

KIC 003454720

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})
003454720-01	OBS	No	2.483861	132.828347	190.9	7.932	9.0	9.6	12.25	4696	20.74	0.00
003454720-02	OBS	No	2.136748	132.960541	223.8	5.190	10.0	10.4	12.25	4696	22.54	0.00
003454720-03	OBS	No	110.588600	228.465232	997.3	12.496	7.6	7.9	12.25	4696	46.10	239.33
003454720-04	OBS	No	2.483958	133.751781	218.7	10.066	9.2	10.2	12.25	4696	33.23	0.00
003454720-05	OBS	No	39.038170	148.400409	1359.1	13.918	9.2	9.9	12.25	4696	91.80	959.31
003454720-06	OBS	No	24.219281	142.800536	227.6	6.000	7.8	-1.0	12.25	4696	17.78	1812.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003454720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
003454720-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
003454720-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

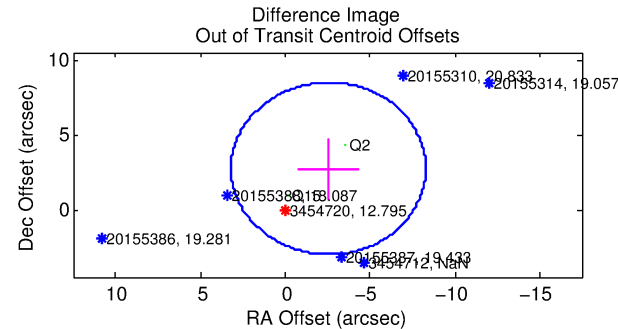
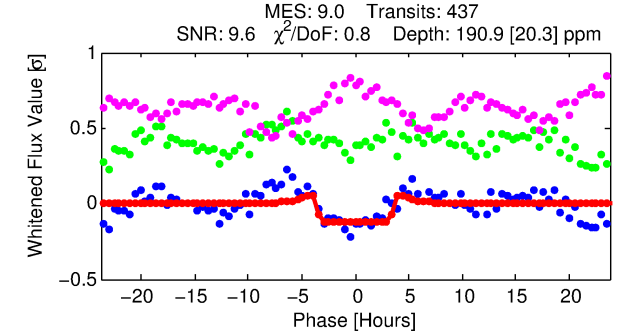
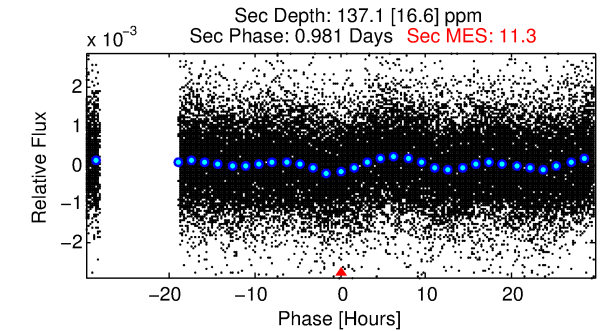
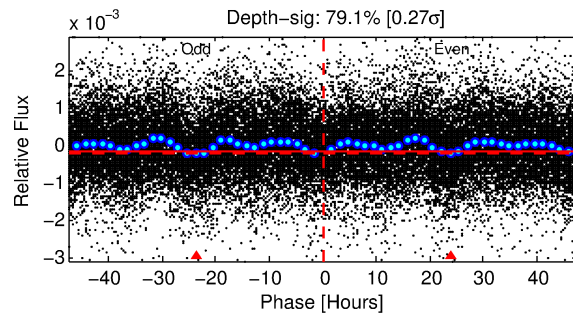
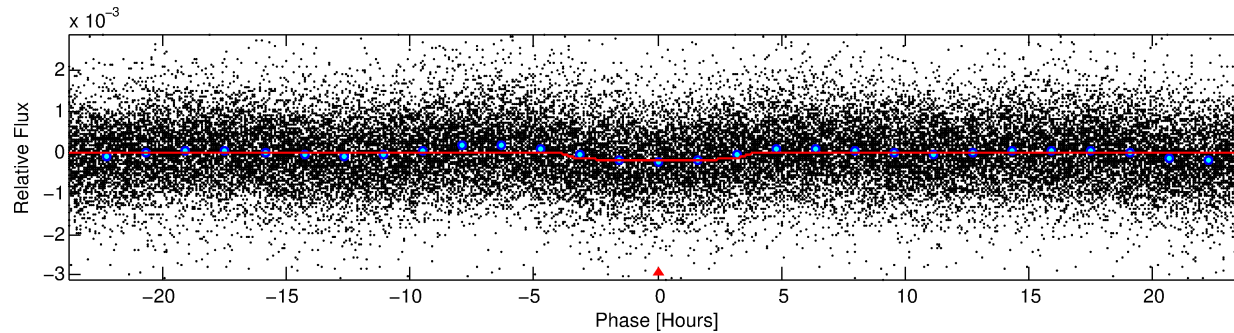
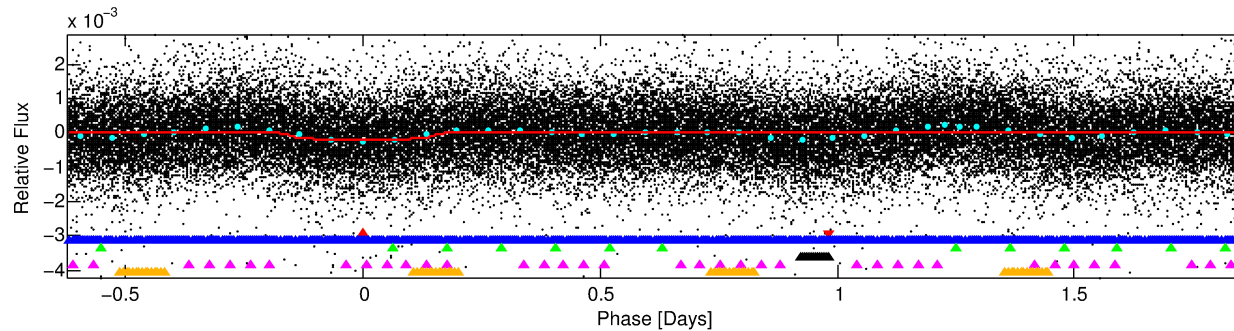
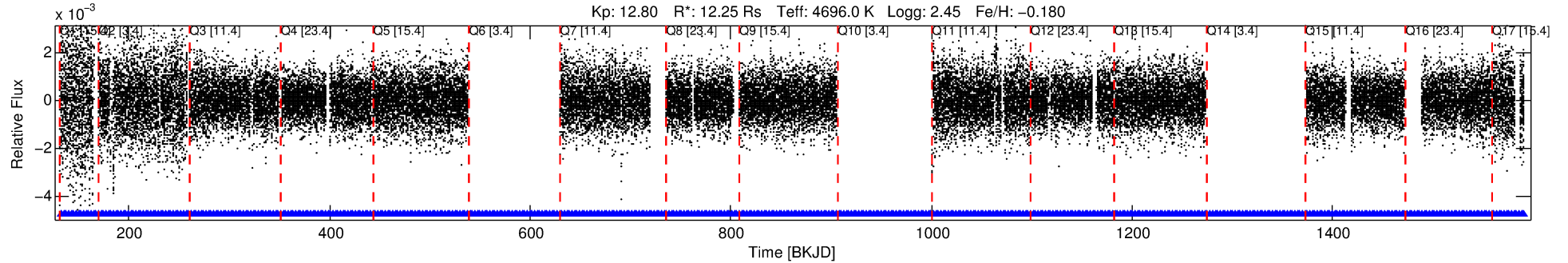
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003454720-01

No Significant Match Found

DV One-Page Summary

KIC: 3454720 Candidate: 1 of 6 Period: 2.484 d



DV Fit Results:

Period = 2.48386 [0.00002] d
Epoch = 132.8283 [0.0053] BKJD
Rp/R* = 0.0155 [0.0021]
a/R* = 1.47 [0.38]
b = 0.90 [0.10]
Seff = N/A
Teq = N/A
Rp = 20.74 [5.81] Re
a = N/A
Ag = N/A
Teffp = N/A

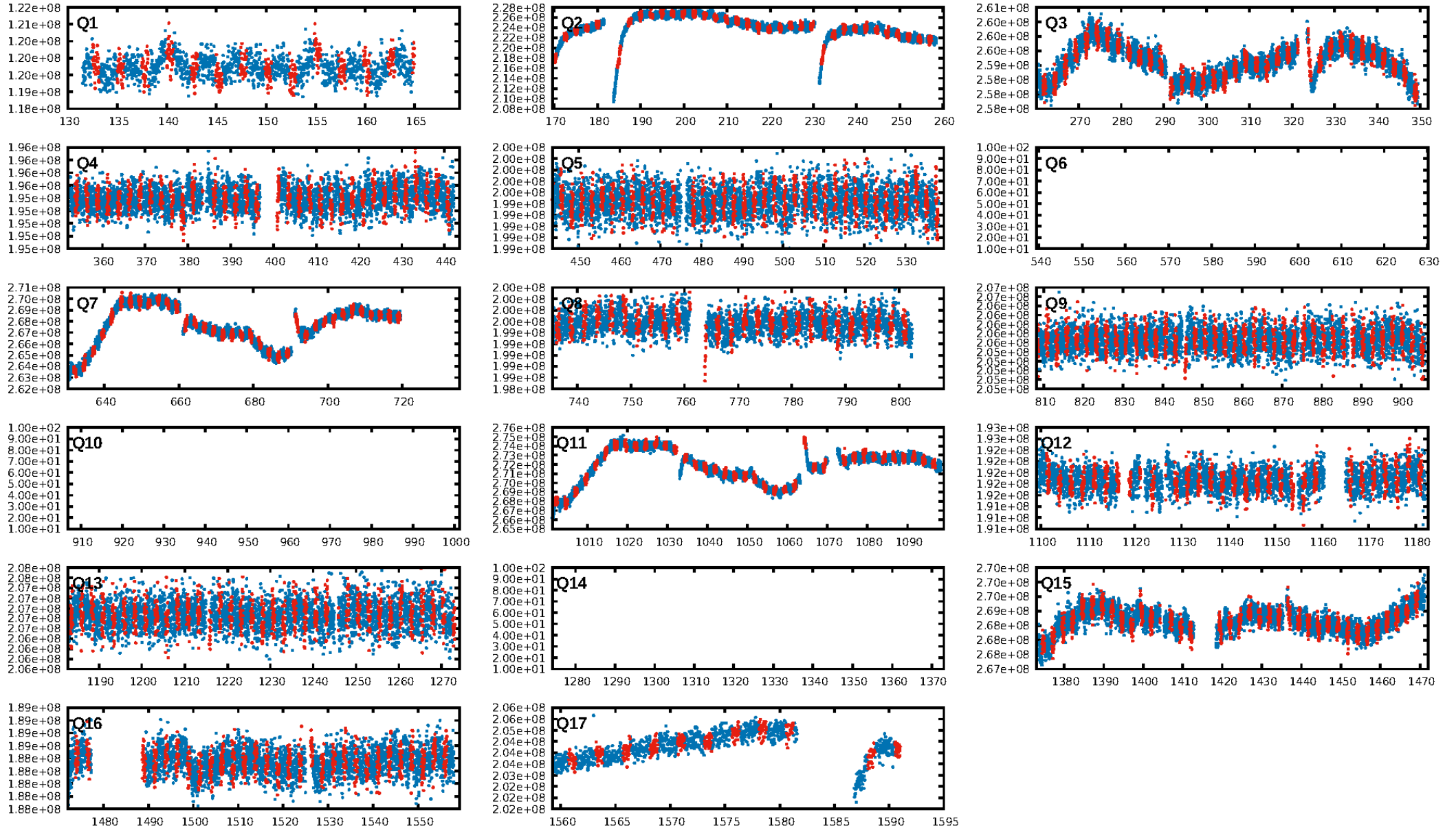
DV Diagnostic Results:

ShortPeriod-sig: 62.1% [0.88 σ]
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [412/412]
GhostDiagnostic-chr: -0.8892
Centroid-sig: 0.0%
Centroid-so: 1.229 arcsec [2.62 σ]
OotOffset-rm: 3.750 arcsec [1.96 σ]
KicOffset-rm: 2.128 arcsec [2.97 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [14/14]

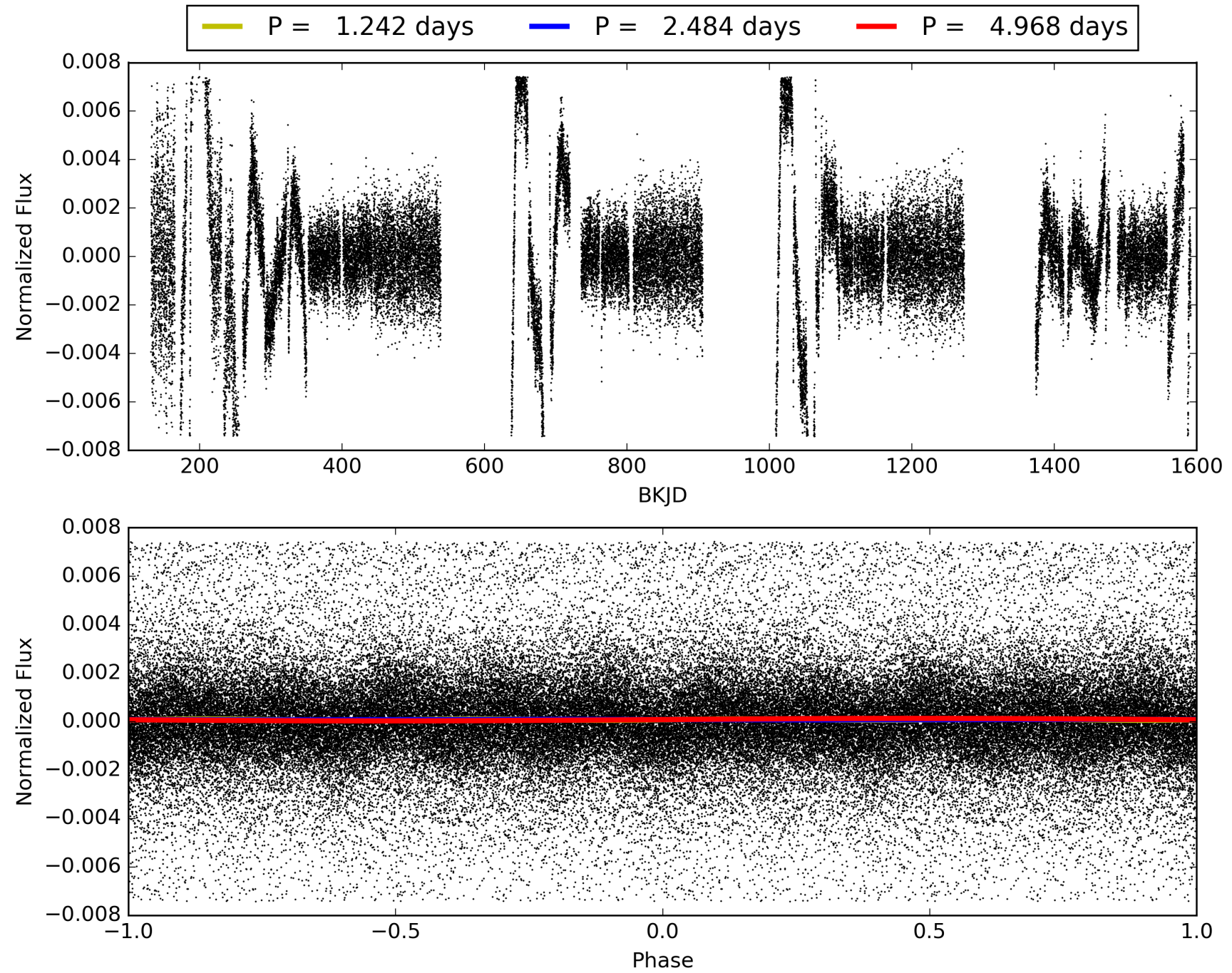
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:12:48 Z

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

TCE 003454720-01, PDC Light Curves

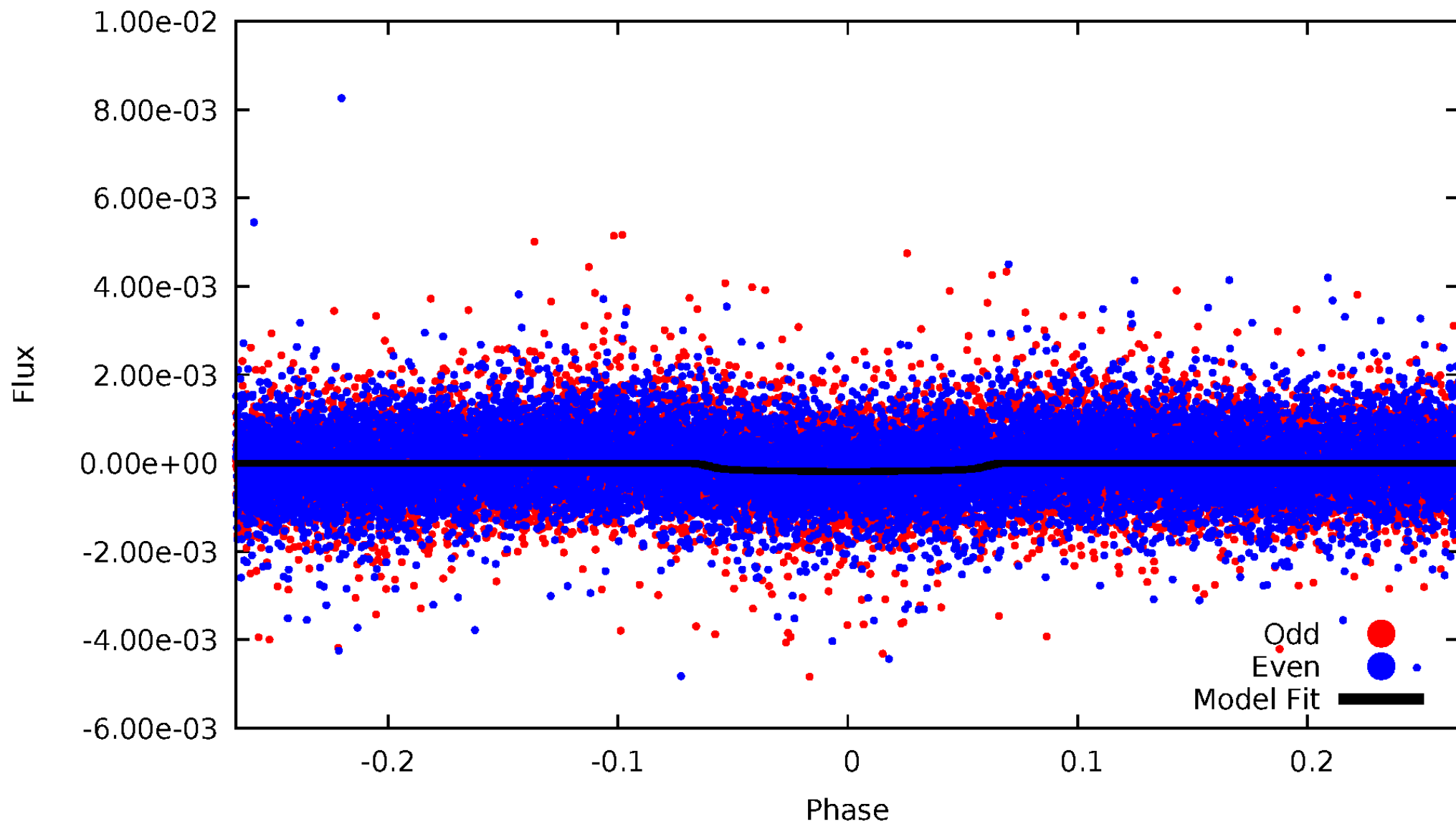


TCE 003454720-01



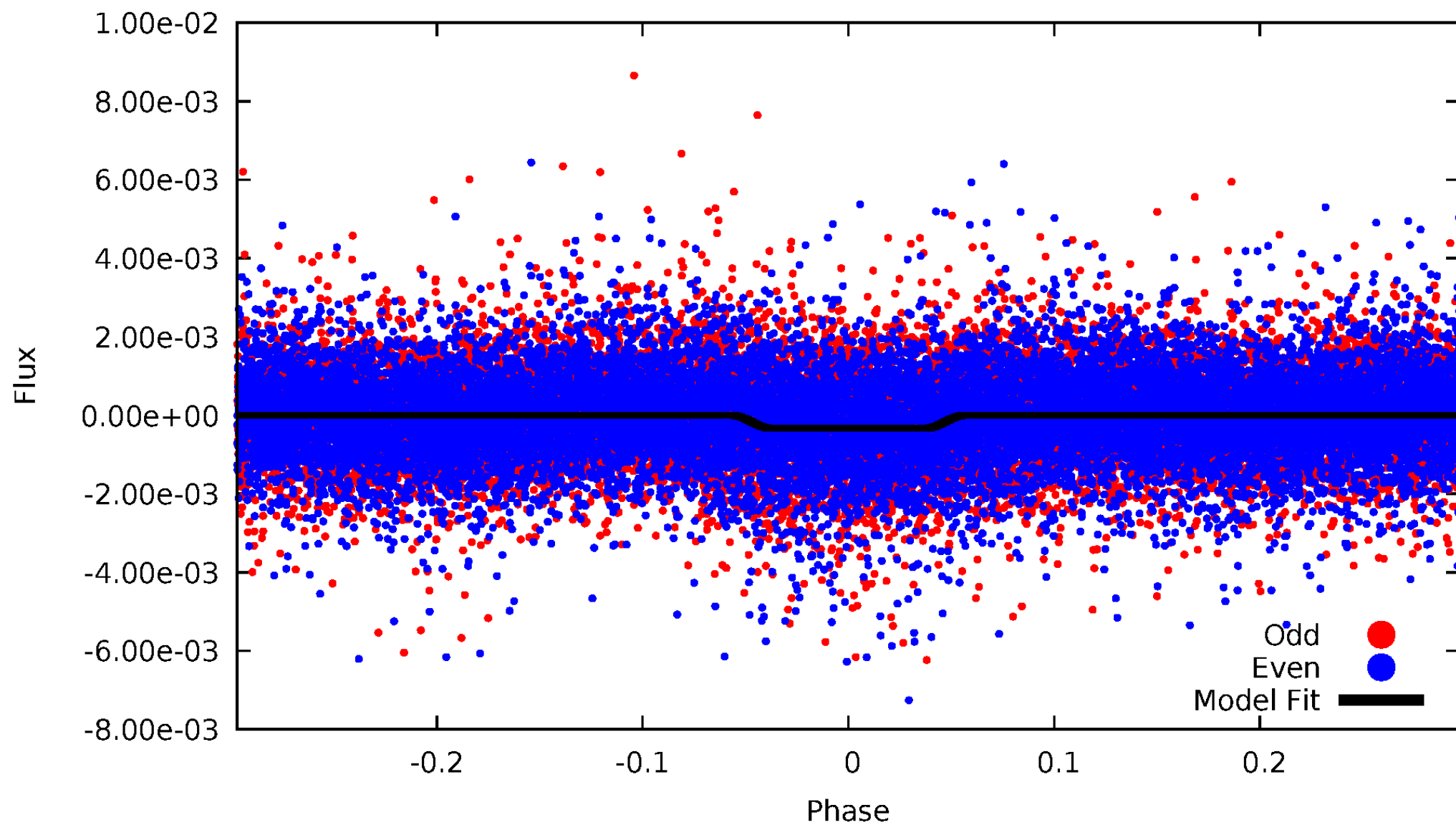
DV Odd/Even

TCE 003454720-01

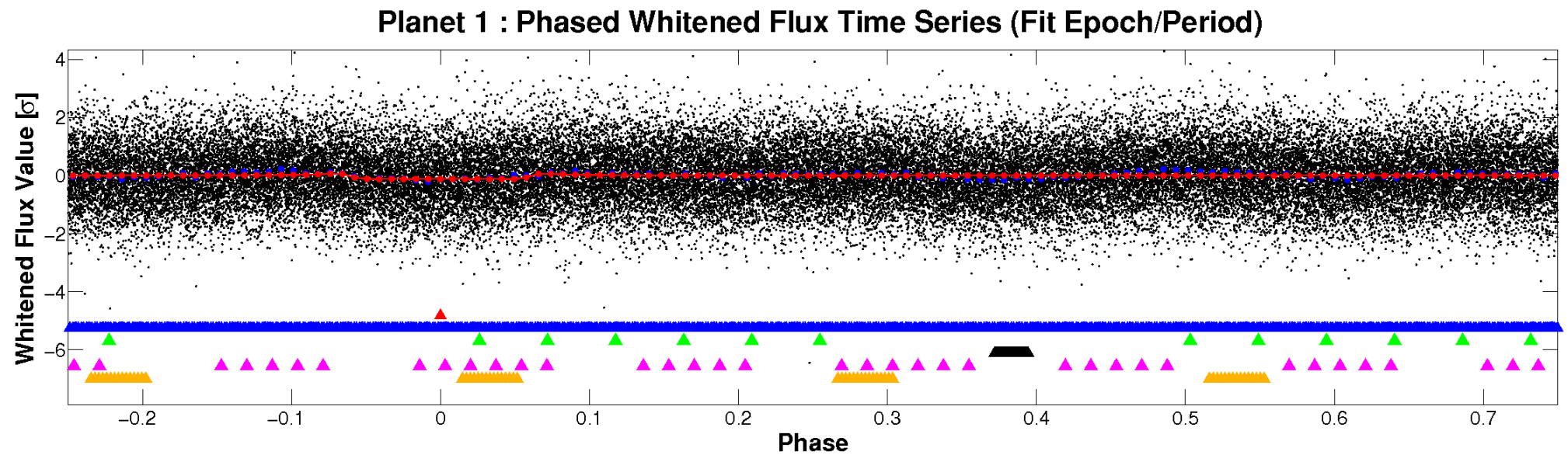
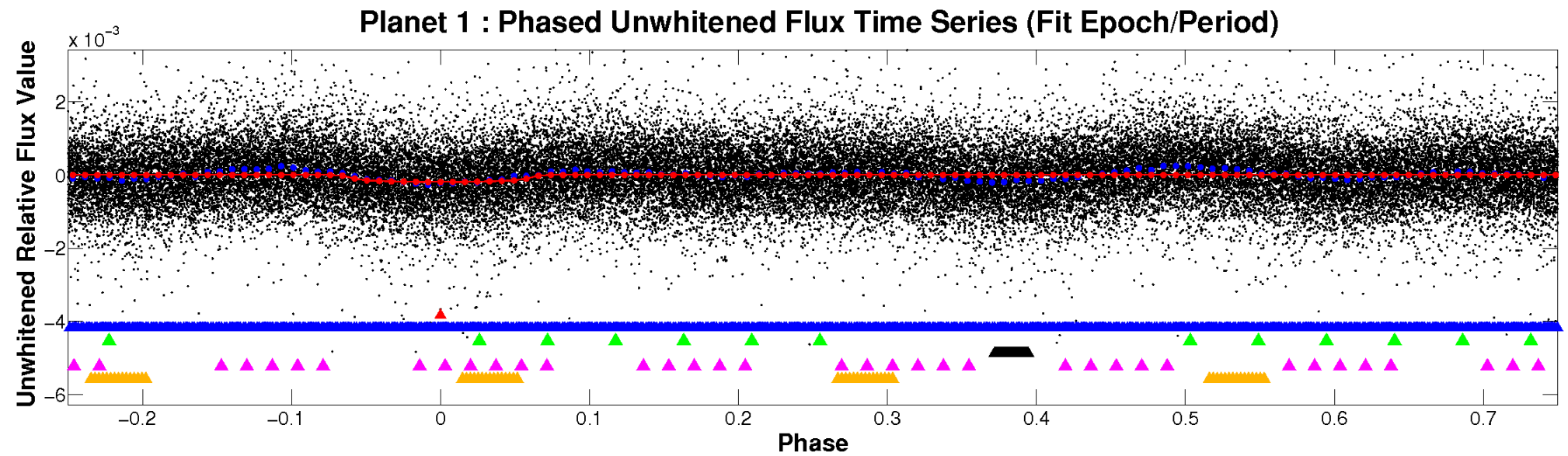


ALT Odd/Even

TCE 003454720-01

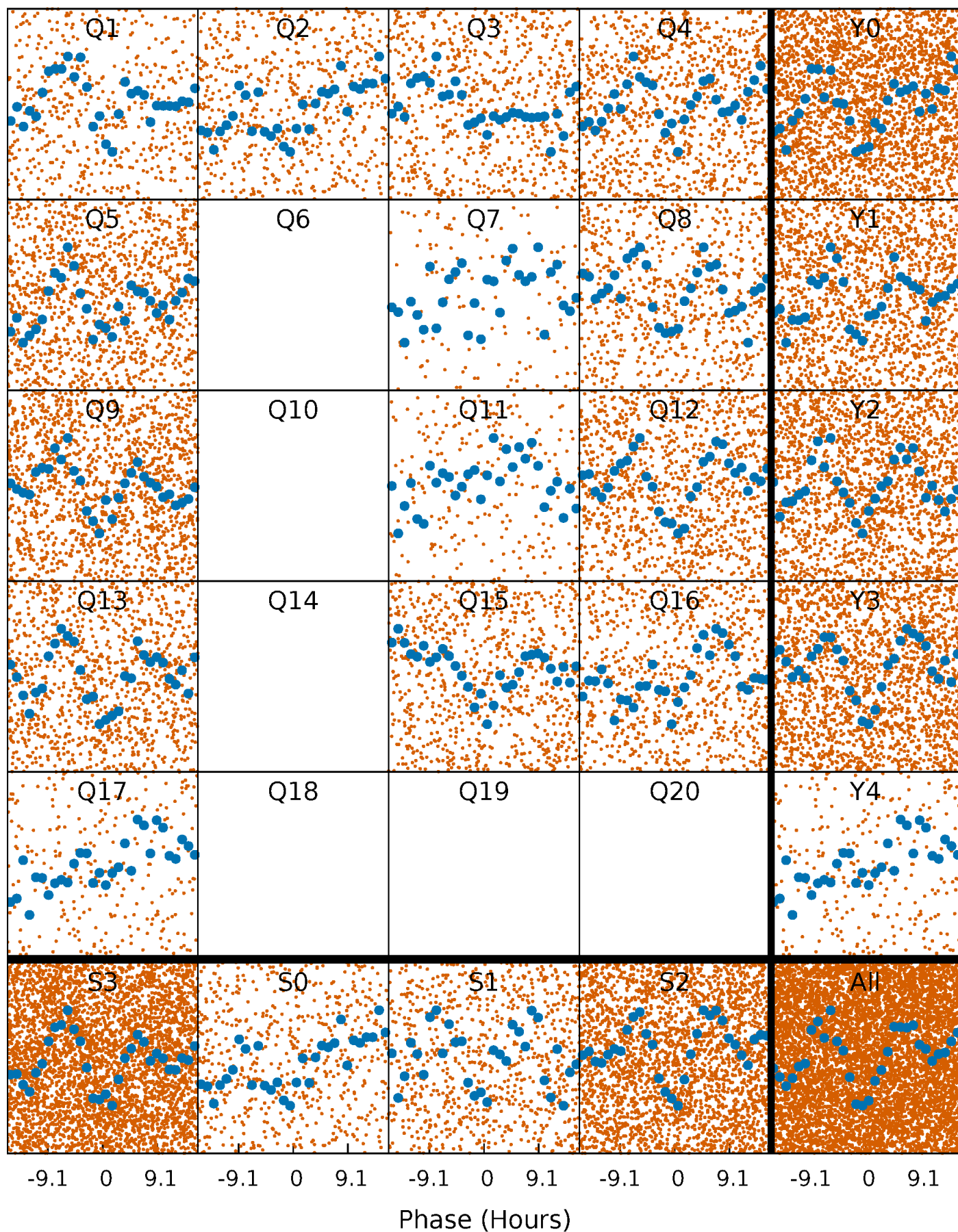


Non-Whitened Vs. Whitened Light Curve



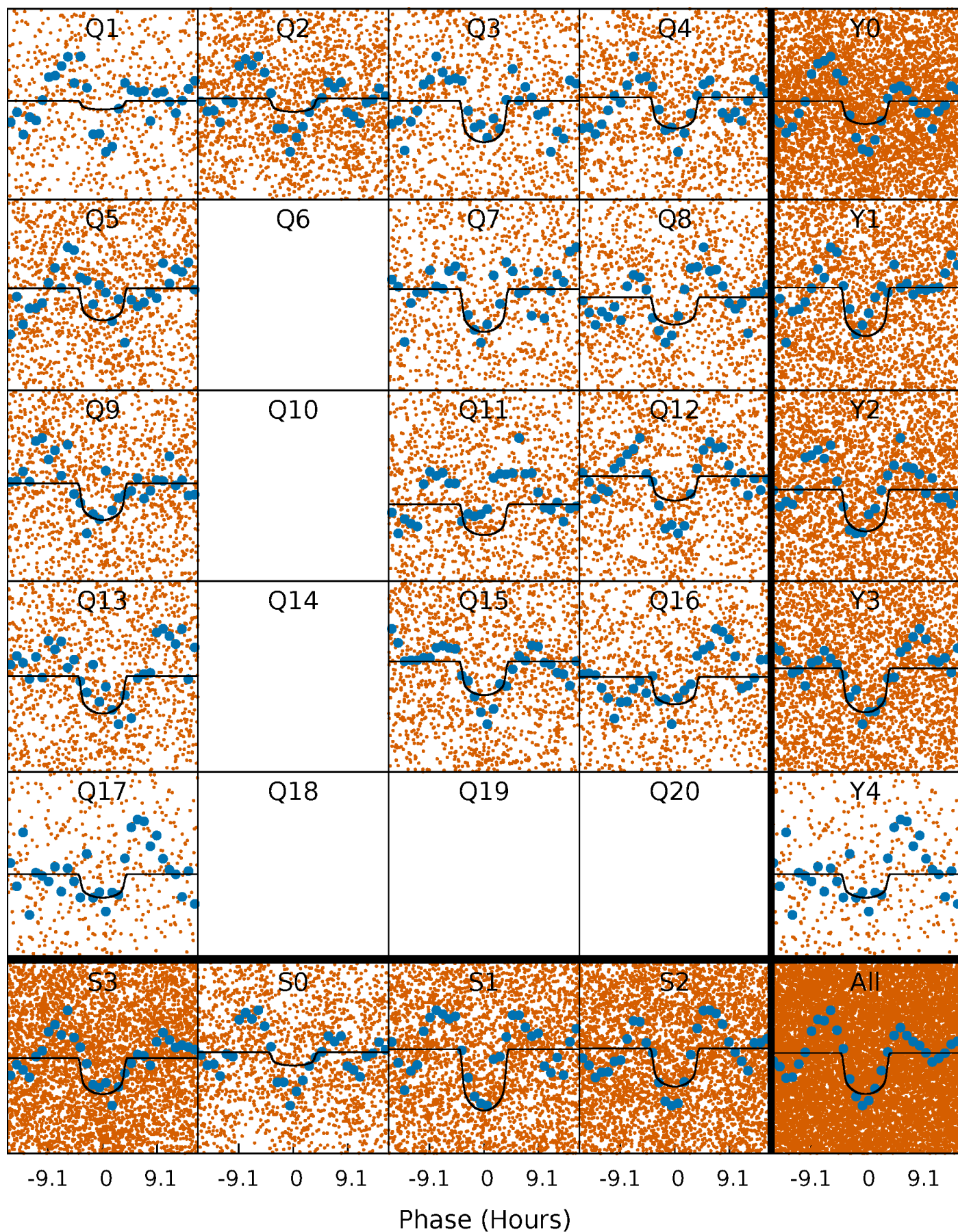
PDC Quarter-Phased Transit Curves

TCE 003454720-01 P= 2.483861 Days $T_0=132.828347$ (BKJD)



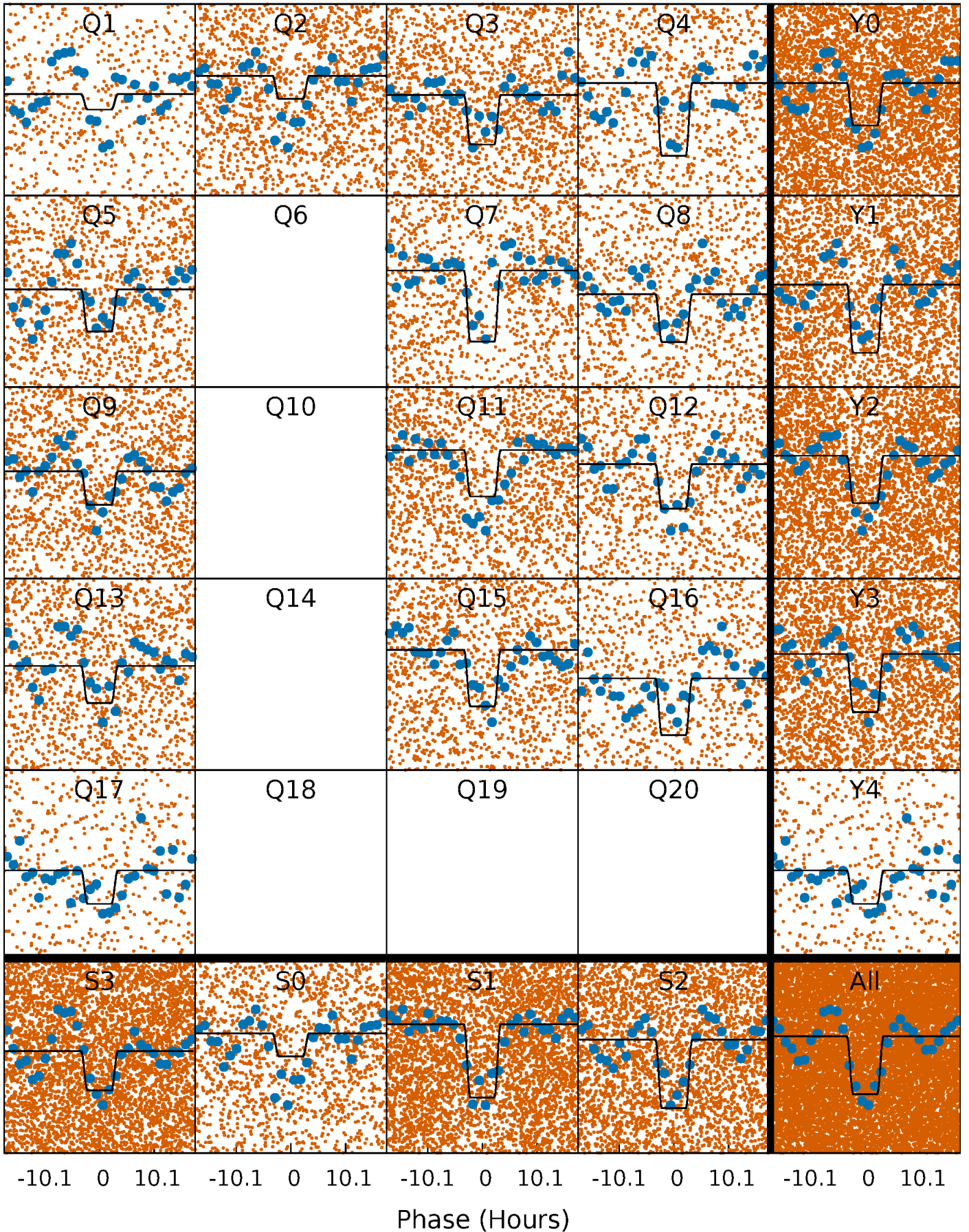
DV Quarter-Phased Transit Curves

TCE 003454720-01 P= 2.483861 Days $T_0=132.828347$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

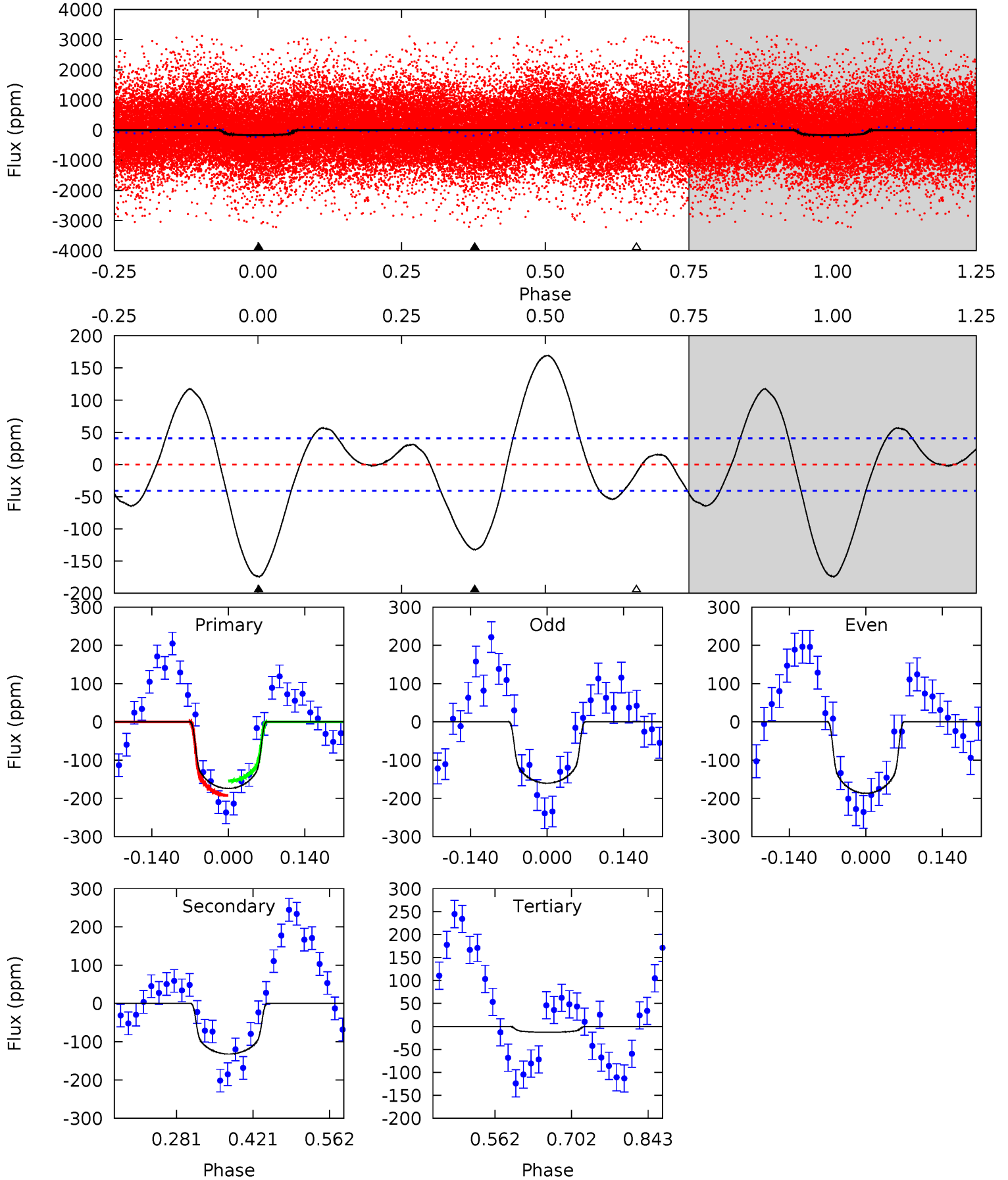
TCE 003454720-01 P= 2.483773 Days $T_0=132.835094$ (BKJD)



DV Model-Shift Uniqueness Test

003454720-01, P = 2.483861 Days, E = 130.344486 Days

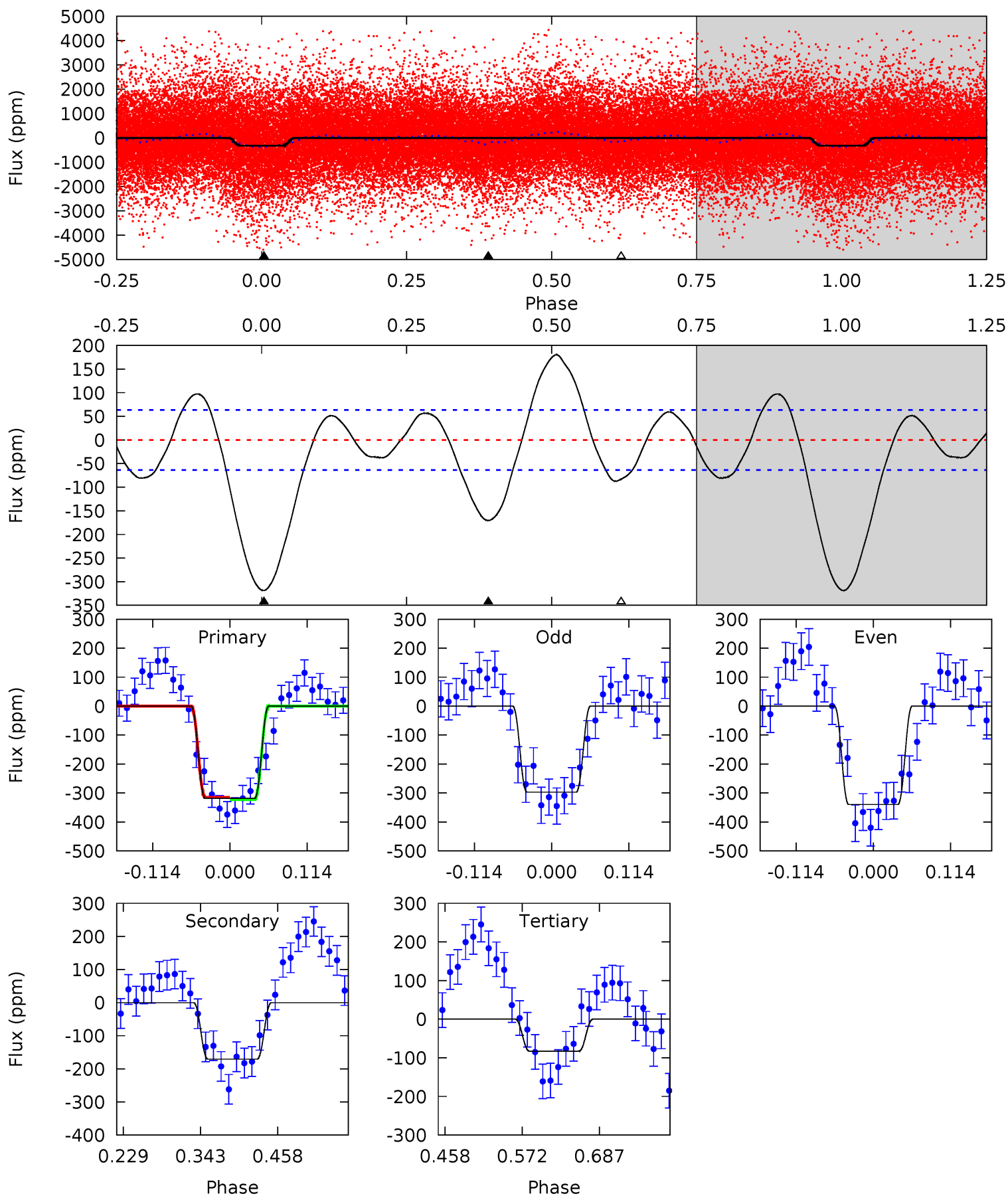
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	14.5	1.42	0	4.49	1.47	5.26	17.7	19.1	13.1	14.5	1.46	0.98	0.49	2.09



Alt Model-Shift Uniqueness Test

003454720-01, P = 2.483773 Days, E = 130.351321 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.7	12.2	5.92	0	4.54	1.58	4.59	16.8	22.7	6.24	12.2	1.52	1.26	0.36	0.25



Stellar Parameters For KIC 003454720

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4696^{+49}_{-70}	$2.454^{+0.115}_{-0.115}$	$-0.180^{+0.150}_{-0.100}$	$12.252^{+1.840}_{-2.990}$	$1.557^{+0.162}_{-0.487}$	$0.001^{+0.001}_{-0.000}$
	+1%/-1%	+5%/-5%	+83%/-56%	+15%/-24%	+10%/-31%	+65%/-34%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003454720-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-132 ± 9	$20.61^{+3.41}_{-3.72}$	4982^{+200}_{-242}	-2462^{+5989}_{-982}	$0.291^{+0.125}_{-0.077}$
Alt.	-171 ± 14	$24.62^{+3.71}_{-4.27}$	4983^{+227}_{-245}	-2986^{+6207}_{-550}	$0.263^{+0.099}_{-0.060}$

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

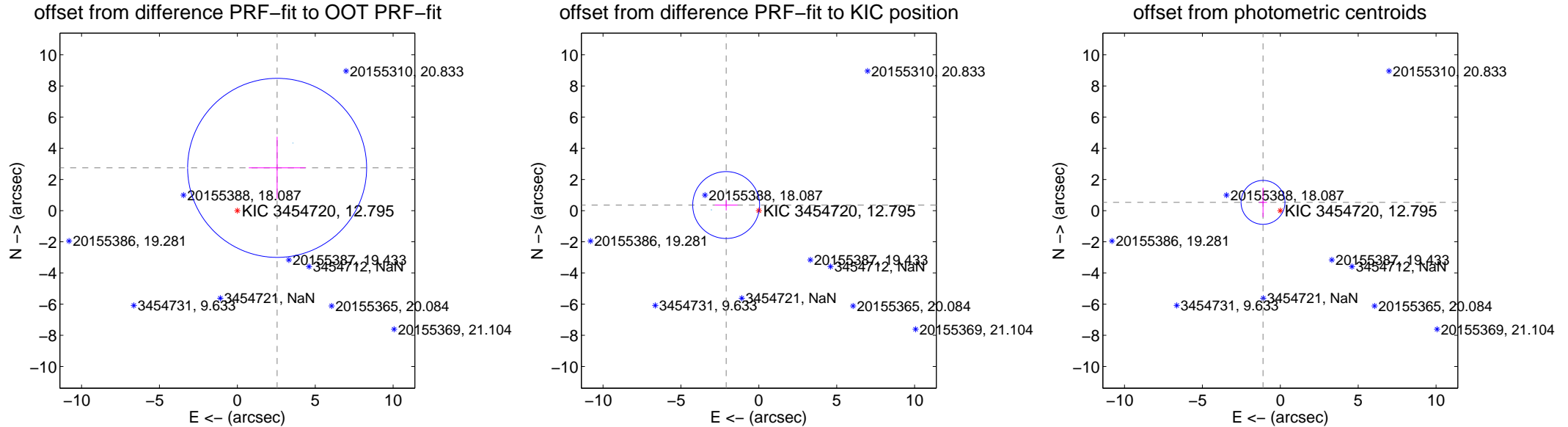
DV Centroid Data

Supplemental centroid analysis for 003454720-01. Kepler magnitude: 12.79. Transit SNR 9.61

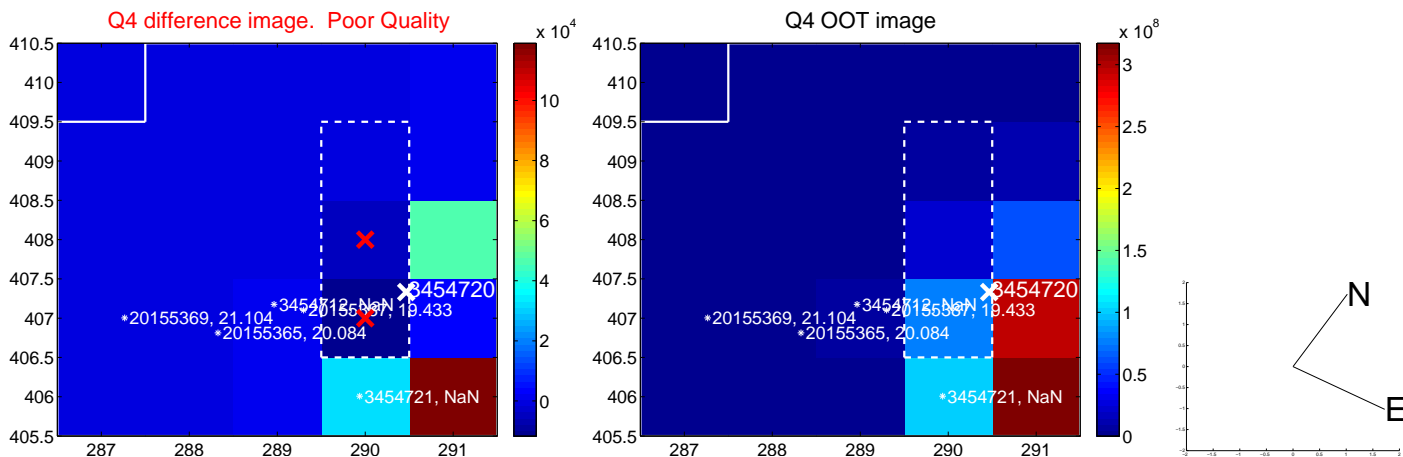
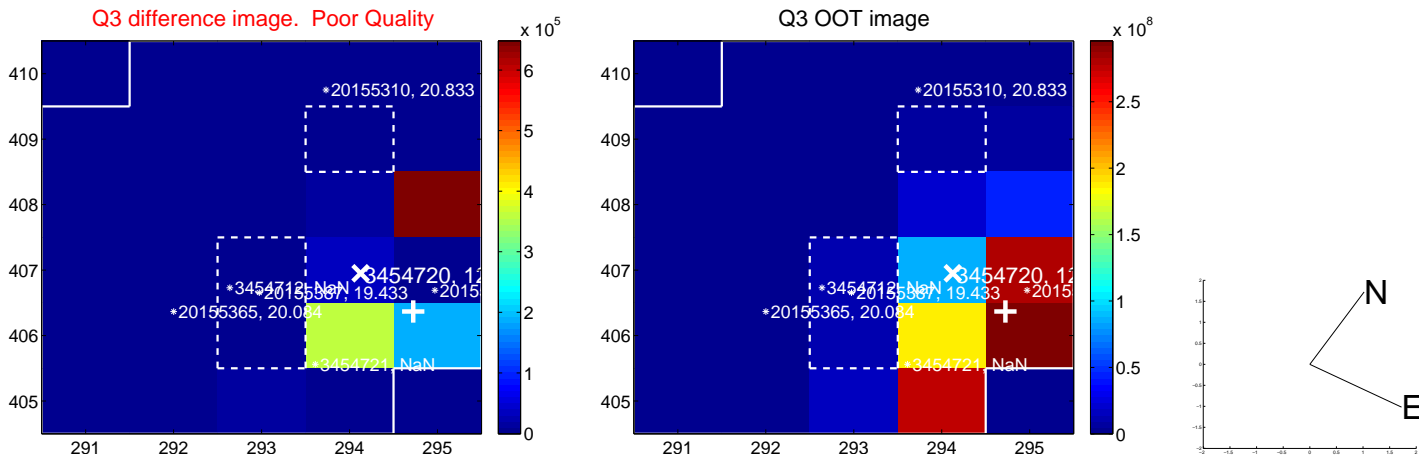
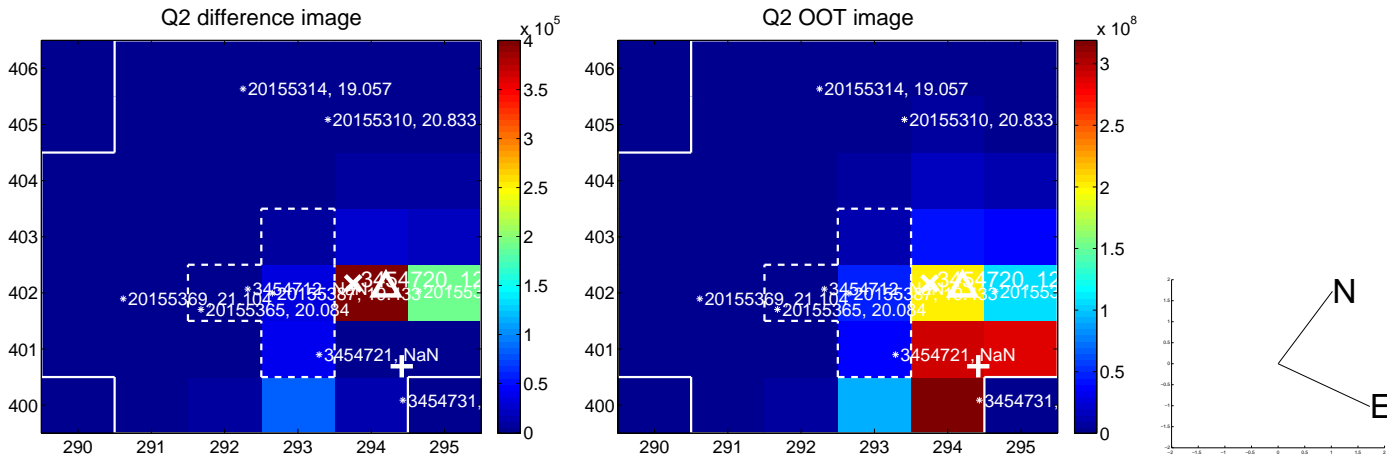
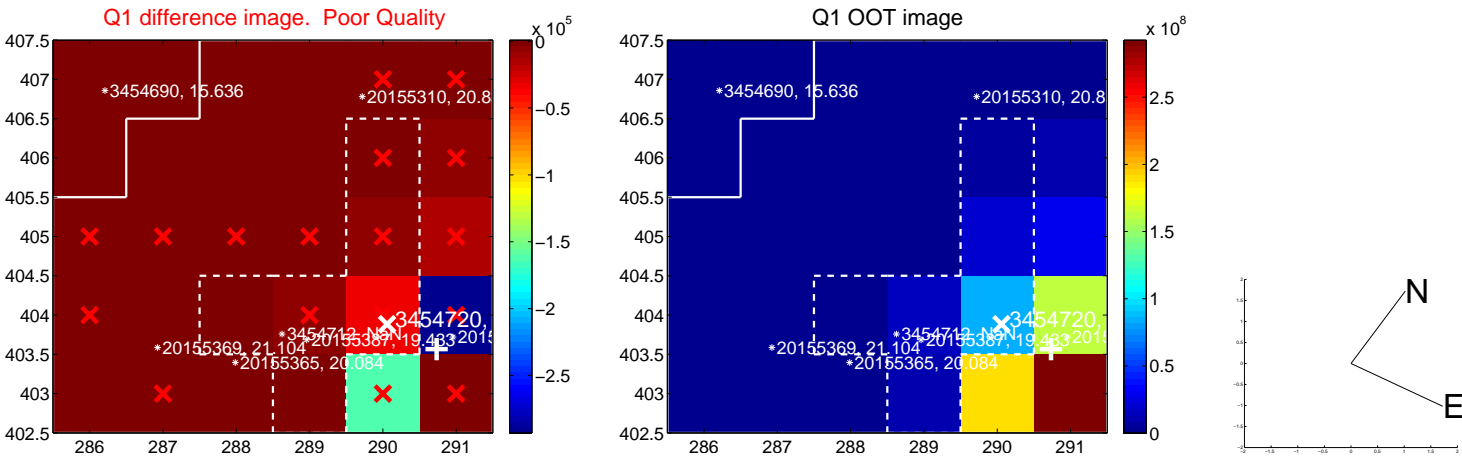
There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 3.33 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

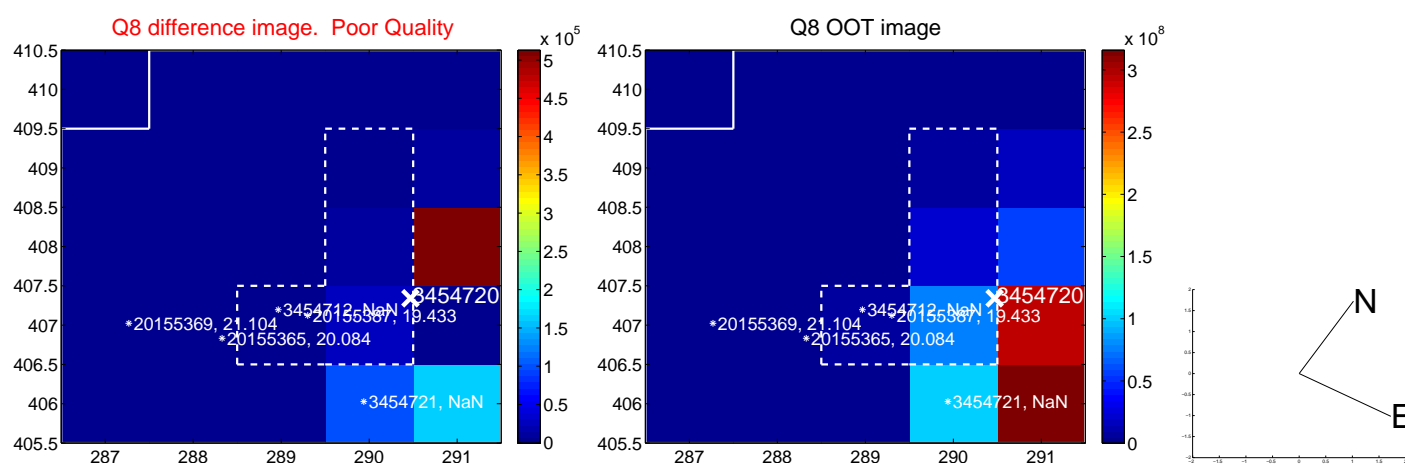
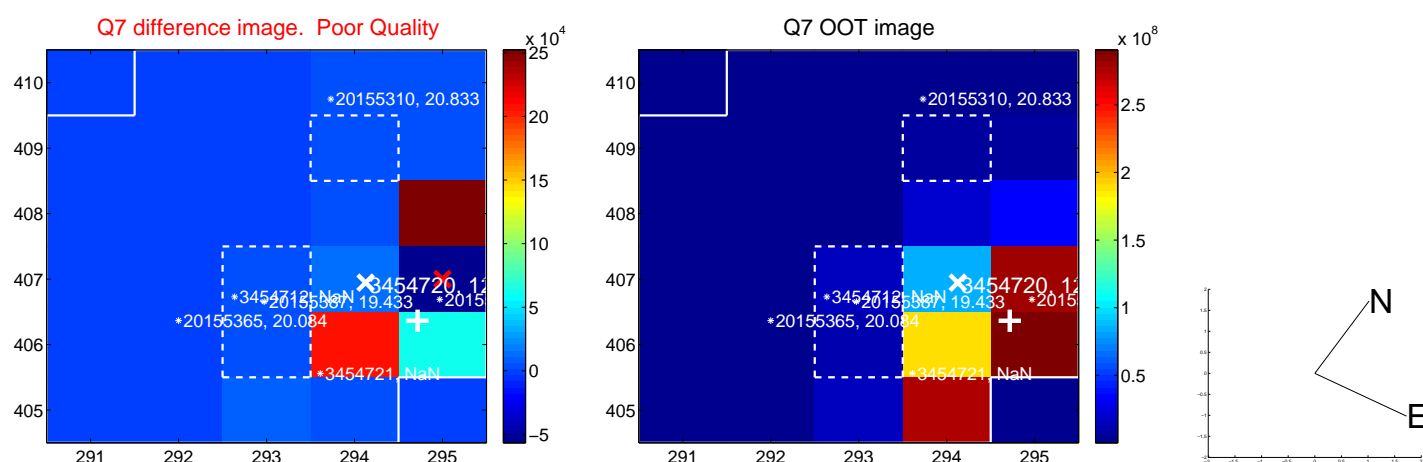
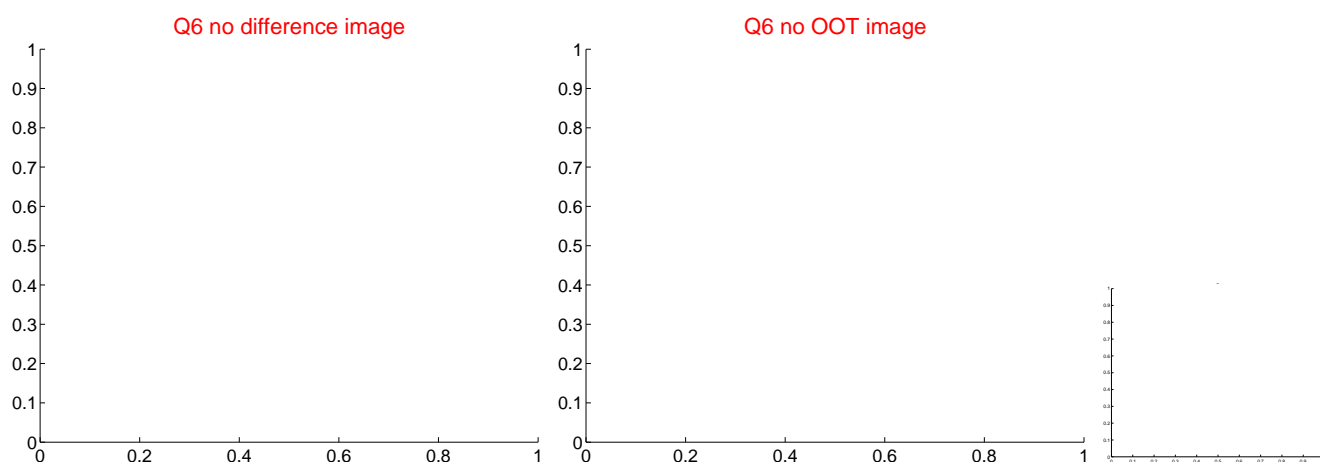
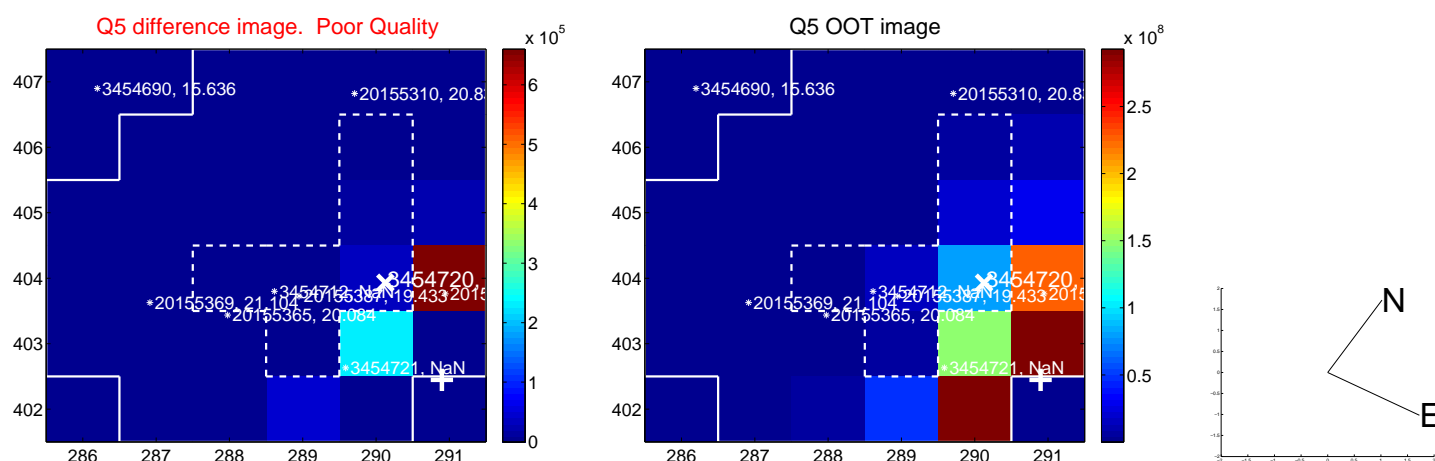
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.750 ± 1.915	1.96	-2.555 ± 1.816	2.745 ± 1.997
PRF-fit source offset from KIC position	2.128 ± 0.715	2.97	2.097 ± 0.723	0.359 ± 0.344
photometric centroid source offset	1.23 ± 0.47	2.62	1.11 ± 0.26	0.53 ± 0.95



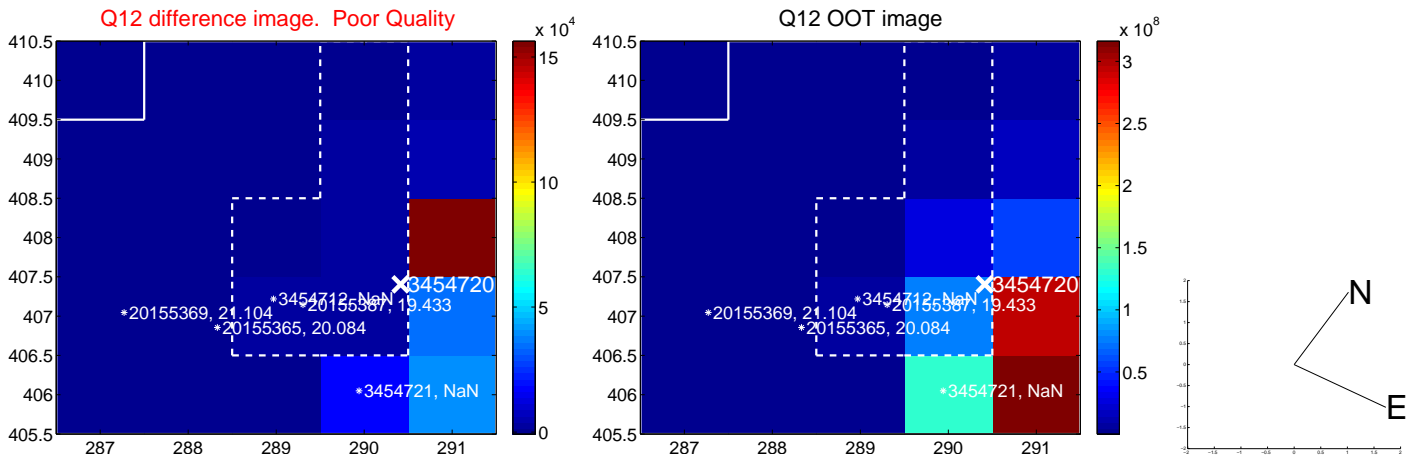
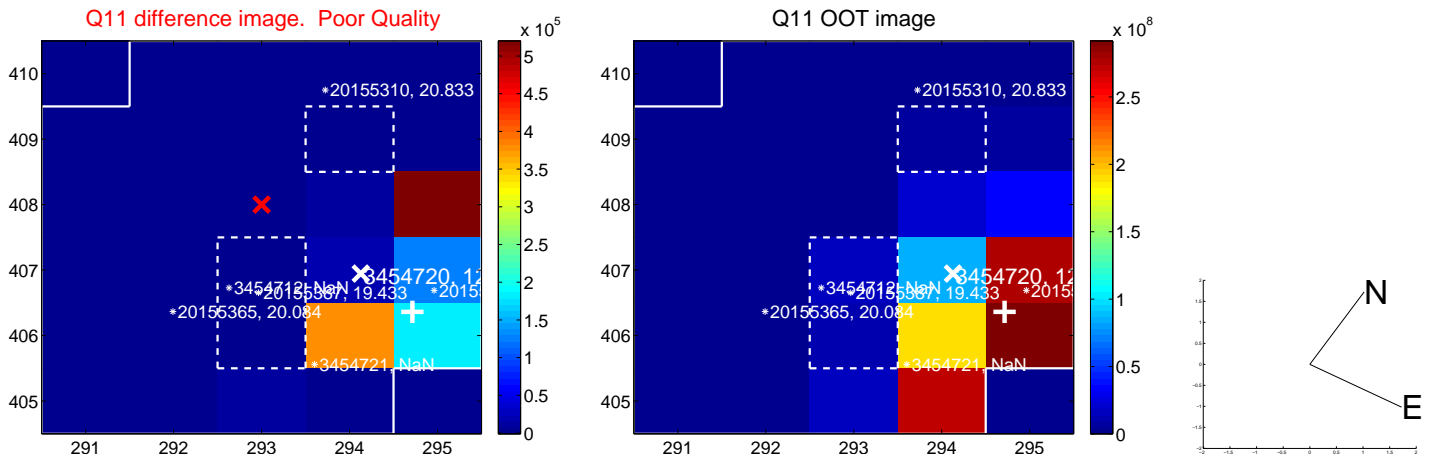
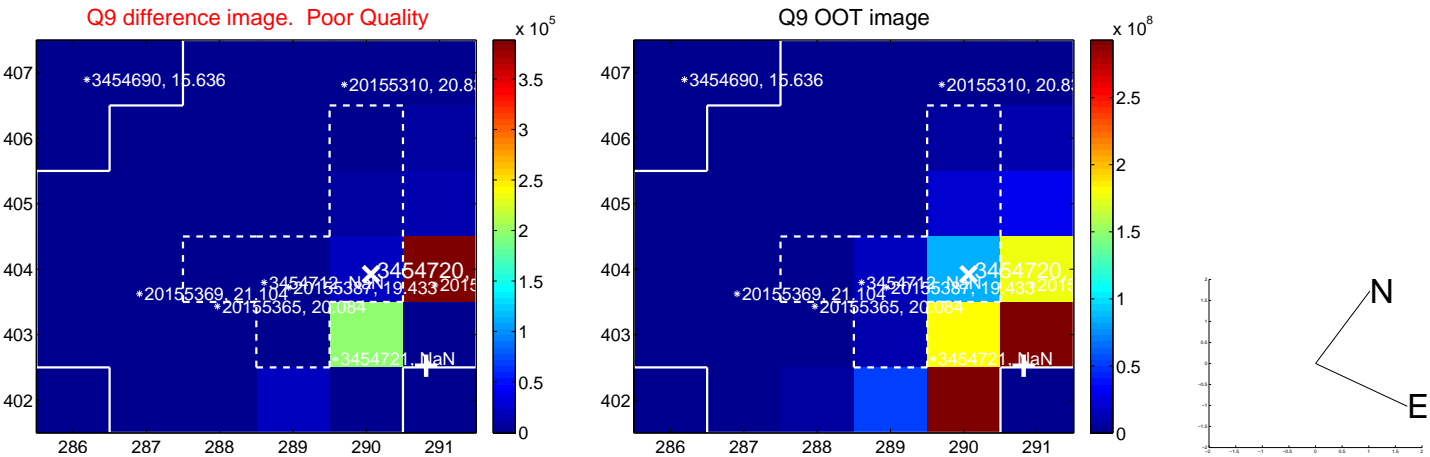
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



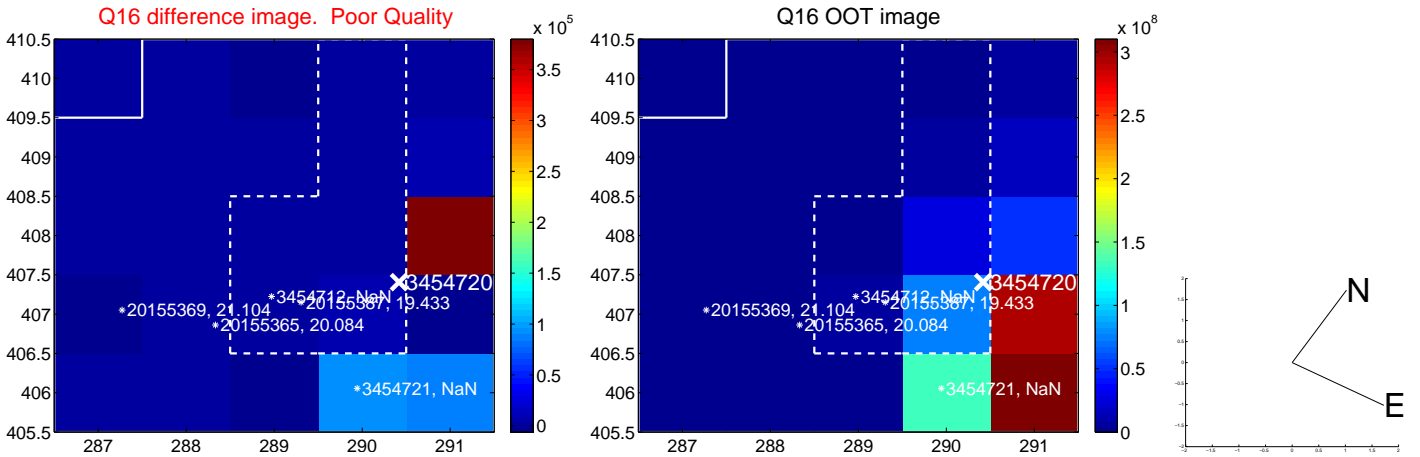
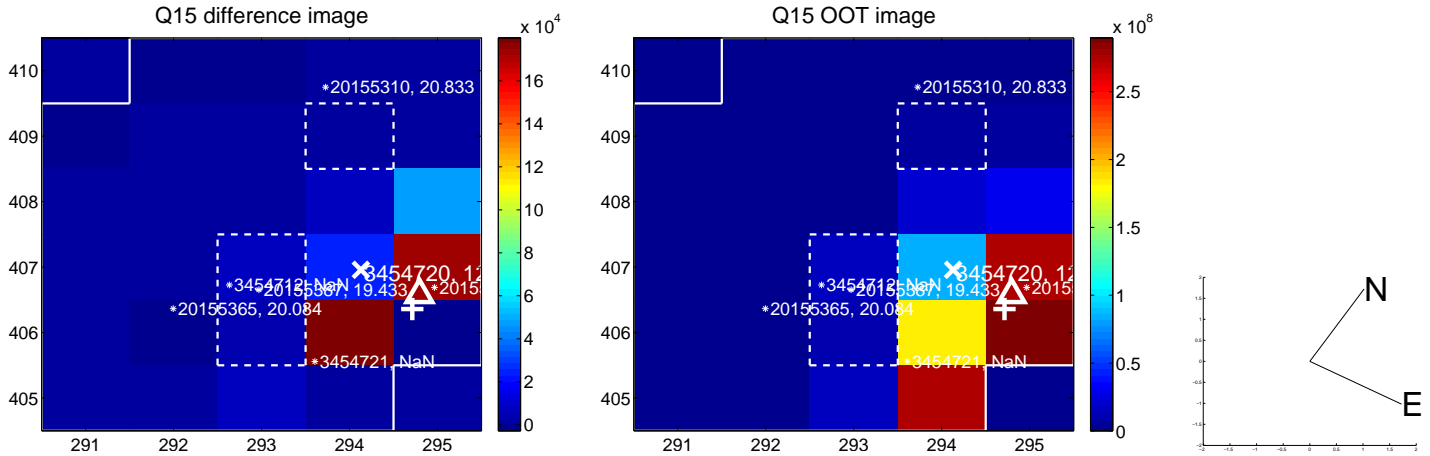
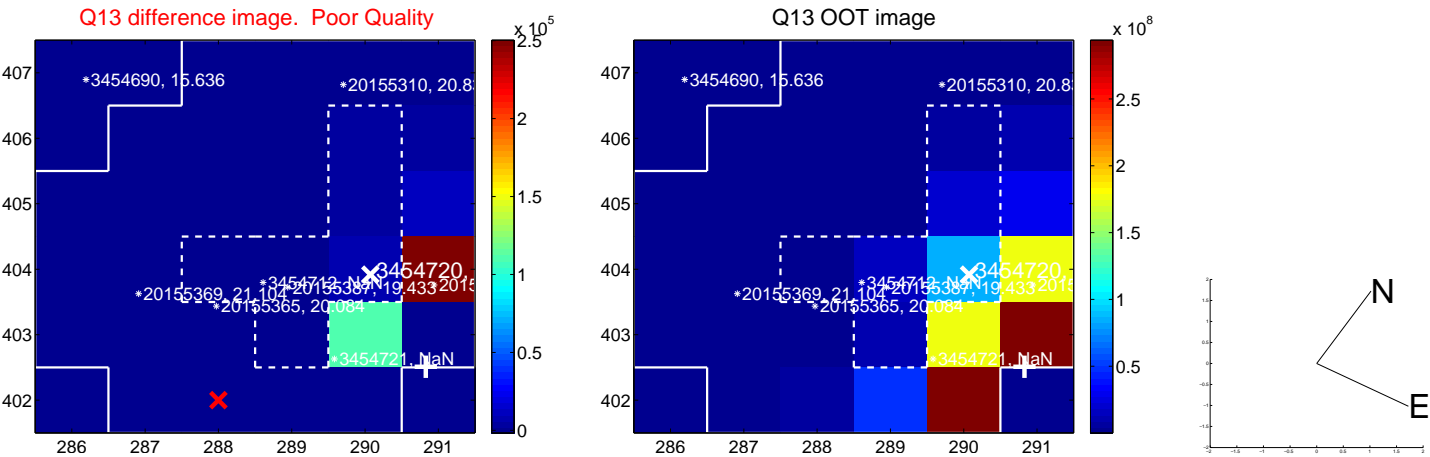
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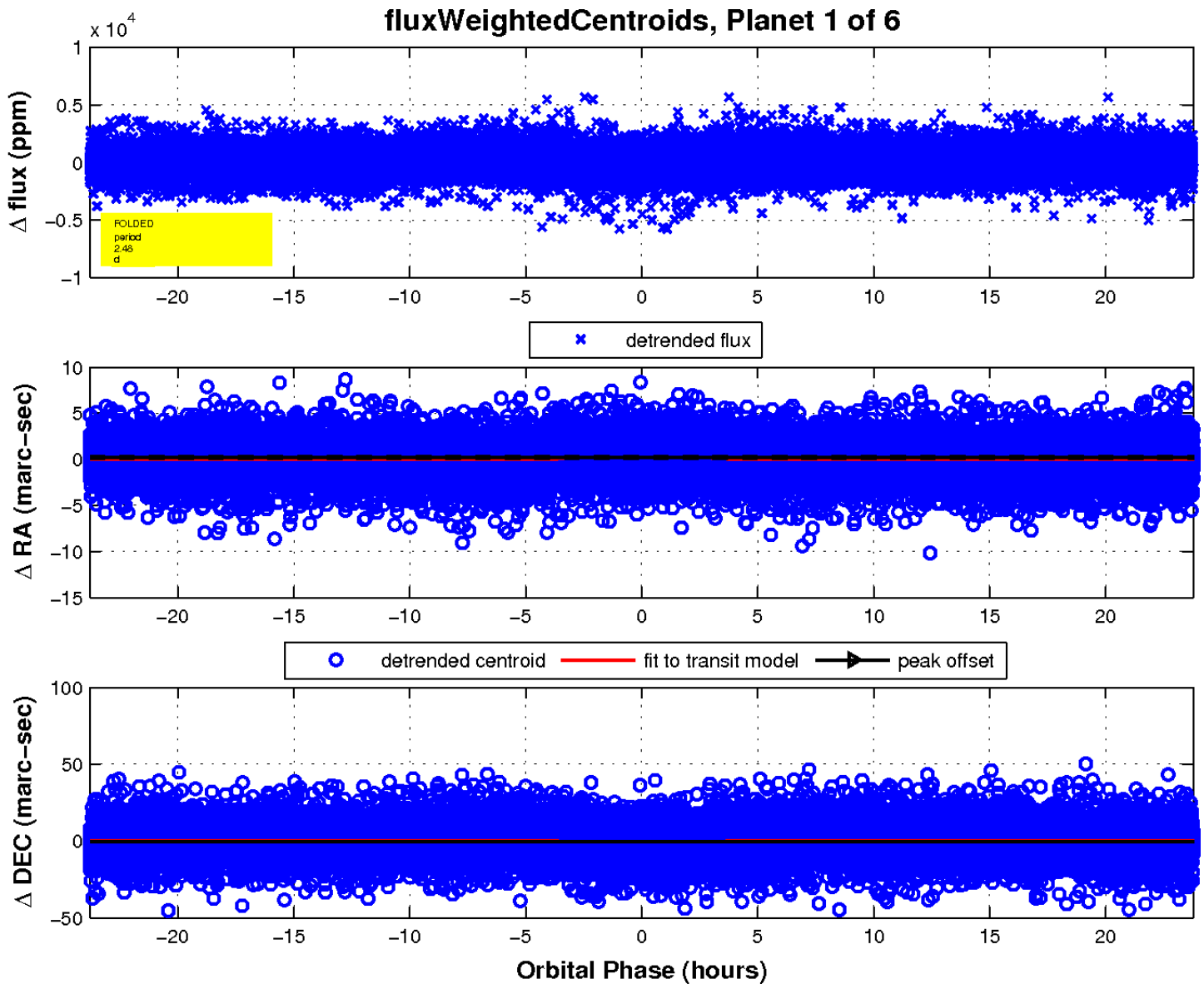
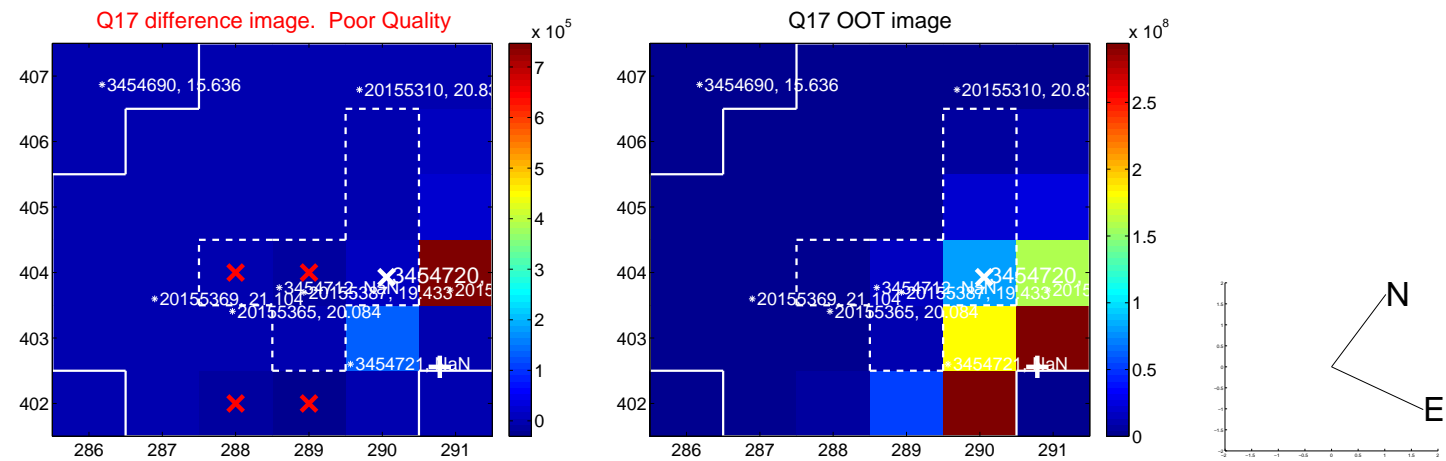
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

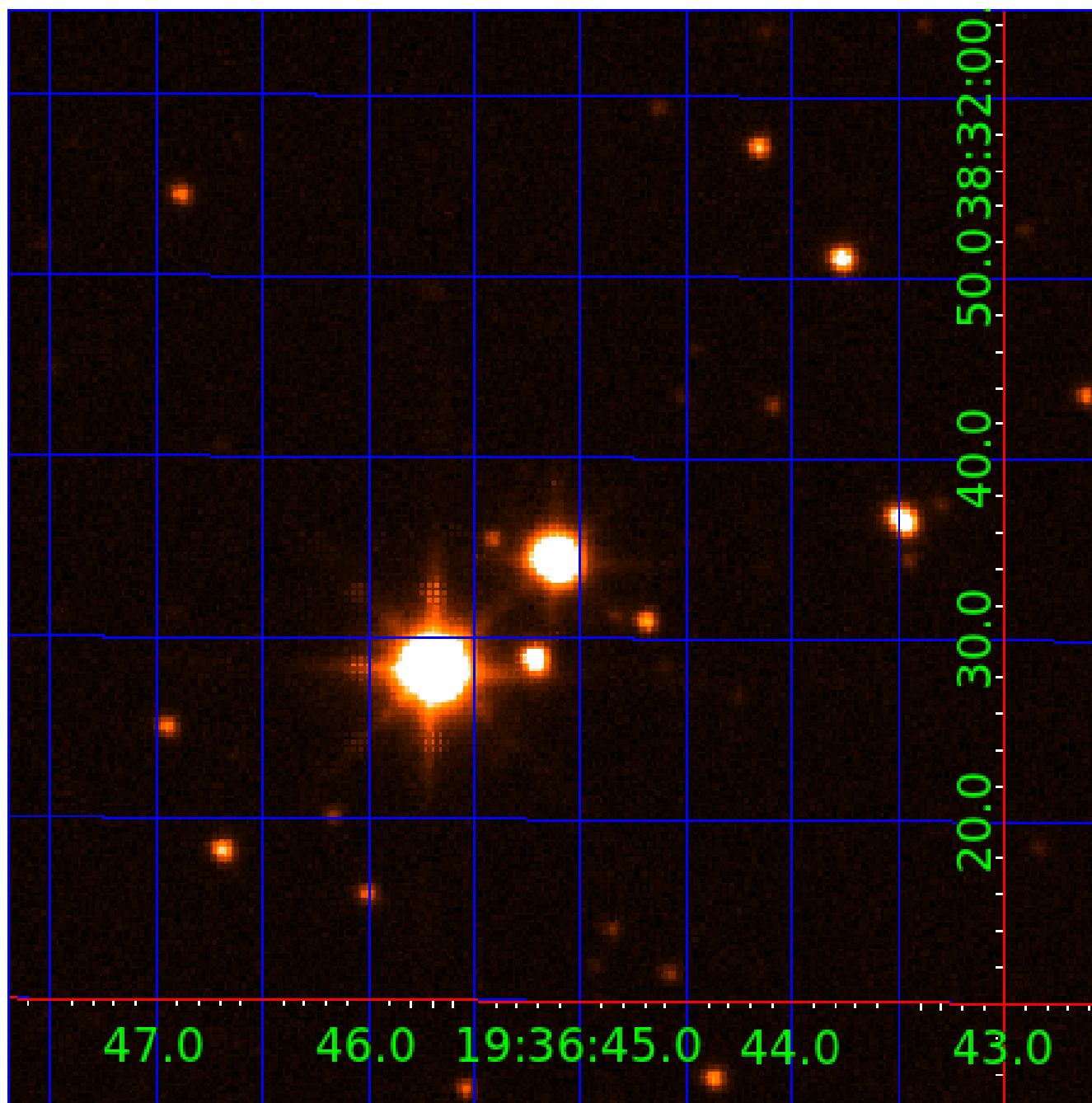


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003454720

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})
003454720-01	OBS	No	2.483861	132.828347	190.9	7.932	9.0	9.6	12.25	4696	20.74	0.00
003454720-02	OBS	No	2.136748	132.960541	223.8	5.190	10.0	10.4	12.25	4696	22.54	0.00
003454720-03	OBS	No	110.588600	228.465232	997.3	12.496	7.6	7.9	12.25	4696	46.10	239.33
003454720-04	OBS	No	2.483958	133.751781	218.7	10.066	9.2	10.2	12.25	4696	33.23	0.00
003454720-05	OBS	No	39.038170	148.400409	1359.1	13.918	9.2	9.9	12.25	4696	91.80	959.31
003454720-06	OBS	No	24.219281	142.800536	227.6	6.000	7.8	-1.0	12.25	4696	17.78	1812.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003454720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
003454720-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
003454720-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

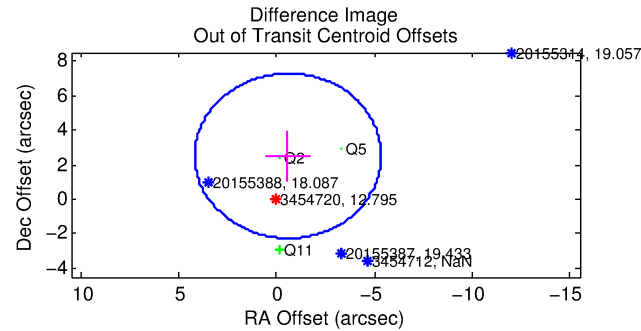
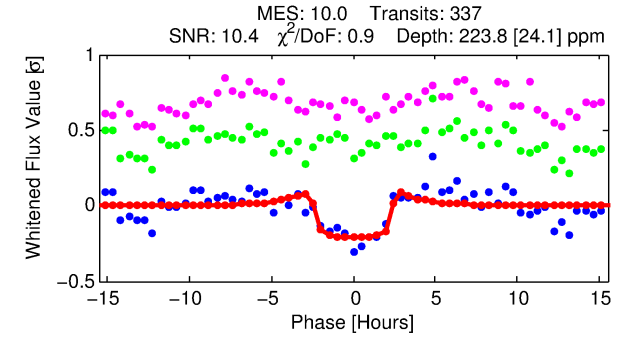
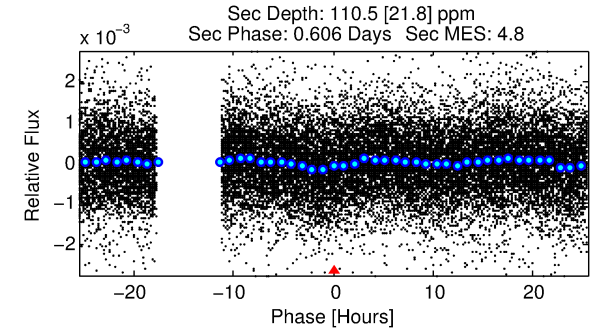
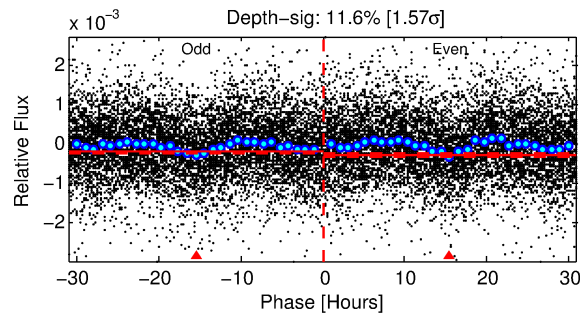
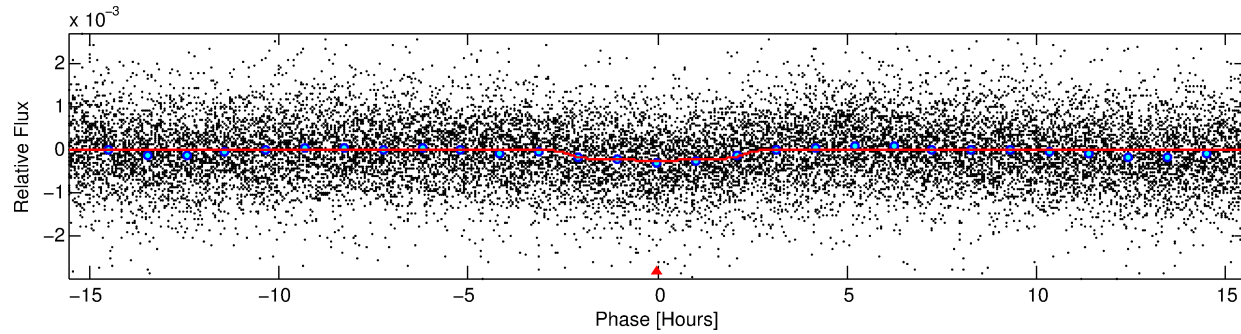
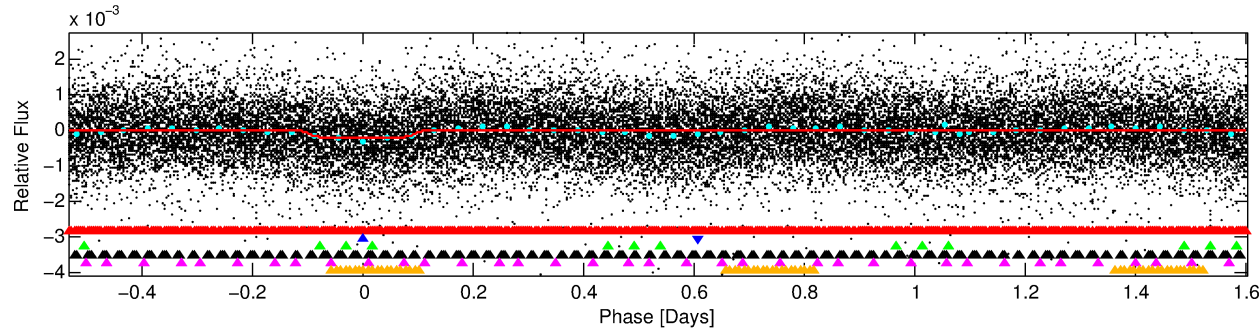
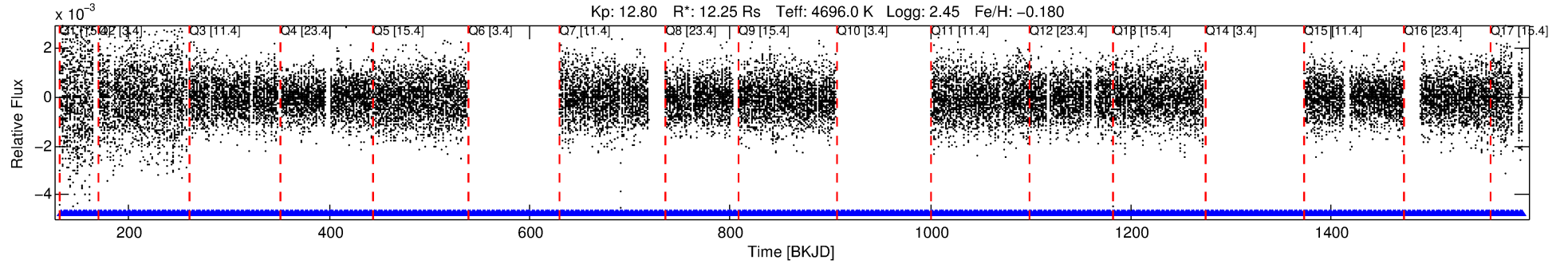
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003454720-02

No Significant Match Found

DV One-Page Summary

KIC: 3454720 Candidate: 2 of 6 Period: 2.137 d



DV Fit Results:

Period = 2.13675 [0.00002] d
Epoch = 132.9605 [0.0044] BKJD
Rp/R* = 0.0169 [0.0040]
a/R* = 1.75 [1.03]
b = 0.90 [0.18]
Seff = N/A
Teq = N/A
Rp = 22.54 [7.65] Re
a = N/A
Ag = N/A
Teffp = N/A

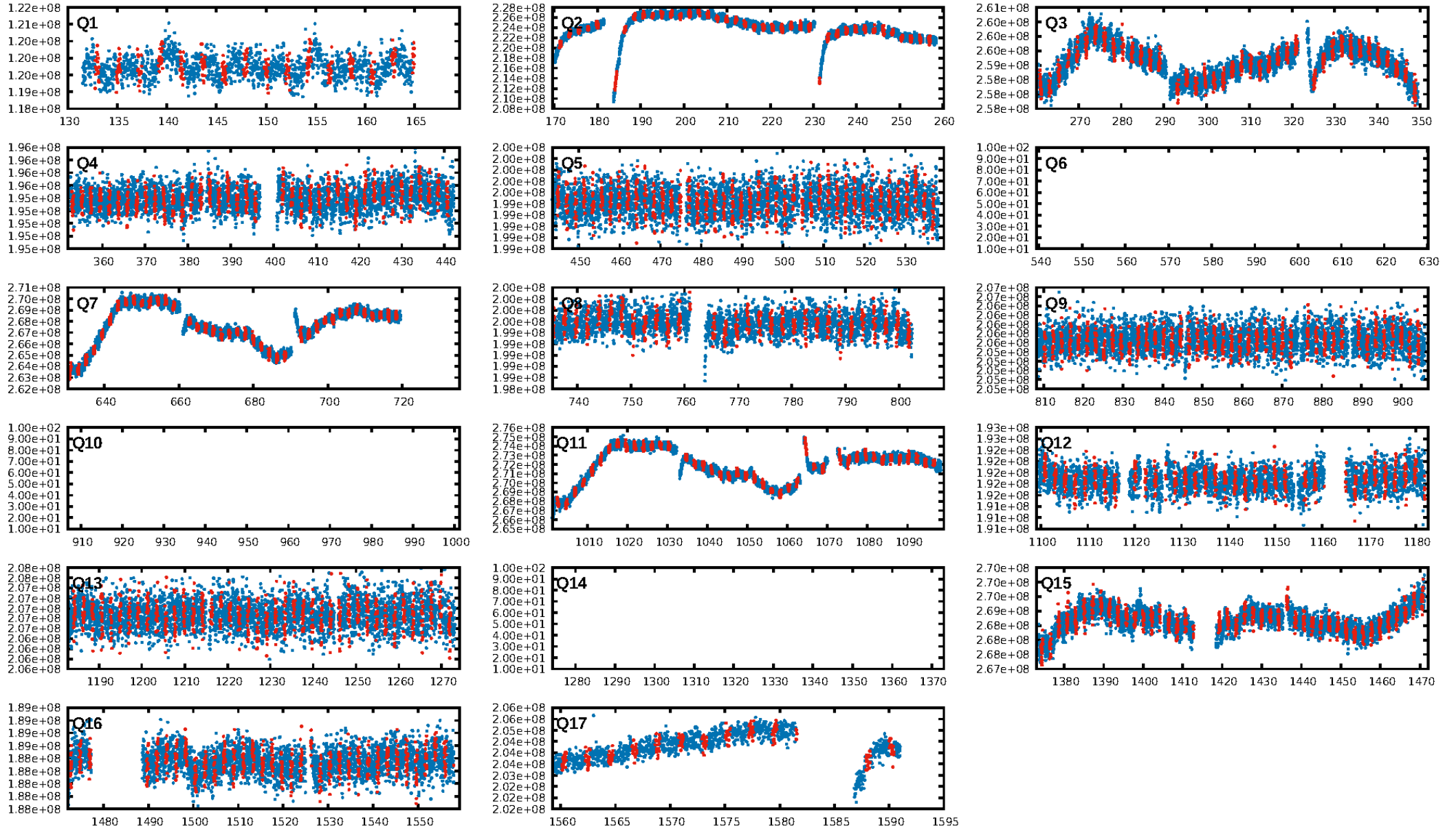
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 62.1% [0.88 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [318/318]
GhostDiagnostic-chr: -0.9395
Centroid-sig: 0.0%
Centroid-so: 1.172 arcsec [3.96 σ]
OotOffset-rm: 2.572 arcsec [1.62 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-rm: 3.157 arcsec [9.28 σ]
KicOffset-st: 1/1/0/1 [3]
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DiffImageOverlap-fno: 1.00 [14/14]

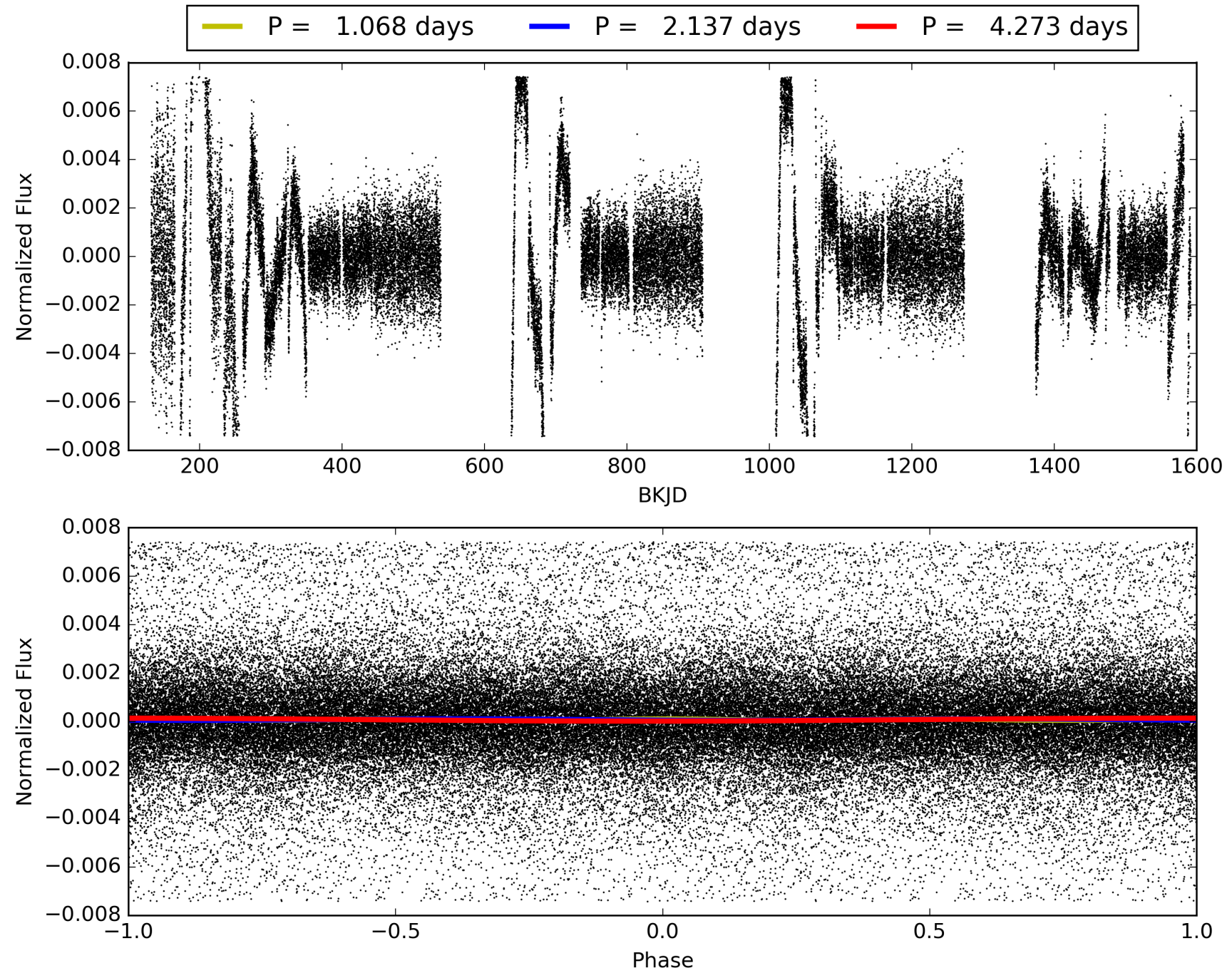
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:12:58 Z

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

TCE 003454720-02, PDC Light Curves

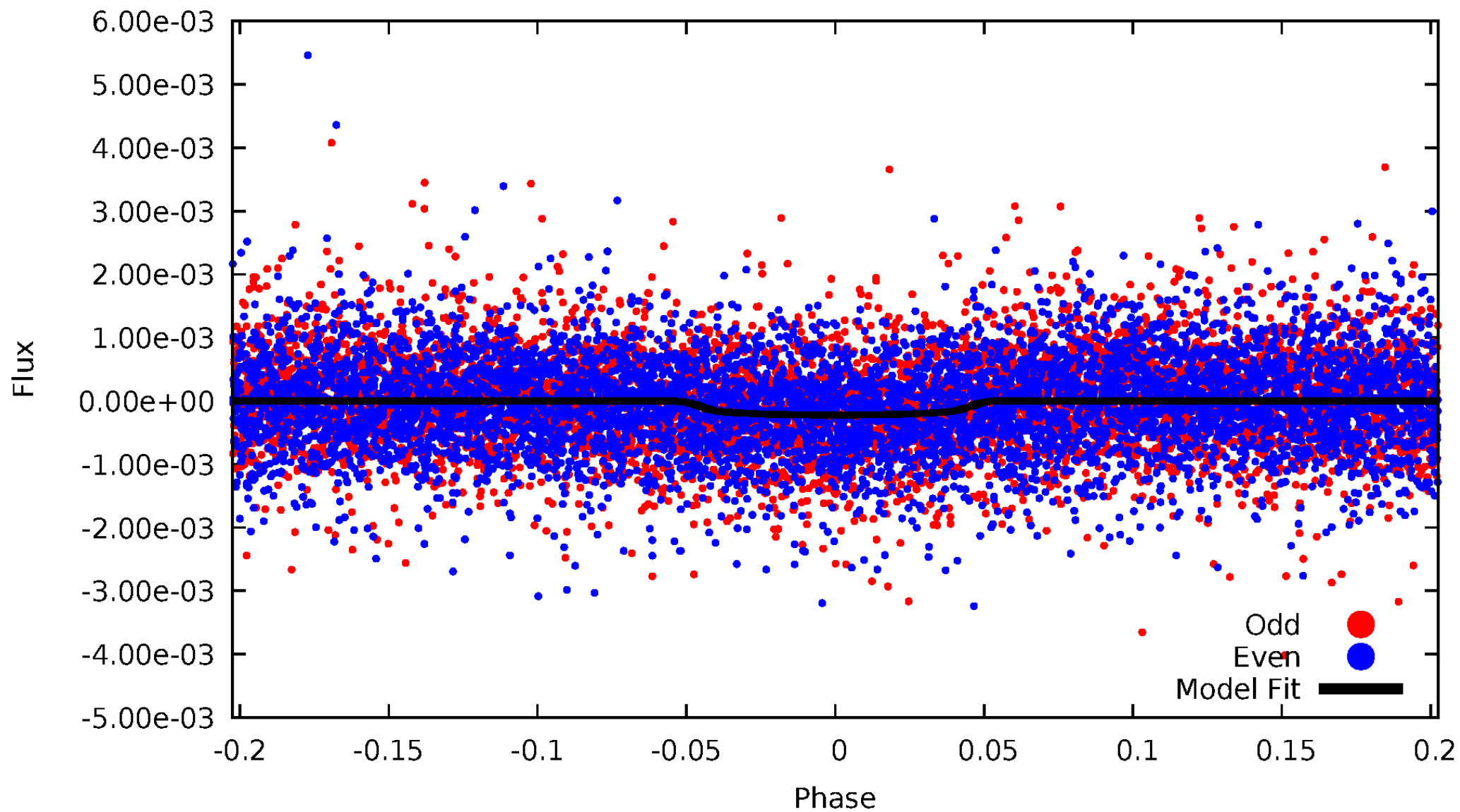


TCE 003454720-02



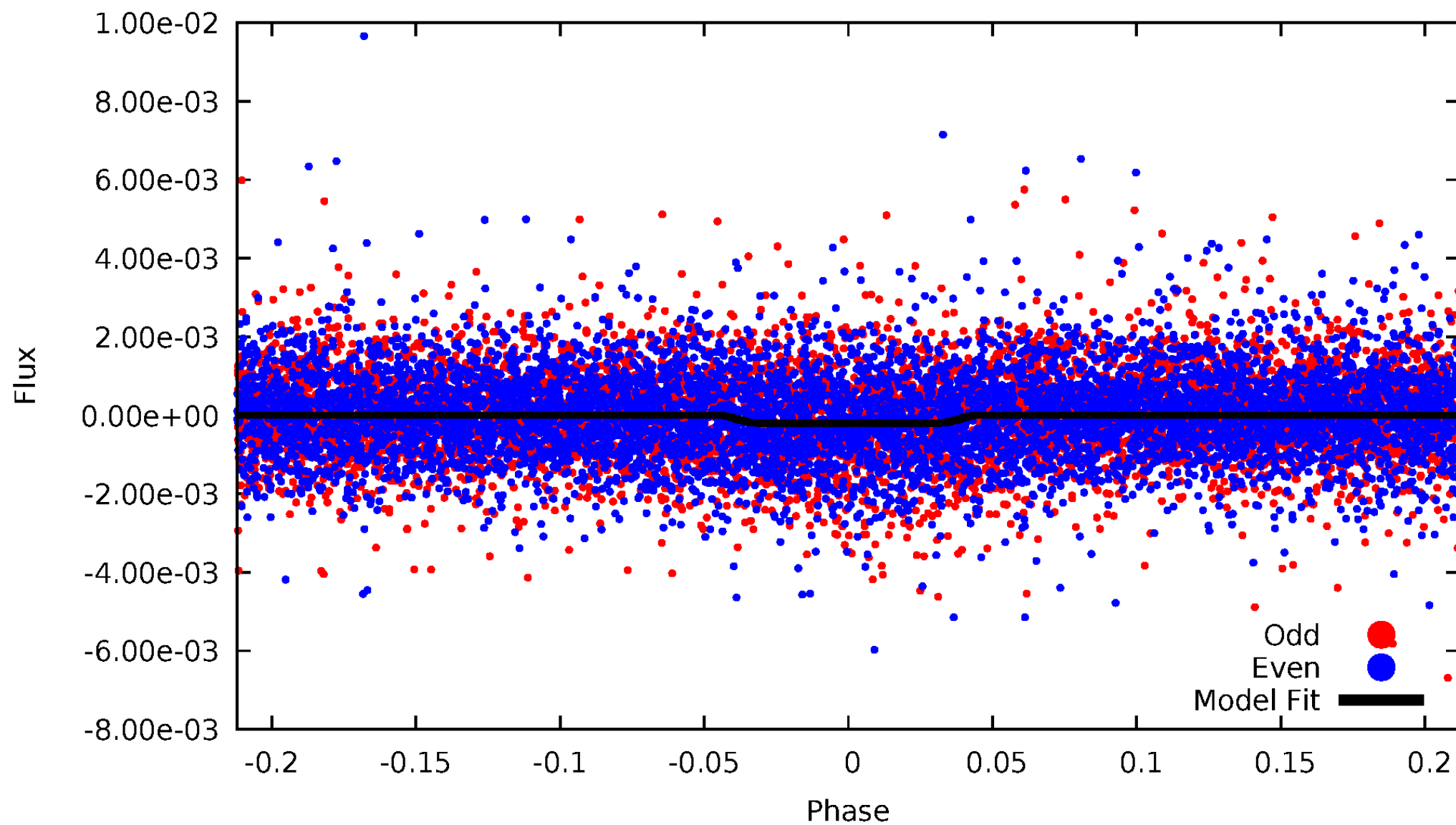
DV Odd/Even

TCE 003454720-02



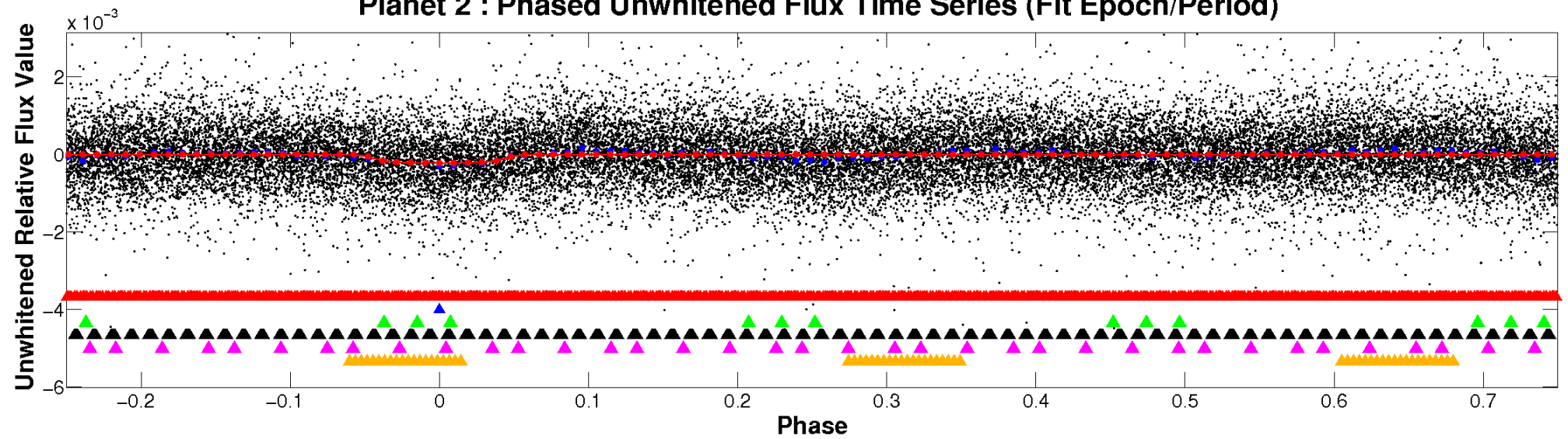
ALT Odd/Even

TCE 003454720-02

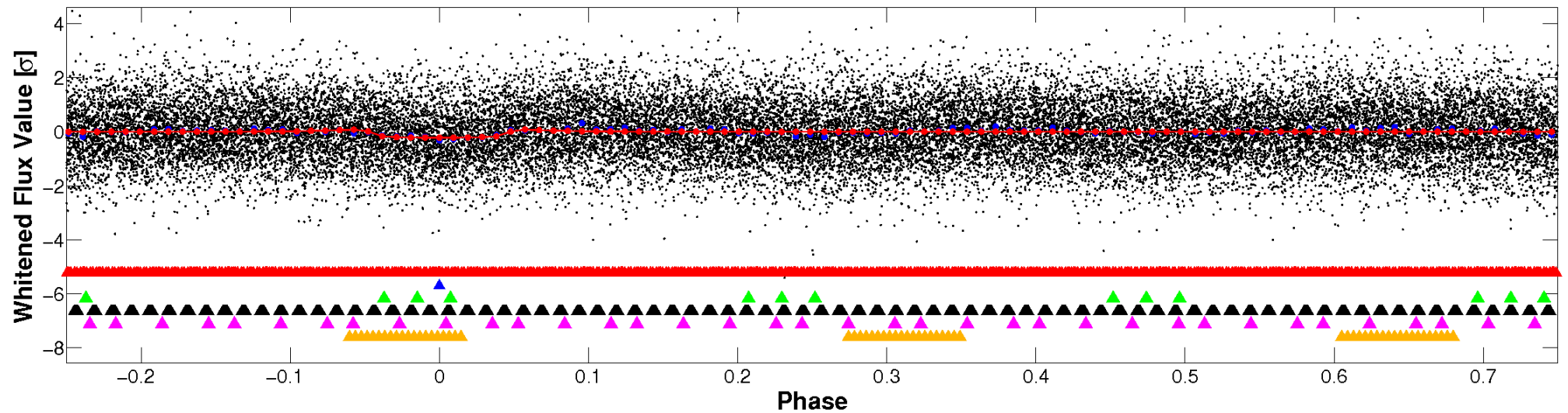


Non-Whitened Vs. Whitened Light Curve

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

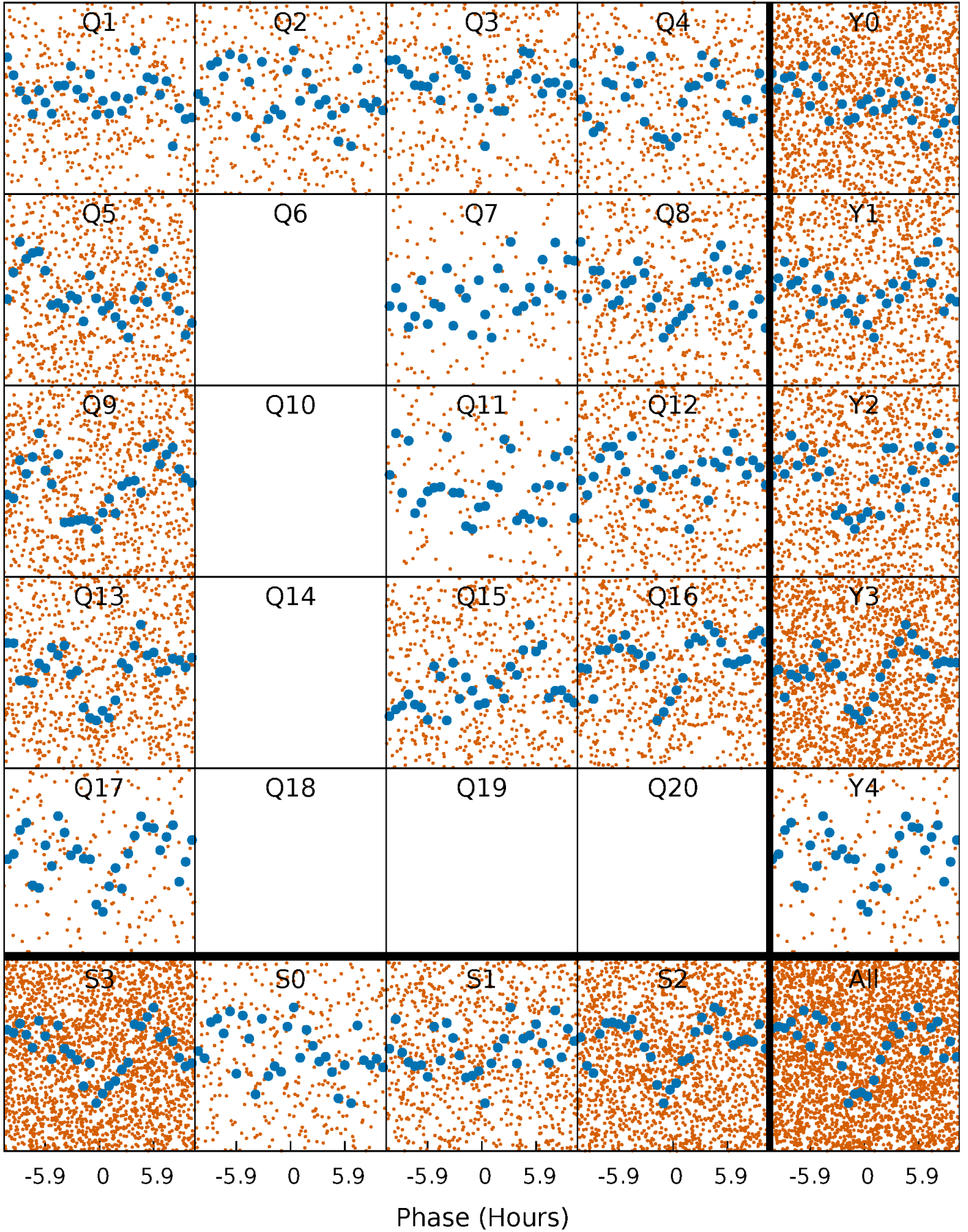


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



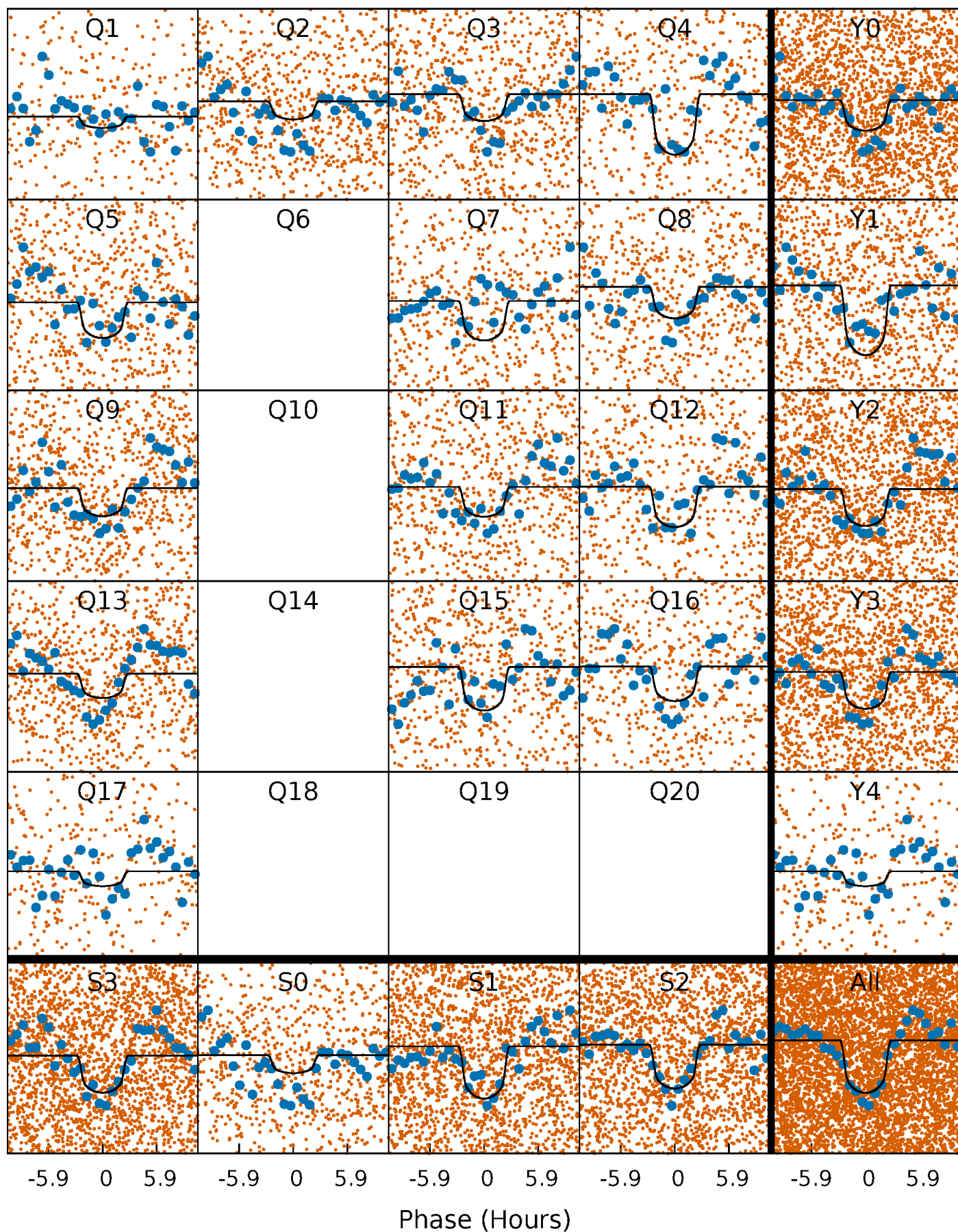
PDC Quarter-Phased Transit Curves

TCE 003454720-02 P= 2.136748 Days $T_0=132.960541$ (BKJD)



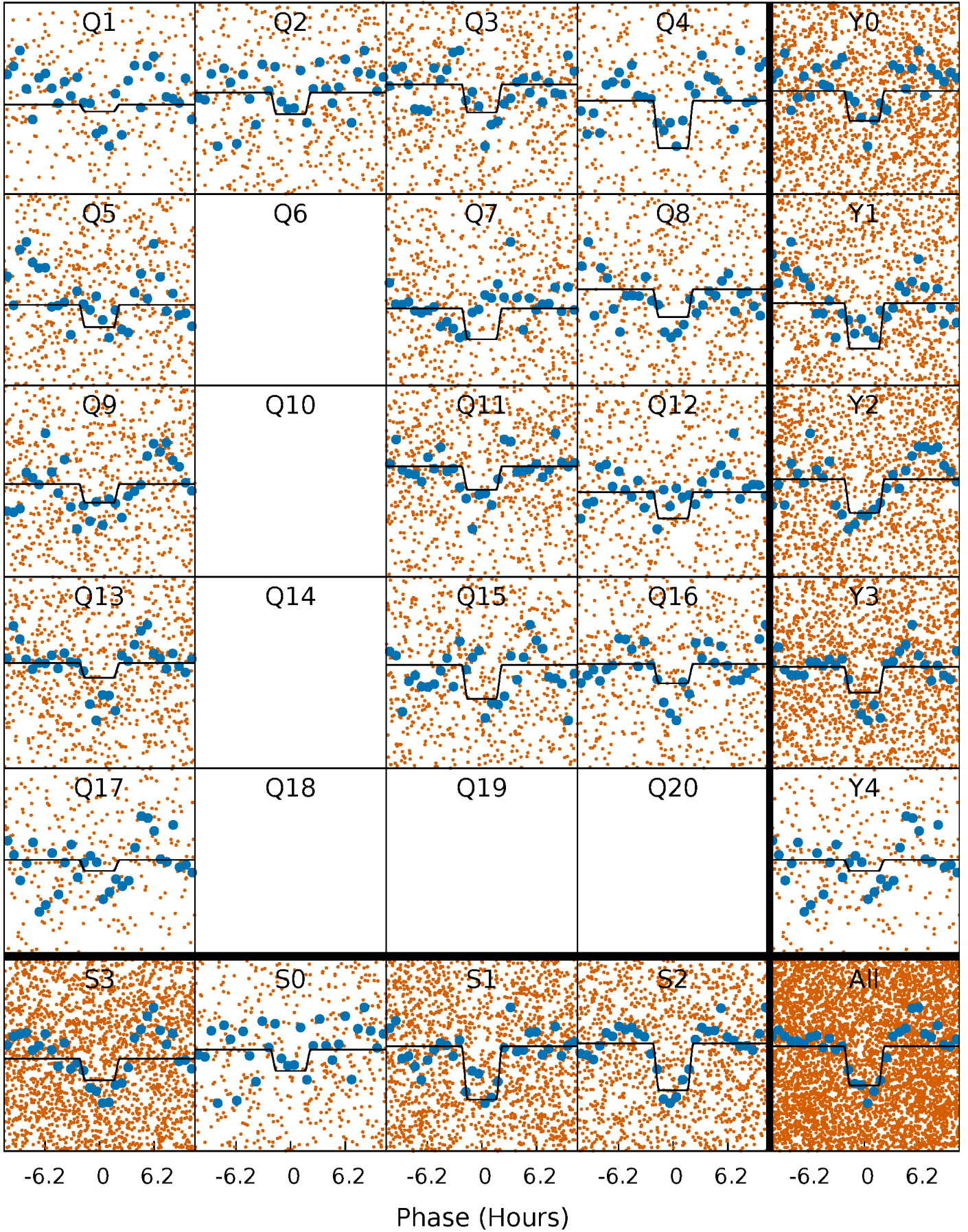
DV Quarter-Phased Transit Curves

TCE 003454720-02 P= 2.136748 Days $T_0=132.960541$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

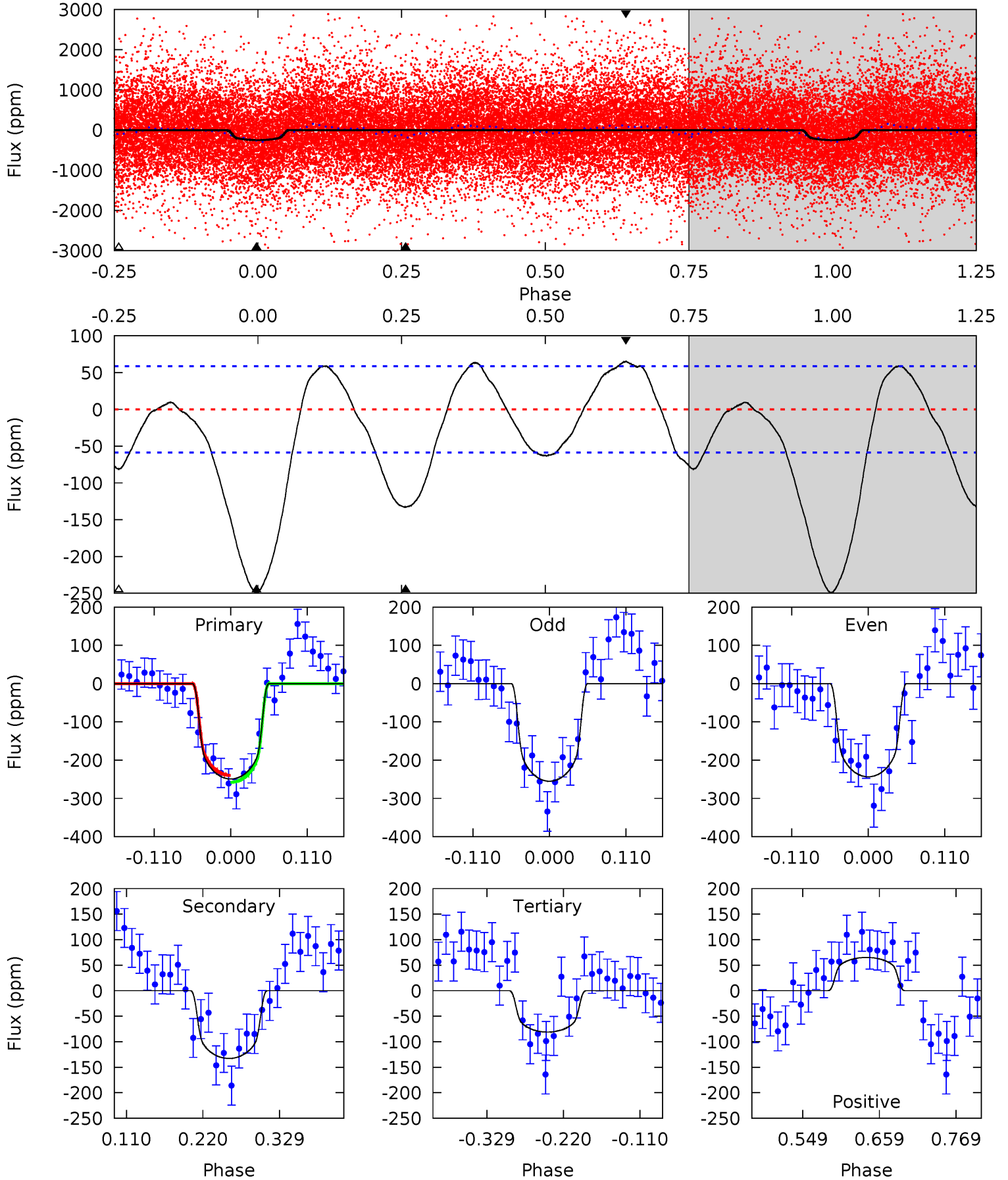
TCE 003454720-02 P= 2.136707 Days $T_0=132.961817$ (BKJD)



DV Model-Shift Uniqueness Test

003454720-02, P = 2.136748 Days, E = 130.823793 Days

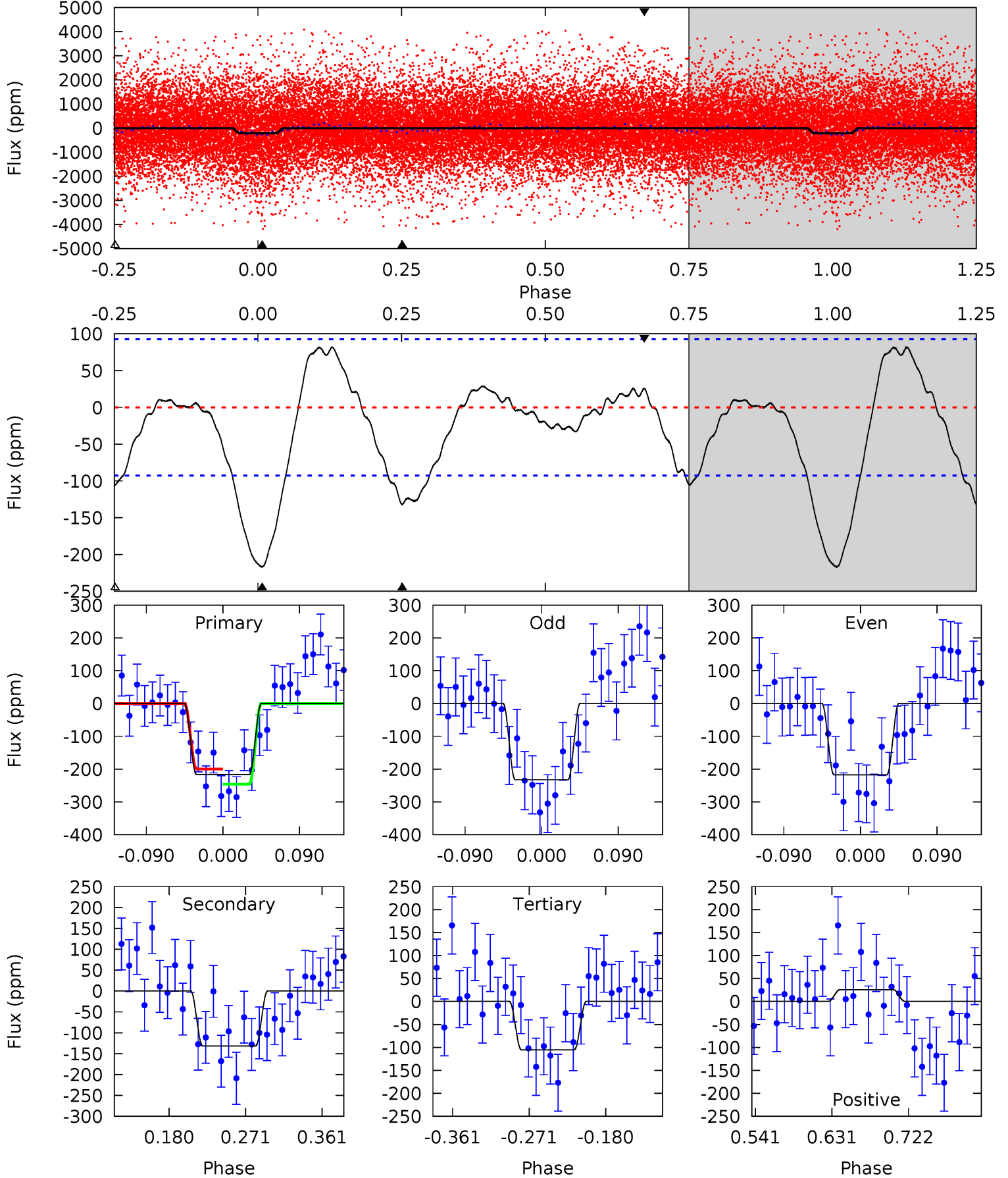
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	10.3	6.28	5.05	4.55	1.60	3.49	13.0	14.3	4.00	5.24	0.45	1.06	0.21	0.71



Alt Model-Shift Uniqueness Test

003454720-02, P = 2.136707 Days, E = 130.825110 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.7	6.52	5.21	1.28	4.59	1.69	1.89	5.51	9.45	1.31	5.25	0.37	0.84	0.27	1.13



Stellar Parameters For KIC 003454720

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4696^{+49}_{-70}	$2.454^{+0.115}_{-0.115}$	$-0.180^{+0.150}_{-0.100}$	$12.252^{+1.840}_{-2.990}$	$1.557^{+0.162}_{-0.487}$	$0.001^{+0.001}_{-0.000}$
	+1%/-1%	+5%/-5%	+83%/-56%	+15%/-24%	+10%/-31%	+65%/-34%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003454720-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-133 ± 13	$22.27^{+5.71}_{-5.92}$	5233^{+223}_{-260}	-3554^{+6907}_{-428}	$0.205^{+0.162}_{-0.075}$
Alt.	-132 ± 20	$19.13^{+5.92}_{-5.53}$	5221^{+229}_{-248}	-2922^{+7081}_{-915}	$0.273^{+0.264}_{-0.113}$

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

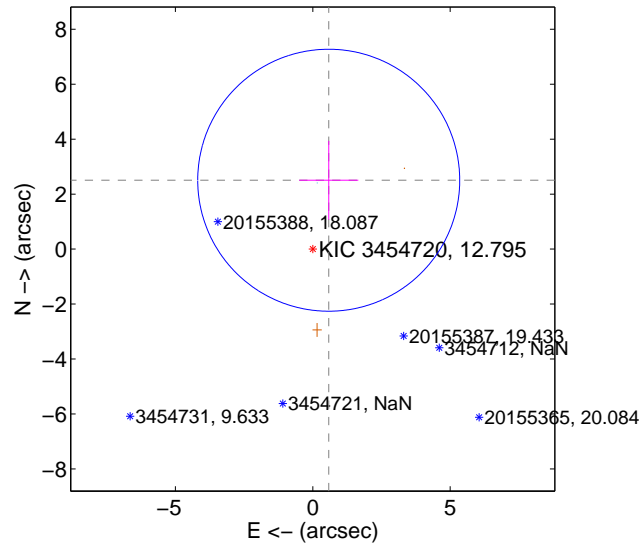
Supplemental centroid analysis for 003454720-02. Kepler magnitude: 12.79. Transit SNR 10.43

There are 1 quarters with good PRF difference image offsets

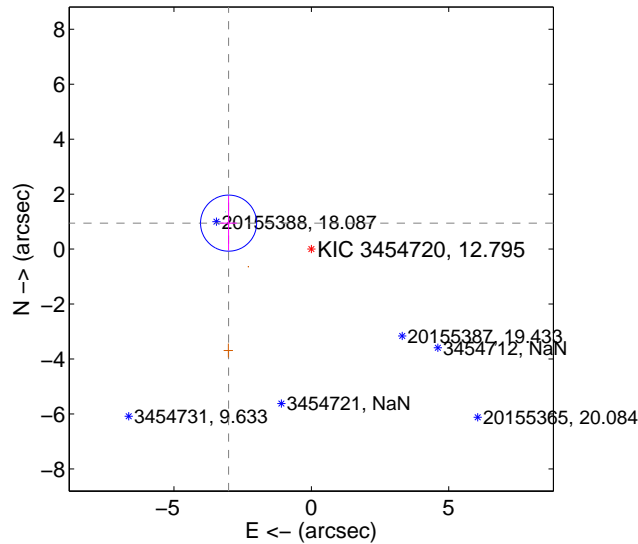
The OOT PRF centroid is offset from the target star catalog position by about 3.27 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.572 ± 1.589	1.62	-0.580 ± 1.076	2.506 ± 1.431
PRF-fit source offset from KIC position	3.157 ± 0.340	9.28	3.012 ± 0.296	0.945 ± 1.001
photometric centroid source offset	1.17 ± 0.30	3.96	1.15 ± 0.24	-0.24 ± 0.88

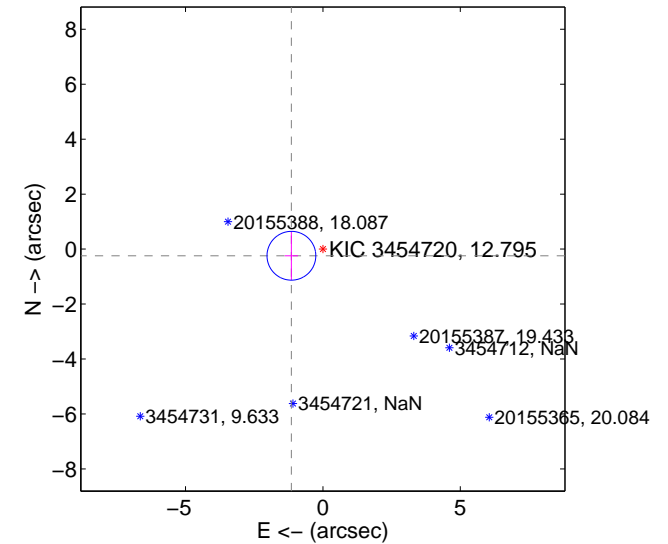
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

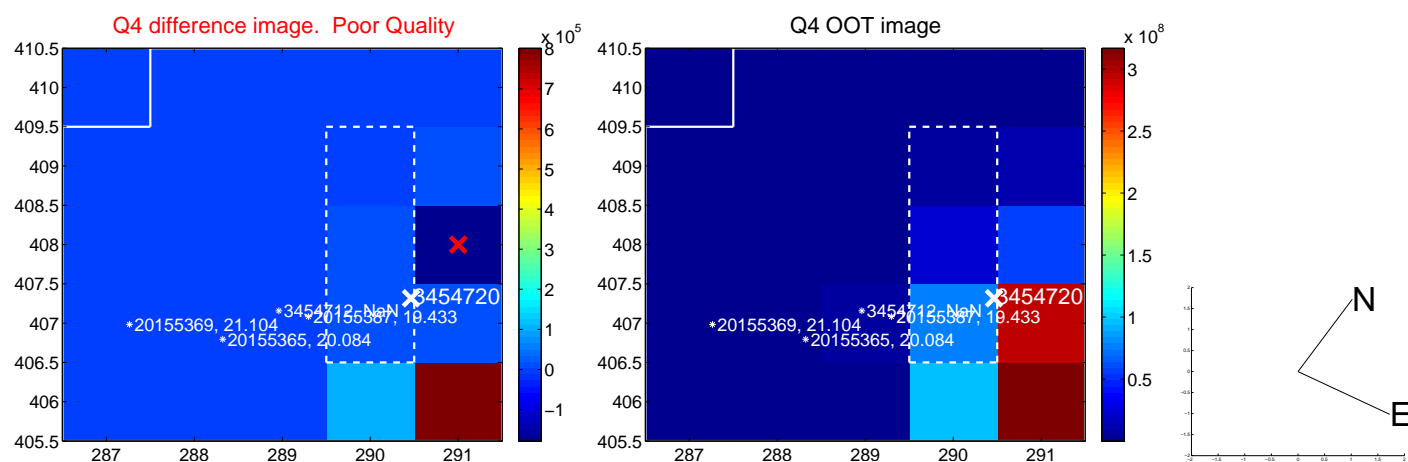
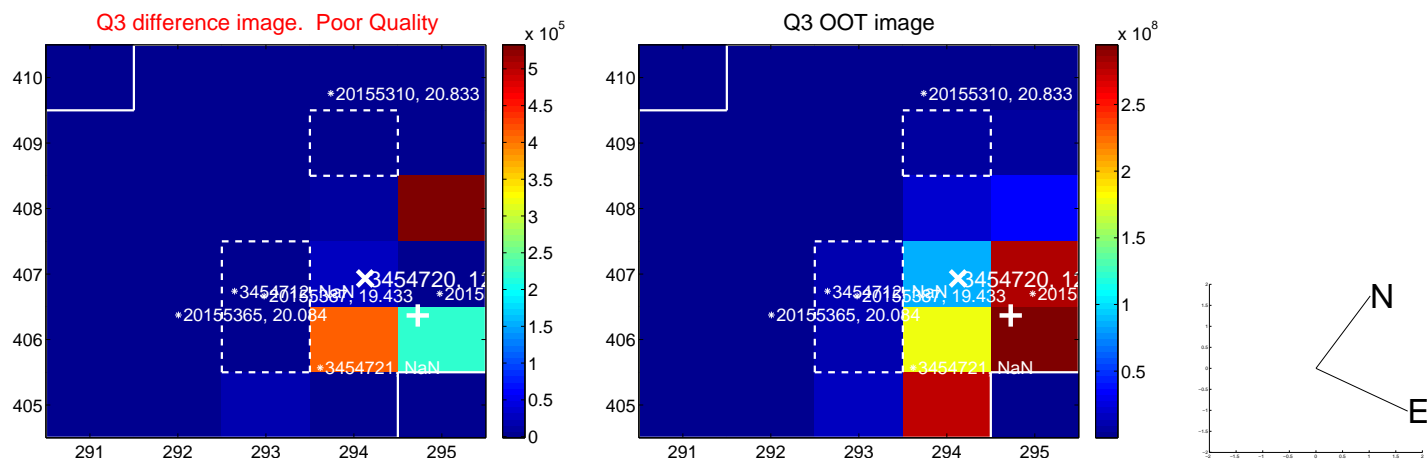
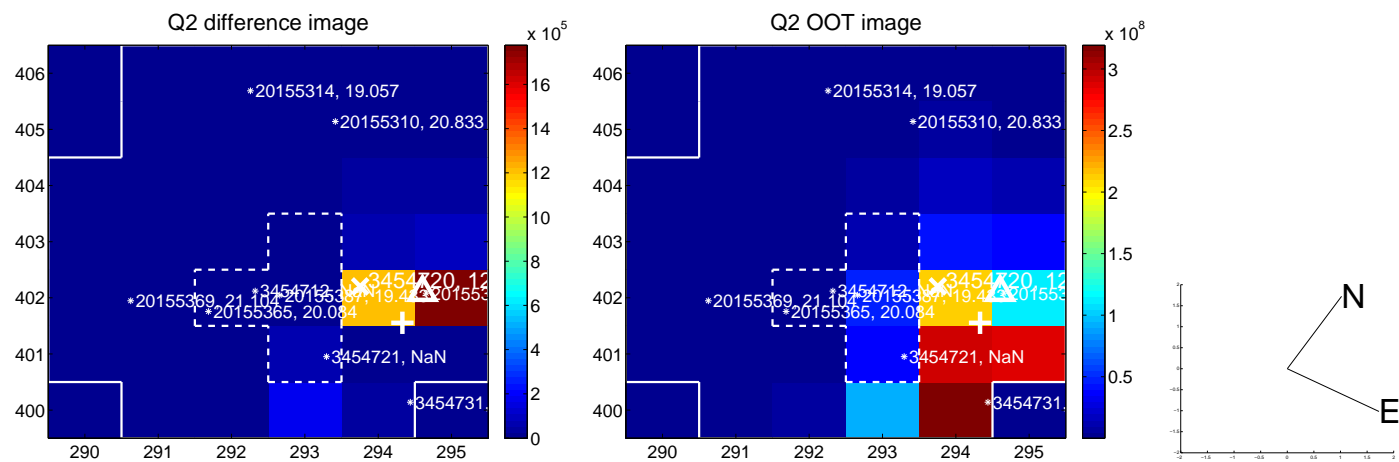
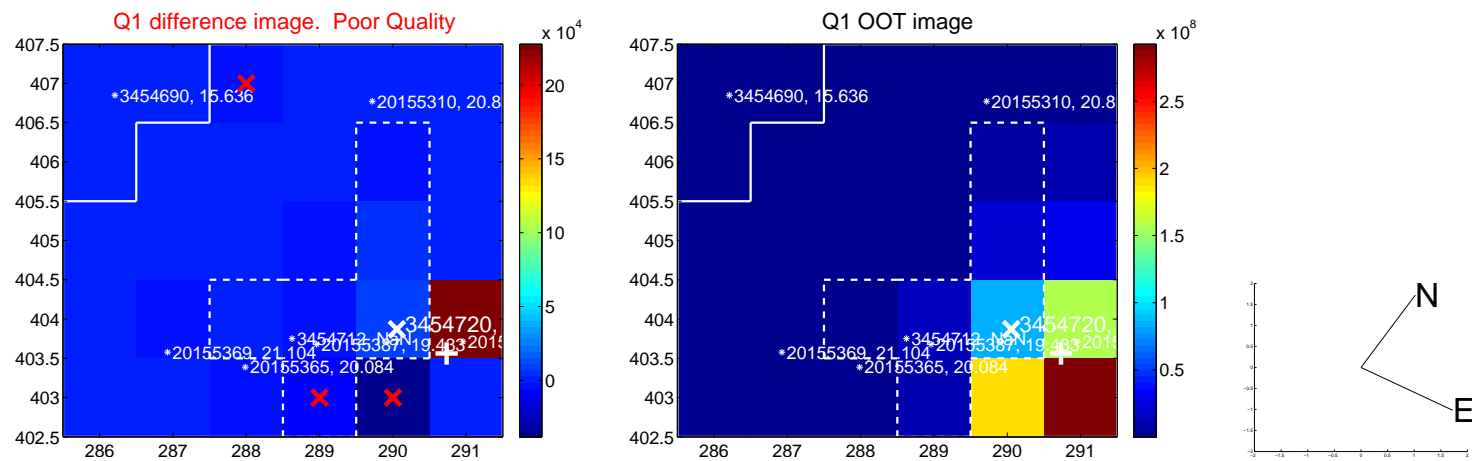


offset from photometric centroids

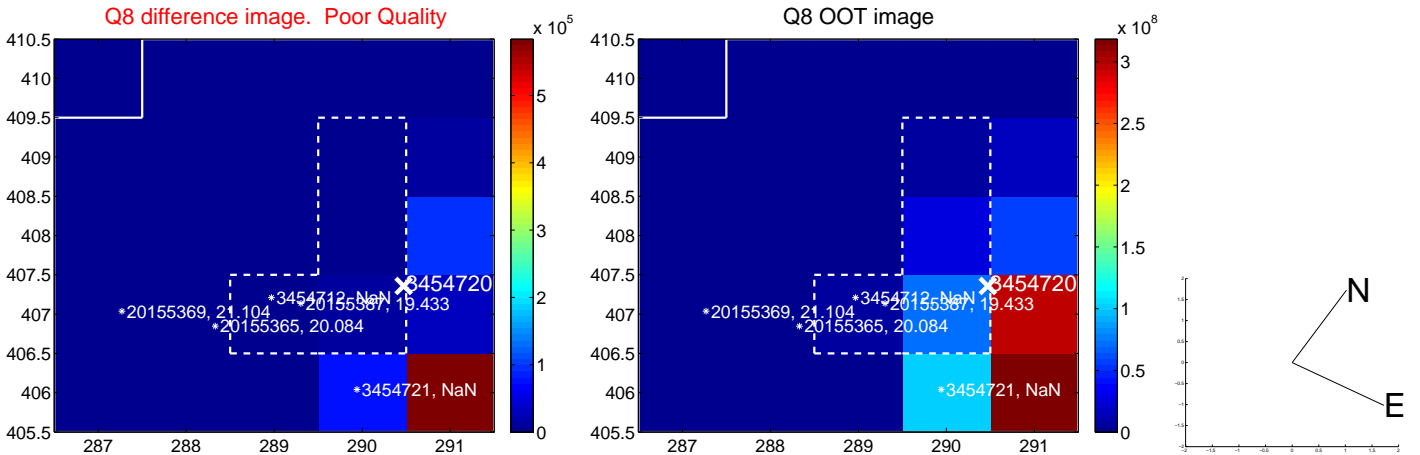
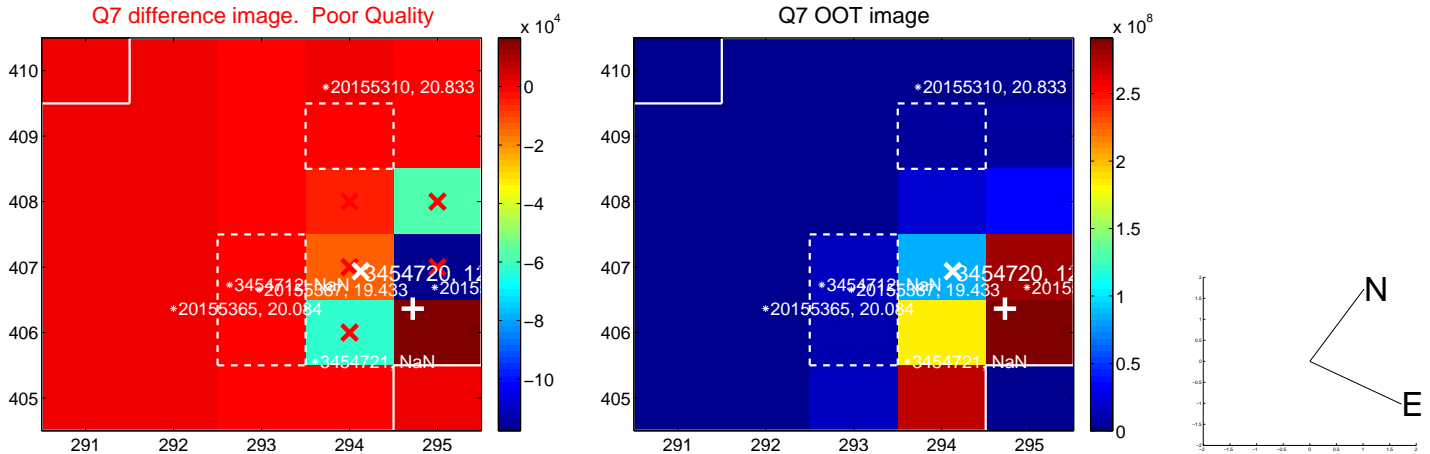
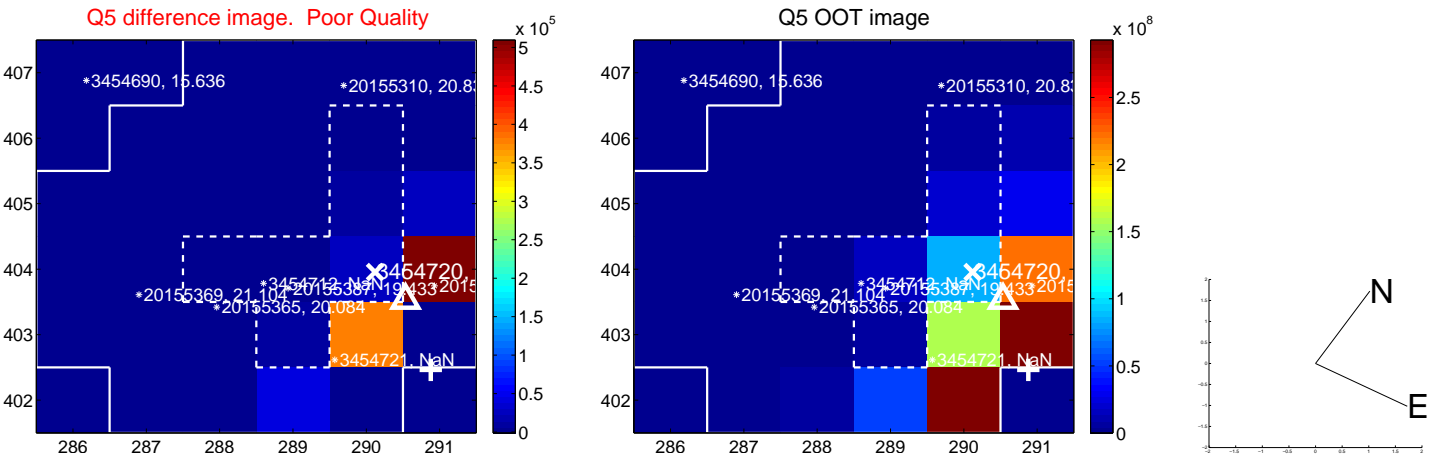


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

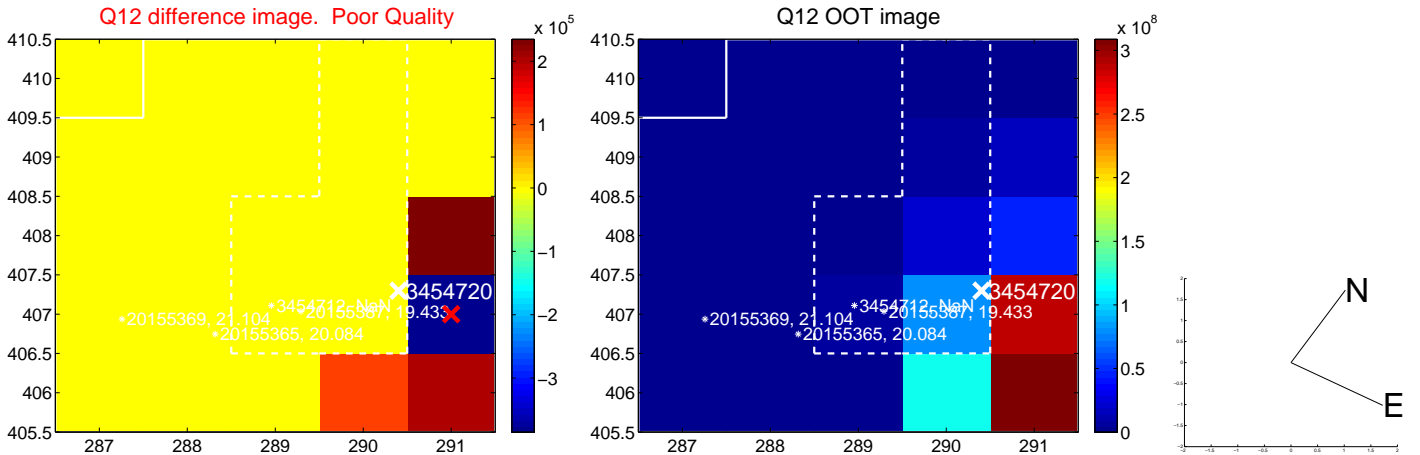
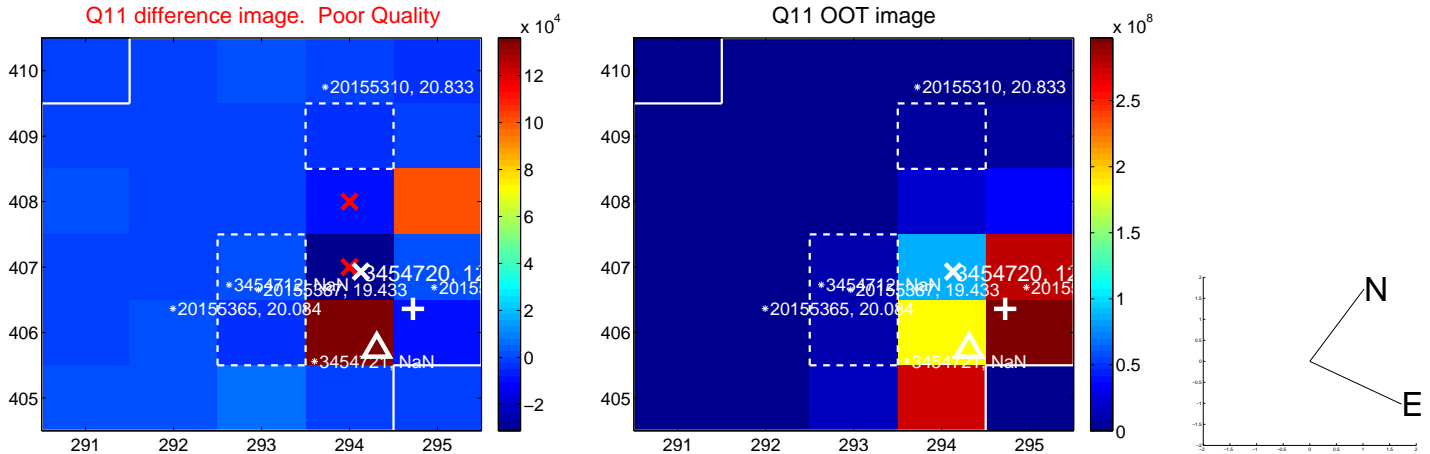
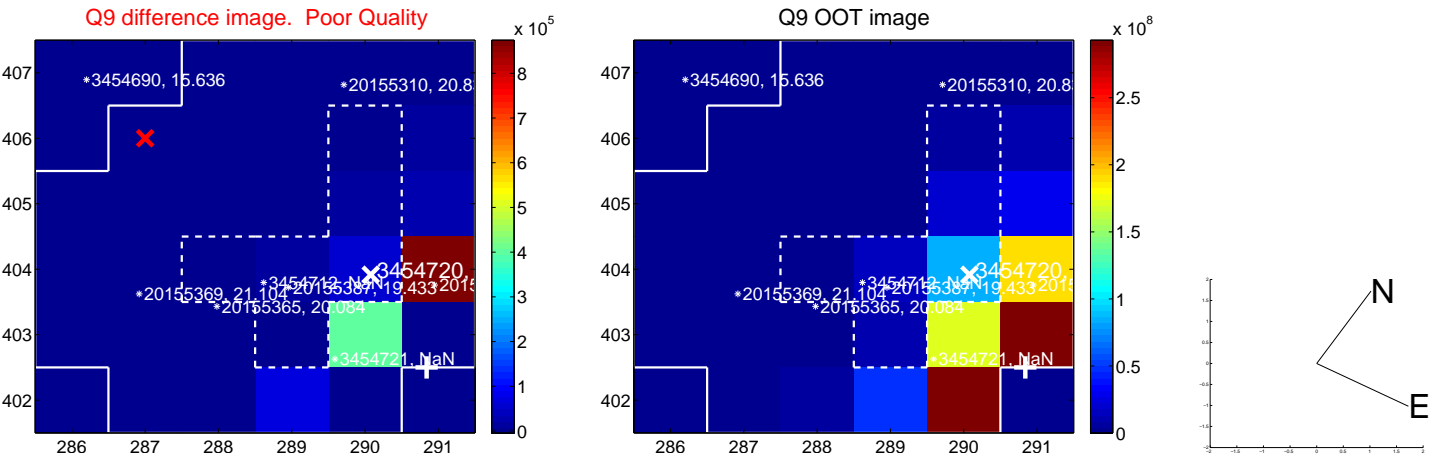
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



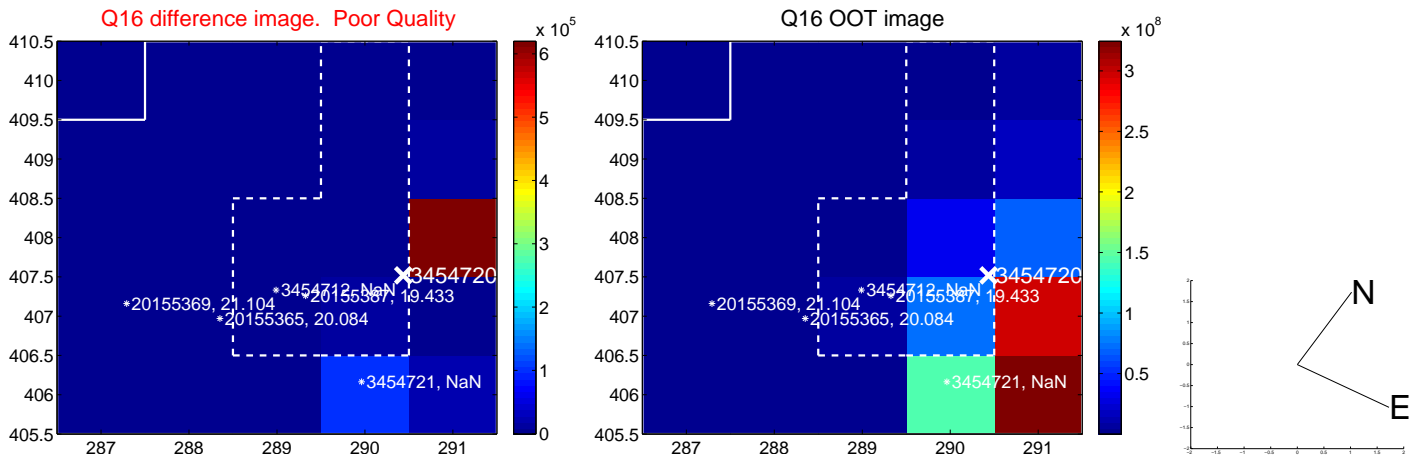
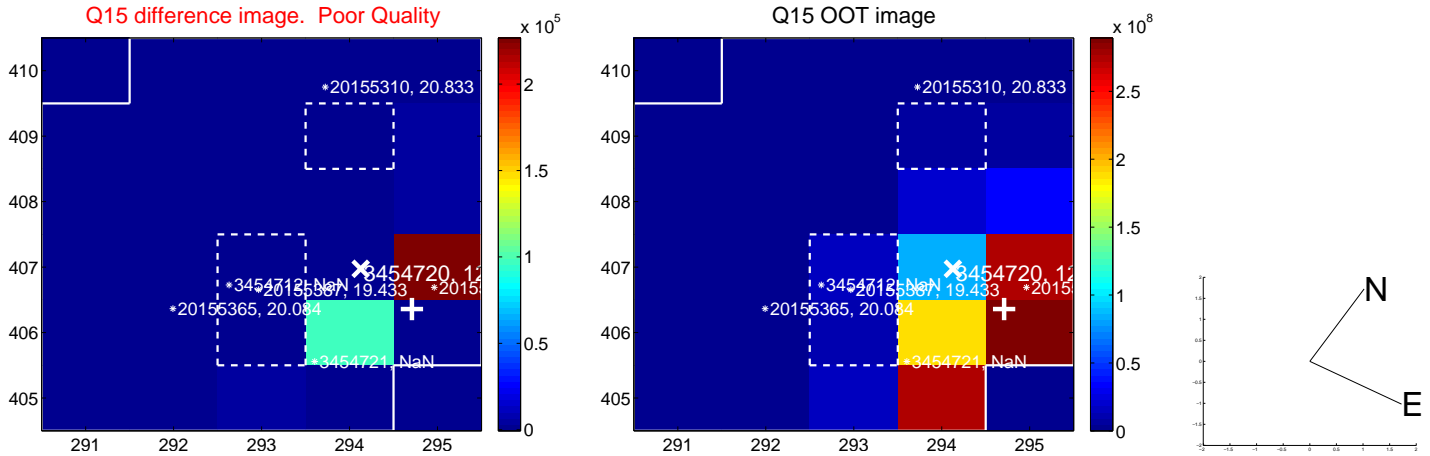
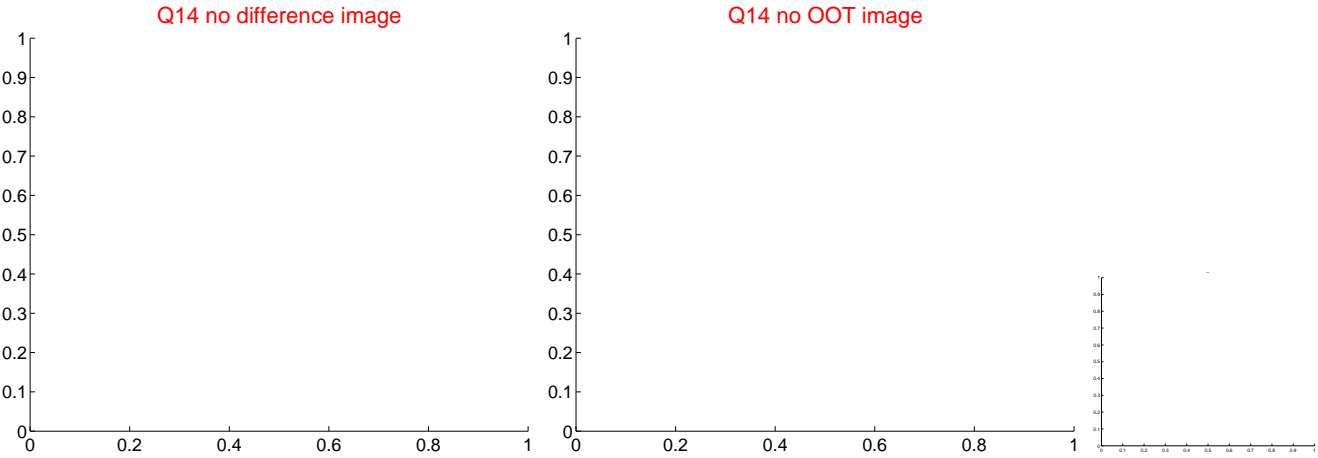
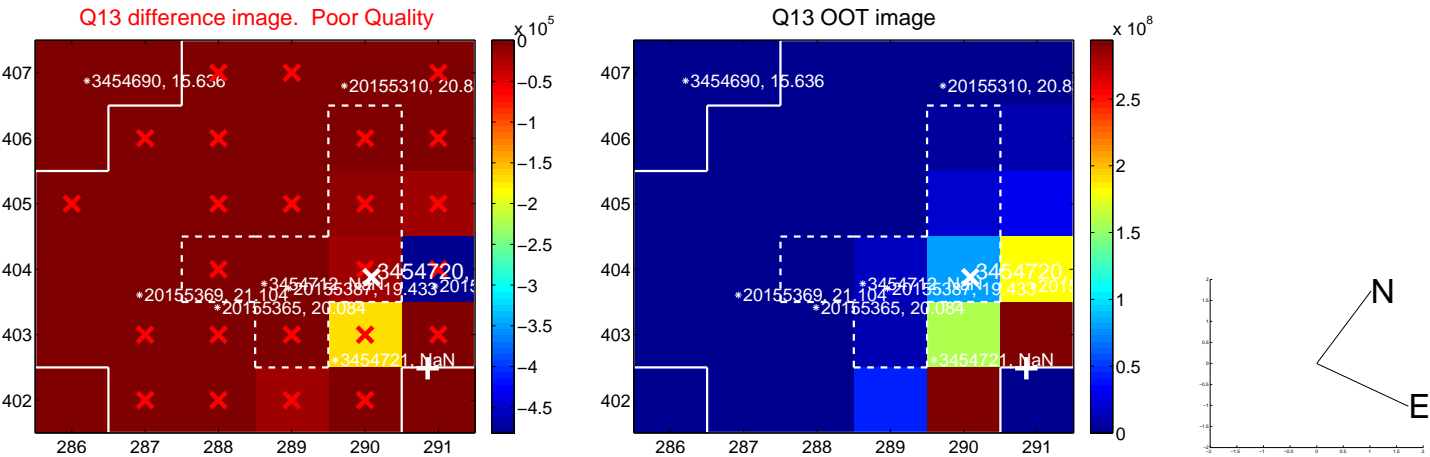
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

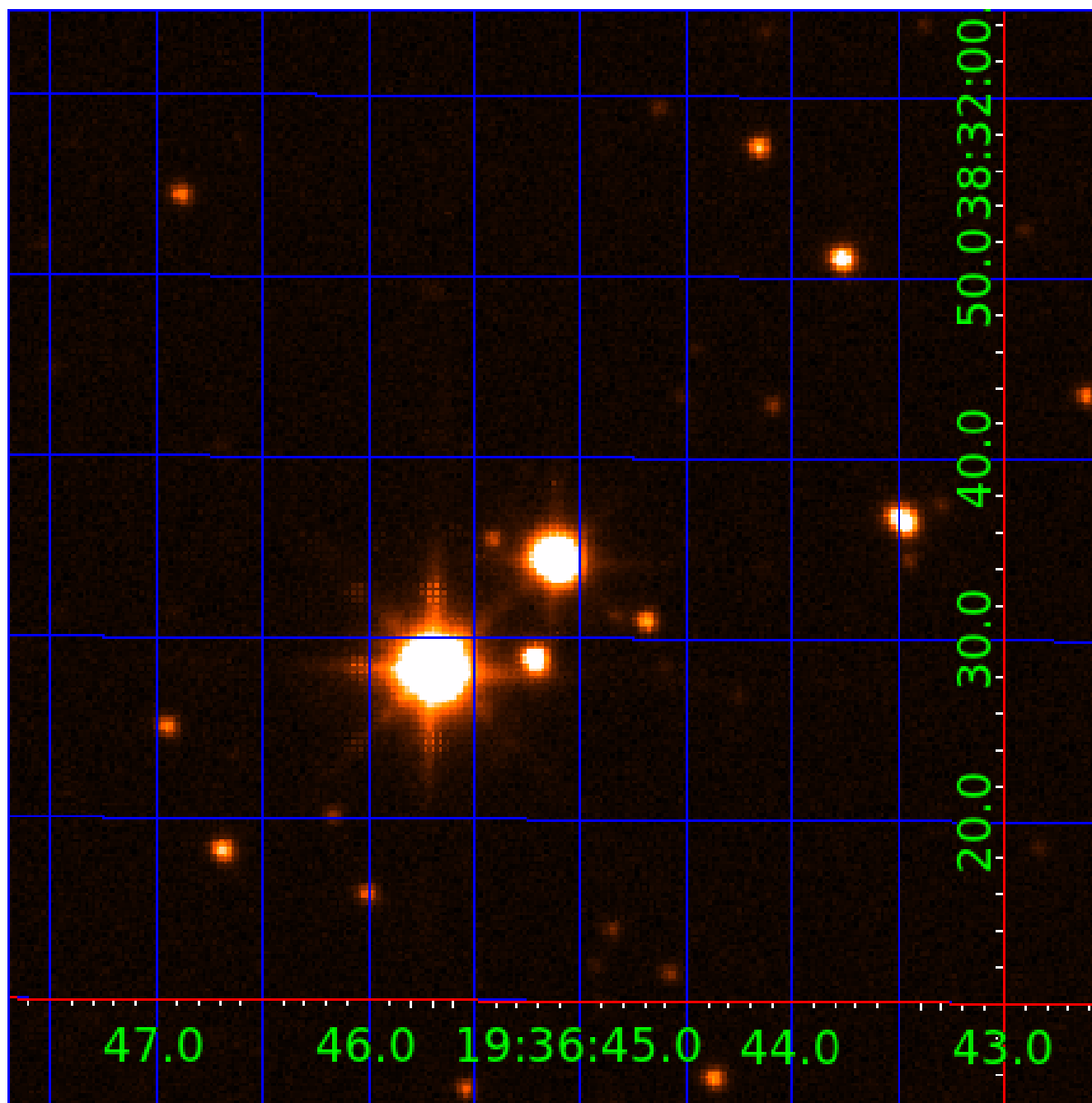


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003454720

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})
003454720-01	OBS	No	2.483861	132.828347	190.9	7.932	9.0	9.6	12.25	4696	20.74	0.00
003454720-02	OBS	No	2.136748	132.960541	223.8	5.190	10.0	10.4	12.25	4696	22.54	0.00
003454720-03	OBS	No	110.588600	228.465232	997.3	12.496	7.6	7.9	12.25	4696	46.10	239.33
003454720-04	OBS	No	2.483958	133.751781	218.7	10.066	9.2	10.2	12.25	4696	33.23	0.00
003454720-05	OBS	No	39.038170	148.400409	1359.1	13.918	9.2	9.9	12.25	4696	91.80	959.31
003454720-06	OBS	No	24.219281	142.800536	227.6	6.000	7.8	-1.0	12.25	4696	17.78	1812.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003454720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
003454720-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
003454720-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

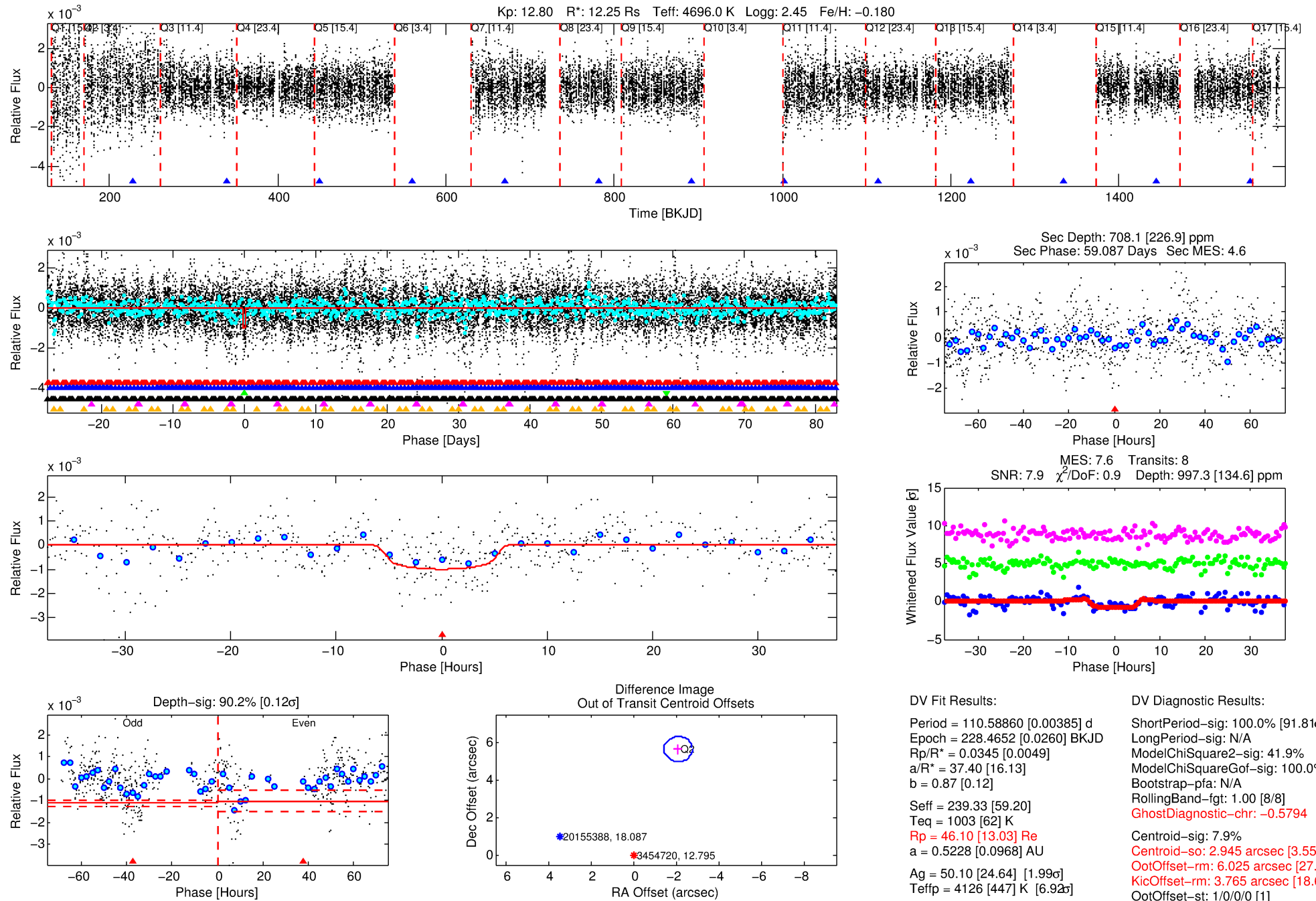
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003454720-03

No Significant Match Found

DV One-Page Summary

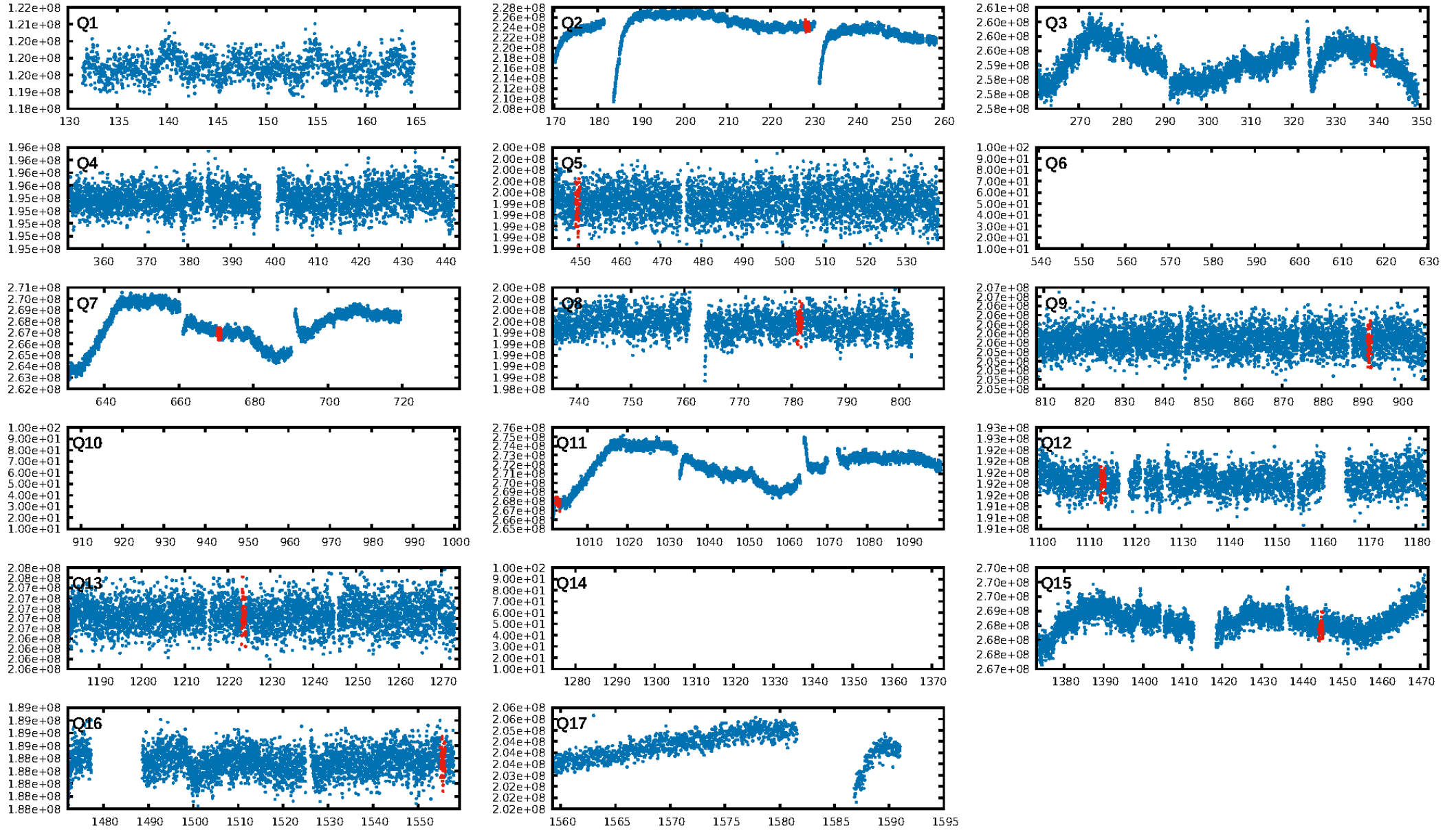
KIC: 3454720 Candidate: 3 of 6 Period: 110.589 d



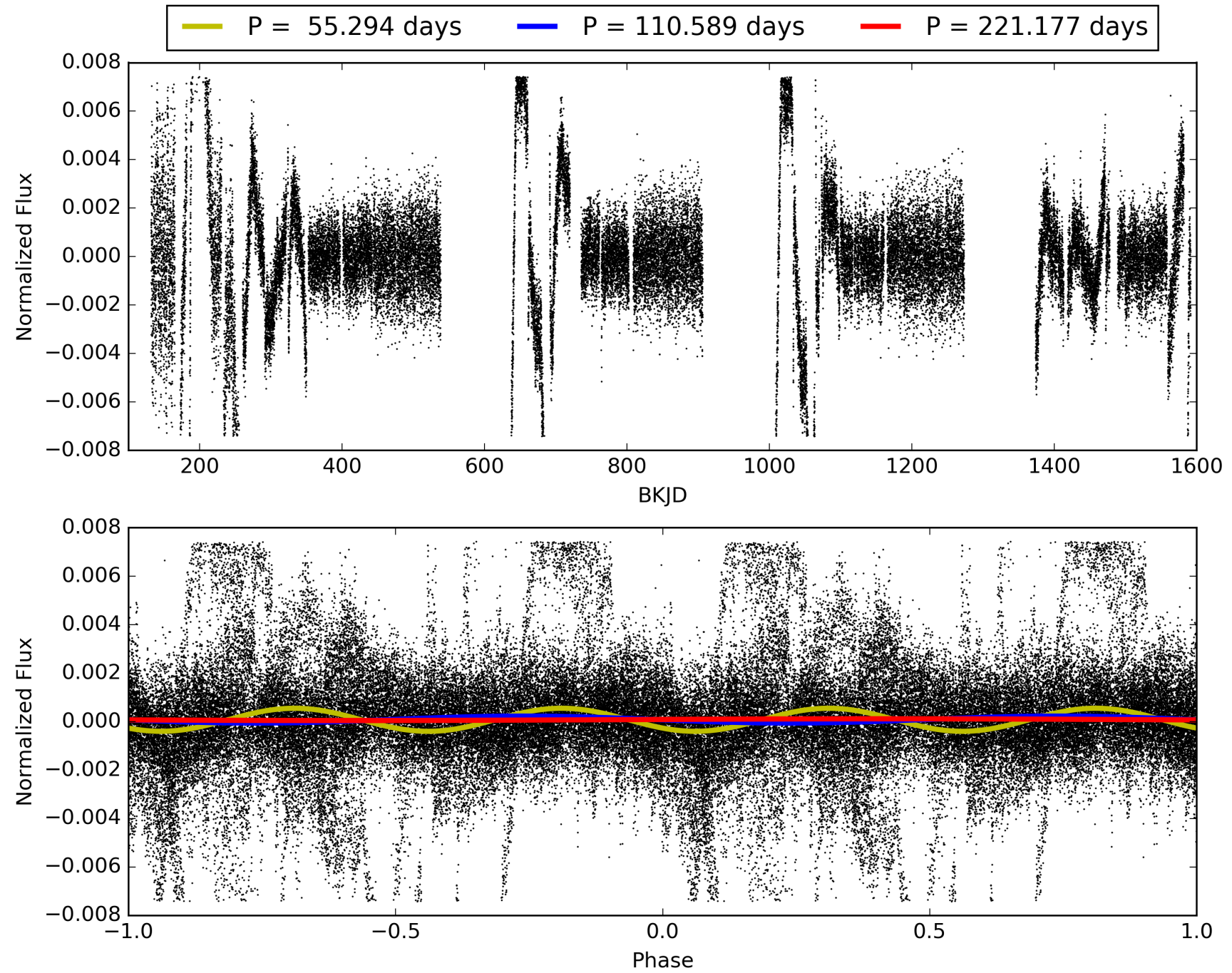
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:13:05 Z

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

TCE 003454720-03, PDC Light Curves

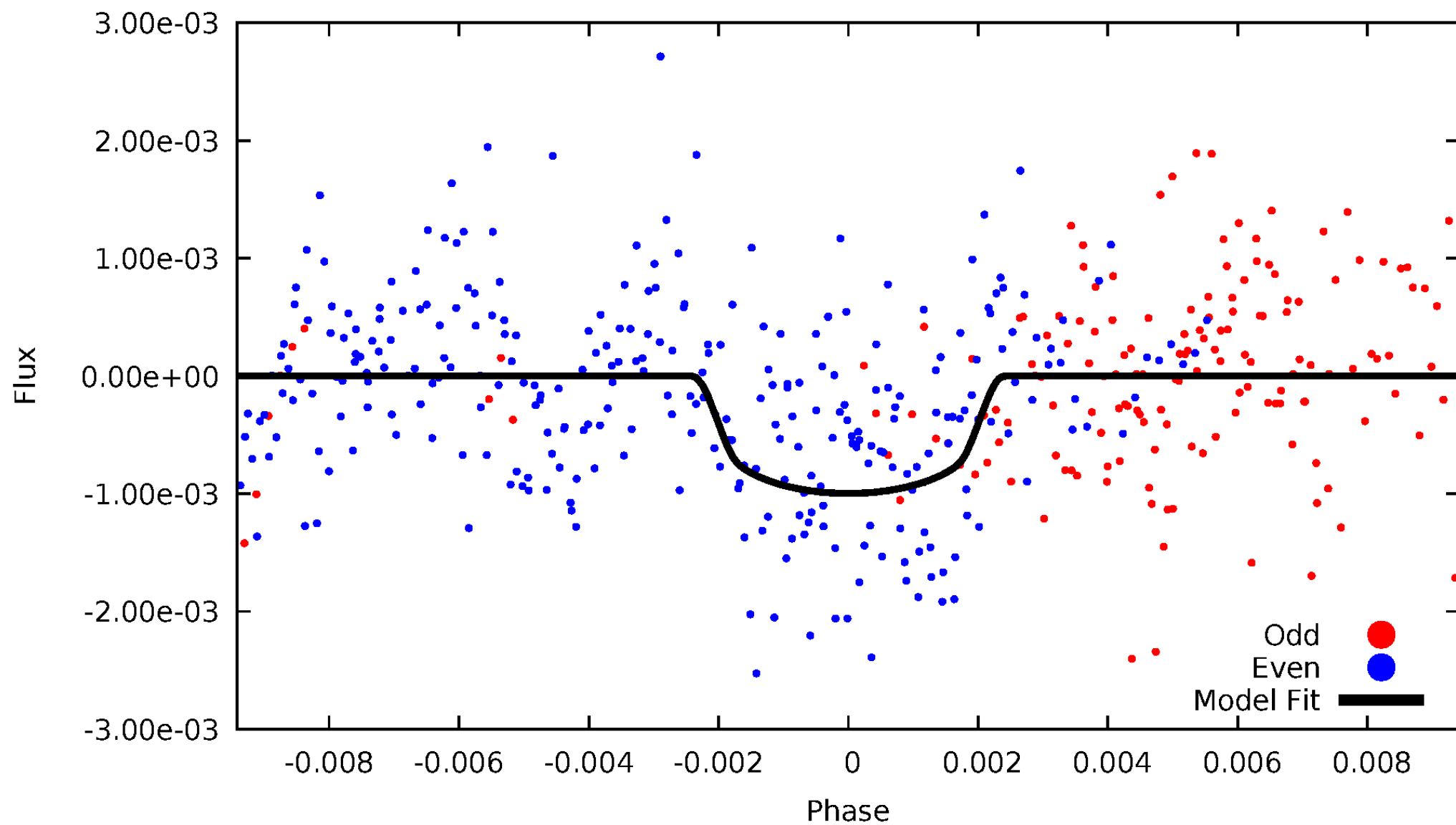


TCE 003454720-03



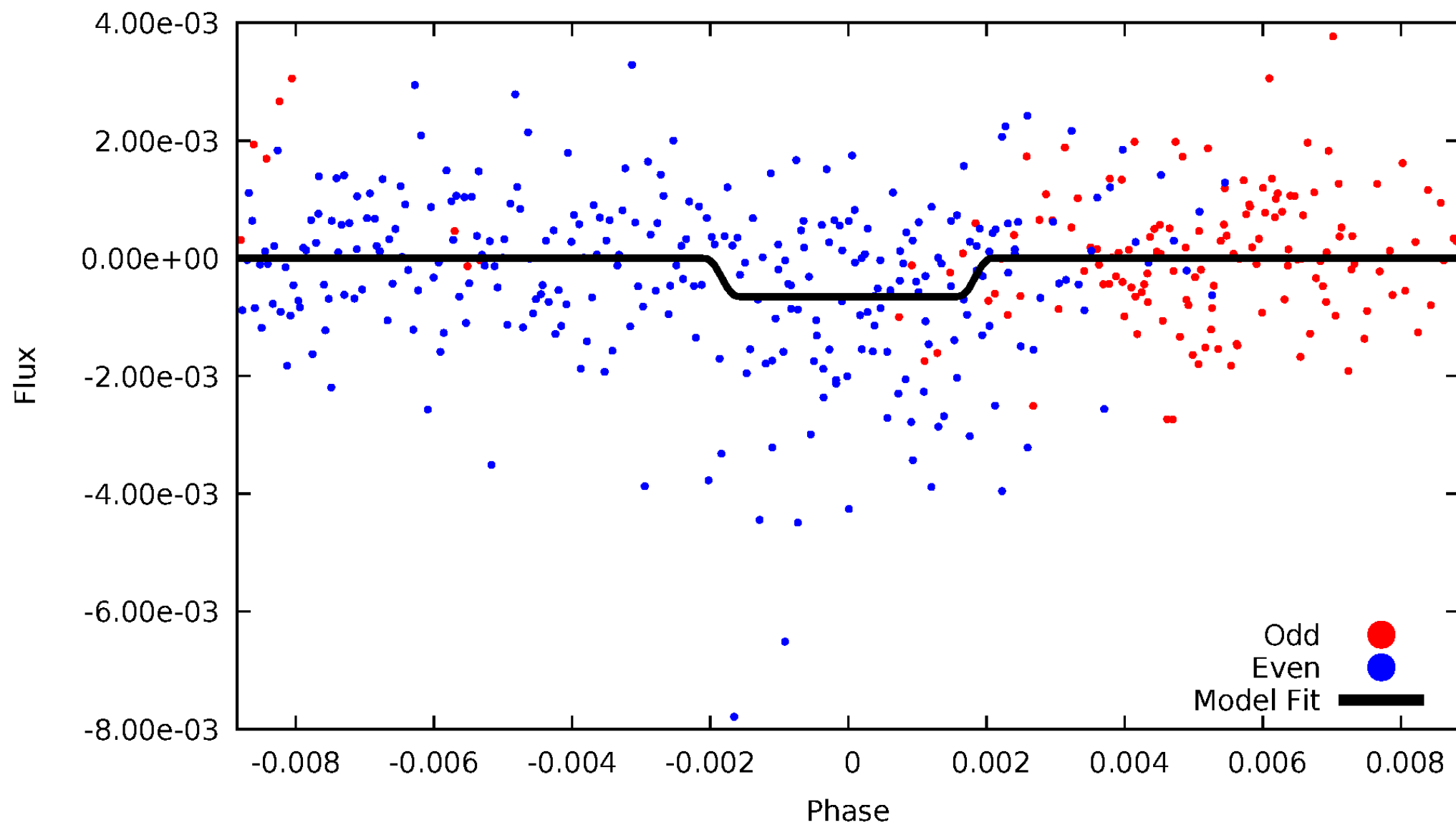
DV Odd/Even

TCE 003454720-03



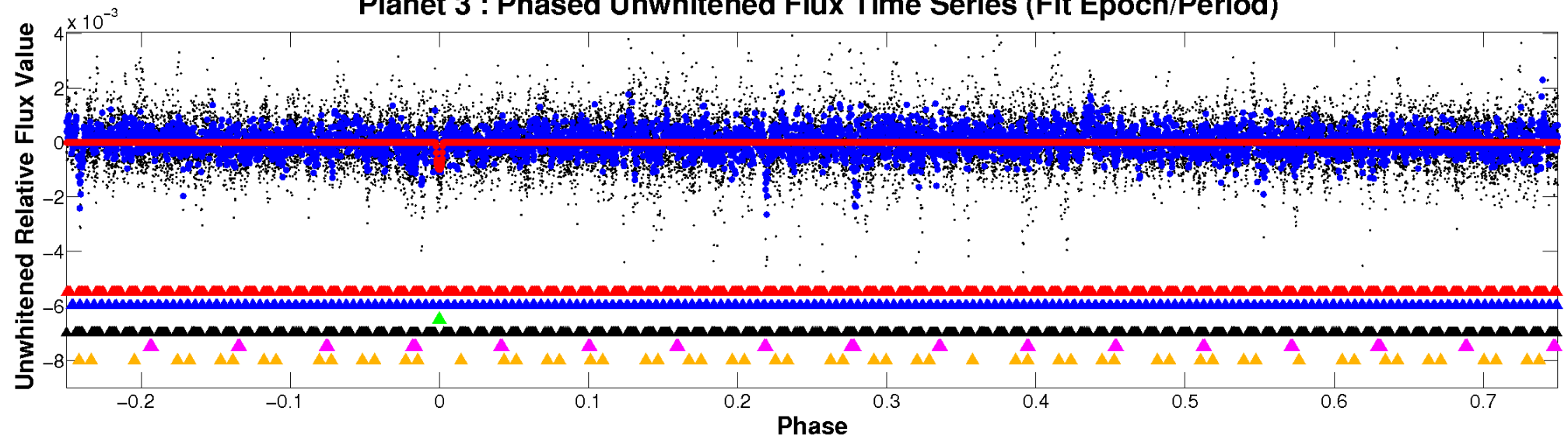
ALT Odd/Even

TCE 003454720-03

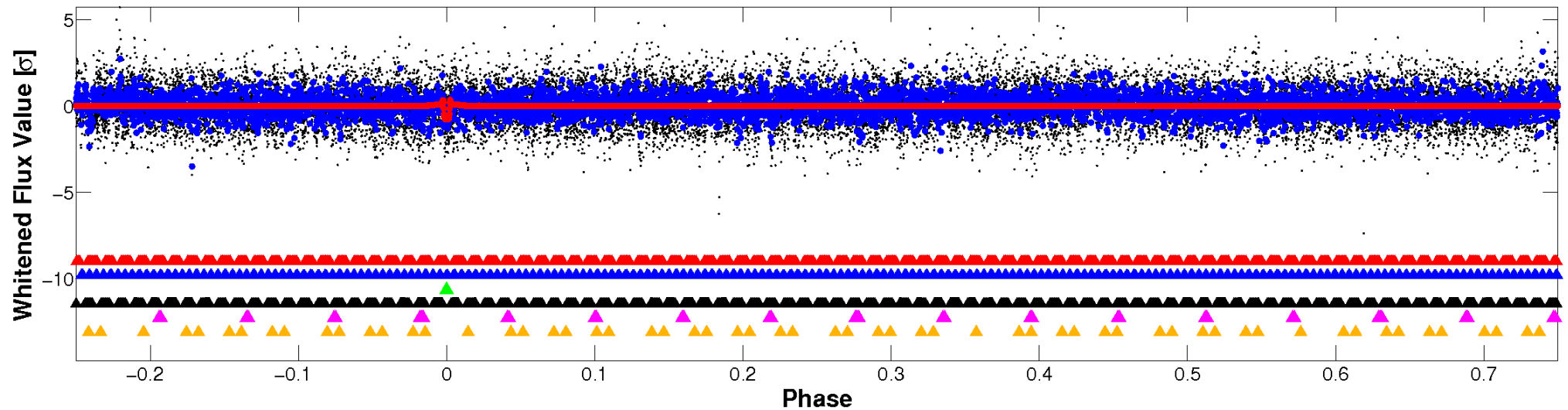


Non-Whitened Vs. Whitened Light Curve

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



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



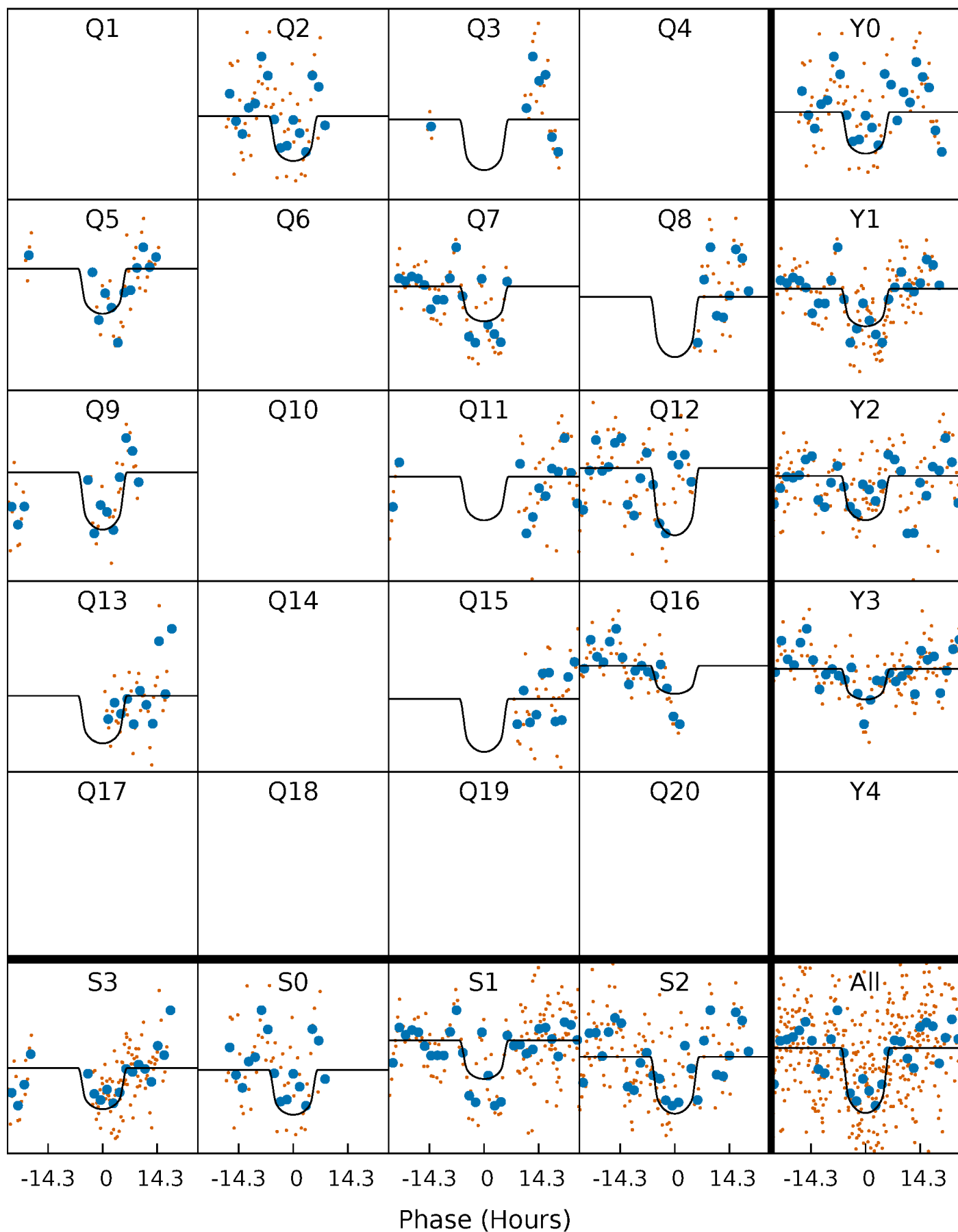
PDC Quarter-Phased Transit Curves

TCE 003454720-03 $P=110.588600$ Days $T_0=228.465232$ (BKJD)



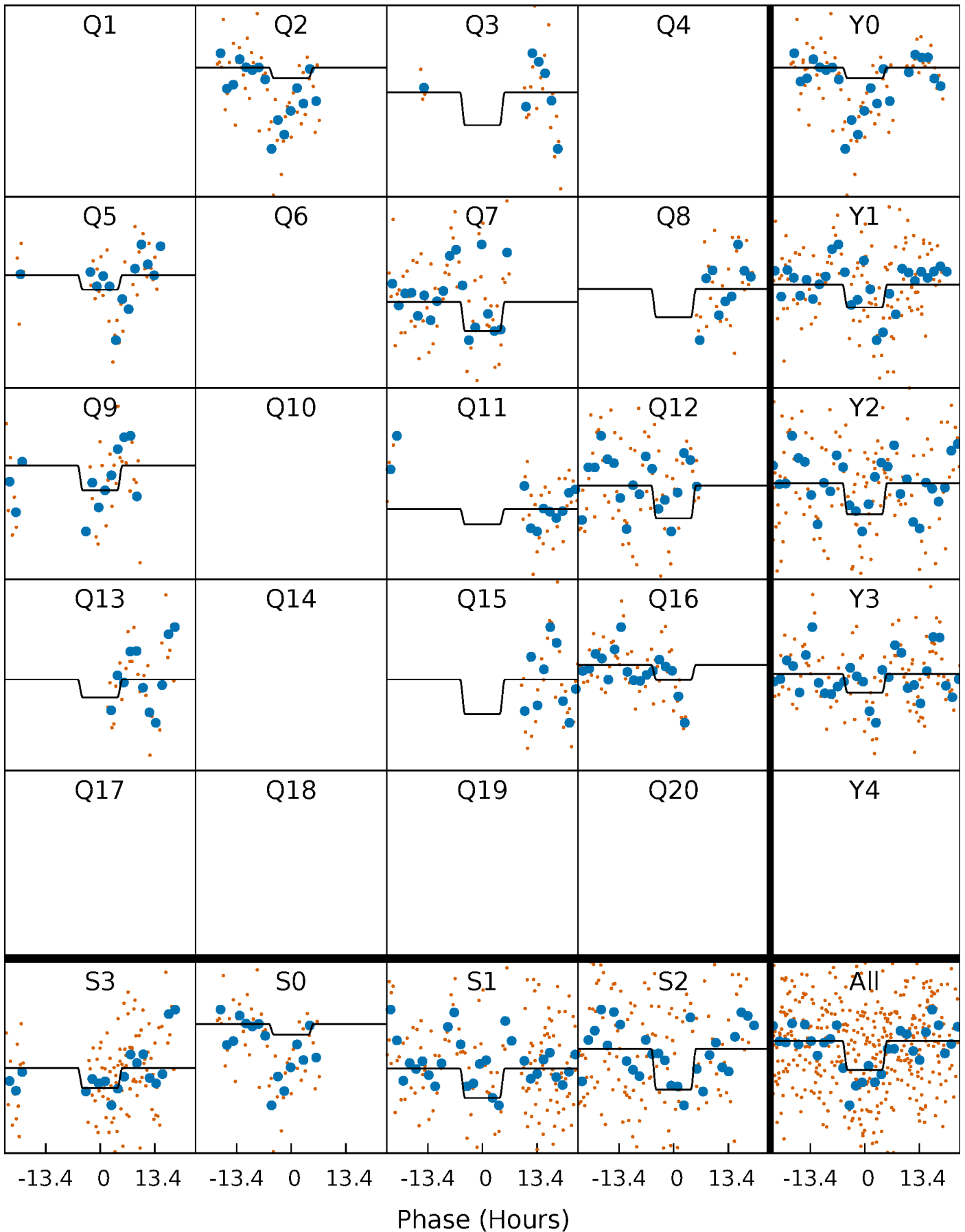
DV Quarter-Phased Transit Curves

TCE 003454720-03 $P=110.588600$ Days $T_0=228.465232$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

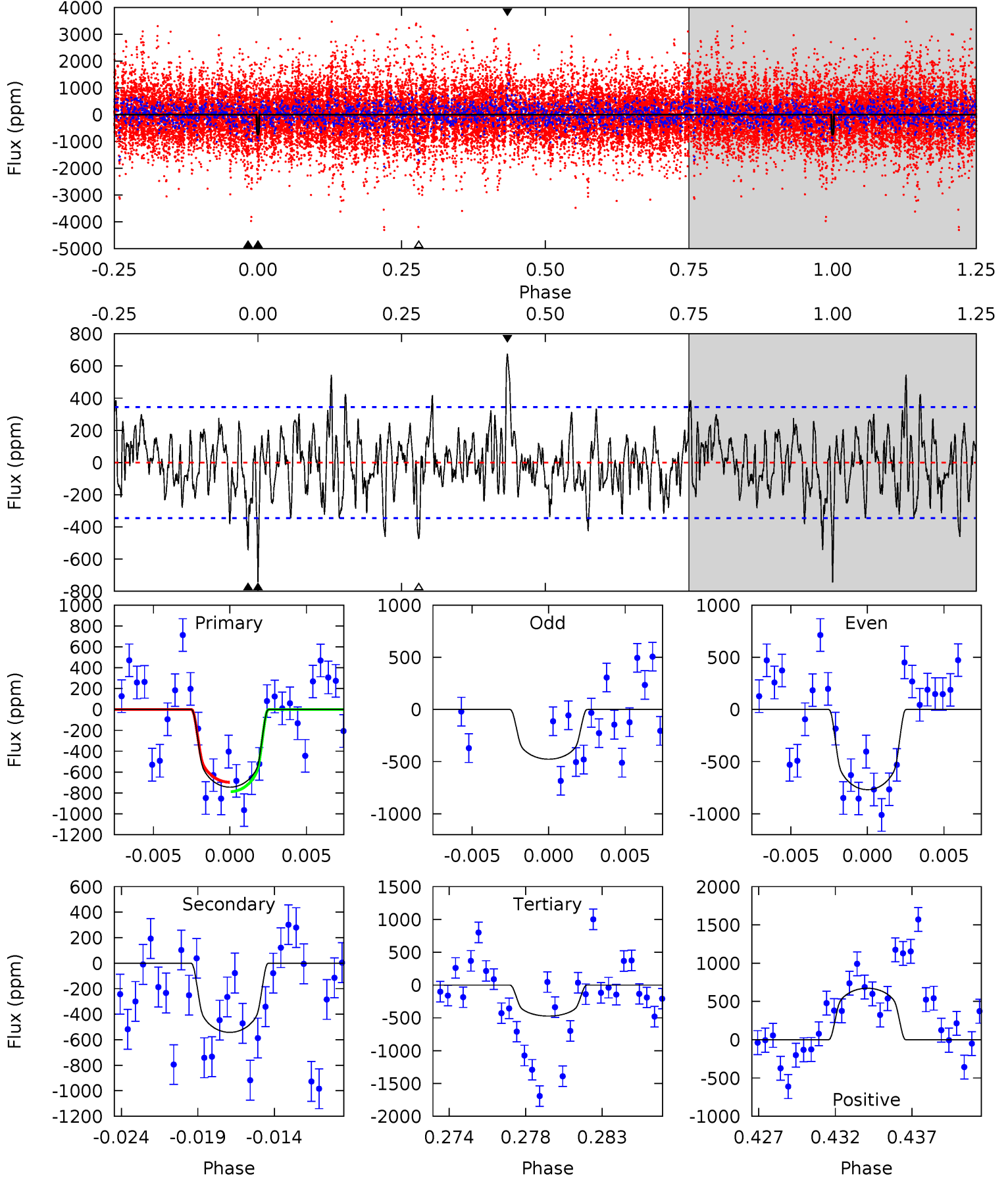
TCE 003454720-03 P=110.579616 Days $T_0=228.491591$ (BKJD)



DV Model-Shift Uniqueness Test

003454720-03, P = 110.588600 Days, E = 117.876632 Days

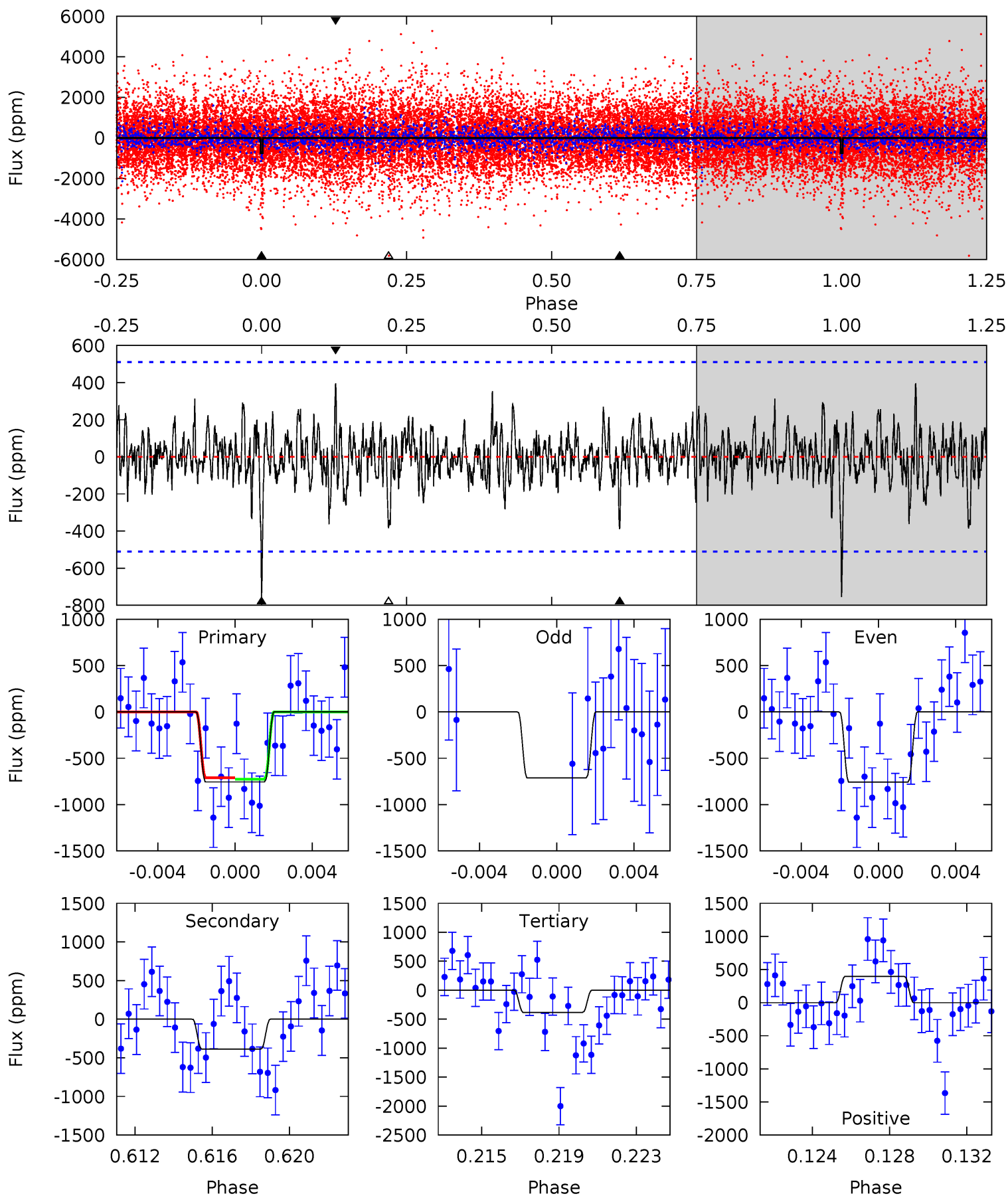
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	8.12	7.09	10.1	5.17	2.82	2.37	4.07	1.08	1.04	-1.95	1.36	1.12	0.47	0.68



Alt Model-Shift Uniqueness Test

003454720-03, P = 110.579616 Days, E = 117.911975 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.68	3.93	3.90	4.03	5.19	2.87	1.07	3.78	3.65	0.03	-0.10	0.12	1.20	0.34	0.07



Stellar Parameters For KIC 003454720

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4696^{+49}_{-70}	$2.454^{+0.115}_{-0.115}$	$-0.180^{+0.150}_{-0.100}$	$12.252^{+1.840}_{-2.990}$	$1.557^{+0.162}_{-0.487}$	$0.001^{+0.001}_{-0.000}$
	+1%/-1%	+5%/-5%	+83%/-56%	+15%/-24%	+10%/-31%	+65%/-34%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003454720-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-542 ± 67	$46.55^{+8.15}_{-8.33}$	1408^{+66}_{-67}	4035^{+239}_{-211}	37^{+18}_{-11}
Alt.	-387 ± 98	$34.03^{+7.36}_{-7.36}$	1406^{+60}_{-71}	4234^{+392}_{-342}	49^{+31}_{-19}

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

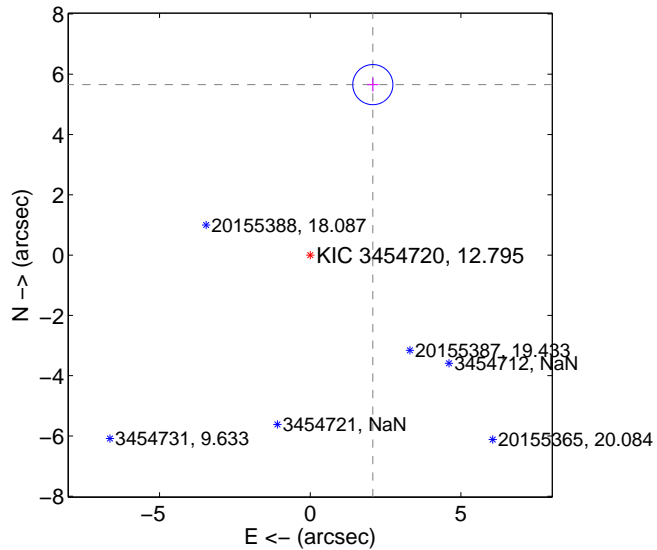
Supplemental centroid analysis for 003454720-03. Kepler magnitude: 12.79. Transit SNR 7.93

There are 1 quarters with good PRF difference image offsets

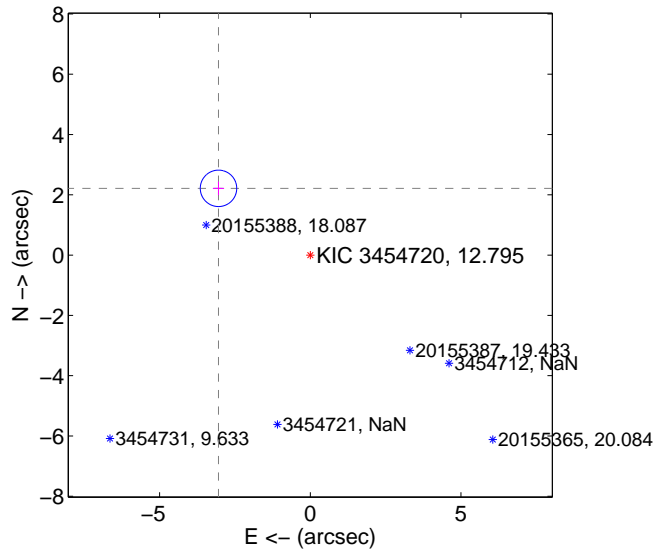
The OOT PRF centroid is offset from the target star catalog position by about 6.17 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.025 ± 0.222	27.15	-2.077 ± 0.187	5.656 ± 0.226
PRF-fit source offset from KIC position	3.765 ± 0.201	18.69	3.045 ± 0.187	2.215 ± 0.226
photometric centroid source offset	2.95 ± 0.83	3.55	1.73 ± 0.29	-2.38 ± 1.00

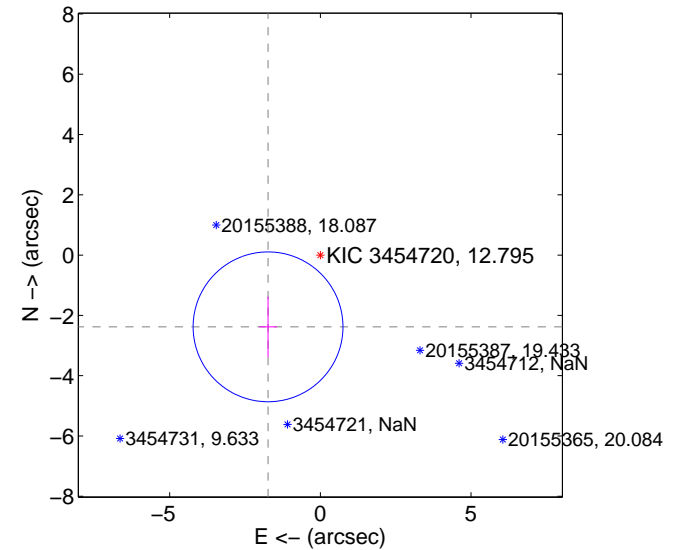
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

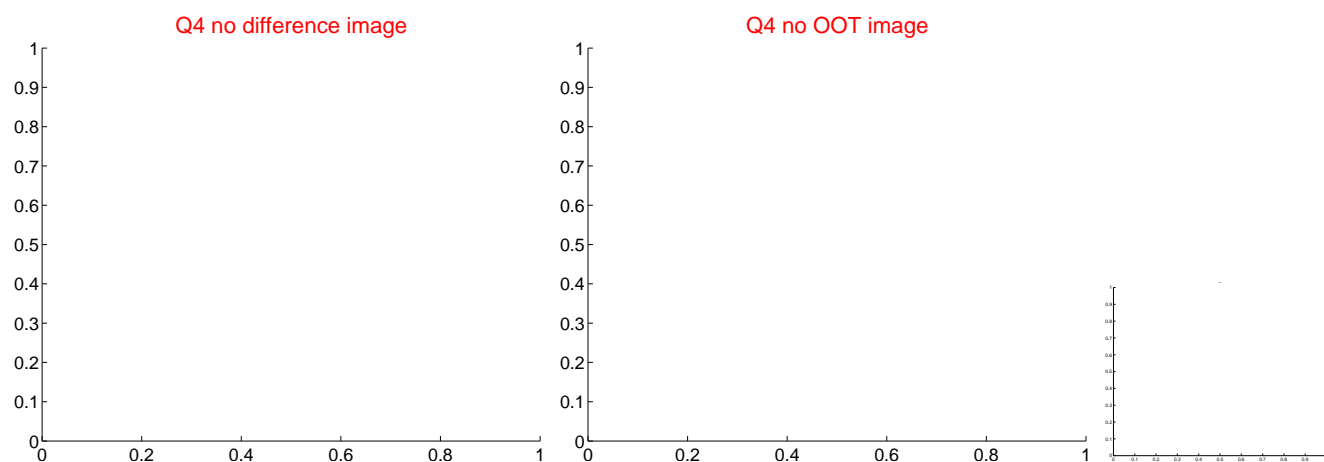
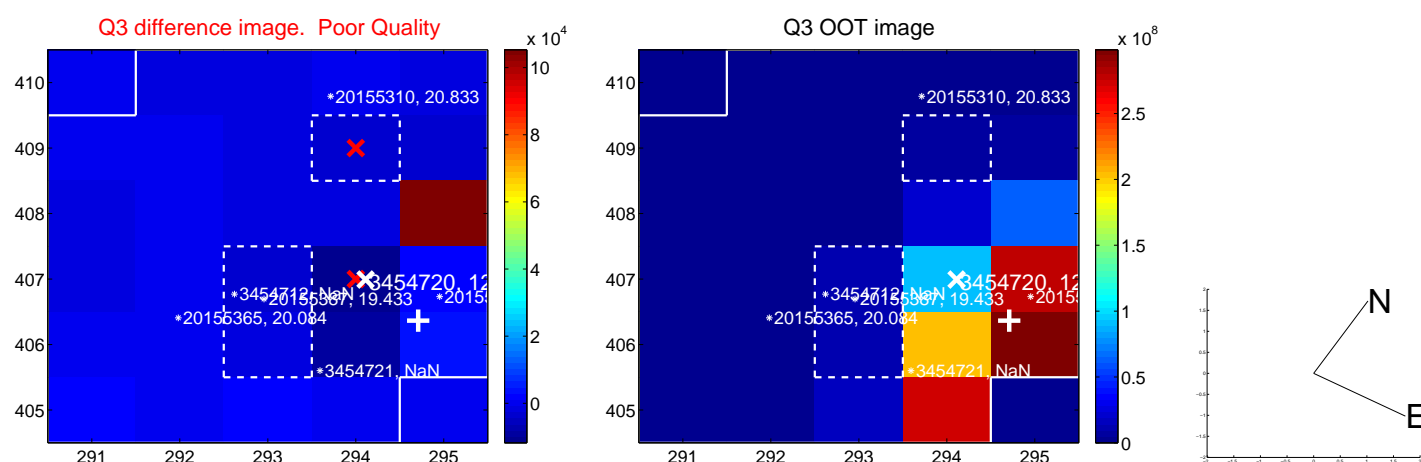
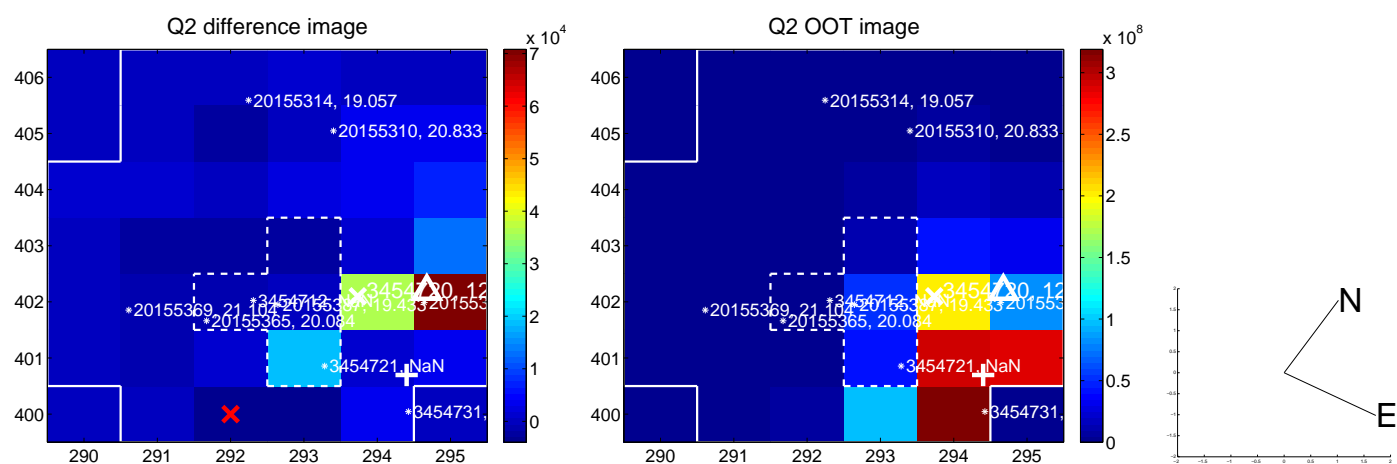
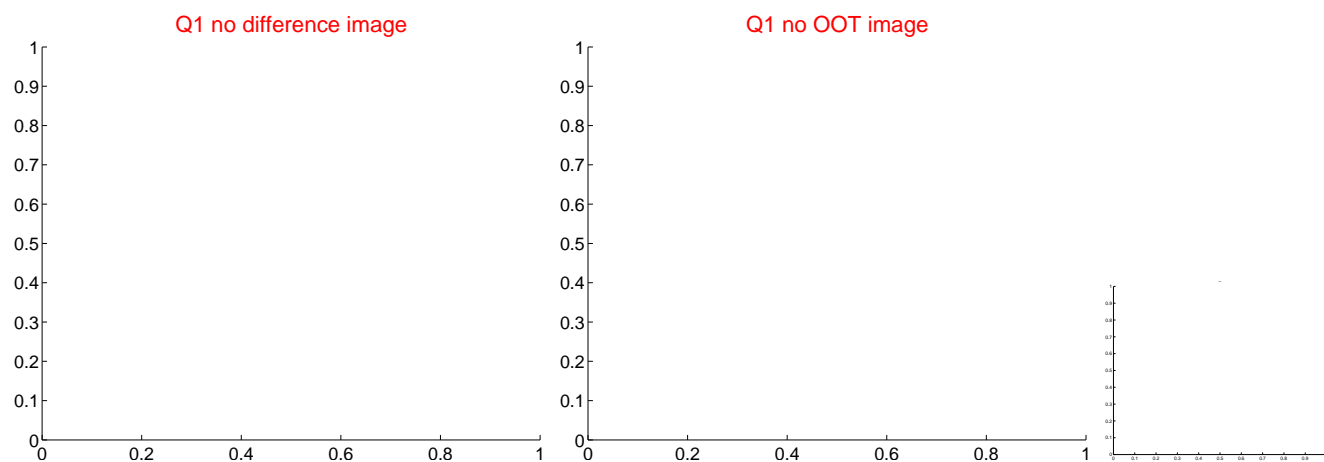


offset from photometric centroids

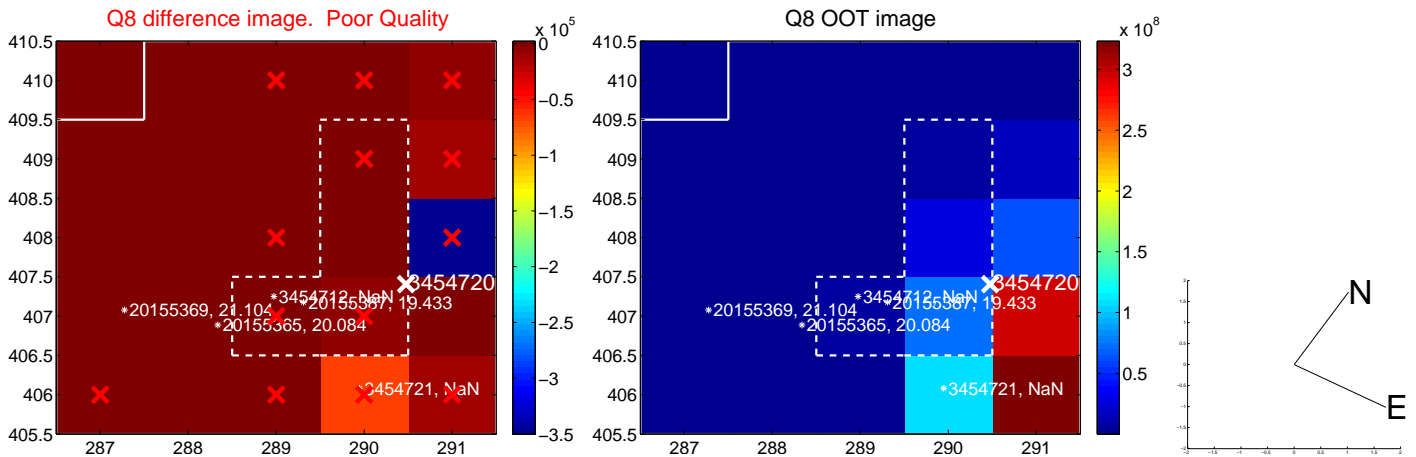
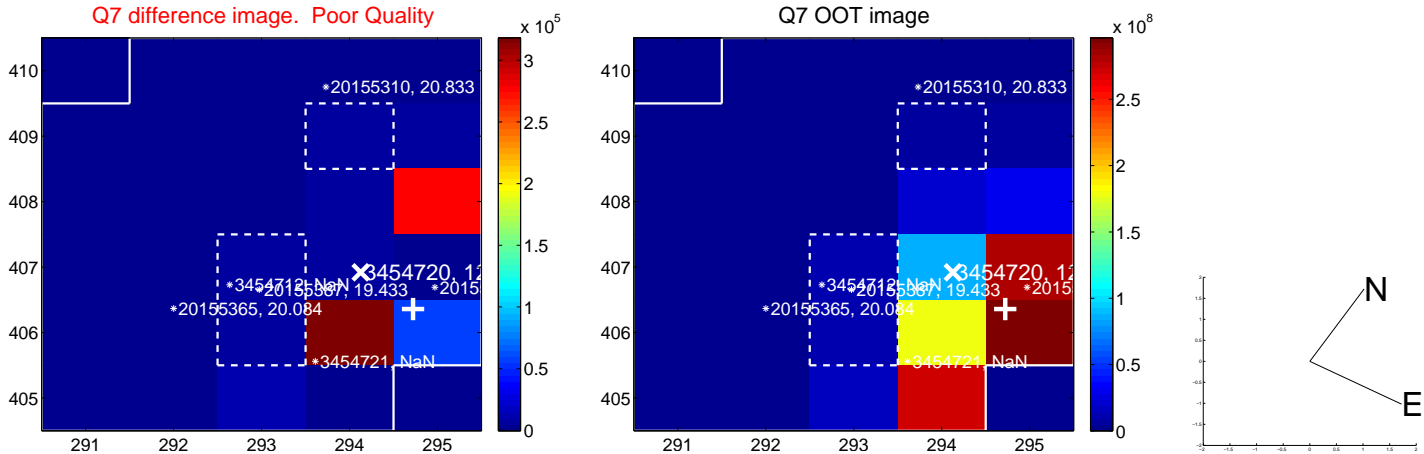
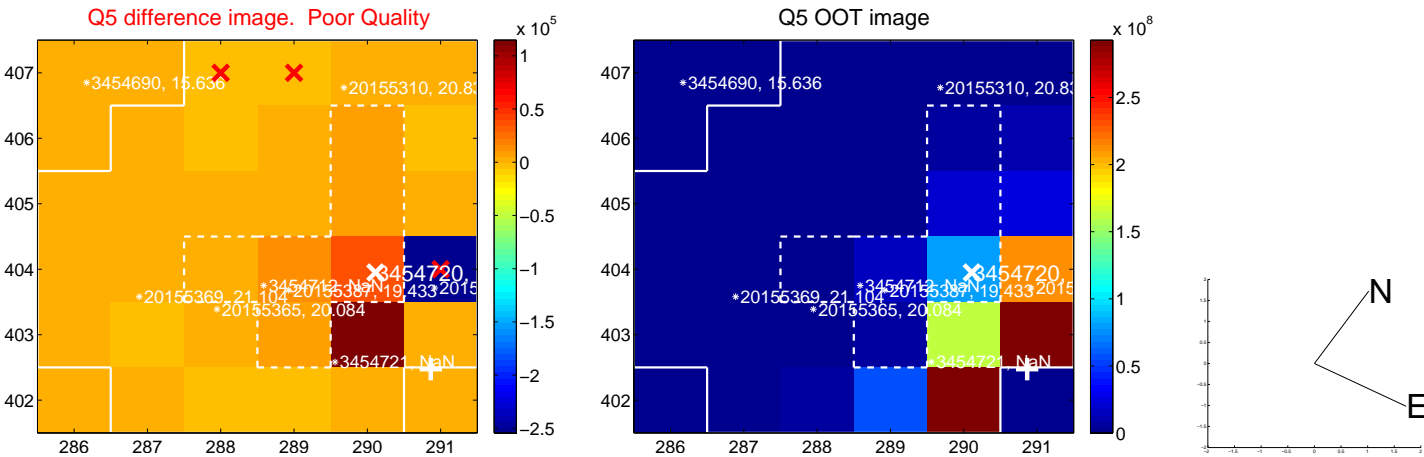


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

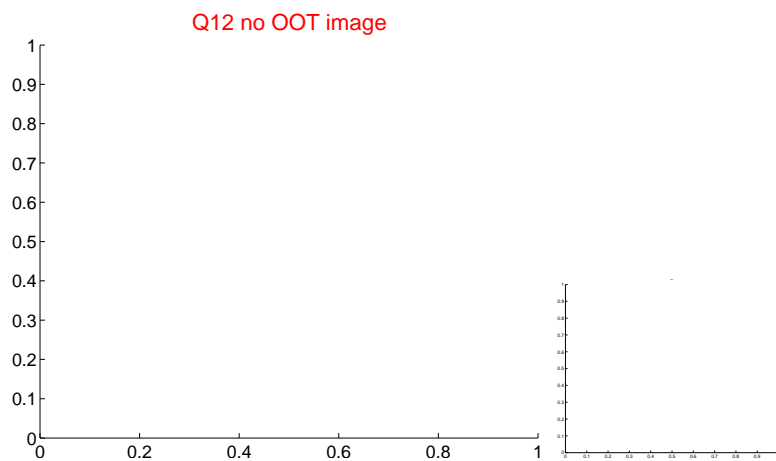
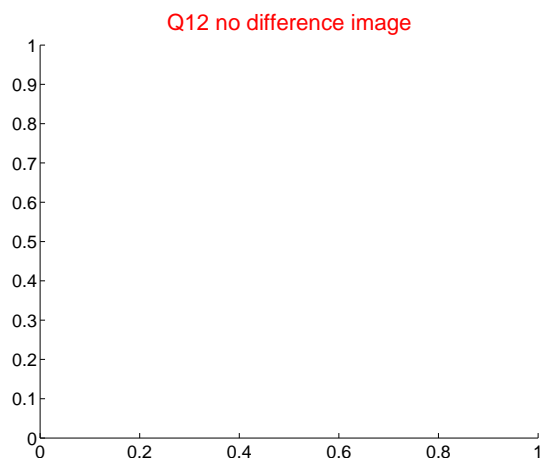
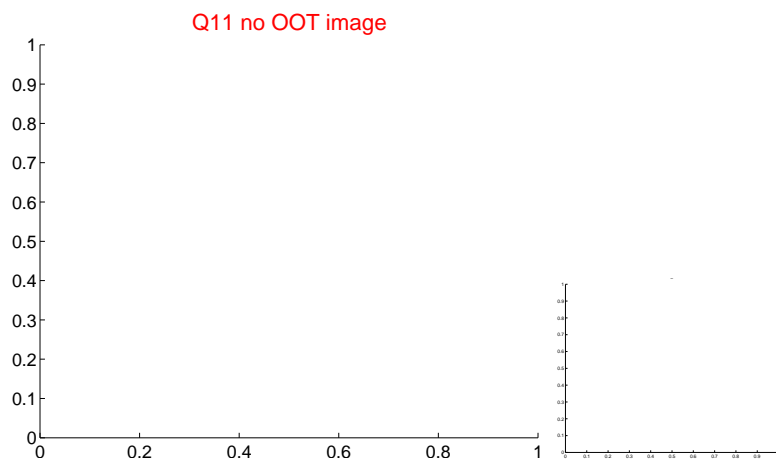
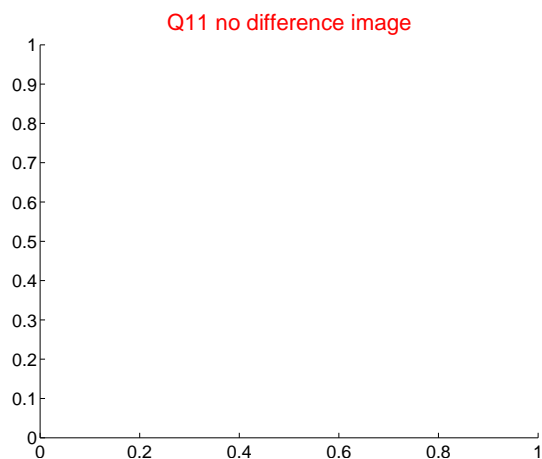
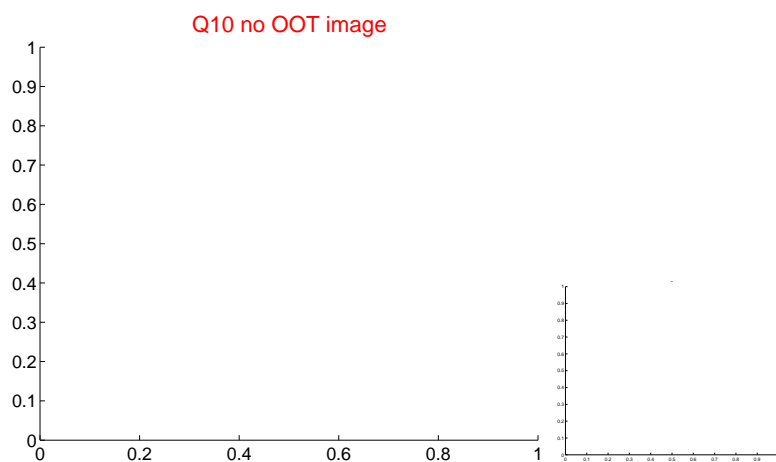
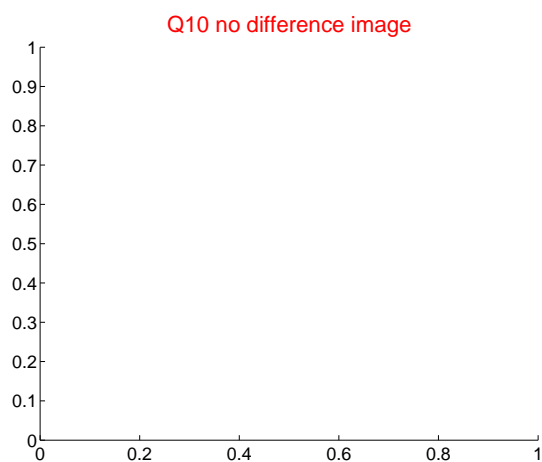
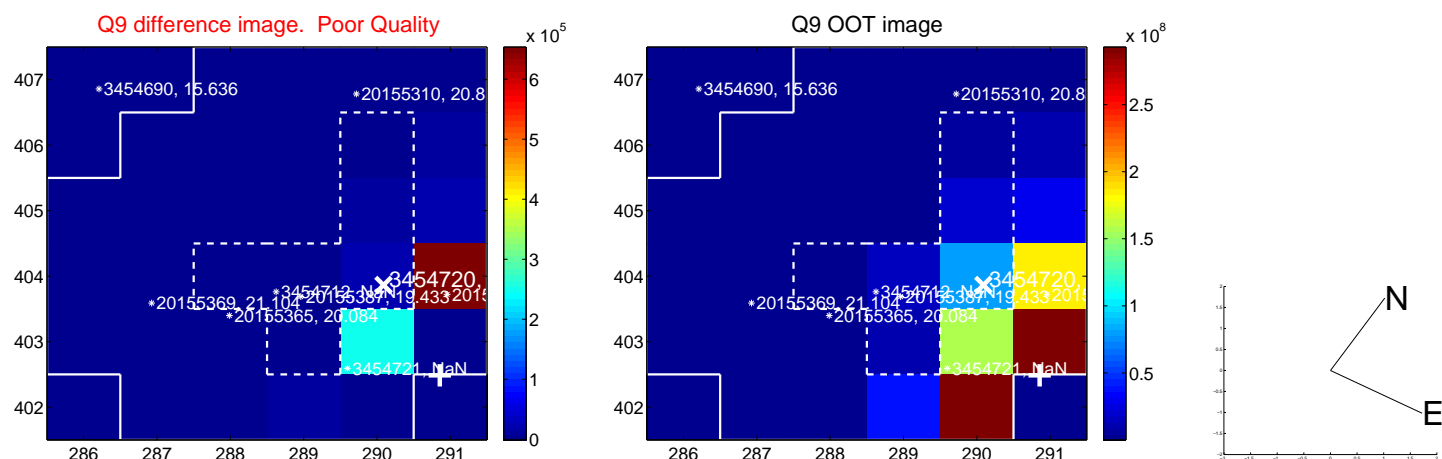
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



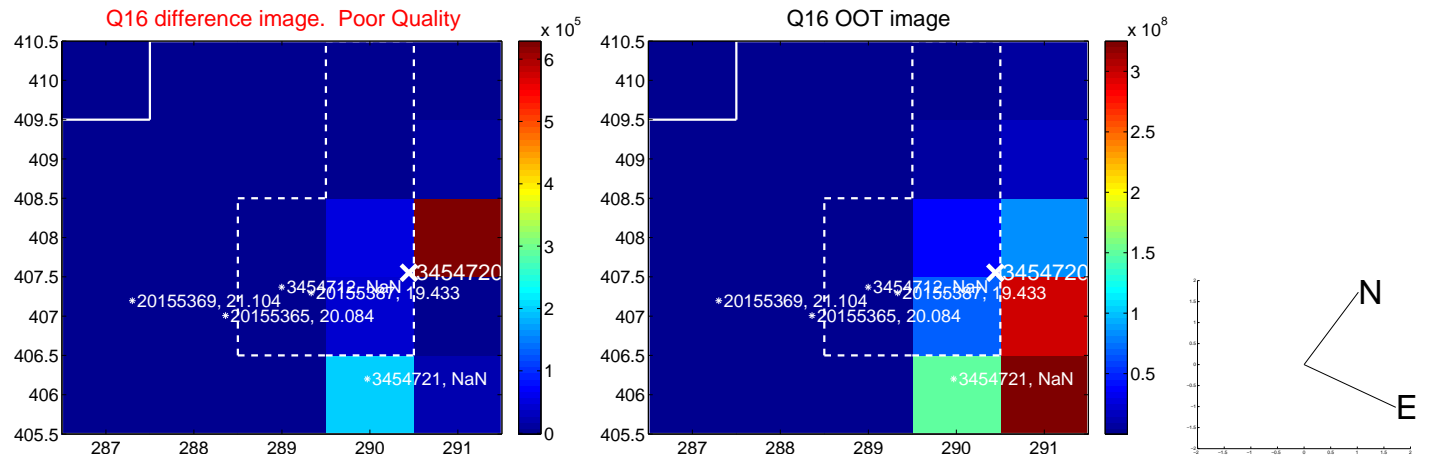
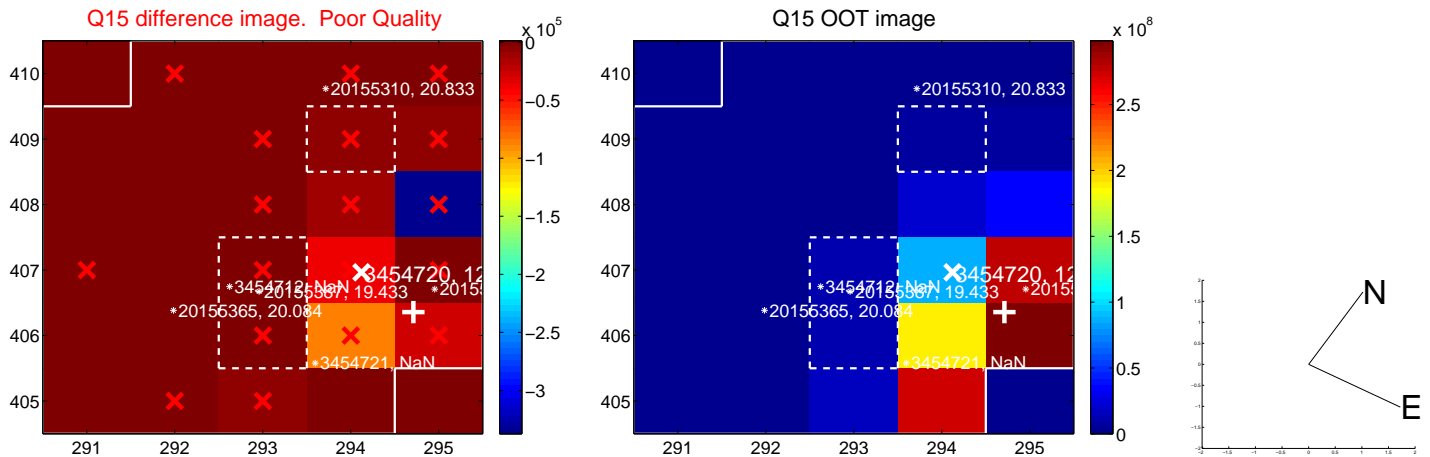
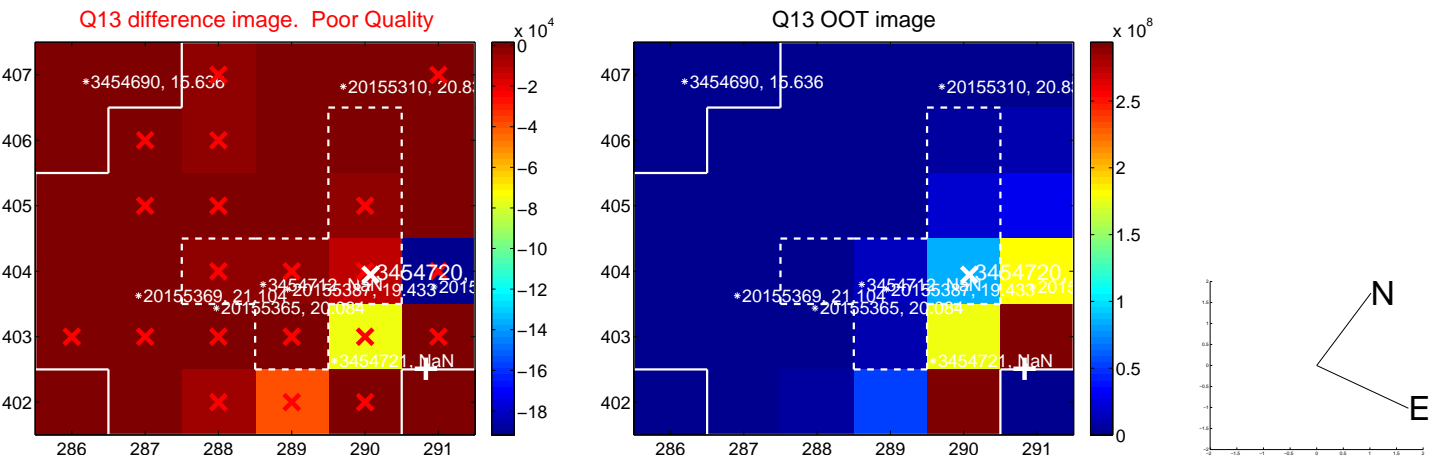
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



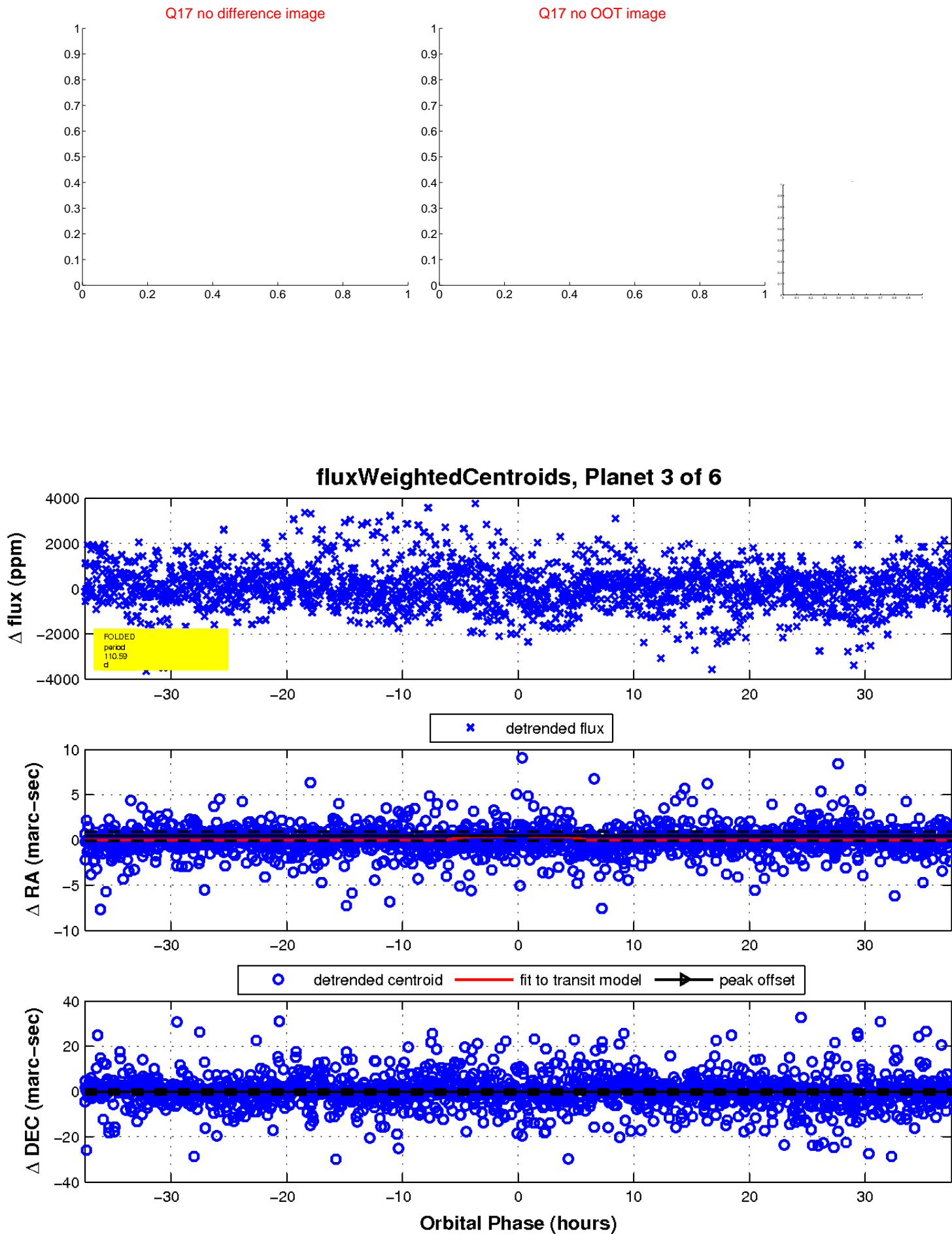
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

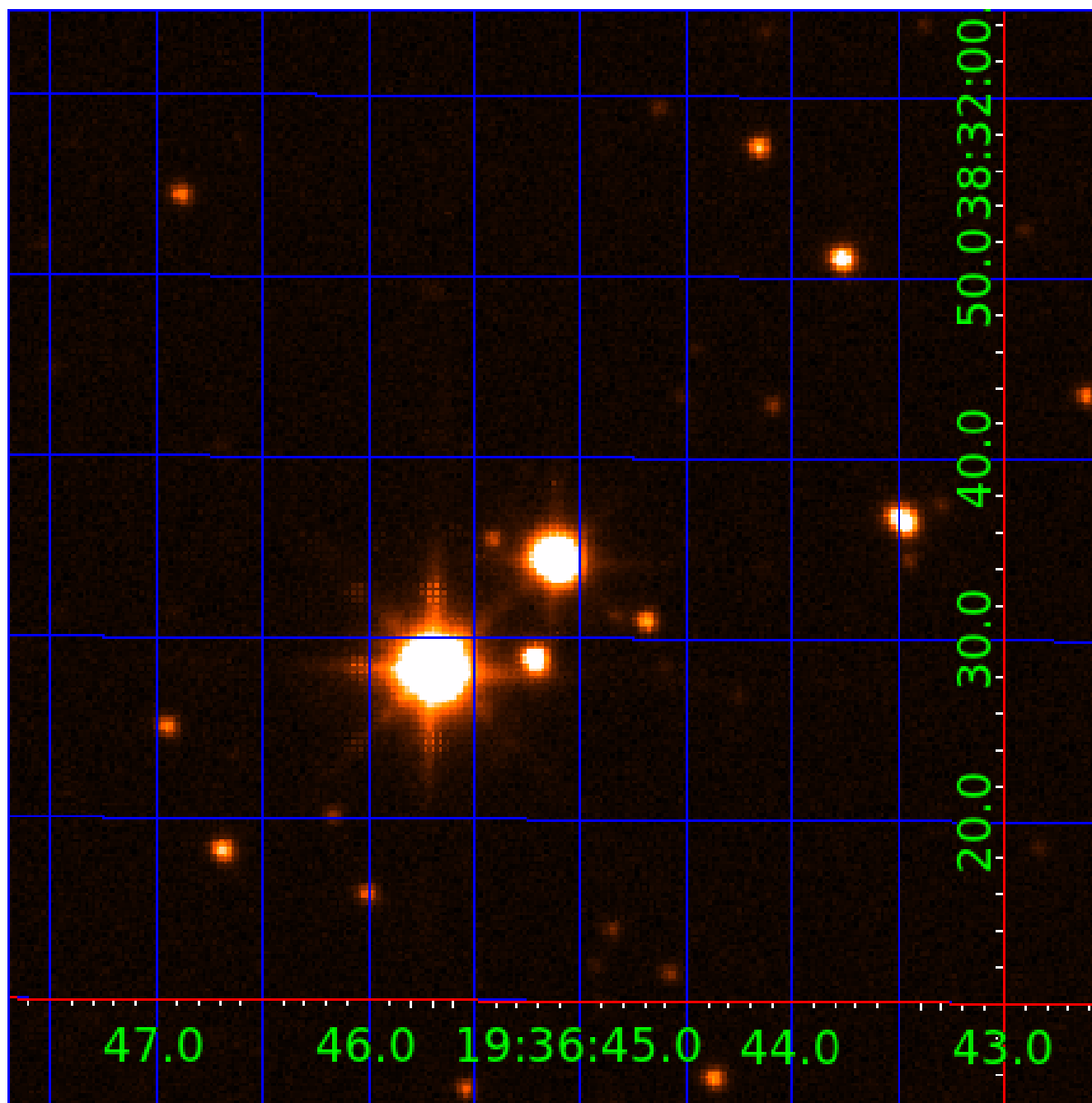


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003454720

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})
003454720-01	OBS	No	2.483861	132.828347	190.9	7.932	9.0	9.6	12.25	4696	20.74	0.00
003454720-02	OBS	No	2.136748	132.960541	223.8	5.190	10.0	10.4	12.25	4696	22.54	0.00
003454720-03	OBS	No	110.588600	228.465232	997.3	12.496	7.6	7.9	12.25	4696	46.10	239.33
003454720-04	OBS	No	2.483958	133.751781	218.7	10.066	9.2	10.2	12.25	4696	33.23	0.00
003454720-05	OBS	No	39.038170	148.400409	1359.1	13.918	9.2	9.9	12.25	4696	91.80	959.31
003454720-06	OBS	No	24.219281	142.800536	227.6	6.000	7.8	-1.0	12.25	4696	17.78	1812.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003454720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
003454720-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
003454720-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

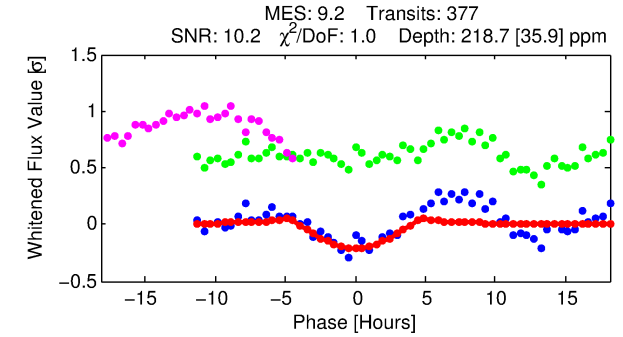
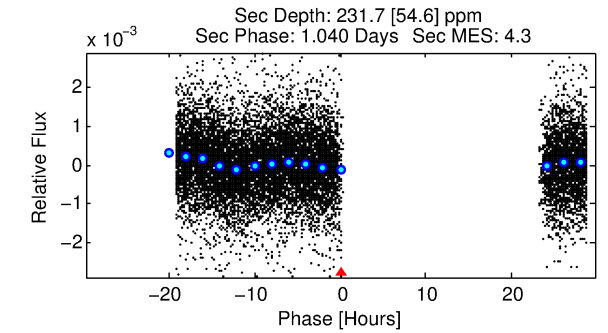
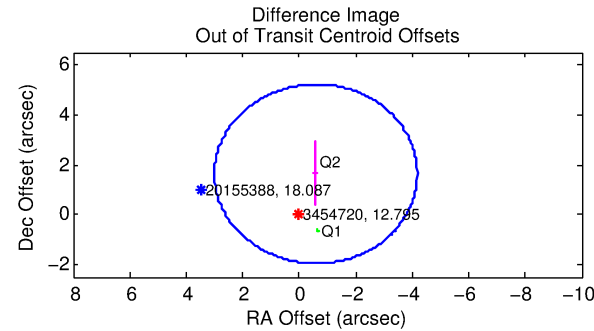
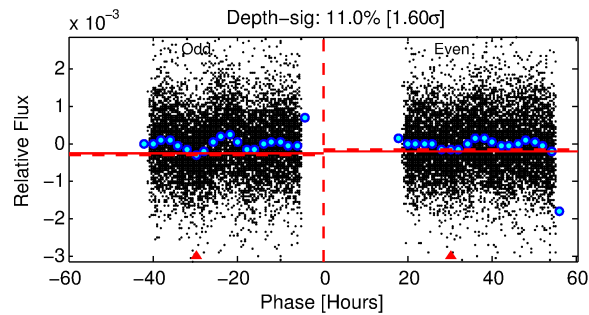
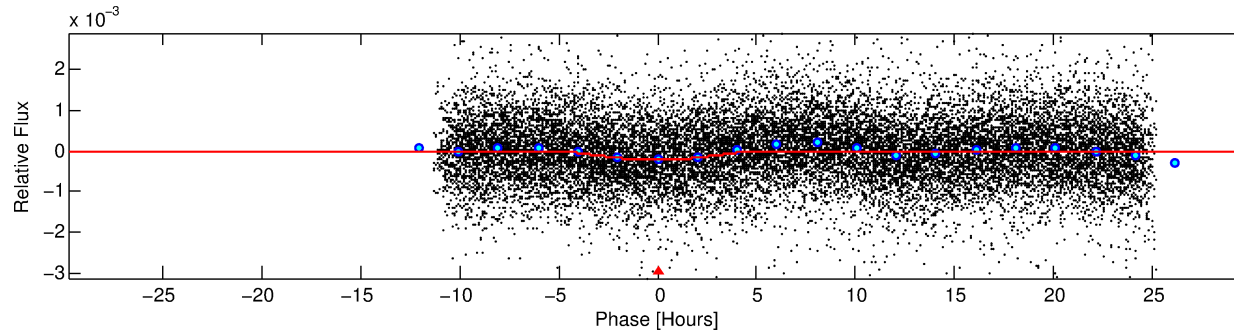
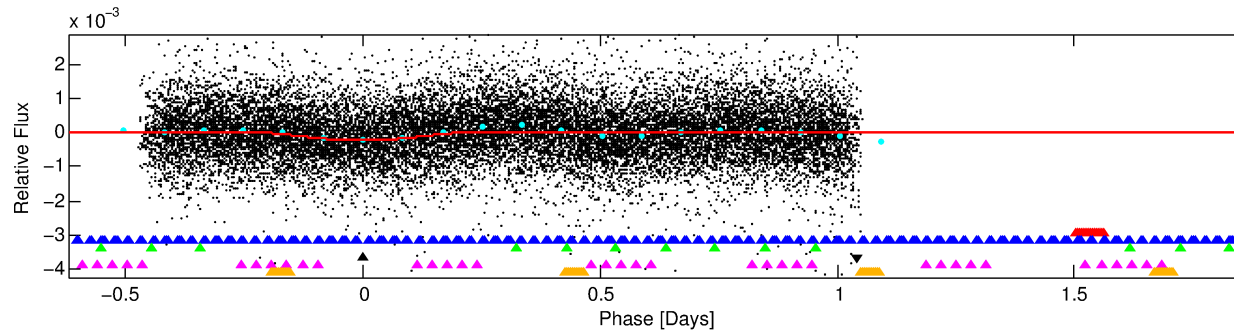
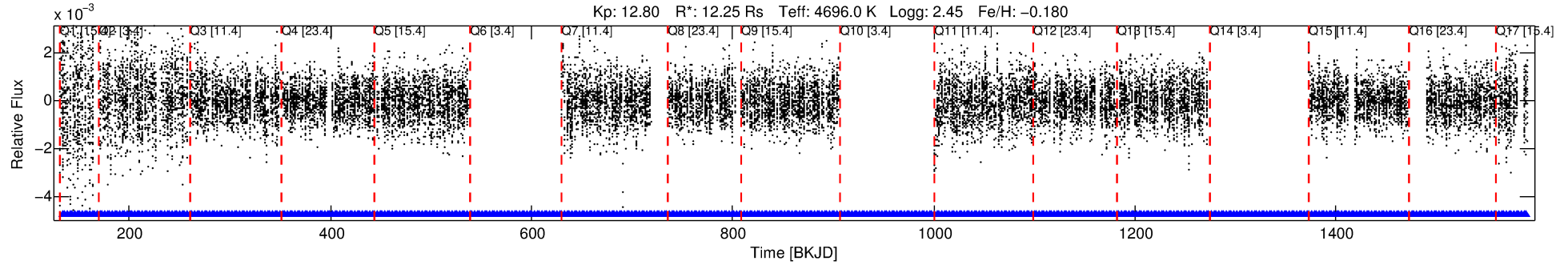
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003454720-04

No Significant Match Found

DV One-Page Summary

KIC: 3454720 Candidate: 4 of 6 Period: 2.484 d



DV Fit Results:

Period = 2.48396 [0.00006] d
Epoch = 133.7518 [0.0194] BKJD
Rp/R* = 0.0249 [0.0312]
a/R* = 1.11 [0.05]
b = 0.99 [0.05]
Seff = N/A
Teq = N/A
Rp = 33.24 [42.52] Re
a = N/A
Ag = N/A
Teffp = N/A

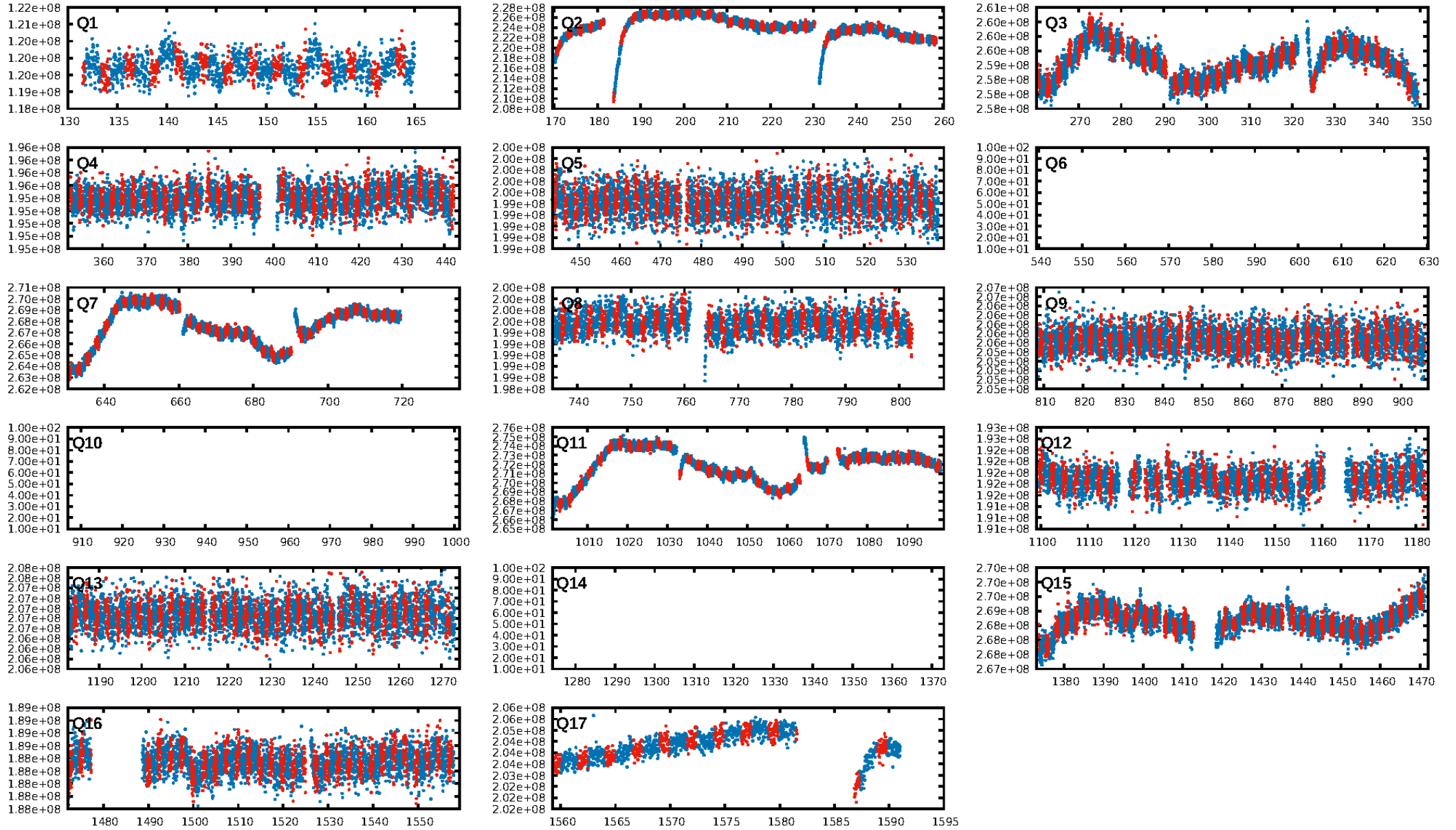
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: 100.0% [44.51 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [357/357]
GhostDiagnostic-chr: -0.8075
Centroid-sig: 0.0%
Centroid-so: 1.117 arcsec [4.19 σ]
OotOffset-rm: 1.732 arcsec [1.45 σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-rm: 2.773 arcsec [9.86 σ]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [14/14]

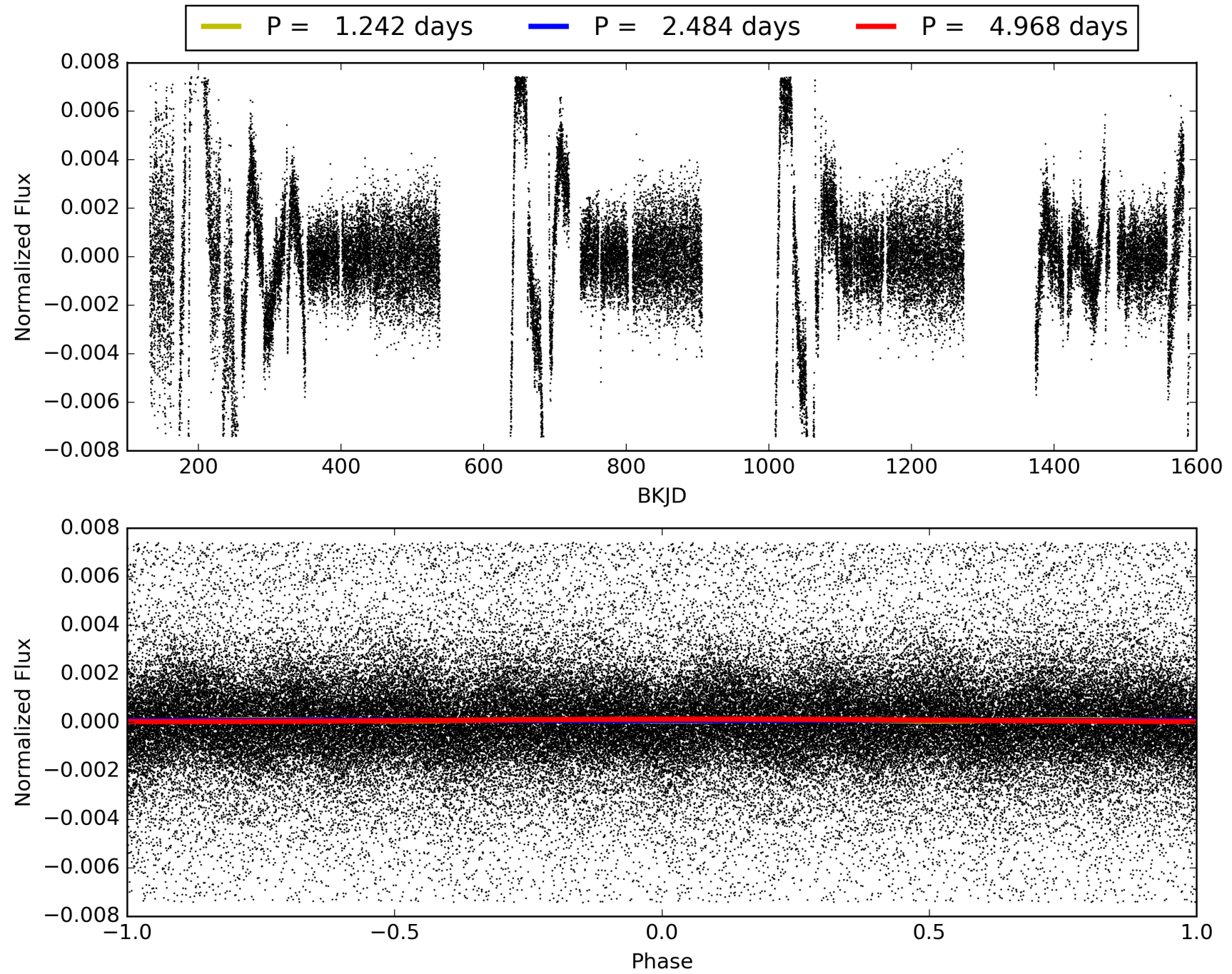
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:13:12 Z

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

TCE 003454720-04, PDC Light Curves

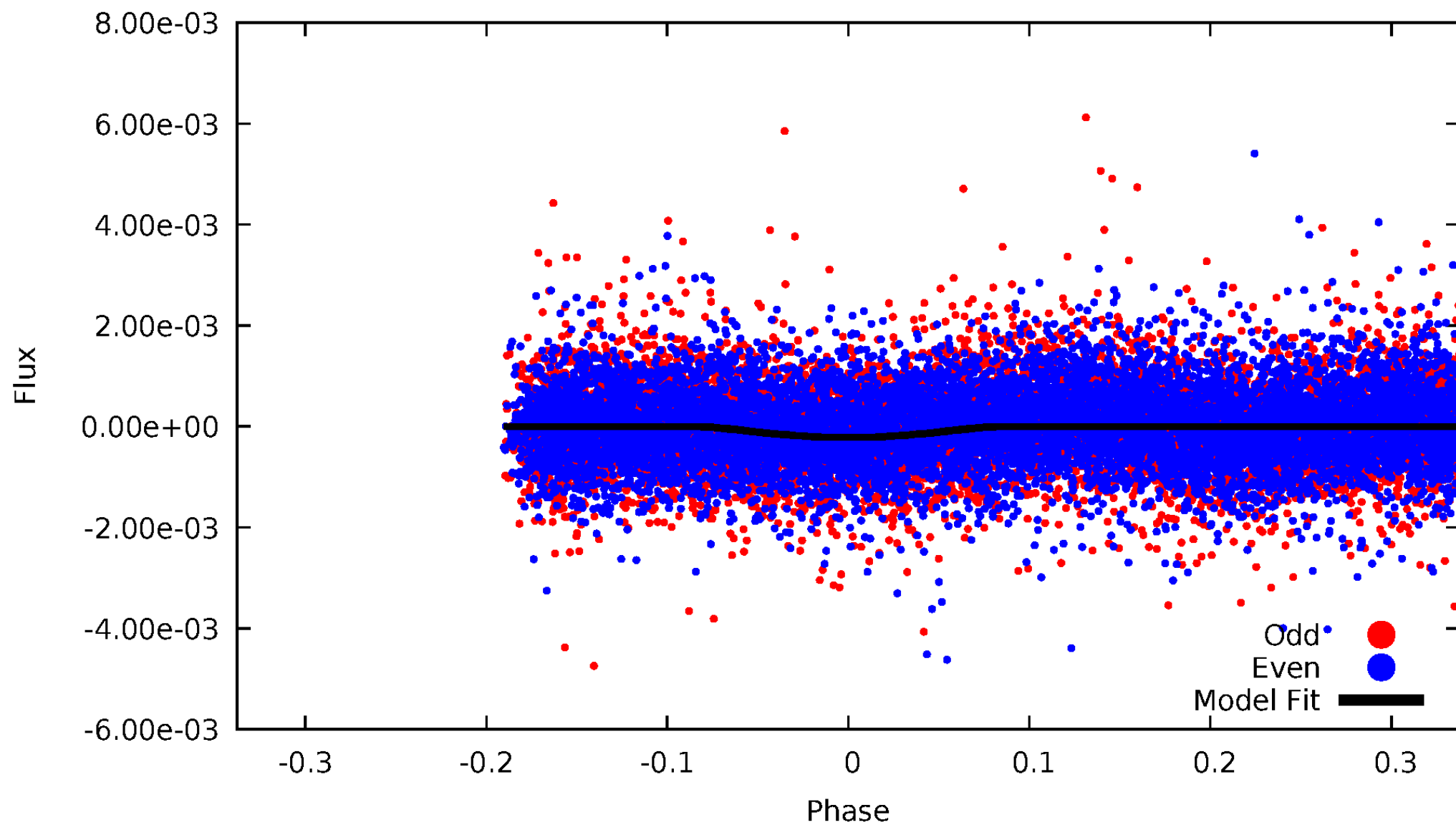


TCE 003454720-04



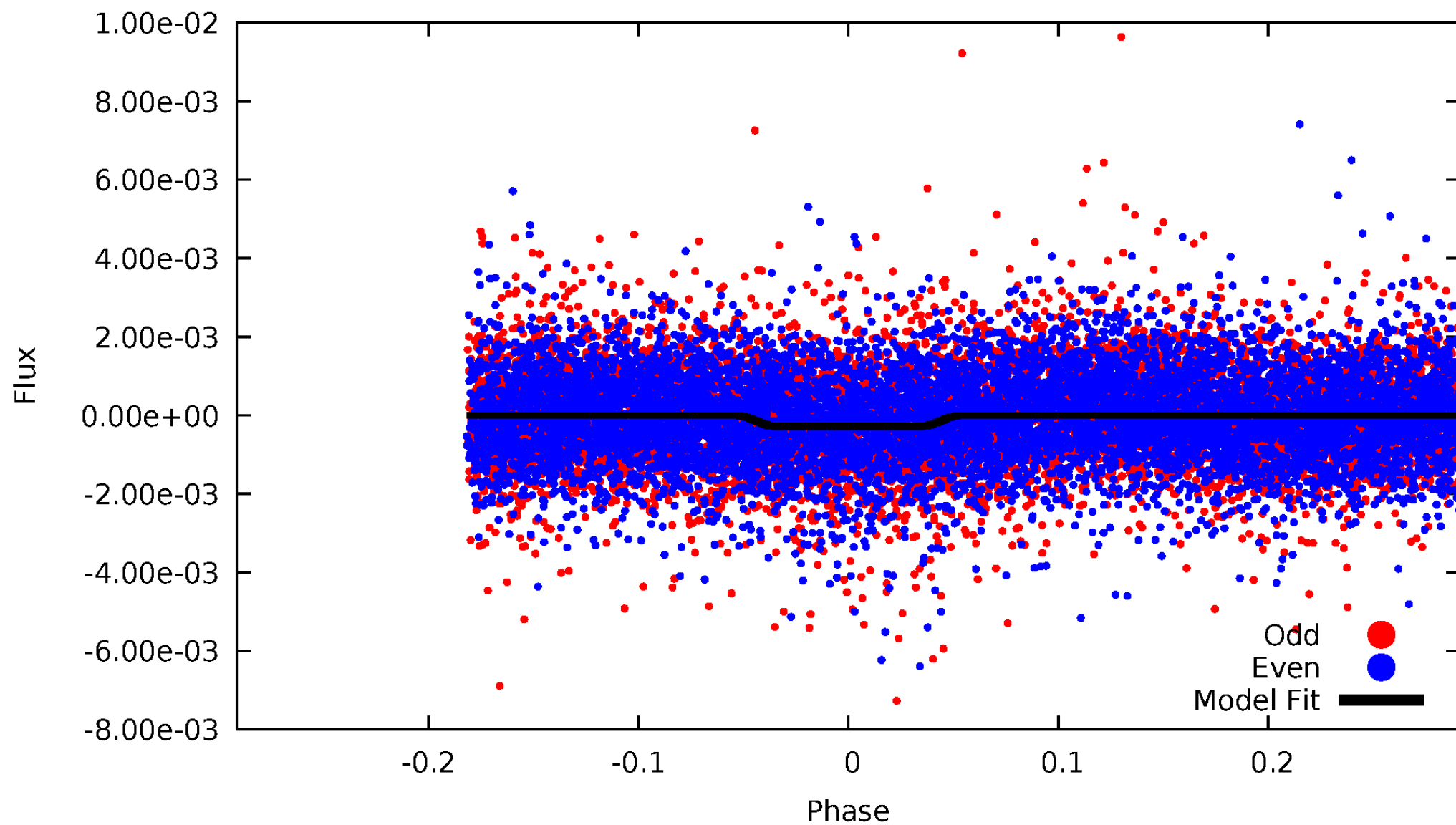
DV Odd/Even

TCE 003454720-04



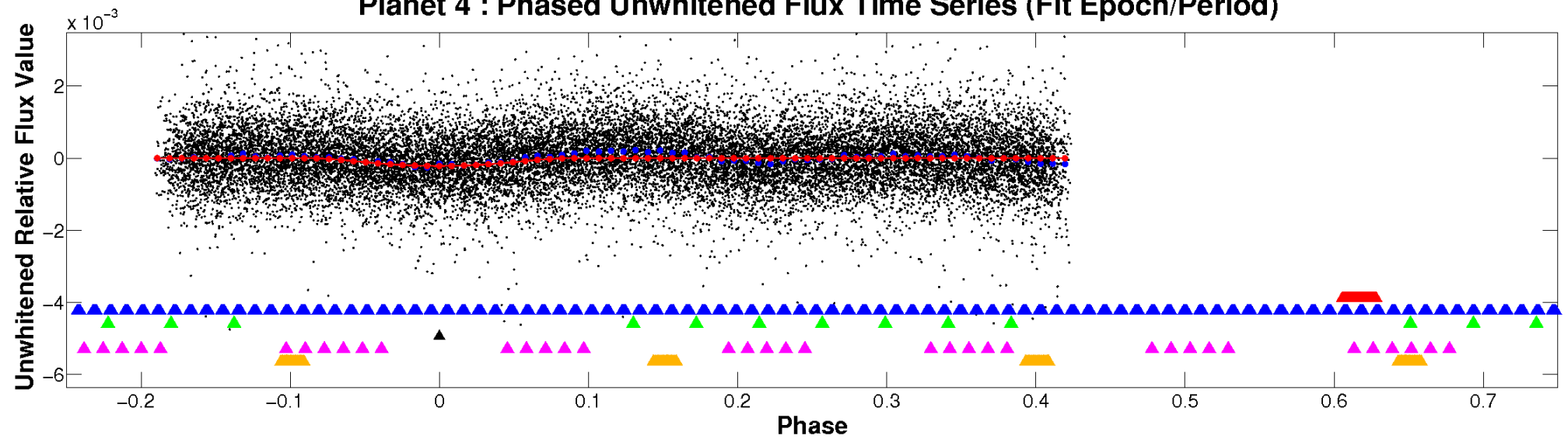
ALT Odd/Even

TCE 003454720-04

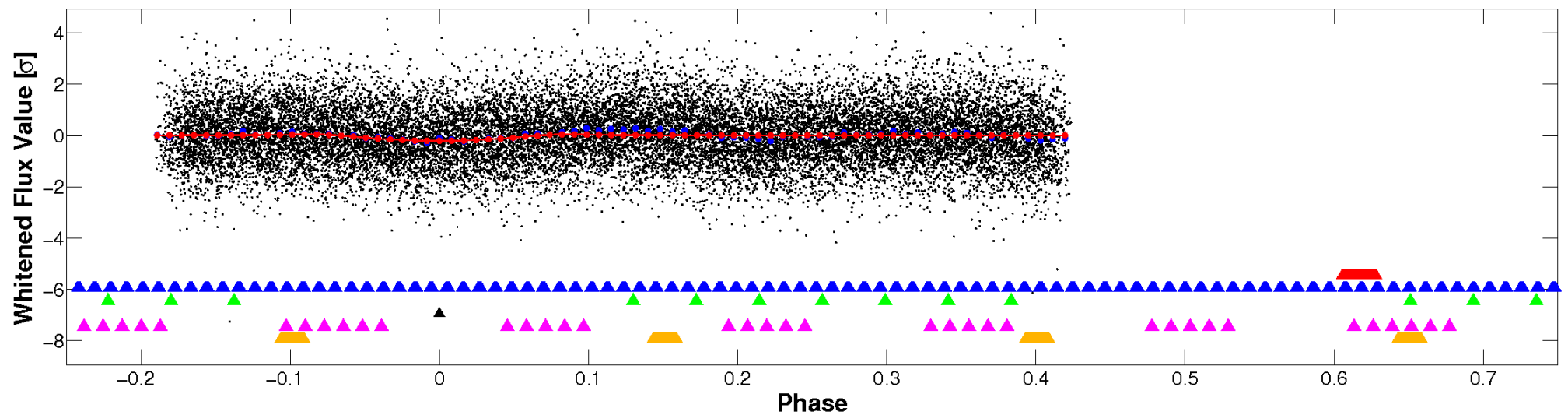


Non-Whitened Vs. Whitened Light Curve

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

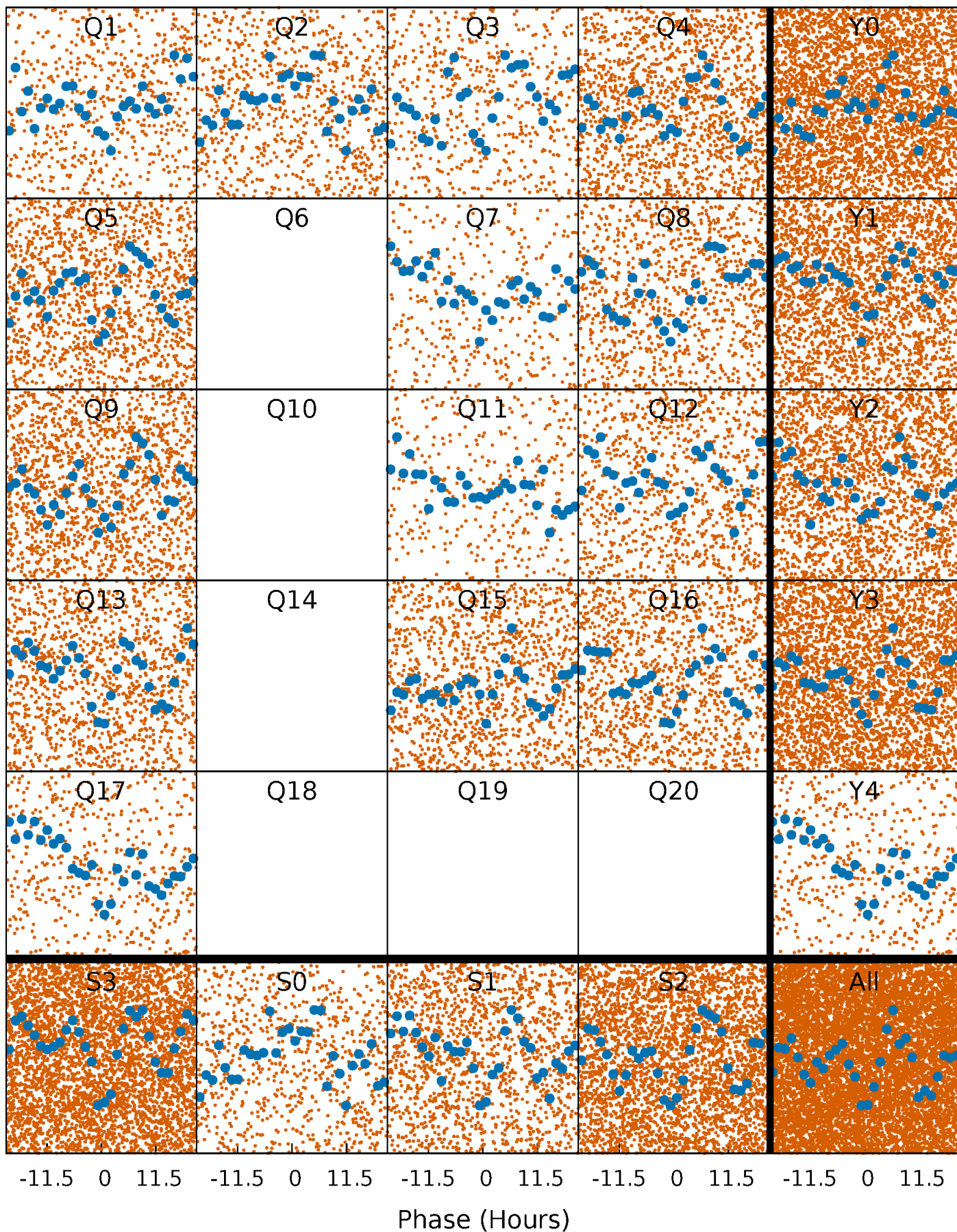


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



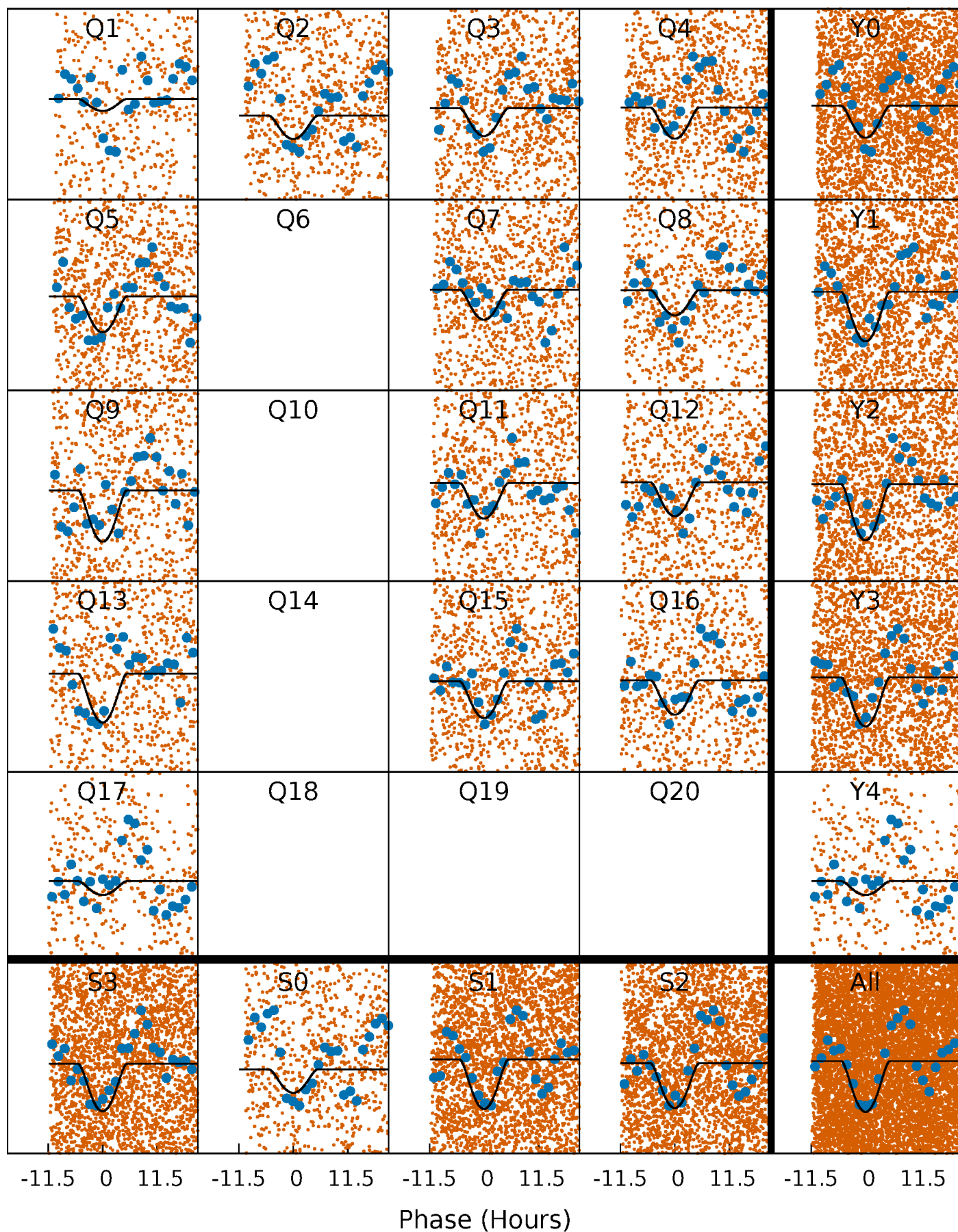
PDC Quarter-Phased Transit Curves

TCE 003454720-04 $P = 2.483958$ Days $T_0 = 133.751781$ (BKJD)



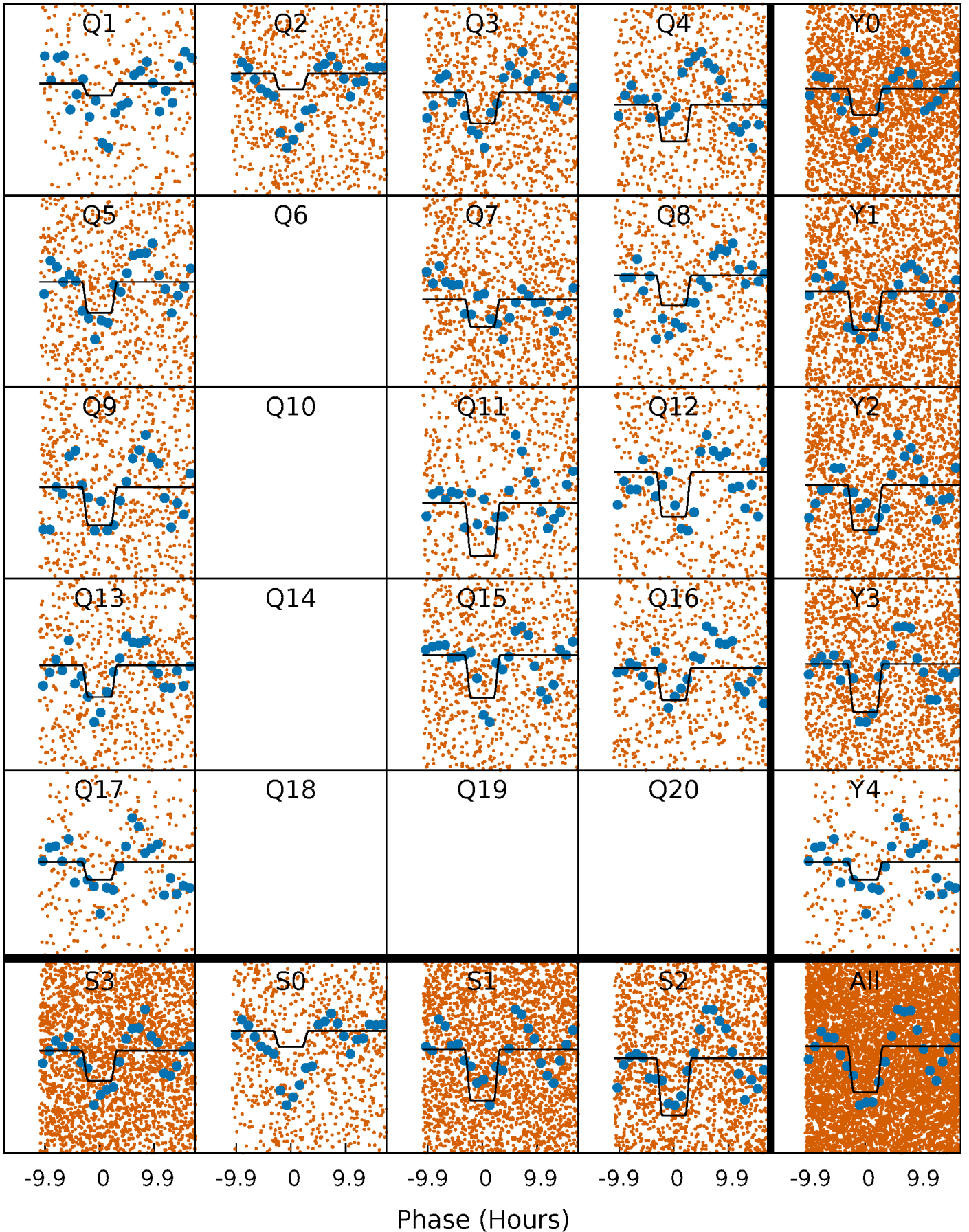
DV Quarter-Phased Transit Curves

TCE 003454720-04 $P = 2.483958$ Days $T_0 = 133.751781$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

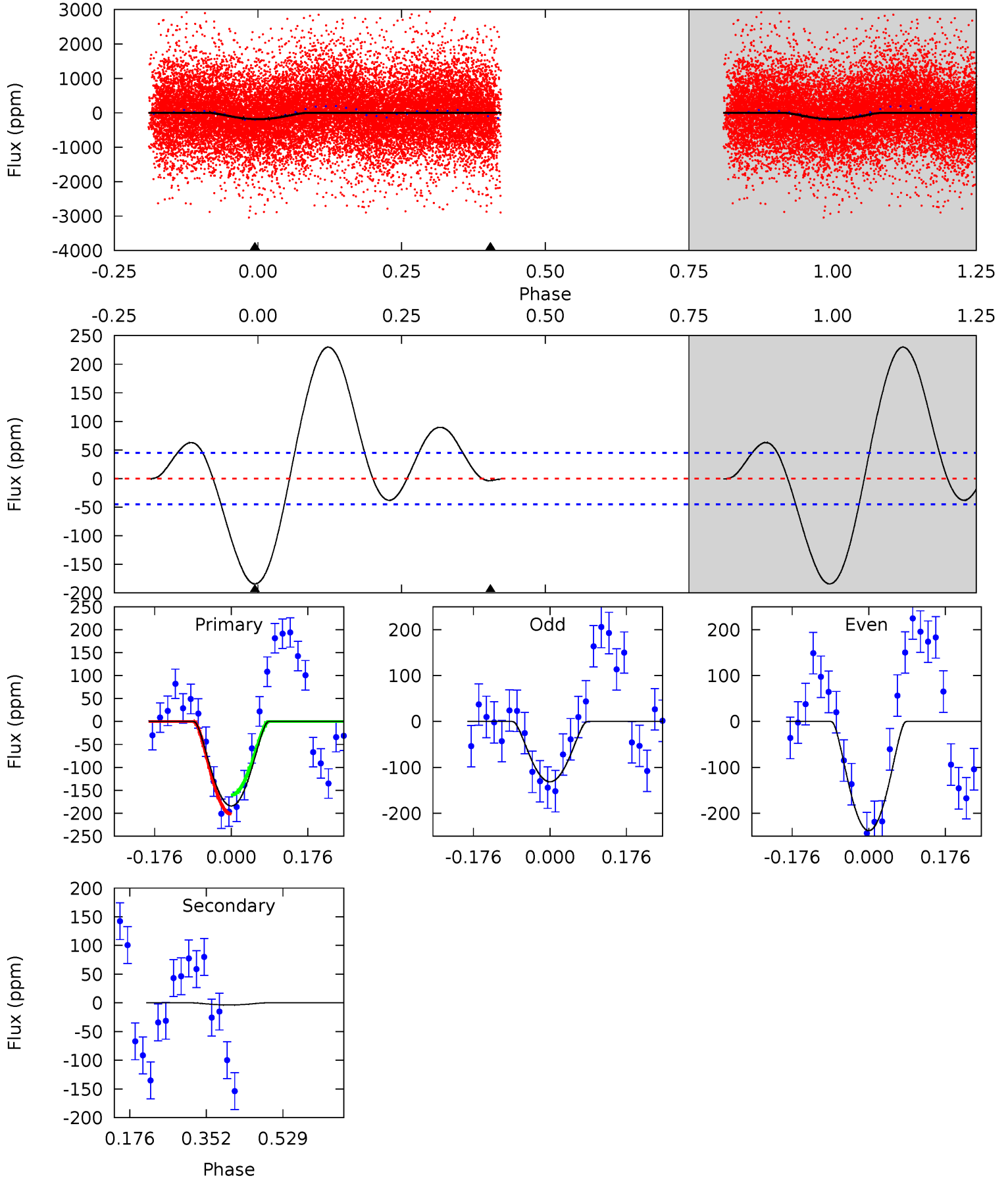
TCE 003454720-04 $P = 2.483879$ Days $T_0 = 133.775953$ (BKJD)



DV Model-Shift Uniqueness Test

003454720-04, P = 2.483958 Days, E = 131.267823 Days

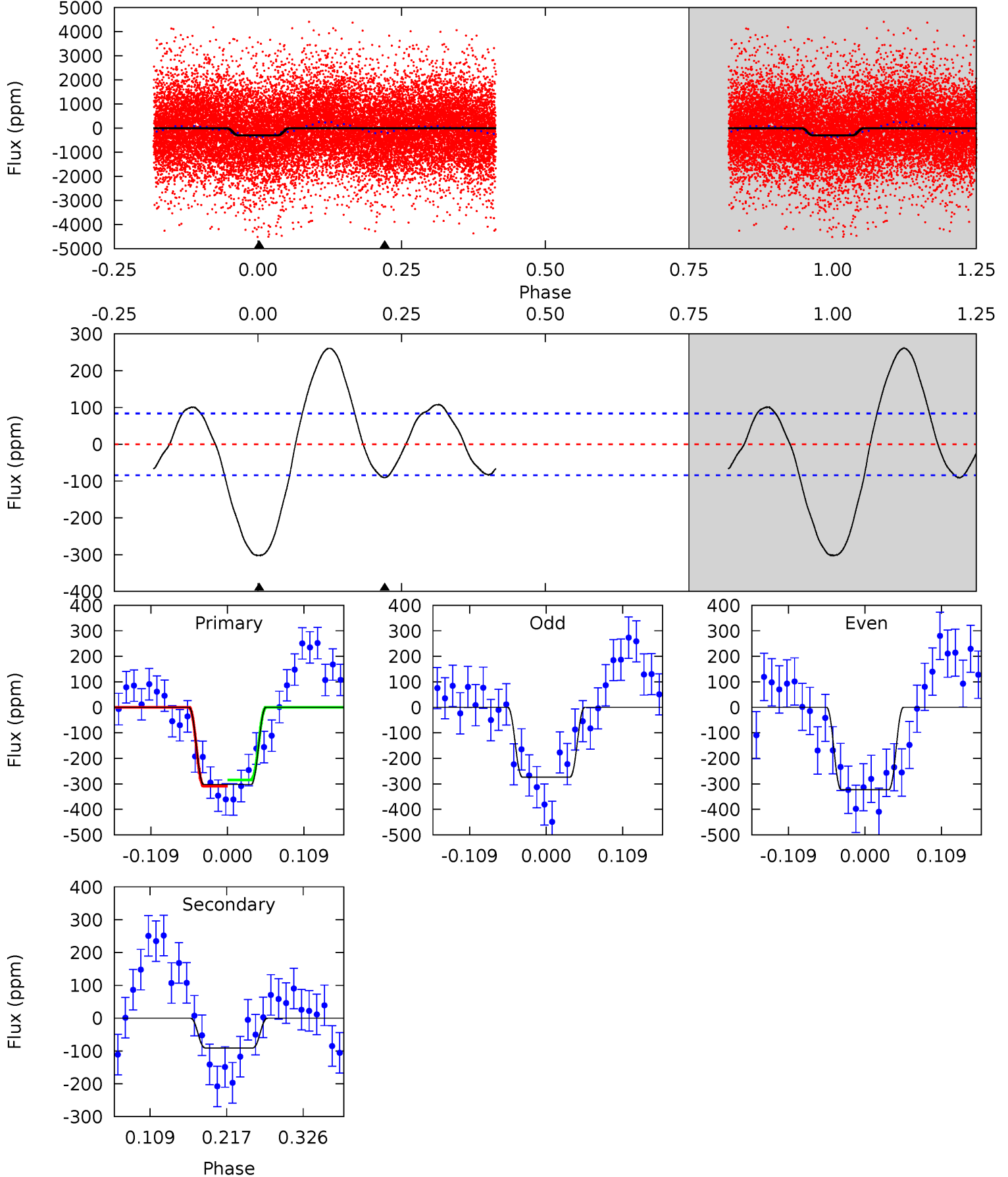
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.2	0.36	0	0	4.44	1.35	4.26	18.2	18.2	0.36	0.36	5.36	1.58	0.56	2.14



Alt Model-Shift Uniqueness Test

003454720-04, P = 2.483879 Days, E = 131.292074 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.4	4.92	0	0	4.55	1.60	3.57	16.4	16.4	4.92	4.92	1.34	1.13	0.46	0.65



Stellar Parameters For KIC 003454720

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4696^{+49}_{-70}	$2.454^{+0.115}_{-0.115}$	$-0.180^{+0.150}_{-0.100}$	$12.252^{+1.840}_{-2.990}$	$1.557^{+0.162}_{-0.487}$	$0.001^{+0.001}_{-0.000}$
	+1%/-1%	+5%/-5%	+83%/-56%	+15%/-24%	+10%/-31%	+65%/-34%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003454720-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-4 ± 10	$44.14^{+39.20}_{-30.30}$	4983^{+193}_{-248}	-4194^{+210}_{-156}	$0.001^{+0.014}_{-0.004}$
Alt.	-91 ± 18	$37.62^{+37.10}_{-24.76}$	4991^{+227}_{-219}	-3999^{+7842}_{-231}	$0.059^{+0.443}_{-0.044}$

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

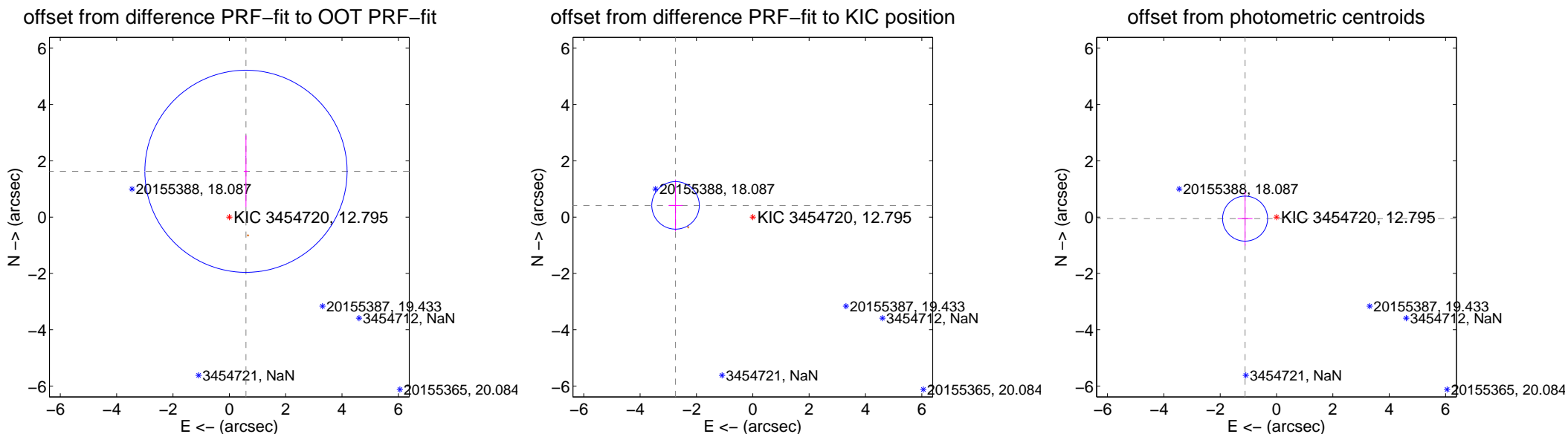
DV Centroid Data

Supplemental centroid analysis for 003454720-04. Kepler magnitude: 12.79. Transit SNR 10.15

There are 2 quarters with good PRF difference image offsets

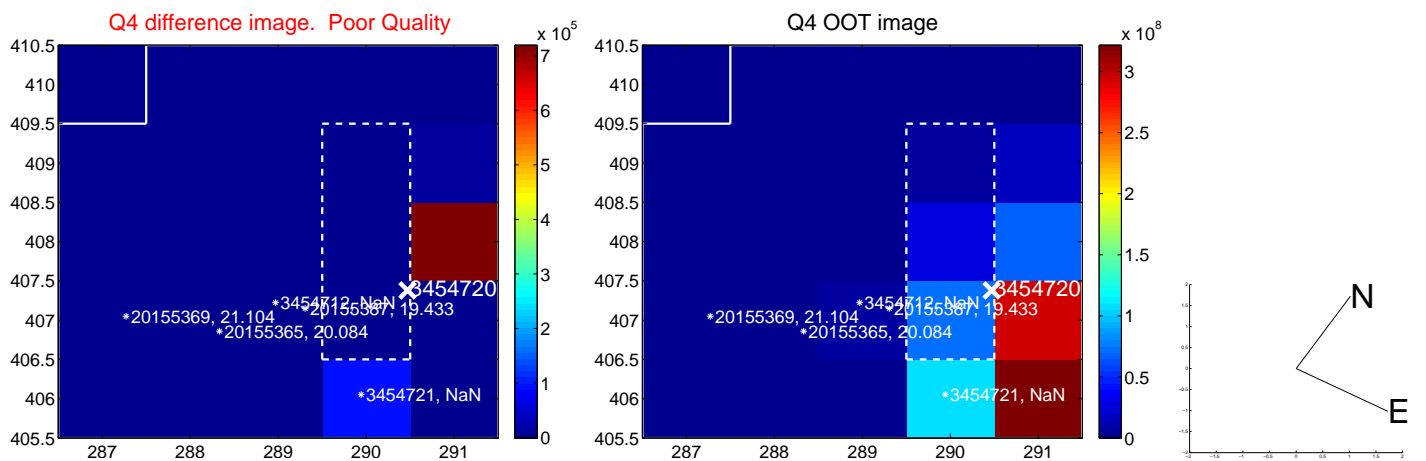
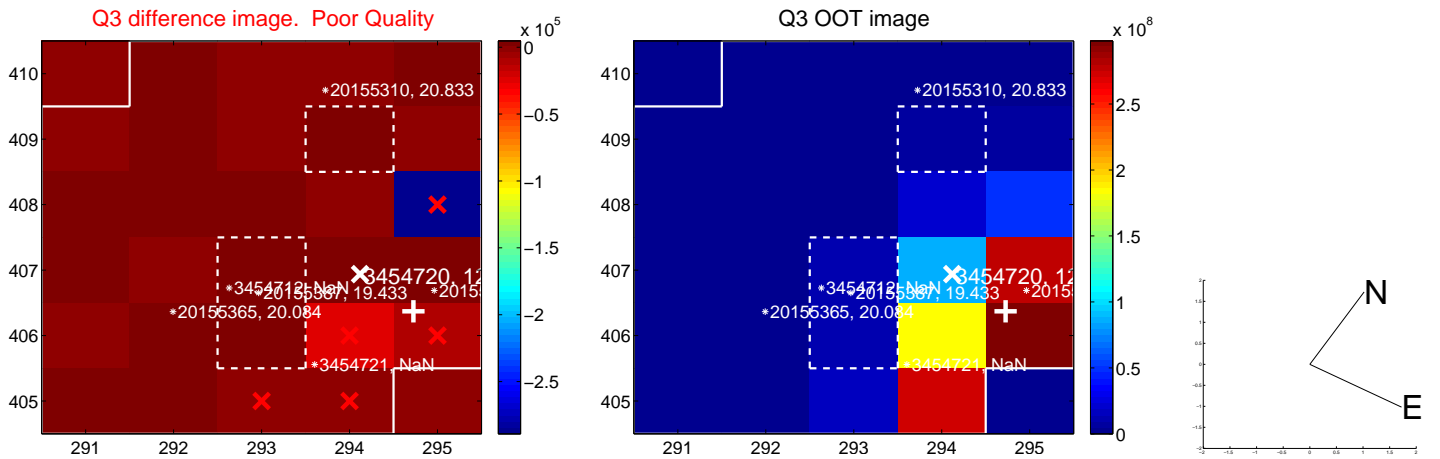
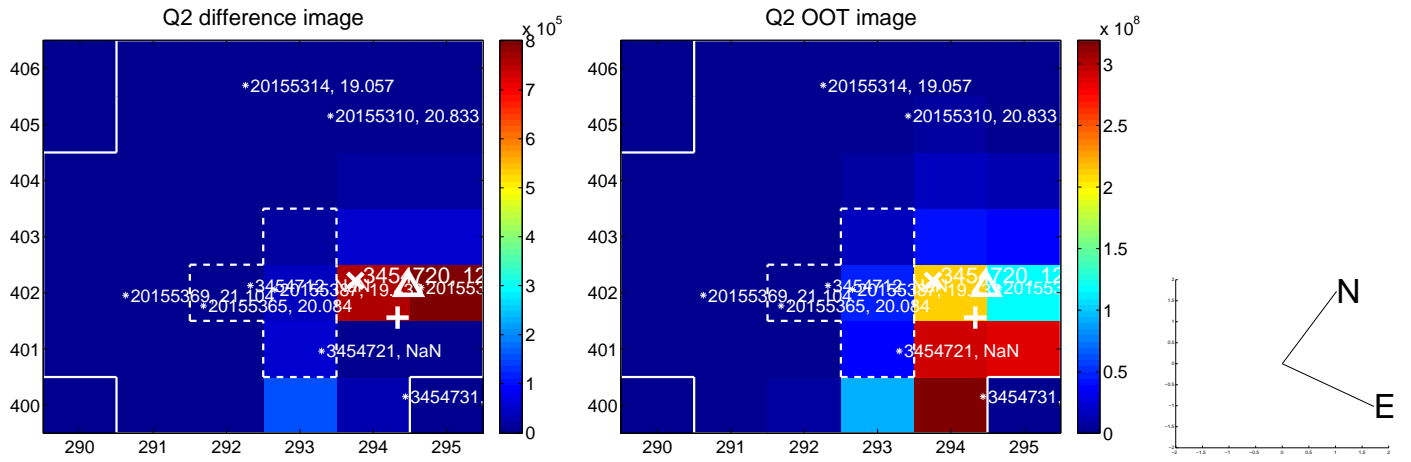
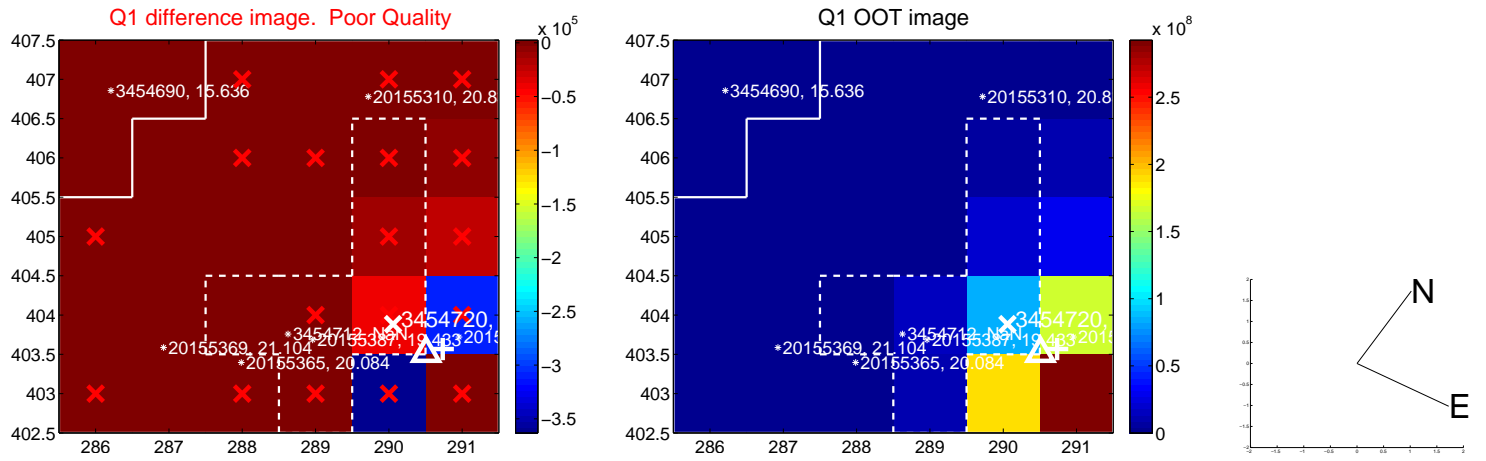
The OOT PRF centroid is offset from the target star catalog position by about 3.47 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.732 ± 1.196	1.45	-0.591 ± 0.074	1.628 ± 1.272
PRF-fit source offset from KIC position	2.773 ± 0.281	9.86	2.742 ± 0.248	0.417 ± 0.919
photometric centroid source offset	1.12 ± 0.27	4.19	1.12 ± 0.26	-0.05 ± 0.96

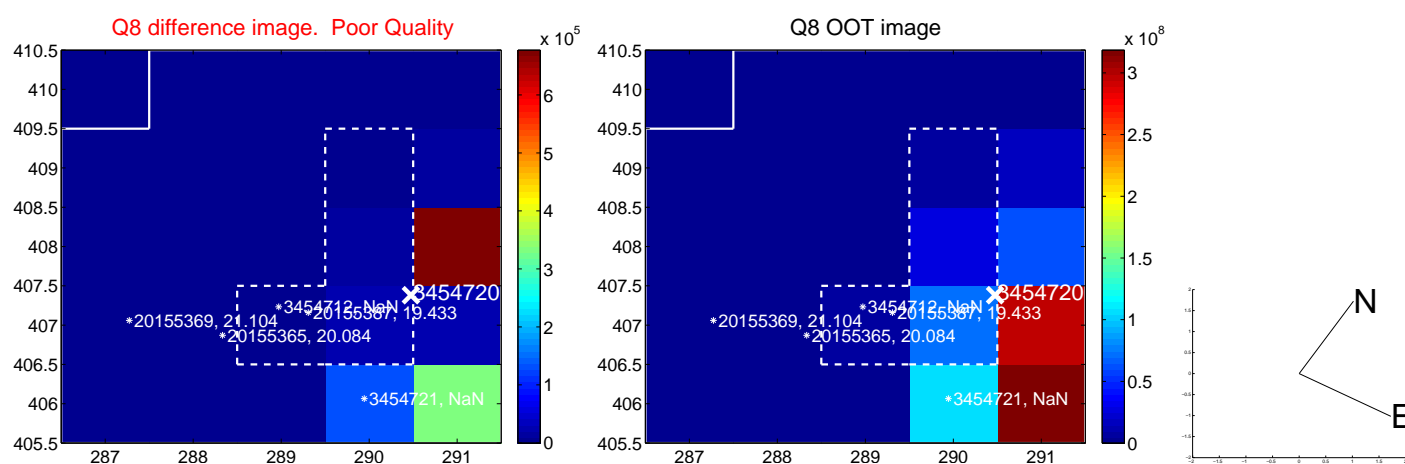
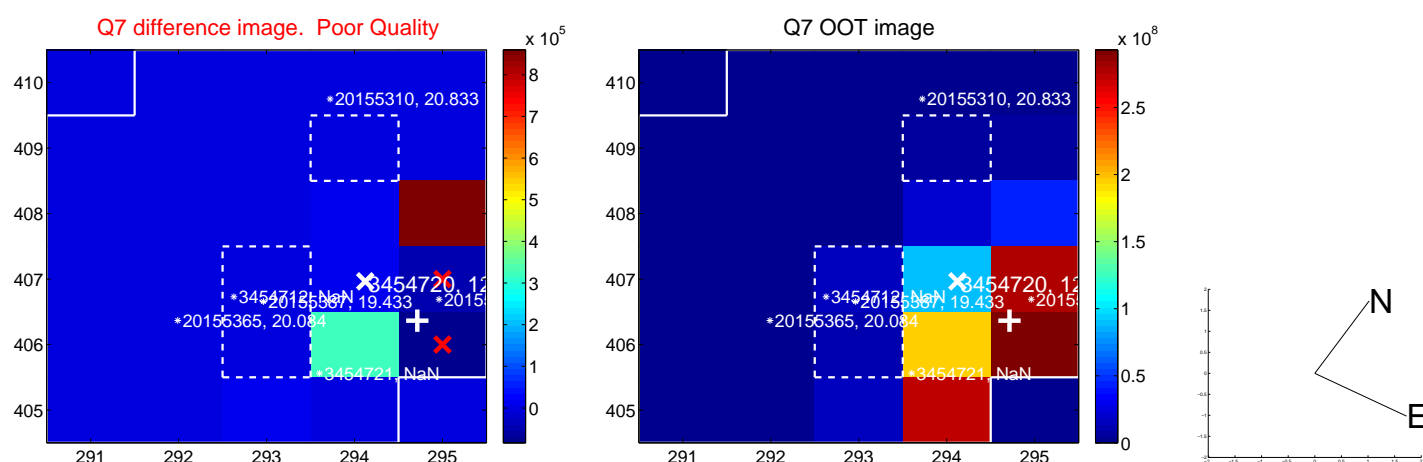
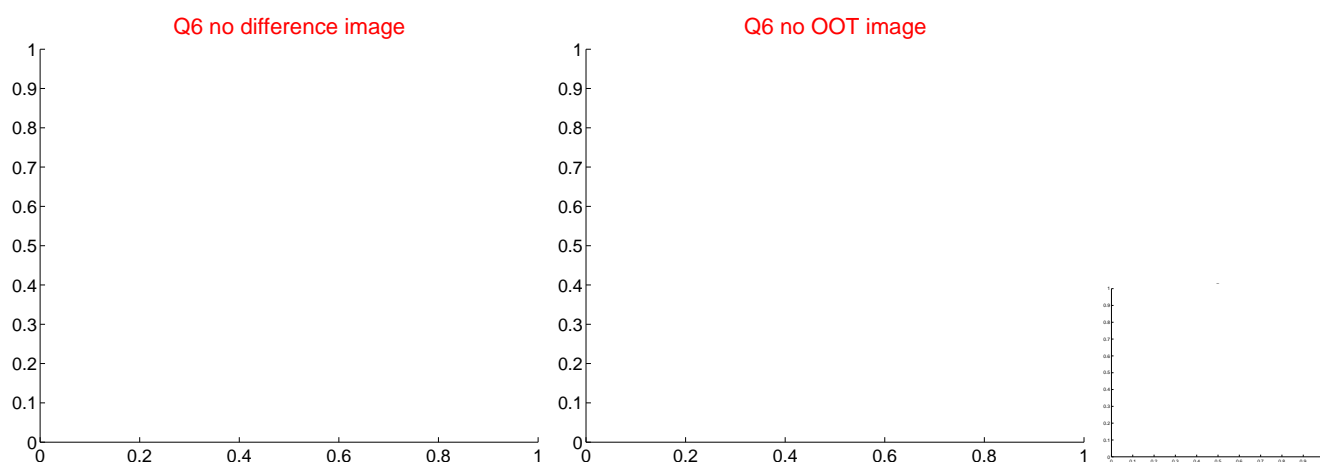
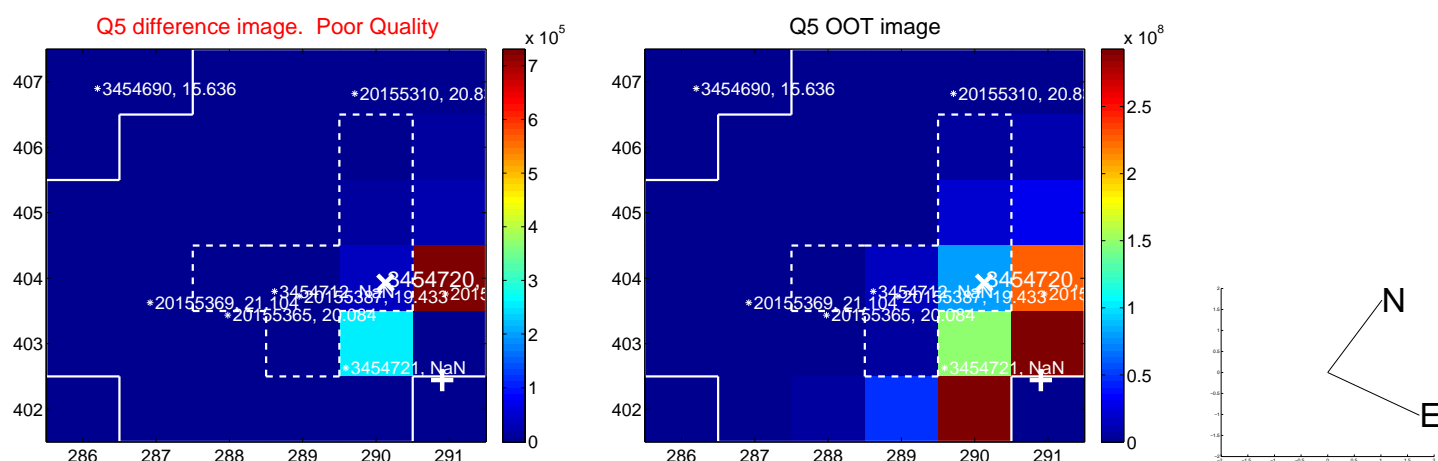


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

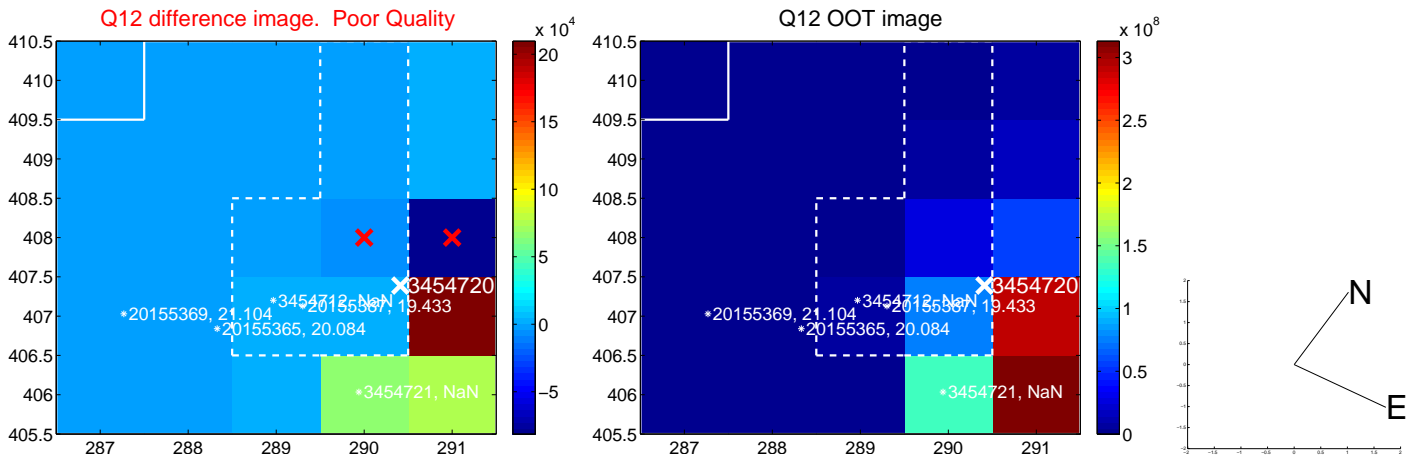
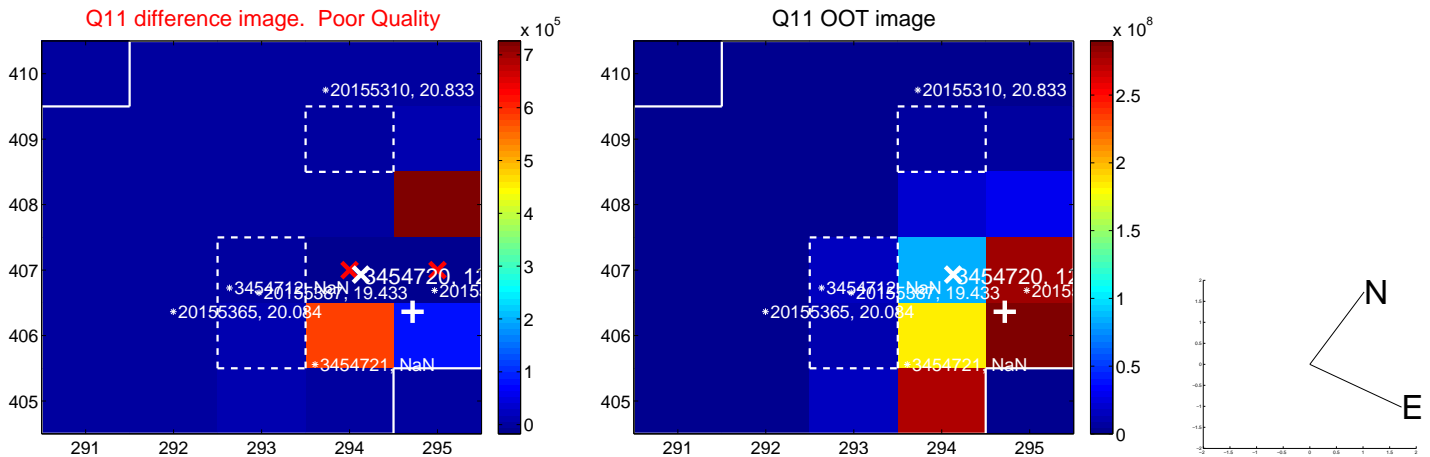
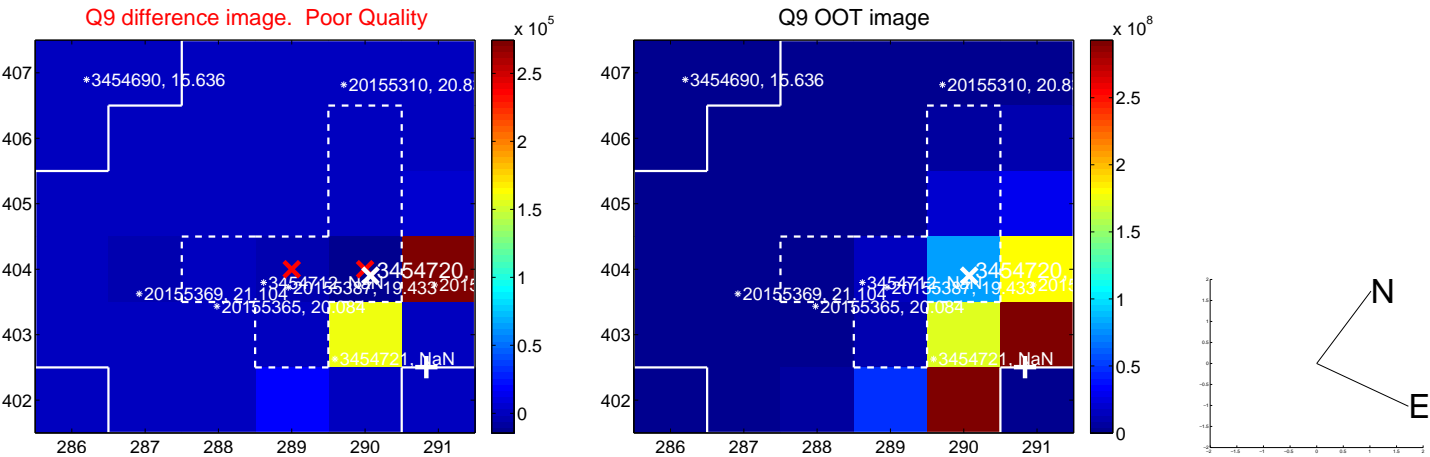
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



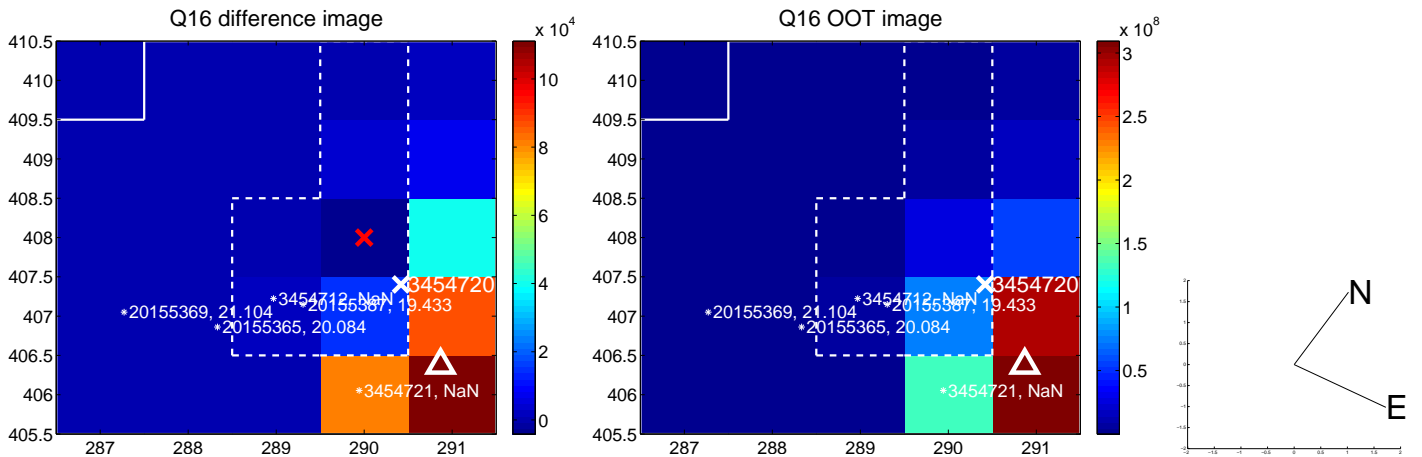
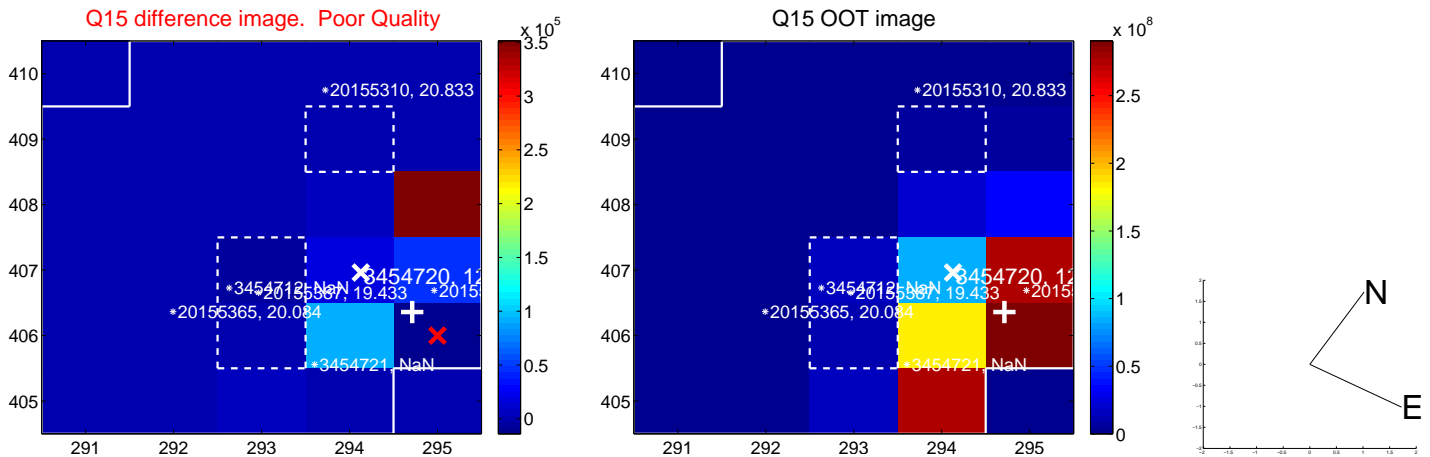
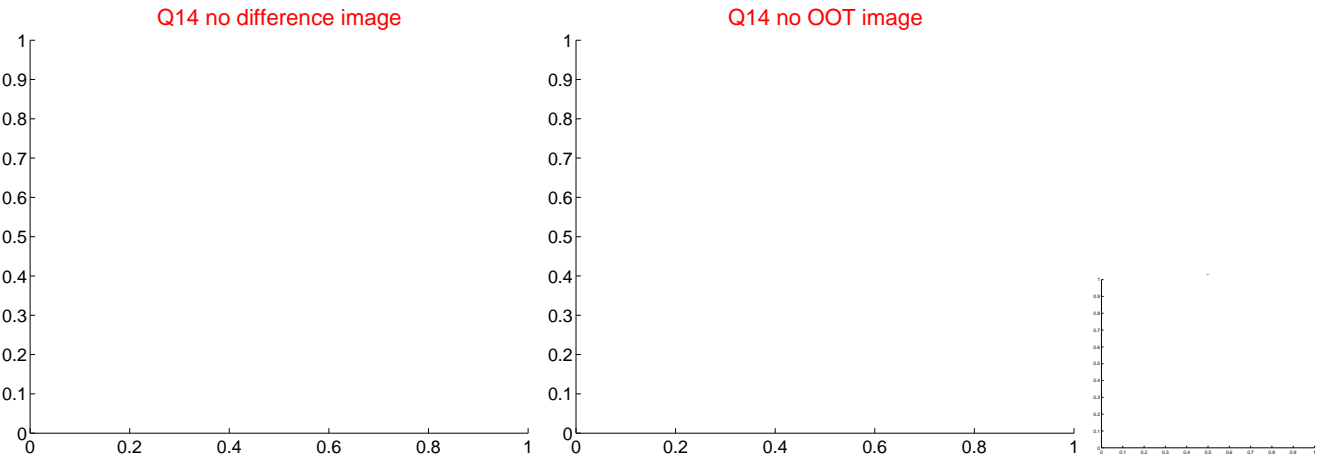
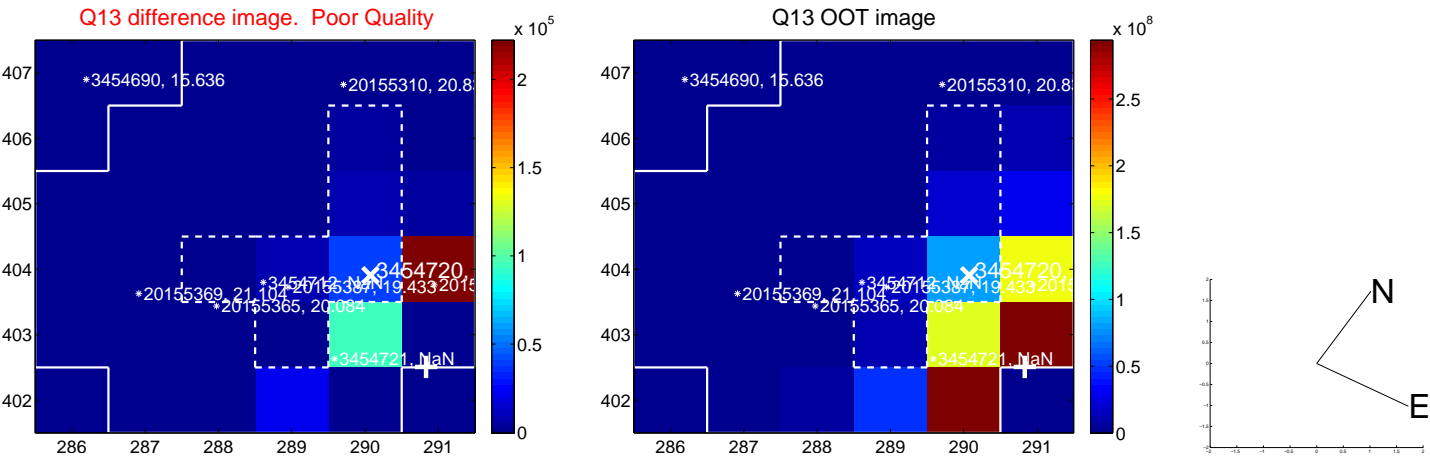
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



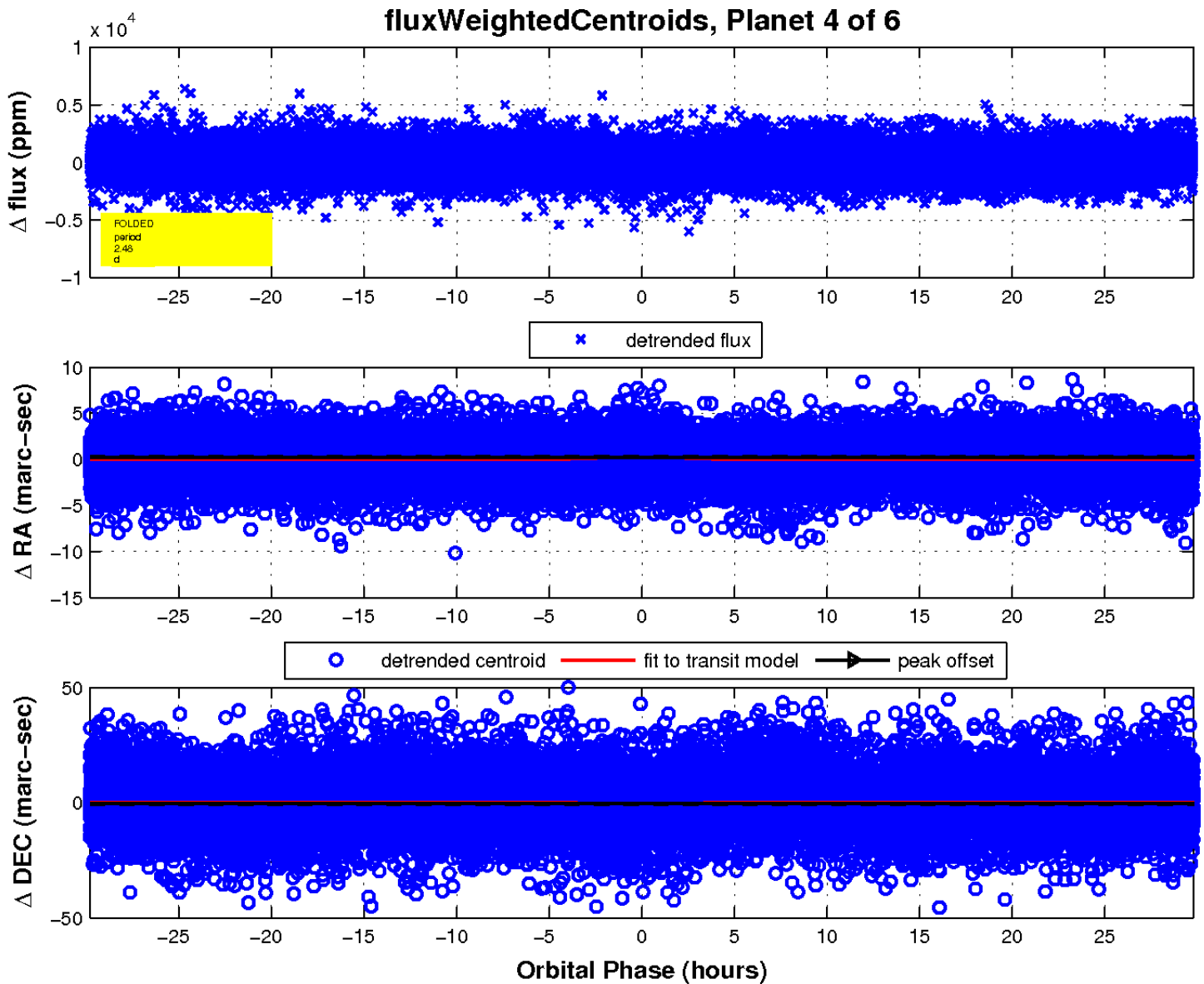
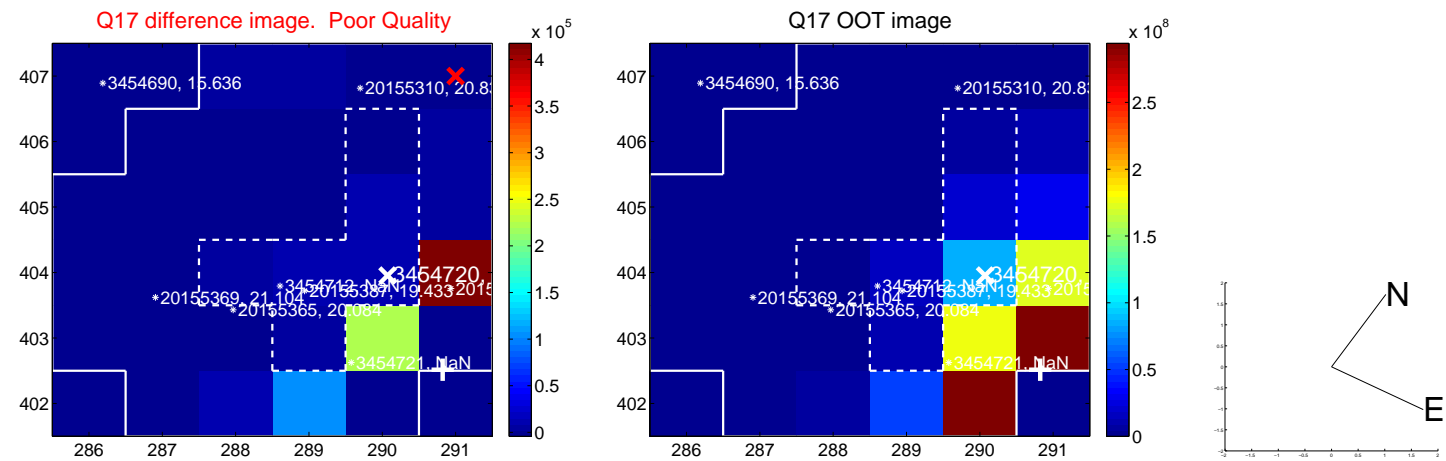
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

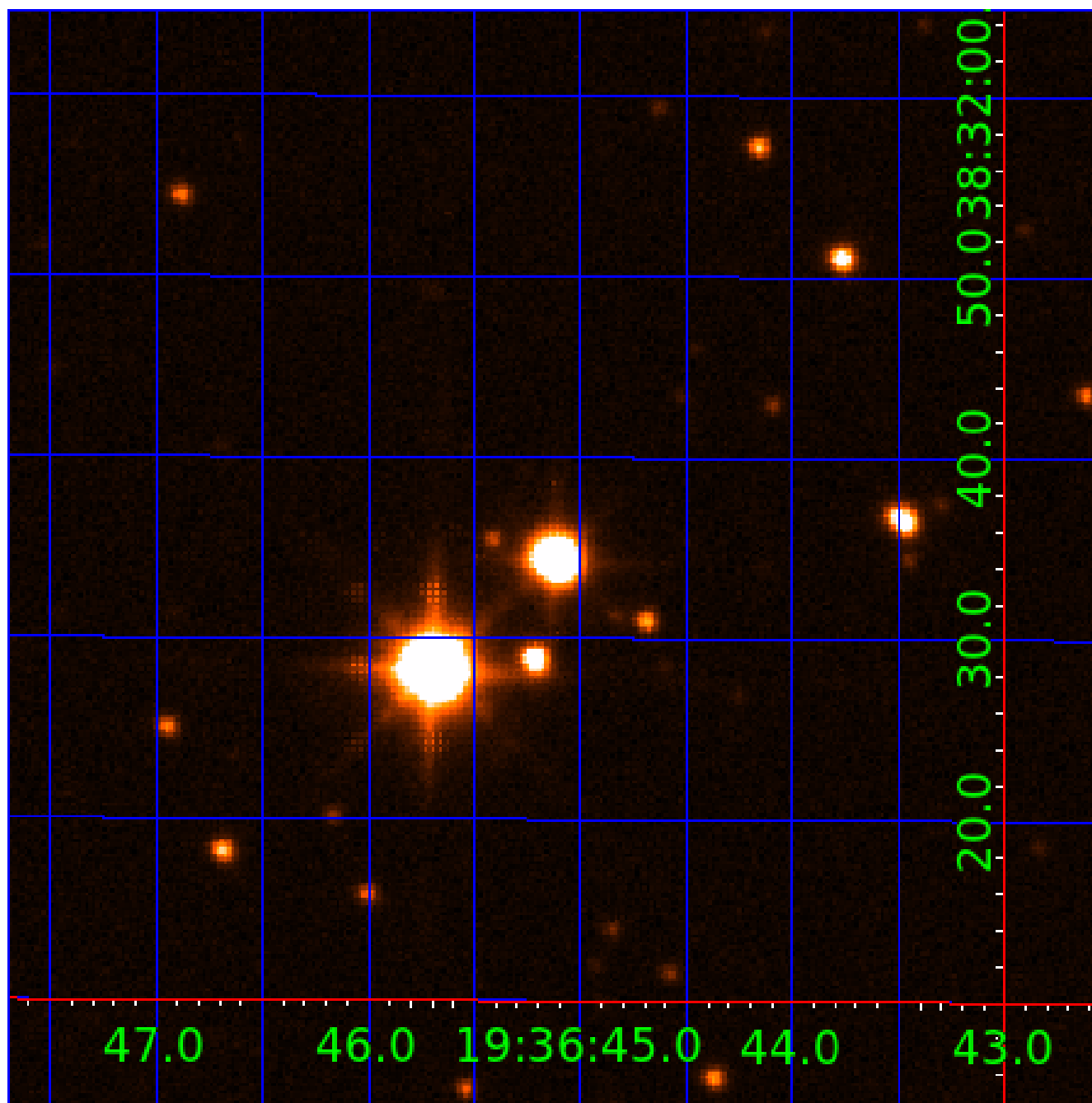


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003454720

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})
003454720-01	OBS	No	2.483861	132.828347	190.9	7.932	9.0	9.6	12.25	4696	20.74	0.00
003454720-02	OBS	No	2.136748	132.960541	223.8	5.190	10.0	10.4	12.25	4696	22.54	0.00
003454720-03	OBS	No	110.588600	228.465232	997.3	12.496	7.6	7.9	12.25	4696	46.10	239.33
003454720-04	OBS	No	2.483958	133.751781	218.7	10.066	9.2	10.2	12.25	4696	33.23	0.00
003454720-05	OBS	No	39.038170	148.400409	1359.1	13.918	9.2	9.9	12.25	4696	91.80	959.31
003454720-06	OBS	No	24.219281	142.800536	227.6	6.000	7.8	-1.0	12.25	4696	17.78	1812.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003454720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
003454720-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
003454720-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

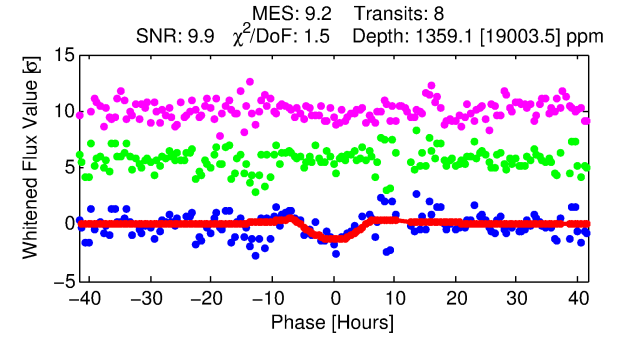
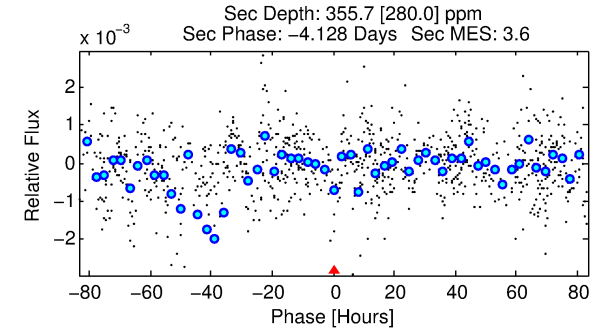
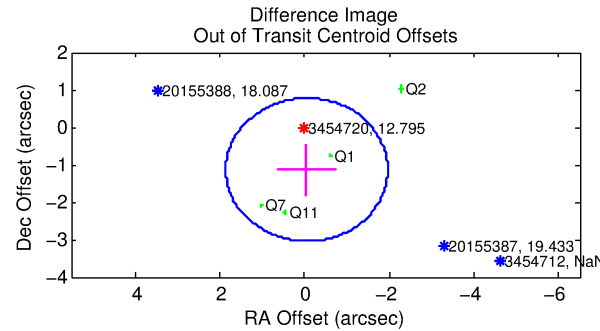
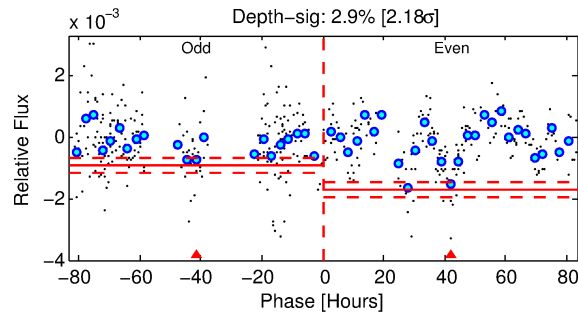
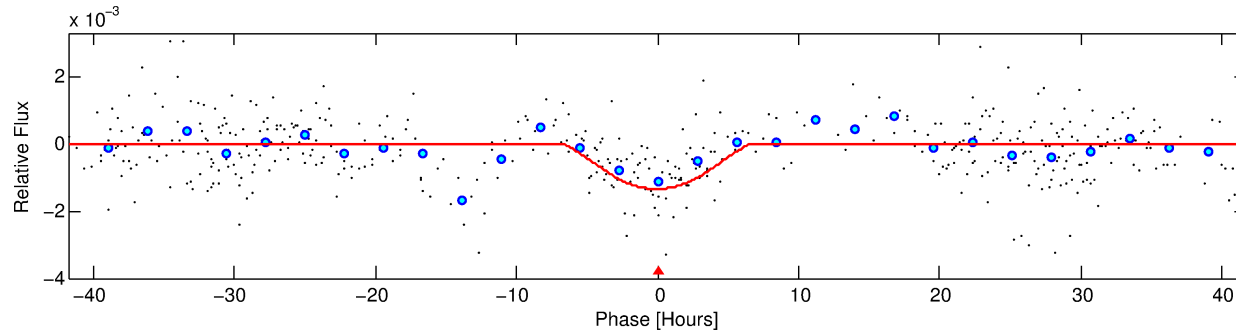
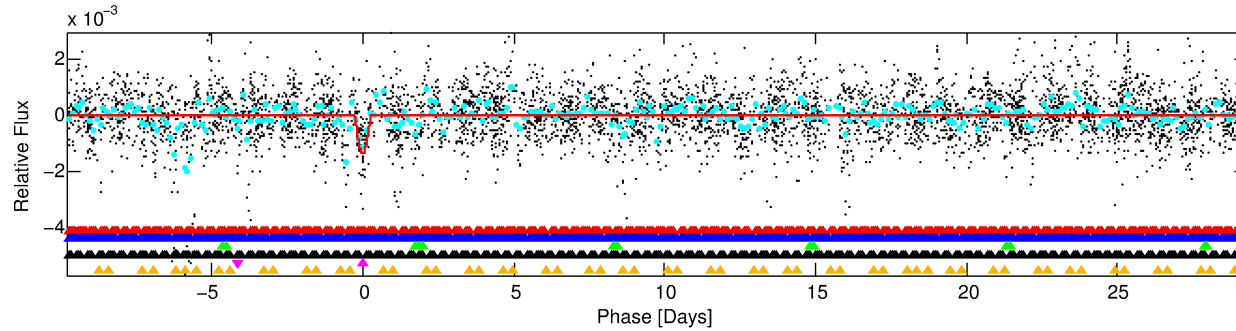
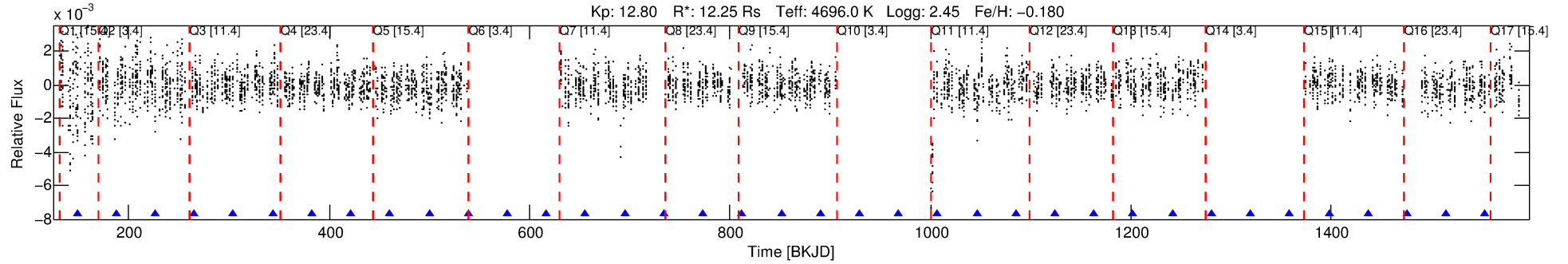
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003454720-05

No Significant Match Found

DV One-Page Summary

KIC: 3454720 Candidate: 5 of 6 Period: 39.038 d



DV Fit Results:

Period = 39.03817 [0.00250] d
Epoch = 148.4004 [0.0445] BKJD
Rp/R* = 0.0687 [0.2723]
a/R* = 8.14 [7.04]
b = 1.00 [0.24]
Seff = 959.31 [237.30]
Teq = 1419 [88] K
Rp = 91.80 [364.77] Re
a = 0.2611 [0.0483] AU
Ag = 1.58 [12.63] [0.05 σ]
Teffp = 2461 [4905] K [0.21 σ]

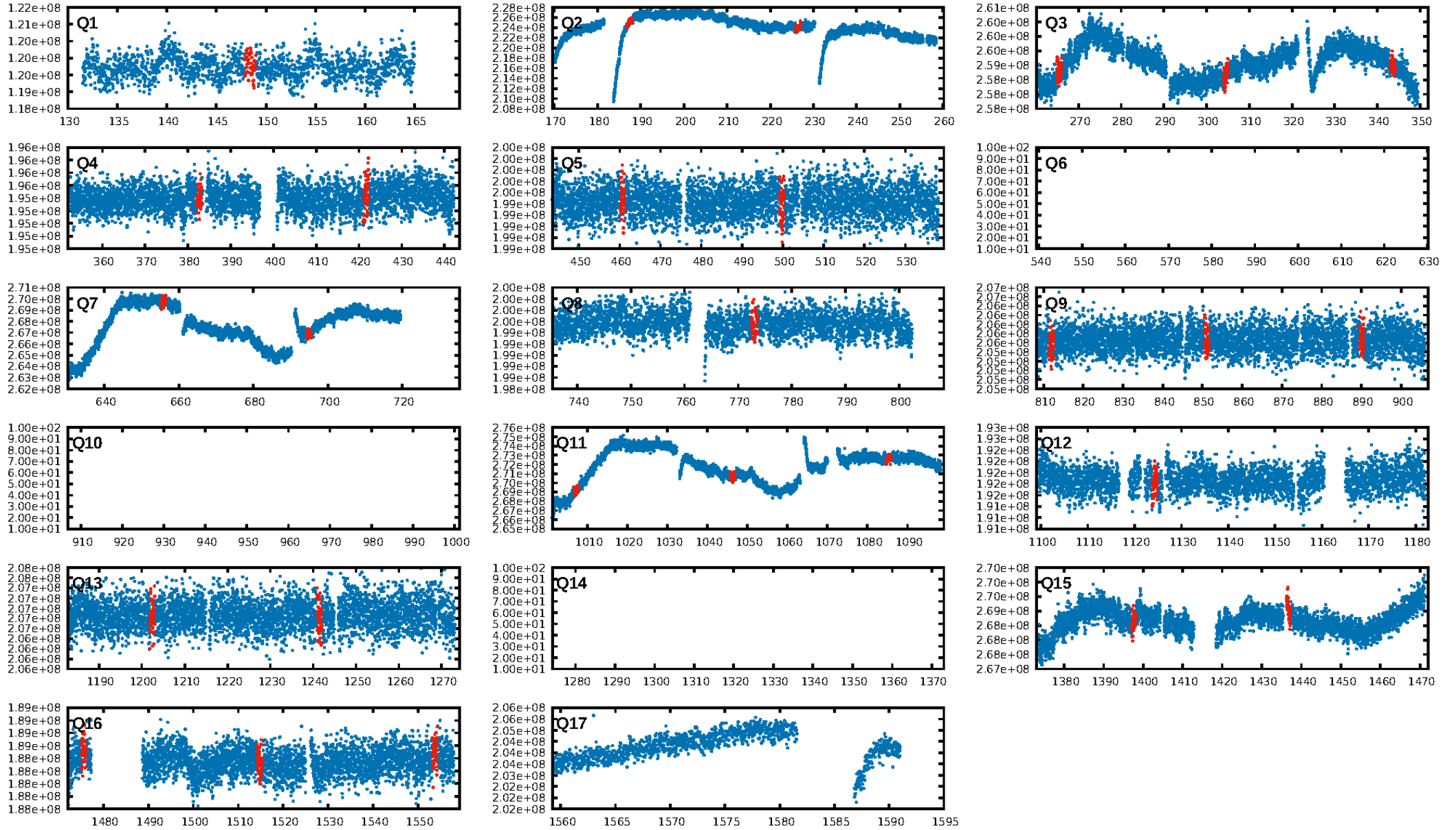
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [23.47 σ]
LongPeriod-sig: 100.0% [91.81 σ]
ModelChiSquare2-sig: 2.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [8/8]
GhostDiagnostic-chr: 1.241
Centroid-sig: 84.2%
Centroid-so: 3.374 arcsec [7.91 σ]
OotOffset-rm: 1.136 arcsec [1.78 σ]
KicOffset-rm: 3.305 arcsec [5.04 σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-st: 1/2/0/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.00 [0/11]

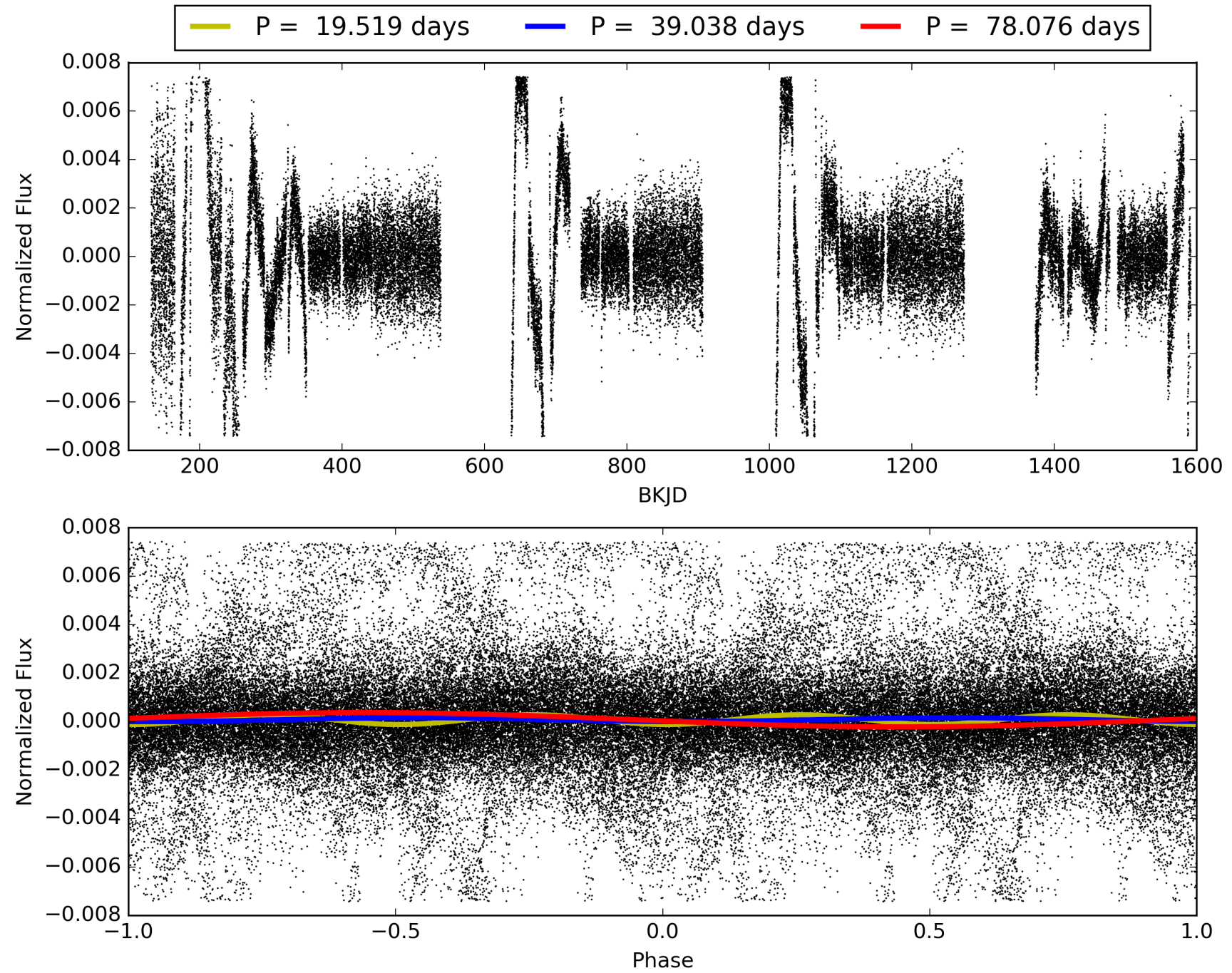
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:13:18 Z

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

TCE 003454720-05, PDC Light Curves

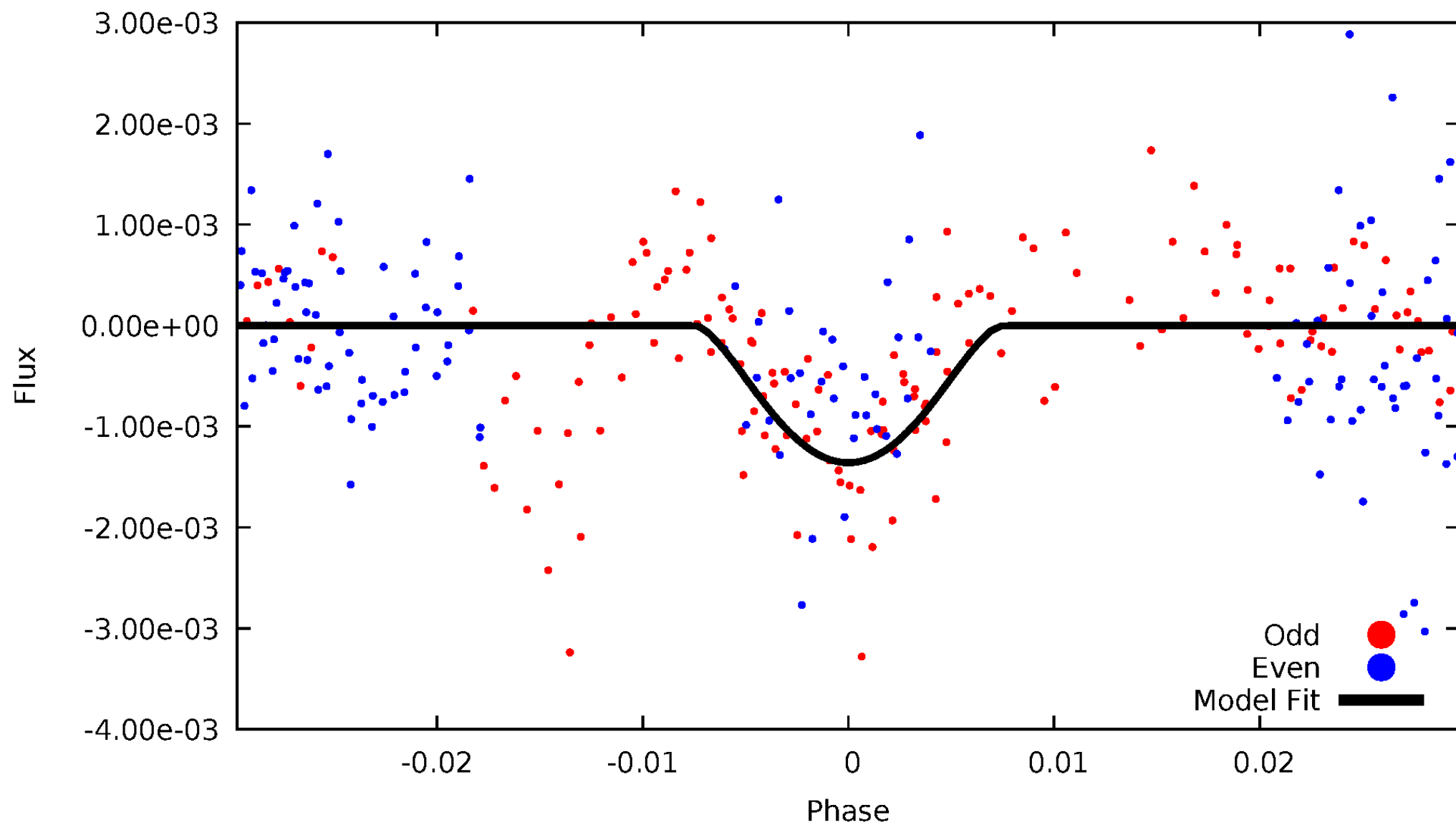


TCE 003454720-05



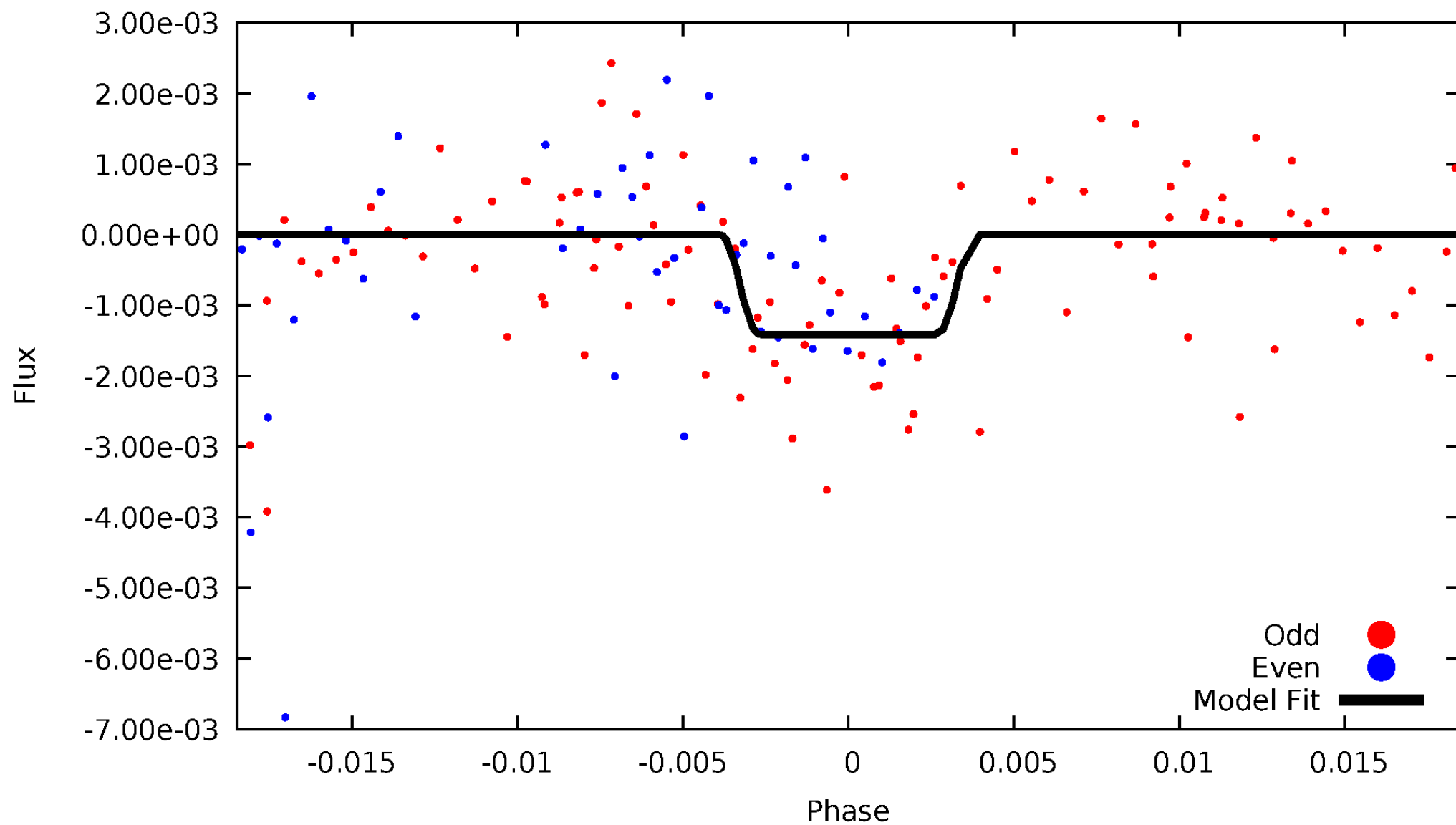
DV Odd/Even

TCE 003454720-05



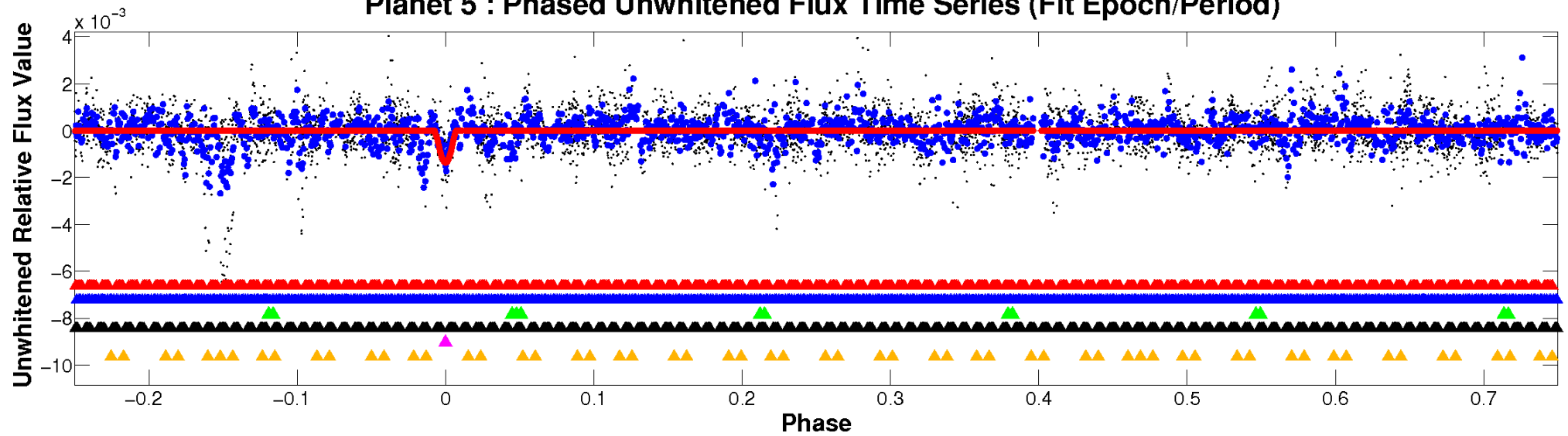
ALT Odd/Even

TCE 003454720-05

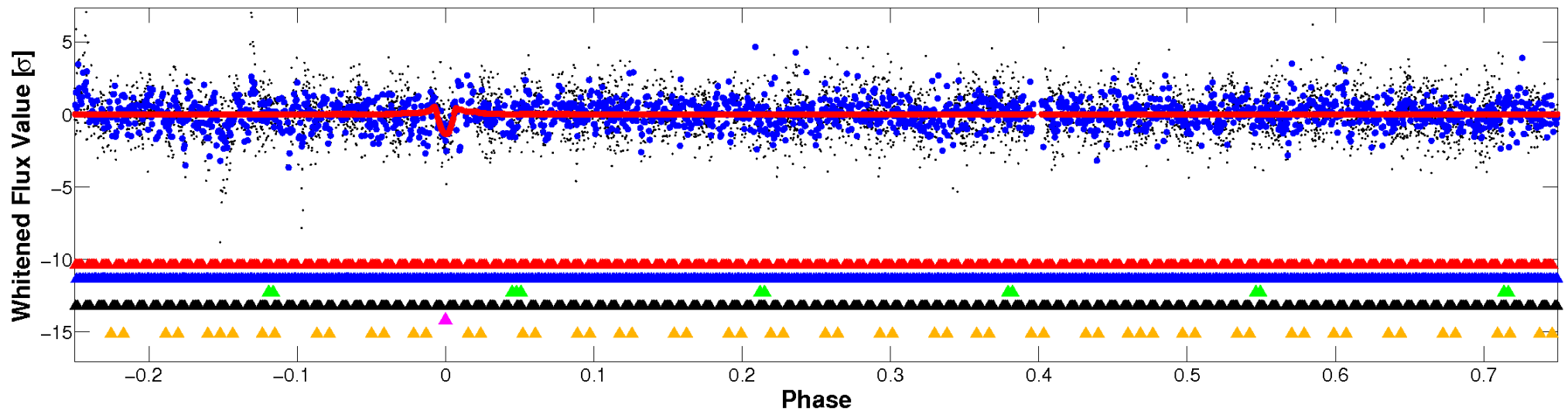


Non-Whitened Vs. Whitened Light Curve

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

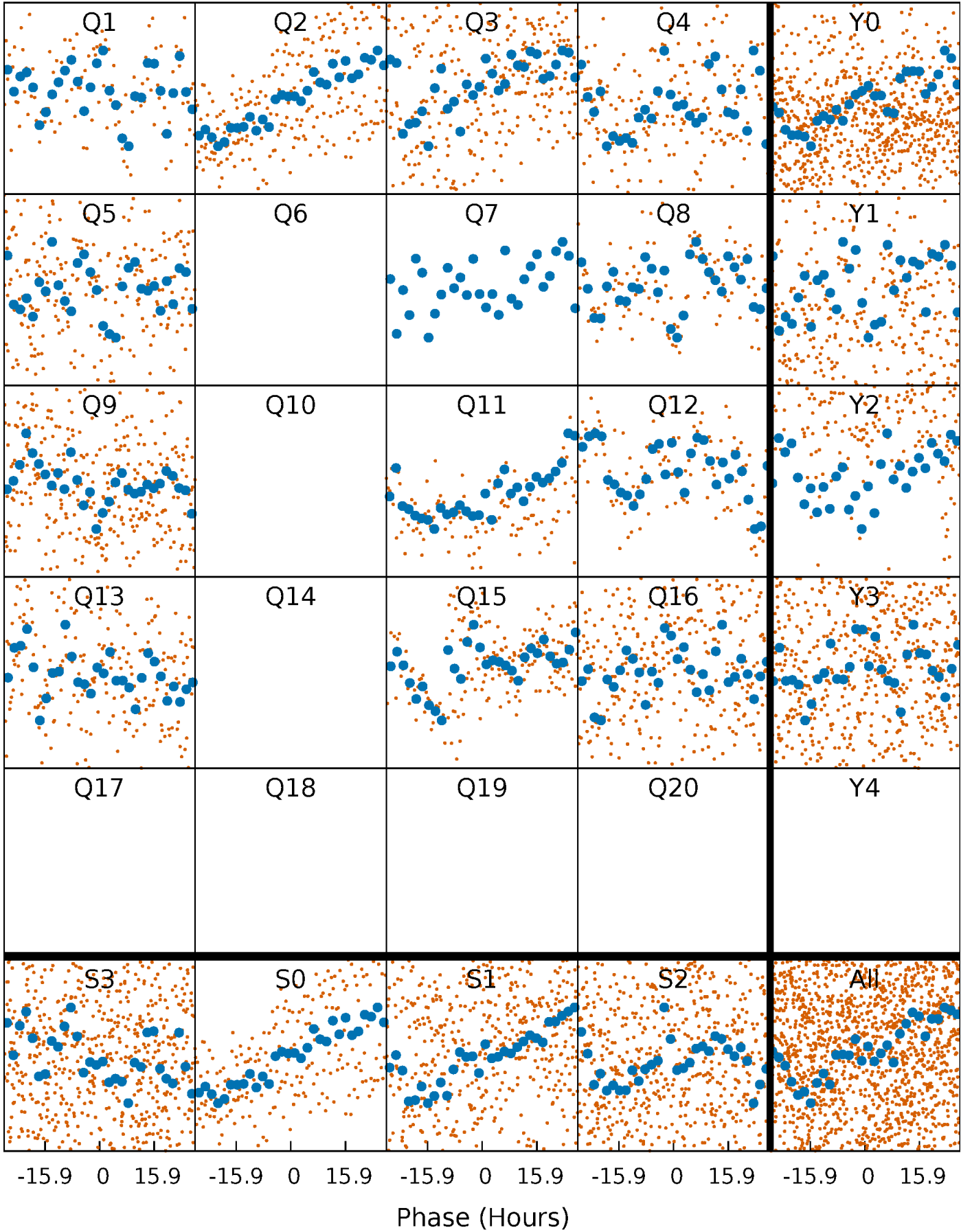


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



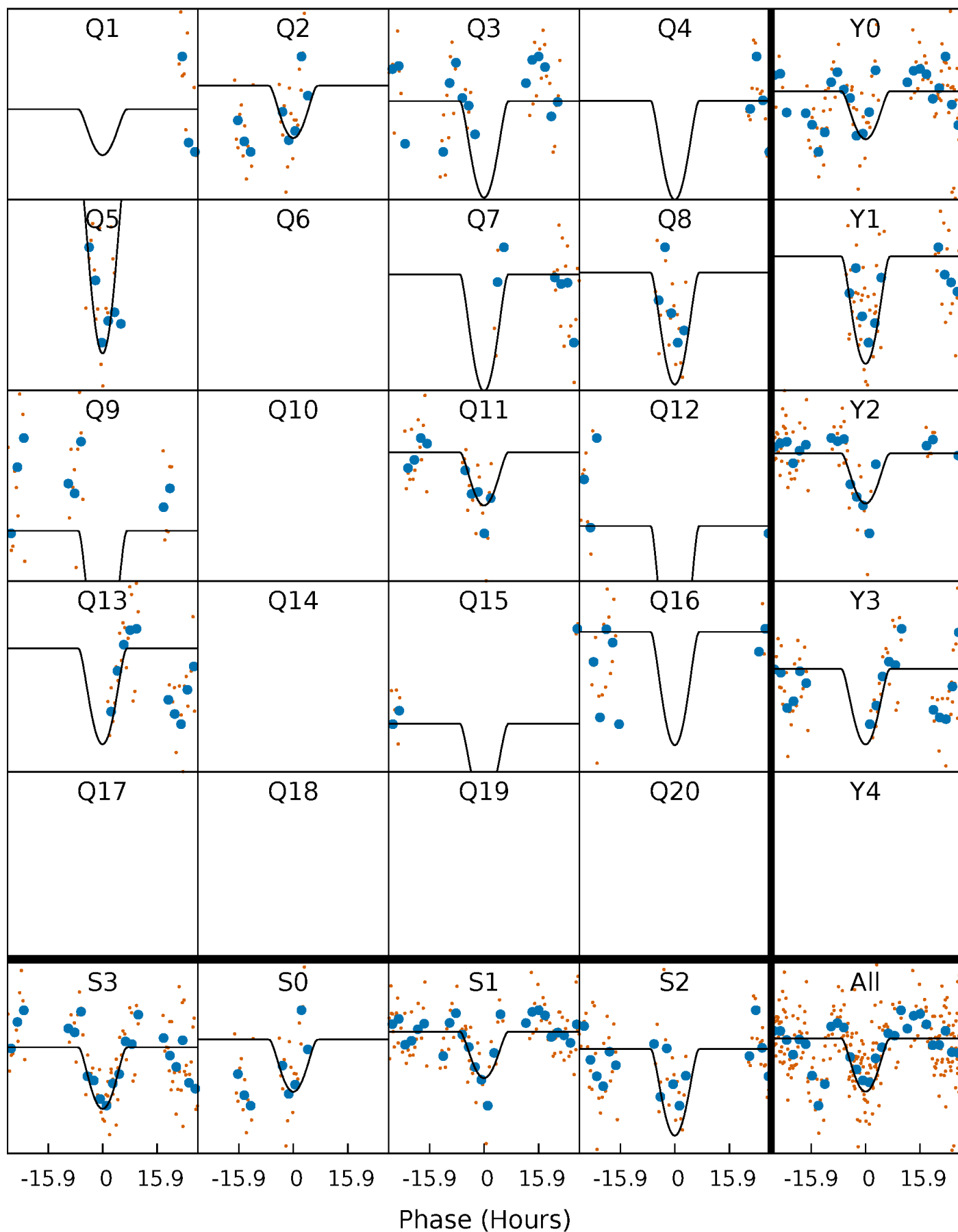
PDC Quarter-Phased Transit Curves

TCE 003454720-05 P= 39.038170 Days $T_0=148.400409$ (BKJD)



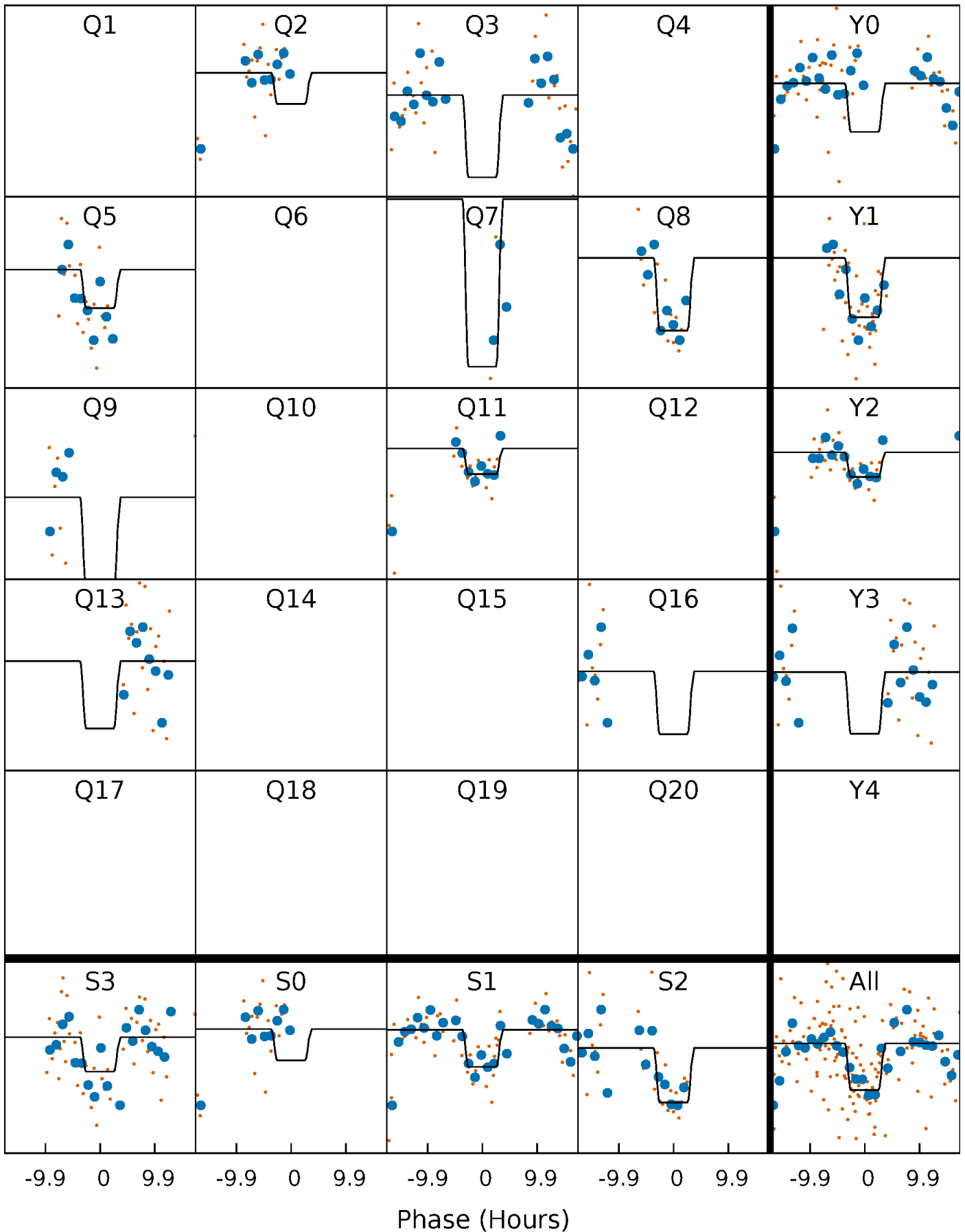
DV Quarter-Phased Transit Curves

TCE 003454720-05 P= 39.038170 Days $T_0=148.400409$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

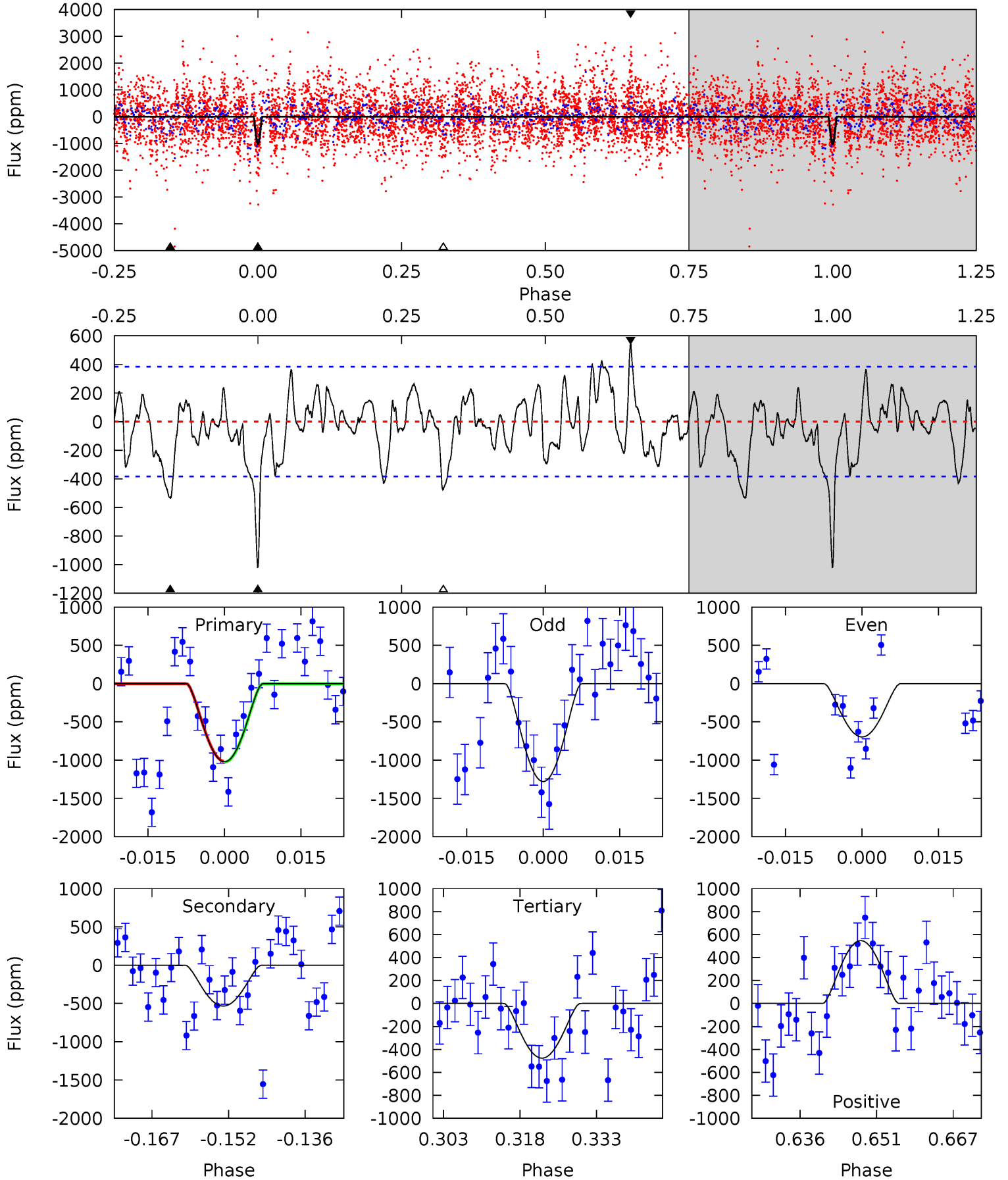
TCE 003454720-05 $P = 39.027122$ Days $T_0 = 148.609019$ (BKJD)



DV Model-Shift Uniqueness Test

003454720-05, P = 39.038170 Days, E = 109.362239 Days

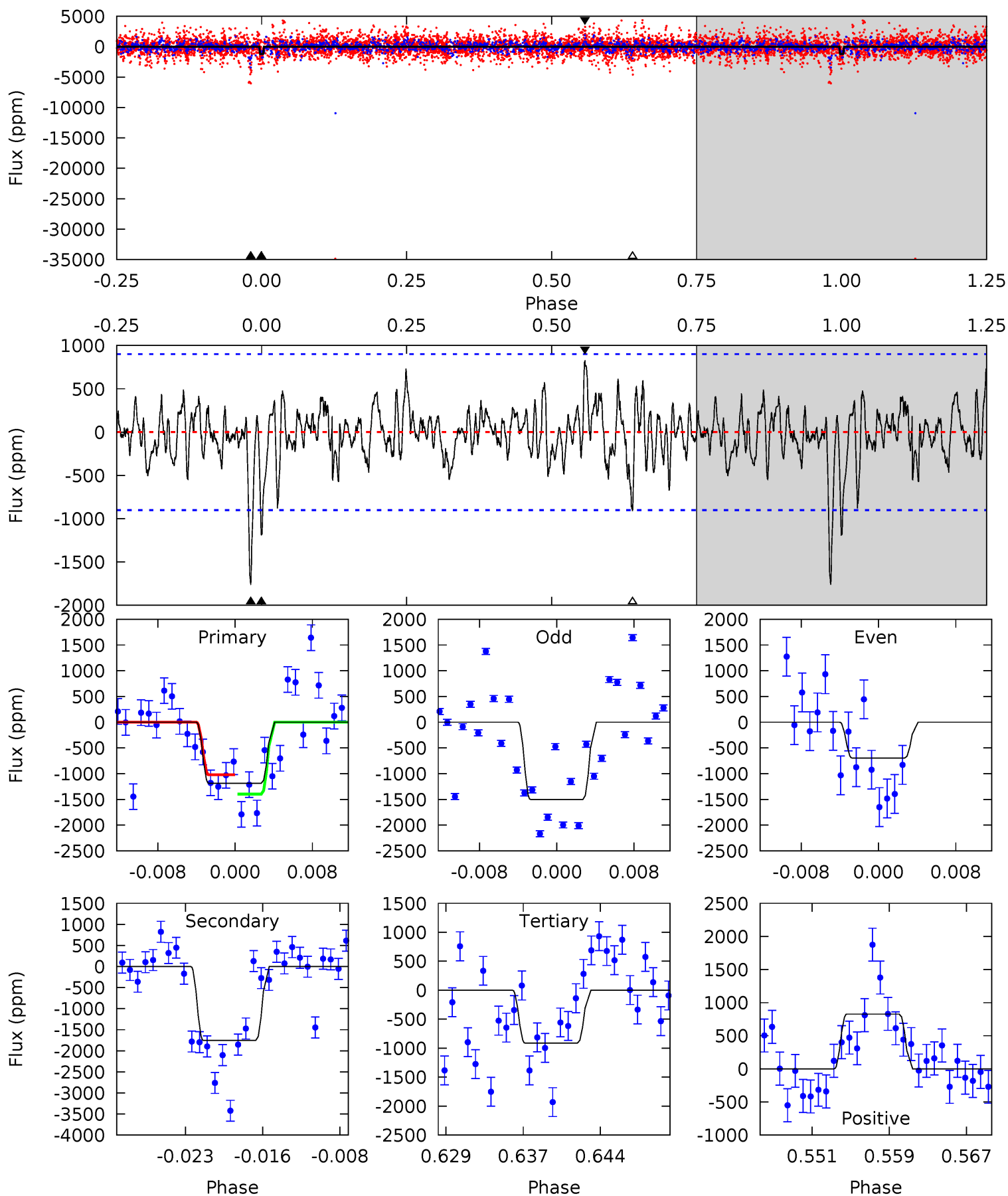
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	6.88	6.14	7.05	4.95	2.43	2.25	7.02	6.11	0.74	-0.17	3.47	0.34	0.35	0.06



Alt Model-Shift Uniqueness Test

003454720-05, P = 39.027122 Days, E = 109.581897 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.69	9.88	5.14	4.66	5.07	2.66	1.46	1.55	2.02	4.75	5.22	2.35	0.83	0.32	1.14



Stellar Parameters For KIC 003454720

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4696^{+49}_{-70}	$2.454^{+0.115}_{-0.115}$	$-0.180^{+0.150}_{-0.100}$	$12.252^{+1.840}_{-2.990}$	$1.557^{+0.162}_{-0.487}$	$0.001^{+0.001}_{-0.000}$
	+1%/-1%	+5%/-5%	+83%/-56%	+15%/-24%	+10%/-31%	+65%/-34%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003454720-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-534 ± 78	$276.27^{+257.08}_{-185.22}$	1992^{+90}_{-96}	-1904^{+5057}_{-480}	$0.268^{+1.963}_{-0.207}$
Alt.	-1754 ± 177	$255.49^{+312.96}_{-178.12}$	1988^{+84}_{-81}	2717^{+1405}_{-4866}	$0.978^{+10.335}_{-0.777}$

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

DV Centroid Data

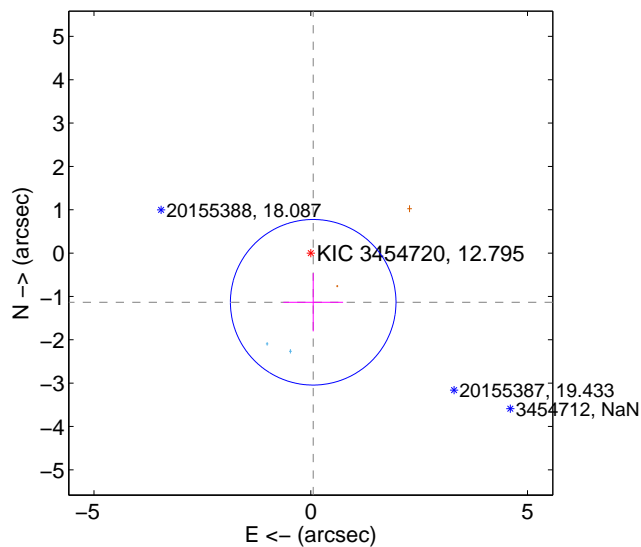
Supplemental centroid analysis for 003454720-05. Kepler magnitude: 12.79. Transit SNR 9.86

There are 2 quarters with good PRF difference image offsets

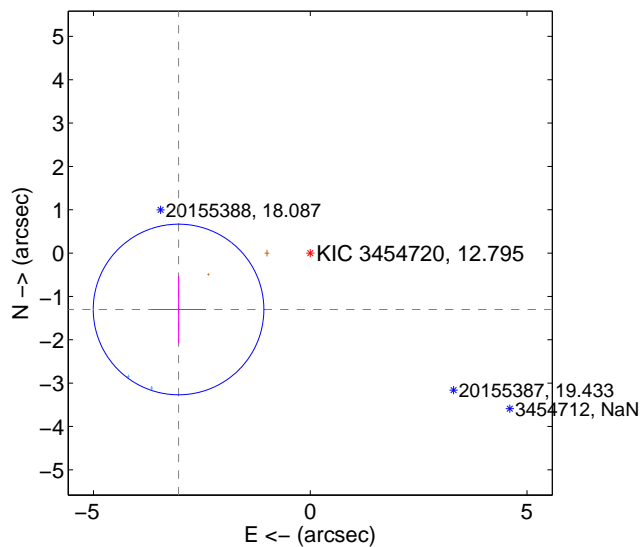
The OOT PRF centroid is offset from the target star catalog position by about 3.30 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.136 ± 0.637	1.78	-0.057 ± 0.691	-1.135 ± 0.671
PRF-fit source offset from KIC position	3.305 ± 0.656	5.04	3.038 ± 0.633	-1.301 ± 0.772
photometric centroid source offset	3.37 ± 0.43	7.92	2.21 ± 0.15	-2.55 ± 0.55

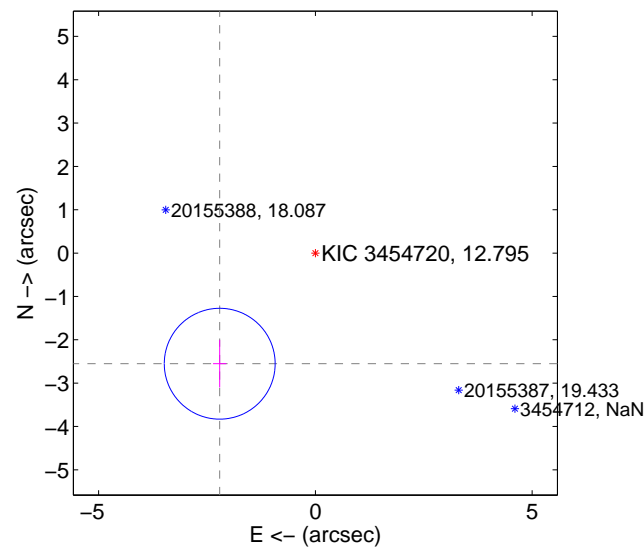
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

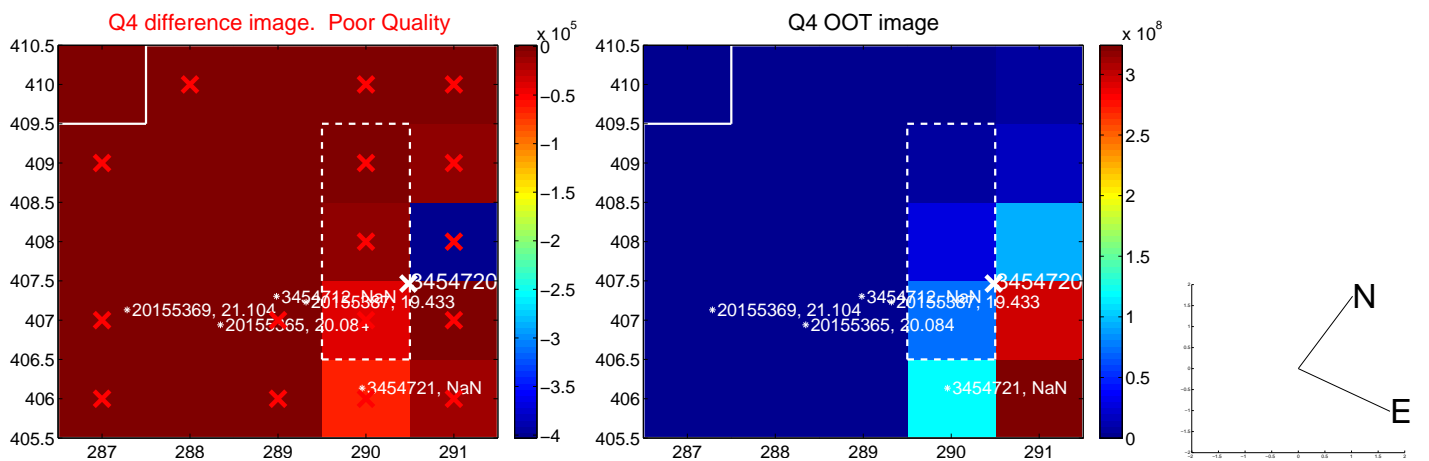
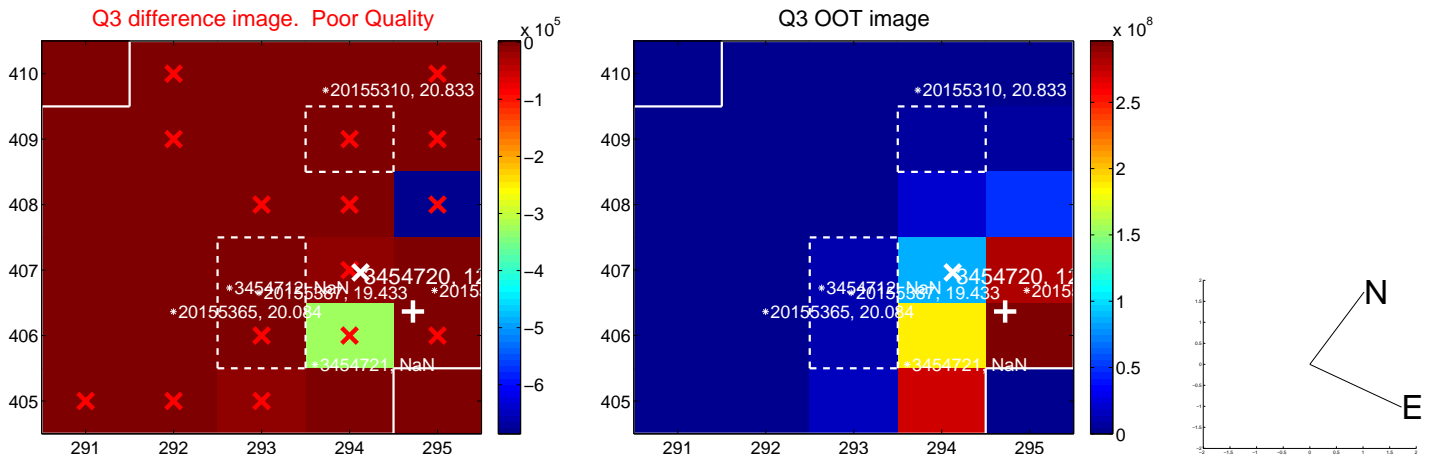
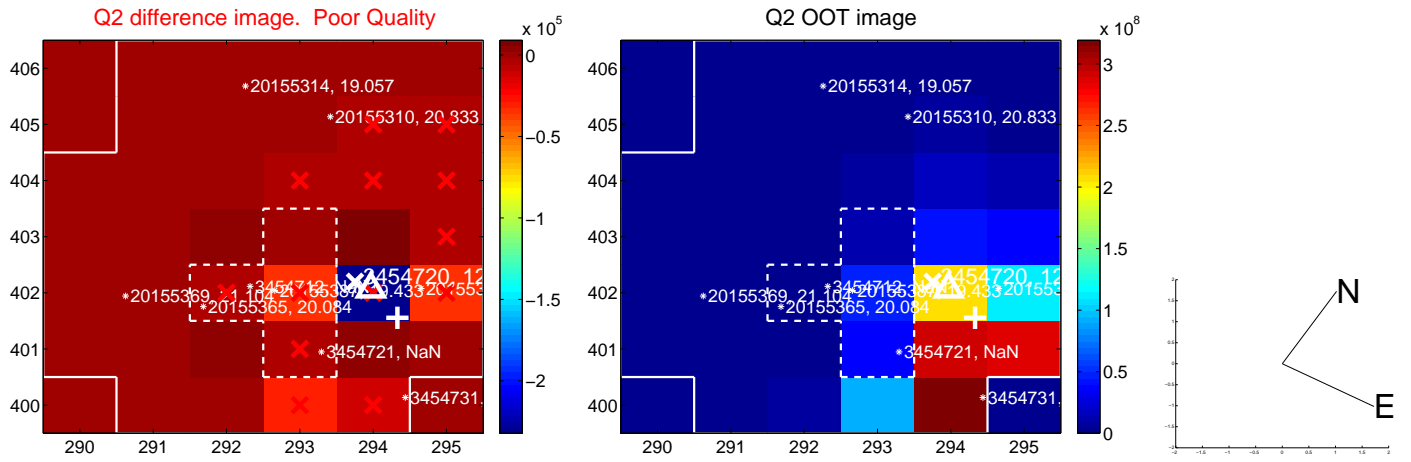
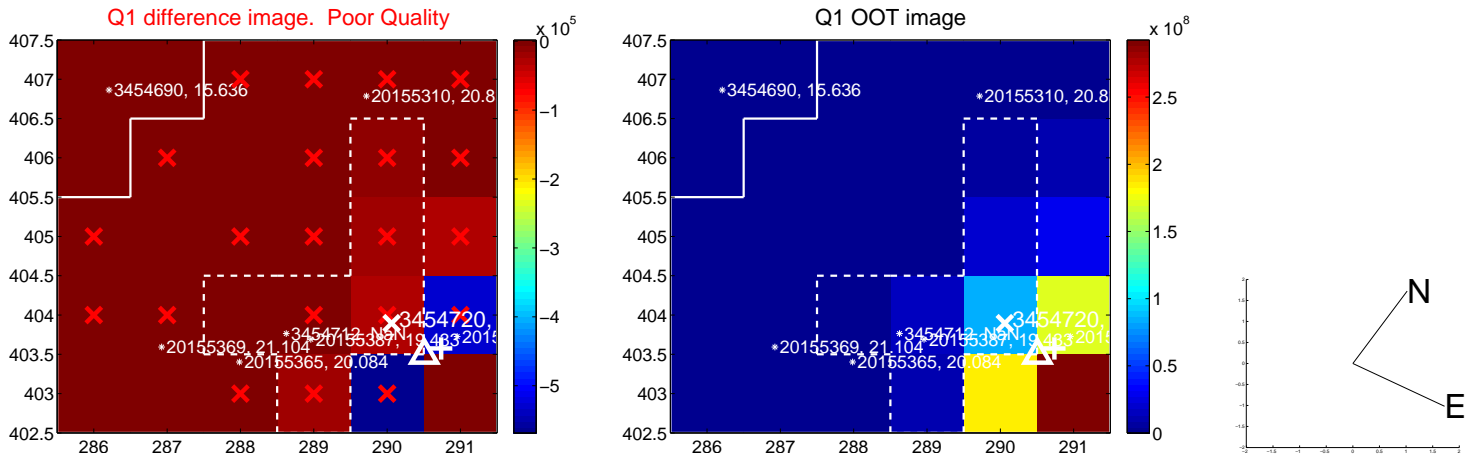


offset from photometric centroids

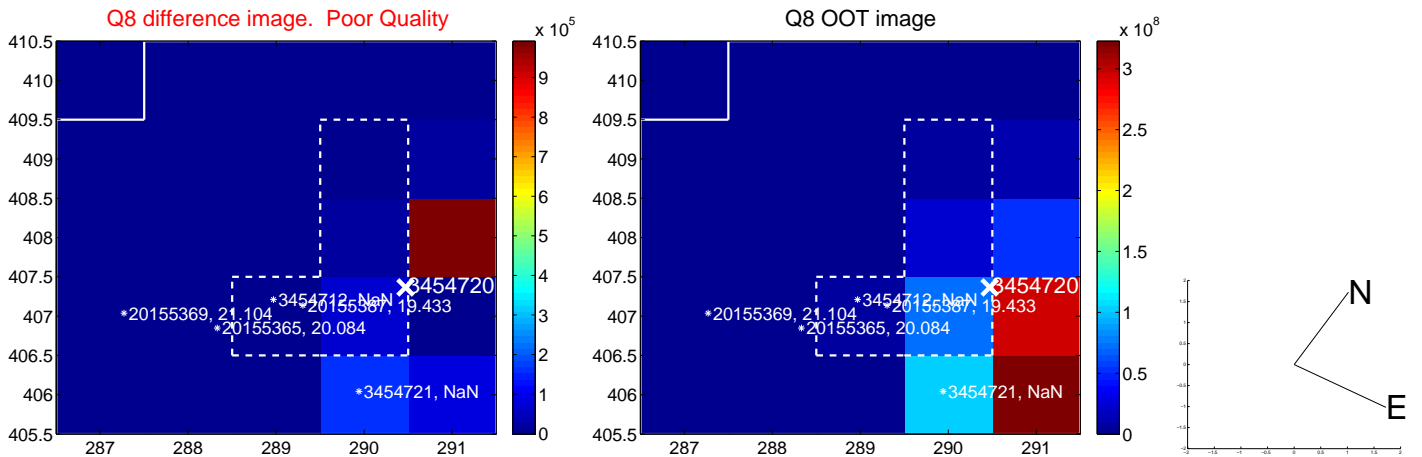
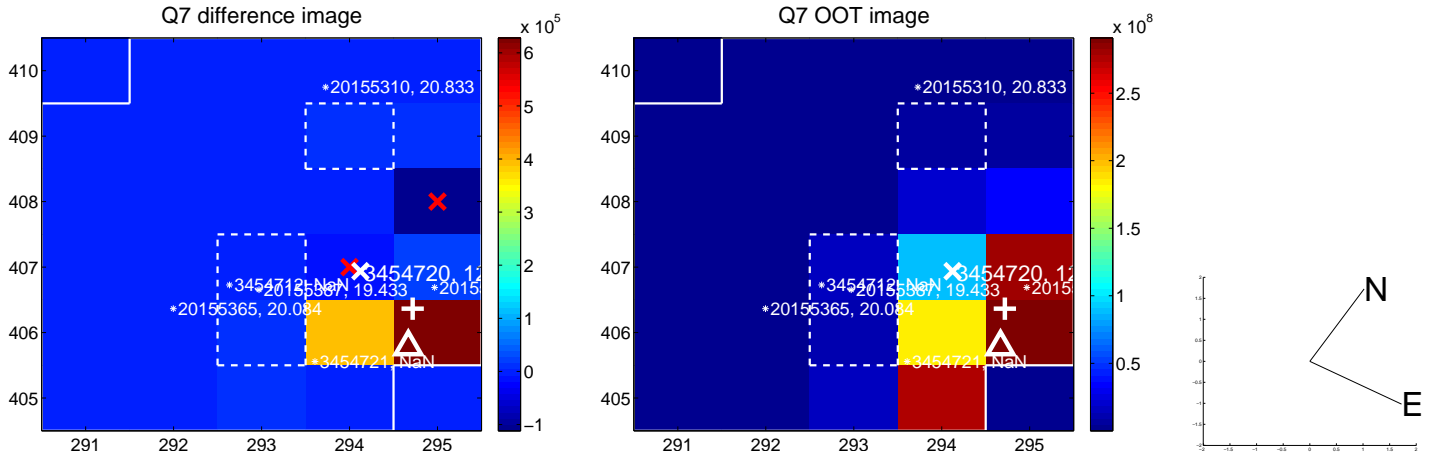
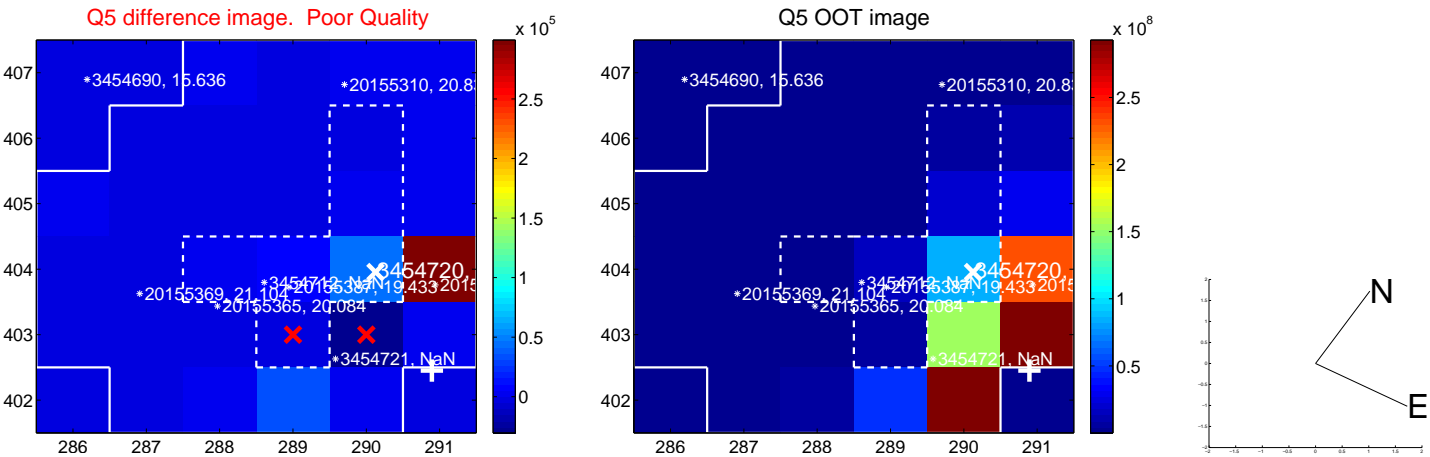


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

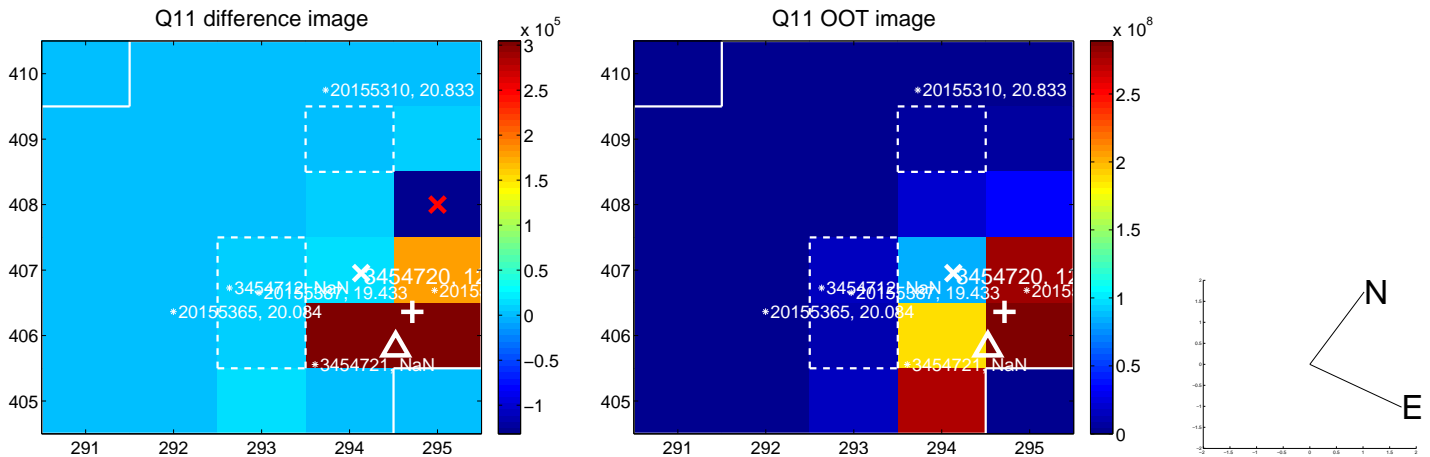
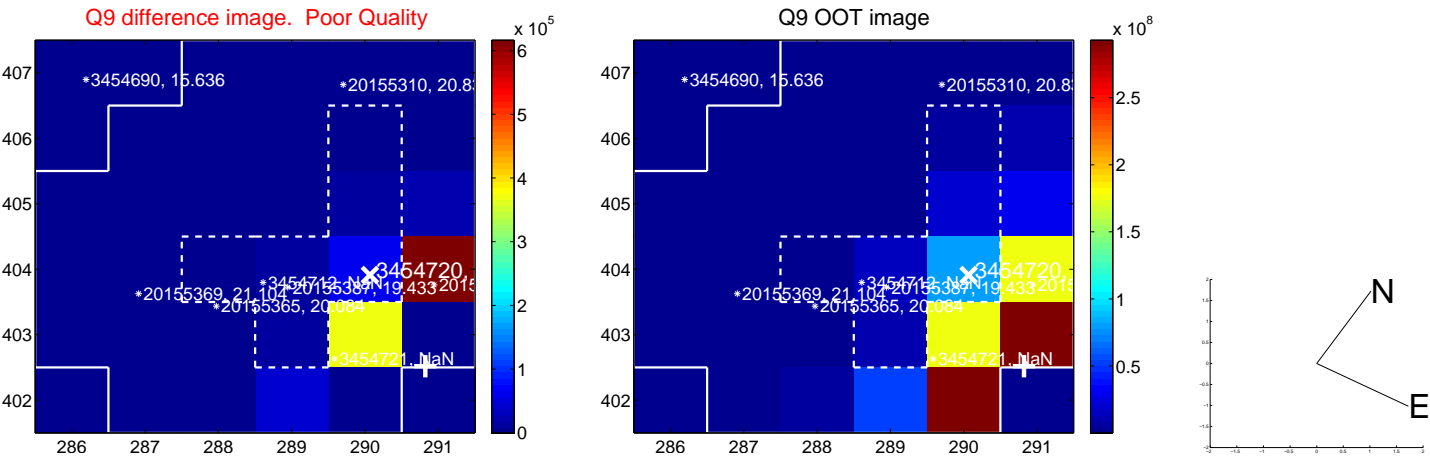
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



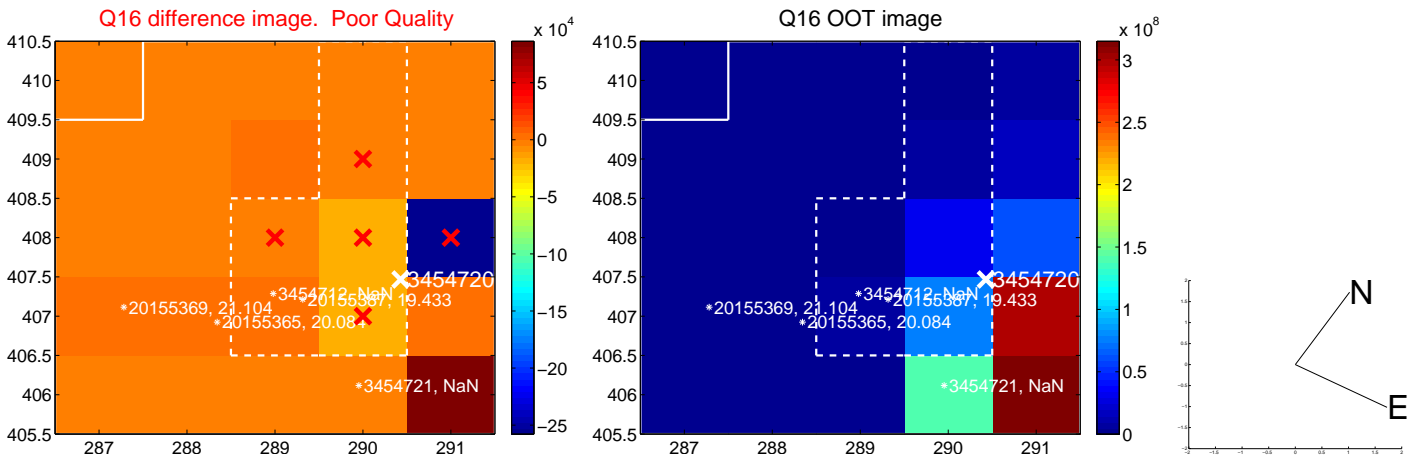
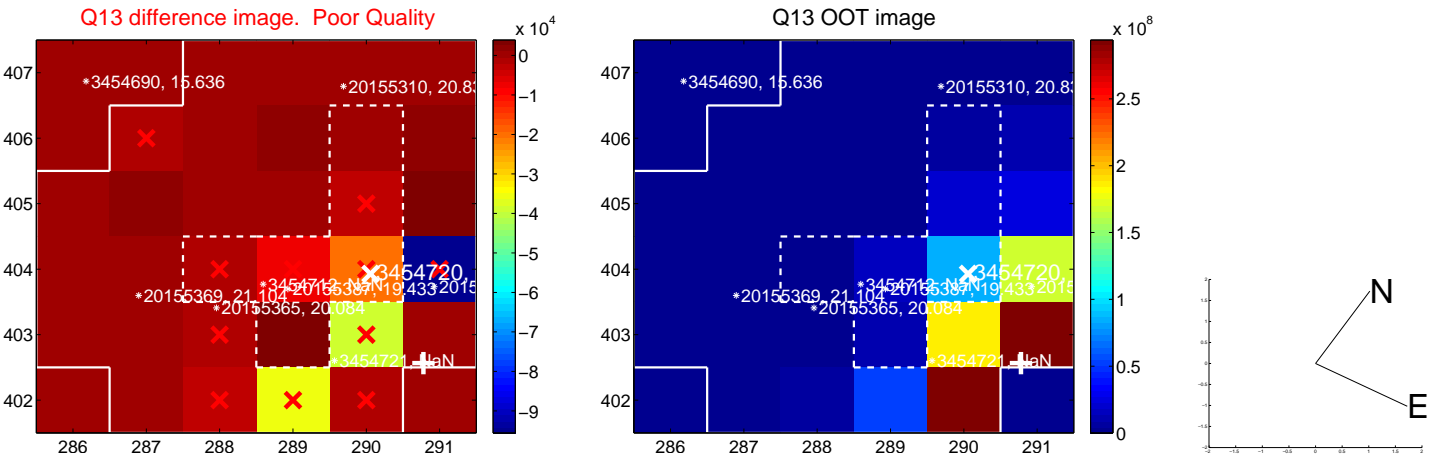
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



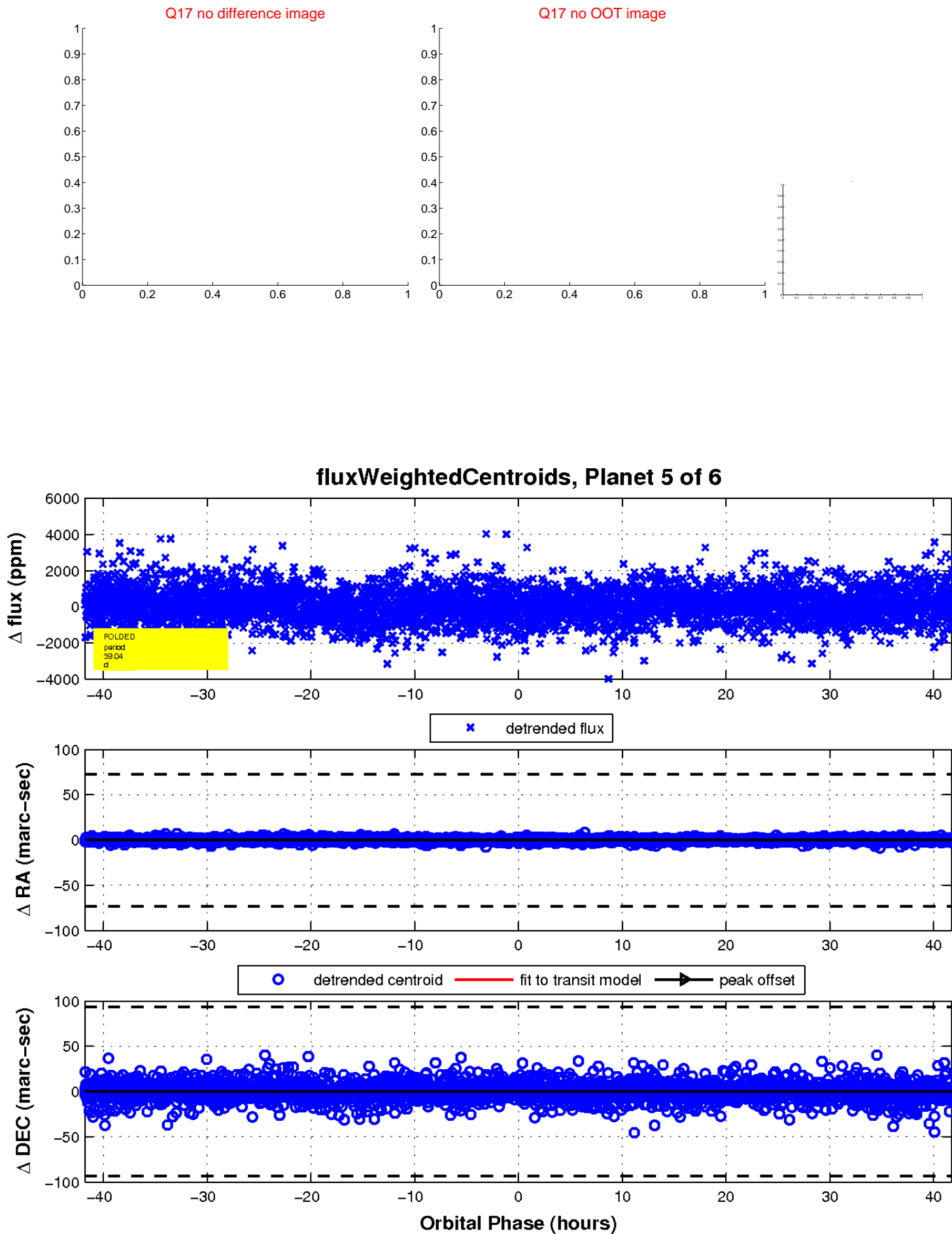
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

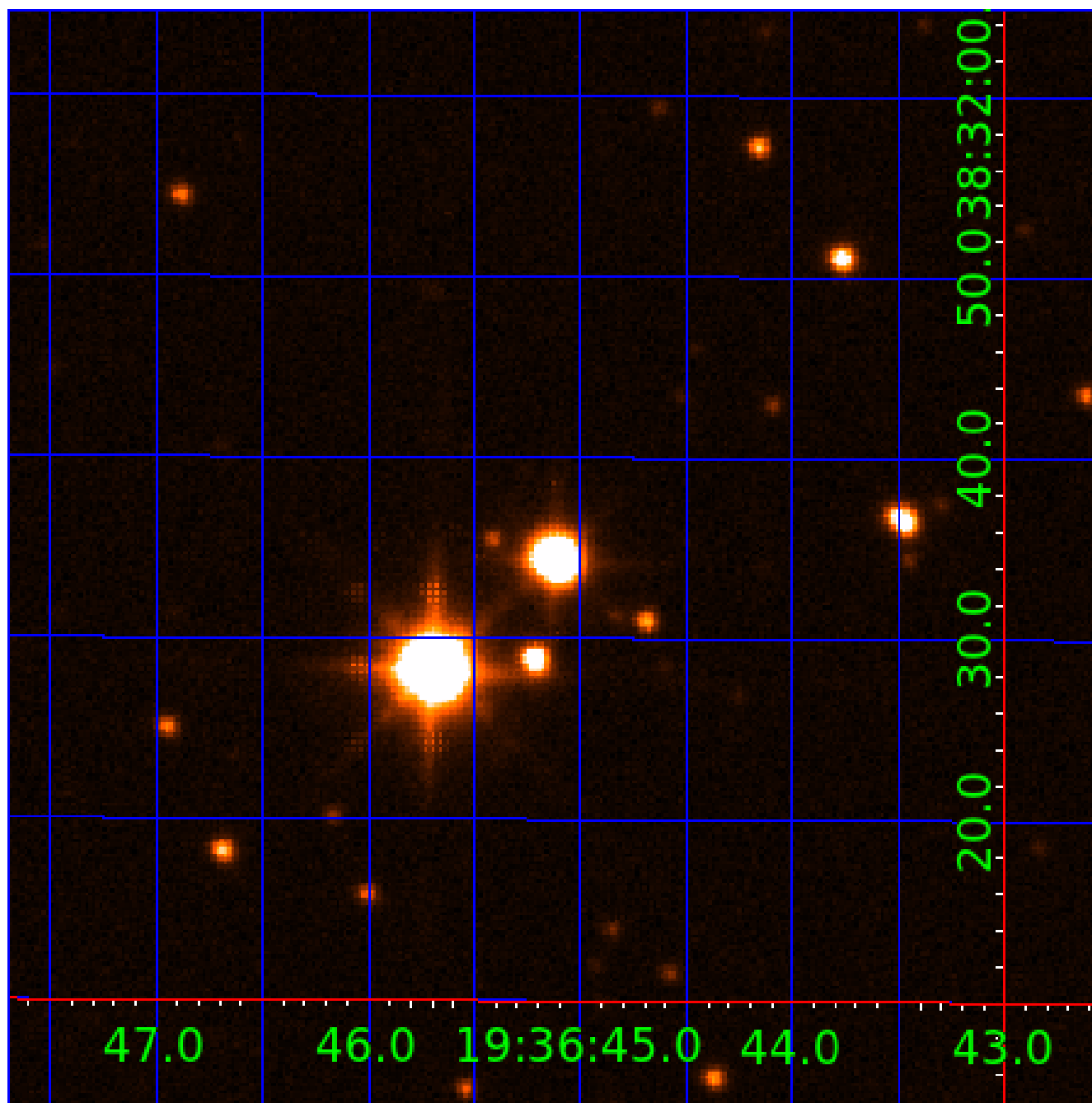


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003454720

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})
003454720-01	OBS	No	2.483861	132.828347	190.9	7.932	9.0	9.6	12.25	4696	20.74	0.00
003454720-02	OBS	No	2.136748	132.960541	223.8	5.190	10.0	10.4	12.25	4696	22.54	0.00
003454720-03	OBS	No	110.588600	228.465232	997.3	12.496	7.6	7.9	12.25	4696	46.10	239.33
003454720-04	OBS	No	2.483958	133.751781	218.7	10.066	9.2	10.2	12.25	4696	33.23	0.00
003454720-05	OBS	No	39.038170	148.400409	1359.1	13.918	9.2	9.9	12.25	4696	91.80	959.31
003454720-06	OBS	No	24.219281	142.800536	227.6	6.000	7.8	-1.0	12.25	4696	17.78	1812.99

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003454720-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003454720-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_MEAS
003454720-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—CENT_FEW_MEAS
003454720-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

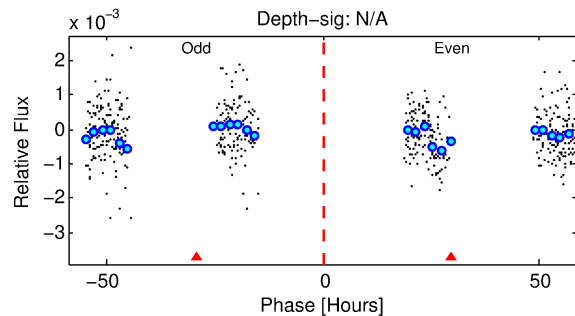
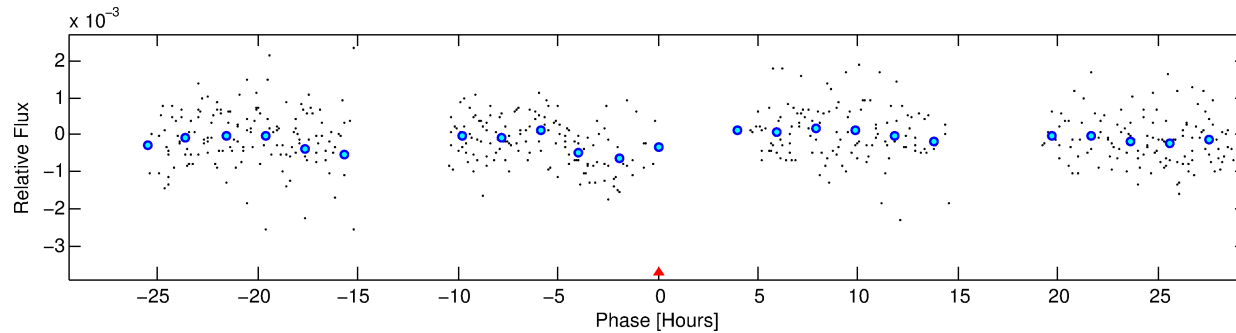
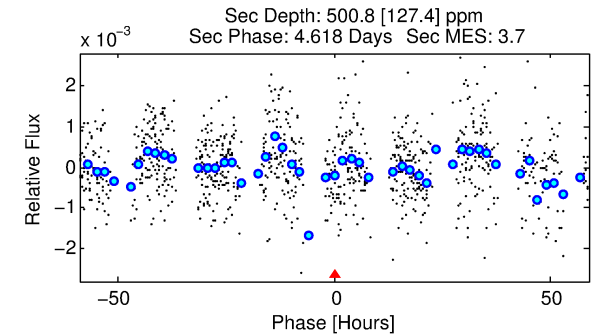
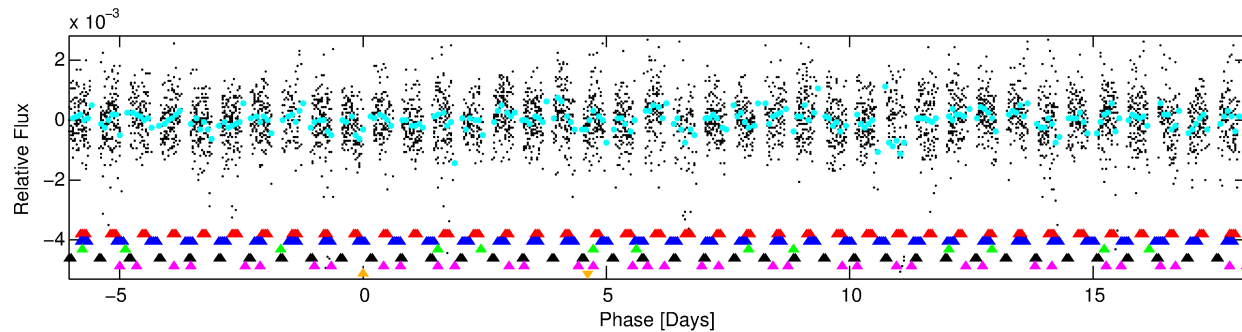
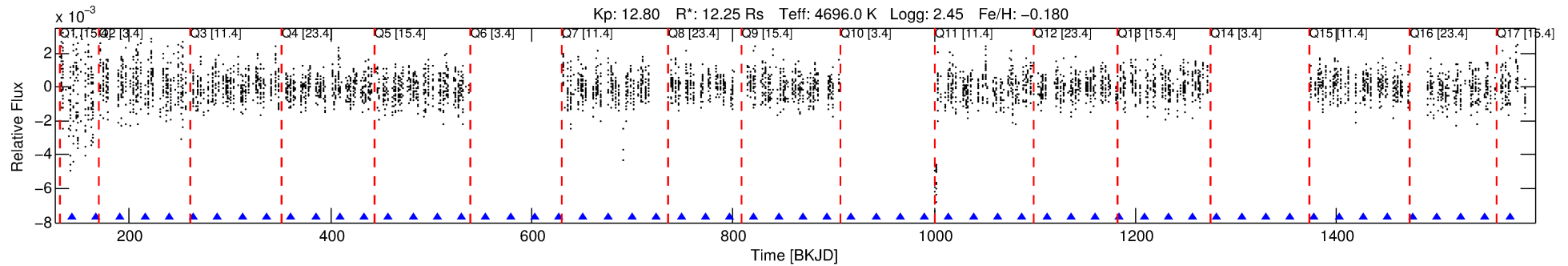
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003454720-06

No Significant Match Found

DV One-Page Summary

KIC: 3454720 Candidate: 6 of 6 Period: 24.219 d



TPS TCE Results:

Period = 24.21928 d
Epoch = 142.8005 BKJD

DV fit results are unavailable

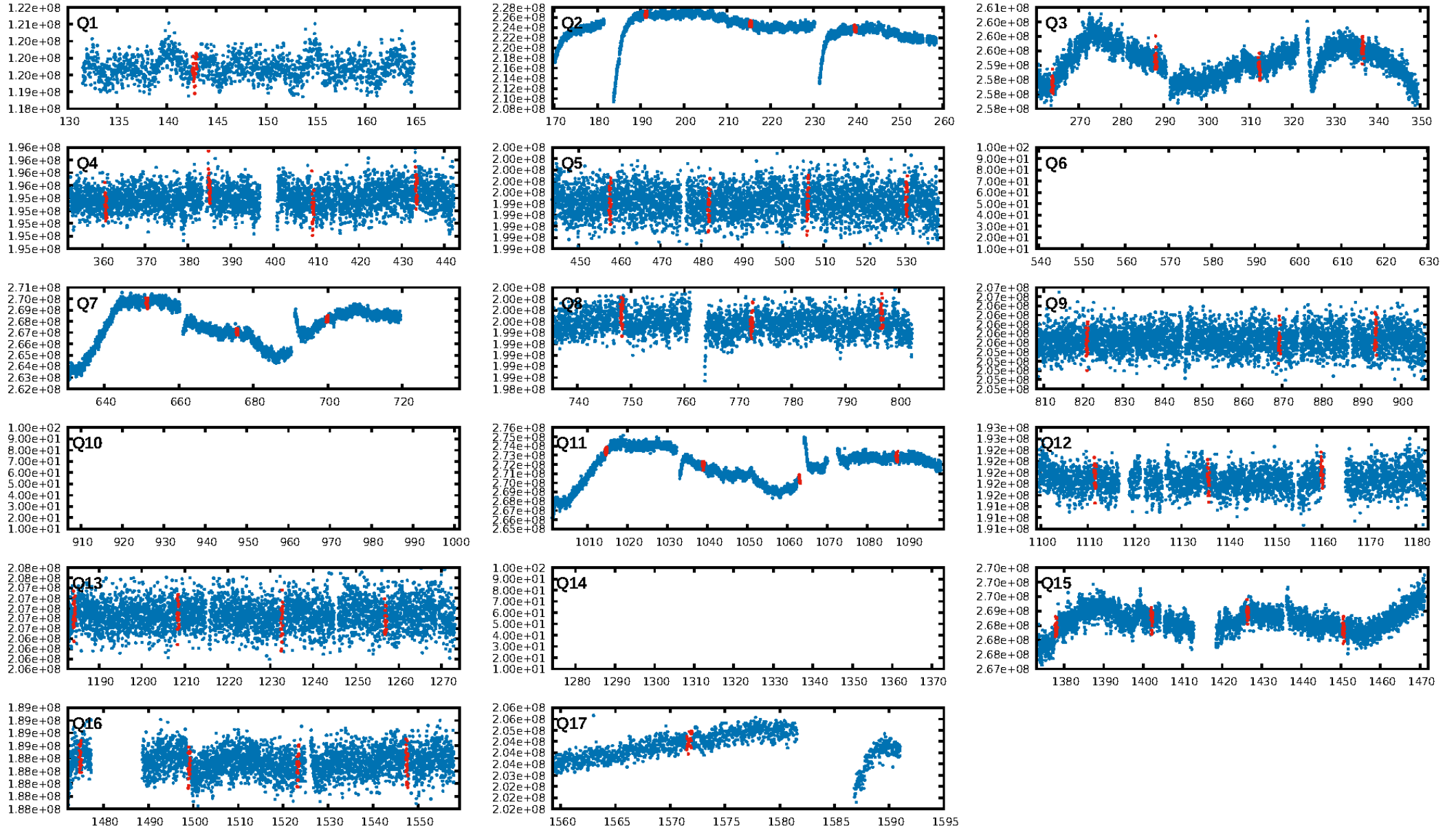
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [44.51 σ]
LongPeriod-sig: 100.0% [23.47 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [12/12]
GhostDiagnostic-chr: -1.442
Centroid-sig: 10.9%
Centroid-so: 2.844 arcsec [7.53 σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/14]

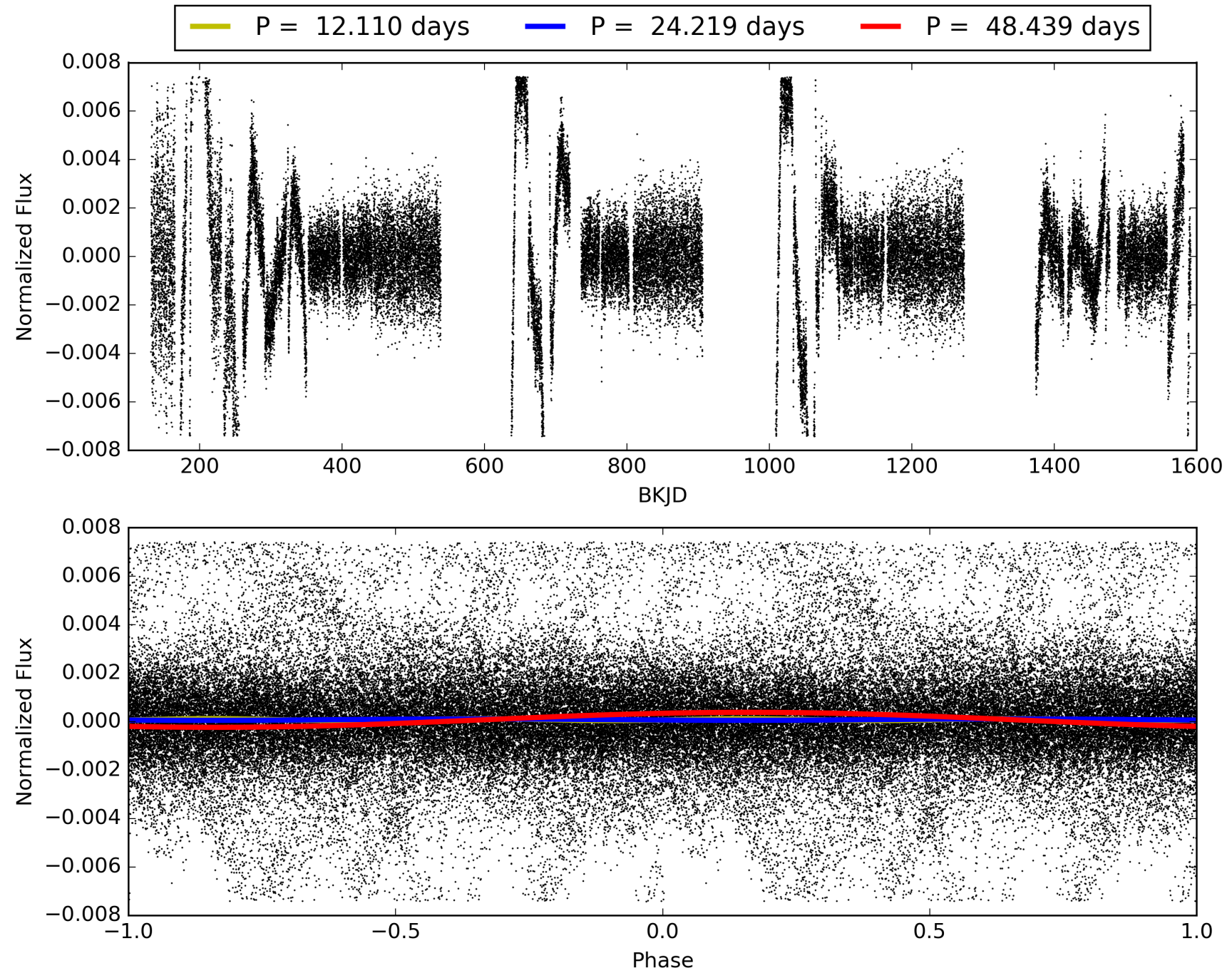
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:13:21 Z

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

TCE 003454720-06, PDC Light Curves

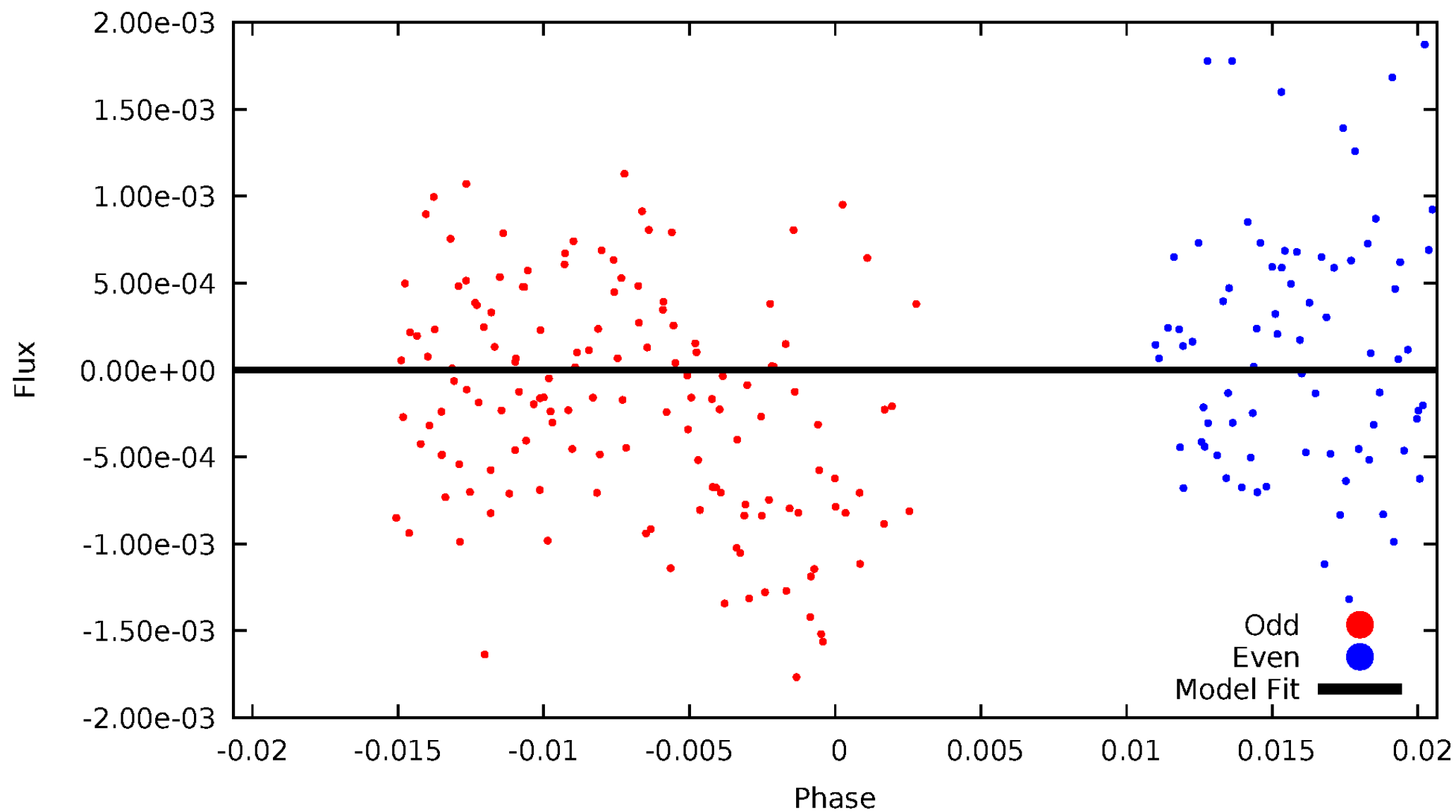


TCE 003454720-06



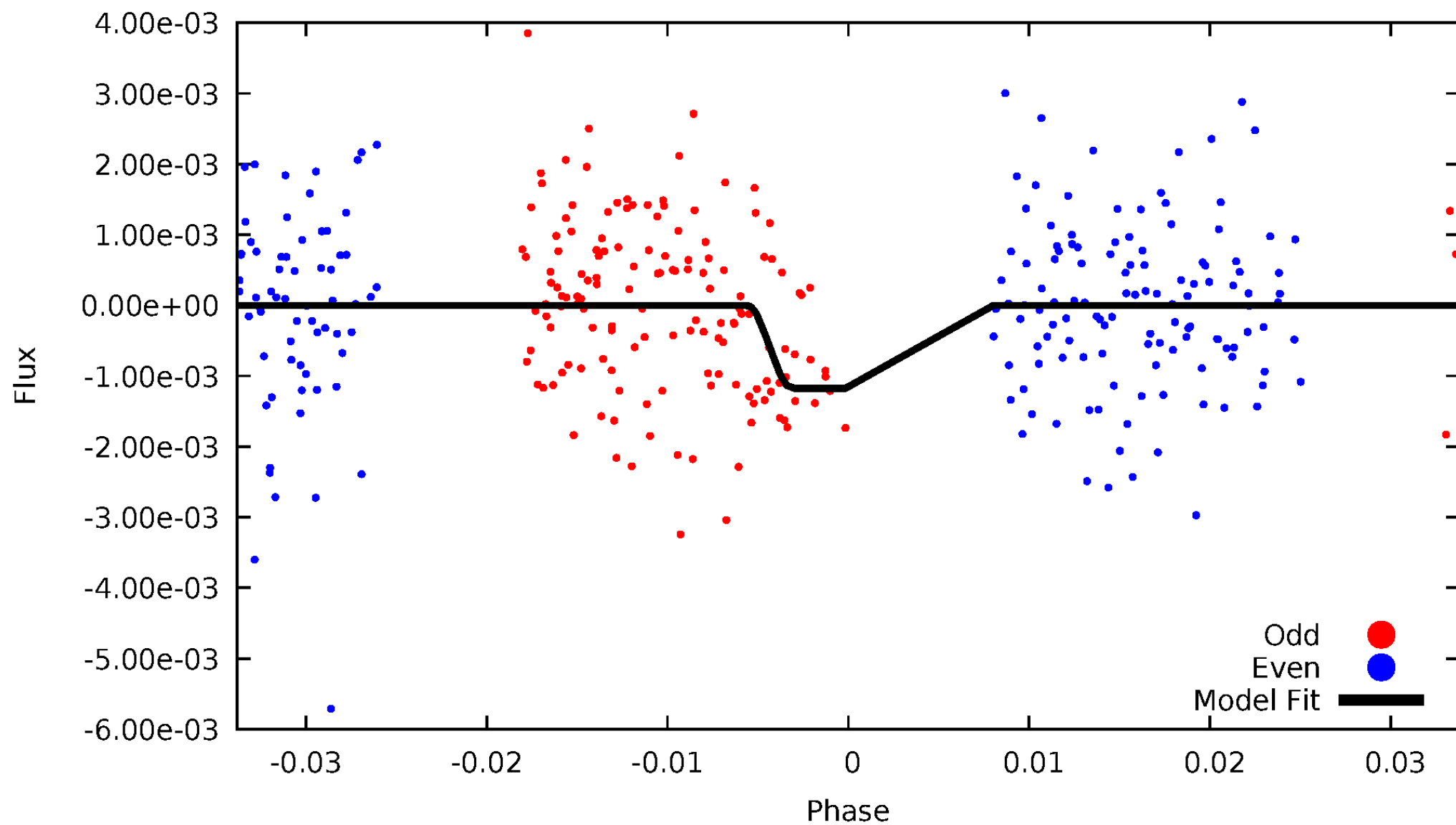
DV Odd/Even

TCE 003454720-06



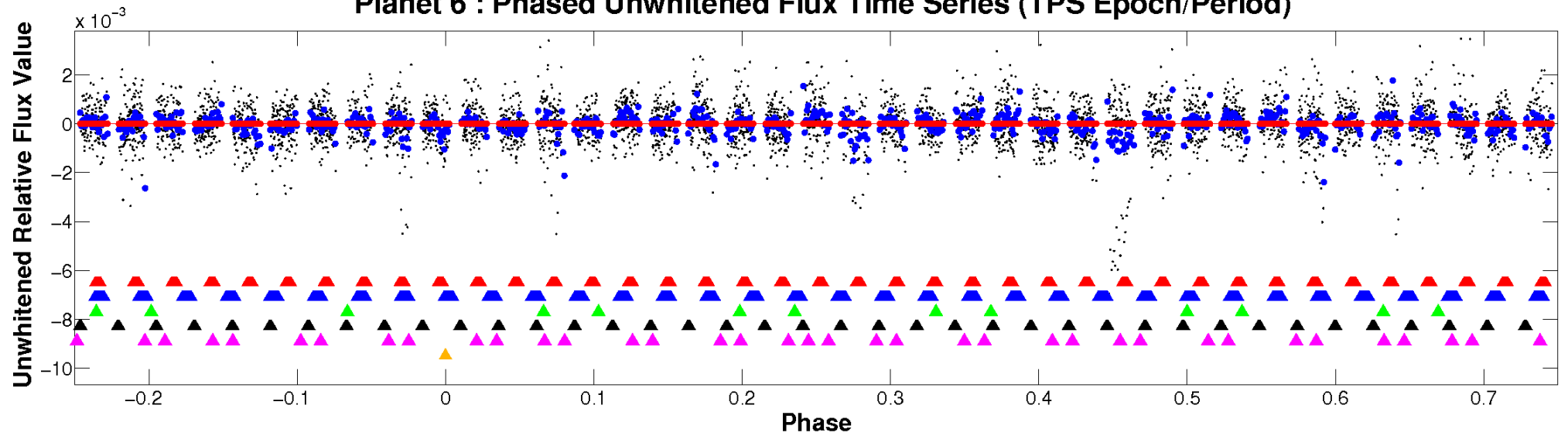
ALT Odd/Even

TCE 003454720-06

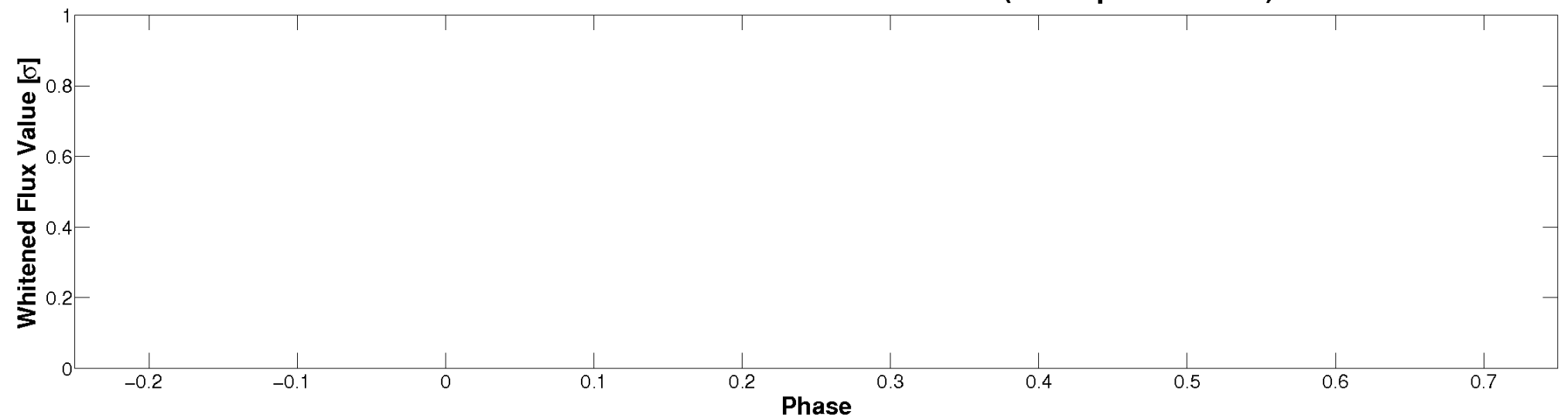


Non-Whitened Vs. Whitened Light Curve

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

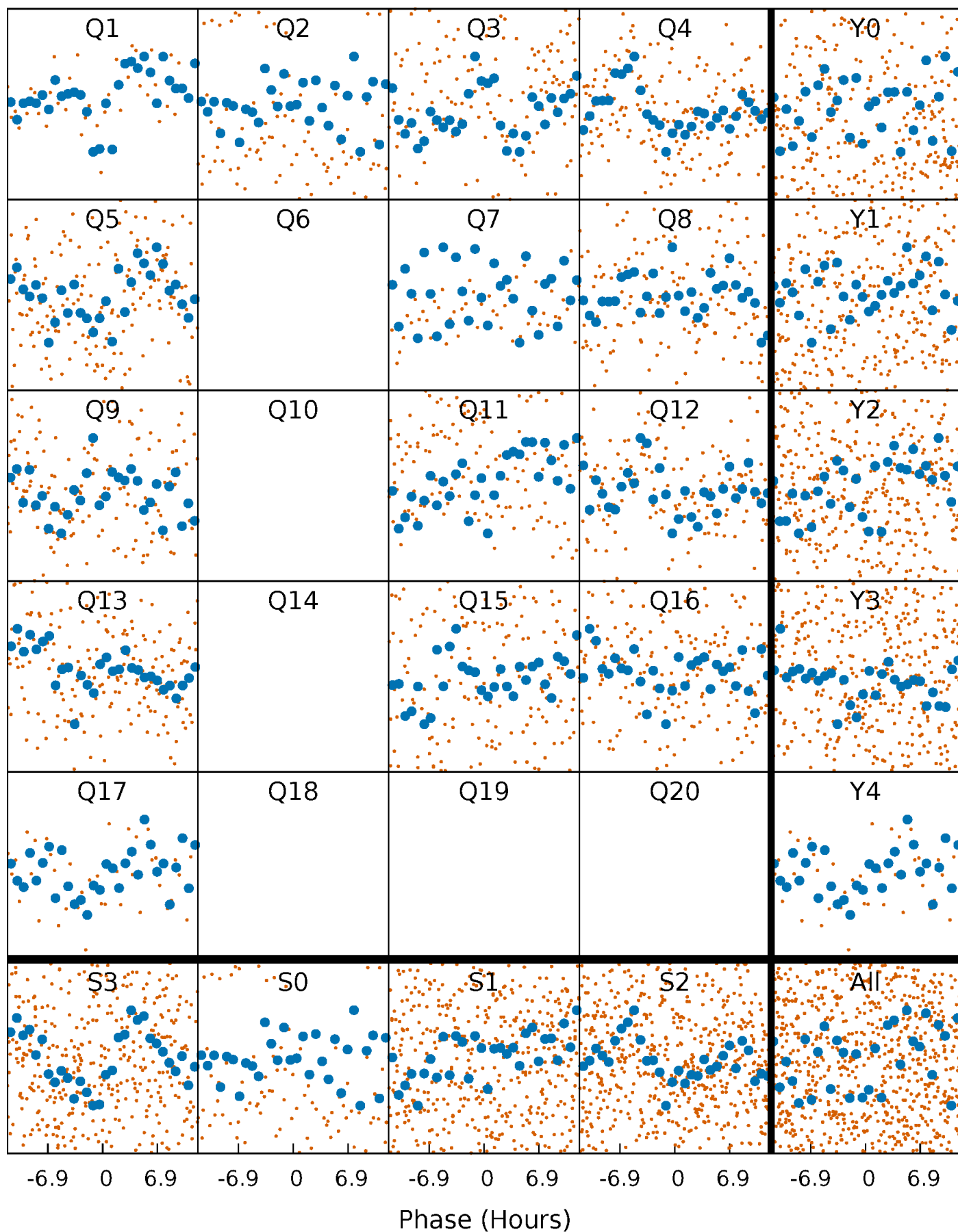


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



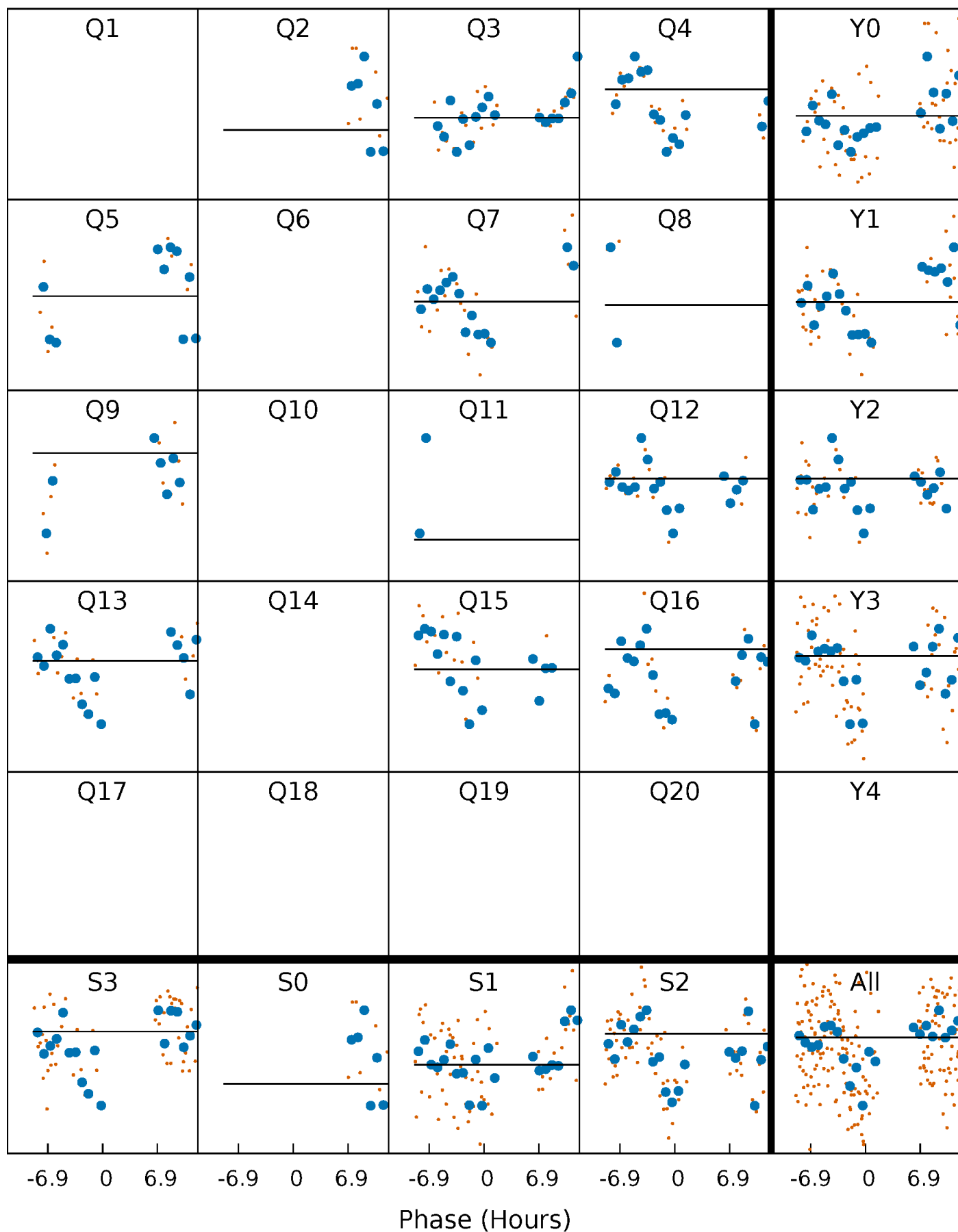
PDC Quarter-Phased Transit Curves

TCE 003454720-06 P= 24.219281 Days $T_0=142.800536$ (BKJD)



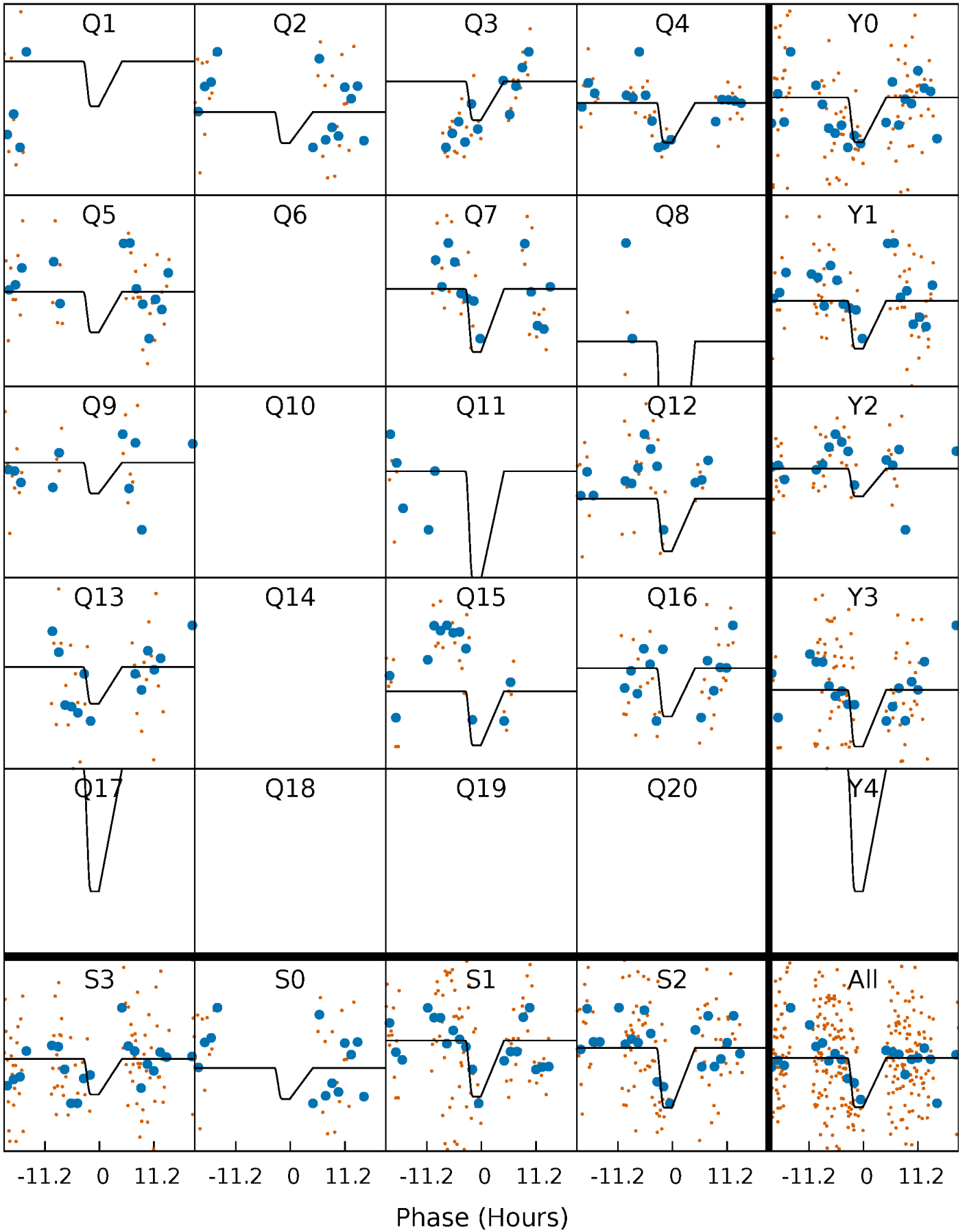
DV Quarter-Phased Transit Curves

TCE 003454720-06 P= 24.219281 Days $T_0=142.800536$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

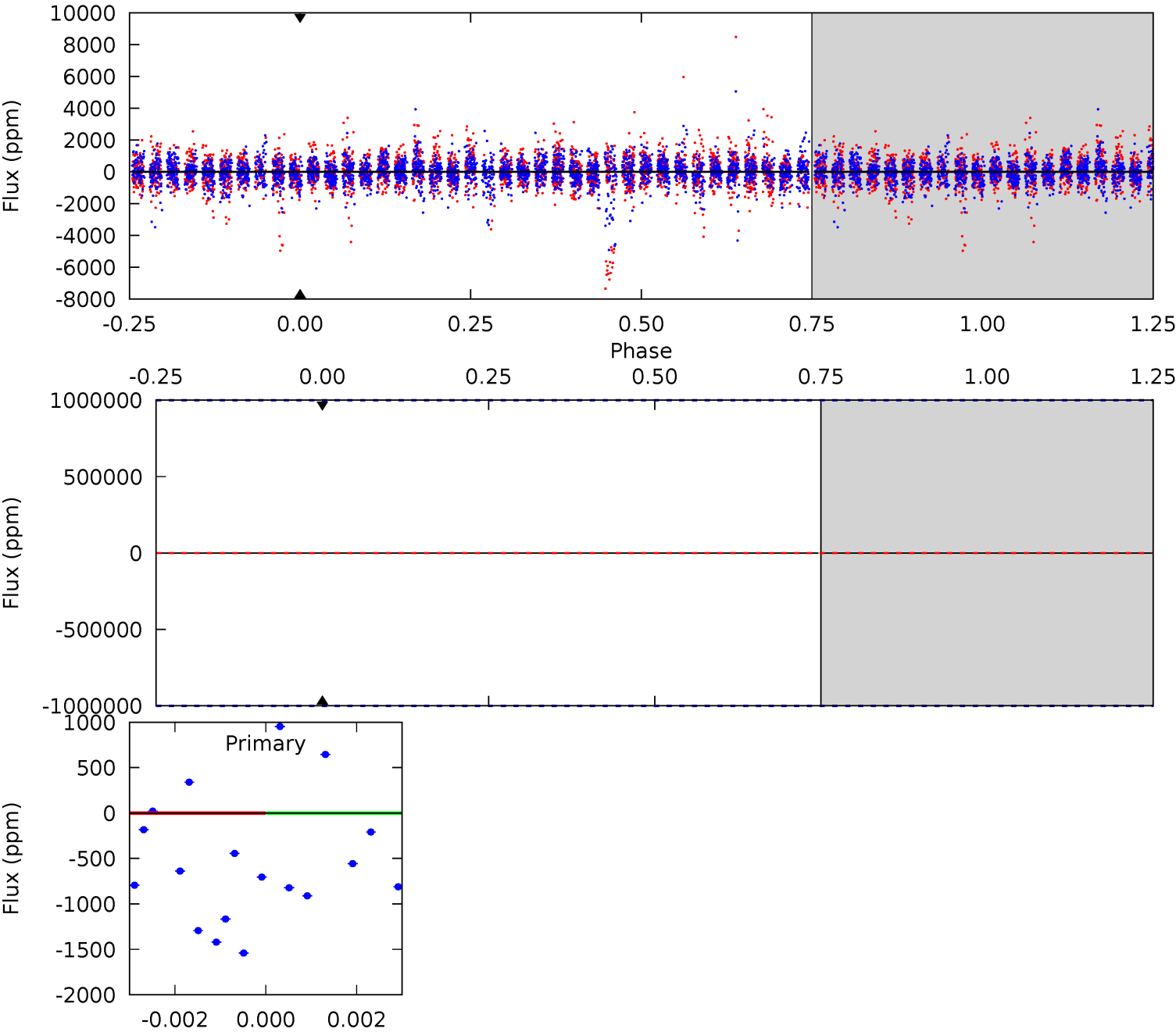
TCE 003454720-06 P= 24.219281 Days $T_0=142.872026$ (BKJD)



DV Model-Shift Uniqueness Test

003454720-06, P = 24.219281 Days, E = 118.581255 Days

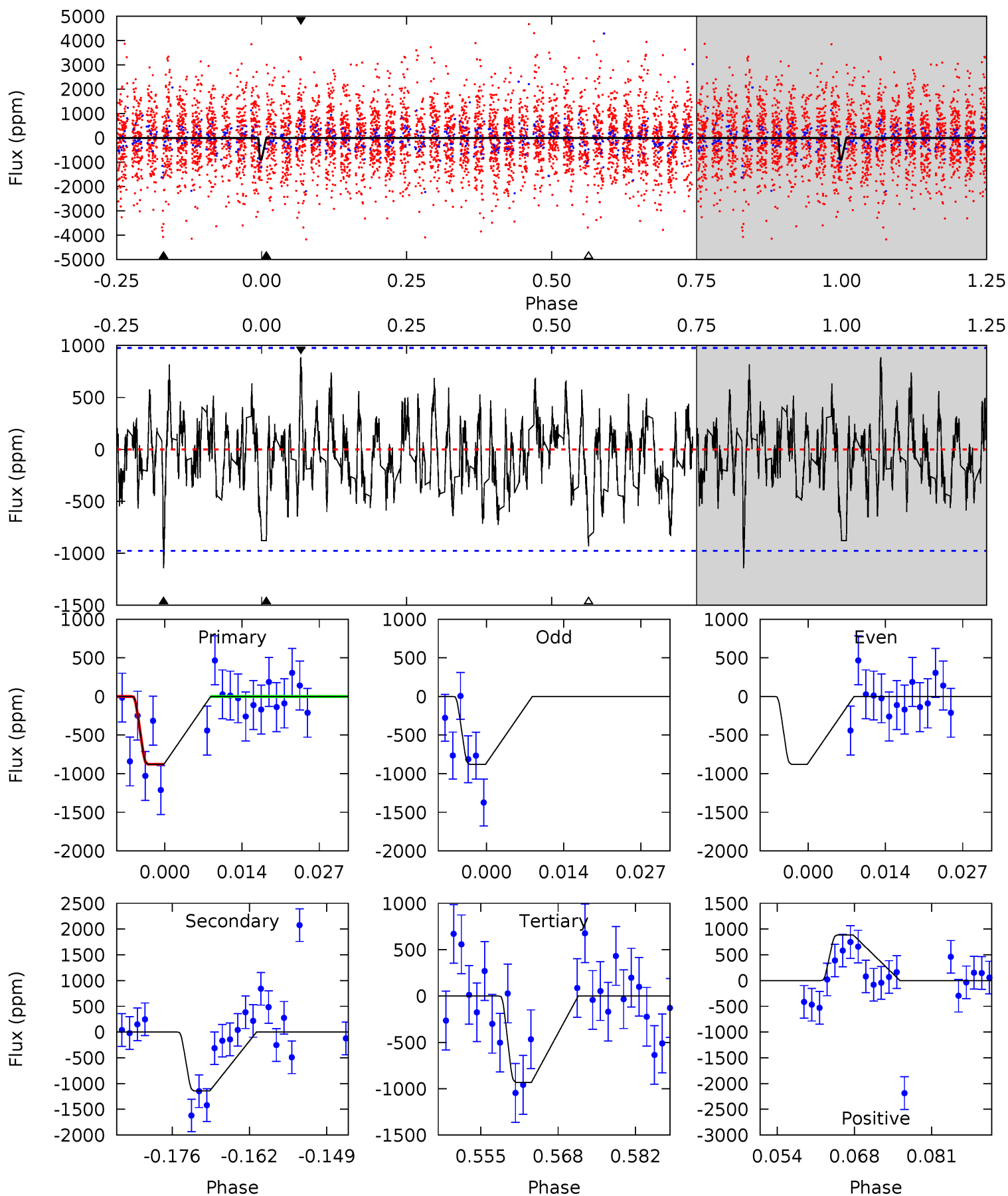
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003454720-06, P = 24.219281 Days, E = 118.652745 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	5.82	4.74	4.52	4.97	2.47	1.43	-0.27	-0.04	1.08	1.30	0	0	0.44	0



Stellar Parameters For KIC 003454720

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4696^{+49}_{-70}	$2.454^{+0.115}_{-0.115}$	$-0.180^{+0.150}_{-0.100}$	$12.252^{+1.840}_{-2.990}$	$1.557^{+0.162}_{-0.487}$	$0.001^{+0.001}_{-0.000}$
	+1%/-1%	+5%/-5%	+83%/-56%	+15%/-24%	+10%/-31%	+65%/-34%
Source	SPE74	SPE74	SPE74	DSEP		

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

Secondary Eclipse Parameters for KIC 003454720-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$98.55^{+101.15}_{-72.76}$	2331^{+106}_{-112}	3682^{+10510}_{-16957}	$3.263^{+454.441}_{-388.798}$
Alt.	-1143 ± 196	$110.17^{+113.39}_{-75.29}$	2333^{+98}_{-107}	3313^{+1879}_{-897}	$1.843^{+15.970}_{-1.405}$

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

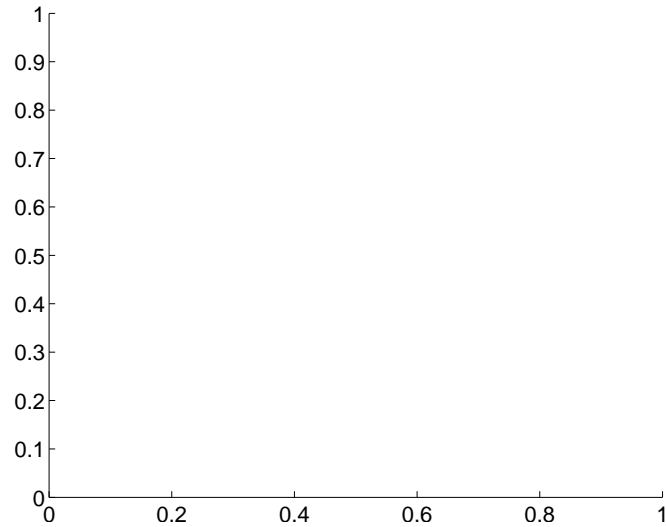
Supplemental centroid analysis for 003454720-06. Kepler magnitude: 12.79. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

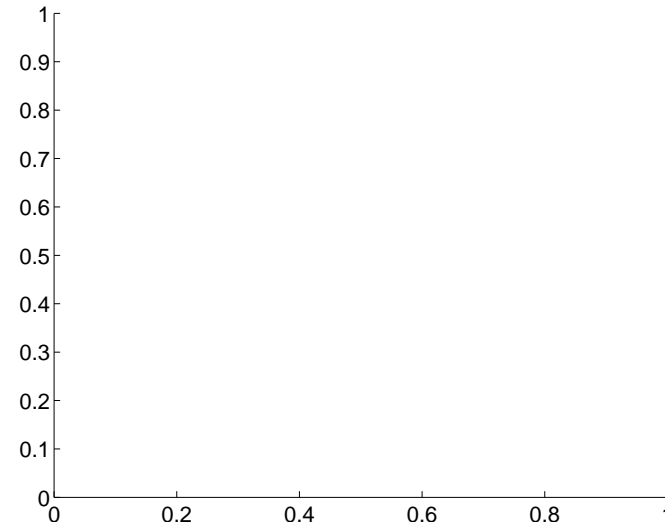
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	2.84 ± 0.38	7.53	2.09 ± 0.15	-1.92 ± 0.54

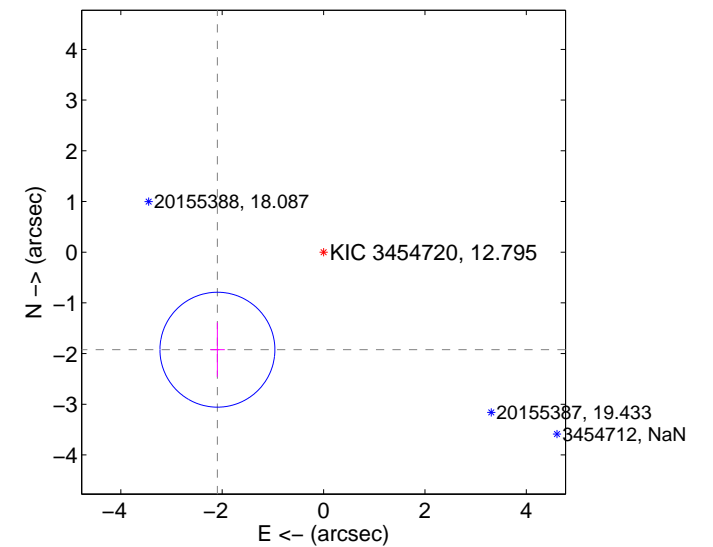
There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC

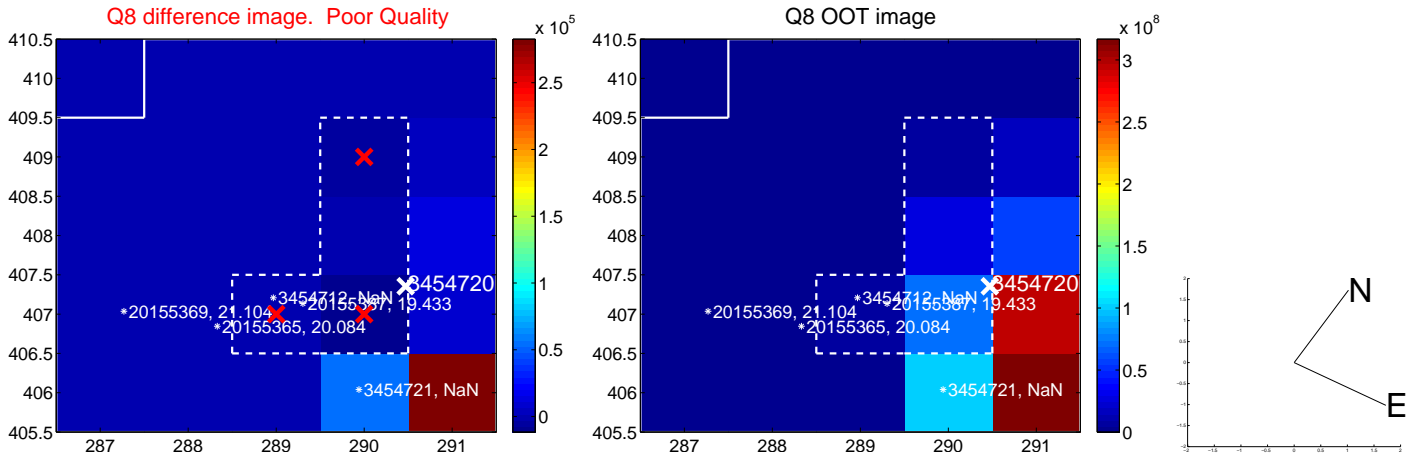
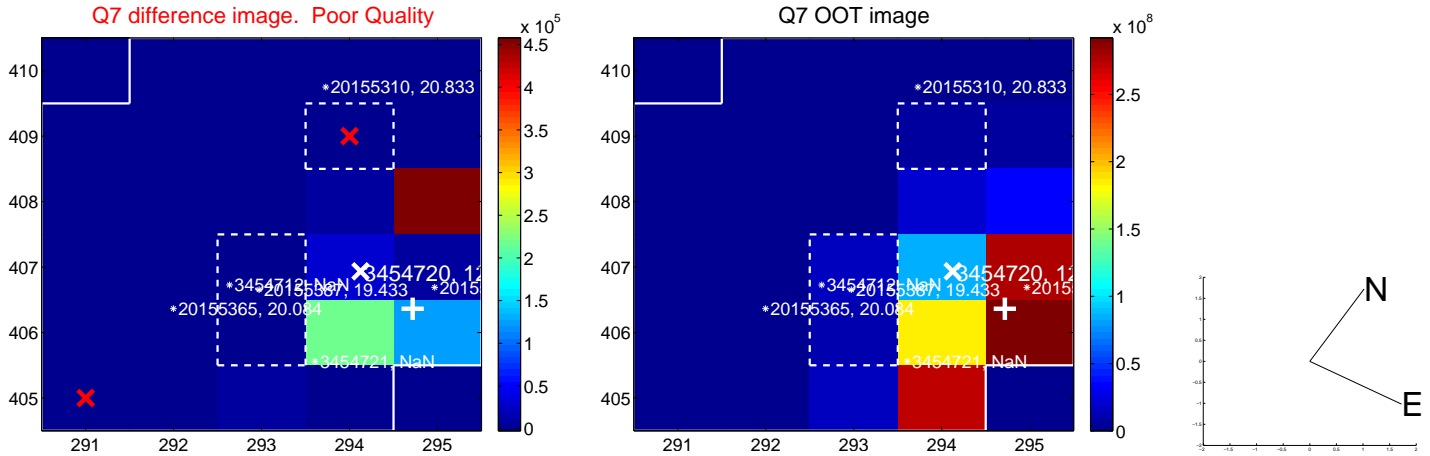
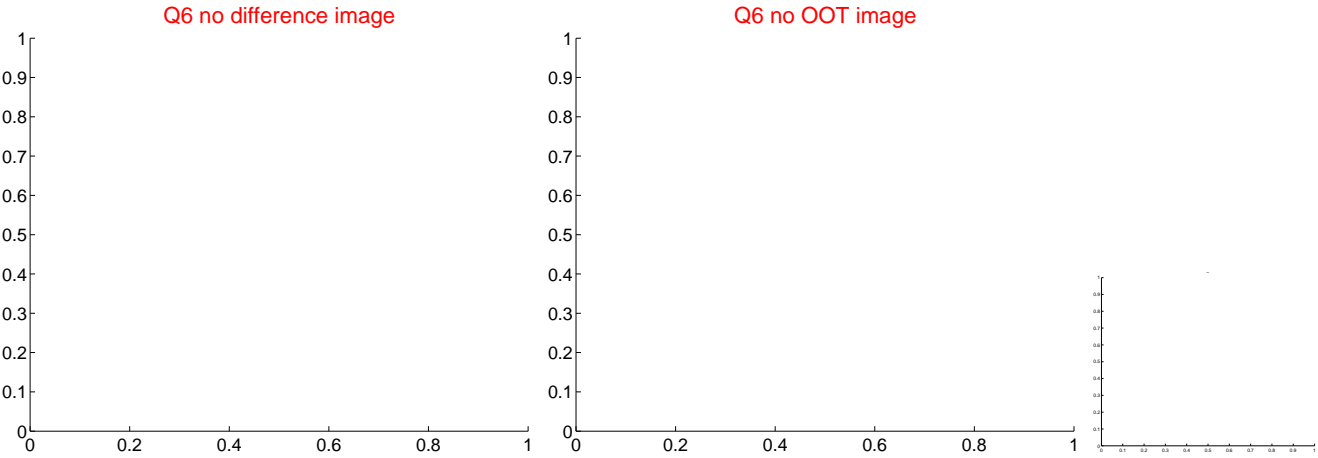
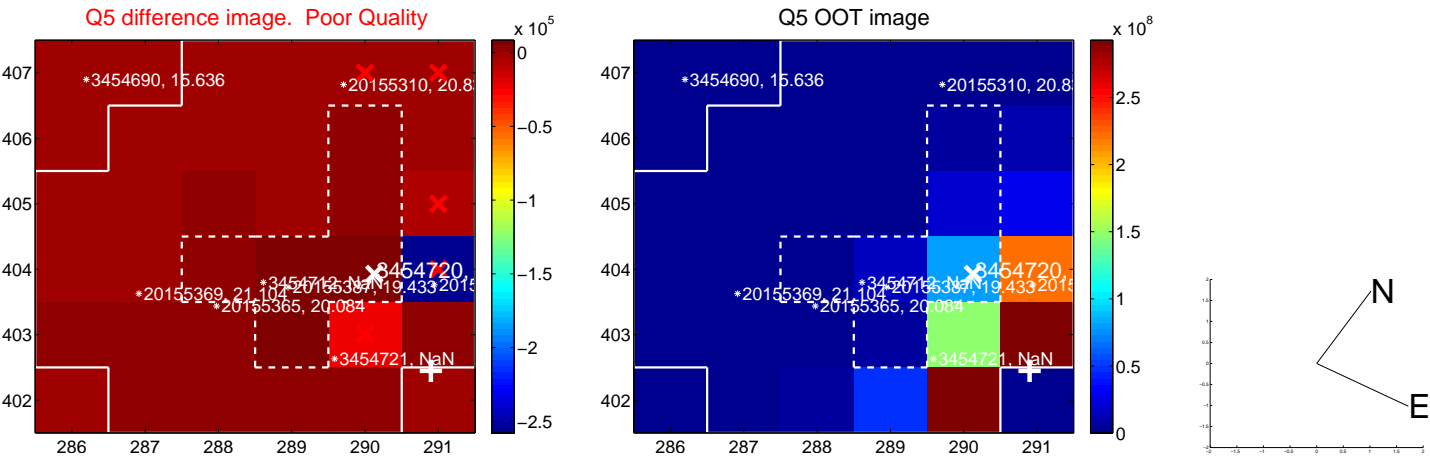


offset from photometric centroids

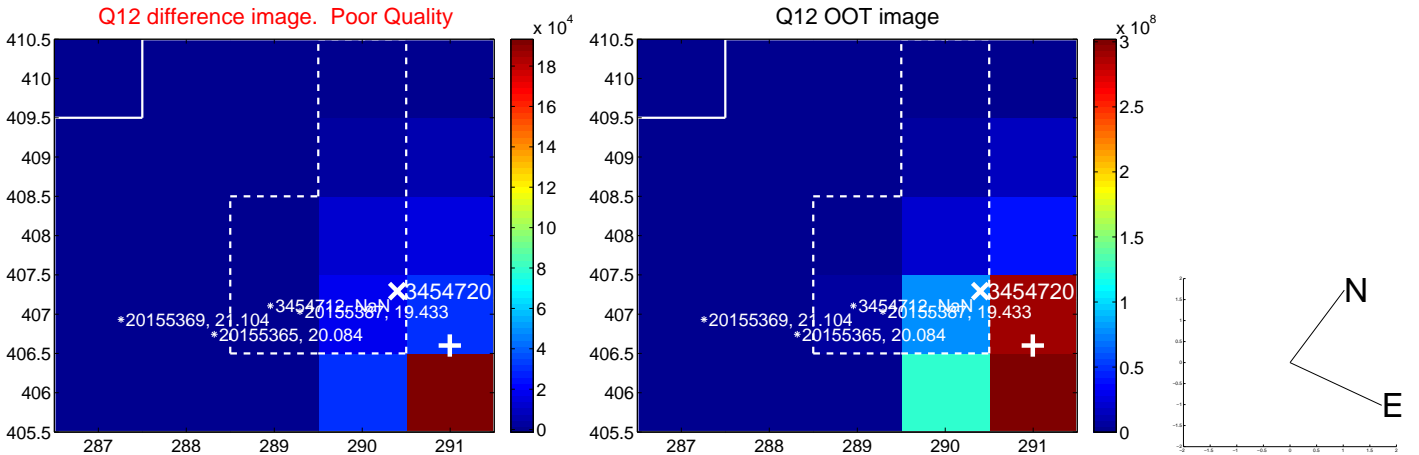
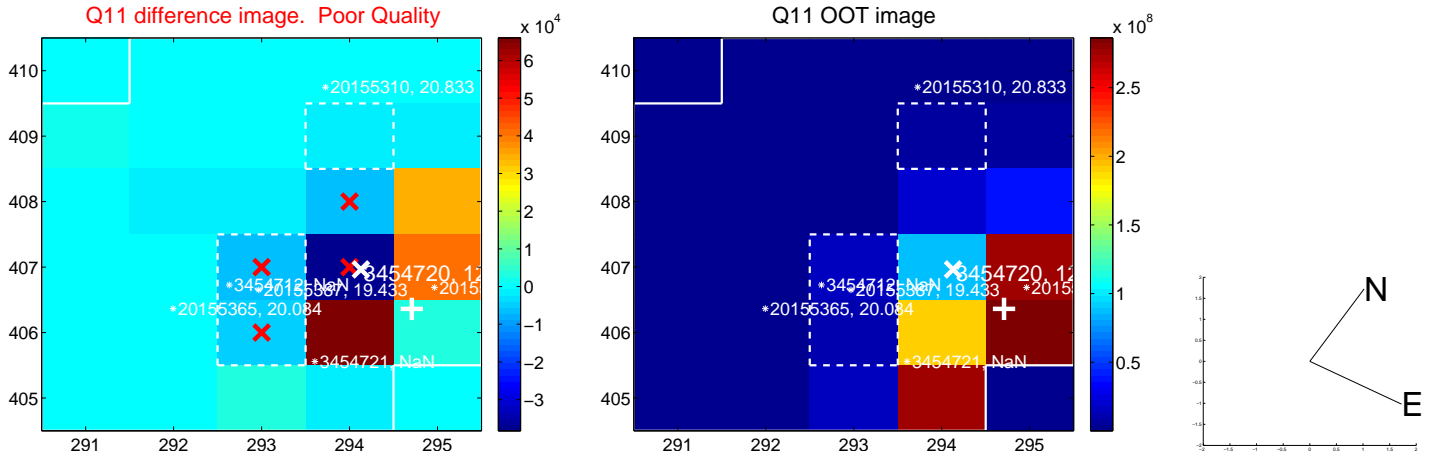
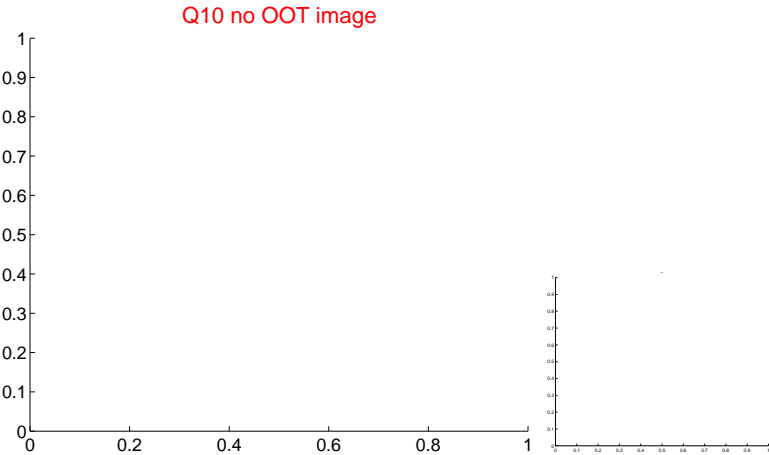
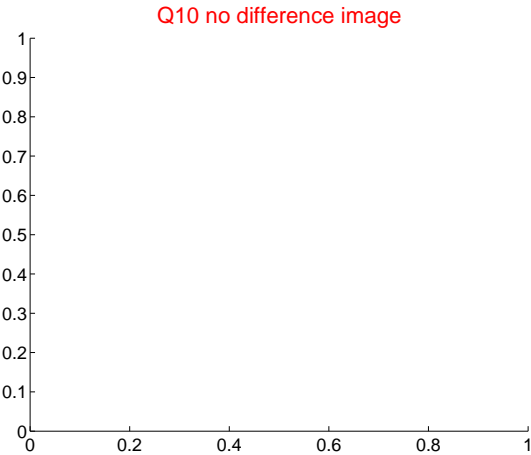
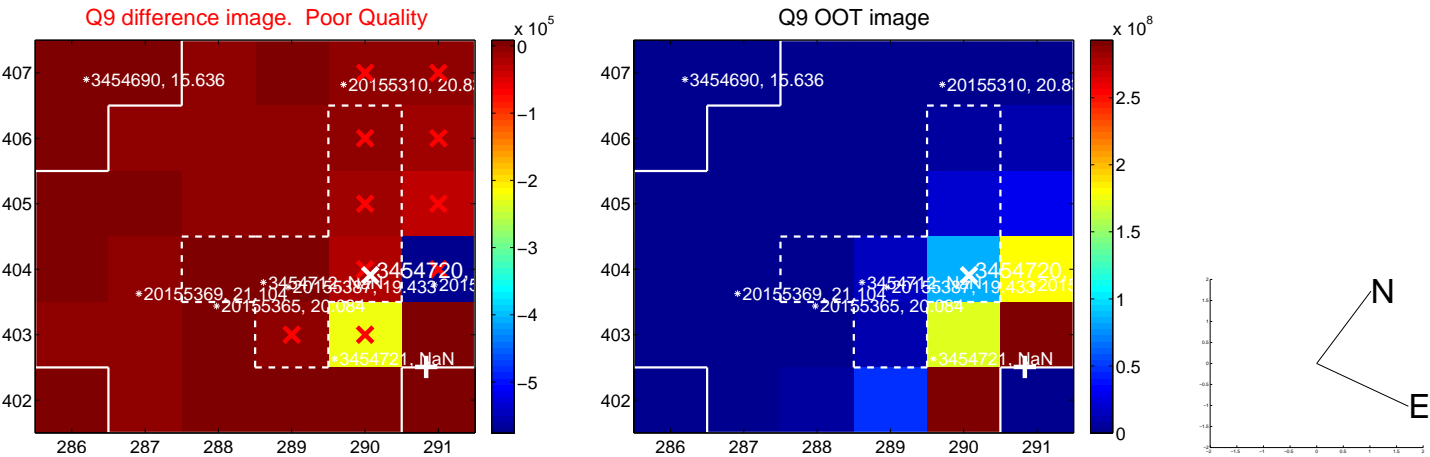


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

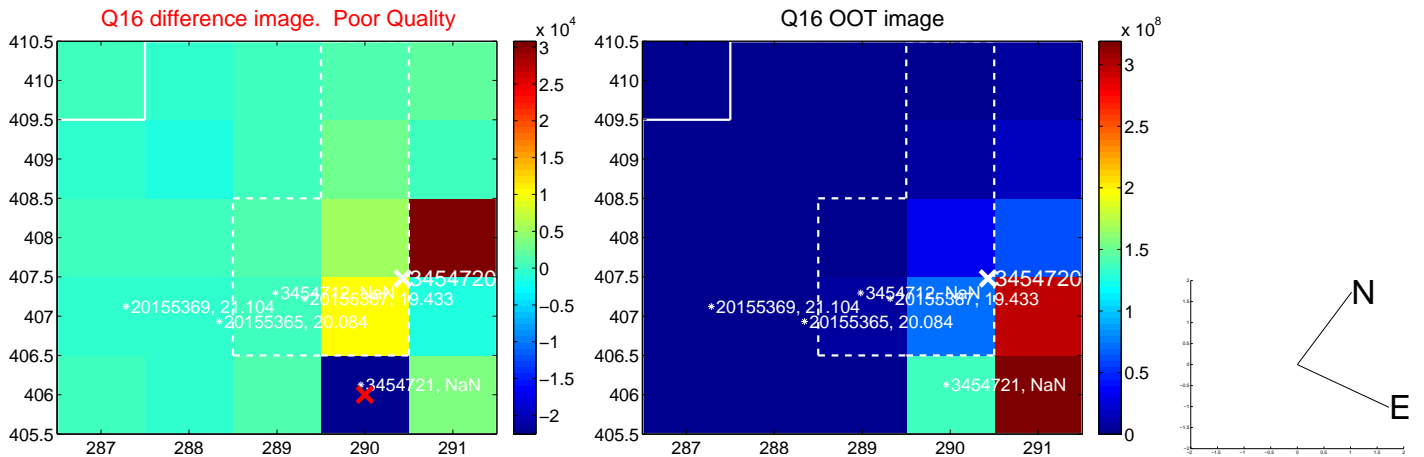
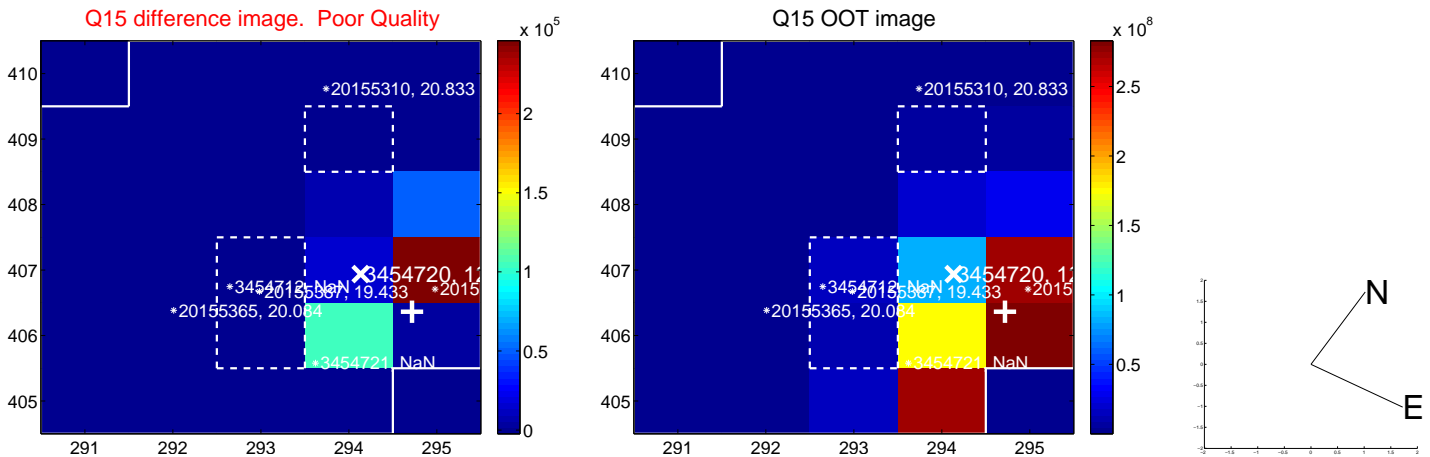
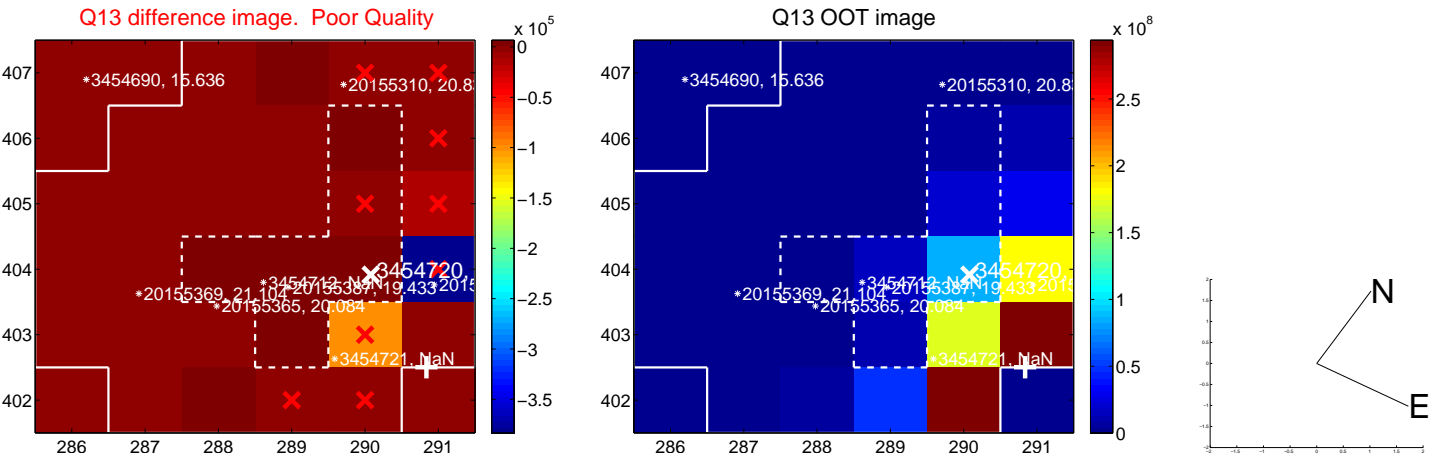
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



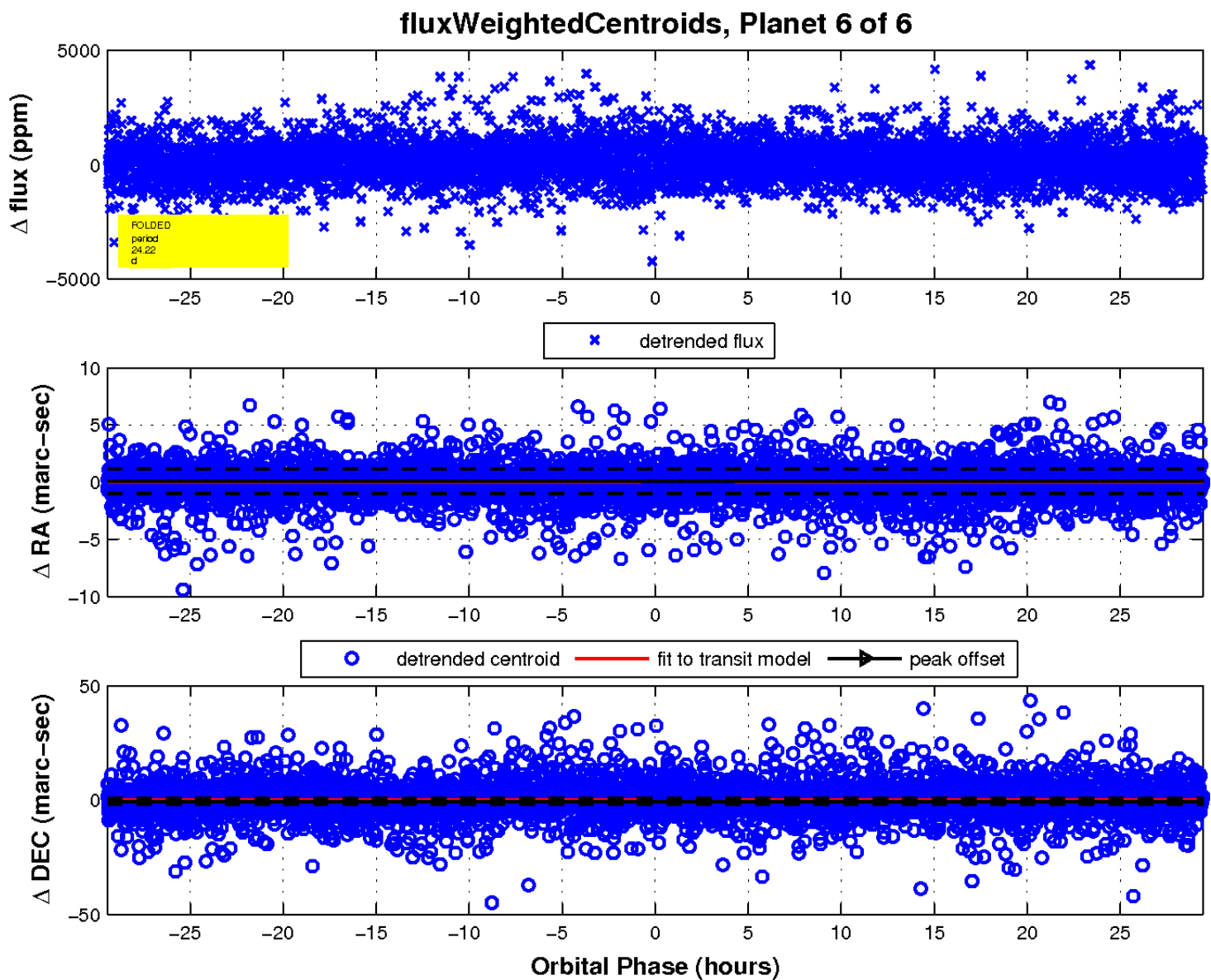
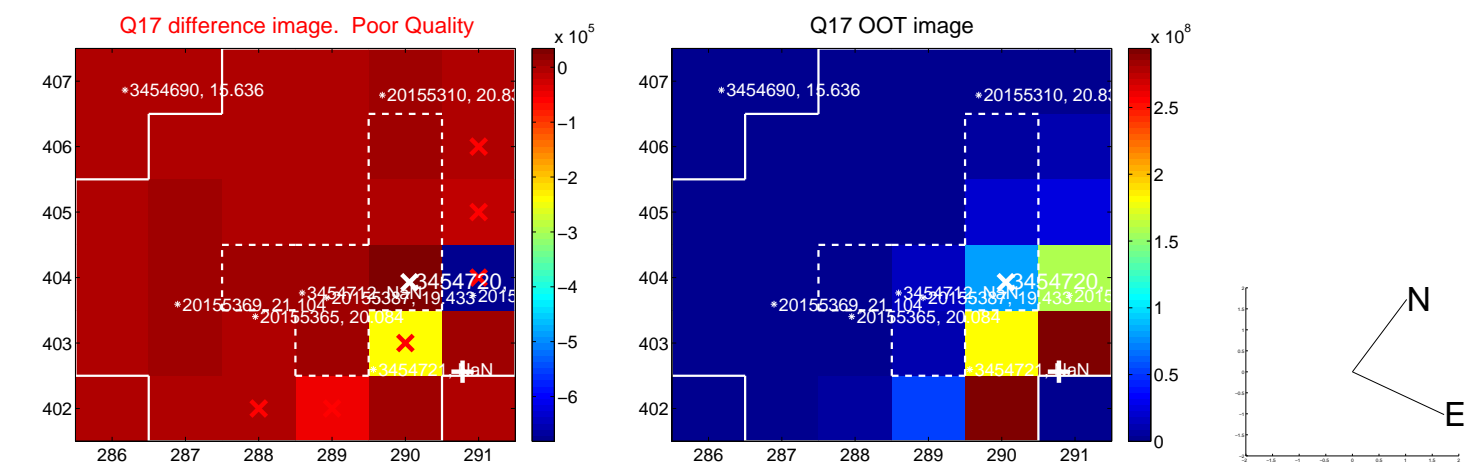
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white ×: 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

