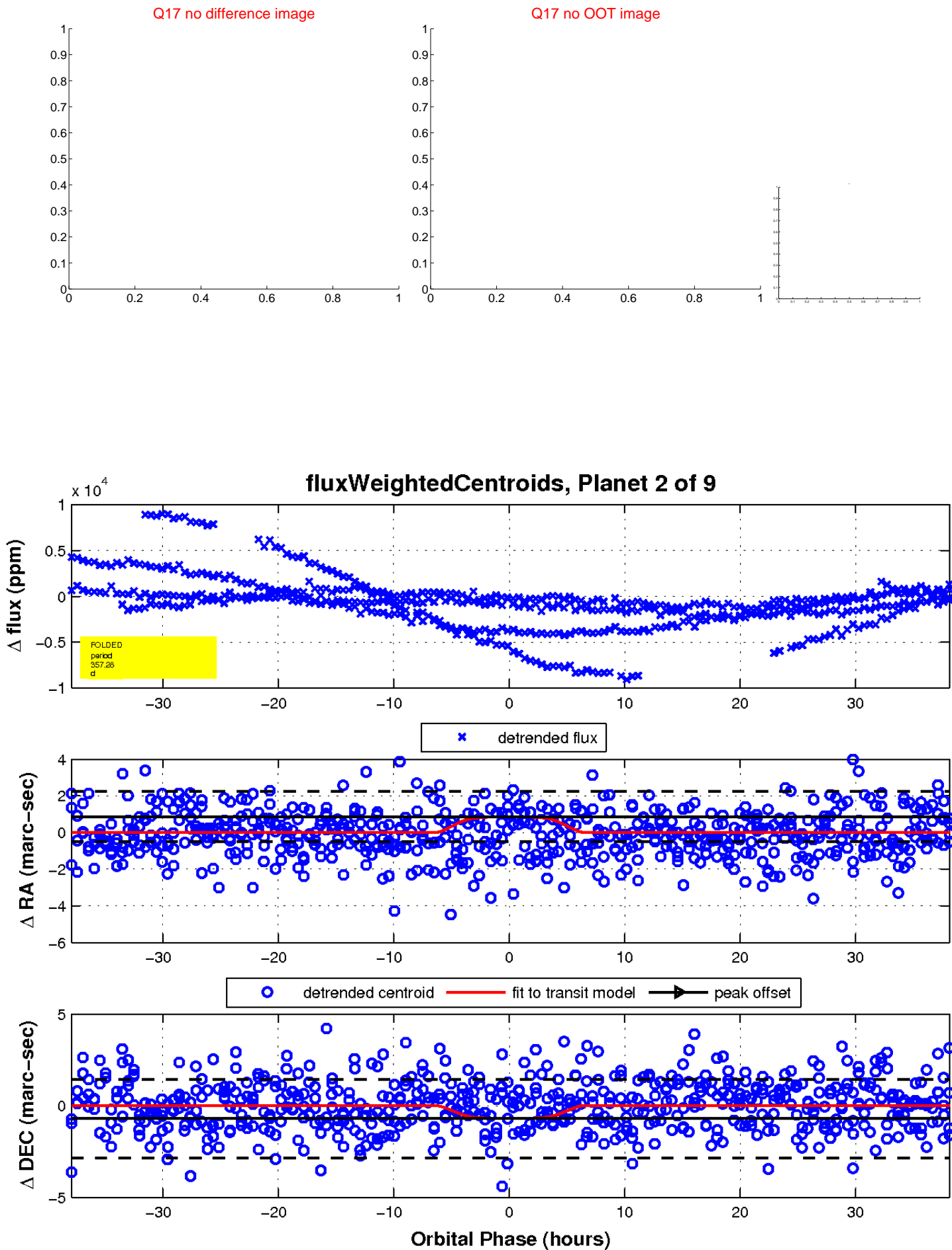
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

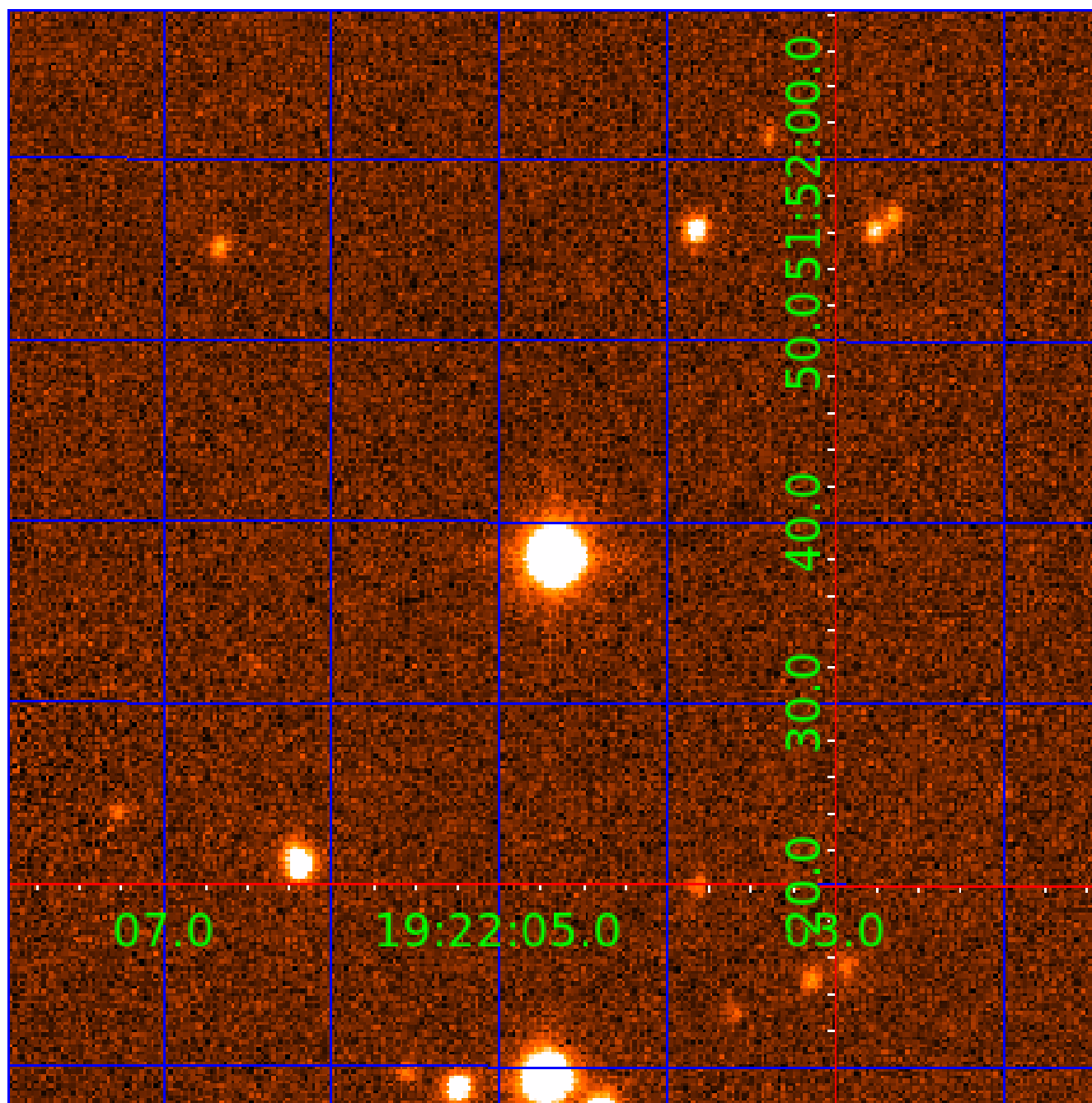


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012691760

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})
012691760-01	OBS	No	0.769880	131.946693	28.9	3.343	7.9	8.1	0.76	5184	0.52	1635.06
012691760-02	OBS	No	357.281300	175.411893	1431.3	12.758	16.9	8.1	0.76	5184	3.58	0.46
012691760-03	OBS	No	615.165201	298.641446	1402.3	14.504	14.0	6.9	0.76	5184	3.68	0.22
012691760-05	OBS	No	153.547120	247.805082	442.8	8.757	11.8	4.9	0.76	5184	1.75	1.40
012691760-07	OBS	No	503.516611	457.980263	1288.7	9.860	10.9	8.0	0.76	5184	3.09	0.29
012691760-08	OBS	No	178.350186	151.344833	667.5	10.912	9.5	6.2	0.76	5184	2.33	1.15
012691760-09	OBS	No	112.977153	218.469414	373.1	15.000	10.9	-1.0	0.76	5184	1.43	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012691760-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012691760-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
012691760-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012691760-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES
012691760-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
012691760-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
012691760-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

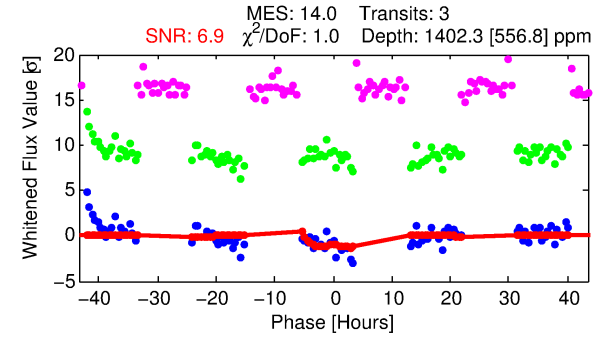
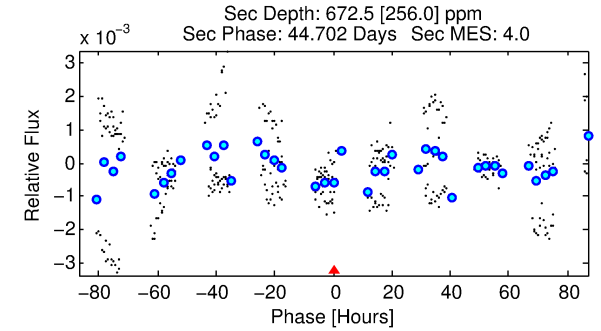
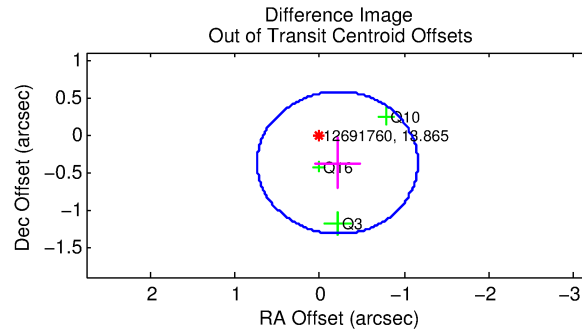
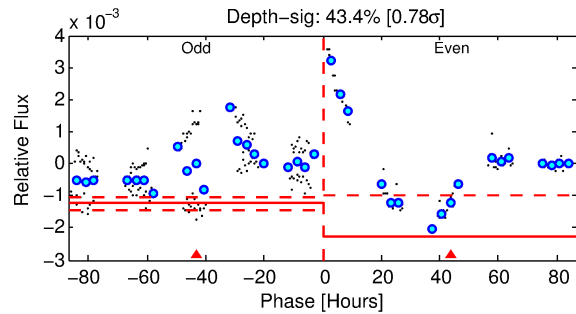
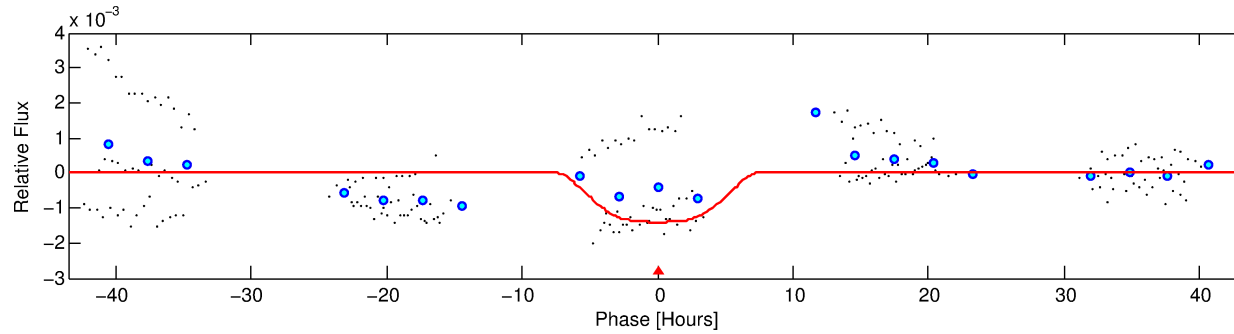
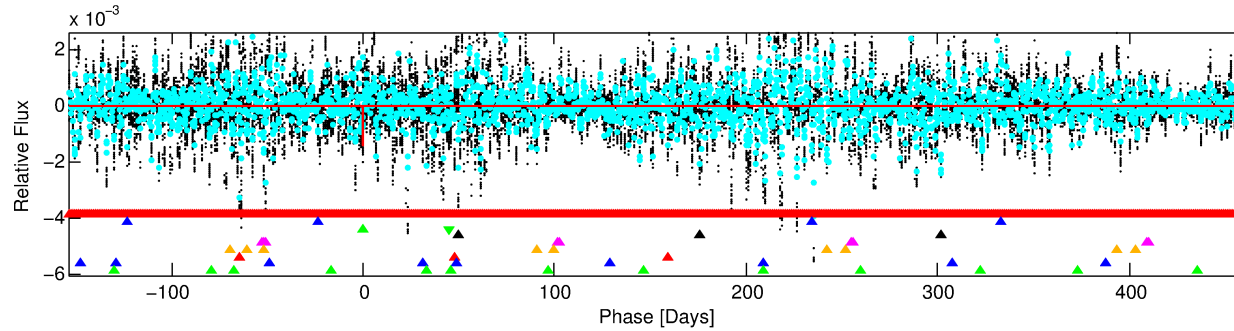
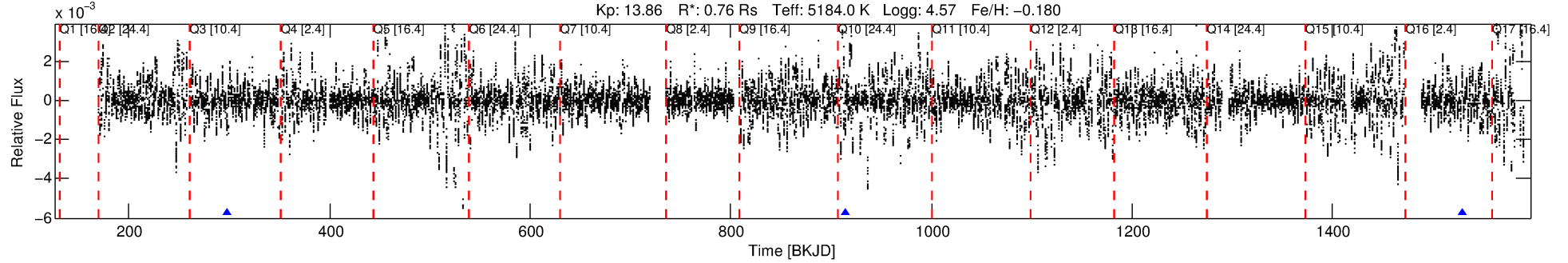
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012691760-03

No Significant Match Found

DV One-Page Summary

KIC: 12691760 Candidate: 3 of 9 Period: 615.165 d



DV Fit Results:

Period = 615.16520 [0.03615] d
Epoch = 298.6414 [0.0553] BKJD
Rp/R* = 0.0444 [0.0091]
a/R* = 144.65 [49.17]
b = 0.94 [0.02]
Seff = 0.22 [0.05]
Teq = 175 [9] K
Rp = 3.68 [0.91] Re
a = 1.3019 [0.1440] AU
Ag = 46344.03 [26834.47] [1.73 σ]
Teffp = 3964 [574] K [6.60 σ]

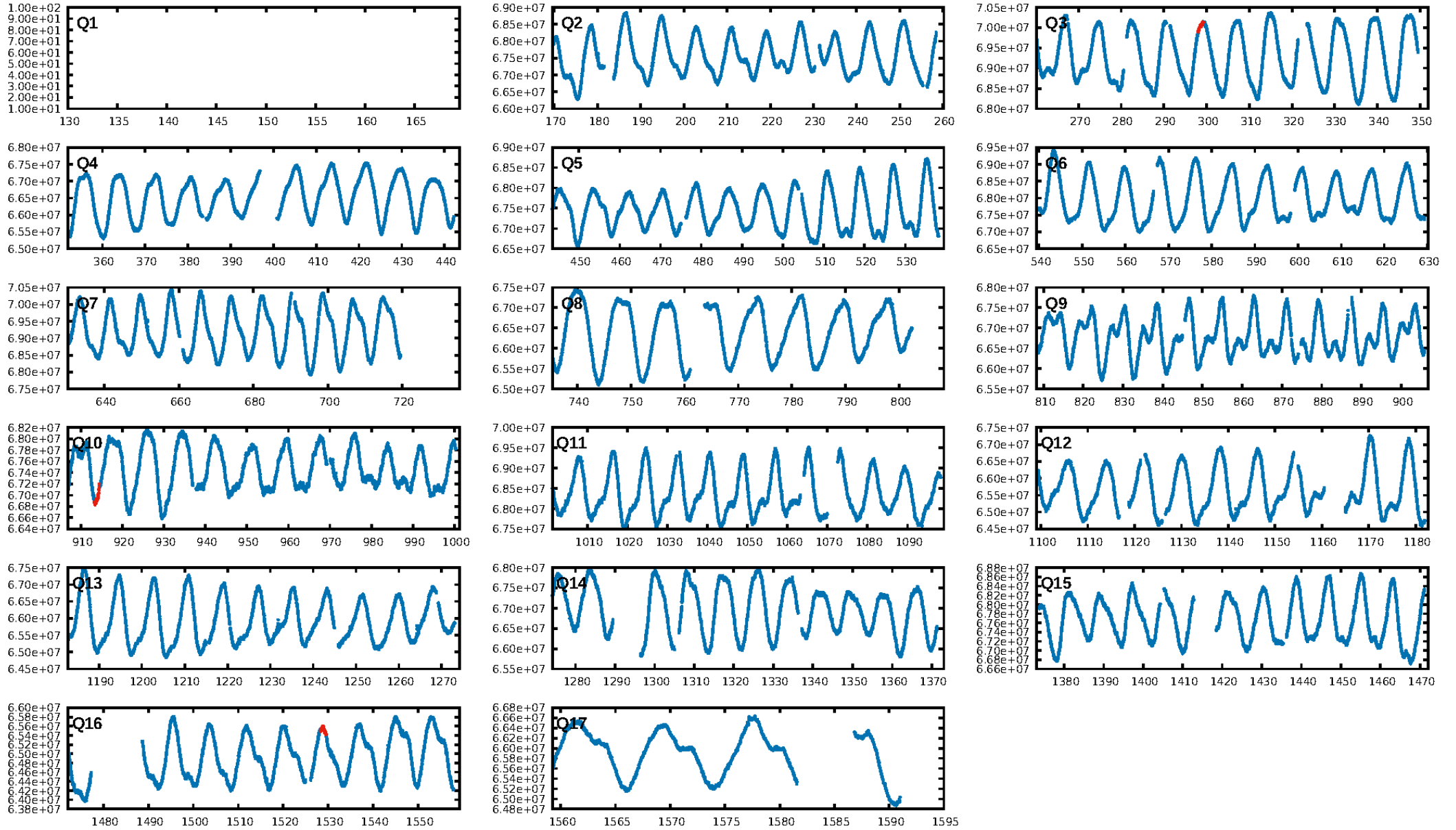
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [152.78 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 15.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.4525
Centroid-sig: 97.3%
Centroid-so: 0.944 arcsec [2.60 σ]
OotOffset-rm: 0.433 arcsec [1.37 σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-rm: 0.373 arcsec [1.41 σ]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

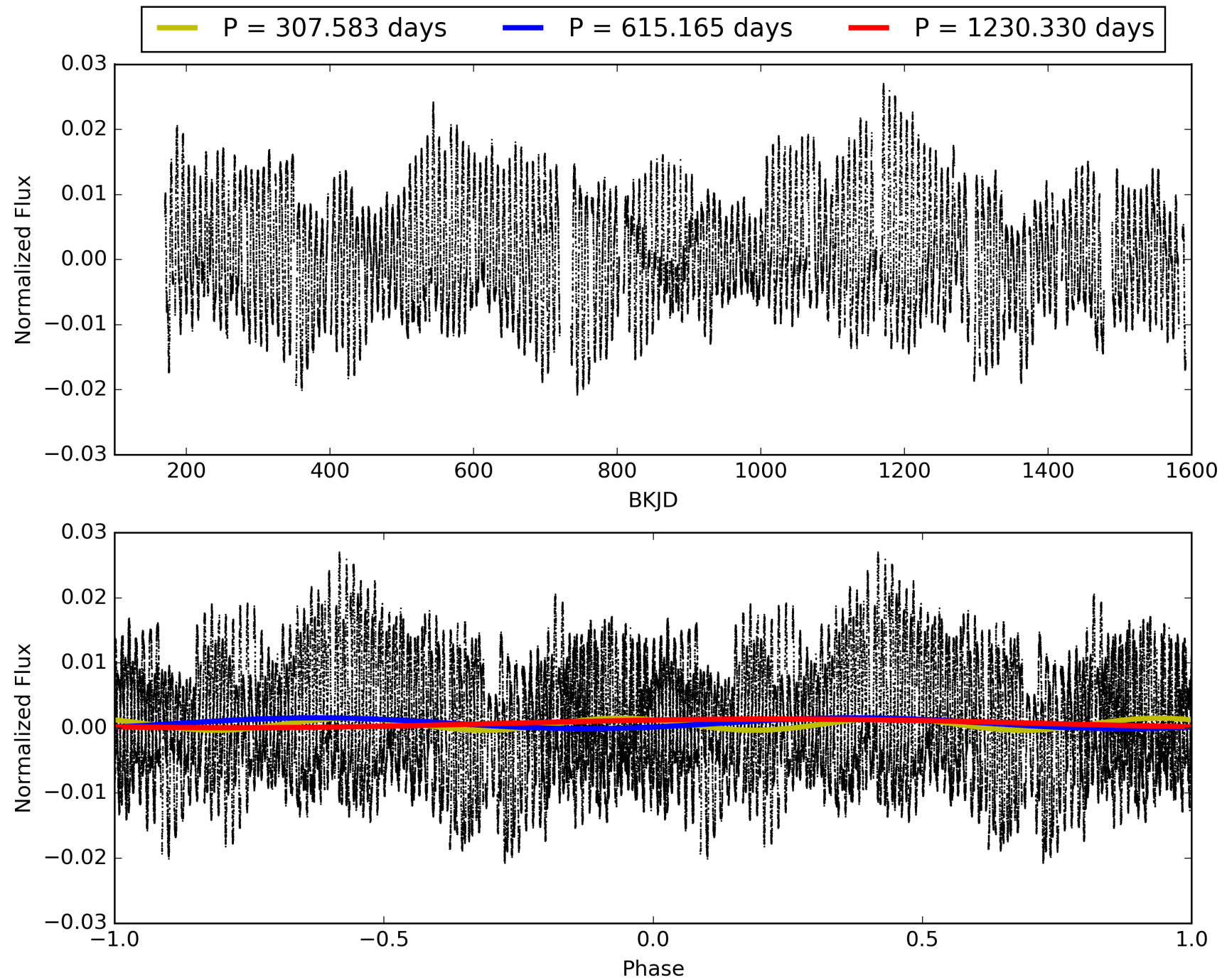
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:17:00 Z

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

TCE 012691760-03, PDC Light Curves

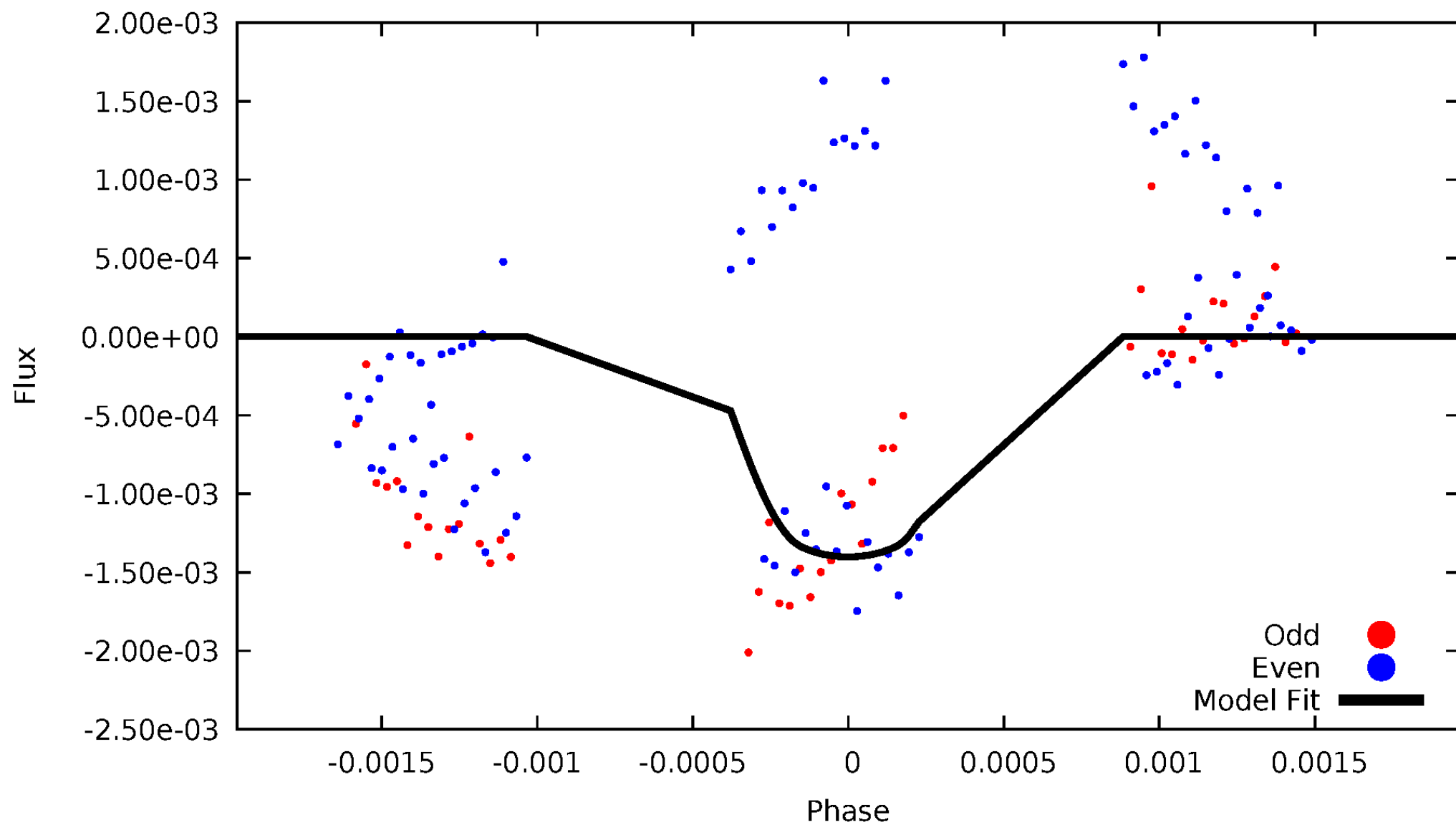


TCE 012691760-03



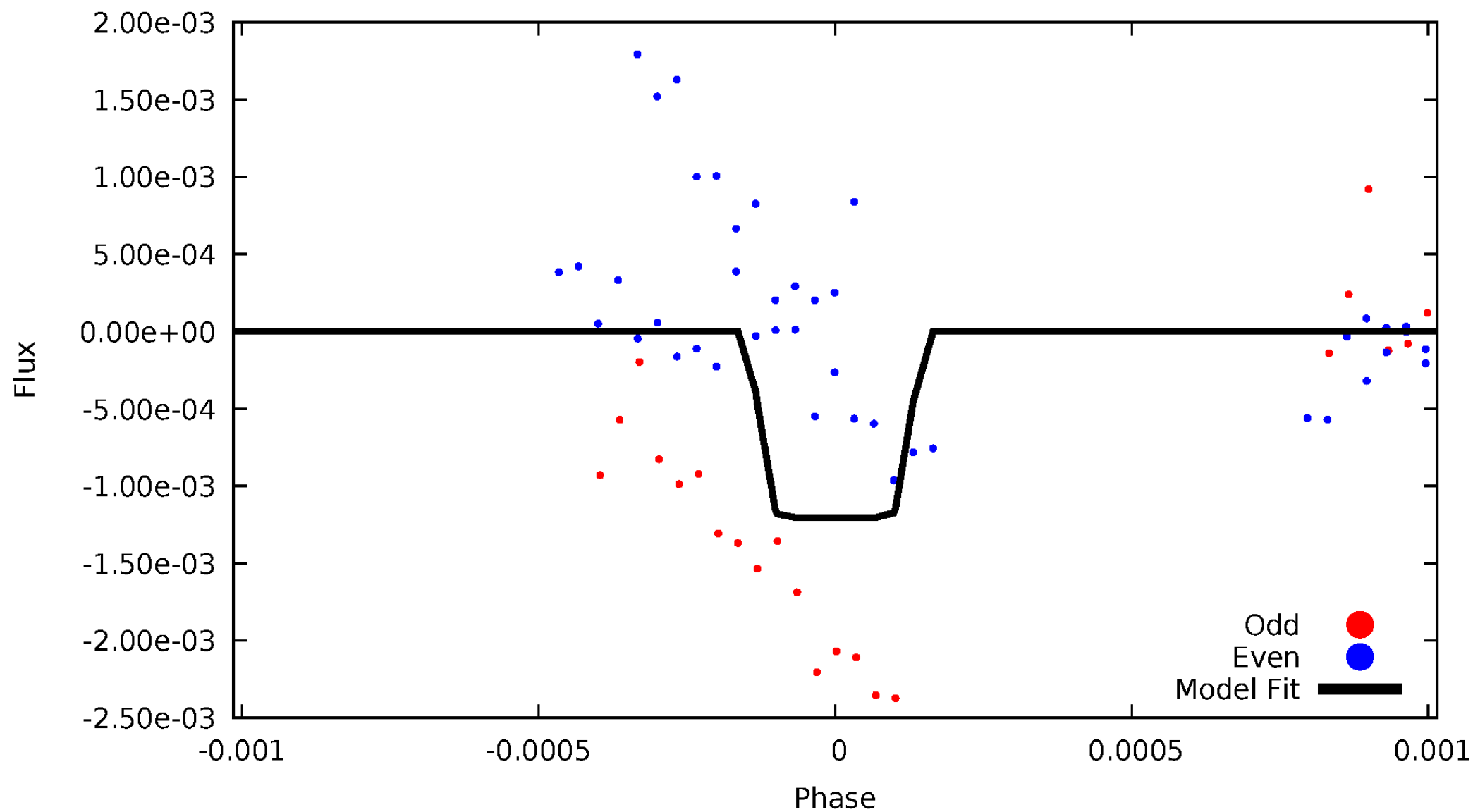
DV Odd/Even

TCE 012691760-03



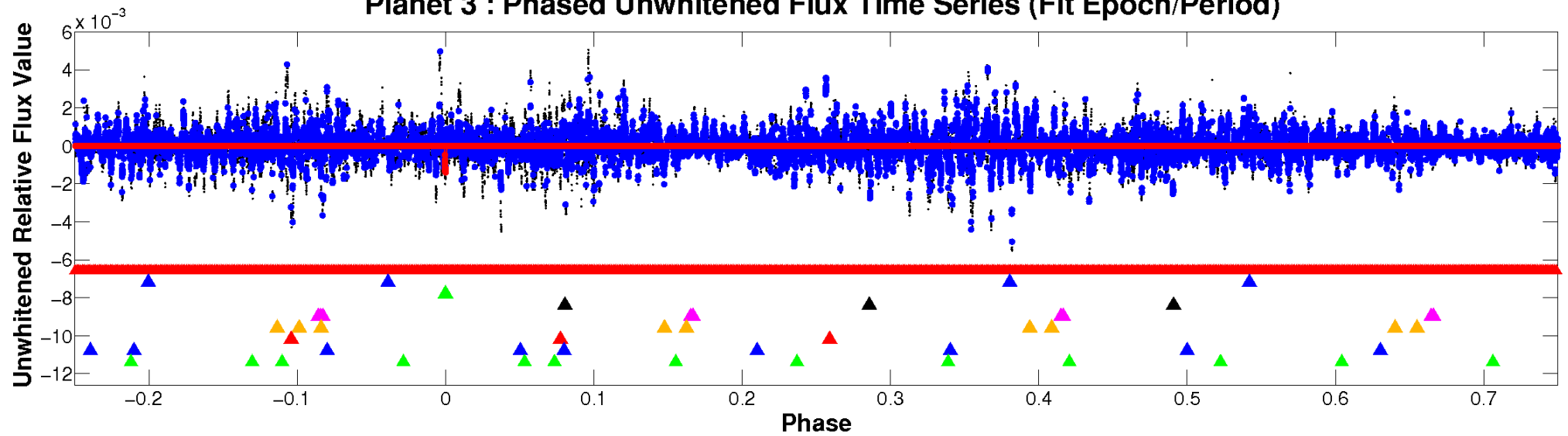
ALT Odd/Even

TCE 012691760-03

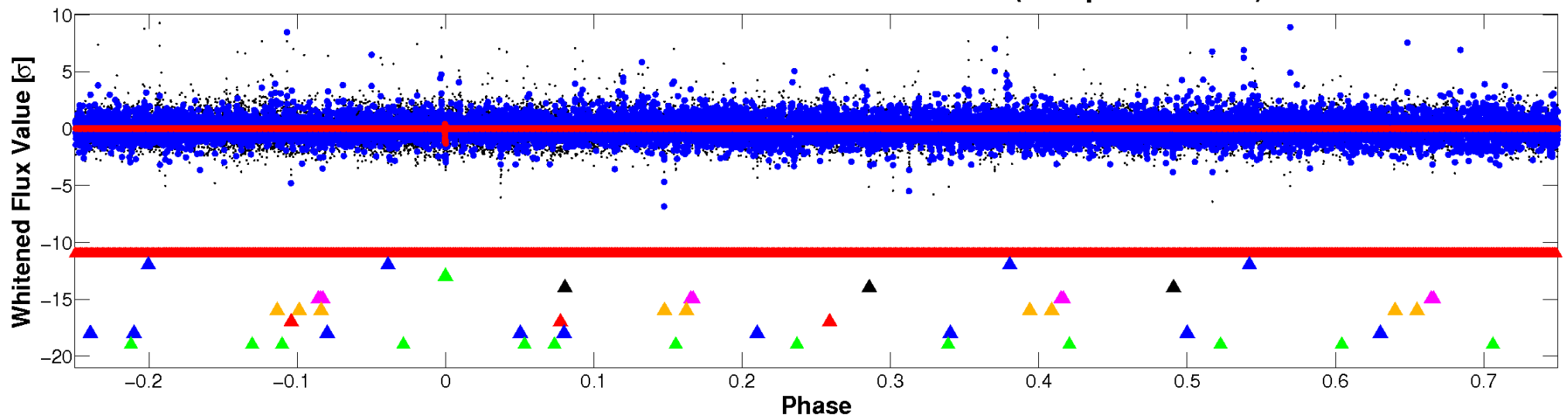


Non-Whitened Vs. Whitened Light Curve

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

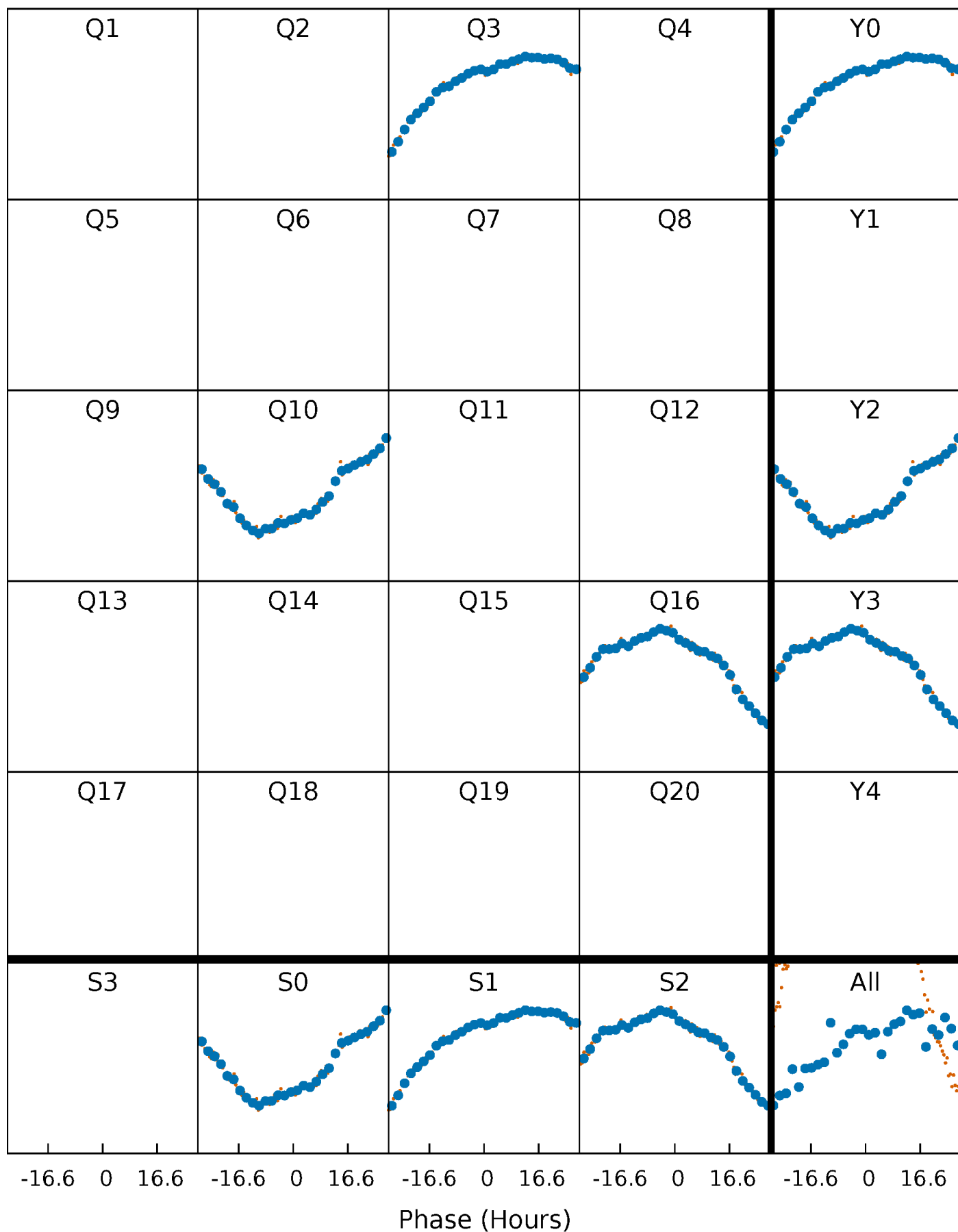


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



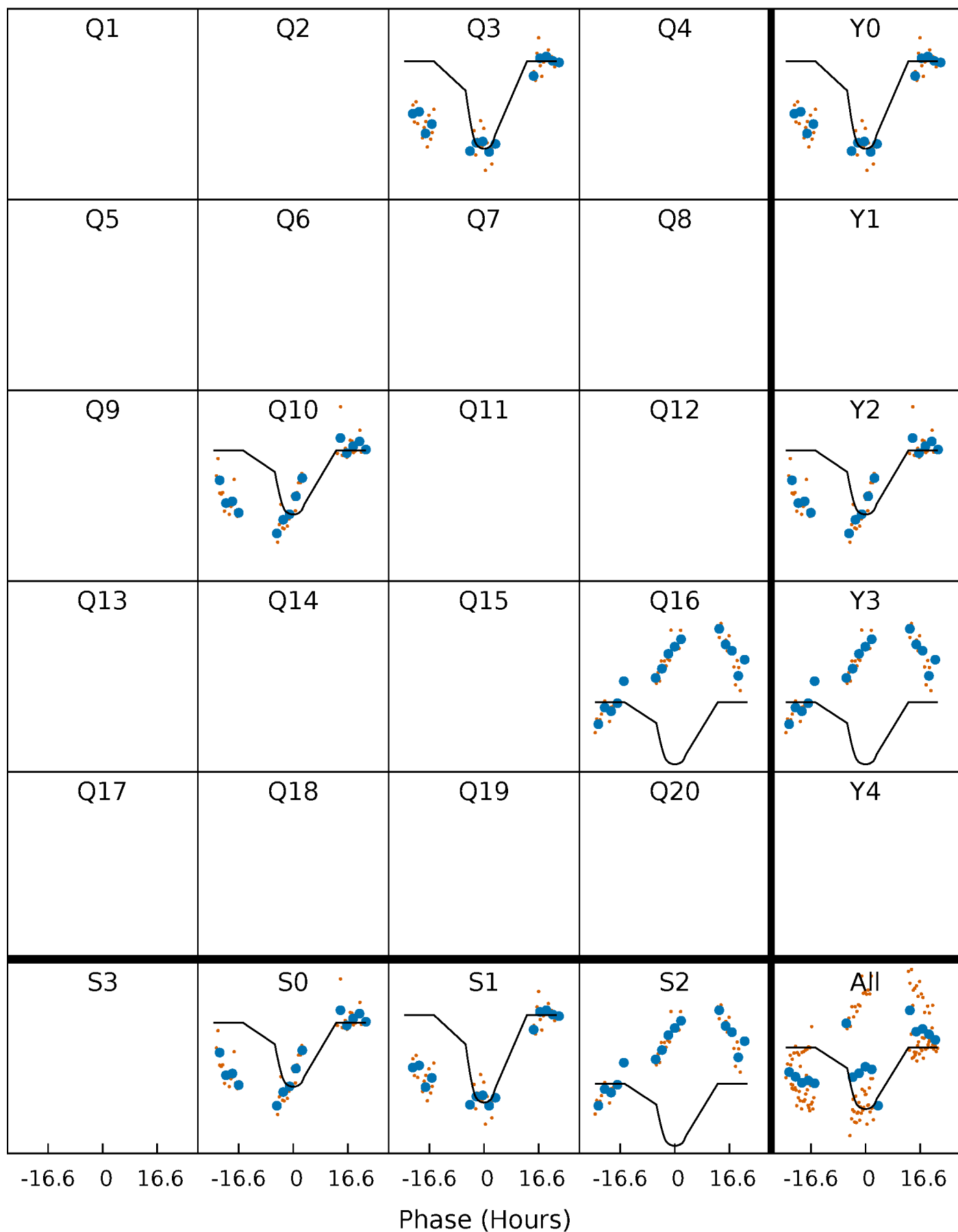
PDC Quarter-Phased Transit Curves

TCE 012691760-03 P=615.165201 Days $T_0=298.641446$ (BKJD)



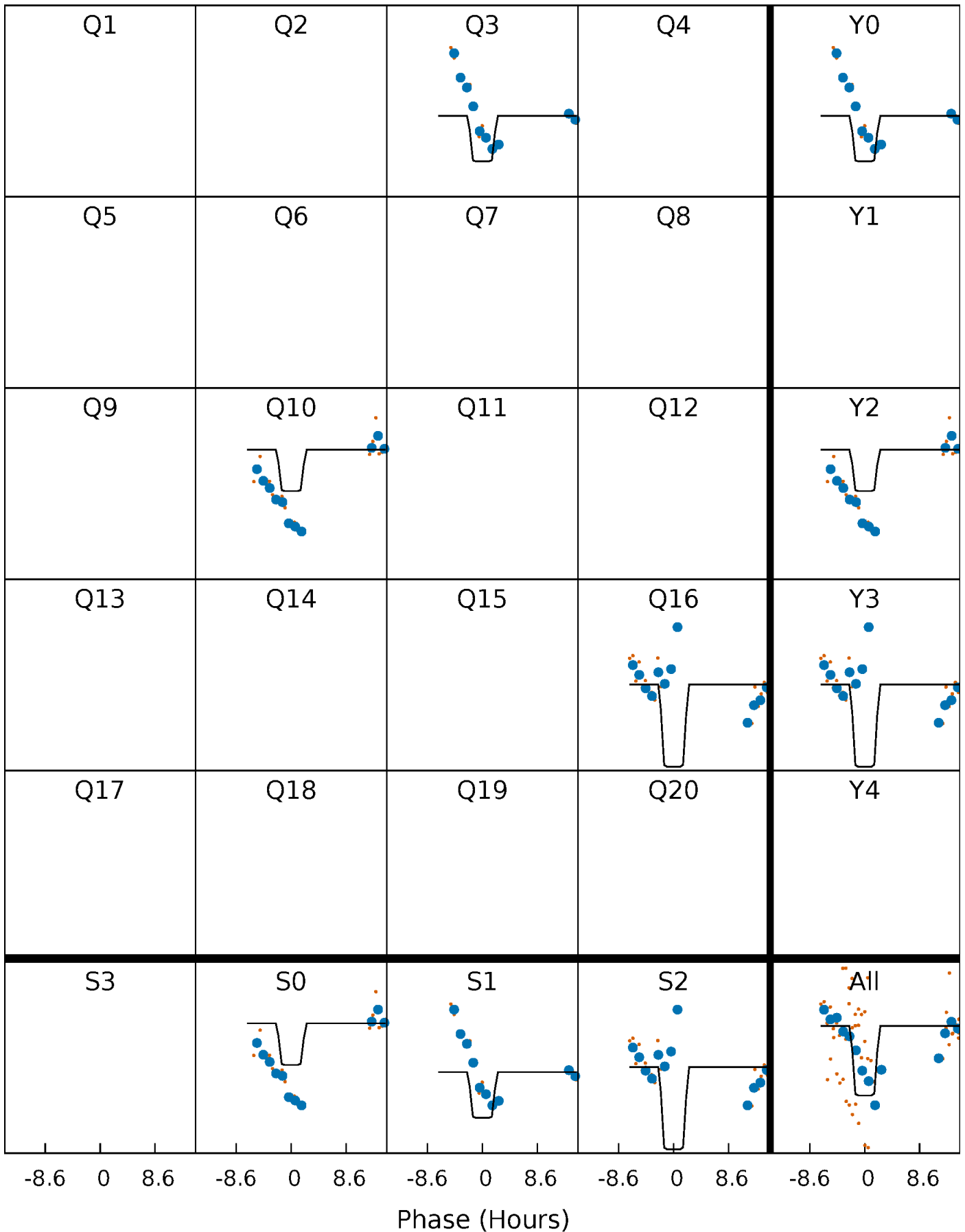
DV Quarter-Phased Transit Curves

TCE 012691760-03 P=615.165201 Days $T_0=298.641446$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

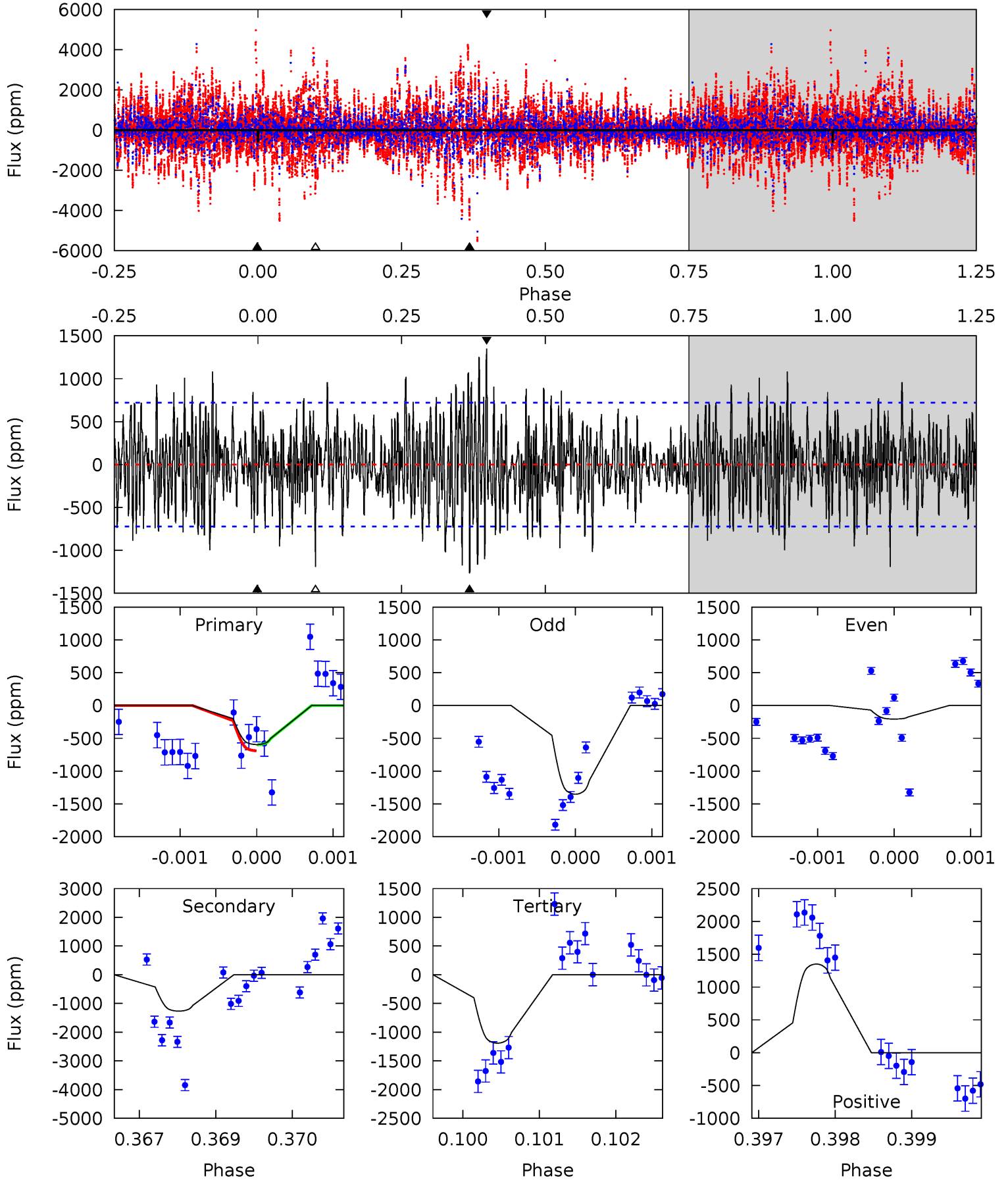
TCE 012691760-03 $P=615.172757$ Days $T_0=298.680157$ (BKJD)



DV Model-Shift Uniqueness Test

012691760-03, P = 615.165201 Days, E = 298.641446 Days

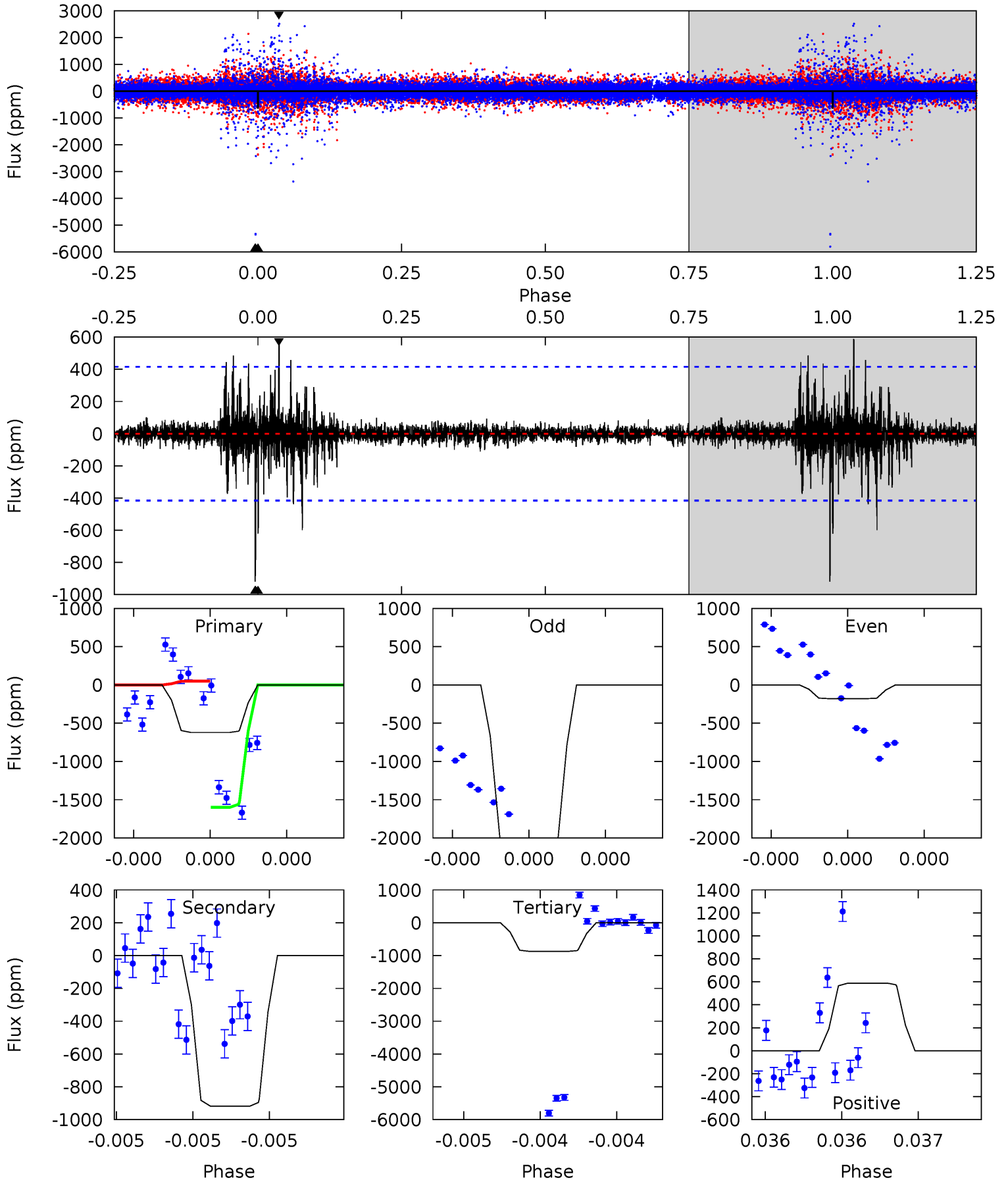
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.47	9.51	8.94	10.1	5.41	3.23	2.73	-4.47	-5.66	0.57	-0.62	4.08	0.39	0.52	0.32



Alt Model-Shift Uniqueness Test

012691760-03, P = 615.172757 Days, E = 298.680157 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.47	12.5	11.9	8.04	5.68	3.65	0.80	-3.44	0.43	0.64	4.51	14.3	2.10	0.39	10.9



Stellar Parameters For KIC 012691760

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5184^{+196}_{-179}	$4.567^{+0.052}_{-0.078}$	$-0.180^{+0.300}_{-0.300}$	$0.760^{+0.106}_{-0.071}$	$0.779^{+0.090}_{-0.073}$	$2.496^{+0.564}_{-0.657}$
	+4%/-3%	+1%/-2%	+167%/-167%	+14%/-9%	+12%/-9%	+23%/-26%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012691760-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1267 ± 133	$3.69^{+0.80}_{-0.74}$	246^{+11}_{-10}	4744^{+495}_{-377}	85976^{+50170}_{-26868}
Alt.	-918 ± 73	$2.94^{+0.90}_{-0.82}$	246^{+12}_{-11}	4872^{+755}_{-470}	97699^{+91453}_{-39900}

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

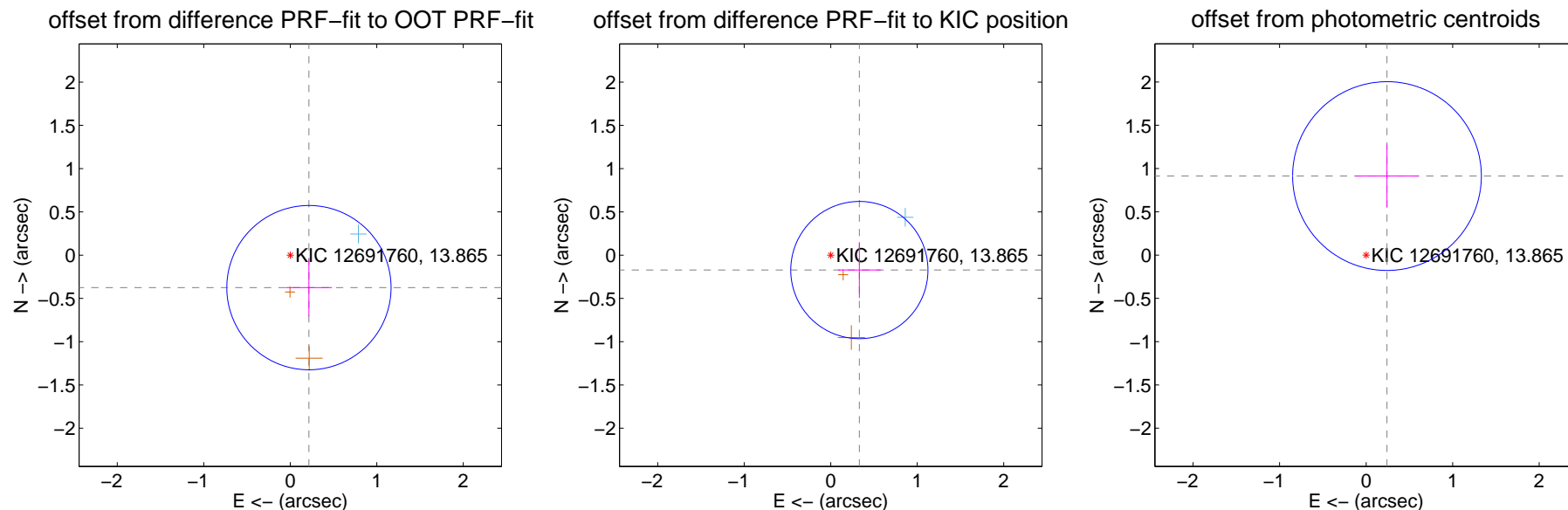
DV Centroid Data

Supplemental centroid analysis for 012691760-03. Kepler magnitude: 13.87. Transit SNR 6.87

There are 1 quarters with good PRF difference image offsets

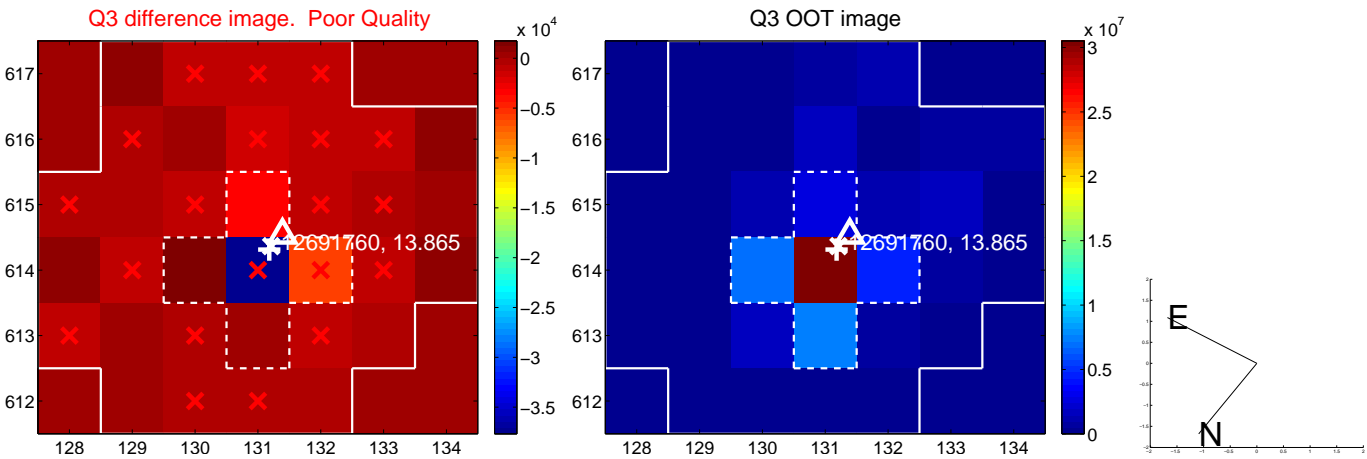
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.433 ± 0.316	1.37	-0.216 ± 0.267	-0.375 ± 0.331
PRF-fit source offset from KIC position	0.373 ± 0.264	1.41	-0.331 ± 0.246	-0.172 ± 0.322
photometric centroid source offset	0.94 ± 0.36	2.60	-0.24 ± 0.37	0.91 ± 0.36



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.

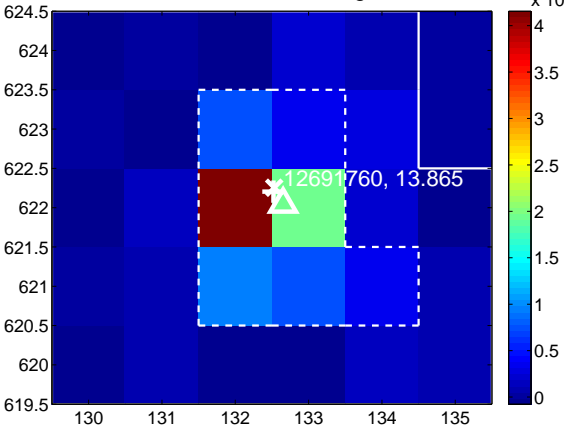
Q9 no difference image



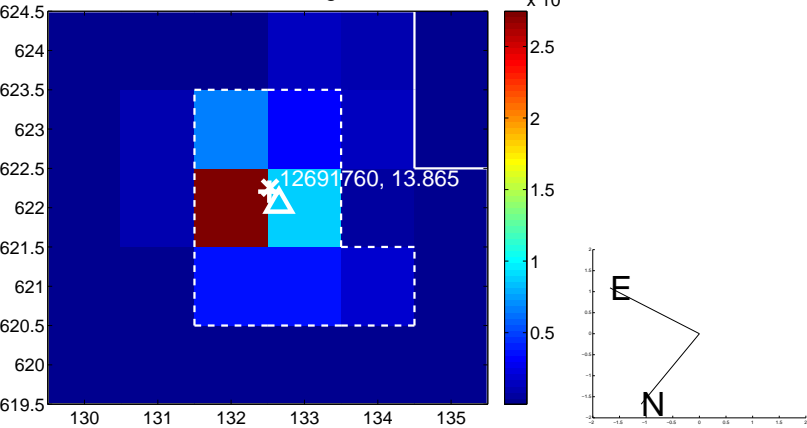
Q9 no OOT image



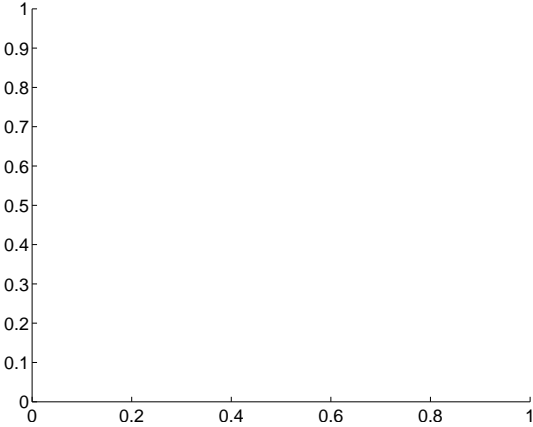
Q10 difference image



Q10 OOT image



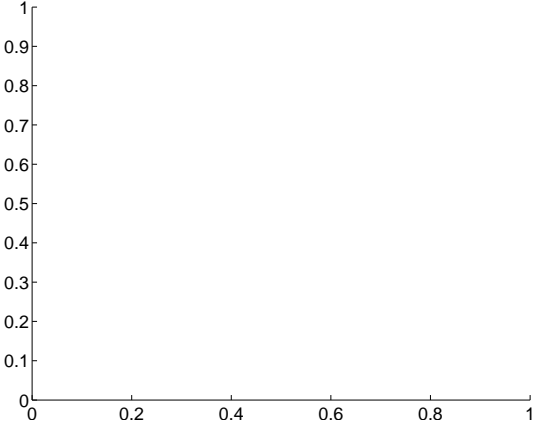
Q11 no difference image



Q11 no OOT image



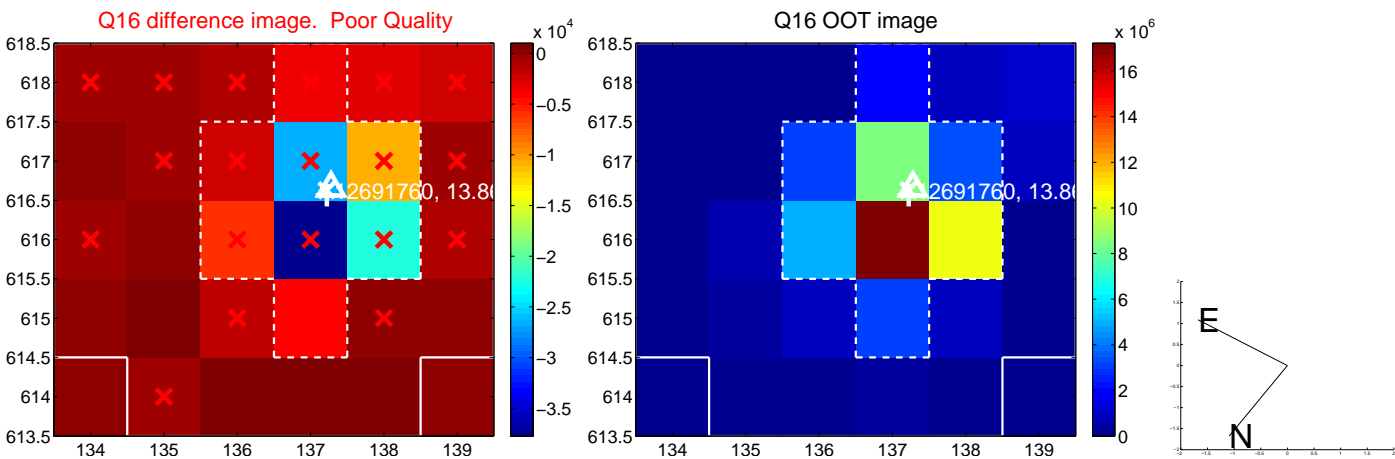
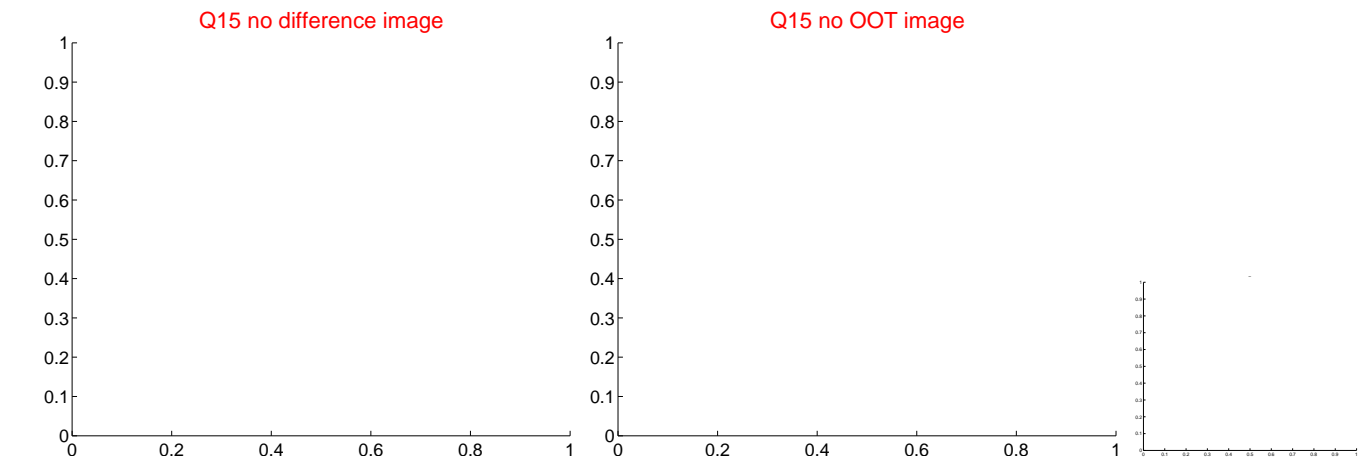
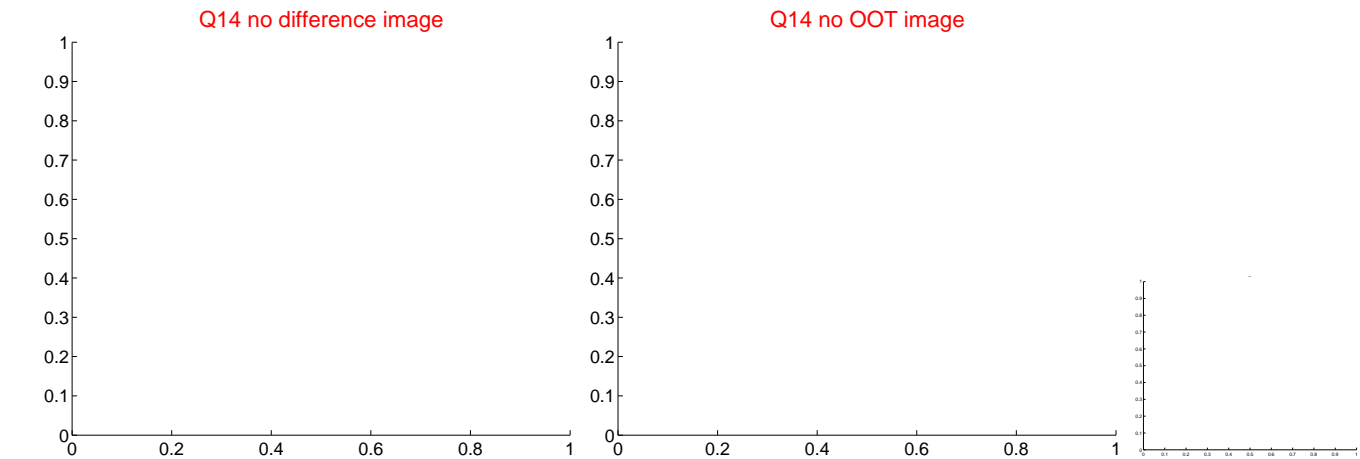
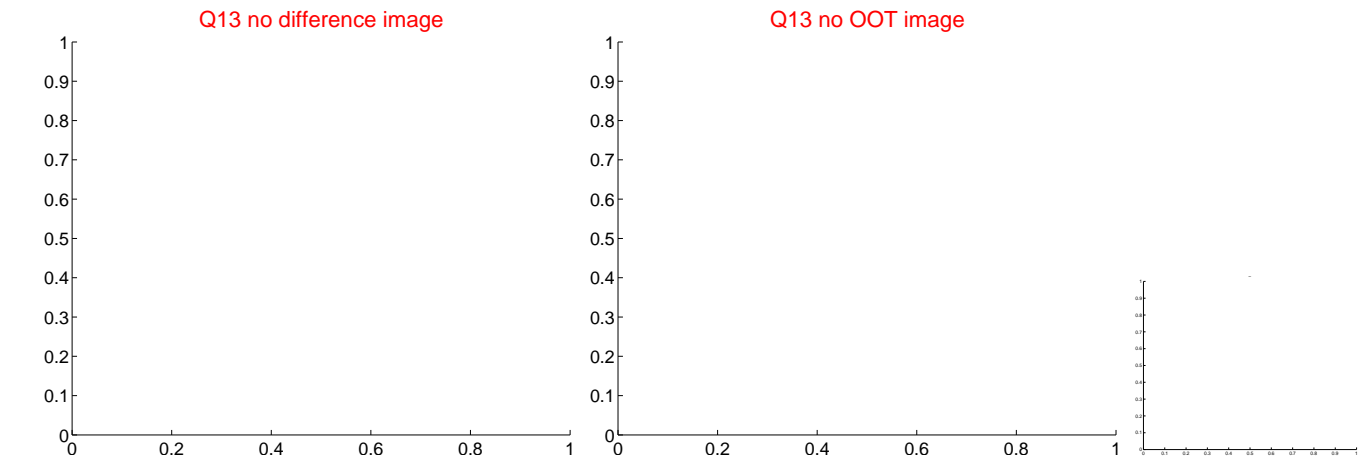
Q12 no difference image



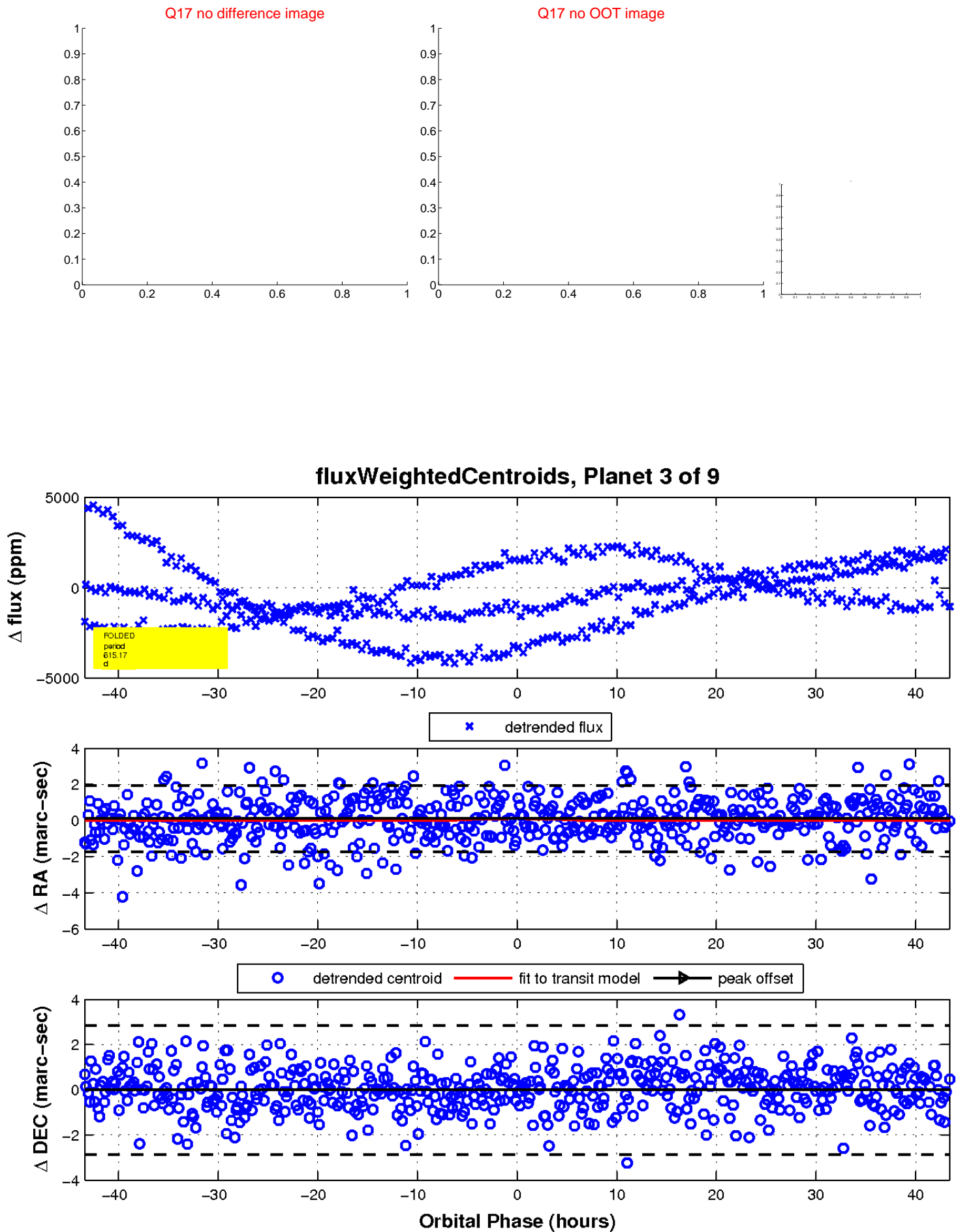
Q12 no OOT image



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

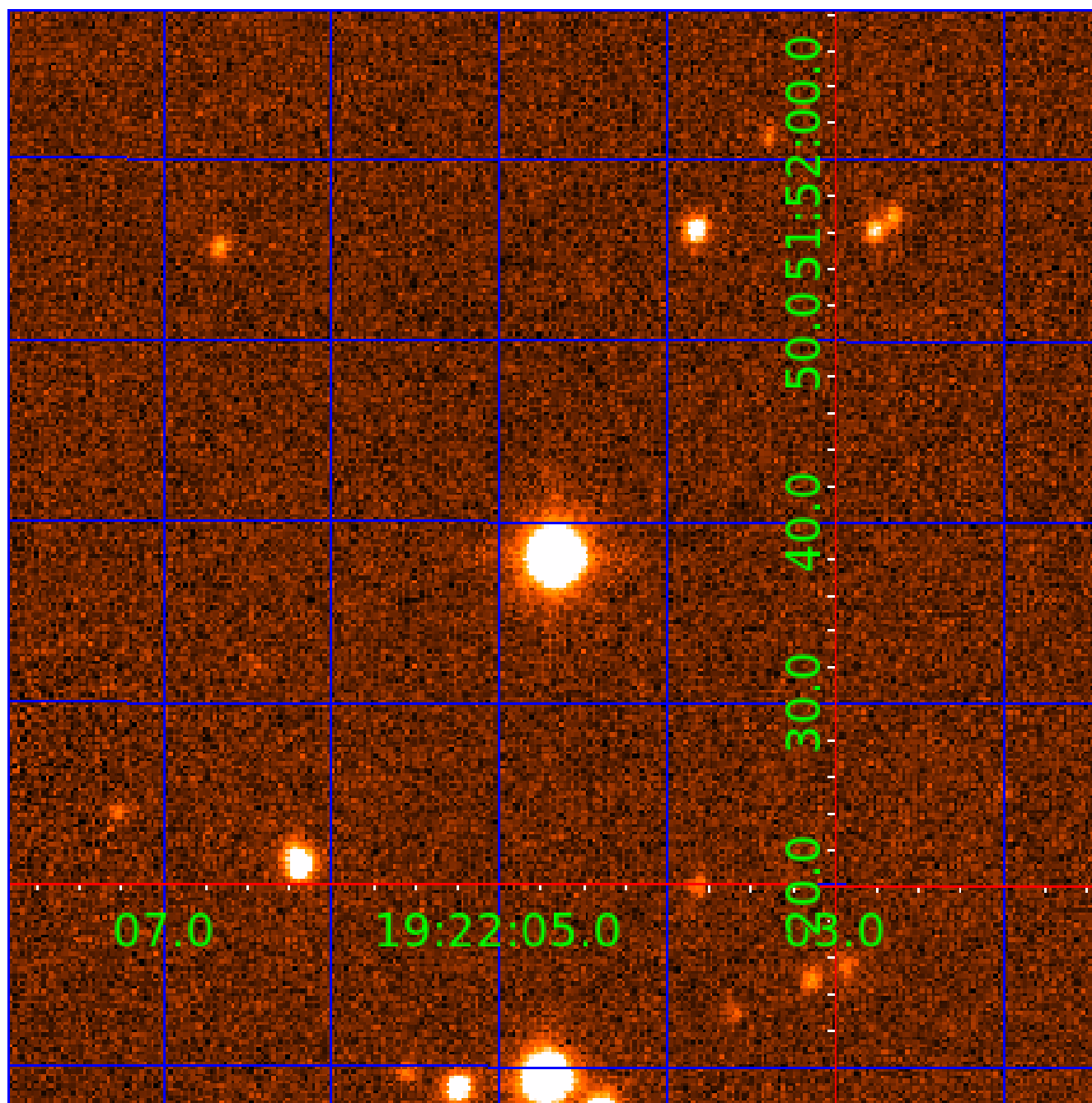


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012691760

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})
012691760-01	OBS	No	0.769880	131.946693	28.9	3.343	7.9	8.1	0.76	5184	0.52	1635.06
012691760-02	OBS	No	357.281300	175.411893	1431.3	12.758	16.9	8.1	0.76	5184	3.58	0.46
012691760-03	OBS	No	615.165201	298.641446	1402.3	14.504	14.0	6.9	0.76	5184	3.68	0.22
012691760-05	OBS	No	153.547120	247.805082	442.8	8.757	11.8	4.9	0.76	5184	1.75	1.40
012691760-07	OBS	No	503.516611	457.980263	1288.7	9.860	10.9	8.0	0.76	5184	3.09	0.29
012691760-08	OBS	No	178.350186	151.344833	667.5	10.912	9.5	6.2	0.76	5184	2.33	1.15
012691760-09	OBS	No	112.977153	218.469414	373.1	15.000	10.9	-1.0	0.76	5184	1.43	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012691760-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012691760-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
012691760-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012691760-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES
012691760-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
012691760-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
012691760-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

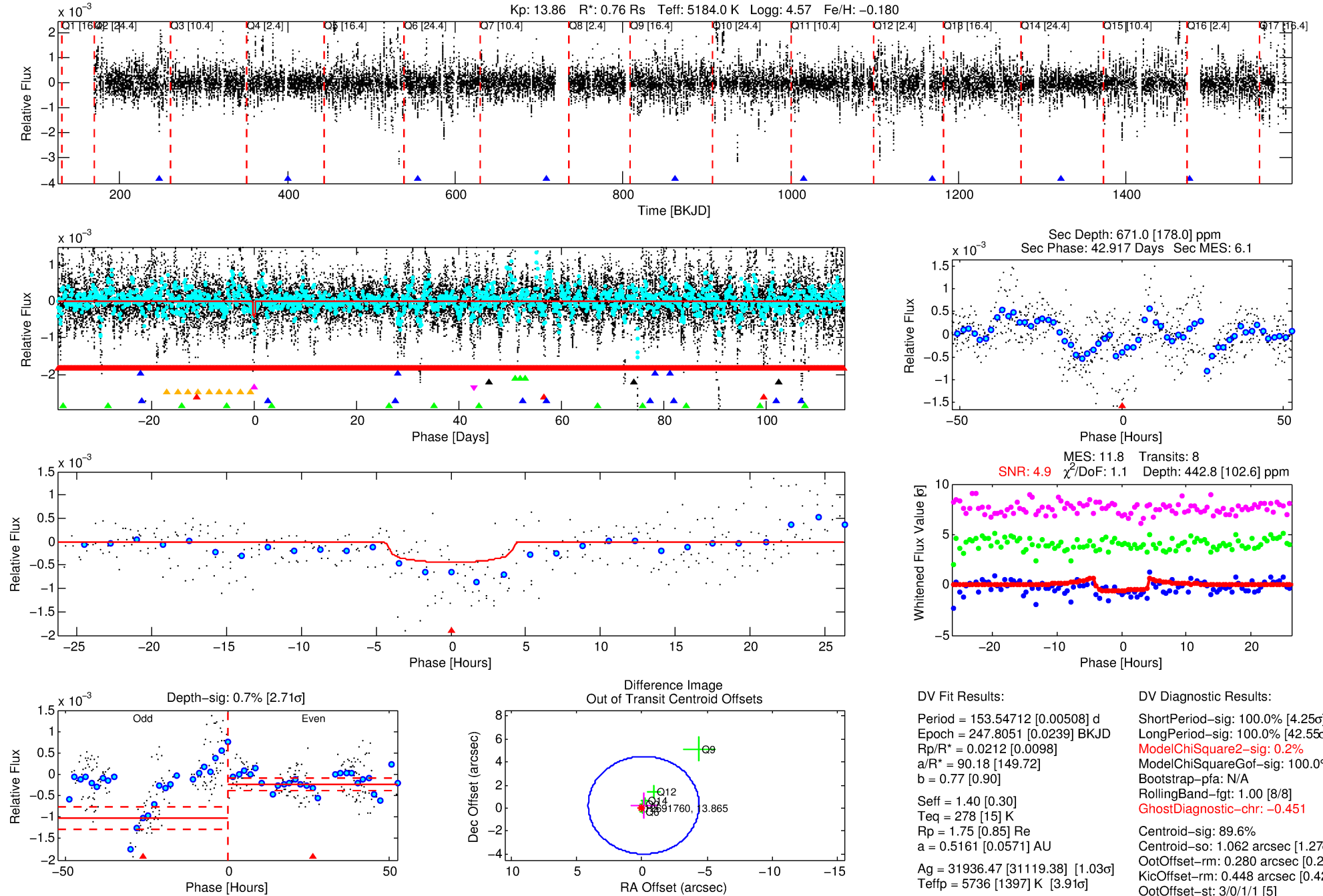
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012691760-05

No Significant Match Found

DV One-Page Summary

KIC: 12691760 Candidate: 5 of 9 Period: 153.547 d



DV Fit Results:

Period = 153.54712 [0.00508] d
Epoch = 247.8051 [0.0239] BKJD
Rp/R* = 0.0212 [0.0098]
a/R* = 90.18 [149.72]
b = 0.77 [0.90]
Seff = 1.40 [0.30]
Teq = 278 [15] K
Rp = 1.75 [0.85] Re
a = 0.5161 [0.0571] AU
Ag = 31936.47 [31119.38] [1.03 σ]
Teffp = 5736 [1397] K [3.91 σ]

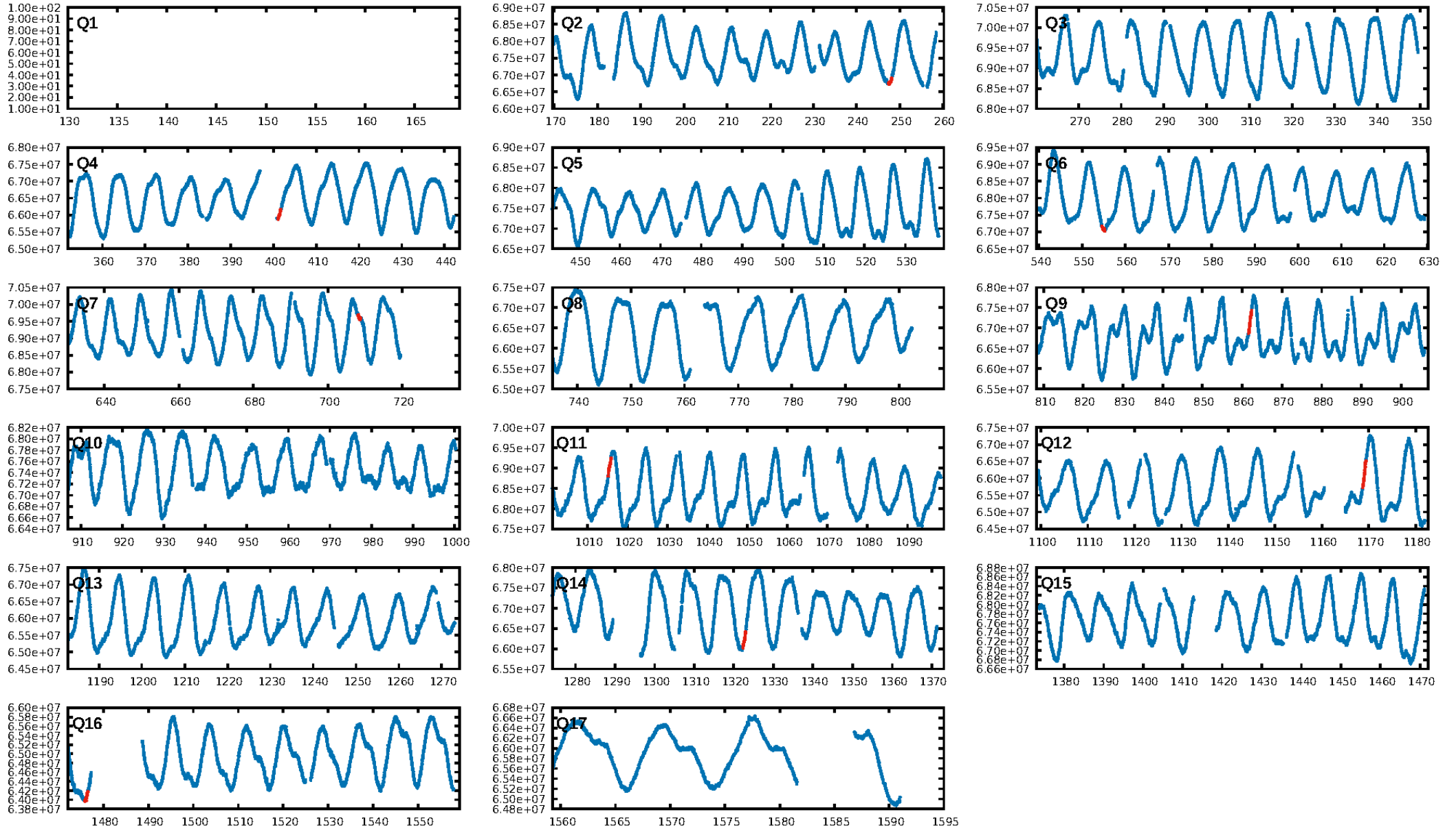
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.25 σ]
LongPeriod-sig: 100.0% [42.55 σ]
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: -0.451
Centroid-sig: 89.6%
Centroid-so: 1.062 arcsec [1.27 σ]
OotOffset-rm: 0.280 arcsec [0.20 σ]
KicOffset-rm: 0.448 arcsec [0.42 σ]
OotOffset-st: 3/0/1/1 [5]
KicOffset-st: 3/0/1/1 [5]
DiffImageQuality-fgm: 0.80 [4/5]
DiffImageOverlap-fno: 0.00 [0/7]

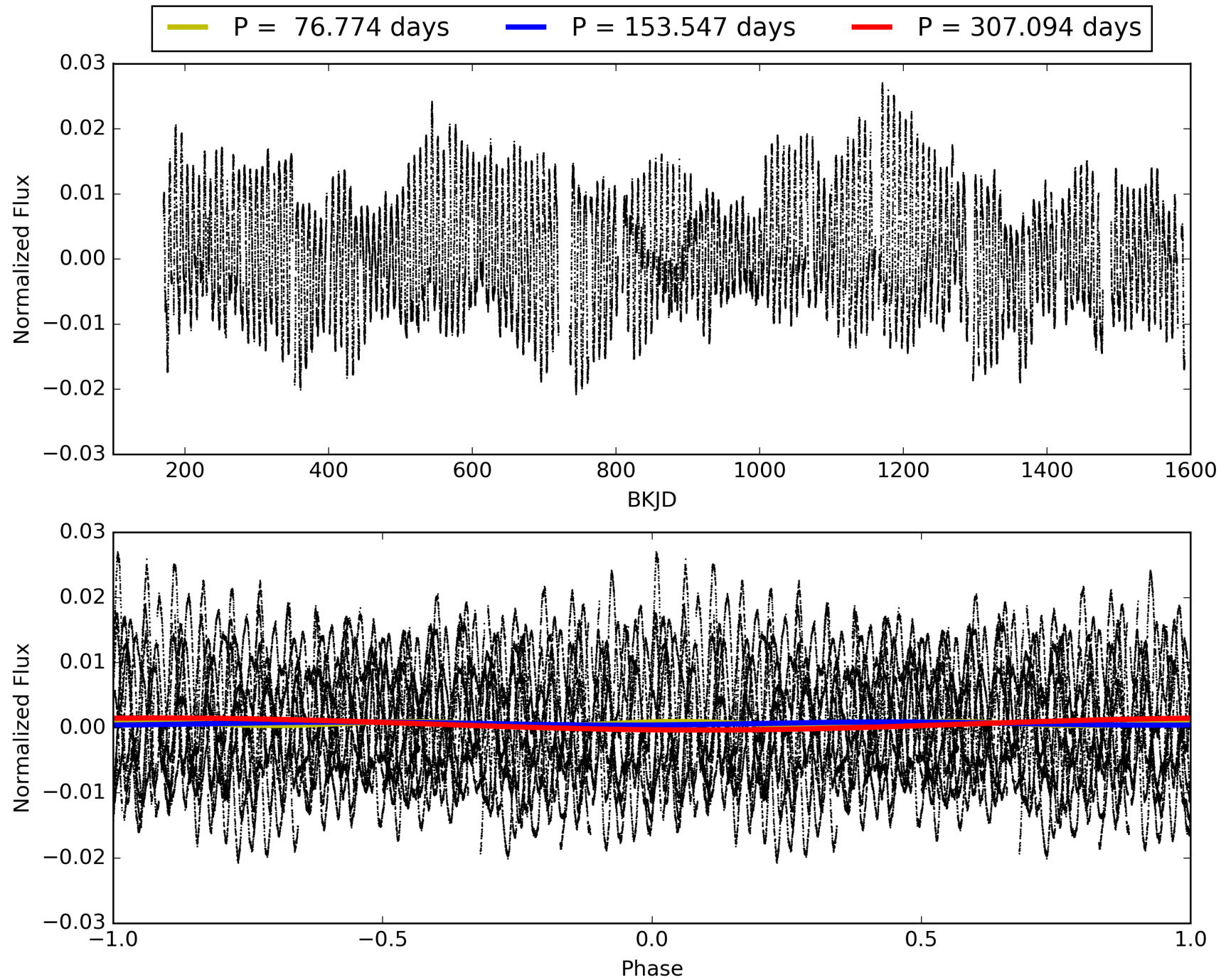
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:17:10 Z

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

TCE 012691760-05, PDC Light Curves

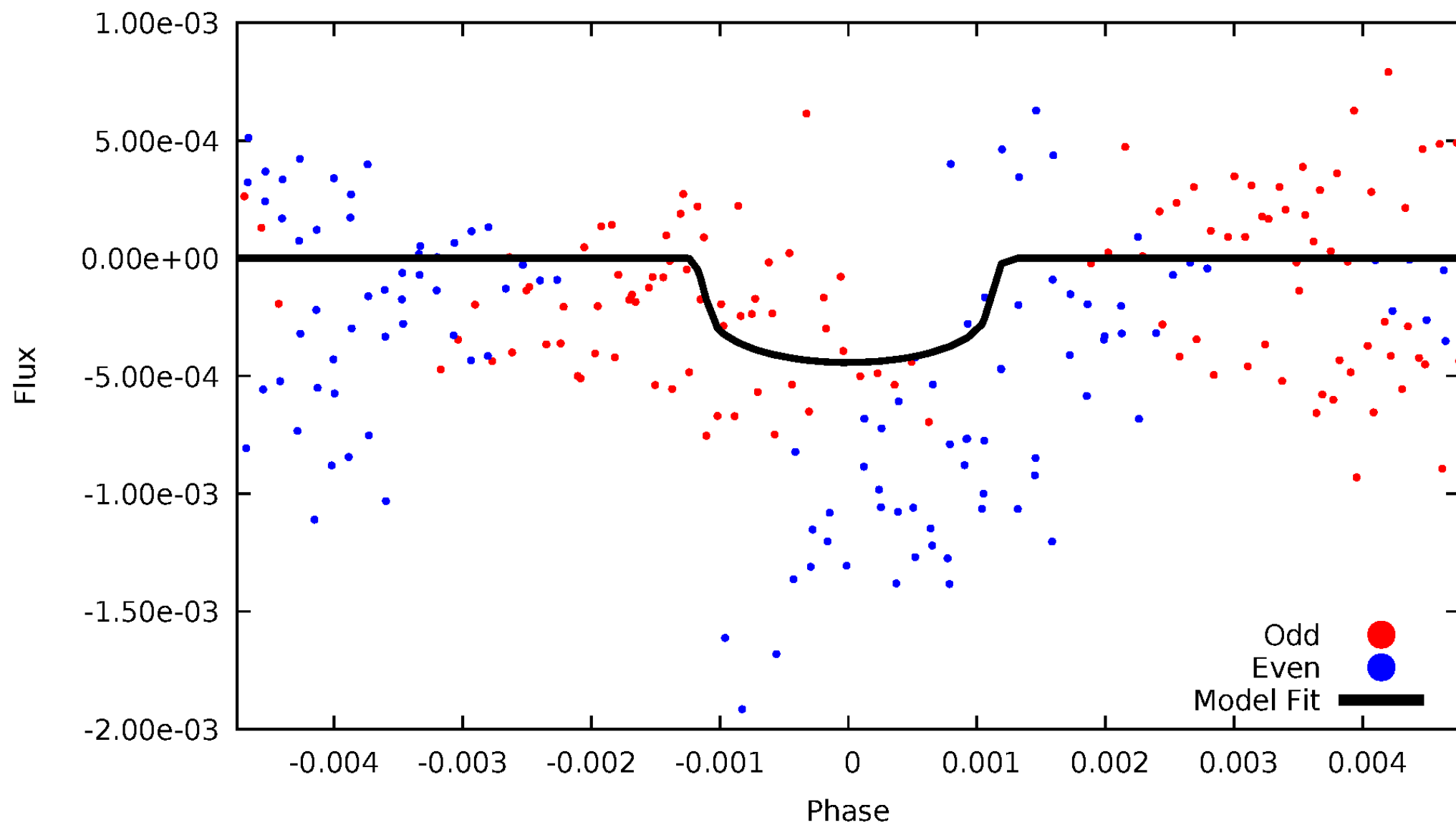


TCE 012691760-05



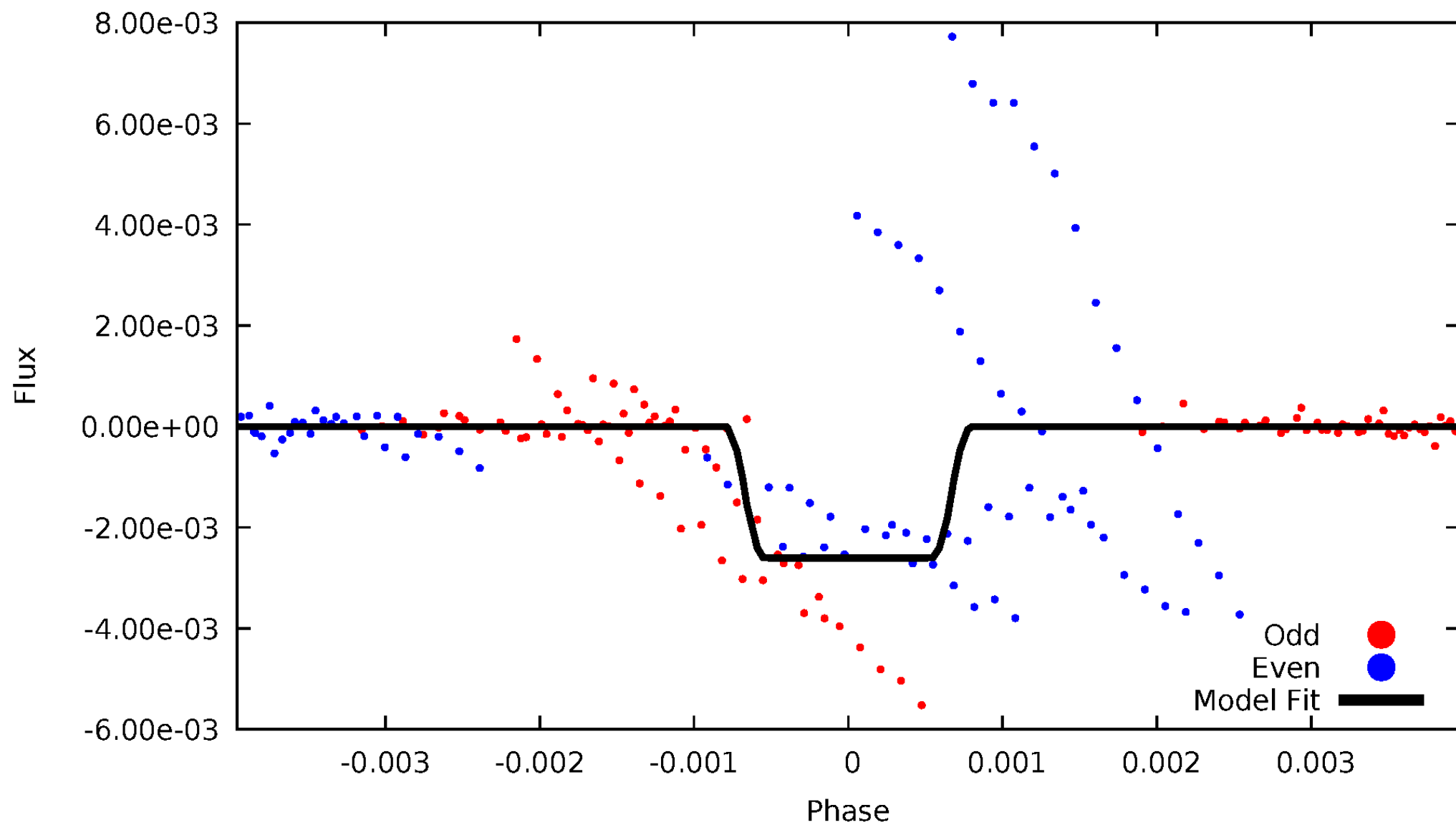
DV Odd/Even

TCE 012691760-05



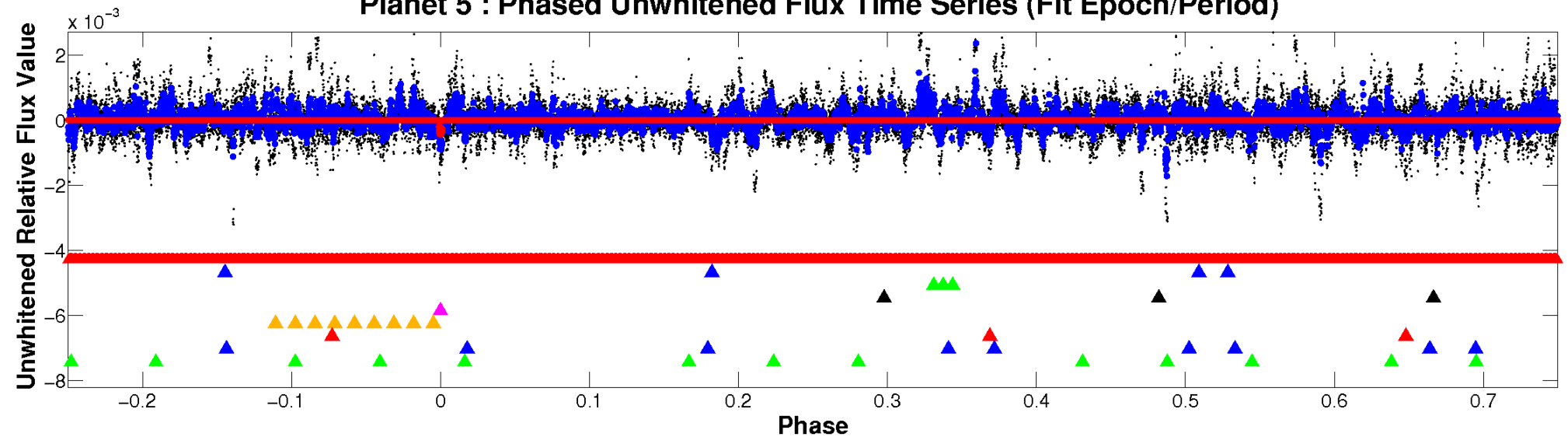
ALT Odd/Even

TCE 012691760-05

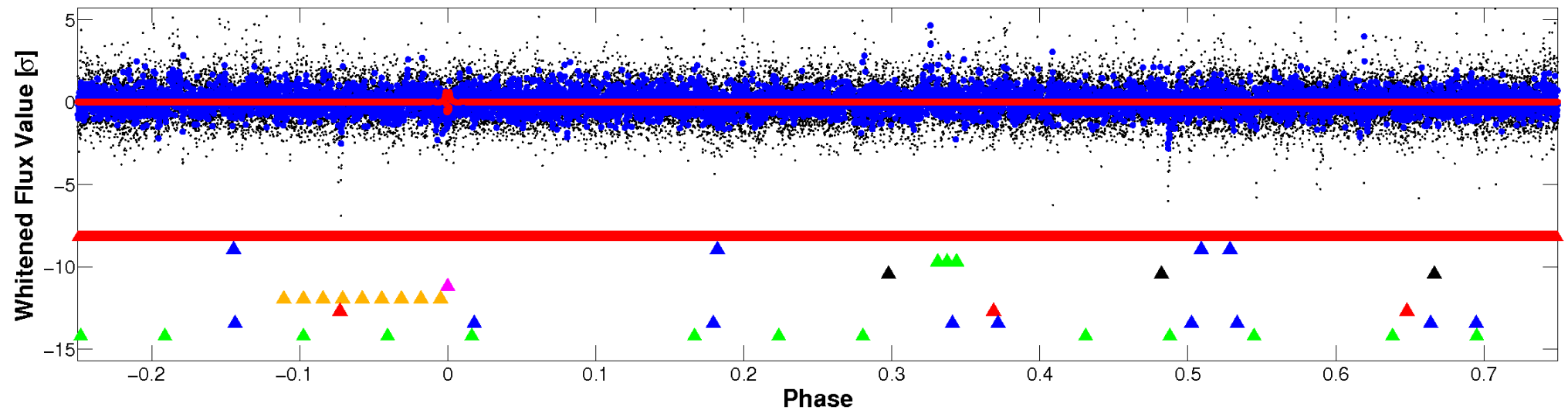


Non-Whitened Vs. Whitened Light Curve

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

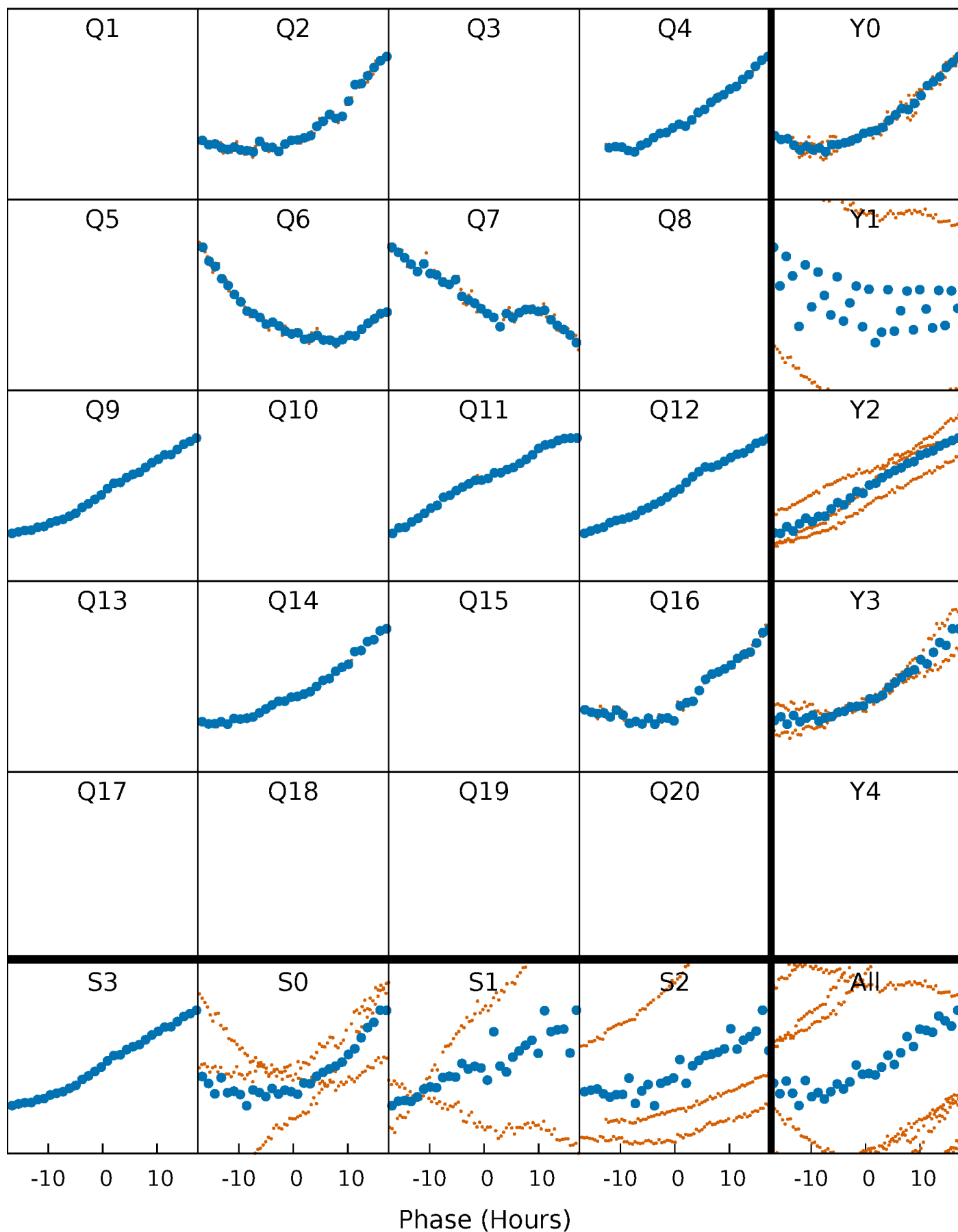


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



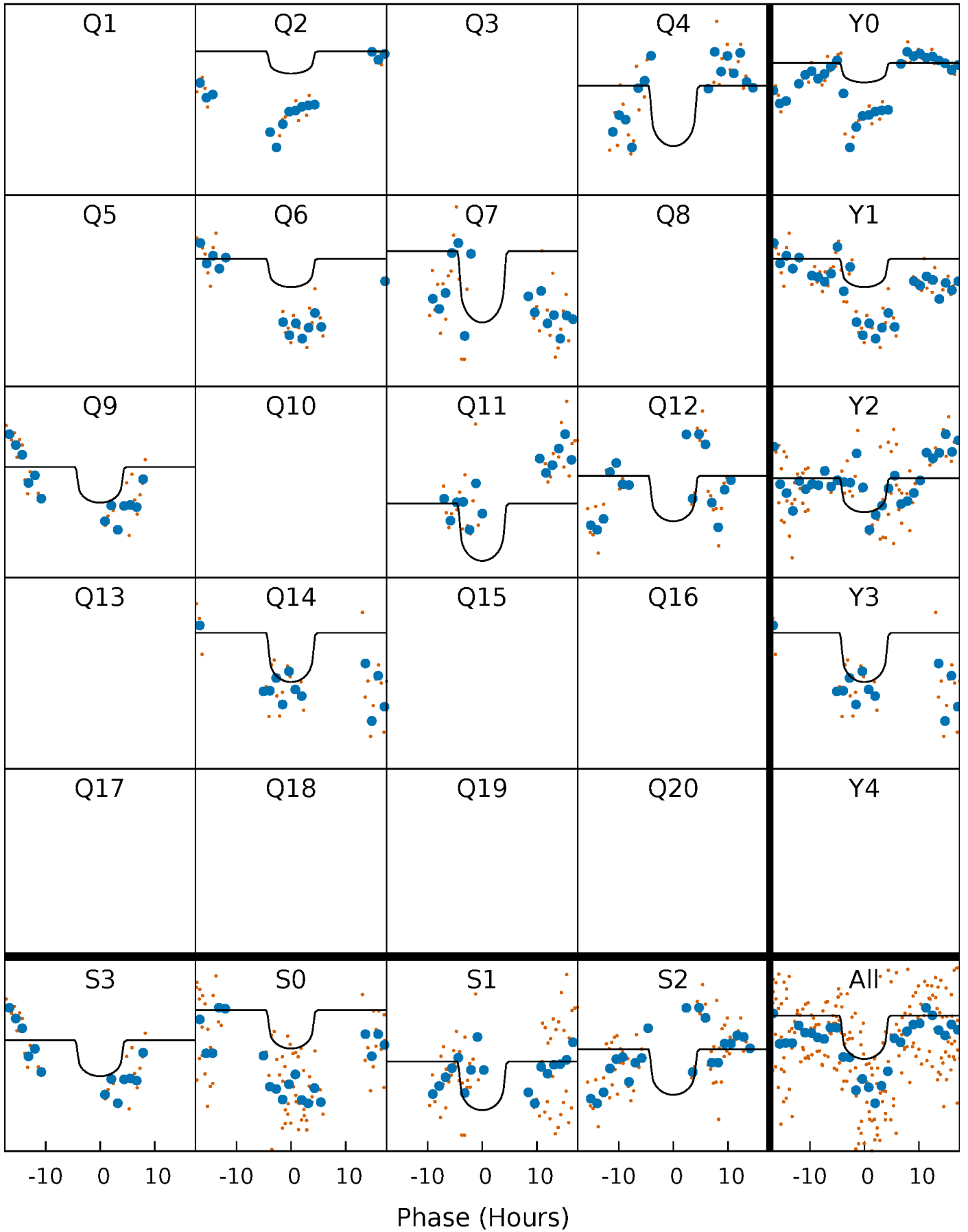
PDC Quarter-Phased Transit Curves

TCE 012691760-05 $P=153.547120$ Days $T_0=247.805082$ (BKJD)



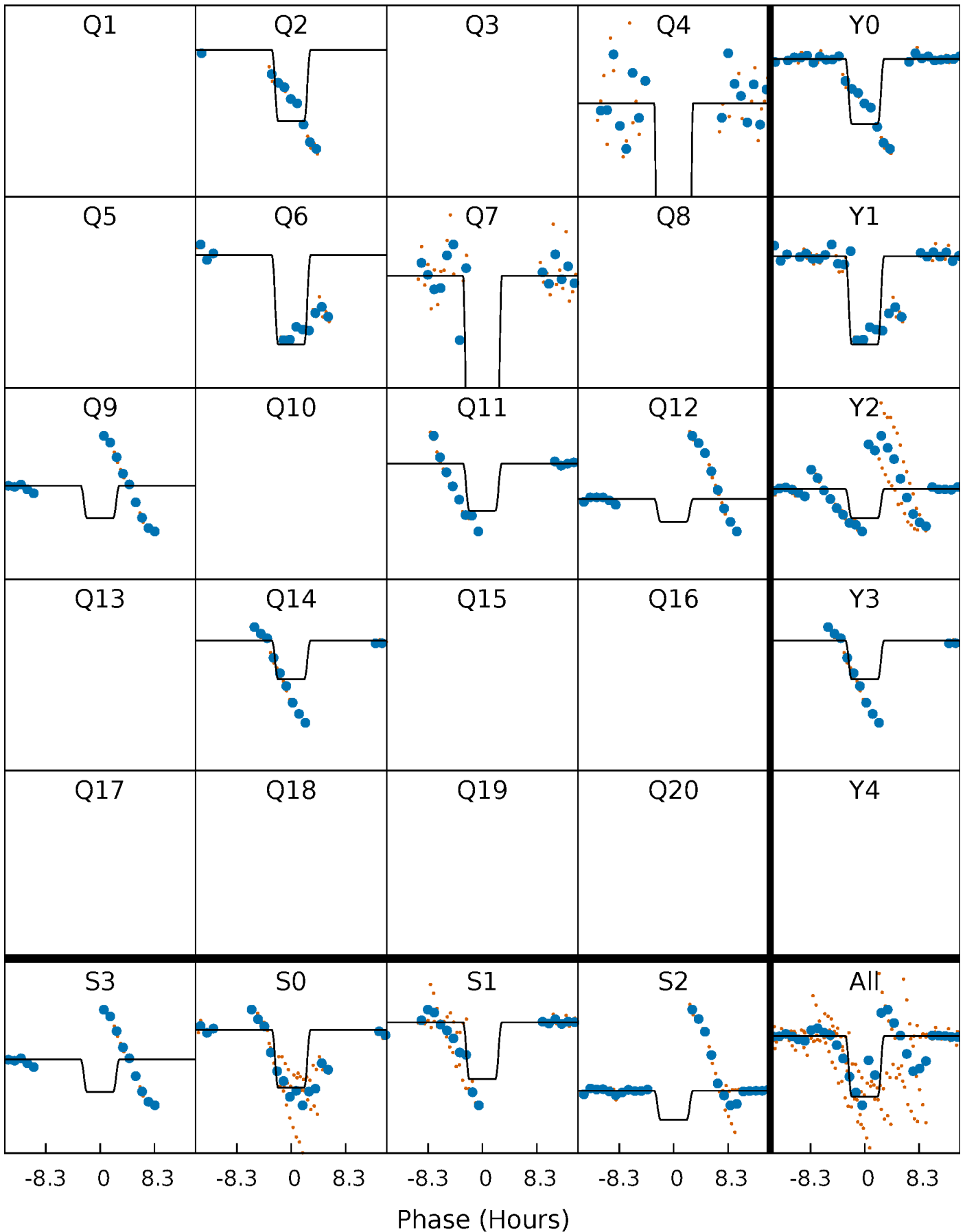
DV Quarter-Phased Transit Curves

TCE 012691760-05 $P=153.547120$ Days $T_0=247.805082$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

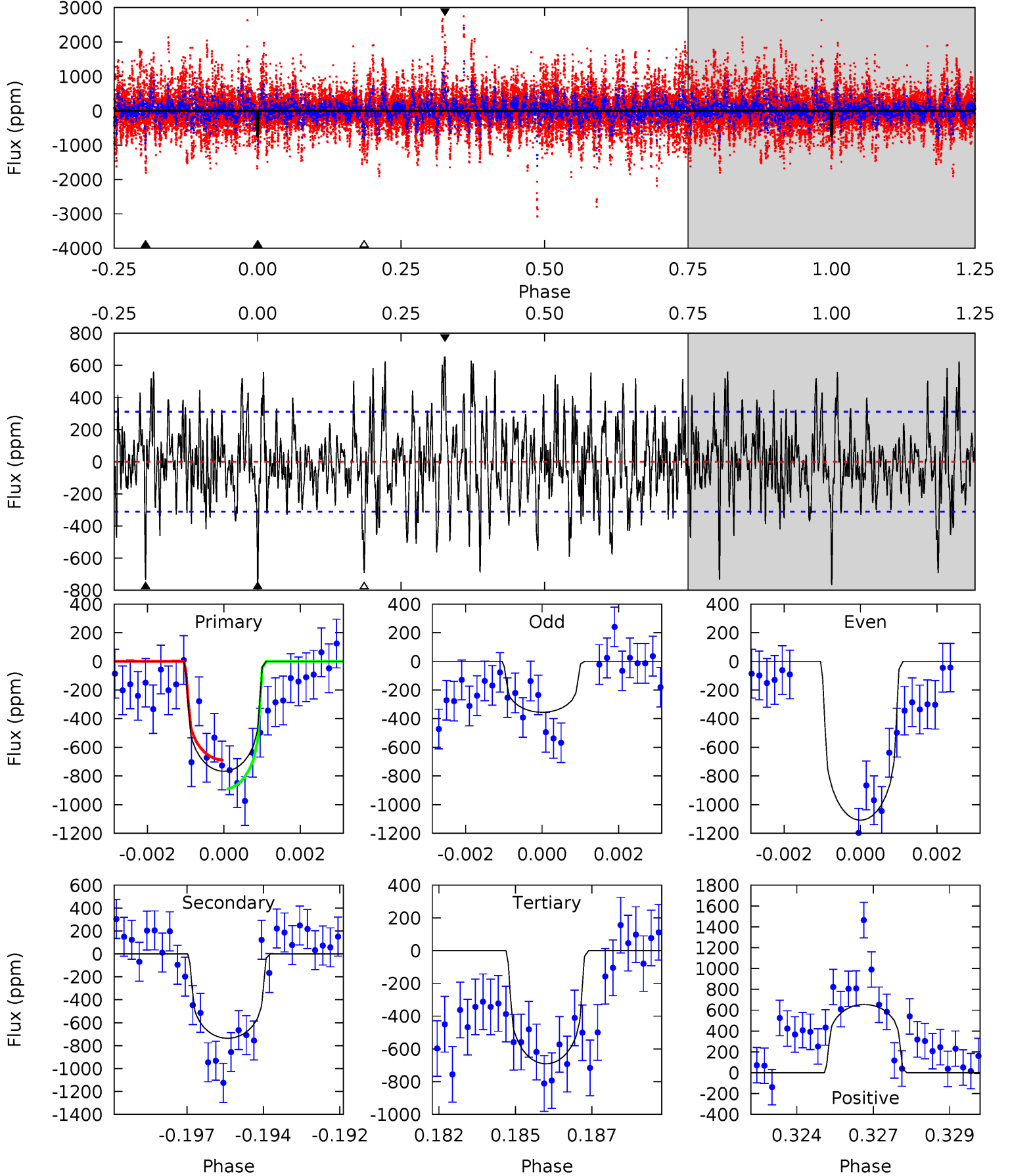
TCE 012691760-05 $P=153.551392$ Days $T_0=247.798319$ (BKJD)



DV Model-Shift Uniqueness Test

012691760-05, $P = 153.547120$ Days, $E = 94.257962$ Days

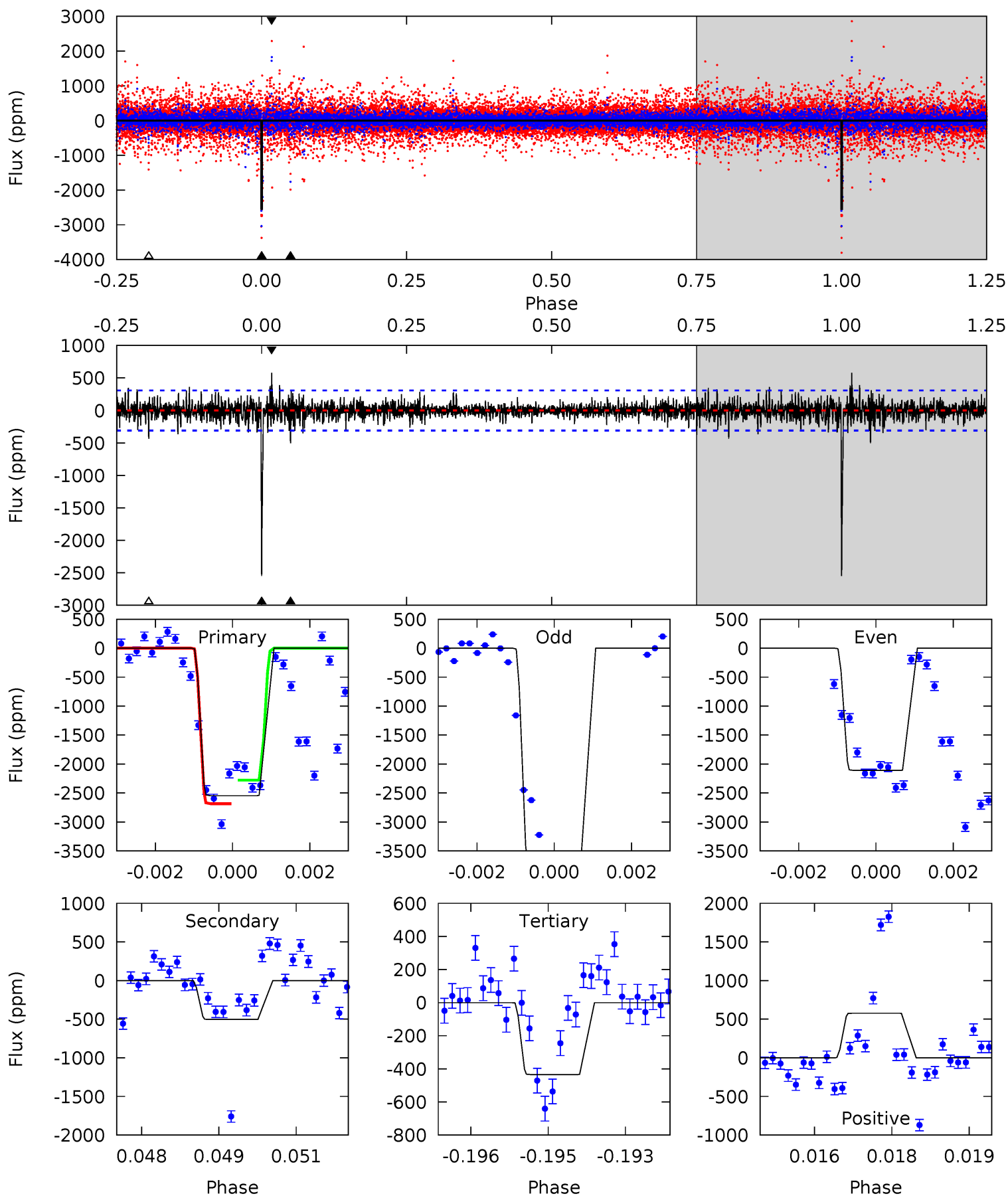
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	12.5	11.7	11.1	5.30	3.04	3.57	1.30	1.91	0.77	1.38	6.31	1.13	0.46	1.75



Alt Model-Shift Uniqueness Test

012691760-05, P = 153.551392 Days, E = 94.246927 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.2	8.72	7.54	10.0	5.37	3.16	1.45	36.6	34.2	1.18	-1.30	14.1	0.60	0.18	3.67



Stellar Parameters For KIC 012691760

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5184^{+196}_{-179}	$4.567^{+0.052}_{-0.078}$	$-0.180^{+0.300}_{-0.300}$	$0.760^{+0.106}_{-0.071}$	$0.779^{+0.090}_{-0.073}$	$2.496^{+0.564}_{-0.657}$
	+4%/-3%	+1%/-2%	+167%/-167%	+14%/-9%	+12%/-9%	+23%/-26%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012691760-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-736 ± 59	$1.81^{+0.83}_{-0.79}$	391^{+18}_{-18}	5779^{+2129}_{-893}	33055^{+73049}_{-17167}
Alt.	-503 ± 58	$4.30^{+0.90}_{-0.85}$	391^{+18}_{-17}	3793^{+294}_{-250}	3948^{+2287}_{-1196}

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

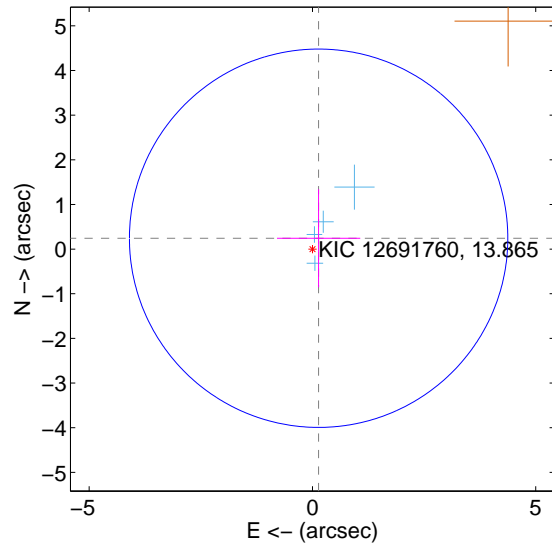
Supplemental centroid analysis for 012691760-05. Kepler magnitude: 13.87. Transit SNR 4.93

There are 4 quarters with good PRF difference image offsets

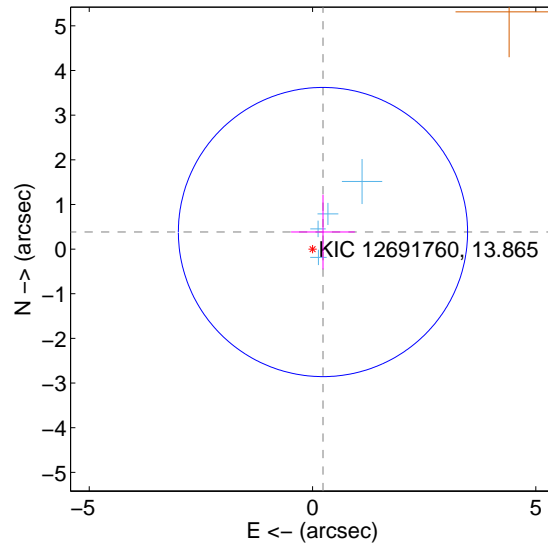
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.280 ± 1.412	0.20	-0.138 ± 0.933	0.243 ± 1.097
PRF-fit source offset from KIC position	0.448 ± 1.079	0.42	-0.234 ± 0.714	0.382 ± 0.834
photometric centroid source offset	1.06 ± 0.84	1.27	0.03 ± 0.80	1.06 ± 0.84

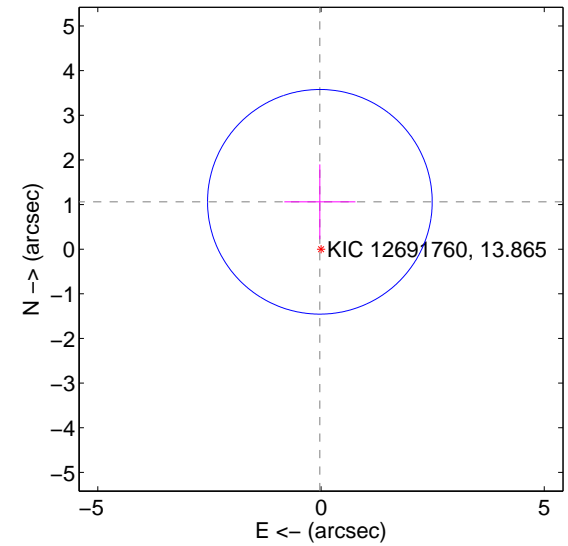
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

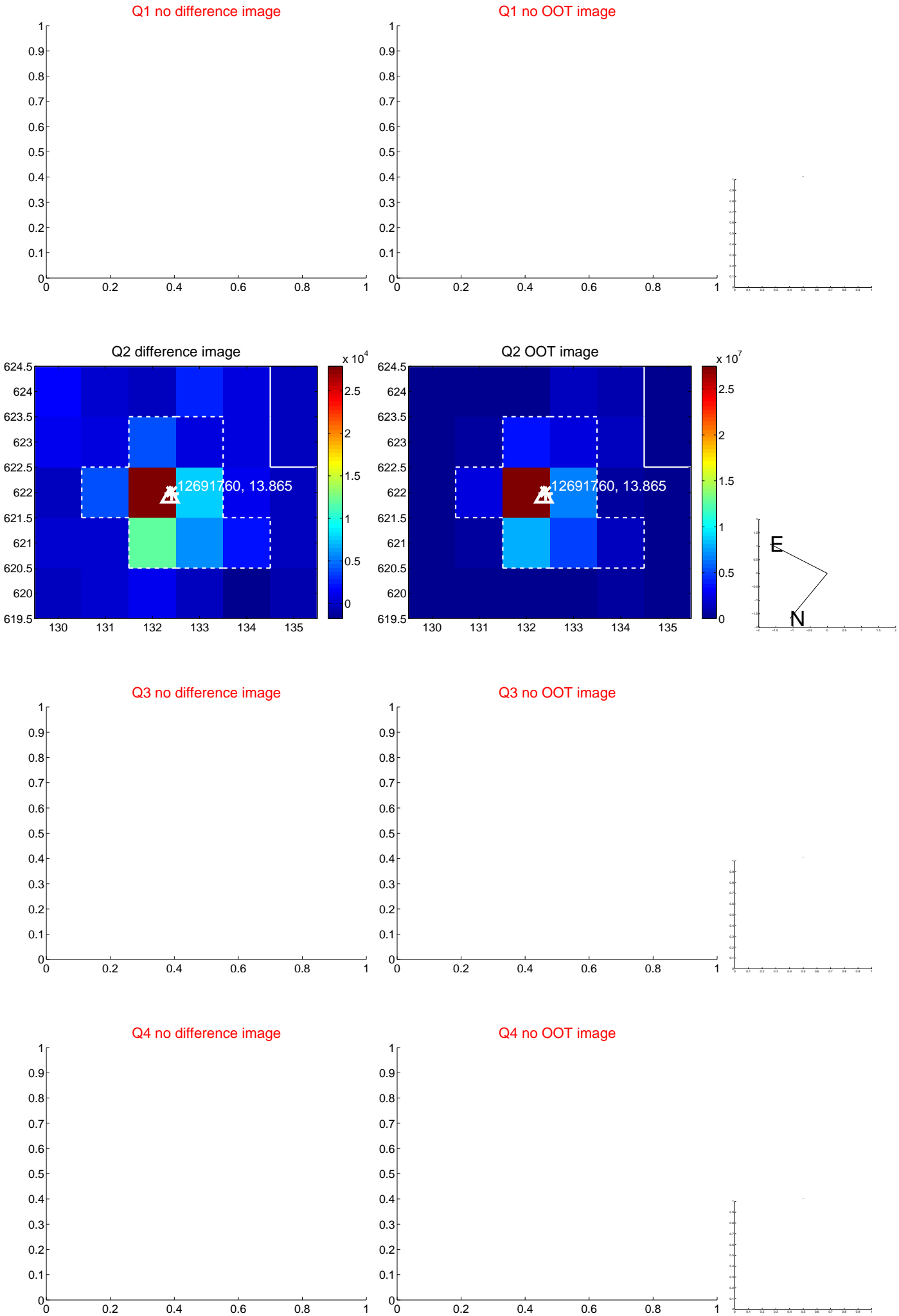


offset from photometric centroids



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.

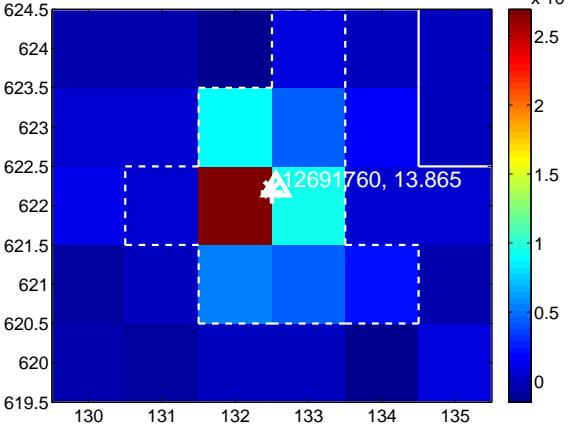
Q5 no difference image



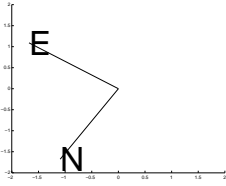
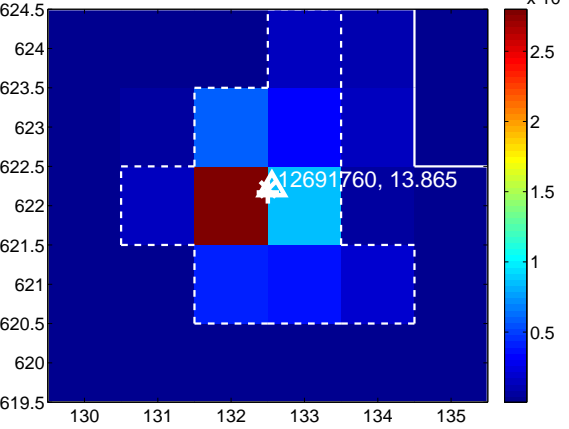
Q5 no OOT image



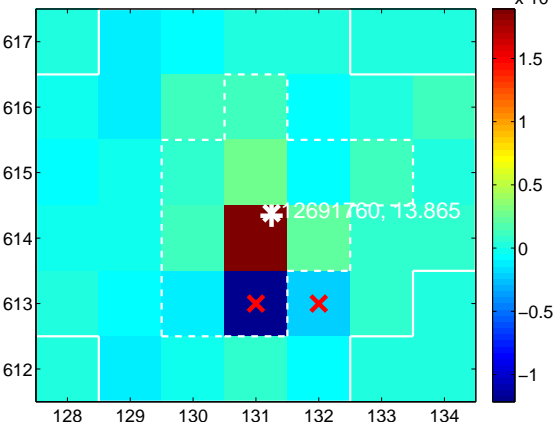
Q6 difference image



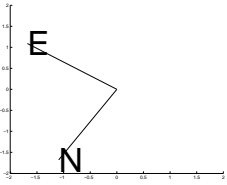
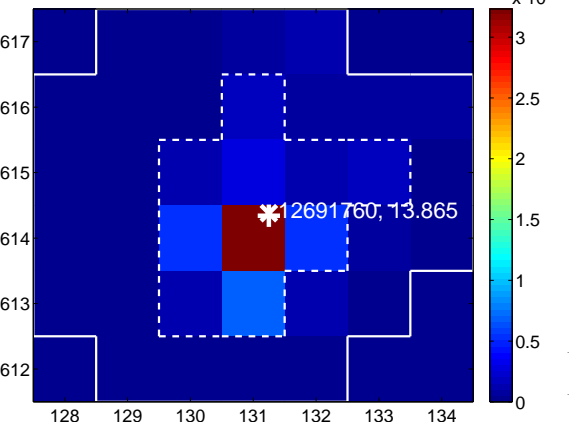
Q6 OOT image



Q7 difference image. Poor Quality



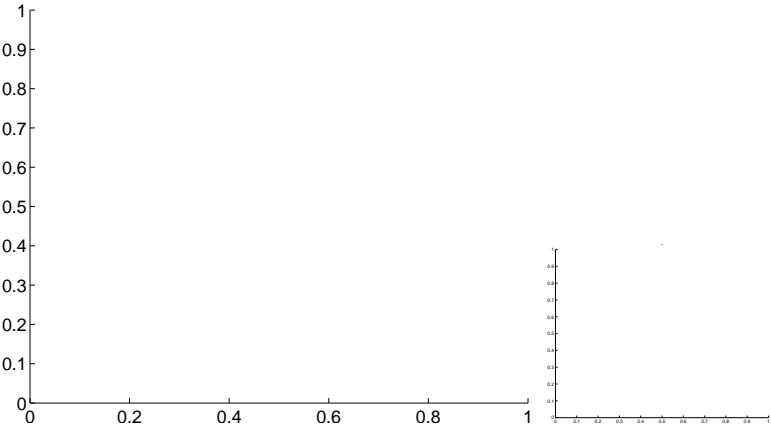
Q7 OOT image



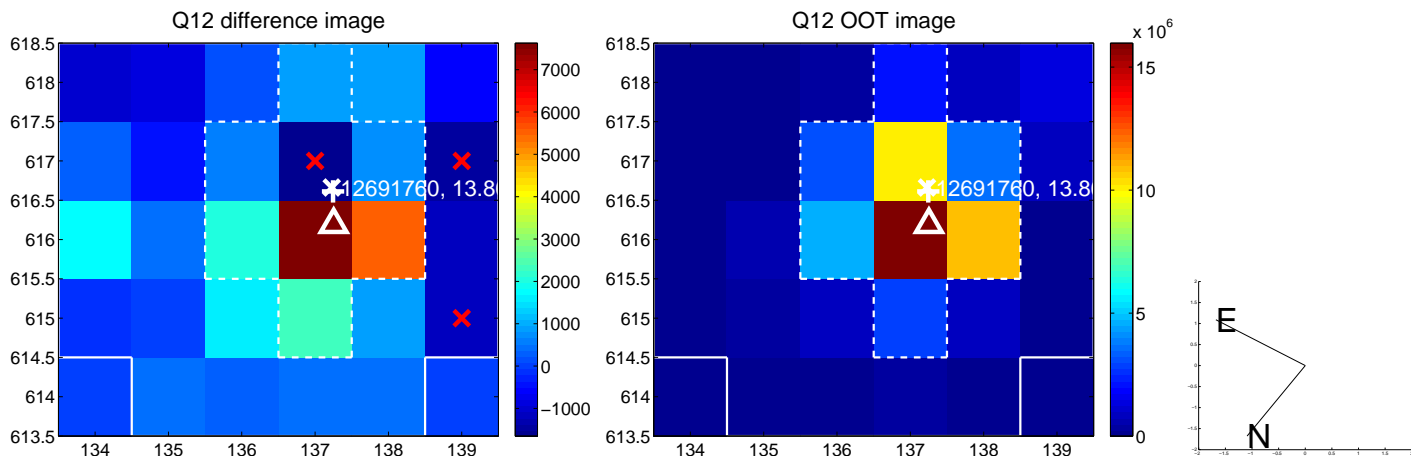
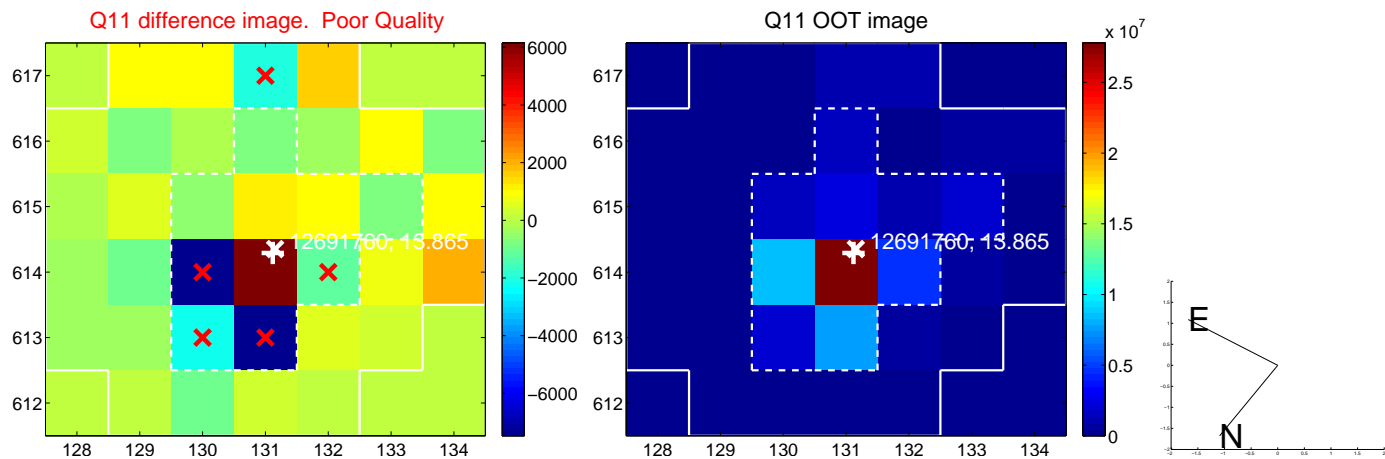
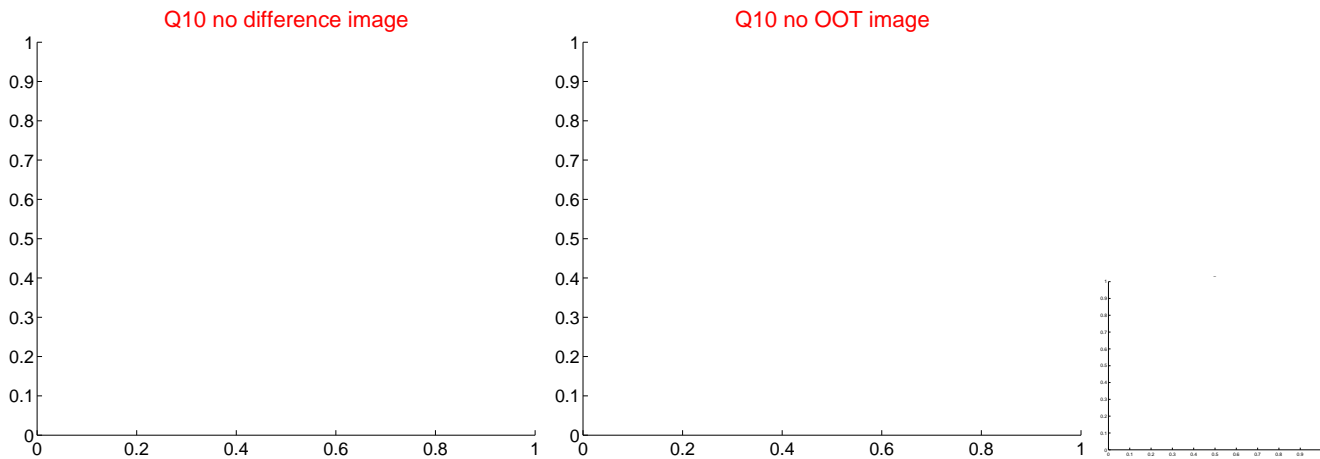
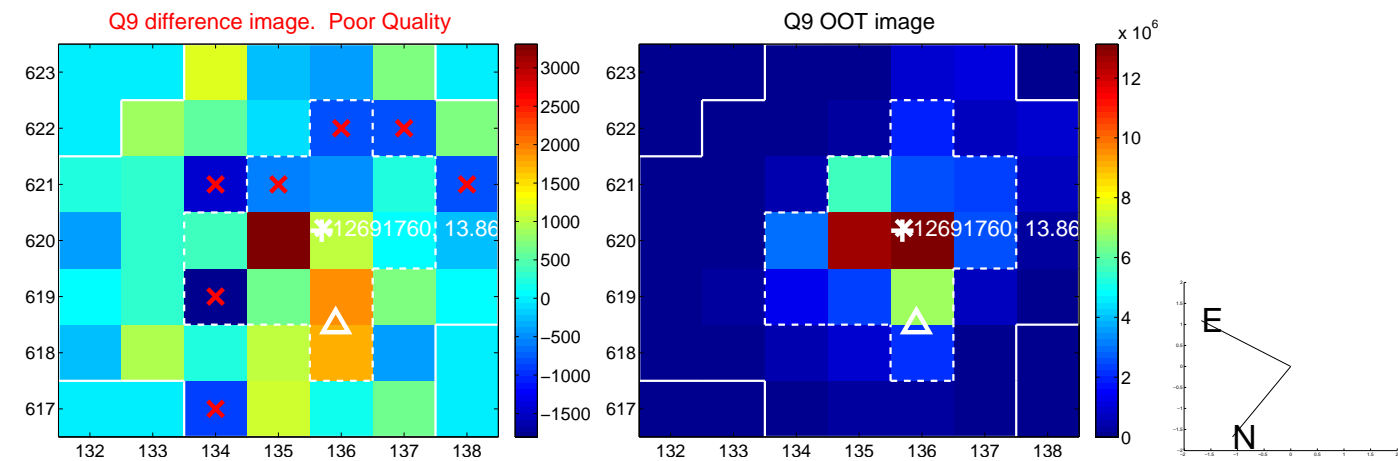
Q8 no difference image



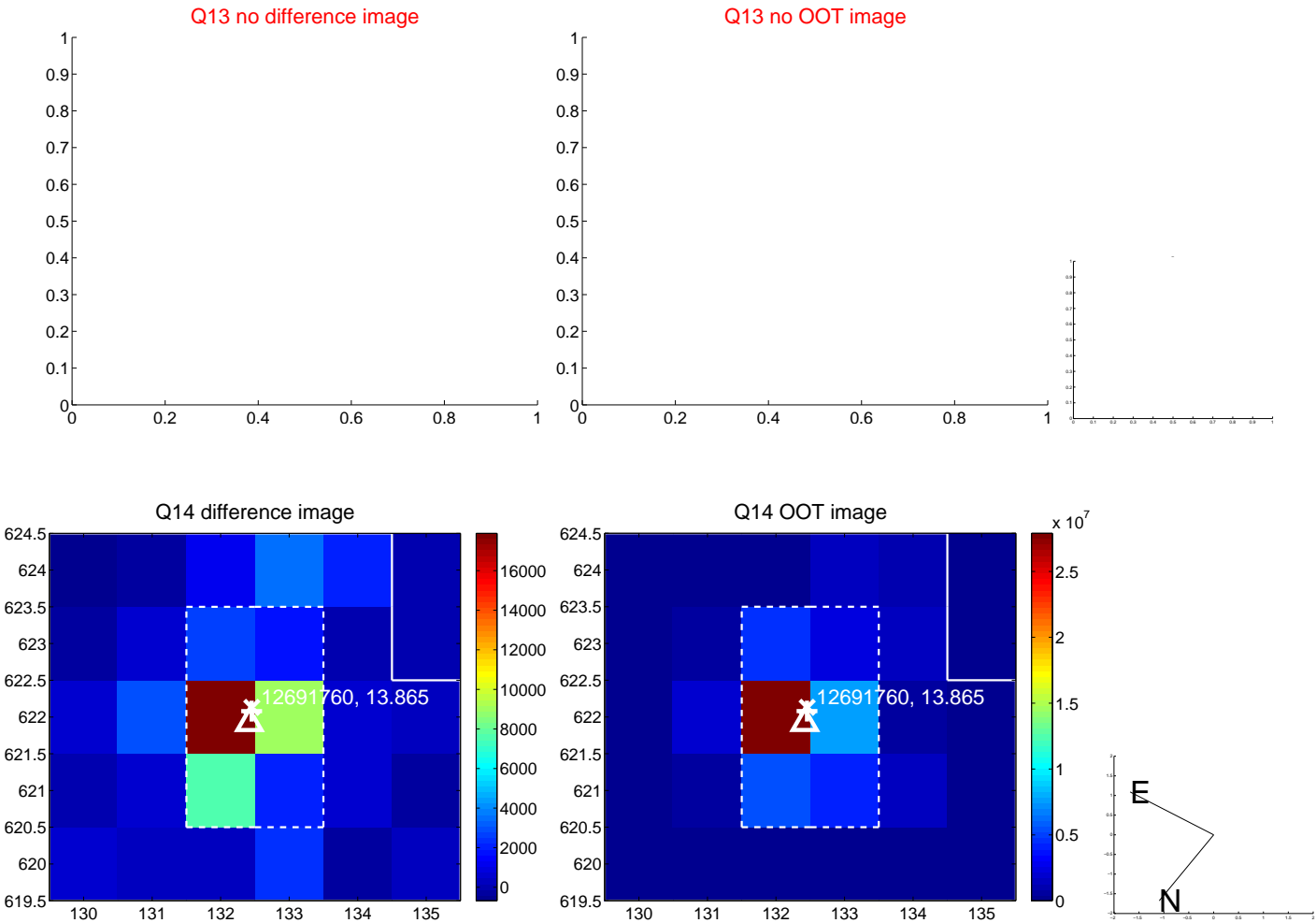
Q8 no OOT image



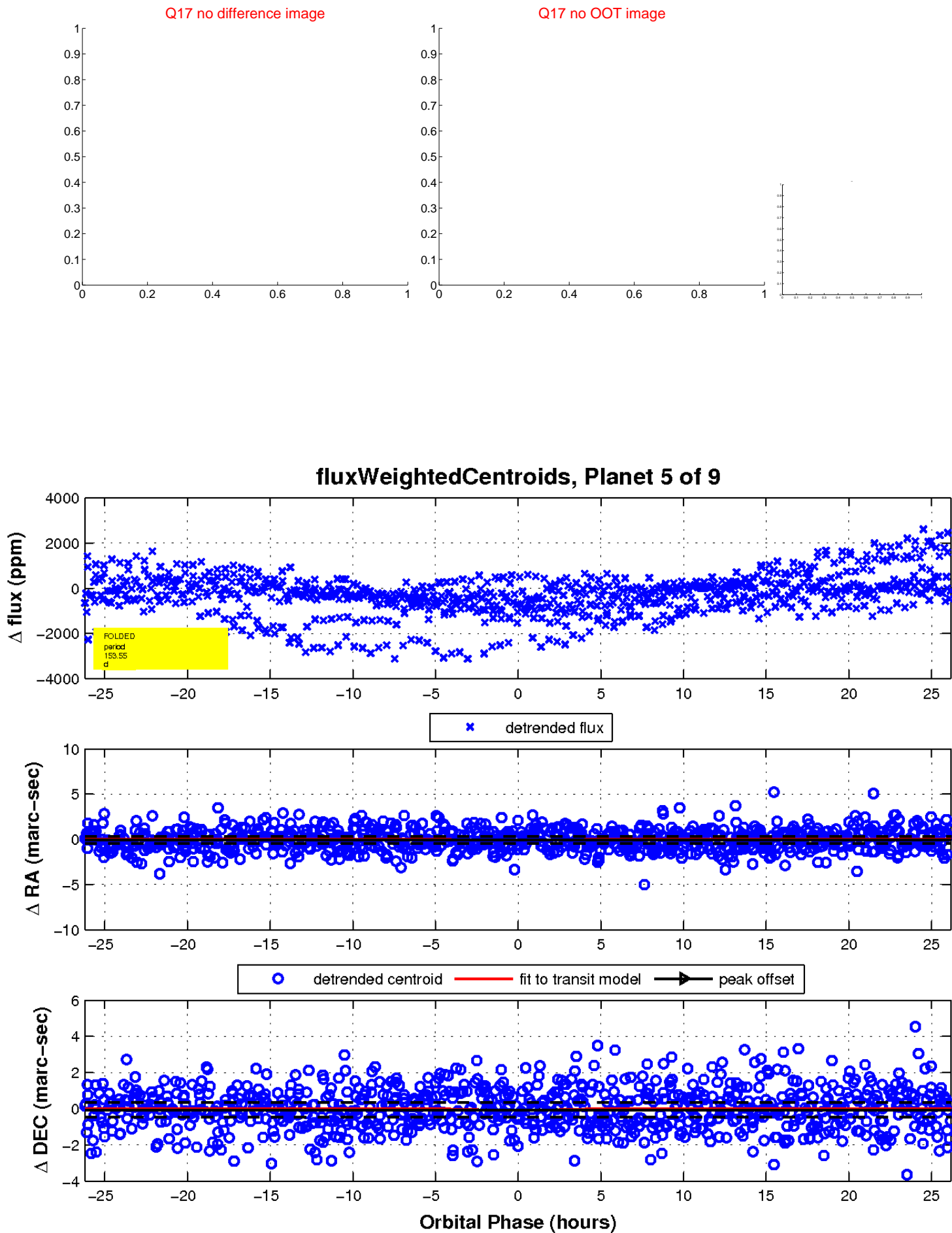
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

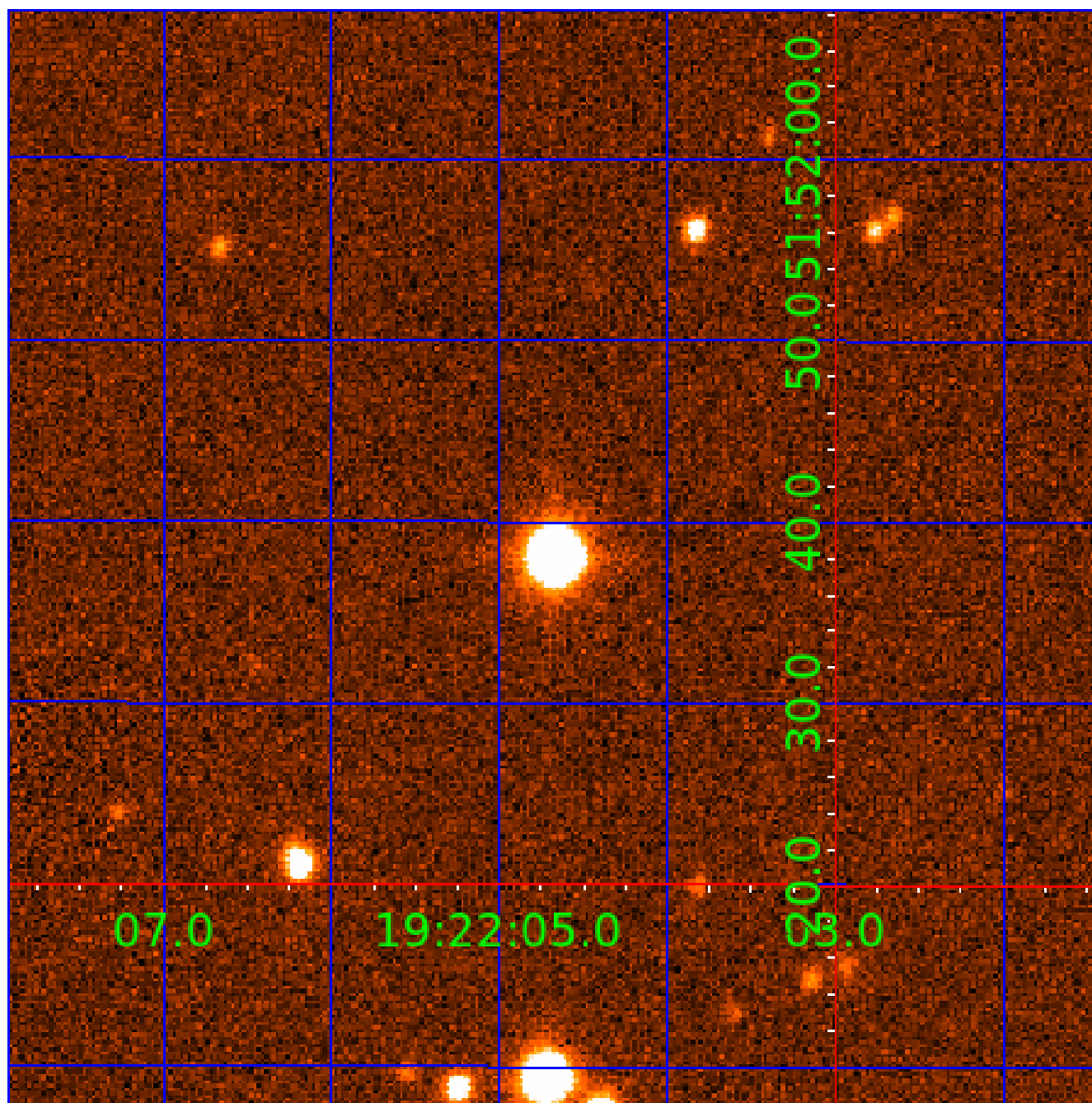


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012691760

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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012691760-02	OBS	No	357.281300	175.411893	1431.3	12.758	16.9	8.1	0.76	5184	3.58	0.46
012691760-03	OBS	No	615.165201	298.641446	1402.3	14.504	14.0	6.9	0.76	5184	3.68	0.22
012691760-05	OBS	No	153.547120	247.805082	442.8	8.757	11.8	4.9	0.76	5184	1.75	1.40
012691760-07	OBS	No	503.516611	457.980263	1288.7	9.860	10.9	8.0	0.76	5184	3.09	0.29
012691760-08	OBS	No	178.350186	151.344833	667.5	10.912	9.5	6.2	0.76	5184	2.33	1.15
012691760-09	OBS	No	112.977153	218.469414	373.1	15.000	10.9	-1.0	0.76	5184	1.43	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012691760-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012691760-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
012691760-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012691760-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES
012691760-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
012691760-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
012691760-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

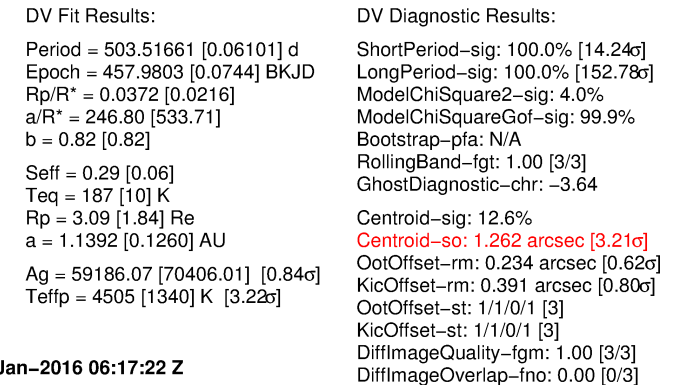
N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

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

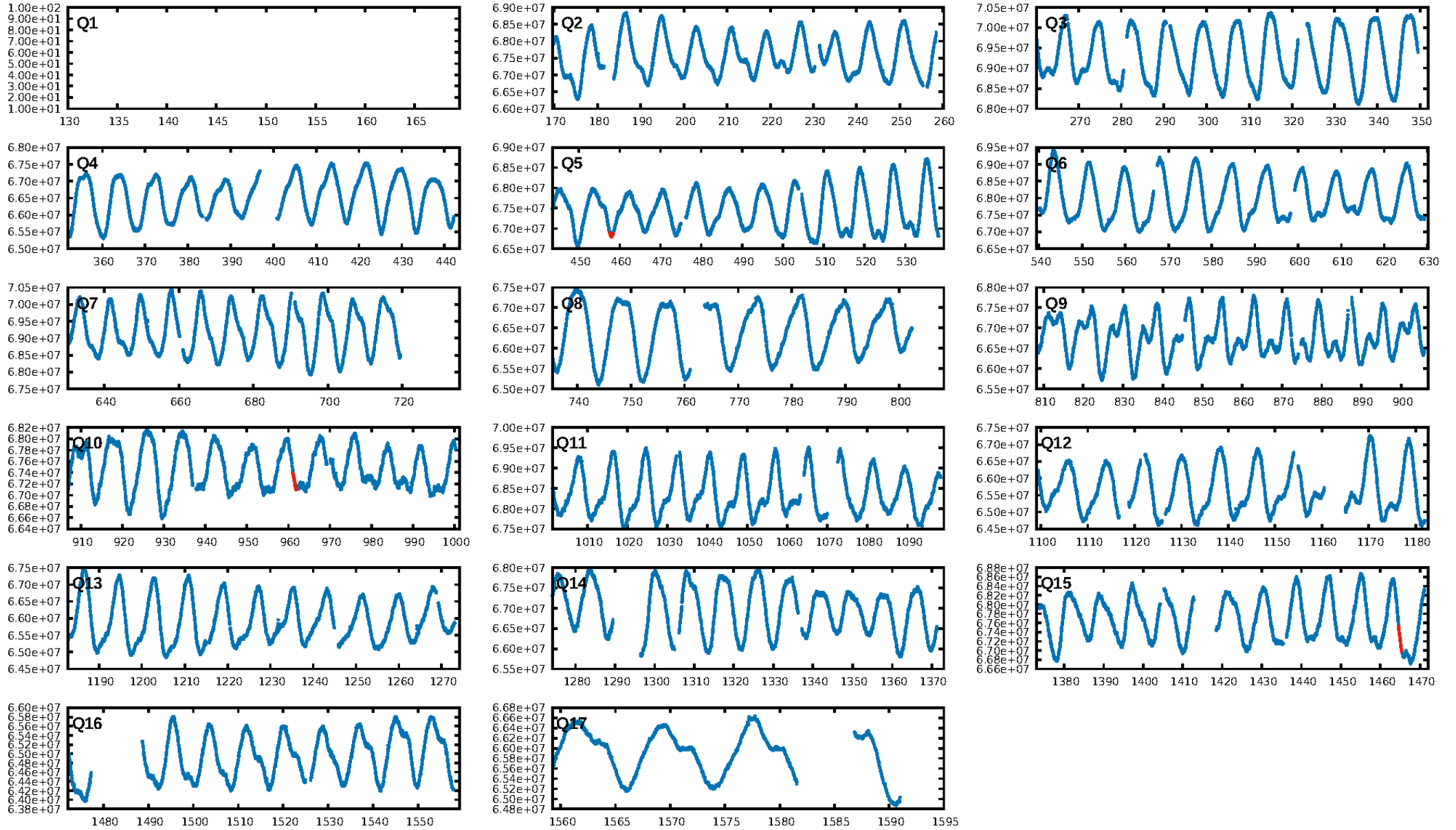
Ephemeris Match Information For 012691760-07

No Significant Match Found

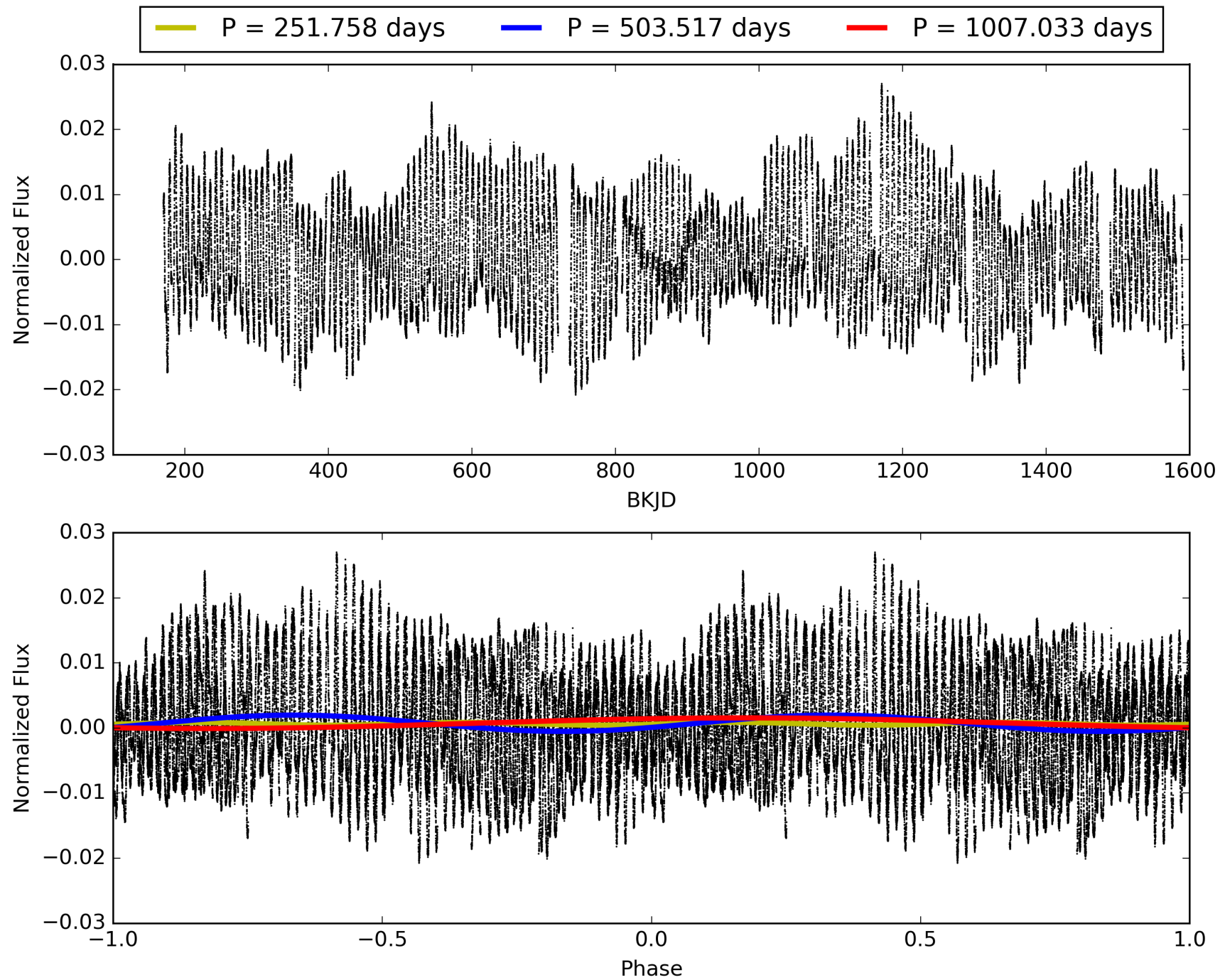
KIC: 12691760 Candidate: 7 of 9 Period: 503.517 d



TCE 012691760-07, PDC Light Curves

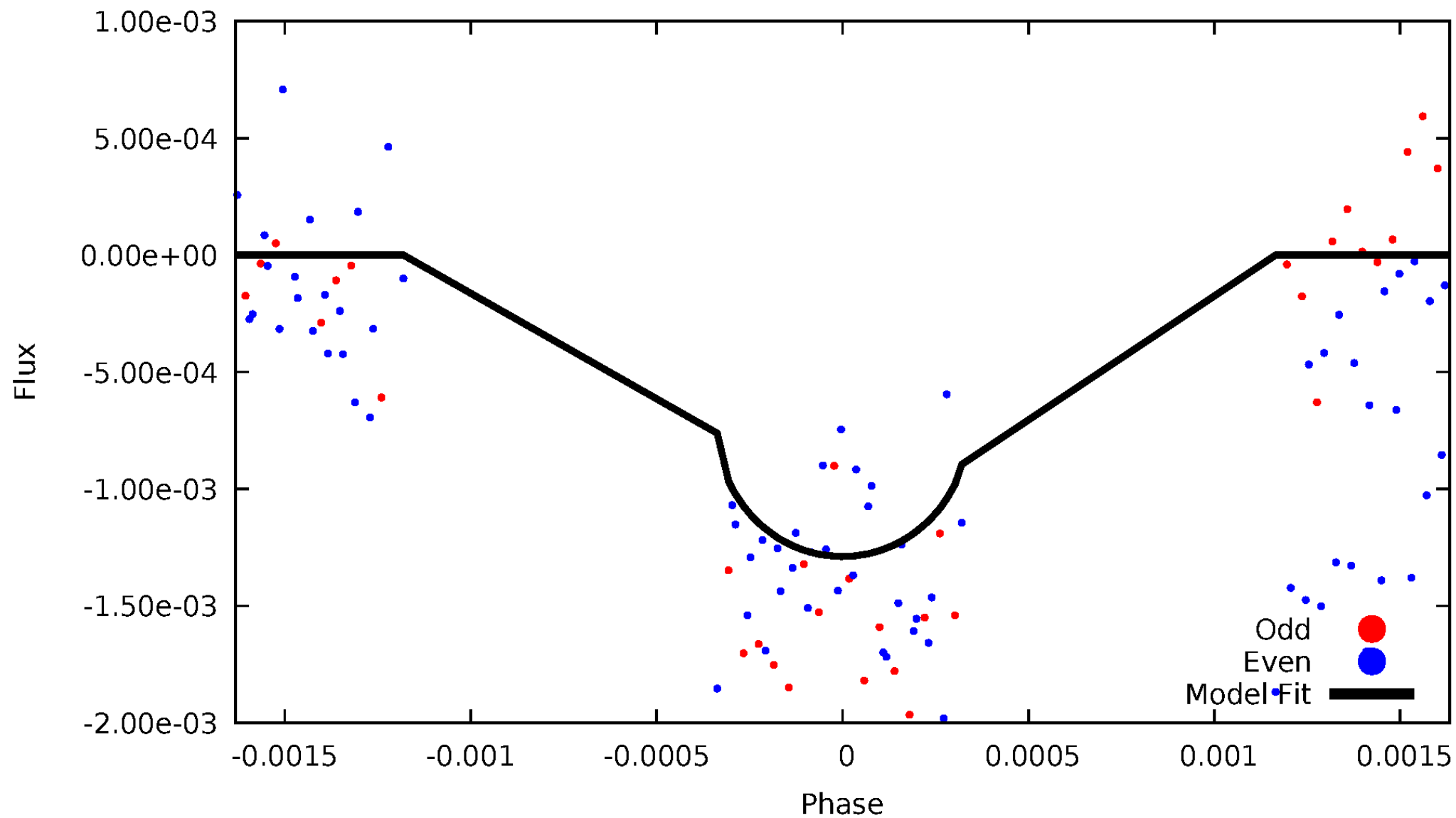


TCE 012691760-07



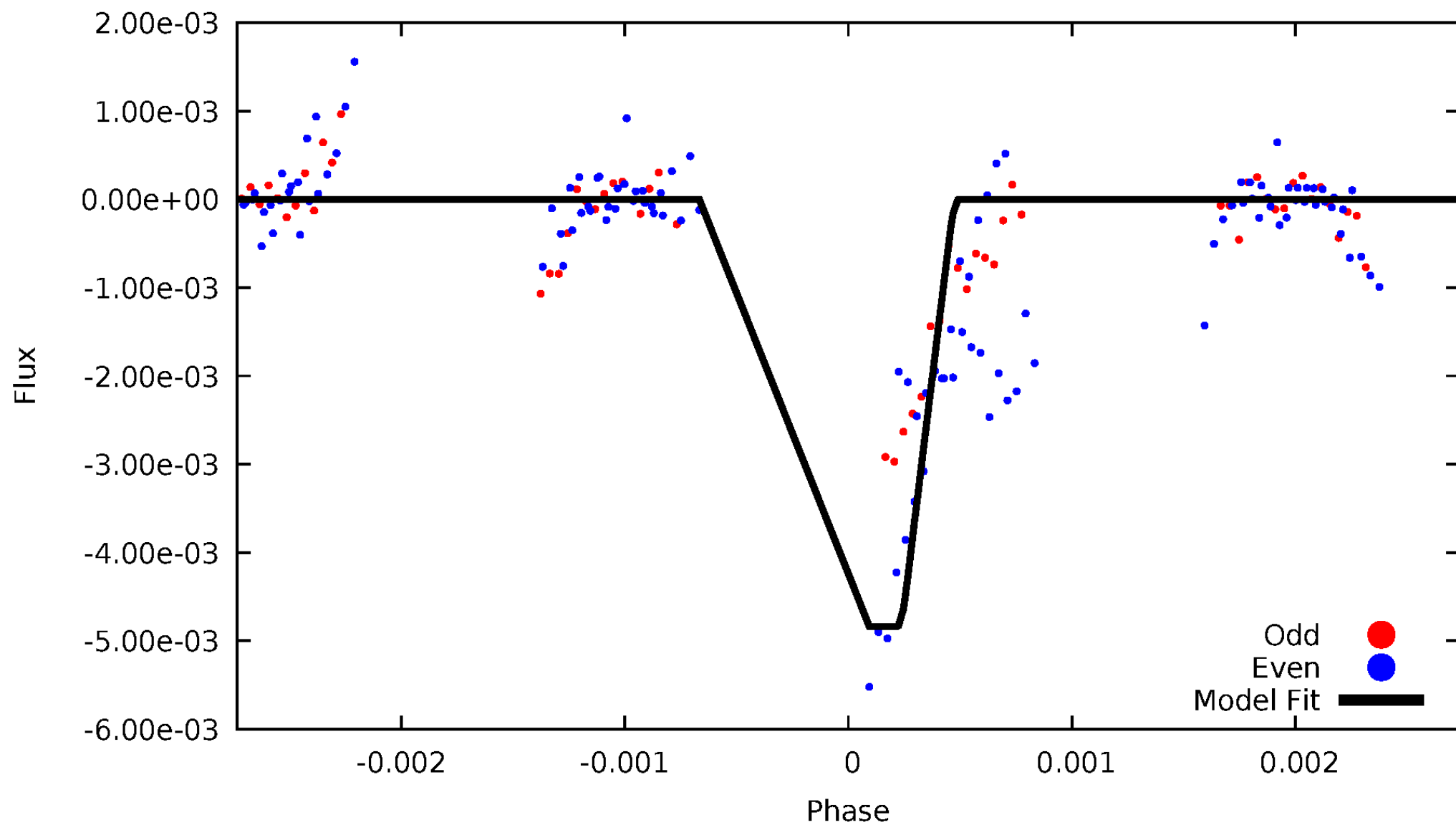
DV Odd/Even

TCE 012691760-07



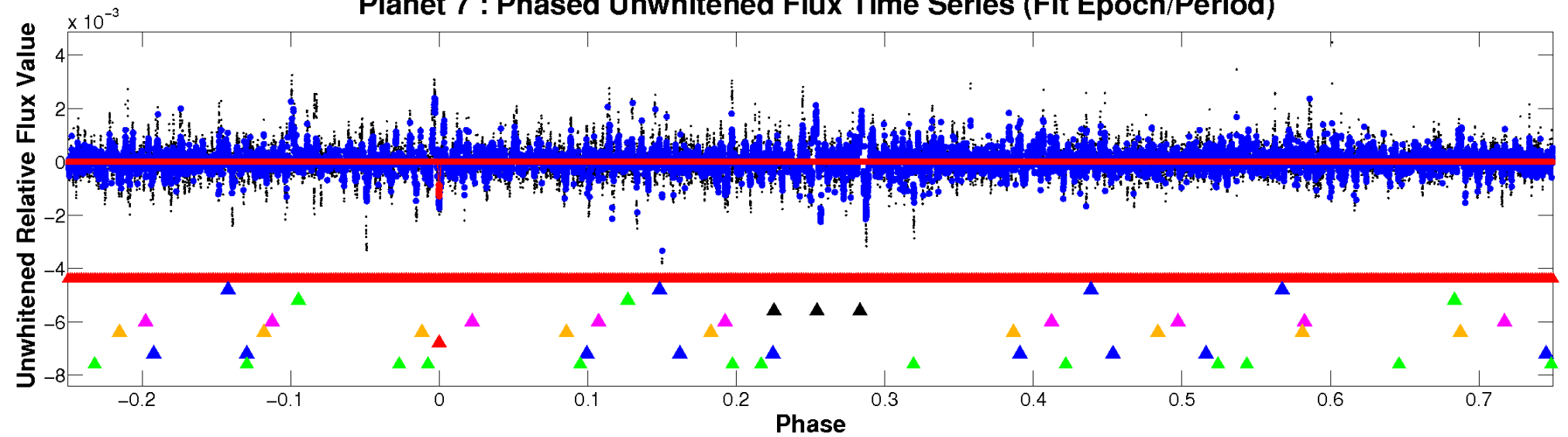
ALT Odd/Even

TCE 012691760-07

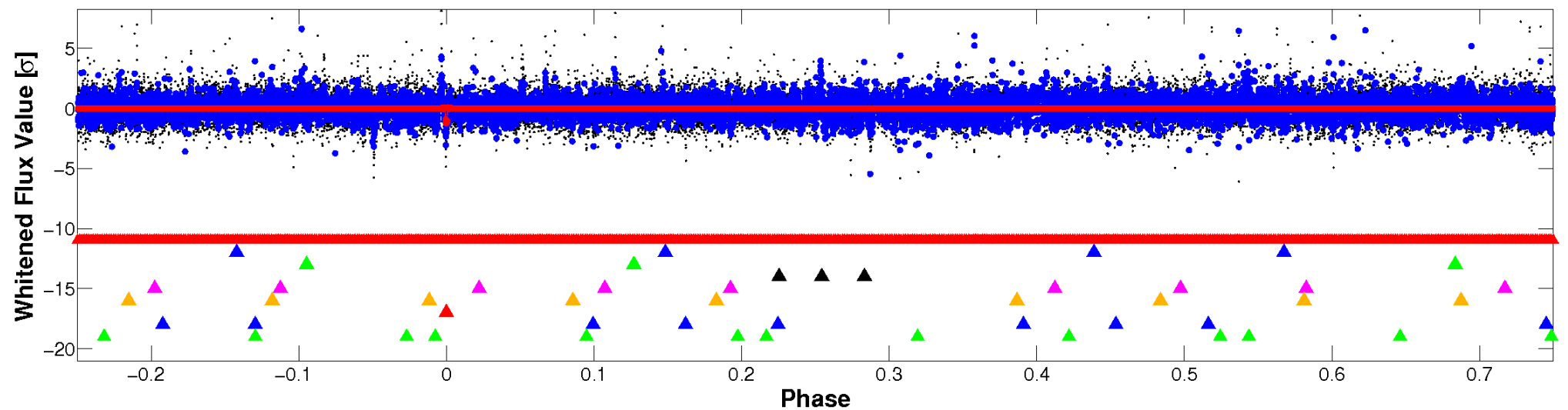


Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

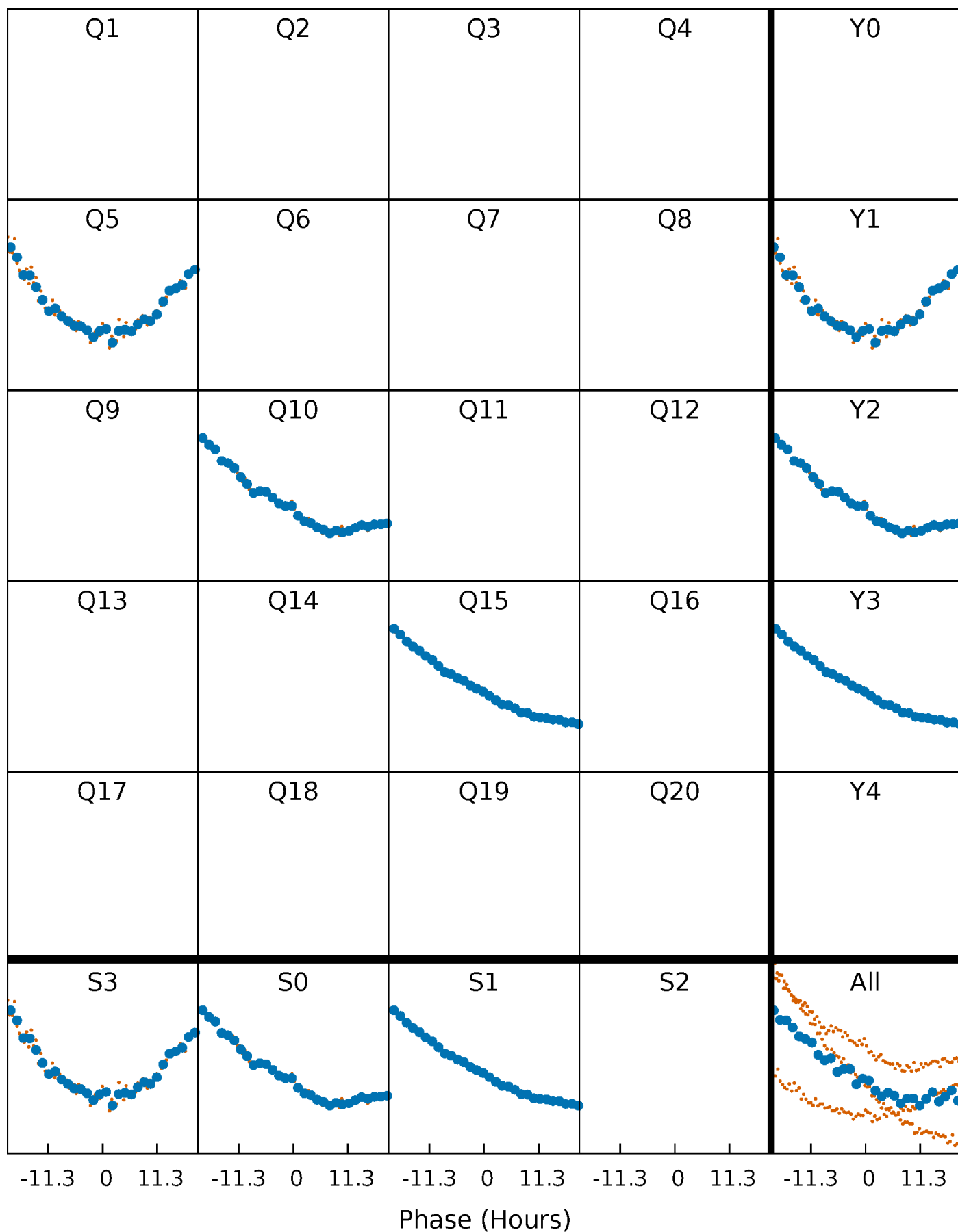


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



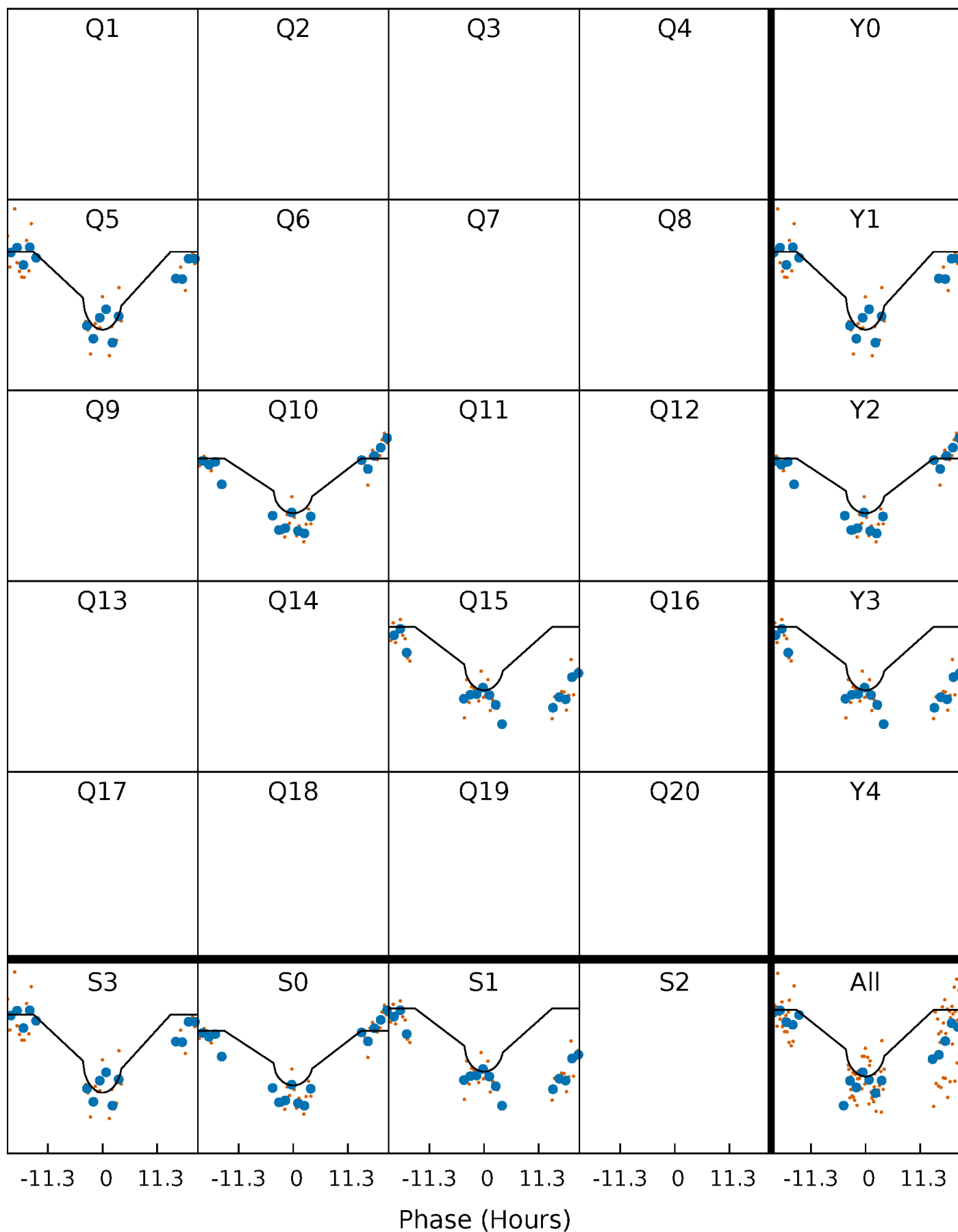
PDC Quarter-Phased Transit Curves

TCE 012691760-07 $P=503.516611$ Days $T_0=457.980263$ (BKJD)



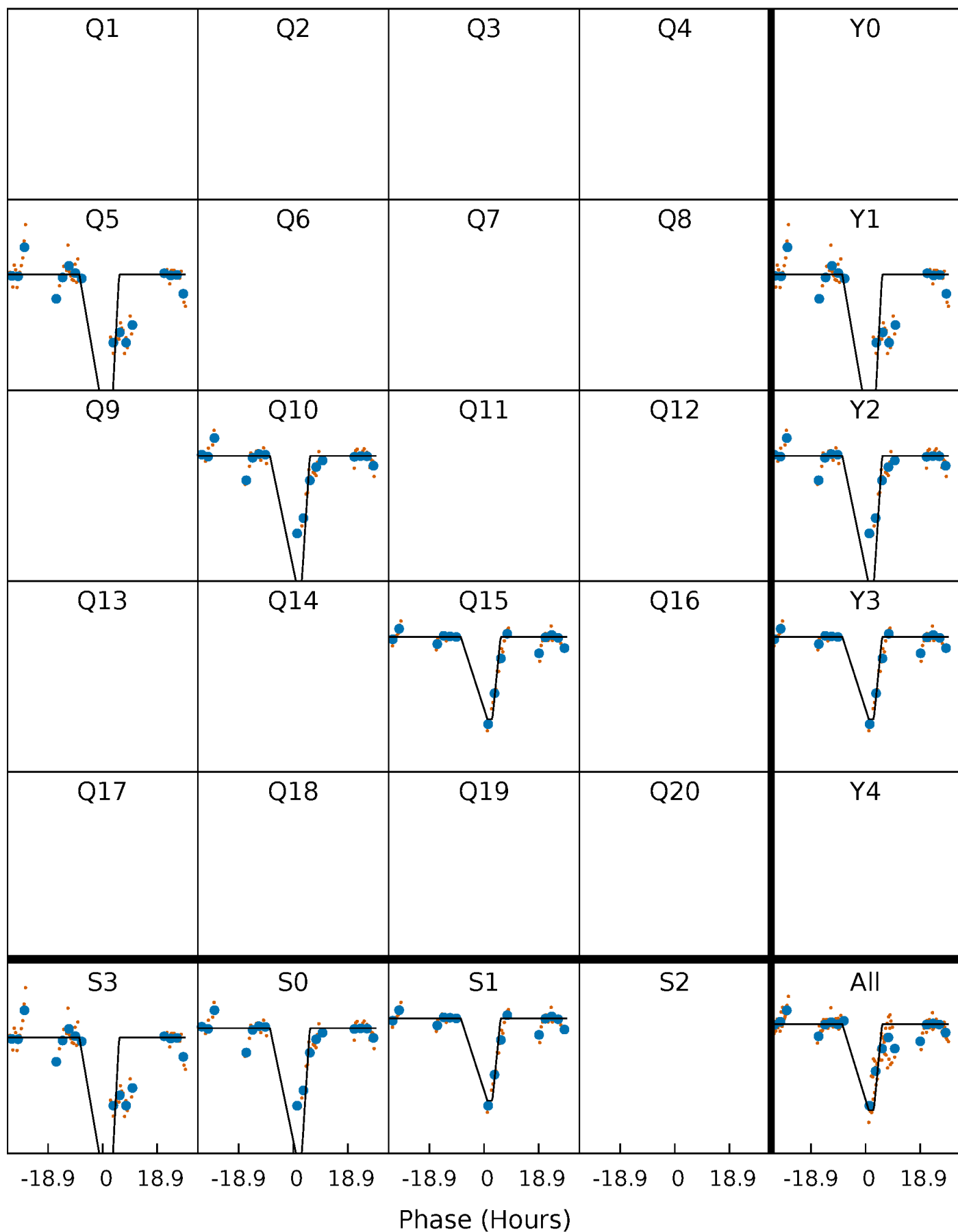
DV Quarter-Phased Transit Curves

TCE 012691760-07 $P=503.516611$ Days $T_0=457.980263$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

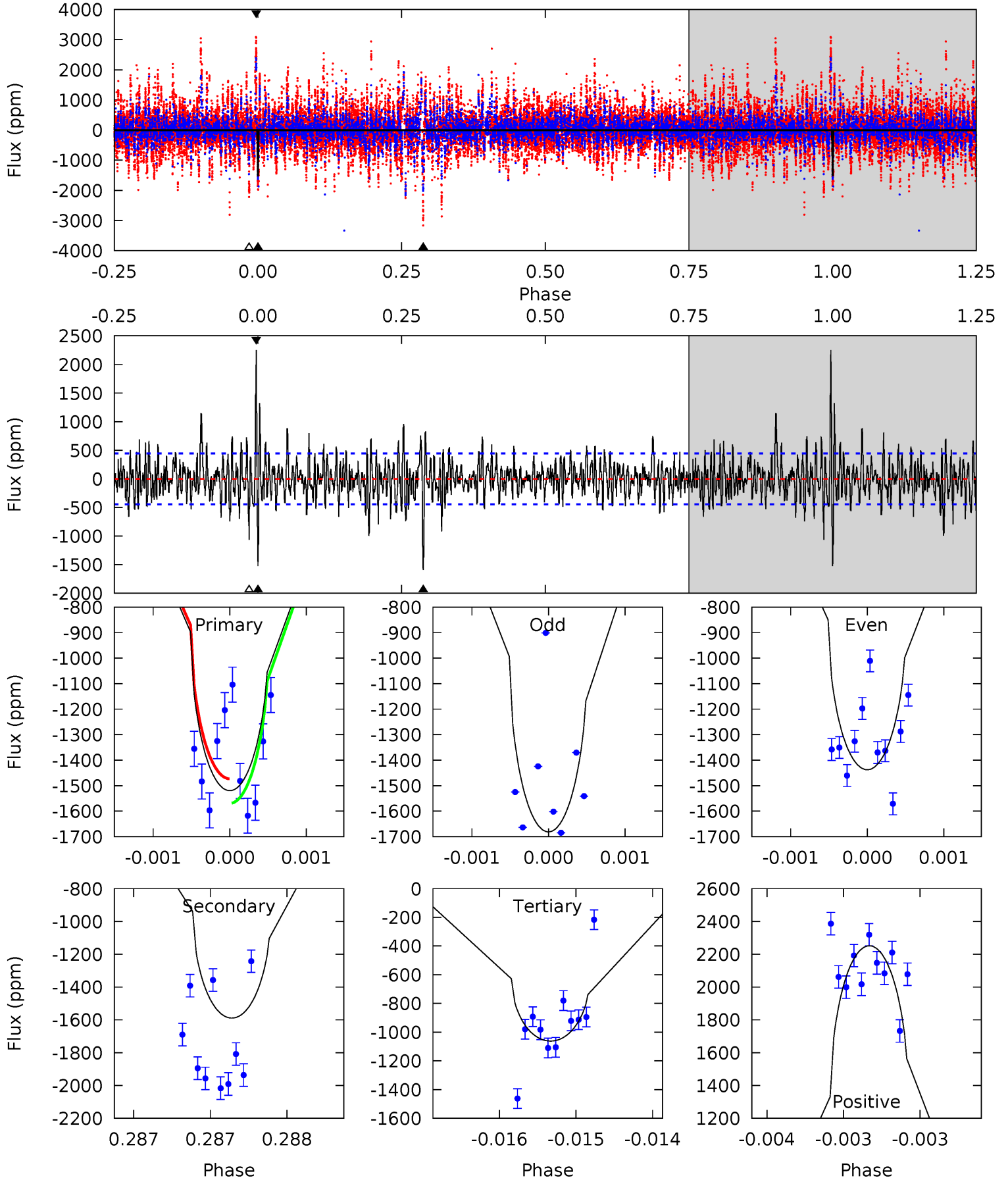
TCE 012691760-07 $P=503.537408$ Days $T_0=457.721795$ (BKJD)



DV Model-Shift Uniqueness Test

012691760-07, P = 503.516611 Days, E = 457.980263 Days

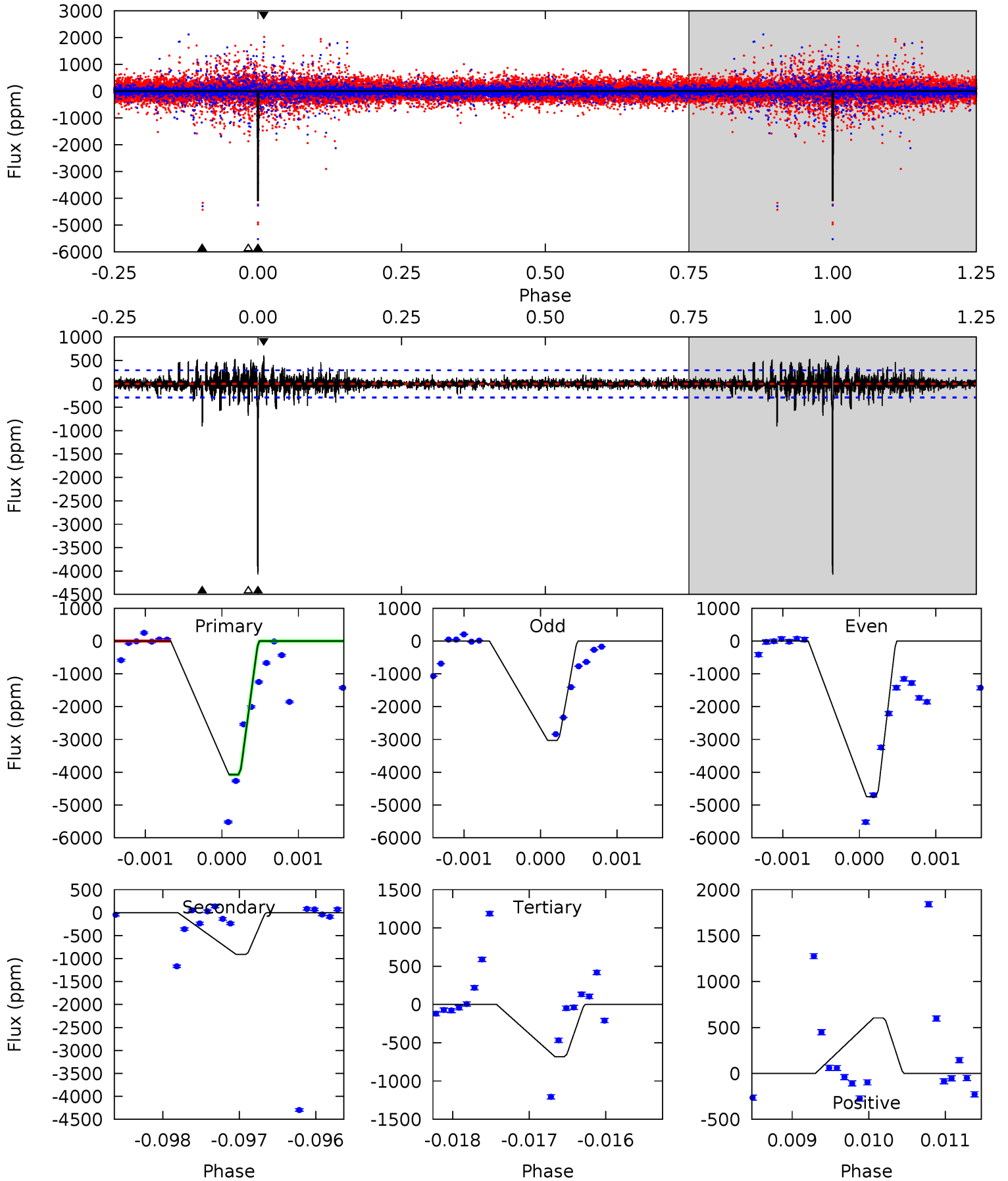
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.9	19.8	13.2	28.0	5.53	3.41	3.56	5.69	-9.10	6.55	-8.23	1.38	0.98	0.59	0.59



Alt Model-Shift Uniqueness Test

012691760-07, P = 503.537408 Days, E = 457.721795 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
76.4	17.1	12.8	11.3	5.45	3.29	1.58	63.6	65.1	4.31	5.76	15.4	1.18	0.13	0



Stellar Parameters For KIC 012691760

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5184^{+196}_{-179}	$4.567^{+0.052}_{-0.078}$	$-0.180^{+0.300}_{-0.300}$	$0.760^{+0.106}_{-0.071}$	$0.779^{+0.090}_{-0.073}$	$2.496^{+0.564}_{-0.657}$
	+4%/-3%	+1%/-2%	+167%/-167%	+14%/-9%	+12%/-9%	+23%/-26%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012691760-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1589±80	$3.26^{+1.80}_{-1.69}$	262^{+12}_{-11}	5284^{+2229}_{-885}	$106890^{+334296}_{-62686}$
Alt.	-911±53	$5.74^{+1.84}_{-1.92}$	262^{+11}_{-12}	3793^{+562}_{-351}	19513^{+24217}_{-8420}

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

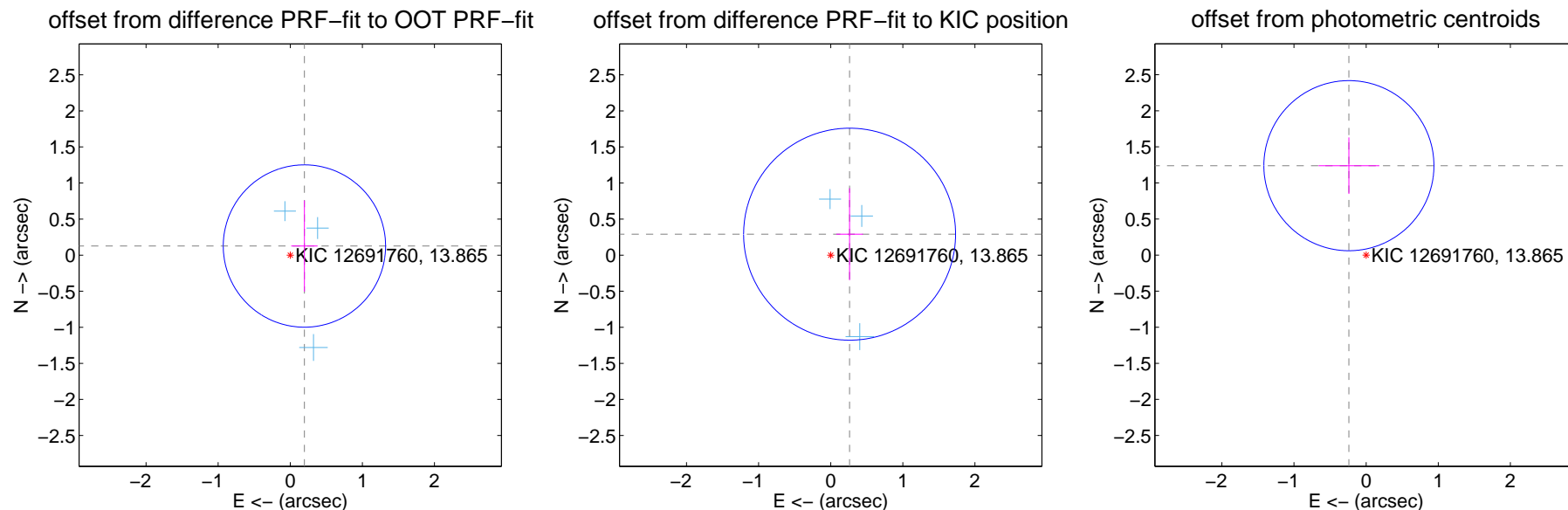
DV Centroid Data

Supplemental centroid analysis for 012691760-07. Kepler magnitude: 13.87. Transit SNR 7.98

There are 3 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	0.234 ± 0.375	0.62	-0.196 ± 0.183	0.127 ± 0.631
PRF-fit source offset from KIC position	0.391 ± 0.490	0.80	-0.262 ± 0.185	0.291 ± 0.638
photometric centroid source offset	1.26 ± 0.39	3.21	0.24 ± 0.42	1.24 ± 0.39

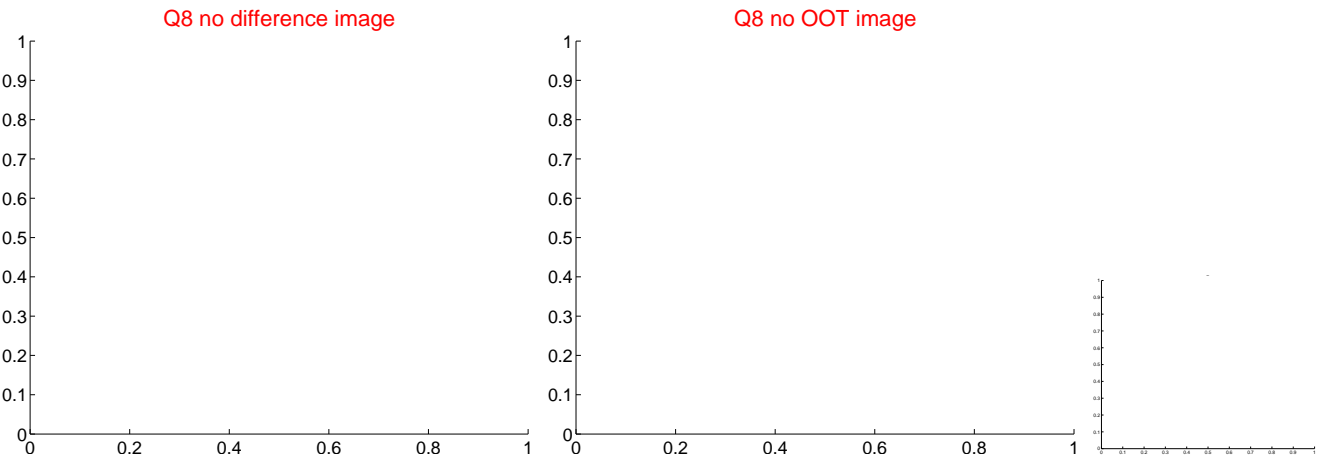
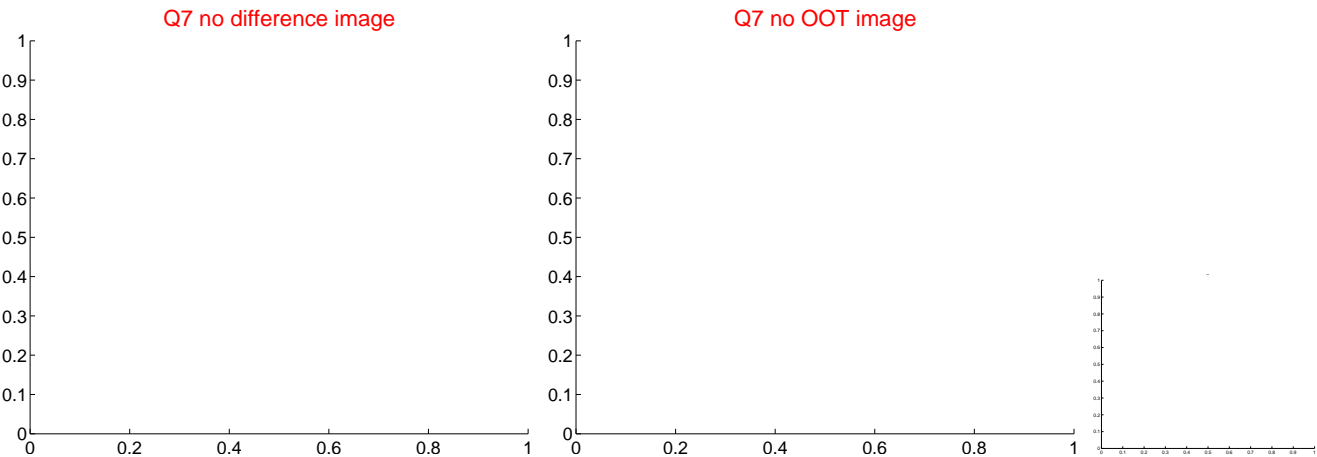
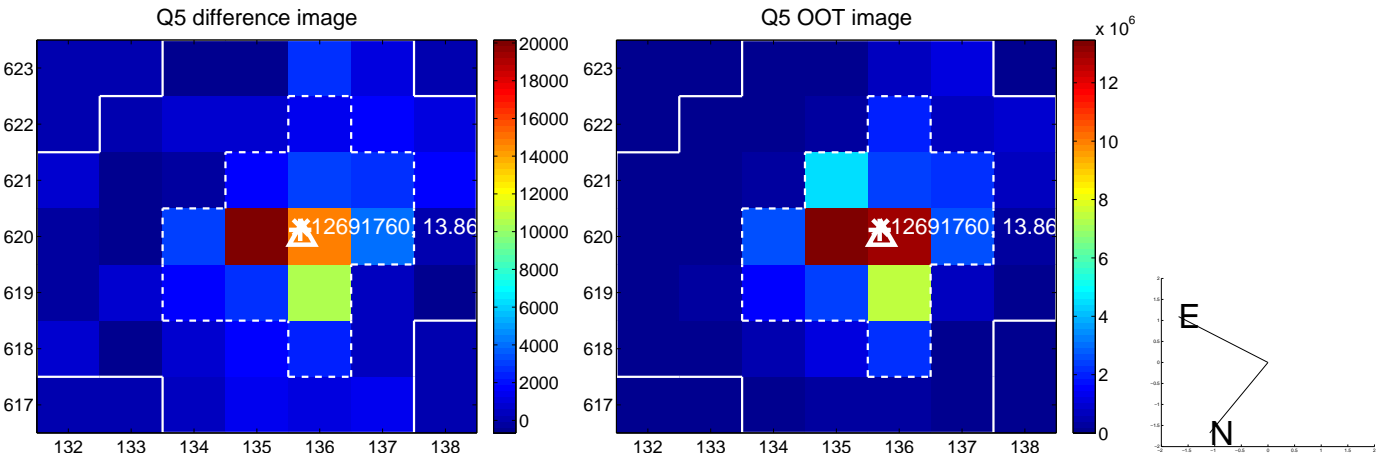


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

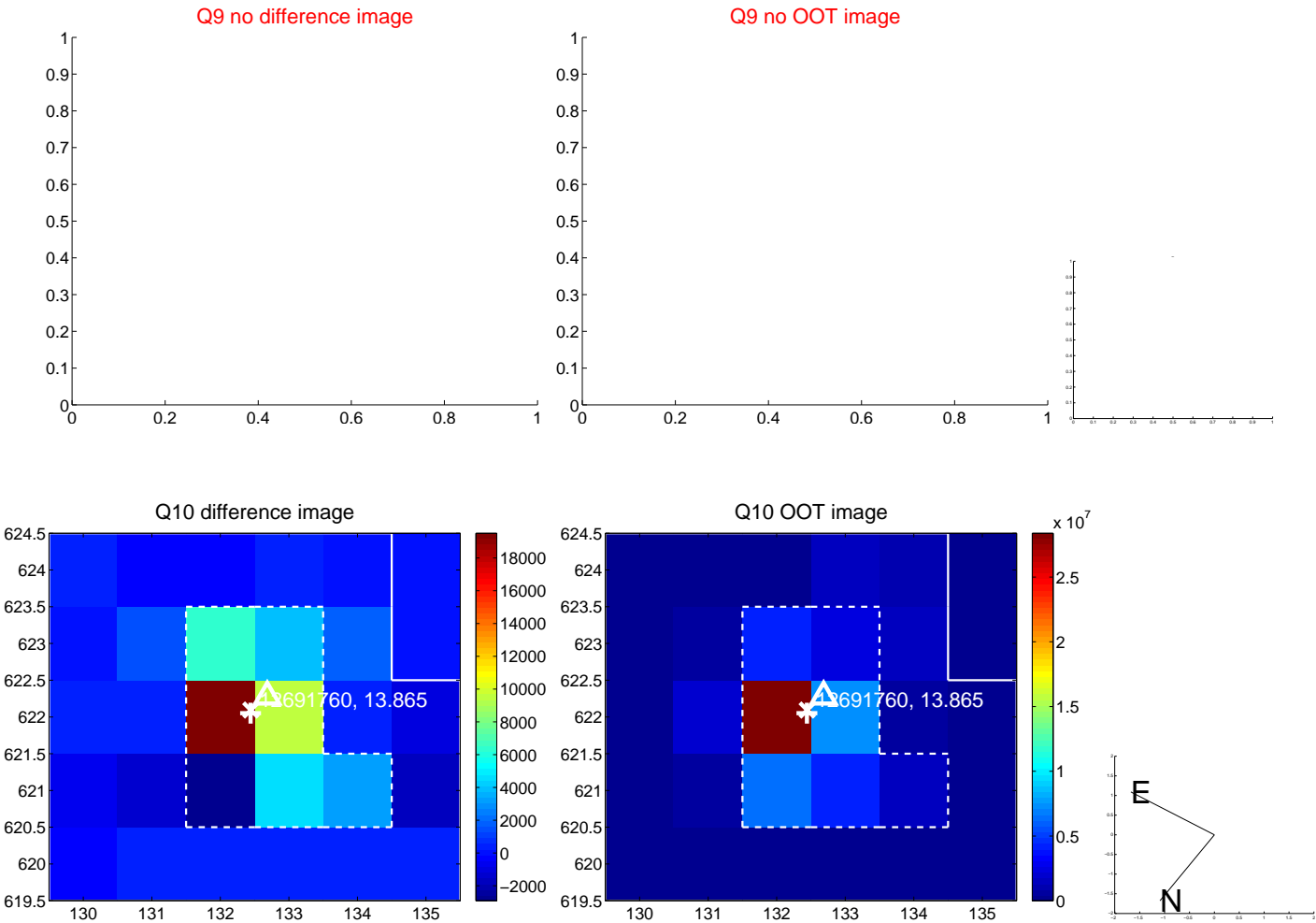
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



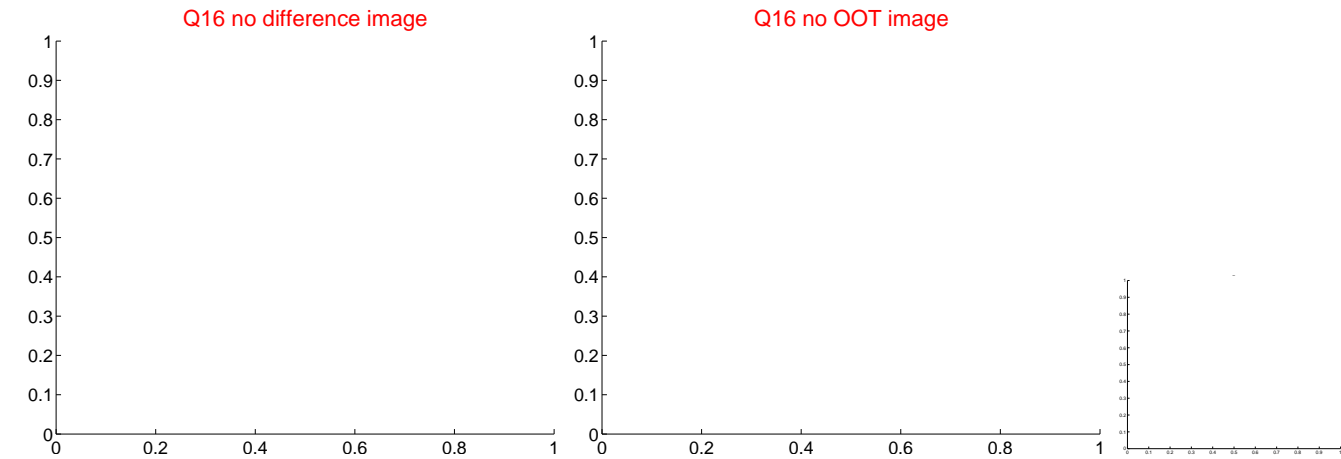
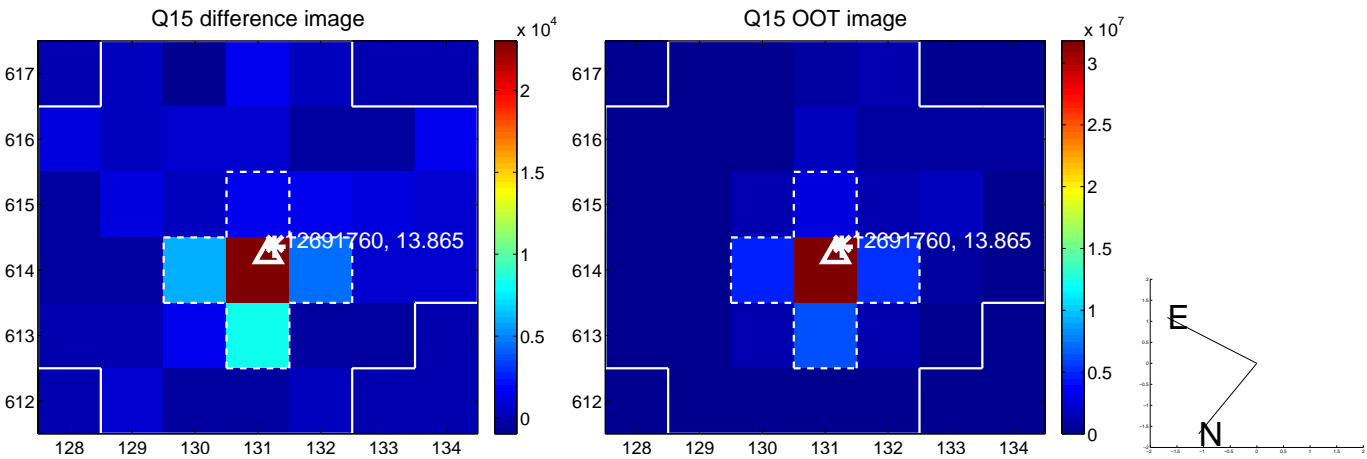
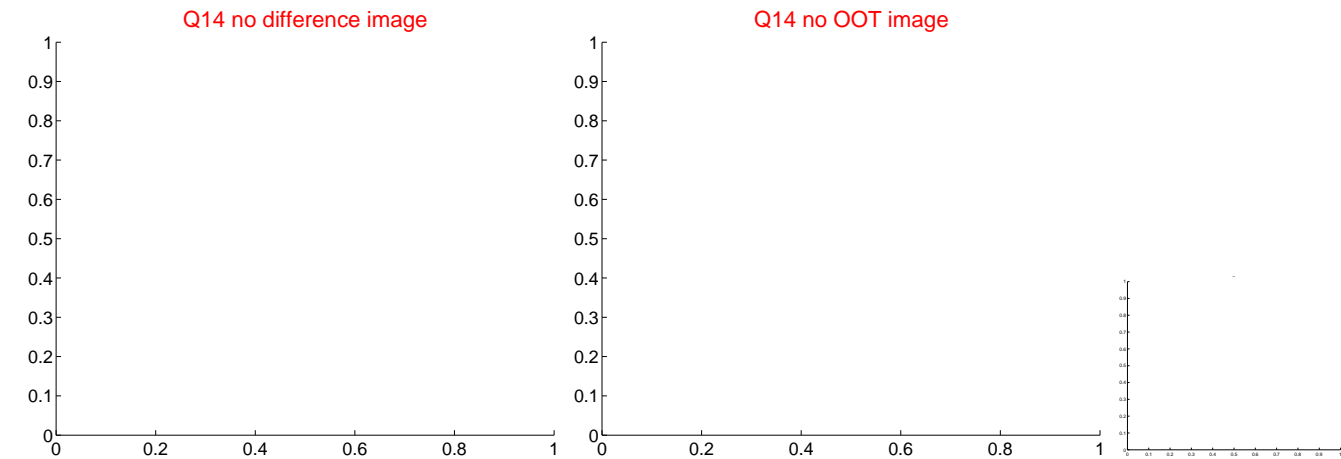
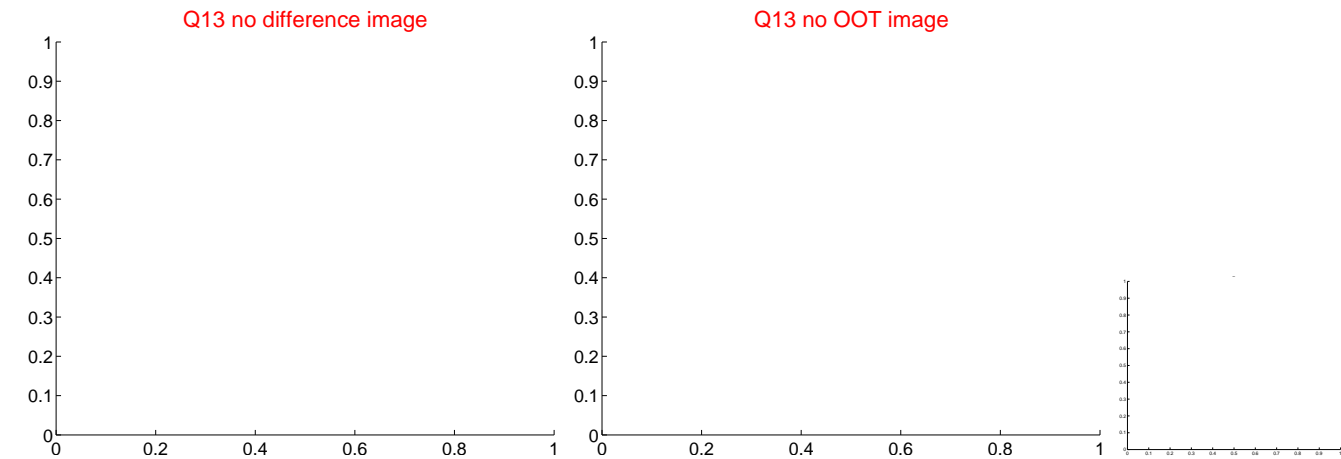
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



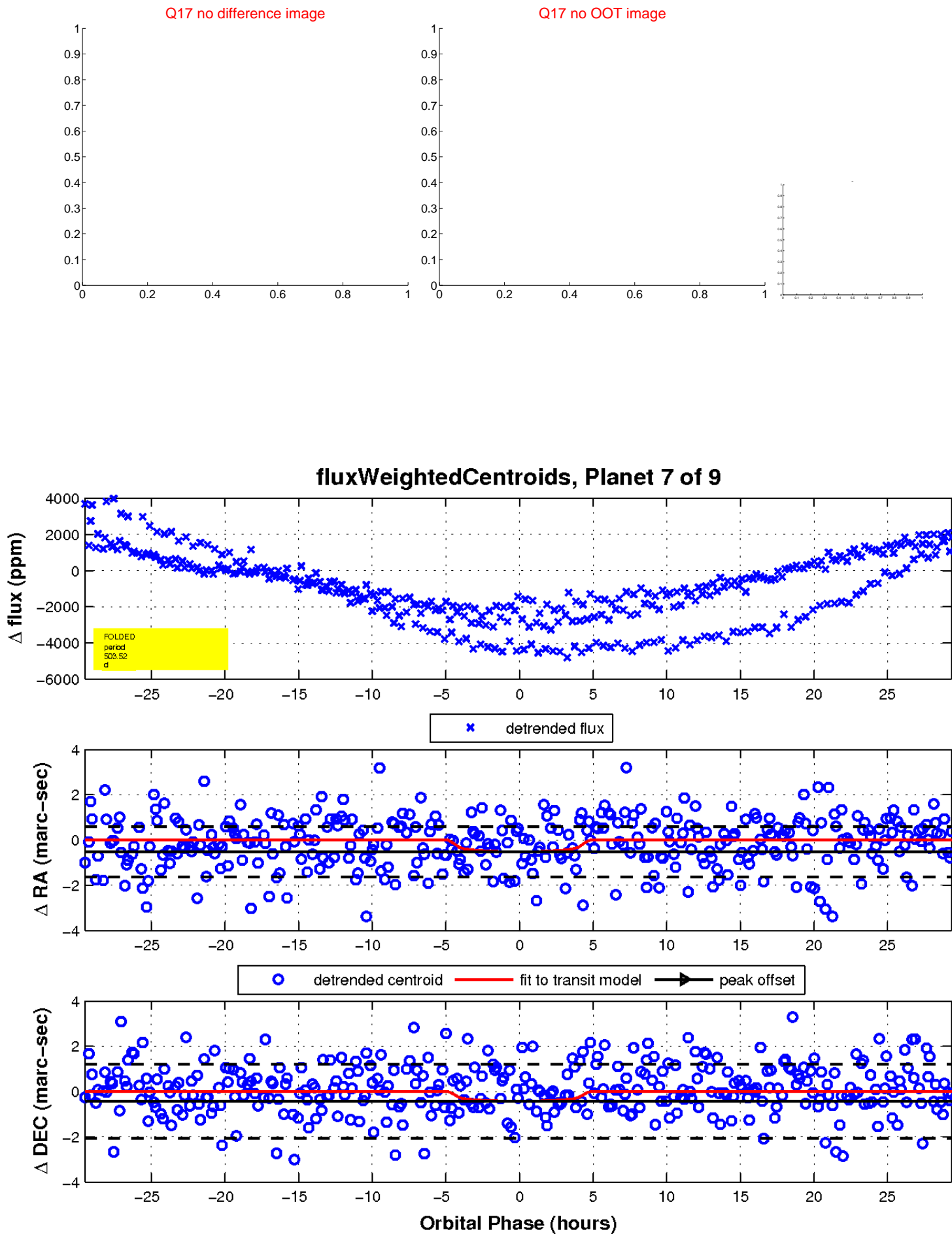
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

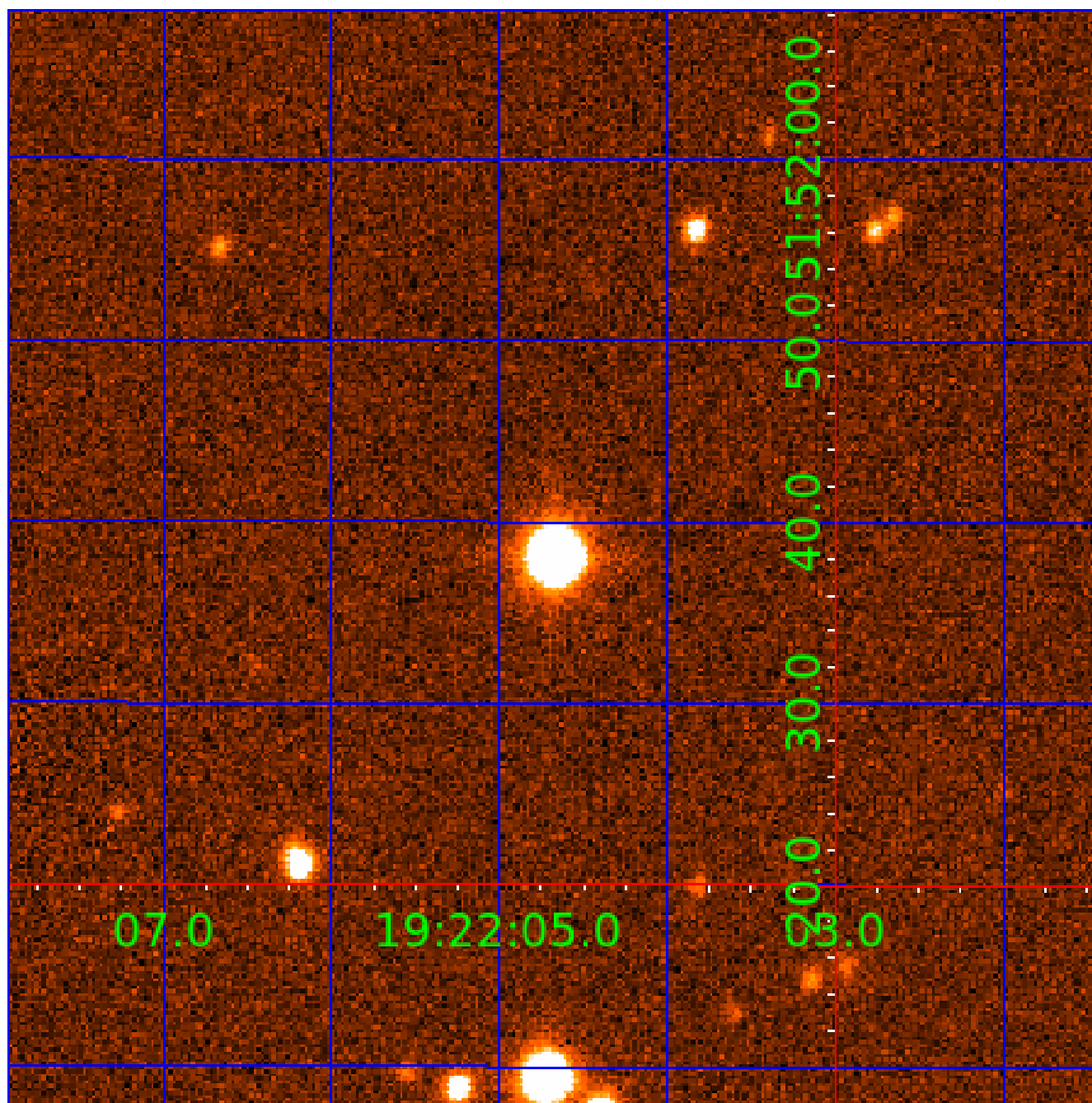


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012691760

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})
012691760-01	OBS	No	0.769880	131.946693	28.9	3.343	7.9	8.1	0.76	5184	0.52	1635.06
012691760-02	OBS	No	357.281300	175.411893	1431.3	12.758	16.9	8.1	0.76	5184	3.58	0.46
012691760-03	OBS	No	615.165201	298.641446	1402.3	14.504	14.0	6.9	0.76	5184	3.68	0.22
012691760-05	OBS	No	153.547120	247.805082	442.8	8.757	11.8	4.9	0.76	5184	1.75	1.40
012691760-07	OBS	No	503.516611	457.980263	1288.7	9.860	10.9	8.0	0.76	5184	3.09	0.29
012691760-08	OBS	No	178.350186	151.344833	667.5	10.912	9.5	6.2	0.76	5184	2.33	1.15
012691760-09	OBS	No	112.977153	218.469414	373.1	15.000	10.9	-1.0	0.76	5184	1.43	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012691760-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012691760-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
012691760-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012691760-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES
012691760-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
012691760-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
012691760-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

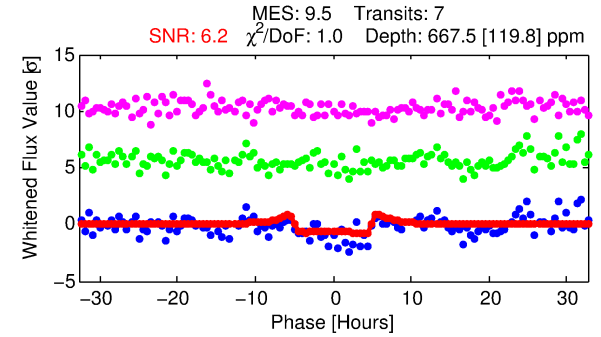
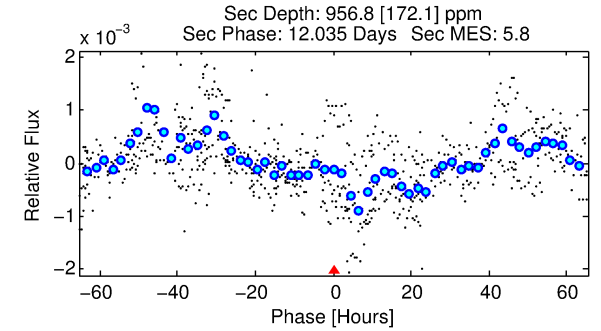
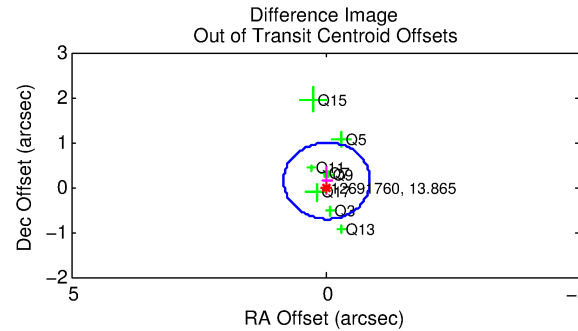
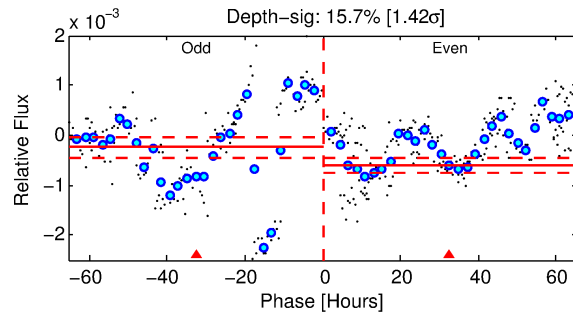
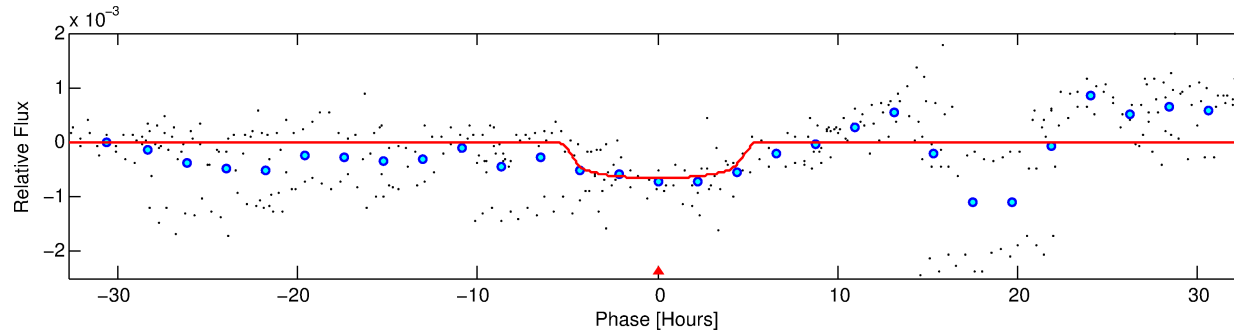
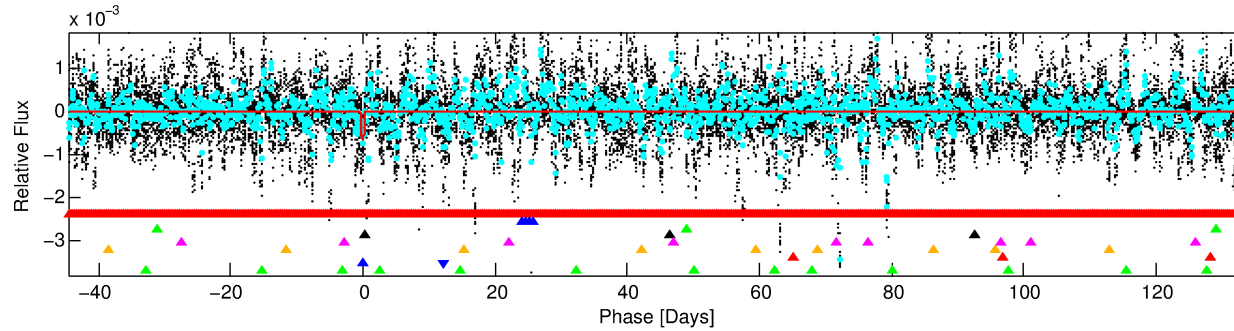
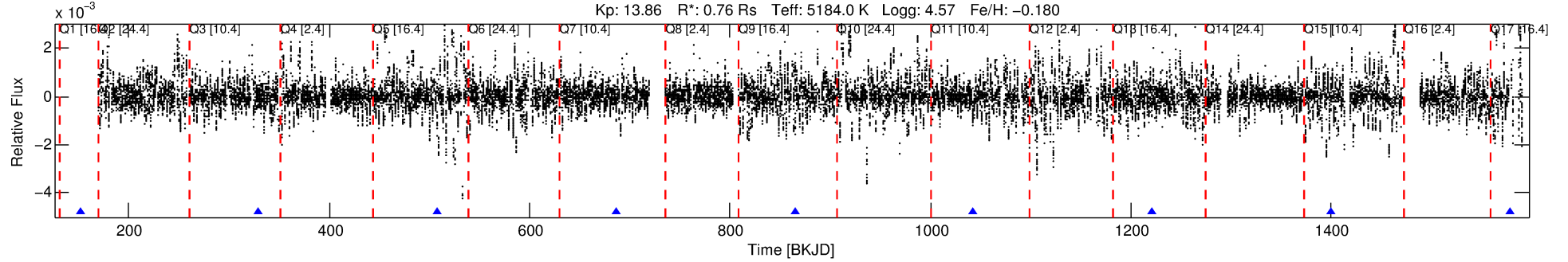
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012691760-08

No Significant Match Found

DV One-Page Summary

KIC: 12691760 Candidate: 8 of 9 Period: 178.350 d



DV Fit Results:

Period = 178.35019 [0.00441] d
Epoch = 151.3448 [0.0194] BKJD
Rp/R* = 0.0281 [0.0040]
a/R* = 65.92 [26.38]
b = 0.88 [0.10]
Seff = 1.15 [0.25]
Teq = 264 [14] K
Rp = 2.33 [0.46] Re
a = 0.5703 [0.0631] AU
Ag = 31575.13 [11638.75] [2.71 σ]
Teffp = 5441 [501] K [10.33 σ]

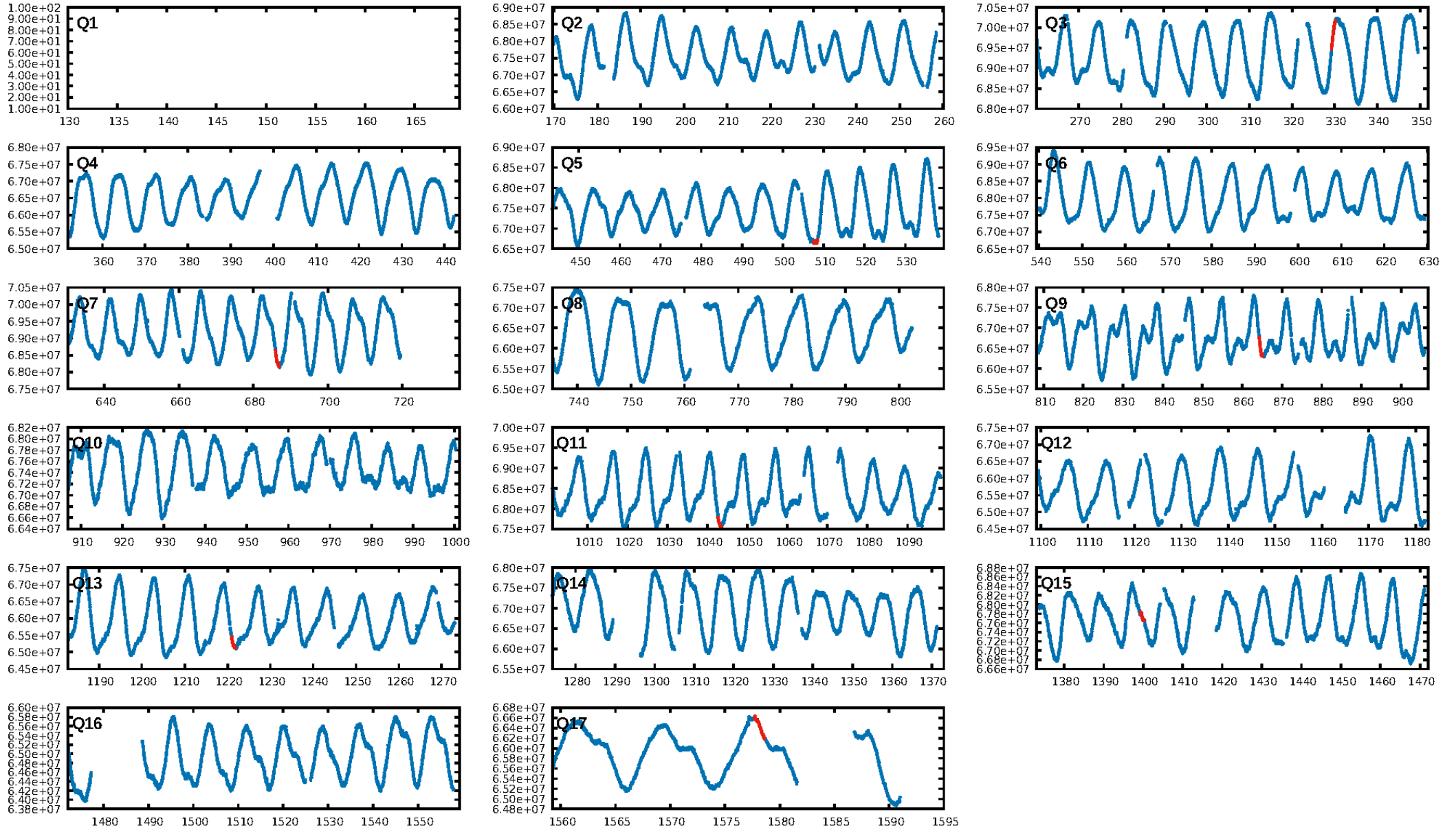
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.55 σ]
LongPeriod-sig: 100.0% [255.80 σ]
ModelChiSquare2-sig: 14.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.2214
Centroid-sig: 64.7%
Centroid-so: 0.877 arcsec [1.70 σ]
OotOffset-rm: 0.142 arcsec [0.50 σ]
OotOffset-st: 0/4/0/4 [8]
KicOffset-rm: 0.330 arcsec [1.14 σ]
KicOffset-st: 0/4/0/4 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 0.00 [0/8]

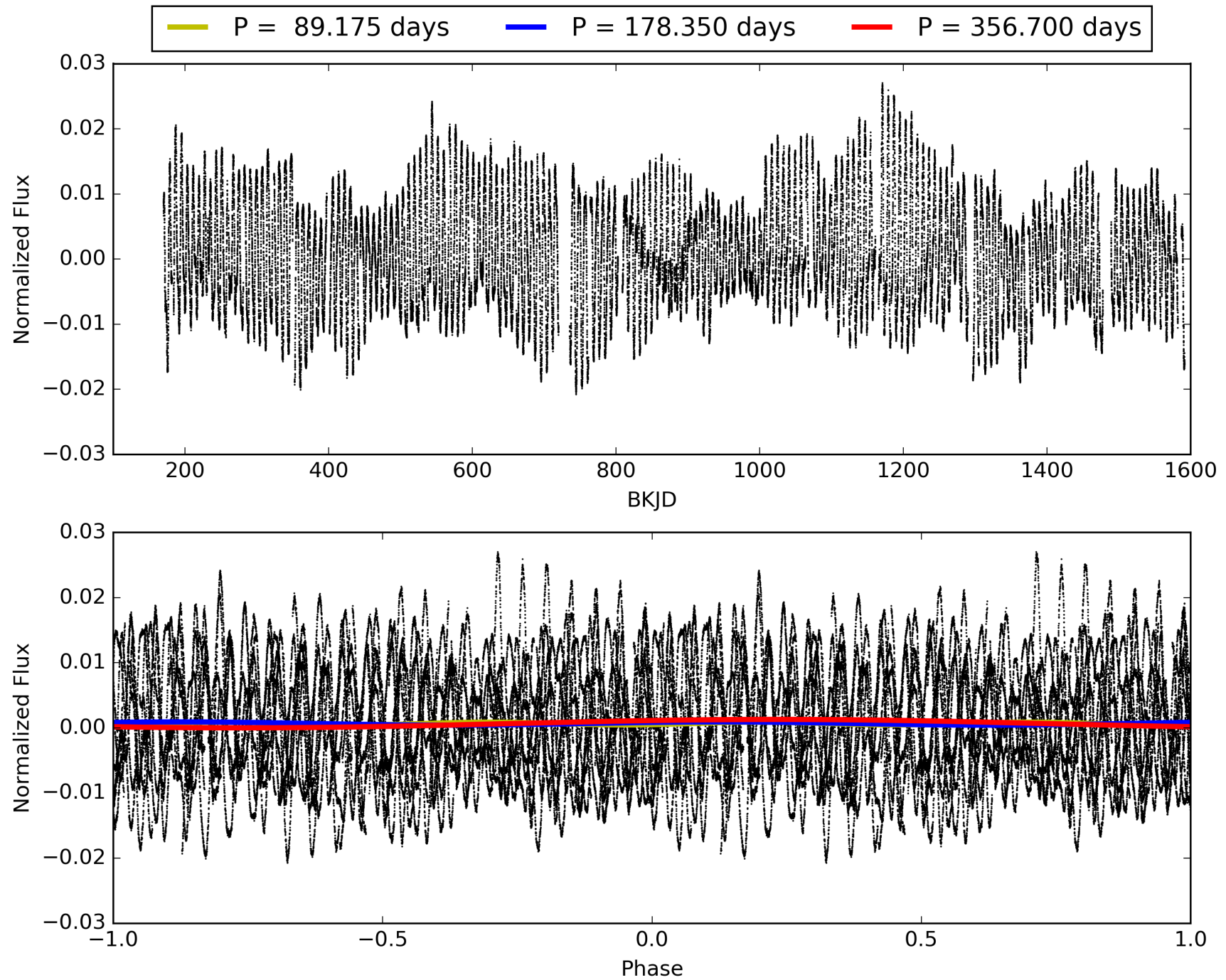
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:17:27 Z

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

TCE 012691760-08, PDC Light Curves

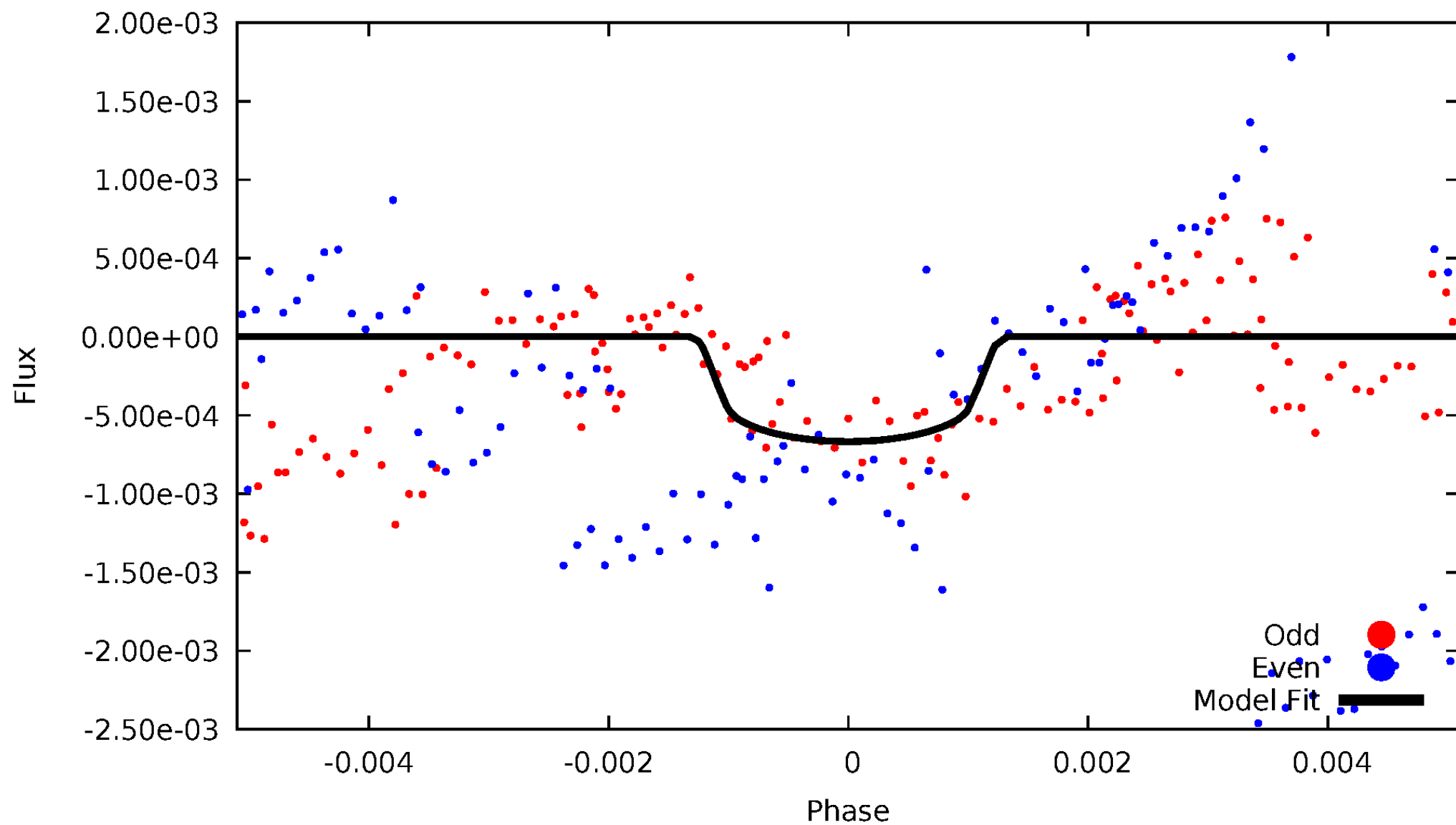


TCE 012691760-08



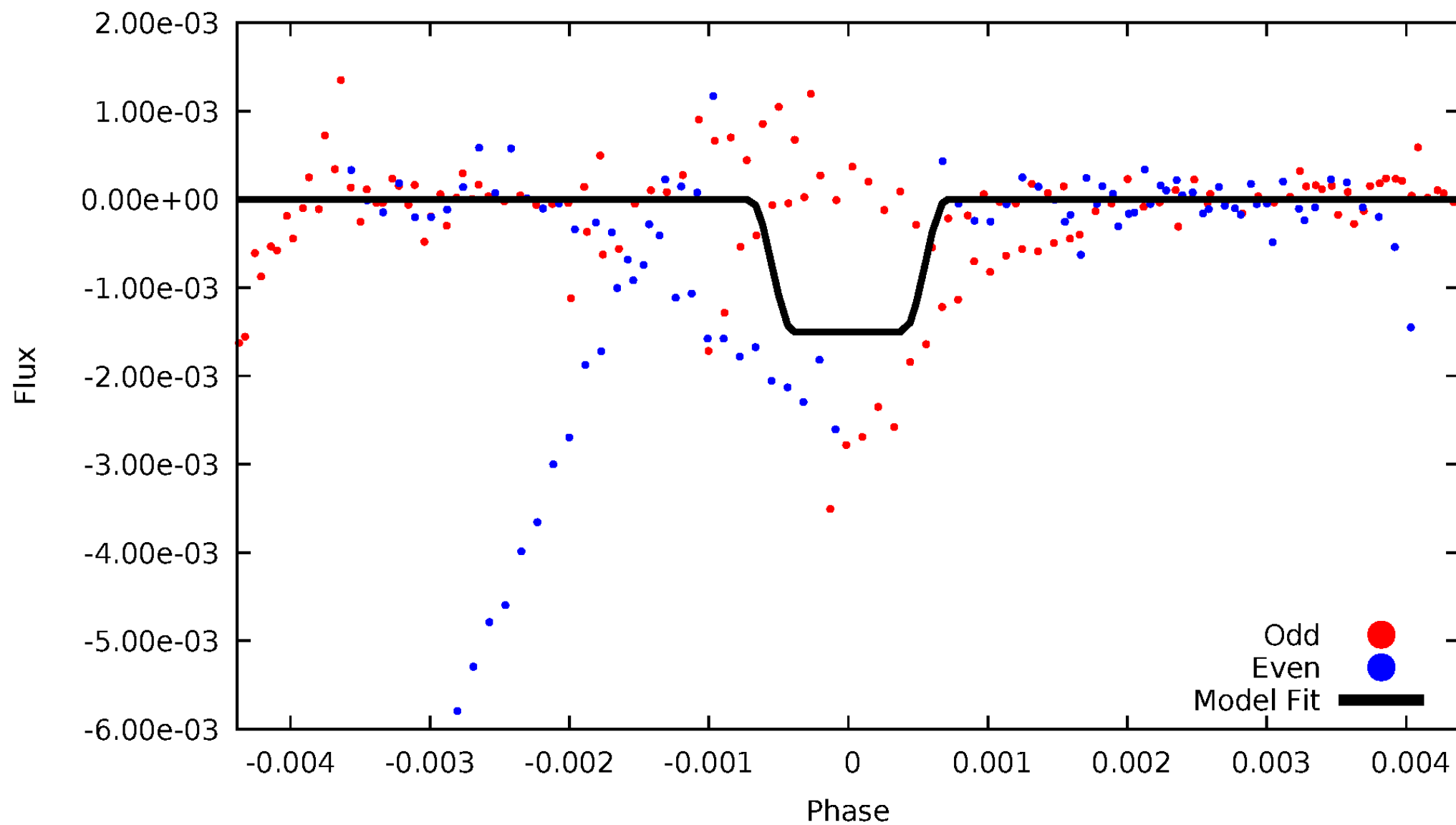
DV Odd/Even

TCE 012691760-08



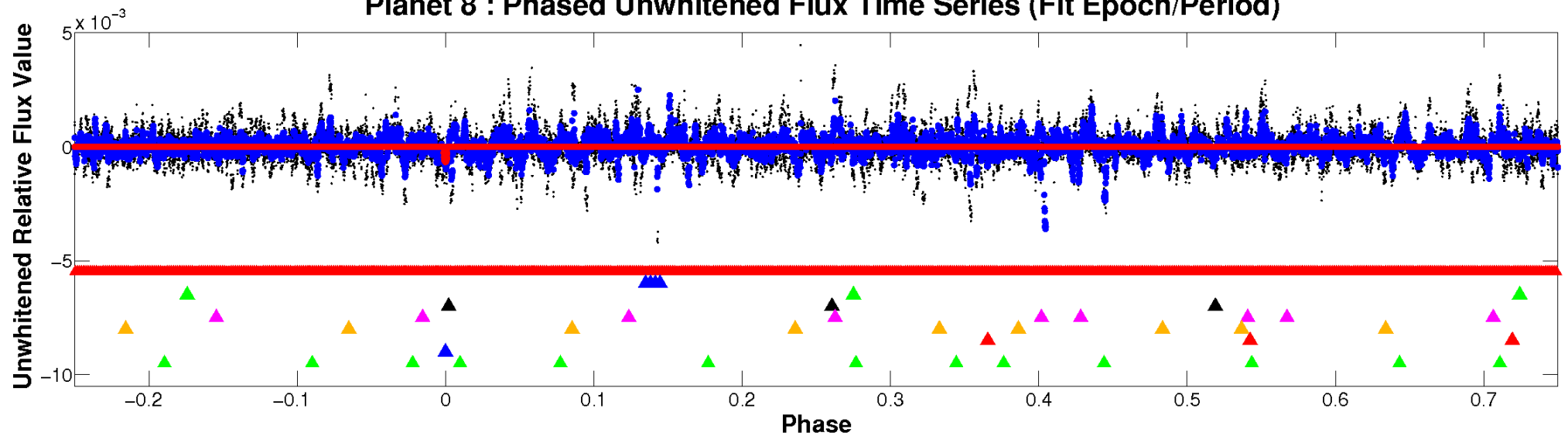
ALT Odd/Even

TCE 012691760-08

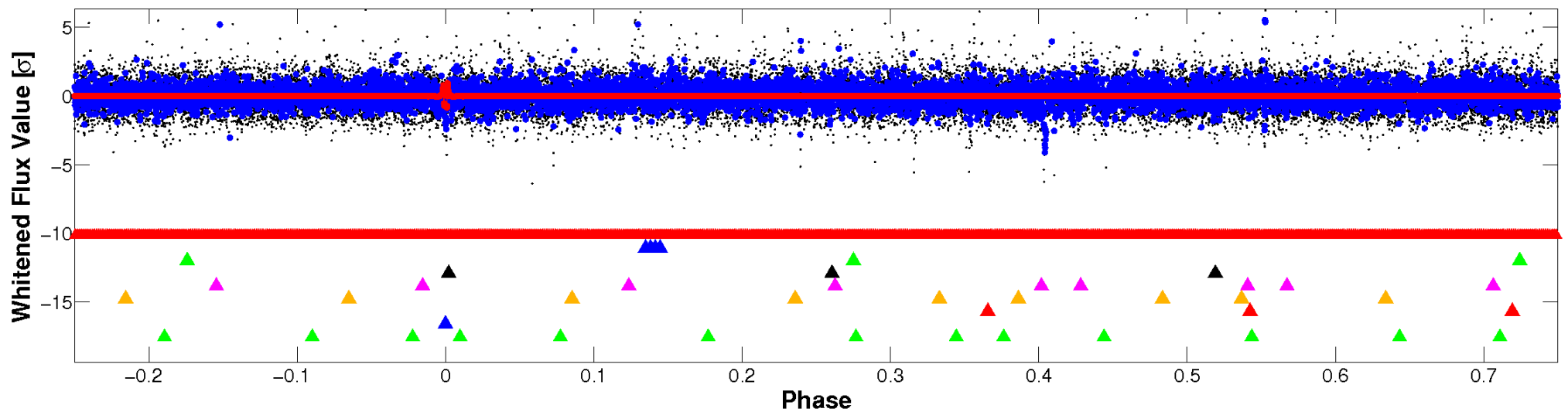


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

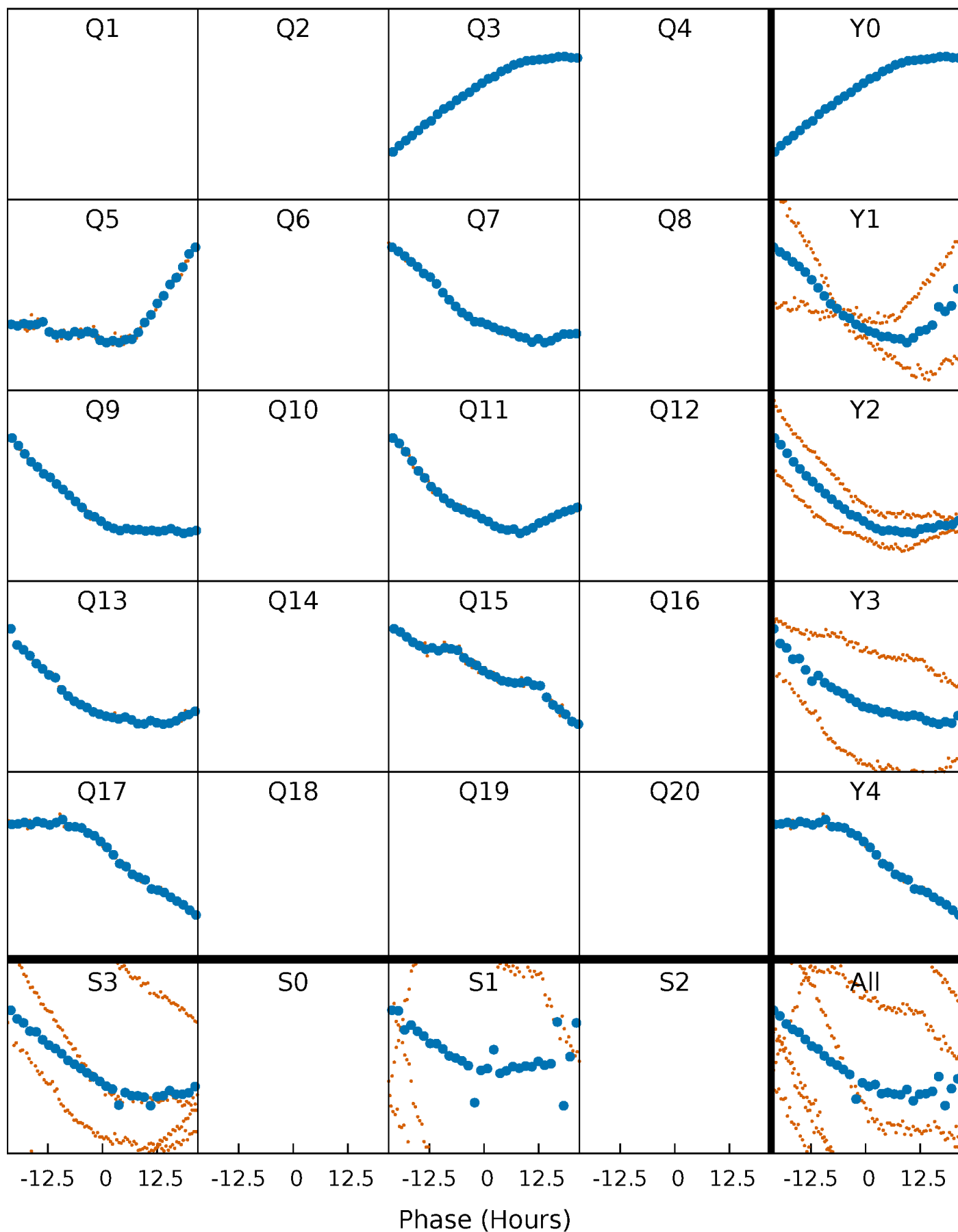


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



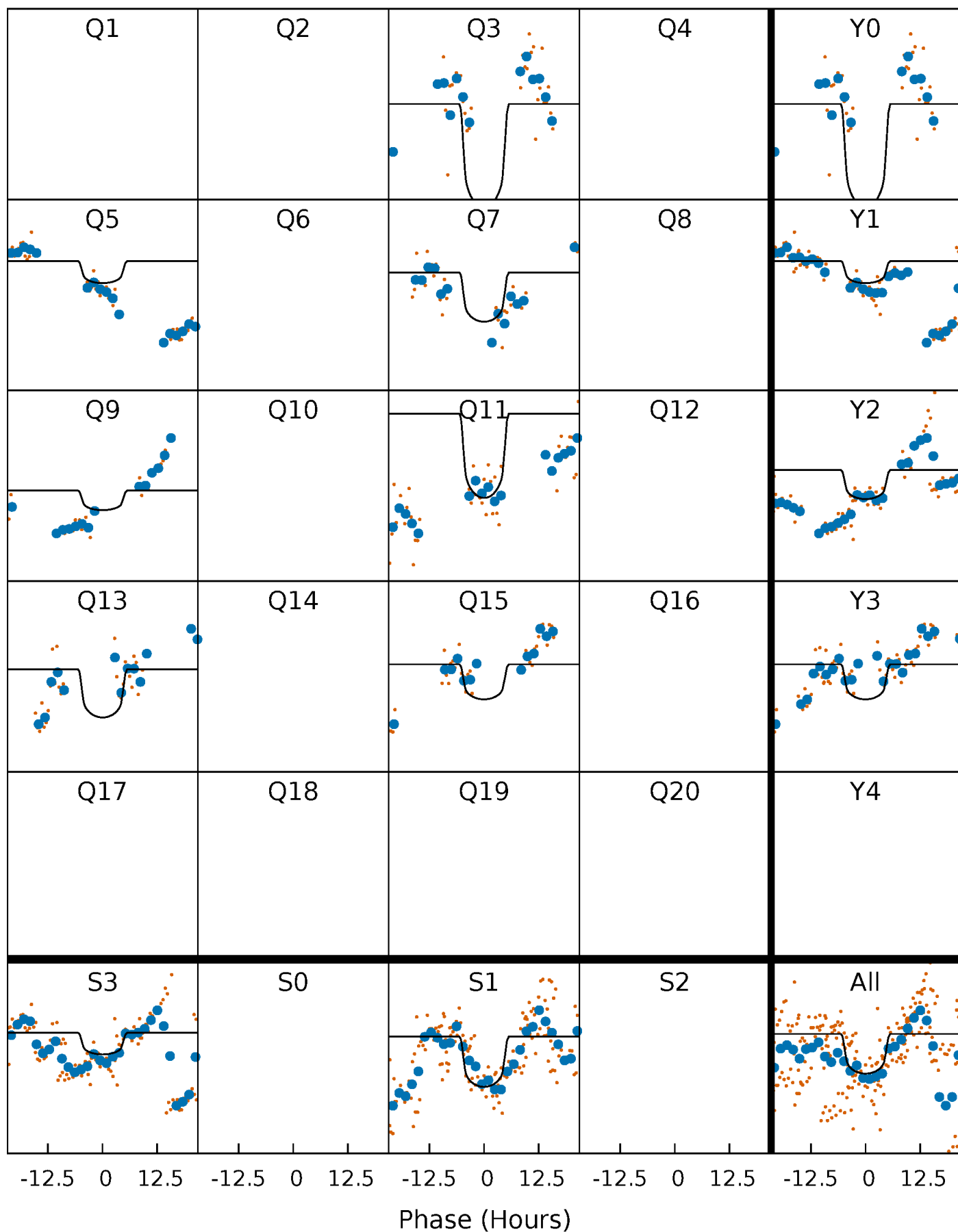
PDC Quarter-Phased Transit Curves

TCE 012691760-08 P=178.350186 Days $T_0=151.344833$ (BKJD)



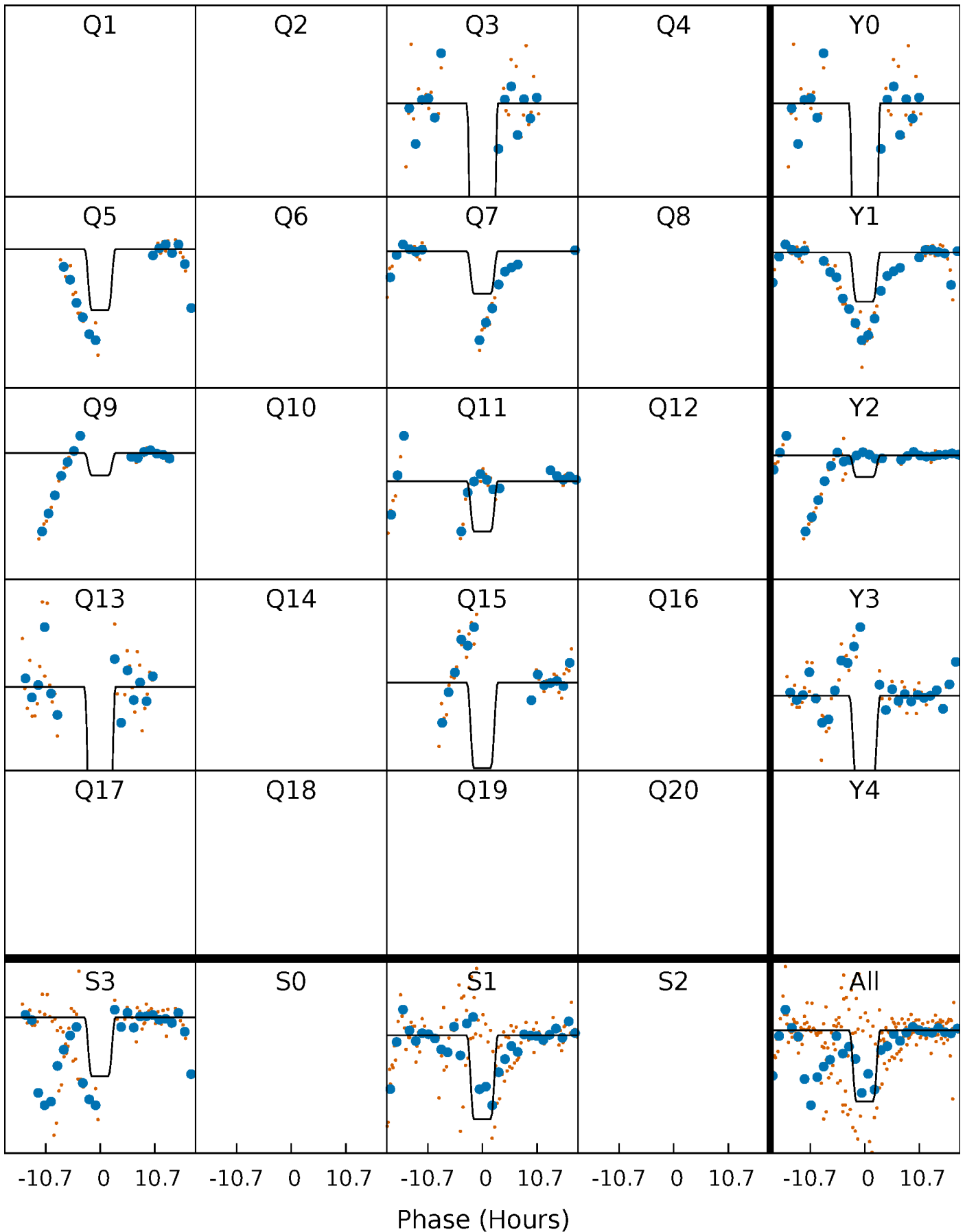
DV Quarter-Phased Transit Curves

TCE 012691760-08 P=178.350186 Days $T_0=151.344833$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

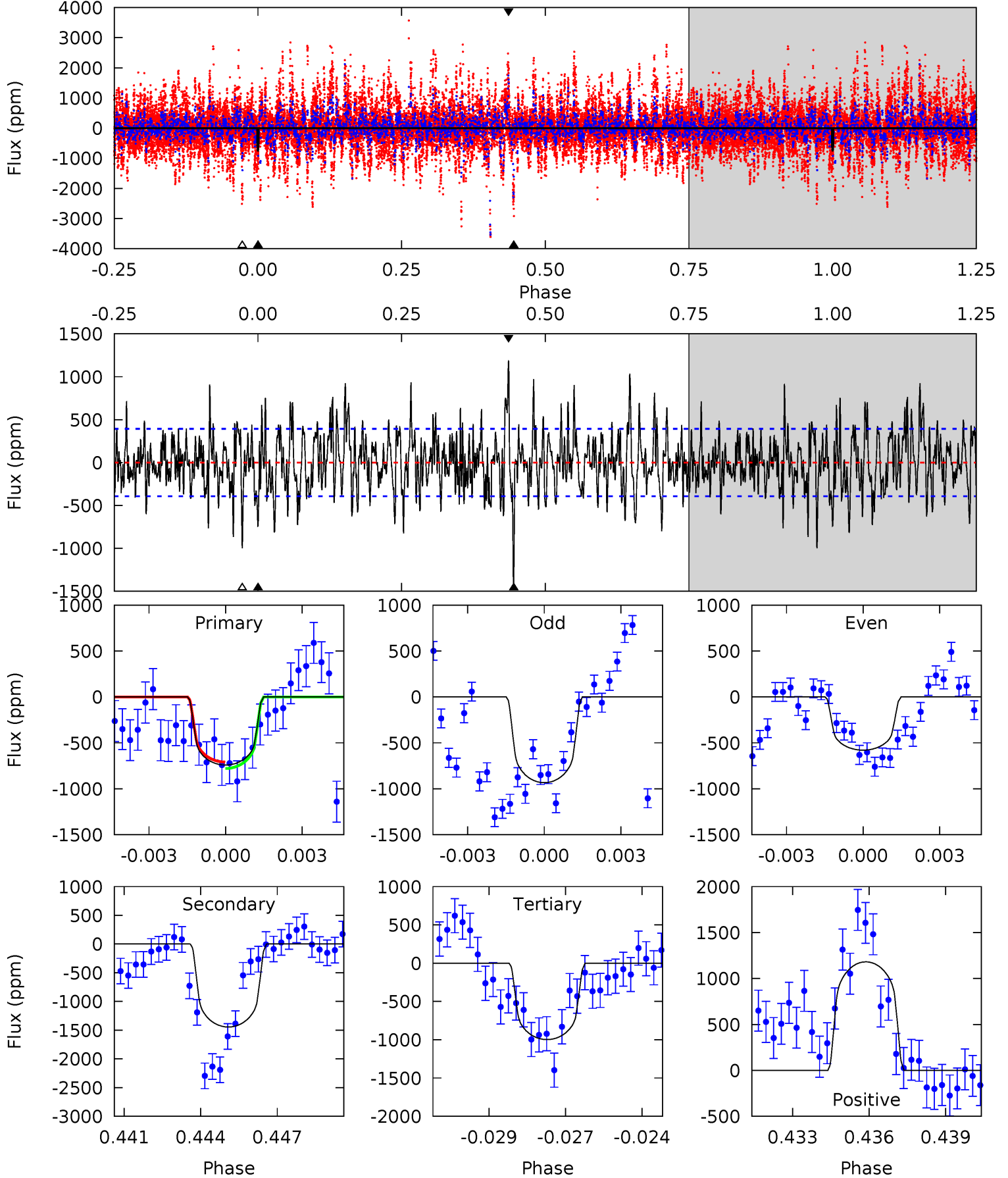
TCE 012691760-08 P=178.310056 Days $T_0=151.581305$ (BKJD)



DV Model-Shift Uniqueness Test

012691760-08, P = 178.350186 Days, E = 151.344833 Days

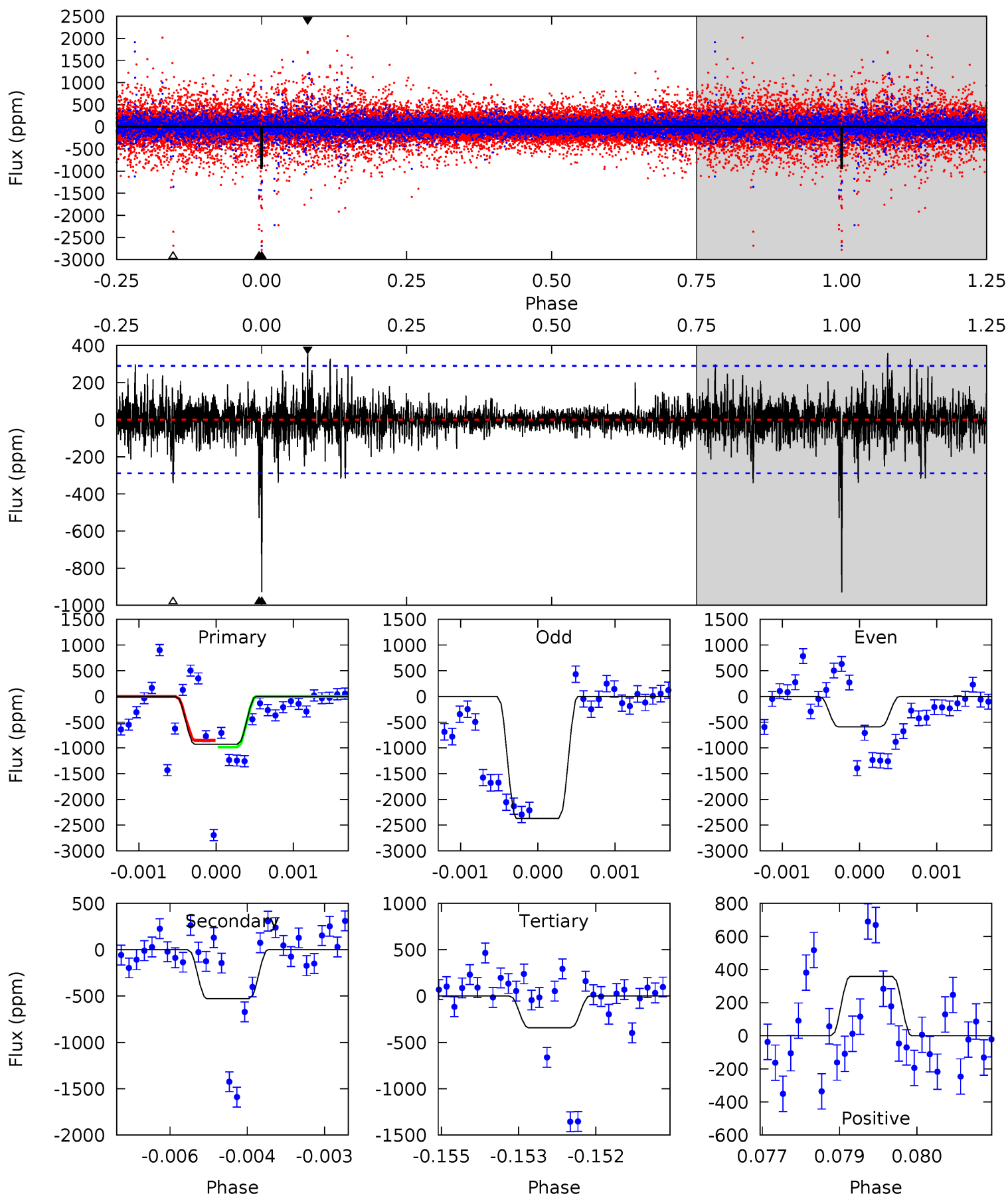
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.97	19.4	13.4	15.9	5.27	3.00	3.93	-3.44	-5.91	6.01	3.54	2.27	0.97	0.45	0.47



Alt Model-Shift Uniqueness Test

012691760-08, P = 178.310056 Days, E = 151.581305 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	9.86	6.37	6.68	5.39	3.20	1.13	11.0	10.6	3.48	3.18	12.0	0.85	0.28	1.15



Stellar Parameters For KIC 012691760

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5184^{+196}_{-179}	$4.567^{+0.052}_{-0.078}$	$-0.180^{+0.300}_{-0.300}$	$0.760^{+0.106}_{-0.071}$	$0.779^{+0.090}_{-0.073}$	$2.496^{+0.564}_{-0.657}$
	+4%/-3%	+1%/-2%	+167%/-167%	+14%/-9%	+12%/-9%	+23%/-26%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012691760-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1445 ± 74	$2.35^{+0.39}_{-0.36}$	371^{+17}_{-15}	5981^{+543}_{-423}	46619^{+18167}_{-11770}
Alt.	-529 ± 54	$3.29^{+0.43}_{-0.39}$	372^{+18}_{-18}	4192^{+265}_{-214}	8824^{+2585}_{-2130}

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

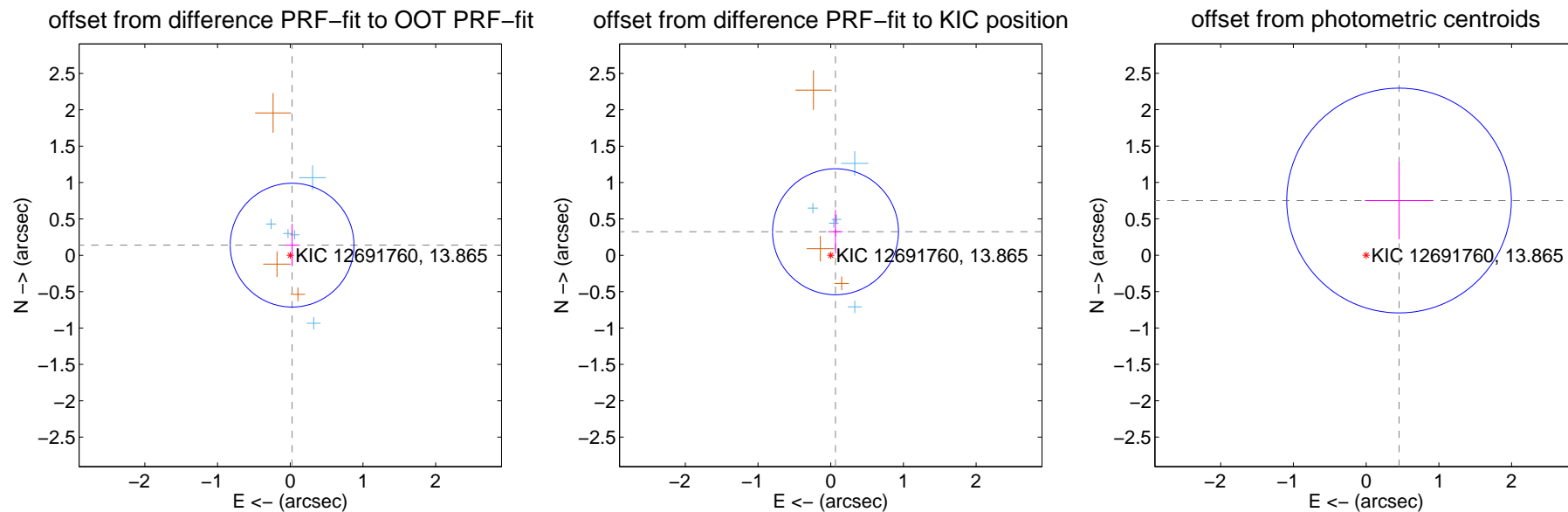
DV Centroid Data

Supplemental centroid analysis for 012691760-08. Kepler magnitude: 13.87. Transit SNR 6.18

There are 5 quarters with good PRF difference image offsets

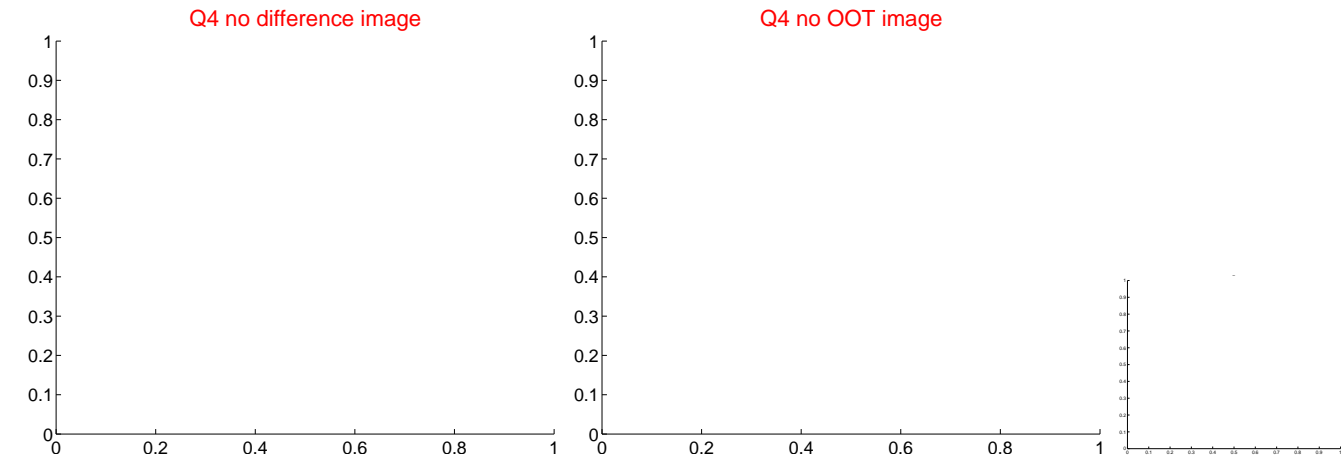
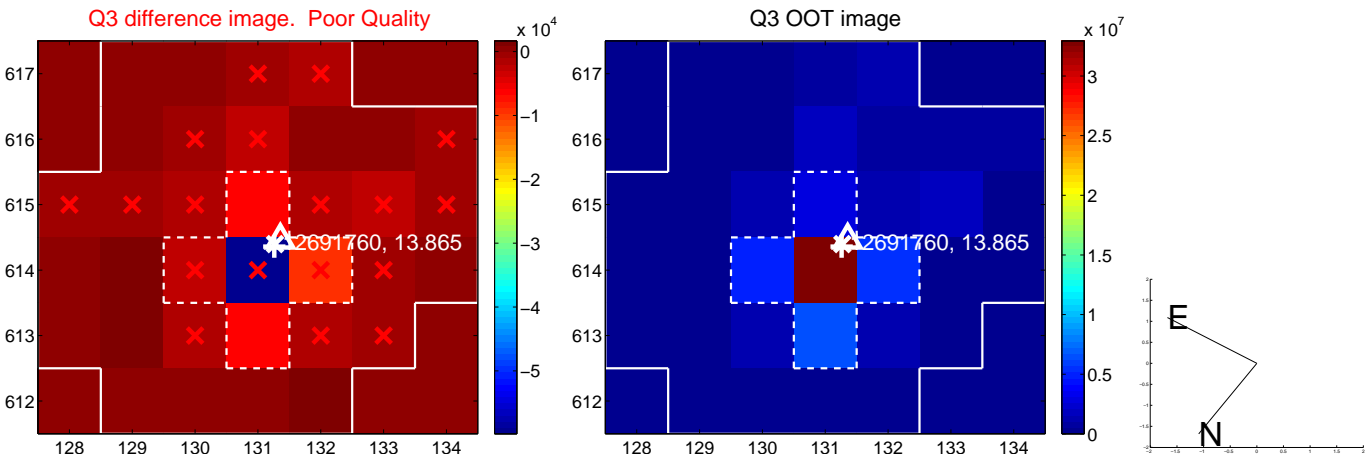
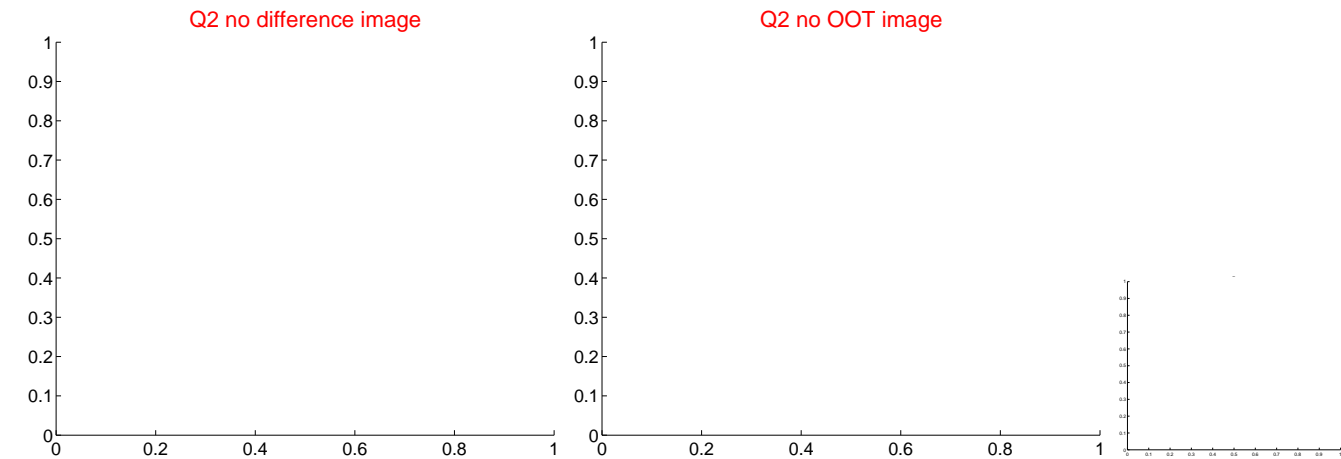
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.142 ± 0.284	0.50	-0.025 ± 0.092	0.139 ± 0.291
PRF-fit source offset from KIC position	0.330 ± 0.289	1.14	-0.066 ± 0.102	0.323 ± 0.301
photometric centroid source offset	0.88 ± 0.51	1.70	-0.45 ± 0.47	0.75 ± 0.53

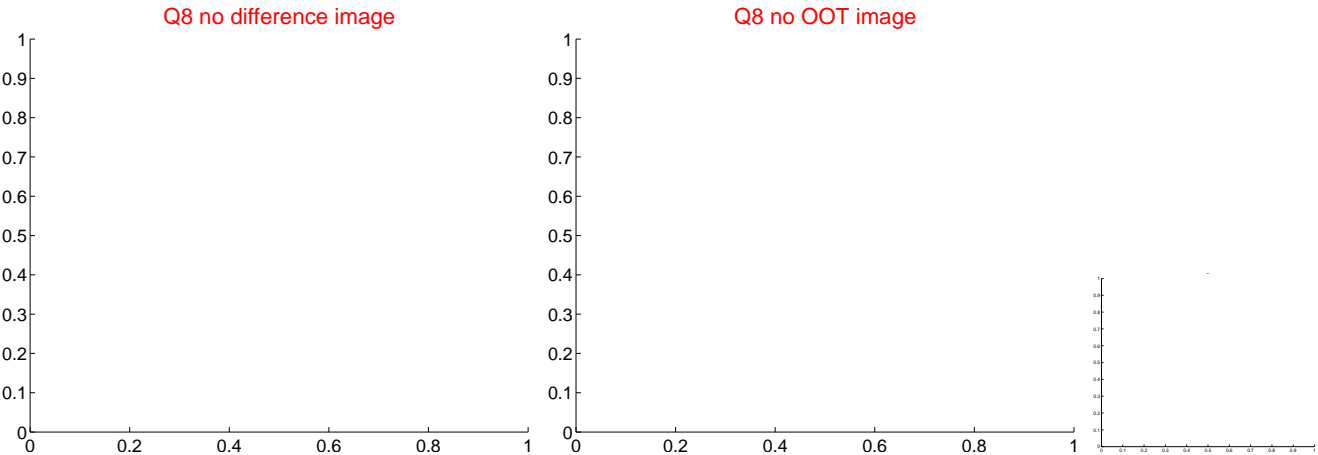
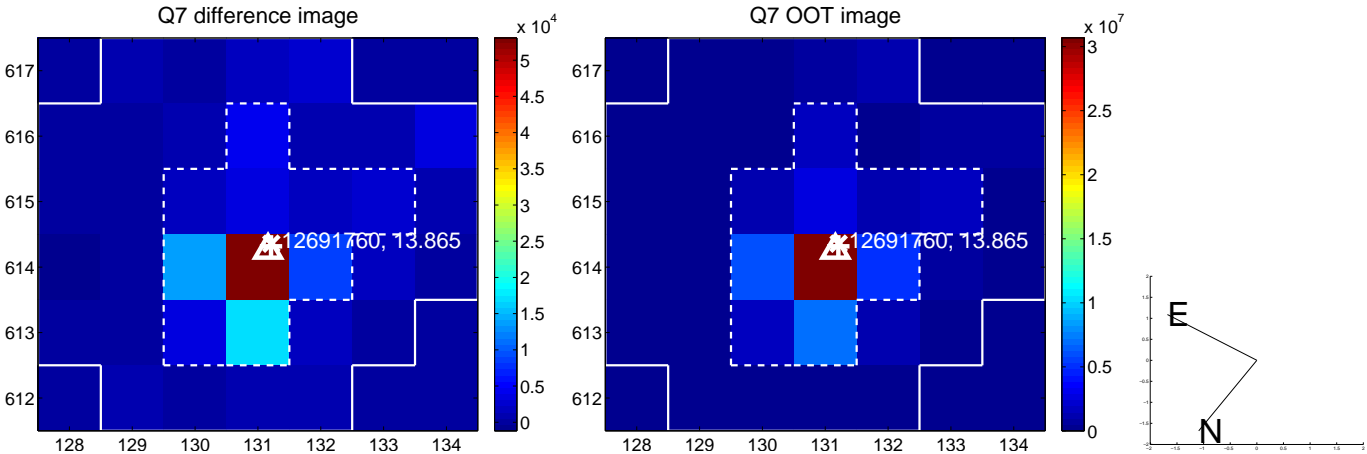
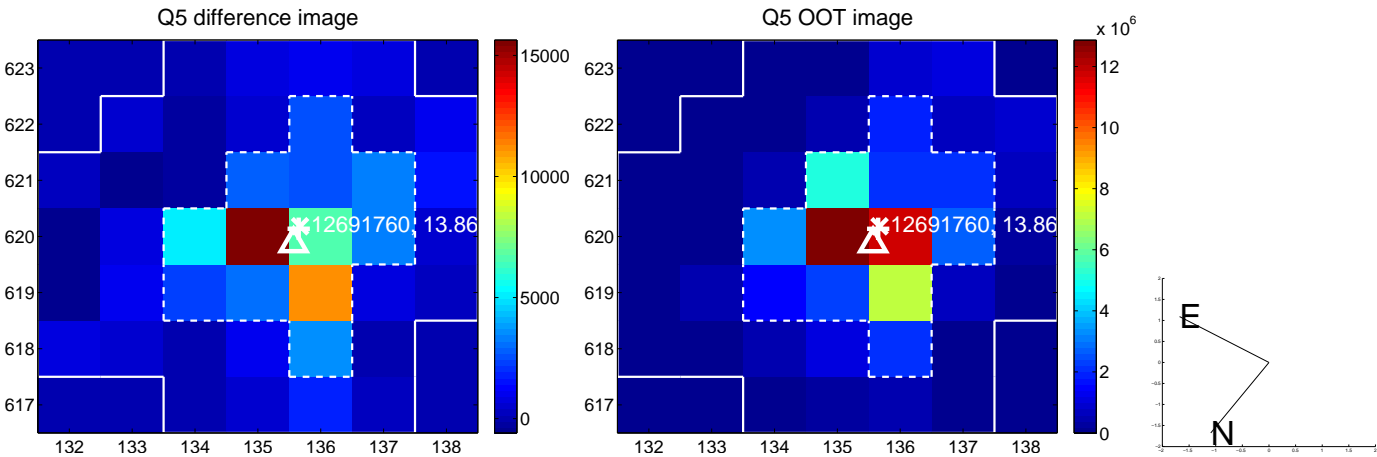


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

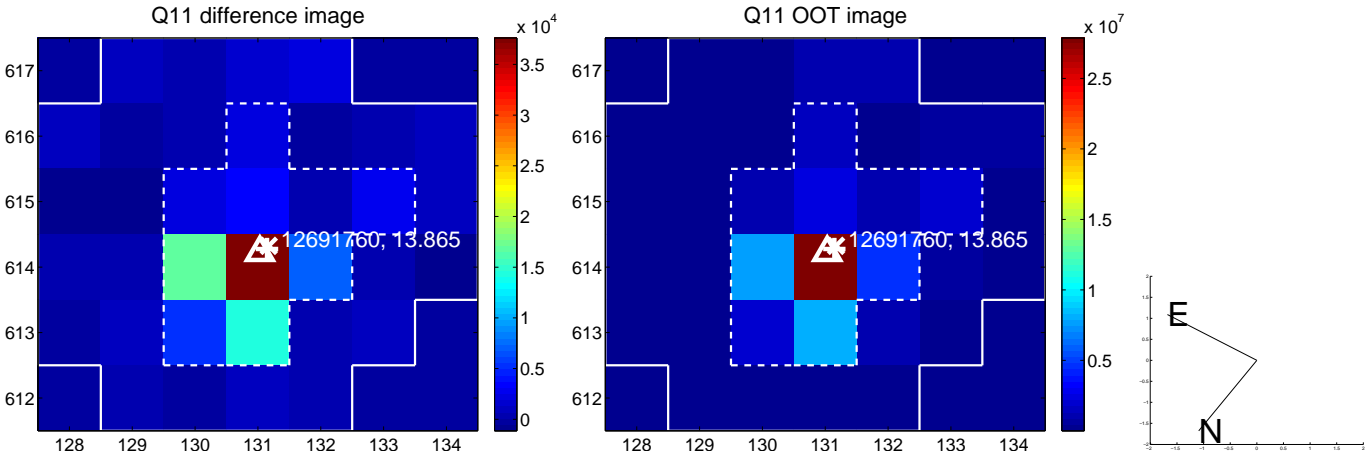
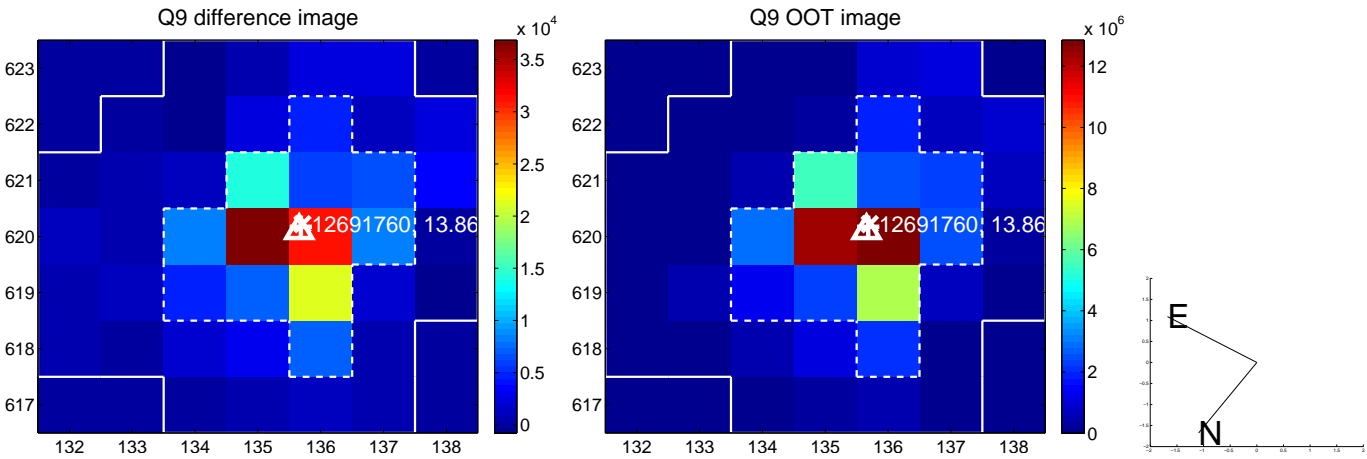
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



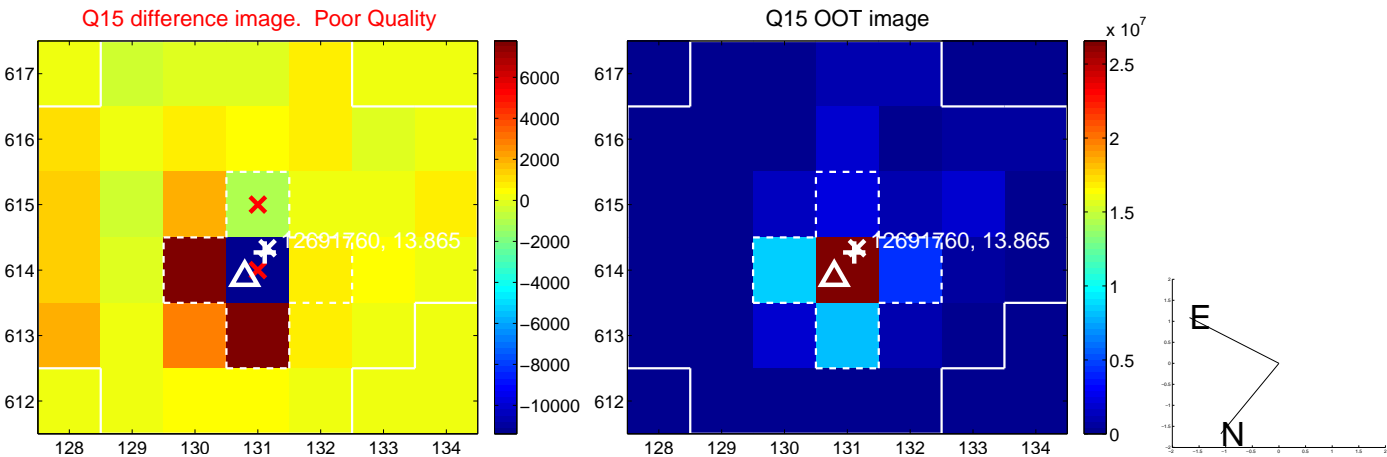
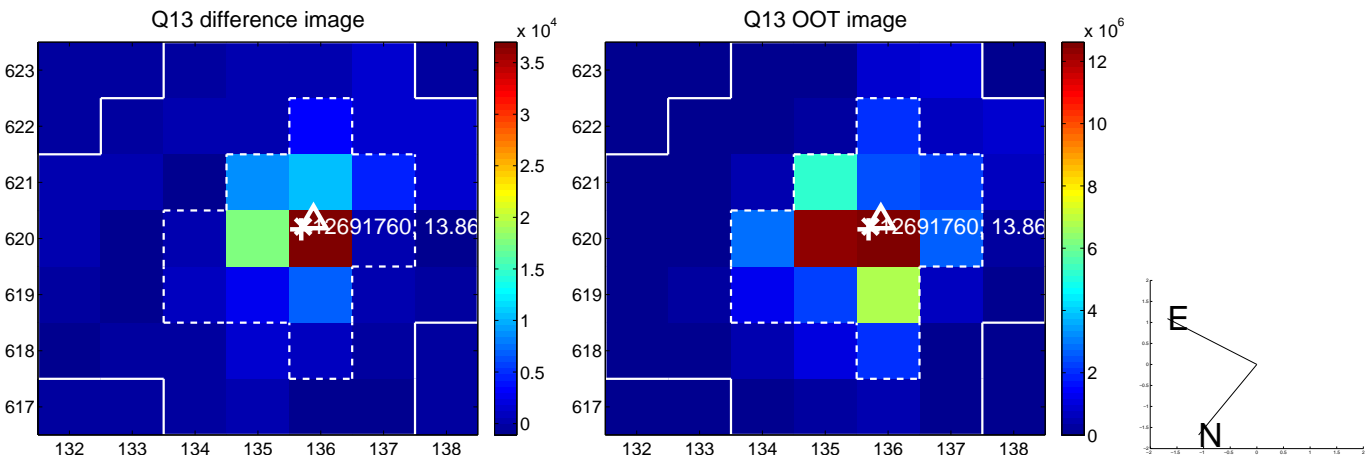
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



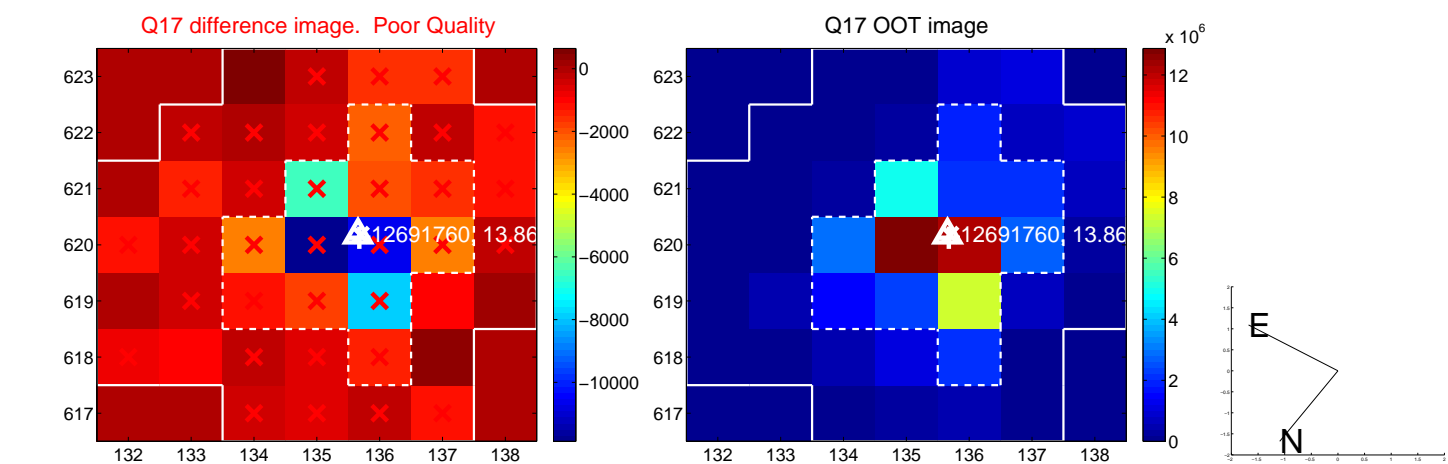
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



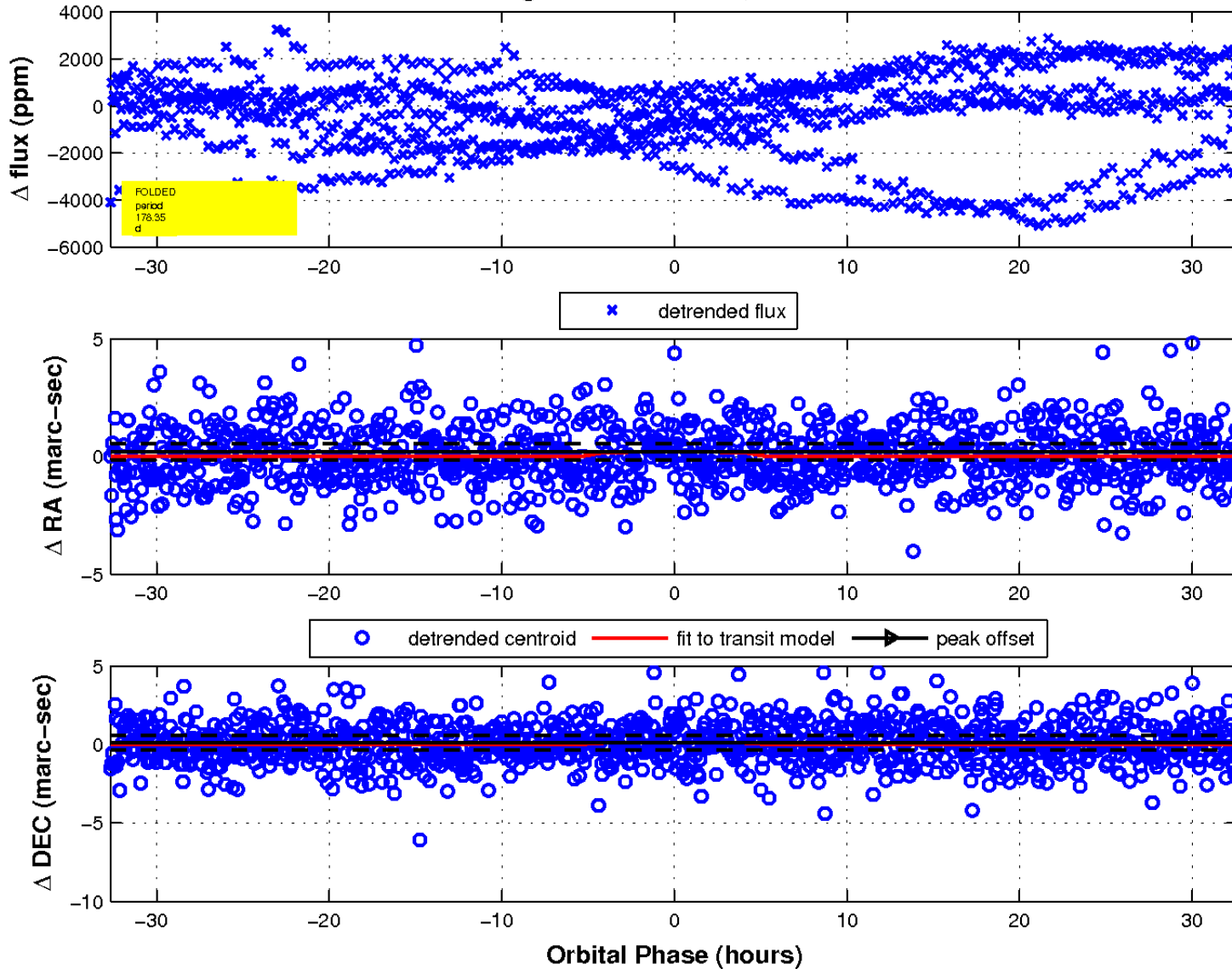
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

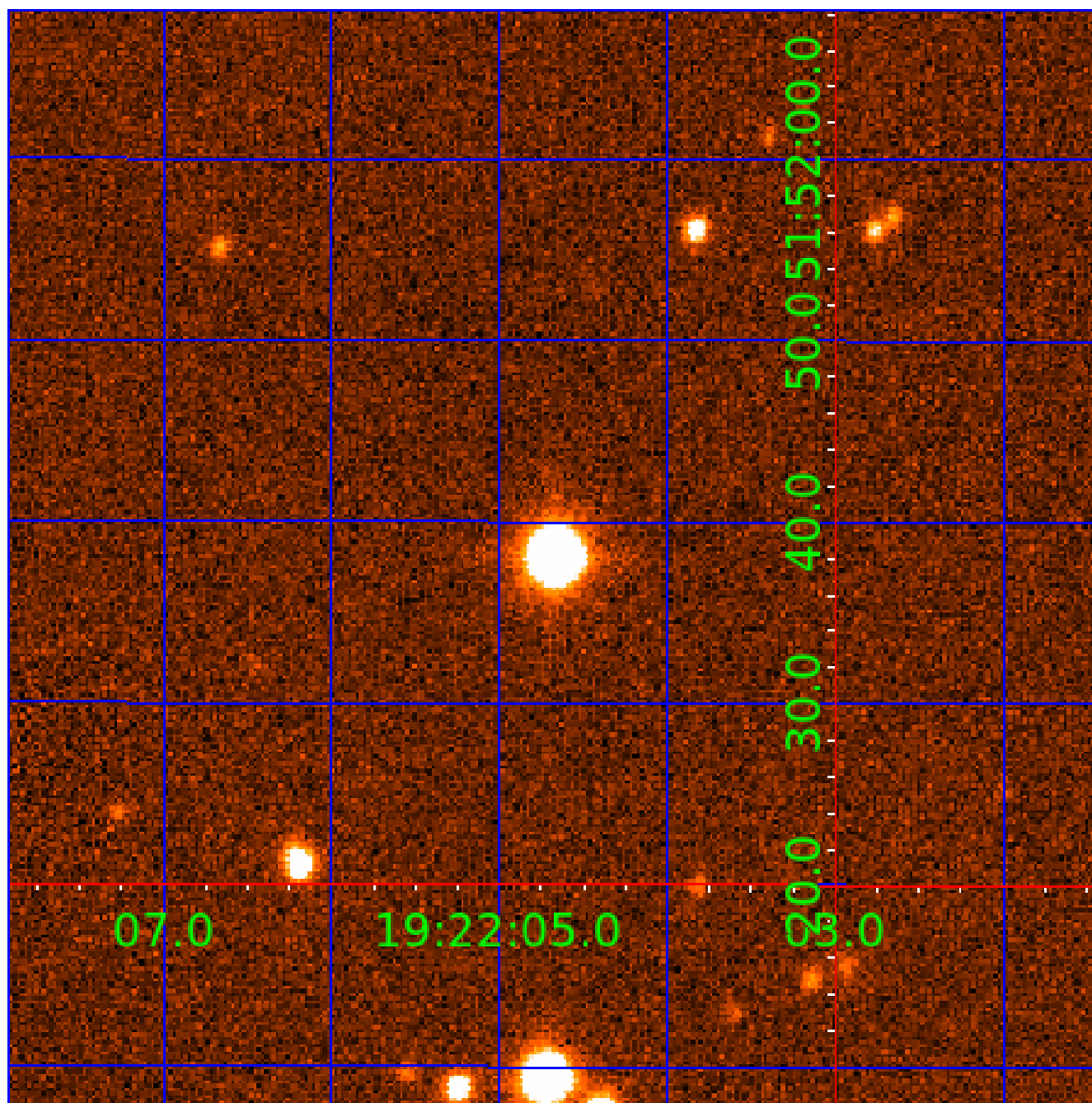


fluxWeightedCentroids, Planet 8 of 9



UKIRT Image

Declination



KIC 012691760

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})
012691760-01	OBS	No	0.769880	131.946693	28.9	3.343	7.9	8.1	0.76	5184	0.52	1635.06
012691760-02	OBS	No	357.281300	175.411893	1431.3	12.758	16.9	8.1	0.76	5184	3.58	0.46
012691760-03	OBS	No	615.165201	298.641446	1402.3	14.504	14.0	6.9	0.76	5184	3.68	0.22
012691760-05	OBS	No	153.547120	247.805082	442.8	8.757	11.8	4.9	0.76	5184	1.75	1.40
012691760-07	OBS	No	503.516611	457.980263	1288.7	9.860	10.9	8.0	0.76	5184	3.09	0.29
012691760-08	OBS	No	178.350186	151.344833	667.5	10.912	9.5	6.2	0.76	5184	2.33	1.15
012691760-09	OBS	No	112.977153	218.469414	373.1	15.000	10.9	-1.0	0.76	5184	1.43	2.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012691760-01	OBS	FP	0.00	1	0	0	0	LPP_DV
012691760-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS
012691760-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
012691760-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—ALL_TRANS_CHASES
012691760-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS
012691760-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—HALO_GHOST
012691760-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

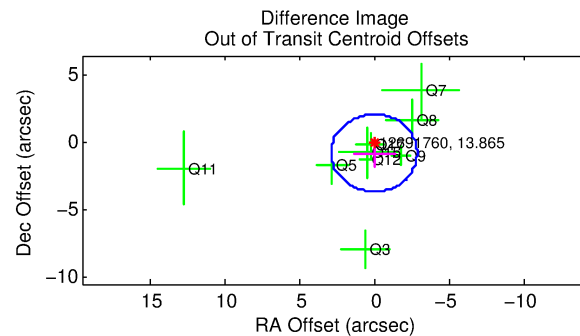
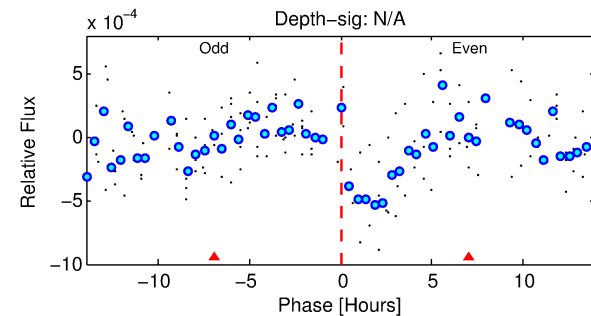
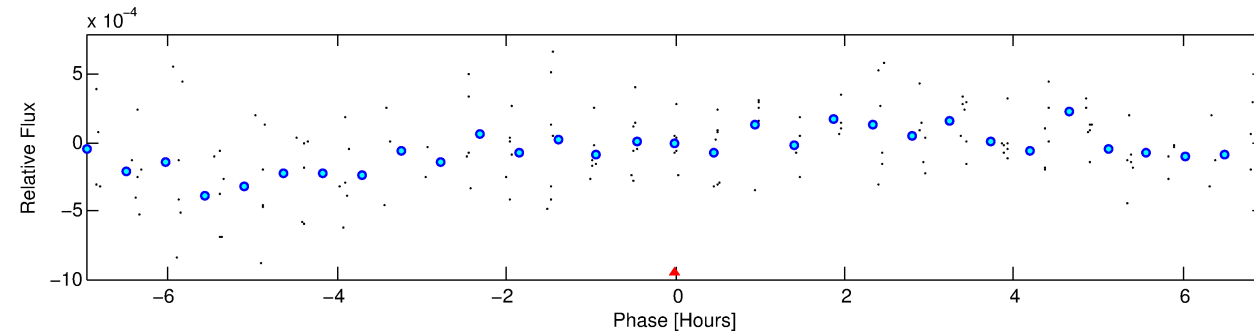
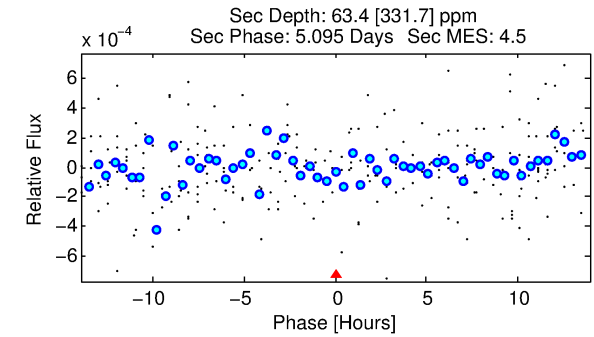
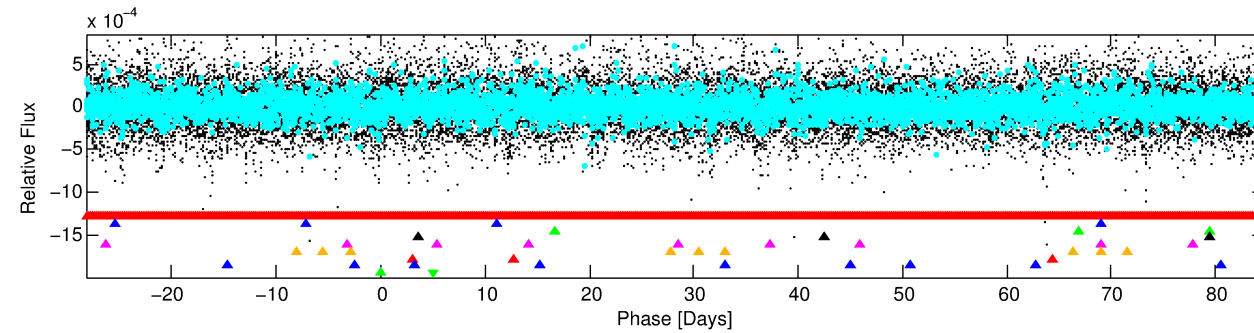
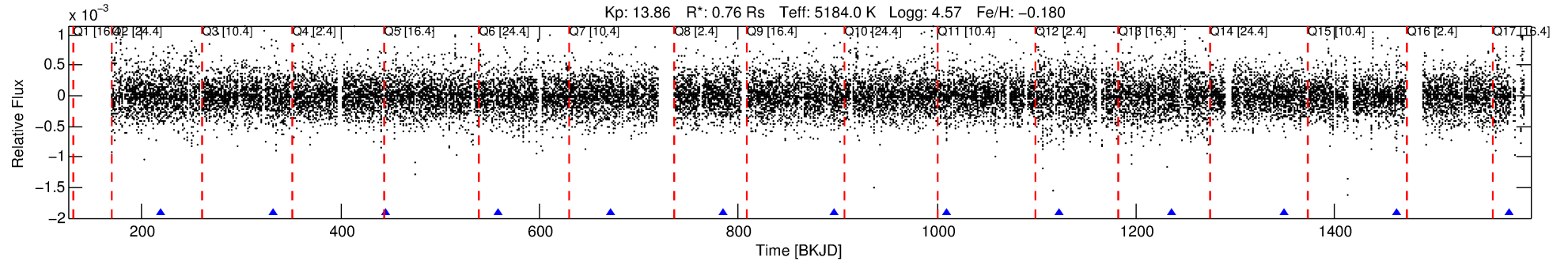
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012691760-09

No Significant Match Found

DV One-Page Summary

KIC: 12691760 Candidate: 9 of 9 Period: 112.977 d



TPS TCE Results:

Period = 112.97715 d
Epoch = 218.4694 BKJD

DV fit results are unavailable

DV Diagnostic Results:

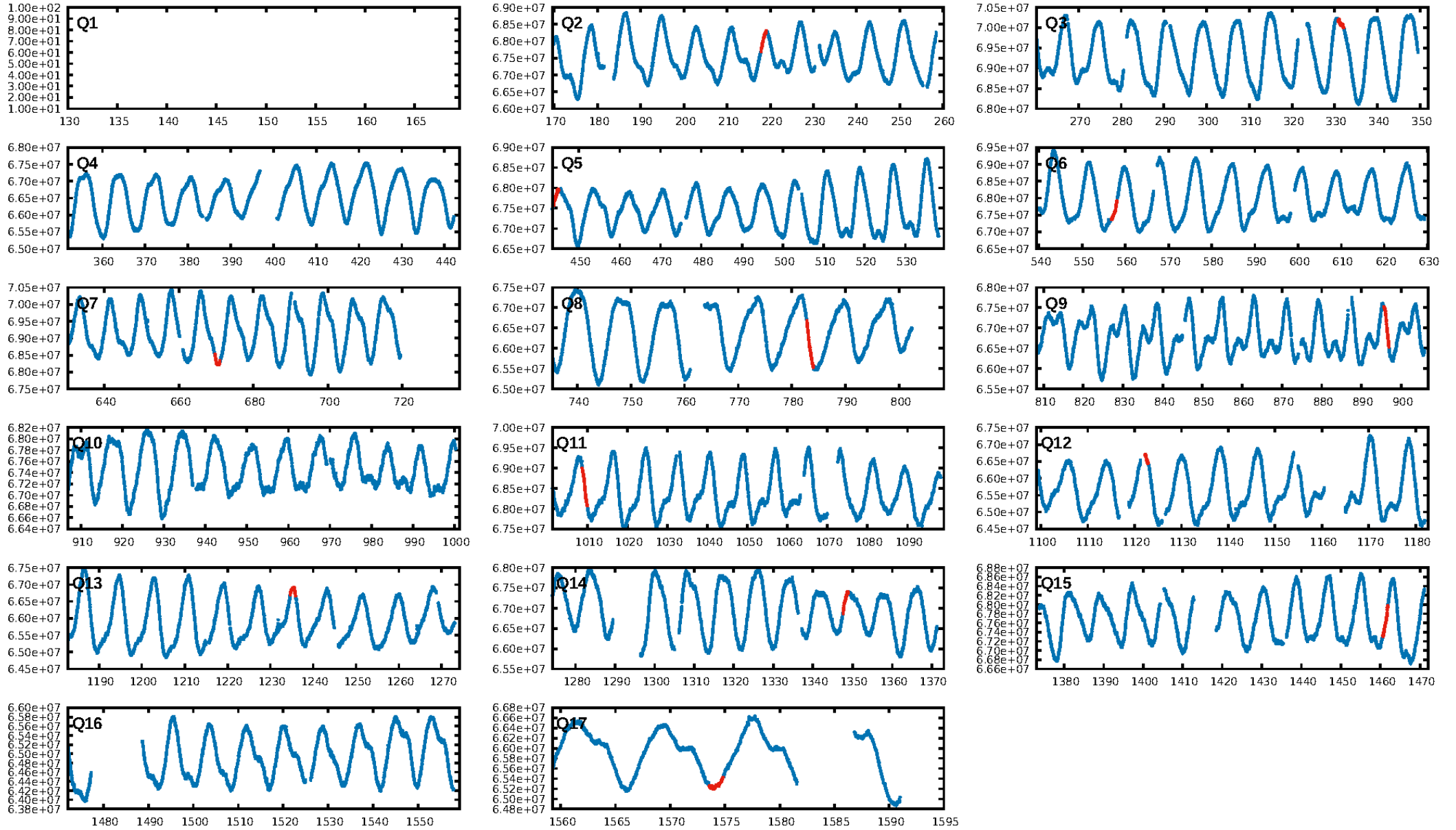
ShortPeriod-sig: 100.0% [175.23σ]
LongPeriod-sig: 100.0% [55.29σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -6.634

Centroid-sig: 72.8%
Centroid-so: 1.474 arcsec [1.14σ]
OotOffset-rm: 0.755 arcsec [0.79σ]
KicOffset-rm: 0.554 arcsec [0.80σ]
OotOffset-st: 0/4/2/3 [9]
KicOffset-st: 0/4/2/3 [9]
DiffImageQuality-fgm: 0.11 [1/9]
DiffImageOverlap-fno: 0.00 [0/13]

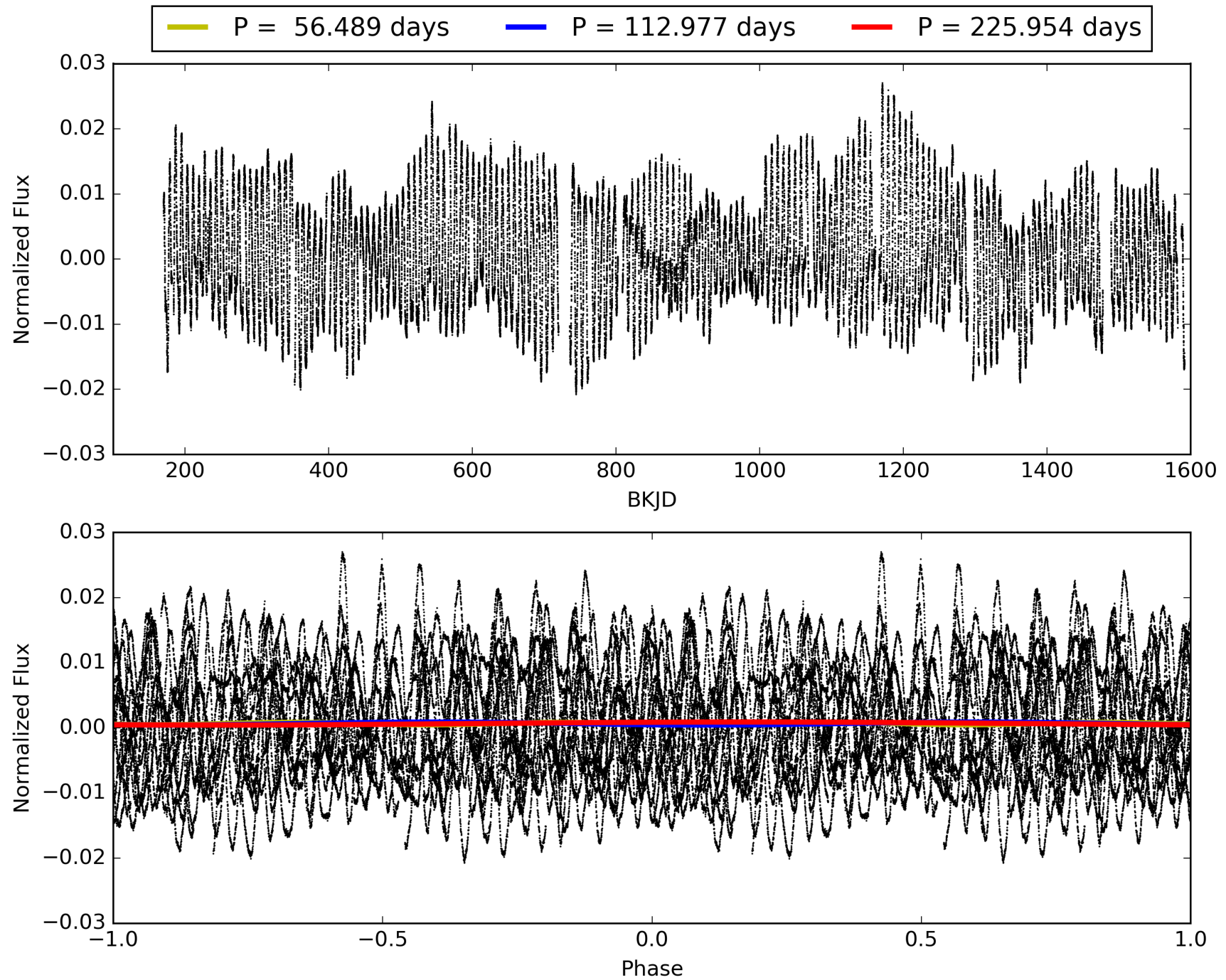
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:17:33 Z

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

TCE 012691760-09, PDC Light Curves

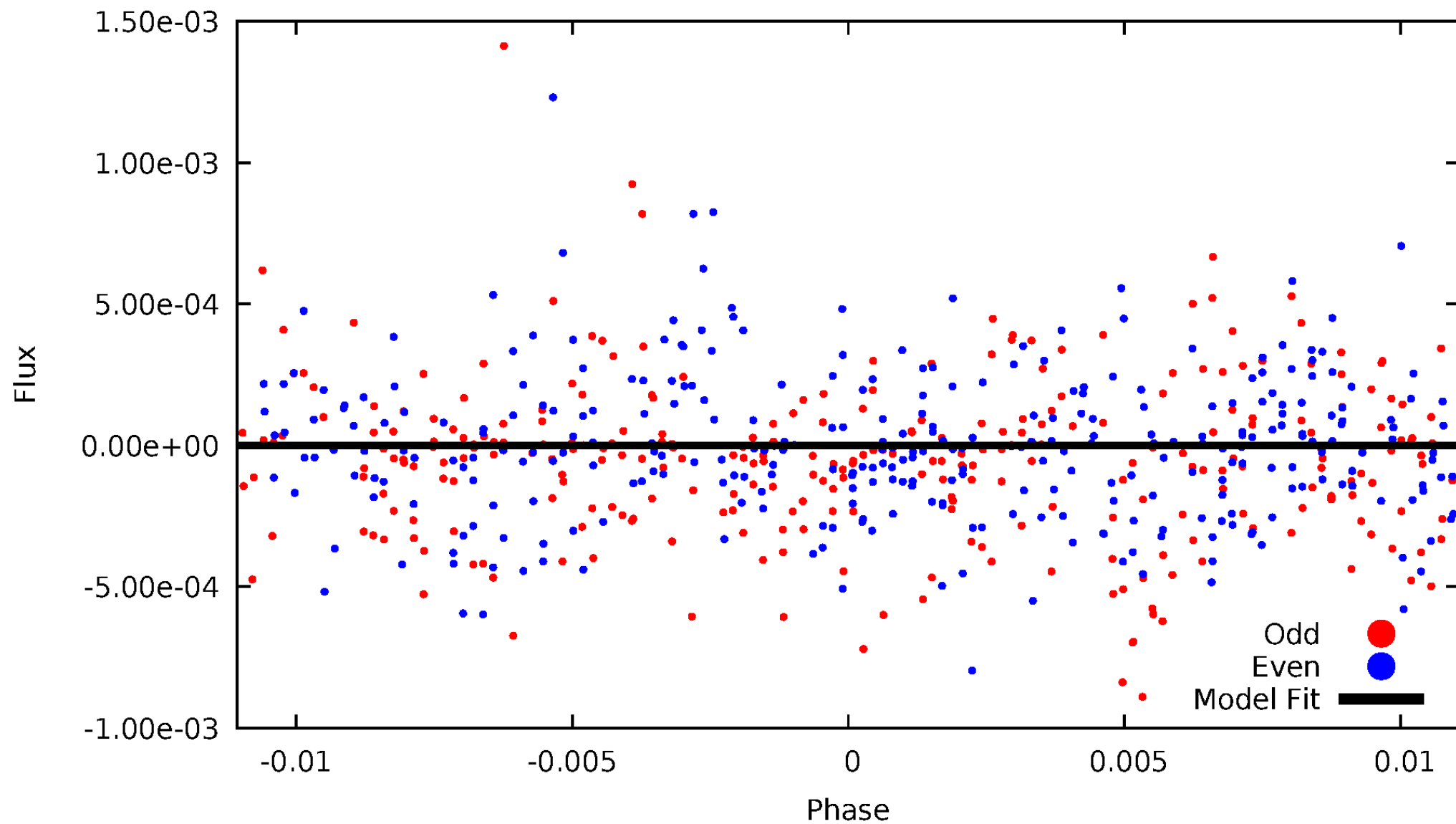


TCE 012691760-09



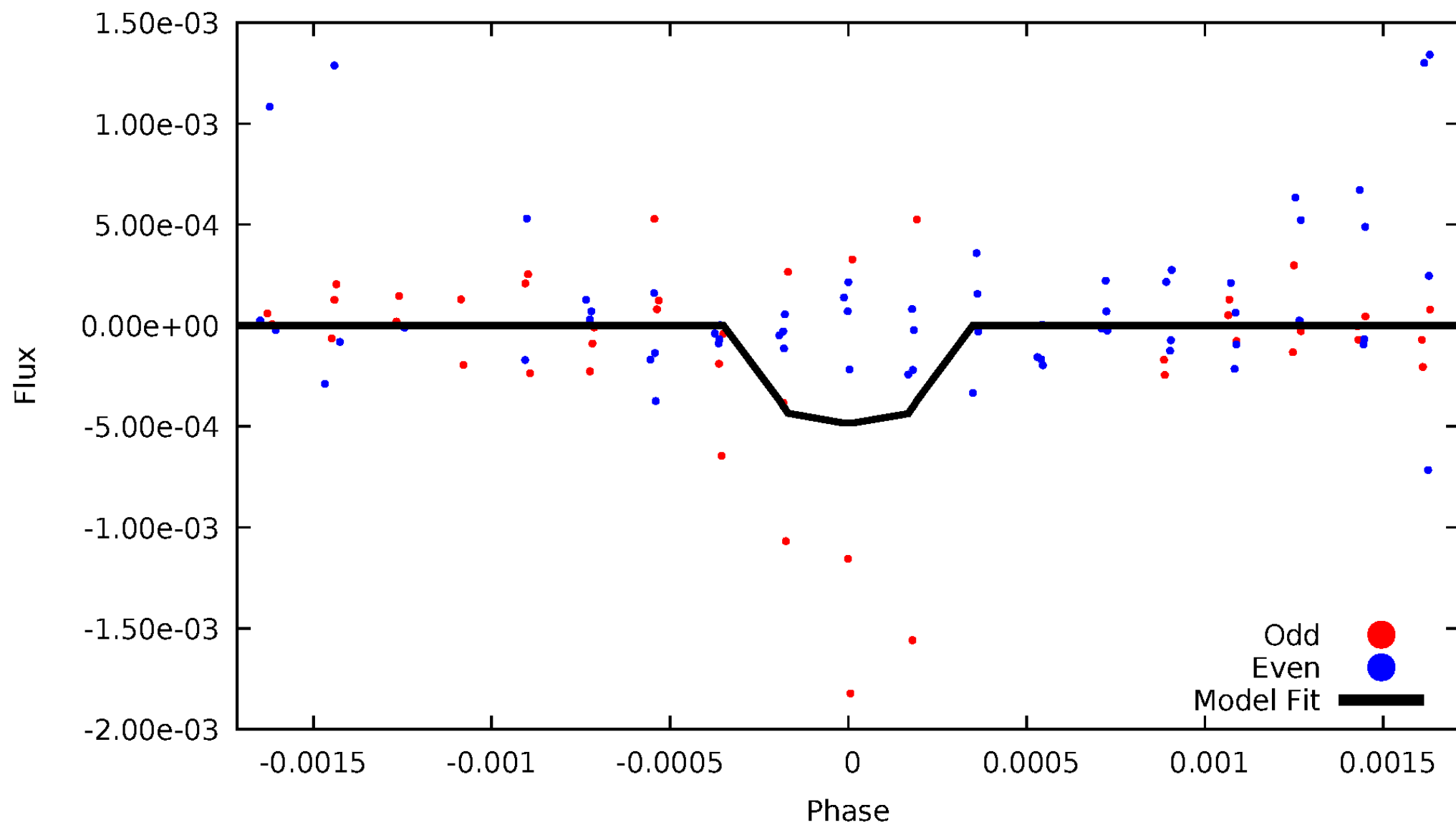
DV Odd/Even

TCE 012691760-09

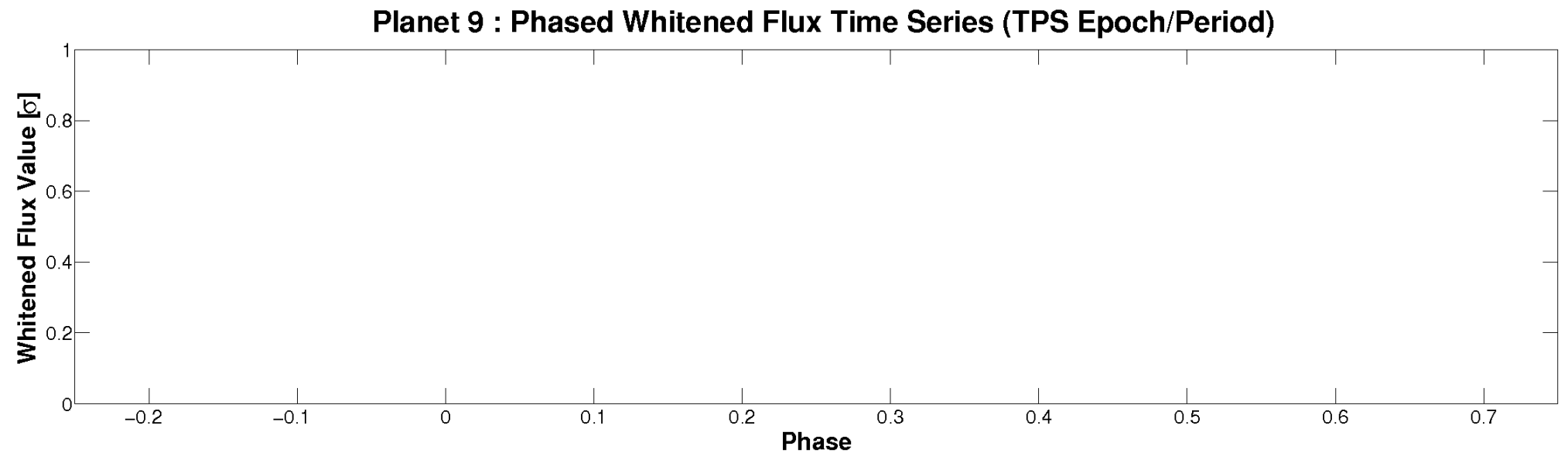
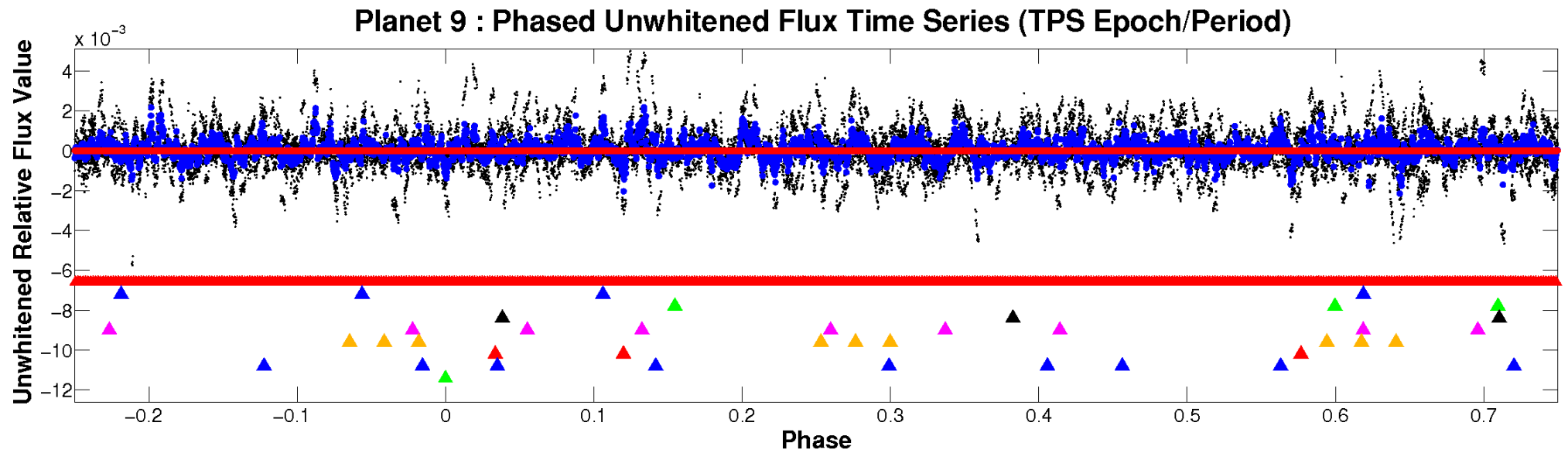


ALT Odd/Even

TCE 012691760-09

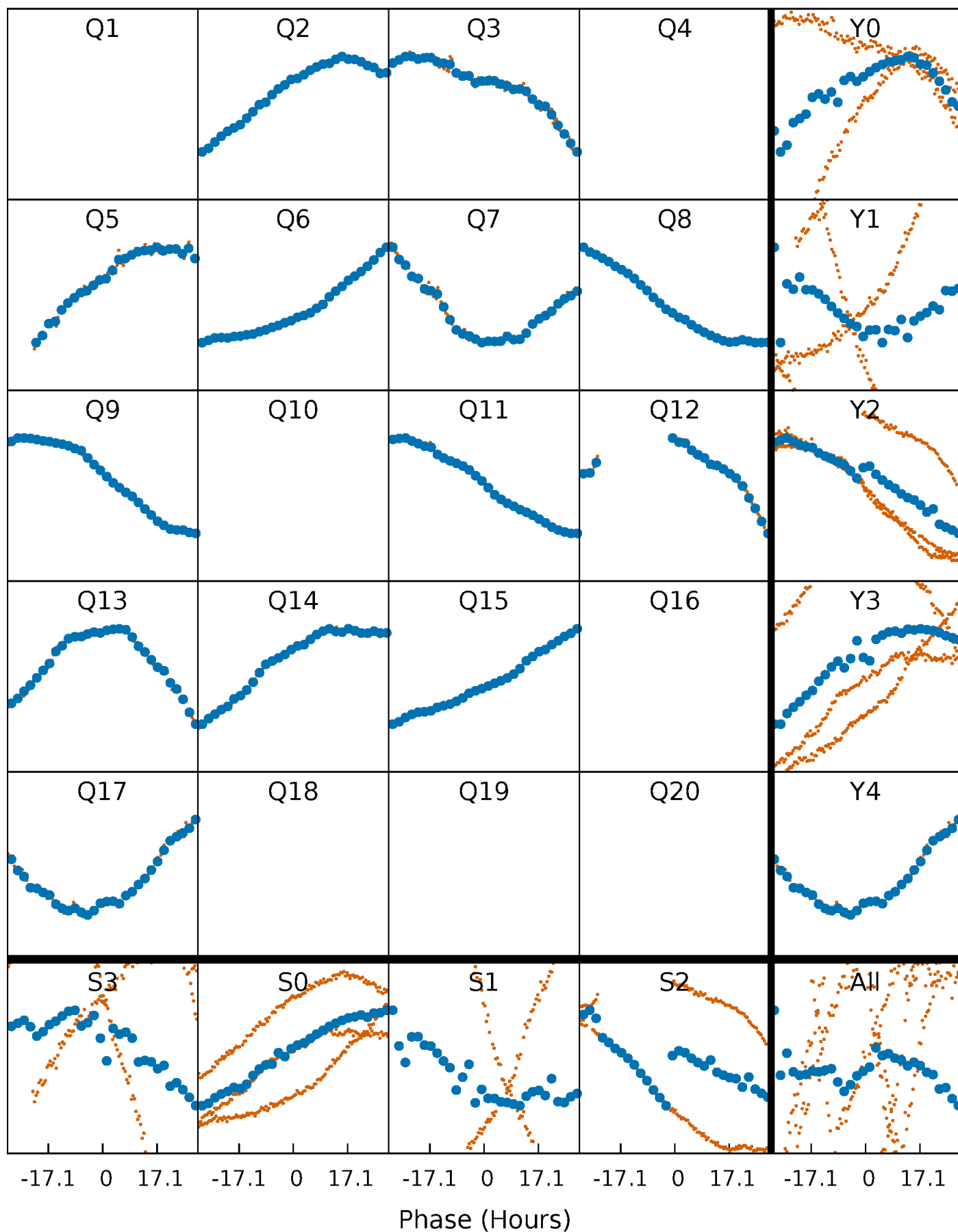


Non-Whitened Vs. Whitened Light Curve



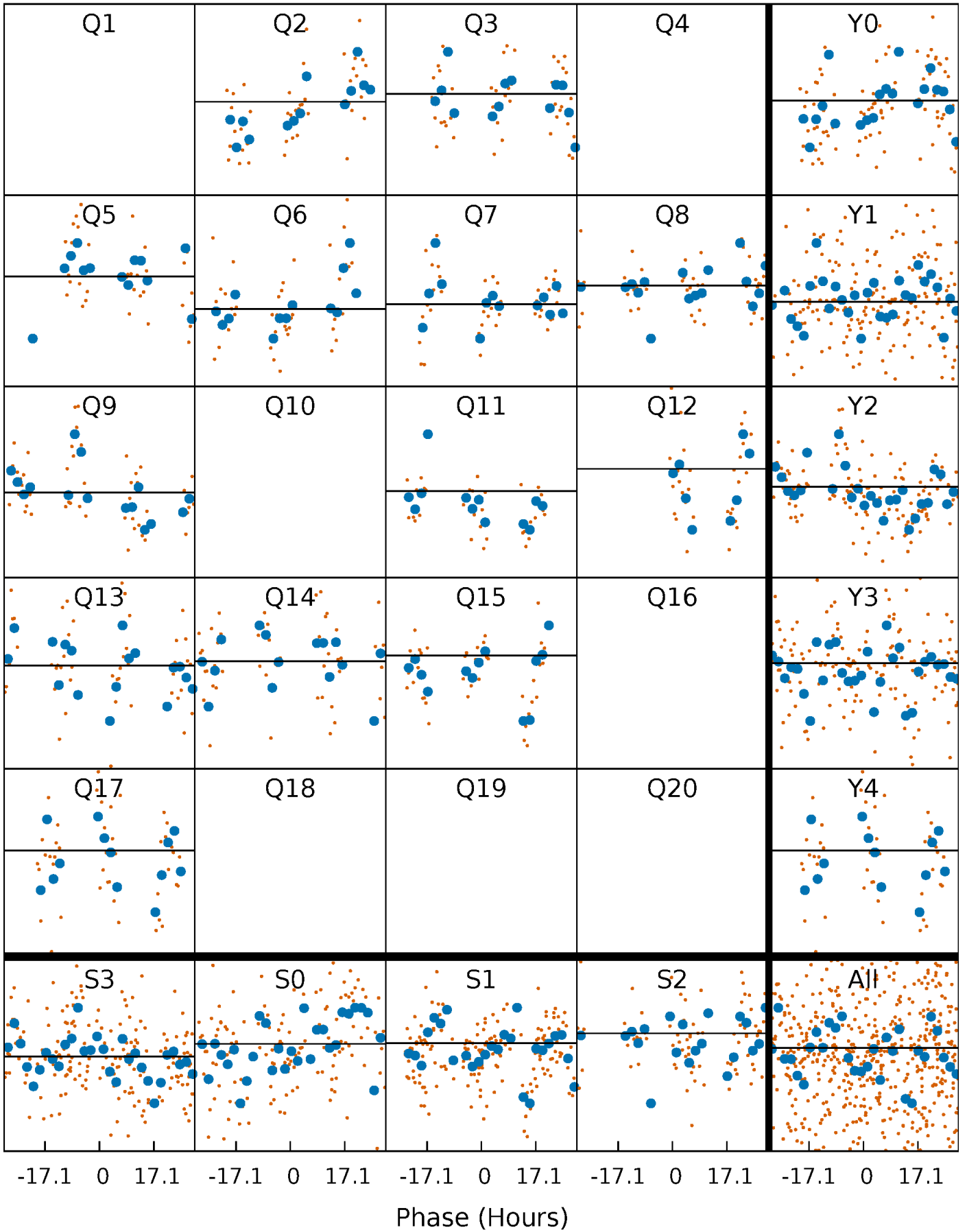
PDC Quarter-Phased Transit Curves

TCE 012691760-09 P=112.977153 Days $T_0=218.469414$ (BKJD)



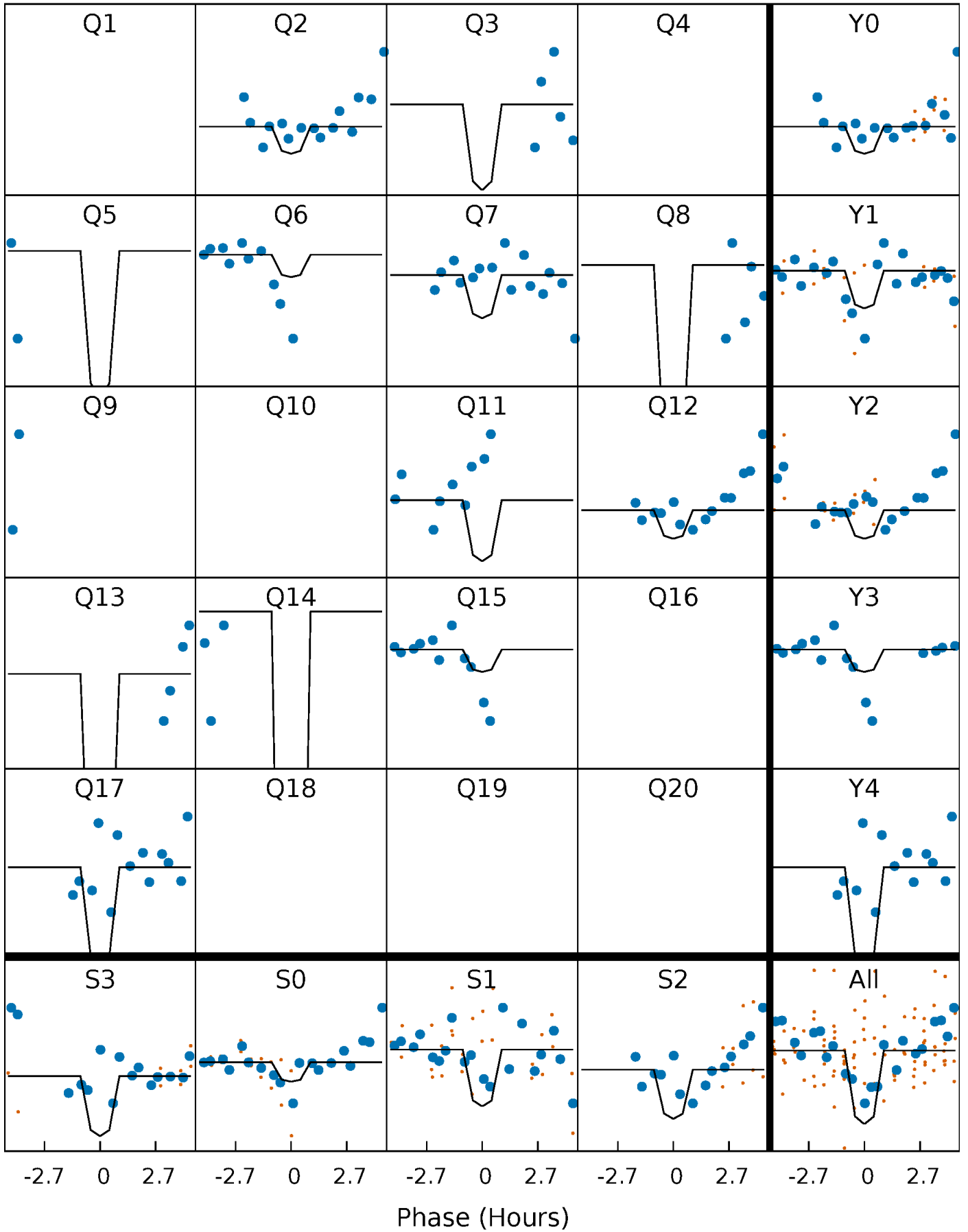
DV Quarter-Phased Transit Curves

TCE 012691760-09 P=112.977153 Days $T_0=218.469414$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

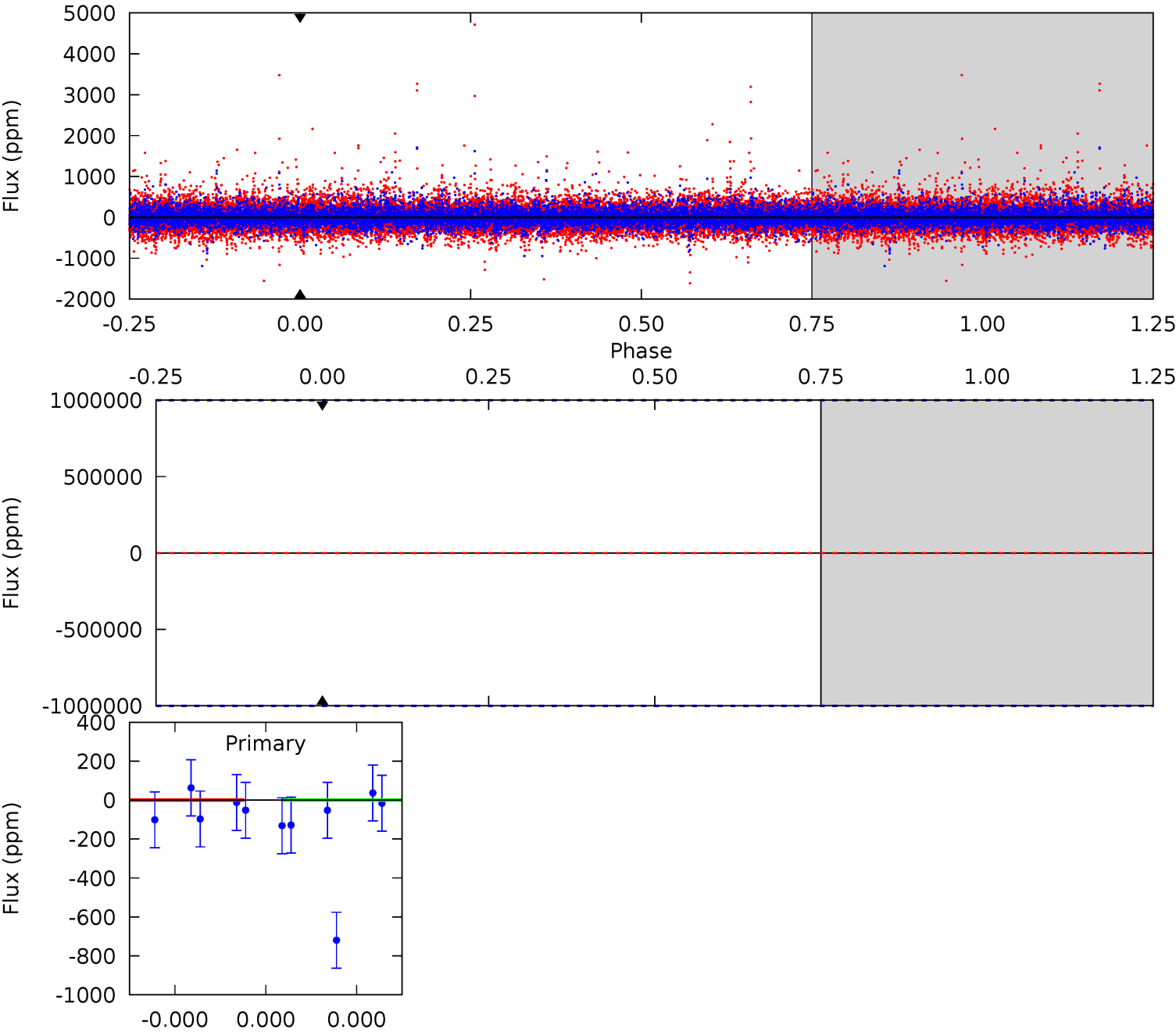
TCE 012691760-09 P=112.977153 Days $T_0=219.275554$ (BKJD)



DV Model-Shift Uniqueness Test

012691760-09, P = 112.977153 Days, E = 105.492261 Days

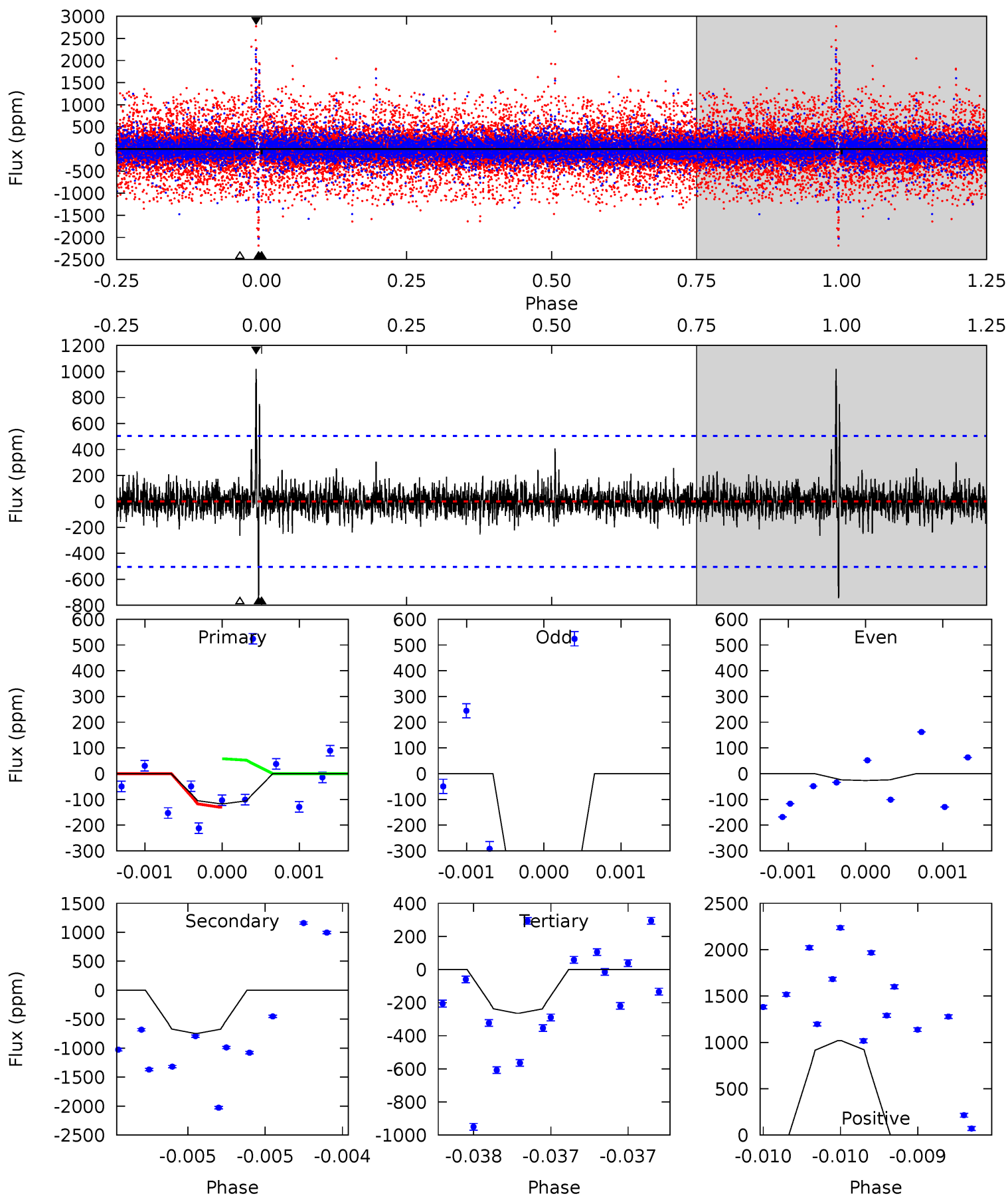
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

012691760-09, P = 112.977153 Days, E = 106.298401 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.29	8.23	2.91	11.2	5.56	3.46	0.86	-1.62	-9.95	5.32	-3.02	2.98	7.09	0.58	0



Stellar Parameters For KIC 012691760

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5184^{+196}_{-179}	$4.567^{+0.052}_{-0.078}$	$-0.180^{+0.300}_{-0.300}$	$0.760^{+0.106}_{-0.071}$	$0.779^{+0.090}_{-0.073}$	$2.496^{+0.564}_{-0.657}$
	+4%/-3%	+1%/-2%	+167%/-167%	+14%/-9%	+12%/-9%	+23%/-26%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012691760-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$6.54^{+6.41}_{-4.58}$	432^{+20}_{-19}	-3604^{+18194}_{-12059}	$-1933.708^{+341508.095}_{-432809.151}$
Alt.	-745 ± 91	$6.68^{+6.26}_{-4.86}$	433^{+19}_{-20}	3515^{+2266}_{-641}	1632^{+19289}_{-1208}

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

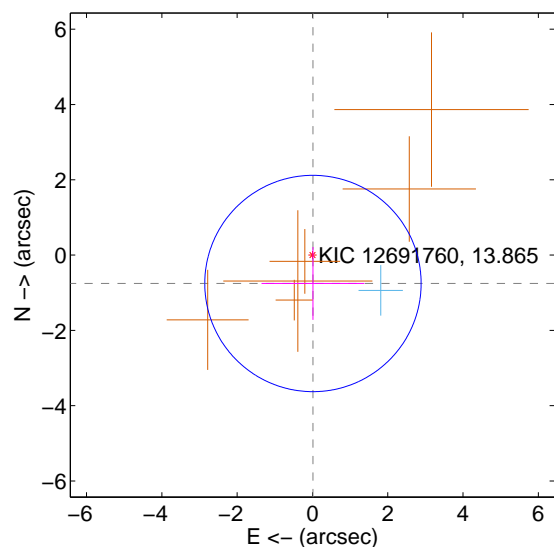
Supplemental centroid analysis for 012691760-09. Kepler magnitude: 13.87. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

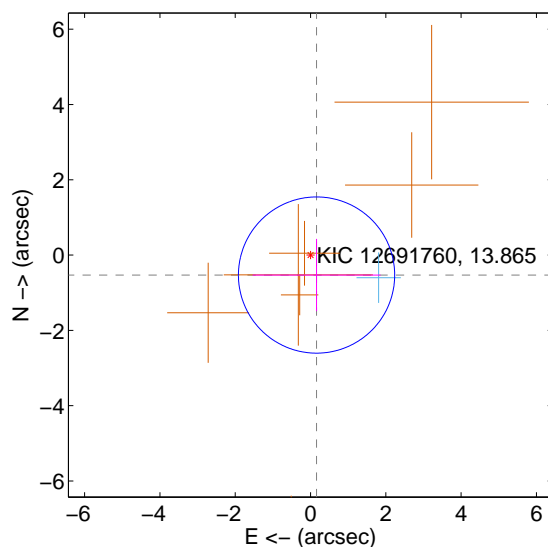
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.755 ± 0.958	0.79	-0.013 ± 1.365	-0.754 ± 0.967
PRF-fit source offset from KIC position	0.554 ± 0.692	0.80	-0.160 ± 1.699	-0.530 ± 0.960
photometric centroid source offset	1.47 ± 1.29	1.14	-0.70 ± 1.25	1.30 ± 1.31

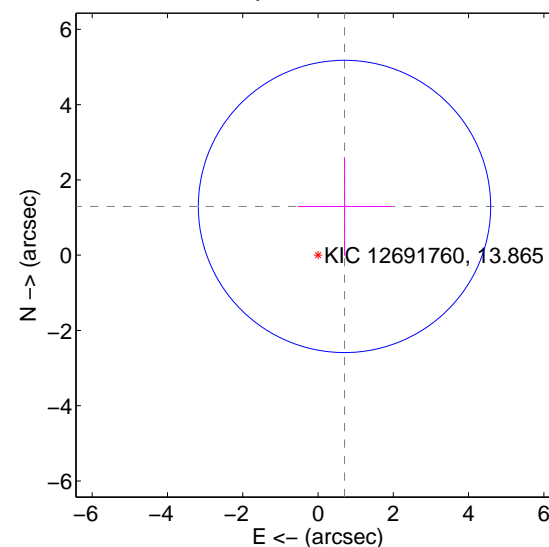
offset from difference PRF-fit to OOT PRF-fit



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.

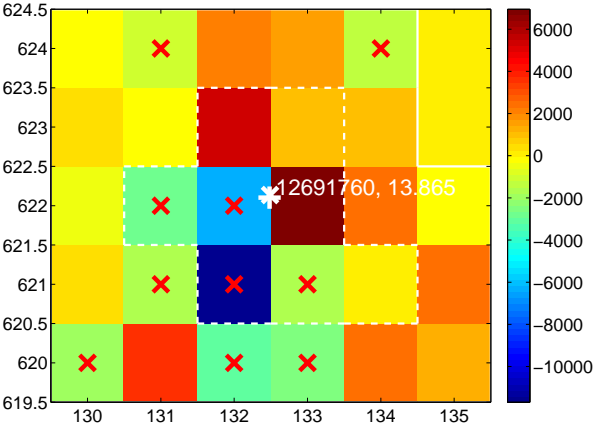
Q1 no difference image



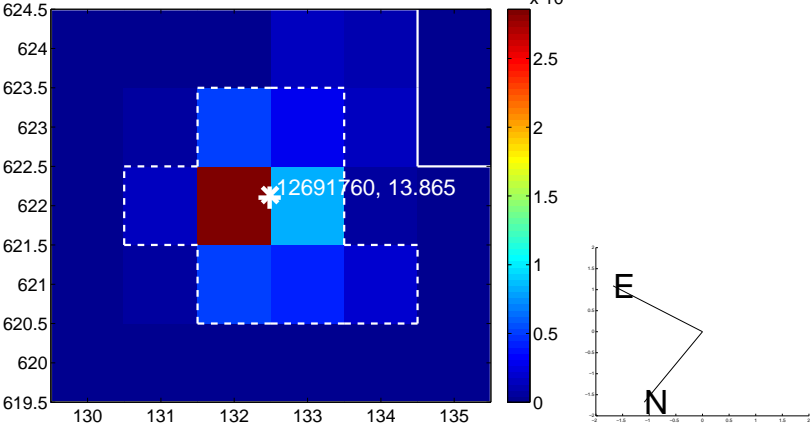
Q1 no OOT image



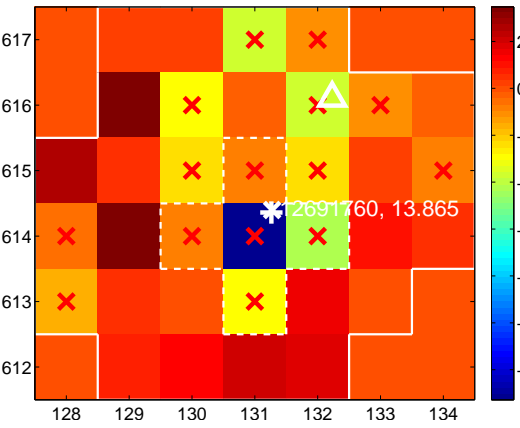
Q2 difference image. Poor Quality



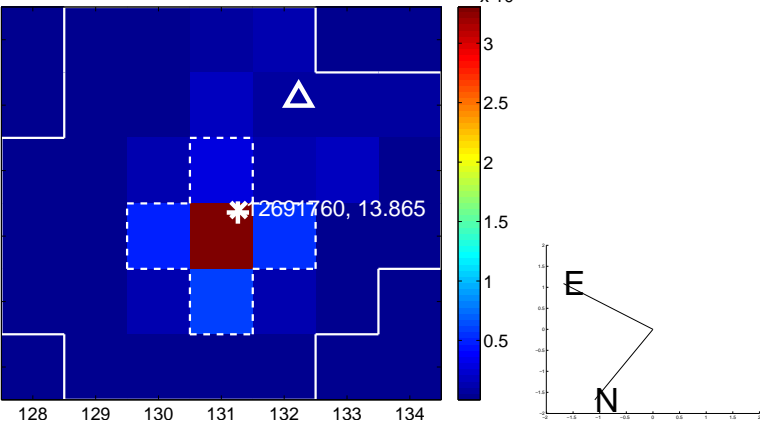
Q2 OOT image



Q3 difference image. Poor Quality



Q3 OOT image



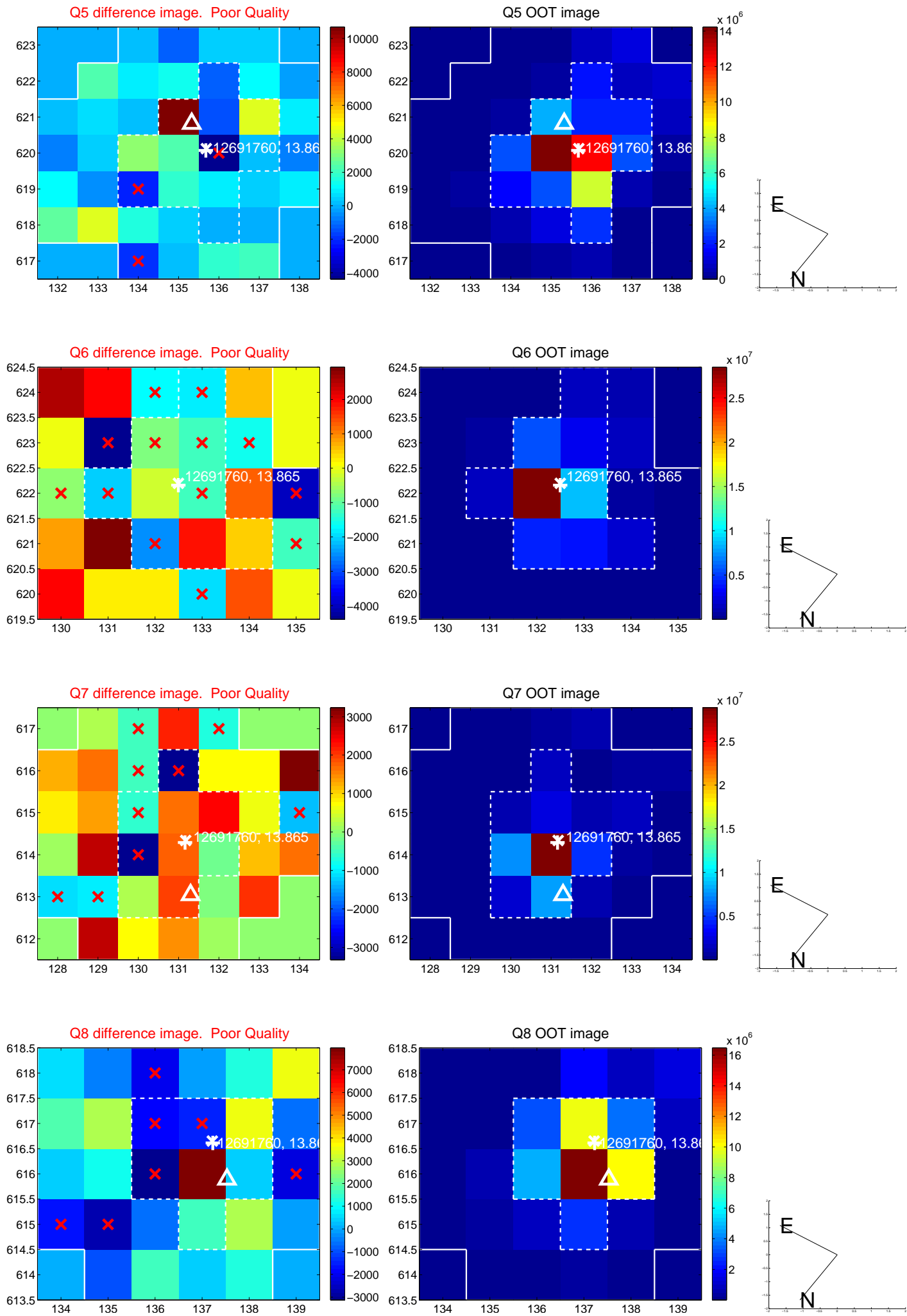
Q4 no difference image



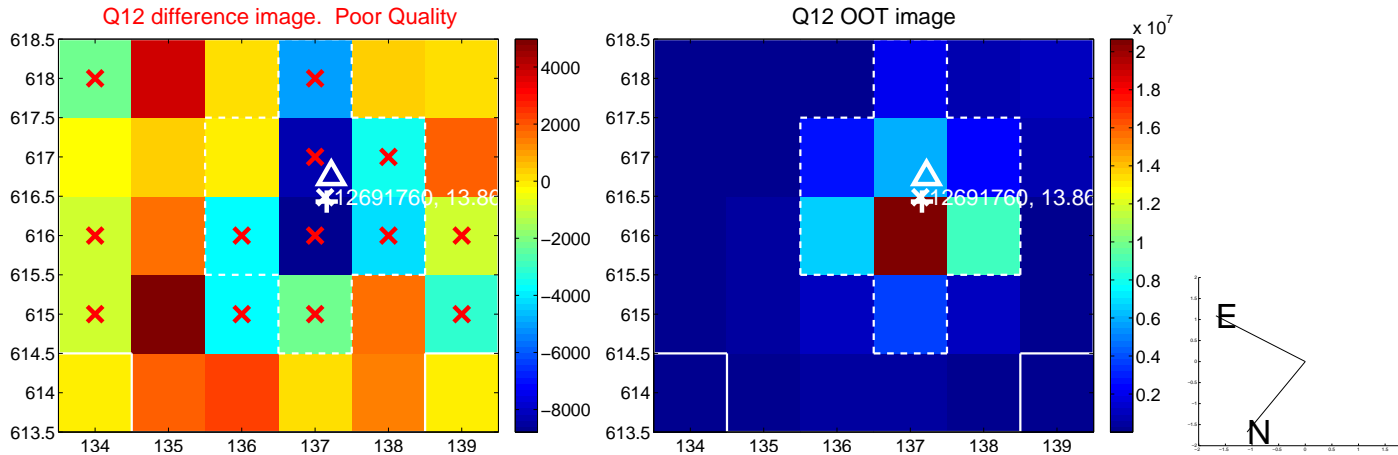
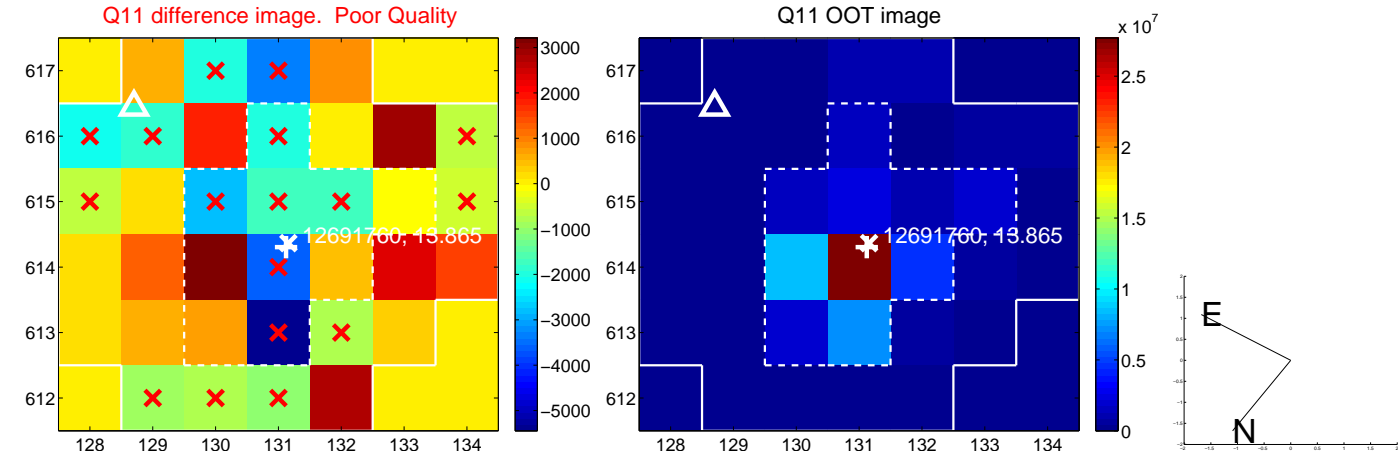
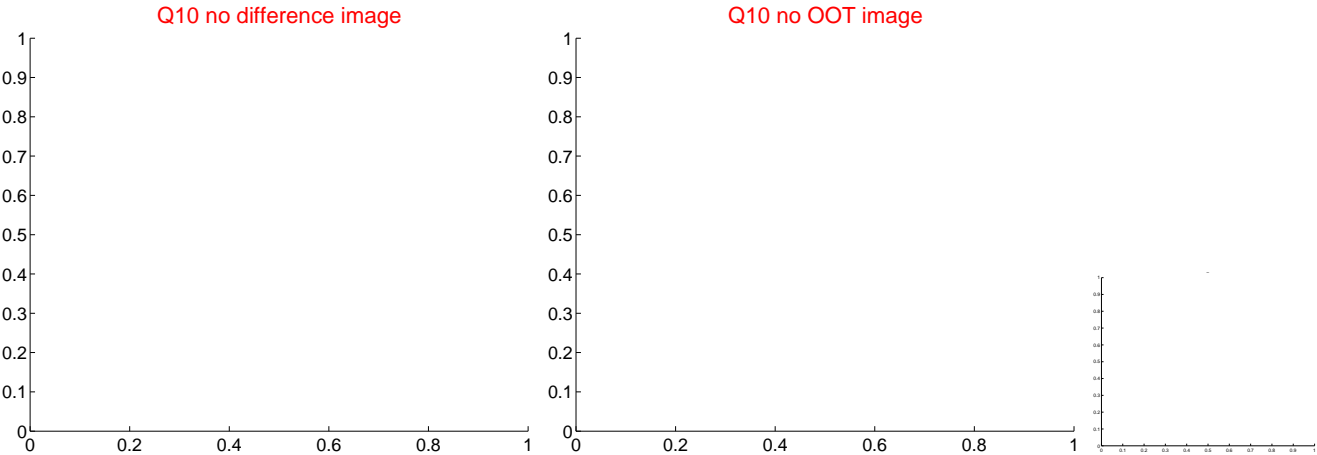
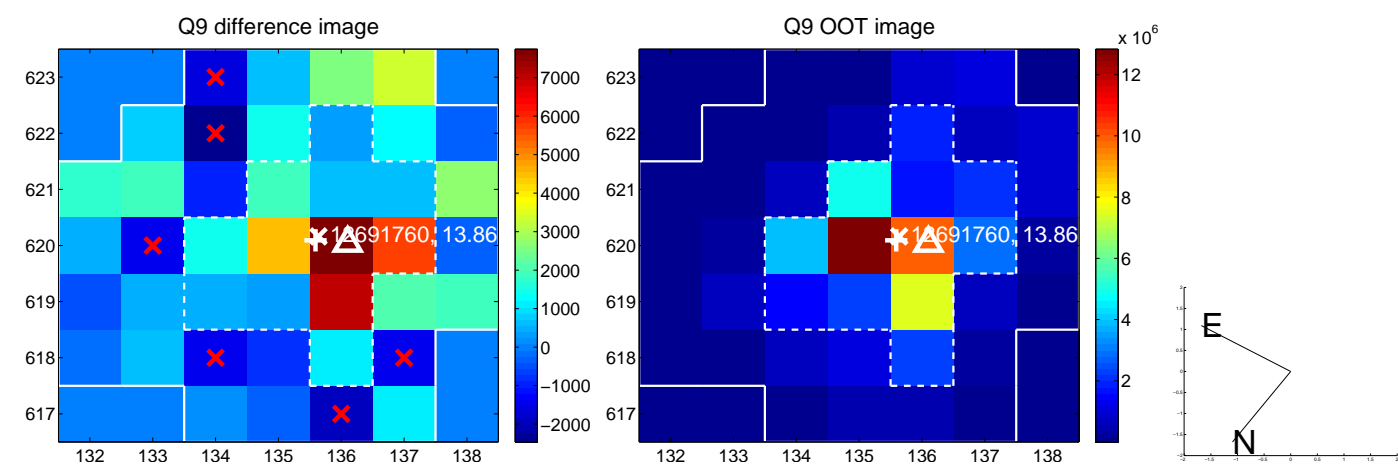
Q4 no OOT image



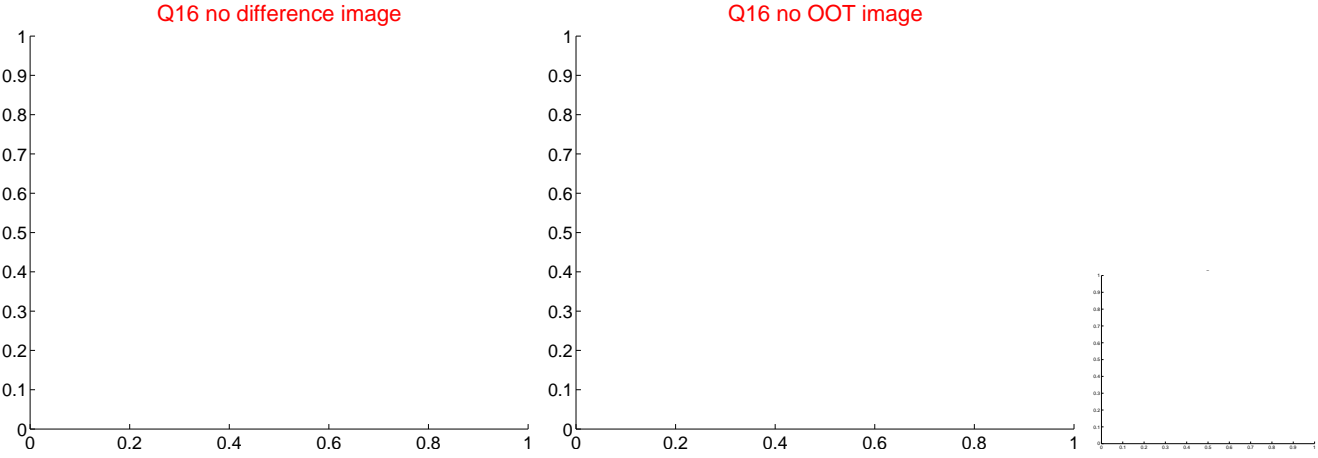
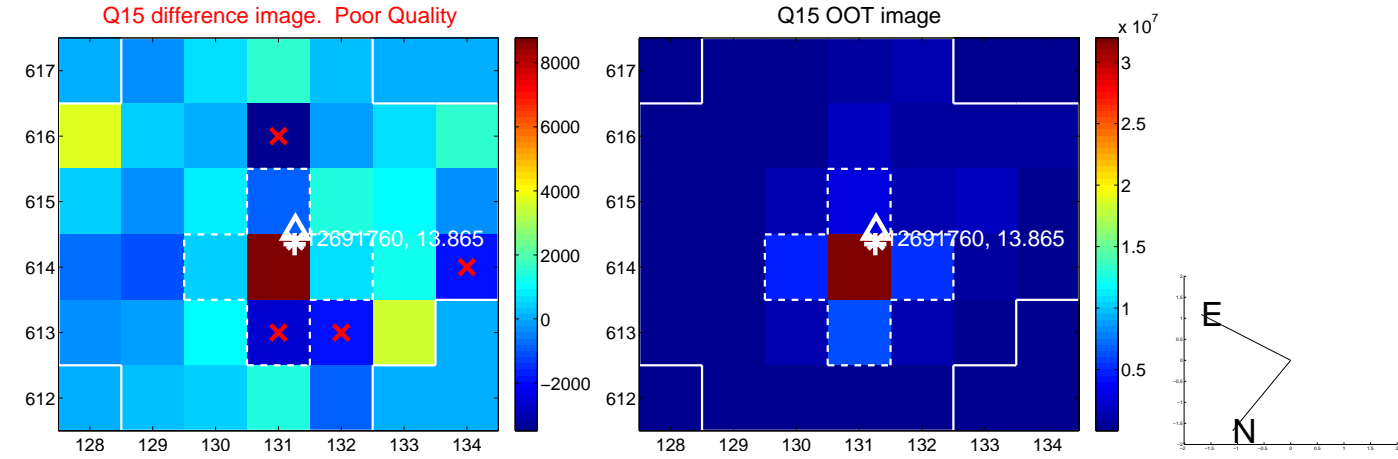
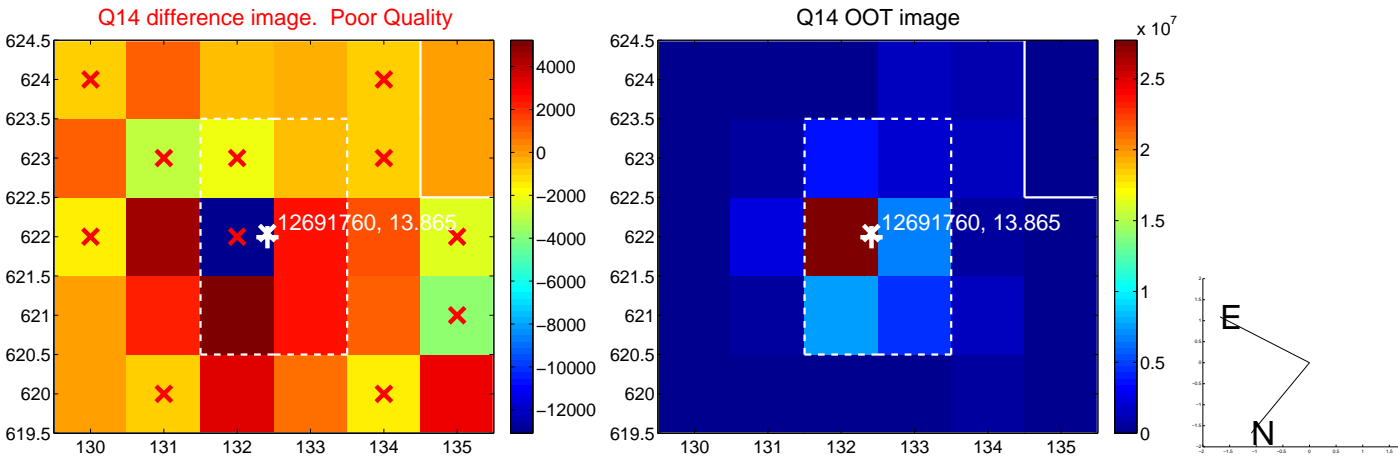
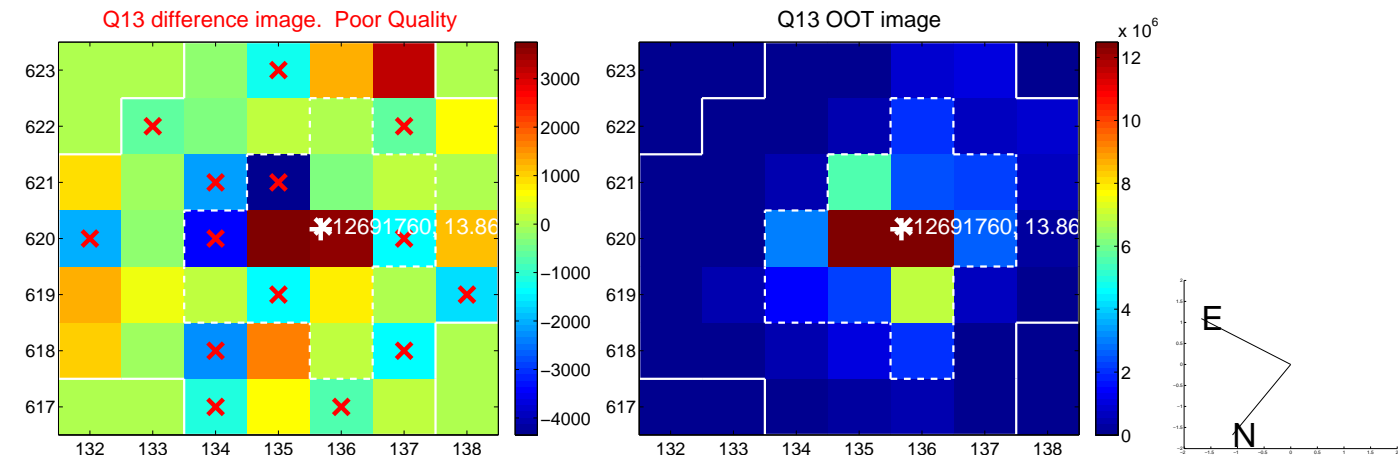
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



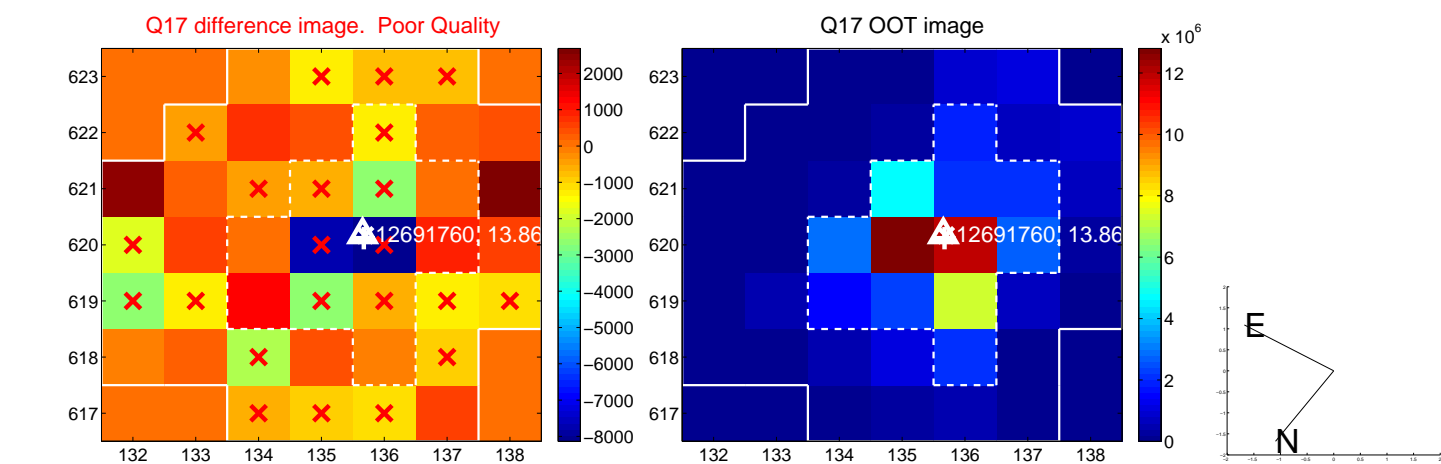
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



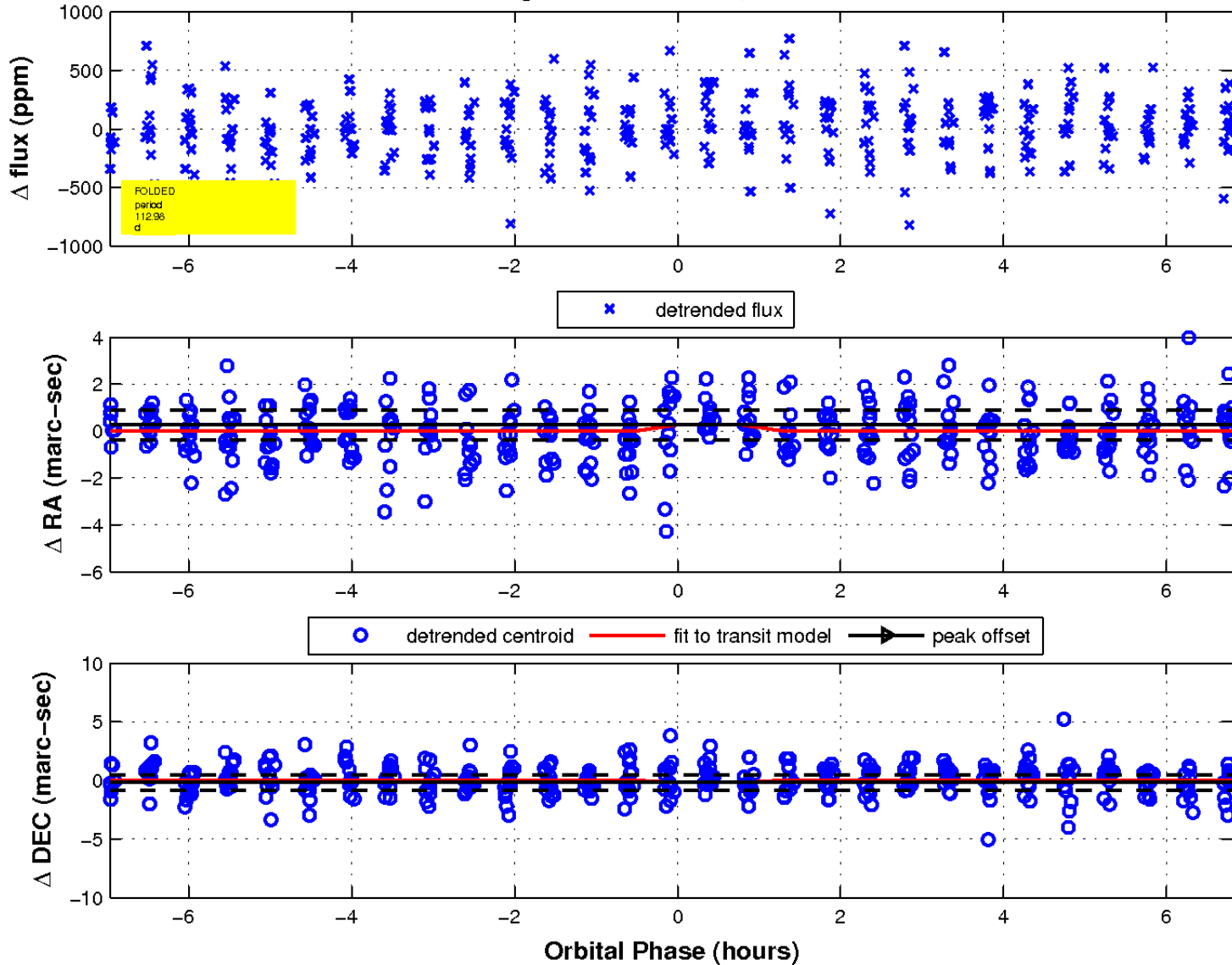
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 9 of 9



UKIRT Image

Declination

