

KIC 010321305

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})
010321305-01	OBS	No	4.022095	133.114482	15.6	18.521	7.7	5.3	2.07	6926	1.15	2763.29
010321305-02	OBS	No	334.798099	194.845598	114.2	5.794	16.8	4.8	2.07	6926	2.51	7.60
010321305-03	OBS	No	138.366923	253.316317	143.4	7.076	9.7	5.9	2.07	6926	2.78	24.70
010321305-05	OBS	No	70.538112	197.172726	108.8	12.252	8.4	7.9	2.07	6926	2.86	60.65
010321305-06	OBS	No	353.981134	255.385488	160.1	25.138	8.2	7.3	2.07	6926	2.73	7.06
010321305-07	OBS	No	163.654942	255.022721	164.4	9.407	7.7	8.0	2.07	6926	3.08	19.75
010321305-08	OBS	No	140.064547	234.275802	121.5	3.000	7.7	-1.0	2.07	6926	2.31	24.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010321305-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010321305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010321305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS
010321305-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
010321305-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

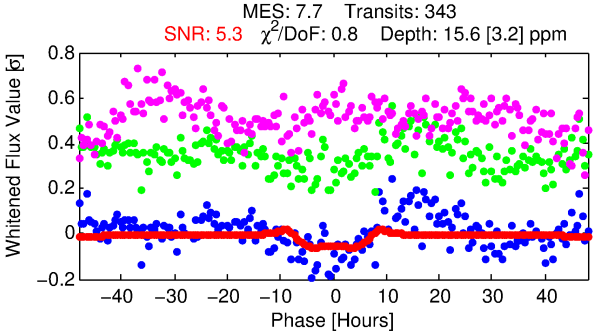
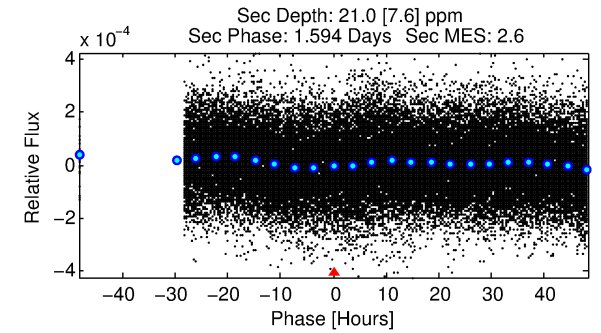
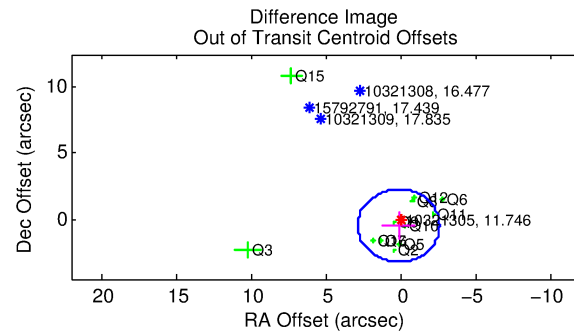
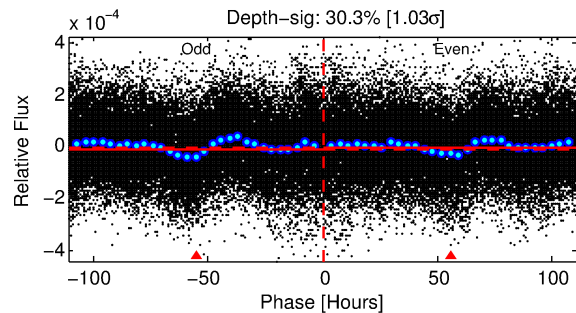
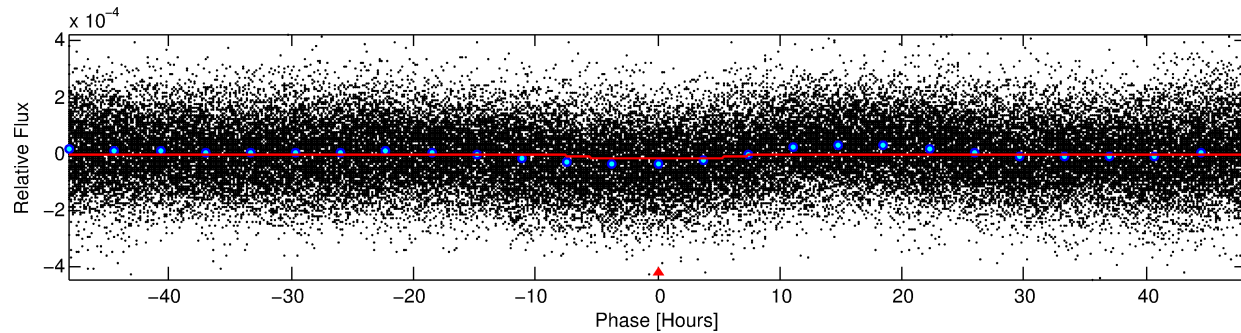
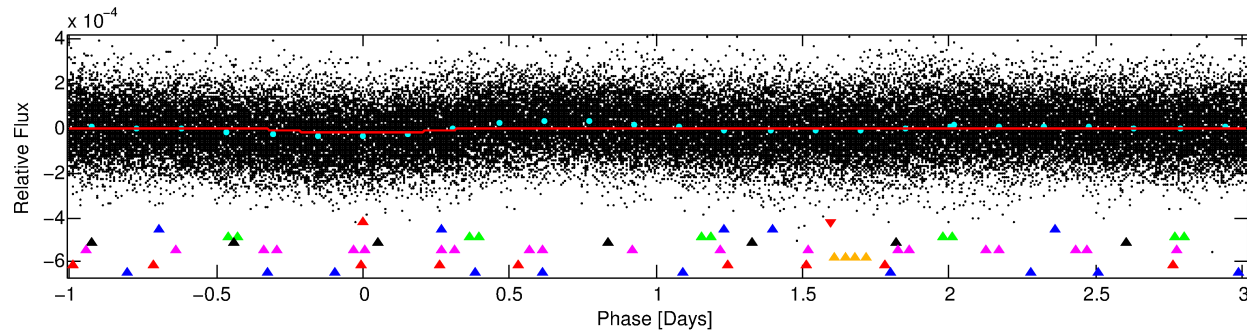
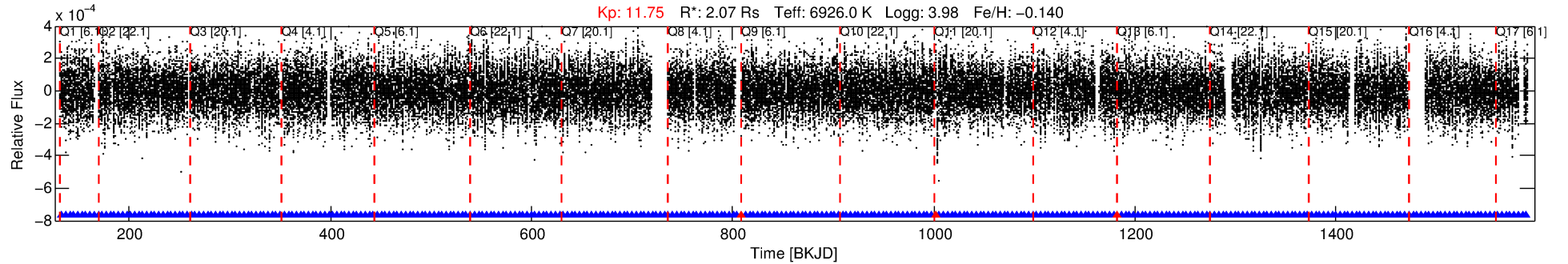
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010321305-01

No Significant Match Found

DV One-Page Summary

KIC: 10321305 Candidate: 1 of 8 Period: 4.022 d



DV Fit Results:

Period = 4.02209 [0.00027] d
Epoch = 133.1145 [0.0553] BKJD
Rp/R* = 0.0051 [0.0006]
a/R* = 1.03 [0.01]
b = 0.99 [0.00]
Seff = 2763.29 [1077.87]
Teq = 1849 [180] K
Rp = 1.15 [0.34] Re
a = 0.0567 [0.0139] AU
Ag = 27.91 [15.75] [1.71σ]
Teffp = 6570 [726] K [6.31σ]

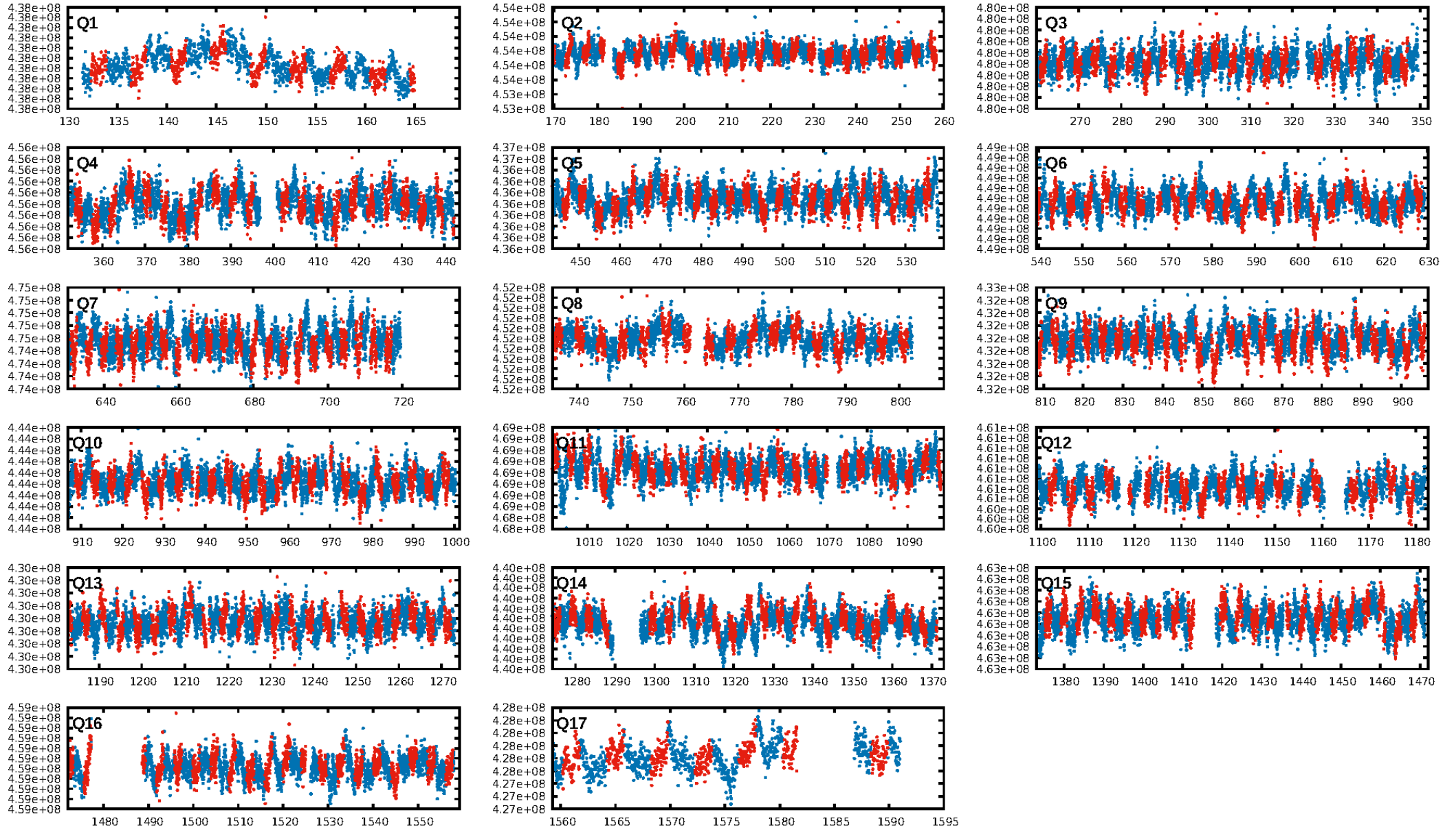
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [71.89σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 0.99 [324/327]
GhostDiagnostic-chr: 4.957
Centroid-sig: 5.5%
Centroid-so: 1.702 arcsec [1.79σ]
OotOffset-rm: 0.483 arcsec [0.53σ]
KicOffset-rm: 0.529 arcsec [0.51σ]
OotOffset-st: 3/4/3/2 [12]
KicOffset-st: 3/4/3/2 [12]
DiffImageQuality-fgm: 0.67 [8/12]
DiffImageOverlap-fno: 1.00 [17/17]

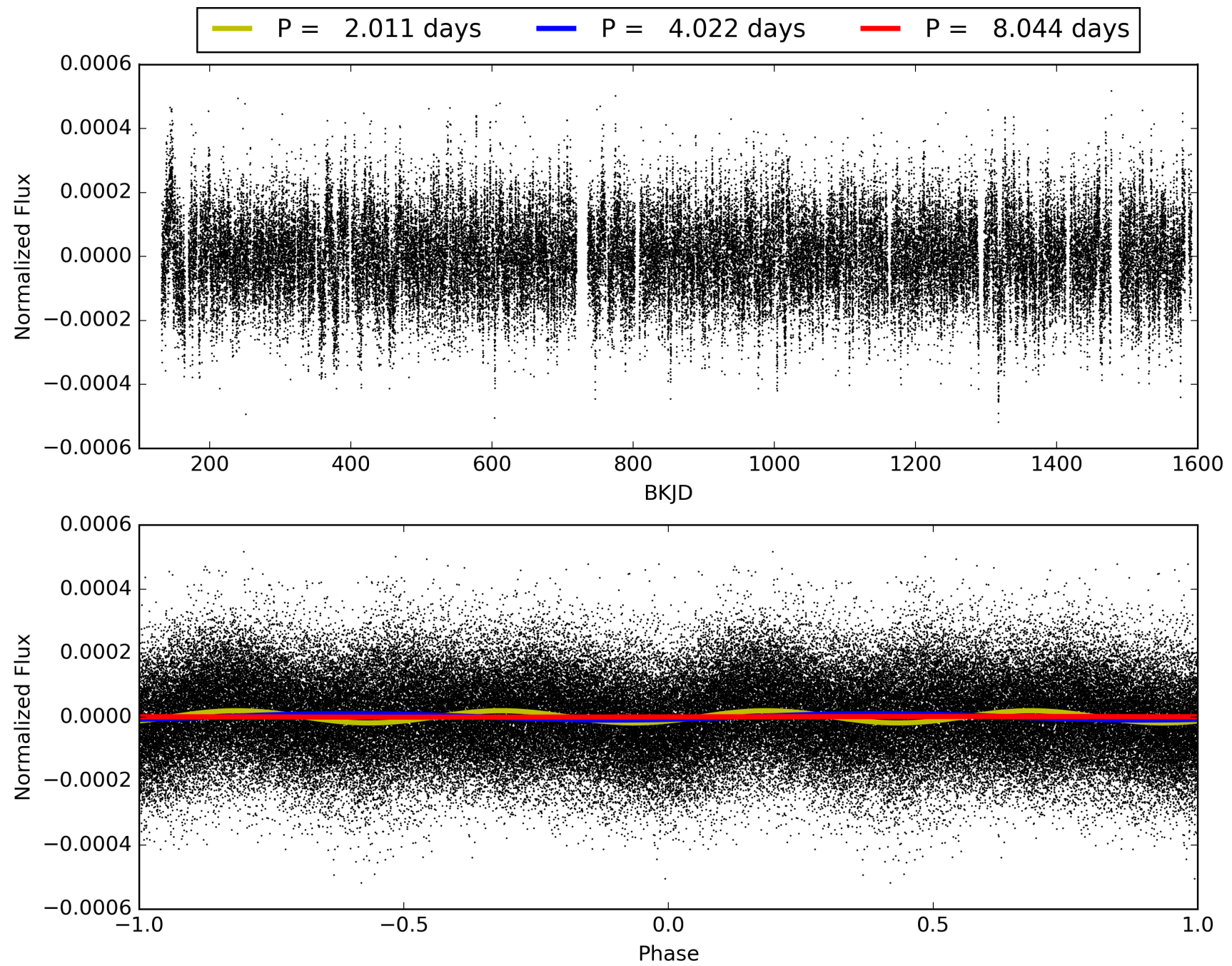
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:48:45 Z

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

TCE 010321305-01, PDC Light Curves

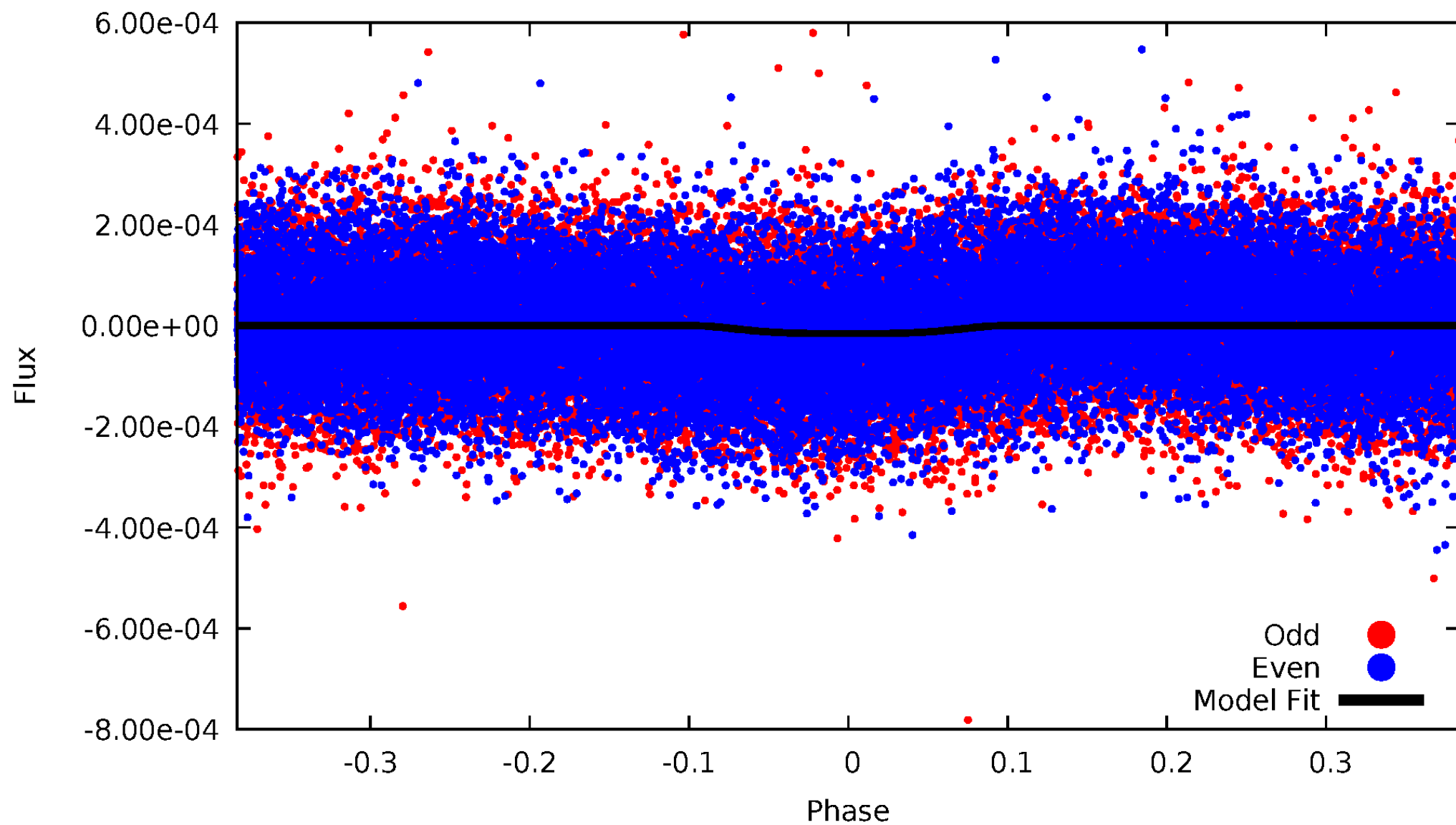


TCE 010321305-01



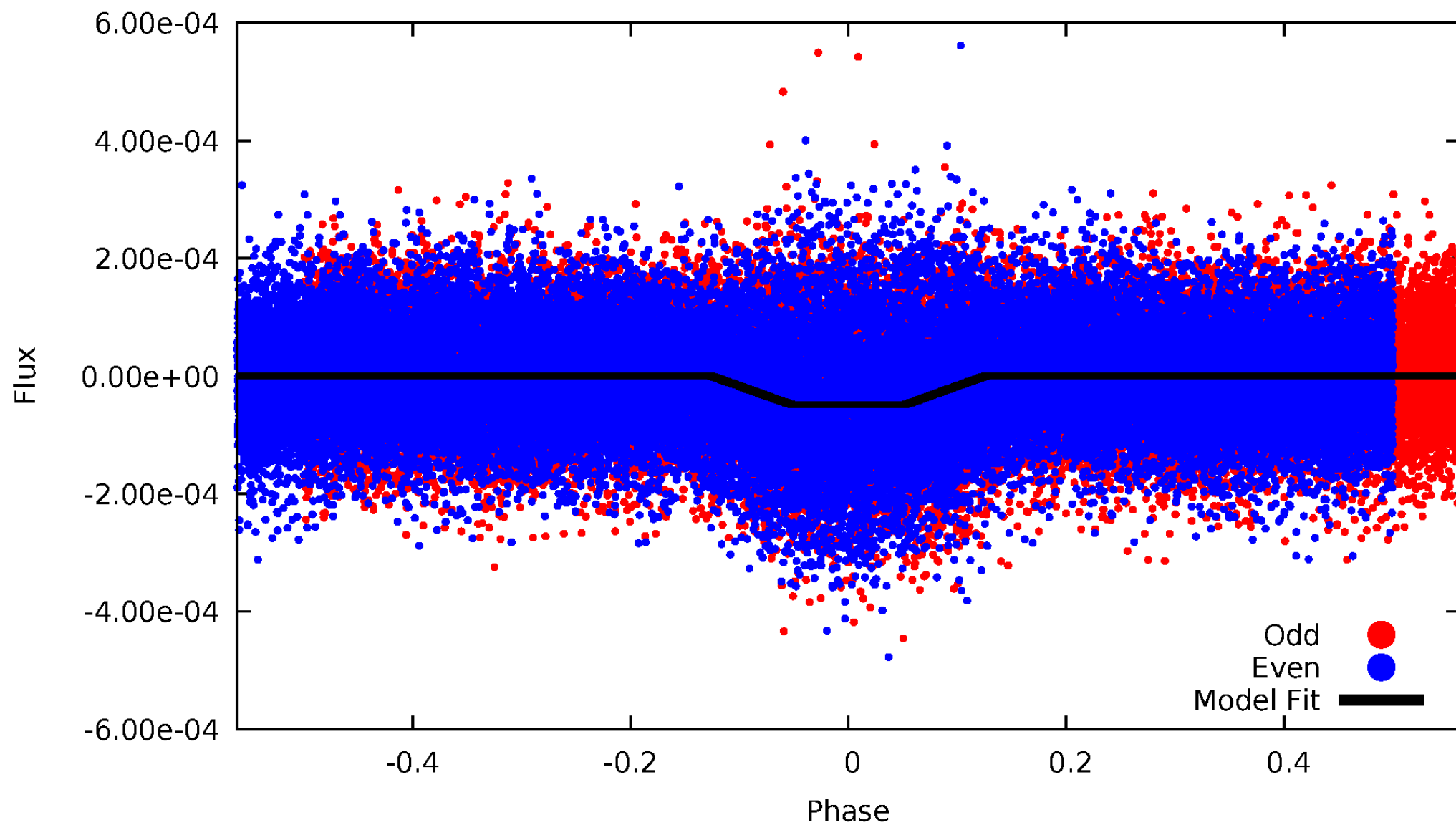
DV Odd/Even

TCE 010321305-01

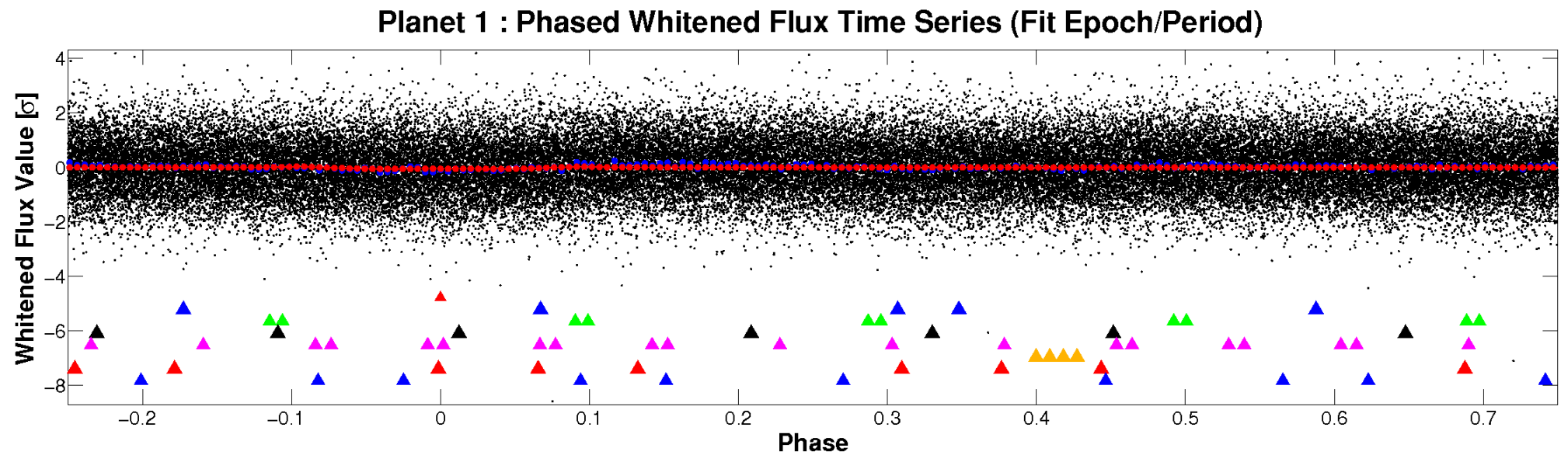
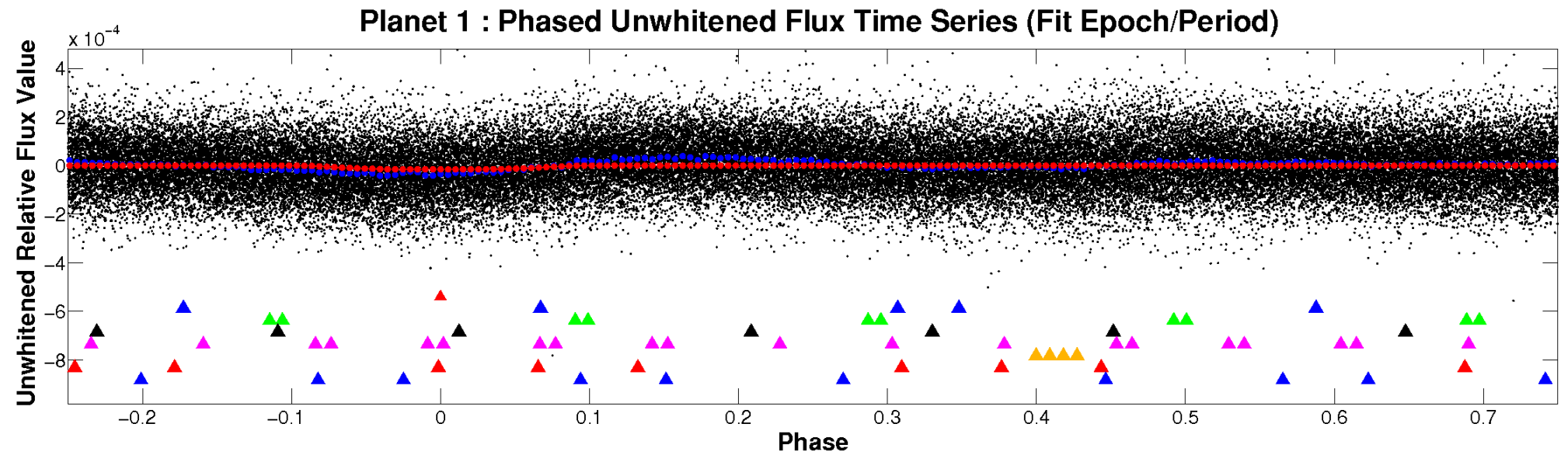


ALT Odd/Even

TCE 010321305-01

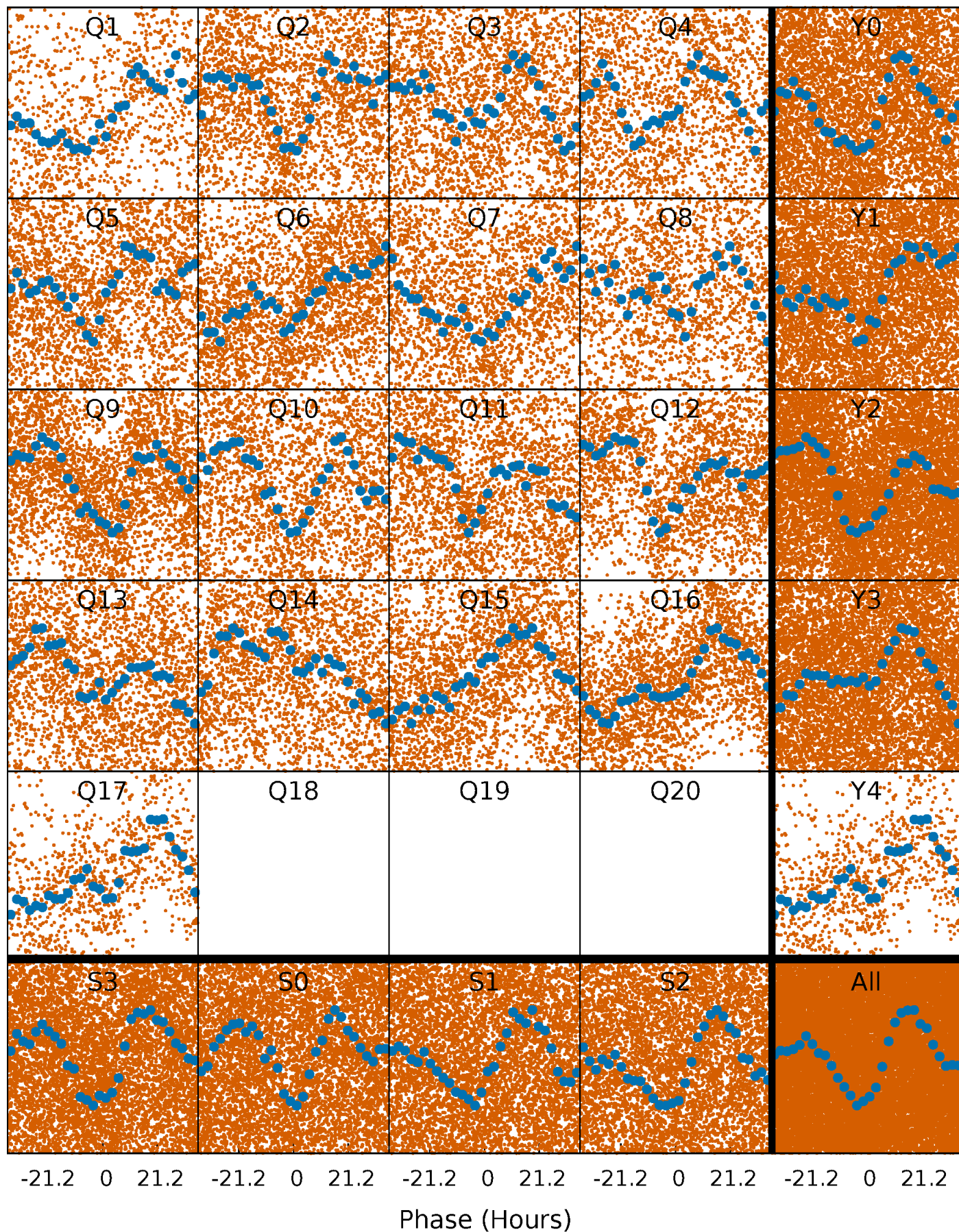


Non-Whitened Vs. Whitened Light Curve



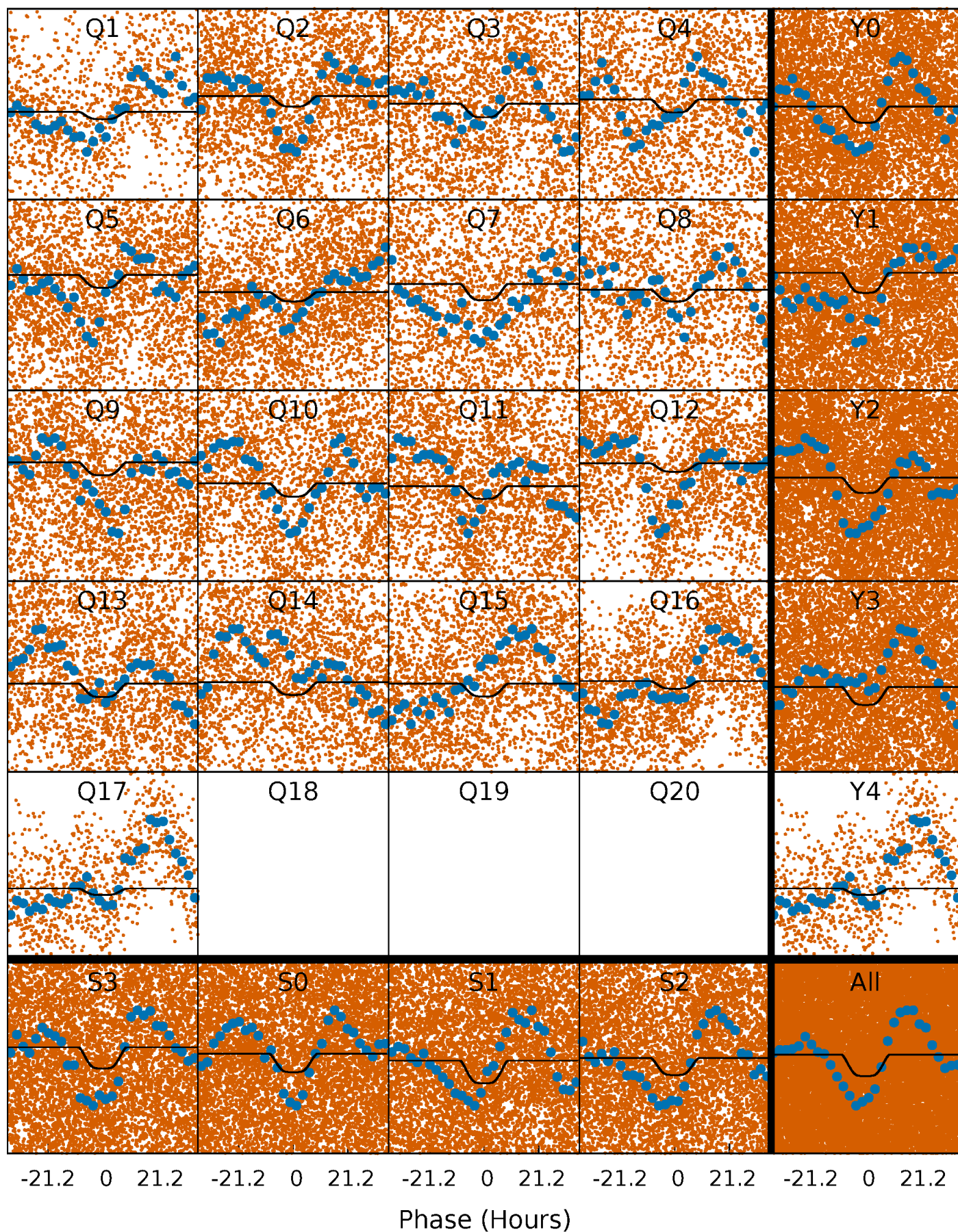
PDC Quarter-Phased Transit Curves

TCE 010321305-01 P= 4.022095 Days $T_0=133.114482$ (BKJD)



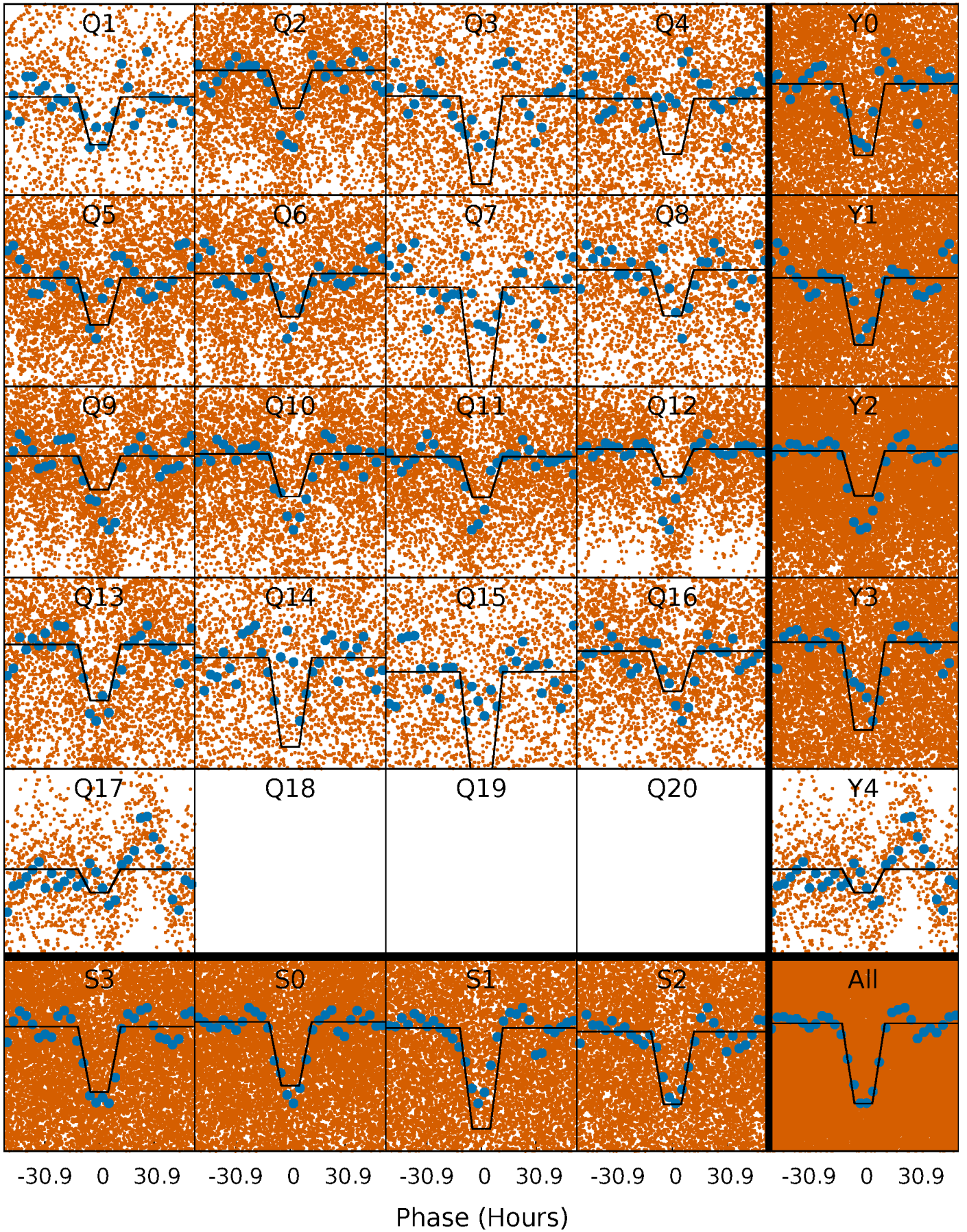
DV Quarter-Phased Transit Curves

TCE 010321305-01 P= 4.022095 Days $T_0=133.114482$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

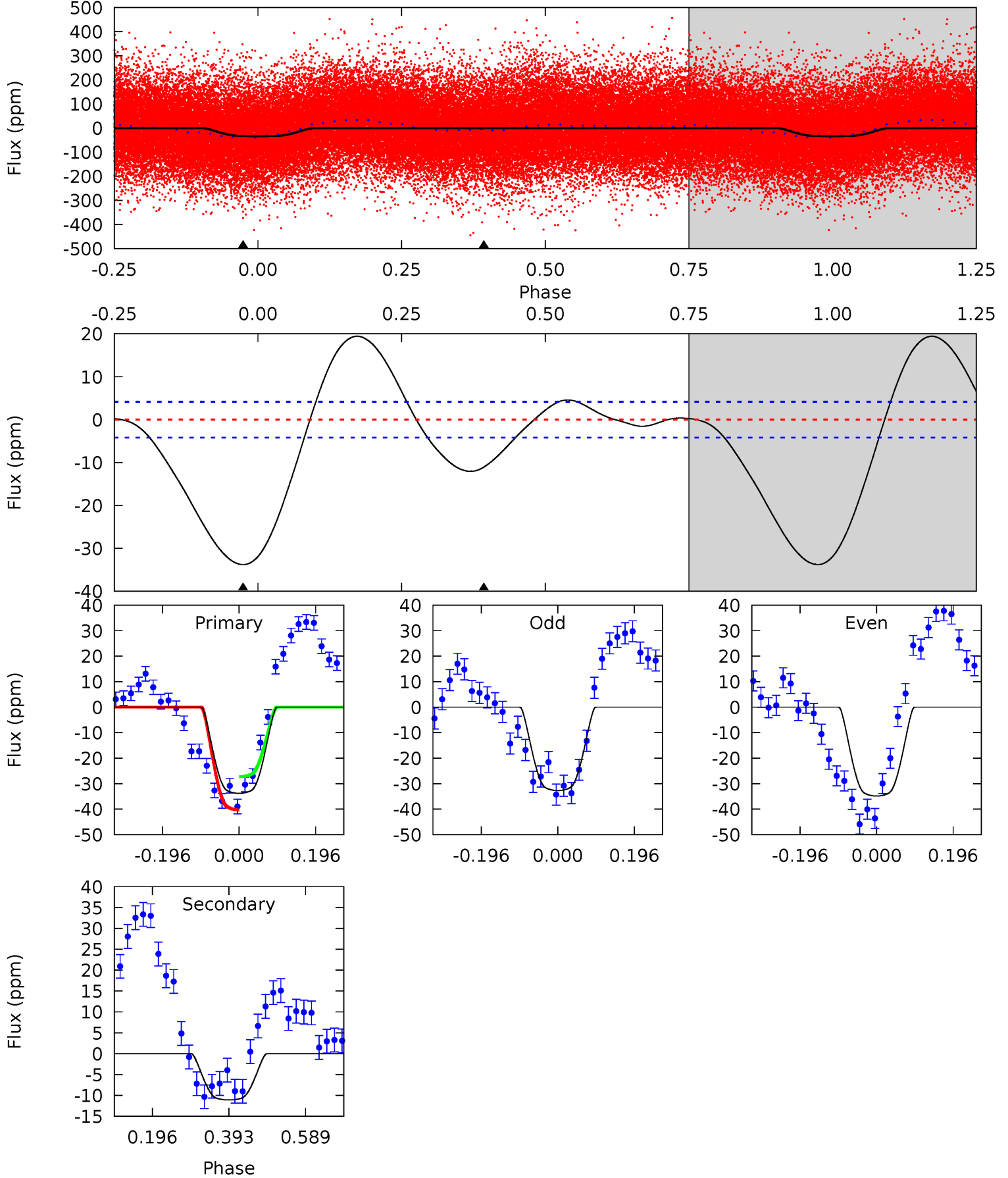
TCE 010321305-01 P= 4.021504 Days $T_0=133.139155$ (BKJD)



DV Model-Shift Uniqueness Test

010321305-01, P = 4.022095 Days, E = 129.092387 Days

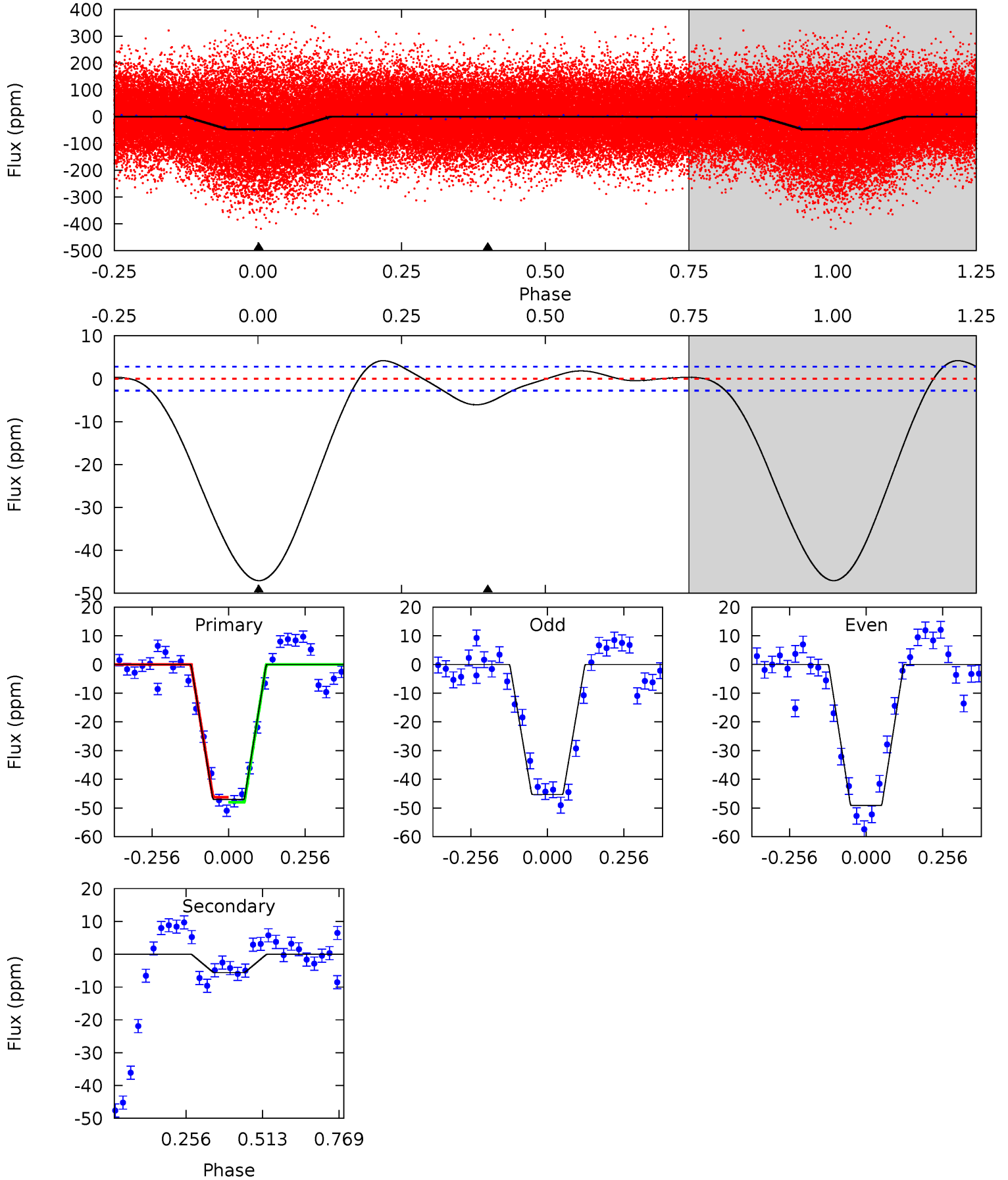
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
35.8	11.7	0	0	4.42	1.29	6.63	35.8	35.8	11.7	11.7	1.14	0.99	0.37	6.87



Alt Model-Shift Uniqueness Test

010321305-01, P = 4.021504 Days, E = 129.117651 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
73.3	8.67	0	0	4.36	1.14	0.45	73.3	73.3	8.67	8.67	2.94	1.00	0.08	1.28



Stellar Parameters For KIC 010321305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+174}_{-208}	$3.980^{+0.210}_{-0.123}$	$-0.140^{+0.250}_{-0.300}$	$2.074^{+0.468}_{-0.572}$	$1.497^{+0.185}_{-0.246}$	$0.236^{+0.281}_{-0.086}$
	+3%/-3%	+5%/-3%	+179%/-214%	+23%/-28%	+12%/-16%	+119%/-37%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010321305-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 1	$1.13^{+0.21}_{-0.20}$	2566^{+161}_{-192}	5568^{+378}_{-324}	15^{+7}_{-4}
Alt.	-6 ± 1	$1.57^{+0.23}_{-0.24}$	2575^{+161}_{-179}	4182^{+197}_{-177}	$3.941^{+1.474}_{-0.939}$

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

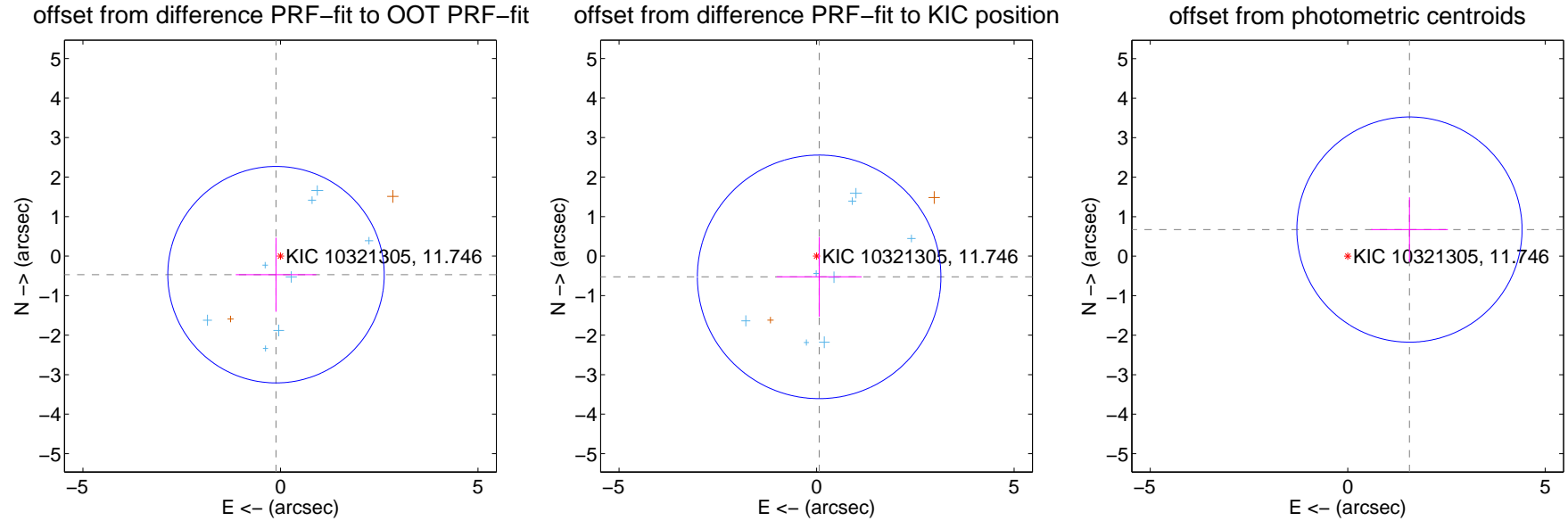
DV Centroid Data

Supplemental centroid analysis for 010321305-01. **Kepler magnitude: 11.75.** Transit SNR 5.27

There are 8 quarters with good PRF difference image offsets

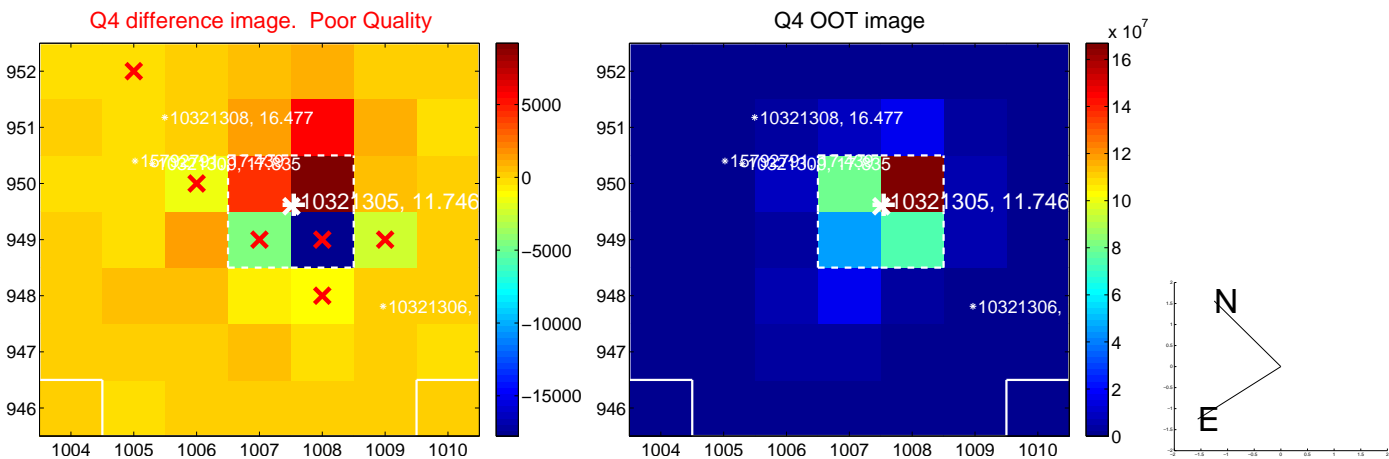
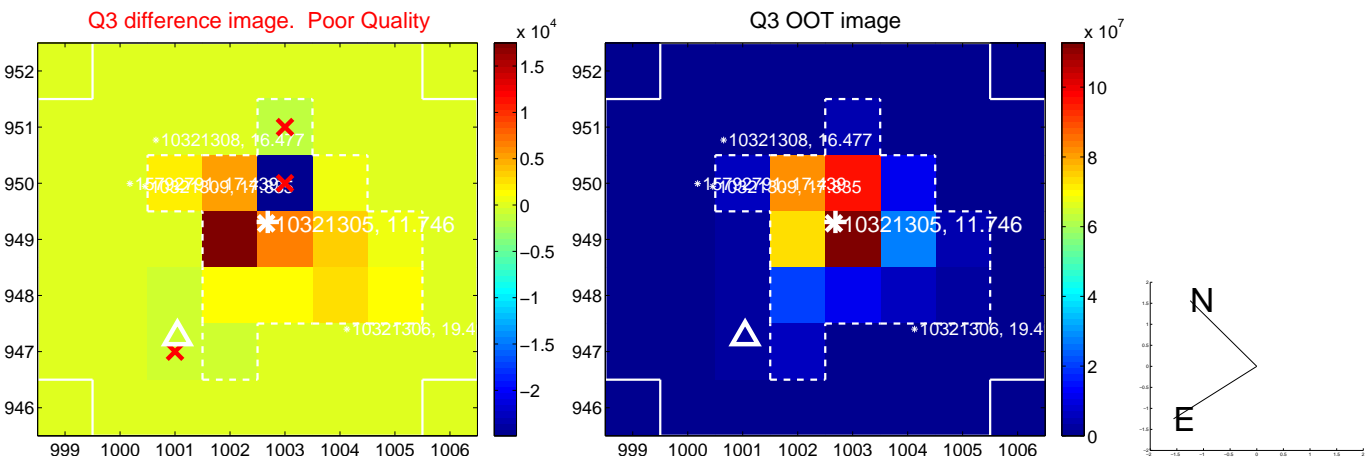
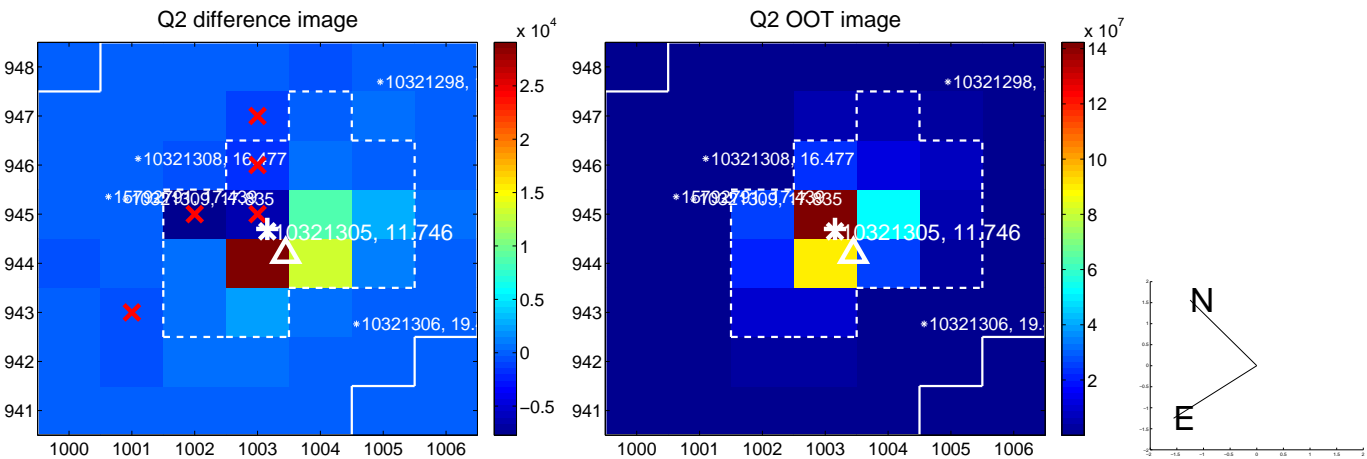
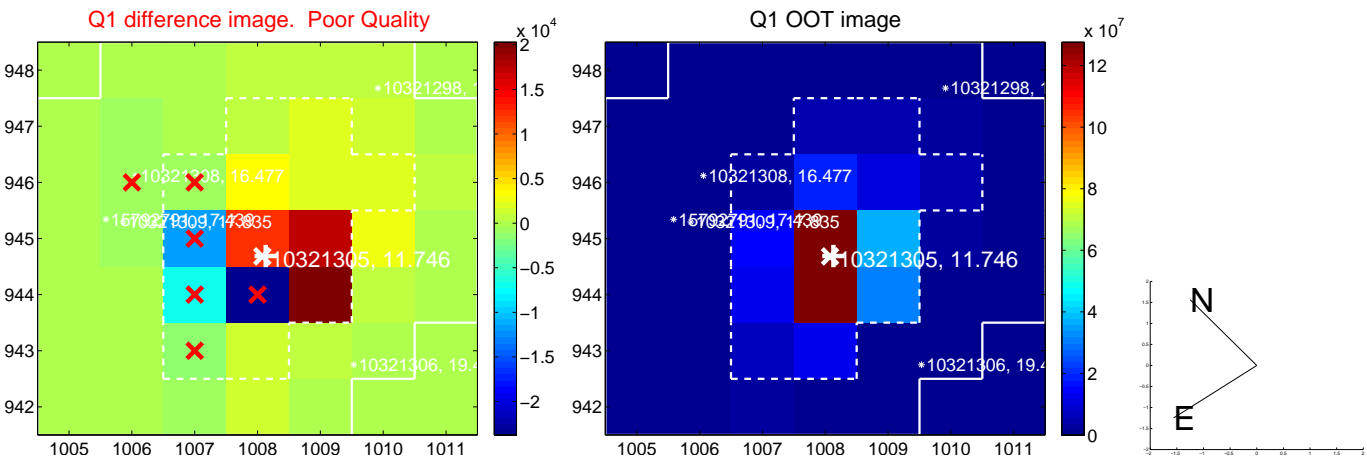
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.483 ± 0.913	0.53	0.113 ± 1.019	-0.470 ± 0.937
PRF-fit source offset from KIC position	0.529 ± 1.027	0.51	-0.065 ± 1.078	-0.525 ± 1.008
photometric centroid source offset	1.70 ± 0.95	1.79	-1.56 ± 0.97	0.67 ± 0.82

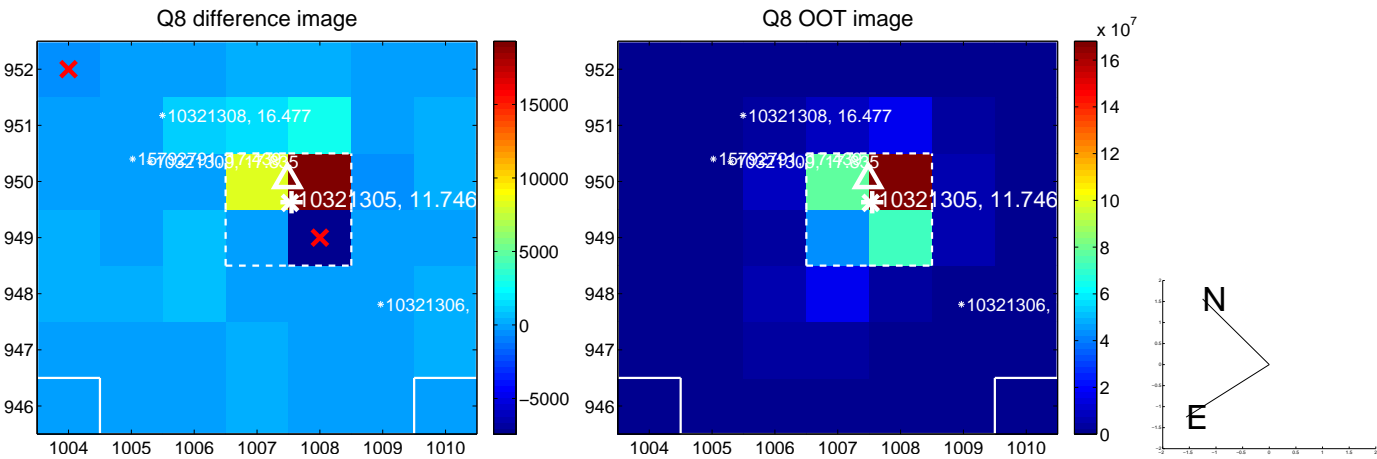
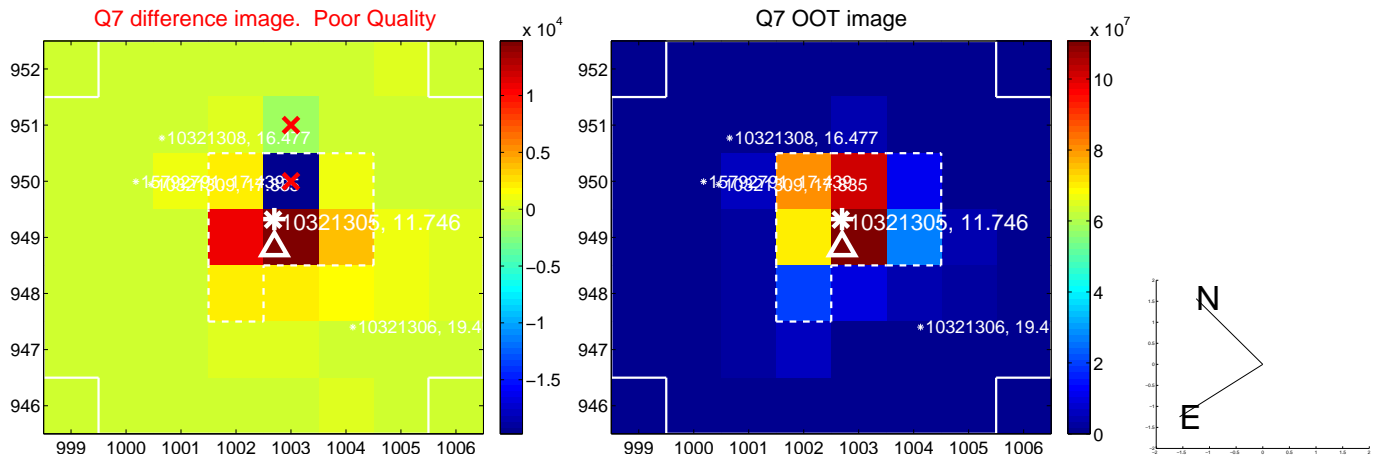
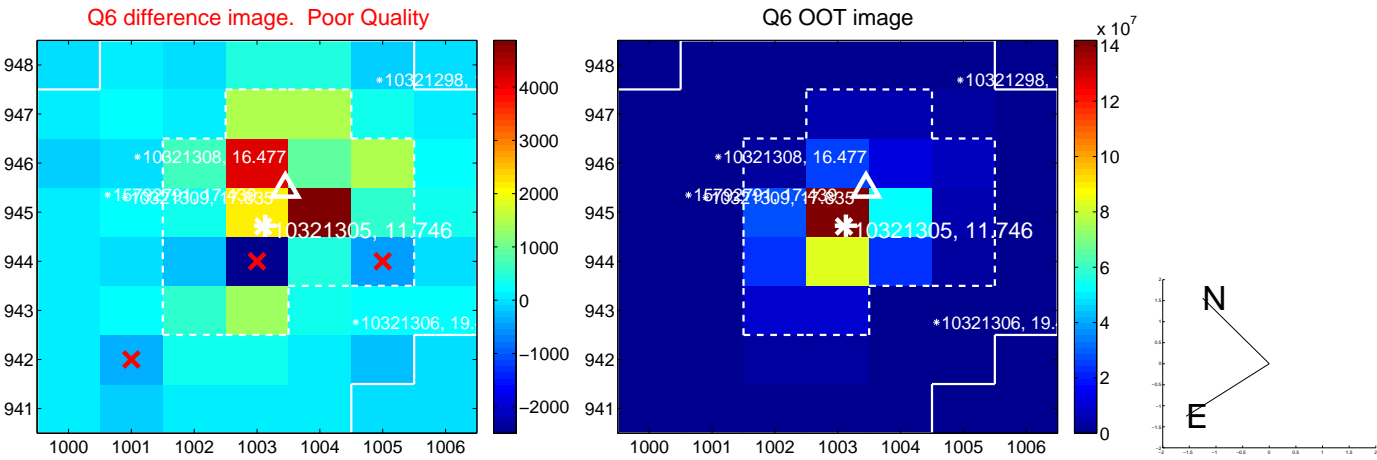
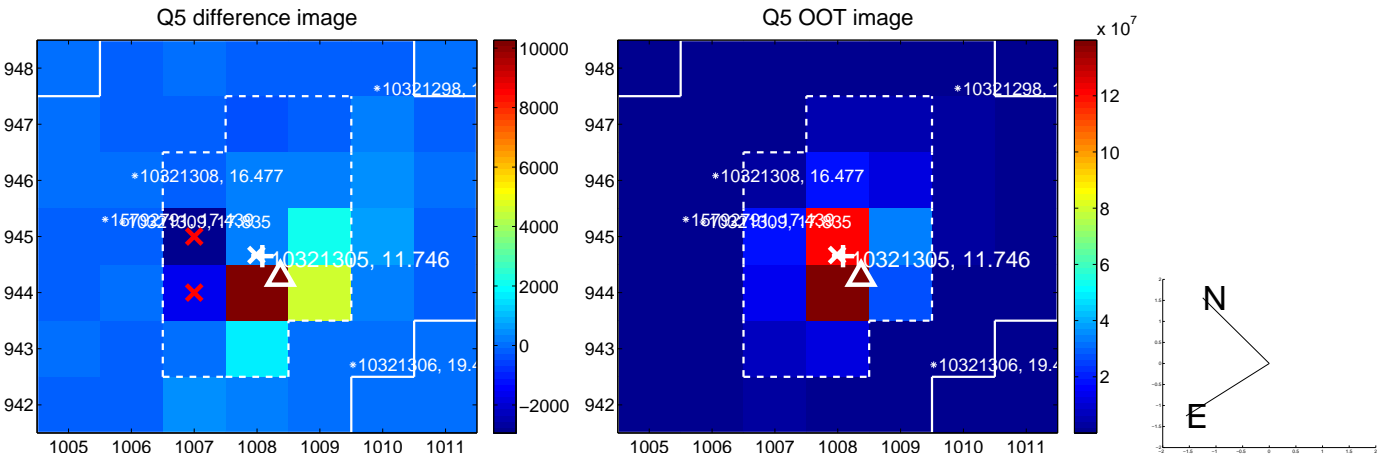


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

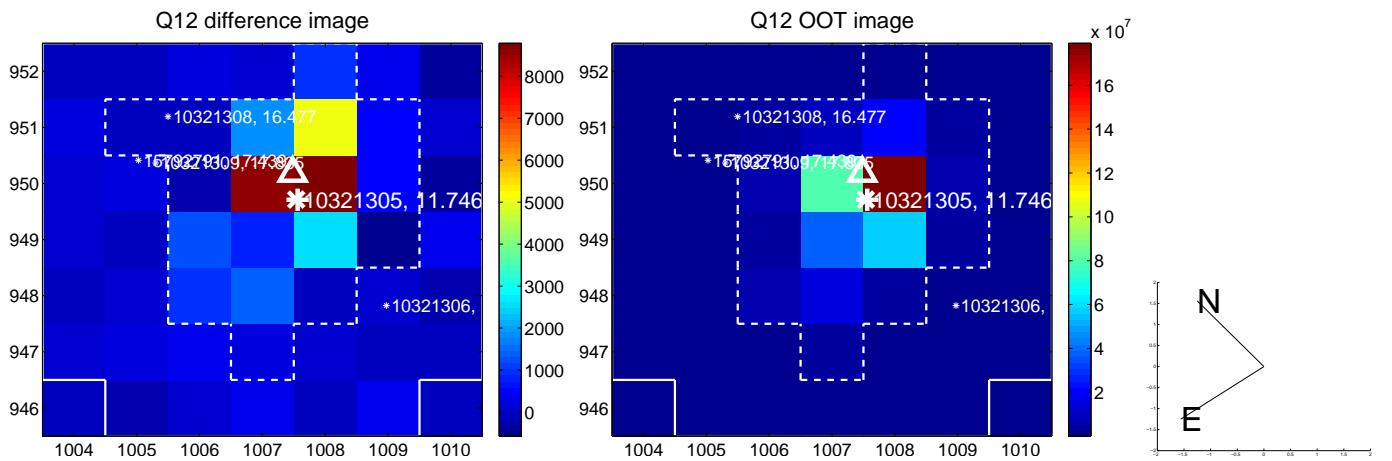
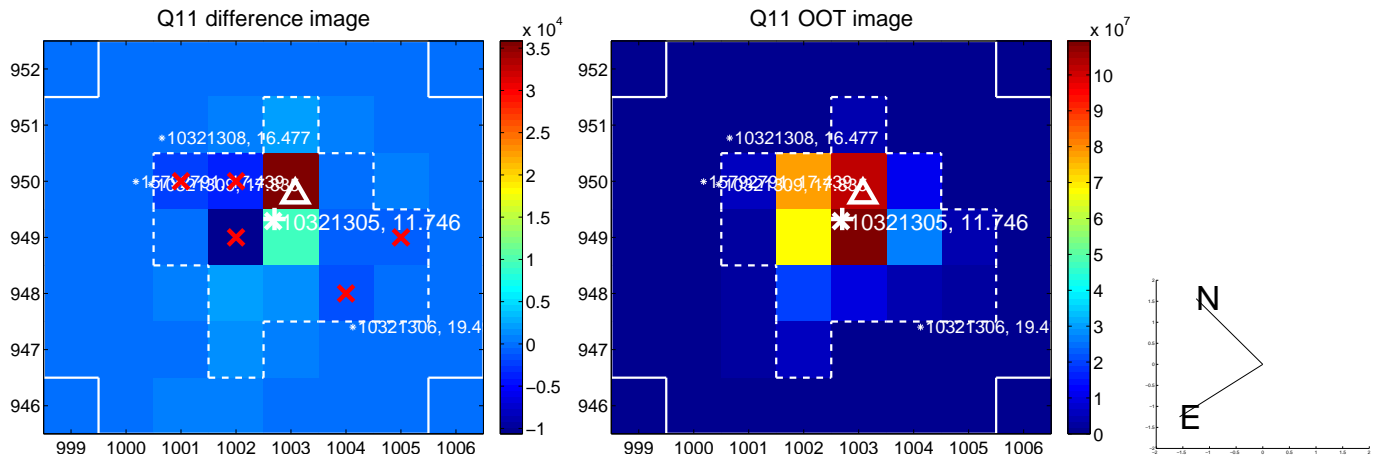
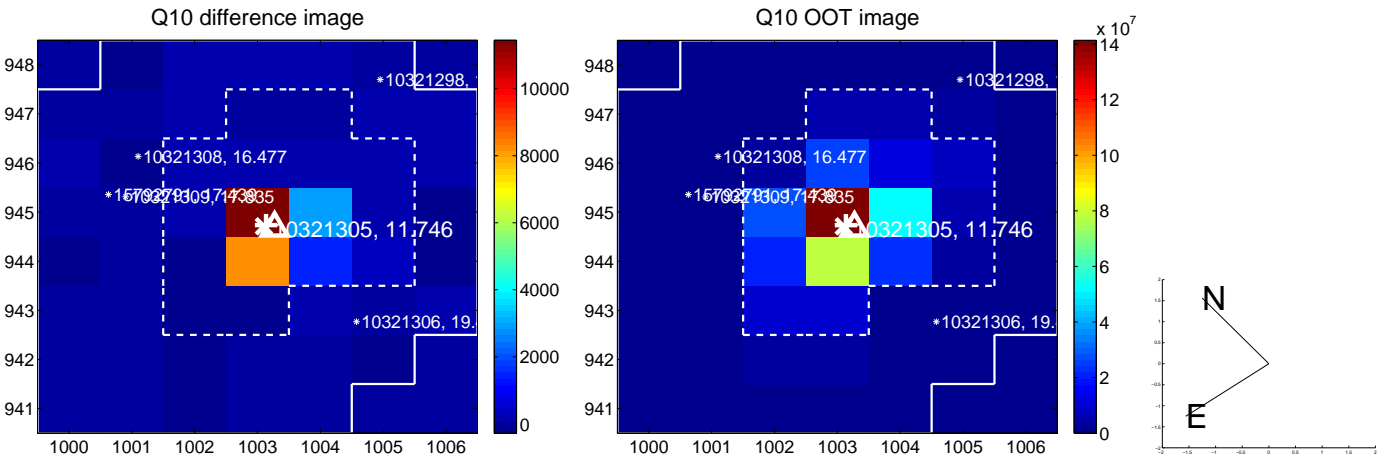
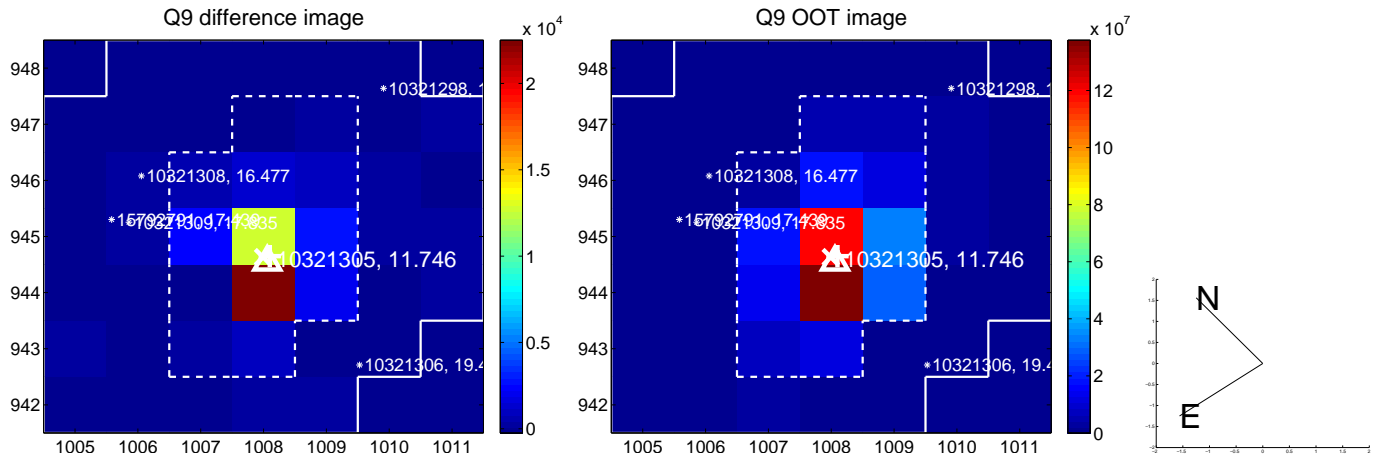
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



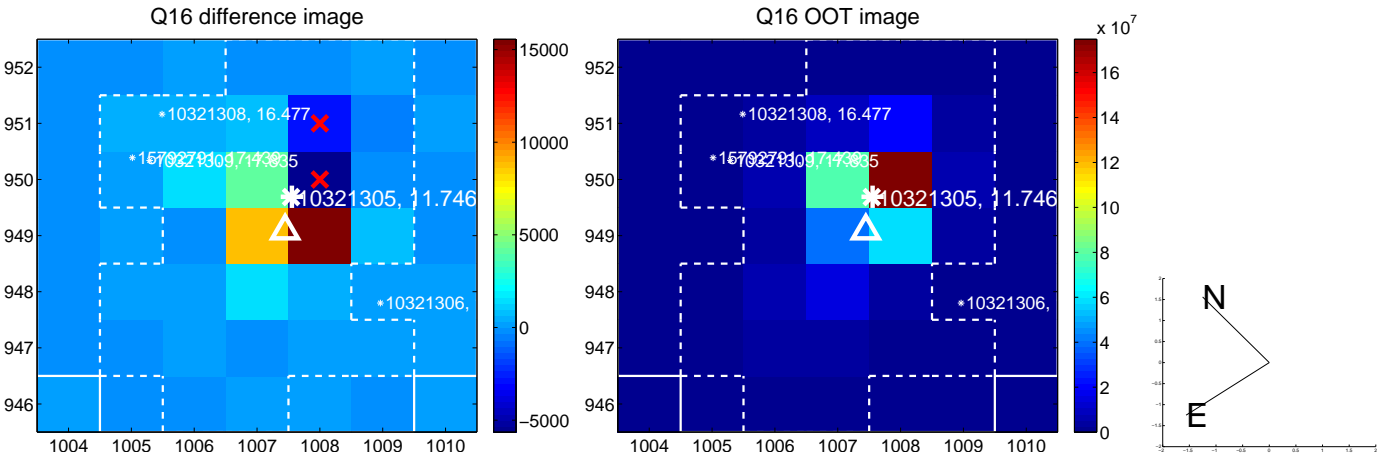
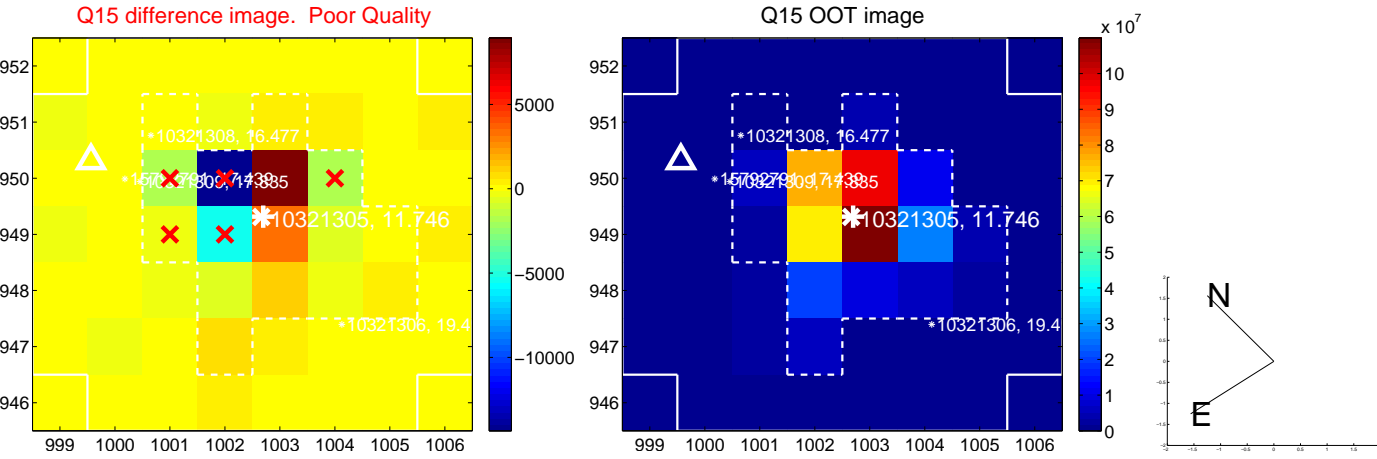
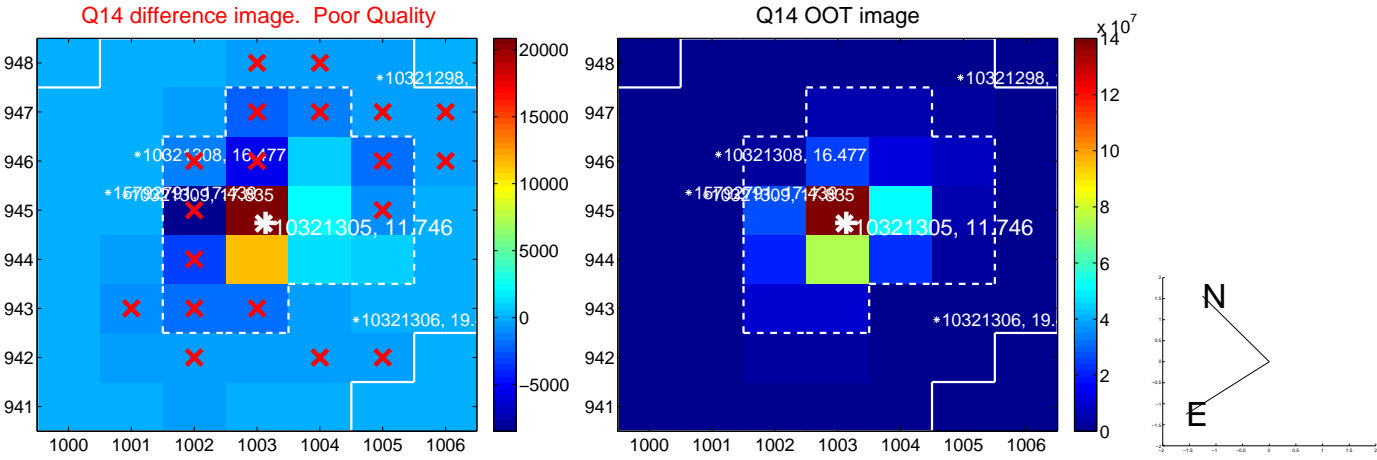
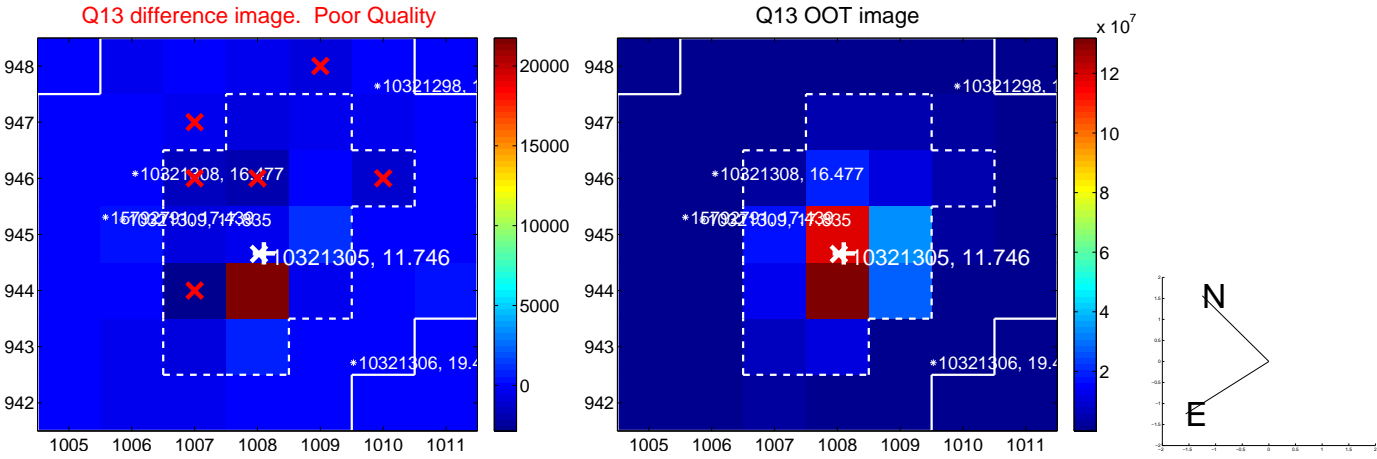
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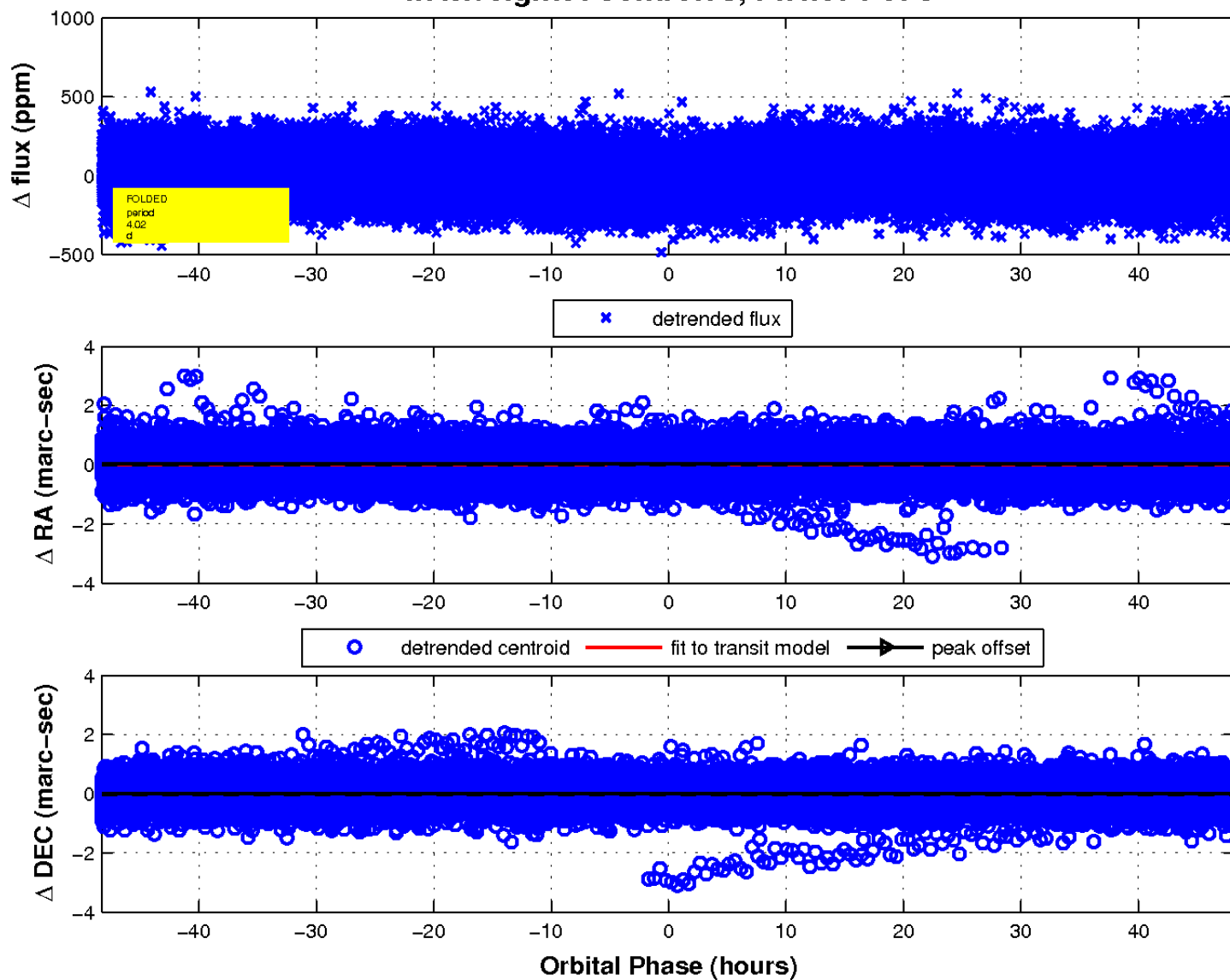
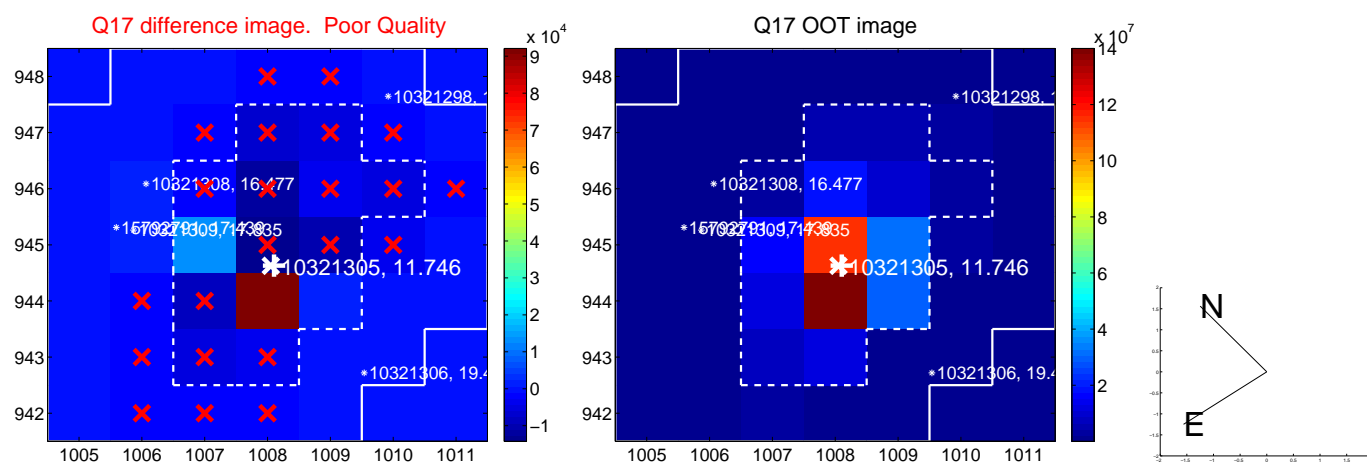
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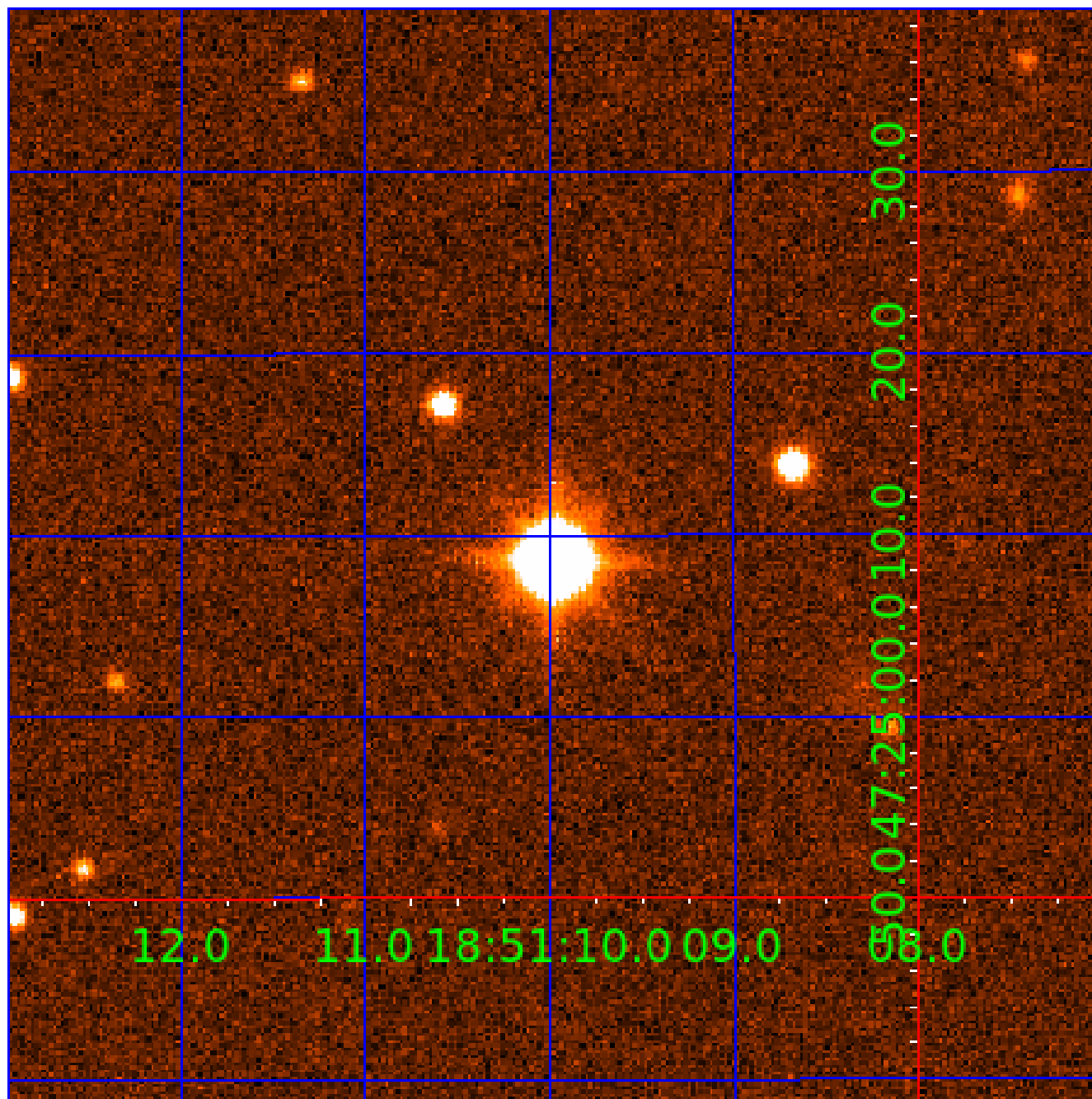


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010321305

Q1-17 DR25 TCE Parameters

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Robovetter Results

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010321305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS
010321305-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
010321305-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

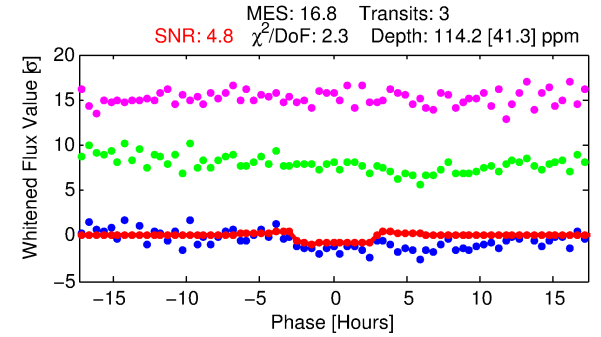
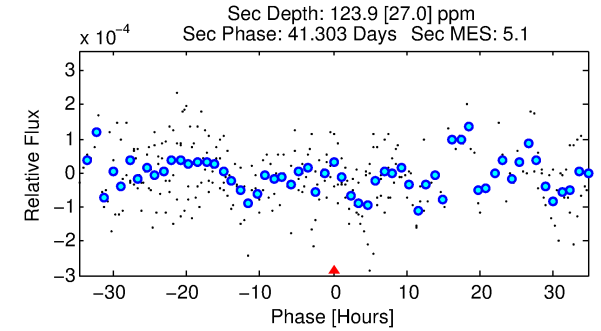
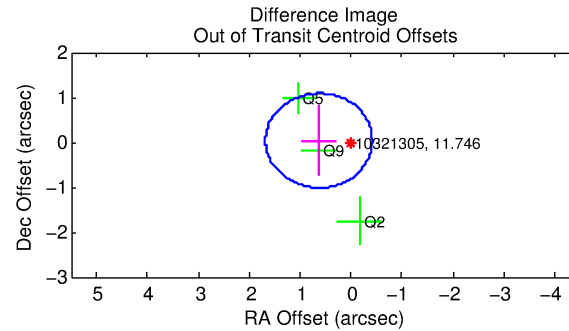
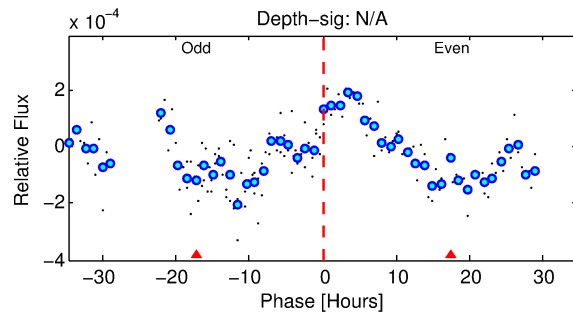
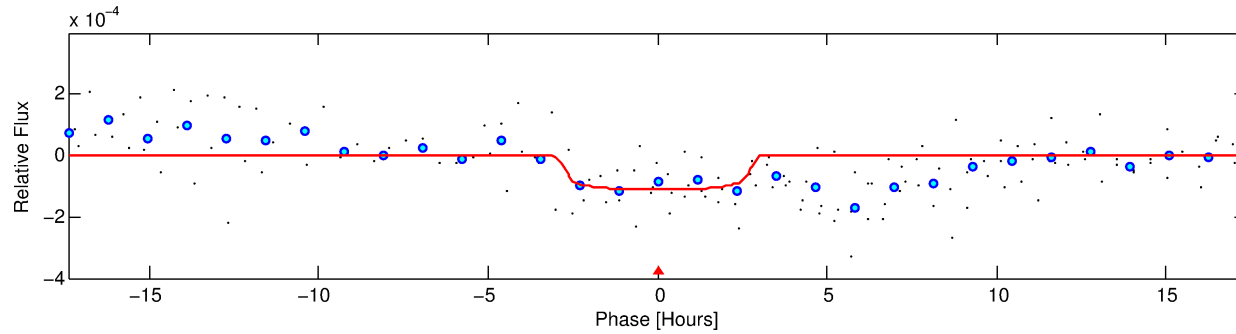
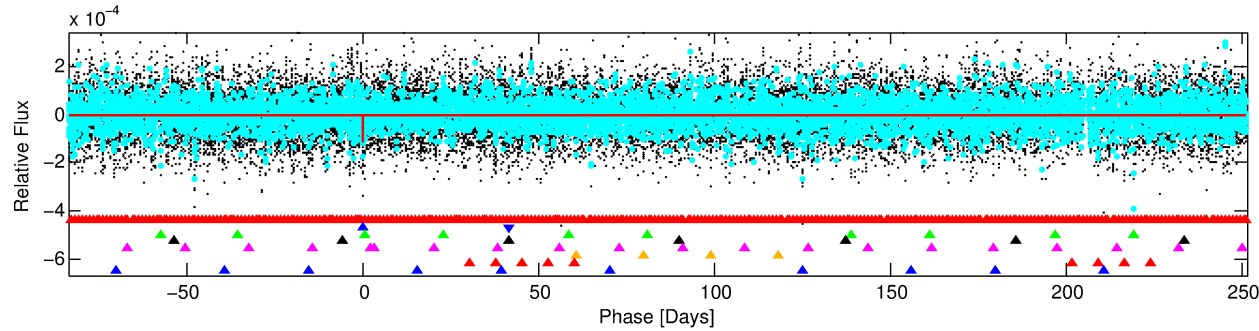
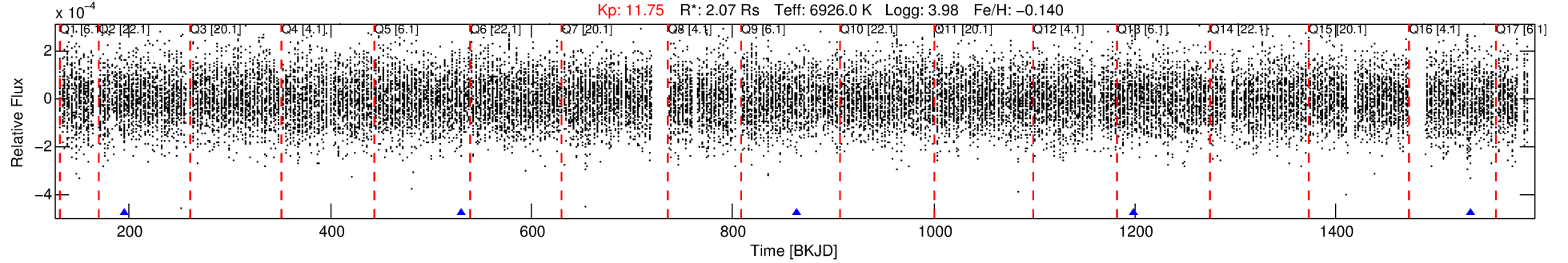
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010321305-02

No Significant Match Found

DV One-Page Summary

KIC: 10321305 Candidate: 2 of 8 Period: 334.798 d



DV Fit Results:

Period = 334.79810 [0.00947] d
Epoch = 194.8456 [0.0173] BKJD
 $R_p/R^* = 0.0111$ [0.0152]
 $a/R^* = 237.34$ [1937.64]
 $b = 0.86$ [2.57]
 $\text{Seff} = 7.60$ [2.97]
 $T_{\text{eq}} = 423$ [41] K
 $R_p = 2.51$ [3.52] R_e
 $a = 1.0800$ [0.2641] AU
 $A_g = 12658.55$ [35247.32] [0.36σ]
 $T_{\text{eff}} = 6944$ [4795] K [1.36σ]

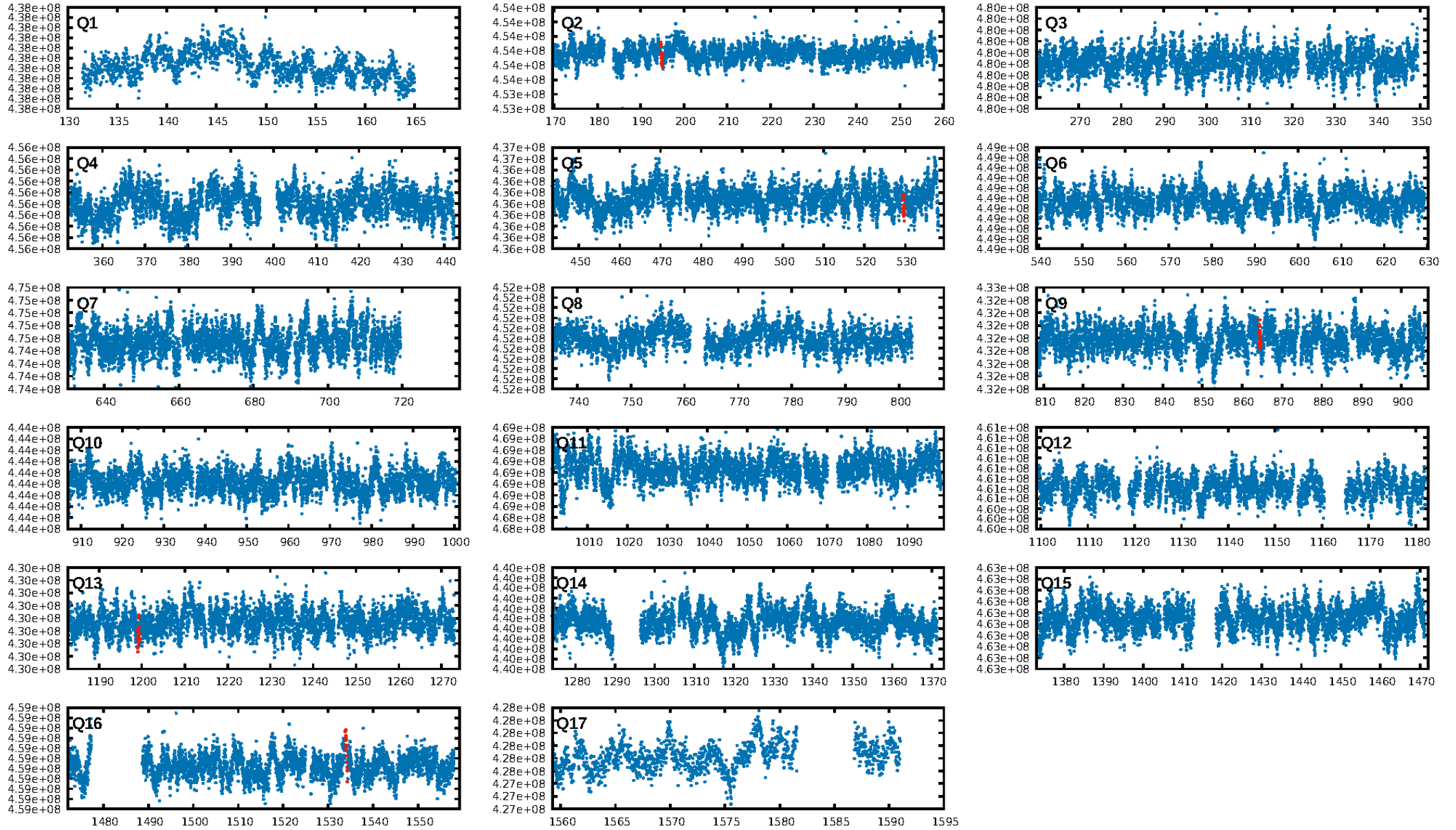
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [183.78σ]
LongPeriod-sig: 100.0% [17.85σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 30.4%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.8199
Centroid-sig: 2.6%
Centroid-so: 3.306 arcsec [2.21σ]
OotOffset-rm: 0.631 arcsec [1.80σ]
OotOffset-st: 1/0/0/2 [3]
KicOffset-rm: 0.374 arcsec [0.99σ]
KicOffset-st: 1/0/0/2 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.25 [1/4]

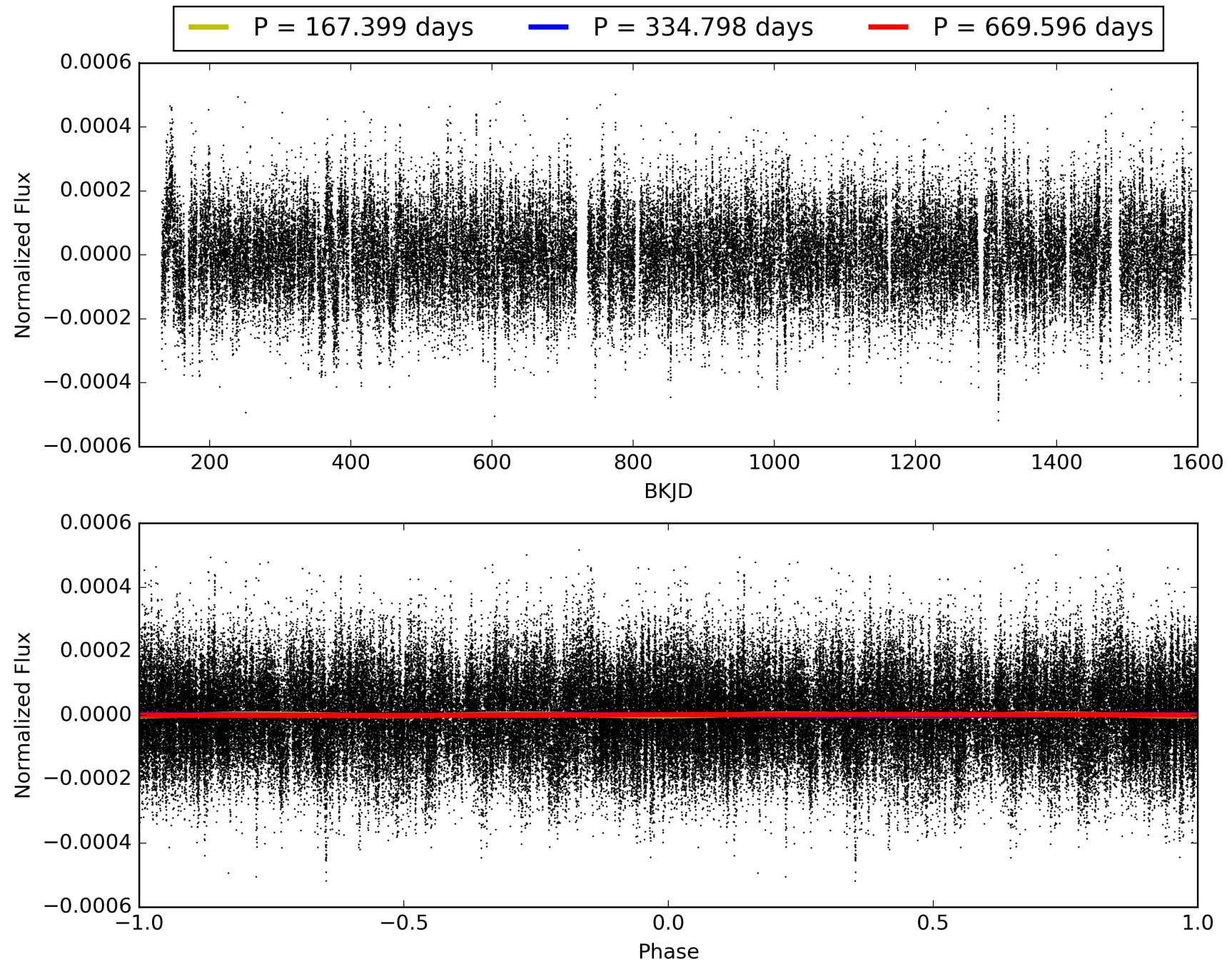
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:48:58 Z

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

TCE 010321305-02, PDC Light Curves

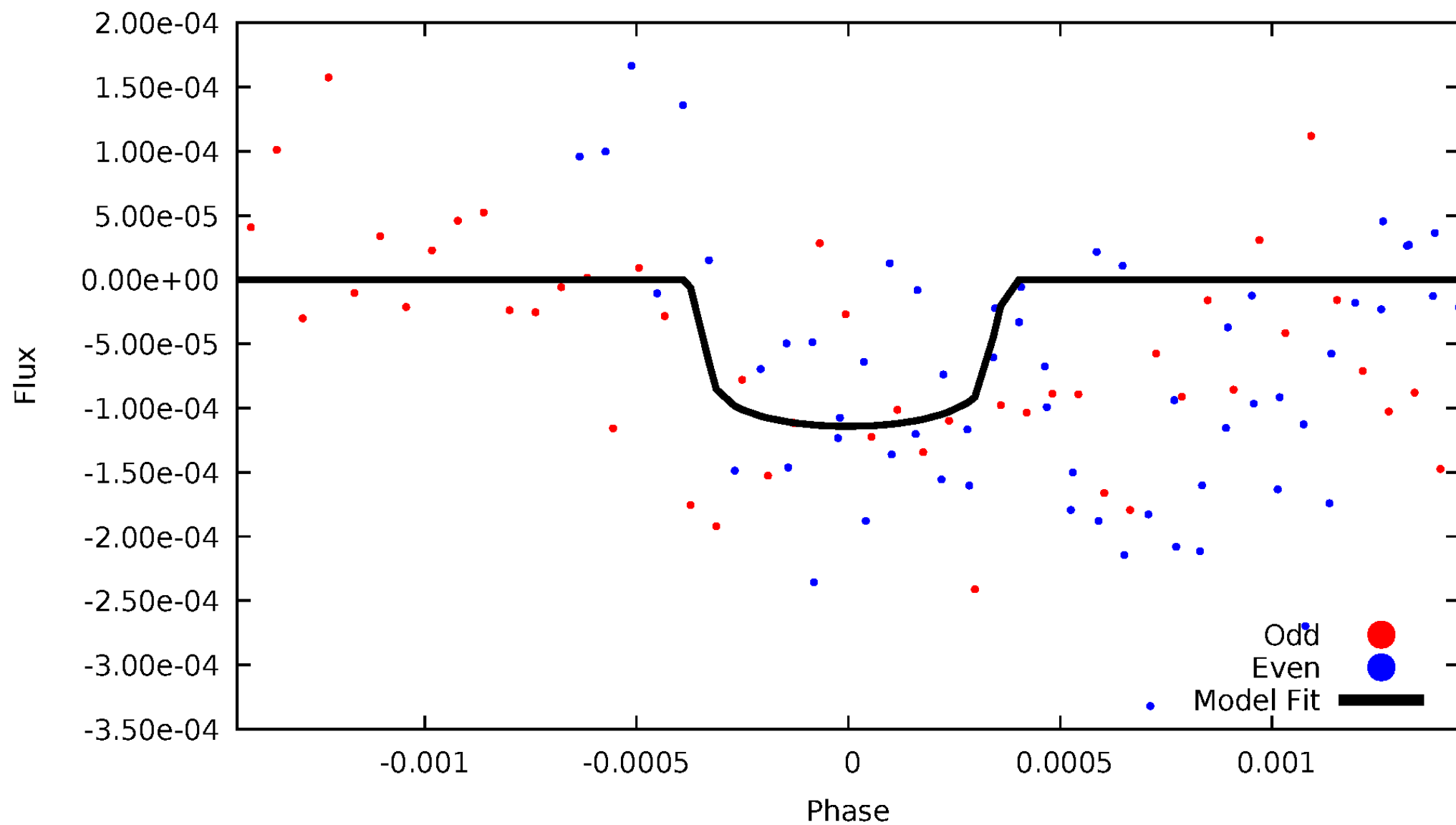


TCE 010321305-02



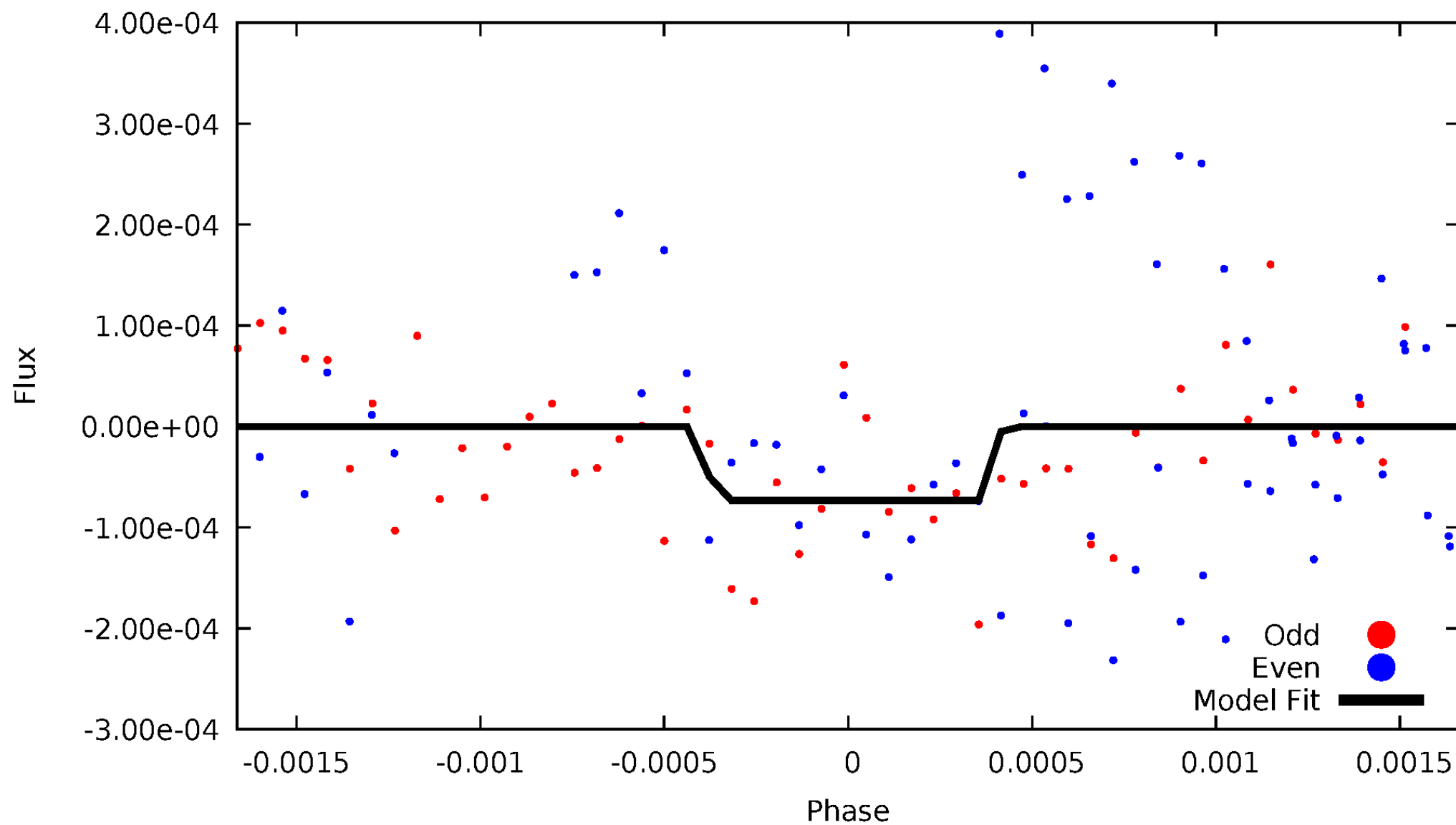
DV Odd/Even

TCE 010321305-02



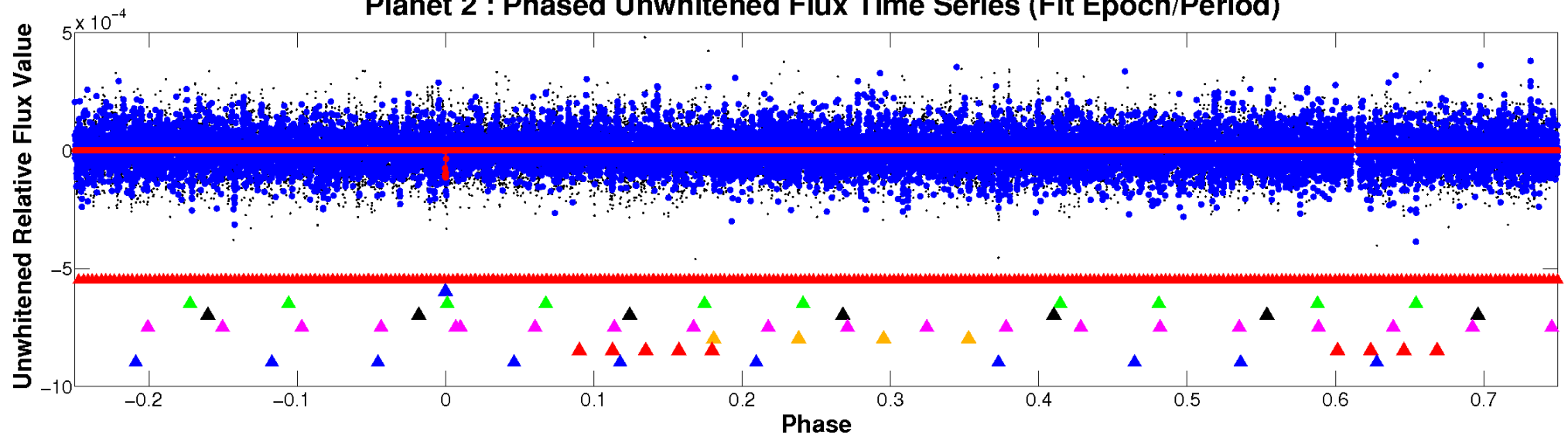
ALT Odd/Even

TCE 010321305-02

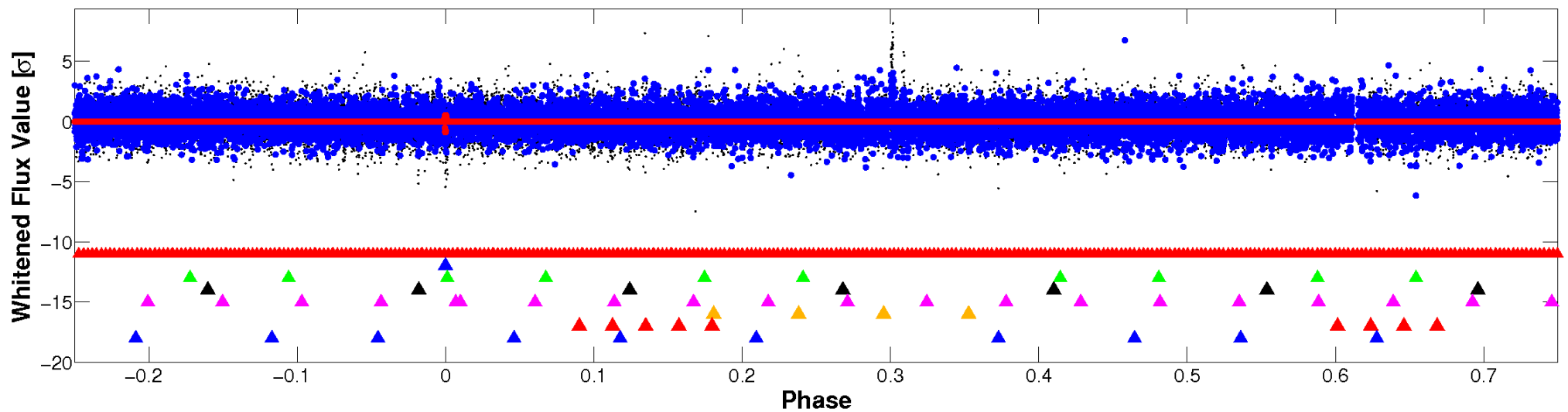


Non-Whitened Vs. Whitened Light Curve

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

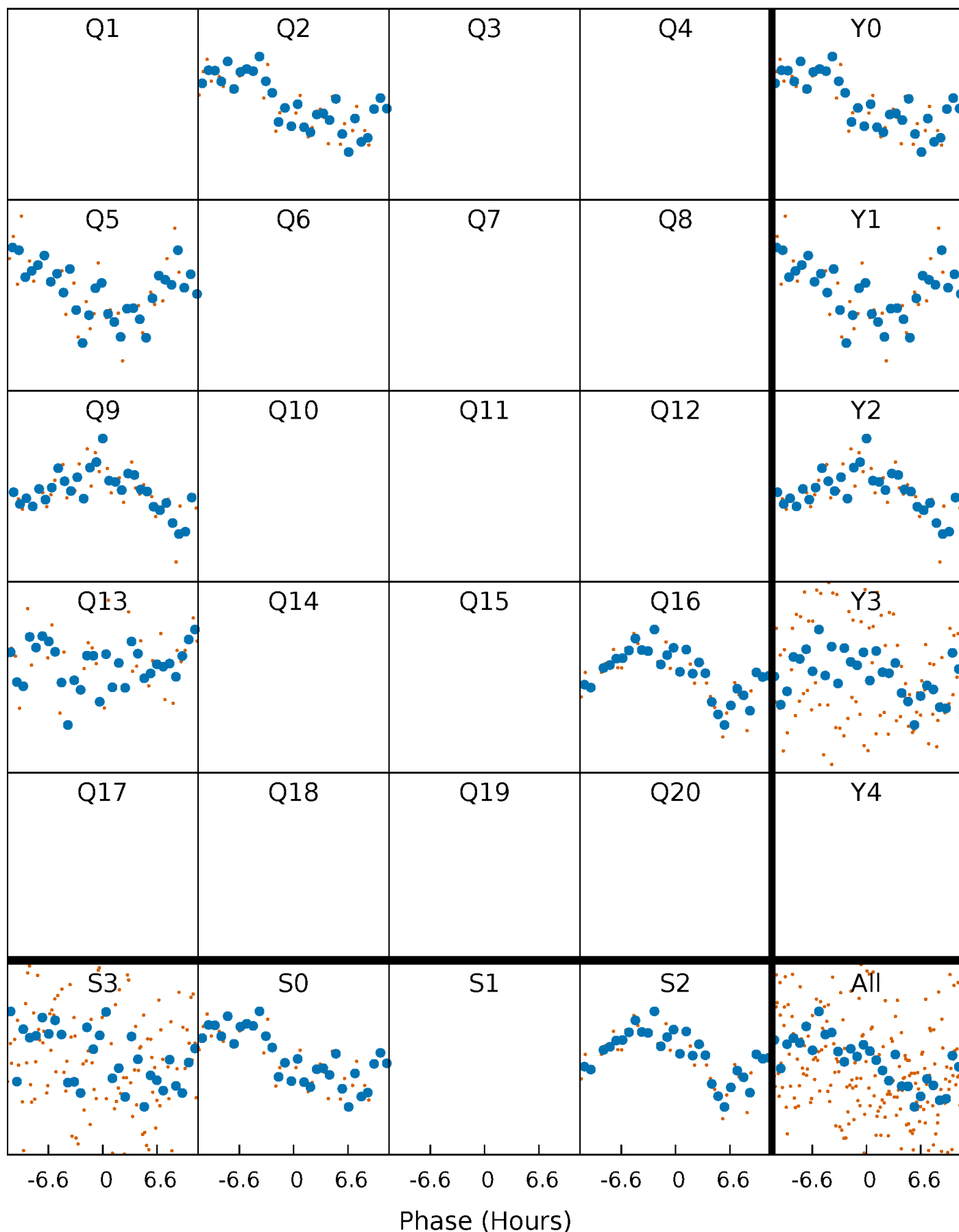


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



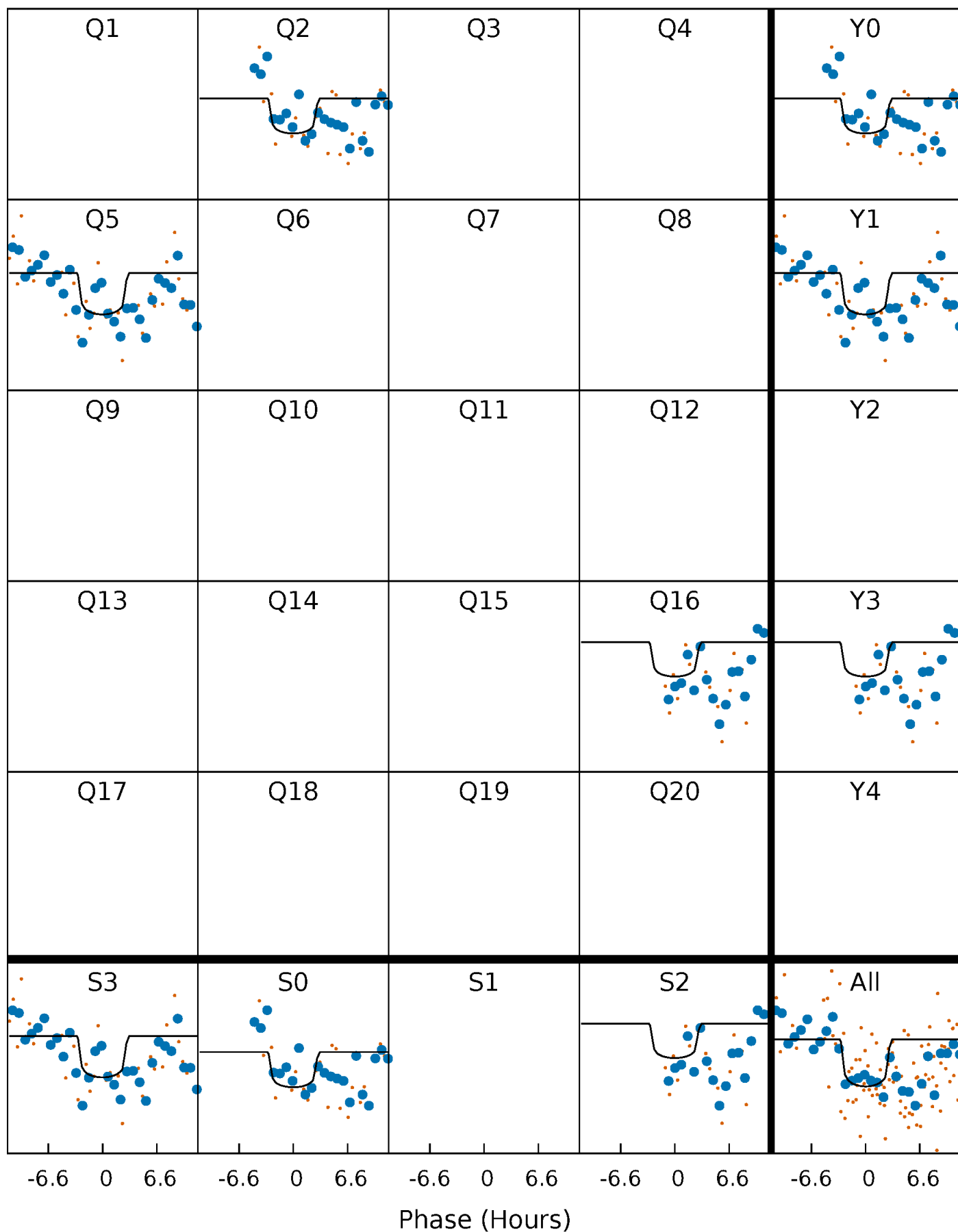
PDC Quarter-Phased Transit Curves

TCE 010321305-02 $P=334.798098$ Days $T_0=194.845598$ (BKJD)



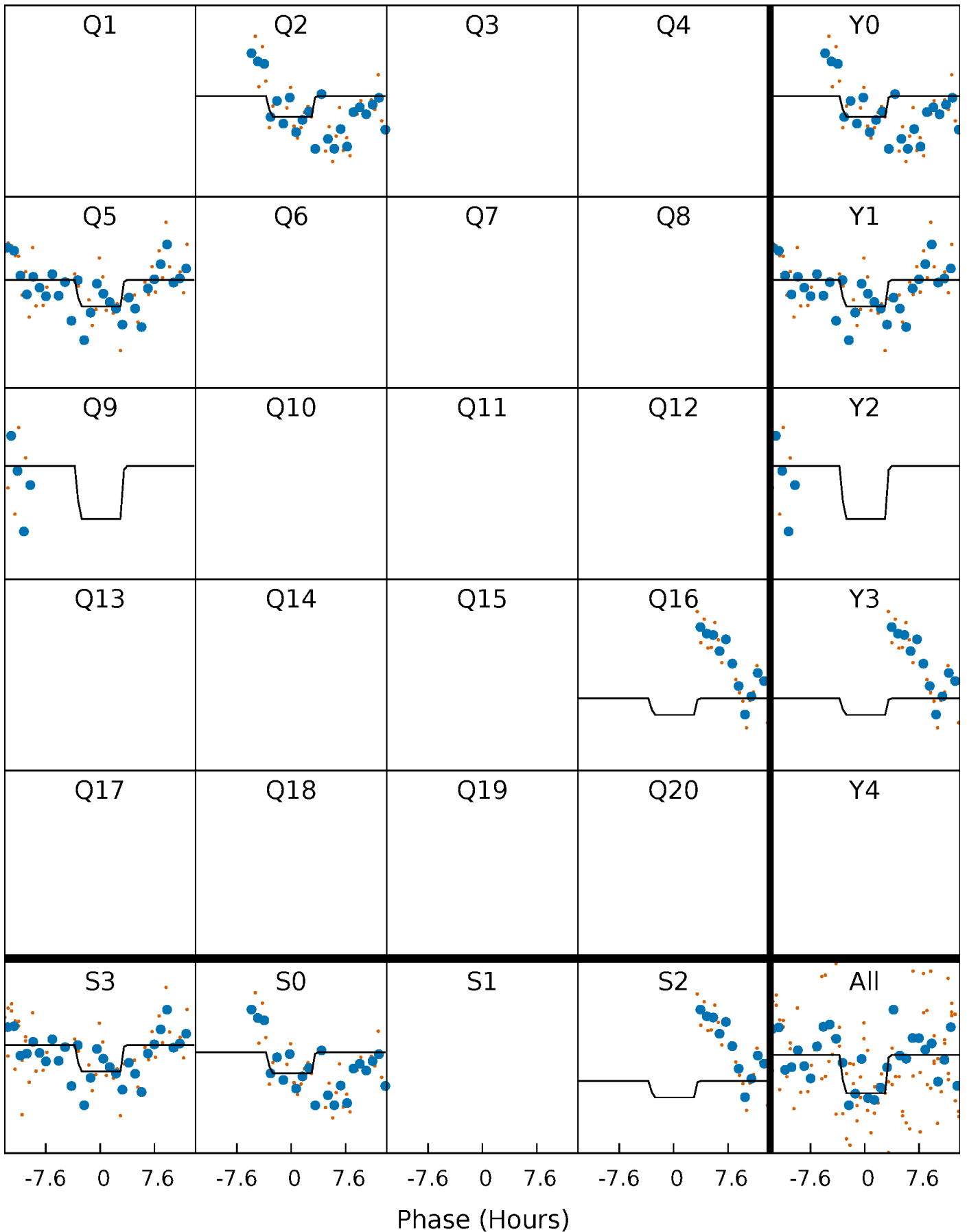
DV Quarter-Phased Transit Curves

TCE 010321305-02 $P=334.798098$ Days $T_0=194.845598$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

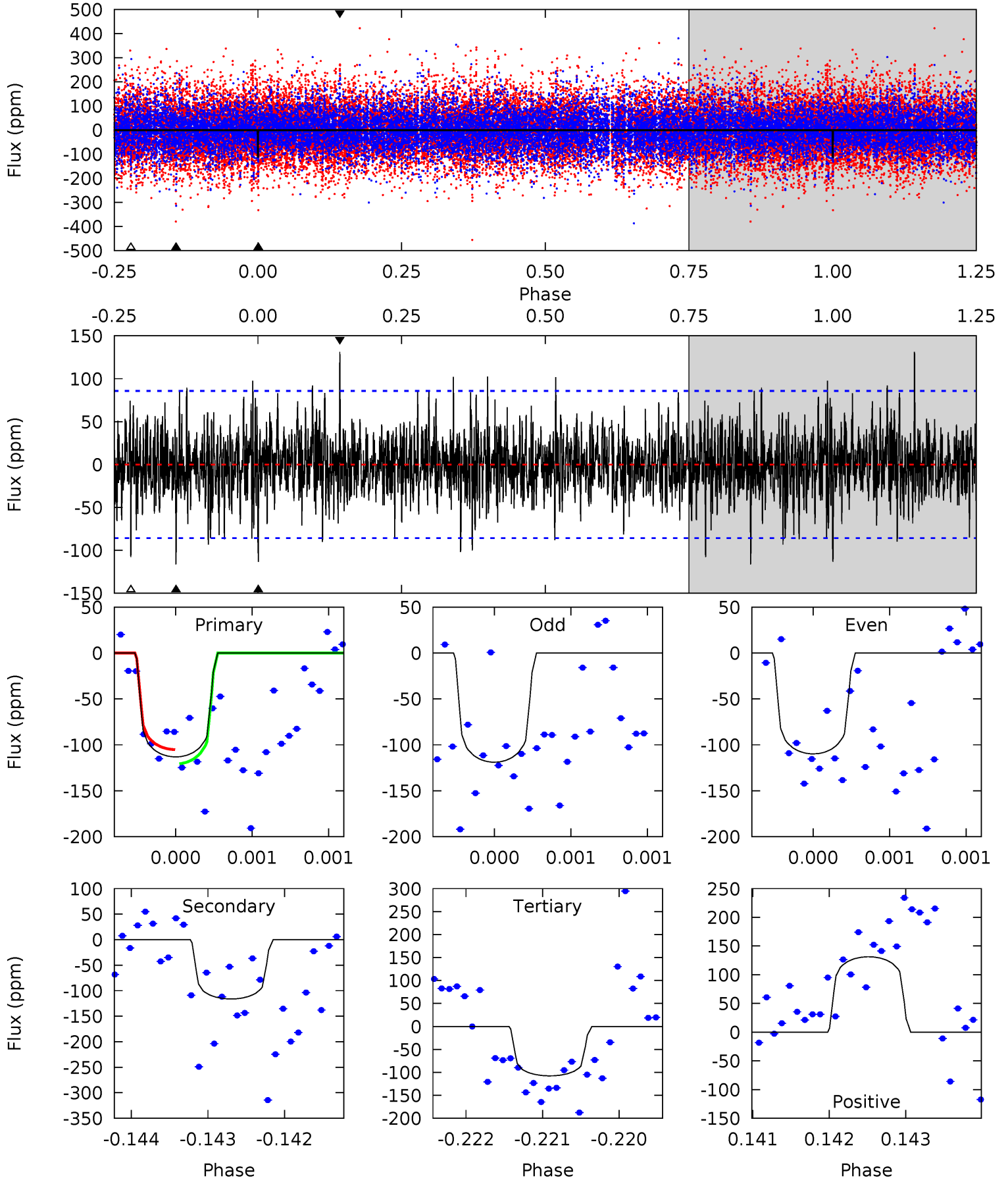
TCE 010321305-02 $P=334.742580$ Days $T_0=194.882564$ (BKJD)



DV Model-Shift Uniqueness Test

010321305-02, P = 334.798098 Days, E = 194.845598 Days

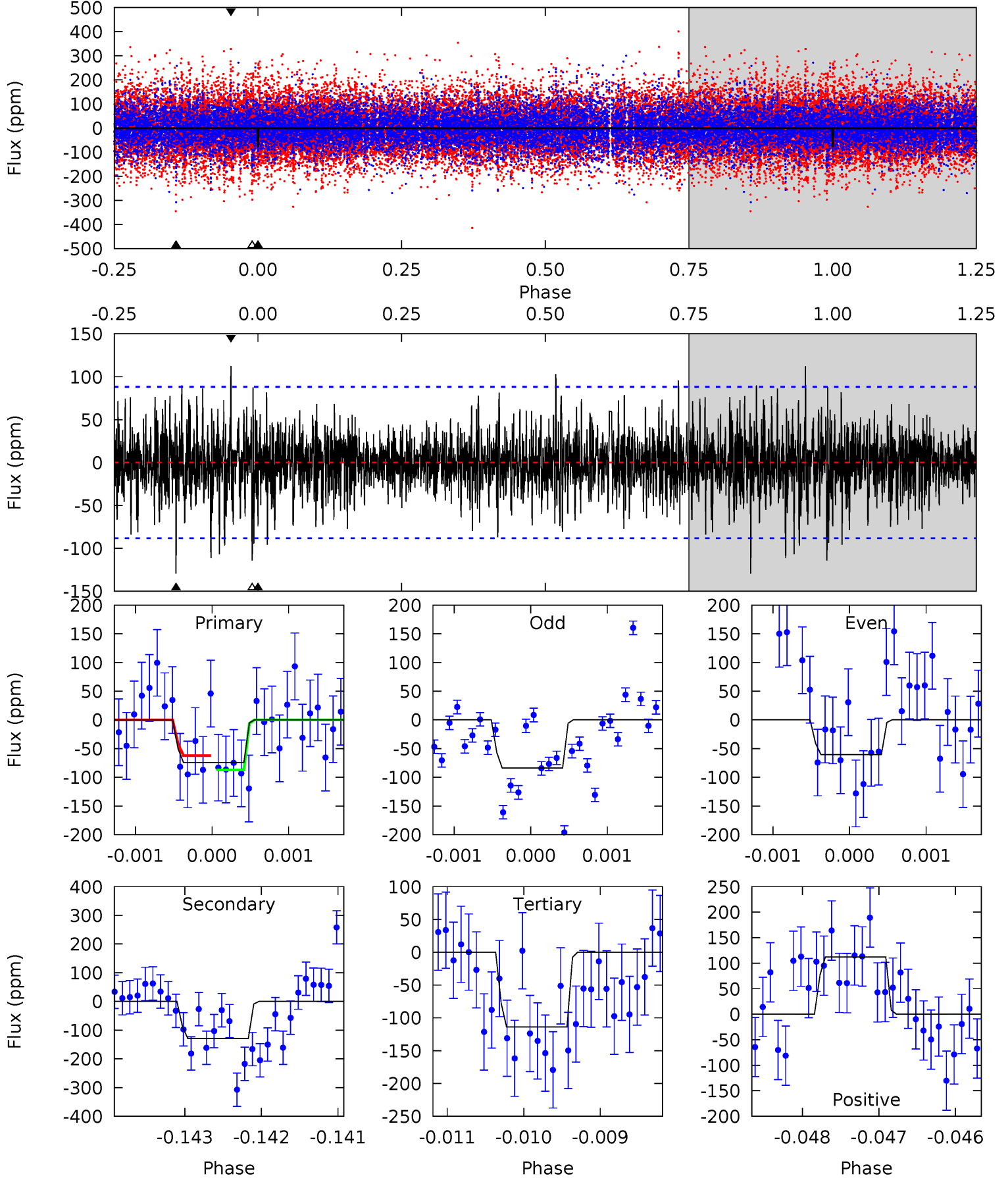
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.27	7.46	6.91	8.43	5.51	3.38	1.81	0.35	-1.17	0.55	-0.97	0.28	0.97	0.53	0.49



Alt Model-Shift Uniqueness Test

010321305-02, P = 334.742580 Days, E = 194.882564 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.62	8.04	7.08	6.99	5.48	3.34	1.66	-2.46	-2.37	0.96	1.06	0.75	1.00	0.46	0.77



Stellar Parameters For KIC 010321305

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+174}_{-208}	$3.980^{+0.210}_{-0.123}$	$-0.140^{+0.250}_{-0.300}$	$2.074^{+0.468}_{-0.572}$	$1.497^{+0.185}_{-0.246}$	$0.236^{+0.281}_{-0.086}$
	+3%/-3%	+5%/-3%	+179%/-214%	+23%/-28%	+12%/-16%	+119%/-37%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010321305-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-116 ± 16	$3.55^{+2.91}_{-2.36}$	584^{+34}_{-43}	5589^{+4997}_{-1210}	6062^{+47372}_{-4224}
Alt.	-129 ± 16	$2.94^{+2.92}_{-1.98}$	585^{+35}_{-42}	6355^{+7391}_{-1693}	9391^{+89528}_{-7033}

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

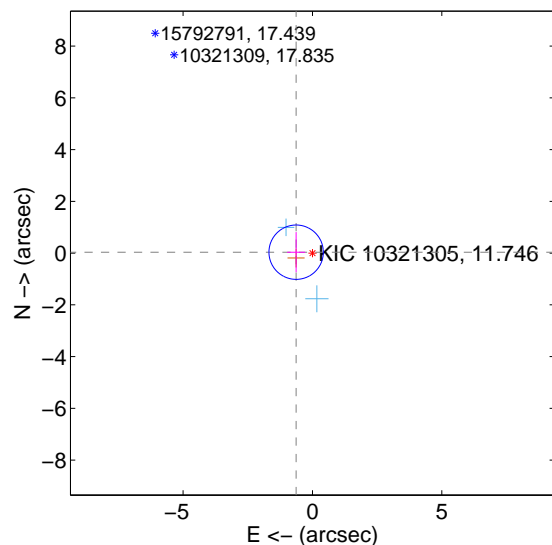
Supplemental centroid analysis for 010321305-02. **Kepler magnitude: 11.75.** Transit SNR 4.79

There are 2 quarters with good PRF difference image offsets

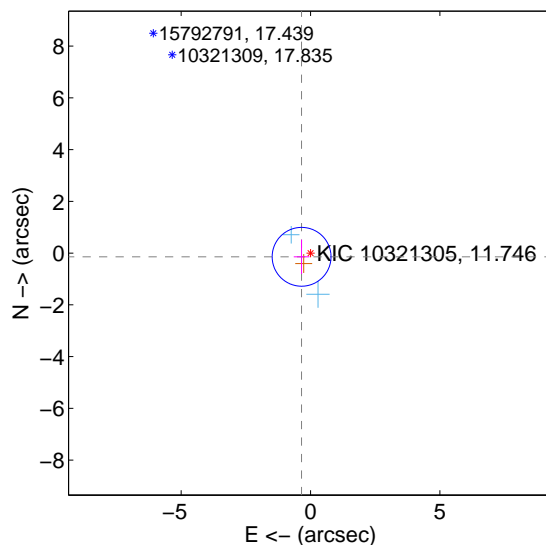
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.631 ± 0.350	1.80	0.630 ± 0.348	0.035 ± 0.775
PRF-fit source offset from KIC position	0.374 ± 0.379	0.99	0.345 ± 0.304	-0.143 ± 0.663
photometric centroid source offset	3.31 ± 1.50	2.21	3.22 ± 1.51	-0.76 ± 1.20

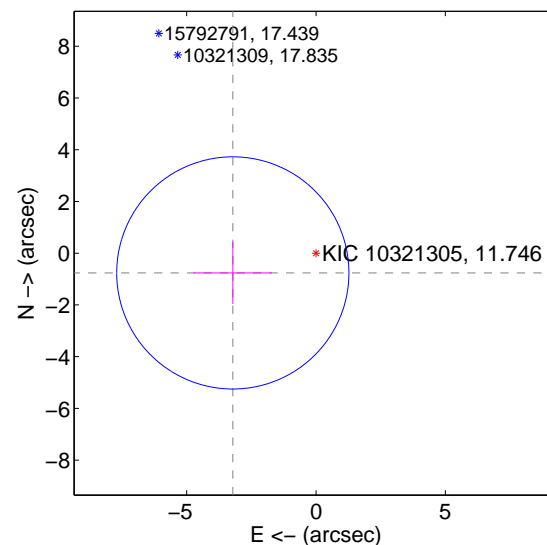
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

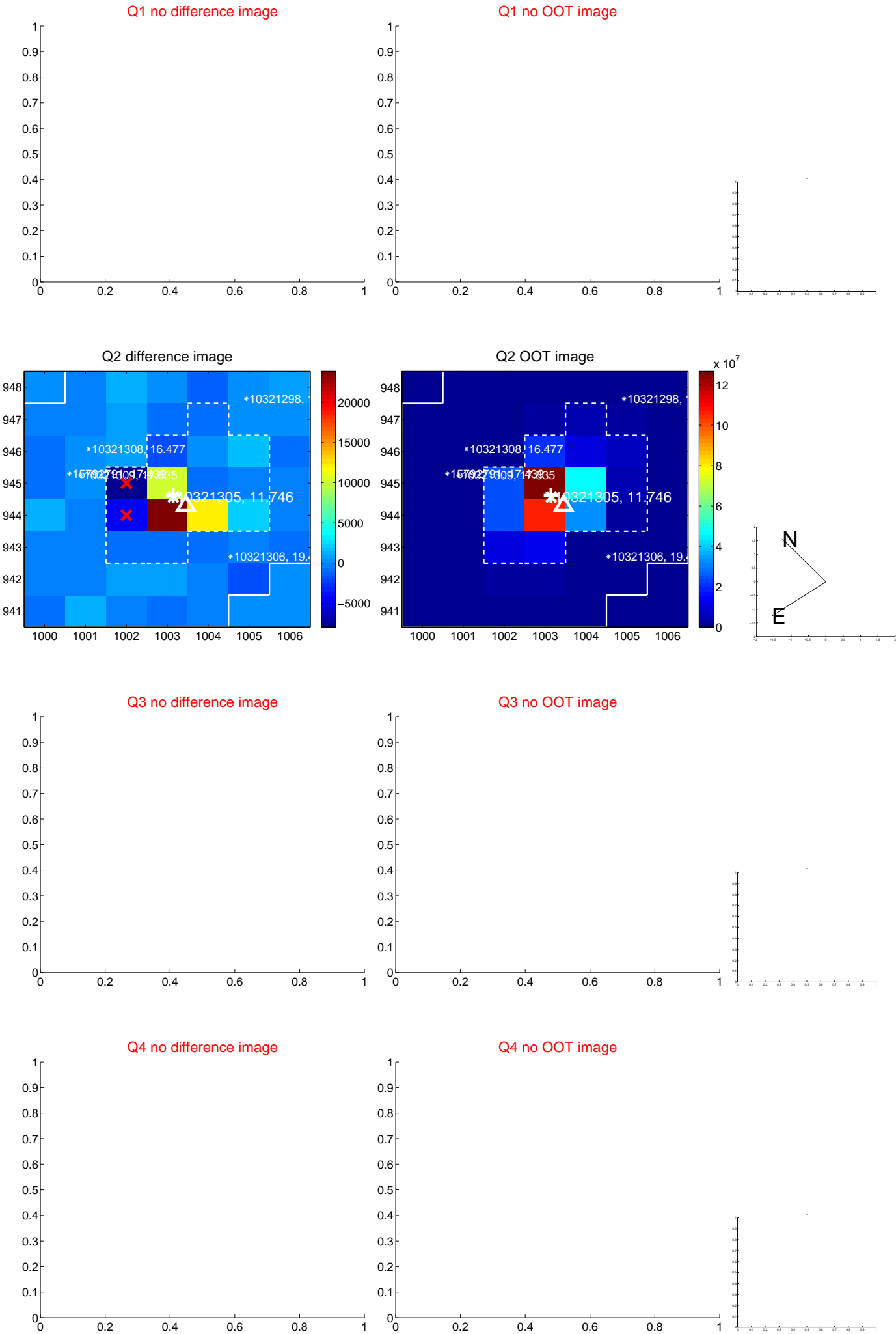


offset from photometric centroids

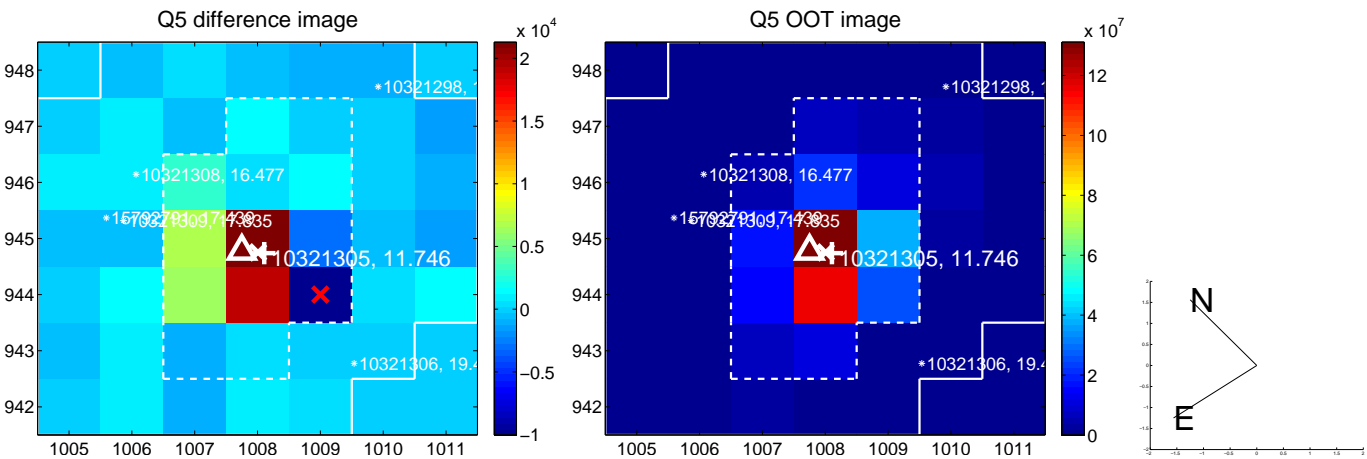


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

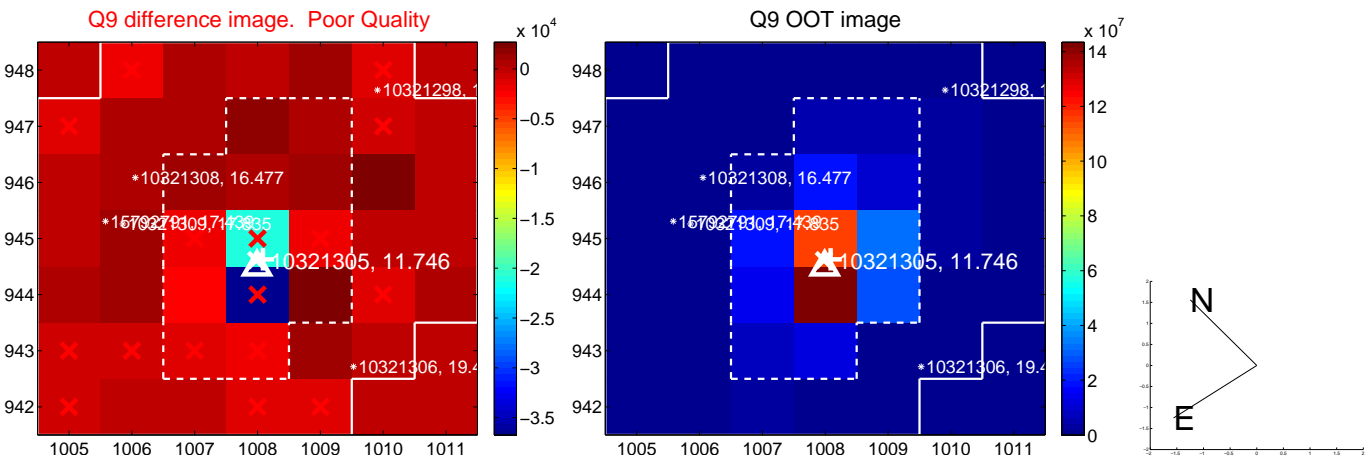
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



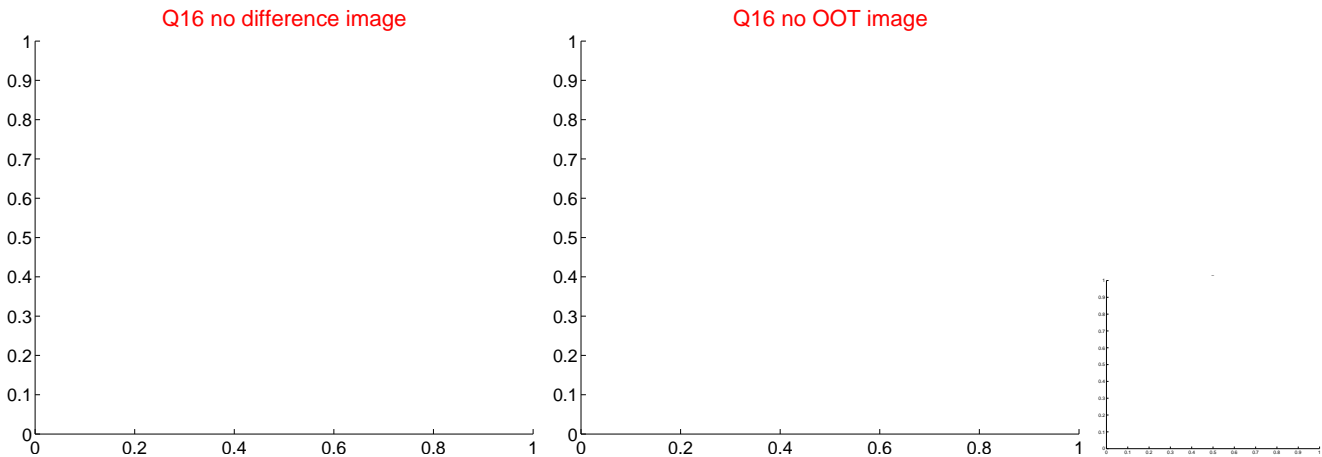
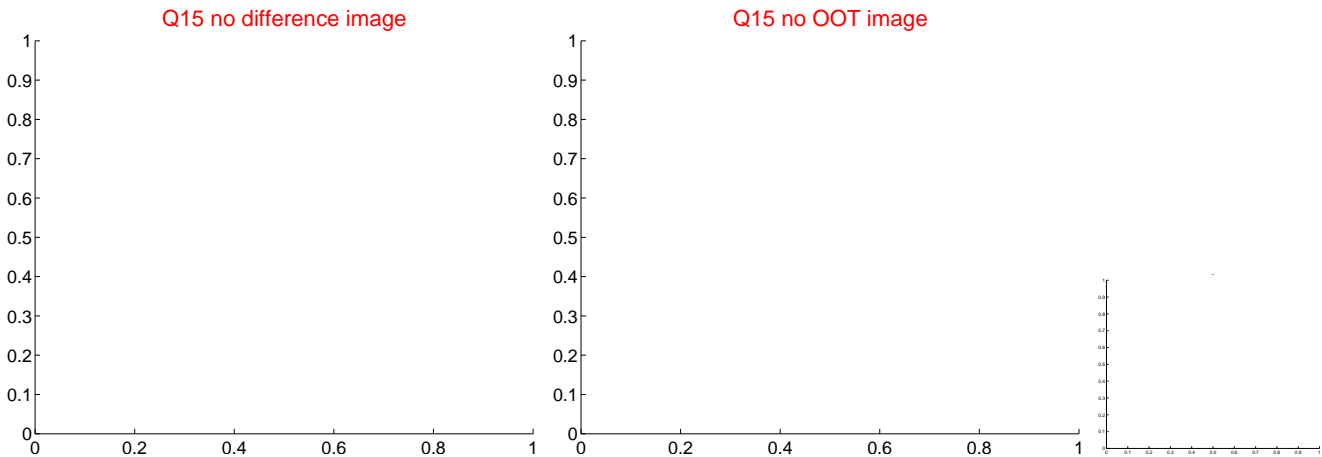
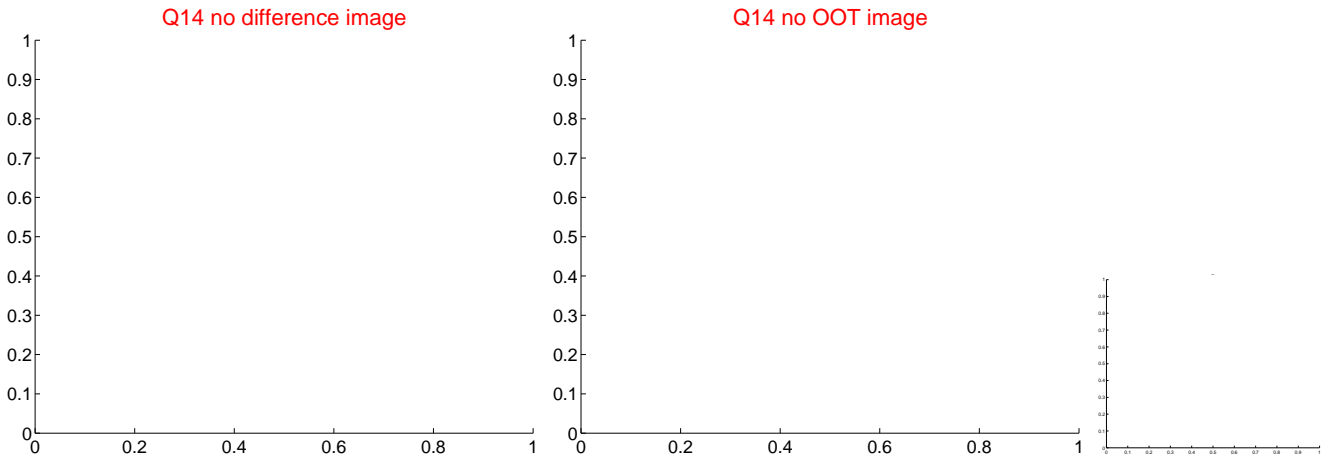
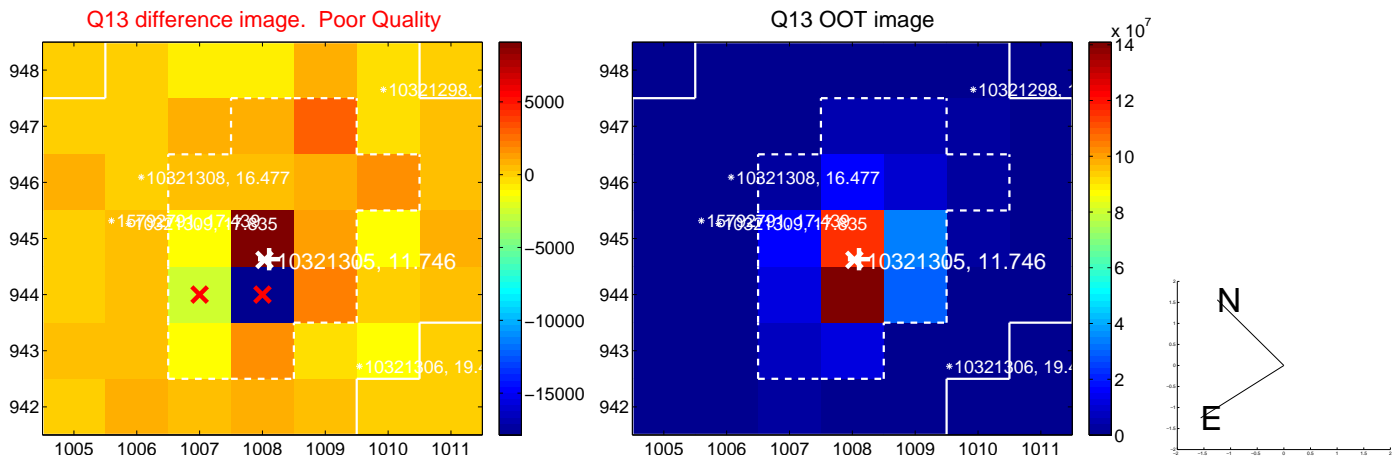
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



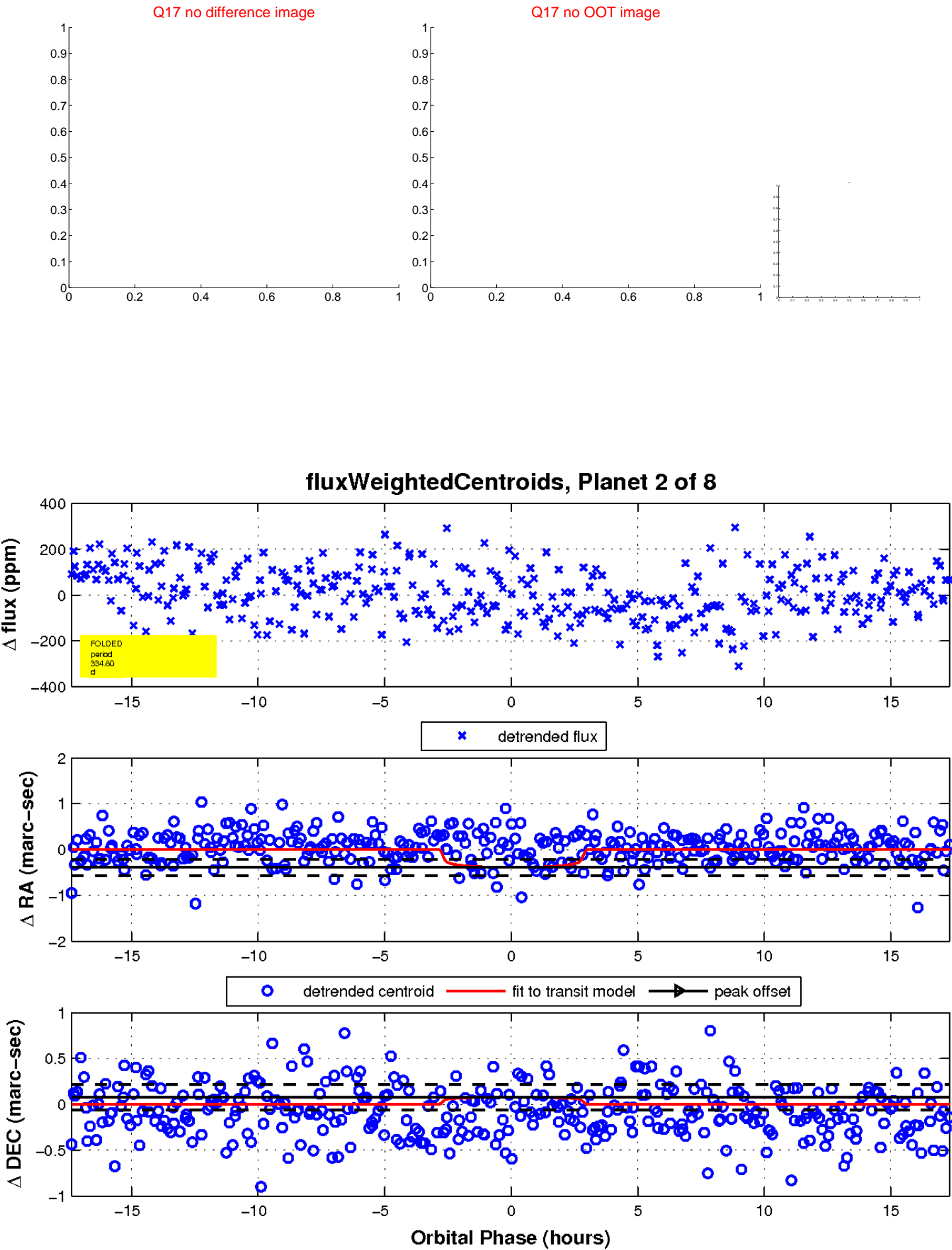
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



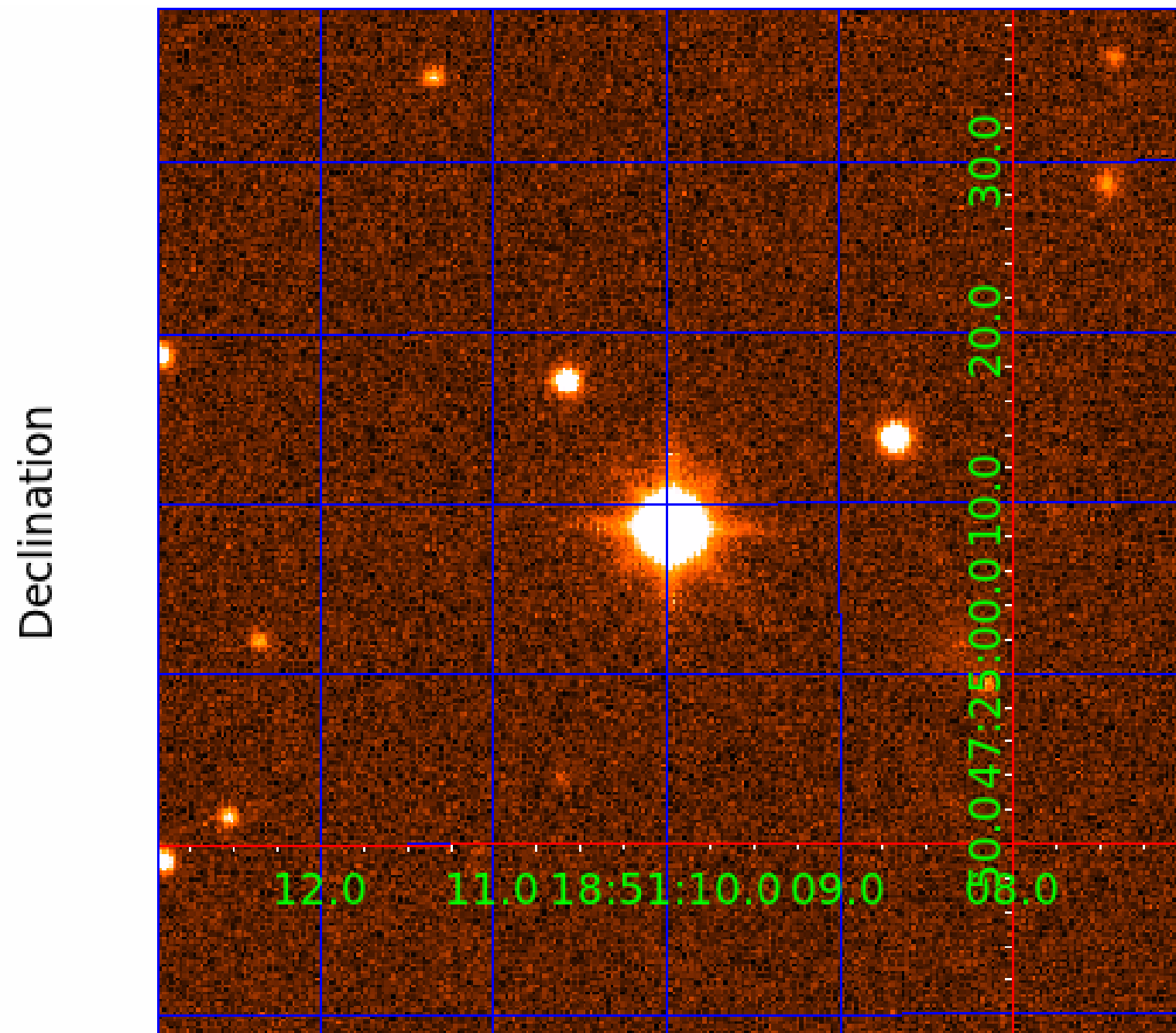
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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



UKIRT Image



KIC 010321305

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})
010321305-01	OBS	No	4.022095	133.114482	15.6	18.521	7.7	5.3	2.07	6926	1.15	2763.29
010321305-02	OBS	No	334.798099	194.845598	114.2	5.794	16.8	4.8	2.07	6926	2.51	7.60
010321305-03	OBS	No	138.366923	253.316317	143.4	7.076	9.7	5.9	2.07	6926	2.78	24.70
010321305-05	OBS	No	70.538112	197.172726	108.8	12.252	8.4	7.9	2.07	6926	2.86	60.65
010321305-06	OBS	No	353.981134	255.385488	160.1	25.138	8.2	7.3	2.07	6926	2.73	7.06
010321305-07	OBS	No	163.654942	255.022721	164.4	9.407	7.7	8.0	2.07	6926	3.08	19.75
010321305-08	OBS	No	140.064547	234.275802	121.5	3.000	7.7	-1.0	2.07	6926	2.31	24.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010321305-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010321305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010321305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS
010321305-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
010321305-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

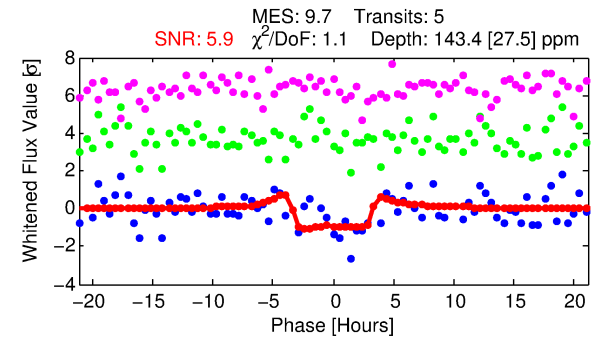
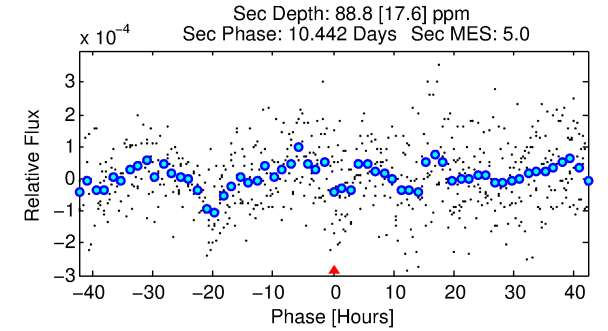
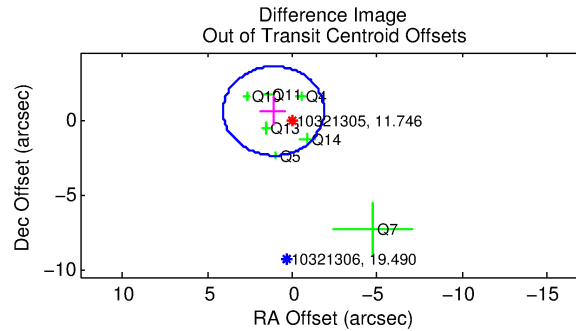
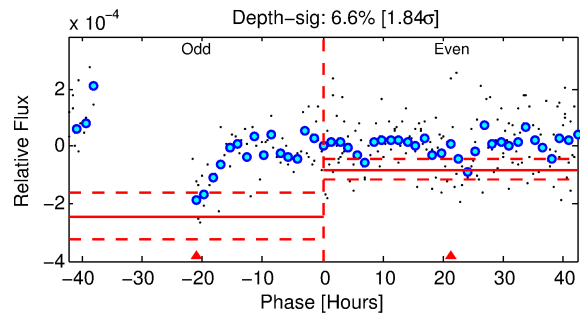
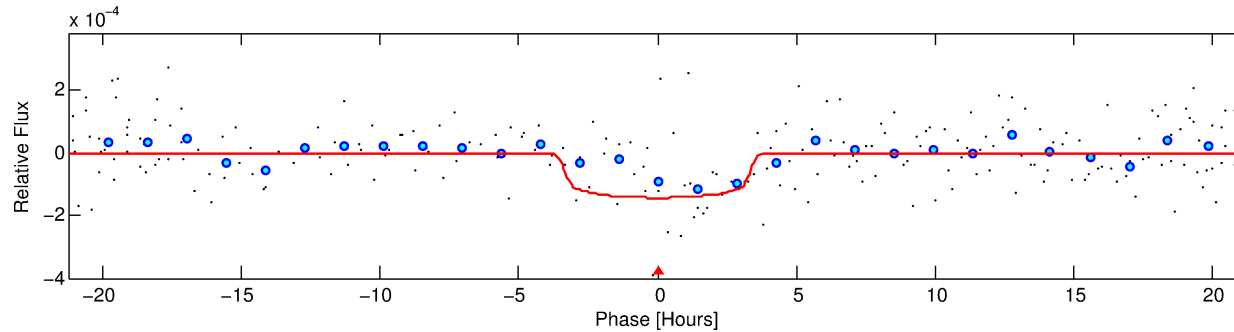
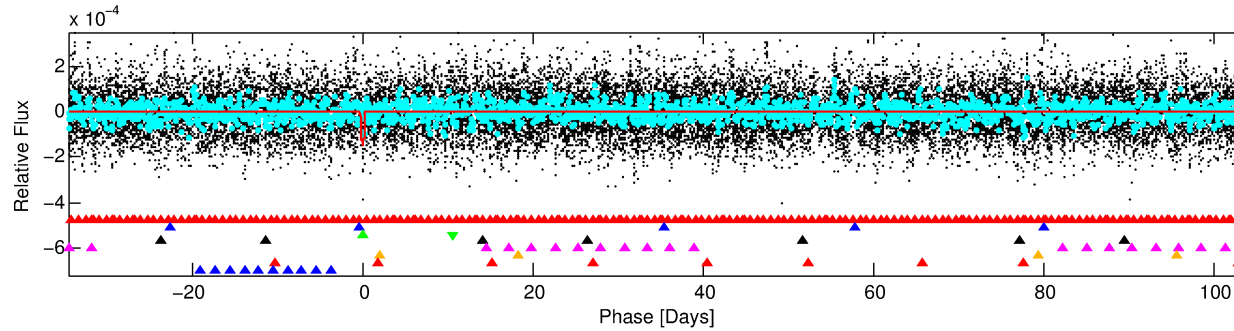
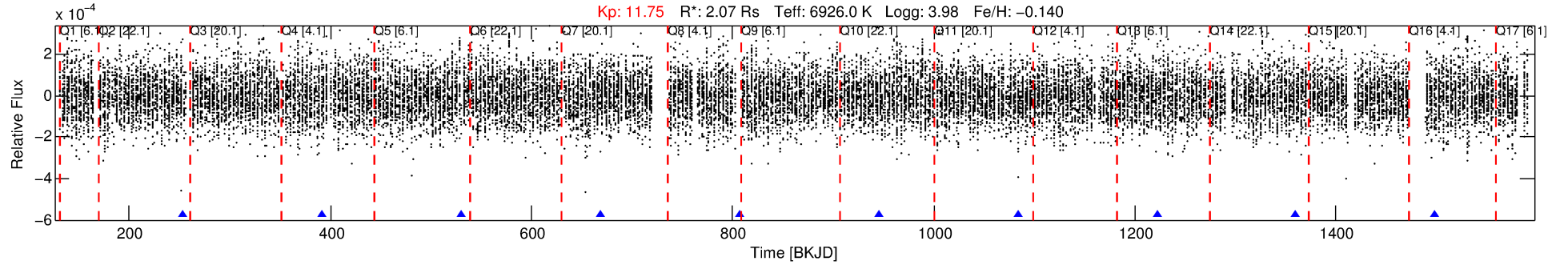
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010321305-03

No Significant Match Found

DV One-Page Summary

KIC: 10321305 Candidate: 3 of 8 Period: 138.367 d



DV Fit Results:

Period = 138.36692 [0.00314] d
Epoch = 253.3163 [0.0240] BKJD
Rp/R* = 0.0123 [0.0056]
a/R* = 84.87 [224.00]
b = 0.84 [0.94]
Seff = 24.70 [9.63]
Teq = 568 [55] K
Rp = 2.78 [1.48] Re
a = 0.5992 [0.1465] AU
Ag = 2265.43 [2262.66] [1.00 σ]
Teffp = 6063 [1417] K [3.87 σ]

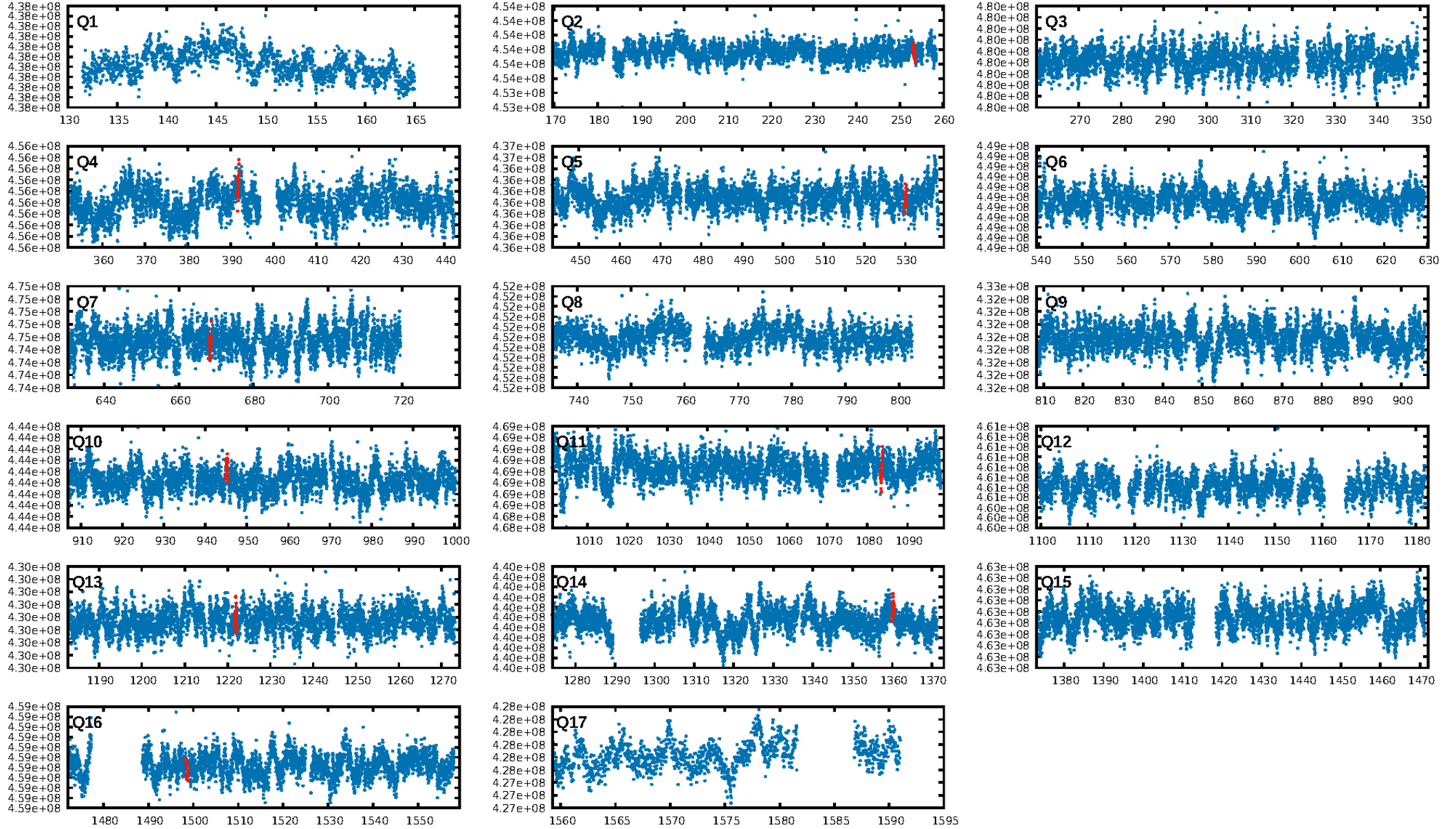
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [115.06 σ]
LongPeriod-sig: 100.0% [5.30 σ]
ModelChiSquare2-sig: 0.5%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -1.56
Centroid-sig: 28.9%
Centroid-so: 0.483 arcsec [0.74 σ]
OotOffset-rm: 1.242 arcsec [1.25 σ]
OotOffset-st: 2/2/1/2 [7]
KicOffset-rm: 0.997 arcsec [0.75 σ]
KicOffset-st: 2/2/1/2 [7]
DiffImageQuality-fgm: 0.29 [2/7]
DiffImageOverlap-fno: 0.38 [3/8]

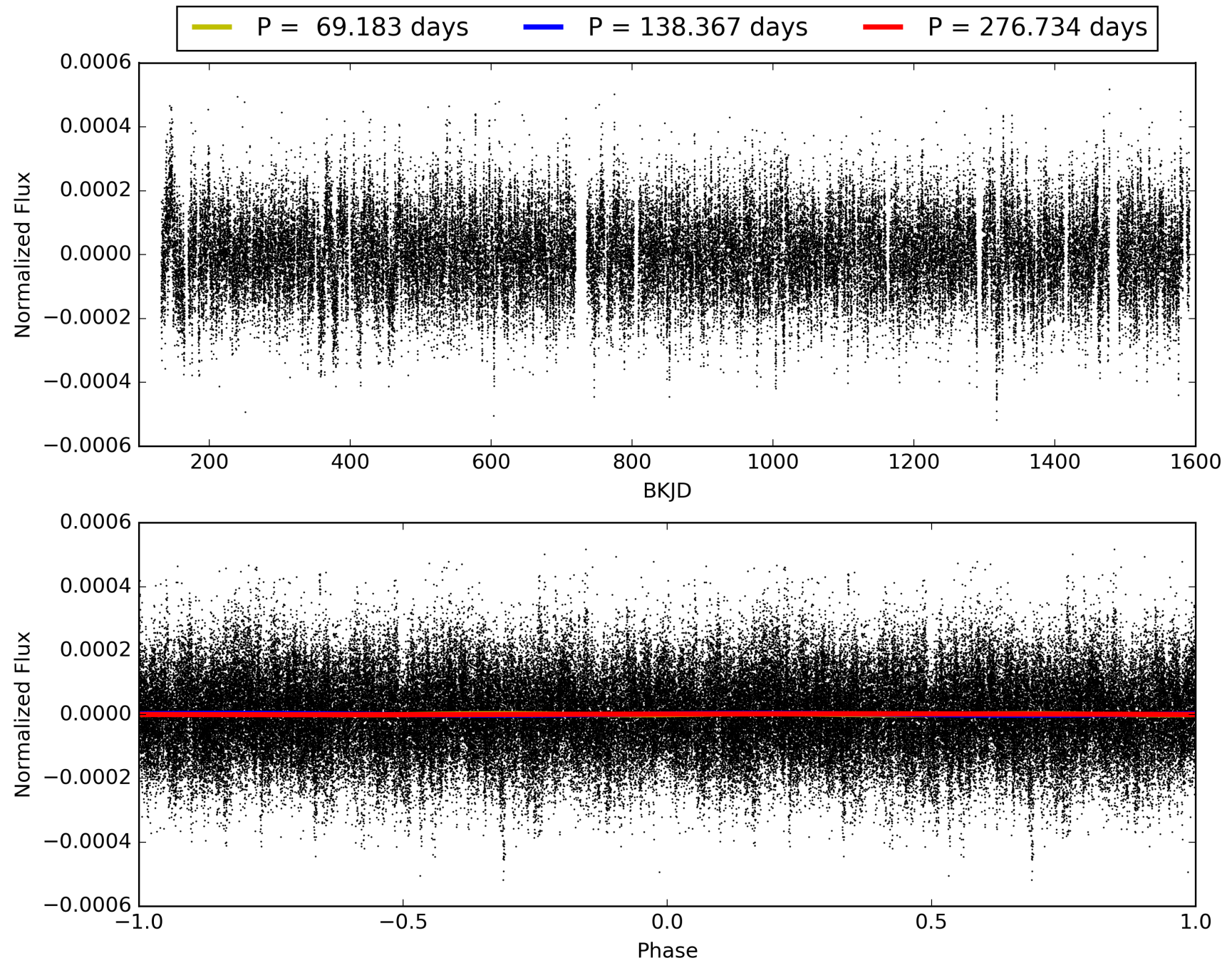
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:49:04 Z

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

TCE 010321305-03, PDC Light Curves

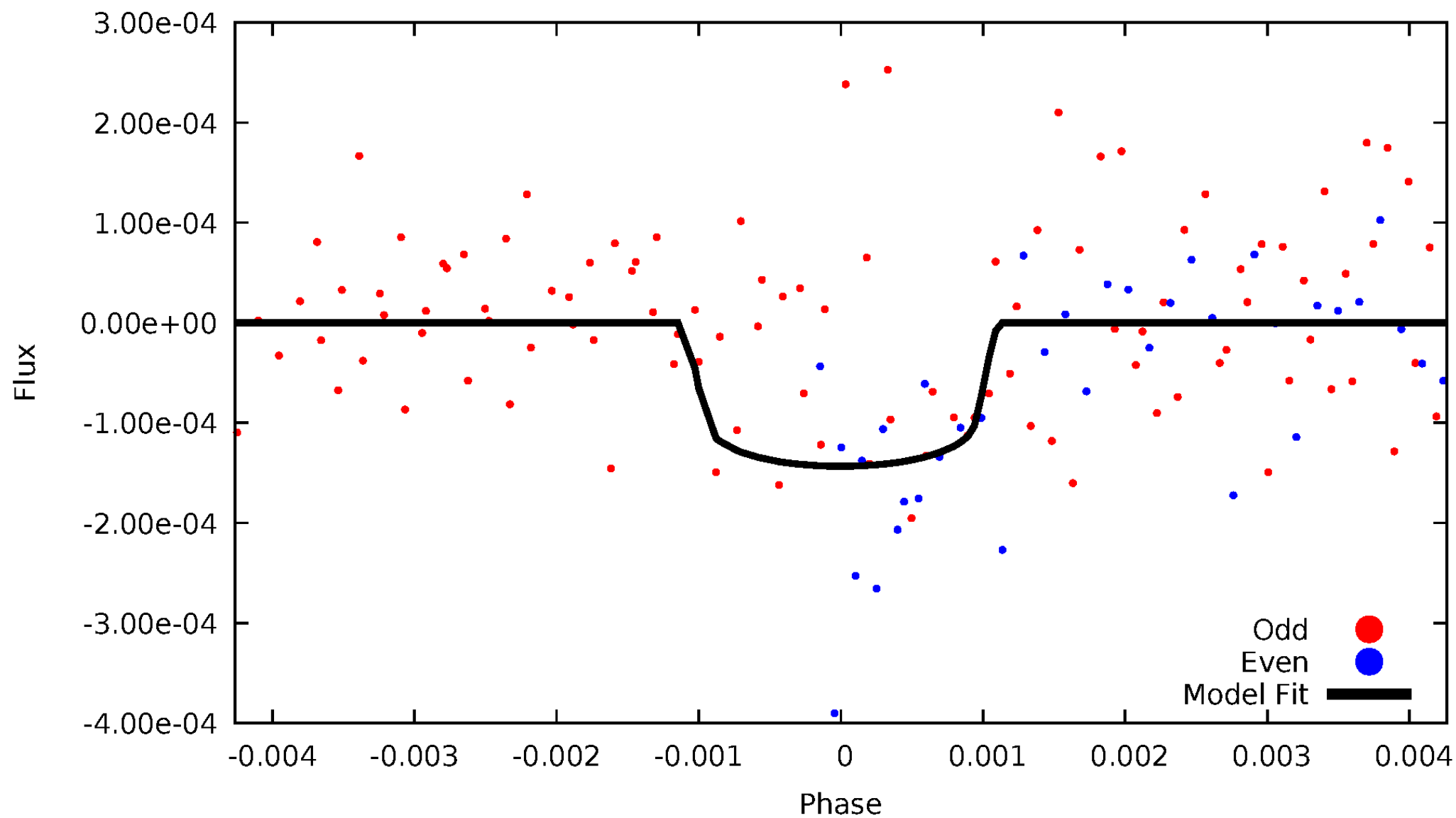


TCE 010321305-03



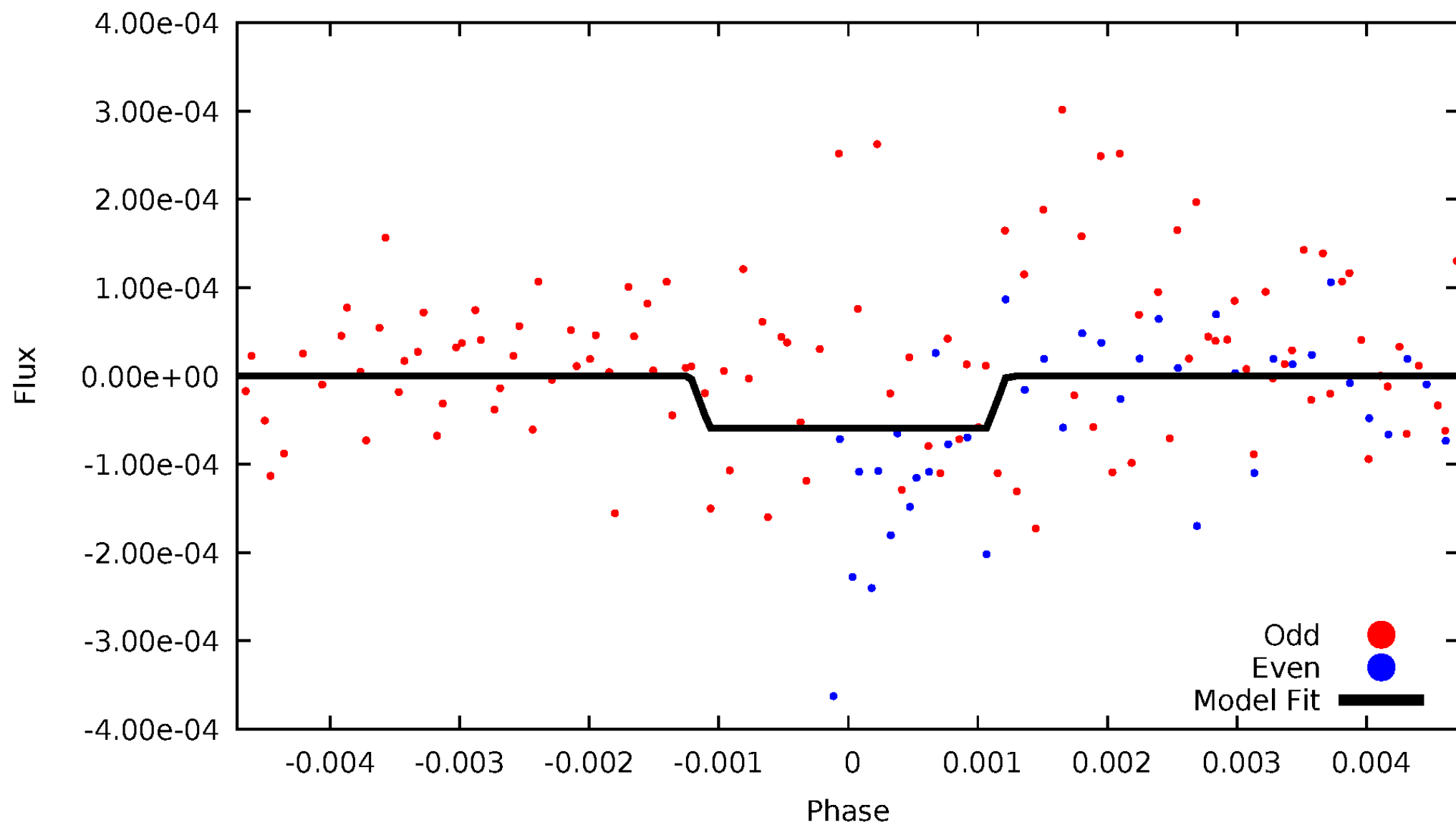
DV Odd/Even

TCE 010321305-03

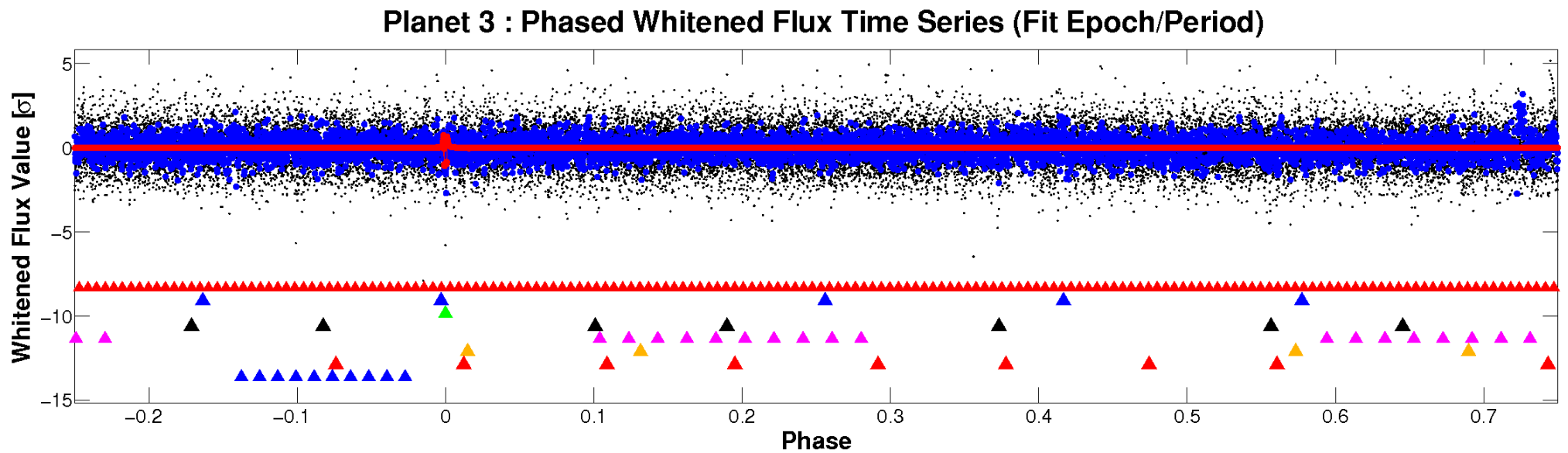
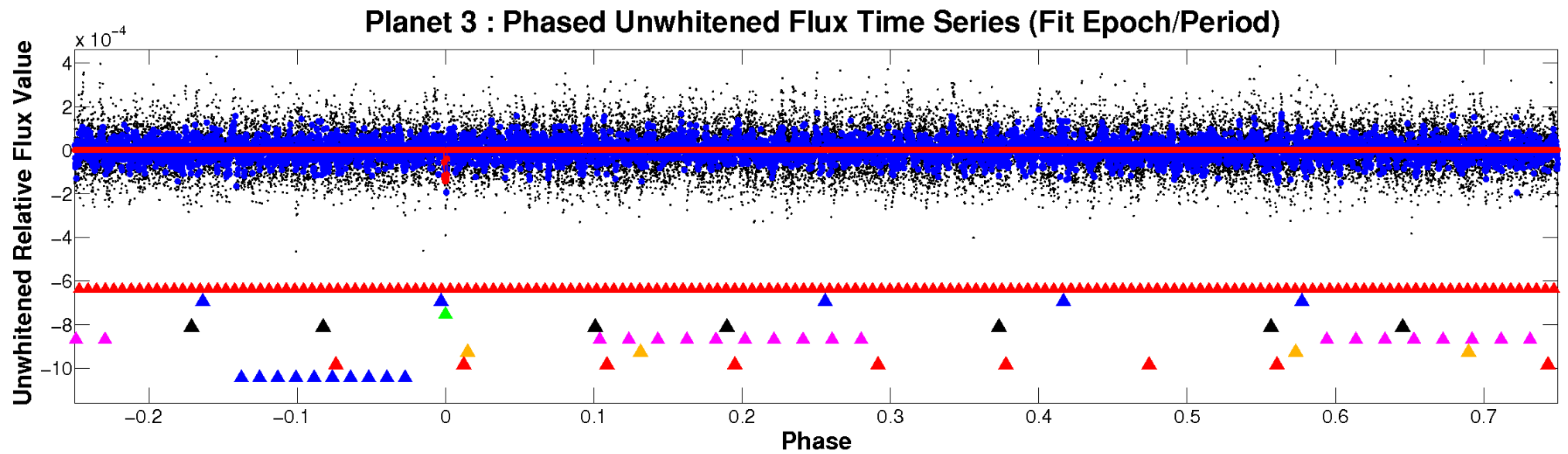


ALT Odd/Even

TCE 010321305-03

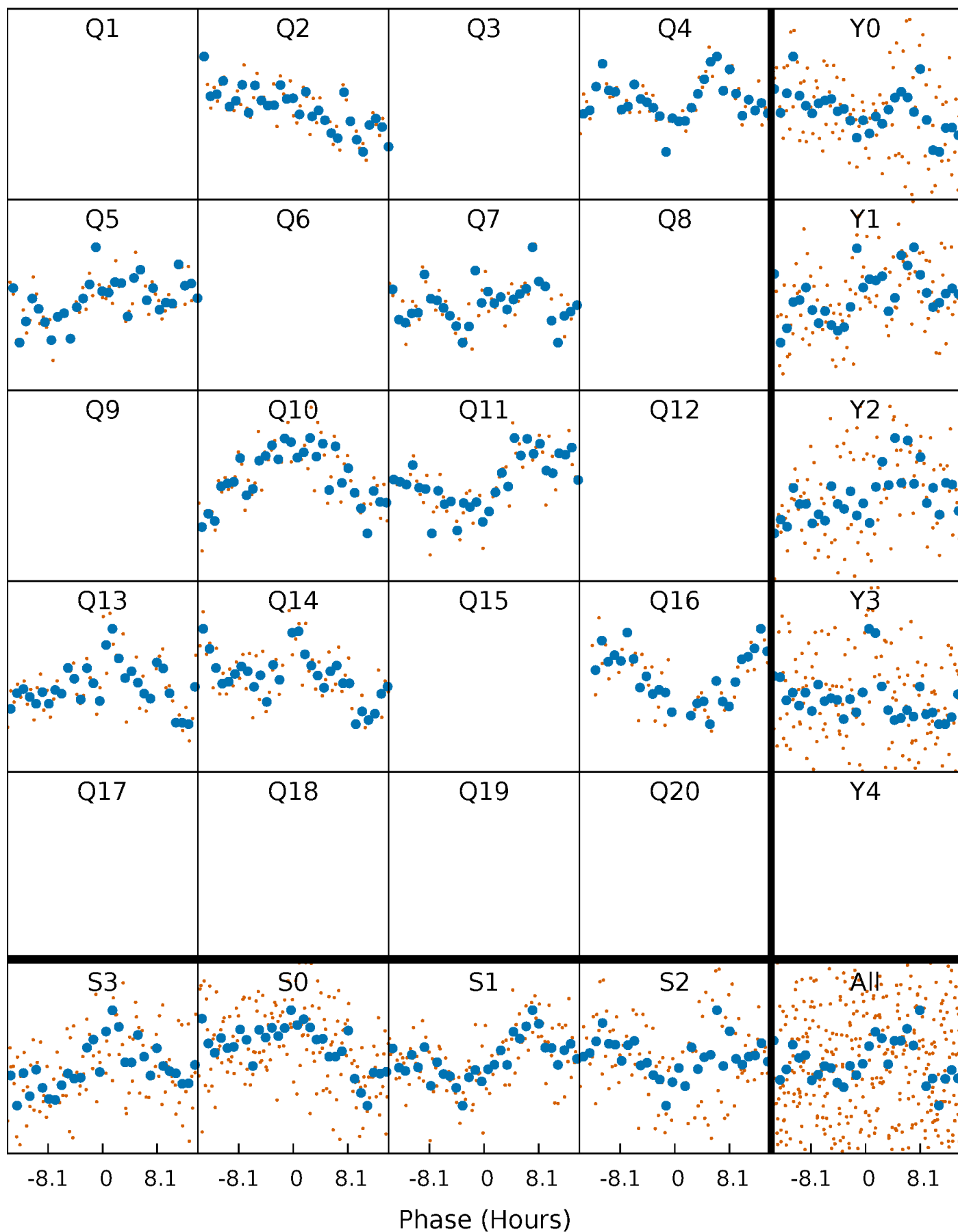


Non-Whitened Vs. Whitened Light Curve



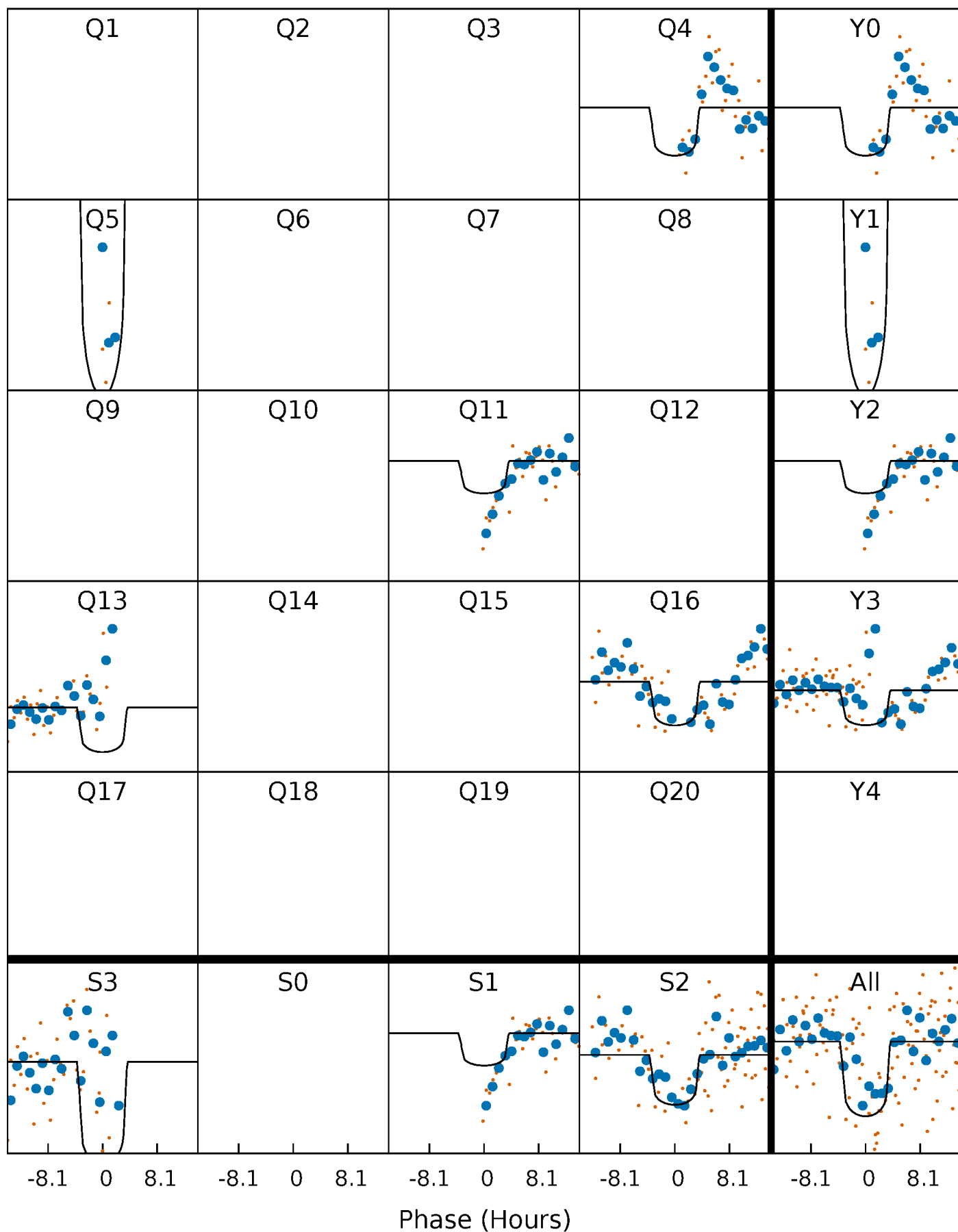
PDC Quarter-Phased Transit Curves

TCE 010321305-03 P=138.366923 Days $T_0=253.316317$ (BKJD)



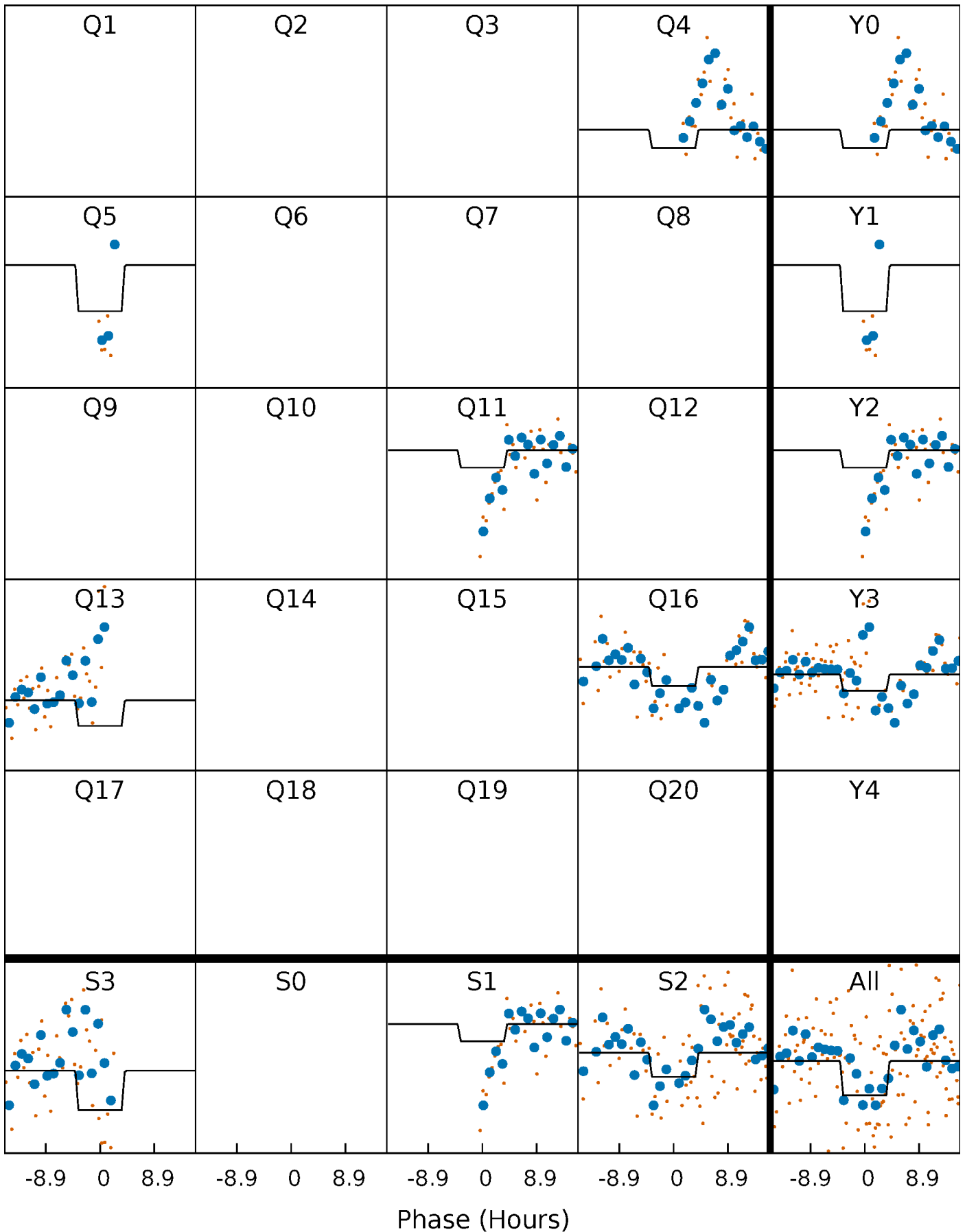
DV Quarter-Phased Transit Curves

TCE 010321305-03 $P=138.366923$ Days $T_0=253.316317$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

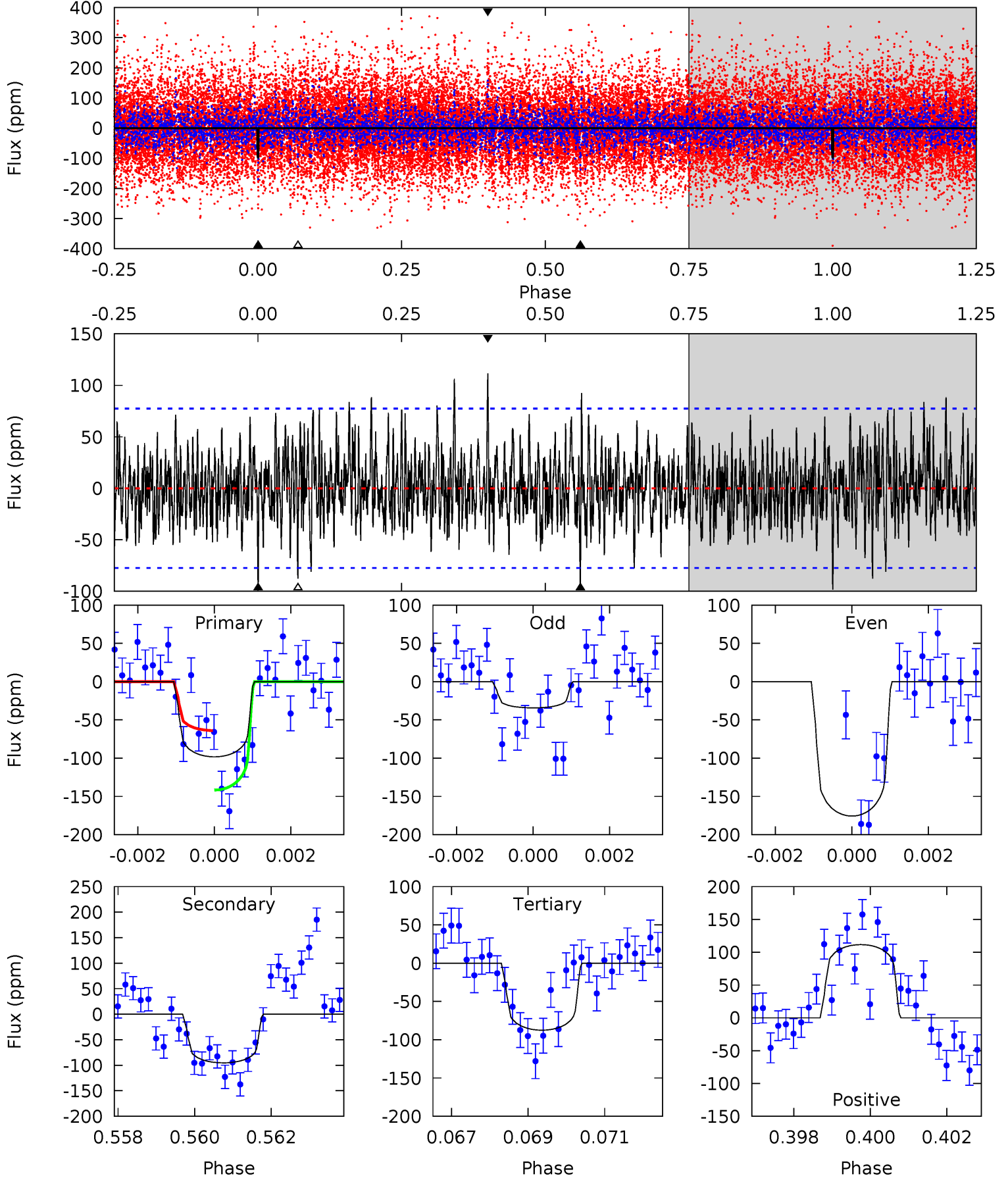
TCE 010321305-03 $P=138.372195$ Days $T_0=253.294360$ (BKJD)



DV Model-Shift Uniqueness Test

010321305-03, P = 138.366923 Days, E = 114.949394 Days

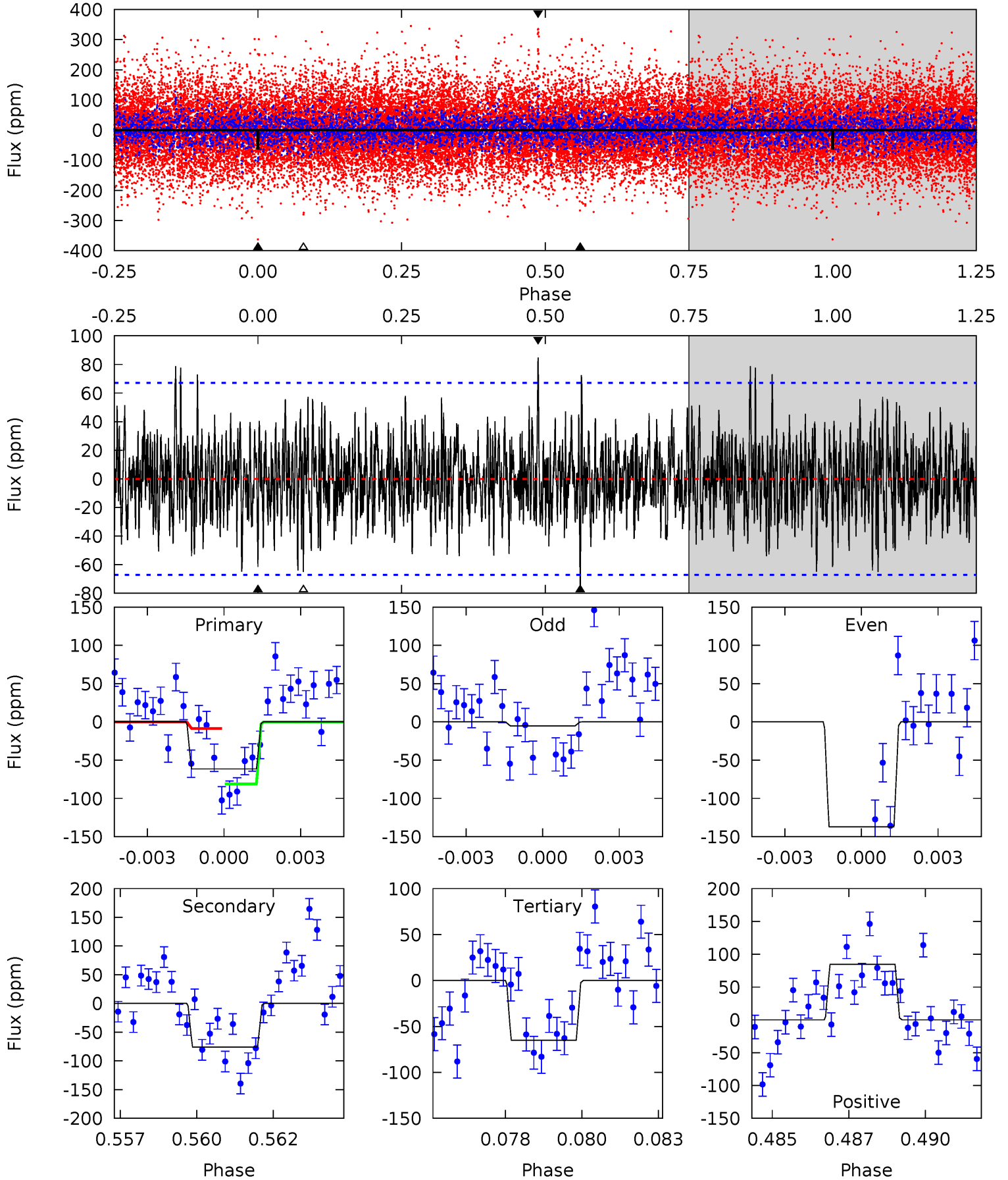
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.75	6.55	6.01	7.67	5.31	3.07	1.87	0.74	-0.92	0.53	-1.12	4.70	0.90	0.53	2.59



Alt Model-Shift Uniqueness Test

010321305-03, P = 138.372195 Days, E = 114.922165 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.85	6.00	5.12	6.67	5.29	3.02	1.62	-0.27	-1.83	0.88	-0.67	5.10	0.71	0.53	2.71



Stellar Parameters For KIC 010321305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+174}_{-208}	$3.980^{+0.210}_{-0.123}$	$-0.140^{+0.250}_{-0.300}$	$2.074^{+0.468}_{-0.572}$	$1.497^{+0.185}_{-0.246}$	$0.236^{+0.281}_{-0.086}$
	+3%/-3%	+5%/-3%	+179%/-214%	+23%/-28%	+12%/-16%	+119%/-37%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010321305-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-95 ± 15	$2.61^{+1.33}_{-1.11}$	785^{+51}_{-54}	6135^{+2528}_{-954}	2749^{+5820}_{-1544}
Alt.	-76 ± 13	$1.82^{+1.29}_{-1.01}$	792^{+50}_{-59}	7158^{+5414}_{-1739}	4508^{+18237}_{-3069}

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

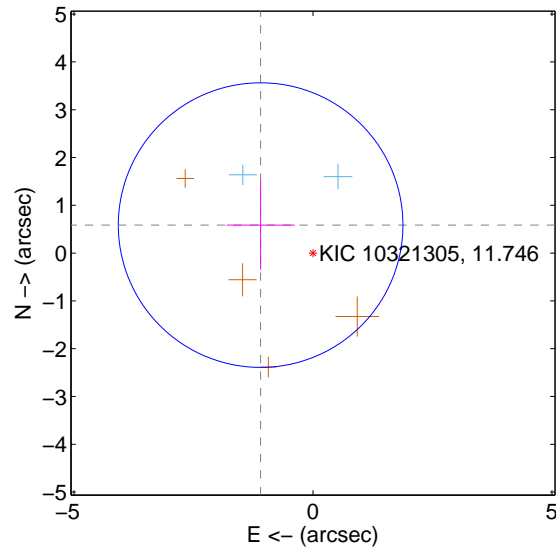
Supplemental centroid analysis for 010321305-03. **Kepler magnitude: 11.75.** Transit SNR 5.89

There are 2 quarters with good PRF difference image offsets

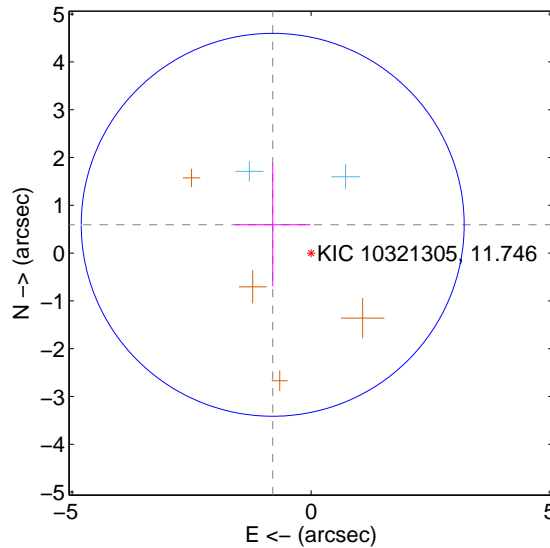
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.242 ± 0.992	1.25	1.096 ± 0.713	0.586 ± 0.933
PRF-fit source offset from KIC position	0.997 ± 1.335	0.75	0.802 ± 0.791	0.592 ± 1.286
photometric centroid source offset	0.48 ± 0.65	0.74	-0.01 ± 0.75	0.48 ± 0.65

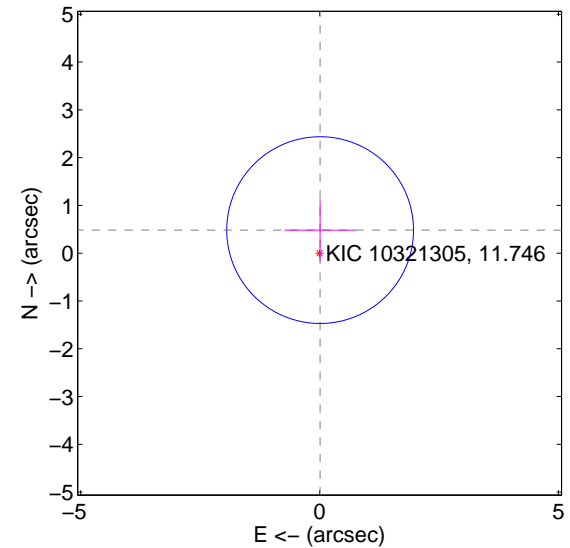
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

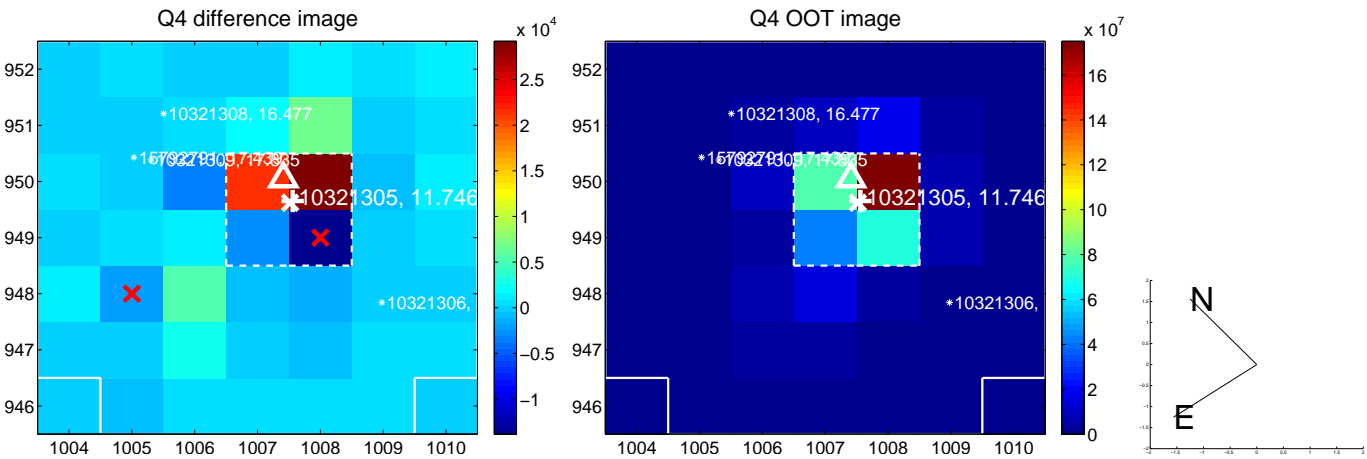
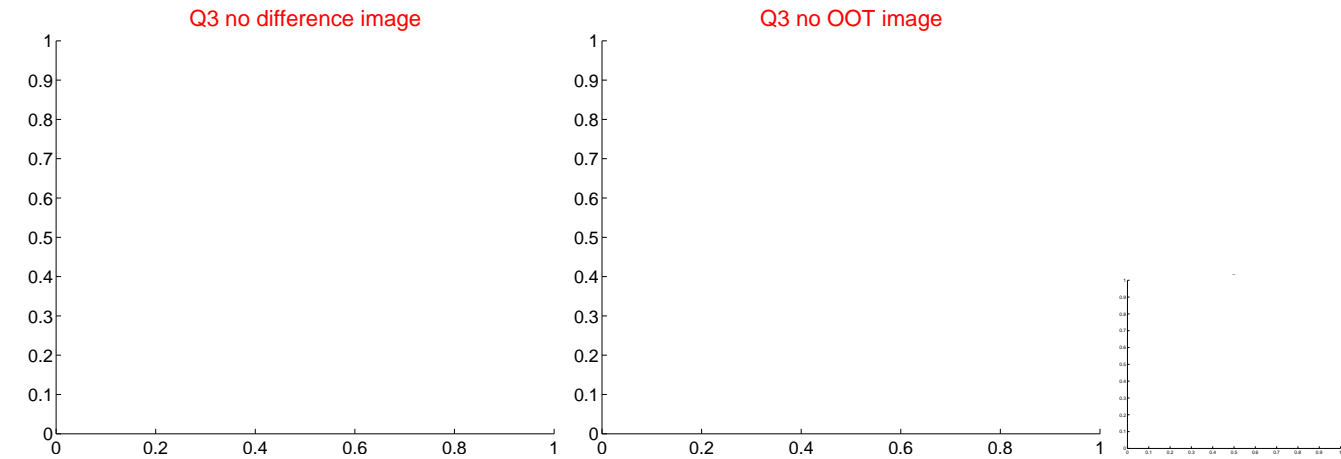
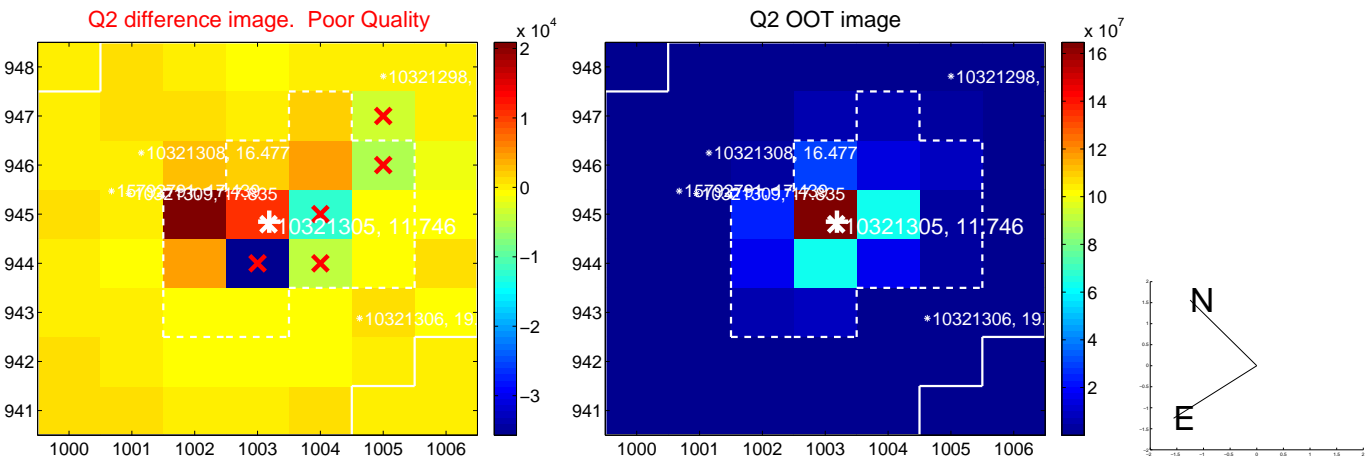


offset from photometric centroids

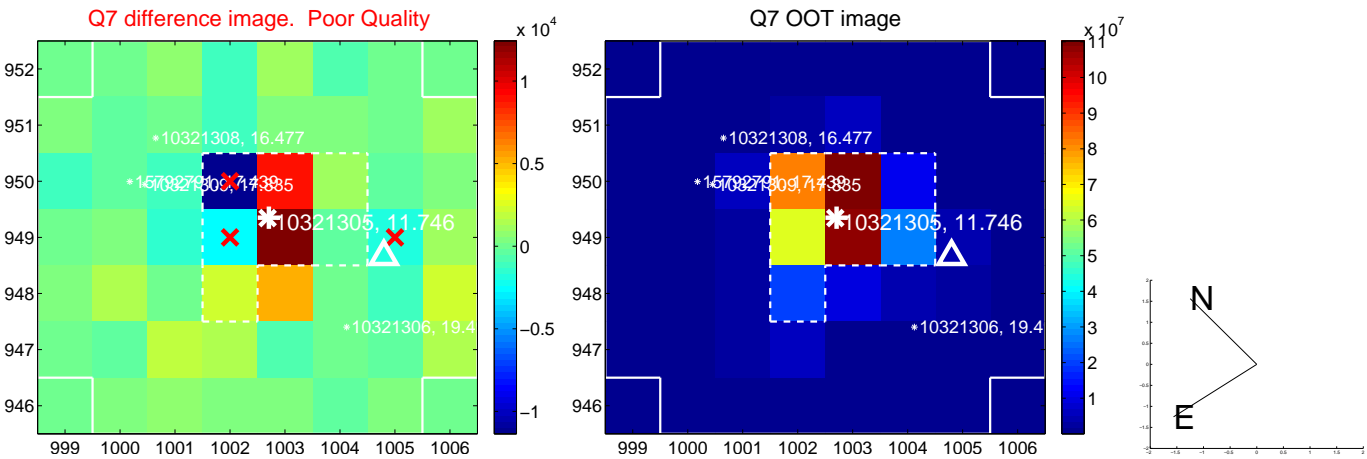
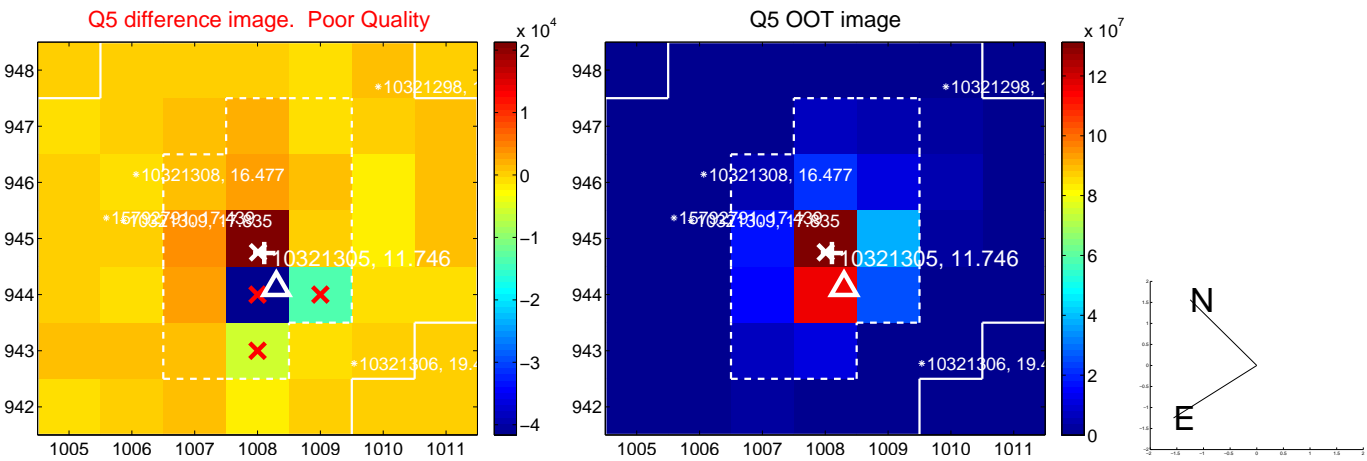


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

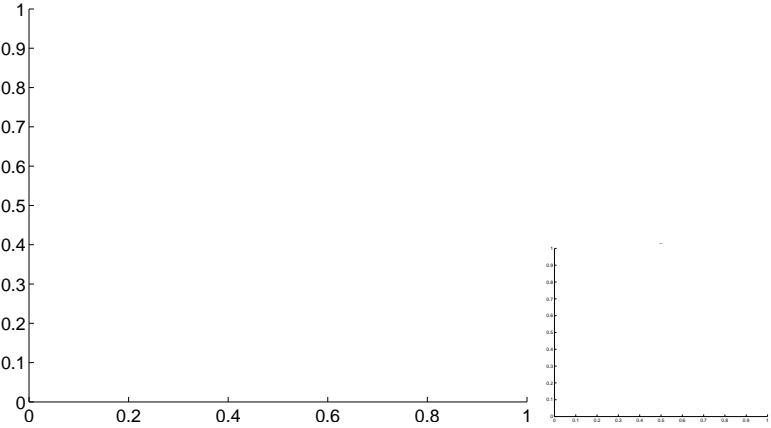


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

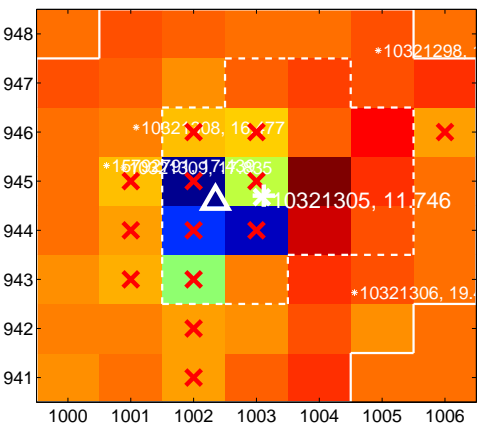
Q9 no difference image



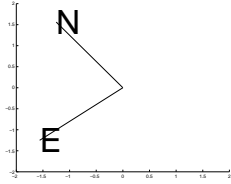
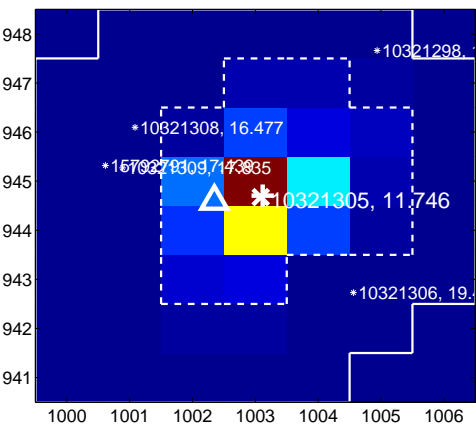
Q9 no OOT image



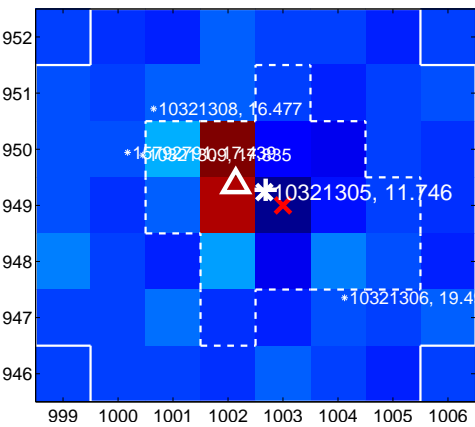
Q10 difference image. Poor Quality



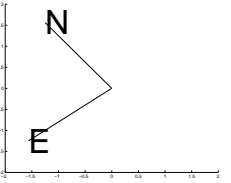
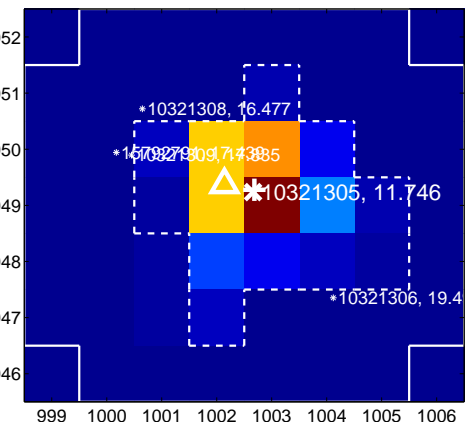
Q10 OOT image



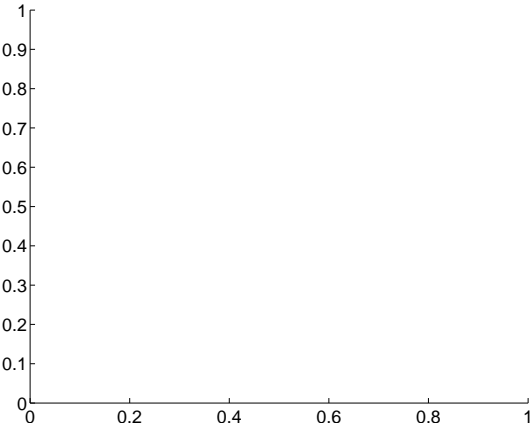
Q11 difference image



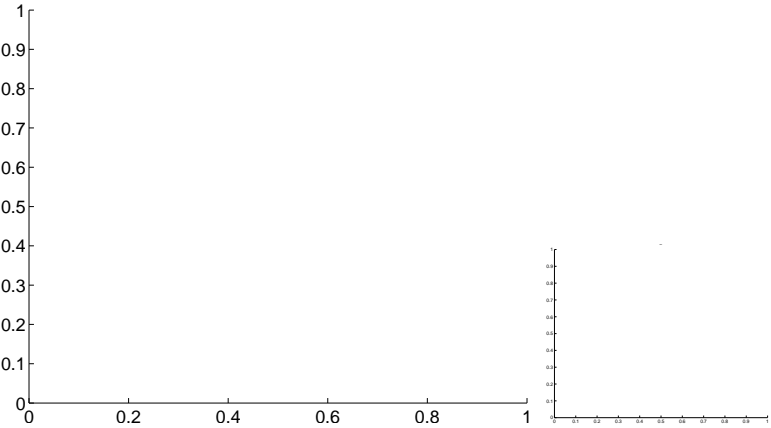
Q11 OOT image



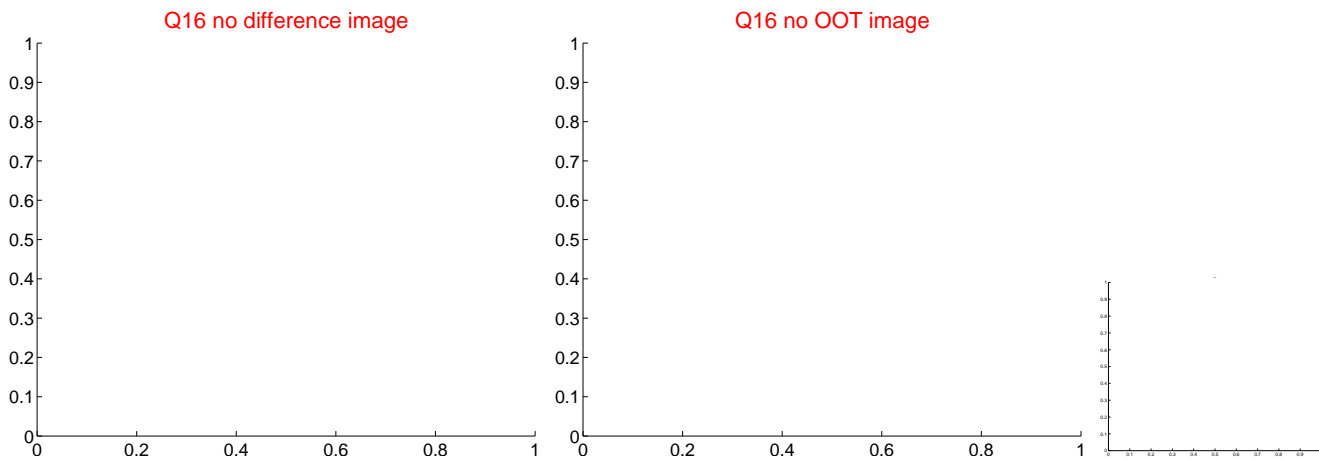
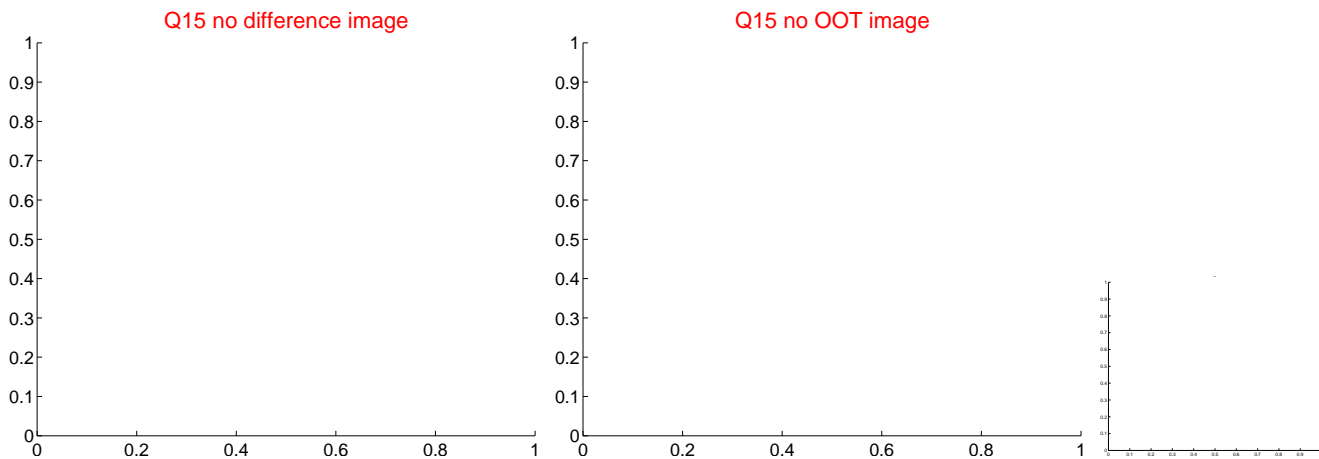
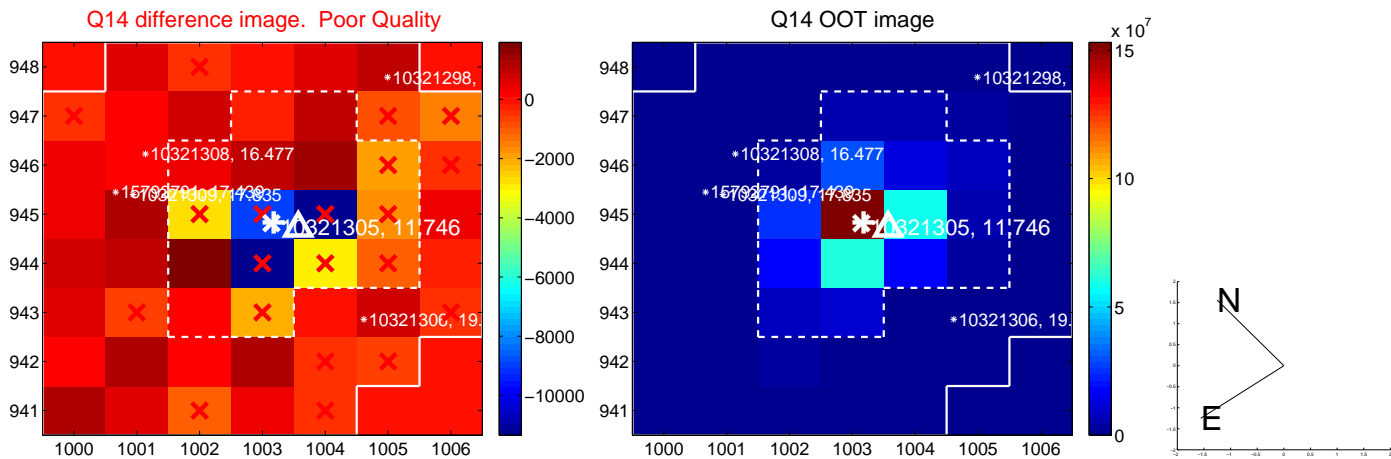
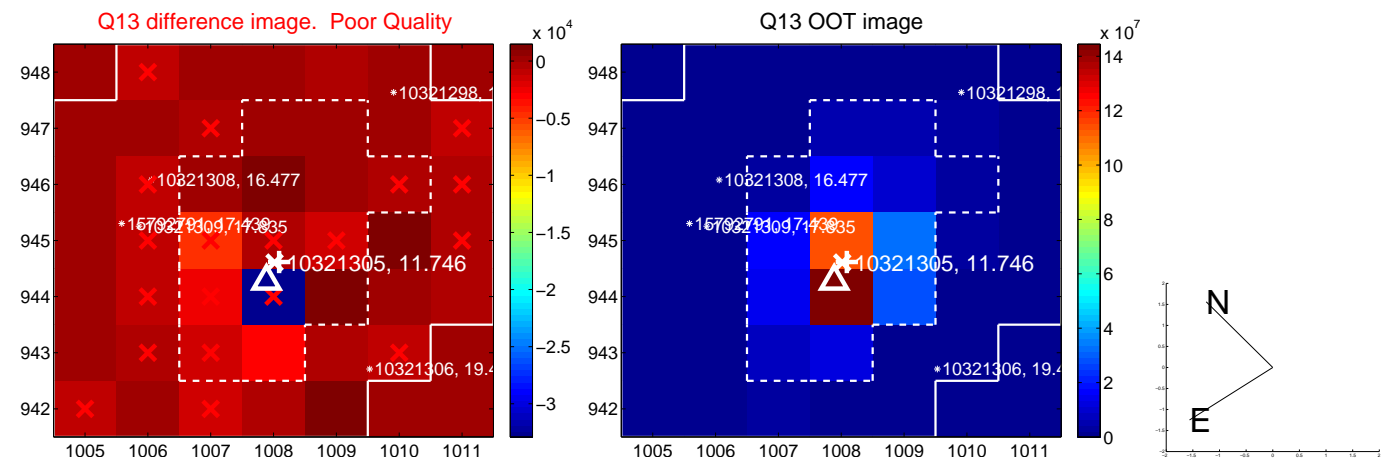
Q12 no difference image



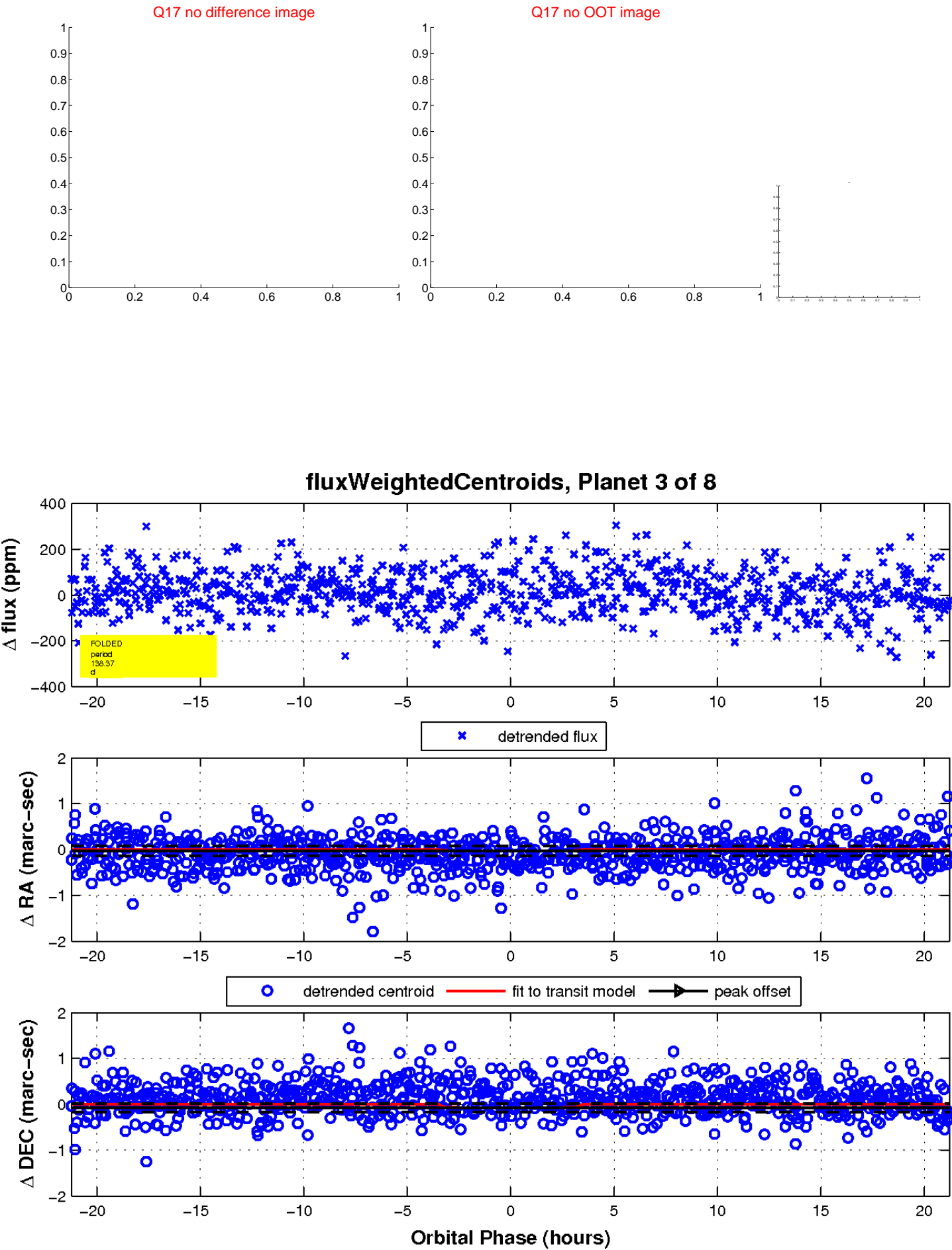
Q12 no OOT image



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

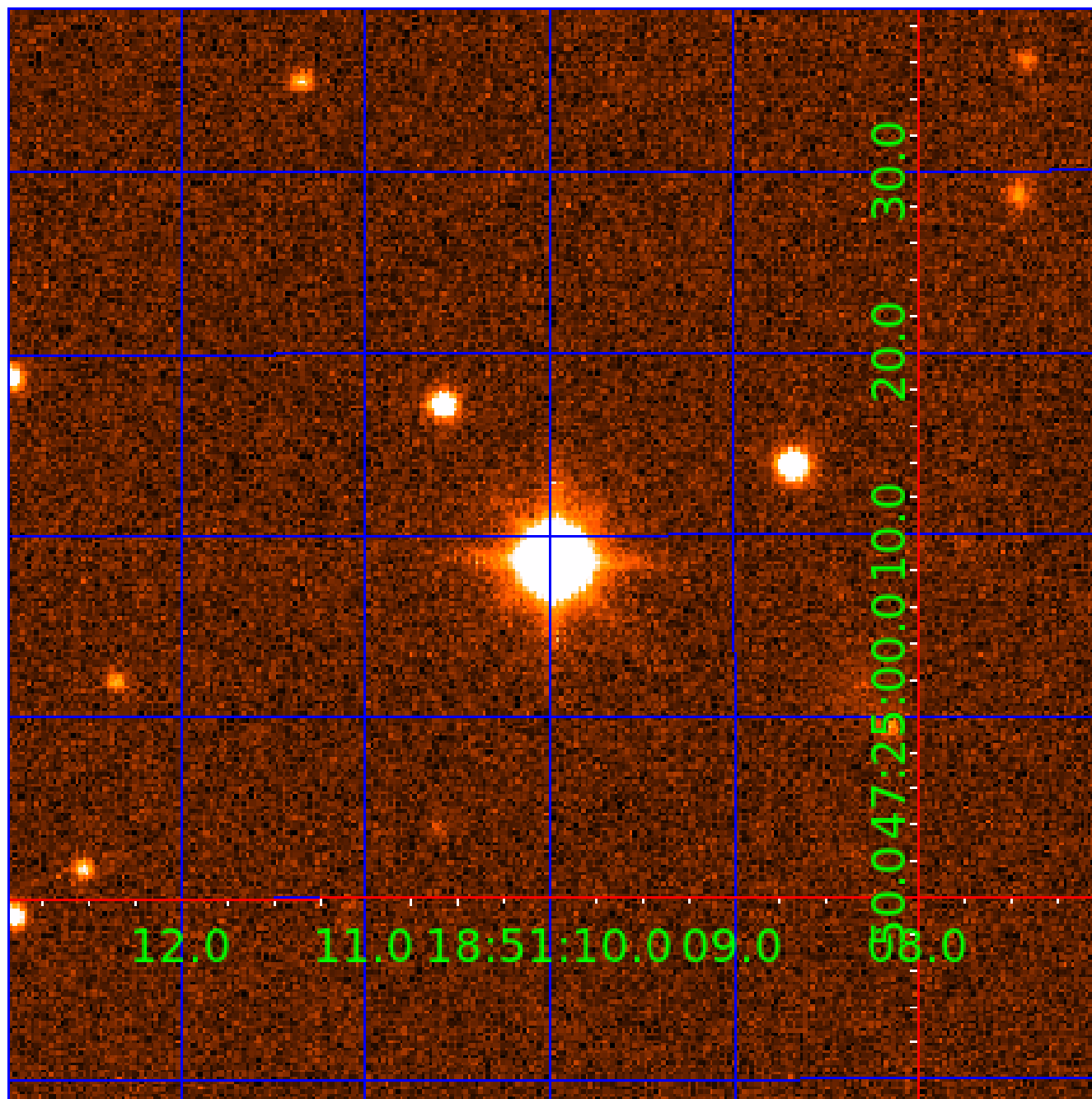


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010321305

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})
010321305-01	OBS	No	4.022095	133.114482	15.6	18.521	7.7	5.3	2.07	6926	1.15	2763.29
010321305-02	OBS	No	334.798099	194.845598	114.2	5.794	16.8	4.8	2.07	6926	2.51	7.60
010321305-03	OBS	No	138.366923	253.316317	143.4	7.076	9.7	5.9	2.07	6926	2.78	24.70
010321305-05	OBS	No	70.538112	197.172726	108.8	12.252	8.4	7.9	2.07	6926	2.86	60.65
010321305-06	OBS	No	353.981134	255.385488	160.1	25.138	8.2	7.3	2.07	6926	2.73	7.06
010321305-07	OBS	No	163.654942	255.022721	164.4	9.407	7.7	8.0	2.07	6926	3.08	19.75
010321305-08	OBS	No	140.064547	234.275802	121.5	3.000	7.7	-1.0	2.07	6926	2.31	24.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010321305-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010321305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010321305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS
010321305-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
010321305-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

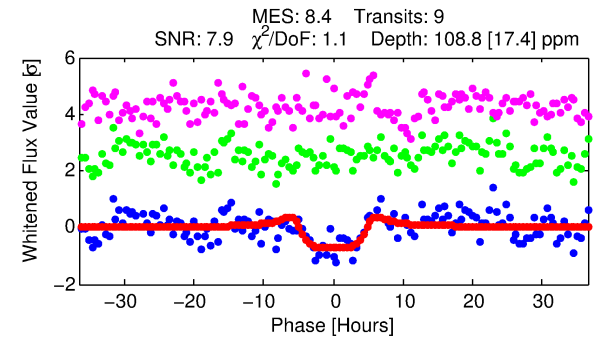
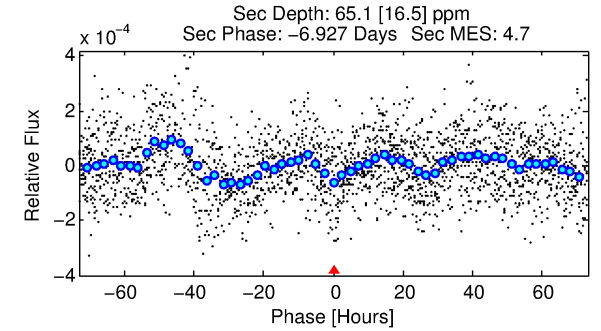
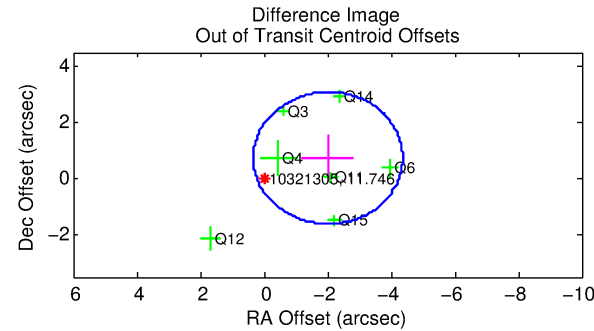
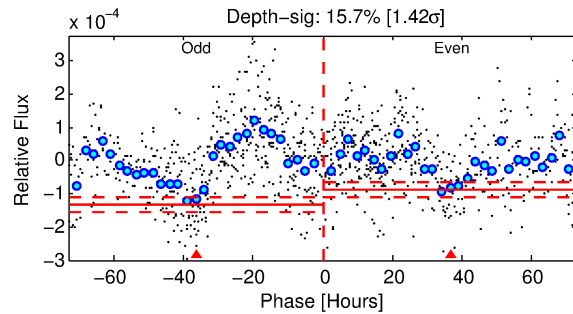
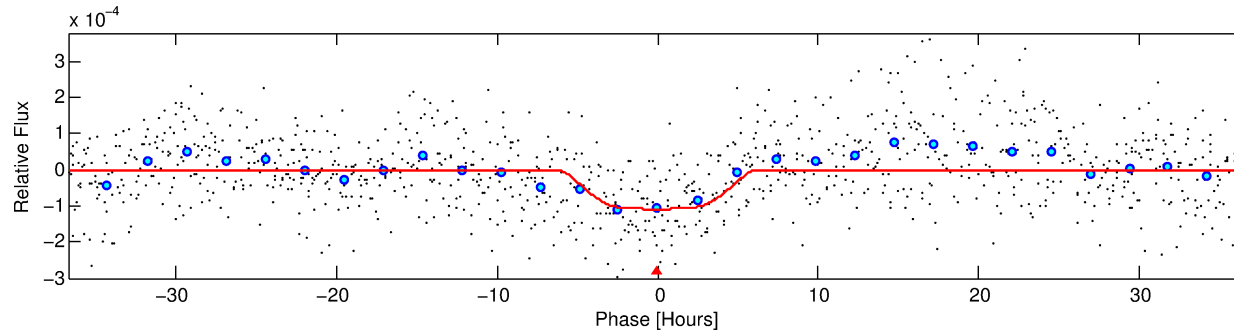
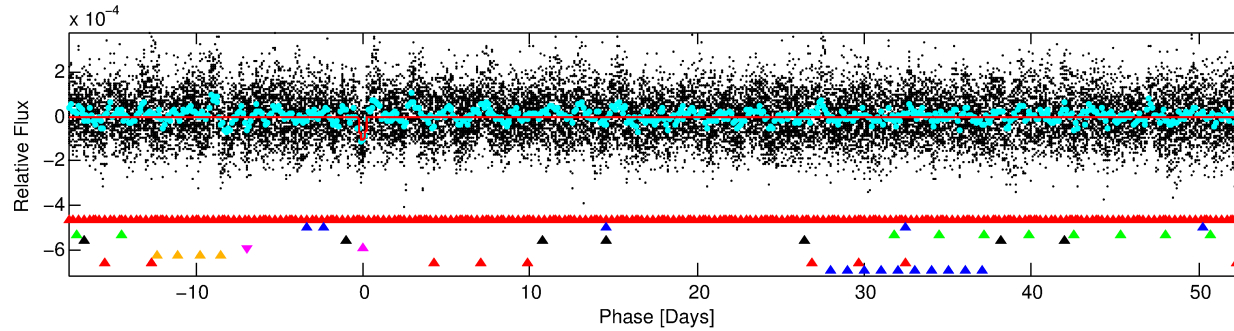
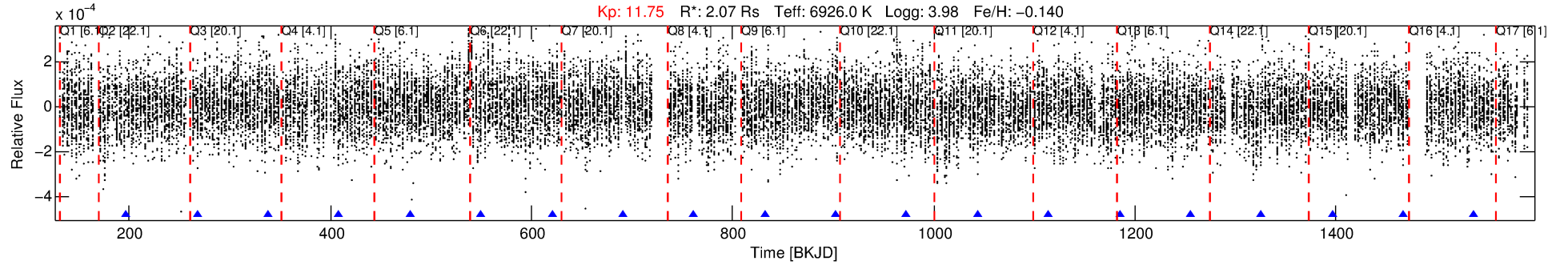
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010321305-05

No Significant Match Found

DV One-Page Summary

KIC: 10321305 Candidate: 5 of 8 Period: 70.538 d



DV Fit Results:

Period = 70.53811 [0.00246] d
Epoch = 197.1727 [0.0305] BKJD
Rp/R* = 0.0126 [0.0012]
a/R* = 10.92 [2.02]
b = 0.98 [0.01]
Seff = 60.65 [23.66]
Teq = 712 [69] K
Rp = 2.86 [0.83] Re
a = 0.3824 [0.0935] AU
Ag = 642.23 [311.72] [2.06 σ]
Teffp = 5538 [464] K [10.29 σ]

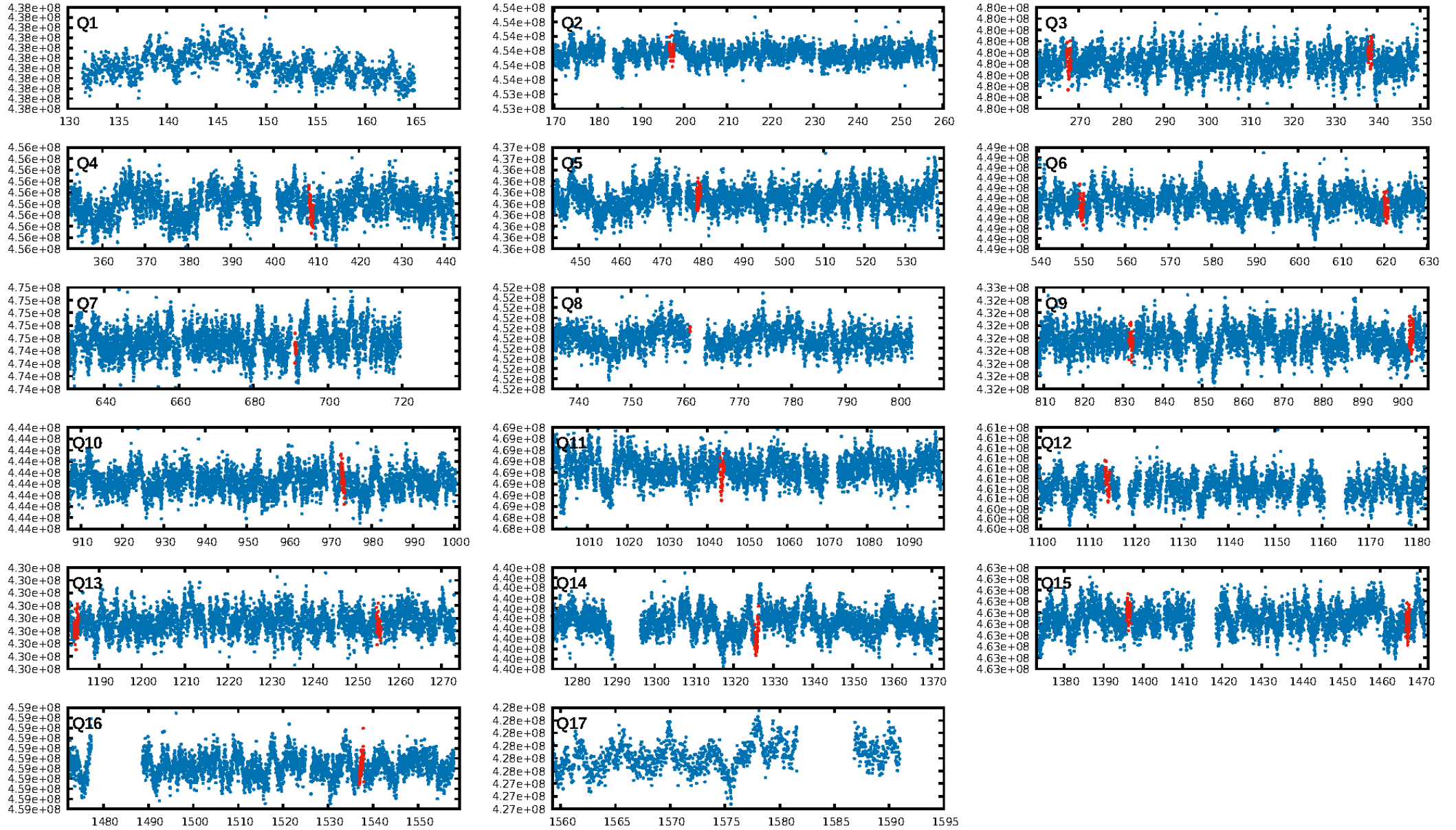
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [71.89 σ]
LongPeriod-sig: 100.0% [115.06 σ]
ModelChiSquare2-sig: 9.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.4149
Centroid-sig: 88.2%
Centroid-so: 0.350 arcsec [0.50 σ]
OotOffset-rm: 2.143 arcsec [2.74 σ]
KicOffset-rm: 2.283 arcsec [2.96 σ]
OotOffset-st: 2/3/2/0 [7]
KicOffset-st: 2/3/2/0 [7]
DiffImageQuality-fgm: 0.71 [5/7]
DiffImageOverlap-fno: 0.38 [5/13]

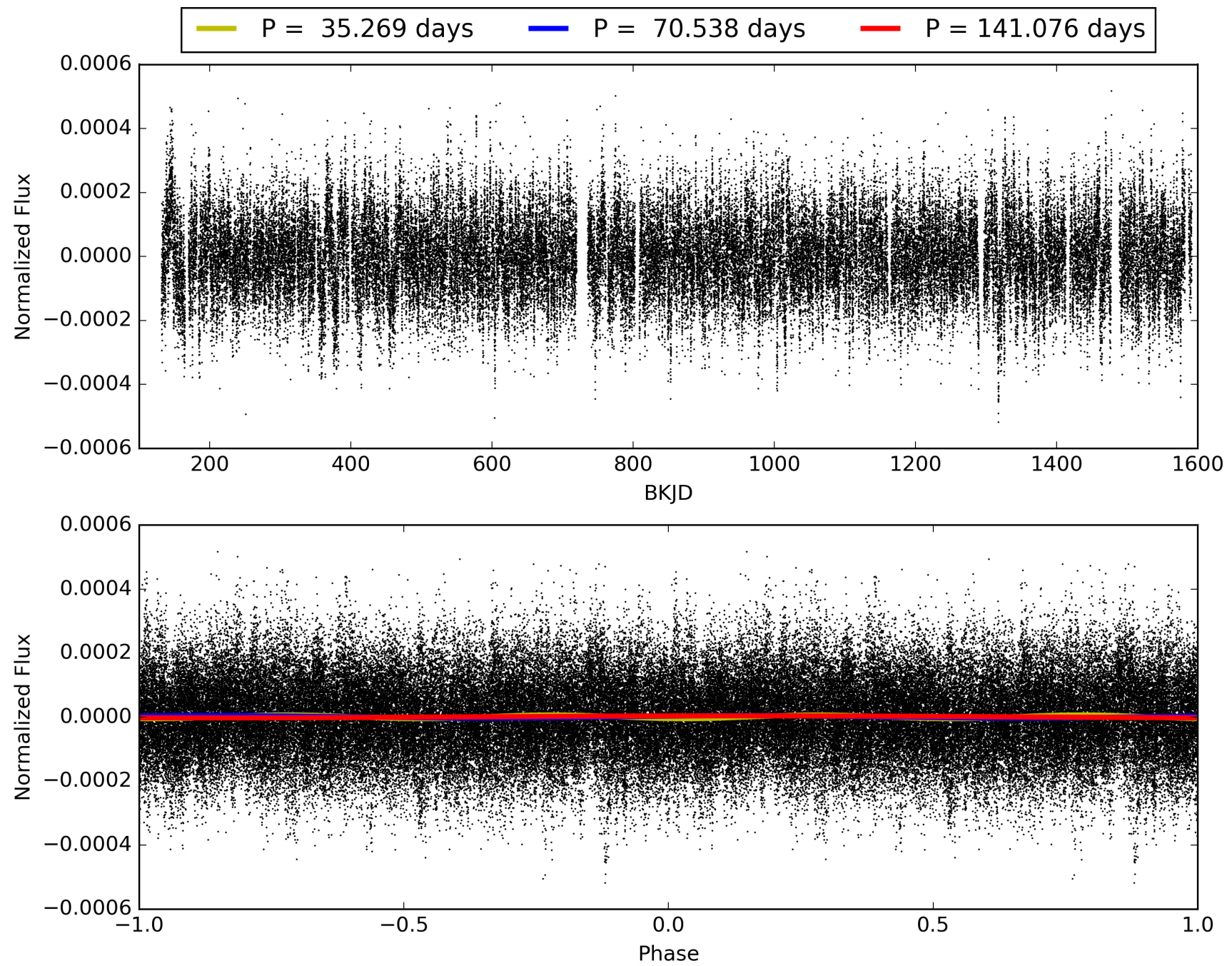
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:49:14 Z

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

TCE 010321305-05, PDC Light Curves

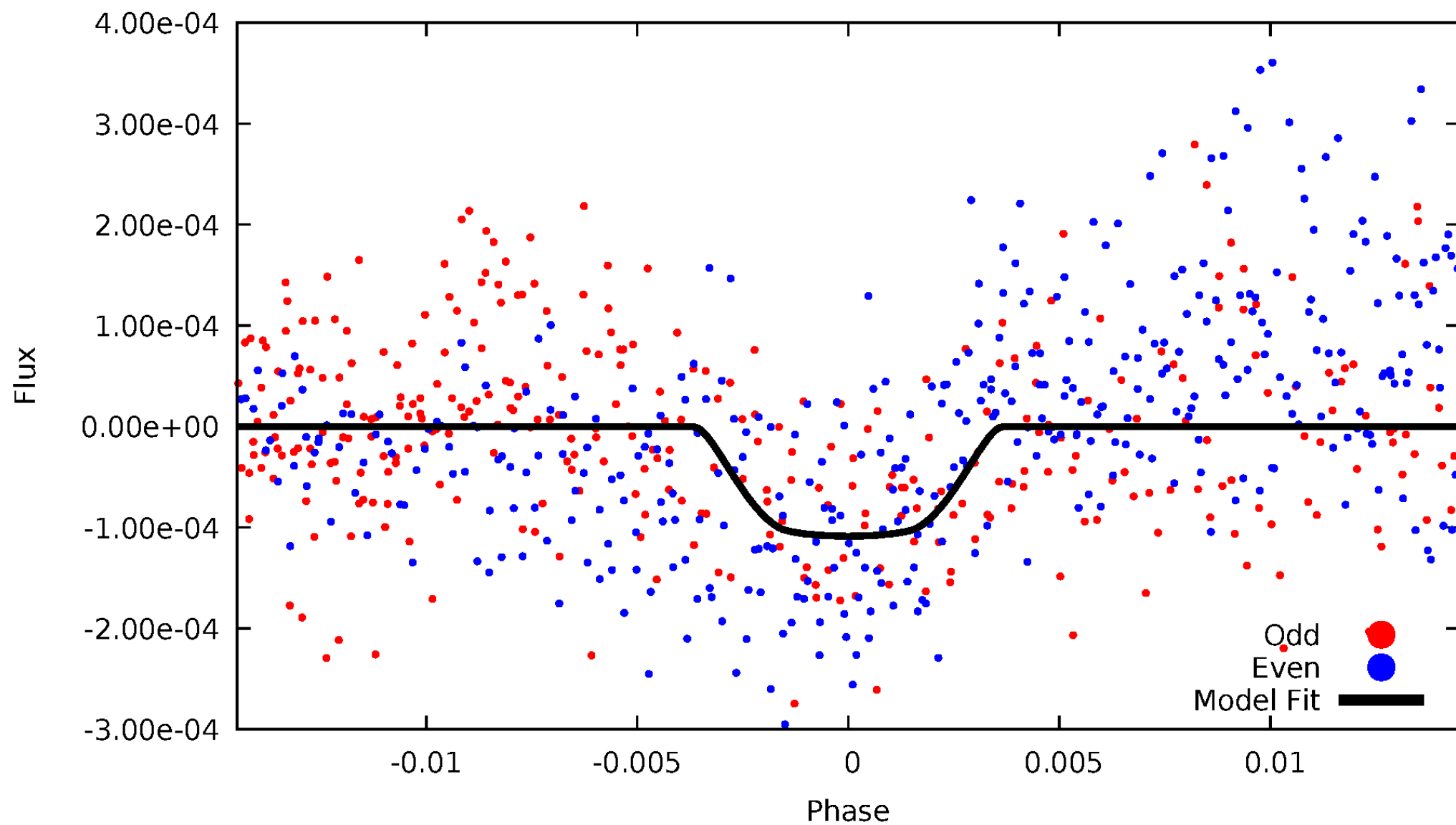


TCE 010321305-05



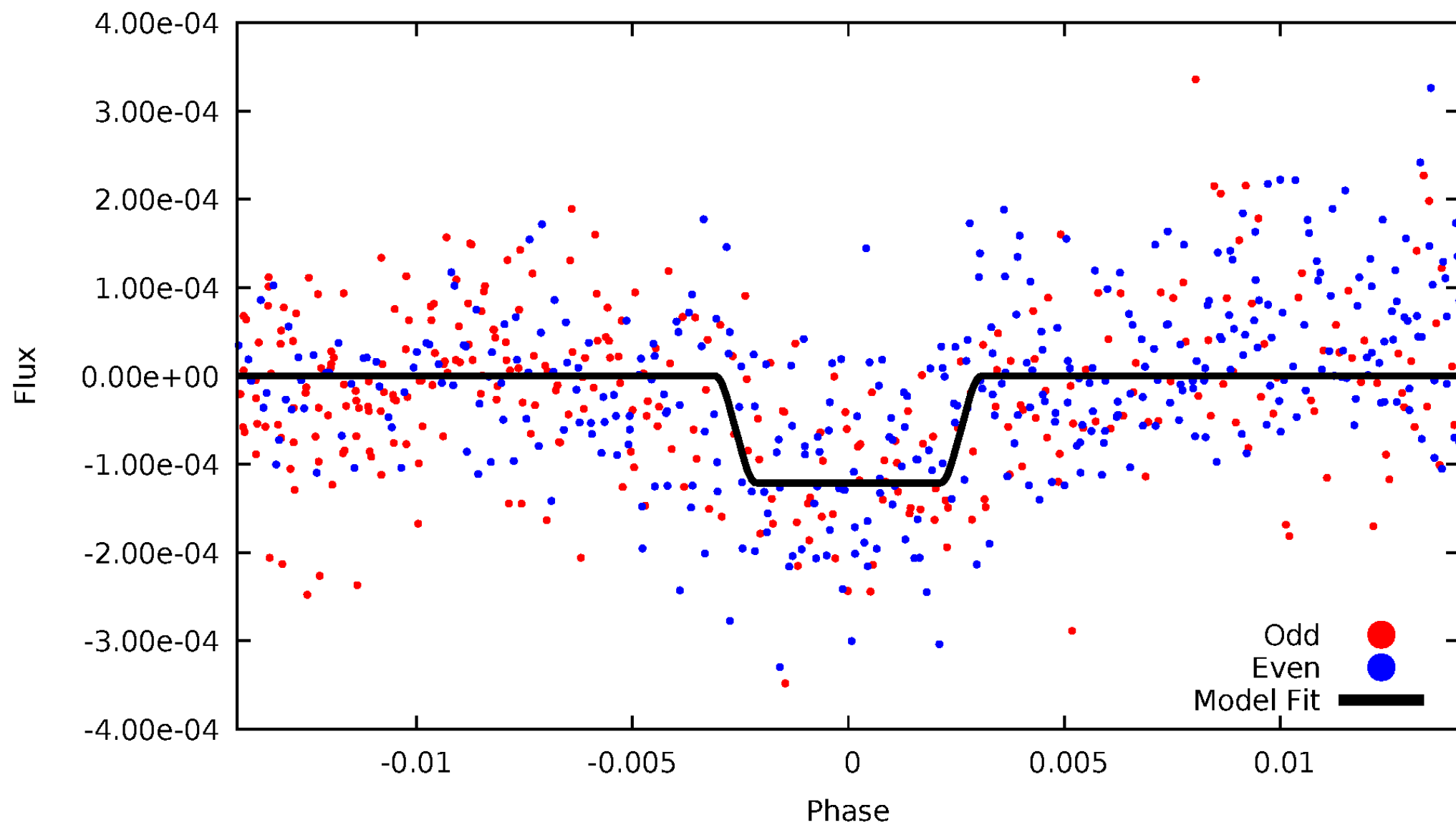
DV Odd/Even

TCE 010321305-05



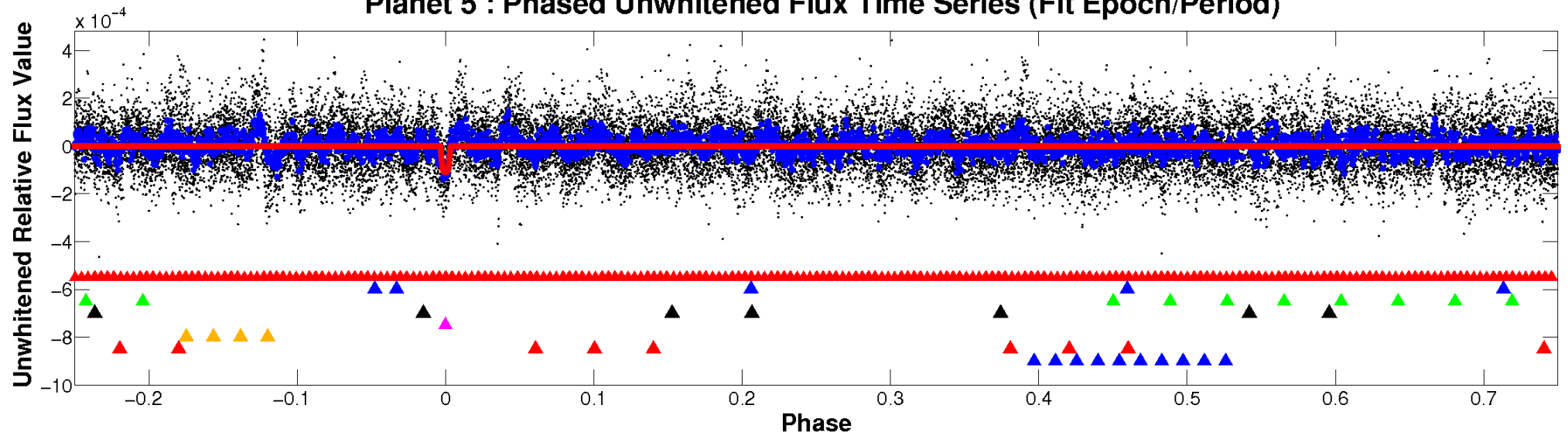
ALT Odd/Even

TCE 010321305-05

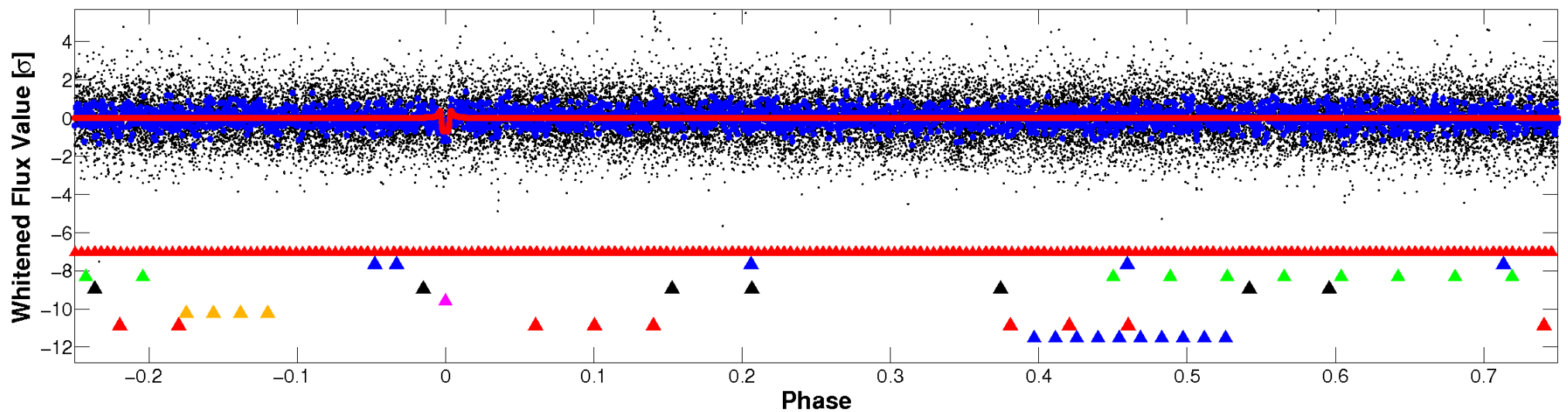


Non-Whitened Vs. Whitened Light Curve

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

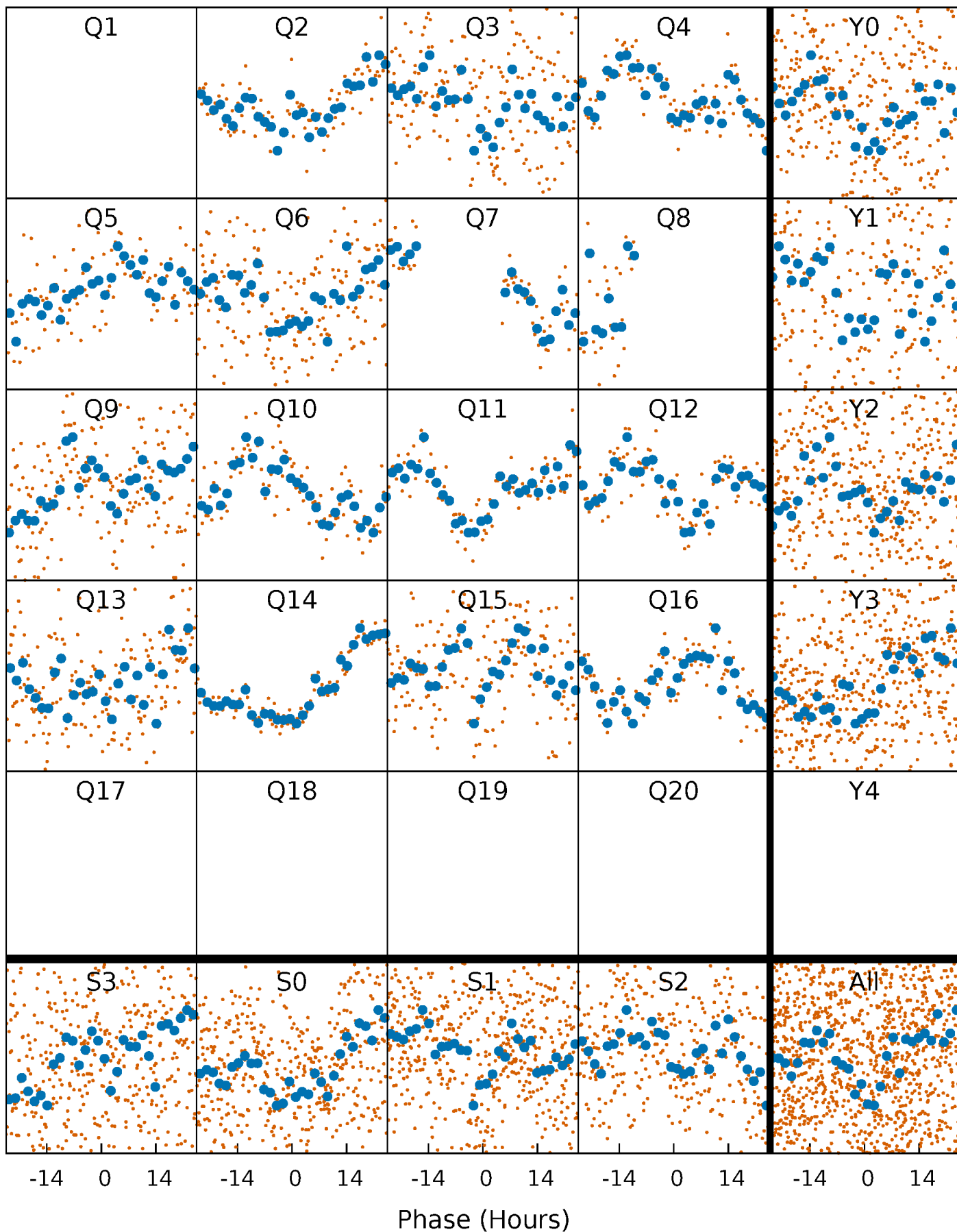


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



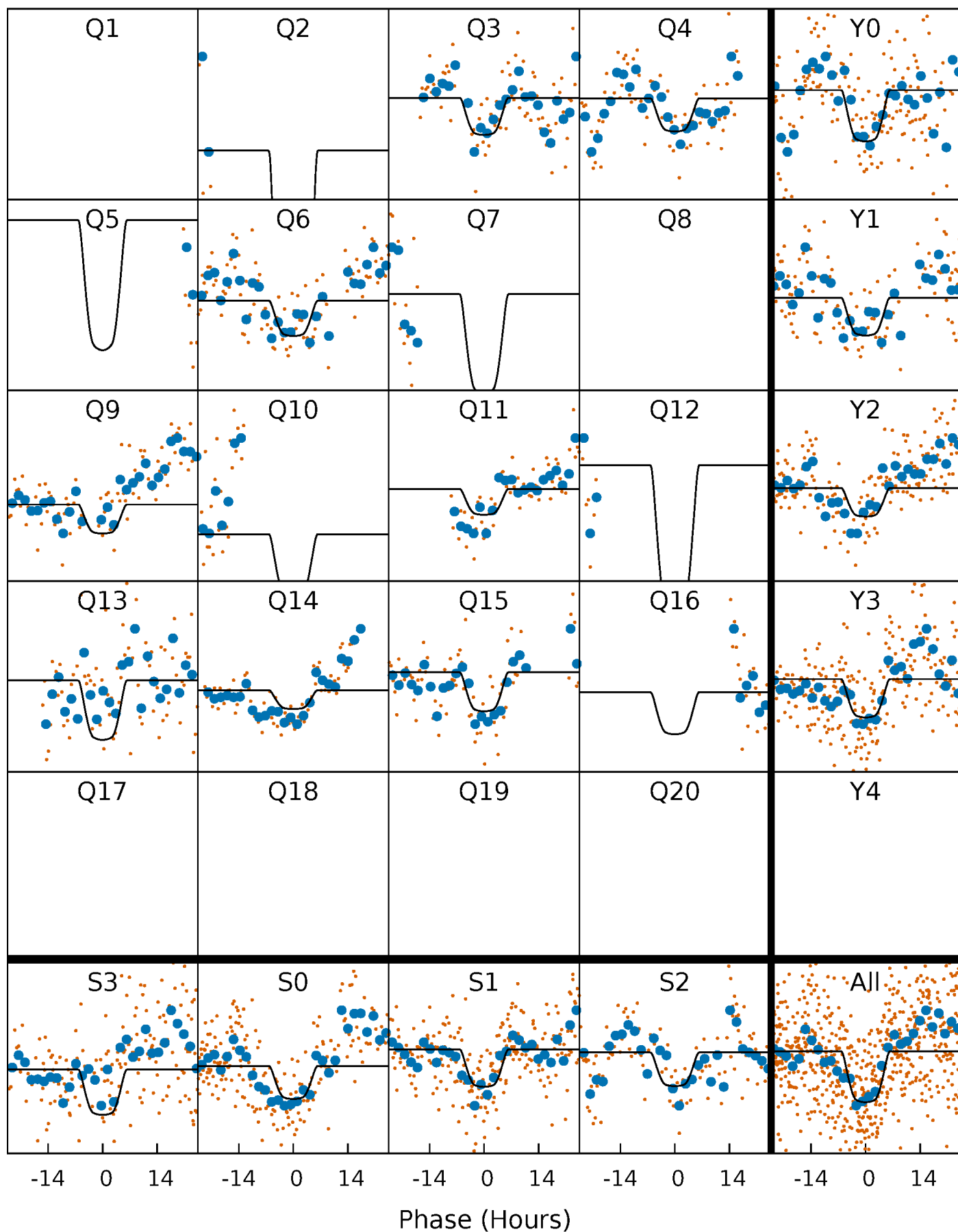
PDC Quarter-Phased Transit Curves

TCE 010321305-05 $P = 70.538112$ Days $T_0 = 197.172726$ (BKJD)



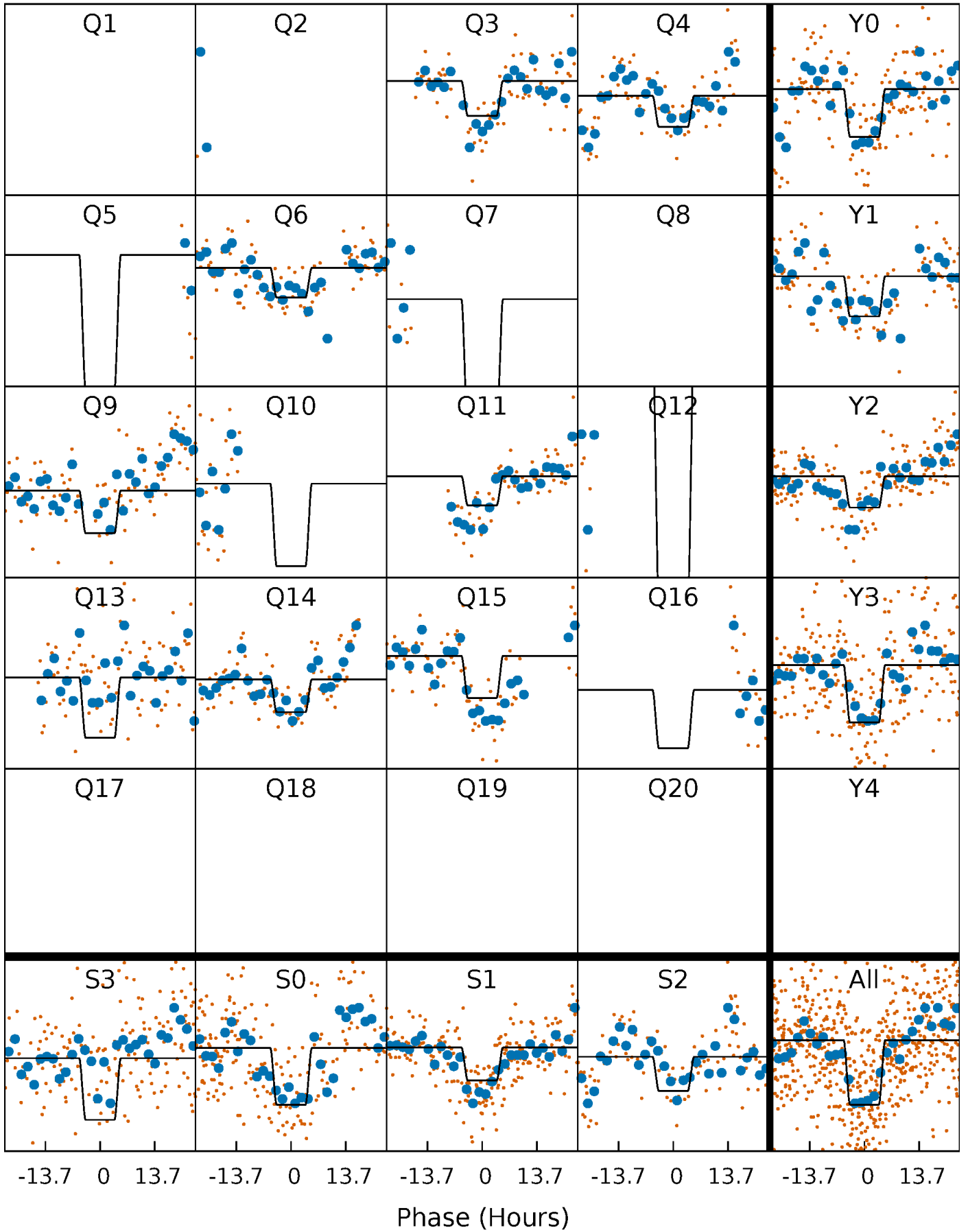
DV Quarter-Phased Transit Curves

TCE 010321305-05 P= 70.538112 Days $T_0=197.172726$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

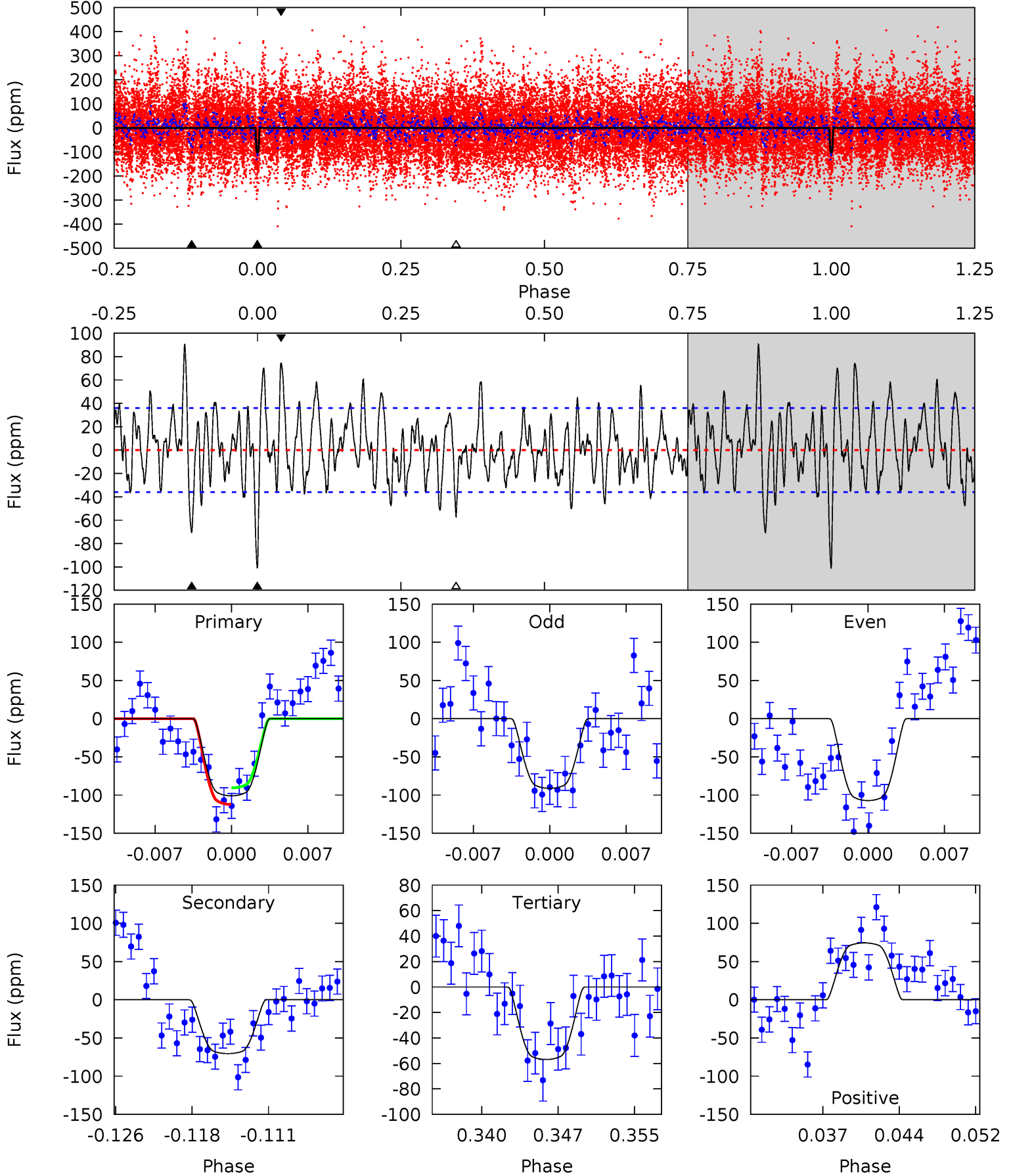
TCE 010321305-05 $P = 70.537464$ Days $T_0 = 197.186277$ (BKJD)



DV Model-Shift Uniqueness Test

010321305-05, P = 70.538112 Days, E = 126.634614 Days

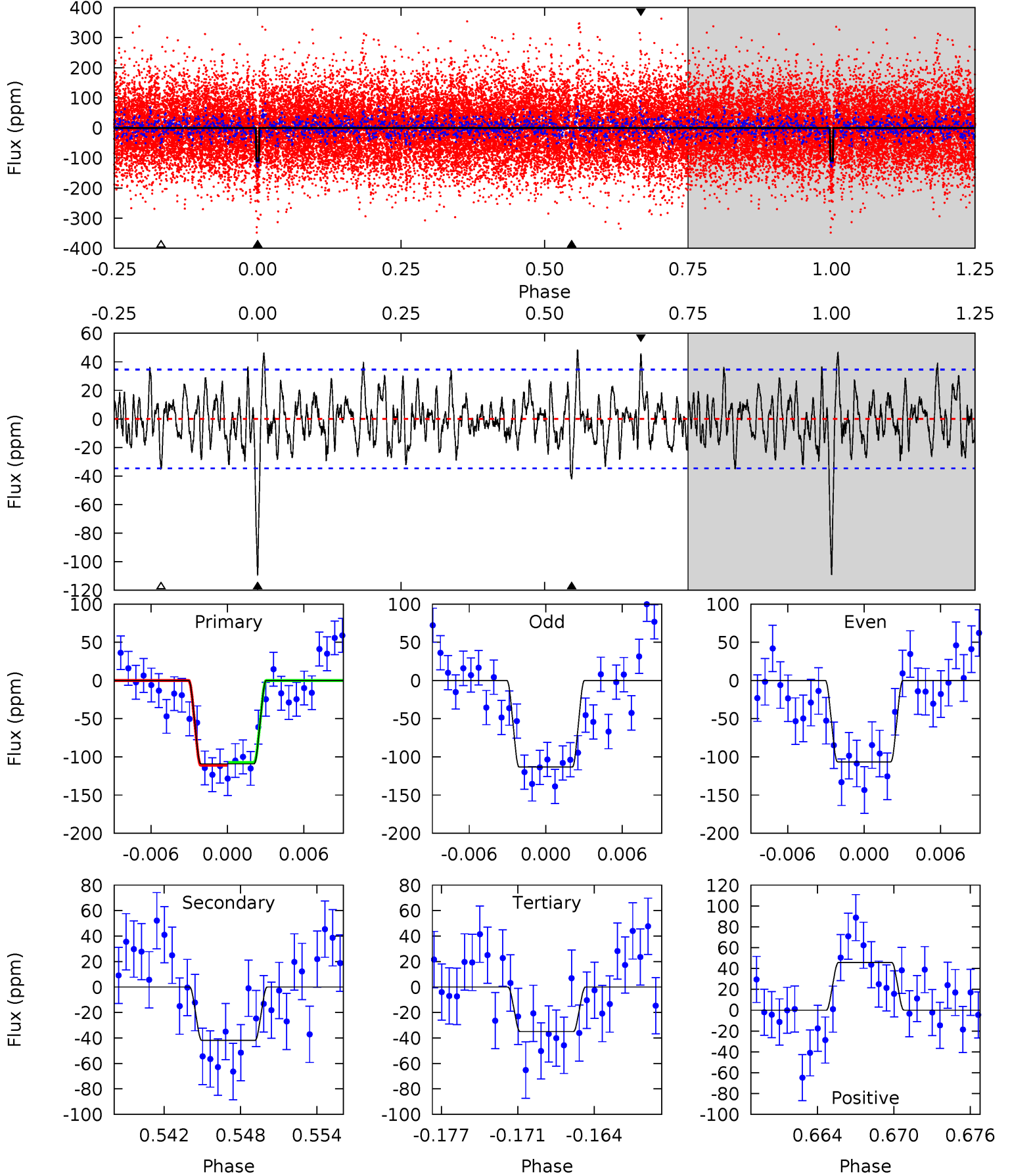
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.3	9.95	8.04	10.5	5.08	2.68	3.29	6.22	3.76	1.91	-0.55	1.10	1.30	0.47	1.53



Alt Model-Shift Uniqueness Test

010321305-05, P = 70.537464 Days, E = 126.648813 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.2	6.21	5.19	6.78	5.12	2.74	2.03	11.0	9.39	1.02	-0.57	0.49	1.00	0.31	0.28



Stellar Parameters For KIC 010321305

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+174}_{-208}	$3.980^{+0.210}_{-0.123}$	$-0.140^{+0.250}_{-0.300}$	$2.074^{+0.468}_{-0.572}$	$1.497^{+0.185}_{-0.246}$	$0.236^{+0.281}_{-0.086}$
	+3%/-3%	+5%/-3%	+179%/-214%	+23%/-28%	+12%/-16%	+119%/-37%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010321305-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-70 ± 7	$2.79^{+0.47}_{-0.42}$	987^{+62}_{-77}	5635^{+315}_{-316}	726^{+285}_{-189}
Alt.	-42 ± 7	$2.43^{+0.43}_{-0.40}$	986^{+61}_{-74}	5331^{+354}_{-330}	569^{+267}_{-166}

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 $A_{obs} \gg 1.0$

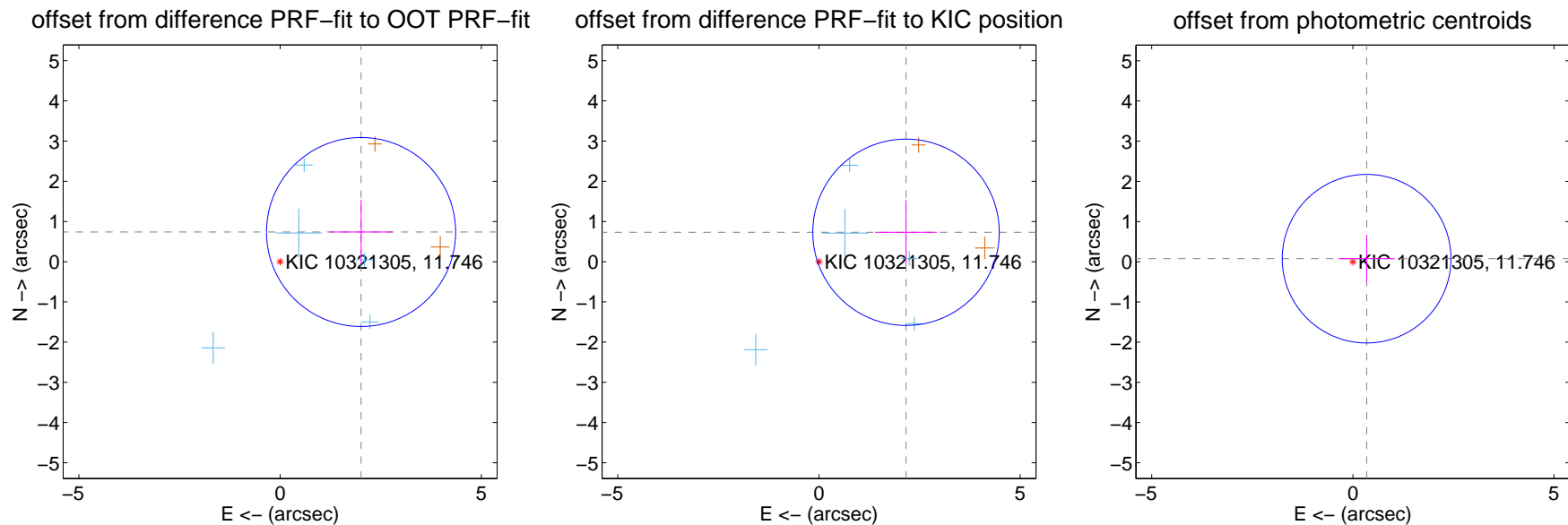
DV Centroid Data

Supplemental centroid analysis for 010321305-05. **Kepler magnitude: 11.75.** Transit SNR 7.91

There are 5 quarters with good PRF difference image offsets

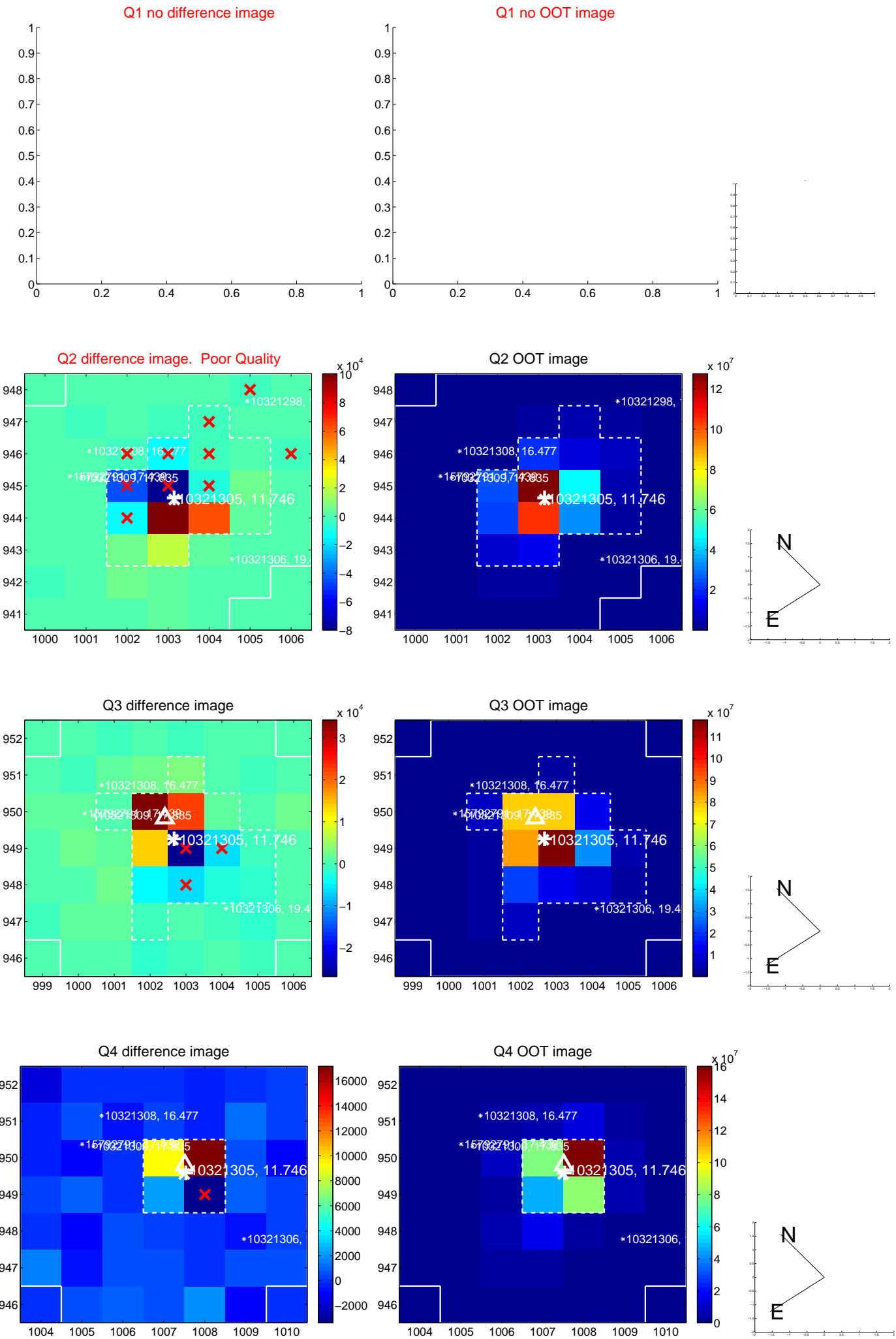
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.143 ± 0.783	2.74	-2.012 ± 0.781	0.739 ± 0.804
PRF-fit source offset from KIC position	2.283 ± 0.772	2.96	-2.163 ± 0.769	0.731 ± 0.804
photometric centroid source offset	0.35 ± 0.70	0.50	-0.34 ± 0.70	0.08 ± 0.60

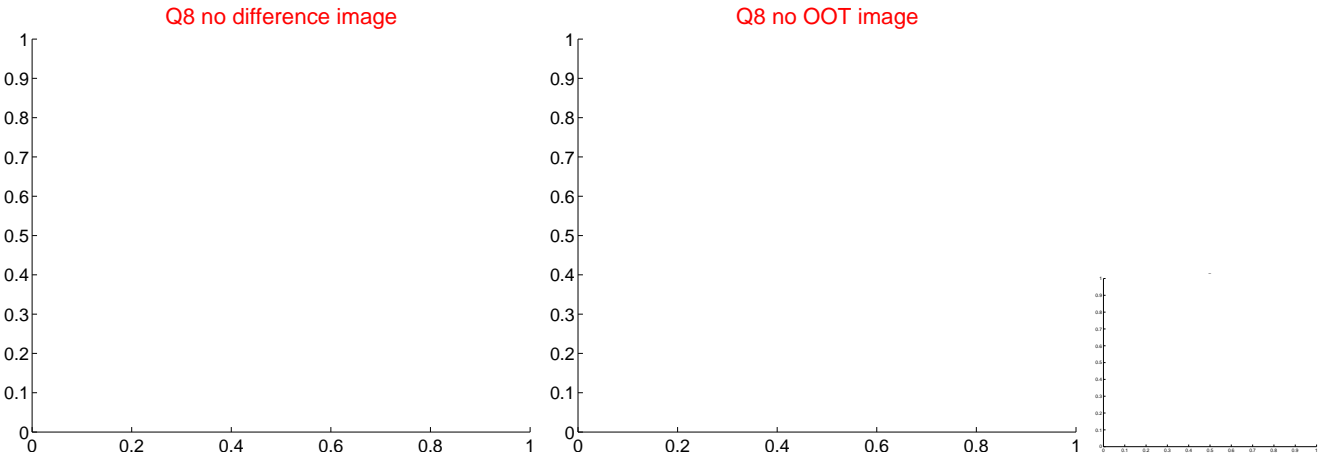
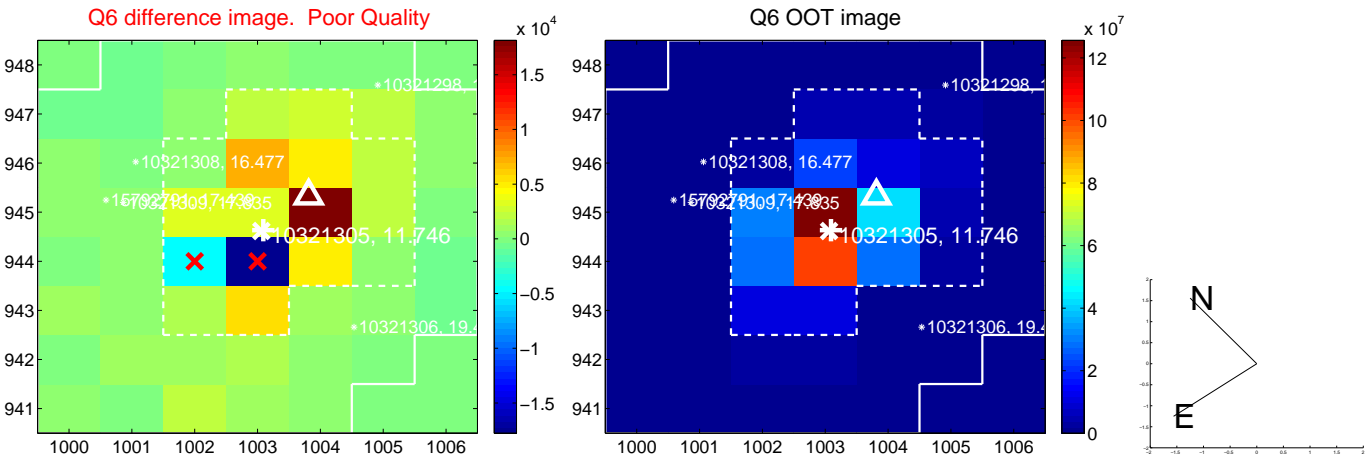
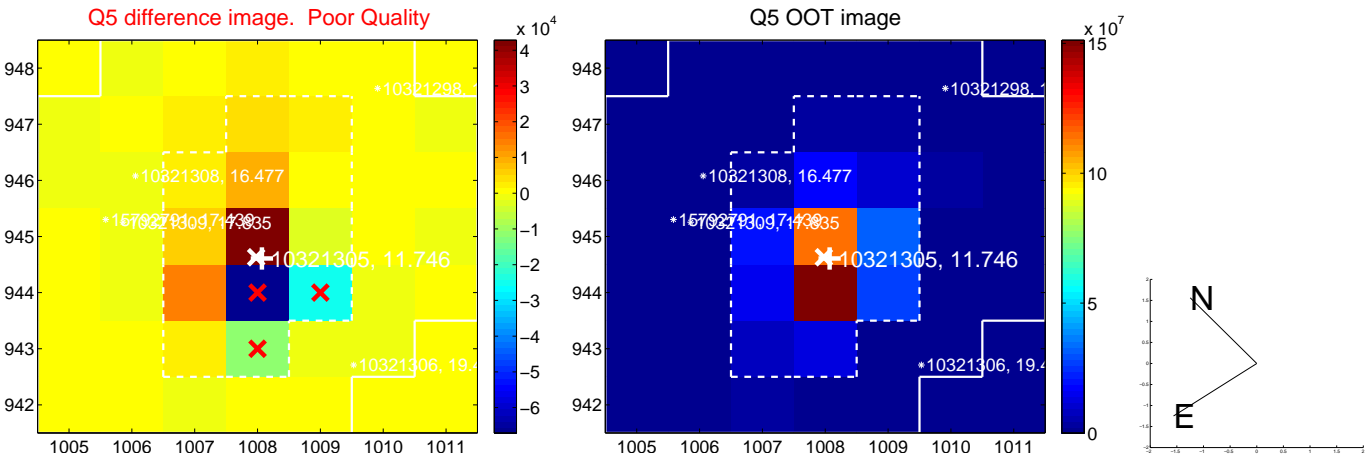


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

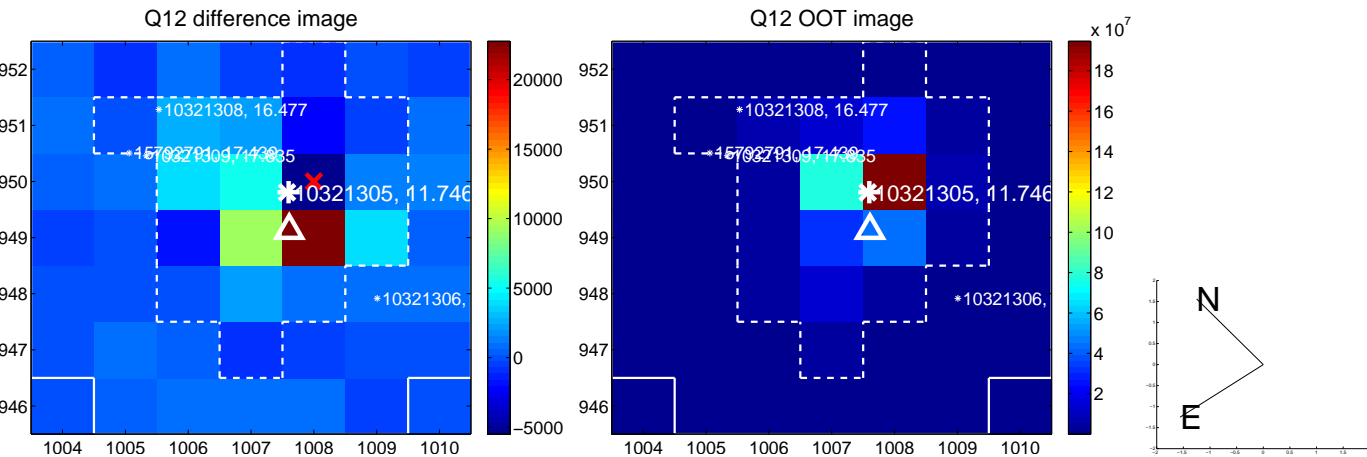
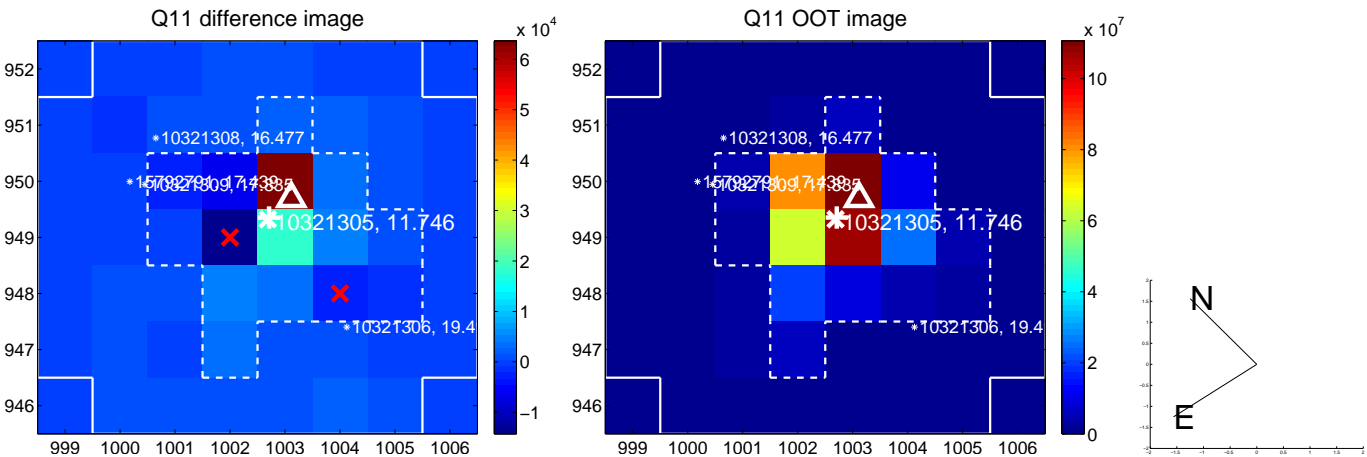
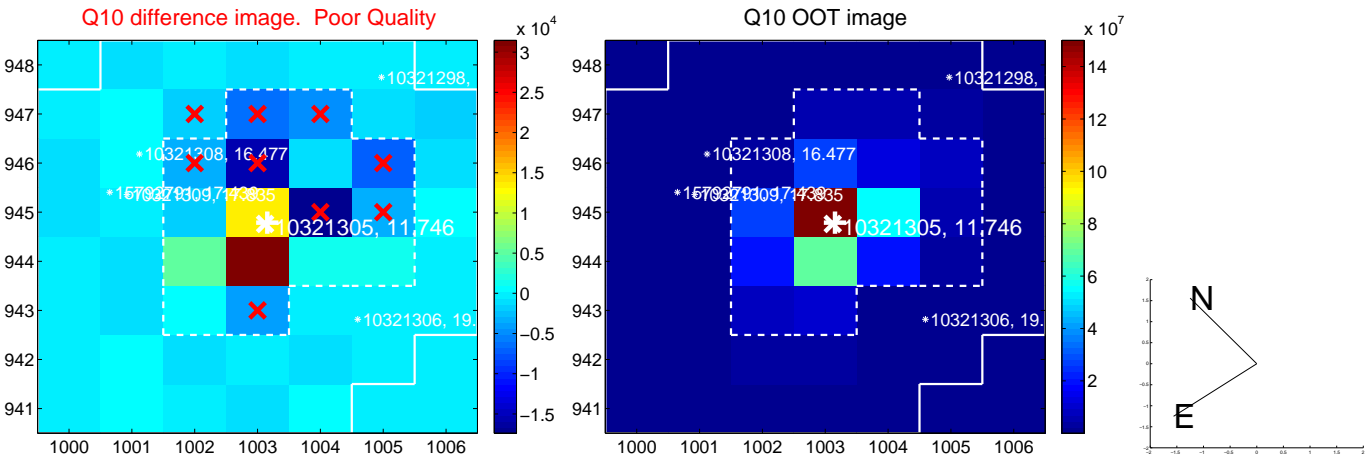
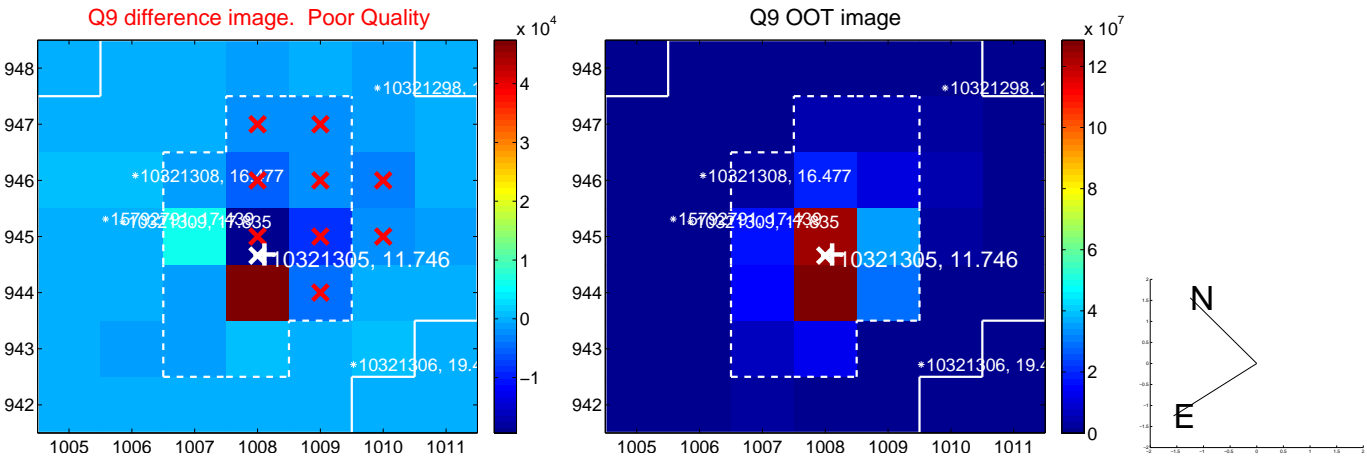
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



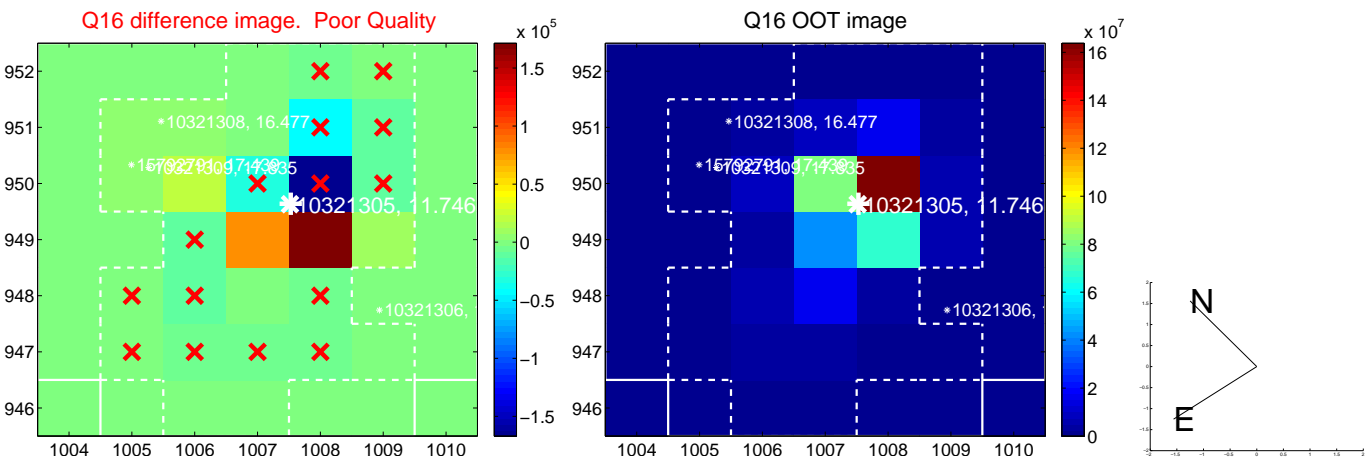
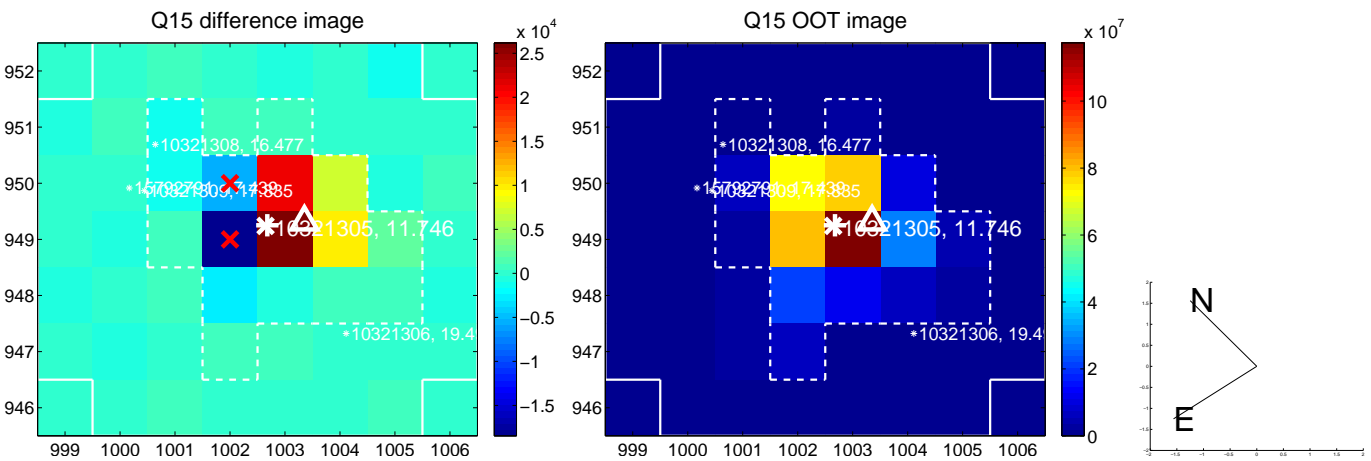
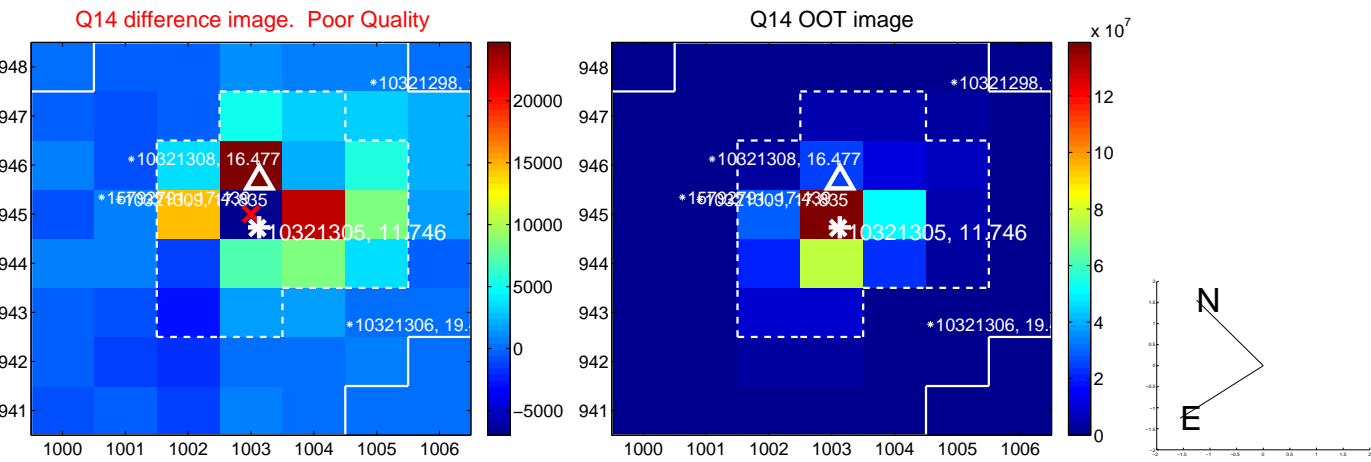
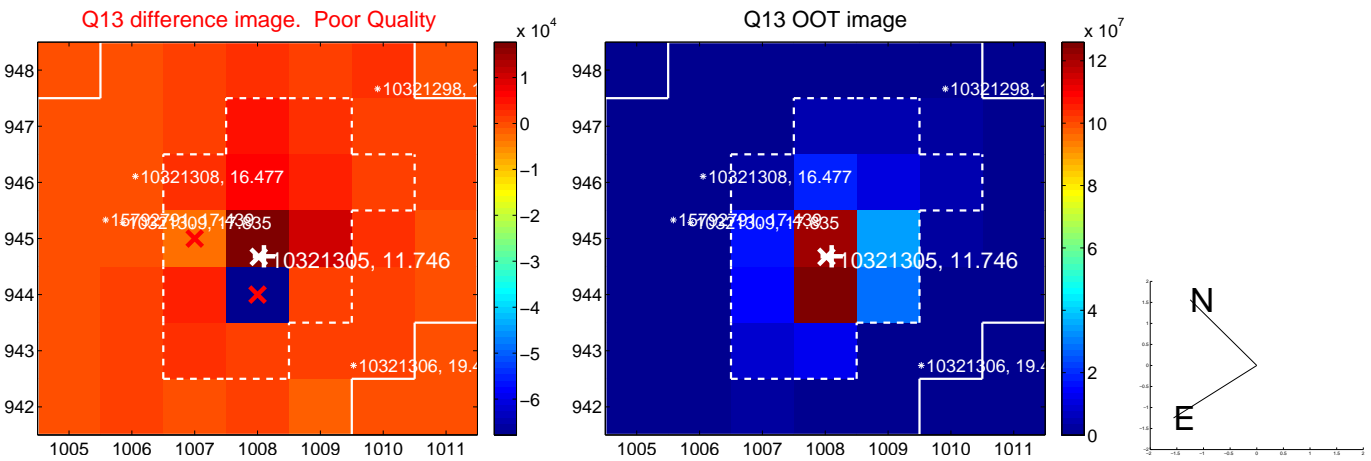
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



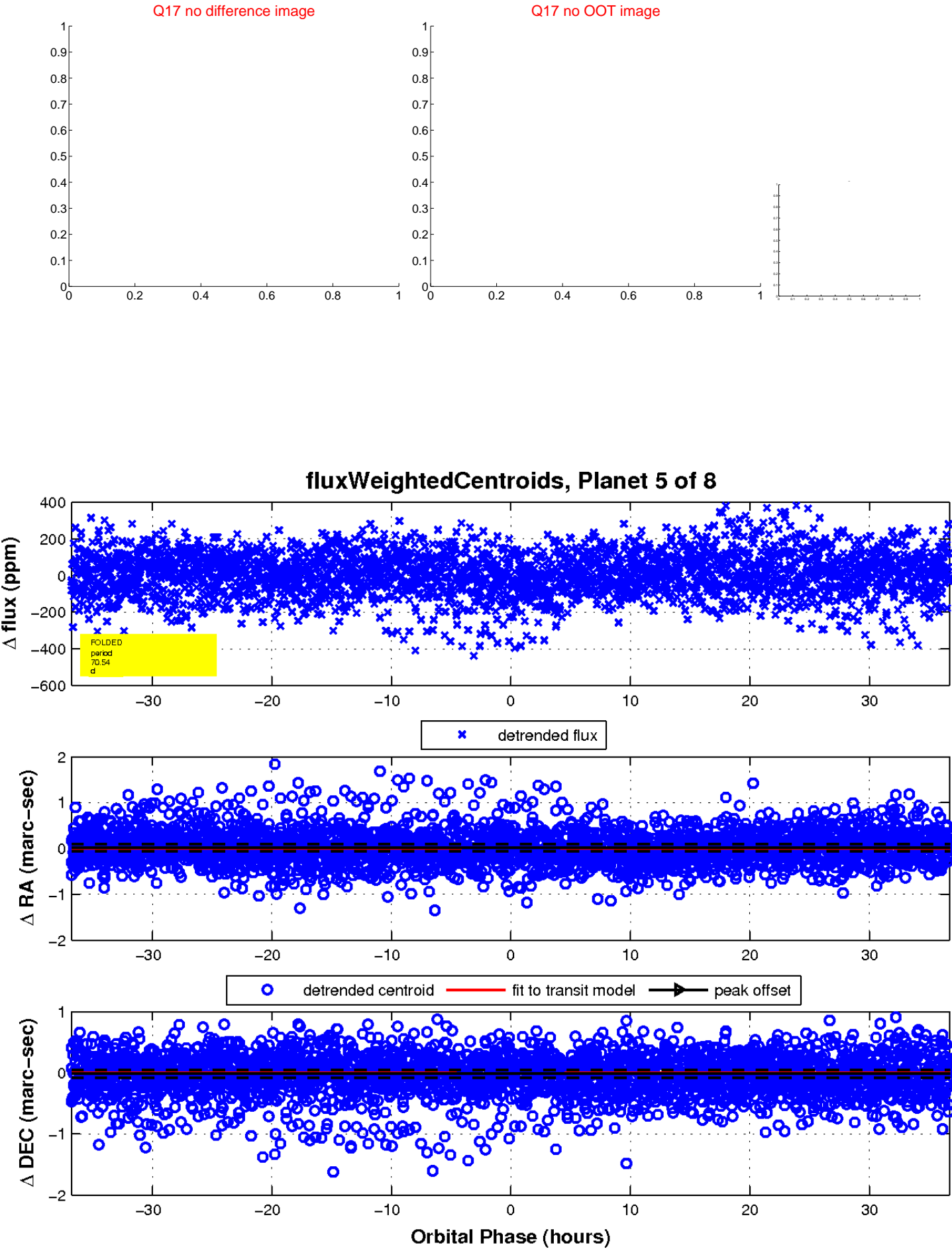
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

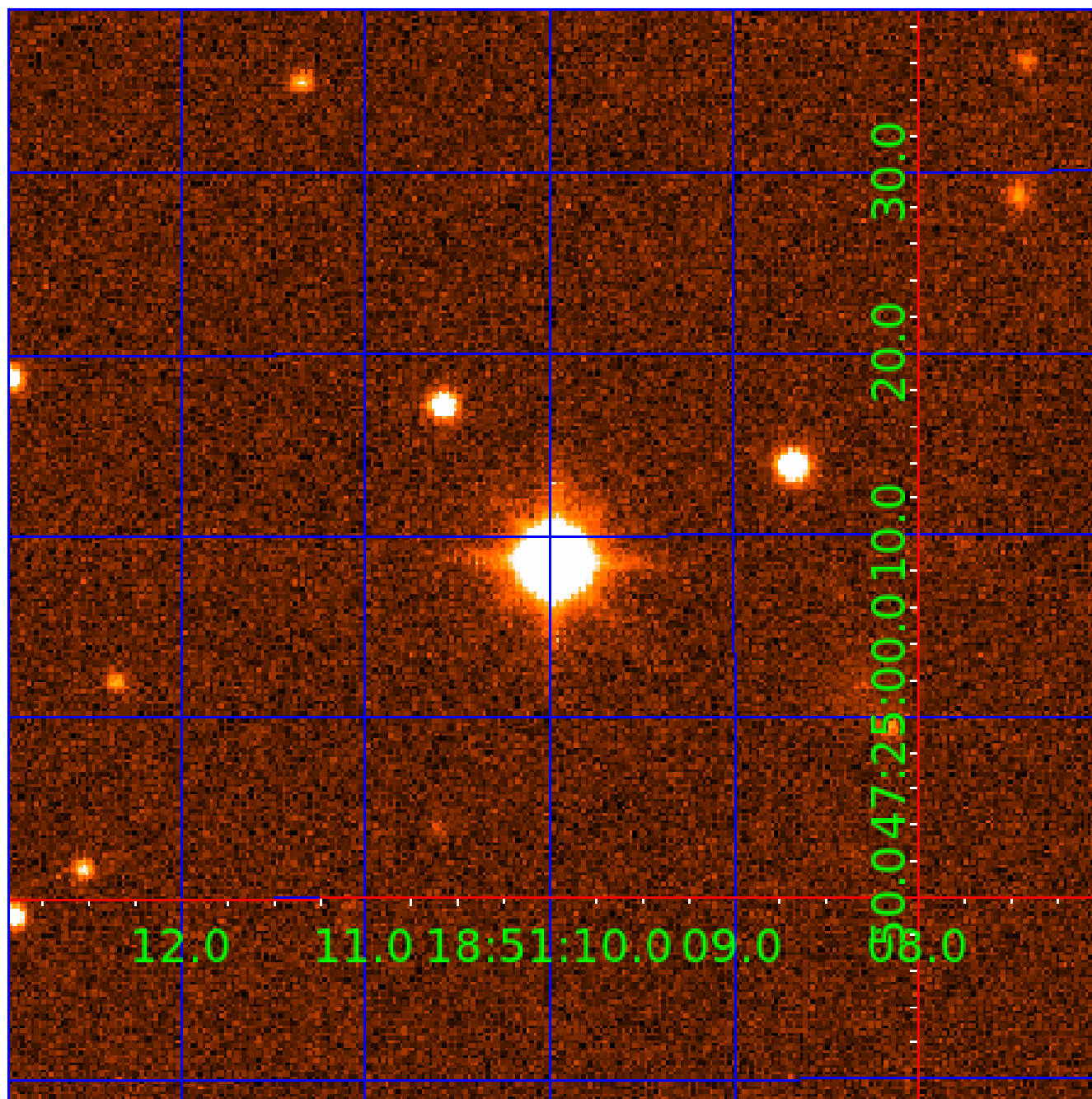


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010321305

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})
010321305-01	OBS	No	4.022095	133.114482	15.6	18.521	7.7	5.3	2.07	6926	1.15	2763.29
010321305-02	OBS	No	334.798099	194.845598	114.2	5.794	16.8	4.8	2.07	6926	2.51	7.60
010321305-03	OBS	No	138.366923	253.316317	143.4	7.076	9.7	5.9	2.07	6926	2.78	24.70
010321305-05	OBS	No	70.538112	197.172726	108.8	12.252	8.4	7.9	2.07	6926	2.86	60.65
010321305-06	OBS	No	353.981134	255.385488	160.1	25.138	8.2	7.3	2.07	6926	2.73	7.06
010321305-07	OBS	No	163.654942	255.022721	164.4	9.407	7.7	8.0	2.07	6926	3.08	19.75
010321305-08	OBS	No	140.064547	234.275802	121.5	3.000	7.7	-1.0	2.07	6926	2.31	24.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010321305-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010321305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010321305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS
010321305-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
010321305-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

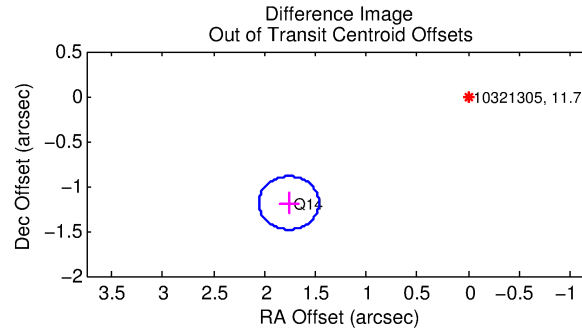
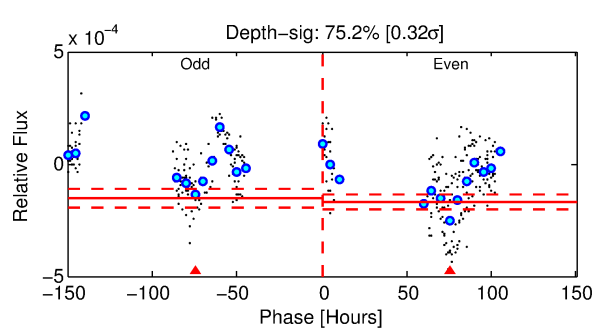
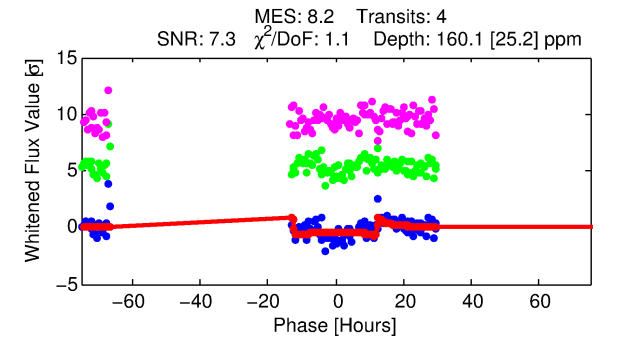
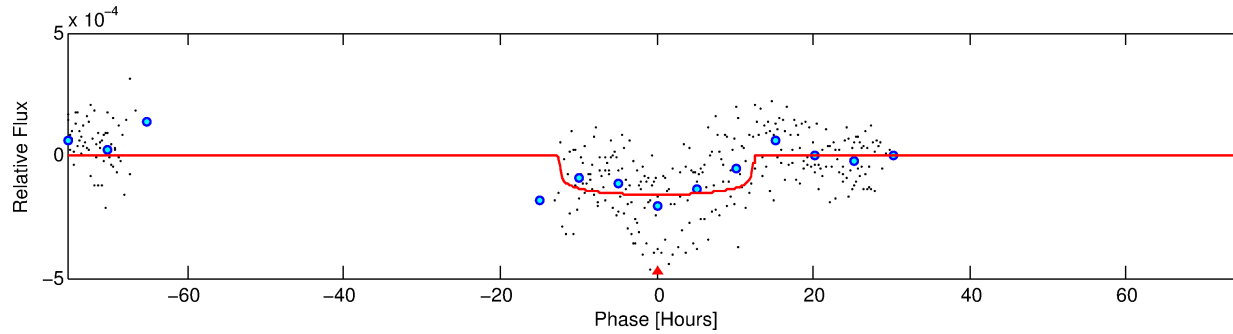
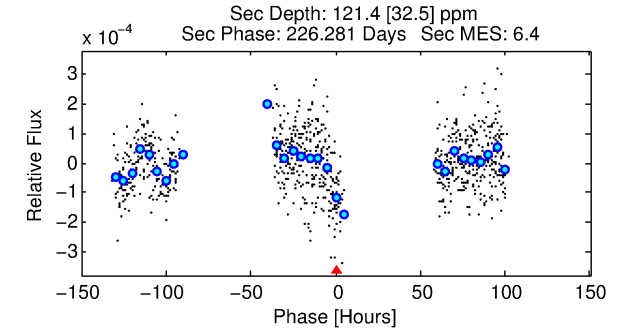
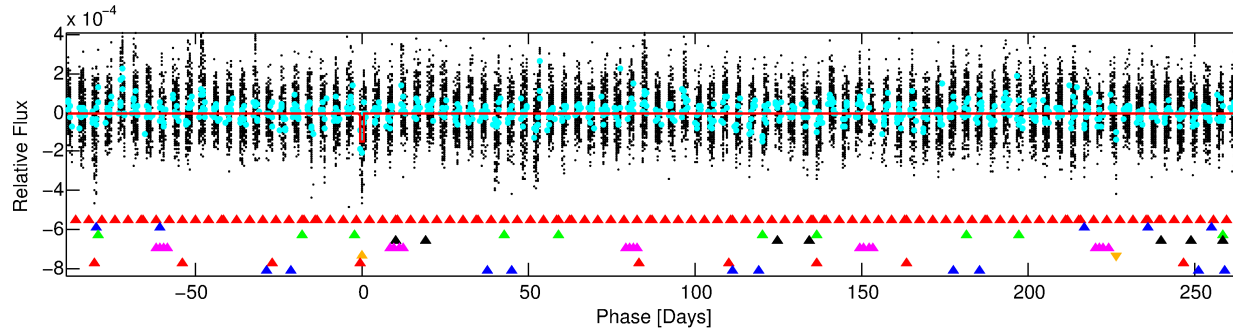
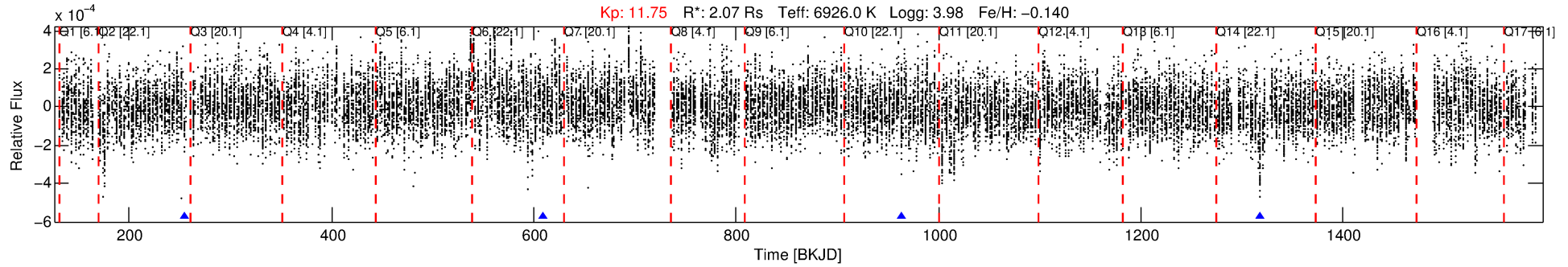
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010321305-06

No Significant Match Found

DV One-Page Summary

KIC: 10321305 Candidate: 6 of 8 Period: 353.981 d



DV Fit Results:

Period = 353.98113 [0.01121] d
Epoch = 255.3855 [0.0266] BKJD
Rp/R* = 0.0120 [0.0030]
a/R* = 93.33 [121.24]
b = 0.52 [1.82]
Seff = 7.06 [2.75]
Teq = 416 [41] K
Rp = 2.72 [1.01] Re
a = 1.1209 [0.2741] AU
Ag = 11296.94 [7606.08] [1.49σ]
Teff = 6625 [951] K [6.5σ]

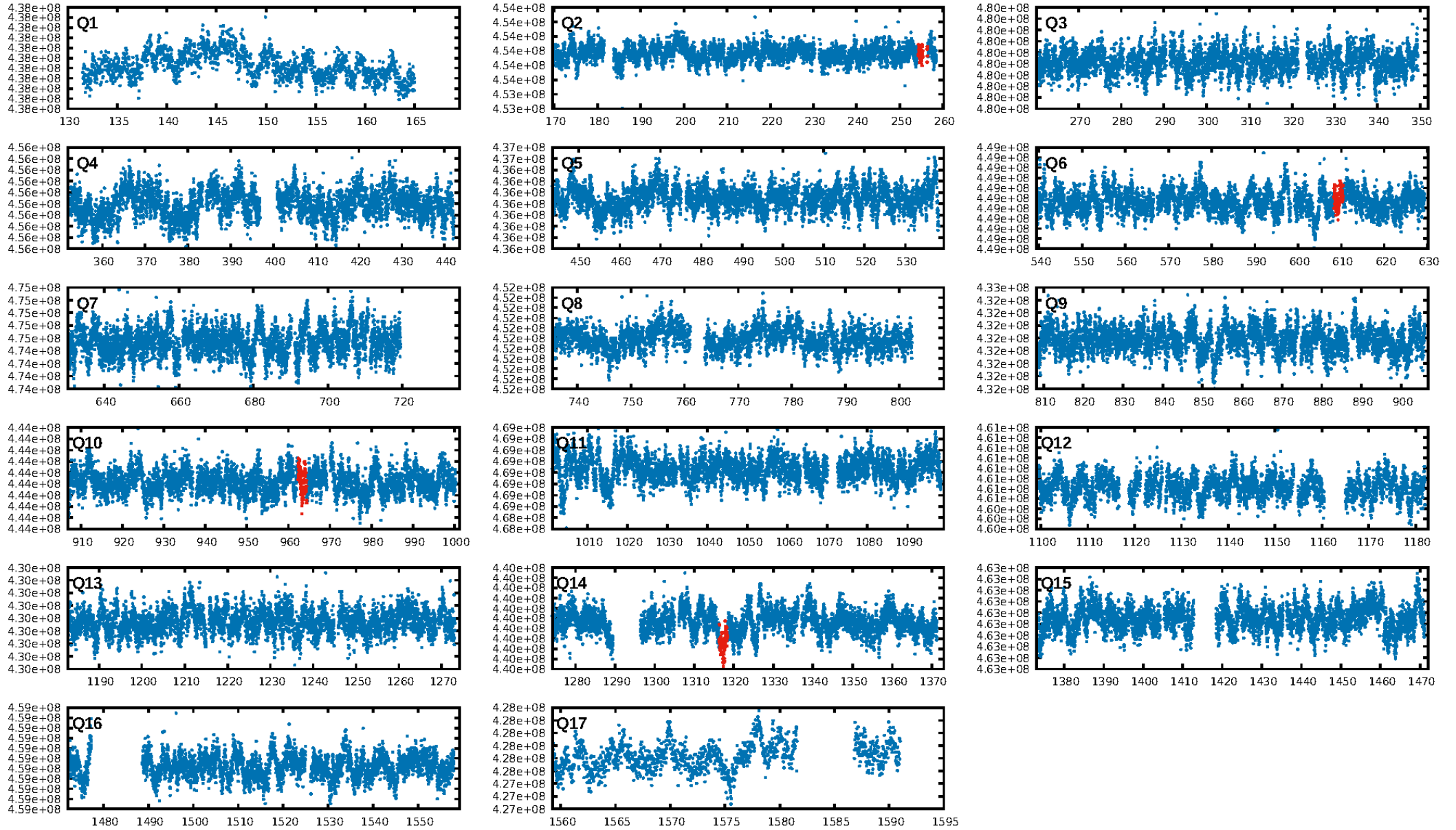
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [17.85σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 1.901
Centroid-sig: 3.5%
Centroid-so: 3.259 arcsec [2.14σ]
OotOffset-rm: 2.124 arcsec [21.52σ]
KicOffset-rm: 2.042 arcsec [20.55σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/3]

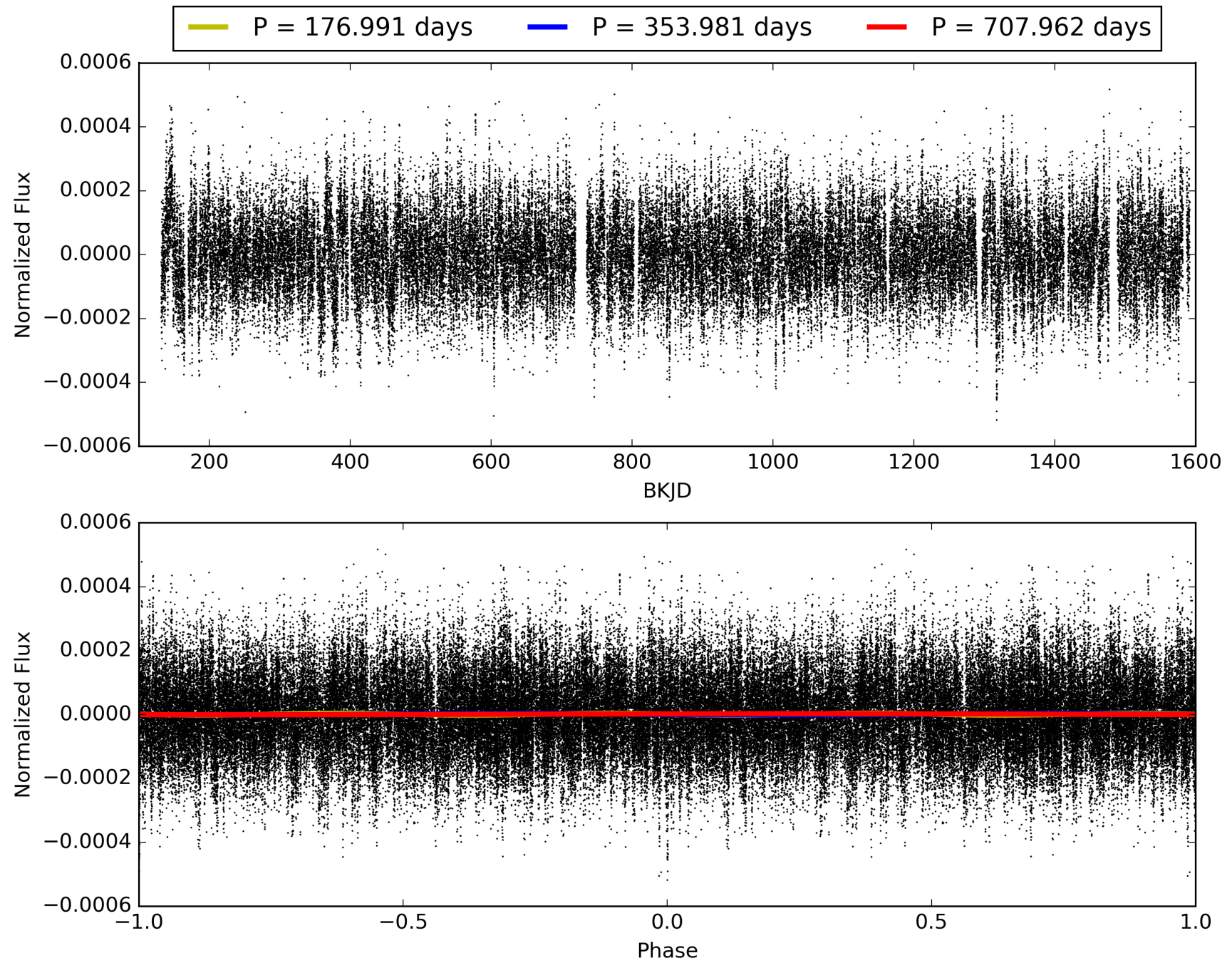
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:49:19 Z

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

TCE 010321305-06, PDC Light Curves

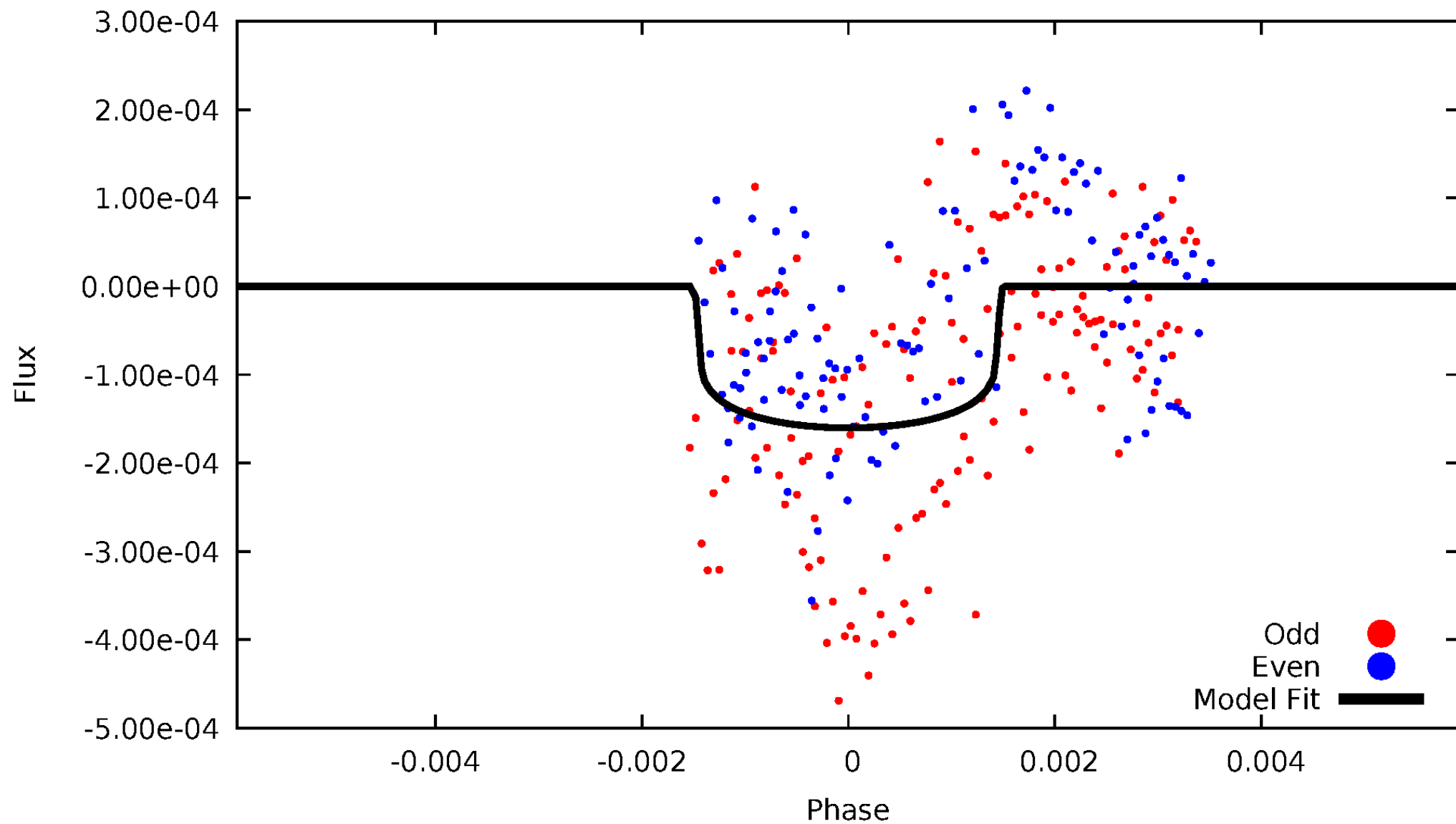


TCE 010321305-06



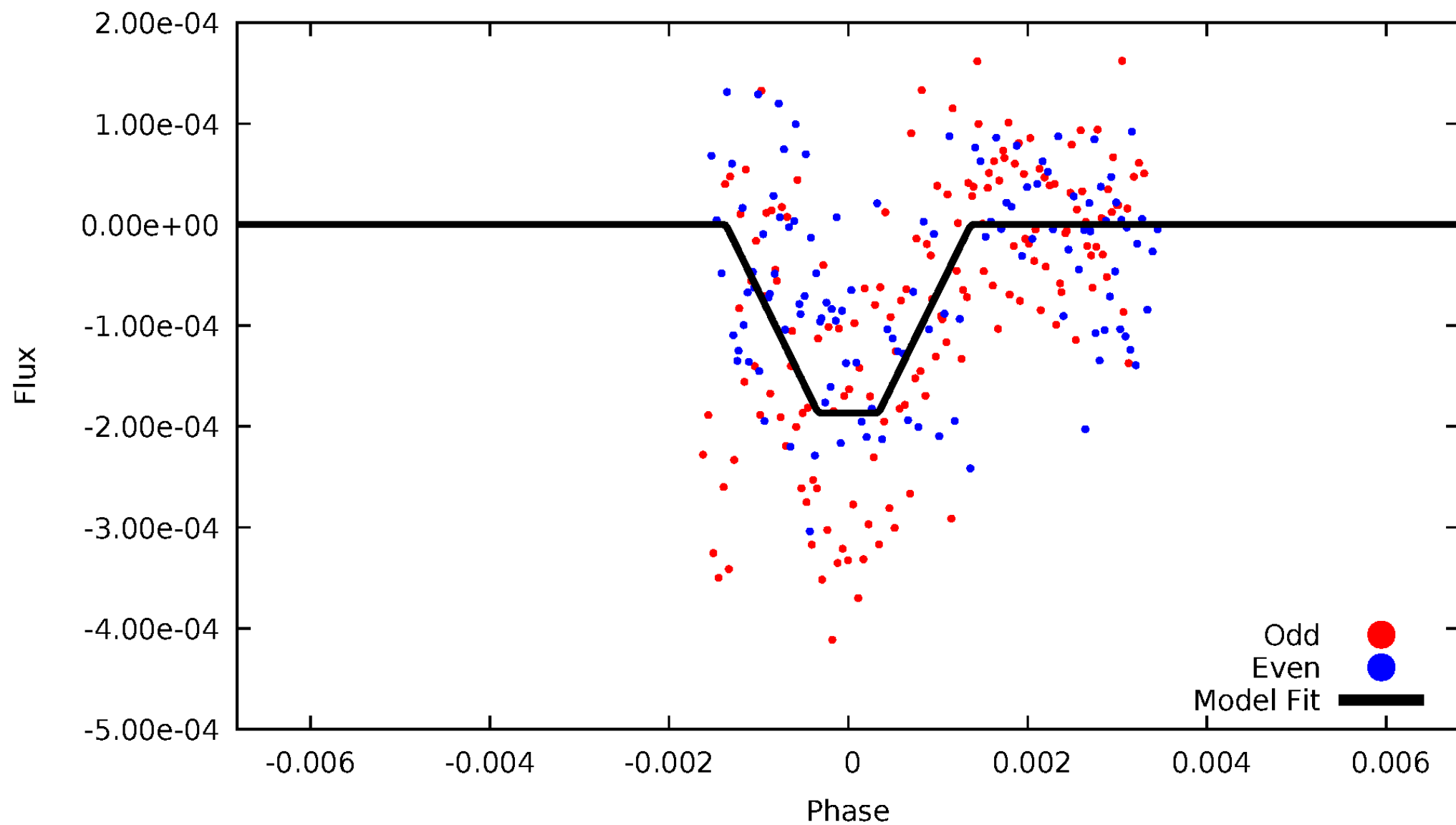
DV Odd/Even

TCE 010321305-06



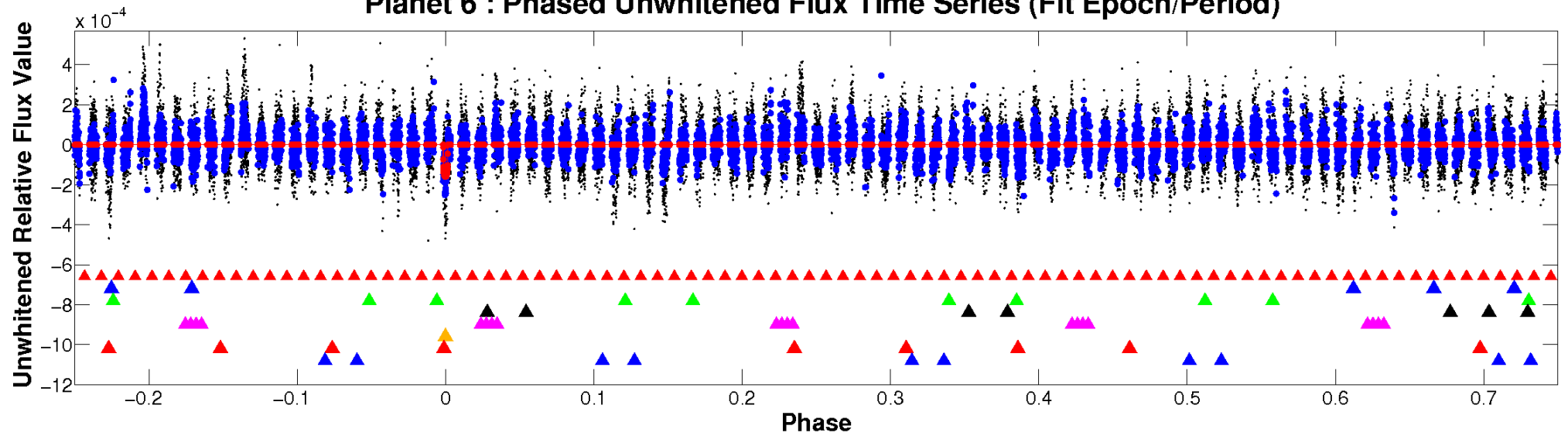
ALT Odd/Even

TCE 010321305-06

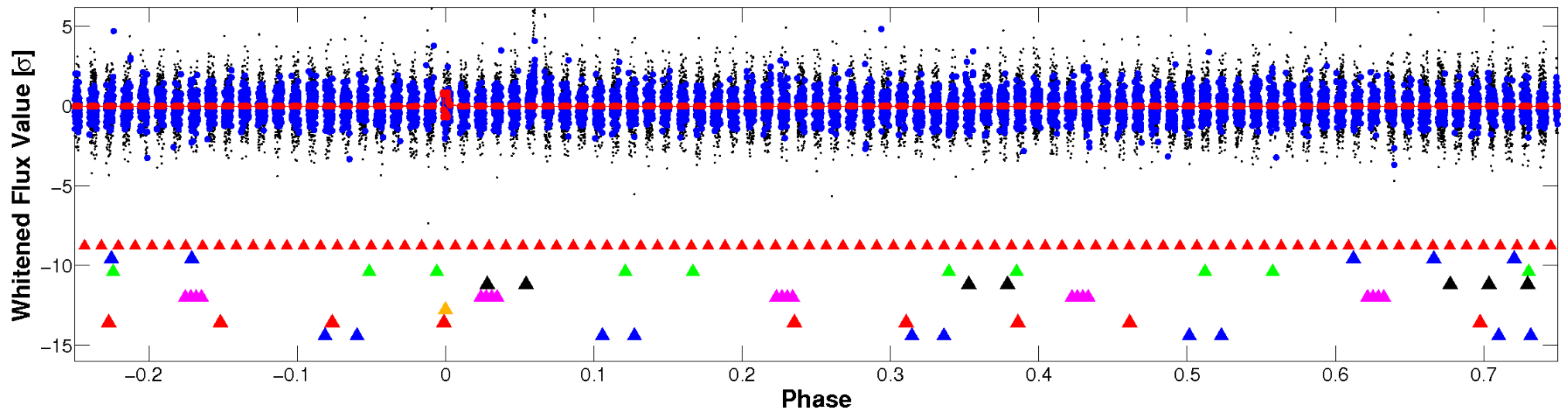


Non-Whitened Vs. Whitened Light Curve

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

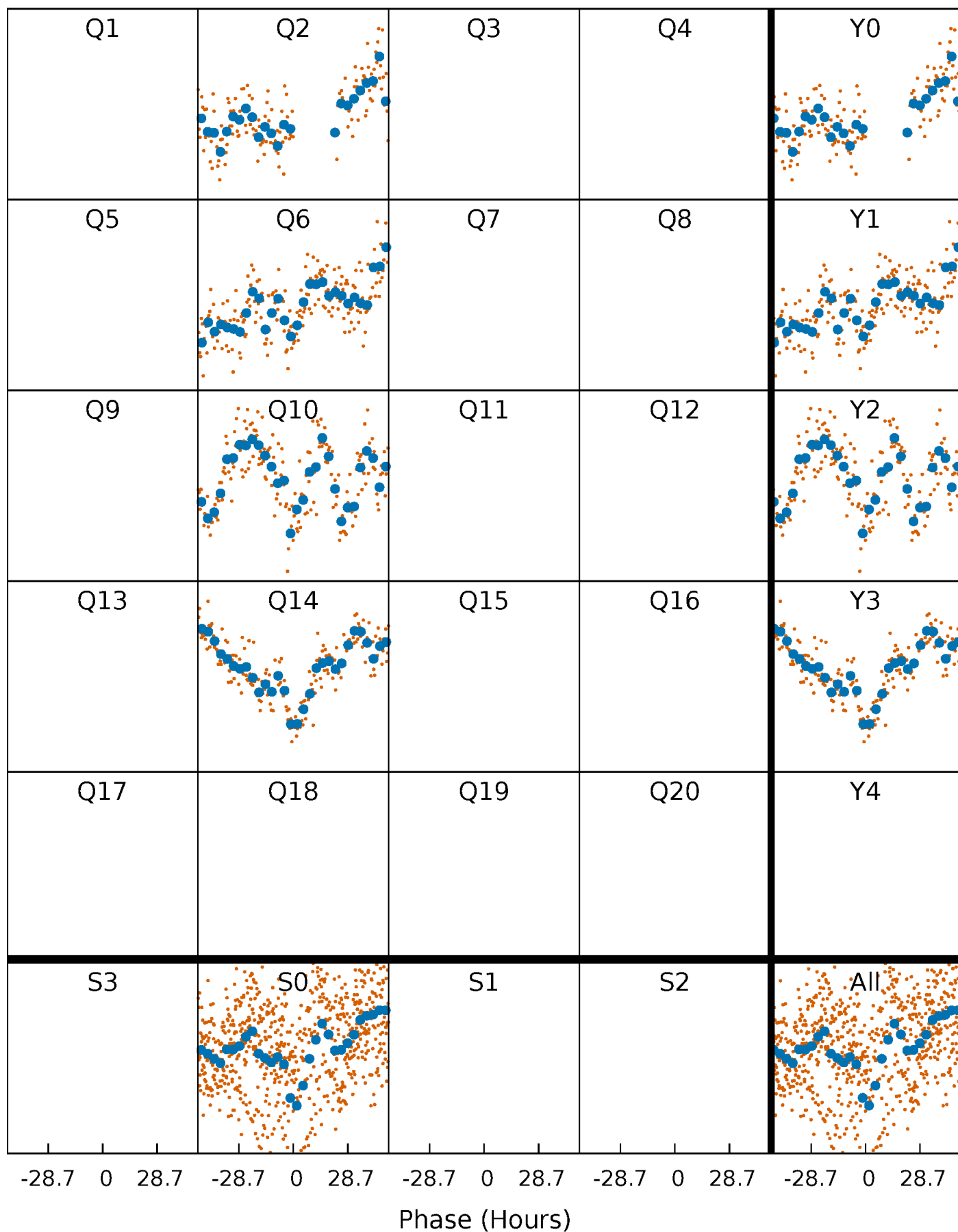


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



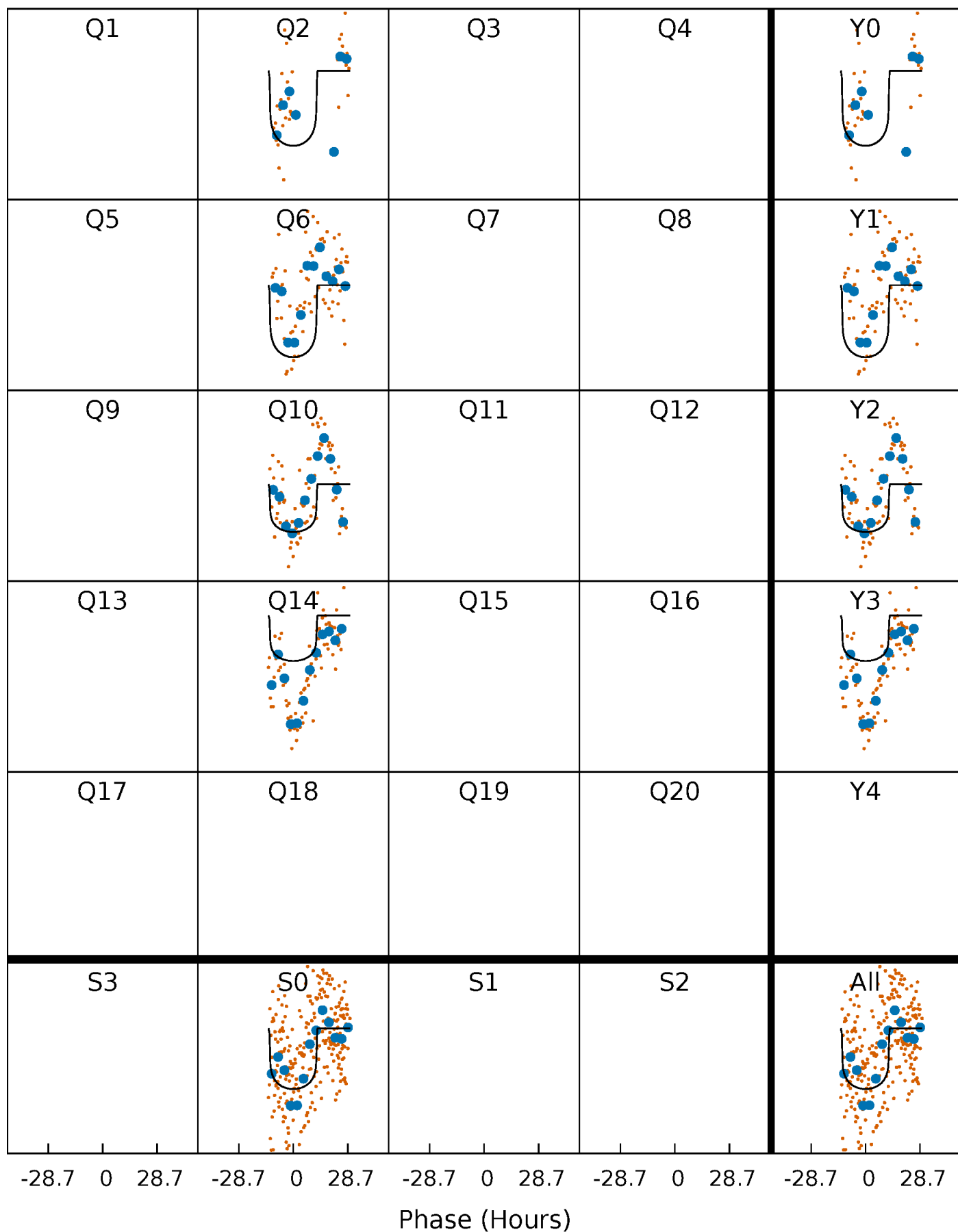
PDC Quarter-Phased Transit Curves

TCE 010321305-06 $P=353.981134$ Days $T_0=255.385488$ (BKJD)



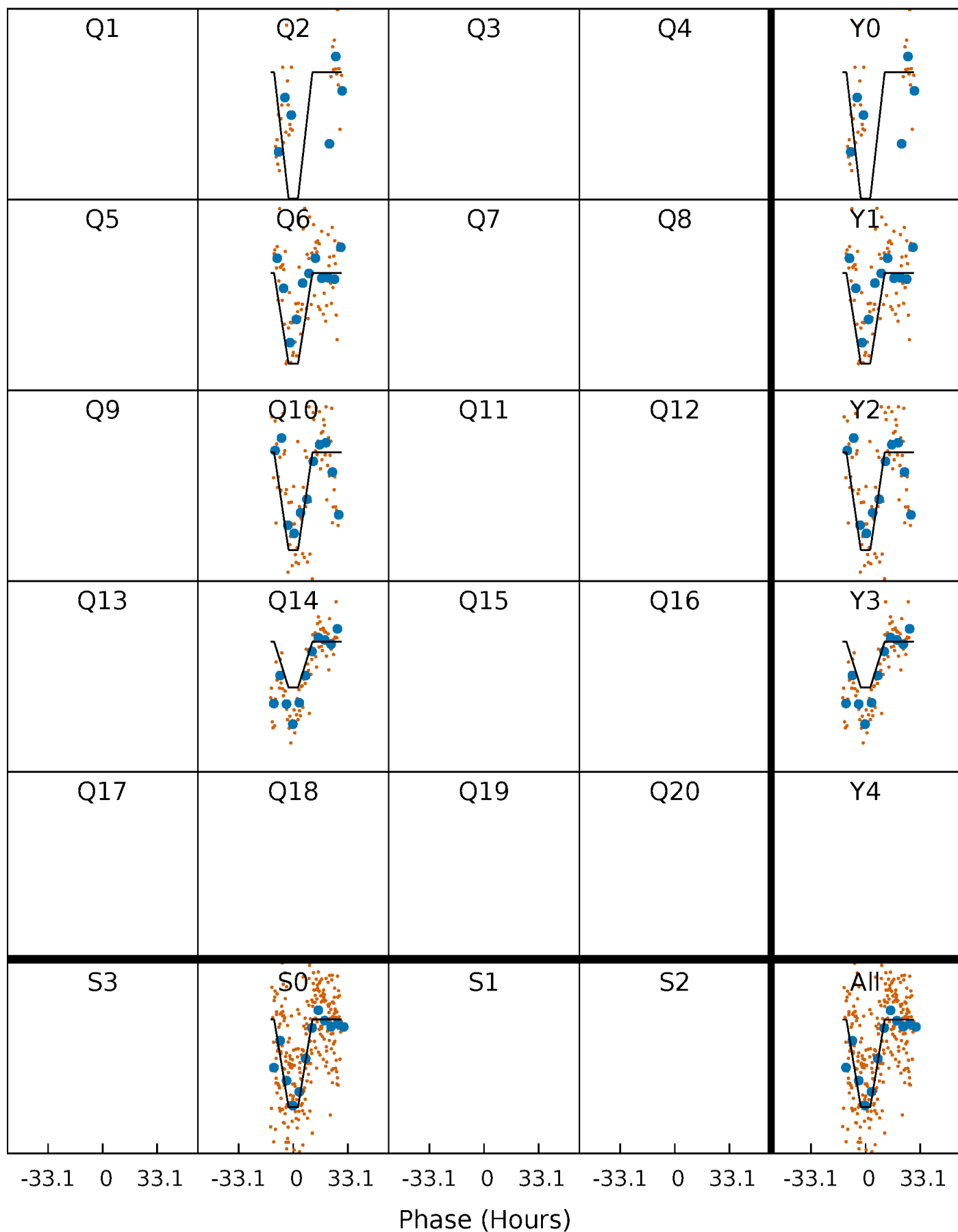
DV Quarter-Phased Transit Curves

TCE 010321305-06 P=353.981134 Days $T_0=255.385488$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

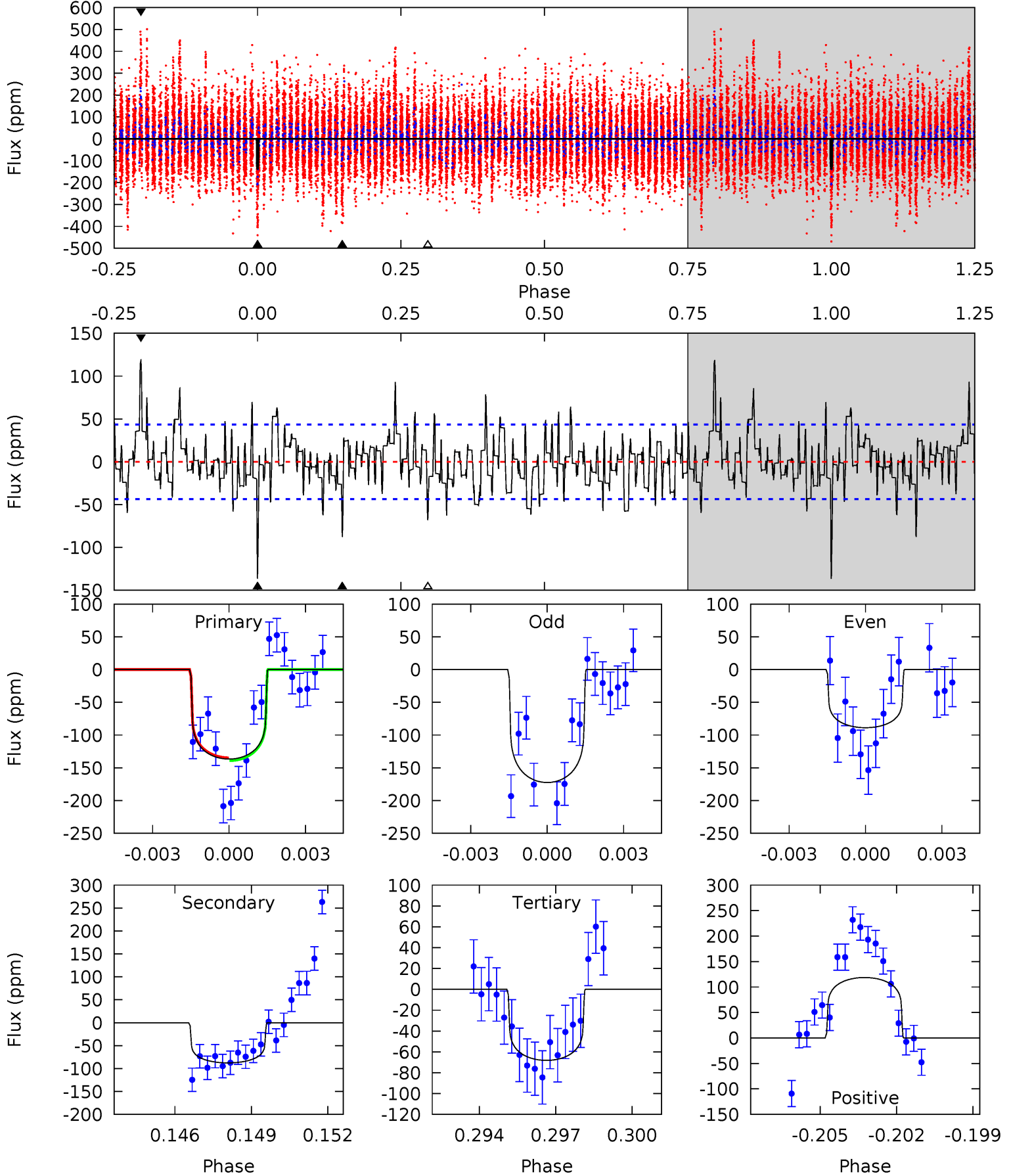
TCE 010321305-06 P=353.984182 Days $T_0=255.406384$ (BKJD)



DV Model-Shift Uniqueness Test

010321305-06, P = 353.981134 Days, E = 255.385488 Days

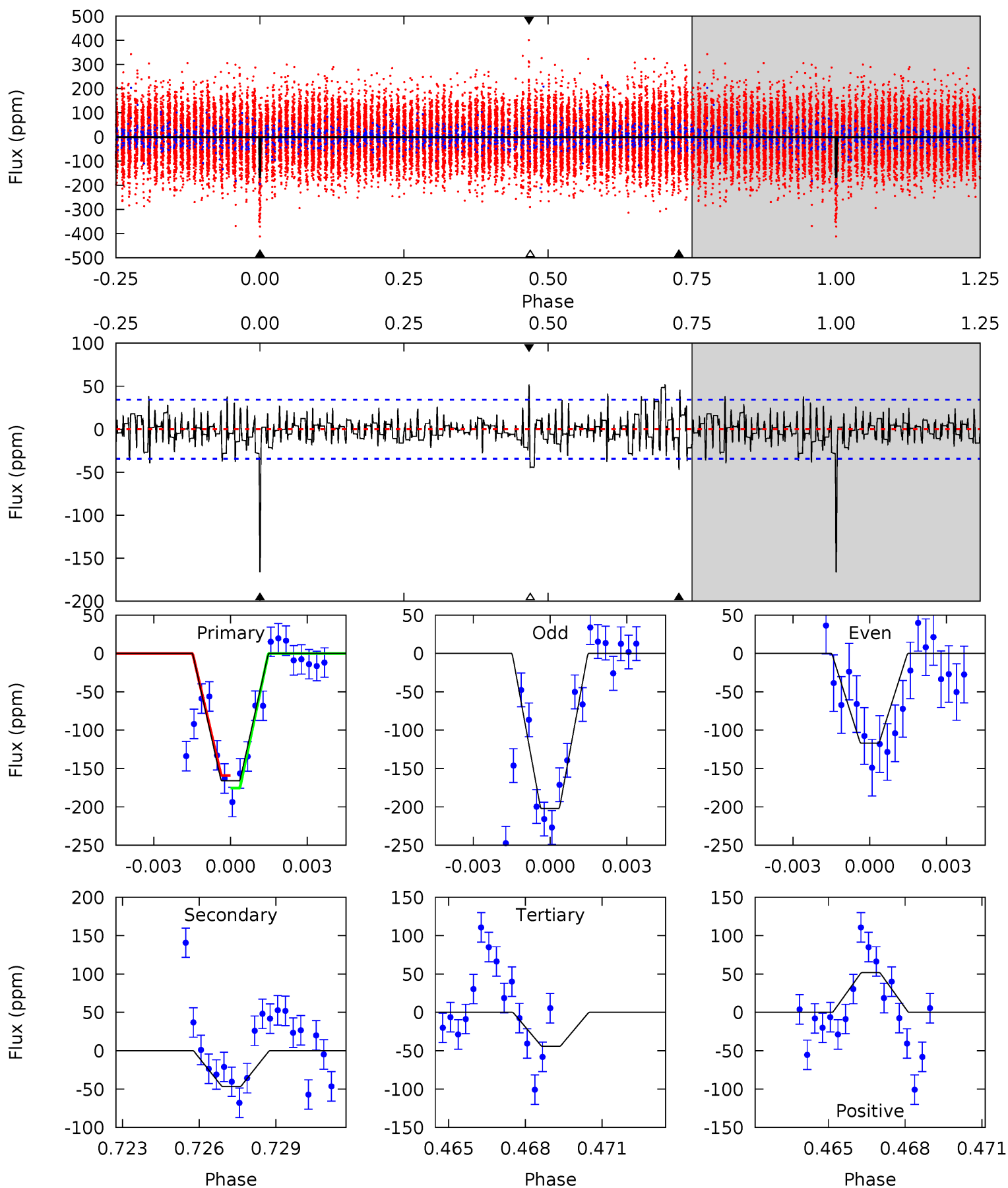
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	10.6	8.23	14.3	5.25	2.97	3.34	8.27	2.18	2.36	-3.74	5.01	1.47	0.46	0.25



Alt Model-Shift Uniqueness Test

010321305-06, P = 353.984182 Days, E = 255.406384 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.6	7.19	6.81	7.98	5.27	2.99	2.05	18.8	17.6	0.38	-0.79	6.49	1.34	0.24	1.27



Stellar Parameters For KIC 010321305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+174}_{-208}	$3.980^{+0.210}_{-0.123}$	$-0.140^{+0.250}_{-0.300}$	$2.074^{+0.468}_{-0.572}$	$1.497^{+0.185}_{-0.246}$	$0.236^{+0.281}_{-0.086}$
	+3%/-3%	+5%/-3%	+179%/-214%	+23%/-28%	+12%/-16%	+119%/-37%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010321305-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-88 ± 8	$2.64^{+0.81}_{-0.76}$	576^{+37}_{-41}	6075^{+1036}_{-624}	8513^{+8427}_{-3400}
Alt.	-47 ± 6	$3.04^{+0.83}_{-0.73}$	577^{+38}_{-45}	4935^{+567}_{-414}	3440^{+2636}_{-1400}

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

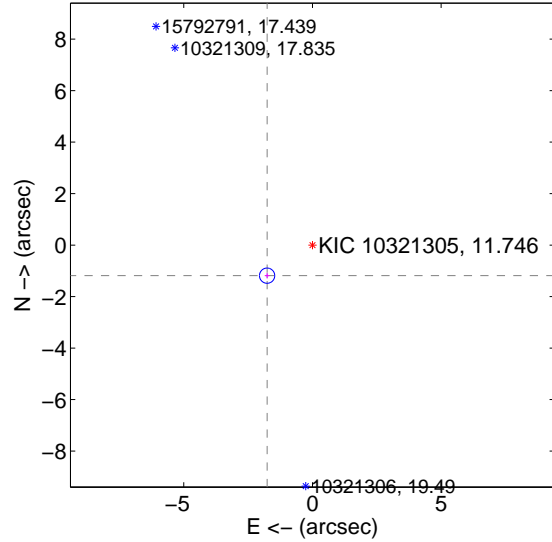
Supplemental centroid analysis for 010321305-06. **Kepler magnitude: 11.75.** Transit SNR 7.27

There are 1 quarters with good PRF difference image offsets

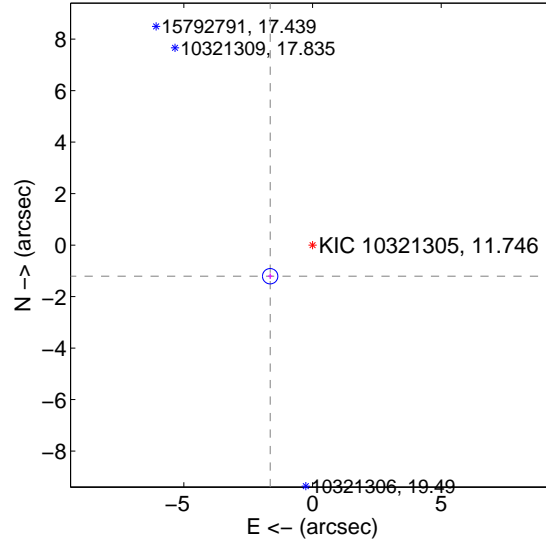
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.124 \pm 0.099	21.52	1.761 \pm 0.093	-1.188 \pm 0.110
PRF-fit source offset from KIC position	2.042 \pm 0.099	20.55	1.646 \pm 0.093	-1.209 \pm 0.110
photometric centroid source offset	3.26 \pm 1.53	2.14	-3.26 \pm 1.53	-0.08 \pm 0.92

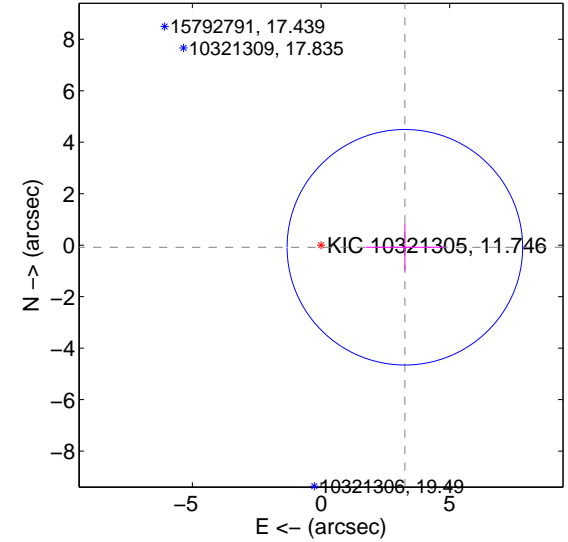
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

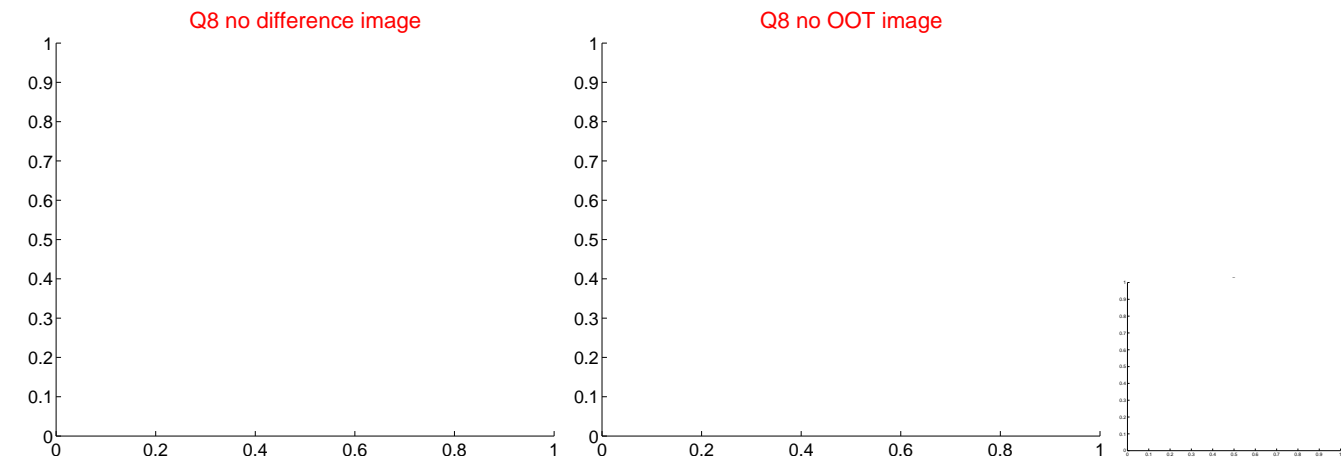
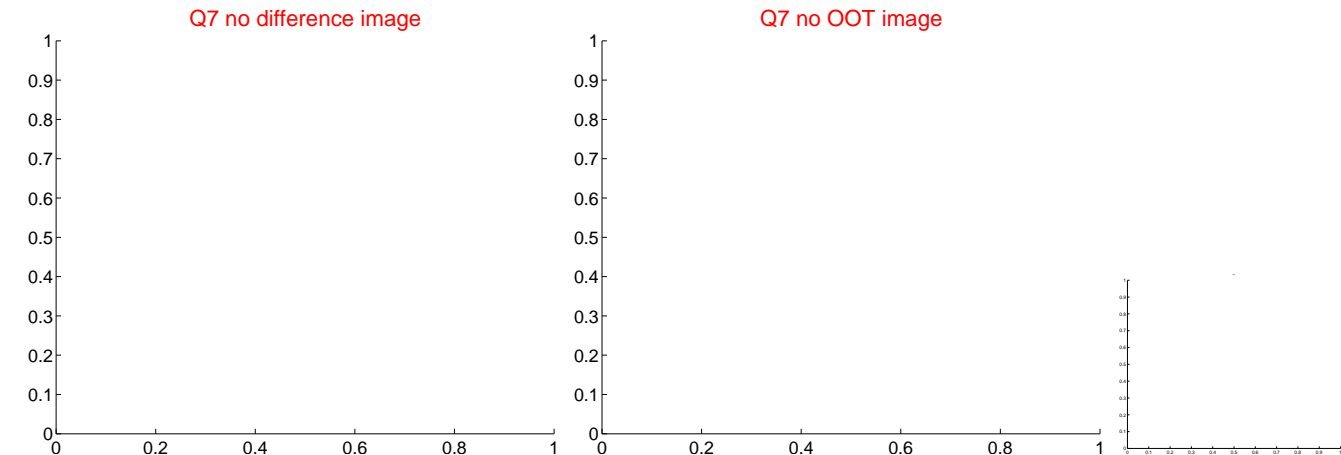
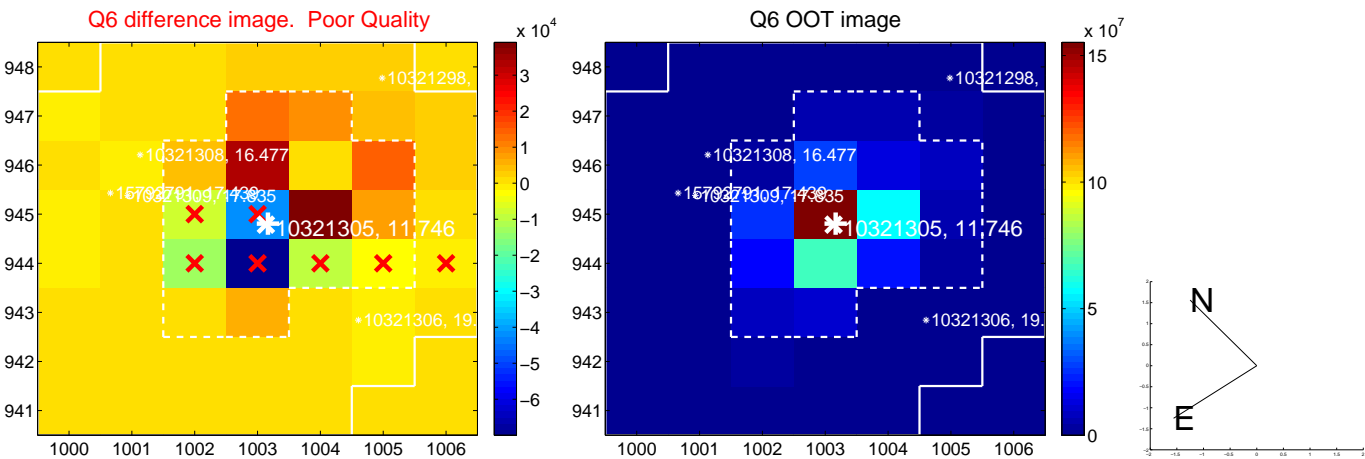
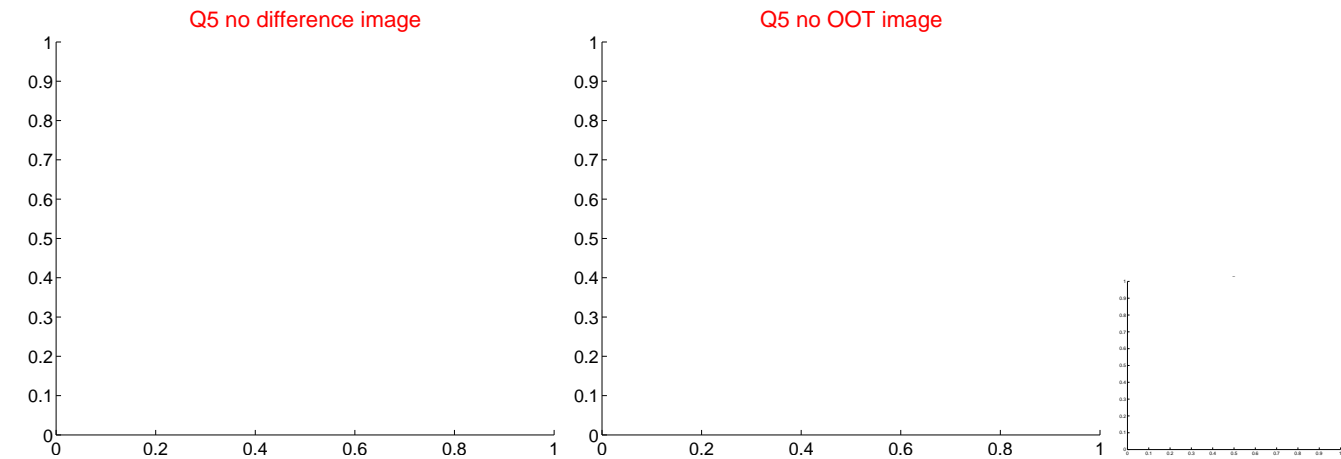


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

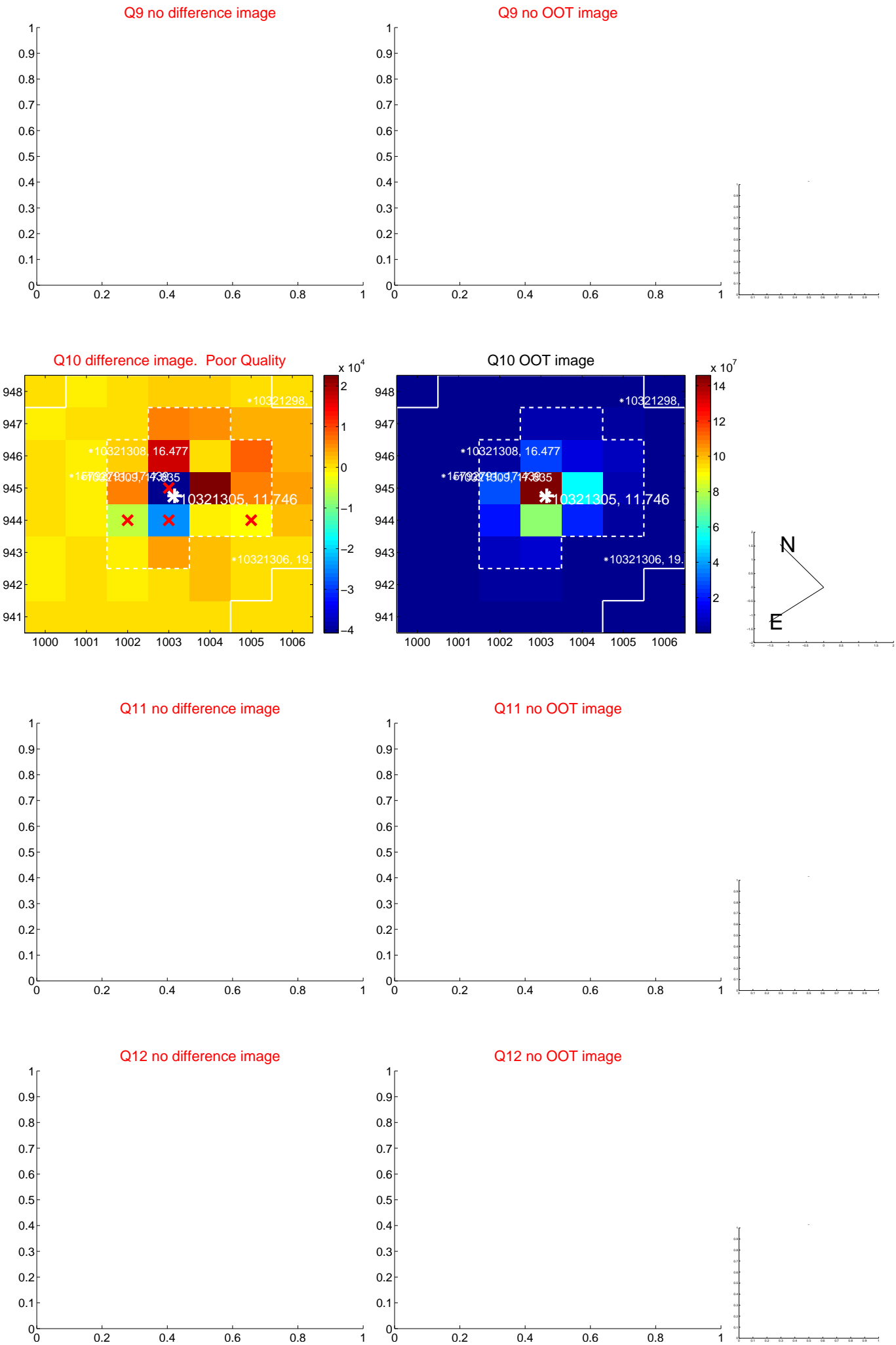
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



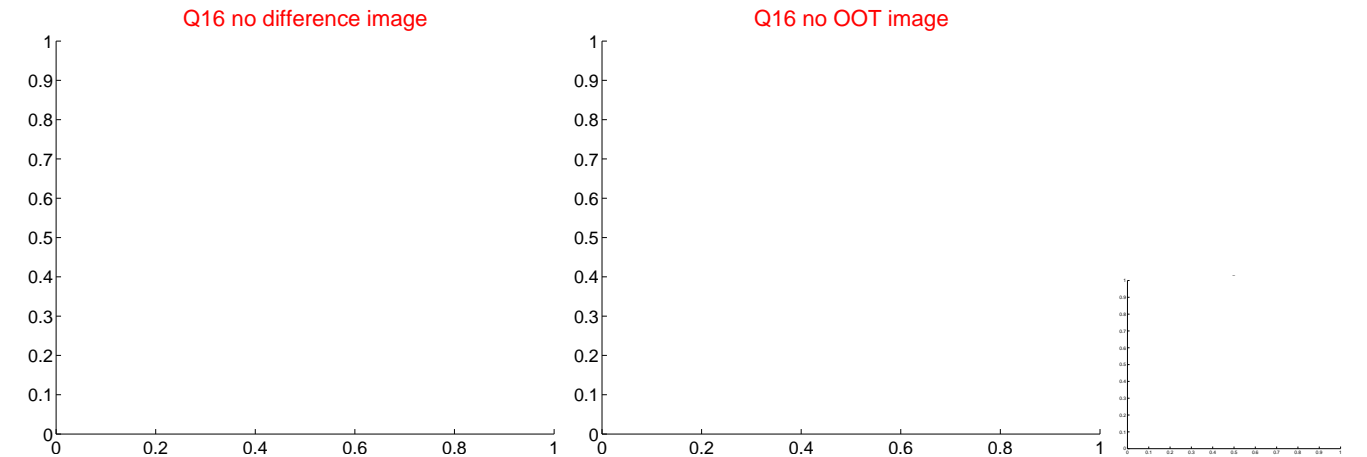
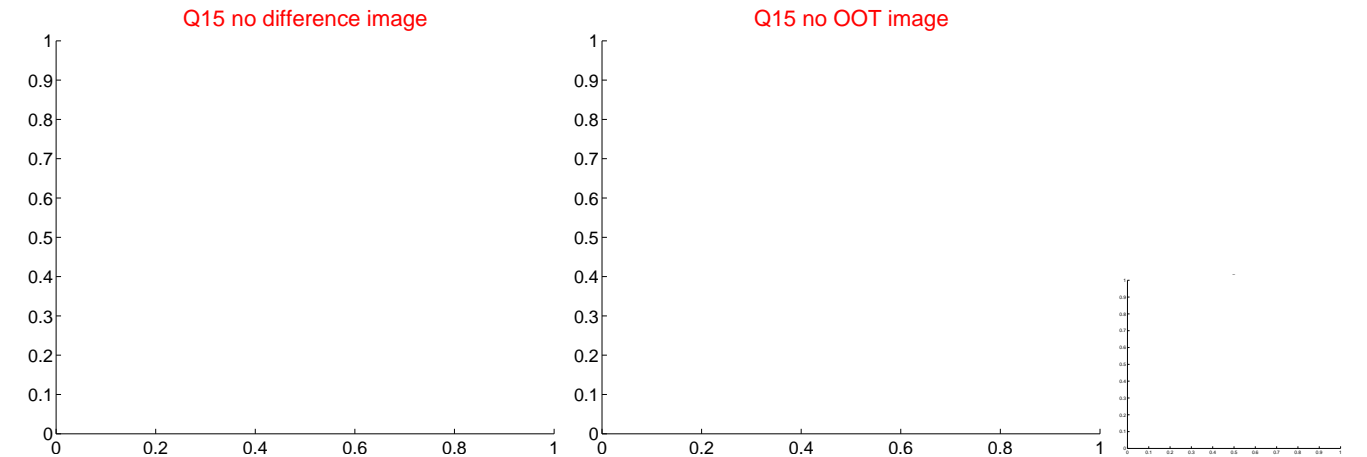
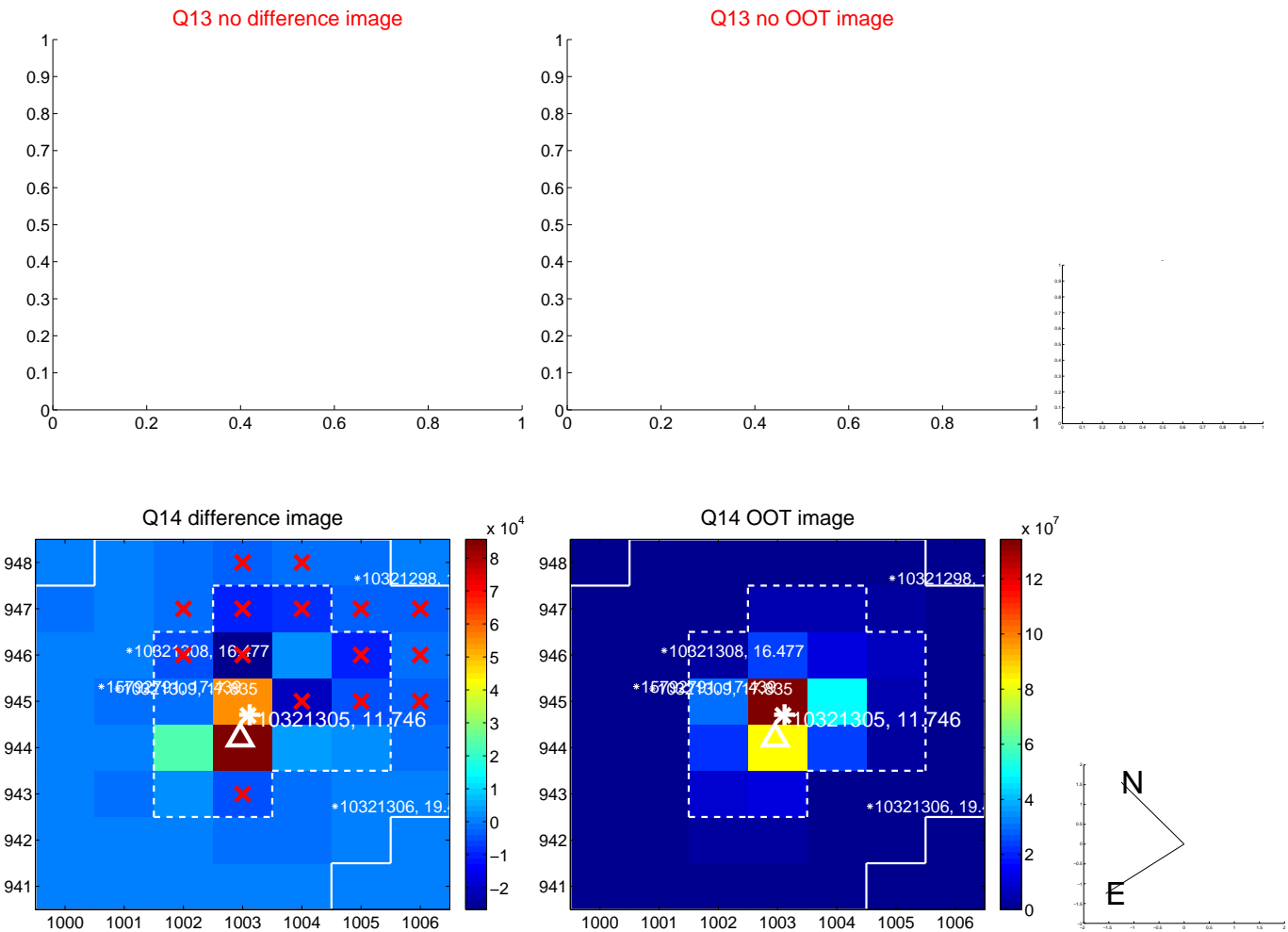
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



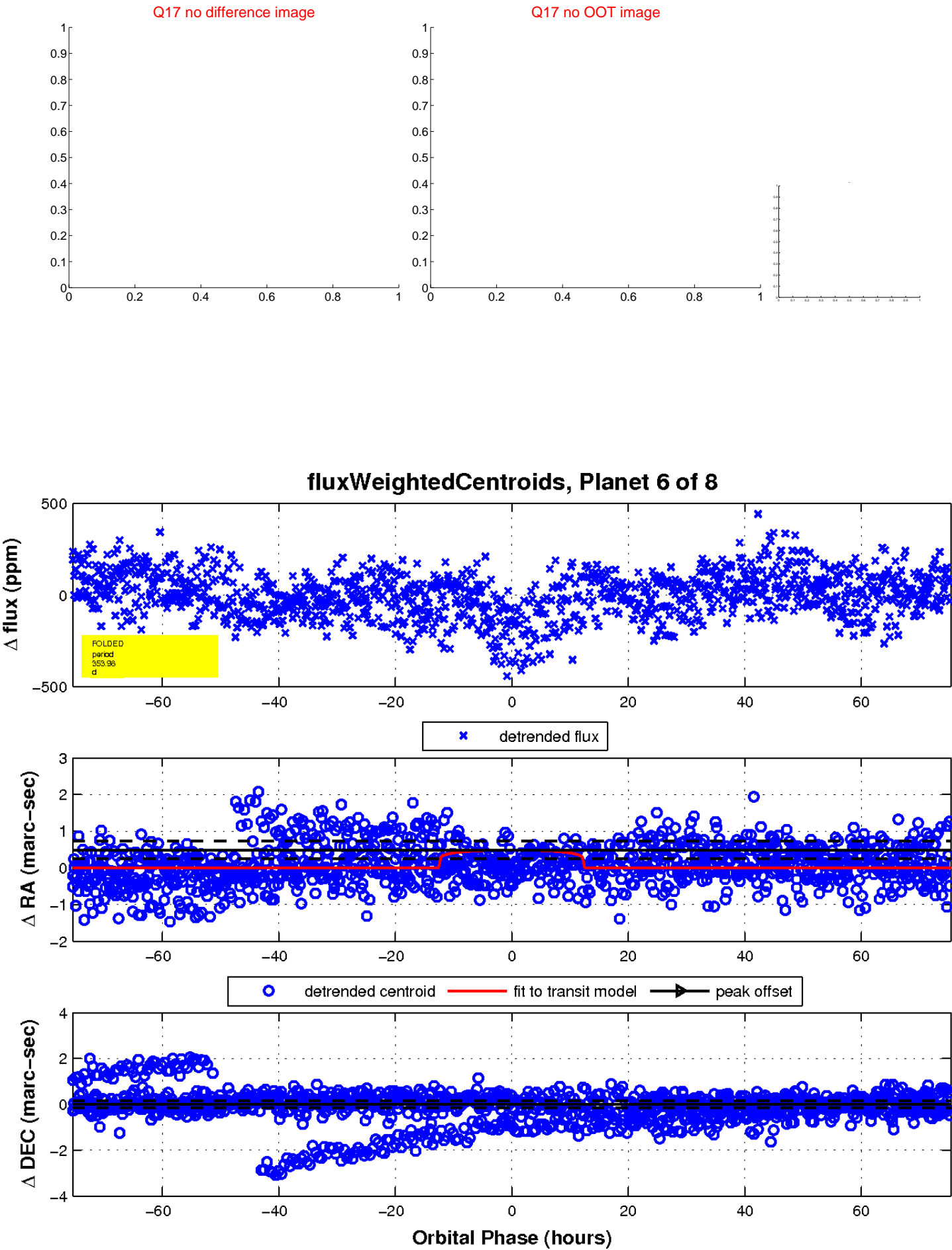
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

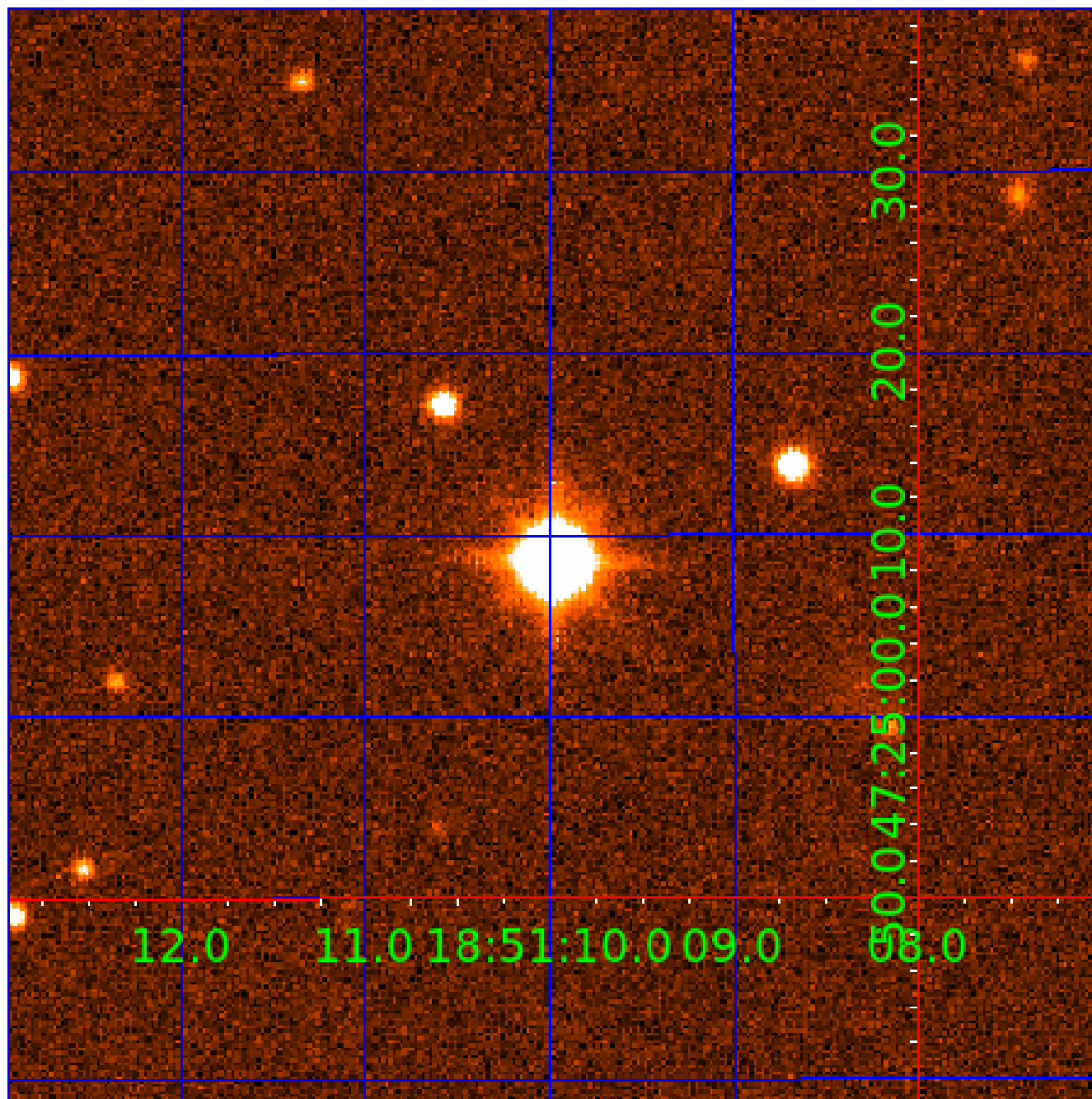


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 010321305

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})
010321305-01	OBS	No	4.022095	133.114482	15.6	18.521	7.7	5.3	2.07	6926	1.15	2763.29
010321305-02	OBS	No	334.798099	194.845598	114.2	5.794	16.8	4.8	2.07	6926	2.51	7.60
010321305-03	OBS	No	138.366923	253.316317	143.4	7.076	9.7	5.9	2.07	6926	2.78	24.70
010321305-05	OBS	No	70.538112	197.172726	108.8	12.252	8.4	7.9	2.07	6926	2.86	60.65
010321305-06	OBS	No	353.981134	255.385488	160.1	25.138	8.2	7.3	2.07	6926	2.73	7.06
010321305-07	OBS	No	163.654942	255.022721	164.4	9.407	7.7	8.0	2.07	6926	3.08	19.75
010321305-08	OBS	No	140.064547	234.275802	121.5	3.000	7.7	-1.0	2.07	6926	2.31	24.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010321305-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010321305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010321305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS
010321305-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
010321305-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

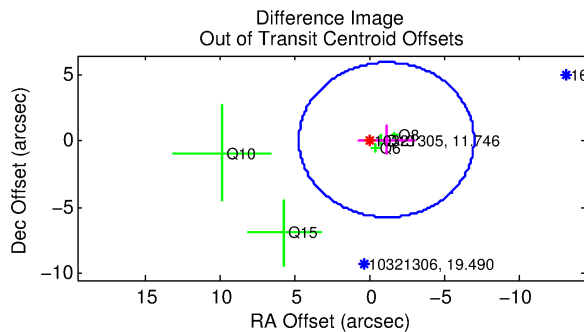
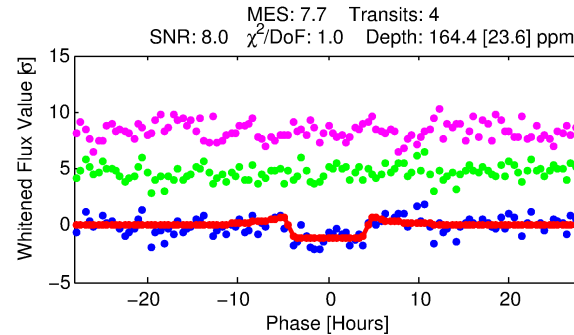
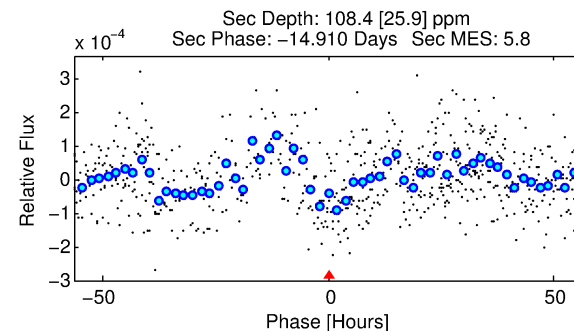
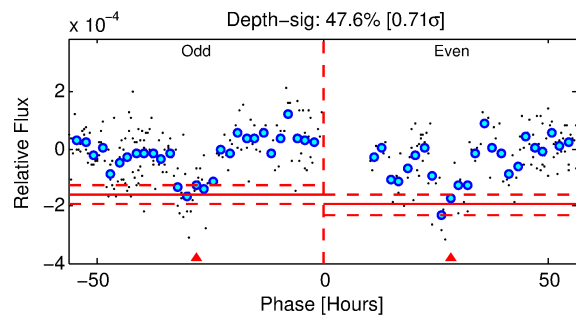
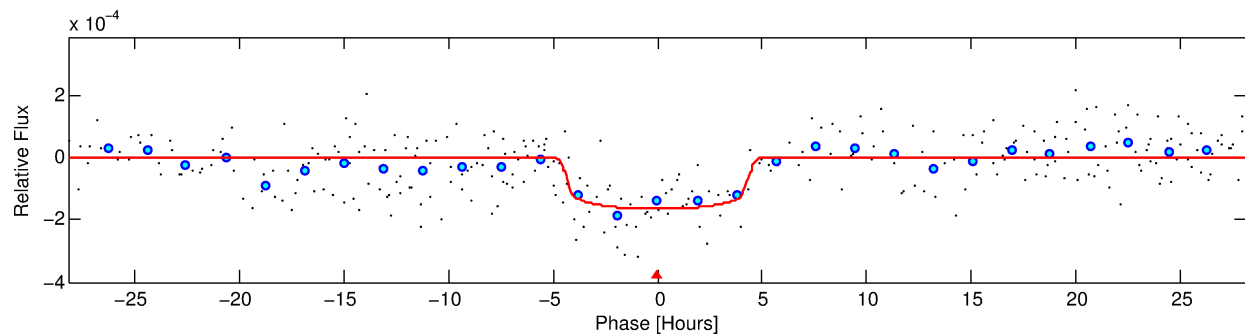
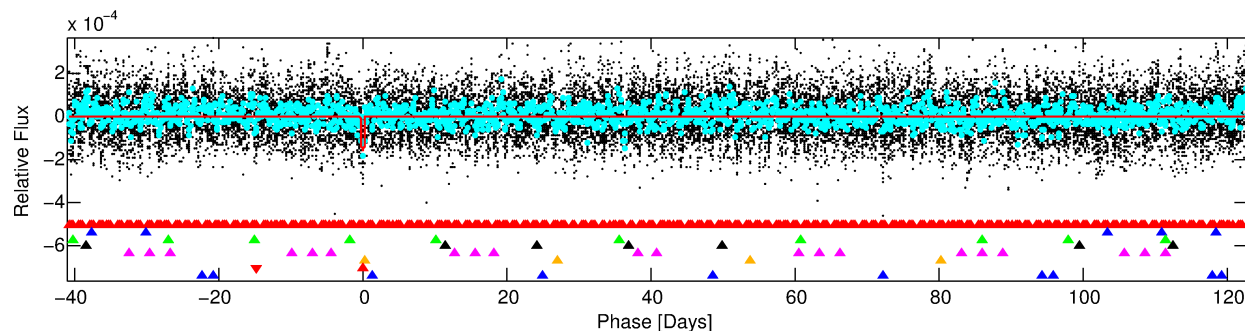
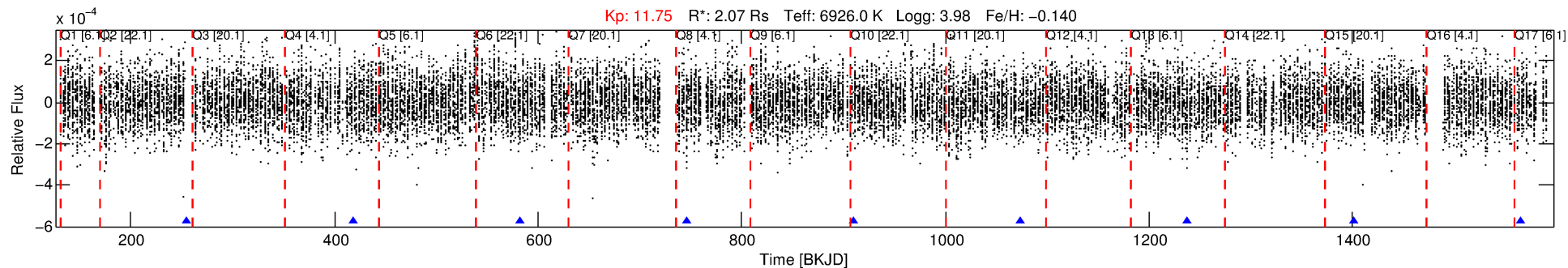
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010321305-07

No Significant Match Found

DV One-Page Summary

KIC: 10321305 Candidate: 7 of 8 Period: 163.655 d



DV Fit Results:

Period = 163.65494 [0.00489] d
Epoch = 255.0227 [0.0223] BKJD
Rp/R* = 0.0136 [0.0030]
a/R* = 62.58 [74.94]
b = 0.90 [0.26]
Seff = 19.75 [7.70]
Teq = 538 [52] K
Rp = 3.09 [1.08] Re
a = 0.6702 [0.1639] AU
Ag = 2815.44 [1747.29] [1.61 σ]
Teffp = 6054 [774] K [7.1 σ]

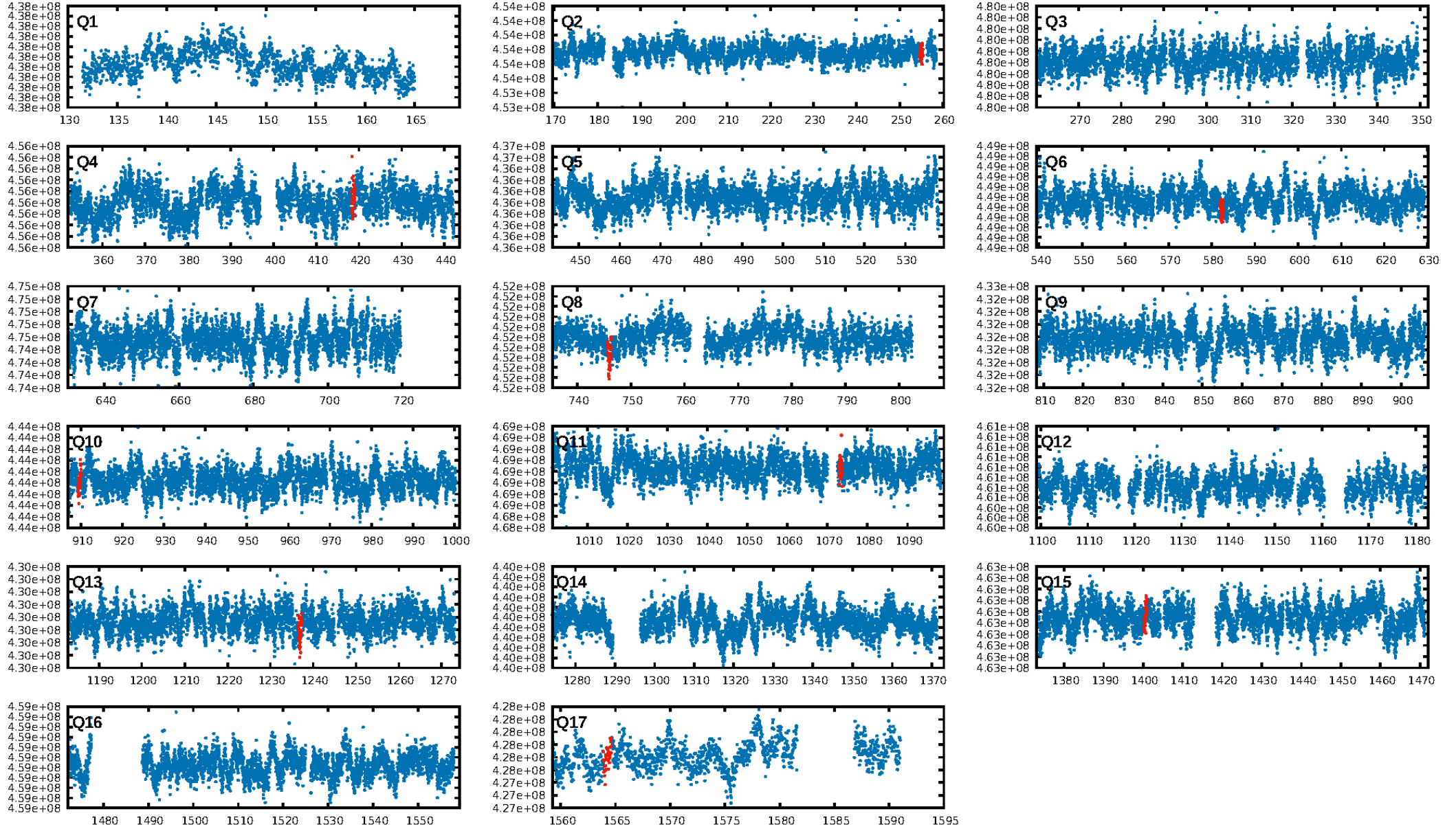
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [57.34 σ]
LongPeriod-sig: 100.0% [124.55 σ]
ModelChiSquare2-sig: 63.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.511
Centroid-sig: 0.2%
Centroid-so: 0.881 arcsec [1.88 σ]
OotOffset-rm: 1.180 arcsec [0.60 σ]
KicOffset-rm: 1.336 arcsec [0.61 σ]
OotOffset-st: 2/1/1/1 [5]
KicOffset-st: 2/1/1/1 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.43 [3/7]

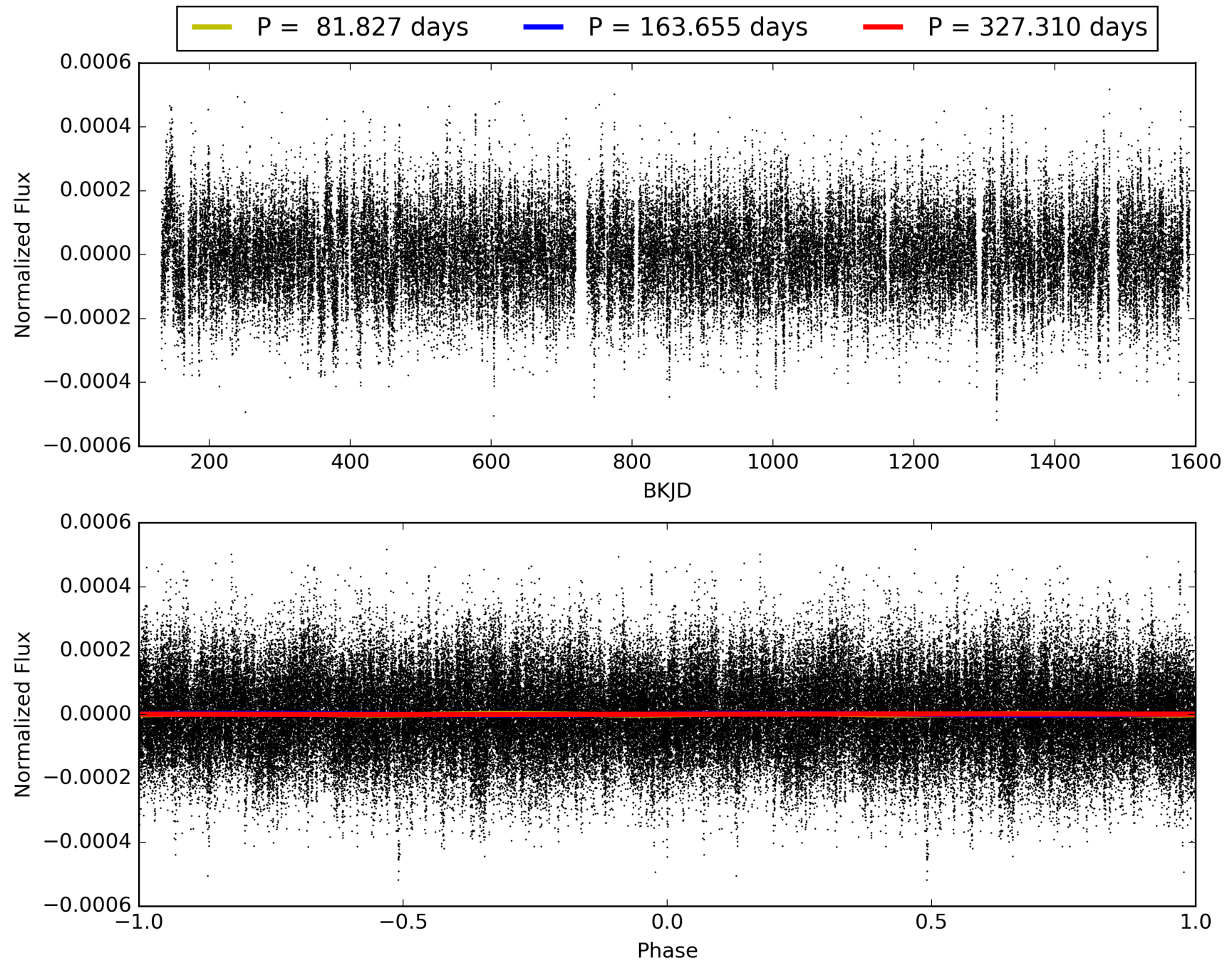
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:49:24 Z

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

TCE 010321305-07, PDC Light Curves

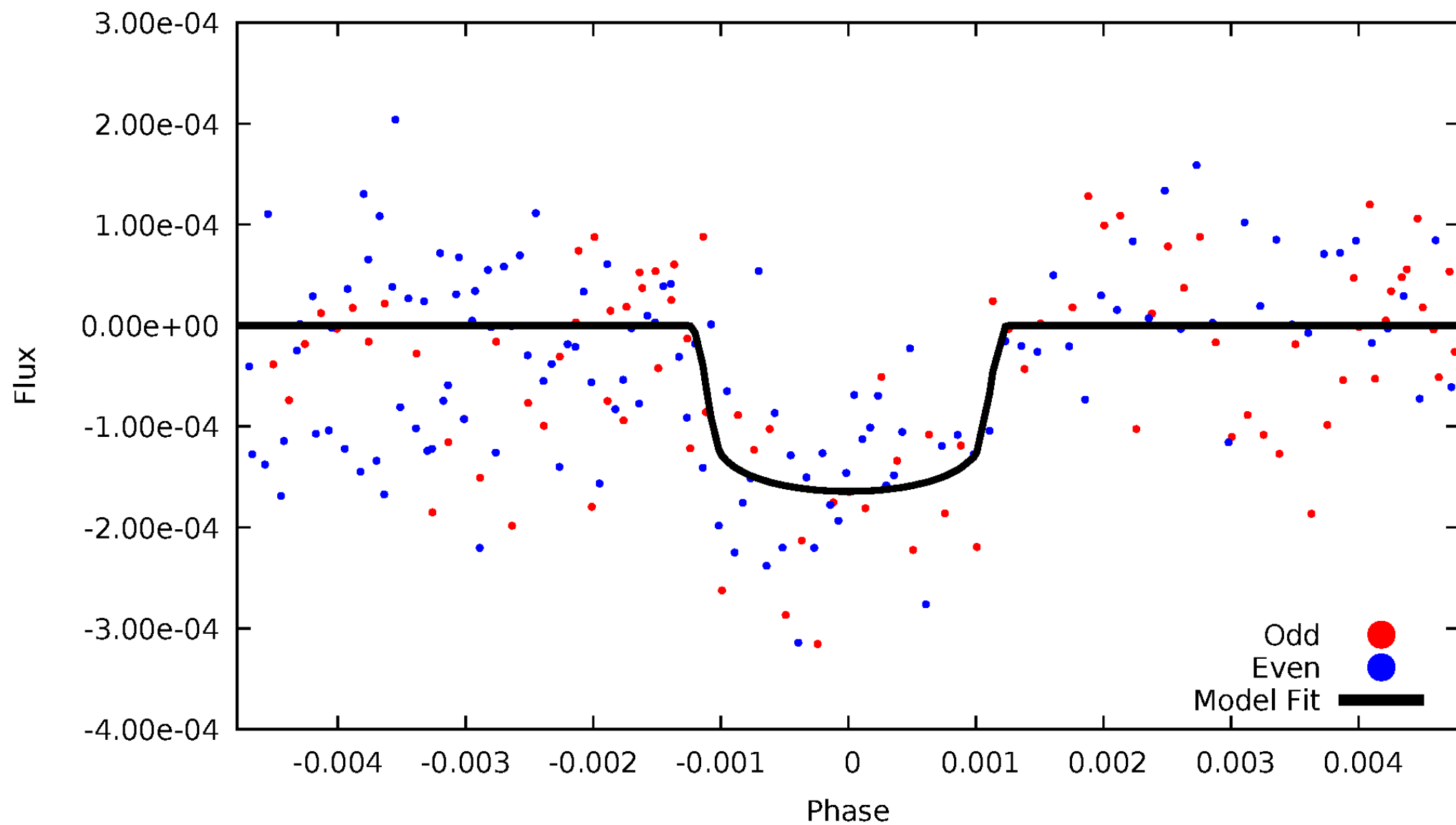


TCE 010321305-07



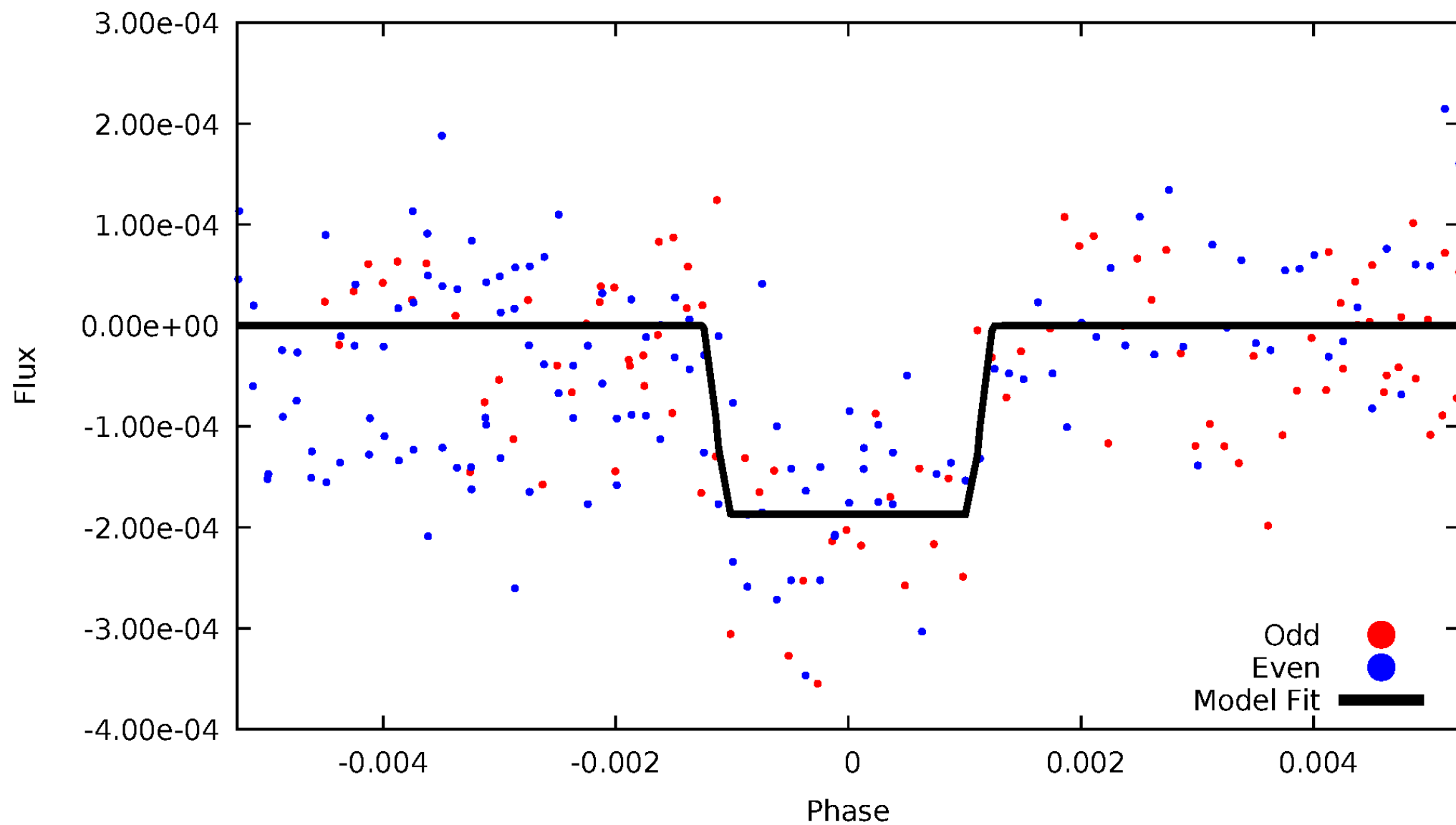
DV Odd/Even

TCE 010321305-07

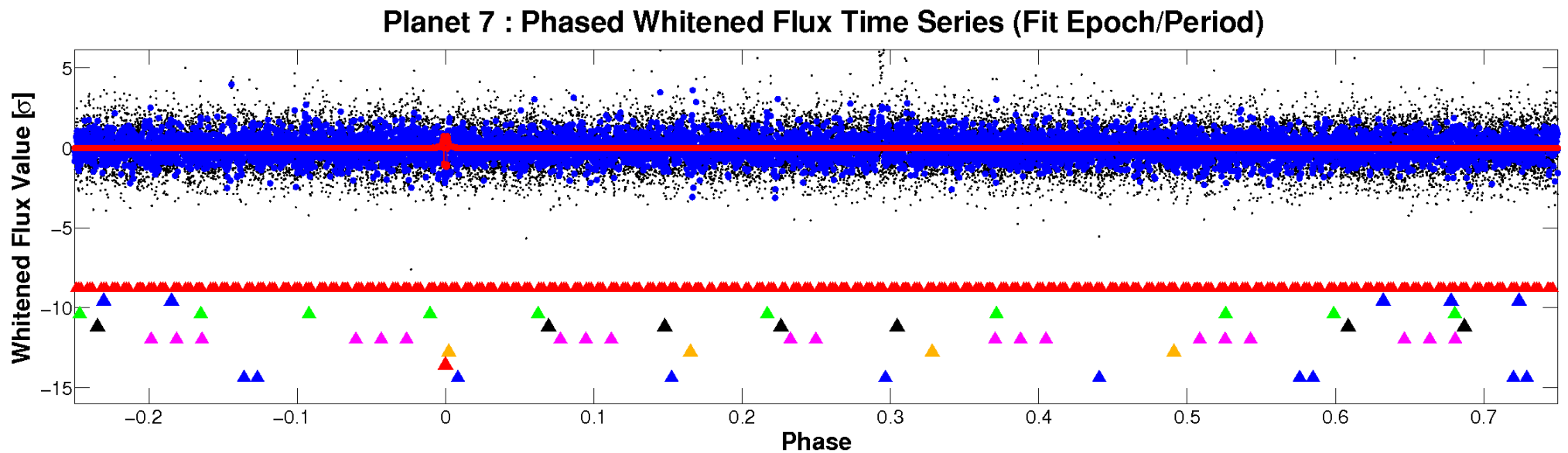
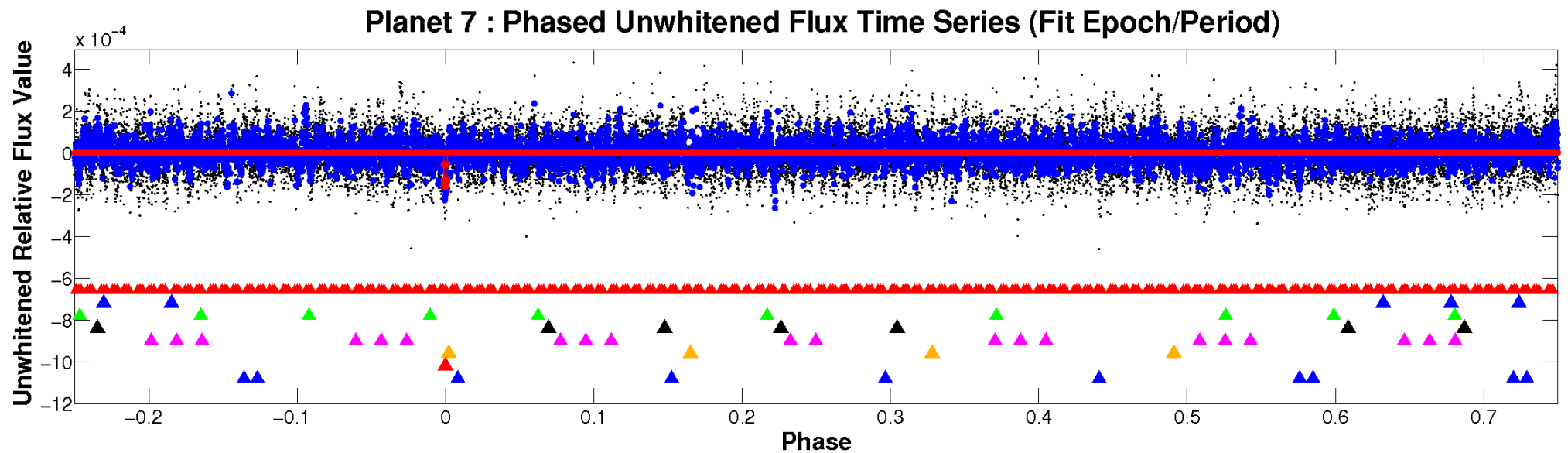


ALT Odd/Even

TCE 010321305-07

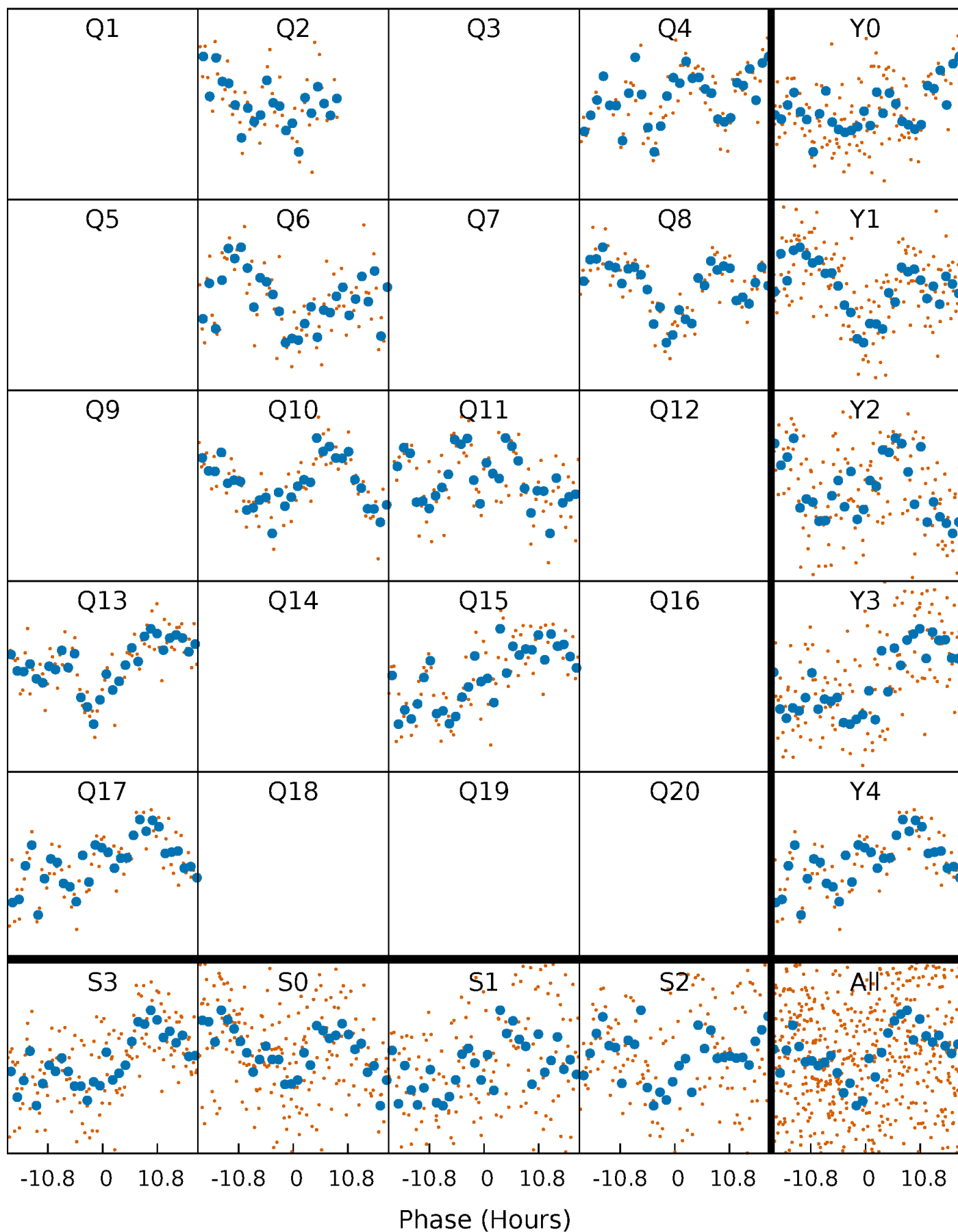


Non-Whitened Vs. Whitened Light Curve



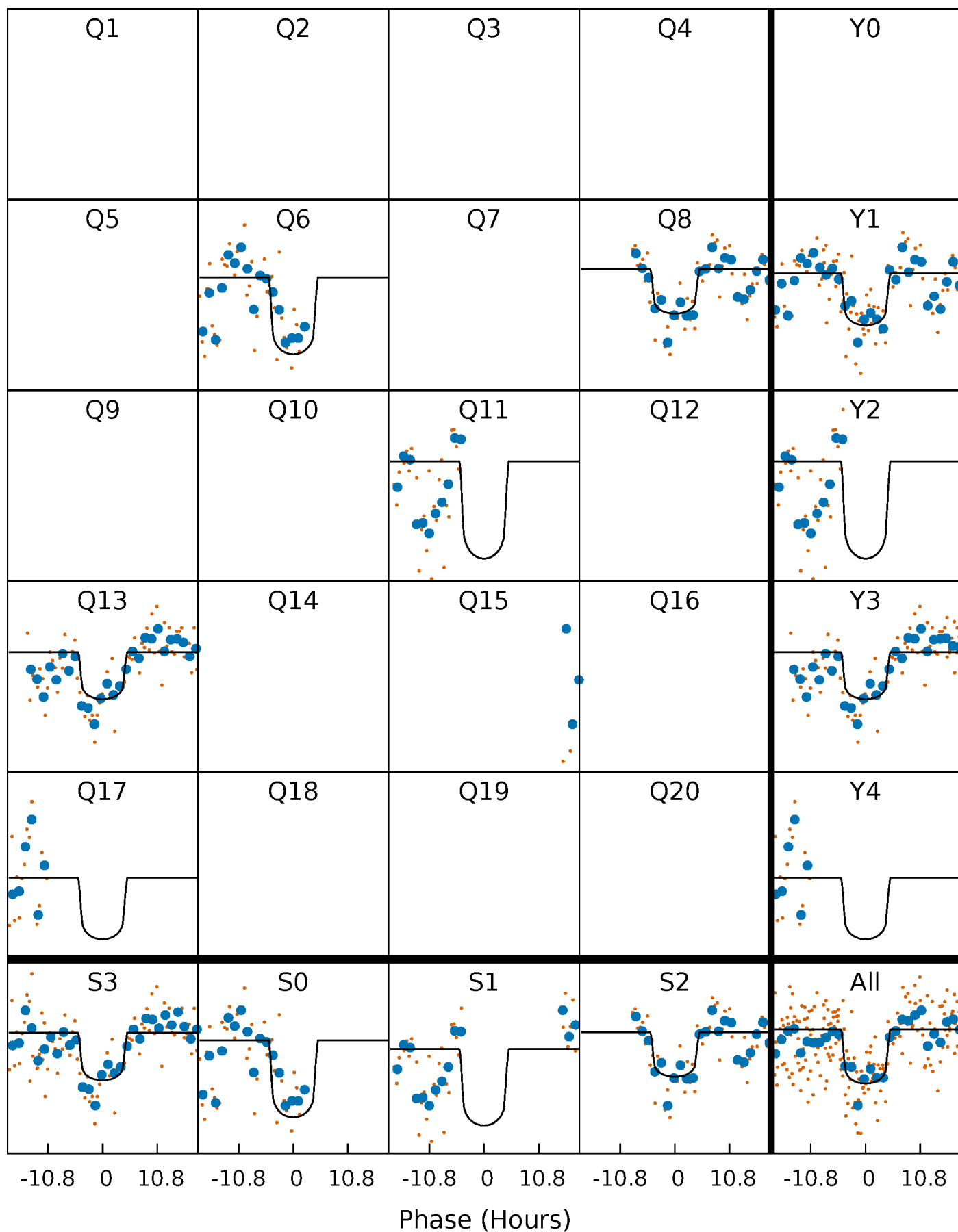
PDC Quarter-Phased Transit Curves

TCE 010321305-07 $P=163.654942$ Days $T_0=255.022721$ (BKJD)



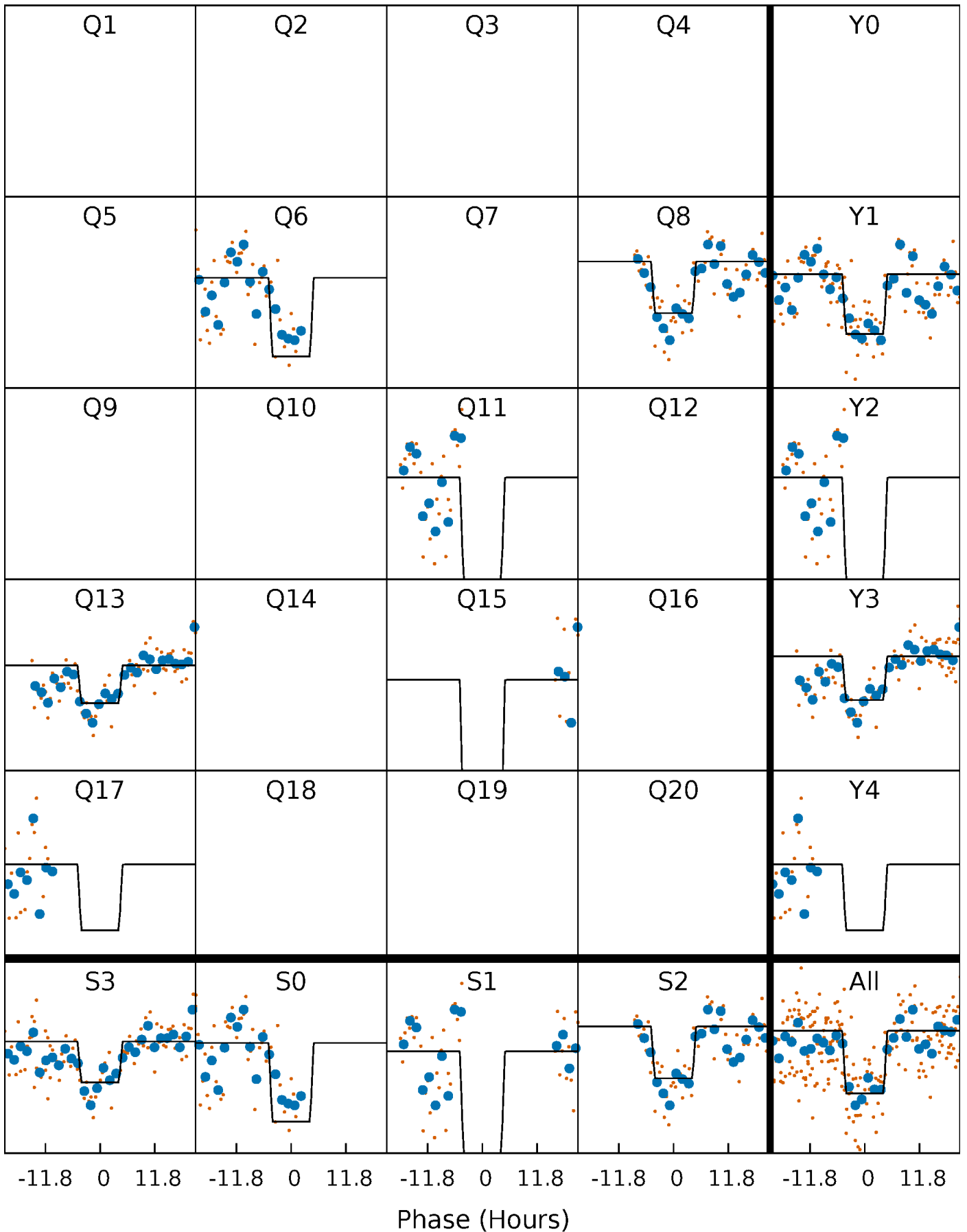
DV Quarter-Phased Transit Curves

TCE 010321305-07 $P=163.654942$ Days $T_0=255.022721$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

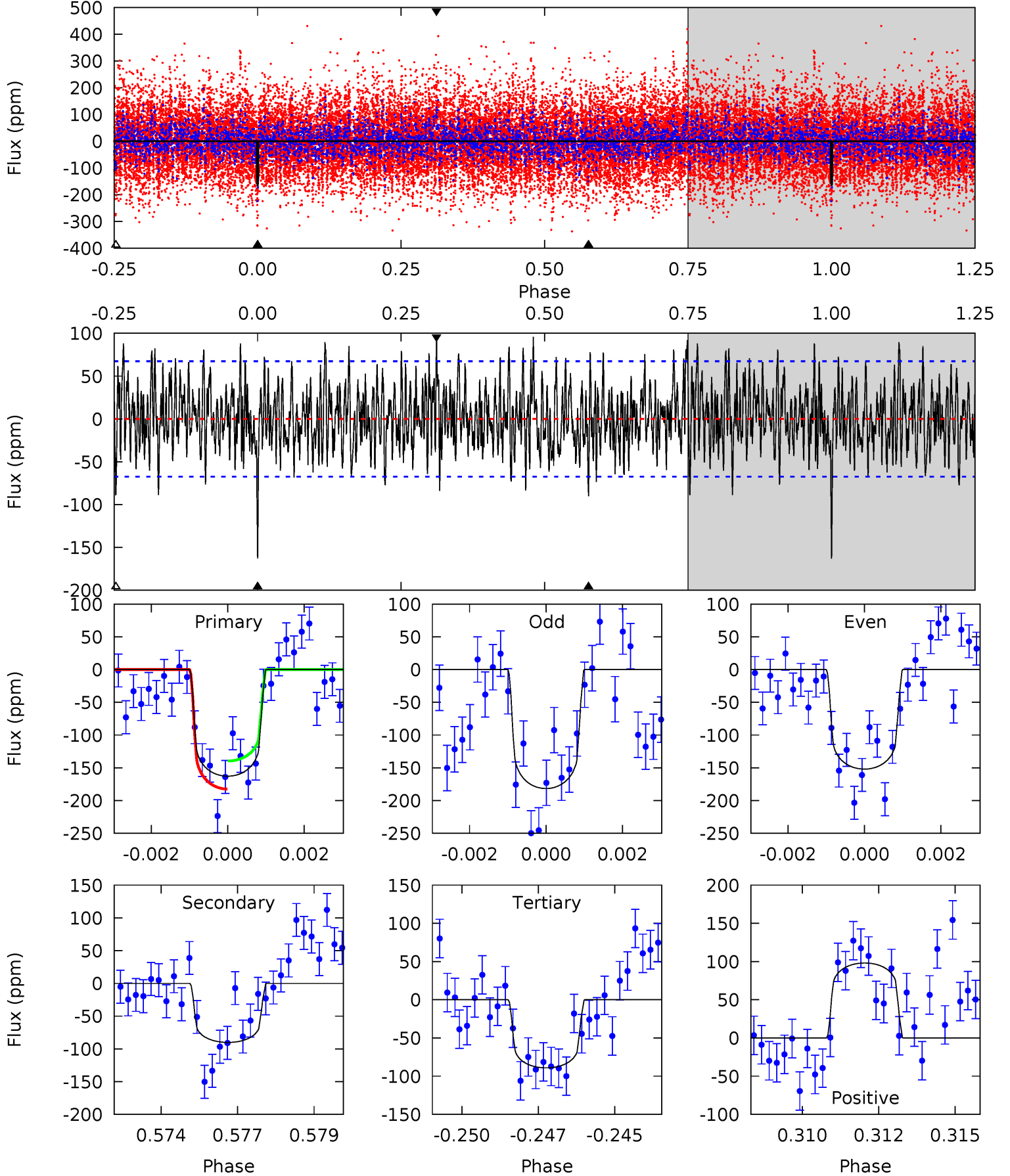
TCE 010321305-07 P=163.652382 Days $T_0=255.034106$ (BKJD)



DV Model-Shift Uniqueness Test

010321305-07, $P = 163.654942$ Days, $E = 91.367779$ Days

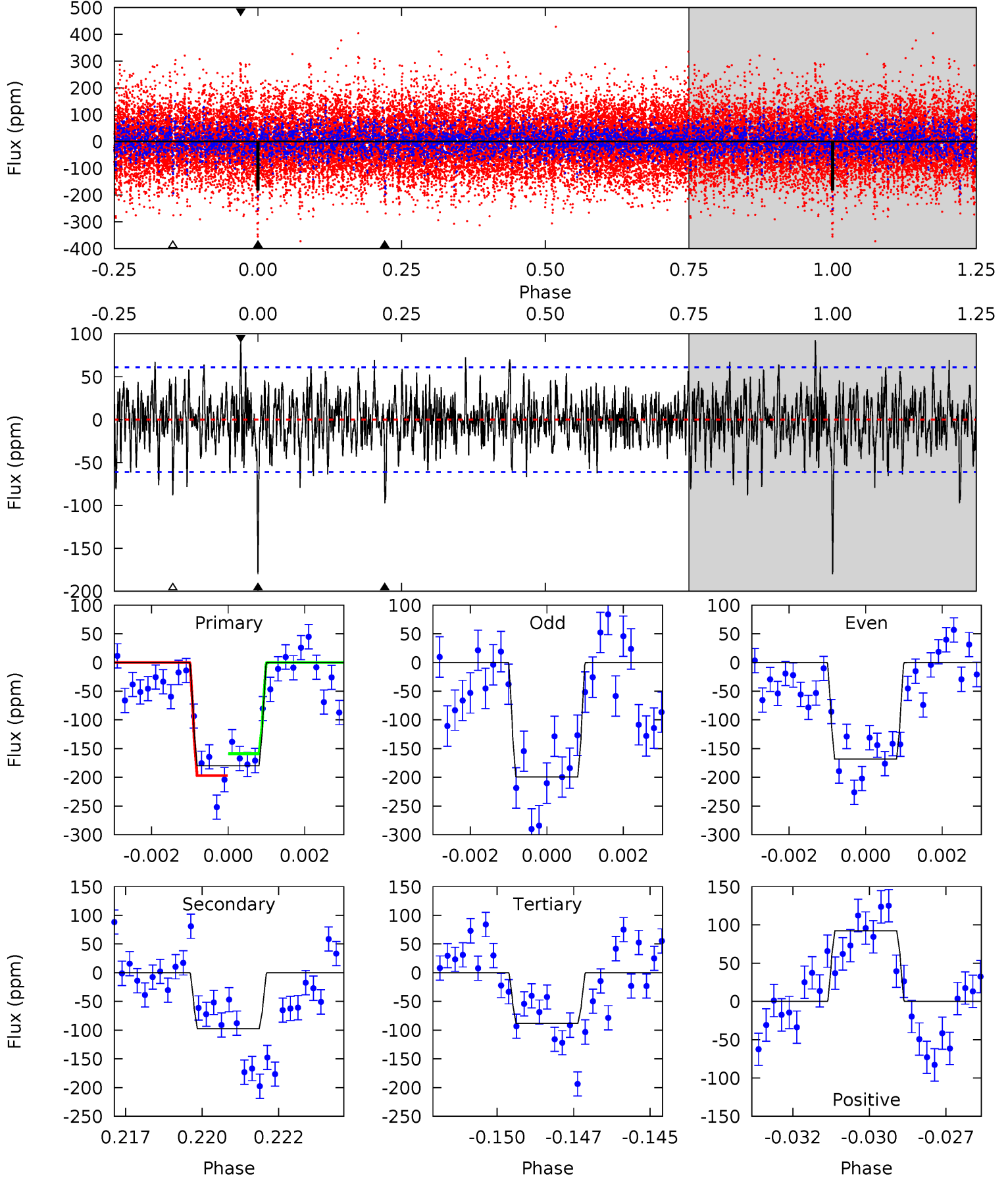
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	7.07	6.99	7.69	5.29	3.02	2.47	5.78	5.07	0.08	-0.63	1.13	0.87	0.38	1.67



Alt Model-Shift Uniqueness Test

010321305-07, P = 163.652382 Days, E = 91.381724 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.5	8.42	7.62	7.98	5.29	3.02	1.98	7.92	7.56	0.79	0.44	1.31	0.47	0.34	1.64



Stellar Parameters For KIC 010321305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+174}_{-208}	$3.980^{+0.210}_{-0.123}$	$-0.140^{+0.250}_{-0.300}$	$2.074^{+0.468}_{-0.572}$	$1.497^{+0.185}_{-0.246}$	$0.236^{+0.281}_{-0.086}$
	+3%/-3%	+5%/-3%	+179%/-214%	+23%/-28%	+12%/-16%	+119%/-37%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010321305-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-90 ± 13	$2.95^{+0.80}_{-0.68}$	742^{+44}_{-55}	5762^{+674}_{-528}	2539^{+1695}_{-962}
Alt.	-97 ± 12	$2.94^{+0.83}_{-0.68}$	740^{+49}_{-52}	5893^{+713}_{-614}	2754^{+2057}_{-1085}

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

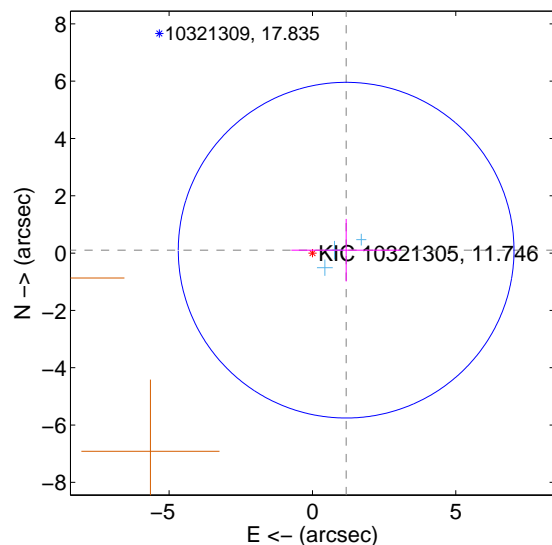
Supplemental centroid analysis for 010321305-07. **Kepler magnitude: 11.75.** Transit SNR 7.98

There are 3 quarters with good PRF difference image offsets

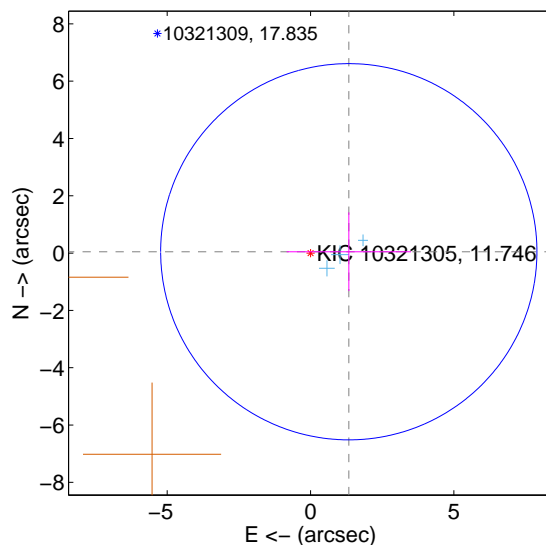
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.180 ± 1.952	0.60	-1.176 ± 1.913	0.102 ± 1.092
PRF-fit source offset from KIC position	1.336 ± 2.188	0.61	-1.335 ± 2.170	0.047 ± 1.372
photometric centroid source offset	0.88 ± 0.47	1.88	0.21 ± 0.59	0.86 ± 0.46

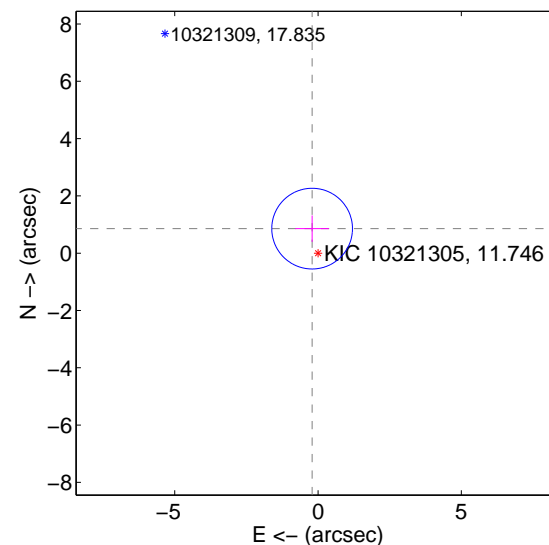
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

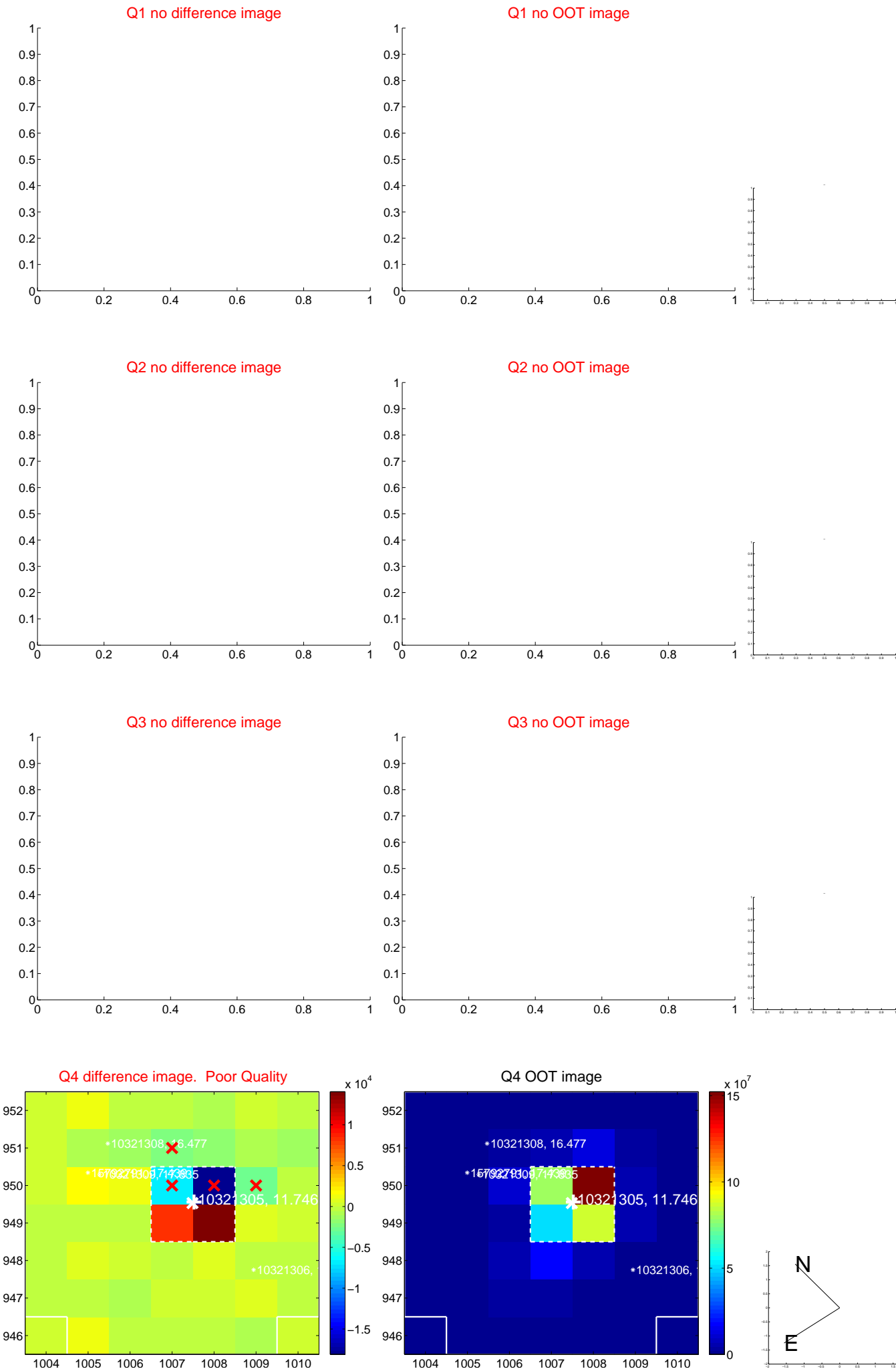


offset from photometric centroids

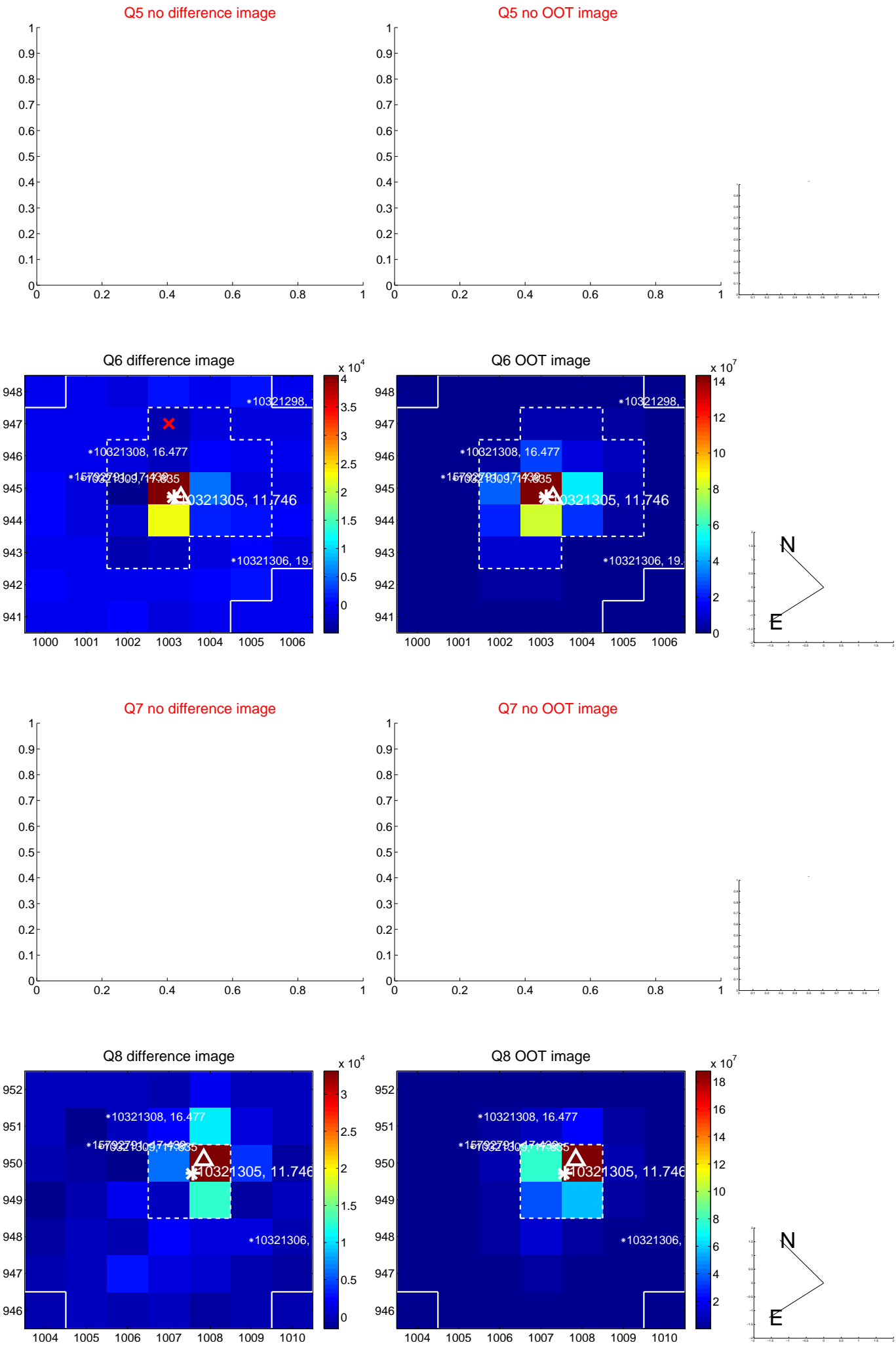


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

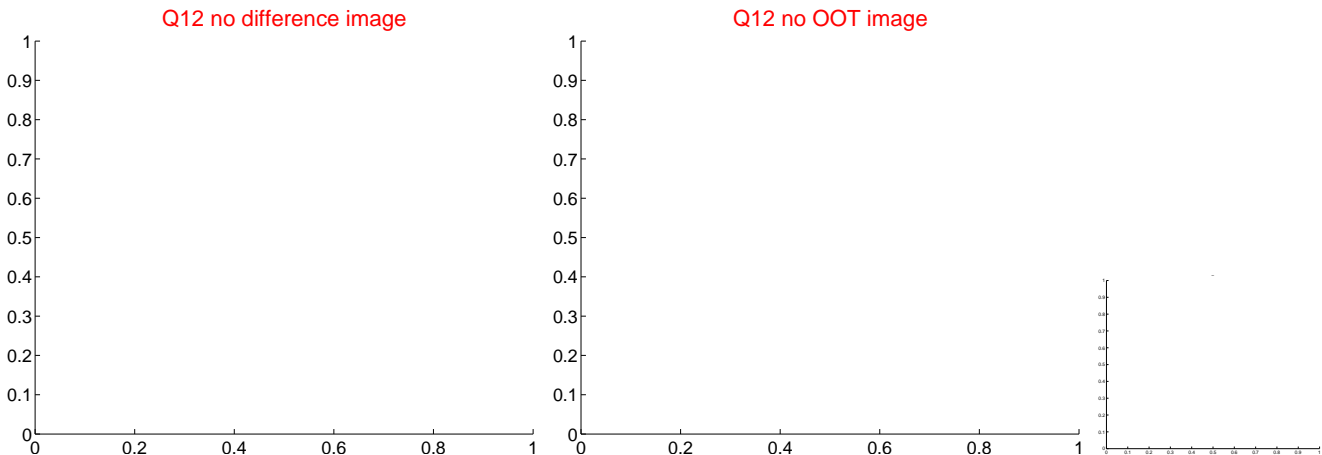
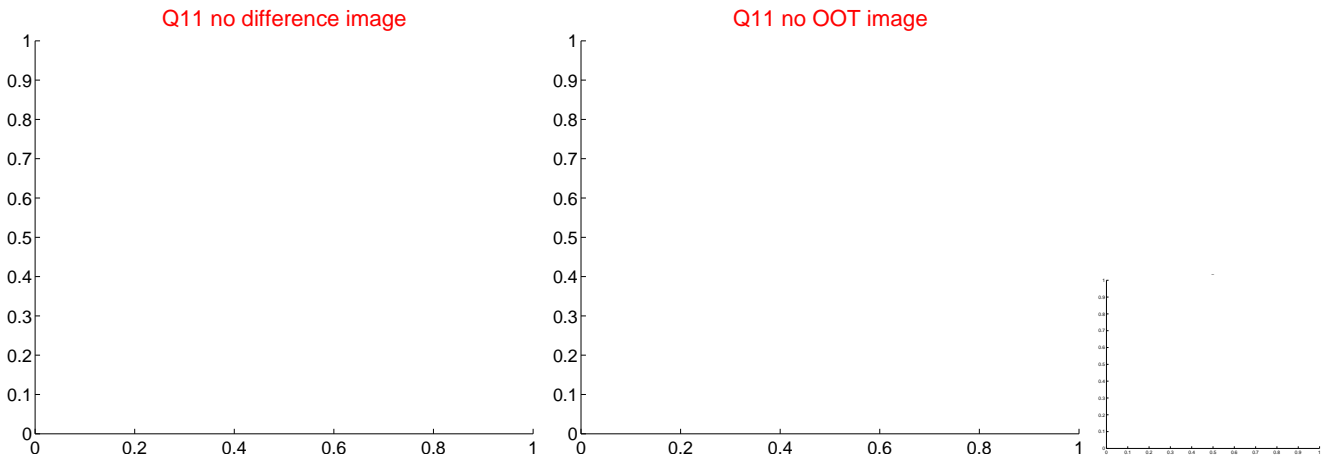
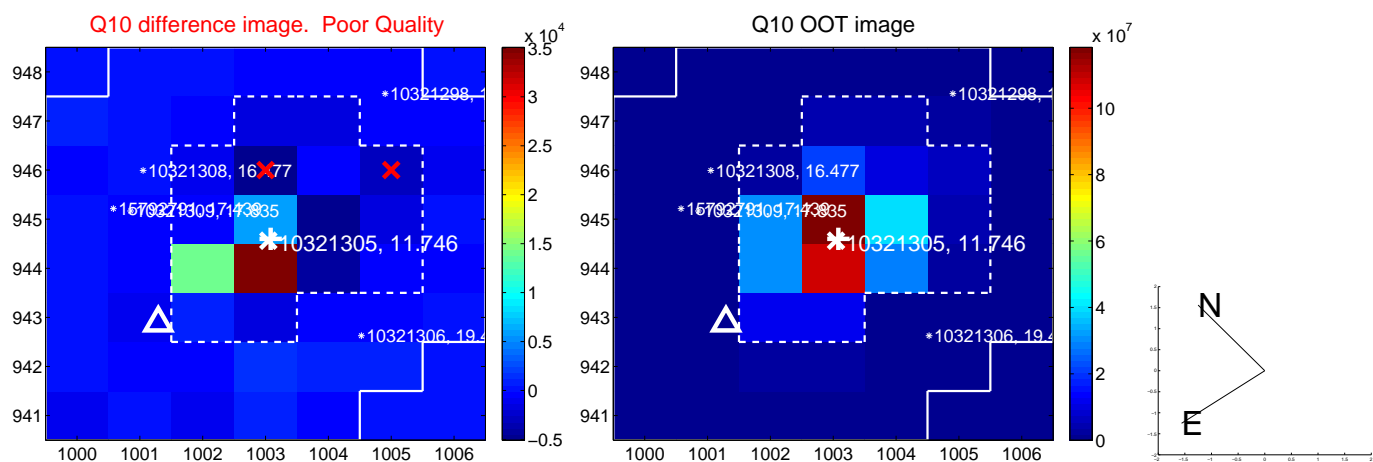
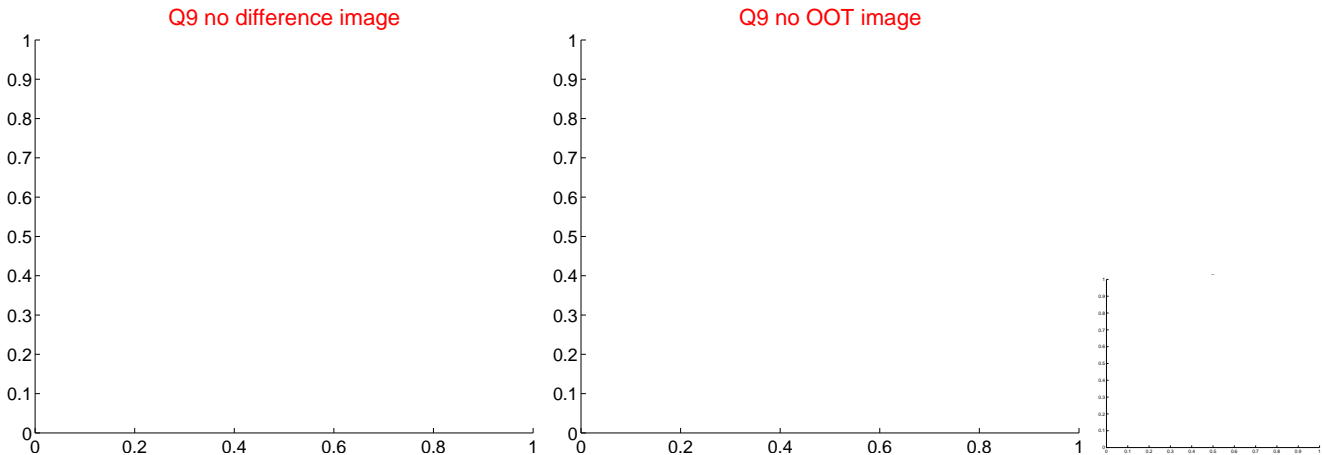
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



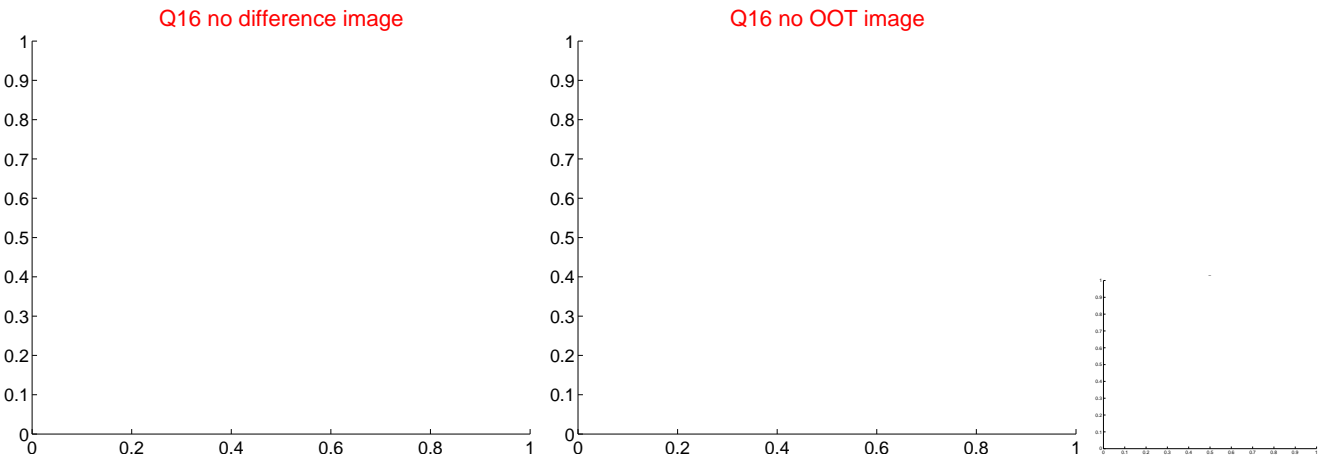
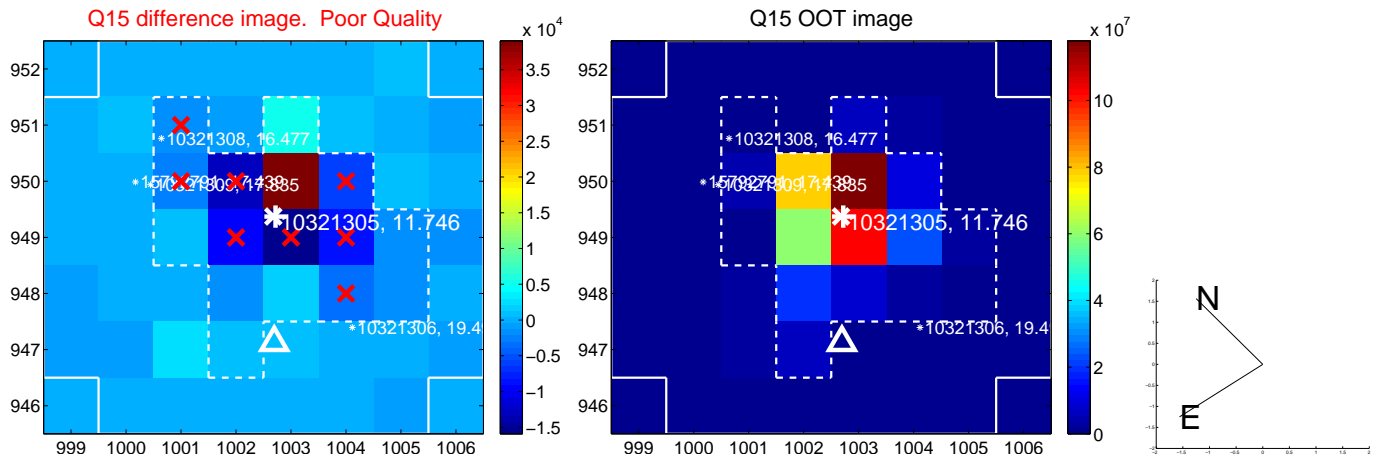
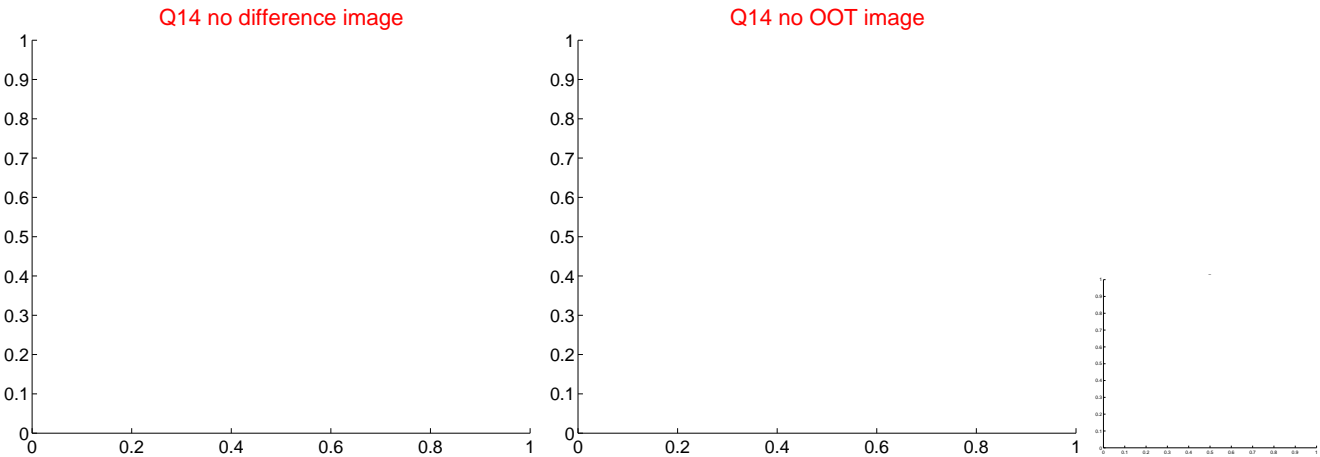
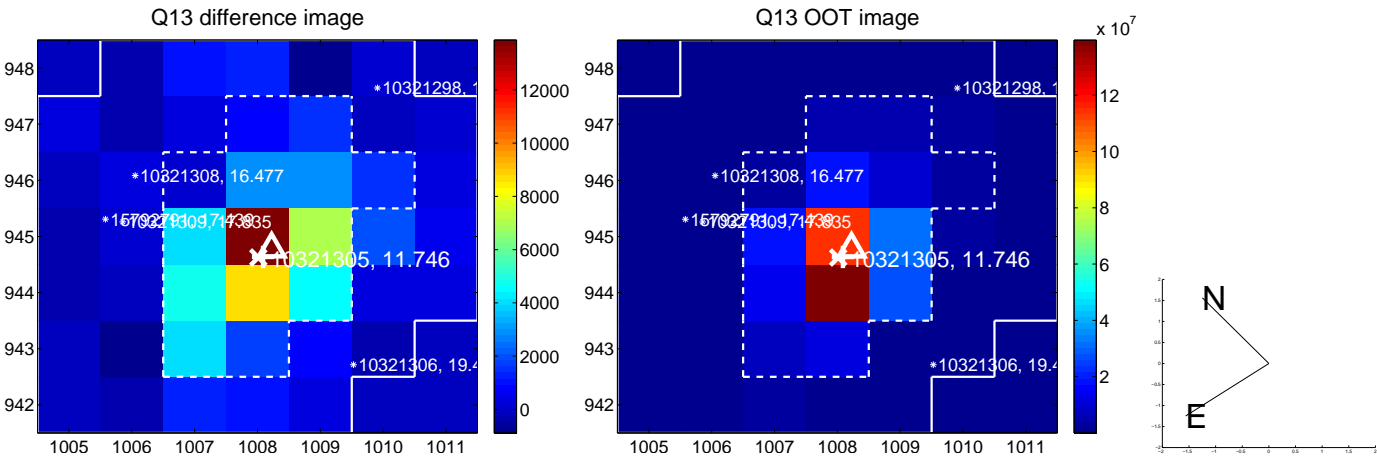
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



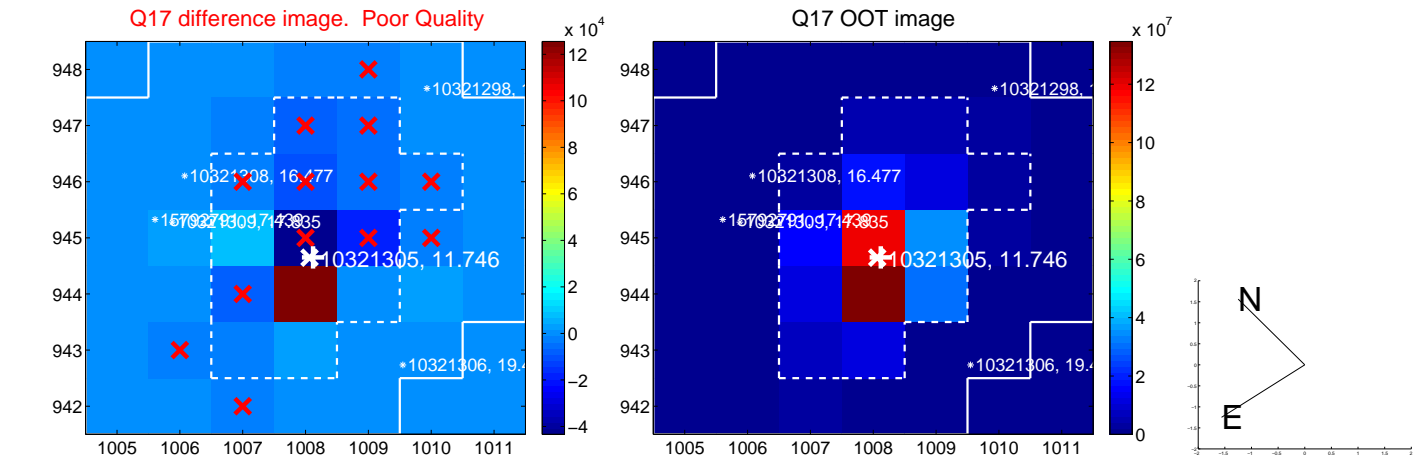
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



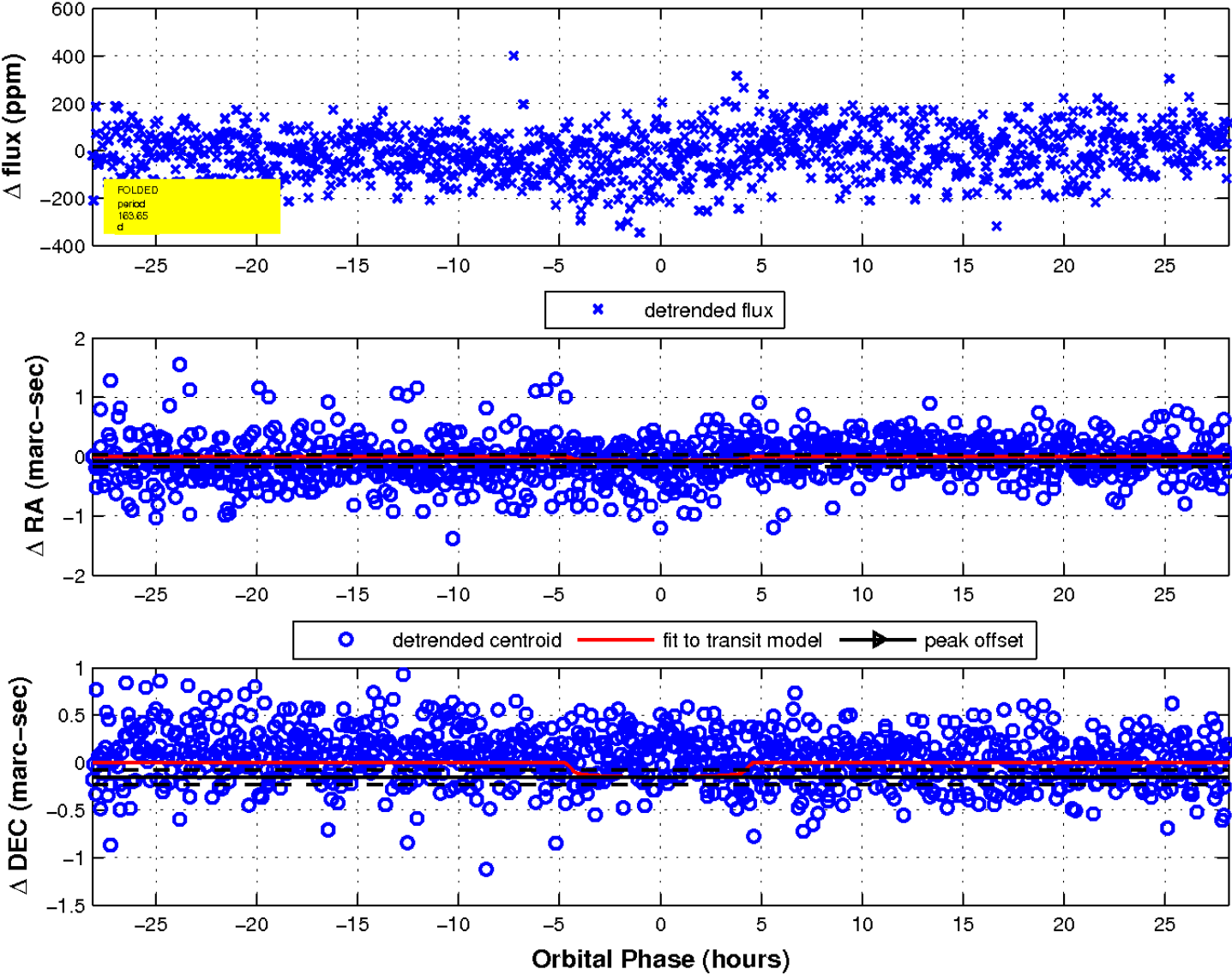
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

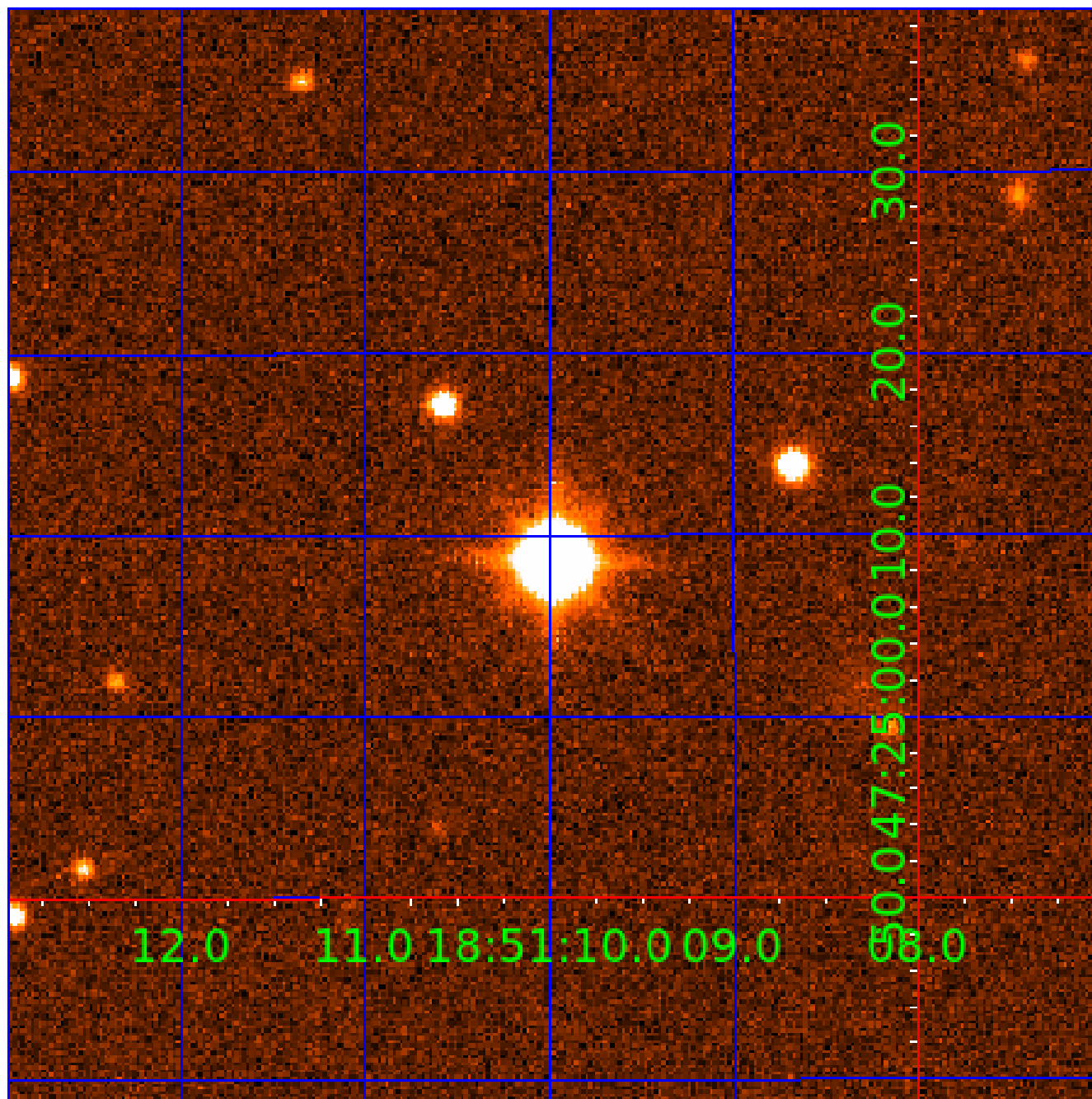


fluxWeightedCentroids, Planet 7 of 8



UKIRT Image

Declination



KIC 010321305

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})
010321305-01	OBS	No	4.022095	133.114482	15.6	18.521	7.7	5.3	2.07	6926	1.15	2763.29
010321305-02	OBS	No	334.798099	194.845598	114.2	5.794	16.8	4.8	2.07	6926	2.51	7.60
010321305-03	OBS	No	138.366923	253.316317	143.4	7.076	9.7	5.9	2.07	6926	2.78	24.70
010321305-05	OBS	No	70.538112	197.172726	108.8	12.252	8.4	7.9	2.07	6926	2.86	60.65
010321305-06	OBS	No	353.981134	255.385488	160.1	25.138	8.2	7.3	2.07	6926	2.73	7.06
010321305-07	OBS	No	163.654942	255.022721	164.4	9.407	7.7	8.0	2.07	6926	3.08	19.75
010321305-08	OBS	No	140.064547	234.275802	121.5	3.000	7.7	-1.0	2.07	6926	2.31	24.30

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010321305-01	OBS	FP	0.00	1	0	0	0	LPP_DV
010321305-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
010321305-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_FEW_DIFFS
010321305-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
010321305-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
010321305-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

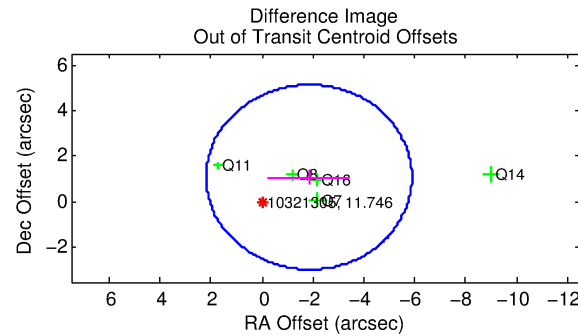
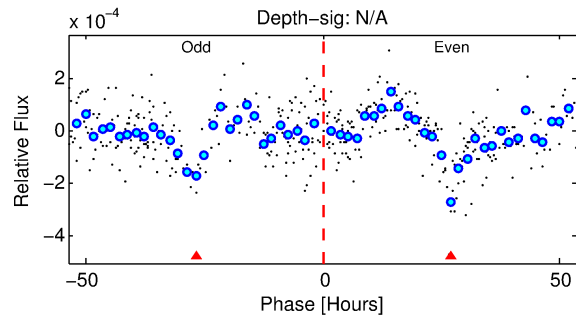
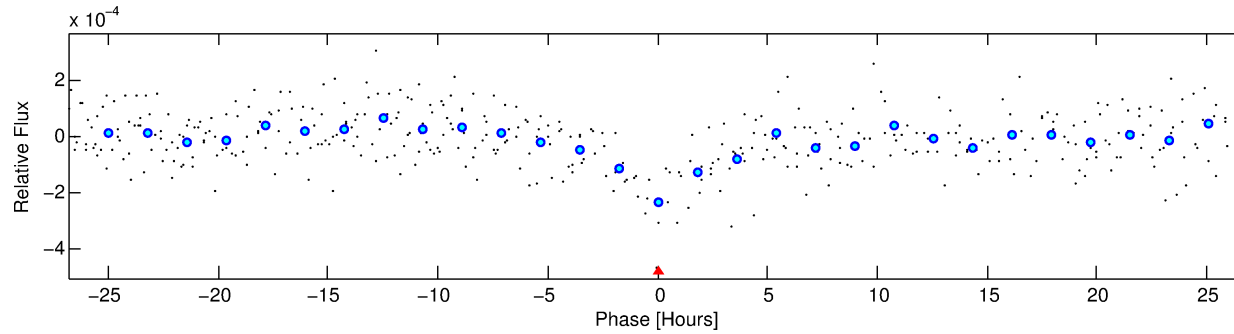
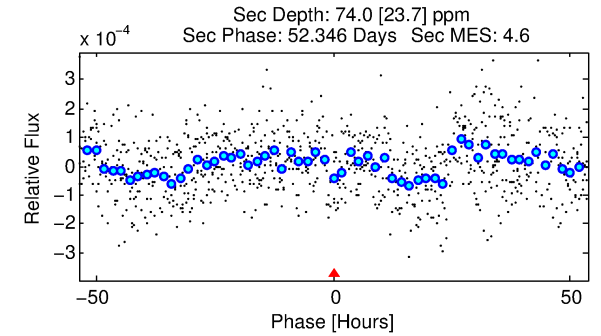
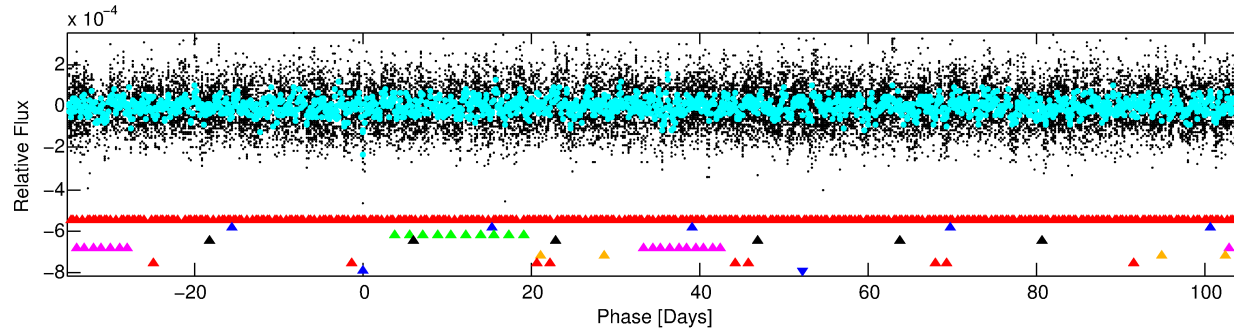
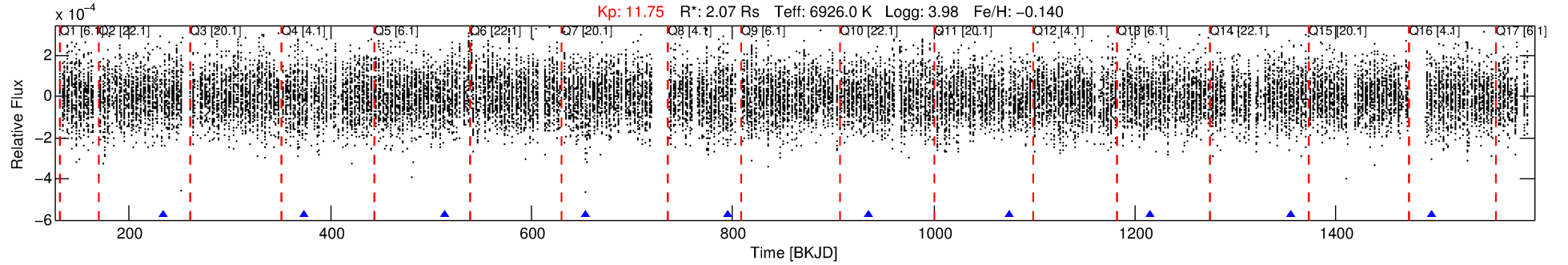
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 010321305-08

No Significant Match Found

DV One-Page Summary

KIC: 10321305 Candidate: 8 of 8 Period: 140.065 d



TPS TCE Results:

Period = 140.06455 d
Epoch = 234.2758 BKJD

DV fit results are unavailable

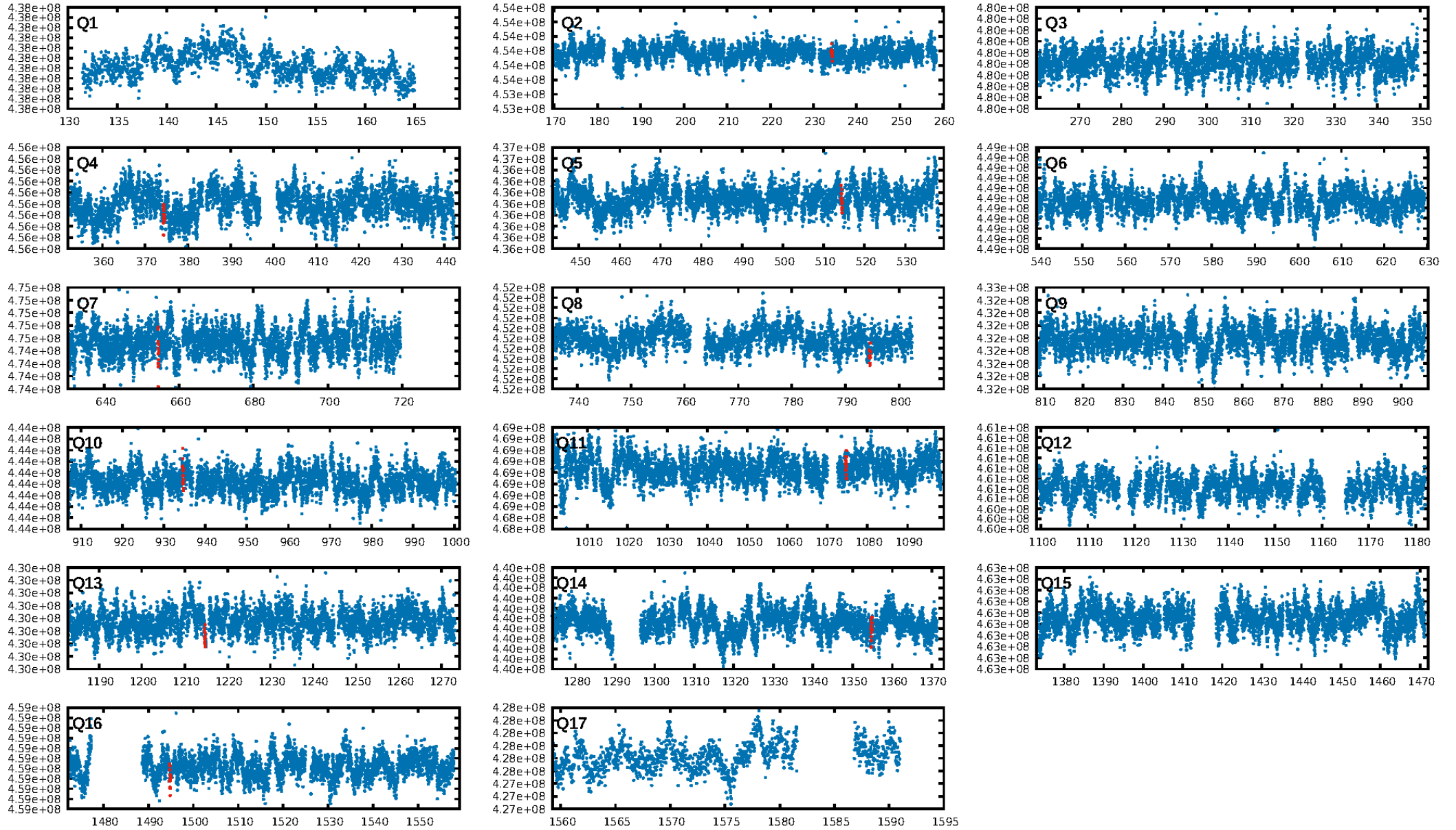
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.30 σ]
LongPeriod-sig: 100.0% [57.34 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.4696
Centroid-sig: 21.0%
Centroid-so: 0.467 arcsec [1.09 σ]
OotOffset-rm: 2.148 arcsec [1.59 σ]
OotOffset-st: 1/2/2/0 [5]
KicOffset-rm: 2.219 arcsec [1.85 σ]
KicOffset-st: 1/2/2/0 [5]
DiffImageQuality-fgm: 0.60 [3/5]
DiffImageOverlap-fno: 0.44 [4/9]

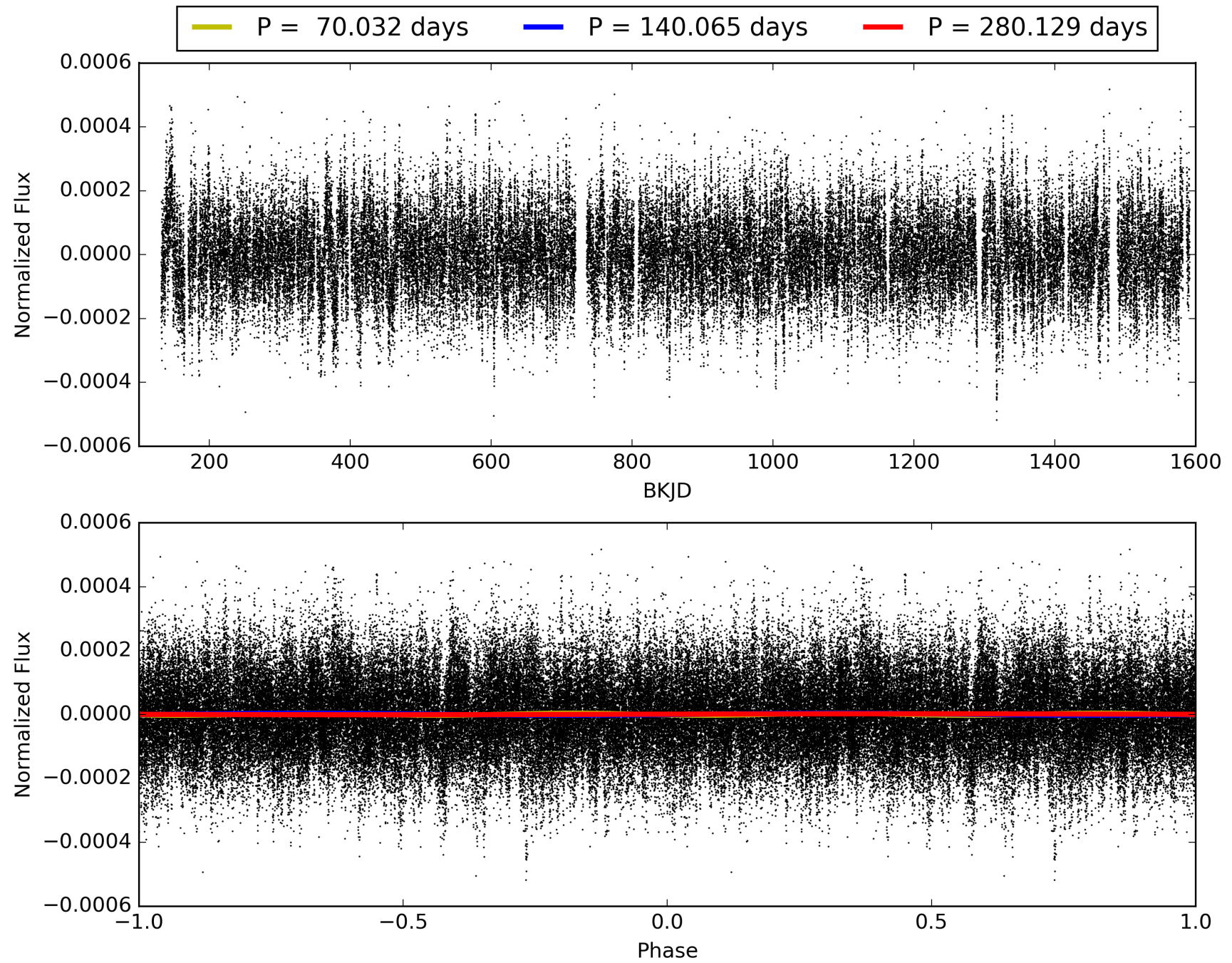
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:49:29 Z

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

TCE 010321305-08, PDC Light Curves

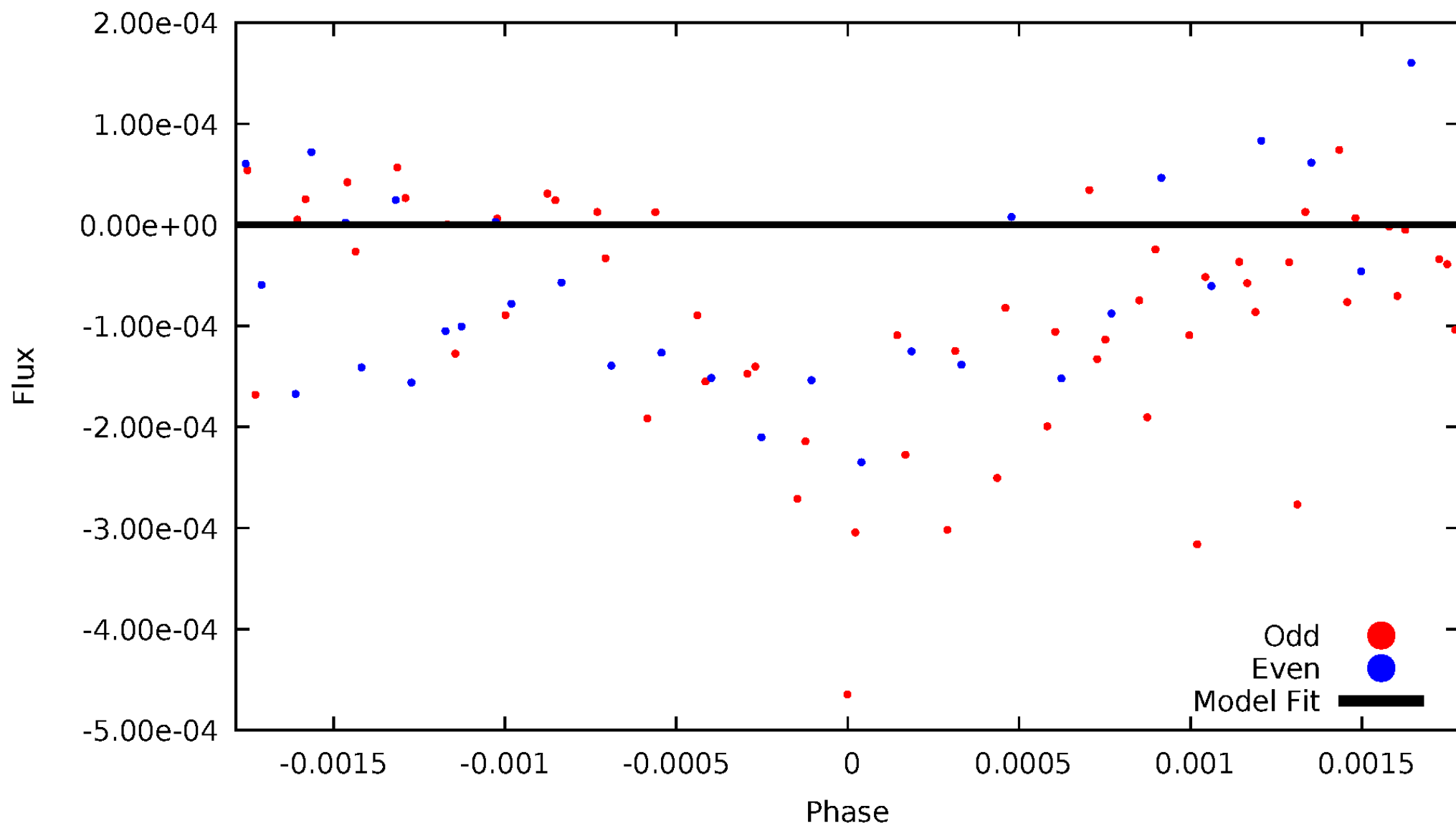


TCE 010321305-08



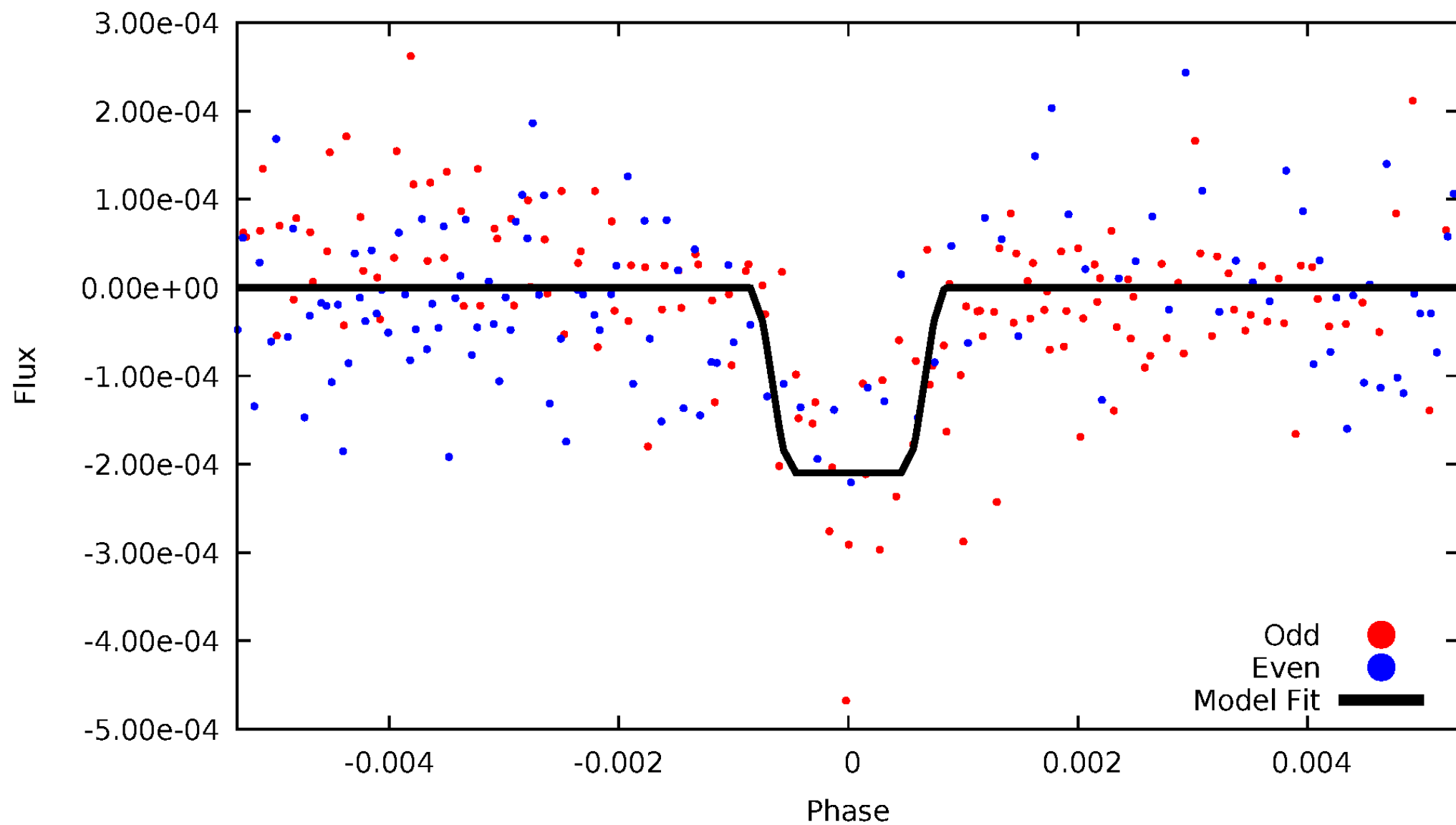
DV Odd/Even

TCE 010321305-08



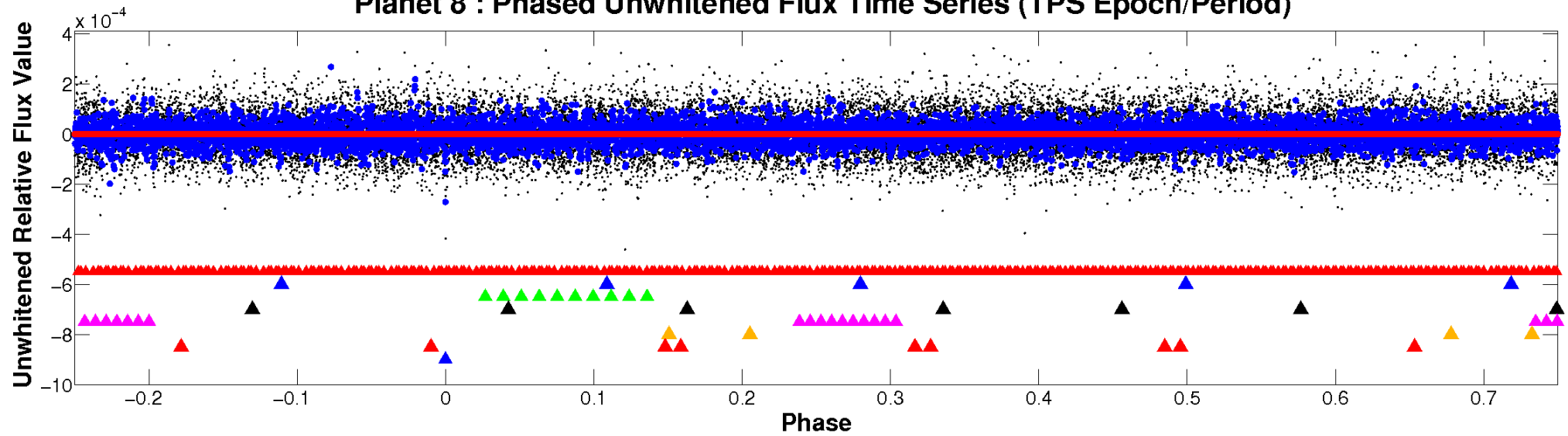
ALT Odd/Even

TCE 010321305-08

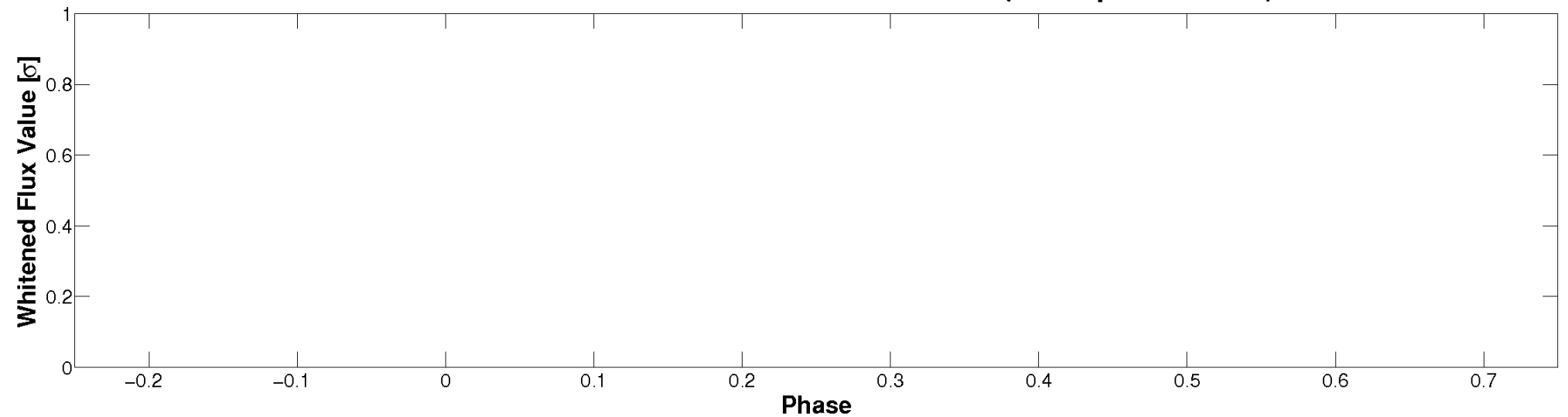


Non-Whitened Vs. Whitened Light Curve

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

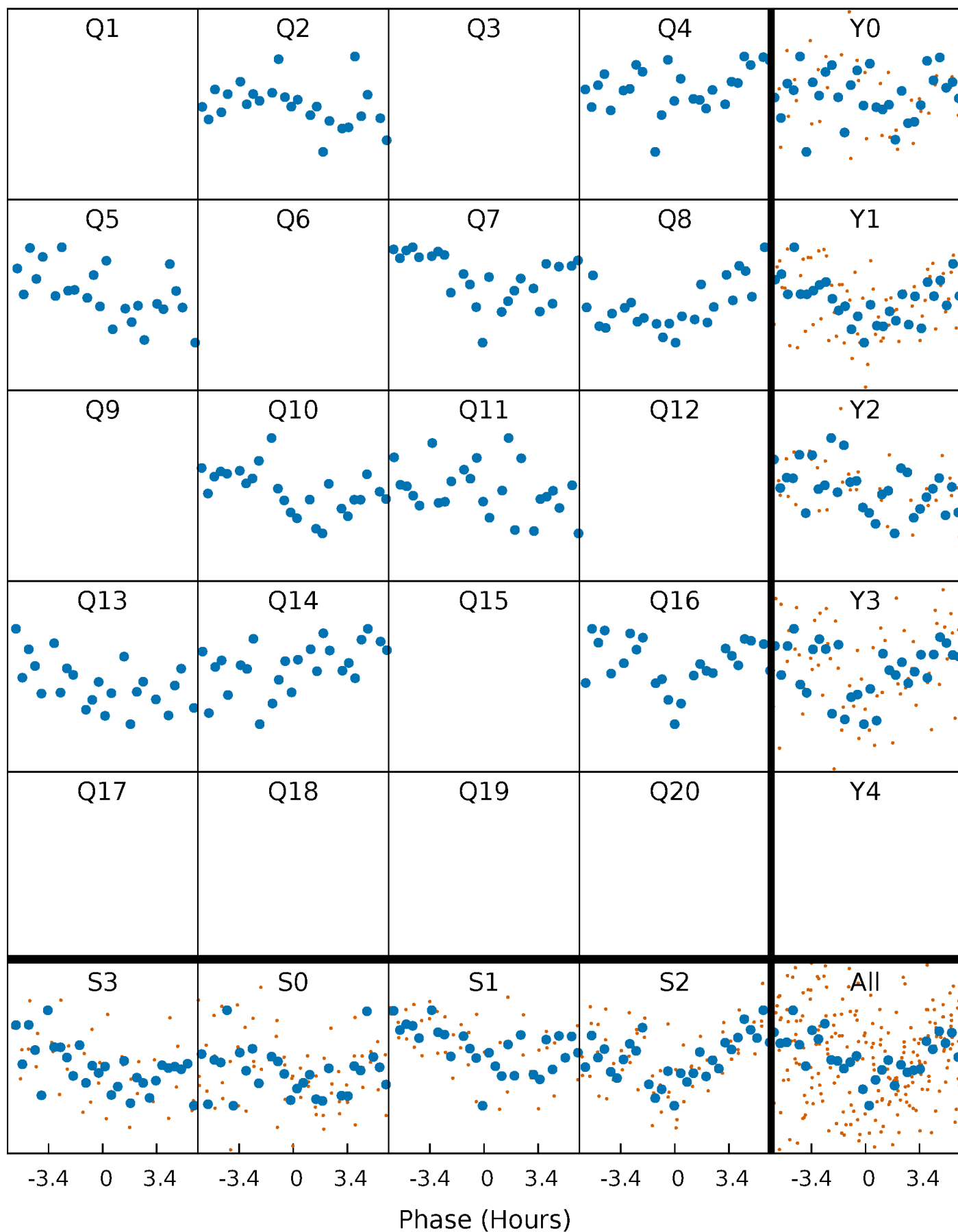


Planet 8 : Phased Whitened Flux Time Series (TPS Epoch/Period)



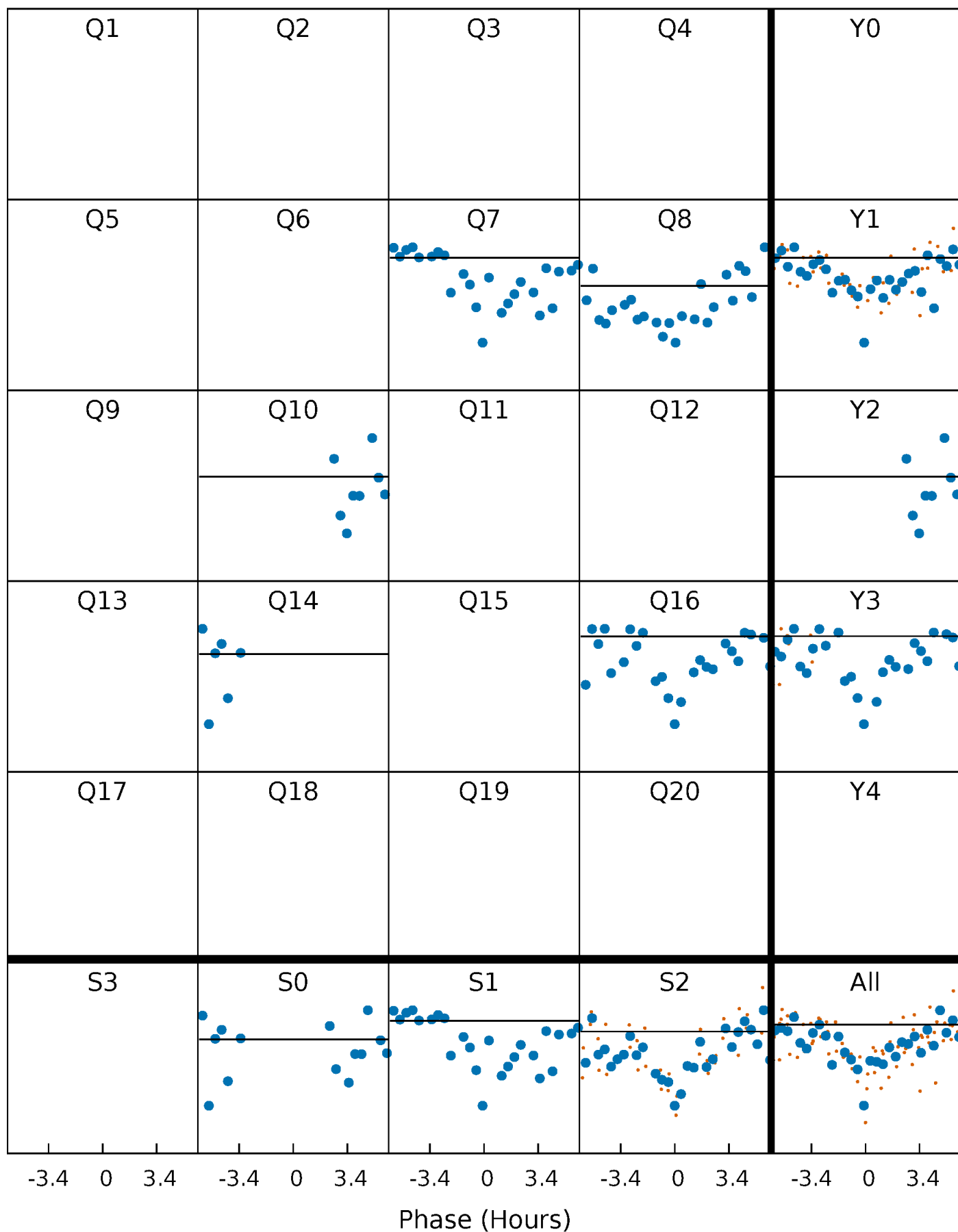
PDC Quarter-Phased Transit Curves

TCE 010321305-08 P=140.064547 Days $T_0=234.275802$ (BKJD)



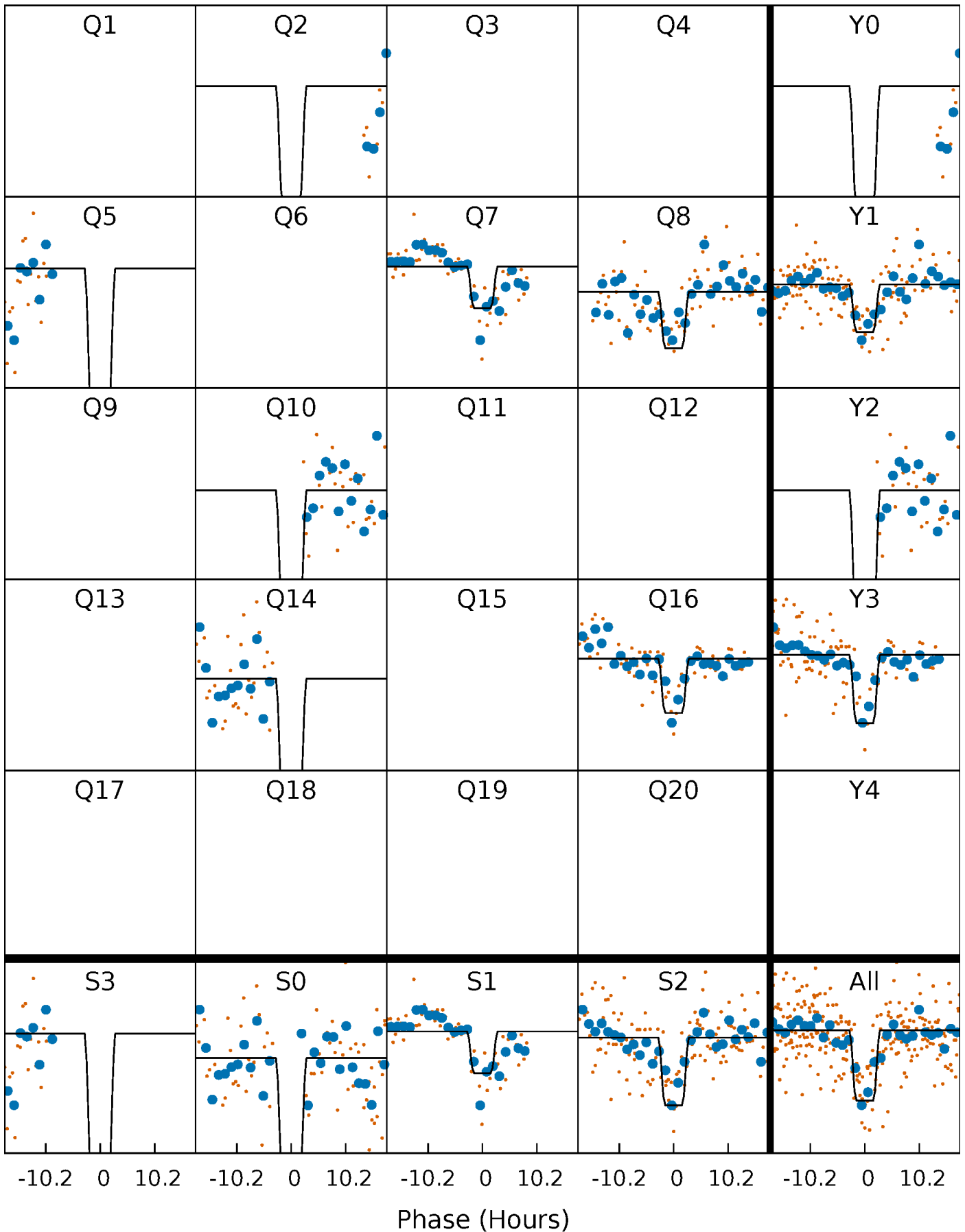
DV Quarter-Phased Transit Curves

TCE 010321305-08 P=140.064547 Days $T_0=234.275802$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

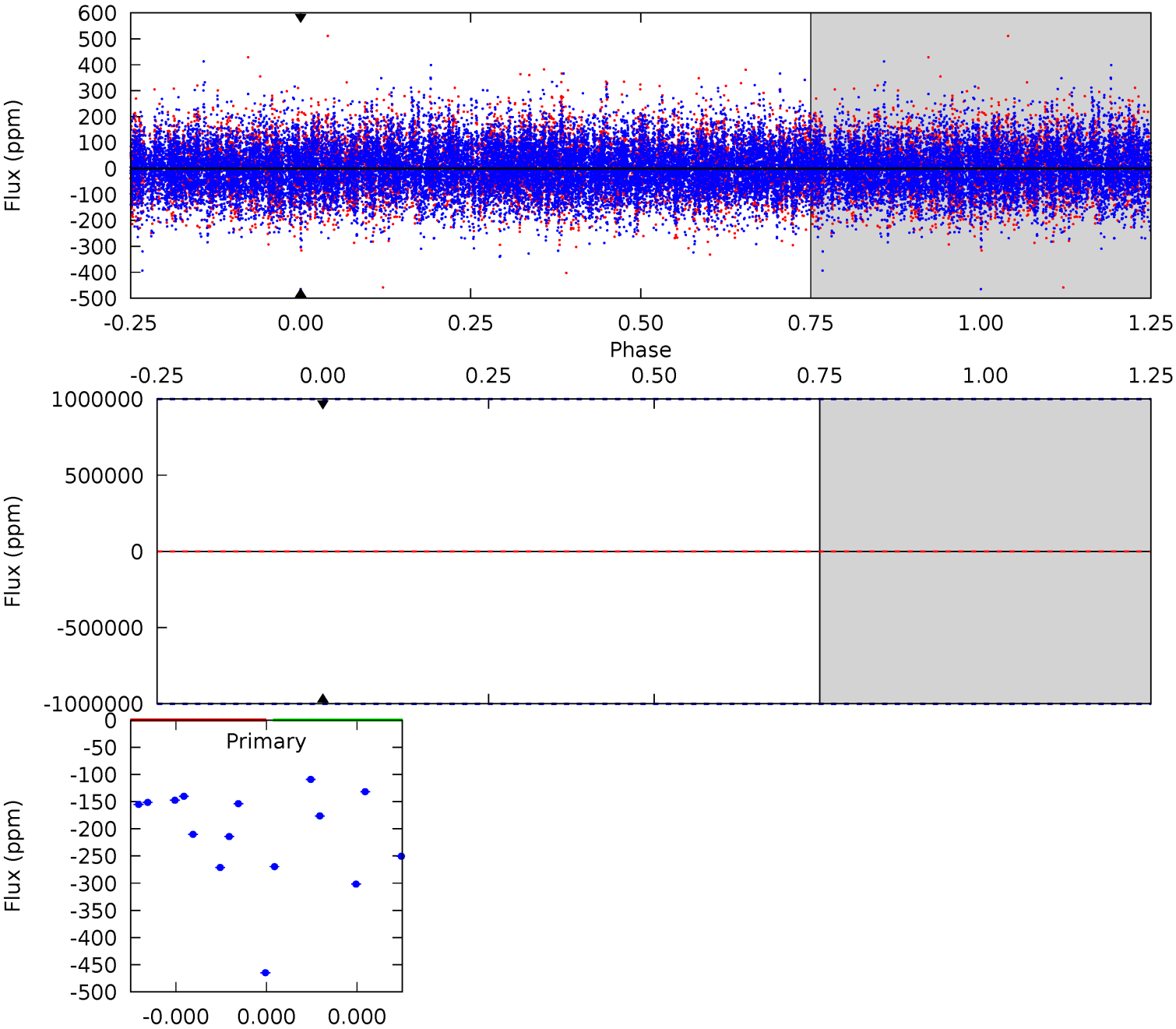
TCE 010321305-08 P=140.064547 Days $T_0=234.278347$ (BKJD)



DV Model-Shift Uniqueness Test

010321305-08, P = 140.064547 Days, E = 94.211255 Days

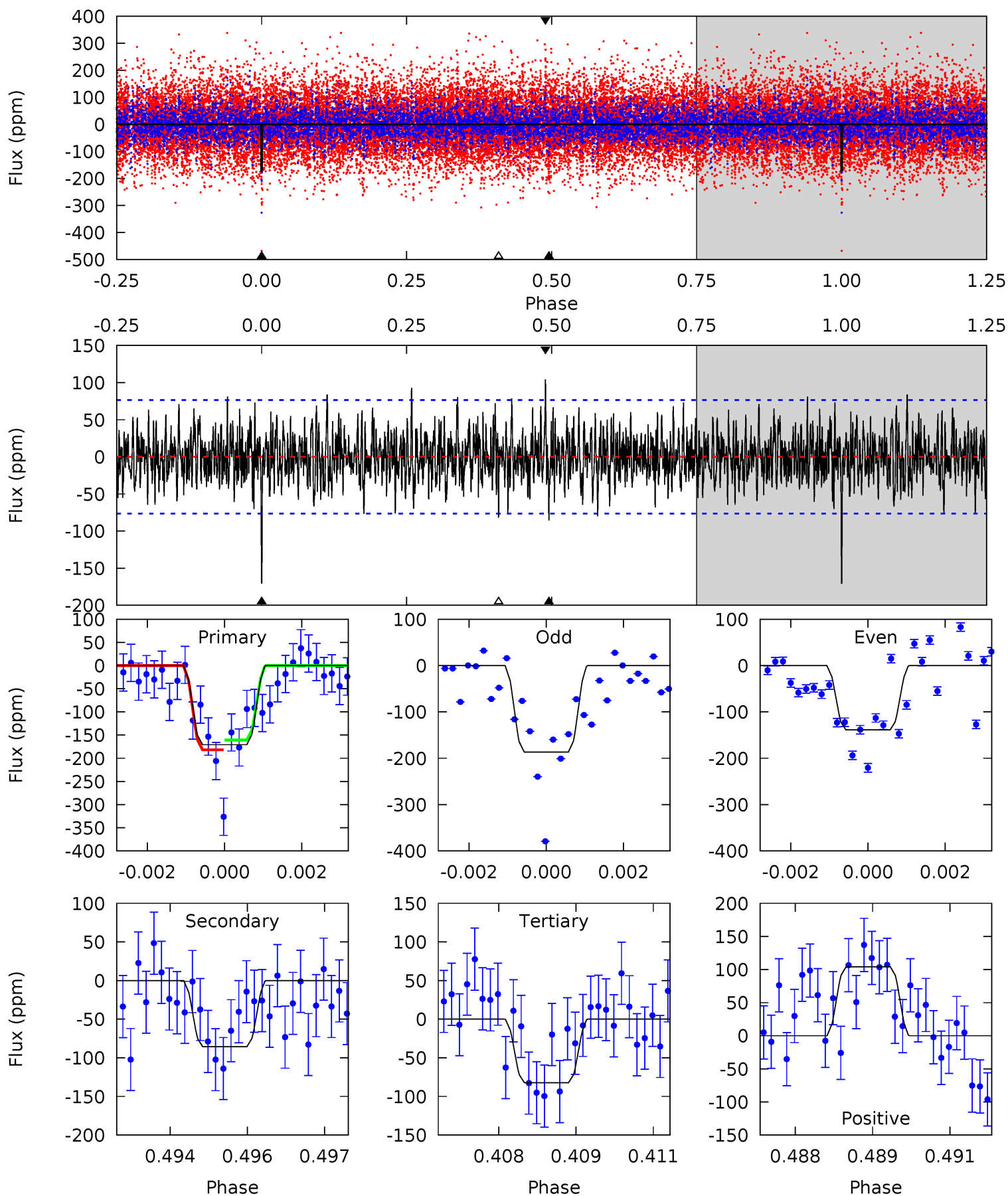
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

010321305-08, P = 140.064547 Days, E = 94.213800 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.0	6.01	5.76	7.32	5.37	3.16	1.83	6.23	4.67	0.25	-1.31	1.57	0.74	0.38	0.74



Stellar Parameters For KIC 010321305

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6926^{+174}_{-208}	$3.980^{+0.210}_{-0.123}$	$-0.140^{+0.250}_{-0.300}$	$2.074^{+0.468}_{-0.572}$	$1.497^{+0.185}_{-0.246}$	$0.236^{+0.281}_{-0.086}$
	+3%/-3%	+5%/-3%	+179%/-214%	+23%/-28%	+12%/-16%	+119%/-37%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 010321305-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$15.65^{+17.26}_{-10.57}$	783^{+45}_{-52}	-4235^{+36175}_{-26961}	$-408.736^{+136627.480}_{-120213.011}$
Alt.	-86 ± 14	$16.30^{+17.83}_{-11.66}$	783^{+52}_{-57}	3088^{+1565}_{-569}	66^{+727}_{-52}

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

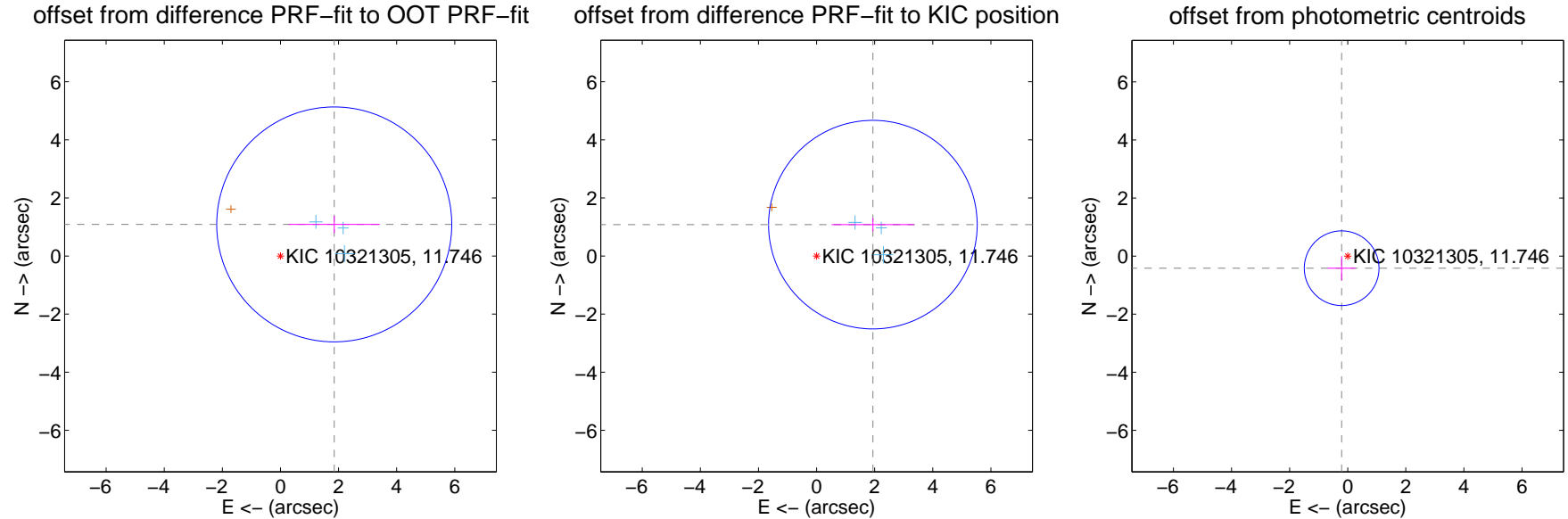
DV Centroid Data

Supplemental centroid analysis for 010321305-08. **Kepler magnitude: 11.75.** Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

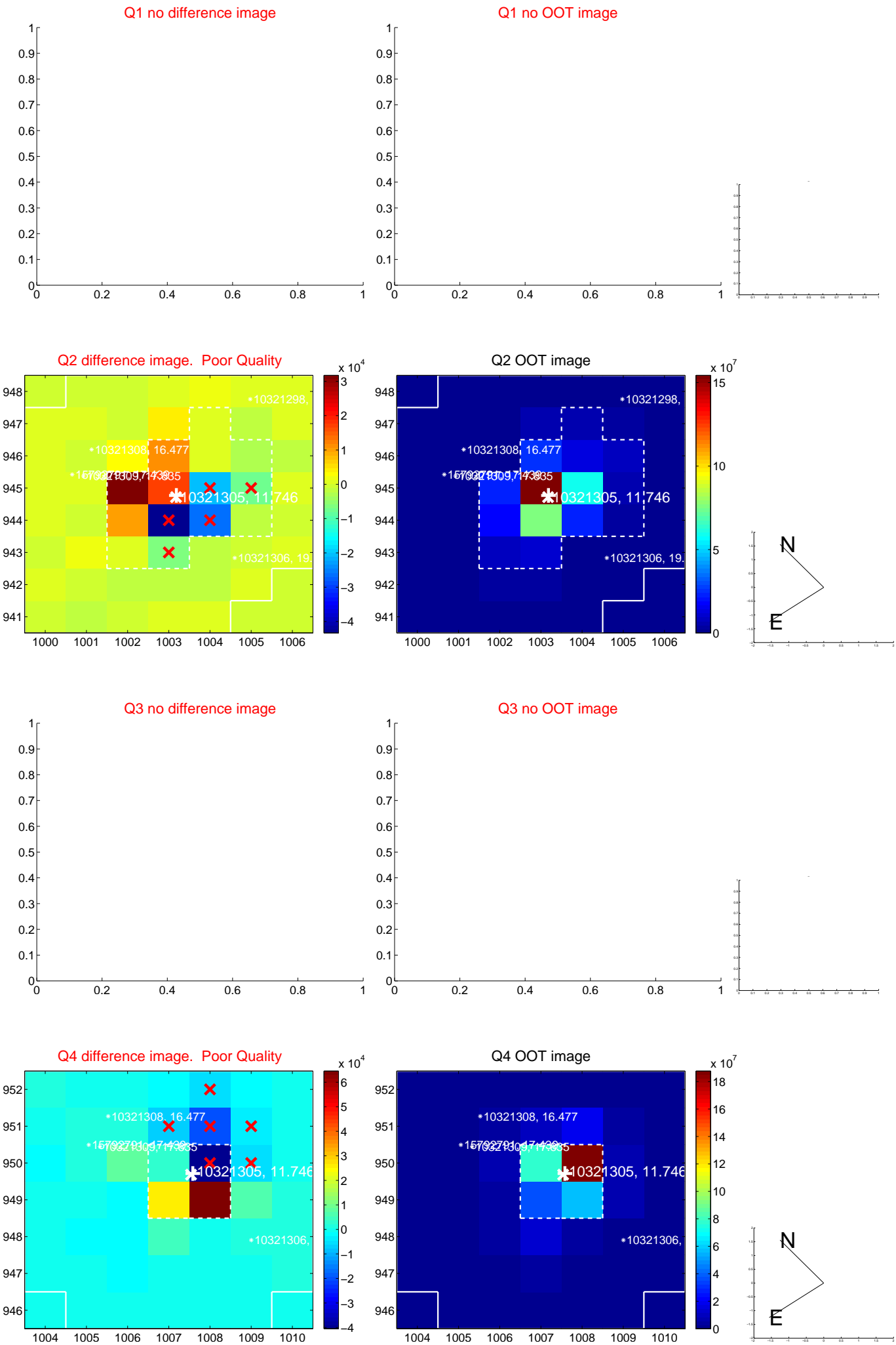
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.148 ± 1.348	1.59	-1.851 ± 1.567	1.089 ± 0.296
PRF-fit source offset from KIC position	2.219 ± 1.197	1.85	-1.938 ± 1.419	1.080 ± 0.228
photometric centroid source offset	0.47 ± 0.43	1.09	0.21 ± 0.47	-0.42 ± 0.42

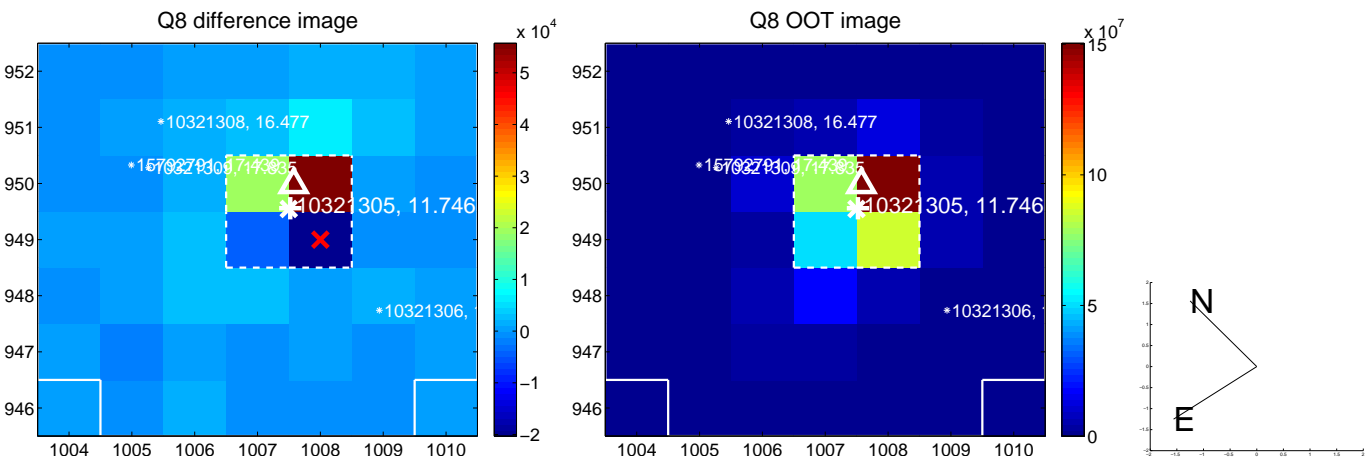
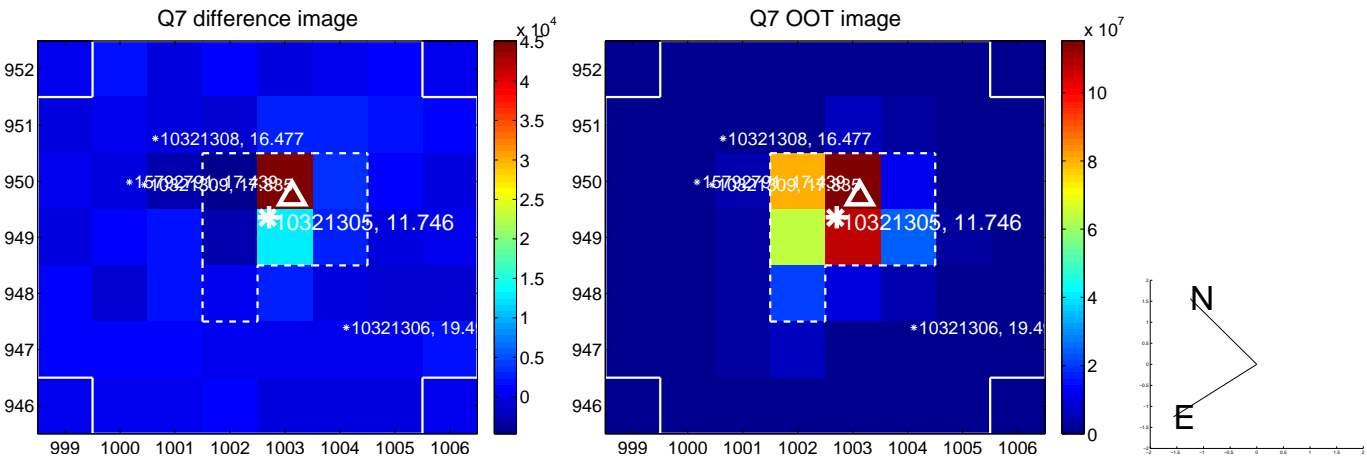
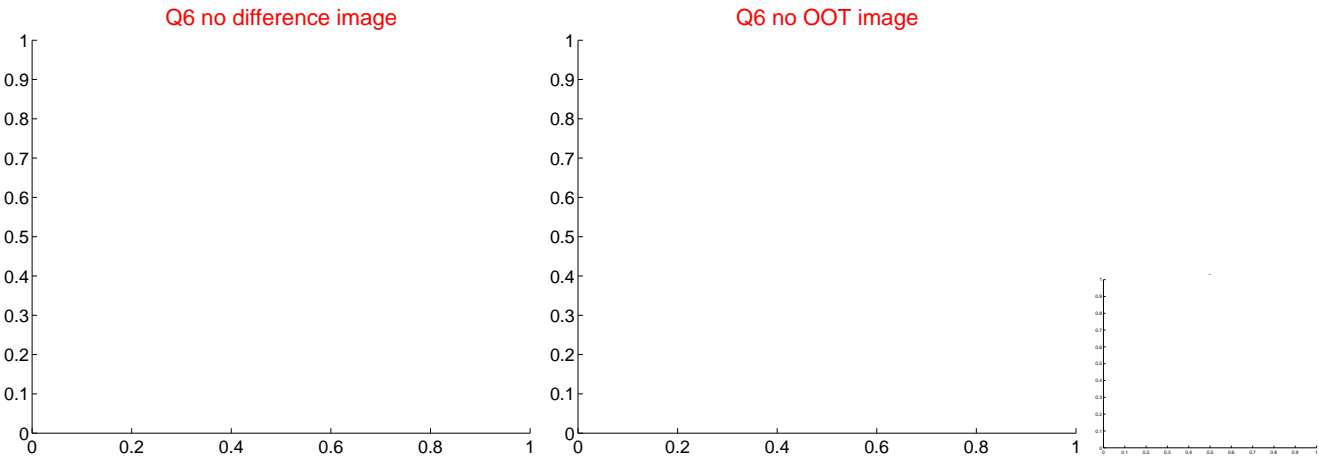
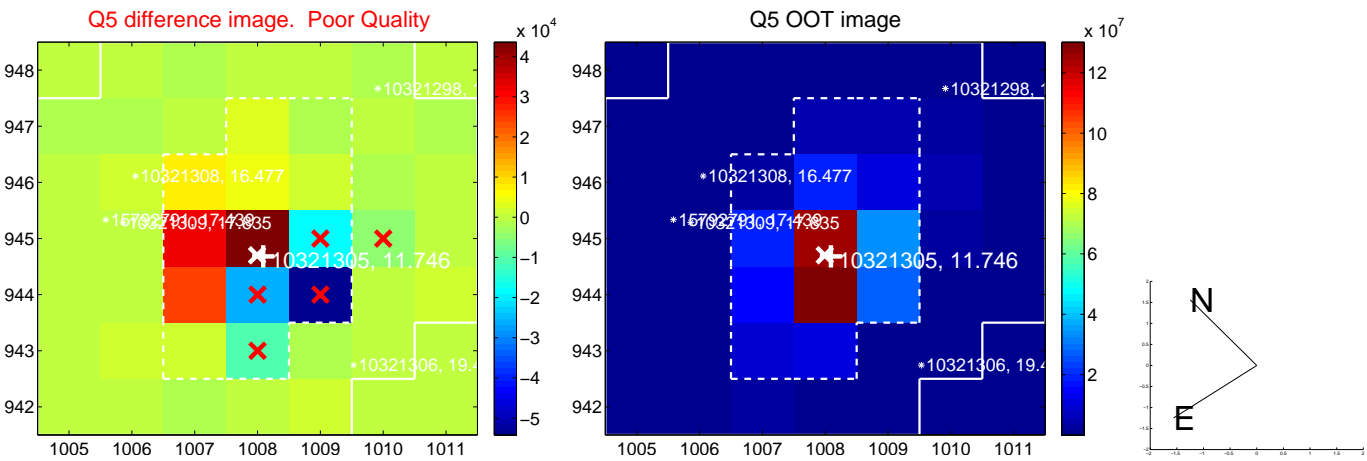


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

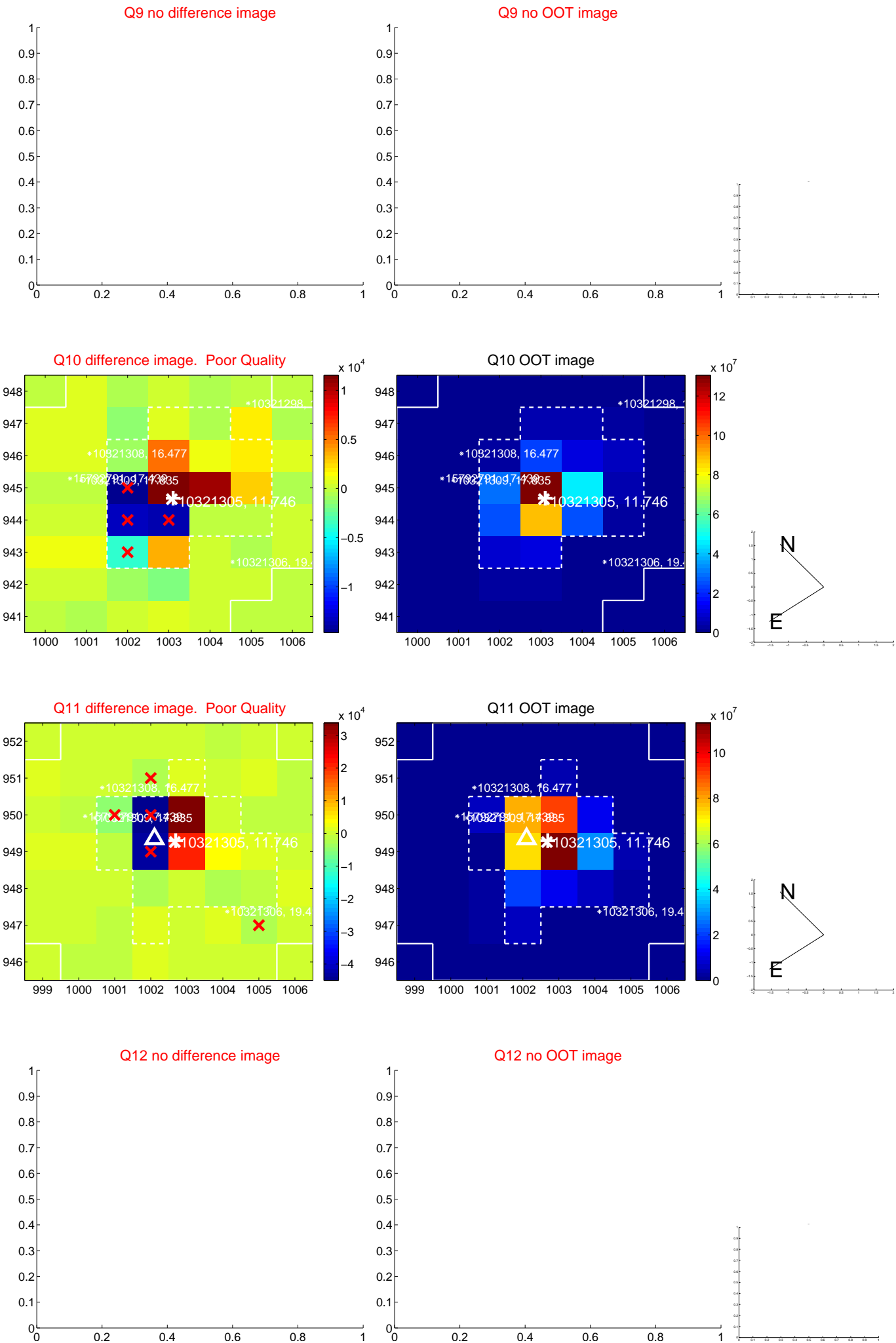
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



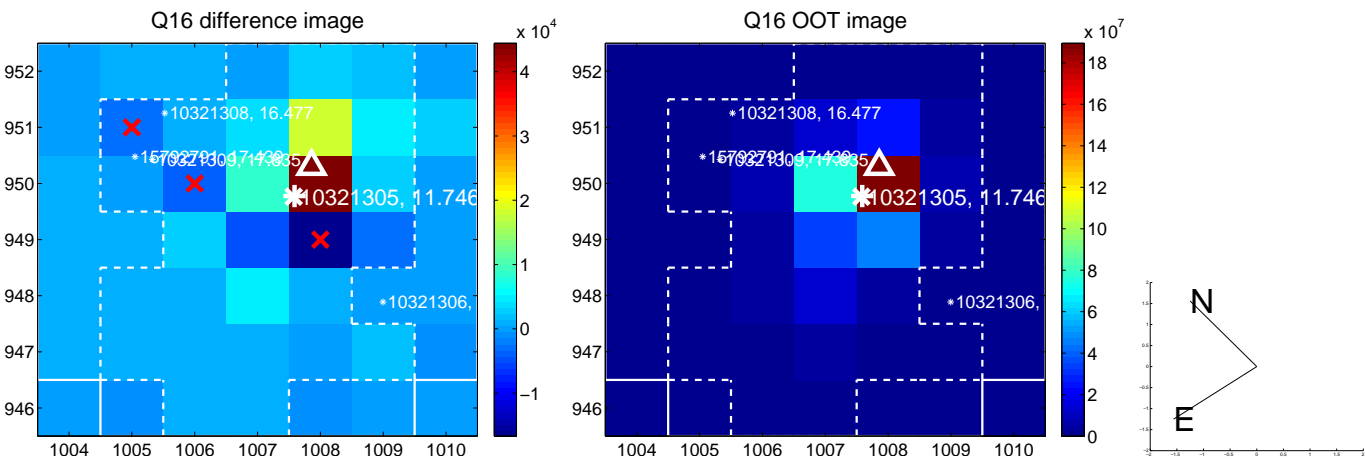
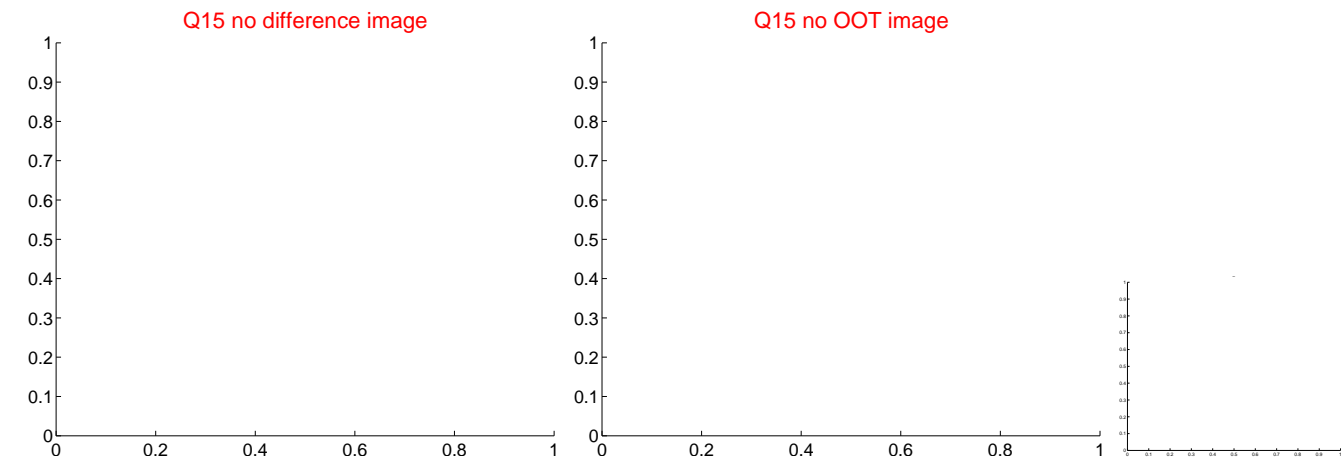
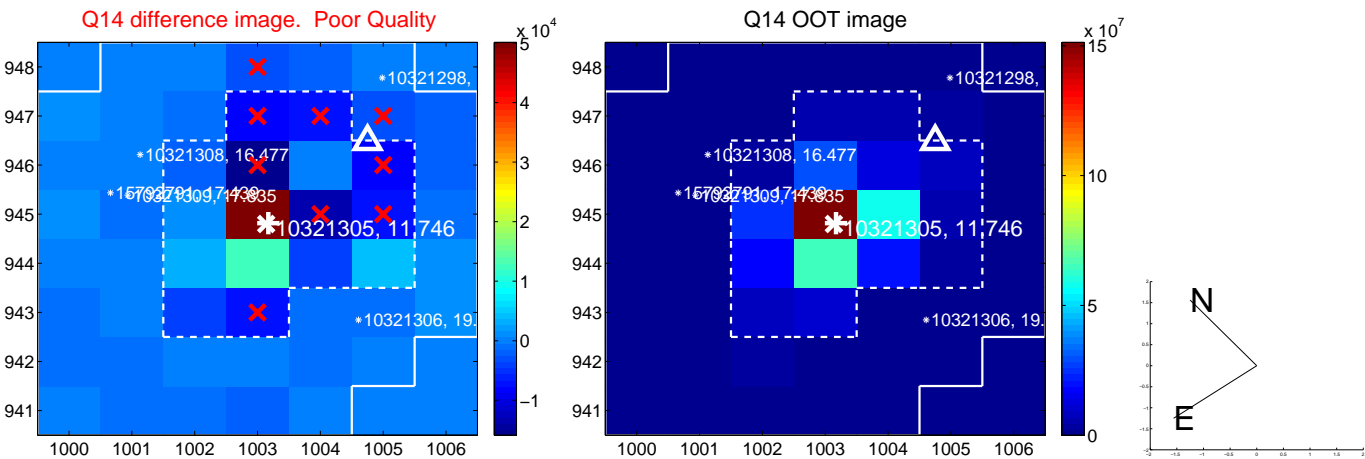
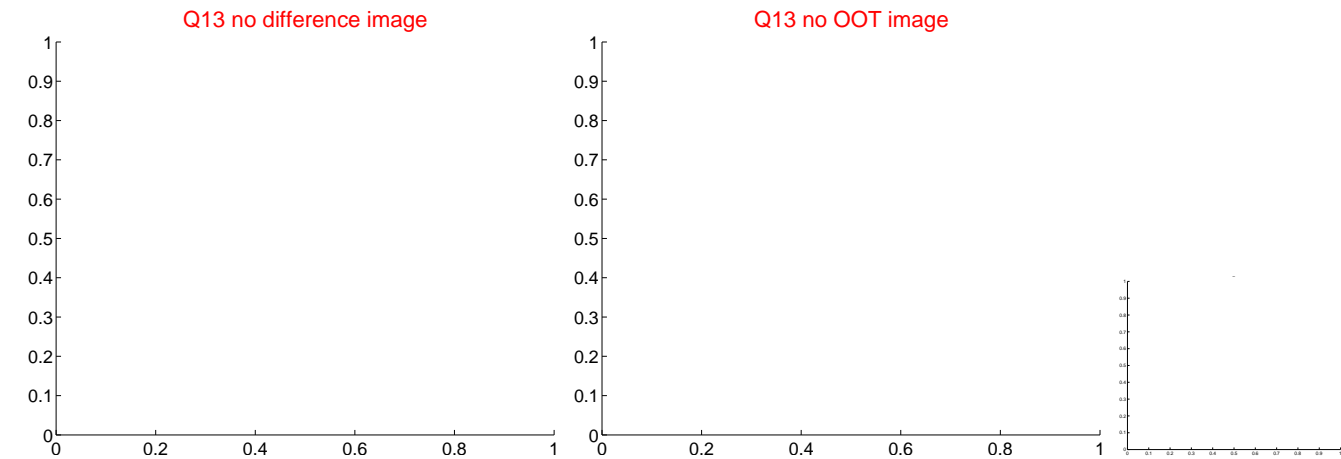
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



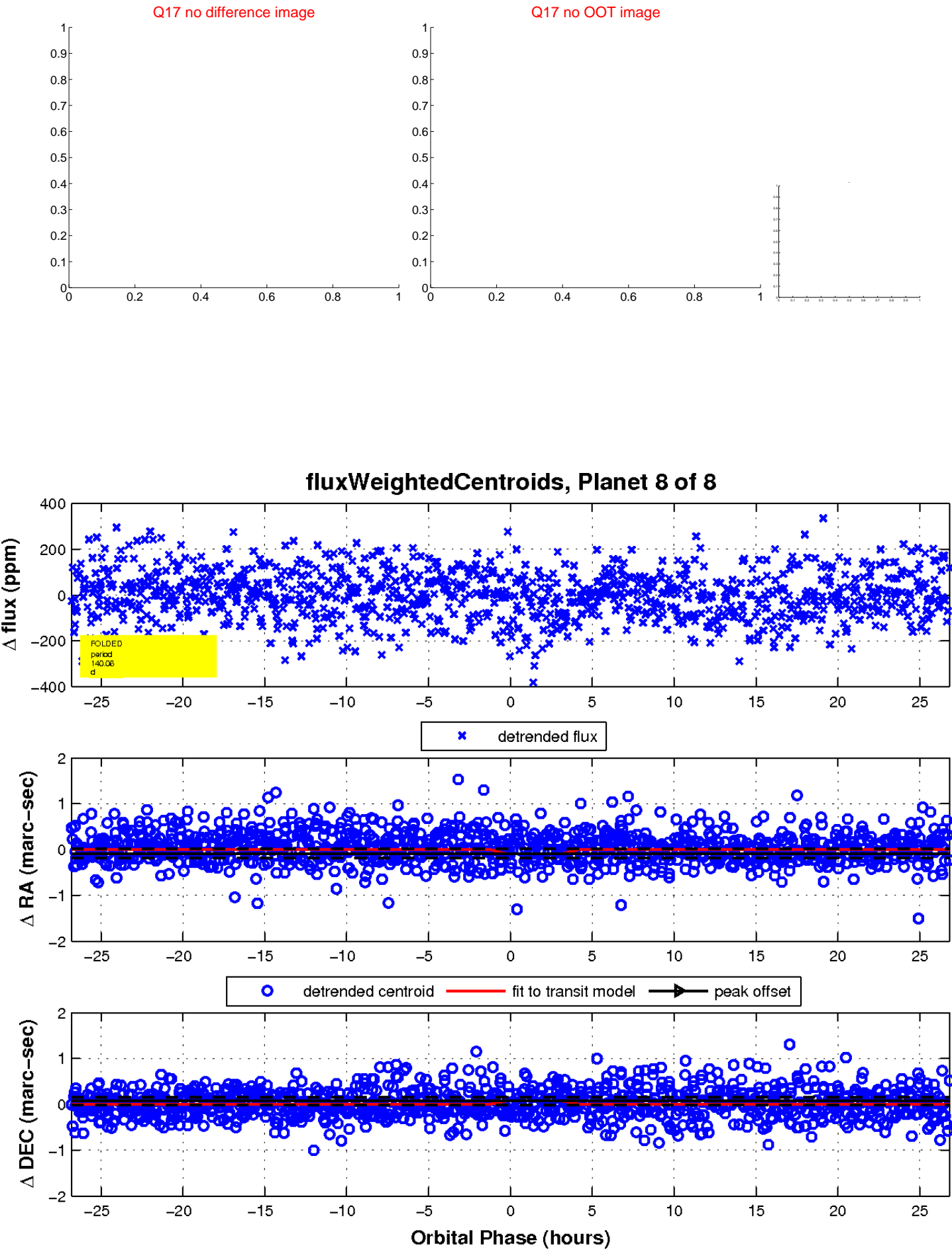
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

