

KIC 004570949

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})
004570949-01	OBS	1658.01	1.544930	132.003445	5656.4	1.405	1154.7	1156.8	1.41	6309	12.65	3767.74
004570949-02	OBS	No	0.772472	132.001966	74.4	1.023	14.8	16.5	1.41	6309	1.42	9494.00
004570949-03	OBS	No	1.544998	131.973597	45.9	16.587	11.9	17.5	1.41	6309	0.99	3767.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004570949-01	OBS	PC	1.00	0	1	0	0	MOD_SEC_DV—PLANET_OCCULT_DV—HAS_SEC_TCE
004570949-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—EPHEM_MATCH
004570949-03	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—RESIDUAL_TCE—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH

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.

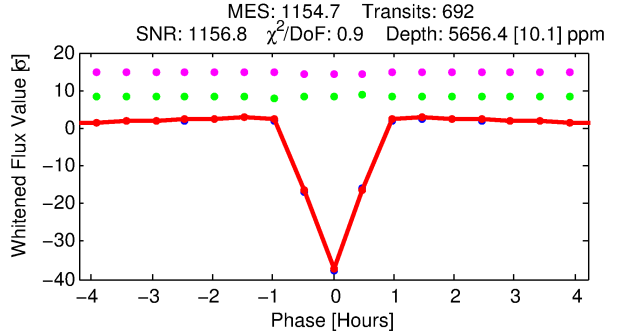
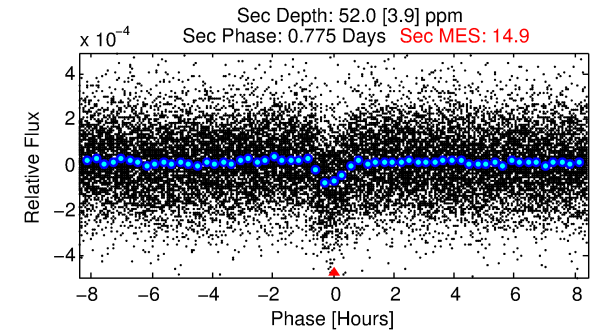
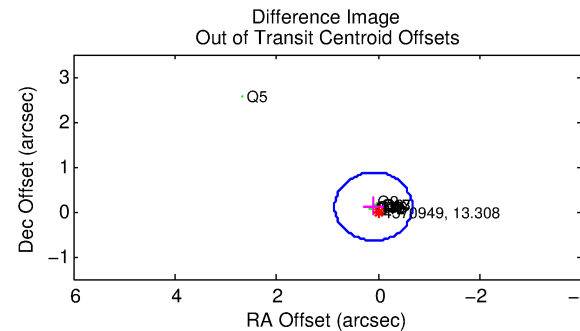
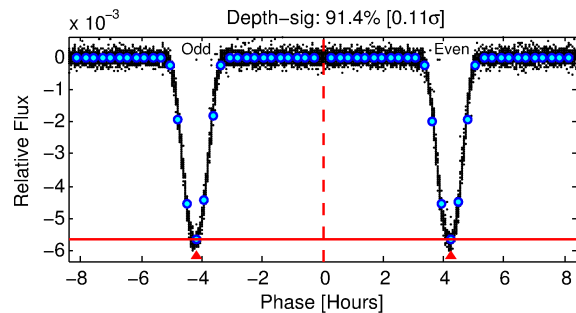
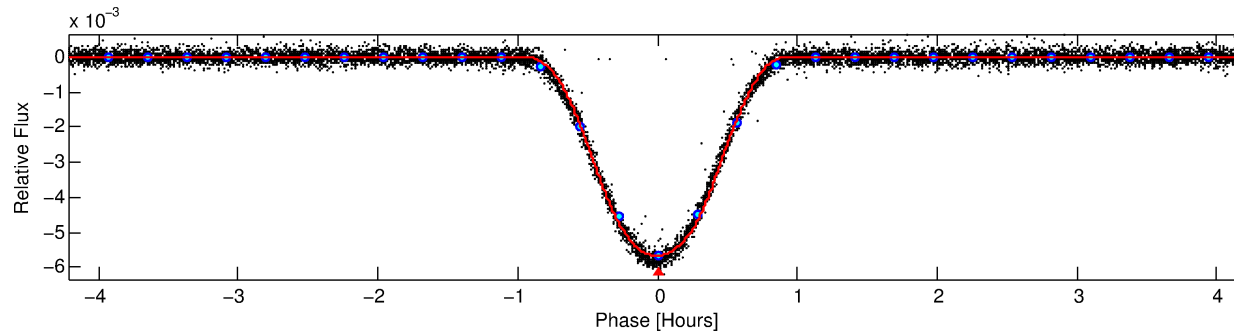
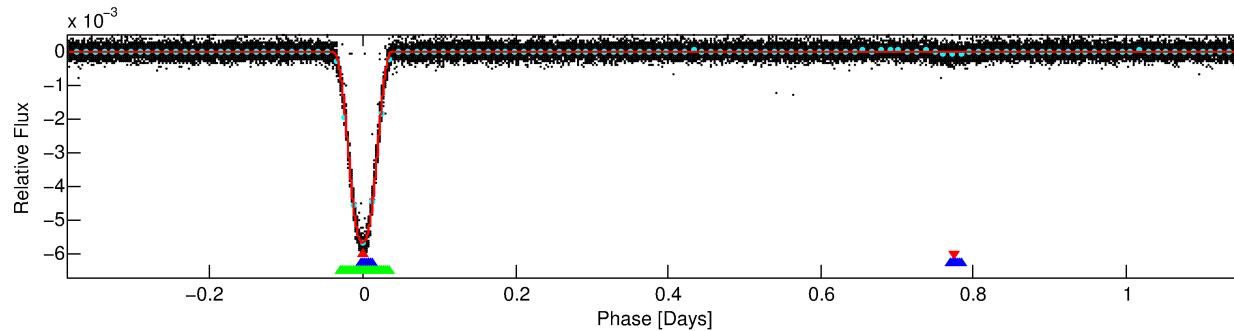
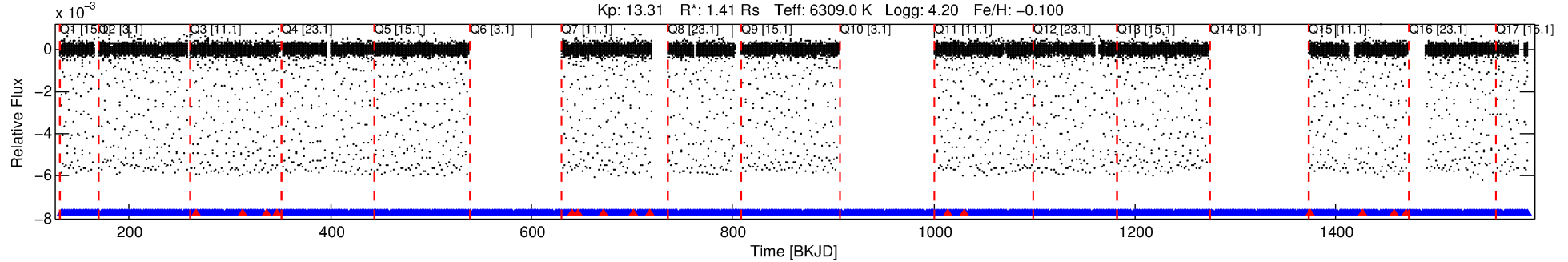
Ephemeris Match Information For 004570949-01

No Significant Match Found

DV One-Page Summary

KIC: 4570949 Candidate: 1 of 3 Period: 1.545 d
KOI: K01658.01 Name: Kepler-76b Corr: 0.990

Kp: 13.31 R*: 1.41 Rs Teff: 6309.0 K Logg: 4.20 Fe/H: -0.100



DV Fit Results:

Period = 1.54493 [0.00000] d
Epoch = 132.0034 [0.0000] BKJD
Rp/R* = 0.0821 [0.0002]
a/R* = 5.14 [0.03]
b = 0.90 [0.00]
Seff = 3767.74 [1018.53]
Teq = 1998 [135] K
Rp = 12.65 [2.28] Re
a = 0.0274 [0.0045] AU
Ag = 0.13 [0.04] [-23.95σ]
Teff = 1870 [51] K [-0.89σ]

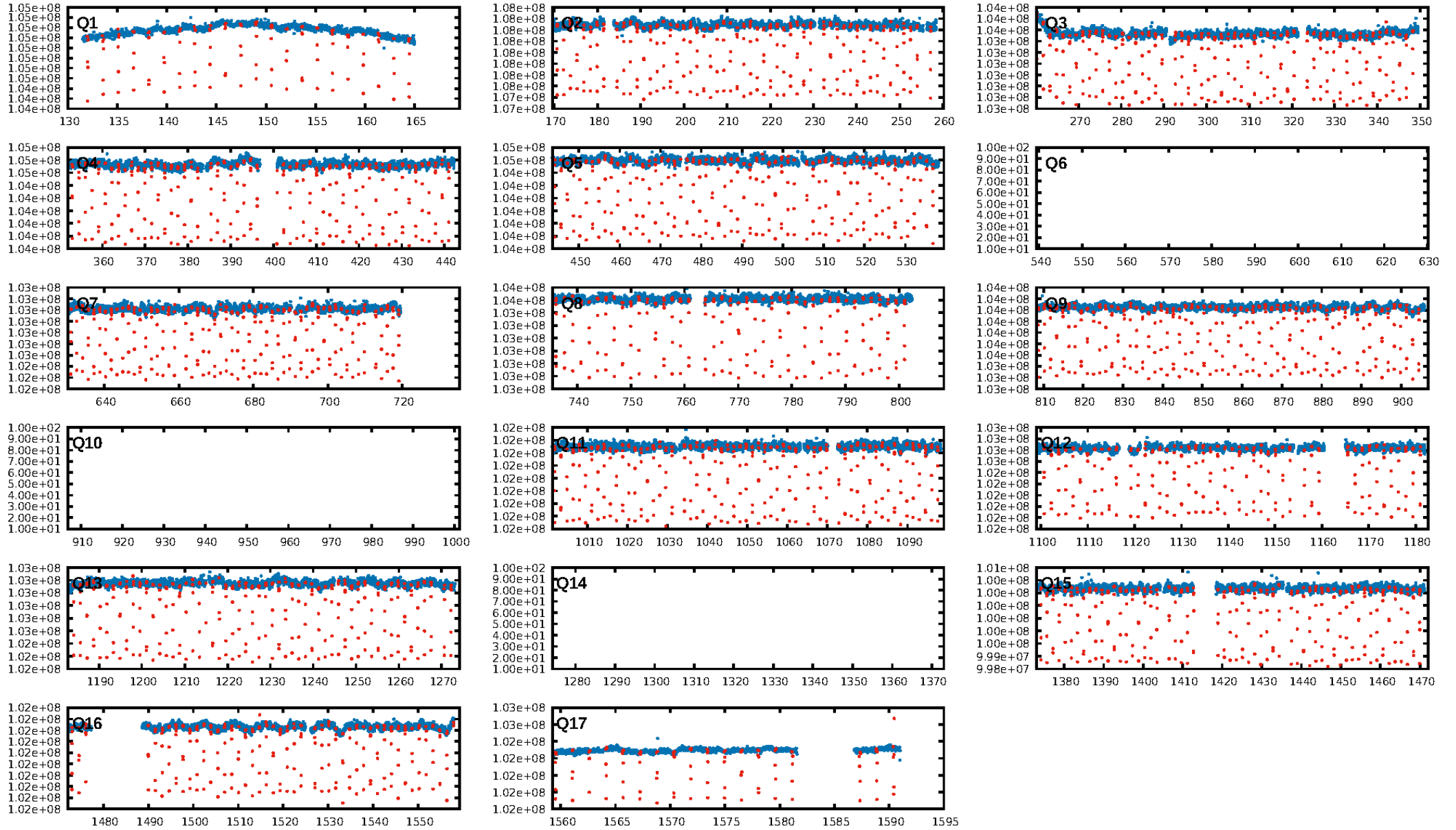
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.67σ]
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.98 [637/652]
GhostDiagnostic-chr: 14.53
Centroid-sig: N/A
Centroid-so: 0.699 arcsec [57.76σ]
OotOffset-rm: 0.149 arcsec [0.58σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-rm: 0.033 arcsec [0.49σ]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

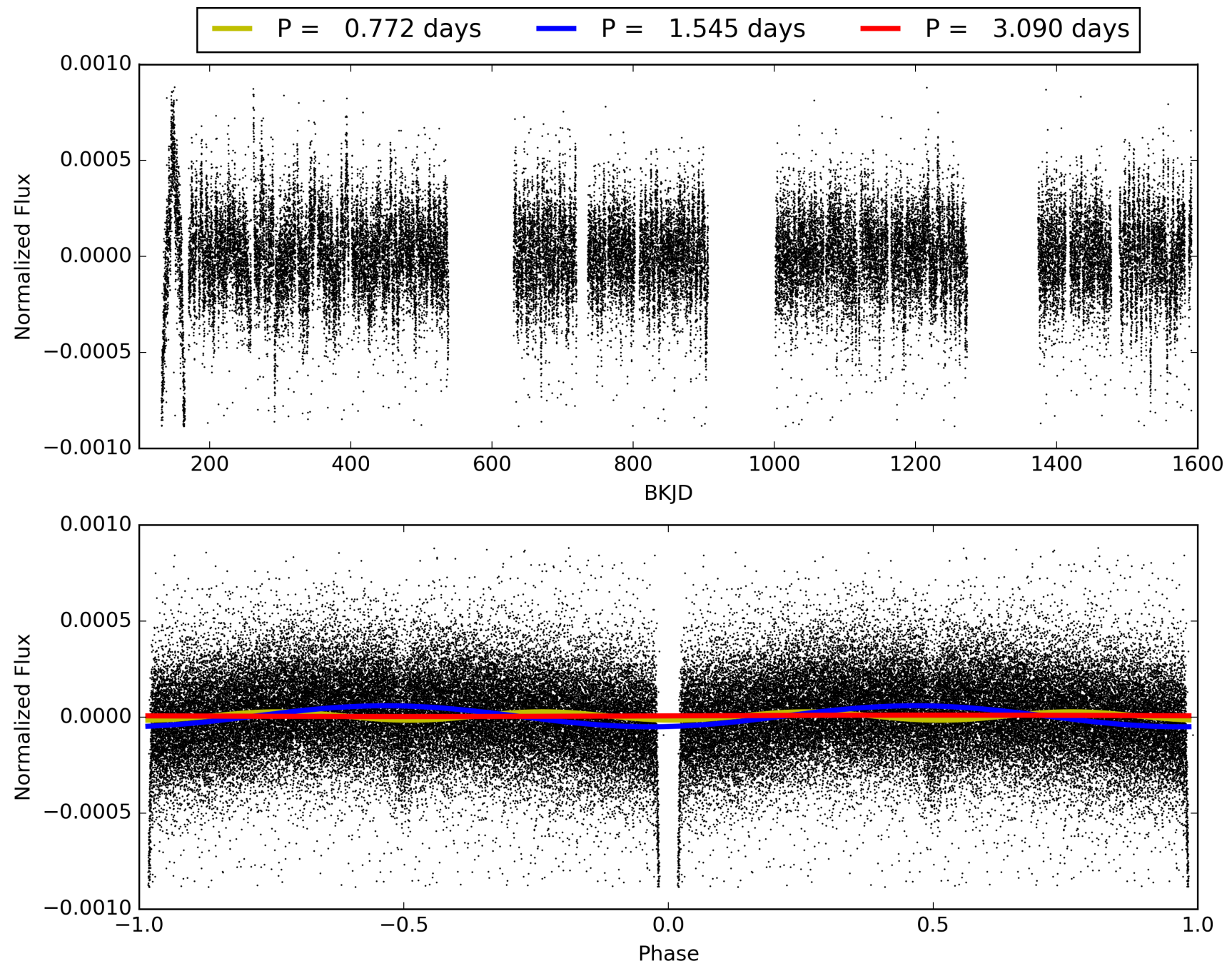
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:03:16 Z

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

TCE 004570949-01, PDC Light Curves

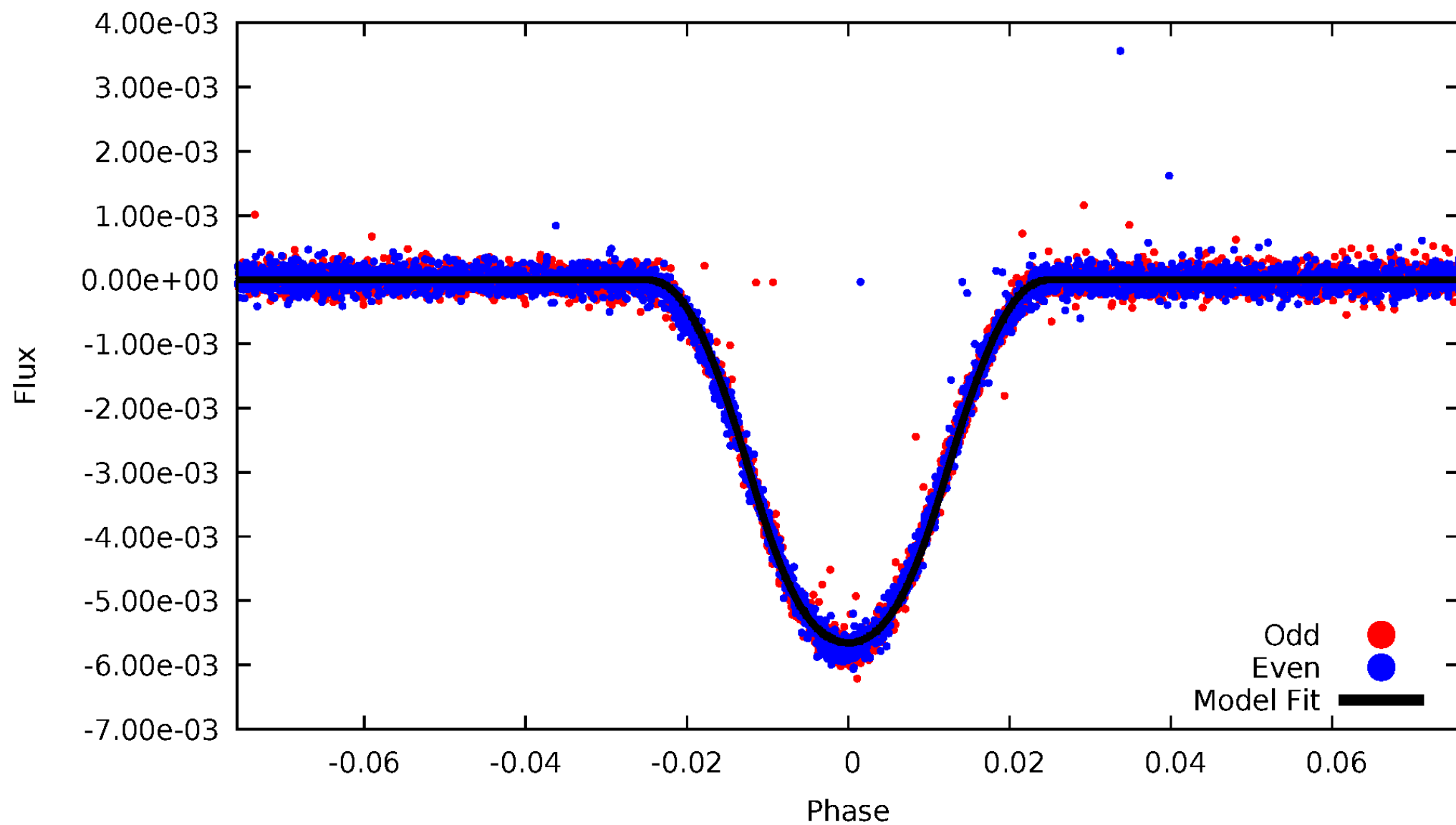


TCE 004570949-01



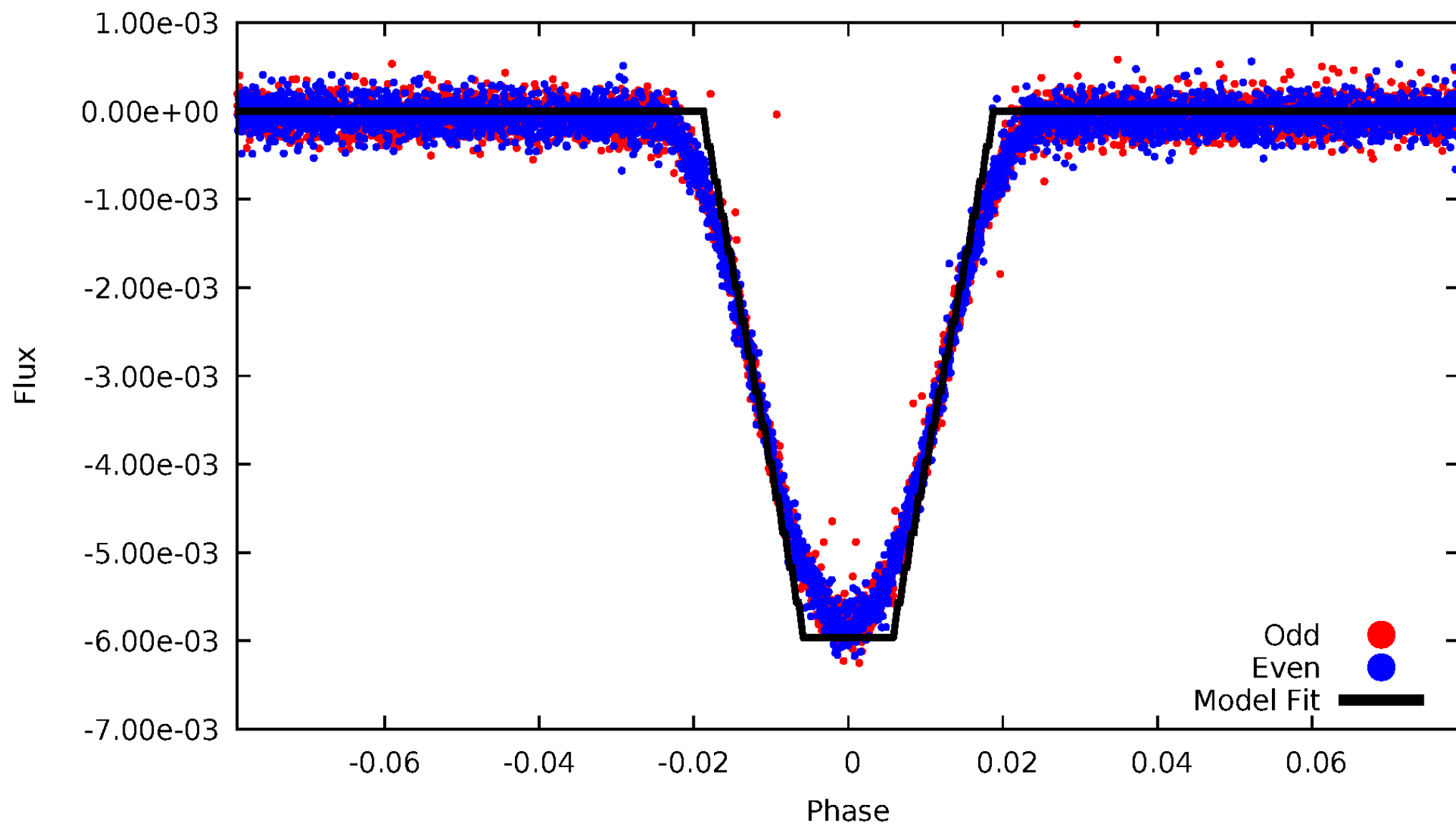
DV Odd/Even

TCE 004570949-01



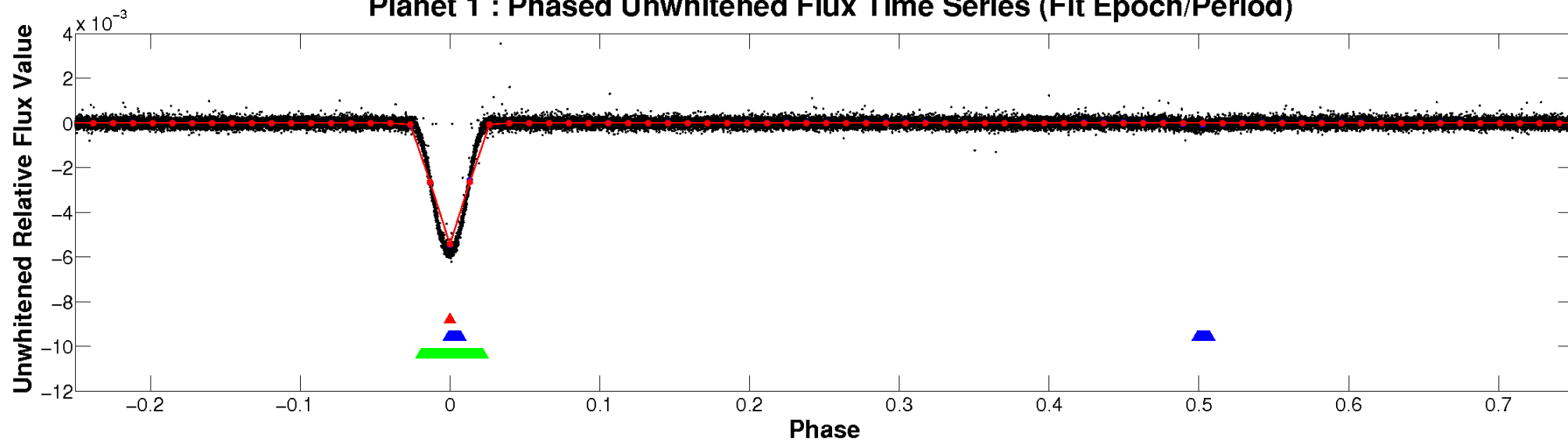
ALT Odd/Even

TCE 004570949-01

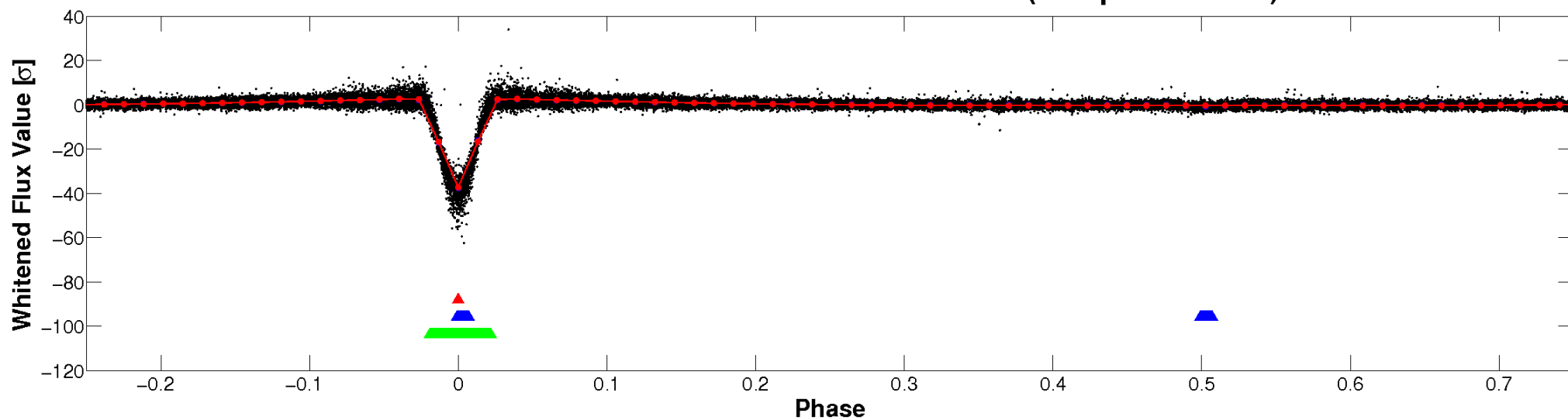


Non-Whitened Vs. Whitened Light Curve

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

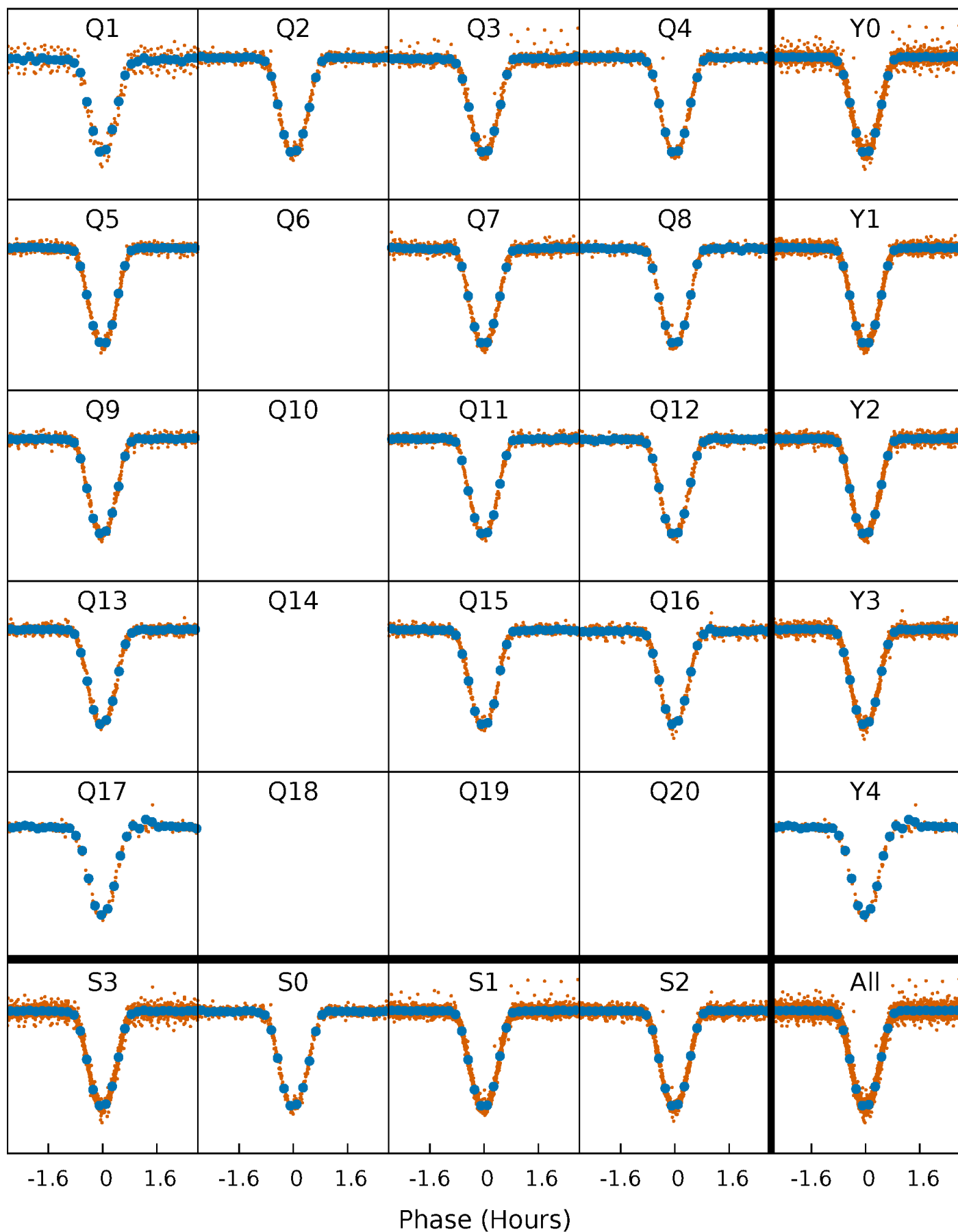


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



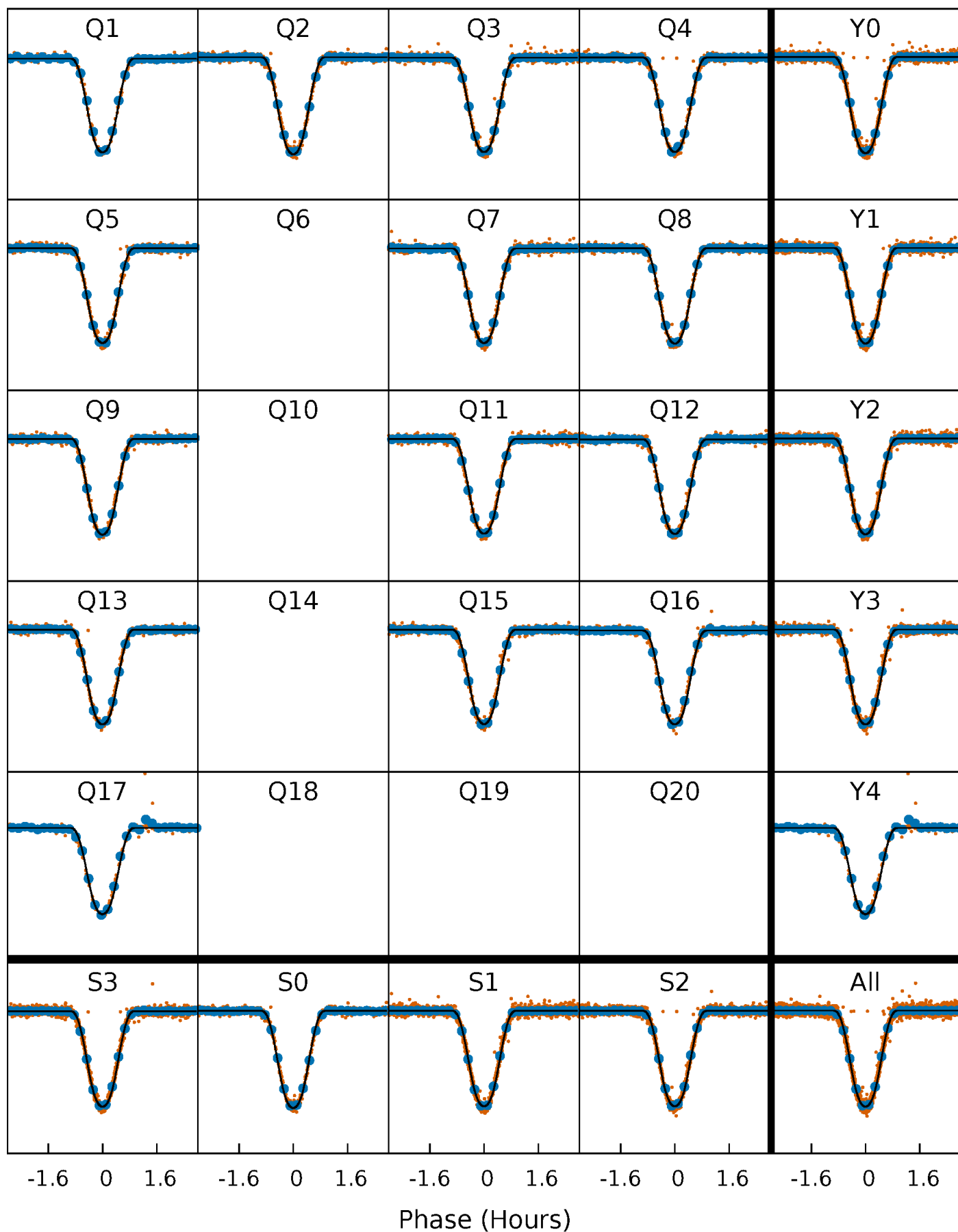
PDC Quarter-Phased Transit Curves

TCE 004570949-01 P= 1.544930 Days $T_0=132.003445$ (BKJD)



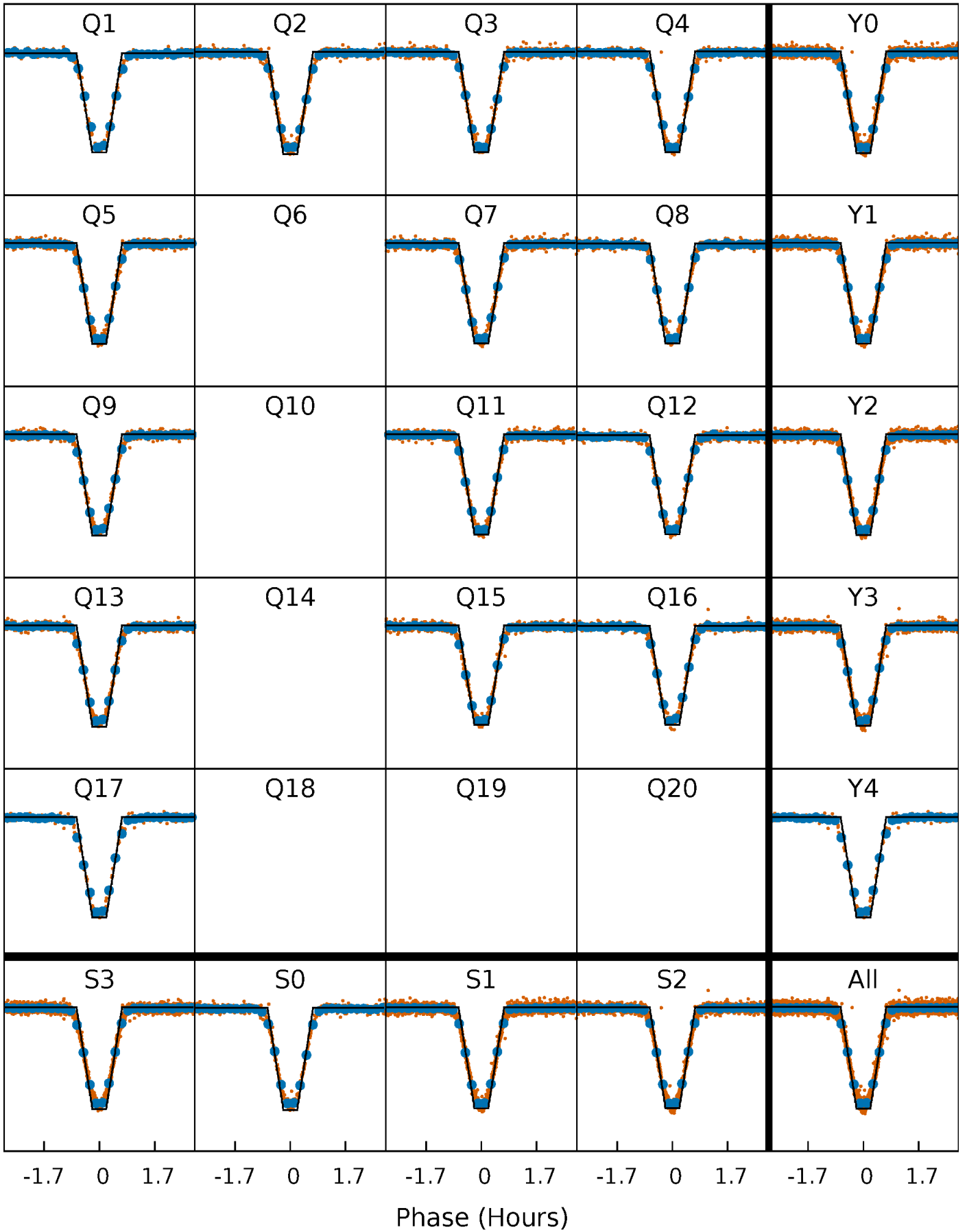
DV Quarter-Phased Transit Curves

TCE 004570949-01 P= 1.544930 Days $T_0=132.003445$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

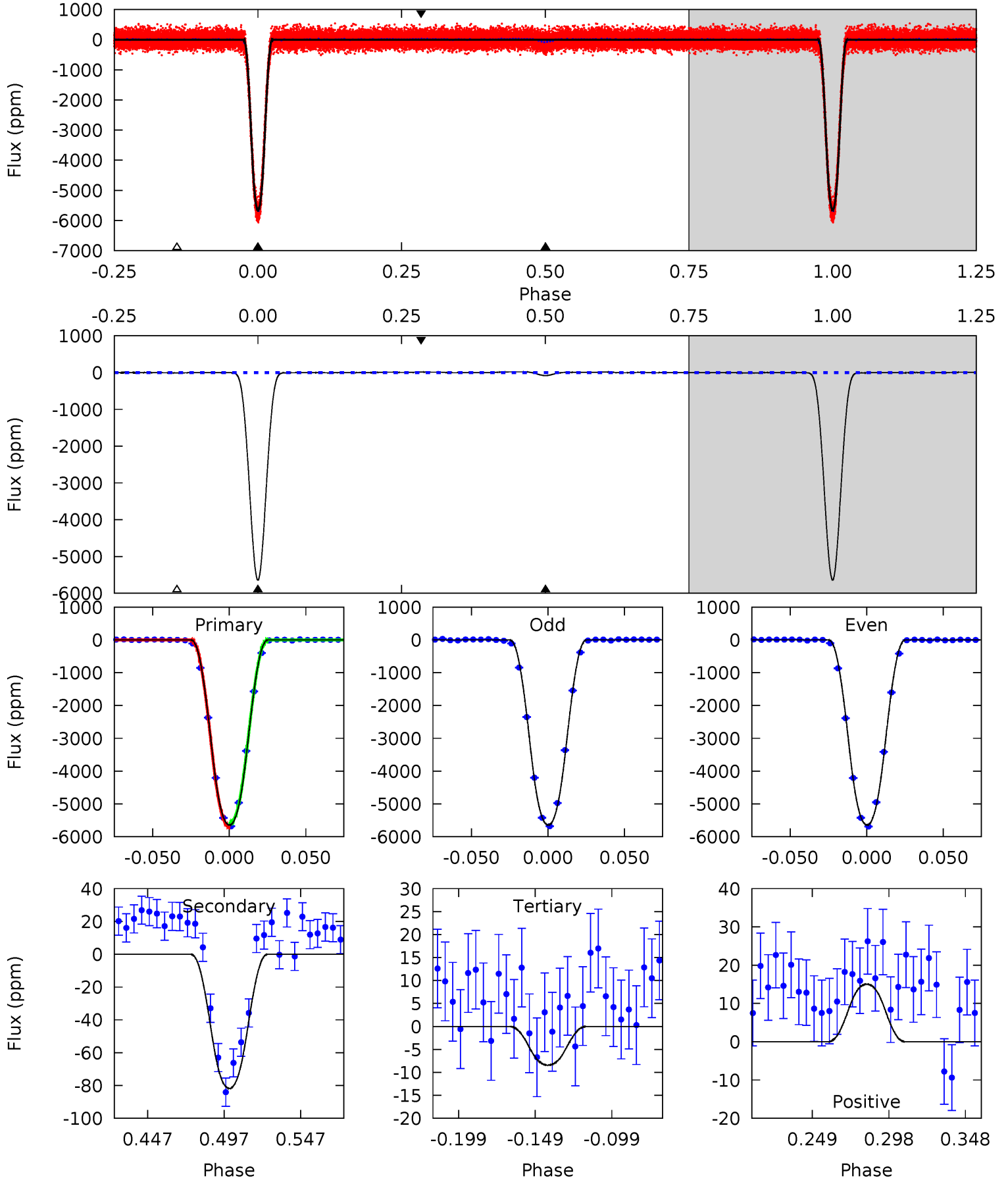
TCE 004570949-01 P= 1.544930 Days $T_0=132.003427$ (BKJD)



DV Model-Shift Uniqueness Test

004570949-01, P = 1.544930 Days, E = 130.458515 Days

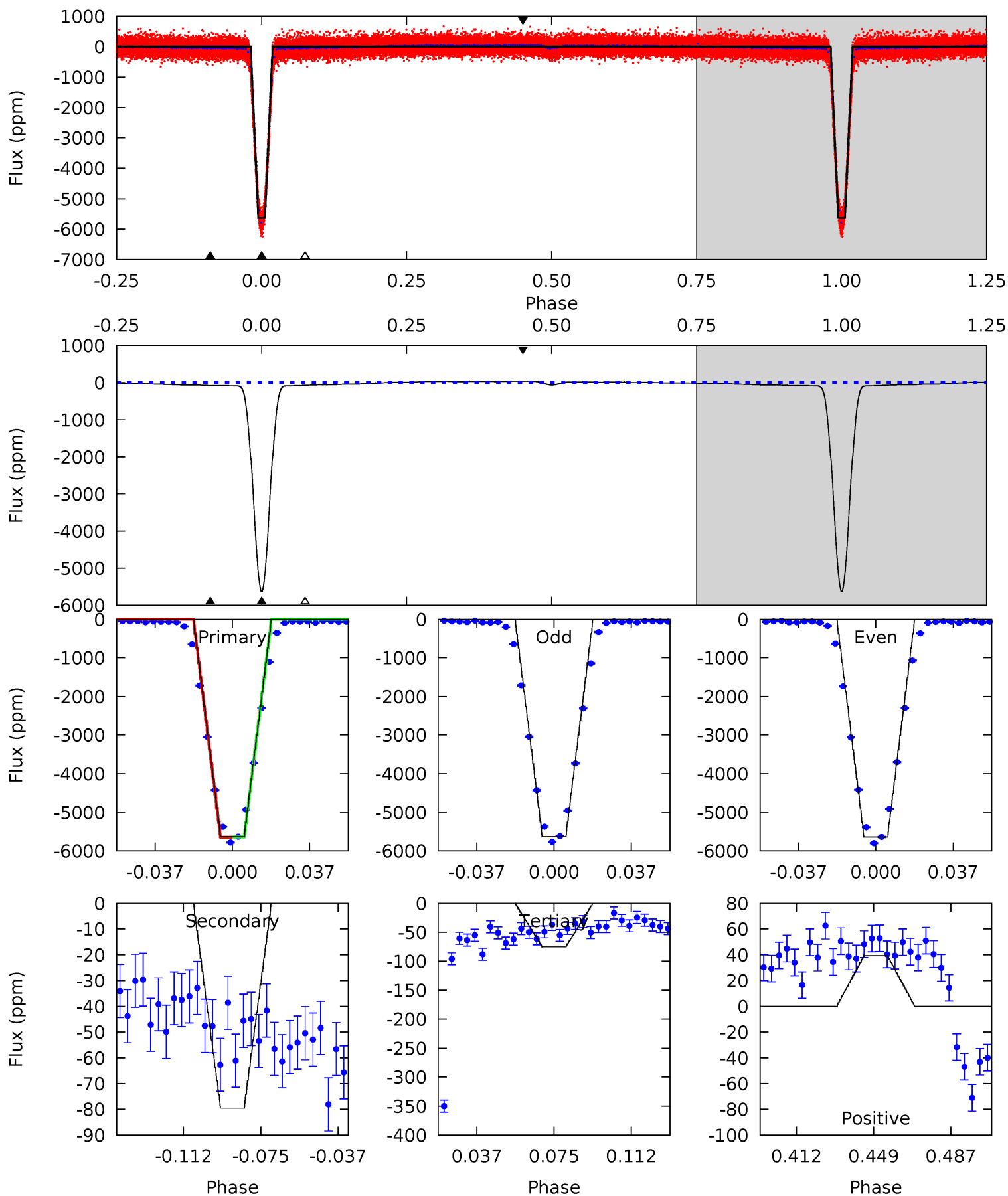
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2145	31.1	3.21	5.71	4.71	1.96	2.40	2142	2139	27.9	25.4	0.16	1.00	0.00	21.0



Alt Model-Shift Uniqueness Test

004570949-01, P = 1.544930 Days, E = 130.458497 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1611	22.7	21.5	11.3	4.77	2.08	10.5	1590	1600	1.25	11.5	1.51	1.00	0.01	1.35



Stellar Parameters For KIC 004570949

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6309^{+114}_{-126}	$4.199^{+0.149}_{-0.122}$	$-0.100^{+0.150}_{-0.150}$	$1.412^{+0.254}_{-0.254}$	$1.150^{+0.105}_{-0.096}$	$0.576^{+0.399}_{-0.201}$
	+2%/-2%	+4%/-3%	+150%/-150%	+18%/-18%	+9%/-8%	+69%/-35%
Source	SPE52	SPE52	SPE52	DSEP		

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

Secondary Eclipse Parameters for KIC 004570949-01 / KOI 1658.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-82 ± 3	$12.60^{+1.21}_{-1.28}$	2779^{+133}_{-144}	-2517^{+290}_{-164}	$0.214^{+0.049}_{-0.034}$
Alt.	-80 ± 3	$11.86^{+1.30}_{-1.09}$	2787^{+139}_{-142}	-2440^{+356}_{-226}	$0.234^{+0.047}_{-0.044}$

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

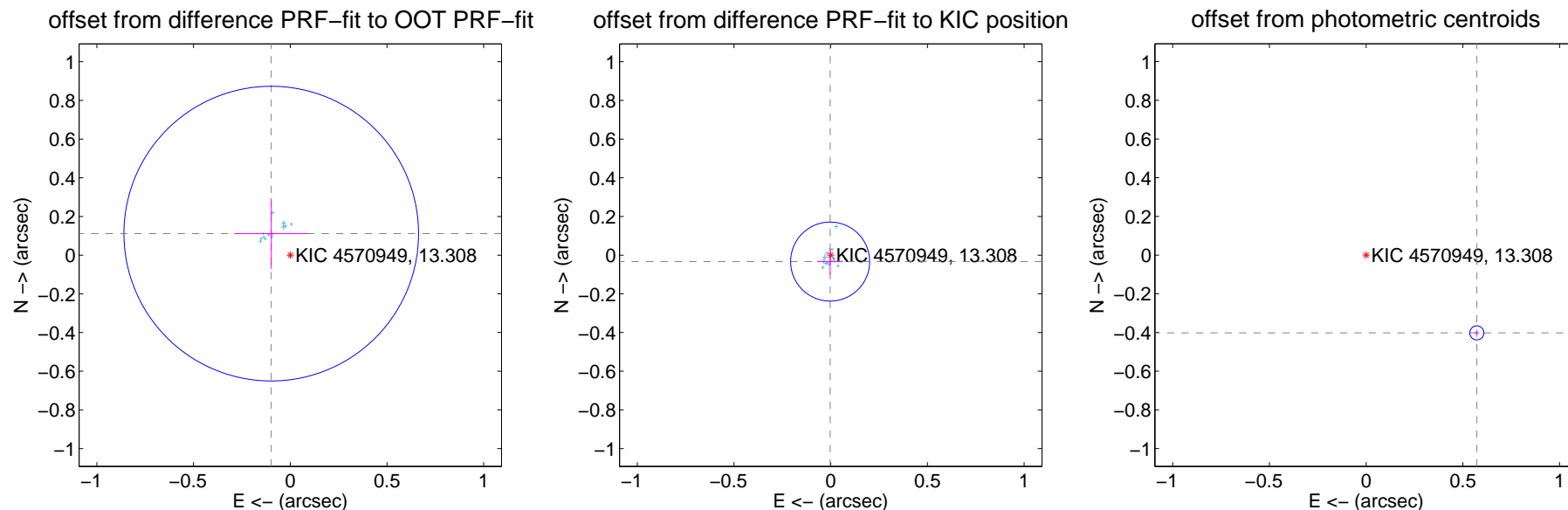
DV Centroid Data

Supplemental centroid analysis for 004570949-01. Kepler magnitude: 13.31. Transit SNR 1156.80

There are 14 quarters with good PRF difference image offsets

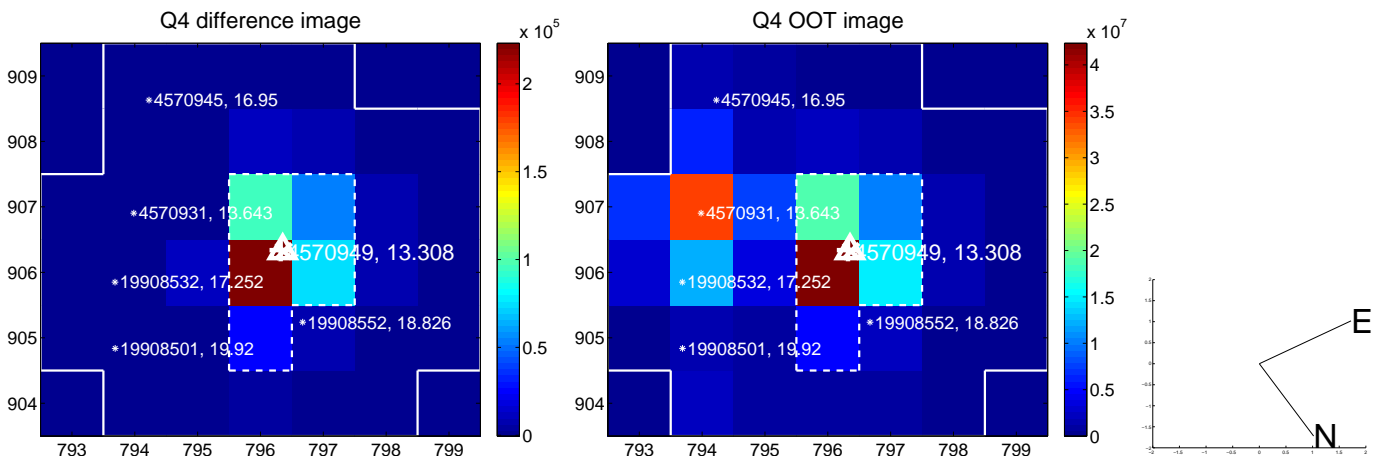
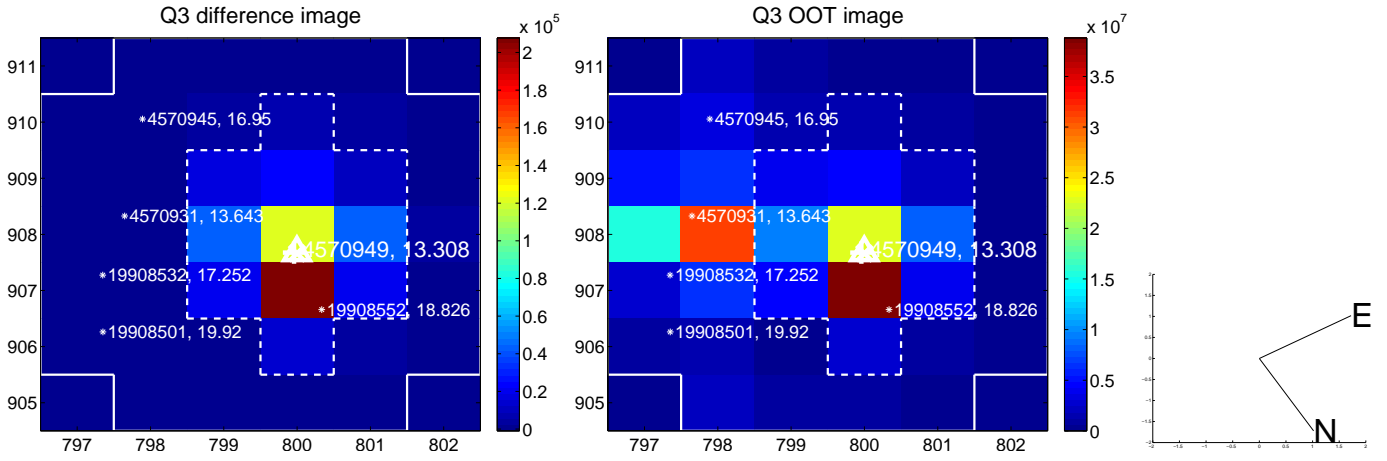
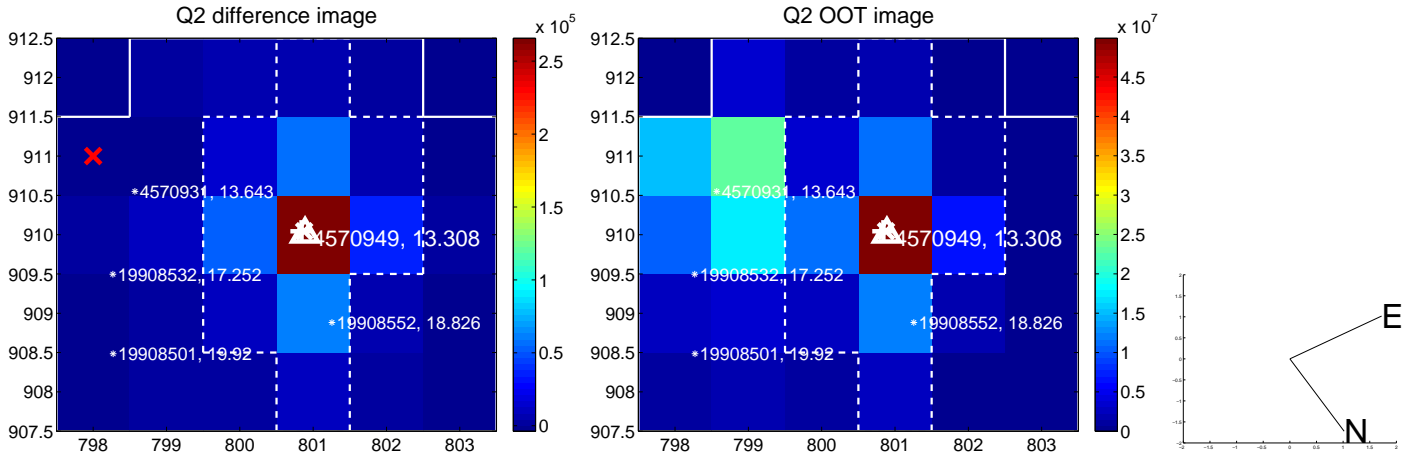
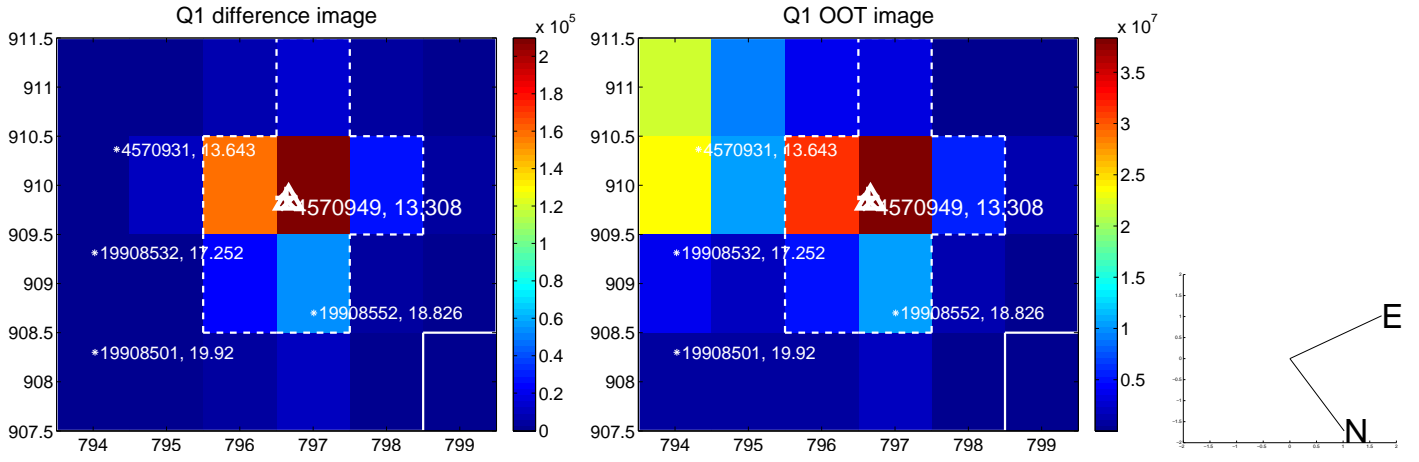
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.149 ± 0.254	0.58	0.098 ± 0.190	0.111 ± 0.182
PRF-fit source offset from KIC position	0.033 ± 0.068	0.49	0.003 ± 0.067	-0.033 ± 0.068
photometric centroid source offset	0.70 ± 0.01	57.76	-0.57 ± 0.01	-0.40 ± 0.01

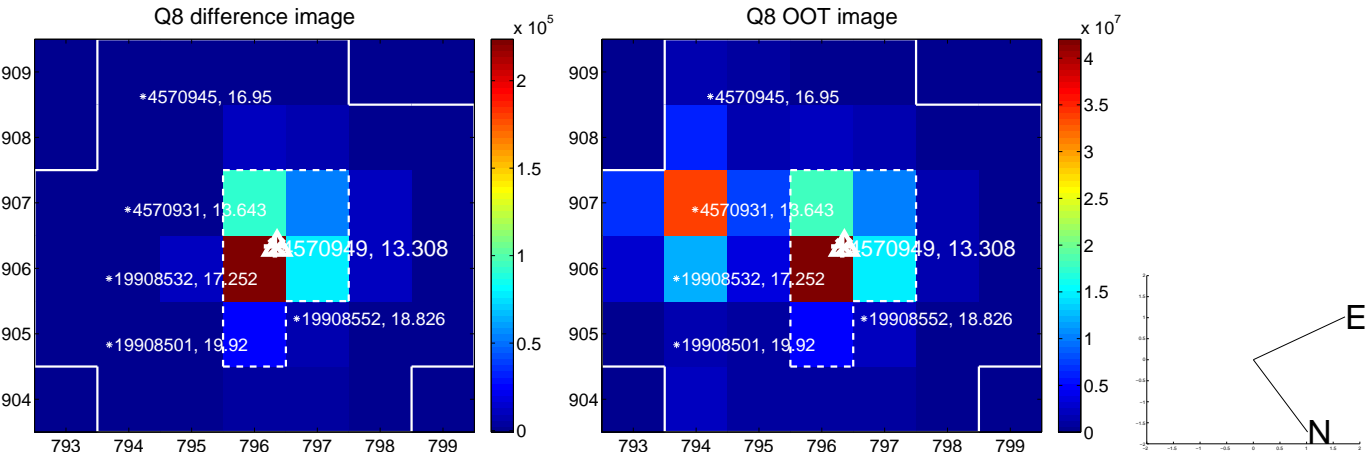
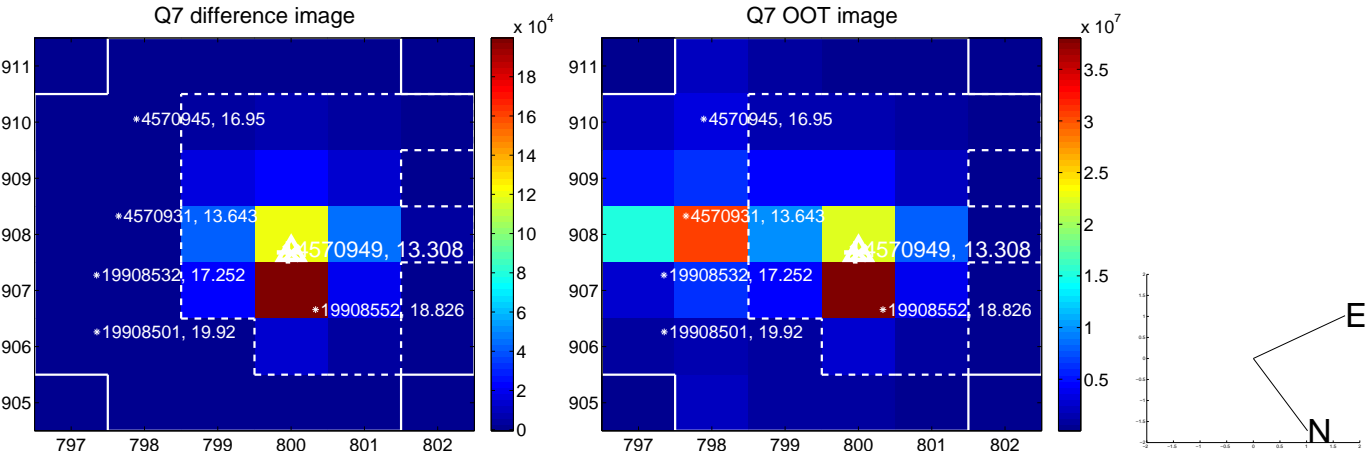
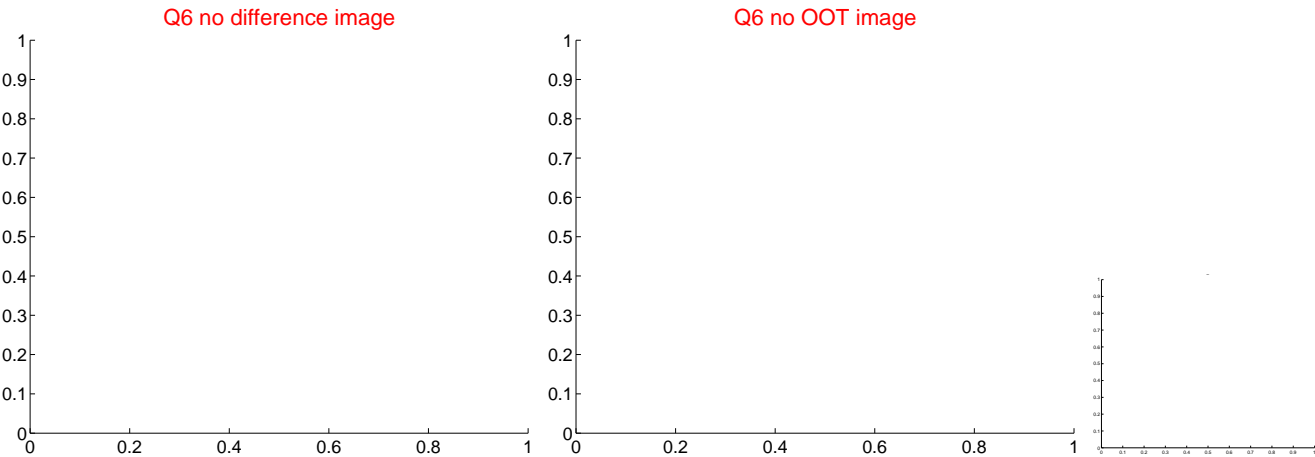
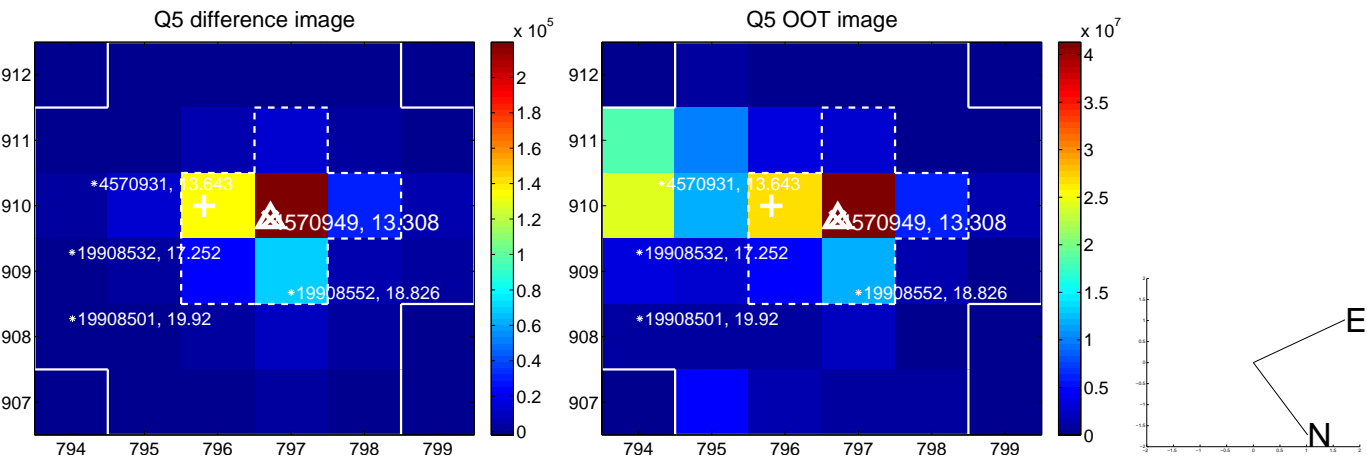


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

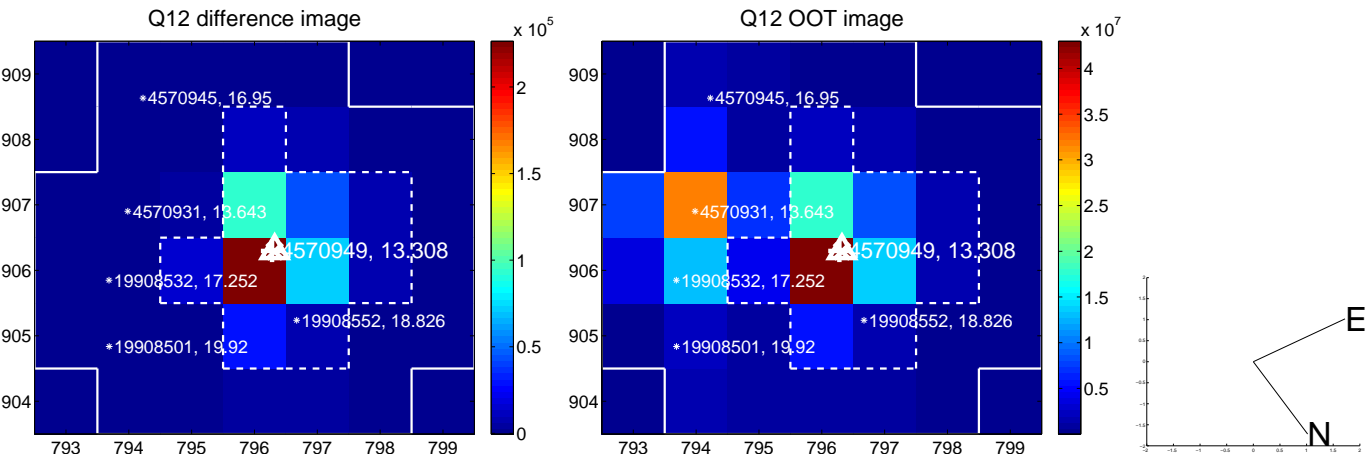
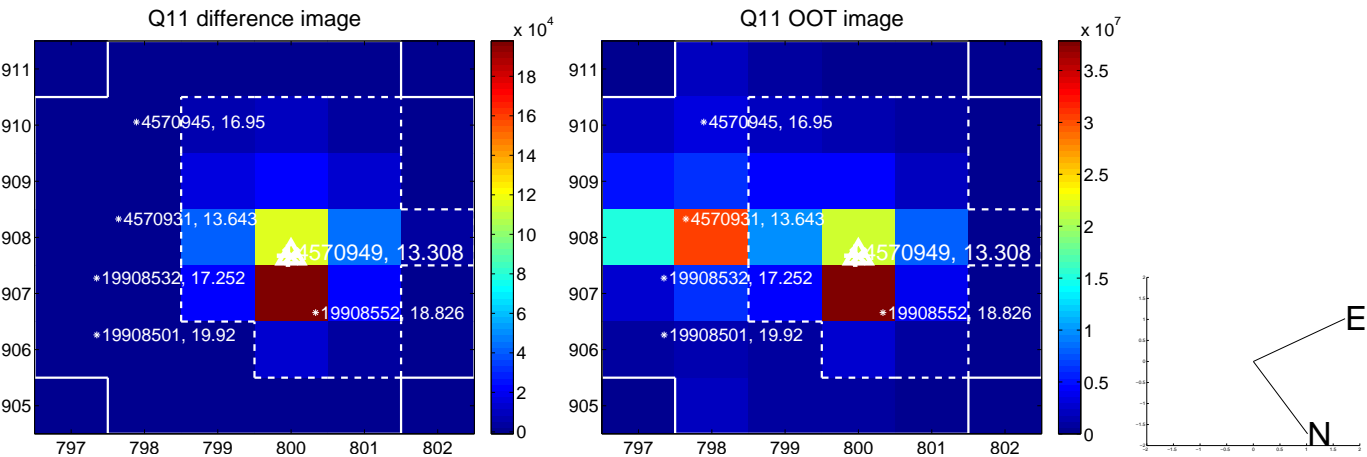
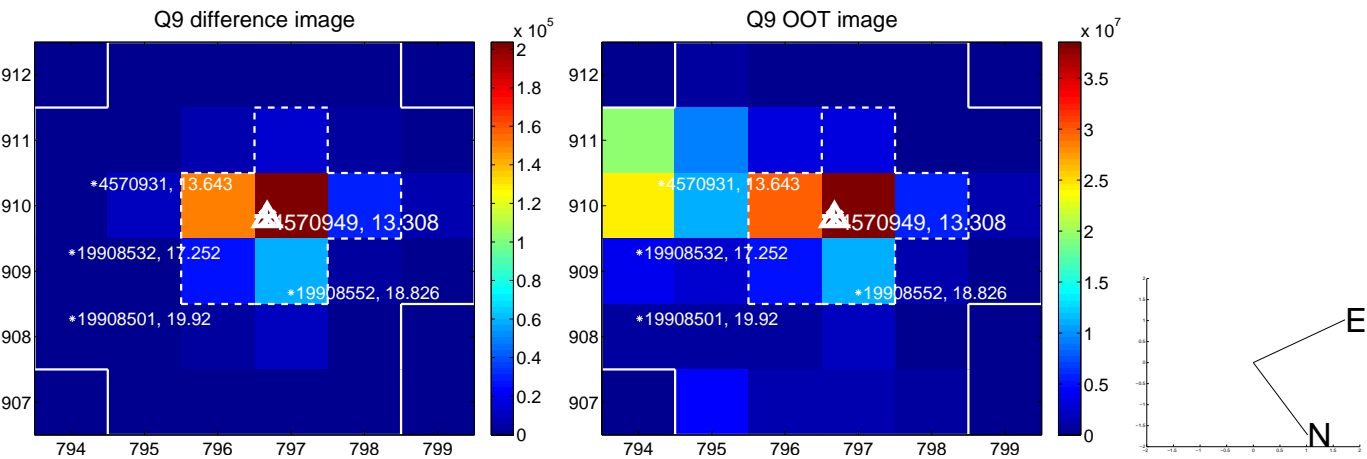
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



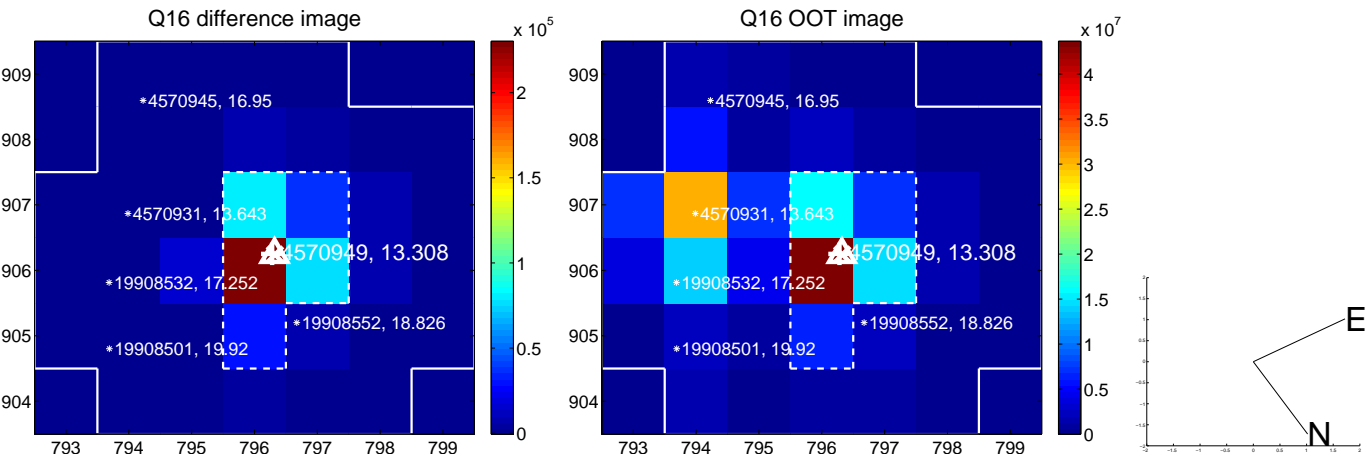
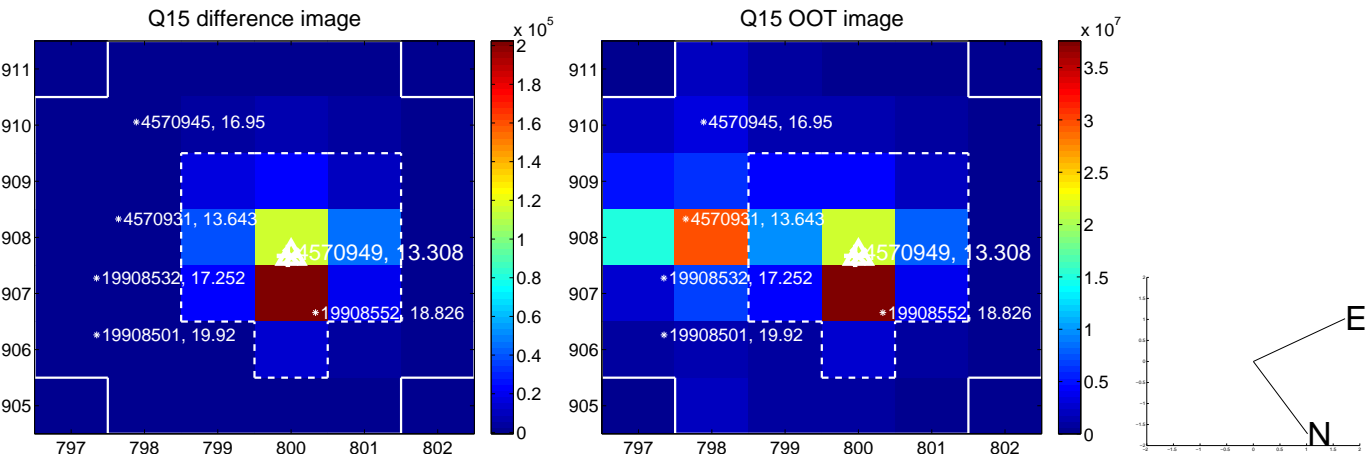
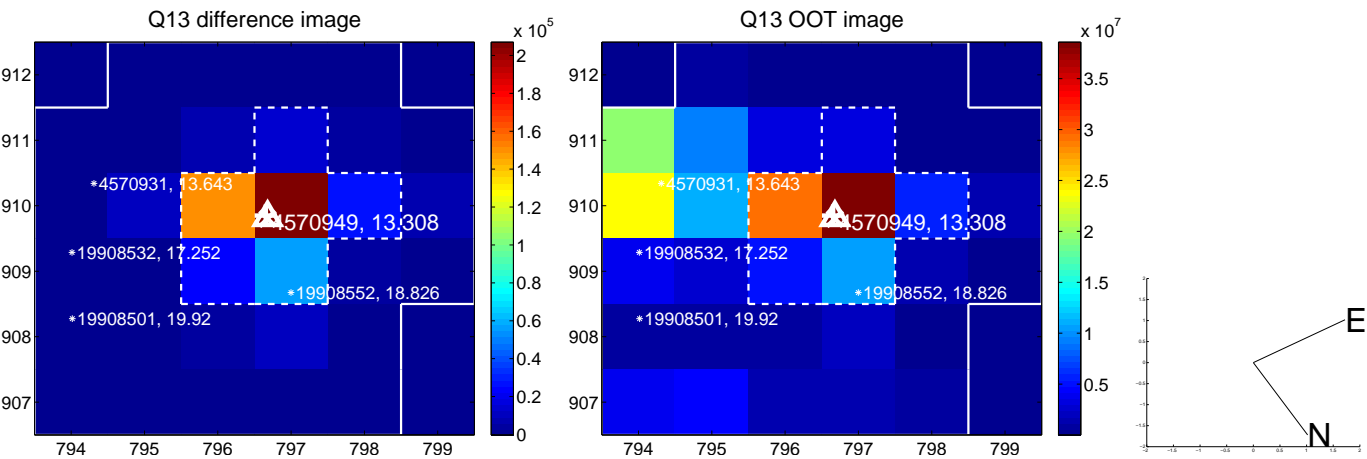
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



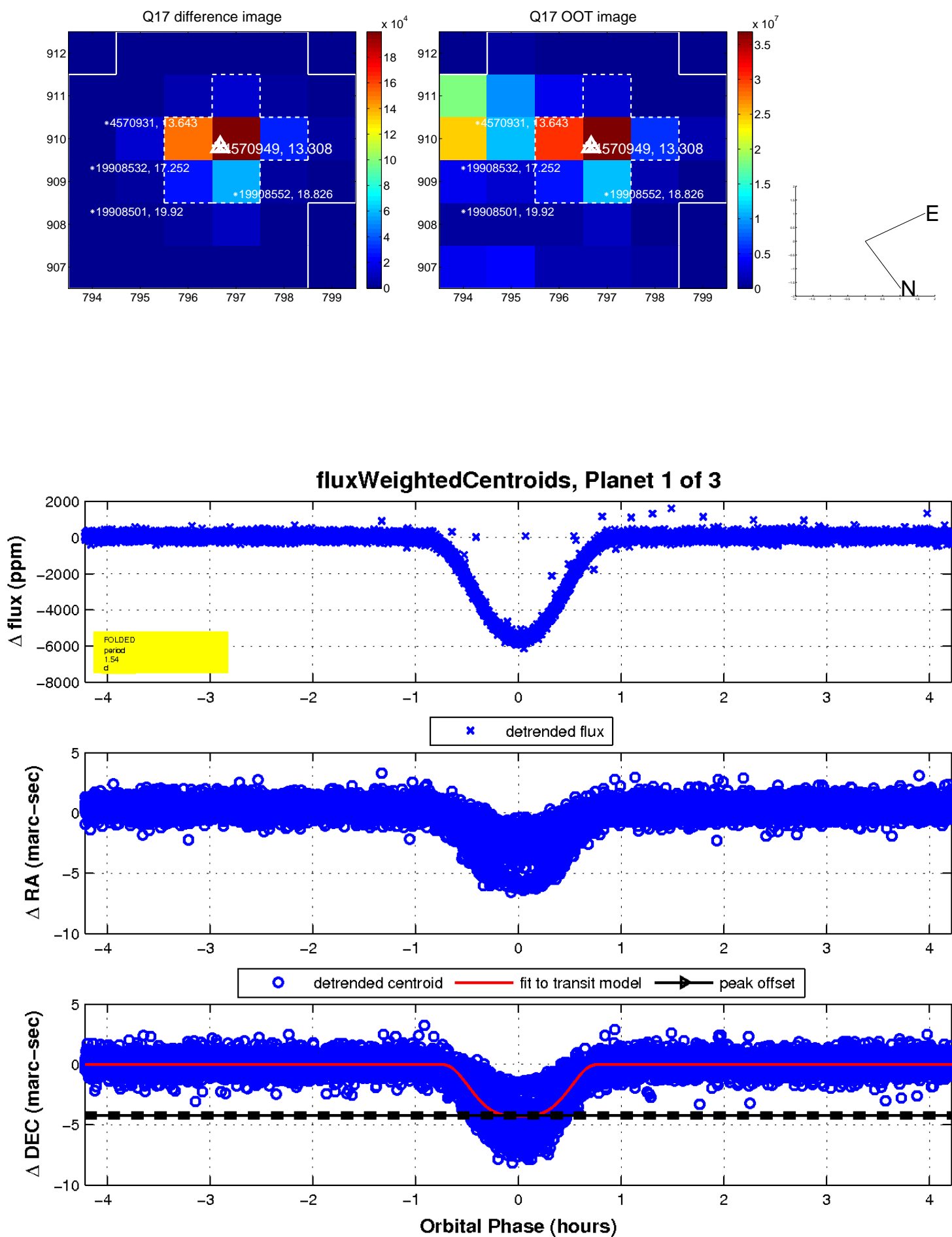
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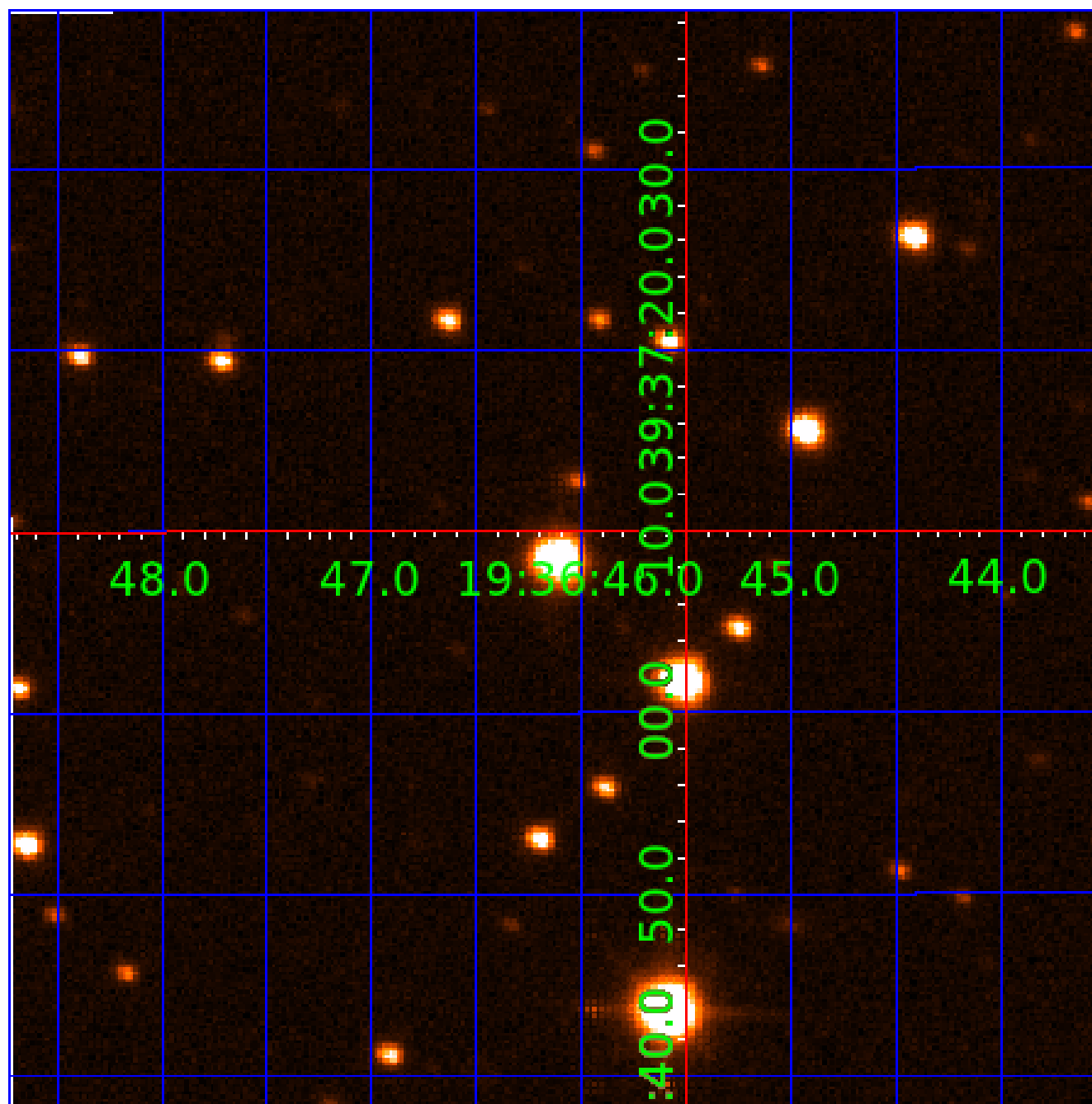


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004570949

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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004570949-02	OBS	No	0.772472	132.001966	74.4	1.023	14.8	16.5	1.41	6309	1.42	9494.00
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004570949-01	OBS	PC	1.00	0	1	0	0	MOD_SEC_DV—PLANET_OCCULT_DV—HAS_SEC_TCE
004570949-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—EPHEM_MATCH
004570949-03	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—RESIDUAL_TCE—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH

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.

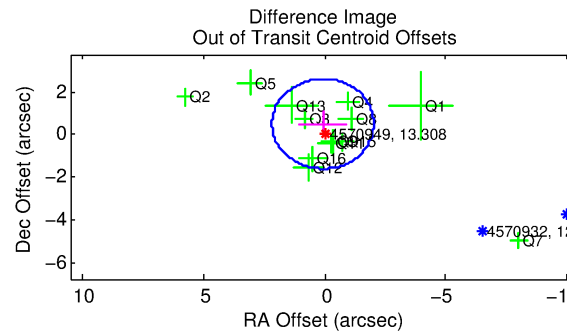
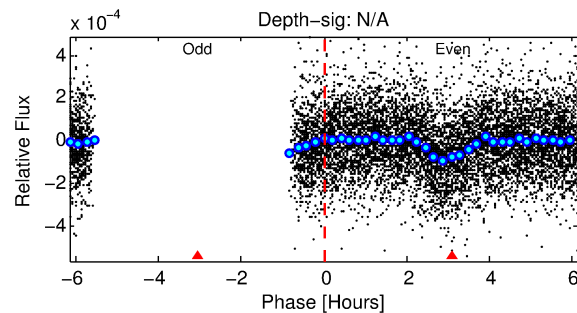
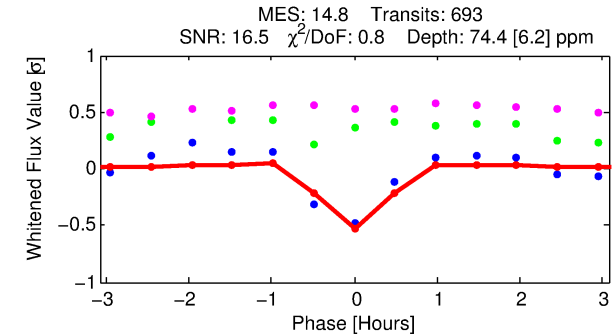
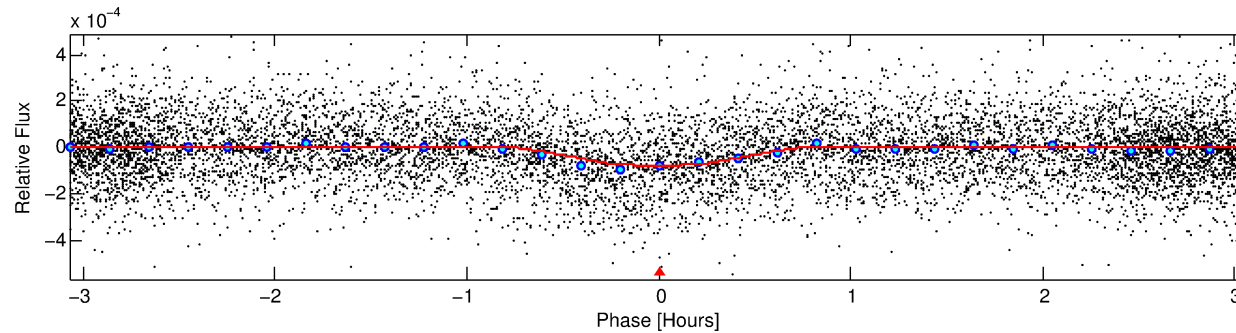
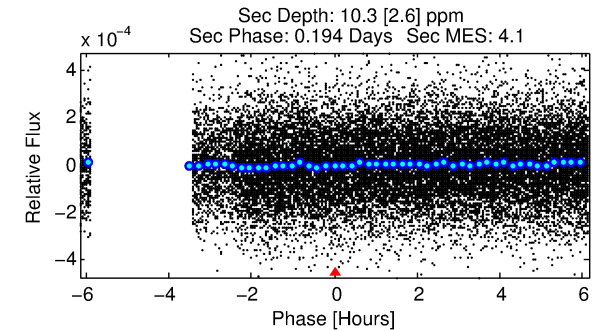
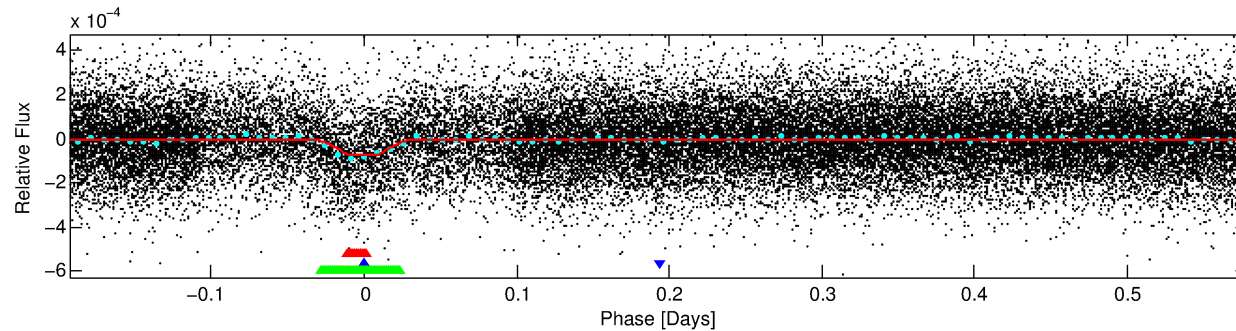
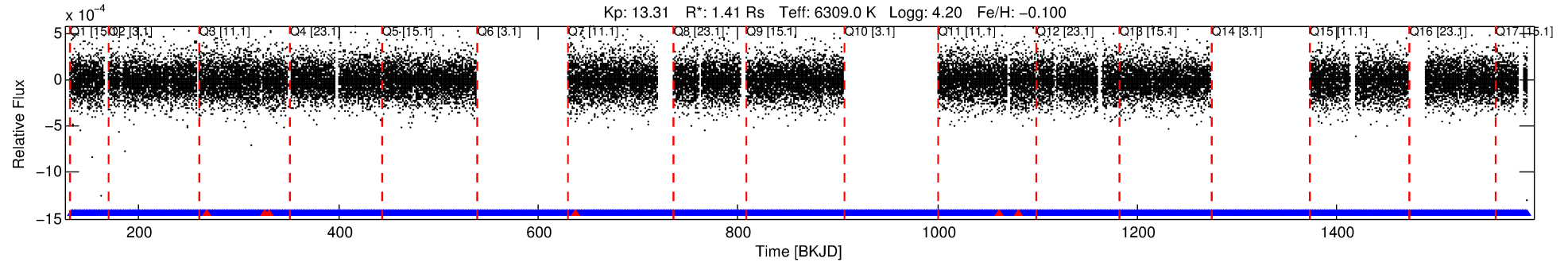
Ephemeris Match Information For 004570949-02

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004570949-02	4570949	1343.01	4570931	1:2	9.6	0	2	13.64	13.30	1.74	Direct-PRF	0	2.17	0.20

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 4570949 Candidate: 2 of 3 Period: 0.772 d
KOI: K01658 Name: Kepler-76 Corr: No Ephemeris Match



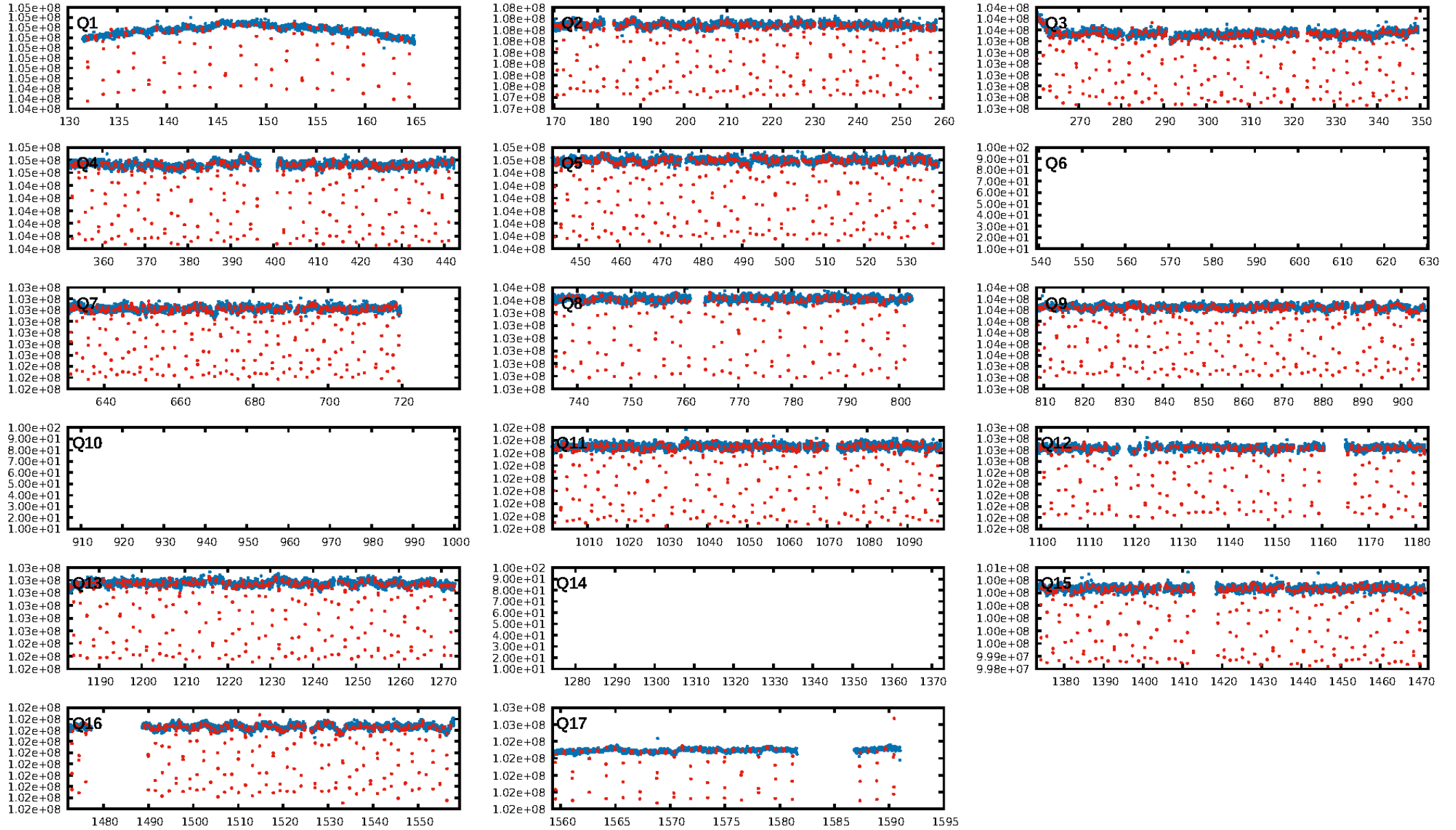
DV Fit Results:

Period = 0.77247 [0.00001] d
Epoch = 132.0020 [0.0010] BKJD
Rp/R* = 0.0092 [0.0018]
a/R* = 2.97 [2.77]
b = 0.88 [0.27]
Seff = 9494.00 [2566.51]
Teq = 2517 [170] K
Rp = 1.42 [0.38] Re
a = 0.0173 [0.0029] AU
Ag = 0.84 [0.45] [-0.35σ]
Teffp = 3728 [442] K [2.56σ]

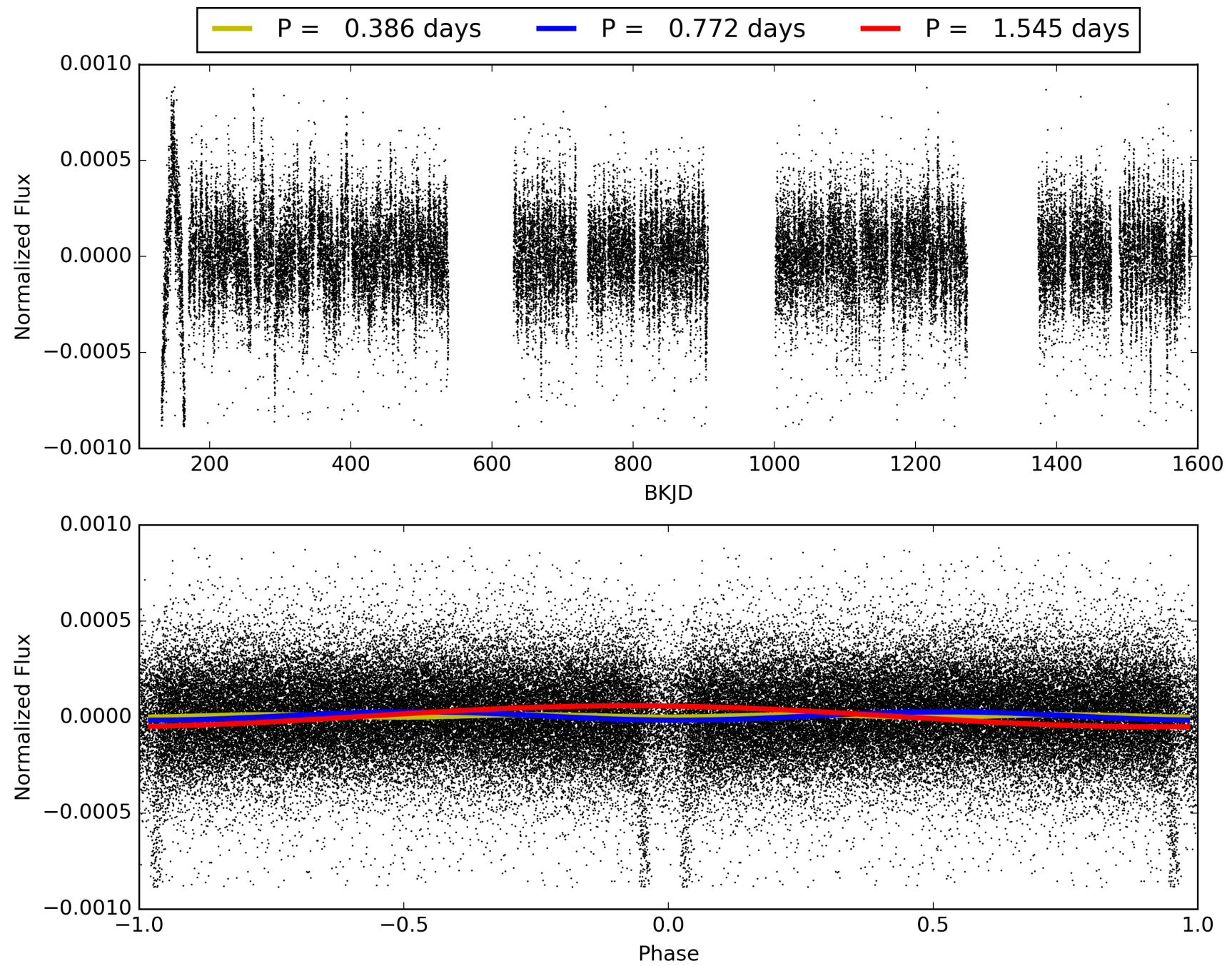
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [10.67σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [650/656]
GhostDiagnostic-chr: 6.819
Centroid-sig: N/A
Centroid-so: 1.510 arcsec [2.41σ]
OotOffset-rm: 0.510 arcsec [0.73σ]
KicOffset-rm: 0.293 arcsec [0.64σ]
OotOffset-st: 1/4/4/4 [13]
KicOffset-st: 1/4/4/4 [13]
DiffImageQuality-fgm: 0.77 [10/13]
DiffImageOverlap-fno: 1.00 [14/14]

TCE 004570949-02, PDC Light Curves

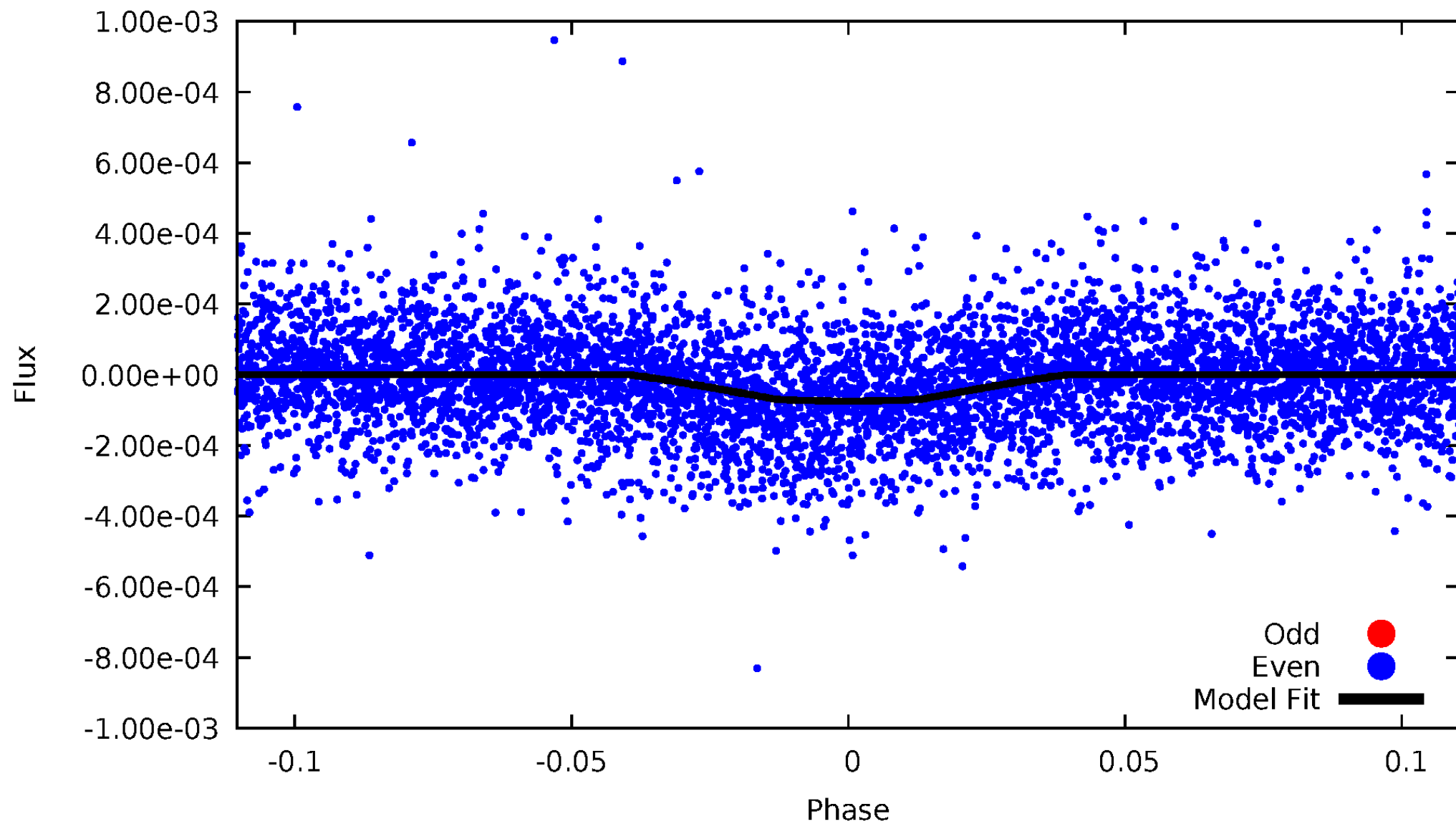


TCE 004570949-02



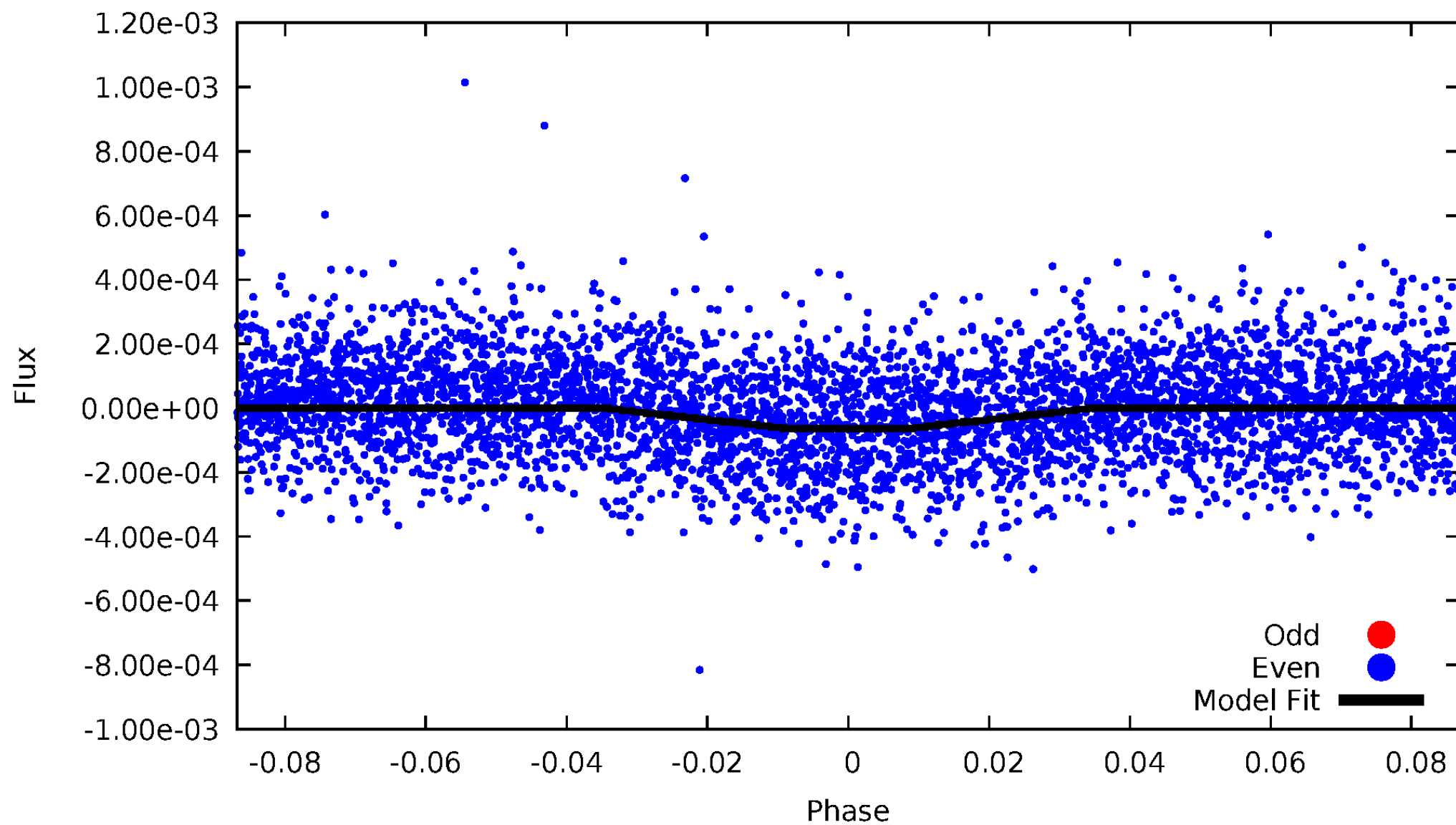
DV Odd/Even

TCE 004570949-02



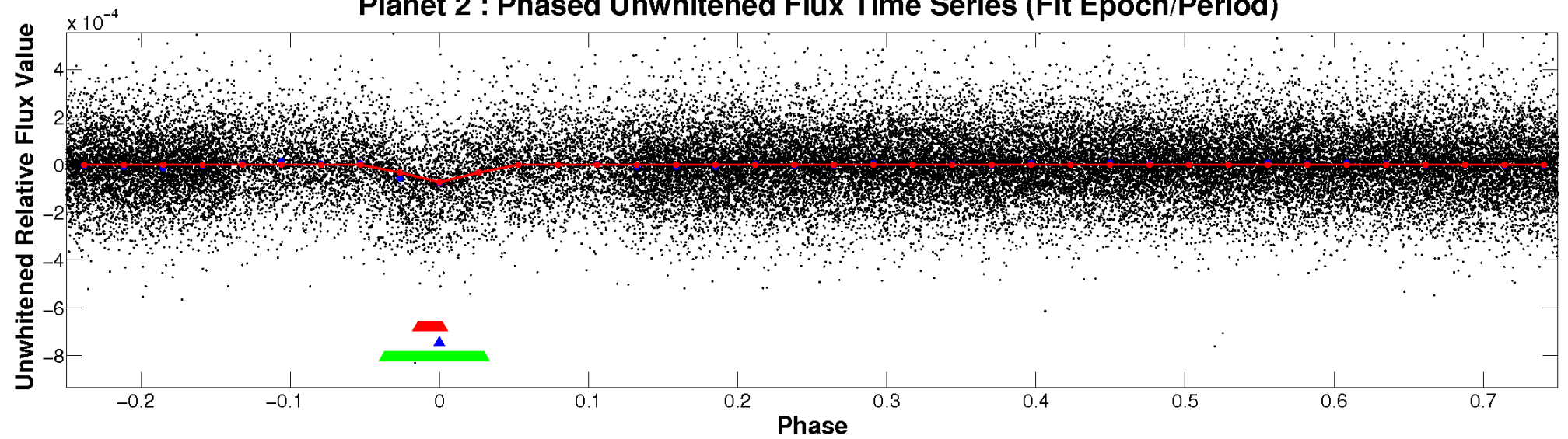
ALT Odd/Even

TCE 004570949-02

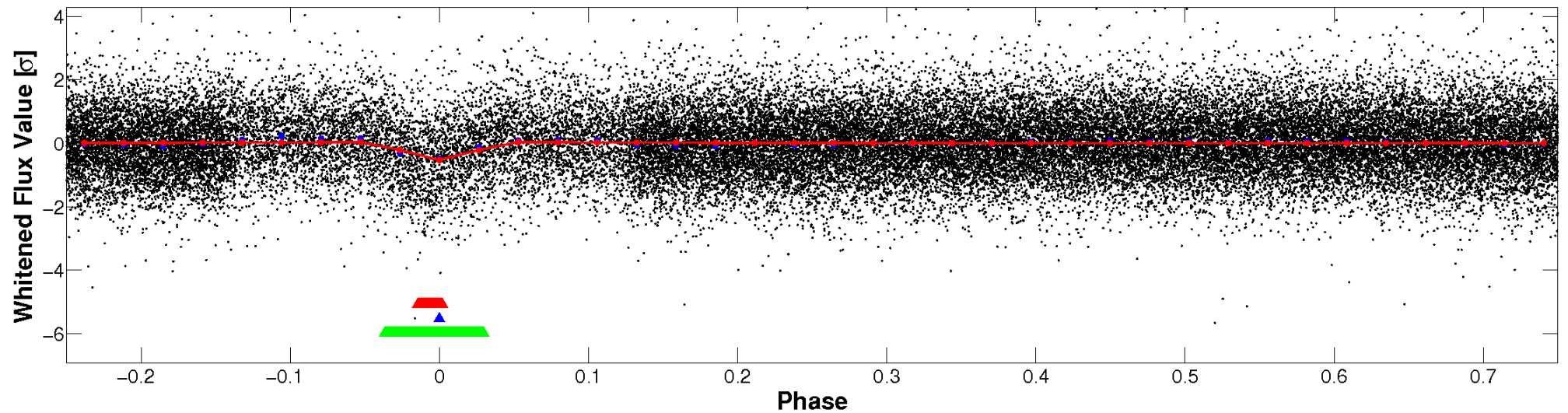


Non-Whitened Vs. Whitened Light Curve

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

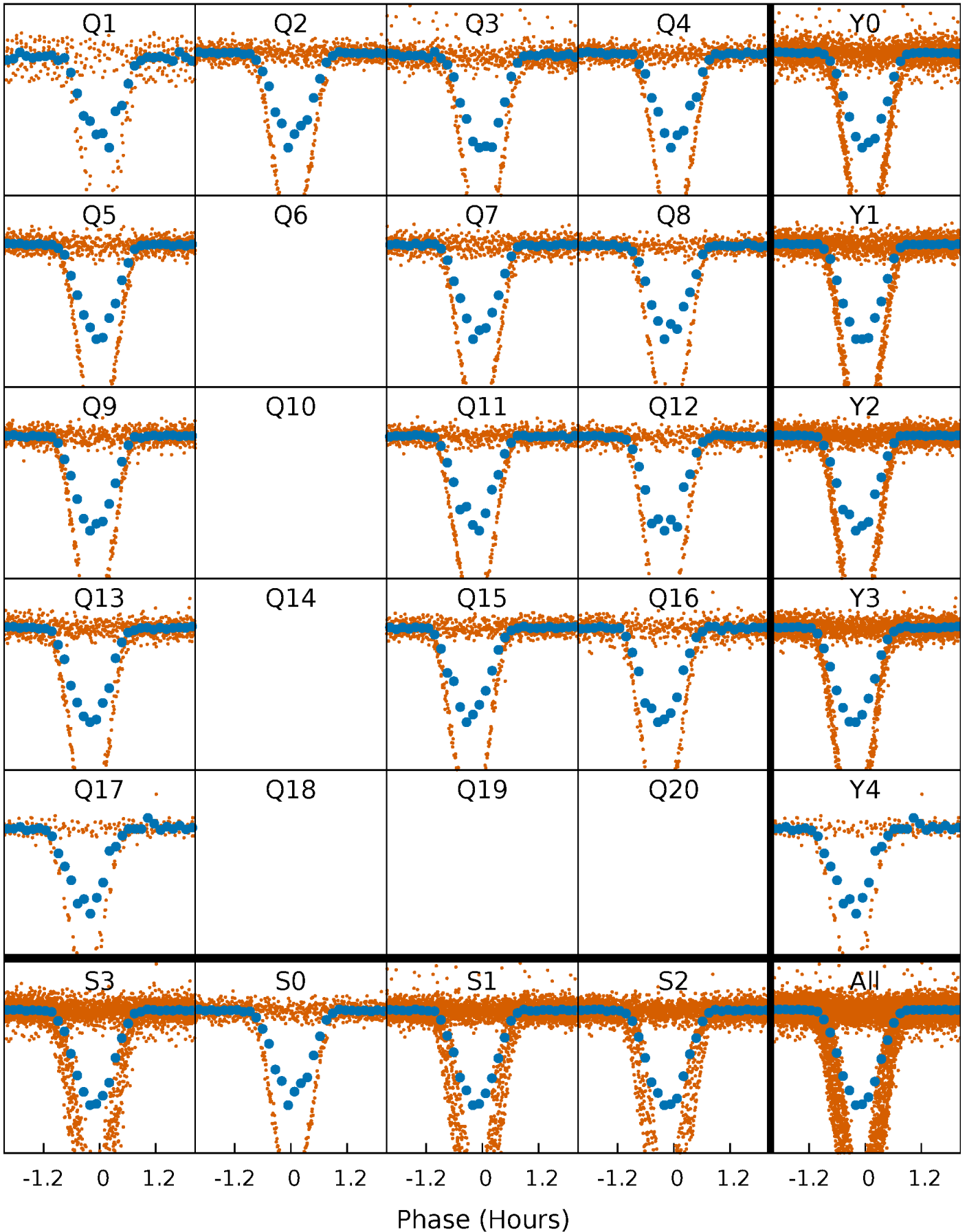


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



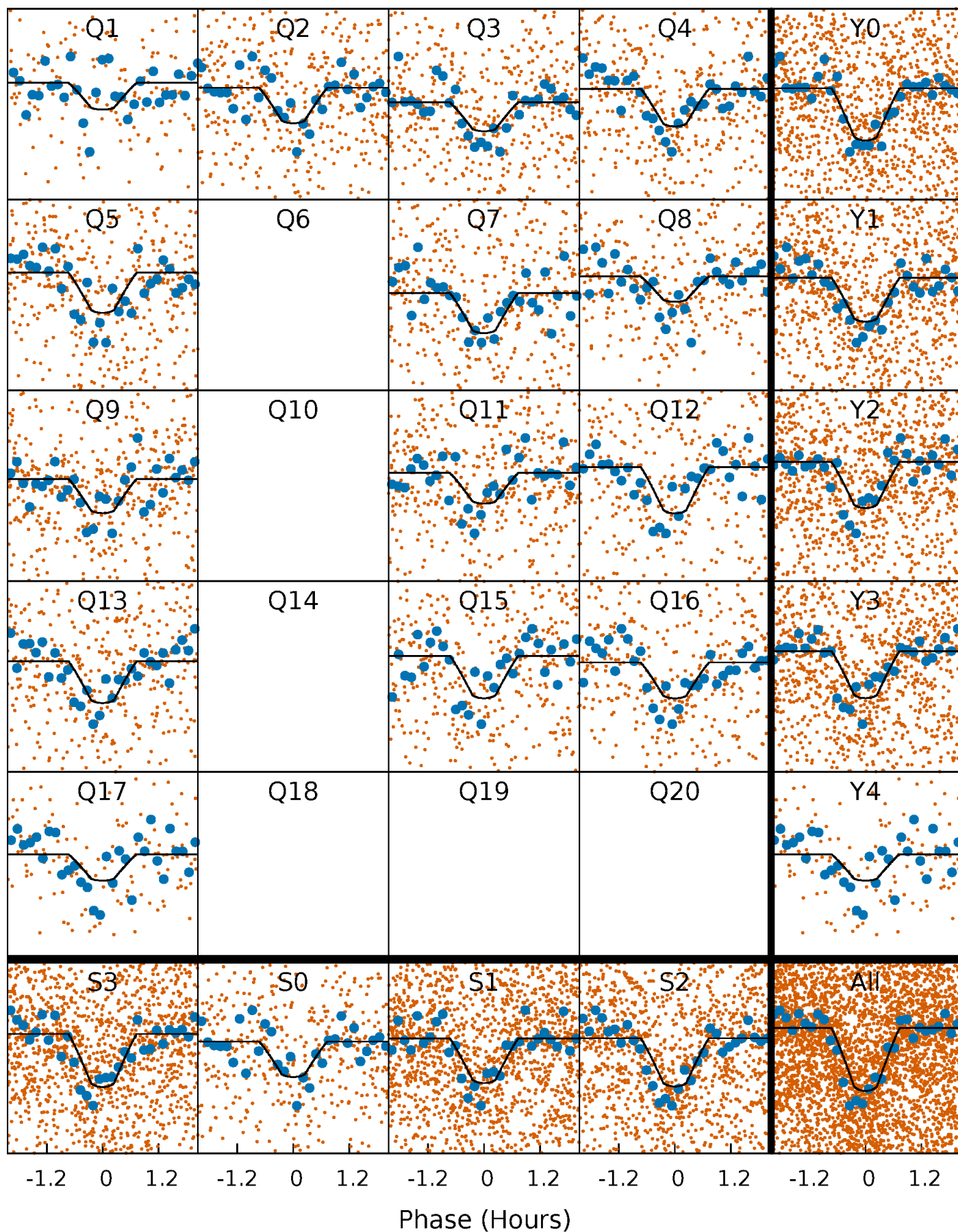
PDC Quarter-Phased Transit Curves

TCE 004570949-02 $P = 0.772472$ Days $T_0 = 132.001966$ (BKJD)



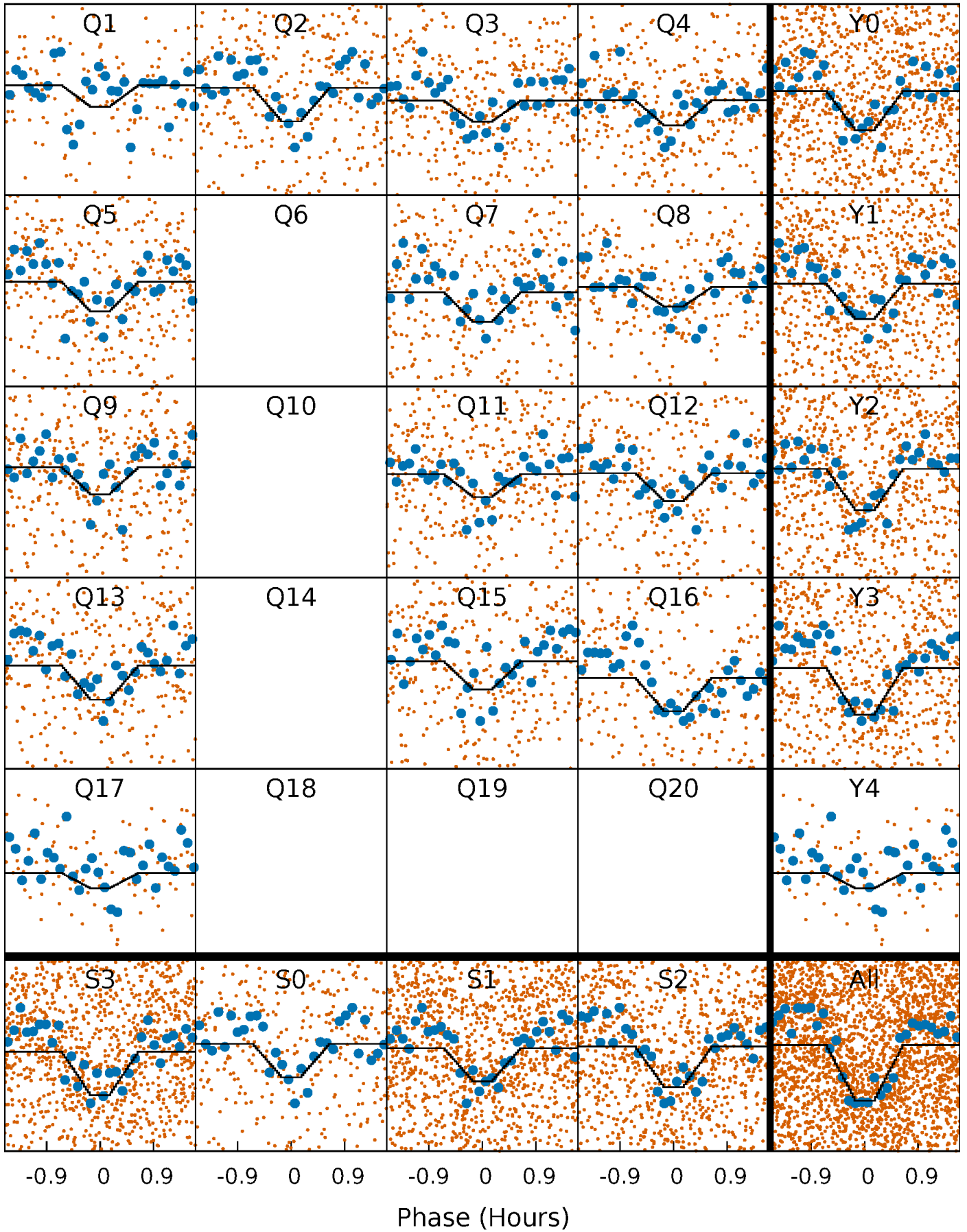
DV Quarter-Phased Transit Curves

TCE 004570949-02 $P = 0.772472$ Days $T_0 = 132.001966$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

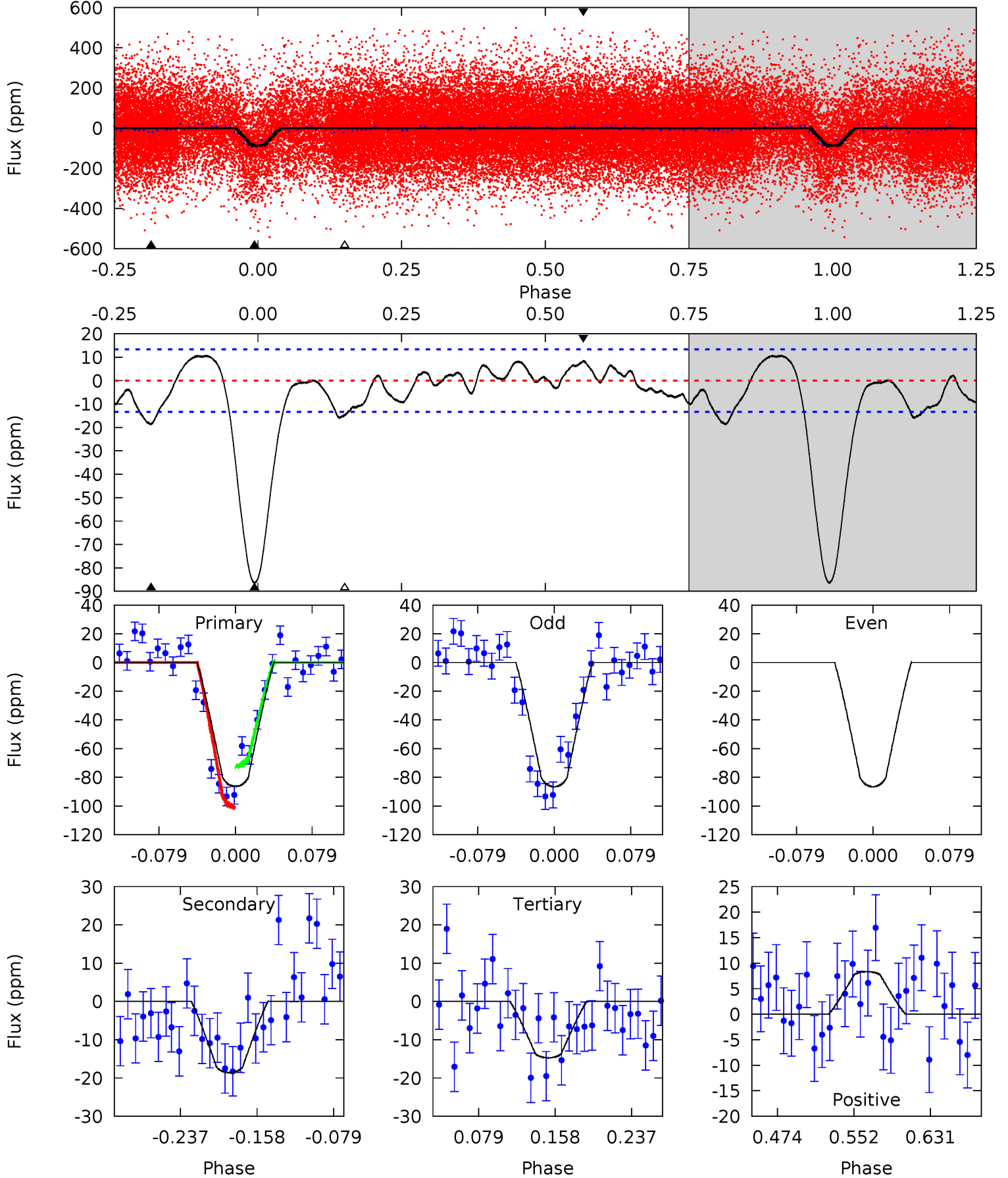
TCE 004570949-02 P= 0.772462 Days $T_0=132.005824$ (BKJD)



DV Model-Shift Uniqueness Test

004570949-02, P = 0.772472 Days, E = 131.229494 Days

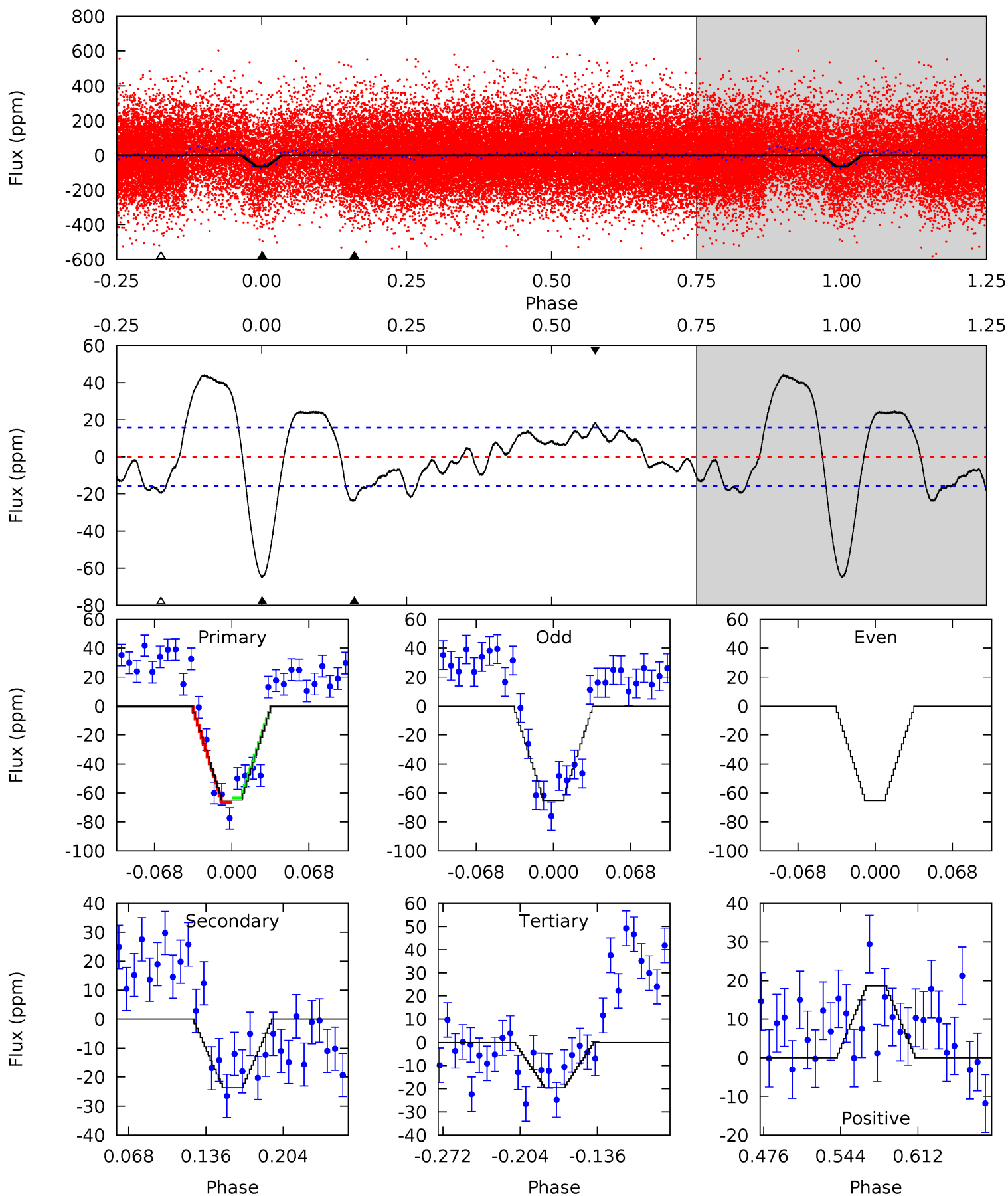
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.8	6.42	5.09	2.88	4.61	1.76	2.00	24.8	27.0	1.33	3.54	0	1.04	0.11	4.97



Alt Model-Shift Uniqueness Test

004570949-02, P = 0.772462 Days, E = 131.233362 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.2	7.02	5.81	5.50	4.65	1.83	3.82	13.4	13.7	1.21	1.52	0	0.98	0.40	0.45



Stellar Parameters For KIC 004570949

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6309^{+114}_{-126}	$4.199^{+0.149}_{-0.122}$	$-0.100^{+0.150}_{-0.150}$	$1.412^{+0.254}_{-0.254}$	$1.150^{+0.105}_{-0.096}$	$0.576^{+0.399}_{-0.201}$
	+2%/-2%	+4%/-3%	+150%/-150%	+18%/-18%	+9%/-8%	+69%/-35%
Source	SPE52	SPE52	SPE52	DSEP		

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

Secondary Eclipse Parameters for KIC 004570949-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-19 ± 3	$1.41^{+0.32}_{-0.30}$	3506^{+170}_{-183}	4311^{+483}_{-414}	$1.527^{+1.034}_{-0.536}$
Alt.	-24 ± 3	$1.23^{+0.33}_{-0.29}$	3524^{+170}_{-179}	4862^{+652}_{-489}	$2.557^{+1.933}_{-0.988}$

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

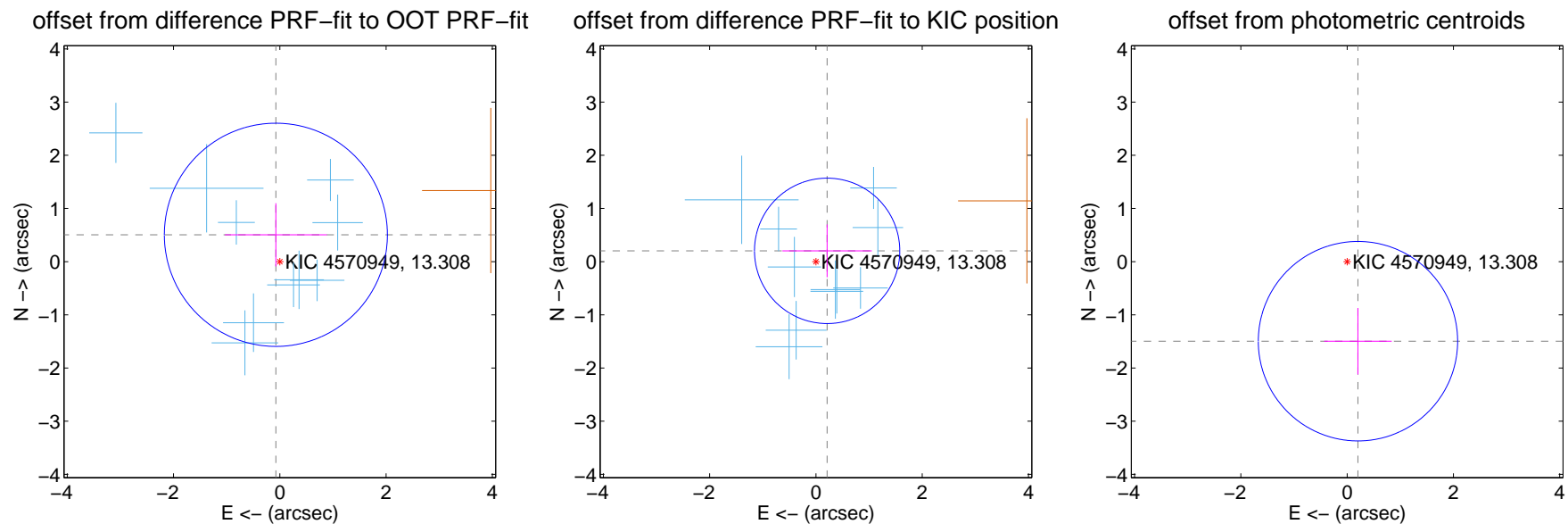
DV Centroid Data

Supplemental centroid analysis for 004570949-02. Kepler magnitude: 13.31. Transit SNR 16.49

There are 10 quarters with good PRF difference image offsets

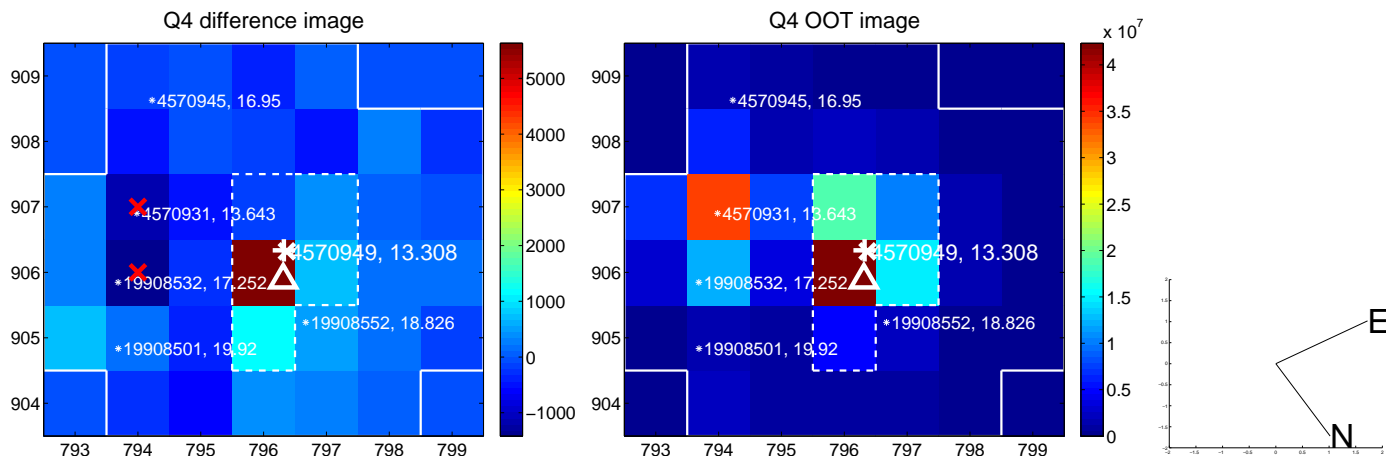
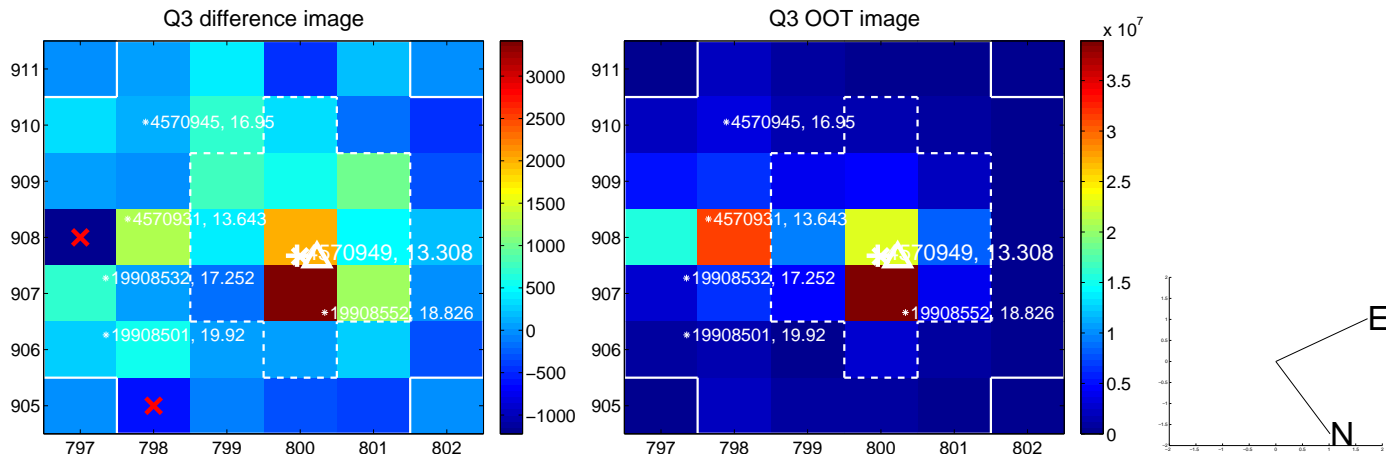
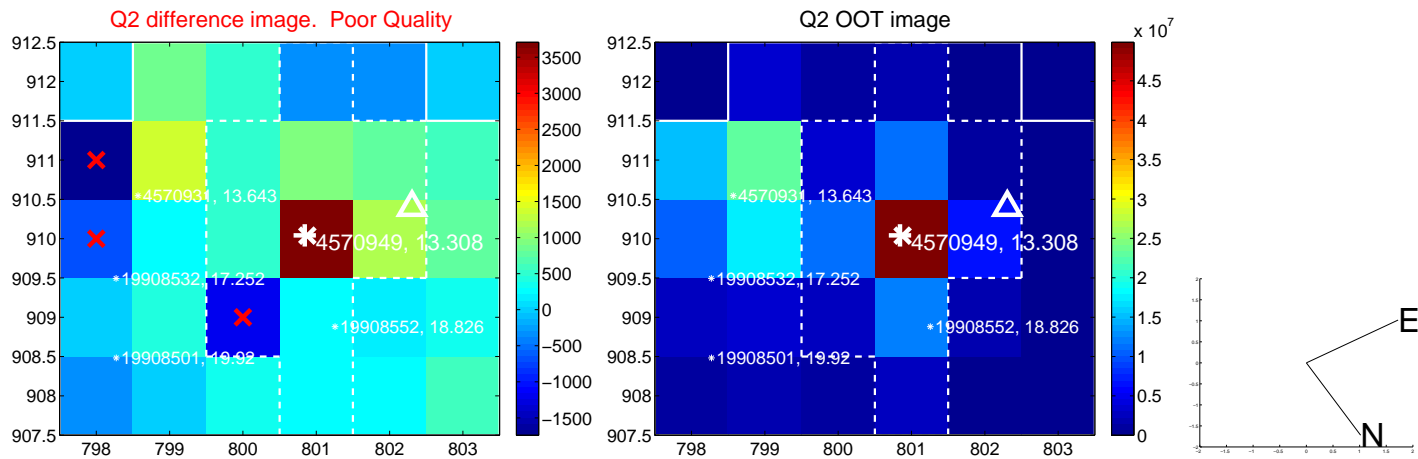
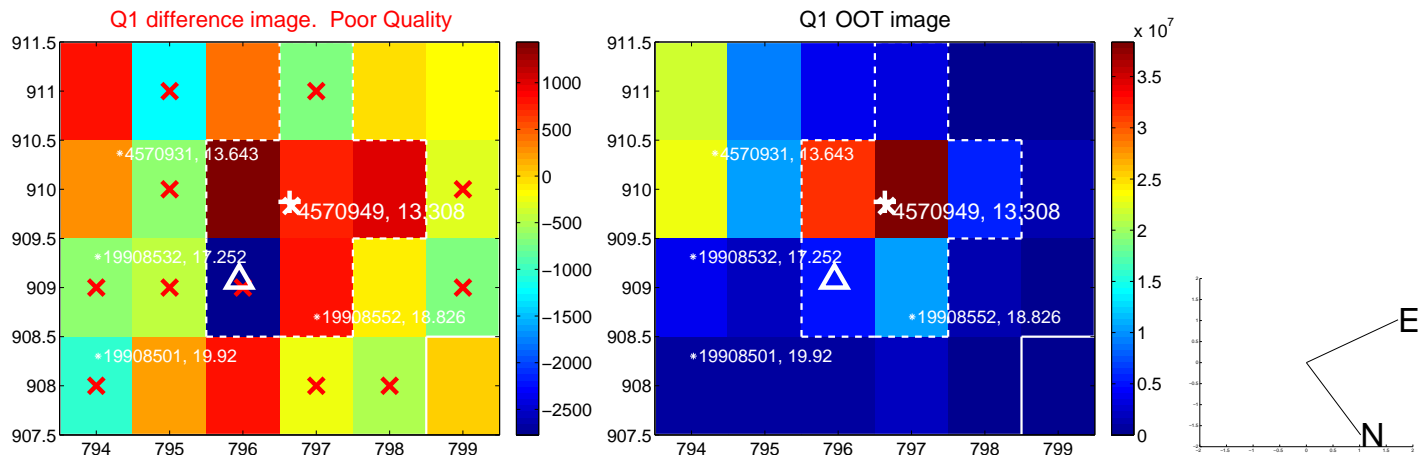
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.510 ± 0.699	0.73	0.074 ± 0.959	0.505 ± 0.593
PRF-fit source offset from KIC position	0.293 ± 0.456	0.64	-0.211 ± 0.842	0.203 ± 0.497
photometric centroid source offset	1.51 ± 0.63	2.41	-0.20 ± 0.64	-1.50 ± 0.62

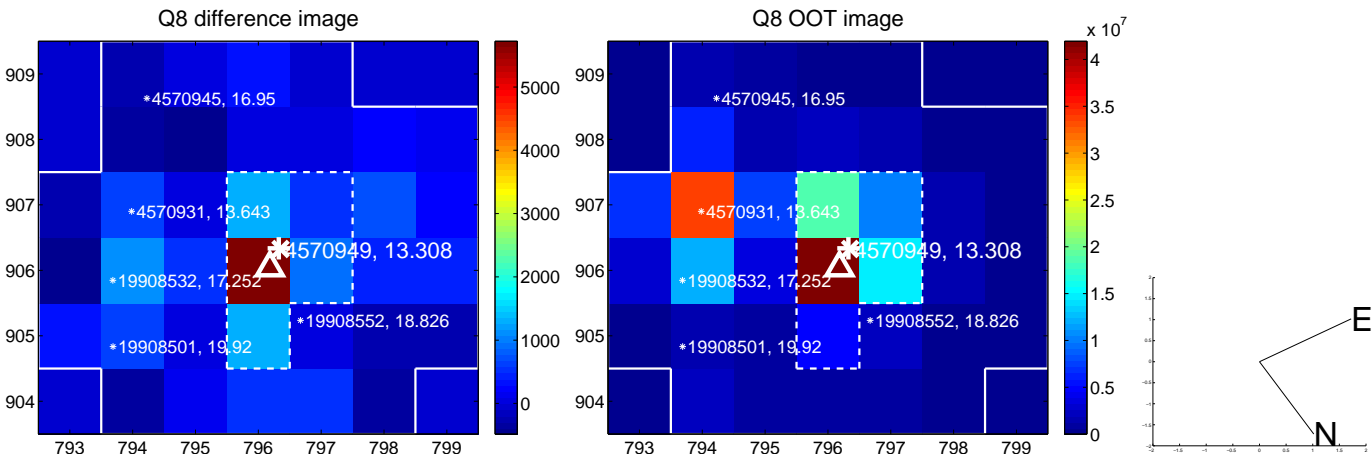
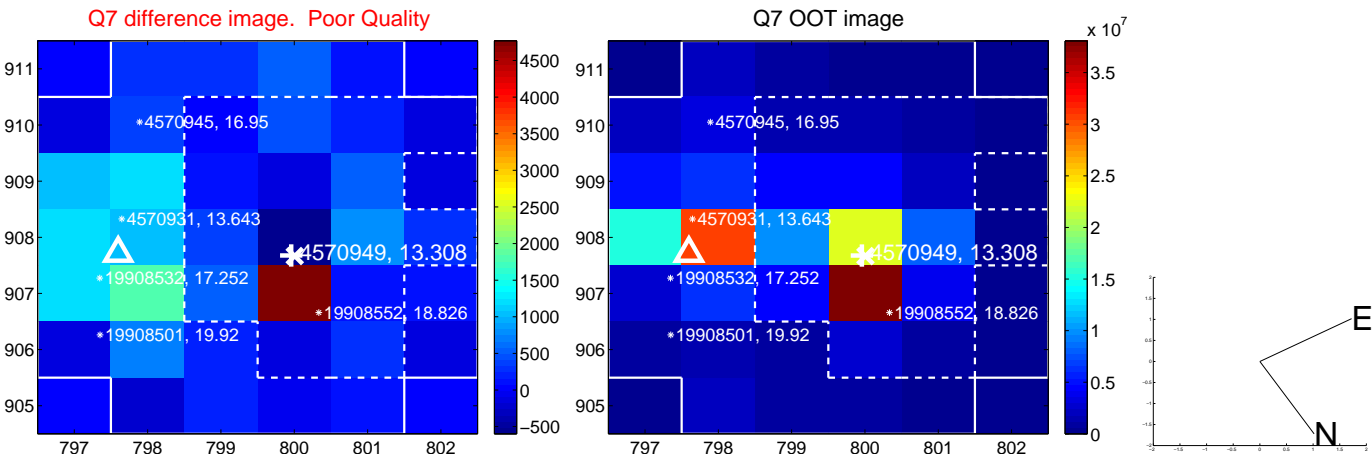
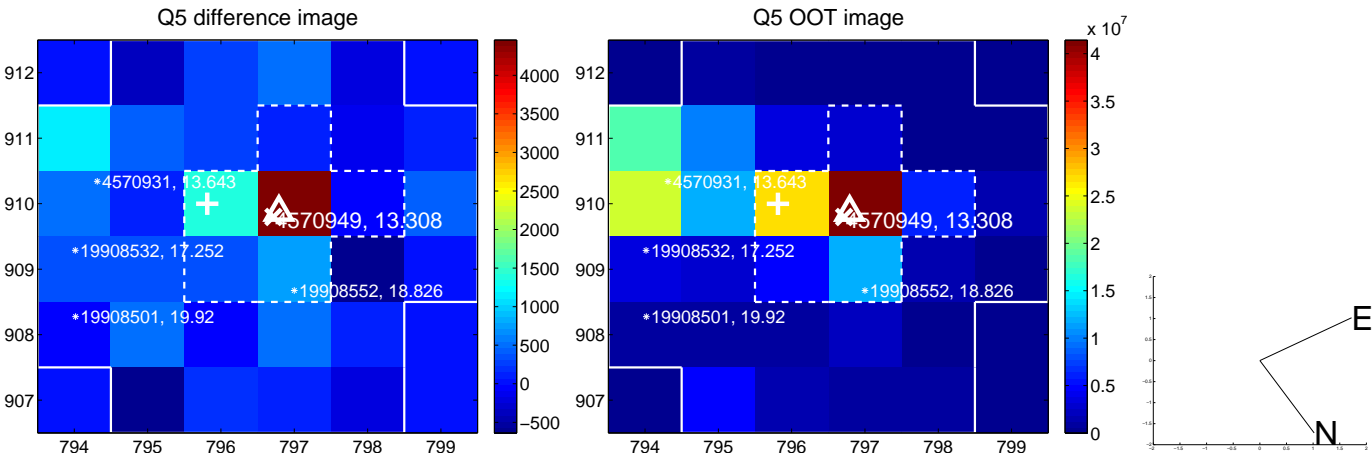


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

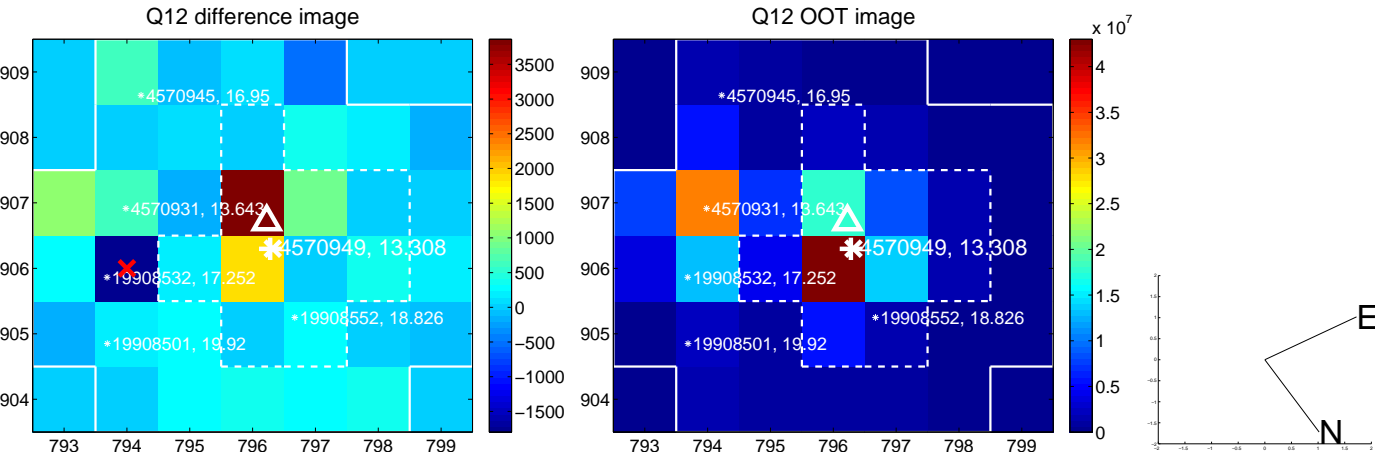
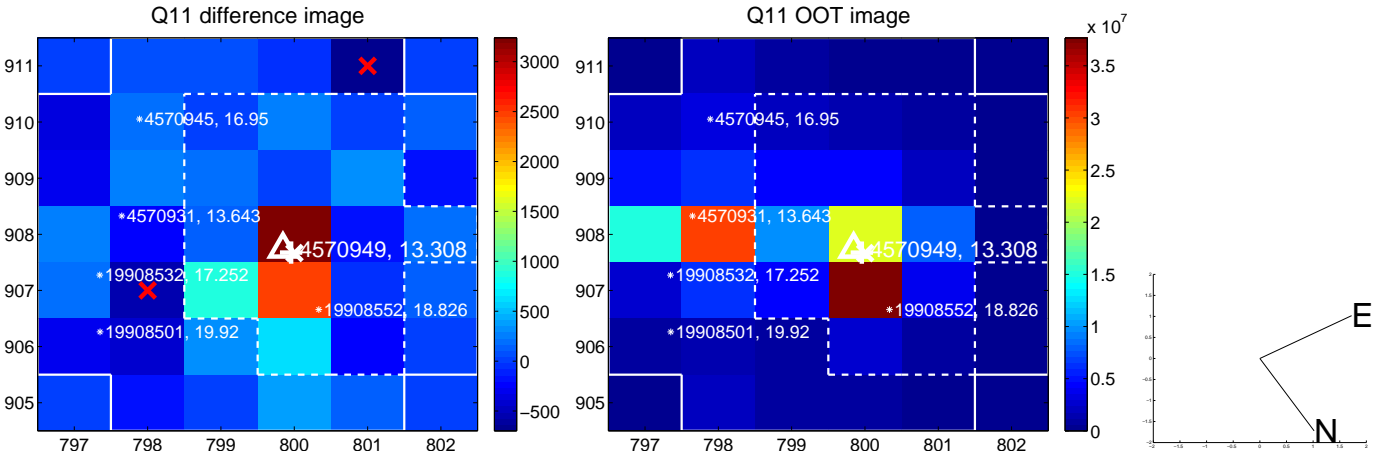
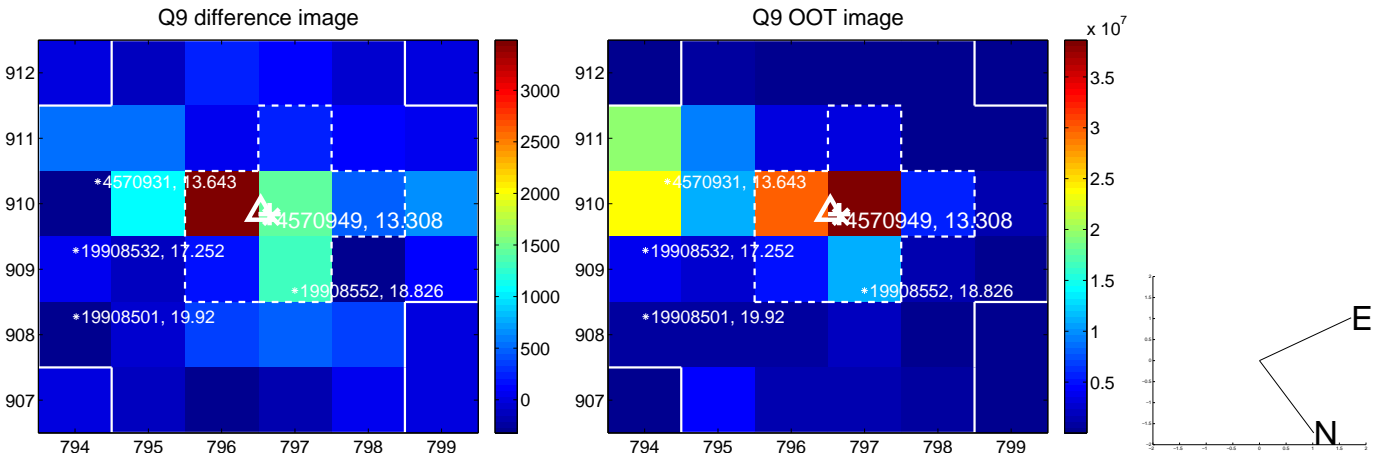
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



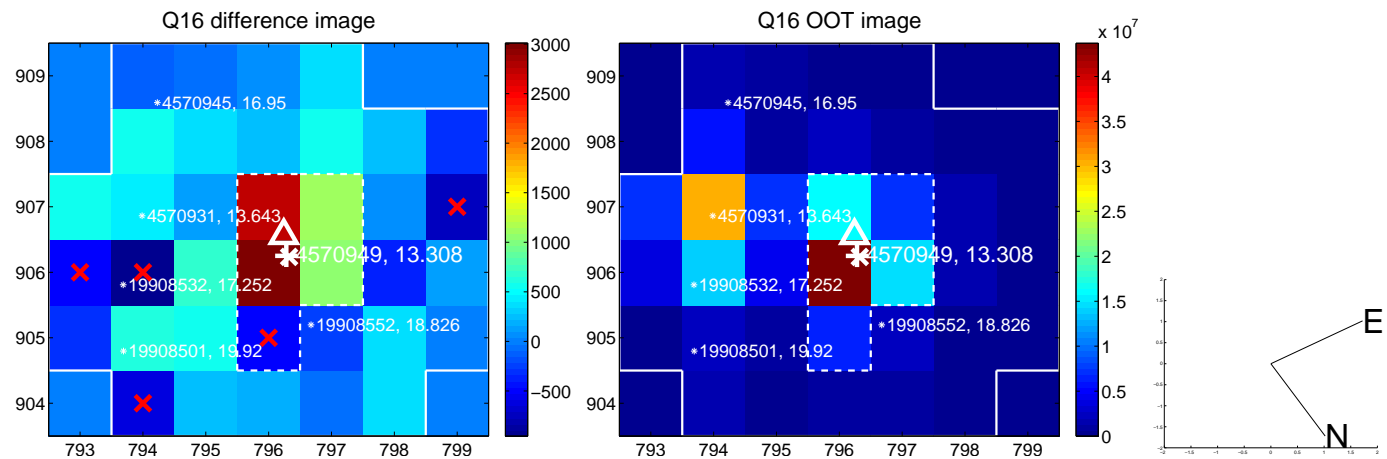
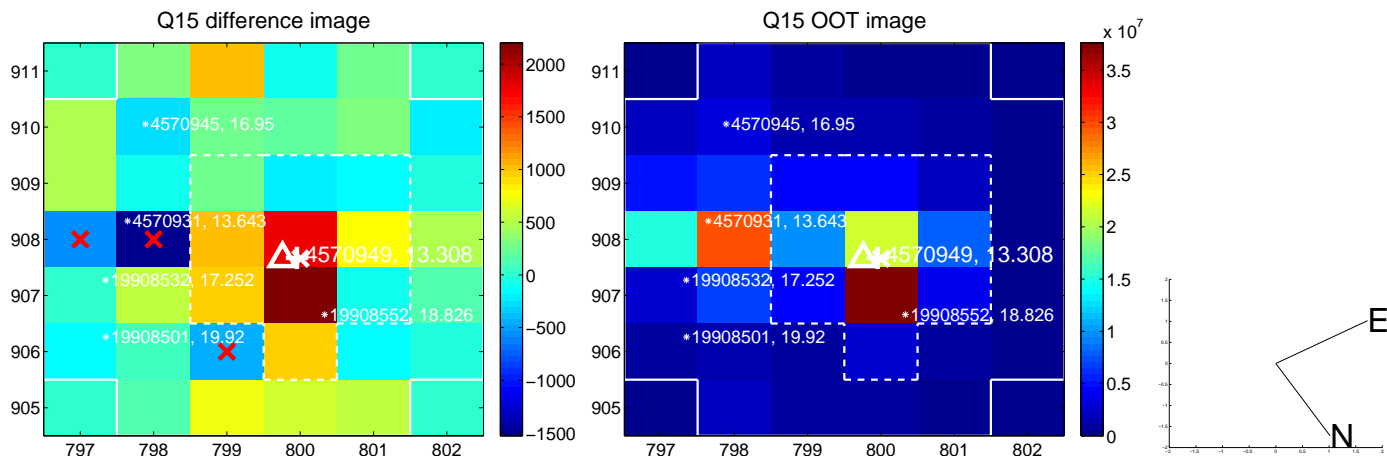
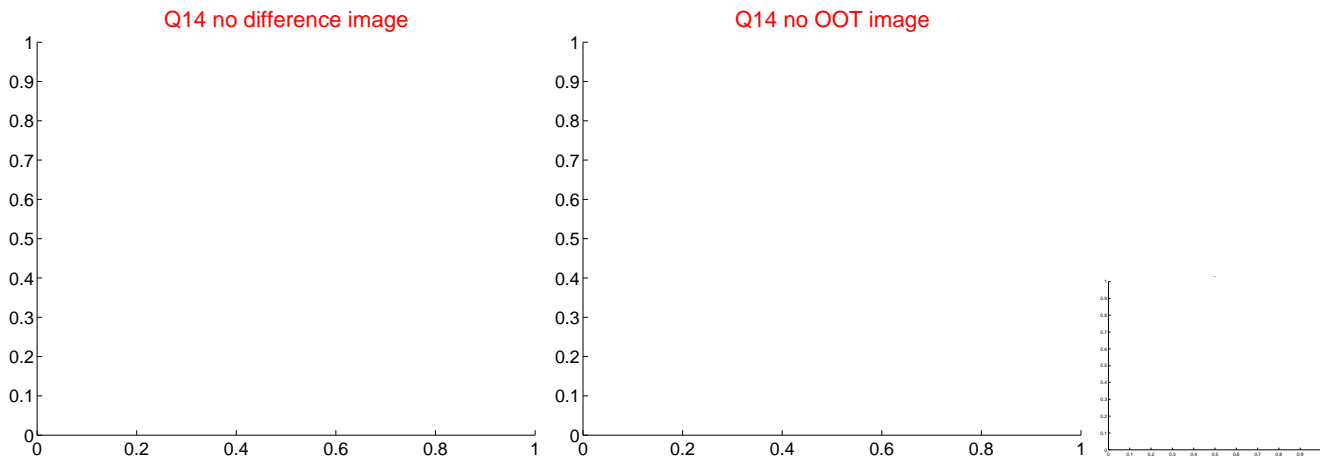
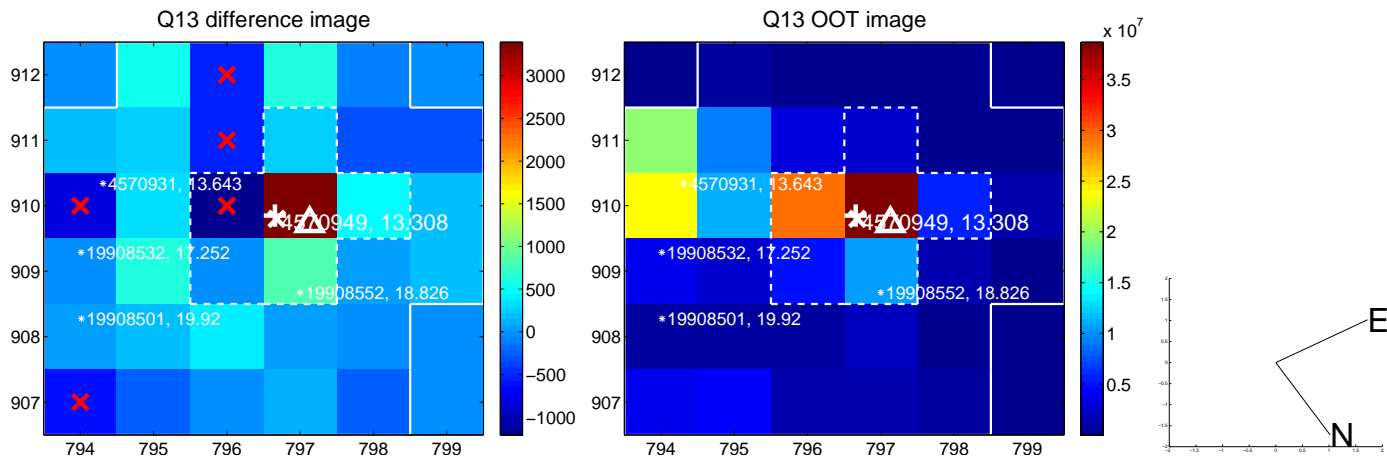
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



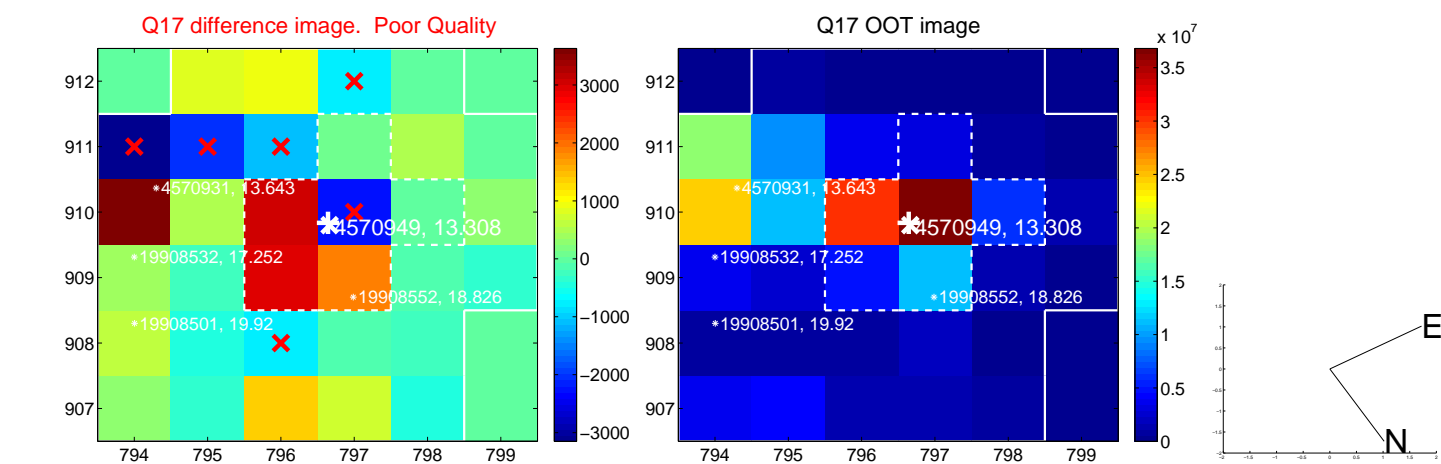
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



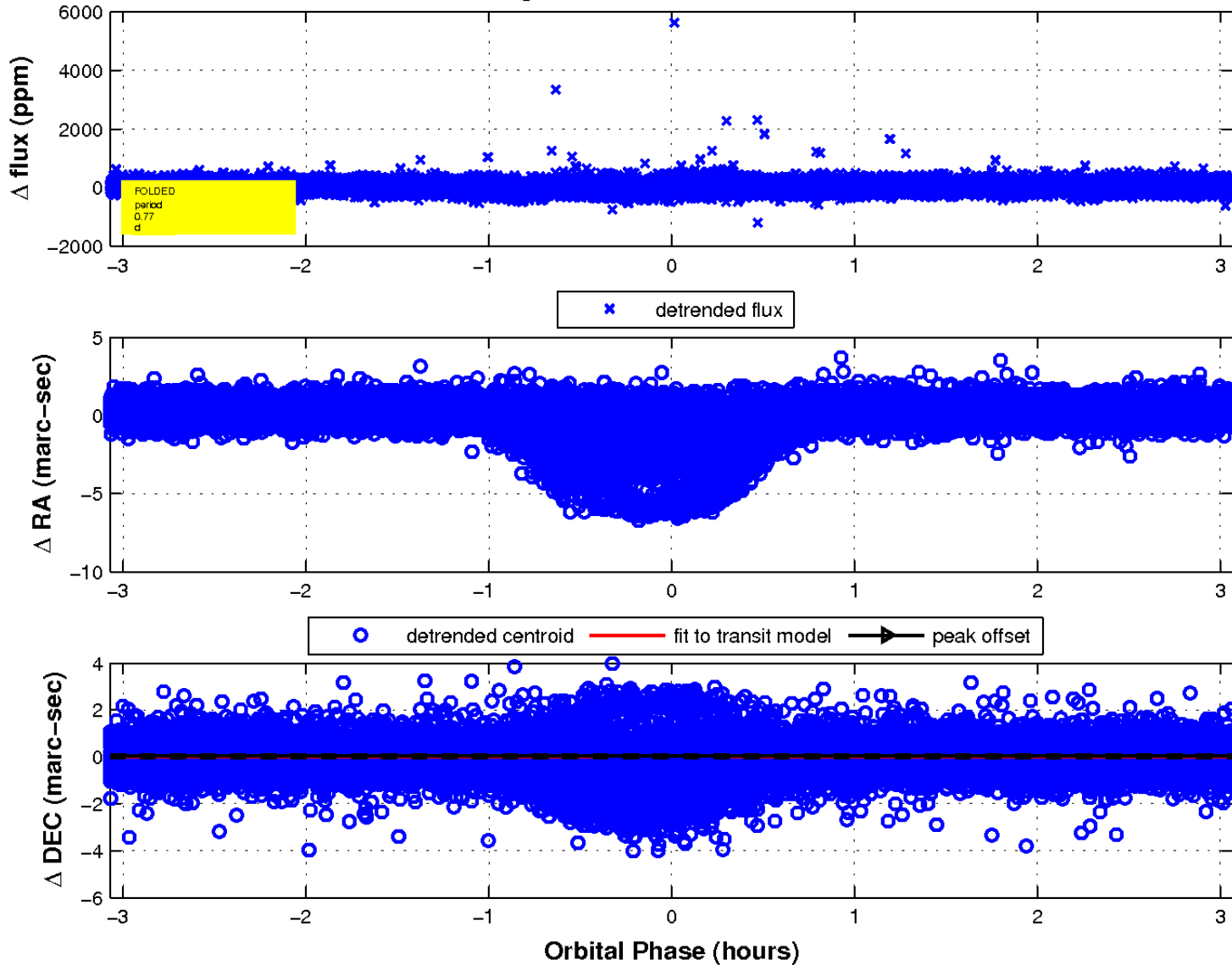
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

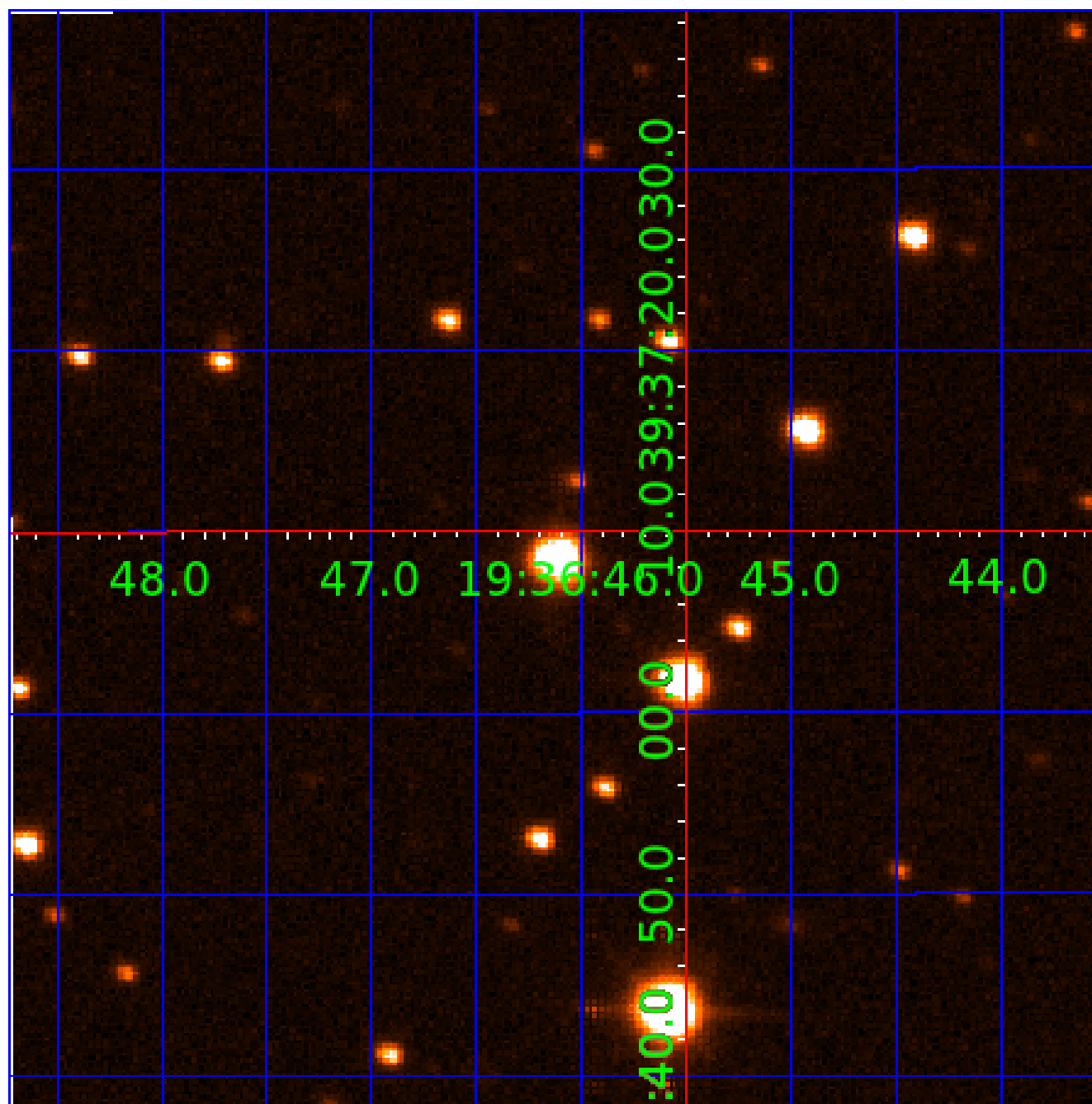


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



KIC 004570949

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})
004570949-01	OBS	1658.01	1.544930	132.003445	5656.4	1.405	1154.7	1156.8	1.41	6309	12.65	3767.74
004570949-02	OBS	No	0.772472	132.001966	74.4	1.023	14.8	16.5	1.41	6309	1.42	9494.00
004570949-03	OBS	No	1.544998	131.973597	45.9	16.587	11.9	17.5	1.41	6309	0.99	3767.52

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004570949-01	OBS	PC	1.00	0	1	0	0	MOD_SEC_DV—PLANET_OCCULT_DV—HAS_SEC_TCE
004570949-02	OBS	FP	0.00	1	1	0	1	IS_SEC_TCE—EPHEM_MATCH
004570949-03	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—RESIDUAL_TCE—CENT_UNRESOLVED_OFFSET—EPHEM_MATCH

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 004570949-03

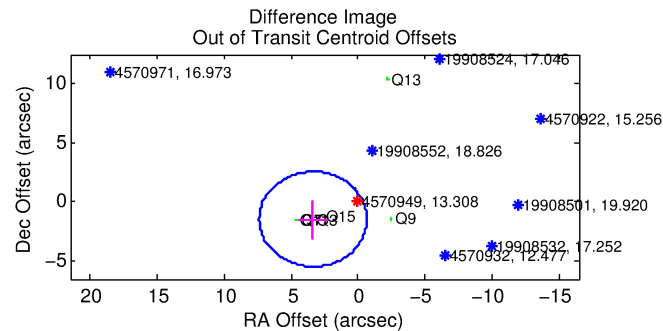
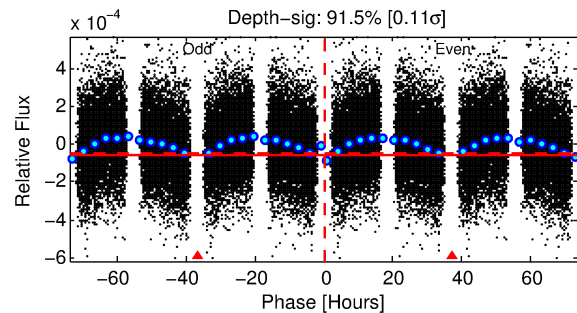
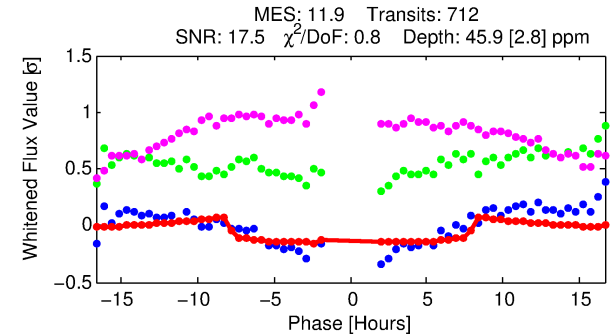
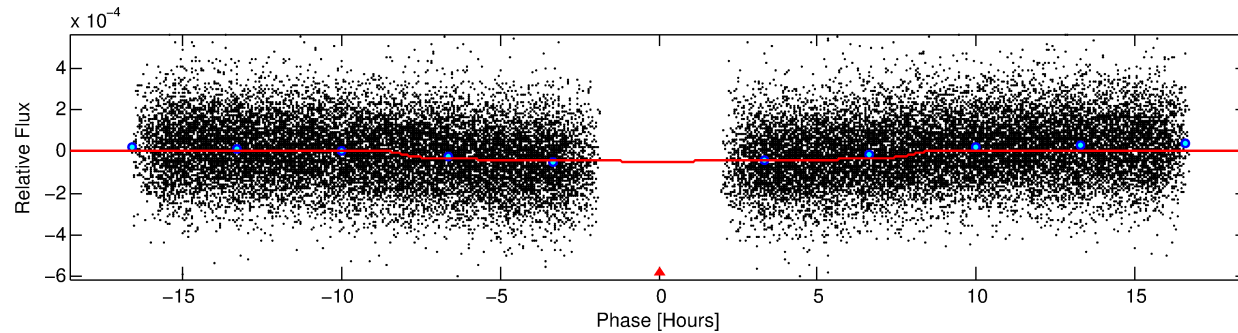
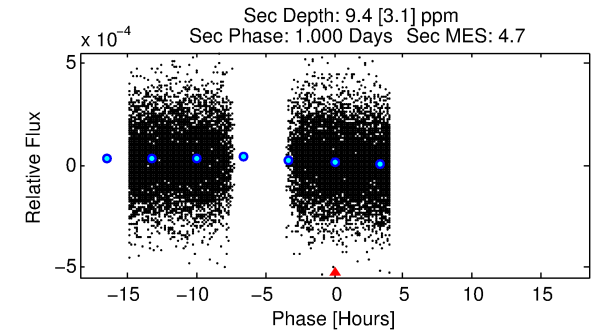
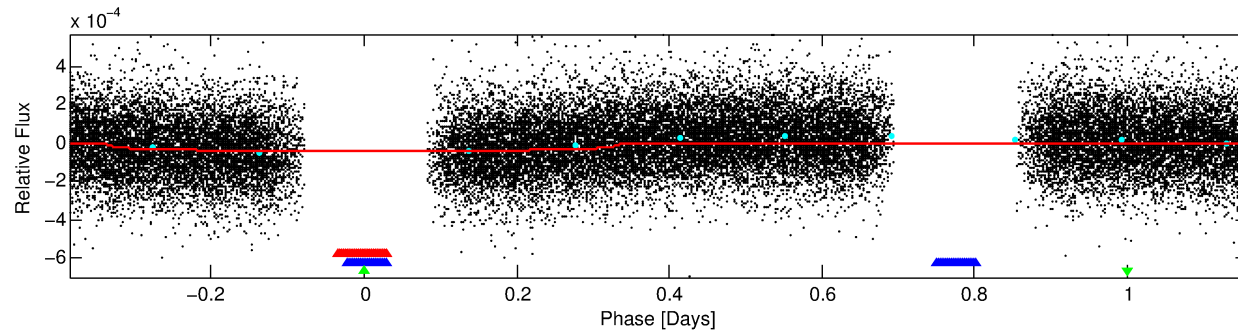
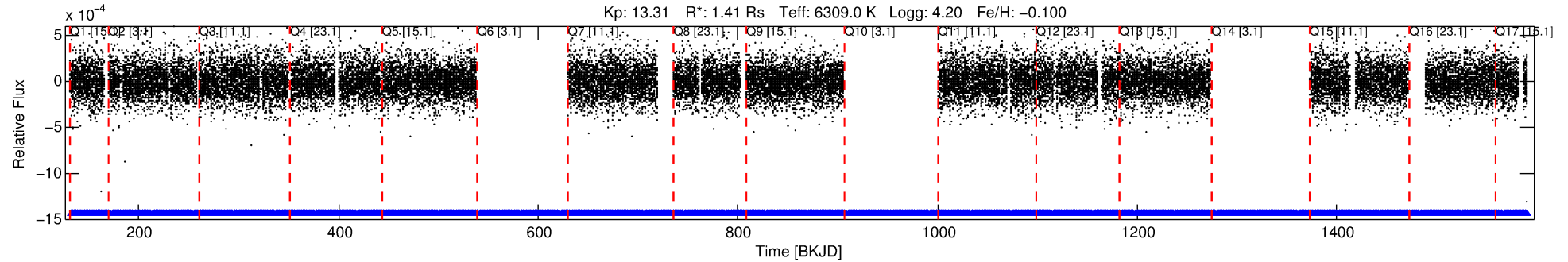
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004570949-03	4570949	1343.01	4570931	1:1	9.6	0	2	13.64	13.30	2.80	Direct-PRF	0	3.60	1.92

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 4570949 Candidate: 3 of 3 Period: 1.545 d
KOI: K01658 Name: Kepler-76 Corr: No Ephemeris Match

Kp: 13.31 R*: 1.41 Rs Teff: 6309.0 K Logg: 4.20 Fe/H: -0.100



DV Fit Results:

Period = 1.54500 [0.00001] d
Epoch = 131.9736 [0.0042] BKJD
Rp/R* = 0.0064 [0.0010]
a/R* = 1.02 [0.03]
b = 0.51 [1.26]
Seff = 3767.52 [1018.47]
Teq = 1998 [135] K
Rp = 0.99 [0.24] Re
a = 0.0274 [0.0045] AU
Ag = 3.99 [2.11] [1.42σ]
Teffp = 4364 [512] K [4.47σ]

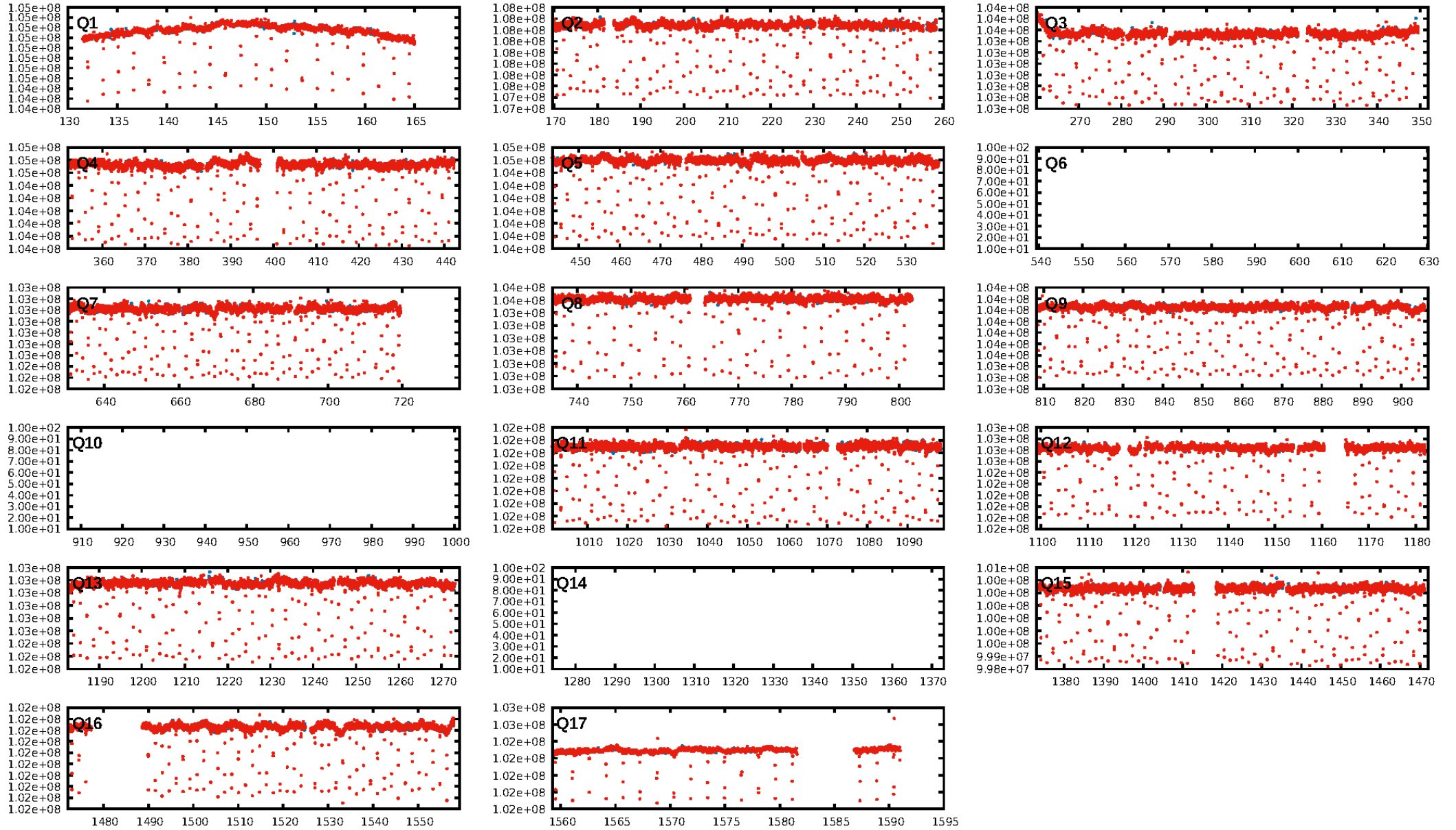
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [672/672]
GhostDiagnostic-chr: 6.799
Centroid-sig: N/A
Centroid-so: 0.726 arcsec [2.18σ]
OotOffset-rm: 3.668 arcsec [2.74σ]
KicOffset-rm: 3.627 arcsec [2.05σ]
OotOffset-st: 0/4/0/2 [6]
KicOffset-st: 0/4/0/2 [6]
DiffImageQuality-fgm: 0.17 [1/6]
DiffImageOverlap-fno: 0.00 [0/14]

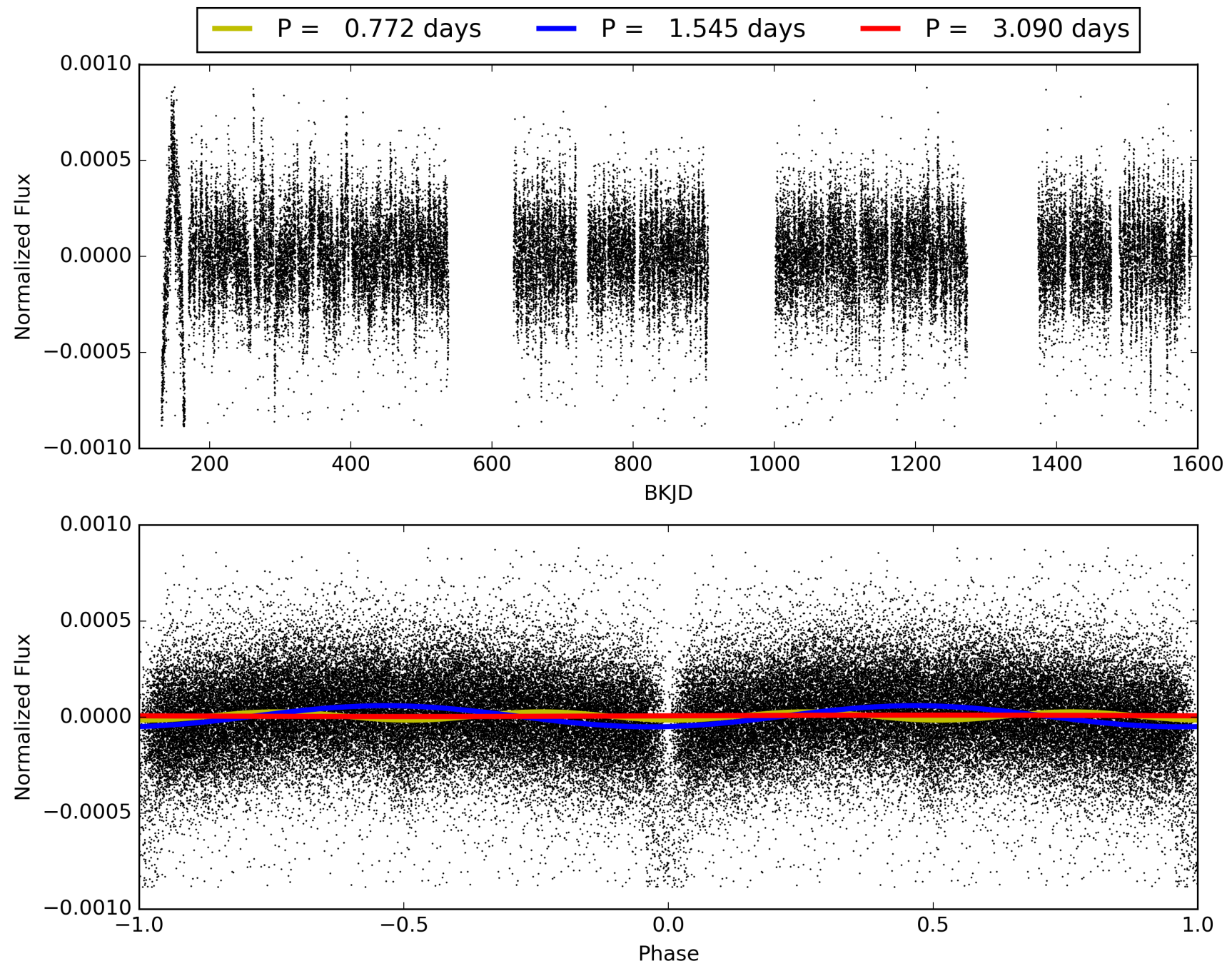
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 23:03:35 Z

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

TCE 004570949-03, PDC Light Curves

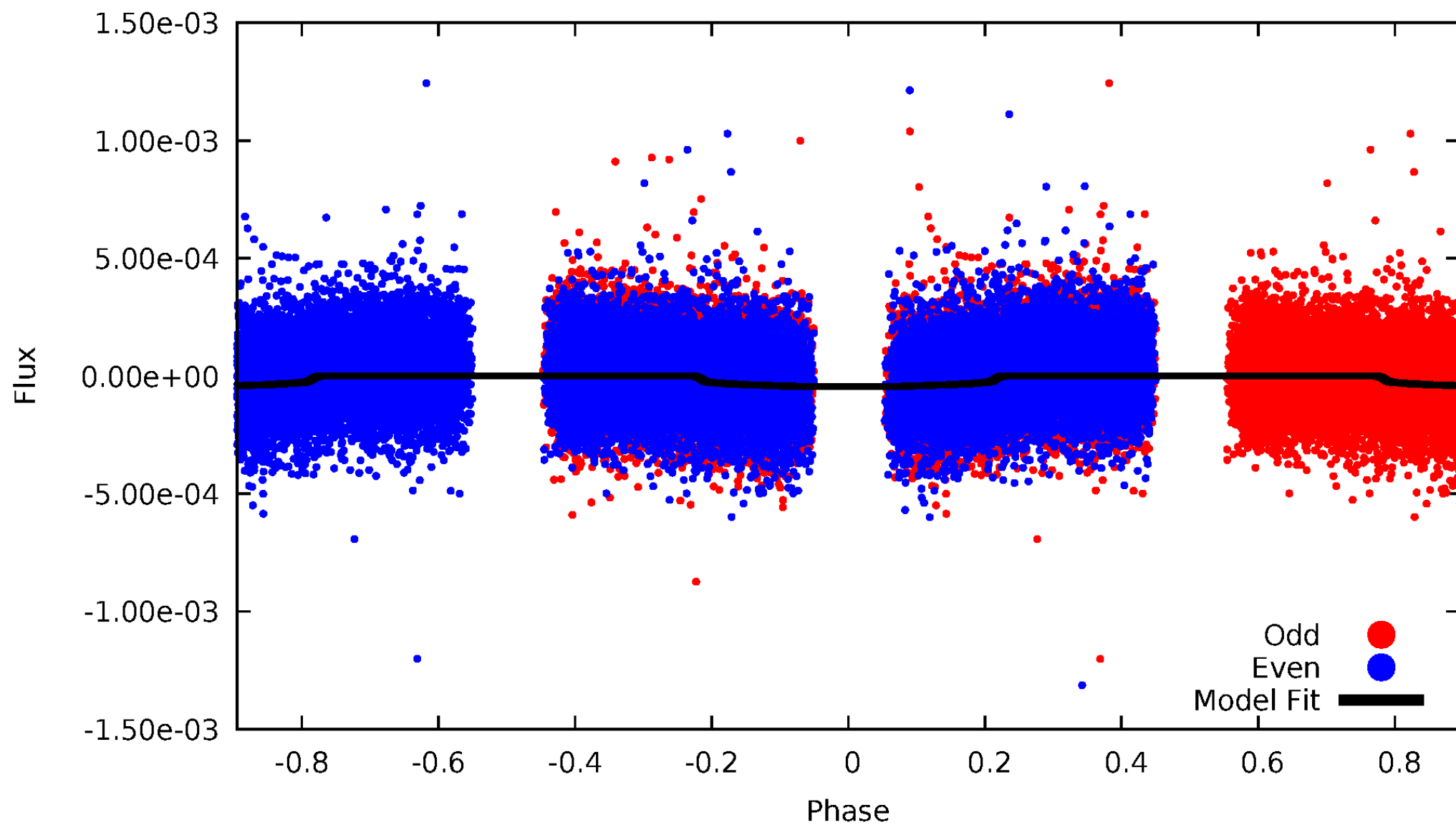


TCE 004570949-03



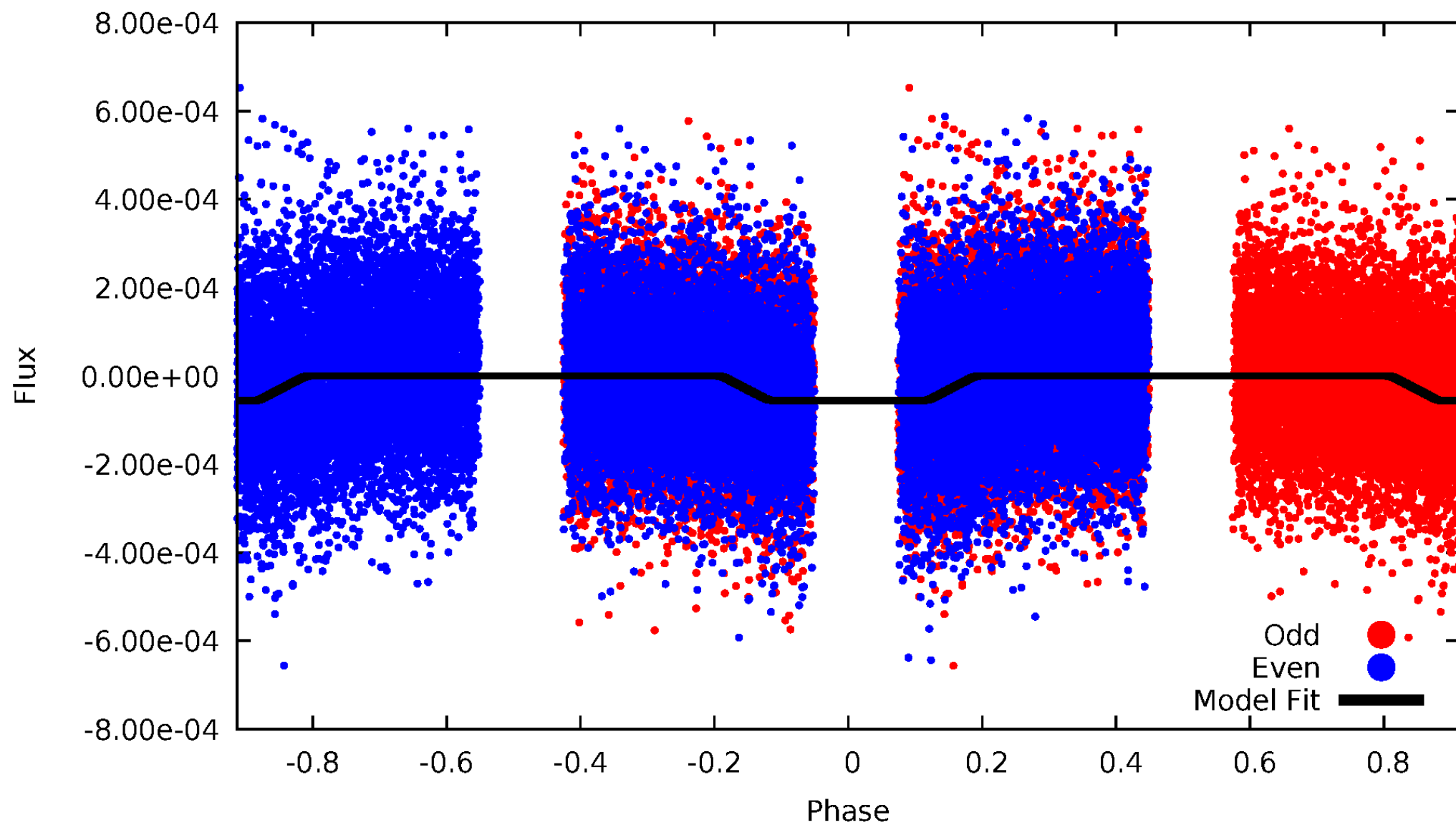
DV Odd/Even

TCE 004570949-03



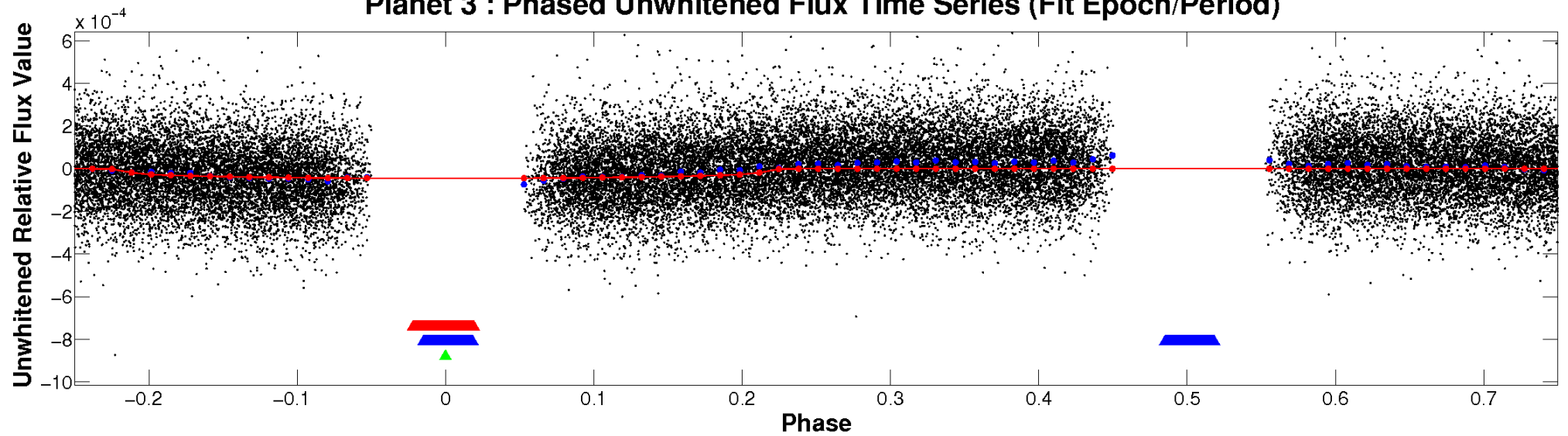
ALT Odd/Even

TCE 004570949-03

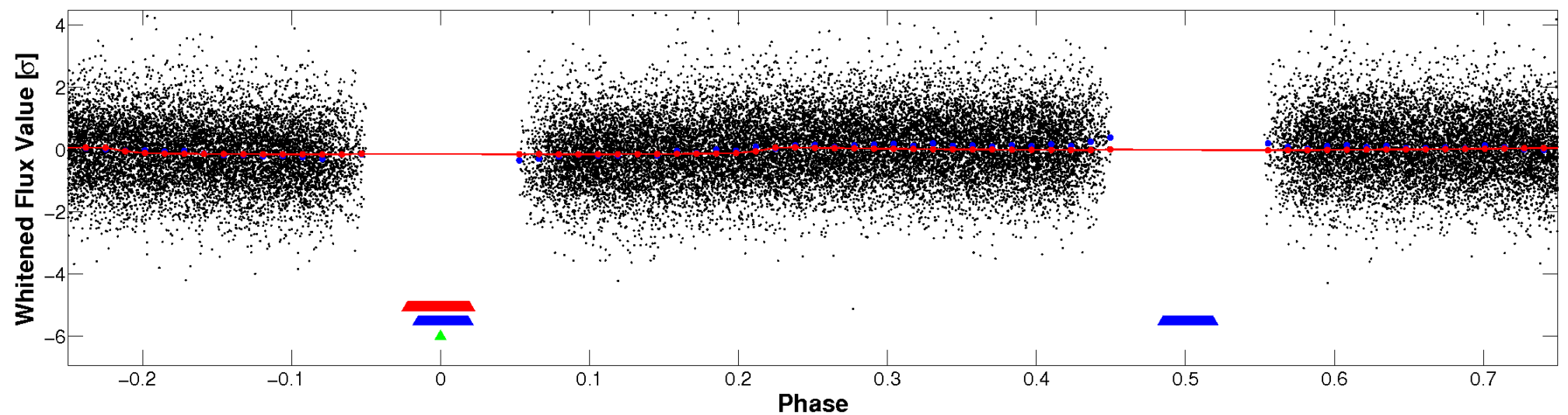


Non-Whitened Vs. Whitened Light Curve

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

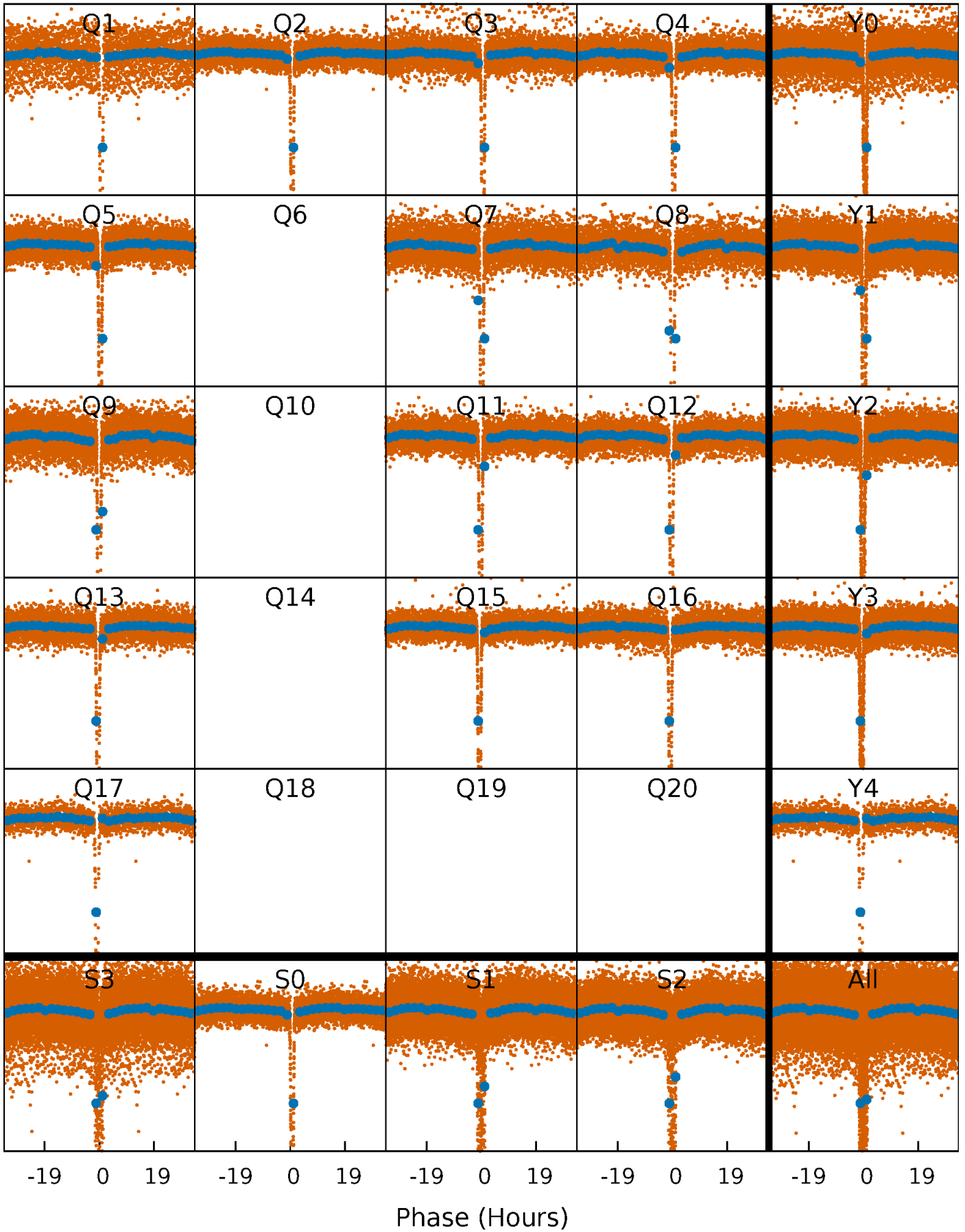


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



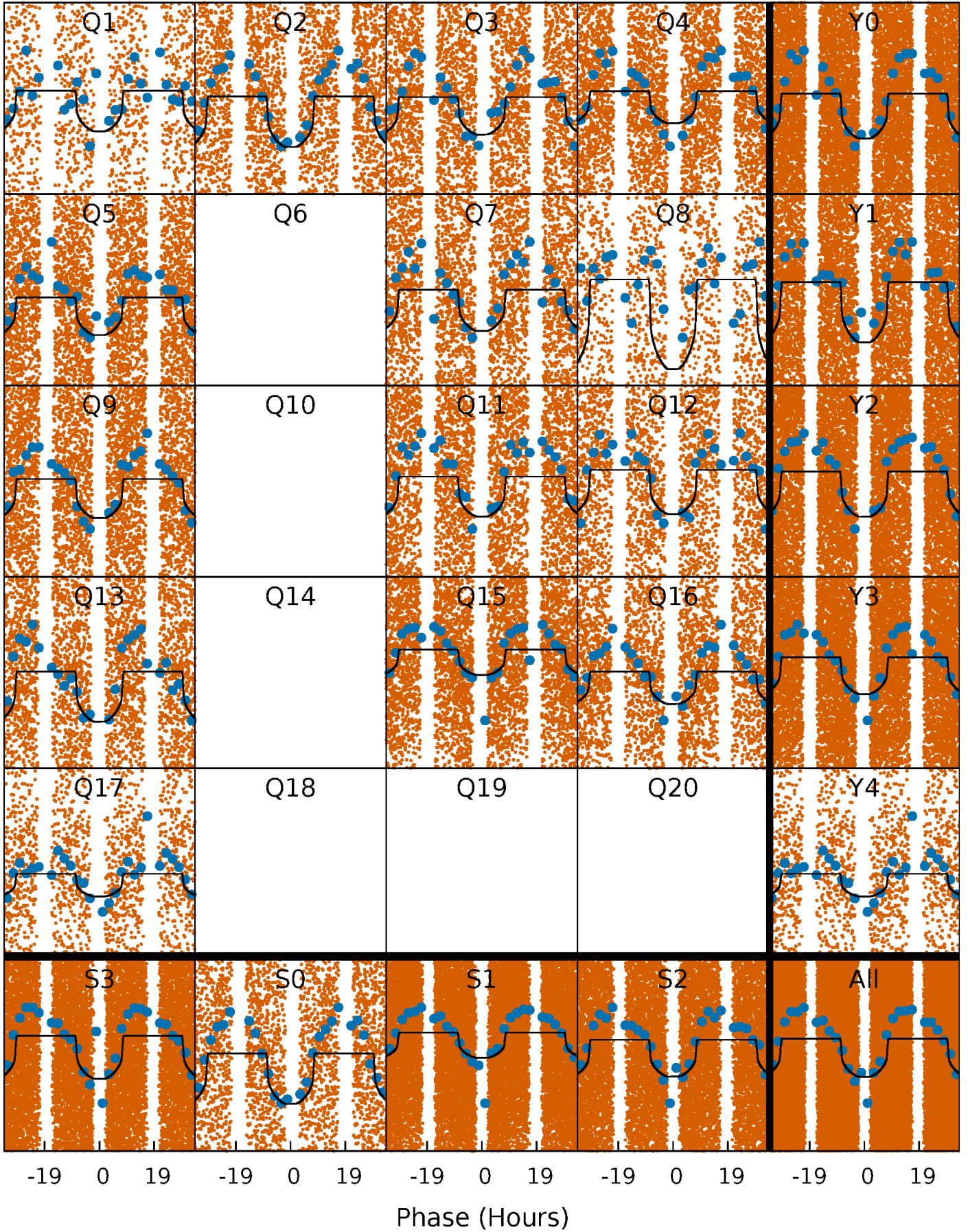
PDC Quarter-Phased Transit Curves

TCE 004570949-03 P= 1.544998 Days $T_0=131.973597$ (BKJD)



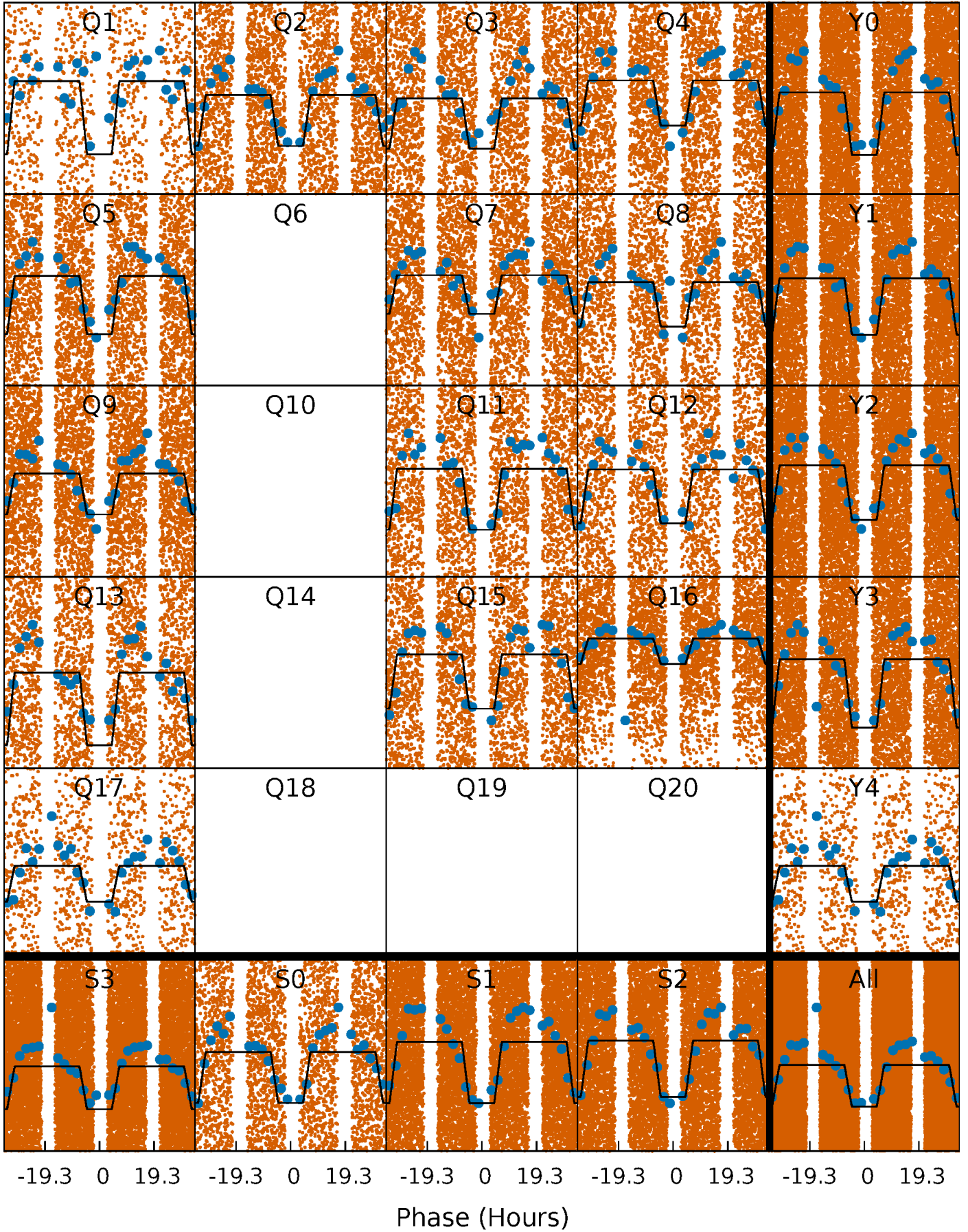
DV Quarter-Phased Transit Curves

TCE 004570949-03 P= 1.544998 Days $T_0=131.973597$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

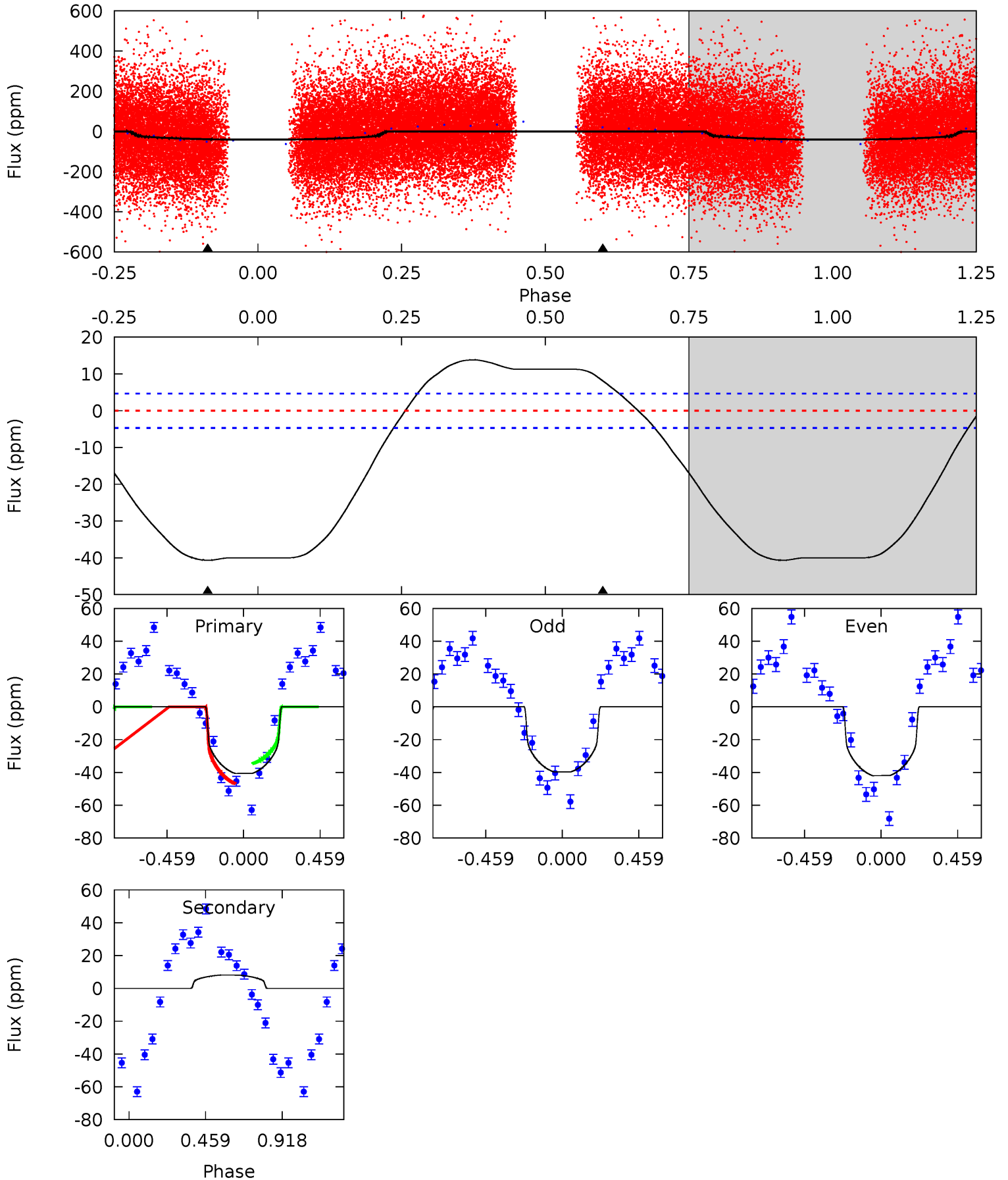
TCE 004570949-03 P= 1.544962 Days $T_0=131.975144$ (BKJD)



DV Model-Shift Uniqueness Test

004570949-03, P = 1.544998 Days, E = 130.428599 Days

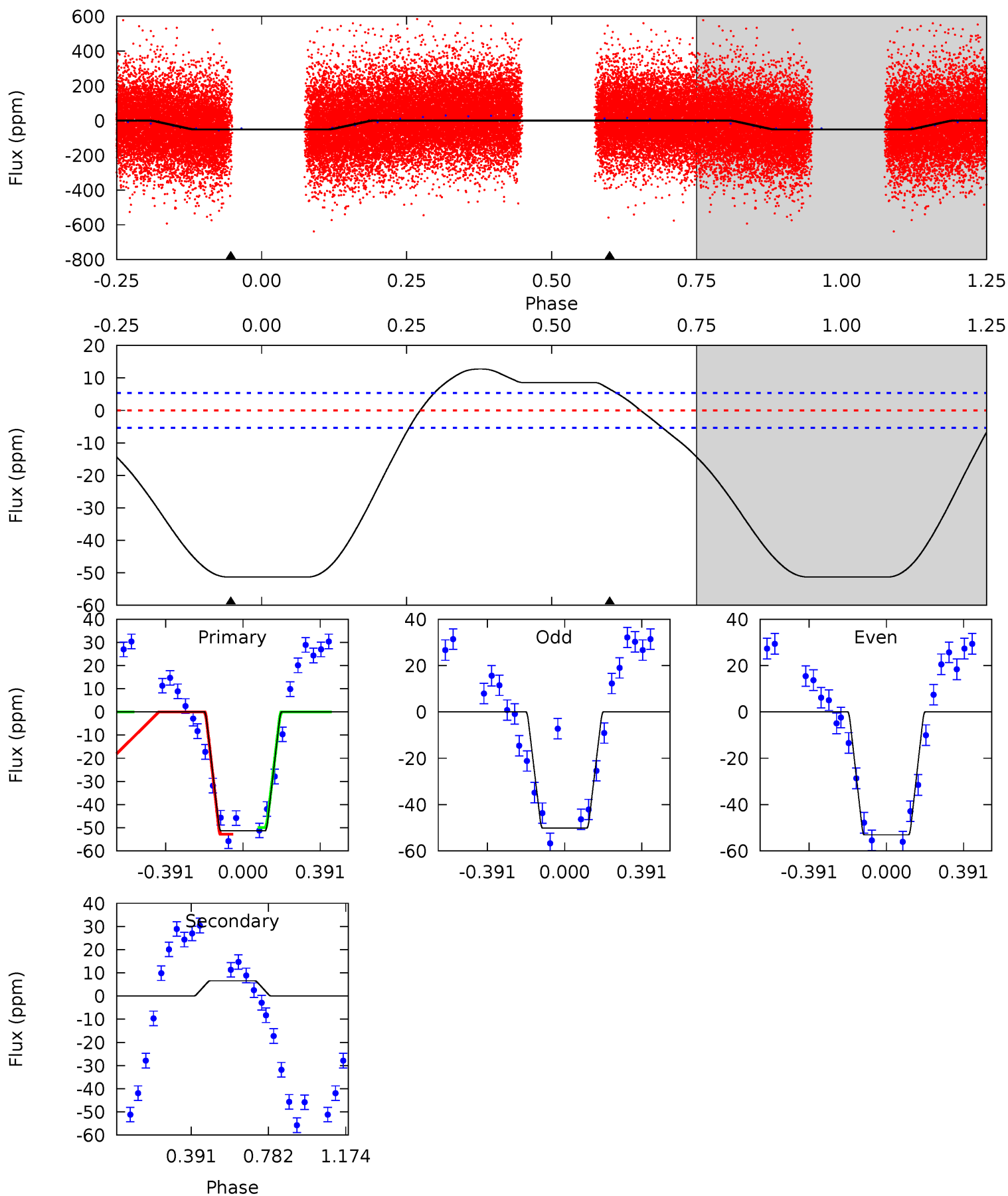
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.8	-7.35	0	0	4.23	0.74	4.49	36.8	36.8	-7.35	-7.35	1.04	0.91	0.25	5.57



Alt Model-Shift Uniqueness Test

004570949-03, P = 1.544962 Days, E = 130.430182 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.9	-5.24	0	0	4.27	0.86	4.36	40.9	40.9	-5.24	-5.24	1.19	1.05	0.20	1.16



Stellar Parameters For KIC 004570949

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6309^{+114}_{-126}	$4.199^{+0.149}_{-0.122}$	$-0.100^{+0.150}_{-0.150}$	$1.412^{+0.254}_{-0.254}$	$1.150^{+0.105}_{-0.096}$	$0.576^{+0.399}_{-0.201}$
	+2%/-2%	+4%/-3%	+150%/-150%	+18%/-18%	+9%/-8%	+69%/-35%
Source	SPE52	SPE52	SPE52	DSEP		

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

Secondary Eclipse Parameters for KIC 004570949-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	8 ± 1	$0.98^{+0.21}_{-0.19}$	2777^{+148}_{-156}	-4490^{+263}_{-295}	$-3.526^{+1.198}_{-1.966}$
Alt.	7 ± 1	$1.12^{+0.22}_{-0.17}$	2790^{+155}_{-155}	-4136^{+216}_{-249}	$-2.141^{+0.700}_{-1.034}$

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

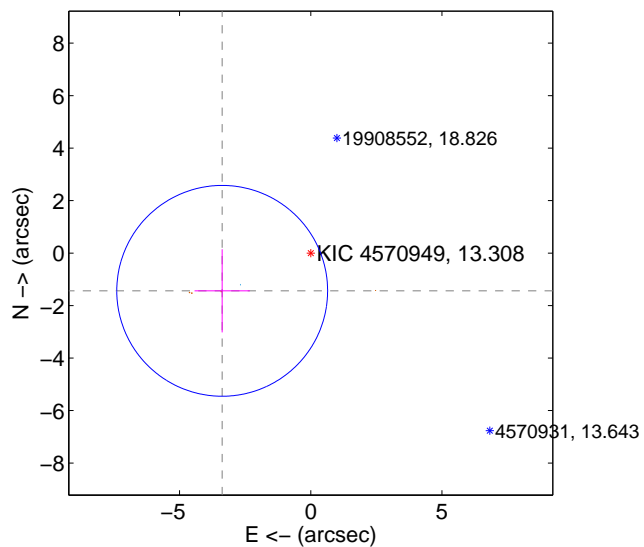
Supplemental centroid analysis for 004570949-03. Kepler magnitude: 13.31. Transit SNR 17.54

There are 1 quarters with good PRF difference image offsets

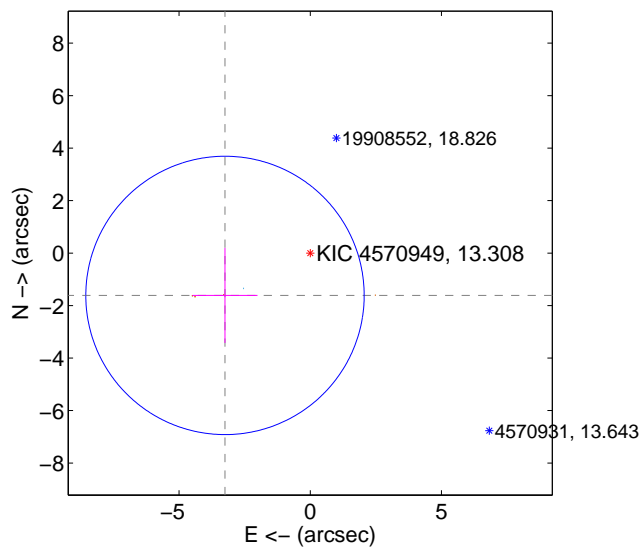
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.668 ± 1.339	2.74	3.375 ± 1.055	-1.438 ± 1.583
PRF-fit source offset from KIC position	3.627 ± 1.768	2.05	3.248 ± 1.240	-1.613 ± 1.810
photometric centroid source offset	0.73 ± 0.33	2.18	-0.73 ± 0.33	0.00 ± 0.33

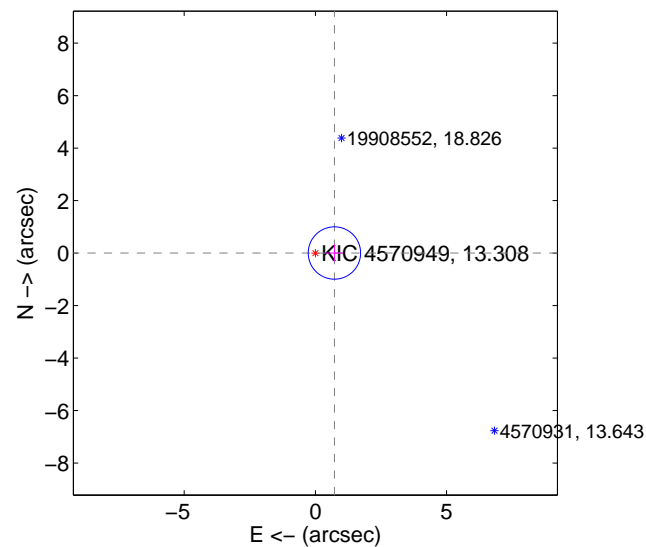
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

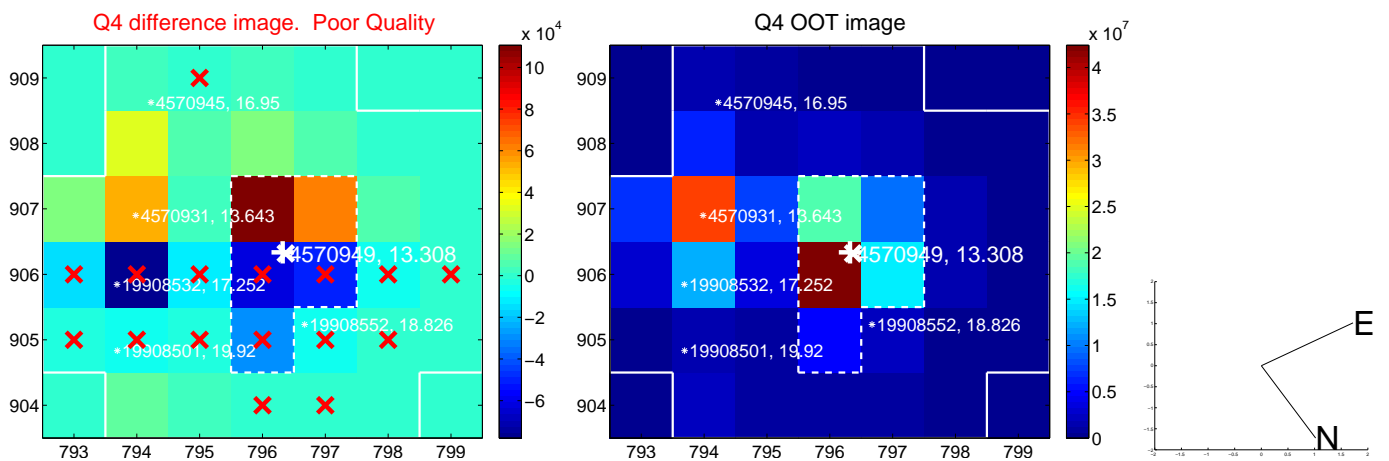
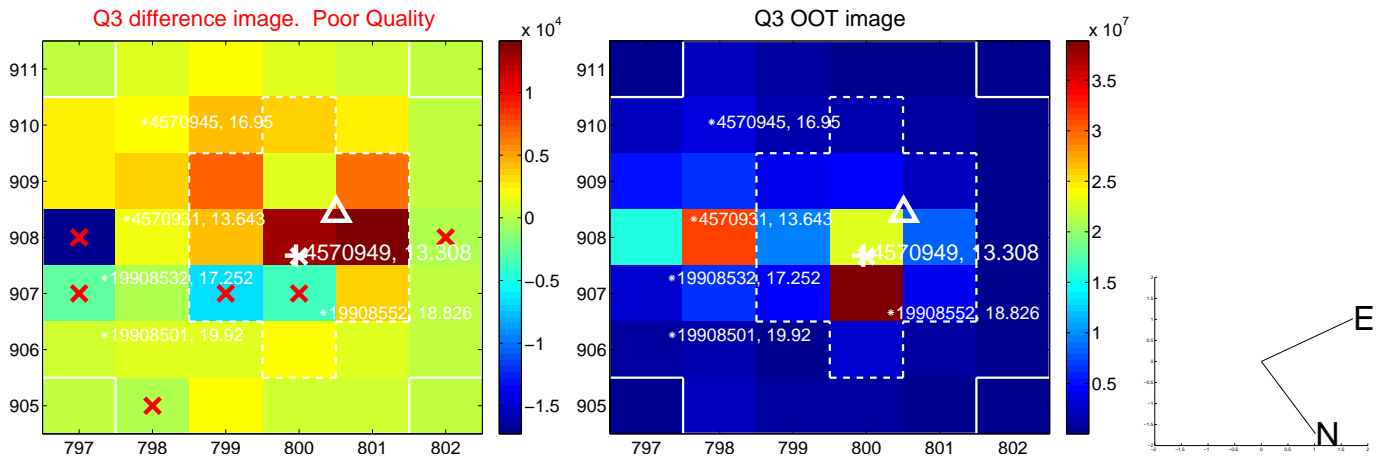
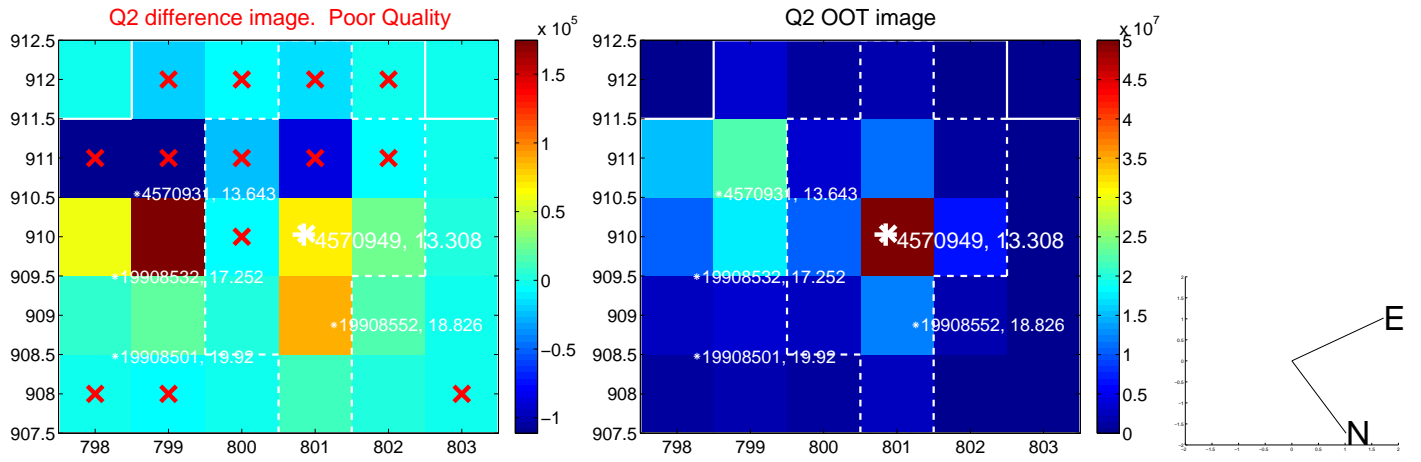
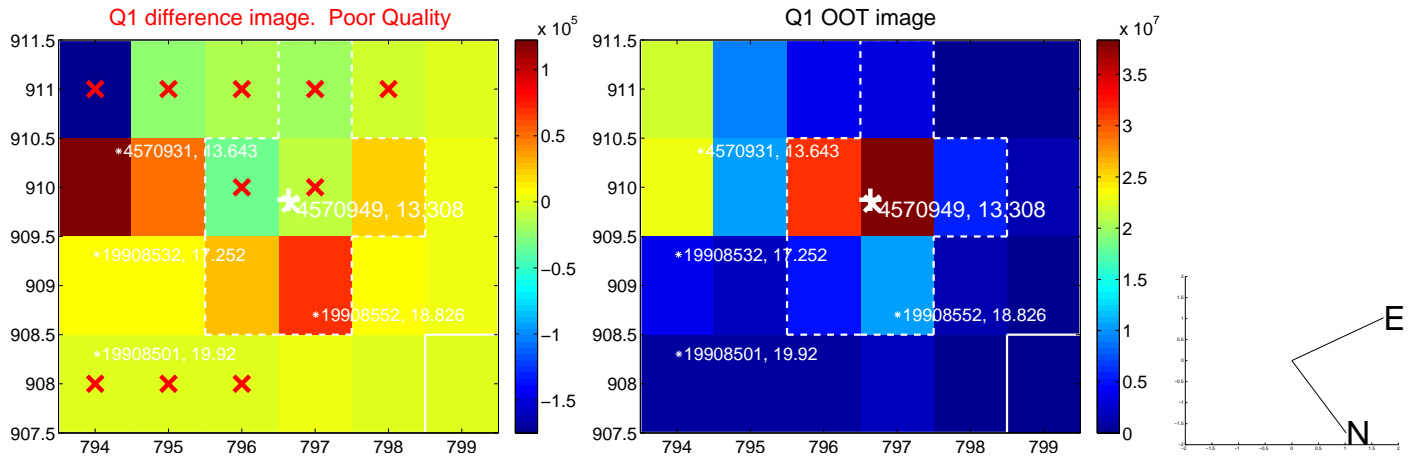


offset from photometric centroids

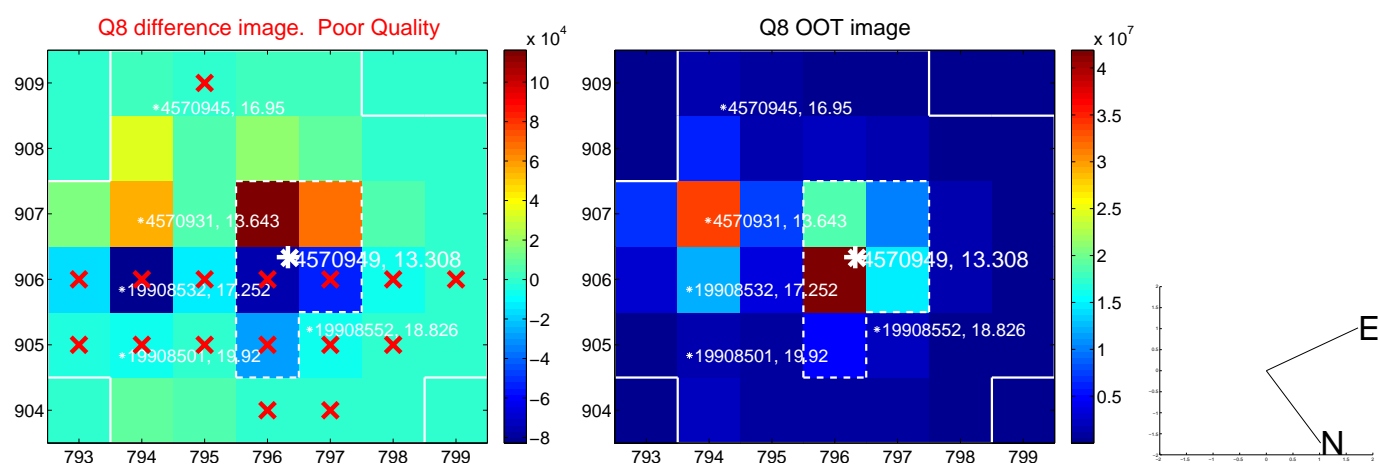
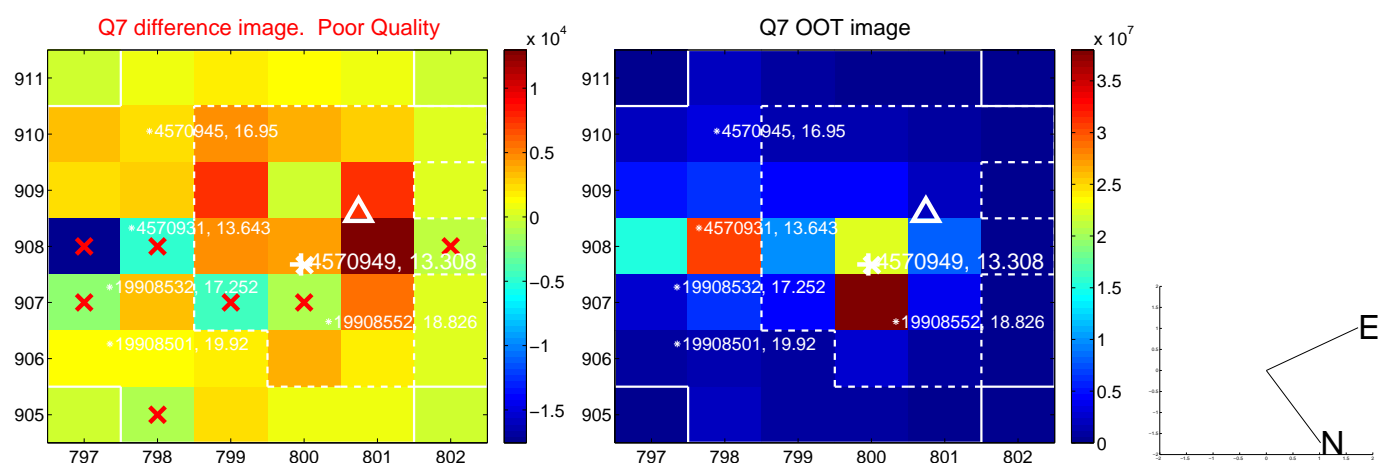
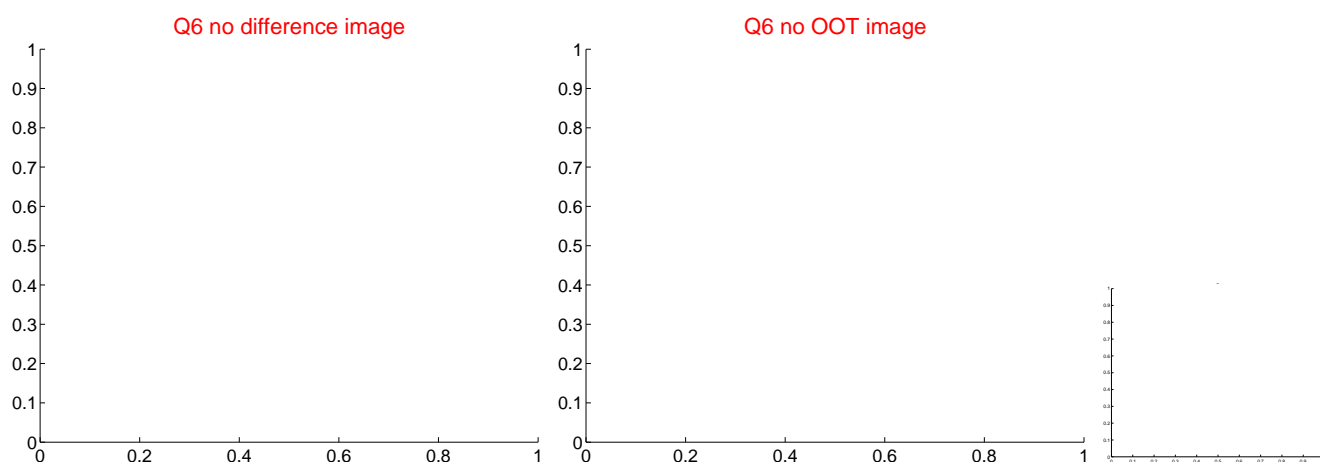
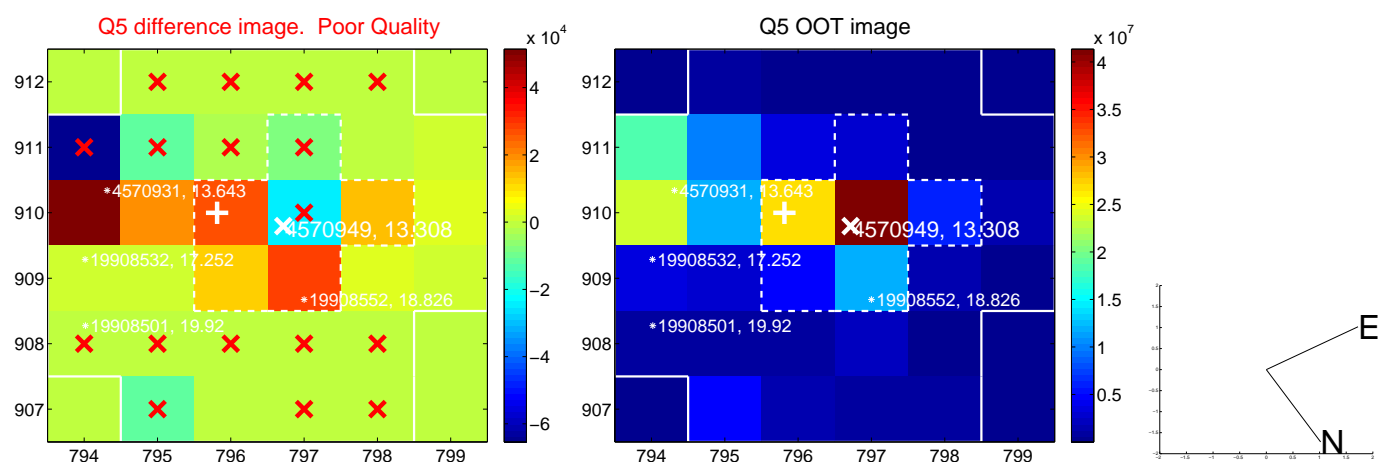


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

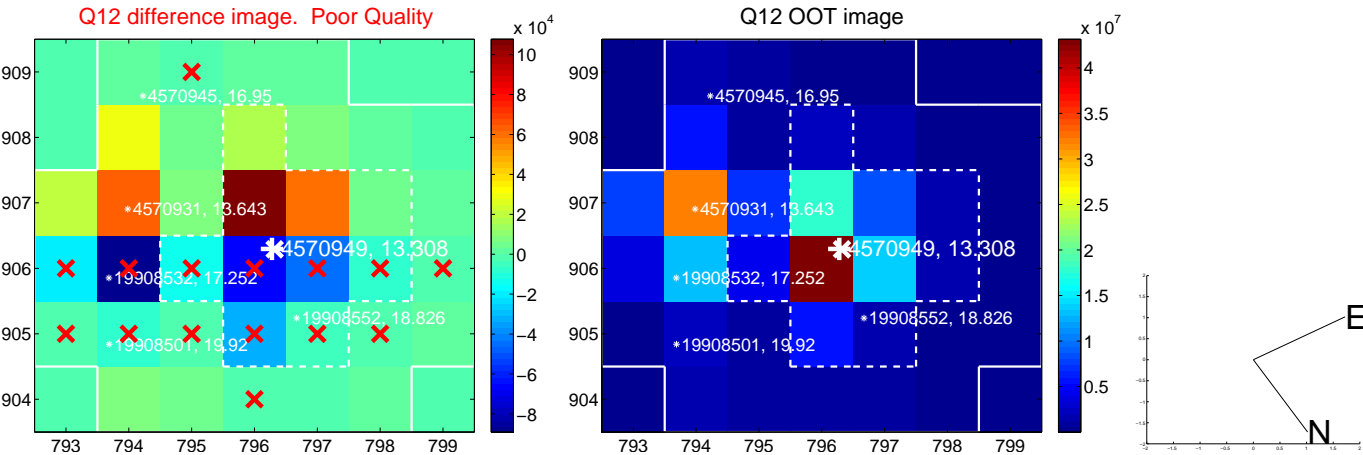
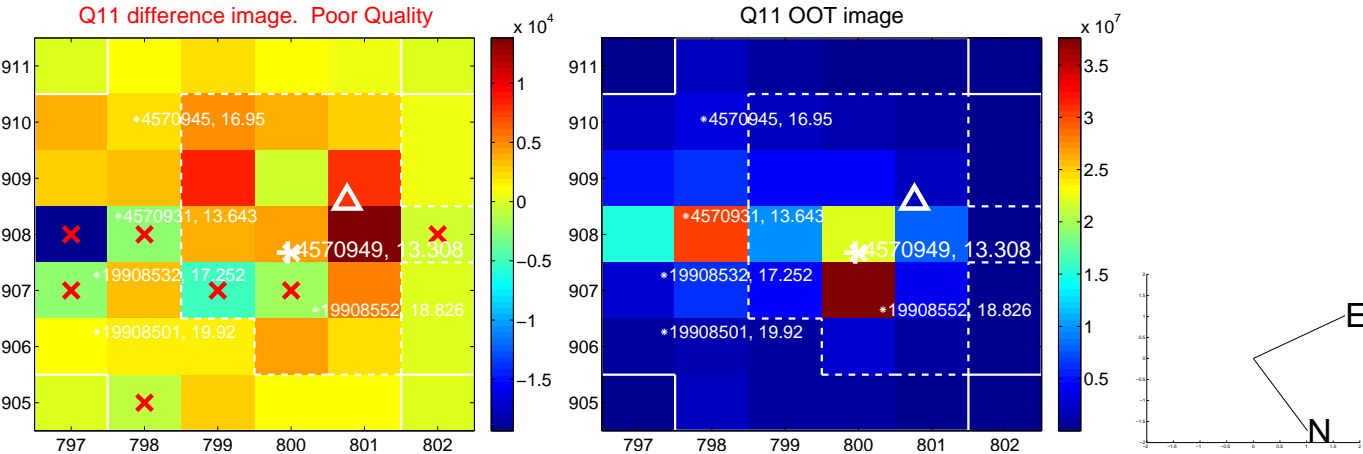
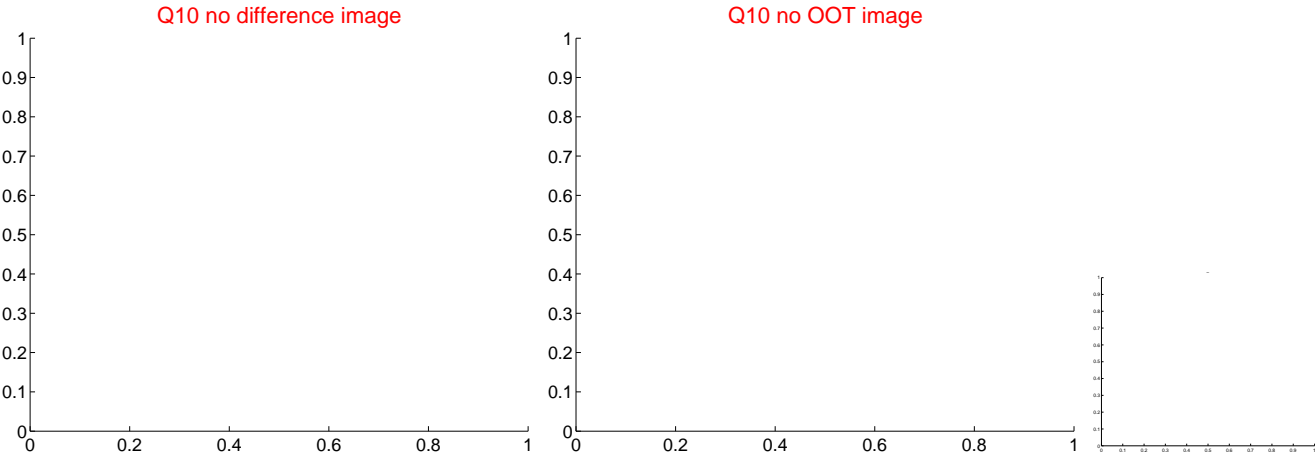
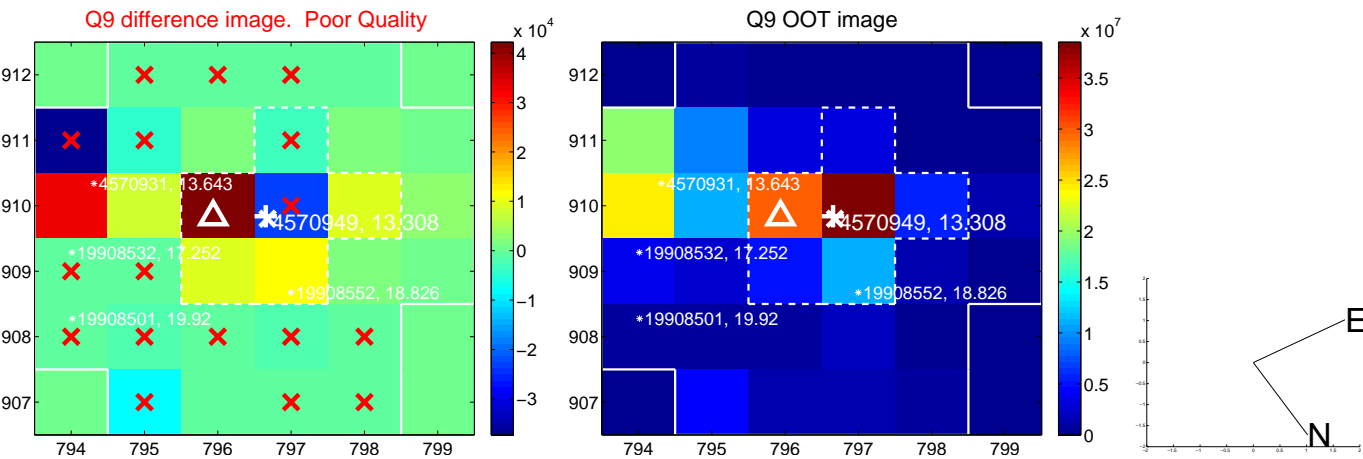
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



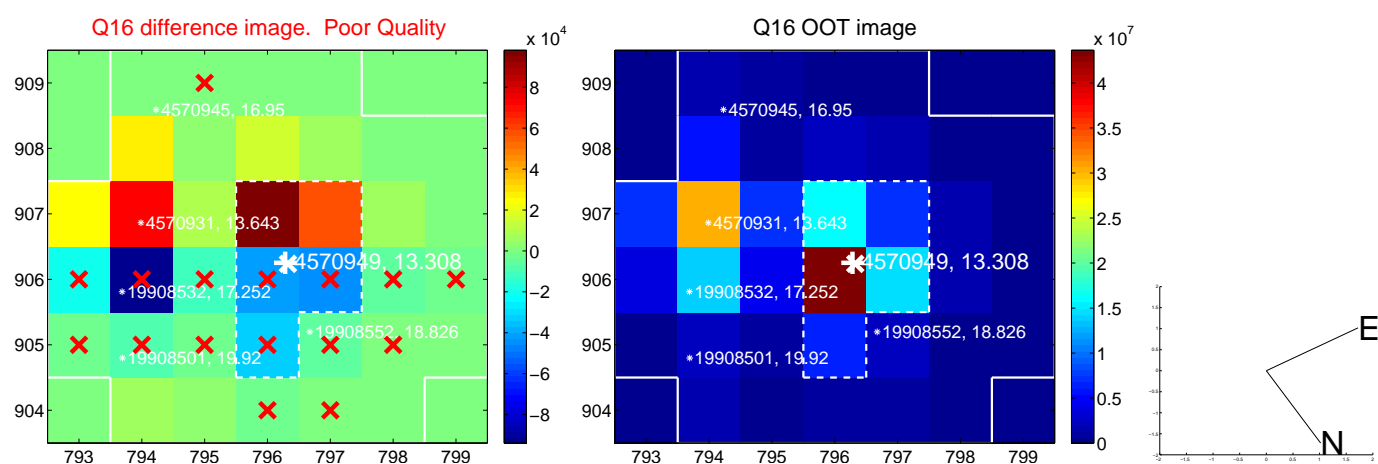
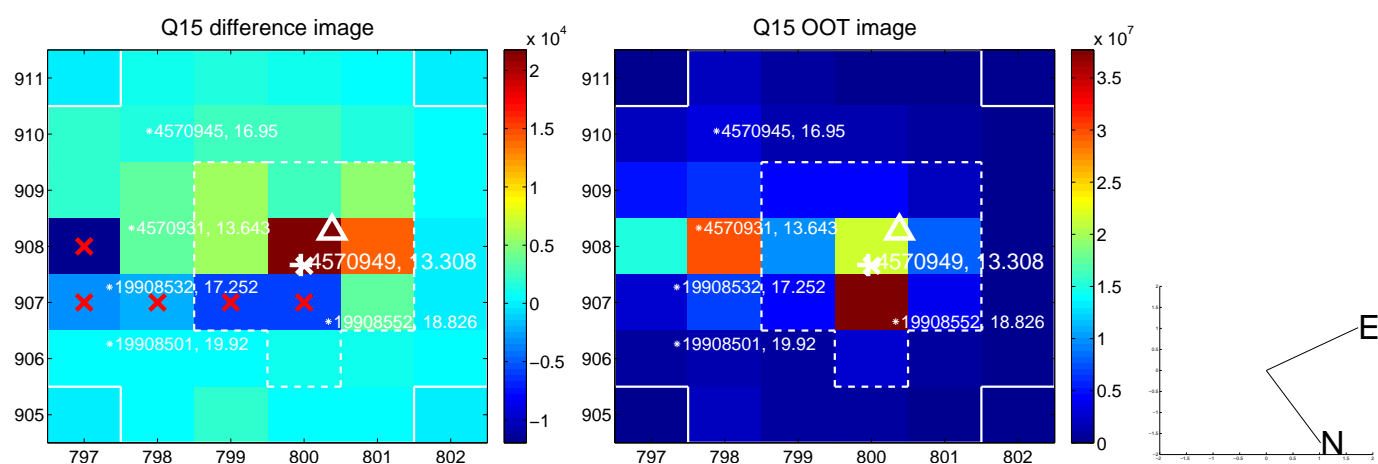
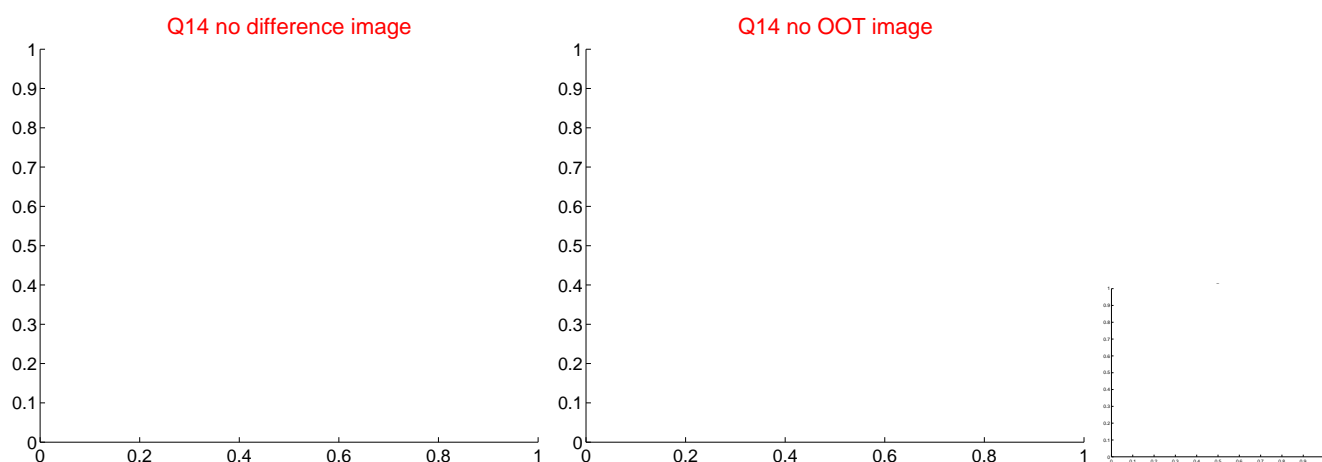
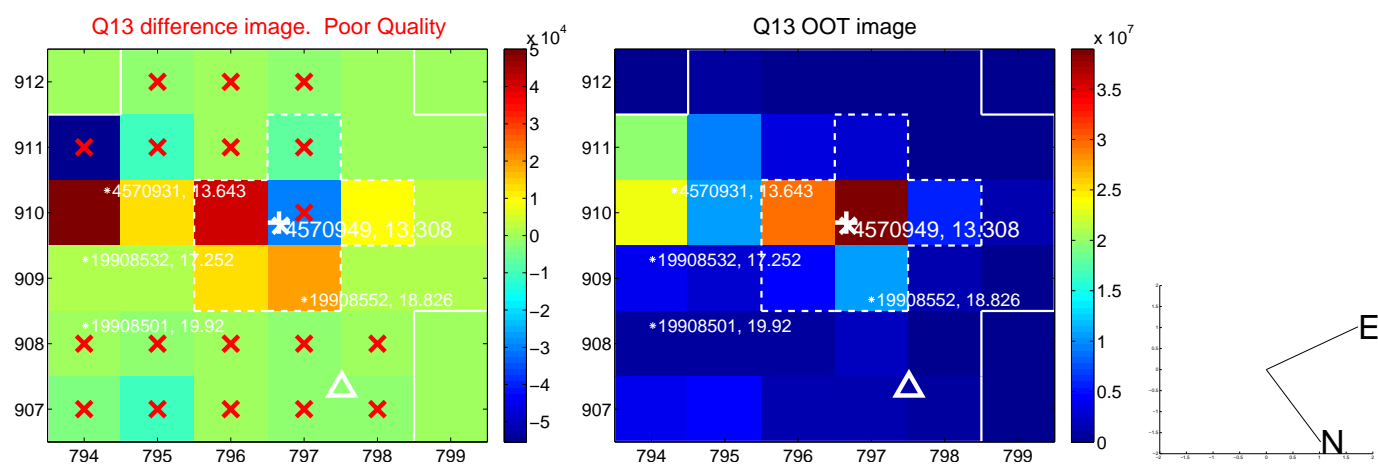
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



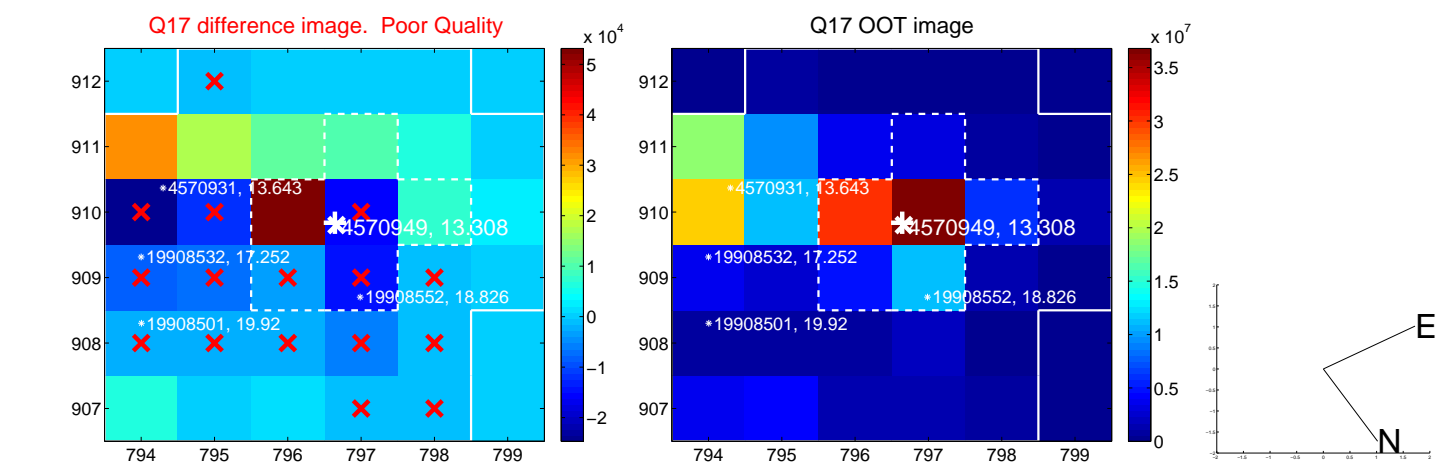
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



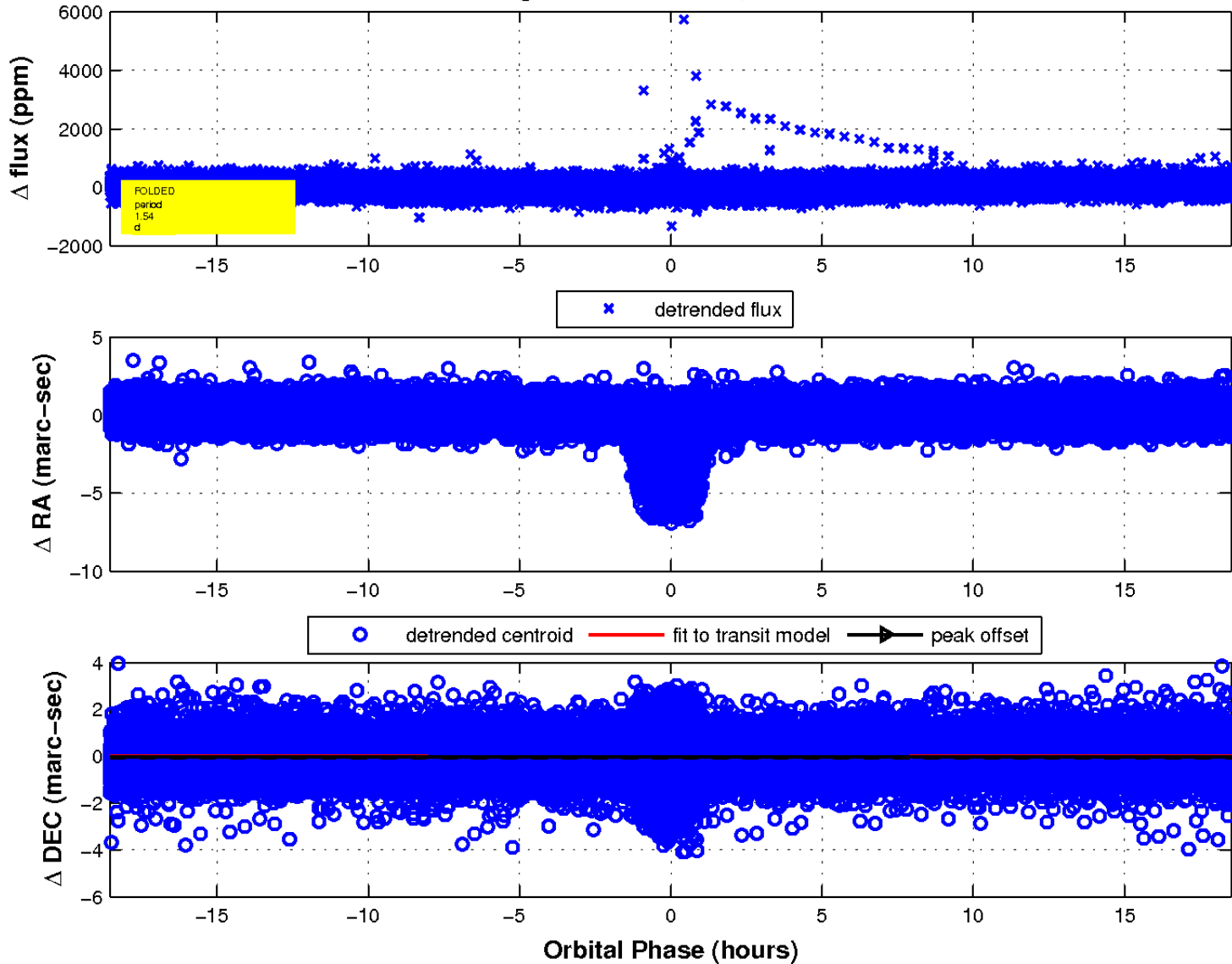
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

