

KIC 011560431

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})
011560431-01	OBS	No	673.939158	145.344887	58.3	4.369	18.4	1.1	0.83	5367	0.67	0.26
011560431-02	OBS	No	273.428668	216.325266	243.2	3.491	20.8	5.7	0.83	5367	1.58	0.86
011560431-03	OBS	7457.01	0.527675	131.824467	24.9	1.217	12.9	19.0	0.83	5367	0.50	3570.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011560431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011560431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011560431-03	OBS	FP	0.00	0	0	0	1	CENT_SATURATED—EPHEM_MATCH

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

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

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

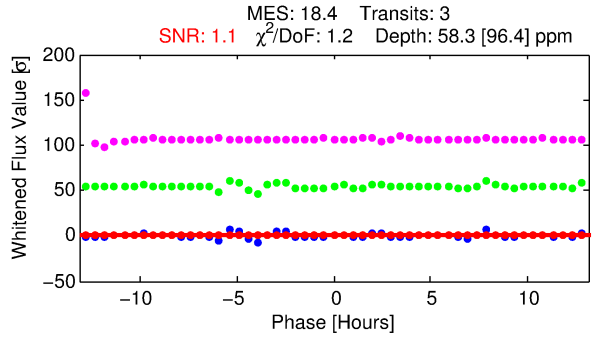
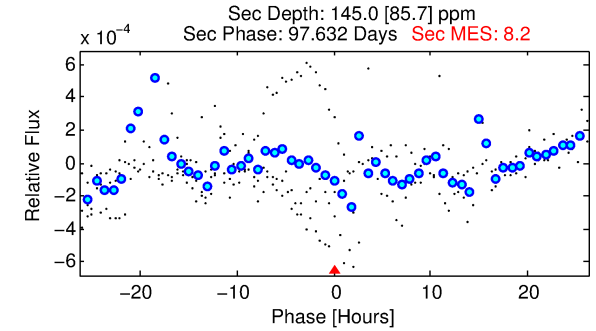
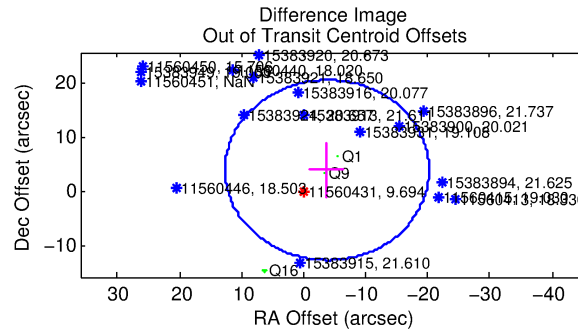
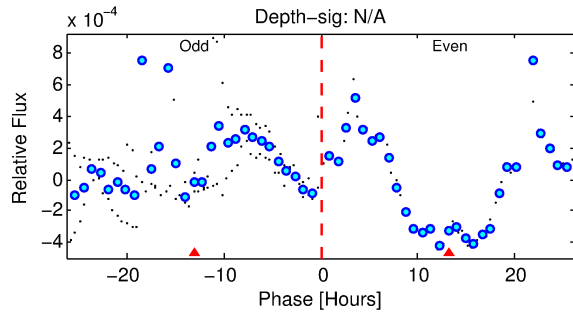
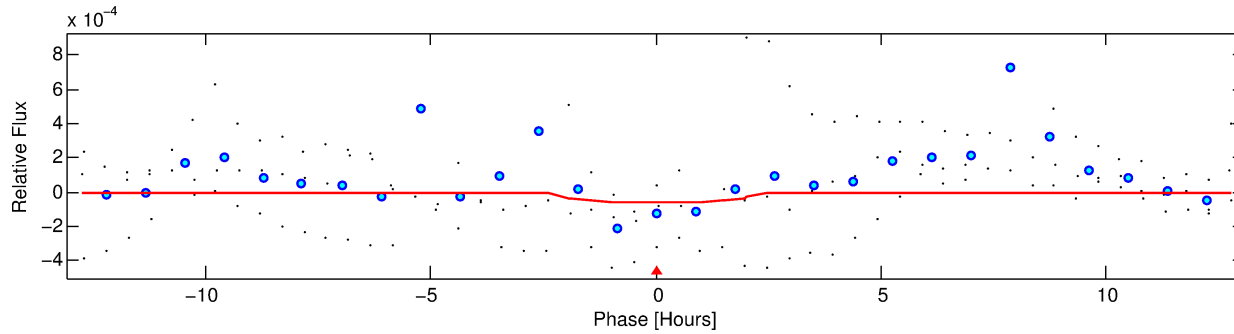
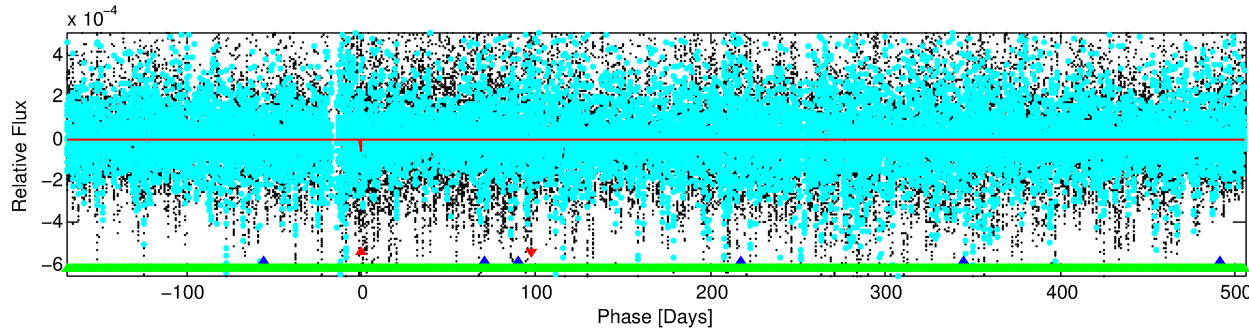
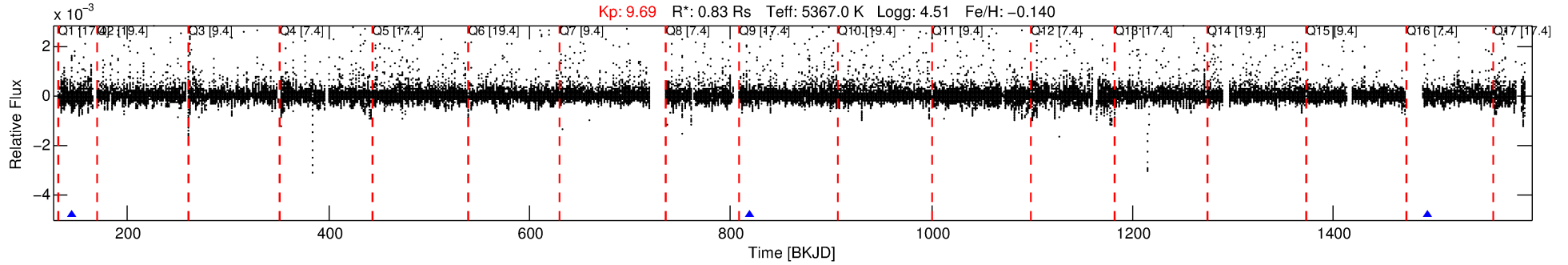
Ephemeris Match Information For 011560431-01

No Significant Match Found

DV One-Page Summary

KIC: 11560431 Candidate: 1 of 3 Period: 673.939 d
KOI: K07457 Corr: No Ephemeris Match

Kp: 9.69 R*: 0.83 Rs Teff: 5367.0 K Logg: 4.51 Fe/H: -0.140



DV Fit Results:

Period = 673.93916 [0.02928] d
Epoch = 145.3449 [0.0382] BKJD
Rp/R* = 0.0074 [0.0281]
a/R* = 867.23 [12402.75]
b = 0.69 [11.10]
Seff = 0.26 [0.07]
Teq = 182 [13] K
Rp = 0.67 [2.54] Re
a = 1.4065 [0.2172] AU
Ag = 349953.05 [2653003.73] [0.13σ]
Teffp = 6832 [12945] K [0.5σ]

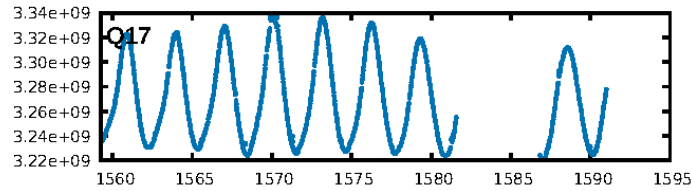
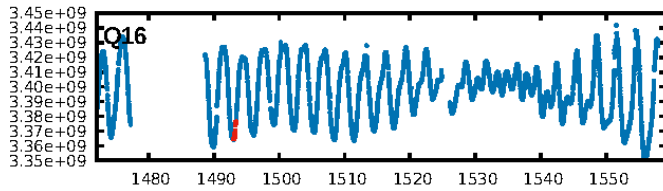
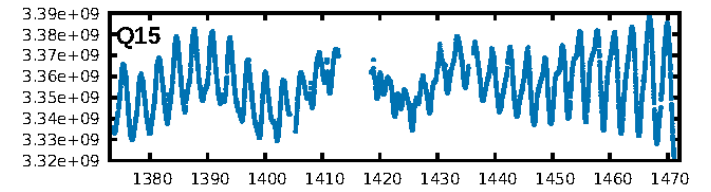
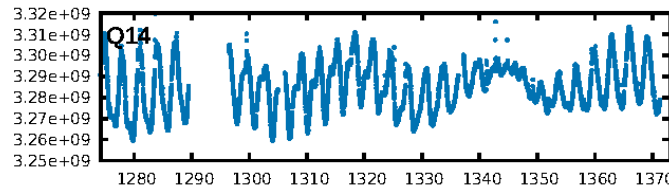
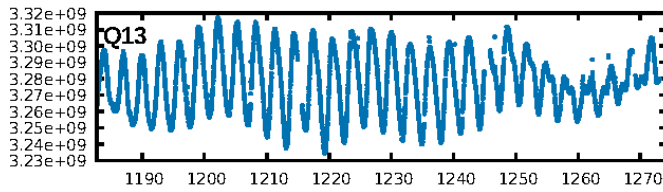
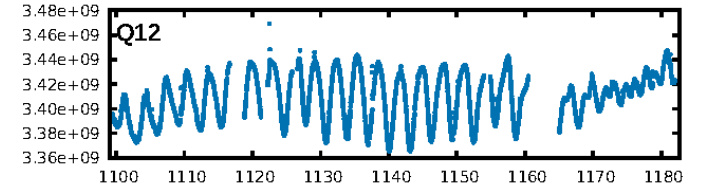
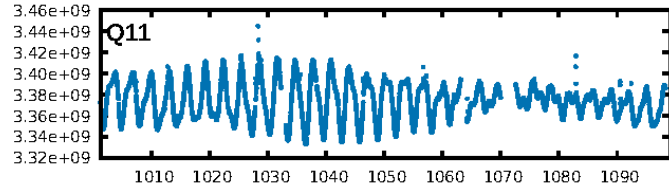
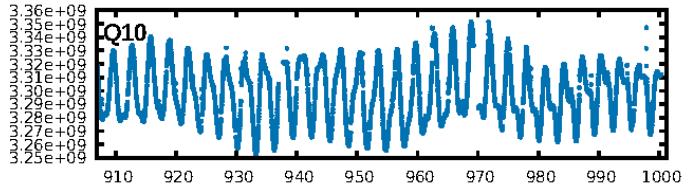
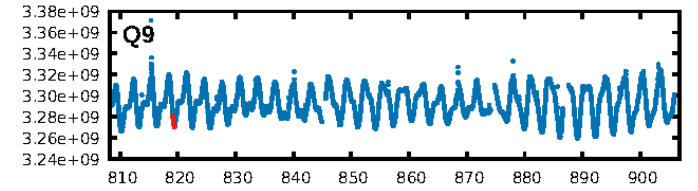
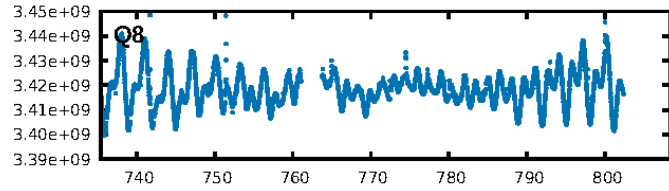
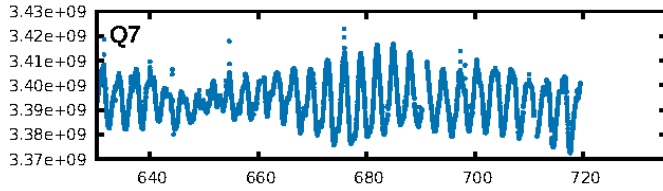
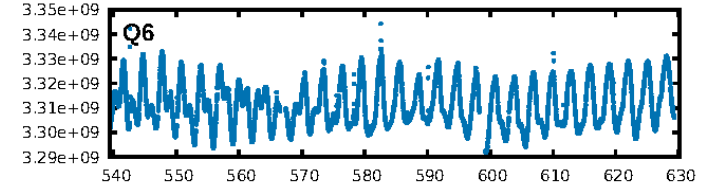
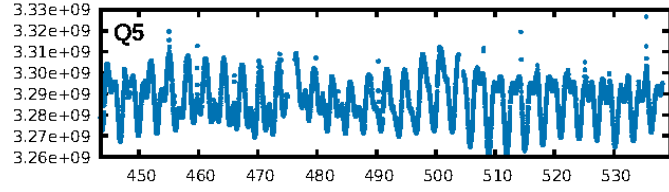
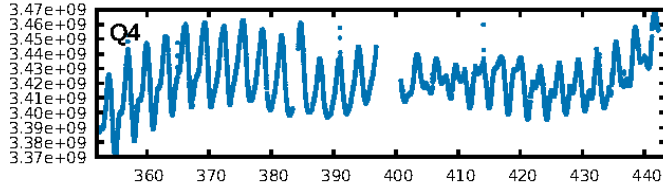
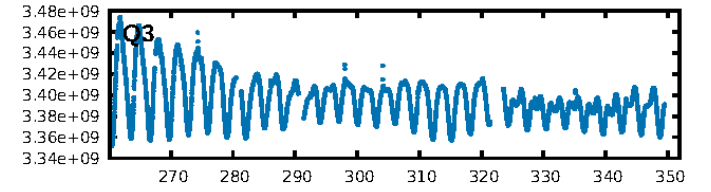
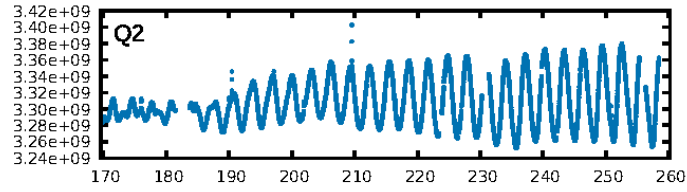
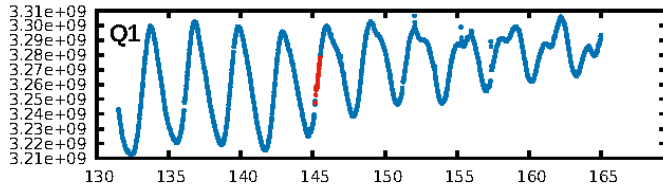
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1718.90σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 14.4%
ModelChiSquareGof-sig: 74.6%
Bootstrap-pfa: 8.19e-14
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: N/A
Centroid-sig: 34.9%
Centroid-so: 10.131 arcsec [1.09σ]
OotOffset-rm: 5.484 arcsec [1.00σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-rm: 8.033 arcsec [1.56σ]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/3]

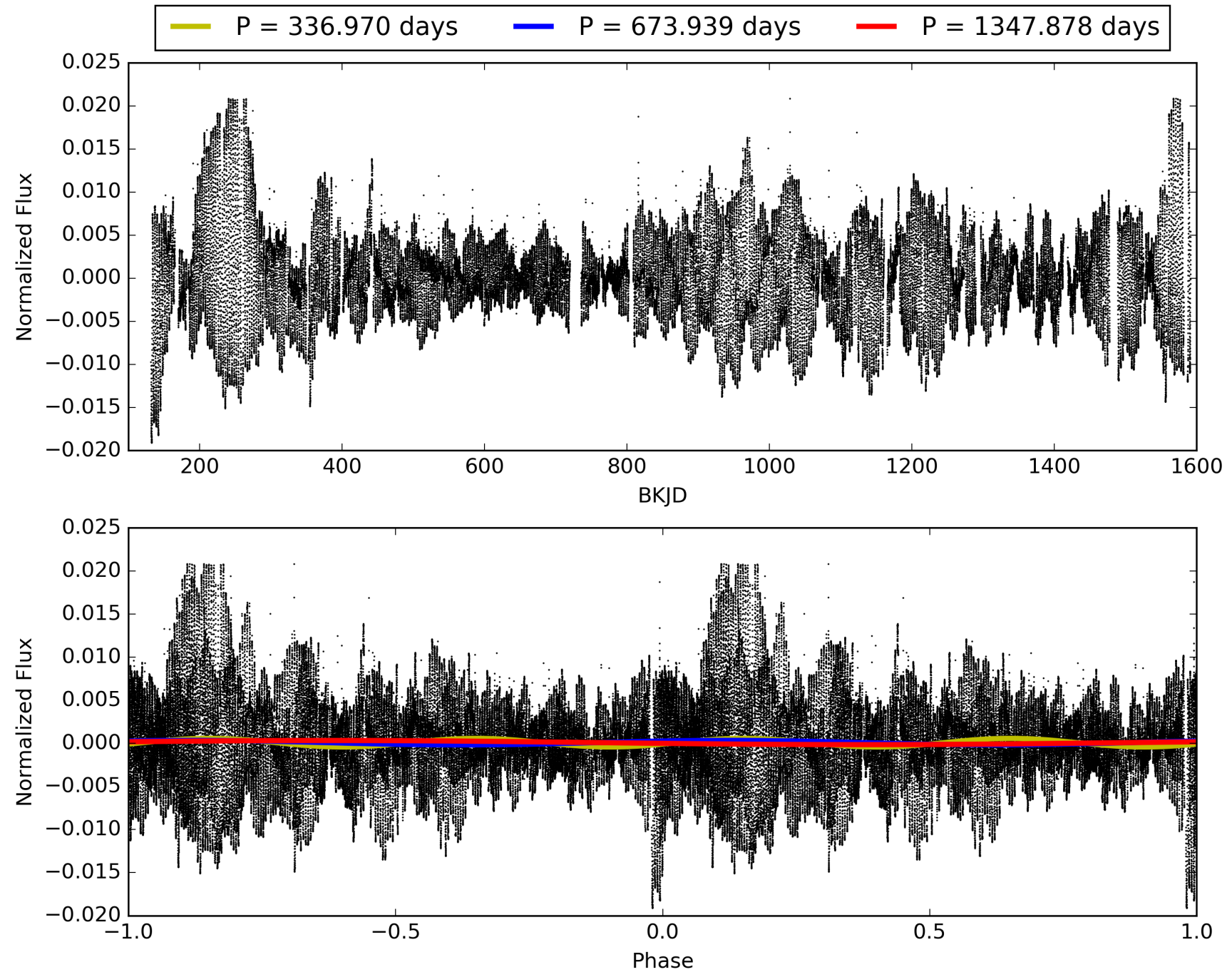
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:22:31 Z

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

TCE 011560431-01, PDC Light Curves

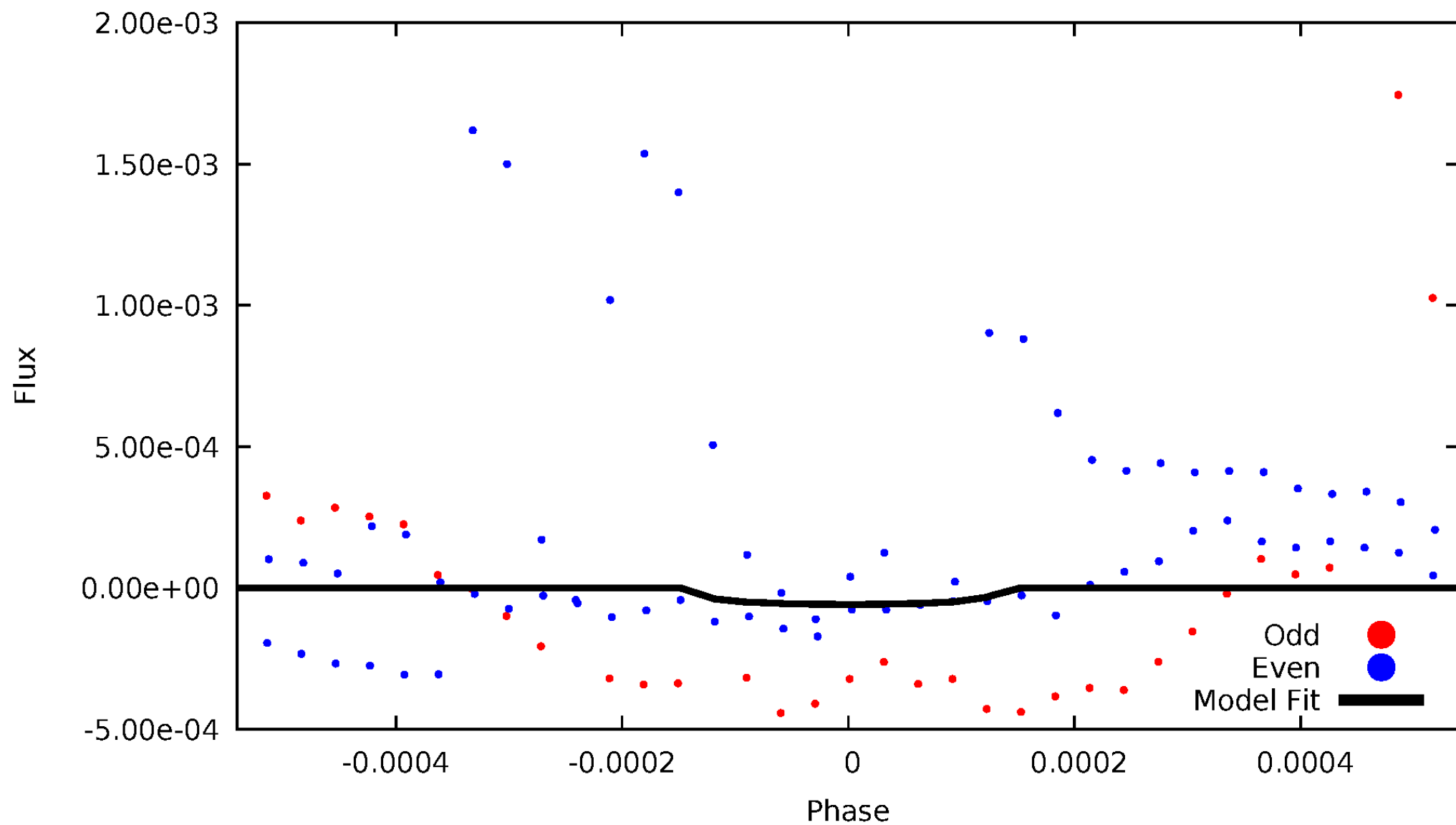


TCE 011560431-01



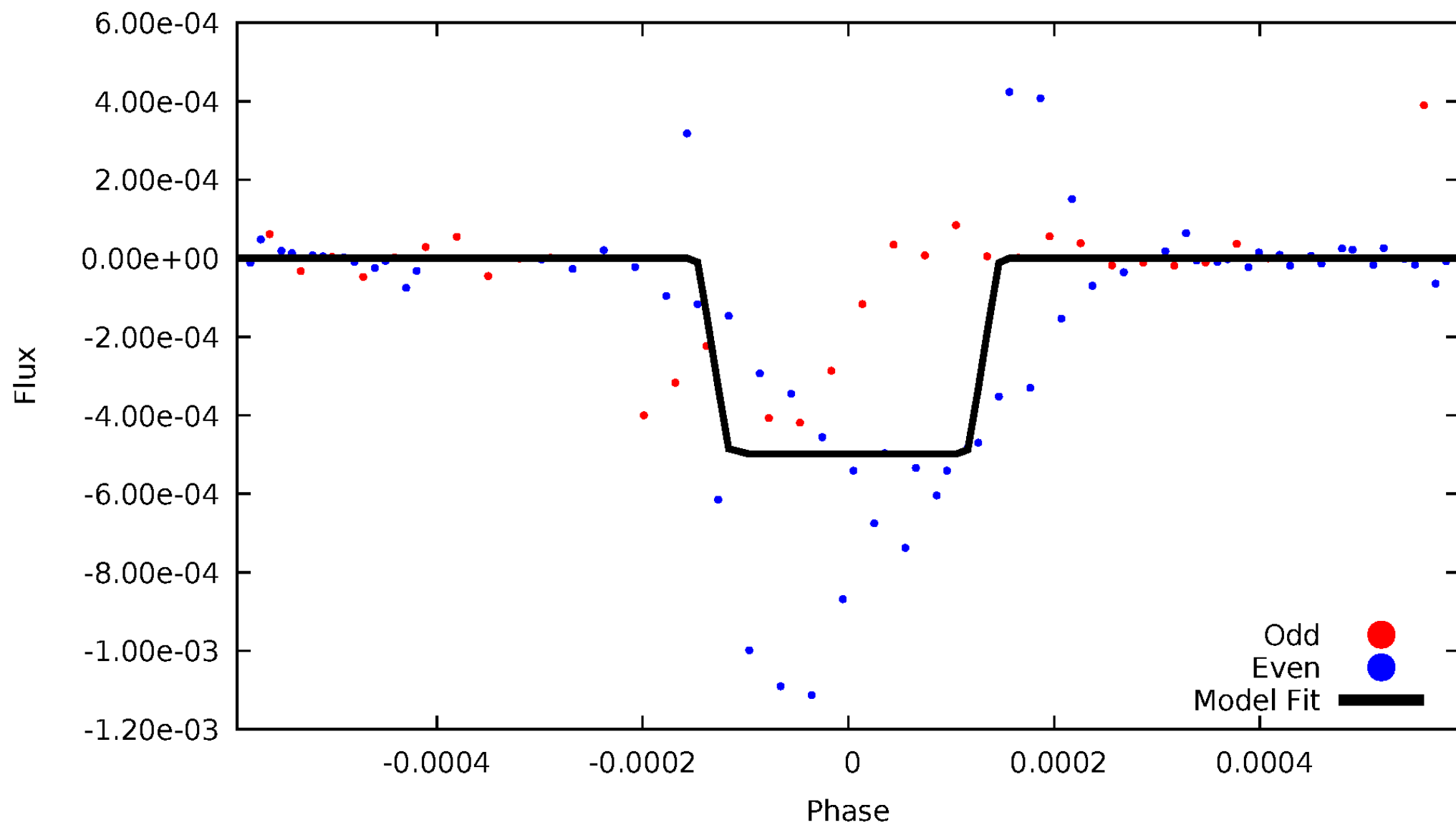
DV Odd/Even

TCE 011560431-01



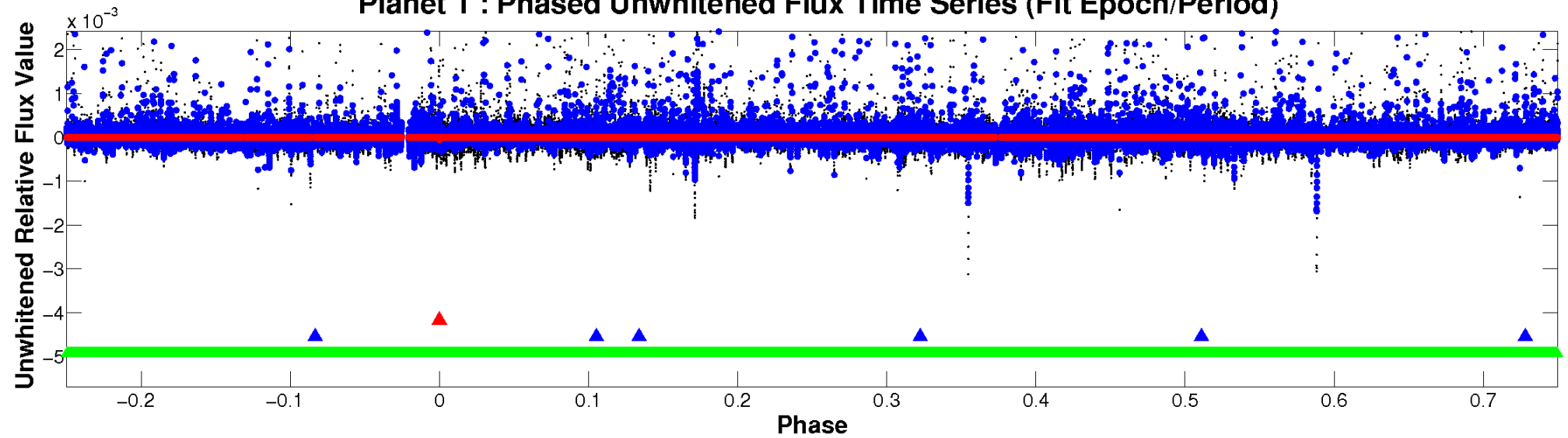
ALT Odd/Even

TCE 011560431-01

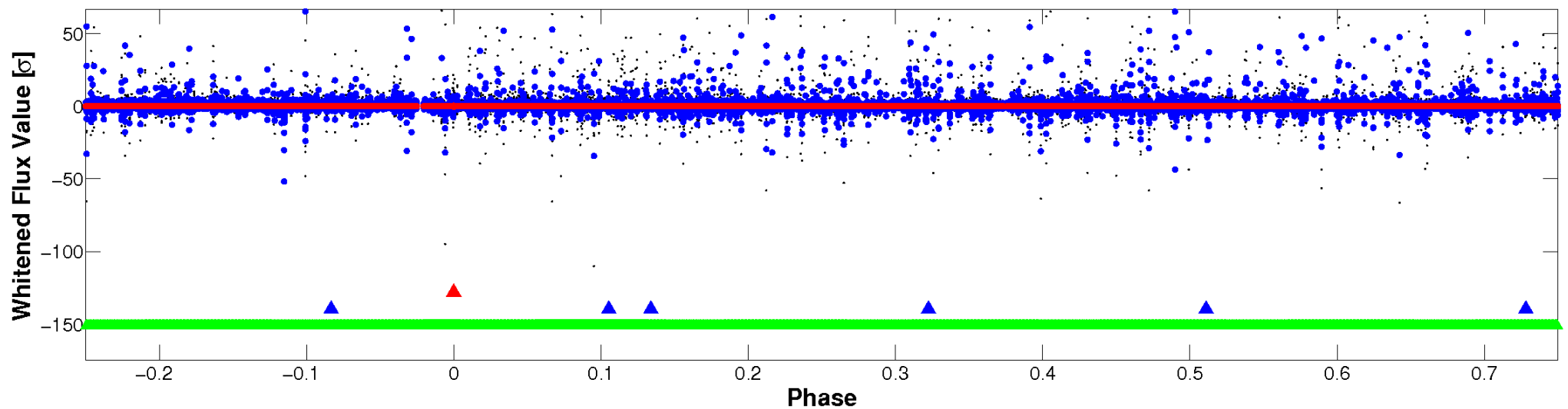


Non-Whitened Vs. Whitened Light Curve

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

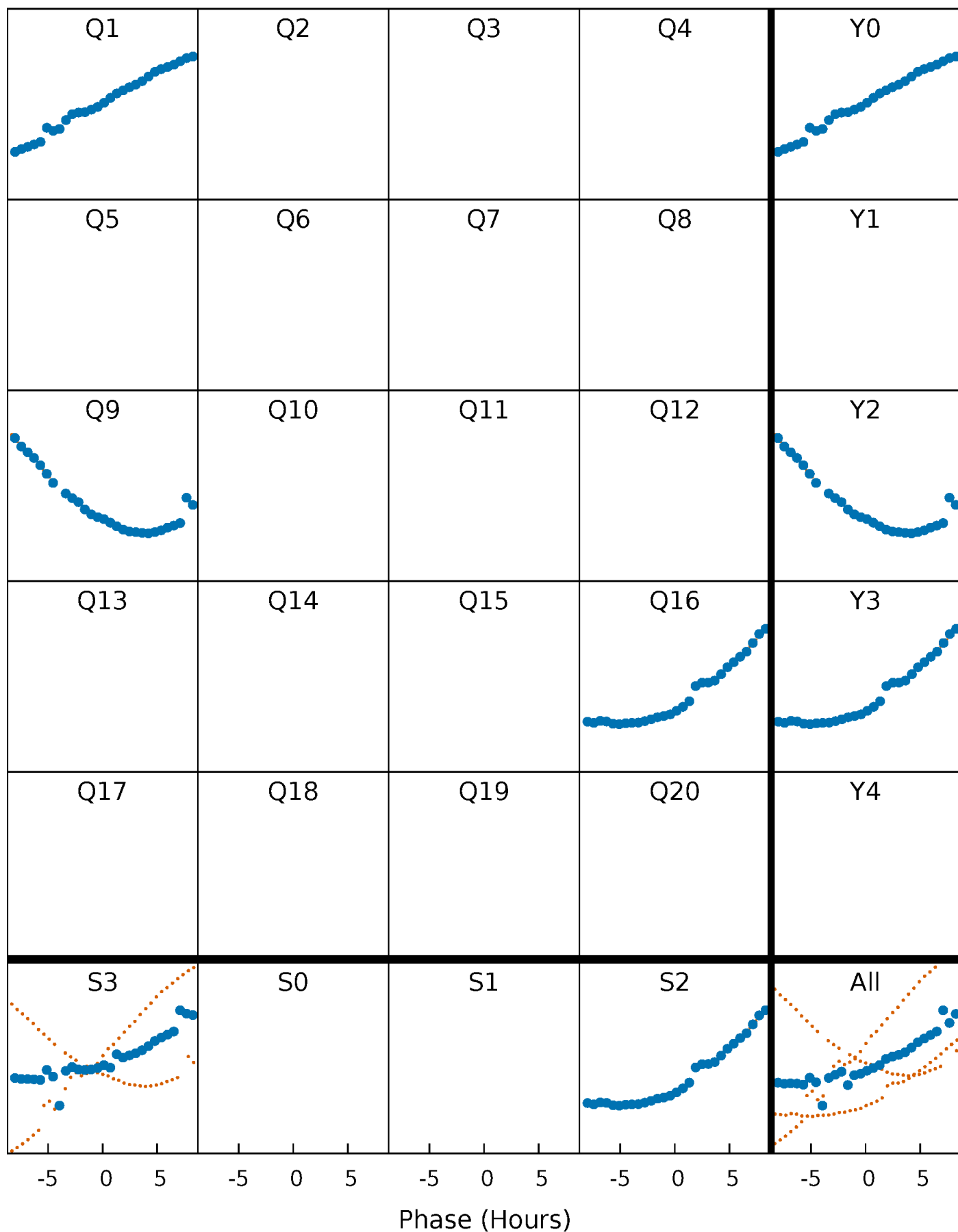


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



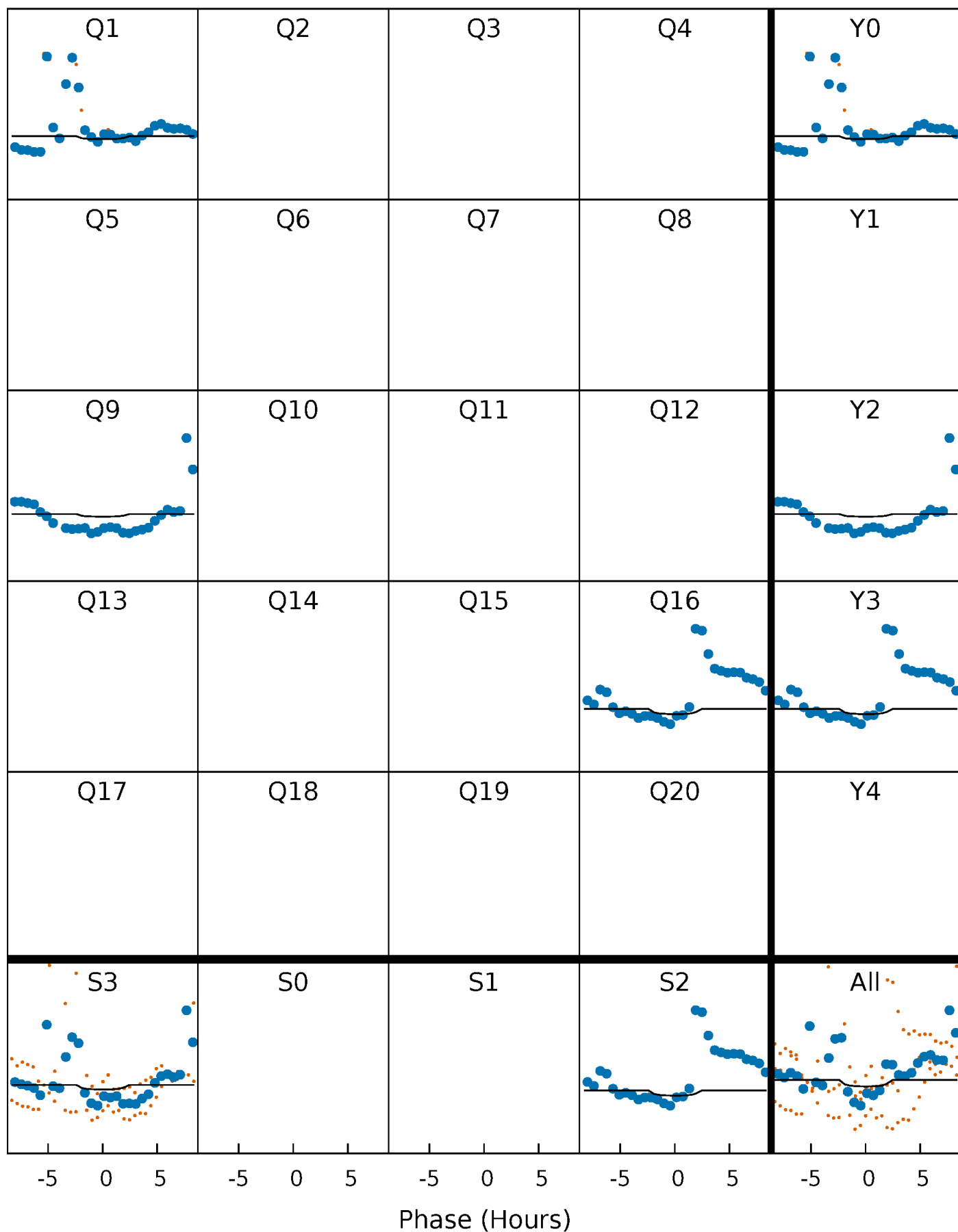
PDC Quarter-Phased Transit Curves

TCE 011560431-01 P=673.939158 Days $T_0=145.344887$ (BKJD)



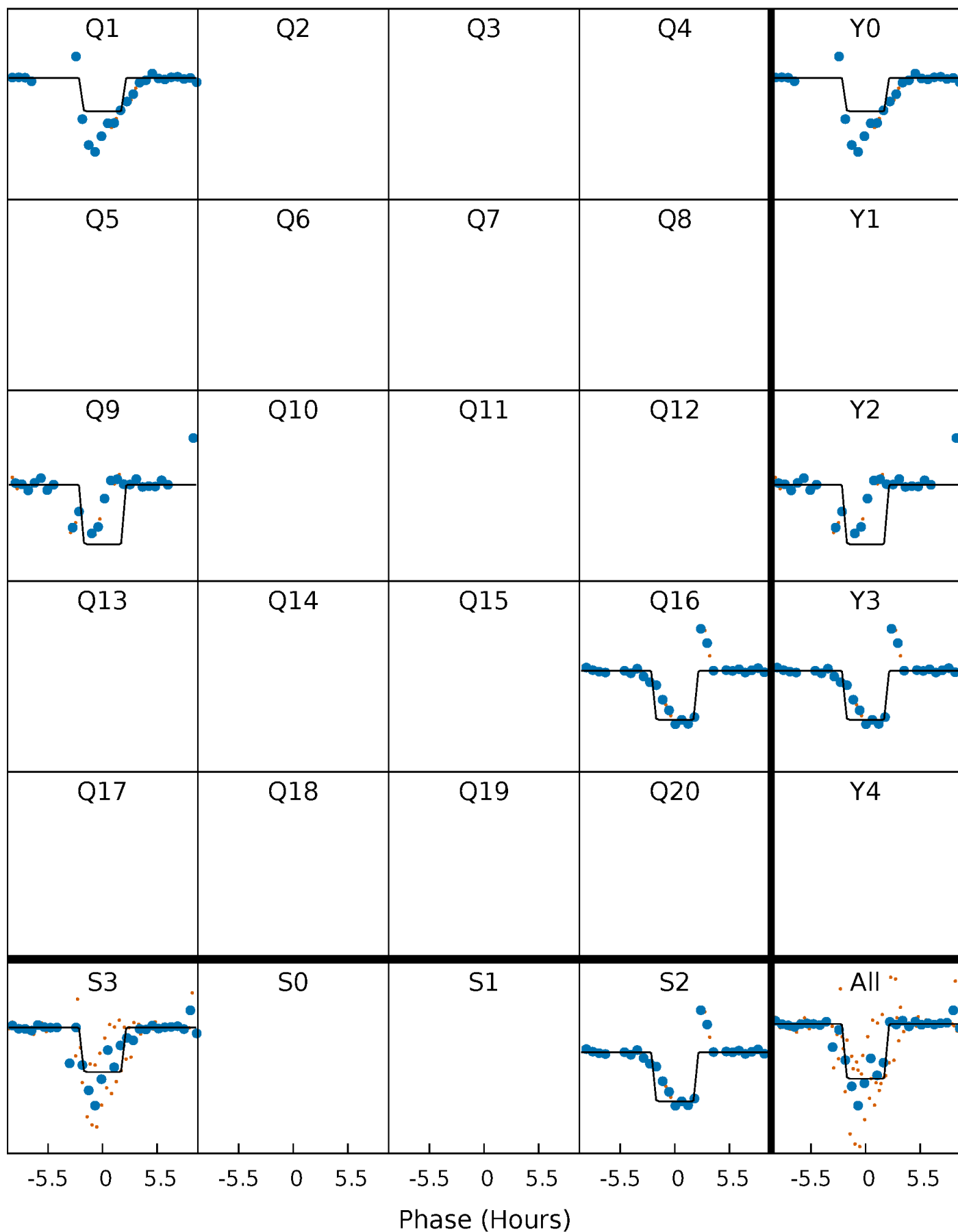
DV Quarter-Phased Transit Curves

TCE 011560431-01 P=673.939158 Days $T_0=145.344887$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

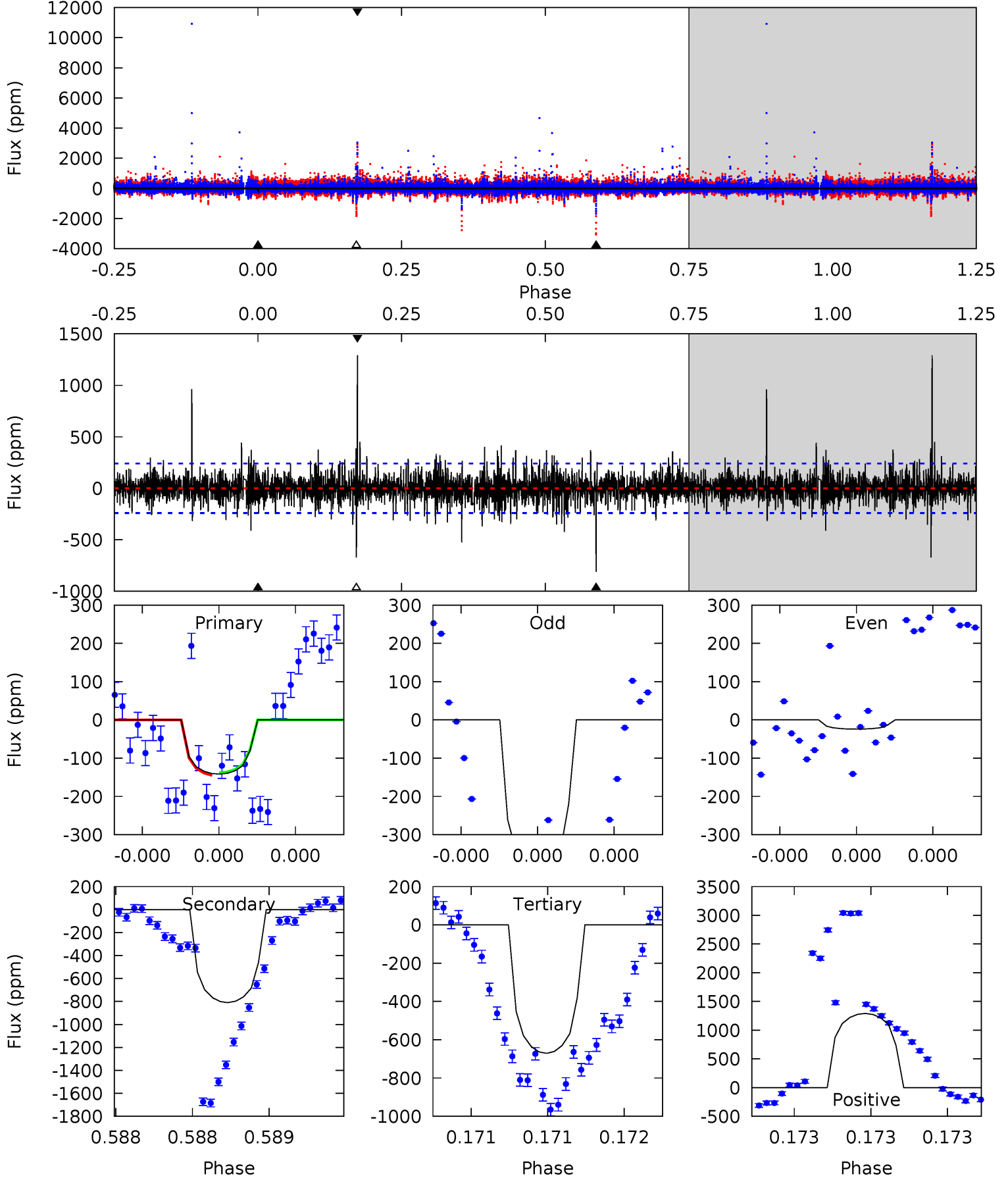
TCE 011560431-01 P=673.926053 Days $T_0=145.349477$ (BKJD)



DV Model-Shift Uniqueness Test

011560431-01, P = 673.939158 Days, E = 145.344887 Days

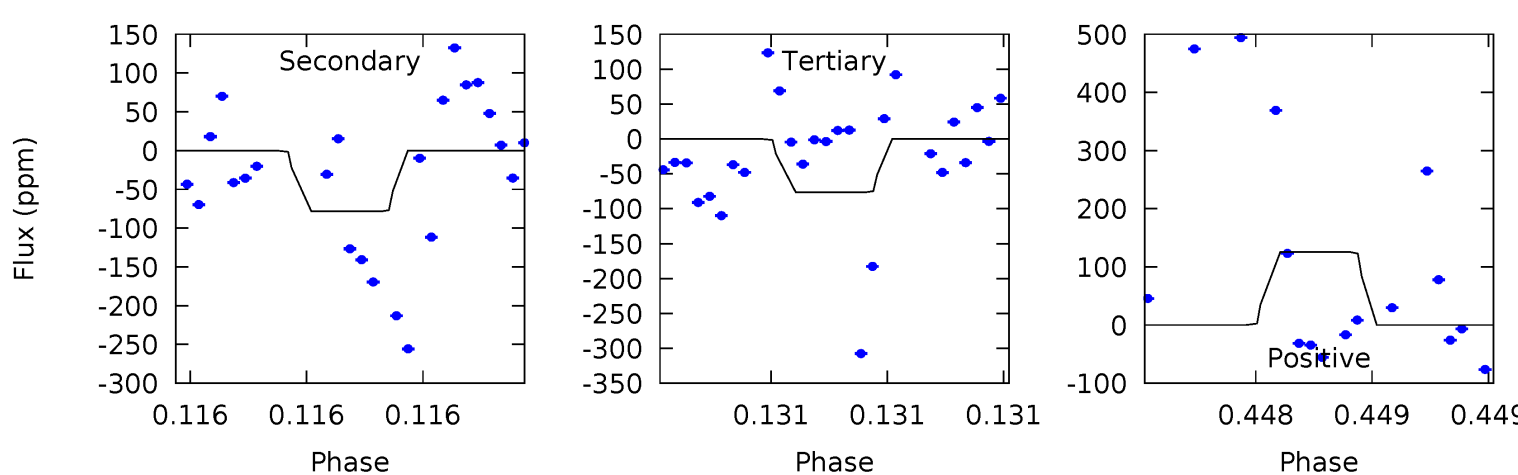
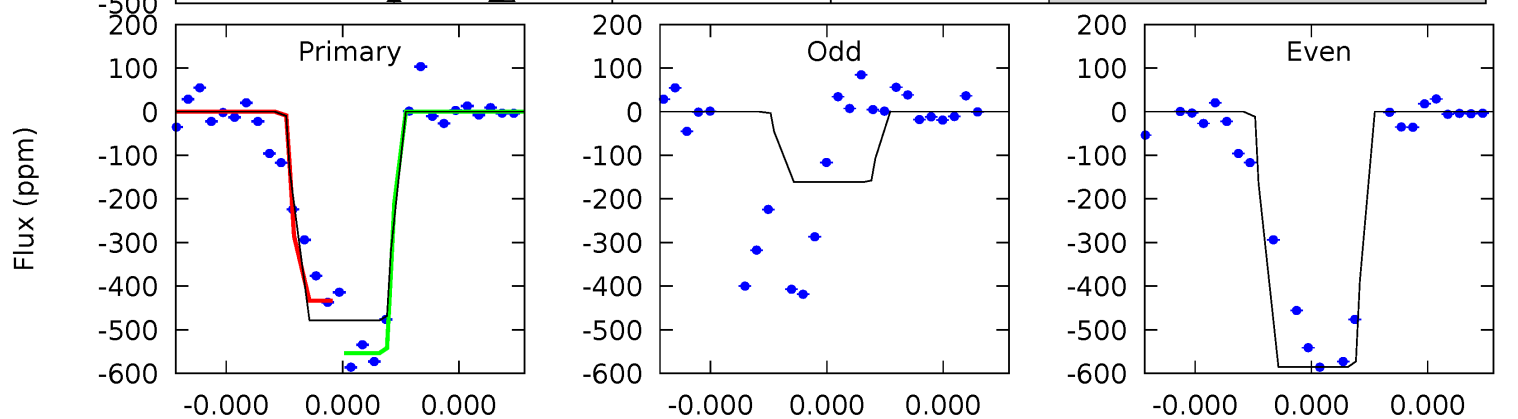
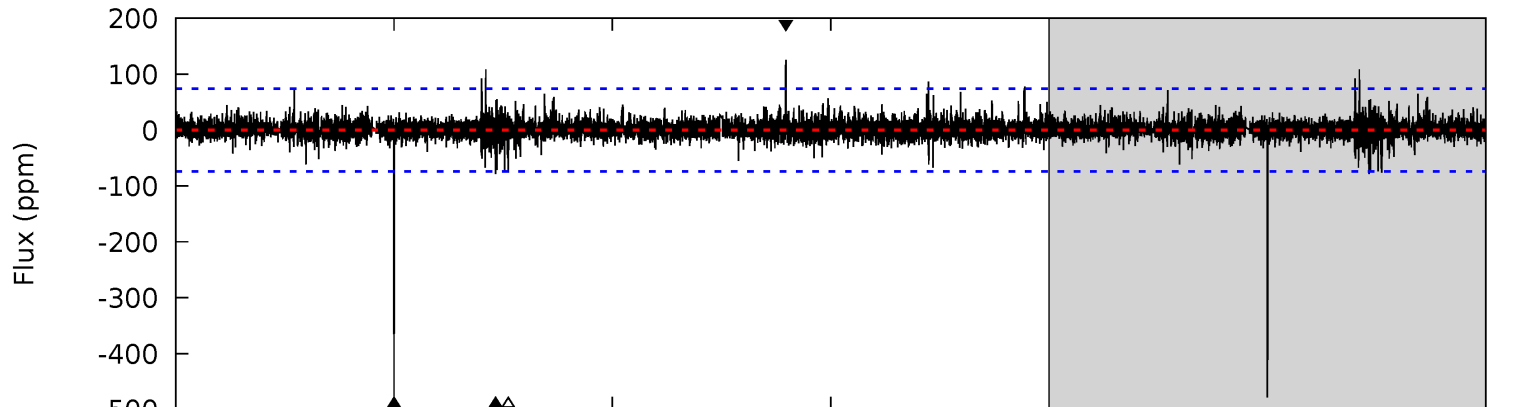
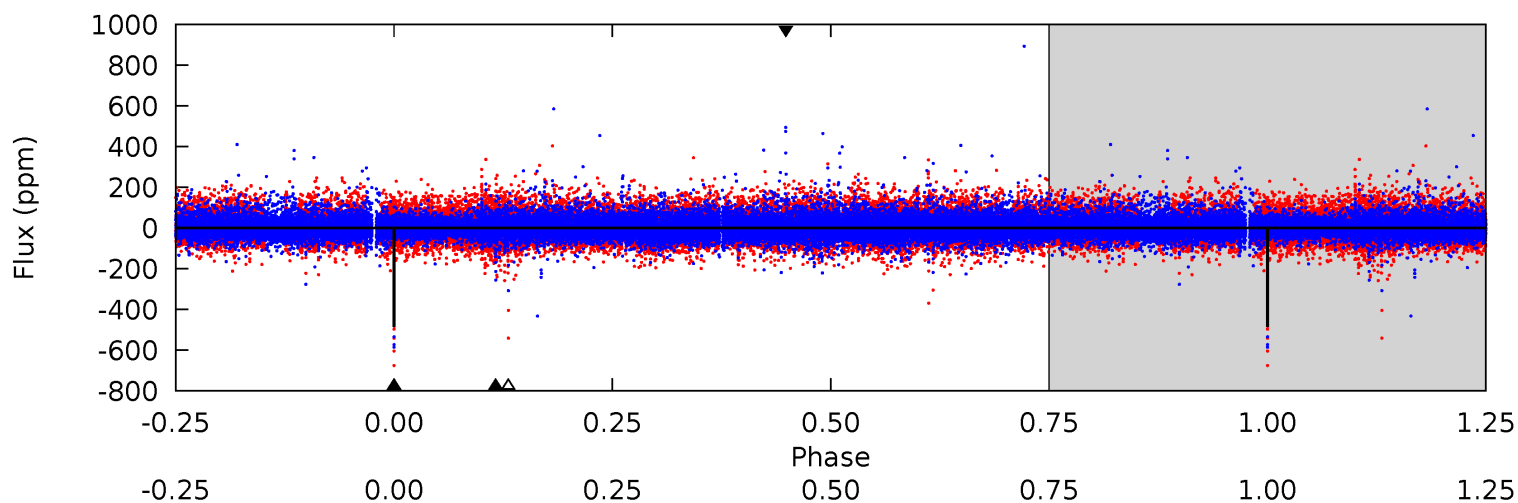
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.34	19.1	15.8	30.5	5.66	3.61	2.20	-12.5	-27.1	3.28	-11.4	2.74	4.13	0.61	0.08



Alt Model-Shift Uniqueness Test

011560431-01, P = 673.926053 Days, E = 145.349477 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.5	5.98	5.84	9.57	5.66	3.61	0.86	30.7	26.9	0.15	-3.59	15.8	1.09	0.21	0



Stellar Parameters For KIC 011560431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5367^{+212}_{-191}	$4.514^{+0.076}_{-0.124}$	$-0.140^{+0.300}_{-0.300}$	$0.828^{+0.151}_{-0.101}$	$0.817^{+0.104}_{-0.078}$	$2.027^{+0.668}_{-0.705}$
	+4%/-4%	+2%/-3%	+214%/-214%	+18%/-12%	+13%/-10%	+33%/-35%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011560431-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-810 ± 42	$1.98^{+1.97}_{-1.33}$	256^{+14}_{-13}	6140^{+6570}_{-1602}	$222944^{+1804722}_{-165119}$
Alt.	-78 ± 13	$2.82^{+2.10}_{-1.90}$	257^{+15}_{-13}	3402^{+1756}_{-527}	10740^{+91104}_{-7289}

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

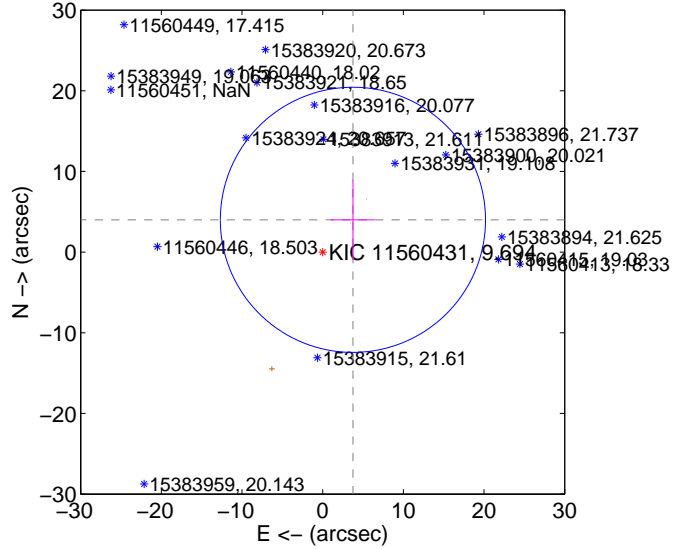
Supplemental centroid analysis for 011560431-01. **Kepler magnitude: 9.69.** Transit SNR 1.09

There are 1 quarters with good PRF difference image offsets

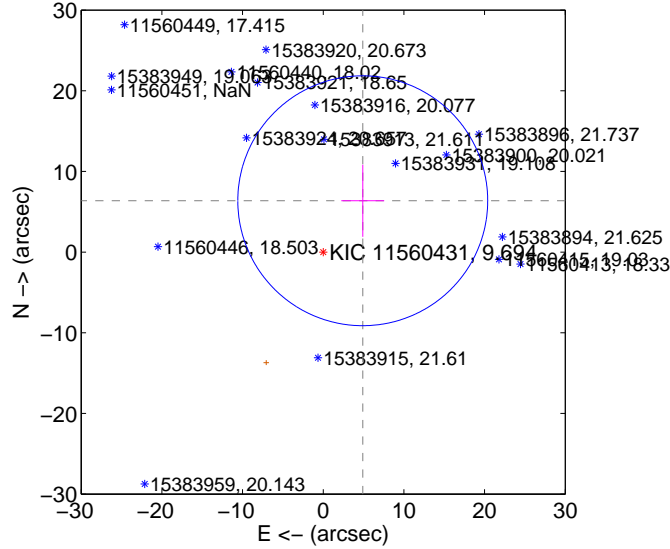
The direct PRF centroid is offset from the target star catalog position by about 1.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	5.484 ± 5.478	1.00	-3.750 ± 2.722	4.002 ± 4.958
PRF-fit source offset from KIC position	8.033 ± 5.163	1.56	-4.901 ± 2.660	6.365 ± 4.468
photometric centroid source offset	10.13 ± 9.31	1.09	8.93 ± 8.79	4.78 ± 10.93

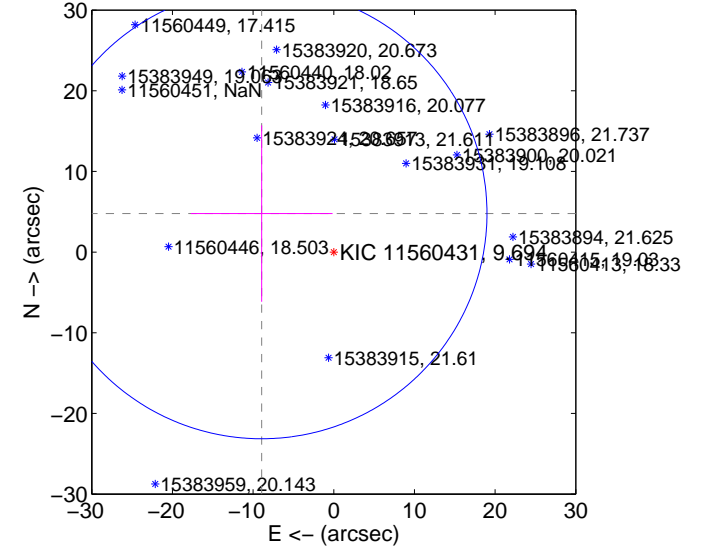
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

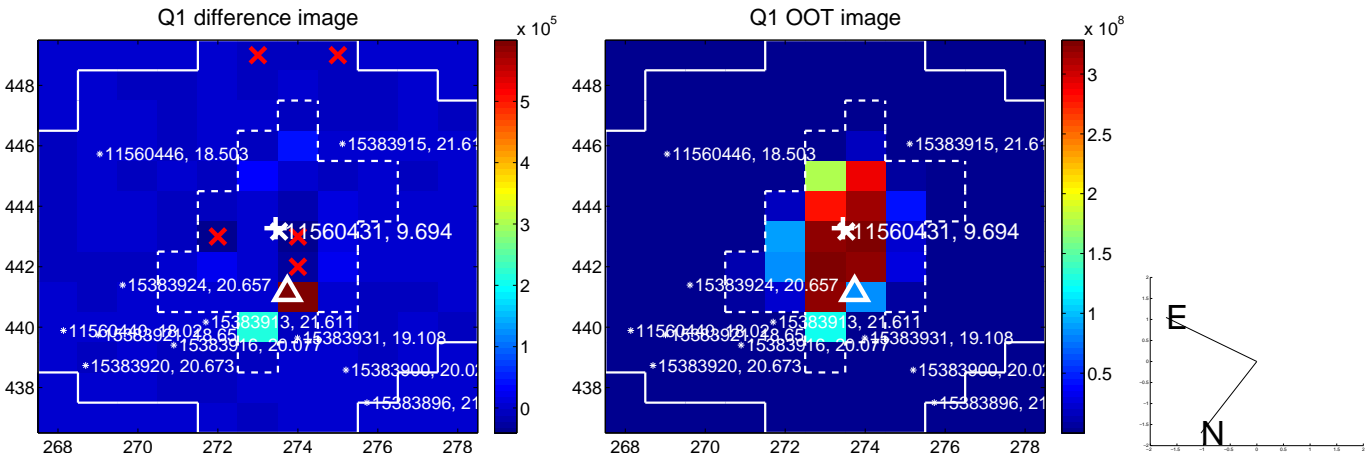


offset from photometric centroids



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.

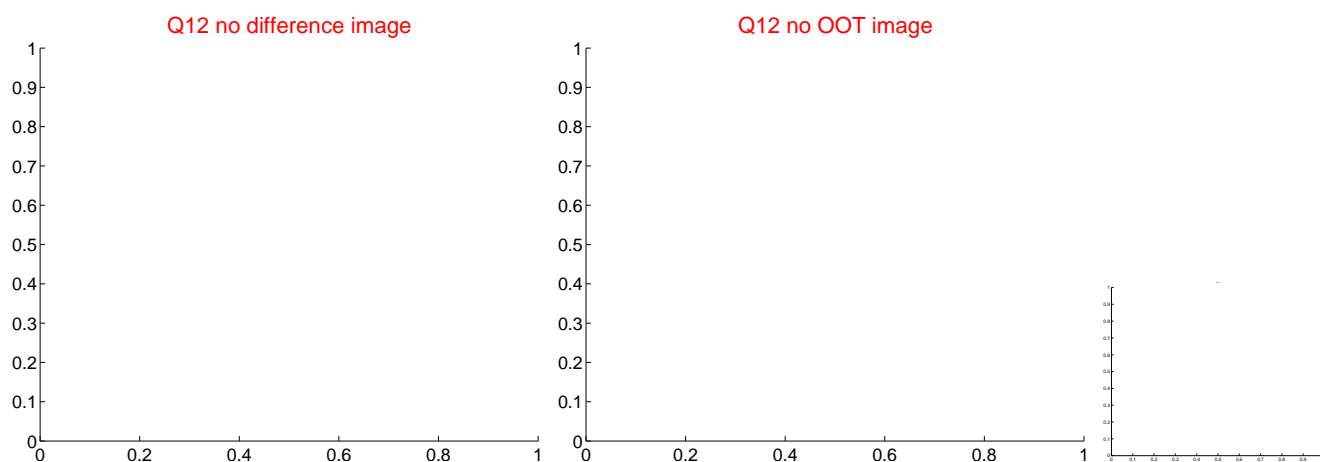
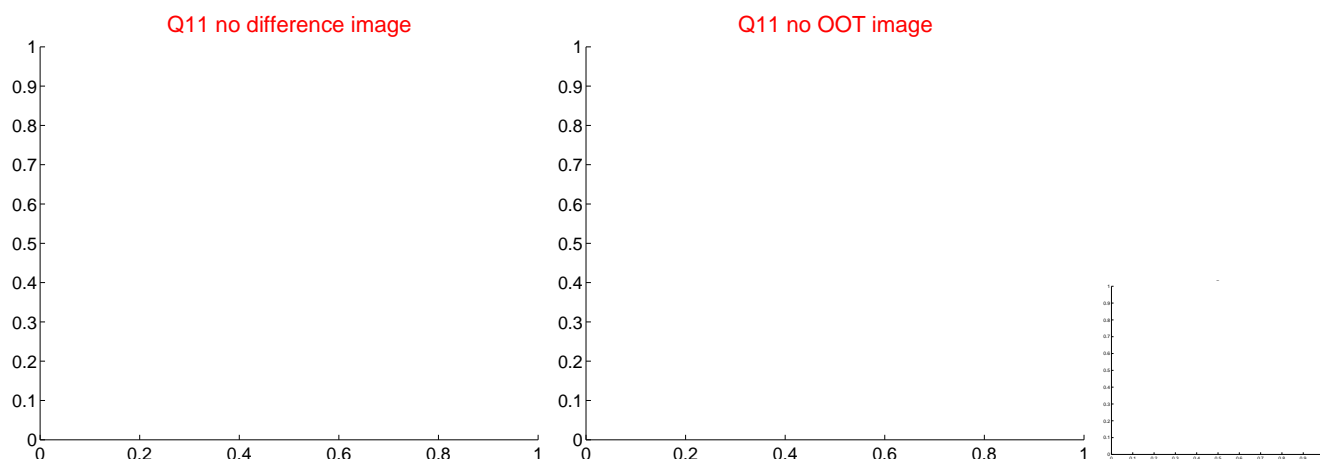
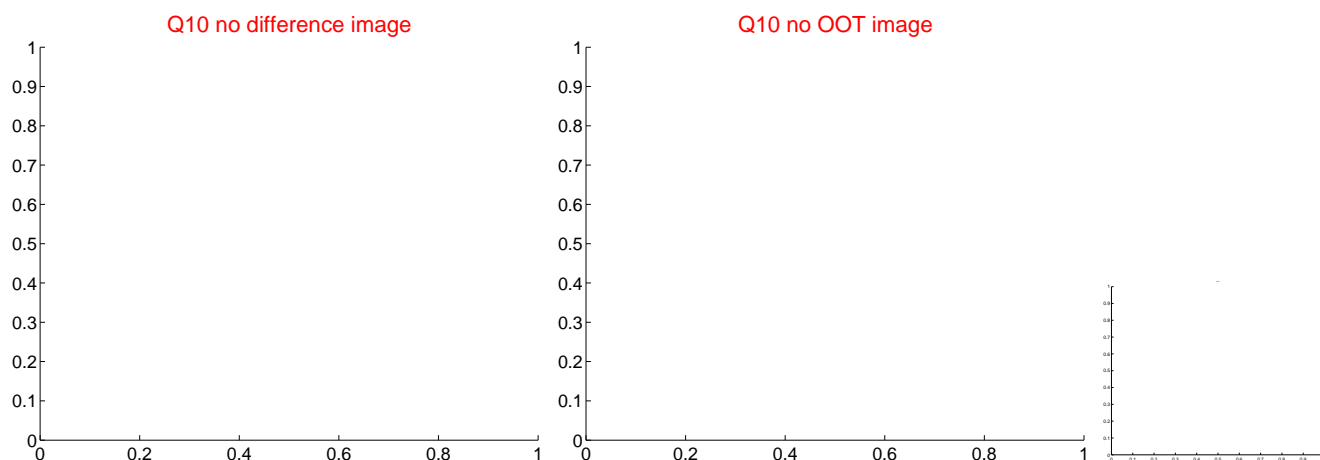
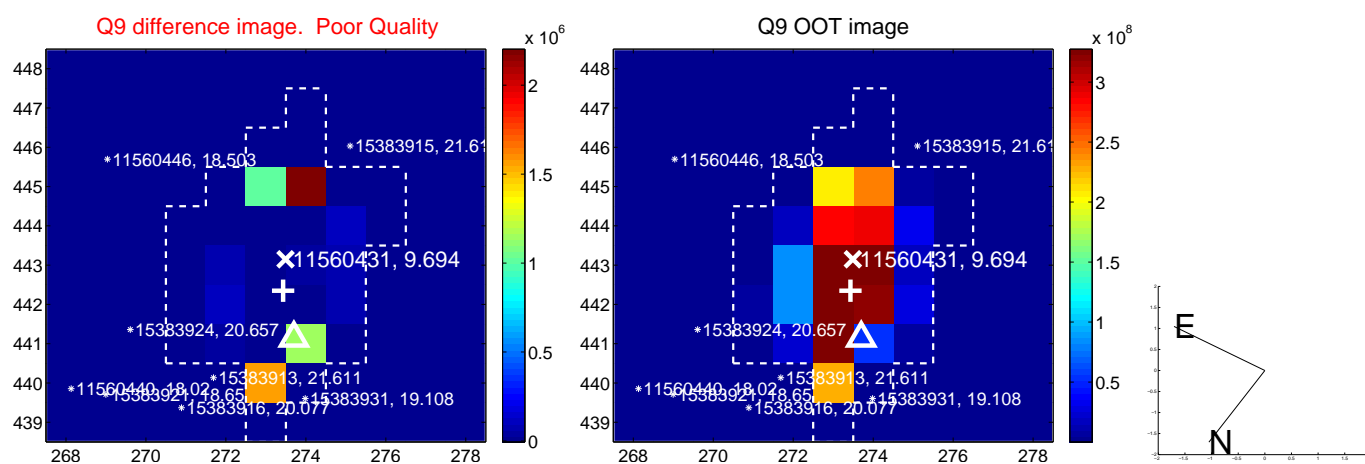
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



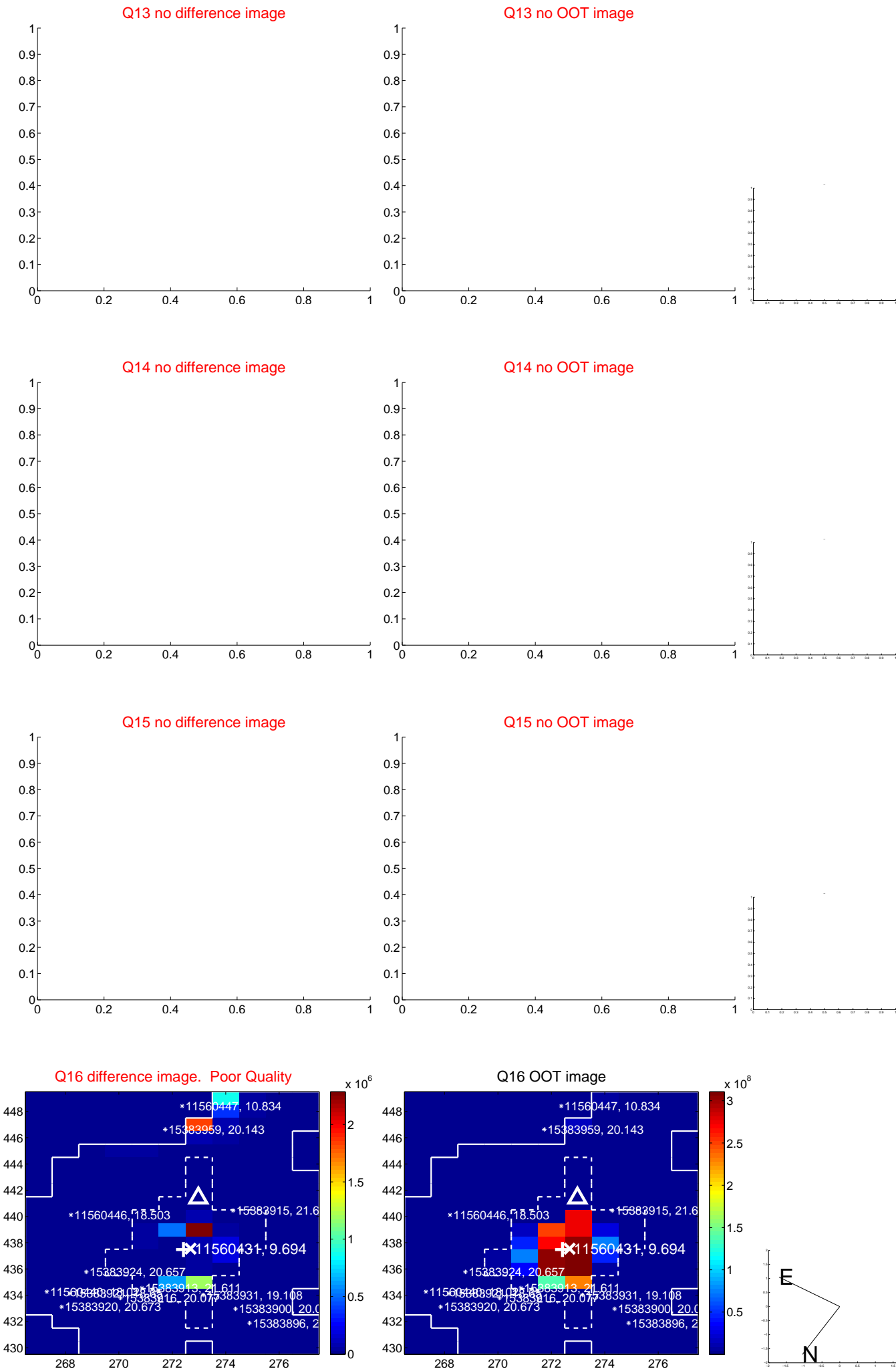
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



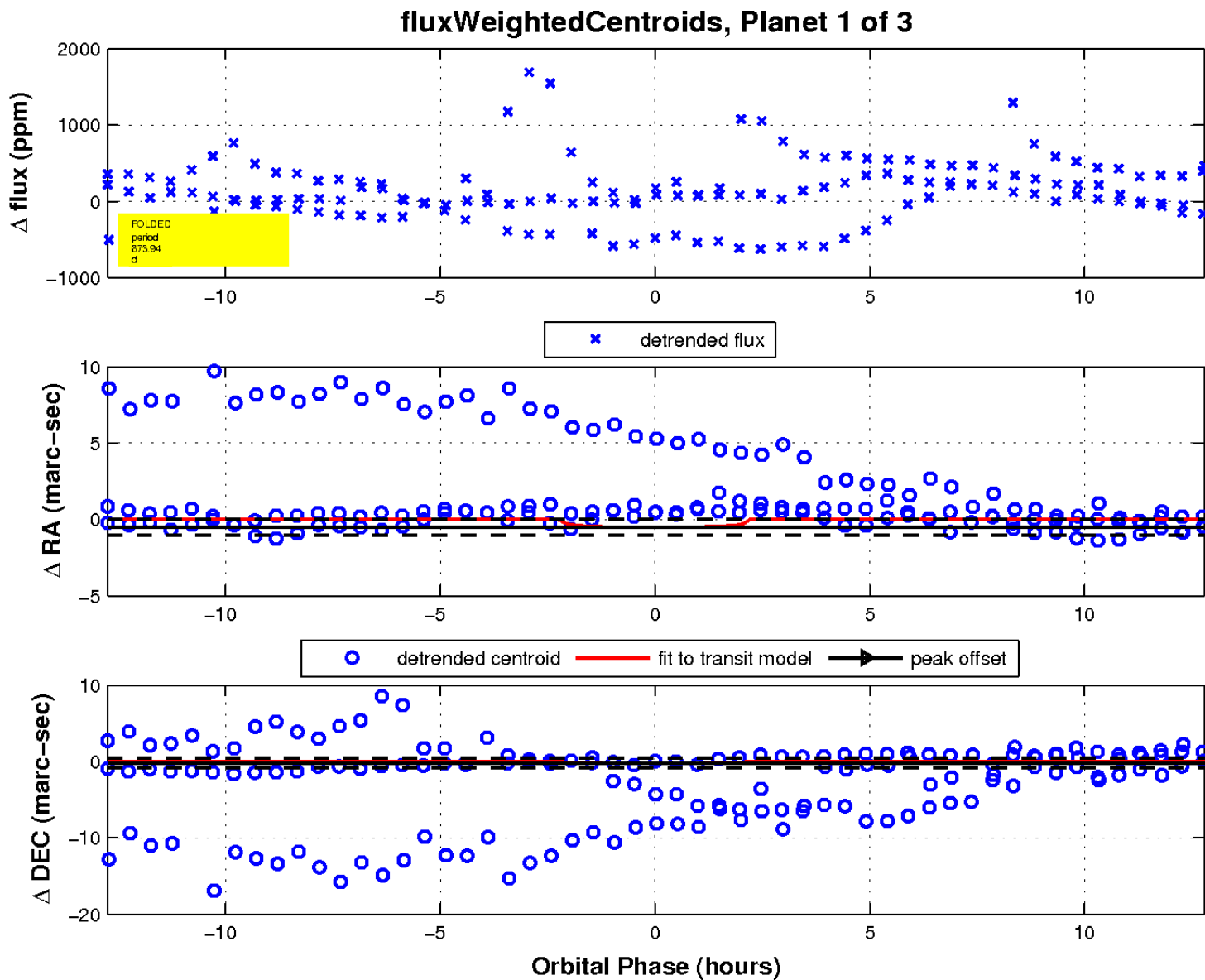
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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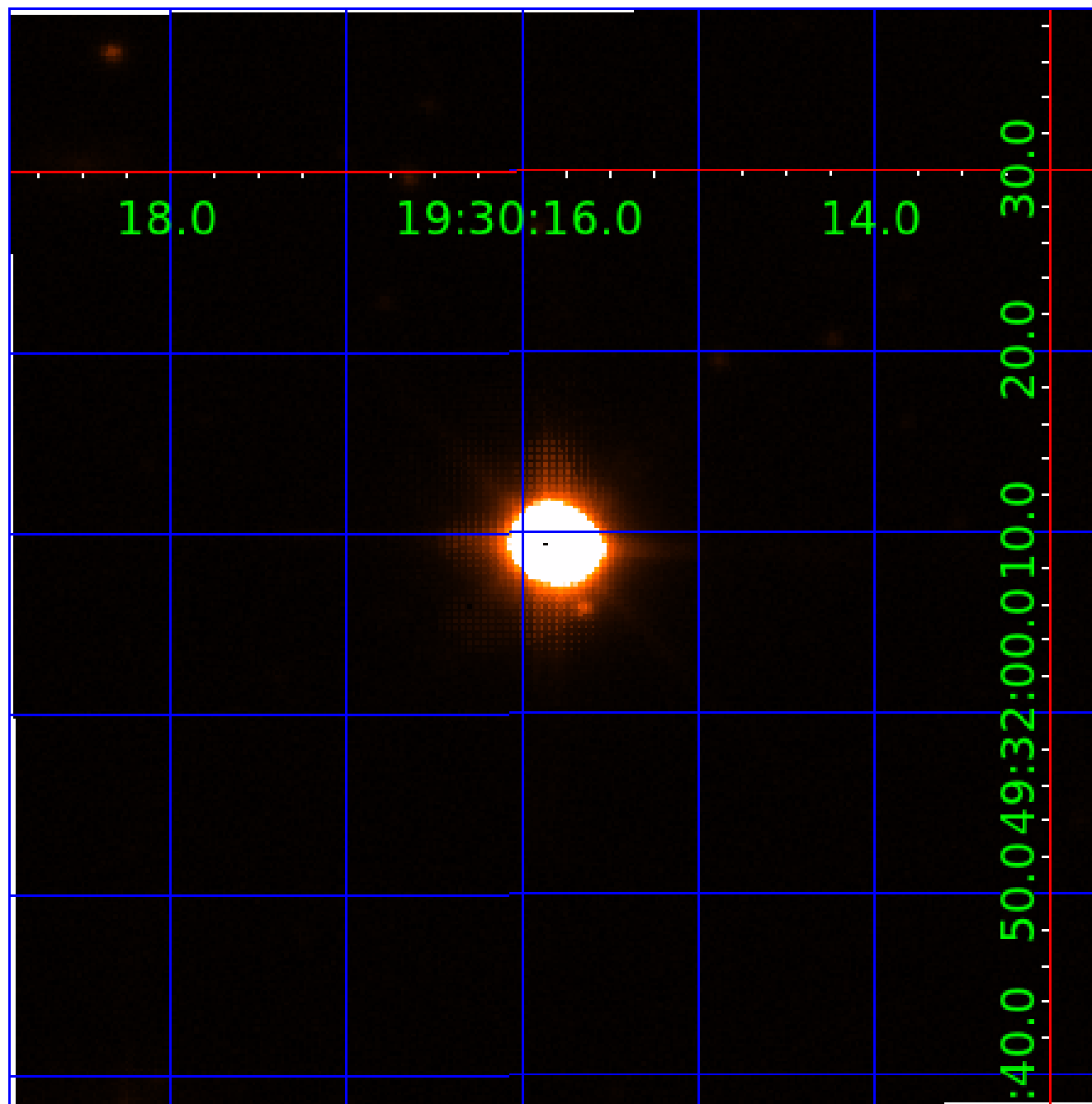


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011560431

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011560431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011560431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011560431-03	OBS	FP	0.00	0	0	0	1	CENT_SATURATED—EPHEM_MATCH

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

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

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

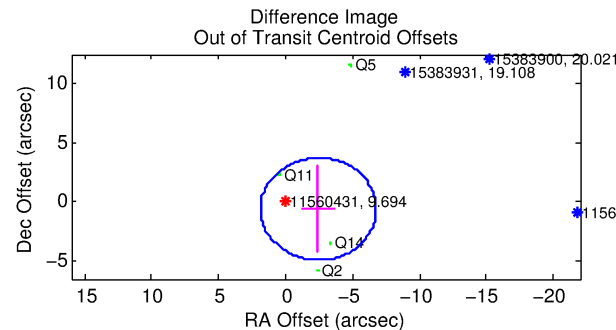
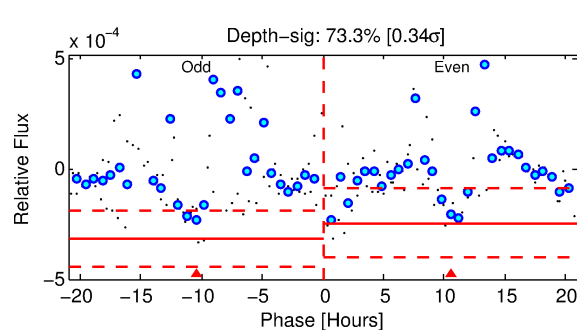
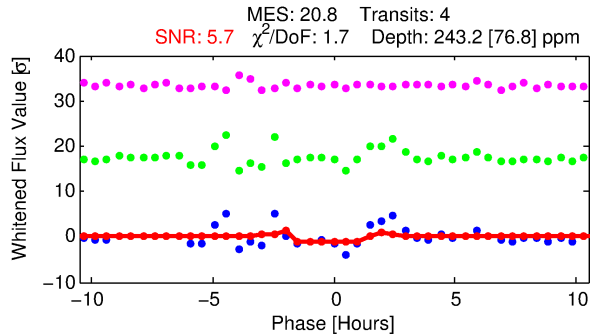
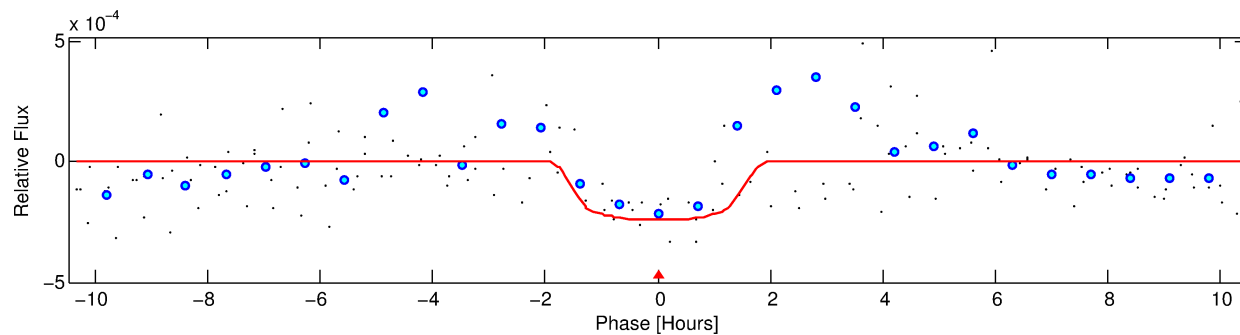
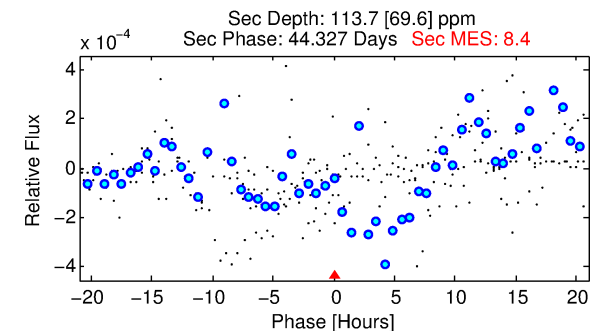
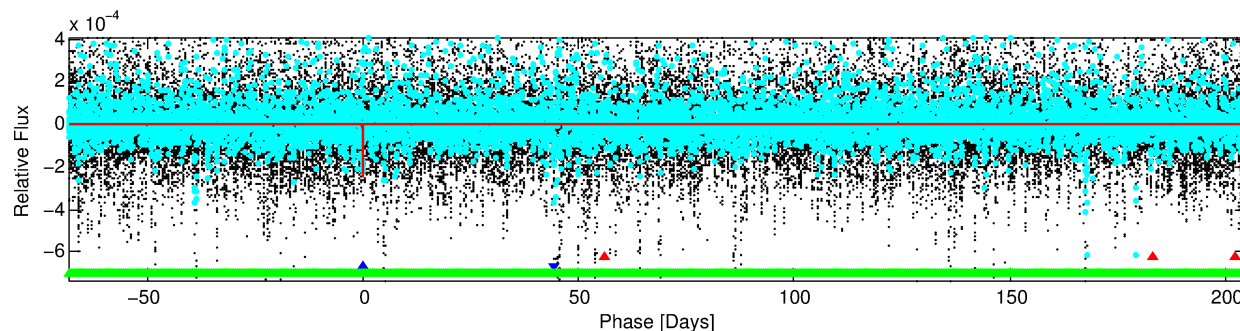
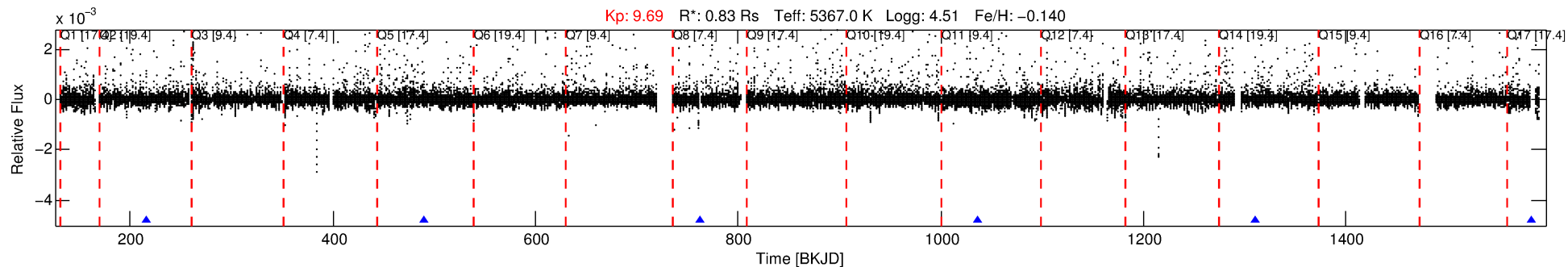
Ephemeris Match Information For 011560431-02

No Significant Match Found

DV One-Page Summary

KIC: 11560431 Candidate: 2 of 3 Period: 273.429 d
KOI: K07457 Corr: No Ephemeris Match

Kp: 9.69 R*: 0.83 Rs Teff: 5367.0 K Logg: 4.51 Fe/H: -0.140



DV Fit Results:

Period = 273.42867 [0.00309] d
Epoch = 216.3253 [0.0079] BKJD
Rp/R* = 0.0175 [0.0078]
a/R* = 266.16 [441.89]
b = 0.92 [0.30]
Seff = 0.86 [0.24]
Teq = 245 [17] K
Rp = 1.58 [0.76] Re
a = 0.7708 [0.1190] AU
Ag = 14909.42 [16478.32] [0.90σ]
Teff = 4193 [1146] K [3.44σ]

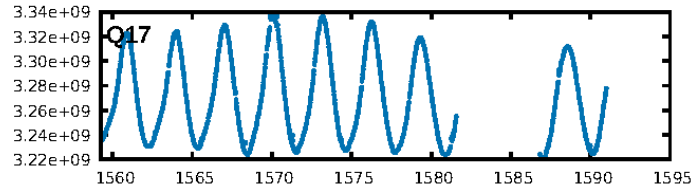
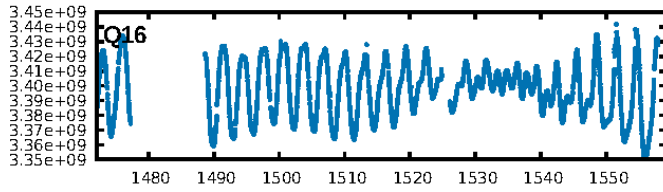
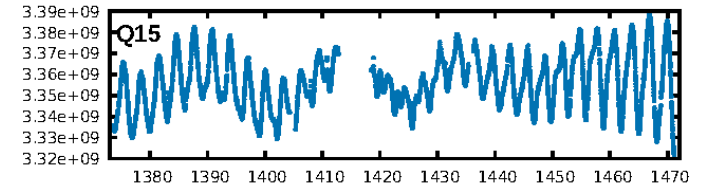
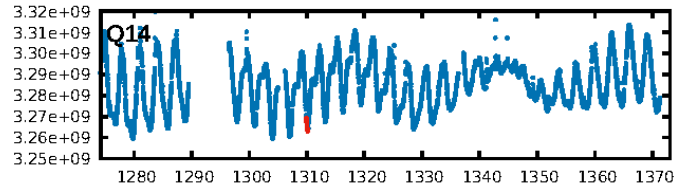
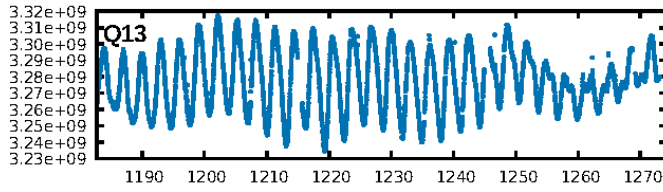
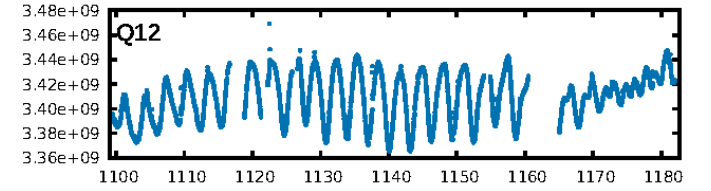
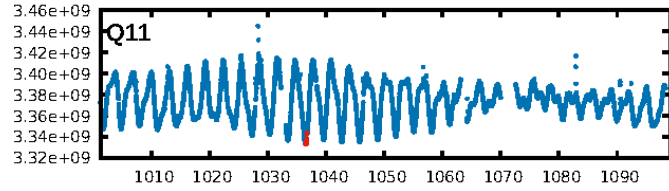
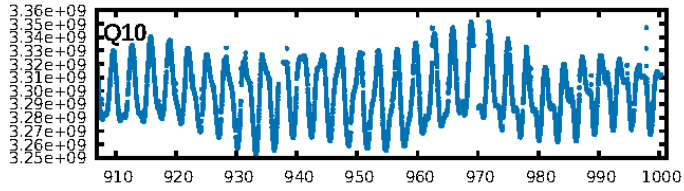
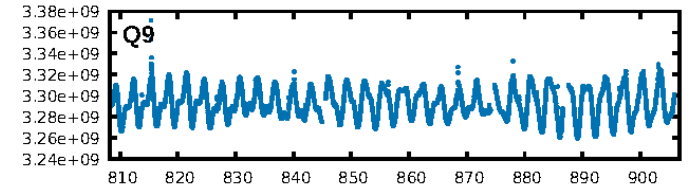
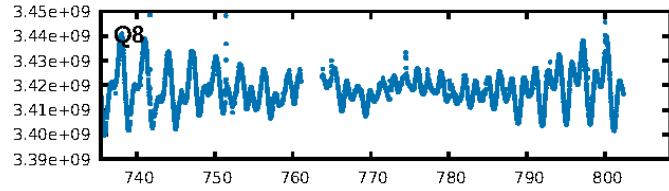
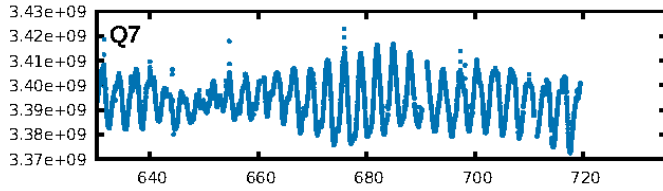
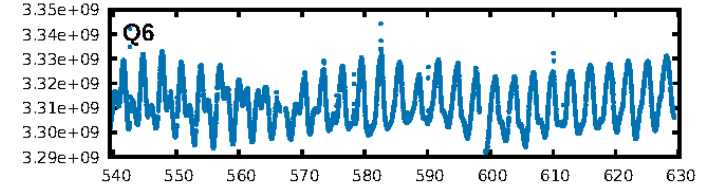
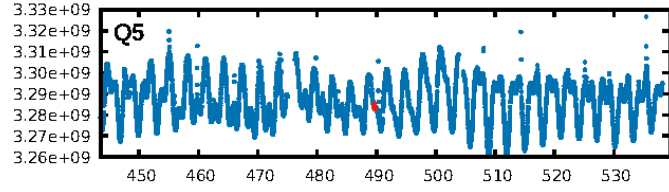
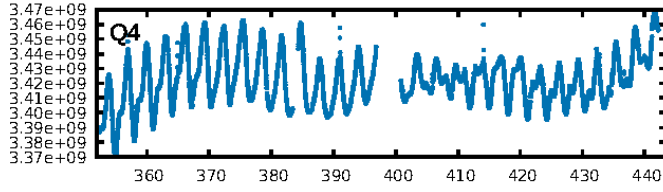
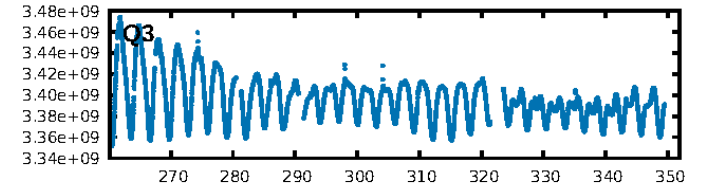
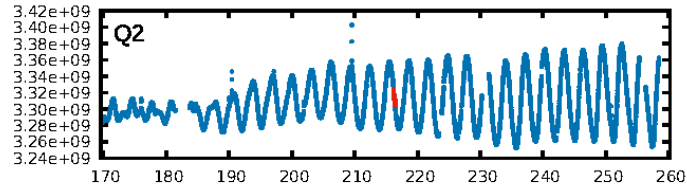
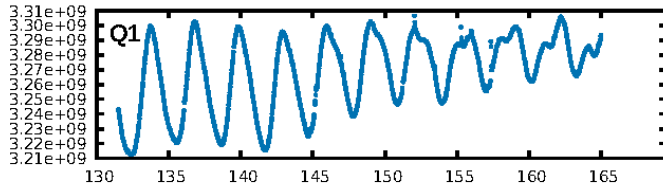
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1771.62σ]
LongPeriod-sig: 100.0% [1718.90σ]
ModelChiSquare2-sig: 11.8%
ModelChiSquareGof-sig: 56.5%
Bootstrap-pfa: 2.16e-20
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.5%
Centroid-so: 4.399 arcsec [1.95σ]
OotOffset-rm: 2.509 arcsec [1.74σ]
OotOffset-st: 2/1/0/1 [4]
KicOffset-rm: 2.924 arcsec [1.51σ]
KicOffset-st: 2/1/0/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.00 [0/4]

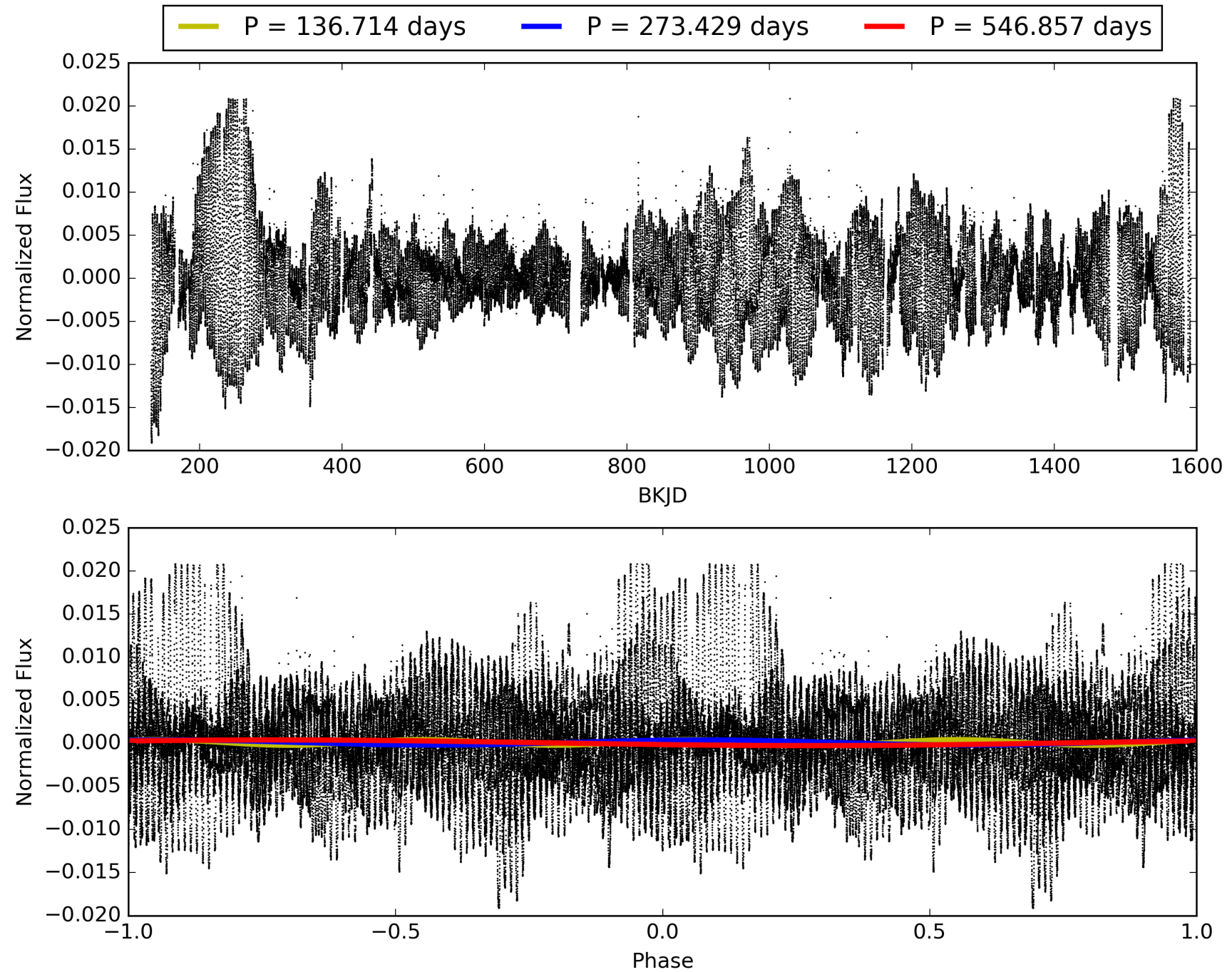
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 00:22:44 Z

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

TCE 011560431-02, PDC Light Curves

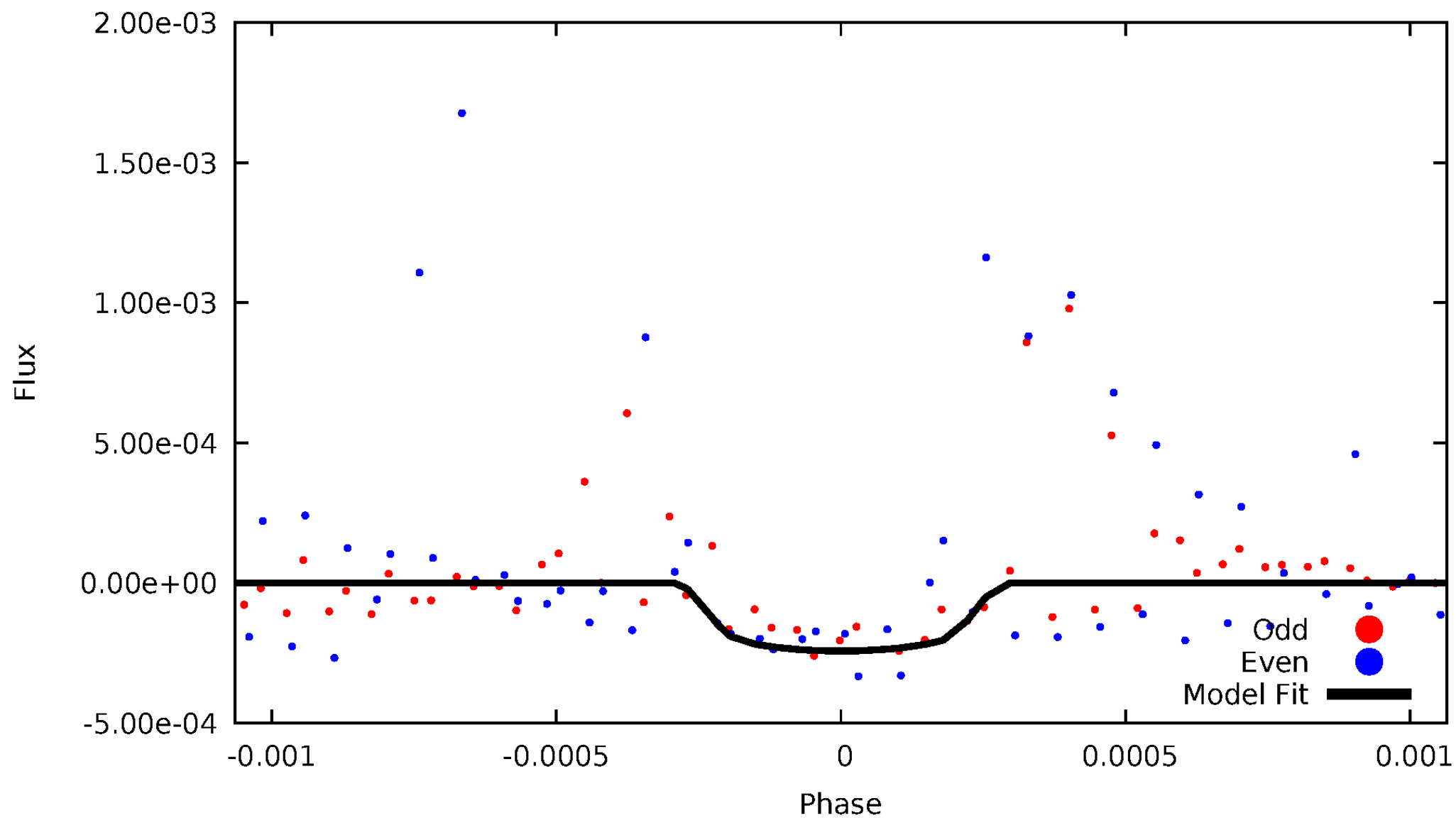


TCE 011560431-02



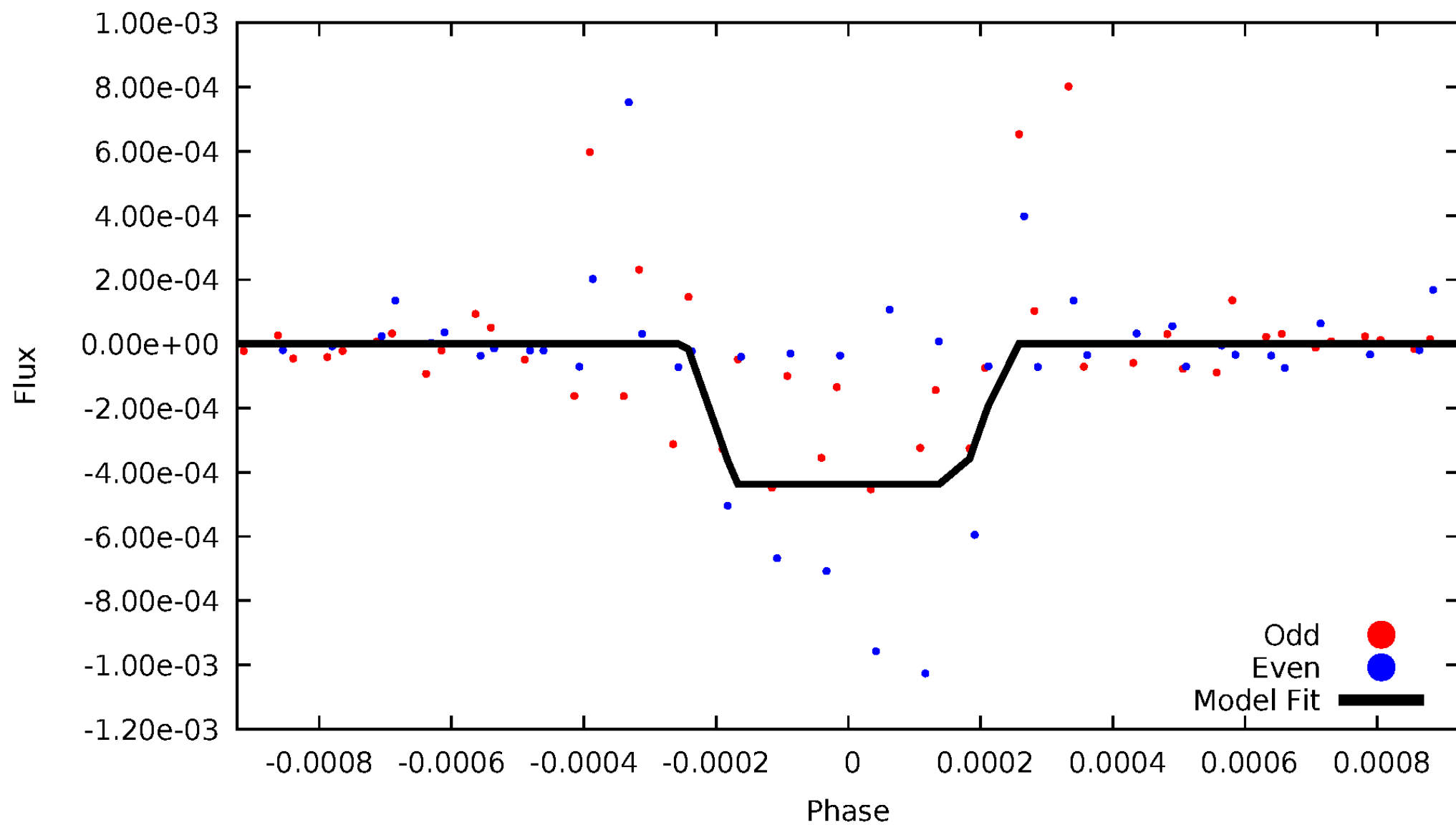
DV Odd/Even

TCE 011560431-02



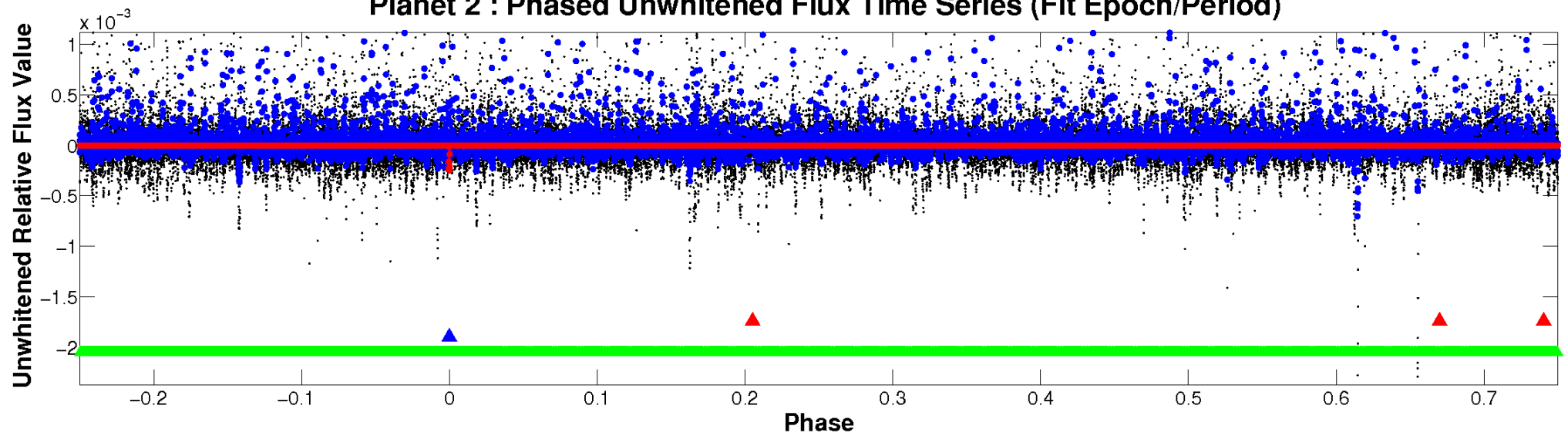
ALT Odd/Even

TCE 011560431-02

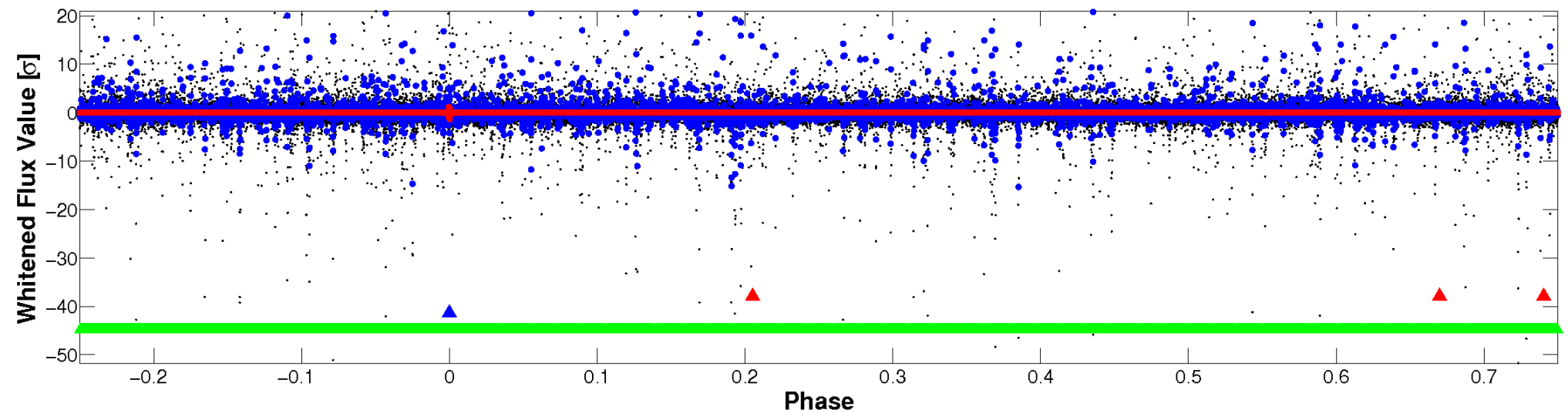


Non-Whitened Vs. Whitened Light Curve

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

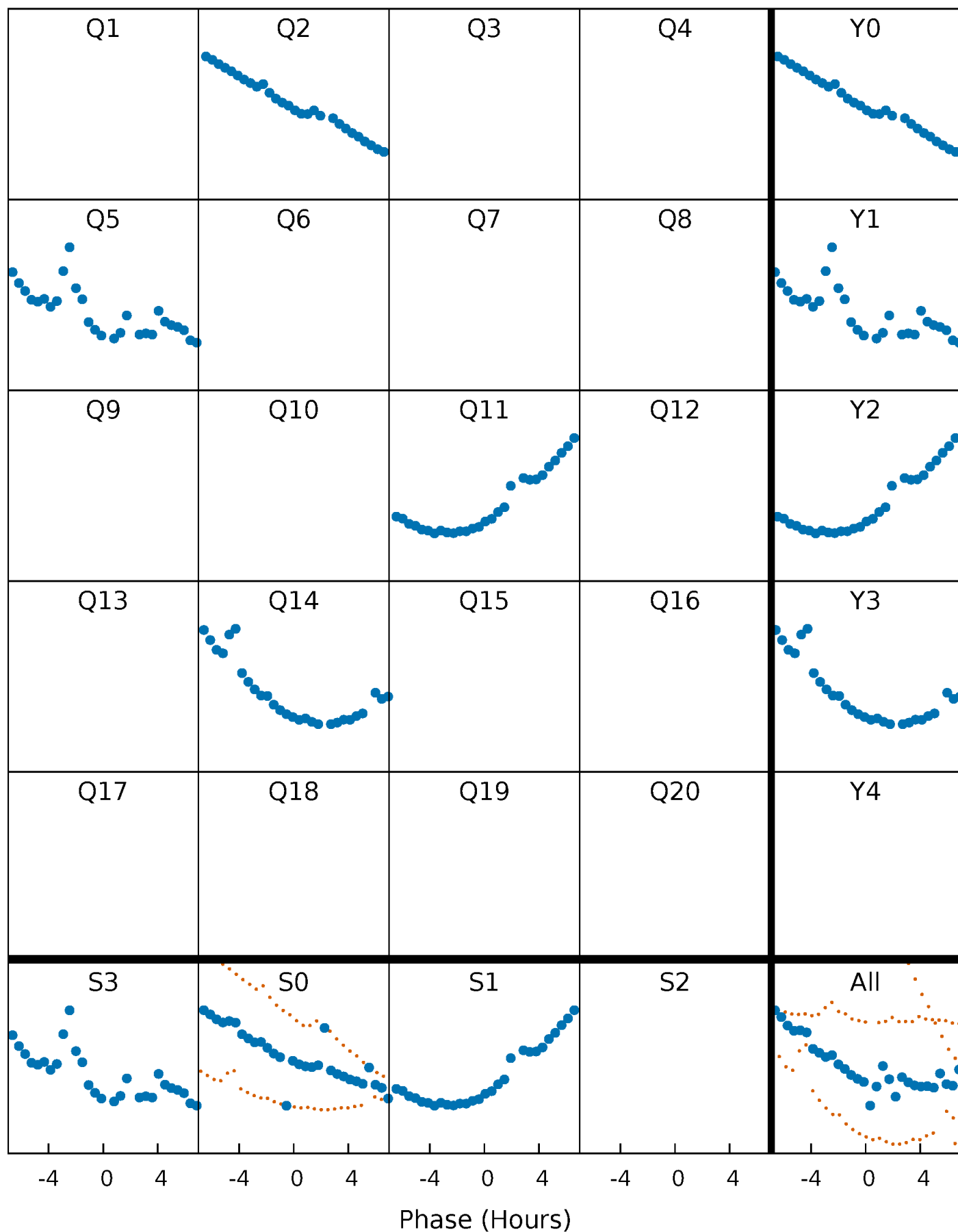


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



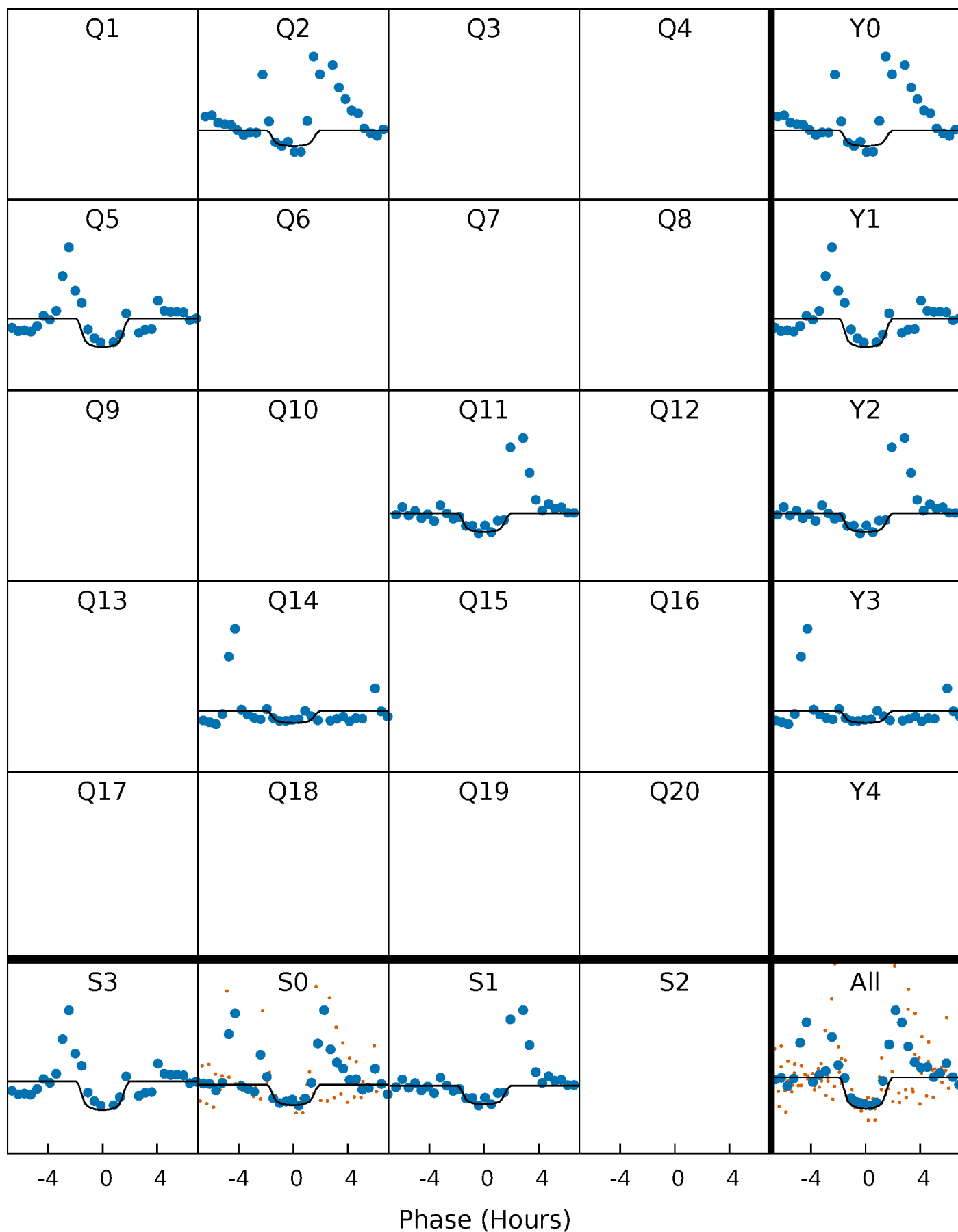
PDC Quarter-Phased Transit Curves

TCE 011560431-02 $P=273.428668$ Days $T_0=216.325266$ (BKJD)



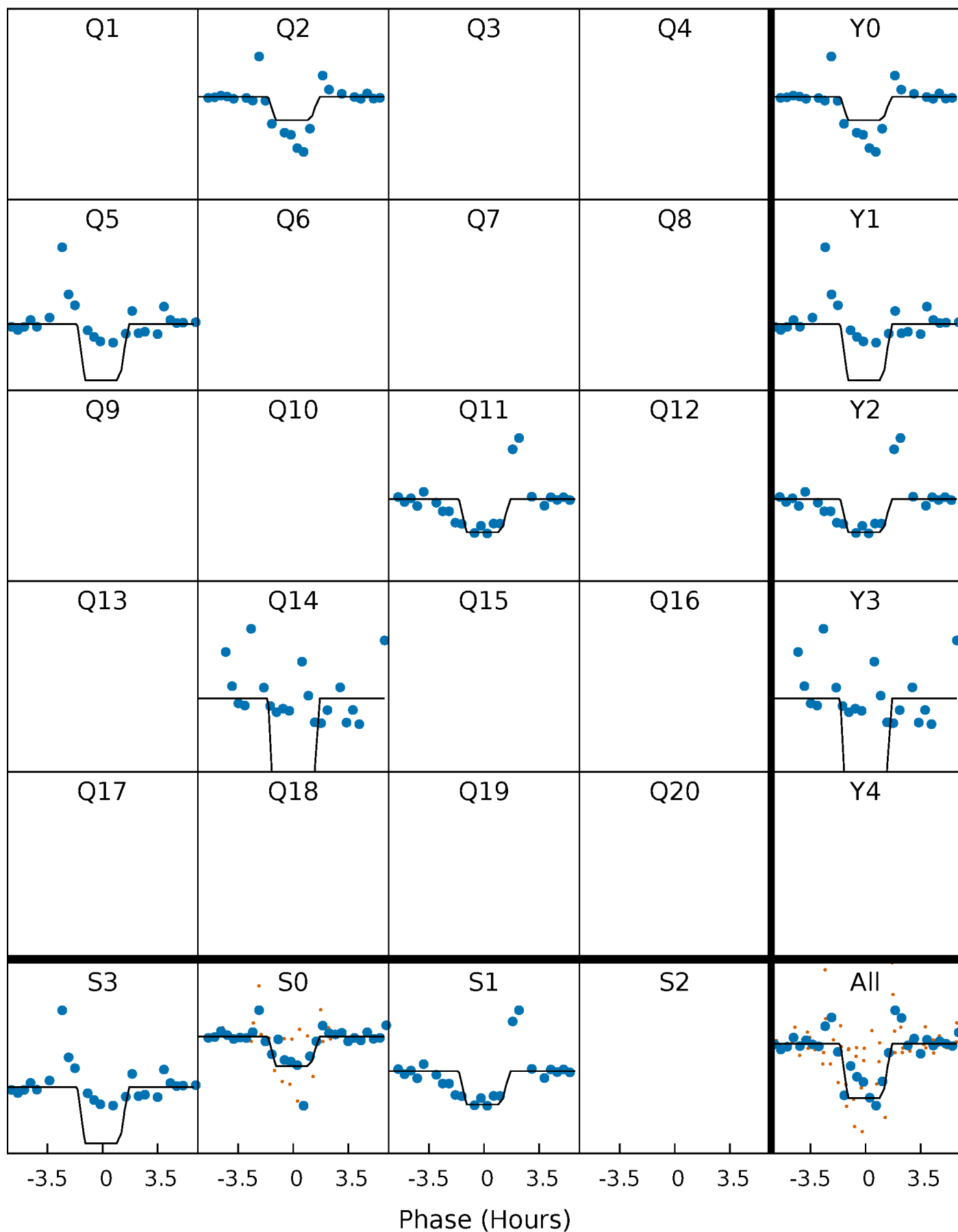
DV Quarter-Phased Transit Curves

TCE 011560431-02 $P=273.428668$ Days $T_0=216.325266$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

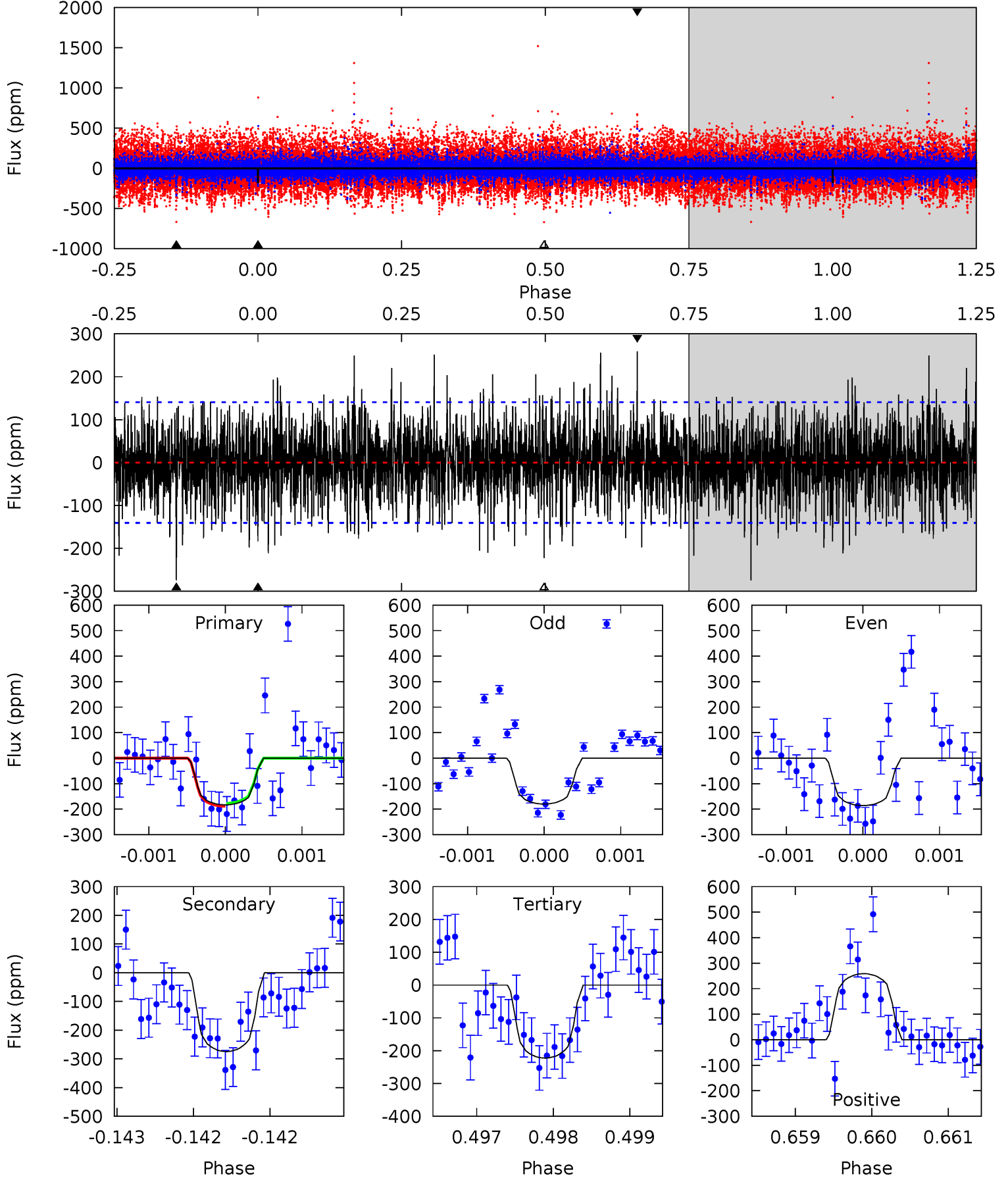
TCE 011560431-02 $P=273.435864$ Days $T_0=216.322268$ (BKJD)



DV Model-Shift Uniqueness Test

011560431-02, P = 273.428668 Days, E = 216.325266 Days

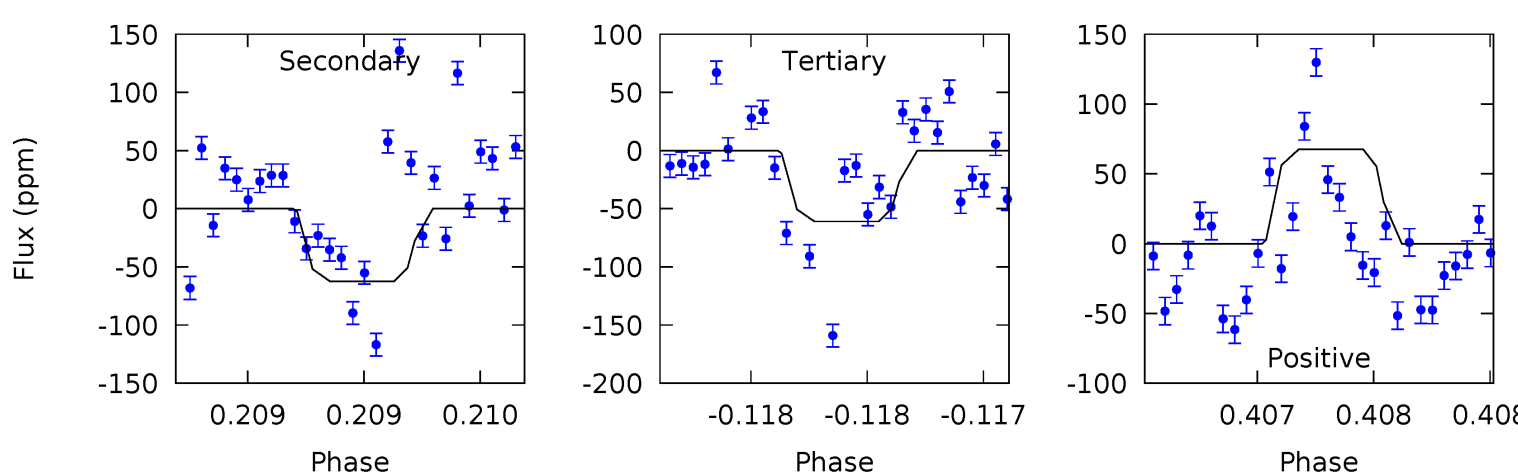
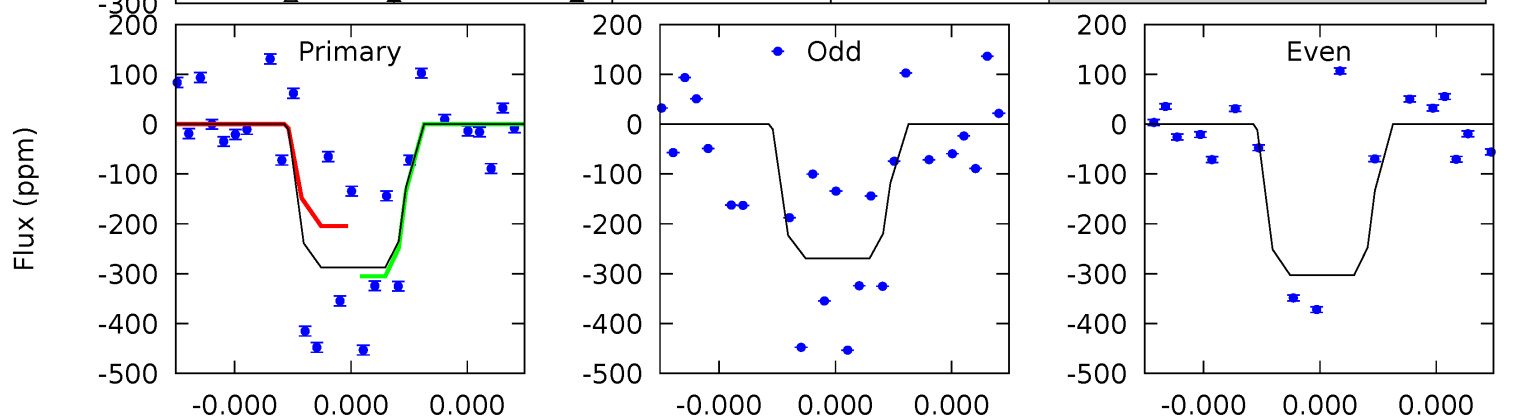
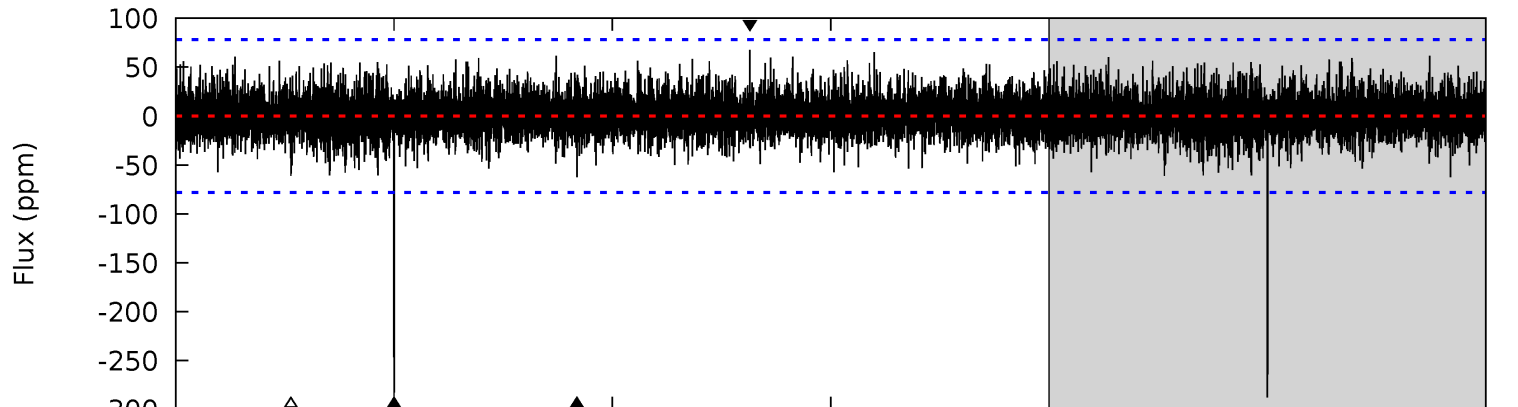
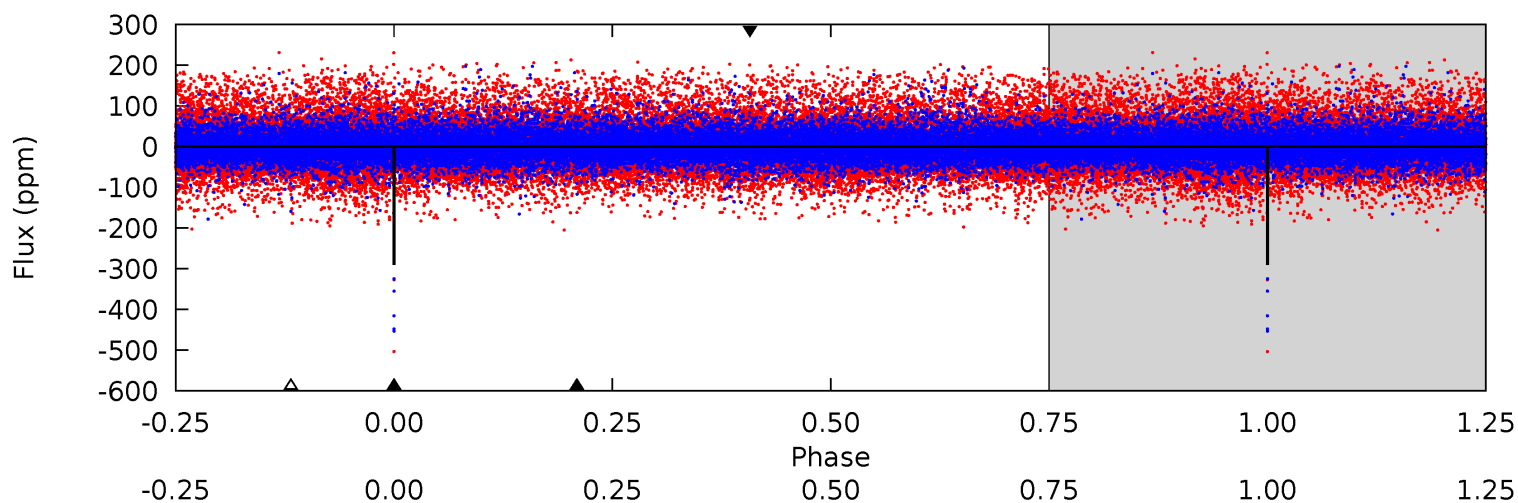
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.22	10.8	8.77	10.2	5.54	3.43	2.36	-1.56	-2.99	2.05	0.61	0.11	1.05	0.49	0.23



Alt Model-Shift Uniqueness Test

011560431-02, $P = 273.435864$ Days, $E = 216.322268$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	4.46	4.35	4.84	5.59	3.51	1.10	16.2	15.7	0.11	-0.38	1.35	1.30	0.19	3.59



Stellar Parameters For KIC 011560431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5367^{+212}_{-191}	$4.514^{+0.076}_{-0.124}$	$-0.140^{+0.300}_{-0.300}$	$0.828^{+0.151}_{-0.101}$	$0.817^{+0.104}_{-0.078}$	$2.027^{+0.668}_{-0.705}$
	+4%/-4%	+2%/-3%	+214%/-214%	+18%/-12%	+13%/-10%	+33%/-35%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011560431-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-275 ± 25	$1.61^{+0.76}_{-0.69}$	346^{+20}_{-17}	5246^{+1698}_{-803}	35249^{+73865}_{-18801}
Alt.	-62 ± 14	$1.93^{+0.79}_{-0.73}$	348^{+20}_{-18}	3680^{+650}_{-390}	5476^{+8208}_{-2861}

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

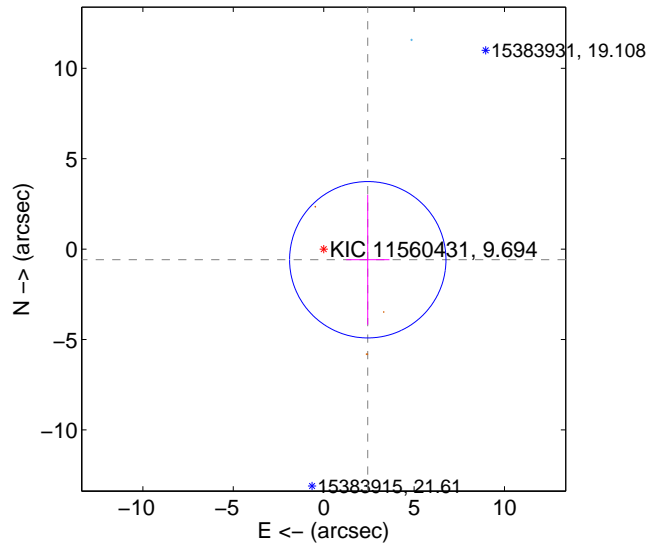
Supplemental centroid analysis for 011560431-02. **Kepler magnitude: 9.69.** Transit SNR 5.70

There are 1 quarters with good PRF difference image offsets

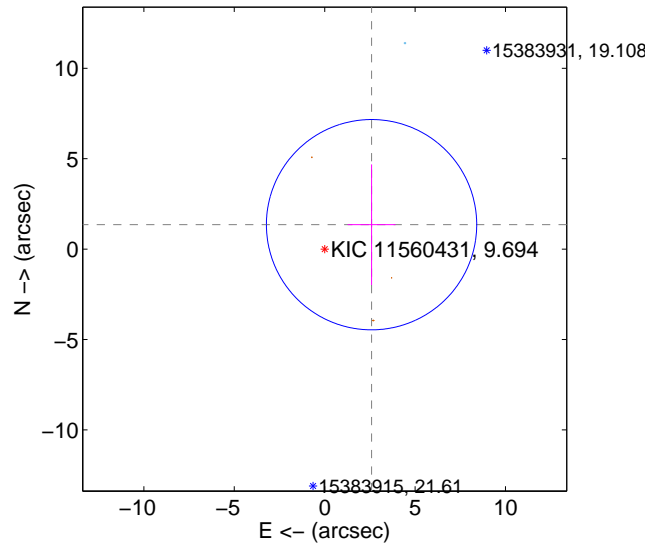
The direct PRF centroid is offset from the target star catalog position by about 1.93 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.509 ± 1.442	1.74	-2.439 ± 1.203	-0.589 ± 3.594
PRF-fit source offset from KIC position	2.924 ± 1.939	1.51	-2.593 ± 1.325	1.351 ± 3.337
photometric centroid source offset	4.40 ± 2.25	1.95	0.10 ± 2.01	-4.40 ± 2.25

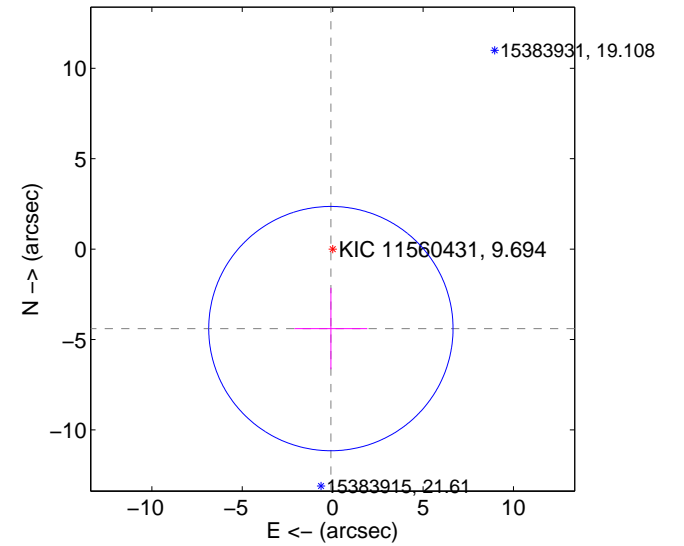
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



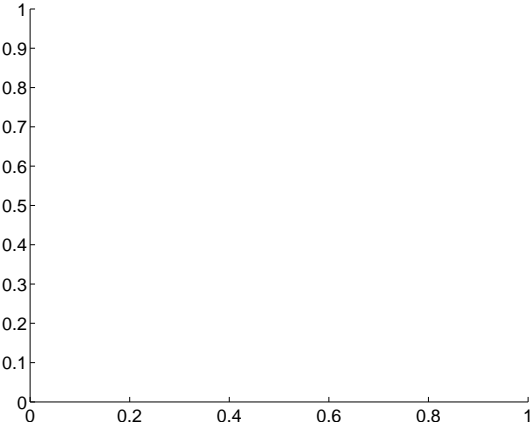
offset from photometric centroids



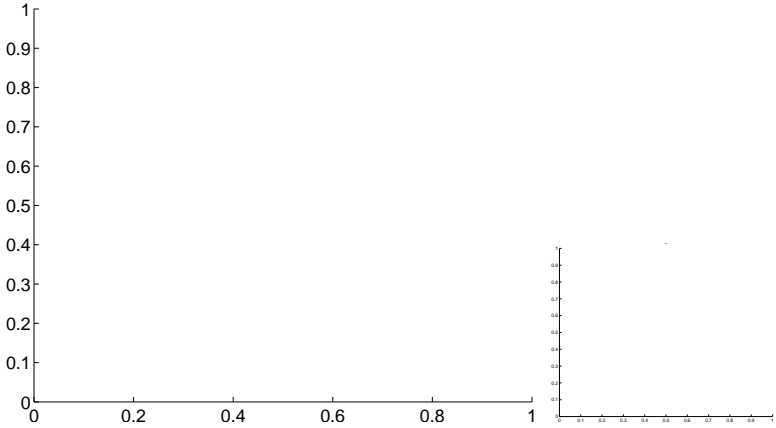
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

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

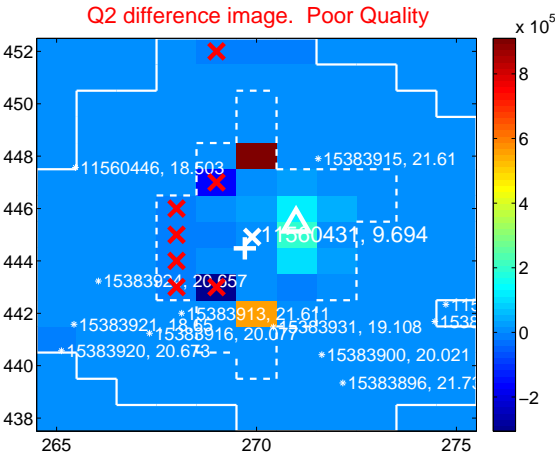
Q1 no difference image



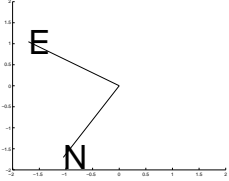
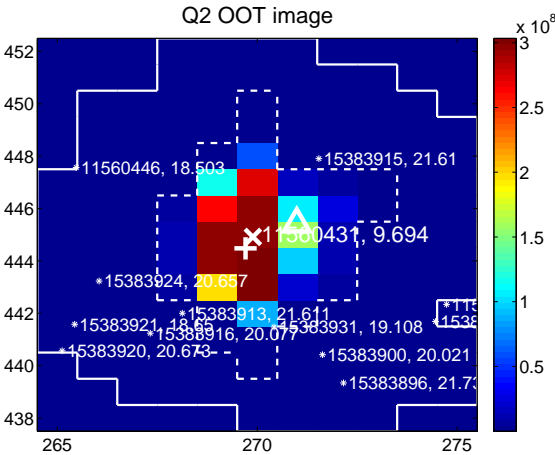
Q1 no OOT image



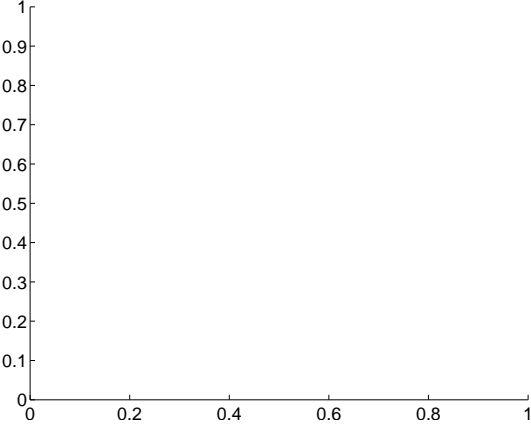
Q2 difference image. Poor Quality



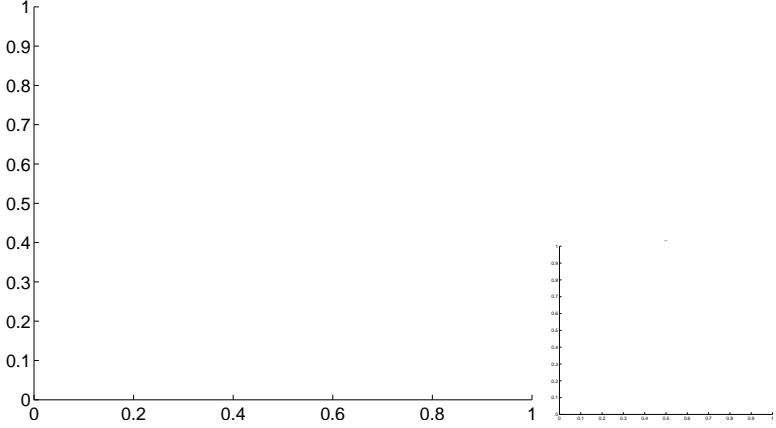
Q2 OOT image



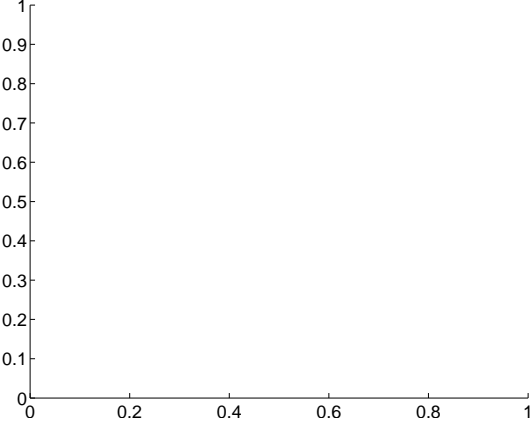
Q3 no difference image



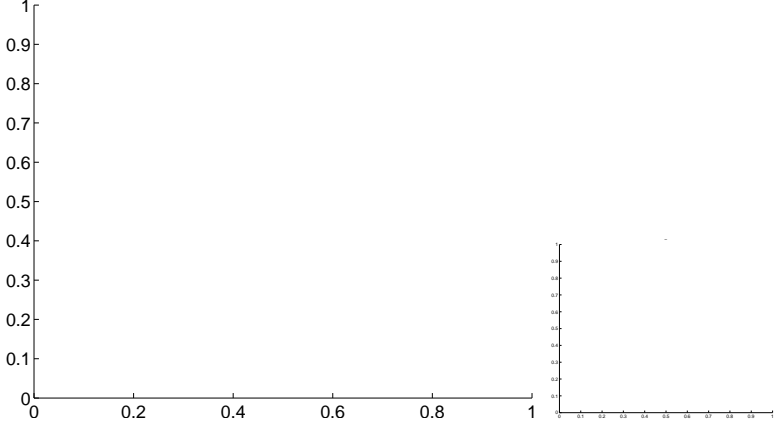
Q3 no OOT image



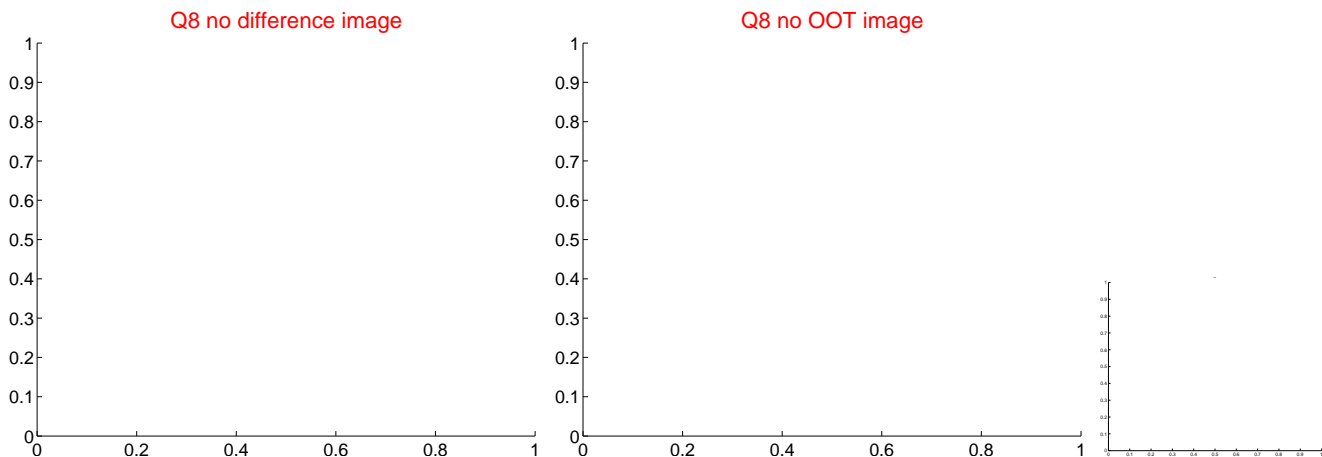
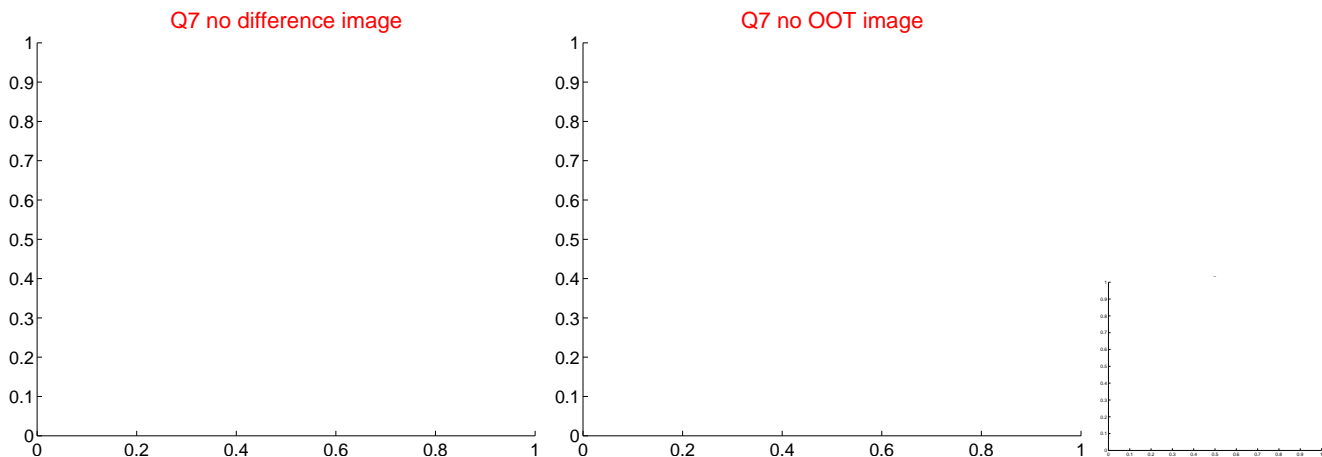
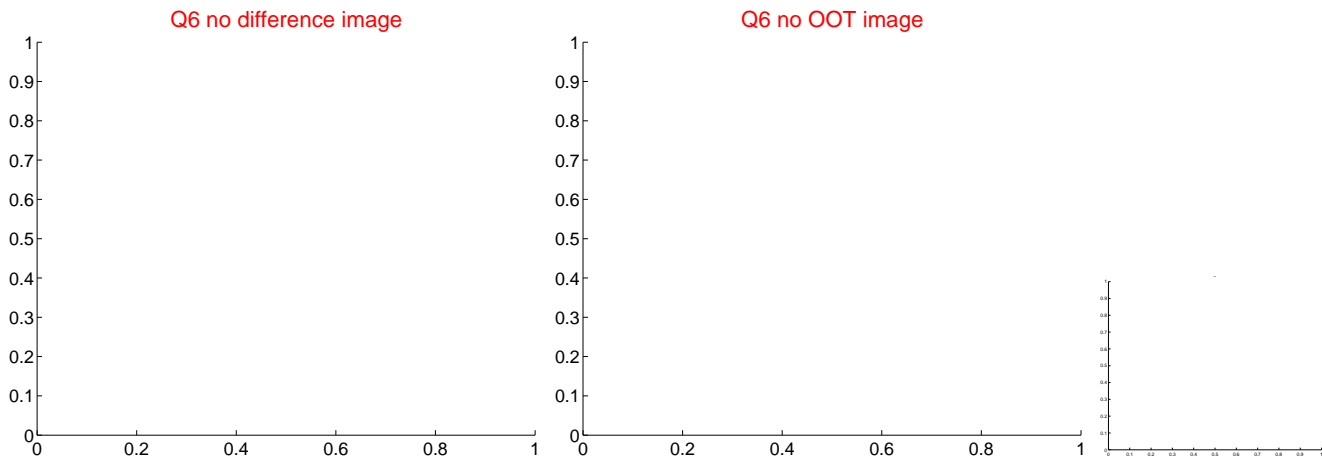
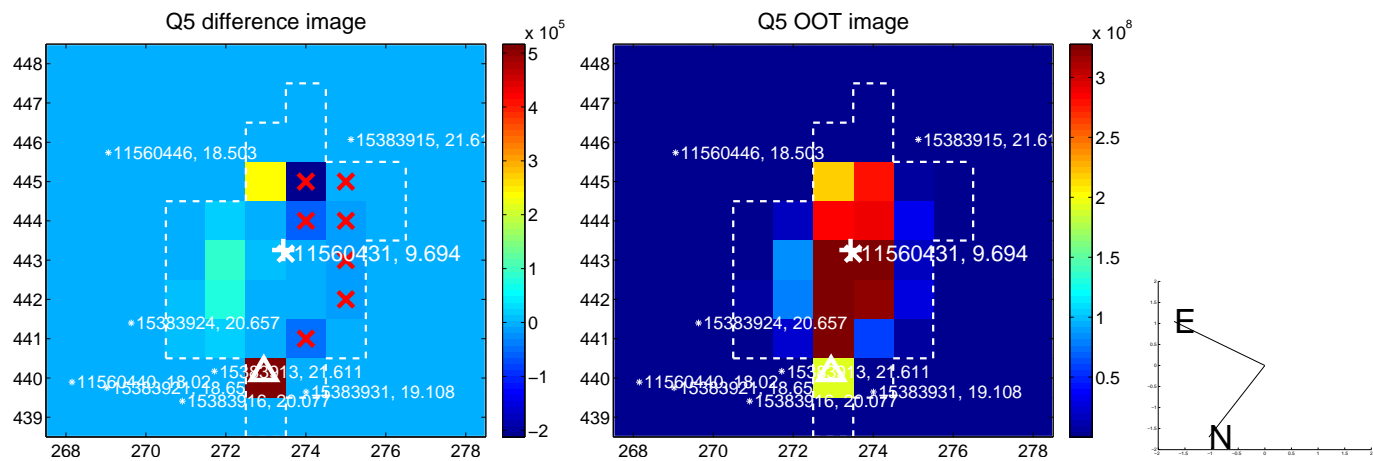
Q4 no difference image



Q4 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.

Q9 no difference image



Q9 no OOT image



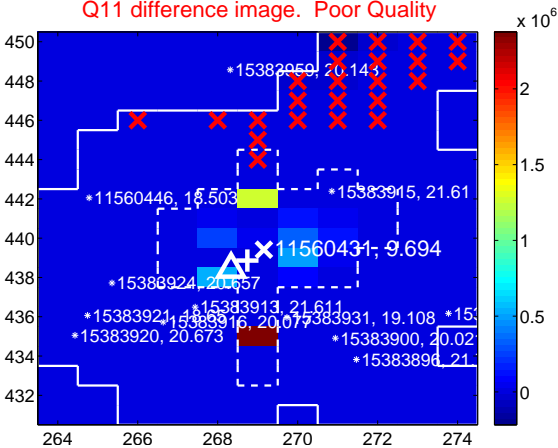
Q10 no difference image



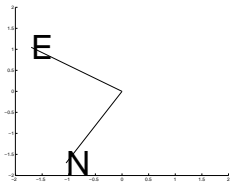
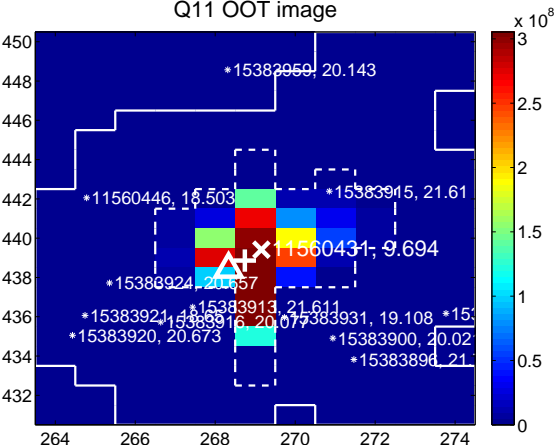
Q10 no OOT image



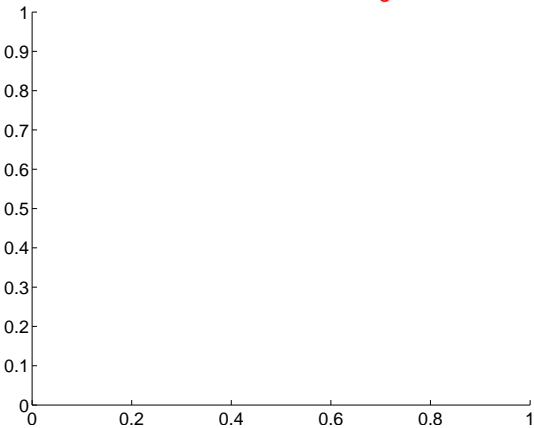
Q11 difference image. Poor Quality



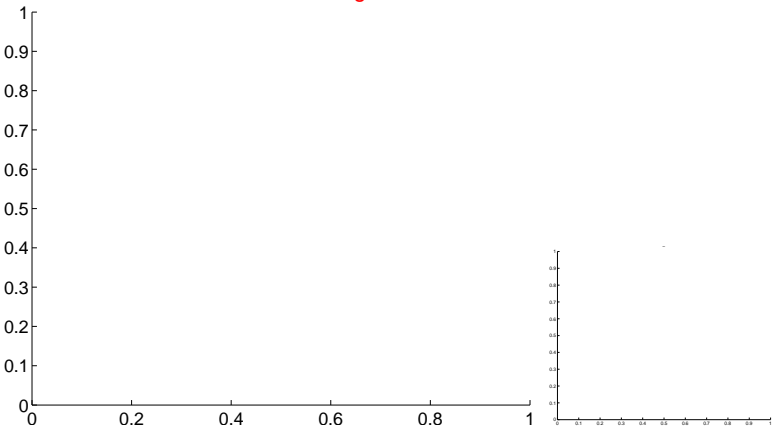
Q11 OOT image



Q12 no difference image

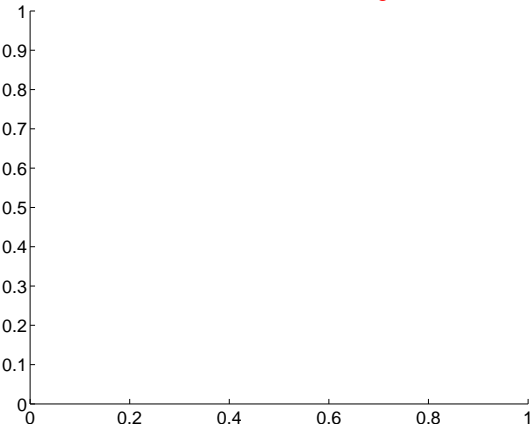


Q12 no OOT image

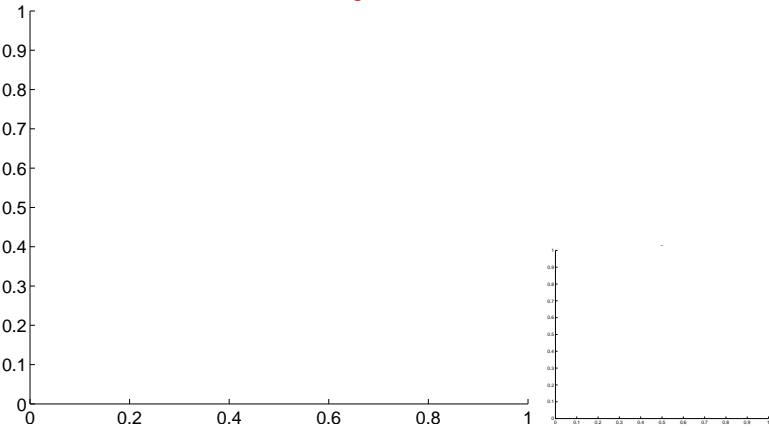


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

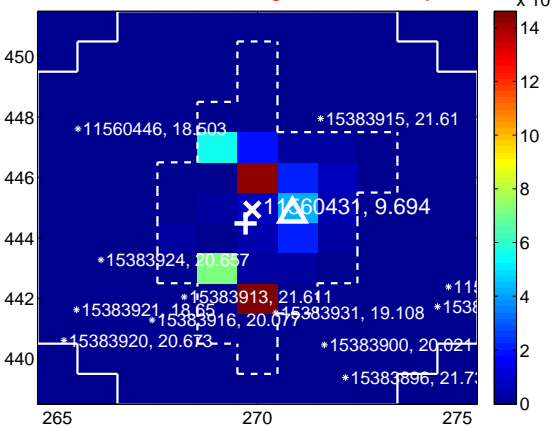
Q13 no difference image



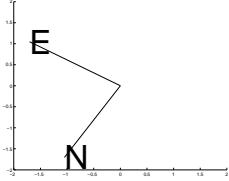
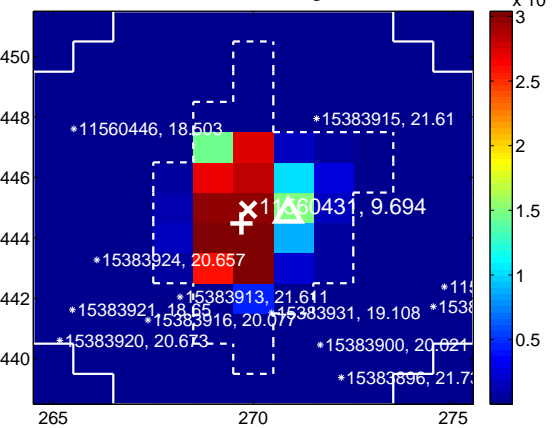
Q13 no OOT image



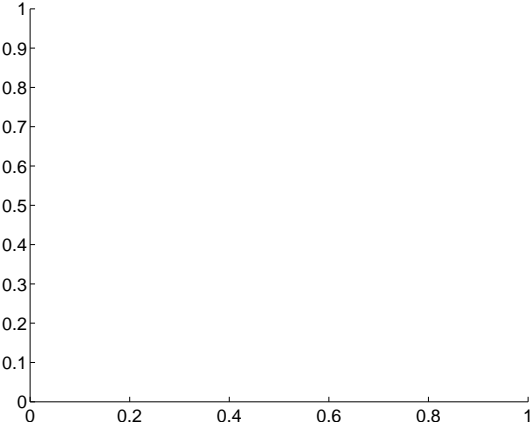
Q14 difference image. Poor Quality



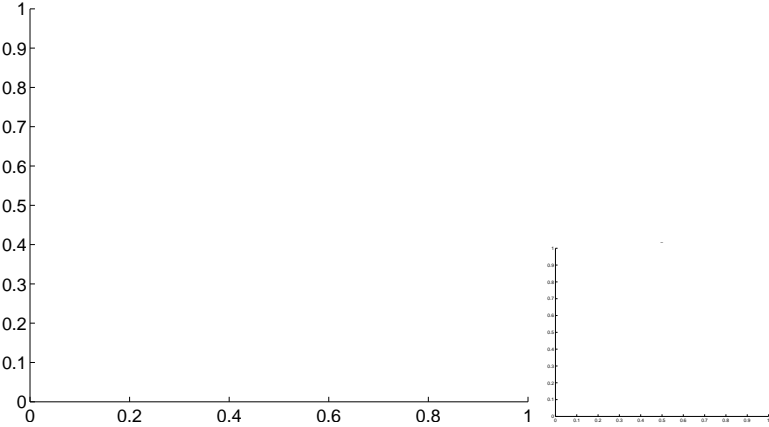
Q14 OOT image



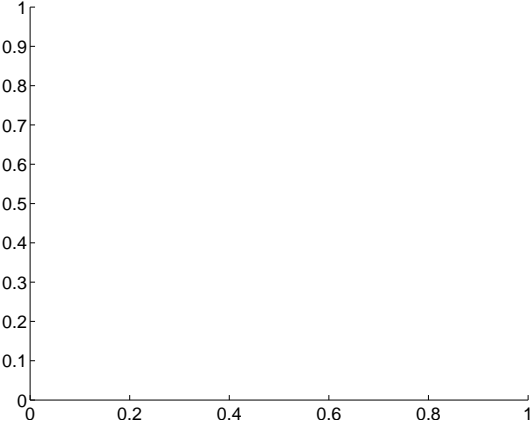
Q15 no difference image



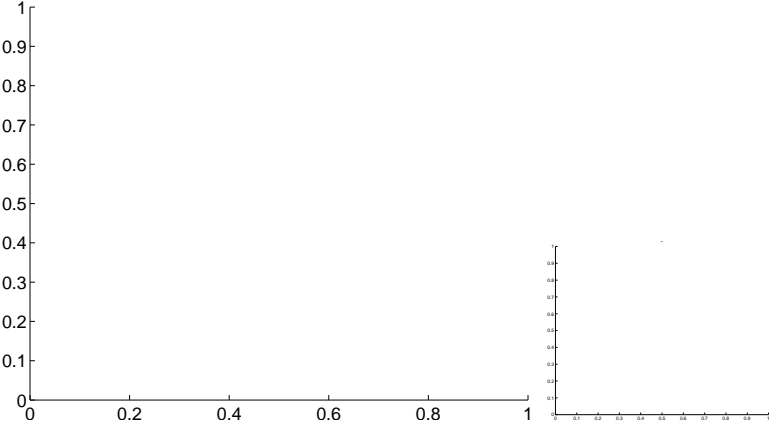
Q15 no OOT image



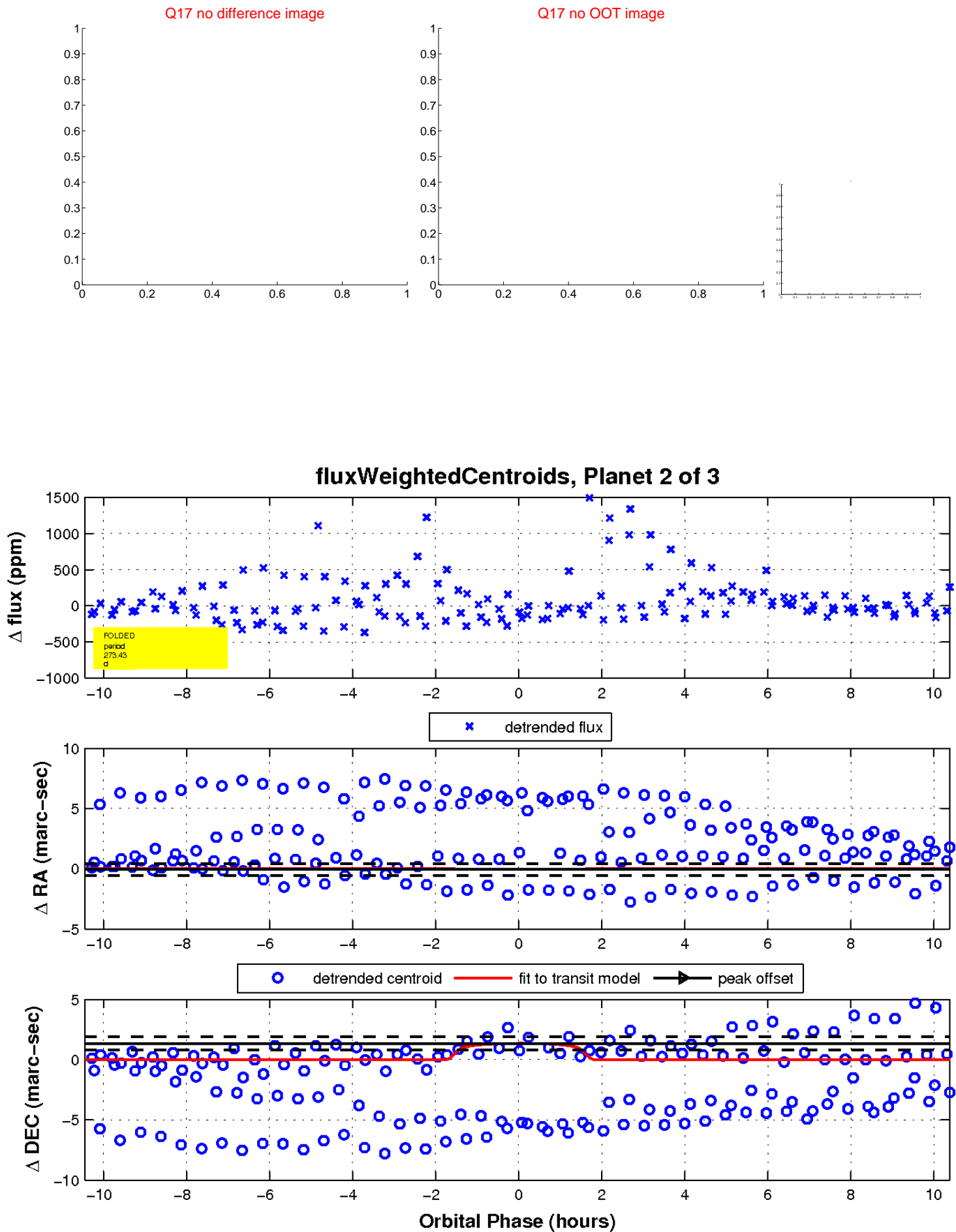
Q16 no difference image



Q16 no OOT image

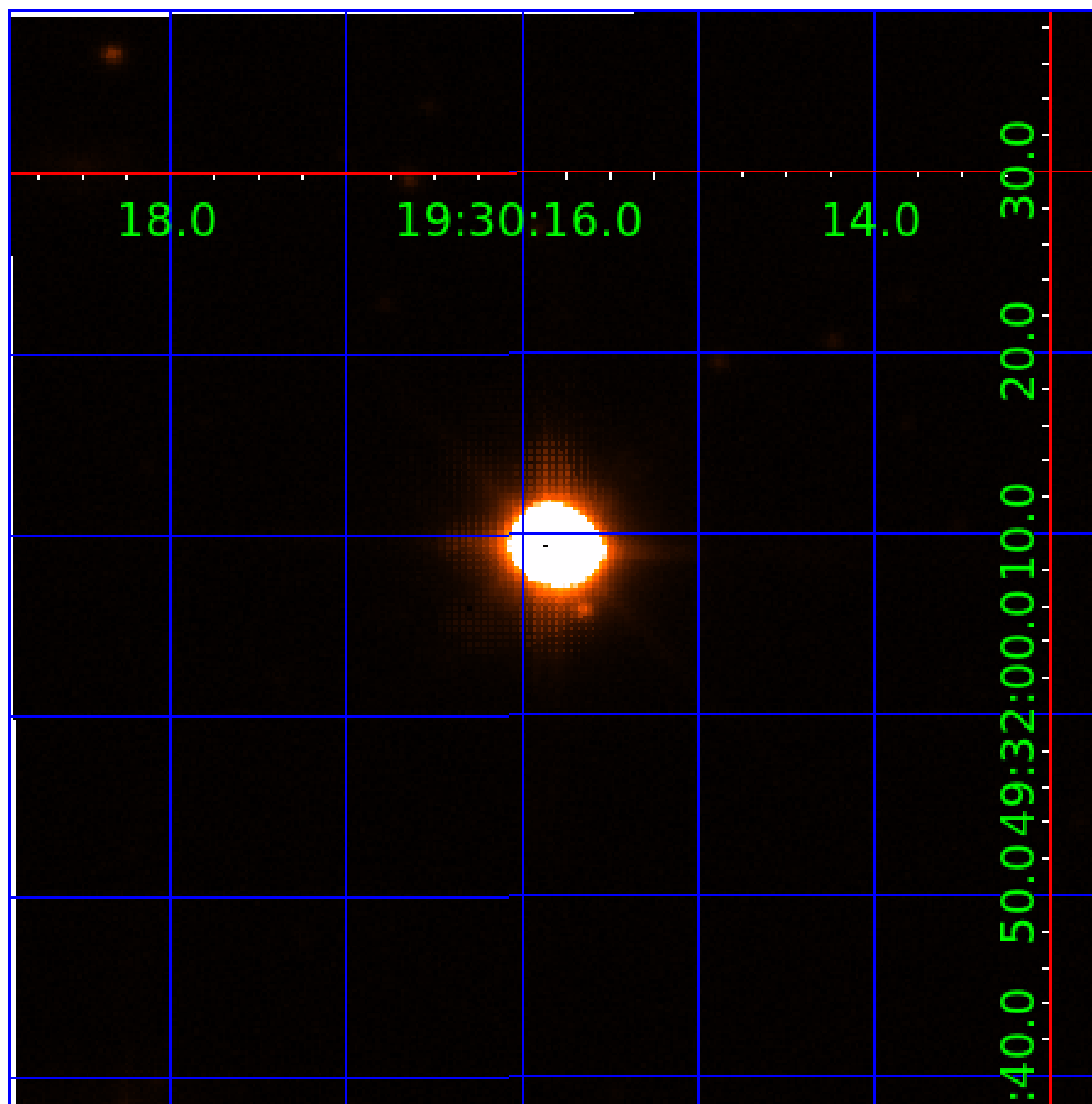


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 011560431

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})
011560431-01	OBS	No	673.939158	145.344887	58.3	4.369	18.4	1.1	0.83	5367	0.67	0.26
011560431-02	OBS	No	273.428668	216.325266	243.2	3.491	20.8	5.7	0.83	5367	1.58	0.86
011560431-03	OBS	7457.01	0.527675	131.824467	24.9	1.217	12.9	19.0	0.83	5367	0.50	3570.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011560431-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011560431-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_SATURATED
011560431-03	OBS	FP	0.00	0	0	0	1	CENT_SATURATED—EPHEM_MATCH

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

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

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

Ephemeris Match Information For 011560431-03

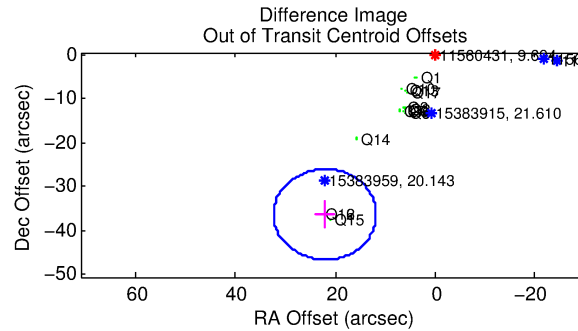
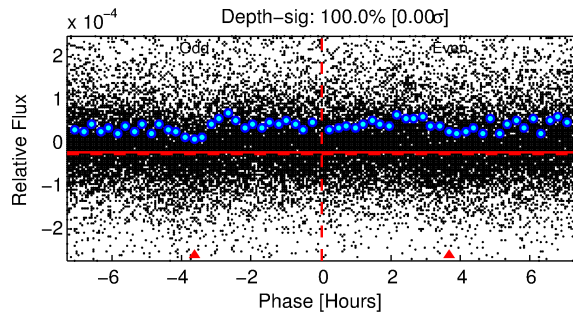
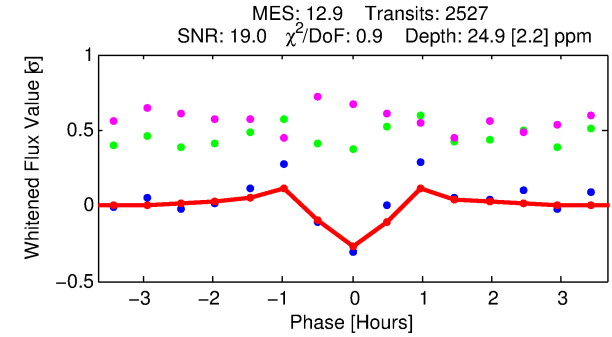
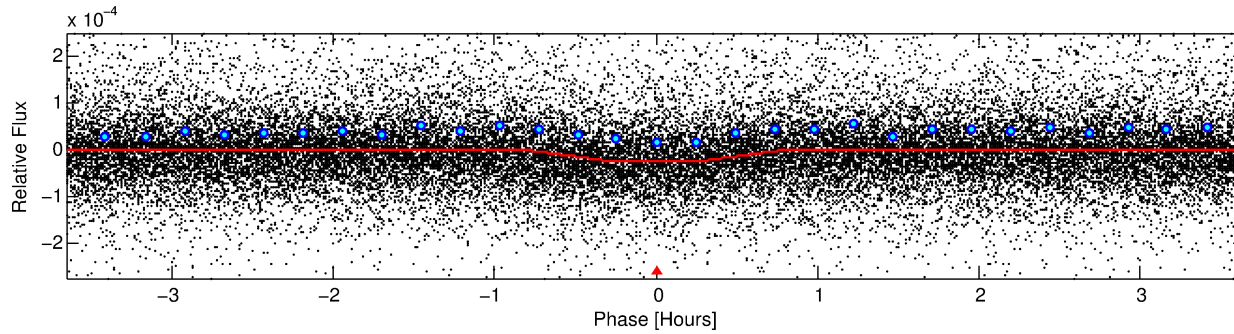
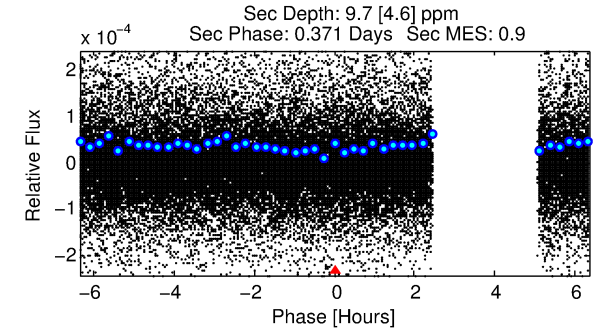
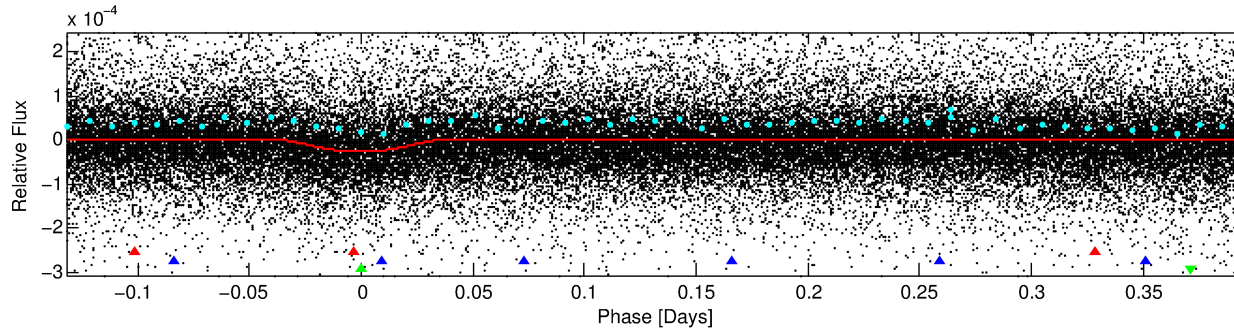
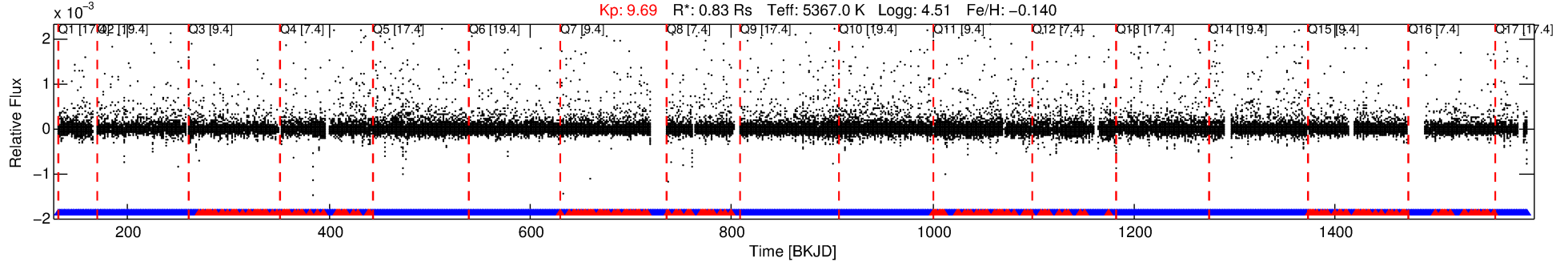
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
011560431-03	11560431	011560447-pri	11560447	1:1	43.1	-11	0	10.83	9.69	10412.00	Direct-PRF	0	0.82	1.19

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

DV One-Page Summary

KIC: 11560431 Candidate: 3 of 3 Period: 0.528 d
KOI: K07457.01 Corr: 0.869

Kp: 9.69 R*: 0.83 Rs Teff: 5367.0 K Logg: 4.51 Fe/H: -0.140



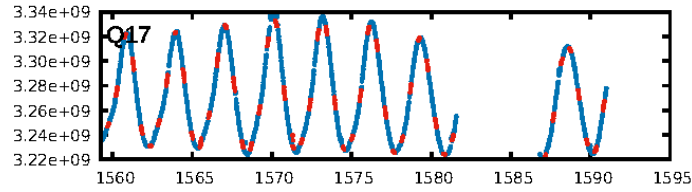
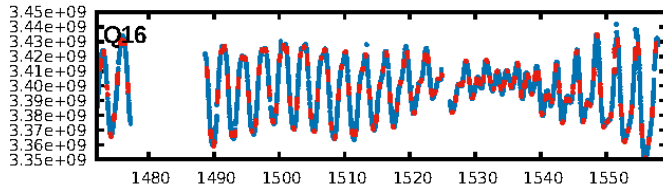
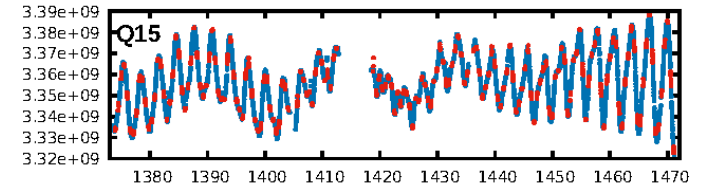
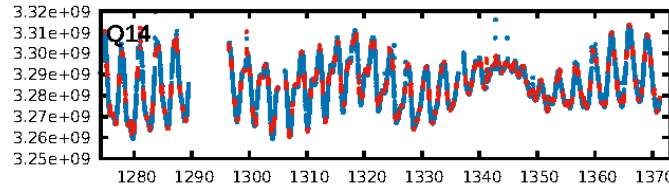
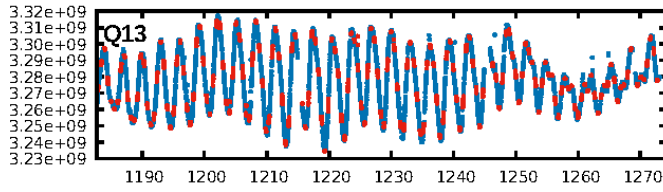
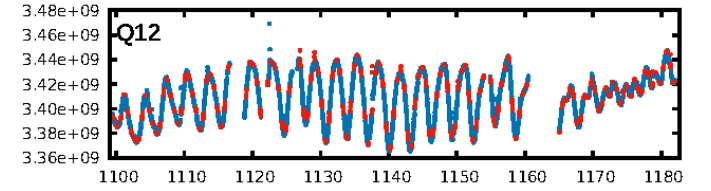
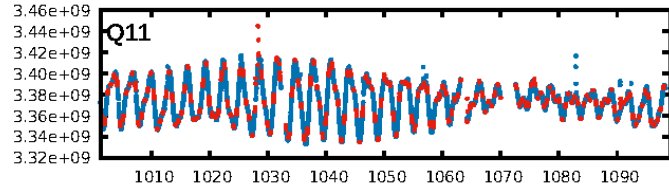
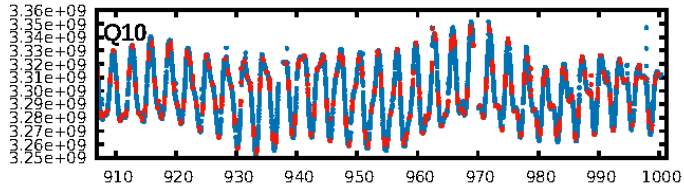
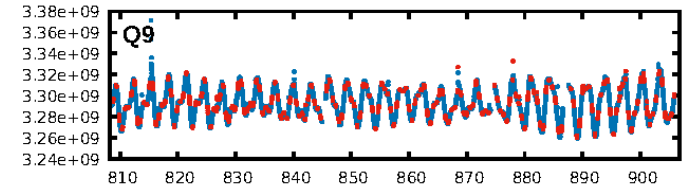
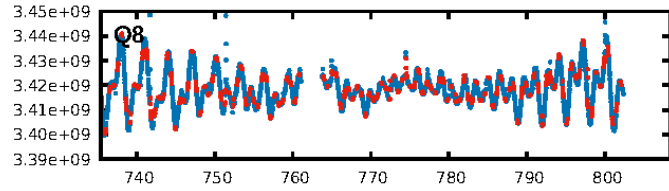
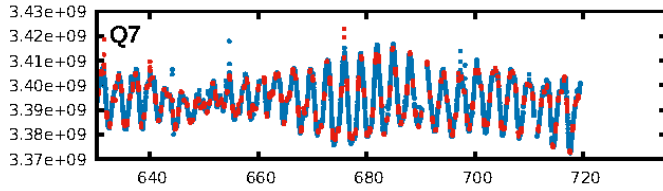
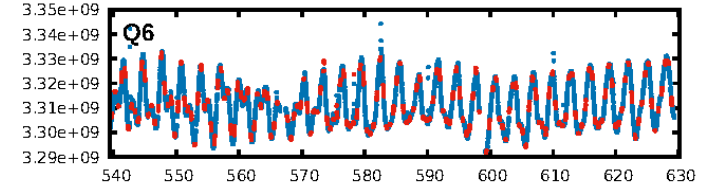
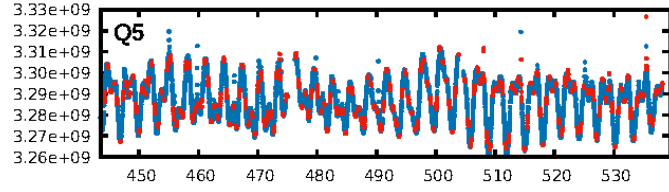
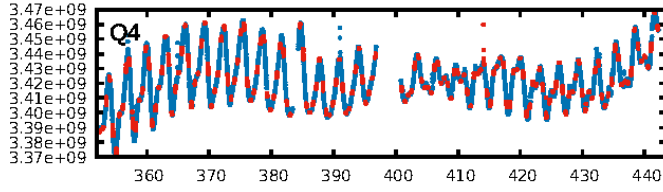
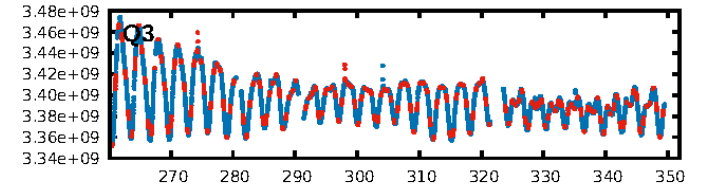
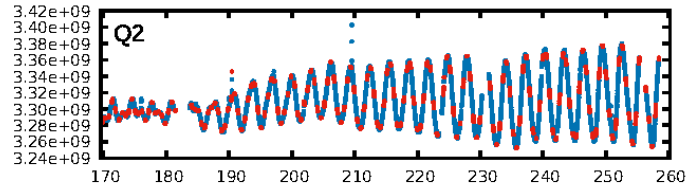
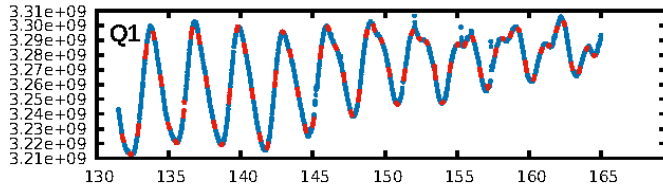
DV Fit Results:

Period = 0.52768 [0.00001] d
Epoch = 131.8245 [0.0008] BKJD
Rp/R* = 0.0055 [0.0007]
a/R* = 1.75 [0.67]
b = 0.90 [0.12]
Seff = 3570.14 [984.08]
Teq = 1971 [136] K
Rp = 0.50 [0.11] Re
a = 0.0119 [0.0018] AU
Ag = 3.06 [1.81] [1.14σ]
Teff = 4031 [573] K [3.50σ]

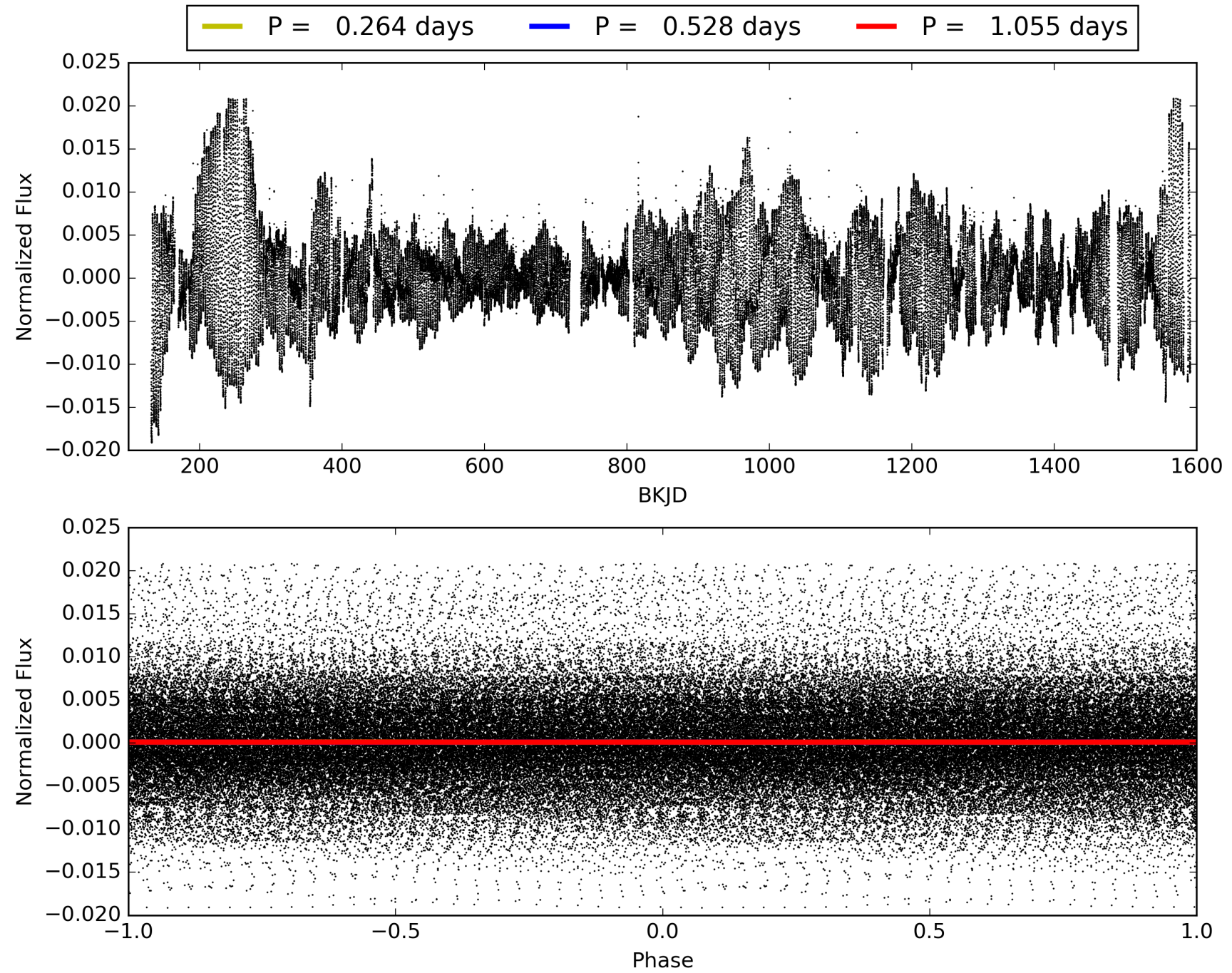
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1771.62σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.15e-43
RollingBand-fgt: 0.91 [2201/2415]
GhostDiagnostic-chr: N/A
Centroid-sig: 0.0%
Centroid-so: 6.237 arcsec [7.10σ]
OotOffset-rm: 42.494 arcsec [12.40σ]
KicOffset-rm: 42.357 arcsec [12.60σ]
OotOffset-st: 4/3/4/3 [14]
KicOffset-st: 4/3/4/3 [14]
DiffImageQuality-fgm: 0.29 [4/14]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 011560431-03, PDC Light Curves

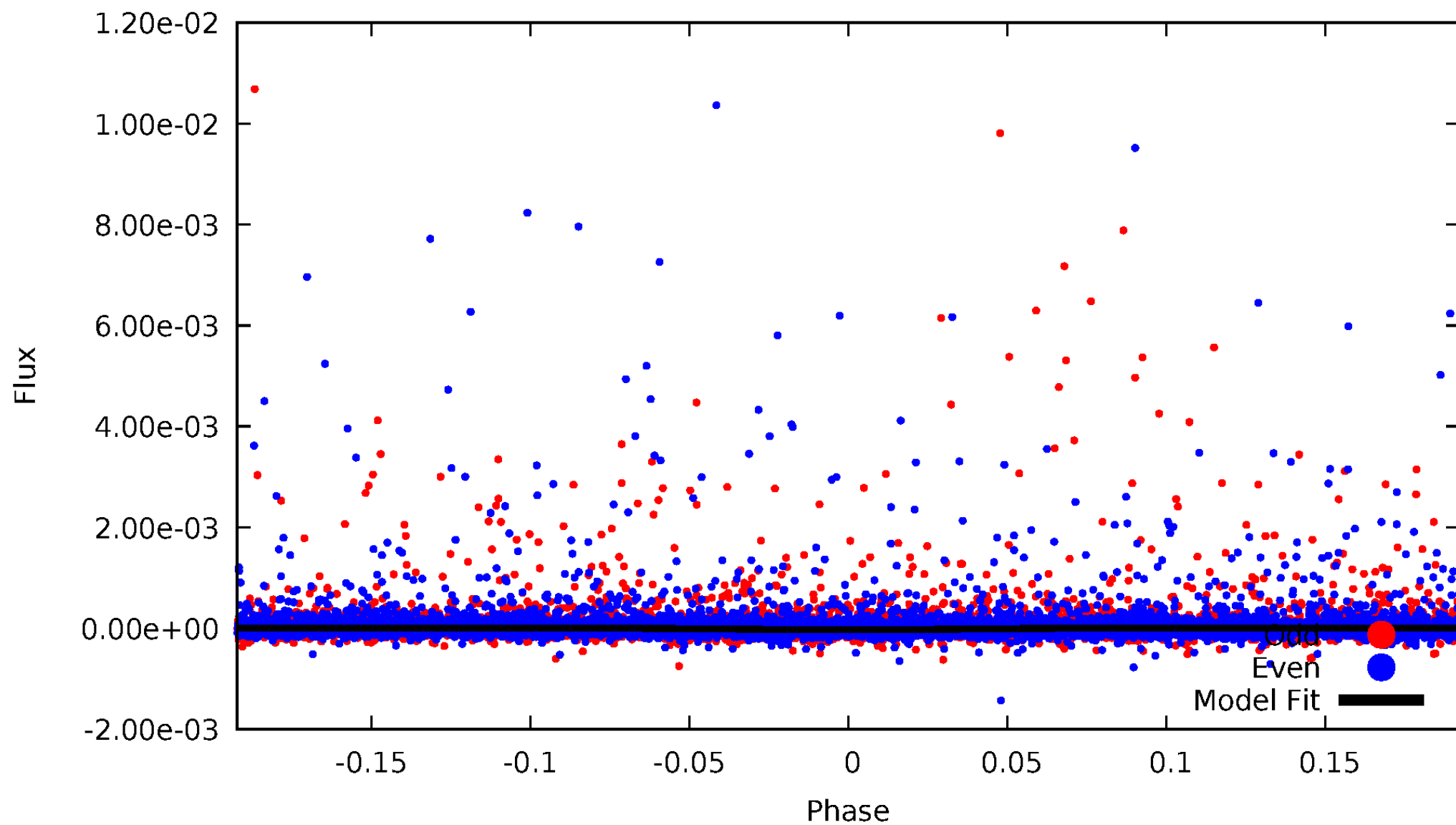


TCE 011560431-03



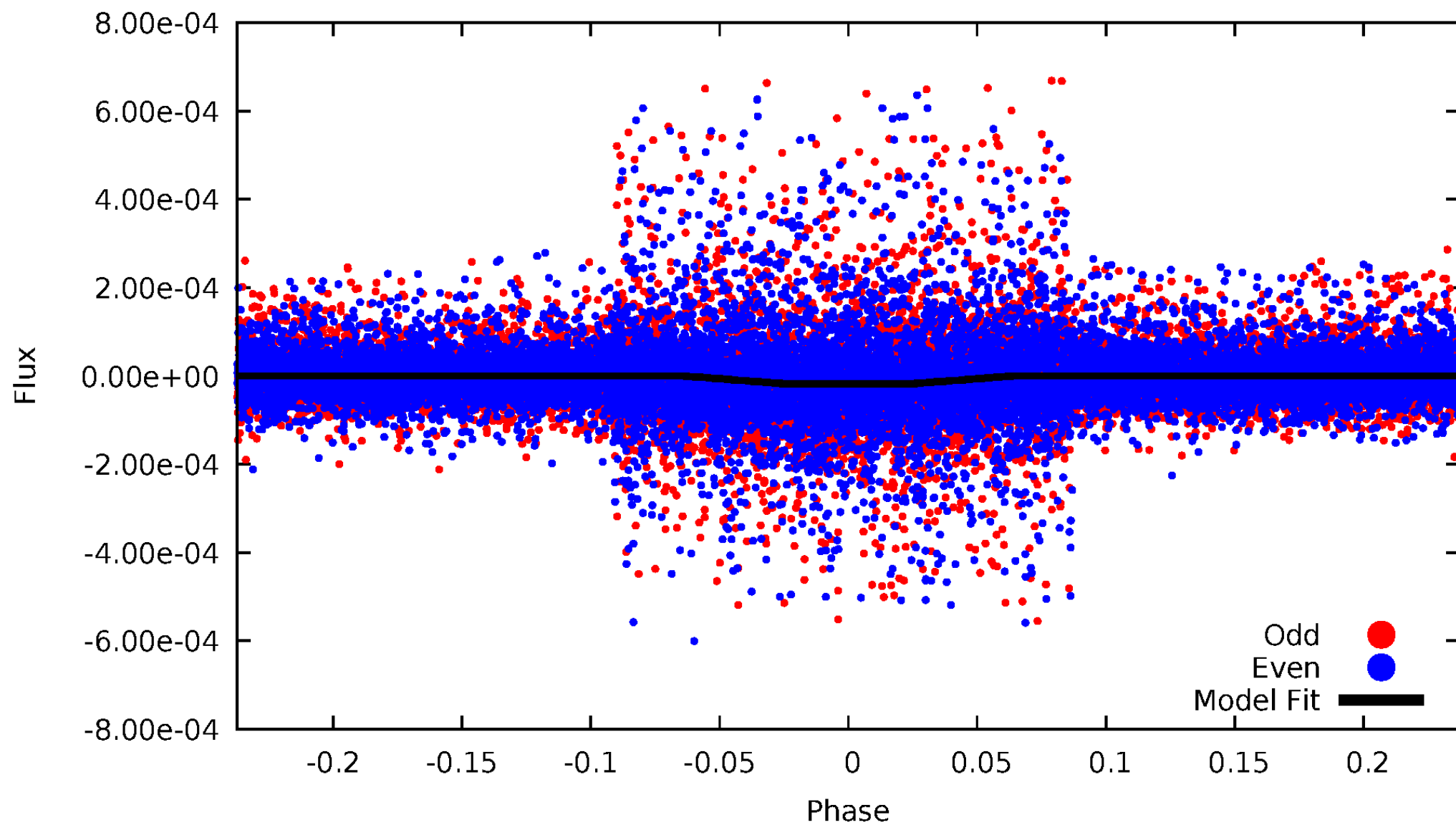
DV Odd/Even

TCE 011560431-03



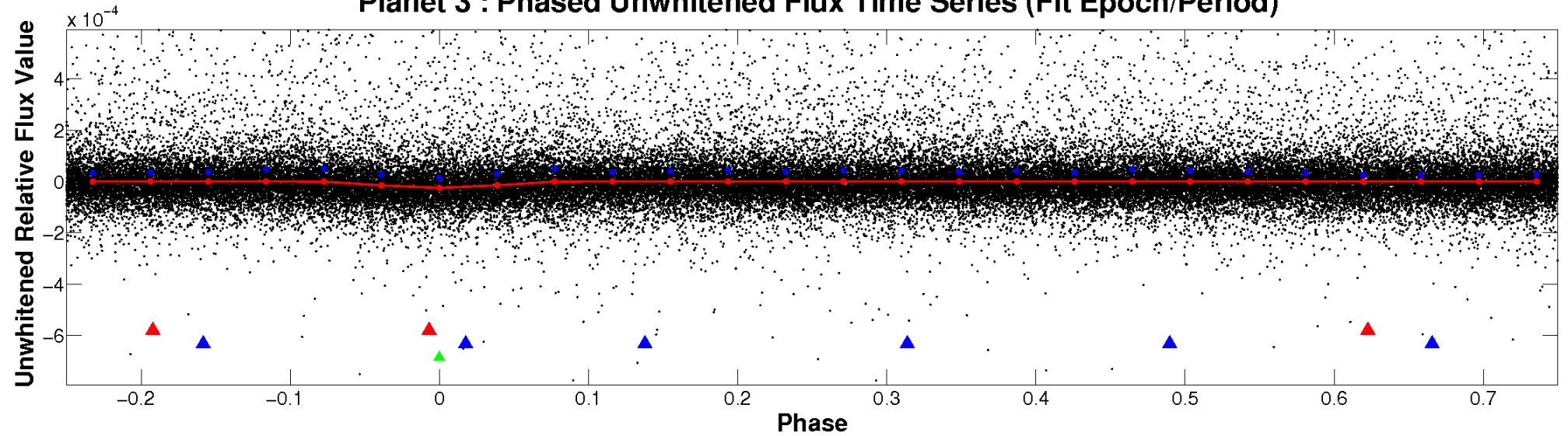
ALT Odd/Even

TCE 011560431-03

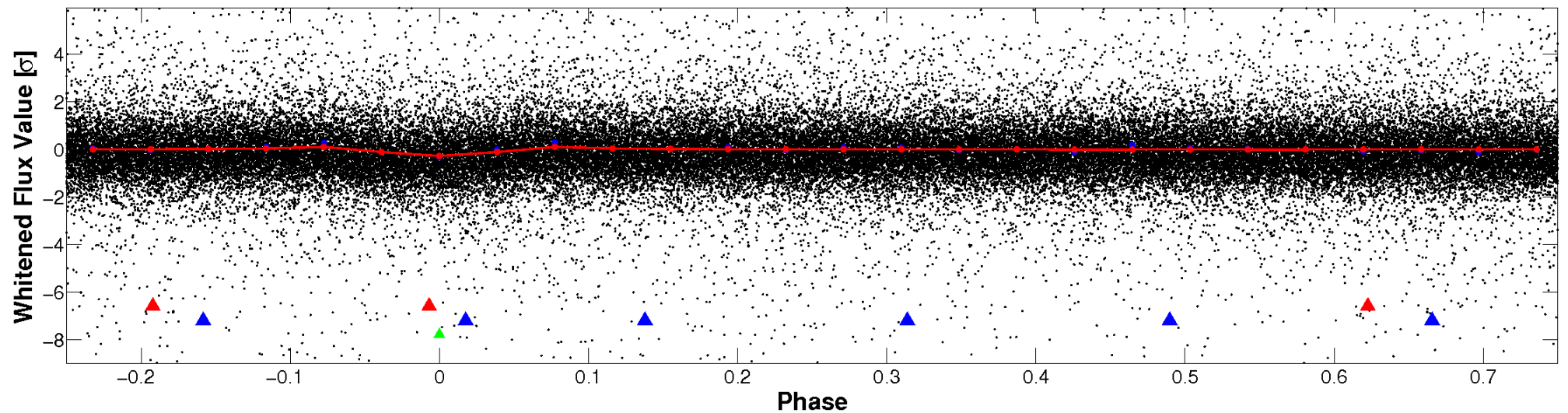


Non-Whitened Vs. Whitened Light Curve

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

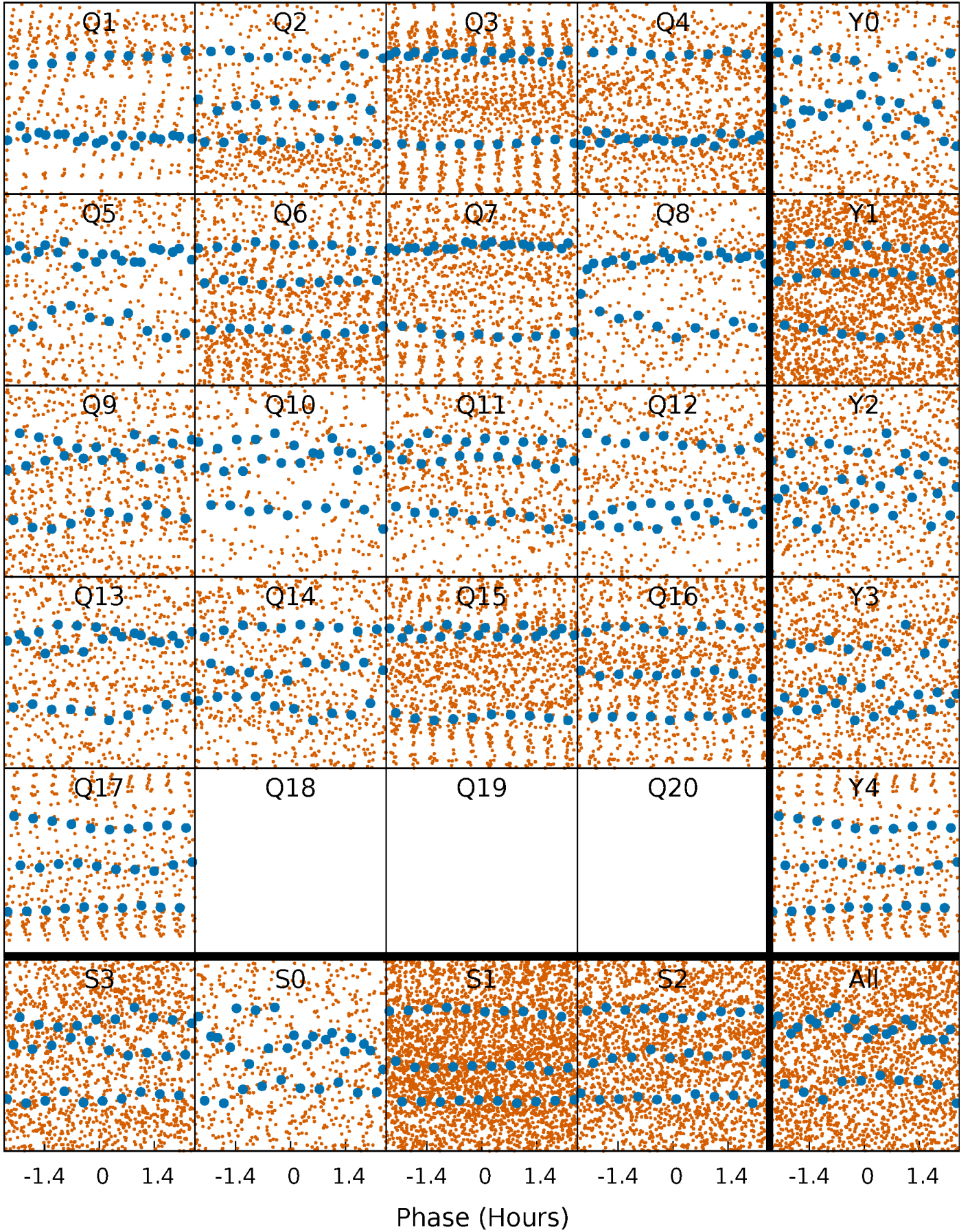


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



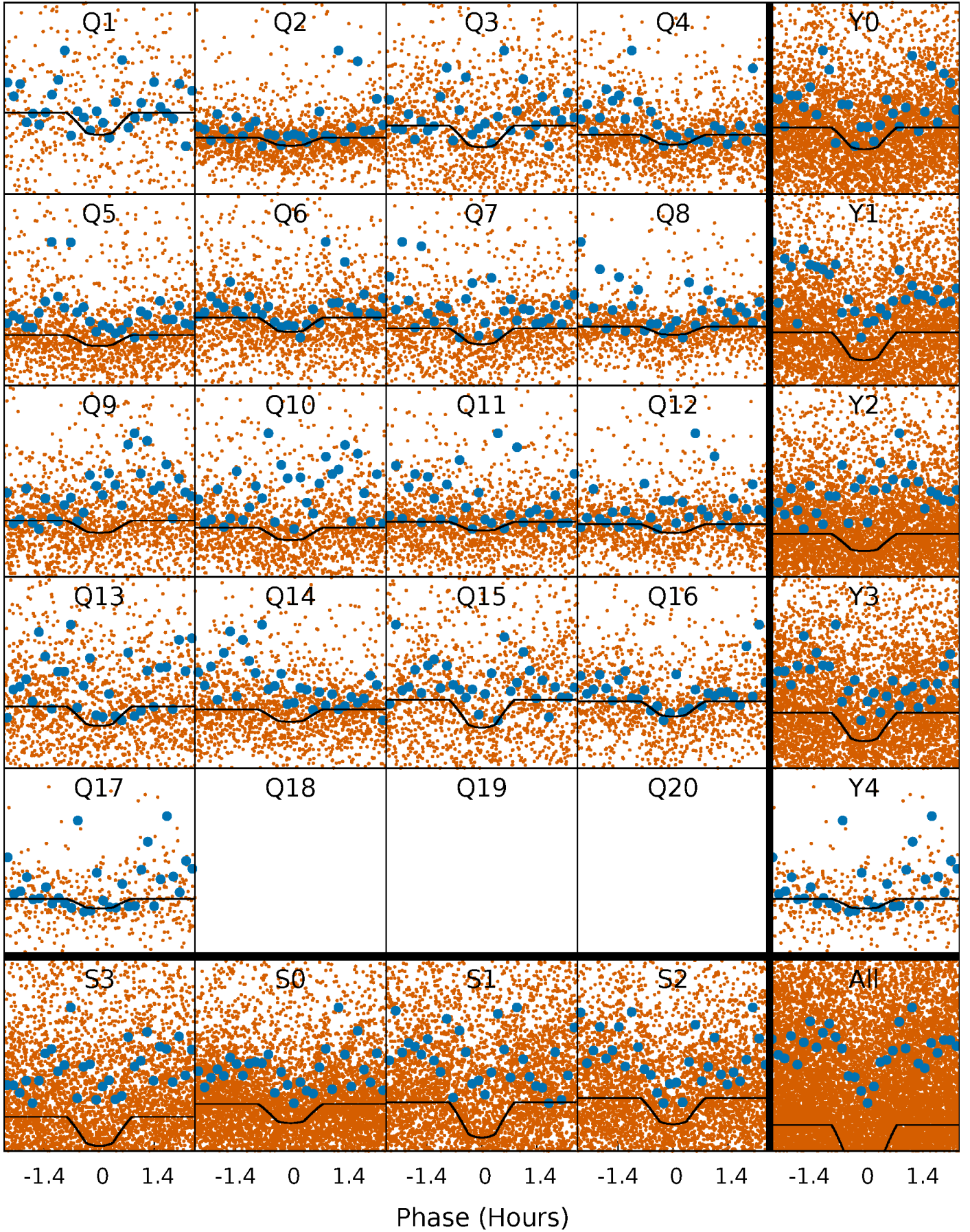
PDC Quarter-Phased Transit Curves

TCE 011560431-03 P= 0.527675 Days $T_0=131.824467$ (BKJD)



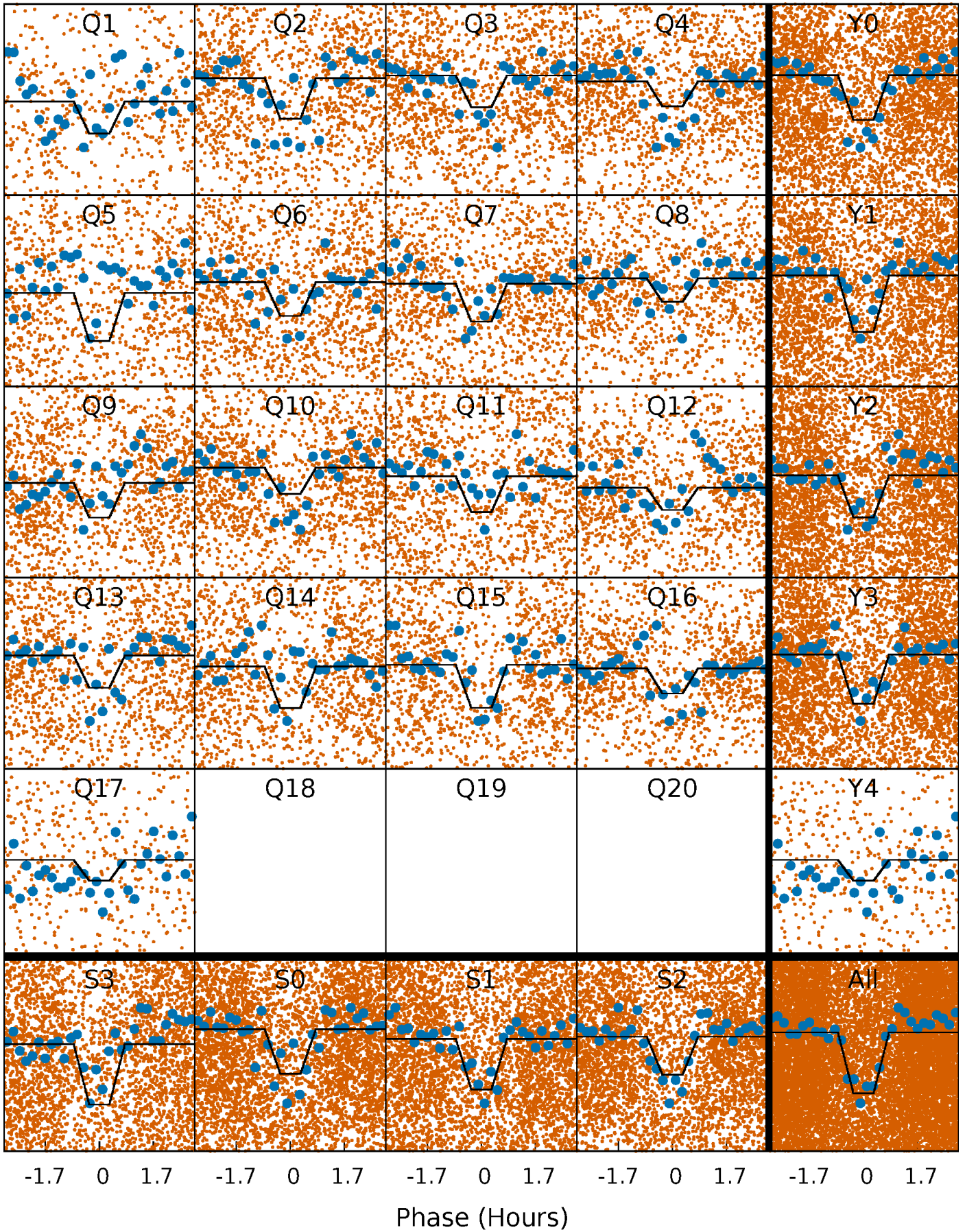
DV Quarter-Phased Transit Curves

TCE 011560431-03 P= 0.527675 Days $T_0=131.824467$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

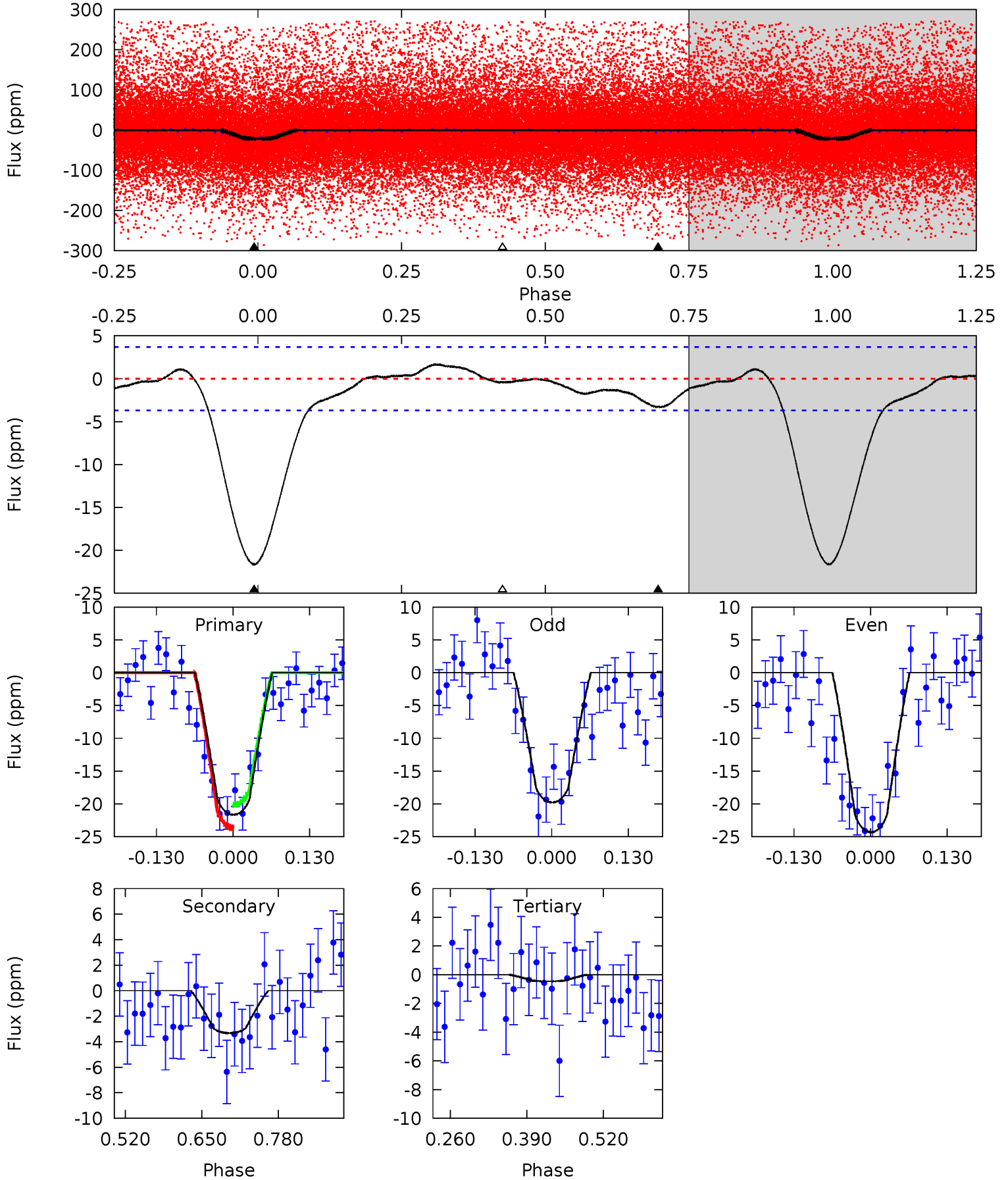
TCE 011560431-03 P= 0.527674 Days $T_0=131.819689$ (BKJD)



DV Model-Shift Uniqueness Test

011560431-03, P = 0.527675 Days, E = 131.296792 Days

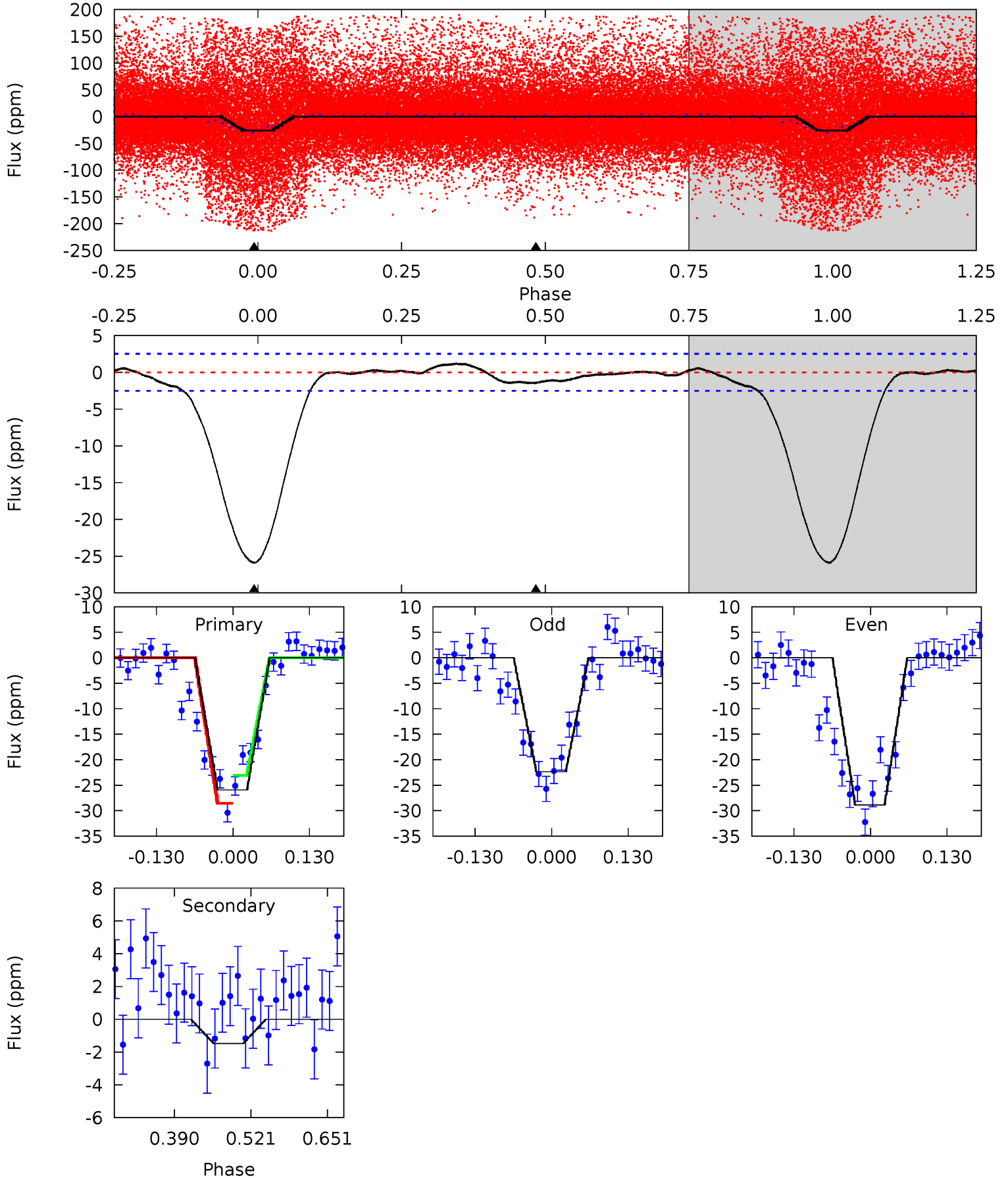
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.5	4.06	0.56	0	4.51	1.51	1.12	25.9	26.5	3.51	4.06	2.81	-1.36	0.07	0



Alt Model-Shift Uniqueness Test

011560431-03, P = 0.527674 Days, E = 131.292015 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
46.4	2.65	0	0	4.51	1.51	1.14	46.4	46.4	2.65	2.65	5.84	0.76	0.04	4.94



Stellar Parameters For KIC 011560431

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5367^{+212}_{-191}	$4.514^{+0.076}_{-0.124}$	$-0.140^{+0.300}_{-0.300}$	$0.828^{+0.151}_{-0.101}$	$0.817^{+0.104}_{-0.078}$	$2.027^{+0.668}_{-0.705}$
	+4%/-4%	+2%/-3%	+214%/-214%	+18%/-12%	+13%/-10%	+33%/-35%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 011560431-03 / KOI 7457.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3 ± 1	$0.50^{+0.09}_{-0.07}$	2786^{+158}_{-147}	3360^{+288}_{-285}	$1.015^{+0.548}_{-0.344}$
Alt.	-1 ± 1	$0.38^{+0.08}_{-0.07}$	2782^{+154}_{-139}	3128^{+427}_{-545}	$0.754^{+0.583}_{-0.352}$

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

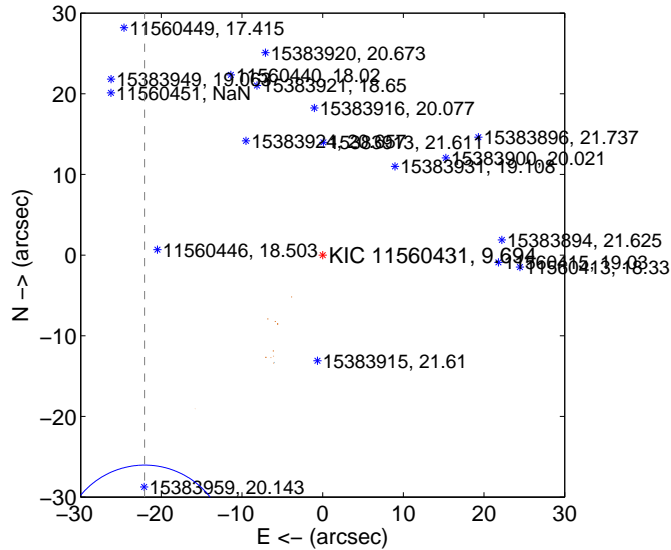
Supplemental centroid analysis for 011560431-03. **Kepler magnitude: 9.69.** Transit SNR 18.97

There are 4 quarters with good PRF difference image offsets

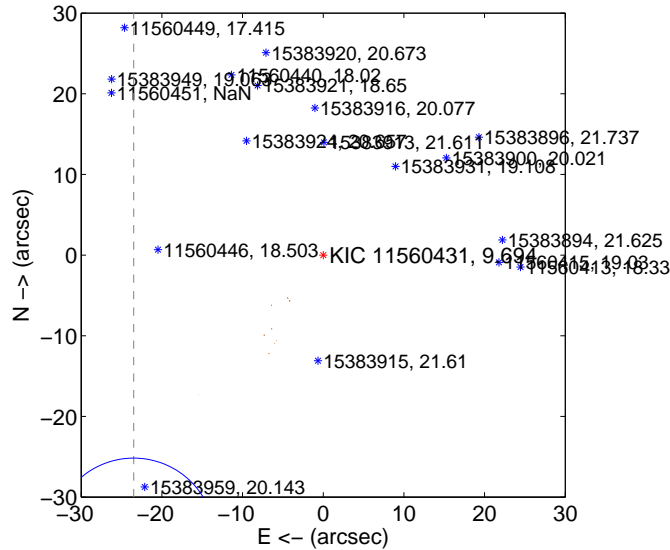
The OOT PRF centroid is offset from the target star catalog position by about 3.19 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	42.494 \pm 3.427	12.40	22.066 \pm 1.801	-36.315 \pm 2.938
PRF-fit source offset from KIC position	42.357 \pm 3.361	12.60	23.489 \pm 1.839	-35.248 \pm 2.832
photometric centroid source offset	6.24 \pm 0.88	7.10	5.03 \pm 0.78	-3.68 \pm 1.04

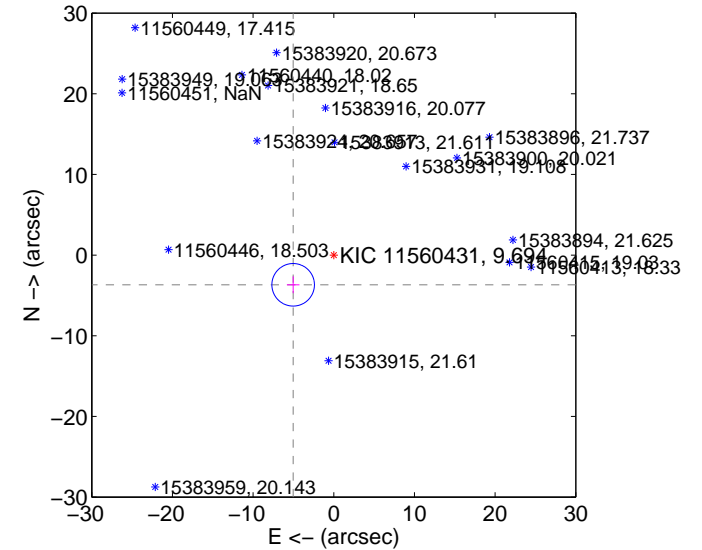
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

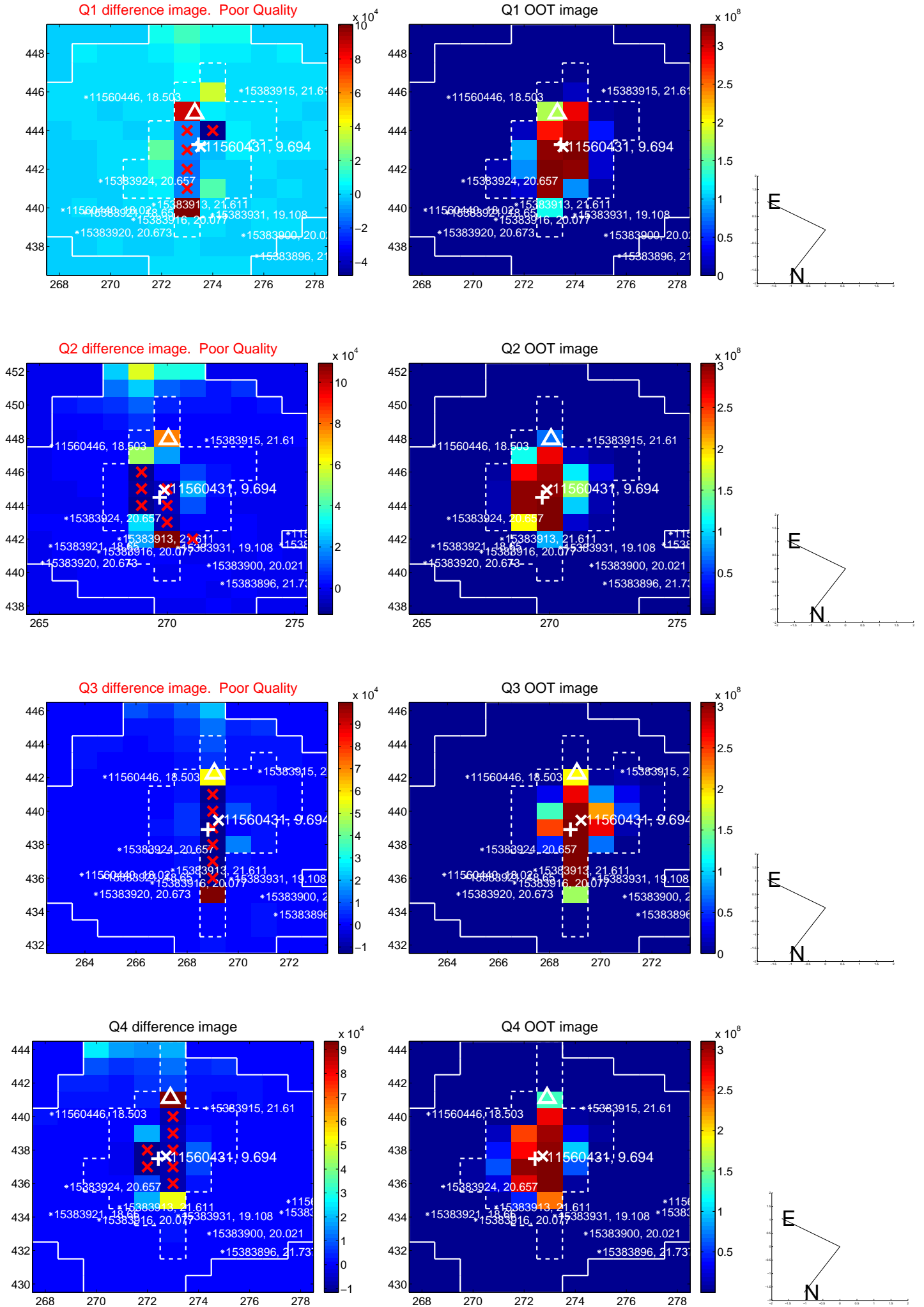


offset from photometric centroids

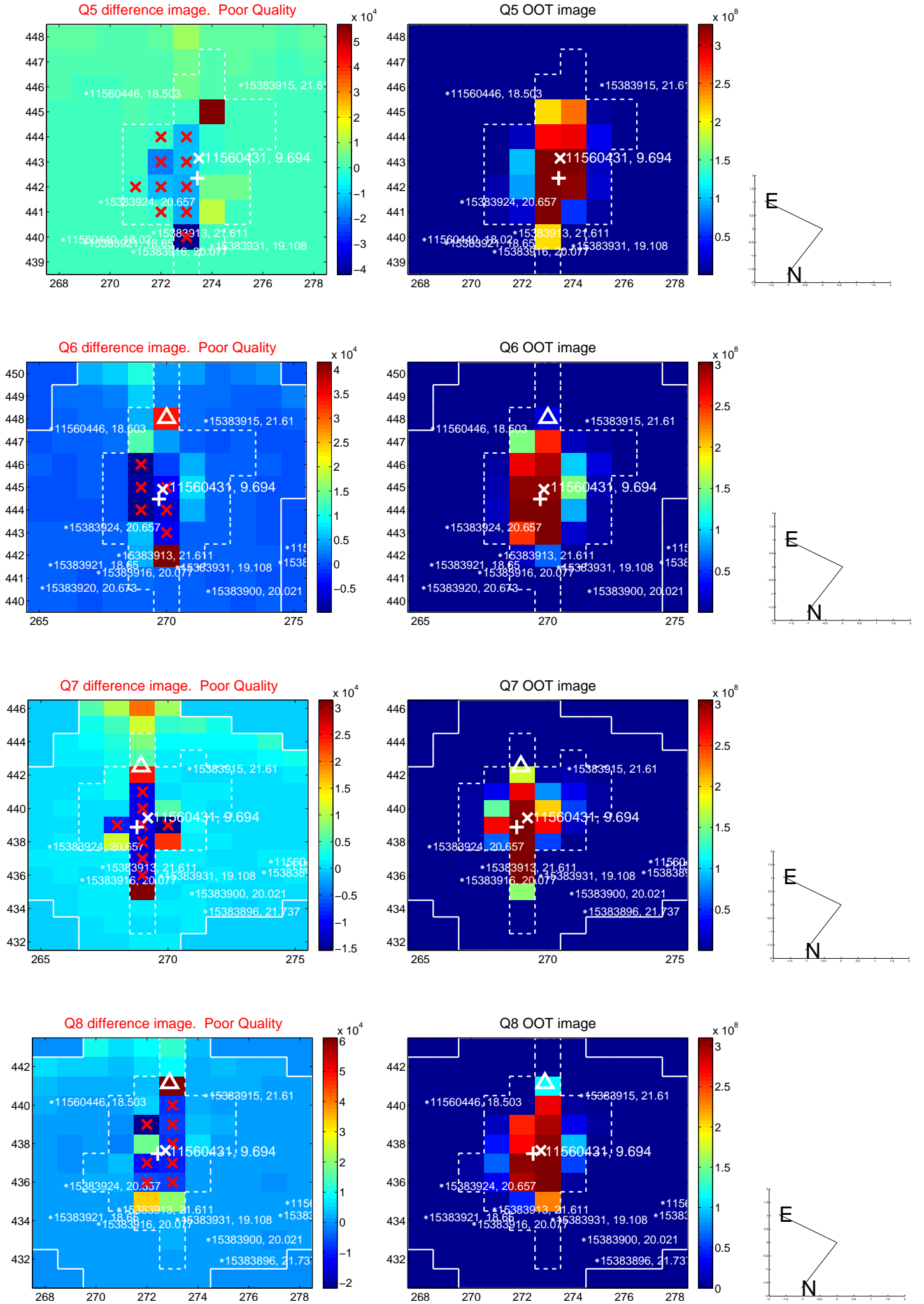


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

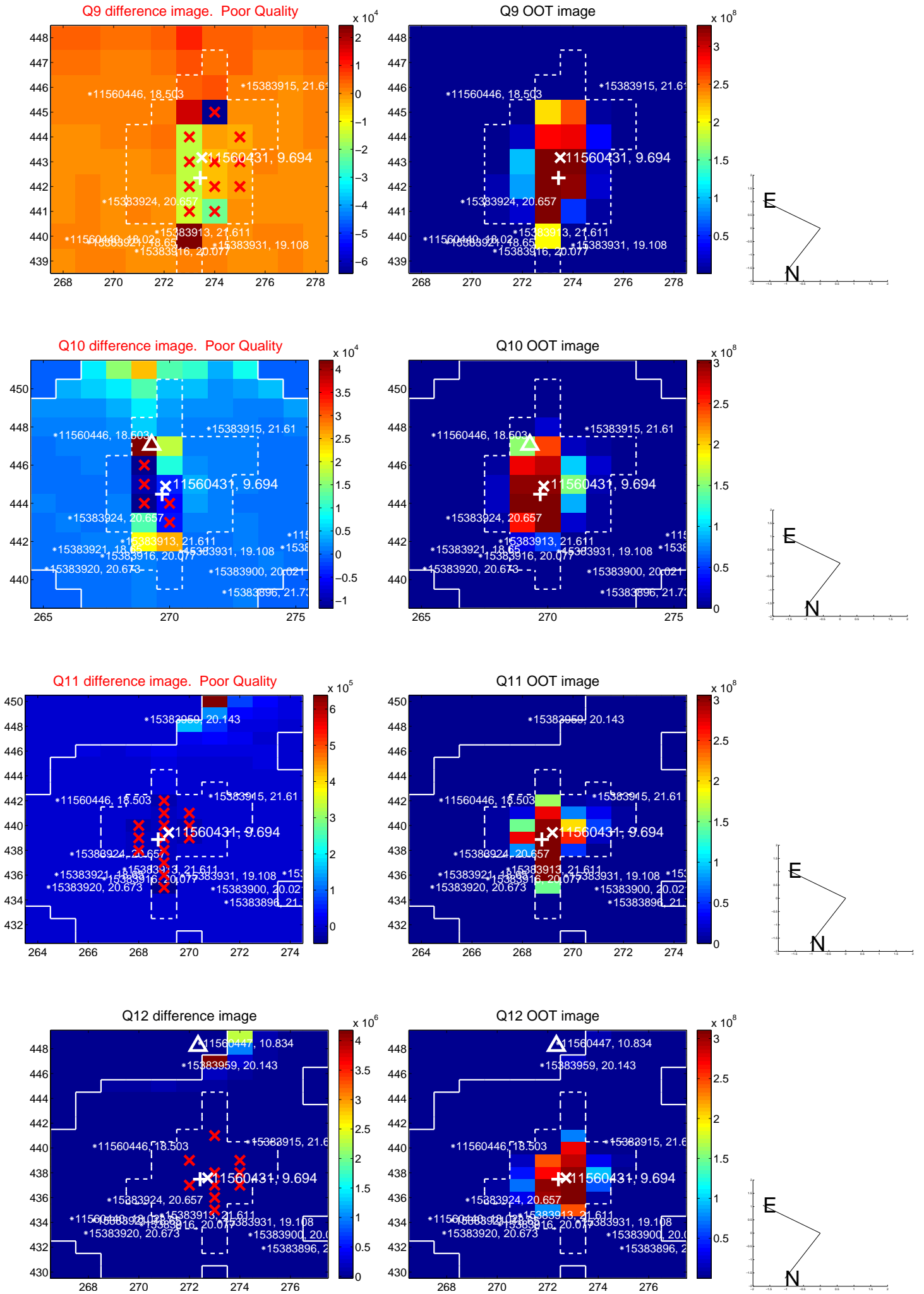
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



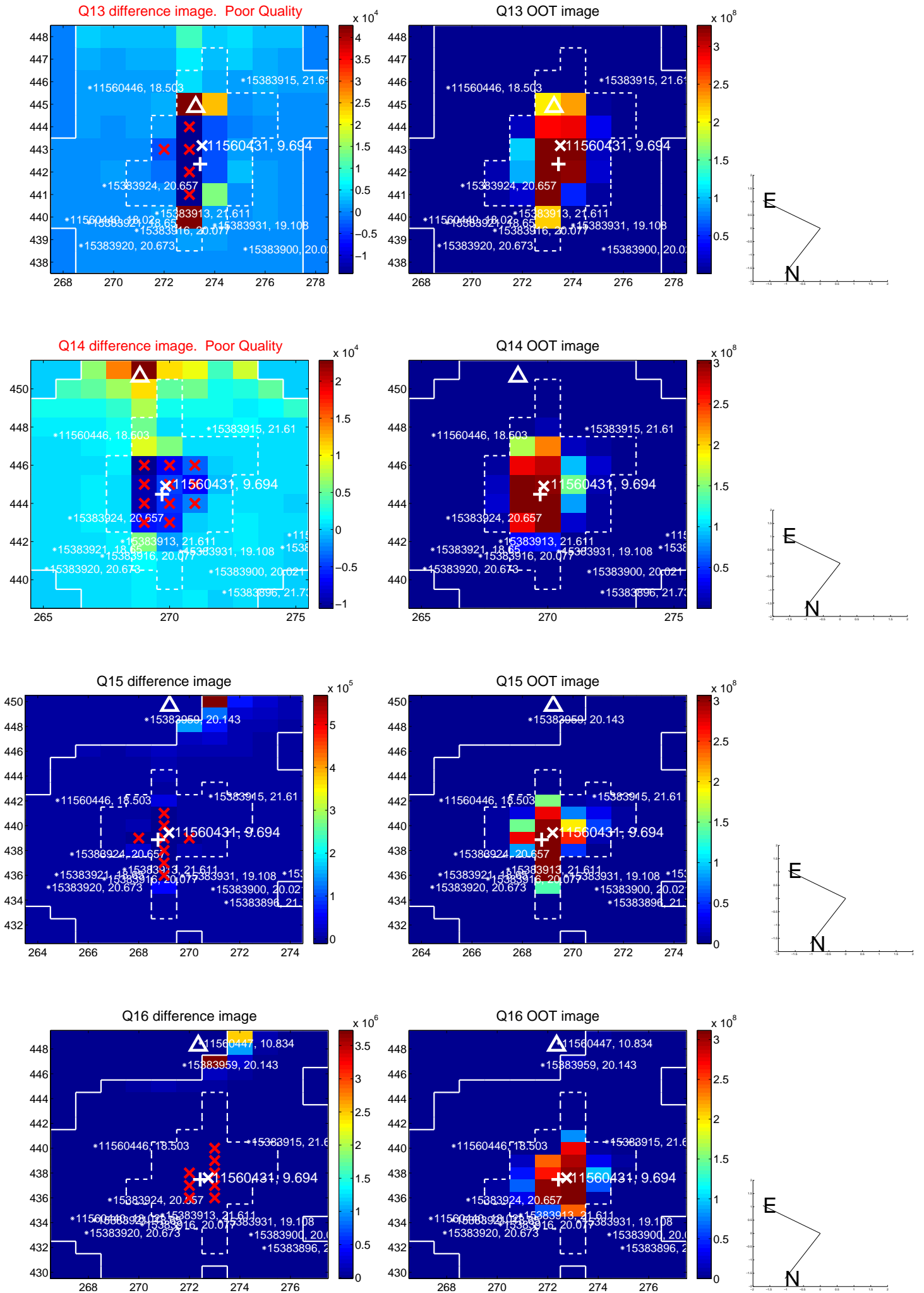
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



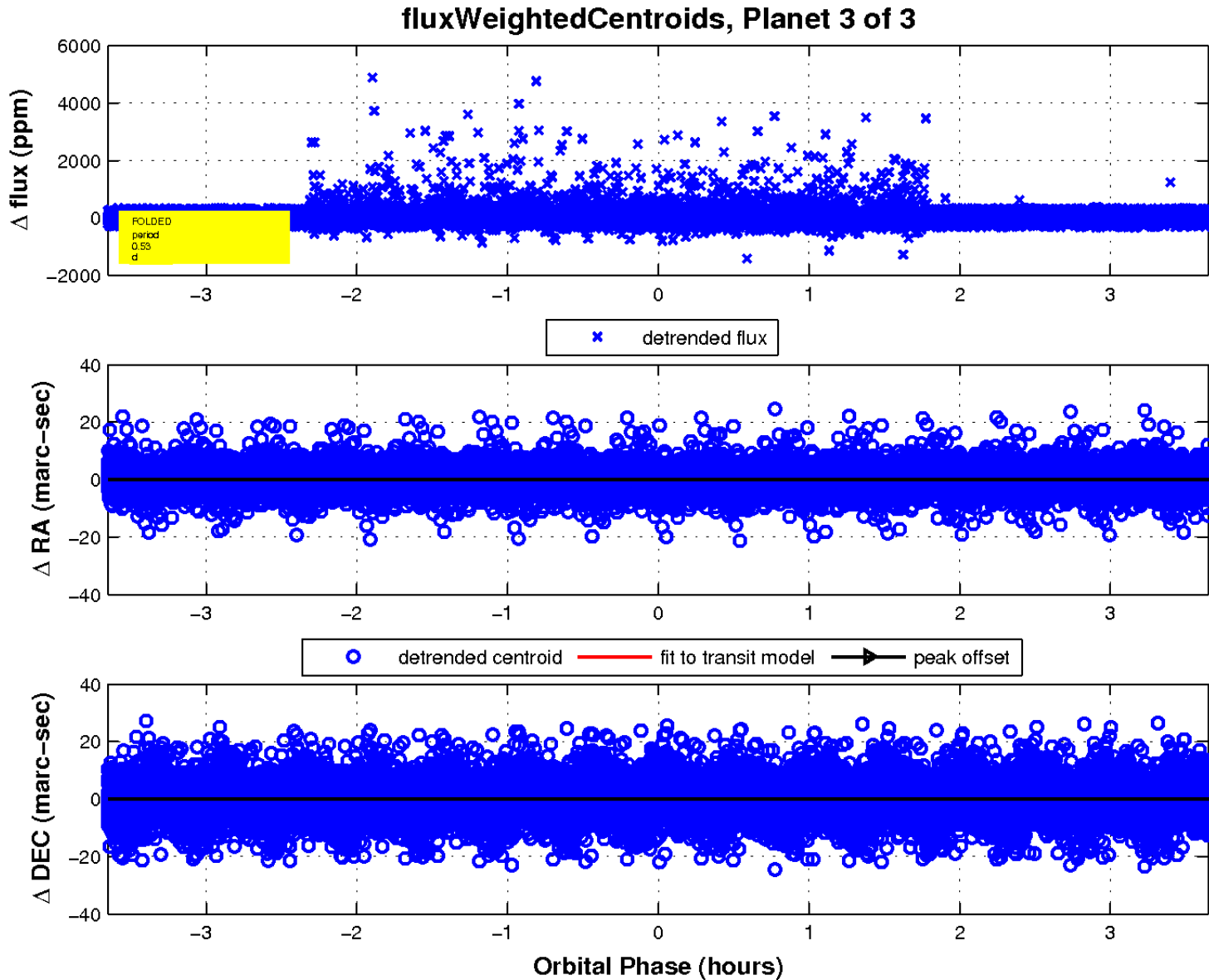
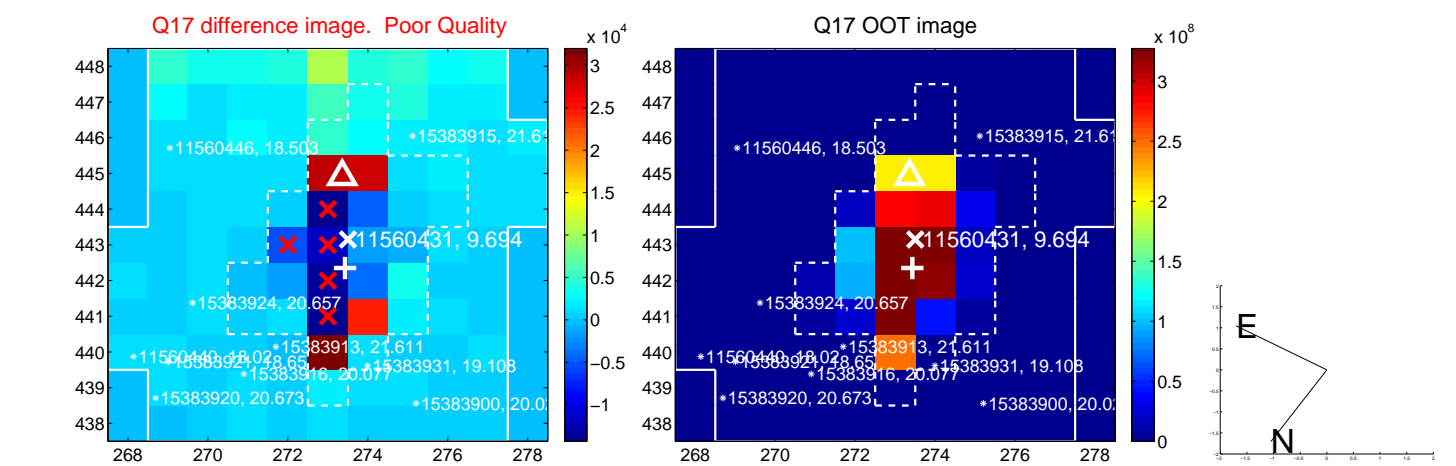
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

