

KIC 007540965

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})
007540965-01	OBS	No	0.970717	132.248527	12.4	5.435	10.9	10.2	2.70	7507	1.06	36129.94
007540965-02	OBS	No	102.032516	176.438612	183.5	1.996	8.5	7.3	2.70	7507	4.16	72.83
007540965-03	OBS	No	44.465528	143.417182	173.8	1.233	7.8	8.0	2.70	7507	3.70	220.44
007540965-04	OBS	No	73.177398	169.812584	125.2	4.595	7.2	7.2	2.70	7507	3.47	113.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007540965-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007540965-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS
007540965-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
007540965-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

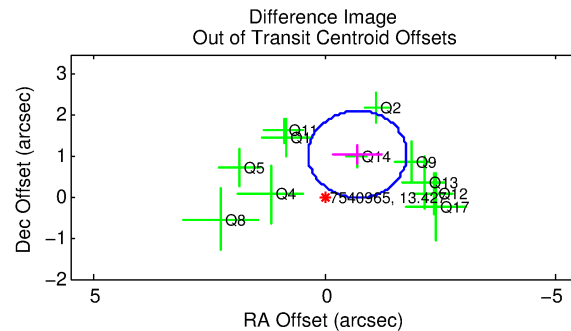
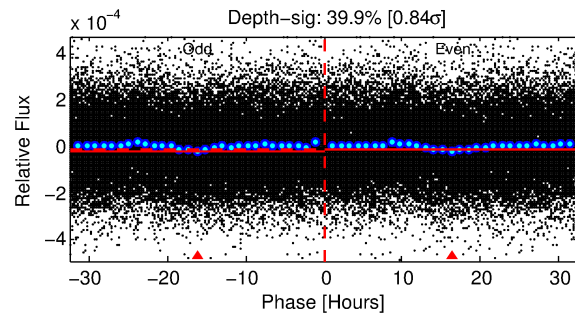
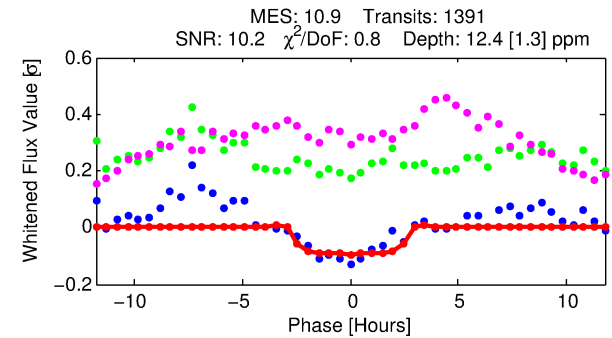
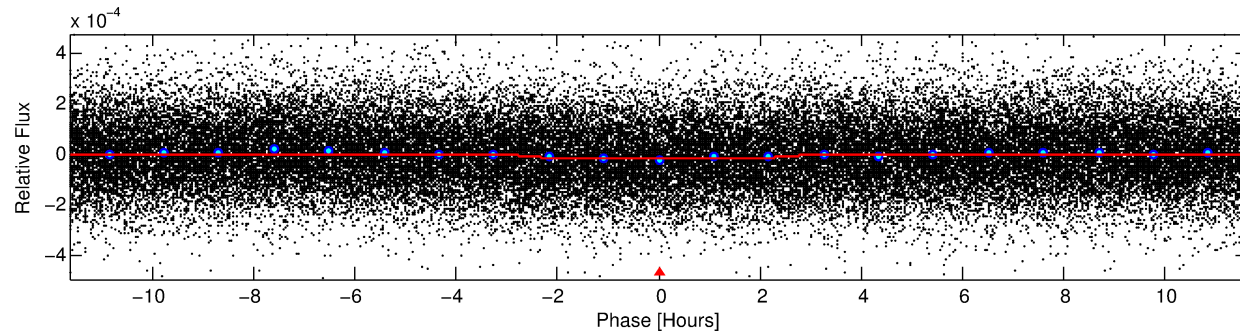
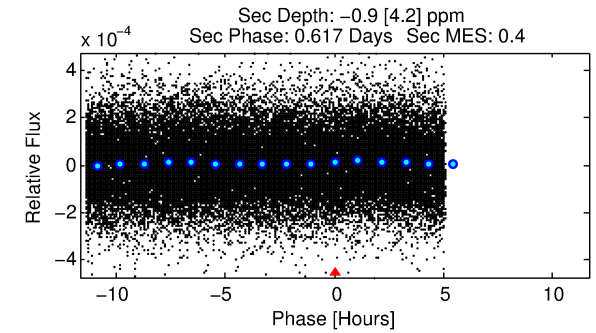
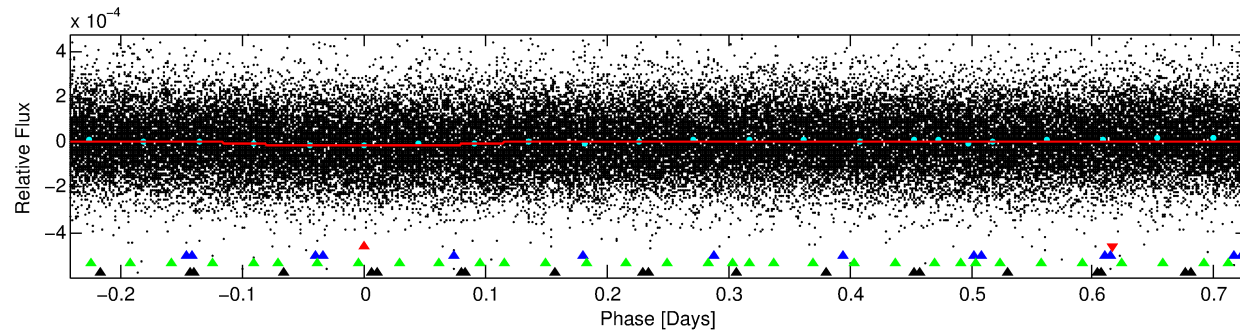
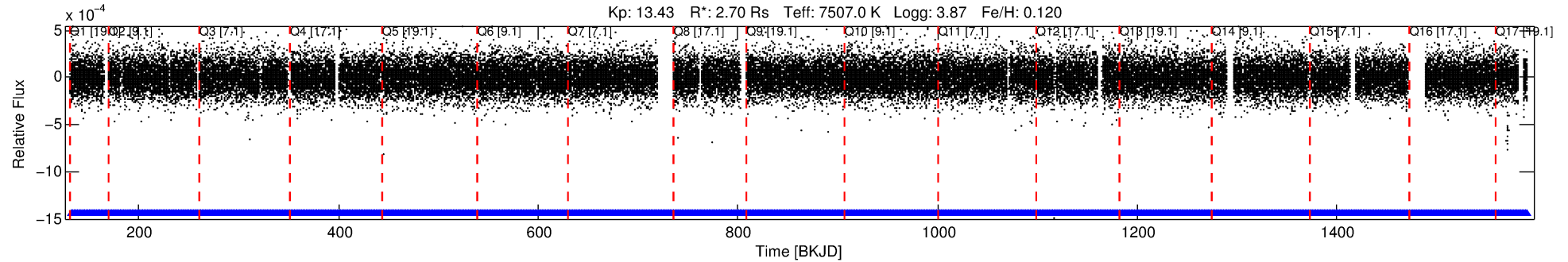
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007540965-01

No Significant Match Found

DV One-Page Summary

KIC: 7540965 Candidate: 1 of 4 Period: 0.971 d



DV Fit Results:

Period = 0.97072 $[0.00001]$ d
Epoch = 132.2485 $[0.0056]$ BKJD
Rp/R* = 0.0036 $[0.0013]$
a/R* = 1.18 $[0.77]$
b = 0.83 $[0.87]$
Seff = 36129.94 $[19143.45]$
Teff = 3516 $[466]$ K
Rp = 1.06 $[0.53]$ Re
a = 0.0240 $[0.0077]$ AU
Ag = N/A
Teffp = N/A

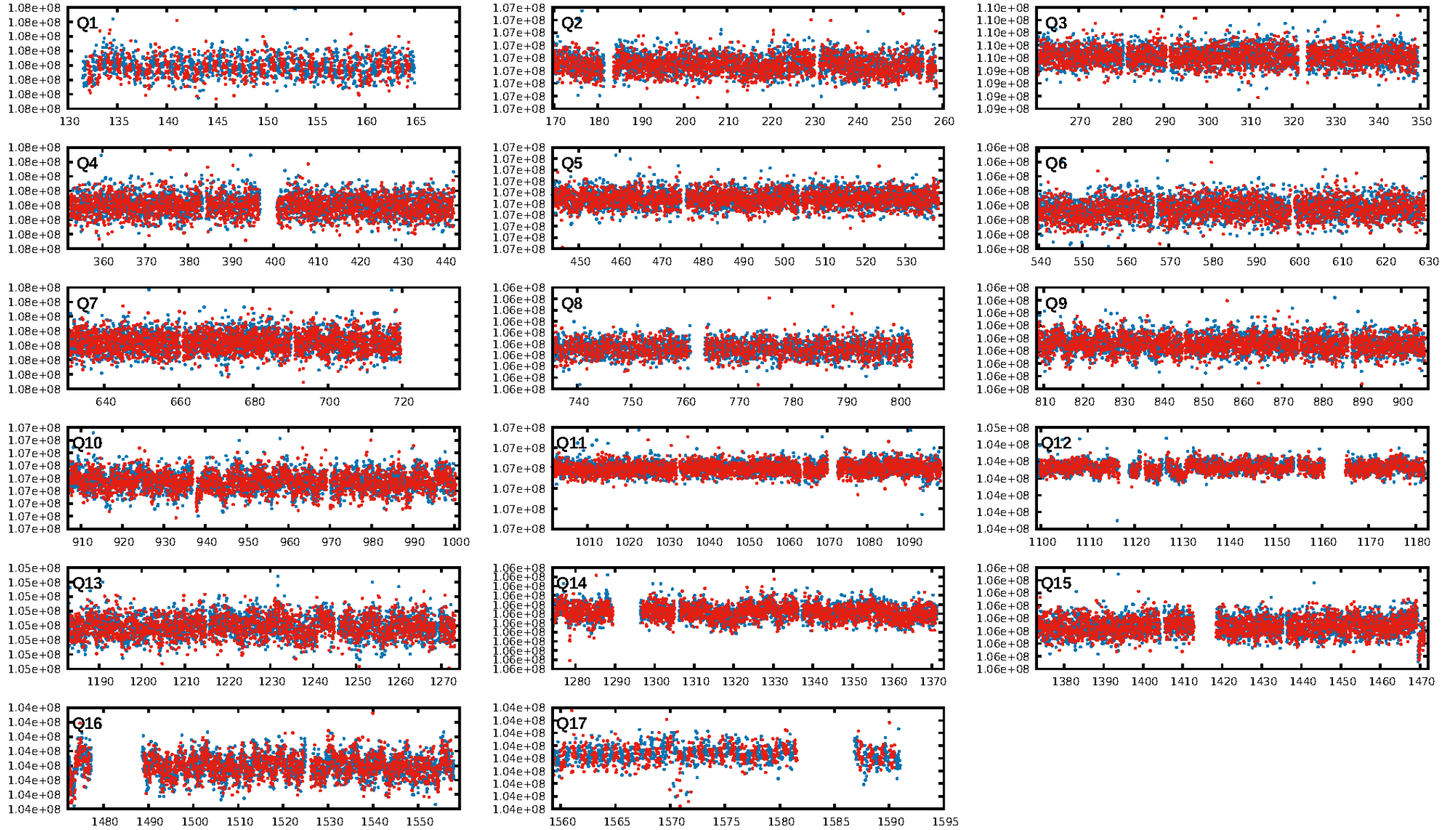
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% $[187.29\sigma]$
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.49e-20
RollingBand-fgt: 1.00 $[1329/1329]$
GhostDiagnostic-chr: 2.235
Centroid-sig: 0.0%
Centroid-so: 3.438 arcsec $[1.98\sigma]$
OotOffset-rm: 1.268 arcsec $[3.57\sigma]$
KicOffset-rm: 1.315 arcsec $[3.65\sigma]$
OotOffset-st: 2/1/3/5 $[11]$
KicOffset-st: 2/1/3/5 $[11]$
DiffImageQuality-fgm: 0.82 $[9/11]$
DiffImageOverlap-fno: 1.00 $[17/17]$

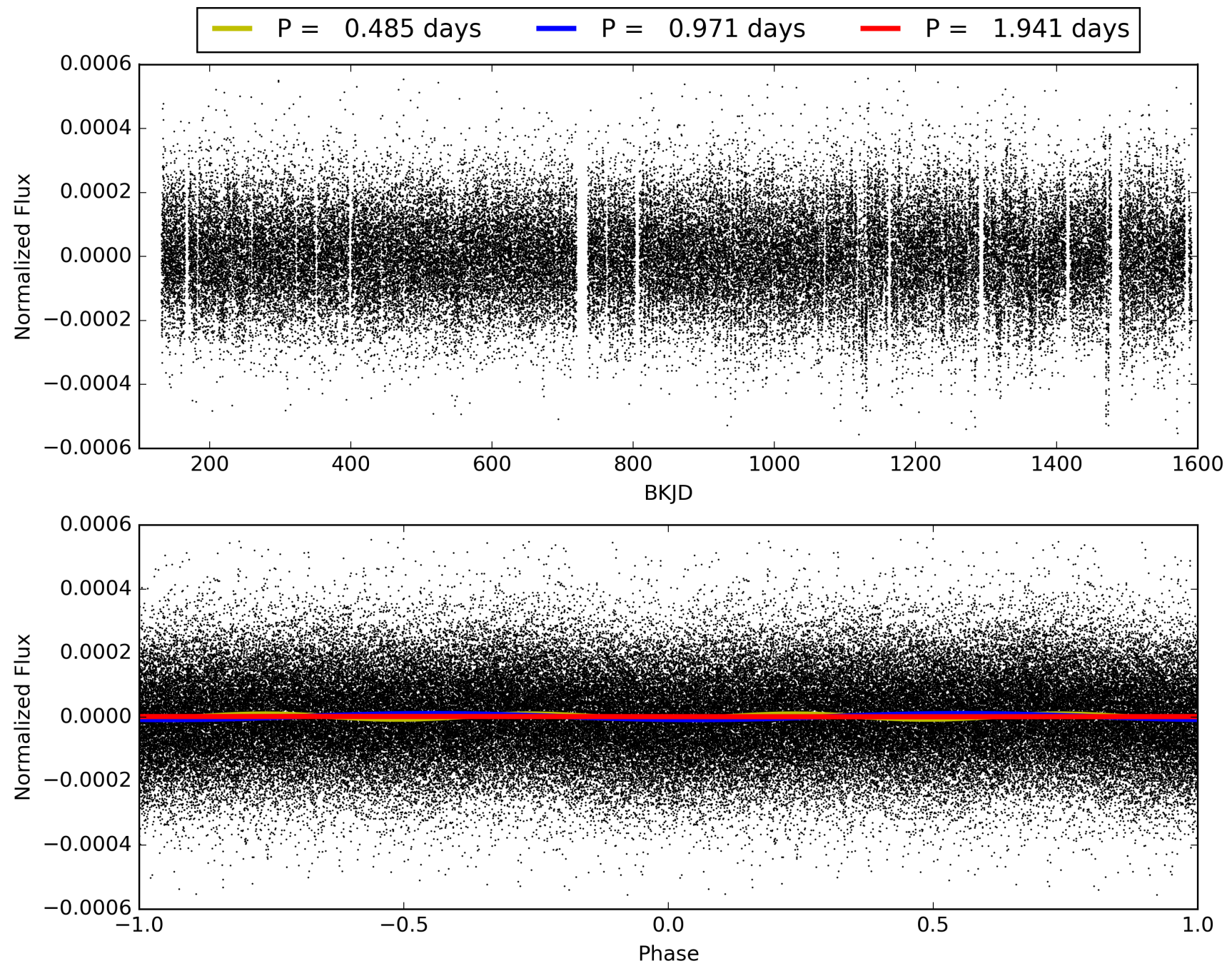
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:52:08 Z

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

TCE 007540965-01, PDC Light Curves

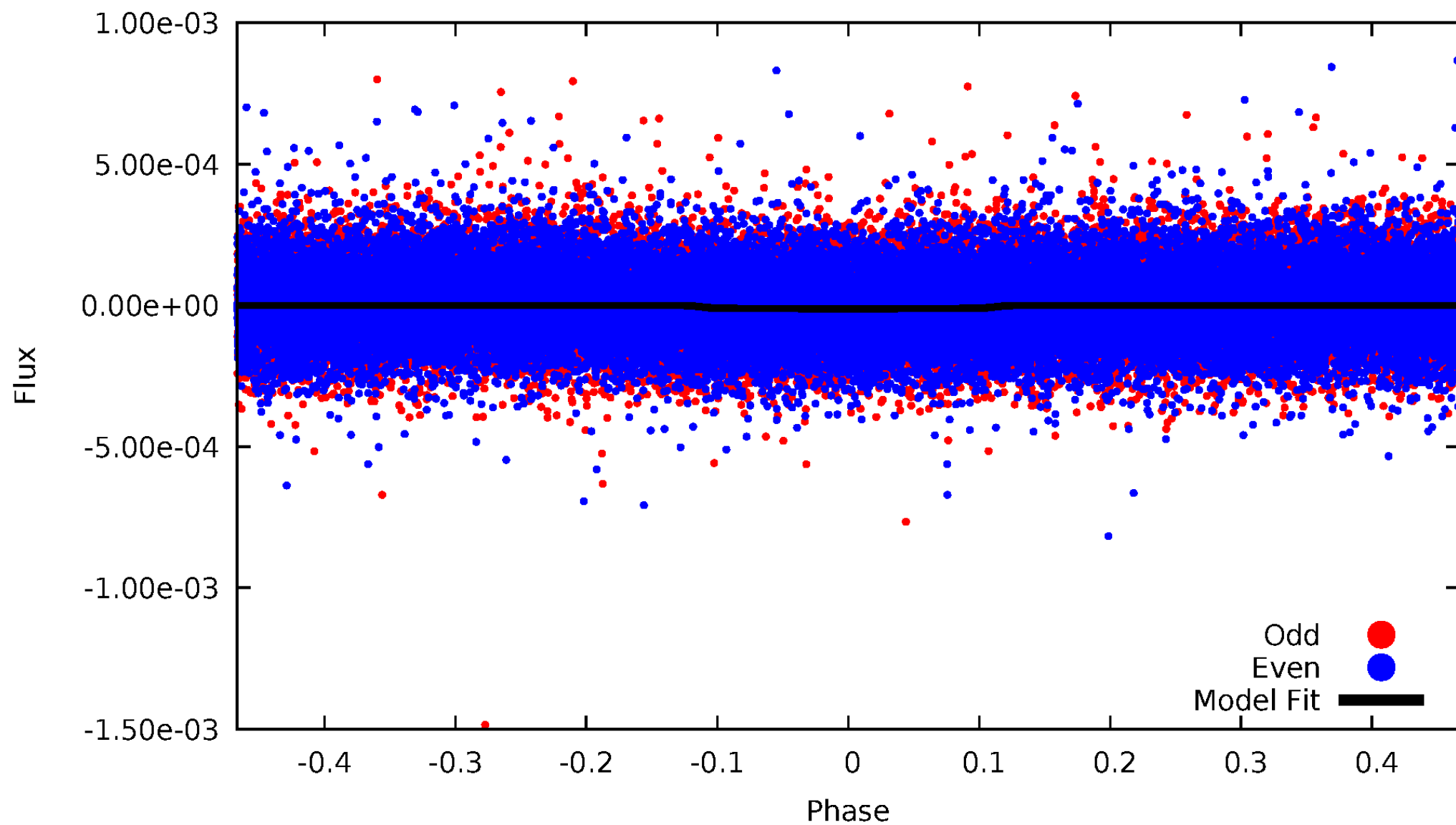


TCE 007540965-01



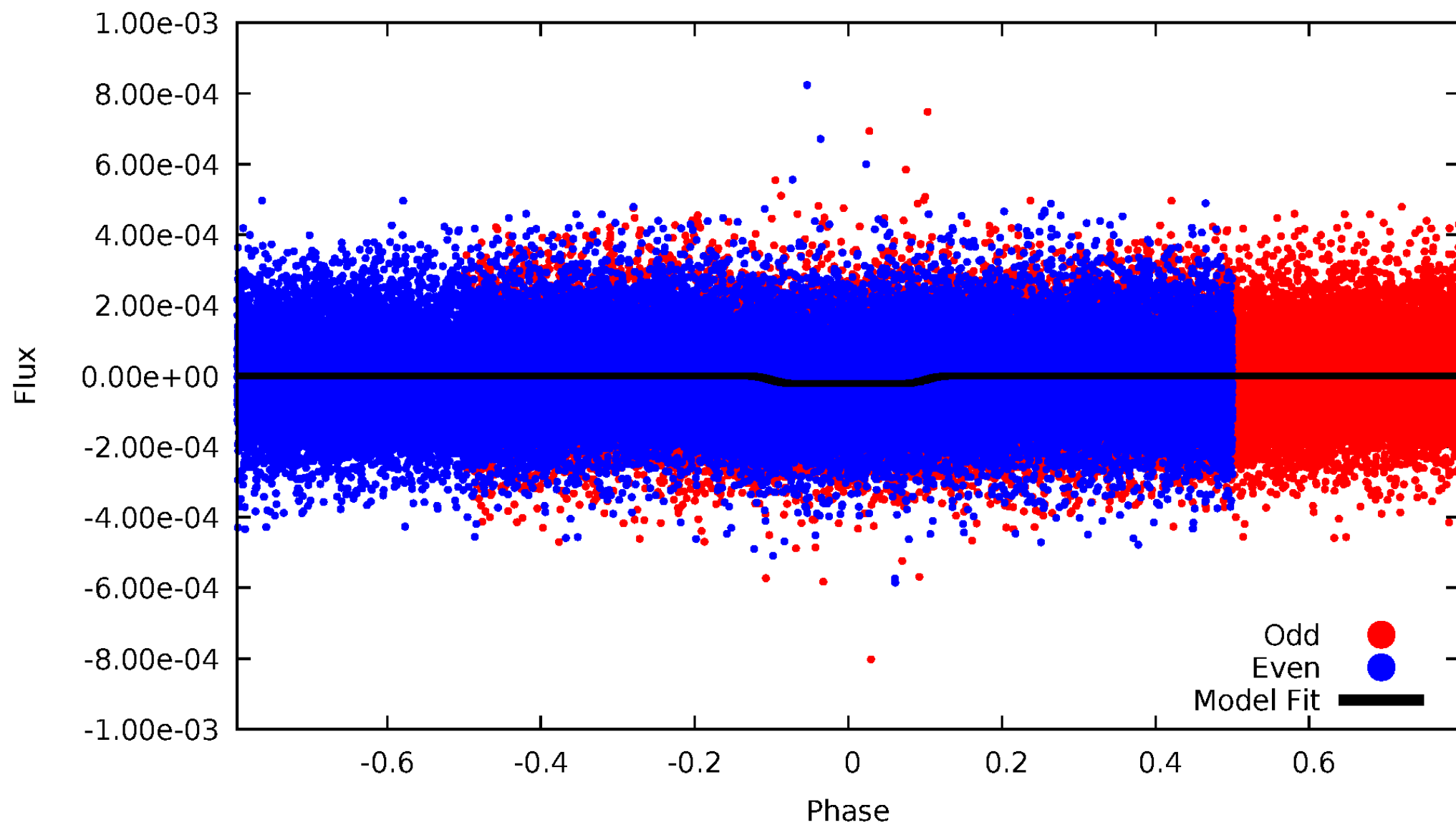
DV Odd/Even

TCE 007540965-01

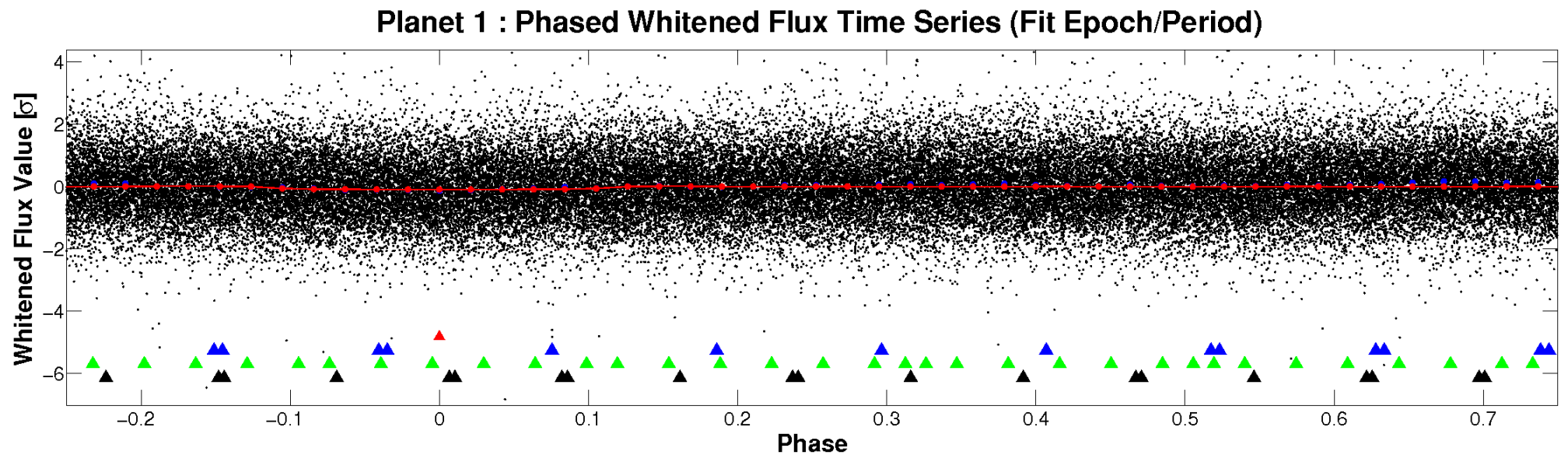
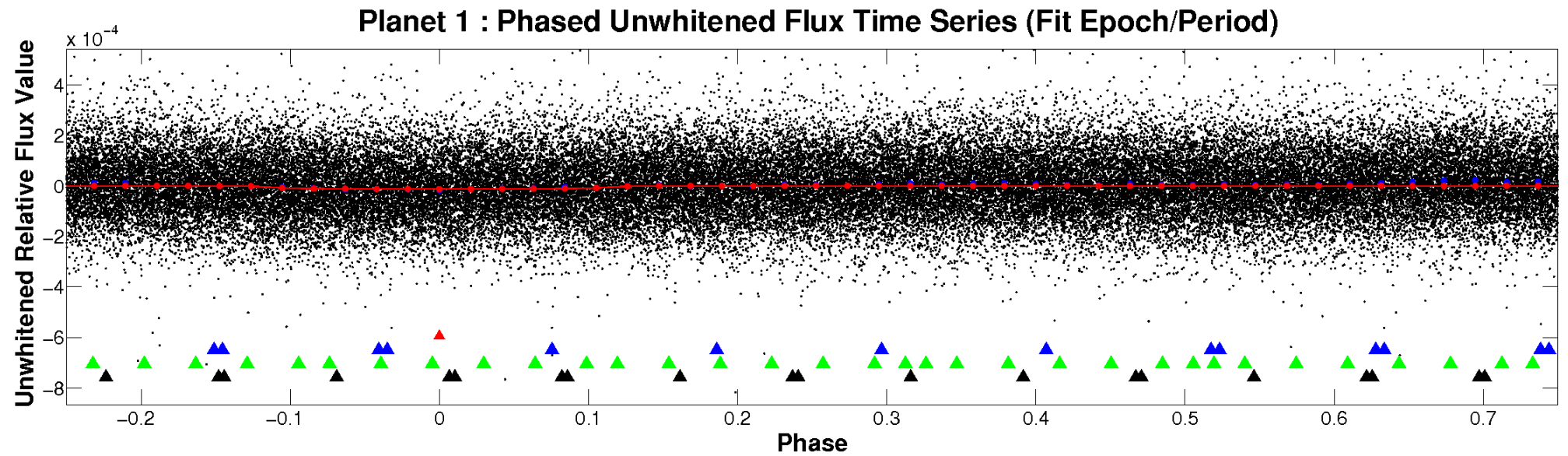


ALT Odd/Even

TCE 007540965-01

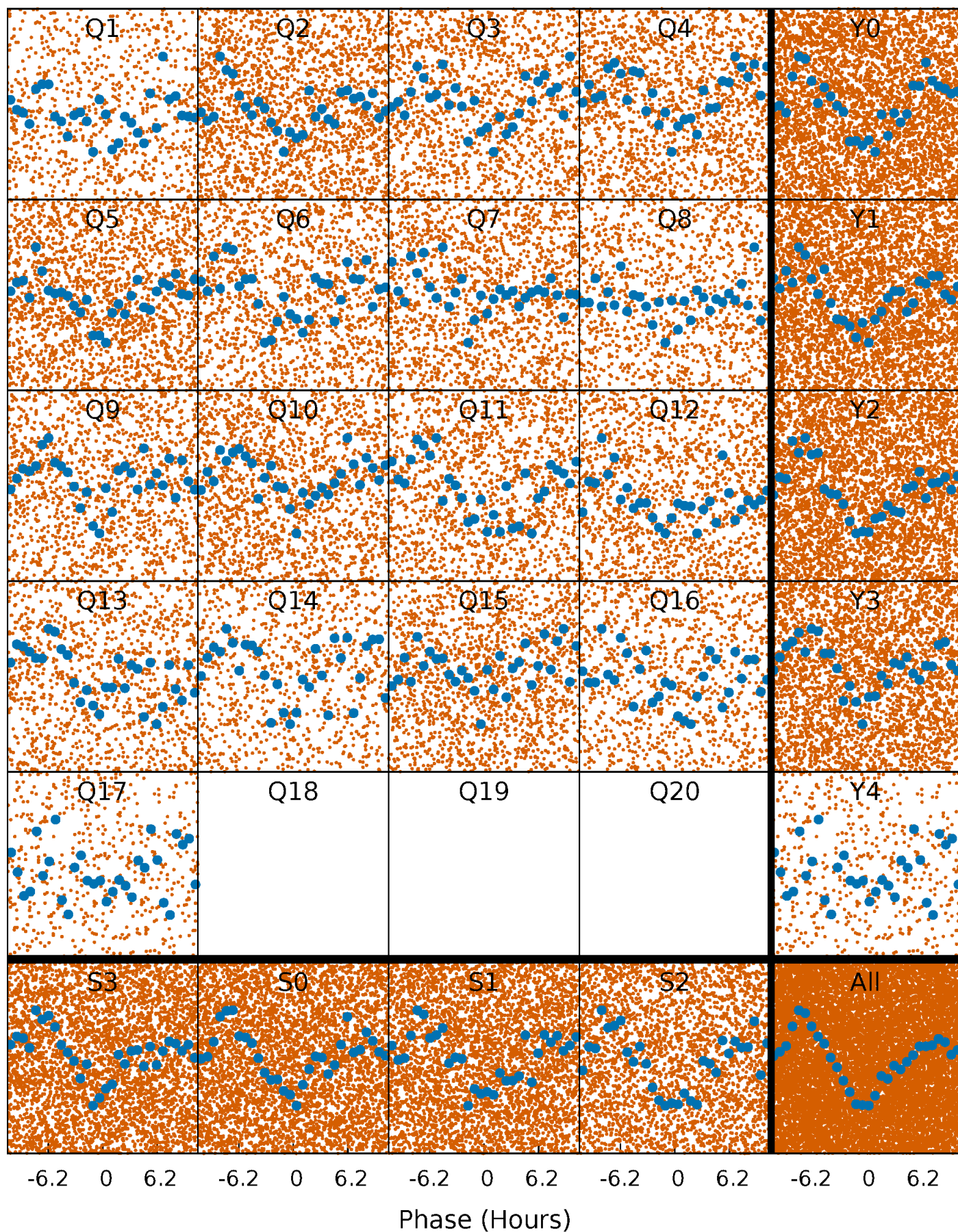


Non-Whitened Vs. Whitened Light Curve



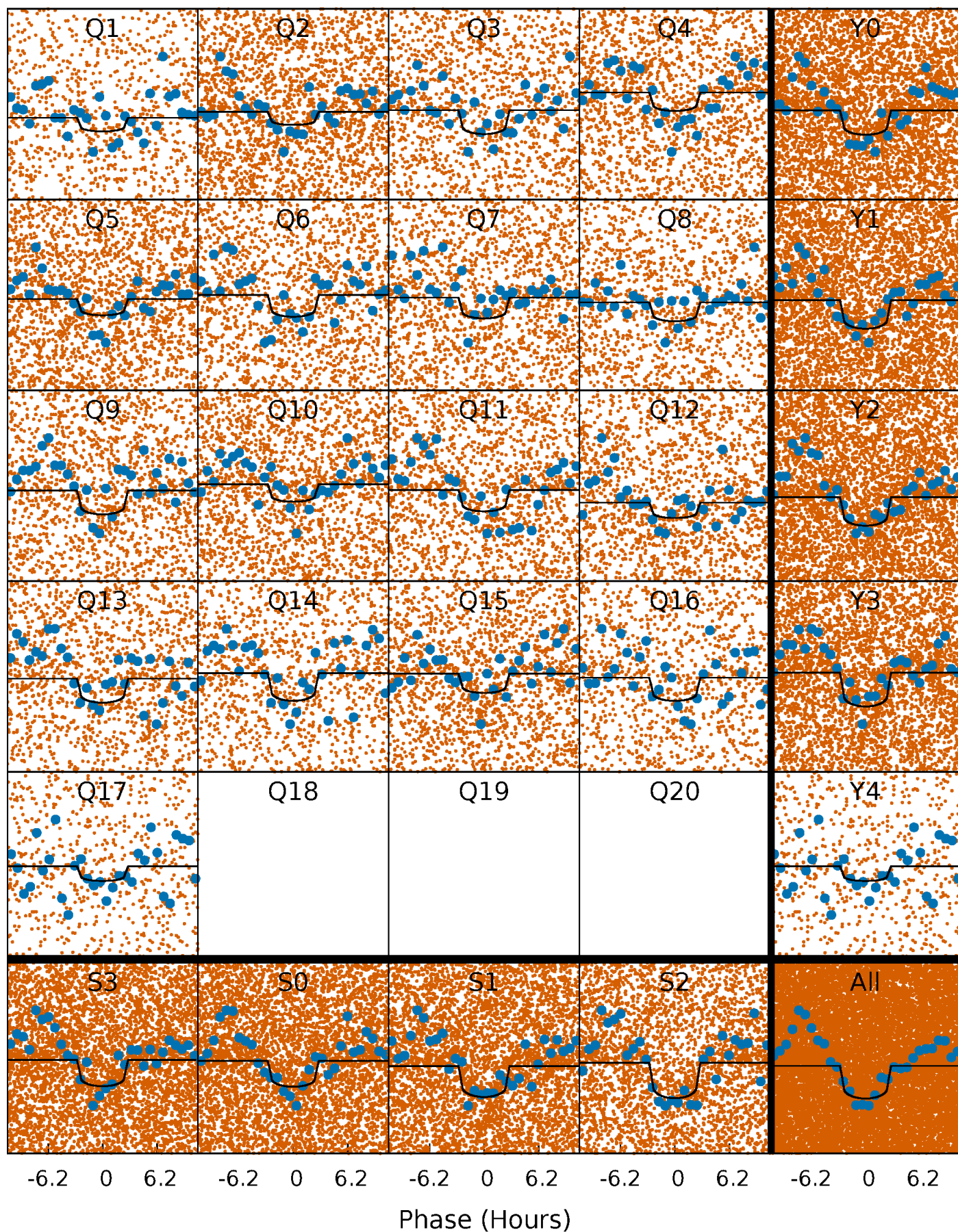
PDC Quarter-Phased Transit Curves

TCE 007540965-01 P= 0.970717 Days $T_0=132.248527$ (BKJD)



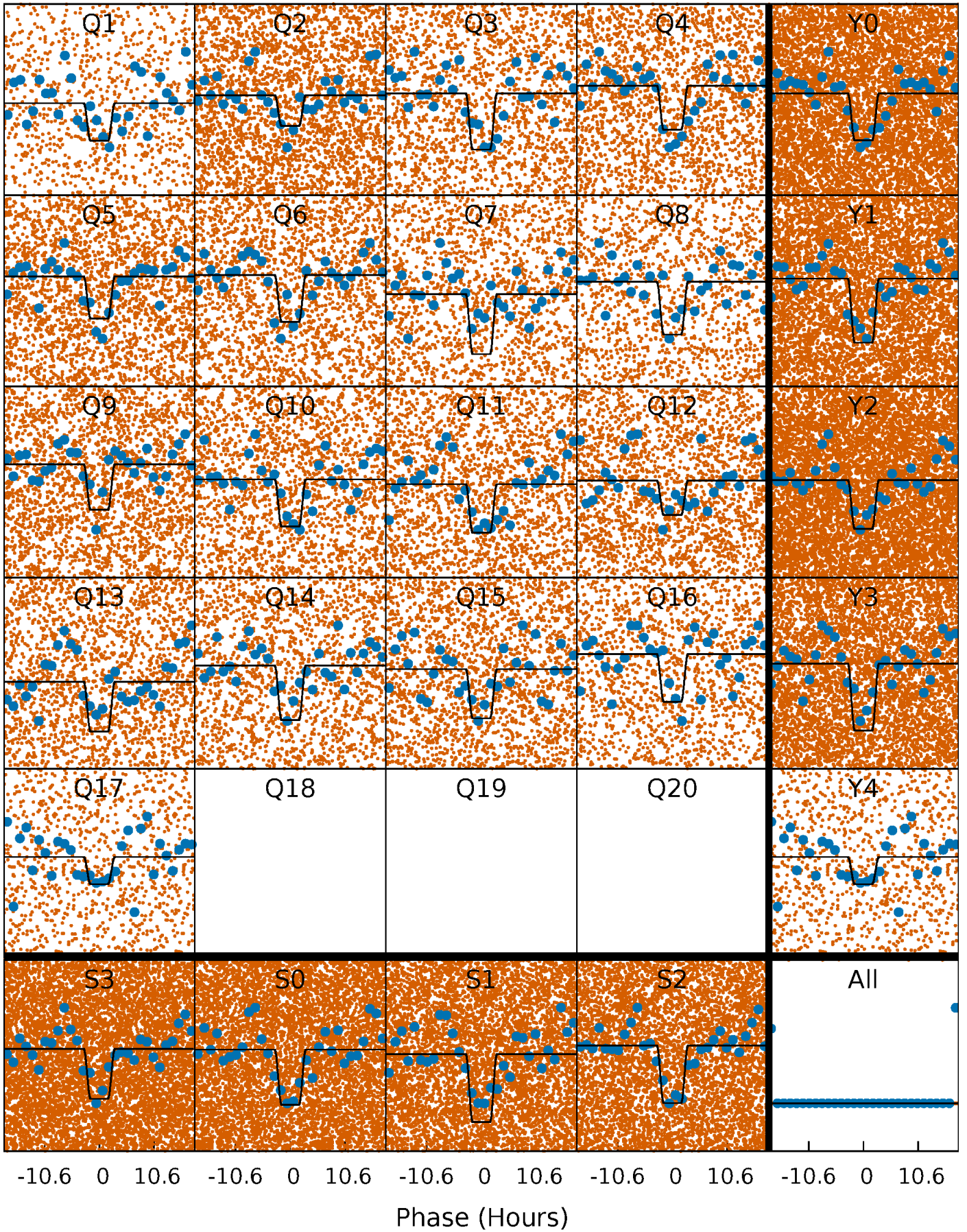
DV Quarter-Phased Transit Curves

TCE 007540965-01 P= 0.970717 Days $T_0=132.248527$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

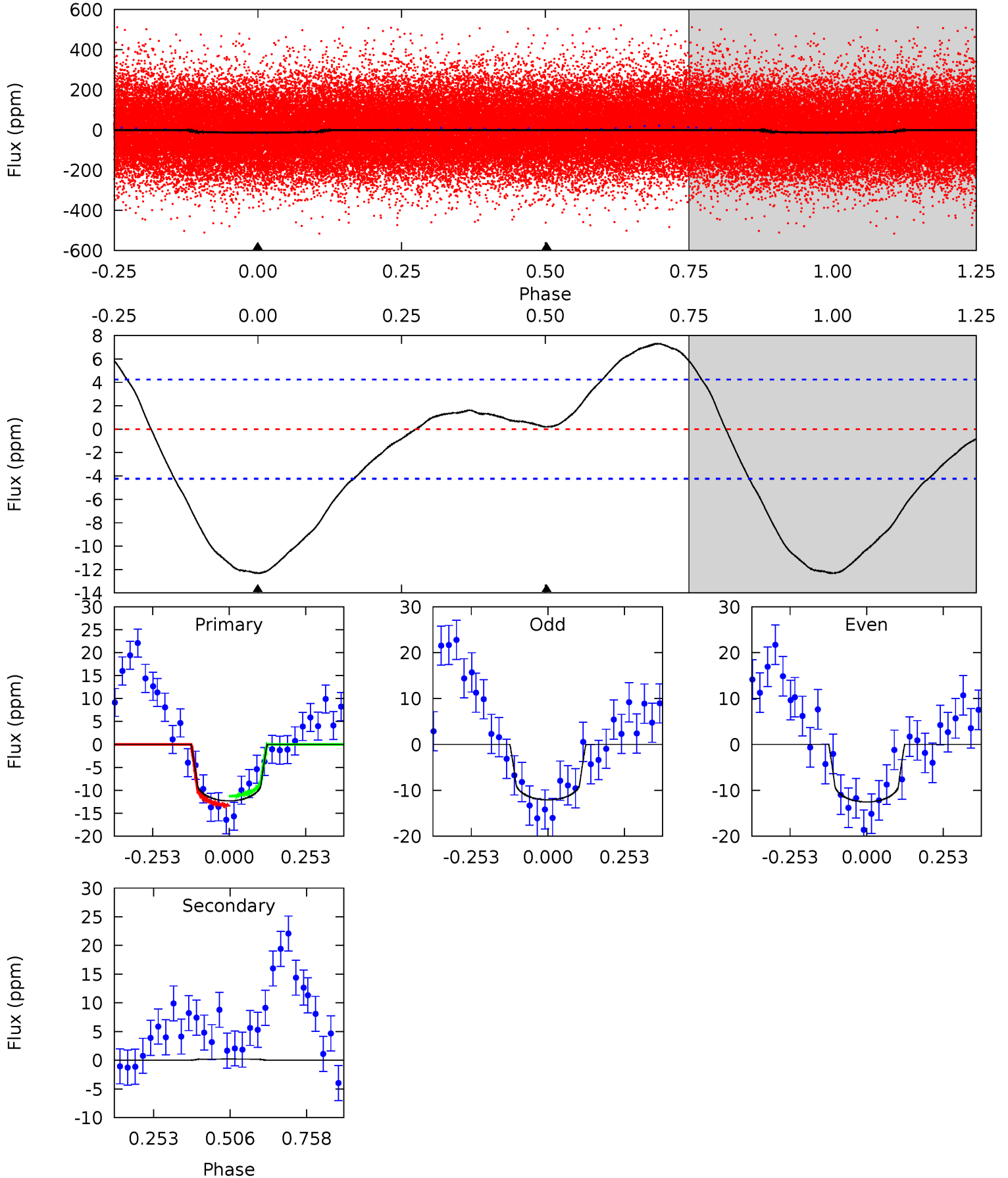
TCE 007540965-01 P= 0.970736 Days $T_0=132.234737$ (BKJD)



DV Model-Shift Uniqueness Test

007540965-01, P = 0.970717 Days, E = 131.277810 Days

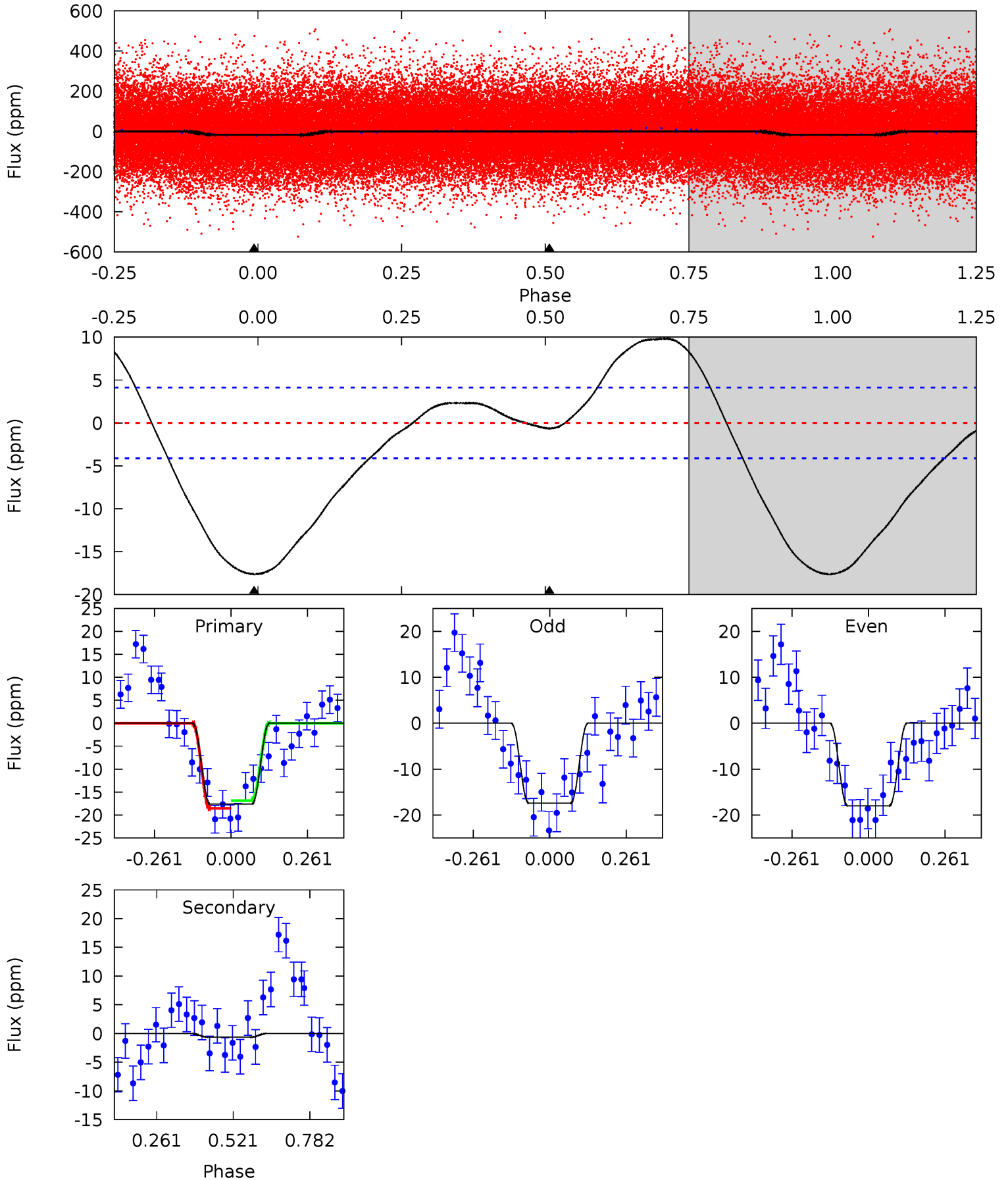
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	-0.21	0	0	4.37	1.14	3.37	12.7	12.7	-0.21	-0.21	0.23	1.07	0.37	1.04



Alt Model-Shift Uniqueness Test

007540965-01, P = 0.970736 Days, E = 131.264001 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.7	0.68	0	0	4.36	1.12	4.70	18.7	18.7	0.68	0.68	0.29	1.03	0.36	0.88



Stellar Parameters For KIC 007540965

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7507^{+206}_{-335}	$3.865^{+0.287}_{-0.123}$	$0.120^{+0.200}_{-0.350}$	$2.703^{+0.511}_{-0.949}$	$1.952^{+0.105}_{-0.448}$	$0.139^{+0.290}_{-0.050}$
	+3%/-4%	+7%/-3%	+167%/-292%	+19%/-35%	+5%/-23%	+208%/-36%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007540965-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1	$0.98^{+0.39}_{-0.37}$	4814^{+349}_{-411}	-4307^{+1241}_{-698}	$-0.049^{+0.292}_{-0.420}$
Alt.	-1 ± 1	$1.29^{+0.44}_{-0.41}$	4819^{+344}_{-405}	-3882^{+7141}_{-483}	$0.109^{+0.269}_{-0.170}$

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

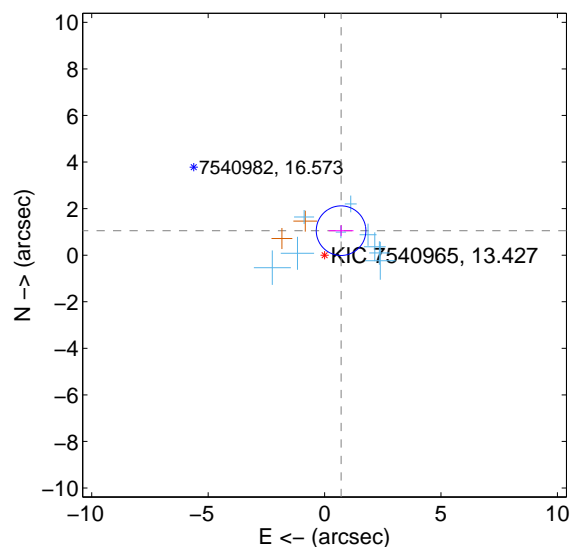
Supplemental centroid analysis for 007540965-01. Kepler magnitude: 13.43. Transit SNR 10.17

There are 9 quarters with good PRF difference image offsets

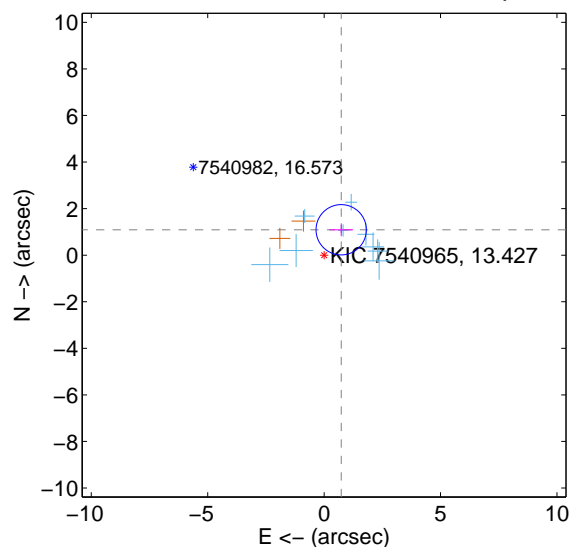
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.268 ± 0.355	3.57	-0.708 ± 0.533	1.052 ± 0.234
PRF-fit source offset from KIC position	1.315 ± 0.360	3.65	-0.733 ± 0.509	1.091 ± 0.277
photometric centroid source offset	3.44 ± 1.74	1.98	-2.39 ± 1.18	2.48 ± 2.13

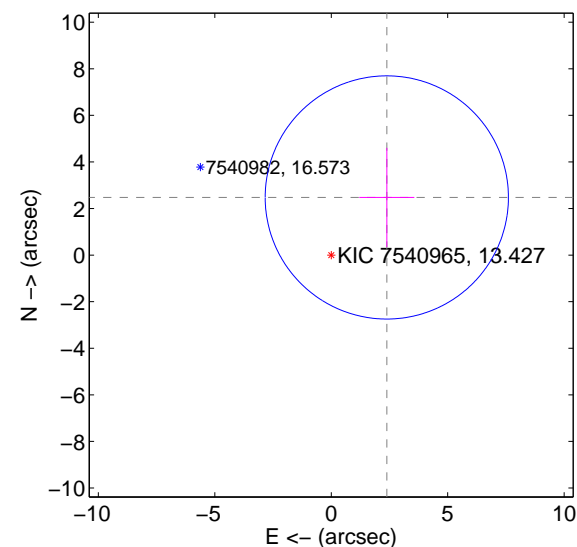
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

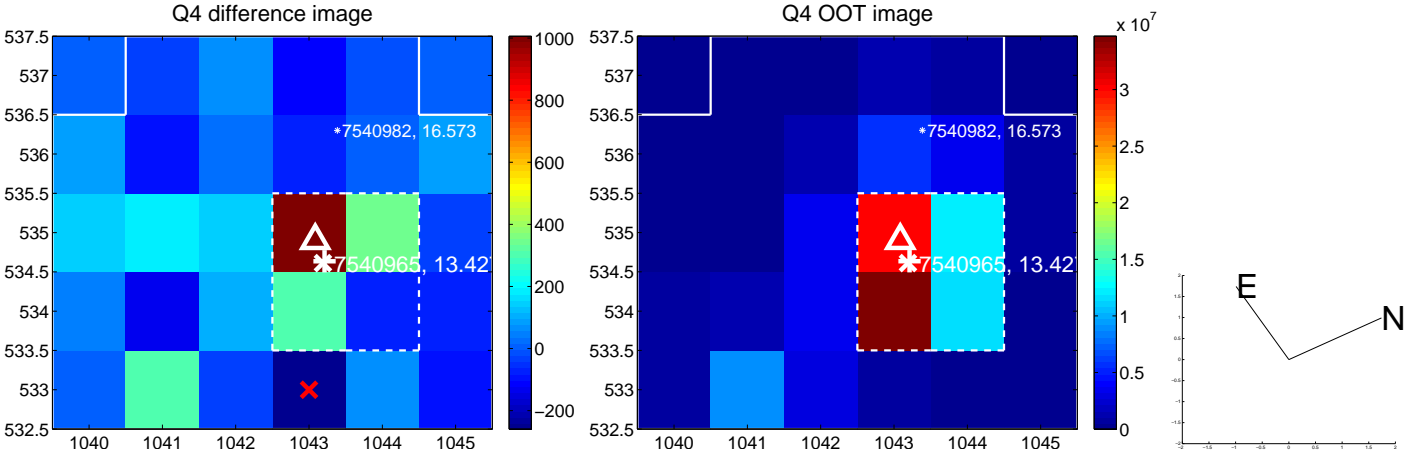
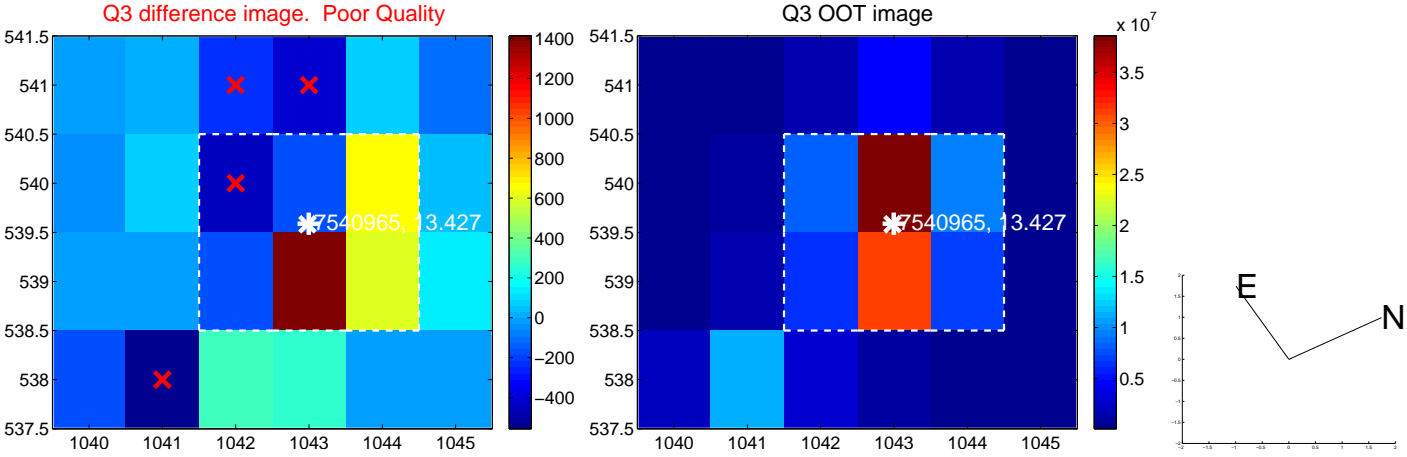
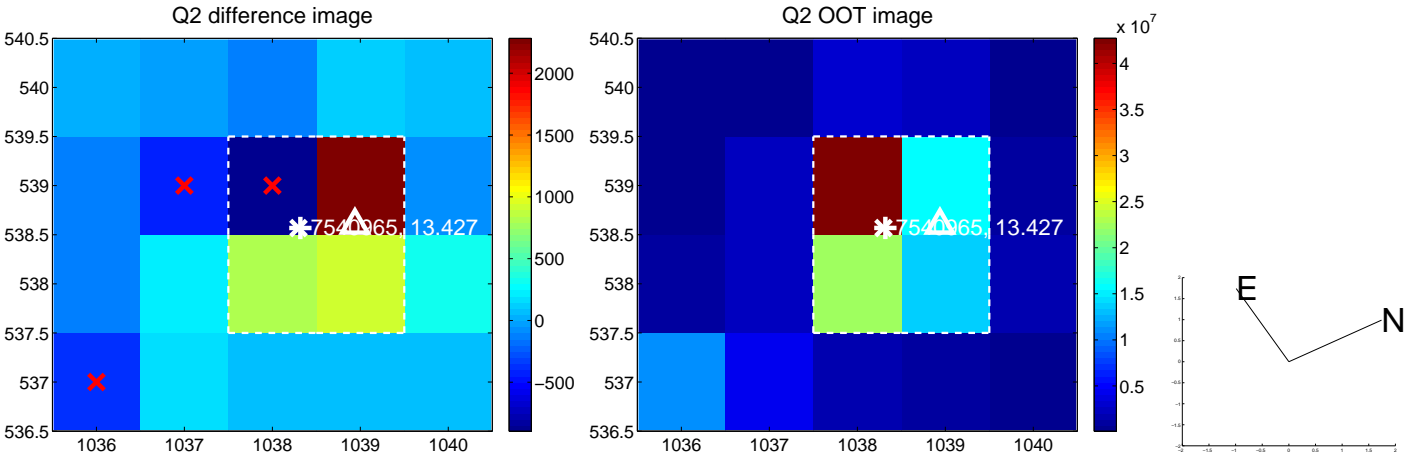
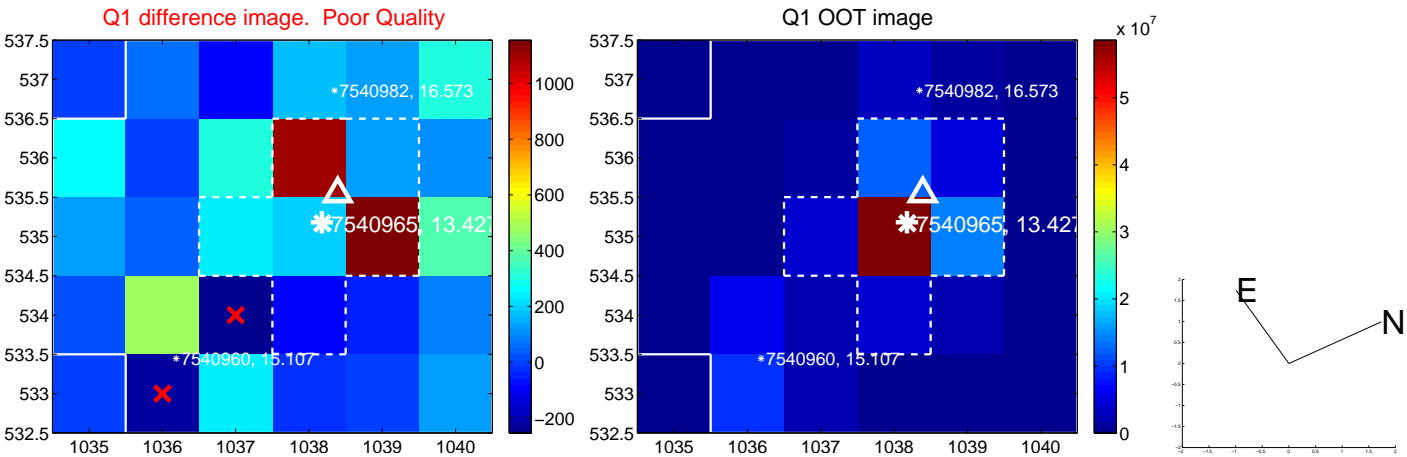


offset from photometric centroids

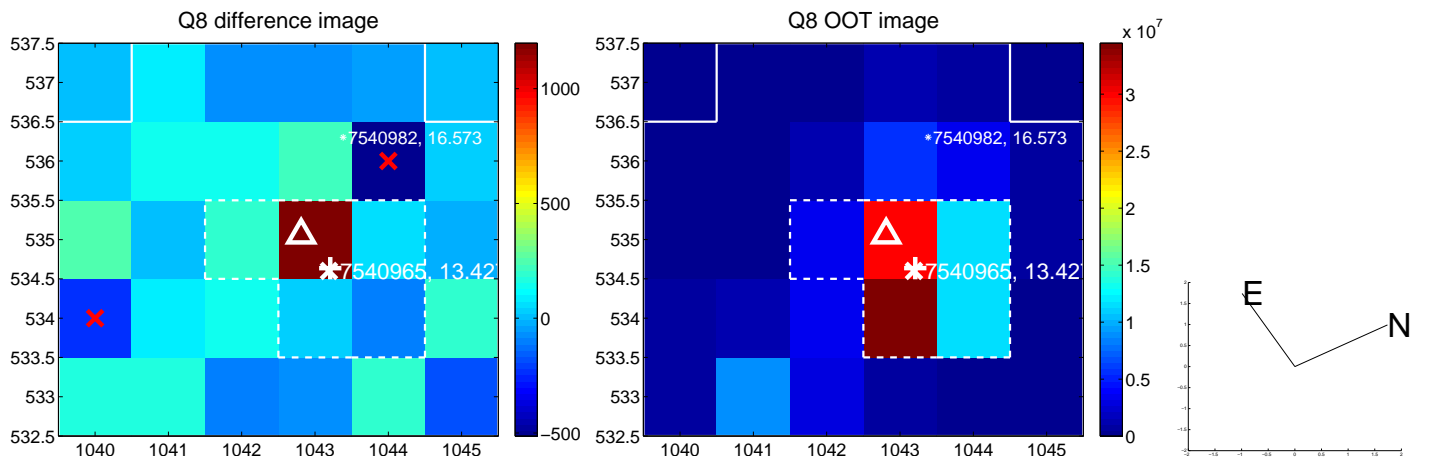
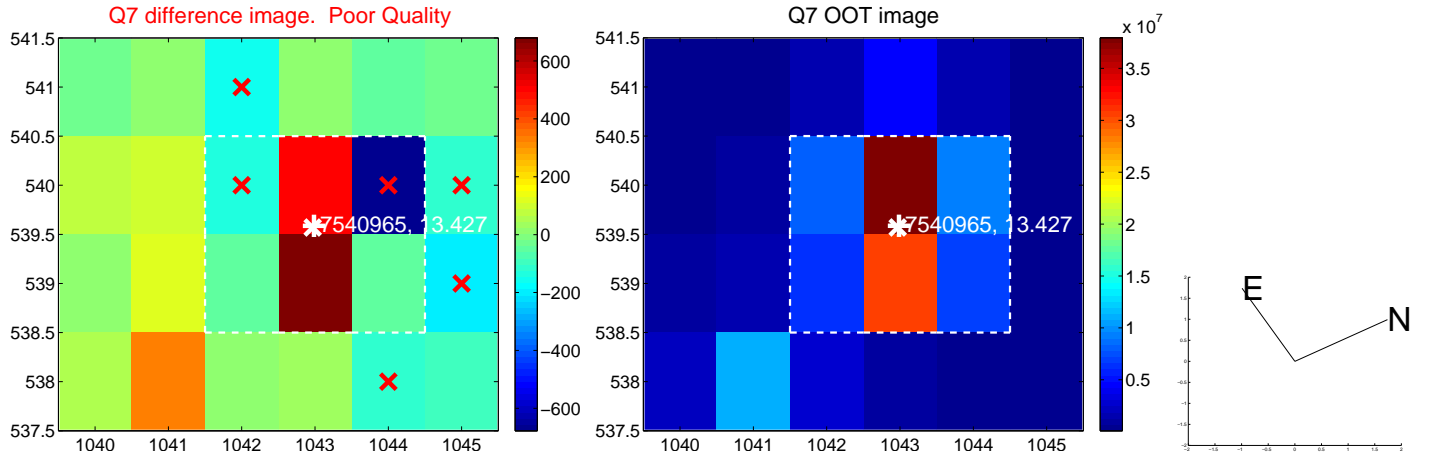
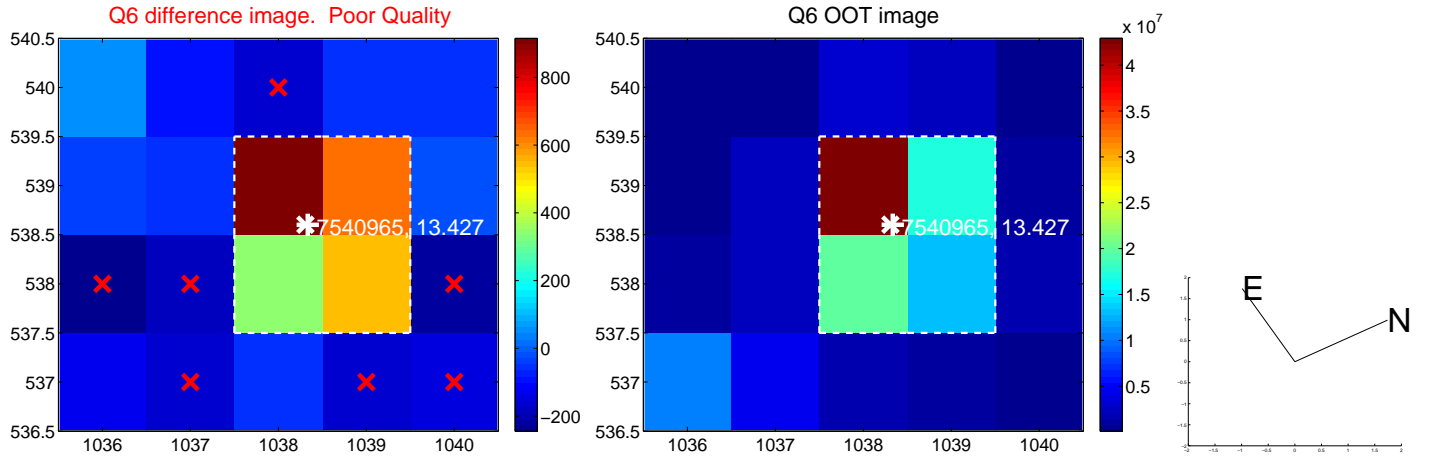
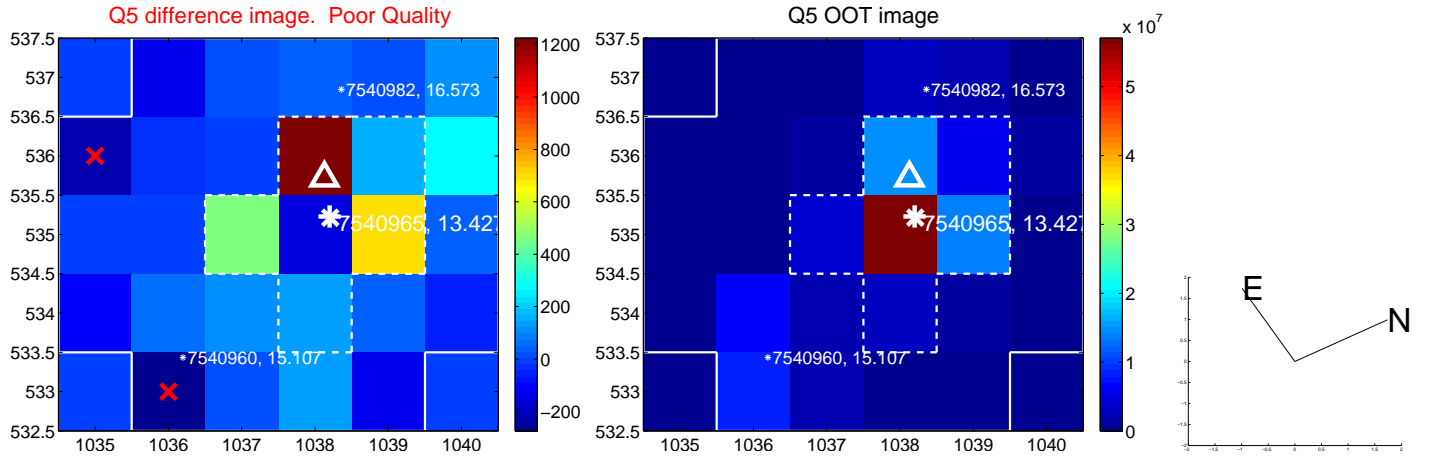


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

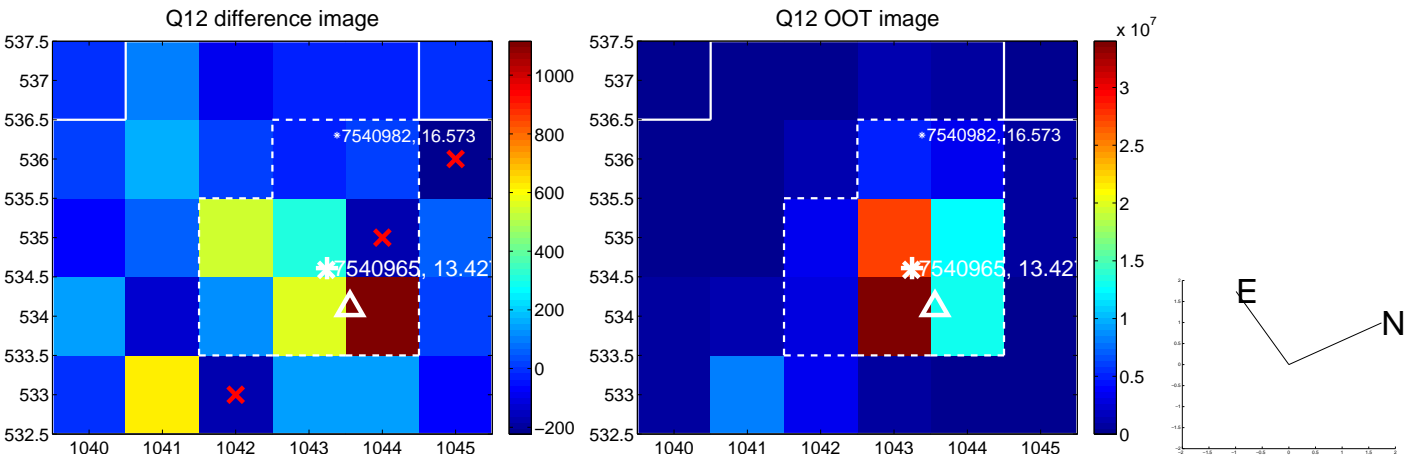
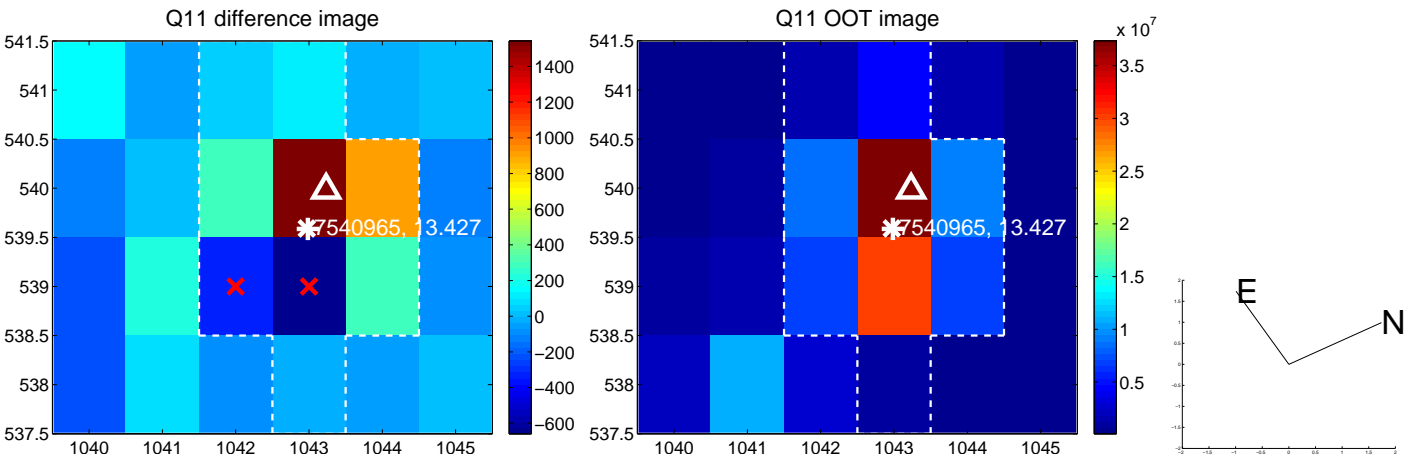
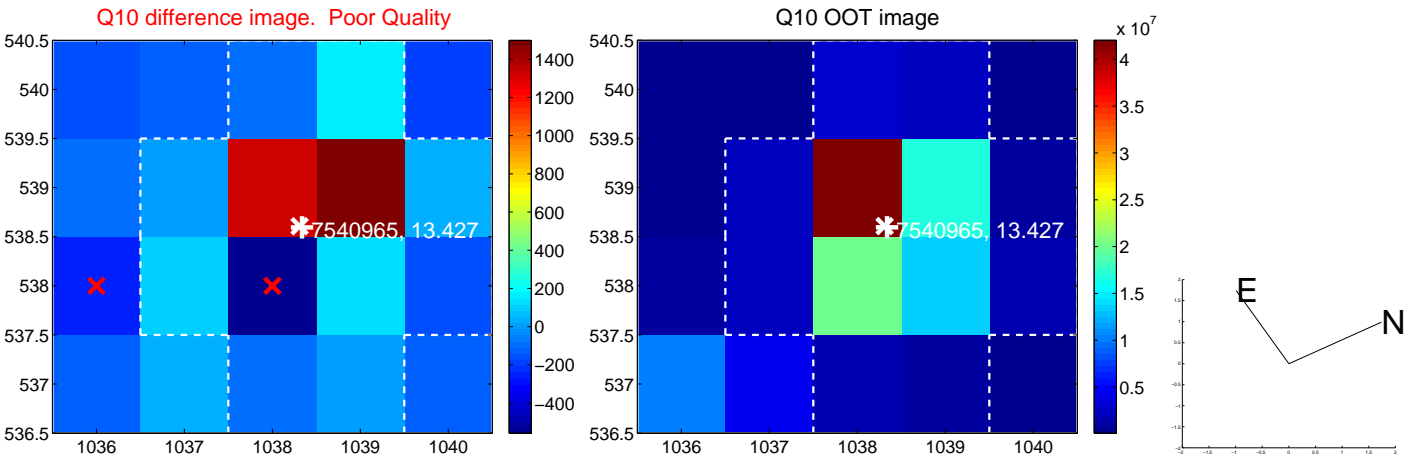
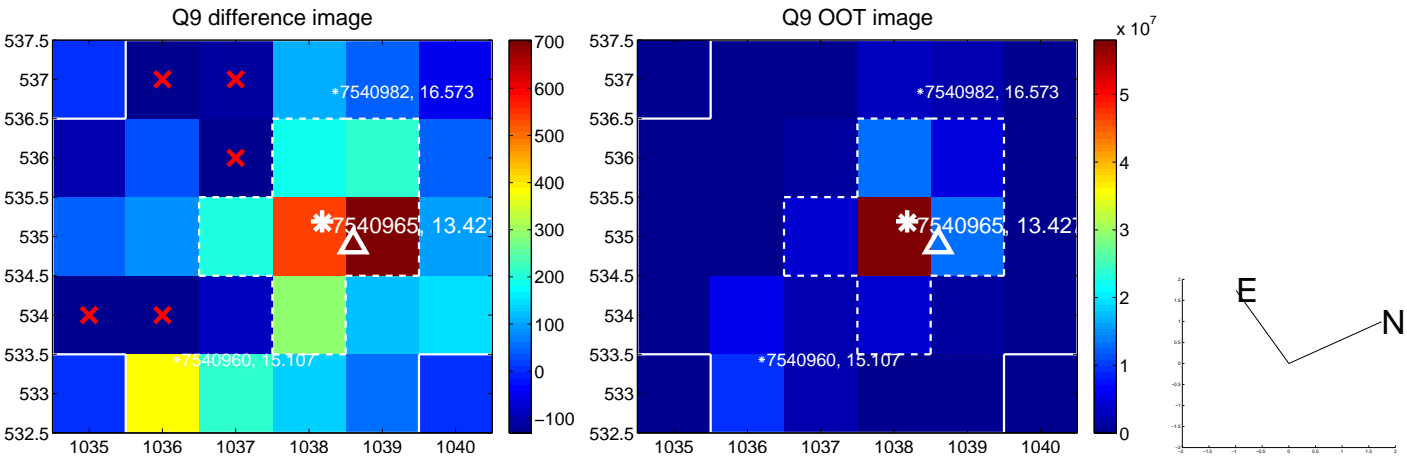
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



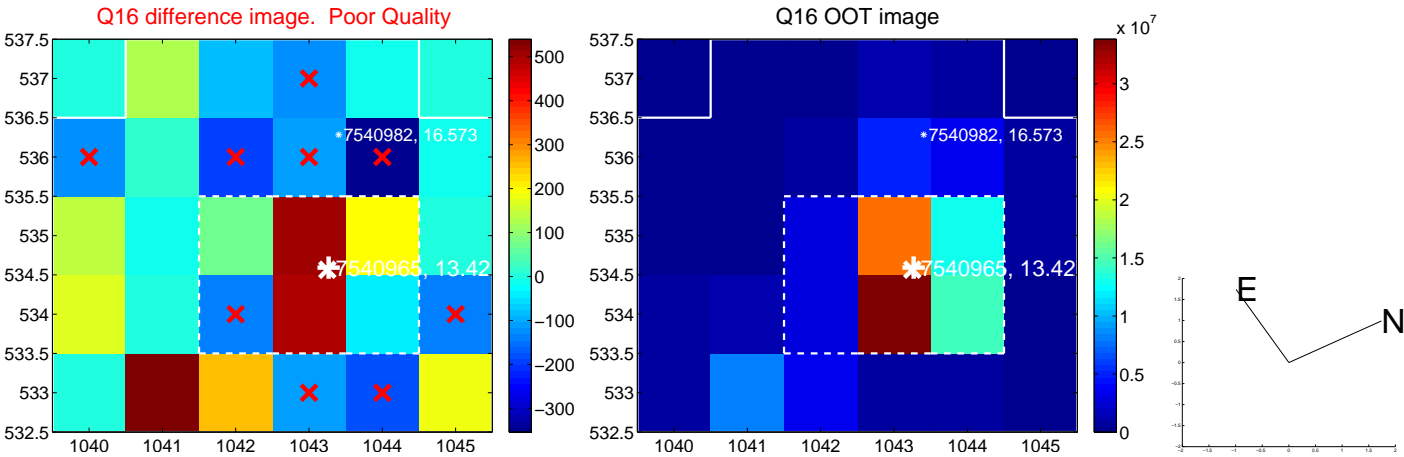
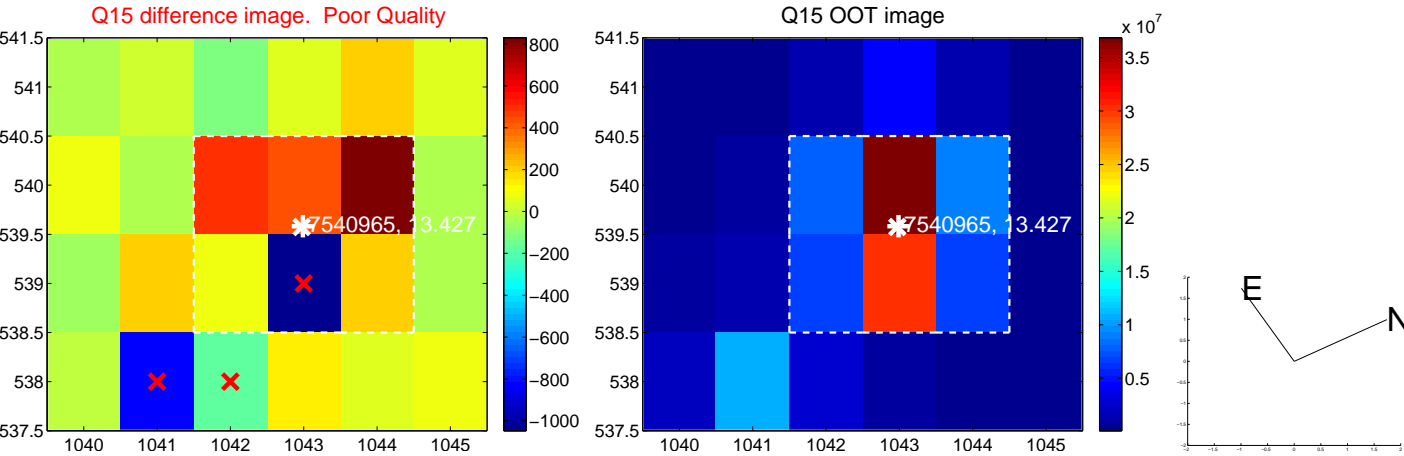
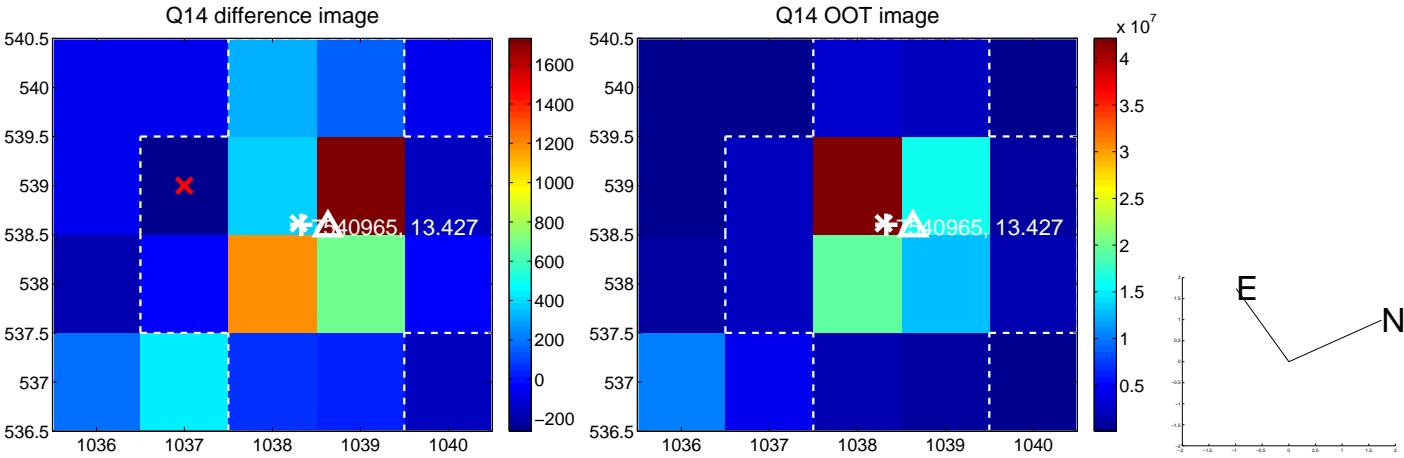
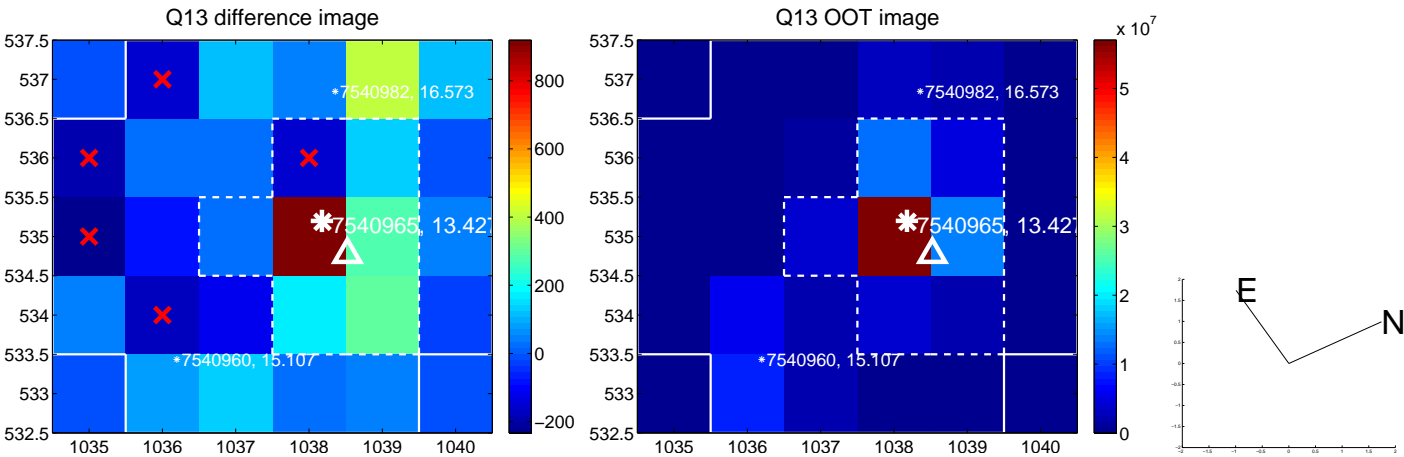
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



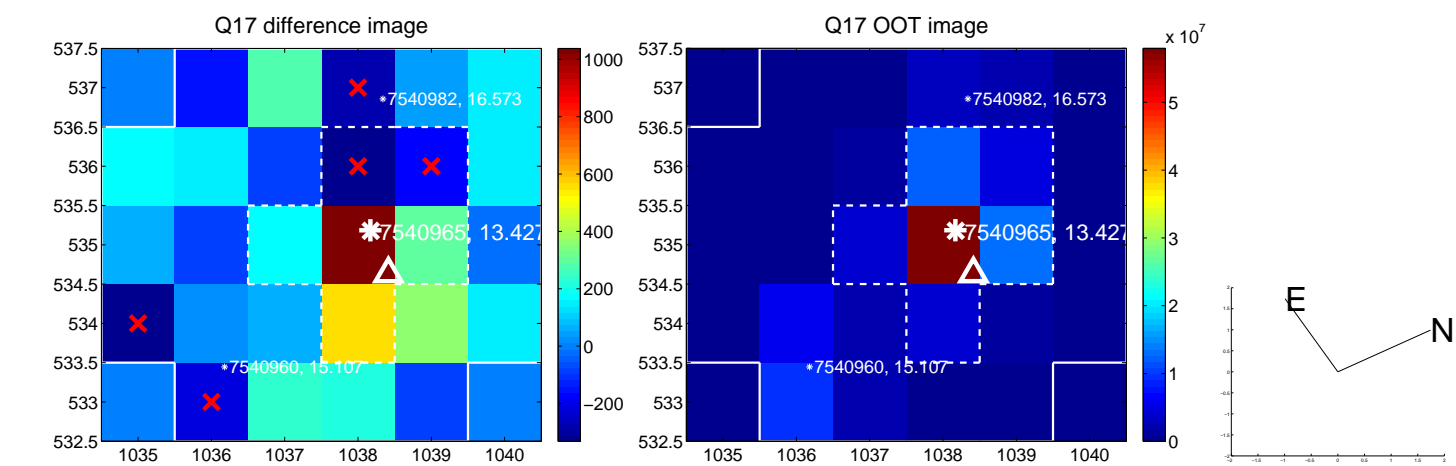
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



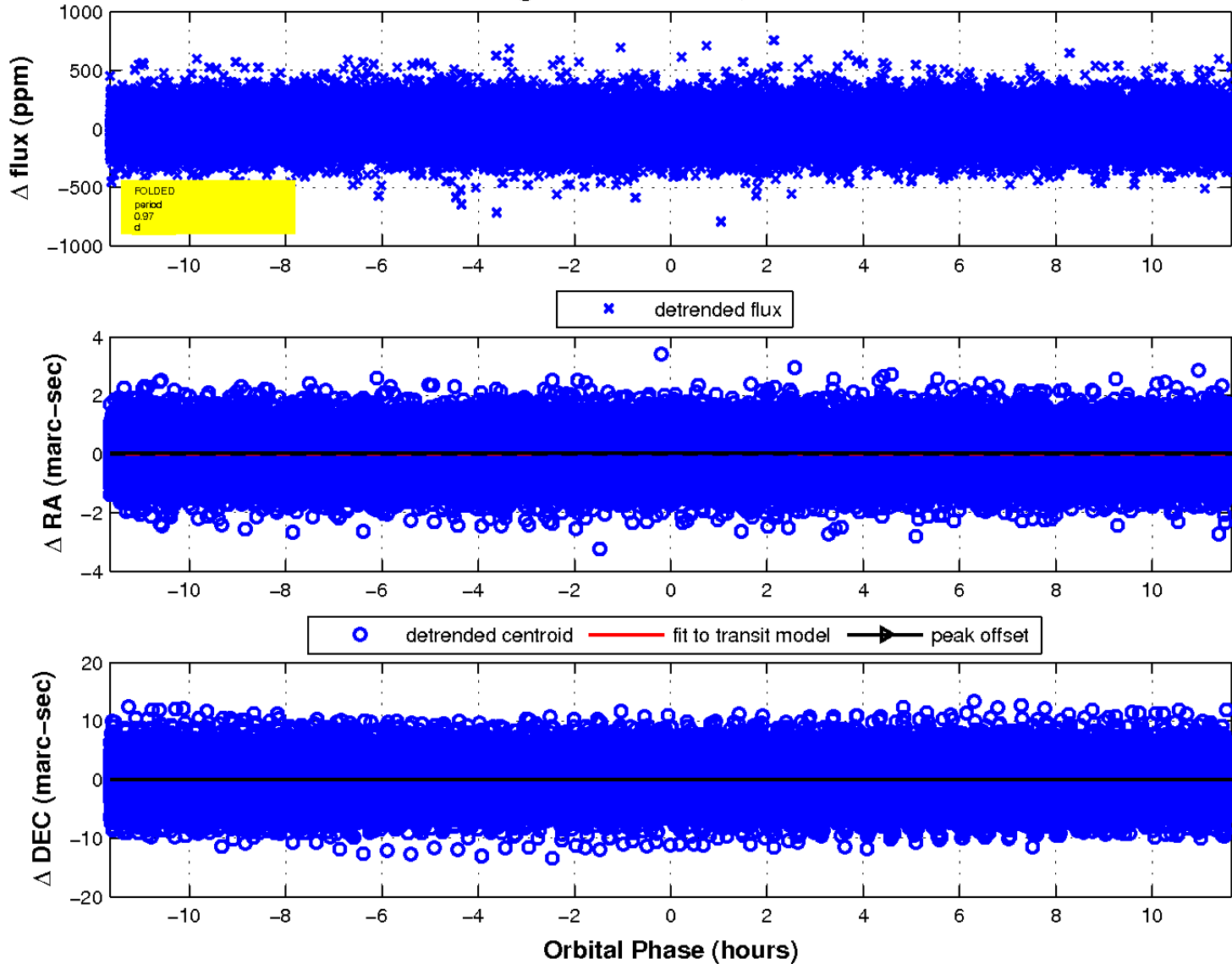
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

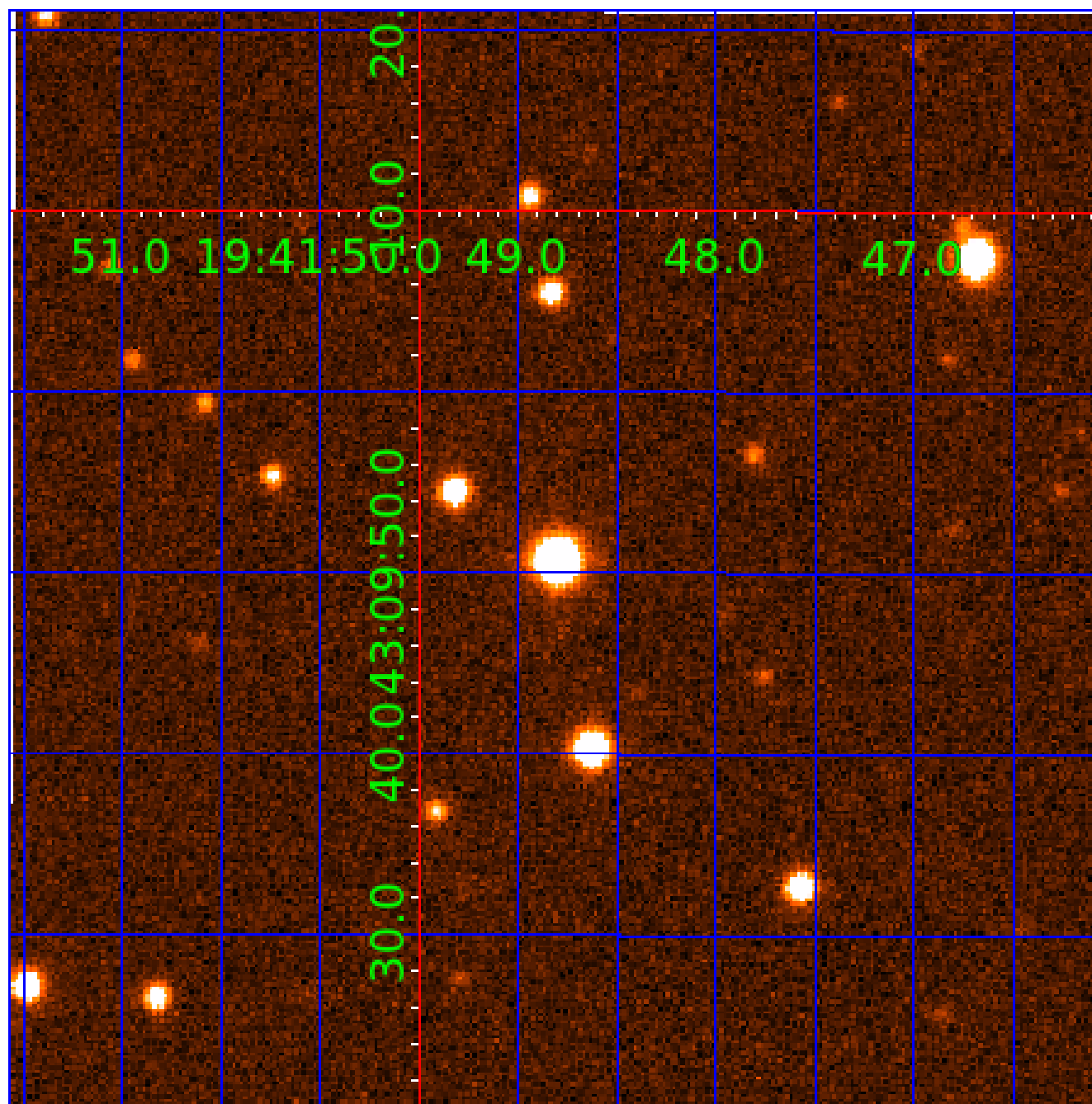


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination



KIC 007540965

Q1-17 DR25 TCE Parameters

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007540965-03	OBS	No	44.465528	143.417182	173.8	1.233	7.8	8.0	2.70	7507	3.70	220.44
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007540965-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
007540965-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

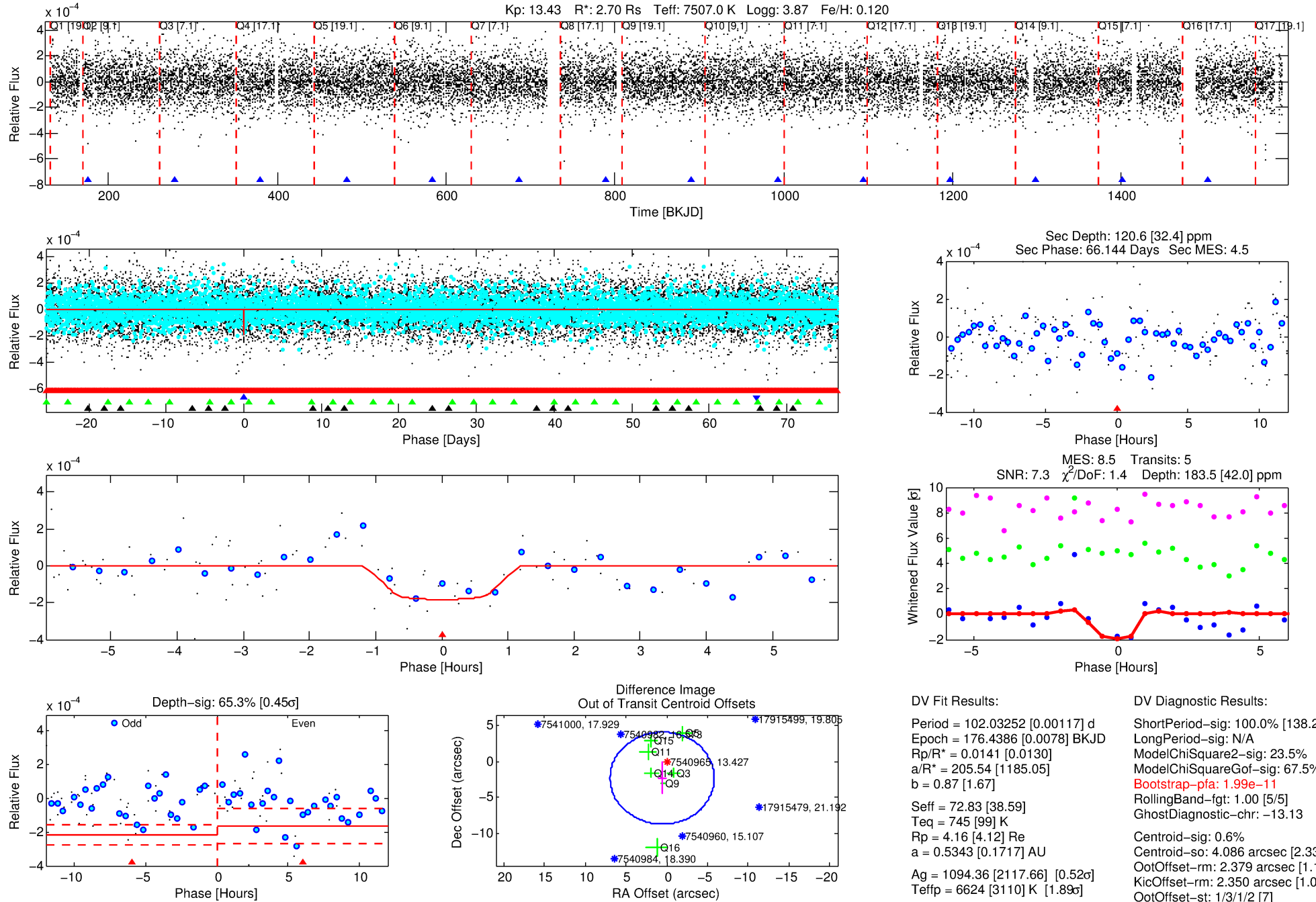
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007540965-02

No Significant Match Found

DV One-Page Summary

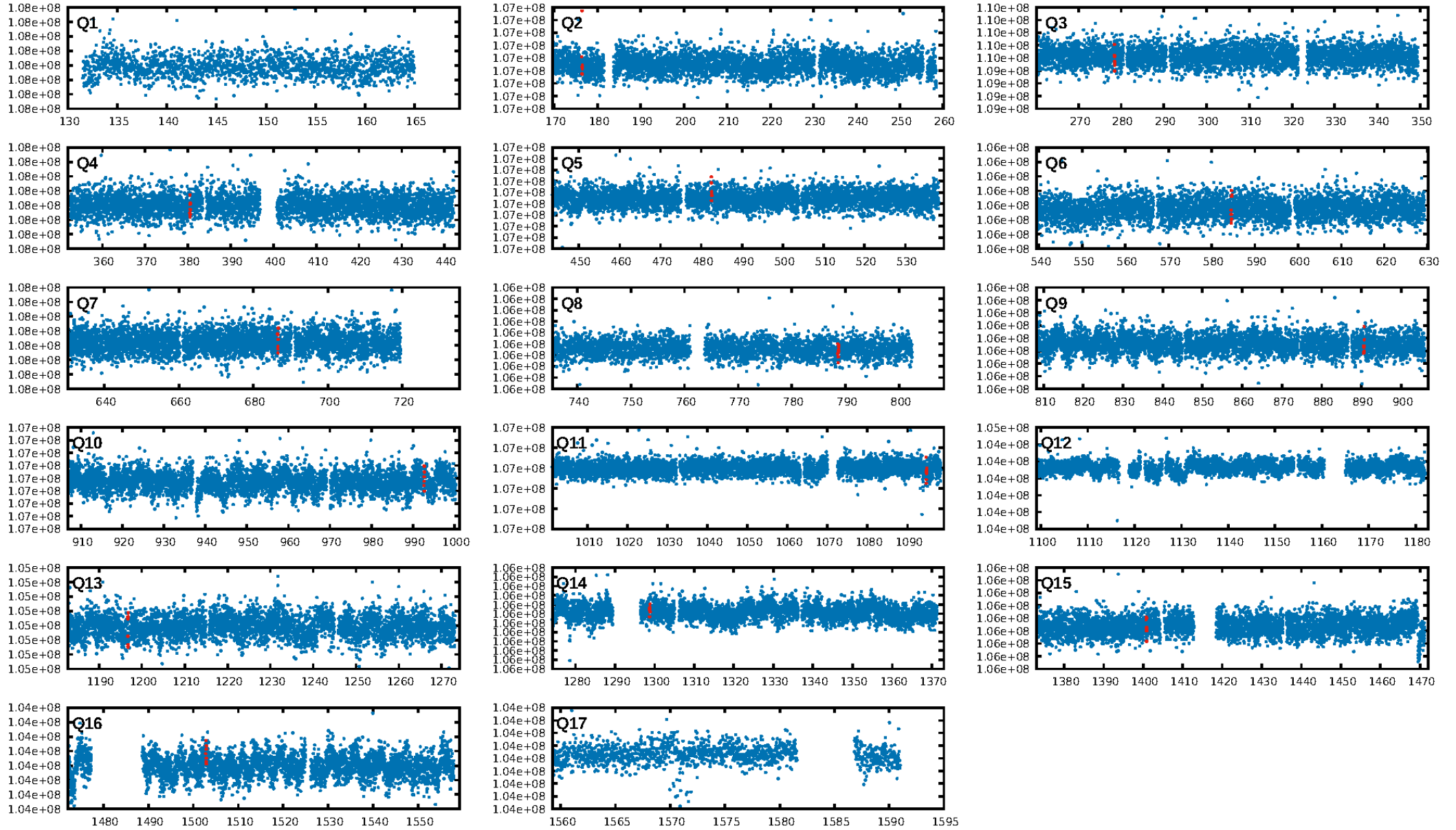
KIC: 7540965 Candidate: 2 of 4 Period: 102.033 d



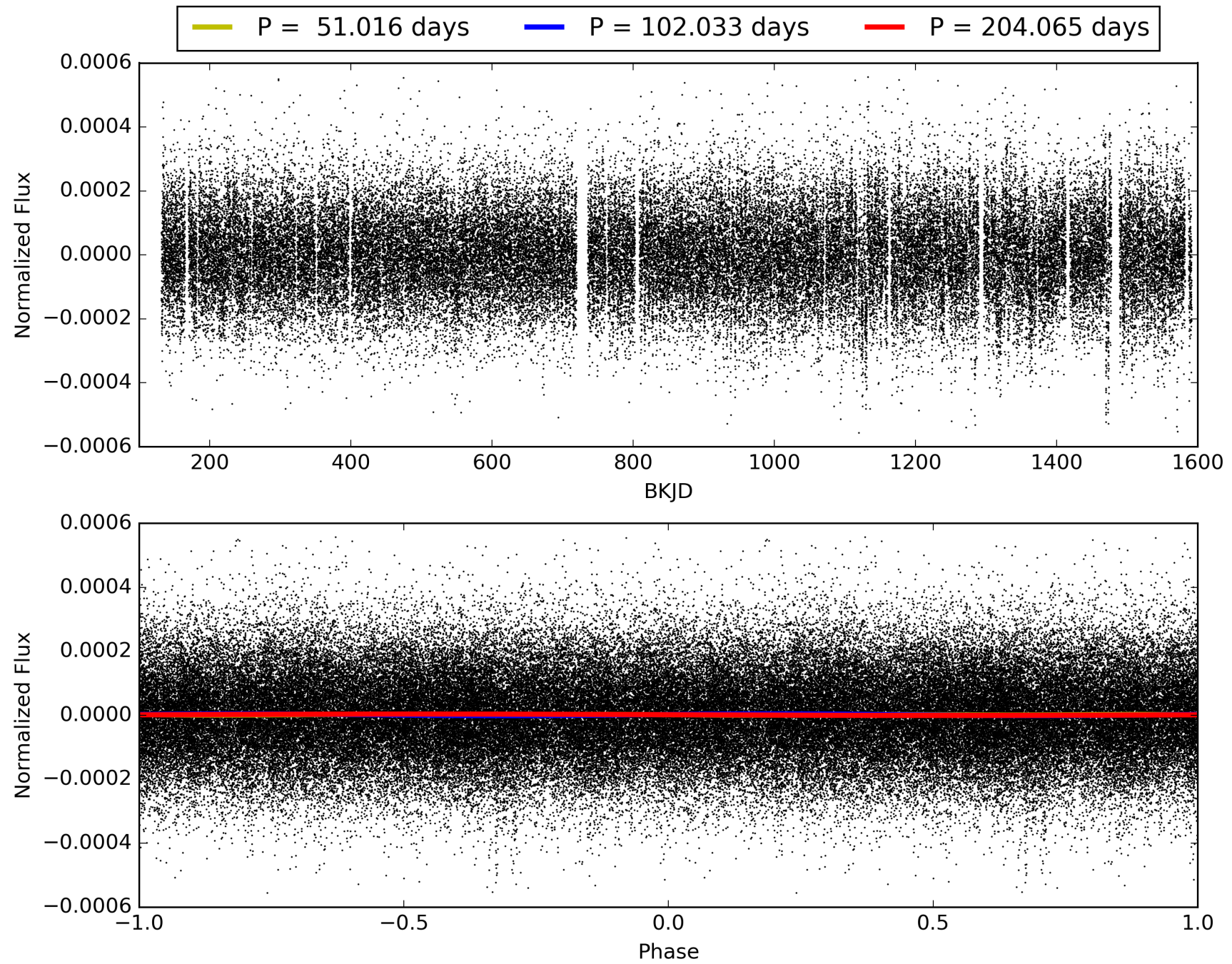
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007540965-02, PDC Light Curves

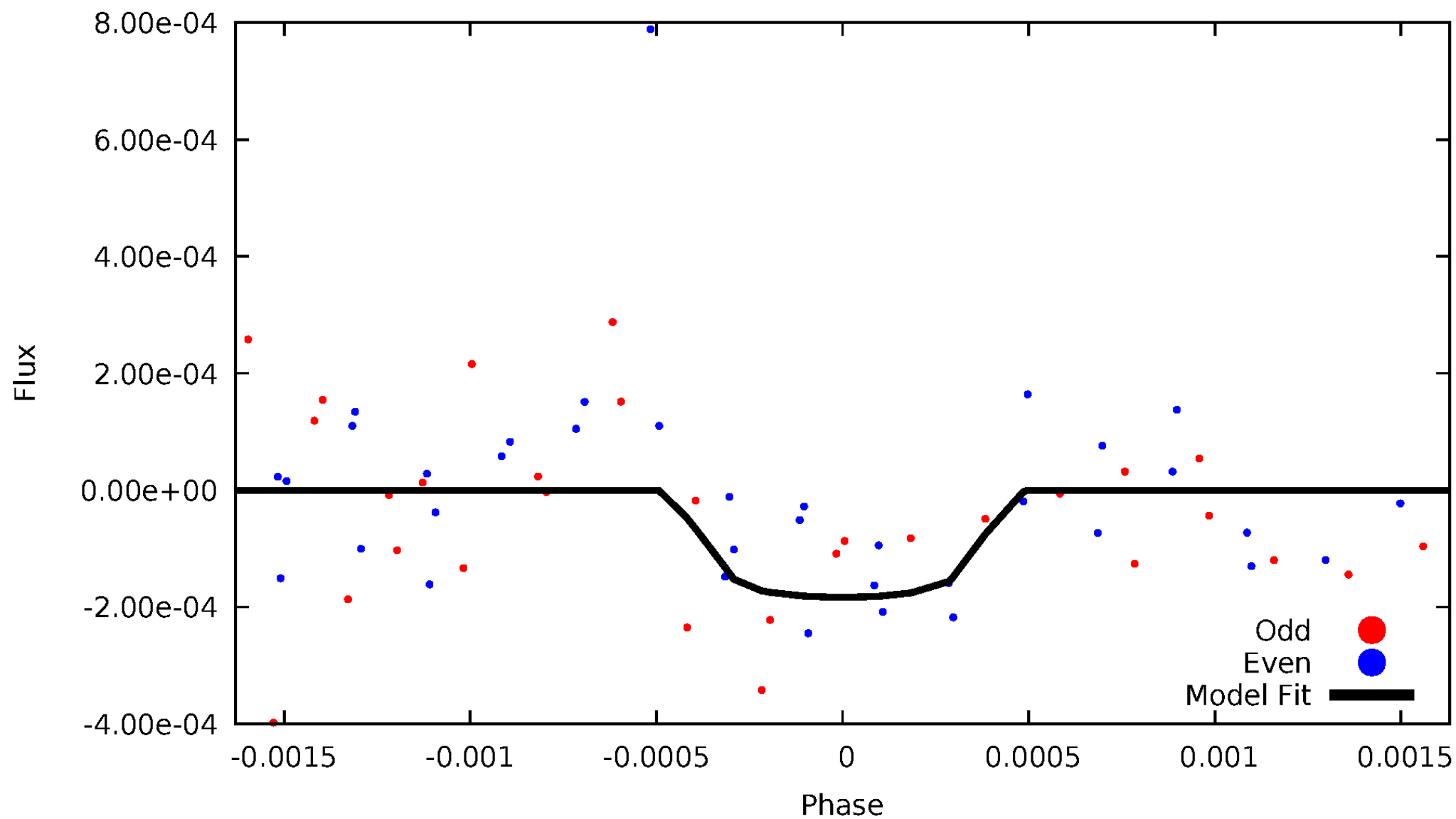


TCE 007540965-02



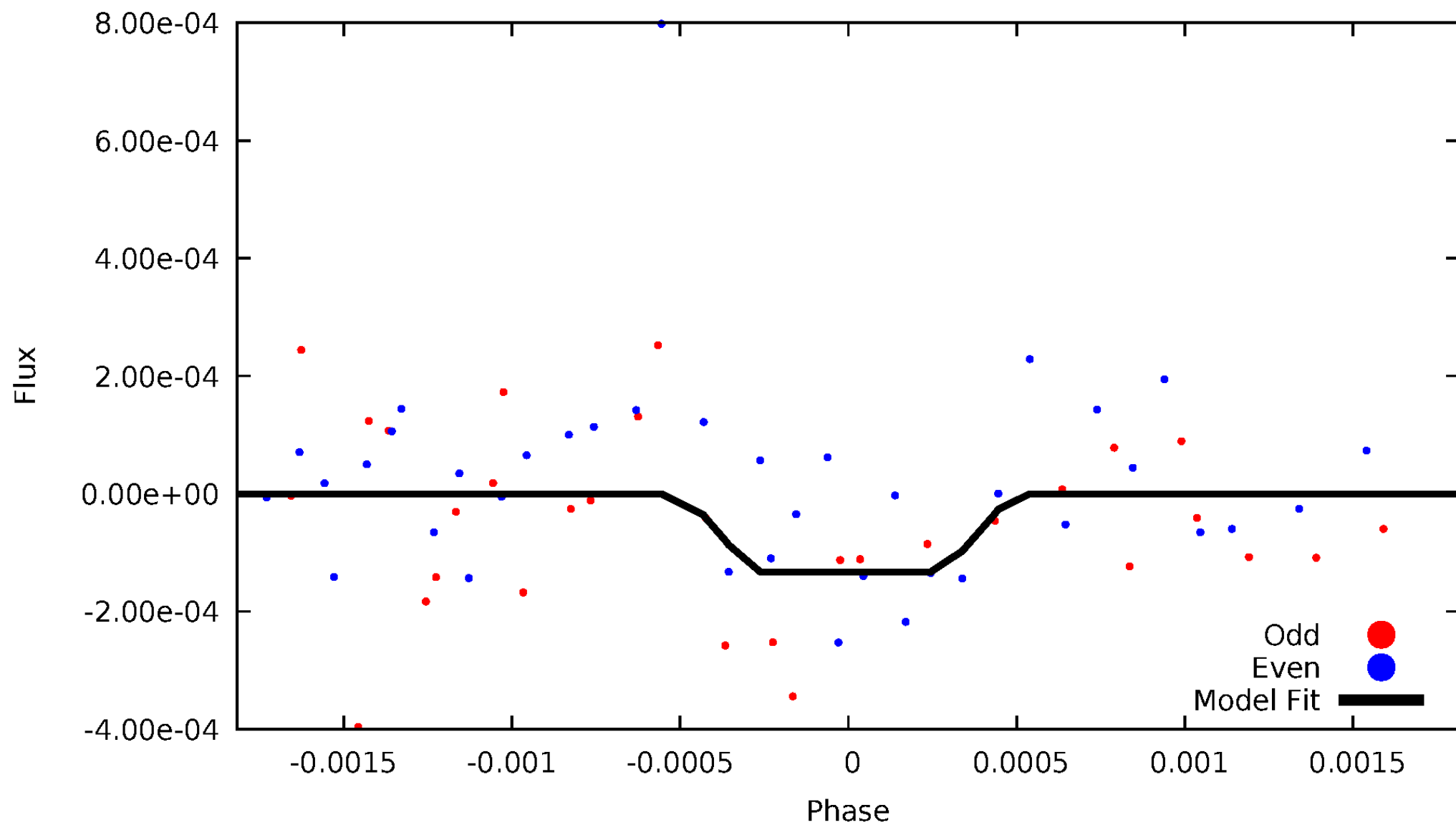
DV Odd/Even

TCE 007540965-02



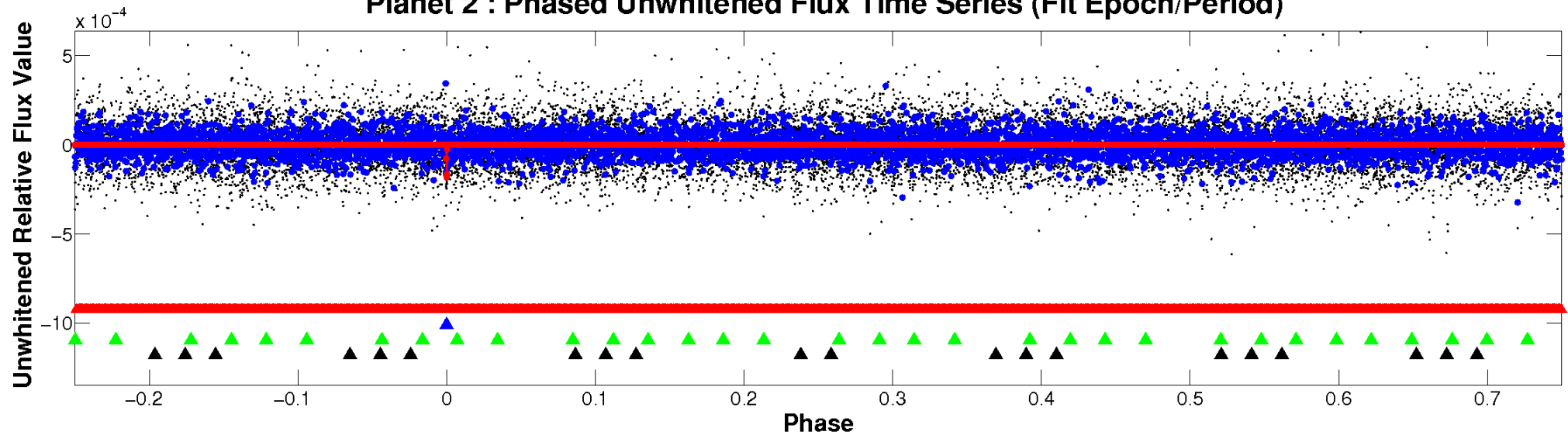
ALT Odd/Even

TCE 007540965-02

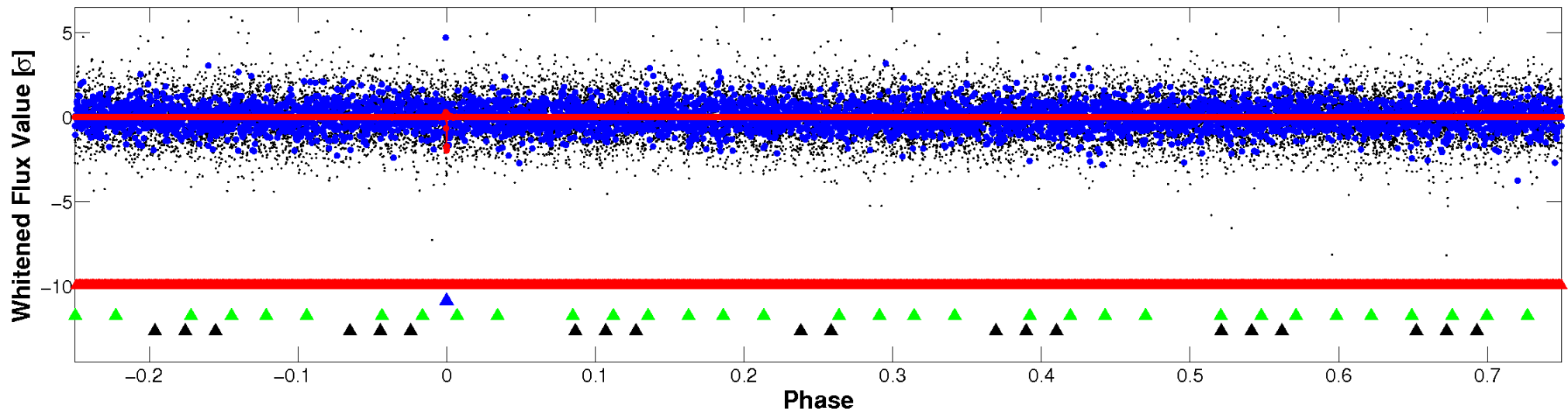


Non-Whitened Vs. Whitened Light Curve

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

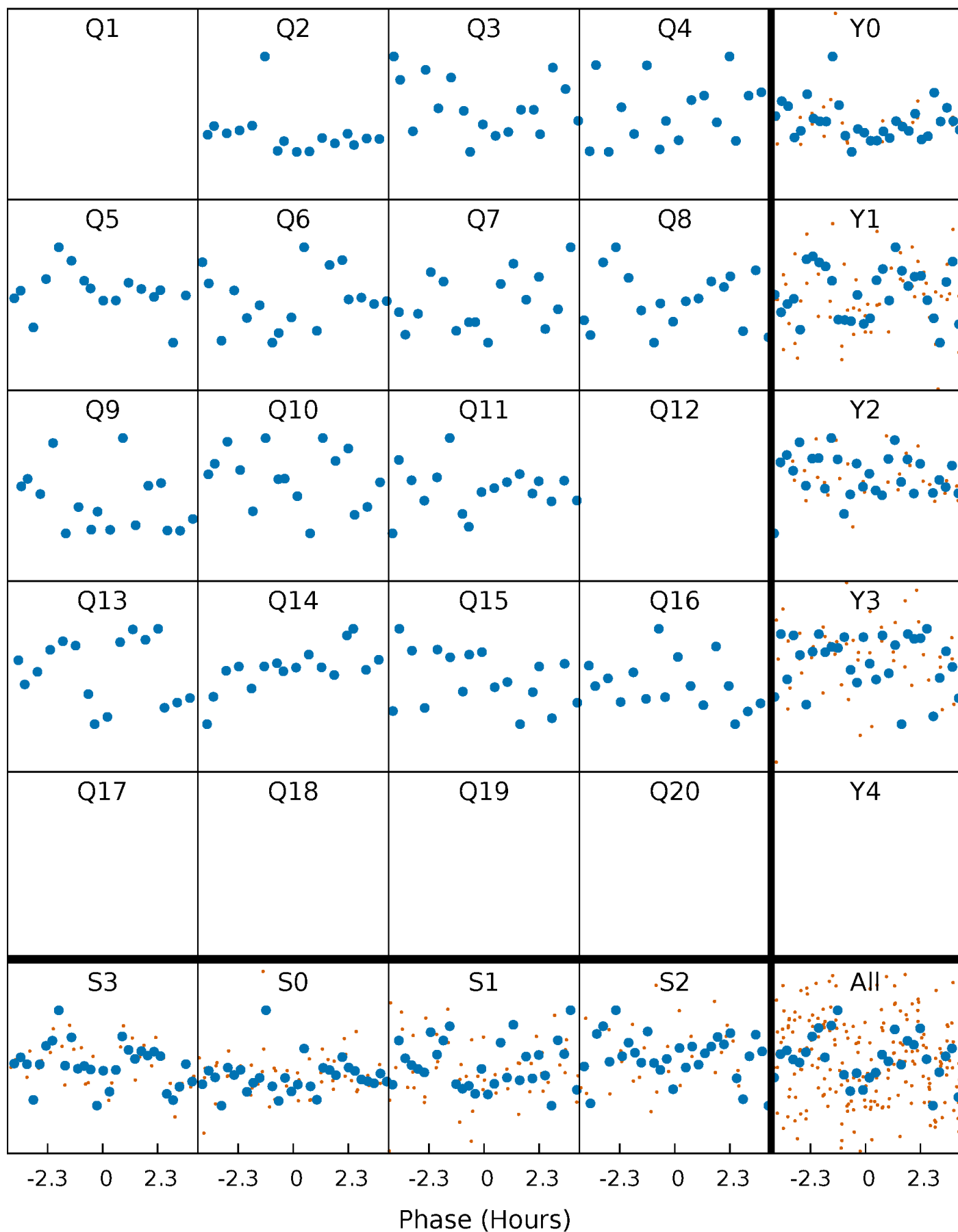


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



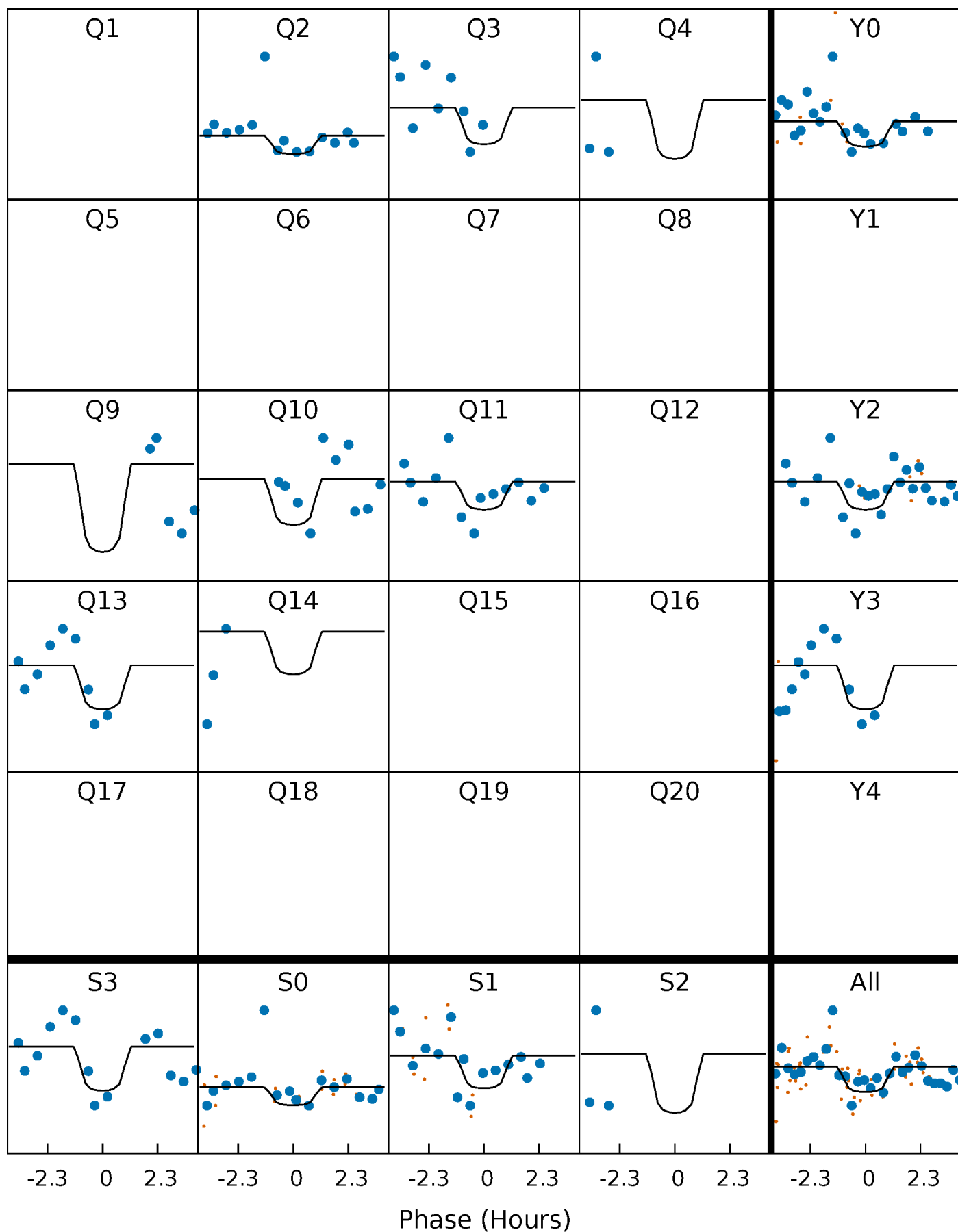
PDC Quarter-Phased Transit Curves

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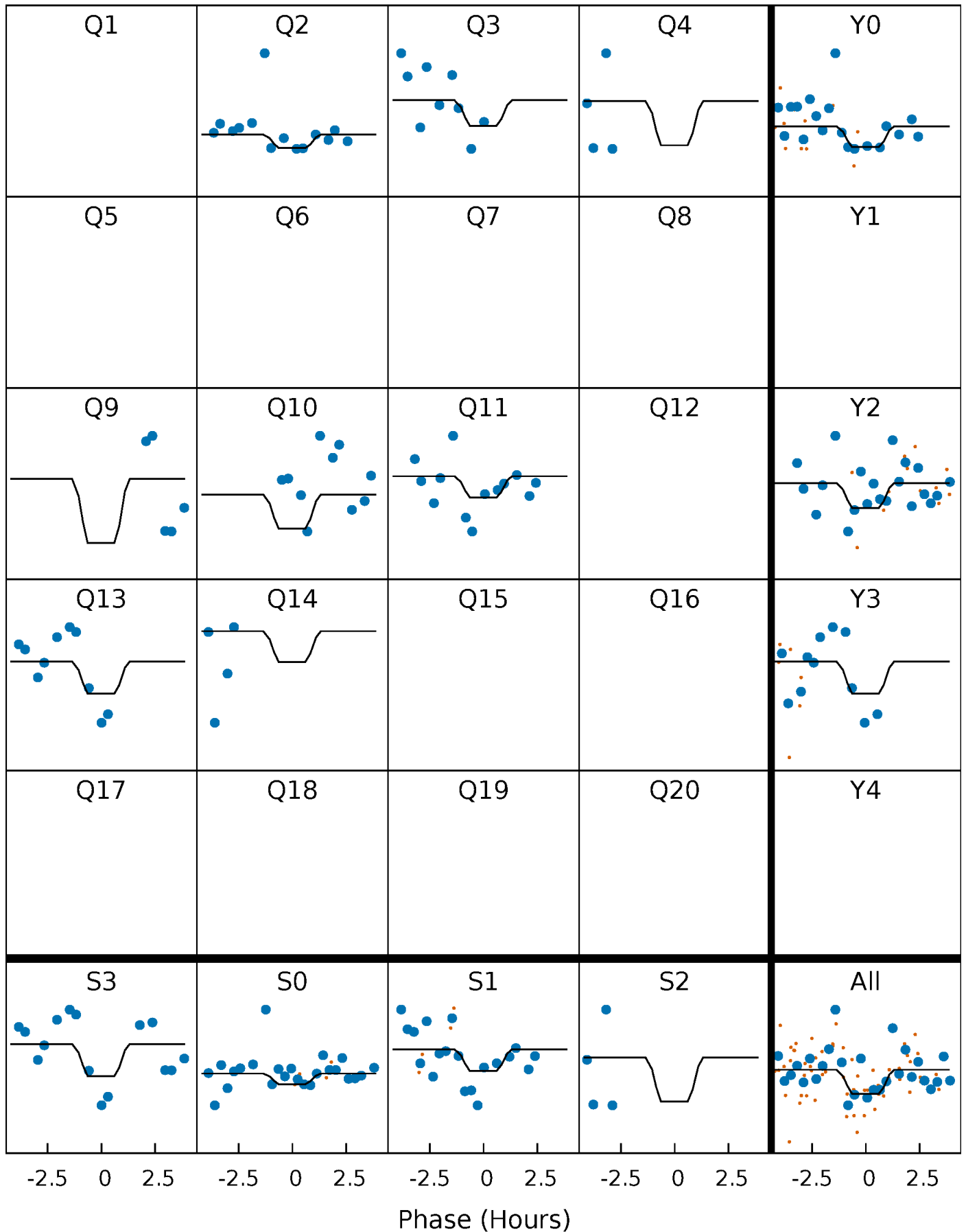
DV Quarter-Phased Transit Curves

TCE 007540965-02 P=102.032516 Days $T_0=176.438612$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

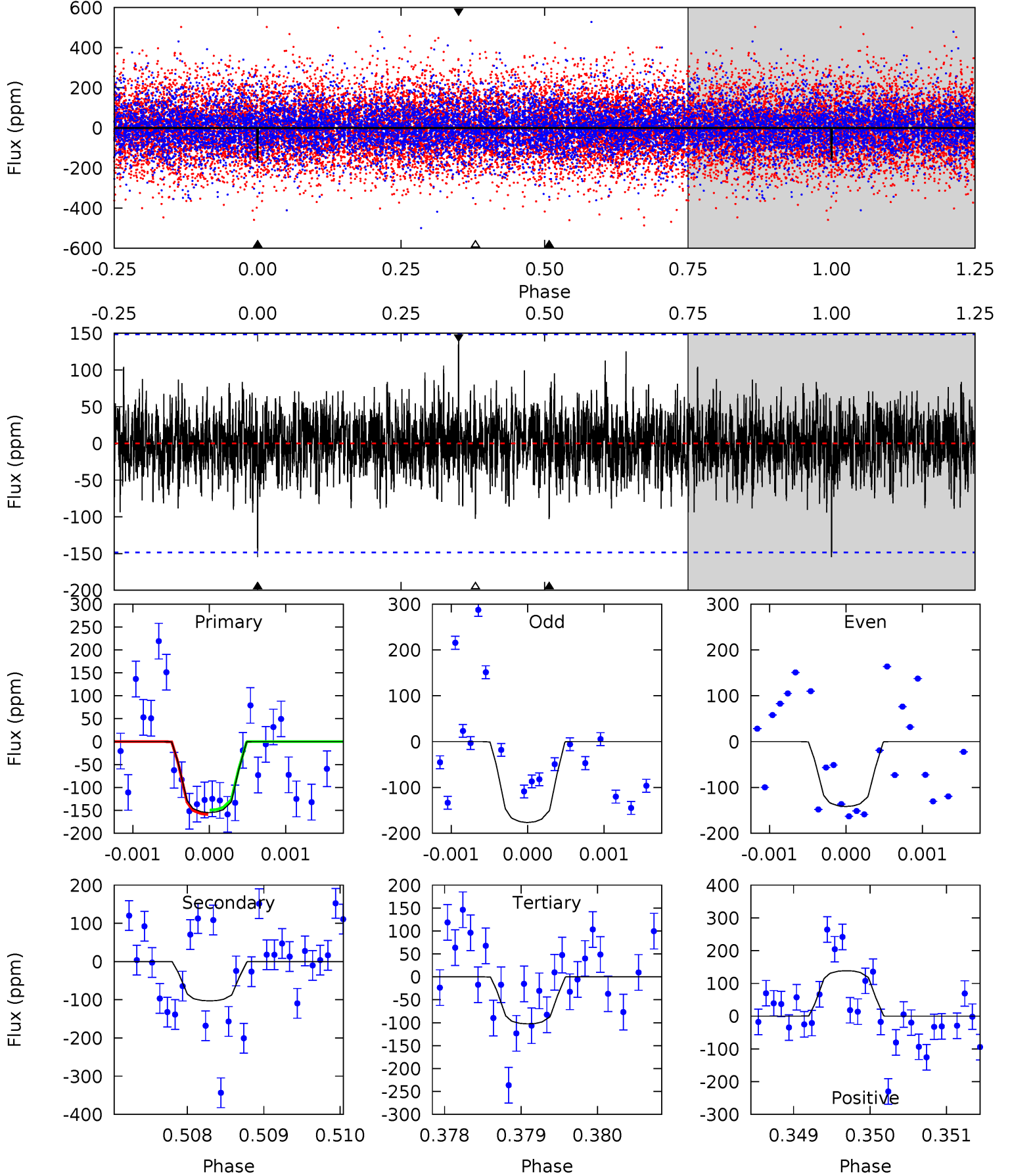
TCE 007540965-02 P=102.031471 Days $T_0=176.442701$ (BKJD)



DV Model-Shift Uniqueness Test

007540965-02, P = 102.032516 Days, E = 74.406096 Days

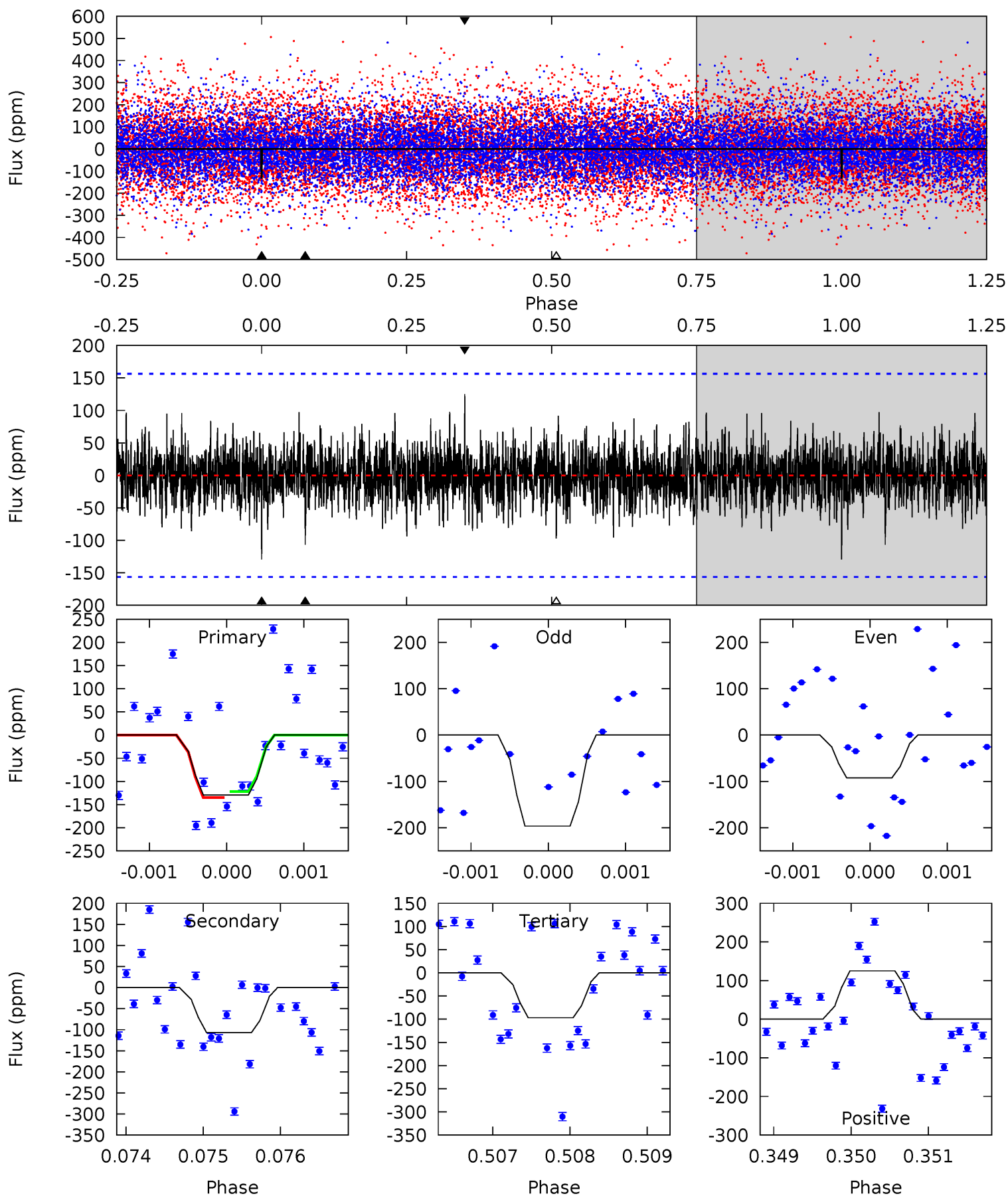
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.69	3.78	3.77	5.10	5.45	3.29	1.14	1.92	0.59	0.01	-1.32	0.61	1.05	0.47	0.17



Alt Model-Shift Uniqueness Test

007540965-02, P = 102.031471 Days, E = 74.411230 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.53	3.74	3.39	4.38	5.48	3.33	0.99	1.14	0.15	0.35	-0.64	1.77	0.76	0.49	0.23



Stellar Parameters For KIC 007540965

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7507^{+206}_{-335}	$3.865^{+0.287}_{-0.123}$	$0.120^{+0.200}_{-0.350}$	$2.703^{+0.511}_{-0.949}$	$1.952^{+0.105}_{-0.448}$	$0.139^{+0.290}_{-0.050}$
	+3%/-4%	+7%/-3%	+167%/-292%	+19%/-35%	+5%/-23%	+208%/-36%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007540965-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-103 ± 27	$4.58^{+3.64}_{-2.71}$	1019^{+76}_{-98}	5712^{+4130}_{-1258}	737^{+4319}_{-513}
Alt.	-107 ± 29	$3.87^{+3.49}_{-2.34}$	1029^{+68}_{-91}	6299^{+4927}_{-1595}	1040^{+6044}_{-755}

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

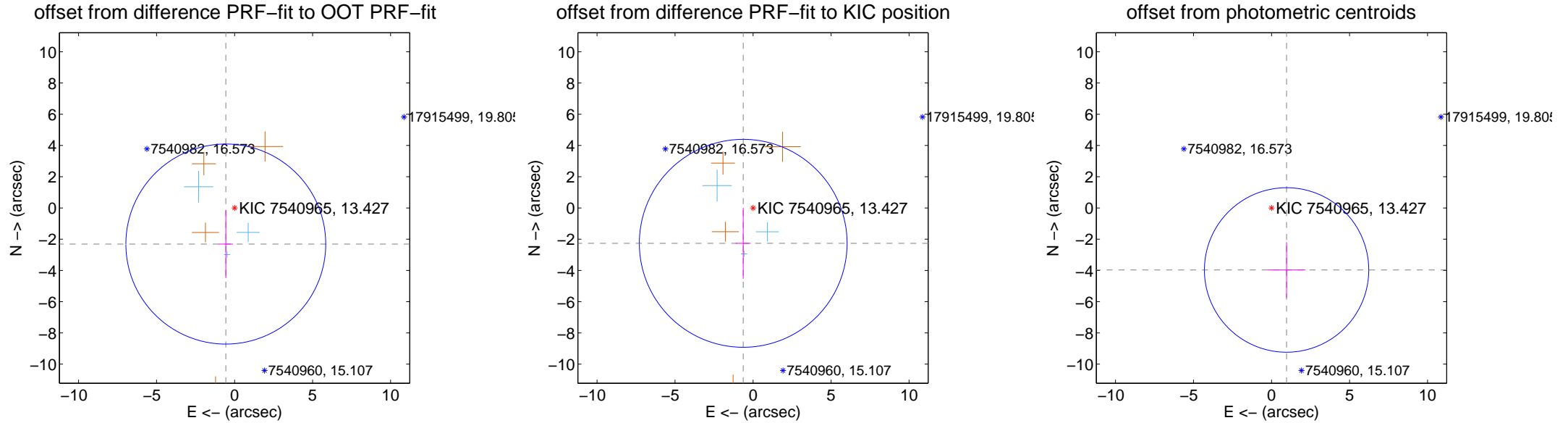
DV Centroid Data

Supplemental centroid analysis for 007540965-02. Kepler magnitude: 13.43. Transit SNR 7.32

There are 3 quarters with good PRF difference image offsets

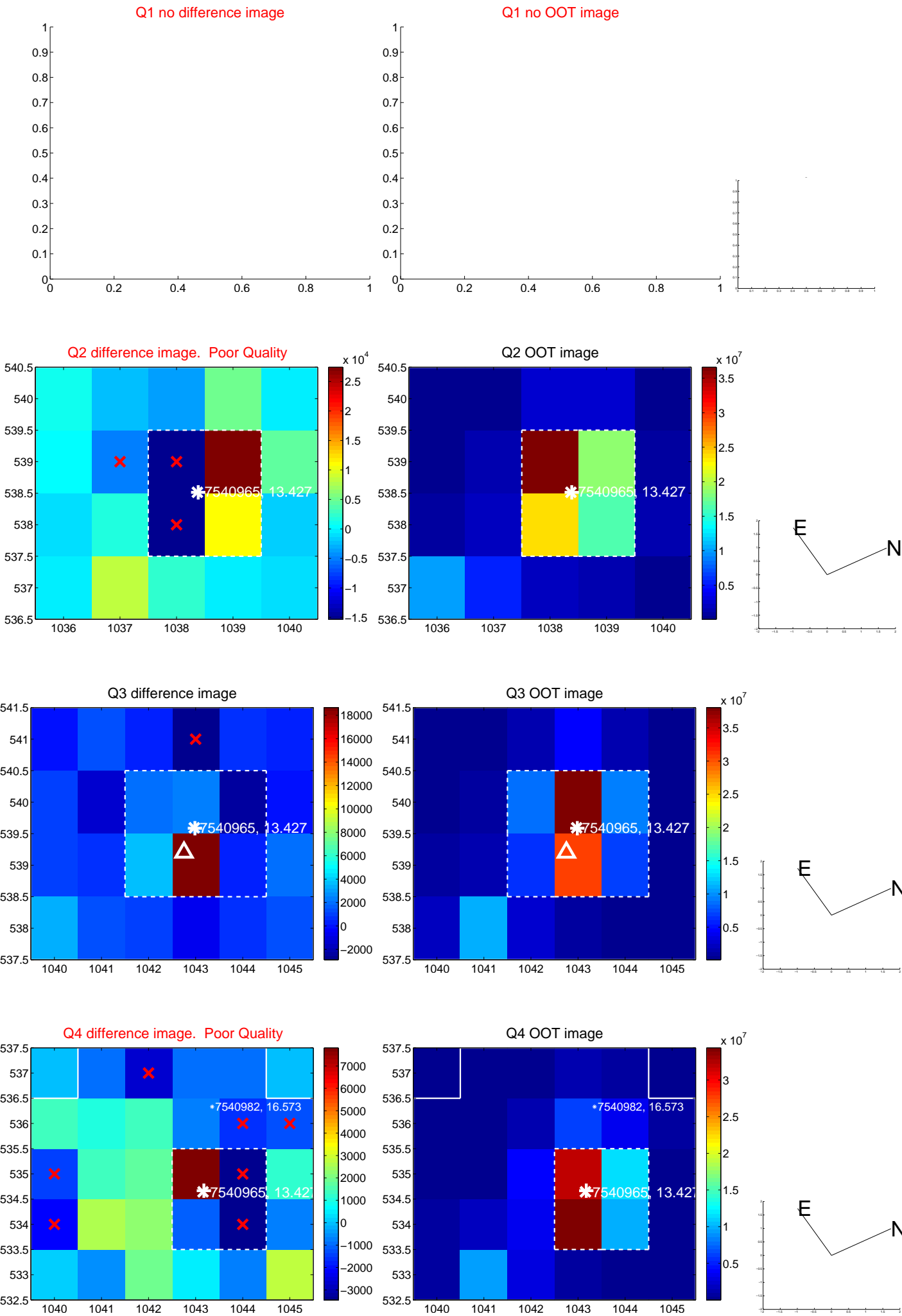
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.379 ± 2.134	1.11	0.562 ± 0.466	-2.311 ± 2.179
PRF-fit source offset from KIC position	2.350 ± 2.219	1.06	0.631 ± 0.474	-2.264 ± 2.268
photometric centroid source offset	4.09 ± 1.76	2.33	-0.97 ± 1.22	-3.97 ± 1.78

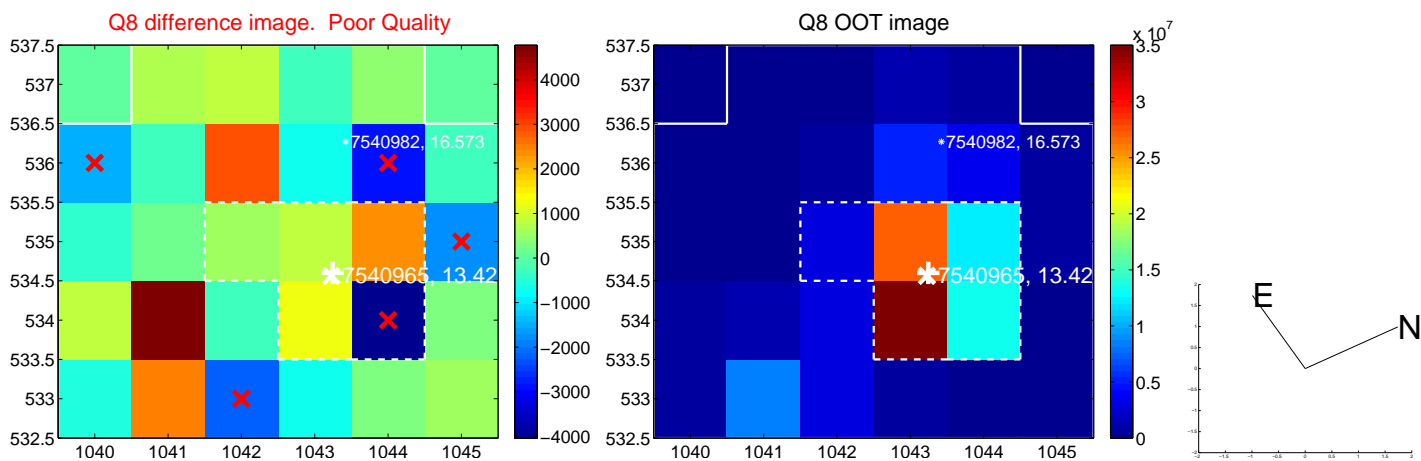
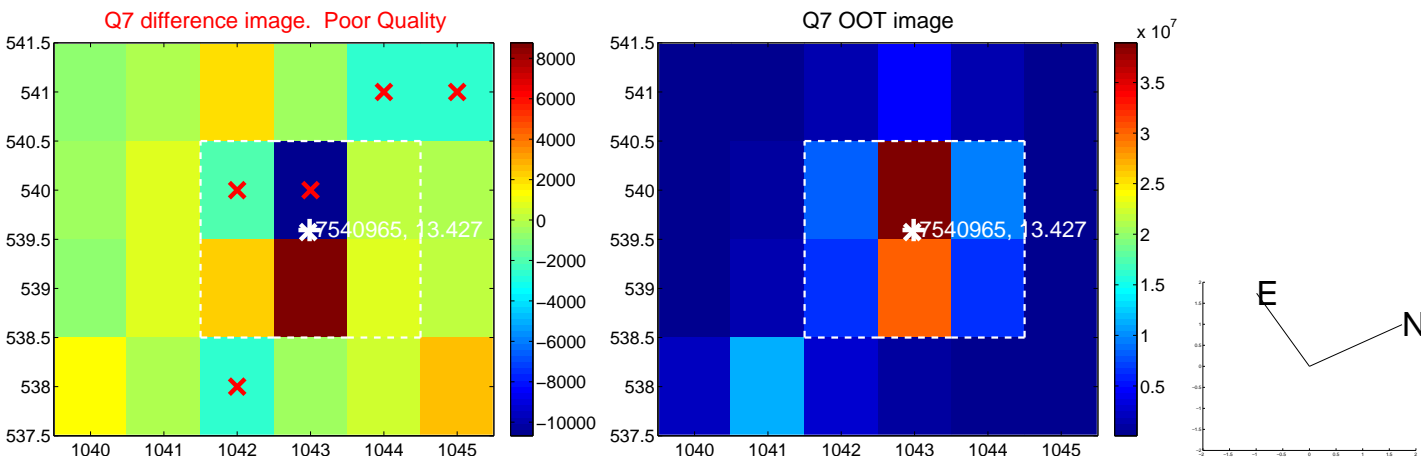
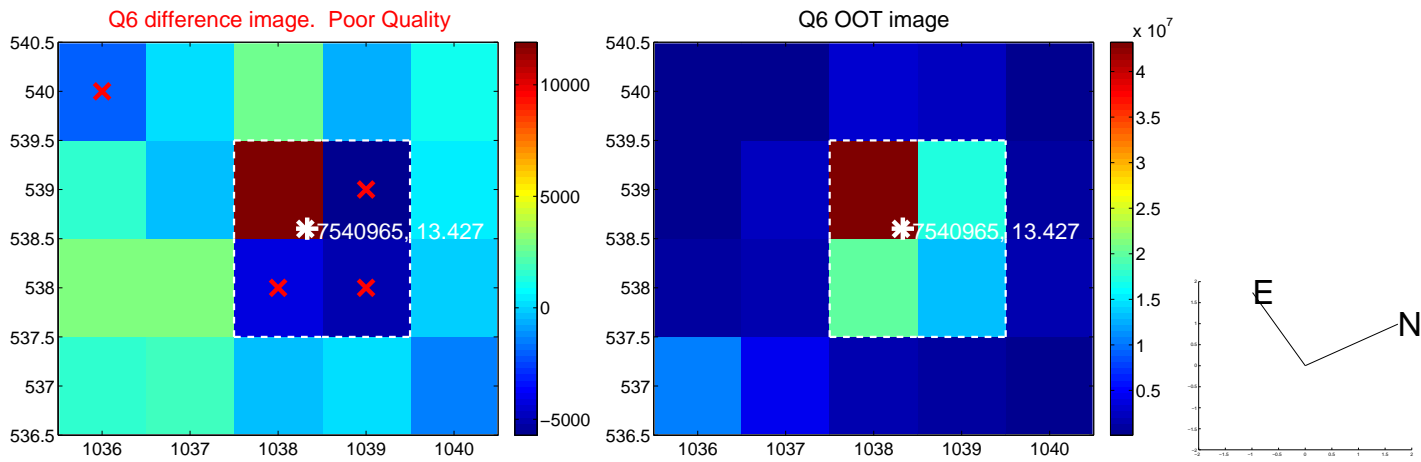
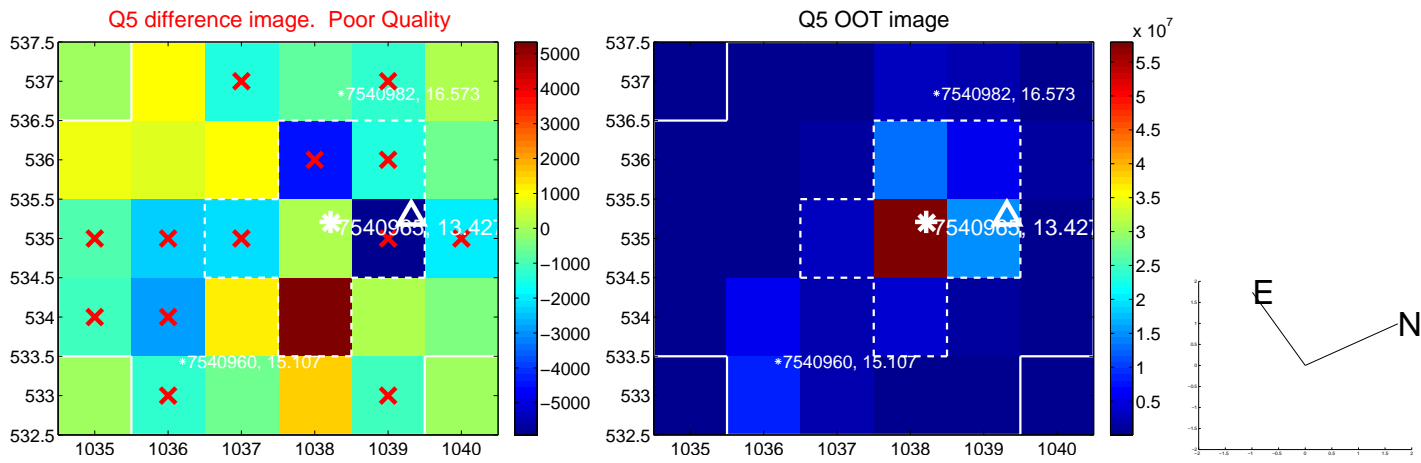


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

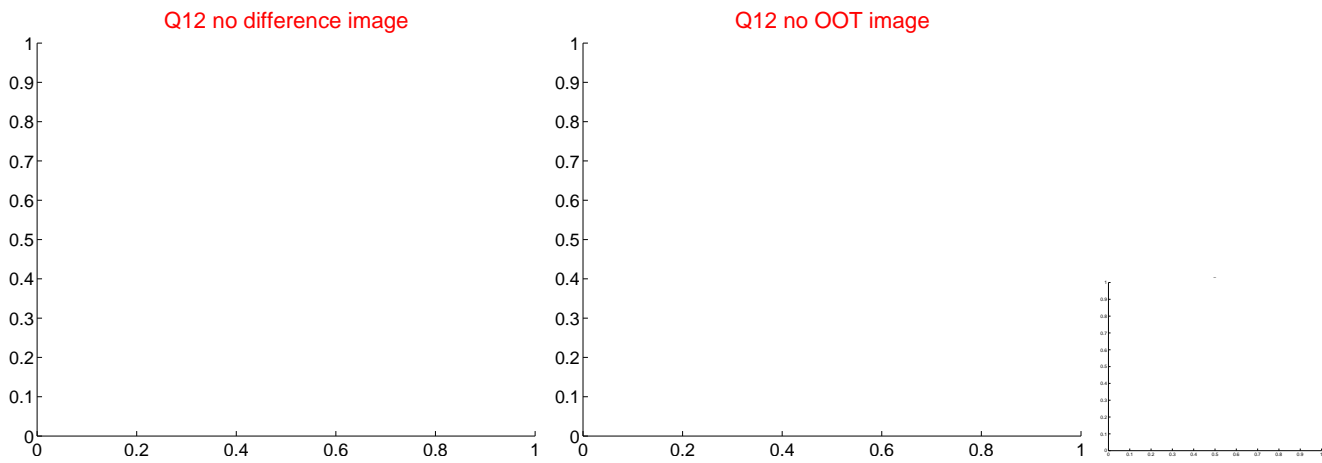
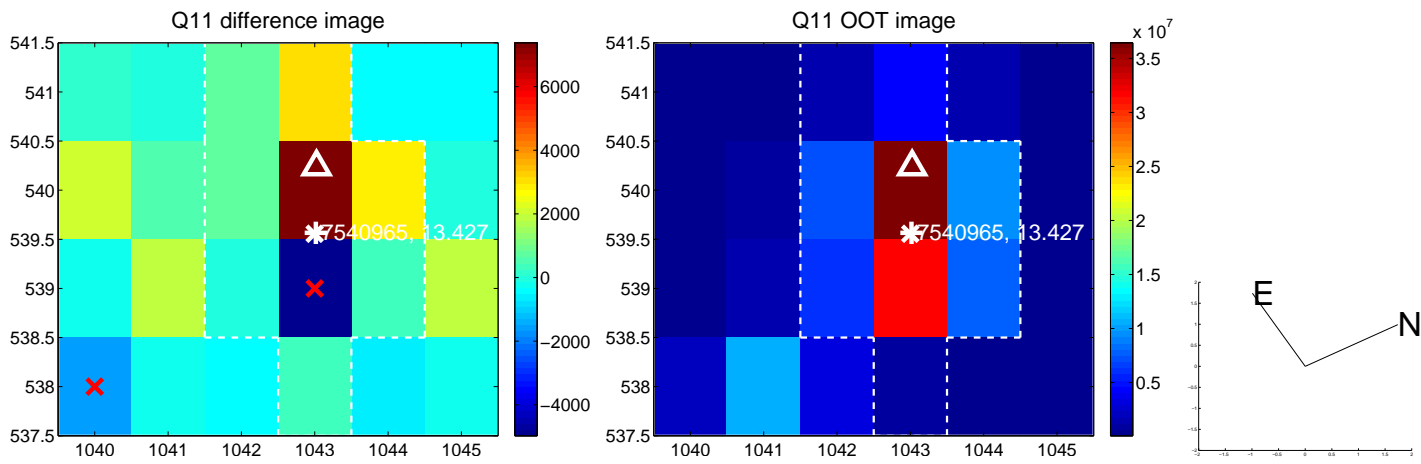
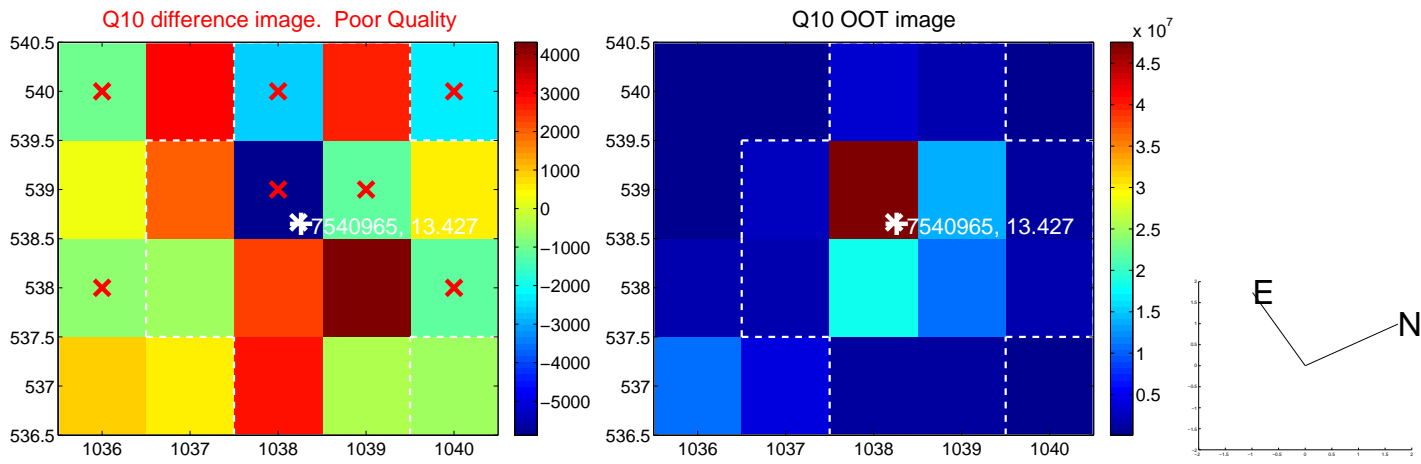
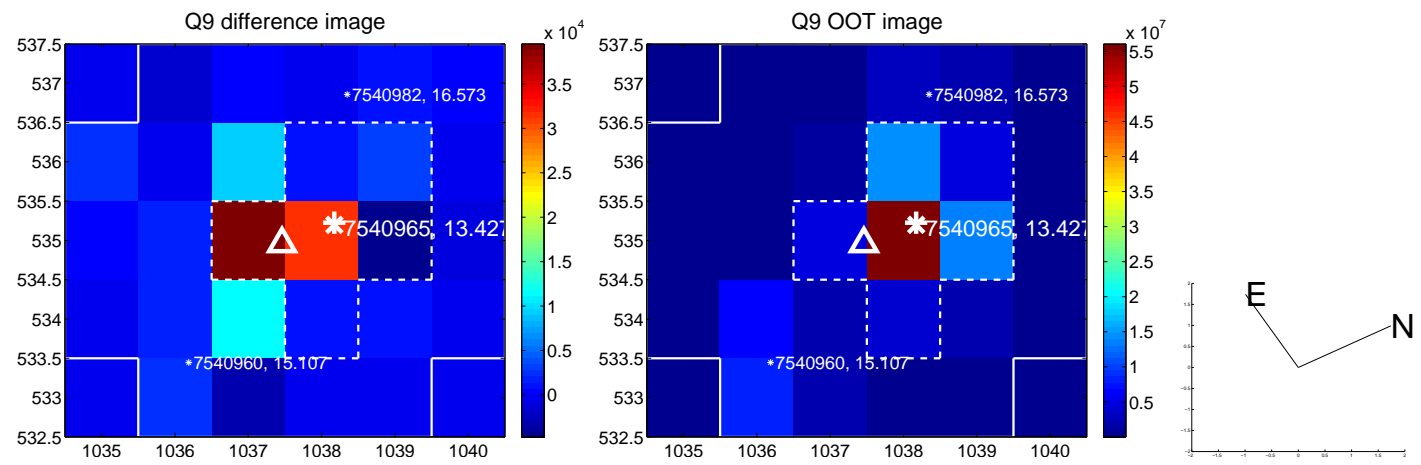
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



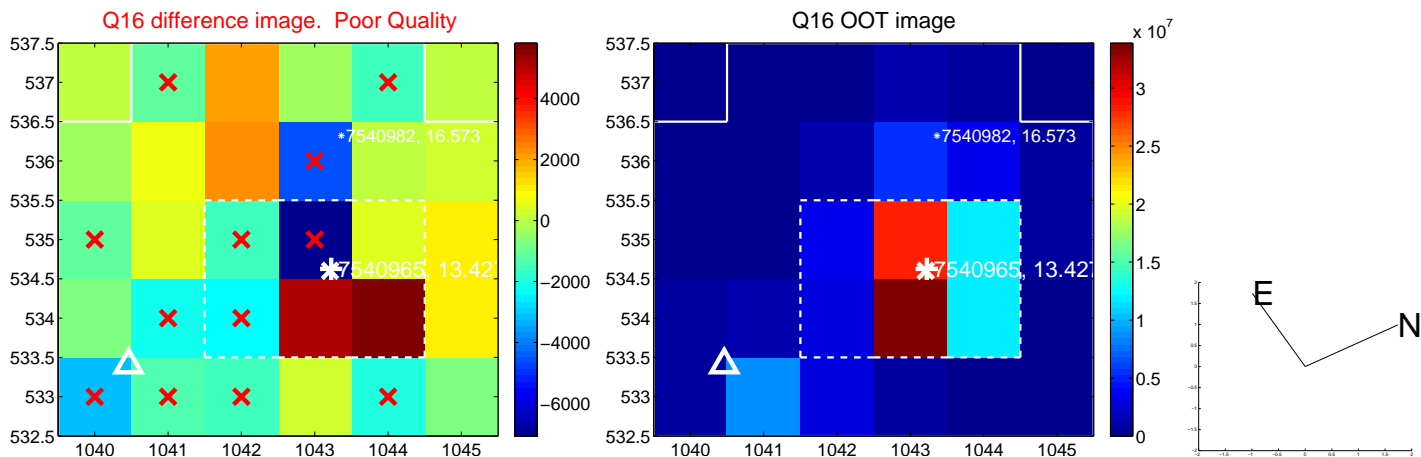
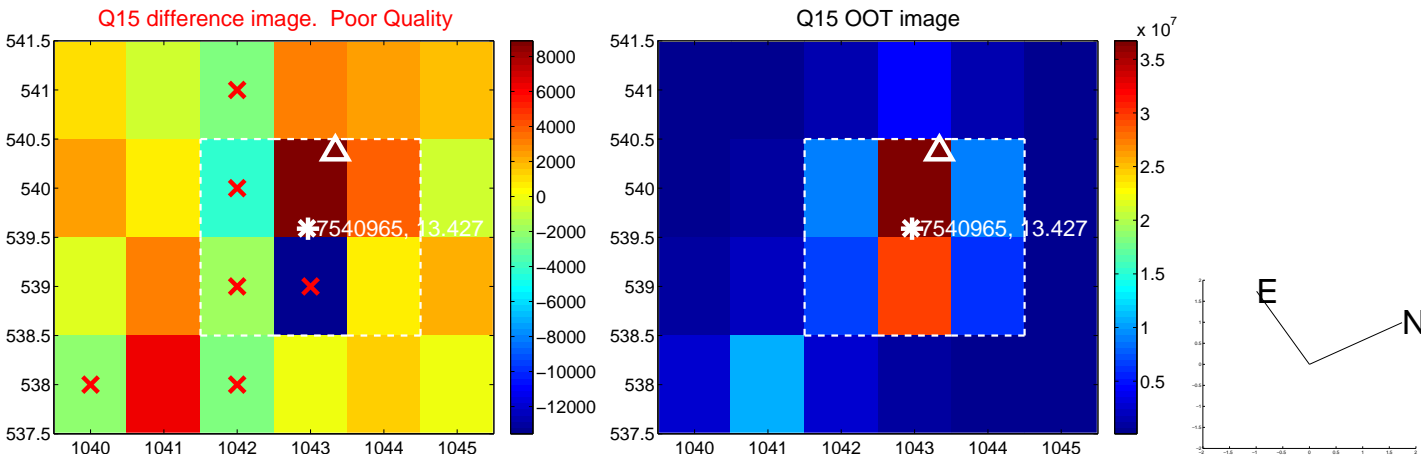
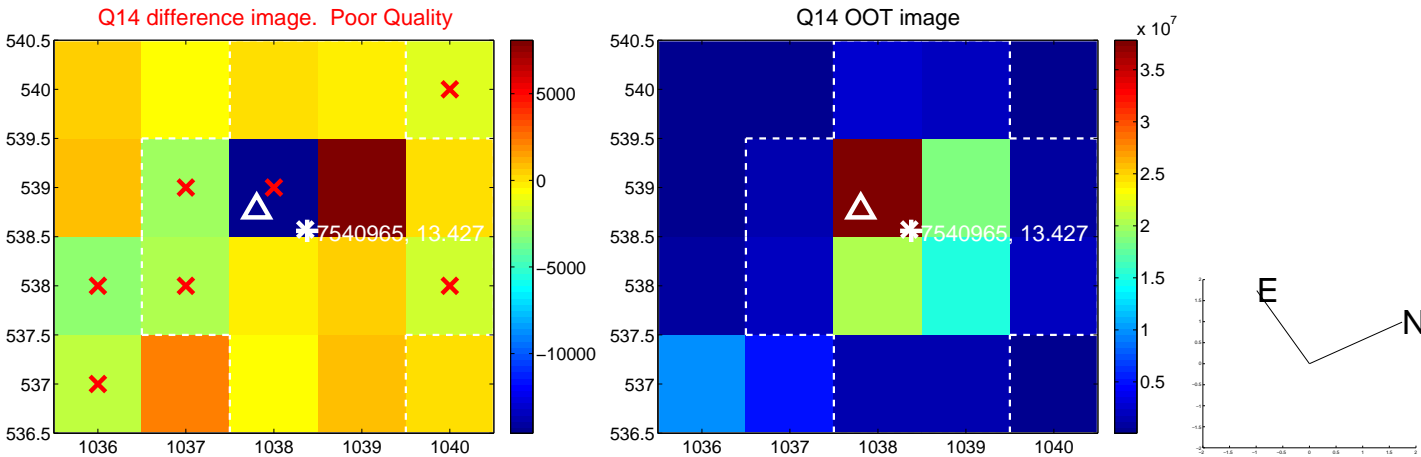
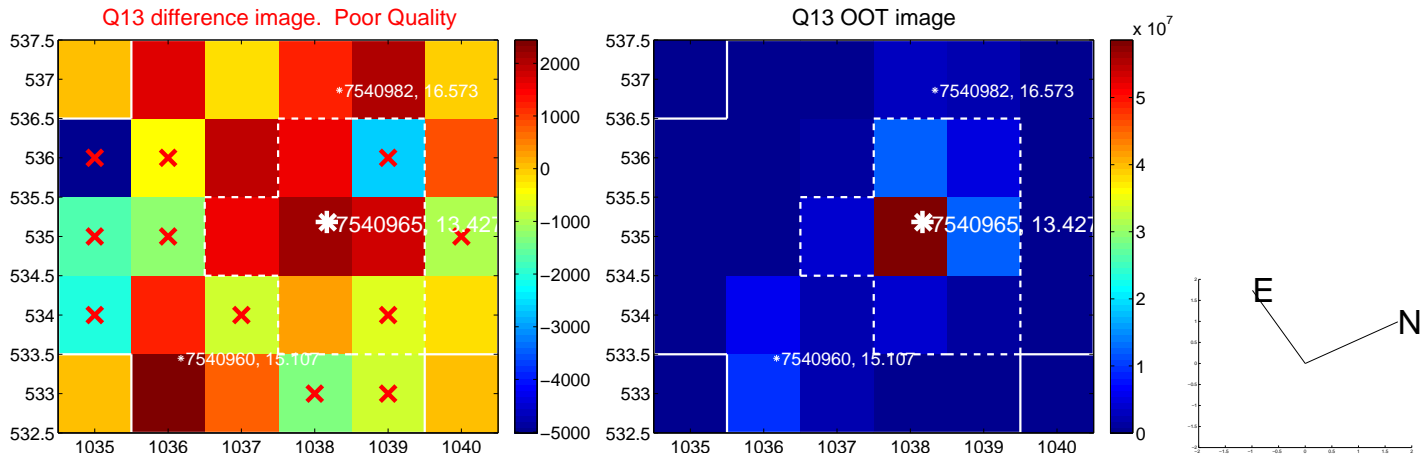
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



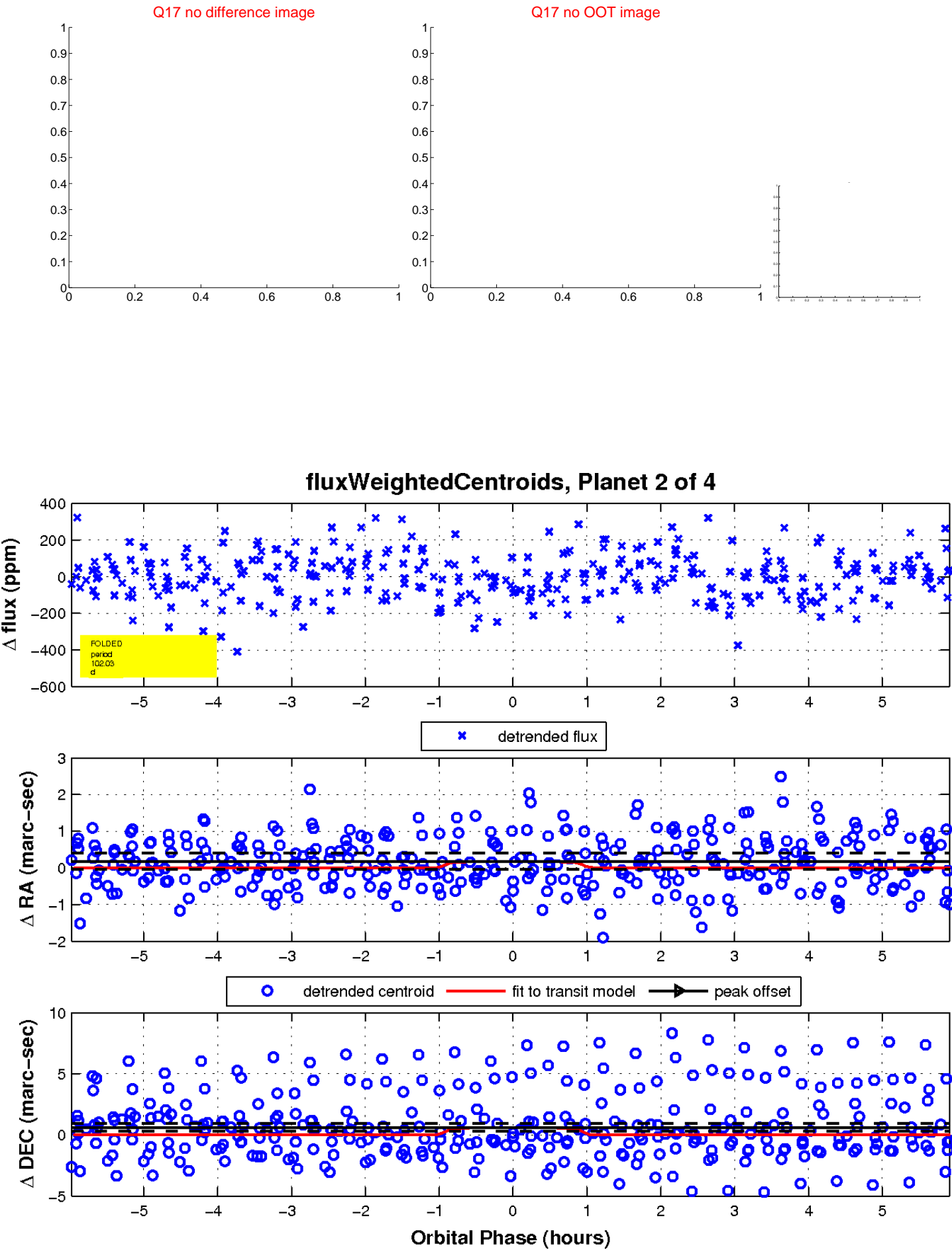
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

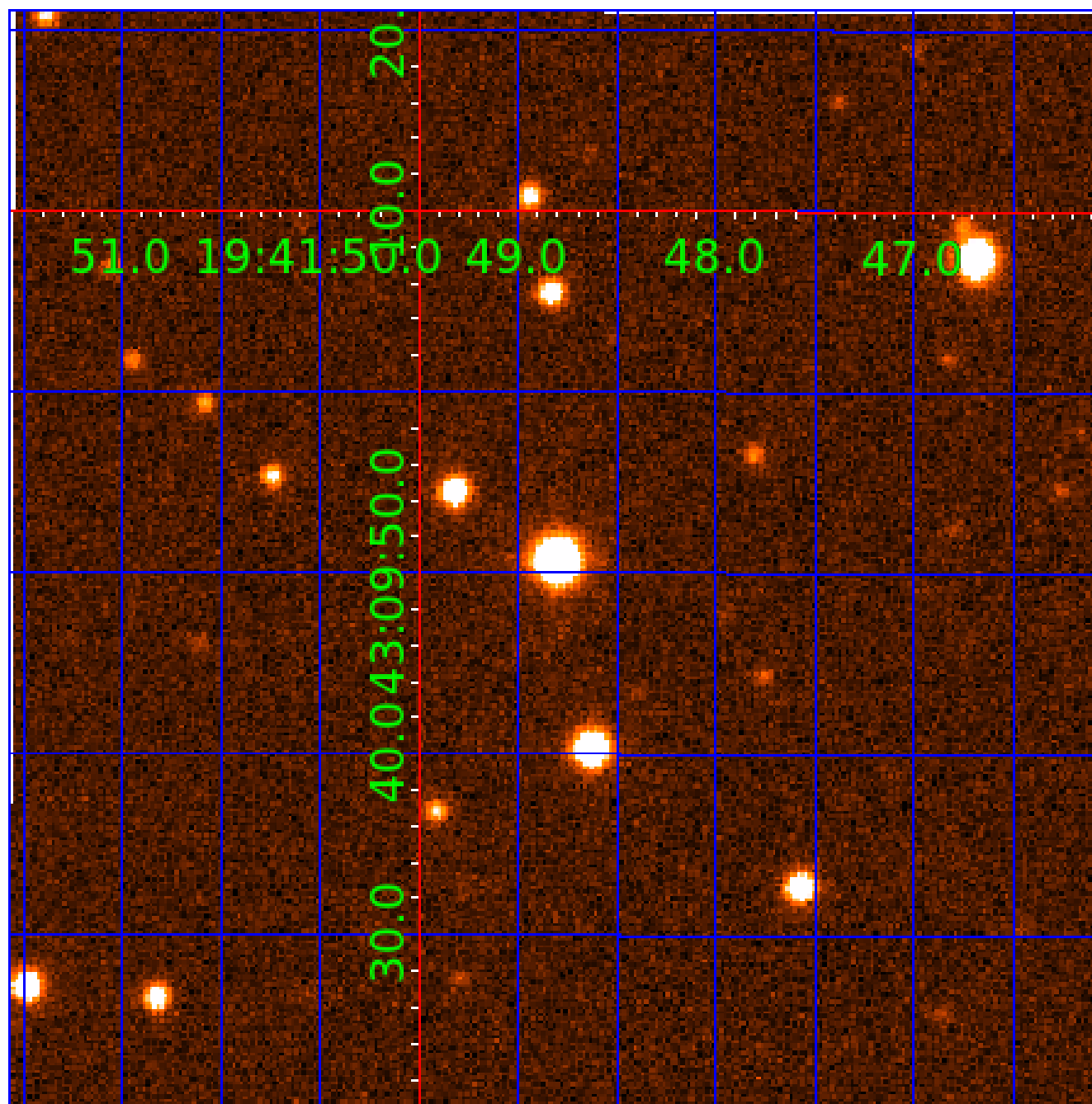


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007540965

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})
007540965-01	OBS	No	0.970717	132.248527	12.4	5.435	10.9	10.2	2.70	7507	1.06	36129.94
007540965-02	OBS	No	102.032516	176.438612	183.5	1.996	8.5	7.3	2.70	7507	4.16	72.83
007540965-03	OBS	No	44.465528	143.417182	173.8	1.233	7.8	8.0	2.70	7507	3.70	220.44
007540965-04	OBS	No	73.177398	169.812584	125.2	4.595	7.2	7.2	2.70	7507	3.47	113.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007540965-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007540965-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS
007540965-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
007540965-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

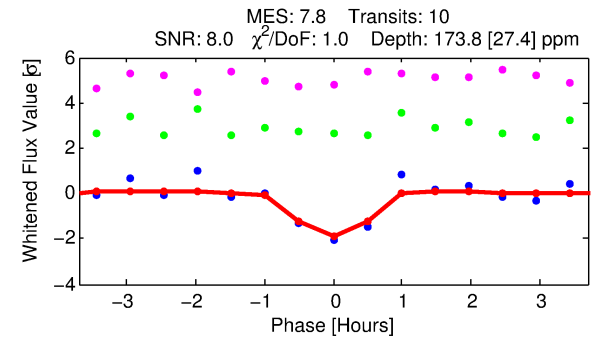
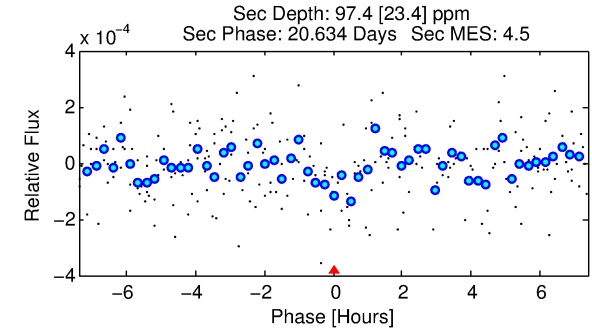
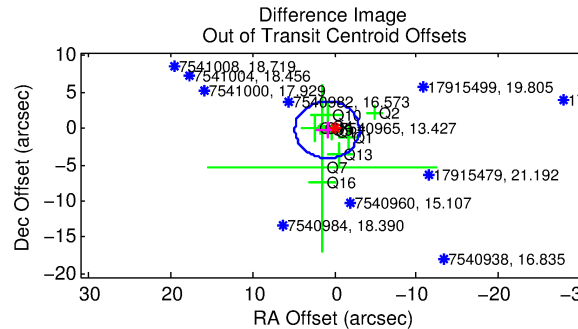
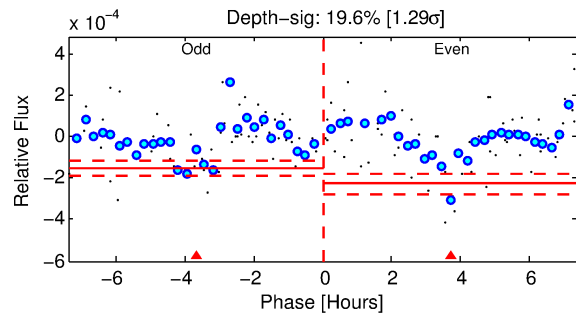
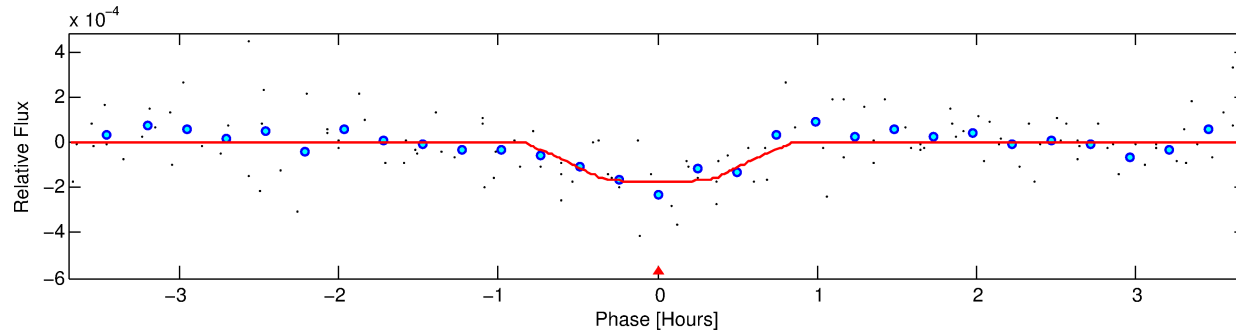
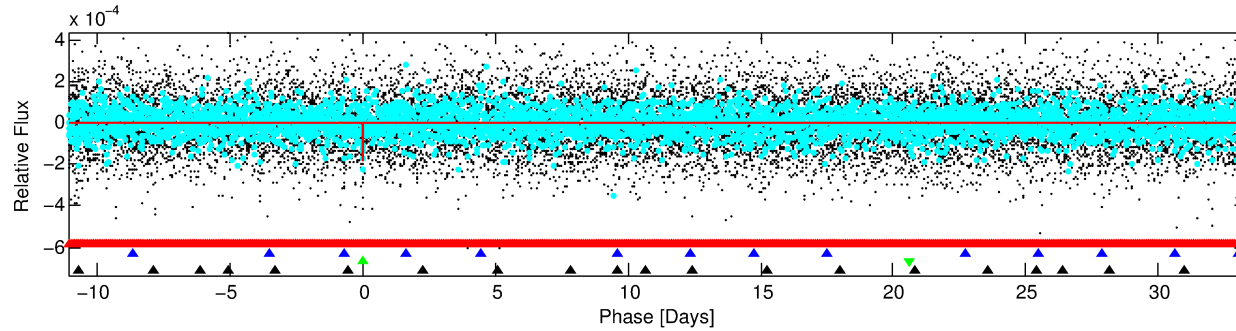
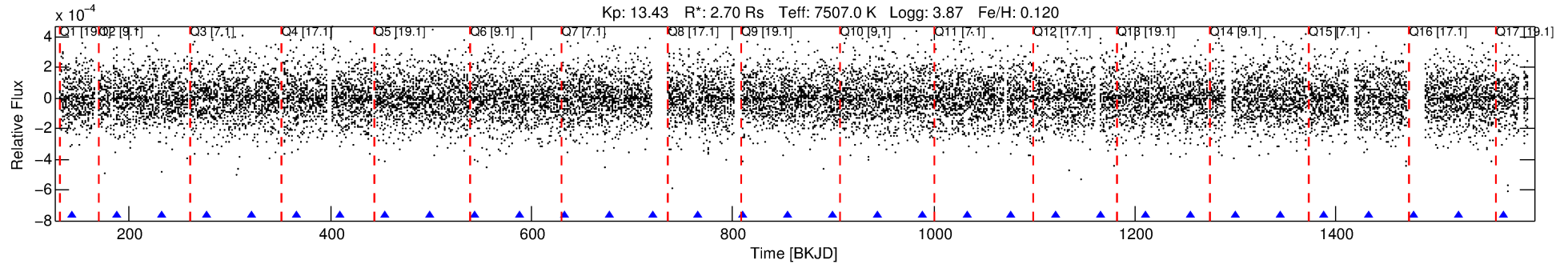
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007540965-03

No Significant Match Found

DV One-Page Summary

KIC: 7540965 Candidate: 3 of 4 Period: 44.466 d



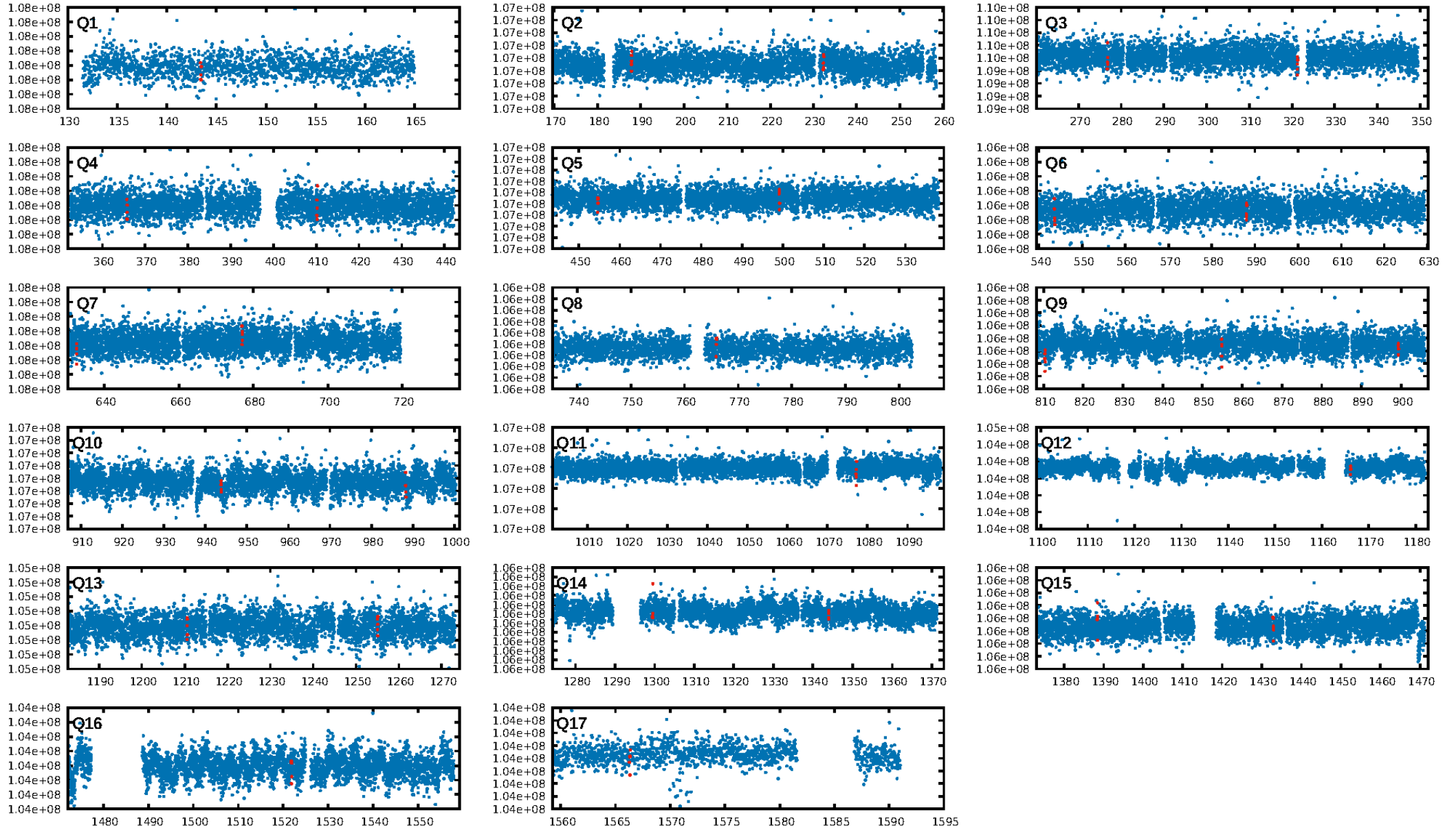
DV Fit Results:

Period = 44.46553 [0.00031] d
Epoch = 143.4172 [0.0055] BKJD
Rp/R* = 0.0125 [0.0135]
a/R* = 249.15 [1630.86]
b = 0.45 [11.38]
Seff = 220.44 [116.80]
Teq = 983 [130] K
Rp = 3.70 [4.18] Re
a = 0.3071 [0.0987] AU
Ag = 368.79 [818.09] [0.45 σ]
Teffp = 6657 [3610] K [1.57 σ]

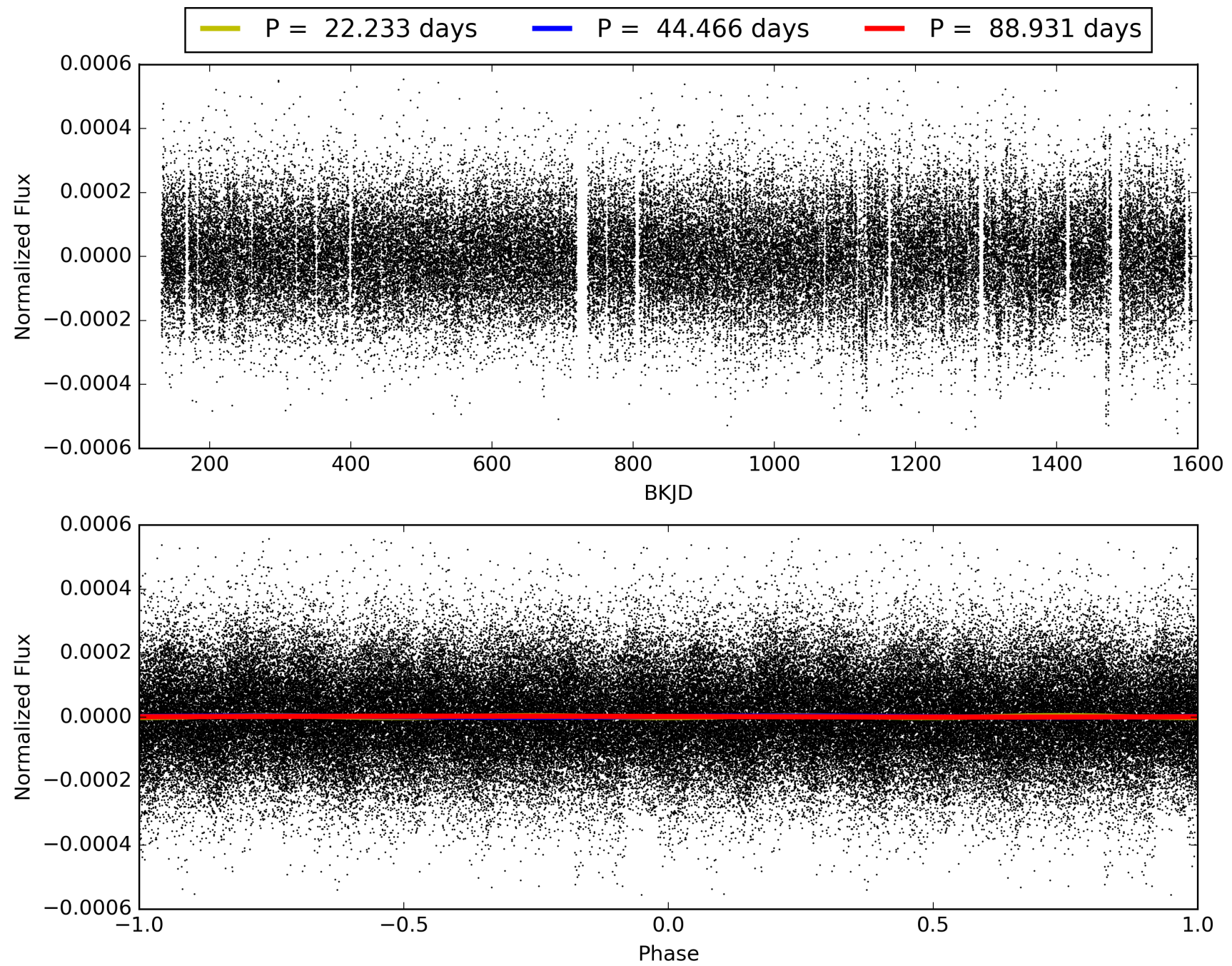
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [187.29 σ]
LongPeriod-sig: 100.0% [144.85 σ]
ModelChiSquare2-sig: 60.2%
ModelChiSquareGof-sig: 97.4%
Bootstrap-pfa: 5.53e-10
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -0.6782
Centroid-sig: 39.3%
Centroid-so: 1.807 arcsec [1.16 σ]
OotOffset-rm: 0.924 arcsec [0.71 σ]
KicOffset-rm: 0.945 arcsec [0.72 σ]
OotOffset-st: 2/2/3/4 [11]
KicOffset-st: 2/2/3/4 [11]
DiffImageQuality-fgm: 0.18 [2/11]
DiffImageOverlap-fno: 0.50 [8/16]

TCE 007540965-03, PDC Light Curves

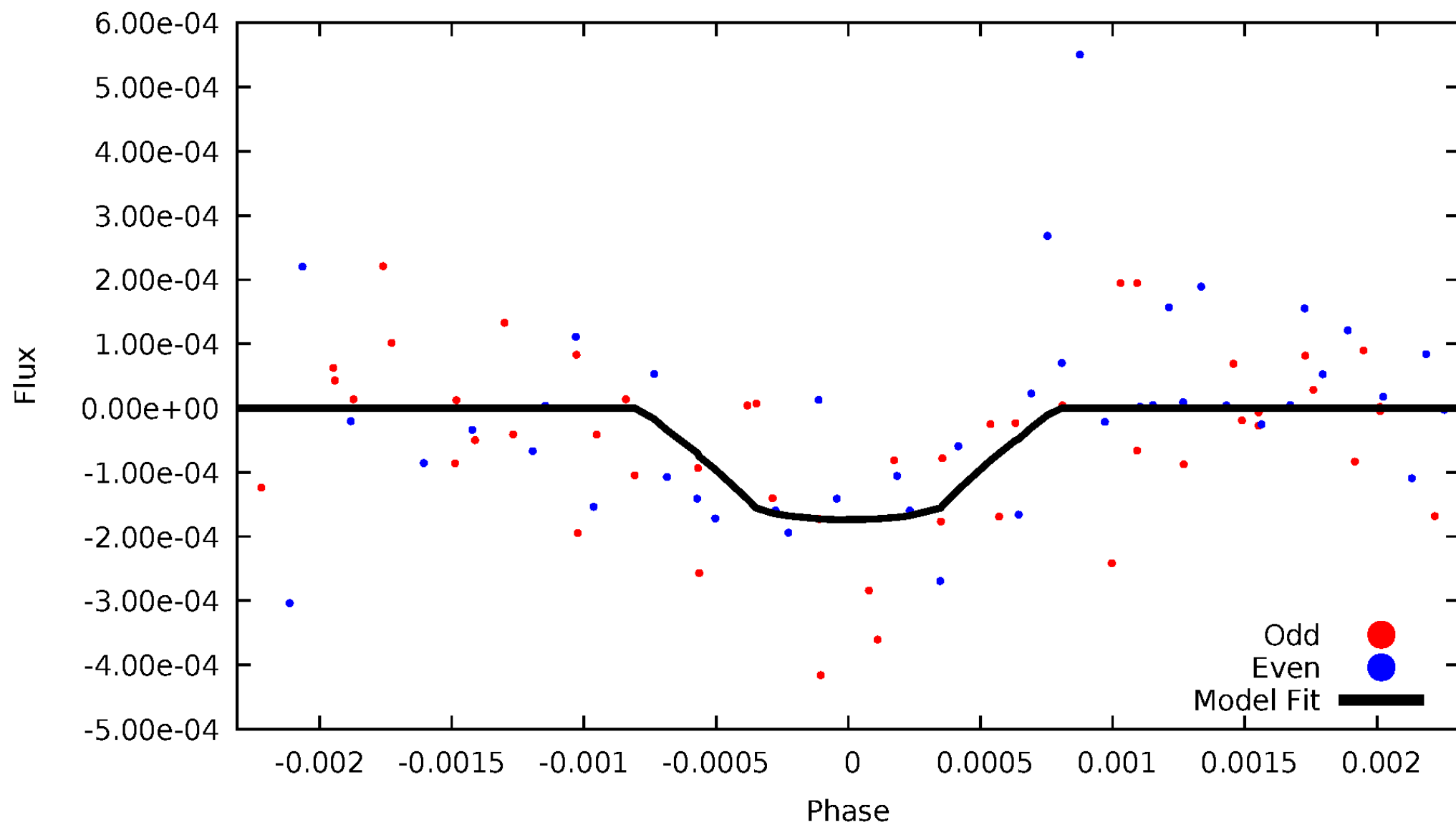


TCE 007540965-03



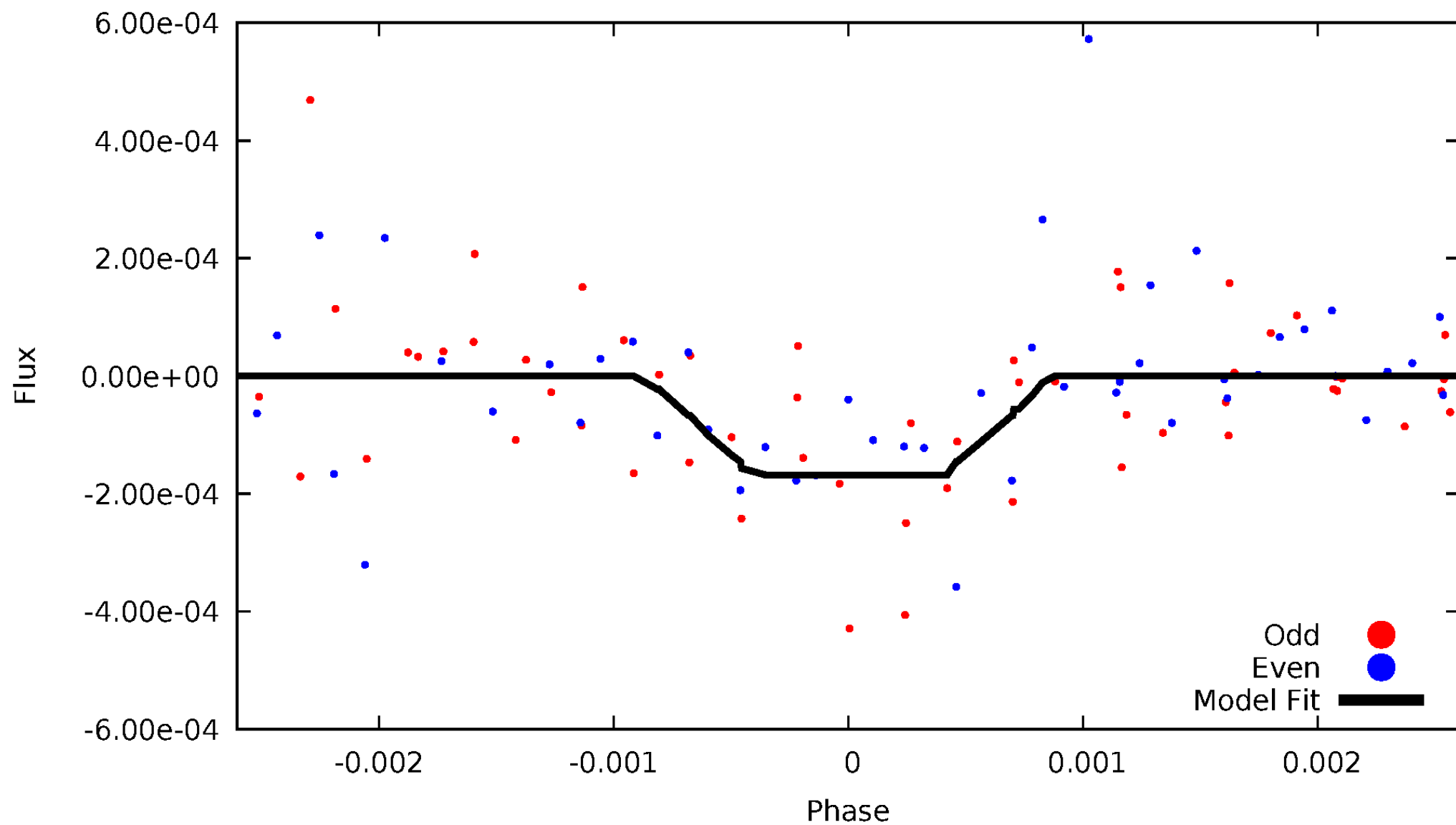
DV Odd/Even

TCE 007540965-03

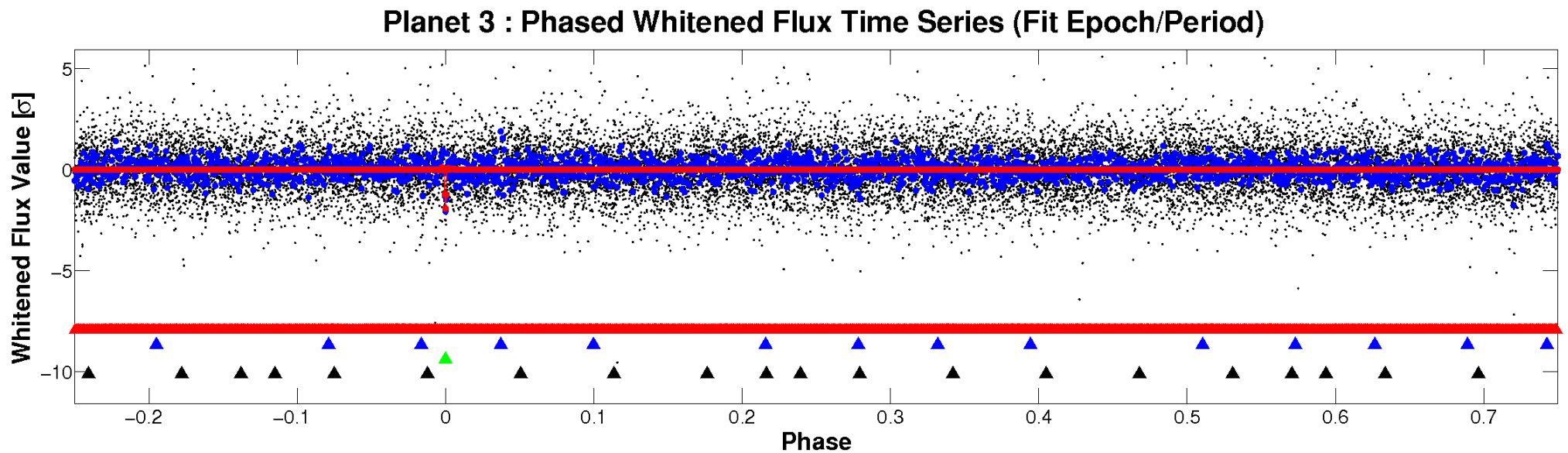
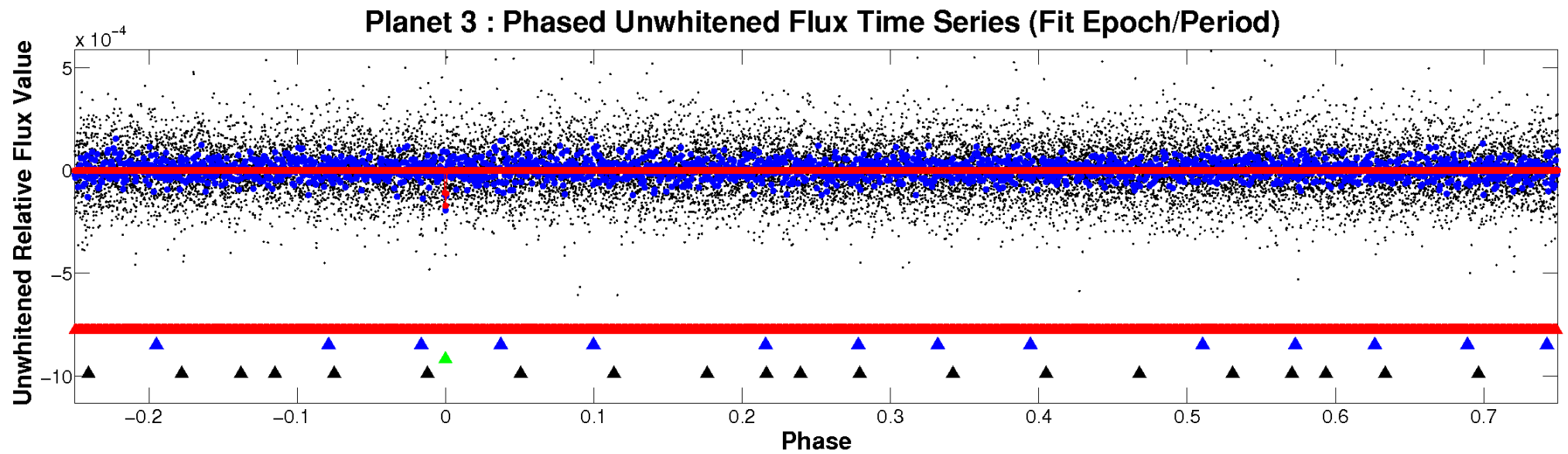


ALT Odd/Even

TCE 007540965-03

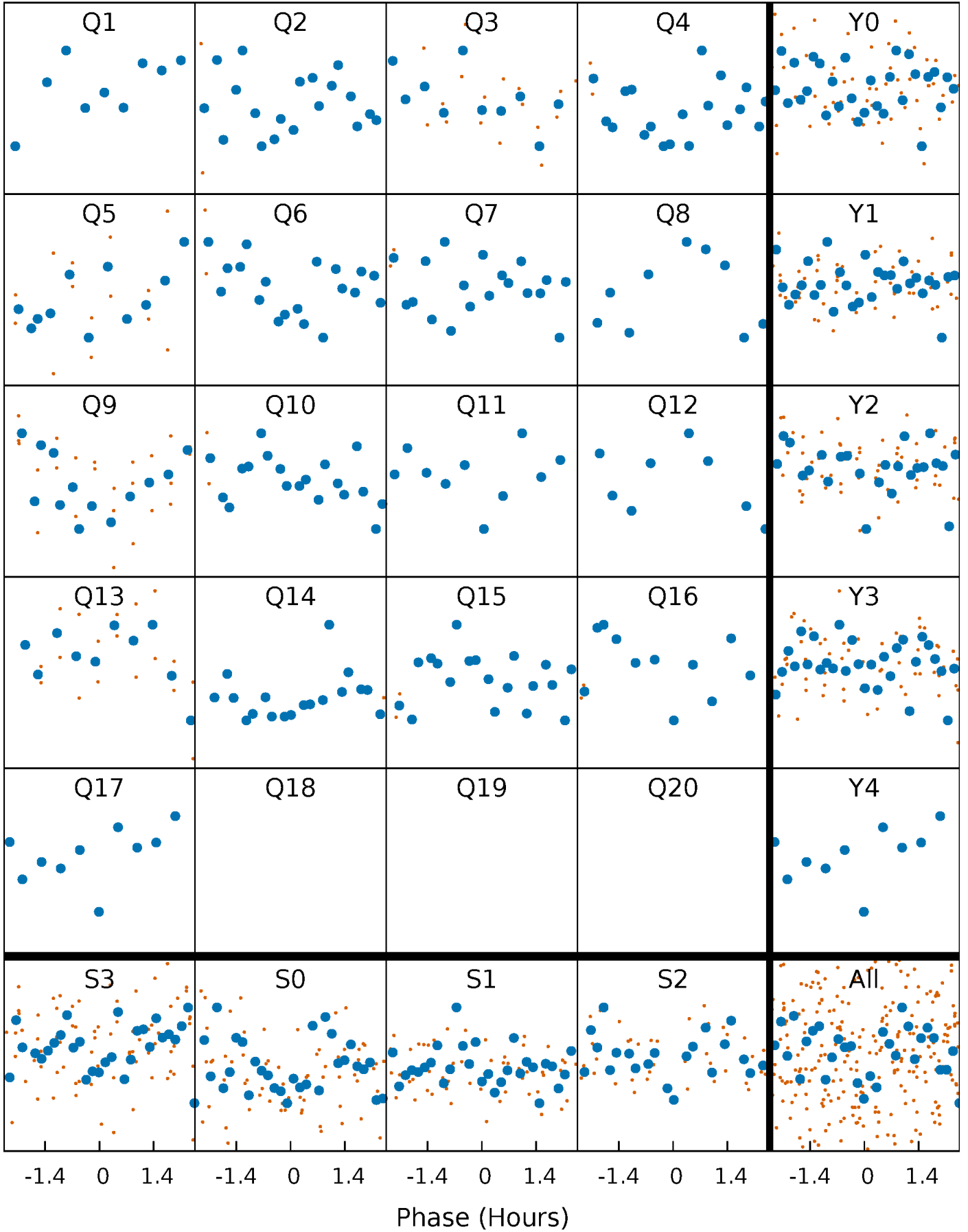


Non-Whitened Vs. Whitened Light Curve



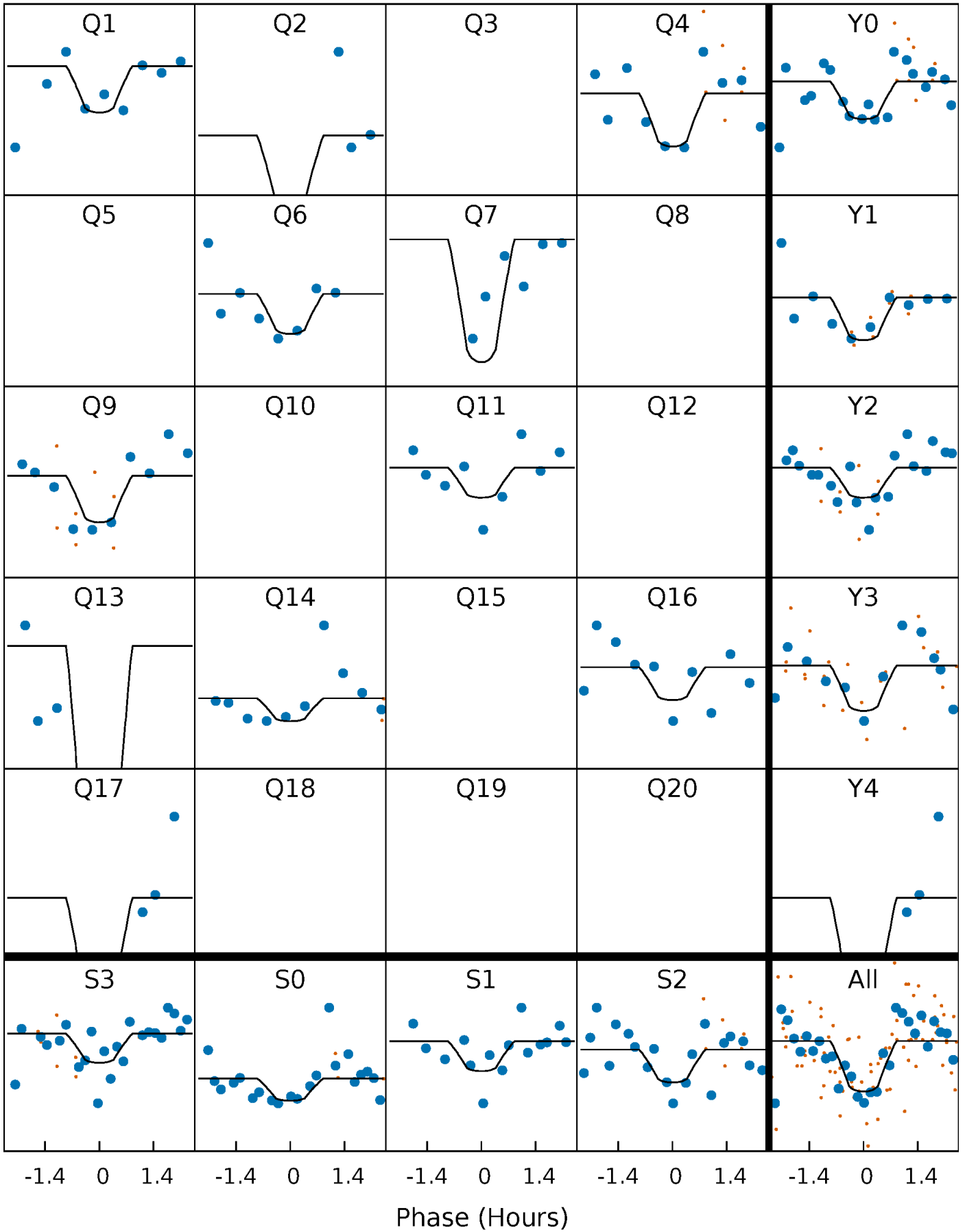
PDC Quarter-Phased Transit Curves

TCE 007540965-03 P= 44.465528 Days $T_0=143.417182$ (BKJD)



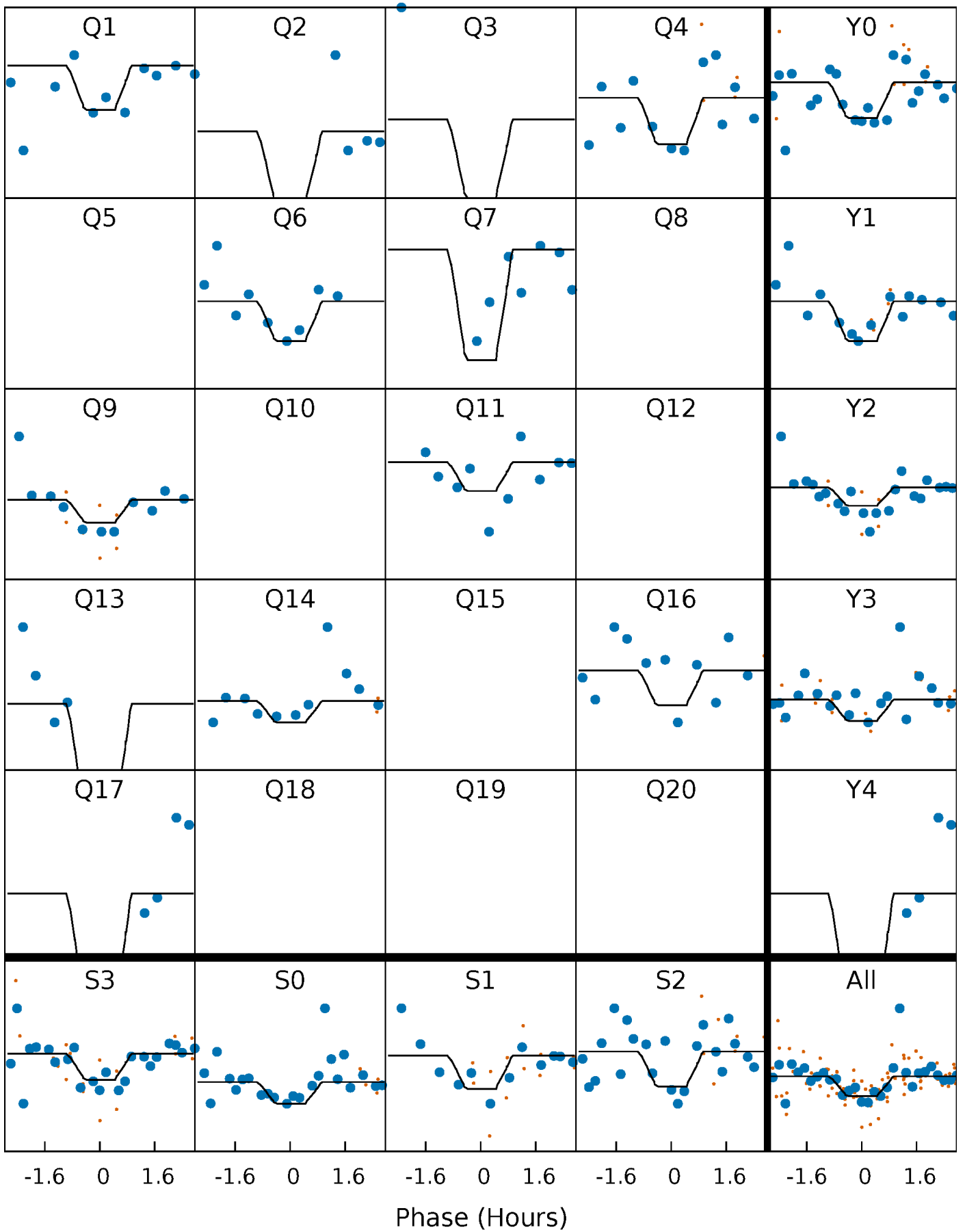
DV Quarter-Phased Transit Curves

TCE 007540965-03 P= 44.465528 Days $T_0=143.417182$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

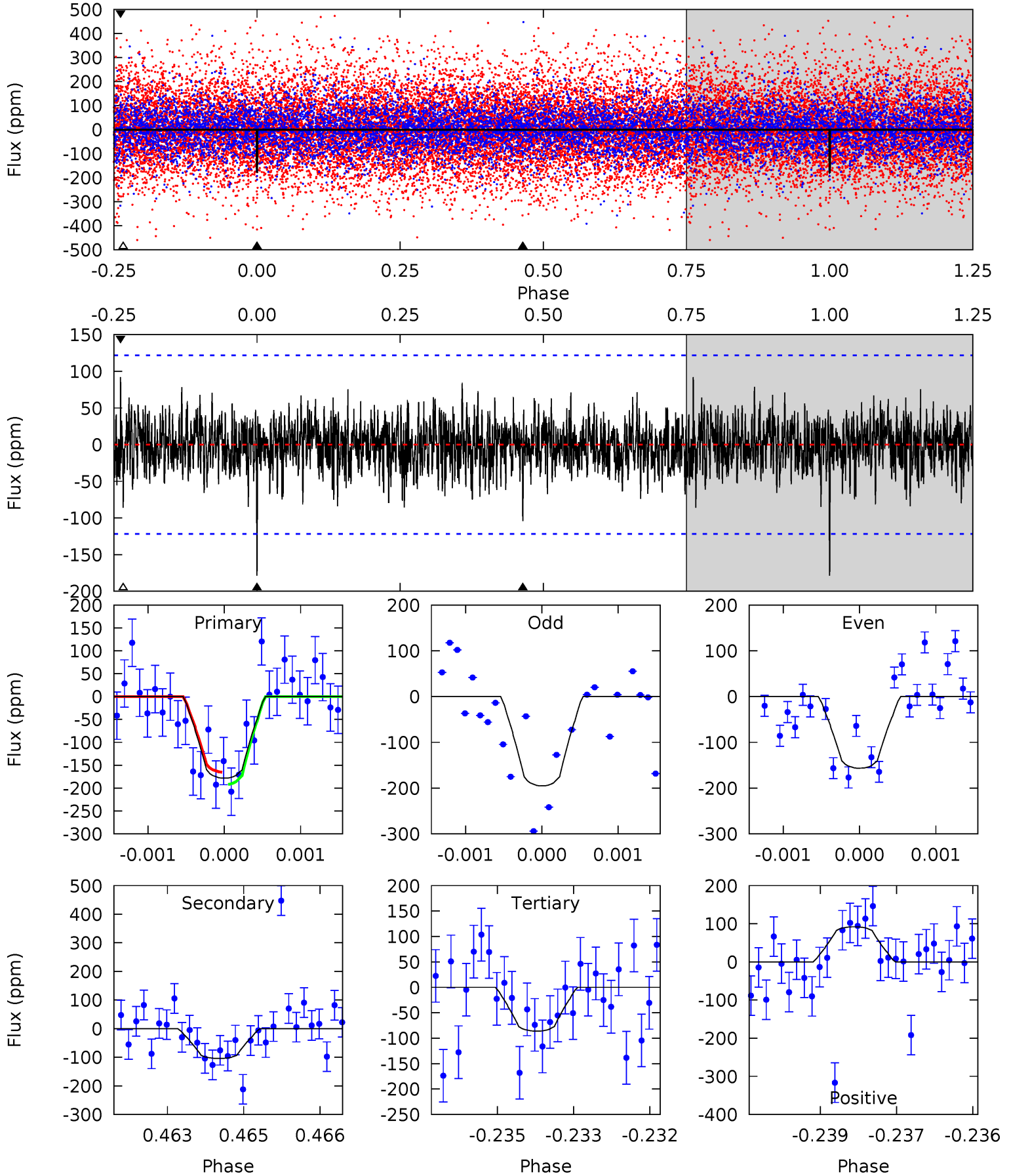
TCE 007540965-03 P= 44.465363 Days $T_0=143.414826$ (BKJD)



DV Model-Shift Uniqueness Test

007540965-03, P = 44.465528 Days, E = 98.951654 Days

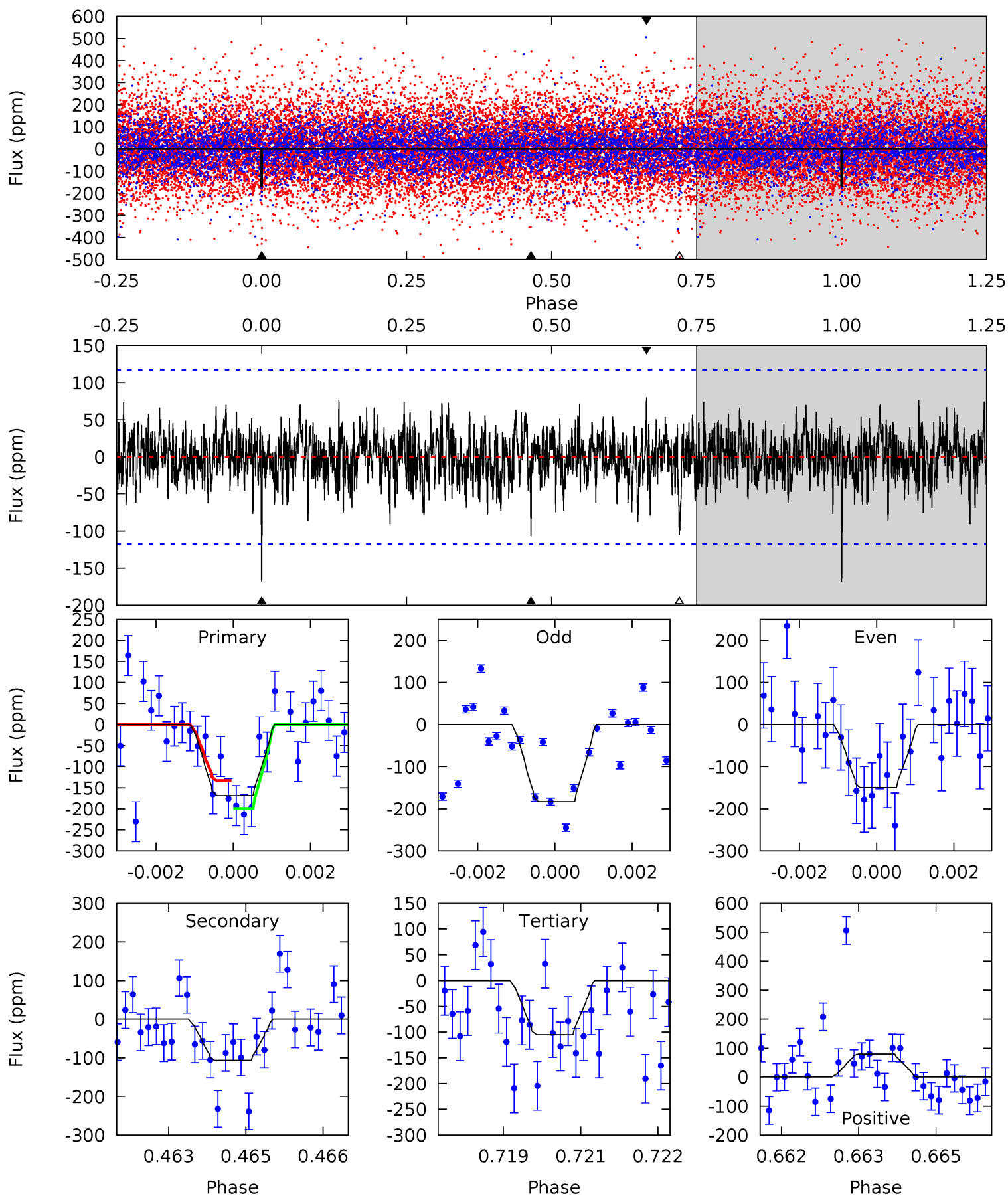
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.88	4.59	3.80	4.06	5.38	3.18	1.15	4.08	3.82	0.79	0.53	0.87	1.15	0.34	0.59



Alt Model-Shift Uniqueness Test

007540965-03, P = 44.465363 Days, E = 98.949463 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.69	4.87	4.79	3.65	5.36	3.15	1.24	2.90	4.04	0.08	1.22	0.76	1.10	0.32	1.51



Stellar Parameters For KIC 007540965

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7507^{+206}_{-335}	$3.865^{+0.287}_{-0.123}$	$0.120^{+0.200}_{-0.350}$	$2.703^{+0.511}_{-0.949}$	$1.952^{+0.105}_{-0.448}$	$0.139^{+0.290}_{-0.050}$
	+3%/-4%	+7%/-3%	+167%/-292%	+19%/-35%	+5%/-23%	+208%/-36%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007540965-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-104 ± 23	$4.48^{+3.50}_{-2.88}$	1342^{+97}_{-123}	5878^{+4795}_{-1285}	280^{+1548}_{-198}
Alt.	-106 ± 22	$4.27^{+3.49}_{-2.81}$	1342^{+103}_{-120}	5950^{+5682}_{-1358}	292^{+2117}_{-208}

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 $A_{obs} \gg 1.0$

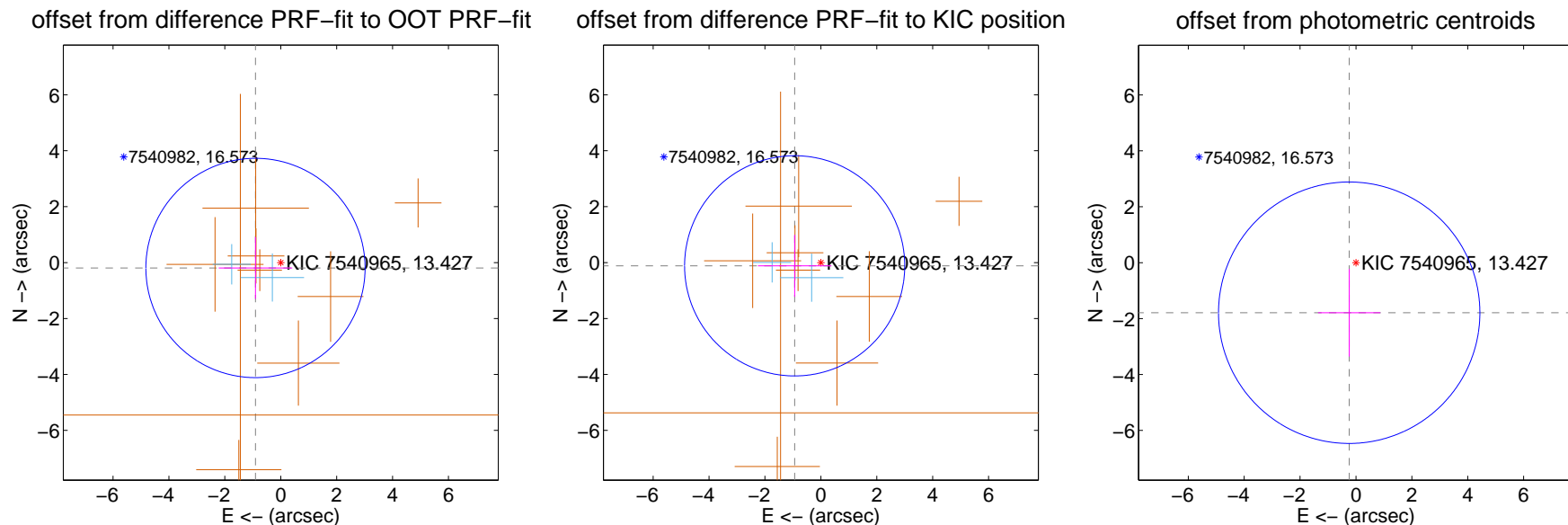
DV Centroid Data

Supplemental centroid analysis for 007540965-03. Kepler magnitude: 13.43. Transit SNR 8.01

There are 2 quarters with good PRF difference image offsets

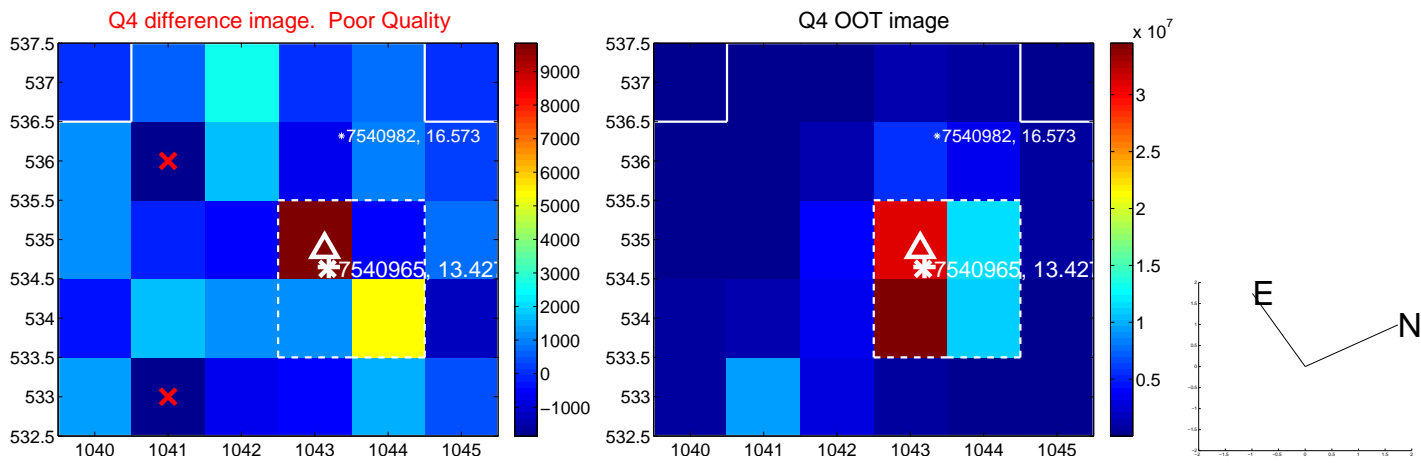
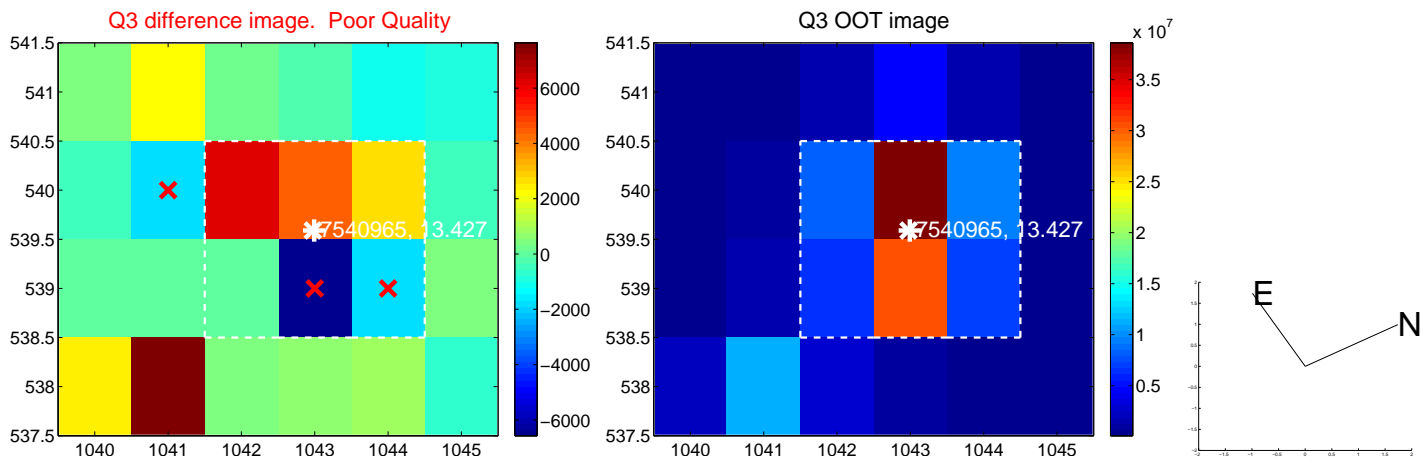
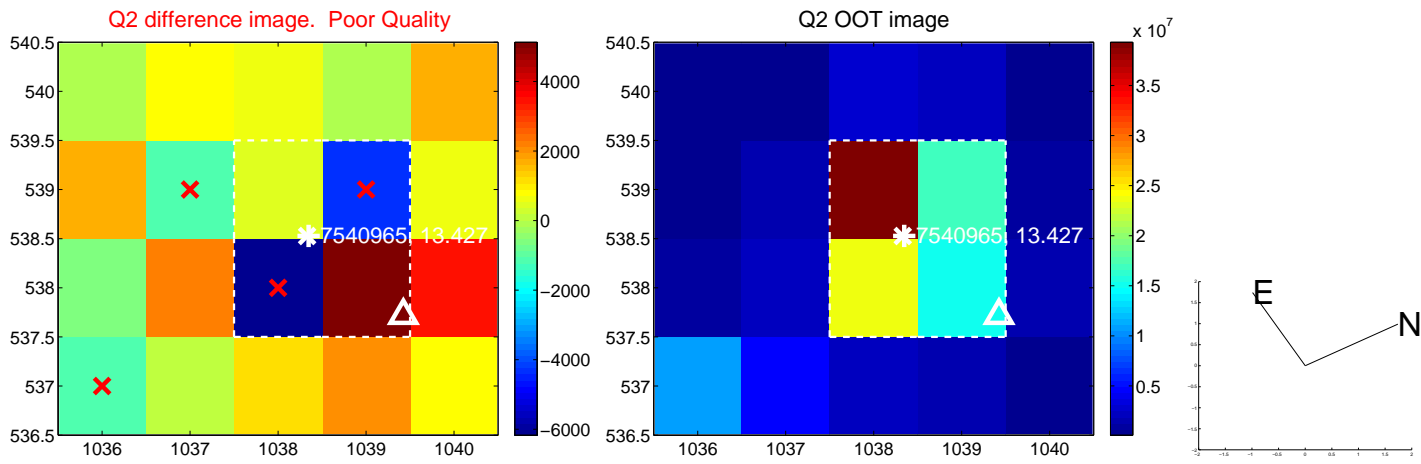
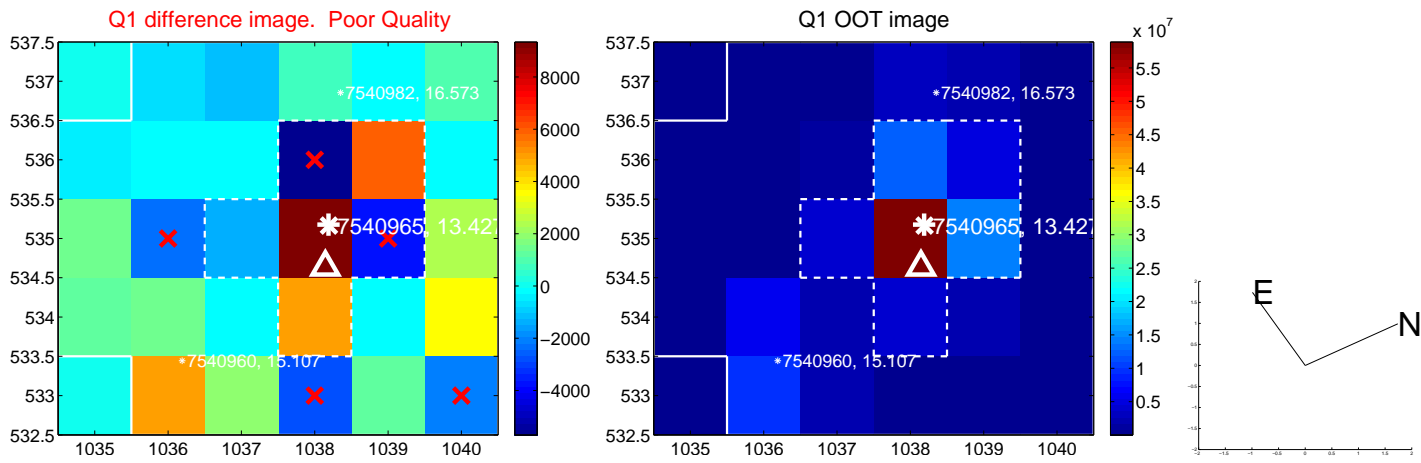
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.924 ± 1.307	0.71	0.904 ± 1.316	-0.193 ± 1.107
PRF-fit source offset from KIC position	0.945 ± 1.313	0.72	0.938 ± 1.316	-0.115 ± 1.107
photometric centroid source offset	1.81 ± 1.56	1.16	0.24 ± 1.11	-1.79 ± 1.57

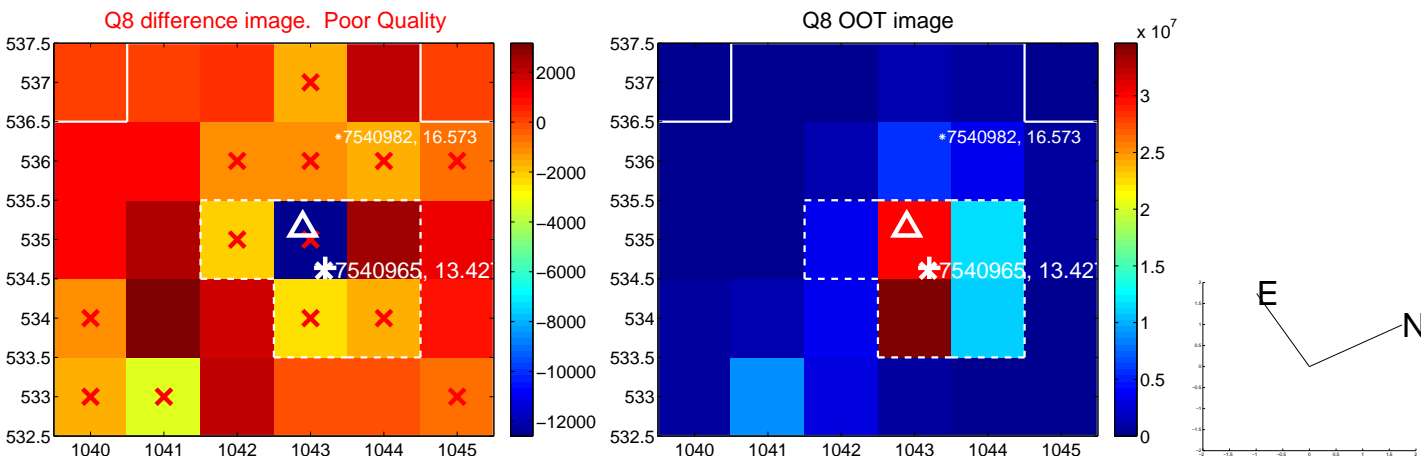
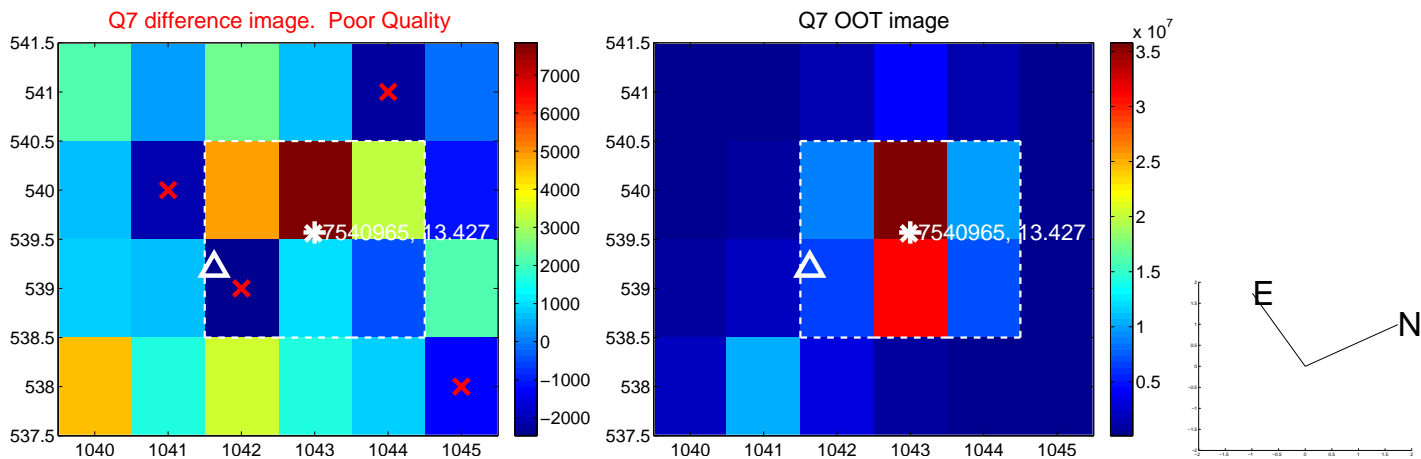
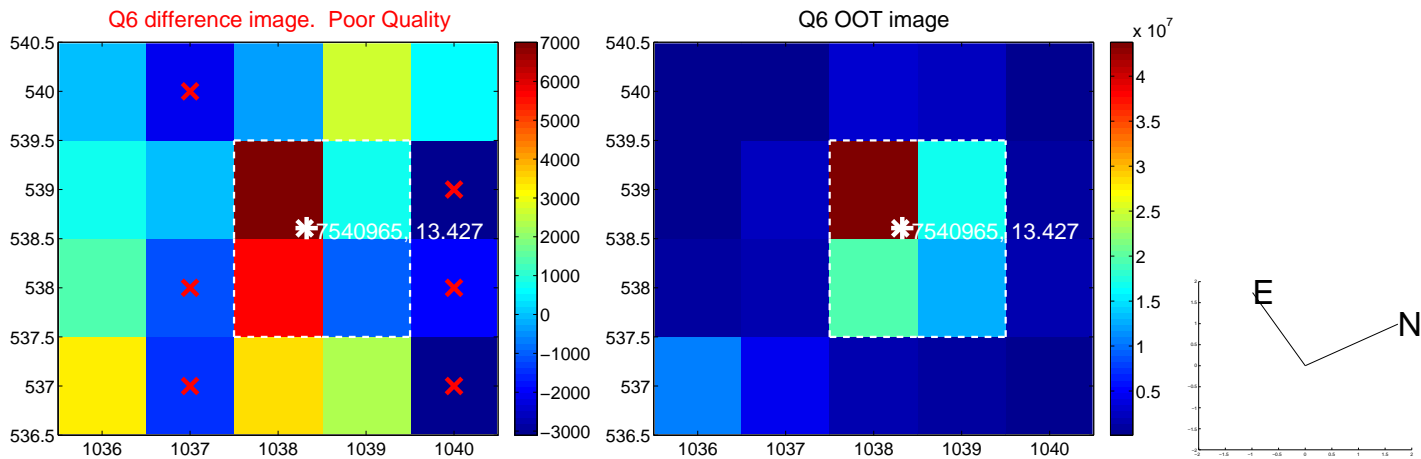
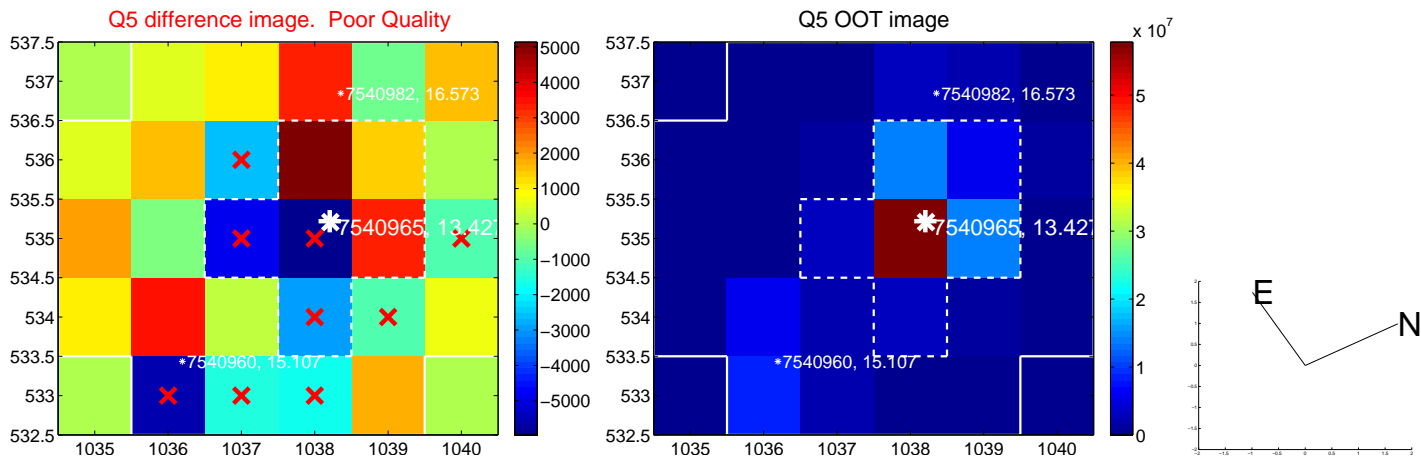


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

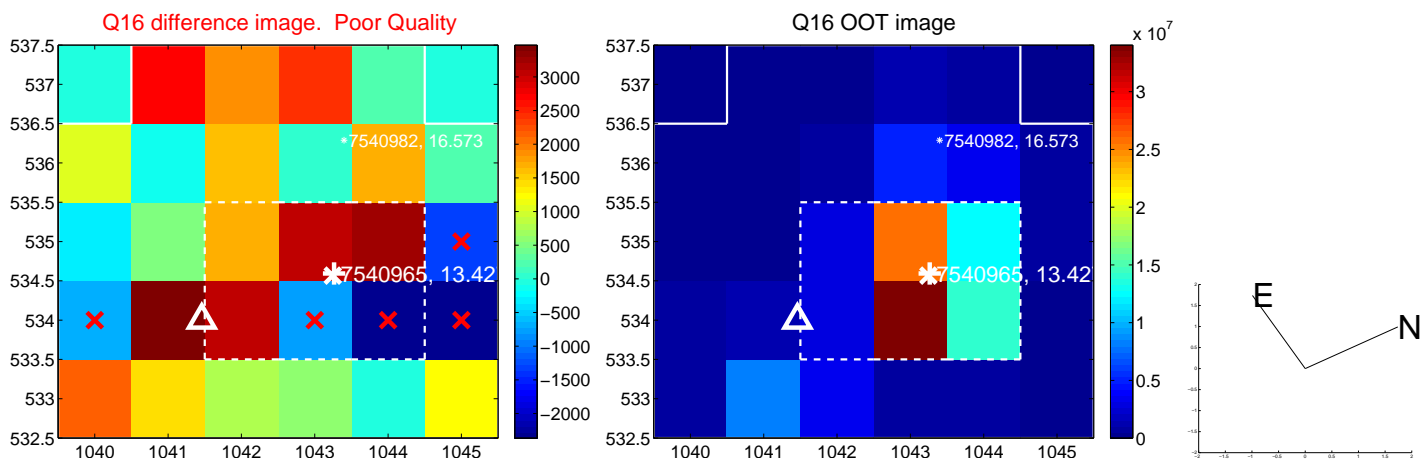
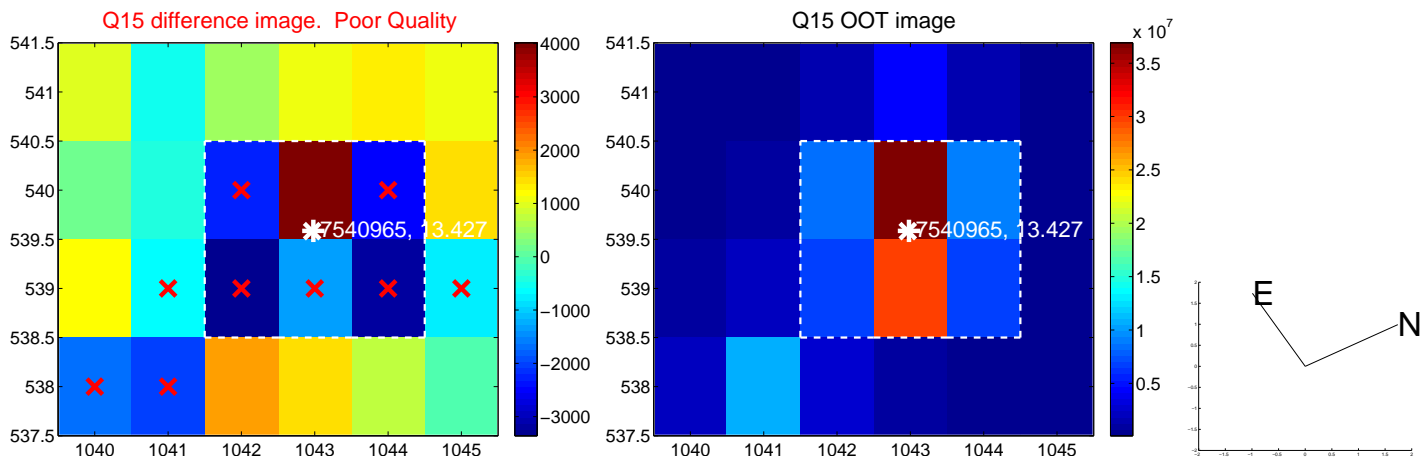
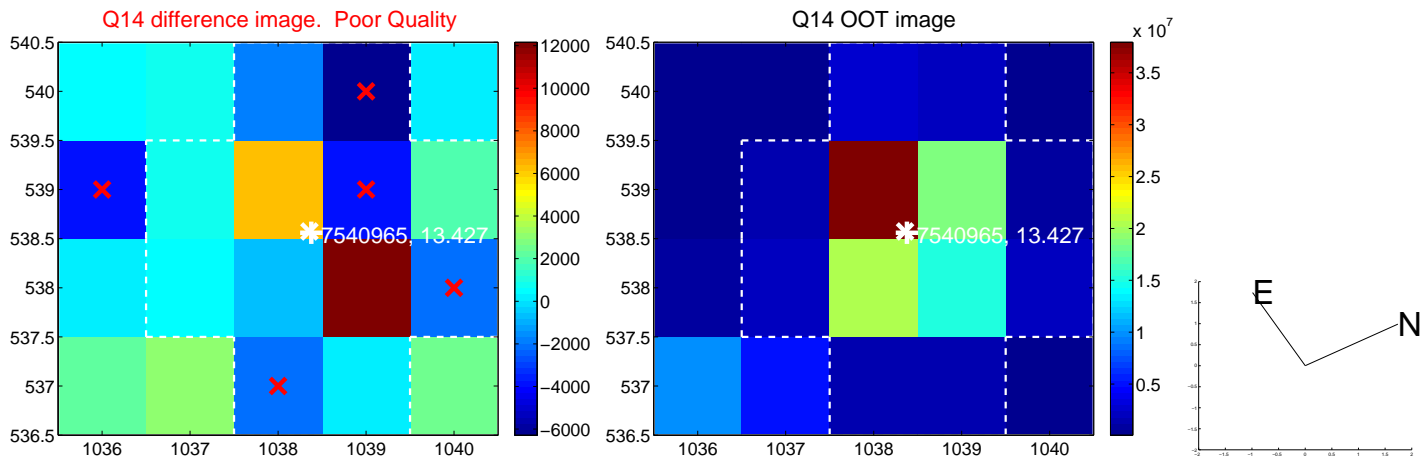
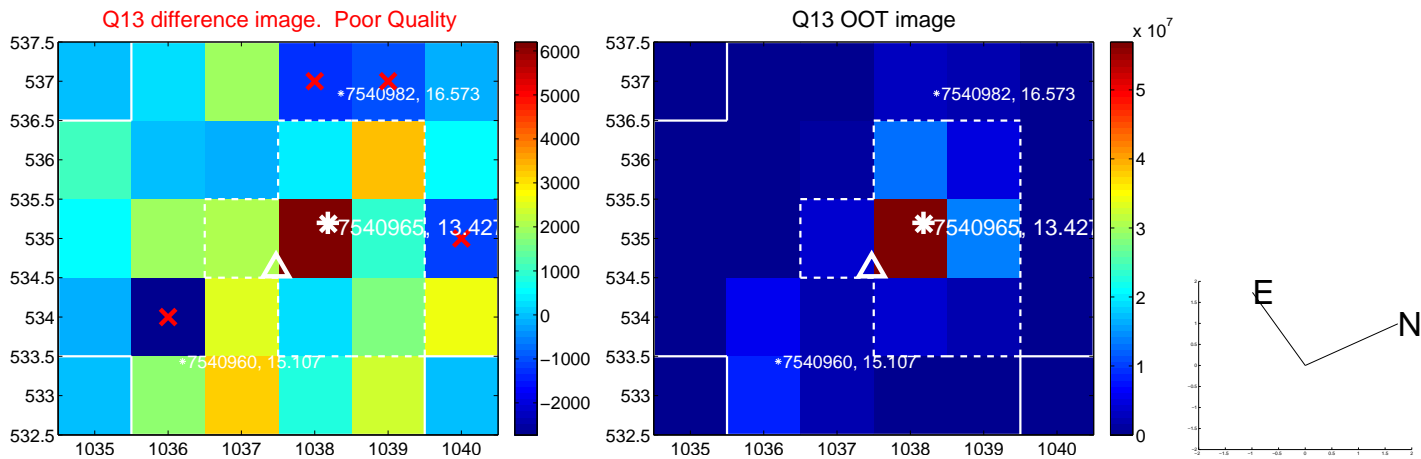
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



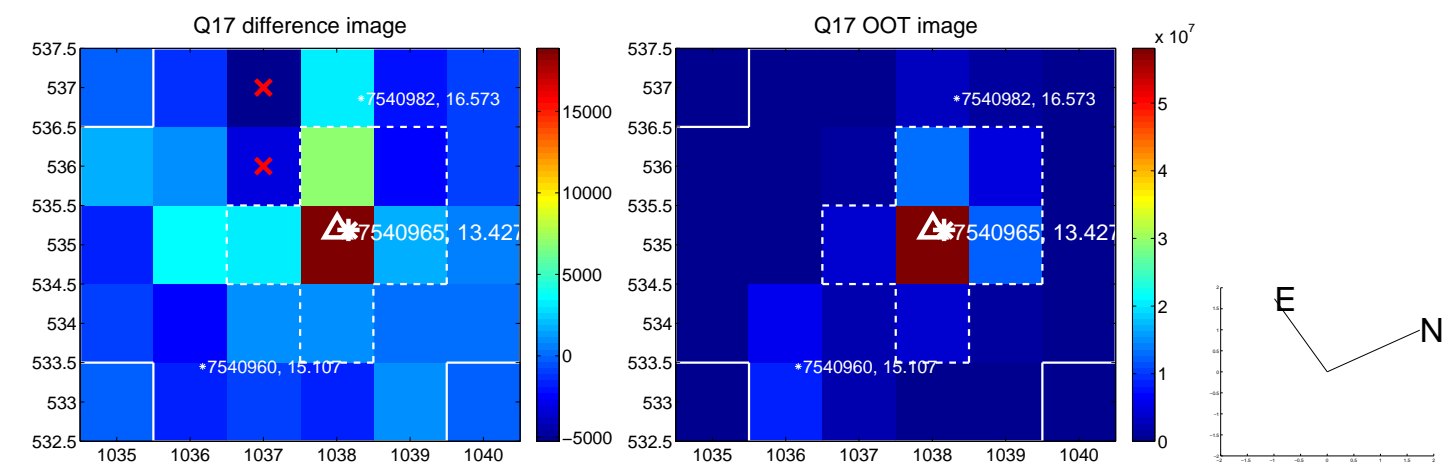
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



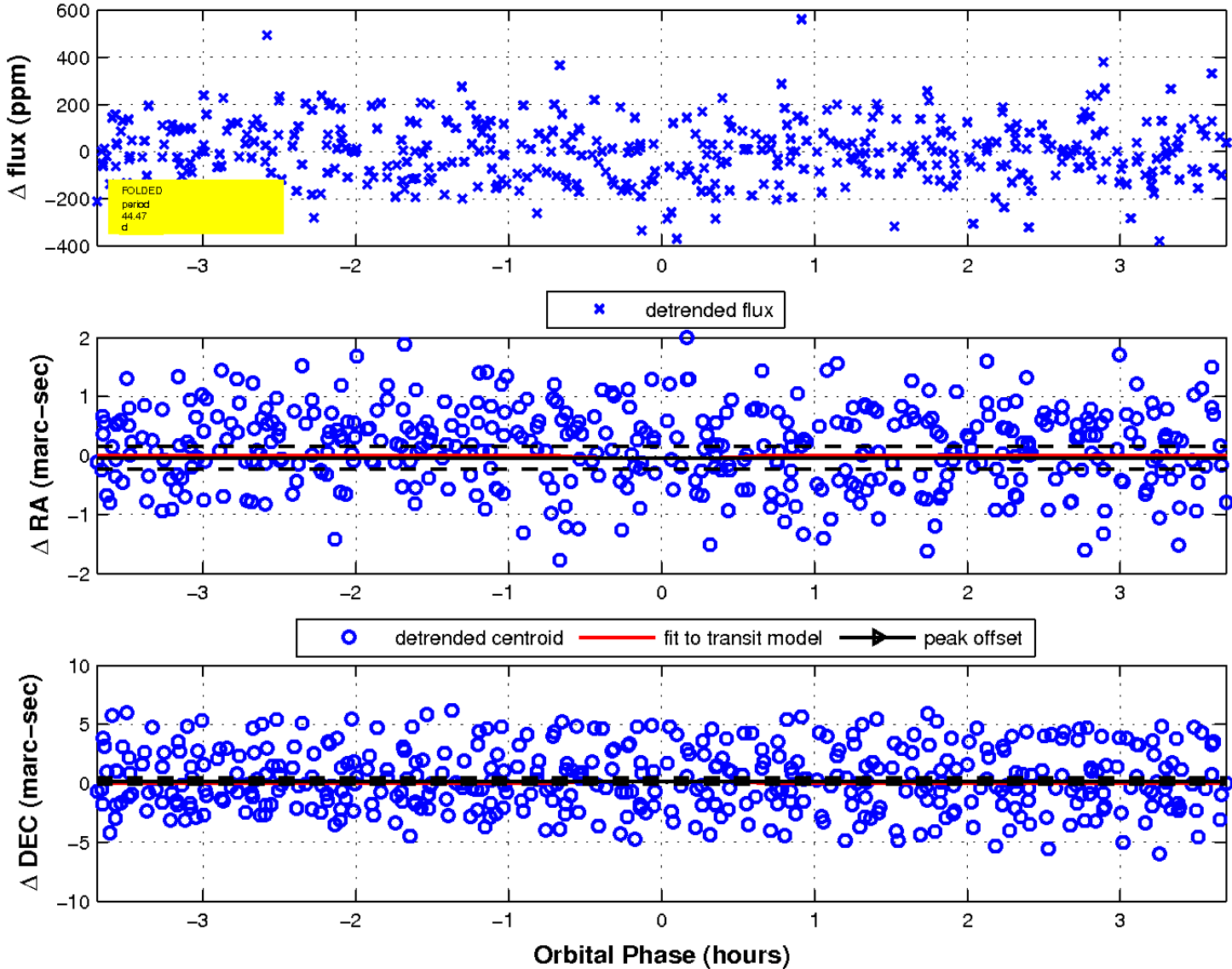
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

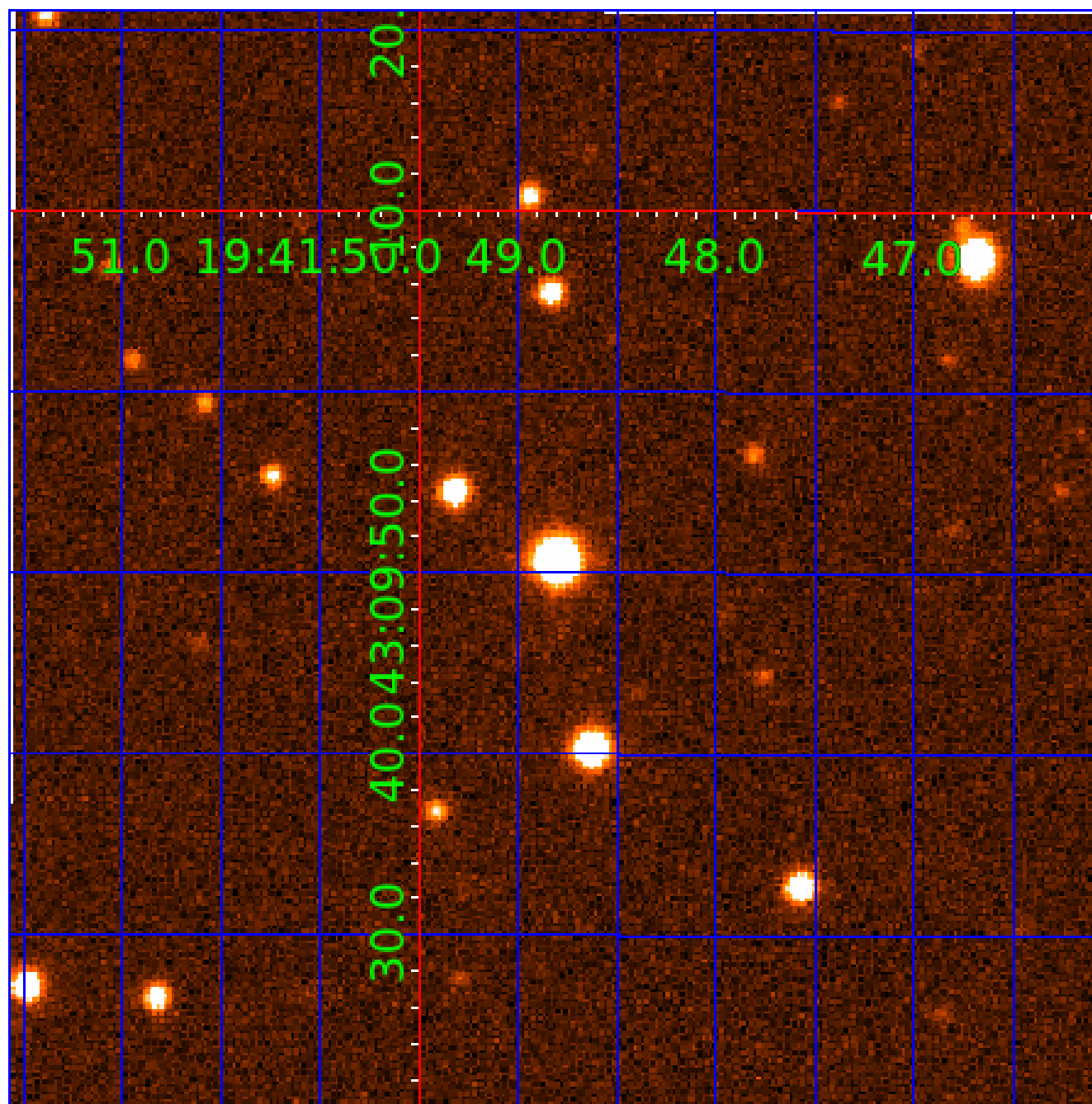


fluxWeightedCentroids, Planet 3 of 4



UKIRT Image

Declination



KIC 007540965

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})
007540965-01	OBS	No	0.970717	132.248527	12.4	5.435	10.9	10.2	2.70	7507	1.06	36129.94
007540965-02	OBS	No	102.032516	176.438612	183.5	1.996	8.5	7.3	2.70	7507	4.16	72.83
007540965-03	OBS	No	44.465528	143.417182	173.8	1.233	7.8	8.0	2.70	7507	3.70	220.44
007540965-04	OBS	No	73.177398	169.812584	125.2	4.595	7.2	7.2	2.70	7507	3.47	113.45

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007540965-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT
007540965-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_MEAS
007540965-03	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
007540965-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

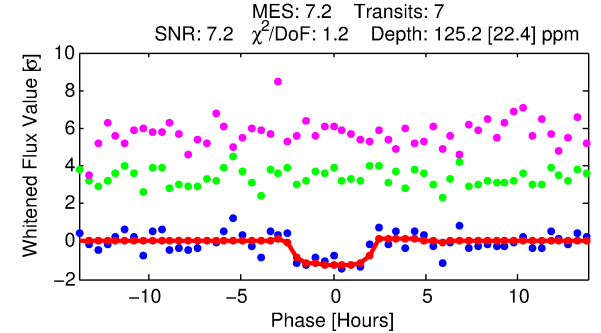
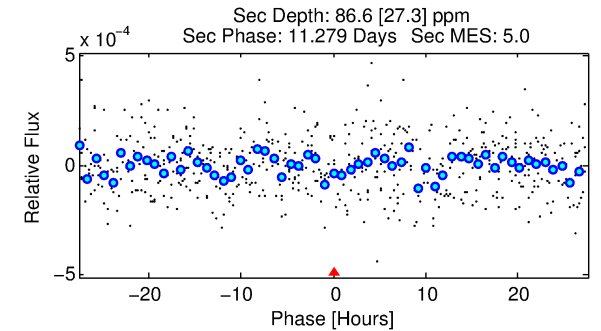
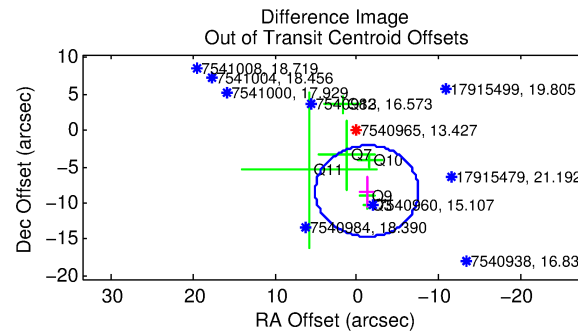
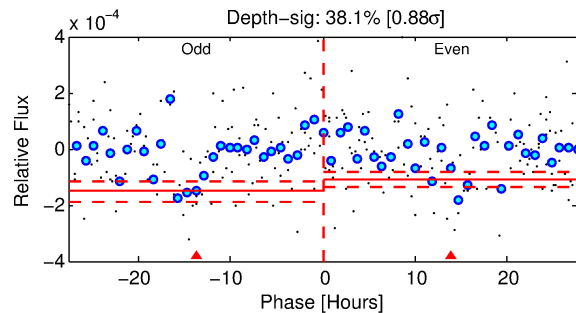
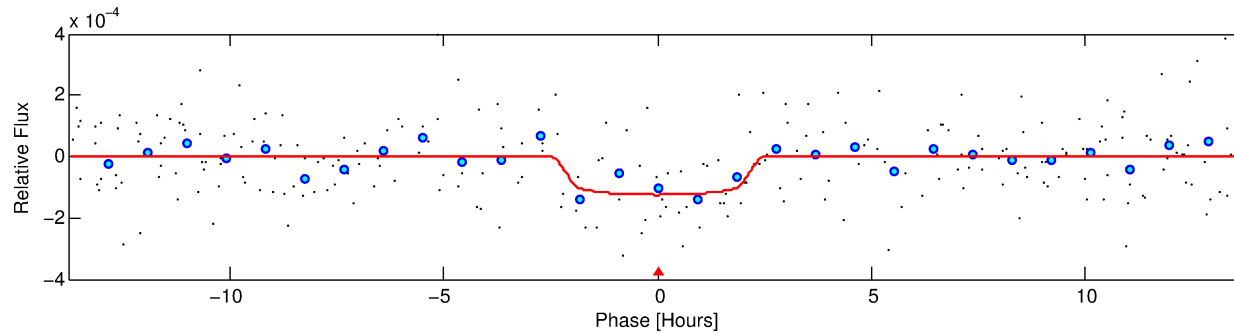
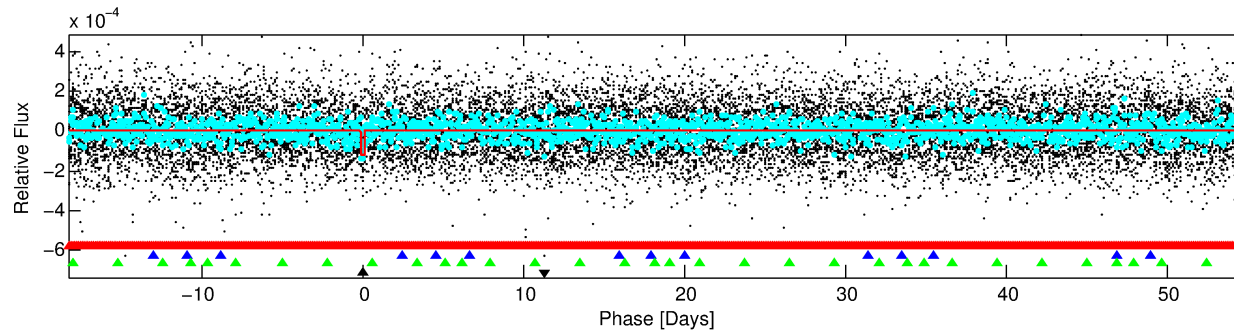
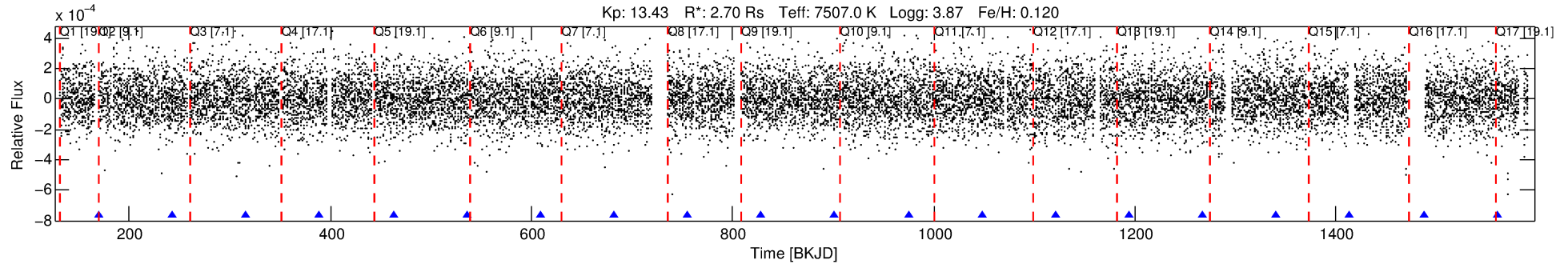
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007540965-04

No Significant Match Found

DV One-Page Summary

KIC: 7540965 Candidate: 4 of 4 Period: 73.177 d



DV Fit Results:

Period = 73.17740 [0.00174] d
Epoch = 169.8126 [0.0185] BKJD
Rp/R* = 0.0118 [0.0066]
a/R* = 58.97 [209.87]
b = 0.89 [0.85]
Seff = 113.45 [60.11]
Teq = 832 [110] K
Rp = 3.47 [2.29] Re
a = 0.4281 [0.1376] AU
Ag = 723.26 [914.92] [0.79 σ]
Teffp = 6673 [1962] K [2.97 σ]

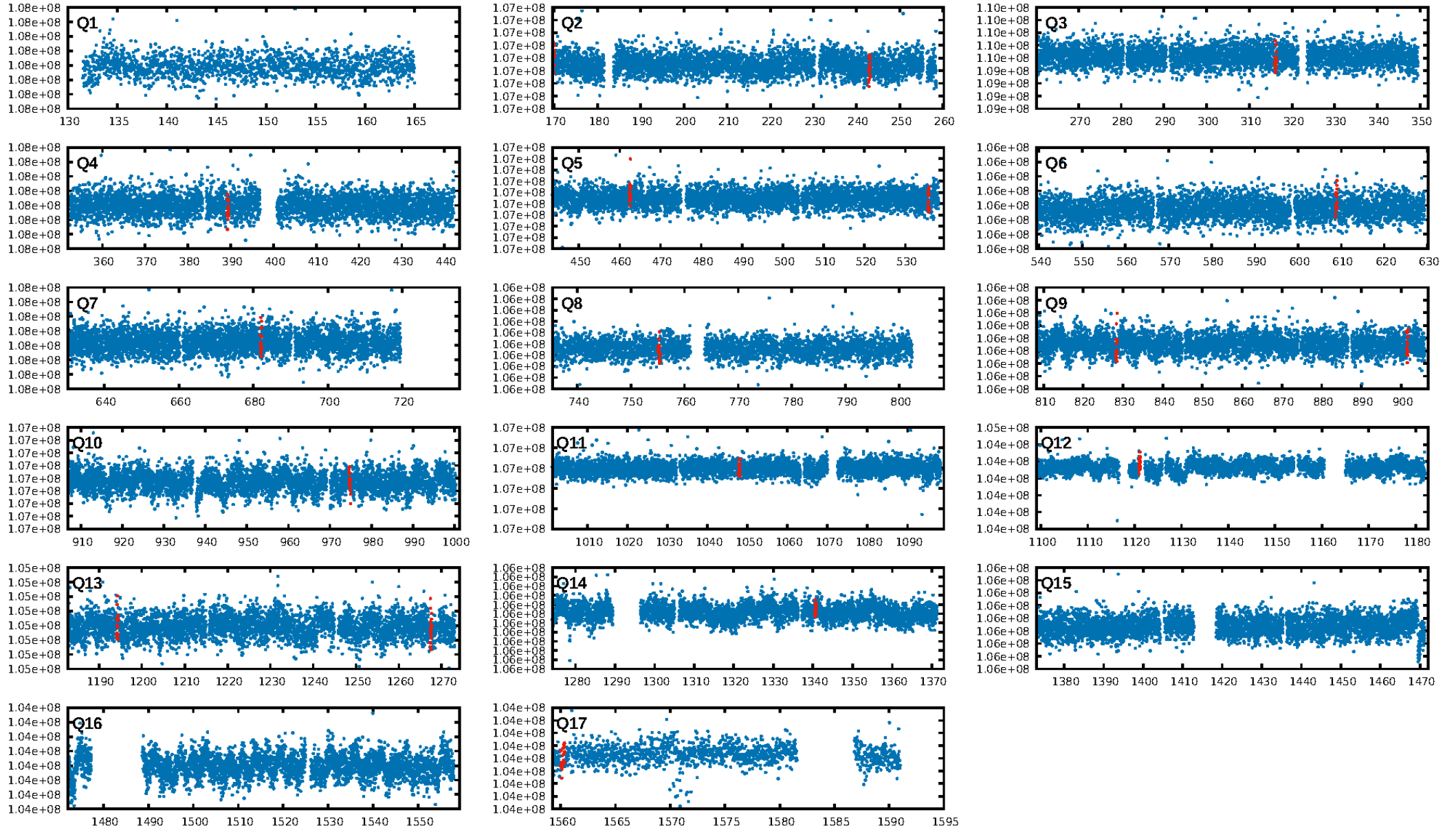
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [144.85 σ]
LongPeriod-sig: 100.0% [138.25 σ]
ModelChiSquare2-sig: 12.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.42e-09
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -1.31
Centroid-sig: 2.7%
Centroid-so: 2.274 arcsec [1.90 σ]
OotOffset-rm: 8.455 arcsec [4.04 σ]
KicOffset-rm: 8.390 arcsec [4.13 σ]
OotOffset-st: 1/3/0/2 [6]
KicOffset-st: 1/3/0/2 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.00 [0/12]

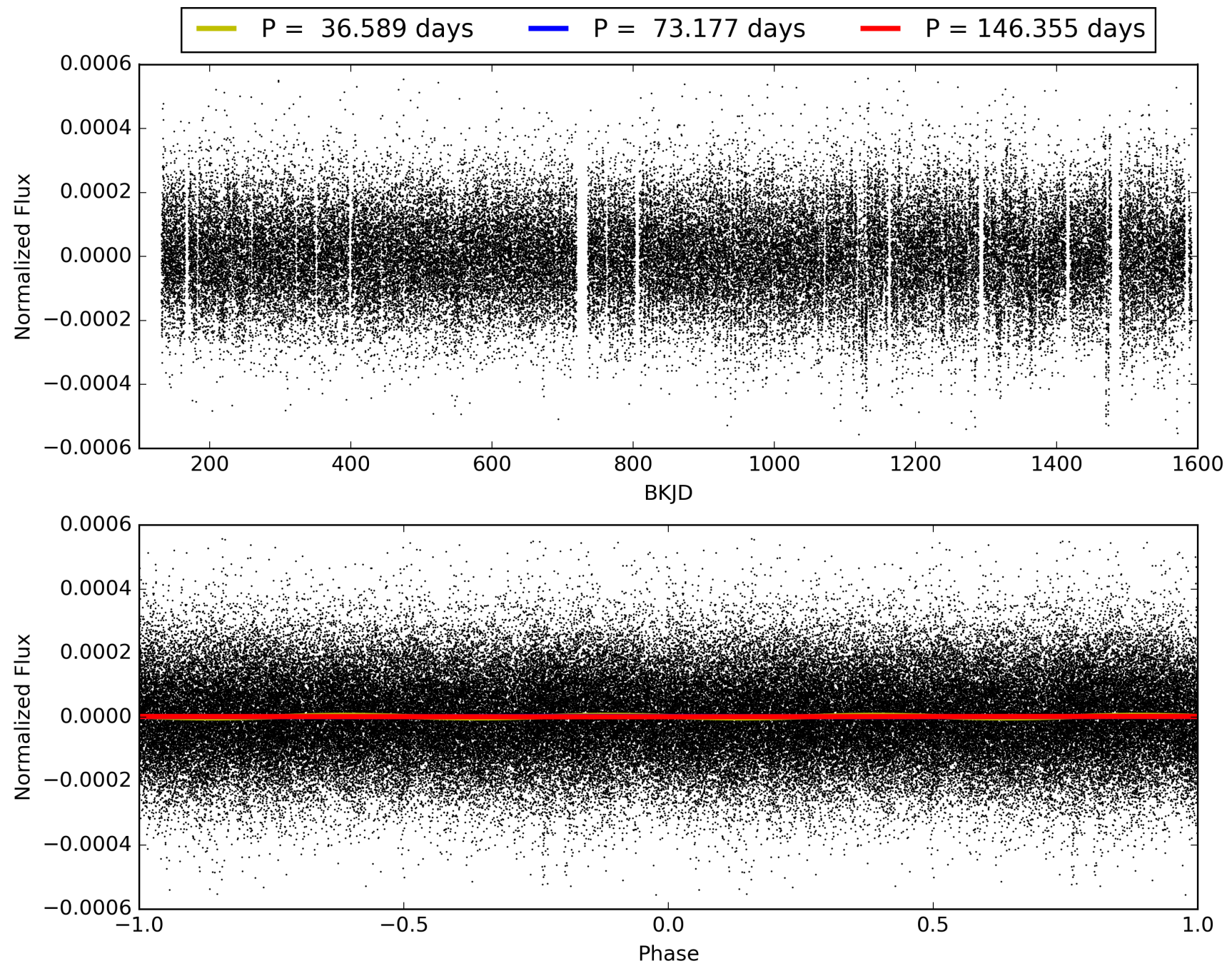
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:52:30 Z

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

TCE 007540965-04, PDC Light Curves

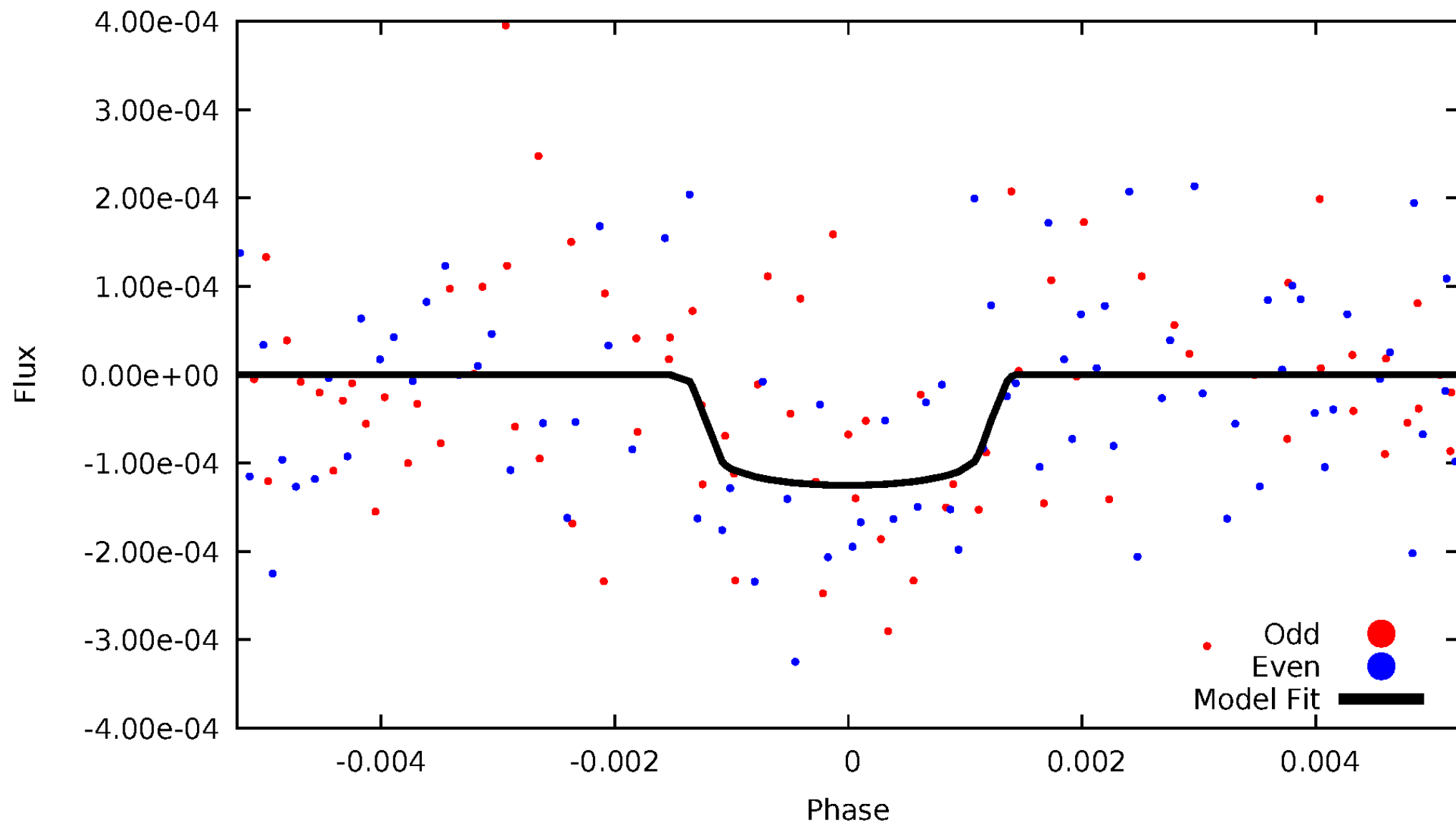


TCE 007540965-04



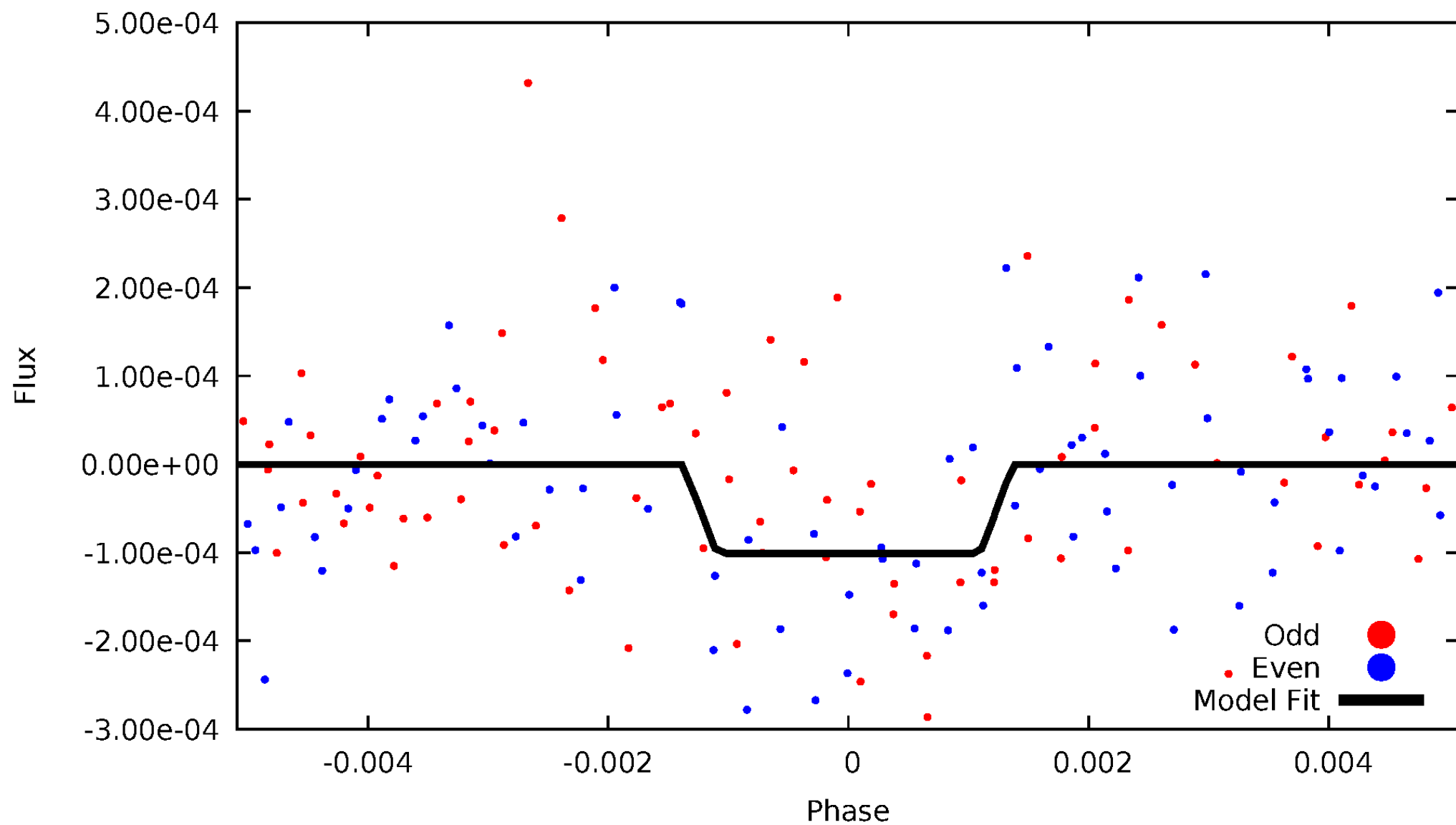
DV Odd/Even

TCE 007540965-04



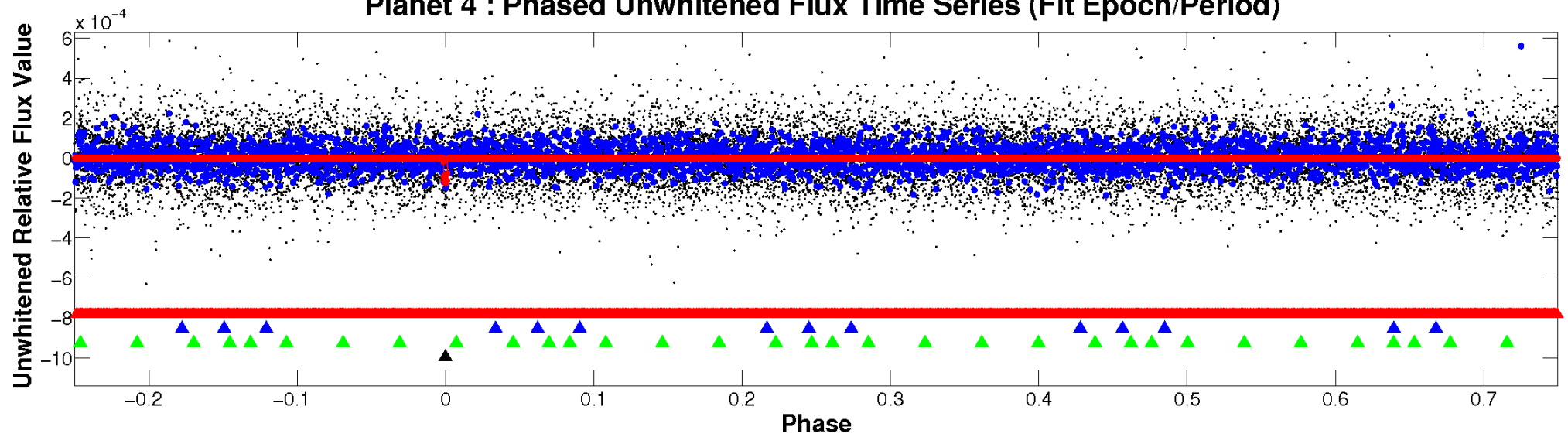
ALT Odd/Even

TCE 007540965-04

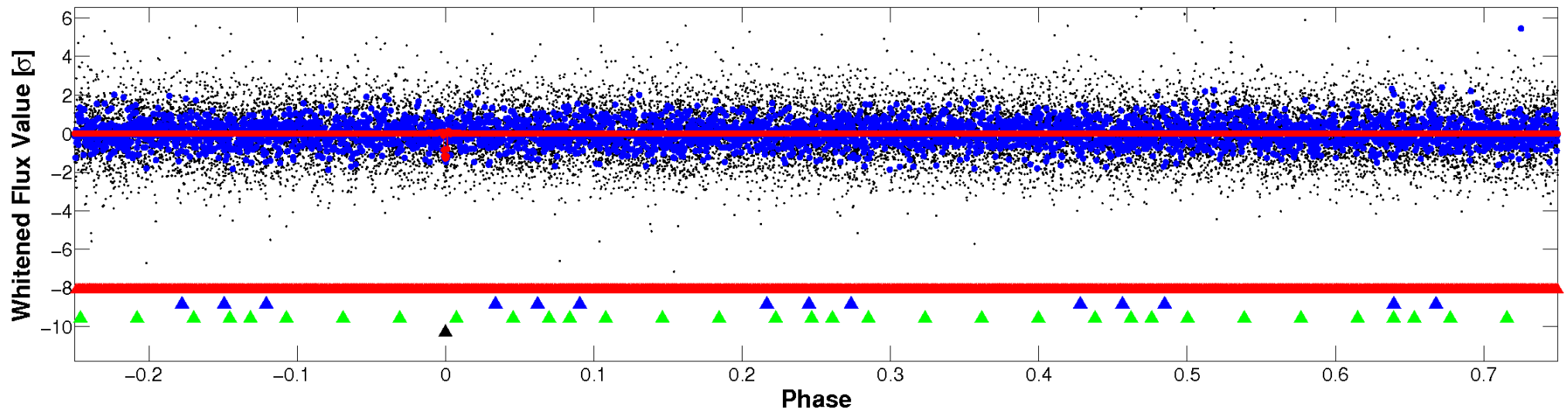


Non-Whitened Vs. Whitened Light Curve

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

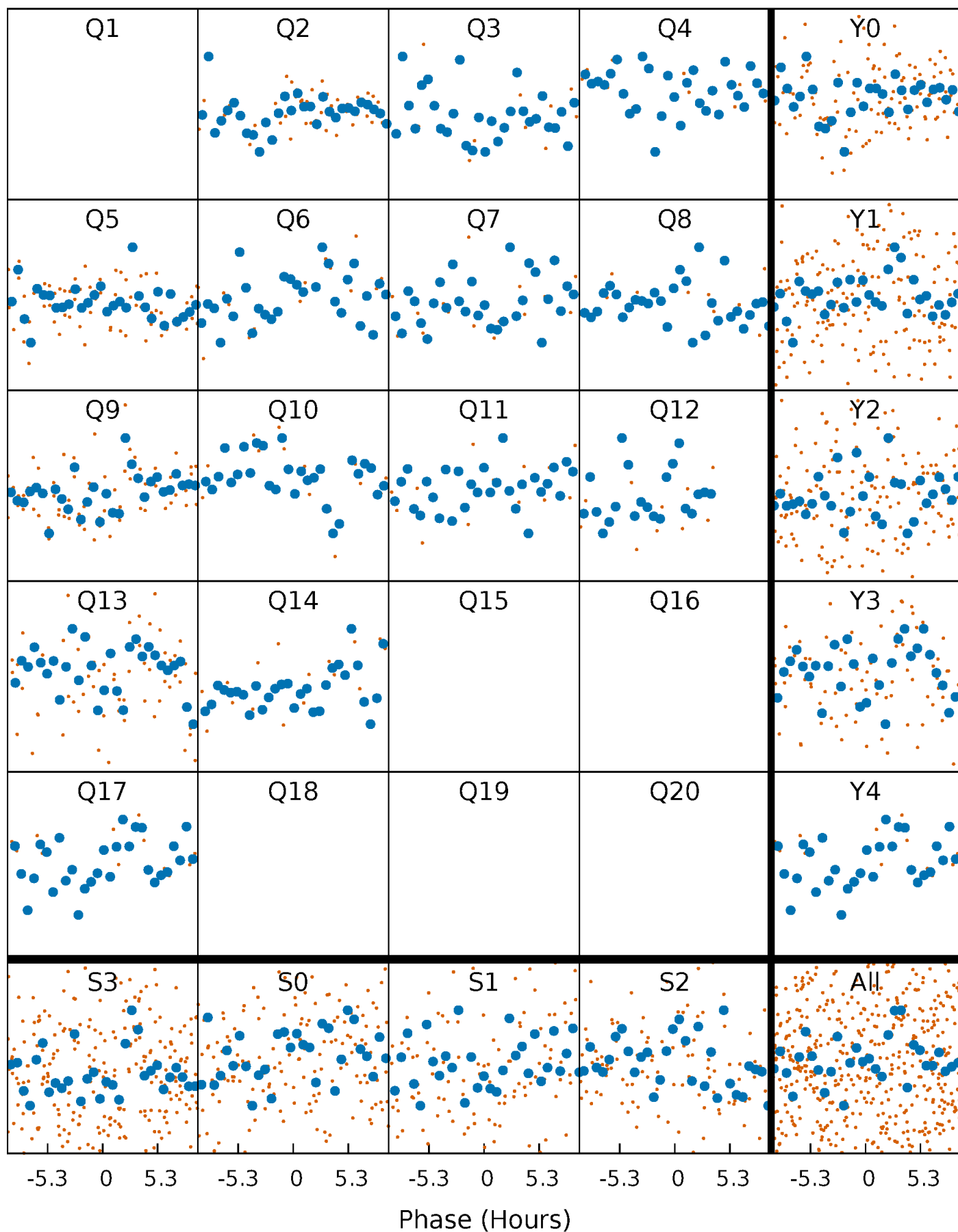


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



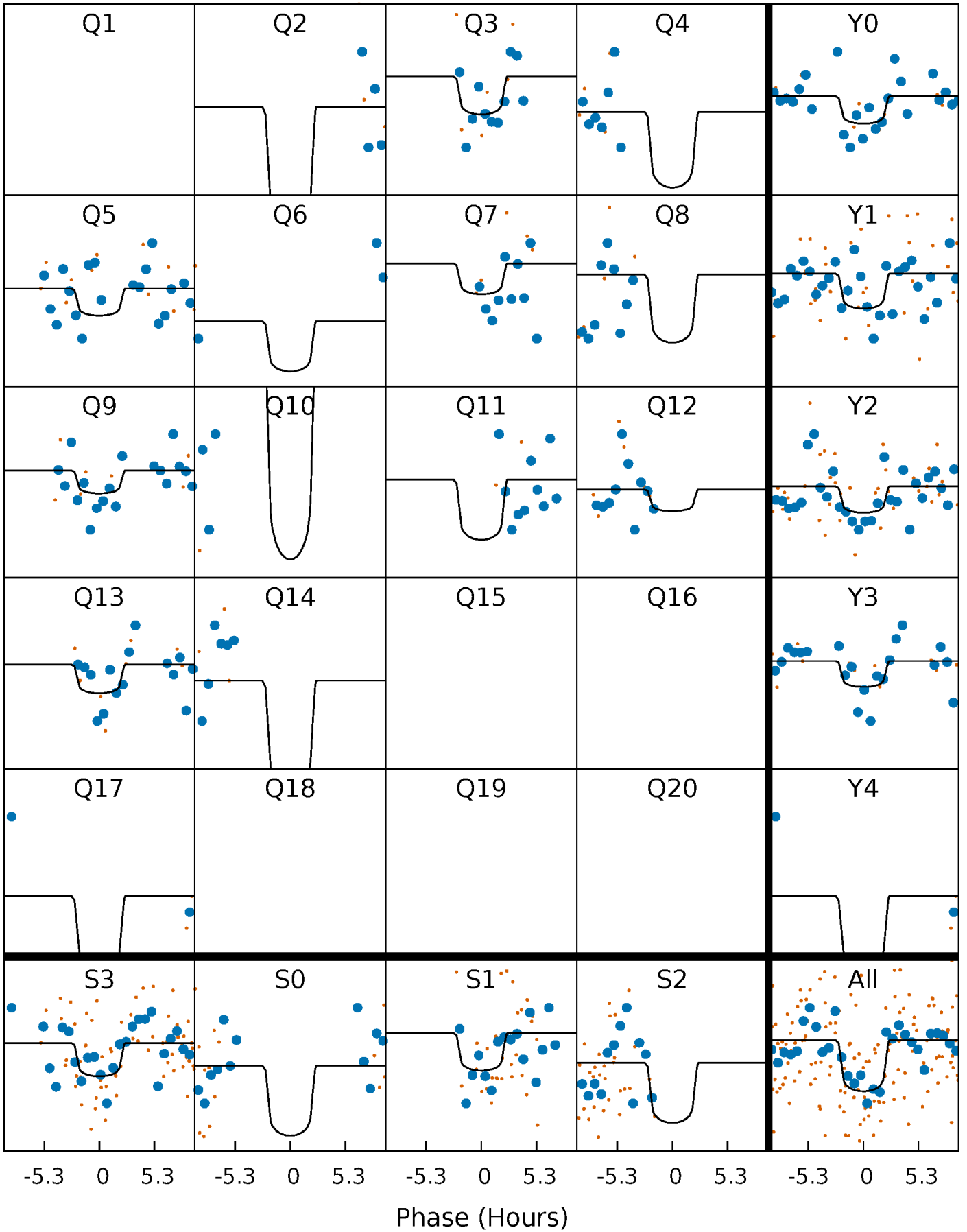
PDC Quarter-Phased Transit Curves

TCE 007540965-04 P= 73.177398 Days $T_0=169.812584$ (BKJD)



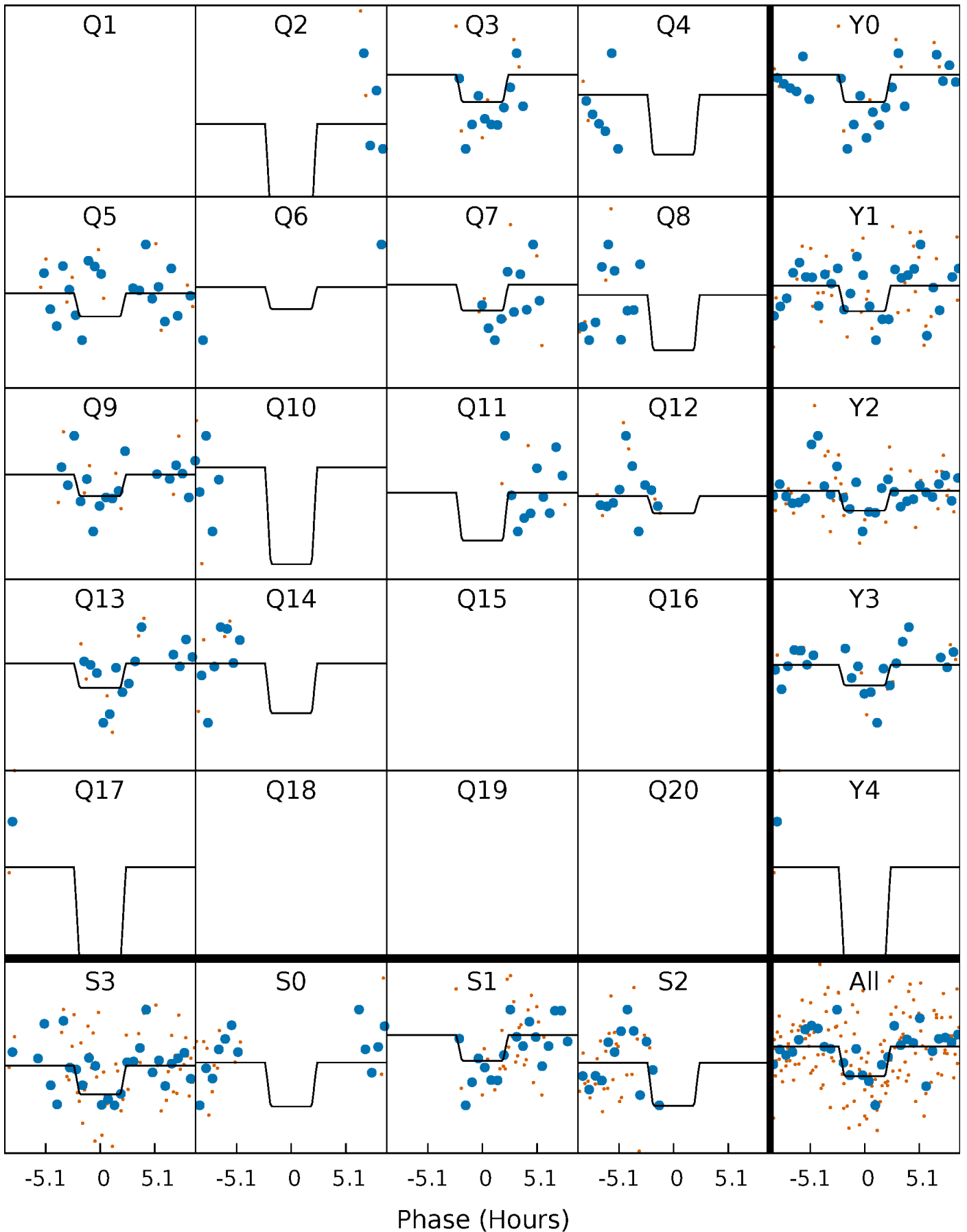
DV Quarter-Phased Transit Curves

TCE 007540965-04 P= 73.177398 Days $T_0=169.812584$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

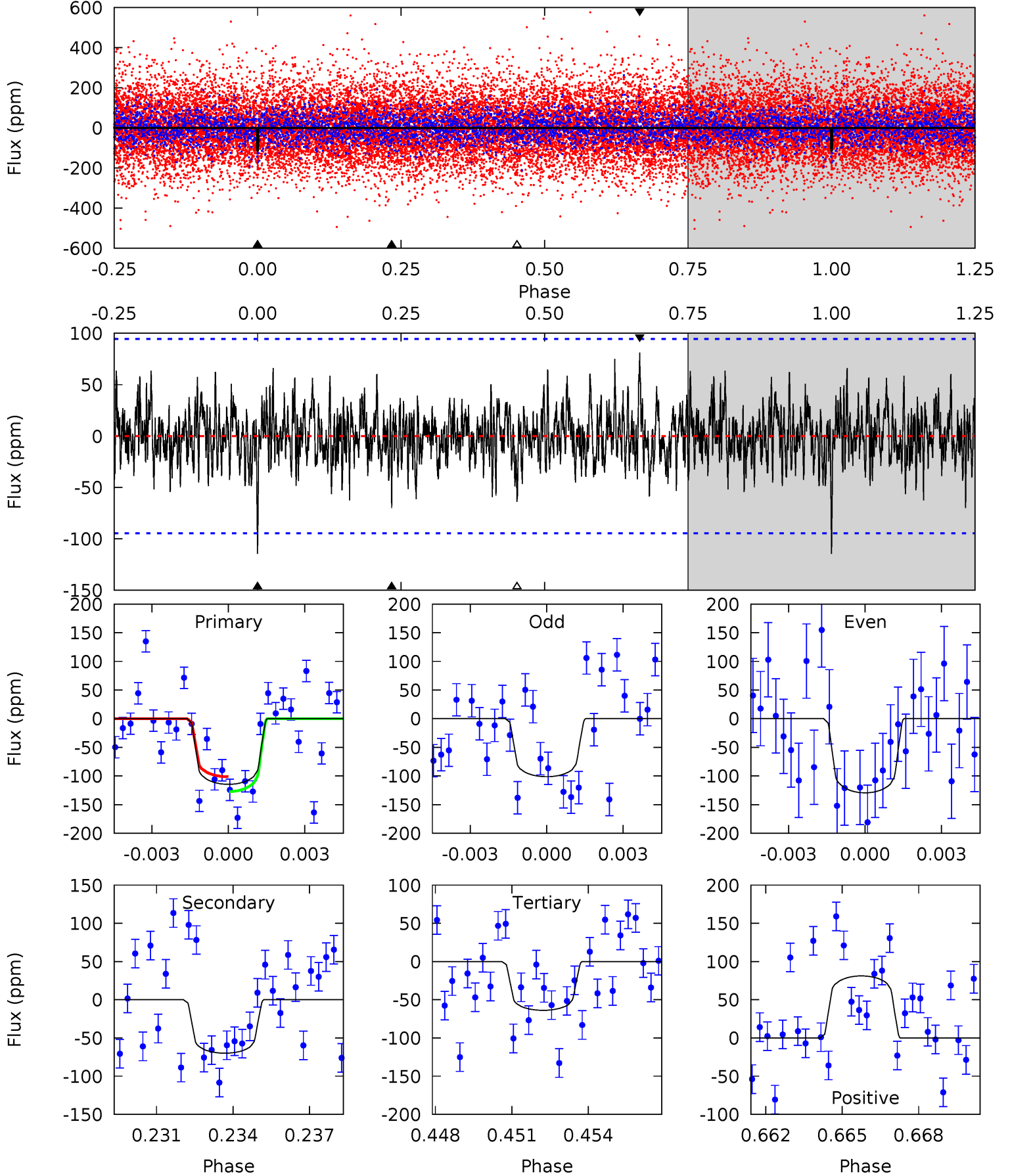
TCE 007540965-04 P= 73.175354 Days $T_0=169.819821$ (BKJD)



DV Model-Shift Uniqueness Test

007540965-04, P = 73.177398 Days, E = 96.635186 Days

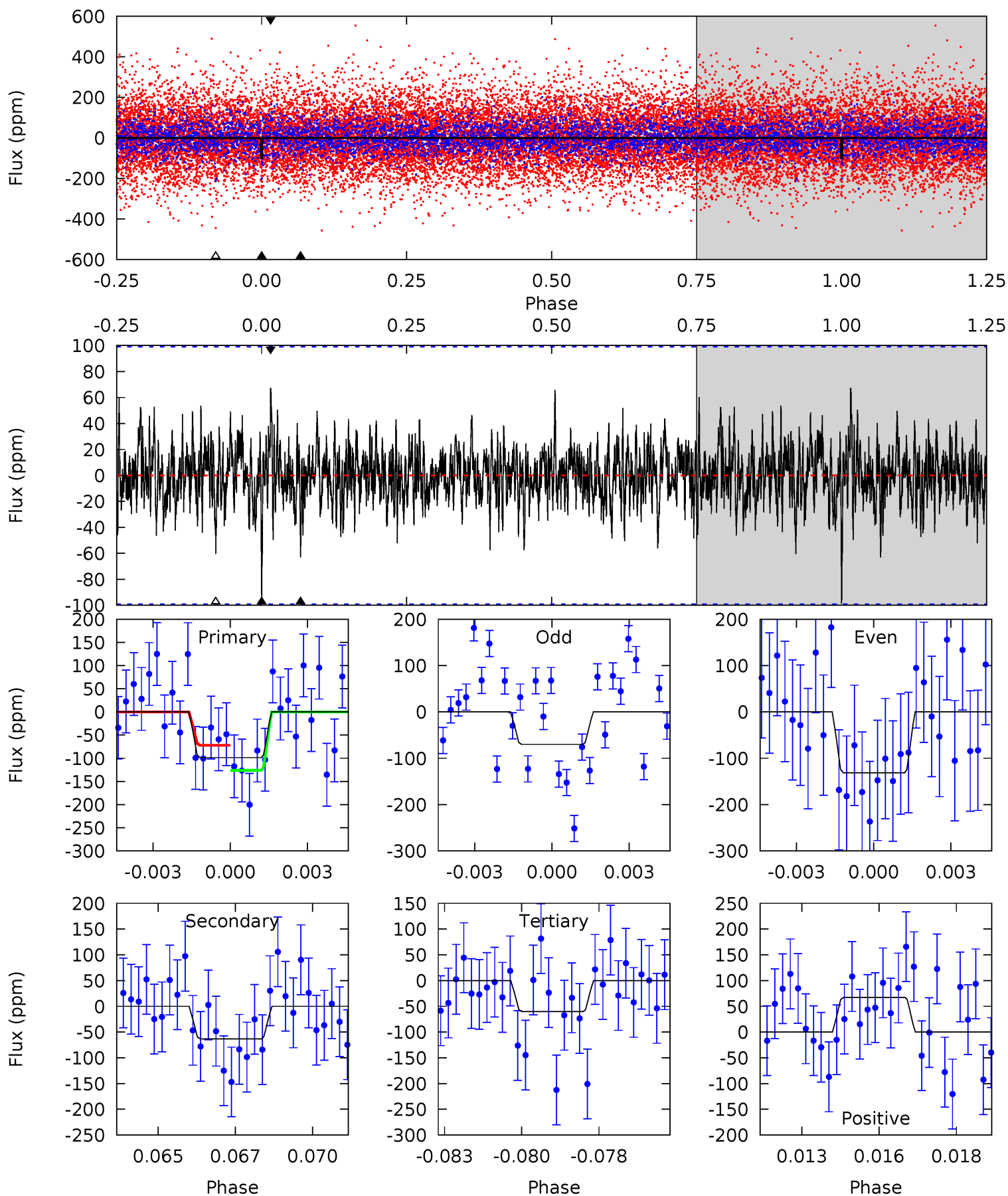
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	3.89	3.55	4.52	5.26	2.99	1.19	2.82	1.86	0.34	-0.63	0.78	0.68	0.41	0.72



Alt Model-Shift Uniqueness Test

007540965-04, P = 73.175354 Days, E = 96.644467 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.25	3.35	3.22	3.58	5.28	3.01	0.95	2.03	1.67	0.14	-0.23	1.65	0.72	0.41	1.45



Stellar Parameters For KIC 007540965

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	7507^{+206}_{-335}	$3.865^{+0.287}_{-0.123}$	$0.120^{+0.200}_{-0.350}$	$2.703^{+0.511}_{-0.949}$	$1.952^{+0.105}_{-0.448}$	$0.139^{+0.290}_{-0.050}$
	+3%/-4%	+7%/-3%	+167%/-292%	+19%/-35%	+5%/-23%	+208%/-36%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007540965-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-70 ± 18	$3.35^{+2.18}_{-1.76}$	1137^{+83}_{-105}	5993^{+3317}_{-1103}	587^{+2026}_{-376}
Alt.	-63 ± 19	$2.78^{+2.05}_{-1.52}$	1144^{+83}_{-110}	6390^{+4394}_{-1388}	764^{+2911}_{-529}

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 $A_{obs} \gg 1.0$

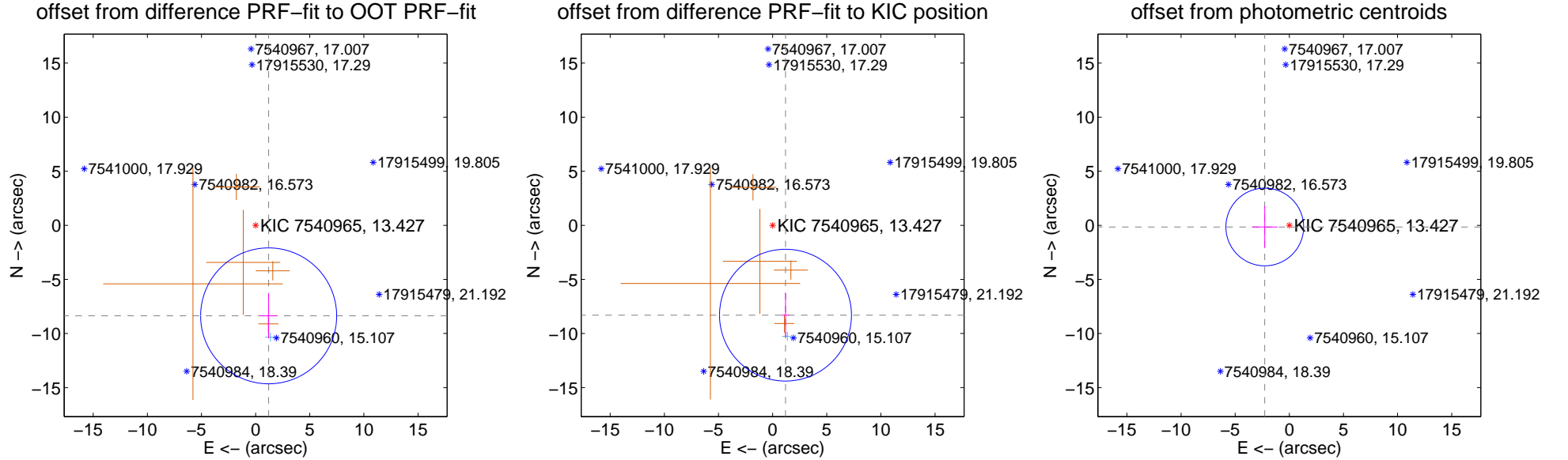
DV Centroid Data

Supplemental centroid analysis for 007540965-04. Kepler magnitude: 13.43. Transit SNR 7.22

There are 1 quarters with good PRF difference image offsets

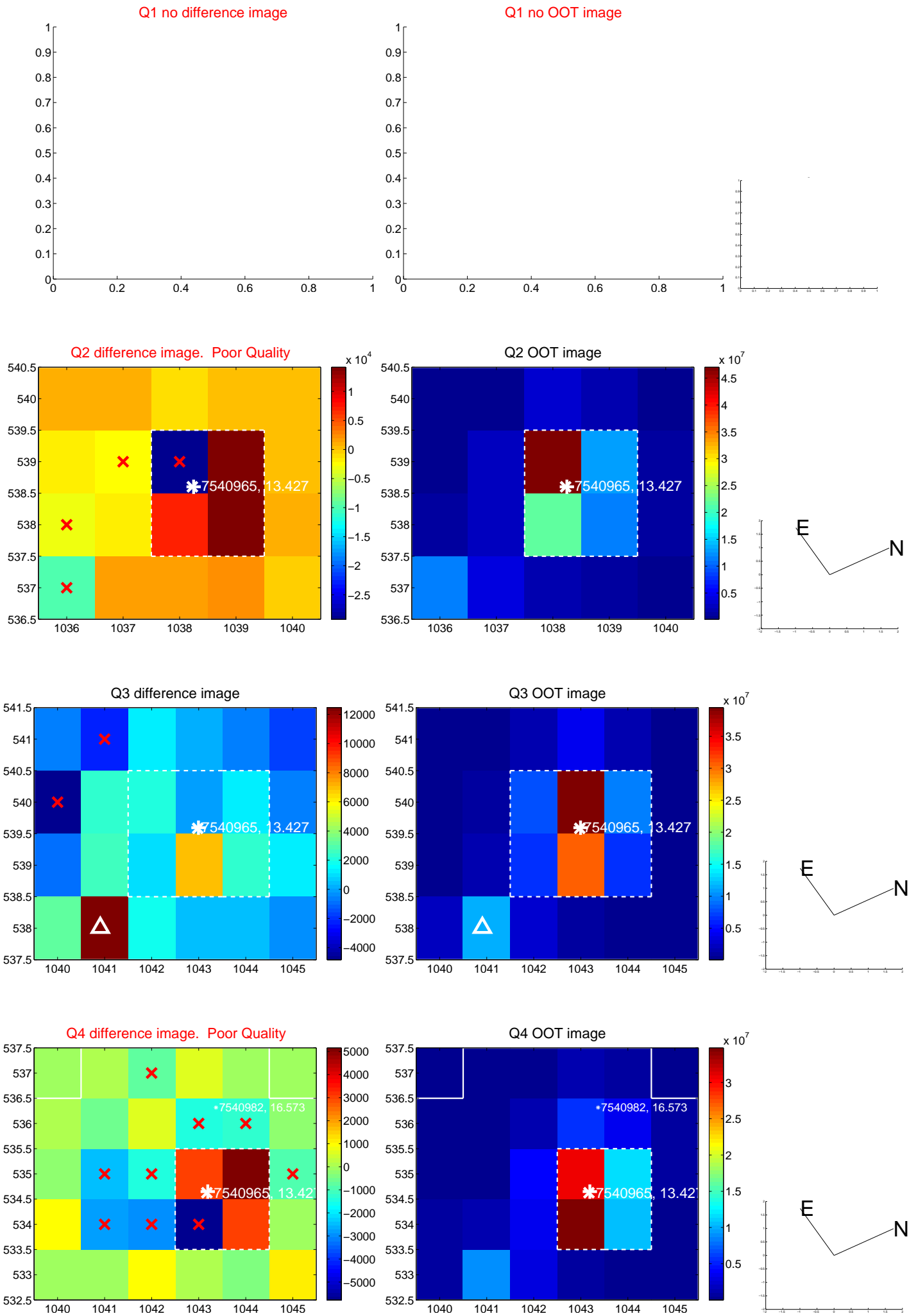
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.455 ± 2.094	4.04	-1.202 ± 0.816	-8.369 ± 2.075
PRF-fit source offset from KIC position	8.390 ± 2.031	4.13	-1.189 ± 0.361	-8.305 ± 2.051
photometric centroid source offset	2.27 ± 1.20	1.90	2.27 ± 1.19	-0.15 ± 1.95

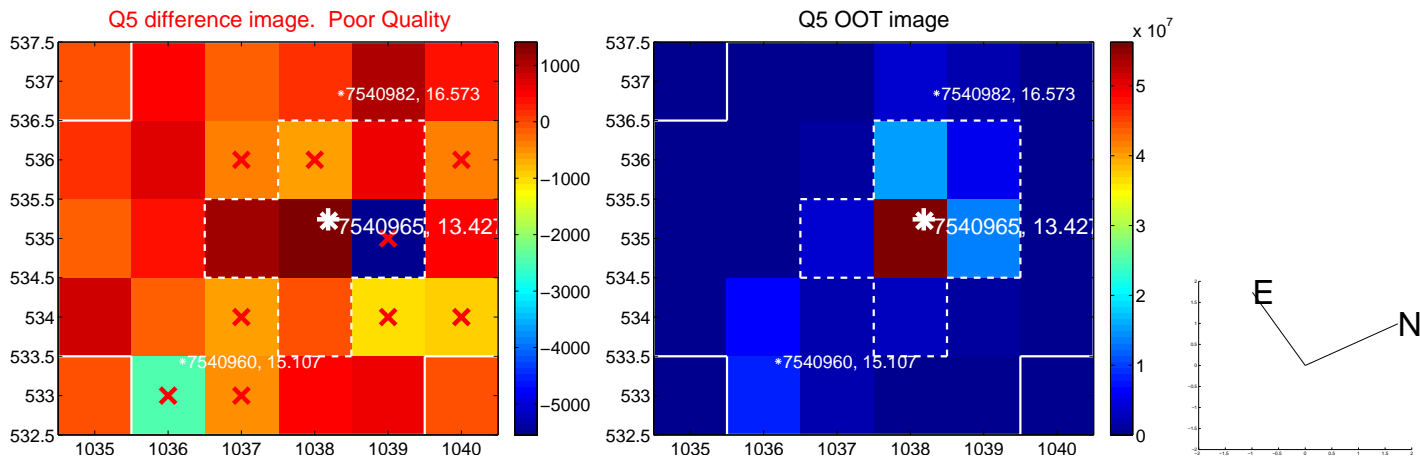


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

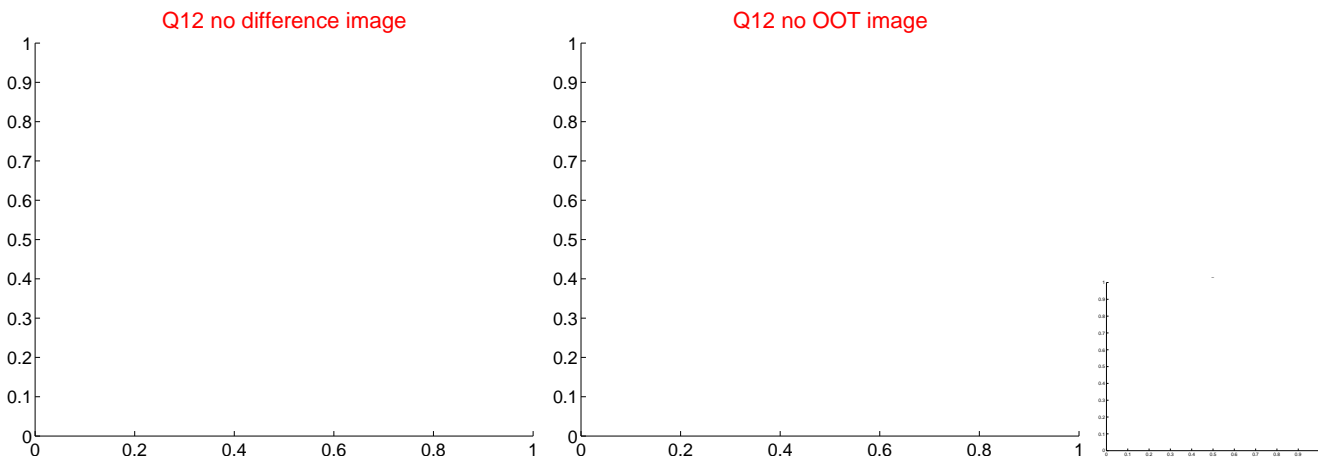
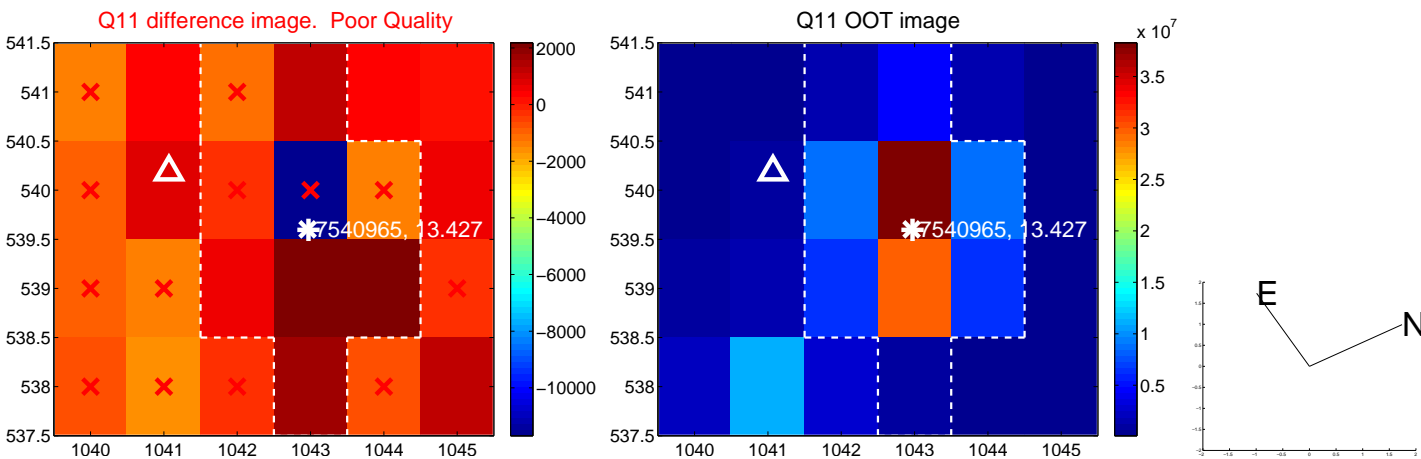
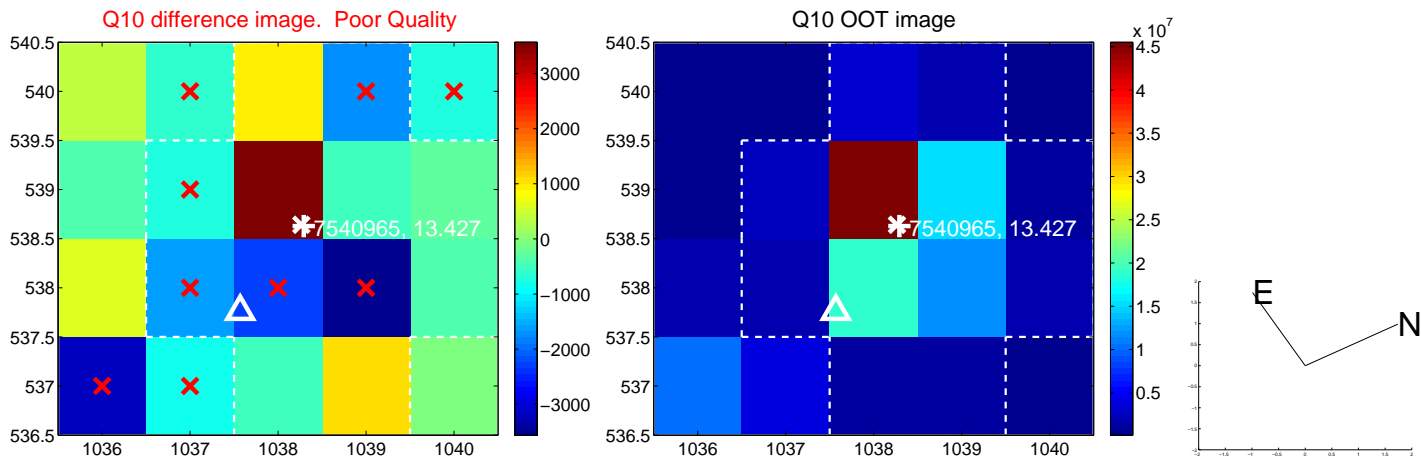
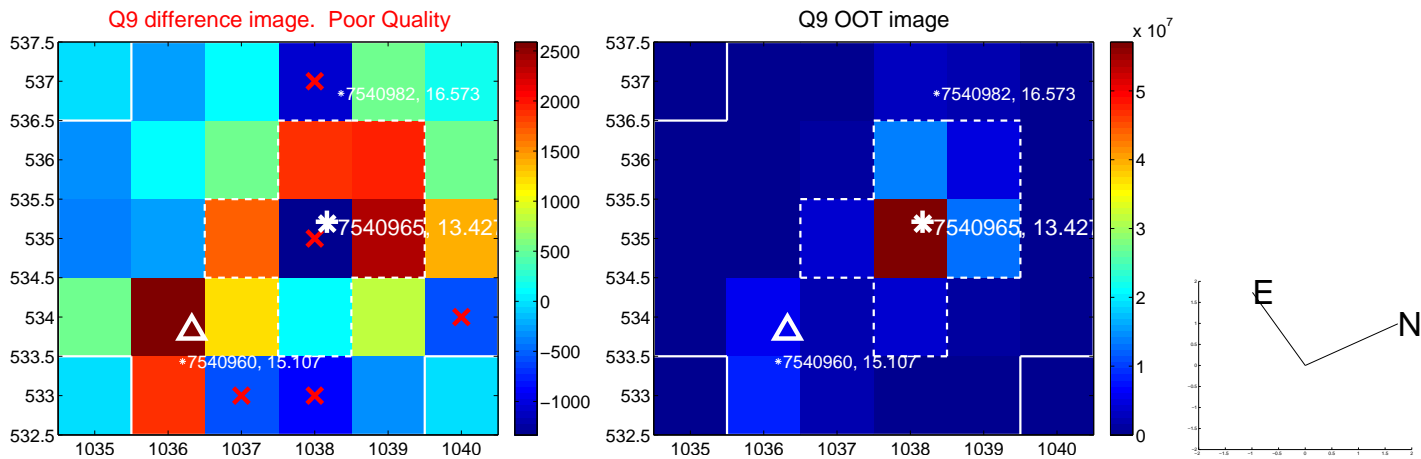
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



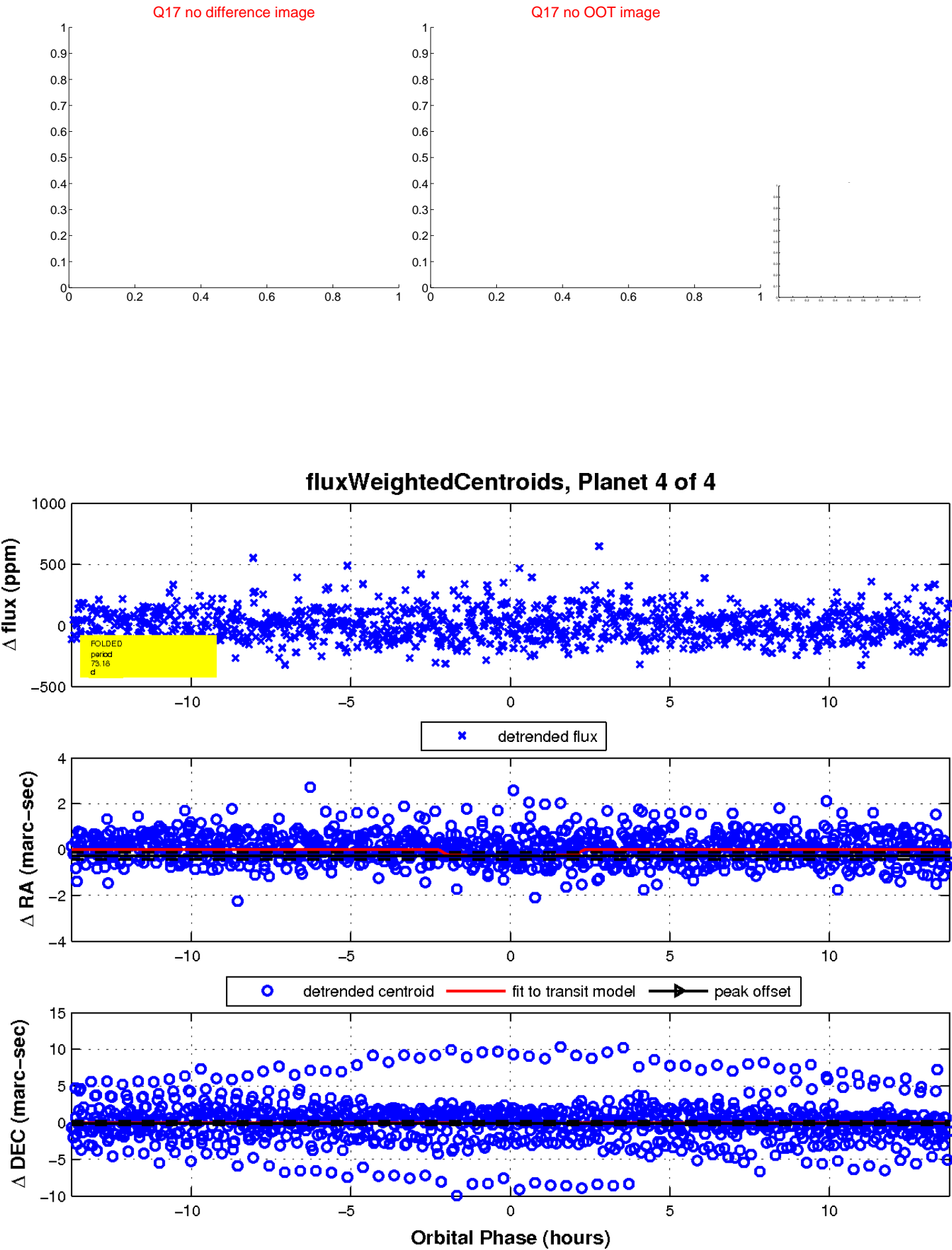
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

