

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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
006192431-02	OBS	No	358.997216	174.721162	269.0	12.500	42.2	-1.0	14.70	4629	23.05	54.47
006192431-03	OBS	No	370.828432	147.942459	369.1	26.716	31.4	19.3	14.70	4629	37.87	52.17
006192431-04	OBS	No	178.940621	183.459519	705.9	28.322	25.5	24.0	14.70	4629	56.68	137.84
006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
006192431-08	OBS	No	28.448407	132.456892	33.0	1.305	17.8	9.2	14.70	4629	9.10	1600.41
006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

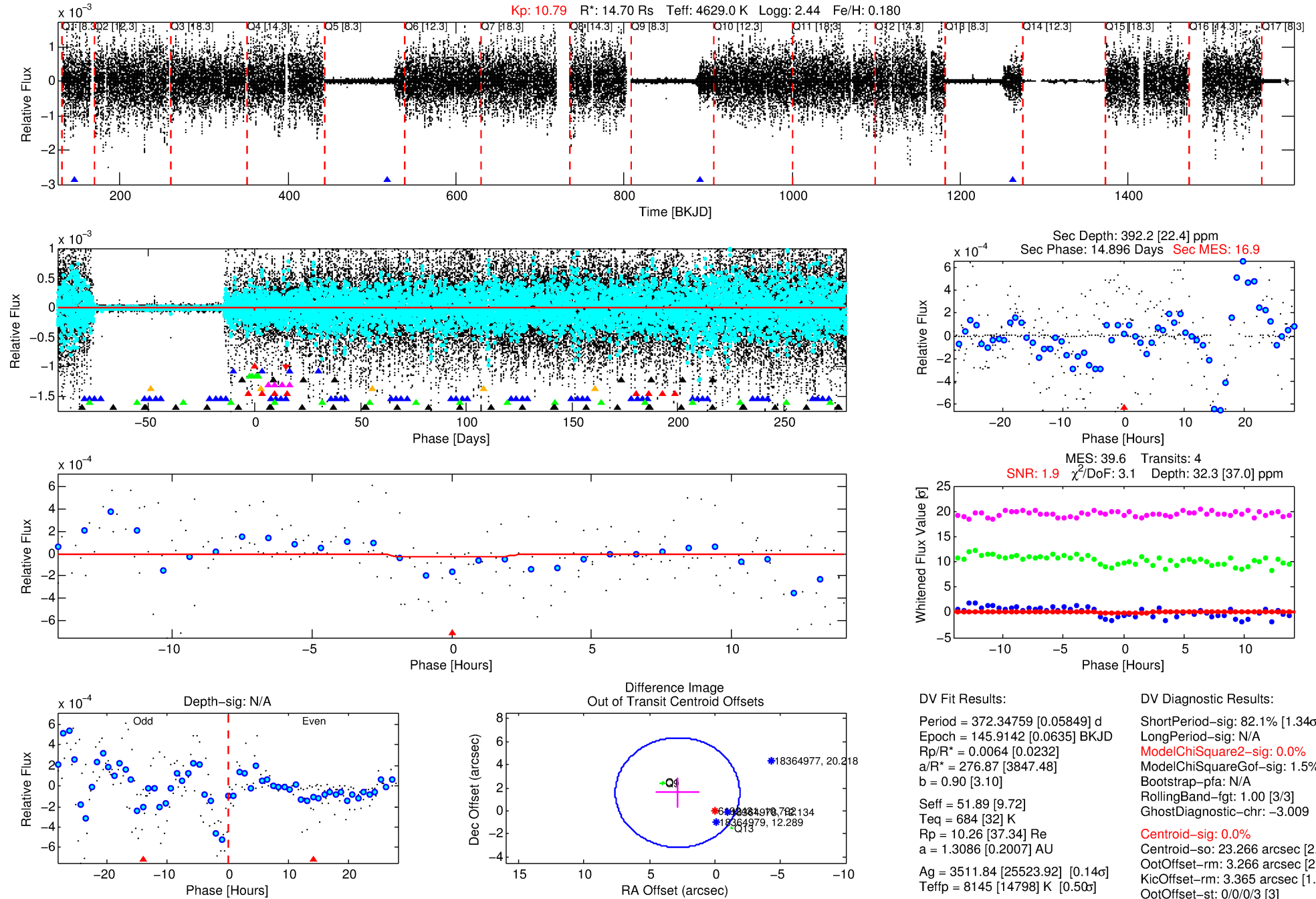
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-01

No Significant Match Found

DV One-Page Summary

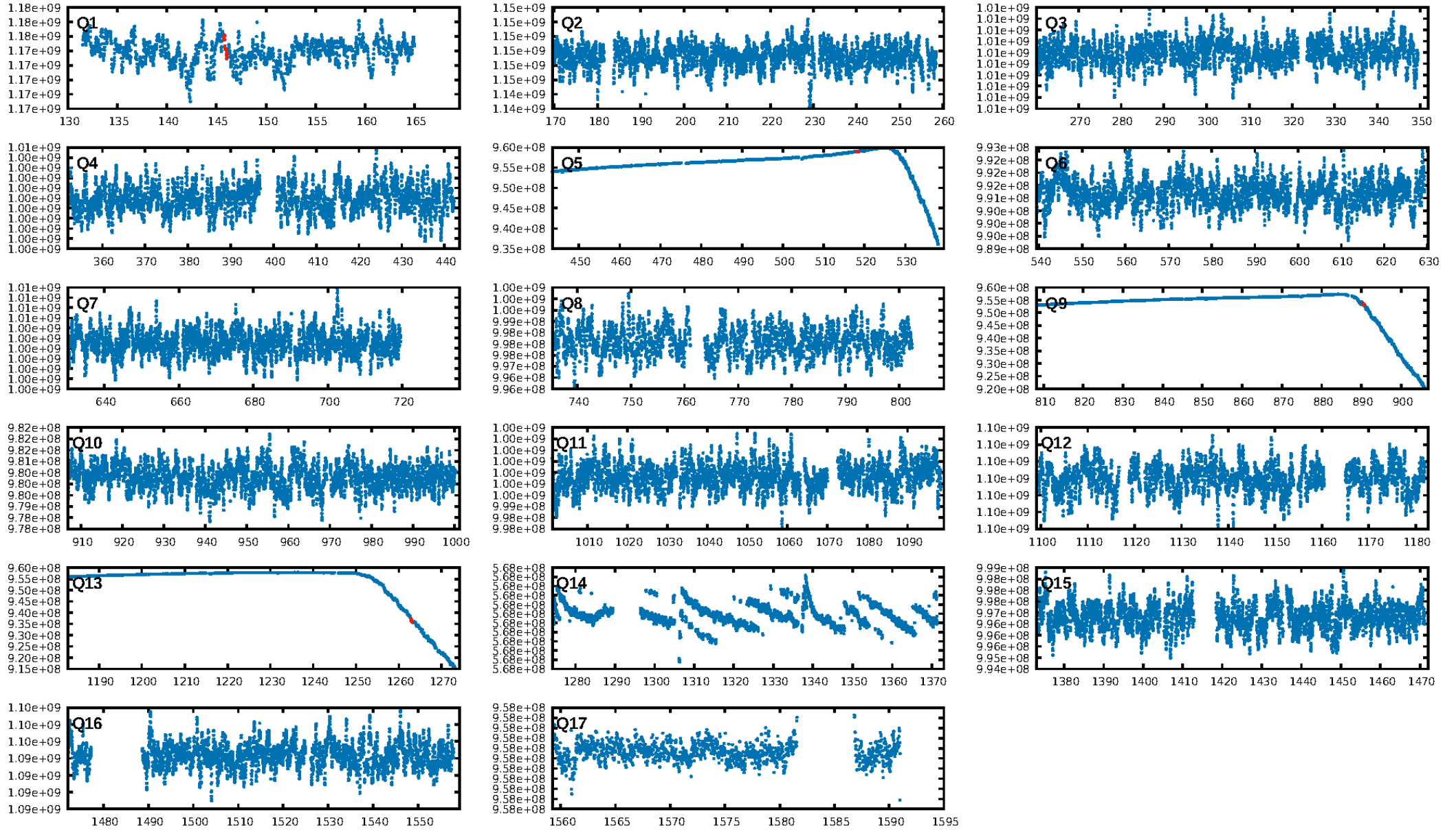
KIC: 6192431 Candidate: 1 of 10 Period: 372.348 d



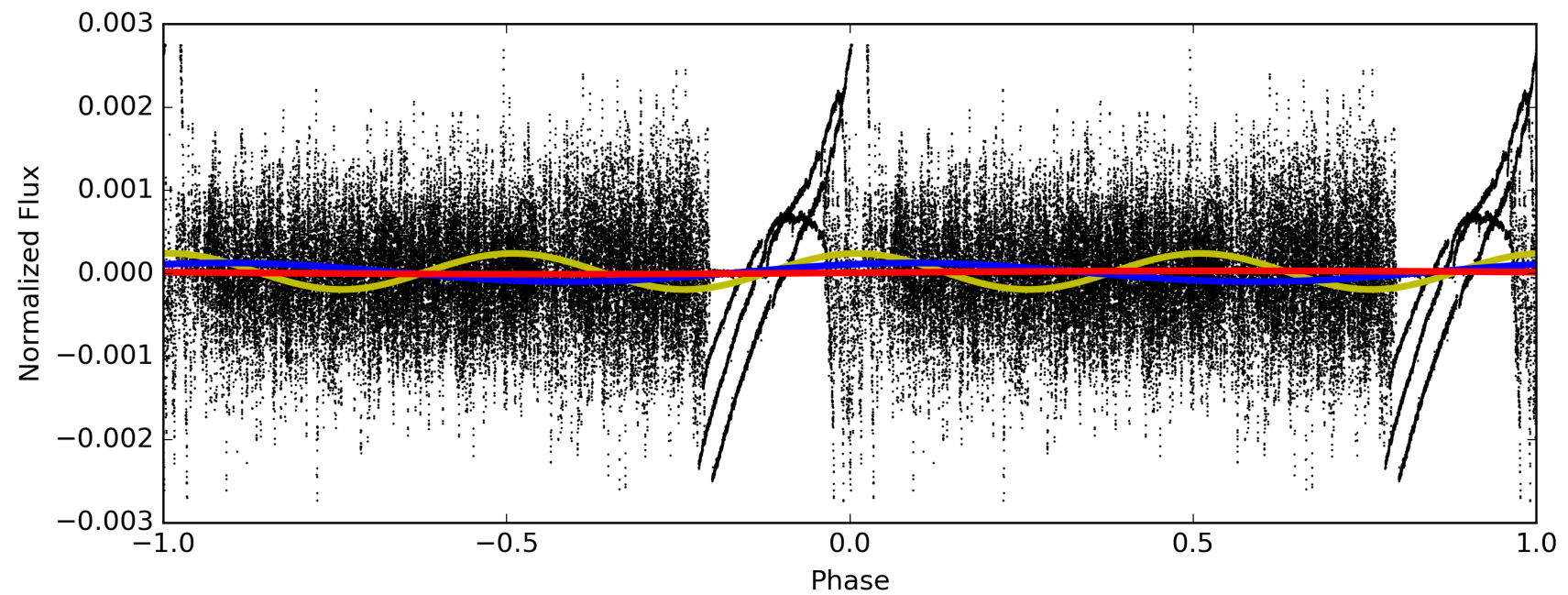
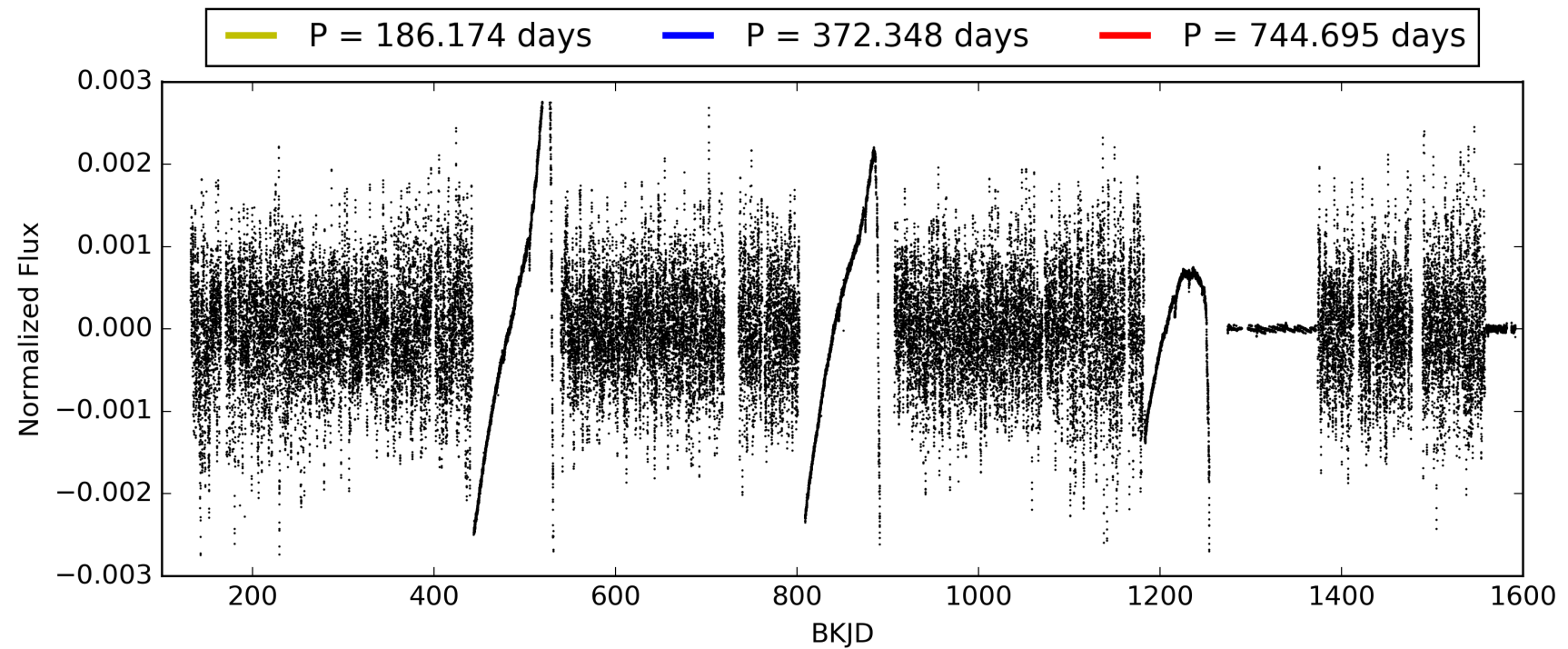
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006192431-01, PDC Light Curves

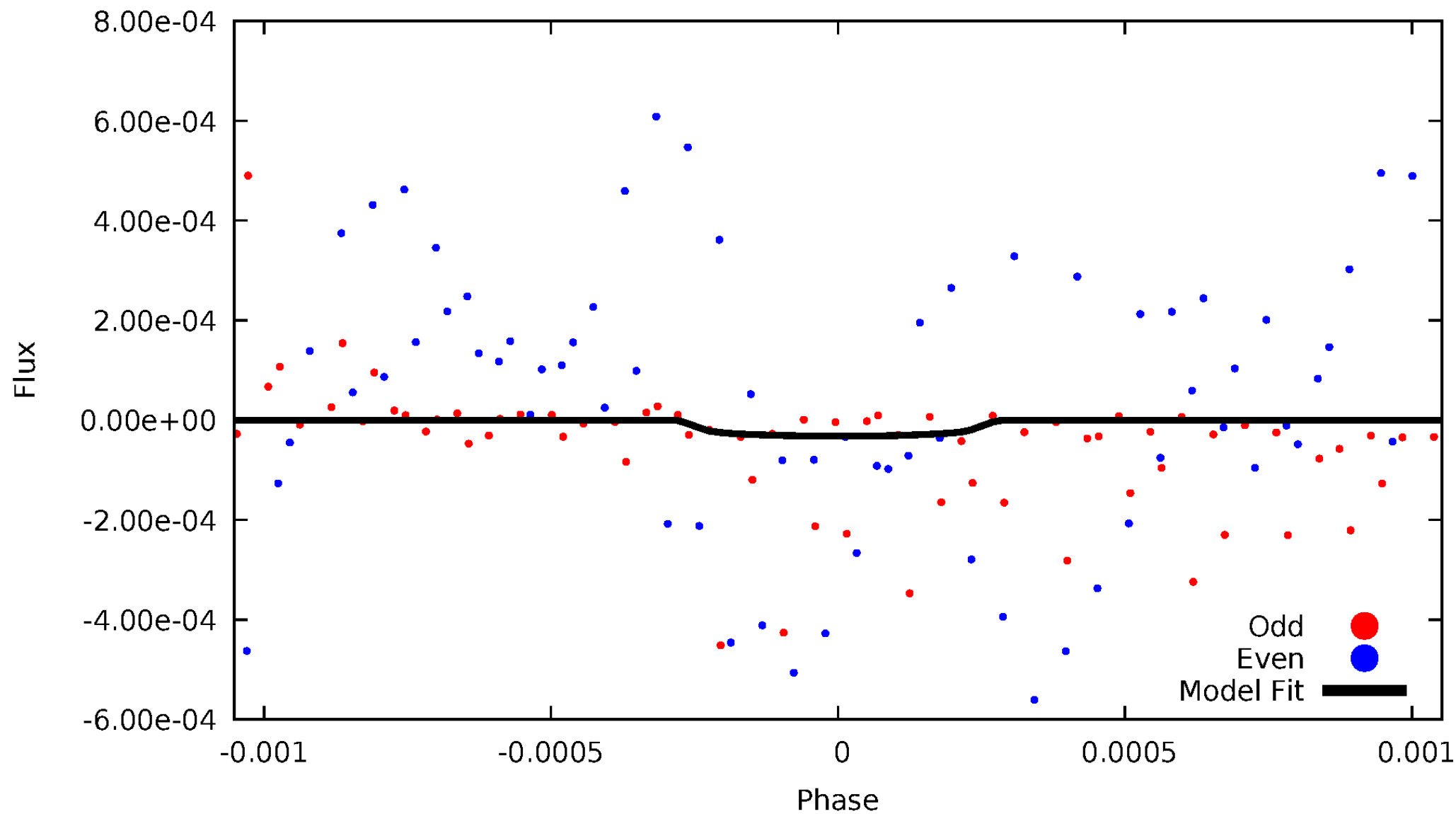


TCE 006192431-01



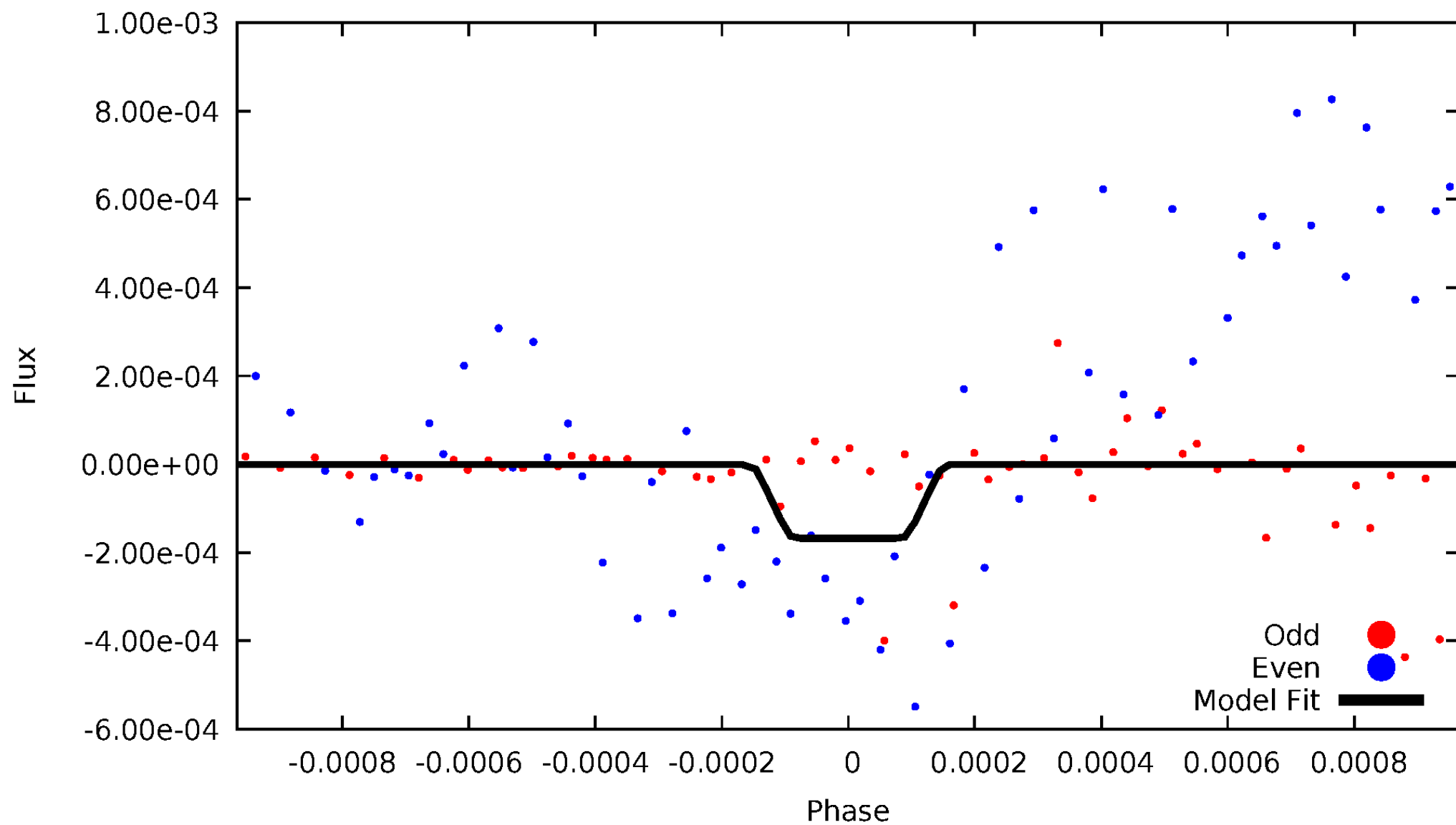
DV Odd/Even

TCE 006192431-01



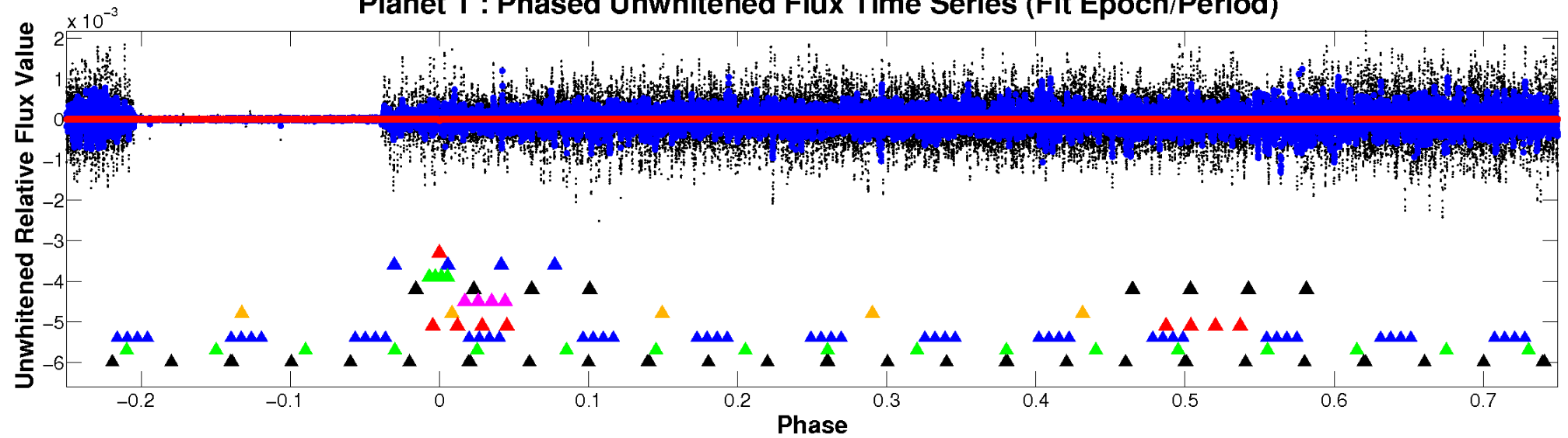
ALT Odd/Even

TCE 006192431-01

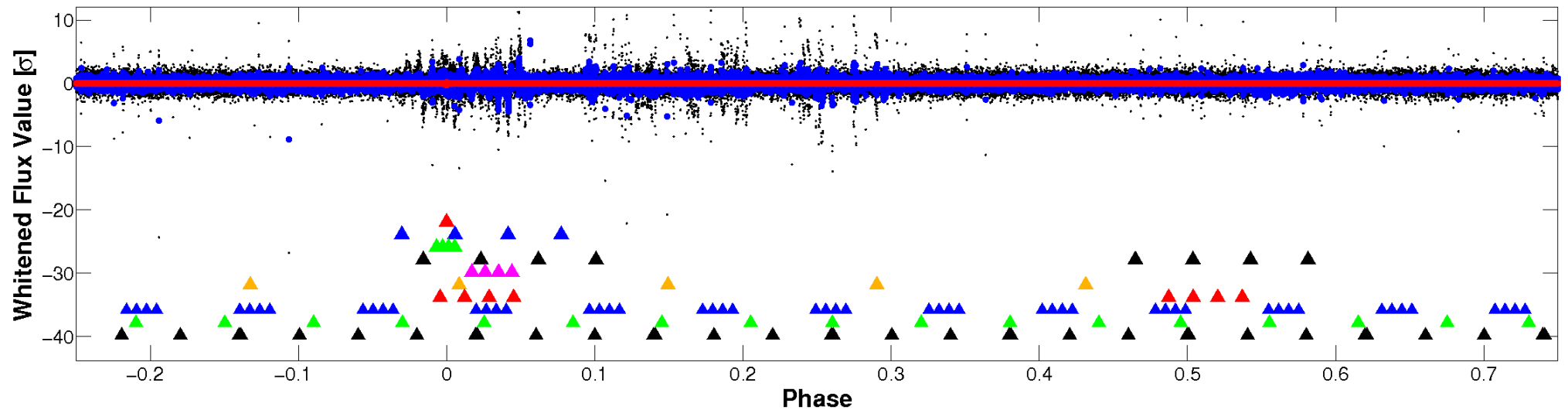


Non-Whitened Vs. Whitened Light Curve

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

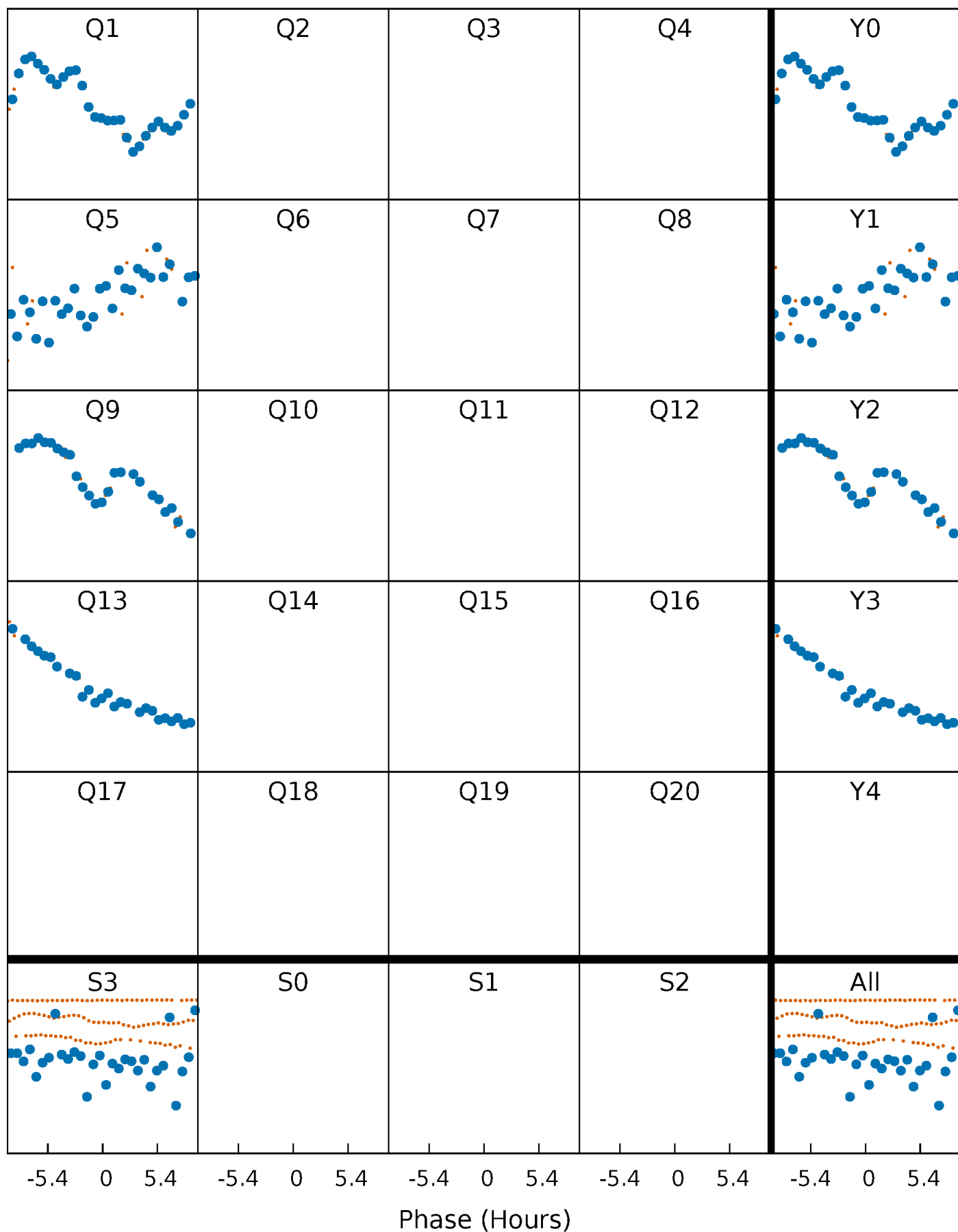


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



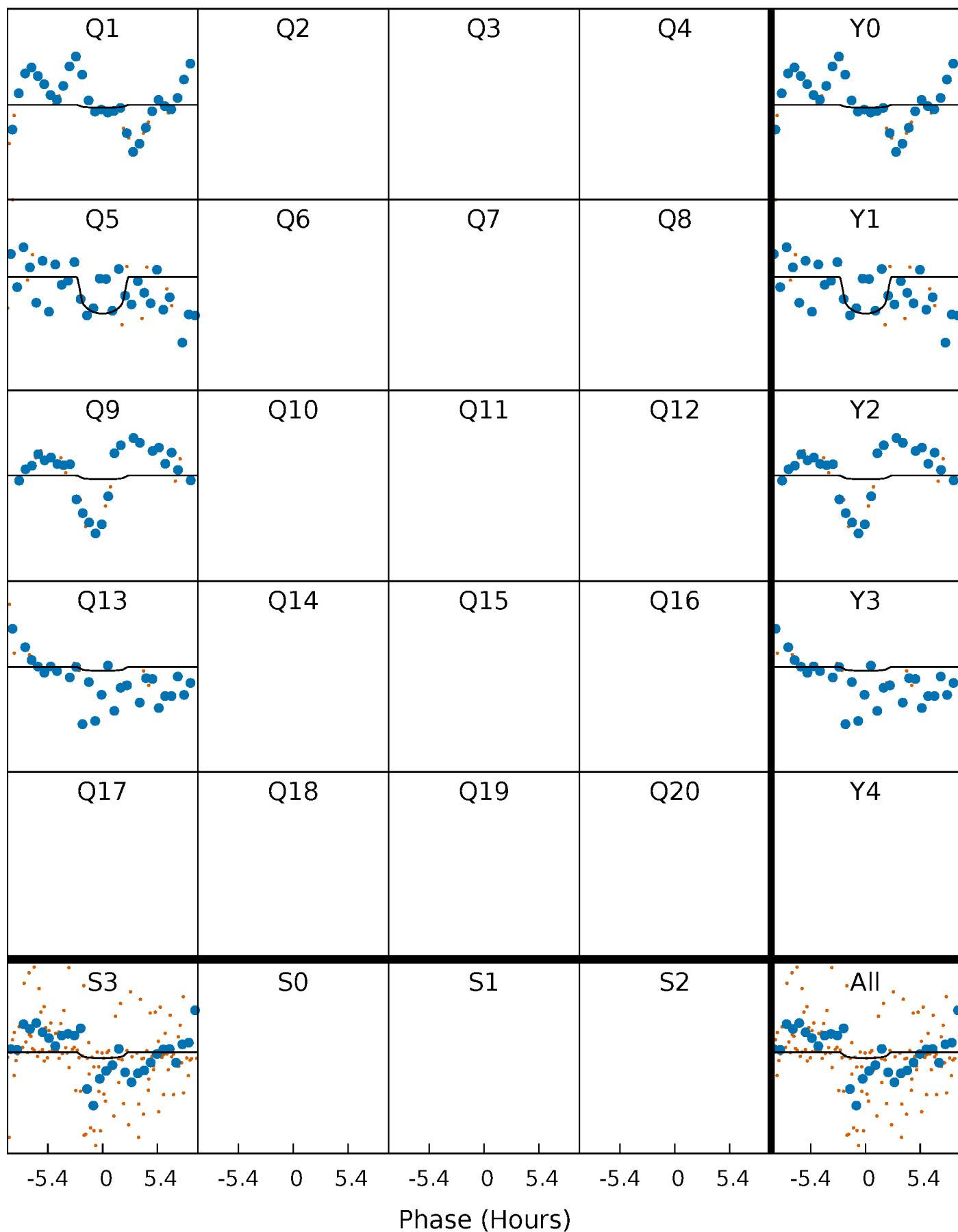
PDC Quarter-Phased Transit Curves

TCE 006192431-01 $P=372.347592$ Days $T_0=145.914188$ (BKJD)



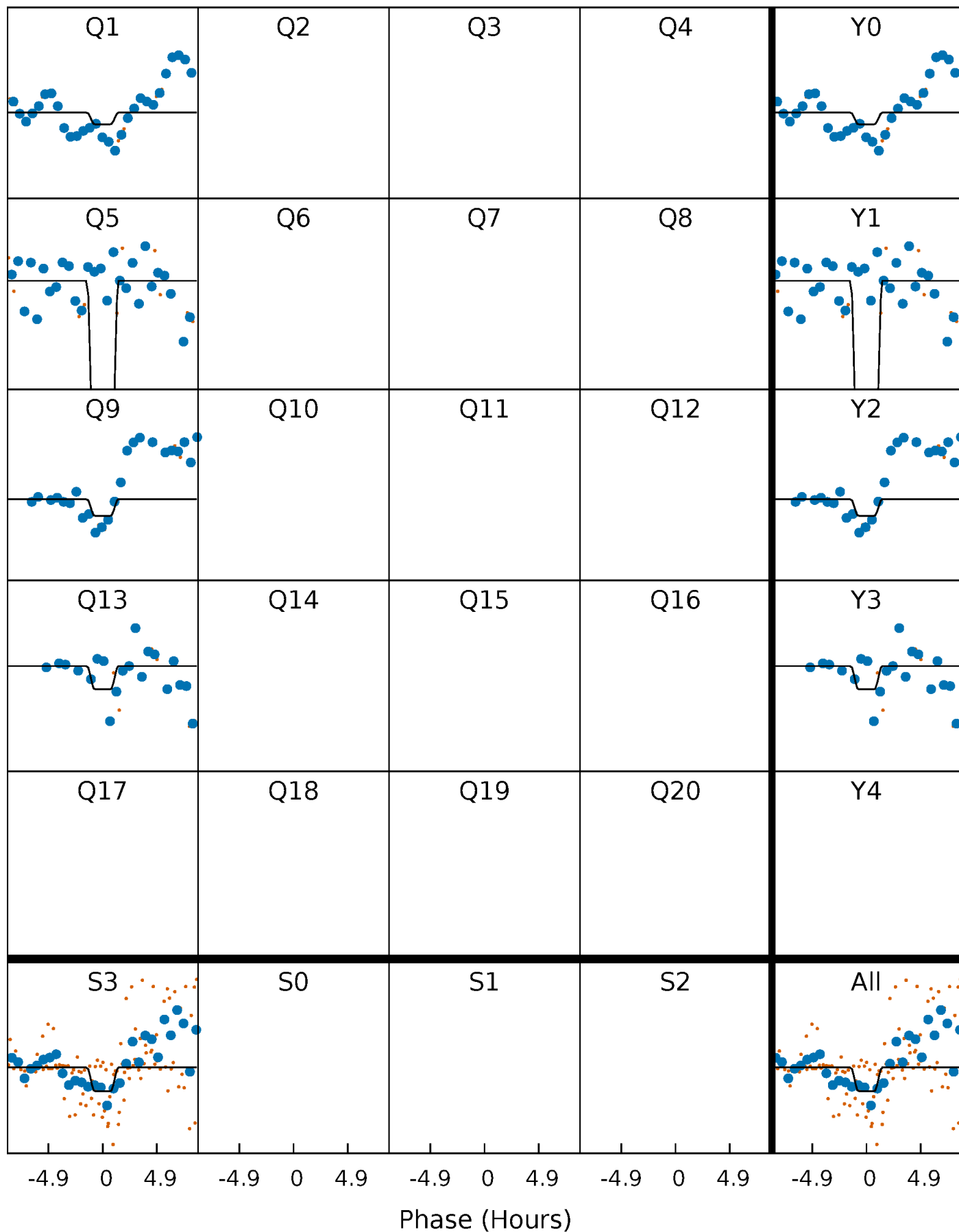
DV Quarter-Phased Transit Curves

TCE 006192431-01 $P=372.347592$ Days $T_0=145.914188$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

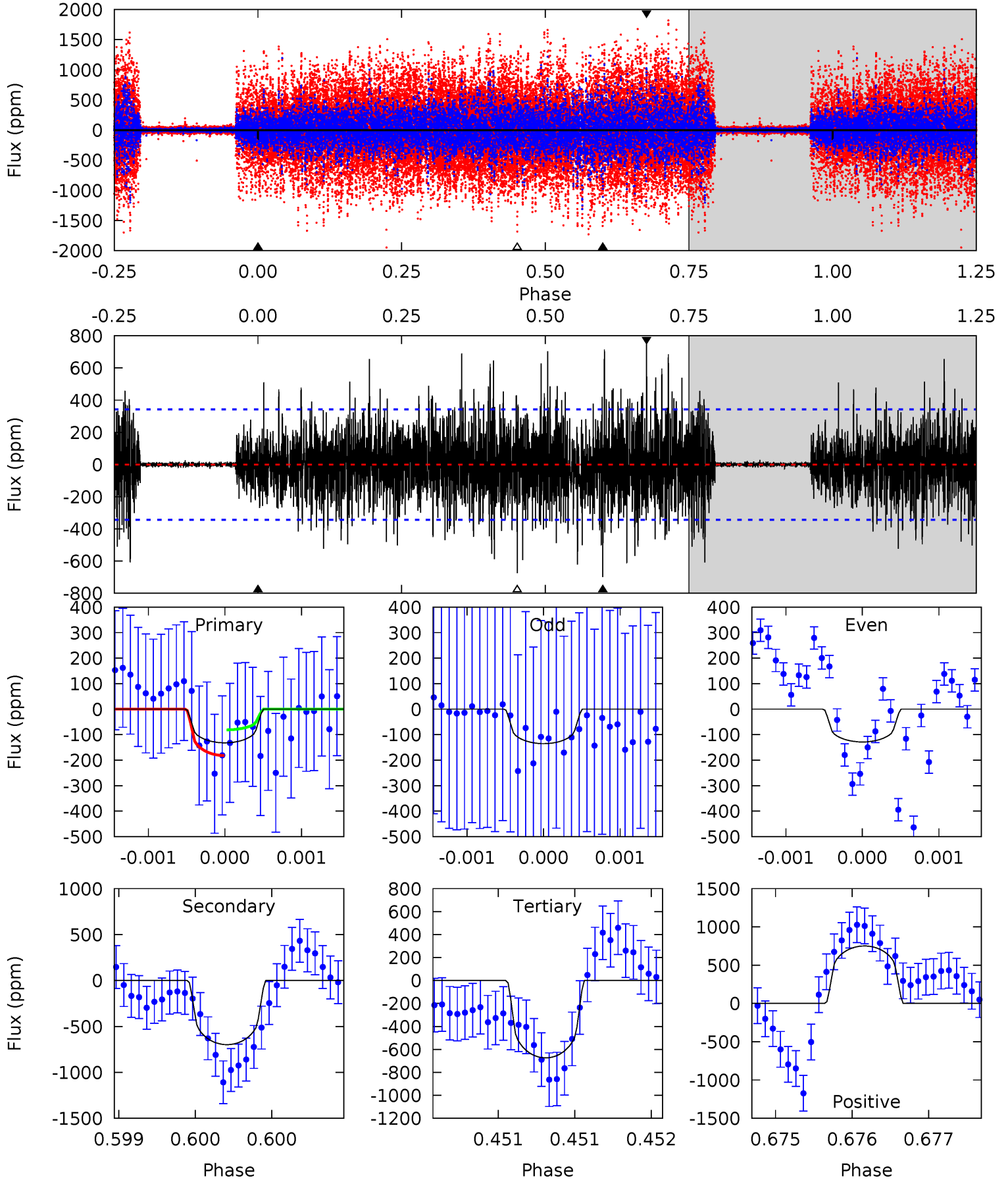
TCE 006192431-01 P=372.285841 Days $T_0=146.002172$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-01, P = 372.347592 Days, E = 145.914188 Days

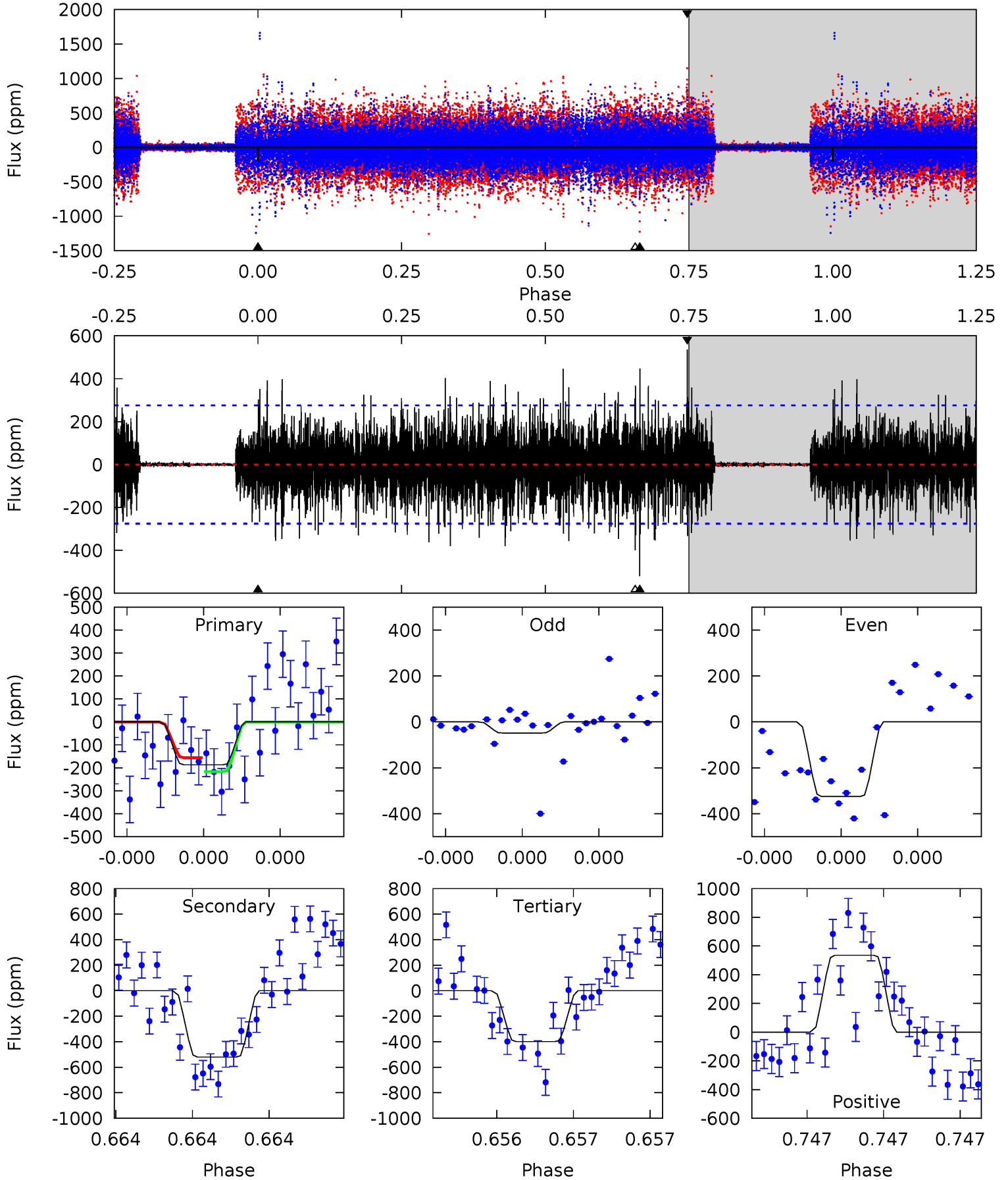
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.13	11.3	10.9	12.1	5.55	3.45	2.56	-8.76	-10.0	0.39	-0.85	0.05	1.01	0.52	0.87



Alt Model-Shift Uniqueness Test

006192431-01, P = 372.285841 Days, E = 146.002172 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.84	10.7	8.19	11.0	5.67	3.62	2.00	-4.36	-7.17	2.49	-0.33	2.23	0.99	0.51	0.66



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-698 ± 62	$27.88^{+32.82}_{-20.54}$	955^{+28}_{-33}	5457^{+6553}_{-1373}	814^{+9691}_{-624}
Alt.	-520 ± 49	$35.45^{+31.18}_{-25.15}$	954^{+28}_{-33}	4692^{+4124}_{-960}	403^{+4138}_{-290}

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 $A_{obs} \gg 1.0$

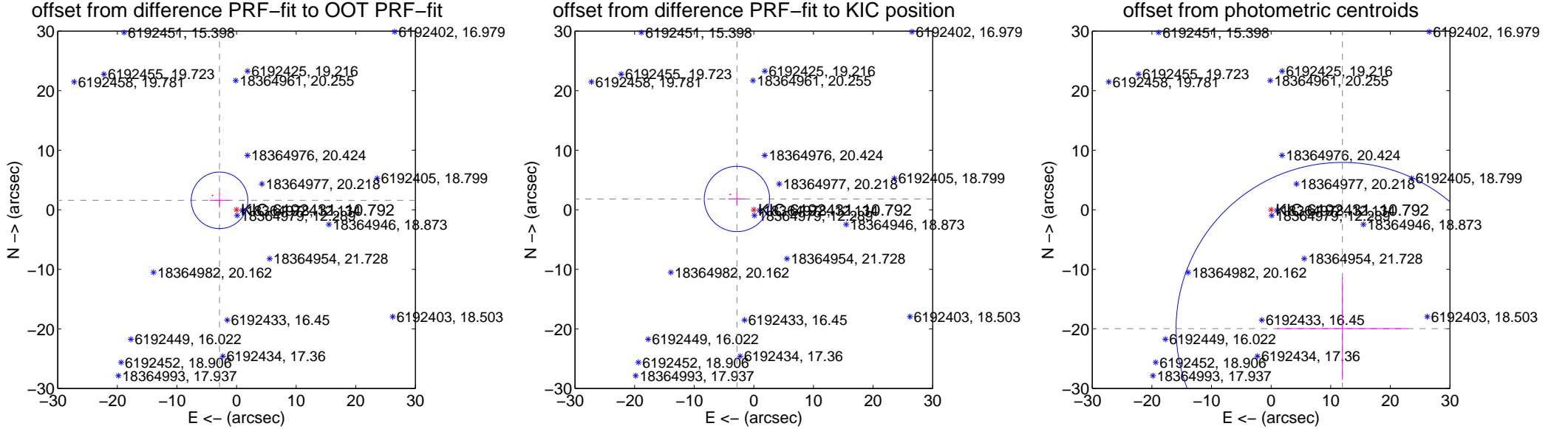
DV Centroid Data

Supplemental centroid analysis for 006192431-01. **Kepler magnitude: 10.79.** Transit SNR 1.92

There are 2 quarters with good PRF difference image offsets

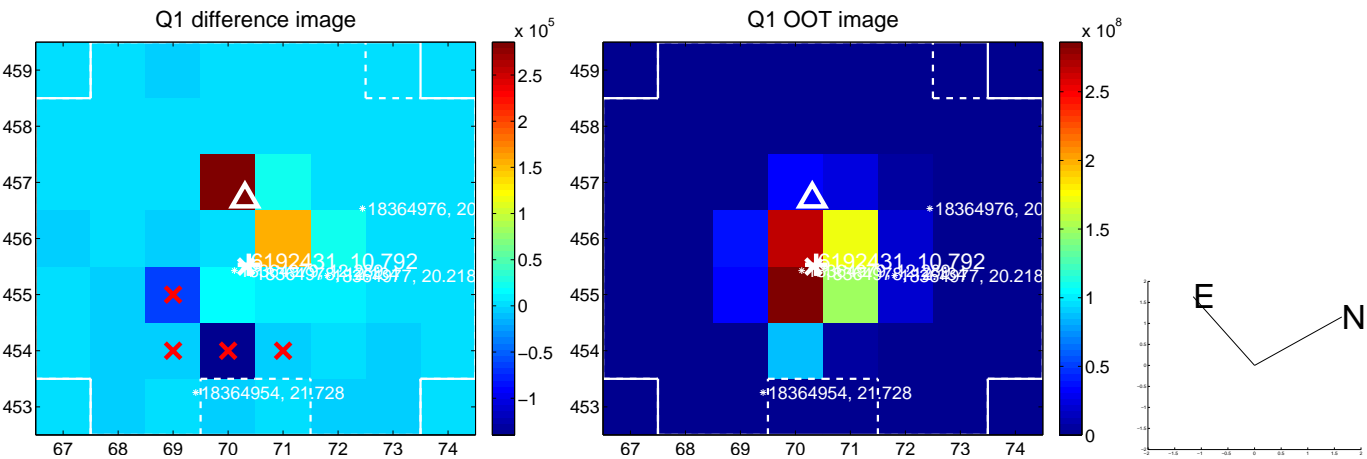
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.266 ± 1.582	2.06	2.856 ± 1.670	1.584 ± 1.255
PRF-fit source offset from KIC position	3.365 ± 1.827	1.84	2.834 ± 1.480	1.815 ± 1.079
photometric centroid source offset	23.27 ± 9.30	2.50	-11.97 ± 10.99	-19.95 ± 8.61

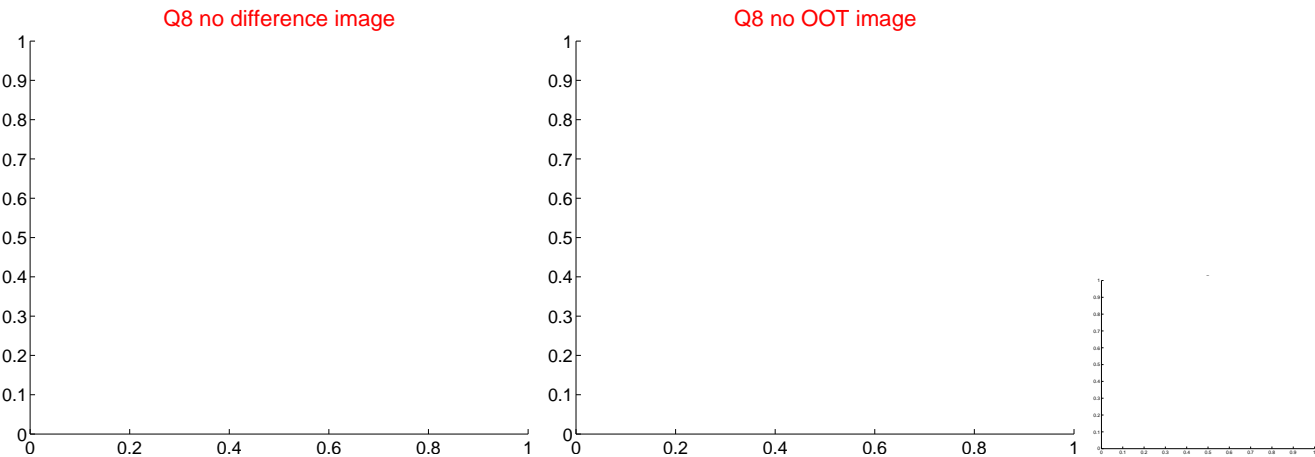
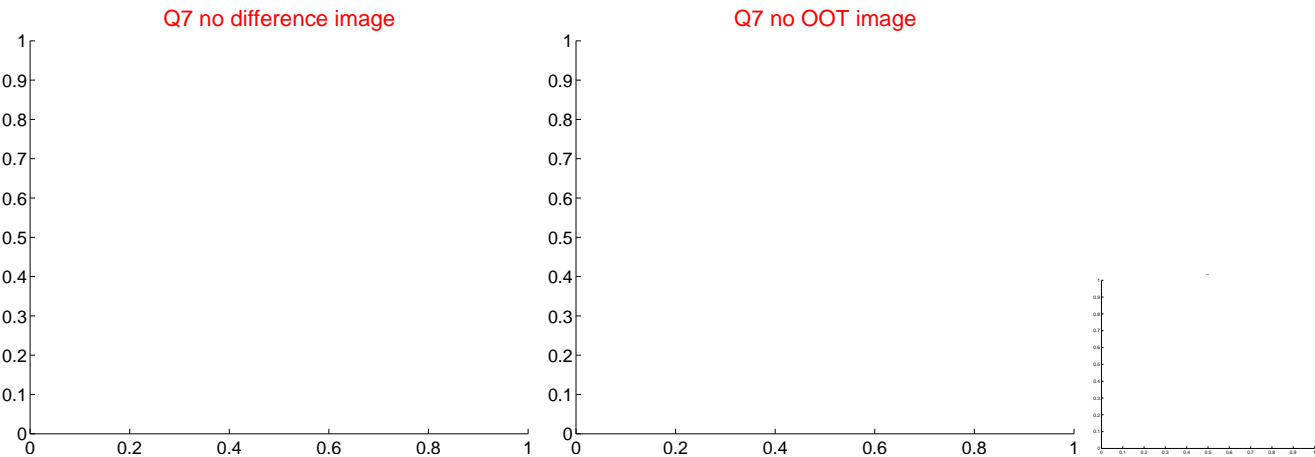
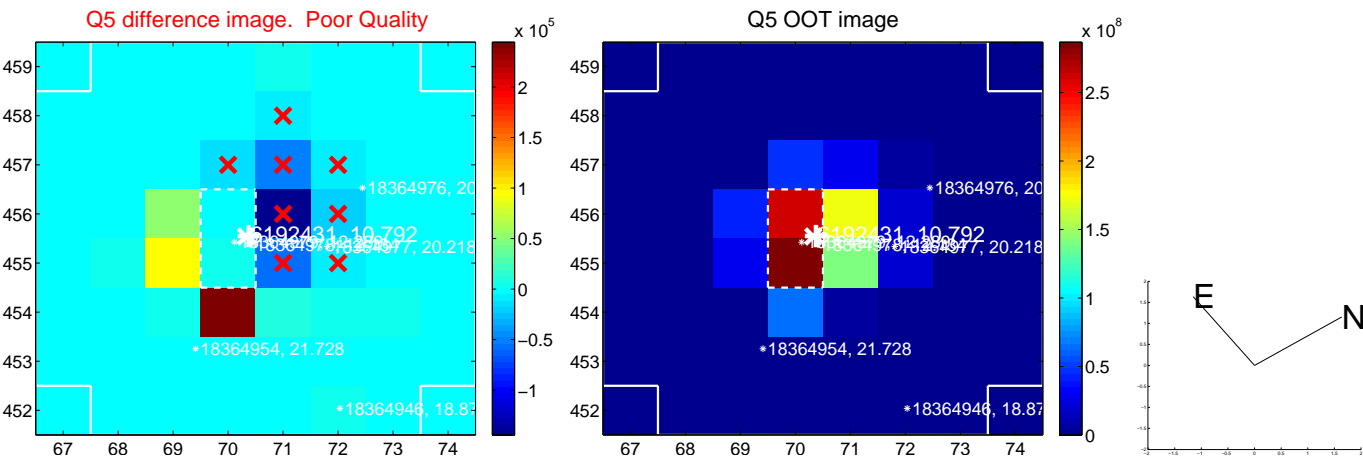


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

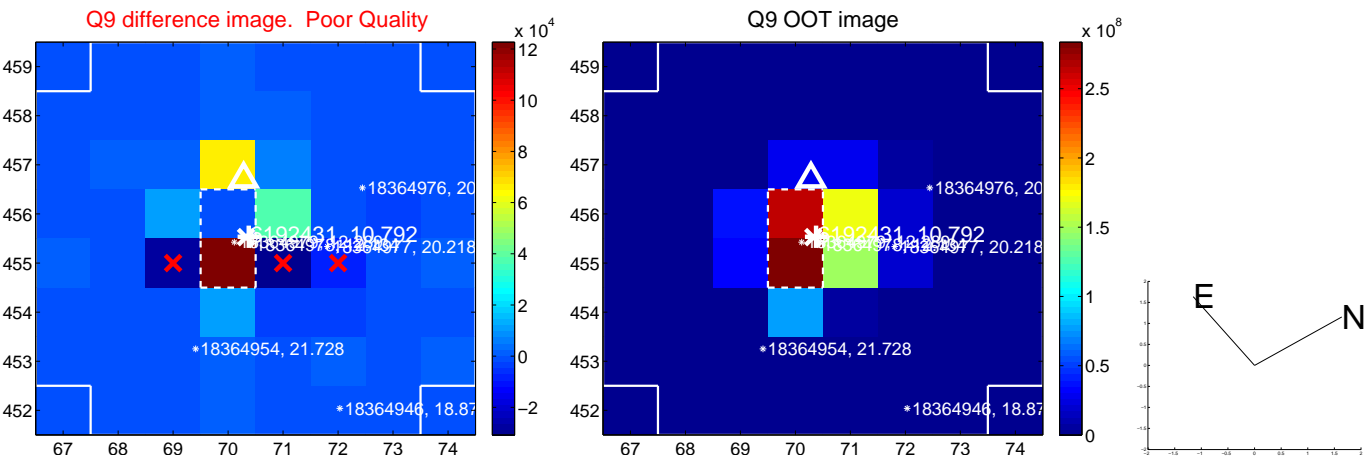
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



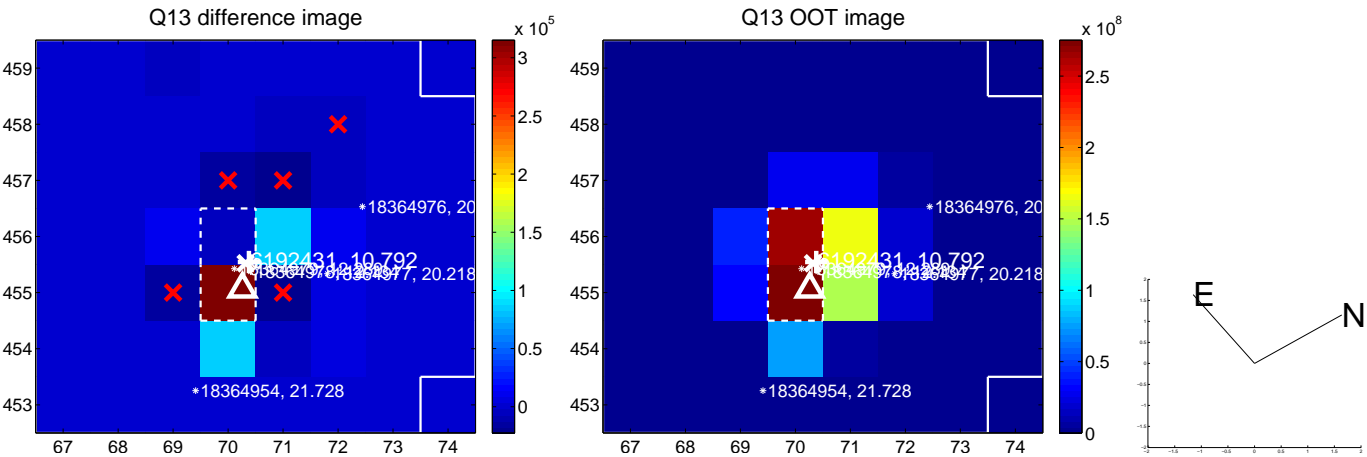
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



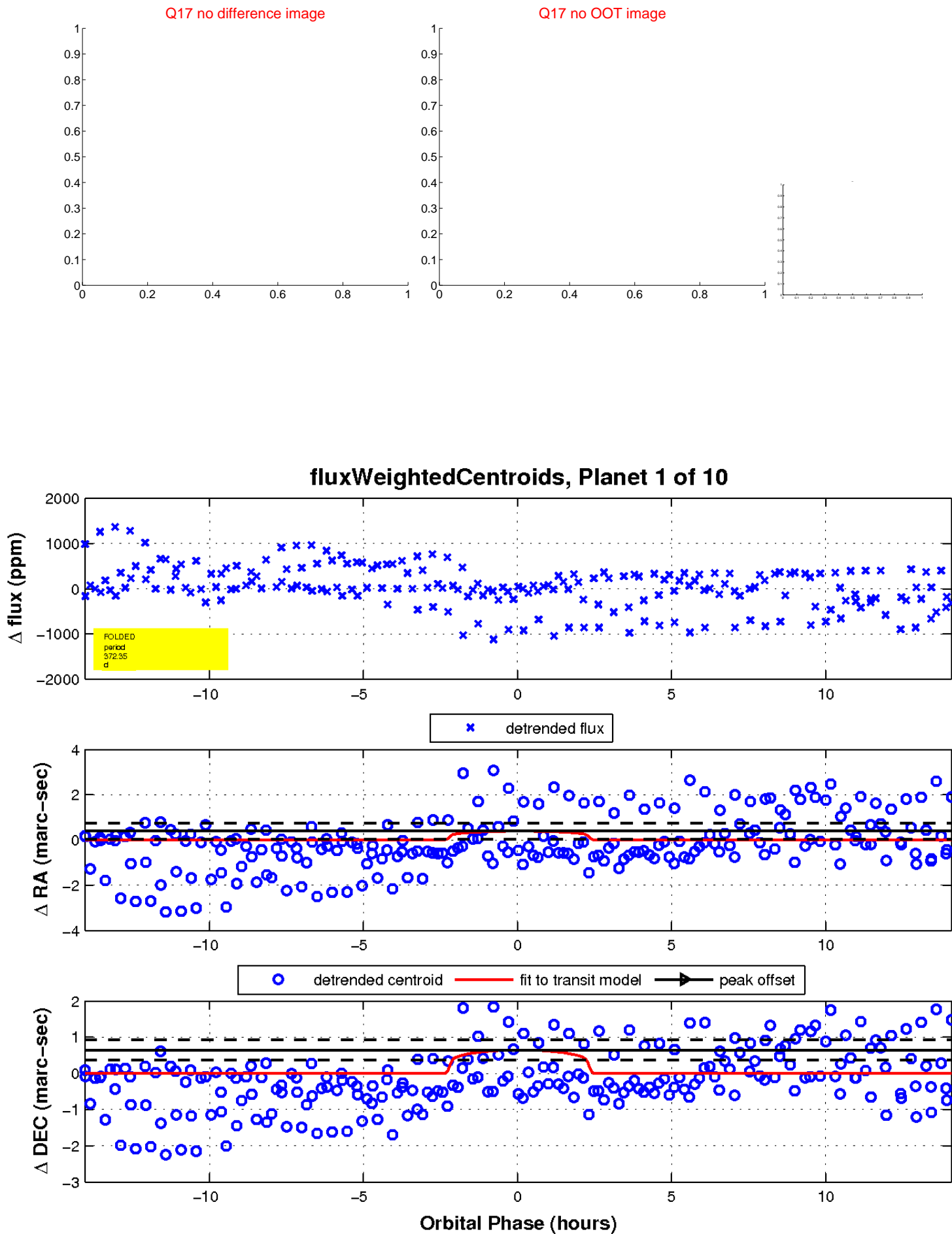
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

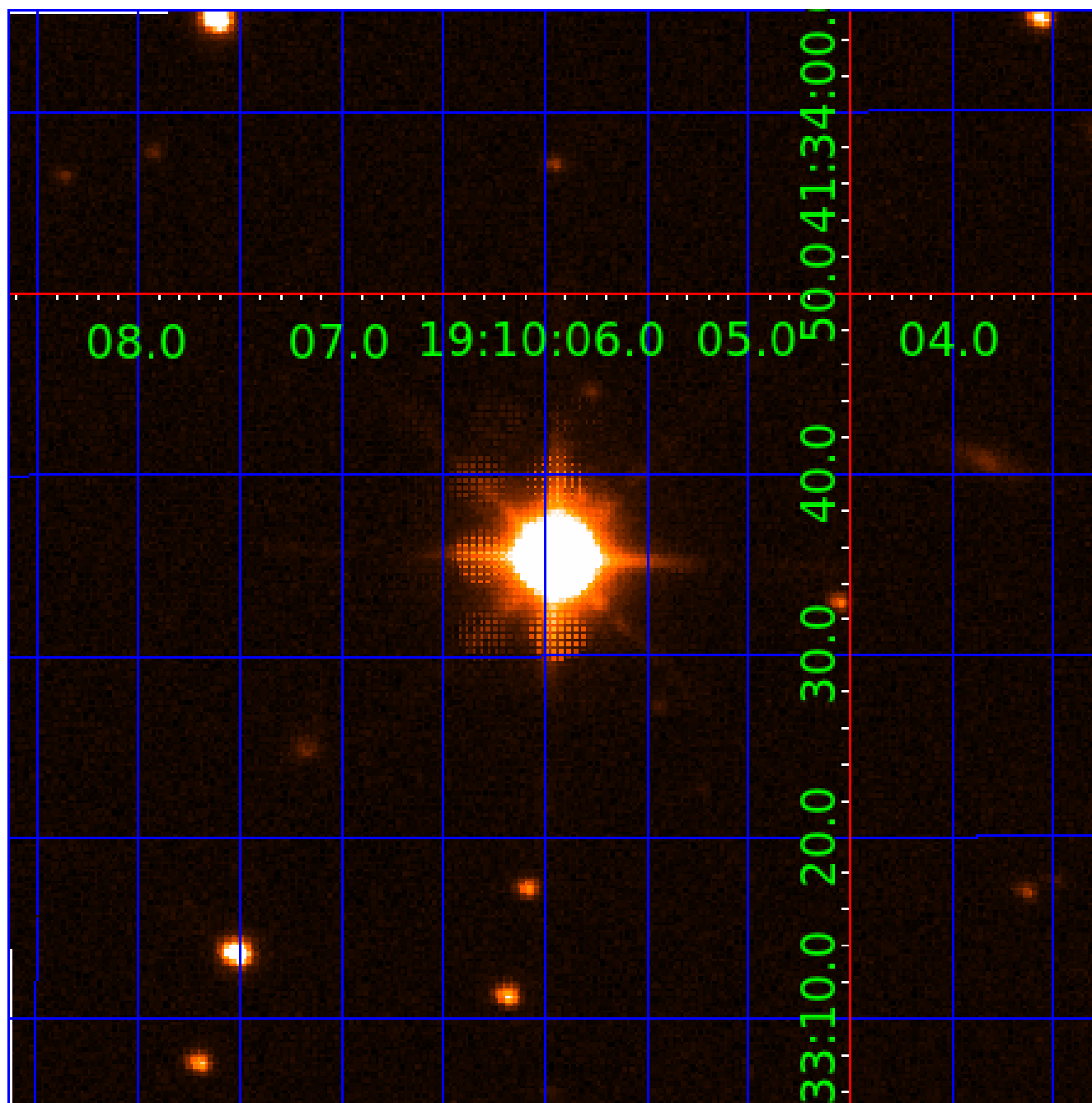


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

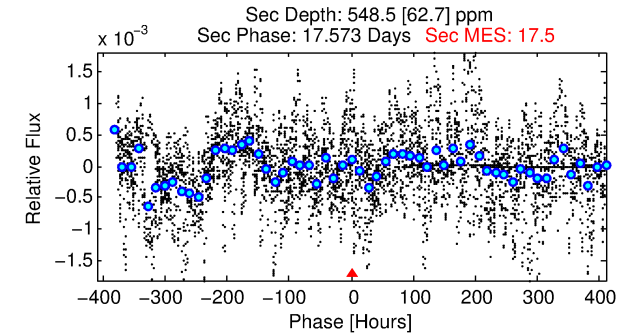
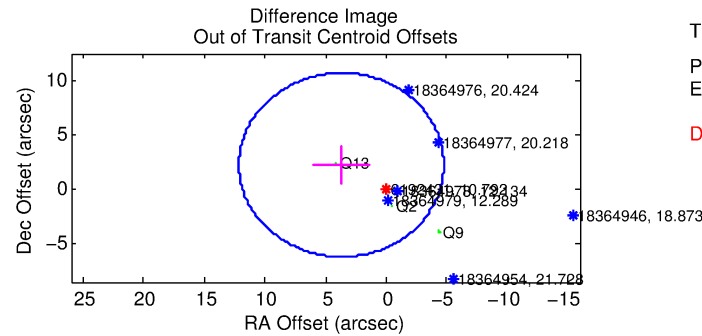
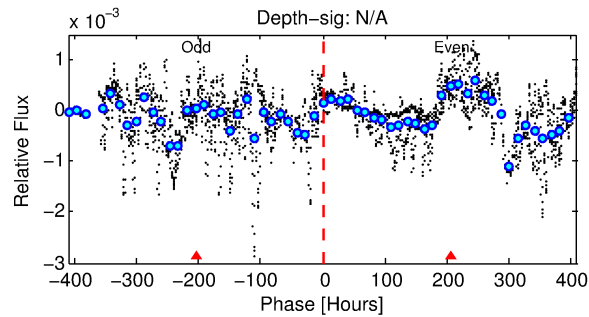
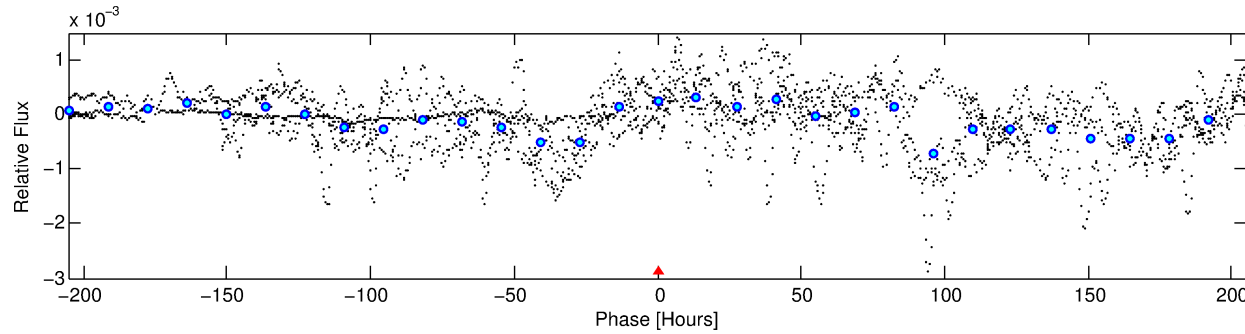
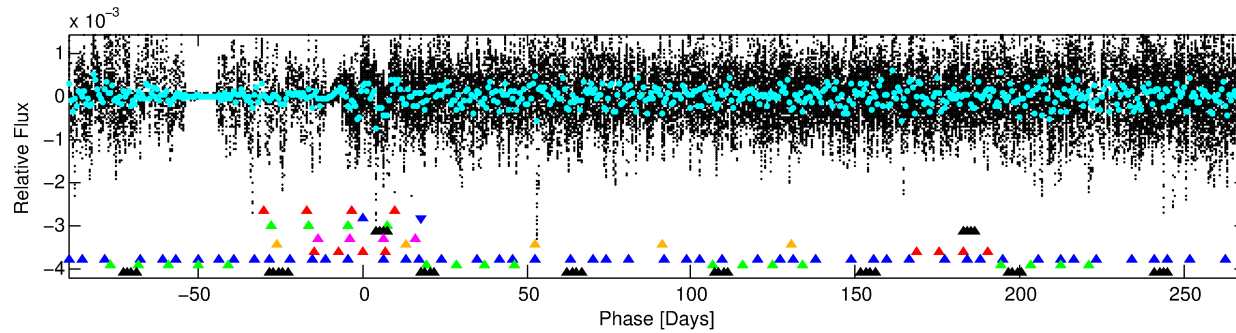
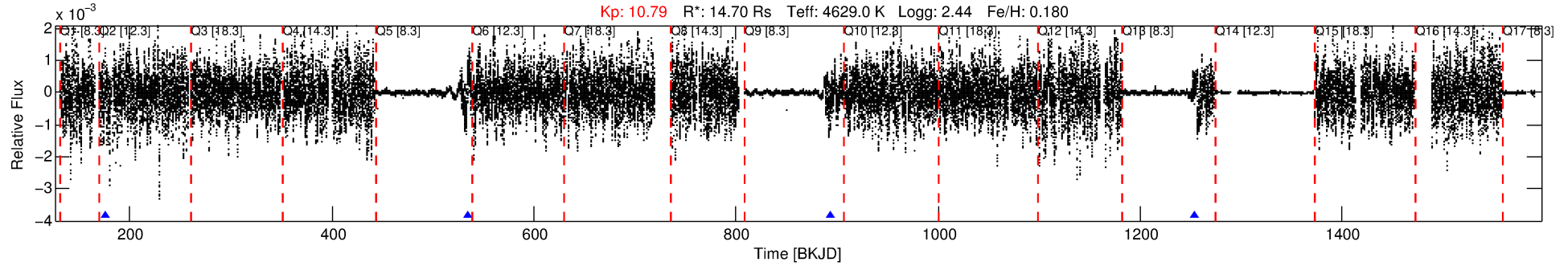
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-02

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 2 of 10 Period: 358.997 d



TPS TCE Results:

Period = 358.99722 d
Epoch = 174.7212 BKJD

DV fit results are unavailable

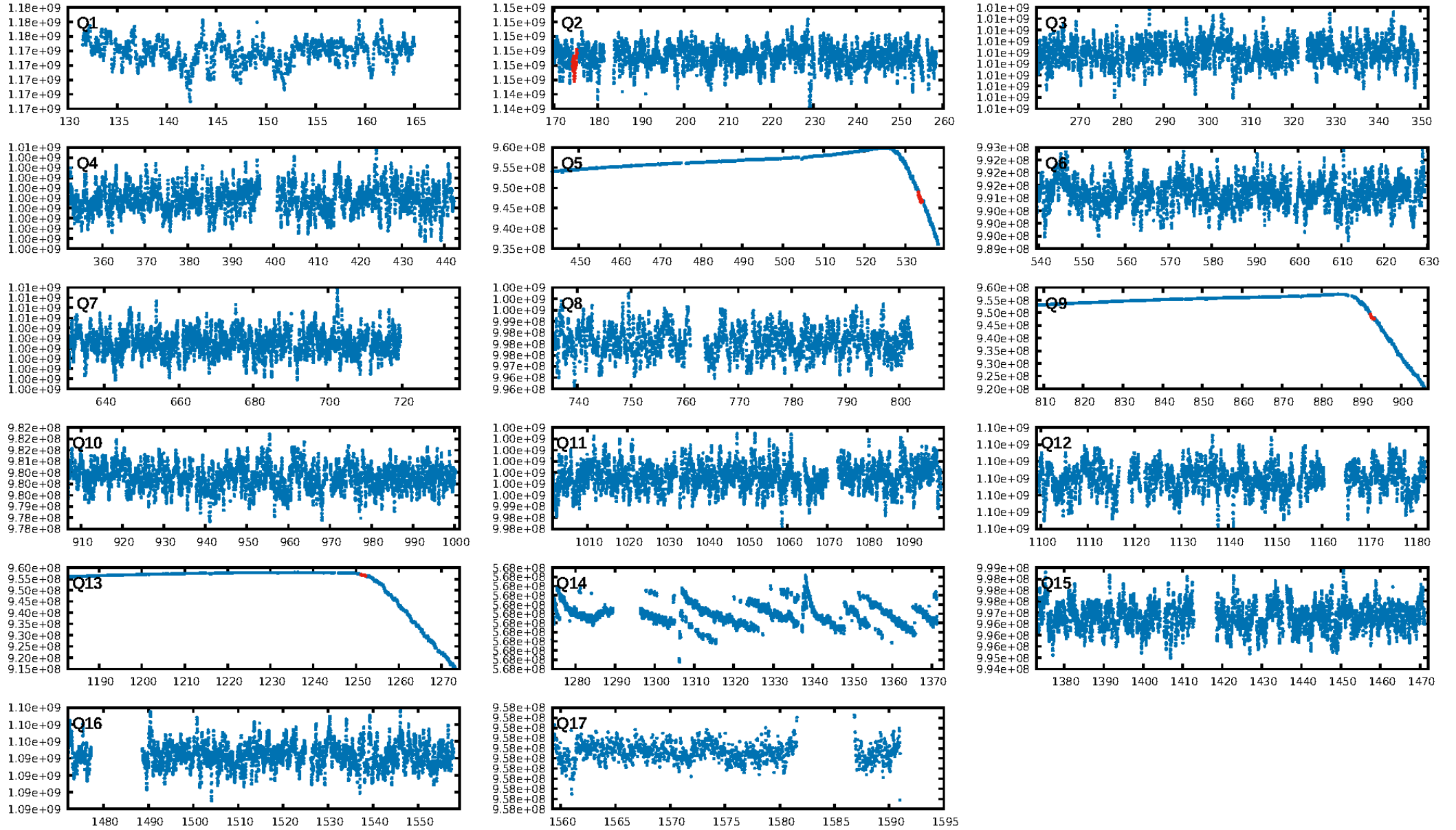
DV Diagnostic Results:

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LongPeriod-sig: 100.0% [14.16 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -1.409
Centroid-sig: 62.5%
Centroid-so: 0.404 arcsec [0.64 σ]
OotOffset-rm: 4.327 arcsec [1.54 σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 4.341 arcsec [2.55 σ]
KicOffset-st: 1/0/0/2 [3]
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DiffImageOverlap-fno: 0.33 [1/3]

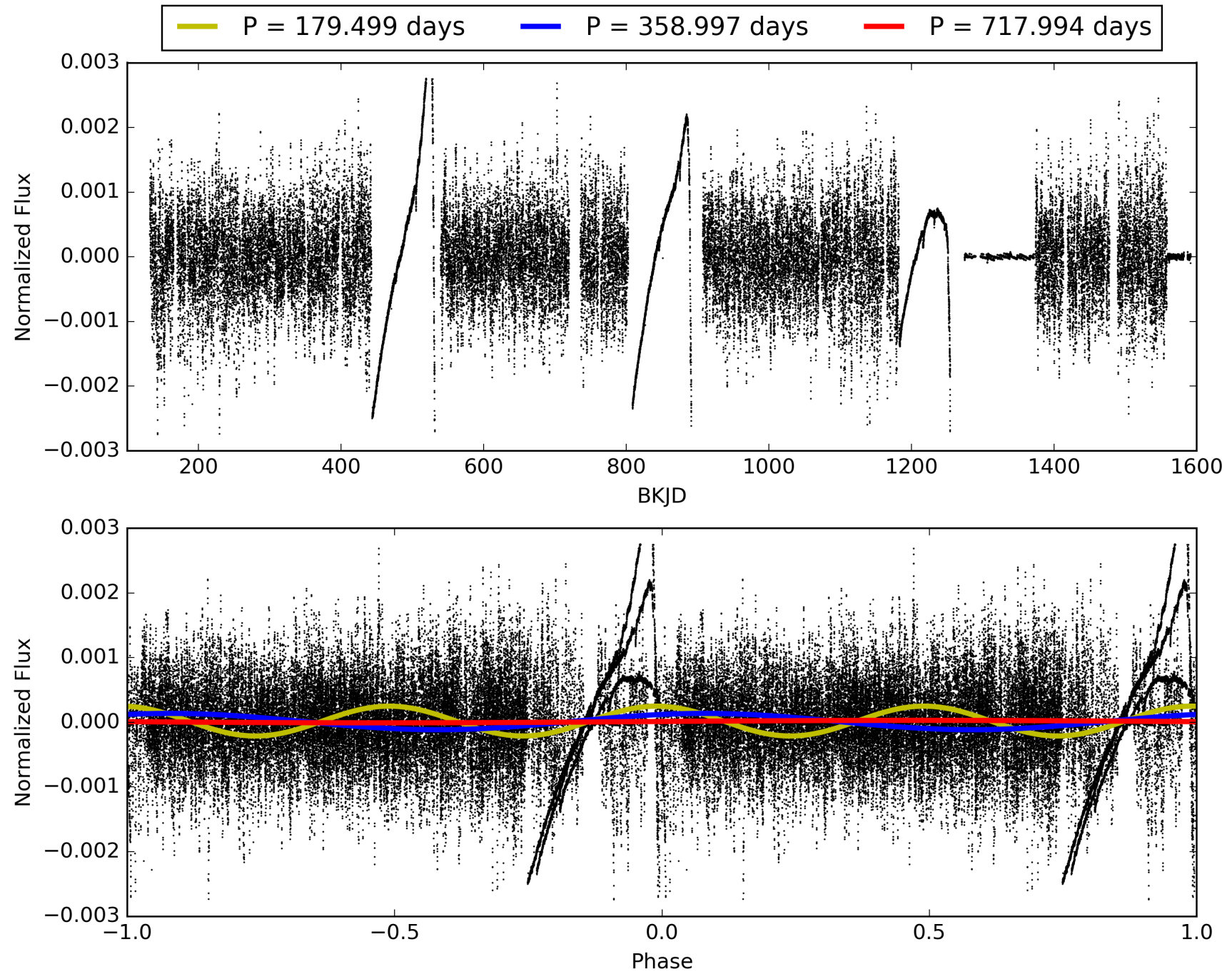
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006192431-02, PDC Light Curves

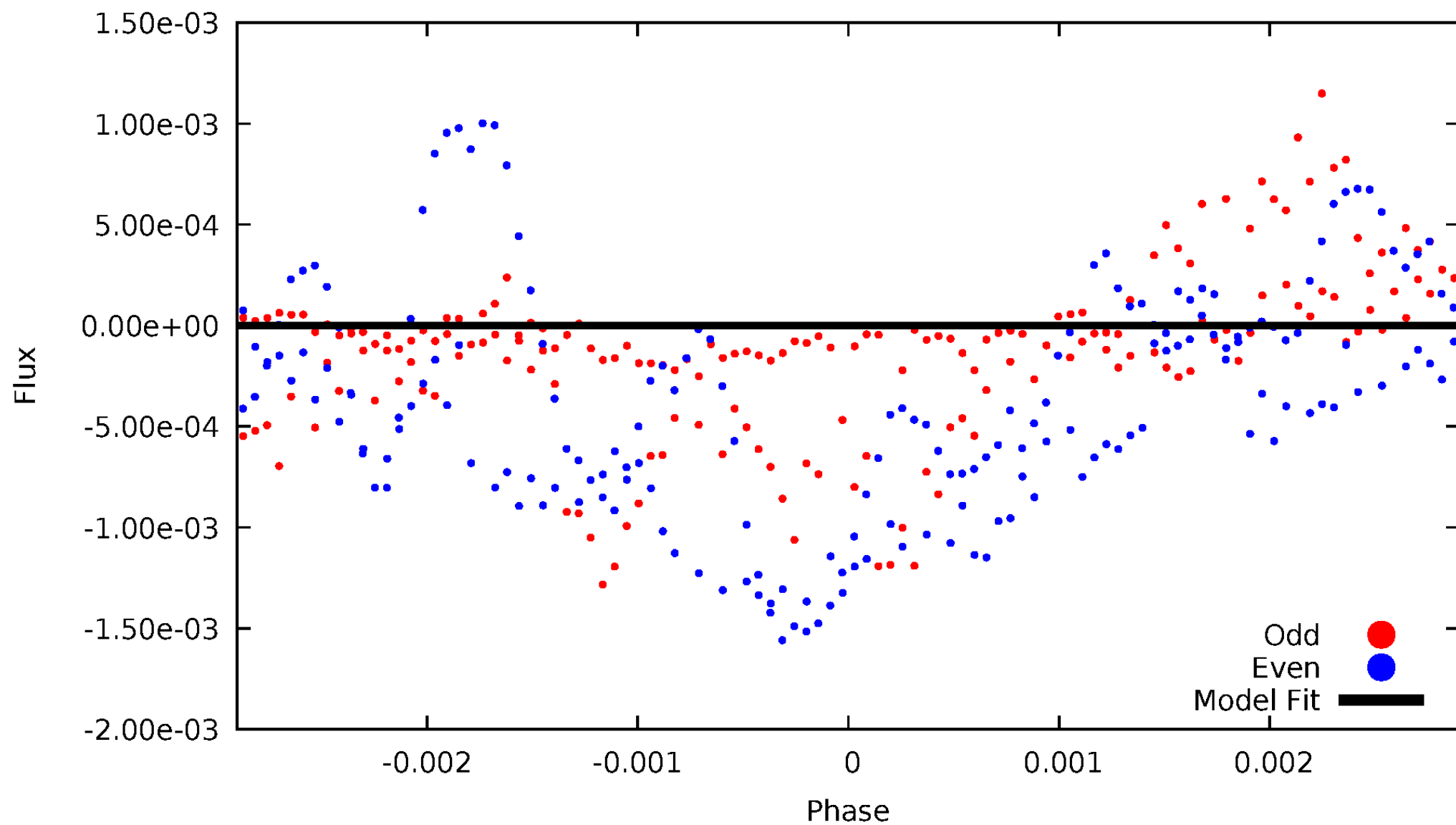


TCE 006192431-02



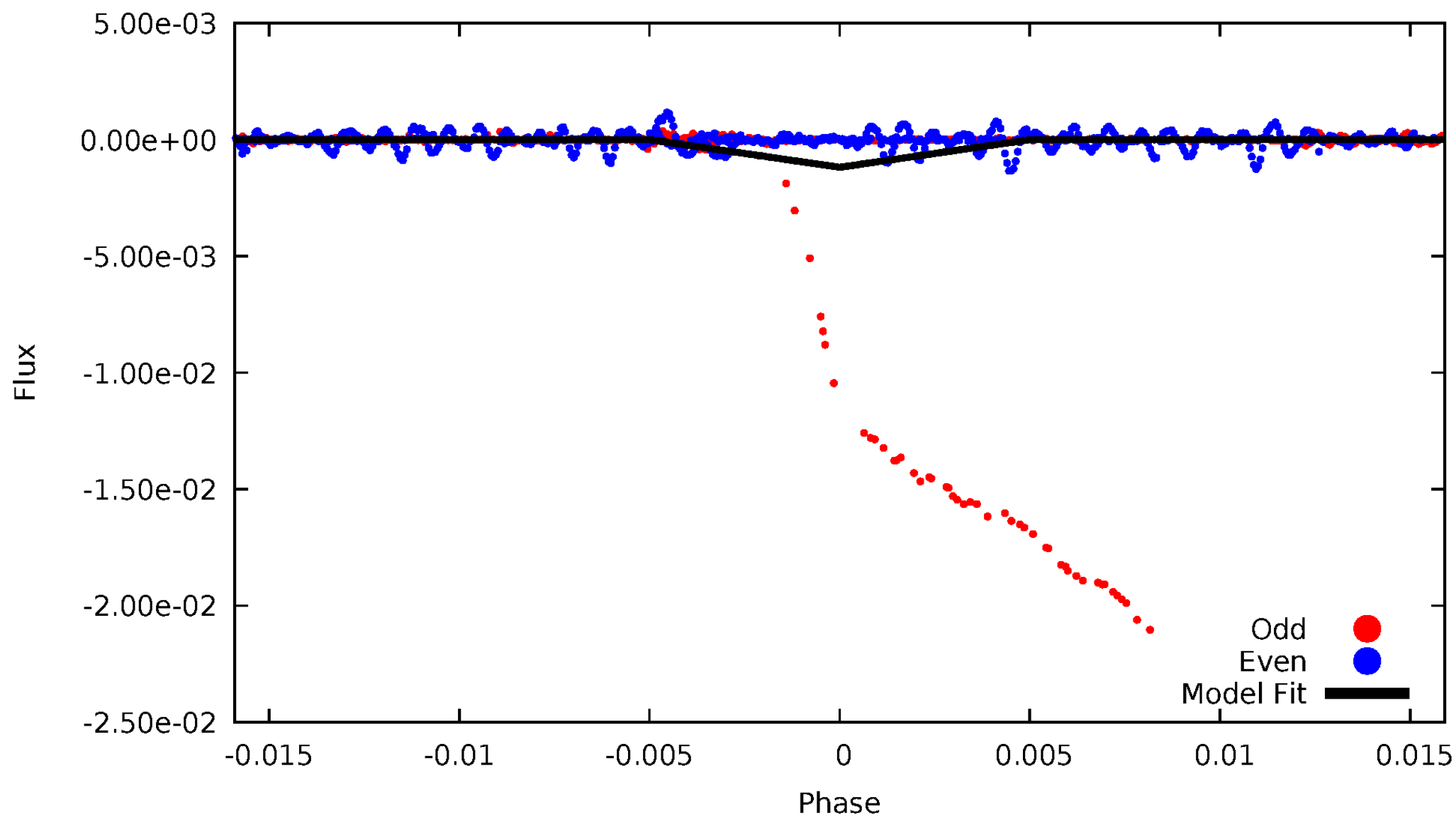
DV Odd/Even

TCE 006192431-02



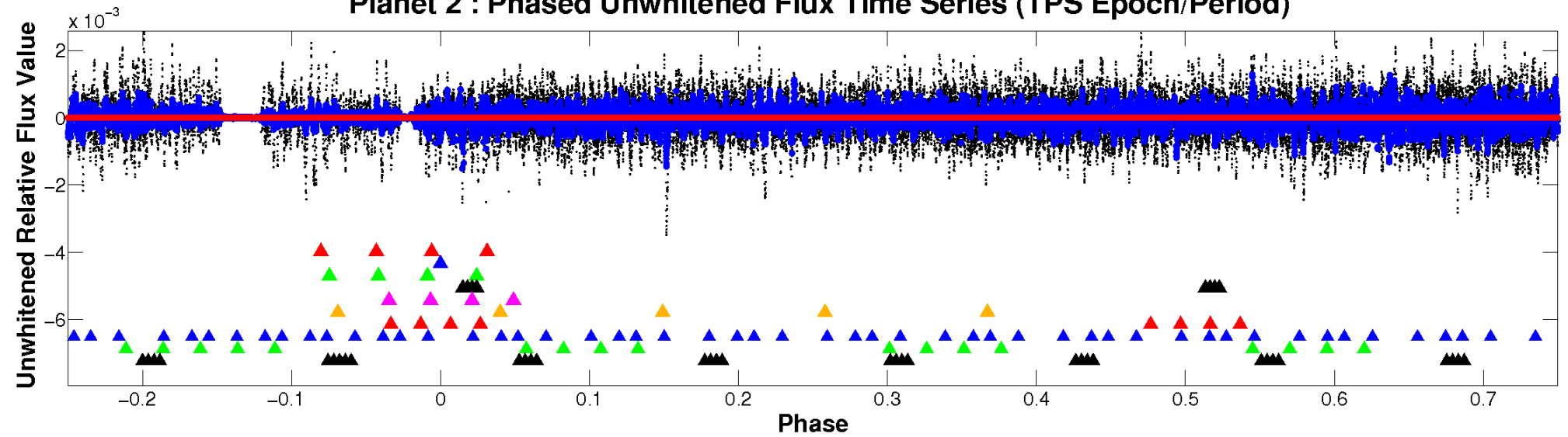
ALT Odd/Even

TCE 006192431-02



Non-Whitened Vs. Whitened Light Curve

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

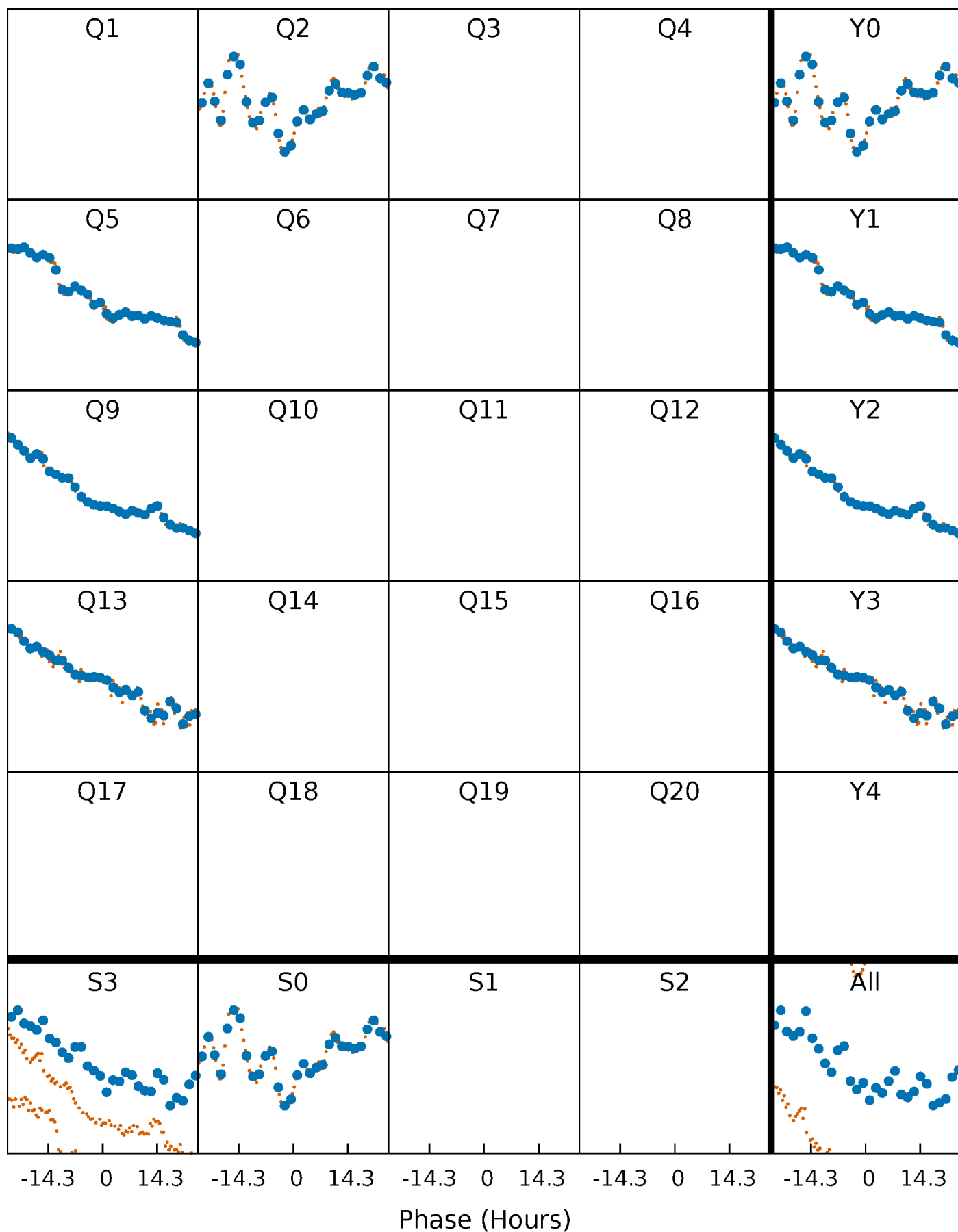


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



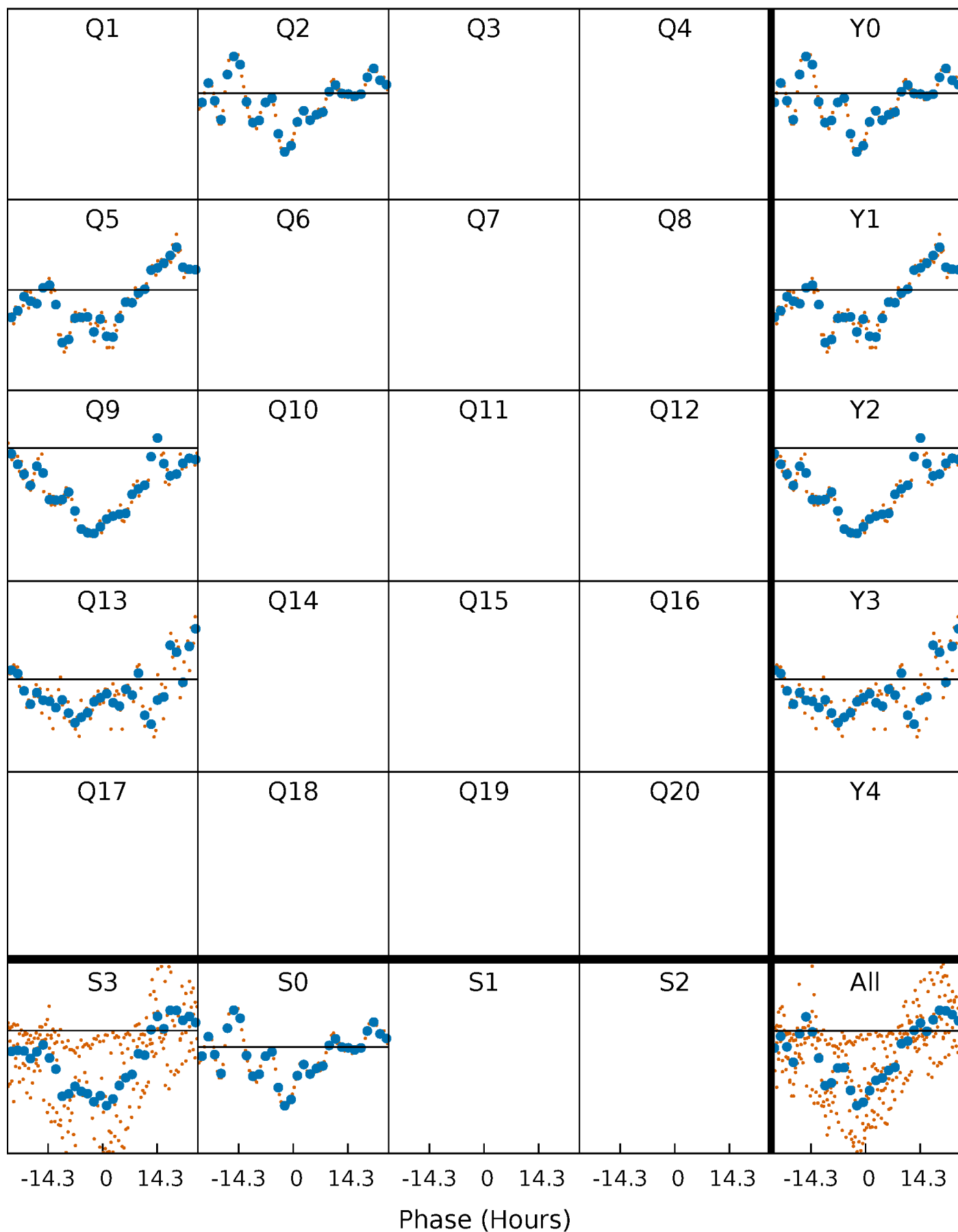
PDC Quarter-Phased Transit Curves

TCE 006192431-02 $P=358.997216$ Days $T_0=174.721162$ (BKJD)



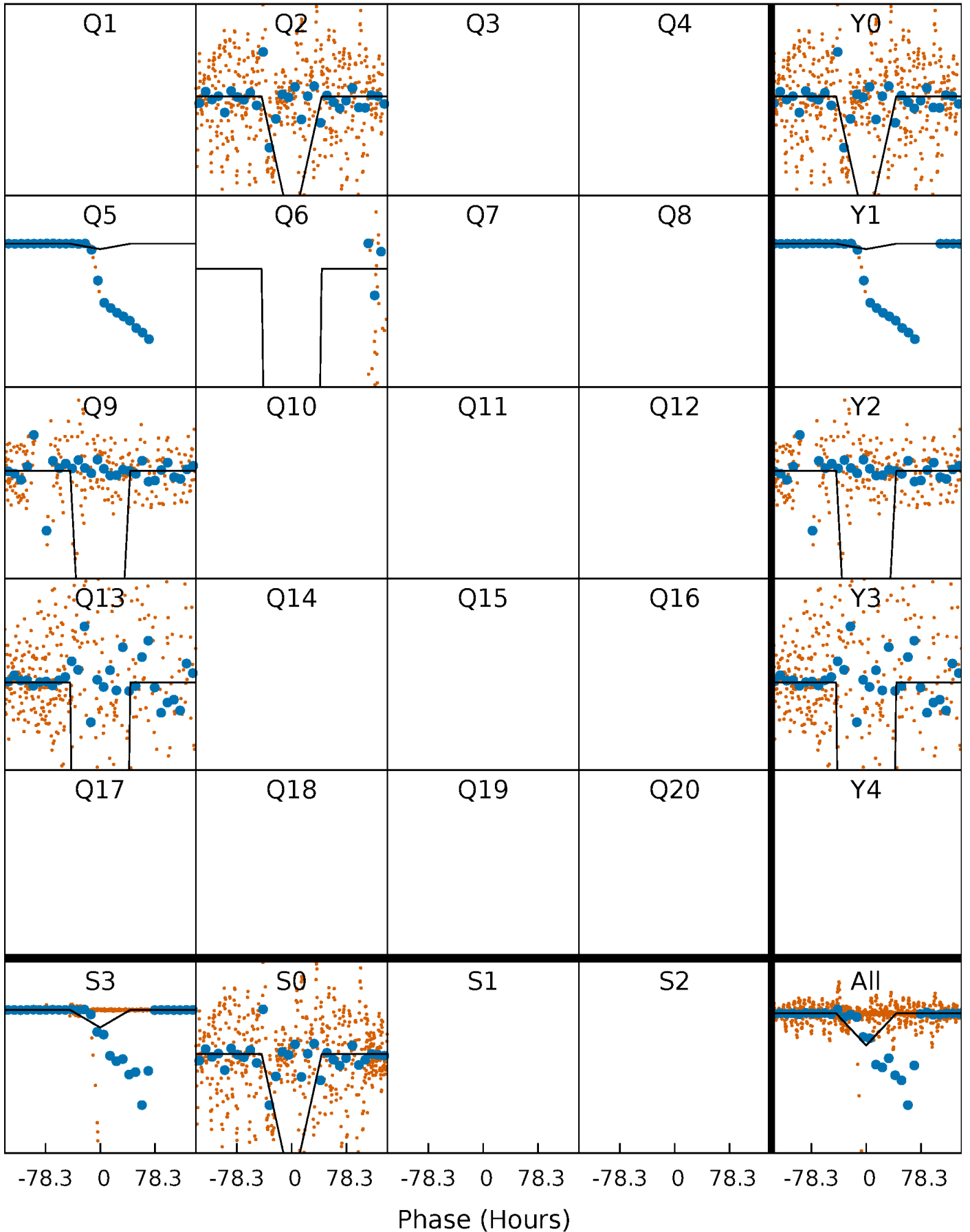
DV Quarter-Phased Transit Curves

TCE 006192431-02 $P=358.997216$ Days $T_0=174.721162$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

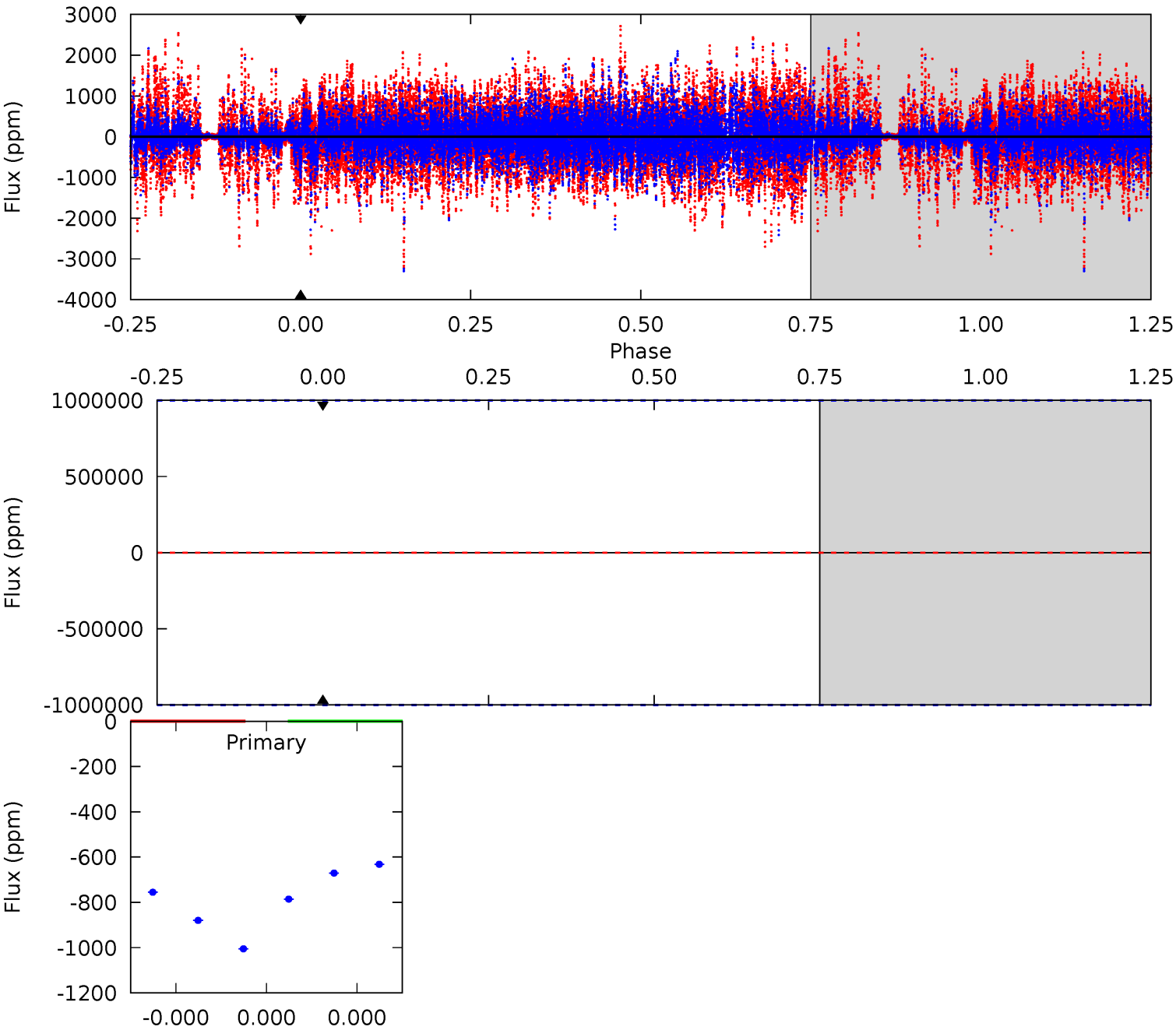
TCE 006192431-02 P=358.997216 Days $T_0=176.094925$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-02, P = 358.997216 Days, E = 174.721162 Days

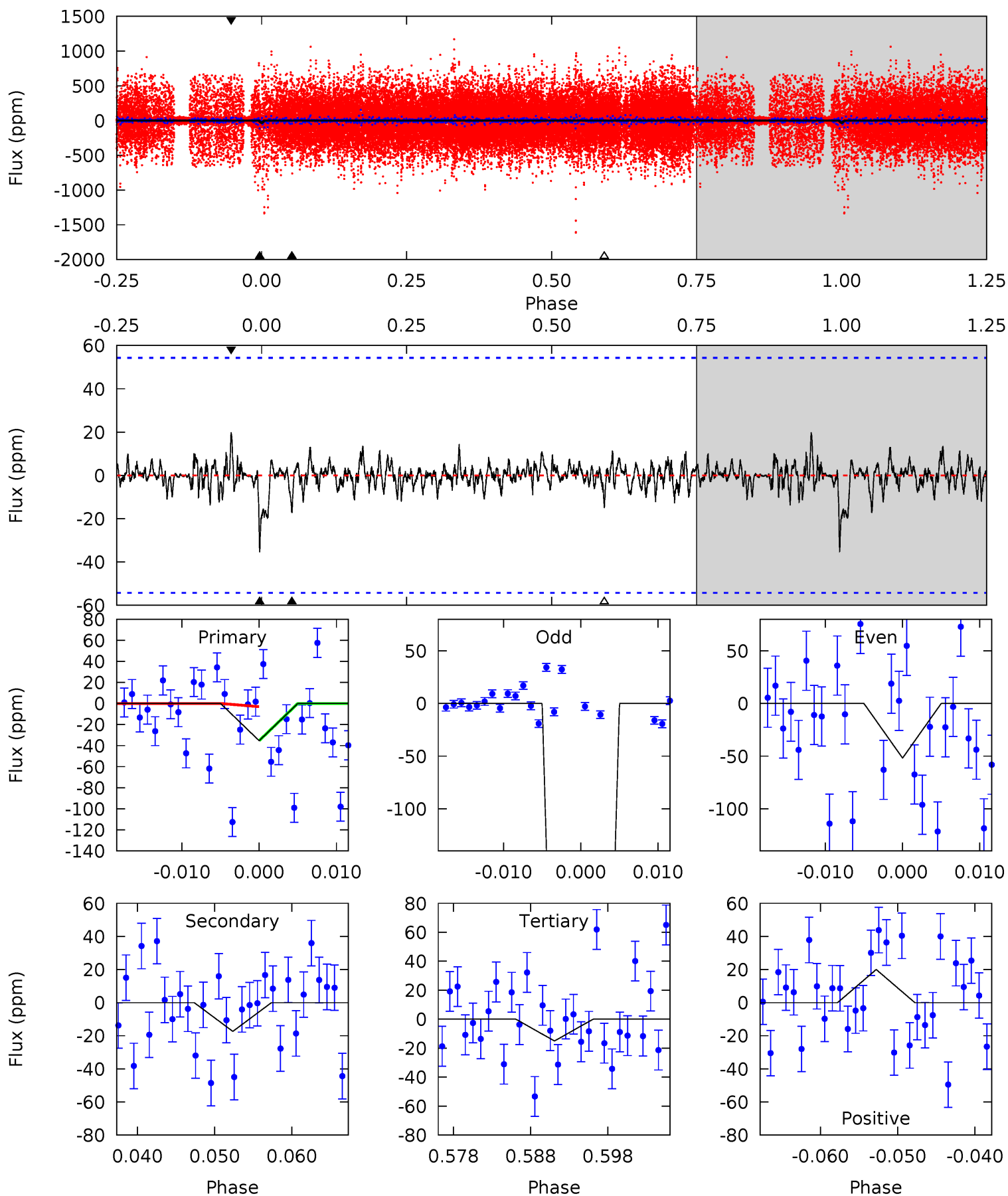
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006192431-02, P = 358.997216 Days, E = 176.094925 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.26	1.60	1.39	1.85	5.03	2.58	0.41	1.88	1.42	0.21	-0.24	52.1	74.2	0.36	1.51



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$121.91^{+120.23}_{-83.50}$	968^{+27}_{-34}	4149^{+8813}_{-15851}	192^{+12115}_{-9647}
Alt.	-17 ± 11	$135.20^{+132.74}_{-91.31}$	968^{+28}_{-35}	1839^{+684}_{-3535}	$0.674^{+6.547}_{-0.526}$

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 $A_{obs} \gg 1.0$

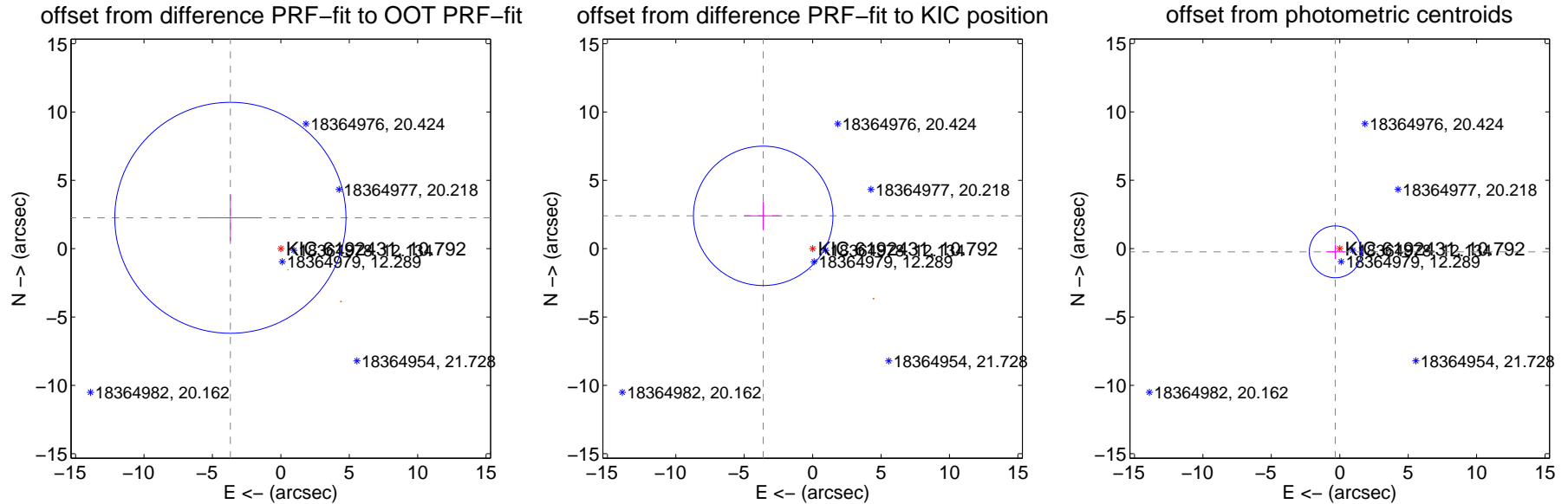
DV Centroid Data

Supplemental centroid analysis for 006192431-02. **Kepler magnitude: 10.79.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

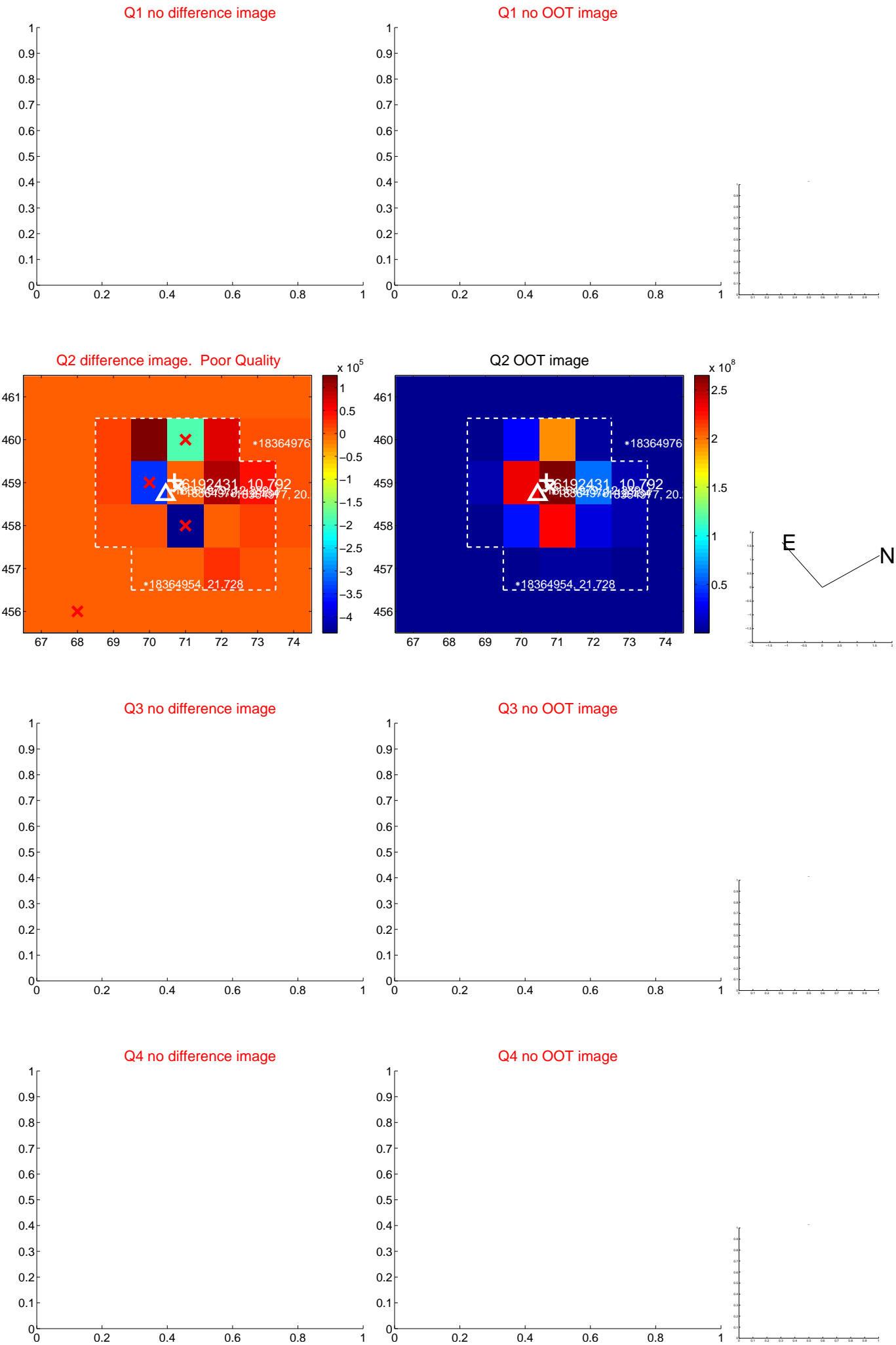
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.327 ± 2.817	1.54	3.689 ± 2.264	2.260 ± 1.702
PRF-fit source offset from KIC position	4.341 ± 1.700	2.55	3.615 ± 1.382	2.404 ± 1.053
photometric centroid source offset	0.40 ± 0.63	0.64	0.33 ± 0.68	-0.24 ± 0.53



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

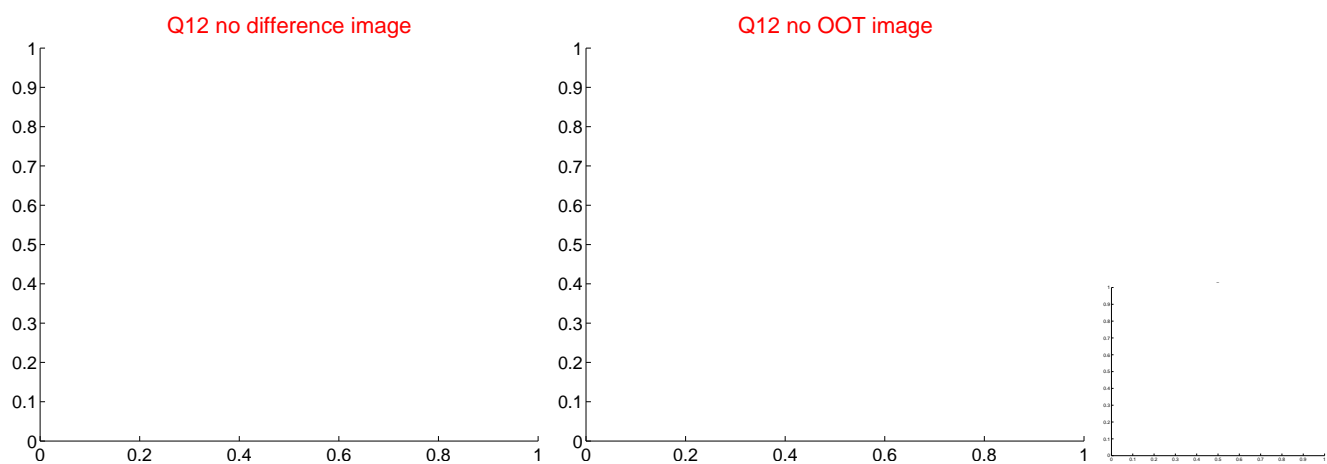
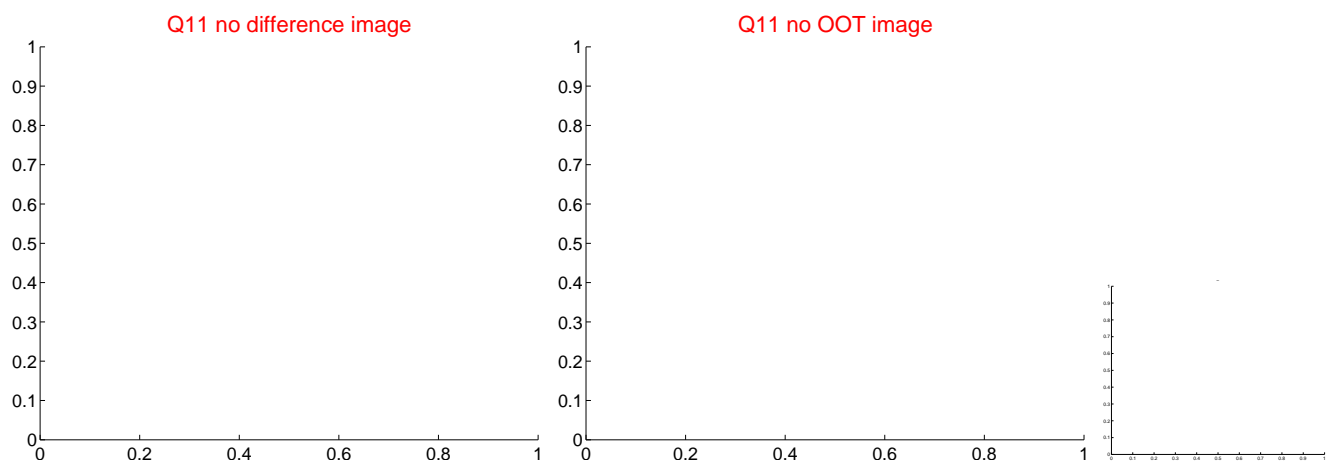
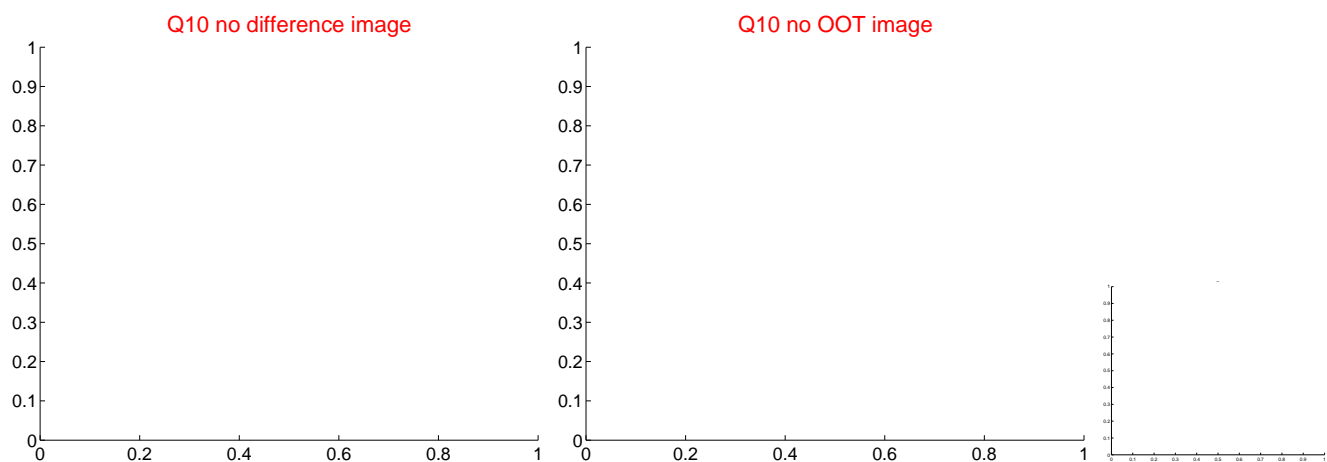
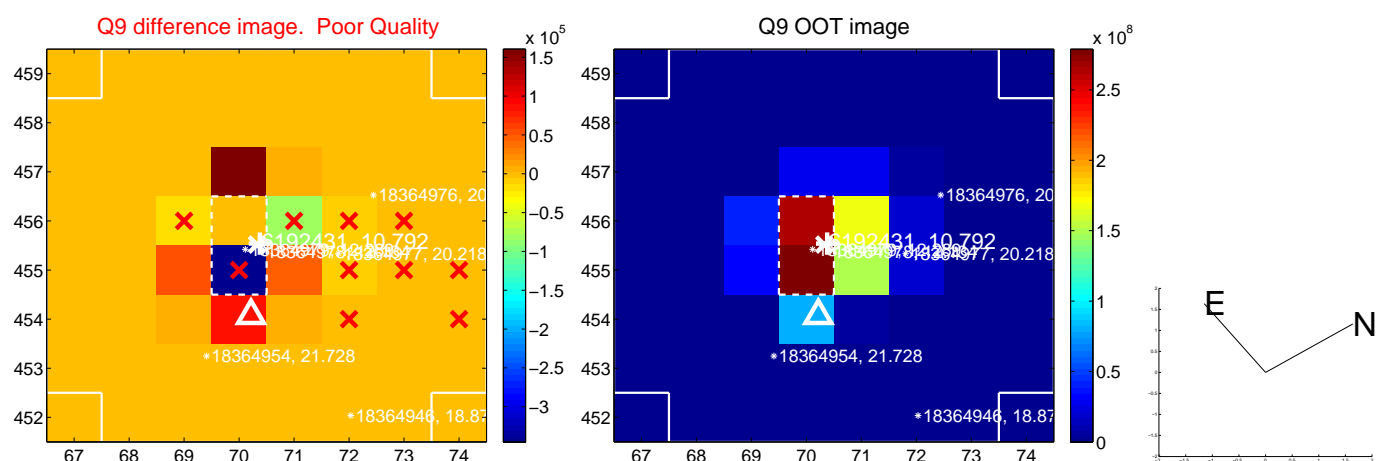
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



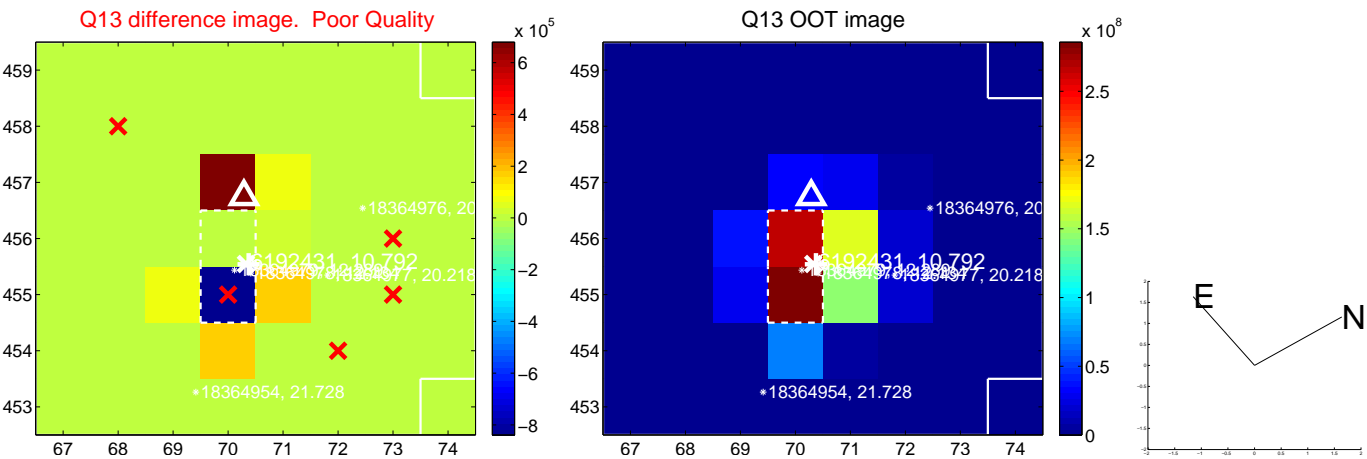
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



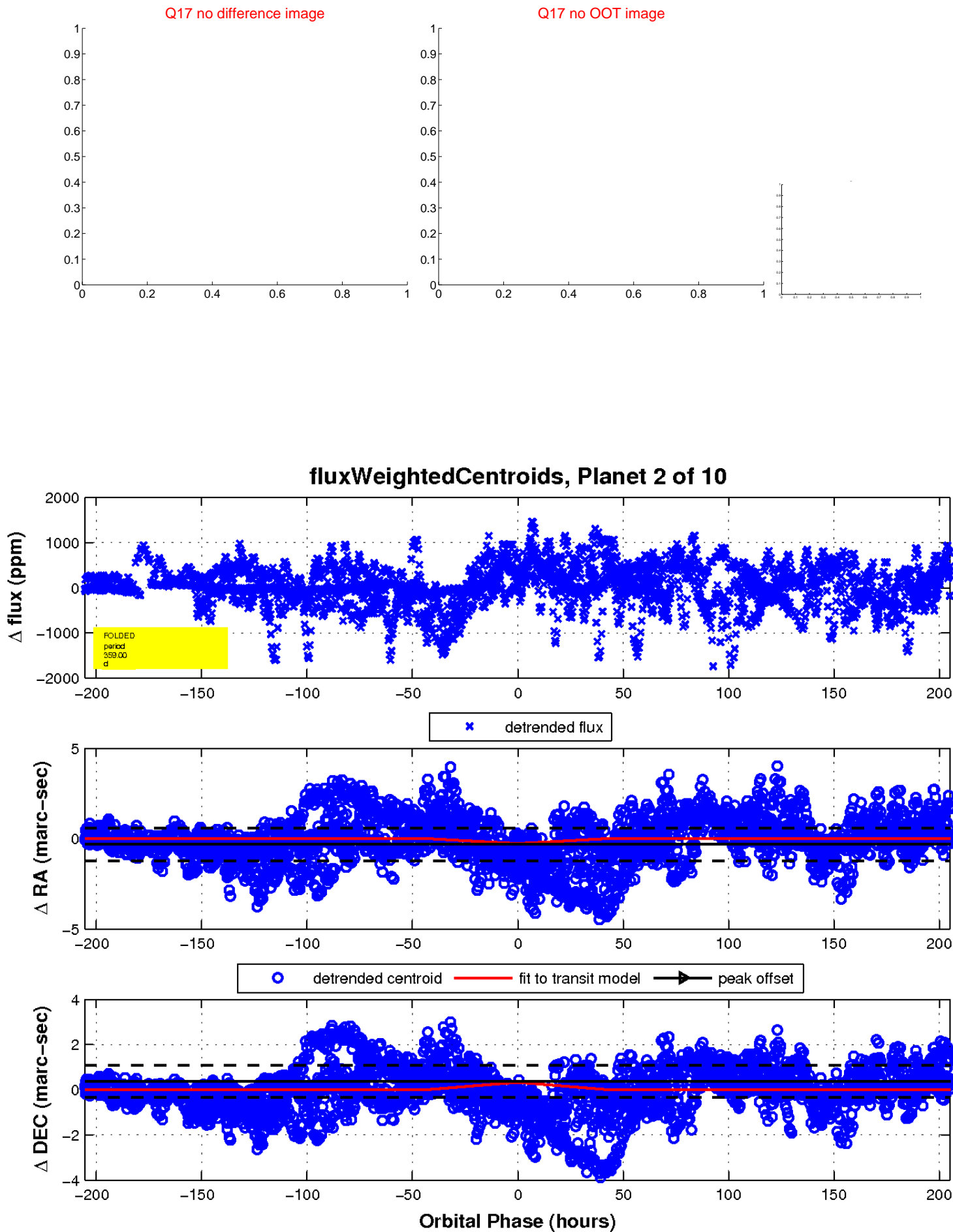
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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

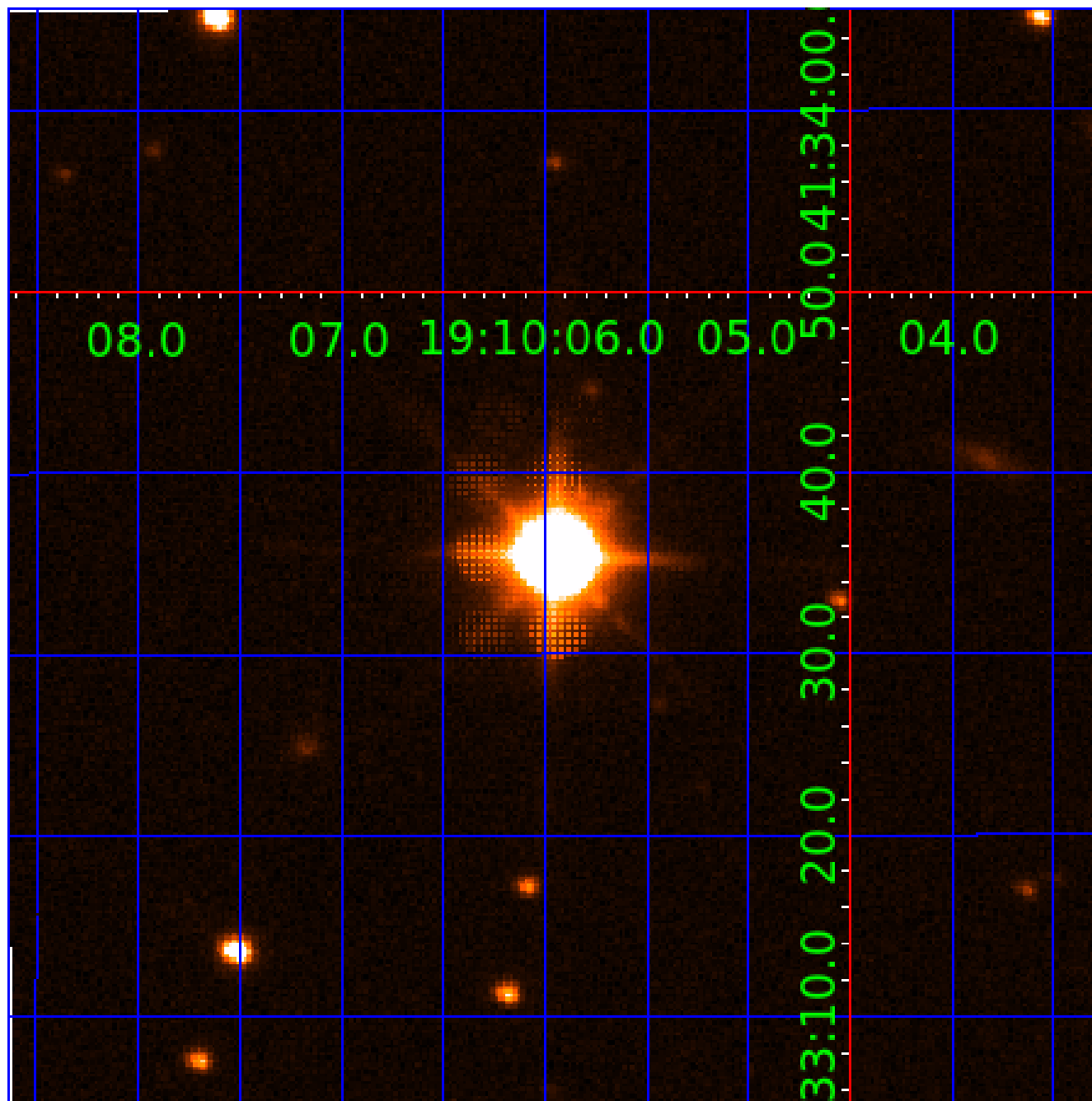


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
006192431-02	OBS	No	358.997216	174.721162	269.0	12.500	42.2	-1.0	14.70	4629	23.05	54.47
006192431-03	OBS	No	370.828432	147.942459	369.1	26.716	31.4	19.3	14.70	4629	37.87	52.17
006192431-04	OBS	No	178.940621	183.459519	705.9	28.322	25.5	24.0	14.70	4629	56.68	137.84
006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
006192431-08	OBS	No	28.448407	132.456892	33.0	1.305	17.8	9.2	14.70	4629	9.10	1600.41
006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

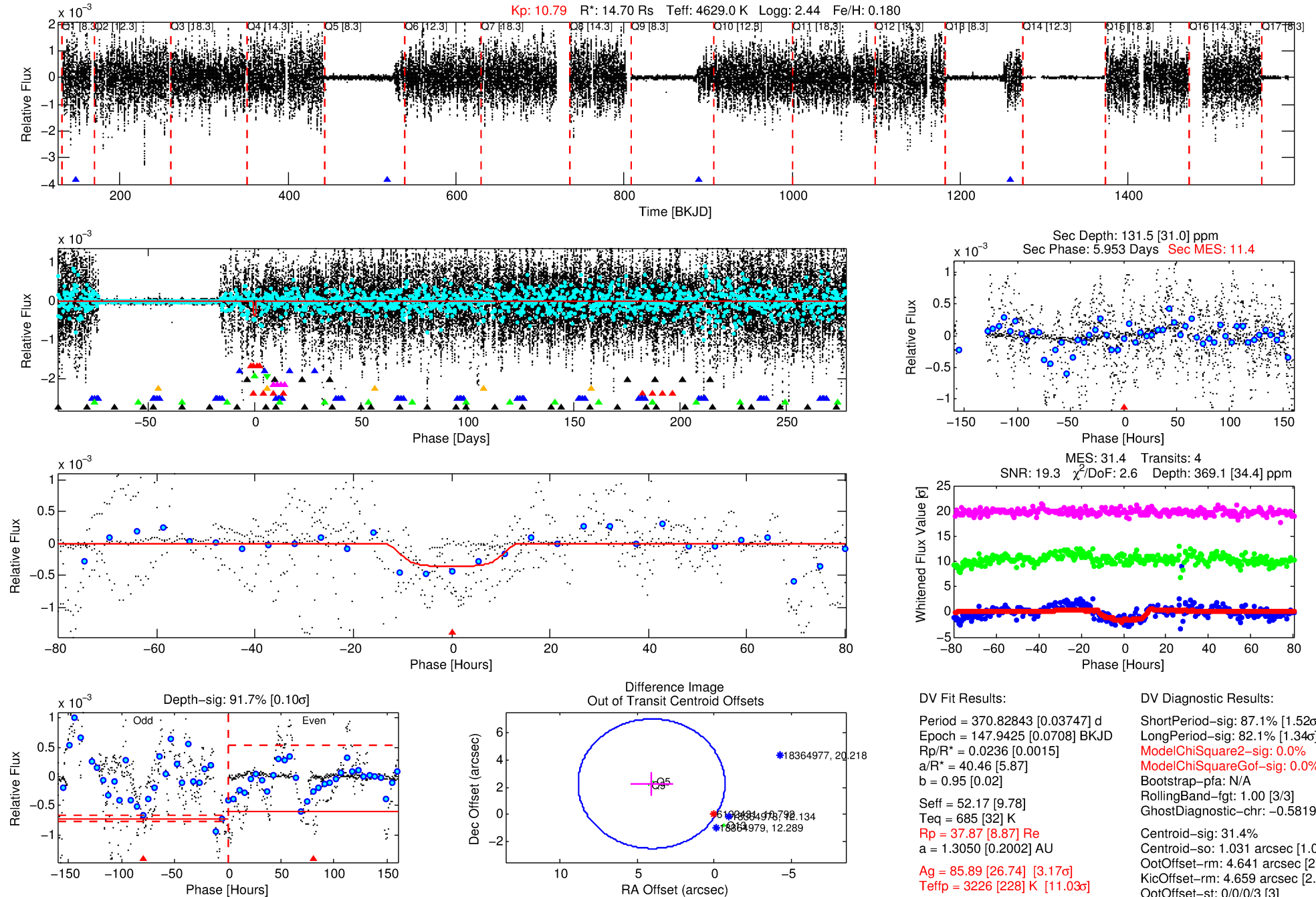
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-03

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 3 of 10 Period: 370.828 d



DV Fit Results:

Period = 370.82843 [0.03747] d
Epoch = 147.9425 [0.0708] BKJD
Rp/R* = 0.0236 [0.0015]
a/R* = 40.46 [5.87]
b = 0.95 [0.02]
Seff = 52.17 [9.78]
Teq = 685 [32] K
Rp = 37.87 [8.87] Re
a = 1.3050 [0.2002] AU
Ag = 85.89 [26.74] [3.17 σ]
Teffp = 3226 [228] K [11.03 σ]

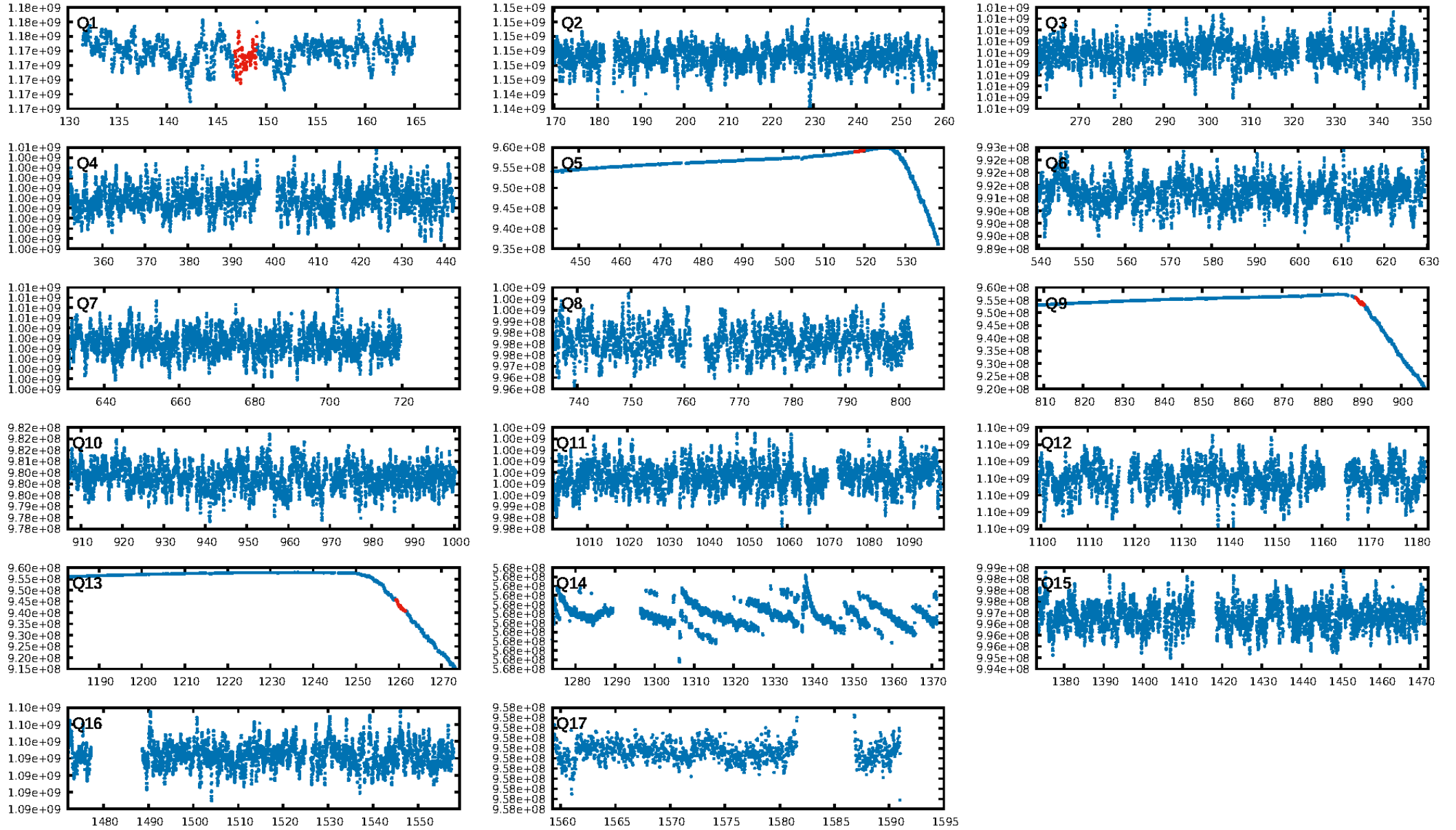
DV Diagnostic Results:

ShortPeriod-sig: 87.1% [1.52 σ]
LongPeriod-sig: 82.1% [1.34 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.5819
Centroid-sig: 31.4%
Centroid-so: 1.031 arcsec [1.09 σ]
OotOffset-rm: 4.641 arcsec [2.93 σ]
KicOffset-rm: 4.659 arcsec [2.99 σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 0.25 [1/4]

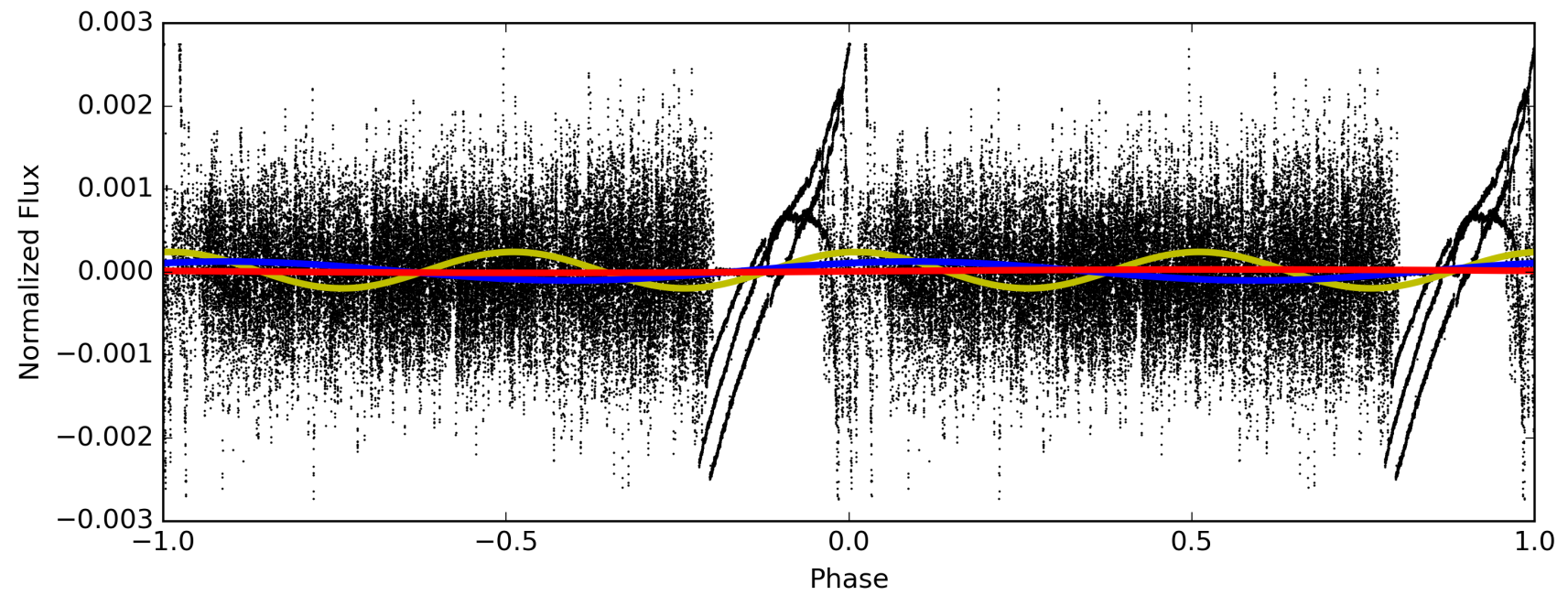
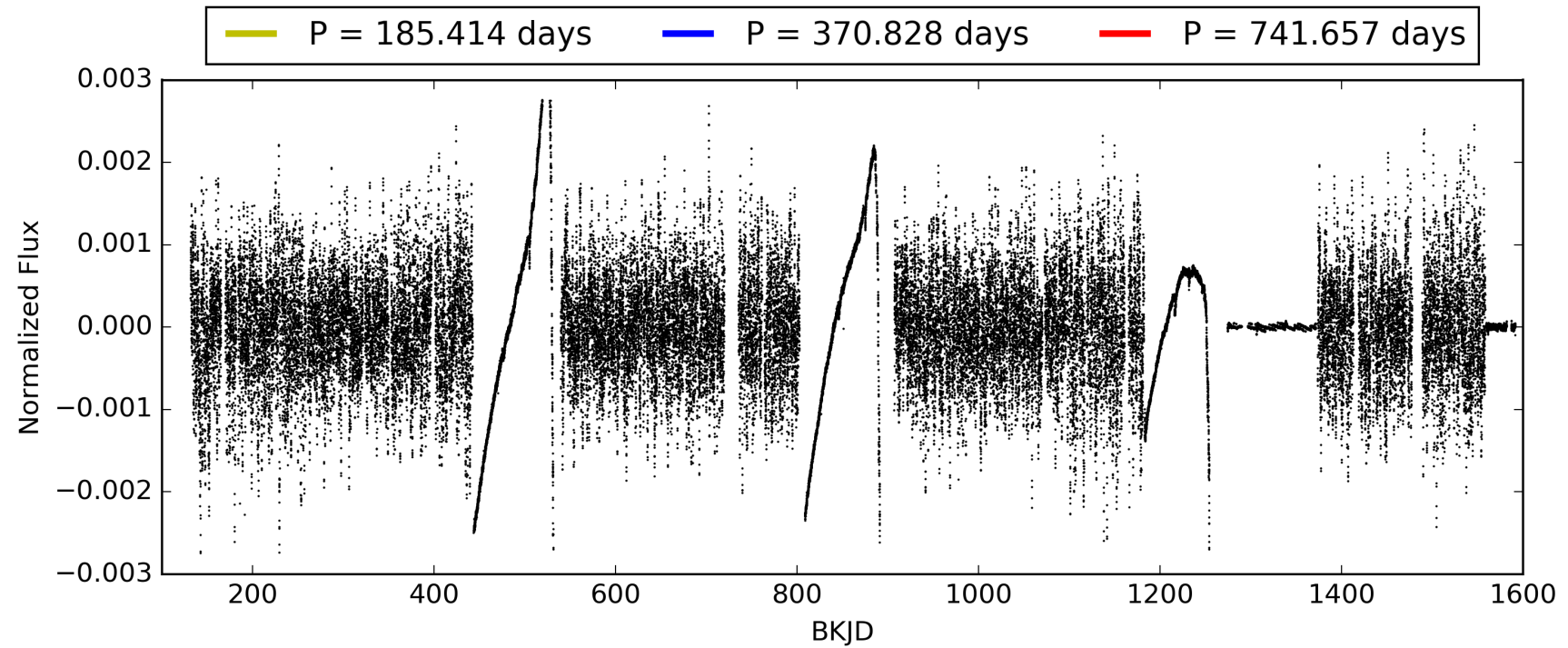
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:23:31 Z

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

TCE 006192431-03, PDC Light Curves

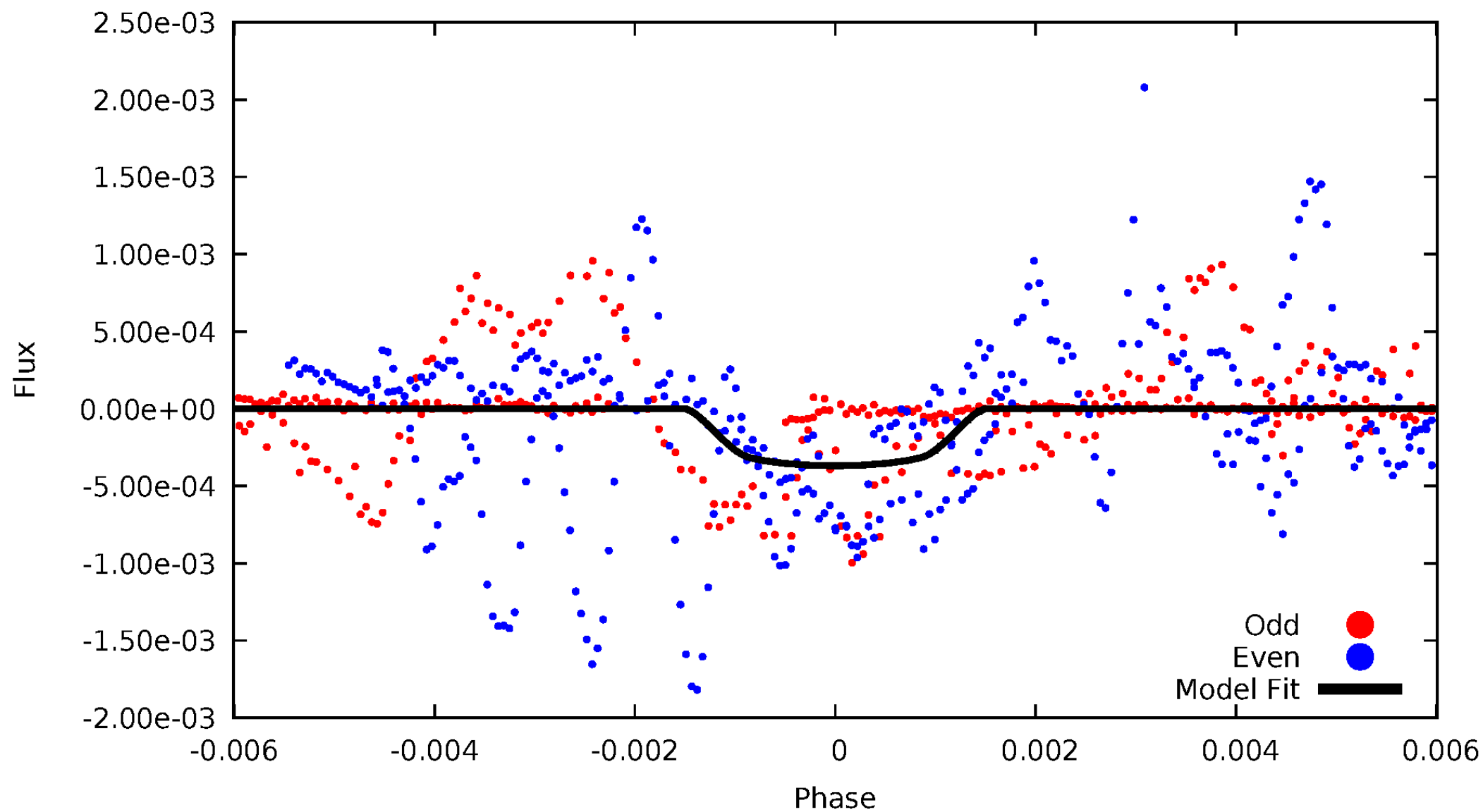


TCE 006192431-03



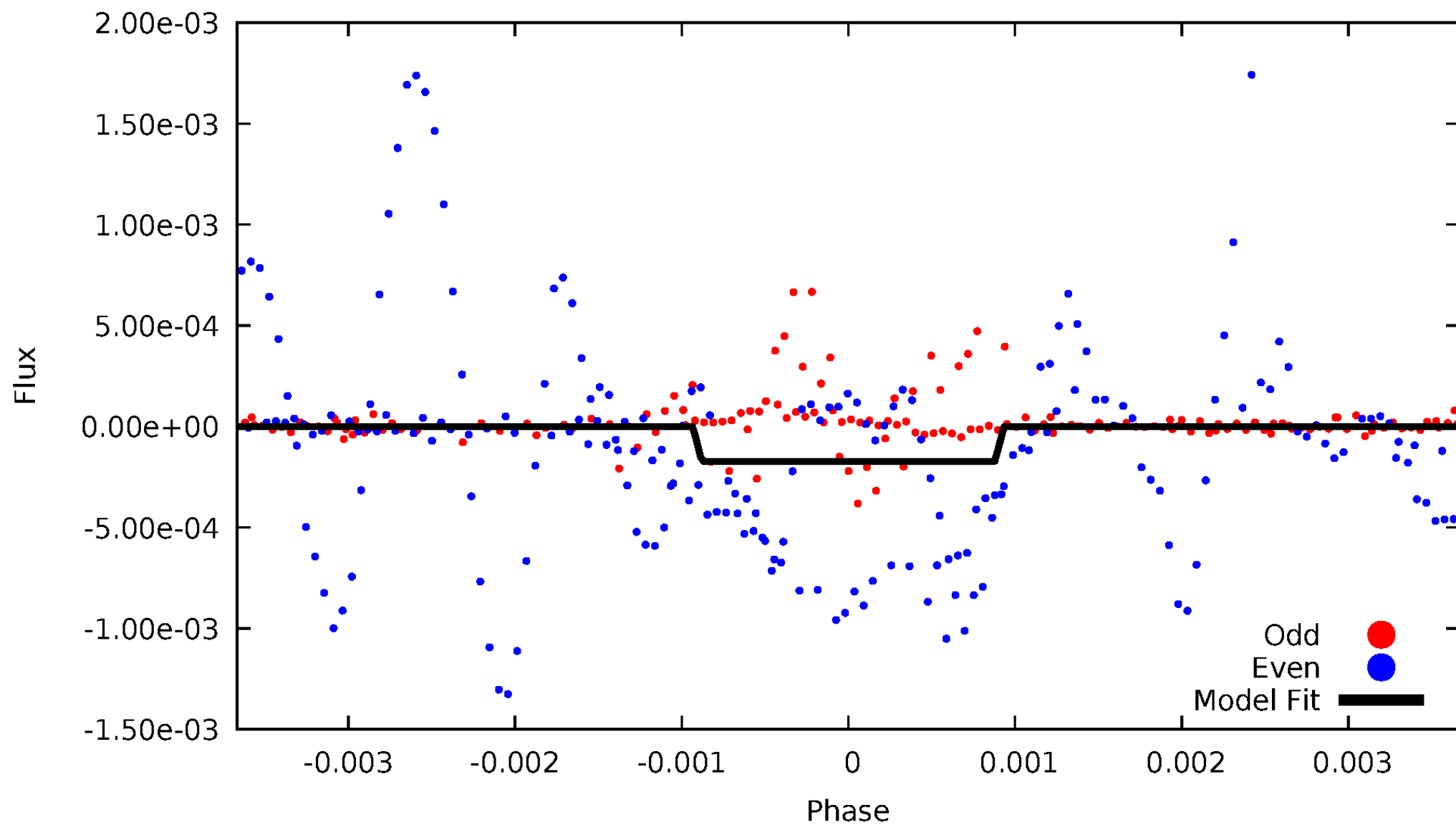
DV Odd/Even

TCE 006192431-03



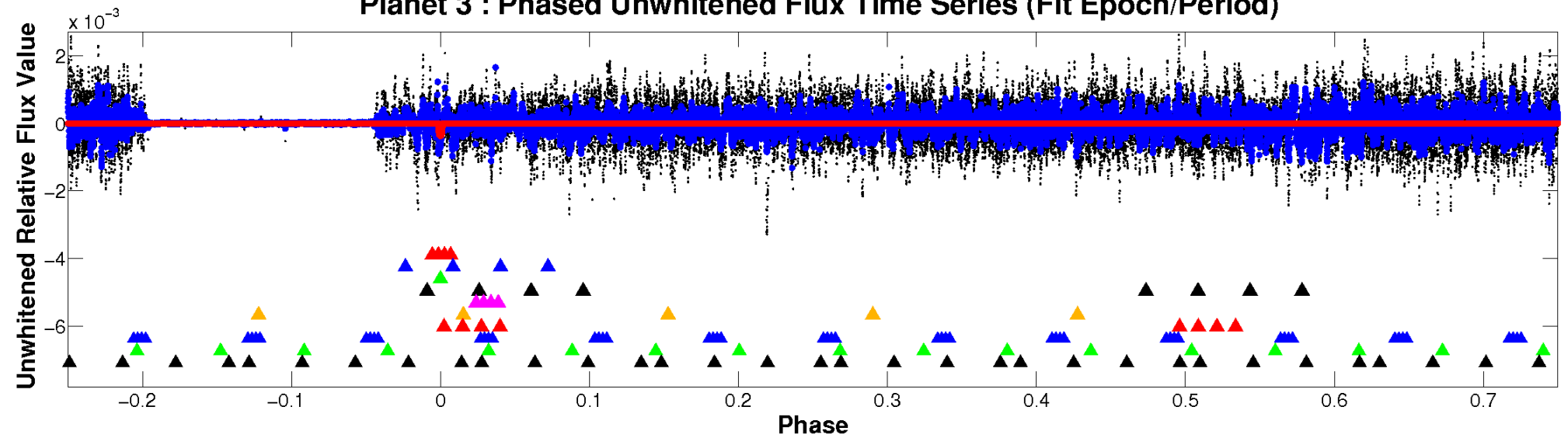
ALT Odd/Even

TCE 006192431-03

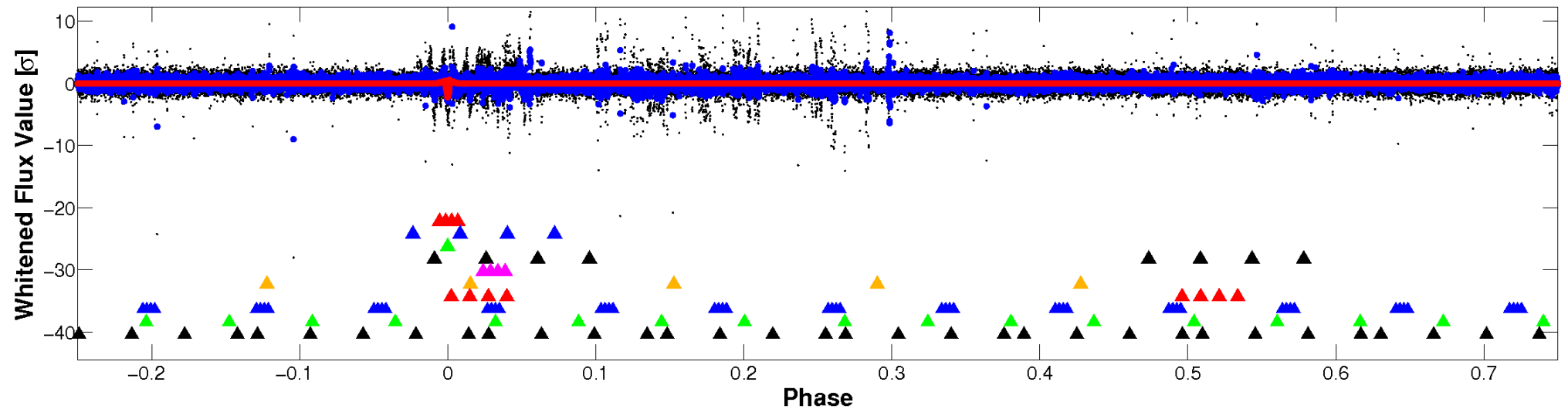


Non-Whitened Vs. Whitened Light Curve

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

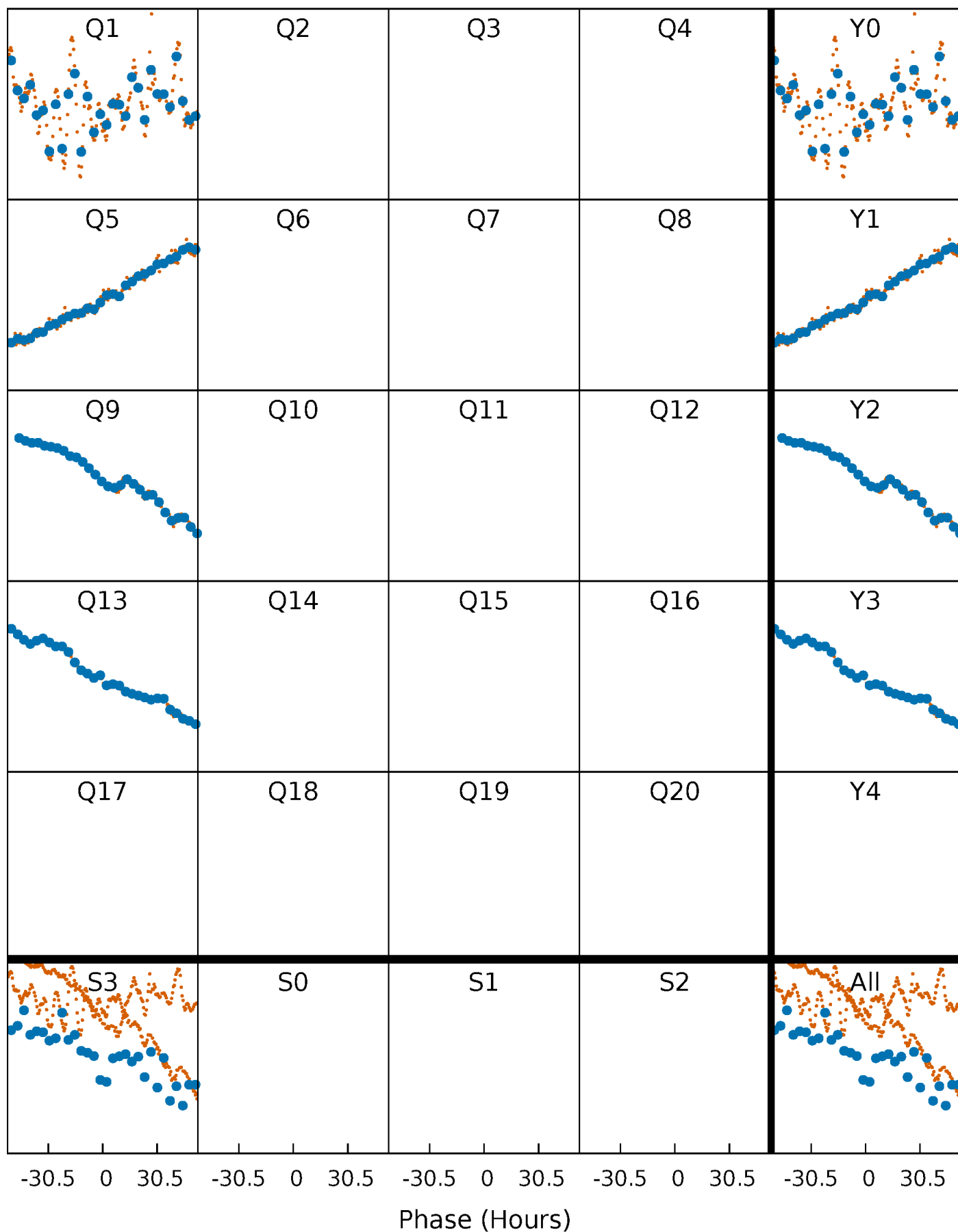


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



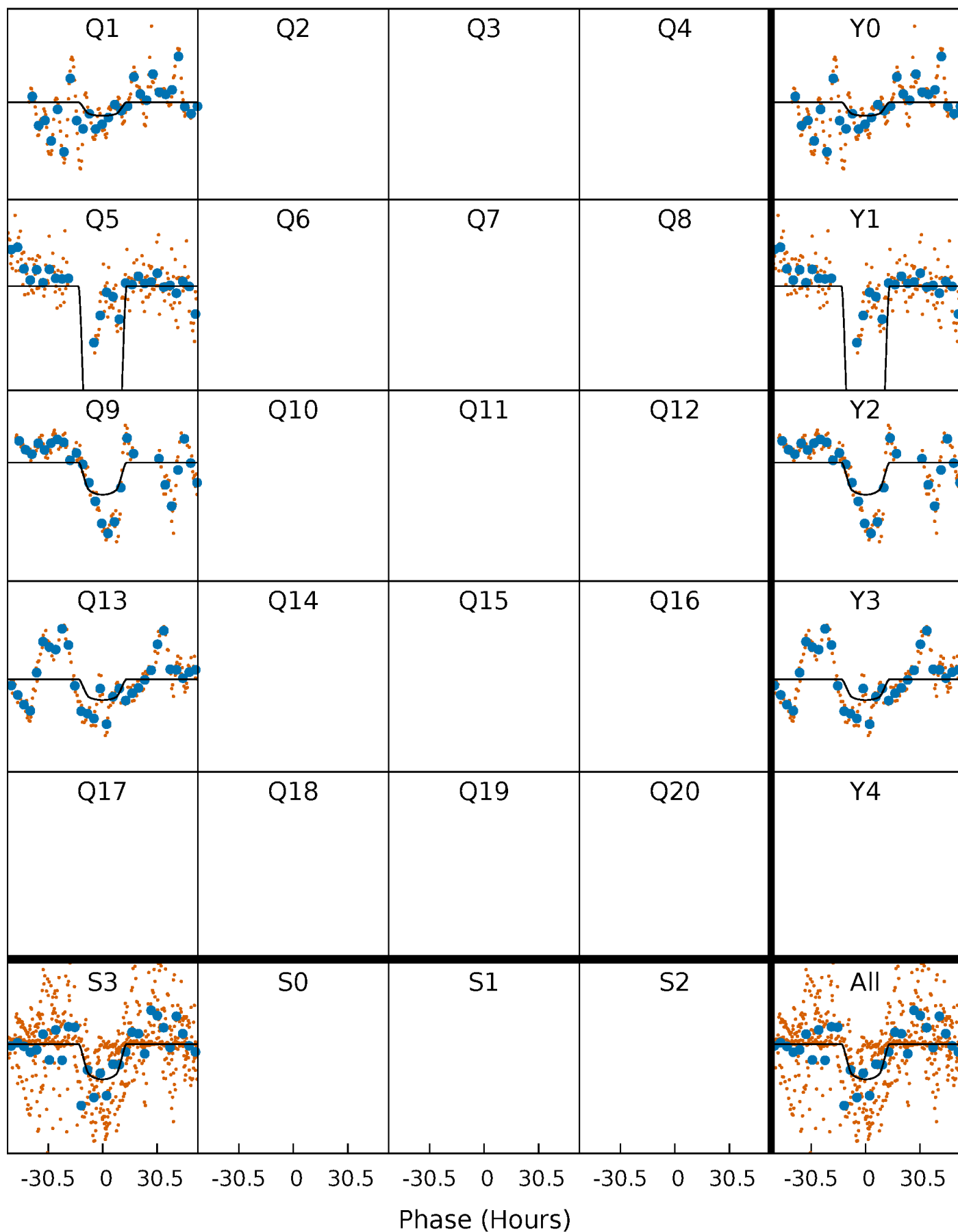
PDC Quarter-Phased Transit Curves

TCE 006192431-03 $P=370.828432$ Days $T_0=147.942459$ (BKJD)



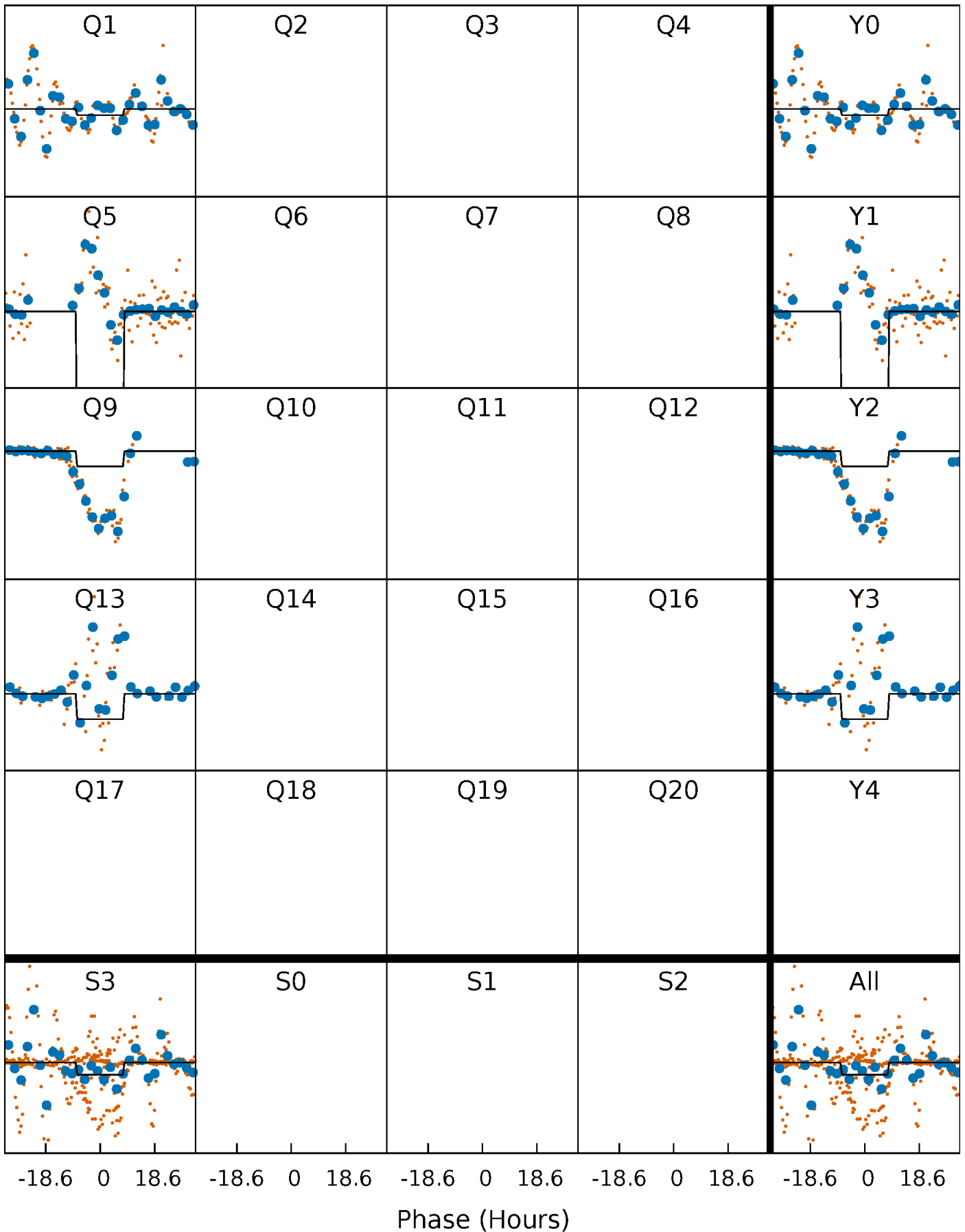
DV Quarter-Phased Transit Curves

TCE 006192431-03 $P=370.828432$ Days $T_0=147.942459$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

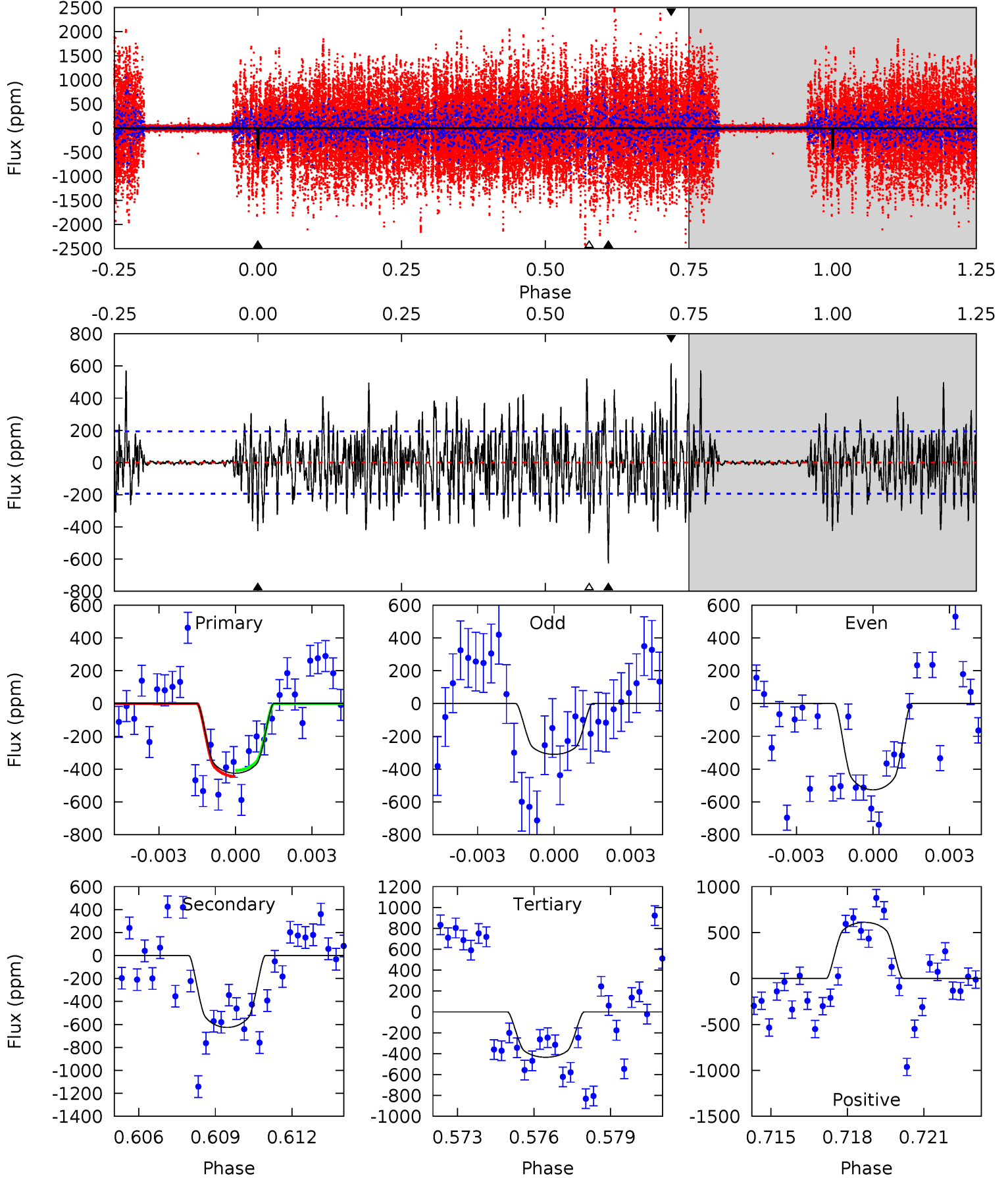
TCE 006192431-03 P=370.760135 Days $T_0=148.188593$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-03, P = 370.828432 Days, E = 147.942459 Days

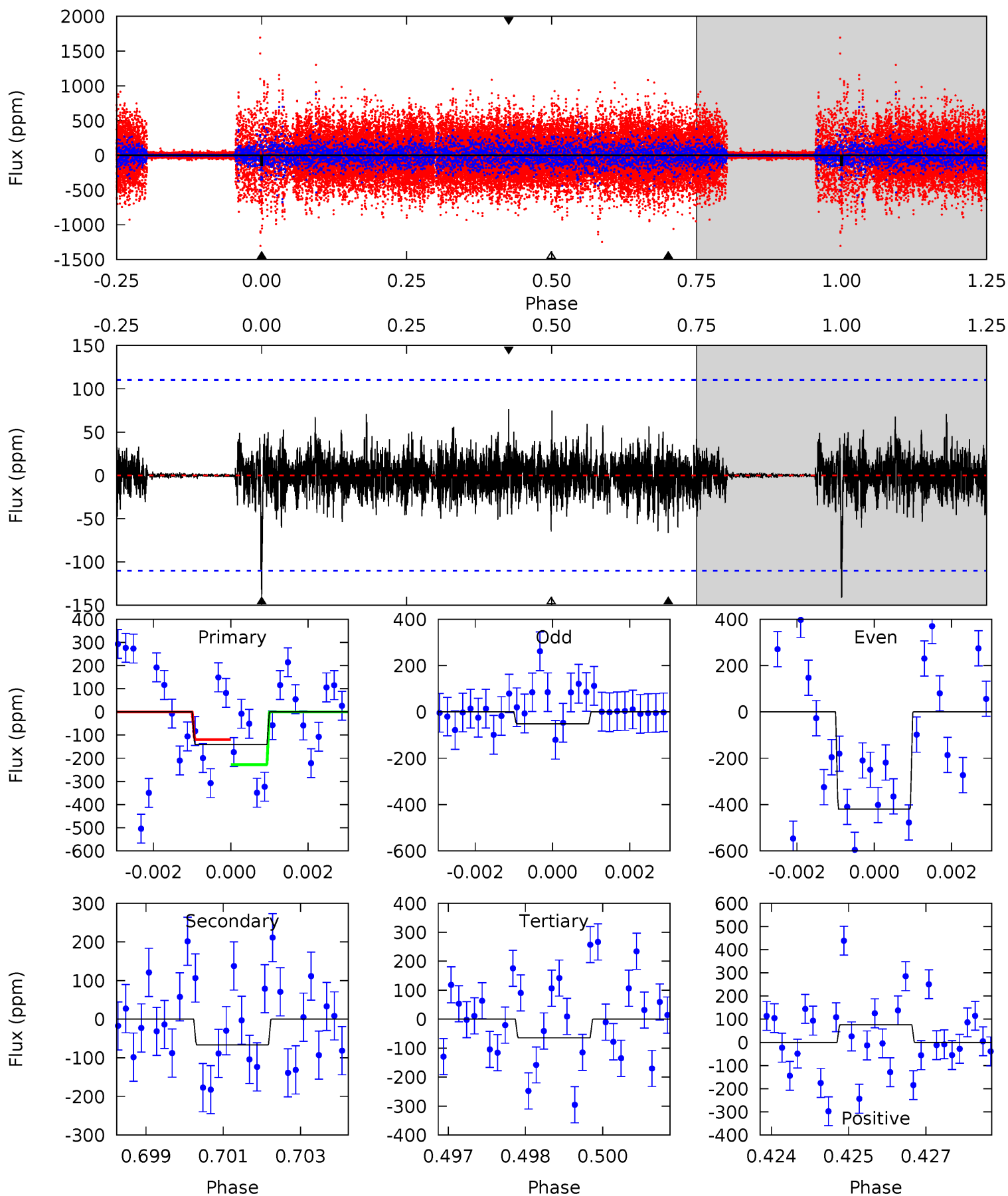
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	17.0	11.8	16.6	5.25	2.96	4.01	-0.25	-5.05	5.19	0.40	2.84	0.80	0.49	0.51



Alt Model-Shift Uniqueness Test

006192431-03, P = 370.760135 Days, E = 148.188593 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.85	3.23	3.14	3.71	5.34	3.11	0.75	3.71	3.14	0.09	-0.48	6.51	2.28	0.35	2.74



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-626 ± 37	$38.70^{+5.42}_{-5.37}$	955^{+30}_{-33}	4719^{+162}_{-167}	408^{+74}_{-63}
Alt.	-66 ± 21	$21.72^{+3.83}_{-3.60}$	957^{+28}_{-32}	3845^{+275}_{-279}	134^{+67}_{-45}

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 $A_{obs} \gg 1.0$

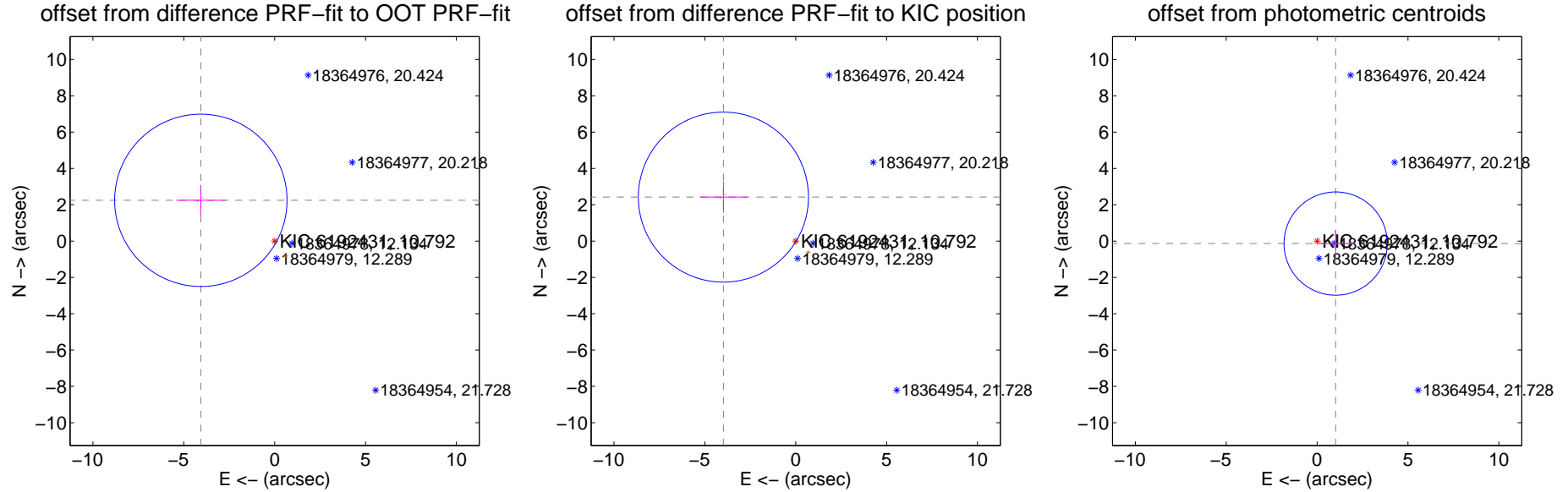
DV Centroid Data

Supplemental centroid analysis for 006192431-03. **Kepler magnitude: 10.79.** Transit SNR 19.34

There are 0 quarters with good PRF difference image offsets

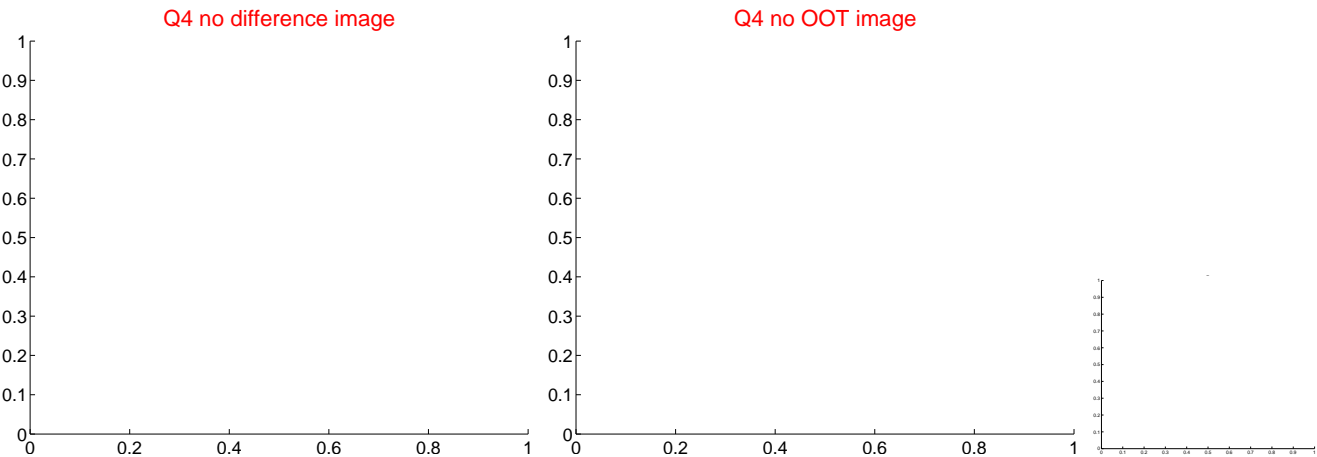
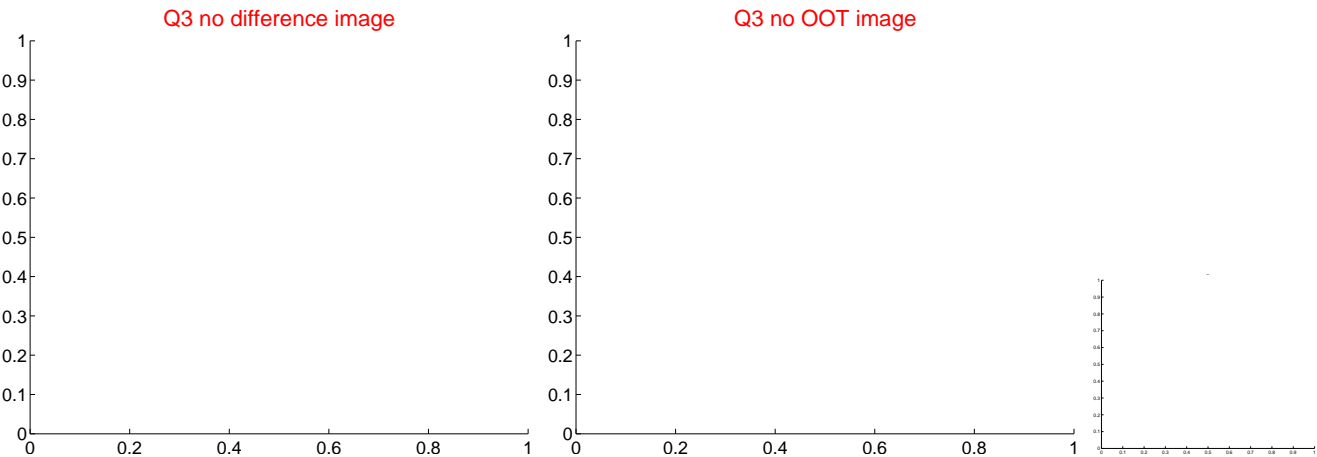
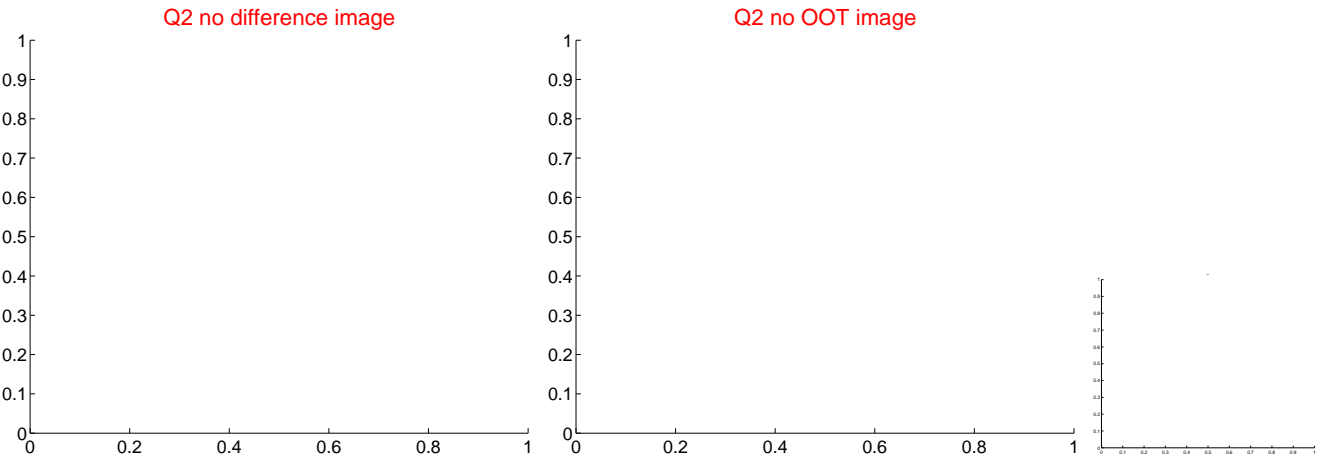
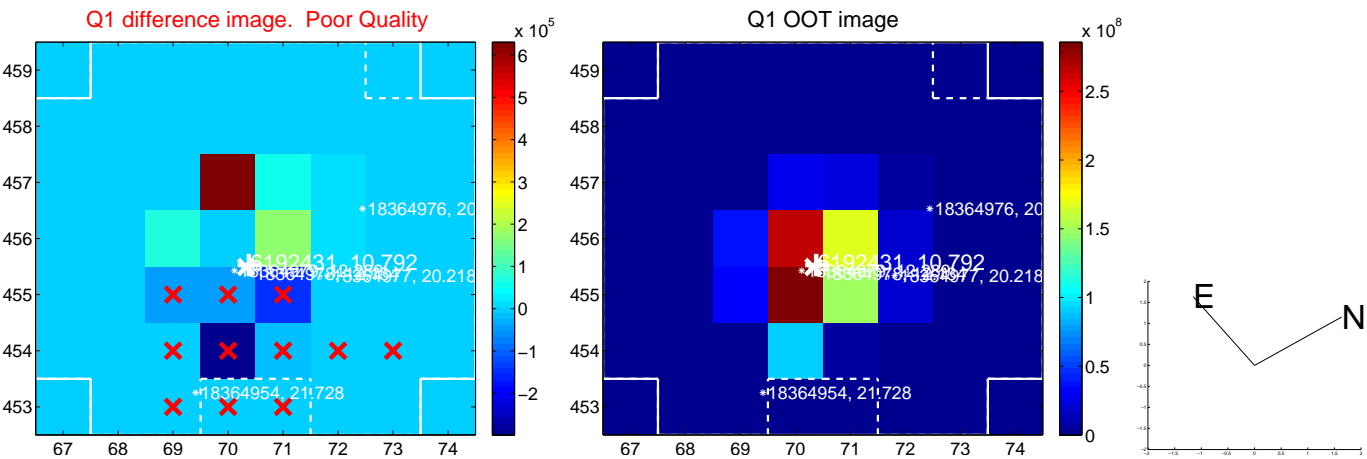
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.641 ± 1.582	2.93	4.063 ± 1.344	2.244 ± 0.844
PRF-fit source offset from KIC position	4.659 ± 1.560	2.99	3.981 ± 1.306	2.421 ± 0.862
photometric centroid source offset	1.03 ± 0.95	1.09	-1.02 ± 0.95	-0.14 ± 0.74

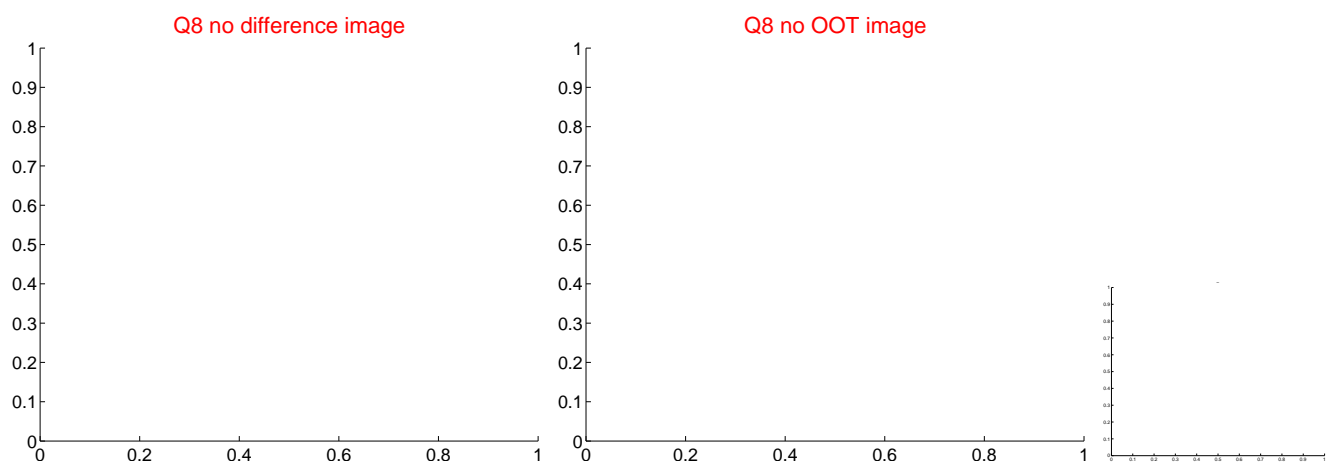
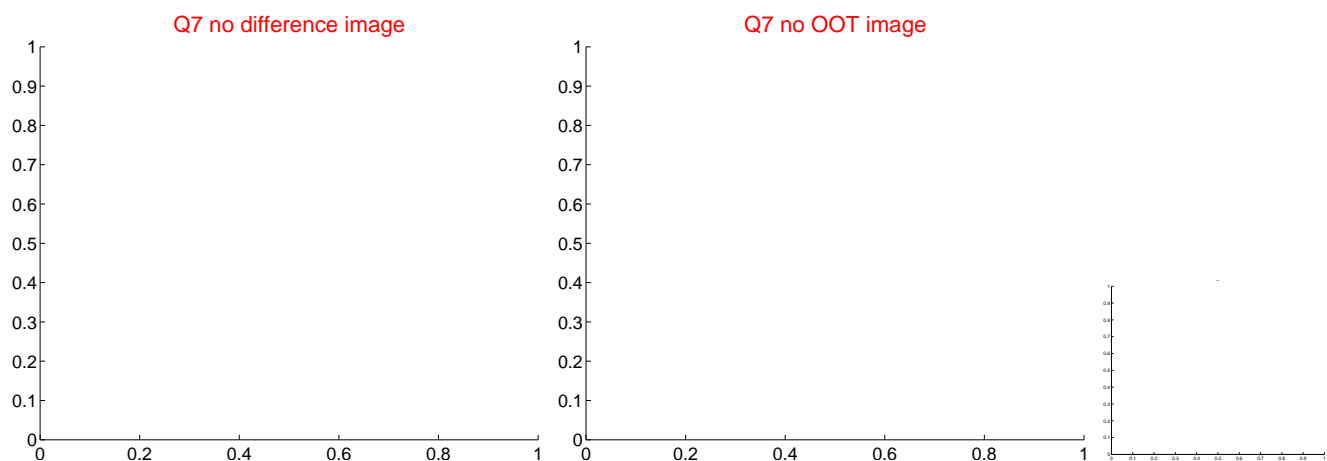
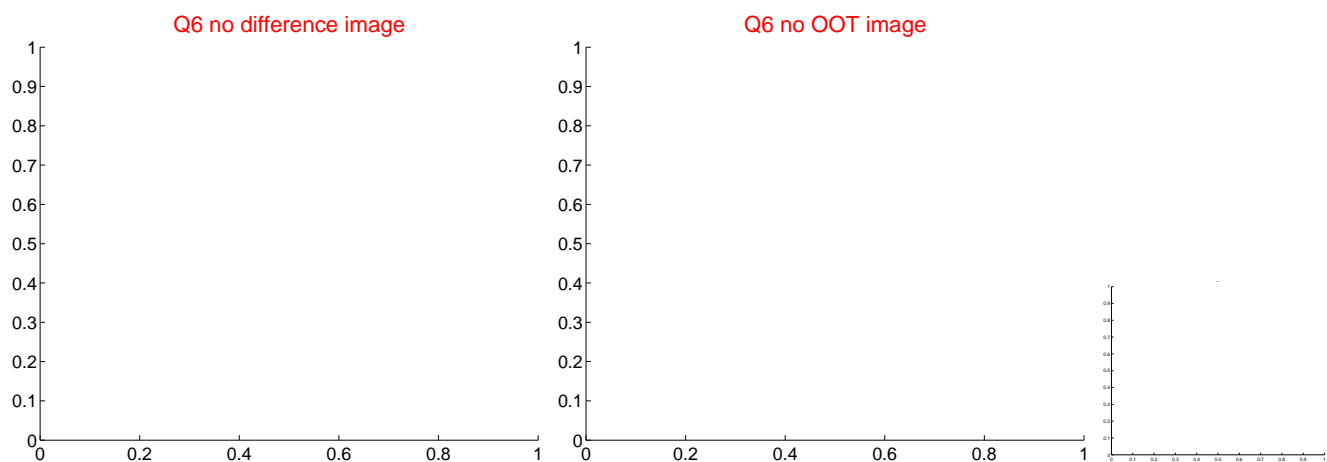
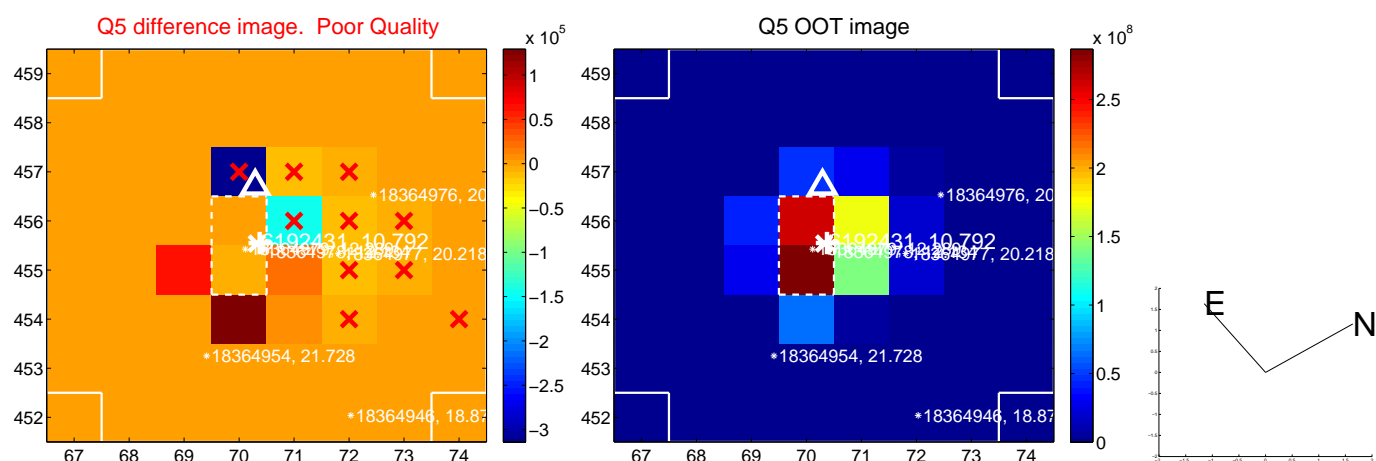


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

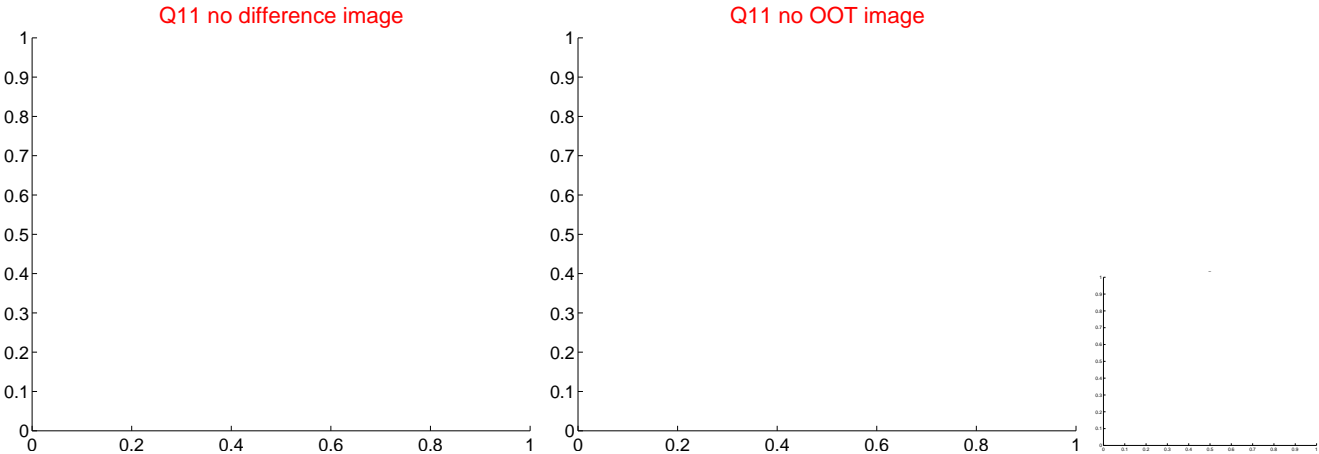
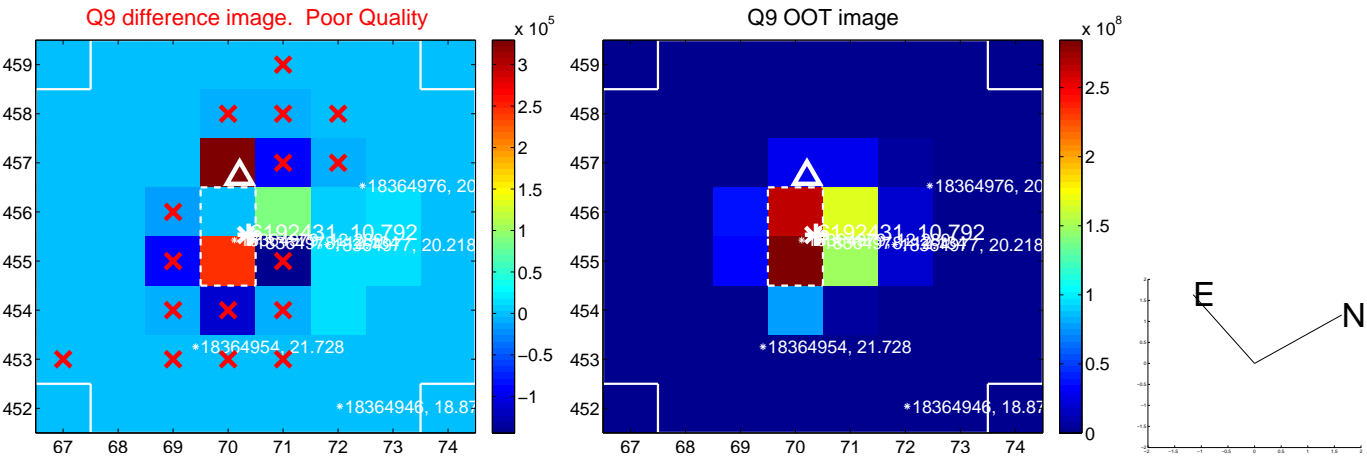
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



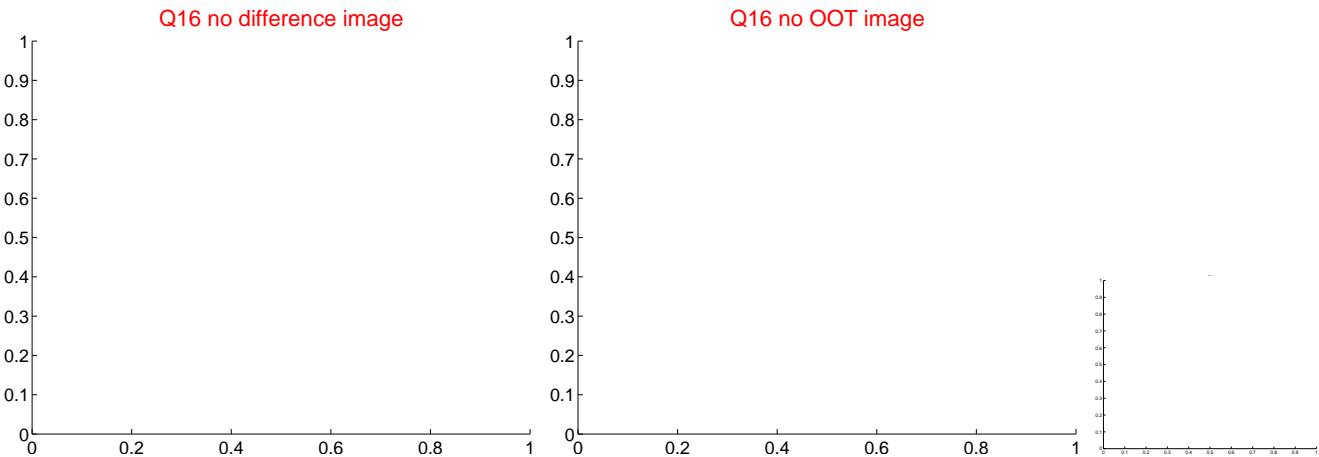
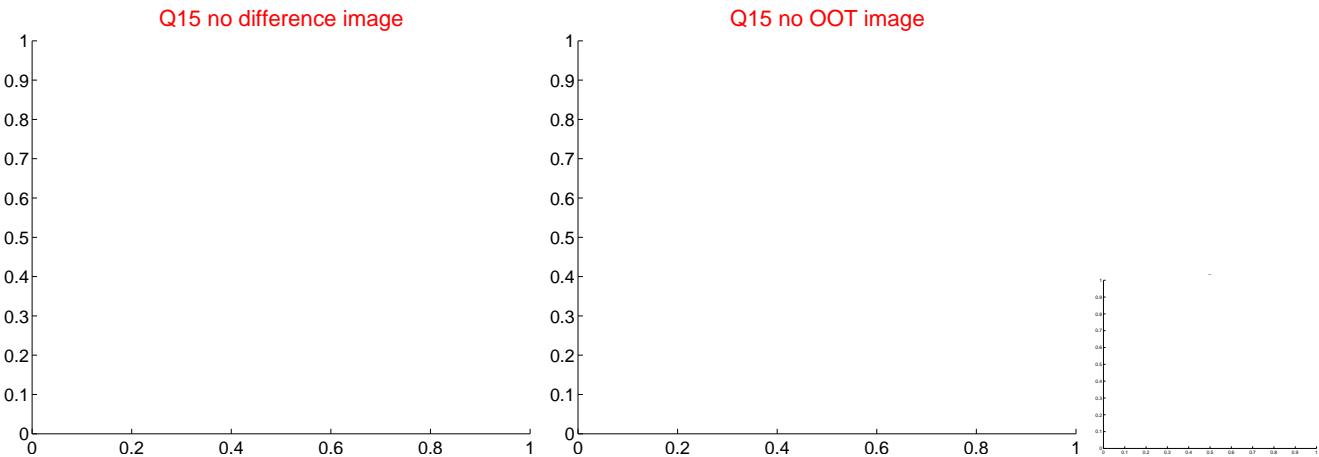
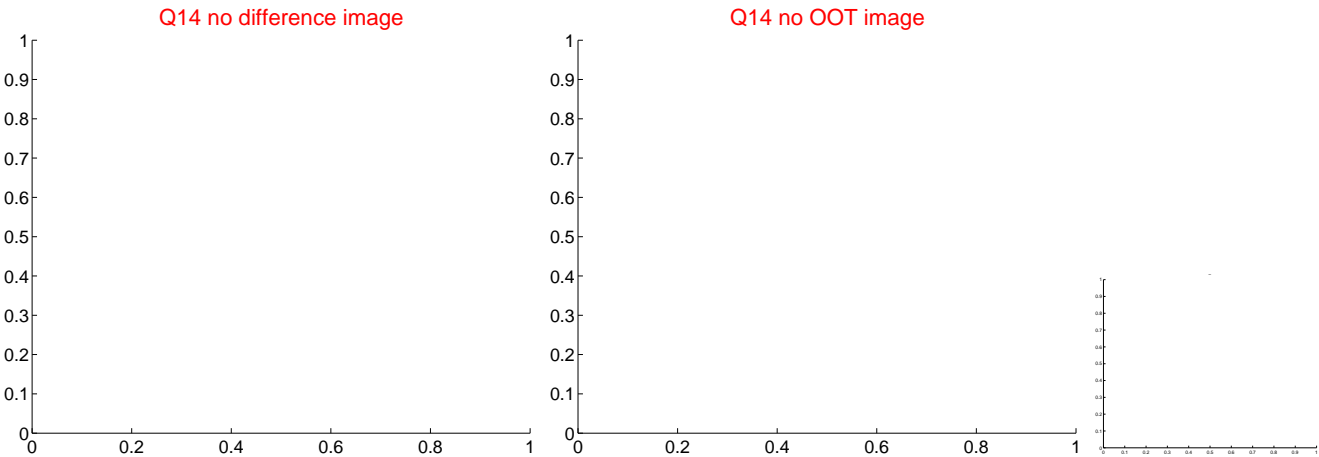
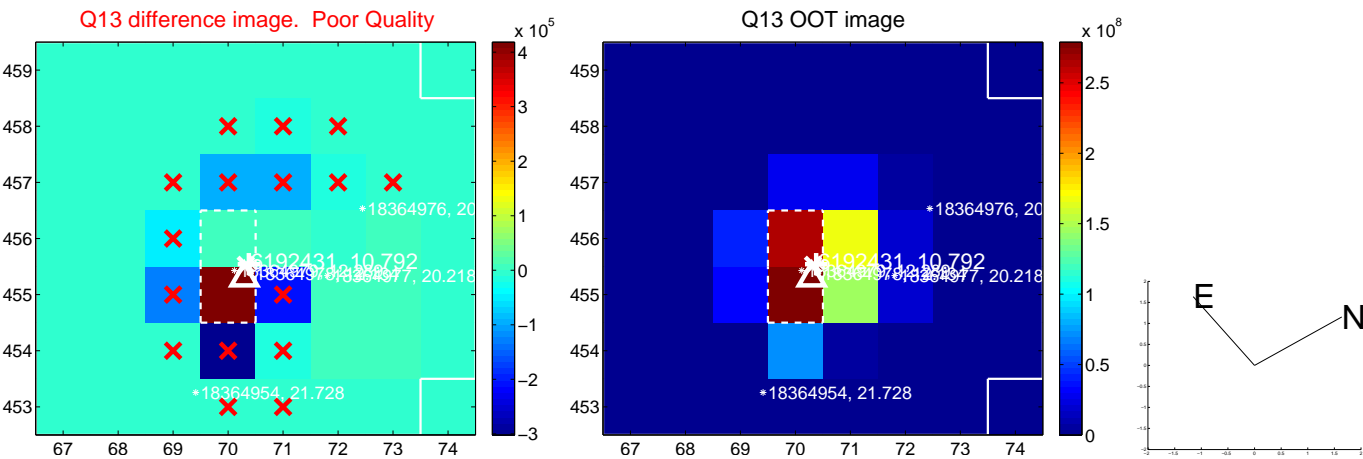
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



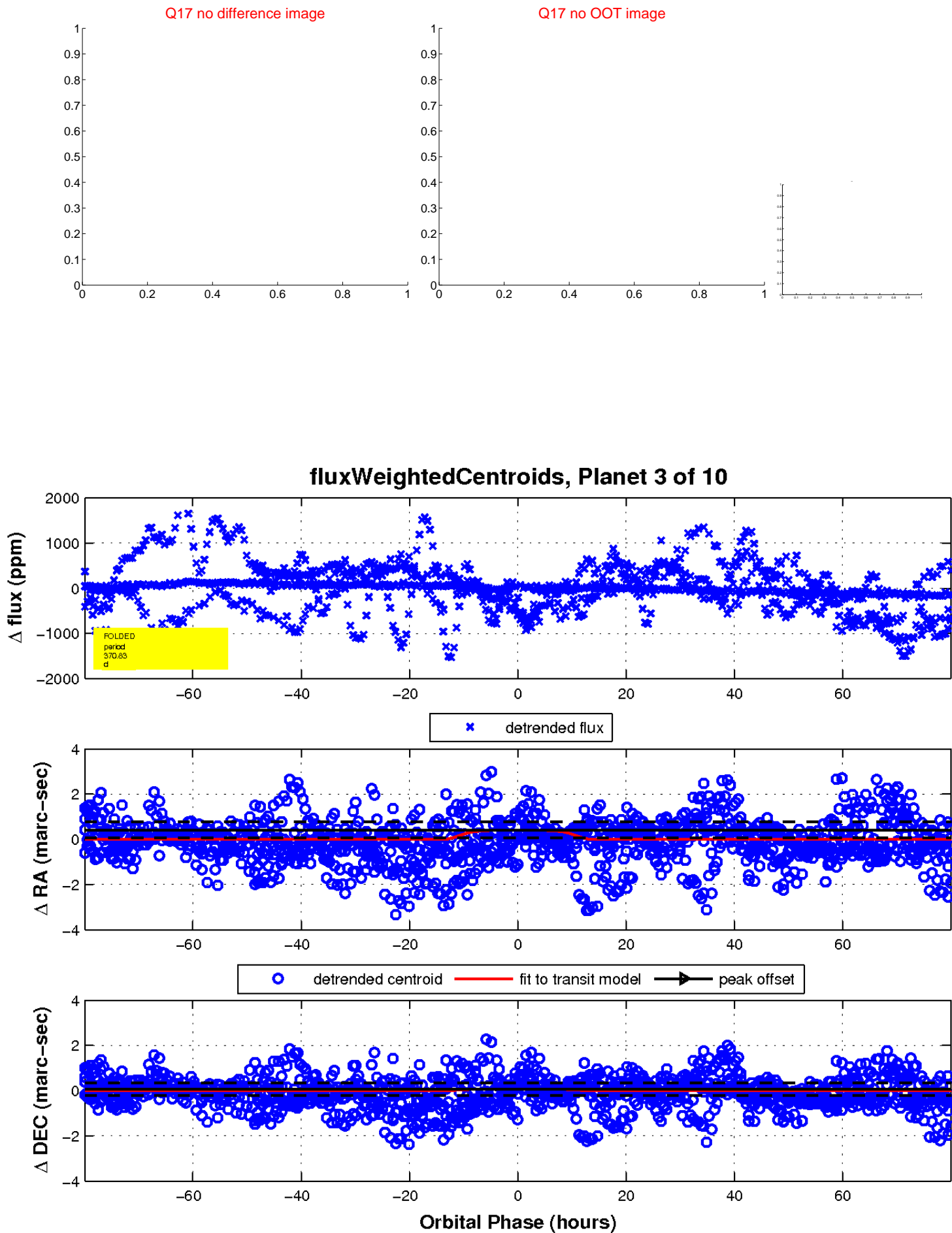
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

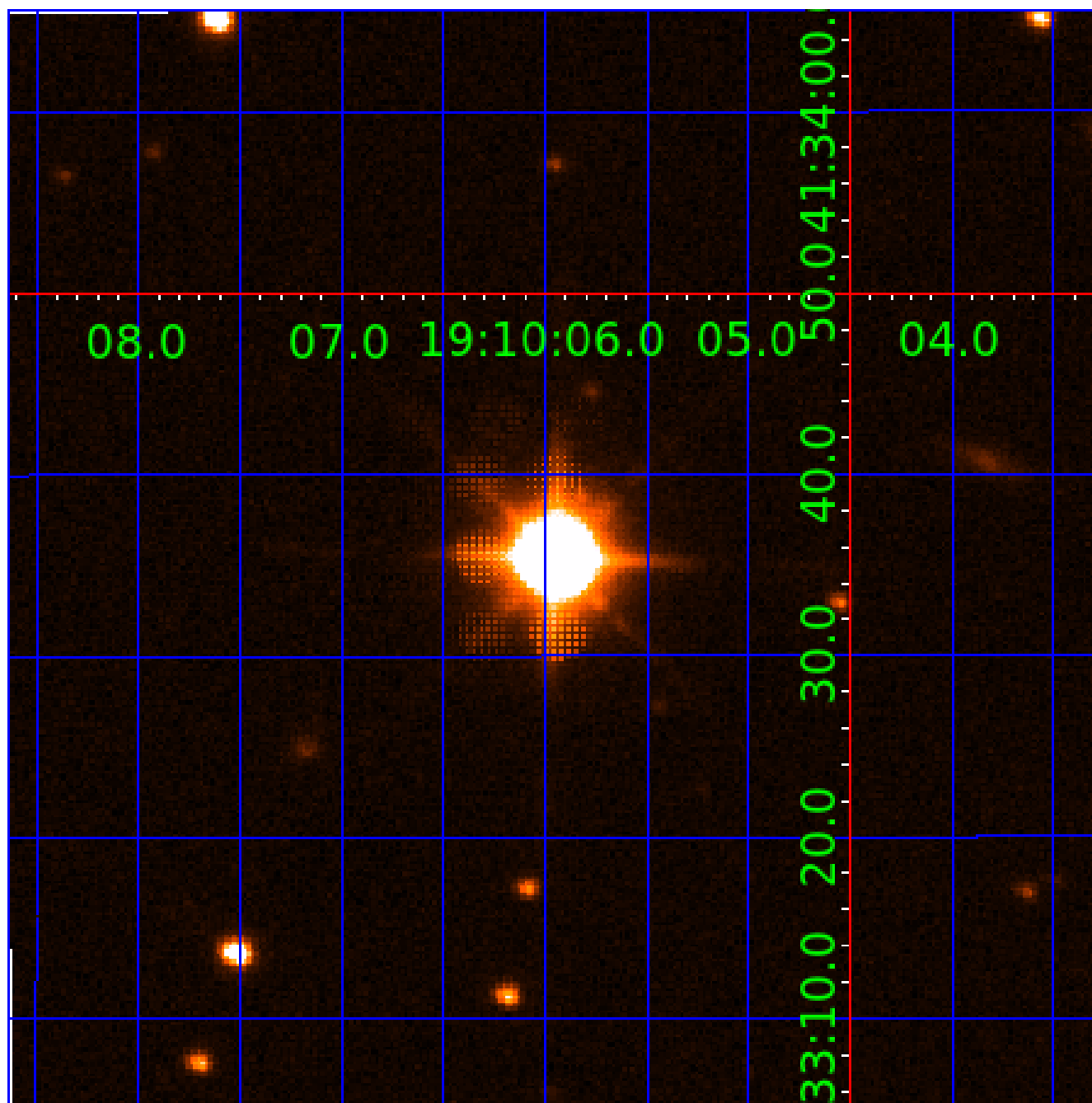


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
006192431-02	OBS	No	358.997216	174.721162	269.0	12.500	42.2	-1.0	14.70	4629	23.05	54.47
006192431-03	OBS	No	370.828432	147.942459	369.1	26.716	31.4	19.3	14.70	4629	37.87	52.17
006192431-04	OBS	No	178.940621	183.459519	705.9	28.322	25.5	24.0	14.70	4629	56.68	137.84
006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
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006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

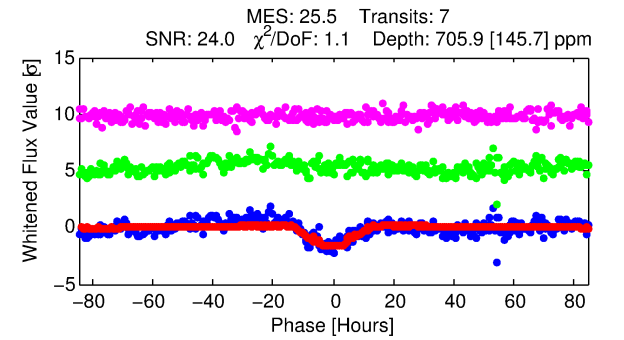
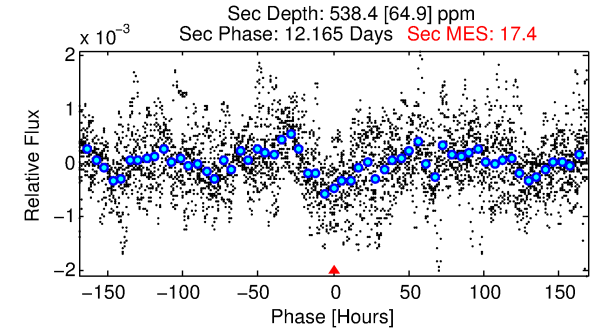
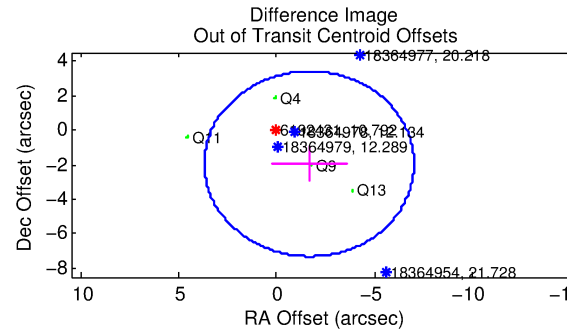
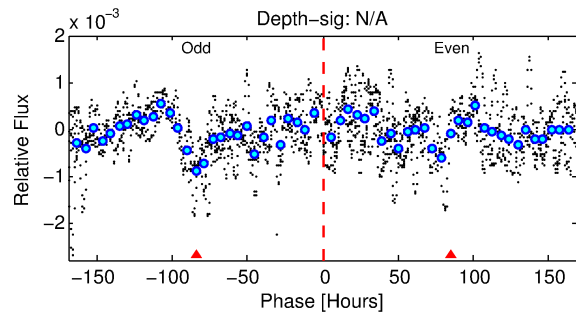
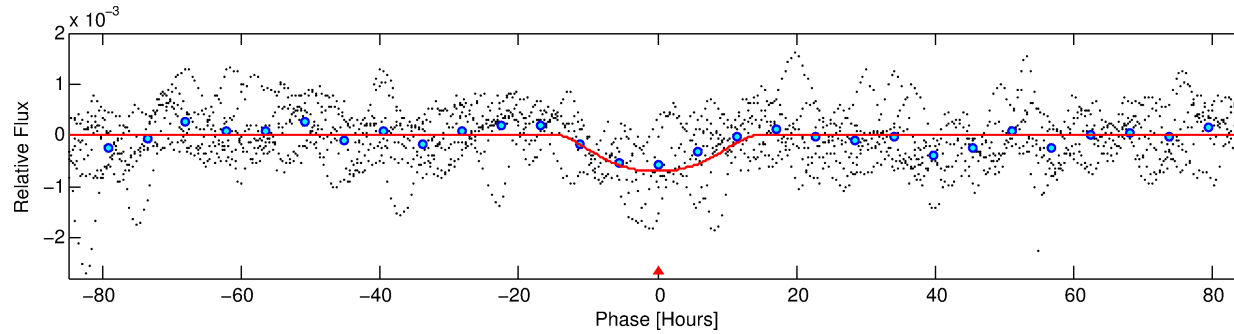
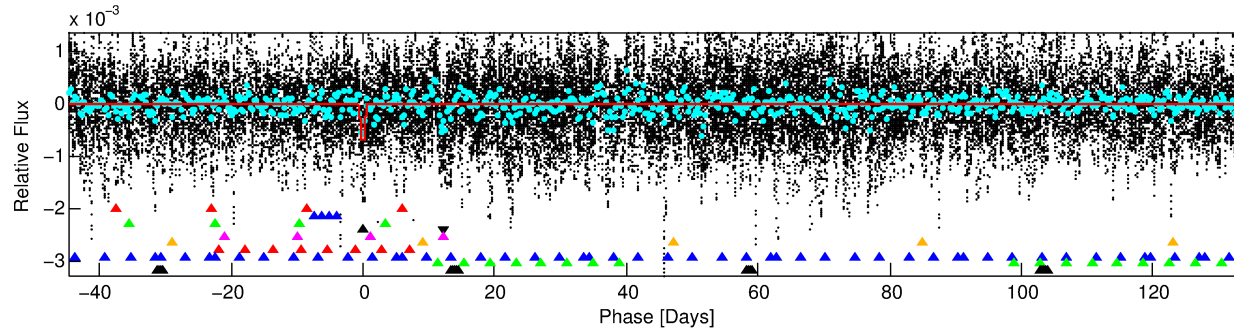
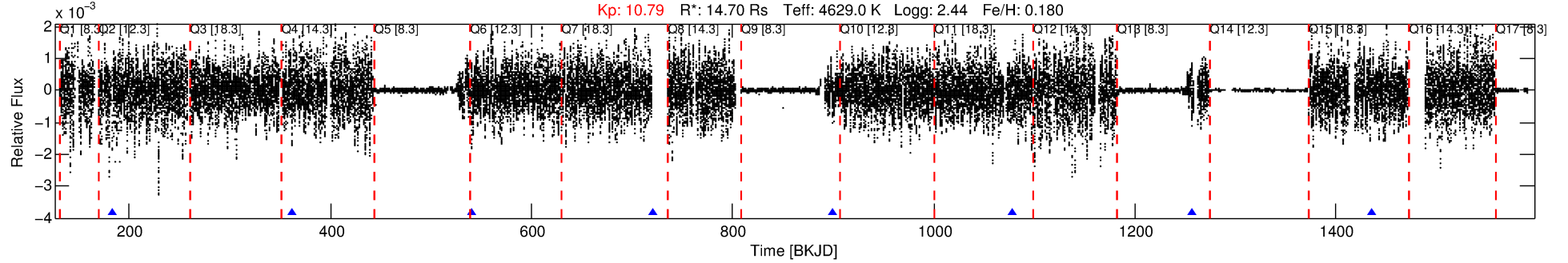
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-04

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 4 of 10 Period: 178.941 d



DV Fit Results:

Period = 178.94062 [0.01363] d
Epoch = 183.4595 [0.0660] BKJD
Rp/R* = 0.0353 [0.0102]
a/R* = 17.52 [3.55]
b = 0.97 [0.03]
Seff = 137.84 [25.83]
Teq = 874 [41] K
Rp = 56.68 [20.78] Re
a = 0.8029 [0.1232] AU
Ag = 59.43 [36.36] [1.61σ]
Teffp = 3751 [560] K [5.12σ]

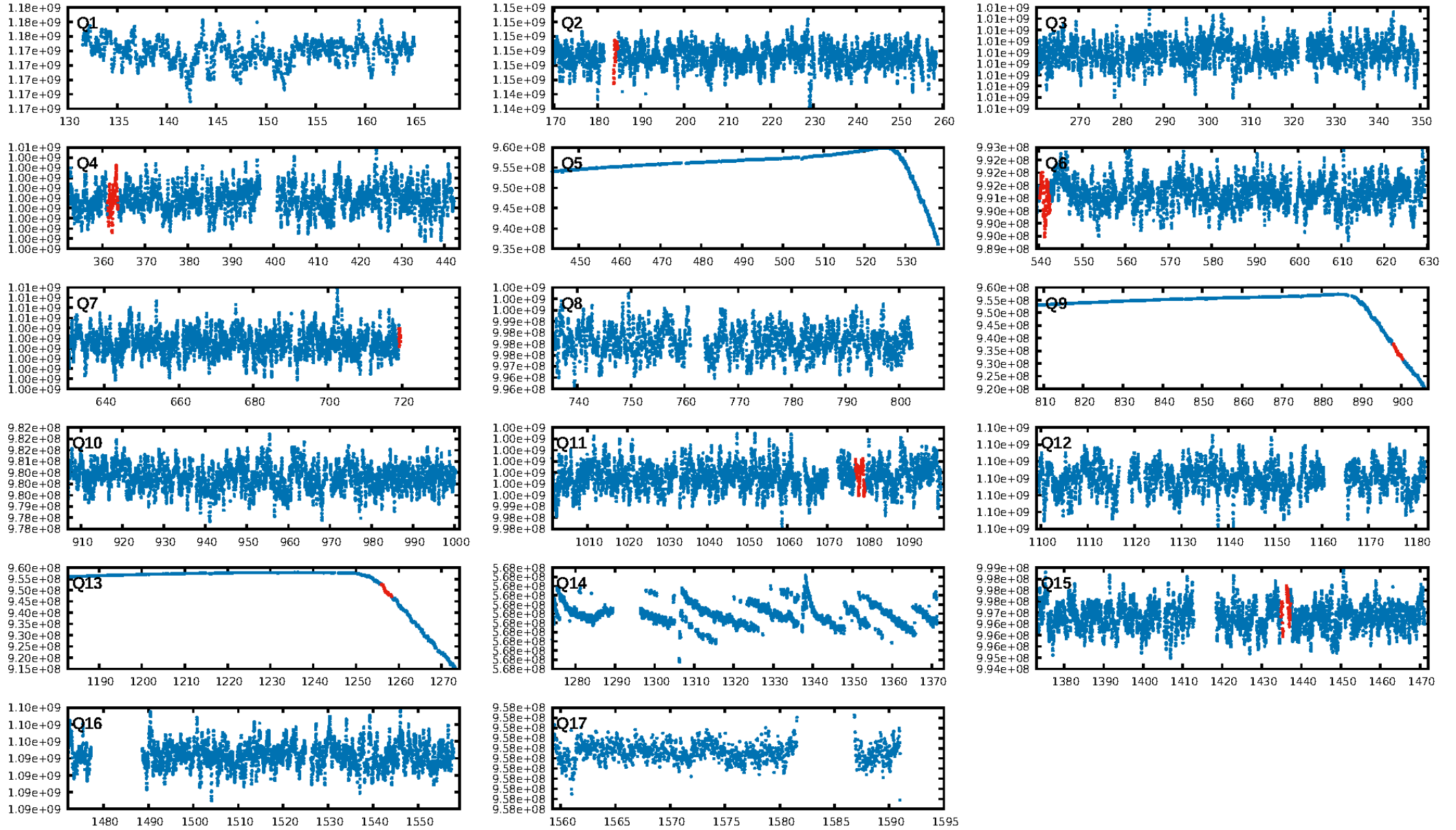
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [77.08σ]
LongPeriod-sig: 99.8% [3.11σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: 0.4044
Centroid-sig: 32.1%
Centroid-so: 0.243 arcsec [0.79σ]
OotOffset-rm: 2.570 arcsec [1.44σ]
OotOffset-st: 0/1/1/2 [4]
KicOffset-rm: 2.483 arcsec [2.24σ]
KicOffset-st: 0/1/1/2 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.50 [2/4]

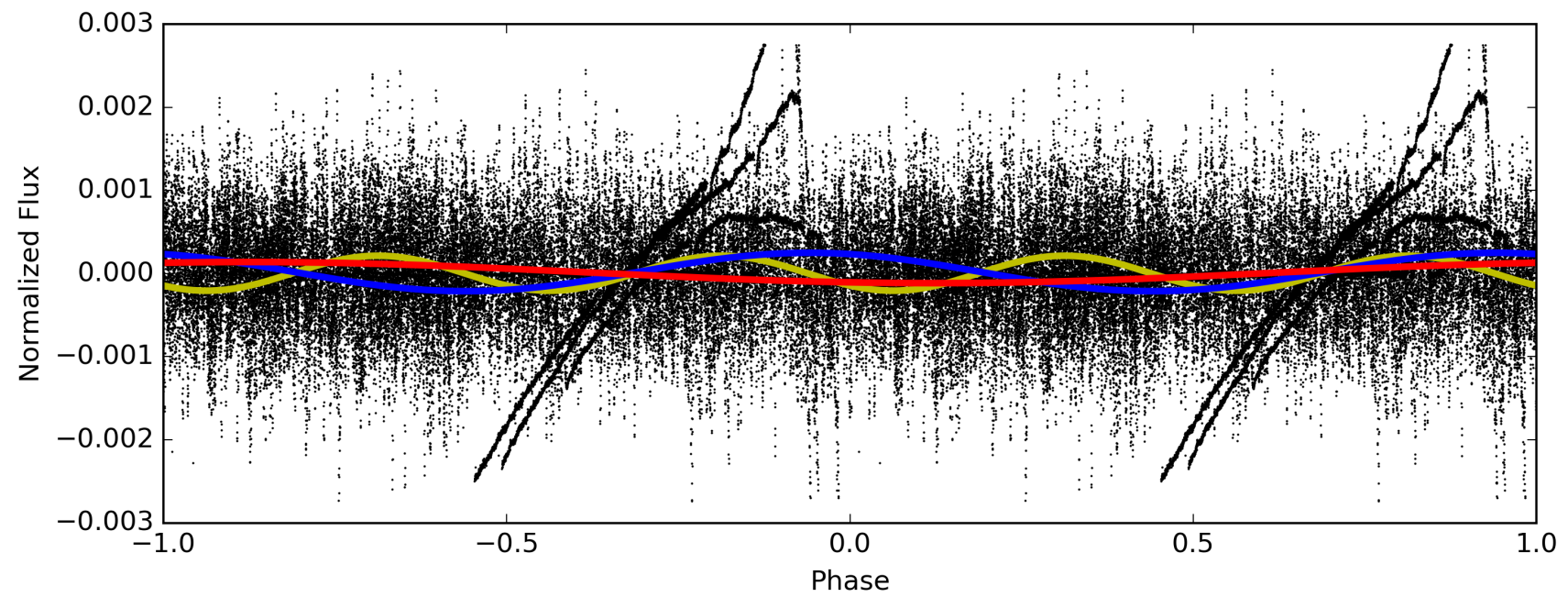
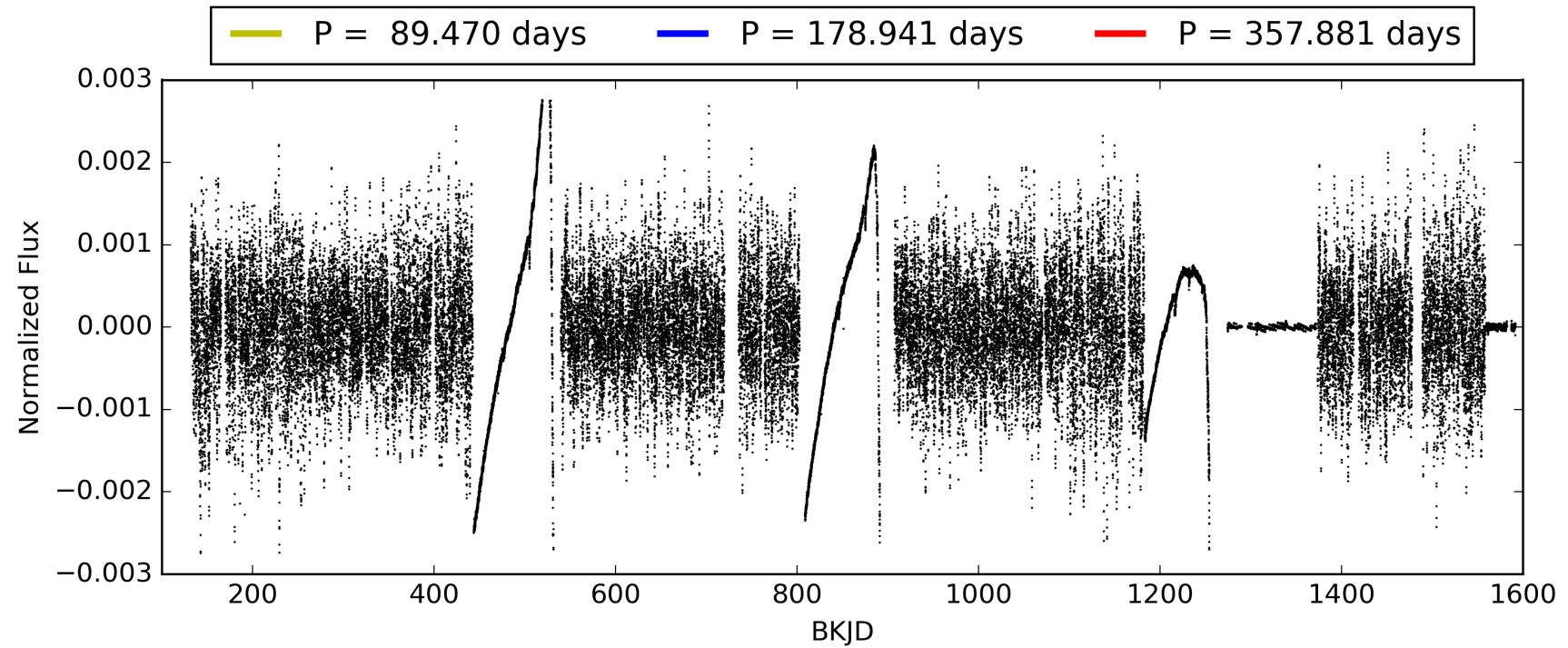
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:23:38 Z

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

TCE 006192431-04, PDC Light Curves

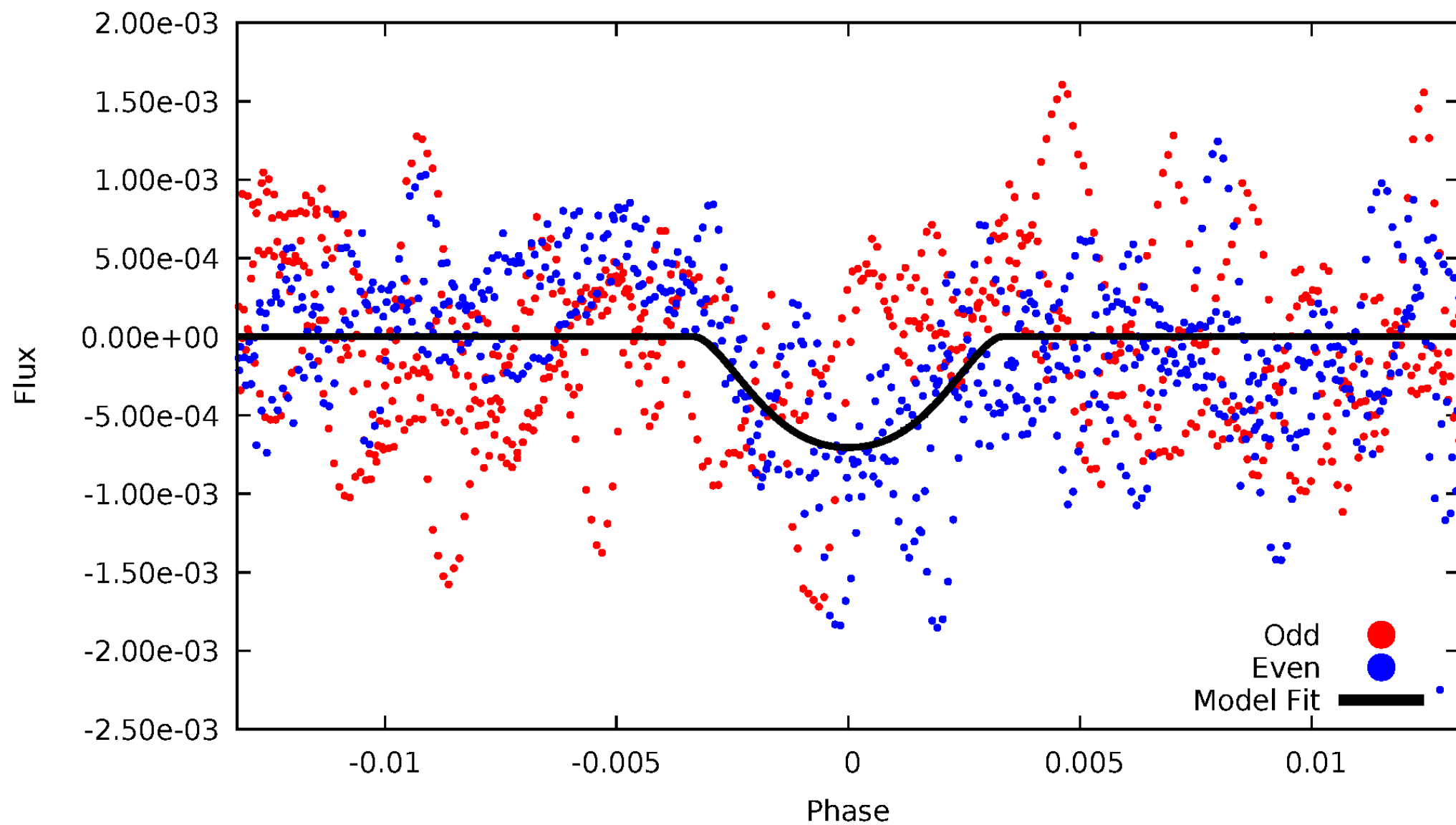


TCE 006192431-04



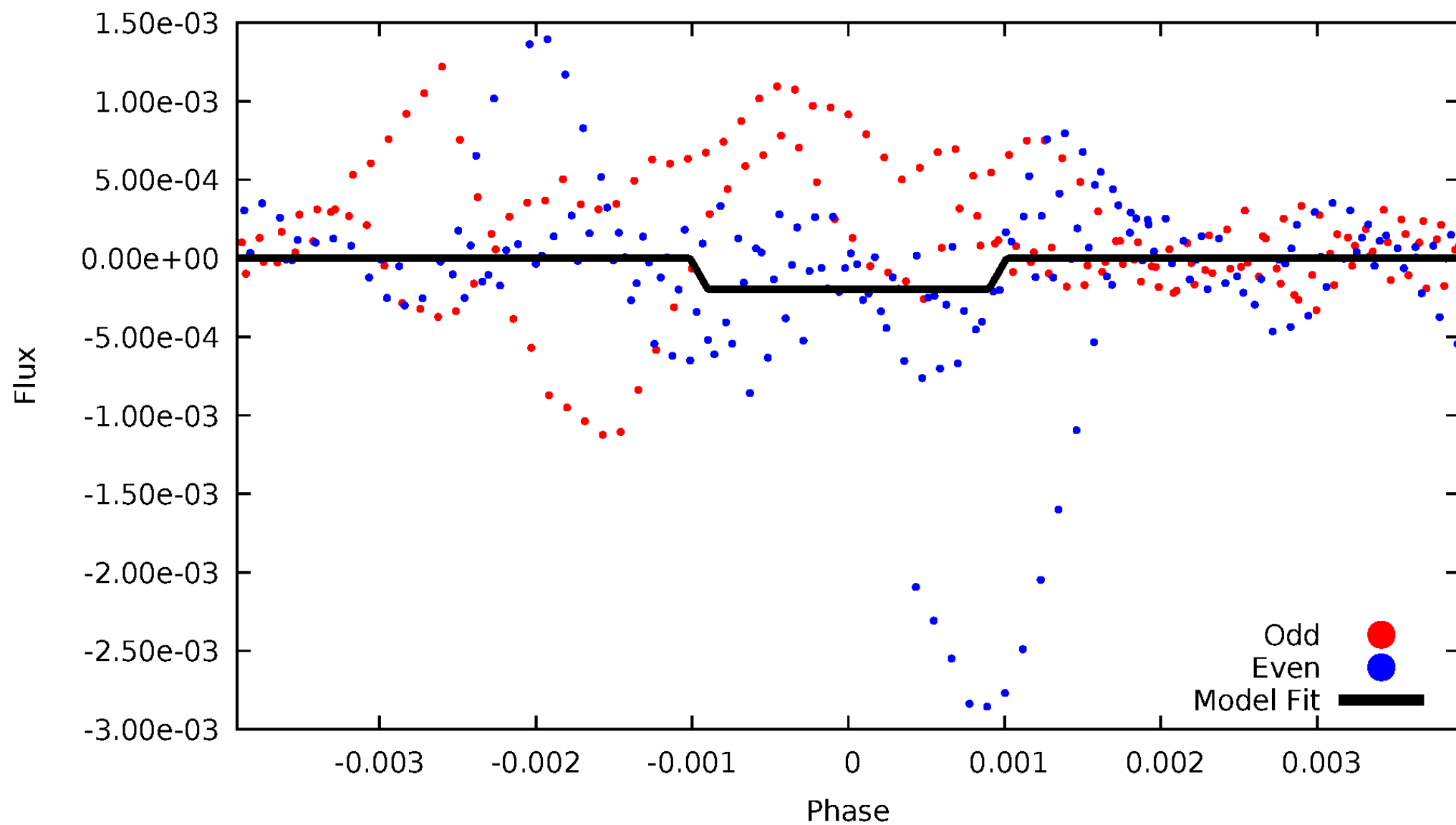
DV Odd/Even

TCE 006192431-04



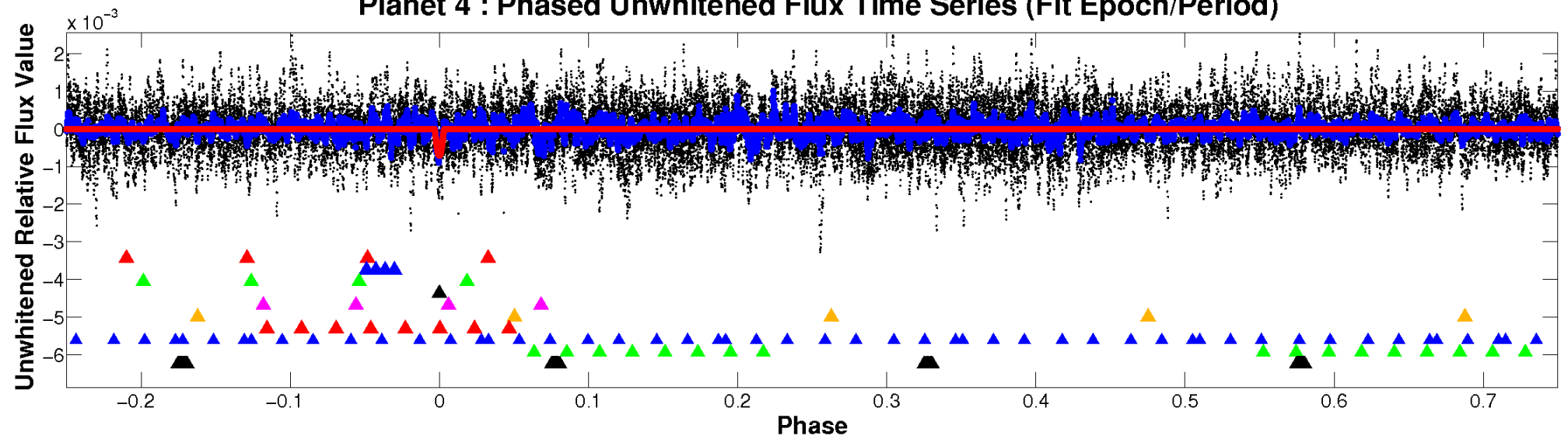
ALT Odd/Even

TCE 006192431-04

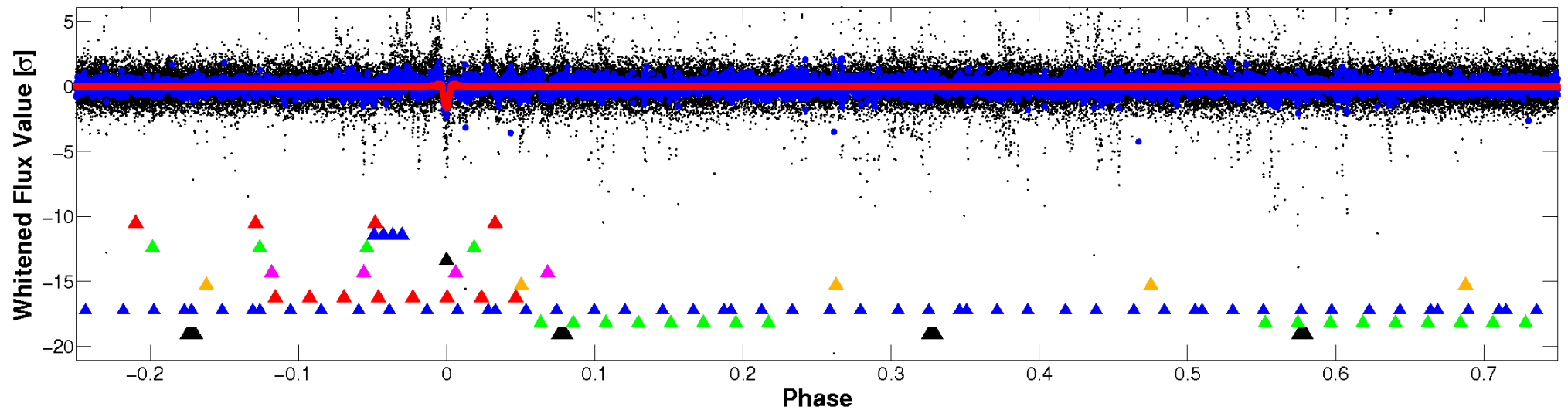


Non-Whitened Vs. Whitened Light Curve

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

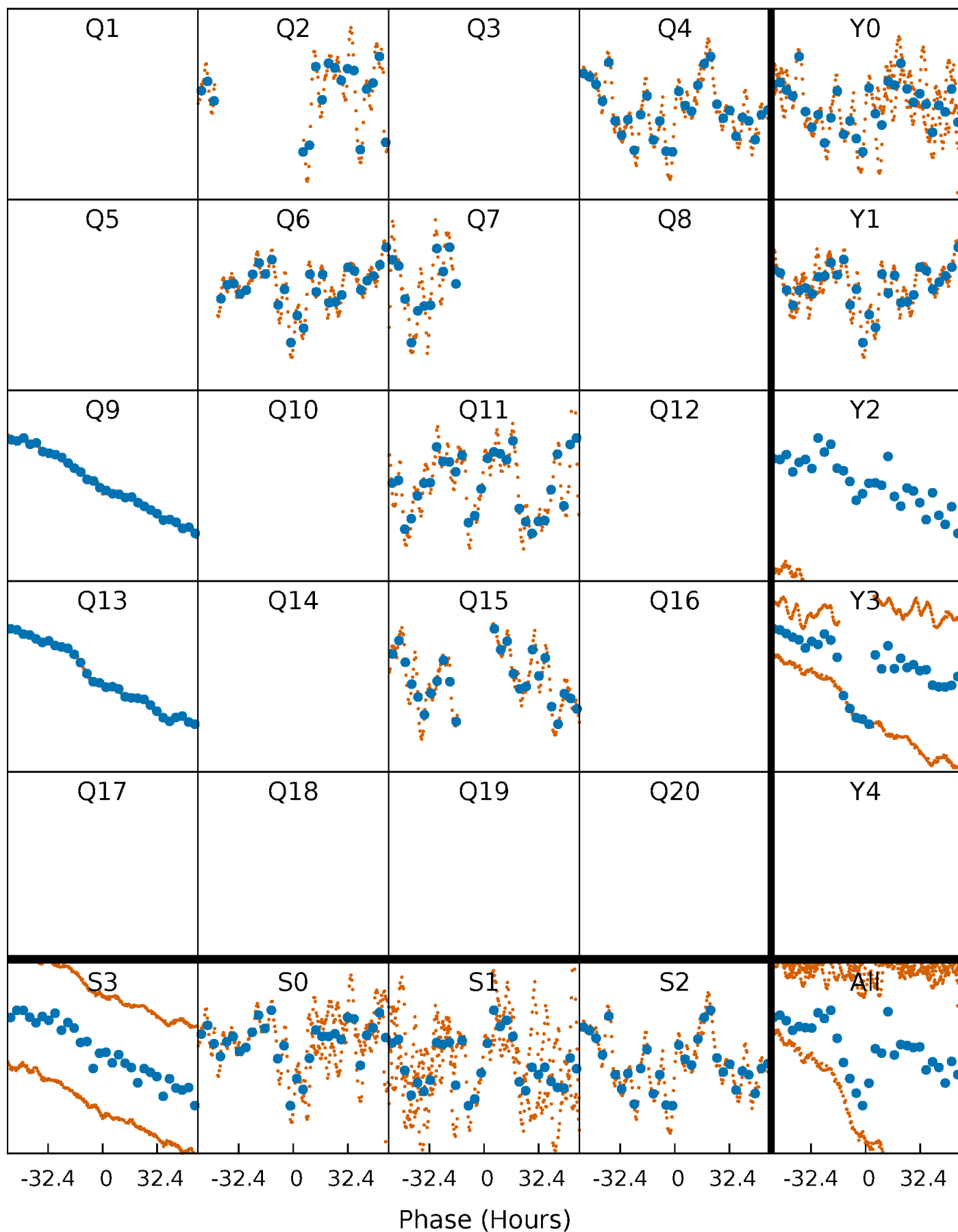


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



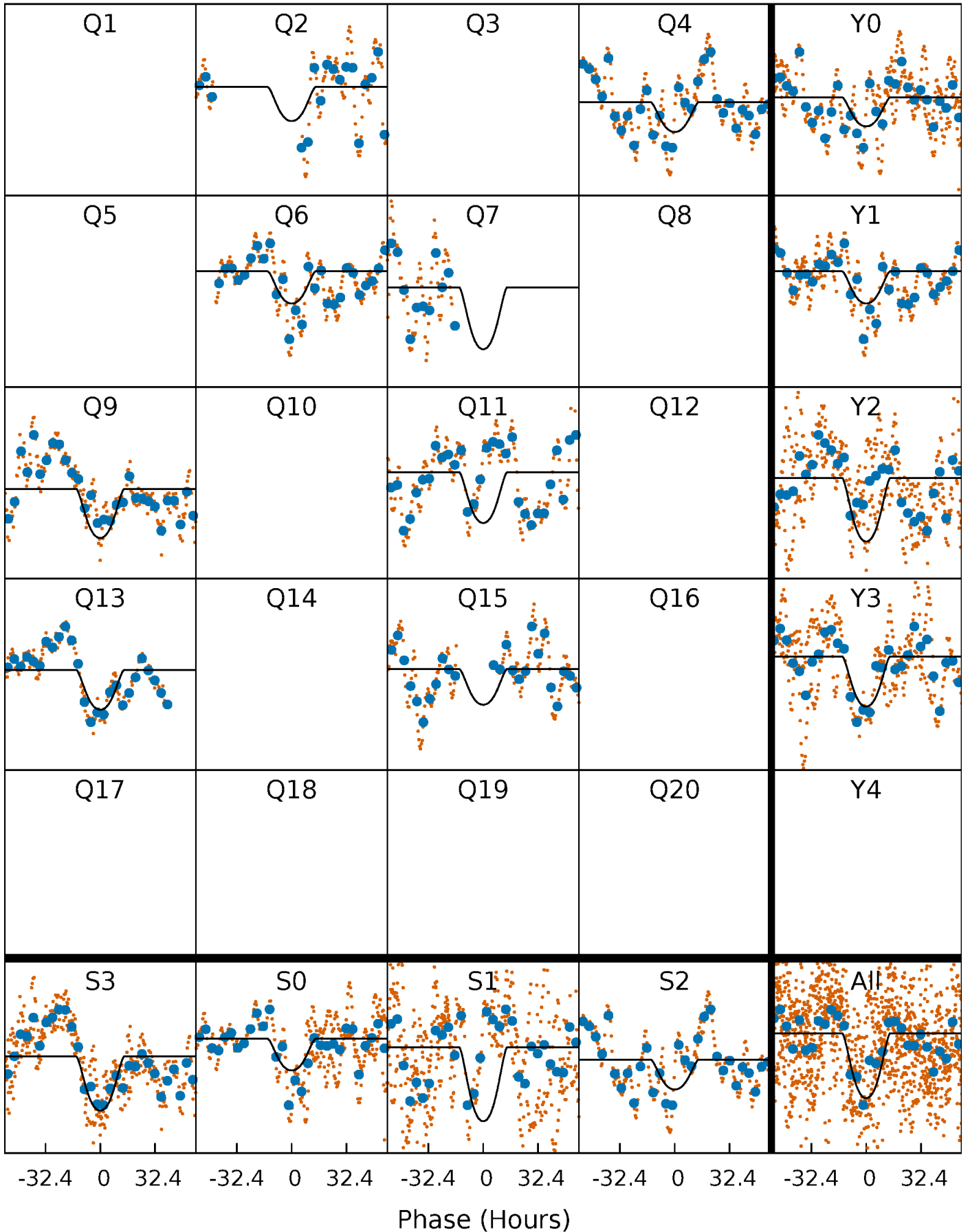
PDC Quarter-Phased Transit Curves

TCE 006192431-04 P=178.940621 Days $T_0=183.459519$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 006192431-04 $P=178.940621$ Days $T_0=183.459519$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

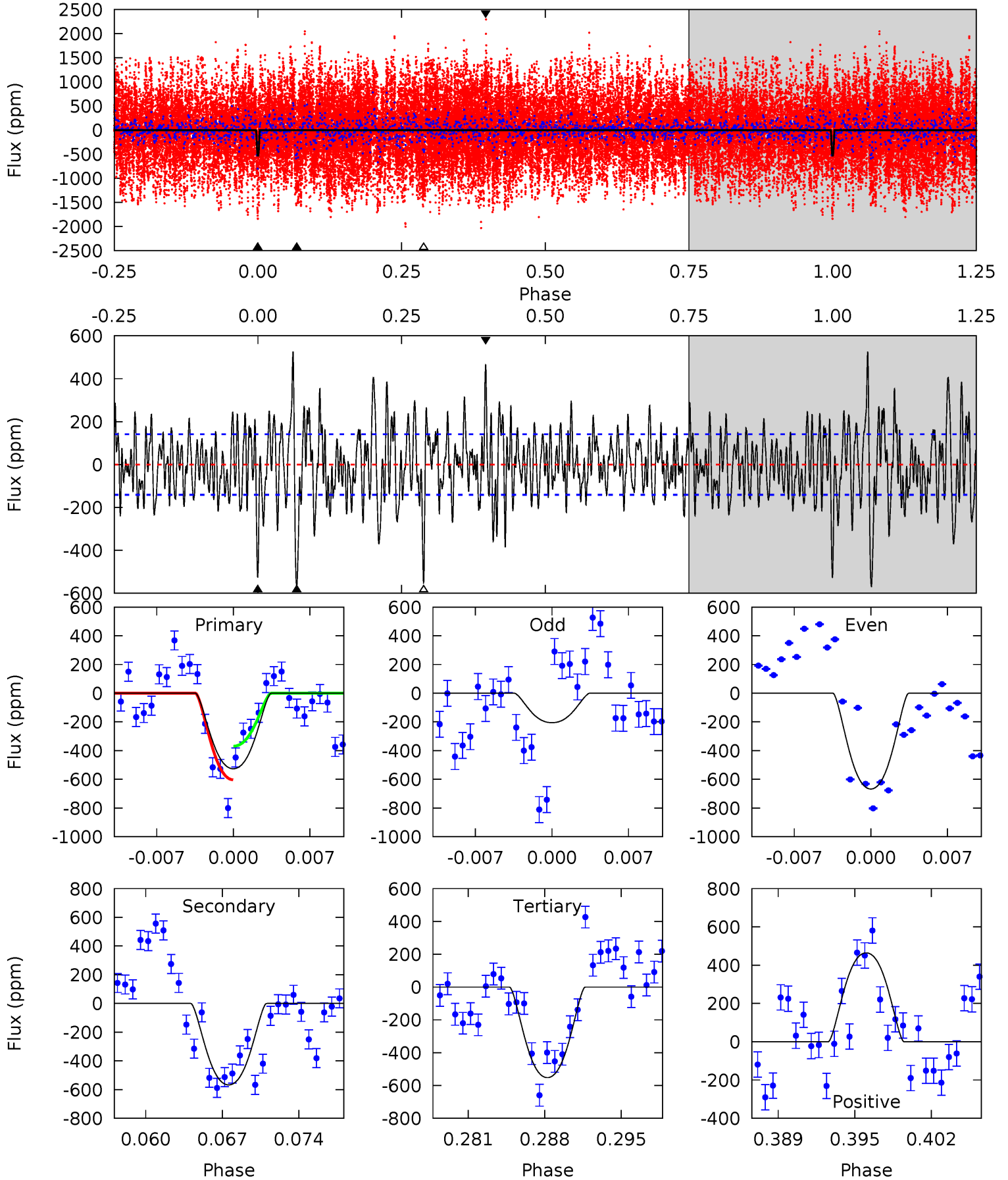
TCE 006192431-04 P=178.923062 Days $T_0=183.644788$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-04, P = 178.940621 Days, E = 4.518898 Days

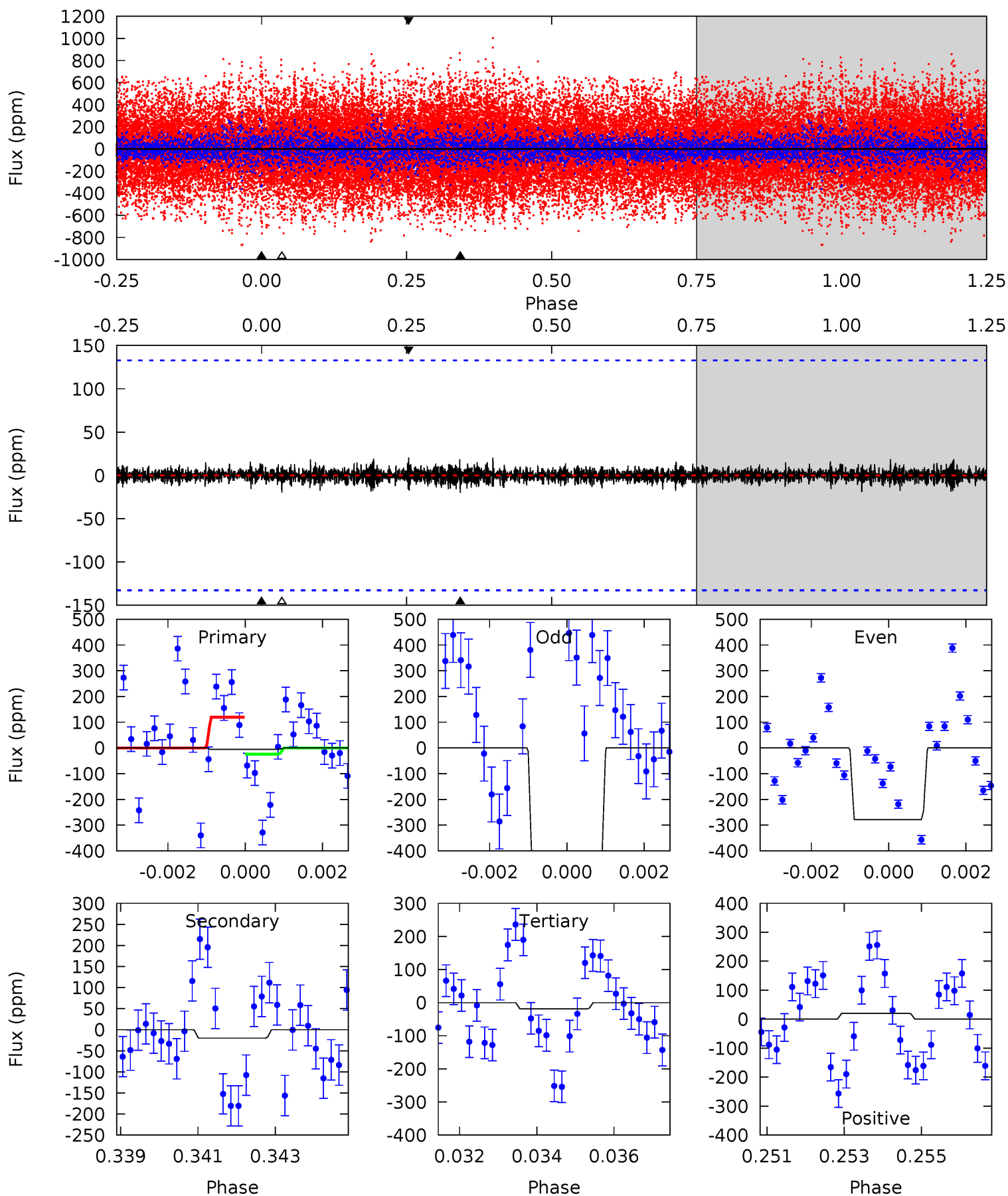
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.0	20.5	19.9	16.7	5.10	2.71	4.82	-0.92	2.24	0.54	3.71	8.40	1.34	0.48	0



Alt Model-Shift Uniqueness Test

006192431-04, P = 178.923062 Days, E = 4.721726 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.22	0.80	0.77	0.82	5.32	3.09	0.21	-0.55	-0.60	0.03	-0.03	5.27	4.95	0.51	2.04



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-567 ± 28	$56.39^{+19.80}_{-17.43}$	1221^{+36}_{-44}	4013^{+538}_{-363}	65^{+61}_{-28}
Alt.	-20 ± 25	$24.78^{+16.49}_{-14.67}$	1218^{+37}_{-44}	2877^{+1077}_{-5516}	$8.094^{+50.322}_{-11.808}$

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

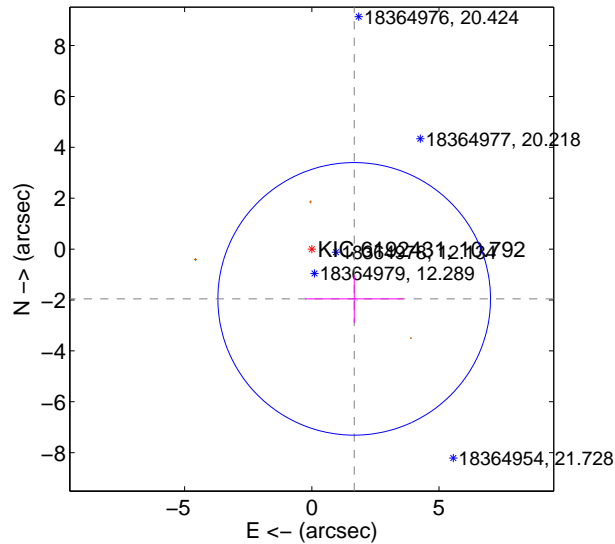
Supplemental centroid analysis for 006192431-04. **Kepler magnitude: 10.79.** Transit SNR 23.96

There are 1 quarters with good PRF difference image offsets

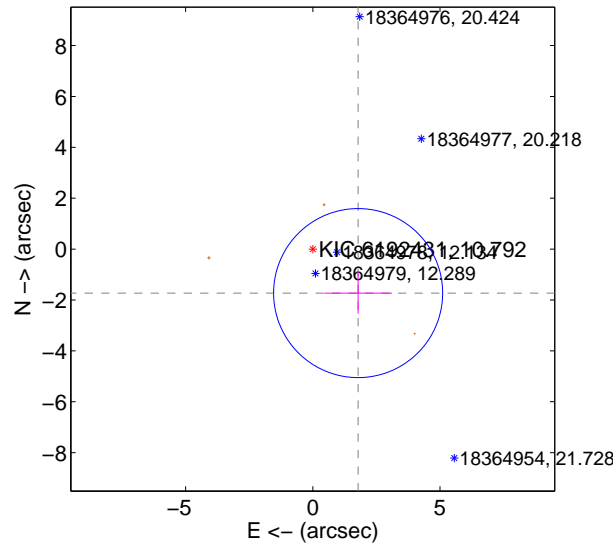
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.570 ± 1.786	1.44	-1.666 ± 1.936	-1.956 ± 0.943
PRF-fit source offset from KIC position	2.483 ± 1.107	2.24	-1.781 ± 1.329	-1.729 ± 0.808
photometric centroid source offset	0.24 ± 0.31	0.79	0.19 ± 0.34	-0.15 ± 0.25

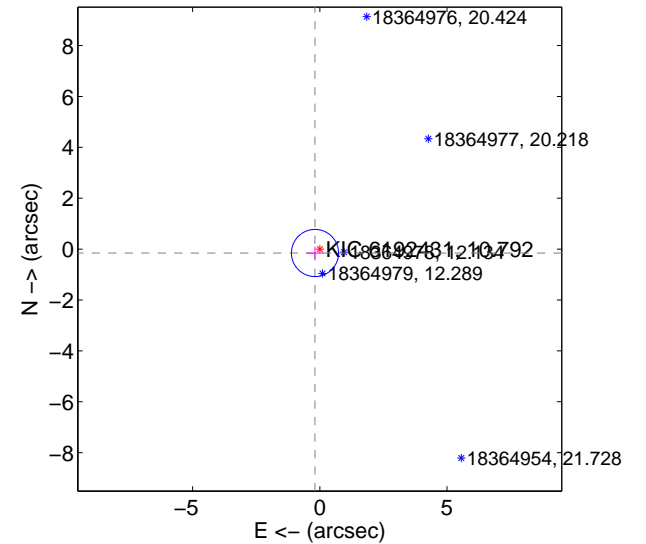
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

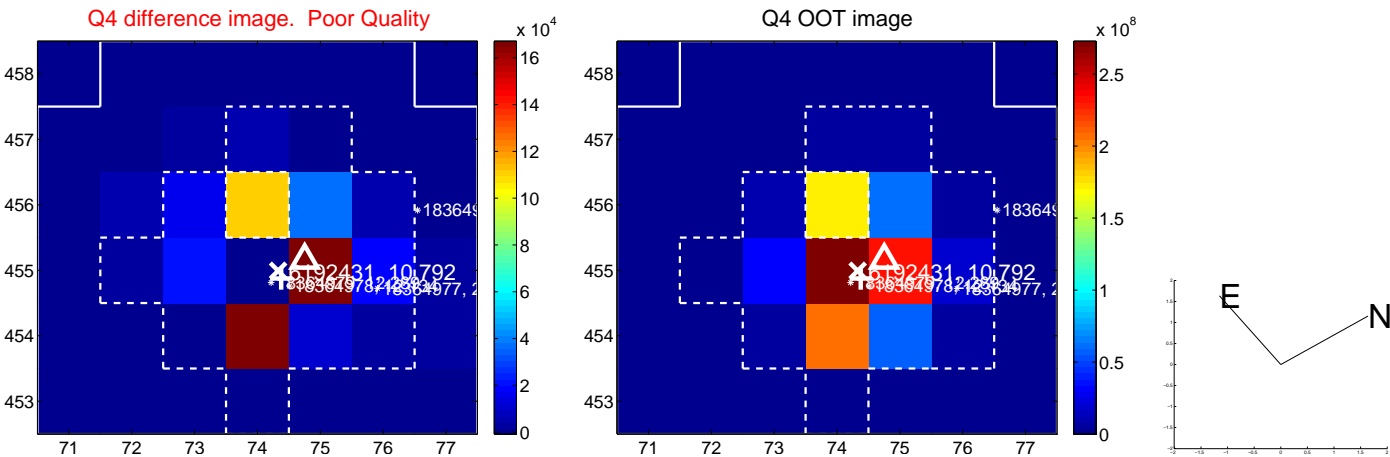


offset from photometric centroids



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.

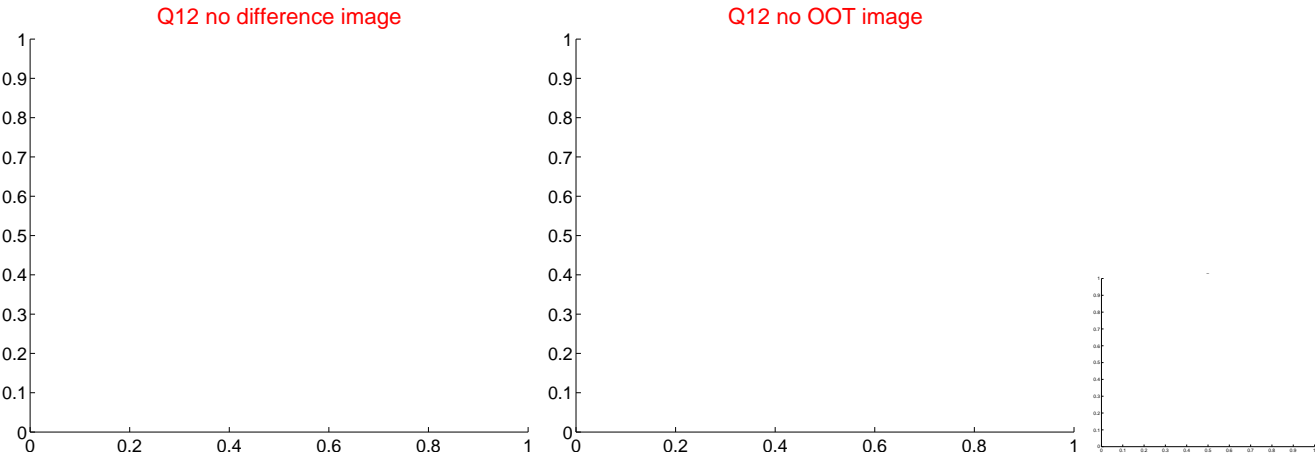
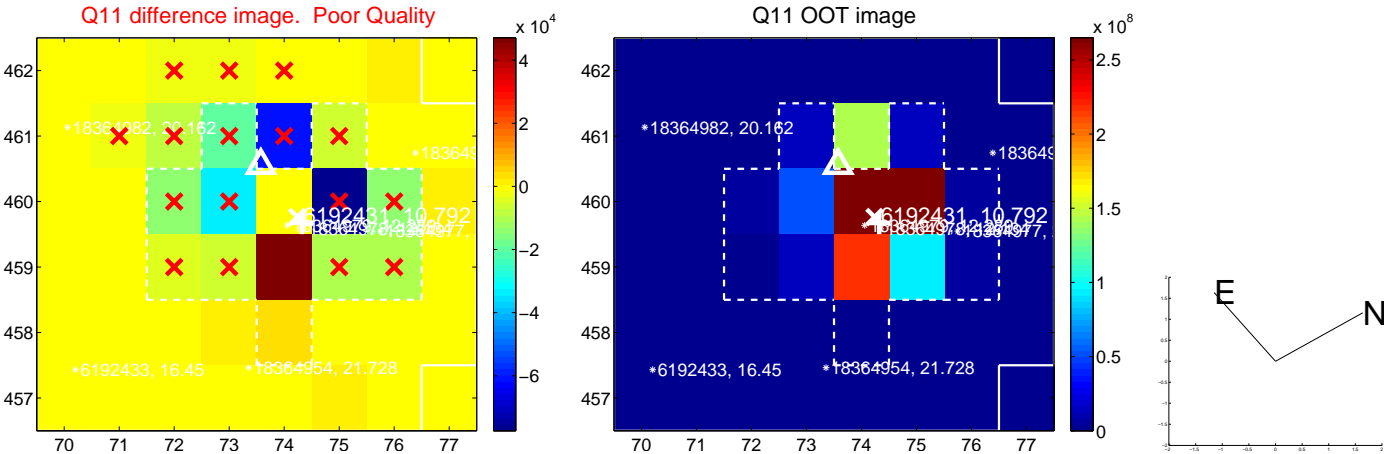
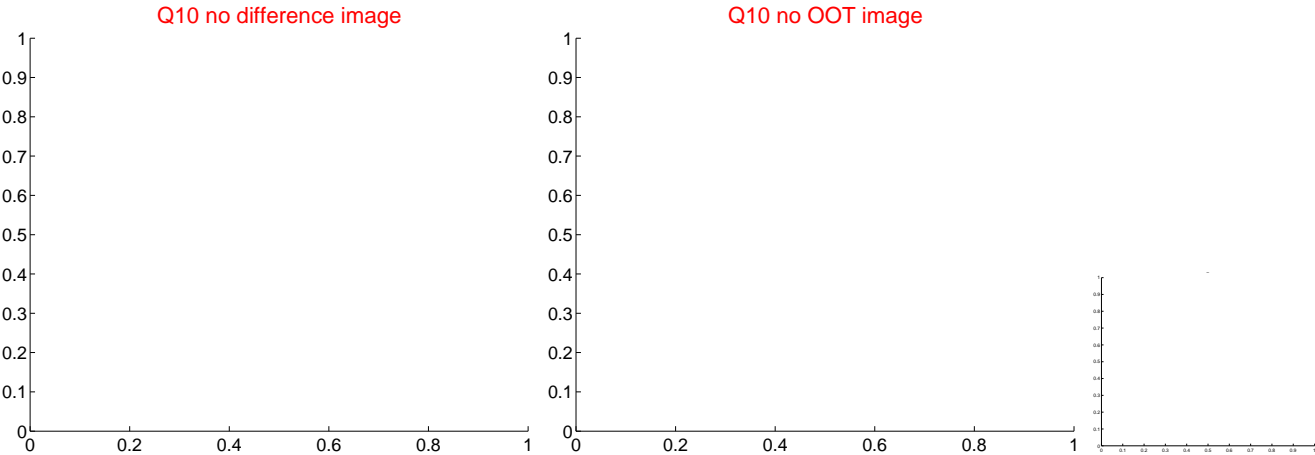
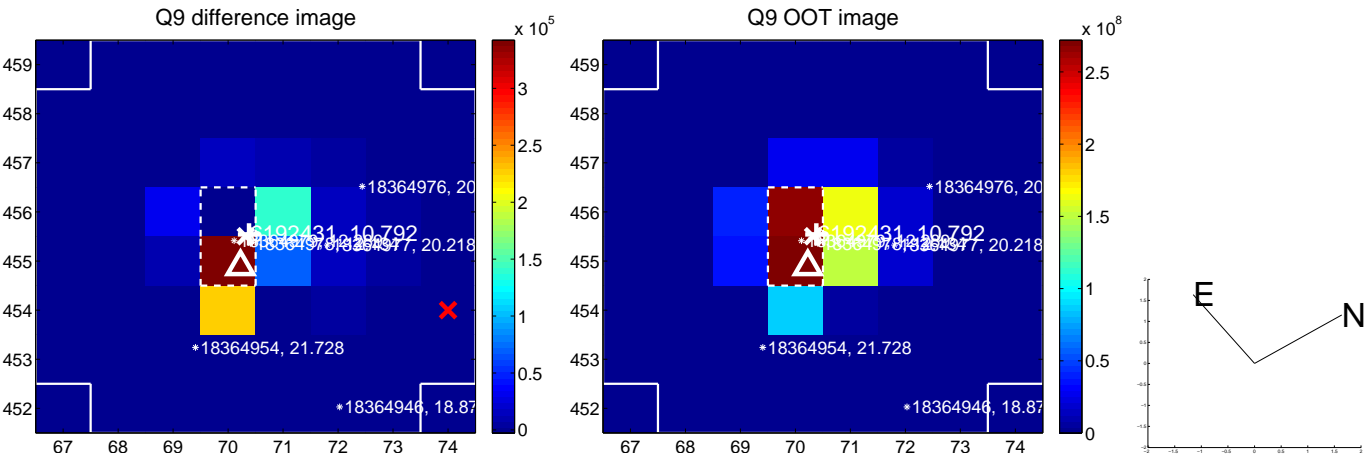
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



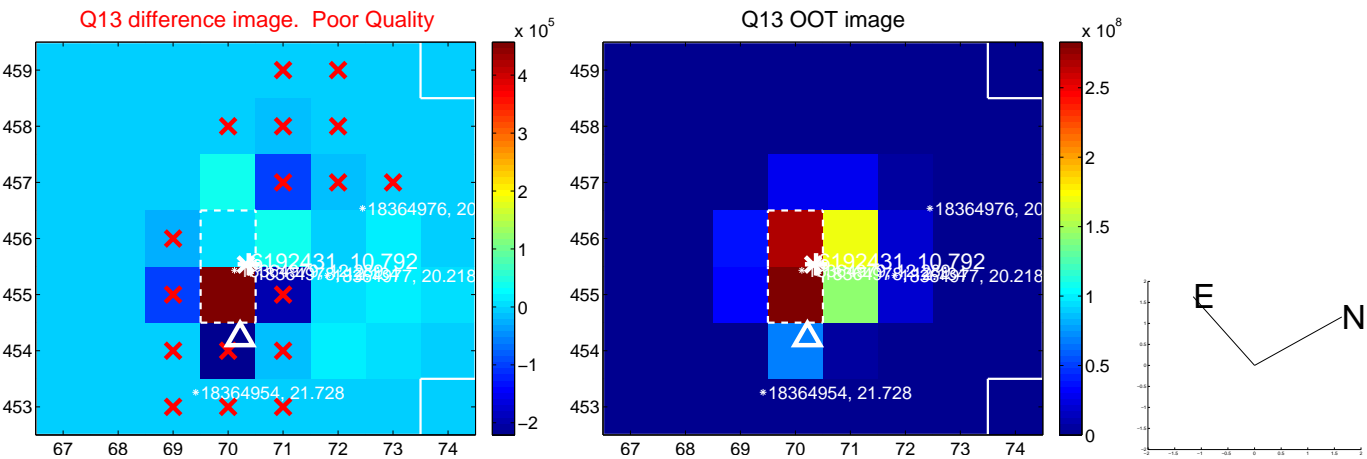
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



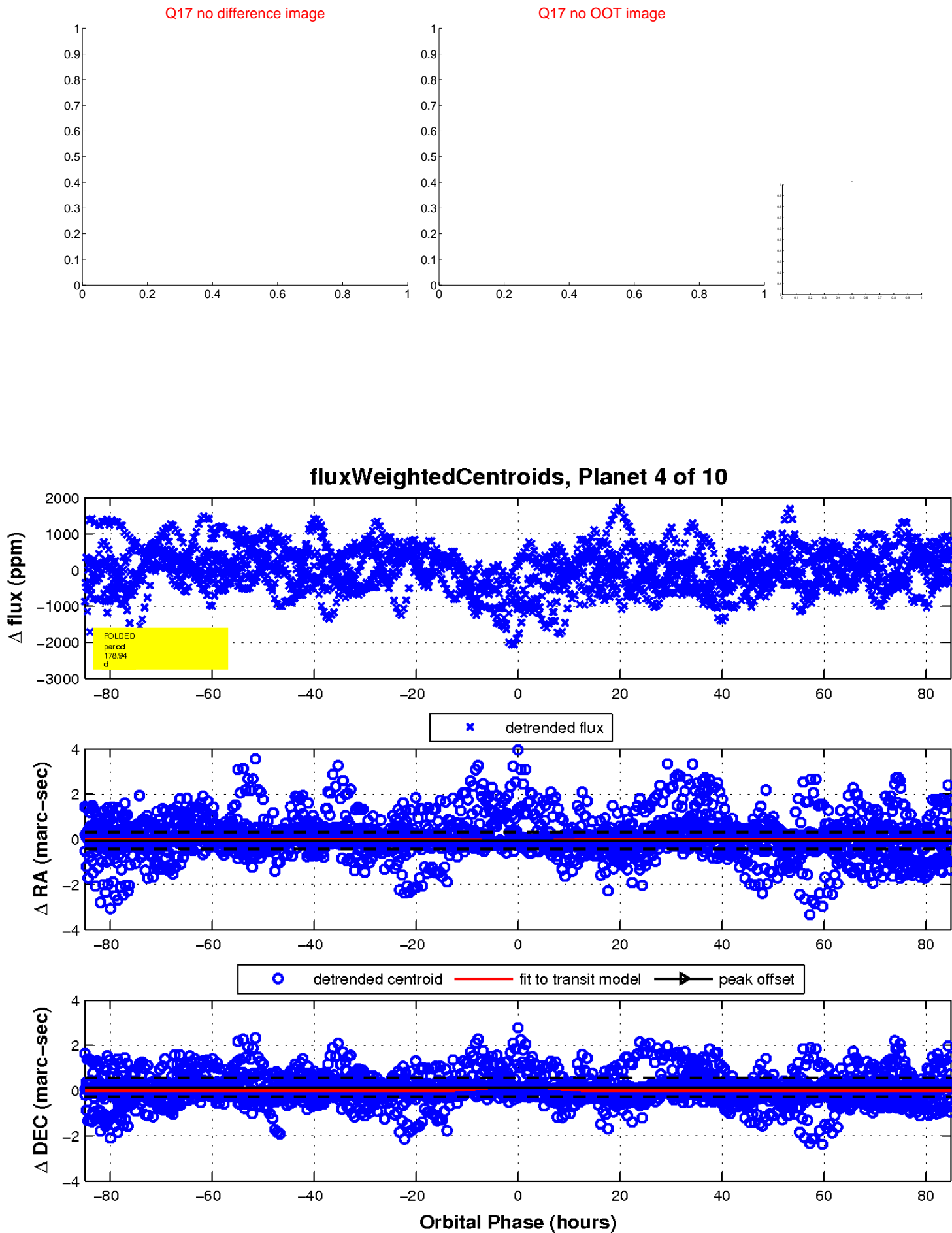
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white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

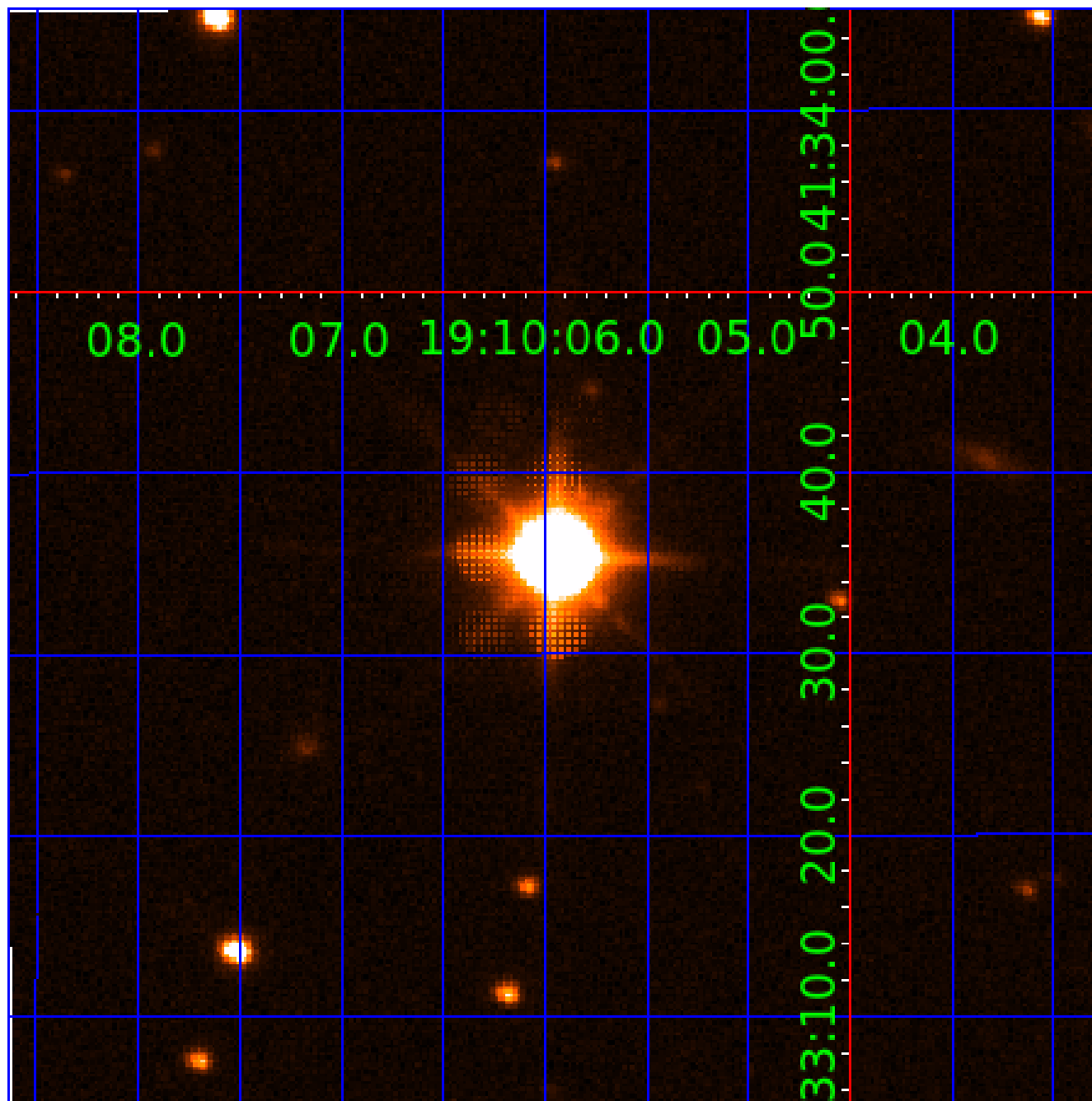


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



Q1-17 DR25 TCE Parameters

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006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
006192431-08	OBS	No	28.448407	132.456892	33.0	1.305	17.8	9.2	14.70	4629	9.10	1600.41
006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
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Robovetter Results

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006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

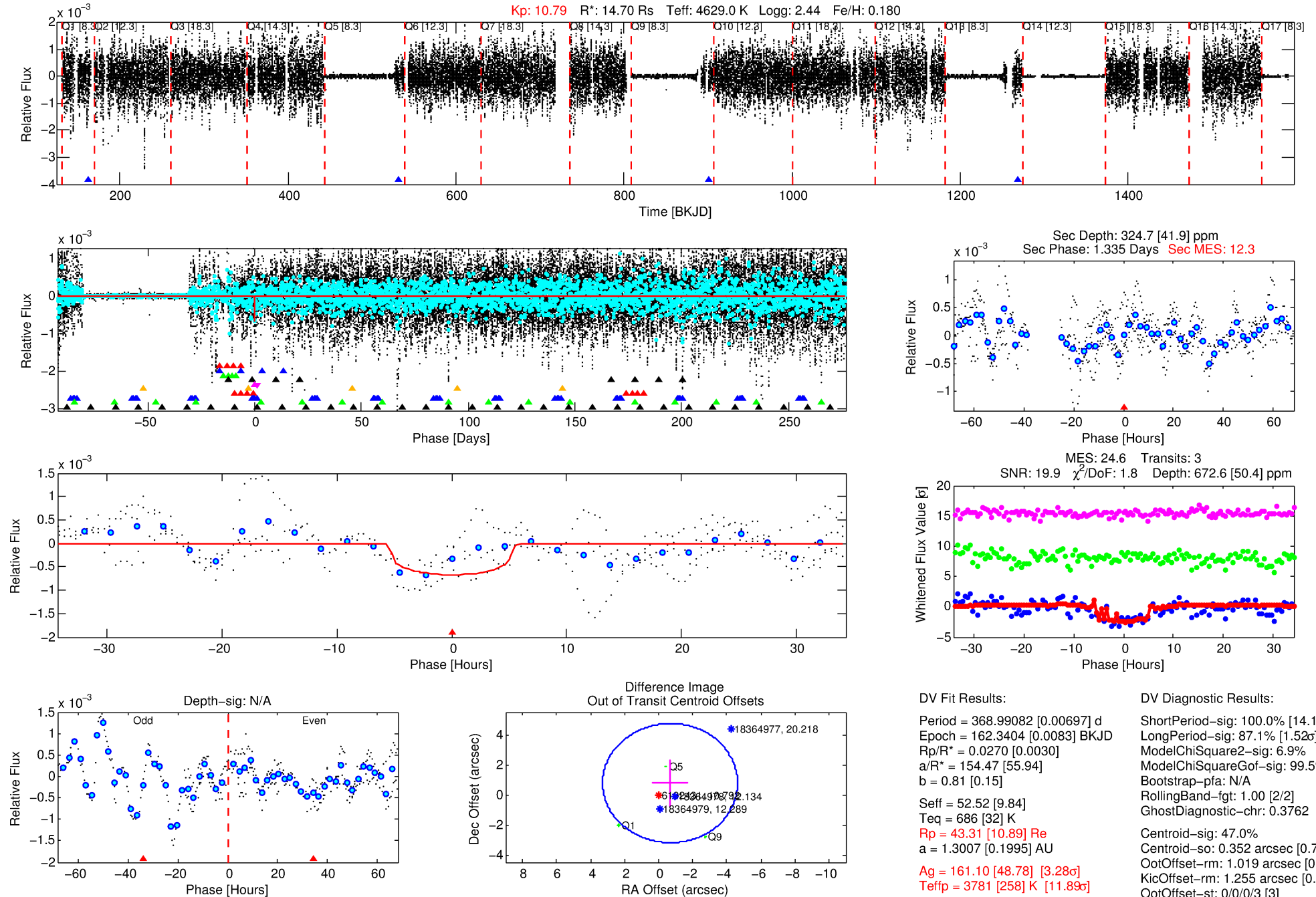
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-05

No Significant Match Found

DV One-Page Summary

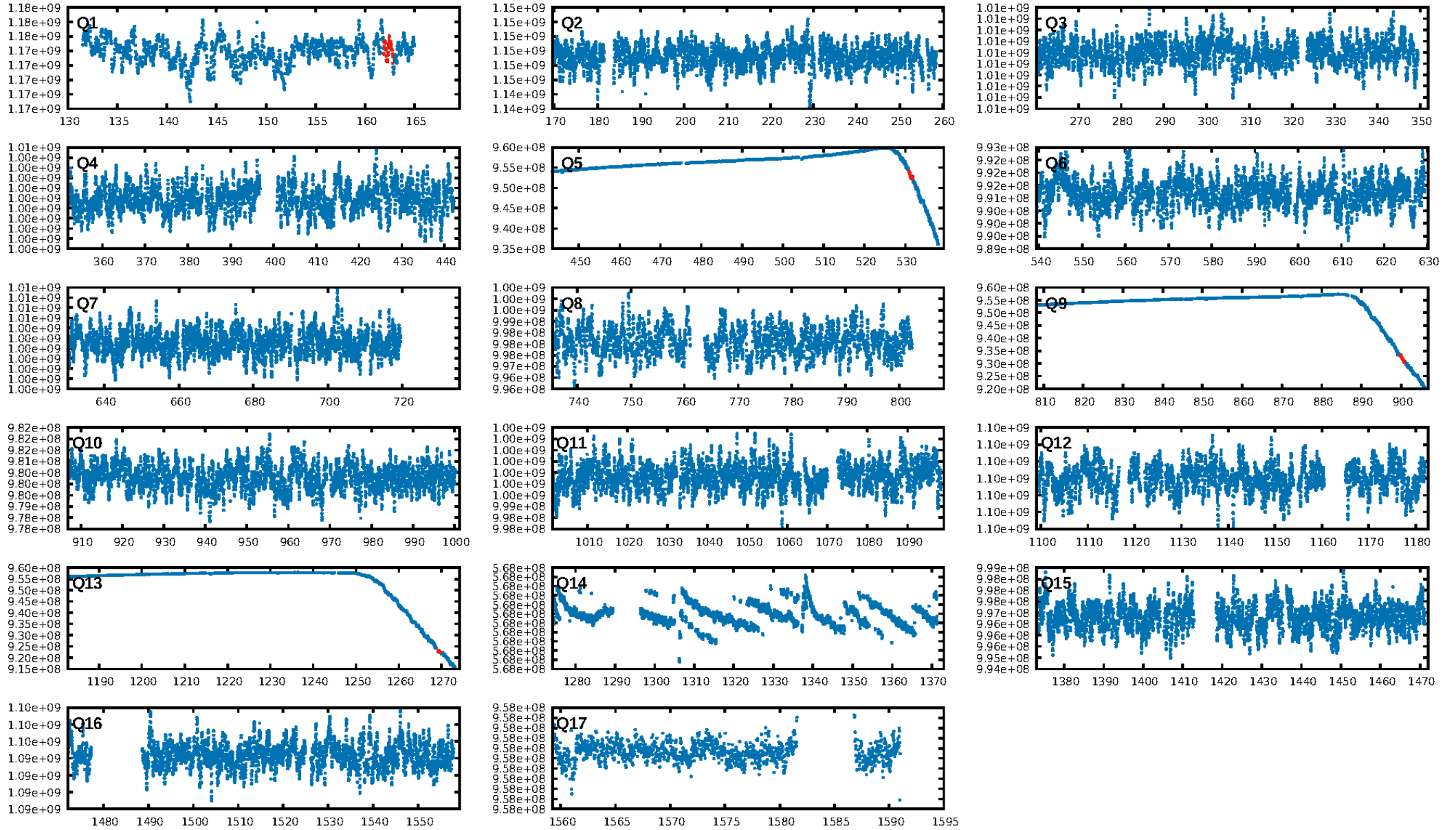
KIC: 6192431 Candidate: 5 of 10 Period: 368.991 d



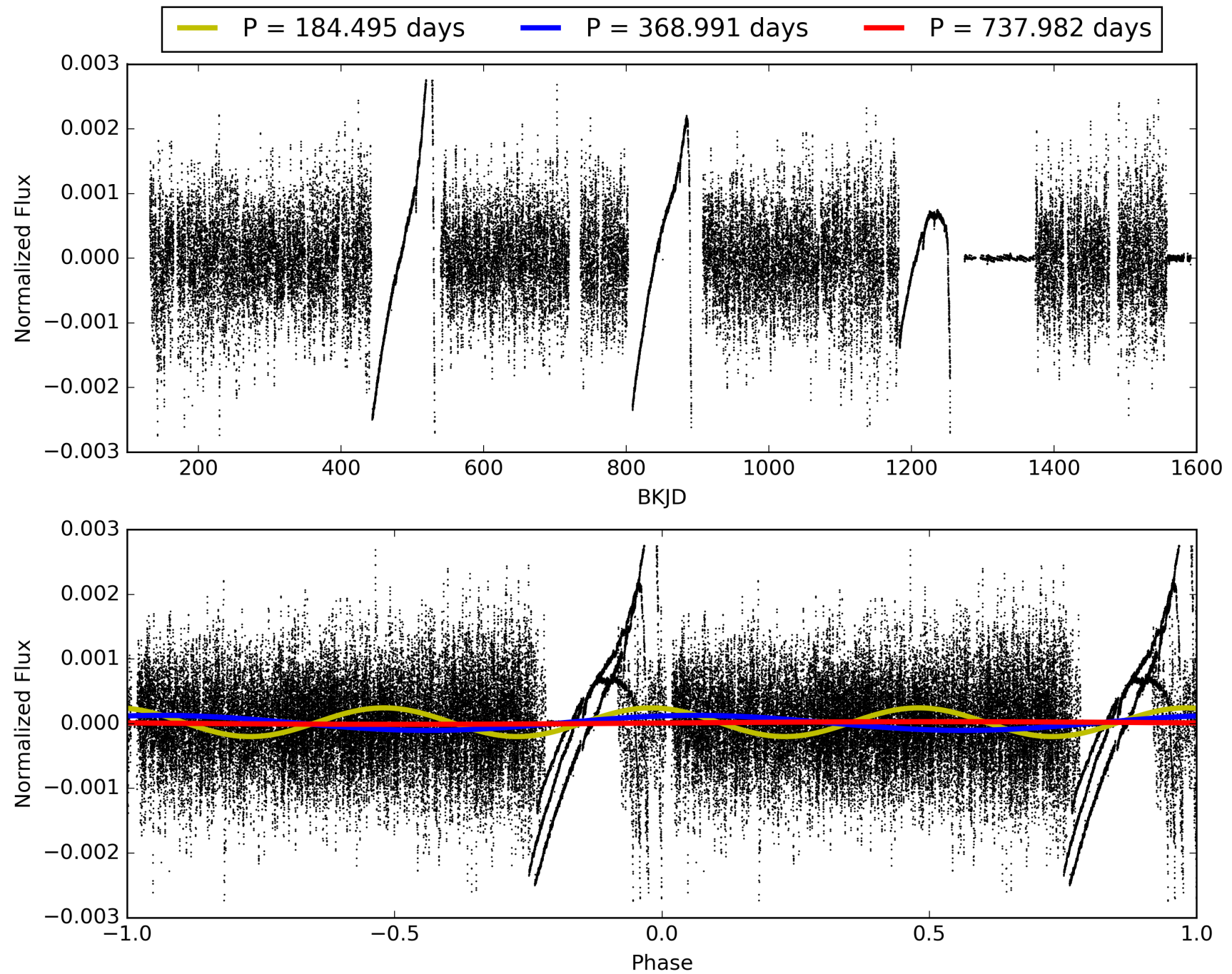
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:23:46 Z

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

TCE 006192431-05, PDC Light Curves

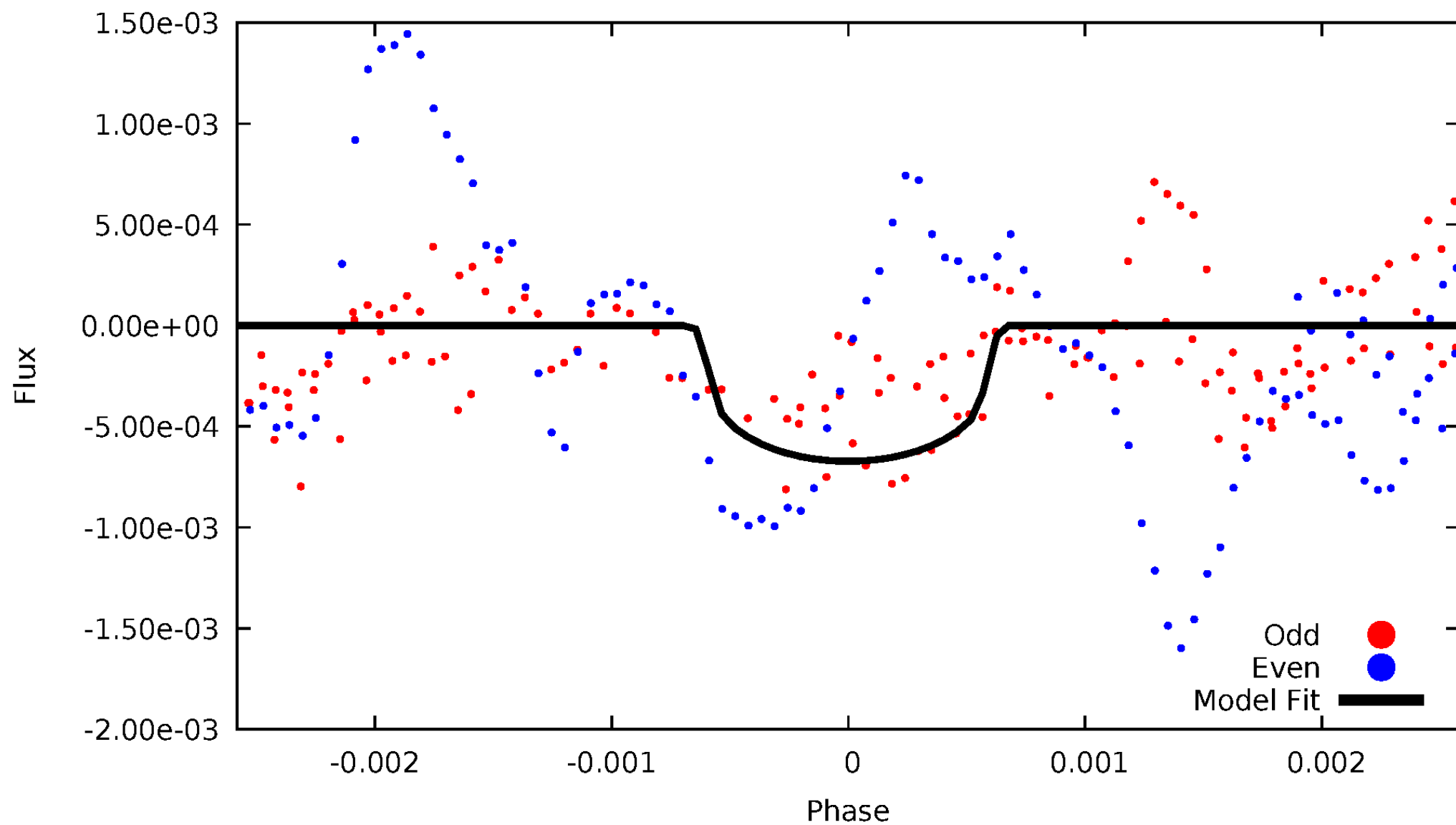


TCE 006192431-05



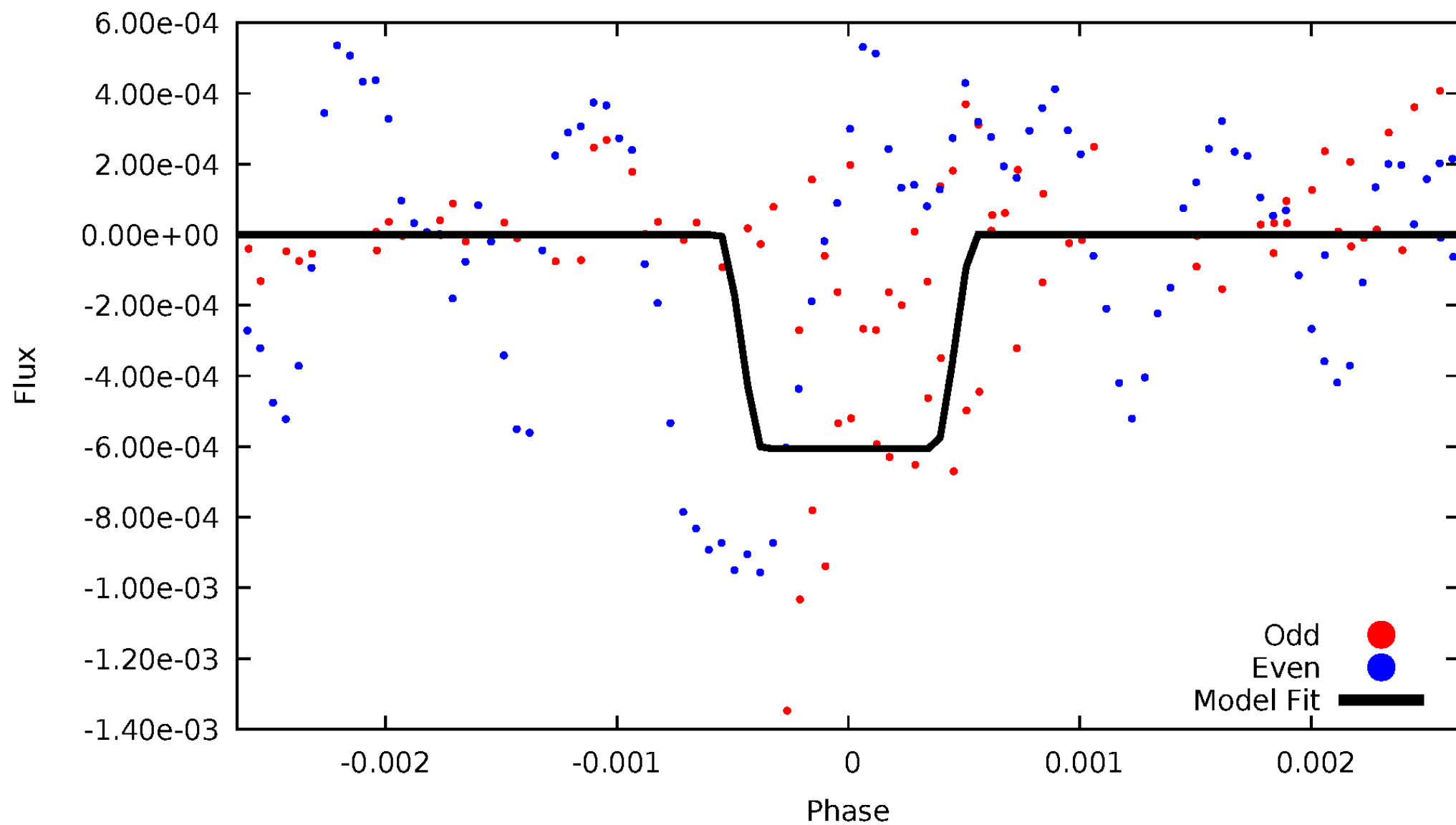
DV Odd/Even

TCE 006192431-05



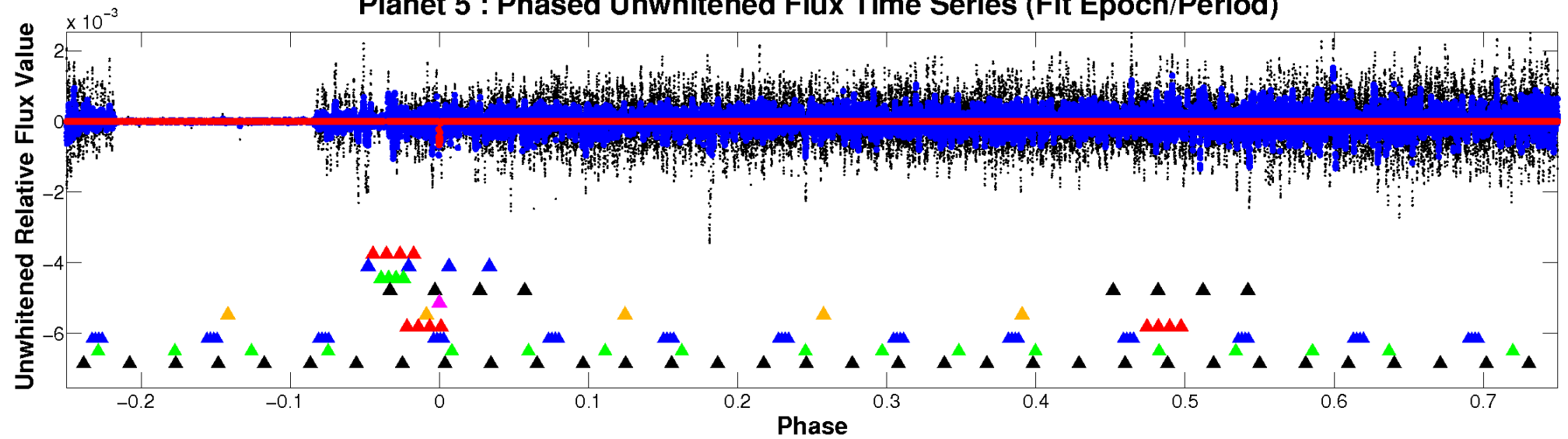
ALT Odd/Even

TCE 006192431-05

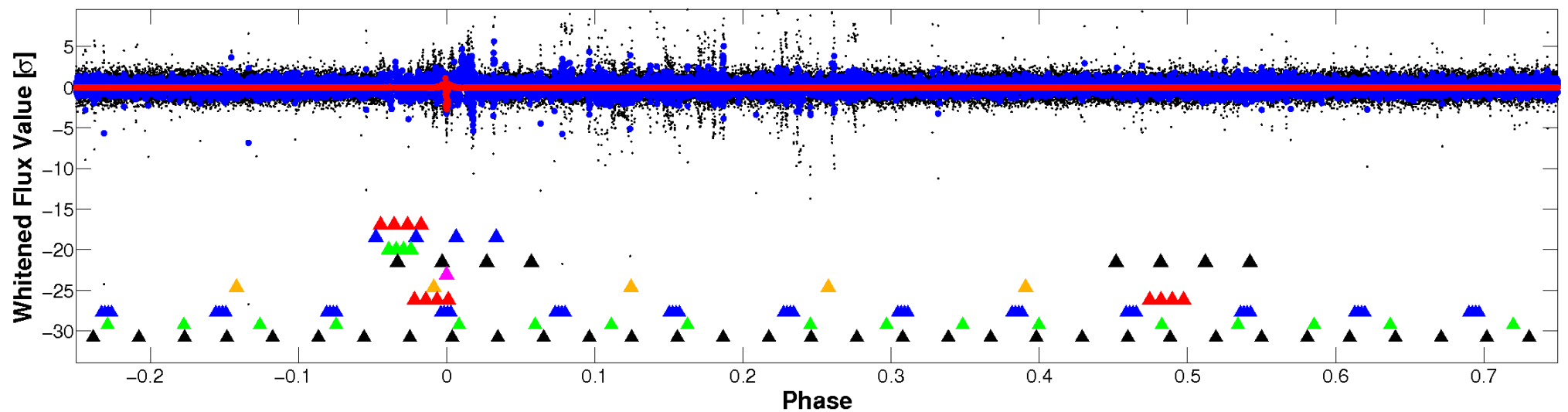


Non-Whitened Vs. Whitened Light Curve

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



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



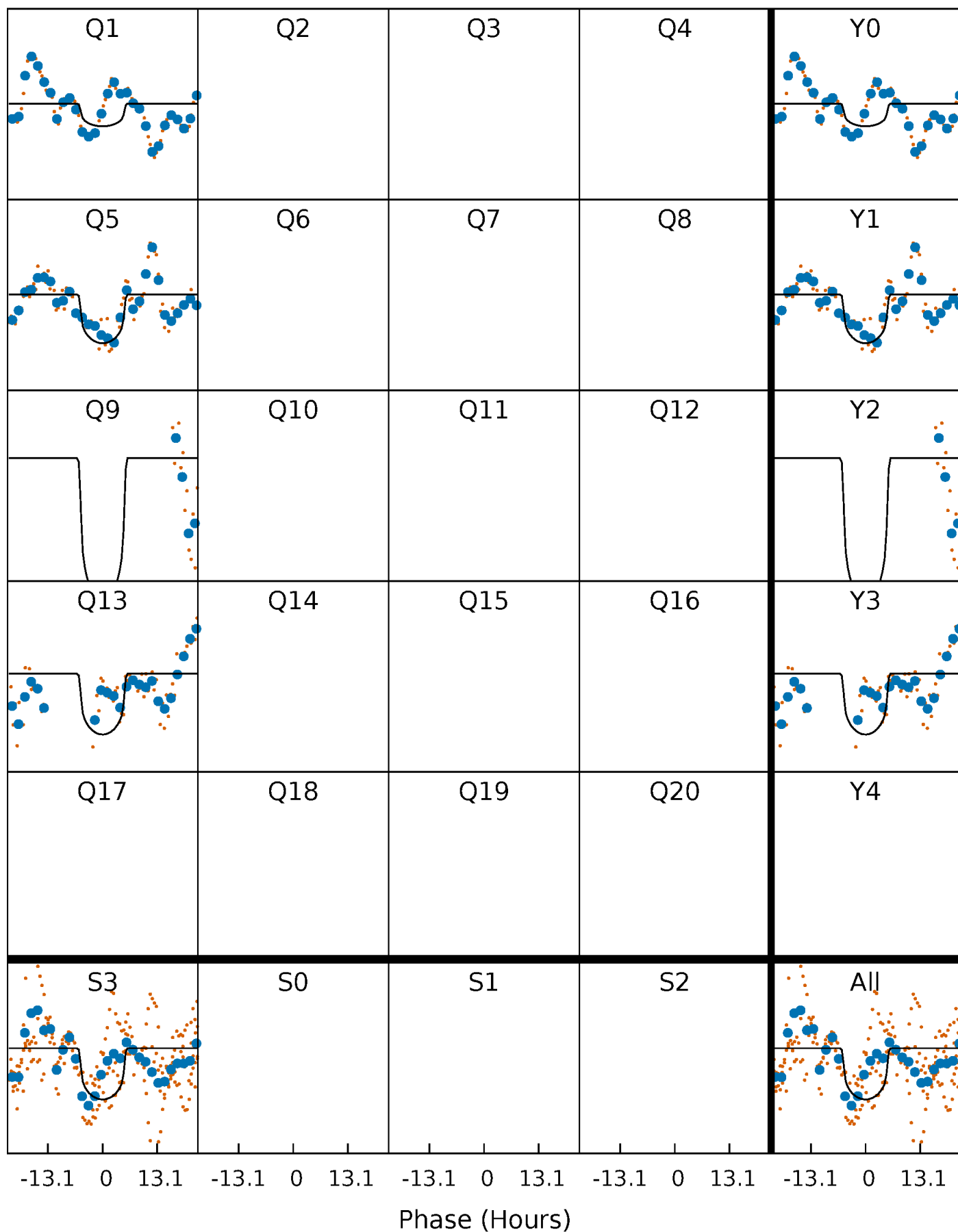
PDC Quarter-Phased Transit Curves

TCE 006192431-05 $P=368.990817$ Days $T_0=162.340404$ (BKJD)



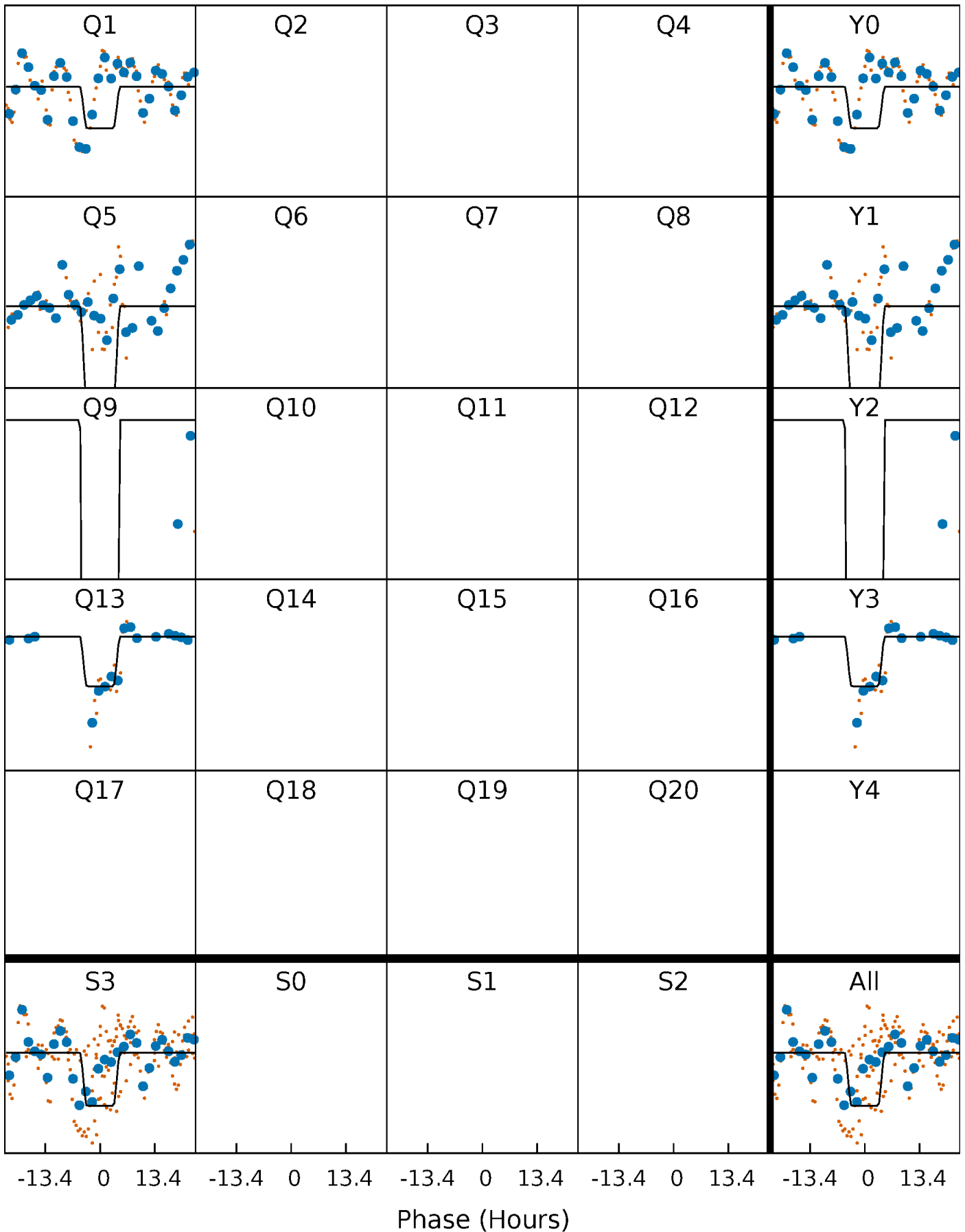
DV Quarter-Phased Transit Curves

TCE 006192431-05 $P=368.990817$ Days $T_0=162.340404$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

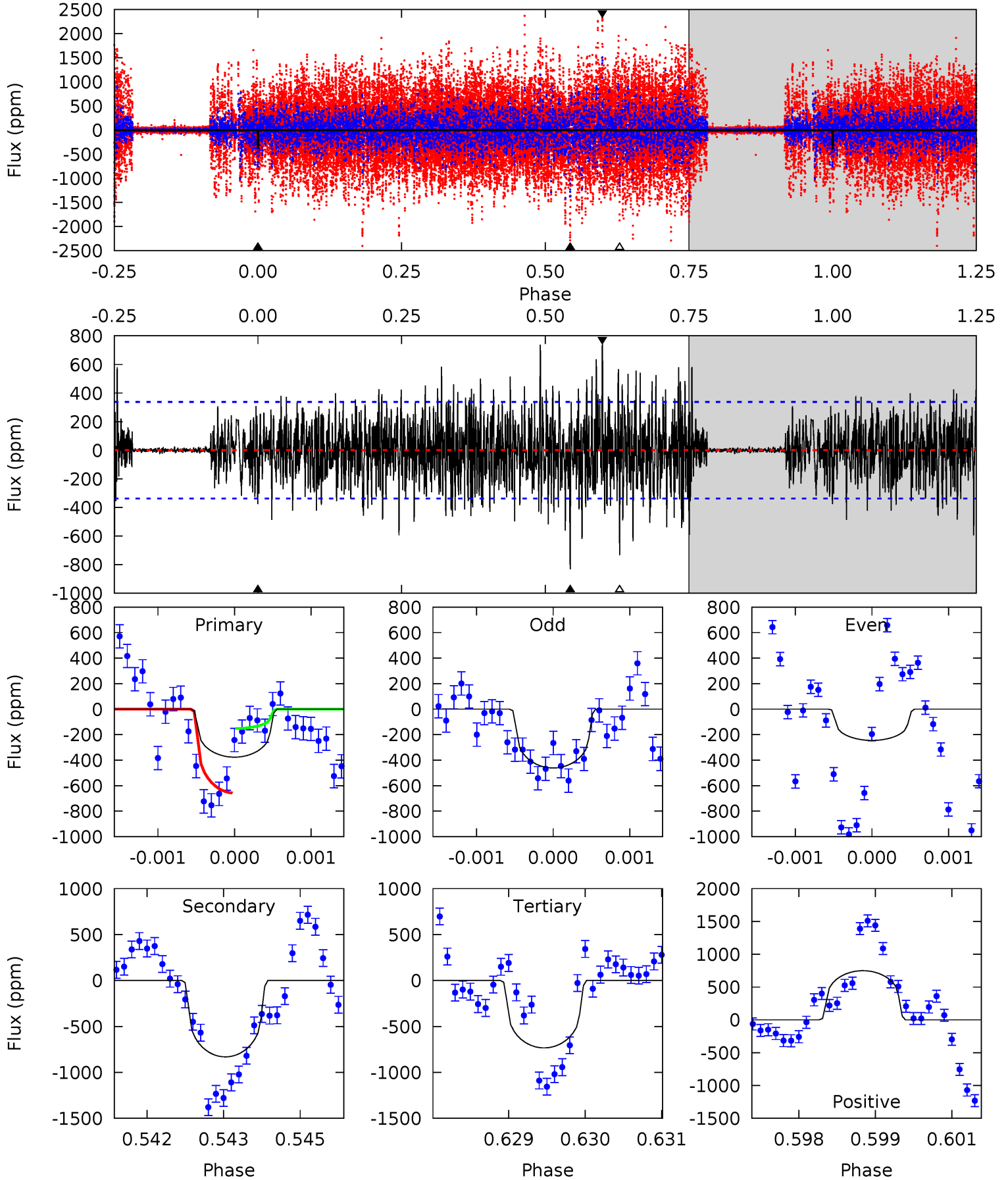
TCE 006192431-05 $P=368.968793$ Days $T_0=162.406786$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-05, P = 368.990817 Days, E = 162.340404 Days

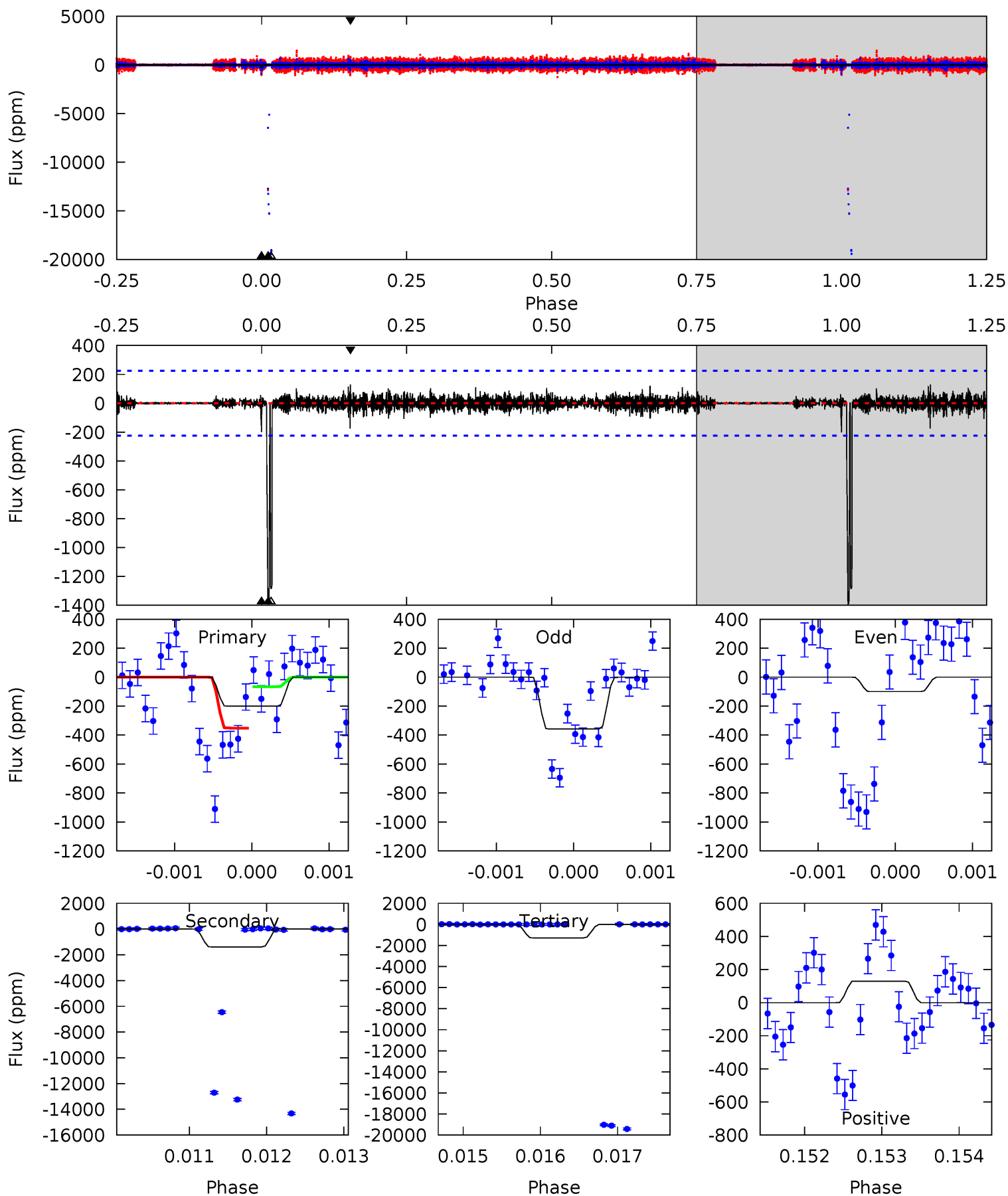
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.04	13.3	11.8	12.0	5.42	3.23	2.72	-5.73	-5.98	1.57	1.32	1.59	1.10	0.47	4.42



Alt Model-Shift Uniqueness Test

006192431-05, P = 368.968793 Days, E = 162.406786 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.87	33.8	31.2	3.16	5.44	3.28	1.14	-26.3	1.72	2.57	30.6	2.66	2.98	0.09	3.60



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-05 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-831 ± 62	$44.11^{+8.20}_{-8.23}$	957^{+31}_{-33}	4734^{+280}_{-227}	411^{+132}_{-87}
Alt.	-1390 ± 41	$40.46^{+7.83}_{-7.52}$	959^{+30}_{-34}	5489^{+367}_{-289}	818^{+273}_{-192}

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

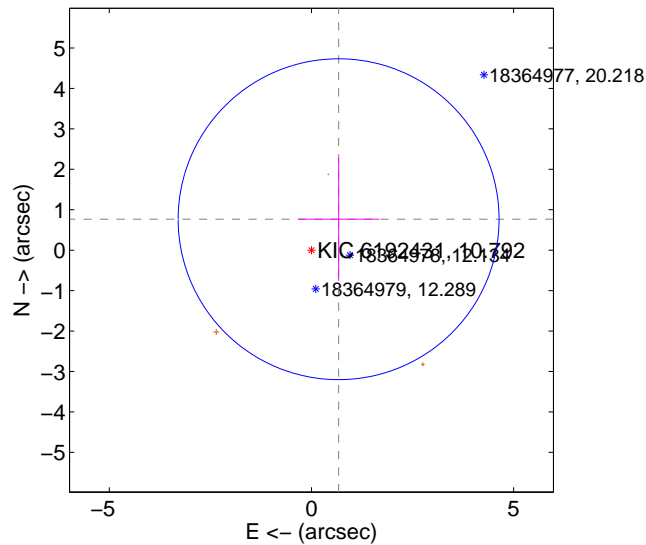
Supplemental centroid analysis for 006192431-05. **Kepler magnitude: 10.79.** Transit SNR 19.92

There are 1 quarters with good PRF difference image offsets

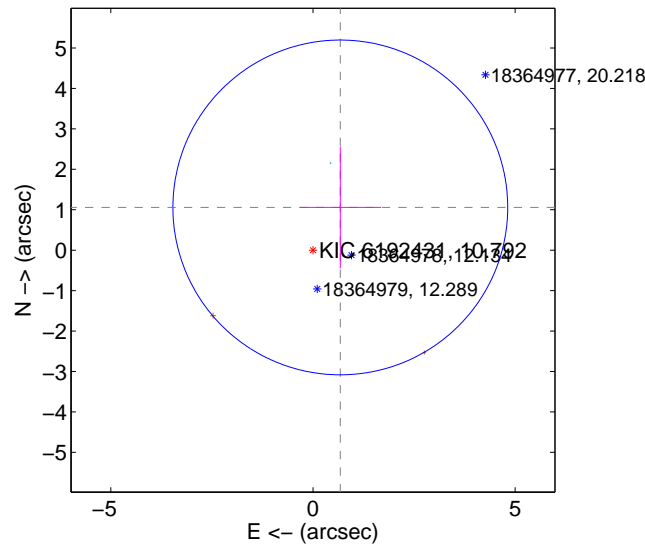
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.019 ± 1.323	0.77	-0.672 ± 1.000	0.766 ± 1.525
PRF-fit source offset from KIC position	1.255 ± 1.380	0.91	-0.676 ± 1.007	1.057 ± 1.506
photometric centroid source offset	0.35 ± 0.45	0.78	0.11 ± 0.56	0.34 ± 0.44

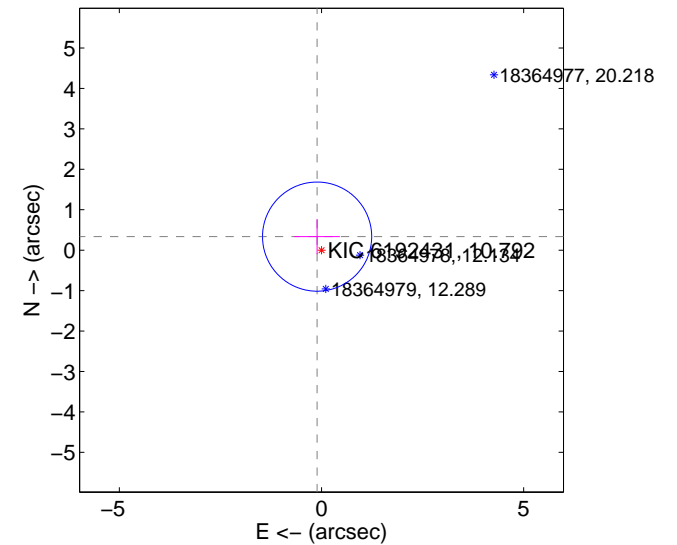
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

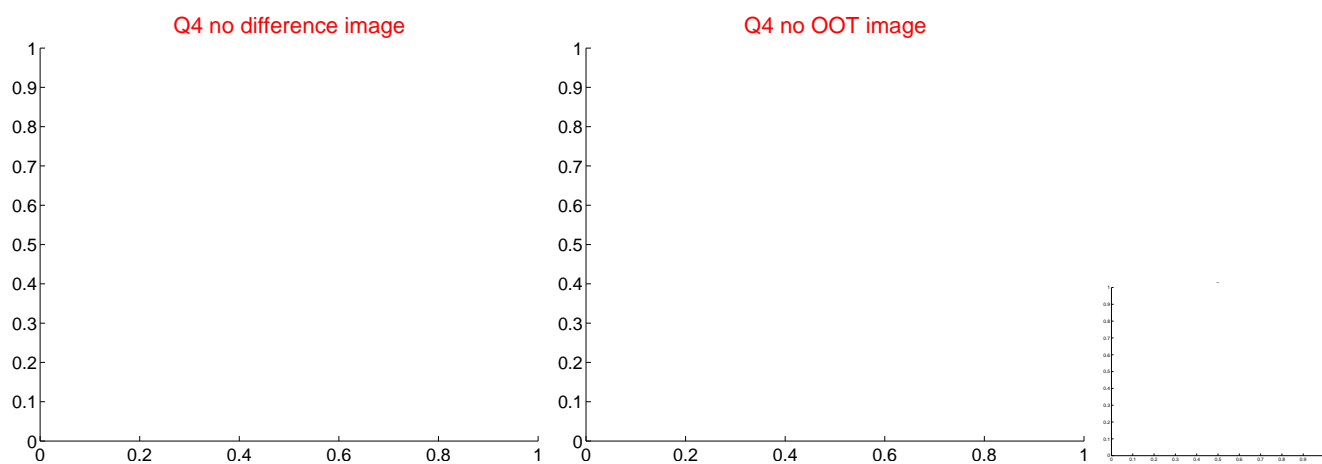
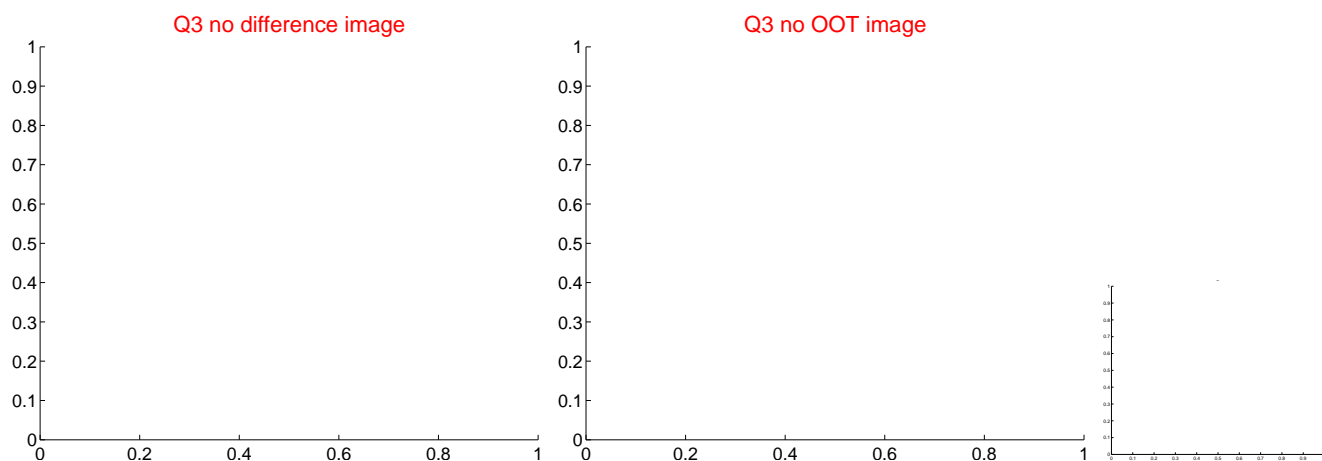
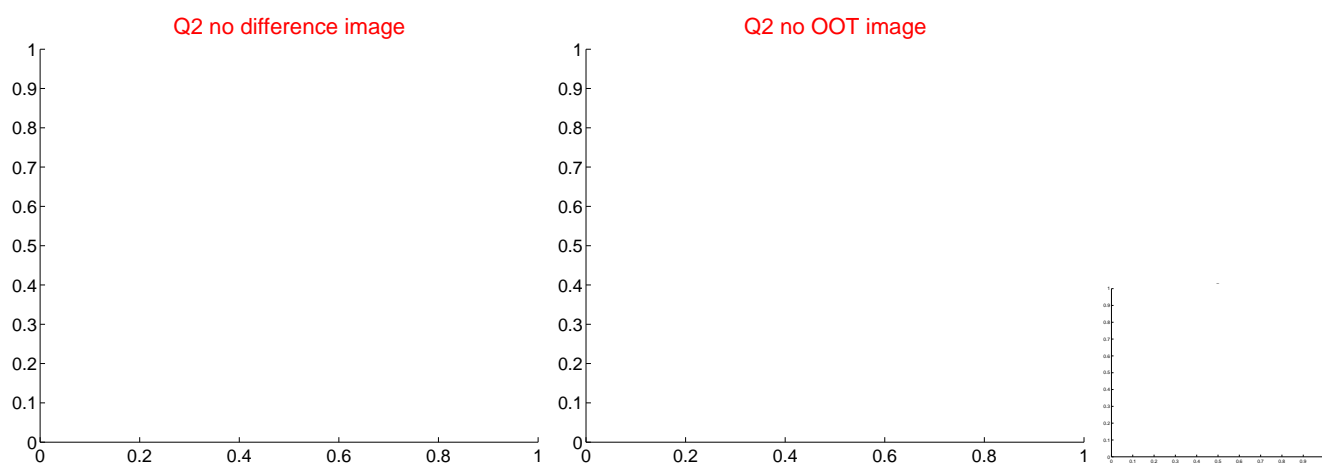
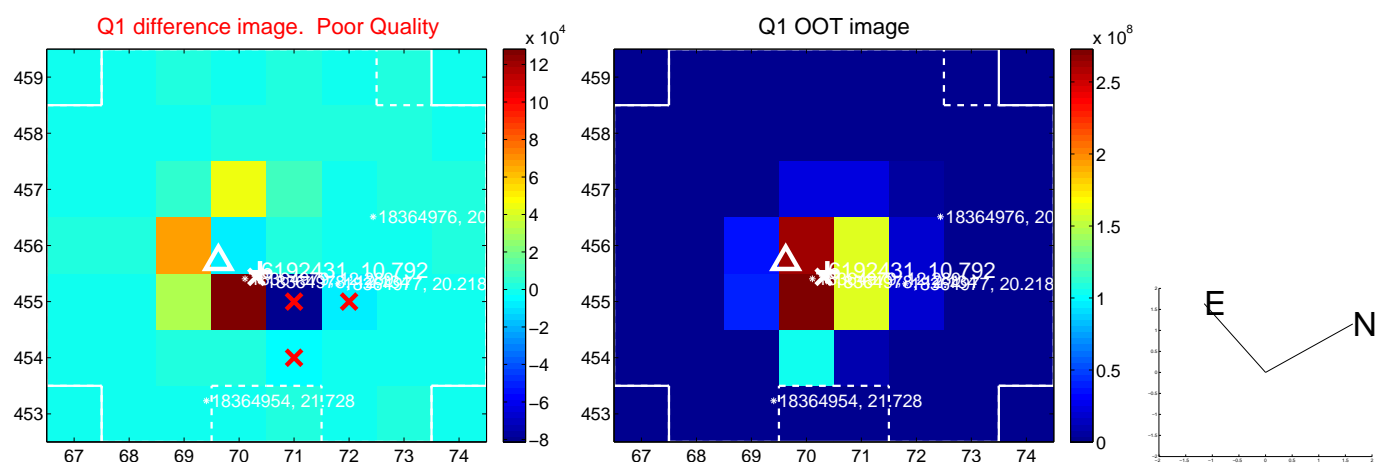


offset from photometric centroids

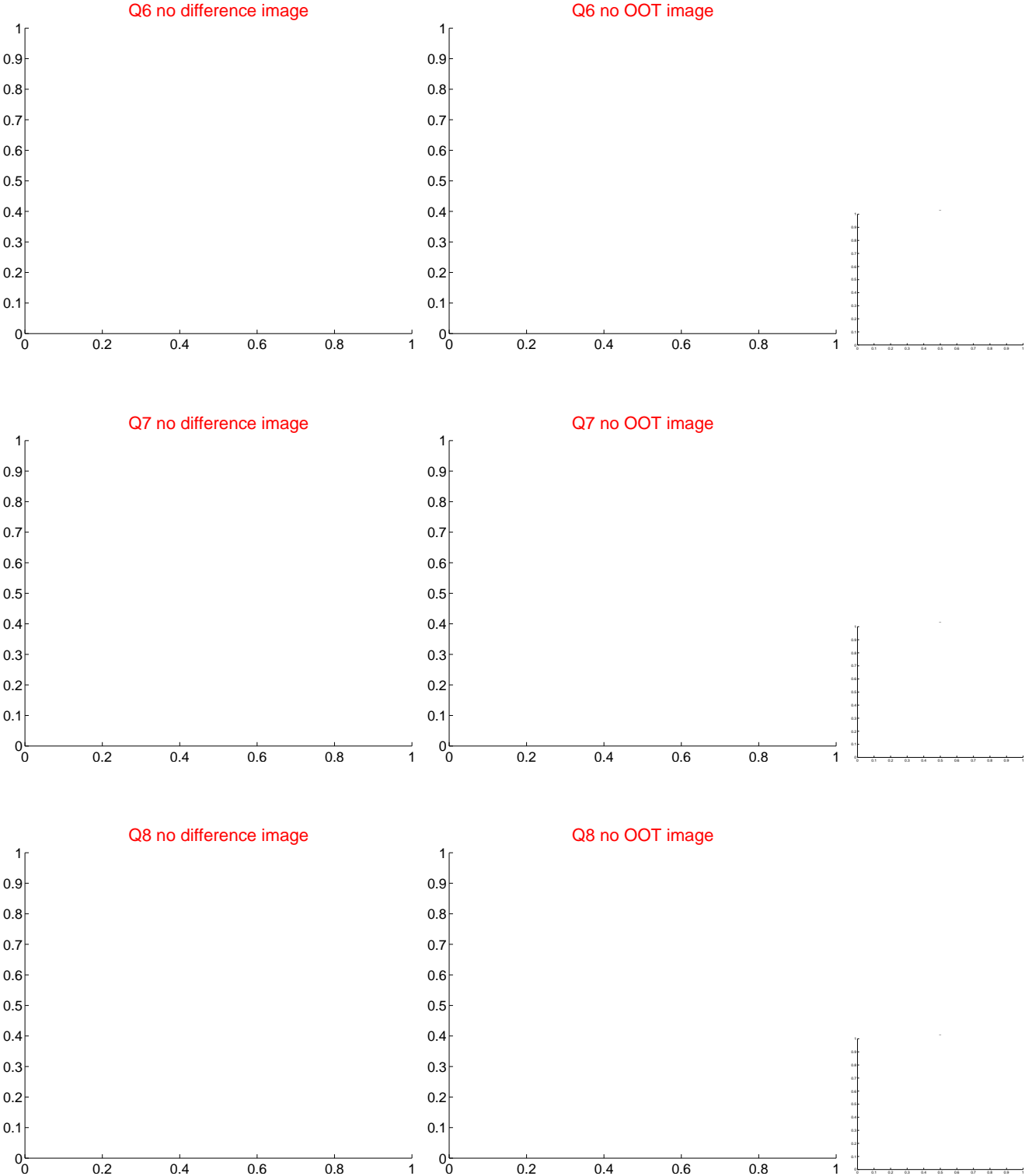
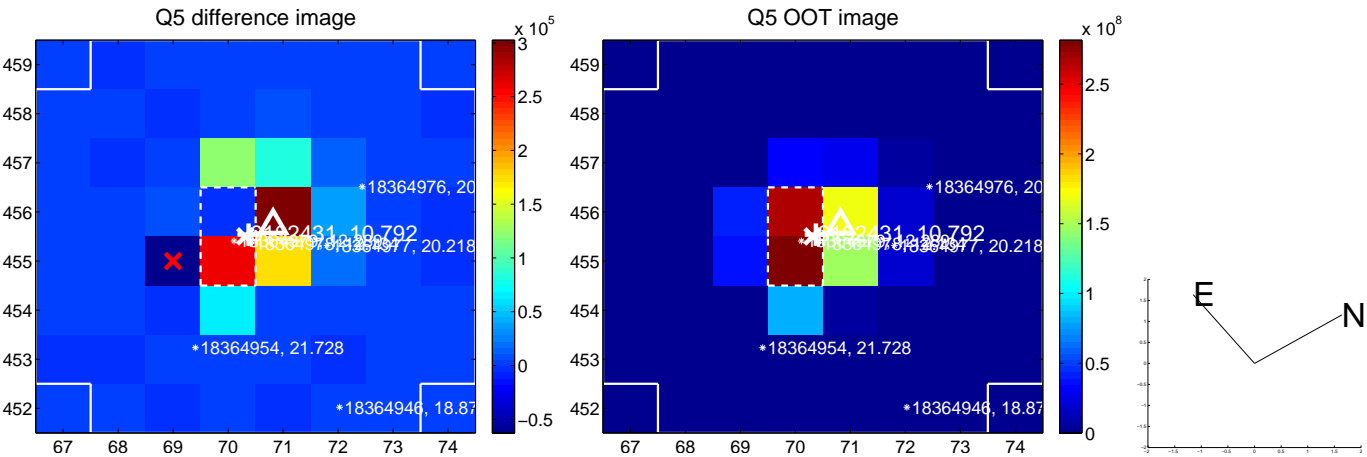


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

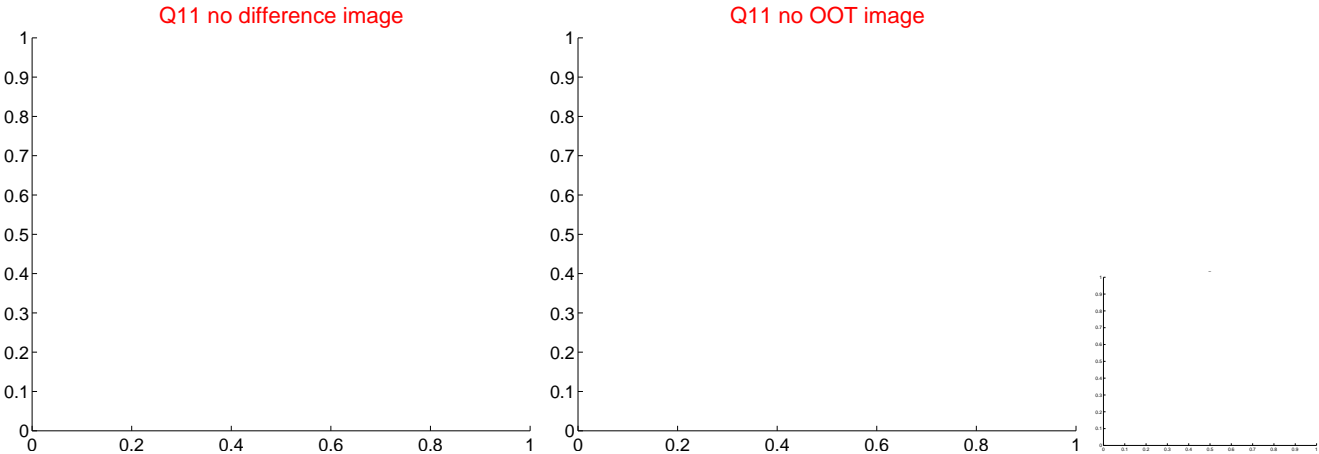
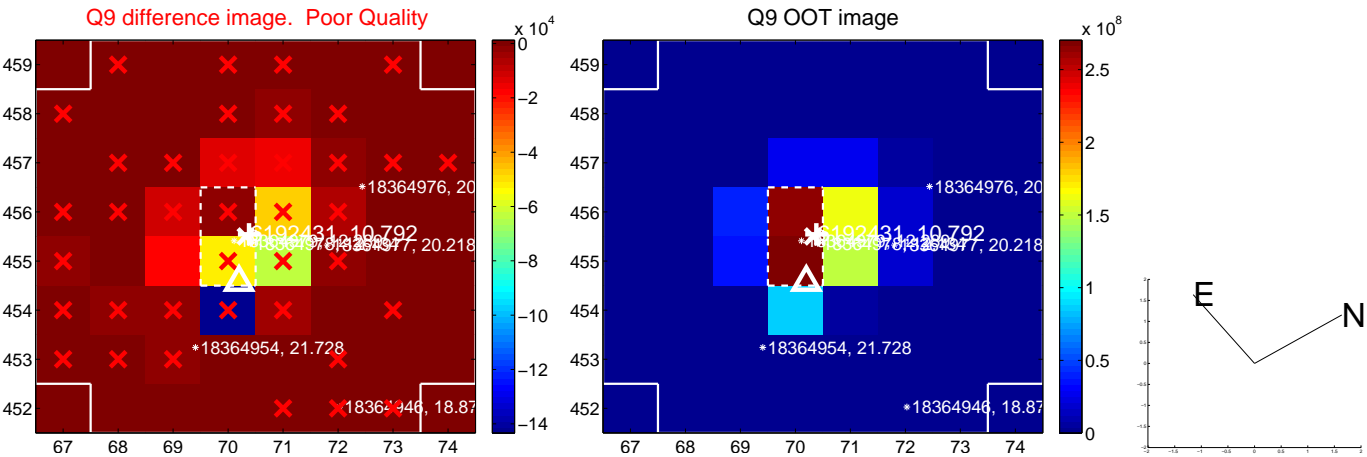
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



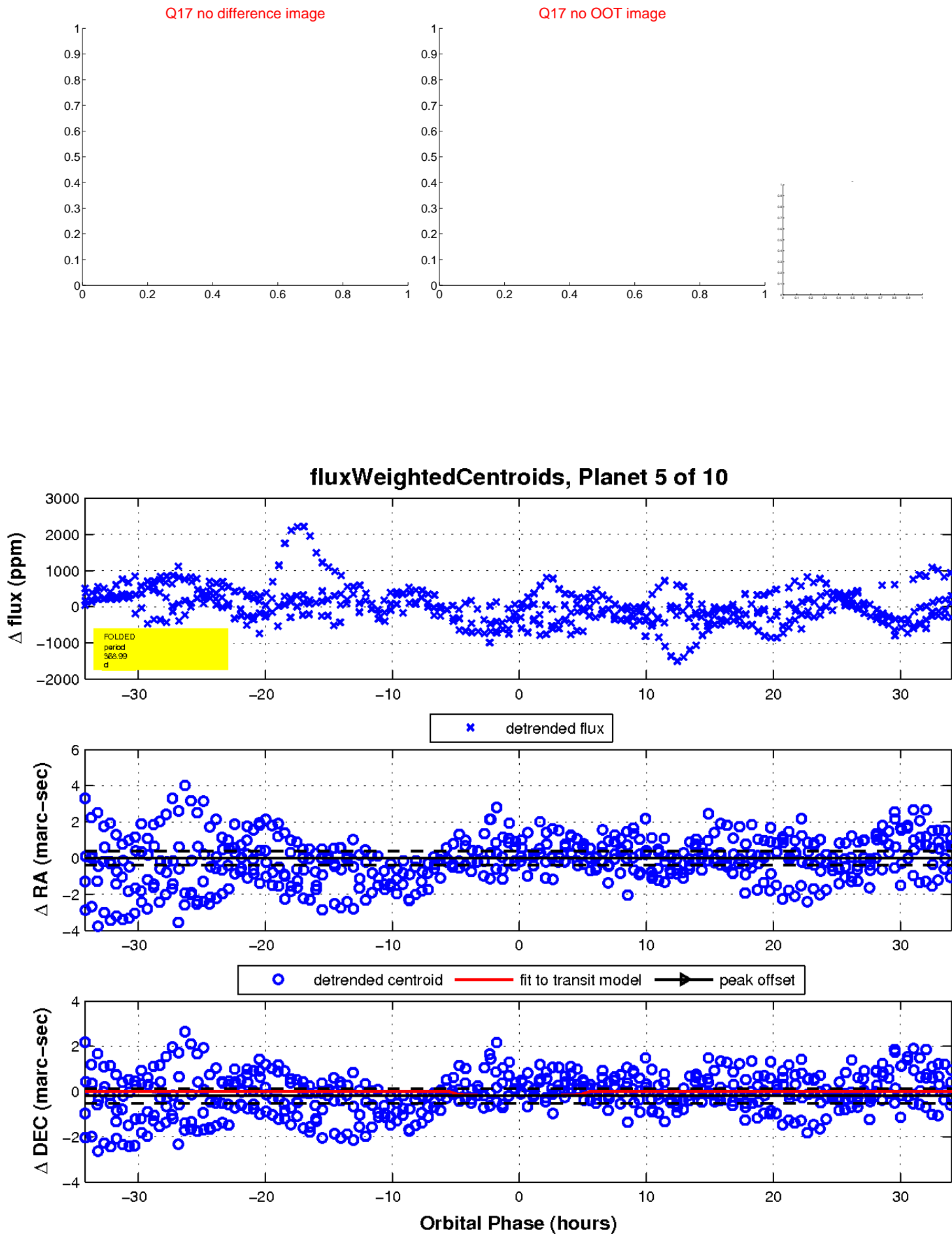
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

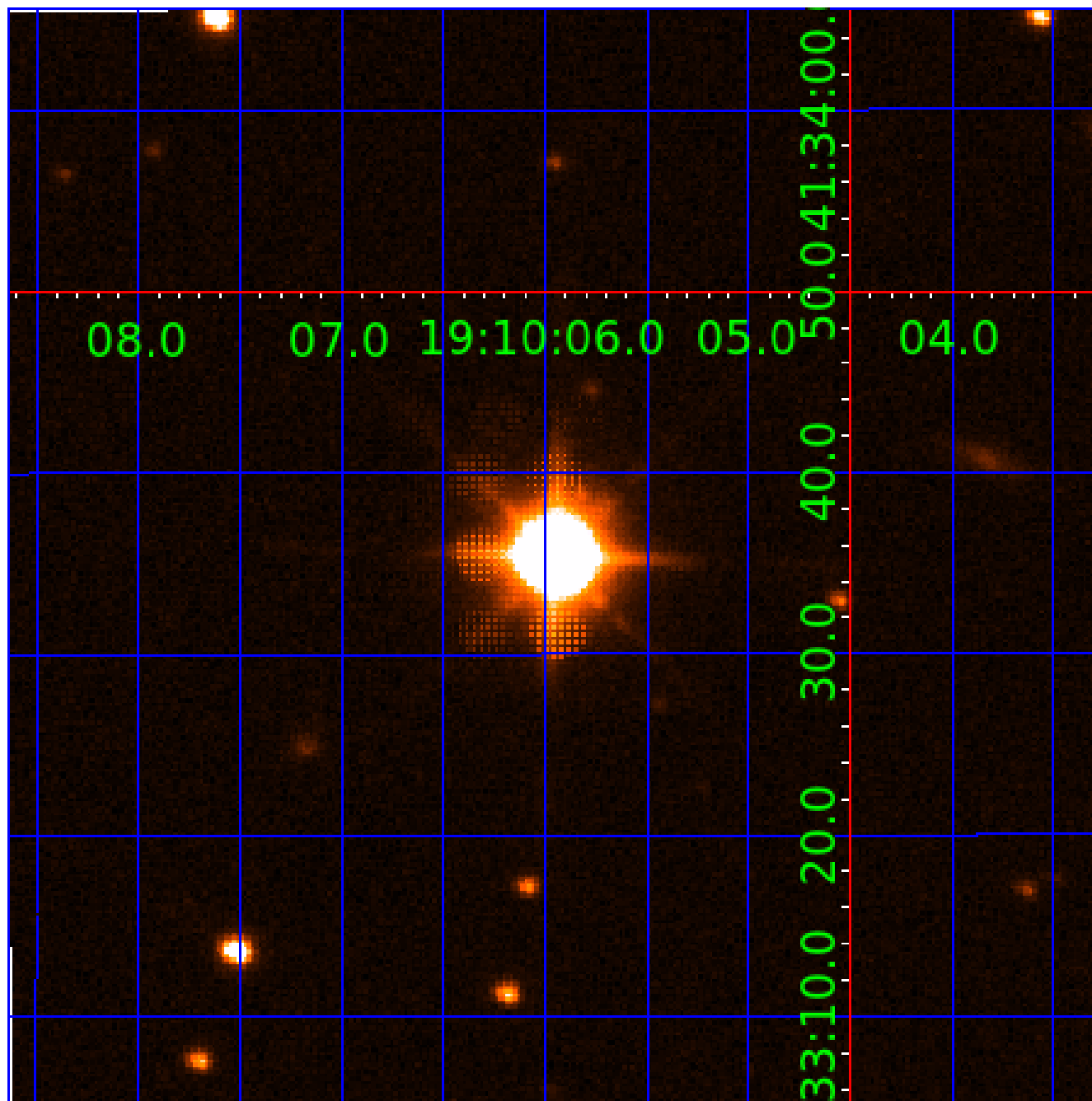


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
006192431-02	OBS	No	358.997216	174.721162	269.0	12.500	42.2	-1.0	14.70	4629	23.05	54.47
006192431-03	OBS	No	370.828432	147.942459	369.1	26.716	31.4	19.3	14.70	4629	37.87	52.17
006192431-04	OBS	No	178.940621	183.459519	705.9	28.322	25.5	24.0	14.70	4629	56.68	137.84
006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
006192431-08	OBS	No	28.448407	132.456892	33.0	1.305	17.8	9.2	14.70	4629	9.10	1600.41
006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

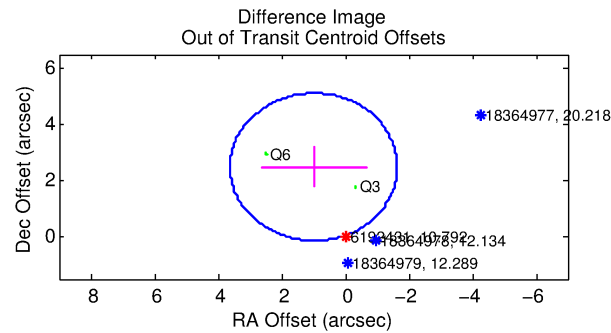
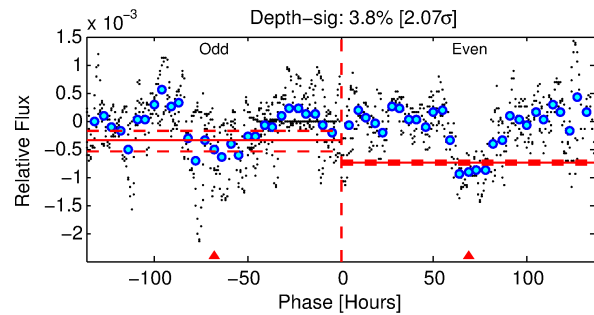
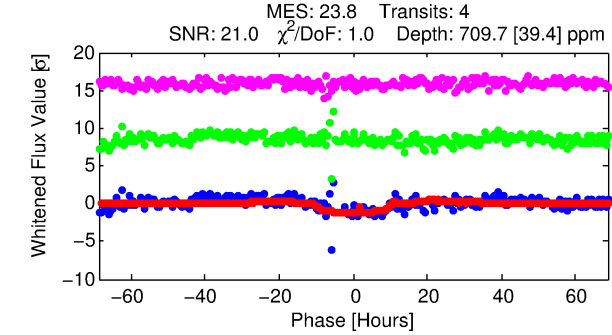
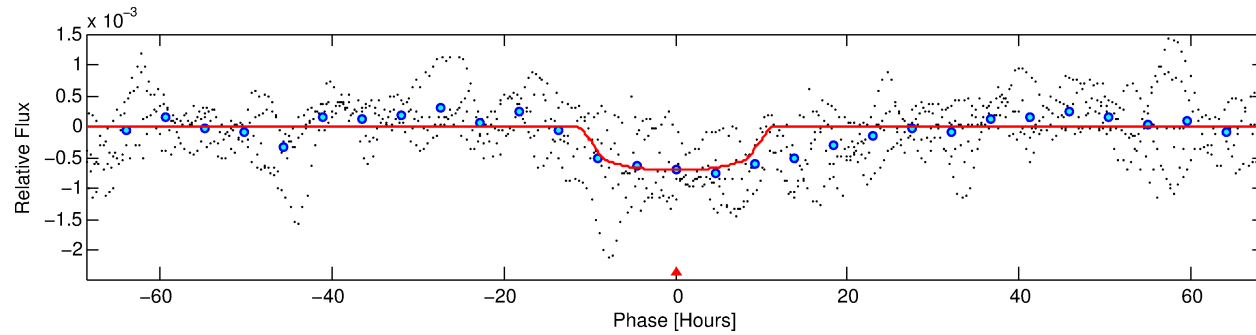
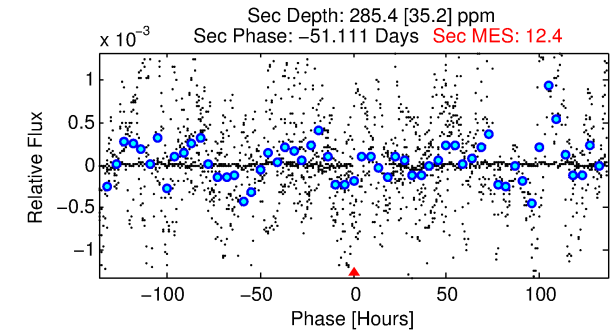
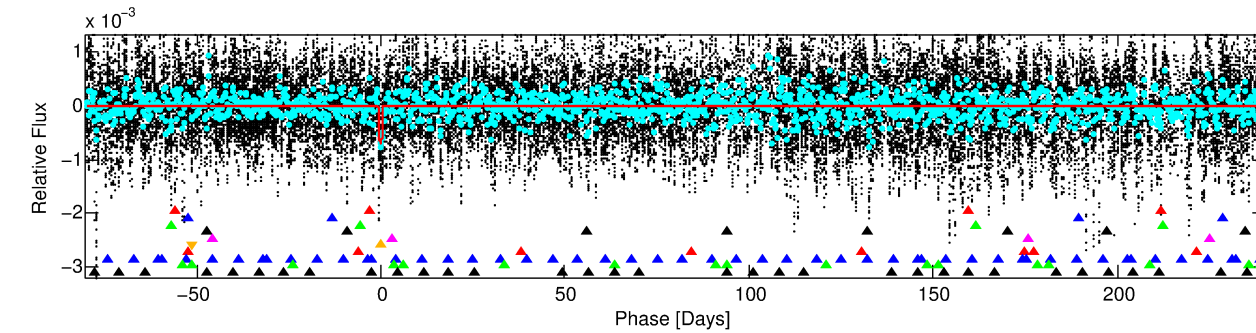
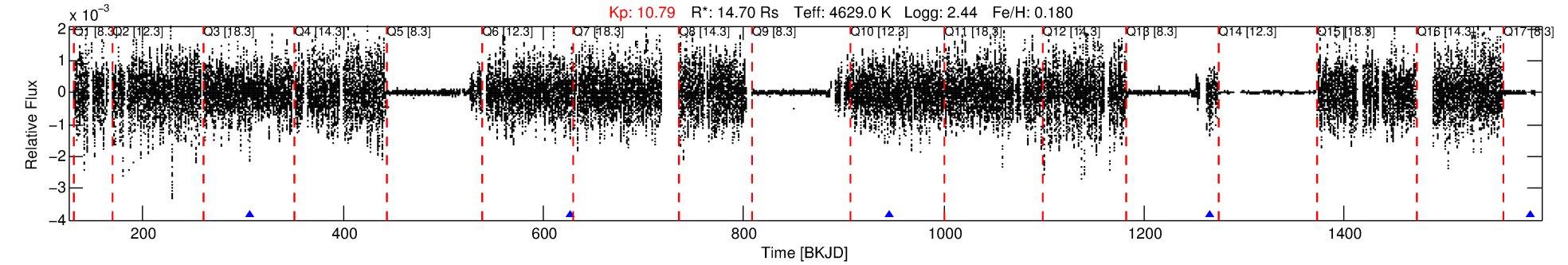
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-06

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 6 of 10 Period: 319.864 d



DV Fit Results:

Period = 319.86435 [0.01218] d
Epoch = 306.5246 [0.0310] BKJD
Rp/R* = 0.0302 [0.0014]
a/R* = 53.23 [6.88]
b = 0.90 [0.03]
Seff = 63.54 [11.91]
Teff = 720 [34] K
Rp = 48.38 [11.16] Re
a = 1.1825 [0.1814] AU
Ag = 93.81 [20.96] [4.43σ]
Teffp = 3464 [157] K [17.09σ]

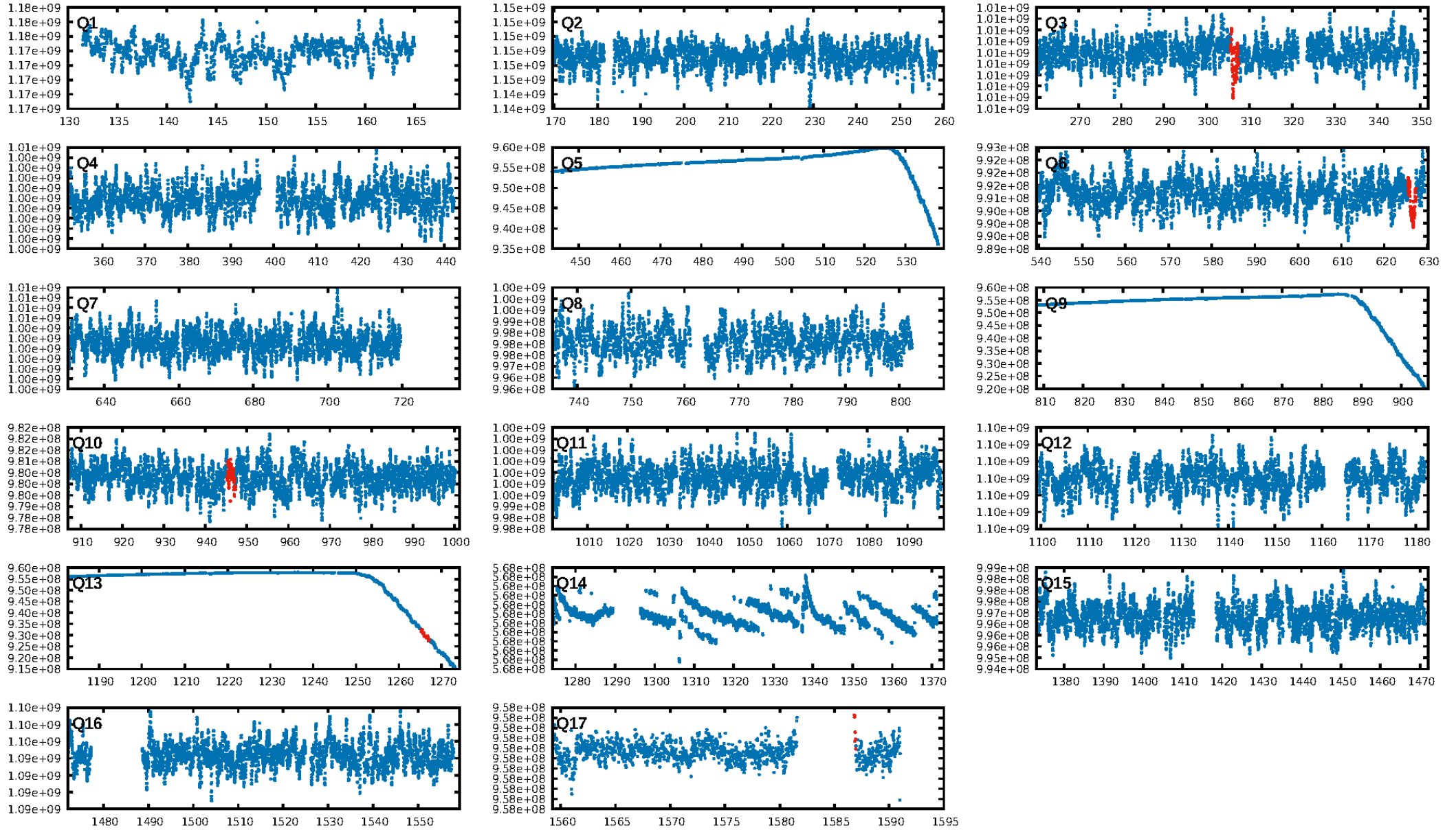
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [119.96σ]
LongPeriod-sig: 100.0% [36.01σ]
ModelChiSquare2-sig: 2.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 4.289
Centroid-sig: 0.0%
Centroid-so: 0.459 arcsec [2.47σ]
OotOffset-rm: 2.677 arcsec [3.06σ]
KicOffset-rm: 2.273 arcsec [3.96σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

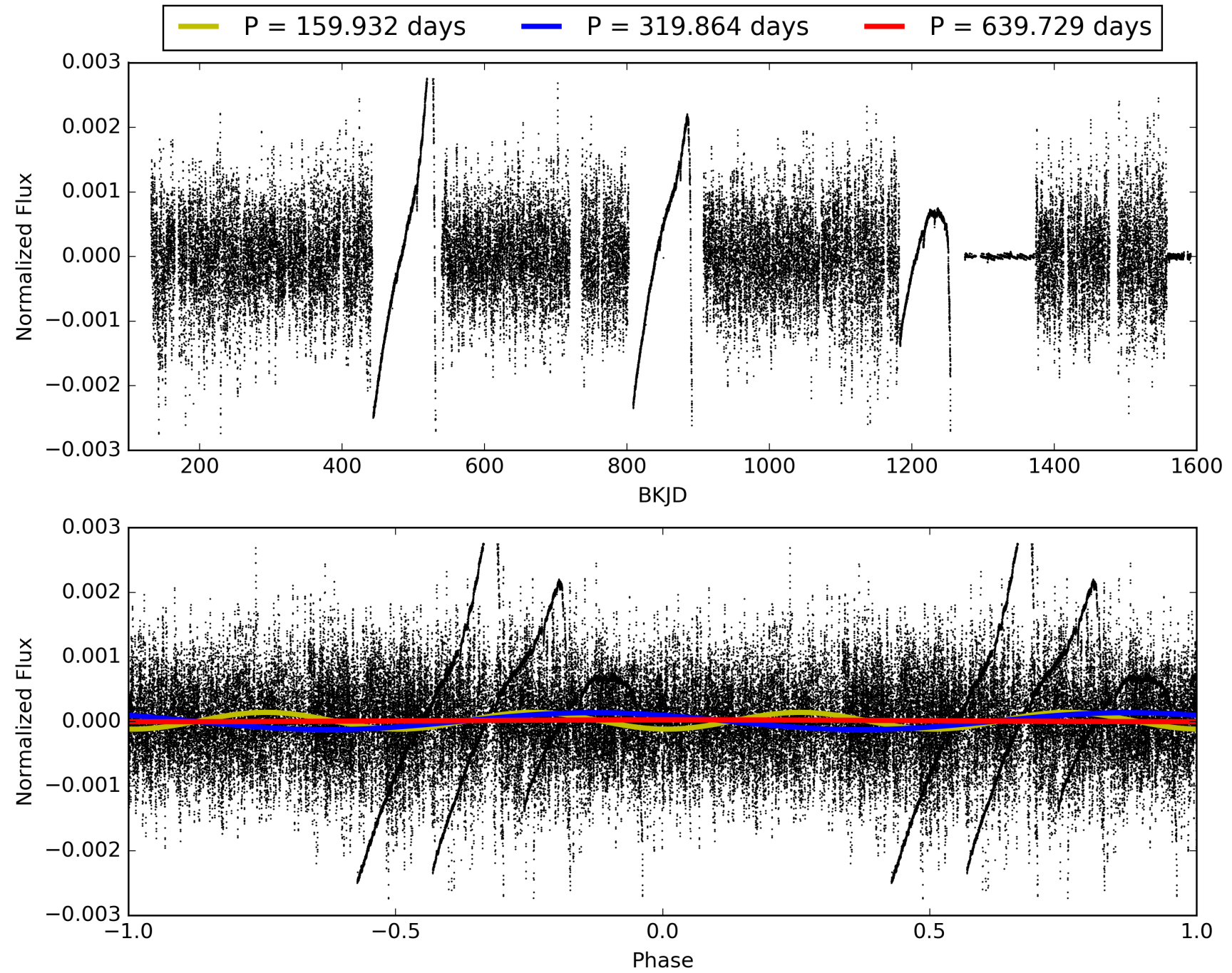
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:23:54 Z

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

TCE 006192431-06, PDC Light Curves

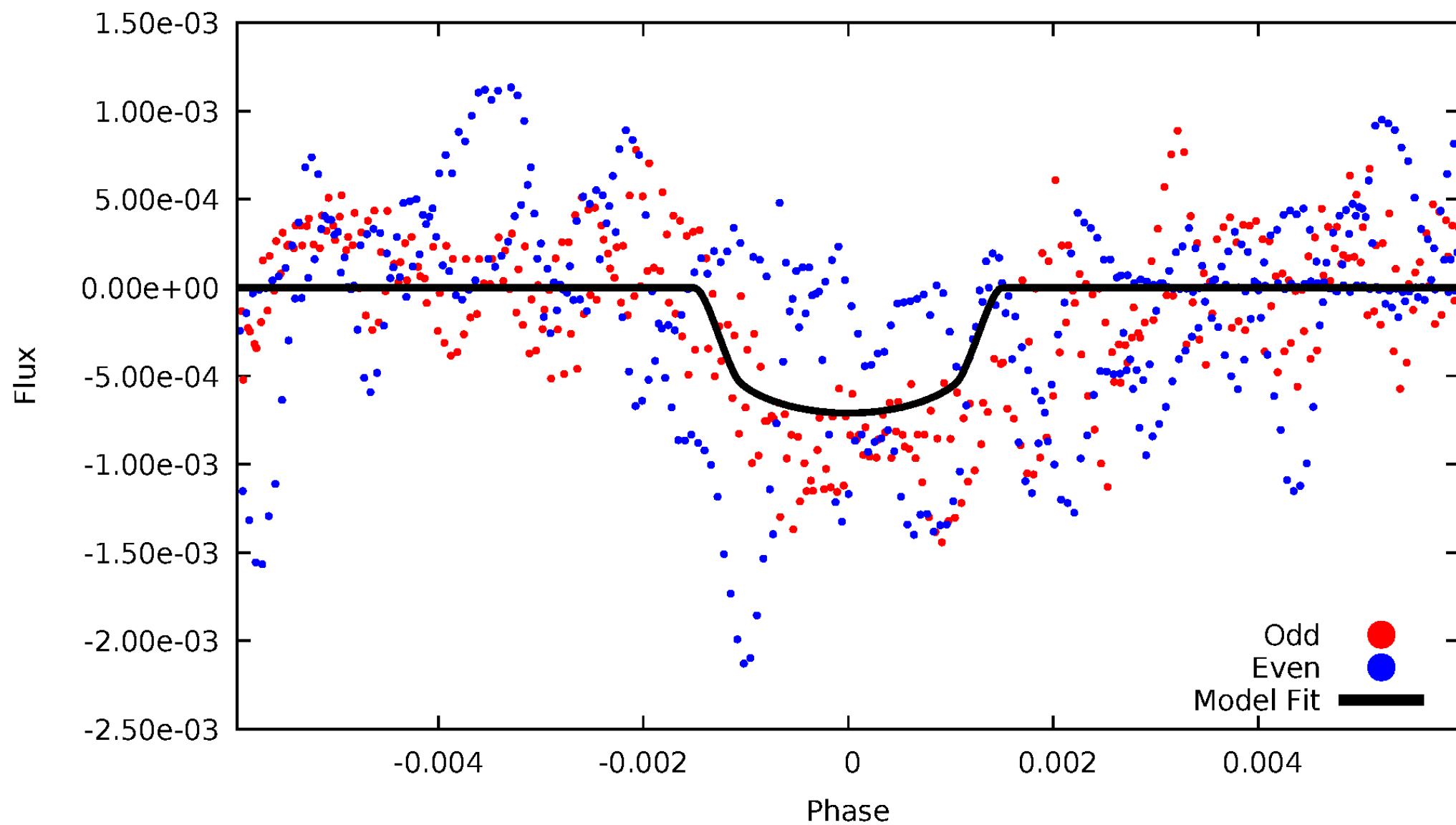


TCE 006192431-06



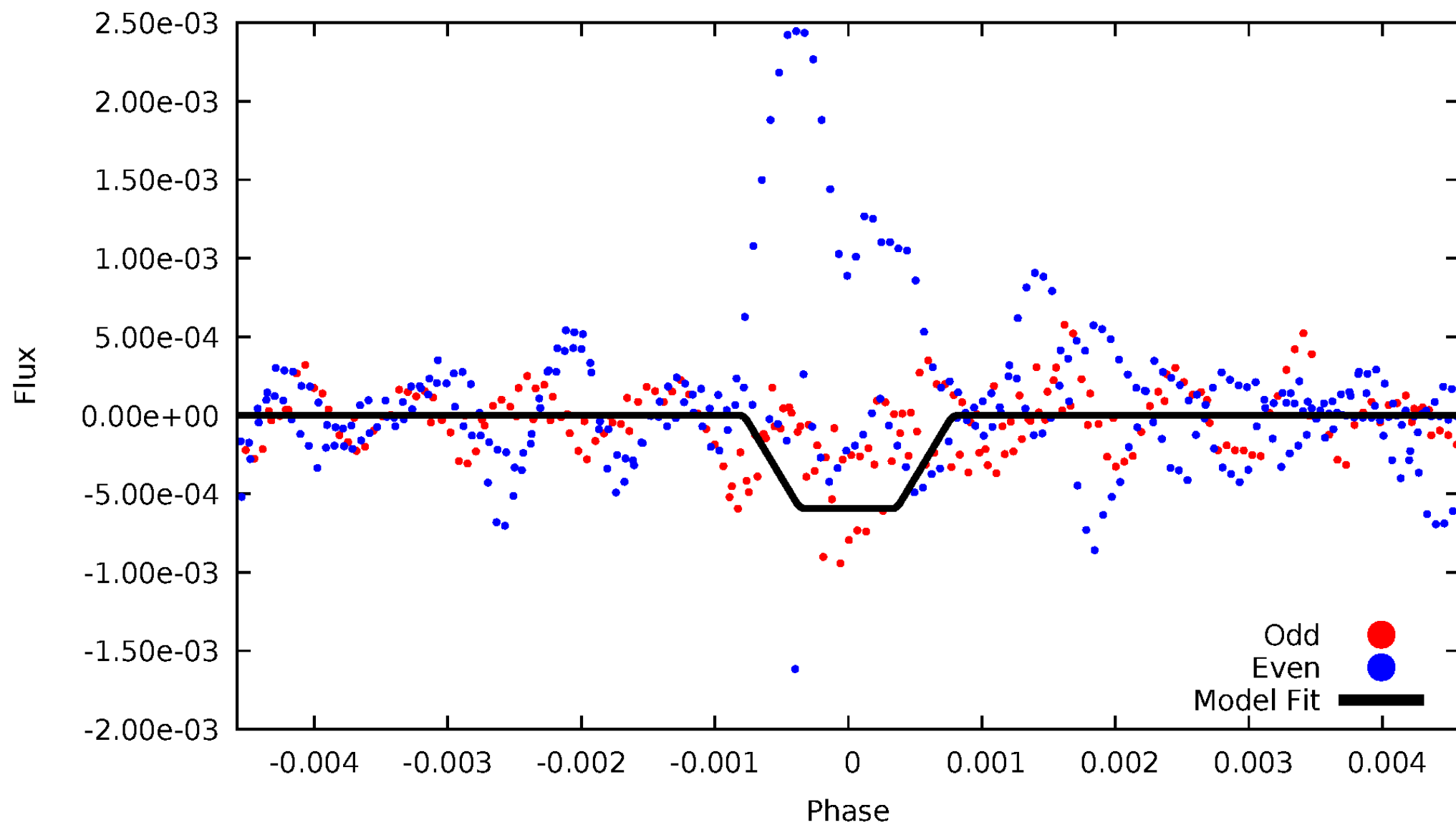
DV Odd/Even

TCE 006192431-06



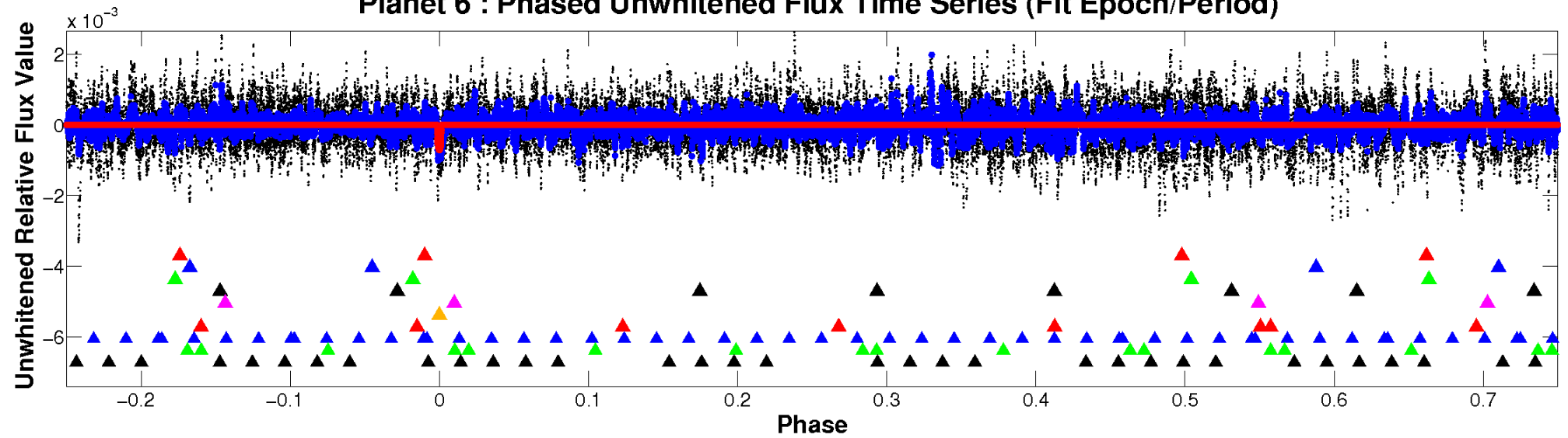
ALT Odd/Even

TCE 006192431-06

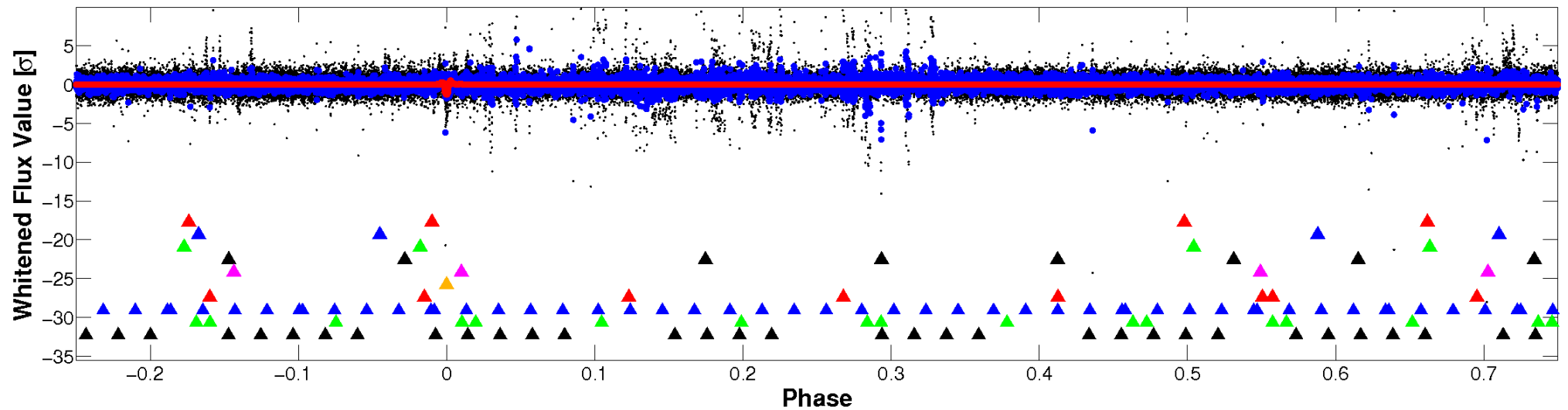


Non-Whitened Vs. Whitened Light Curve

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

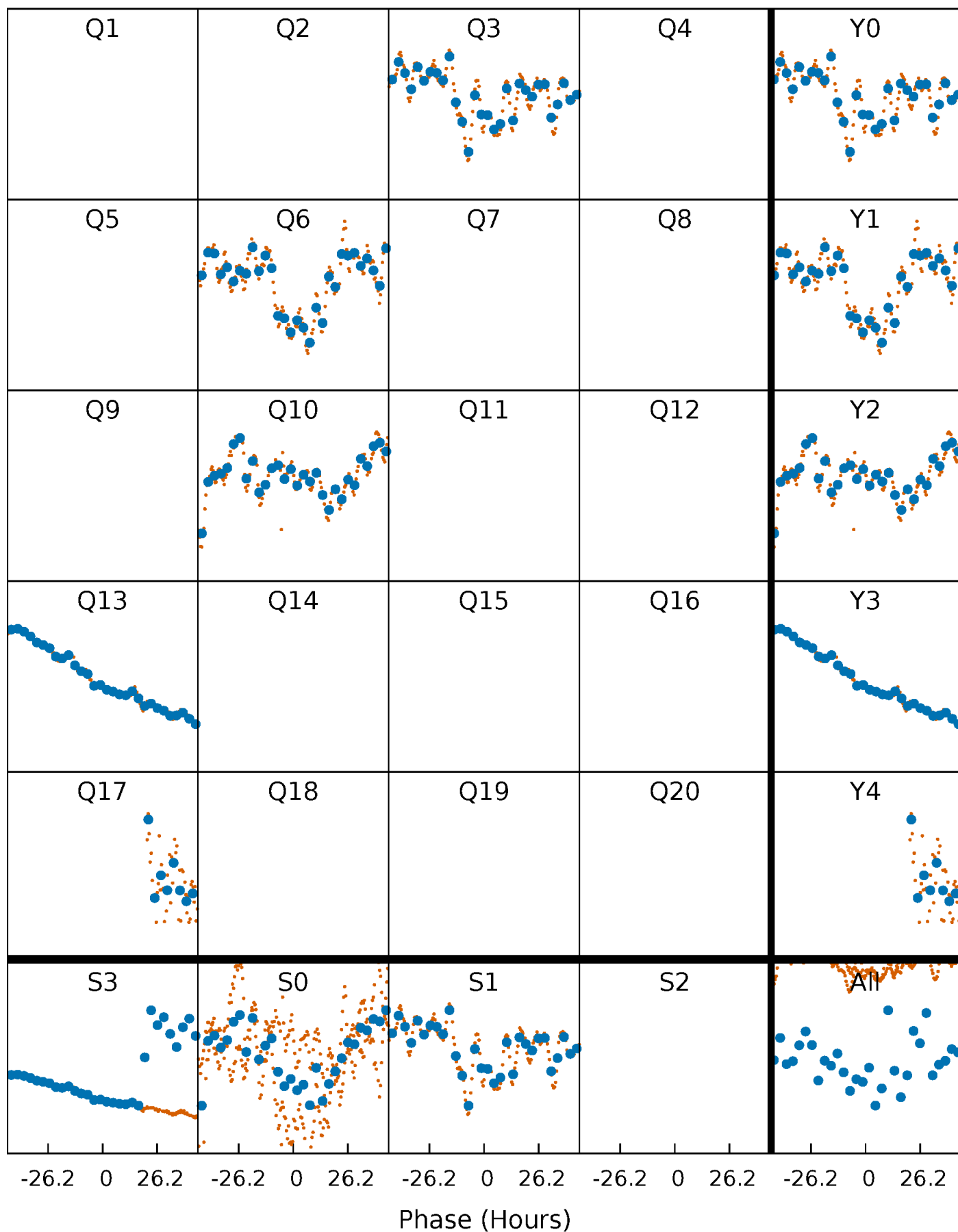


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



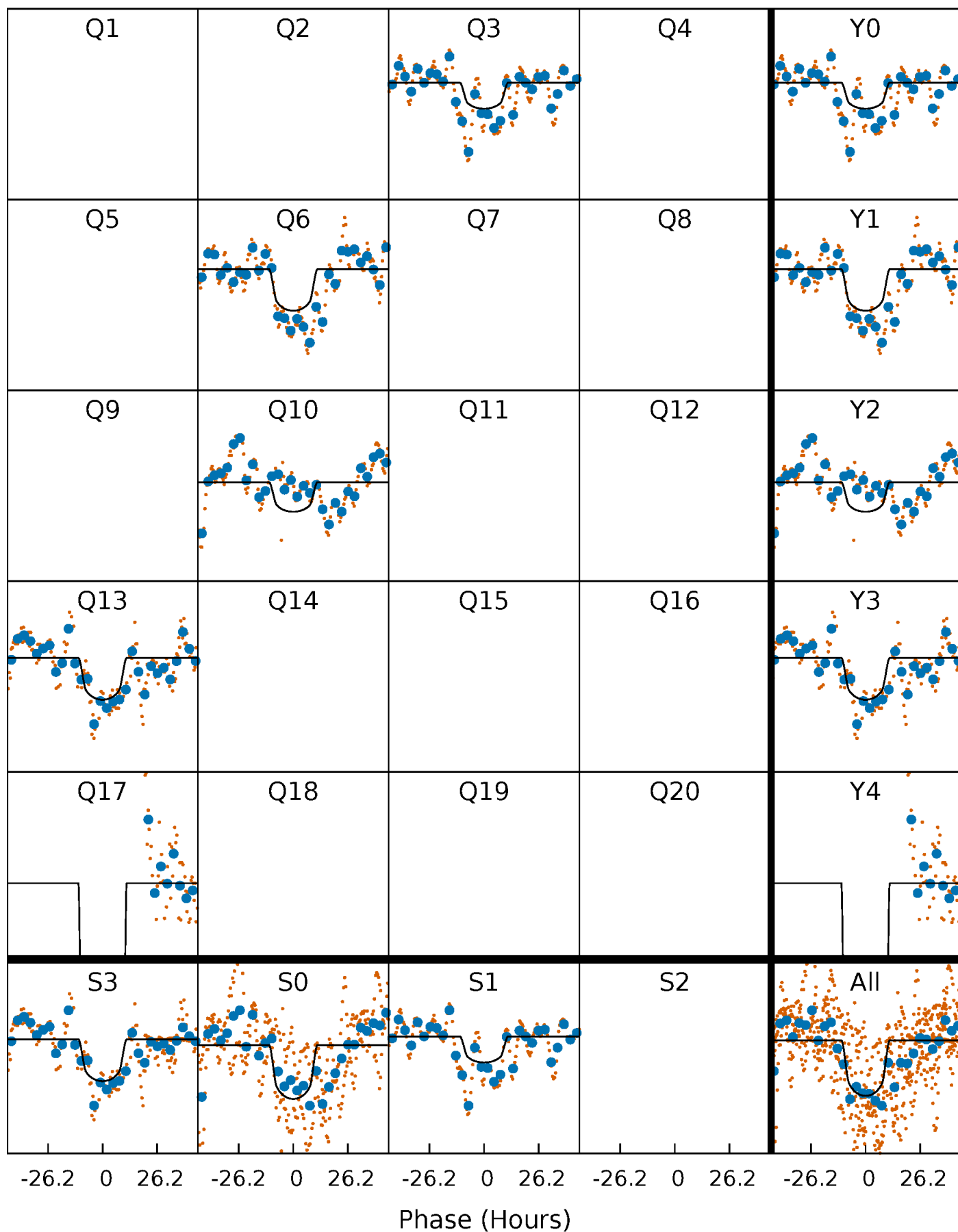
PDC Quarter-Phased Transit Curves

TCE 006192431-06 P=319.864348 Days $T_0=306.524617$ (BKJD)



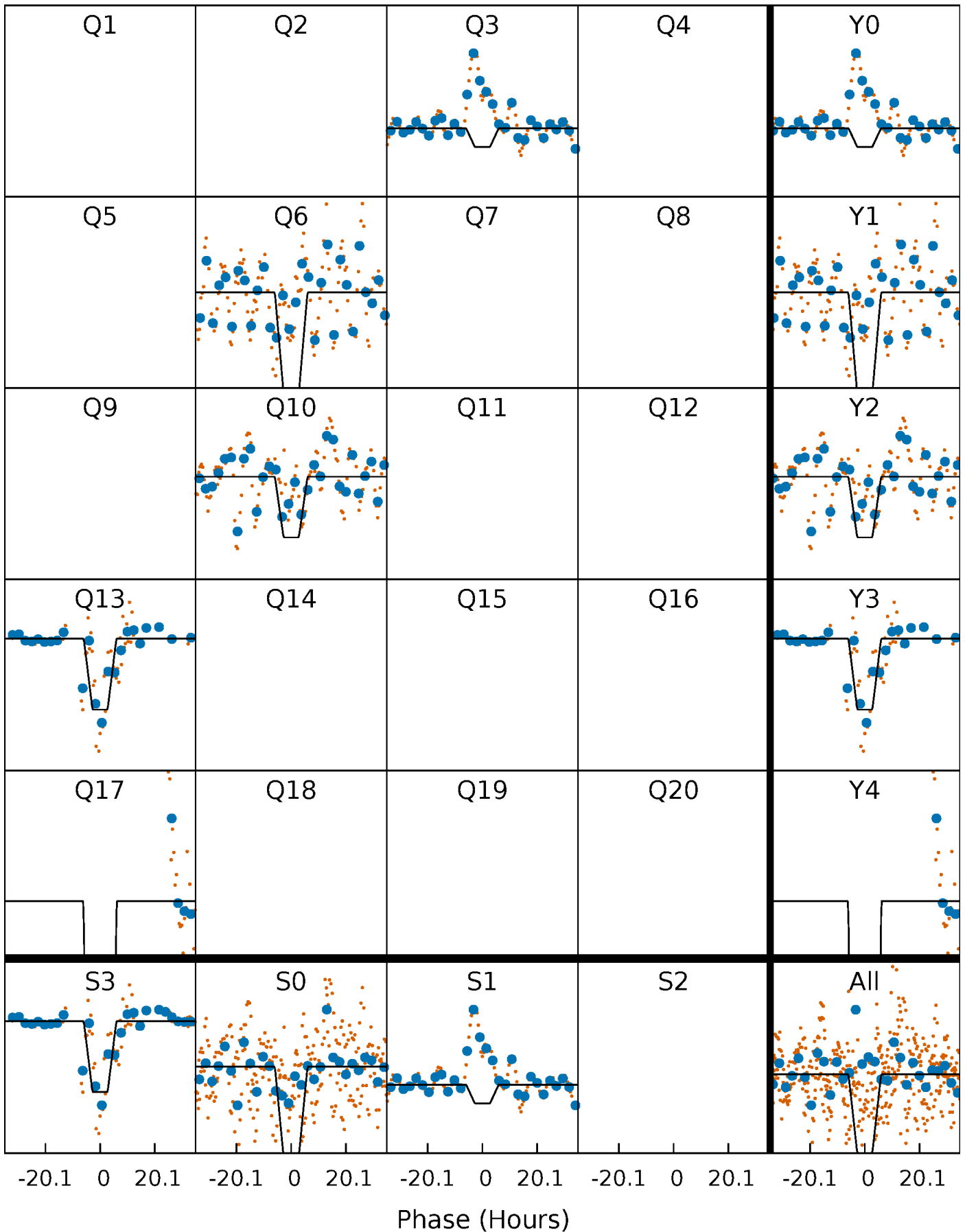
DV Quarter-Phased Transit Curves

TCE 006192431-06 $P=319.864348$ Days $T_0=306.524617$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

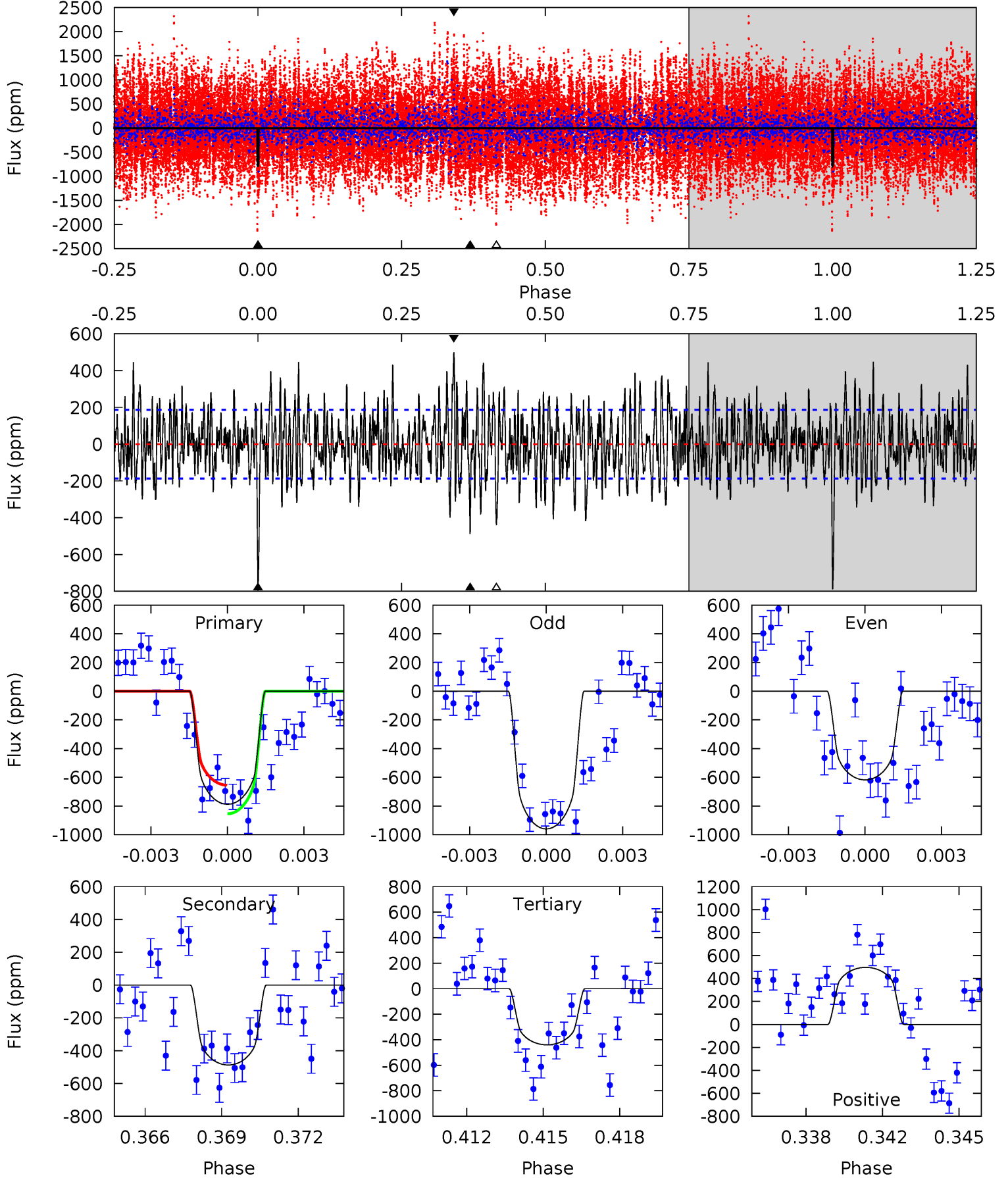
TCE 006192431-06 P=319.819270 Days $T_0=306.507253$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-06, P = 319.864348 Days, E = 306.524617 Days

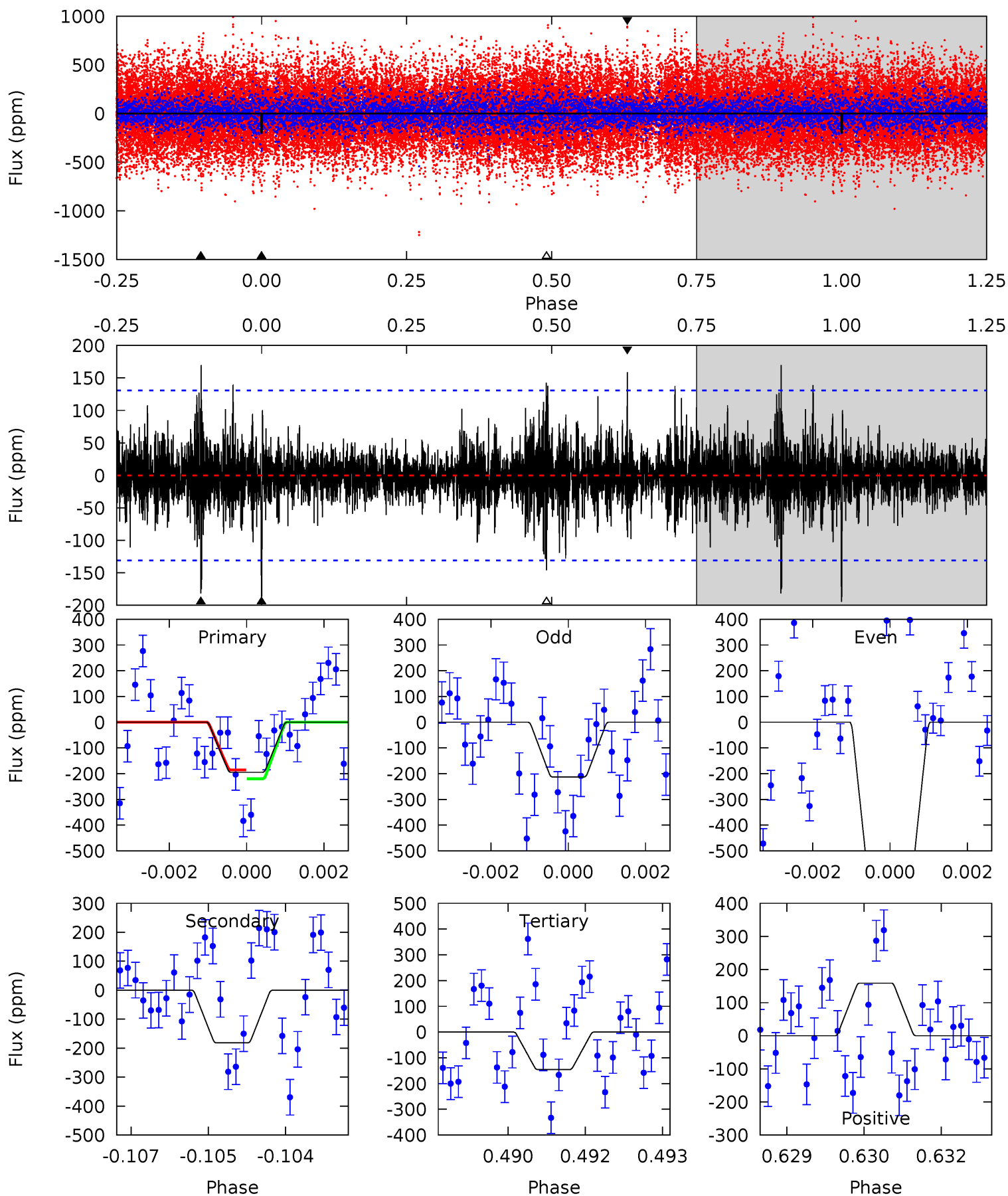
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.1	13.7	12.3	13.9	5.25	2.96	4.19	9.76	8.16	1.33	-0.27	4.64	0.82	0.39	2.81



Alt Model-Shift Uniqueness Test

006192431-06, P = 319.819270 Days, E = 306.507253 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.99	7.44	5.98	6.52	5.37	3.16	1.30	2.01	1.47	1.46	0.92	12.0	-1.15	0.47	0



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-06 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-487 ± 36	$49.86^{+7.02}_{-7.72}$	1004^{+30}_{-36}	4095^{+117}_{-115}	159^{+29}_{-22}
Alt.	-181 ± 24	$40.17^{+5.79}_{-6.05}$	1006^{+30}_{-35}	3720^{+118}_{-121}	91^{+21}_{-17}

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

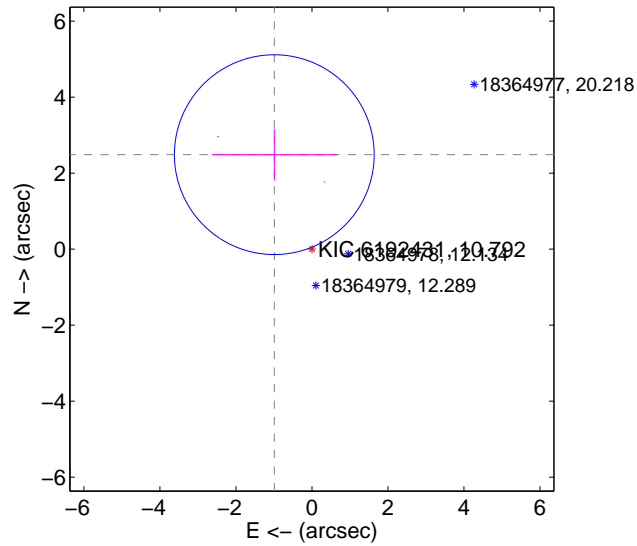
Supplemental centroid analysis for 006192431-06. **Kepler magnitude: 10.79.** Transit SNR 21.04

There are 1 quarters with good PRF difference image offsets

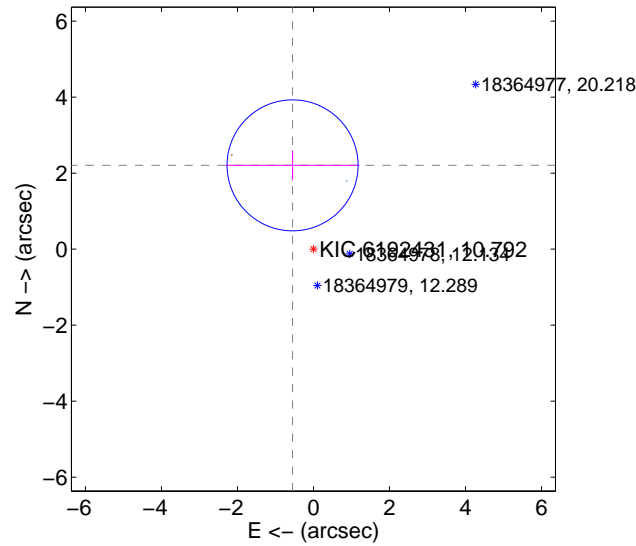
The direct PRF centroid is offset from the target star catalog position by about 0.58 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.677 ± 0.876	3.06	0.991 ± 1.638	2.487 ± 0.681
PRF-fit source offset from KIC position	2.273 ± 0.574	3.96	0.550 ± 1.764	2.206 ± 0.397
photometric centroid source offset	0.46 ± 0.19	2.47	0.12 ± 0.30	0.44 ± 0.17

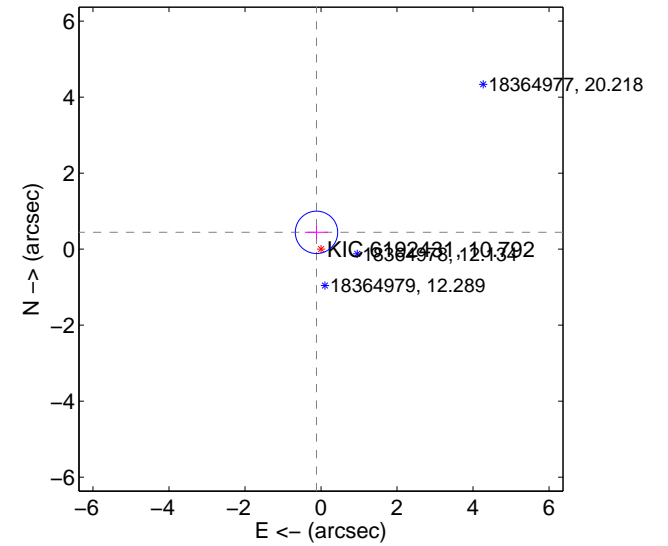
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

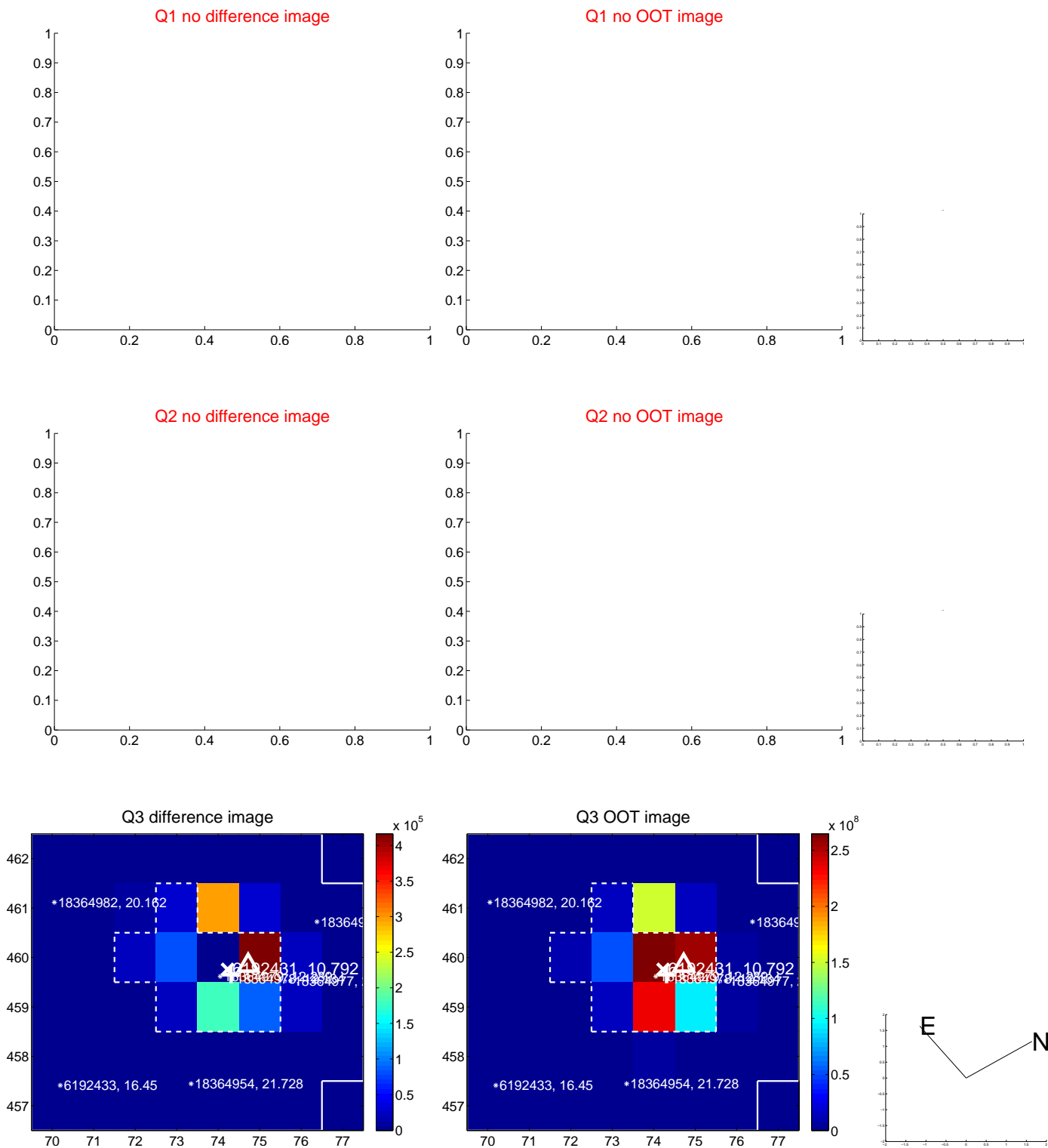


offset from photometric centroids

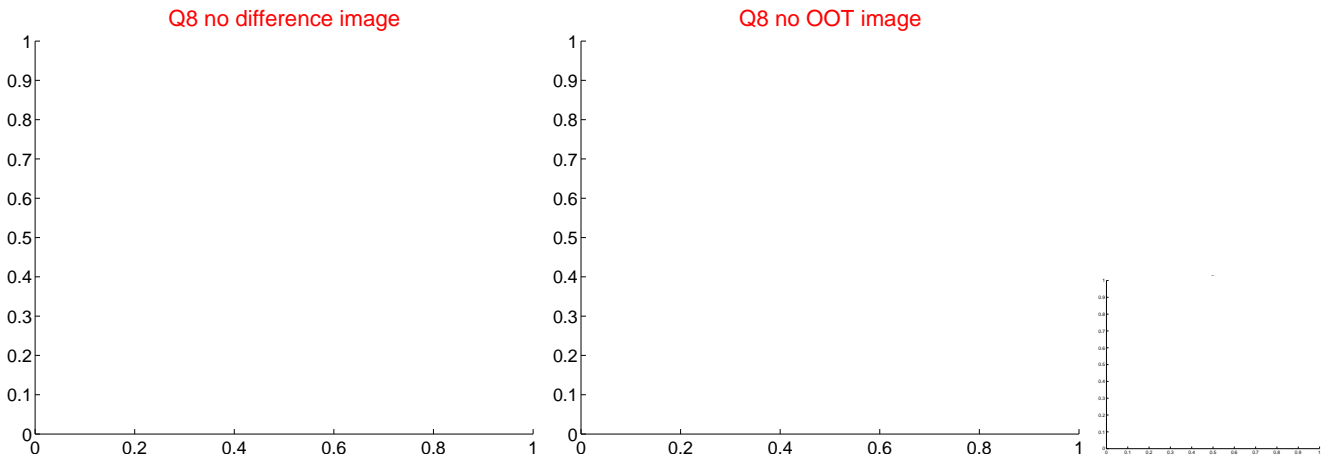
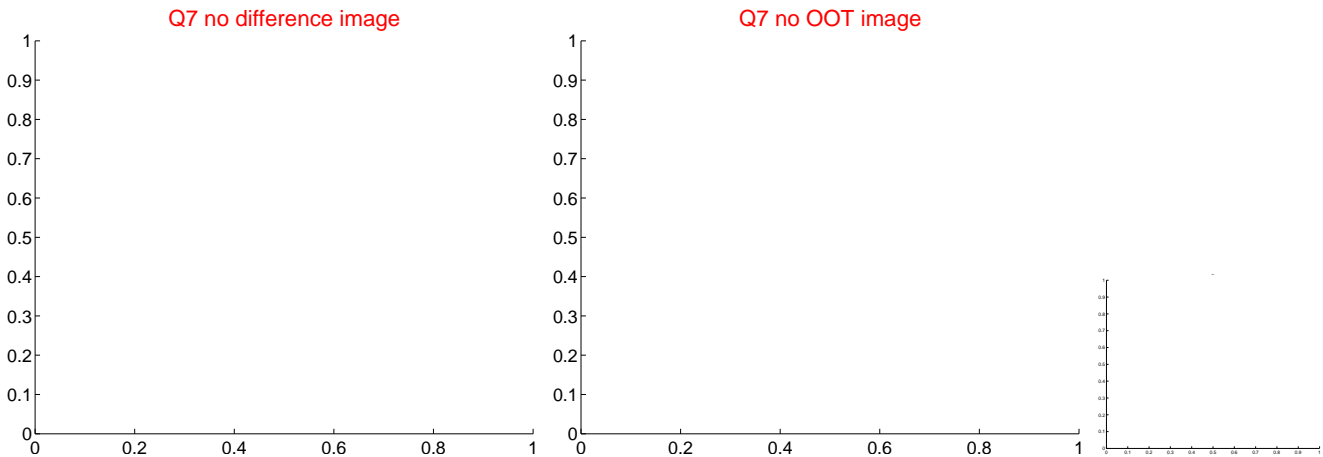
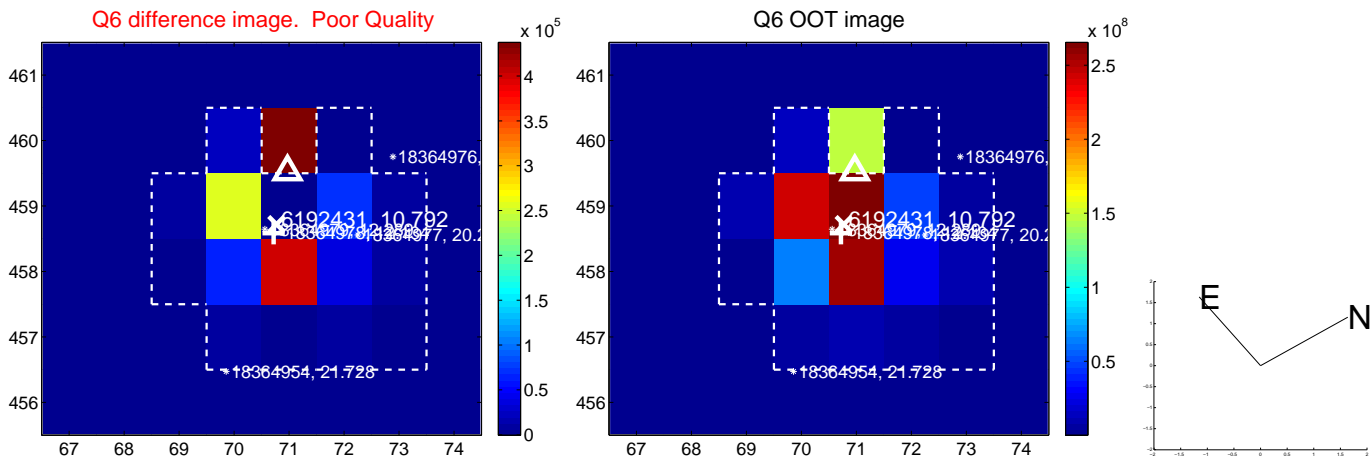
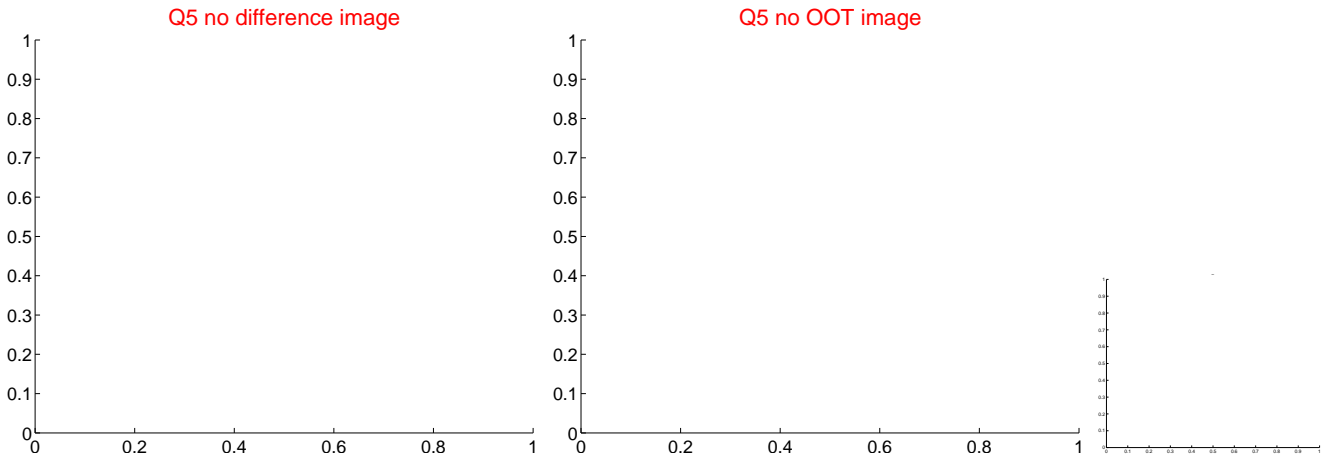


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

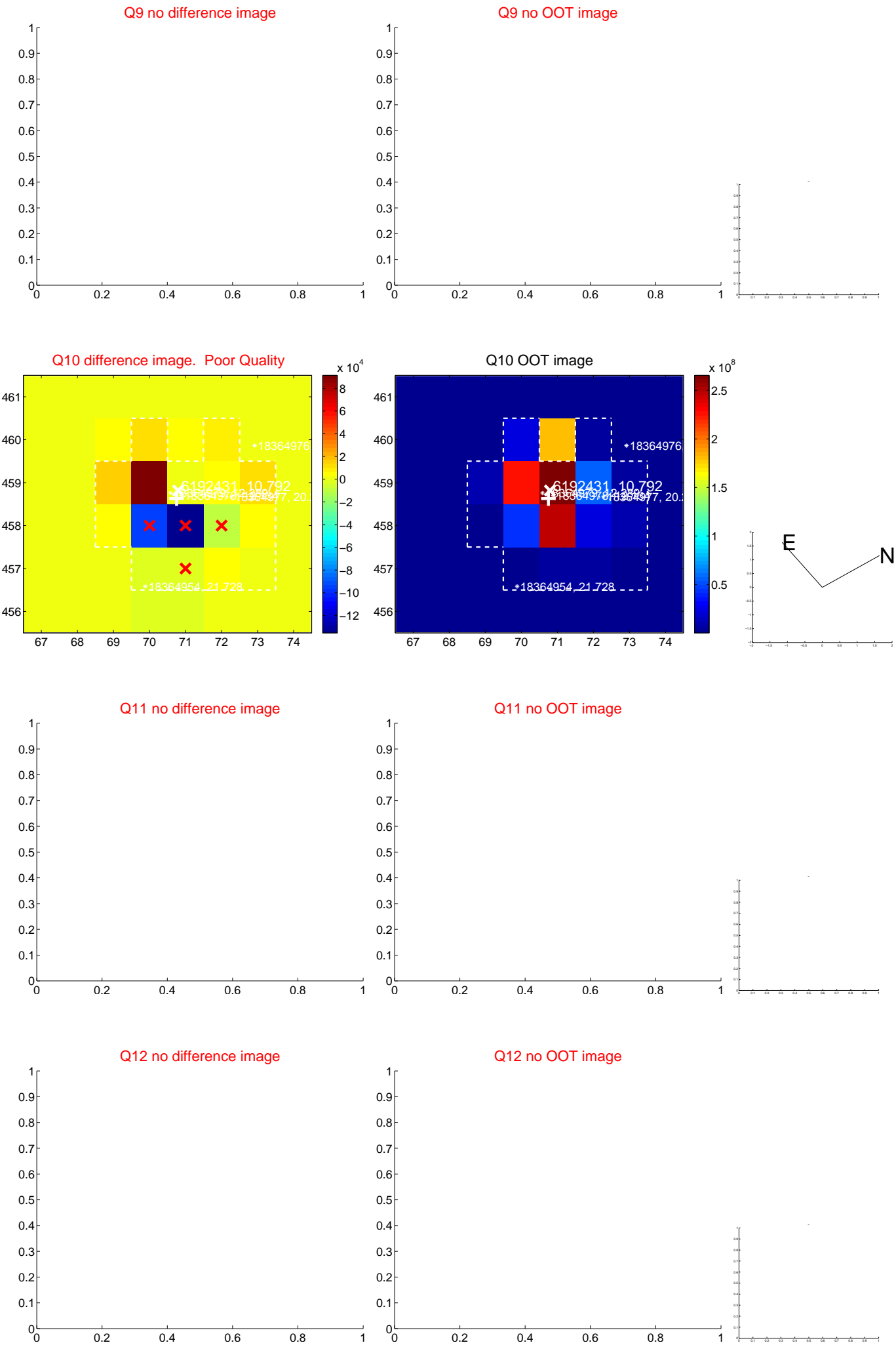
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



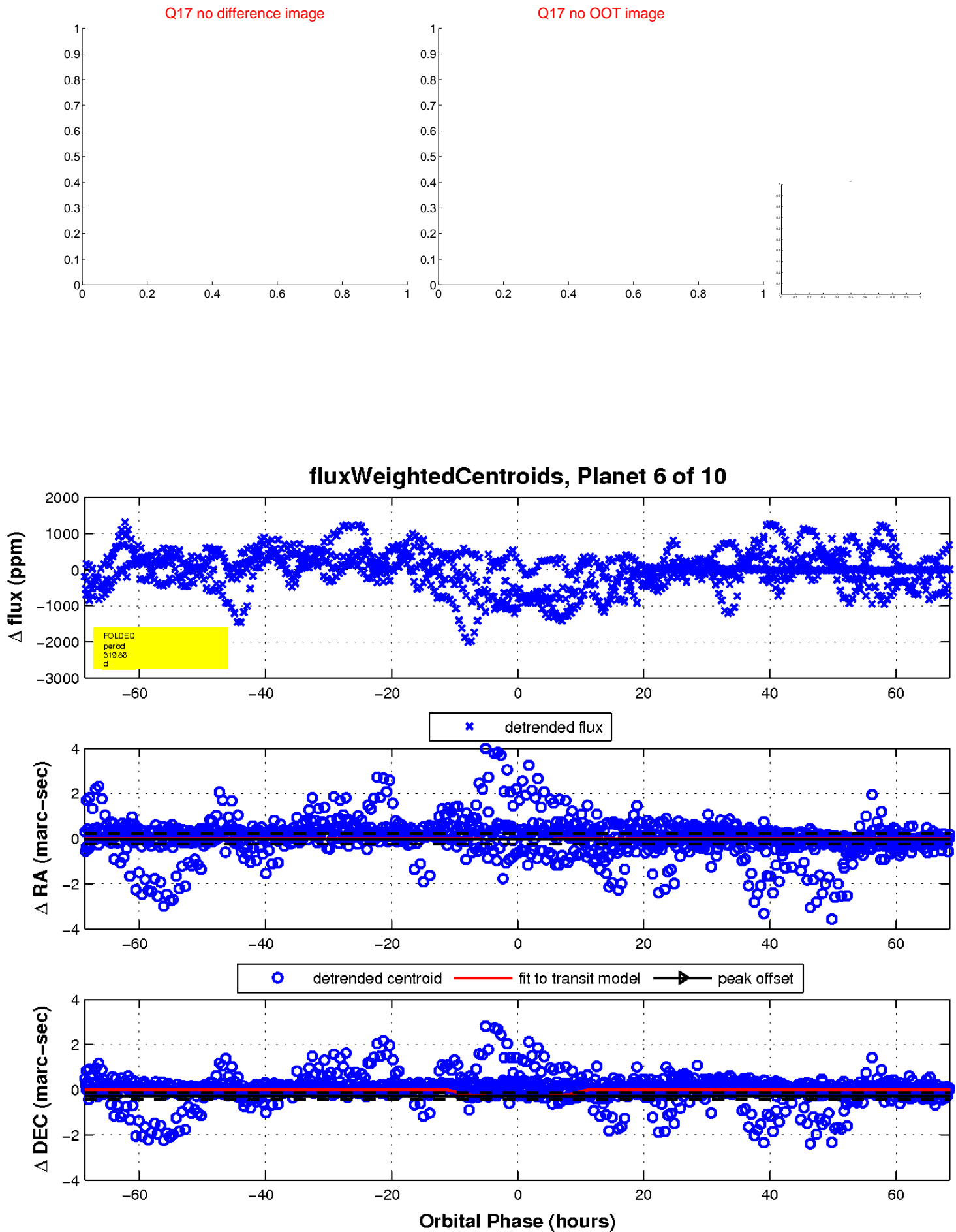
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

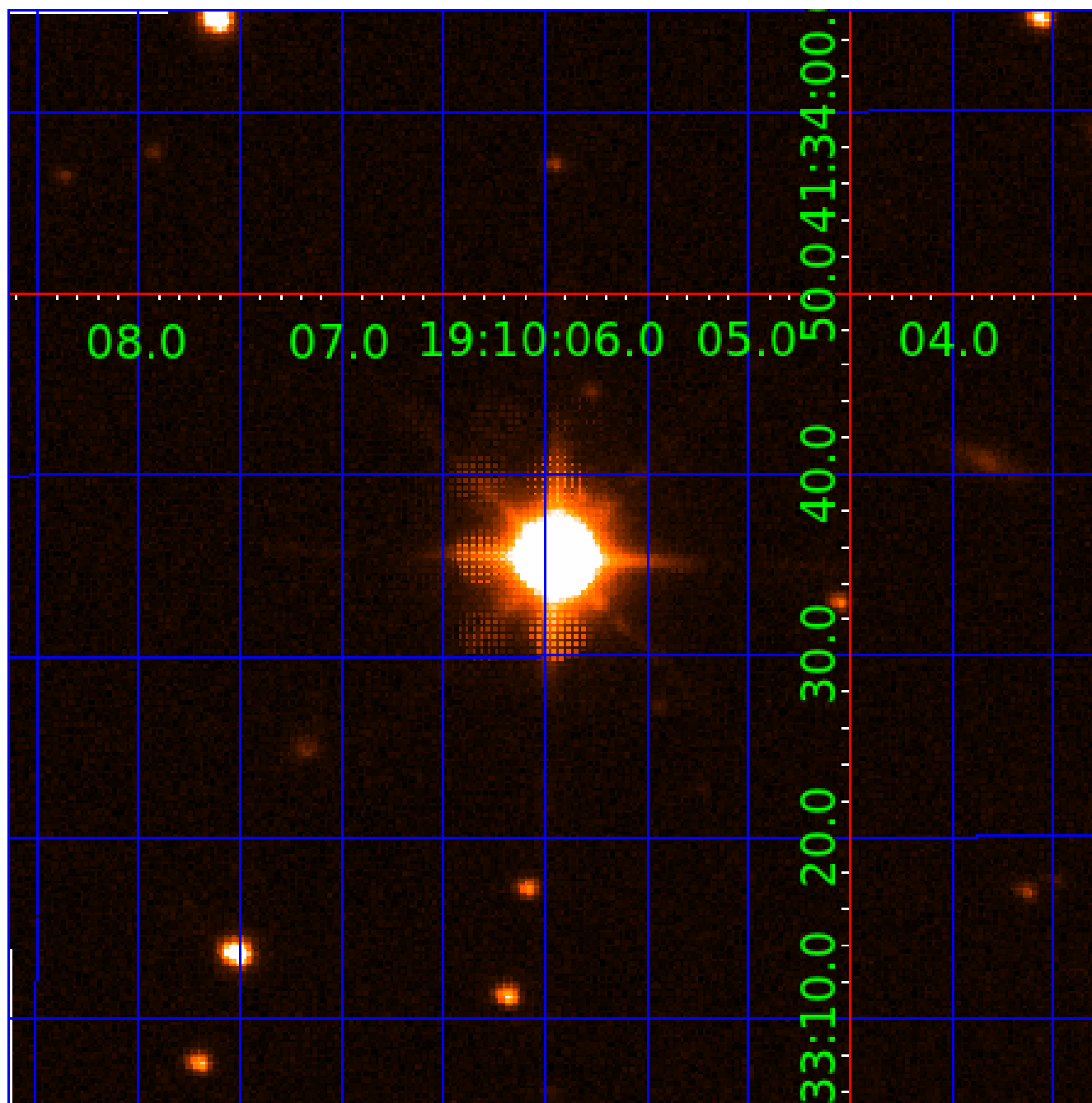


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
006192431-02	OBS	No	358.997216	174.721162	269.0	12.500	42.2	-1.0	14.70	4629	23.05	54.47
006192431-03	OBS	No	370.828432	147.942459	369.1	26.716	31.4	19.3	14.70	4629	37.87	52.17
006192431-04	OBS	No	178.940621	183.459519	705.9	28.322	25.5	24.0	14.70	4629	56.68	137.84
006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
006192431-08	OBS	No	28.448407	132.456892	33.0	1.305	17.8	9.2	14.70	4629	9.10	1600.41
006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

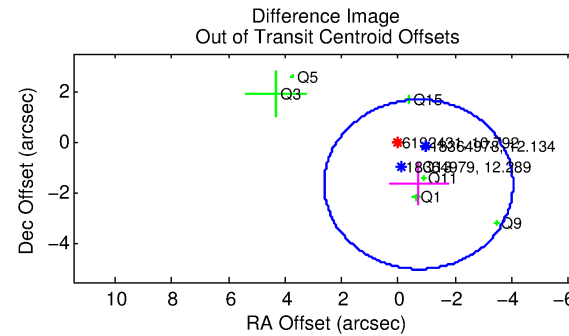
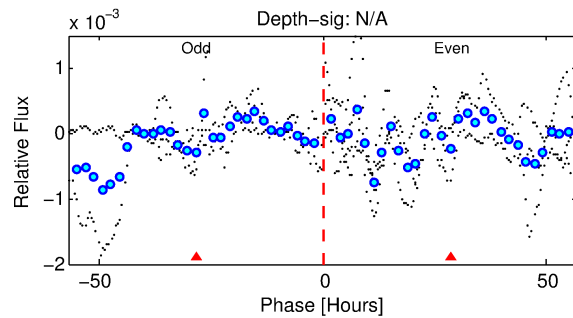
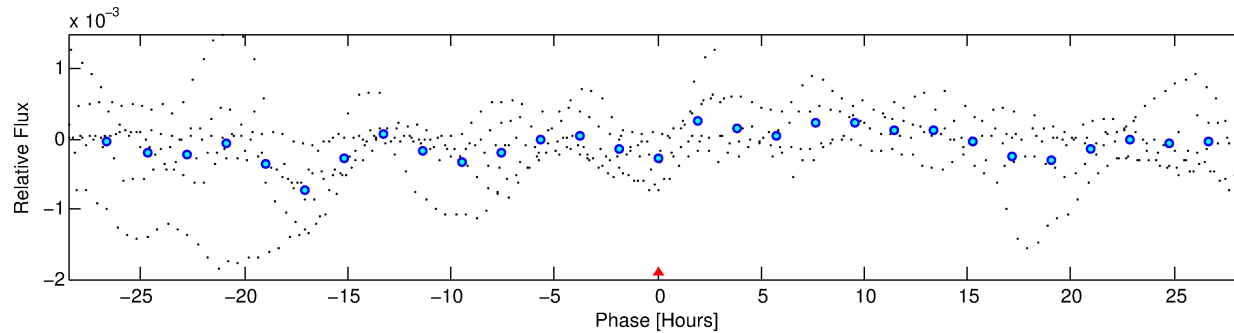
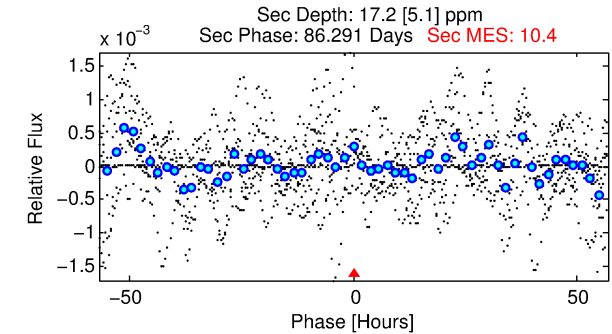
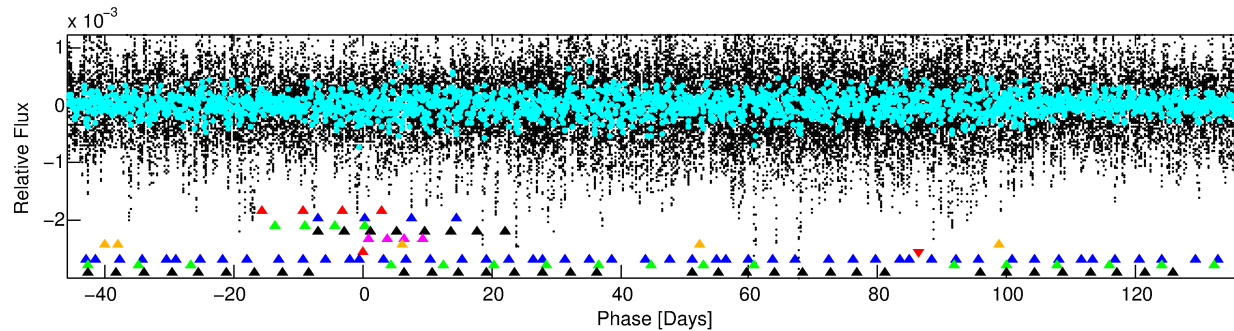
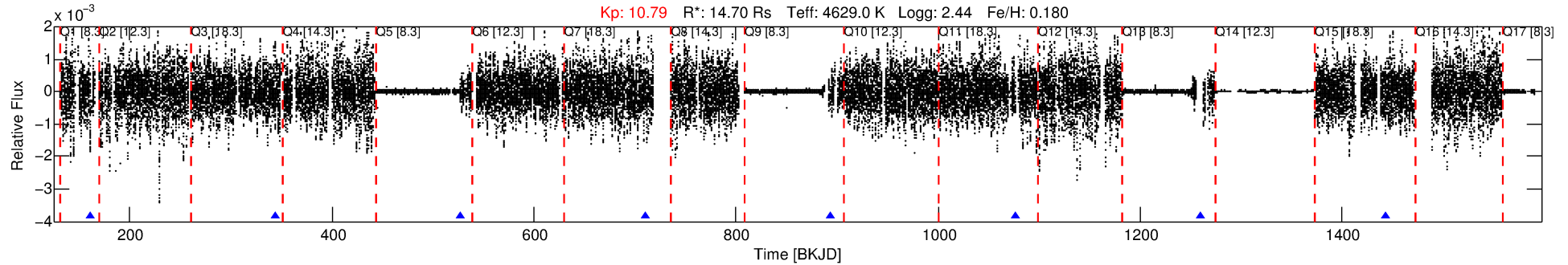
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-07

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 7 of 10 Period: 183.092 d



TPS TCE Results:

Period = 183.09151 d
Epoch = 162.7743 BKJD

DV fit results are unavailable

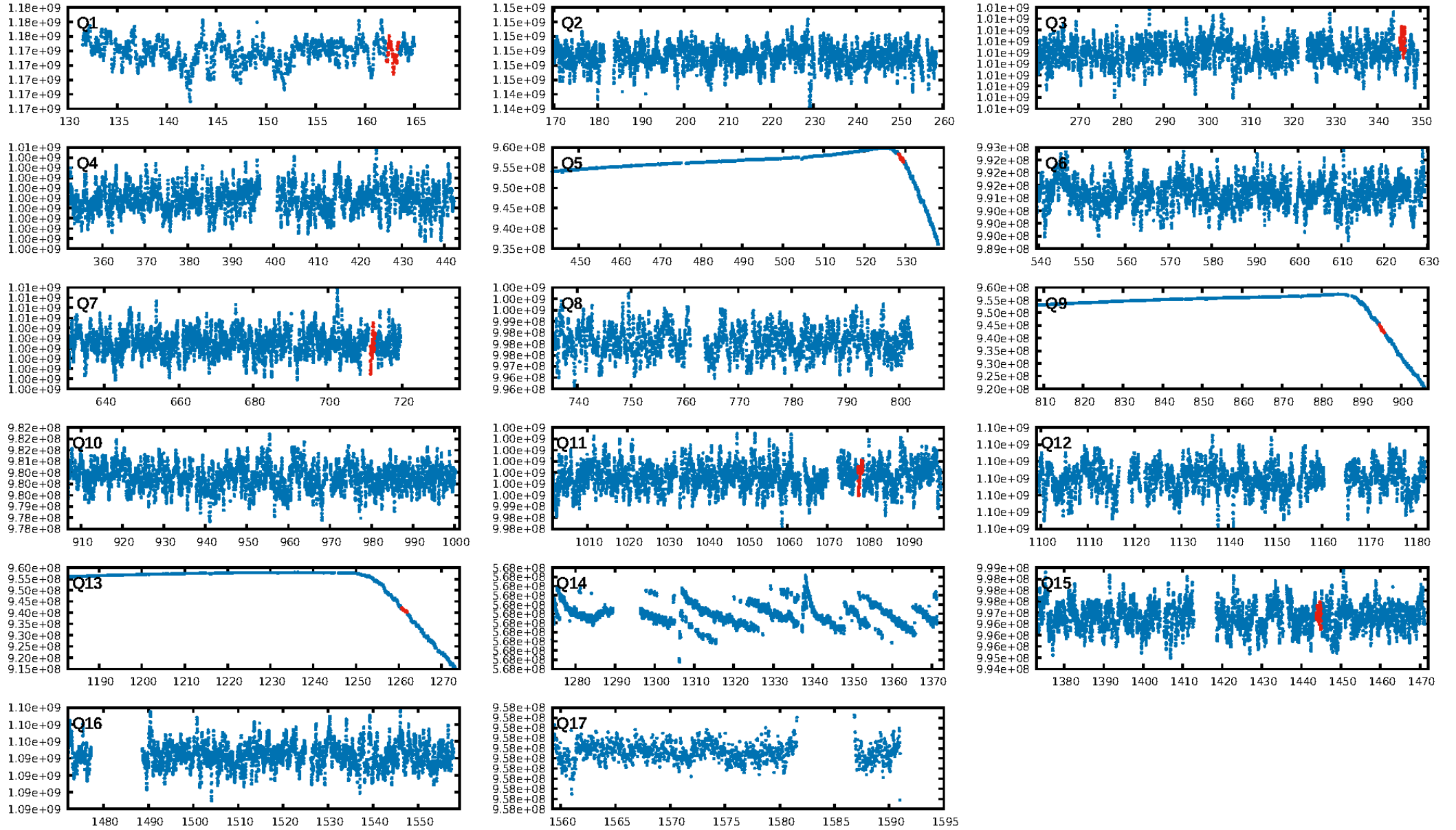
DV Diagnostic Results:

ShortPeriod-sig: 99.8% [3.11 σ]
LongPeriod-sig: 100.0% [119.96 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: 352
Centroid-sig: 19.6%
Centroid-so: 0.171 arcsec [0.81 σ]
OotOffset-rm: 1.805 arcsec [1.62 σ]
KicOffset-rm: 1.740 arcsec [1.34 σ]
OotOffset-st: 0/3/0/4 [7]
KicOffset-st: 0/3/0/4 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.43 [3/7]

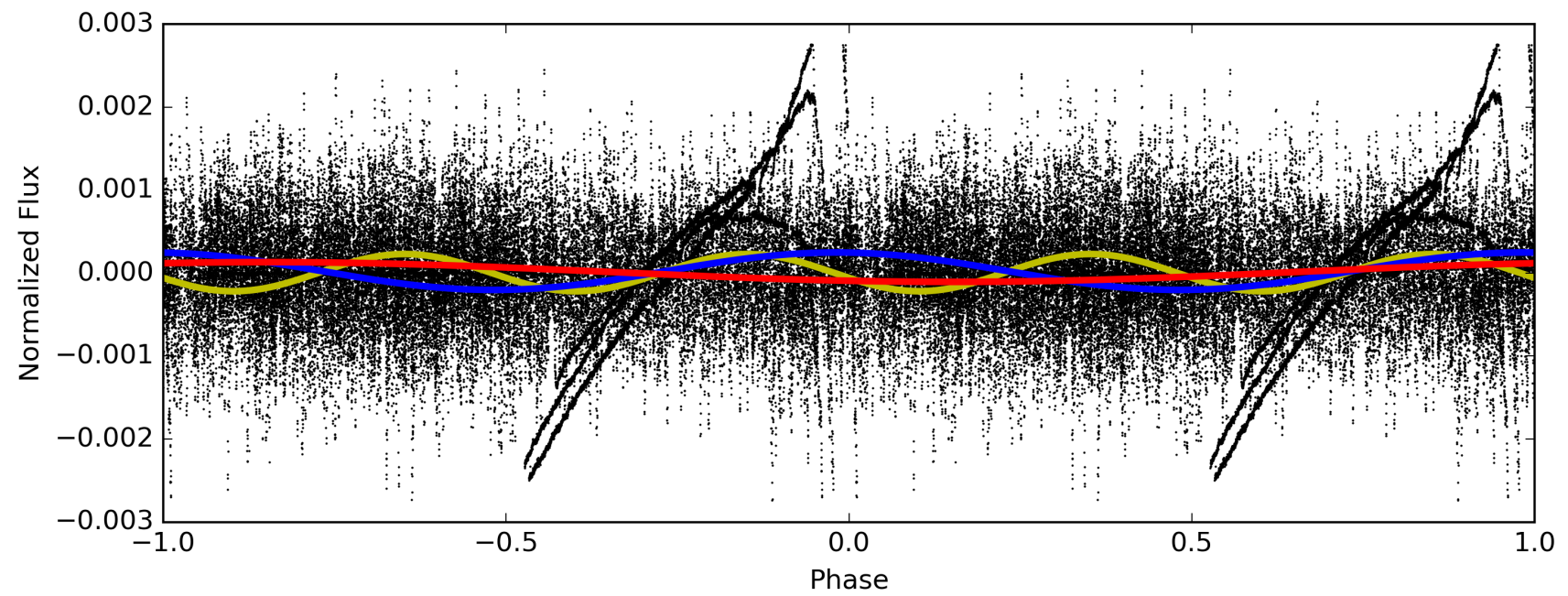
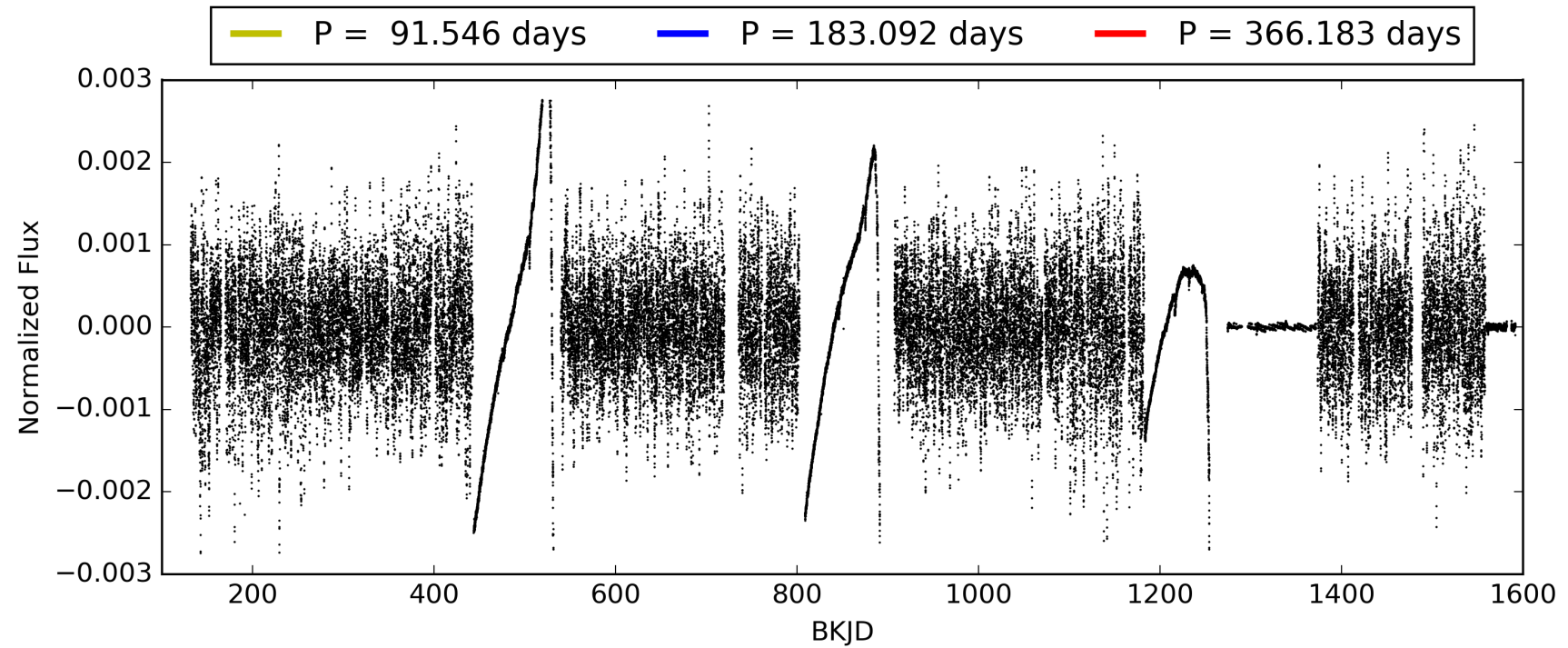
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:24:01 Z

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

TCE 006192431-07, PDC Light Curves

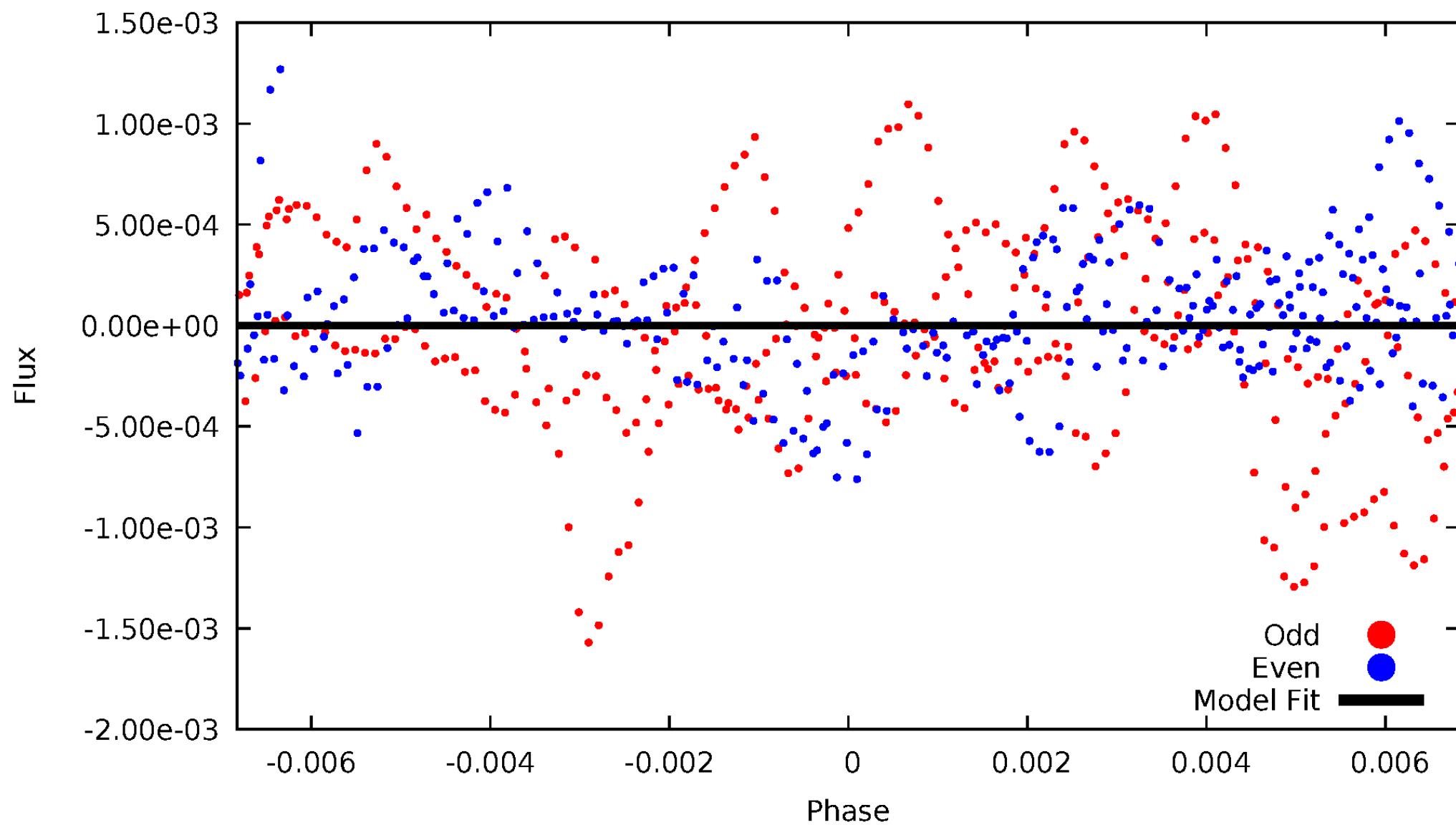


TCE 006192431-07



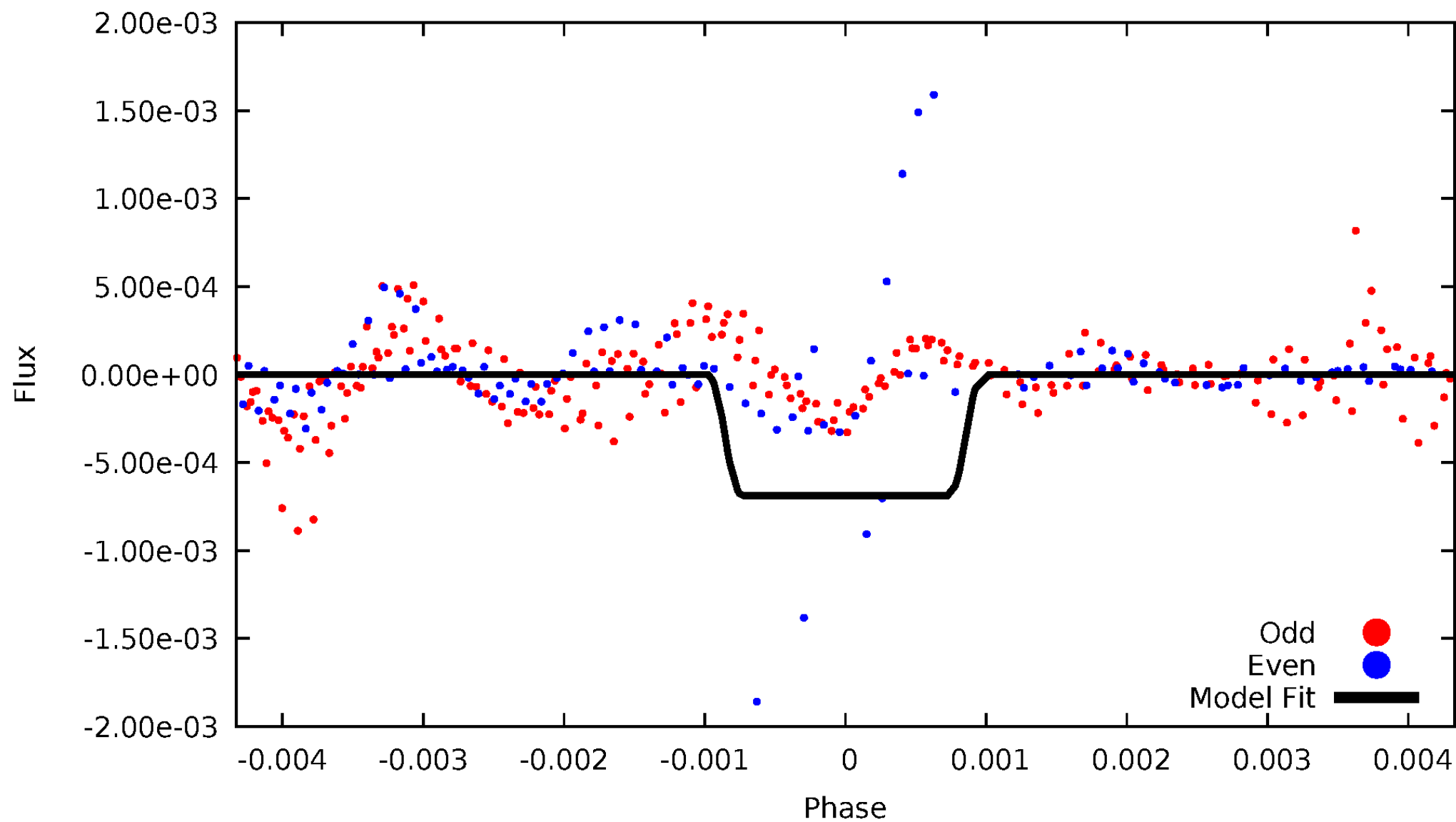
DV Odd/Even

TCE 006192431-07



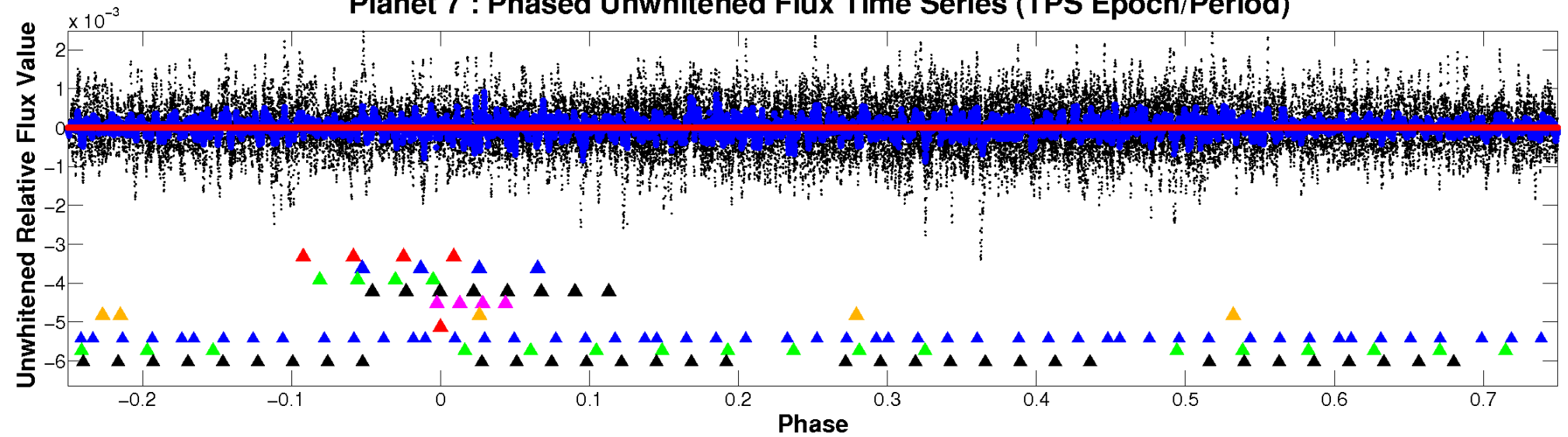
ALT Odd/Even

TCE 006192431-07

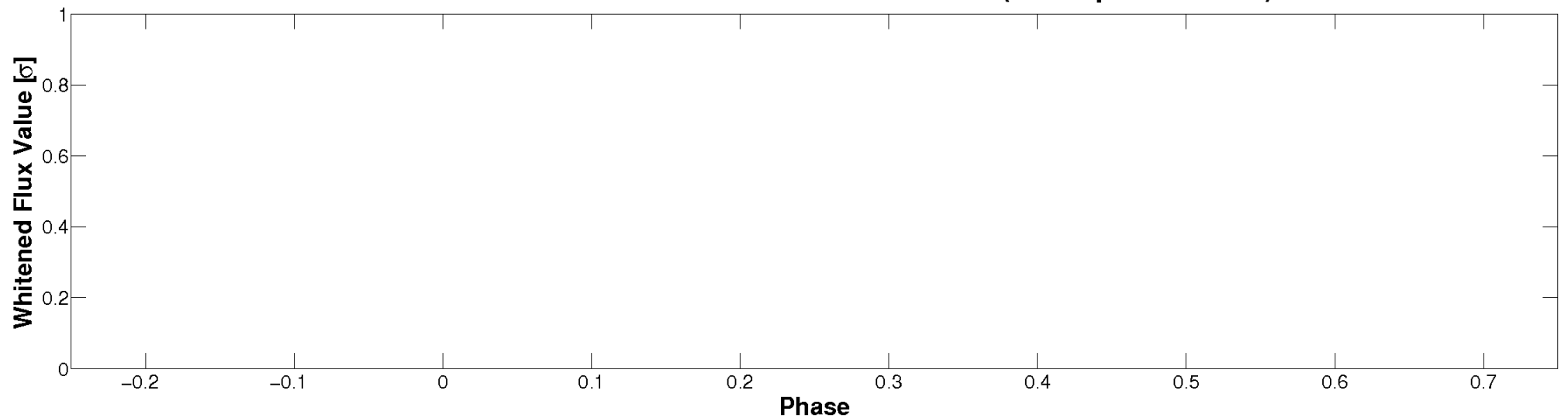


Non-Whitened Vs. Whitened Light Curve

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

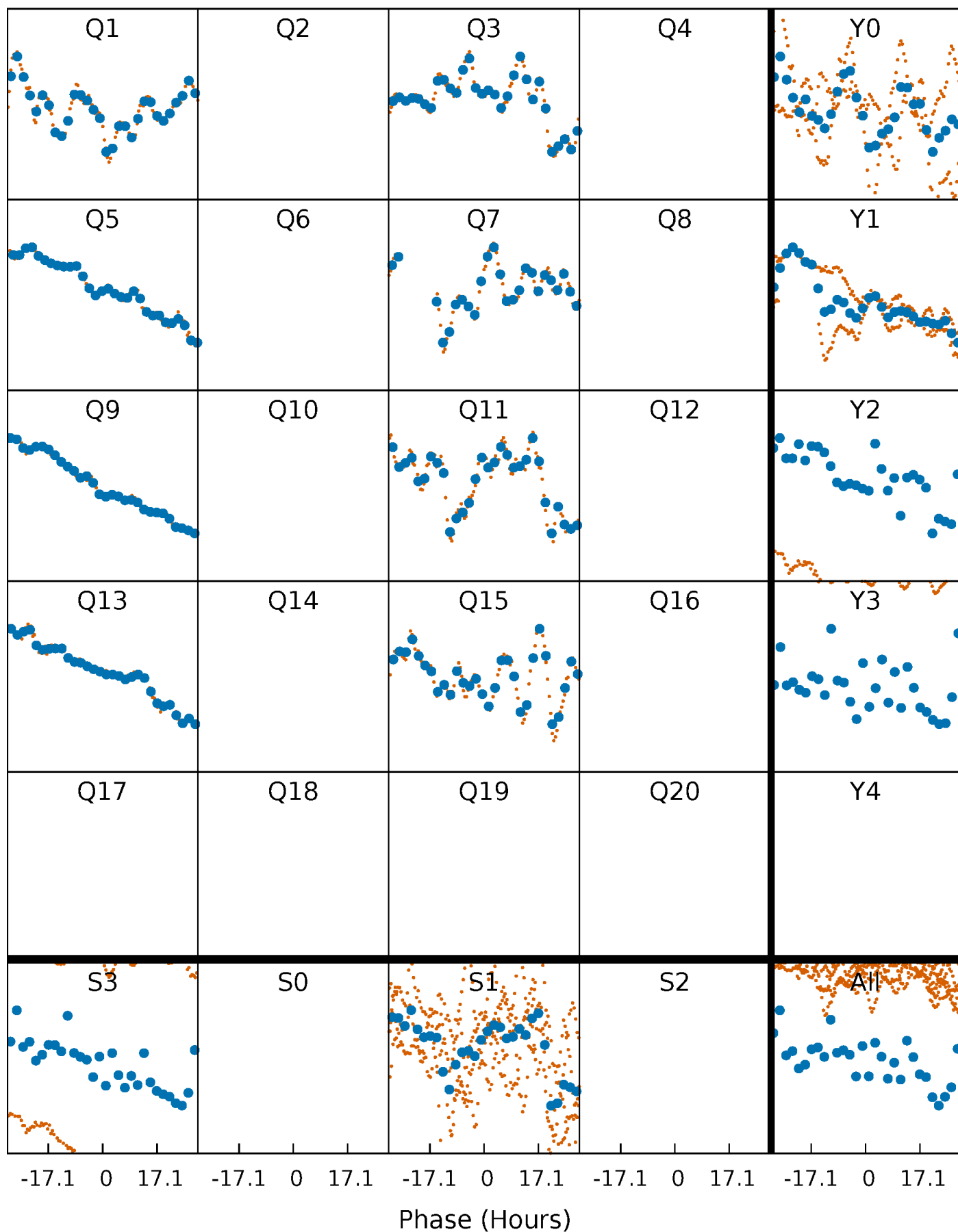


Planet 7 : Phased Whitened Flux Time Series (TPS Epoch/Period)



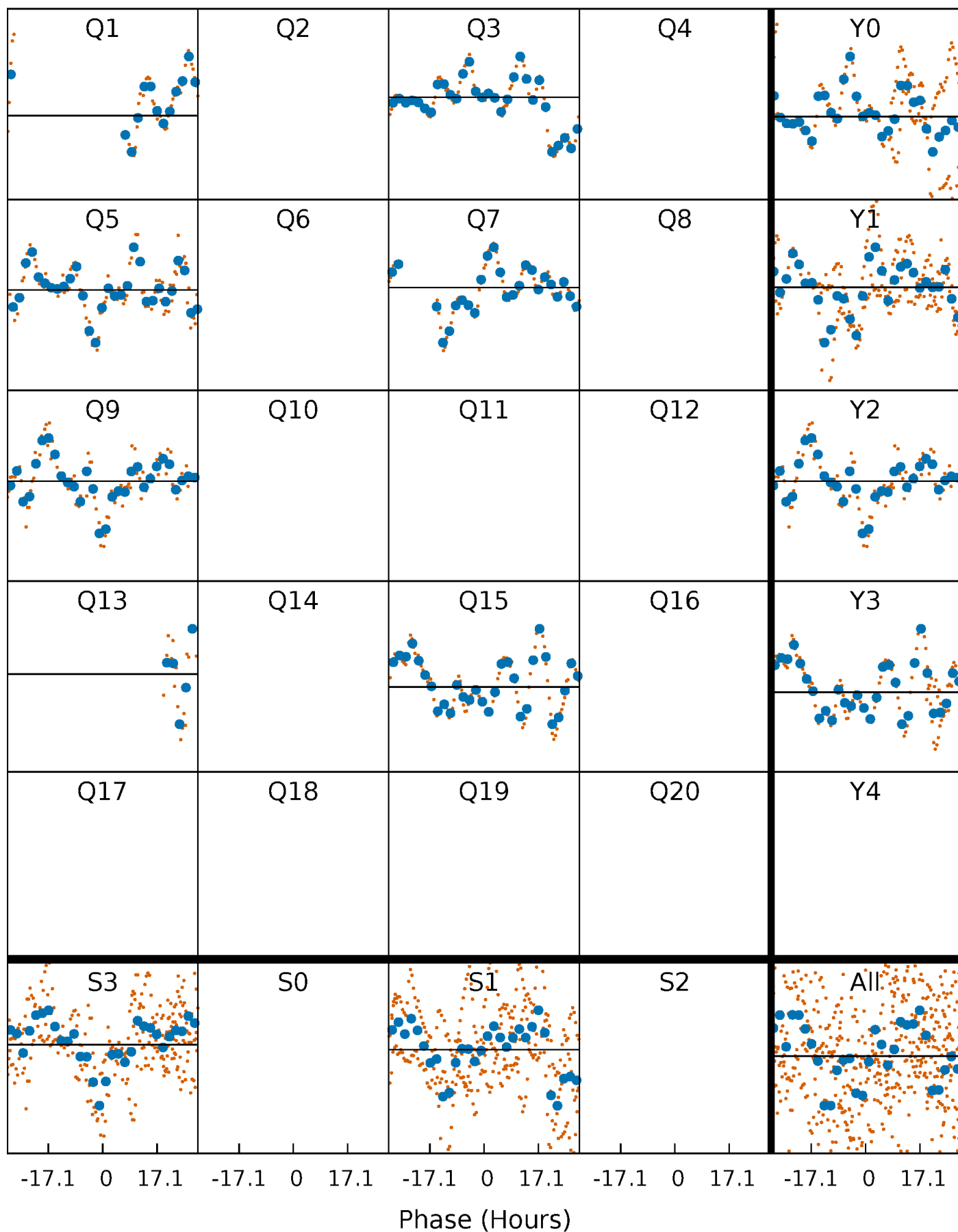
PDC Quarter-Phased Transit Curves

TCE 006192431-07 P=183.091509 Days $T_0=162.774341$ (BKJD)



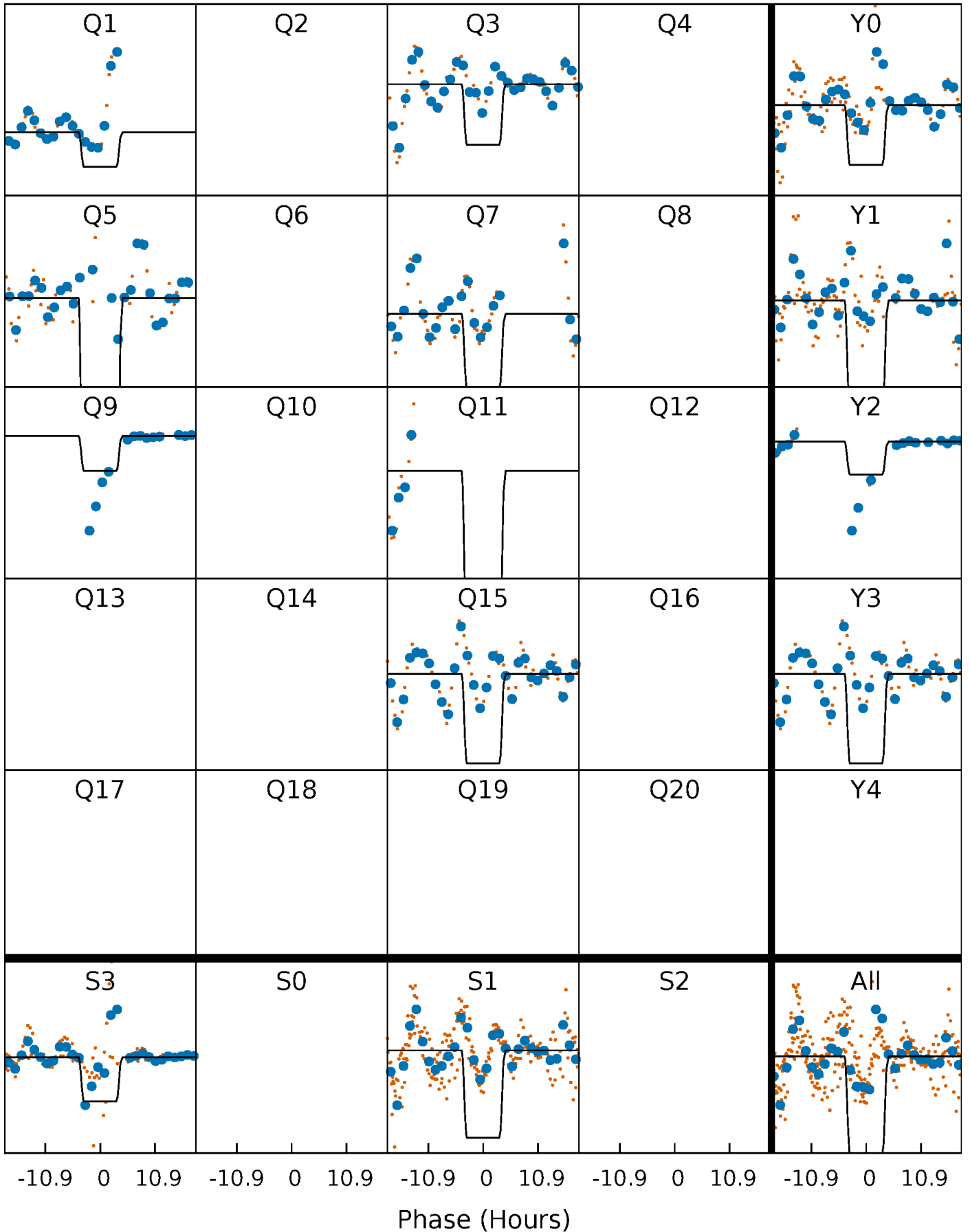
DV Quarter-Phased Transit Curves

TCE 006192431-07 $P=183.091509$ Days $T_0=162.774341$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

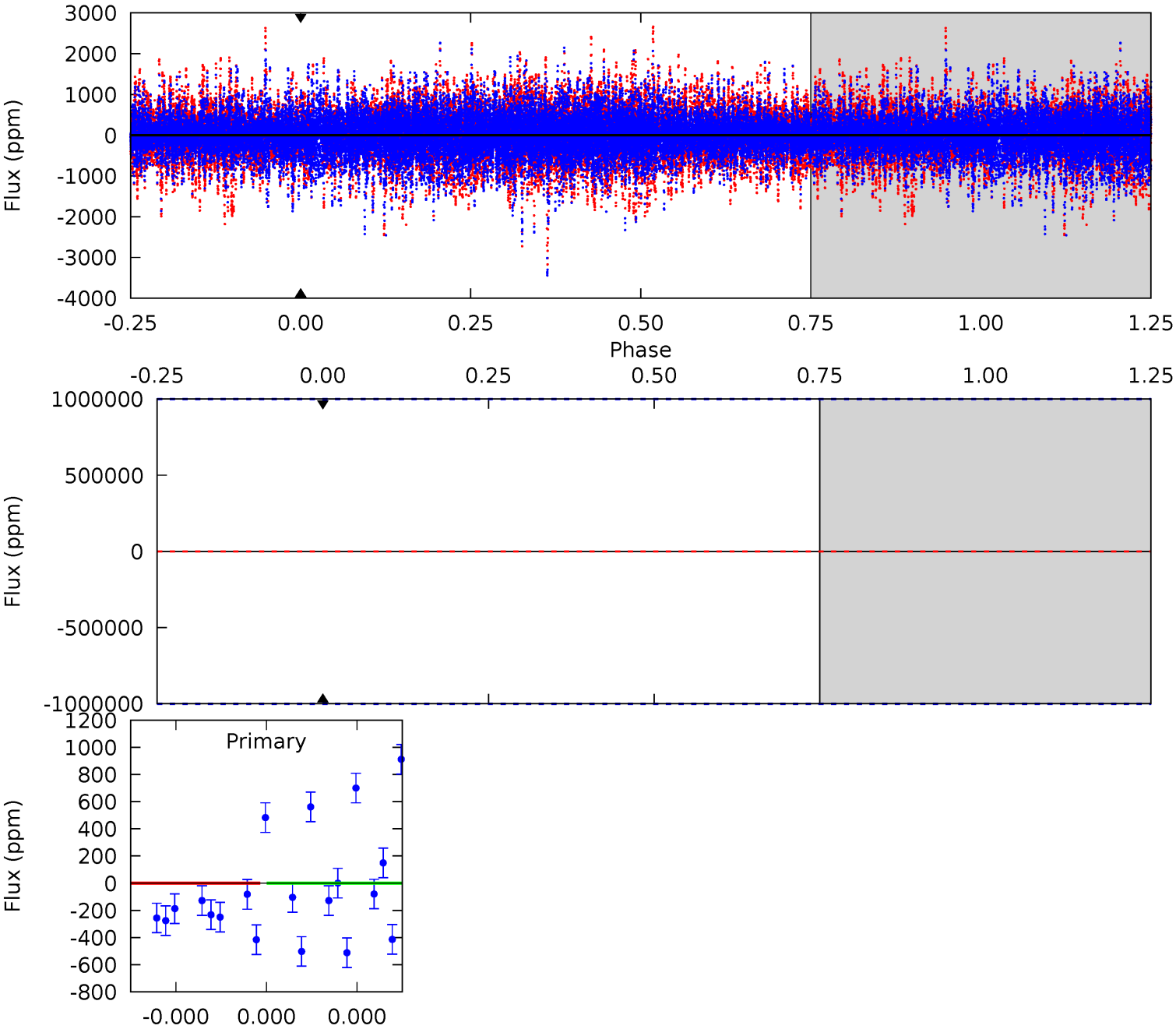
TCE 006192431-07 $P=183.091509$ Days $T_0=161.497389$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-07, P = 183.091509 Days, E = 162.774341 Days

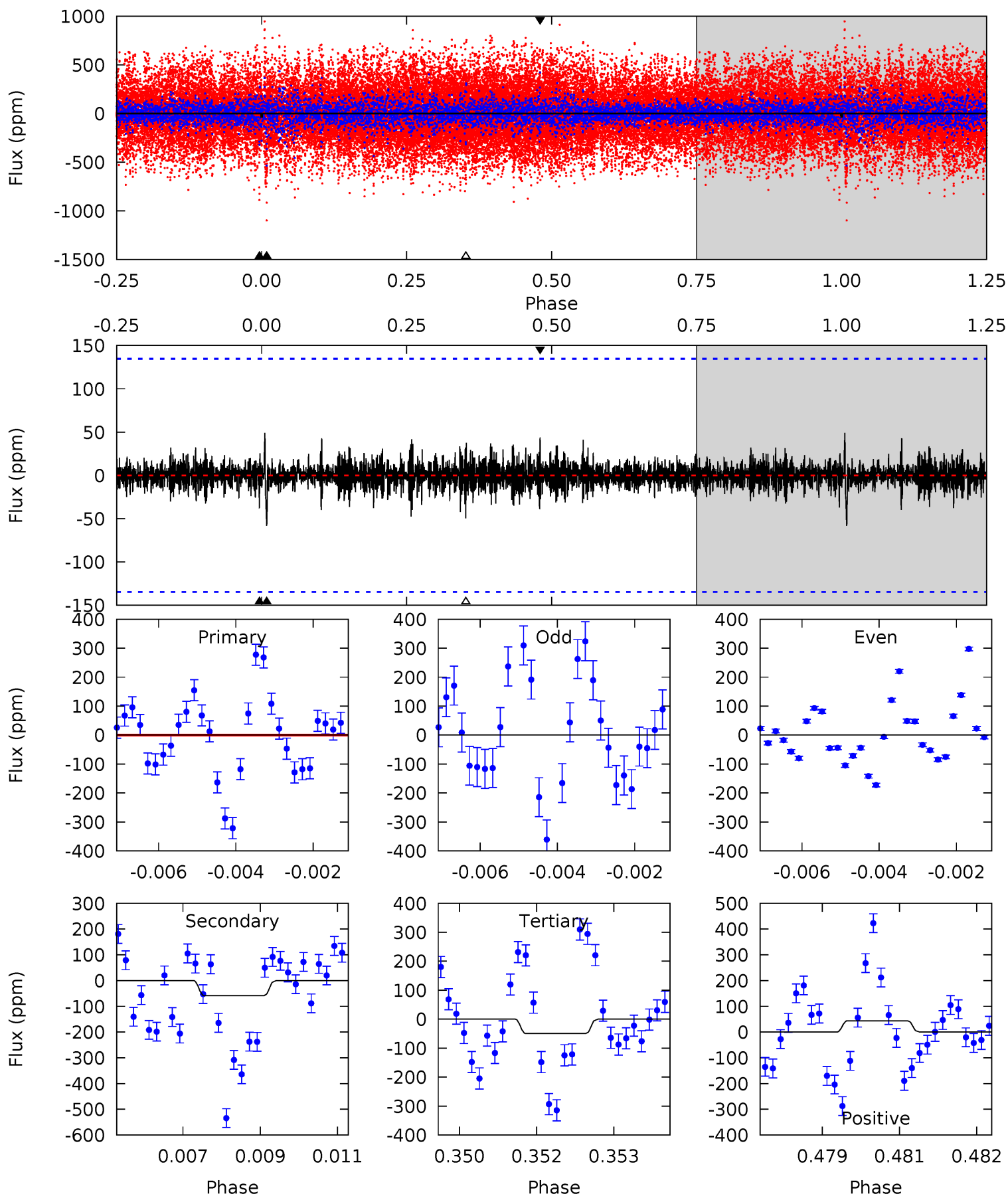
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006192431-07, P = 183.091509 Days, E = 161.497389 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.25	2.31	1.96	1.74	5.34	3.11	0.45	-0.71	-0.49	0.35	0.57	1.13	-87.6	0.46	1.35



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$115.30^{+134.65}_{-75.78}$	1210^{+37}_{-44}	-3017^{+16022}_{-8475}	$-9.391^{+5183.296}_{-3965.136}$
Alt.	-58 ± 25	$130.48^{+129.43}_{-91.60}$	1211^{+34}_{-42}	2188^{+868}_{-3791}	$1.140^{+10.508}_{-0.874}$

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 $A_{obs} \gg 1.0$

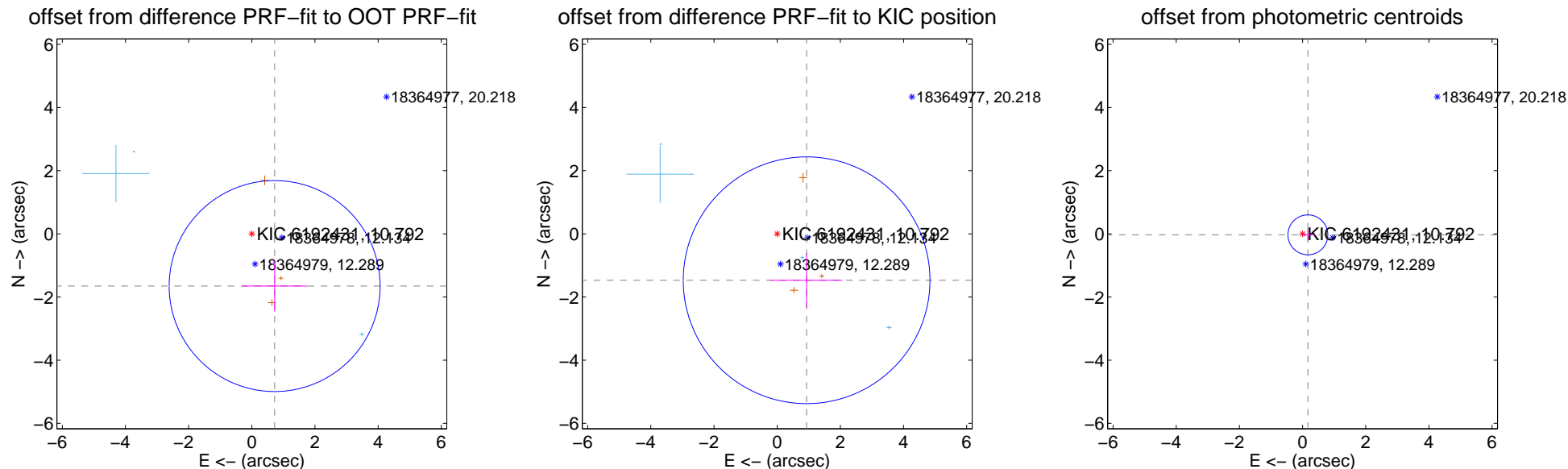
DV Centroid Data

Supplemental centroid analysis for 006192431-07. **Kepler magnitude: 10.79.** Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

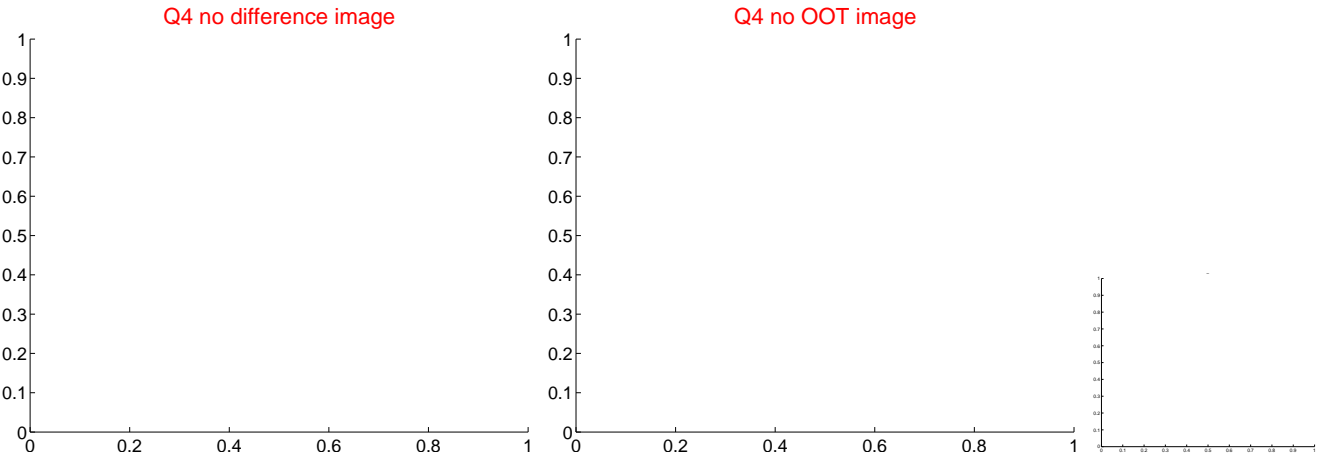
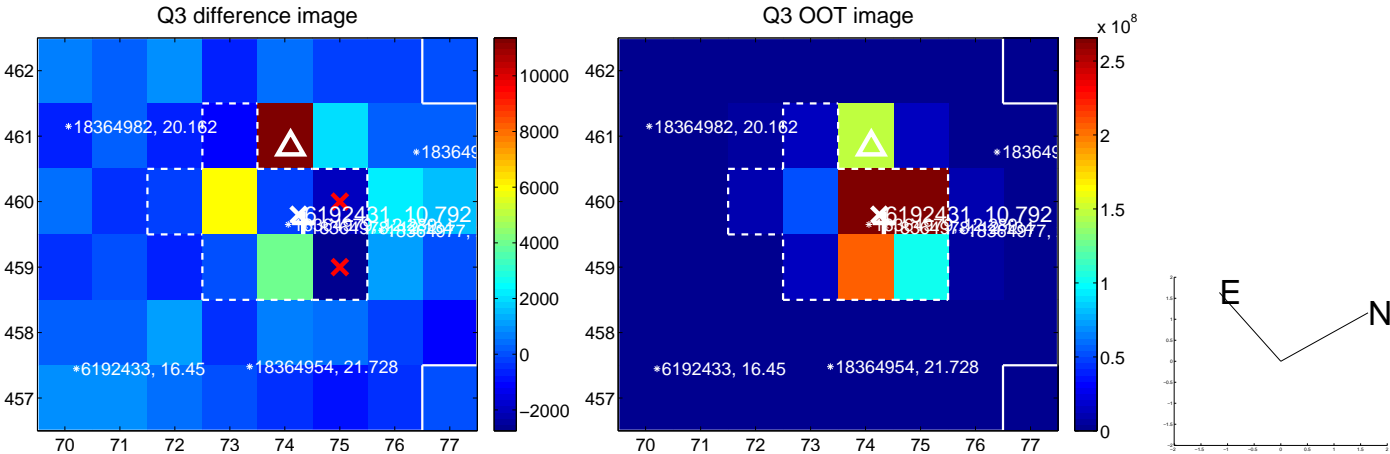
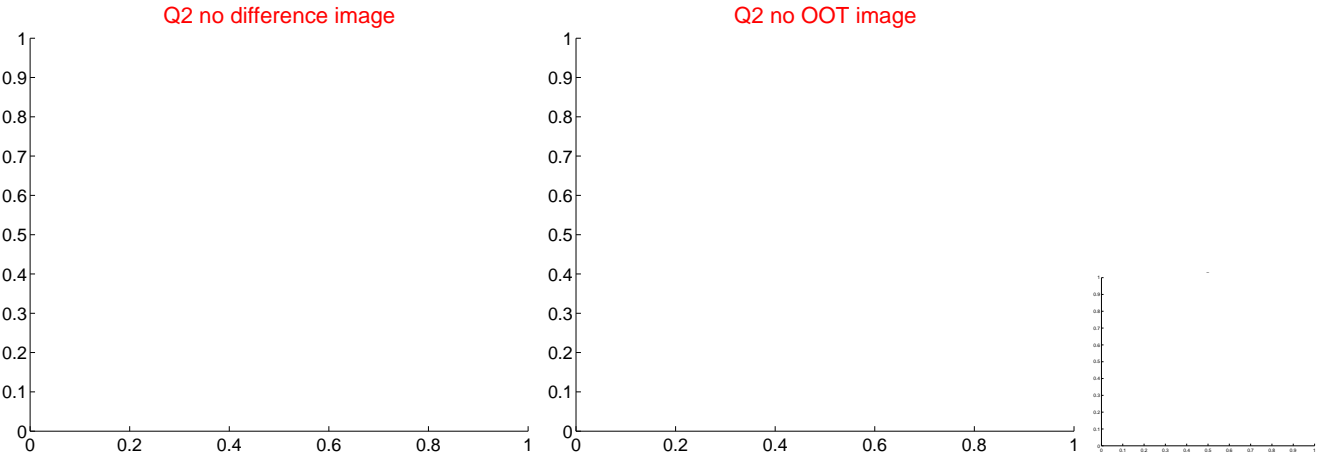
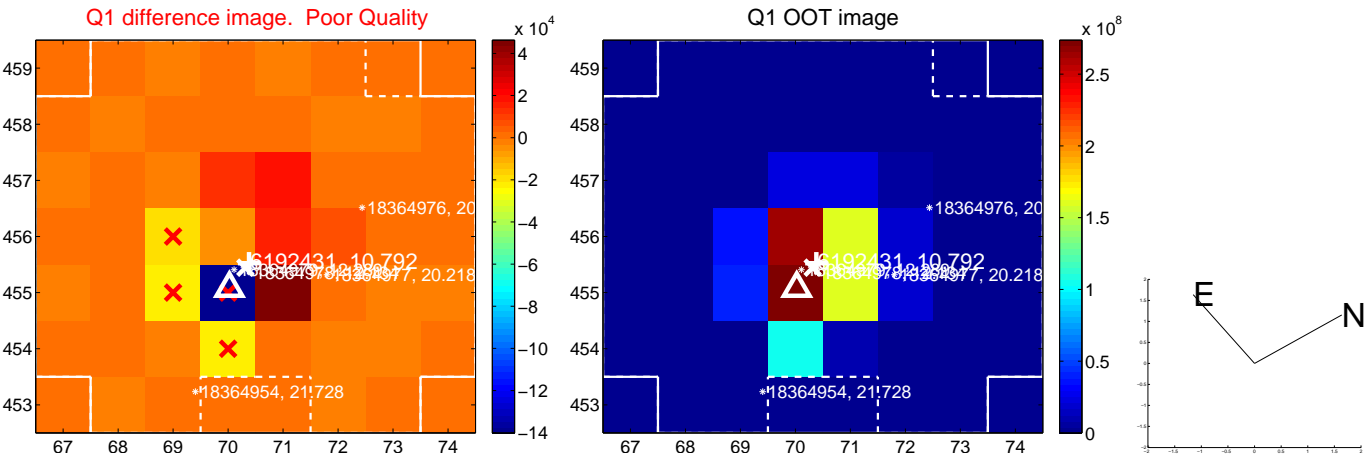
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.805 ± 1.113	1.62	-0.723 ± 1.022	-1.653 ± 0.808
PRF-fit source offset from KIC position	1.740 ± 1.302	1.34	-0.932 ± 1.140	-1.470 ± 0.867
photometric centroid source offset	0.17 ± 0.21	0.81	-0.17 ± 0.21	-0.03 ± 0.18

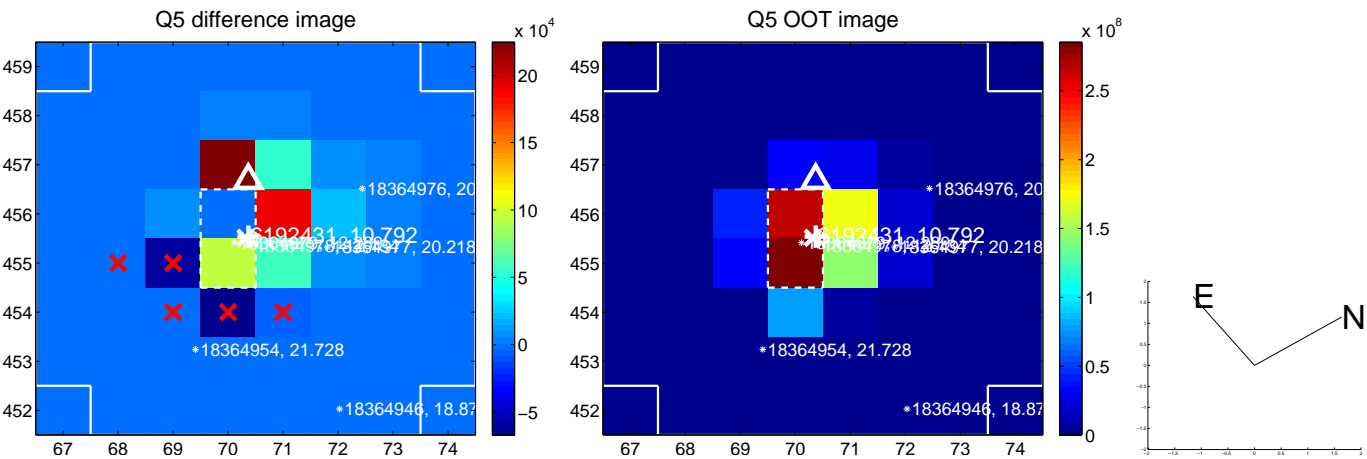


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

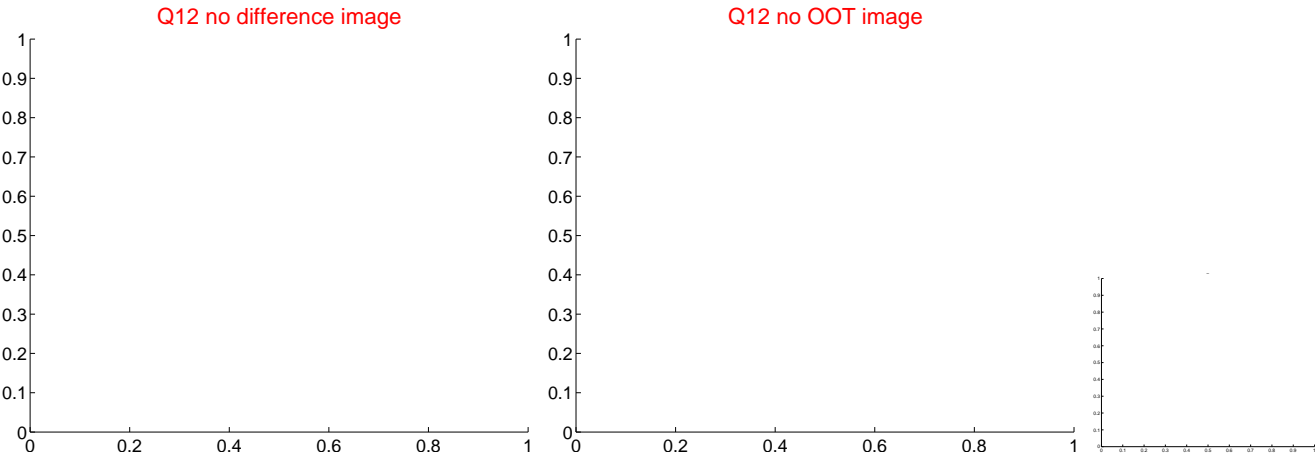
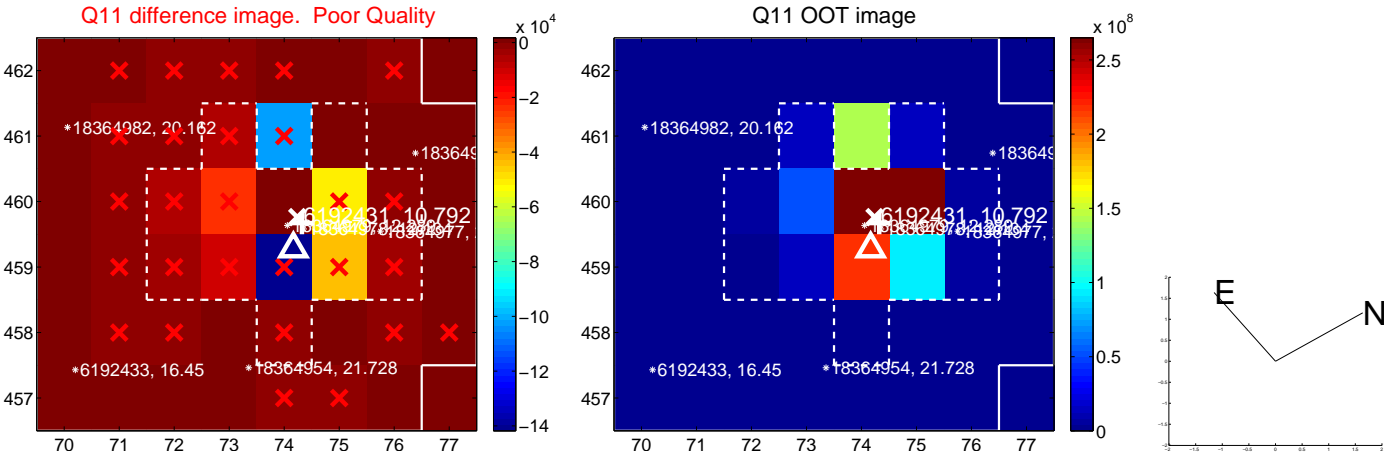
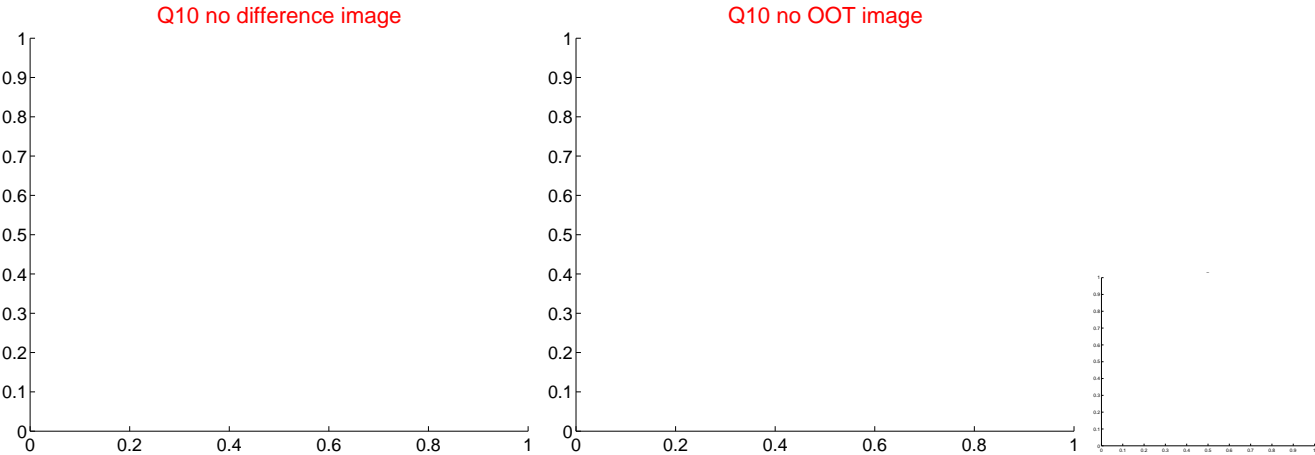
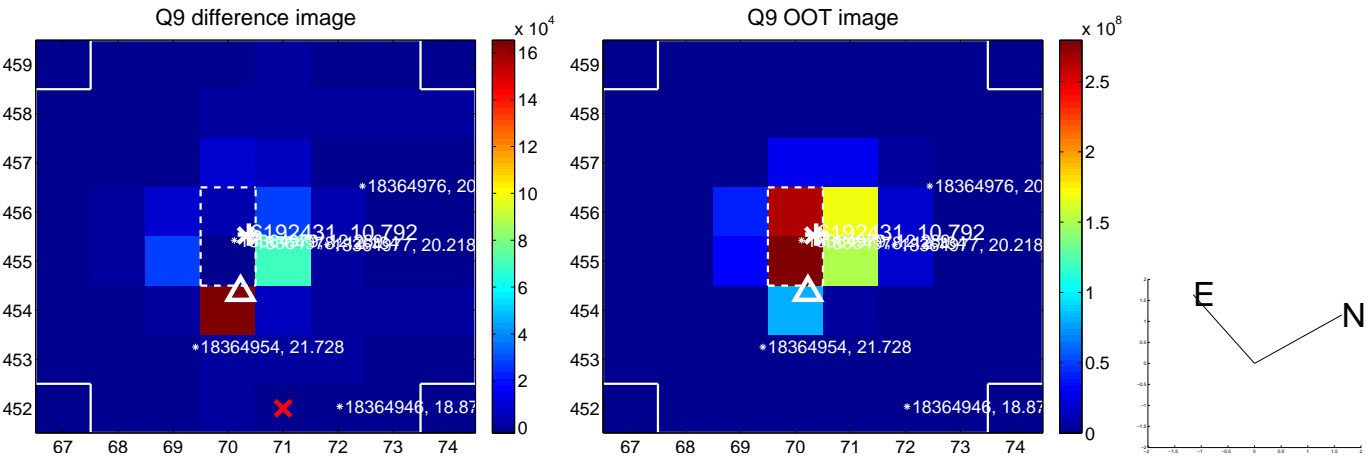
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



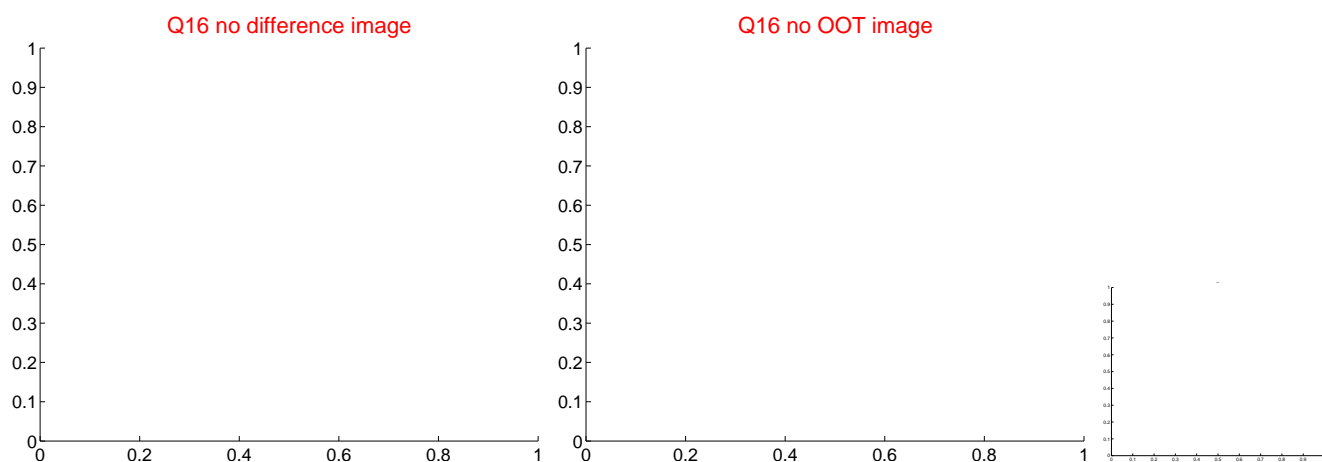
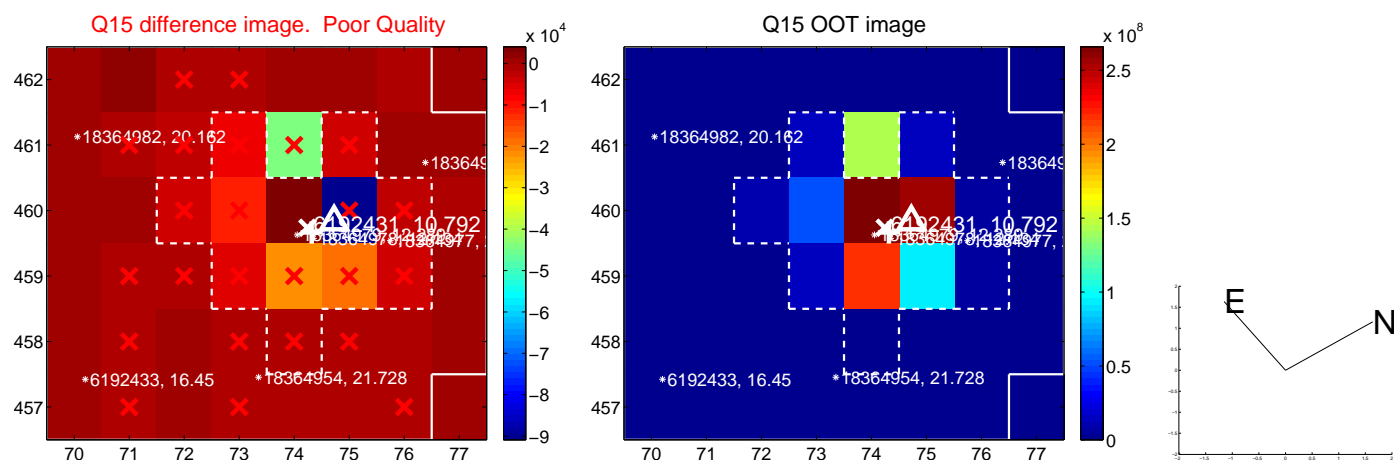
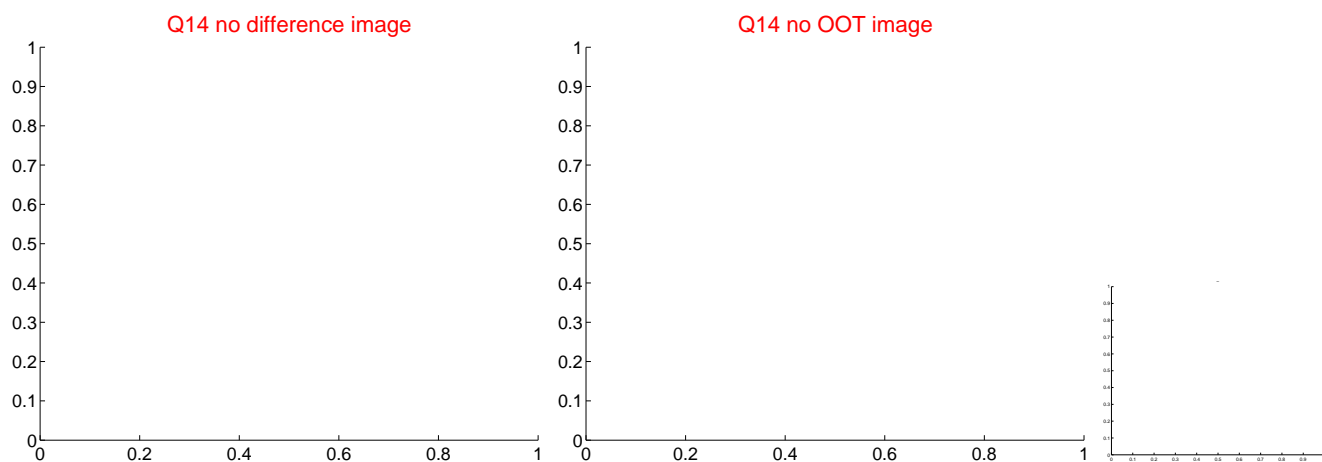
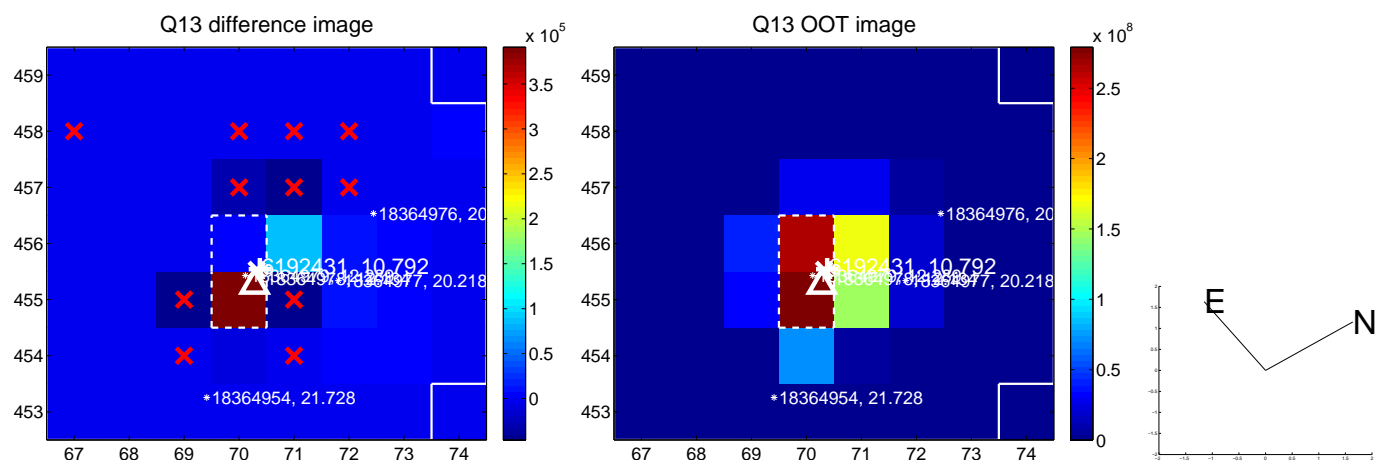
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



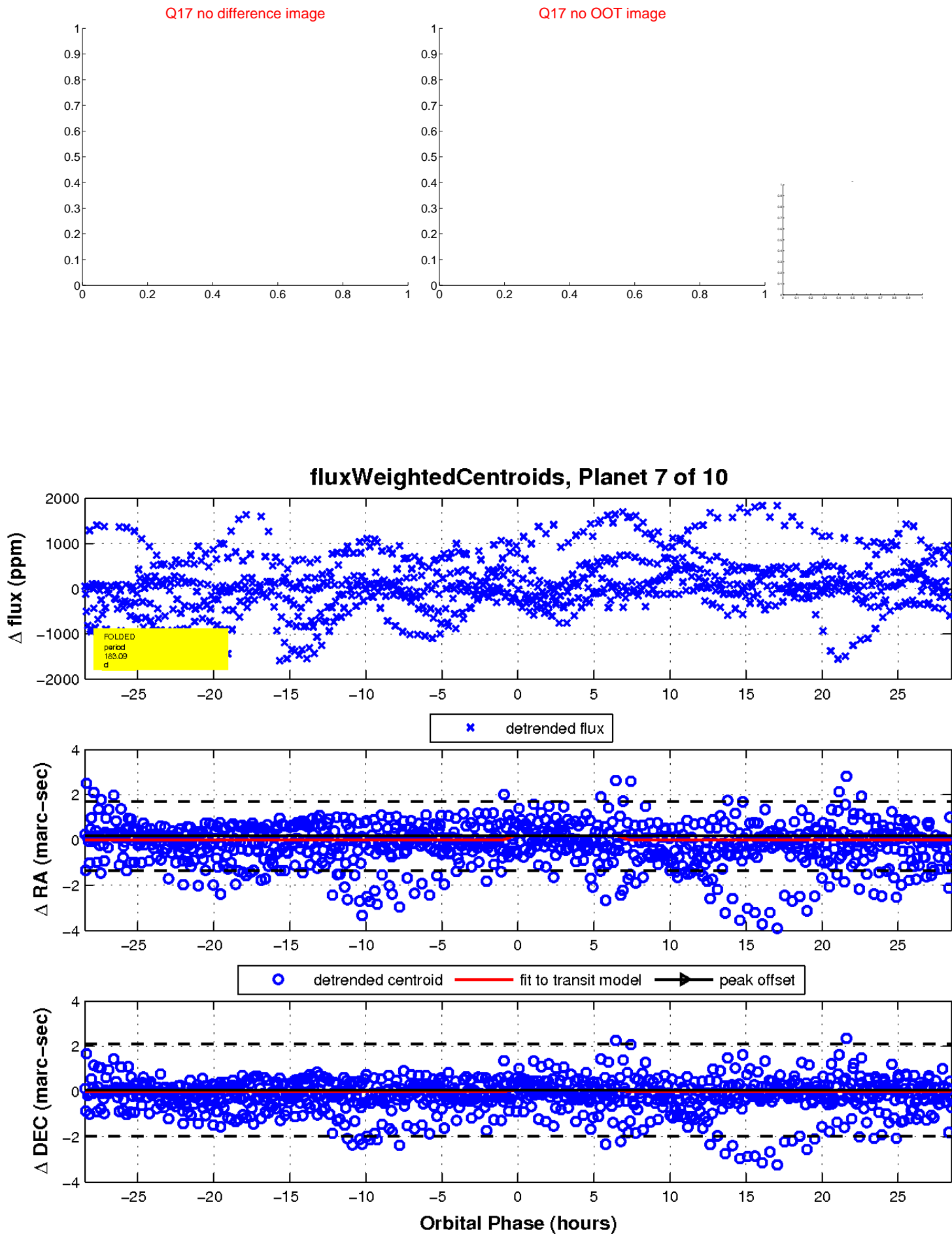
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

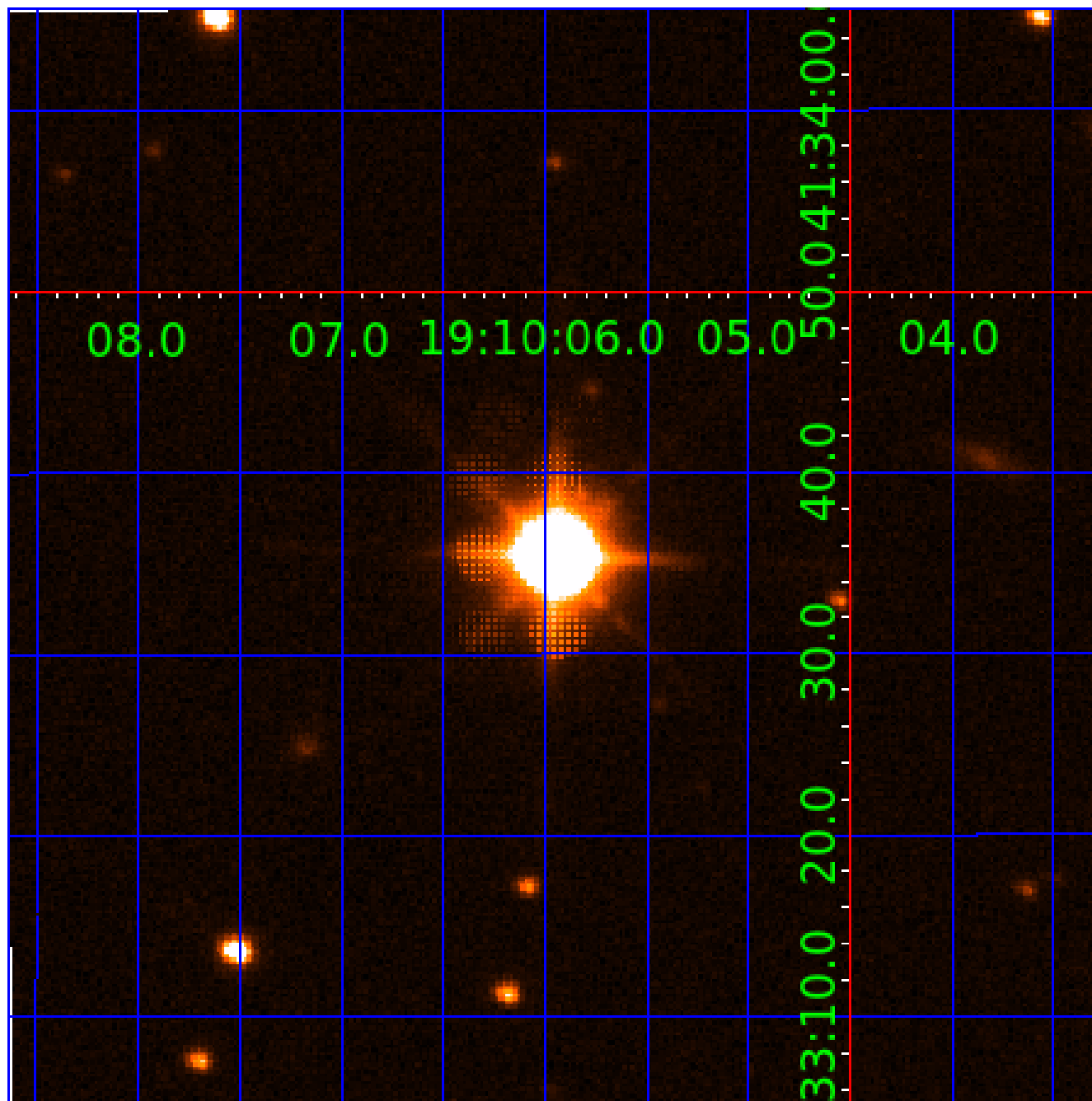


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
006192431-02	OBS	No	358.997216	174.721162	269.0	12.500	42.2	-1.0	14.70	4629	23.05	54.47
006192431-03	OBS	No	370.828432	147.942459	369.1	26.716	31.4	19.3	14.70	4629	37.87	52.17
006192431-04	OBS	No	178.940621	183.459519	705.9	28.322	25.5	24.0	14.70	4629	56.68	137.84
006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
006192431-08	OBS	No	28.448407	132.456892	33.0	1.305	17.8	9.2	14.70	4629	9.10	1600.41
006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

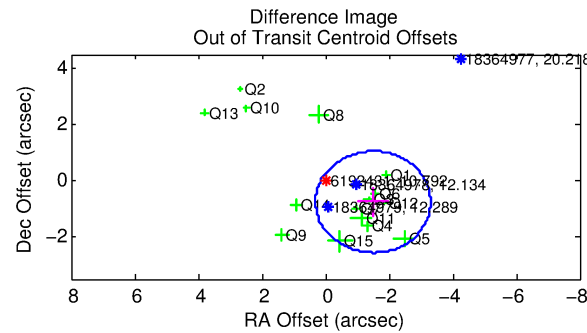
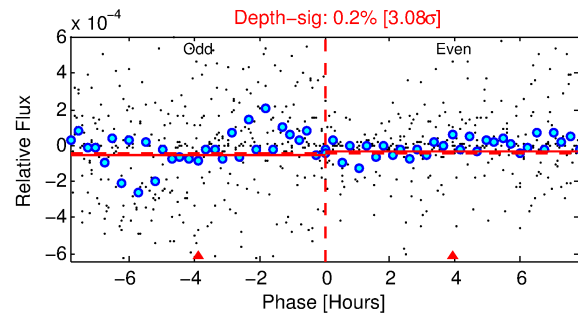
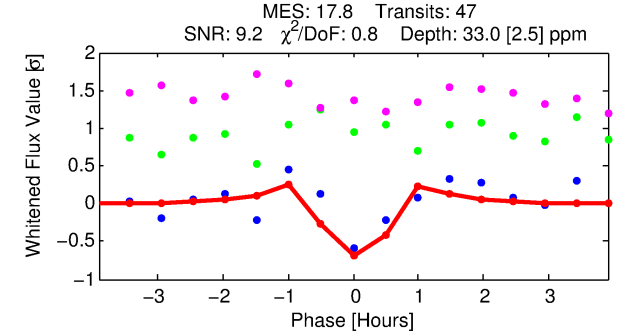
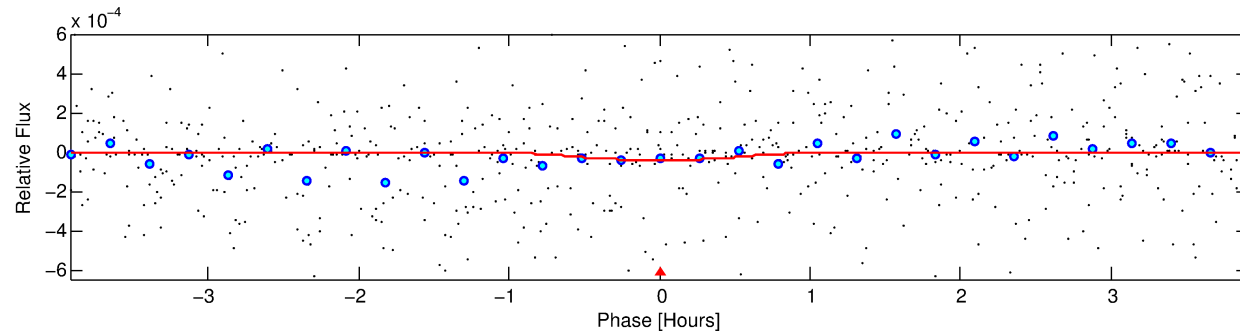
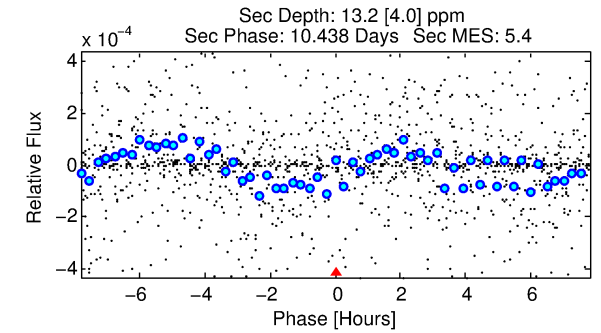
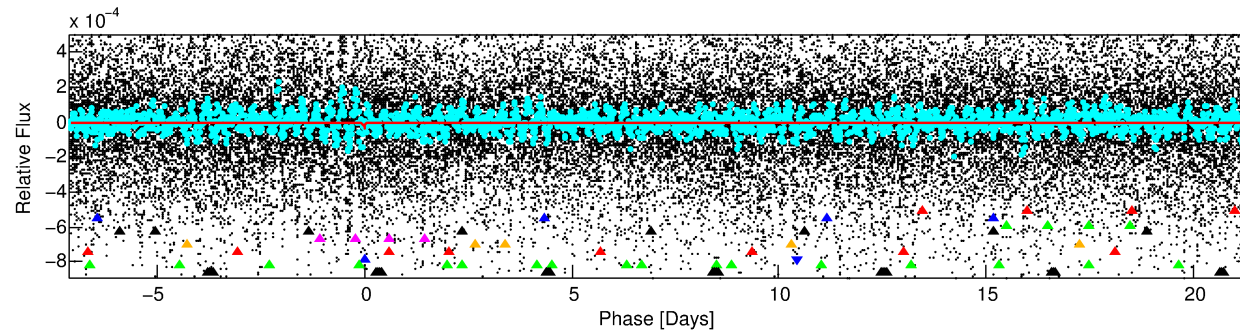
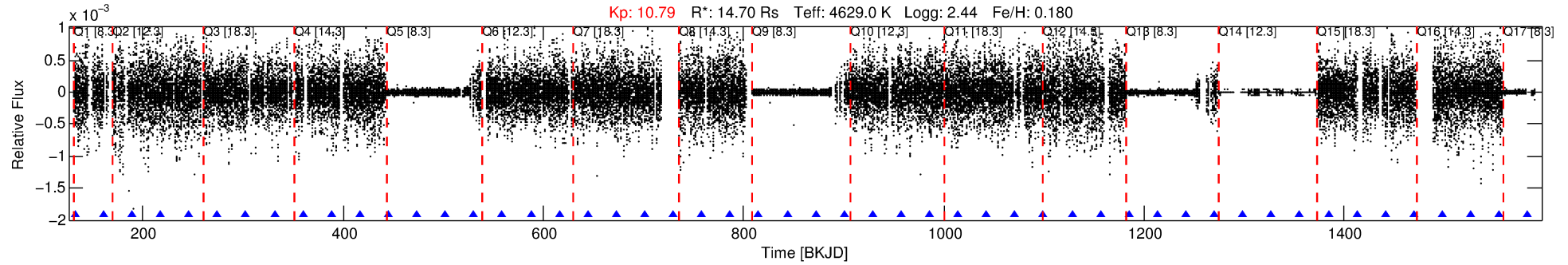
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-08

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 8 of 10 Period: 28.448 d



DV Fit Results:

Period = 28.44841 [0.00016] d
Epoch = 132.4569 [0.0062] BKJD
Rp/R* = 0.0057 [0.0028]
a/R* = 119.28 [186.97]
b = 0.71 [1.15]
Seff = 1600.41 [299.92]
Teq = 1613 [76] K
Rp = 9.09 [4.99] Re
a = 0.2356 [0.0361] AU
Ag = 4.86 [5.14] [0.75σ]
Teffp = 3703 [971] K [2.15σ]

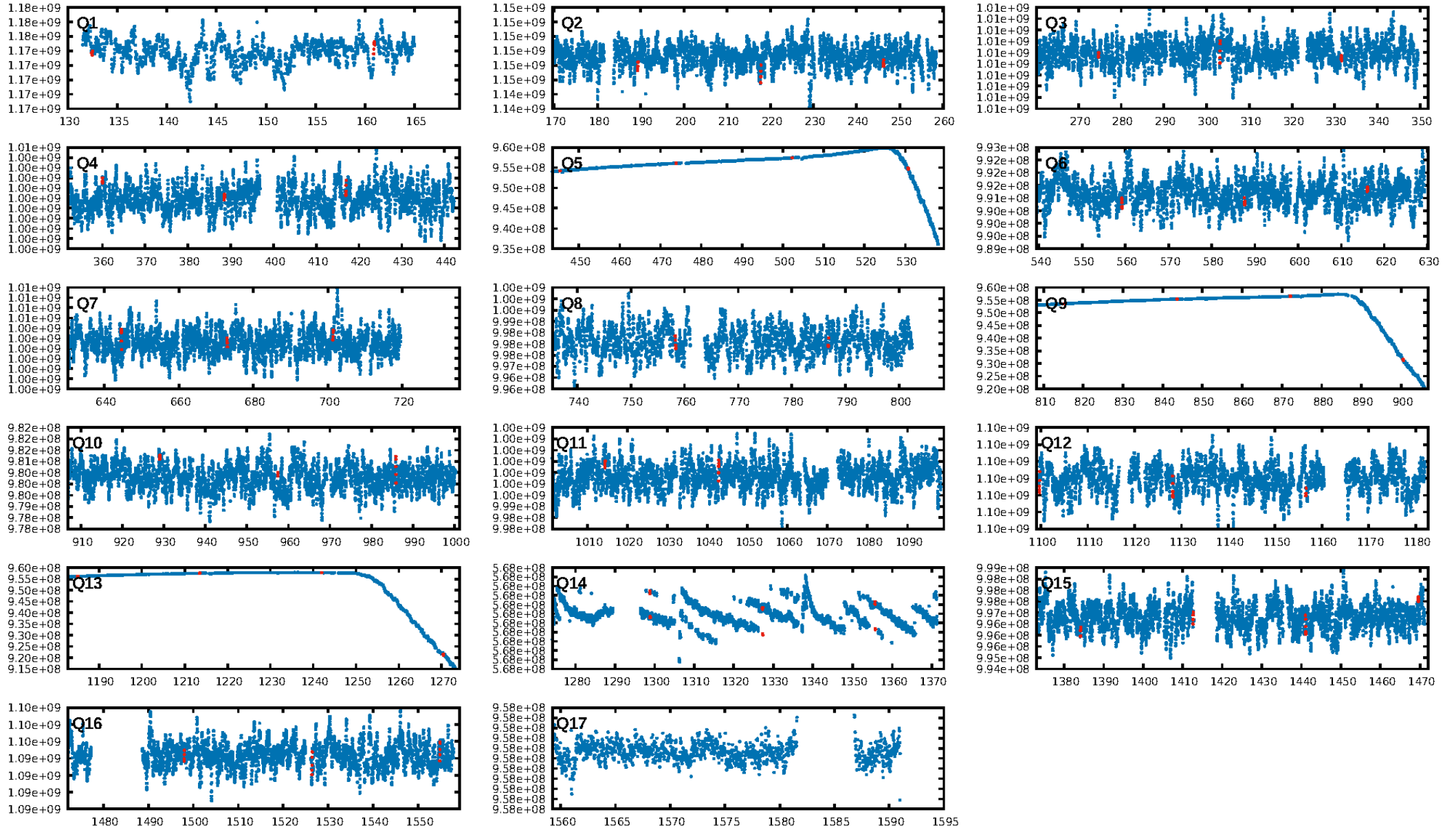
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [51.94σ]
ModelChiSquare2-sig: 26.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [45/45]
GhostDiagnostic-chr: -5.308
Centroid-sig: 2.7%
Centroid-so: 3.671 arcsec [1.63σ]
OotOffset-rm: 1.678 arcsec [2.78σ]
KicOffset-rm: 0.830 arcsec [1.80σ]
OotOffset-st: 4/4/3/4 [15]
KicOffset-st: 4/4/3/4 [15]
DiffImageQuality-fgm: 0.33 [5/15]
DiffImageOverlap-fno: 1.00 [16/16]

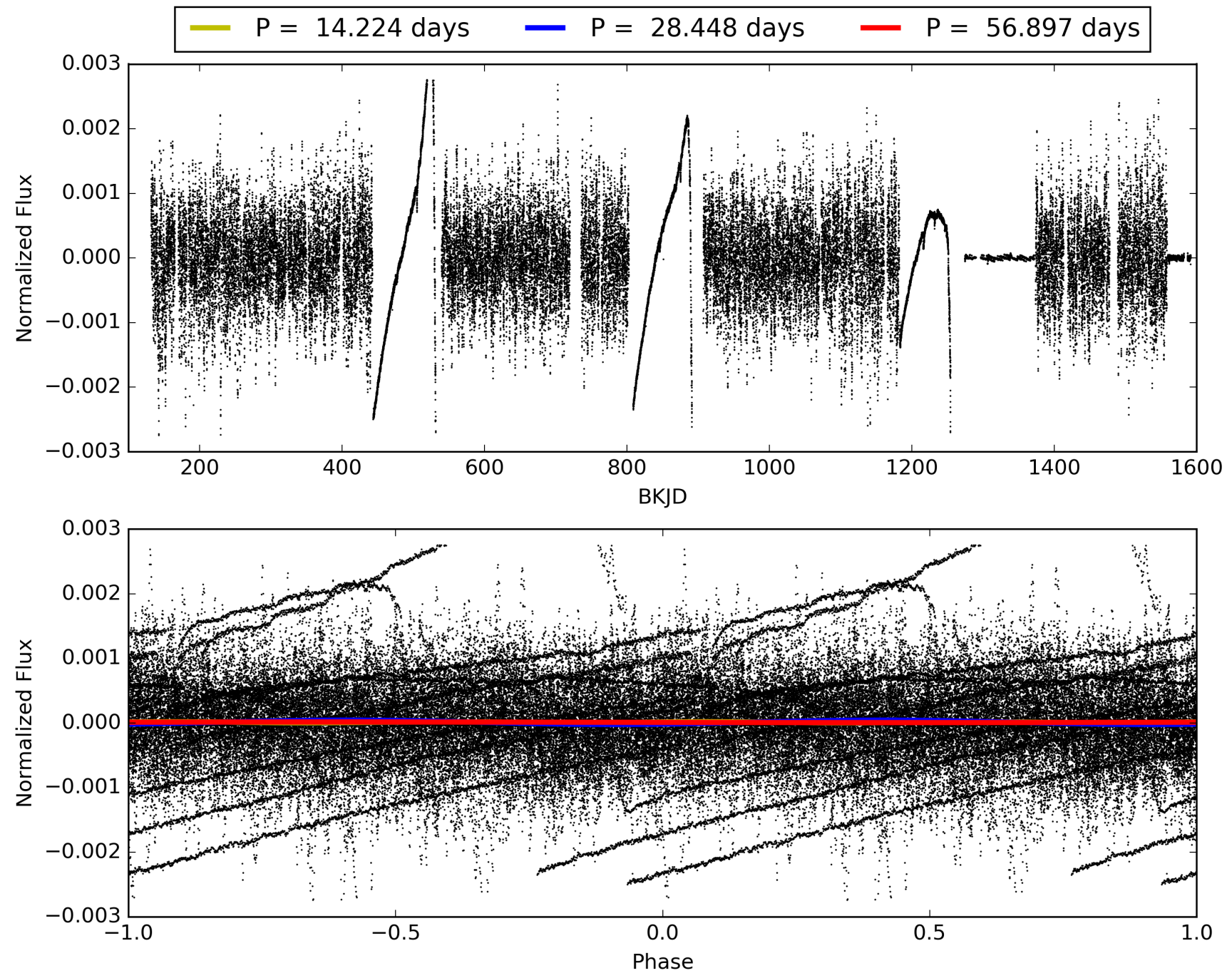
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:24:08 Z

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

TCE 006192431-08, PDC Light Curves

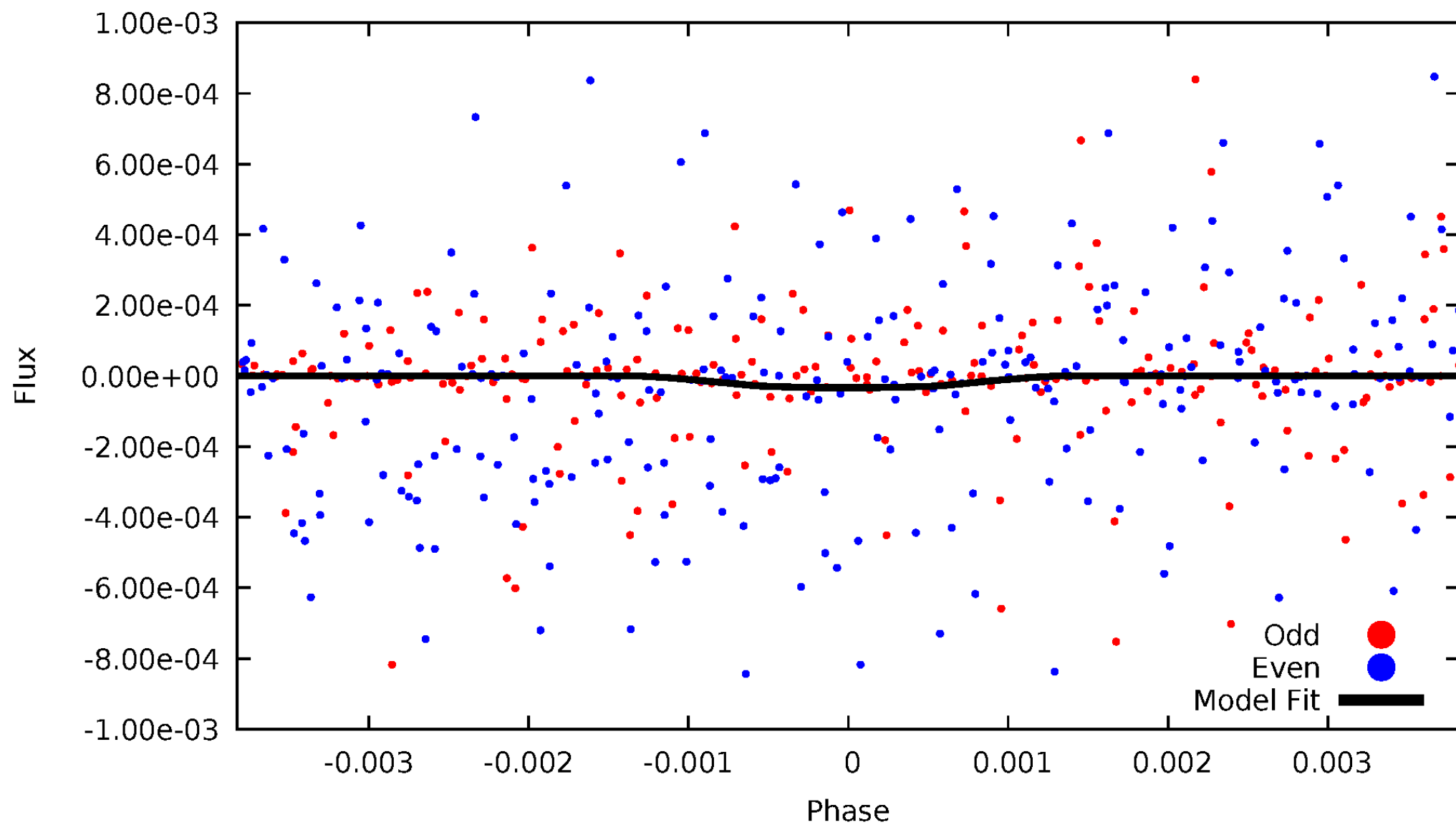


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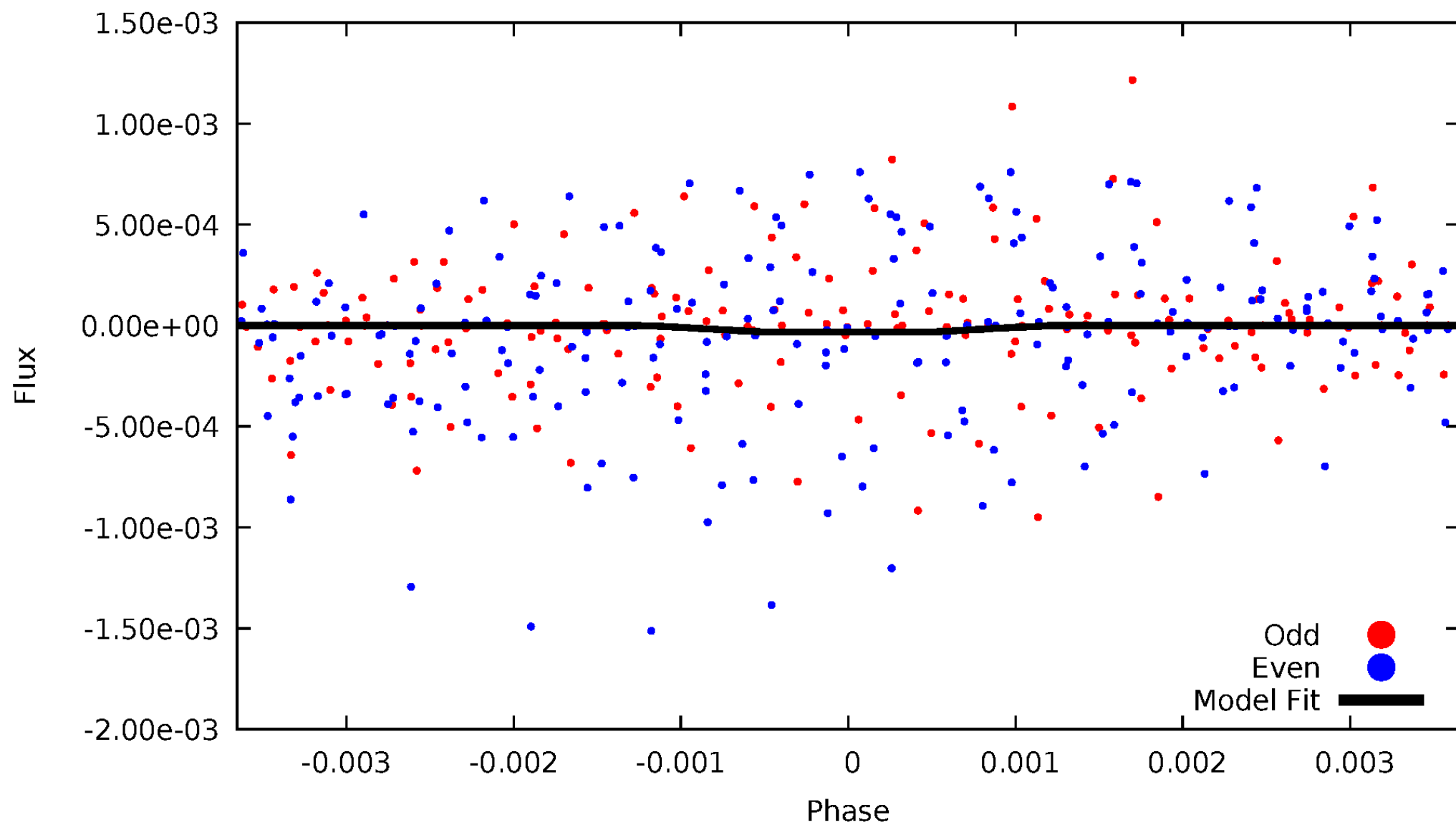
DV Odd/Even

TCE 006192431-08



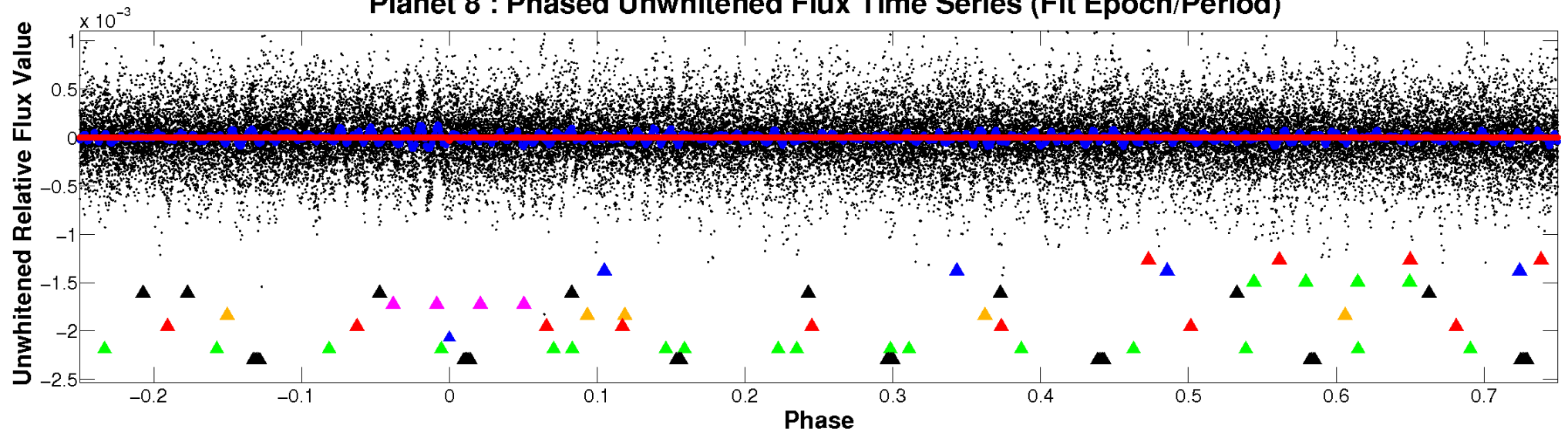
ALT Odd/Even

TCE 006192431-08

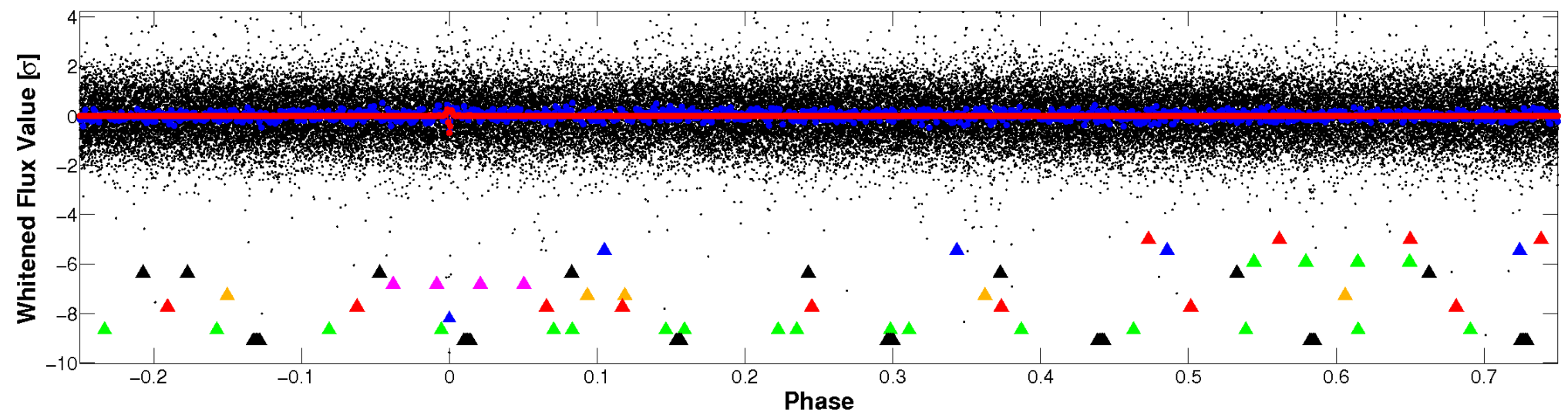


Non-Whitened Vs. Whitened Light Curve

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

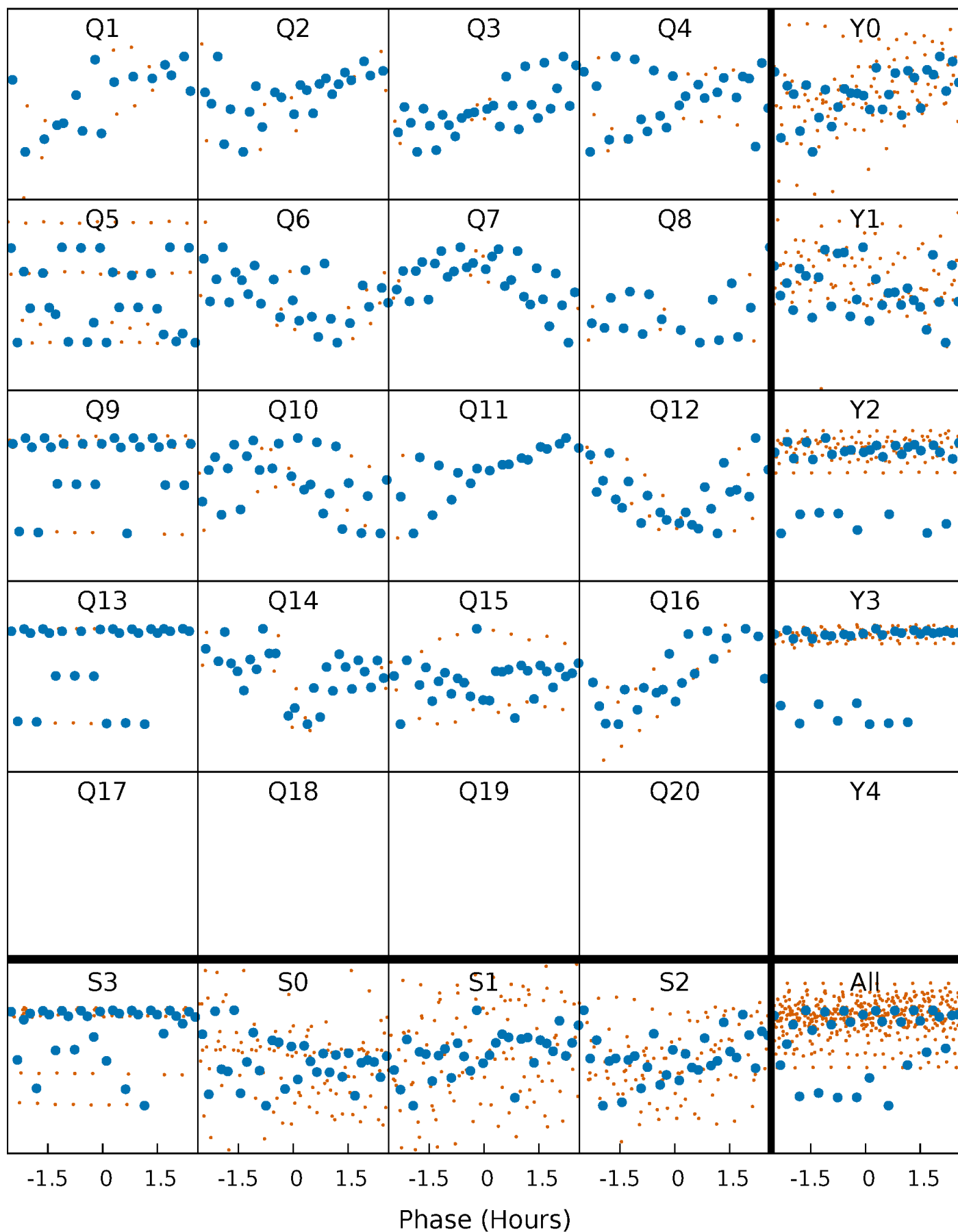


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



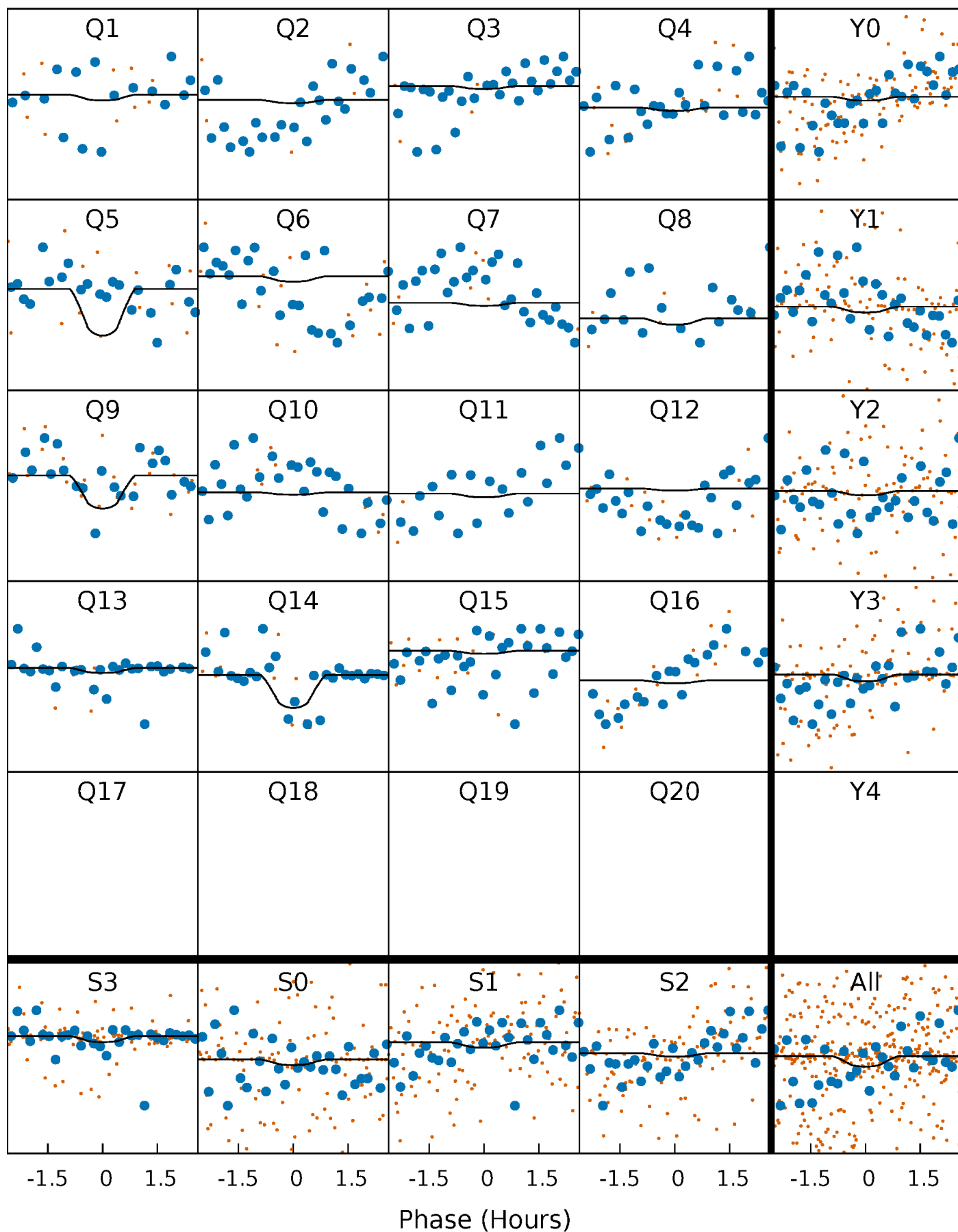
PDC Quarter-Phased Transit Curves

TCE 006192431-08 P= 28.448407 Days $T_0=132.456892$ (BKJD)



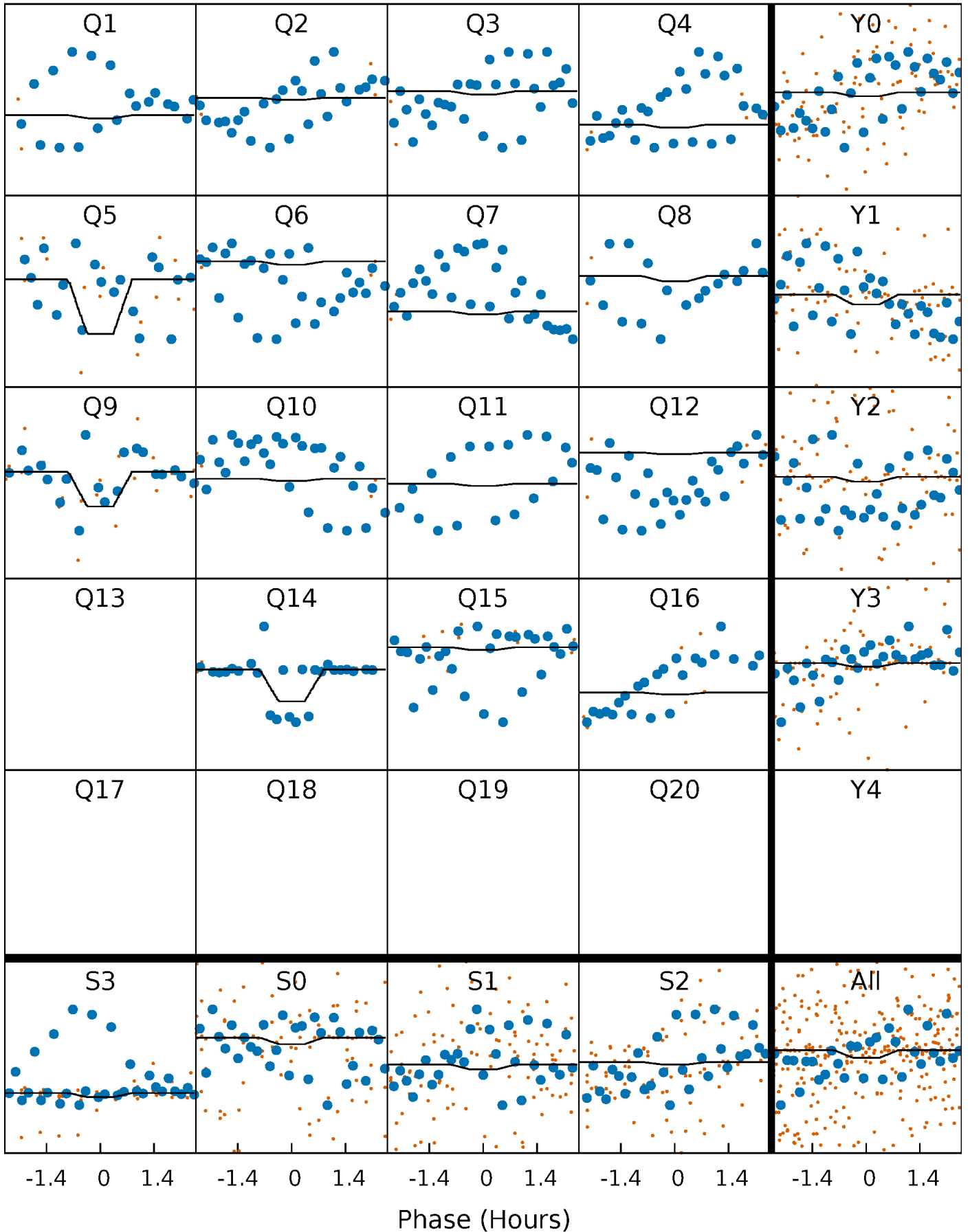
DV Quarter-Phased Transit Curves

TCE 006192431-08 P= 28.448407 Days $T_0=132.456892$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

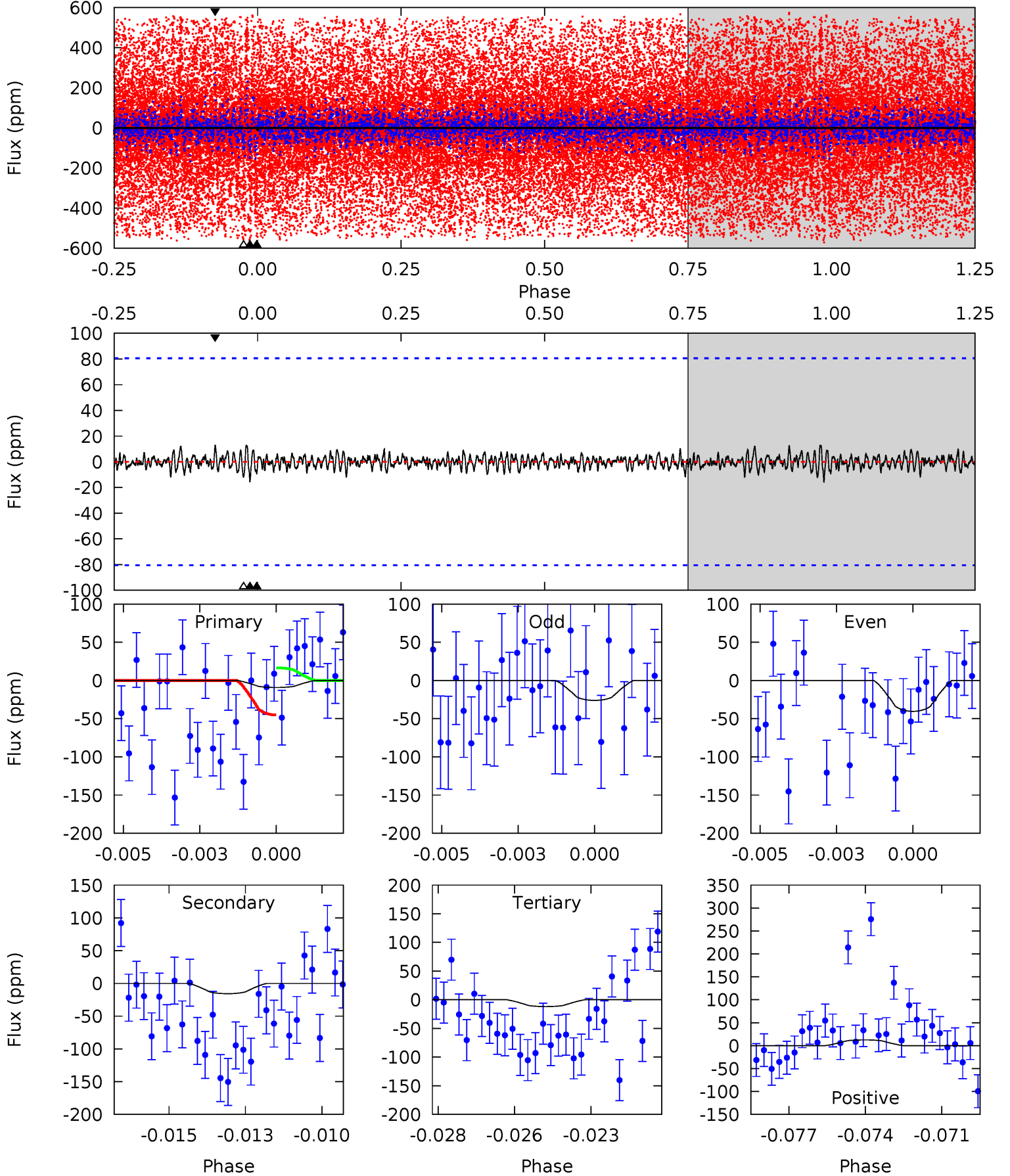
TCE 006192431-08 P= 28.448275 Days $T_0=132.476907$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-08, P = 28.448407 Days, E = 104.008485 Days

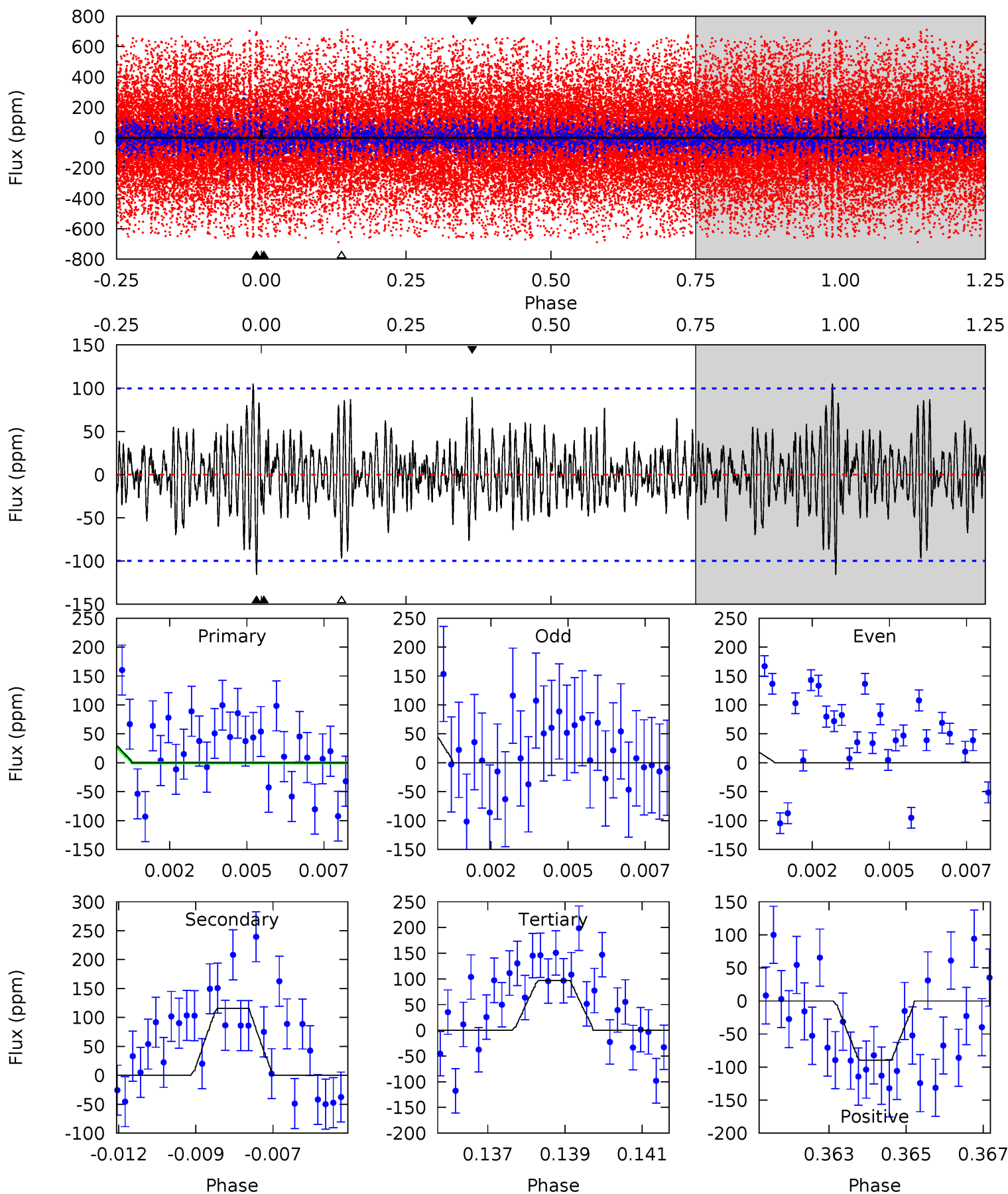
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.61	1.03	0.78	0.82	5.28	3.02	0.26	-0.17	-0.22	0.25	0.21	0.48	8.76	0.45	0.95



Alt Model-Shift Uniqueness Test

006192431-08, P = 28.448275 Days, E = 104.028632 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.45	6.15	5.15	4.77	5.30	3.04	1.47	-2.70	-2.32	1.00	1.38	1.06	-33.4	0.48	0.33



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16 ± 15	$9.29^{+4.88}_{-4.53}$	2256^{+68}_{-79}	3878^{+1357}_{-6093}	$4.909^{+17.620}_{-4.688}$
Alt.	-116 ± 19	$9.43^{+4.66}_{-4.62}$	2253^{+67}_{-74}	6040^{+2737}_{-1052}	39^{+112}_{-22}

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 $A_{obs} \gg 1.0$

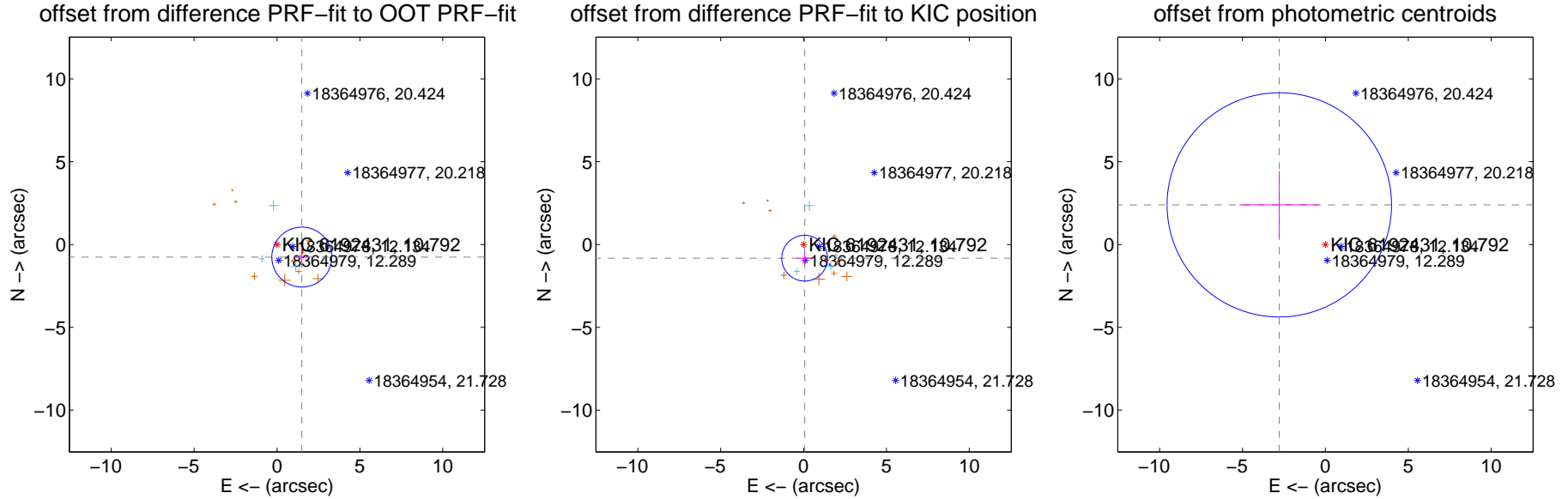
DV Centroid Data

Supplemental centroid analysis for 006192431-08. **Kepler magnitude: 10.79.** Transit SNR 9.25

There are 5 quarters with good PRF difference image offsets

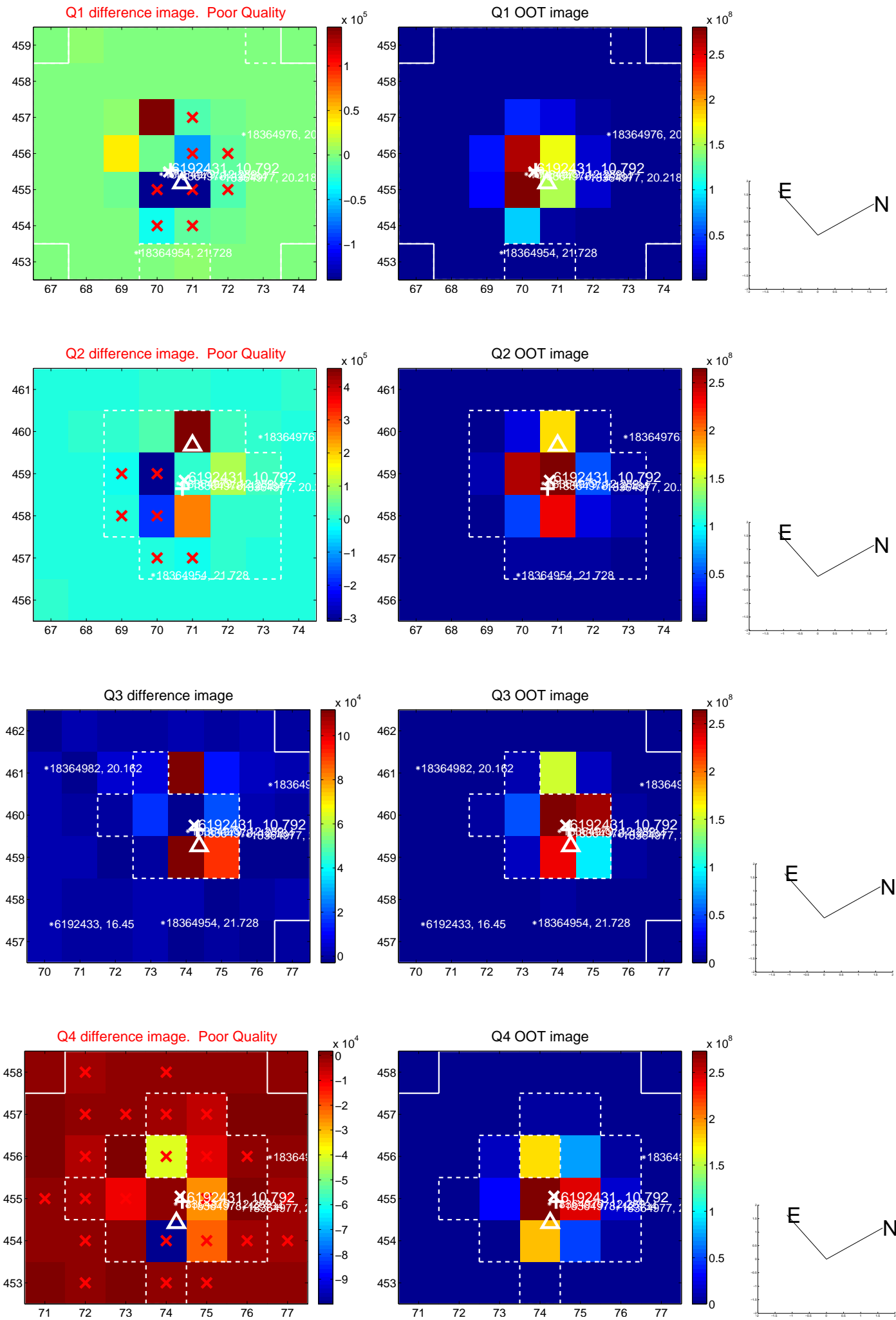
The direct PRF centroid is offset from the target star catalog position by about 0.47 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.678 ± 0.603	2.78	-1.496 ± 0.477	-0.759 ± 0.490
PRF-fit source offset from KIC position	0.830 ± 0.460	1.80	-0.066 ± 0.509	-0.827 ± 0.437
photometric centroid source offset	3.67 ± 2.26	1.63	2.78 ± 2.41	2.39 ± 2.04

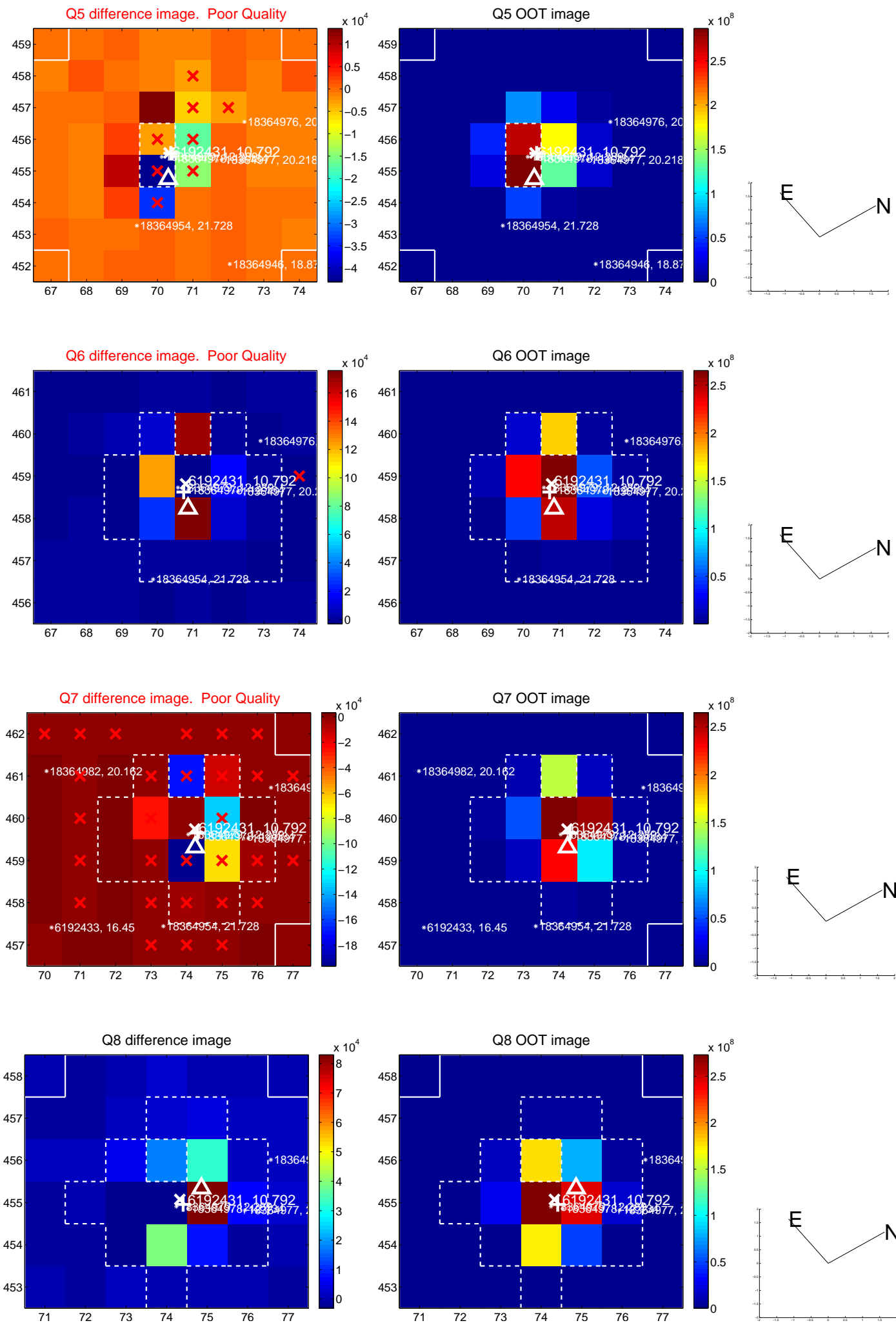


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

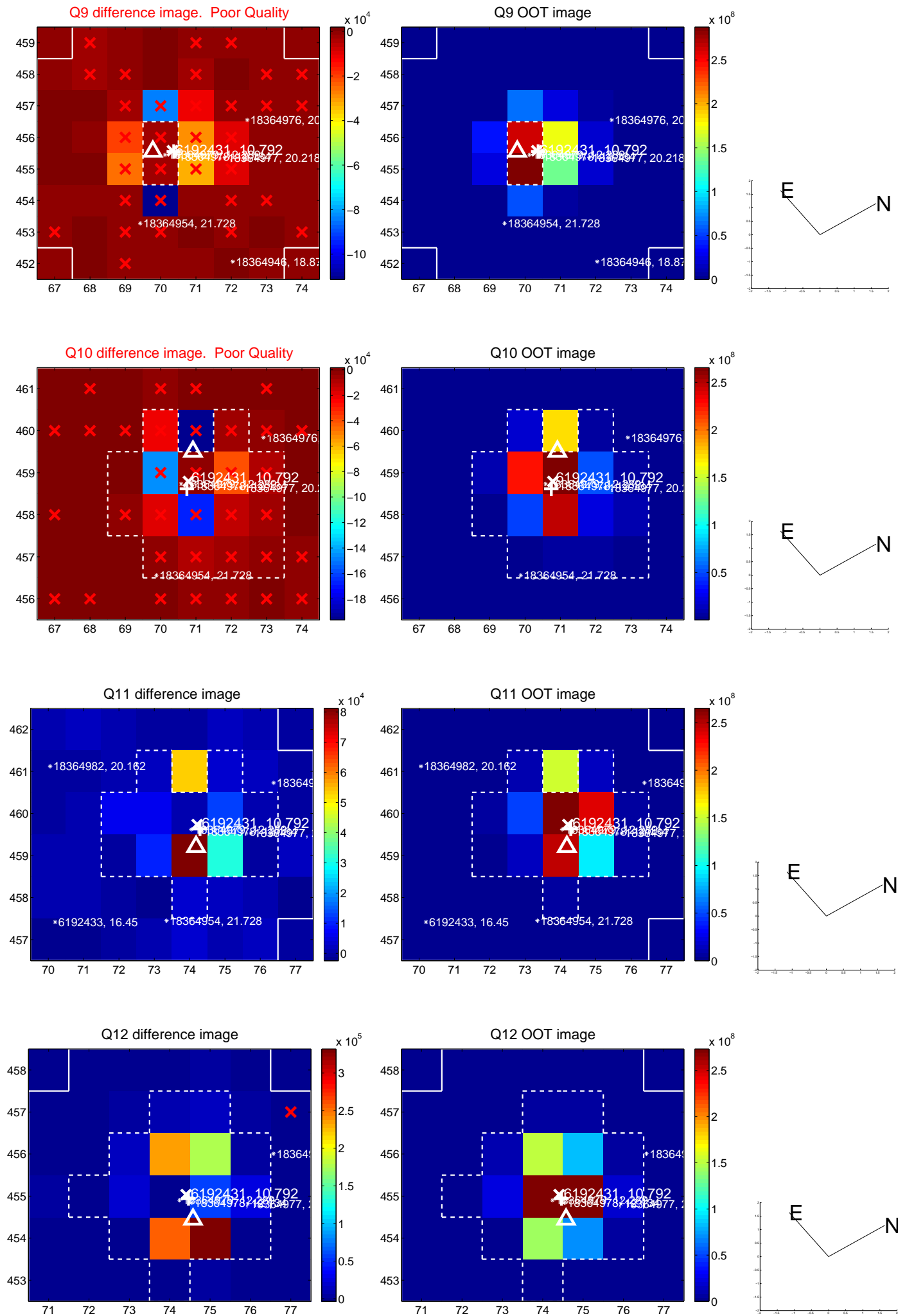
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



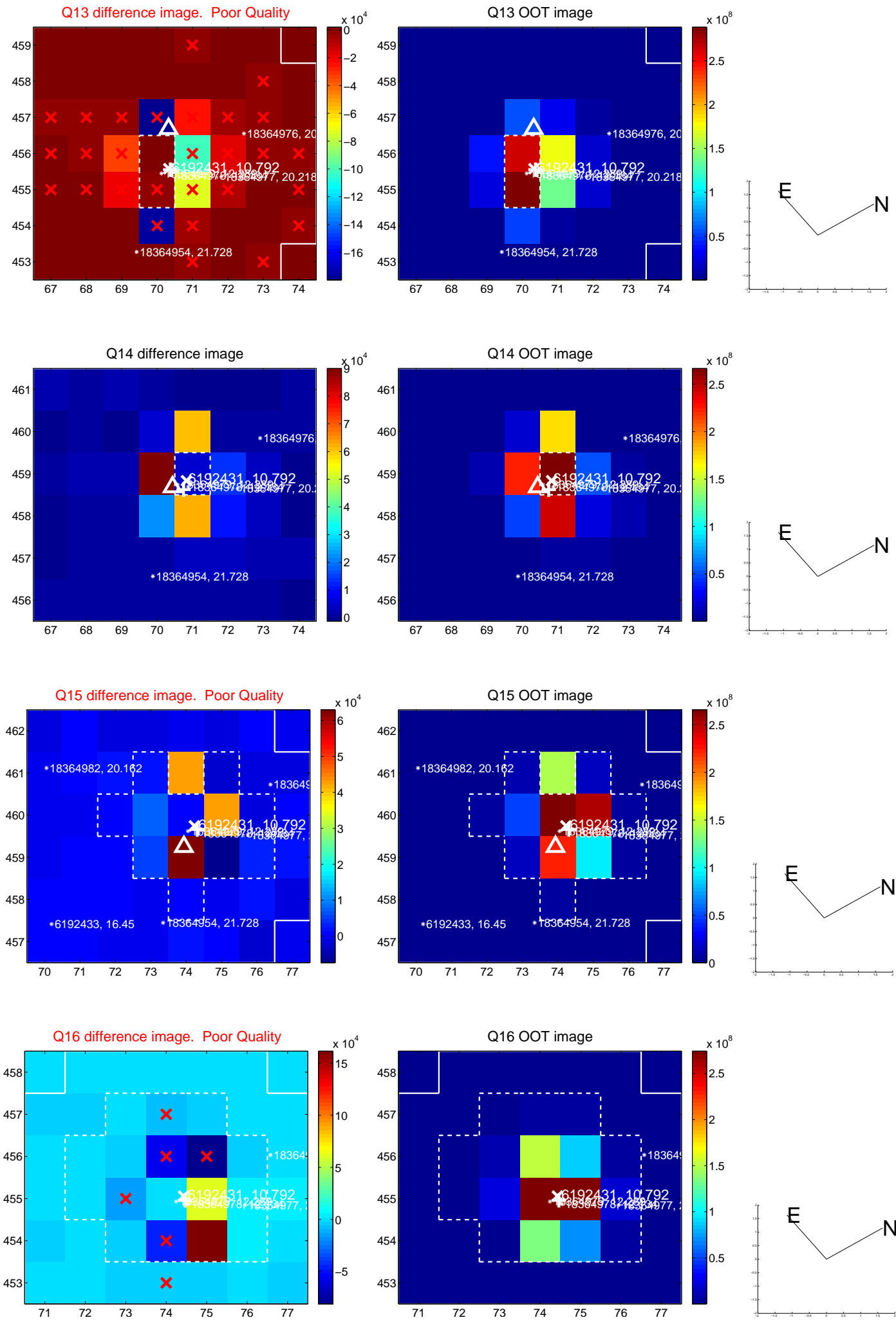
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



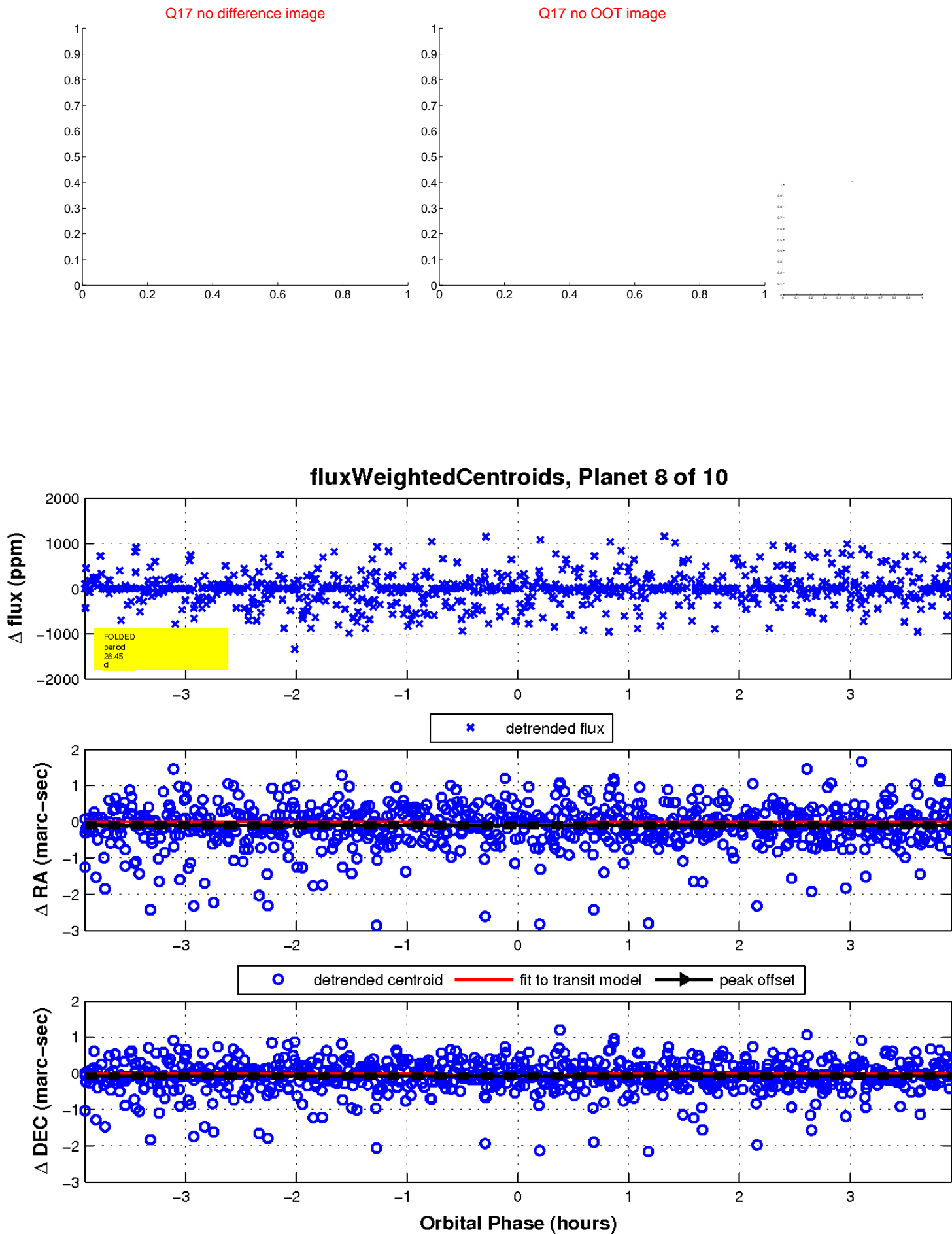
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

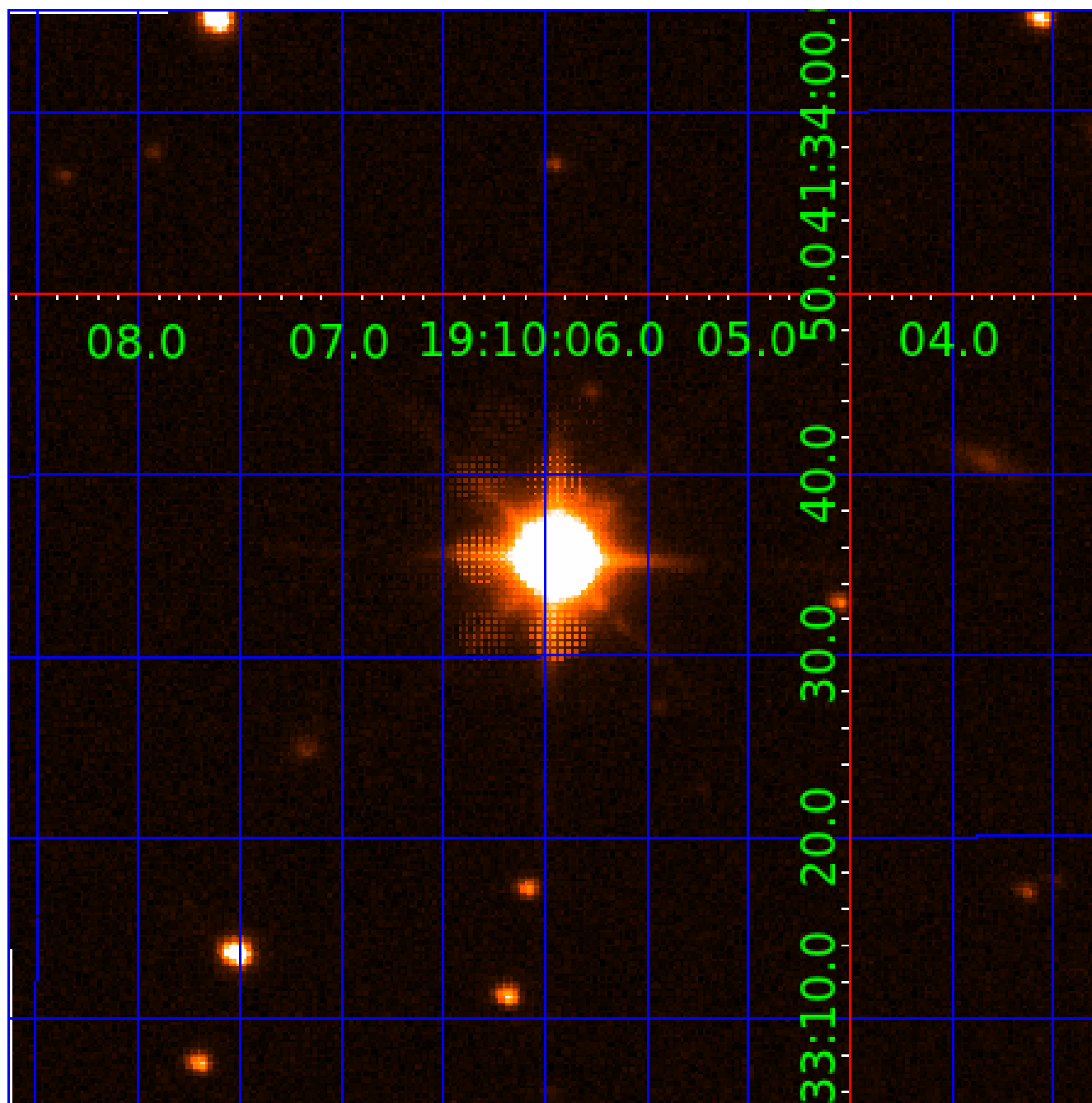


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
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006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
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006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

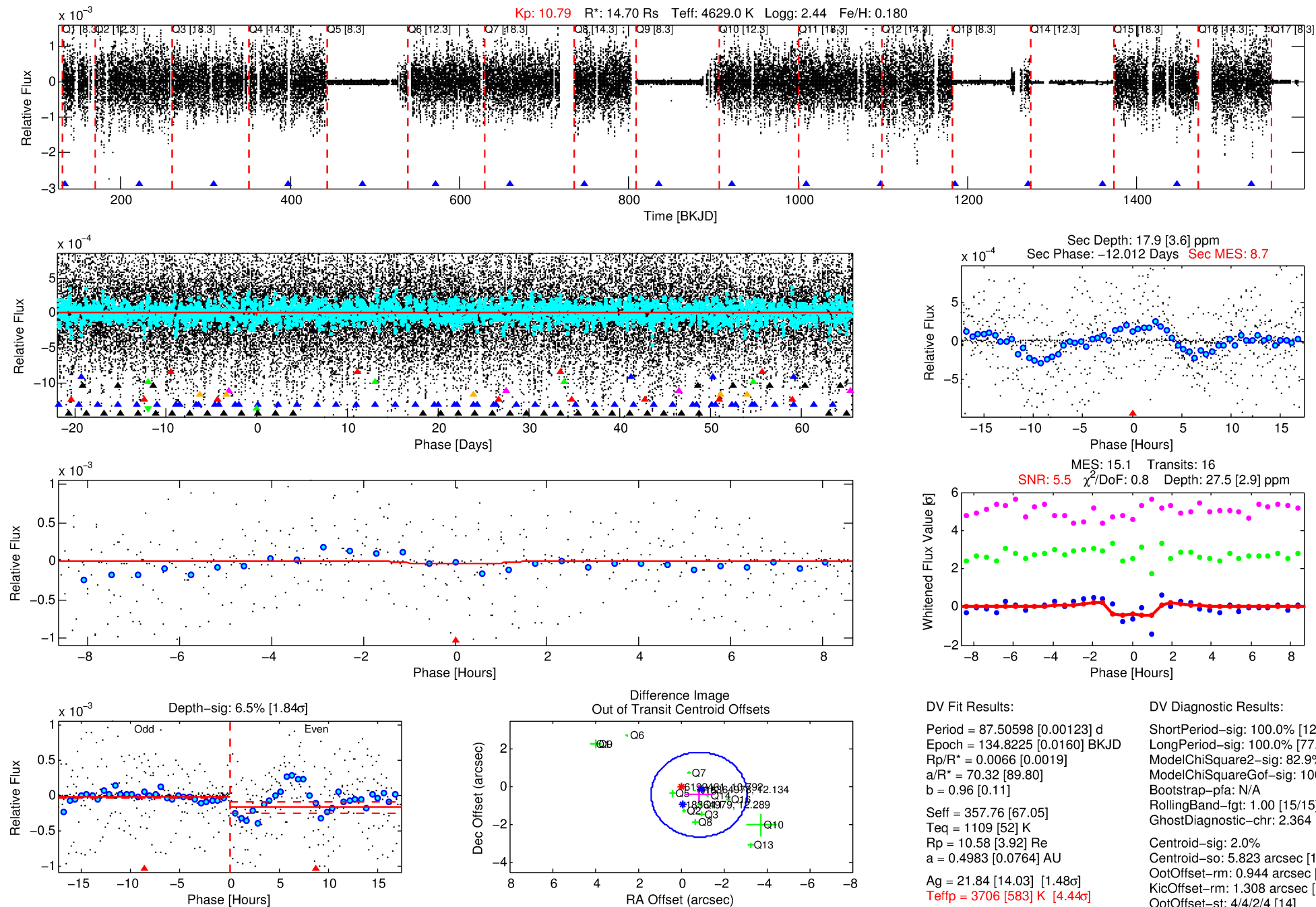
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-09

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 9 of 10 Period: 87.506 d



DV Fit Results:

Period = 87.50598 [0.00123] d
Epoch = 134.8225 [0.0160] BKJD
Rp/R* = 0.0066 [0.0019]
a/R* = 70.32 [89.80]
b = 0.96 [0.11]
Seff = 357.76 [67.05]
Teq = 1109 [52] K
Rp = 10.58 [3.92] Re
a = 0.4983 [0.0764] AU
Ag = 21.84 [14.03] [1.48 σ]
Teff = 3706 [583] K [4.44 σ]

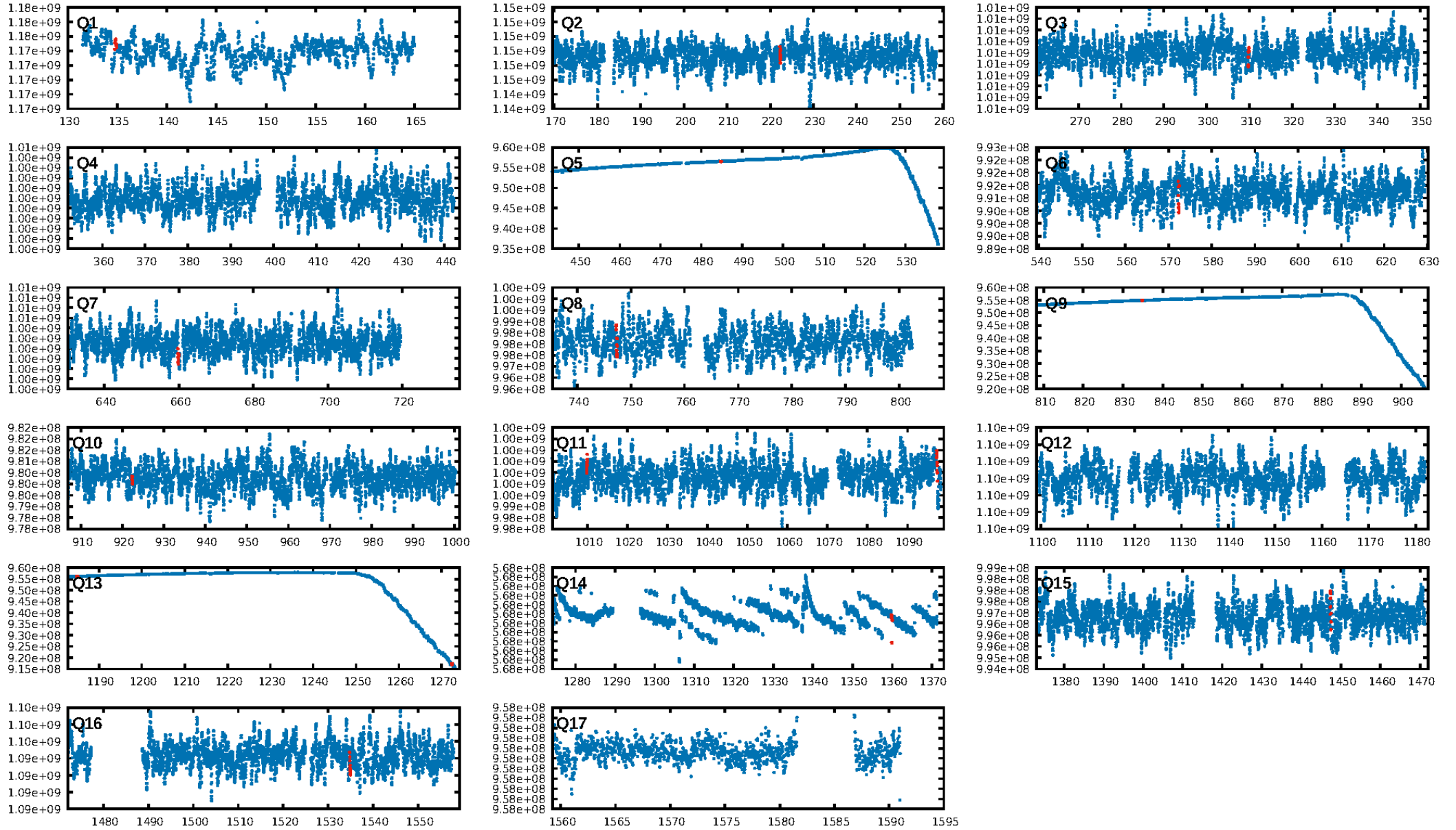
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [129.42 σ]
LongPeriod-sig: 100.0% [77.08 σ]
ModelChiSquare2-sig: 82.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 2.364
Centroid-sig: 2.0%
Centroid-so: 5.823 arcsec [1.58 σ]
OotOffset-rm: 0.944 arcsec [1.27 σ]
KicOffset-rm: 1.308 arcsec [1.91 σ]
OotOffset-st: 4/4/2/4 [14]
KicOffset-st: 4/4/2/4 [14]
DiffImageQuality-fgm: 0.43 [6/14]
DiffImageOverlap-fno: 0.93 [13/14]

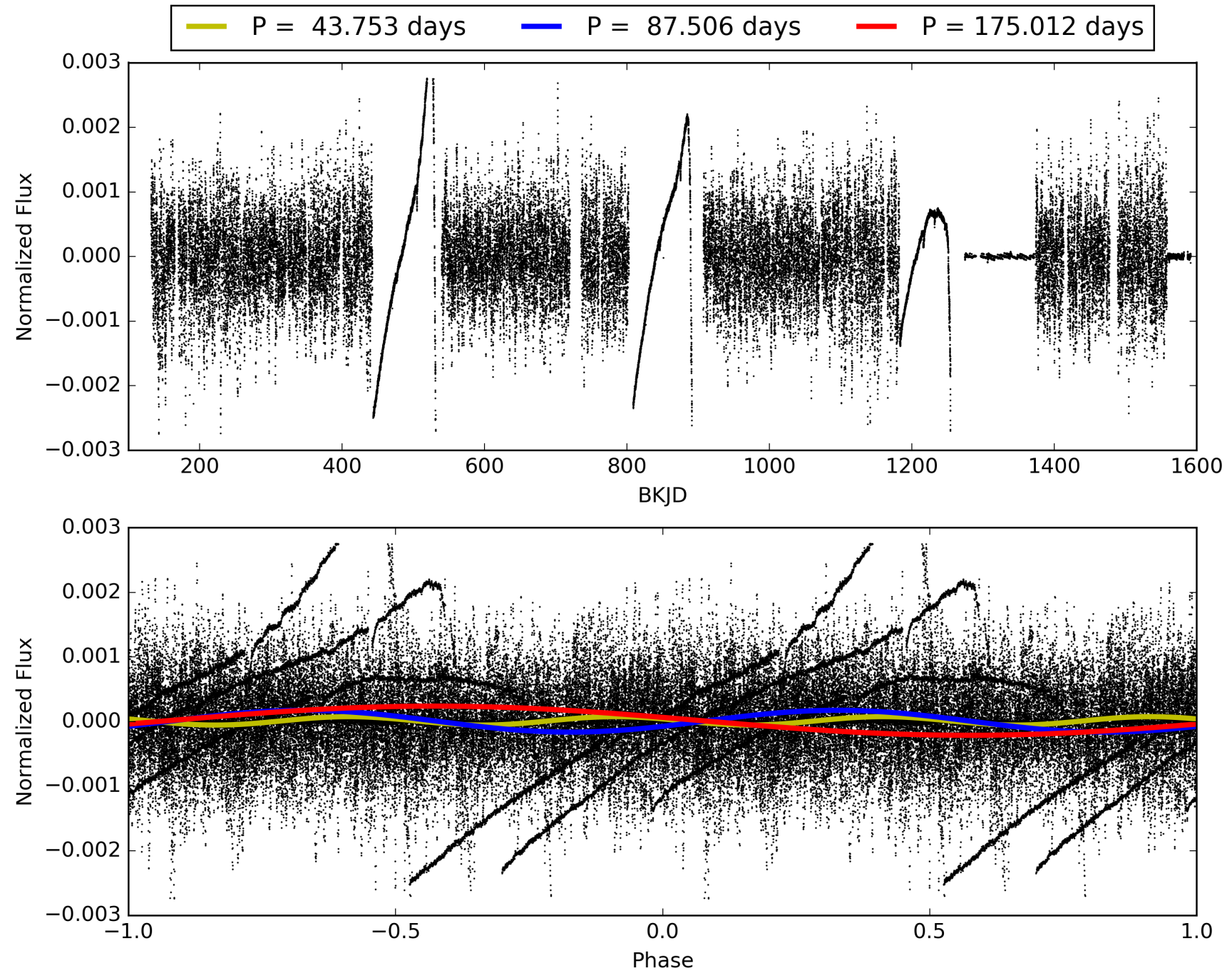
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:24:16 Z

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

TCE 006192431-09, PDC Light Curves

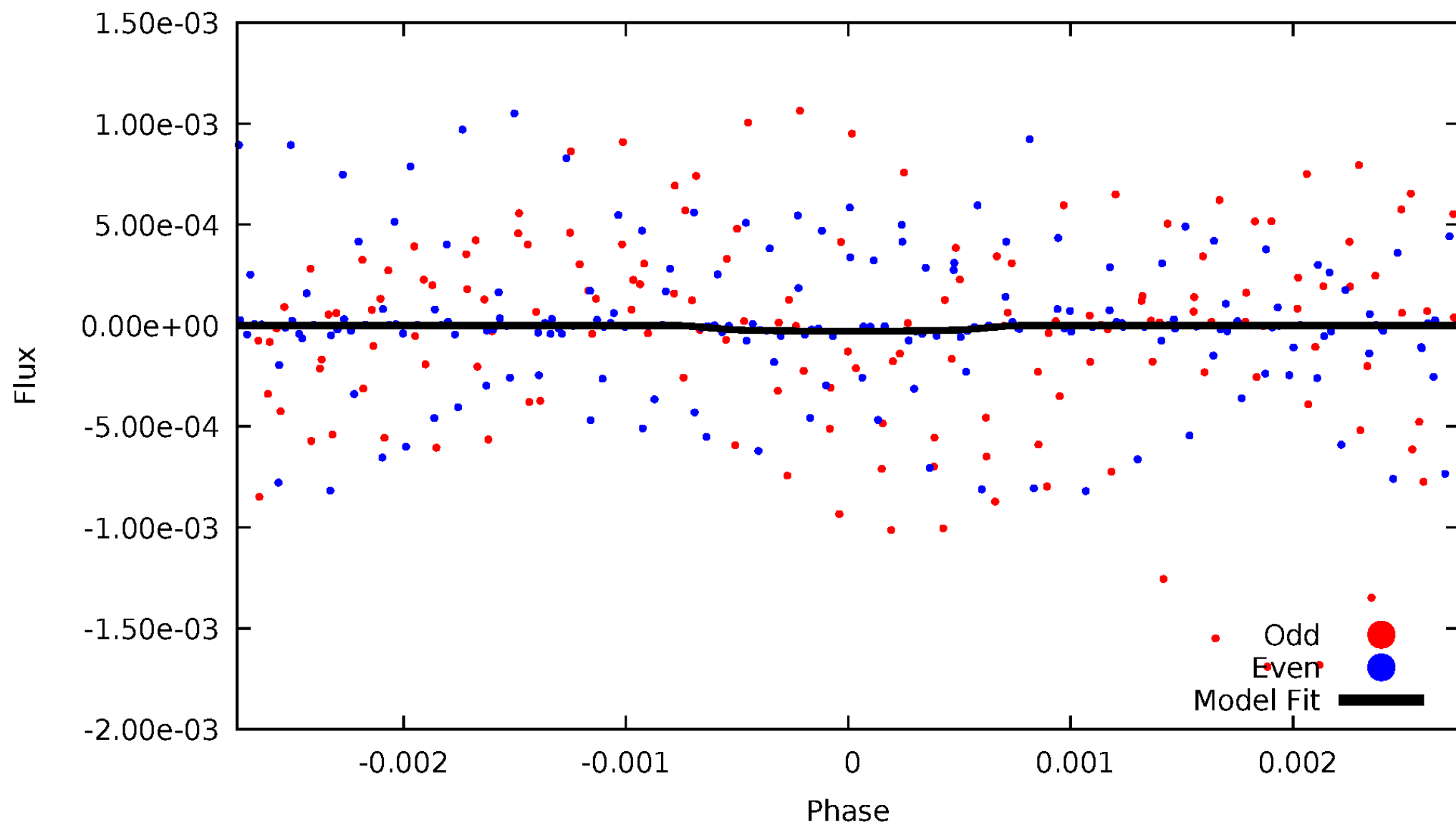


TCE 006192431-09



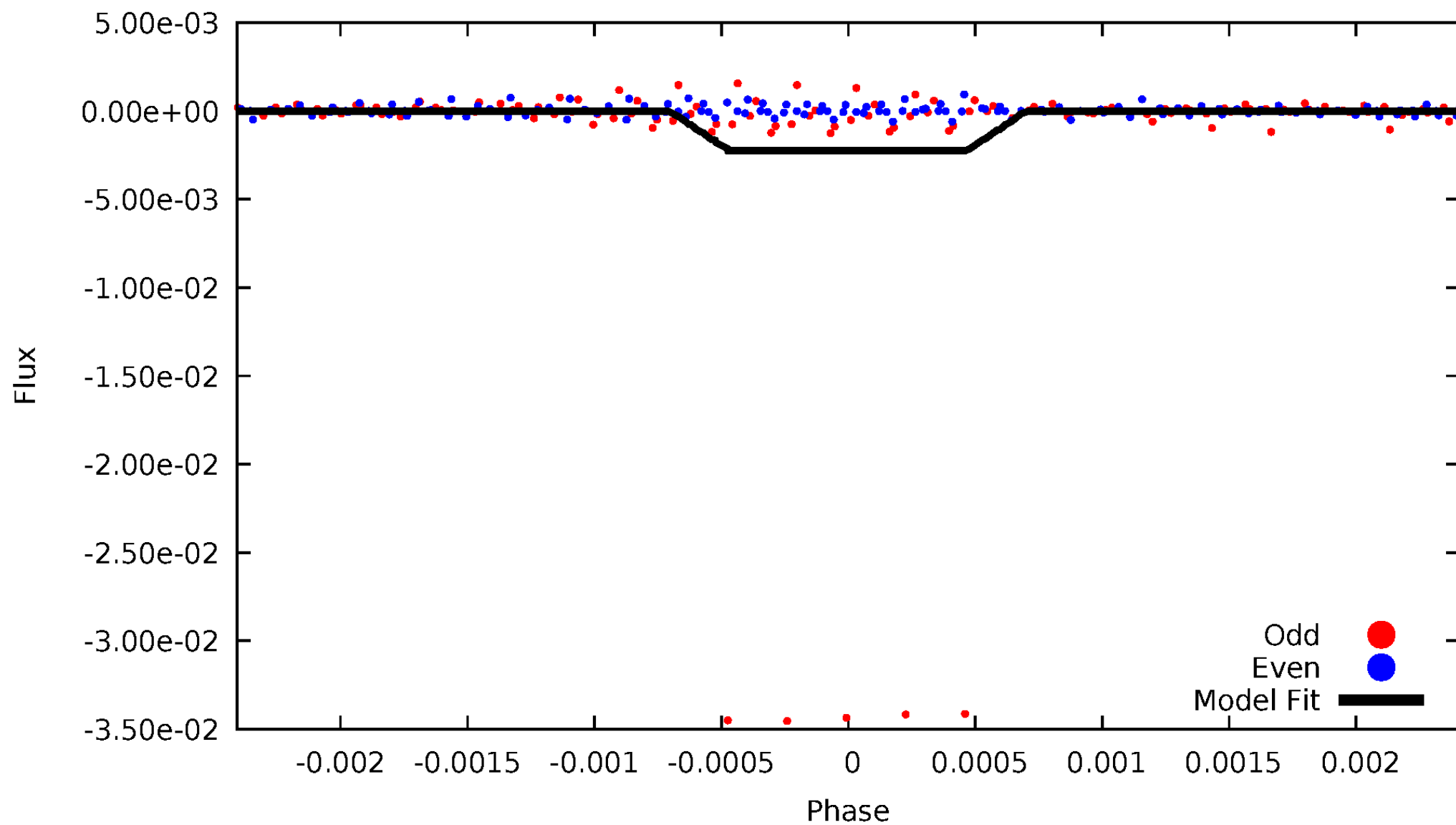
DV Odd/Even

TCE 006192431-09



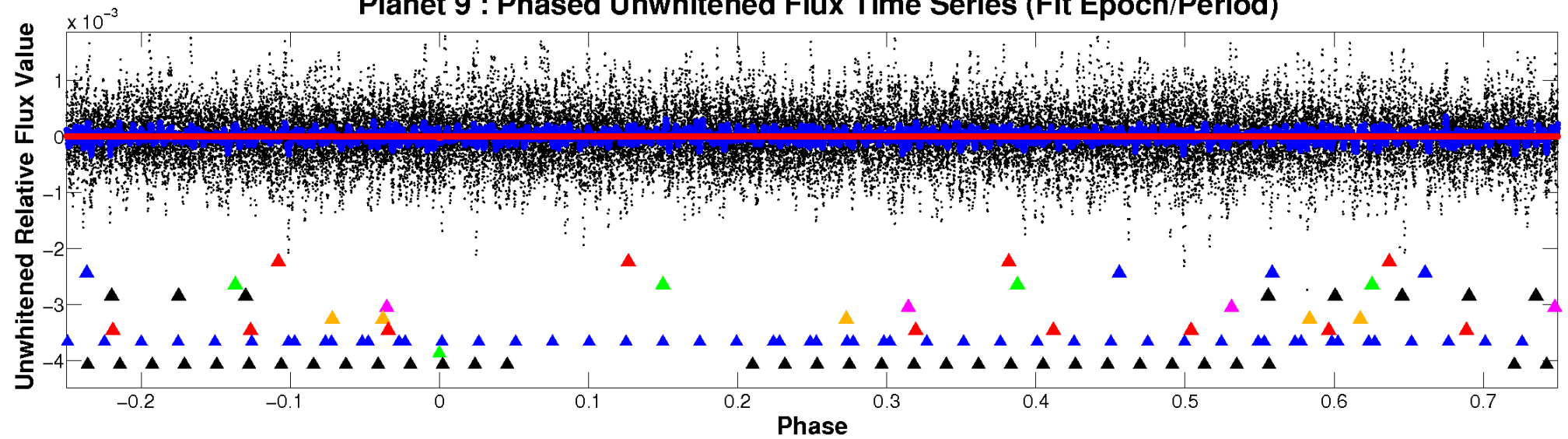
ALT Odd/Even

TCE 006192431-09

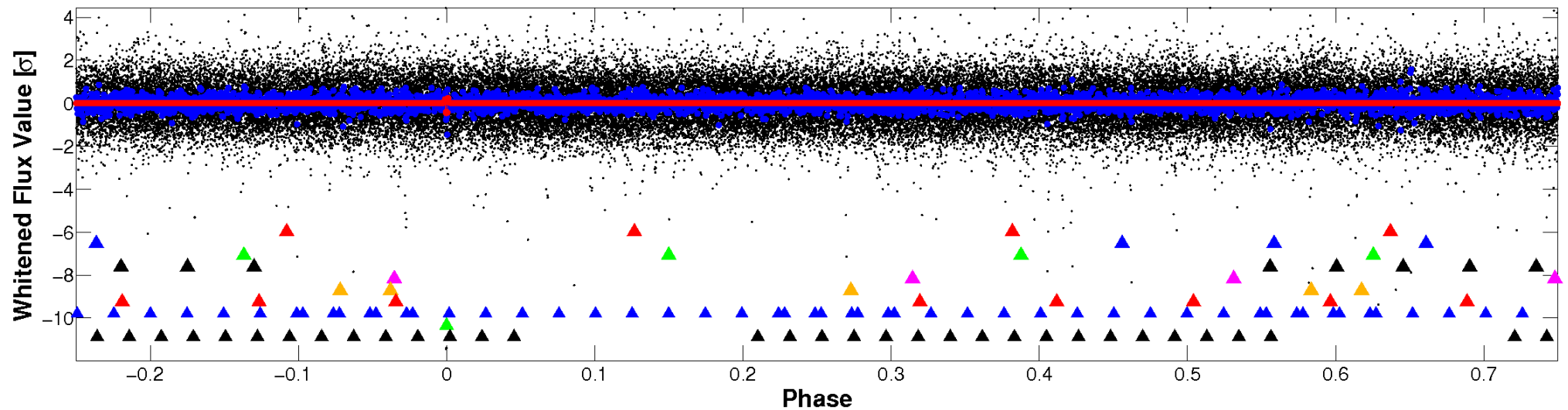


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

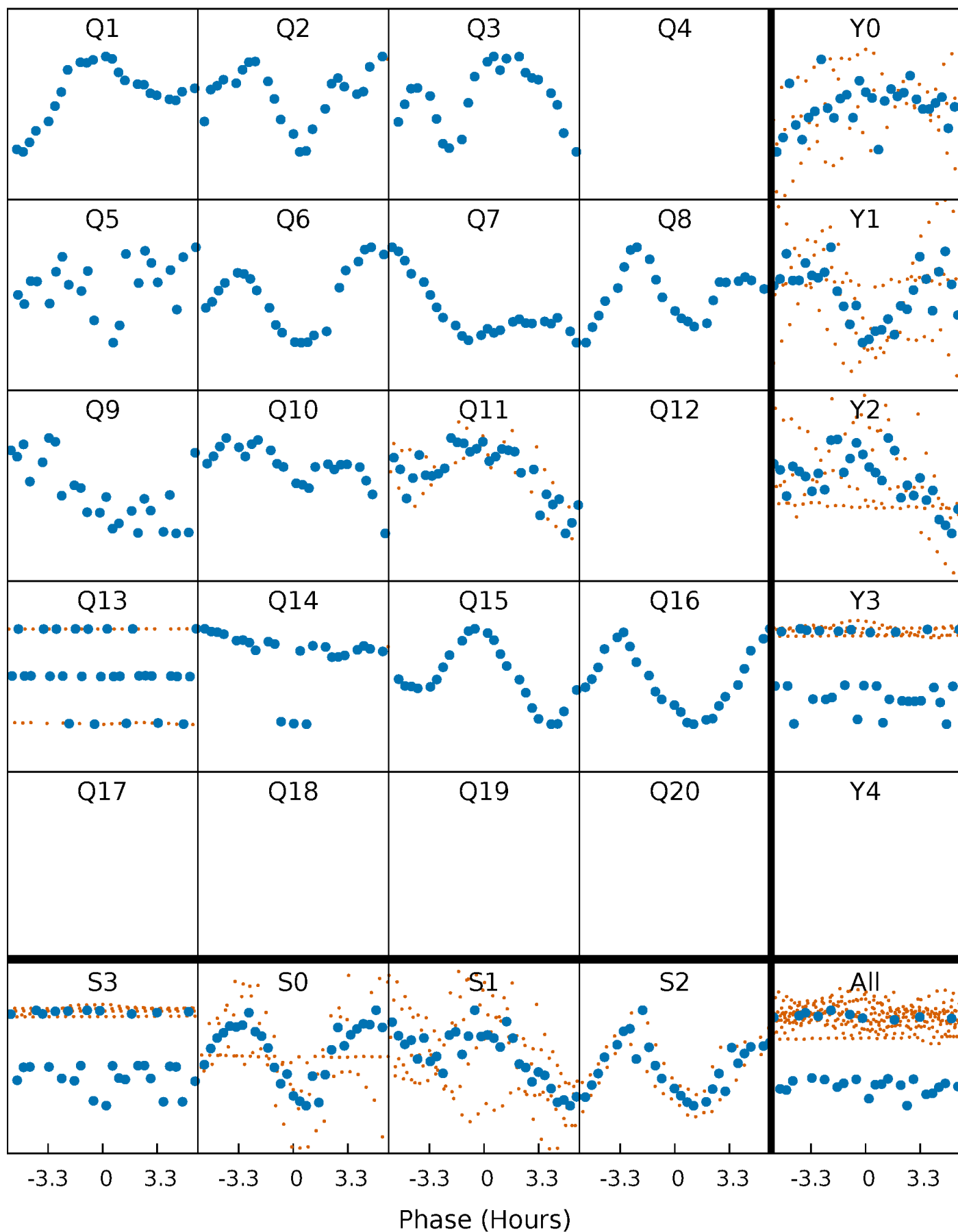


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



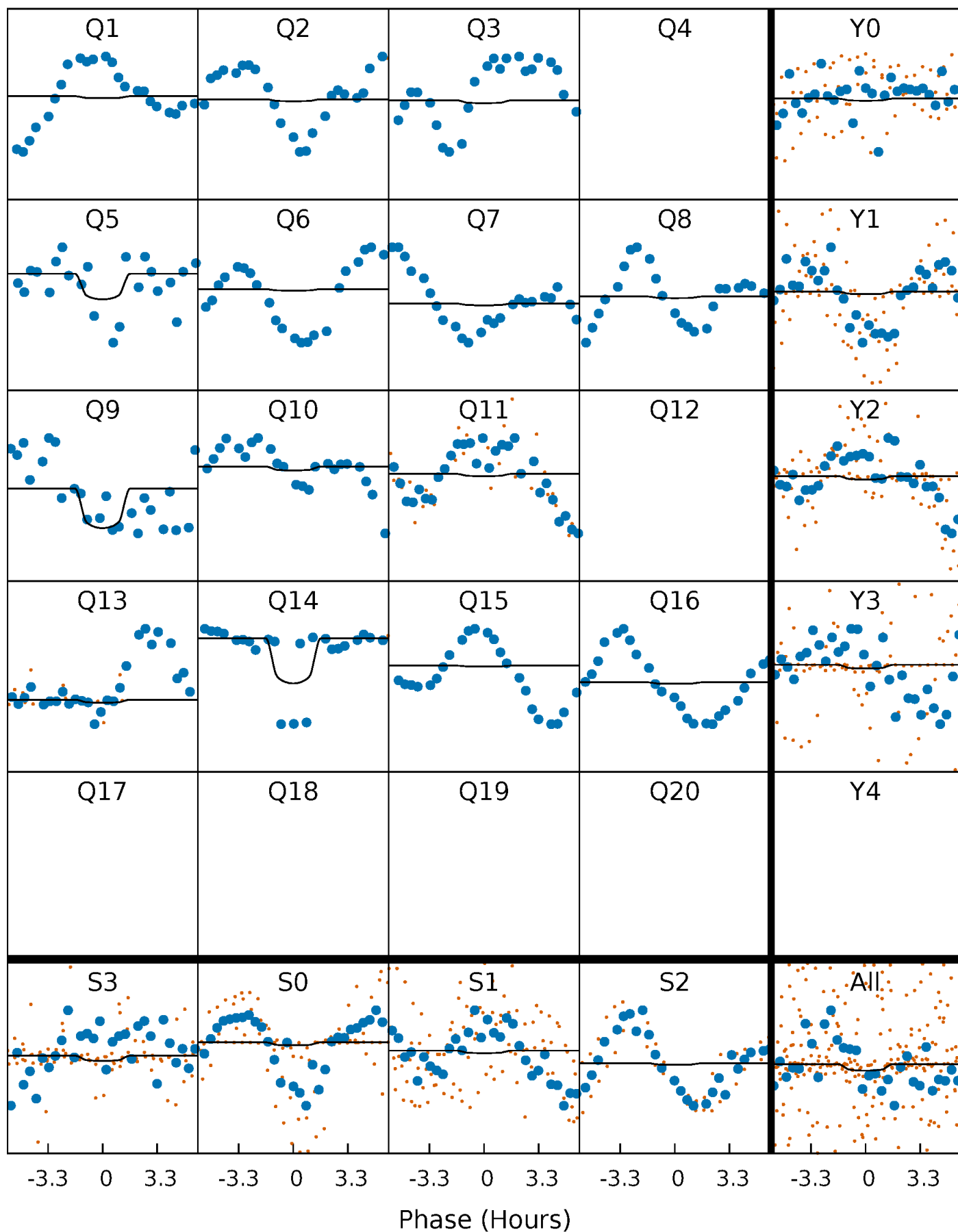
PDC Quarter-Phased Transit Curves

TCE 006192431-09 P= 87.505984 Days $T_0=134.822499$ (BKJD)



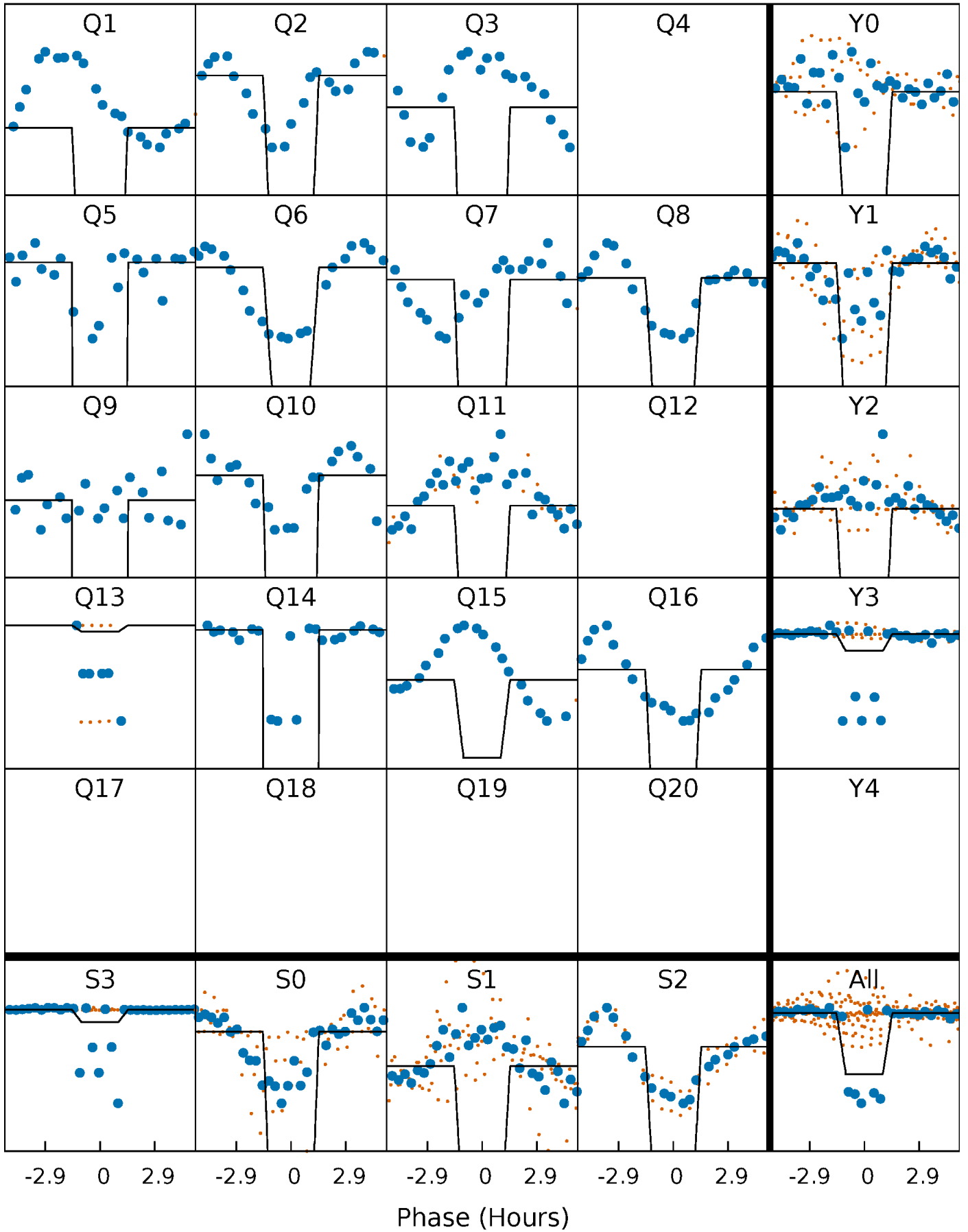
DV Quarter-Phased Transit Curves

TCE 006192431-09 P= 87.505984 Days $T_0=134.822499$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

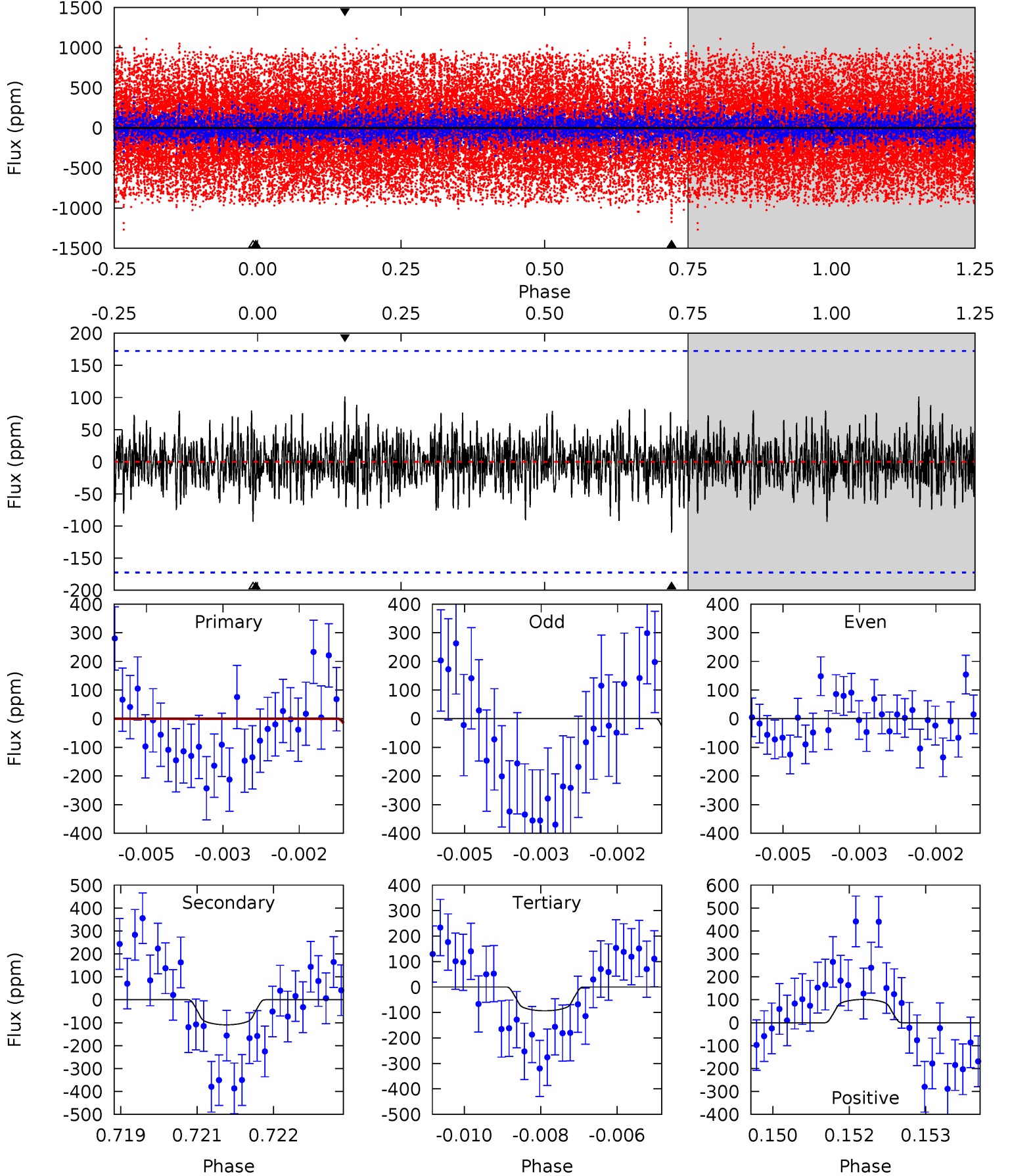
TCE 006192431-09 P= 87.503551 Days $T_0=134.878142$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-09, P = 87.505984 Days, E = 47.316515 Days

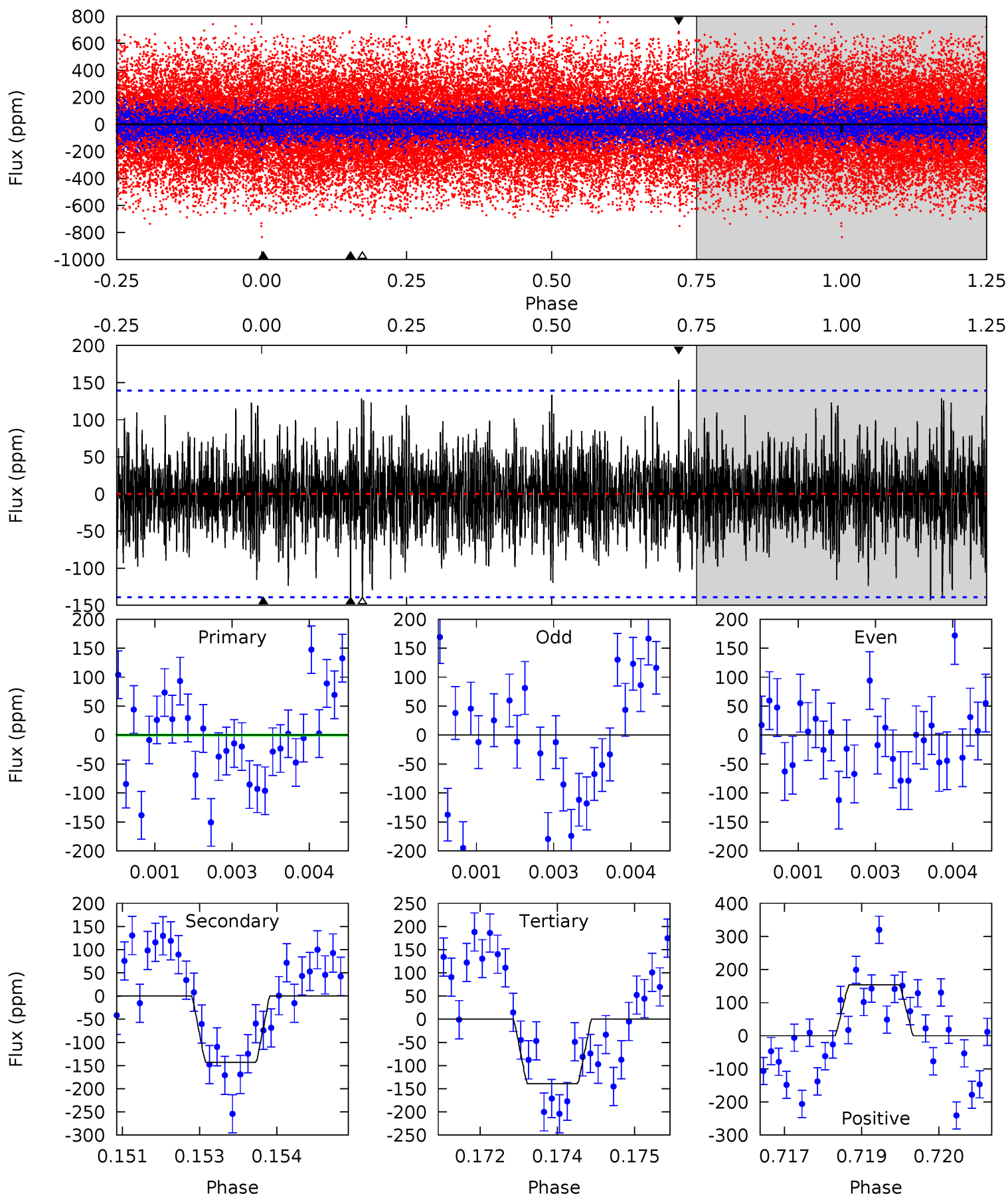
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.75	3.40	2.91	3.16	5.37	3.16	0.90	-1.16	-1.40	0.50	0.25	1.73	0.96	0.48	0.49



Alt Model-Shift Uniqueness Test

006192431-09, P = 87.503551 Days, E = 47.374591 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.03	5.54	5.39	5.96	5.39	3.19	1.62	-3.36	-3.93	0.15	-0.42	9.91	60.0	0.52	0



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-109 ± 32	$10.64^{+4.09}_{-3.49}$	1545^{+44}_{-55}	5590^{+1216}_{-745}	133^{+162}_{-64}
Alt.	-143 ± 26	$77.69^{+10.11}_{-11.37}$	1546^{+46}_{-52}	2887^{+98}_{-101}	$3.322^{+0.837}_{-0.715}$

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

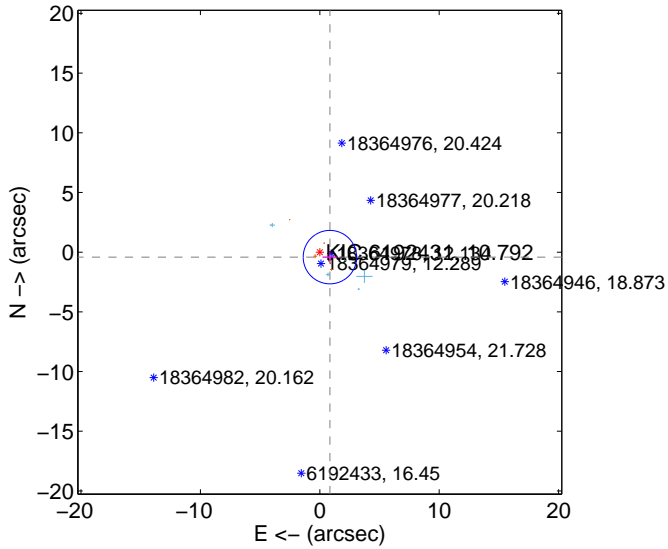
Supplemental centroid analysis for 006192431-09. **Kepler magnitude: 10.79.** Transit SNR 5.50

There are 6 quarters with good PRF difference image offsets

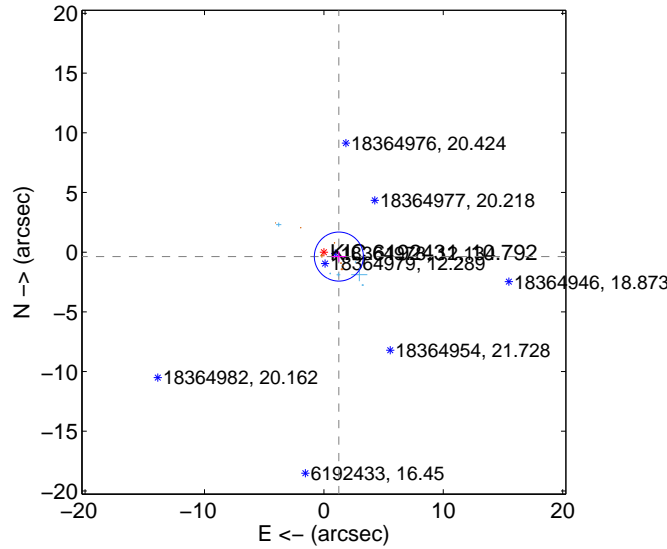
The direct PRF centroid is offset from the target star catalog position by about 0.46 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.944 ± 0.746	1.27	-0.848 ± 0.625	-0.415 ± 0.464
PRF-fit source offset from KIC position	1.308 ± 0.685	1.91	-1.255 ± 0.598	-0.369 ± 0.433
photometric centroid source offset	5.82 ± 3.69	1.58	-2.36 ± 4.25	-5.32 ± 3.57

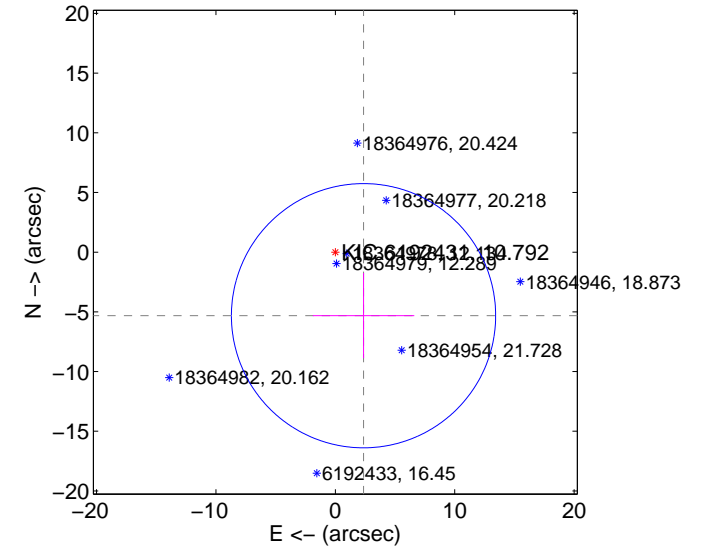
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

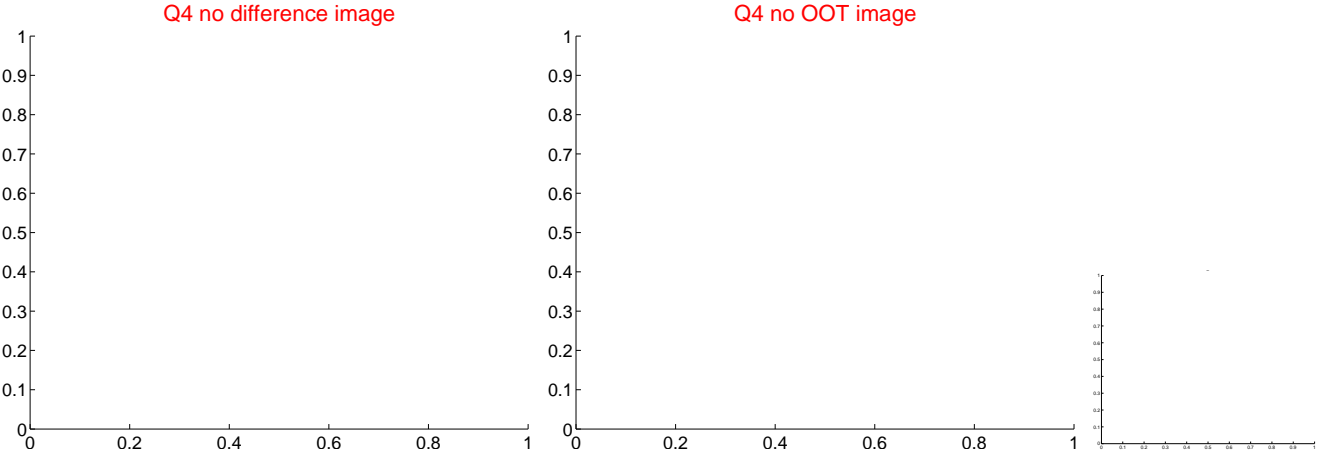
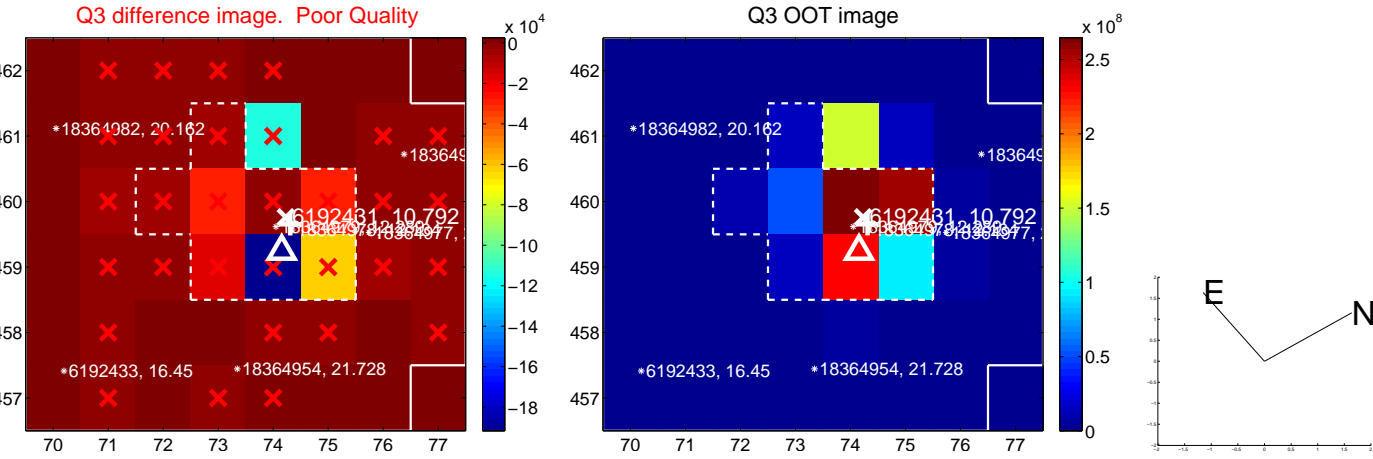
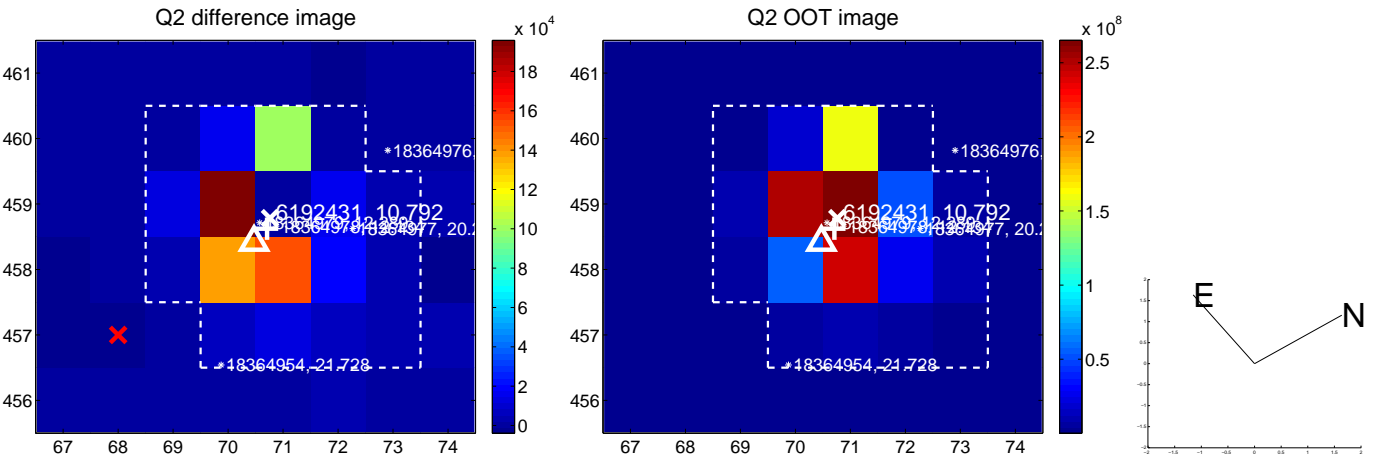
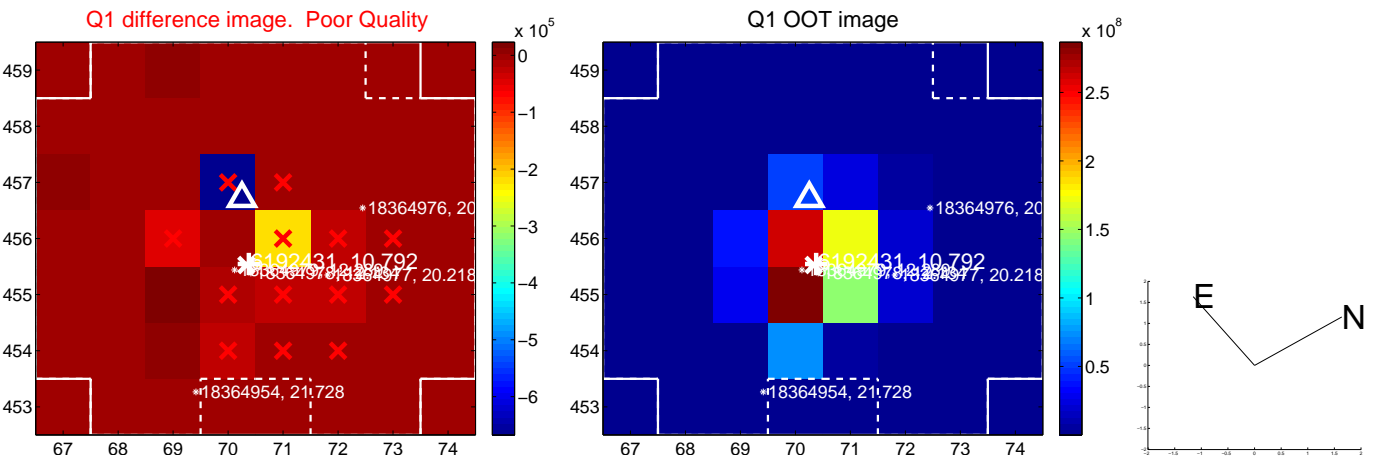


offset from photometric centroids

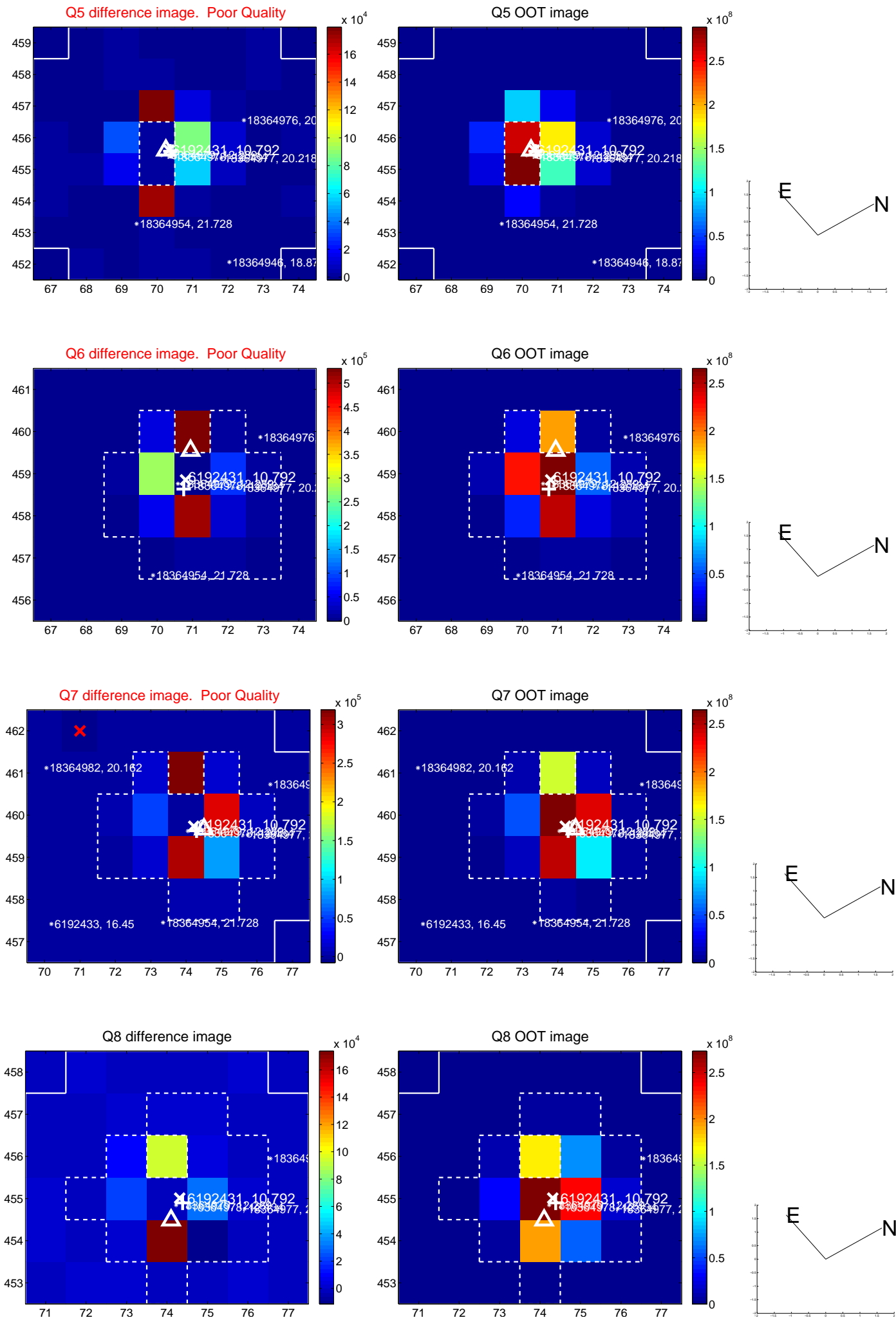


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

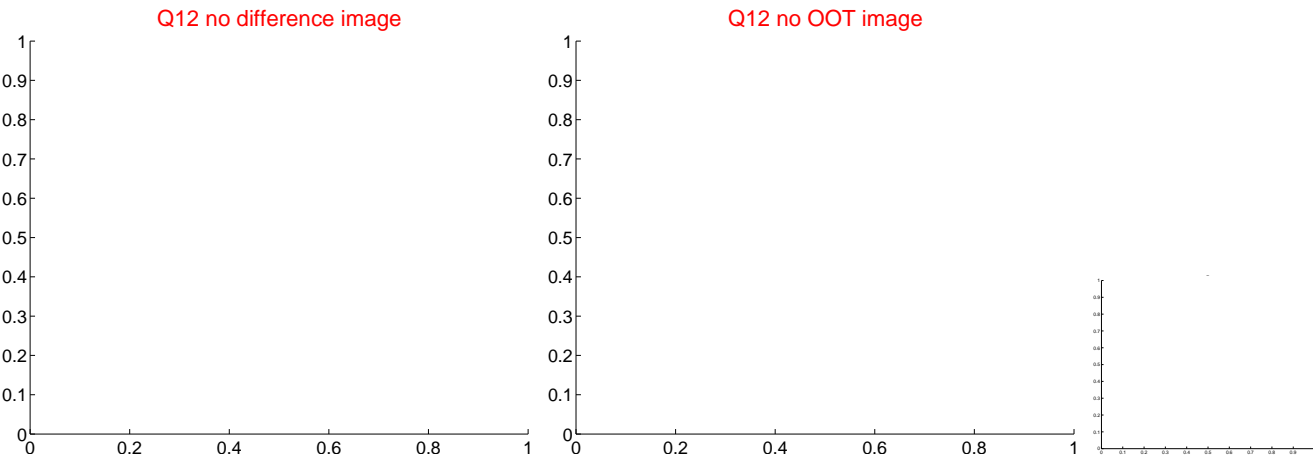
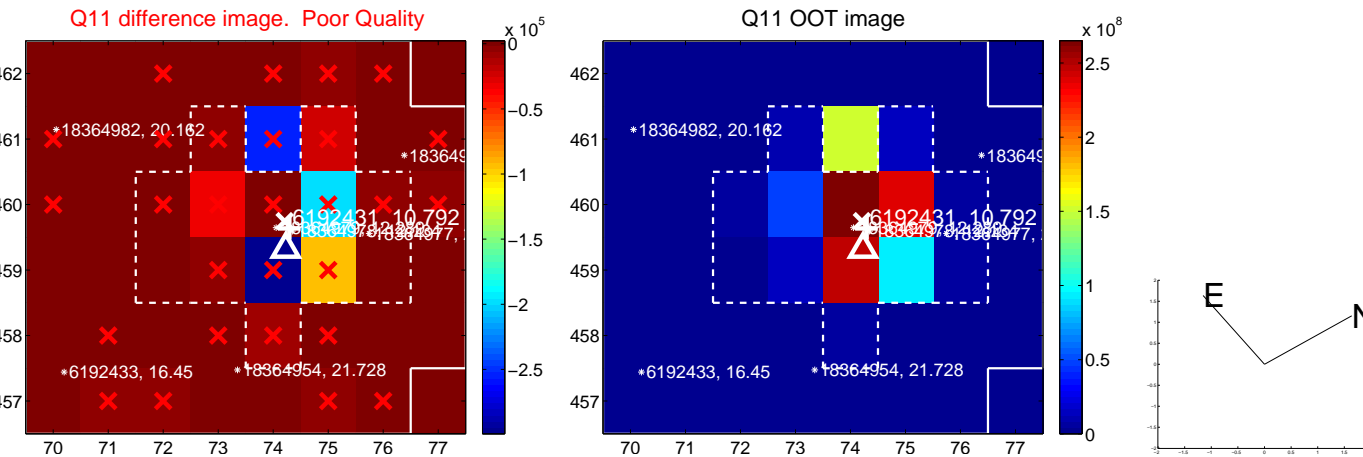
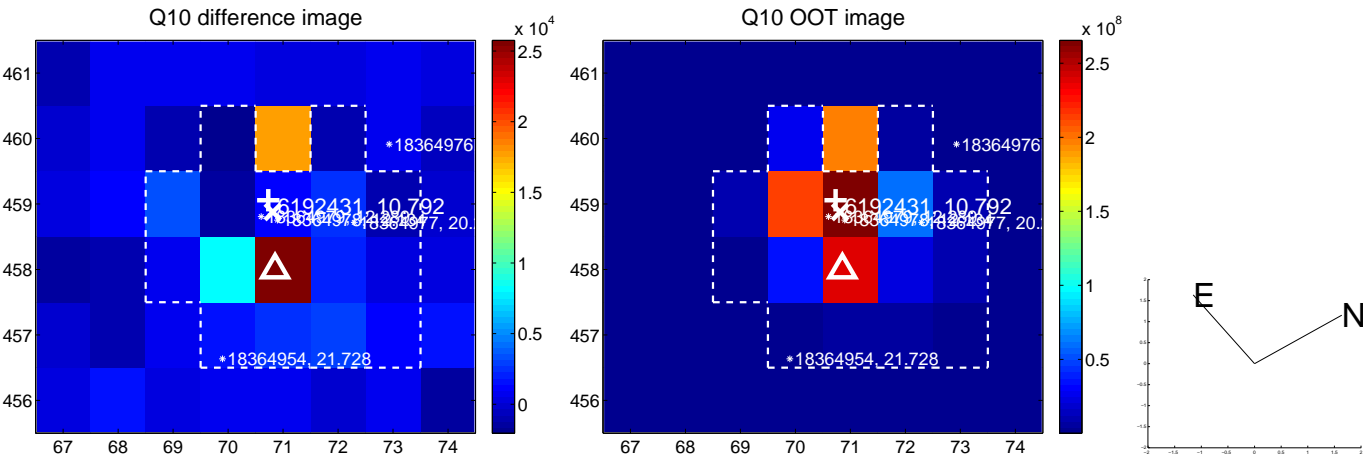
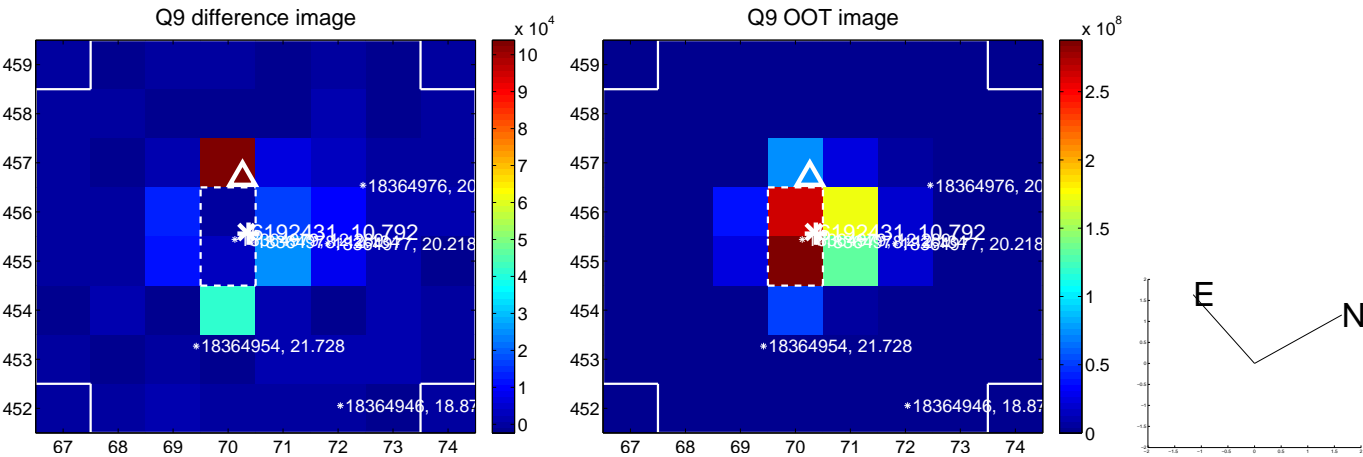
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



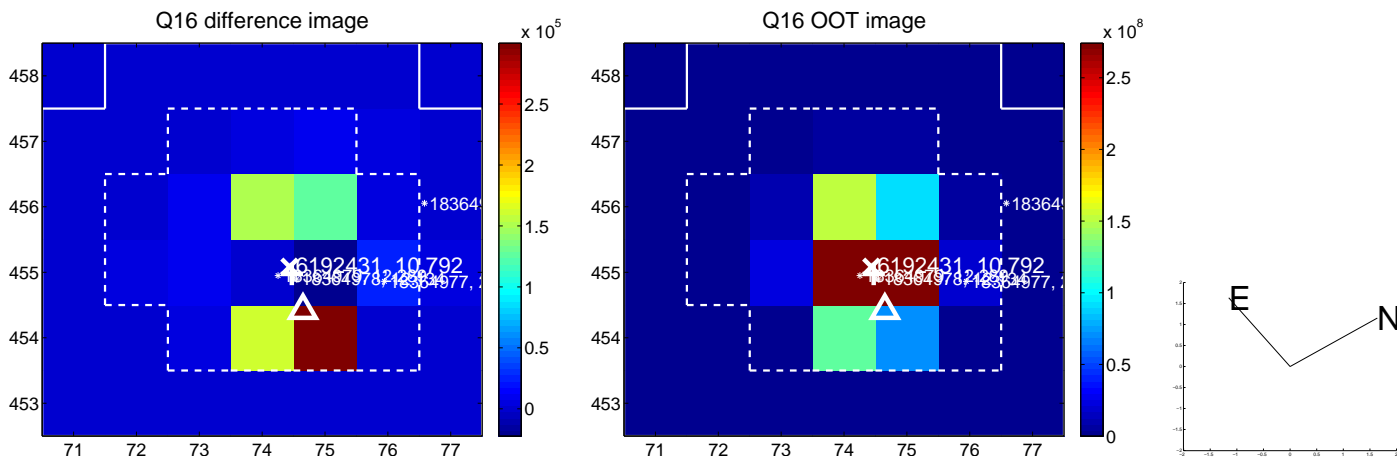
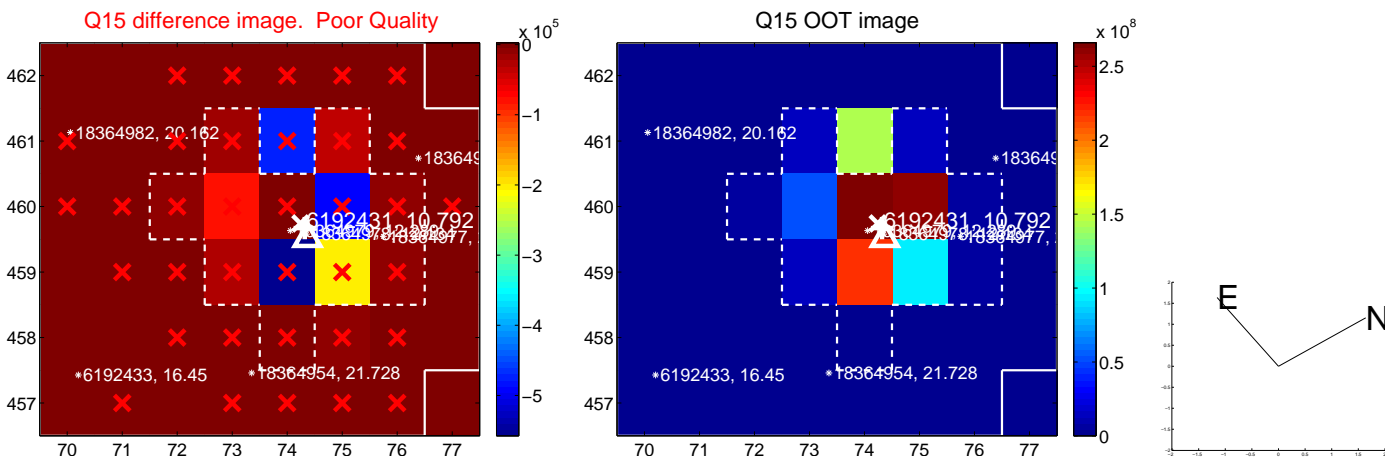
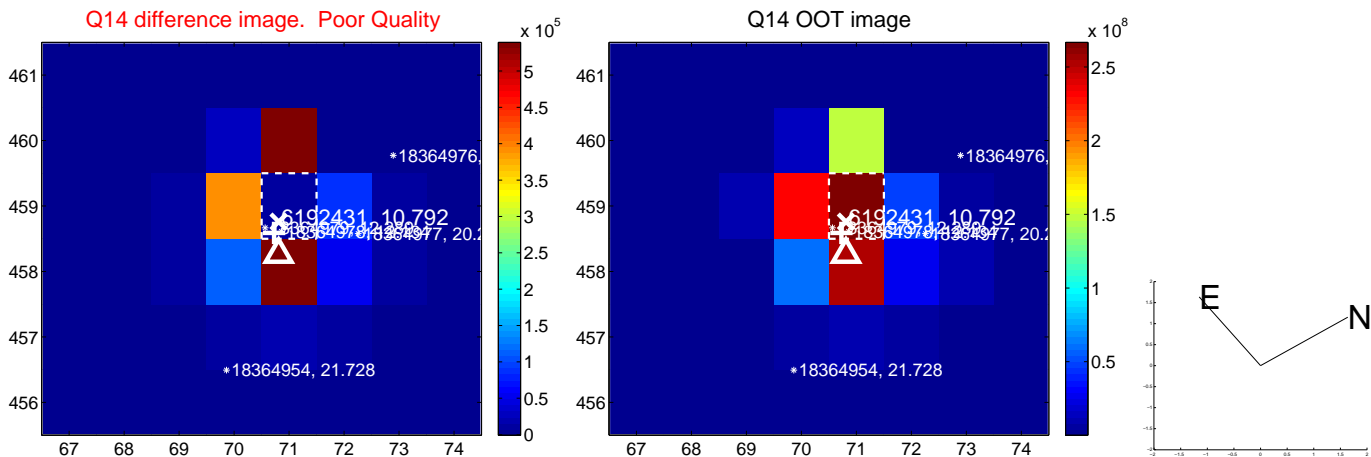
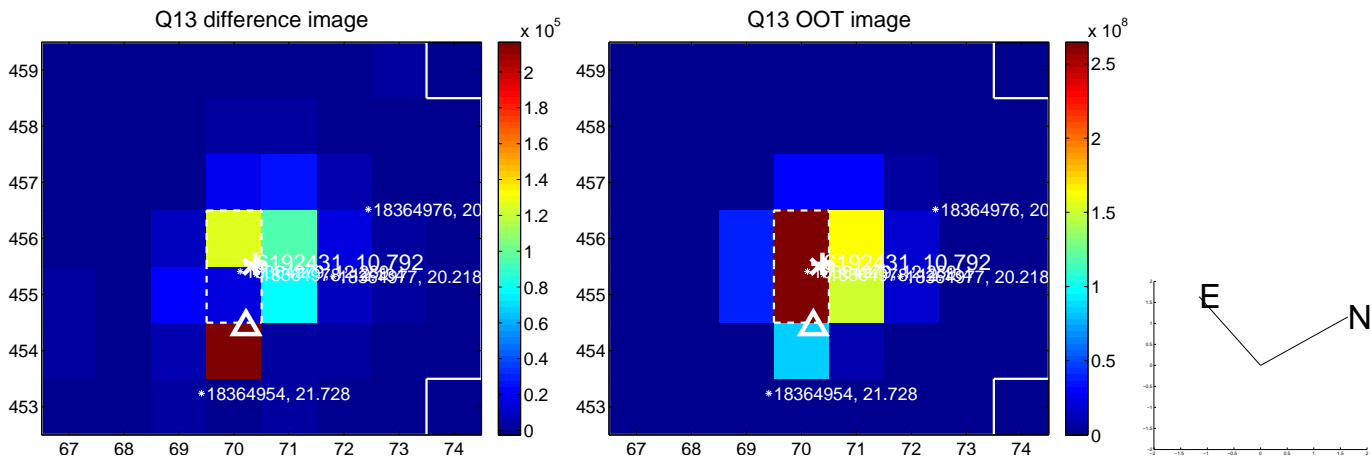
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



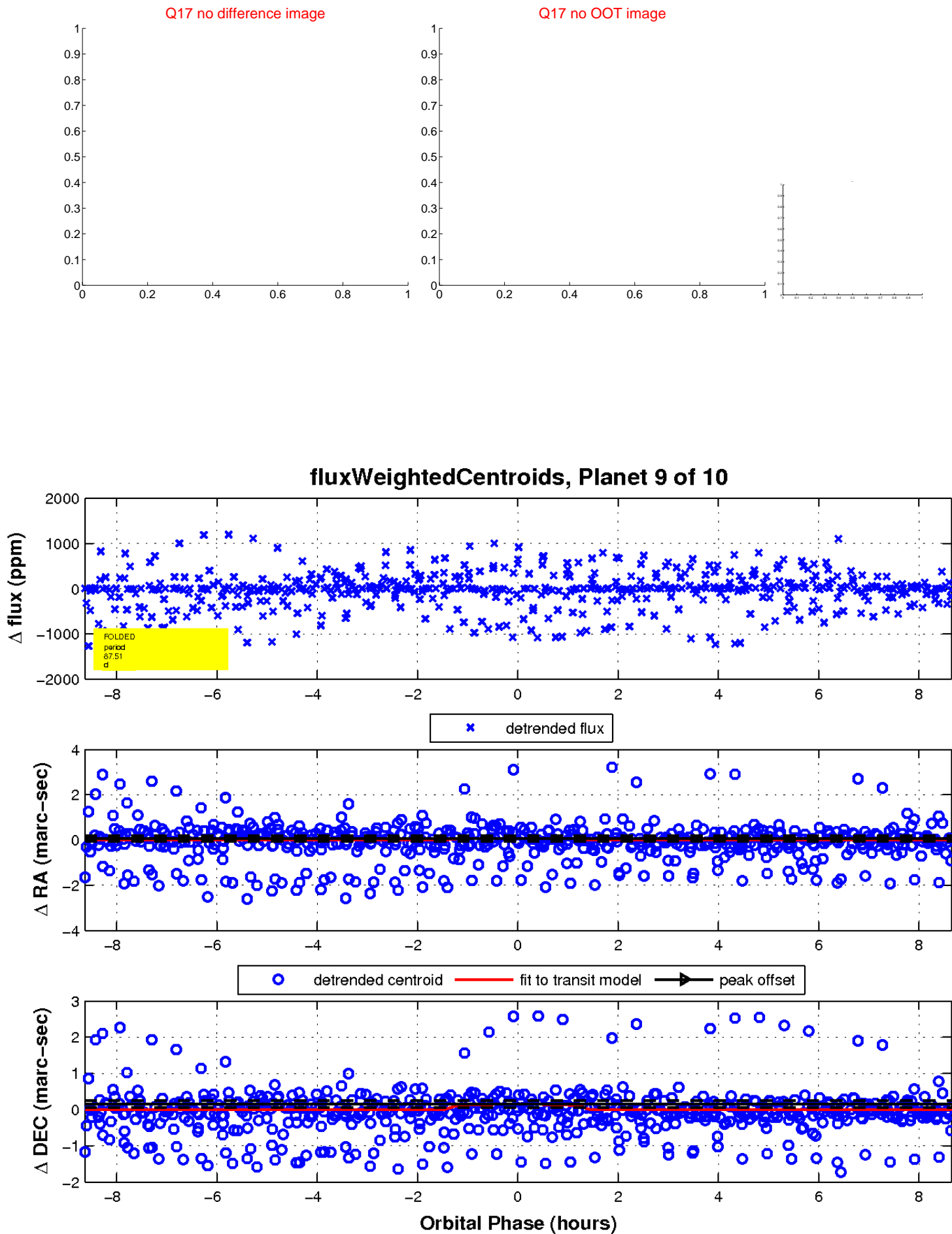
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

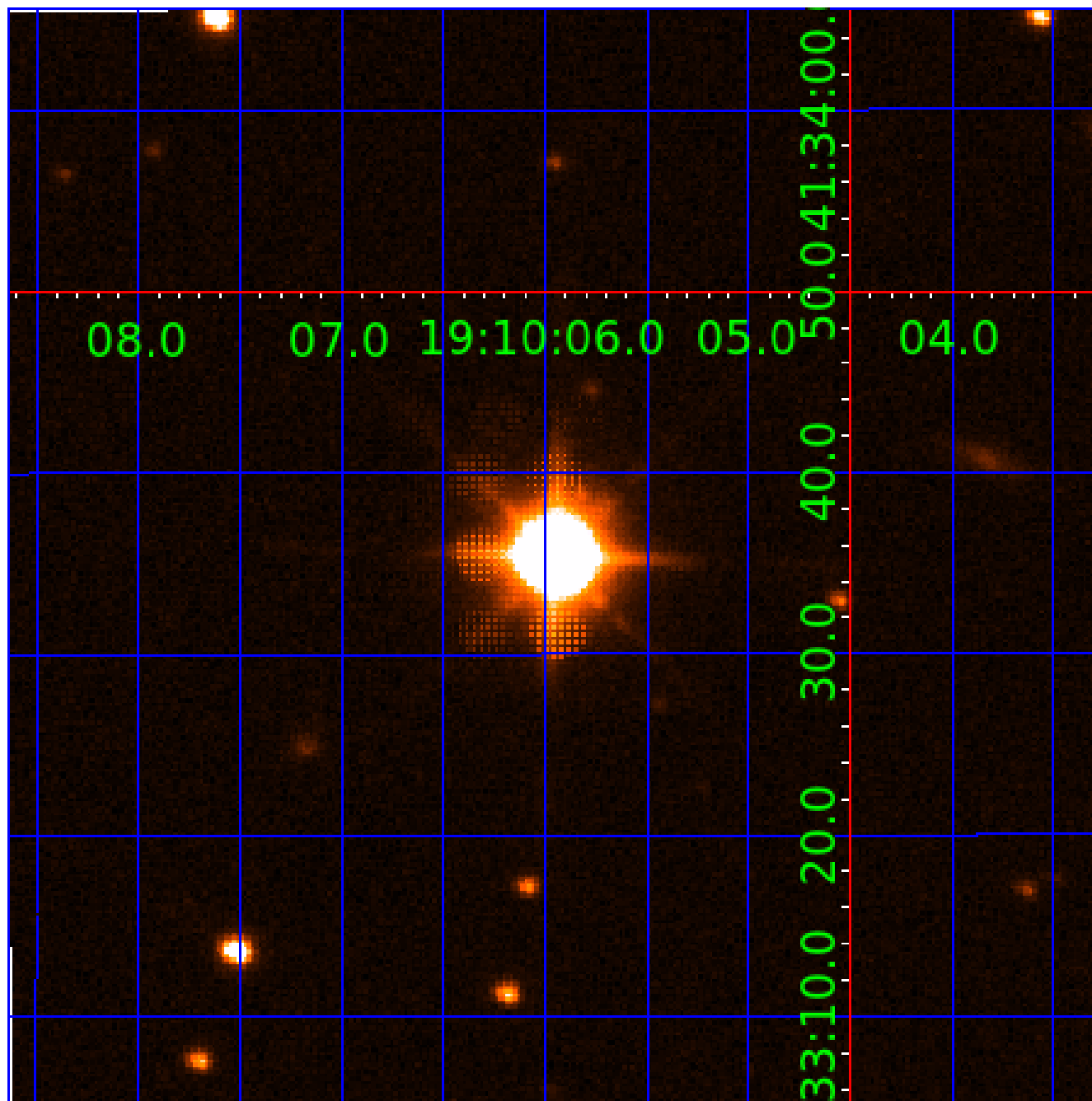


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
006192431-01	OBS	No	372.347592	145.914188	32.3	4.699	39.6	1.9	14.70	4629	10.26	51.88
006192431-02	OBS	No	358.997216	174.721162	269.0	12.500	42.2	-1.0	14.70	4629	23.05	54.47
006192431-03	OBS	No	370.828432	147.942459	369.1	26.716	31.4	19.3	14.70	4629	37.87	52.17
006192431-04	OBS	No	178.940621	183.459519	705.9	28.322	25.5	24.0	14.70	4629	56.68	137.84
006192431-05	OBS	No	368.990817	162.340404	672.6	11.428	24.6	19.9	14.70	4629	43.31	52.52
006192431-06	OBS	No	319.864348	306.524617	709.7	22.887	23.8	21.0	14.70	4629	48.38	63.54
006192431-07	OBS	No	183.091509	162.774341	104.7	15.000	16.5	-1.0	14.70	4629	14.37	133.69
006192431-08	OBS	No	28.448407	132.456892	33.0	1.305	17.8	9.2	14.70	4629	9.10	1600.41
006192431-09	OBS	No	87.505984	134.822499	27.5	2.885	15.1	5.5	14.70	4629	10.57	357.76
006192431-10	OBS	No	44.700005	153.202754	7.9	7.396	13.5	2.1	14.70	4629	4.99	876.12

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006192431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_ALT—CENT_SATURATED
006192431-03	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_SATURATED
006192431-04	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
006192431-08	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-09	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
006192431-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

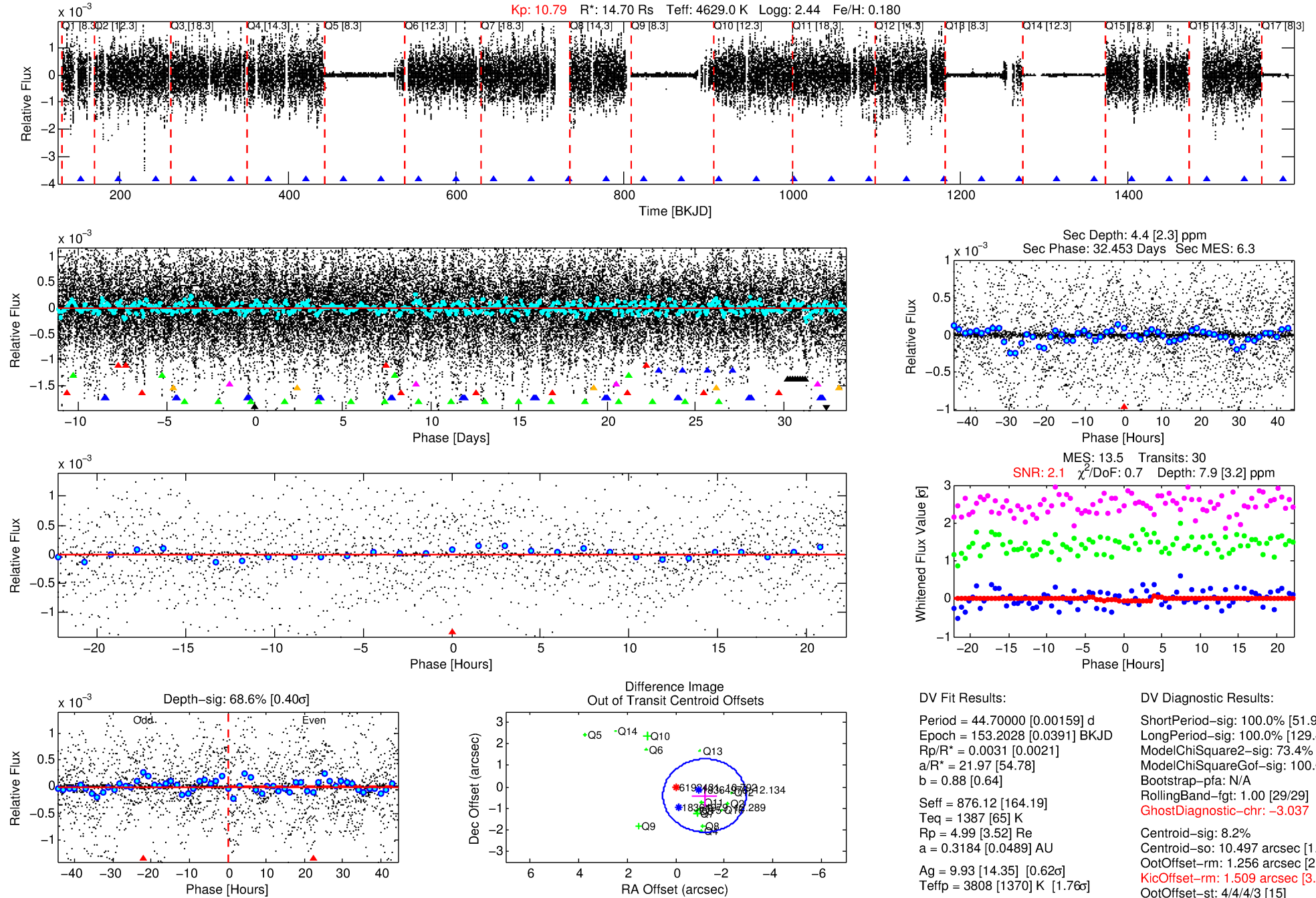
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006192431-10

No Significant Match Found

DV One-Page Summary

KIC: 6192431 Candidate: 10 of 10 Period: 44.700 d



DV Fit Results:

Period = 44.70000 [0.00159] d
Epoch = 153.2028 [0.0391] BKJD
Rp/R* = 0.0031 [0.0021]
a/R* = 21.97 [54.78]
b = 0.88 [0.64]
Seff = 876.12 [164.19]
Teff = 1387 [65] K
Rp = 4.99 [3.52] Re
a = 0.3184 [0.0489] AU
Ag = 9.93 [14.35] [0.62 σ]
Teffp = 3808 [1370] K [1.76 σ]

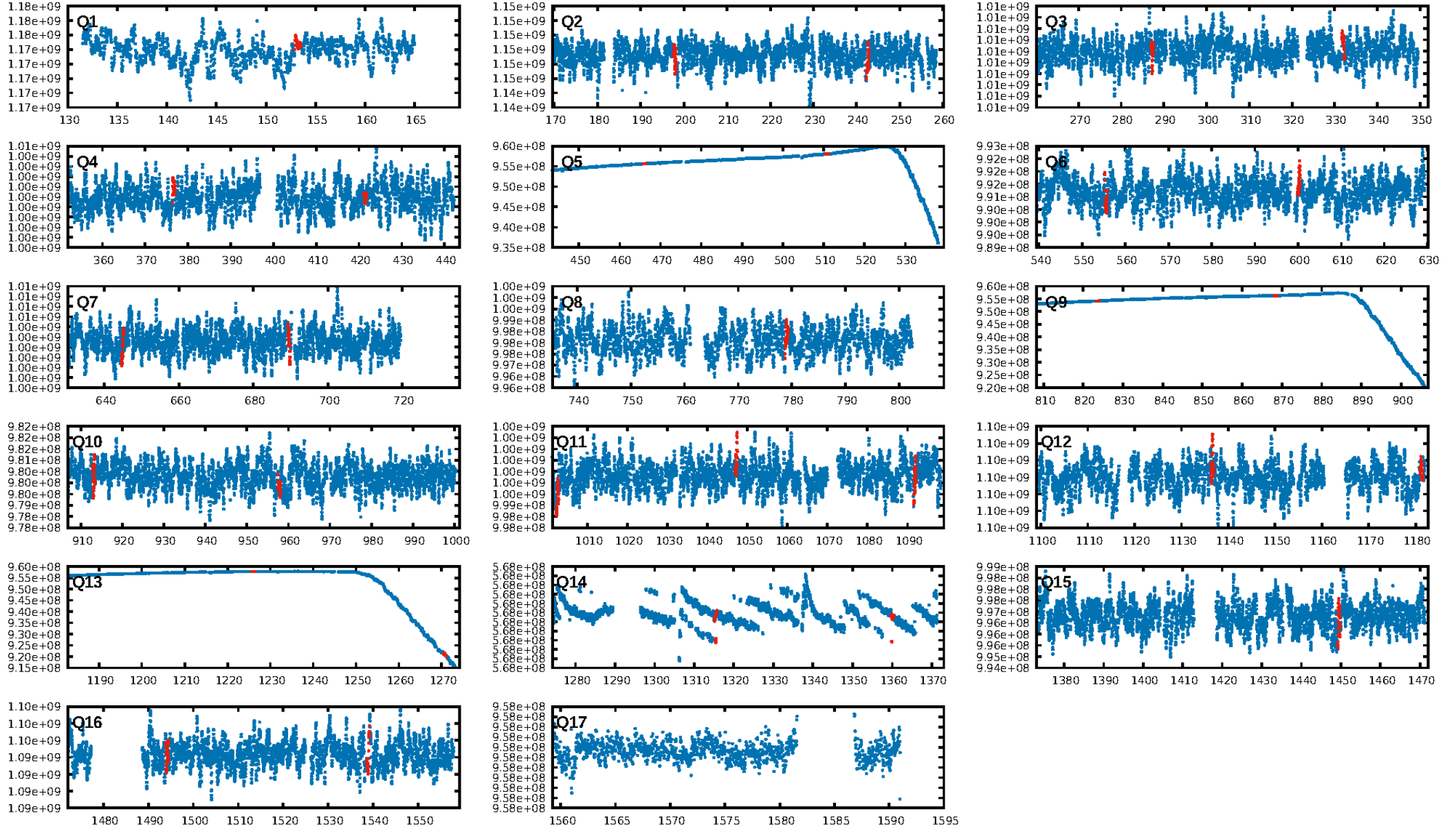
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [51.94 σ]
LongPeriod-sig: 100.0% [129.42 σ]
ModelChiSquare2-sig: 73.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [29/29]
GhostDiagnostic-chr: -3.037
Centroid-sig: 8.2%
Centroid-so: 10.497 arcsec [1.21 σ]
OotOffset-rm: 1.256 arcsec [2.20 σ]
OotOffset-st: 4/4/3 [15]
KicOffset-rm: 1.509 arcsec [3.09 σ]
KicOffset-st: 4/4/3 [15]
DiffImageQuality-fgm: 0.13 [2/15]
DiffImageOverlap-fno: 1.00 [16/16]

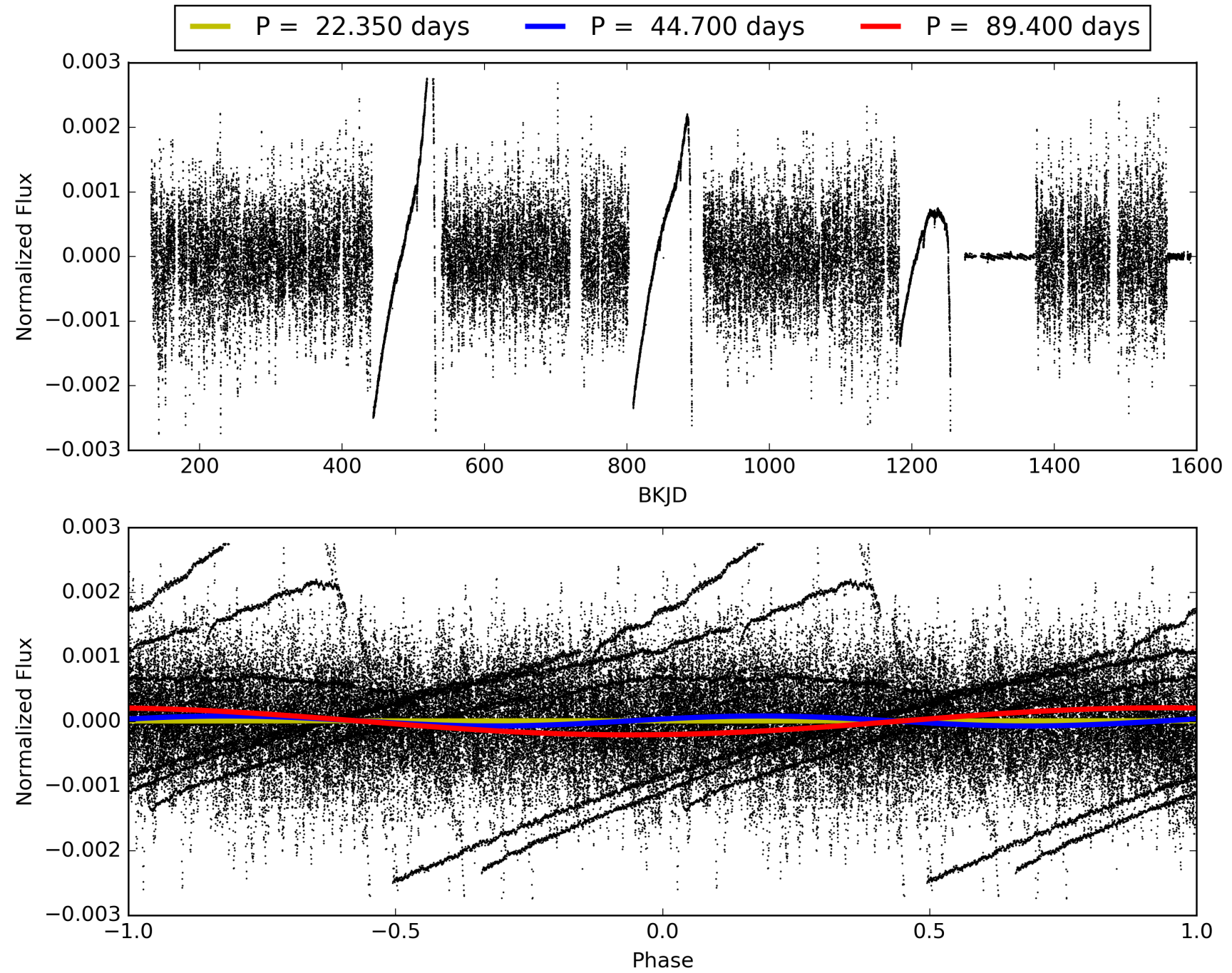
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 00:24:23 Z

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

TCE 006192431-10, PDC Light Curves

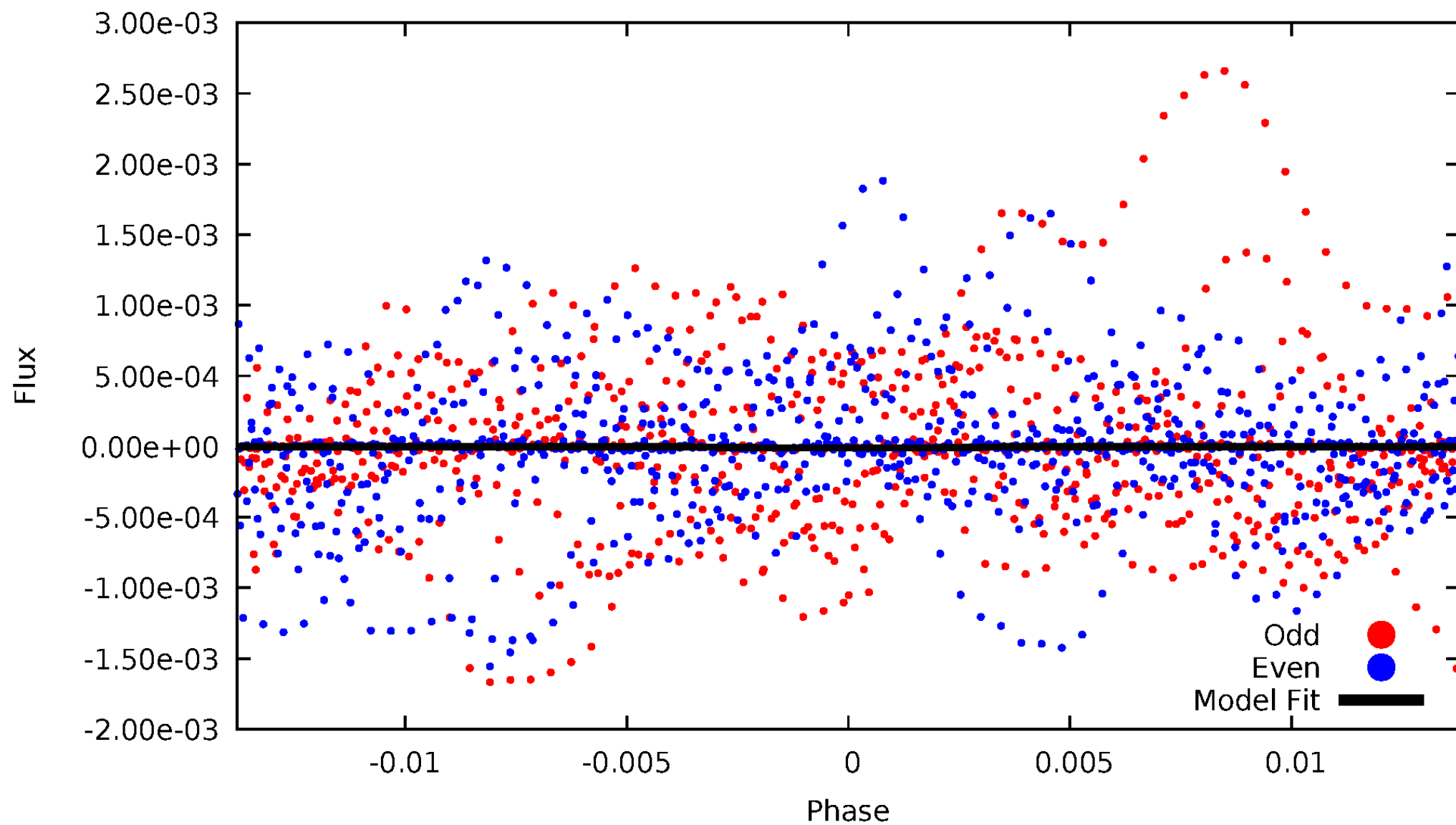


TCE 006192431-10



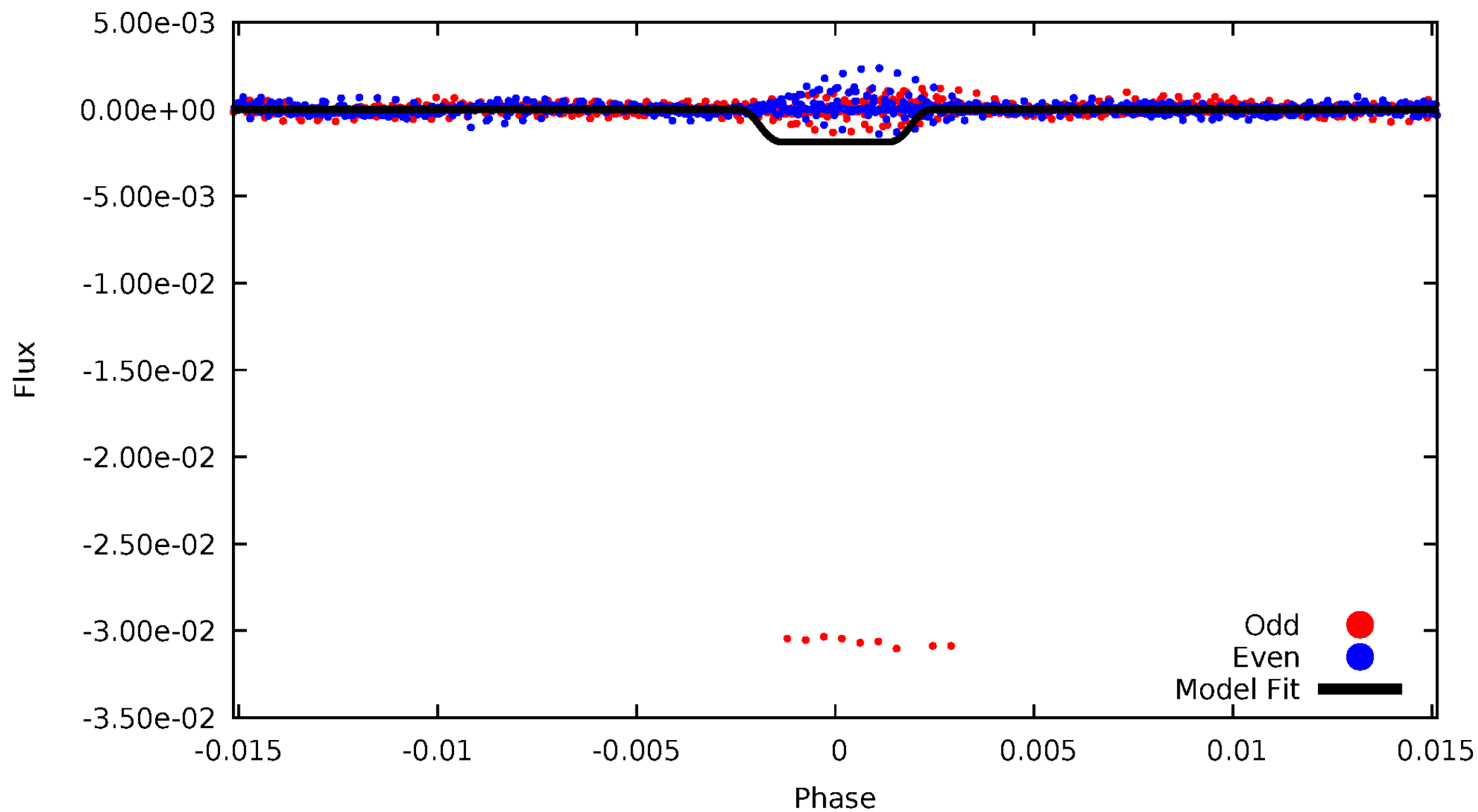
DV Odd/Even

TCE 006192431-10



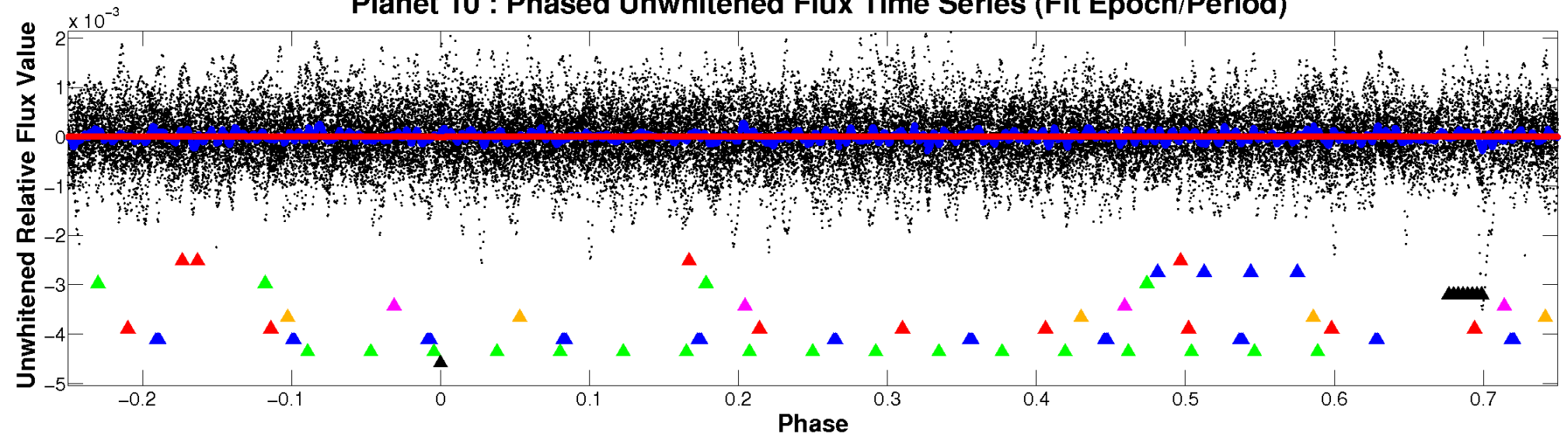
ALT Odd/Even

TCE 006192431-10

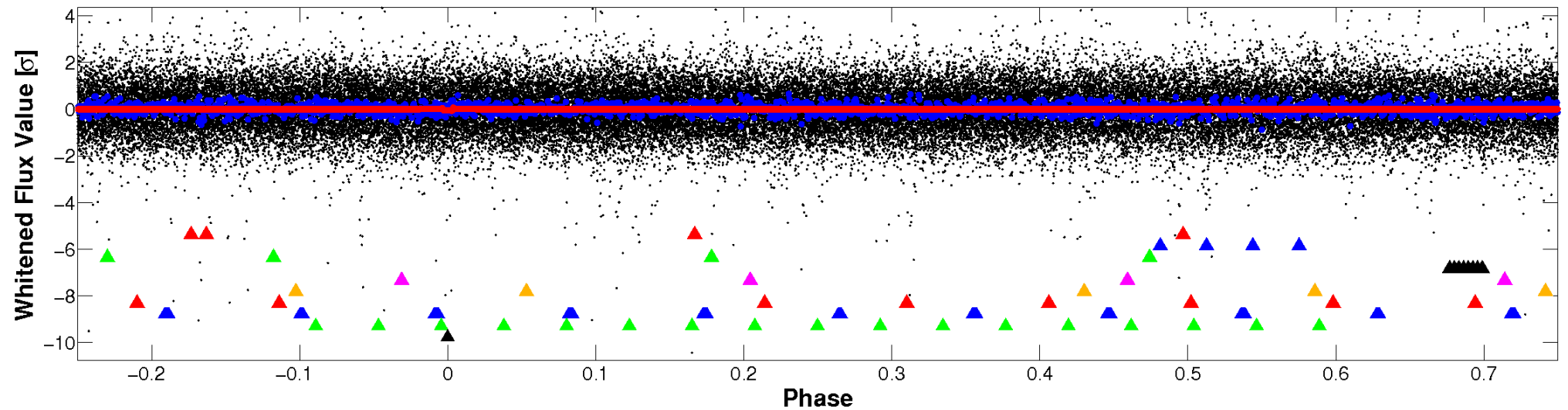


Non-Whitened Vs. Whitened Light Curve

Planet 10 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

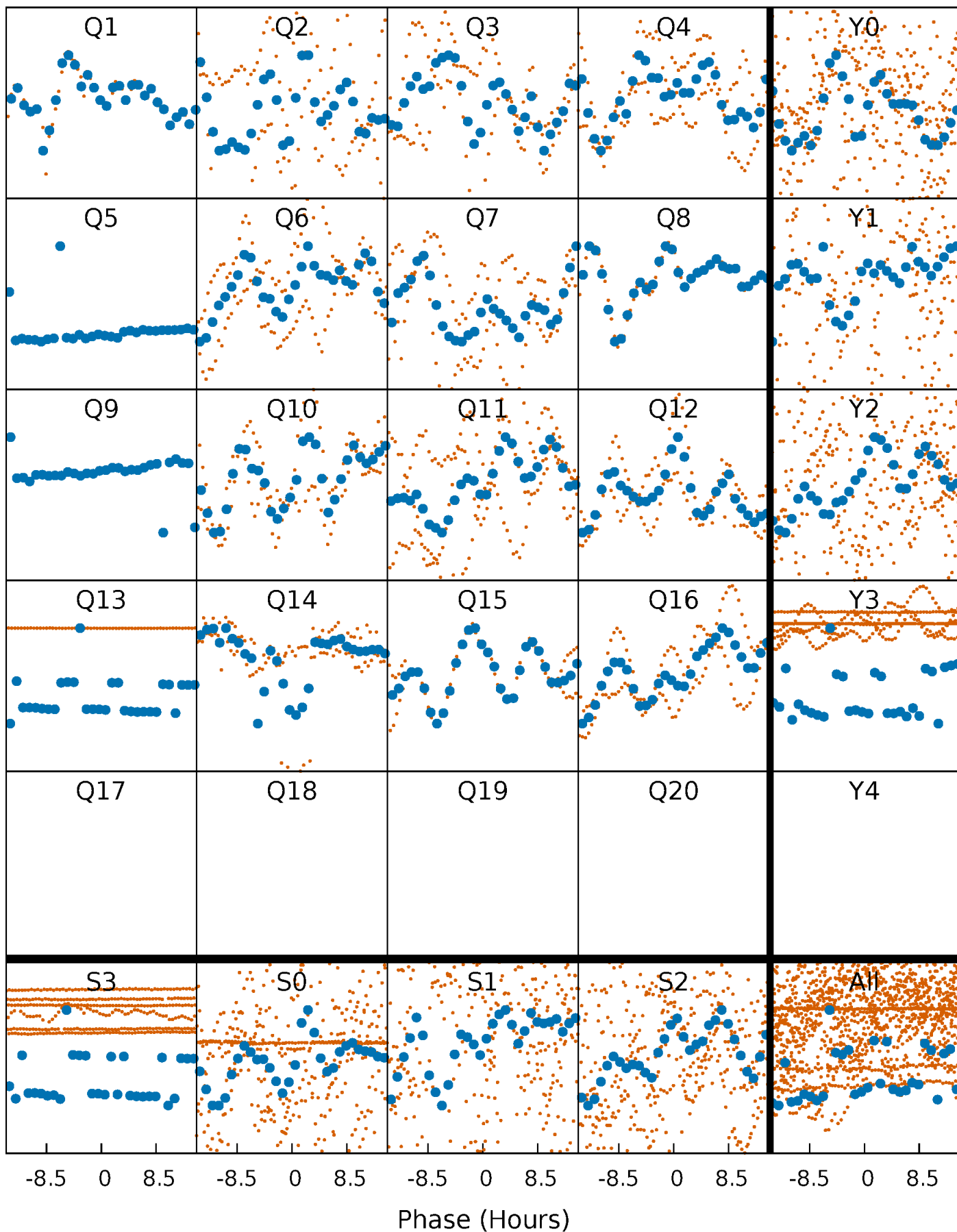


Planet 10 : Phased Whitened Flux Time Series (Fit Epoch/Period)



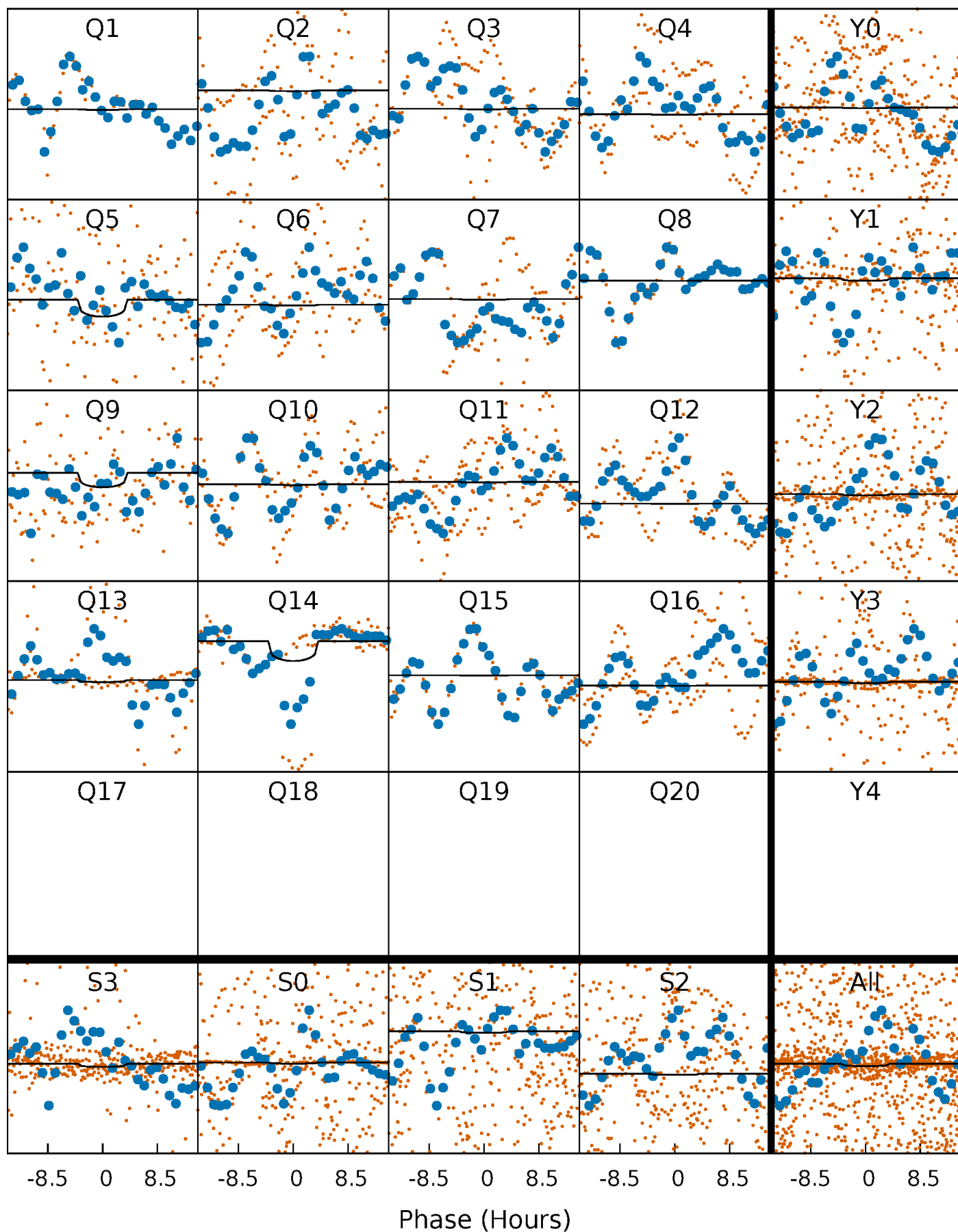
PDC Quarter-Phased Transit Curves

TCE 006192431-10 P= 44.700005 Days $T_0=153.202754$ (BKJD)



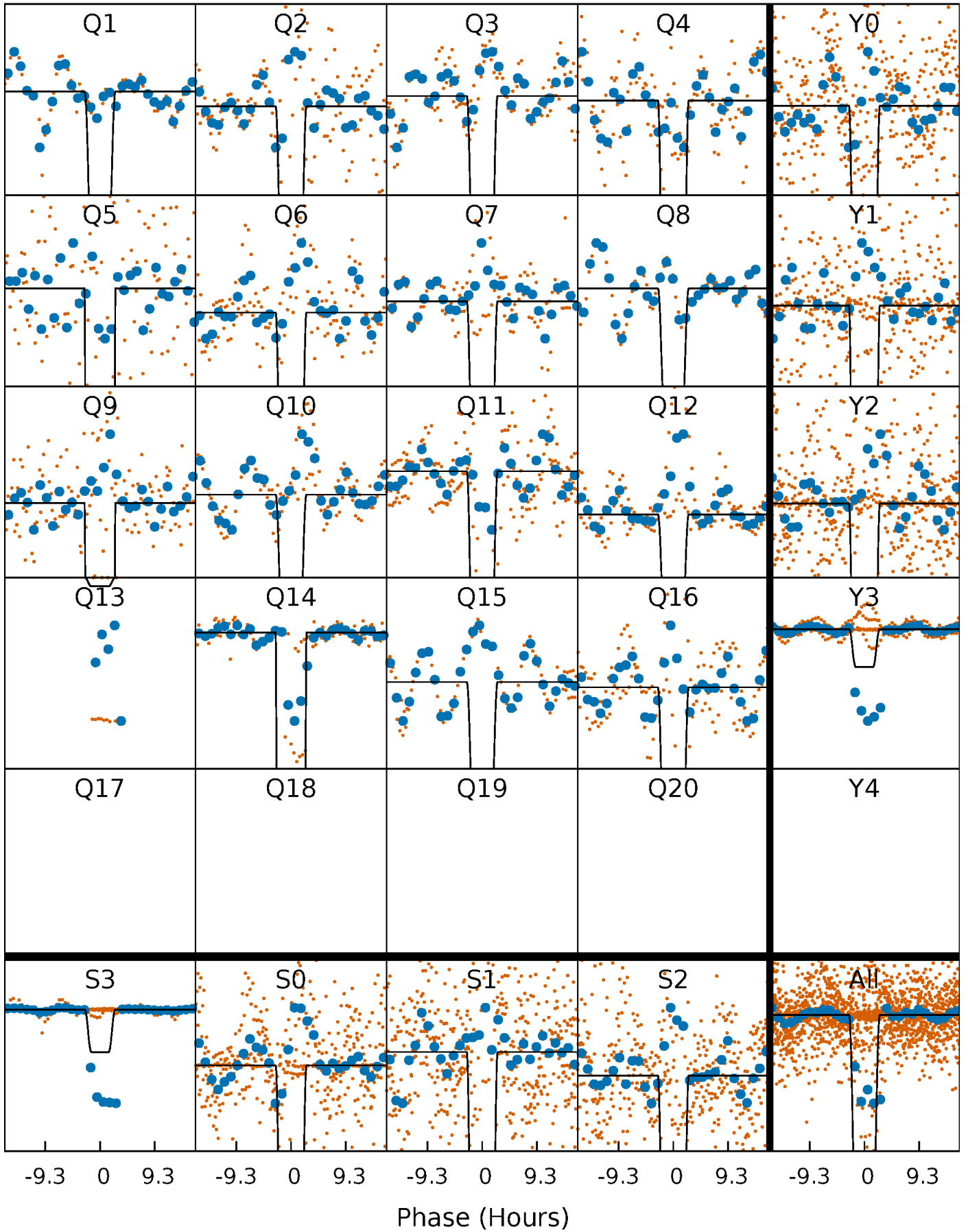
DV Quarter-Phased Transit Curves

TCE 006192431-10 P= 44.700005 Days $T_0=153.202754$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

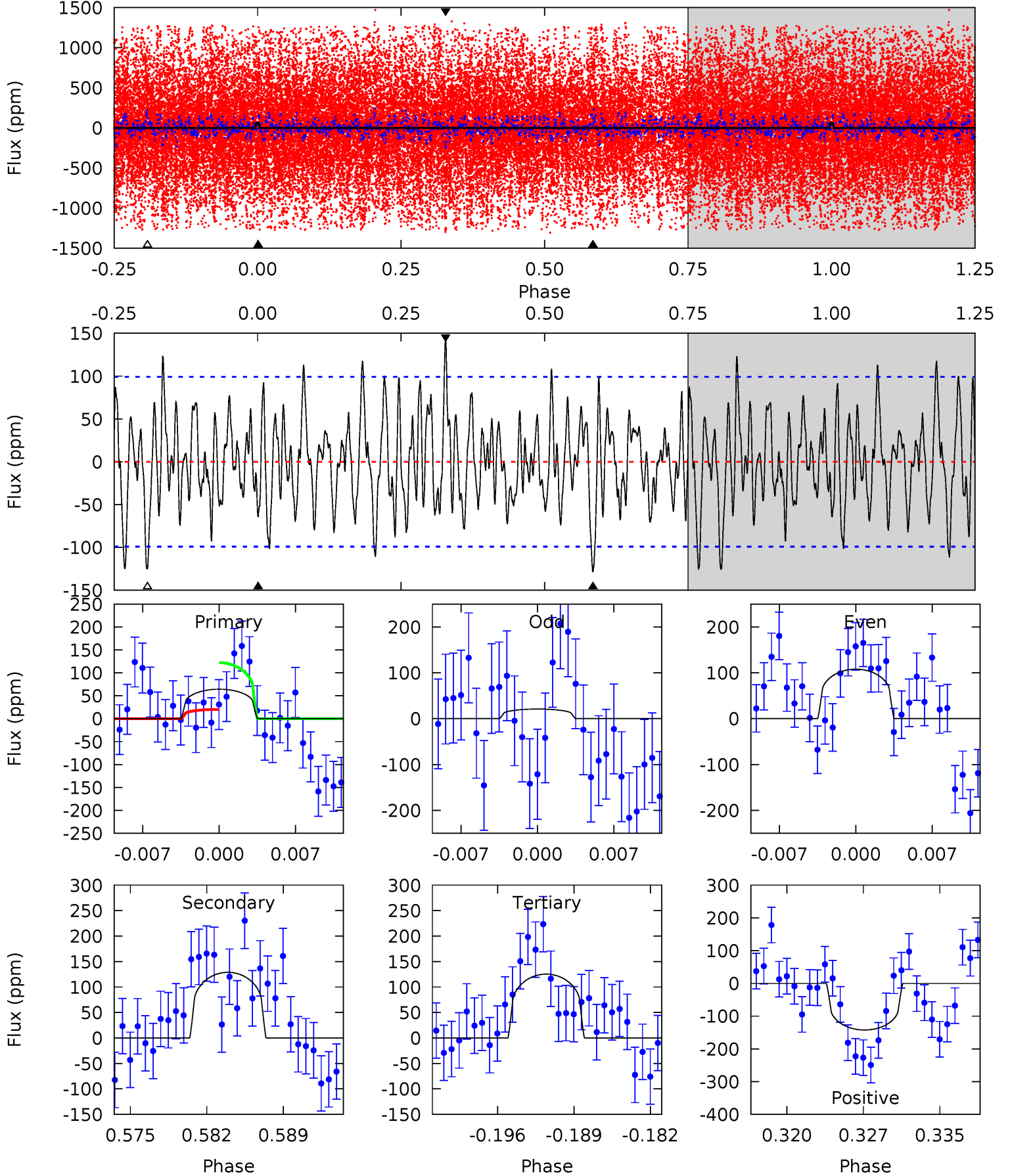
TCE 006192431-10 P= 44.696932 Days $T_0=153.255908$ (BKJD)



DV Model-Shift Uniqueness Test

006192431-10, P = 44.700005 Days, E = 108.502749 Days

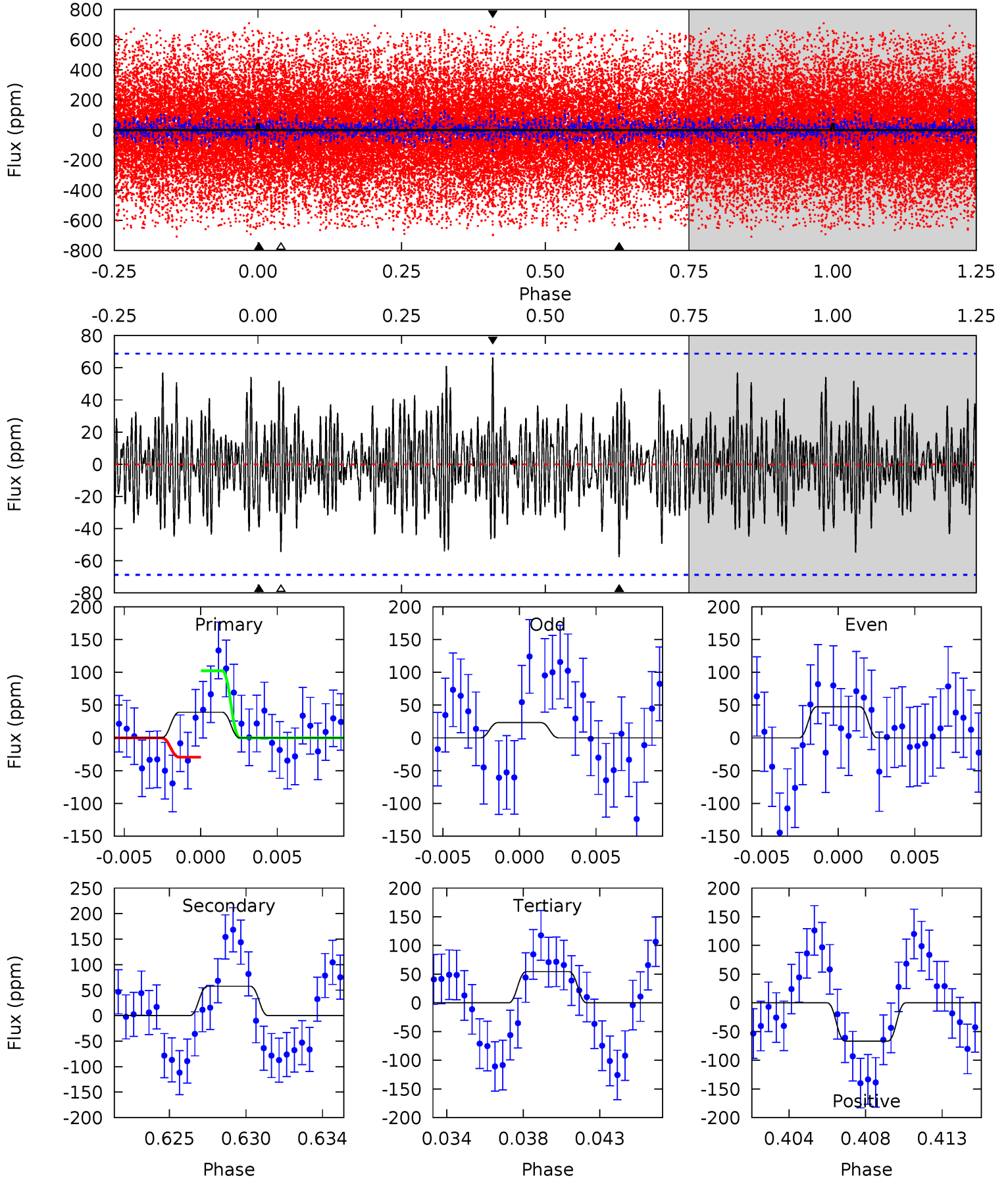
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.30	6.61	6.43	7.31	5.09	2.68	2.33	-3.13	-4.01	0.18	-0.69	2.25	7.14	0.52	2.65



Alt Model-Shift Uniqueness Test

006192431-10, P = 44.696932 Days, E = 108.558976 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.94	4.32	4.09	5.00	5.17	2.82	1.42	-1.15	-2.06	0.24	-0.67	0.92	3616	0.54	2.77



Stellar Parameters For KIC 006192431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4629^{+64}_{-110}	$2.437^{+0.038}_{-0.031}$	$0.180^{+0.150}_{-0.200}$	$14.696^{+2.716}_{-3.320}$	$2.152^{+0.823}_{-0.823}$	$0.001^{+0.000}_{-0.000}$
	+1%/-2%	+2%/-1%	+83%/-111%	+18%/-23%	+38%/-38%	+35%/-15%
Source	PHO55	AST55	SPE55	DSEP		

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

Secondary Eclipse Parameters for KIC 006192431-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-129±19	$5.34^{+3.53}_{-3.10}$	1936^{+63}_{-61}	8670^{+8258}_{-2227}	262^{+1063}_{-168}
Alt.	-58±13	$71.97^{+9.74}_{-10.49}$	1939^{+59}_{-68}	2457^{+136}_{-164}	$0.651^{+0.200}_{-0.158}$

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 $A_{obs} \gg 1.0$

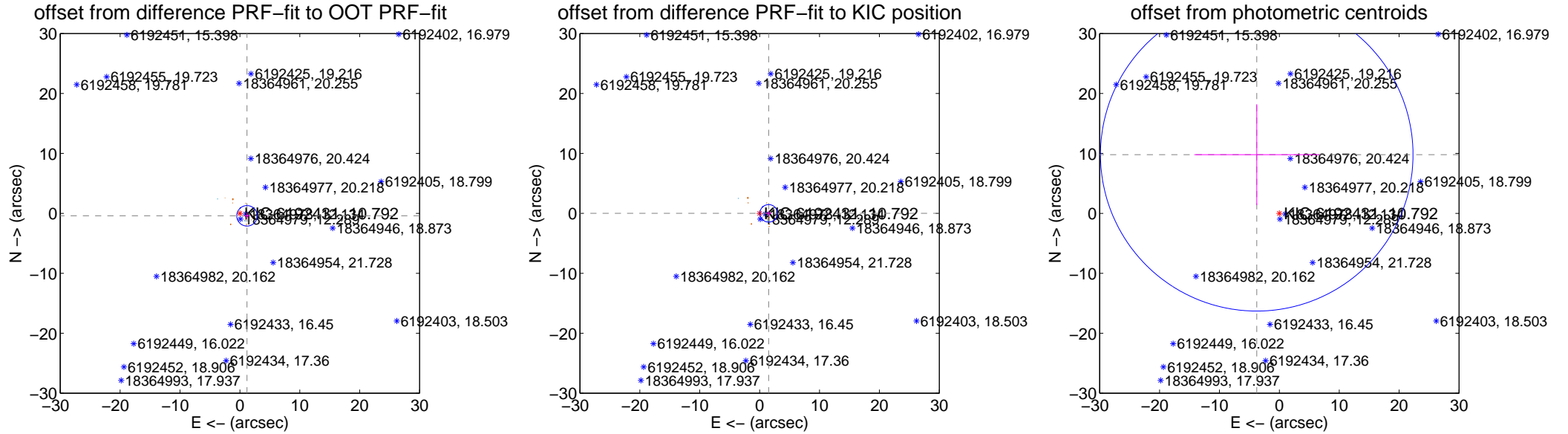
DV Centroid Data

Supplemental centroid analysis for 006192431-10. **Kepler magnitude: 10.79.** Transit SNR 2.14

There are 2 quarters with good PRF difference image offsets

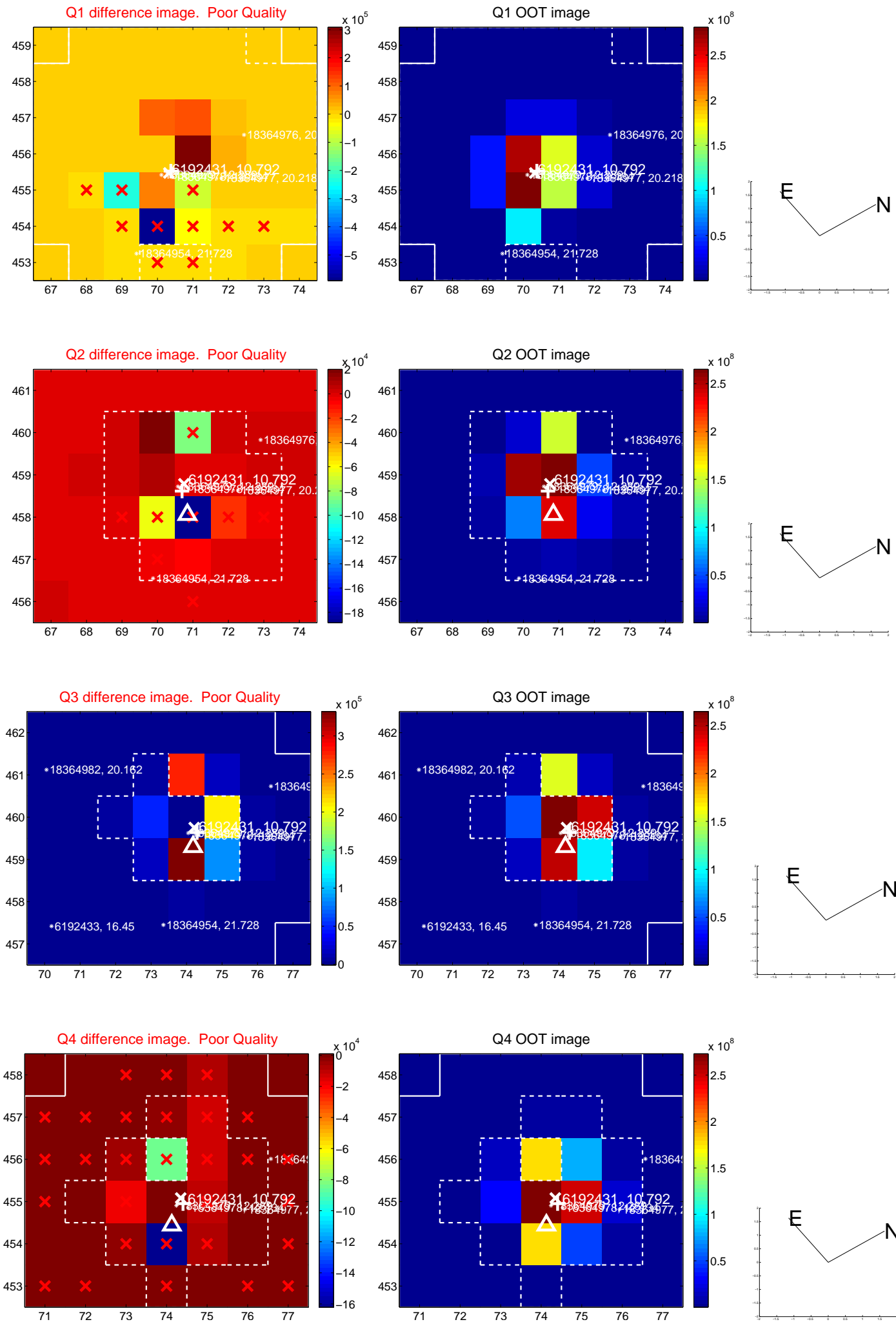
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.256 ± 0.569	2.20	-1.187 ± 0.483	-0.411 ± 0.468
PRF-fit source offset from KIC position	1.509 ± 0.488	3.09	-1.509 ± 0.488	0.001 ± 0.447
photometric centroid source offset	10.50 ± 8.70	1.21	3.77 ± 10.43	9.79 ± 8.41

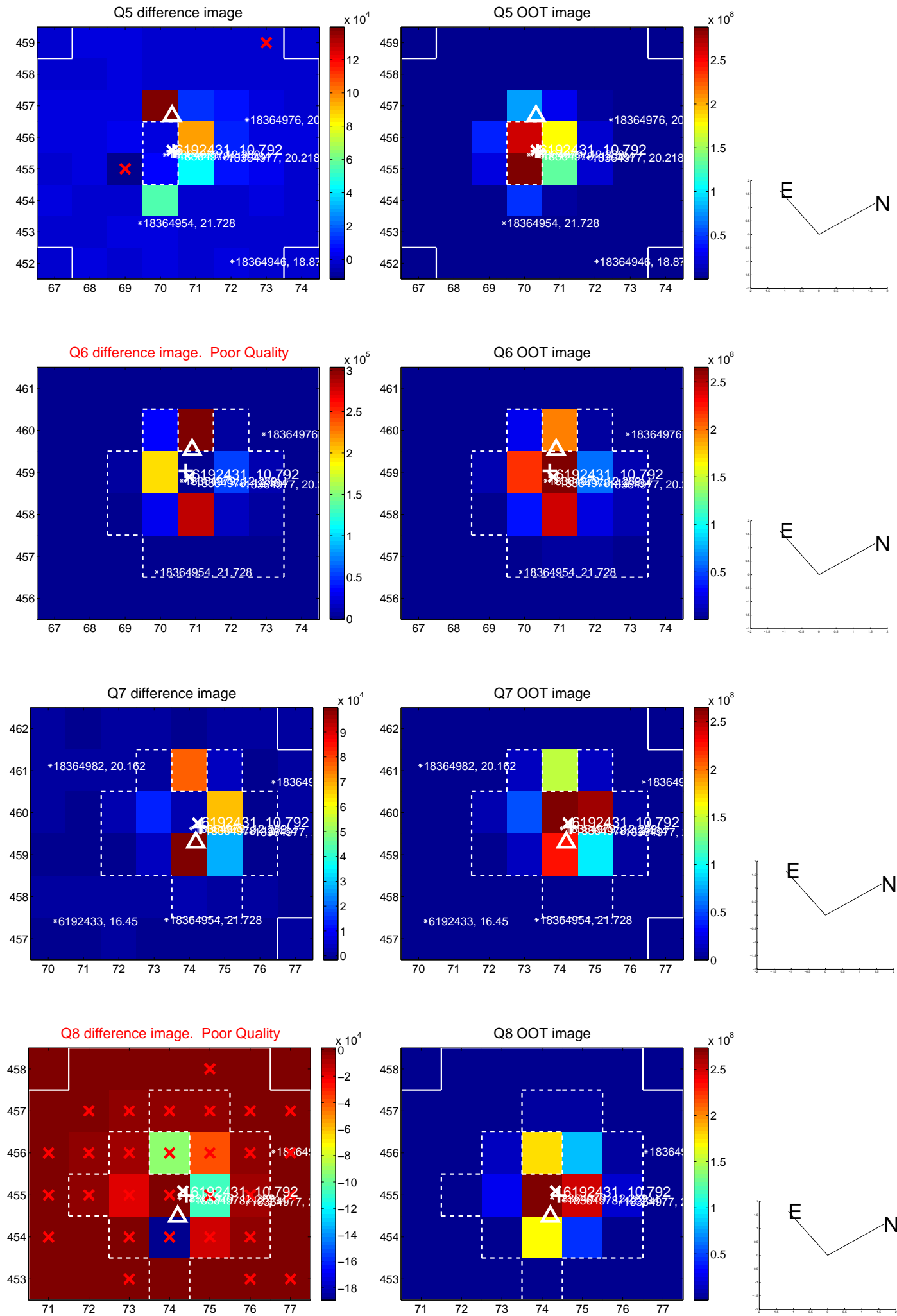


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

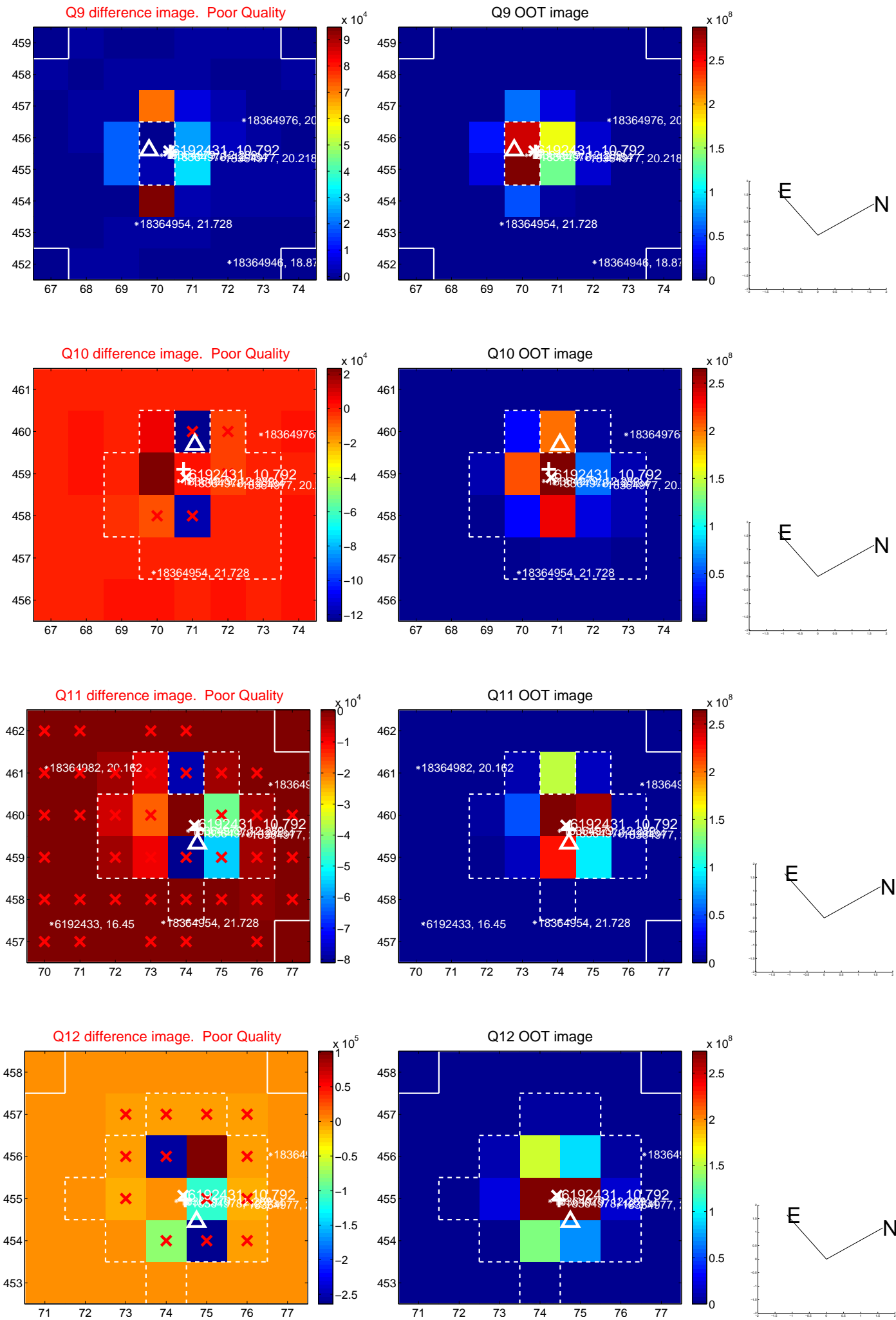
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



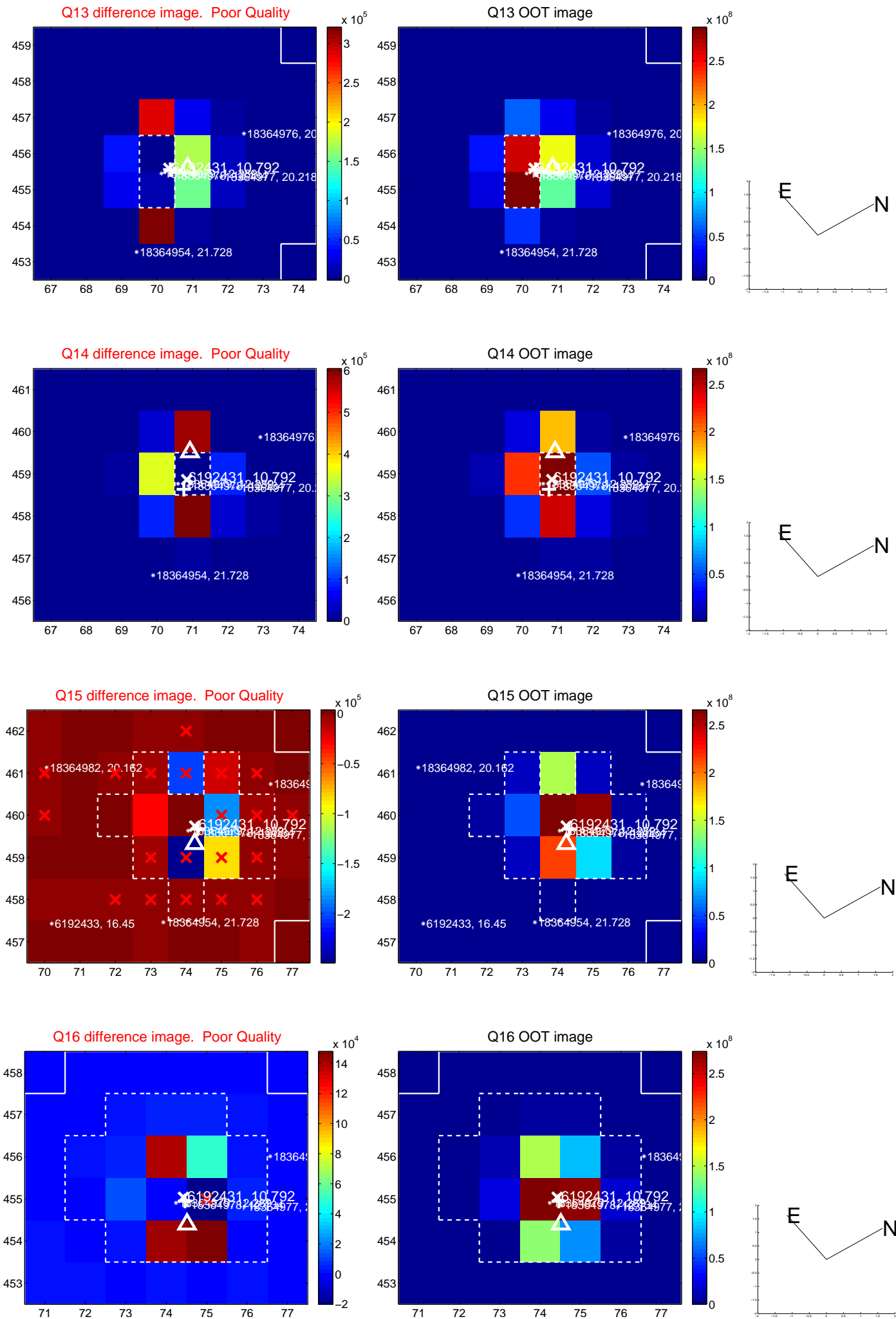
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



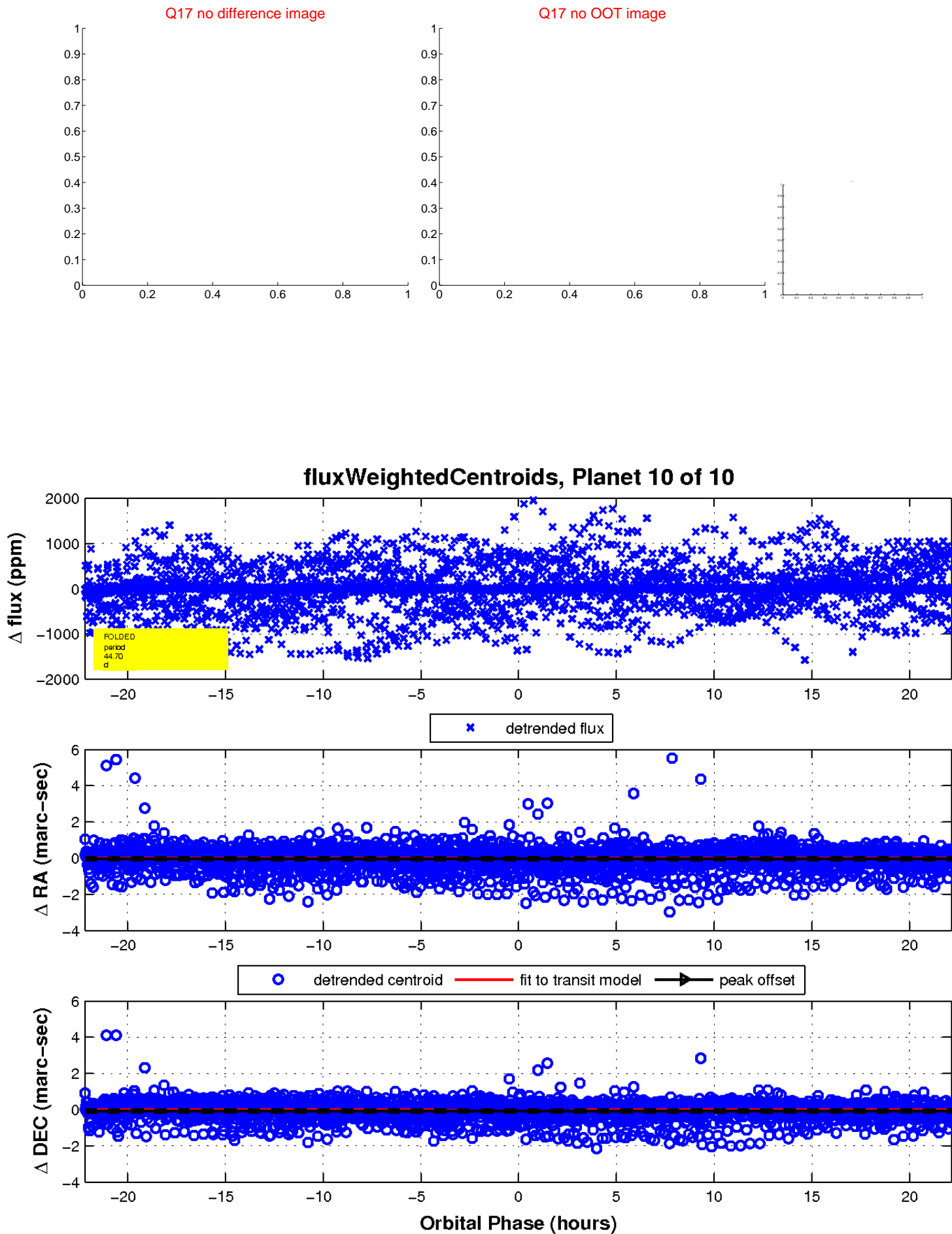
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white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination

